BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	101	214
PROJ. FILE NO. 604688			

DRAINAGE & UTILITY PLAN

WHITE STREET

TRAPELO ROAD

WAVERLEY STREET

THAYER STREET

WHITE STREET

CONT. ON SHEET #102

CONT. ON SHEET #99

+43.2 LT CB
R=69.70
I=66.20

+45.8'-9.3'± LT DMH
R=69.70
I1=65.2±
I2=65.15
I3=65.1±
I4=65.15

+83.6'-11.2'± LT DMH
R=69.42
I1=65.02
I2=64.27
I3=64.27

14'-2x12" DIP(SIDE BY SIDE)
OR 14'-15" DIP

29'-21" RCP

SEE NOTE 1

ABANDONED 10" WATER
SEE NOTES 3,4

ABANDONED
6" WATER

ABANDONED 6" GAS

189'-12" RCP

14'-12" RCP

PROP. PLUGS

SEE NOTE 1

SEE NOTE 2

SEE NOTES 1, 3

133'-21" RCP

33'-12" RCP

65.16'

63.0'

REMOD

REM BO

ABANDONED
6" GAS

+86.1 RT CB
R=69.70
I=66.20

+42.4 RT CBCI
R=69.90
I=66.40

+07.3 RT CBCI
R=68.84 12'-12" RCP
I=65.34

R&S

PROP. MBTA
CAT POLE

R&S LT POLE BO
R&R LUMINAIRE TO CAT POLE BO

ABAN

+47.9 RT CBCI
R=68.35
I=64.85

3'-12" DIP

+55.1'-67.8'± RT DMH
R=68.48
I1=63.40
I2=63.40
I3=64.80

HOR. SCALE IN FEET
0 20 50 100

NOTES:

1. PROP TEST PIT. RELOCATE GAS LINE BO IF NECESSARY.

2. PROP TEST PIT. RELOCATE TELEPHONE DUCT BANK BO IF NECESSARY.

3. PROP TEST PIT. RELOCATE ELECTRICAL DUCT BANK BO IF NECESSARY.

4. PROP TEST PIT. RELOCATE WATER LINE IF NECESSARY.

5. THE INVERTS SHOWN ARE "PROPOSED" AND SHOWN FOR BIDDING PURPOSES ONLY. ACTUAL INVERT ELEVATIONS BILL BE CONFIRMED IN THE FIELD.

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	102	214
PROJ. FILE NO. 604688			

DRAINAGE & UTILITY PLAN

WAVERLEY STREET

HAWTHORNE STREET

TRAPELO ROAD

SYCAMORE STREET

CONT. ON SHEET # 103

CONT. ON SHEET # 101

+81.1–20.0 RT DMH
R=67.80
I1=64.10
I2=61.78
I3=64.10

+74.1 RT CBCI
R=67.70
I=64.20

+33.8–22.9 RT DMH
R=67.70
I1=61.30
I2=61.20
I3=63.05
I4=63.65

+59.7–35.4'± RT DMH
R=66.65
I1=60.90
I2=55.2±

+41.7–67.3'± LT DMH W/FLAT TOP
R=64.00
I1=60.3±
I2=60.3±

19'–18" RCP
20'–12" RCP

+29.1 LT CB TYPE 3
R=63.35
I1=59.85
I2=59.95

ABANDONED 6" WATER

+91.9 LT GICI
R=63.55
I=61.05

36'–10" DIP
R&R HYD

ABAN

SEE NOTE 2

REMOD

PROP PLUGS (TYP.)

ABANDONED 4" GAS
ABANDONED 6" GAS

ABANDONED 8" WATER

+75.7 LT CB
R=63.60
I=60.10

14'–12" RCP

+06.6 LT CBCI
R=64.55
I=61.05

CIT

PROP. PLUGS

REM BO

PROP 14'–6" DICL

PROP (2) 45° BENDS

SEE NOTE 1

3'–12" RCP

4'–12"RCP

PROP. PLUG (TYP.)

5'–12" RCP

SEE NOTE 3

204'–12" RCP

189'–12" RCP

48'–12" RCP

3'–12" RCP

+99.0–39'± RT CB
R=67.27
I=63.77

33'–12" RCP

24'–12" RCP

32'–12" RCP

+26.5 RT CB
R=67.00
I=63.50

+58.0–28.3 RT DMH
R=64.20
I1=58.75
I2=62.5±
I3=59.90

73'–12"RCP

+66.4 RT CB
R=63.45
I=59.95

+28.9 RT CBCI
R=62.80
I=59.30

+35.4–28.5 RT DMH
R=63.40
I1=59.25
I2=58.38
I3=58.28

9'–12" RCP

+46.9–21.8 RT DMH
R=62.73
I1=58.23
I2=56.33
I3=58.23

PROP. MBTA POLE PROTECTION

+86.1 RT CB
R=69.70
I=66.20

ADJ BO

ADJ

RET

ABANDONED 6" GAS

HOR. SCALE IN FEET
0 20 50 100

NOTES:

1. PROP TEST PIT. RELOCATE ELECTRICAL DUCT BANK BO IF NECESSARY.

2. PROP TEST PIT. RELOCATE GAS LINE BO IF NECESSARY.

3. PROP TEST PIT. RELOCATE MBTA DUCTS IF NECESSARY.

4. THE INVERTS SHOWN ARE "PROPOSED" AND SHOWN FOR BIDDING PURPOSES ONLY. ACTUAL INVERT ELEVATIONS BILL BE CONFIRMED IN THE FIELD.

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	103	214
PROJ. FILE NO. 604688			

DRAINAGE & UTILITY PLAN

TRAPELO ROAD
DAVIS STREET
MAPLE STREET
BEECH STREET

ABANDONED 4" GAS
ABANDONED 6" GAS
ABANDONED 8" WATER
ADJ BO
RET
ADJ
L55.8 R=68.55 I1=62.05 I2=64.65 I3=62.15
23.0' RT DMH
204'-12" RCP
SEE NOTES 1,2,&3
ABANDONED 2" WATER
+90.3 RT CBCI R=69.10 I=65.60
30'-12" RCP
15'-12" RCP
23'-12" RCP
+83.0-61.4' RT CBCI R=69.35 I=65.85
SEE NOTE 2
+66.7-39.2' RT DMH R=68.78 I1=62.55 I2=65.25 I3=64.30
21'-12" RCP
+40.7-46.6 RT CBCI R=68.10 I=64.60
PROP 22'-6" DICL
PROP (2) 45° BENDS
R&R HYD
53 ADJ
ABANDONED 2" AND 6" WATER
REMOD
43'-12" RCP
+57.9 LT CBCI R=73.55 I=70.05
ABANDONED 8" WATER
R&R FIRE
ALARM BOX (BO)
PROP. PLUGS
SEE NOTE 1
65'-12" RCP
+95.5 - 23.4'± RT DMH R=73.30 I1=66.8± I2=66.90 I3=66.8±
+17.1 RT CB TYPE 3 R=73.80 I=70.30
40'-12" RCP
RELOCATE GAS LINE BO
29'-15" RCP
+51.9 - 25.3'± RT DMH R=73.67 I1=70.10 I2=67.14 I3=67.04

CONT. ON SHEET # 102
CONT. ON SHEET # 104

NOTES:

1. PROP TEST PIT. RELOCATE ELECTRICAL DUCT BANK BO IF NECESSARY.

2. PROP TEST PIT. RELOCATE GAS LINE BO IF NECESSARY.

3. PROP TEST PIT. RELOCATE CABLE DUCTS IF NECESSARY.

4. THE INVERTS SHOWN ARE "PROPOSED" AND SHOWN FOR BIDDING PURPOSES ONLY. ACTUAL INVERT ELEVATIONS BILL BE CONFIRMED IN THE FIELD.

HOR. SCALE IN FEET
0 20 50 100

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	104	214
PROJ. FILE NO. 604688			

DRAINAGE & UTILITY PLAN

BEECH STREET
TRAPELO ROAD
HULL STREET
WALNUT STREET
BEECH STREET

43'–12" RCP
+57.9 LT CBCI
R=73.55
I=70.05
ABANDONED 8" WATER
R&R FIRE ALARM BOX (BO)
ADJ BO
SEE NOTE 1
RELOCATE GAS LINE BO
SEE NOTE 1
65'–12" RCP
+95.5 – 23.4'± RT DMH
R=73.30
I1=66.8±
I2=66.90
I3=66.8±
SEE NOTE 3
+17.1 RT CB
TYPE 3
R=73.80
I=70.30
40'–12" RCP
+51.9 – 25.3'± RT DMH
R=73.67
I1=70.10
I2=67.14
I3=67.04
29'–15" RCP
PROP PLUG
PROP. PLUGS
SEE NOTE 2
+5.5 – 28.5'± LT DMH
R=73.37
I1=69.62
I2=69.35
I3=67.46
20'–12" RCP
+4.6–50.3'± LT CBCI
R=73.05
I=69.55
ABANDONED 6" GAS
217'–15" RCP
+18.5 RT CB
TYPE 3
R=71.55
I=68.05
+22.7 – 22.7'± RT DMH
R=71.75
I1=65.46
I2=65.36
I3=68.00
111'–21" RCP
3'–12" RCP
34'–15" RCP
+59.7 – 29.7'± RT DMH
R=71.70
I1=65.20
I2=66.0±
SEE NOTE 5
PROP. MBTA POLE PROTECTION
+77.7 – 24.6' RT DMH
R=71.00
I1=64.60
I2=64.50
PROP SERVICE BOX
105'–21" RCP
PROP 16"–8" DIP
PROP (4) 45° BENDS
+46.4 RT CB TYPE 3
R=70.48
I=66.98
38'–12" RCP
+88.8–25.9 RT DMH
R=70.30
I1=63.90
I2=66.60
I3=63.80
I4=65.6±
275'–24" RCP
ABANDONED 6" WATER
REMOD
R&R BO
ADJ BO
PROP TEST PIT
ADJ
RET
REM
ABAN
SEE NOTE 1
SEE NOTE 3
SEE NOTE 5

CONT. ON SHEET # 103
CONT. ON SHEET # 105

HOR. SCALE IN FEET
0 20 50 100

NOTES:

1. PROP TEST PIT. RELOCATE ELECTRICAL DUCT BANK BO IF NECESSARY.

2. PROP TEST PIT. RELOCATE GAS LINE BO IF NECESSARY.

3. PROP TEST PIT. RELOCATE MBTA ELECTRICAL DUCT BANK BO IF NECESSARY.

4. PROP TEST PIT. RELOCATE CABLE DUCTS IF NECESSARY.

5. PROP TEST PIT. RELOCATE WATER LINE IF NECESSARY

6. THE INVERTS SHOWN ARE "PROPOSED" AND SHOWN FOR BIDDING PURPOSES ONLY. ACTUAL INVERT ELEVATIONS BILL BE CONFIRMED IN THE FIELD.

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	105	214
PROJ. FILE NO. 604688			

DRAINAGE & UTILITY PLAN

TRAPELO ROAD

FLETT ROAD

PEQUOSSETTE PARK

HOR. SCALE IN FEET
0 20 50 100

[CONT. ON SHEET # 104]

[CONT. ON SHEET # 106]

NOTES:

1. PROP TEST PIT. RELOCATE ELECTRICAL DUCT BANK BO IF NECESSARY.

2. THE INVERTS SHOWN ARE "PROPOSED" AND SHOWN FOR BIDDING PURPOSES ONLY. ACTUAL INVERT ELEVATIONS BILL BE CONFIRMED IN THE FIELD.

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	106	214
PROJ. FILE NO. 604688			

DRAINAGE & UTILITY PLAN

CONT. ON SHEET # 107

CONT. ON SHEET # 105

NOTES:

1. PROP TEST PIT. RELOCATE ELECTRICAL DUCT BANK BO IF NECESSARY.

2. PROP TEST PIT. RELOCATE GAS LINE BO IF NECESSARY.

3. THE INVERTS SHOWN ARE "PROPOSED" AND SHOWN FOR BIDDING PURPOSES ONLY. ACTUAL INVERT ELEVATIONS BILL BE CONFIRMED IN THE FIELD.

HOR. SCALE IN FEET
0 20 50 100

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	107	214
PROJ. FILE NO. 604688			

DRAINAGE & UTILITY PLAN

GILBERT ROAD
TRAPELO ROAD
HARDING AVENUE
BARNARD ROAD
POPLAR STREET

+31.8–16.7± RT DMH
R=101.97
I1=95.27
I2=95.17
I3=95.67

CUT & PLUG ABANDONED 15" VCP DRAIN
EXTEND RETAINED DRAIN W/ 15" RCP

+54.9–32.2± LT DMH
R=109.80
I1=102.4±
I2=102.4±
I3=104.75

ABAN EXIST.
15" DRAIN

ABANDONED 6" GAS

43'–15" RCP

65'–15" RCP

+06.7–16.9± RT DMH
R=116.65
I1=107.9±
I2=108.7±
I3=112.60

PROP PLUGS (TYP.)

160'–27" RCP

51'–27" RCP

168'–27" RCP

2'–12" RCP

RELOCATE GAS
LINE BO

+82.7–27.1± LT DMH
R=123.10
I1=118.4±
I2=118.4±
I3=119.10
2'–12" RCP

+88.4 LT CBCI
R=122.80
I=119.30

21'–10" DICL
(4) 45° BENDS
10" GATE VALVE &
BOX

+29.1–17.2±
RT DMH
R=123.10
I1=118.4±
I2=118.4±
I3=119.10

SEE NOTE 1

+45.6 RT CBCI
TYPE 3
R=124.80
I=121.40

ABANDONED 6" WATER

56'–27" RCP

8'–12" RCP

+83.7–17.7± RT DMH
R=105.00
I1=97.1±
I2=97.6±
I3=101.50

5'–12" RCP
PROP PLUGS

+45.8 LT CBCI
R=108.28
I=104.78

PROP PLUG

48'–27"
RCP

7'–12" RCP

+88.7 RT CBCI
R=105.10
I=101.60

167'–27" RCP

+37.7–56.8'± RT CBCI
R=102.60
I=99.10

9'–12" RCP

+06.7 RT CBCI
R=116.40
I=112.90

ABANDONED 6" WATER

ABANDONED 6" WATER

CONT. ON SHEET # 108

CONT. ON SHEET # 106

NOTES:

1. PROP TEST PIT. RELOCATE ELECTRICAL DUCT BANK BO IF NECESSARY.

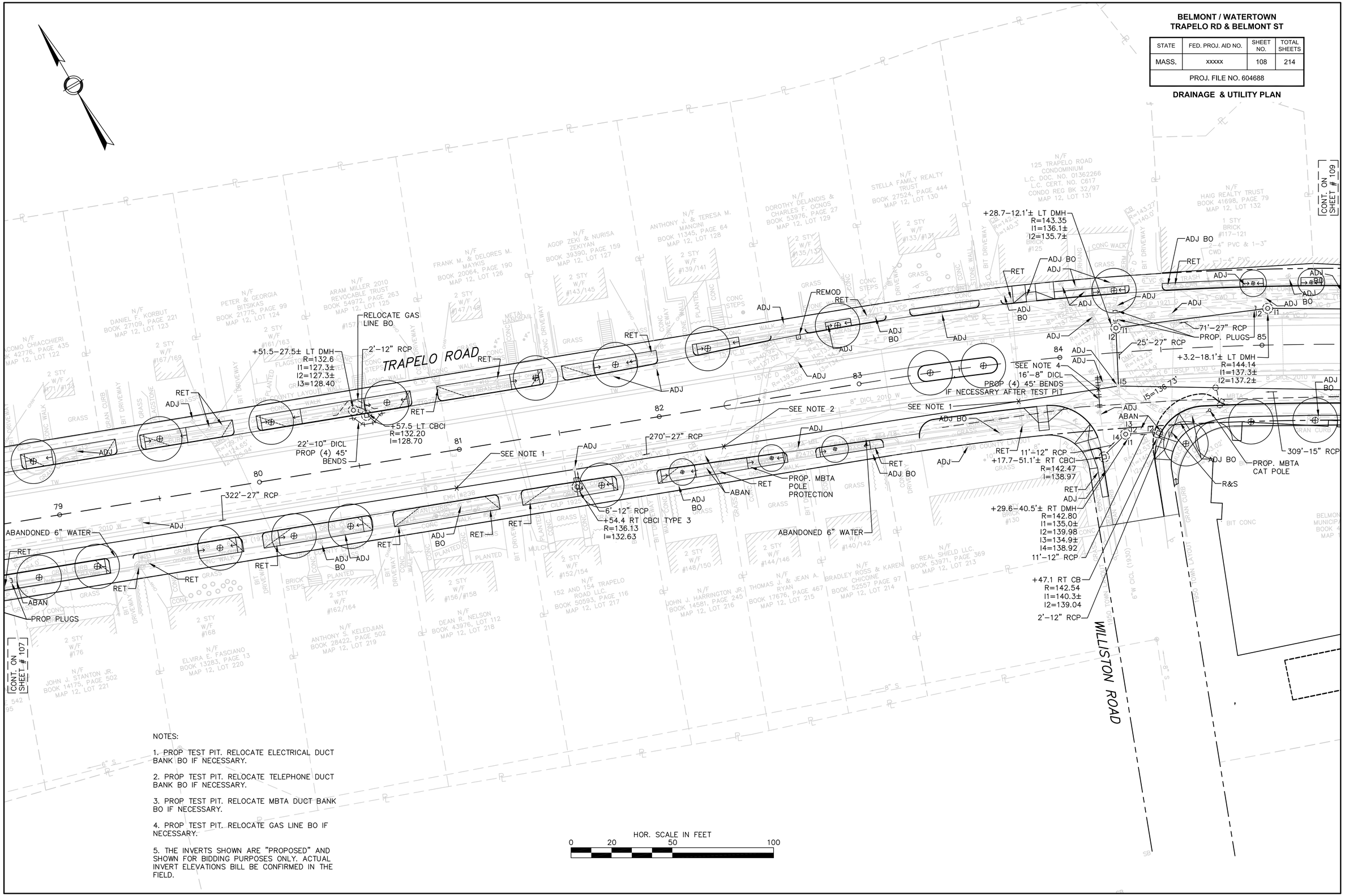
2. THE INVERTS SHOWN ARE "PROPOSED" AND SHOWN FOR BIDDING PURPOSES ONLY. ACTUAL INVERT ELEVATIONS BILL BE CONFIRMED IN THE FIELD.

HOR. SCALE IN FEET
0 20 50 100

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	108	214
PROJ. FILE NO. 604688			

DRAINAGE & UTILITY PLAN



NOTES:

1. PROP TEST PIT. RELOCATE ELECTRICAL DUCT BANK BO IF NECESSARY.

2. PROP TEST PIT. RELOCATE TELEPHONE DUCT BANK BO IF NECESSARY.

3. PROP TEST PIT. RELOCATE MBTA DUCT BANK BO IF NECESSARY.

4. PROP TEST PIT. RELOCATE GAS LINE BO IF NECESSARY.

5. THE INVERTS SHOWN ARE "PROPOSED" AND SHOWN FOR BIDDING PURPOSES ONLY. ACTUAL INVERT ELEVATIONS BILL BE CONFIRMED IN THE FIELD.

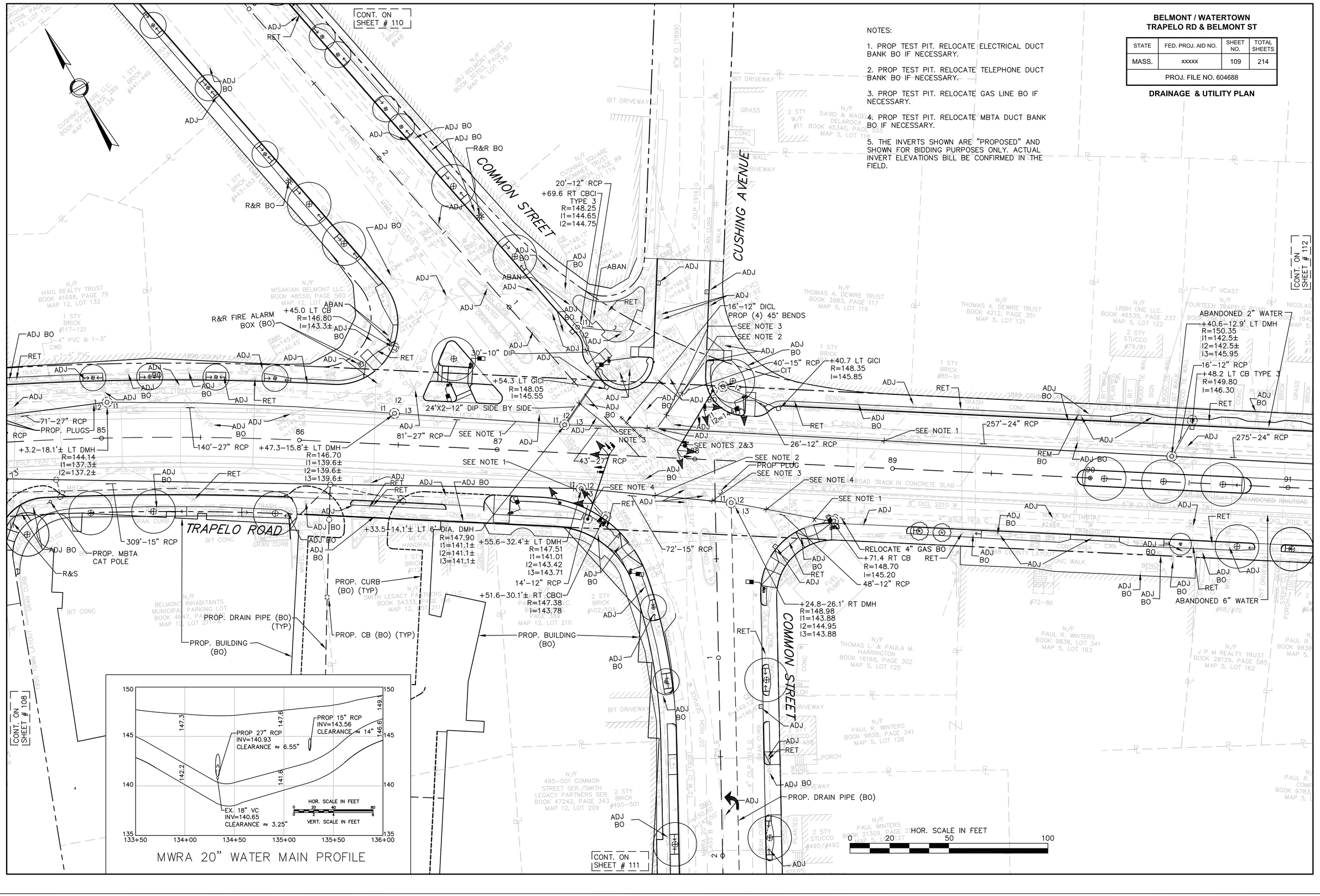
BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	109	214
PROJ. FILE NO. 604688			

DRAINAGE & UTILITY PLAN

NOTES:

1. PROP TEST PIT. RELOCATE ELECTRICAL DUCT BANK BO IF NECESSARY.
2. PROP TEST PIT. RELOCATE TELEPHONE DUCT BANK BO IF NECESSARY.
3. PROP TEST PIT. RELOCATE GAS LINE BO IF NECESSARY.
4. PROP TEST PIT. RELOCATE MBTA DUCT BANK BO IF NECESSARY.
5. THE INVERTS SHOWN ARE "PROPOSED" AND SHOWN FOR BIDDING PURPOSES ONLY. ACTUAL INVERT ELEVATIONS BILL BE CONFIRMED IN THE FIELD.



BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	110	214
PROJ. FILE NO. 604688			

DRAINAGE & UTILITY PLAN

NOTES:

1. THE INVERTS SHOWN ARE "PROPOSED" AND SHOWN FOR BIDDING PURPOSES ONLY. ACTUAL INVERT ELEVATIONS BILL BE CONFIRMED IN THE FIELD.

HOR. SCALE IN FEET
0 20 50 100

CONT. ON SHEET # 109

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	111	214
PROJ. FILE NO. 604688			

DRAINAGE & UTILITY PLAN

CONT. ON SHEET # 109

PROP. DMH (BO) (TYP)

PROP. CURB (BO) (TYP)

PROP. DRAIN PIPE (BO)

PROP. CB (BO) (TYP)

PROP. BUILDING (BO)

PROP. DRAIN PIPE (BO)

PROP. DRAIN PIPE (BO)

ADJ BO

ADJ

ADJ RET

ADJ BO

ADJ

ADJ

ADJ

ADJ

ADJ

ADJ

ADJ

ADJ

ADJ BO

R&R BO

ADJ

ADJ

RET SIGN

HORNE ROAD

BELMONT STREET

COMMON STREET

COMMON STREET

N/F 495-501 COMMON STREET SER./SMITH LEGACY PARTNERS SER. BOOK 47242, PAGE 343 MAP 12, LOT 209

2 STY BRICK #495-501

N/F 505-507 COMMON STREET LLC. BOOK 49728, PAGE 416 MAP 12, LOT 208

2 STY BRICK #505

N/F 527 COMMON STREET LLC. BOOK 49728, PAGE 483 MAP 12, LOT 233

2 STY BRICK #527

2 STY STUCCO #490/#492

N/F PAUL WINTERS BOOK 21309, PAGE 253 MAP 5, LOT 127

N/F GRIGORIAN BROTHERS CORPORATION BOOK 44528, PAGE 46 MAP 5, LOT 128

#494-500 COMMON STREET

N/F WILLIAM A. & MARINA BOOK GIANOUKOS BOOK 52466, PAGE 403 MAP 12, LOT 232

2 STY BRICK #569

#324 COMMON STREET

#192 LOVELL ROAD

N/F MARK R. KOHLER BOOK 49379, PAGE 295

4 STY BRICK #550

N/F JOHN C. & MARK S. CARRIG BOOK 41407, PAGE 308 MAP 1118A, LOT 26

N/F JIRAYER & SILVA V. TEKEIAN BOOK 11337, PAGE 83 MAP 1118A, LOT 14-15A

2 STY W/F #532

1 STY CONC BLK GARAGE

1910 COUNTY LAYOUT

1910 COUNTY LAYOUT

1910 COUNTY LAYOUT

1891 COUNTY LAYOUT

NOTES:

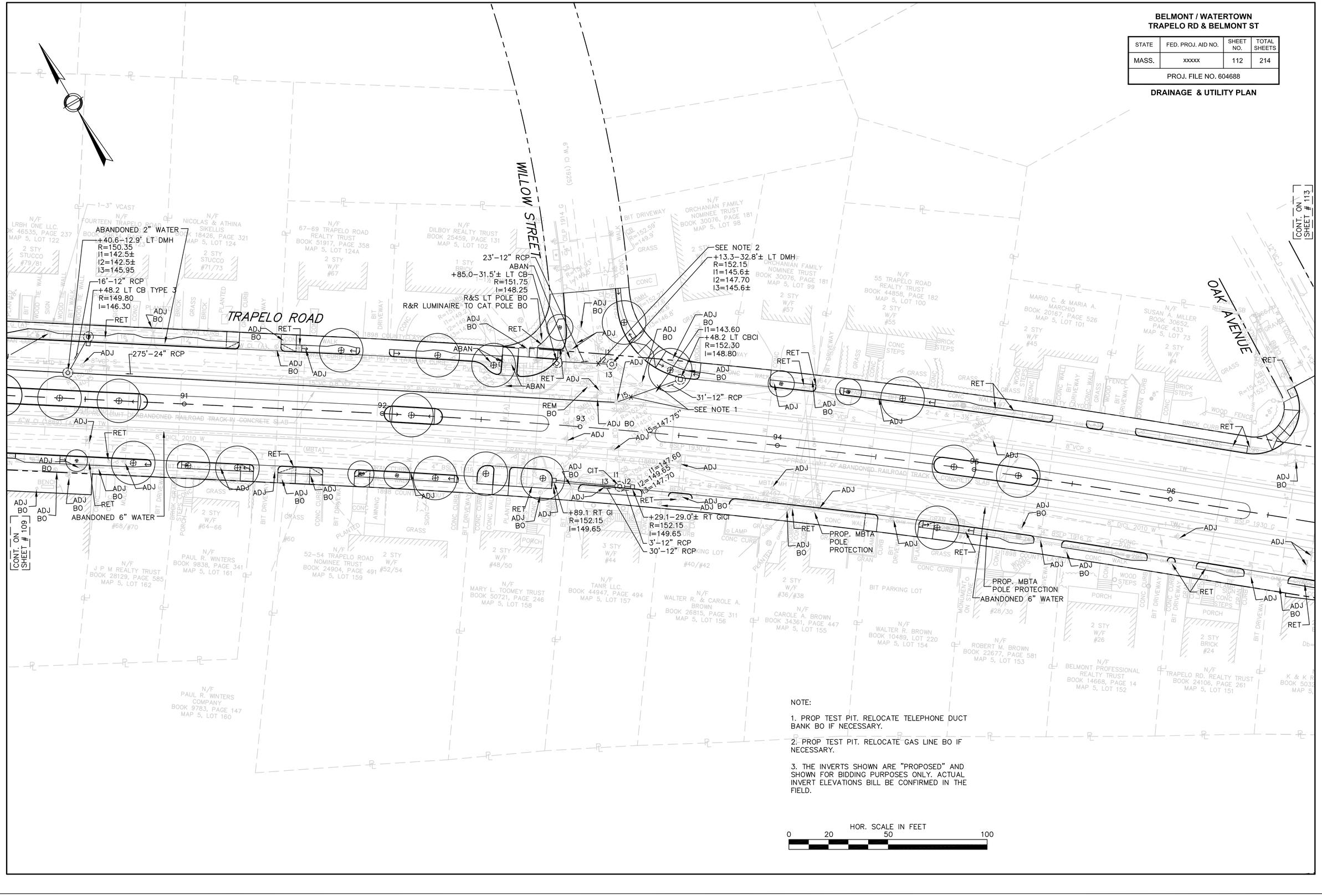
1. THE INVERTS SHOWN ARE "PROPOSED" AND SHOWN FOR BIDDING PURPOSES ONLY. ACTUAL INVERT ELEVATIONS BILL BE CONFIRMED IN THE FIELD.

HOR. SCALE IN FEET
0 20 50 100

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	112	214
PROJ. FILE NO. 604688			

DRAINAGE & UTILITY PLAN



NOTE:

1. PROP TEST PIT. RELOCATE TELEPHONE DUCT BANK BO IF NECESSARY.

2. PROP TEST PIT. RELOCATE GAS LINE BO IF NECESSARY.

3. THE INVERTS SHOWN ARE "PROPOSED" AND SHOWN FOR BIDDING PURPOSES ONLY. ACTUAL INVERT ELEVATIONS BILL BE CONFIRMED IN THE FIELD.

HOR. SCALE IN FEET
0 20 50 100

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	113	214
PROJ. FILE NO. 604688			

DRAINAGE & UTILITY PLAN

CONT. ON SHEET # 114

CONT. ON SHEET # 112

OAK AVENUE

PINE STREET

TRAPELO ROAD

BELMONT STREET

+70.8 LT CBCI
R=151.90
I=148.40

35'-12" RCP

41'-10" DIP

+72.8 RT CBCI
TYPE 3 W/FLAT TOP
R=151.70
I=148.80

+99-25± LT
DMH
R=150.60
I1=145.1±
I2=145.1±

PROP CURB STOP & SERVICE BOX

PROP. MBTA POLE PROTECTION

PROP. MBTA CAT POLE

ABANDONED 6" WATER

ABANDONED 4" GAS

ABANDONED RAILROAD TRACK

APPROX. LIMIT OF ABANDONED RAILROAD TRACK IN CONCRETE SLAB

SEE NOTE 1

SEE NOTE 2

REMOD

NOTES:

1. PROP TEST PIT, RELOCATE ELECTRIC DUCT BANK IF NECESSARY.

2. PROP TEST PIT. RELOCATE TELEPHONE ~~DUCT~~ BANK IF NECESSARY.

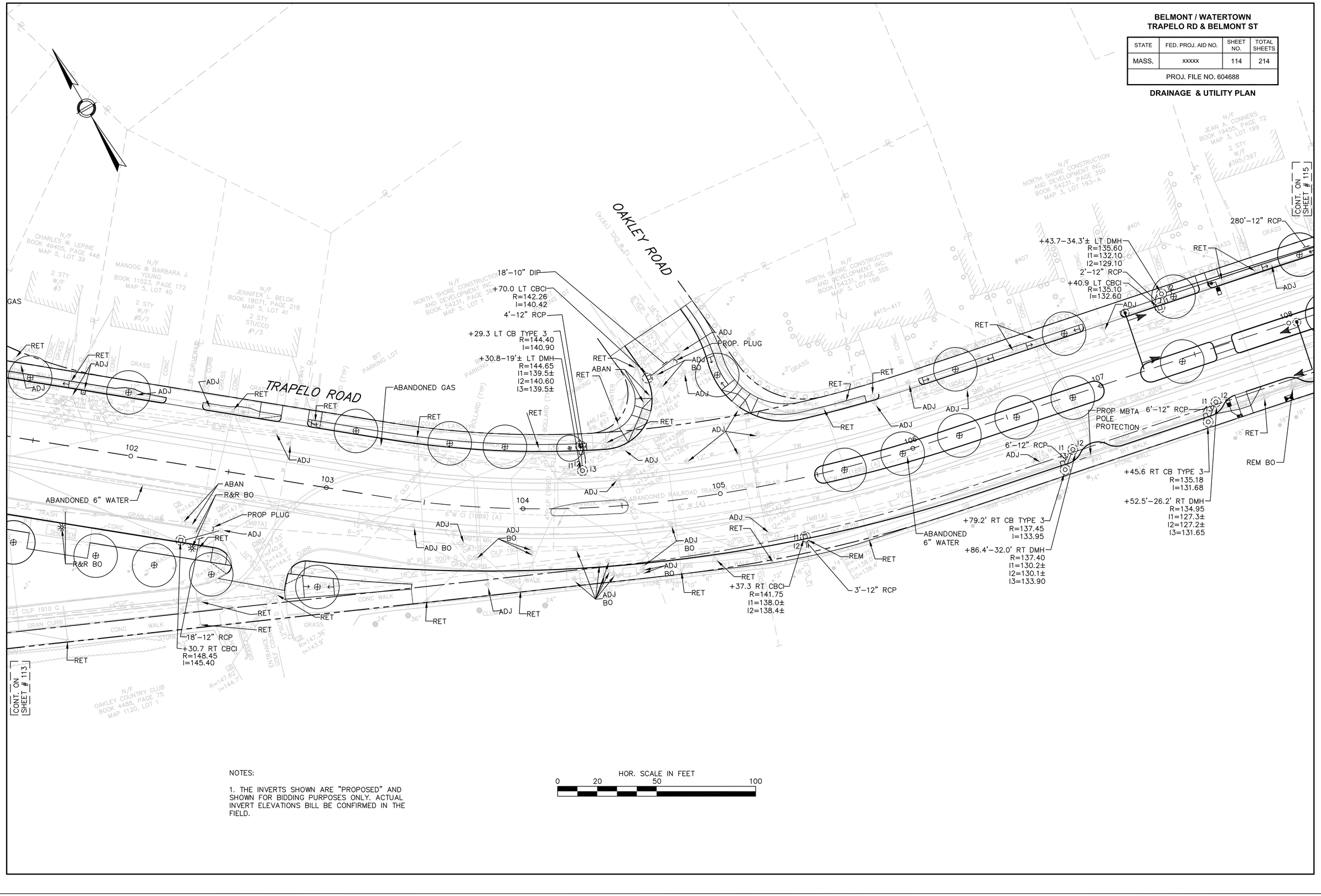
3. THE INVERTS SHOWN ~~ARE~~ "PROPOSED" AND SHOWN FOR BIDDING PURPOSES ONLY. ACTUAL INVERT ELEVATIONS BILL BE CONFIRMED IN THE FIELD.

HOR. SCALE IN FEET
0 20 50 100

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	114	214
PROJ. FILE NO. 604688			

DRAINAGE & UTILITY PLAN



NOTES:

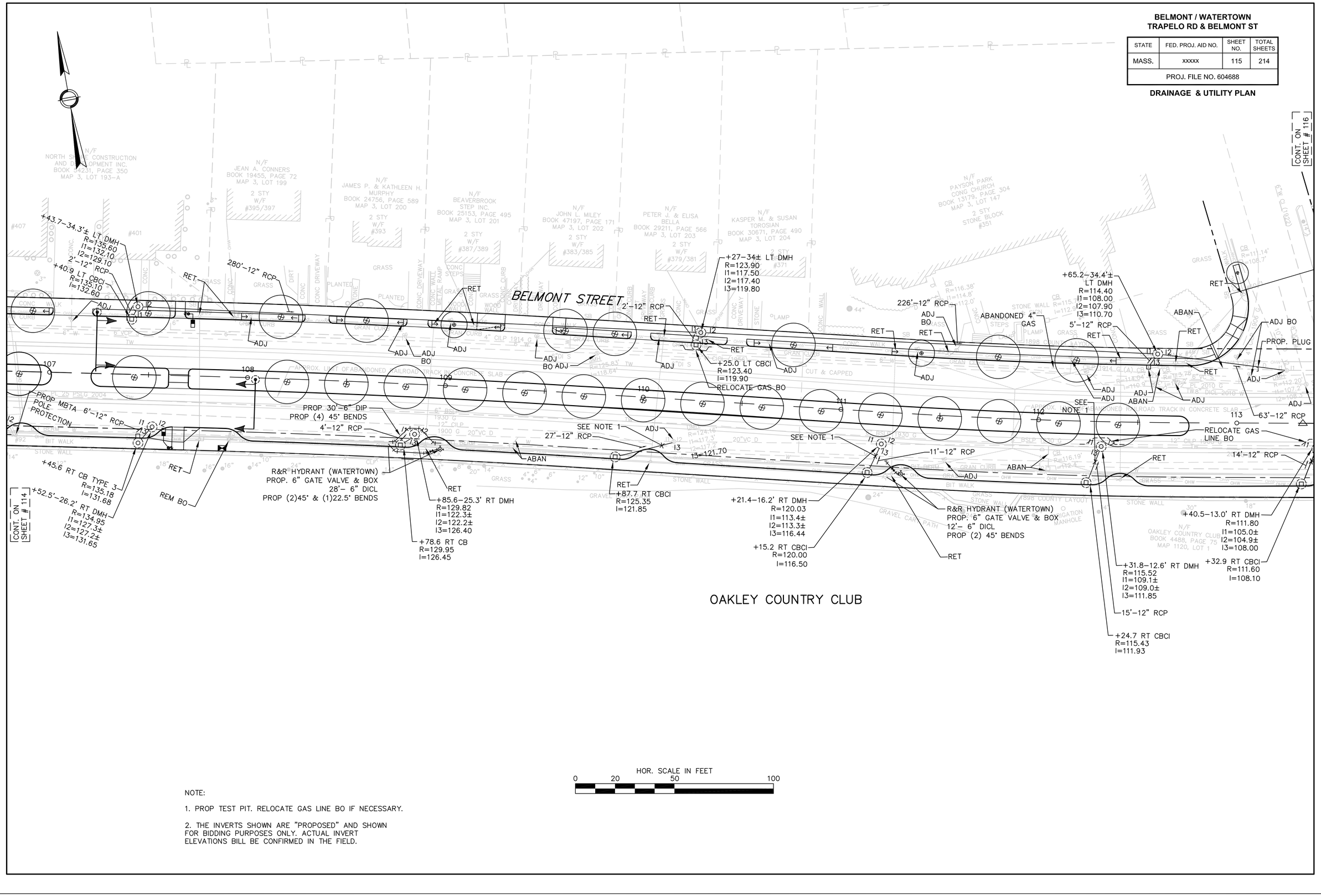
1. THE INVERTS SHOWN ARE "PROPOSED" AND SHOWN FOR BIDDING PURPOSES ONLY. ACTUAL INVERT ELEVATIONS BILL BE CONFIRMED IN THE FIELD.

HOR. SCALE IN FEET
0 20 50 100

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	115	214
PROJ. FILE NO. 604688			

DRAINAGE & UTILITY PLAN



NOTE:

1. PROP TEST PIT. RELOCATE GAS LINE BO IF NECESSARY.

2. THE INVERTS SHOWN ARE "PROPOSED" AND SHOWN FOR BIDDING PURPOSES ONLY. ACTUAL INVERT ELEVATIONS BILL BE CONFIRMED IN THE FIELD.

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	116	214
PROJ. FILE NO. 604688			

DRAINAGE & UTILITY PLAN

PAYSON ROAD
BELMONT STREET
VAN NESS ROAD
STULTS ROAD
COMMONWEALTH ROAD
CARVER ROAD

+65.2–34.4'± LT DMH
R=114.40
I1=108.00
I2=107.90
I3=110.70

5'–12" RCP

+16.1–62.0'± LT CBCI
R=106.30
I=102.80

49'–12" RCP

+85.8–34.6± LT CB WITH FRAME AND COVER
R=107.28
I1=102.85
I2=102.75

3'–12" RCP

+85.9 LT GICI
R=106.71
I=103.21

32'–12" RCP

+46.0–52.4' LT CBCI
R=105.60
I=102.10

14'–12" RCP

+39.6–33.8' LT DMH
R=105.45
I1=101.60
I2=99.50
I3=102.30
I4=102.00

2'–12" RCP

+41.7–27.9' LT DMH
R=105.45
I1=99.3±
I2=99.40
I3=99.3±

+3.9–87.5'± LT CBCI
R=100.70
I=97.20

+28.2–53± LT DMH
R=99.60
I1=93.10
I2=95.90
I3=96.00

37'–12" RCP

5'–12" RCP

+37.5–56.6'± LT CBCI
R=99.50
I=96.00

24'–12" RCP

+44.9–29.0' LT DMH
R=98.95
I1=93.9±
I2=92.90
I3=92.45

ABANDONED 6" WATER

184'–15" RCP

+89.8

RELOCATE GAS LINE BO

41'–12" RCP

+56.4 RT CBCI
R=98.50
I=95.00

I4=93.8

+77.1 RT CBCI
R=94.31
I=90.81

+01.7–20.4' RT DMH
R=97.12
I1=93.8±
I2=93.9±
I3=94.75

63'–12" RCP

14'–12" RCP

SEE NOTE 1

+40.5–13.0' RT DMH
R=111.80
I1=105.0±
I2=104.9±
I3=108.00

+32.9 RT CBCI
R=111.60
I=108.10

+31.8–12.6' RT DMH
R=115.52
I1=109.1±
I2=109.0±
I3=111.85

15'–12" RCP

+24.7 RT CBCI
R=115.43
I=111.93

PROP. PLUG

R&R BO

CONT. ON SHEET # 117

CONT. ON SHEET # 115

HOR. SCALE IN FEET
0 20 50 100

NOTE:

1. PROP TEST PIT, RELOCATE GAS LINE BO IF NECESSARY.

2. THE INVERTS SHOWN ARE "PROPOSED" AND SHOWN FOR BIDDING PURPOSES ONLY. ACTUAL INVERT ELEVATIONS BILL BE CONFIRMED IN THE FIELD.

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	117	214
PROJ. FILE NO. 604688			

DRAINAGE & UTILITY PLAN

STULTS ROAD
LEWIS ROAD
BELMONT STREET
TRAPELO ROAD
SCHOOL STREET
CARVER ROAD
WINDSOR AVENUE

37'-12" RCP
5'-12" RCP
+37.5-56.6'± LT CBCI
R=99.50
I=96.00
24'-12" RCP
+44.9-29.0' LT DMH
R=98.95
I1=93.9±
I2=92.90
I3=92.45
ABANDONED 6" WATER
RELOCATE GAS LINE BO
184'-15" RCP
+18.1-69.1'± LT CBCI
R=93.40
I=89.90
33'-12" RCP
+30.5-33.7' LT DMH
R=92.20
I1=85.70
I2=88.60
I3=88.60
I4=88.45
36'-12" RCP
+89.8 LT CB TYPE 3
R=93.78
I=90.28
RELOCATE GAS LINE BO
+43.4-67.2'± LT CBCI
R=92.70
I=89.20
31'-12" RCP
2'-15" RCP
+34.1-27.6' LT DMH
R=92.20
I1=85.20
I2=85.1±
I3=85.1±
PROP CURB STOP & SERVICE BOX
155'-18" RCP
+7.4-9.3' RT DMH
R=93.60
I1=87.2±
I2=87.1±
I3=87.20
REMOD
REM BO
ADJ BO
+54.2-17.9'± RT DMH
R=85.80
I1=79.9±
I2=74.8±
I3=77.50
I=79.40
20'-10" DICL
PROP (4) 45° BENDS
30'-10" DICL
PROP (4) 45° BENDS
4'-12" RCP
+49.8 RT CBCI
R=81.30
I=77.80
PROP. MBTA CAT POLE
+56.4 RT CBCI
R=98.50
I=95.00
41'-12" RCP
SEE NOTE 1
10'-12" RCP
+77.1 RT CBCI
R=94.31
I=90.81
R&R BO
+01.7-20.4' RT DMH
I1=93.8±
I2=93.9±
I3=94.75
+1.9-22.5' RT DMH
R=93.70
I1=87.40
I2=90.02
I3=90.20
I4=90.40
+75.5 RT CBCI
R=90.05
I=86.55
3'-12" RCP
+82.8-24.1± RT DMH
R=89.74
I1=86.50
I2=83.3±
4'-24" RCP
TO MEET EXIST.
20'-12" RCP
+93.8-46.1'± RT CBCI
R=94.23
I=90.73
20'-12" RCP
27'-12" RCP
+19.1-49.4'± RT CBCI
R=93.66
I=90.16
+69.5-17.8'± LT DMH
R=85.70
I1=79.1±
I2=79.1±
I3=79.20
40'-12" RCP
38'-12" RCP
+55.1-24.8'± LT DMH
R=87.66
I1=81.16
I2=84.50
I3=84.50
5'-12" RCP
+85.5 RT CBCI
R=89.92
I=86.42
+65.8-25.6'± LT CBCI
R=88.03
I=84.53
11'-12" RCP
24'-12" RCP
+32.4 LT CBCI TYPE 3
R=72.13
I=68.63
+62.3-18.9' LT DMH
R=71.40
I1=65.00
I2=65.00
I3=64.90
+54.6-25.0' LT DMH
R=71.41
I1=67.±
I2=66.90

CONT. ON SHEET # 116
CONT. ON SHEET # 118

NOTE:

1. PROP TEST PIT, RELOCATE GAS LINE BO IF NECESSARY.

2. THE INVERTS SHOWN ARE "PROPOSED" AND SHOWN FOR BIDDING PURPOSES ONLY. ACTUAL INVERT ELEVATIONS BILL BE CONFIRMED IN THE FIELD.

HOR. SCALE IN FEET
0 20 50 100

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	118	214
PROJ. FILE NO. 604688			

DRAINAGE & UTILITY PLAN

NEWTON STREET
WORCESTER STREET
SPRINGFIELD STREET
FALMOUTH STREET
BELMONT STREET
LANGDON AVENUE
HILLSIDE ROAD
WESTLAND ROAD

+72.2–13.0'± LT CBCI R=71.20 I=67.70
+68.2–6.9'± LT DMH I1=67.8± I2=67.65 I3=65.29
20'–12" RCP
+49.7–13.6'± RT CBCI R=70.50 I=67.00
2'–12" RCP
28'–12" RCP
+61.3–34.8' LT DMH R=70.94 I1=68.51 I2=65.15 I3=65.40 I4=65.05
11'–12" RCP
24'–12" RCP
+32.4 LT CBCI TYPE 3 R=72.13 I=68.63
+54.6–25.0' LT DMH R=71.41 I1=67.± I2=66.90
+62.3–18.9' LT DMH R=71.40 I1=65.00 I2=65.00 I3=64.90
+66.7–13.2'± LT CBCI R=65.75 I=62.25
+34.9–3.3'± LT DMH R=65.40 I1=61.65 I2=59.57 I3=61.65 I4=61.65
+56.2–13.2'± RT CBCI R=65.30 I=61.80
12'–8" DICL PROP (1) 60° BENDS
PROP CURB STOP & SERVICE BOX
R&R HYD
21'–12" RCP
28'–12" RCP
SEE NOTE 1
+44.2 LT CB TYPE 3 R=65.86 I=62.36
199'–21" RCP
17'–12" RCP
12'–12" RCP
+65.8–17.6' LT DMH R=65.88 I1=59.48 I2=59.48 I3=59.38
PROP PLUGS
+32.4–20'± RT DMH R=68.85 I1=62.3± I2=62.3± I3=65.25
20'–12" RCP
+36.0–44.5'± RT CBCI R=69.50 I=66.00
+76.2 RT CBCI R=65.15 I=61.65
3'–12" RCP
+83.2–20.0' RT DMH R=65.15 I1=59.05 I2=58.95 I3=61.50
R&S F&G
PROP F&G
+72.6–56.6'± LT CBCI R=61.10 I=57.60
26'–12" RCP
+47.0–62.5'± LT CBCI R=61.25 I=57.75
25'–12" RCP
9'–12" RCP
+38.5 LT CBCI R=61.30 I=57.80
10'–12" RCP
184'–21" RCP
+54.3–32.1'± LT DMH R=61.20 I1=57.50 I2=55.05 I3=57.65 I4=57.63
+58.9–25± LT DMH R=61.40 I1=55.00 I2=55.00 I3=54.90
113'–24" RCP
28'–12" RCP
+19.4 RT CBCI R=59.40 I=55.90
7'–12" RCP
11'–12" RCP
+49.4 LT CB TYPE 3 R=58.56 I=55.06
24'–12" RCP
+70.2–17.7' LT DMH R=58.62 I1=52.22 I2=54.90 I3=52.12
14'–6" DICL PROP (2) 45° BENDS
221'–24" RCP
+68.0–53.2'± RT CBCI R=58.55 I=55.05
SEE NOTE 1
+56.7–47± RT DMH R=58.90 I1=54.0± I2=54.60 I3=54.1± I4=55.00
SEE NOTE 1
PROP PLUGS
R&R HYD
ABAN
ADJ
ADJ BO
RET
REM
APPROX. LIMIT OF ABANDONED RAILROAD TRACK IN CONCRETE SLAB
123
124
125
126
127
128
129

CONT. ON SHEET # 117
CONT. ON SHEET # 119

HOR. SCALE IN FEET
0 20 50 100

NOTE:

1. PROP TEST PIT. RELOCATE GAS LINE BO IF NECESSARY.

2. THE INVERTS SHOWN ARE "PROPOSED" AND SHOWN FOR BIDDING PURPOSES ONLY. ACTUAL INVERT ELEVATIONS BILL BE CONFIRMED IN THE FIELD.

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	119	214
PROJ. FILE NO. 604688			

DRAINAGE & UTILITY PLAN

CONT. ON SHEET # 118

CONT. ON SHEET # 120

FALMOUTH STREET

PARK ROAD

GROVE STREET

BELMONT STREET

WESTLAND ROAD

WOODLEIGH ROAD

N/F JOAN O. MURPHY & CLAIRE TAYLOR BOOK 29235, PAGE 184 MAP 2, LOT 59

N/F THE FALMONT CONDOMINIUM BOOK 47650, PAGE 1 MAP 2, LOT 1

N/F CHARLES A. SIMMONS JR. BOOK 33260, PAGE 2 MAP 2, LOT 28

N/F BRYAN J. CORR BOOK 29235, PAGE 184 MAP 2, LOT 22

N/F DEBORAH THEODORE & STEFFEN PIERCE BOOK 41188, PAGE 507 MAP 2, LOT 23

N/F CAROLYN N. NAJARIAN BOOK 26013, PAGE 543 MAP 2, LOT 24

N/F TOWN OF BELMONT BOOK 7743, PAGE 346 MAP 2, LOT 27

N/F THE MARKUSSEN FAMILY TRUST BOOK 55625, PAGE 595 MAP 2, LOT 25

N/F MILDRED C. MERCURIO BOOK 8233, PAGE 568 MAP 2, LOT 6

N/F JOSEPHINE BRUNO BOOK 55541, PAGE 549 MAP 2, LOT 5

N/F GHOLAMALI & NILA J. SHAHANAGHI BOOK 25794, PAGE 378 MAP 2, LOT 4

N/F PAUL & MONIKA NALEPA BOOK 27113, PAGE 97 MAP 2, LOT 3

N/F MANUEL A. & BERTHA G. BELTRAN BOOK 26914, PAGE 195 MAP 2, LOT 2

N/F BELGROVE REALTY TRUST BOOK 11917, PAGE 191 MAP 2, LOT 1

N/F FRANCOIS N. AYER BOOK 13433, PAGE 170 MAP 1143, LOT 5

N/F CELIA E. MANCUSO BOOK 19694, PAGE 249 MAP 1143, LOT 6

N/F COOLIDGE ESTATE CONDOMINIUM BOOK 14768, PAGE 373 MAP 1143, LOT 8

N/F TRS. JACQUE EDWARD ORCHANIAN/ORCHANIAN FAMILY NOMINEE TRUST BOOK 30076, PAGE 181 MAP 1142, LOT 14

N/F TRS. JOHN J. & LOUISE SILVESTRO BOOK 46278, PAGE 132 MAP 1142, LOT 1

N/F ROSE A. HARRINGTON BOOK 46956, PAGE 40 MAP 1142, LOT 2

MEET EXISTING PIPE AT I=48.2±

+49.4 LT CB TYPE 3 R=58.56 I=55.06

24'–12" RCP

+70.2–17.7' LT DMH R=58.62 I1=52.22 I2=54.90 I3=52.12

R&R HYD

14'–6" DICL PROP (2) 45° BENDS

221'–24" RCP

7'–12" RCP

+68.0–53.2'± RT CBCI R=58.55 I=55.05

SEE NOTE 1 +56.7–47± RT DMH R=58.90 I1=54.0± I2=54.60 I3=54.1± I4=55.00

11'–12" RCP

+68.2 LT CBCI R=54.28 I=50.78

45'–12" RCP

ABAN

26'–12" RCP

REM

118'–24" RCP

+94.5–17.1' LT DMH R=54.79 I1=48.39 I2=48.54 I3=48.29 I4=50.50 R&R BO

SEE NOTE 1

9'–12" RCP

+17.5 LT CBCI R=52.80 I=49.30

+17.5–18.3' LT DMH R=53.18 I1=46.78 I2=49.00 I3=46.68

REMOD

PROP. MBTA CAT POLE RELOCATE GAS BO

+37.5 LT CBCI R=49.50 I=46.00

45'–12" RCP

SEE NOTE 1 262'–24" RCP

+84.4–15.7' ± LT DMH R=49.65 I1=43.15 I2=45.45 I3=43.05

+98.4 RT CBCI TYPE 3 R=48.88 I=45.38

130 131 132 133 134

HOR. SCALE IN FEET
0 20 50 100

NOTE:

1. PROP TEST PIT. RELOCATE GAS LINE BO IF NECESSARY.

2. THE INVERTS SHOWN ARE "PROPOSED" AND SHOWN FOR BIDDING PURPOSES ONLY. ACTUAL INVERT ELEVATIONS BILL BE CONFIRMED IN THE FIELD.

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	120	214
PROJ. FILE NO. 604688			

DRAINAGE & UTILITY PLAN

GROVE STREET
MARION ROAD
MARLBORO STREET
BELMONT STREET
TEMPLETON PARKWAY
ARLINGTON STREET

[CONT. ON SHEET # 121]
[CONT. ON SHEET # 119]
CONT. ON SHEET DU-26

NOTE:

1. PROP TEST PIT. RELOCATE GAS LINE BO IF NECESSARY.

2. THE INVERTS SHOWN ARE "PROPOSED" AND SHOWN FOR BIDDING PURPOSES ONLY. ACTUAL INVERT ELEVATIONS BILL BE CONFIRMED IN THE FIELD.

HOR. SCALE IN FEET
0 20 50 100

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	121	214
PROJ. FILE NO. 604688			

DRAINAGE & UTILITY PLAN

NOTE:

1. PROP TEST PIT. RELOCATE GAS LINE BO IF NECESSARY.

2. THE INVERTS SHOWN ARE "PROPOSED" AND SHOWN FOR BIDDING PURPOSES ONLY. ACTUAL INVERT ELEVATIONS BILL BE CONFIRMED IN THE FIELD.

CONT. ON SHEET DU–28

238'–24" RCP

OXFORD AVENUE

EXETER STREET

BELMONT STREET

PRENTISS STREET

KEENAN STREET

CONT. ON SHEET # 120

CONT. ON SHEET # 122

241'–24" RCP

+49.6 LT CBCI
R=45.80
I=42.30

28'–12" RCP

+73.9–12.3' LT DMH
R=46.30
I1=35.40
I2=35.50
I3=36.50
I4=41.90

+93.8 RT CB TYPE 3
R=45.85
I=42.35

10'–12" RCP

+85.4 RT CBCI TYPE 3
R=45.90
I=43.40

+95.1–25.3' RT DMH
R=46.40
I1=41.8±
I2=41.8±
I3=43.30

5'–12" RCP

RELOCATE GAS BO

193'–12" RCP

PROP CURB STOP & SERVICE BOX

+84.9 LT CB TYPE 3
R=44.25
I=40.75

15'–12" RCP

SEE NOTE 1

+75.7–13.1' LT DMH
R=44.75
I1=36.20
I2=40.55
I3=36.30

24'–12" RCP

+73.1–54± RT CBCI
R=45.55
I=42.05

REMOD

50'–12" RCP

+30.5–12.5' LT DMH
R=44.30
I1=36.60
I2=36.70

114'–12" RCP

+51.4–12.6' LT DMH
R=43.20
I1=37.20
I2=37.30

115'–12" RCP

+78.0 LT CBCI
R=41.40
I=38.04

12'–12" RCP

+72.3–12.5' LT DMH
R=41.90
I1=37.98
I2=37.88

REMOD
R&S F&G
PROP F&G

HOR. SCALE IN FEET
0 20 50 100

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	122	214
PROJ. FILE NO. 604688			

DRAINAGE & UTILITY PLAN

CONT. ON SHEET # 121

NOTE:

1. PROP TEST PIT. RELOCATE GAS LINE BO IF NECESSARY.

2. THE INVERTS SHOWN ARE "PROPOSED" AND SHOWN FOR BIDDING PURPOSES ONLY. ACTUAL INVERT ELEVATIONS BILL BE CONFIRMED IN THE FIELD.

END PROJECT
STA. 147+30.18
MEET EXISTING
N 2961926.5323
E 749560.5137

ERICSSON STREET

BELMONT STREET

BRIMMER STREET

KEENAN STREET

+78.0 LT CBCI
R=41.40
I=38.04

12'–12" RCP

+72.3–12.5' LT DMH
R=41.90
I1=37.98
I2=37.88

SEE NOTE 1

115'–12" RCP

REMOD R&S F&G
PROP F&G

RET

ADJ

BO

+97.2–25.5' LT DMH
R=42.30
I1=38.1±
I2=38.1±
I3=39.10

4'–12" RCP

+90.2 RT CBCI
R=41.80
I=39.30

HOR. SCALE IN FEET
0 20 50 100

+3.2–4.1'± LT SPECIAL DMH
R=31.51
I1=26.00
I2=21.62

RELOCATE GAS BO

243'–24" RCP

OXFORD CIRCLE

OXFORD AVENUE

I1=18.68 (FROM RECORD PLAN)
I2=18.68 (FROM RECORD PLAN)

+56.0–4.5' LT DMH
R=41.45
I1=33.00
I2=31.60

RELOCATE GAS BO

238'–24" RCP

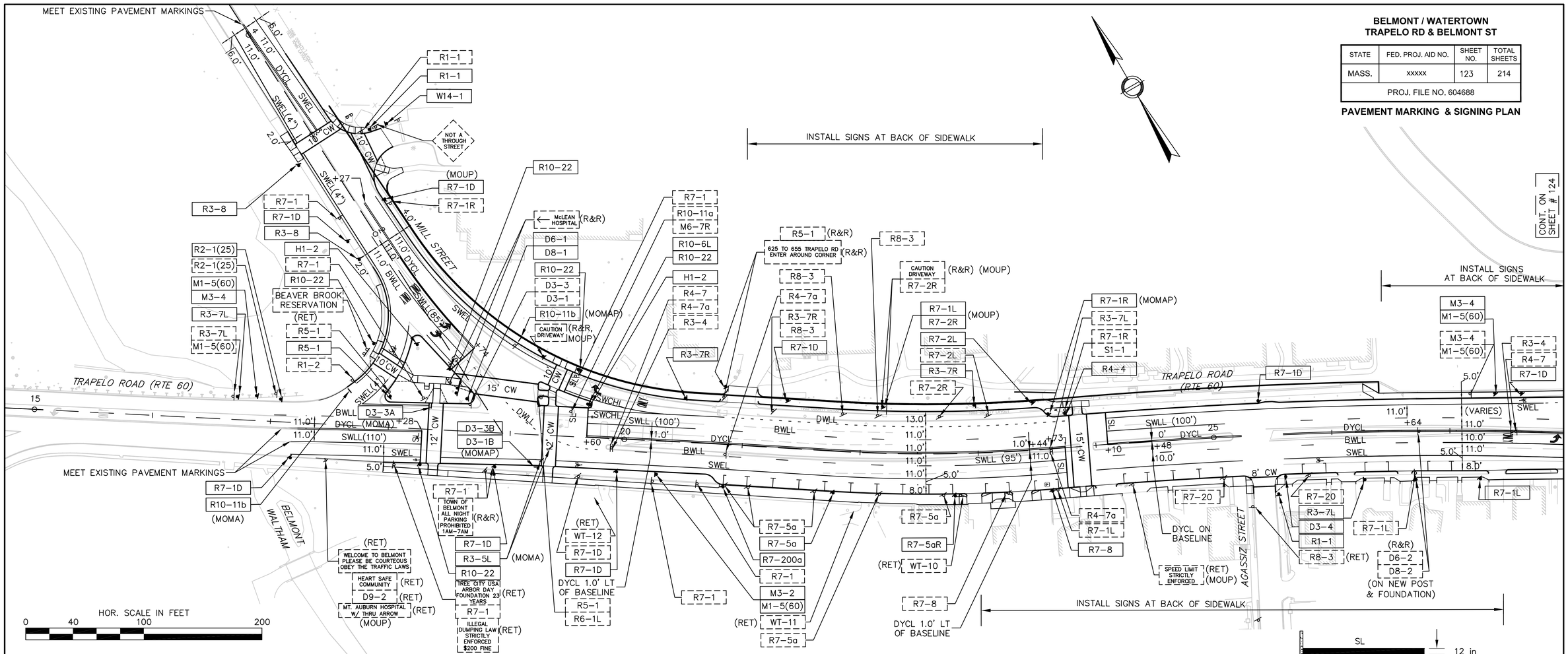
HOR. SCALE IN FEET
0 20 50

CONT. ON SHEET DU–27

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	123	214
PROJ. FILE NO. 604688			

PAVEMENT MARKING & SIGNING PLAN



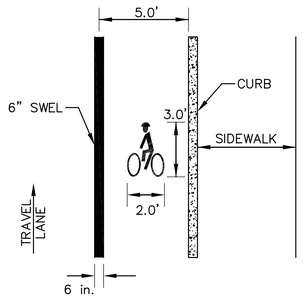
NOTES:

1. ALL EXISTING SIGNS ARE TO BE REMOVED AND STACKED UNLESS NOTED OTHERWISE.

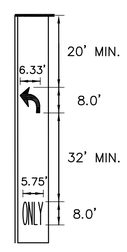
2. ALL CROSSWALKS SHALL CONFORM TO DETAIL SHOWN THIS ON SHEET UNLESS OTHERWISE NOTED.

LEGEND:

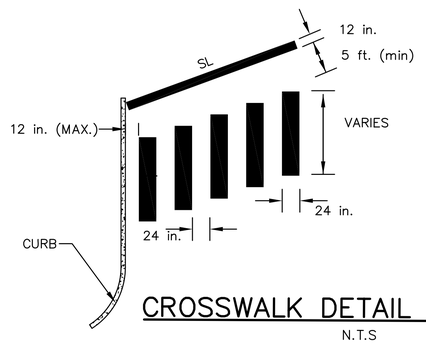
R1-1	EXISTING SIGN
R1-1	PROPOSED SIGN
(R&R)	REMOVE AND RESET
(RET)	RETAIN
(REM)	REMOVE
(MOUP)	MOUNTED ON UTILITY POLE
(MOP)	MOUNTED ON POLE
(MOLP)	MOUNTED ON LIGHT POLE
(MOTSP)	MOUNTED ON TRAFFIC SIGNAL POST
(MOMA)	MOUNTED ON MAST ARM
(MOMAP)	MOUNTED ON MAST ARM POST
WT-X	EXIST. WAVERLEY TRAIL SIGN OR KIOSK



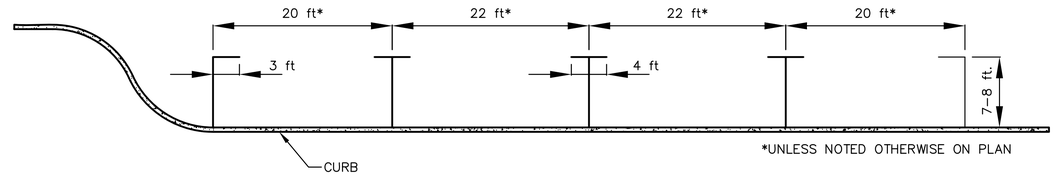
BICYCLE LANE DETAIL
N.T.S



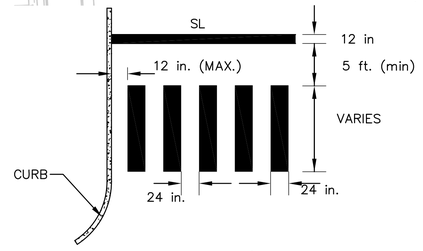
ARROW AND ONLY DETAIL
N.T.S



CROSSWALK DETAIL (ANGULAR)
N.T.S



TYPICAL PARKING STALL LAYOUT
N.T.S

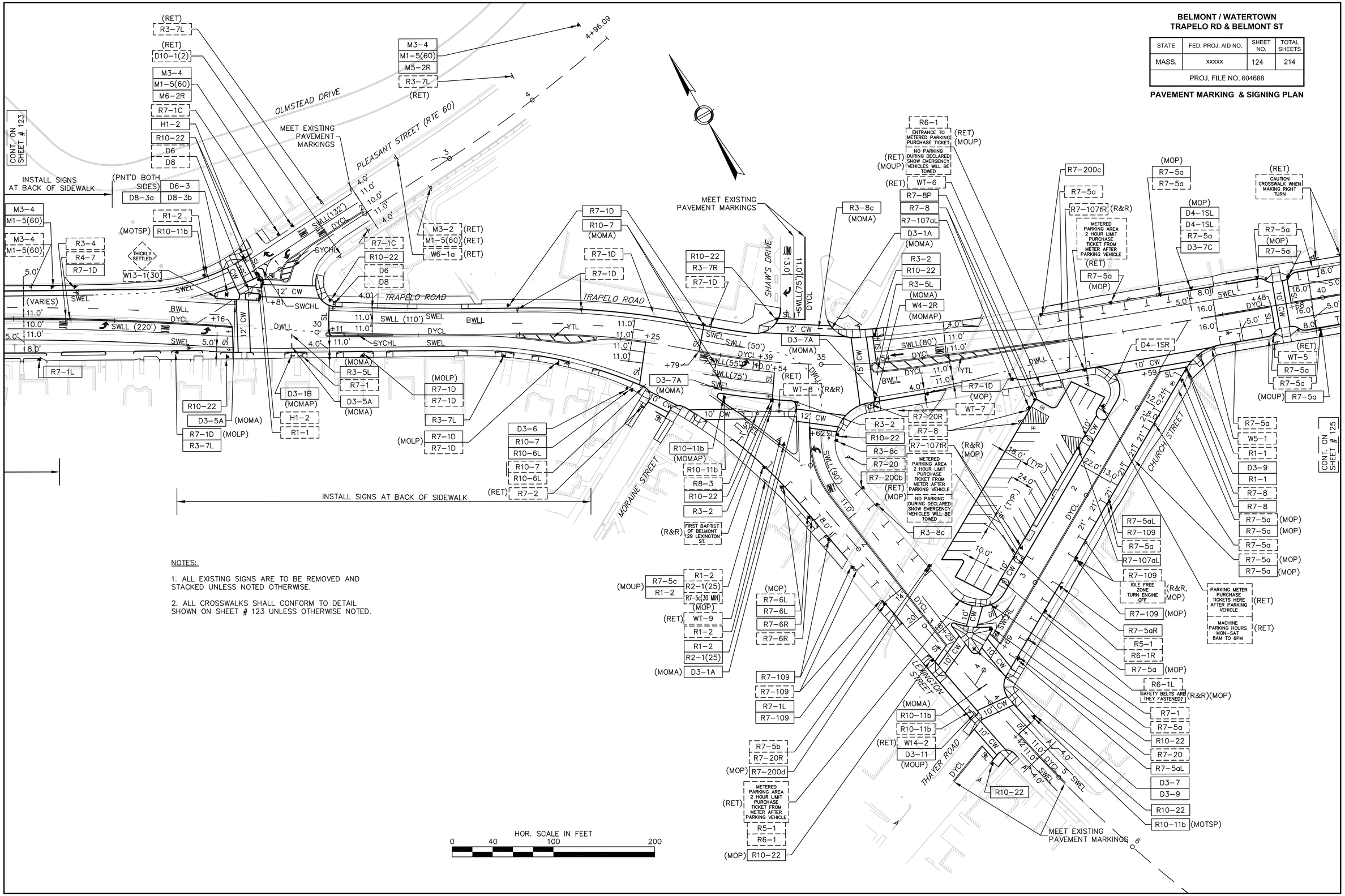


CROSSWALK DETAIL (PERPENDICULAR)
N.T.S

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	124	214
PROJ. FILE NO. 604688			

PAVEMENT MARKING & SIGNING PLAN



NOTES:

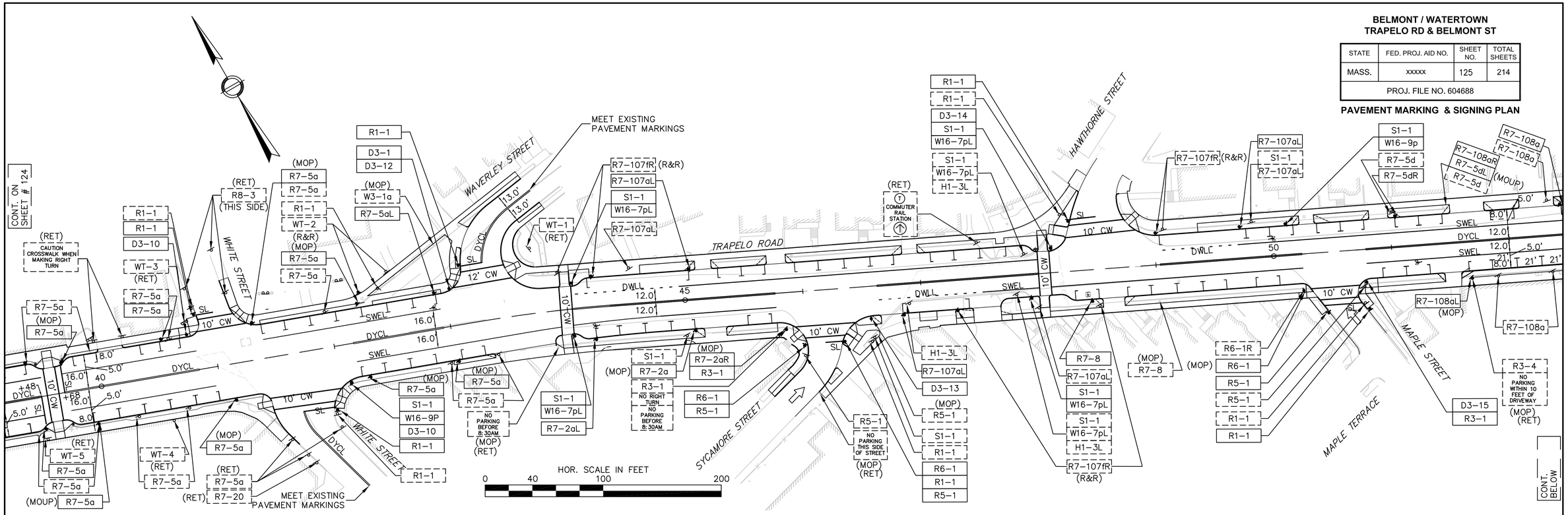
1. ALL EXISTING SIGNS ARE TO BE REMOVED AND STACKED UNLESS NOTED OTHERWISE.

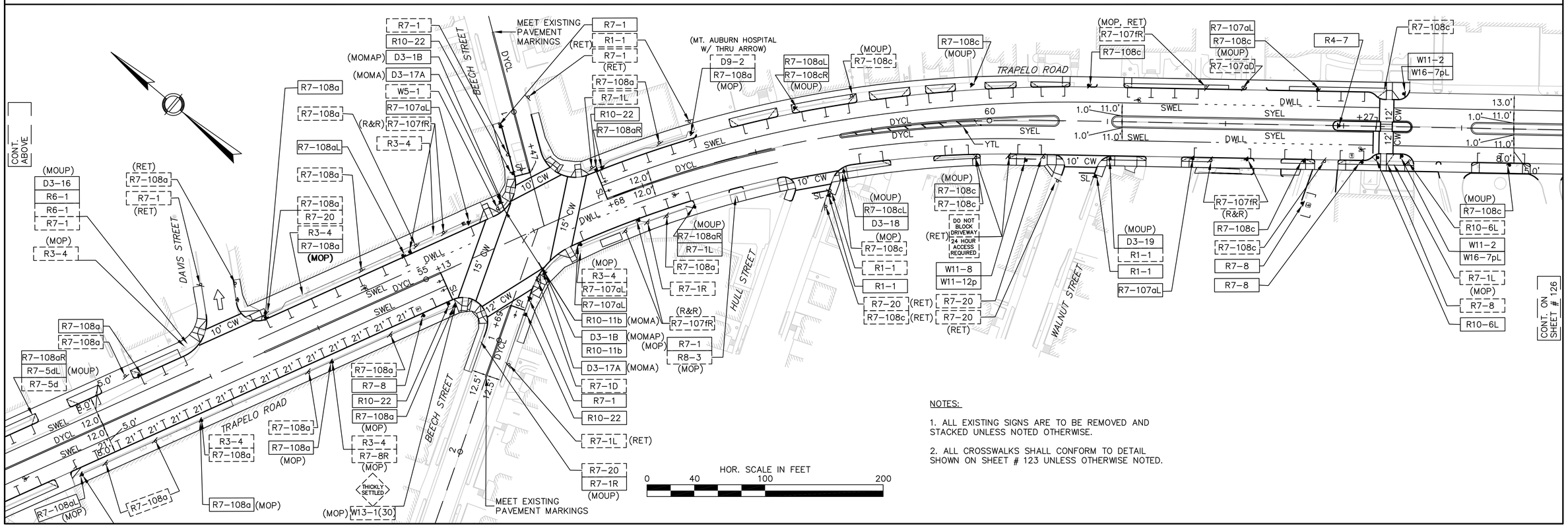
2. ALL CROSSWALKS SHALL CONFORM TO DETAIL SHOWN ON SHEET # 123 UNLESS OTHERWISE NOTED.

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	125	214
PROJ. FILE NO. 604688			

PAVEMENT MARKING & SIGNING PLAN





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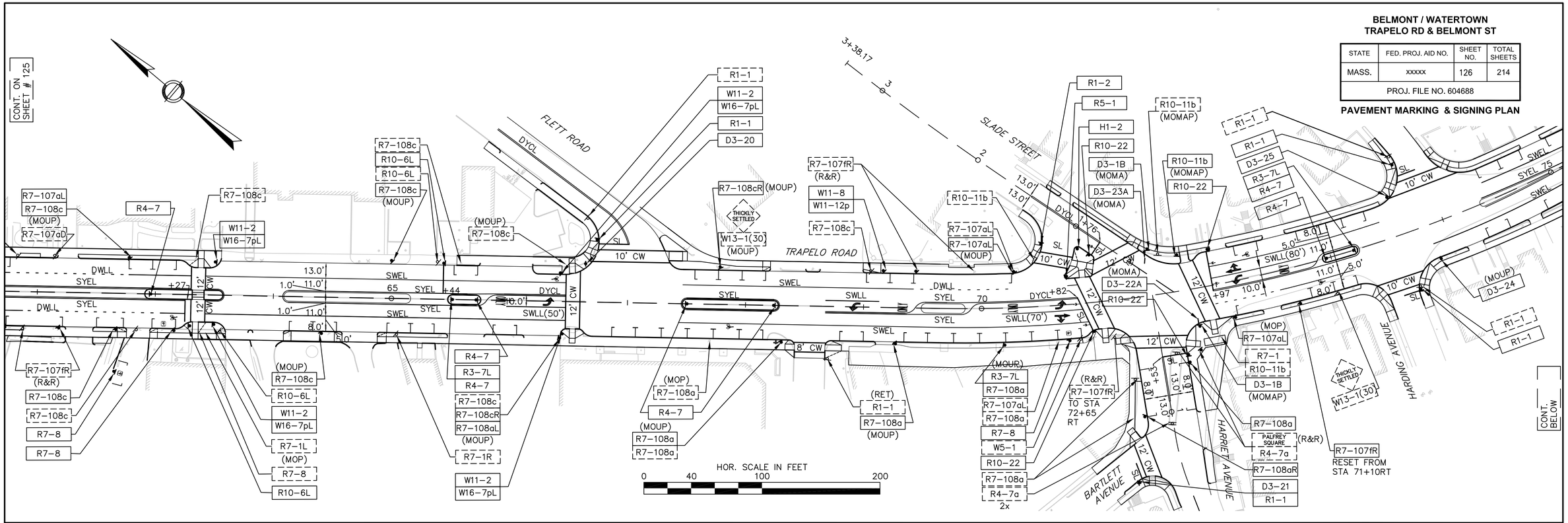
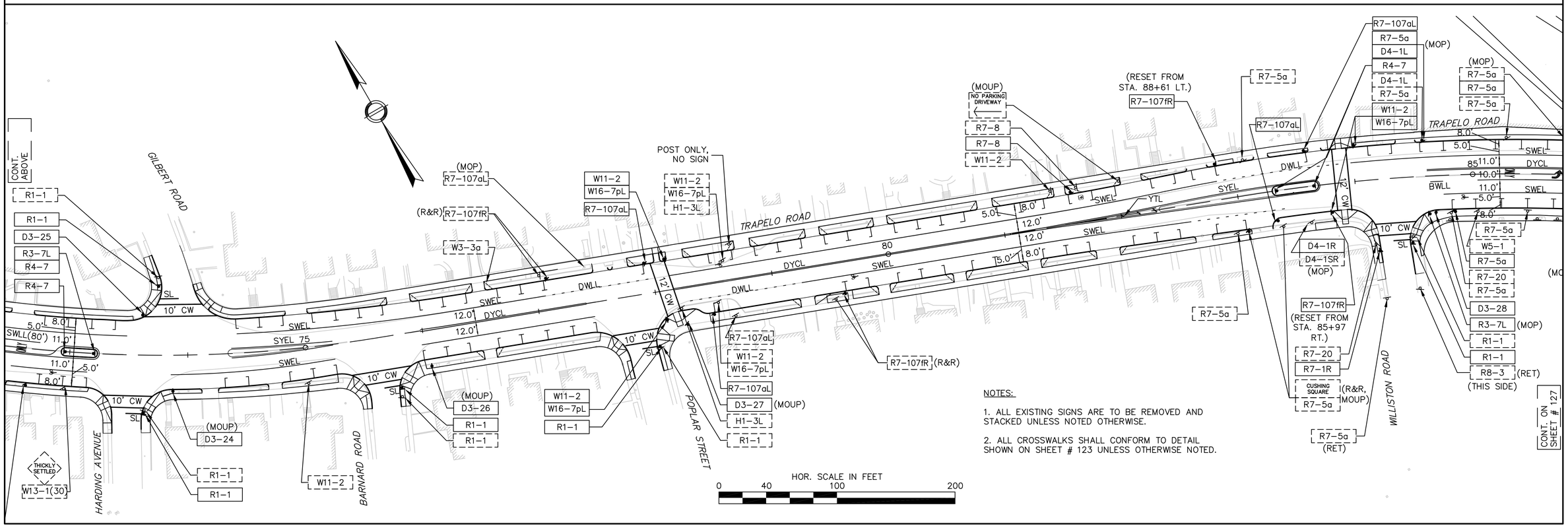
BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	126	214
PROJ. FILE NO. 604688			

PAVEMENT MARKING & SIGNING PLAN





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BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

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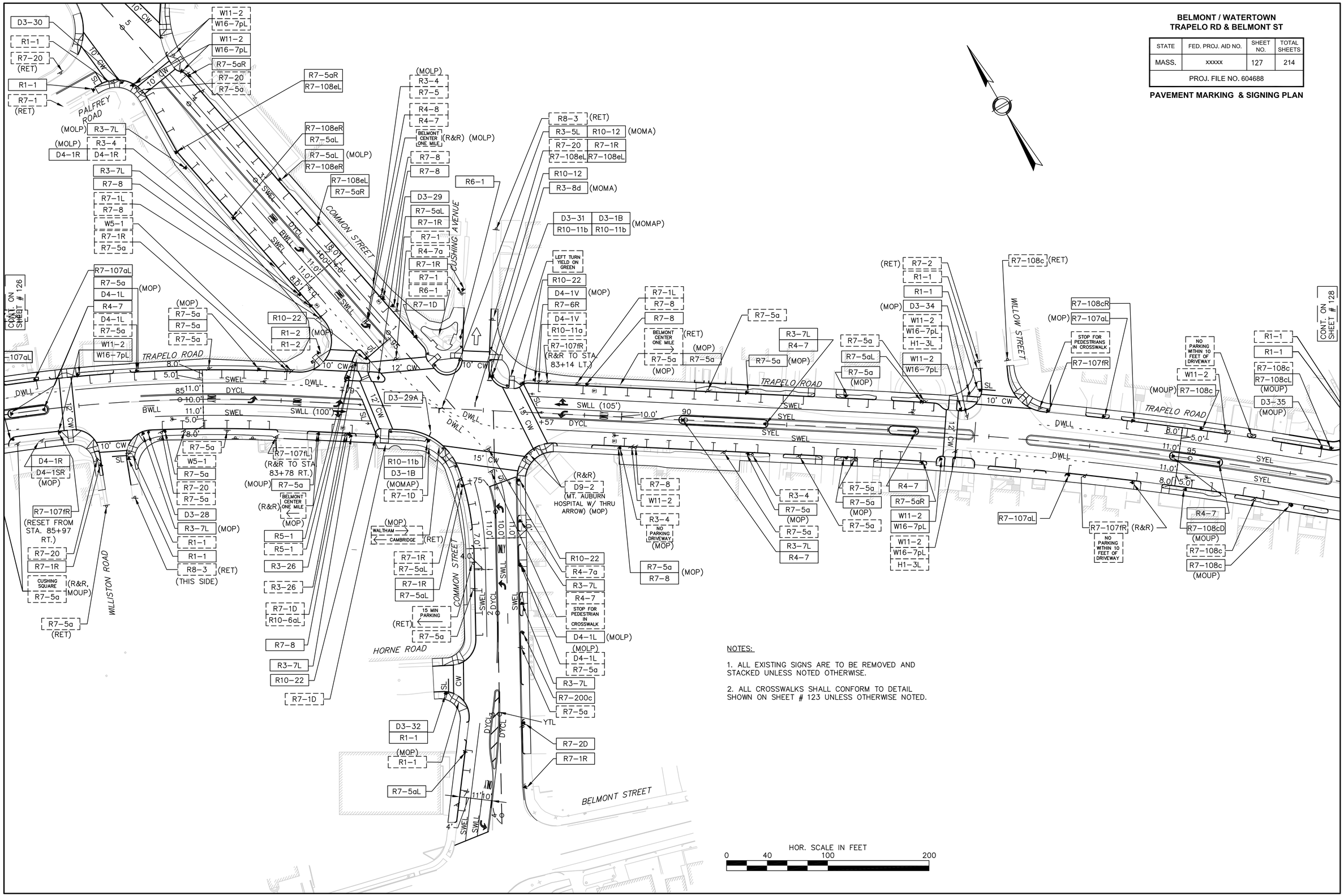
MASS.	xxxxx	127	214
PROJ. FILE NO. 604688			

PAVEMENT MARKING & SIGNING PLAN



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BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

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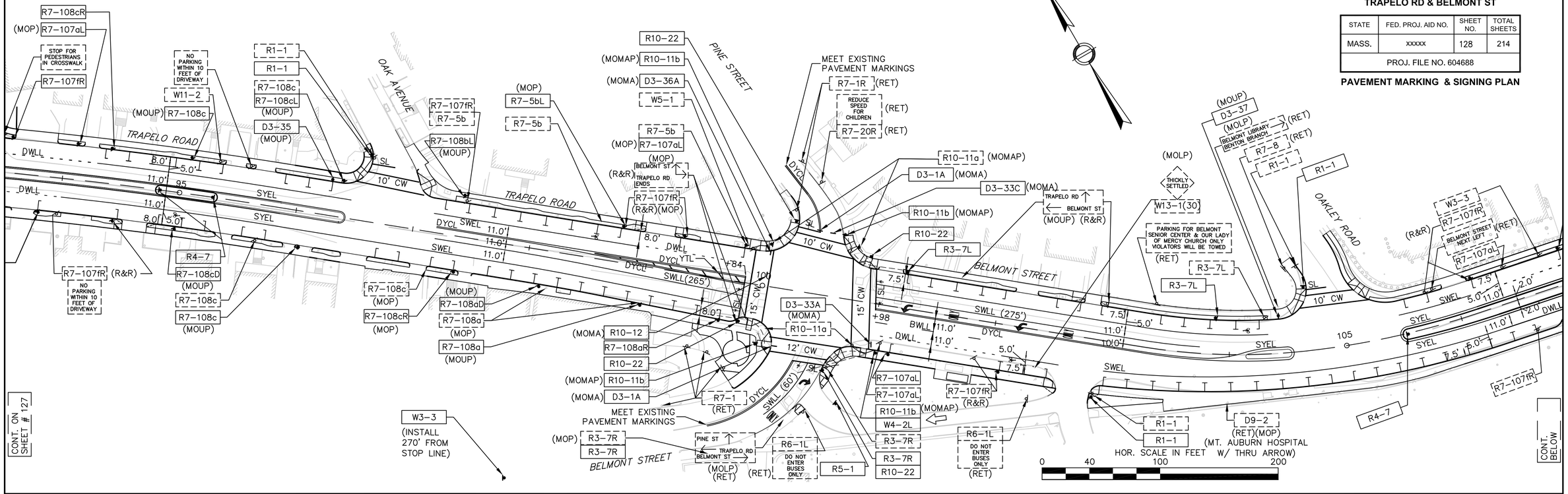
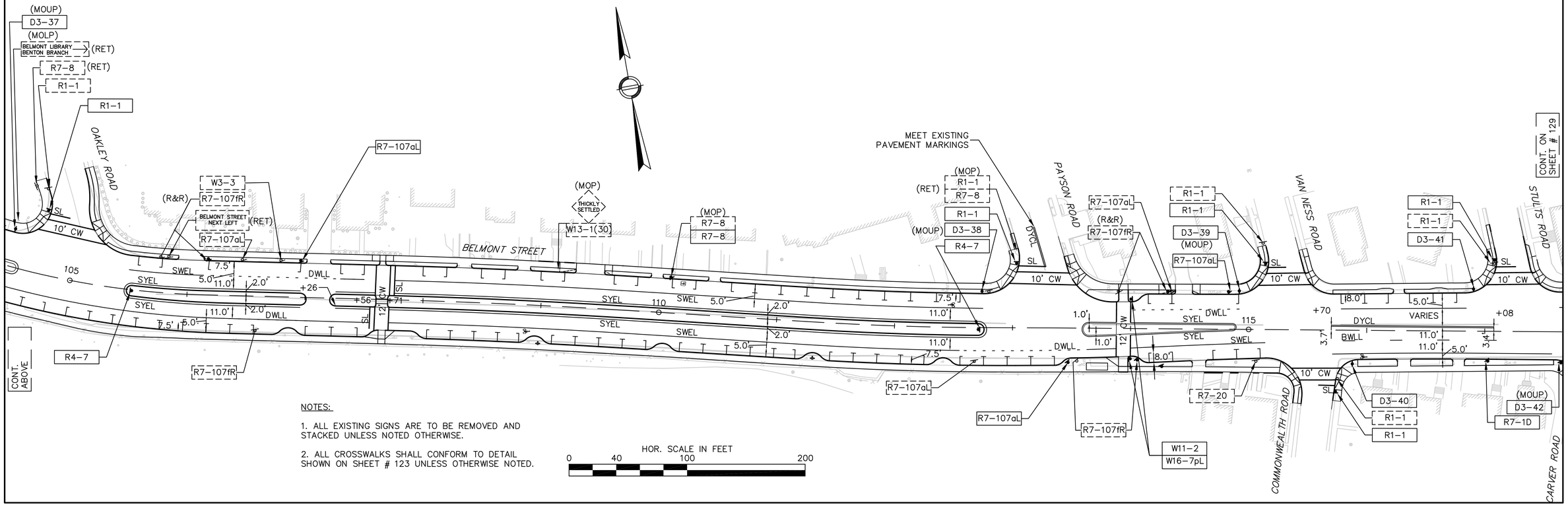
PAVEMENT MARKING & SIGNING PLAN

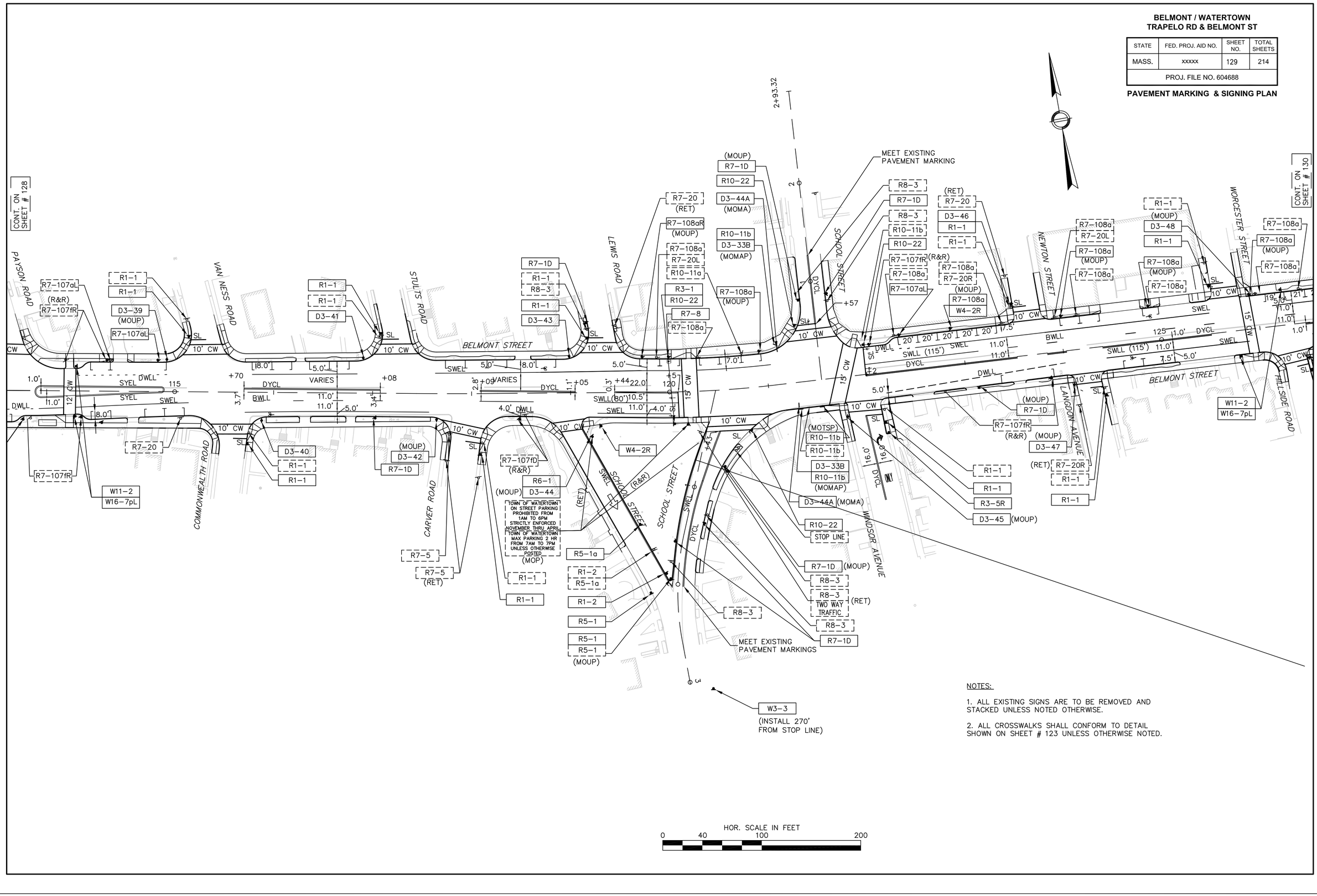




BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	129	214
PROJ. FILE NO. 604688			

PAVEMENT MARKING & SIGNING PLAN



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TRAPELO RD & BELMONT ST

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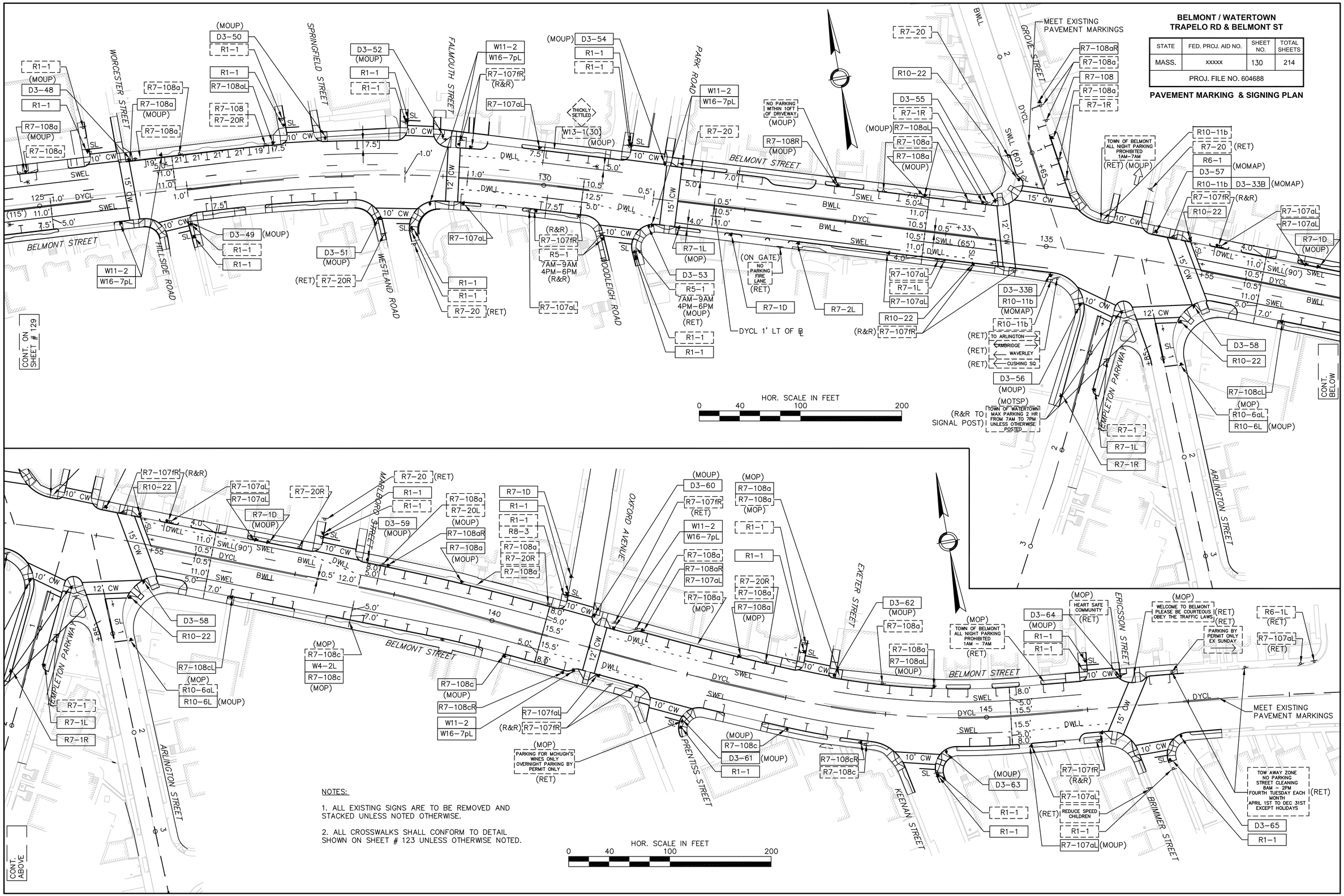
PROJ. FILE NO. 604688			

PAVEMENT MARKING & SIGNING PLAN



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BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	131	214
PROJ. FILE NO. 604688			

SIGN SUMMARY SHEET

TRAFFIC SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN WIDTH (in)	SIZE OF SIGN HEIGHT (in)	TEXT	TEXT DIMENSIONS (in) LETTER HEIGHT	TEXT DIMENSIONS (in) VERTICAL SPACING	TEXT DIMENSIONS (in) ARROW RTE. MKR.	NUMBER OF SIGNS REQUIRED	COLOR BACKGROUND	COLOR LEGEND	COLOR BORDER	POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA (S.F.)
M1–5 (60)	30	24	60	SEE MASSDOT STANDARDS			5	SEE MASSDOT STANDARDS			P–5 (1)	6.25	31.25
M3–2	24	12		SEE 2009 M.U.T.C.D.			1	SEE 2009 M.U.T.C.D.			P–5 (1)	2.00	2.00
M3–4	24	12					4				P–5 (3)	2.00	8.00
M5–2R	21	15					1				P–5 (0)	2.18	2.18
M6–2R	21	15					1				P–5 (0)	2.18	2.18
R1–1	30	30	STOP				47				P–5 (43)	5.19	243.80
R1–2	36	36	YIELD				5				P–5 (3)	4.50	22.50
R2–1(25)	24	30	SPEED LIMIT 25				2				P–5 (1)	5.00	10.00
R3–1	24	24					4				P–5 (0)	4.00	16.00
R3–2	24	24					1				P–5 (0)	4.00	4.00
R3–5L	30	36	ONLY				3				P–5 (0)	7.50	22.50
R3–5R	30	36	ONLY				1				P–5 (1)	7.50	7.50
R3–7L	30	30	LEFT LANE MUST TURN LEFT				17				P–5 (12)	6.25	106.25
R3–7R	30	30	RIGHT LANE MUST TURN RIGHT				5				P–5 (3)	6.25	31.25
R3–8	30	30	ONLY				2				P–5 (2)	7.50	15.0
R3–8c	36	30	ONLY				1				P–5 (2)	7.50	7.50
R3–26	24	30	RIGHT TURN ONLY	SEE MASSDOT STANDARDS			1	SEE MASSDOT STANDARDS			P–5 (1)	5.00	5.00
R4–4	36	30	BEGIN RIGHT TURN LANE YIELD TO BIKES	SEE 2009 M.U.T.C.D.			1	SEE 2009 M.U.T.C.D.			P–5 (1)	7.50	7.50
R4–7	24	30					16				P–5 (14)	3.00	48.00
R5–1	30	30	DO NOT ENTER				9				P–5 (8)	6.25	56.25

TRAFFIC SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN WIDTH (in)	SIZE OF SIGN HEIGHT (in)	TEXT	TEXT DIMENSIONS (in) LETTER HEIGHT	TEXT DIMENSIONS (in) VERTICAL SPACING	TEXT DIMENSIONS (in) ARROW RTE. MKR.	NUMBER OF SIGNS REQUIRED	COLOR BACKGROUND	COLOR LEGEND	COLOR BORDER	POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA (S.F.)
R5–1a	36	24	WRONG WAY	SEE 2009 M.U.T.C.D.			1	SEE 2009 M.U.T.C.D.			P–5 (1)	3.75	3.75
R6–1 PBS	36	12	ONE WAY				7				P–5 (4)	3.00	21.00
R3–8d	36	30	ONLY				1				P–5 (0)	7.50	7.50
R7–1	12	18	NO PARKING ANY TIME				3					1.50	4.5(
R7–1L	12	18	NO PARKING ANY TIME				6						
R7–1R	12	18	NO PARKING ANY TIME				10						
R7–1D	12	18	NO PARKING ANY TIME				25						
R7–2a	12	18	NO PARKING BEFORE 8:30 AM				1						
R7–2aL	12	18	NO PARKING BEFORE 8:30 AM				1						
R7–2aR	12	18	NO PARKING BEFORE 8:30 AM				1						
R7–2D	12	18	NO PARKING 4:00 PM TO 6:00 PM				1						
R7–2L	12	18	NO PARKING 4:00 PM TO 6:00 PM				1						
R7–2R	12	18	NO PARKING 4:00 PM TO 6:00 PM				1						
R7–5a	12	18	ONE HOUR PARKING				25						
R7–5aL	12	18	ONE HOUR PARKING				8						
R7–5aR	12	18	ONE HOUR PARKING				5						
R7–5bL	12	18	TWO HOUR PARKING				1						
R7–5c	12	18	30 MINUTE PARKING				1				(0)		
R7–5dL	12	18	15 MIN PARKING				1				P–5 (0)	1.50	1.50
R7–5dR	12	18	15 MIN PARKING				1				P–5 (1)	1.50	1.50

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	132	214
PROJ. FILE NO. 604688			

SIGN SUMMARY SHEET

TRAFFIC SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN WIDTH (in)	SIZE OF SIGN HEIGHT (in)	TEXT	TEXT DIMENSIONS (in) LETTER HEIGHT	TEXT DIMENSIONS (in) VERTICAL SPACING	TEXT DIMENSIONS (in) ARROW RTE. MKR.	NUMBER OF SIGNS REQUIRED	COLOR BACKGROUND	COLOR LEGEND	COLOR BORDER	POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA (S.F.)
R7–6L	12	18	NO PARKING LOADING ZONE ←	SEE 2009 M.U.T.C.D.			1	SEE 2009 M.U.T.C.D.			P–5 (1)	1.50	1.50
R7–6R	12	18	NO PARKING LOADING ZONE →				2				P–5 (1)	1.50	3.00
R7–8	12	18	RESERVED PARKING				15				P–5 (14)	1.50	22.50
R7–107aL	12	30					30				P–5 (23)	2.50	75.00
R7–107fR	12	30					(1) PROVIDED BY MBTA				P–5 (1)	––	––
R7–108a	12	18	1 HR PARKING 8:00 AM TO 6:00 PM MON–SAT				21				P–5 (4)	1.50	31.50
R7–108aD	12	18	1 HR PARKING 8:00 AM TO 6:00 PM MON–SAT →				1				P–5 (0)	1.50	1.50
R7–108aL	12	18	1 HR PARKING 8:00 AM TO 6:00 PM MON–SAT ←				7				P–5 (2)	1.50	10.50
R7–108aR	12	18	1 HR PARKING 8:00 AM TO 6:00 PM MON–SAT →				9				P–5 (5)	1.50	13.50
R7–108bL	12	18	2 HR PARKING 8:00 AM TO 6:00 PM MON–SAT ←				1				P–5 (0)	1.50	1.50
R7–108c	12	18	2 HR PARKING 8:00 AM TO 6:00 PM EXCEPT SUNDAYS & HOLIDAYS				12				P–5 (2)	1.50	18.0
R7–108cL	12	18	2 HR PARKING 8:00 AM TO 6:00 PM EXCEPT SUNDAYS & HOLIDAYS ←				3				P–5 (1)	1.50	4.50
R7–108cR	12	18	2 HR PARKING 8:00 AM TO 6:00 PM EXCEPT SUNDAYS & HOLIDAYS →				7				P–5 (3)	1.50	10.50
R7–108cD	12	18	2 HR PARKING 8:00 AM TO 6:00 PM EXCEPT SUNDAYS & HOLIDAYS ↔				1				P–5 (0)	1.50	1.50
R7–108eL	12	18	15 MIN PARKING 9:00 AM TO 6:00 PM MONDAY – SAT ←				3				P–5 (1)	1.50	4.50
R7–108eR	12	18	15 MIN PARKING 9:00 AM TO 6:00 PM MONDAY – SAT →				2				P–5 (1)	1.50	3.00
R7–108R	12	18	2 HR PARKING X:XX AM TO X:XX PM →				1				P–5 (0)	1.50	1.50
R7–2L	12	18	NO PARKING 7-9 AM 4-6 PM MON-FRI ←				1				P–5 (1)	3.00	3.00
R7–109	12	18	NO PARKING TAXI STAND				5				P–5 (2)	1.50	7.50

TRAFFIC SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN WIDTH (in)	SIZE OF SIGN HEIGHT (in)	TEXT	TEXT DIMENSIONS (in) LETTER HEIGHT	TEXT DIMENSIONS (in) VERTICAL SPACING	TEXT DIMENSIONS (in) ARROW RTE. MKR.	NUMBER OF SIGNS REQUIRED	COLOR BACKGROUND	COLOR LEGEND	COLOR BORDER	POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA (S.F.)
R7–200a	24	18	ONE HOUR PARKING ← / NO PARKING ANY TIME →	SEE 2009 M.U.T.C.D.			1	SEE 2009 M.U.T.C.D.			P–5 (1)	3.00	3.00
R7–200b	24	18	NO PARKING ANY TIME ← / TWO HOUR PARKING →				1				P–5 (0)	3.00	3.00
R7–200c	24	18	NO PARKING ANY TIME ← / ONE HOUR PARKING →				2				P–5 (2)	3.00	6.00
R7–200d	24	18	TWO HOUR PARKING ← / NO PARKING ANY TIME →				1				P–5 (0)	3.00	3.00
R10–6L	24	36	STOP HERE ON RED ↙				5				P–5 (2)	6.00	30.00
R10–7	24	30	DO NOT BLOCK INTERSECTION				3				P–5 (1)	5.00	15.00
R10–11b	36	36	NO TURN ON RED				20				P–5 (8)	4.00	80.00
R10–12	30	36	LEFT TURN YIELD ON GREEN				3				P–5 (0)	5.00	15.00
R10–22	12	18	TO REQUEST GREEN WAIT ON				42				P–5 (41)	1.50	63.00
S1–1	36	36					6				P–5 (4)	6.25	37.50
W3–3	30	30					2				P–5 (2)	6.75	40.50
W4–2L	36	36					3				P–5 (1)	6.25	18.75
W4–2R	36	36					2				P–5 (1)	6.25	12.50
W11–2	30	30					22				P–5 (22)	6.25	137.50
W11–8	30	30					2				P–5 (2)	6.25	12.50
W11–12P	36	30	EMERGENCY SIGNAL AHEAD				2				P–5 (0)	7.50	15.00
W14–1	24	24	DEAD END				1				P–5 (1)	2.00	2.00
W16–7pL	24	12	↙				26				P–5 (0)	2.00	52.00
W16–9p	24	12	AHEAD				2				P–5 (0)	2.00	4.00

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

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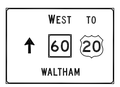
SIGN SUMMARY SHEET

TRAFFIC SIGN SUMMARY

IDENTIFI–CATION NUMBER	SIZE OF SIGN WIDTH (in)	SIZE OF SIGN HEIGHT (in)	TEXT	TEXT DIMENSIONS (in) LETTER HEIGHT	TEXT DIMENSIONS (in) VERTICAL SPACING	TEXT DIMENSIONS (in) ARROW RTE. MKR.	NUMBER OF SIGNS REQUIRED	COLOR BACK–GROUND	COLOR LEGEND	COLOR BORDER	POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA (S.F.)
D4–1L	30	24		SEE 2009 M.U.T.C.D.			2	SEE 2009 M.U.T.C.D.			P–5 (0)	5.00	10.00
D4–1R	30	24					1				P–5 (0)	5.00	5.00
D4–1SL	30	24					1				P–5 (0)	5.00	5.00
D4–1SR	30	24					1				P–5 (0)	5.00	5.00
D4–1V	30	24					1				P–5 (0)	5.00	5.00
D6–1	60	60		7C/6C 6C 6C 6C	4.5 4.5 4.5 4.5 6	18x18	1	GREEN	WHITE	WHITE	5in NOM. STEEL PIPE 4.89 lb/ft 11 ft (1)	25.00	25.00
D8–1	48	30		6C	6 6	18x18 8x18 @ 90°	1	GREEN	WHITE	WHITE	MOUNTED WITH D6–1	10.00	10.00
D6–3 (PBS)	60	60		7C/6C 6C 6C	6 4 4 6	18x18 36x8 @ 0°	1	GREEN	WHITE	WHITE	5in NOM. STEEL PIPE 4.89 lb/ft 11 ft (1)	25.00	25.00
D8–3a	60	42		6C 6C	11 8 11	8x18 @ 90°	1	GREEN	WHITE	WHITE	MOUNTED WITH D6–3	17.50	17.50
D8–3b	60	42		7C/6C 6C	2.5 3 3 2.5	18X18 36x8 @ 90°	1	GREEN	WHITE	WHITE	MOUNTED WITH D6–3	17.50	17.50
H1–2	24	24		SEE MASSDOT STANDARDS			4	SEE MASSDOT STANDARDS			P–5 (4)	––	EACH

TRAFFIC SIGN SUMMARY

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SIGN SUMMARY SHEET

TRAFFIC SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (in)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA (S.F.)
	WIDTH (in)	HEIGHT (in)		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK-GROUND	LEGEND	BORDER			
D3-1 (PBS)	VARIES	12	Trapelo Rd	SEE 2009 M.U.T.C.D.			1	SEE 2009 M.U.T.C.D.			P-5 (1)	--	EACH
D3-4 (PBS)	VARIES	12	Agassiz St				1				P-5 (1)	--	EACH
D3-6 (PBS)	VARIES	12	Moraine St				1				P-5 (0)	--	EACH
D3-7 (PBS)	VARIES	12	Lexington St				1				P-5 (1)	--	EACH
D3-9 (PBS)	VARIES	12	Church St				2				P-5 (1)	--	EACH
D3-10 (PBS)	VARIES	12	White St				2				P-5 (1)	--	EACH
D3-11 (PBS)	VARIES	12	Thayer Rd				1				P-5 (0)	--	EACH
D3-12 (PBS)	VARIES	12	Waverley St				1				P-5 (0)	--	EACH
D3-13 (PBS)	VARIES	12	Sycamore St				1				P-5 (1)	--	EACH
D3-14 (PBS)	VARIES	12	Hawthorne St				1				P-5 (1)	--	EACH
D3-15 (PBS)	VARIES	12	Maple St				1				P-5 (1)	--	EACH
D3-16 (PBS)	VARIES	12	Davis Rd				1				P-5 (0)	--	EACH
D3-18 (PBS)	VARIES	12	Hull St				1				P-5 (0)	--	EACH
D3-19 (PBS)	VARIES	12	Walnut St				1				P-5 (0)	--	EACH
D3-20 (PBS)	VARIES	12	Flett Rd				1				P-5 (1)	--	EACH
D3-21 (PBS)	VARIES	12	Bartlett Ave				1				P-5 (1)	--	EACH
D3-23 (PBS)	VARIES	12	Slade St				1				P-5 (0)	--	EACH
D3-24 (PBS)	VARIES	12	Harding Ave				1				P-5 (0)	--	EACH
D3-25 (PBS)	VARIES	12	Gilbert Rd				1				P-5 (1)	--	EACH
D3-26 (PBS)	VARIES	12	Barnard Rd				1				P-5 (0)	--	EACH

TRAFFIC SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (in)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA (S.F.)
	WIDTH (in)	HEIGHT (in)		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK-GROUND	LEGEND	BORDER			
D3-27 (PBS)	VARIES	12	Poplar St	SEE 2009 M.U.T.C.D.			1	SEE 2009 M.U.T.C.D.			P-5 (0)	--	EACH
D3-28 (PBS)	VARIES	12	Williston Rd				1				P-5 (1)	--	EACH
D3-29 (PBS)	VARIES	12	Common St				1				P-5 (1)	--	EACH
D3-30 (PBS)	VARIES	12	Palfrey Rd				1				P-5 (0)	--	EACH
D3-31 (PBS)	VARIES	12	Cushing Ave				1				P-5 (0)	--	EACH
D3-32 (PBS)	VARIES	12	Horne Rd				1				P-5 (1)	--	EACH
D3-34 (PBS)	VARIES	12	Willow St				1				P-5 (0)	--	EACH
D3-35 (PBS)	VARIES	12	Oak St				1				P-5 (0)	--	EACH
D3-37 (PBS)	VARIES	12	Oakley Rd				1				P-5 (0)	--	EACH
D3-38 (PBS)	VARIES	12	Payson Rd				1				P-5 (0)	--	EACH
D3-39 (PBS)	VARIES	12	Van Ness Rd				1				P-5 (0)	--	EACH
D3-40 (PBS)	VARIES	12	Commonwealth Rd				1				P-5 (1)	--	EACH
D3-41 (PBS)	VARIES	12	Stults Rd				1				P-5 (1)	--	EACH
D3-42 (PBS)	VARIES	12	Carver Rd				1				P-5 (0)	--	EACH
D3-43 (PBS)	VARIES	12	Lewis Rd				1				P-5 (1)	--	EACH
D3-44 (PBS)	VARIES	12	School St				1				P-5 (1)	--	EACH
D3-45 (PBS)	VARIES	12	Windsor Ave				1				P-5 (0)	--	EACH
D3-46 (PBS)	VARIES	12	Newton St				1				P-5 (1)	--	EACH
D3-47 (PBS)	VARIES	12	Langdon Ave				1				P-5 (0)	--	EACH
D3-48 (PBS)	VARIES	12	Worcester St				1				P-5 (0)	--	EACH

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	135	214
PROJ. FILE NO. 604688			

SIGN SUMMARY SHEET

TRAFFIC SIGN SUMMARY

IDENTIFI–CATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (in)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA (S.F.)
	WIDTH (in)	HEIGHT (in)		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK–GROUND	LEGEND	BORDER			
D3–49 (PBS)	VARIES	12	Hillside Rd	SEE 2009 M.U.T.C.D.			1	SEE 2009 M.U.T.C.D.			P–5 (0)	––	EACH
D3–50 (PBS)	VARIES	12	Springfield St				1				P–5 (0)	––	EACH
D3–51 (PBS)	VARIES	12	Westland Rd				1				P–5 (0)	––	EACH
D3–52 (PBS)	VARIES	12	Falmouth St				1				P–5 (0)	––	EACH
D3–53 (PBS)	VARIES	12	Woodleigh Rd				1				P–5 (1)	––	EACH
D3–54 (PBS)	VARIES	12	Park Rd				1				P–5 (0)	––	EACH
D3–55 (PBS)	VARIES	12	Grove St				1				P–5 (0)	––	EACH
D3–56 (PBS)	VARIES	12	Templeton Pkwy				1				P–5 (0)	––	EACH
D3–57 (PBS)	VARIES	12	Marion Rd				1				P–5 (0)	––	EACH
D3–58 (PBS)	VARIES	12	Arlington St				1				P–5 (0)	––	EACH
D3–59 (PBS)	VARIES	12	Marlbobo St				1				P–5 (0)	––	EACH
D3–60 (PBS)	VARIES	12	Oxford Ave				1				P–5 (0)	––	EACH
D3–61 (PBS)	VARIES	12	Prentiss St				1				P–5 (0)	––	EACH
D3–62 (PBS)	VARIES	12	Exeter St				1				P–5 (0)	––	EACH
D3–63 (PBS)	VARIES	12	Keenan St				1				P–5 (0)	––	EACH
D3–64 (PBS)	VARIES	12	Ericsson St				1				P–5 (0)	––	EACH
D3–65 (PBS)	VARIES	12	Brimmer St				1				P–5 (0)	––	EACH

TRAFFIC SIGN SUMMARY

IDENTIFI–CATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (in)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA (S.F.)
	WIDTH (in)	HEIGHT (in)		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK–GROUND	LEGEND	BORDER			
D3–1A (PBS)	VARIES	24	Trapelo Rd	SEE 2009 M.U.T.C.D.			4	SEE 2009 M.U.T.C.D.			P–5 (0)	––	EACH
D3–3A (PBS)	VARIES	24	Mill St				1				P–5 (0)	––	EACH
D3–5A (PBS)	VARIES	24	Pleasant St				2				P–5 (0)	––	EACH
D3–7A (PBS)	VARIES	24	Lexington St				2				P–5 (0)	––	EACH
D3–17A (PBS)	VARIES	24	Beech St				2				P–5 (0)	––	EACH
D3–22A (PBS)	VARIES	24	Harriet Ave				1				P–5 (0)	––	EACH
D3–29A (PBS)	VARIES	24	Common St				1				P–5 (0)	––	EACH
D3–33A (PBS)	VARIES	24	Belmont St				1				P–5 (0)	––	EACH
D3–44A (PBS)	VARIES	24	School St				2				PC (0)	––	EACH
D3–1B (POS)	VARIES	24	Trapelo Rd				8				P–5 (0)	––	EACH
D3–3B (POS)	VARIES	24	Mill St				1				P–5 (0)	––	EACH
D3–33B (POS)	VARIES	24	Belmont St				4				P–5	––	EACH
D3–7C (POS)	VARIES	24	← Lexington St				1				P–5 (0)	––	EACH
D3–33C (PBS)	VARIES	24	Belmont St →				1				P–5 (0)	––	EACH

NOTES:
1. REMOVE AND STACK ALL EXISTING TRAFFIC SIGNAL EQUIPMENT.

2. REMOVE ALL PULL BOXES AND ABANDON EXISTING TRAFFIC SIGNAL CONDUIT SYSTEM.

3. MINIMUM 36" CLEARANCE EXCLUDING THE CURB WIDTH IS REQUIRED ON ALL SIDEWALKS.

4. VIDEO DETECTION AREAS ARE SHOWN ON THE PLANS GRAPHICALLY AND SHOULD BE ADJUSTED IN THE FIELD FOR PROPER DETECTION.

5. REFER TO SHEET NO. 137 FOR TRAFFIC SEQUENCE PLAN.

6. REFER TO SHEET NOS. 164 TO 168 FOR MAST ARM FOUNDATION DETAILS.

7. REFER TO SHEET NO. 123 FOR COMPLETE PAVEMENT MARKING AND SIGNING PLAN.

8. REFER TO SHEET NO.162 FOR TRAFFIC SIGNAL INTERCONNECT PLAN AND SIGNAL INTERCONNECT MAJOR ITEMS LIST. PULL BOXES EXCLUSIVE TO THE INTERCONNECT ARE SHOWN ON THE TRAFFIC SIGNAL INTERCONNECT ITEM LIST.

9. PUSH BUTTONS SHALL BE LOCATED NO MORE THAN 10" HORIZONTALLY FROM A LEVEL SURFACE (≤1.5%).

10. TWO TEMPORARY TRAFFIC SIGNALS WILL BE REQUIRED.

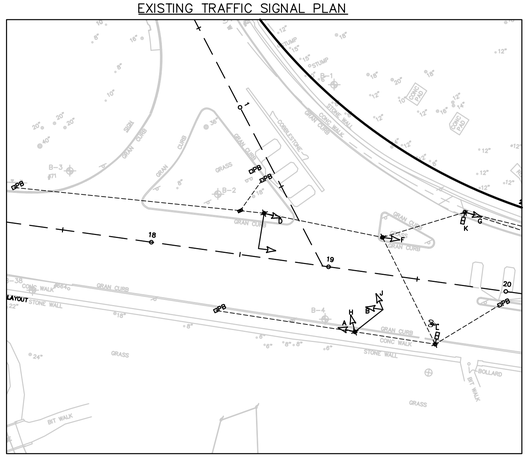
MAJOR ITEMS REQUIRED

QTY	ITEM 816.01
1	TRAFFIC SIGNAL CONTROLLER (TS-2, TYPE 1) W/ 8DW BASE MOUNTED CABINET
1	20' MAST ARM (STEEL), INCLUDE BASE & FOUNDATION
1	25' MAST ARM (STEEL), INCLUDE BASE & FOUNDATION W/(1) R10-11b
1	35' MAST ARM (STEEL), INCL. BASE & FNDN W/ (1) D3
1	30' MAST ARM (STEEL), INCL. BASE & FNDN W/ (2) R3-5L
1	10' TRAFFIC SIGNAL POST, BASE & FOUNDATION
9	8' TRAFFIC SIGNAL POST, BASE & FOUNDATION
6	1-WAY, 3-SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
1	1-WAY, 5-SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
1	2-WAY, 3-SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
1	2-WAY, 3/5-SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
11	5" LOUVERED BACKPLATES
10	PEDESTRIAN SIGNAL HEAD W/ EGG-CRATE VISOR (L.E.D. W/ COUNTDOWN)
10	ACCESSIBLE PEDESTRIAN PUSH BUTTON ASSEMBLY W/ SIGN
6	12" x 12" PULL BOXES*
1	12" x 24" PULL BOXES*
5	VIDEO DETECTION CAMERAS
5	VIDEO CAMERA MAST ARM MOUNTING BRACKET
3	VIDEO DETECTION PROCESSOR – TWO CHANNEL
3	OPTICAL PRE-EMPTION DETECTORS SINGLE CHANNEL
1	EMERGENCY VEHICLE PRE-EMPTION CONFIRMATION STROBE LIGHT (WHITE)
1	OPTICAL PHASE SELECTOR FOUR CHANNEL
1	SERVICE CONNECTION (OVERHEAD)

PLUS ALL NECESSARY DUCT, CABLE, FOUNDATIONS, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION AND PROVIDE AN OPERATING TRAFFIC SIGNAL.

* TO BE PAID UNDER ITS RESPECTIVE PAY ITEM.

EXISTING TRAFFIC SIGNAL PLAN



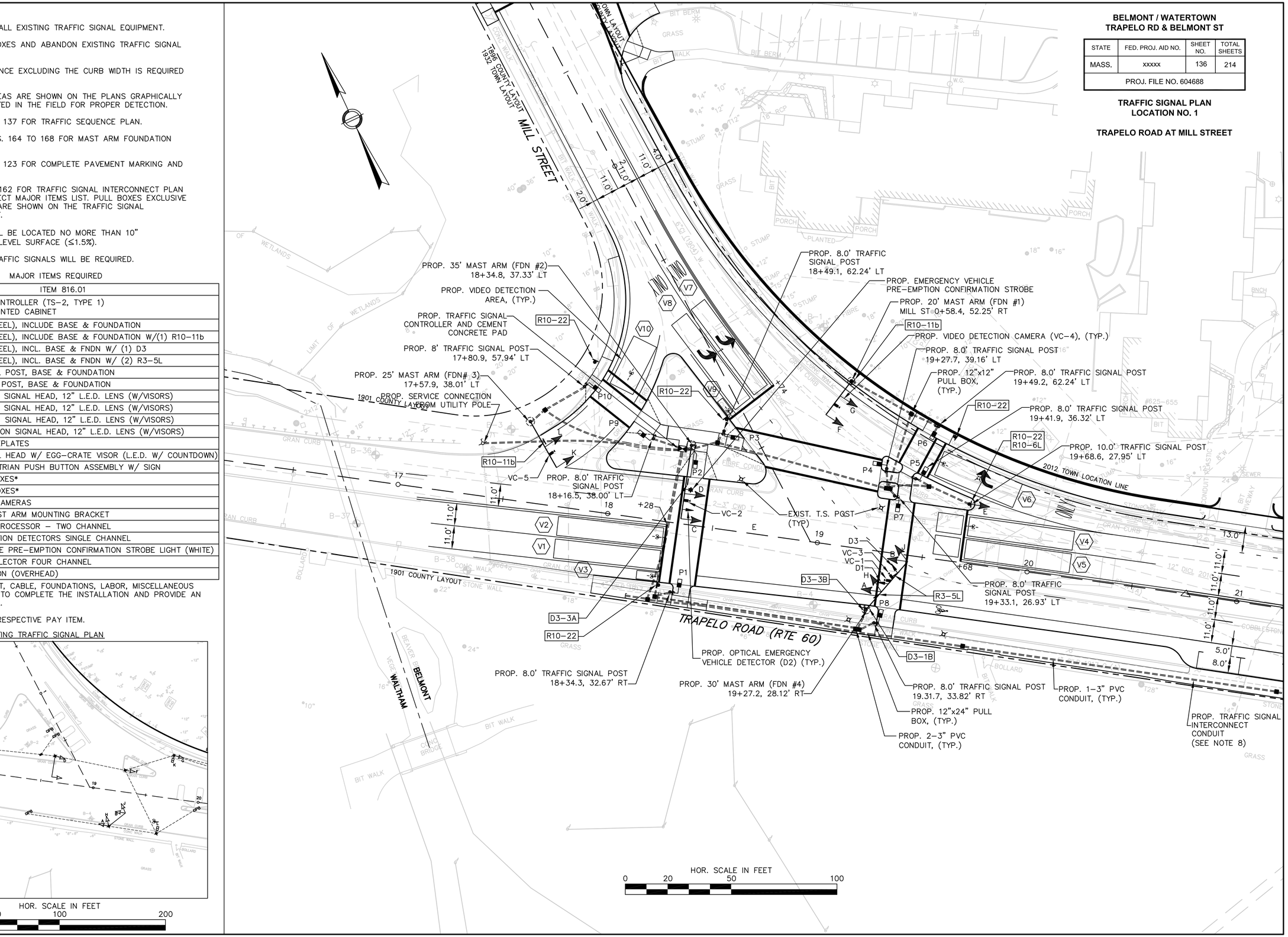
HOR. SCALE IN FEET
0 40 100 200

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

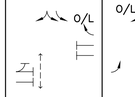
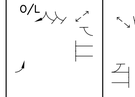
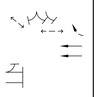
STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	136	214
PROJ. FILE NO. 604688			

TRAFFIC SIGNAL PLAN
LOCATION NO. 1

TRAPELO ROAD AT MILL STREET



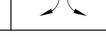
SEQUENCE AND TIMING CHART

				PHASE 1			PHASE 2			PHASE 3			PHASE 4			PHASE 5			PHASE 6			PHASE 7			PHASE 8			PHASE 9			EMERGENCY FLASH OPERATION
																															
				SEQUENCE																											
STREET	DIR.	FACE	Ø/OL	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	
TRAPELO RD	EB	A	2				G	Y	R				R	R	R	R	R	R	R	R	R							R	R	R	FY
TRAPELO RD	EB	B	2/5				G	Y	R				R	R	R	G	Y	R	R	R	R							R	R	R	FY
TRAPELO RD	WB	C,D	6				R	R	R				R	R	R	R	R	R	G	Y	R							R	R	R	FY
TRAPELO RD	WB	E	6/4				R	R	R				R	R	R	R	R	R	G	Y	R							R	R	R	FY
TRAPELO RD	WB	F,G	6/4				R	R	R				G	Y	R	R	R	R	G	Y	R							R	R	R	FY
MILL ST	SB	H,J	4				R	R	R				R	R	R	R	R	R	R	R	R							R	R	R	FR
MILL ST	SB	K,L	4/5				R	R	R				G	Y	R	G	Y	R	R	R	R							R	R	R	FR
PEDESTRIAN		P1–P2	4										•															F/		OFF
PEDESTRIAN		P3–P4	6																•									F/		OFF
PEDESTRIAN		P5–P6	5													•												F/		OFF
PEDESTRIAN		P7–P8	9																									F/		OFF
PEDESTRIAN		P9–P10	6																•									F/		OFF
				TIMING IN SECONDS																											
MINIMUM GREEN							10						8			4			10												
VEHICLE INTERVAL							2						2			2			2												
MAXIMUM GREEN I (FREE)							45						31			15			31												
MAXIMUM GREEN II (COORD)							49						29			14			30												
YELLOW CLEAR								4						4			4			3											
ALL RED CLEAR									2						2			2			2									4
WALK INTERVAL													7			7			7									7			
PED CLEARANCE													12	4		3	3		18	2									14		
PED BUFFER															2		1	2		1	2										4
DETECTOR							NON–LOCK						NON–LOCK			NON–LOCK			NON–LOCK									LOCK			
RECALL MODE							SOFT						OFF			OFF			SOFT									OFF			
				COORDINATION TIMING (SECONDS)																											
CYCLE		OFFSET		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	
DIAL	SEC.	%	SEC.																												
AM	90	39	35				49	4	2				29	4	2	14	4	2	30	3	2										
AM W/Ø9 PED	90	39	35				31	4	2				22	4	2	8	4	2	20	3	2							7	14	4	
PM	90	42	38				49	4	2				29	4	2	14	4	2	30	3	2										
PM W/Ø9 PED	90	42	38				30	4	2				23	4	2	10	4	2	15	3	2							7	14	4	

SEQUENCE NOTES:

1. ANY PHASE NOT CALLED WILL BE SKIPPED. SIGNAL IDENTIFICATION WILL NOT CHANGE IF THE ASSIGNED RIGHT OF WAY DOES NOT CHANGE DURING THE NEXT PHASE CALLED.
2. • NORMALLY DON'T WALK, UPON PEDESTRIAN PUSH BUTTON ACTIVATION, WALK/FLASHING DON'T WALK (COUNTDOWN).
3. COUNTDOWN PHASE OF PEDESTRAIN SIGNALS SHALL NOT OCCUR DURING THE WALK PERIOD.
4. THE RIGHT–OF–WAY MAY BE ASSIGNED TO ANY PHASE OR ANY COMBINATION OF NON–CONFLICTING PHASES.
5. Ø/OL = PHASE IN DISPLAY / OVERLAPPING PHASE.
6. DIAL 1 (AM) = 06:30 – 09:00, M–F
   DIAL 2 (PM) = 15:00 – 18:00, M–F
   FREE = ALL OTHER TIMES
7. OFFSETS REFERENCED TO THE BEGINNING OF GREEN, PHASE 2+6.
8. PHASE 9 TO BE CALLED ONLY BY P7–P8 PUSH BUTTON ACTIVATION.
9. PHASE 9 SHALL ONLY BE ACTIVATED BY P1, P2, P7 AND P8.

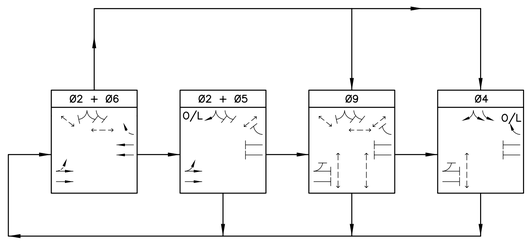
EMERGENCY VEHICLE PRE–EMPTION PHASING AND PRIORITY

DETECTOR AND PRIORITY	PRE–EMPT PHASE ASSIGNMENT	MOVEMENT	VEHICLE PHASE ASSIGNMENT
D1	1		Ø2 + Ø5
D2	2		Ø6
D3	3		Ø4

EMERGENCY VEHICLE PRE–EMPTION PHASING AND PRIORITY NOTES:

1. EMERGENCY VEHICLE PRE–EMPTION SIGNALS SHALL BE OPTICALLY TRANSMITTED BY OPTICAL EMITTERS MOUNTED IN EMERGENCY VEHICLES AND RECEIVED BY OPTICAL DETECTORS LOCATED AT EACH INTERSECTION.
2. IN RESPONSE TO A PRE–EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY OPTICAL DETECTOR D1 (OR D2, D3) THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD IN EMERGENCY VEHICLE PRE–EMPTION PHASE #1 (OR #2, #3) GREEN FOR A MINIMUM OF TEN (10) SECONDS OR UNTIL PRE–EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE–EMPTION PHASE CLEARANCE (4 SECONDS: YELLOW AND 2 SECONDS: ALL RED) AND SERVICE EMERGENCY VEHICLE PRE–EMPTION PHASE #2 (OR #1) IF NECESSARY, THEN TIME PHASE PRE–EMPTION CLEARANCE AND RESUME NORMAL SIGNAL OPERATION. EMERGENCY VEHICLE PRE–EMPTION PHASE #3 SHALL BE SIMILARLY SERVED.
3. MINIMUM GREEN, NORMAL VEHICLE CLEARANCE, SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE–EMPTION DEMAND.
4. PREEMPTION STROBE SHALL BE ILLUMINATED WHENEVER ANY EMERGENCY VEHICLE PRE–EMPTION GREEN IS ON.

PREFERENTIAL PHASING SEQUENCE



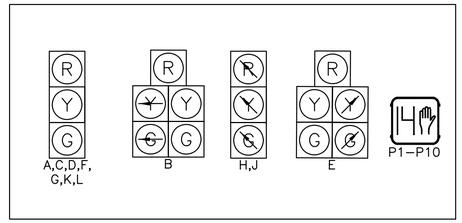
BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	137	214
PROJ. FILE NO. 604688			

TRAFFIC SIGNAL PLAN
LOCATION NO. 1

TRAPELO ROAD AT MILL STREET

SIGNAL DISPLAY



SIGNAL DISPLAY NOTES:

1. ALL SIGNAL DISPLAYS SHALL BE EQUIPPED W/ LED MODULES (12–INCH LENS)
2. ALL SIGNAL HEADS SHALL BE RIGID MOUNTED AND EQUIPPED WITH ±5" LOUVERED BACKPLATES.
3. ALL PEDESTRIAN SIGNAL HEADS SHALL HAVE PEDESTRIAN COUNTDOWN TIMER AND EGG–CRATE VISOR.

DETECTOR OPERATION

DETECTOR NUMBER	NUMBER OF SECTION/SIZE	PROCESSOR NUMBER	CHANNEL NUMBER	Ø CALLED	Ø EXTENSION	OPERATION	DELAY (SECONDS)	EXTENSION (SECONDS)
V1	9'x50'	1	1	2	2	PRESENCE	0	0
V2	9'x50'	1	1	2/5	2/5	PRESENCE	0	0
V3	3'x10'	1	1	2	2	PRESENCE	0	0
V4	1 – 9'x50' 1 – 9'x12'	1	2	6	6	PRESENCE	0	0
V5	1 – 9'x50' 1 – 9'x12'	1	2	6	6	PRESENCE	0	0
V6	12'x40'	2	1	6	6	PRESENCE	0	0
V7	9'x50'	2	2	4	4	PRESENCE	0	0
V8	9'x50'	2	2	4	4	PRESENCE	0	0
V9	3'x8'	2	2	4	4	PRESENCE	0	0
V10	12'x25'	3	1	4	4	PRESENCE	0	0

DETECTOR OPERATION NOTES:

1. DELAY TIME SHALL BE EFFECTIVE ONLY DURING THE RED PORTION OF THE PHASE THAT IS CALLED AT THE DETECTOR.
2. DETECTOR OPERATION SHOULD BE BI–DIRECTIONAL.

NOTES:
1. REMOVE AND STACK ALL EXISTING TRAFFIC SIGNAL EQUIPMENT.

2. REMOVE ALL PULL BOXES AND ABANDON EXISTING TRAFFIC SIGNAL CONDUIT SYSTEM.

3. MINIMUM 36" CLEARANCE EXCLUDING THE CURB WIDTH IS REQUIRED ON ALL SIDEWALKS.

4. REFER TO SHEET NO. 139 FOR TRAFFIC SEQUENCE PLAN.

5. REFER TO SHEET NOS. 164 TO 168 FOR MAST ARM FOUNDATION DETAILS.

6. REFER TO SHEET NO. 123 FOR COMPLETE PAVEMENT MARKING AND SIGNING PLAN.

7. REFER TO SHEET NO. 162 FOR TRAFFIC SIGNAL INTERCONNECT PLAN AND SIGNAL INTERCONNECT MAJOR ITEMS LIST. PULL BOXES EXCLUSIVE TO THE INTERCONNECT ARE SHOWN ON THE TRAFFIC SIGNAL INTERCONNECT ITEM LIST.

8. AN 8M PERMIT IS REQUIRED FOR WORK WITHIN 15' OF MWRA FACILITIES INCLUDING THE 54" WESTON AQUEDUCT.

9. PUSH BUTTONS SHALL BE LOCATED NO MORE THAN 10" HORIZONTALLY FROM A LEVEL SURFACE (≤1.5%).

10. ONE TEMPORARY TRAFFIC SIGNALS WILLL BE REQUIRED.

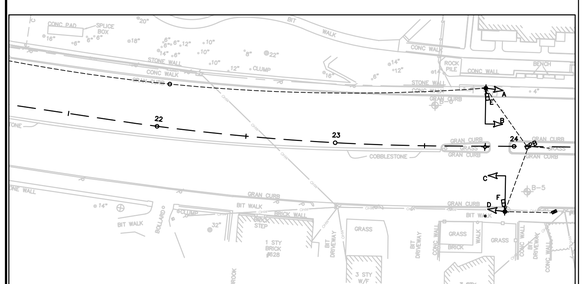
MAJOR ITEMS REQUIRED

QTY	ITEM 816.02
1	TRAFFIC SIGNAL CONTROLLER (TS-2, TYPE 1) W/ 8DW BASE MOUNTED CABINET AND FOUNDATION PAD
1	25' MAST ARM (STEEL), INCLUDE BASE & FOUNDATION
1	35' MAST ARM (STEEL), INCLUDE BASE & FOUNDATION
2	8' TRAFFIC SIGNAL POST, BASE & FOUNDATION
4	1-WAY, 3-SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
4	±5" LOUVERED BACKPLATES
2	PEDESTRIAN SIGNAL HEAD W/ EGG-CRATE VISOR (L.E.D. W/ COUNTDOWN)
2	ACCESSIBLE PEDESTRIAN PUSH BUTTON ASSEMBLY W/ SIGN
1	12" x 12" PULL BOX*
1	SERVICE CONNECTION (OVERHEAD)

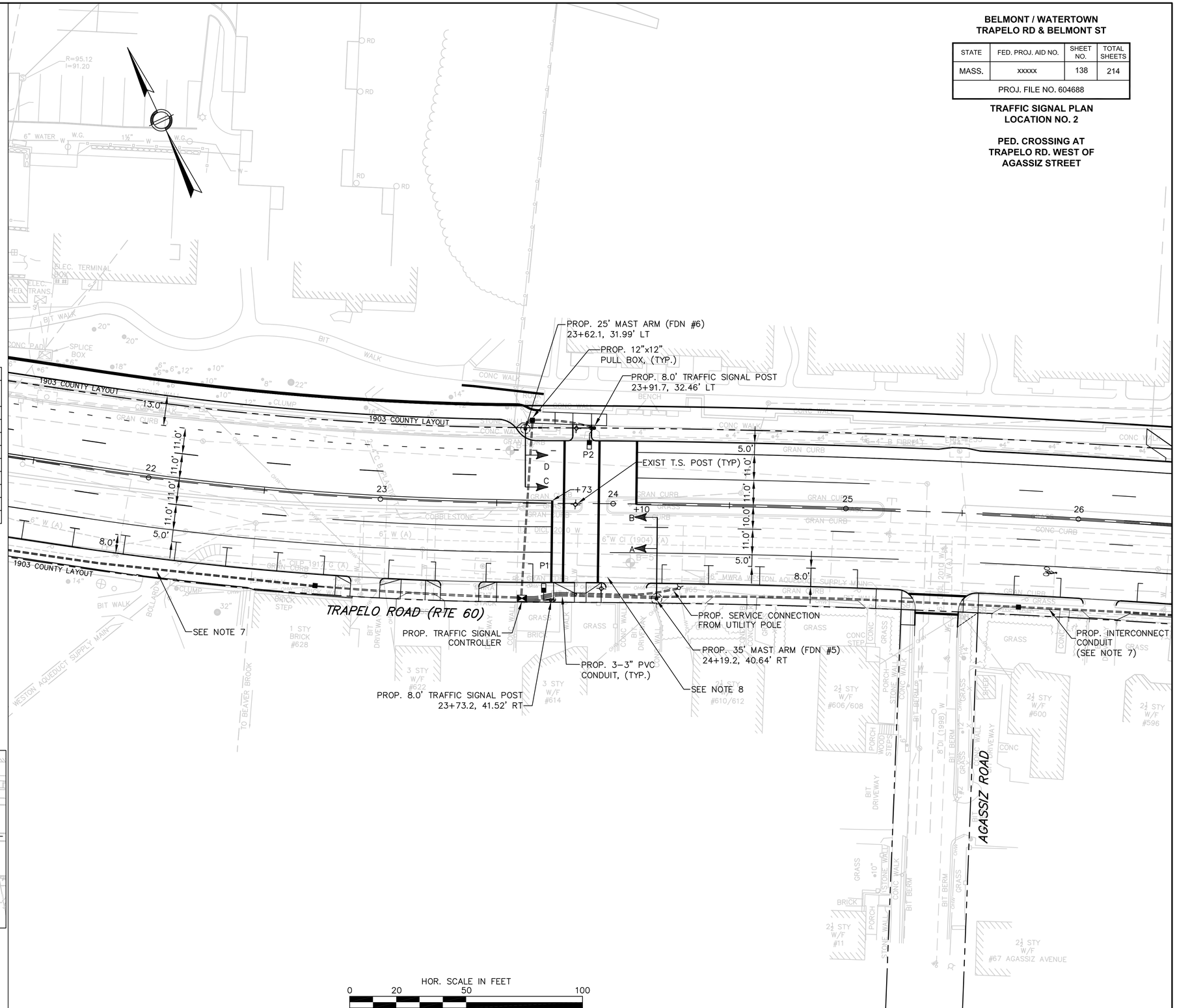
PLUS ALL NECESSARY DUCT, CABLE, FOUNDATIONS, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION AND PROVIDE AN OPERATING TRAFFIC SIGNAL.

* TO BE PAID UNDER ITS RESPECTIVE PAY ITEM.

EXISTING TRAFFIC SIGNAL PLAN



HOR. SCALE IN FEET
0 40 100 200



HOR. SCALE IN FEET
0 20 50 100

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	138	214
PROJ. FILE NO. 604688			

TRAFFIC SIGNAL PLAN
LOCATION NO. 2

PED. CROSSING AT TRAPELO RD. WEST OF AGASSIZ STREET

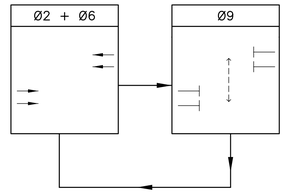
SEQUENCE AND TIMING CHART

				PHASE 1			PHASE 2			PHASE 3			PHASE 4			PHASE 5			PHASE 6			PHASE 7			PHASE 8			PHASE 9			EMERGENCY FLASH OPERATION
				SEQUENCE																											
STREET	DIR.	FACE	Ø/OL	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	
TRAPELO RD	EB	A,B	2				G	Y	R										R	R	R										FY
TRAPELO RD	WB	C,D	6				R	R	R										G	Y	R										FY
PEDESTRIAN		P1–P2	9																									F/			OFF
				TIMING IN SECONDS																											
MINIMUM GREEN							20												20												
VEHICLE INTERVAL																															
MAXIMUM GREEN I (FREE)							37												37												
MAXIMUM GREEN II (COORD)							57												57												
YELLOW CLEAR								4												4											
ALL RED CLEAR									1												1										4
WALK INTERVAL																												7			
PED CLEARANCE																													17		
PED BUFFER																															4
DETECTOR							NON–LOCK												NON–LOCK									LOCK			
RECALL MODE							SOFT												SOFT									OFF			
				COORDINATION TIMING (SECONDS)																											
CYCLE		OFFSET		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	
DIAL	SEC.	%	SEC.																												
AM	90	83	75				57	4	1										57	4	1							7	17	4	
PM	90	37	33				57	4	1										57	4	1							7	17	4	

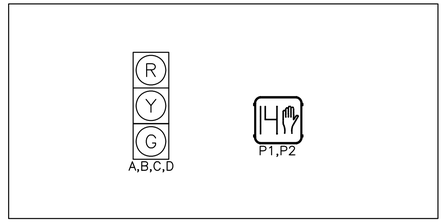
SEQUENCE NOTES:

1. ANY PHASE NOT CALLED WILL BE SKIPPED. SIGNAL IDENTIFICATION WILL NOT CHANGE IF THE ASSIGNED RIGHT OF WAY DOES NOT CHANGE DURING THE NEXT PHASE CALLED.
2. THE RIGHT–OF–WAY MAY BE ASSIGNED TO ANY PHASE OR ANY COMBINATION OF NON–CONFLICTING PHASES.
3. Ø/OL = PHASE IN DISPLAY / OVERLAPPING PHASE.
4. DIAL 1 (AM) = 06:30 – 09:00, M–F
   DIAL 2 (PM) = 15:00 – 18:30, M–F
   FREE = ALL OTHER TIMES
5. OFFSETS REFERENCED TO THE BEGINNING OF GREEN, PHASES 2+6.
6. COUNTDOWN PHASE OF PEDESTRIAN SIGNALS SHALL NOT OCCUR DURING THE WALK PERIOD.

PREFERENTIAL PHASING SEQUENCE



SIGNAL DISPLAY



SIGNAL DISPLAY NOTES:

1. ALL SIGNAL DISPLAYS SHALL BE EQUIPPED W/ LED MODULES (12–INCH LENS)
2. ALL SIGNAL HEADS SHALL BE RIGID MOUNTED AND EQUIPPED WITH ±5" LOUVERED BACKPLATES.
3. ALL PEDESTRIAN SIGNAL HEADS SHALL HAVE PEDESTRIAN COUNTDOWN TIMER AND EGG–CRATE VISOR.

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	139	214
PROJ. FILE NO. 604688			

TRAFFIC SIGNAL PLAN
LOCATION NO. 2

PED. CROSSING AT TRAPELO
ROAD WEST OF AGASSIZ STREET

NOTES:
1. MINIMUM 36" CLEARANCE EXCLUDING THE CURB WIDTH IS REQUIRED ON ALL SIDEWALKS.

2. VIDEO DETECTION AREAS ARE SHOWN ON THE PLANS GRAPHICALLY AND SHOULD BE ADJUSTED IN THE FIELD FOR PROPER DETECTION.

3. REFER TO SHEET NO. 141 FOR TRAFFIC SEQUENCE PLAN.

4. REFER TO SHEET NOS. 164 TO 168 FOR MAST ARM FOUNDATION DETAILS.

5. REFER TO SHEET NO. 124 FOR COMPLETE PAVEMENT MARKING AND SIGNING PLAN

6. REFER TO SHEET NO. 162 FOR TRAFFIC SIGNAL INTERCONNECT PLAN AND SIGNAL INTERCONNECT MAJOR ITEMS LIST. PULL BOXES EXCLUSIVE TO THE INTERCONNECT ARE SHOWN ON THE TRAFFIC SIGNAL INTERCONNECT ITEM LIST.

7. AN 8M PERMIT IS REQUIRED FOR WORK WITHIN 15' OF MWRA FACILITIES INCLUDING THE 56" WESTON AQUEDUCT.

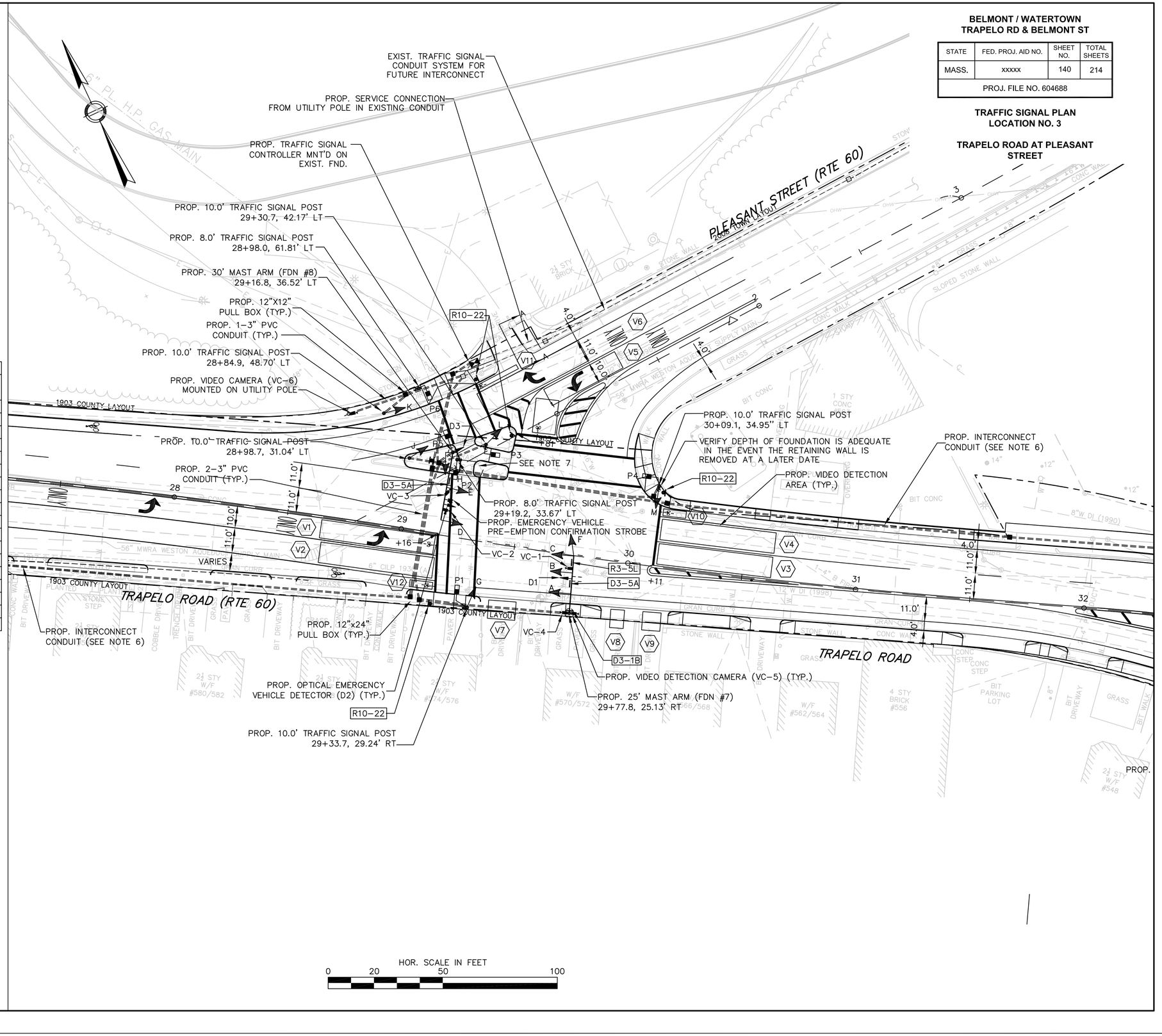
8. PUSH BUTTONS SHALL BE LOCATED NO MORE THAN 10" HORIZONTALLY FROM A LEVEL SURFACE (≤1.5%).

MAJOR ITEMS REQUIRED

QTY	ITEM 815.3
1	TRAFFIC SIGNAL CONTROLLER (TS-2, TYPE 1) W/8DW BASE MOUNTED CABINET MOUNTED ON EXISTING CEMENT CONCRETE PAD
1	25' MAST ARM (STEEL), INCL. BASE & FNDN W/ (1) R3-5L & (1) D3
1	30' MAST ARM (STEEL), INCL. BASE & FNDN W/ (1) D3
5	10' TRAFFIC SIGNAL POST, BASE & FOUNDATION
2	8' TRAFFIC SIGNAL POST, BASE & FOUNDATION
9	1-WAY, 3-SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
1	2-WAY, 3/5-SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
1	1-WAY, 5-SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
12	5" LOUVERED BACKPLATES
6	PEDESTRIAN SIGNAL HEAD W/ EGG-CRATE VISOR (L.E.D. W/ COUNTDOWN)
6	ACCESSIBLE PEDESTRIAN PUSH BUTTON ASSEMBLY W/ SIGN
5	12" x 12" PULL BOXES*
6	VIDEO DETECTION CAMERAS
6	VIDEO CAMERA MAST ARM MOUNTING BRACKET
3	VIDEO DETECTION PROCESSOR – TWO CHANNEL
3	OPTICAL PRE-EMPTION DETECTORS SINGLE CHANNEL
1	EMERGENCY VEHICLE PRE-EMPTION CONFIRMATION STROBE LIGHT (WHITE)
1	OPTICAL PHASE SELECTOR FOUR CHANNEL
1	SERVICE CONNECTION (OVERHEAD)

PLUS ALL NECESSARY DUCT, CABLE, FOUNDATIONS, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION AND PROVIDE AN OPERATING TRAFFIC SIGNAL.

* TO BE PAID UNDER ITS RESPECTIVE PAY ITEM.



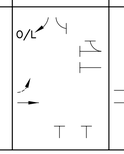
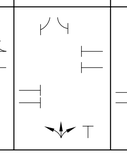
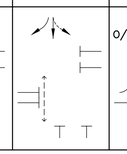
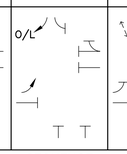
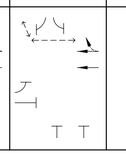
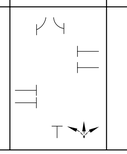
BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	140	214
PROJ. FILE NO. 604688			

TRAFFIC SIGNAL PLAN
LOCATION NO. 3

TRAPELO ROAD AT PLEASANT STREET

SEQUENCE AND TIMING CHART

				PHASE 1			PHASE 2			PHASE 3			PHASE 4			PHASE 5			PHASE 6			PHASE 7			PHASE 8			PHASE 9			EMERGENCY FLASH OPERATION
																															
				SEQUENCE																											
STREET	DIR.	FACE	Ø/OL	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	
TRAPELO RD	EB	A,B	2				G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R				R	R	R				FY
TRAPELO RD	EB	C	5				G	Y	R	R	R	R	R	R	R	G	Y	R	R	R	R				R	R	R				FY
TRAPELO RD	WB	D,E	6				R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R				R	R	R				FY
PLEASANT ST	SB	F,G	4				R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R				R	R	R				FR
PLEASANT ST	SB	J,K	4				R	R	R	R	R	R	G	ⓐ	ⓐ	G	Y	R	R	R	R				R	R	R				FR
PLEASANT ST	SB	L	4																												
DRIVEWAY 1	NB	M	8				R	R	R	R	R	R	R	R	R	R	R	R	R	R	R				G	Y	R				FR
DRIVEWAY 2	NB	H	3				R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R				R	R	R				FR
PEDESTRIAN		P1–P2	4				🚶	🚶	🚶	🚶	🚶	🚶	•	🚶	🚶	🚶	🚶	🚶	🚶	🚶	🚶				🚶	🚶	🚶				OFF
PEDESTRIAN		P3–P4	6				🚶	🚶	🚶	🚶	🚶	🚶	🚶	🚶	🚶	🚶	🚶	🚶	•	🚶	🚶				🚶	🚶	🚶				OFF
PEDESTRIAN		P5–P6	6				🚶	🚶	🚶	🚶	🚶	🚶	🚶	🚶	🚶	🚶	🚶	🚶	•	🚶	🚶				🚶	🚶	🚶				OFF
				TIMING IN SECONDS																											
MINIMUM GREEN							12			4			6			4			12						6						
VEHICLE INTERVAL							2			0			2			2			2						0						
MAXIMUM GREEN I (FREE)							48			4			22			15			30						6						
MAXIMUM GREEN II (COORD)							58			4			22			18			36						6						
YELLOW CLEAR								4			3			3			3			4							3				
ALL RED CLEAR									2			1			3			0			2								1		
WALK INTERVAL													7						7												
PED CLEARANCE													12	3					12	3											
PED BUFFER															3					1	2										
DETECTOR							NON–LOCK			NON–LOCK			NON–LOCK			NON–LOCK			NON–LOCK						NON–LOCK						
RECALL MODE							SOFT			OFF			OFF			SOFT			SOFT						OFF						
				COORDINATION TIMING (SECONDS)																											
CYCLE		OFFSET		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	
DIAL	SEC.	%	SEC.																												
AM	90	83	75				56	4	2	4	3	1	22	3	3	18	3	0	35	4	2				6	3	1				
AM W/PED	90	83	75				56	4	2	4	3	1	22	3	3	18	3	0	35	4	2				6	3	1				
PM	90	85	77				58	4	2	4	3	1	20	3	3	19	3	0	36	4	2				6	3	1				
PM W/PED	90	86	77				56	4	2	4	3	1	22	3	3	18	3	0	35	4	2				6	3	1				

ⓐ ⓐ – G TO G, G IF FOLLOWED BY Ø5
G TO Y, R IF FOLLOWED BY Ø6

SEQUENCE NOTES:

1. ANY PHASE NOT CALLED WILL BE SKIPPED. SIGNAL IDENTIFICATION WILL NOT CHANGE IF THE ASSIGNED RIGHT OF WAY DOES NOT CHANGE DURING THE NEXT PHASE CALLED.
2. • NORMALLY DON'T WALK, UPON PEDESTRIAN PUSH BUTTON ACTIVATION, WALK/FLASHING DON'T WALK (COUNTDOWN).
3. THE RIGHT–OF–WAY MAY BE ASSIGNED TO ANY PHASE OR ANY COMBINATION OF NON–CONFLICTING PHASES.
4. Ø/OL = PHASE IN DISPLAY / OVERLAPPING PHASE.
5. DIAL 1 (AM) = 06:30 – 09:00, M–F
   DIAL 2 (PM) = 15:00 – 18:00, M–F
   FREE = ALL OTHER TIMES
6. OFFSETS REFERENCED TO THE BEGINNING OF GREEN, PHASE 2.
7. * TIME FOR PHASE 3 WHEN ACTUATED, TO BE TAKEN FROM PHASES 2+6.
8. COUNTDOWN PHASE OF PEDESTRIAN SIGNALS SHALL NOT OCCUR DURING THE WALK PERIOD.

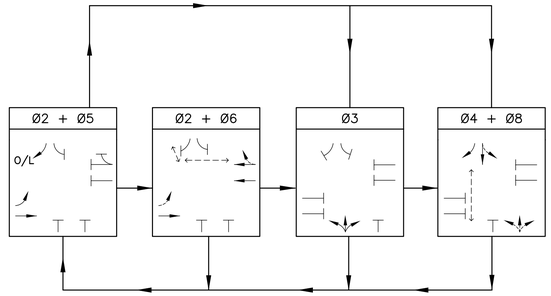
EMERGENCY VEHICLE PRE–EMPTION PHASING AND PRIORITY

DETECTOR AND PRIORITY	PRE–EMPT PHASE ASSIGNMENT	MOVEMENT	VEHICLE PHASE ASSIGNMENT
D1	1		Ø2+Ø5
D2	2		Ø6
D3	3		Ø4

EMERGENCY VEHICLE PRE–EMPTION PHASING AND PRIORITY NOTES:

1. EMERGENCY VEHICLE PRE–EMPTION SIGNALS SHALL BE OPTICALLY TRANSMITTED BY OPTICAL EMITTERS MOUNTED IN EMERGENCY VEHICLES AND RECEIVED BY OPTICAL DETECTORS LOCATED AT EACH INTERSECTION.
2. IN RESPONSE TO A PRE–EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY OPTICAL DETECTOR D1 (OR D2, D3) THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD IN EMERGENCY VEHICLE PRE–EMPTION PHASE #1 (OR #2, #3) GREEN FOR A MINIMUM OF TEN (10) SECONDS OR UNTIL PRE–EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE–EMPTION PHASE CLEARANCE (4 SECONDS: YELLOW AND 2 SECONDS: ALL RED) AND SERVICE EMERGENCY VEHICLE PRE–EMPTION PHASE #2 (OR #1) IF NECESSARY, THEN TIME PHASE PRE–EMPTION CLEARANCE AND RESUME NORMAL SIGNAL OPERATION. EMERGENCY VEHICLE PRE–EMPTION PHASE #3 SHALL BE SIMILARLY SERVED.
3. MINIMUM GREEN, NORMAL VEHICLE CLEARANCE, SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE–EMPTION DEMAND.
4. PREEMPTION STROBE SHALL BE ILLUMINATED WHENEVER ANY EMERGENCY VEHICLE PRE–EMPTION GREEN IS ON.

PREFERENTIAL PHASING SEQUENCE



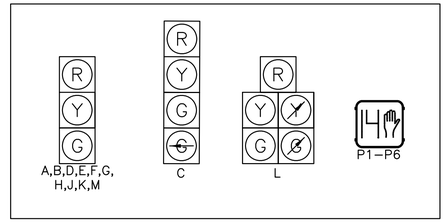
BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	141	214
PROJ. FILE NO. 604688			

TRAFFIC SIGNAL PLAN
LOCATION NO. 3

TRAPELO ROAD AT
PLEASANT STREET

SIGNAL DISPLAY



SIGNAL DISPLAY NOTES:

1. ALL SIGNAL DISPLAYS SHALL BE EQUIPPED W/ LED MODULES (12–INCH LENS)
2. ALL SIGNAL HEADS SHALL BE RIGID MOUNTED AND EQUIPPED WITH ±5" LOUVERED BACKPLATES.
3. ALL PEDESTRIAN SIGNAL HEADS SHALL HAVE PEDESTRIAN COUNTDOWN TIMER AND EGG–CRATE VISOR.

DETECTOR OPERATION

DETECTOR NUMBER	NUMBER OF SECTION/SIZE	PROCESSOR NUMBER	CHANNEL NUMBER	Ø CALLED	Ø EXTENSION	OPERATION	DELAY (SECONDS)	EXTENSION (SECONDS)
V1	8'x50'	1	1	5	5	PRESENCE	0	0
V2	9'x50'	1	1	2	2	PRESENCE	0	0
V3	9'x50'	1	2	6	6	PRESENCE	0	0
V4	9'x50'	1	2	6	6	PRESENCE	0	0
V5	1–10'x15' 1–8'x35'	2	1	4	4	PRESENCE	0	0
V6	10'x50'	2	2	4	4	PRESENCE	0	0
V7	8'x12'	3	1	3	3	PRESENCE	10	0
V8	6'x8'	3	2	8	8	PRESENCE	10	0
V9	8'x8'	3	2	8	8	PRESENCE	10	0
V10	3'x30'	1	2	6	6	PRESENCE	0	0
V11	2'x20'	2	2	4	4	PRESENCE	0	0
V12	4'x30'	1	1	2	2	PRESENCE	0	0

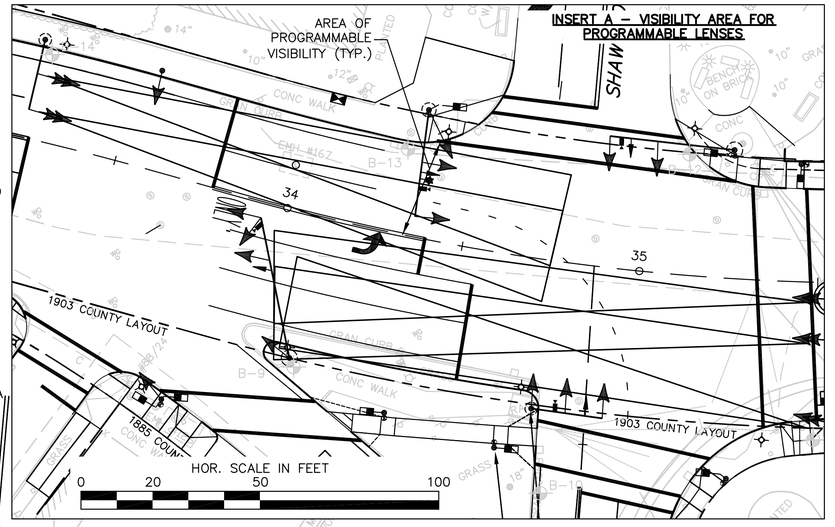
DETECTOR OPERATION NOTES:

1. DELAY TIME SHALL BE EFFECTIVE ONLY DURING THE RED PORTION OF THE PHASE THAT IS CALLED AT THE DETECTOR.

MAJOR ITEMS REQUIRED	
QTY	ITEM 816.04
1	MASTER CONTROLLER
1	TRAFFIC SIGNAL CONTROLLER (TS-2, TYPE 1) W/ 8DW BASE MOUNTED CABINET AND FOUNDATION PAD
2	20' MAST ARM (STEEL), INCL. BASE & FNDN W/ (1) D3
1	25' MAST ARM (STEEL), INCLUDE BASE & FOUNDATION
1	35' MAST ARM (STEEL), INCL. BASE & FNDN W/ (1) D3 & (1) R3-8C
1	35' MAST ARM TYPE B (STEEL), INCL. BASE & FNDN W/ (1) R3-5L & (1) D3
1	35' MAST ARM (STEEL), INCL. BASE & FNDN W/ (2) R10-7 & (1) D3
2	10' TRAFFIC SIGNAL POST, BASE & FOUNDATION
5	8' TRAFFIC SIGNAL POST, BASE & FOUNDATION
13	1-WAY, 3-SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
2	1-WAY, 4-SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
2	1-WAY, 5-SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
1	2-WAY, 3-SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
18	±5" LOUVERED BACKPLATES
10	PEDESTRIAN SIGNAL HEAD W/ EGG-CRATE VISOR (L.E.D. W/ COUNTDOWN)
10	ACCESSIBLE PEDESTRIAN PUSH BUTTON ASSEMBLY W/ SIGN
5	12" x 12" PULL BOXES*
1	12" x 24" PULL BOXES*
5	VIDEO DETECTION CAMERAS
5	VIDEO CAMERA MAST ARM MOUNTING BRACKET
3	VIDEO DETECTION PROCESSOR – TWO CHANNEL

NOTES:

1. ALL PROPOSED SIGNAL HEADS MUST BE AT LEAST 10 FEET FROM THE POWERED MBTA TROLLEY WIRES AND 5 FEET FROM THEIR SUPPORT CABLES. (SEE TYPE B MAST ARM DETAIL, SHEET NO. 146)
2. REMOVE AND STACK ALL EXISTING TRAFFIC SIGNAL EQUIPMENT.
3. REMOVE ALL PULL BOXES AND ABANDON EXISTING TRAFFIC SIGNAL CONDUIT SYSTEM, UNLESS OTHERWISE NOTED.
4. MINIMUM 36" CLEARANCE EXCLUDING THE CURB WIDTH IS REQUIRED ON ALL SIDEWALKS.
5. VIDEO DETECTION AREAS ARE SHOWN ON THE PLANS GRAPHICALLY AND SHOULD BE ADJUSTED IN THE FIELD.
6. REFER TO SHEET NO. 143 FOR TRAFFIC SEQUENCE PLAN.
7. REFER TO SHEET NOS. 164 TO 168 FOR MAST ARM FOUNDATION DETAILS.
8. REFER TO SHEET NO. 124 FOR COMPLETE PAVEMENT MARKING AND SIGNING PLAN.
9. REFER TO SHEET NO. 162 FOR TRAFFIC SIGNAL INTERCONNECT PLAN AND SIGNAL INTERCONNECT MAJOR ITEMS LIST. PULL BOXES EXCLUSIVE TO THE INTERCONNECT ARE SHOWN ON THE TRAFFIC SIGNAL INTERCONNECT ITEM LIST.
10. PUSH BUTTONS SHALL BE LOCATED NO MORE THAN 10" HORIZONTALLY FROM A LEVEL SURFACE (≤1.5%).
11. ONE TEMPORARY TRAFFIC SIGNAL WILL BE REQUIRED.

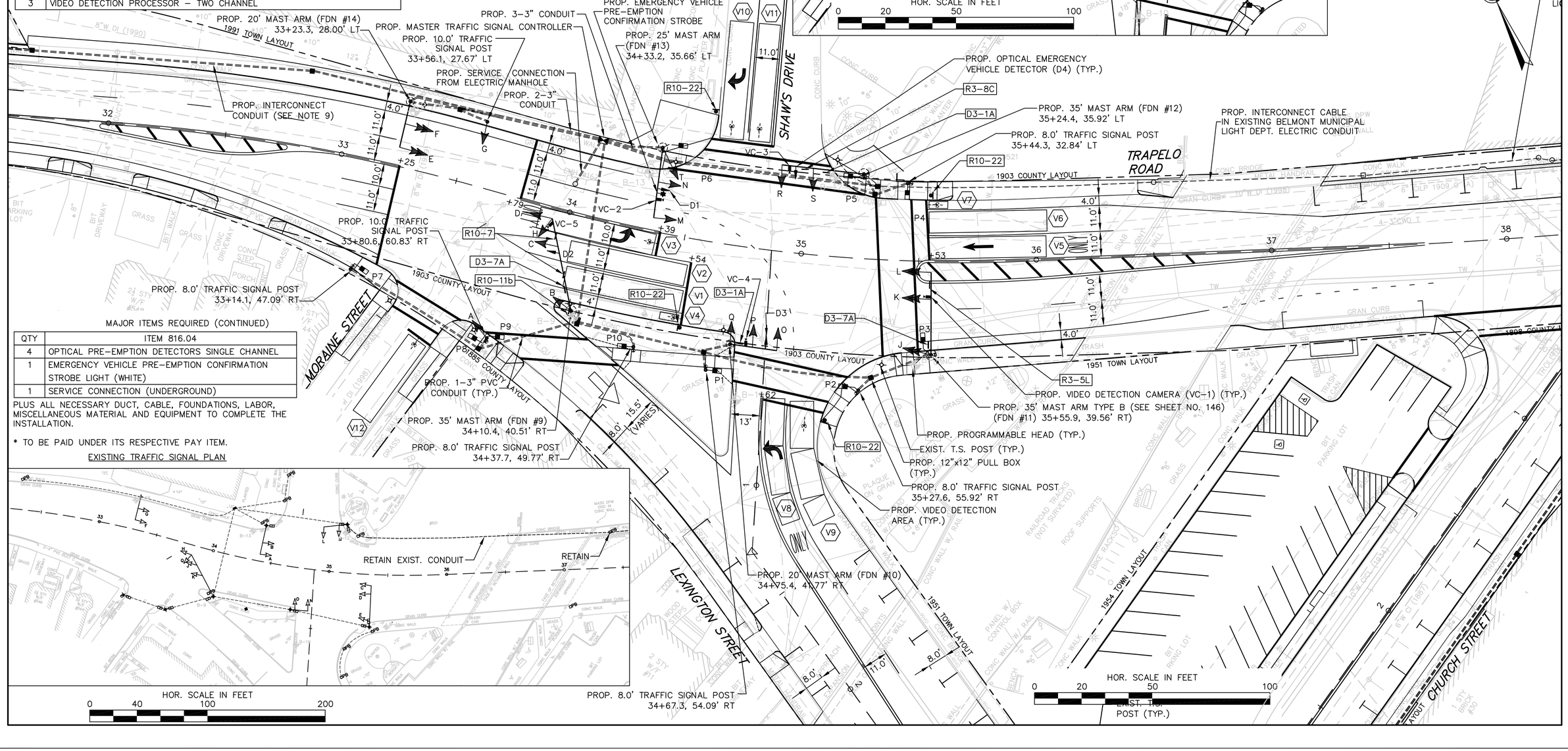


BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	142	214
PROJ. FILE NO. 604688			

TRAFFIC SIGNAL PLAN
LOCATION NO. 4

TRAPELO ROAD AT
LEXINGTON STREET



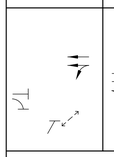
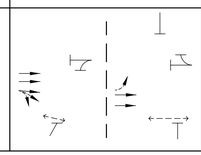
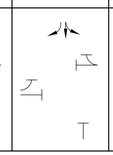
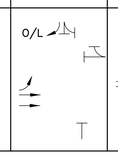
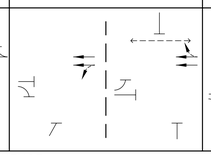
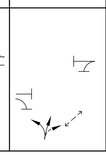
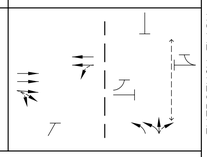
MAJOR ITEMS REQUIRED (CONTINUED)	
QTY	ITEM 816.04
4	OPTICAL PRE-EMPTION DETECTORS SINGLE CHANNEL
1	EMERGENCY VEHICLE PRE-EMPTION CONFIRMATION STROBE LIGHT (WHITE)
1	SERVICE CONNECTION (UNDERGROUND)

PLUS ALL NECESSARY DUCT, CABLE, FOUNDATIONS, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION.

* TO BE PAID UNDER ITS RESPECTIVE PAY ITEM.

EXISTING TRAFFIC SIGNAL PLAN

SEQUENCE AND TIMING CHART

				PHASE 1			PHASE 2			PHASE 4			PHASE 5			PHASE 6			PHASE 7			PHASE 8			EMERGENCY FLASH OPERATION
																									
				SEQUENCE																					
STREET	DIR.	FACE	Ø/OL	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	
TRAPELO RD	EB	A,B,C,D	2,8	R	R	R	G	Y	R	R	R	R	R	R	R	G	Y	R	R	R	R	G	G	G	FY
TRAPELO RD	EB	J,K	2,5	R	R	R	G	G	G	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	FY
TRAPELO RD	EB	L	2,5	R	R	R	G	G	G	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	FY
TRAPELO RD	WB	M	6	R	R	R	R	R	R	R	R	R	R	R	R	↟	Y	R	R	R	R	R	R	R	FY
TRAPELO RD	WB	N	6	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	FY
TRAPELO RD	WB	E	1,6,8	G	Y	R	R	R	R	R	R	R	R	R	R	G	G	G	R	R	R	G	G	G	FY
TRAPELO RD	WB	F	1,6,8	G	Y	R	R	R	R	R	R	R	R	R	R	G	G	G	R	R	R	G	G	G	FY
MORAINE ST	NB	G,H	7	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	FR
LEXINGTON ST	NB	R,T	8	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	FR
LEXINGTON ST	NB	S	8	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	FR
SHAW'S DR	SB	Q	4/5	R	R	R	R	R	R	↠	Y	R	↠	ⓐ	ⓐ	R	R	R	R	R	R	R	R	R	FR
SHAW'S DR	SB	O,P	4	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	FR
PEDESTRIAN		P1–P2, P5–P8	2+6	🚶	🚶	🚶	•	🚶	🚶	🚶	🚶	🚶	🚶	🚶	🚶	•	🚶	🚶	🚶	🚶	🚶	🚶	🚶	🚶	🚶	OFF
PEDESTRIAN		P3–P4	8	🚶	🚶	🚶	🚶	🚶	🚶	🚶	🚶	🚶	🚶	🚶	🚶	🚶	🚶	🚶	🚶	🚶	🚶	•	🚶	🚶	OFF
PEDESTRIAN		P9–P10	5/7	ⓑ	ⓑ	ⓑ	🚶	🚶	🚶	🚶	🚶	🚶	🚶	🚶	🚶	🚶	🚶	🚶	ⓑ	🚶	🚶	🚶	🚶	🚶	🚶	OFF
				TIMING IN SECONDS																					
MINIMUM GREEN				4			12			6			4			12			6			12			
VEHICLE INTERVAL							2			2						2			2			2			
MAXIMUM GREEN I (FREE)				4			25			15			4			25			15			25			
MAXIMUM GREEN II (COORD)				4			30			10			4			30			10			26			
YELLOW CLEAR					4			4			3			4			4				3			3	
ALL RED CLEAR						1			2			3			1			2			3				3
WALK INTERVAL				7ⓑ			7									7			ⓑ			7			
PED CLEARANCE					12ⓑ		11	3								13	3			12ⓑ		16	3		
PED BUFFER								1	2								1	2		3					3
DETECTOR				NON–LOCK			NON–LOCK			NON–LOCK			NON–LOCK			NON–LOCK			NON–LOCK			NON–LOCK			
RECALL MODE				OFF			SOFT			OFF			OFF			SOFT			OFF			OFF			
				COORDINATION TIMING (SECONDS)																					
CYCLE		OFFSET		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
DIAL	SEC.	%	SEC.																						
AM	90	0	0	4	4	1	30	4	2	8	3	3	4	4	1	30	4	2	8	3	3	25	3	3	
PM	90	0	0	4	4	1	27	4	2	10	3	3	4	4	1	27	4	2	10	3	3	26	3	3	

ⓐ ⓐ – ↠ TO ↠, ↠ IF FOLLOWED BY Ø4
↠ TO Y, R IF FOLLOWED BY Ø8 OR Ø6

ⓑ NORMAL DON'T WALK. UPON PUSH BUTTON ACTIVATION, WALK SHALL BEGIN IN Ø1 FOR 7 SECONDS. "FLASHING DON'T WALK" SHALL BEGIN IN Ø1 AND CONTINUE INTO Ø7 FOR A TOTAL OF 12 SECONDS.

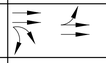
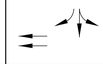
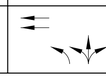
SEQUENCE NOTES:

1. ANY PHASE NOT CALLED WILL BE SKIPPED. SIGNAL IDENTIFICATION WILL NOT CHANGE IF THE ASSIGNED RIGHT OF WAY DOES NOT CHANGE DURING THE NEXT PHASE CALLED.
2. • NORMALLY DON'T WALK, UPON PEDESTRIAN PUSH BUTTON ACTIVATION, WALK/FLASHING DON'T WALK (COUNTDOWN).
3. THE RIGHT–OF–WAY MAY BE ASSIGNED TO ANY PHASE OR ANY COMBINATION OF NON–CONFLICTING PHASES.
4. Ø/OL = PHASE IN DISPLAY / OVERLAPPING PHASE.
5. DIAL 1 (AM) = 06:30 – 09:00, M–F, DIAL 2 (PM) = 15:00 – 18:00, M–F
   FREE = ALL OTHER TIMES
6. OFFSETS REFERENCED TO THE BEGINNING OF GREEN, PHASES 2+6.
7. COUNTDOWN PHASE OF PEDESTRIAN SIGNALS SHALL NOT OCCUR DURING THE WALK PERIOD.

EMERGENCY VEHICLE PRE–EMPTION PHASING AND PRIORITY NOTES:

1. EMERGENCY VEHICLE PRE–EMPTION SIGNALS SHALL BE OPTICALLY TRANSMITTED BY OPTICAL EMITTERS MOUNTED IN EMERGENCY VEHICLES AND RECEIVED BY OPTICAL DETECTORS LOCATED AT EACH INTERSECTION.
2. IN RESPONSE TO A PRE–EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY OPTICAL DETECTOR D1 (OR D2, D3, D4) THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD IN EMERGENCY VEHICLE PRE–EMPTION PHASE #1 (OR #2, #3, #4) GREEN FOR A MINIMUM OF TEN (10) SECONDS OR UNTIL PRE–EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE–EMPTION PHASE CLEARANCE (4 SECONDS: YELLOW AND 2 SECONDS: ALL RED) AND SERVICE EMERGENCY VEHICLE PRE–EMPTION PHASE #2 (OR #1) IF NECESSARY, THEN TIME PHASE PRE–EMPTION CLEARANCE AND RESUME NORMAL SIGNAL OPERATION. EMERGENCY VEHICLE PRE–EMPTION PHASE #3 AND #4 SHALL BE SIMILARLY SERVED.
3. MINIMUM GREEN, NORMAL VEHICLE CLEARANCE, SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE–EMPTION DEMAND.
4. PREEMPTION STROBE SHALL BE ILLUMINATED WHENEVER ANY EMERGENCY VEHICLE PRE–EMPTION GREEN IS ON.

EMERGENCY VEHICLE PRE–EMPTION PHASING AND PRIORITY

DETECTOR AND PRIORITY	PRE–EMPT PHASE ASSIGNMENT	MOVEMENT	VEHICLE PHASE ASSIGNMENT
D1	1		Ø6
D2	2		Ø2
D3	3		Ø1 & Ø4
D4	4		Ø8

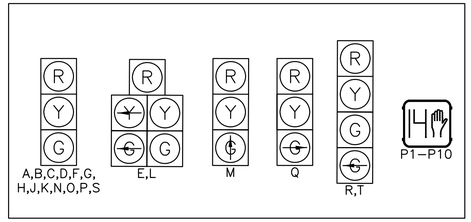
BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	143	214
PROJ. FILE NO. 604688			

TRAFFIC SIGNAL PLAN
LOCATION NO. 4

TRAPELO ROAD AT
LEXINGTON STREET

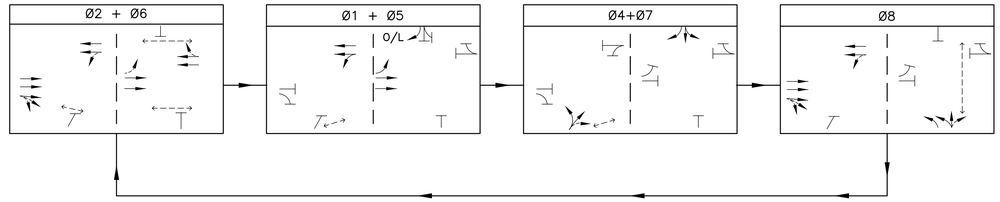
SIGNAL DISPLAY



SIGNAL DISPLAY NOTES:

1. ALL SIGNAL DISPLAYS SHALL BE EQUIPPED W/ LED MODULES (12–INCH LENS)
2. ALL SIGNAL HEADS SHALL BE RIGID MOUNTED AND EQUIPPED WITH ±5" LOUVERED BACKPLATES.
3. ALL PEDESTRIAN SIGNAL HEADS SHALL HAVE PEDESTRIAN COUNTDOWN TIMER AND EGG–CRATE VISOR.
4. L,K,J,E,F ARE PROGRAMMABLE HEADS.

PREFERENTIAL PHASING SEQUENCE



DETECTOR OPERATION

DETECTOR NUMBER	NUMBER OF SECTION/SIZE	PROCESSOR NUMBER	CHANNEL NUMBER	Ø CALLED	Ø EXTENSION	OPERATION	DELAY (SECONDS)	EXTENSION (SECONDS)
V1	9'x50'	1	1	2	2	PRESENCE	0	0
V2	9'x50'	1	1	2	2	PRESENCE	0	0
V3	8'x50'	1	1	5	5	PRESENCE	0	0
V4	3'x8'	1	1	2	2	PRESENCE	0	0
V5	9'x50'	1	2	6	6	PRESENCE	0	0
V6	9'x50'	1	2	6	6	PRESENCE	0	0
V7	3'x8'	1	2	6	6	PRESENCE	0	0
V8	2–8'x20' 1–8'x12'	2	1	8	8	PRESENCE	0	0
V9	2–10'x20' 1–10'x10'	2	1	8	8	PRESENCE	0	0
V10	10'x50'	2	2	4	4	PRESENCE	0	0
V11	9'x50'	2	2	4	4	PRESENCE	0	0
V12	9'x40'	3	1	7	7	PRESENCE	0	0

DETECTOR OPERATION NOTES:

1. DELAY TIME SHALL BE EFFECTIVE ONLY DURING THE RED PORTION OF THE PHASE THAT IS CALLED AT THE DETECTOR.

NOTES:
1. REMOVE AND STACK ALL EXISTING TRAFFIC SIGNAL EQUIPMENT.

2. REMOVE ALL PULL BOXES AND ABANDON EXISTING TRAFFIC SIGNAL CONDUIT SYSTEM.

3. MINIMUM 36" CLEARANCE EXCLUDING THE CURB WIDTH IS REQUIRED ON ALL SIDEWALKS.

4. VIDEO DETECTION AREAS ARE SHOWN ON THE PLANS GRAPHICALLY AND SHOULD BE ADJUSTED IN THE FIELD.

5. REFER TO SHEET NO. 145 FOR TRAFFIC SEQUENCE PLAN.

6. REFER TO SHEET NOS. 164 TO 168 FOR MAST ARM FOUNDATION DETAILS.

7. REFER TO SHEET NO. 124 FOR COMPLETE PAVEMENT MARKING AND SIGNING PLAN.

8. REFER TO SHEET NO. 162 FOR TRAFFIC SIGNAL INTERCONNECT PLAN AND SIGNAL INTERCONNECT MAJOR ITEMS LIST. PULL BOXES EXCLUSIVE TO THE INTERCONNECT ARE SHOWN ON THE TRAFFIC SIGNAL INTERCONNECT ITEM LIST.

9. PUSH BUTTONS SHALL BE LOCATED NO MORE THAN 10" HORIZONTALLY FROM A LEVEL SURFACE (≤1.5%).

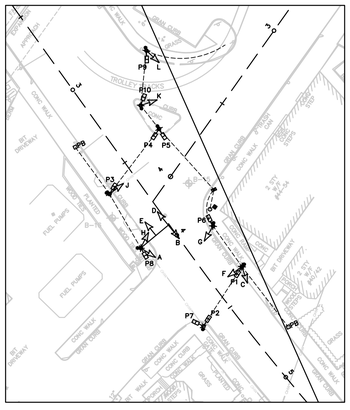
MAJOR ITEMS REQUIRED

QTY	ITEM 816.05
1	TRAFFIC SIGNAL CONTROLLER (TS-2, TYPE 1) W/ 8DW BASE MOUNTED CABINET AND FOUNDATION PAD
1	30' MAST ARM (STEEL), INCL. BASE & FNDN W/ (1) R10-11b
5	10' TRAFFIC SIGNAL POST, BASE & FOUNDATION
7	8' TRAFFIC SIGNAL POST, BASE & FOUNDATION
6	1-WAY, 3-SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
1	2-WAY, 3-SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
1	3-WAY, 3-SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
10	5" LOUVERED BACKPLATES
10	PEDESTRIAN SIGNAL HEAD W/ EGG-CRATE VISOR (L.E.D. W/ COUNTDOWN)
10	ACCESSIBLE PEDESTRIAN PUSH BUTTON ASSEMBLY W/ SIGN
2	12" x 24" PULL BOXES*
2	12" x 12" PULL BOXES*
4	VIDEO DETECTION CAMERAS
4	VIDEO CAMERA MAST ARM MOUNTING BRACKET
2	VIDEO DETECTION PROCESSOR - TWO CHANNELS
4	OPTICAL PRE-EMPTION DETECTORS SINGLE CHANNEL
1	EMERGENCY VEHICLE PRE-EMPTION CONFIRMATION STROBE LIGHT (WHITE)
1	OPTICAL PHASE SELECTOR FOUR CHANNEL
1	SERVICE CONNECTION (UNDERGROUND)

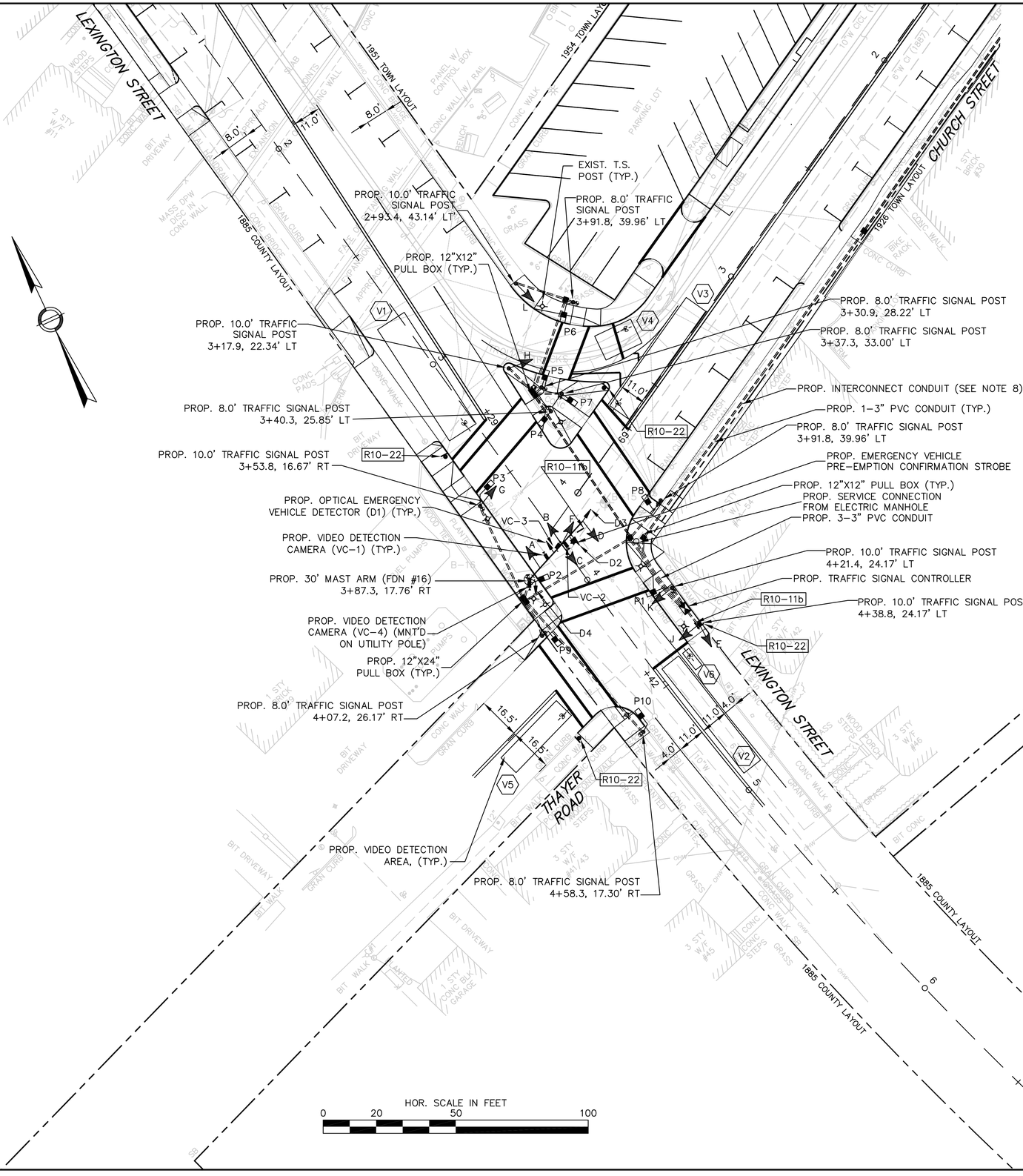
PLUS ALL NECESSARY DUCT, CABLE, FOUNDATIONS, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION.

* TO BE PAID UNDER ITS RESPECTIVE PAY ITEM.

EXISTING TRAFFIC SIGNAL PLAN



HOR. SCALE IN FEET
0 40 100 200



HOR. SCALE IN FEET
0 20 50 100

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	144	214
PROJ. FILE NO. 604688			

TRAFFIC SIGNAL PLAN
LOCATION NO. 5

LEXINGTON ST. AT THAYER ROAD / CHURCH STREET

SEQUENCE AND TIMING CHART

				PHASE 1			PHASE 2			PHASE 3			PHASE 4			PHASE 5			PHASE 6			PHASE 7			PHASE 8			PHASE 9			EMERGENCY FLASH OPERATION
				SEQUENCE																											
STREET	DIR.	FACE	Ø/OL	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	
LEXINGTON ST	SB	A,B	4				R	R	R				G	Y	R				R	R	R				R	R	R	R	R	R	FY
LEXINGTON ST	NB	C,D,E	8				R	R	R				R	R	R				R	R	R				G	Y	R	R	R	R	FY
CHURCH ST	WB	F,G	6				R	R	R				R	R	R				G	Y	R				R	R	R	R	R	R	FR
CHURCH ST	WB	H,L	6				R	R	R				R	R	R				⊘	Y	R				R	R	R	R	R	R	FR
THAYER RD	EB	J,K	2				G	Y	R				R	R	R				R	R	R				R	R	R	R	R	R	FR
PEDESTRIAN		P1–P2	9				✋	✋	✋				✋	✋	✋				✋	✋	✋				✋	✋	🚶	🚶	F/✋	✋	OFF
PEDESTRIAN		P3–P4	6				✋	✋	✋				✋	✋	✋				•	✋	✋				✋	✋	🚶	🚶	F/✋	✋	OFF
PEDESTRIAN		P5–P6	8				✋	✋	✋				✋	✋	✋				✋	✋	✋				•	✋	🚶	🚶	F/✋	✋	OFF
PEDESTRIAN		P7–P8	8				✋	✋	✋				✋	✋	✋				✋	✋	✋				•	✋	🚶	🚶	F/✋	✋	OFF
PEDESTRIAN		P9–P10	4				✋	✋	✋				•	✋	✋				✋	✋	✋				🚶	F/✋	✋	🚶	F/✋	✋	OFF
				TIMING IN SECONDS																											
MINIMUM GREEN							6						10						6						10						
VEHICLE INTERVAL							2						2						2						2						
MAXIMUM GREEN I (FREE)							10						30						22						30						
MAXIMUM GREEN II (COORD)							10						40						22						40						
YELLOW CLEAR								3						4						4						4					
ALL RED CLEAR									3						3						3						3			2	
WALK INTERVAL													7						7						7			7			
PED CLEARANCE													7.5	4					7.5	4					7.5	4			10		
PED BUFFER															3						3						3			4	
DETECTOR							NON–LOCK						NON–LOCK						NON–LOCK						NON–LOCK			LOCK			
RECALL MODE							OFF						SOFT						OFF						SOFT			OFF			
				COORDINATION TIMING (SECONDS)																											
CYCLE		OFFSET		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	
DIAL	SEC.	%	SEC.																												
AM	90	50	45				10	3	3				40	4	3				20	4	3				40	4	3				
AM W/EX PED	90	50	45				10	3	3				23	4	3				16	4	3				23	4	3	7	12	2	
PM	90	51	46				10	3	3				38	4	3				22	4	3				38	4	3				
PM W/ EX PED	90	51	46				10	3	3				23	4	3				16	3	3				23	4	3	7	12	2	

SEQUENCE NOTES:

1. ANY PHASE NOT CALLED WILL BE SKIPPED. SIGNAL IDENTIFICATION WILL NOT CHANGE IF THE ASSIGNED RIGHT OF WAY DOES NOT CHANGE DURING THE NEXT PHASE CALLED.
2. • NORMALLY DON'T WALK, UPON PEDESTRIAN PUSH BUTTON ACTIVATION, WALK/FLASHING DON'T WALK (COUNTDOWN).
3. PHASE 9 ONLY BY P1–P2 PUSH BUTTON ACTIVATION.
4. THE RIGHT–OF–WAY MAY BE ASSIGNED TO ANY PHASE OR ANY COMBINATION OF NON–CONFLICTING PHASES.
5. Ø/OL = PHASE IN DISPLAY / OVERLAPPING PHASE.
6. DIAL 1 (AM) = 06:30 – 09:00, M–F
   DIAL 2 (PM) = 15:00 – 18:00, M–F
   FREE = ALL OTHER TIMES
7. OFFSETS REFERENCED TO THE BEGINNING OF GREEN, PHASES 4+8 LEXINGTON NB & SB.
8. PHASE 9 SHALL ONLY BE ACTIVATED BY P1, P2, P3 AND P4.
9. COUNTDOWN PHASE OF PEDESTRIAN SIGNALS SHALL NOT OCCUR DURING THE WALK PERIOD.

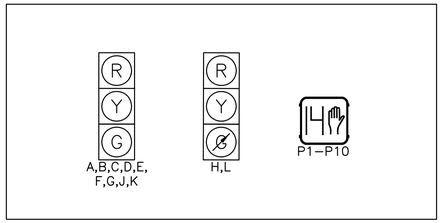
EMERGENCY VEHICLE PRE–EMPTION PHASING AND PRIORITY NOTES:

1. EMERGENCY VEHICLE PRE–EMPTION SIGNALS SHALL BE OPTICALLY TRANSMITTED BY OPTICAL EMITTERS MOUNTED IN EMERGENCY VEHICLES AND RECEIVED BY OPTICAL DETECTORS LOCATED AT EACH INTERSECTION.
2. IN RESPONSE TO A PRE–EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY OPTICAL DETECTOR D1 (OR D2, D3, D4) THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD IN EMERGENCY VEHICLE PRE–EMPTION PHASE #1 (OR #2, #3, #4) GREEN FOR A MINIMUM OF TEN (10) SECONDS OR UNTIL PRE–EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE–EMPTION PHASE CLEARANCE (4 SECONDS: YELLOW AND 2 SECONDS: ALL RED) AND SERVICE EMERGENCY VEHICLE PRE–EMPTION PHASE #2 (OR #1) IF NECESSARY, THEN TIME PHASE PRE–EMPTION CLEARANCE AND RESUME NORMAL SIGNAL OPERATION. EMERGENCY VEHICLE PRE–EMPTION PHASE #3 AND #4 SHALL BE SIMILARLY SERVED.
3. MINIMUM GREEN, NORMAL VEHICLE CLEARANCE, SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE–EMPTION DEMAND.
4. PREEMPTION STROBE SHALL BE ILLUMINATED WHENEVER ANY EMERGENCY VEHICLE PRE–EMPTION GREEN IS ON.

EMERGENCY VEHICLE PRE–EMPTION PHASING AND PRIORITY

DETECTOR AND PRIORITY	PRE–EMPT PHASE ASSIGNMENT	MOVEMENT	VEHICLE PHASE ASSIGNMENT
D1	1		Ø4
D2	2		Ø8
D3	3		Ø6
D4	4		Ø2

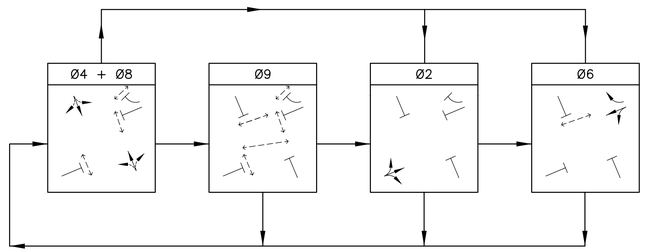
SIGNAL DISPLAY



SIGNAL DISPLAY NOTES:

1. ALL SIGNAL DISPLAYS SHALL BE EQUIPPED W/ LED MODULES (12–INCH LENS)
2. ALL SIGNAL HEADS SHALL BE RIGID MOUNTED AND EQUIPPED WITH ±5" LOUVERED BACKPLATES.
3. ALL PEDESTRIAN SIGNAL HEADS SHALL HAVE PEDESTRIAN COUNTDOWN TIMER AND EGG–CRATE VISOR.

PREFERENTIAL PHASING SEQUENCE



DETECTOR OPERATION

DETECTOR NUMBER	NUMBER OF SECTION/SIZE	PROCESSOR NUMBER	CHANNEL NUMBER	Ø CALLED	Ø EXTENSION	OPERATION	DELAY (SECONDS)	EXTENSION (SECONDS)
V1	12'x50'	1	1	4	4	PRESENCE	0	0
V2	8'x50'	1	2	8	8	PRESENCE	0	0
V3	9'x50'	2	1	6	6	PRESENCE	0	0
V4	10'x15'	2	1	6	6	PRESENCE	0	0
V5	8'x30'	2	2	2	2	PRESENCE	0	0
V6	3'x8'	2	2	8	8	PRESENCE	0	0

DETECTOR OPERATION NOTES:

1. DELAY TIME SHALL BE EFFECTIVE ONLY DURING THE RED PORTION OF THE PHASE THAT IS CALLED AT THE DETECTOR.

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	145	214
PROJ. FILE NO. 604688			

TRAFFIC SIGNAL PLAN
LOCATION NO. 5

TRAPELO ROAD AT
THAYER ROAD / CHURCH STREET

NOTES:
1. ALL PROPOSED SIGNAL HEADS MUST BE AT LEAST 10 FEET FROM THE POWERED MBTA TROLLEY WIRES AND 5 FEET FROM THEIR SUPPORT CABLES. (SEE TYPE B MAST ARM DETAIL, THIS SHEET TSP–11)

2. REMOVE AND STACK ALL EXISTING TRAFFIC CONTROL EQUIPMENT.

3. REMOVE ALL PULL BOXES AND ABANDON EXISTING TRAFFIC SIGNAL CONDUIT SYSTEM, EXCEPT AS NOTED BELOW.

4. MINIMUM 36" CLEARANCE EXCLUDING THE CURB WIDTH IS REQUIRED ON ALL SIDEWALKS.

5. REFER TO SHEET NO. 147 FOR TRAFFIC SEQUENCE PLAN.

6. REFER TO SHEET NOS. 164 TO 168 FOR MAST ARM FOUNDATION.

7. REFER TO SHEET NO. 124 FOR COMPLETE PAVEMENT MARKING AND SIGNING PLAN

8. REFER TO SHEET NO. 162 FOR TRAFFIC SIGNAL INTERCONNECT PLAN AND SIGNAL INTERCONNECT MAJOR ITEMS LIST. PULL BOXES EXCLUSIVE TO THE INTERCONNECT ARE SHOWN ON THE TRAFFIC SIGNAL INTERCONNECT ITEM LIST.

9. PUSH BUTTONS SHALL BE LOCATED NO MORE THAN 10" HORIZONTALLY FROM A LEVEL SURFACE (≤1.5%).

MAJOR ITEMS REQUIRED (TRAFFIC SIGNAL EQUIPMENT)

QTY	ITEM 816.06
1	TRAFFIC SIGNAL CONTROLLER (TS–2, TYPE 1) W/ 8DW BASE MOUNTED CABINET AND FOUNDATION PAD
1	25' MAST ARM TYPE B (STEEL), INCLUDE BASE & FOUNDATION
1	30' MAST ARM TYPE B (STEEL), INCLUDE BASE & FOUNDATION
2	8' TRAFFIC SIGNAL POST, BASE & FOUNDATION
4	1–WAY, 3–SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
4	±5" LOUVERED BACKPLATES
2	PEDESTRIAN SIGNAL HEAD W/ EGG–CRATE VISOR (L.E.D. W/ COUNTDOWN)
2	ACCESSIBLE PEDESTRIAN PUSH BUTTON ASSEMBLY W/SIGN
1	12" x 12" PULL BOXES*
1	SERVICE CONNECTION (UNDERGROUND)

PLUS ALL NECESSARY DUCT, CABLE, FOUNDATIONS, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION AND PROVIDE AN OPERATING TRAFFIC SIGNAL.

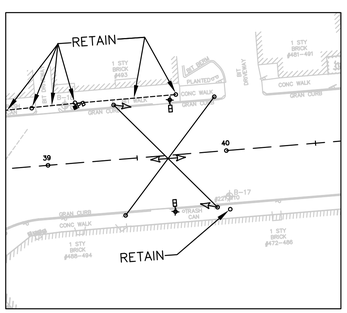
* TO BE PAID UNDER ITS RESPECTIVE PAY ITEM.

MAJOR ITEMS REQUIRED (ILLUMINATED BOLLARD SYSTEM)

QTY	ITEM 707.821
4	BOLLARDS
1	TIME CLOCK (MOUNTED IN TRAFFIC SIGNAL CABINET)

PLUS ALL NECESSARY DUCT, CABLE, FOUNDATIONS, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION.

EXISTING TRAFFIC SIGNAL PLAN



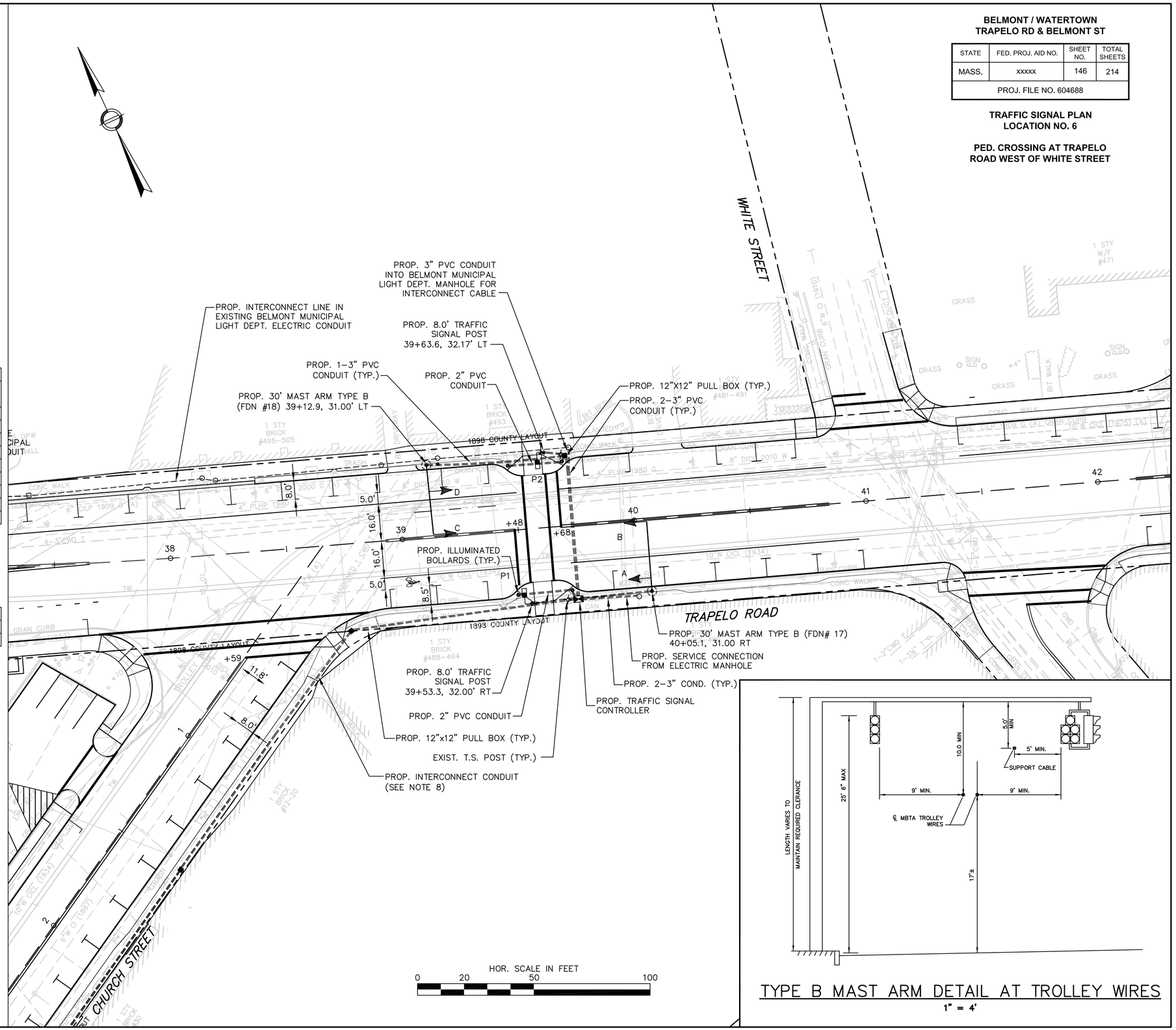
HOR. SCALE IN FEET
0 40 100 200

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	146	214
PROJ. FILE NO. 604688			

TRAFFIC SIGNAL PLAN
LOCATION NO. 6

PED. CROSSING AT TRAPELO ROAD WEST OF WHITE STREET



TYPE B MAST ARM DETAIL AT TROLLEY WIRES
1" = 4'

SEQUENCE AND TIMING CHART

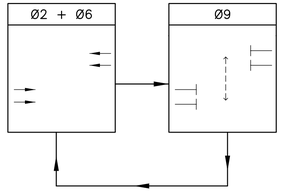
				PHASE 1			PHASE 2			PHASE 3			PHASE 4			PHASE 5			PHASE 6			PHASE 7			PHASE 8			PHASE 9			EMERGENCY FLASH OPERATION
				SEQUENCE																											
STREET	DIR.	FACE	Ø/OL	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	
TRAPELO RD	EB	A,B	2				G	Y	R										R	R	R							R	R	R	FY
TRAPELO RD	WB	C,D	6				R	R	R										G	Y	R							R	R	R	FY
PEDESTRIAN		P1–P2	9																									F/			OFF
				TIMING IN SECONDS																											
MINIMUM GREEN							20												20												
VEHICLE INTERVAL																															
MAXIMUM GREEN I							32												32												
MAXIMUM GREEN II							32												32												
YELLOW CLEAR								4												4											
ALL RED CLEAR									1												1										
WALK INTERVAL																												7			
PED CLEARANCE																													12		
PED BUFFER																														4	
DETECTOR							NON–LOCK												NON–LOCK									LOCK			
RECALL MODE				SOFT															SOFT									OFF			

CYCLE		OFFSET		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
DIAL	SEC.	%	SEC.																											
AM	60						32	4.0	1.0										32	4.0	1.0							7	12	4
PM	60						32	4.0	1.0										32	4.0	1.0							7	12	4

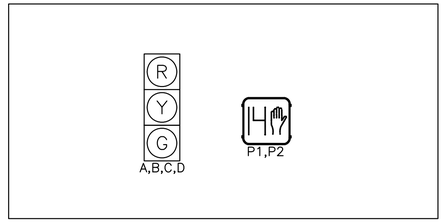
SEQUENCE NOTES:

1. ANY PHASE NOT CALLED WILL BE SKIPPED. SIGNAL IDENTIFICATION WILL NOT CHANGE IF THE ASSIGNED RIGHT OF WAY DOES NOT CHANGE DURING THE NEXT PHASE CALLED.
2. THE RIGHT–OF–WAY MAY BE ASSIGNED TO ANY PHASE OR ANY COMBINATION OF NON–CONFLICTING PHASES.
3. Ø/OL = PHASE IN DISPLAY / OVERLAPPING PHASE.
4. DIAL 1 (AM) = 06:30 – 09:00, M–F
   DIAL 2 (PM) = 15:00 – 18:00, M–F
   FREE = ALL OTHER TIMES
5. COUNTDOWN PHASE OF PEDESTRIAN SIGNALS SHALL NOT OCCUR DURING THE WALK PERIOD.

PREFERENTIAL PHASING SEQUENCE



SIGNAL DISPLAY



SIGNAL DISPLAY NOTES:

1. ALL SIGNAL DISPLAYS SHALL BE EQUIPPED W/ LED MODULES (12–INCH LENS)
2. ALL SIGNAL HEADS SHALL BE RIGID MOUNTED AND EQUIPPED WITH ±5" LOUVERED BACKPLATES.
3. ALL PEDESTRIAN SIGNAL HEADS SHALL HAVE PEDESTRIAN COUNTDOWN TIMER AND EGG–CRATE VISOR.

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	147	214
PROJ. FILE NO. 604688			

TRAFFIC SIGNAL PLAN
LOCATION NO. 6

PED CROSSING AT TRAPELO ROAD
WEST OF WHITE STREET

NOTES:
1. ALL PROPOSED SIGNAL HEADS MUST BE AT LEAST 10 FEET FROM THE POWERED MBTA TROLLEY WIRES AND 5 FEET FROM THEIR SUPPORT CABLES. (SEE TYPE B MAST ARM DETAIL, SHEET TSP–11)

2. REMOVE AND STACK ALL EXISTING TRAFFIC SIGNAL EQUIPMENT.

3. REMOVE ALL PULL BOXES AND ABANDON EXISTING TRAFFIC SIGNAL CONDUIT SYSTEM.

4. MINIMUM 36" CLEARANCE EXCLUDING THE CURB WIDTH IS REQUIRED ON ALL SIDEWALKS.

5. VIDEO DETECTION AREAS ARE SHOWN ON THE PLANS GRAPHICALLY AND SHOULD BE ADJUSTED IN THE FIELD FOR PROPER DETECTION.

6. REFER TO SHEET NO. 149 FOR TRAFFIC SEQUENCE PLAN.

7. REFER TO SHEET NOS. 164 TO 168 FOR MAST ARM FOUNDATION.

8. REFER TO SHEET NO. 125 FOR COMPLETE PAVEMENT MARKING AND SIGNING PLAN.

9. PUSH BUTTONS SHALL BE LOCATED NO MORE THAN 10" HORIZONTALLY FROM A LEVEL SURFACE (≤1.5%).

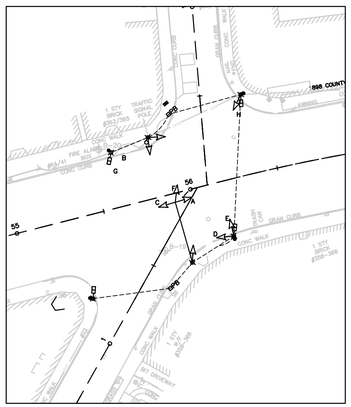
MAJOR ITEMS REQUIRED

QTY	ITEM 816.07
1	TRAFFIC SIGNAL CONTROLLER (TS–2, TYPE 1) W/ 8DW BASE MOUNTED CABINET AND FOUNDATION PAD
1	30' MAST ARM TYPE B (STEEL), INCL. BASE & FNDN W/ (1) D3 & (2) R10–11b
1	30' MAST ARM TYPE B (STEEL), INCL. BASE & FNDN W/ (1) D3 & (1) R10–11b
7	8' TRAFFIC SIGNAL POST, BASE & FOUNDATION
4	1–WAY, 3–SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
2	2–WAY, 3–SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
8	±5" LOUVERED BACKPLATES
8	PEDESTRIAN SIGNAL HEAD W/ EGG–CRATE VISOR (L.E.D. W/ COUNTDOWN)
8	ACCESSIBLE PEDESTRIAN PUSH BUTTON ASSEMBLY W/SIGN
4	12" x 12" PULL BOXES*
1	12" x 24" PULL BOXES*
4	VIDEO DETECTION CAMERAS
4	VIDEO CAMERA MAST ARM MOUNTING BRACKET
2	VIDEO DETECTION PROCESSOR – TWO CHANNELS
4	OPTICAL PRE–EMPTION DETECTORS SINGLE CHANNEL
1	EMERGENCY VEHICLE PRE–EMPTION CONFIRMATION STROBE LIGHT (WHITE)
1	OPTICAL PHASE SELECTOR FOUR CHANNEL
1	SERVICE CONNECTION (UNDERGROUND)

PLUS ALL NECESSARY DUCT, CABLE, FOUNDATIONS, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION AND PROVIDE AN OPERATING TRAFFIC SIGNAL.

* TO BE PAID UNDER ITS RESPECTIVE PAY ITEM.

EXISTING TRAFFIC SIGNAL PLAN



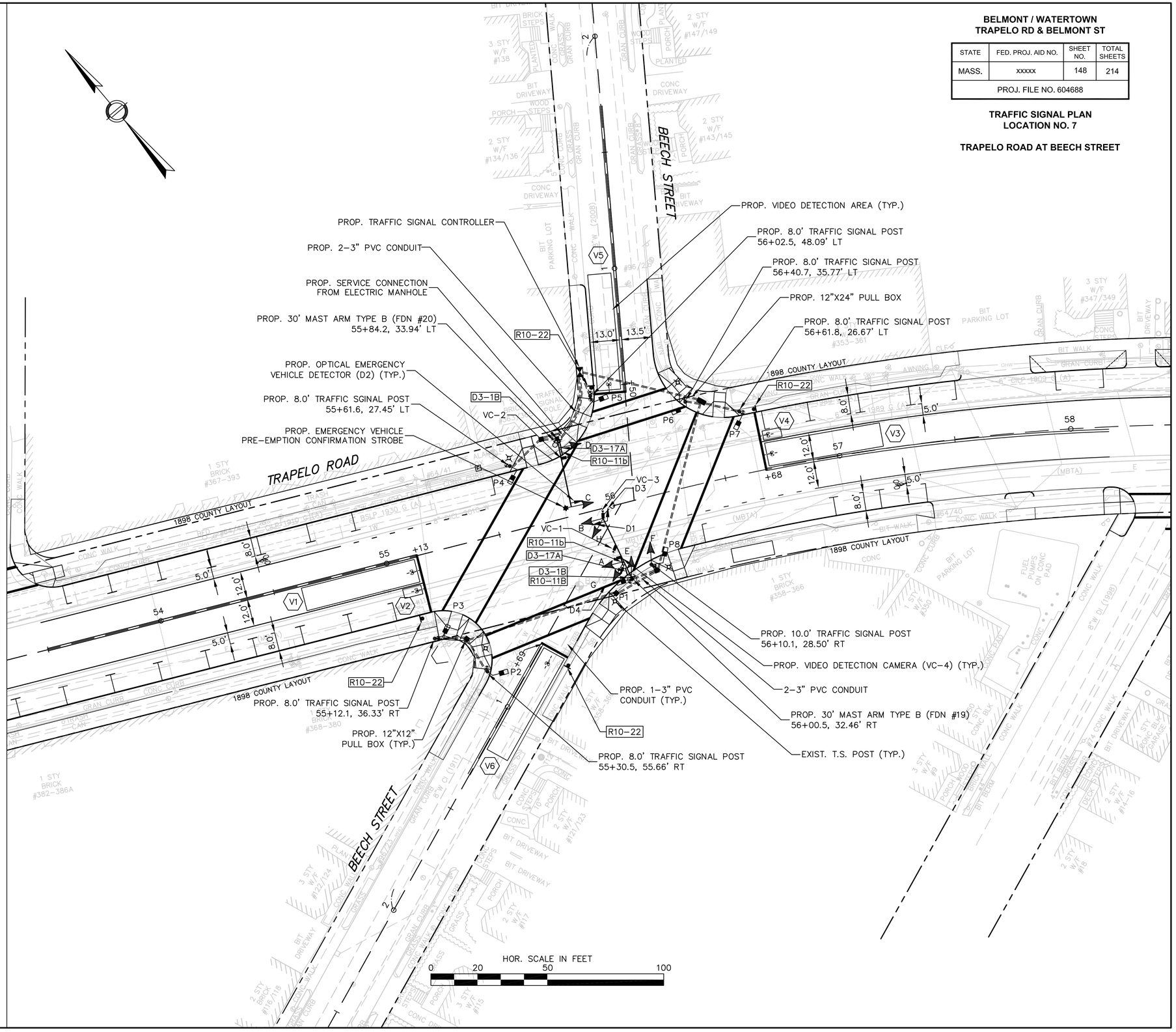
HOR. SCALE IN FEET
0 40 100 200

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	148	214
PROJ. FILE NO. 604688			

TRAFFIC SIGNAL PLAN
LOCATION NO. 7

TRAPELO ROAD AT BEECH STREET



BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	149	214
PROJ. FILE NO. 604688			

TRAFFIC SIGNAL PLAN
LOCATION NO. 7

TRAPELO ROAD AT
BEECH STREET

SEQUENCE AND TIMING CHART

				PHASE 1			PHASE 2			PHASE 3			PHASE 4			PHASE 5			PHASE 6			PHASE 7			PHASE 8			PHASE 9			EMERGENCY FLASH OPERATION
				SEQUENCE																											
STREET	DIR.	FACE	Ø/OL	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	
TRAPELO RD	EB	A,B	2				G	Y	R				R	R	R				R	R	R				R	R	R	R	R	R	FY
TRAPELO RD	WB	C,D	6				R	R	R				R	R	R				G	Y	R				R	R	R	R	R	R	FR
BEECH ST	NB	G,H	8				R	R	R				R	R	R				R	R	R				G	Y	R	R	R	R	FR
BEECH ST	SB	E,F	4				R	R	R				G	Y	R				R	R	R				R	R	R	R	R	R	FR
PEDESTRIAN		P1–P2	2				•																					F/			OFF
PEDESTRIAN		P5–P6	6																•									F/			OFF
PEDESTRIAN		P3–P4, P7–P8	9																									F/			OFF
				TIMING IN SECONDS																											
MINIMUM GREEN							12						6						12						6						
VEHICLE INTERVAL							2						2						2						2						
MAXIMUM GREEN I (ALL OTHER TIMES)							38						18						38						18						
MAXIMUM GREEN II (AM,PM)							43						18						43						18						
YELLOW CLEAR								4						3						4						3					
ALL RED CLEAR									3						4						3						4				
WALK INTERVAL							7												7									7			
PED CLEARANCE							11.5	4											11.5	4									21		
PED BUFFER									3												3										4
DETECTOR							NON–LOCK						NON–LOCK						NON–LOCK						NON–LOCK			LOCK			
RECALL MODE							SOFT						OFF						SOFT						OFF			OFF			

CYCLE				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
DIAL	SEC.																													
AM	70						38	4	3				18	3	4				38	4	3				18	3	4			
AM W/ EX PED	100						41	4	3				13	3	4				41	4	3				13	3	4	7	21	4
PM	70						38	4	3				18	3	4				38	4	3				18	3	4			
PM W/ EX PED	90						33	4	3				11	3	4				33	4	3				11	3	4	7	21	4

SEQUENCE NOTES:

1. ANY PHASE NOT CALLED WILL BE SKIPPED. SIGNAL IDENTIFICATION WILL NOT CHANGE IF THE ASSIGNED RIGHT OF WAY DOES NOT CHANGE DURING THE NEXT PHASE CALLED.
2. • NORMALLY DON'T WALK, UPON PEDESTRIAN PUSH BUTTON ACTIVATION, WALK/FLASHING DON'T WALK (COUNTDOWN).
3. THE RIGHT–OF–WAY MAY BE ASSIGNED TO ANY PHASE OR ANY COMBINATION OF NON–CONFLICTING PHASES.
4. Ø/OL = PHASE IN DISPLAY / OVERLAPPING PHASE.
5. DIAL 1 (AM) = 06:30 – 09:00, M–F
   DIAL 2 (PM) = 15:00 – 18:00, M–F
   MAX1 = ALL OTHER TIMES
6. PHASE 9 SHALL ONLY NE ACTIVATED BY P3, P4, P7 AND P8.
7. COUNTDOWN PHASE OF PEDESTRIAN SIGNALS SHALL NOT OCCUR DURING THE WALK PERIOD.

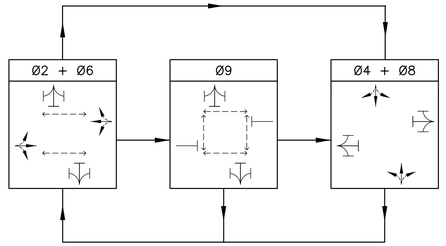
EMERGENCY VEHICLE PRE–EMPTION PHASING AND PRIORITY NOTES:

1. EMERGENCY VEHICLE PRE–EMPTION SIGNALS SHALL BE OPTICALLY TRANSMITTED BY OPTICAL EMITTERS MOUNTED IN EMERGENCY VEHICLES AND RECEIVED BY OPTICAL DETECTORS LOCATED AT EACH INTERSECTION.
2. IN RESPONSE TO A PRE–EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY OPTICAL DETECTOR D1 (OR D2, D3, D4) THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD IN EMERGENCY VEHICLE PRE–EMPTION PHASE #1 (OR #2, #3, #4) GREEN FOR A MINIMUM OF TEN (10) SECONDS OR UNTIL PRE–EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE–EMPTION PHASE CLEARANCE (4 SECONDS: YELLOW AND 2 SECONDS: ALL RED) AND SERVICE EMERGENCY VEHICLE PRE–EMPTION PHASE #2 (OR #1) IF NECESSARY, THEN TIME PHASE PRE–EMPTION CLEARANCE AND RESUME NORMAL SIGNAL OPERATION. EMERGENCY VEHICLE PRE–EMPTION PHASE #3 AND #4 SHALL BE SIMILARLY SERVED.
3. MINIMUM GREEN, NORMAL VEHICLE CLEARANCE, SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE–EMPTION DEMAND.
4. PREEMPTION STROBE SHALL BE ILLUMINATED WHENEVER ANY EMERGENCY VEHICLE PRE–EMPTION GREEN IS ON.

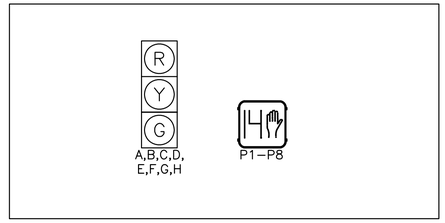
EMERGENCY VEHICLE PRE–EMPTION PHASING AND PRIORITY

DETECTOR AND PRIORITY	PRE–EMPT PHASE ASSIGNMENT	MOVEMENT	VEHICLE PHASE ASSIGNMENT
D1	1		Ø2
D2	2		Ø6
D3	3		Ø4
D4	4		Ø8

PREFERENTIAL PHASING SEQUENCE



SIGNAL DISPLAY



SIGNAL DISPLAY NOTES:

1. ALL SIGNAL DISPLAYS SHALL BE EQUIPPED W/ LED MODULES (12–INCH LENS)
2. ALL SIGNAL HEADS SHALL BE RIGID MOUNTED AND EQUIPPED WITH ±5" LOUVERED BACKPLATES.
3. ALL PEDESTRIAN SIGNAL HEADS SHALL HAVE PEDESTRIAN COUNTDOWN TIMER AND EGG–CRATE VISOR.

DETECTOR OPERATION

DETECTOR NUMBER	NUMBER OF SECTION/SIZE	PROCESSOR NUMBER	CHANNEL NUMBER	Ø CALLED	Ø EXTENSION	OPERATION	DELAY (SECONDS)	EXTENSION (SECONDS)
V1	10'x50'	1	1	2	2	PRESENCE	0	0
V2	4'x8'	1	1	2	2	PRESENCE	0	0
V3	10'x50'	1	2	6	6	PRESENCE	0	0
V4	4'x8'	1	2	6	6	PRESENCE	0	0
V5	10'x50'	2	1	4	4	PRESENCE	0	0
V6	10'x50'	2	2	8	8	PRESENCE	0	0

DETECTOR OPERATION NOTES:

1. DELAY TIME SHALL BE EFFECTIVE ONLY DURING THE RED PORTION OF THE PHASE THAT IS CALLED AT THE DETECTOR.

NOTES:
1. ALL PROPOSED SIGNAL HEADS MUST BE AT LEAST 10 FEET FROM THE POWERED MBTA TROLLEY WIRES AND 5 FEET FROM THEIR SUPPORT CABLES. (SEE TYPE B MAST ARM DETAIL, SHEET TSP–11)

2. REMOVE AND STACK ALL EXISTING TRAFFIC SIGNAL EQUIPMENT.

3. REMOVE ALL PULL BOXES AND ABANDON EXISTING TRAFFIC SIGNAL CONDUIT SYSTEM.

4. MINIMUM 36" CLEARANCE EXCLUDING THE CURB WIDTH IS REQUIRED ON ALL SIDEWALKS.

5. VIDEO DETECTION AREAS ARE SHOWN ON THE PLANS GRAPHICALLY AND SHOULD BE ADJUSTED IN THE FIELD FOR PROPER DETECTION.

6. REFER TO SHEET NO. 151 FOR TRAFFIC SEQUENCE PLAN.

7. REFER TO SHEET NOS. 164 TO 168 FOR MAST ARM FOUNDATION.

8. REFER TO SHEET NO. 126 FOR COMPLETE PAVEMENT MARKING AND SIGNING PLAN.

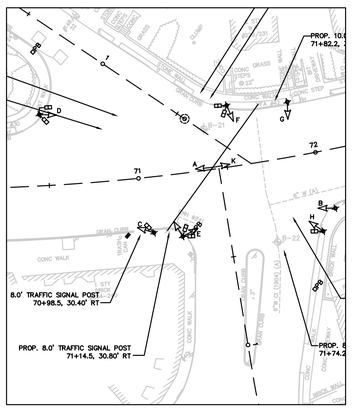
9. PUSH BUTTONS SHALL BE LOCATED NO MORE THAN 10" HORIZONTALLY FROM A LEVEL SURFACE (≤1.5%).

MAJOR ITEMS REQUIRED

QTY	ITEM 816.08
1	TRAFFIC SIGNAL CONTROLLER (TS–2, TYPE 1) W/8DW BASE MOUNTED CABINET AND FOUNDATION PAD
1	30' MAST ARM TYPE B (STEEL), INCL. BASE & FNDN W/ (1) D3
1	35' MAST ARM TYPE B (STEEL), INCL. BASE & FNDN W/ (1) D3
5	8' TRAFFIC SIGNAL POST, BASE & FOUNDATION
1	10' TRAFFIC SIGNAL POST, BASE & FOUNDATION
3	1–WAY, 3–SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
3	2–WAY, 3–SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
8	±5" LOUVERED BACKPLATES
8	PEDESTRIAN SIGNAL HEAD W/ EGG–CRATE VISOR (L.E.D. W/ COUNTDOWN)
8	ACCESSIBLE PEDESTRIAN PUSH BUTTON ASSEMBLY W/SIGN
2	12" x 12" PULL BOXES
2	12" x 24" PULL BOXES
4	VIDEO DETECTION CAMERAS
4	VIDEO CAMERA MAST ARM MOUNTING BRACKET
2	VIDEO DETECTION PROCESSOR – TWO CHANNELS
4	OPTICAL PRE–EMPTION DETECTORS SINGLE CHANNEL
1	EMERGENCY VEHICLE PRE–EMPTION CONFIRMATION STROBE LIGHT (WHITE)
1	OPTICAL PHASE SELECTOR FOUR CHANNEL
1	SERVICE CONNECTION (UNDERGROUND)

PLUS ALL NECESSARY DUCT, CABLE, FOUNDATIONS, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION AND PROVIDE AN OPERATING TRAFFIC SIGNAL.

EXISTING TRAFFIC SIGNAL PLAN



BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	150	214
PROJ. FILE NO. 604688			

TRAFFIC SIGNAL PLAN
LOCATION NO. 8

TRAPELO ROAD AT
SLADE STREET /
HARRIET STREET

PROP. 8.0' TRAFFIC SIGNAL POST
70+40.73, 42.17' LT
PROP. 35' MAST ARM TYPE B (FDN #21)
71+45.2, 38.58' LT
PROP. VIDEO DETECTION CAMERA (VC–3) (TYP.)
PROP. 12"X24" PULL BOX (TYP.)
PROP. 10.0' TRAFFIC SIGNAL POST
71+82.2, 31.32' LT
PROP. 12"x12" PULL BOX (TYP.)
PROP. 8.0' TRAFFIC SIGNAL POST
70+92.6, 35.11' LT
PROP. 8.0' TRAFFIC SIGNAL POST
70+83.7, 28.78' LT
PROP. SERVICE CONNECTION FROM ELECTRIC MANHOLE
PROP. VIDEO DETECTION AREA (TYP.)
PROP. 8.0' TRAFFIC SIGNAL POST
70+98.5, 30.40' RT
EXIST. T.S. POLE (TYP.)
PROP. 12"x12" PULL BOX (TYP.)
PROP. 8.0' TRAFFIC SIGNAL POST
71+14.5, 30.80' RT
PROP. EMERGENCY VEHICLE PRE–EMPTION CONFIRMATION STROBE
PROP. OPTICAL EMERGENCY VEHICLE DETECTOR (D2) (TYP.)
PROP. TRAFFIC SIGNAL CONTROLLER
PROP. 2–3" PVC CONDUIT
PROP. 30' MAST ARM TYPE B (FDN #22)
71+80.3, 31.77' RT
PROP. 1–3" PVC CONDUIT (TYP.)
PROP. 2–3" PVC CONDUIT
PROP. 8.0' TRAFFIC SIGNAL POST
71+74.2, 49.82' RT

HOR. SCALE IN FEET
0 20 50 100

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	151	214
PROJ. FILE NO. 604688			

TRAFFIC SIGNAL PLAN
LOCATION NO. 8

TRAPELO ROAD AT SLADE STREET/ HARRIET STREET

SEQUENCE AND TIMING CHART

* YIELD CONTROL

				PHASE 1			PHASE 2			PHASE 3			PHASE 4			PHASE 5			PHASE 6			PHASE 7			PHASE 8			PHASE 9			EMERGENCY FLASH OPERATION
				SEQUENCE																											
STREET	DIR.	FACE	Ø/OL	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	
TRAPELO RD	EB	A,B	2				G	Y	R				R	R	R				R	R	R				R	R	R	R	R	R	FY
TRAPELO RD	WB	C,D,J	6				R	R	R				R	R	R				G	Y	R				R	R	R	R	R	R	FY
HARRIET AVE	NB	E,F	8				R	R	R				R	R	R				R	R	R				G	Y	R	R	R	R	FR
SLADE ST	SB	G,H	4				R	R	R				G	Y	R				R	R	R				R	R	R	R	R	R	FR
PEDESTRIAN		P1–P2	2				•																					F/			OFF
PEDESTRIAN		P5–P6	6																•									F/			OFF
PEDESTRIAN		P3–P4, P7–P8	9																									F/			OFF
				TIMING IN SECONDS																											
MINIMUM GREEN							12						6						12						6						
VEHICLE INTERVAL							2						2						2						2						
MAXIMUM GREEN I (ALL OTHER TIMES)							40						15						40						15						
MAXIMUM GREEN II (AM,PM)							43						19						43						19						
YELLOW CLEAR								4						3						4						3					
ALL RED CLEAR									3						3						3						3				
WALK INTERVAL							7												7										7		
PED CLEARANCE							11	4																						15	
PED BUFFER									3												3										4
DETECTOR							NON–LOCK						NON–LOCK						NON–LOCK						NON–LOCK			LOCK			
RECALL MODE							SOFT						OFF						SOFT						OFF			OFF			

CYCLE		OFFSET		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
DIAL	SEC.	%	SEC.																											
AM	70						43	4	3				14	3	3				43	4	3				14	3	3			
AM W/PED	90						37	4	3				14	3	3				37	4	3				14	3	3	7	15	4
PM	70						38	4	3				19	3	3				38	4	3				19	3	3			
PM W/PED	90						37	4	3				14	3	3				37	4	3				14	3	3	7	15	4

SEQUENCE NOTES:

1. ANY PHASE NOT CALLED WILL BE SKIPPED. SIGNAL IDENTIFICATION WILL NOT CHANGE IF THE ASSIGNED RIGHT OF WAY DOES NOT CHANGE DURING THE NEXT PHASE CALLED.
2. • NORMALLY DON'T WALK, UPON PEDESTRIAN PUSH BUTTON ACTIVATION, WALK/FLASHING DON'T WALK (COUNTDOWN).
3. THE RIGHT–OF–WAY MAY BE ASSIGNED TO ANY PHASE OR ANY COMBINATION OF NON–CONFLICTING PHASES.
4. Ø/OL = PHASE IN DISPLAY / OVERLAPPING PHASE.
5. DIAL 1 (AM) = 06:30 – 09:00, M–F
   DIAL 2 (PM) = 15:00 – 18:00, M–F
   MAX1 = ALL OTHER TIMES
6. PHASE 9 SHALL ONLY BE ACTIVATED BY P3, P4, P7 AND P8.
7. COUNTDOWN PHASE OF PEDESTRIAN SIGNALS SHALL NOT OCCUR DURING THE WALK PERIOD.

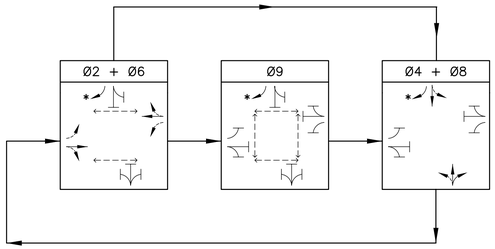
EMERGENCY VEHICLE PRE–EMPTION PHASING AND PRIORITY NOTES:

1. EMERGENCY VEHICLE PRE–EMPTION SIGNALS SHALL BE OPTICALLY TRANSMITTED BY OPTICAL EMITTERS MOUNTED IN EMERGENCY VEHICLES AND RECEIVED BY OPTICAL DETECTORS LOCATED AT EACH INTERSECTION.
2. IN RESPONSE TO A PRE–EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY OPTICAL DETECTOR D1 (OR D2, D3, D4) THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD IN EMERGENCY VEHICLE PRE–EMPTION PHASE #1 (OR #2, #3, #4) GREEN FOR A MINIMUM OF TEN (10) SECONDS OR UNTIL PRE–EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE–EMPTION PHASE CLEARANCE (4 SECONDS: YELLOW AND 2 SECONDS: ALL RED) AND SERVICE EMERGENCY VEHICLE PRE–EMPTION PHASE #2 (OR #1) IF NECESSARY, THEN TIME PHASE PRE–EMPTION CLEARANCE AND RESUME NORMAL SIGNAL OPERATION. EMERGENCY VEHICLE PRE–EMPTION PHASE #3 AND #4 SHALL BE SIMILARLY SERVED.
3. MINIMUM GREEN, NORMAL VEHICLE CLEARANCE, SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE–EMPTION DEMAND.
4. PREEMPTION STROBE SHALL BE ILLUMINATED WHENEVER ANY EMERGENCY VEHICLE PRE–EMPTION GREEN IS ON.

EMERGENCY VEHICLE PRE–EMPTION PHASING AND PRIORITY

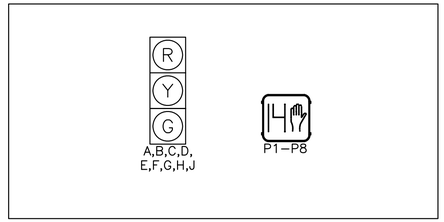
DETECTOR AND PRIORITY	PRE–EMPT PHASE ASSIGNMENT	MOVEMENT	VEHICLE PHASE ASSIGNMENT
D1	1		Ø2
D2	2		Ø6
D3	3		Ø8
D4	4		Ø4

PREFERENTIAL PHASING SEQUENCE



* YIELD CONTROL

SIGNAL DISPLAY



SIGNAL DISPLAY NOTES:

1. ALL SIGNAL DISPLAYS SHALL BE EQUIPPED W/ LED MODULES (12–INCH LENS)
2. ALL SIGNAL HEADS SHALL BE RIGID MOUNTED AND EQUIPPED WITH ±5" LOUVERED BACKPLATES.
3. ALL PEDESTRIAN SIGNAL HEADS SHALL HAVE PEDESTRIAN COUNTDOWN TIMER AND EGG–CRATE VISOR.

DETECTOR OPERATION

DETECTOR NUMBER	NUMBER OF SECTION/SIZE	PROCESSOR NUMBER	CHANNEL NUMBER	Ø CALLED	Ø EXTENSION	OPERATION	DELAY (SECONDS)	EXTENSION (SECONDS)
V1	9'x50'	1	1	2	2	PRESENCE	0	0
V2	8'x50'	1	1	2	2	PRESENCE	0	0
V3	4'x8'	1	1	2	2	PRESENCE	0	0
V4	8'x50'	1	2	6	6	PRESENCE	0	0
V5	9'x50'	1	2	6	6	PRESENCE	0	0
V6	4'x8'	1	2	6	6	PRESENCE	0	0
V7	10'x50'	2	1	4	4	PRESENCE	0	0
V8	10'x50'	2	2	8	8	PRESENCE	0	0

DETECTOR OPERATION NOTES:

1. DELAY TIME SHALL BE EFFECTIVE ONLY DURING THE RED PORTION OF THE PHASE THAT IS CALLED AT THE DETECTOR.

NOTES:
1. ALL PROPOSED SIGNAL HEADS MUST BE AT LEAST 10 FEET FROM THE POWERED MBTA TROLLEY WIRES AND 5 FEET FROM THEIR SUPPORT CABLES. (SEE TYPE B MAST ARM DETAIL, SHEET TSP–11)

2. REMOVE AND STACK ALL EXISTING TRAFFIC SIGNAL EQUIPMENT.

3. REMOVE ALL PULL BOXES AND ABANDON EXISTING TRAFFIC SIGNAL CONDUIT SYSTEM.

4. MINIMUM 36" CLEARANCE EXCLUDING CURB WIDTH IS REQUIRED ON ALL SIDEWALKS.

5. VIDEO DETECTION AREAS ARE SHOWN ON THE PLANS GRAPHICALLY AND SHOULD BE ADJUSTED IN THE FIELD FOR PROPER DETECTION.

6. REFER TO SHEET NO. 153 FOR TRAFFIC SEQUENCE PLAN.

7. REFER TO SHEET NOS. 164 TO 168 FOR MAST ARM FOUNDATION.

8. REFER TO SHEET NO. 127 FOR COMPLETE PAVEMENT MARKING AND SIGNING PLAN.

9. PUSH BUTTONS SHALL BE LOCATED NO MORE THAN 10" HORIZONTALLY FROM A LEVEL SURFACE (≤1.5%).

10. FOUR TEMPORARY TRAFFIC SIGNALS WILL BE REQUIRED.

MAJOR ITEMS REQUIRED (TRAFFIC SIGNAL EQUIPMENT)

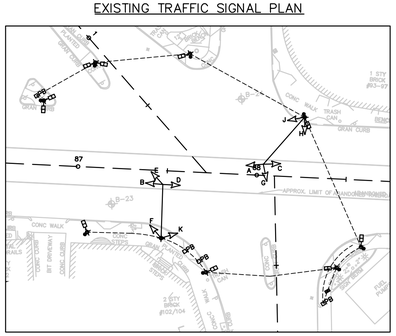
QTY	ITEM 816.09
1	TRAFFIC SIGNAL CONTROLLER (TS–2, TYPE 1) W/ 8DW BASE MOUNTED CABINET AND FOUNDATION PAD
1	35' MAST ARM TYPE B (STEEL), INCL. BASE & FNDN W/ (1) R3–8d & (1) R10–12
1	35' MAST ARM TYPE B (STEEL), INCL. BASE & FNDN W/ (1) R3–5L, (1) R10–12 & (1) D3
7	8' TRAFFIC SIGNAL POST, BASE & FOUNDATION
2	10' TRAFFIC SIGNAL POST, BASE & FOUNDATION
2	1–WAY, 3–SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
2	2–WAY, 3–SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
2	2–WAY, 3/5–SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
10	±5" LOUVERED BACKPLATES
8	PEDESTRIAN SIGNAL HEAD W/ EGG–CRATE VISOR (L.E.D. W/ COUNTDOWN)
8	ACCESSIBLE PEDESTRIAN PUSH BUTTON ASSEMBLY W/SIGN
1	12" x 12" PULL BOXES
4	12" x 24" PULL BOXES
4	VIDEO DETECTION CAMERAS
4	VIDEO CAMERA MAST ARM MOUNTING BRACKET
2	VIDEO DETECTION PROCESSOR – TWO CHANNELS
4	OPTICAL PRE–EMPTION DETECTORS SINGLE CHANNEL
1	EMERGENCY VEHICLE PRE–EMPTION CONFIRMATION STROBE LIGHT (WHITE)
1	OPTICAL PHASE SELECTOR FOUR CHANNEL
1	SERVICE CONNECTION (UNDERGROUND)

PLUS ALL NECESSARY DUCT, CABLE, FOUNDATIONS, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION AND PROVIDE AN OPERATING TRAFFIC SIGNAL.

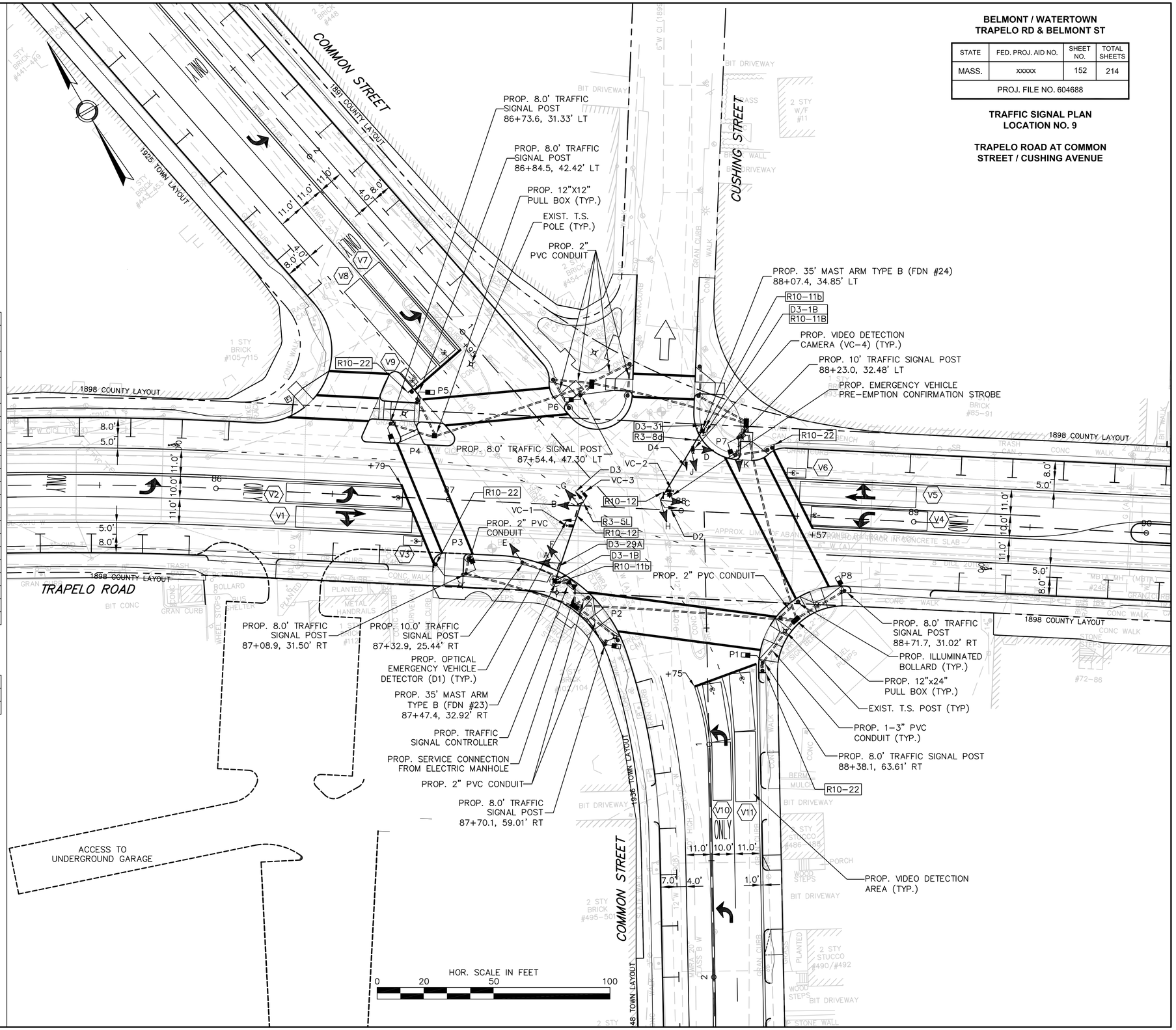
MAJOR ITEMS REQUIRED (ILLUMINATED BOLLARD SYSTEM)

QTY	ITEM 707.822
13	BOLLARDS
1	TIME CLOCK (MOUNTED IN TRAFFIC SIGNAL CABINET)

EXISTING TRAFFIC SIGNAL PLAN



HOR. SCALE IN FEET
0 40 100 200



BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	152	214
PROJ. FILE NO. 604688			

TRAFFIC SIGNAL PLAN
LOCATION NO. 9

TRAPELO ROAD AT COMMON STREET / CUSHING AVENUE

SEQUENCE AND TIMING CHART

* YIELD CONTROL

				PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6	PHASE 7	PHASE 8	PHASE 9	EMERGENCY FLASH OPERATION
				SEQUENCE									
STREET	DIR.	FACE	Ø/OL	R/W CL1 CL2	R/W CL1 CL2	R/W CL1 CL2	R/W CL1 CL2	R/W CL1 CL2	R/W CL1 CL2	R/W CL1 CL2	R/W CL1 CL2	R/W CL1 CL2	
TRAPELO RD	EB	B	5	R R R	G Y R	R R R	R R R	R R R	R R R	R R R	R R R		FY
TRAPELO RD	EB	A	2	R R R	G Y R	R R R	R R R	R R R	G Y R	R R R	R R R		FY
TRAPELO RD	WB	C	1	R R R	R R R	R R R	R R R	R R R	R R R	R R R	R R R		FY
TRAPELO RD	WB	D	6	R R R	R R R	R R R	R R R	R R R	G Y R	R R R	R R R		FY
COMMON ST	NB	H	3	~~R R R~~	~~R R R~~	~~R R R~~	~~R R R~~	~~R R R~~	~~R R R~~	~~R R R~~	~~R R R~~		~~FR~~
COMMON ST	NB	J,K	8	R R R	R R R	R R R	R R R	R R R	R R R	R R R	G Y R		FR
COMMON ST	SB	G	7	~~R R R~~	~~R R R~~	~~R R R~~	~~R R R~~	~~R R R~~	~~R R R~~	~~R R R~~	~~R R R~~		~~FR~~
COMMON ST	SB	E,F	4	R R R	R R R	R R R	G Y R	R R R	R R R	R R R	R R R		FR
PEDESTRIAN		P1–P2, P5–P6		•	•				•				OFF
PEDESTRIAN		P3–P4, P7–P8		•			•				•		OFF
				TIMING IN SECONDS									
MINIMUM GREEN				3	12	6	12	3	12	6	12		
VEHICLE INTERVAL				2	2	2	2	2	2	2	2		
MAXIMUM GREEN I (ALL OTHER TIMES)				8	40	12	25	8		12	25		
MAXIMUM GREEN II (AM,PM)				8	49	15	27	8	49	15	27		
YELLOW CLEAR				3	4	4	4	3	4	4	4		
ALL RED CLEAR				0	3	3	3	0	3	3	3		
WALK INTERVAL					7		7		7		7		
PED CLEARANCE					16 4		14.5 4		16 4		14.5 4		
PED BUFFER					3		3		3		3		
DETECTOR				NON–LOCK	NON–LOCK	NON–LOCK	NON–LOCK	NON–LOCK	NON–LOCK	NON–LOCK	NON–LOCK		
RECALL MODE				OFF	SOFT	OFF	OFF	OFF	SOFT	OFF	OFF		

CYCLE				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
DIAL	SEC.																													
AM	120			5	3	0	49	4	3	15	4	3	27	4	3	5	3	0	49	4	3	15	4	3	27	4	3			
PM	120			8	3	0	49	4	3	14	4	3	25	4	3	8	3	0	49	4	3	14	4	3	25	4	3			

SEQUF

1.

2. •

3.

CTING PHASES.

4. Ø/OL = PHASE IN DISPLAY / OVERLAPPING PHASE.

5. DIAL 1 (AM) = 06:30 – 09:00, M–F
   DIAL 2 (PM) = 15:00 – 18:00, M–F
   MAX1 = ALL OTHER TIMES

6. COUNTDOWN PHASE OF PEDESTRIAN SIGNALS SHALL NOT OCCUR DURING THE WALK PERIOD.

EMERGENCY VEHICLE PRE–EMPTION PHASING AND PRIORITY NOTES:

1. EMERGENCY VEHICLE PRE–EMPTION SIGNALS SHALL BE OPTICALLY TRANSMITTED BY OPTICAL EMITTERS MOUNTED IN EMERGENCY VEHICLES AND RECEIVED BY OPTICAL DETECTORS LOCATED AT EACH INTERSECTION.

2. IN RESPONSE TO A PRE–EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY OPTICAL DETECTOR D1 (OR D2, D3, D4) THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD IN EMERGENCY VEHICLE PRE–EMPTION PHASE #1 (OR #2, #3, #4) GREEN FOR A MINIMUM OF TEN (10) SECONDS OR UNTIL PRE–EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE–EMPTION PHASE CLEARANCE (4 SECONDS: YELLOW AND 2 SECONDS: ALL RED) AND SERVICE EMERGENCY VEHICLE PRE–EMPTION PHASE #2 (OR #1) IF NECESSARY, THEN TIME PHASE PRE–EMPTION CLEARANCE AND RESUME NORMAL SIGNAL OPERATION. EMERGENCY VEHICLE PRE–EMPTION PHASE #3 AND #4 SHALL BE SIMILARLY SERVED.

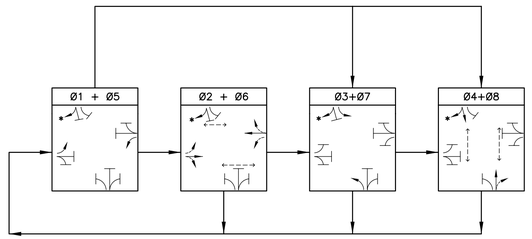
3. MINIMUM GREEN, NORMAL VEHICLE CLEARANCE, SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE–EMPTION DEMAND.

4. PREEMPTION STROBE SHALL BE ILLUMINATED WHENEVER ANY EMERGENCY VEHICLE PRE–EMPTION GREEN IS ON.

EMERGENCY VEHICLE PRE–EMPTION PHASING AND PRIORITY

DETECTOR AND PRIORITY	PRE–EMPT PHASE ASSIGNMENT	MOVEMENT	VEHICLE PHASE ASSIGNMENT
D1	1		Ø2+Ø5
D2	2		Ø1+Ø6
D3	3		Ø4+Ø7
D4	4		Ø3+Ø8

PREFERENTIAL PHASING SEQUENCE



* YIELD CONTROL

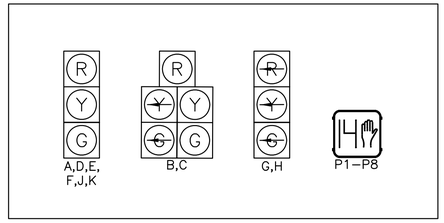
BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	153	214
PROJ. FILE NO. 604688			

TRAFFIC SIGNAL PLAN
LOCATION NO. 9

TRAPELO ROAD AT COMMON STREET / CUSHING AVENUE

SIGNAL DISPLAY



SIGNAL DISPLAY NOTES:

1. ALL SIGNAL DISPLAYS SHALL BE EQUIPPED W/ LED MODULES (12–INCH LENS)
2. ALL SIGNAL HEADS SHALL BE RIGID MOUNTED AND EQUIPPED WITH ±5" LOUVERED BACKPLATES.
3. ALL PEDESTRIAN SIGNAL HEADS SHALL HAVE PEDESTRIAN COUNTDOWN TIMER AND EGG–CRATE VISOR.

DETECTOR OPERATION

DETECTOR NUMBER	NUMBER OF SECTION/SIZE	PROCESSOR NUMBER	CHANNEL NUMBER	Ø CALLED	Ø EXTENSION	OPERATION	DELAY (SECONDS)	EXTENSION (SECONDS)
V1	9'x50'	1	1	2	2	PRESENCE	0	0
V2	8'x50'	1	1	5	5	PRESENCE	0	0
V3	4'x8'	1	1	2	2	PRESENCE	0	0
V4	8'x50'	1	2	1	1	PRESENCE	0	0
V5	9'x50'	1	2	6	6	PRESENCE	0	0
V6	4'x8'	1	2	6	6	PRESENCE	0	0
V7	9'x50'	2	1	7	7	PRESENCE	0	0
V8	9'x50'	2	1	4	4	PRESENCE	0	0
V9	3'x8'	2	1	4	4	PRESENCE	0	0
V10	2–8'x25'	2	2	3	3	PRESENCE	0	0
V11	1–9'x25' 1–9'x30'	2	2	8	8	PRESENCE	0	0

DETECTOR OPERATION NOTES:

1. DELAY TIME SHALL BE EFFECTIVE ONLY DURING THE RED PORTION OF THE PHASE THAT IS CALLED AT THE DETECTOR.

NOTES:
1. ALL PROPOSED SIGNAL HEADS MUST BE AT LEAST 10 FEET FROM THE POWERED MBTA TROLLEY WIRES AND 5 FEET FROM THEIR SUPPORT CABLES. (SEE TYPE B MAST ARM DETAIL, SHEET TSP–11)

2. REMOVE AND STACK ALL EXISTING TRAFFIC CONTROL EQUIPMENT.

3. PROTECT EXISTING TRAFFIC SIGNAL CONDUIT SYSTEM, EXCEPT AS NOTED BELOW.

4. MINIMUM 36" CLEARANCE EXCLUDING CURB WIDTH IS REQUIRED ON ALL SIDEWALKS.

5. VIDEO DETECTION AREAS ARE SHOWN ON THE PLANS GRAPHICALLY AND SHOULD BE ADJUSTED IN THE FIELD FOR PROPER DETECTION.

6. REFER TO SHEET NO. 155 FOR TRAFFIC SEQUENCE PLAN.

7. REFER TO SHEET NOS. 164 TO 168 FOR MAST ARM FOUNDATION.

8. REFER TO SHEET NO. 128 FOR COMPLETE PAVEMENT MARKING AND SIGNING PLAN.

9. PUSH BUTTONS SHALL BE LOCATED NO MORE THAN 10" HORIZONTALLY FROM A LEVEL SURFACE (≤1.5%).

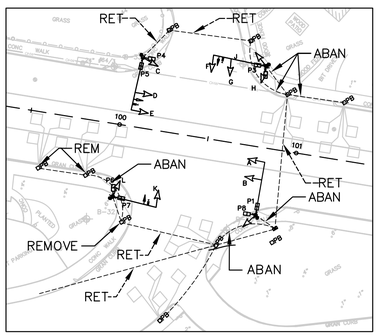
MAJOR ITEMS REQUIRED

QTY	ITEM 816.10
1	TRAFFIC SIGNAL CONTROLLER (TS–2, TYPE 1) W/ 8DW BASE MOUNTED CABINET AND CEMENT CONCRETE PAD
1	25' MAST ARM (STEEL), MNT'D ON EXIST. FNDN W/ (1) D3
1	25' MAST ARM (STEEL), MNT'D ON EXIST. FNDN W/ (2) D3
1	35' MAST ARM TYPE B (STEEL), MNT'D ON EXIST. FNDN W/ (1) D3 & (1) R10–12
1	35' MAST ARM TYPE B (STEEL), INCL. BASE & FNDN W/ (1) D3
2	10' TRAFFIC SIGNAL POST, BASE & FOUNDATION
3	8' TRAFFIC SIGNAL POST, BASE & FOUNDATION
9	1–WAY, 3–SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
3	1–WAY, 5–SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
12	5" LOUVERED BACKPLATES
8	PEDESTRIAN SIGNAL HEAD W/ EGG–CRATE VISOR (L.E.D. W/ COUNTDOWN)
8	ACCESSIBLE PEDESTRIAN PUSH BUTTON ASSEMBLY W/SIGN
2	12"x12" PULL BOXES*
4	VIDEO DETECTION CAMERAS
4	VIDEO CAMERA MAST ARM MOUNTING BRACKET
2	VIDEO DETECTION PROCESSOR – TWO CHANNELS
4	OPTICAL PRE–EMPTION DETECTORS SINGLE CHANNEL
1	EMERGENCY VEHICLE PRE–EMPTION CONFIRMATION STROBE LIGHT (WHITE)
1	OPTICAL PHASE SELECTOR FOUR CHANNEL
1	SERVICE CONNECTION (UNDERGROUND)

PLUS ALL NECESSARY DUCT, CABLE, FOUNDATIONS, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION AND PROVIDE AN OPERATING TRAFFIC SIGNAL.

* TO BE PAID UNDER ITS RESPECTIVE PAY ITEM.

EXISTING TRAFFIC SIGNAL PLAN



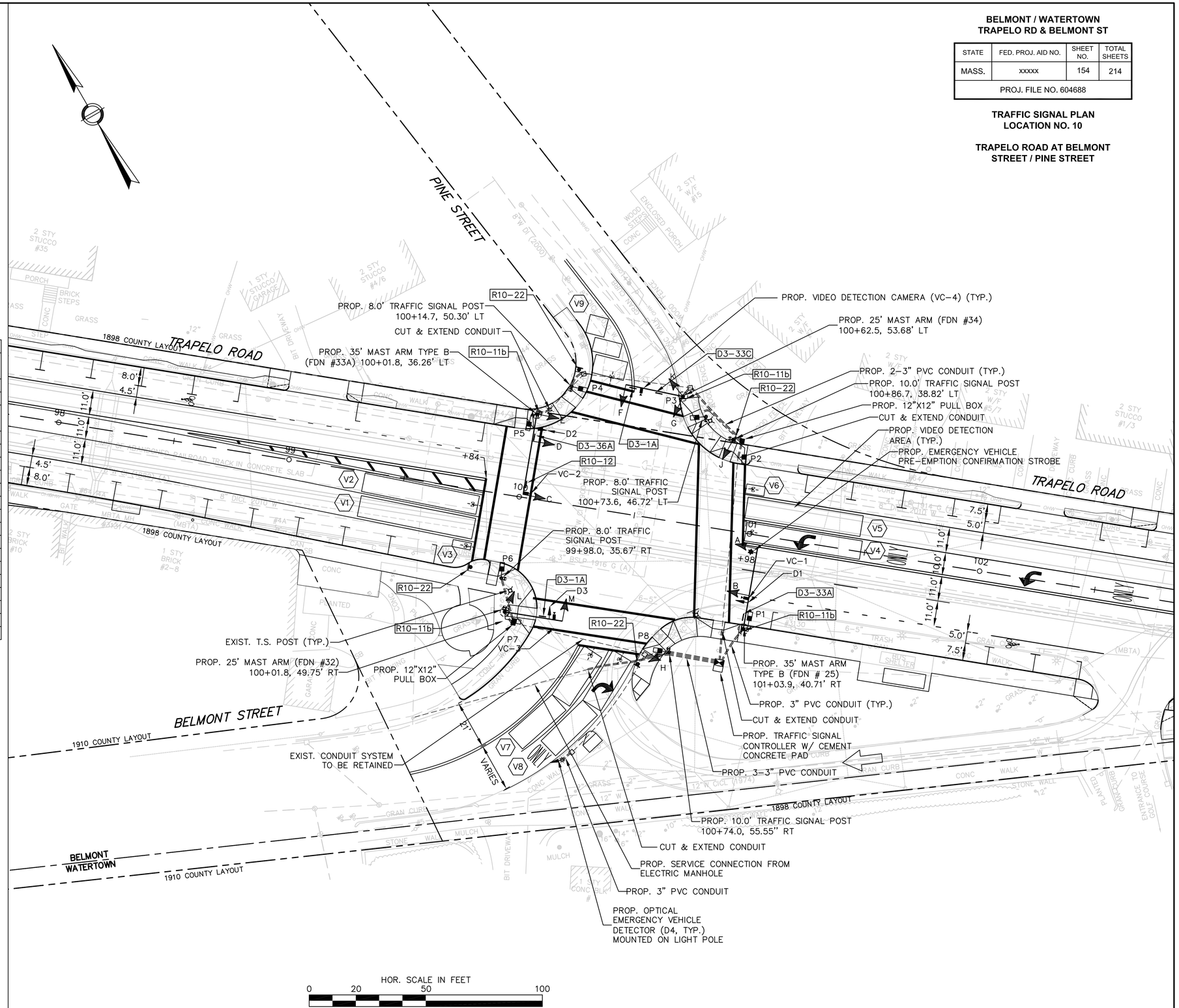
HOR. SCALE IN FEET
0 40 100 200

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	154	214
PROJ. FILE NO. 604688			

TRAFFIC SIGNAL PLAN
LOCATION NO. 10

TRAPELO ROAD AT BELMONT STREET / PINE STREET



HOR. SCALE IN FEET
0 20 50 100

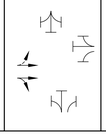
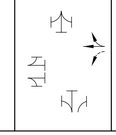
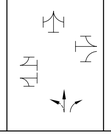
BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	155	214
PROJ. FILE NO. 604688			

TRAFFIC SIGNAL PLAN
LOCATION NO. 10

TRAPELO ROAD AT BELMONT
STREET / PINE STREET

SEQUENCE AND TIMING CHART

				PHASE 1			PHASE 2			PHASE 3			PHASE 4			PHASE 5			PHASE 6			PHASE 7			PHASE 8			PHASE 9			EMERGENCY FLASH OPERATION
																															
				SEQUENCE																											
STREET	DIR.	FACE	Ø/OL	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	
TRAPELO RD	EB	A,B	2	R	R	R	G	Y	R				R	R	R				R	R	R				R	R	R	R	R	R	FY
TRAPELO RD	WB	C	1	G		R	R	R	R				R	R	R				G	Y	R				R	R	R	R	R	R	FY
TRAPELO RD	WB	D,E	6	G	Y	R	R	R	R				R	R	R				G	Y	R				R	R	R	R	R	R	FR
BELMONT ST	NB	F,G,H	8	R	R	R	R	R	R				R	R	R				R	R	R				G	Y	R	R	R	R	FR
BELMONT ST	NB	J	8	R	R	R	R	R	R				R	R	R				R	R	R				G	Y	R	R	R	R	FR
PINE ST	SB	K,L,M	4	R	R	R	R	R	R				G	Y	R				R	R	R				R	R	R	R	R	R	FR
PEDESTRIAN		P1–P8	9																									F/			OFF
				TIMING IN SECONDS																											
MINIMUM GREEN				12			12						3						12						3						
VEHICLE INTERVAL				2			2						2						2						2						
MAXIMUM GREEN I (ALL OTHER TIMES)				25			30						9						58						9						
MAXIMUM GREEN II (AM,PM)				27			28						9						58						9						
YELLOW CLEAR					3			4						3						4						3					
ALL RED CLEAR						0			3						3						3						3				
WALK INTERVAL																												7			
PED CLEARANCE																													19		
PED BUFFER																														4	
DETECTOR				NON–LOCK			NON–LOCK						NON–LOCK						NON–LOCK						NON–LOCK			LOCK			
RECALL MODE				OFF			OFF						OFF						OFF						OFF			OFF			

CYCLE		OFFSET		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
DIAL	SEC.	%	SEC.																											
AM	80			27	3.0	0	28	4.0	3.0				9	3.0	3.0				58	4.0	3.0				9	3.0	3.0			
AM W/PED	90			19	3.0	0	19	4.0	3.0				6	3.0	3.0				41	4.0	3.0				6	3.0	3.0	7	19	4
PM	80			27	3.0	0	28	4.0	3.0				9	3.0	3.0				58	4.0	3.0				9	3.0	3.0			
PM W/PED	100			26	3.0	0	21	4.0	3.0				7	3.0	3.0				50	4.0	3.0				7	3.0	3.0	7	19	4

SEQUENCE NOTES:

1. ANY PHASE NOT CALLED WILL BE SKIPPED. SIGNAL IDENTIFICATION WILL NOT CHANGE IF THE ASSIGNED RIGHT OF WAY DOES NOT CHANGE DURING THE NEXT PHASE CALLED.
2. THE RIGHT–OF–WAY MAY BE ASSIGNED TO ANY PHASE OR ANY COMBINATION OF NON–CONFLICTING PHASES.
3. Ø/OL = PHASE IN DISPLAY / OVERLAPPING PHASE.
4. DIAL 1 (AM) = 06:30 – 09:00, M–F
   DIAL 2 (PM) = 15:00 – 18:00, M–F
   MAX1 = ALL OTHER TIMES
5. COUNTDOWN PHASE OF PEDESTRIAN SIGNALS SHALL NOT OCCUR DURING THE WALK PERIOD.

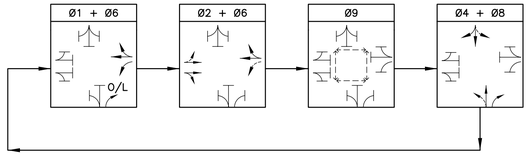
EMERGENCY VEHICLE PRE–EMPTION PHASING AND PRIORITY NOTES:

1. EMERGENCY VEHICLE PRE–EMPTION SIGNALS SHALL BE OPTICALLY TRANSMITTED BY OPTICAL EMITTERS MOUNTED IN EMERGENCY VEHICLES AND RECEIVED BY OPTICAL DETECTORS LOCATED AT EACH INTERSECTION.
2. IN RESPONSE TO A PRE–EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY OPTICAL DETECTOR D1 (OR D2, D3, D4) THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD IN EMERGENCY VEHICLE PRE–EMPTION PHASE #1 (OR #2, #3, #4) GREEN FOR A MINIMUM OF TEN (10) SECONDS OR UNTIL PRE–EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE–EMPTION PHASE CLEARANCE (4 SECONDS: YELLOW AND 2 SECONDS: ALL RED) AND SERVICE EMERGENCY VEHICLE PRE–EMPTION PHASE #2 (OR #1) IF NECESSARY, THEN TIME PHASE PRE–EMPTION CLEARANCE AND RESUME NORMAL SIGNAL OPERATION. EMERGENCY VEHICLE PRE–EMPTION PHASE #3 AND #4 SHALL BE SIMILARLY SERVED.
3. MINIMUM GREEN, NORMAL VEHICLE CLEARANCE, SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE–EMPTION DEMAND.
4. PREEMPTION STROBE SHALL BE ILLUMINATED WHENEVER ANY EMERGENCY VEHICLE PRE–EMPTION GREEN IS ON.

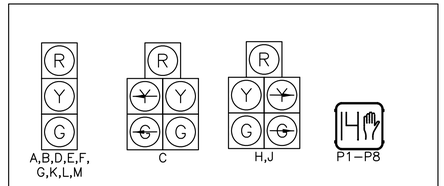
EMERGENCY VEHICLE PRE–EMPTION PHASING AND PRIORITY

DETECTOR AND PRIORITY	PRE–EMPT PHASE ASSIGNMENT	MOVEMENT	VEHICLE PHASE ASSIGNMENT
D1	1		Ø2
D2	2		Ø1 + Ø6
D3	3		Ø4
D4	4		Ø8

PREFERENTIAL PHASING SEQUENCE



SIGNAL DISPLAY



SIGNAL DISPLAY NOTES:

1. EXISTING PED. HEADS TO BE RETROFITTED WITH GRAPHIC SYMBOL AS SHOWN, IN COMFORMANCE WITH MUTCD STANDARDS.
2. ALL SIGNAL HEADS SHALL BE RIGID MOUNTED AND EQUIPPED WITH ±5" LOUVERED BACKPLATES.
3. ALL PEDESTRIAN SIGNAL HEADS SHALL HAVE PEDESTRIAN COUNTDOWN TIMER AND EGG–CRATE VISOR.

DETECTOR OPERATION

DETECTOR NUMBER	NUMBER OF SECTION/SIZE	PROCESSOR NUMBER	CHANNEL NUMBER	Ø CALLED	Ø EXTENSION	OPERATION	DELAY (SECONDS)	EXTENSION (SECONDS)
V1	9'x50'	1	1	2	2	PRESENCE	0	0
V2	9'x50'	1	1	2	2	PRESENCE	0	0
V3	3'x8'	1	1	2	2	PRESENCE	0	0
V4	8'x50'	1	2	1	1	PRESENCE	0	0
V5	9'x50'	1	2	6	6	PRESENCE	0	0
V6	4'x8'	1	2	6	6	PRESENCE	0	0
V7	2–9'x25'	2	1	8	8	PRESENCE	0	0
V8	2–9'x25'	2	1	8	8	PRESENCE	0	0
V9	1–8'x14' 1–6'x12' 1–8'x8'	2	2	4	4	PRESENCE	0	0

DETECTOR OPERATION NOTES:

1. DELAY TIME SHALL BE EFFECTIVE ONLY DURING THE RED PORTION OF THE PHASE THAT IS CALLED AT THE DETECTOR.

NOTES:
1. ALL PROPOSED SIGNAL HEADS MUST BE AT LEAST 10 FEET FROM THE POWERED MBTA TROLLEY WIRES AND 5 FEET FROM THEIR SUPPORT CABLES. (SEE TYPE B MAST ARM DETAIL, SHEET TSP–11)

2. REMOVE AND STACK ALL EXISTING TRAFFIC SIGNAL EQUIPMENT.

3. MINIMUM 36" CLEARANCE EXCLUDING CURB WIDTH IS REQUIRED ON ALL SIDEWALKS.

4. REFER TO SHEET NO. 157 FOR TRAFFIC SEQUENCE PLAN.

5. REFER TO SHEET NOS. 164 TO 168 FOR MAST ARM FOUNDATION.

6. REFER TO SHEET NO. 129 FOR COMPLETE PAVEMENT MARKING AND SIGNING PLAN.

7. PUSH BUTTONS SHALL BE LOCATED NO MORE THAN 10" HORIZONTALLY FROM A LEVEL SURFACE (≤1.5%).

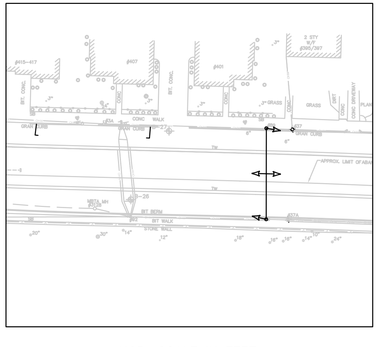
MAJOR ITEMS REQUIRED

QTY	ITEM 816.11
1	TRAFFIC SIGNAL CONTROLLER (TS–2, TYPE 1) W/ 8DW BASE MOUNTED CABINET AND FOUNDATION PAD
1	25' MAST ARM TYPE B (STEEL), INCLUDE BASE & FOUNDATION
1	30' MAST ARM TYPE B (STEEL), INCLUDE BASE & FOUNDATION
2	8' TRAFFIC SIGNAL POST, BASE & FOUNDATION
4	1–WAY, 3–SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
4	±5" LOUVERED BACKPLATES
2	PEDESTRIAN SIGNAL HEAD W/ EGG–CRATE VISOR (L.E.D. W/ COUNTDOWN)
2	ACCESSIBLE PEDESTRIAN PUSH BUTTON ASSEMBLY W/SIGN
2	12" x 12" PULL BOXES*
1	SERVICE CONNECTION (OVERHEAD)

PLUS ALL NECESSARY DUCT, CABLE, FOUNDATIONS, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION AND PROVIDE AN OPERATING TRAFFIC SIGNAL.

* TO BE PAID UNDER ITS RESPECTIVE PAY ITEM.

EXISTING TRAFFIC SIGNAL PLAN



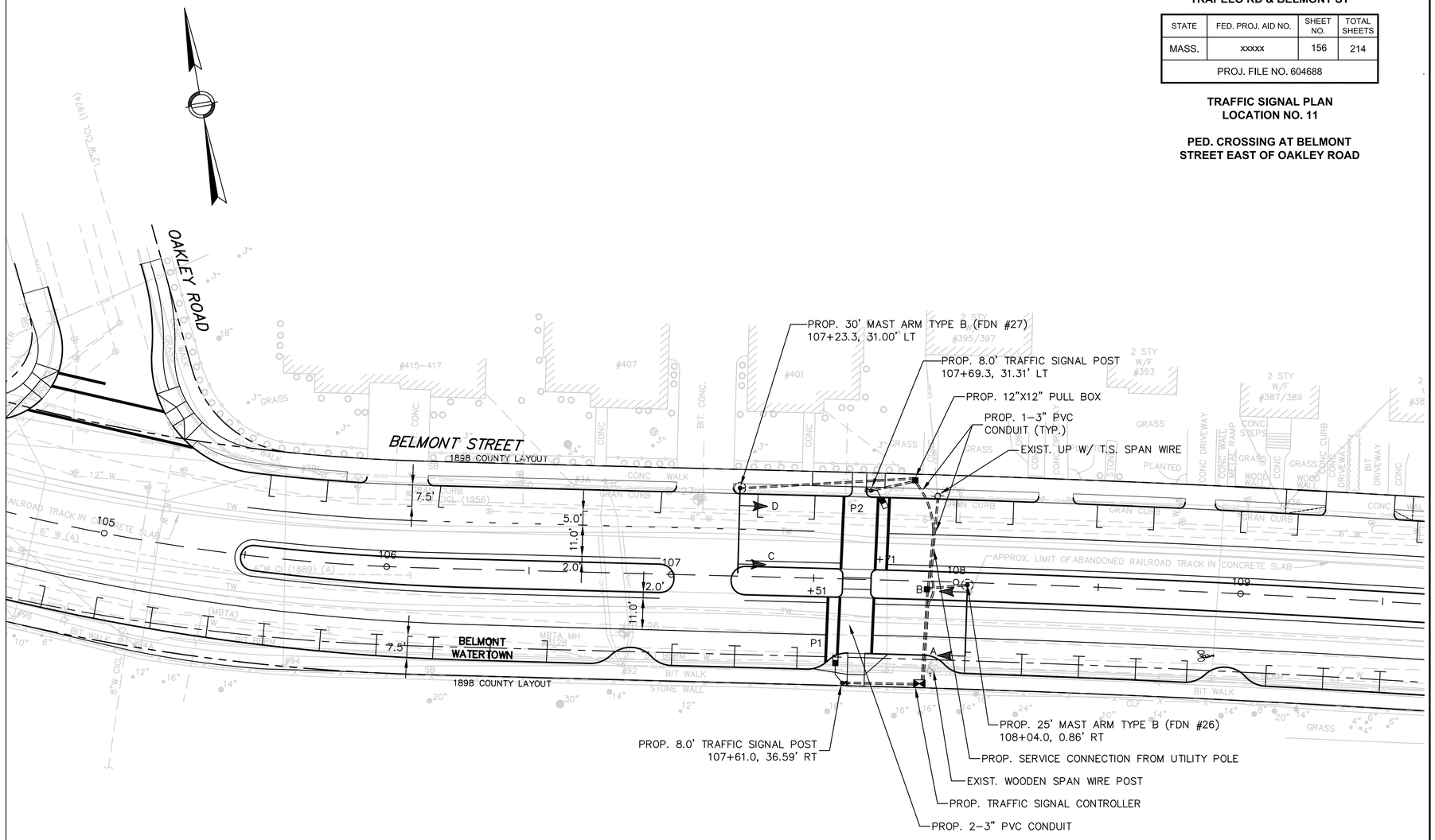
HOR. SCALE IN FEET
0 40 100 200

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	156	214
PROJ. FILE NO. 604688			

TRAFFIC SIGNAL PLAN
LOCATION NO. 11

PED. CROSSING AT BELMONT STREET EAST OF OAKLEY ROAD



HOR. SCALE IN FEET
0 20 50 100

SEQUENCE AND TIMING CHART

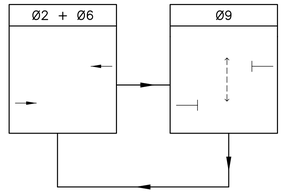
				PHASE 1			PHASE 2			PHASE 3			PHASE 4			PHASE 5			PHASE 6			PHASE 7			PHASE 8			PHASE 9			EMERGENCY FLASH OPERATION
				SEQUENCE																											
STREET	DIR.	FACE	Ø/OL	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	
BELMONT ST	EB	A,B	2				G	Y	R										R	R	R							R	R	R	FY
BELMONT ST	WB	C,D	6				R	R	R										G	Y	R							R	R	R	FY
PEDESTRIAN		P1–P2	9																									F/			OFF
				TIMING IN SECONDS																											
MINIMUM GREEN							20												20												
VEHICLE INTERVAL							2												2												
MAXIMUM GREEN I (ALL OTHER TIMES)							41												41												
MAXIMUM GREEN II (AM & PM)							41												41												
YELLOW CLEAR								4												4											
ALL RED CLEAR									1												1										
WALK INTERVAL																												7			
PED CLEARANCE																													15		
PED BUFFER																														4	
DETECTOR							NON–LOCK												NON–LOCK									LOCK			
RECALL MODE							SOFT												SOFT									OFF			

CYCLE		OFFSET		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
DIAL	SEC.	%	SEC.																											
AM	70						39	4	1										39	4	1							7	15	4
PM	70						39	4	1										39	4	1							7	15	4

SEQUENCE NOTES:

1. ANY PHASE NOT CALLED WILL BE SKIPPED. SIGNAL IDENTIFICATION WILL NOT CHANGE IF THE ASSIGNED RIGHT OF WAY DOES NOT CHANGE DURING THE NEXT PHASE CALLED.
2. THE RIGHT–OF–WAY MAY BE ASSIGNED TO ANY PHASE OR ANY COMBINATION OF NON–CONFLICTING PHASES.
3. Ø/OL = PHASE IN DISPLAY / OVERLAPPING PHASE.
4. DIAL 1 (AM) = 06:30 – 09:00, M–F
   DIAL 2 (PM) = 15:00 – 18:00, M–F
   MAX1 = ALL OTHER TIMES
5. COUNTDOWN PHASE OF PEDESTRIAN SIGNALS SHALL NOT OCCUR DURING THE WALK PERIOD.

PREFERENTIAL PHASING SEQUENCE



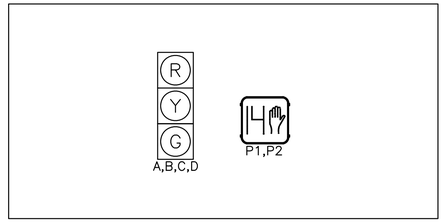
BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	157	214
PROJ. FILE NO. 604688			

TRAFFIC SIGNAL PLAN
LOCATION NO. 11

PED CROSSING AT BELMONT
STREET EAST OF OAKLEY ROAD

SIGNAL DISPLAY



SIGNAL DISPLAY NOTES:

1. ALL SIGNAL DISPLAYS SHALL BE EQUIPPED W/ LED MODULES (12–INCH LENS)
2. ALL SIGNAL HEADS SHALL BE RIGID MOUNTED AND EQUIPPED WITH ±5" LOUVERED BACKPLATES.
3. ALL PEDESTRIAN SIGNAL HEADS SHALL HAVE PEDESTRIAN COUNTDOWN TIMER AND EGG–CRATE VISOR.

NOTES:
1. ALL PROPOSED SIGNAL HEADS MUST BE AT LEAST 10 FEET FROM THE POWERED MBTA TROLLEY WIRES AND 5 FEET FROM THEIR SUPPORT CABLES. (SEE TYPE B MAST ARM DETAIL, SHEET TSP–11)

2. REMOVE AND STACK ALL EXISTING TRAFFIC SIGNAL EQUIPMENT.

3. REMOVE ALL PULL BOXES AND ABANDON EXISTING TRAFFIC SIGNAL CONDUIT SYSTEM.

4. MINIMUM 36" CLEARANCE EXCLUDING CURB WIDTH IS REQUIRED ON ALL SIDEWALKS.

5. VIDEO DETECTION AREAS ARE SHOWN ON THE PLANS GRAPHICALLY AND SHOULD BE ADJUSTED IN THE FIELD FOR PROPER DETECTION.

6. REFER TO SHEET NO. 159 FOR TRAFFIC SEQUENCE PLAN.

7. REFER TO SHEET NOS. 164 TO 168 FOR MAST ARM FOUNDATION.

8. REFER TO SHEET NO. 129 FOR COMPLETE PAVEMENT MARKING AND SIGNING PLAN.

9. PUSH BUTTONS SHALL BE LOCATED NO MORE THAN 10" HORIZONTALLY FROM A LEVEL SURFACE (≤1.5%).

10. THREE TEMPORARY TRAFFIC SIGNALS WILL BE REQUIRED.

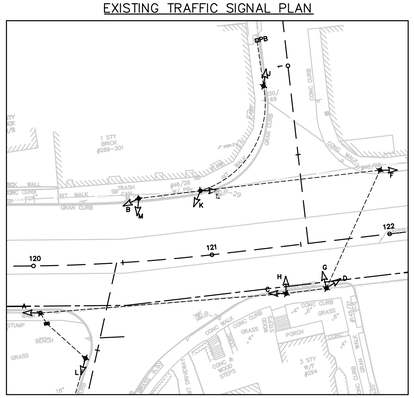
MAJOR ITEMS REQUIRED

QTY	ITEM 816.12
1	TRAFFIC SIGNAL CONTROLLER (TS–2, TYPE 1) W/ 8DW BASE MOUNTED CABINET AND FOUNDATION PAD
2	30' MAST ARM TYPE B (STEEL), INCL. BASE & FNDN
4	10' TRAFFIC SIGNAL POST, BASE & FOUNDATION
5	8' TRAFFIC SIGNAL POST, BASE & FOUNDATION
7	1–WAY, 3–SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
2	2–WAY, 3–SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
11	±5" LOUVERED BACKPLATES
8	PEDESTRIAN SIGNAL HEAD W/ EGG–CRATE VISOR (L.E.D. W/ COUNTDOWN)
8	ACCESSIBLE PEDESTRIAN PUSH BUTTON ASSEMBLY W/SIGN
5	12" x 12" PULL BOXES*
1	12" x 24" PULL BOXES*
4	VIDEO DETECTION CAMERAS
4	VIDEO CAMERA MAST ARM MOUNTING BRACKET
2	VIDEO DETECTION PROCESSOR – TWO CHANNELS (2–CHANNEL, 4–CHANNEL)
4	OPTICAL PRE–EMPTION DETECTORS SINGLE CHANNEL
1	EMERGENCY VEHICLE PRE–EMPTION CONFIRMATION STROBE LIGHT (WHITE)
1	OPTICAL PHASE SELECTOR FOUR CHANNEL
1	SERVICE CONNECTION (OVERHEAD)

PLUS ALL NECESSARY DUCT, CABLE, FOUNDATIONS, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION AND PROVIDE AN OPERATING TRAFFIC SIGNAL.

* TO BE PAID UNDER ITS RESPECTIVE PAY ITEM.

EXISTING TRAFFIC SIGNAL PLAN



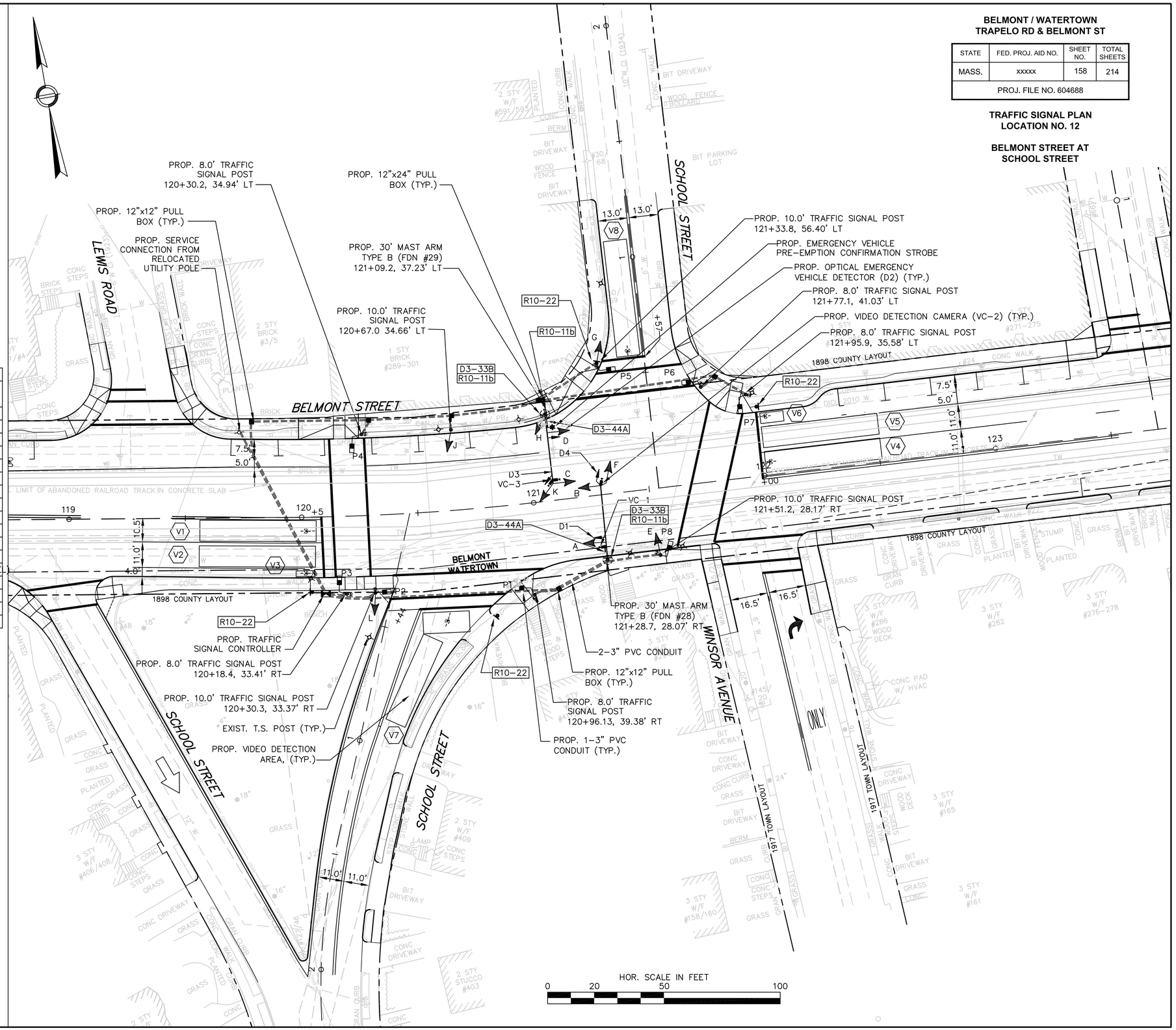
HOR. SCALE IN FEET
0 40 100 200

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	158	214
PROJ. FILE NO. 604688			

TRAFFIC SIGNAL PLAN
LOCATION NO. 12

BELMONT STREET AT SCHOOL STREET



HOR. SCALE IN FEET
0 20 50 100

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	159	214
PROJ. FILE NO. 604688			

TRAFFIC SIGNAL PLAN
LOCATION NO. 12

BELMONT STREET AT
SCHOOL STREET

SEQUENCE AND TIMING CHART

				PHASE 1			PHASE 2			PHASE 3			PHASE 4			PHASE 5			PHASE 6			PHASE 7			PHASE 8			PHASE 9			EMERGENCY FLASH OPERATION
				SEQUENCE																											
STREET	DIR.	FACE	Ø/OL	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	
BELMONT ST	EB	A,B	2				G	Y	R				R	R	R				R	R	R				R	R	R	R	R	R	FY
BELMONT ST	WB	C,D	6				R	R	R				R	R	R				G	Y	R				R	R	R	R	R	R	FY
SCHOOL ST	NB	H,J,K,L	8				R	R	R				R	R	R				R	R	R				G	Y	R	R	R	R	FR
SCHOOL ST	SB	E,F,G	4				R	R	R				G	Y	R				R	R	R				R	R	R	R	R	R	FR
PEDESTRIAN		P1–P2	2				•																					F/		OFF
PEDESTRIAN		P5–P6	6																•									F/		OFF
PEDESTRIAN		P3–P4, P7–P8	9																									F/		OFF
				TIMING IN SECONDS																											
MINIMUM GREEN							12						6						12						6						
VEHICLE INTERVAL							2						2						2						2						
MAXIMUM GREEN I (ALL OTHER TIMES)							40						35						40						35						
MAXIMUM GREEN II (AM, PM)							40						35						40						35						
YELLOW CLEAR								4						3						4						3					
ALL RED CLEAR									4						4						4						4				
WALK INTERVAL							7												7									7			
PED CLEARANCE							16	4											16	4									15		
PED BUFFER									4												4										4
DETECTOR							NON–LOCK						NON–LOCK						NON–LOCK						NON–LOCK			LOCK			
RECALL MODE							SOFT						OFF						SOFT						OFF			OFF			
CYCLE				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27		
DIAL	SEC.																														
AM	100						42	4	4				33	3	4				42	4	4				33	3	4					
AM W/PED	100						31	4	4				28	3	4				31	4	4				28	3	4	7	15	4		
PM	90						40	4	4				35	3	4				40	4	4				35	3	4					
PM W/PED	100						30	4	4				29	3	4				30	4	4				29	3	4	7	15	4		

SEQUENCE NOTES:

1. ANY PHASE NOT CALLED WILL BE SKIPPED. SIGNAL IDENTIFICATION WILL NOT CHANGE IF THE ASSIGNED RIGHT OF WAY DOES NOT CHANGE DURING THE NEXT PHASE CALLED.
2. • NORMALLY DON'T WALK, UPON PEDESTRIAN PUSH BUTTON ACTIVATION, WALK/FLASHING DON'T WALK (COUNTDOWN).
3. THE RIGHT–OF–WAY MAY BE ASSIGNED TO ANY PHASE OR ANY COMBINATION OF NON–CONFLICTING PHASES.
4. Ø/OL = PHASE IN DISPLAY / OVERLAPPING PHASE.
5. DIAL 1 (AM) = 06:30 – 09:00, M–F
   DIAL 2 (PM) = 15:00 – 18:00, M–F
   MAX1 = ALL OTHER TIMES
6. Ø9 SHOULD ONLY BE CALLED BY P3–4 OR P7–8
7. PHASE 9 SHALL ONLY BE ACTIVATED BY P3, P4, P7 AND P8.
8. COUNTDOWN PHASE OF PEDESTRIAN SIGNALS SHALL NOT OCCUR DURING THE WALK PERIOD.

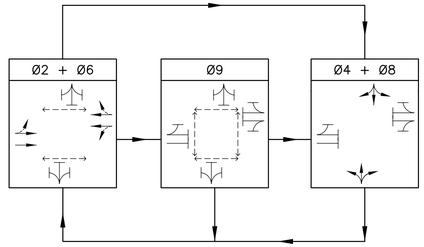
EMERGENCY VEHICLE PRE–EMPTION PHASING AND PRIORITY NOTES:

1. EMERGENCY VEHICLE PRE–EMPTION SIGNALS SHALL BE OPTICALLY TRANSMITTED BY OPTICAL EMITTERS MOUNTED IN EMERGENCY VEHICLES AND RECEIVED BY OPTICAL DETECTORS LOCATED AT EACH INTERSECTION.
2. IN RESPONSE TO A PRE–EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY OPTICAL DETECTOR D1 (OR D2, D3, D4) THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD IN EMERGENCY VEHICLE PRE–EMPTION PHASE #1 (OR #2, #3, #4) GREEN FOR A MINIMUM OF TEN (10) SECONDS OR UNTIL PRE–EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE–EMPTION PHASE CLEARANCE (4 SECONDS: YELLOW AND 2 SECONDS: ALL RED) AND SERVICE EMERGENCY VEHICLE PRE–EMPTION PHASE #2 (OR #1) IF NECESSARY, THEN TIME PHASE PRE–EMPTION CLEARANCE AND RESUME NORMAL SIGNAL OPERATION. EMERGENCY VEHICLE PRE–EMPTION PHASE #3 AND #4 SHALL BE SIMILARLY SERVED.
3. MINIMUM GREEN, NORMAL VEHICLE CLEARANCE, SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE–EMPTION DEMAND.
4. PREEMPTION STROBE SHALL BE ILLUMINATED WHENEVER ANY EMERGENCY VEHICLE PRE–EMPTION GREEN IS ON.

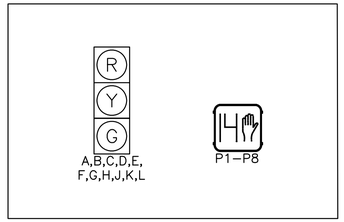
EMERGENCY VEHICLE PRE–EMPTION PHASING AND PRIORITY

DETECTOR AND PRIORITY	PRE–EMPT PHASE ASSIGNMENT	MOVEMENT	VEHICLE PHASE ASSIGNMENT
D1	1		Ø2
D2	2		Ø6
D3	3		Ø8
D4	4		Ø4

PREFERENTIAL PHASING SEQUENCE



SIGNAL DISPLAY



SIGNAL DISPLAY NOTES:

1. ALL SIGNAL DISPLAYS SHALL BE EQUIPPED W/ LED MODULES (12–INCH LENS)
2. ALL SIGNAL HEADS SHALL BE RIGID MOUNTED AND EQUIPPED WITH ±5" LOUVERED BACKPLATES.
3. ALL PEDESTRIAN SIGNAL HEADS SHALL HAVE PEDESTRIAN COUNTDOWN TIMER AND EGG–CRATE VISOR.

DETECTOR OPERATION

DETECTOR NUMBER	NUMBER OF SECTION/SIZE	PROCESSOR NUMBER	CHANNEL NUMBER	Ø CALLED	Ø EXTENSION	OPERATION	DELAY (SECONDS)	EXTENSION (SECONDS)
V1	9'x50'	1	1	2	2	PRESENCE	0	0
V2	9'x50'	1	1	2	2	PRESENCE	0	0
V3	4'x8'	1	1	2	2	PRESENCE	0	0
V4	9'x50'	1	2	6	6	PRESENCE	0	0
V5	9'x50'	1	2	6	6	PRESENCE	0	0
V6	6'x10'	1	2	6	6	PRESENCE	0	0
V7	1–9'x20' 1–9'x40'	2	1	8	8	PRESENCE	0	0
V8	10'x50'	2	2	4	4	PRESENCE	0	0

DETECTOR OPERATION NOTES:

1. DELAY TIME SHALL BE EFFECTIVE ONLY DURING THE RED PORTION OF THE PHASE THAT IS CALLED AT THE DETECTOR.

NOTES:
1. ALL PROPOSED SIGNAL HEADS MUST BE AT LEAST 10 FEET FROM THE POWERED MBTA TROLLEY WIRES AND 5 FEET FROM THEIR SUPPORT CABLES. (SEE TYPE B MAST ARM DETAIL, SHEET TSP–11)

2. REMOVE AND STACK ALL EXISTING TRAFFIC SIGNAL EQUIPMENT.

3. REMOVE ALL PULL BOXES AND ABANDON EXISTING TRAFFIC SIGNAL CONDUIT SYSTEM.

4. MINIMUM 36" CLEARANCE EXCLUDING CURB WIDTH IS REQUIRED ON ALL SIDEWALKS.

5. VIDEO DETECTION AREAS ARE SHOWN ON THE PLANS GRAPHICALLY AND SHOULD BE ADJUSTED IN THE FIELD FOR PROPER DETECTION.

6. REFER TO SHEET NO. 161 FOR TRAFFIC SEQUENCE PLAN.

7. REFER TO SHEET NOS. 164 TO 168 FOR MAST ARM FOUNDATION.

8. REFER TO SHEET NO. 130 FOR COMPLETE PAVEMENT MARKING AND SIGNING PLAN.

9. PUSH BUTTONS SHALL BE LOCATED NO MORE THAN 10" HORIZONTALLY FROM A LEVEL SURFACE (≤1.5%).

10. THREE TEMPORARY TRAFFIC SIGNALS WILL BE REQUIRED.

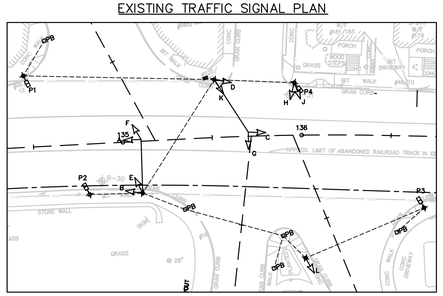
MAJOR ITEMS REQUIRED

QTY	ITEM 816.13
1	TRAFFIC SIGNAL CONTROLLER (TS–2, TYPE 1) W/ 8DW BASE MOUNTED CABINET AND FOUNDATION PAD
1	30' MAST ARM TYPE B (STEEL), INCL. BASE & FNDN
1	35' MAST ARM TYPE B (STEEL), INCL. BASE & FNDN
9	8' TRAFFIC SIGNAL POST, BASE & FOUNDATION
3	1–WAY, 3–SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
4	2–WAY, 3–SECTION SIGNAL HEAD, 12" L.E.D. LENS (W/VISORS)
11	±5" LOUVERED BACKPLATES
10	PEDESTRIAN SIGNAL HEAD W/ EGG–CRATE VISOR (L.E.D. W/ COUNTDOWN)
9	ACCESSIBLE PEDESTRIAN PUSH BUTTON ASSEMBLY W/SIGN
4	12" x 12" PULL BOXES*
1	12" x 24" PULL BOXES*
5	VIDEO DETECTION CAMERAS
5	VIDEO CAMERA MAST ARM MOUNTING BRACKET
2	VIDEO DETECTION PROCESSOR – TWO CHANNELS (2–CHANNEL, 4–CHANNEL)
5	OPTICAL PRE–EMPTION DETECTORS SINGLE CHANNEL
1	EMERGENCY VEHICLE PRE–EMPTION CONFIRMATION STROBE LIGHT (WHITE)
1	OPTICAL PHASE SELECTOR FOUR CHANNEL
1	OPTICAL PHASE SELECTOR TWO CHANNEL
1	SERVICE CONNECTION (OVERHEAD)

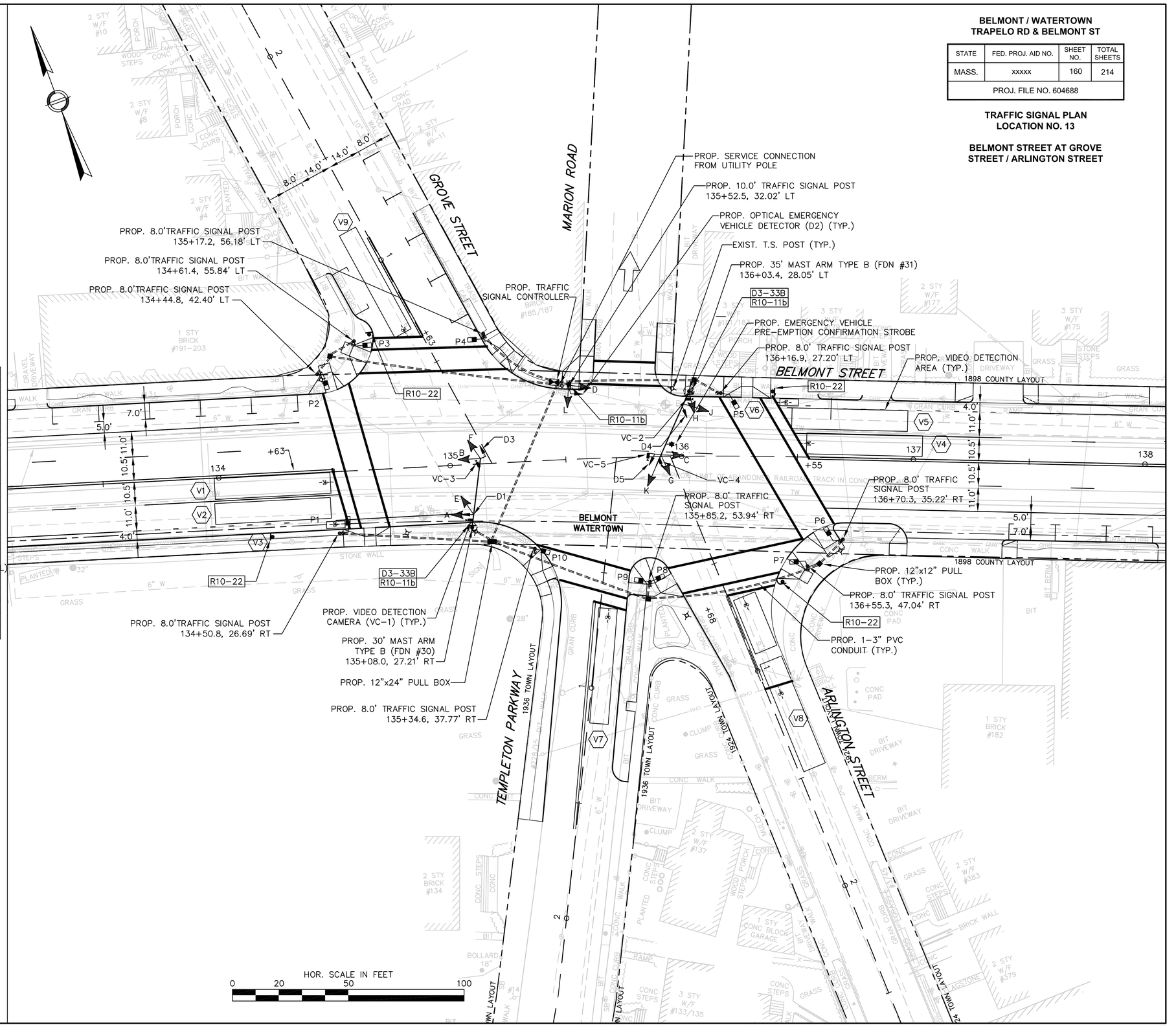
PLUS ALL NECESSARY DUCT, CABLE, FOUNDATIONS, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION AND PROVIDE AN OPERATING TRAFFIC SIGNAL.

* TO BE PAID UNDER ITS RESPECTIVE PAY ITEM.

EXISTING TRAFFIC SIGNAL PLAN



HOR. SCALE IN FEET
0 40 100 200



BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	160	214
PROJ. FILE NO. 604688			

TRAFFIC SIGNAL PLAN
LOCATION NO. 13

BELMONT STREET AT GROVE STREET / ARLINGTON STREET

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	161	214
PROJ. FILE NO. 604688			

TRAFFIC SIGNAL PLAN
LOCATION NO. 13

BELMONT STREET AT GROVE
STREET / ARLINGTON STREET

SEQUENCE AND TIMING CHART

				PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6	PHASE 7	PHASE 8	PHASE 9	EMERGENCY FLASH OPERATION
				SEQUENCE									
STREET	DIR.	FACE	Ø/OL	R/W CL1 CL2	R/W CL1 CL2	R/W CL1 CL2	R/W CL1 CL2	R/W CL1 CL2	R/W CL1 CL2	R/W CL1 CL2	R/W CL1 CL2	R/W CL1 CL2	
BELMONT ST	EB	A,B	2		G Y R	R R R	R R R		R R R		R R R		FY
BELMONT ST	WB	C,D,J	6		R R R	R R R	R R R		G Y R		R R R		FY
GROVE ST	SB	E,F	4		R R R	R R R	G Y R		R R R		R R R		FR
ARLINGTON ST	NB	G,H	3		R R R	G Y R	R R R		R R R		R R R		FR
TEMPLETON PKWY	NB	K,L	8		R R R	R R R	R R R		R R R		G Y R		FR
PEDESTRIAN		P1–P2			✋ ✋ ✋	✋ ✋ ✋	• ✋ ✋		✋ ✋ ✋		✋ ✋ ✋		OFF
PEDESTRIAN		P3–P4			✋ ✋ ✋	✋ ✋ ✋	✋ ✋ ✋		• ✋ ✋		✋ ✋ ✋		OFF
PEDESTRIAN		P5–P6			✋ ✋ ✋	• ✋ ✋	✋ ✋ ✋		✋ ✋ ✋		✋ ✋ ✋		OFF
PEDESTRIAN		P7–P8			• ✋ ✋	✋ ✋ ✋	✋ ✋ ✋		✋ ✋ ✋		✋ ✋ ✋		OFF
				TIMING IN SECONDS									
MINIMUM GREEN				12	6	6	12	6					
VEHICLE INTERVAL				2	2	2	2	2					
MAXIMUM GREEN I (ALL OTHER TIMES)				30	24	25	30	25					
MAXIMUM GREEN II (AM & PM)				35	27	31	35	31					
YELLOW CLEAR				4	3	3	4	3					
ALL RED CLEAR				4	4	4	4	4					
WALK INTERVAL				7	7	7	7	7					
PED CLEARANCE				12 4	17 3	14 3	16 4	3					
PED BUFFER				4	4	4	4	4					
DETECTOR				NON–LOCK	NON–LOCK	NON–LOCK	NON–LOCK	NON–LOCK					
RECALL MODE				SOFT	OFF	OFF	SOFT	OFF					

CYCLE			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
DIAL	SEC.																												
AM	100					35	4	4	12	3	4	31	3	4				35	4	4				31	3	4			
AM W/PED	100					28	4	4	23	3	4	27	3	4				28	4	4				27	3	4			
PM	100					33	4	4	26	3	4	19	3	4				33	4	4				19	3	4			
PM W/PED	100					31	4	4	26	3	4	21	3	4				31	4	4				21	3	4			

SEQUENCE NOTES:

1. ANY PHASE NOT CALLED WILL BE SKIPPED. SIGNAL IDENTIFICATION WILL NOT CHANGE IF THE ASSIGNED RIGHT OF WAY DOES NOT CHANGE DURING THE NEXT PHASE CALLED.
2. • NORMALLY DON'T WALK, UPON PEDESTRIAN PUSH BUTTON ACTIVATION, WALK/FLASHING DON'T WALK (COUNTDOWN).
3. THE RIGHT–OF–WAY MAY BE ASSIGNED TO ANY PHASE OR ANY COMBINATION OF NON–CONFLICTING PHASES.
4. Ø/OL = PHASE IN DISPLAY / OVERLAPPING PHASE.
5. DIAL 1 (AM) = 06:30 – 09:00, M–F
   DIAL 2 (PM) = 15:00 – 18:00, M–F
   MAX1 = ALL OTHER TIMES
6. COUNTDOWN PHASE OF PEDESTRIAN SIGNALS SHALL NOT OCCUR DURING THE WALK PERIOD.

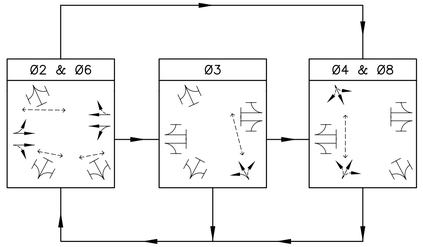
EMERGENCY VEHICLE PRE–EMPTION PHASING AND PRIORITY NOTES:

1. EMERGENCY VEHICLE PRE–EMPTION SIGNALS SHALL BE OPTICALLY TRANSMITTED BY OPTICAL EMITTERS MOUNTED IN EMERGENCY VEHICLES AND RECEIVED BY OPTICAL DETECTORS LOCATED AT EACH INTERSECTION.
2. IN RESPONSE TO A PRE–EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY OPTICAL DETECTOR D1 (OR D2, D3, D4, D5) THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD IN EMERGENCY VEHICLE PRE–EMPTION PHASE #1 (OR #2, #3, #4) GREEN FOR A MINIMUM OF TEN (10) SECONDS OR UNTIL PRE–EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE–EMPTION PHASE CLEARANCE (4 SECONDS: YELLOW AND 2 SECONDS: ALL RED) AND SERVICE EMERGENCY VEHICLE PRE–EMPTION PHASE #2 (OR #1) IF NECESSARY, THEN TIME PHASE PRE–EMPTION CLEARANCE AND RESUME NORMAL SIGNAL OPERATION. EMERGENCY VEHICLE PRE–EMPTION PHASE #3, #4 AND #5 SHALL BE SIMILARLY SERVED.
3. MINIMUM GREEN, NORMAL VEHICLE CLEARANCE, SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE–EMPTION DEMAND.
4. PREEMPTION STROBE SHALL BE ILLUMINATED WHENEVER ANY EMERGENCY VEHICLE PRE–EMPTION GREEN IS ON.

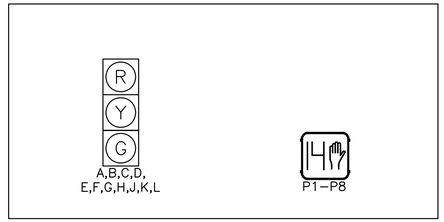
EMERGENCY VEHICLE PRE–EMPTION PHASING AND PRIORITY

DETECTOR AND PRIORITY	PRE–EMPT PHASE ASSIGNMENT	MOVEMENT	VEHICLE PHASE ASSIGNMENT
D1	1		Ø2
D2	2		Ø6
D3	3		Ø4
D4	4		Ø3
D5	5		Ø8

PREFERENTIAL PHASING SEQUENCE



SIGNAL DISPLAY



SIGNAL DISPLAY NOTES:

1. ALL SIGNAL DISPLAYS SHALL BE EQUIPPED W/ LED MODULES (12–INCH LENS)
2. ALL SIGNAL HEADS SHALL BE RIGID MOUNTED AND EQUIPPED WITH ±5" LOUVERED BACKPLATES.
3. ALL PEDESTRIAN SIGNAL HEADS SHALL HAVE PEDESTRIAN COUNTDOWN TIMER AND EGG–CRATE VISOR.

DETECTOR OPERATION

DETECTOR NUMBER	NUMBER OF SECTION/SIZE	PROCESSOR NUMBER	CHANNEL NUMBER	Ø CALLED	Ø EXTENSION	OPERATION	DELAY (SECONDS)	EXTENSION (SECONDS)
V1	9'x50'	1	1	2	2	PRESENCE	0	0
V2	9'x50'	1	1	2	2	PRESENCE	0	0
V3	3'x8'	1	1	2	2	PRESENCE	0	0
V4	9'x50'	1	2	6	6	PRESENCE	0	0
V5	9'x50'	1	2	6	6	PRESENCE	0	0
V6	3'x8'	1	2	6	6	PRESENCE	0	0
V7	8'x50'	2	1	8	8	PRESENCE	0	0
V8	10'X25' 10'x50'	2	1	3	3	PRESENCE	0	0
V9	8'x50'	2	2	4	4	PRESENCE	0	0

DETECTOR OPERATION NOTES:

1. DELAY TIME SHALL BE EFFECTIVE ONLY DURING THE RED PORTION OF THE PHASE THAT IS CALLED AT THE DETECTOR.

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	162	214
PROJ. FILE NO. 604688			

INTERCONNECT PLAN

PROP. LOCATION 1 CONTROLLER CABINET

PROP. 35' MAST ARM (FDN #2) 18+34.8, 37.33' LT

PROP. 8.0' TRAFFIC SIGNAL POST 18+49.1, 62.24' LT

PROP. 20' MAST ARM (FDN #1) MILL ST 0+58.4, 52.25' RT

PROP. 8' TRAFFIC SIGNAL POST 17+80.9, 57.94' LT

PROP. 25' MAST ARM (FDN# 3) 17+57.9, 38.01' LT

PROP. 8.0' TRAFFIC SIGNAL POST 19+27.7, 39.16' LT

PROP. 8.0' TRAFFIC SIGNAL POST 19+49.2, 62.24' LT

PROP. 8.0' TRAFFIC SIGNAL POST 19+41.9, 36.32' LT

PROP. 10.0' TRAFFIC SIGNAL POST 19+68.6, 27.95' LT

PROP. 8.0' TRAFFIC SIGNAL POST 18+16.5, 38.00' LT

PROP. LOCATION 2 CONTROLLER CABINET

PROP. 25' MAST ARM (FDN #6) 23+62.1, 31.99' LT

PROP. 8.0' TRAFFIC SIGNAL POST 23+91.7, 32.46' LT

TRIO COUNTY LAYOUT

PROP. 8.0' TRAFFIC SIGNAL POST 19+33.1, 26.93' LT

PROP. 8.0' TRAFFIC SIGNAL POST 18+34.3, 32.67' RT

PROP. 30' MAST ARM (FDN #4) 19+27.2, 28.12' RT

PROP. 8.0' TRAFFIC SIGNAL POST 19.31.7, 33.82' RT

STUB PROP. INTERCONNECT CABLE / CONDUIT FOR FUTURE EXTENSION (TYP.)

PROP. 12"X12" PULL BOX (TYP.)

PROP. 8.0' TRAFFIC SIGNAL POST 23+73.2, 41.52' RT

PROP. 35' MAST ARM (FDN #5) 24+19.2, 40.64' RT

CONTINUED BELOW

PROP. LOCATION 3 CONTROLLER CABINET

PROP. 10.0' TRAFFIC SIGNAL POST 28+84.9, 48.70' LT

PROP. 10.0' TRAFFIC SIGNAL POST 28+98.7, 31.04' LT

PROP. 10.0' TRAFFIC SIGNAL POST 30+09.1, 34.95' LT

PROP. 12"X12" PULL BOX (TYP.)

PROP. 8.0' TRAFFIC SIGNAL POST 29+19.2, 33.67' LT

PROP. 20' MAST ARM (FDN #14) 33+23.3, 28.00' LT

PROP. 10.0' TRAFFIC SIGNAL POST 33+56.1, 27.67' LT

PROP. LOCATION 4 MASTER CONTROLLER CABINET

PROP. 25' MAST ARM (FDN #13) 34+33.2, 35.66' LT

PROP. INTERCONNECT CABLE IN EXISTING BELMONT MUNICIPAL LIGHT DEPT. ELECTRIC CONDUIT

PROP. 35' MAST ARM (FDN #12) 35+24.4, 35.92' LT

PROP. 8.0' TRAFFIC SIGNAL POST 35+44.3, 32.84' LT

PROP. 8.0' TRAFFIC SIGNAL POST 39+63.6, 32.17' LT

PROP. 30' MAST ARM TYPE B (FDN #18) 39+12.9, 31.00' LT

PROP. 25' MAST ARM (FDN #7) 29+77.6, 25.13' RT

PROP. 10.0' TRAFFIC SIGNAL POST 29+33.7, 29.24' RT

PROP. INTERCONNECT CABLE (TYP.) IN PROP. 3" PVC CONDUIT

PROP. 10.0' TRAFFIC SIGNAL POST 33+80.6, 60.83' RT

PROP. 8.0' TRAFFIC SIGNAL POST 33+14.1, 47.09' RT

PROP. 35' MAST ARM (FDN #9) 34+10.4, 40.51' RT

PROP. 8.0' TRAFFIC SIGNAL POST 34+37.7, 49.77' RT

PROP. 35' MAST ARM TYPE B (SEE SHEET NO. 146) (FDN #11) 35+55.9, 39.56' RT)

PROP. 8.0' TRAFFIC SIGNAL POST 35+27.6, 55.92' RT

PROP. 8.0' TRAFFIC SIGNAL POST 39+53.3, 32.00' RT

PROP. LOCATION 6 CONTROLLER CABINET

PROP. 20' MAST ARM (FDN #10) 34+05.4, 41.77' RT

PROP. 12"X12" PULL BOX (TYP.)

PROP. 8.0' TRAFFIC SIGNAL POST 34+67.3, 54.09' RT

PROP. 10.0' TRAFFIC SIGNAL POST 2+93.4, 43.14' LT

PROP. 8.0' TRAFFIC SIGNAL POST 3+91.8, 39.96' LT

PROP. INTERCONNECT CABLE (TYP.) IN PROP. 3" PVC CONDUIT

PROP. 8.0' TRAFFIC SIGNAL POST 3+30.9, 28.22' LT

PROP. 8.0' TRAFFIC SIGNAL POST 3+37.3, 33.00' LT

PROP. 10.0' TRAFFIC SIGNAL POST 3+17.9, 22.34' LT

PROP. LOCATION 5 CONTROLLER CABINET

PROP. 8.0' TRAFFIC SIGNAL POST 3+40.3, 25.85' LT

PROP. 8.0' TRAFFIC SIGNAL POST 3+91.8, 39.96' LT

PROP. 10.0' TRAFFIC SIGNAL POST 3+53.8, 16.67' RT

PROP. 10.0' TRAFFIC SIGNAL POST 4+21.4, 24.17' LT

PROP. 30' MAST ARM (FDN #16) 3+87.3, 17.76' RT

PROP. 10.0' TRAFFIC SIGNAL POST 4+38.8, 24.17' LT

CONTINUED ABOVE

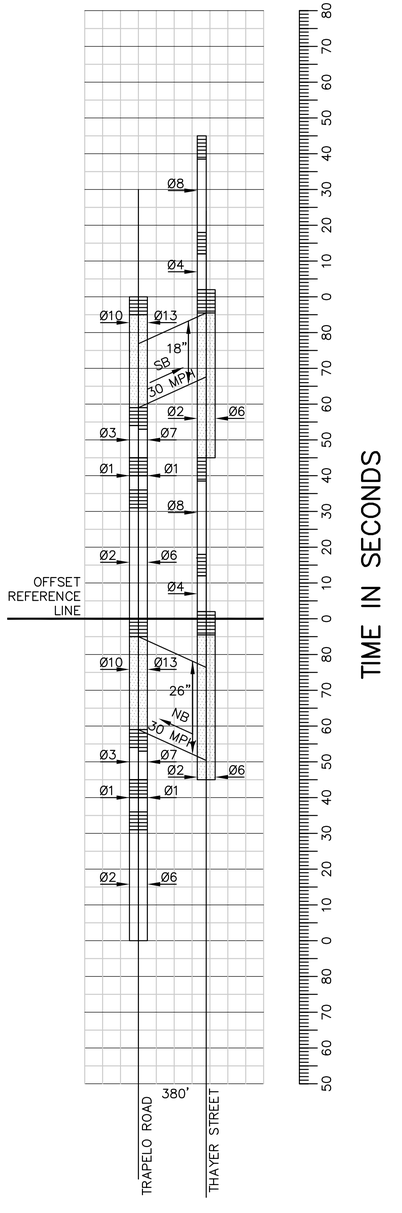
HOR. SCALE IN FEET
0 40 100 200

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

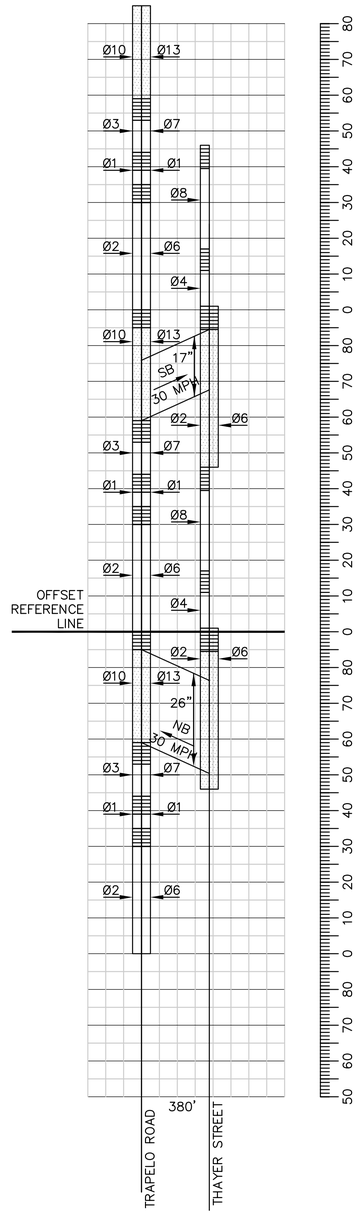
STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	163	214
PROJ. FILE NO. 604688			

TIME SPACE DIAGRAM

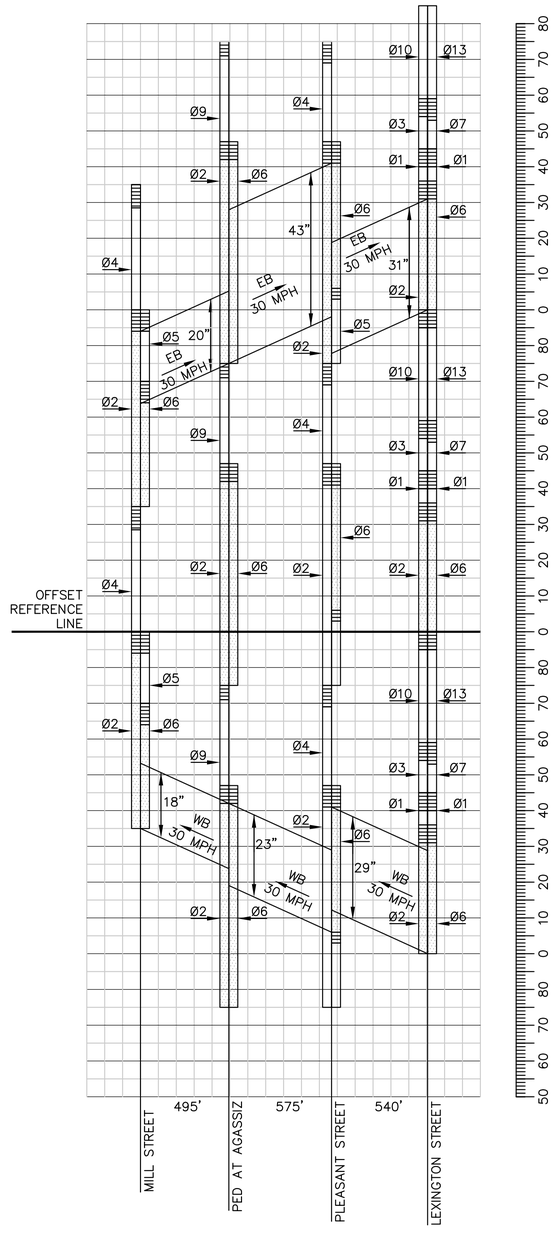
LEXINGTON STREET
90 SECOND CYCLE (AM)



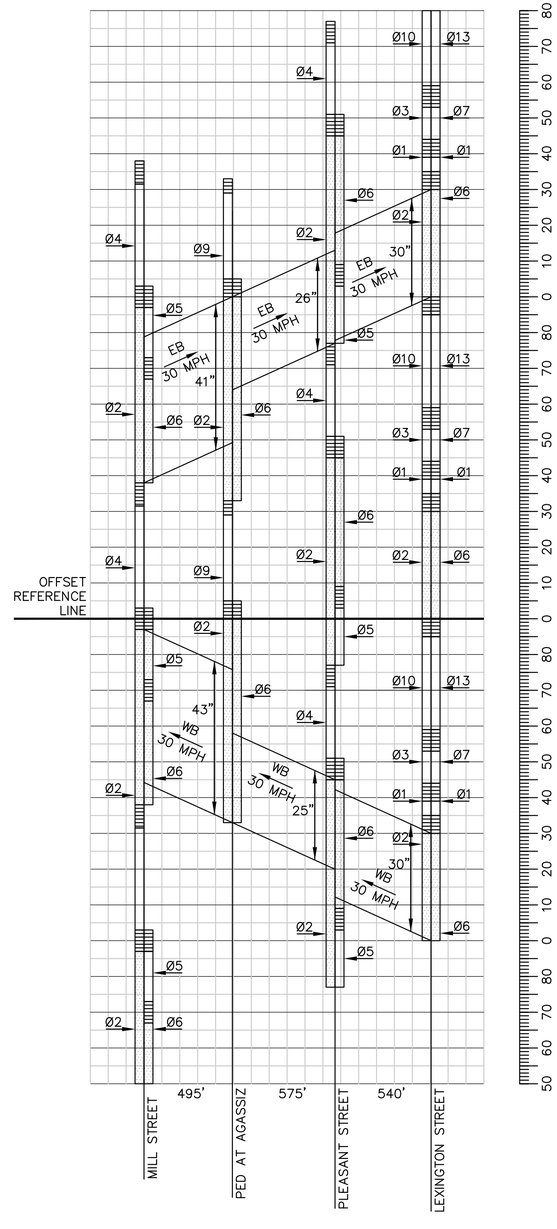
LEXINGTON STREET
90 SECOND CYCLE (PM)



TRAPELO ROAD
90 SECOND CYCLE (AM)



TRAPELO ROAD
90 SECOND CYCLE (PM)



LEXINGTON STREET

LEXINGTON STREET

TRAPELO ROAD

TRAPELO ROAD

SCALE IN FEET
0 400 800 1600

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	164	214
PROJ. FILE NO. 604688			

TRAFFIC SIGNAL DETAILS

INDEX

SHEET NO.	DESCRIPTION
1	Title Sheet
2	Light, Medium & Short Span Load Diagrams
3	Heavy Load Diagrams
4	Details
5	Cored Pier Foundations

THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION, HIGHWAY DIVISION 1988 STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, THE ENGLISH EDITION OF SUPPLEMENTAL SPECIFICATIONS DATED JUNE 6, 2006, THE AMENDMENTS TO THE STANDARD AND SUPPLEMENTAL SPECIFICATIONS, THE 1977 CONSTRUCTION STANDARDS, THE ENGLISH EDITION OF SUPPLEMENTAL DRAWINGS DATED APRIL 2003, THE 2001 "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS" WITH LATEST REVISIONS, THE 2003 "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" WITH LATEST REVISIONS, THE 1990 "STANDARD DRAWINGS FOR SIGNS AND SUPPORTS," AND THE 2004 EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, WILL GOVERN.

MAST ARM & FOUNDATION

Details Standard Drawings

NOTES

1. For these standard drawings the Design Wind Speed for all Mast Arm Structures shall be **130 MPH**.

2. For these standard drawings the Design Wind Speed for mast arm foundations located in the following counties: Plymouth, Bristol, Barnstable, Dukes, and Nantucket counties in District 5 and Berkshire county in District 1 shall be **130 MPH**. The design wind speed for mast arm foundations for the remainder of the state shall be **110 MPH.**

3. For these standard drawings the mast arm structure design life shall be 25 years.

4. For these standard drawings the Fatigue Category no. 2 was used and truck induced gusts were excluded in the design.

5. These standard drawings do not apply for mast arm structures at intersections with an ADT greater than 40,000 vehicles and a truck percentage of greater than 10%. The responsibility for the design of mast structures and foundations will rest with the design engineer. The structure design life will be 50 years and the fatigue category shall be no. 1. The design wind speed criteria shall be as shown in Notes Nos. 1 & 2. The design will be submitted to MassDOT for review and comment.

6. For strain pole, dual mast arm designs, or mast arms longer than 45 feet, notes 1, 2, 3 and 4 will apply, if ADT (>40,000 vehicles) and truck percentage (10%) criterion is met, note 5 design criteria (50 year design life, fatigue category no. 1, wind design speed notes 1 and 2) will apply. The responsibility for the design of these structures and foundations will rest with the design engineer. The design will be submitted to MassDOT for review and comment.

NO.	REVISION	DATE

Moving Massachusetts Forward. massDOT Highway

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISON

RECOMMENDED FOR APPROVAL

Neil E. Boudreau — 2/11/11
TRAFFIC ENGINEER — DATE

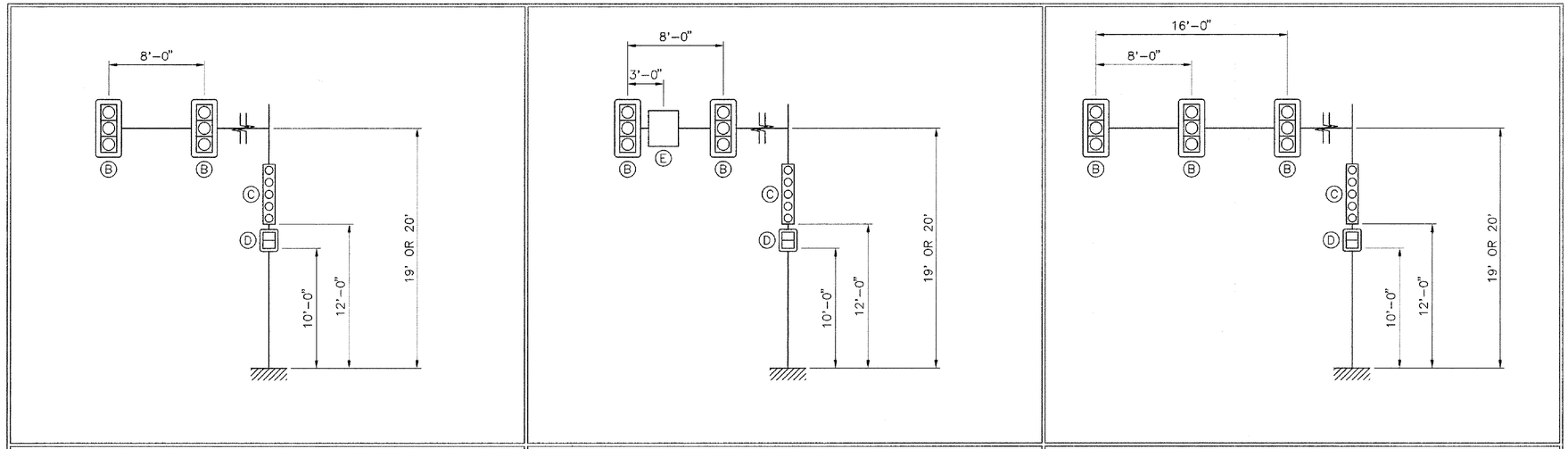
Frank W. Ramsey P.E. — 2/17/11
BRIDGE ENGINEER — DATE

Frank A. Tramuta — 2/24/2011
CHIEF ENGINEER — DATE

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	165	214
PROJ. FILE NO. 604688			

TRAFFIC SIGNAL DETAILS

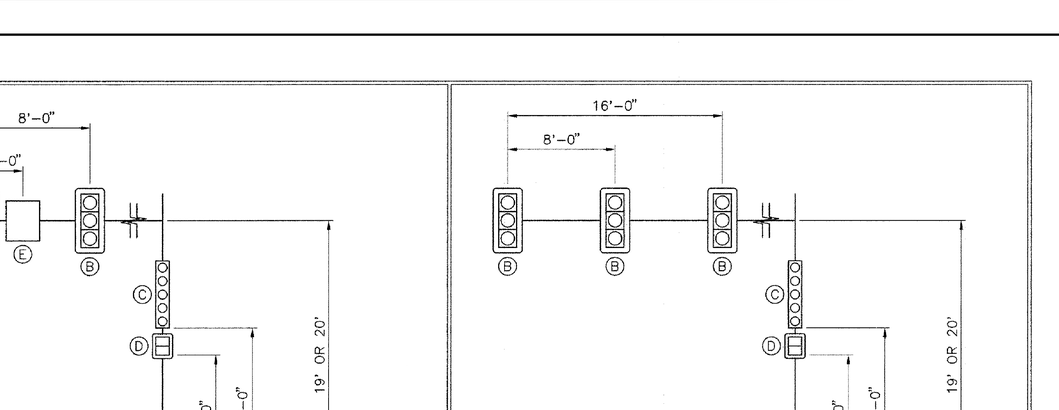


20', 25', 40' & 45' SPANS | 30' SPAN | 35' SPAN

LOAD DEFINITIONS – LIGHT LOADS

15' SPAN

SHORT SPAN LOADING



20' & 25' SPANS | 30', 35', 40' & 45' SPANS

LOAD DEFINITIONS – MEDIUM LOADS

DEVICE	DESCRIPTION	PROJ. AREA (FT^2)	WEIGHT (LBS)
Ⓐ	3 SECTION, 3 WAY SIGNAL	13.50	202
Ⓑ	3 SECTION, 1 WAY SIGNAL	8.67	74
Ⓒ	5 SECTION, 1 WAY SIGNAL	13.33	110
Ⓓ	DUAL PEDESTRIAN SIGNAL	8.00	80
Ⓔ	30" X 36" REGULATORY SIGN	7.50	23
NOTE: ALL SIGNALS HAVE 5.0" BACKPLATES			

MONTH_DD,_YYYY	ISSUED FOR CONSTRUCTION

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massDOT Highway

STANDARD DRAWINGS

TYPE II MAST ARMS
LIGHT, MEDIUM & SHORT SPAN
LOAD DIAGRAMS

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION
10 PARK PLAZA BOSTON, MASS

Frank A. Tramontozzi 2/24/2011
CHIEF ENGINEER

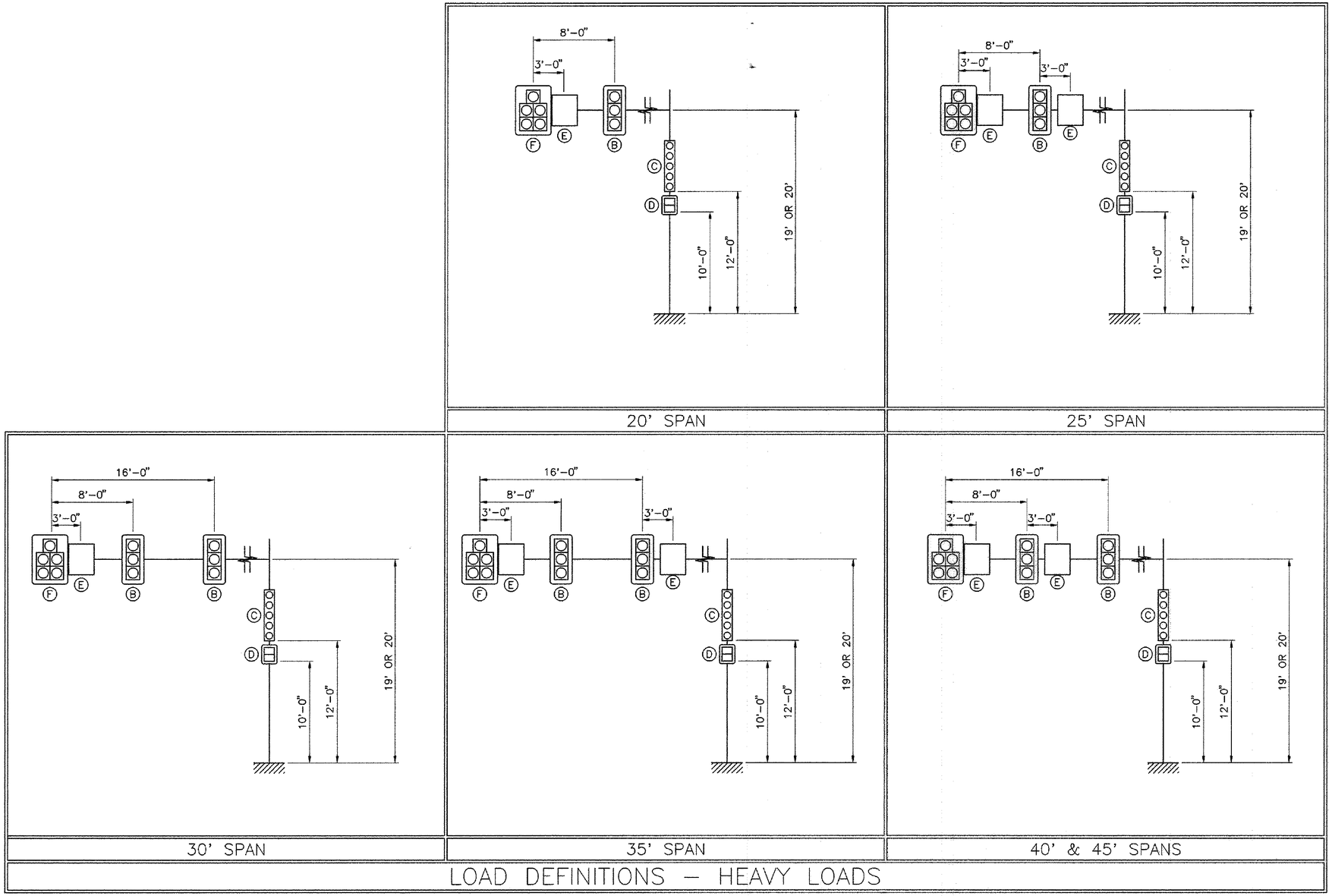
BRIDGE ENGINEER

Neal E. Boudreau
TRAFFIC ENGINEER

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	166	214
PROJ. FILE NO. 604688			

TRAFFIC SIGNAL DETAILS



LOAD DEFINITIONS – HEAVY LOADS

DEVICE	DESCRIPTION	PROJ. AREA (FT~2)	WEIGHT (LBS)
Ⓐ	3 SECTION, 3 WAY SIGNAL	18.29	202
Ⓑ	3 SECTION, 1 WAY SIGNAL	8.67	74
Ⓒ	5 SECTION, 1 WAY SIGNAL	13.33	110
Ⓓ	DUAL PEDESTRIAN SIGNAL	8.00	80
Ⓔ	30" X 36" REGULATORY SIGN	7.50	23
Ⓕ	5 SECTION, 2 WAY SIGNAL	21.95	215

NOTE: ALL SIGNALS HAVE 5.0" BACKPLATES

MONTH_DD,_YYYY	ISSUED FOR CONSTRUCTION

Moving Massachusetts Forward
massDOT Highway

STANDARD DRAWINGS

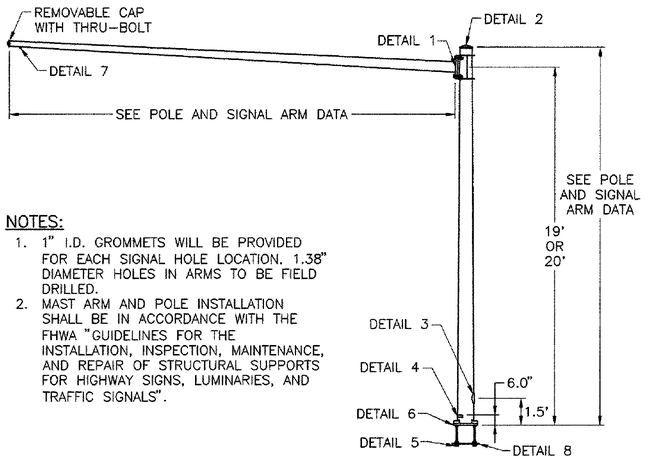
TYPE II MAST ARMS
HEAVY LOAD DIAGRAMS

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION
10 PARK PLAZA BOSTON, MASS

2/24/2011
CHIEF ENGINEER

BRIDGE ENGINEER

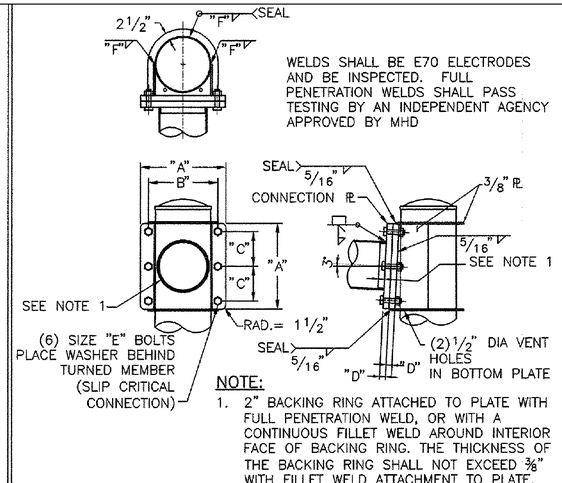
TRAFFIC ENGINEER



NOTES:

1. 1" I.D. GROMMETS WILL BE PROVIDED FOR EACH SIGNAL HOLE LOCATION. 1.38" DIAMETER HOLES IN ARMS TO BE FIELD DRILLED.
2. MAST ARM AND POLE INSTALLATION SHALL BE IN ACCORDANCE WITH THE FHWA "GUIDELINES FOR THE INSTALLATION, INSPECTION, MAINTENANCE, AND REPAIR OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINARIES, AND TRAFFIC SIGNALS".

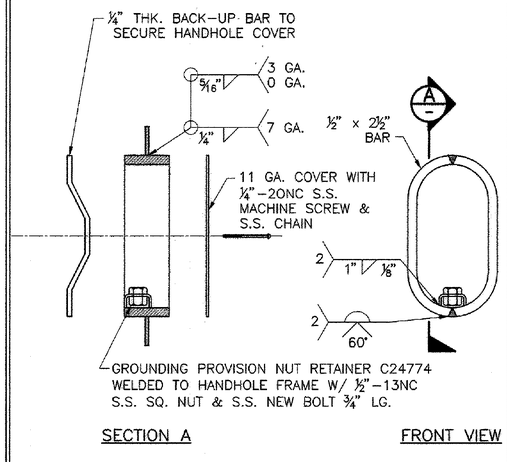
MAST ARM ELEVATION



NOTE:

1. 2" BACKING RING ATTACHED TO PLATE WITH FULL PENETRATION WELD, OR WITH A CONTINUOUS FILLET WELD AROUND INTERIOR FACE OF BACKING RING. THE THICKNESS OF THE BACKING RING SHALL NOT EXCEED 3/8" WITH FILLET WELD ATTACHMENT TO PLATE.

DETAIL 1 | SIGNAL ARM ATTACHMENT

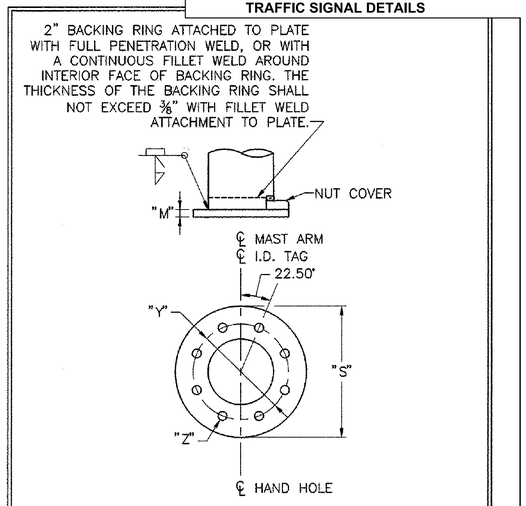


DETAIL 3 | 4"x8" HANDHOLE

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	167	214
PROJ. FILE NO. 604688			

TRAFFIC SIGNAL DETAILS

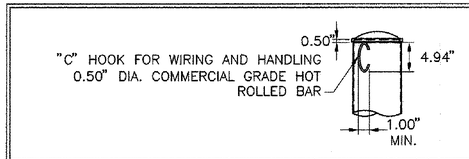


DETAIL 6 | POLE BASE

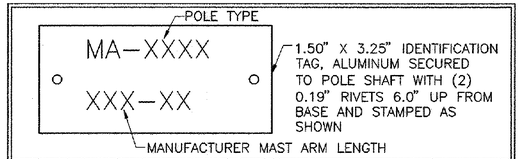
MATERIAL DATA

COMPONENT	DESIGNATION	YIELD (KSI)	COMPONENT	DESIGNATION	YIELD (KSI)
POLE TUBE	ASTM A595 GR. A	55	ARM TUBE	ASTM A595 GR. A	55
POLE BASE PLATE	AASHTO M270	50	ARM CONNECTION PLATE	AASHTO M270	50
ANCHOR BOLTS	AASHTO M314	55	ARM CONNECTING BOLTS	AASHTO M164 **	
GALVANIZING	AASHTO M111 OR M232				

** BOLTS WHICH ACCUMULATE RUST OR DIRT SHALL BE DISCARDED.



DETAIL 2 | POLE TOP



DETAIL 4 | I.D. TAG

POLE AND SIGNAL ARM DATA – LIGHT LOADS

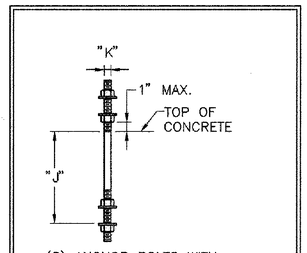
LOCATIONS	SIGNAL ARM TUBE				POLE TUBE				POLE BASE				ANCHOR BOLT		SIGNAL ARM ATTACHMENT DATA					
	SPAN (FT)	FIXED END DIA. (IN)	FREE END DIA. (IN)	WALL THK.	BASE DIA. (IN)	TOP DIA. (IN)	LENGTH (FT)	WALL THK.	PLATE CIRCLE "S" (IN)	BOLT CIRCLE "Y" (IN)	THK. "M" (IN)	HOLE "Z" (IN)	DIA. "K" (IN)	EMBED. LENGTH "J" (IN)	"A" (IN)	"B" (IN)	"C" (IN)	"D" (IN)	"E" (IN)	"F" (IN)
	15.00	9.00	6.90	7 GA.	12.00	9.06	21.00	7 GA.	29.50	24.00	1.50	1.813	1.50	36.00	19.00	15.00	7.50	1.00	1.00	0.188
	20.00	9.00	6.20	7 GA.	12.00	9.06	21.00	7 GA.	29.50	24.00	1.50	1.813	1.50	36.00	19.00	15.00	7.50	1.00	1.00	0.188
	25.00	10.00	6.50	7 GA.	13.00	10.06	21.00	7 GA.	29.50	24.00	1.50	1.813	1.50	36.00	20.00	16.00	8.00	1.00	1.00	0.188
	30.00	12.50	8.30	3 GA.	15.50	12.56	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	23.50	19.00	9.50	1.25	1.25	0.250
	35.00	13.00	8.10	3 GA.	16.00	13.06	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	24.50	20.00	10.00	1.25	1.25	0.250
	40.00	13.00	7.40	3 GA.	16.00	13.06	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	24.50	20.00	10.00	1.25	1.25	0.250
	45.00	13.50	7.20	3 GA.	16.50	13.56	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	27.50	22.00	11.00	1.50	1.50	0.313

POLE AND SIGNAL ARM DATA – MEDIUM LOADS

LOCATIONS	SIGNAL ARM TUBE				POLE TUBE				POLE BASE				ANCHOR BOLT		SIGNAL ARM ATTACHMENT DATA					
	SPAN (FT)	FIXED END DIA. (IN)	FREE END DIA. (IN)	WALL THK.	BASE DIA. (IN)	TOP DIA. (IN)	LENGTH (FT)	WALL THK.	PLATE CIRCLE "S" (IN)	BOLT CIRCLE "Y" (IN)	THK. "M" (IN)	HOLE "Z" (IN)	DIA. "K" (IN)	EMBED. LENGTH "J" (IN)	"A" (IN)	"B" (IN)	"C" (IN)	"D" (IN)	"E" (IN)	"F" (IN)
	15.00	9.00	6.90	7 GA.	12.00	9.06	21.00	7 GA.	29.50	24.00	1.50	1.813	1.50	36.00	19.00	15.00	7.50	1.00	1.00	0.188
	20.00	10.00	7.20	3 GA.	13.00	10.06	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	20.00	16.00	8.00	1.00	1.00	0.250
	25.00	11.00	7.50	3 GA.	14.00	11.06	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	23.50	19.00	9.50	1.25	1.25	0.250
	30.00	13.00	8.80	3 GA.	16.00	13.06	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	23.50	19.00	9.50	1.25	1.25	0.250
	35.00	14.00	9.10	3 GA.	17.00	14.06	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	27.50	22.00	11.00	1.50	1.50	0.250
	40.00	15.00	9.40	3 GA.	18.00	15.06	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	27.50	22.00	11.00	1.50	1.50	0.250
	45.00	16.00	9.70	0 GA.	19.00	16.06	21.00	0 GA.	29.50	24.00	1.50	1.813	1.50	36.00	29.50	24.00	12.00	1.75	1.50	0.313

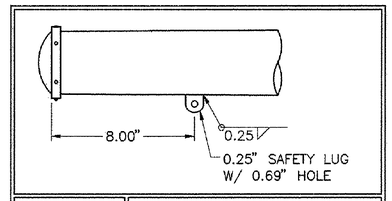
POLE AND SIGNAL ARM DATA – HEAVY LOADS

LOCATIONS	SIGNAL ARM TUBE				POLE TUBE				POLE BASE				ANCHOR BOLT		SIGNAL ARM ATTACHMENT DATA					
	SPAN (FT)	FIXED END DIA. (IN)	FREE END DIA. (IN)	WALL THK.	BASE DIA. (IN)	TOP DIA. (IN)	LENGTH (FT)	WALL THK.	PLATE CIRCLE "S" (IN)	BOLT CIRCLE "Y" (IN)	THK. "M" (IN)	HOLE "Z" (IN)	DIA. "K" (IN)	EMBED. LENGTH "J" (IN)	"A" (IN)	"B" (IN)	"C" (IN)	"D" (IN)	"E" (IN)	"F" (IN)
	15.00	9.00	6.90	7 GA.	12.00	9.06	21.00	7 GA.	29.50	24.00	1.50	1.813	1.50	36.00	19.00	15.00	7.50	1.00	1.00	0.188
	20.00	12.50	9.70	3 GA.	15.50	12.56	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	24.00	19.00	9.50	1.25	1.25	0.250
	25.00	14.00	10.50	3 GA.	17.00	14.06	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	27.50	22.00	11.00	1.50	1.50	0.250
	30.00	15.50	11.30	3 GA.	18.50	15.56	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	27.50	22.00	11.00	1.50	1.50	0.250
	35.00	16.50	11.60	0 GA.	19.50	16.56	21.00	0 GA.	34.50	28.00	1.75	2.063	1.75	36.00	29.50	24.00	12.00	1.75	1.50	0.313
	40.00	17.50	11.90	0 GA.	20.50	17.56	21.00	0 GA.	34.50	28.00	1.75	2.063	1.75	36.00	29.50	24.00	12.00	1.75	1.50	0.313
	45.00	18.50	12.20	0 GA.	21.50	18.56	21.00	0 GA.	34.50	28.00	1.75	2.063	1.75	36.00	31.50	26.00	13.00	2.00	1.50	0.313

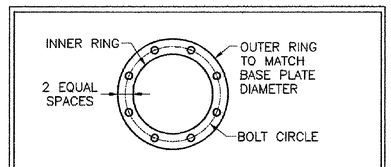


(8) ANCHOR BOLTS WITH (4) HEX NUTS, (4) FLAT WASHERS, AND (1) LOCK-WASHER PER BOLT.

DETAIL 5 | ANCHOR BOLT



DETAIL 7 | SAFETY HANGER LUG



DETAIL 8 | ANCHOR PLATE

MONTH_DD,_YYYY | ISSUED FOR CONSTRUCTION

Moving Massachusetts Forward.
massDOT Highway

STANDARD DRAWINGS

TYPE II MAST ARMS
DETAILS

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION
10 PARK PLAZA BOSTON, MASS

Frank A. Tramontozzi 2/24/2011
CHIEF ENGINEER

BRIDGE ENGINEER

Neil E. Boudreau
TRAFFIC ENGINEER

PIER FOUNDATIONS FOR 110 MPH WIND SPEED ZONE

LIGHT LOADING CONDITIONS

SOIL TYPE	15' & 20' MAST ARMS			25' & 30' MAST ARMS			35' & 40' MAST ARMS			45' MAST ARMS		
	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS
DRY SAND	3'-6"	6'-0"	18-#8	3'-6"	8'-0"	18-#8	3'-6"	8'-0"	18-#8	3'-6"	9'-0"	18-#8
WET SAND	3'-6"	7'-0"	18-#8	3'-6"	9'-0"	18-#8	3'-6"	9'-0"	18-#8	3'-6"	9'-0"	18-#8
CLAY (MEDIUM STIFF)	3'-6"	11'-0"	18-#8	3'-6"	12'-0"	18-#8	3'-6"	12'-0"	18-#8	3'-6"	12'-0"	18-#8
ALLUVIAL	3'-6"	8'-0"	18-#8	3'-6"	10'-0"	18-#8	3'-6"	10'-0"	18-#8	3'-6"	11'-0"	18-#8

MEDIUM LOADING CONDITIONS

SOIL TYPE	15' & 20' MAST ARMS			25' & 30' MAST ARMS			35' & 40' MAST ARMS			45' MAST ARMS		
	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS
DRY SAND	3'-6"	7'-0"	18-#8	3'-6"	9-0"	18-#8	4'-0"	9-0"	18-#9	4'-6"	8'-0"	18-#10
WET SAND	3'-6"	8'-0"	18-#8	3'-6"	9'-0"	18-#8	4'-0"	10'-0"	18-#9	4'-6"	9'-0"	18-#10
CLAY (MEDIUM STIFF)	3'-6"	11'-0"	18-#8	3'-6"	12'-0"	18-#8	4'-0"	13'-0"	18-#9	4'-6"	14'-0"	18-#10
ALLUVIAL	3'-6"	9'-0"	18-#8	3'-6"	10'-0"	18-#8	4'-0"	11'-0"	18-#9	4'-6"	10'-0"	18-#10

HEAVY LOADING CONDITIONS

SOIL TYPE	15' & 20' MAST ARMS			25' & 30' MAST ARMS			35' & 40' MAST ARMS			45' MAST ARMS		
	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS
DRY SAND	3'-6"	8'-0"	18-#8	4'-0"	9'-0"	18-#9	4'-6"	10'-0"	18-#10	5'-0"	9'-0"	23-#10
WET SAND	3'-6"	8'-0"	18-#8	4'-0"	10'-0"	18-#9	4'-6"	11'-0"	18-#10	5'-0"	10'-0"	23-#10
CLAY (MEDIUM STIFF)	3'-6"	12'-0"	18-#8	4'-0"	14'-0"	18-#9	4'-6"	15'-0"	18-#10	5'-0"	16'-0"	23-#10
ALLUVIAL	3'-6"	10'-0"	18-#8	4'-0"	11'-0"	18-#9	4'-6"	12'-0"	18-#10	5'-0"	12'-0"	23-#10

PIER FOUNDATIONS FOR 130 MPH WIND SPEED ZONE

LIGHT LOADING CONDITIONS

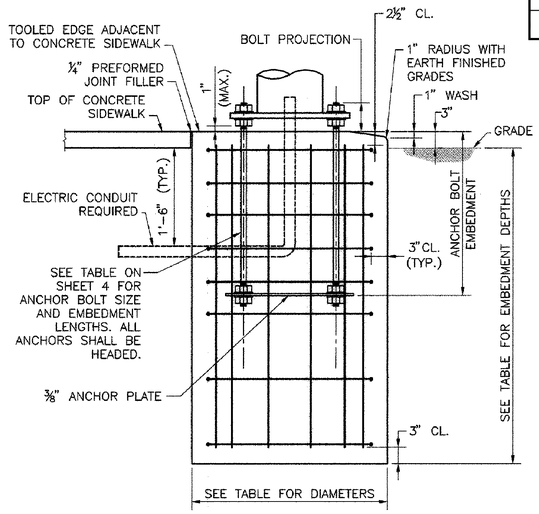
SOIL TYPE	15' & 20' MAST ARMS			25' & 30' MAST ARMS			35' & 40' MAST ARMS			45' MAST ARMS		
	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS
DRY SAND	3'-6"	7'-0"	18-#8	3'-6"	9'-0"	18-#8	3'-6"	10'-0"	18-#8	3'-6"	10'-0"	18-#8
WET SAND	3'-6"	8'-0"	18-#8	3'-6"	10'-0"	18-#8	3'-6"	11'-0"	18-#8	3'-6"	11'-0"	18-#8
CLAY (MEDIUM STIFF)	3'-6"	12'-0"	18-#8	3'-6"	13'-0"	18-#8	3'-6"	13'-0"	18-#8	3'-6"	13'-0"	18-#8
ALLUVIAL	3'-6"	9'-0"	18-#8	3'-6"	12'-0"	18-#8	3'-6"	12'-0"	18-#8	3'-6"	13'-0"	18-#8

MEDIUM LOADING CONDITIONS

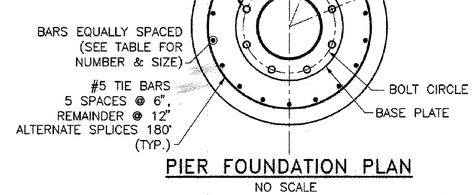
SOIL TYPE	15' & 20' MAST ARMS			25' & 30' MAST ARMS			35' & 40' MAST ARMS			45' MAST ARMS		
	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS
DRY SAND	3'-6"	8'-0"	18-#8	3'-6"	10'-0"	18-#8	4'-0"	11'-0"	18-#9	4'-6"	10'-0"	18-#10
WET SAND	3'-6"	8'-0"	18-#8	3'-6"	11'-0"	18-#8	4'-0"	12'-0"	18-#9	4'-6"	11'-0"	18-#10
CLAY (MEDIUM STIFF)	3'-6"	12'-0"	18-#8	3'-6"	14'-0"	18-#8	4'-0"	15'-0"	18-#9	4'-6"	15'-0"	18-#10
ALLUVIAL	3'-6"	10'-0"	18-#8	3'-6"	13'-0"	18-#8	4'-0"	13'-0"	18-#9	4'-6"	12'-0"	18-#10

HEAVY LOADING CONDITIONS

SOIL TYPE	15' & 20' MAST ARMS			25' & 30' MAST ARMS			35' & 40' MAST ARMS			45' MAST ARMS		
	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS
DRY SAND	3'-6"	9'-0"	18-#8	4'-0"	11'-0"	18-#9	4'-6"	12'-0"	18-#10	5'-0"	11'-0"	23-#10
WET SAND	3'-6"	10'-0"	18-#8	4'-0"	12'-0"	18-#9	4'-6"	13'-0"	18-#10	5'-0"	12'-0"	23-#10
CLAY (MEDIUM STIFF)	3'-6"	14'-0"	18-#8	4'-0"	15'-0"	18-#9	4'-6"	16'-0"	18-#10	5'-0"	17'-0"	23-#10
ALLUVIAL	3'-6"	11'-0"	18-#8	4'-0"	13'-0"	18-#9	4'-6"	15'-0"	18-#10	5'-0"	14'-0"	23-#10



PIER FOUNDATION DETAIL
NO SCALE



PIER FOUNDATION PLAN
NO SCALE

NOTES:

1. FOUNDATIONS SHALL BE 4000 PSI, 1½", 565 CEMENT CONCRETE.
2. REINFORCEMENT SHALL BE ASTM A615 GRADE 60.
3. ANCHOR BOLTS SHALL BE SET BY TEMPLATE.
4. PROVIDE FOR ELECTRICAL CONDUIT.
5. EXCAVATION SHALL BE BY THE AUGER METHOD TO THE NEAT LINES OF THE OUTSIDE DIMENSION OF THE FOUNDATIONS WITHOUT DISTURBING THE SOIL AROUND AND BELOW THE PROPOSED FOUNDATION BOTTOM. ALTERNATE METHODS OF EXCAVATION MAY BE SUBMITTED TO MASSHIGHWAY FOR APPROVAL IF THEY MEET THE REQUIREMENTS LISTED IN NOTES 6, 7, AND 8.
6. THE EARTH WALLS OF THE FOUNDATION SHALL BE ADEQUATELY AND SECURELY PROTECTED AT ALL TIMES AGAINST CAVE-INS, DISPLACEMENT OF THE SURROUNDING EARTH AND FOR THE EXCLUSION OF GROUND WATER. THIS MAY BE DONE BY THE USE OF STEEL CYLINDER LINERS OR CASINGS THAT ARE APPROVED BY MASSHIGHWAY. IF LINERS ARE USED THEY MAY BE RECLAIMED PROVIDED THAT THEY ARE WITHDRAWN AS THE CONCRETE IS BEING PLACED, MAINTAINING A SUFFICIENT HEAD OF CONCRETE WITHIN THE LINER TO PREVENT REDUCTION IN THE FOUNDATION DIAMETER AND TO PREVENT EXTRANEOUS MATERIAL FROM FALLING IN FROM THE SIDES AND MIXING WITH THE CONCRETE.
7. IF THE SOIL IS DISTURBED OR REMOVED BEYOND THE NEAT LINES OF THE OUTSIDE DIMENSION OF THE FOUNDATION, IT SHALL BE REPLACED WITH CONCRETE. ANY ADDITIONAL COST FOR THE CONCRETE SHALL BE PAID FOR BY THE CONTRACTOR.
8. SPECIAL CARE SHOULD BE GIVEN TO AREAS WHERE WET SOIL IS ENCOUNTERED, TO INSURE THAT THE PREAUGERED HOLE DOES NOT COLLAPSE. THIS MAY REQUIRE THE USE OF STEEL CYLINDER LINERS OR CASINGS TO HOLD THE SOIL IN PLACE UNTIL READY FOR CONCRETE PLACEMENT. THE STEEL CYLINDERS OR CASINGS SHALL BE WITHDRAWN AS THE FOUNDATION CONCRETE IS PLACED.
9. DETERMINATION OF EXISTING SOIL CONDITIONS SHALL BE MADE BY THE DESIGN ENGINEER.
10. IF LEDGE OR POOR SOIL IS ENCOUNTERED (i.e. ONE WHICH DOES NOT APPLY TO THE DESIGN TABLES SHOWN ON THIS SHEET), AN ALTERNATIVE DESIGN SHALL BE PROVIDED BY THE DESIGN ENGINEER. DECISIONS MADE IN NOTES 8 AND 9 SHALL BE SUBMITTED TO MASSHIGHWAY FOR APPROVAL. IF UTILITIES OR OTHER UNDERGROUND OBSTRUCTIONS ARE ENCOUNTERED, THE CONTRACTOR SHALL BACKFILL THE AREA TO ITS ORIGINAL CONDITION UNTIL AN ALTERNATE DESIGN HAS BEEN PROVIDED BY THE ENGINEER.

MONTH_DD,_YYYY	ISSUED FOR CONSTRUCTION

massDOT Highway

STANDARD DRAWINGS

TYPE II MAST ARMS
CORED PIER FOUNDATIONS

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION
10 PARK PLAZA BOSTON, MASS

Frank A. Tramontozzi Jr. 3/24/2011
CHIEF ENGINEER
BRIDGE ENGINEER
TRAFFIC ENGINEER

NOTES:

1. ALL TEMPORARY TRAFFIC CONTROL WORK SHALL CONFORM TO THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND ALL REVISIONS.
2. ALL SIGN LEGENDS, BORDERS AND MOUNTING SHALL BE IN ACCORDANCE WITH THE MUTCD.
3. TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO THE START OF ANY WORK.
4. 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.
5. SIGNS AND SIGN SUPPORTS LOCATED ON OR NEAR THE TRAVELED WAY, AND REFLECTORIZED PLASTIC DRUMS WITH LIGHTING DEVICES MOUNTED ON THEM, MUST PASS THE CRITERIA SET FORTH IN NCHRP REPORT 350, "RECOMMENDED PROCEDURES FOR THE SAFETY PERFORMANCE EVALUATION OF HIGHWAY FEATURES."
6. CONTRACTORS SHALL NOTIFY EACH ABUTTER 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 PAVEMENT PLACEMENT AND SIMILAR OPERATIONS.
7. THE FIRST THREE PLASTIC DRUMS OF A TAPER MAY BE MOUNTED WITH TYPE A LIGHTS. (INCIDENTAL TO ITEM 859)
8. THE ADVISORY SPEED LIMIT, IF REQUIRED, SHALL BE DETERMINED BY THE ENGINEER.
9. DISTANCES ARE A GUIDE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
10. MAXIMUM SPACING OF TRAFFIC DEVICES IN A TAPER (DRUMS OR CONES) IS EQUAL IN FEET TO THE SPEED LIMIT IN MPH.
11. 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.
12. ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORTS.

LEGEND:

- REFLECTORIZED PLASTIC DRUM
- WORK ZONE
- WORK VEHICLE
- POLICE DETAIL
- DIRECTION OF TRAFFIC
- MOVEABLE IMPACT ATTENUATOR
- TYPE III BARRICADE
- IMPACT ATTENUATOR
- TRAFFIC OR PEDESTRIAN SIGNAL
- CHANGEABLE MESSAGE SIGN
- MEDIAN BARRIER
- SIGN
- FLASHING ARROW PANEL
- MEDIAN BARRIER WITH WARNING LIGHTS

THE IDEAL CAPACITY OF A MAJOR HIGHWAY IS GENERALLY CONSIDERED TO BE 1900 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		Number of Studies	Average Capacity	
NORMAL (existing)	OPEN (to traffic)		VPH	VPHPL
3	1	7	1,170	1,170
2	1	8	1,340	1,340
5	2	8	2,740	1,370
4	2	4	2,960	1,480
3	2	9	2,980	1,490
4	3	4	4,560	1,520

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

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

massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | FIGURE Gen-1 GENERAL GUIDELINES NOT TO SCALE

SUGGESTED WORK ZONE WARNING SIGN SPACING

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)	2,640 (800)

* SPEED CATEGORY TO BE DETERMINED BY HIGHWAY AGENCY

** DISTANCES 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 TRANSITION 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 TMP SETUPS. IT IS THE ONE WHICH MAY OFTEN HAVE THE "STANDARD RED OR RED-ORANGE FLAGS (16 in. X 16 in.)" MOUNTED ON IT. THESE ADVANCE WARNING SIGNS ARE LOCATED AT THE PROJECT LIMITS ON ALL APPROACHES (i.e. THE W20-1 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 ONLY 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 SIGNS SHALL BE PLACED BETWEEN THE SECOND AND THIRD SIGNS.

R2-10a AND W20-1 SERIES SIGNS ARE TO BE INCLUDED ON ALL DETAILS/TYPICAL SETUPS.

Based on: Table 6C-1 2003 MUTCD

STOPPING SIGHT DISTANCE AS A FUNCTION OF SPEED

SPEED* (km/h)	DISTANCE (m)
30	35
40	50
50	65
60	85
70	105
80	130
90	160
100	185
110	220
120	250

SPEED* (mph)	DISTANCE (ft)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730
75	820

*POSTED SPEED, OFF-PEAK 85TH-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 2003 MUTCD

massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | 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: 2003 MUTCD

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 0.33L
ONE-LANE, TWO-WAY TRAFFIC TAPER	100 FT (30 m) MAXIMUM
DOWNSTREAM TAPER	100 FT (30 m) PER LANE

Source: Table 6C-3 2003 MUTCD

FORMULAS FOR DETERMINING TAPER LENGTHS

Speed Limit (S)	Taper Length (L) Feet
40 MPH OR LESS	L= WS²/60
45 MPH OR MORE	L= WS

Speed Limit (S)	Taper Length (L) Meters
60 KM/H OR LESS	L= WS²/155
70 KM/H OR MORE	L= WS/1.6

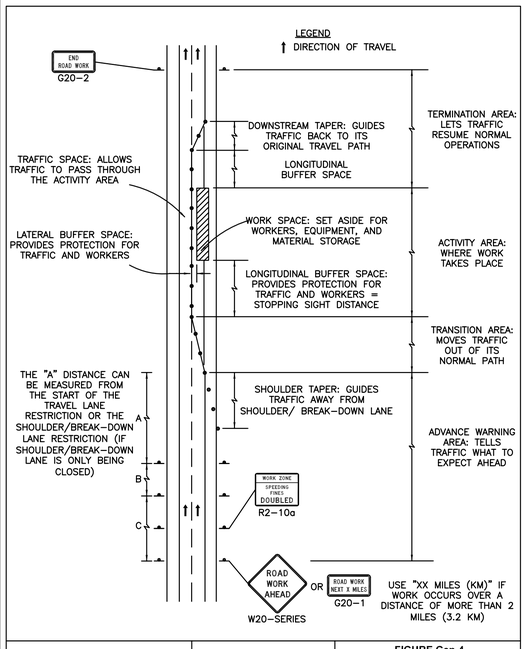
WHERE: L = TAPER LENGTH IN FEET (METERS)

W = WIDTH OF OFFSET IN FEET (METERS)

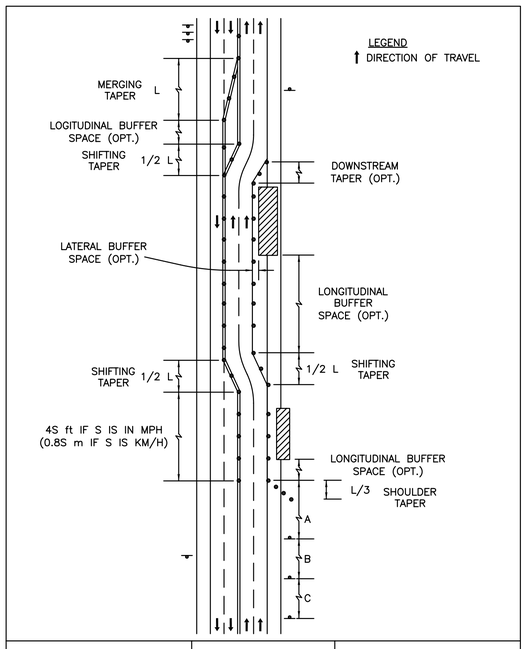
S = POSTED SPEED LIMIT, OR OFF-PEAK 85TH-PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED IN MPH (KM/H)

Source: Table 6C-4 2003 MUTCD

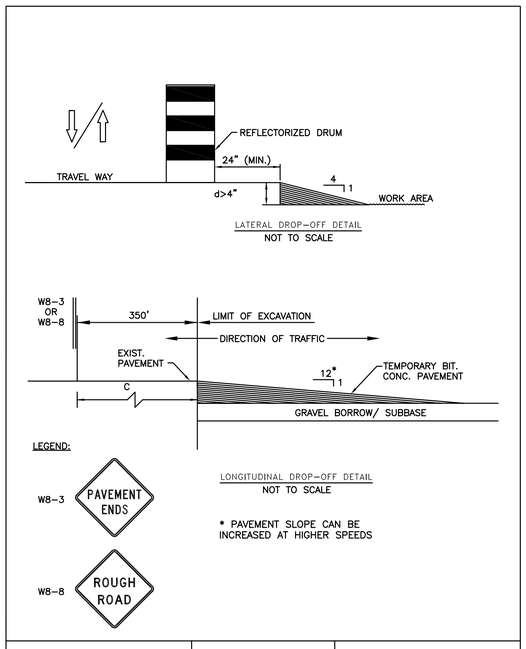
massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | FIGURE Gen-3 NOTES ON WORK ZONE DISTANCES NOT TO SCALE



massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | FIGURE Gen-4 COMPONENT PARTS OF A TEMPORARY TRAFFIC CONTROL (TTC) ZONE NOT TO SCALE



massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | FIGURE Gen-5 TYPES OF TAPERS AND BUFFER SPACES NOT TO SCALE



massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | FIGURE Gen-6 LATERAL AND LONGITUDINAL DROP-OFF DETAILS NOT TO SCALE

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXXX	169	214
PROJ. FILE NO. 604688			

TRAFFIC MANAGEMENT PLAN

TRAFFIC MANAGEMENT NOTES

GENERAL:

1. ALL TEMPORARY CONSTRUCTION SIGNING, DRUMS, BARRICADES AND OTHER WORKZONE TRAFFIC CONTROL DEVICES SHALL BE FURNISHED AND INSTALLED IN CONFORMANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" – 2009 EDITION (M.U.T.C.D.), REVISION 1 (DATED JULY 21, 2004); THE MASSDOT STANDARD SPECIFICATIONS; THE MASSDOT "STANDARD DETAILS AND DRAWINGS FOR THE DEVELOPMENT OF TRAFFIC MANAGEMENT PLANS", DATED JULY 2005, AND THE LATEST REVISIONS; AND THE FOLLOWING:
2. MAINTAIN CONTINUOUS ACCESS & EGRESS TO ON-AND-OFF RAMPS, ALL STREETS AND DRIVES.
3. UNLESS WRITTEN PERMISSION FROM MASSDOT IS OBTAINED, THE TRAVELWAY CAN ONLY BE OCCUPIED BETWEEN THE HOURS OF 08:30AM AND 03:30PM (MONDAY THROUGH FRIDAY FROM SEPTEMBER THRU JUNE*). APPROVAL FROM MASSDOT'S AND BELMONT'S REPRESENTATIVES ARE REQUIRED FOR ANY CHANGES TO THESE HOURS.
   *DURING JULY AND AUGUST THESE HOURS ARE EXPANDED TO 08:00AM AND 04:30PM.
4. WARNING SIGNS SHALL HAVE AN ORANGE BACKGROUND, AND REGULATORY SIGNS SHALL BE BLACK TEXT ON A WHITE BACKGROUND.
5. AT ALL TIMES MAINTAIN TRAFFIC SIGNAL CONTROLS AND STREET LIGHTING IN AN OPERATING CONDITION.
6. AT ALL TIMES, MAINTAIN AN ADA-ACCESSIBLE WALKING PATH.
7. MAINTAIN CONTINUOUS ACCESS AND EGRESS TO ALL BUSSINESSES DURING THEIR HOURS OF OPERATION.

CONSTRUCTION SIGNING:

1. FINAL LOCATION OF SIGNS, DRUMS, AND OTHER TRAFFIC CONTROL DEVICES SHALL BE DETERMINED IN THE FIELD BY MASSDOT'S REPRESENTATIVE.
2. ADVISORY SPEED PLATES (W13-1(XX)) SHALL BE USED IF APPROPRIATE AND AS DIRECTED. THE ADVISORY SPEED LIMIT, IF REQUIRED, SHALL BE DETERMINED BY THE MASSDOT'S REPRESENTATIVE.
3. NON-ESSENTIAL TEMPORARY CONSTRUCTION TRAFFIC CONTROL DEVICES SHALL BE COVERED OR REMOVED FROM THE HIGHWAY WHEN THEY ARE NOT REQUIRED FOR CONTROL OF TRAFFIC.
4. COVER OR REMOVE ALL EXISTING REGULATORY AND WARNING SIGNS THAT CONFLICT WITH THE INTENT OF THIS TRAFFIC MANAGEMENT PLAN OR ARE NOT REPRESENTATIVE OF ACTUAL WORK CONDITIONS, ESPECIALLY W5-1, W20-4, W20-5, W20-8, AND W2-5a PANELS. SIGNS SHALL REMAIN COVERED WHILE THIS TRAFFIC MANAGEMENT PLAN IS IN EFFECT.
5. SEVEN DAYS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR SHALL PLACE TWO PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) ON THE PROJECT SITE.

TRAFFIC OPERATIONS:

1. TRAFFIC MANAGEMENT
   a. AT ALL TIMES MAINTAIN A MINIMUM OF ONE-WAY ALTERNATING TRAFFIC ON ALL STREETS.
   b. AT ALL TIMES MAINTAIN ONE OPEN SIDEWALK ON EITHER SIDE OF ALL STREETS.
   c. AT ALL TIMES MAINTAIN ALL EXISTING TURNING MOVEMENTS AT INTERSECTIONS.
   d. AT ALL TIMES MAINTAIN A MINIMUM OF TWO 11-FOOT TRAVEL LANES ON TRAPELO ROAD, BELMONT STREET, ARLINGTON STREET, COMMON STREET, GROVE STREET, LEXINGTON STREET, MILL STREET, AND PLEASANT STREET AS DIRECTED BY THE ENGINEER.
   e. AT ALL TIMES MAINTAIN A MINIMUM OF ONE 10-FOOT TRAVEL LANE ON ALL SIDE STREETS AS DIRECTED BY THE ENGINEER.
2. BUS STOPS
   a. ADJACENT BUS STOPS IN THE SAME DIRECTION MAY NOT BE CLOSED AT THE SAME TIME. (SEE SPECIFICATIONS)

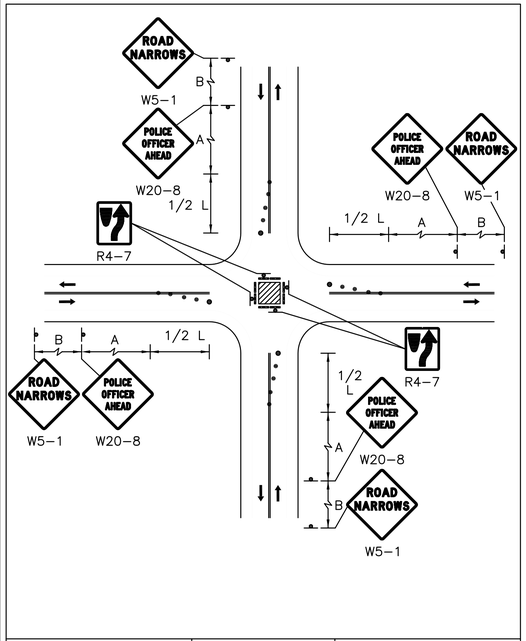
MISCELLANEOUS:

1. THE WORKSITE SHALL BE ADEQUATELY PROTECTED (DURING BOTH WORKING AND NON-WORKING HOURS) TO ENSURE SAFETY OF VEHICULAR AND PEDESTRIAN TRAFFIC.
2. PEDESTRIAN ACTIVITY SHALL BE CONTROLLED BY THE POLICE OFFICER(S), FLAGMEN, AND CONSTRUCTION OFFICIALS ON DUTY.

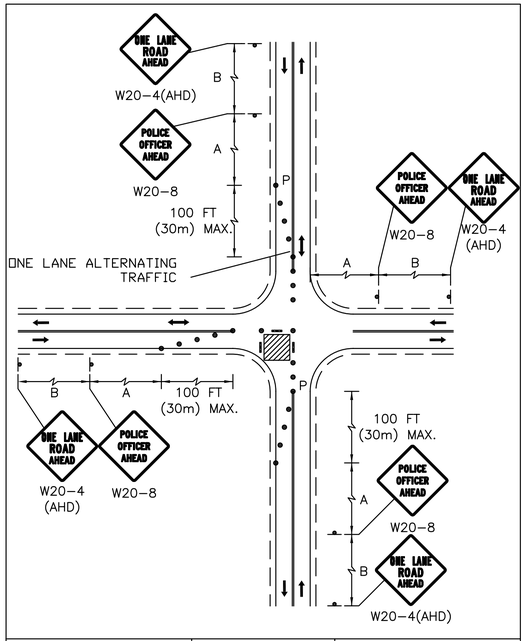
BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	170	214
PROJ. FILE NO. 604688			

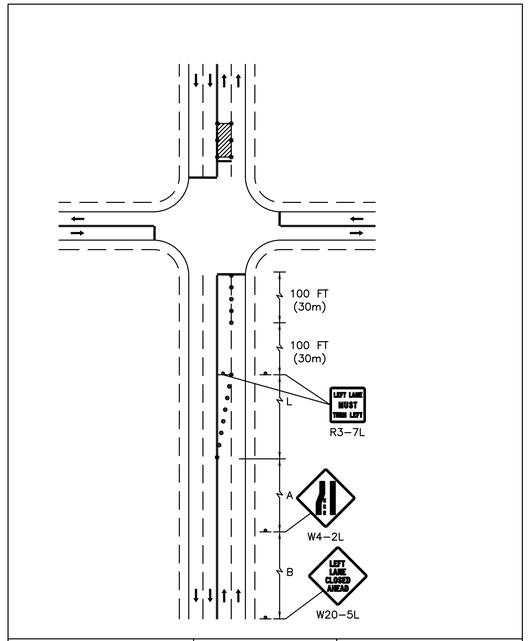
TRAFFIC MANAGEMENT PLAN



massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | **FIGURE Int-1** SINGLE LANE APPROACH CENTER CLOSURE NOT TO SCALE



massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | **FIGURE Int-2** SINGLE LANE APPROACH ONE QUADRANT CLOSURE NOT TO SCALE



massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | **FIGURE Int-3** DOUBLE LANE APPROACH FAR SIDE CLOSURE INSIDE LANE NOT TO SCALE

GENERAL CONSTRUCTION STAGES*

1. CONSTRUCTION SEGMENTS

   THE PROJECT SHALL BE BROKEN UP IN AT LEAST FIVE APPROXIMATELY EQUAL LONG SEGMENTS. ANY PARTICULAR PHASE OF WORK ON THE SUBSEQUENT SEGMENT SHALL NOT BEGIN UNTIL THAT PHASE OF WORK ON THE PREVIOUS SEGMENT HAS BEEN COMPLETED.

2. UTILITY WORK

   CONSTRUCT ALL PROPOSED UTILITIES AND ADJUST, ABANDON, REMOVE, OR REMOVE AND RESET, ALL EXISTING UTILITIES, AS SHOWN ON THE PLANS.

3. ROADWAY MICRO–MILLING AND OVERLAY

   A. BEFORE THE MILLING CAN PROCEED, ALL CASTINGS SHALL BE ADJUSTED TO A GRADE BELOW THE FINISHED MILLED SURFACE THAT IS DEEP ENOUGH SO THAT THE CASTING IS NOT DAMAGED BY THE MILLING MACHINE. BUT NOT SO DEEP THAT IT ENDS UP BEING MORE THAN ONE INCH BELOW THE FINISHED MILLED SURFACE.

   B. MICRO–MILL ROADWAY, ONE HALF AT A TIME, THE LENGTH OF WHICH WILL BE DETERMINED BY THE CONTRACTOR'S ABILITY TO MILL AND MAKE THE ENTIRE WIDTH OF ROADWAY SUITABLE FOR TRAFFIC BY THE END OF THE DAY.

      a. DURING THE FIRST HALF OF THE DAY, MICRO–MILL ONE HALF OF THE ROADWAY AND MAKE THE AREA SUITABLE FOR TRAFFIC, (WHILE MAINTAINING TRAFFIC IN EACH DIRECTION), BYPASSING THE WORK ZONE AS DIRECTED BY POLICE OFFICER(S), FLAGMEN, AND CONSTRUCTION OFFICIALS.

      b. DURING THE SECOND HALF OF THE DAY, SWITCH TRAFFIC TO THE PREVIOUSLY MICRO–MILLED PORTION OF ROADWAY AND REPEAT THE SEQUENCE ON THE REMAINING HALF OF ROADWAY.

4. INTERMEDIATE COURSE

   PLACE THE INTERMEDIATE COURSE FOR THE ENTIRE LENGTH OF THE SEGMENT AND BRING ALL CASTINGS UP TO THE INTERMEDIATE GRADE.

5. CURB WORK

   INSTALL ALL PROPOSED CURBING; REMOVE AND RESET EXISTING CURBING.

6. SIDEWALKS AND ISLANDS

   CONSTRUCT SIDEWALKS AND TRAFFIC ISLANDS.

7. TRAFFIC CONTROL

   INSTALL ALL TRAFFIC SIGNAL EQUIPMENT AND SIGNING.

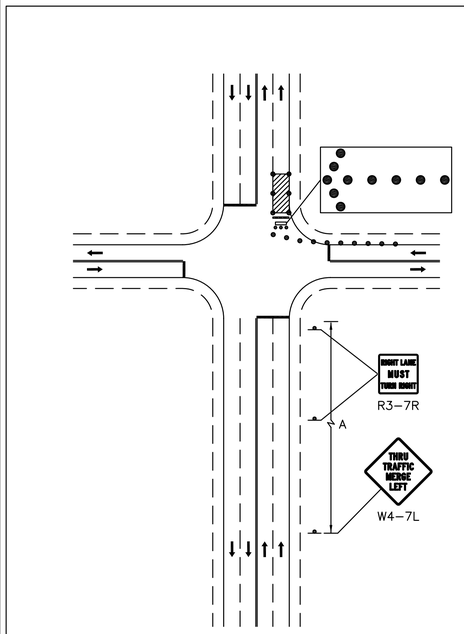
8. TOP COURSE AND BINDER COURSE

   RAISE THE UTILITY CASTING TO THE FINISHED SURFACE GRADE AND PLACE TOP COURSE FOR THE ENTIRE LENGTH OF THE PROJECT.

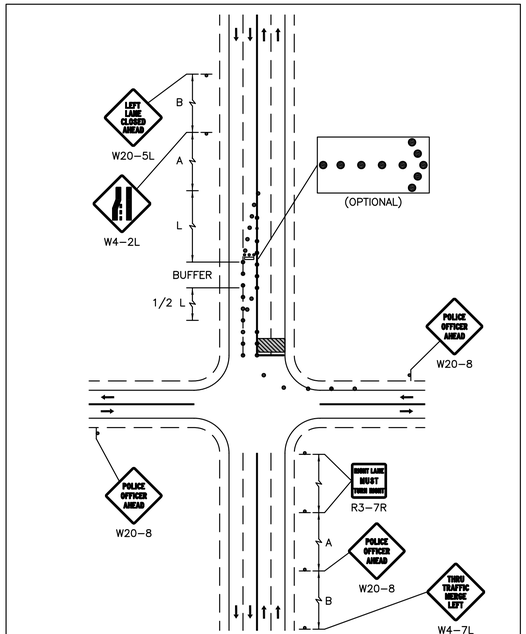
9. PAVEMENT MARKINGS

   INSTALL PAVEMENT MARKINGS.

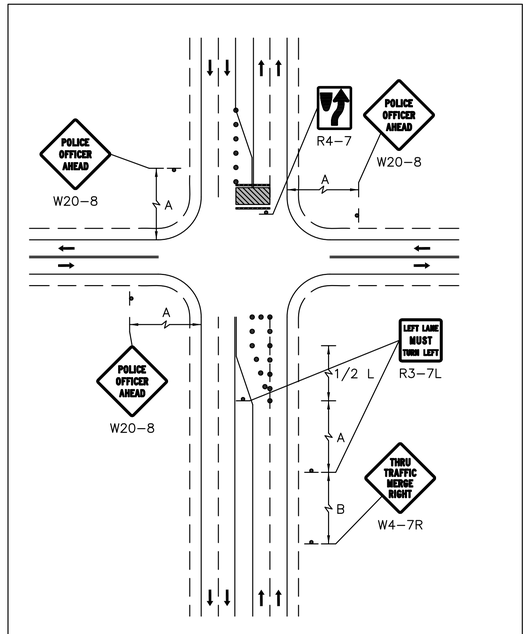
* SEE SUBSECTION 8.03 OF THE SPECIAL PROVISIONS FOR SPECIFIC GUIDELINES.



massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | **FIGURE Int-4** DOUBLE LANE APPROACH FAR SIDE CLOSURE RIGHT LANE NOT TO SCALE



massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | **FIGURE Int-5** DOUBLE LANE APPROACH HALF ROAD CLOSURE NOT TO SCALE

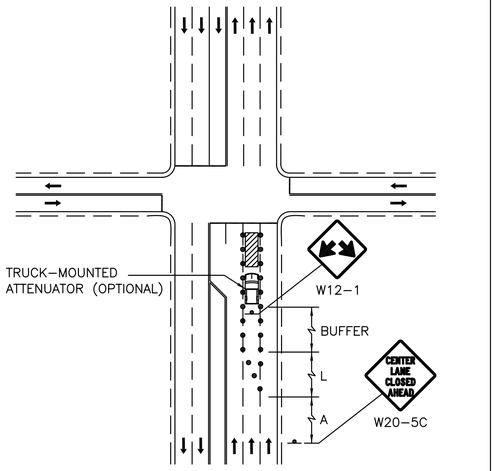


massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | **FIGURE Int-6** MULTI-LANE APPROACH MULTIPLE LANE CLOSURE NOT TO SCALE

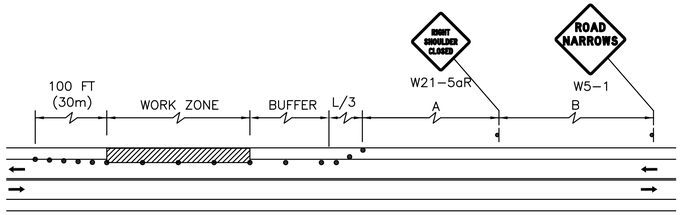
BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	171	214
PROJ. FILE NO. 604688			

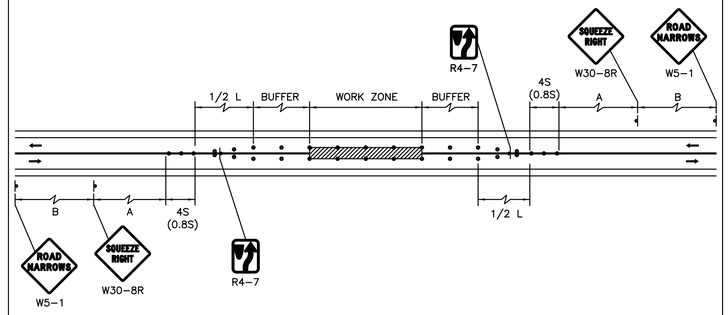
TRAFFIC MANAGEMENT PLAN



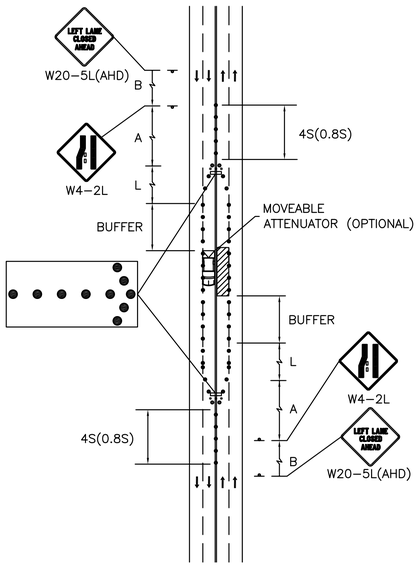
massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | **FIGURE Int-7** MULTI-LANE APPROACH NEAR SIDE CLOSURE NOT TO SCALE



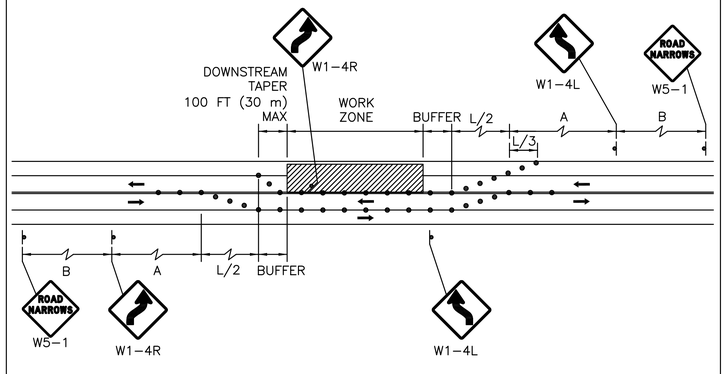
massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | **FIGURE TLR-1** TWO LANE ROAD SHOULDER CLOSED NOT TO SCALE



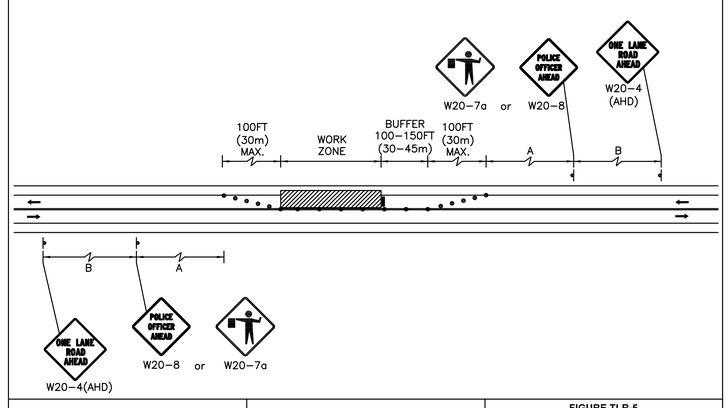
massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | **FIGURE TLR-3** TWO LANE ROAD CENTER OF ROAD CLOSURE NOT TO SCALE



massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | **FIGURE MLR-1** MULTIPLE LANE ROAD INTERIOR LANE CLOSURE NOT TO SCALE



massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | **FIGURE TLR-2** TWO LANE ROAD SHOULDER AND TRAVEL LANE CLOSED NOT TO SCALE

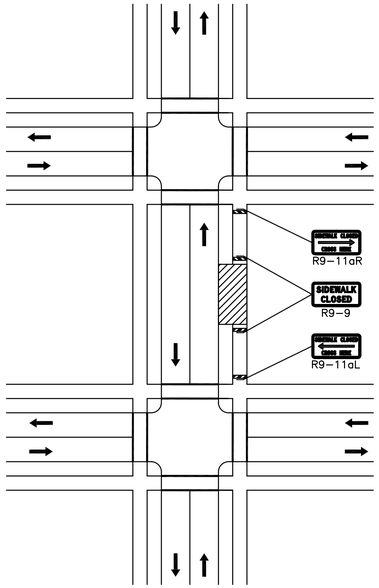


massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | **FIGURE TLR-5** TWO LANE ROAD ONE LANE ALTERNATING TRAFFIC WITH POLICE DETAIL NOT TO SCALE

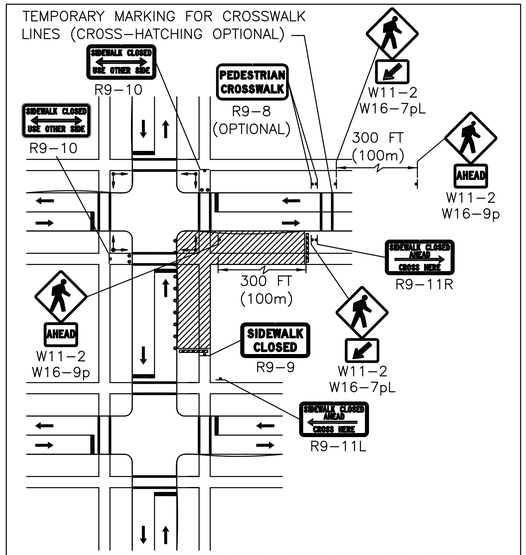
BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	172	214
PROJ. FILE NO. 604688			

TRAFFIC MANAGEMENT PLAN

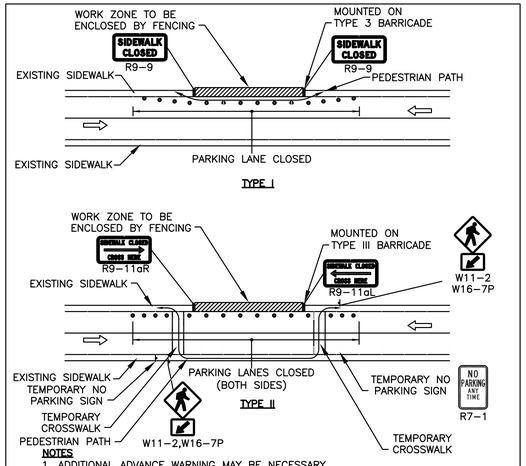


massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | **FIGURE Ped-1**
SIDEWALK CLOSED WITH DETOUR
NOT TO SCALE



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

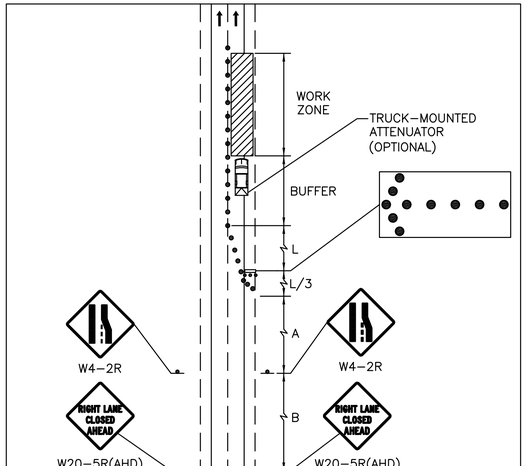
massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | **FIGURE Ped-2**
PEDESTRIAN DETOUR
NOT TO SCALE



NOTES

1. ADDITIONAL ADVANCE WARNING MAY BE NECESSARY.
2. CONTROLS ONLY FOR PEDESTRIAN TRAFFIC ARE SHOWN. VEHICULAR TRAFFIC SHOULD BE HANDLED AS SHOWN ELSEWHERE.
3. STREET LIGHTING SHOULD BE CONSIDERED WHEN LOCATING CONTROL DEVICES.
4. IF THE WORK ZONE DOES NOT PERMIT PEDESTRIANS TO TRAVEL ADJACENT TO IT AS SHOWN IN PEDESTRIAN BYPASS TYPE I, TEMPORARY CROSSWALKS WITH APPROPRIATE SIGNS 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.
5. BYPASS IS TO BE USED IN CONJUNCTION WITH THE PROPOSED LANE CLOSURE DETAILS AND DURING CONSTRUCTION STAGING, AS DIRECTED BY THE ENGINEER.
6. ATT ALL TIMES MAINTAIN A PEDESTRIAN PATH THAT CONFORMS TO ALL RELEVANT ADA AND AAB STANDARDS.

massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | **FIGURE Ped-3**
PEDESTRIAN BYPASS
NOT TO SCALE

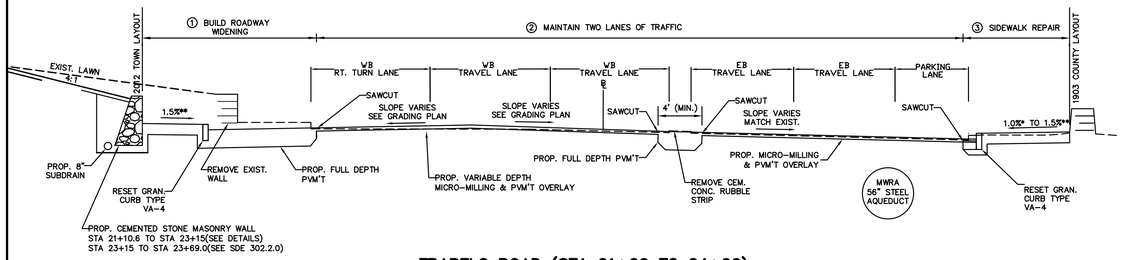


massDOT Highway | Standard Details and Drawings for the Development of Traffic Management Plans | **FIGURE Div-2**
DIVIDED HIGHWAY/ LANE CLOSURE (SHORT TERM)
NOT TO SCALE

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXXX	173	214
PROJ. FILE NO. 604688			

TRAFFIC MANAGEMENT PLAN

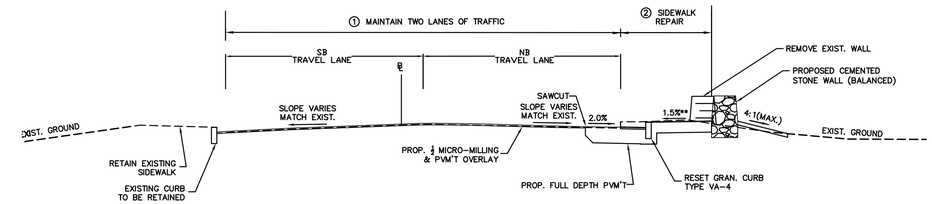


TRAPELO ROAD (STA 21+00 TO 24+00)

N.T.S.

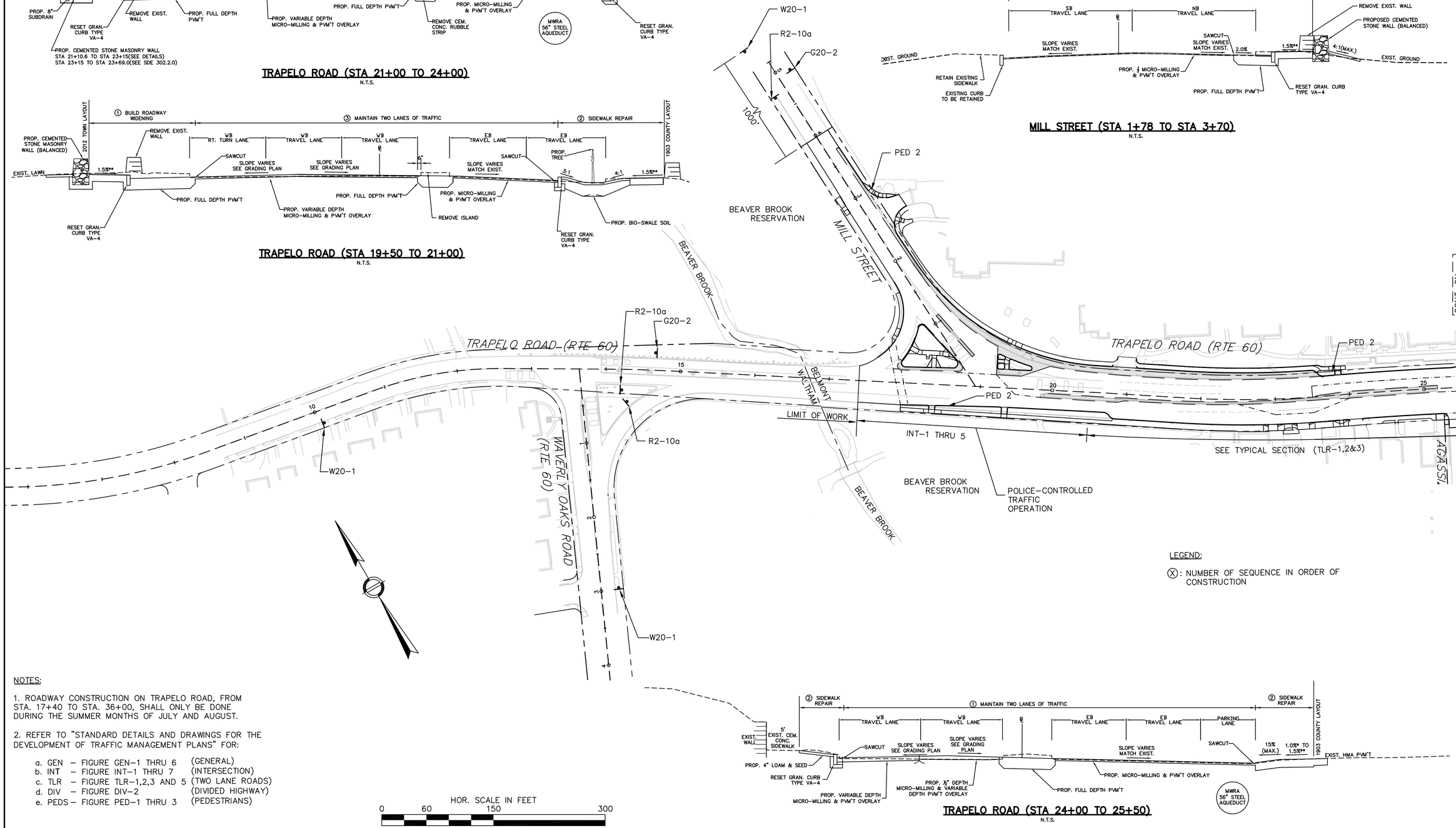
TRAPELO ROAD (STA 19+50 TO 21+00)

N.T.S.



MILL STREET (STA 1+78 TO STA 3+70)

N.T.S.



TRAPELO ROAD (STA 24+00 TO 25+50)

N.T.S.

LEGEND:

Ⓧ: NUMBER OF SEQUENCE IN ORDER OF CONSTRUCTION

NOTES:

1. ROADWAY CONSTRUCTION ON TRAPELO ROAD, FROM STA. 17+40 TO STA. 36+00, SHALL ONLY BE DONE DURING THE SUMMER MONTHS OF JULY AND AUGUST.

2. REFER TO "STANDARD DETAILS AND DRAWINGS FOR THE DEVELOPMENT OF TRAFFIC MANAGEMENT PLANS" FOR:

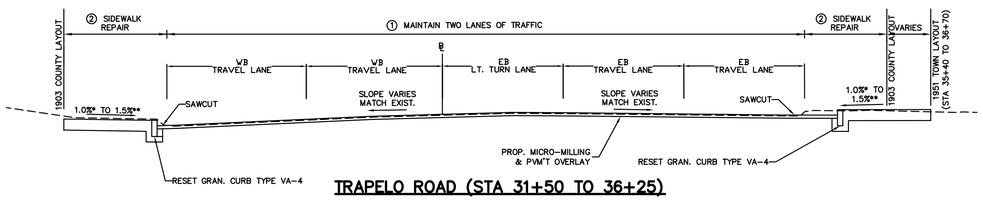
a. GEN	– FIGURE GEN–1 THRU 6	(GENERAL)
b. INT	– FIGURE INT–1 THRU 7	(INTERSECTION)
c. TLR	– FIGURE TLR–1,2,3 AND 5	(TWO LANE ROADS)
d. DIV	– FIGURE DIV–2	(DIVIDED HIGHWAY)
e. PEDS	– FIGURE PED–1 THRU 3	(PEDESTRIANS)

HOR. SCALE IN FEET
0 60 150 300

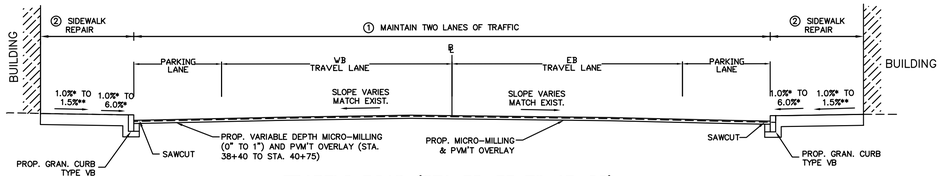
BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXXX	174	214
PROJ. FILE NO. 604688			

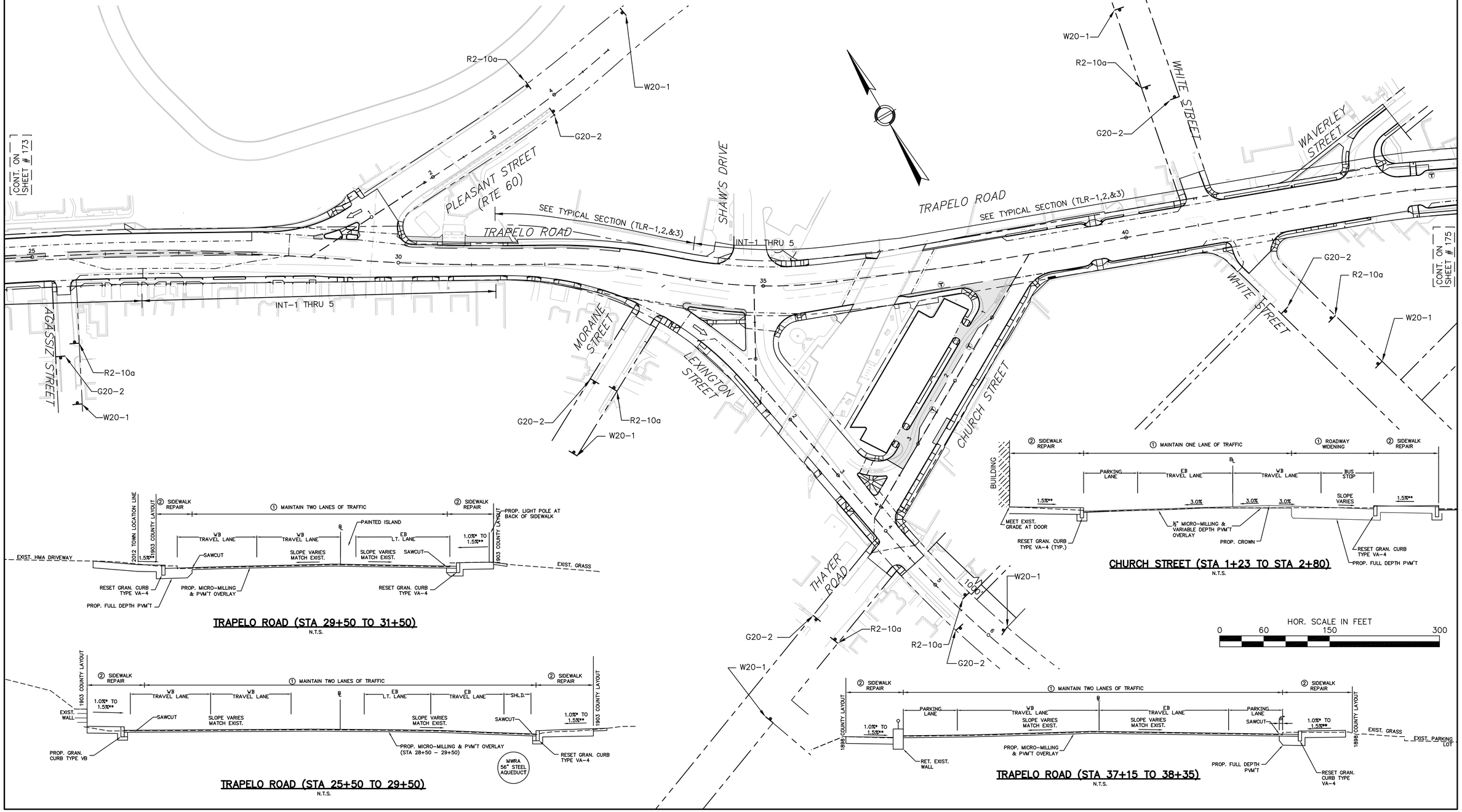
TRAFFIC MANAGEMENT PLAN



TRAPELO ROAD (STA 31+50 TO 36+25)
N.T.S.



TRAPELO ROAD (STA 38+35 TO 43+00)
N.T.S.



TRAPELO ROAD (STA 29+50 TO 31+50)
N.T.S.

TRAPELO ROAD (STA 25+50 TO 29+50)
N.T.S.

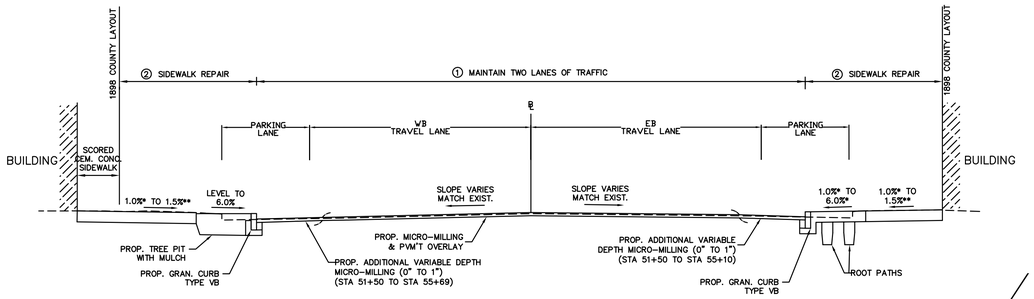
CHURCH STREET (STA 1+23 TO STA 2+80)
N.T.S.

TRAPELO ROAD (STA 37+15 TO 38+35)
N.T.S.

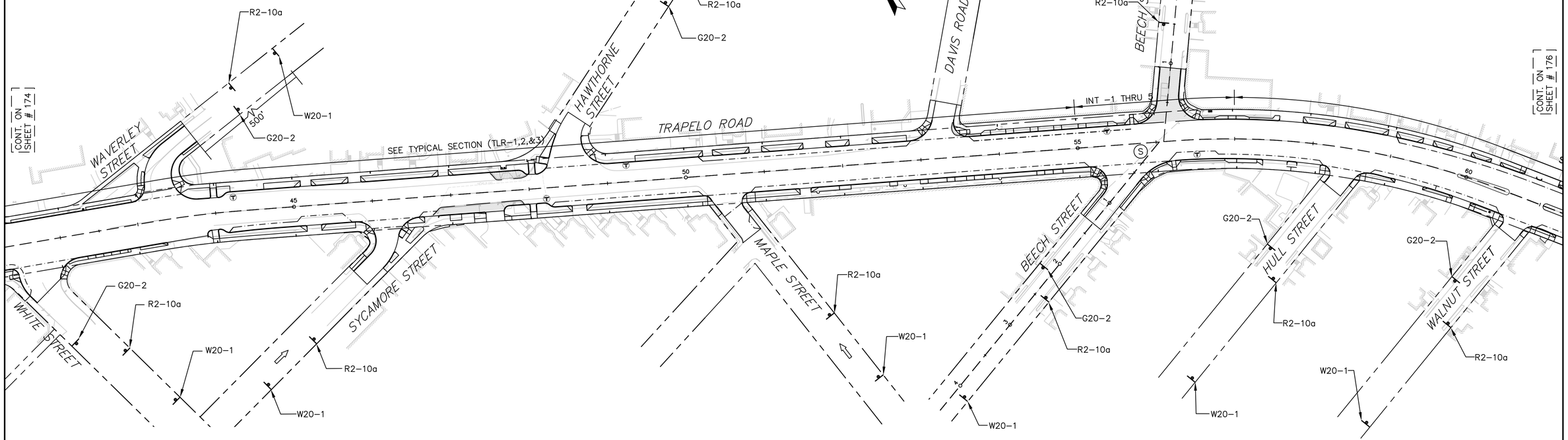
BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

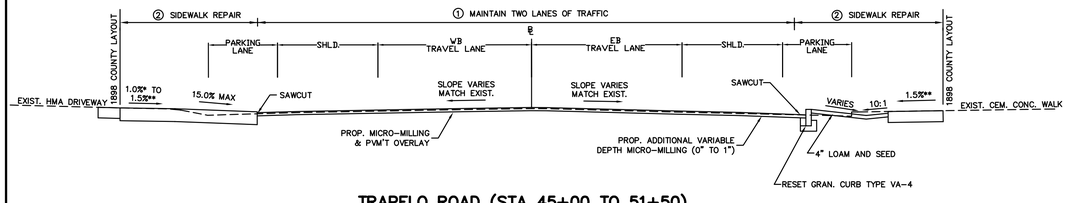
STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	175	214
PROJ. FILE NO. 604688			

TRAFFIC MANAGEMENT PLAN

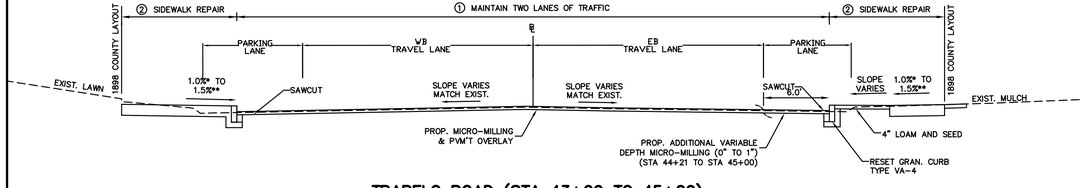


TRAPELO ROAD (STA 51+50 TO 58+00)
N.T.S.



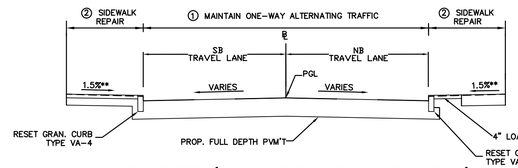


TRAPELO ROAD (STA 45+00 TO 51+50)
N.T.S.



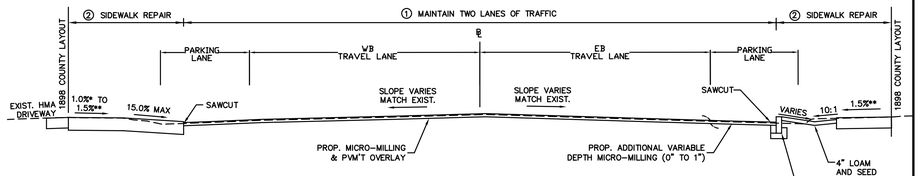
TRAPELO ROAD (STA 43+00 TO 45+00)
N.T.S.

HOR. SCALE IN FEET
0 60 150 300



SIDE STREET (FULL DEPTH RECONSTRUCTION)
N.T.S.

BEECH STREET (STA 0+25 TO STA 0+94)

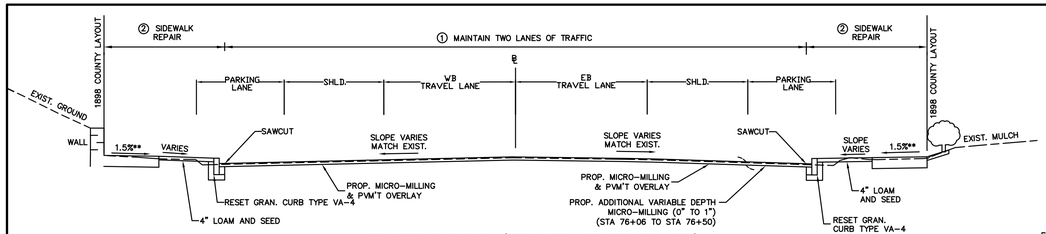


TRAPELO ROAD (STA 58+00 TO 61+05)
N.T.S.

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

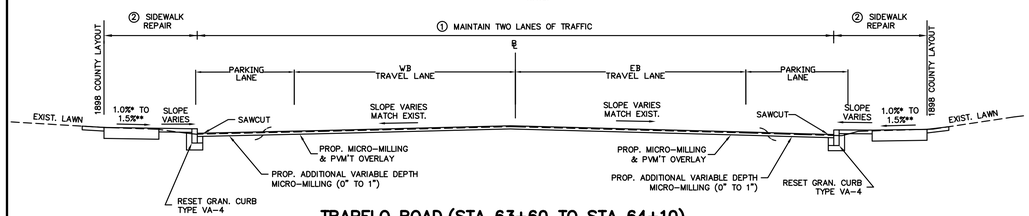
STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXXX	176	214
PROJ. FILE NO. 604688			

TRAFFIC MANAGEMENT PLAN



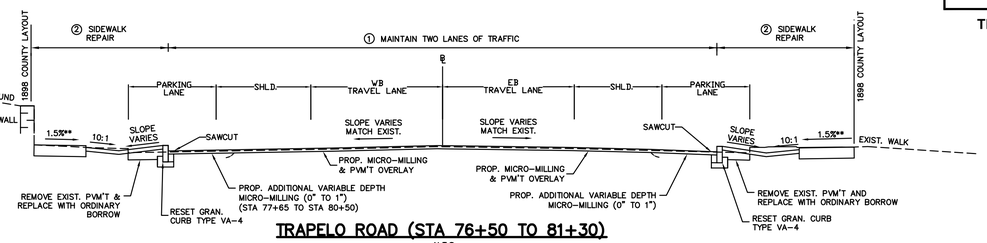
TRAPELO ROAD (STA 73+25 TO 76+50)

N.T.S.



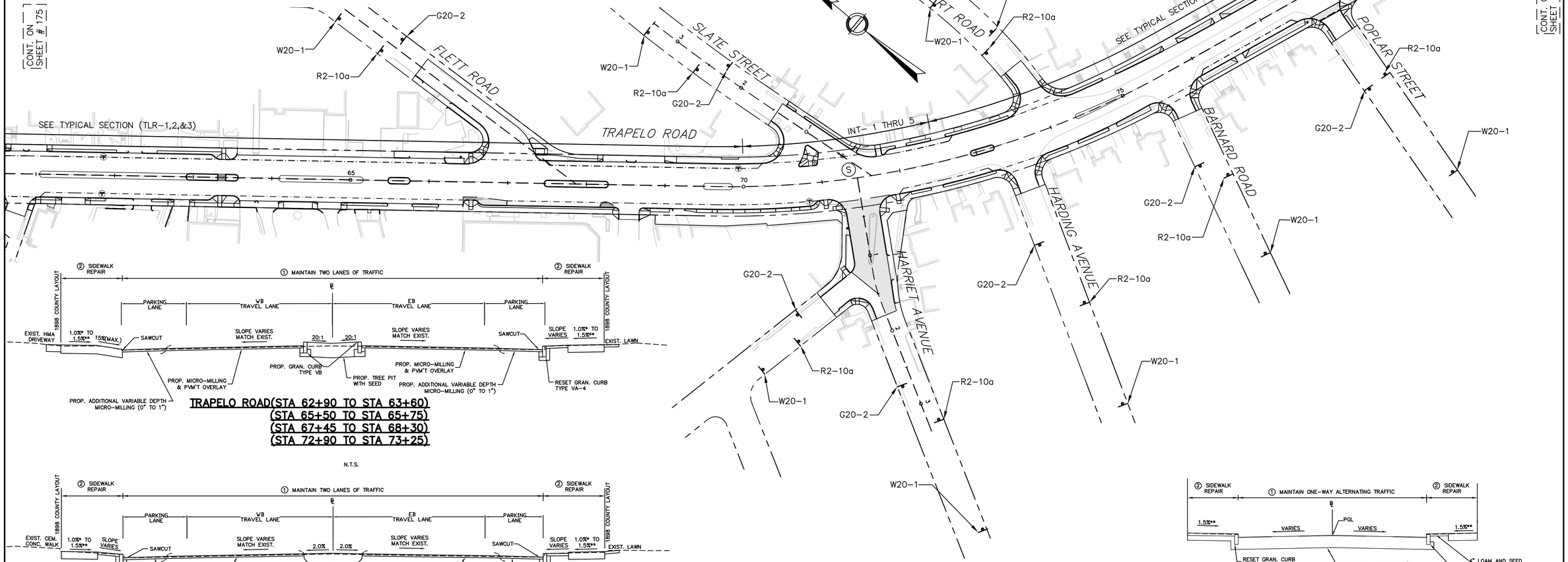
TRAPELO ROAD (STA 63+60 TO STA 64+10)
(STA 65+15 TO STA 65+50)
(STA 65+75 TO STA 67+45)
(STA 68+30 TO STA 69+50)
(STA 69+85 TO STA 72+90)

N.T.S.



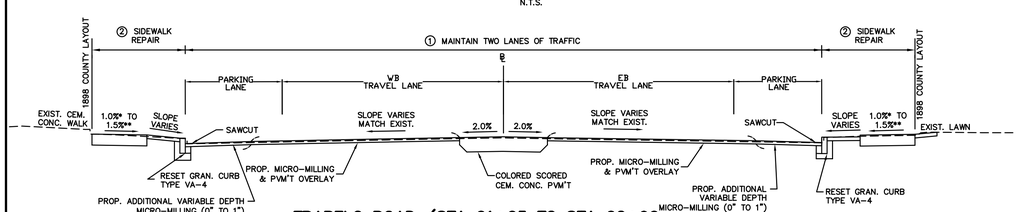
TRAPELO ROAD (STA 76+50 TO 81+30)

N.T.S.



TRAPELO ROAD(STA 62+90 TO STA 63+60)
(STA 65+50 TO STA 65+75)
(STA 67+45 TO STA 68+30)
(STA 72+90 TO STA 73+25)

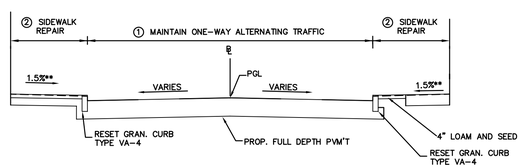
N.T.S.



TRAPELO ROAD (STA 61+05 TO STA 62+90)
(STA 64+10 TO STA 65+15)
(STA 69+50 TO STA 69+85)

N.T.S.

HOR. SCALE IN FEET
0 60 150 300



HARRIET AVENUE (STA 0+30 TO STA 1+78)

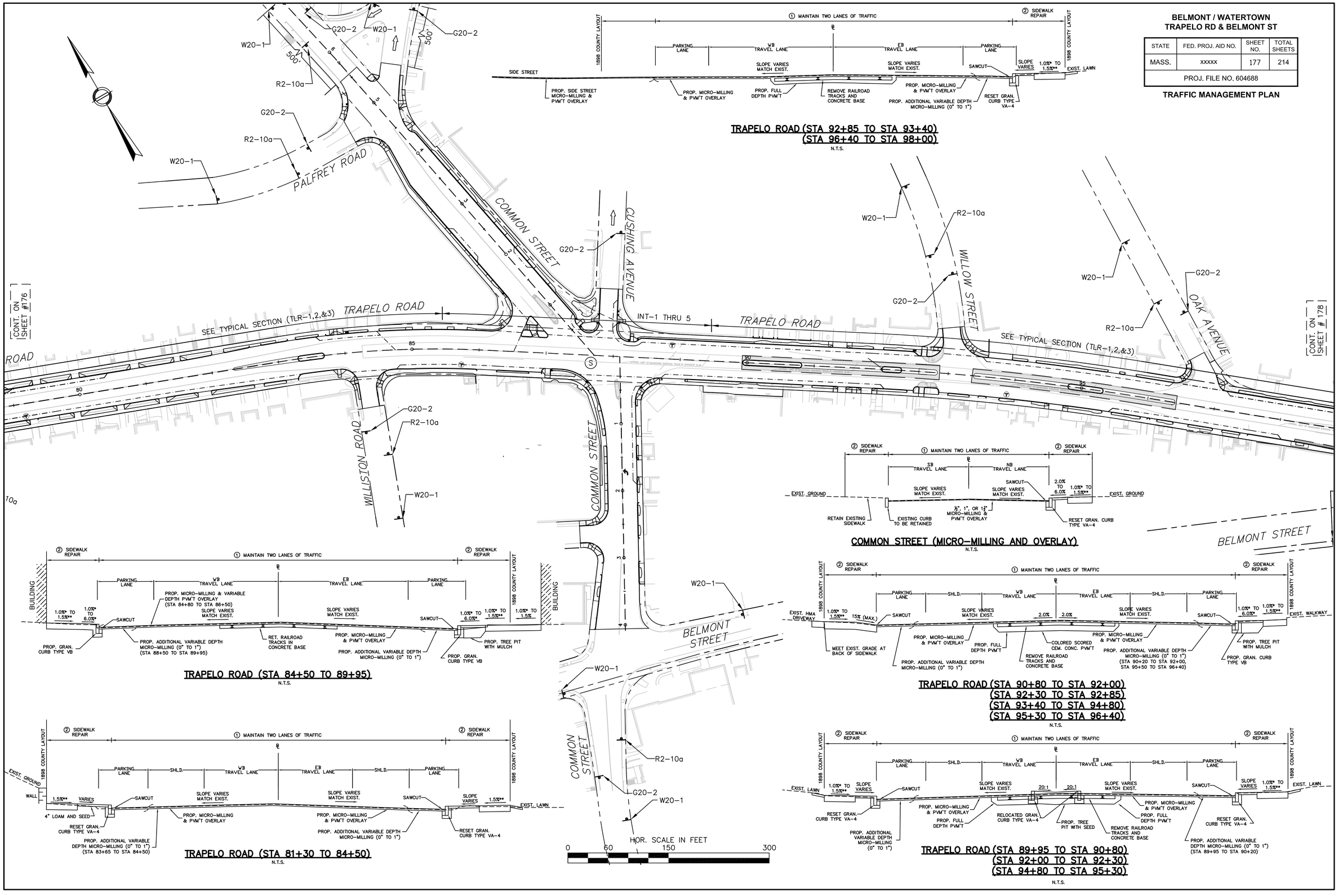
N.T.S.

SIDE STREET (FULL DEPTH RECONSTRUCTION)

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXXX	177	214
PROJ. FILE NO. 604688			

TRAFFIC MANAGEMENT PLAN



TRAPELO ROAD (STA 92+85 TO STA 93+40)
(STA 96+40 TO STA 98+00)
N.T.S.

COMMON STREET (MICRO-MILLING AND OVERLAY)
N.T.S.

TRAPELO ROAD (STA 84+50 TO 89+95)
N.T.S.

TRAPELO ROAD (STA 90+80 TO STA 92+00)
(STA 92+30 TO STA 92+85)
(STA 93+40 TO STA 94+80)
(STA 95+30 TO STA 96+40)
N.T.S.

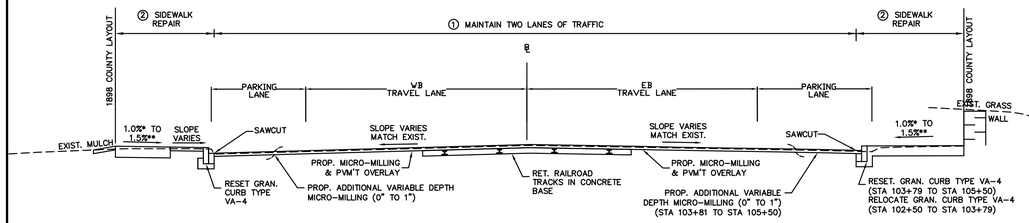
TRAPELO ROAD (STA 81+30 TO 84+50)
N.T.S.

TRAPELO ROAD (STA 89+95 TO STA 90+80)
(STA 92+00 TO STA 92+30)
(STA 94+80 TO STA 95+30)
N.T.S.

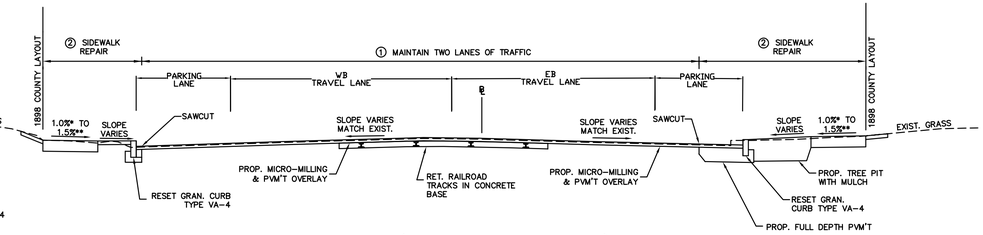
BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXXX	178	214
PROJ. FILE NO. 604688			

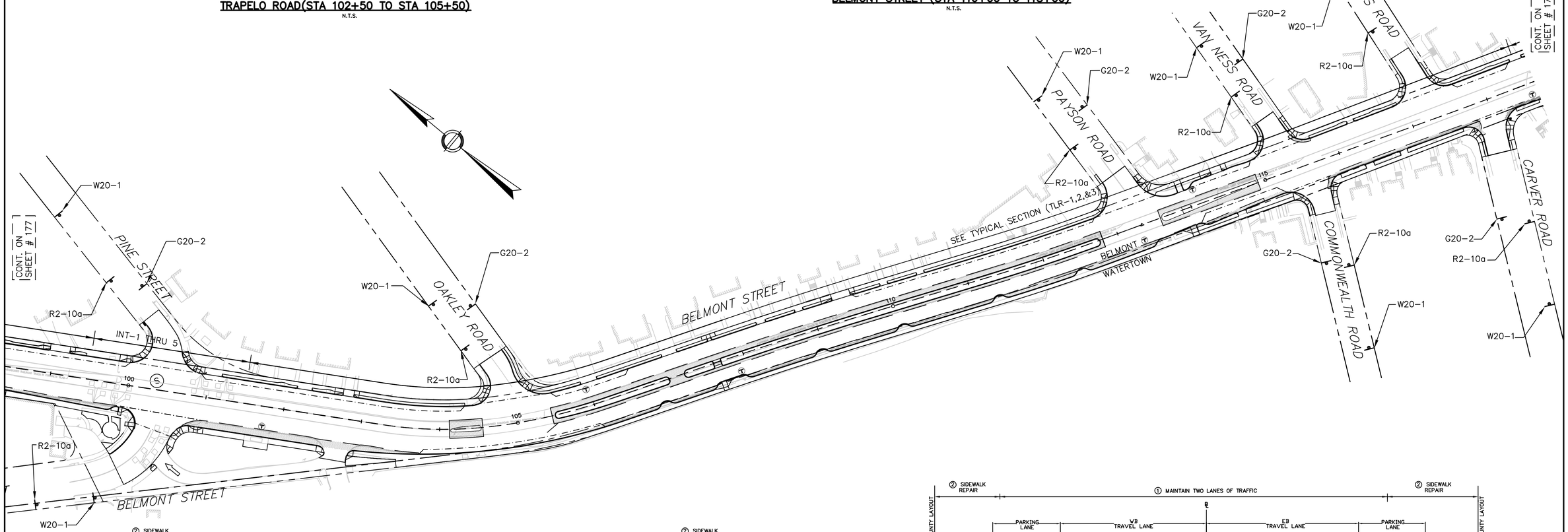
TRAFFIC MANAGEMENT PLAN

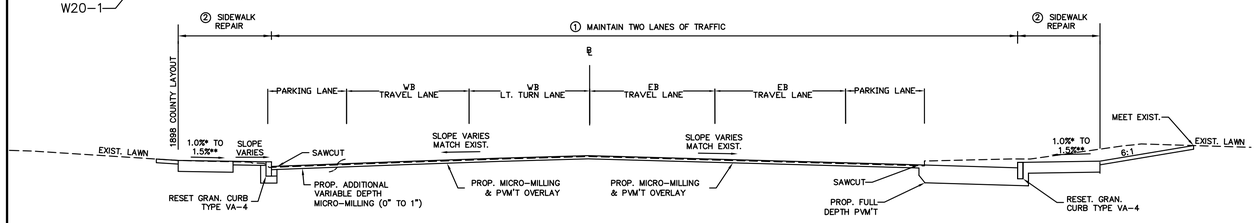


TRAPELO ROAD(STA 102+50 TO STA 105+50)
N.T.S.

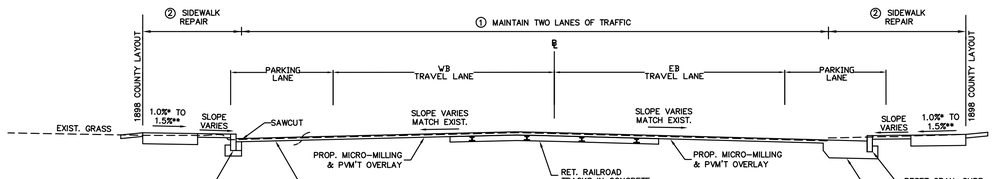


BELMONT STREET (STA 116+00 TO 118+00)
N.T.S.

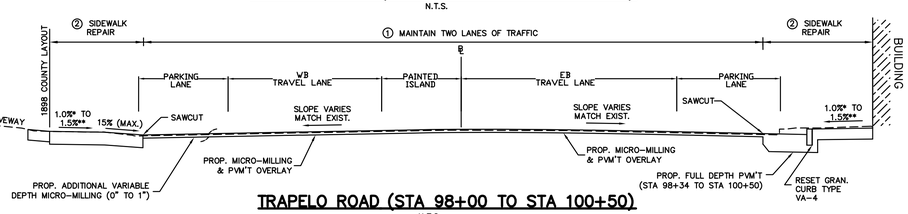




TRAPELO ROAD (STA 100+50 TO STA 102+50)
N.T.S.

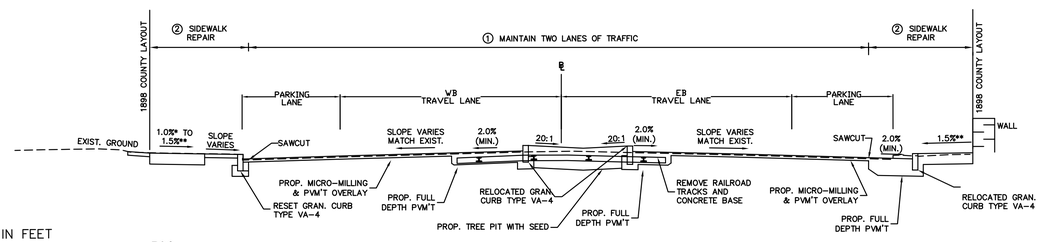


BELMONT STEET (STA 112+75 TO 116+00)
N.T.S.



TRAPELO ROAD (STA 98+00 TO STA 100+50)
N.T.S.

HOR. SCALE IN FEET
0 60 150 300

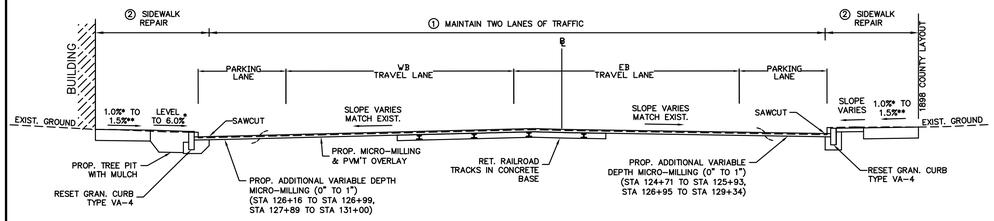


BELMONT STREET (STA 106+00 TO 112+75)
N.T.S.

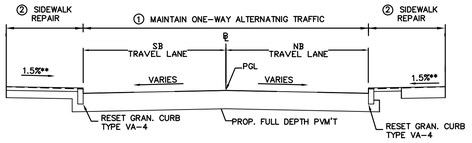
BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXXX	179	214
PROJ. FILE NO. 604688			

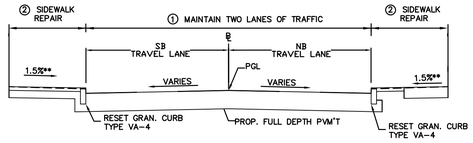
TRAFFIC MANAGEMENT PLAN



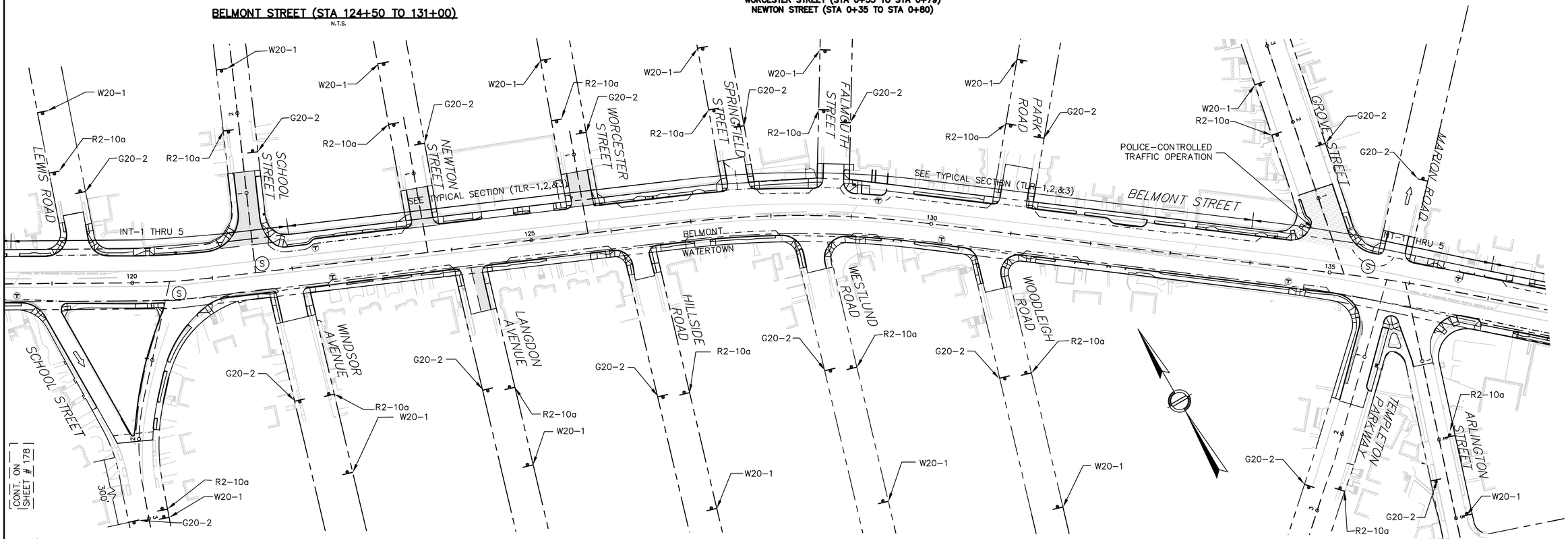
BELMONT STREET (STA 124+50 TO 131+00)
N.T.S.

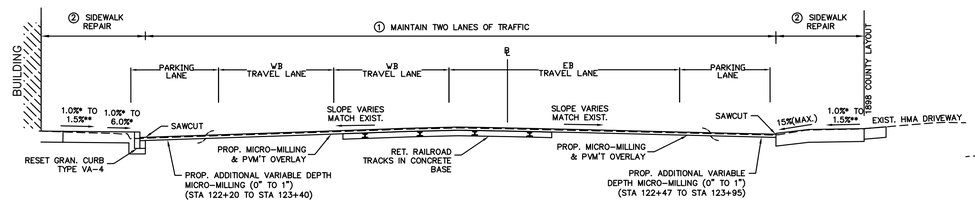


SIDE STREET (FULL DEPTH RECONSTRUCTION)
N.T.S.
SCHOOL STREET (STA 0+35 TO STA 1+25)
WORCESTER STREET (STA 0+35 TO STA 0+79)
NEWTON STREET (STA 0+35 TO STA 0+80)

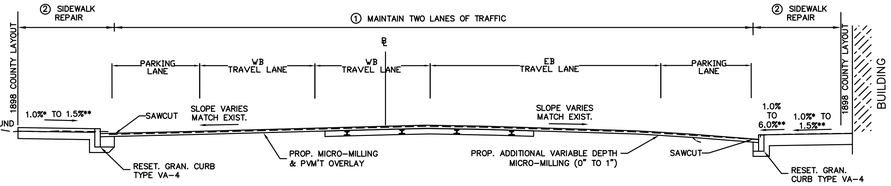


SIDE STREET (FULL DEPTH RECONSTRUCTION)
N.T.S.
GROVE STREET (STA 0+36 TO STA 1+11)

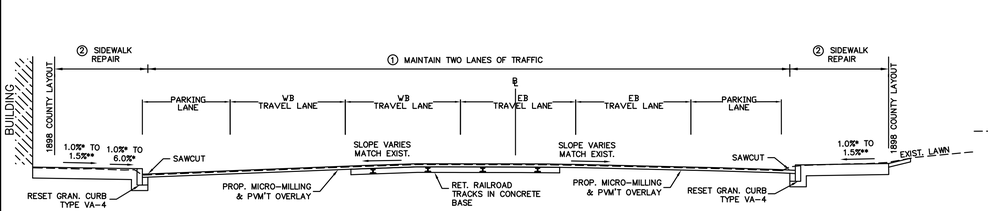




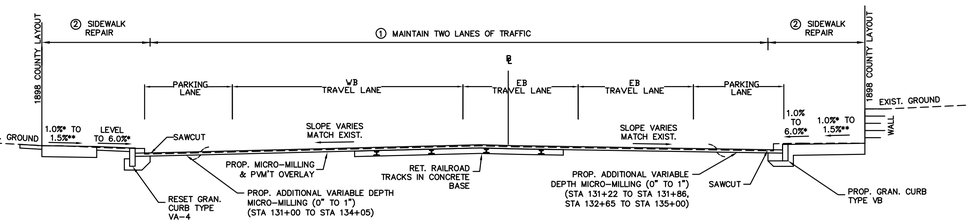
BELMONT STREET (STA 121+50 TO 124+50)
N.T.S.



BELMONT STREET (STA 135+00 TO 138+00)
N.T.S.



BELMONT STREET (STA 118+00 TO 121+50)
N.T.S.



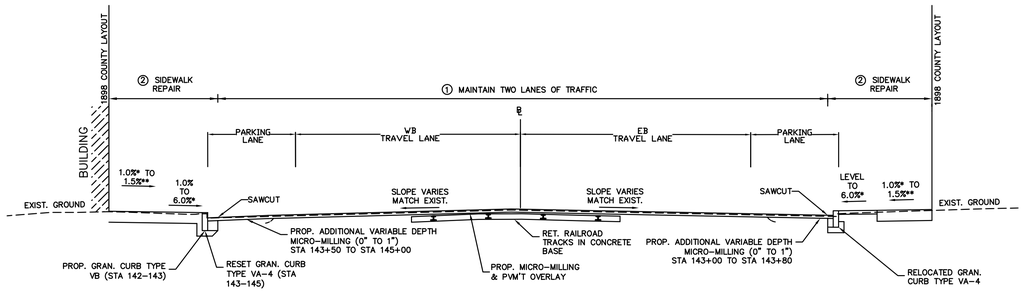
BELMONT STREET (STA 131+00 TO 135+00)
N.T.S.

HOR. SCALE IN FEET
0 60 150 300

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXXX	180	214
PROJ. FILE NO. 604688			

TRAFFIC MANAGEMENT PLAN



BELMONT STREET (STA 141+00 TO 147+30)
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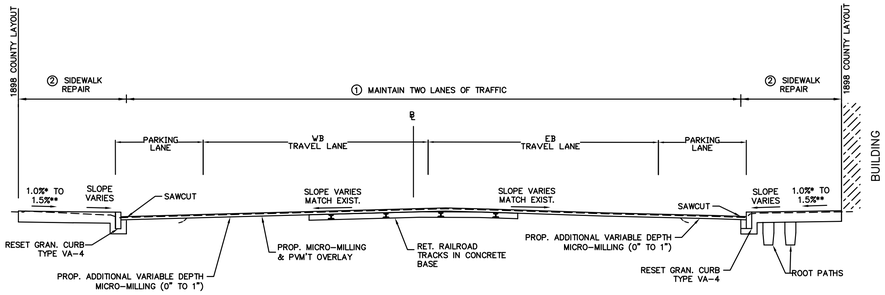
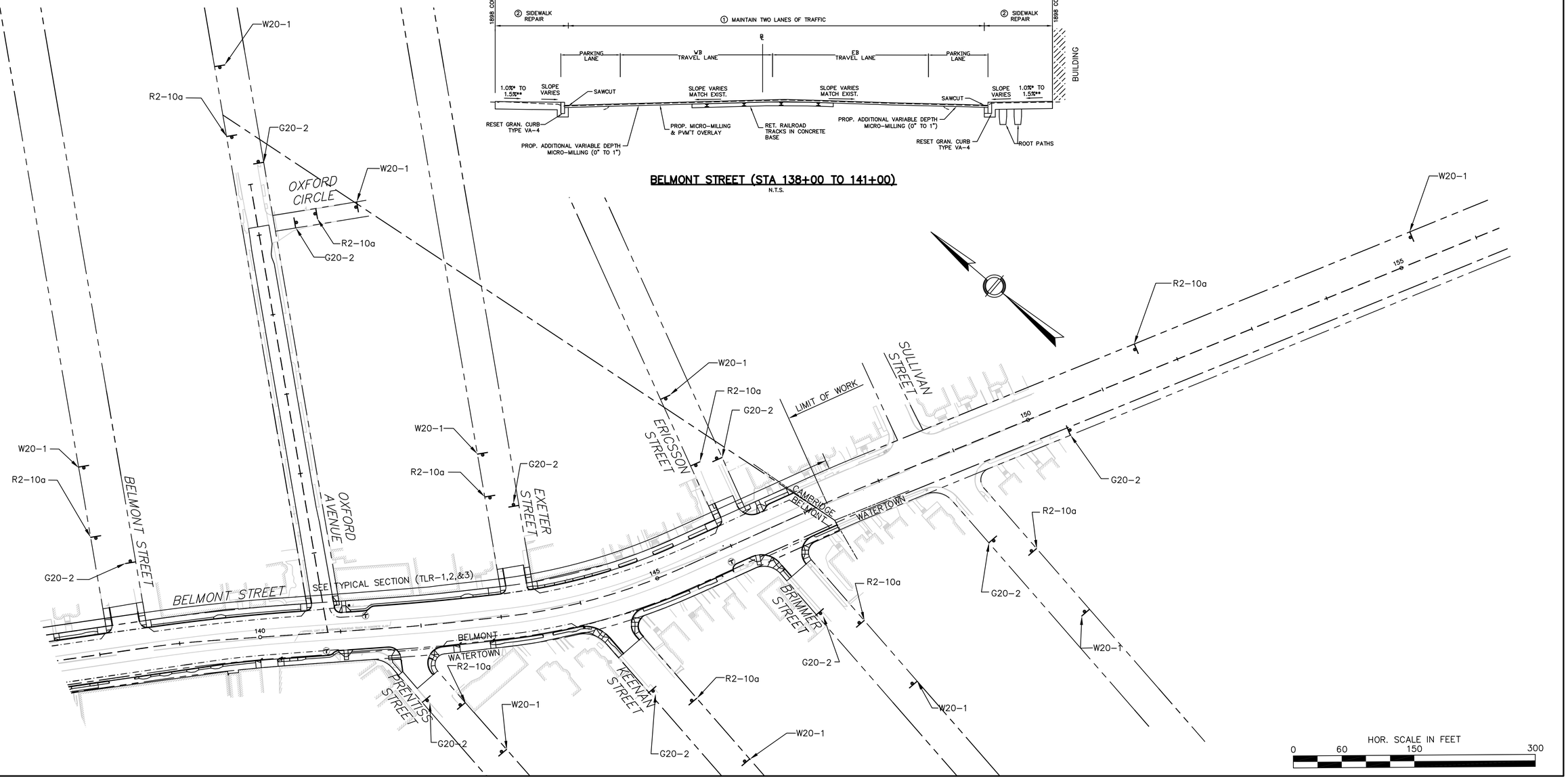


BELMONT STREET (STA 138+00 TO 141+00)
N.T.S.



BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	181	214
PROJ. FILE NO. 604688			

TRAFFIC MANAGEMENT PLAN

TRAFFIC SIGN SUMMARY (CONSTRUCTION)

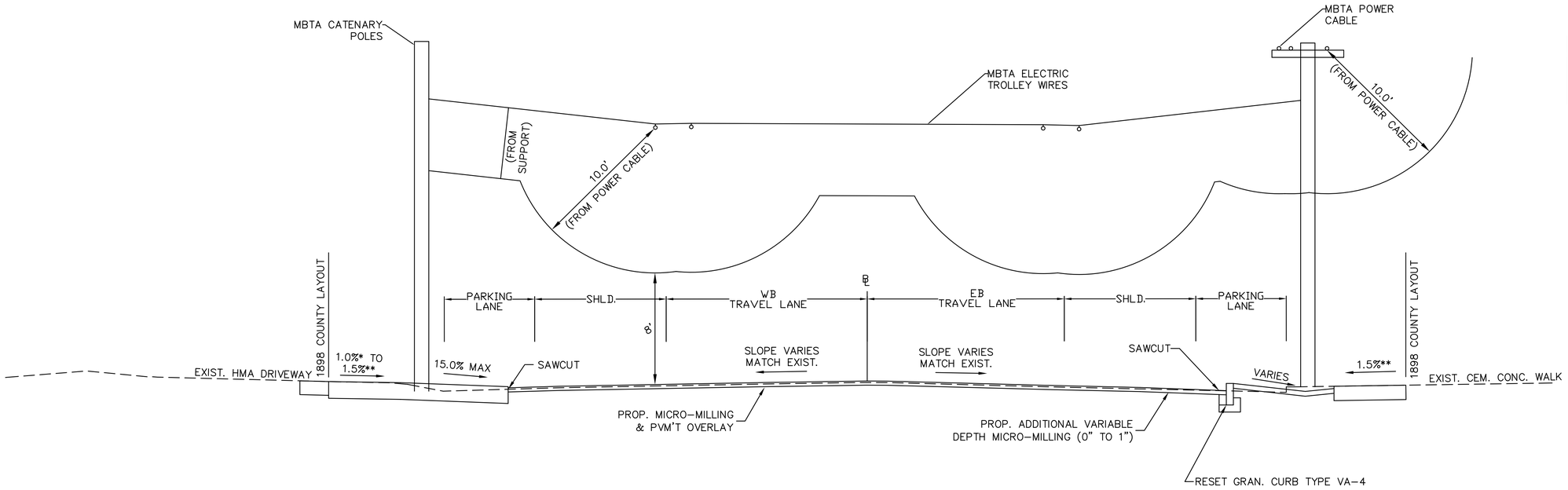
IDENTIFI-CATION NUMBER	SIZE OF SIGN WIDTH (in)	SIZE OF SIGN HEIGHT (in)	TEXT	TEXT DIMENSIONS (in) LETTER HEIGHT	TEXT DIMENSIONS (in) VERTICAL SPACING	TEXT DIMENSIONS (in) ARROW RTE. MKR.	NUMBER OF SIGNS REQUIRED	COLOR BACK-GROUND	COLOR LEGEND	COLOR BORDER	UNIT AREA (S.F.)	AREA (S.F.)
R2-10a	48	36	WORK ZONE SPEEDING FINES DOUBLED	SEE MASSDOT STANDARDS			66	SEE MASSDOT STANDARDS			12.00	900.00
R3-7R/L	30	30	RIGHT LANE MUST TURN RIGHT / LEFT LANE MUST TURN LEFT	SEE 2003 M.U.T.C.D.			2 / 2	SEE 2003 M.U.T.C.D.			6.25	12.50 / 12.50
R4-7	24	30					4				5.00	20.00
R9-8	36	18	PEDESTRIAN CROSSWALK				4				4.50	18.00
R9-9	24	12	SIDEWALK CLOSED				8				2.00	16.00
R9-10	24	12	SIDEWALK CLOSED USE OTHER SIDE				8				2.00	16.00
R9-11R/L	24	18	SIDEWALK CLOSED AHEAD CROSS HERE / SIDEWALK CLOSED AHEAD CROSS HERE				8				3.00	24.00
R9-11aR/L	24	12	SIDEWALK CLOSED CROSS HERE / SIDEWALK CLOSED CROSS HERE				8				2.00	16.00
W1-4R/L	36	36					4 / 4				9.00	36.00 / 36.00
W4-2R/L	36	36					2 / 2				9.00	36.00
W4-7R/L	36	36	THRU TRAFFIC MERGE RIGHT / THRU TRAFFIC MERGE LEFT				2 / 2				9.00	18.00 / 18.00
W5-1	36	36	ROAD NARROWS	SEE MASSDOT STANDARDS			4	SEE MASSDOT STANDARDS			9.00	36.00
W8-3	36	36	PAVEMENT ENDS	SEE 2003 M.U.T.C.D.			4	SEE 2003 M.U.T.C.D.			9.00	36.00
W8-8	36	36	ROUGH ROAD				4				9.00	36.00
W11-2	36	36					4				9.00	36.00
W12-1	36	36					2				9.00	18.00
W16-7pR/L	24	12					2 / 2				2.00	4.00 / 4.00
W16-9p(AHD)	24	12	AHEAD				4				2.00	8.00
W20-1(AHD)	36	36	ROAD WORK AHEAD				70				9.00	675.00
W20-4(AHD)	36	36	ONE LANE ROAD AHEAD				4				9.00	36.00

IDENTIFI-CATION NUMBER	SIZE OF SIGN WIDTH (in)	SIZE OF SIGN HEIGHT (in)	TEXT	TEXT DIMENSIONS (in) LETTER HEIGHT	TEXT DIMENSIONS (in) VERTICAL SPACING	TEXT DIMENSIONS (in) ARROW RTE. MKR.	NUMBER OF SIGNS REQUIRED	COLOR BACK-GROUND	COLOR LEGEND	COLOR BORDER	UNIT AREA (S.F.)	AREA (S.F.)
W20-5R/C/L (AHD)	36	36	RIGHT LANE CLOSED AHEAD / CENTER LANE CLOSED AHEAD / LEFT LANE CLOSED AHEAD	SEE 2003 M.U.T.C.D.			2 / 1 / 2	SEE 2003 M.U.T.C.D.			9.00	18.00 / 9.00 / 18.00
W20-7a	36	36					4				9.00	36.00
W20-8 (AHD)	36	36	POLICE OFFICER AHEAD	SEE MASSDOT STDS			4	SEE MASSDOT STDS			9.00	36.00
W21-5aR	36	36	RIGHT SHOULDER CLOSED	SEE 2003 M.U.T.C.D.			4	SEE 2003 M.U.T.C.D.			9.00	36.00
W30-8R	36	36	SQUEEZE RIGHT	SEE MASSDOT STDS			4	SEE MASSDOT STDS			9.00	36.00
G20-2	36	18	END ROAD WORK	SEE 2003 M.U.T.C.D.			66	SEE 2003 M.U.T.C.D.			4.50	337.50

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

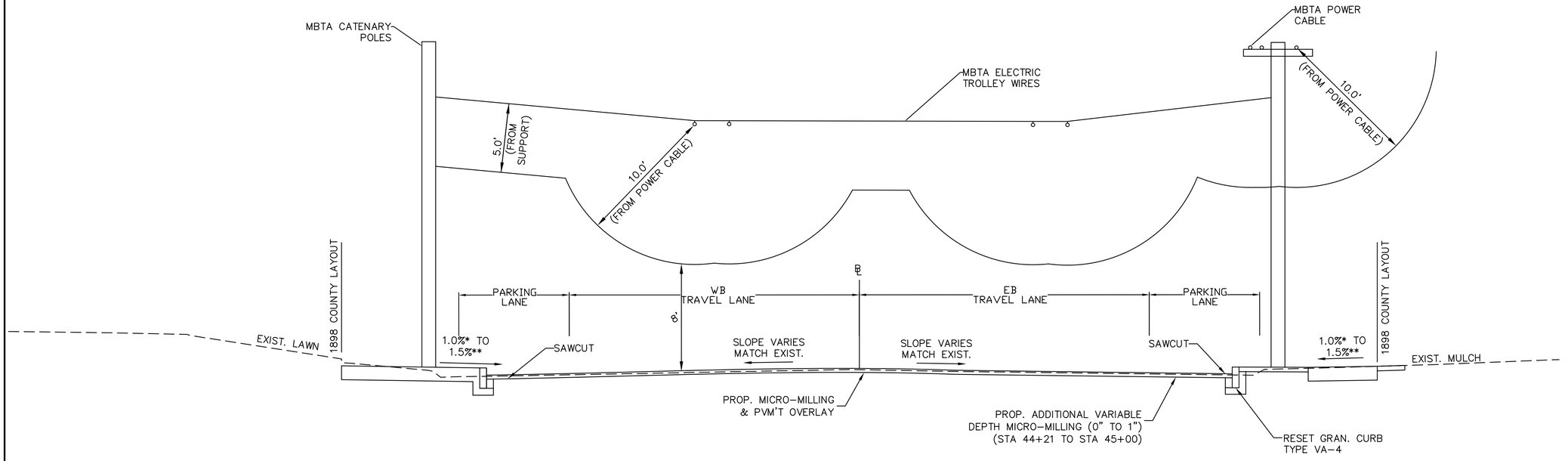
STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	182	214
PROJ. FILE NO. 604688			

TRAFFIC MANAGEMENT PLAN



MBTA CLEARANCE ENVELOPE– ROADWAY NARROWING

N.T.S.



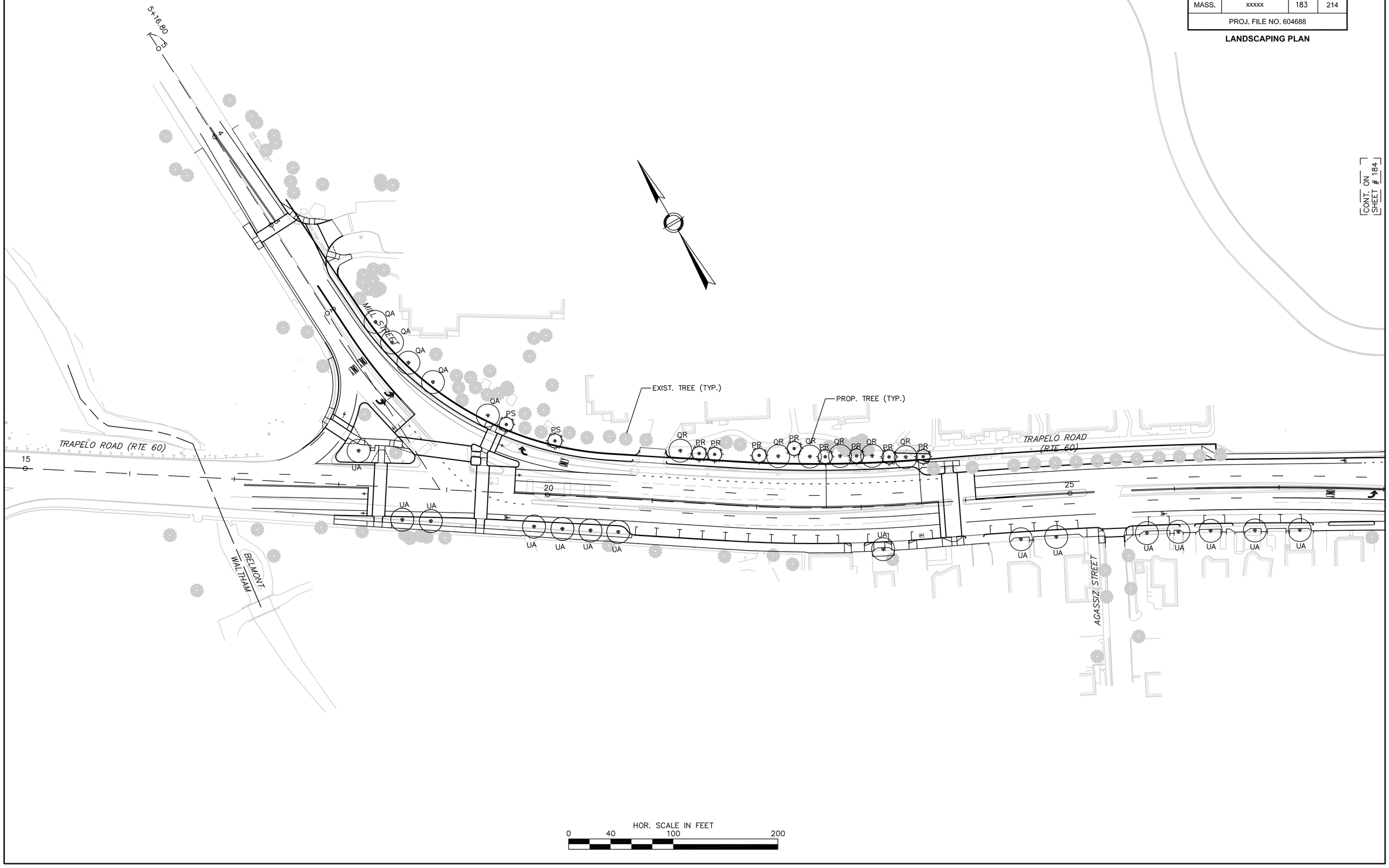
MBTA CLEARANCE ENVELOPE

N.T.S.

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	183	214
PROJ. FILE NO. 604688			

LANDSCAPING PLAN



HOR. SCALE IN FEET
0 40 100 200

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	184	214
PROJ. FILE NO. 604688			

LANDSCAPING PLAN

CONT. ON SHEET # 183

CONT. ON SHEET # 185

OLMSTEAD DRIVE

PLEASANT STREET (RTE 60)

TRAPELO ROAD

TRAPELO ROAD

SHAW'S DRIVE

ONLY

MORAINE STREET

CHURCH STREET

LEXINGTON STREET

THAYER ROAD

PROP. TREE (TYP.)

EXIST. TREE (TYP.)

UA

PA

SJ

SA

GT

4+96.09

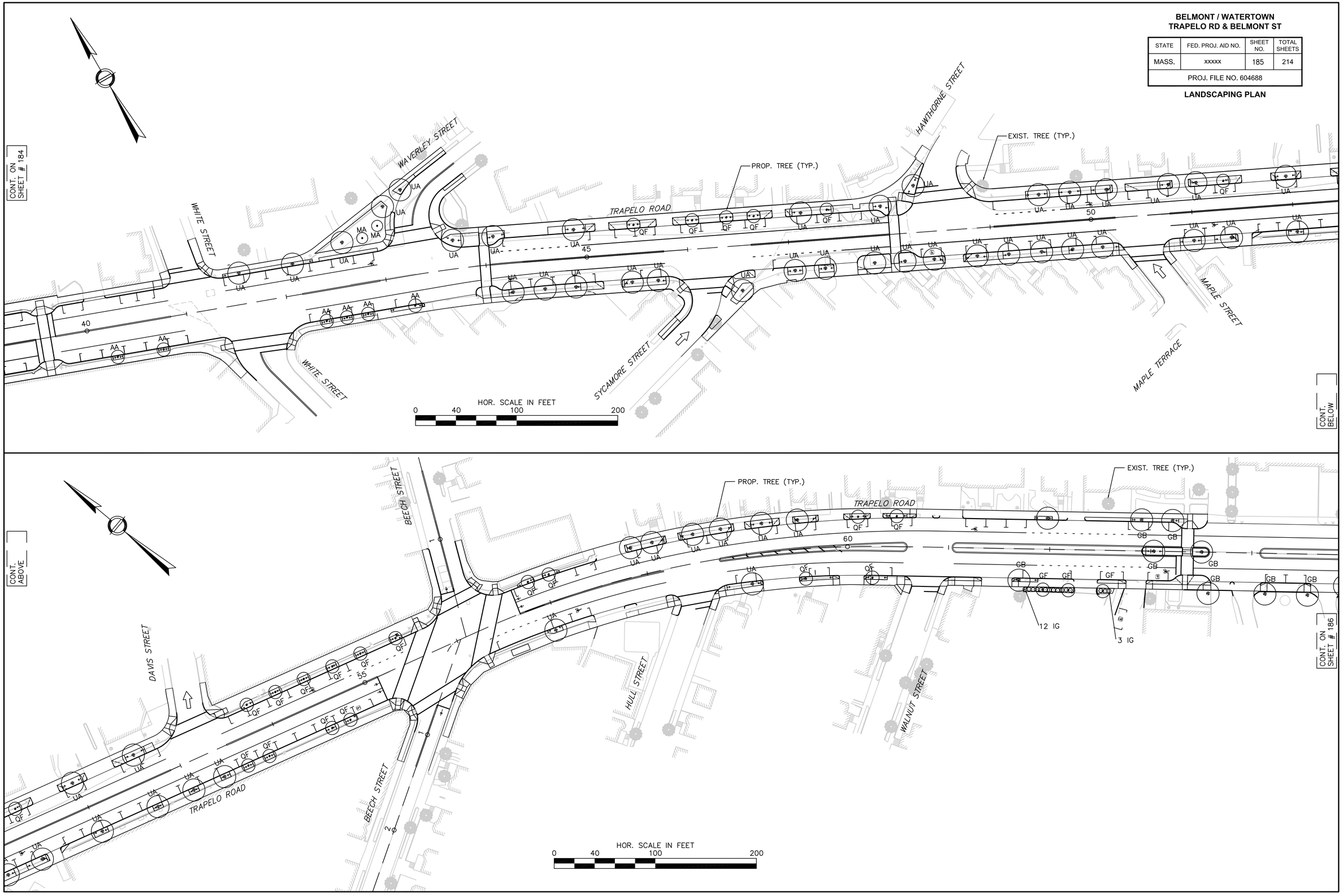
HOR. SCALE IN FEET

0 40 100 200

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	185	214
PROJ. FILE NO. 604688			

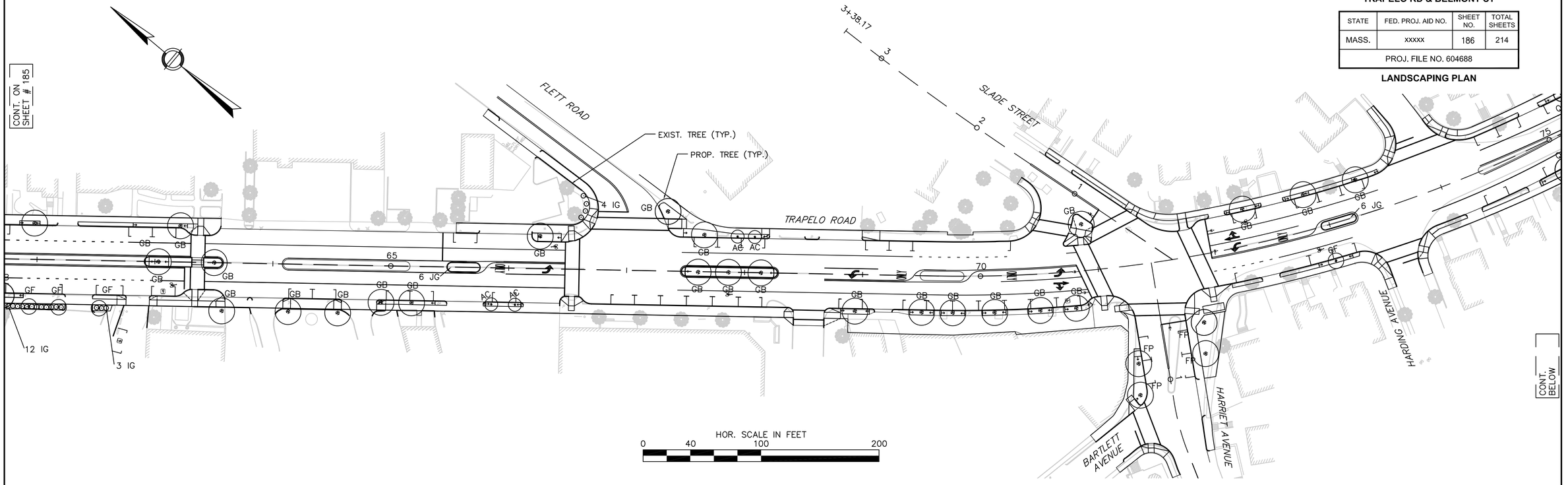
LANDSCAPING PLAN



BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	186	214
PROJ. FILE NO. 604688			

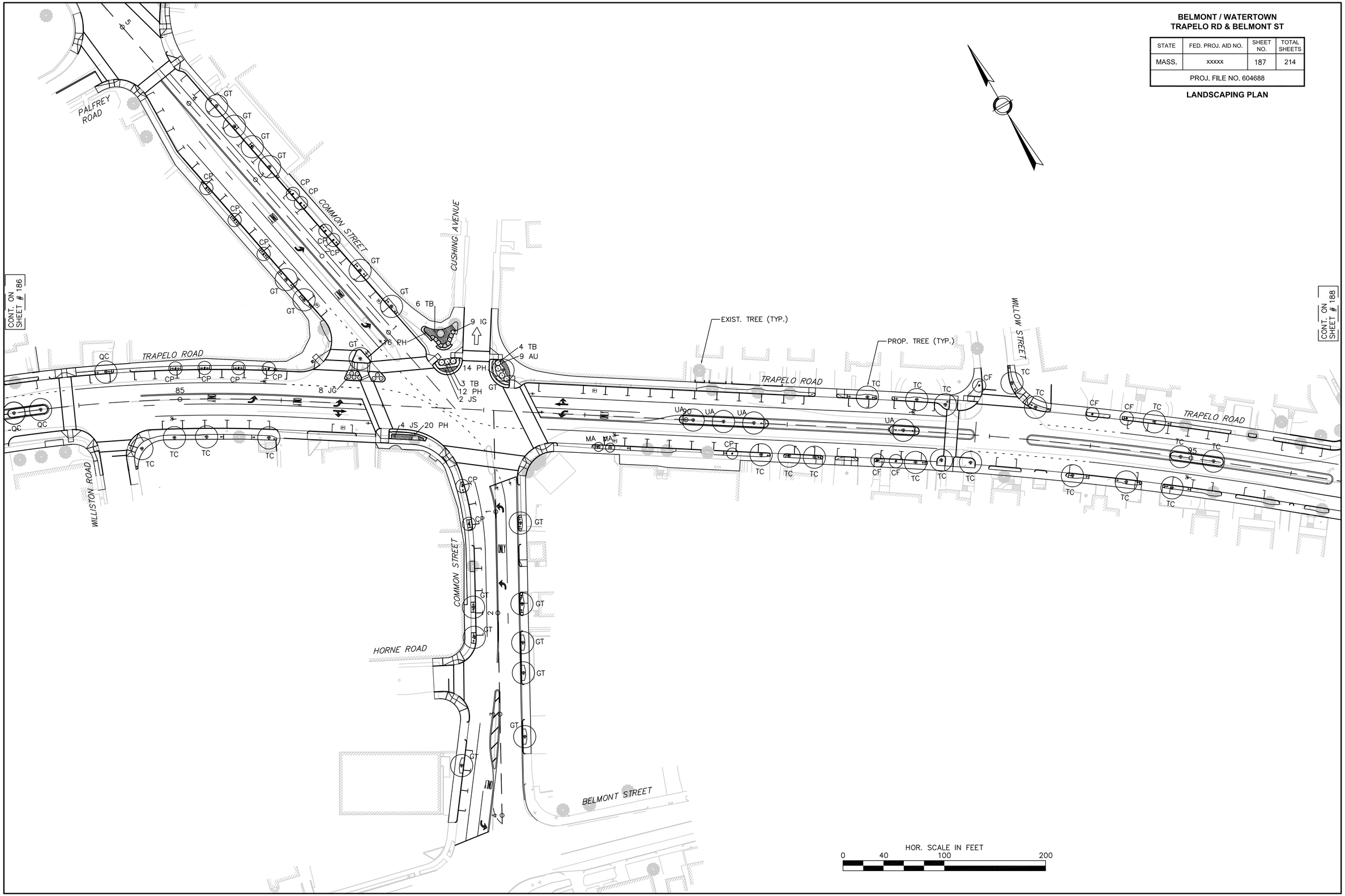
LANDSCAPING PLAN



BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	187	214
PROJ. FILE NO. 604688			

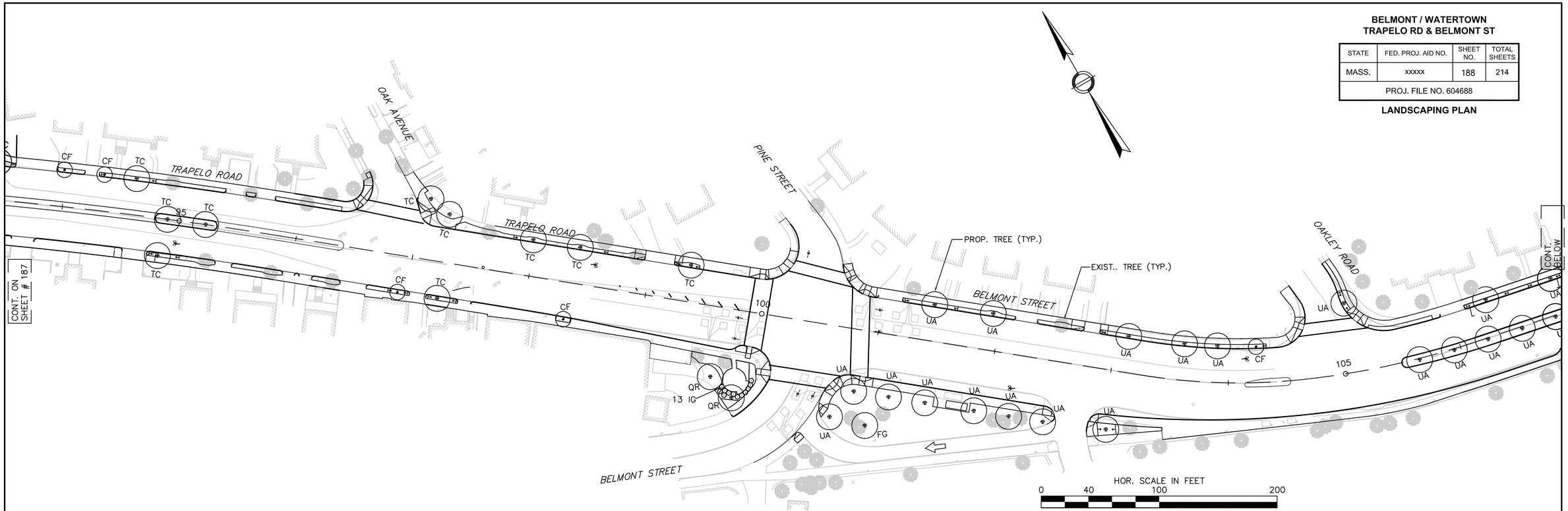
LANDSCAPING PLAN

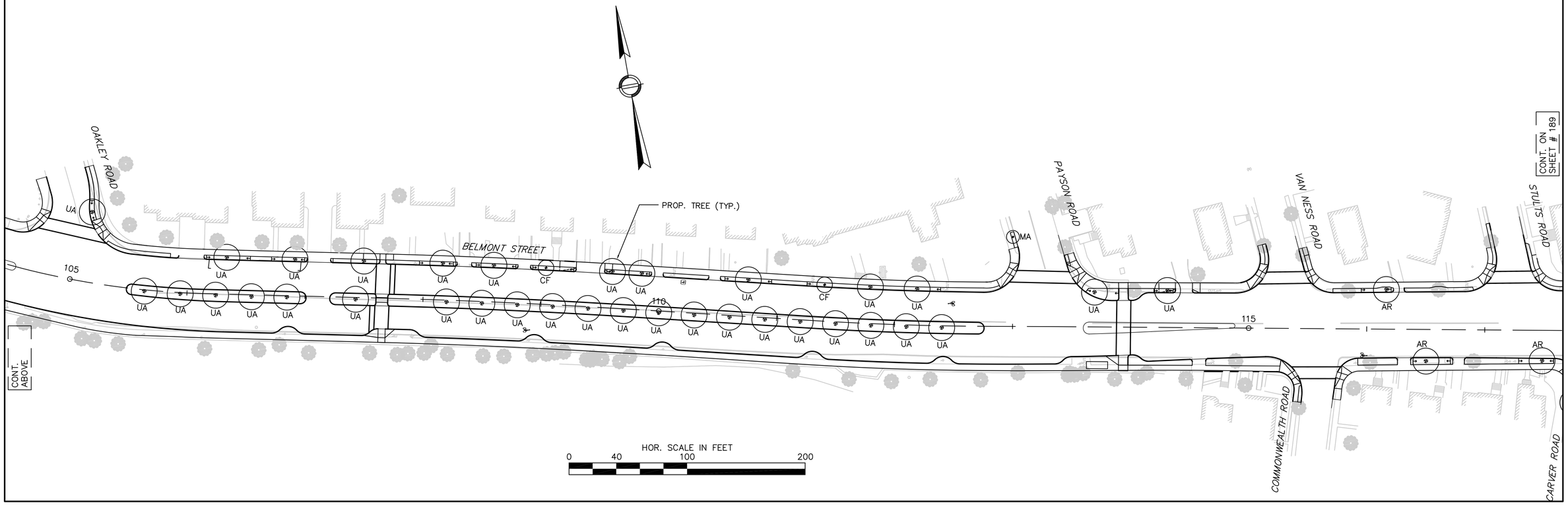


BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	188	214
PROJ. FILE NO. 604688			

LANDSCAPING PLAN





BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	189	214
PROJ. FILE NO. 604688			

LANDSCAPING PLAN

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	190	214
PROJ. FILE NO. 604688			

LANDSCAPING PLAN

WORCESTER STREET
SPRINGFIELD STREET
FALMOUTH STREET
PARK ROAD
GROVE STREET
BELMONT STREET
HILLSIDE ROAD
WESTLAND ROAD
WOODLEIGH ROAD
TEMPLETON PARKWAY
ARLINGTON STREET
MARLBORO STREET
OXFORD AVENUE
EXETER STREET
ERICSSON STREET
PRENTISS STREET
KEENAN STREET
BRIMMER STREET

EXIST. TREE (TYP.)
PROP. TREE (TYP.)

STA. 140+80.76 TRAPELO ROAD B =
STA. 0+00.00 OXFORD AVENUE B
N=2962091.1031 E=765942.7184

CONT. ON SHEET # 189

CONT. BELOW

CONT. ABOVE

HOR. SCALE IN FEET
0 40 100 200

PLANT SUMMARY TABLE

QT.	SYMBOL	COMMON NAME	SCIENITIFIC NAME	SIZE
CANOPY TREES				
119	UA	ELM AMERICAN – 'VALLEY FORGE'	ULMUS AMERICANA 'VALLEY FORGE'	2.5–3" CALIPER
8	QR	OAK – NORTHERN RED	QUERCUS RUBRA	2–2.5" CALIPER
5	QA	OAK – WHITE	QUERCUS ALBA	2.5–3" CALIPER
11	PA	PLANETREE – LONDON	PLATANUS ACERIFOLIA 'BLOOD GOOD'	2–2.5" CALIPER
3	SJ	PAGODA TREE 'REGENT'	SOPHORA JAPONICA 'REGENT'	2–2.5" CALIPER
3	CC	KATSURA TREE	CERCIDIPHYLLUM JAPONICUM	2–2.5" CALIPER
24	GT	LOCUST – HONEY – 'SKYLINE'	GLEDITSIA TRIACANTHOS INERMIS 'SKYLINE'	2–2.5" CALIPER
26	GB	GINKGO – BILOBA	GINKGO BILOBA	2–2.5" CALIPER
4	FP	ASH – GREEN	FRAXINUS PENSYLVANICA	2–2.5" CALIPER
32	QC	OAK – SCARLET	QUERCUS COCCINEA	2–2.5" CALIPER
14	QP	OAK – PIN GREEN PILLAR	QUERCUS PALUSTRIS 'GREEN PILLAR'	2–2.5" CALIPER
25	TC	LINDEN – LITTLE LEAF – 'GREENSPIRE'	TILLIA CORDATA 'GREENSPIRE'	2–2.5" CALIPER
32	AR	MAPLE – RED – 'OCTOBER GLORY'	ACER RUBRUM 'OCTOBER GLORY'	2–2.5" CALIPER
NOTE: CANOPY TREES SHALL BE WELL ROOTED B&B, AND SHALL BE MATCHED SPECIMINES				
EVERGREEN TREES				
8	PR	PINE – RED	PINUS RESINOSA	8–10' HEIGHT
2	PS	PINE – WHITE	PINUS STROBUS	5–6' HEIGHT
NOTE: EVERGREEN TREES SHALL BE CONTAINER GROWN UNLESS OTHERWISE APPROVED				
COLUMNAR TREES				
16	AA	MAPLE – RED – 'ARMSTRONG'	ACER RUBRUM 'ARMSTRONG'	2–2.5" CALIPER
22	QF	OAK – PYRAMIDAL ENGLISH	QUERCUS ROBUR 'FASTIGIATA'	2–2.5" CALIPER
10	GF	GINKGO – BILOBA 'FASTIGIATA'	COLUMNAR GINKGO BILOBA	2–2.5" CALIPER
14	CP	PEAR – CALLERY – 'CHANTICLEER'	PYRUS CALLERYANA 'CHANTICLEAR'	2–2.5" CALIPER
11	CF	HORNBEAM – 'FASTIGIATE'	CARPINUS BETULUS 'FASTIGIATA'	2.5–3" CALIPER
NOTE: COLUMNAR TREES SHALL BE WELL ROOTED B&B, AND SHALL BE MATCHED SPECIMINES				
ORNAMENTAL TREES				
5	MA	CRABAPPLE – 'ADIRONDACK'	MALUS 'ADIRONDACK'	1.5–2" CALIPER
5	SR	LILAC TREE – JAPANESE	SYRINGA RETICULATA 'IVORY SILK'	1.5–2" CALIPER
4	AC	MAPLE –HEDGE	ACER CAMPESTRE	1.5–2" CALIPER
4	SA	MOUNTAIN ASH – KOREAN – PYRAMIDAL	SORBUS ALNIFOLIA FASTIGIATA	2–2.5" CALIPER
1	FG	BEECH – RIVERS PURPLE	FAGUS SYLVATICA 'RIVERSII'	2–2.5" CALIPER
NOTE: ORNAMENTAL TREES SHALL BE MATCHED SPECIMINES WHERE GROUPED				
SHRUBS				
1	FO	'FORSYTHIA – 'ARNOLD DWARF'	FORSYTHIA X INTERMEDIA 'ARNOLD DWARF'	15–24" HEIGHT
4	LI	PRIVET – REGAL	LIGUSTRUM IBOLIUM 'REGAL'	18–24" HEIGHT
20	JG	JUNIPER – 'SEAGREEN'	JUNIPARUS CHINENSIS 'SEA GREEN'	18–24" HEIGHT
41	IG	INKBERRY – DENSA	ILEX GLABRA 'DENSA'	2–3' HEIGHT
8	TH	YEW – HICK'S	TAXUS 'MEDIA HICKSII'	30–36" HEIGHT
GROUNDCOVER				
13	TB	YEW – SPREADING ENGLISH	TAXUS BACCATA REPANDENS	15–18" SPREAD
6	JS	JUNIPER – SARGENT'S	JUNIPARUS CHINENSIS 'SARGENTII'	15–18" SPREAD
9	AU	BEAR BERRY	ARCTOSTAPHYLOS UVA–URSI	2 GALLON
62	PH	DWARF FOUNTAIN GRASS	PENNISETUM ALOPECUROIDES 'HAMELN'	1 GALLON

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	191	214
PROJ. FILE NO. 604688			

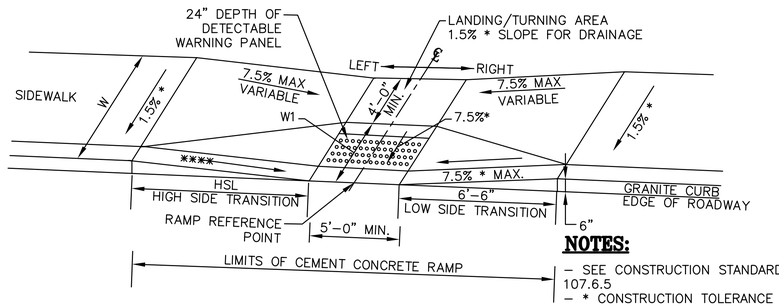
LANDSCAPING PLAN

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	192	214
PROJ. FILE NO. 604688			

CONSTRUCTION DETAILS
WHEELCHAIR RAMPS

WHEELCHAIR RAMP
STYLE "A" – PARALLEL PERPENDICULAR



NOTES:

– SEE CONSTRUCTION STANDARD E 107.2.0 AND 107.6.5
– * CONSTRUCTION TOLERANCE ± 0.5%
– ** ABUTS <6" CURB REVEAL
– *** SIDEWALK ENDS
– **** SEE CONSTRUCTION STANDARD E 107.9.0

WCR #	℄ RAMP REFERENCE POINT (STATION/OFFSET) Ref Street for Centerline	WIDTH OF SIDEWALK (W)	LENGTH OF PRIMARY RAMP (W1)	WIDTH OF PRIMARY RAMP	DEPTH OF LEVEL LANDING Min. 4'-0"	TRANSITION LENGTH AND ROADWAY GUTTER SLOPE (%)			
						LEFT SIDE		RIGHT SIDE	
						L	%	L	%
A8	23+86.10/34.00RT	VARIES	2.22	5.0	4.0	6.5	N/A	9.0	1.73
A10	29+98.28/39.31LT	7.9	3.9	5.0	4.0	15.0	7.21	6.5	N/A
A12	33+90.39/62.95RT	9.5	5.5	5.0	4.0	N/A	N/A	4.5**	1.53
A15	35+17.25/59.56RT	VARIES	4.16	5.0	4.0	5.5**	2.21	9.0	1.84
A16	35+46.25/38.89RT	VARIES	5.50	5.0	4.0	6.5	N/A	3.25**	0.31
A17	LEXINGTON ST. 3+43.70/15.00RT	10.0	6.0	5.0	4.0	6.5	N/A	7.0**	3.93
A18	LEXINGTON ST. 4+10.78/16.50LT	8.5	4.5	5.0	4.0	11.0	2.54	6.5	N/A
A19	CHURCH ST. 3+48.75/37.45RT	VARIES	5.58	5.0	4.0	15.0	4.83	6.5	N/A
A21	37+83.54/38.62RT	VARIES	5.38	5.0	4.2	6.5	N/A	15.0	5.31
A24	41+22.13/38.83LT	5.0	2.23	5.0	4.92	6.5	N/A	6.5	N/A
A27	43+14.00/39.03LT	8.5	2.57	5.0	5.29	7.66	0.19	6.5	N/A
A29	53+10.38/35.72LT	VARIES	6.39	5.0	4.44	6.5	N/A	9.0	1.78
A31	55+24.18/27.99RT	12.5	7.42	5.0	4.09	3.25**	N/A	7.5**	1.64
A32	55+34.59/46.53RT	6.5	3.47	5.0	4.00	6.5	N/A	5.5**	2.52
A33	55+82.39/40.81RT	VARIES	6.81	5.0	4.14	6.5	N/A	6.5	N/A
A36	56+35.38/40.89LT	VARIES	3.11	5.0	4.0	7.66	0.36	3.25**	N/A
A37	55+99.21/37.30LT	VARIES	3.85	5.0	4.0	7.66	0.42	7.66	0.93
A39	66+73.70/41.21LT	VARIES	4.78	5.0	4.0	6.5	N/A	7.66	0.09
A40	70+50.77/42.98LT	VARIES	2.52	5.0	4.0	7.66	0.63	6.5	N/A
A42	HARRIET AVE. 1+47.47/27.11RT	7.0	3.83	5.0	4.03	15.0	7.84	6.5	N/A
A46	73+35.54/41.78RT	8.5	4.95	5.0	4.0	14.0	3.23	6.5	N/A
A47	73+64.49/1.93RT	8.5	4.47	5.0	4.0	15.0	6.09	6.5	N/A
A49	73+70.77/38.94LT	8.5	4.78	5.0	4.0	6.5	N/A	15.0	10.08
A50	75+43.34/34.79RT	VARIES	7.48	5.0	4.28	9.0	1.48	6.5	N/A
A51	75+78.12/34.60RT	12.5	7.67	5.0	4.40	15.0	5.18	6.5	N/A
A52	83+89.00/29.00LT	8.5	4.5	5.0	4.0	6.5	N/A	9.0	1.47
A53	84+45.45/44.95RT	8.5	4.81	5.0	4.0	15.0	4.29	9.0	1.14
A54	N. COMMON ST. 5+14.55/40.25LT	7.5	3.91	5.0	4.0	9.0	1.46	6.5	N/A
A55	N. COMMON ST. 4+67.90/42.63LT	8.0	3.23	5.0	4.0	6.5	N/A	15.0	4.85
A56	N. COMMON ST. 4+40.67/26.36LT	8.0	3.88	5.0	4.0	6.5	N/A	6.5	N/A
A60	88+39.12/50.54RT	8.0	4.93	5.0	4.0	3.83**	0.58	9.0	1.71
A61	88+59.16/31.22RT	8.5	4.96	5.0	4.0	9.0	1.65	4.79**	0.84
A62	S. COMMON ST. 2+50.00/41.79RT	VARIES	4.37	5.0	4.59	11.0	2.75	6.5	N/A
A63	S. COMMON ST. 2+79.98/42.28RT	VARIES	4.67	5.0	4.07	15.0	5.21	6.5	N/A
A64	93+27.78/37.67LT	8.5	5.93	5.0	4.03	6.5	N/A	6.5	N/A

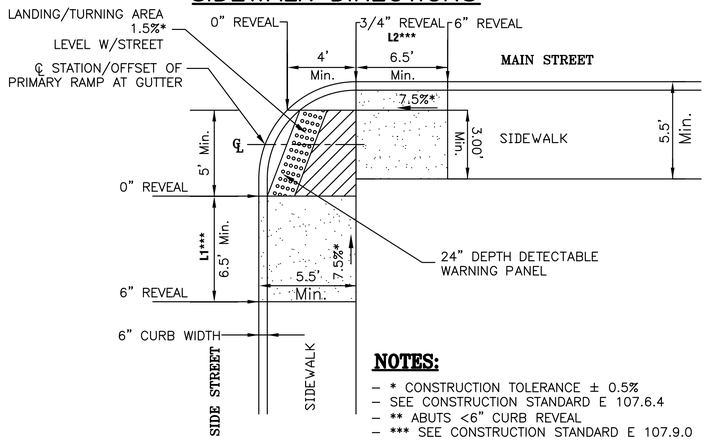
WCR #	C RAMP REFERENCE POINT (STATION/OFFSET) Ref Street for Centerline	WIDTH OF SIDEWALK (W)	LENGTH OF PRIMARY RAMP (W1)	WIDTH OF PRIMARY RAMP (W1)	DEPTH OF LEVEL LANDING Min. 4'-0"	TRANSITION LENGTH AND ROADWAY GUTTER SLOPE (%)			
						LEFT SIDE		RIGHT SIDE	
						L	%	L	%
A65	96+53.30/38.89LT	8.5	4.08	5.0	4.01	6.5	N/A	14.0	3.61
A68	100+67.35/48.29RT	8.0	4.53	5.0	4.06	6.5	N/A	6.5	N/A
A69	100+89.53/39.00RT	7.50	3.50	5.0	4.0	6.5	N/A	7.66	0.10
A70	100+84.36/29.65LT	8.5	4.42	5.0	4.0	4.5**	1.90	6.5	N/A
A71	100+65.19/43.00LT	8.5	4.15	5.0	4.0	7.66	0.86	3.25**	N/A
A73	99+95.78/29.04LT	8.5	4.46	5.0	4.00	9.00	1.34	3.25**	N/A
A74	104+68.94/43.85LT	8.5	4.50	5.0	4.0	15.0	4.98	6.5	N/A
A75	105+15.81/43.13LT	8.5	4.59	5.0	4.0	7.66	0.57	6.5	N/A
A76	113+02.06/44.48LT	8.5	3.38	5.0	4.0	15.0	5.54	6.5	N/A
A77	115+12.88/44.09LT	8.0	3.16	5.0	4.03	14.0	3.15	7.66	0.91
A78	113+49.16/43.49LT	VARIES	6.57	6.0	4.82	7.66	0.24	6.5	N/A
A79	115+40.76/37.78RT	VARIES	2.52	5.0	4.0	7.66	0.81	14.0	3.02
A80	115+74.72/38.92RT	VARIES	3.39	5.0	4.13	6.5	N/A	9.0	1.83
A81	117+06.38/46.47LT	7.5	4.03	5.0	4.0	9.0	1.86	6.5	N/A
A84	118+10.19/41.69RT	VARIES	5.31	5.0	4.0	6.5	N/A	15.0	5.25
A85	118+86.55/35.17RT	VARIES	3.49	5.0	4.0	7.66	0.67	6.5	N/A
A86	119+15.03/47.52LT	7.5	3.95	5.0	4.0	14.0	3.58	9.0	1.77
A87	119+48.10/47.33LT	8.5	4.63	5.0	4.0	15.0	6.47	6.5	N/A
A88	120+20.29/33.35LT	7.5	5.91	5.0	4.0	15.0	5.28	6.5	N/A
A90	121+28.83/46.84LT	VARIES	6.54	5.0	4.34	15.0	4.73	6.5	N/A
A91	121+70.92/9.28LT	8.0	4.0	5.0	4.0	6.5	N/A	4.5**	1.45
A94	125+92.70/24.50RT	7.5	4.0	5.0	4.0	6.5	N/A	11.0	2.26
A95	126+19.15/35.92RT	7.5	4.19	5.0	4.02	6.5	N/A	11.0	2.81
A97	128+71.18/39.19RT	7.5	4.41	5.0	4.0	6.5	N/A	9.0	1.96
A98	129+09.94/24.50RT	7.5	3.75	5.0	4.06	6.5	N/A	14.0	3.81
A99	130+65.02/44.00RT	7.0	2.82	5.0	4.0	14.0	3.36	6.5	N/A
A100	130+93.57/43.69RT	7.5	5.24	5.0	4.01	6.5	N/A	15.0	4.27
A101	131+25.83/25.00RT	7.5	3.5	5.0	4.0	6.5	N/A	11.0	2.87
A102	134+63.86/24.99RT	7.5	3.57	5.0	4.0	6.5	N/A	9.0	1.24
A105	135+22.20/44.79LT	VARIES	4.33	5.0	4.0	6.5	N/A	7.66	0.81
A106	136+27.97/25.32LT	7.5	3.5	5.0	4.0	7.66	0.31	6.5	N/A
A110	144+18.45/42.97RT	8.0	4.86	5.0	4.0	9.0	1.23	6.5	N/A
A111	144+51.84/42.82RT	8.5	4.63	5.0	4.0	6.5	N/A	11.0	2.17
A113	146+46.67/45.66RT	VARIES	4.56	5.0	4.0	6.5	N/A	11.0	1.31
A114	146+76.67/43.28RT	7.0	4.05	5.0	4.11	7.66	0.15	6.5	N/A
A117	77+64.16/36.66RT	12.5	6.56	5.0	4.0	6.5	N/A	6.5	N/A
A119	29+10.87/60.04LT	VARIES	5.57	5.0	4.0	6.5	N/A	11.0	2.28
A120	ARLINGTON ST. 3+21.44/17.45LT	7.50	2.36	5.0	4.10	7.66	0.83	6.5	N/A
A121	87+70.11/45.48RT	VARIES	4.20	5.0	4.0	9.0	1.36	6.5	N/A

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	193	214
PROJ. FILE NO. 604688			

CONSTRUCTION DETAILS
WHEELCHAIR RAMPS

WHEELCHAIR RAMP
STYLE "C" – SINGLE STREET CROSSING SERVING TWO SIDEWALK DIRECTIONS

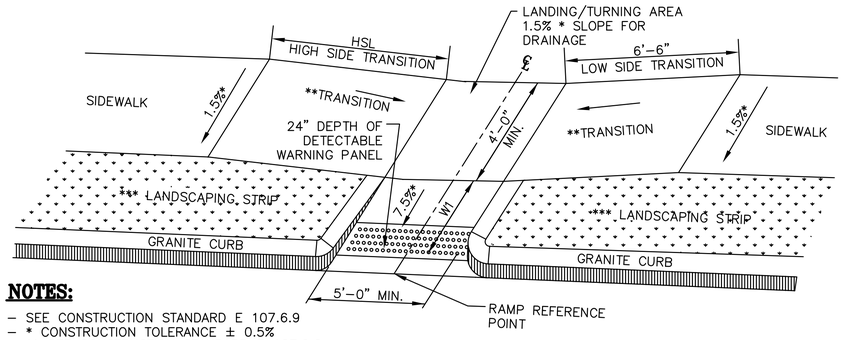


NOTES:

– * CONSTRUCTION TOLERANCE ± 0.5%
– SEE CONSTRUCTION STANDARD E 107.6.4
– ** ABUTS <6" CURB REVEAL
– *** SEE CONSTRUCTION STANDARD E 107.9.0

WCR #	℄ RAMP REFERENCE POINT (STATION/OFFSET) Ref Street for Centerline	LEVEL LANDING LENGTH	RAMP WIDTH	ROADWAY 1 WIDTH OF SIDEWALK	TRANSITION 1		ROADWAY 2 WIDTH OF SIDEWALK	TRANSITION 2	
					GUTTER GRADE	L1		GUTTER GRADE	L2
C1	25+31.23/39.99RT	5.73	5.00	6.00	N/A	6.5	8.50	2.41	11.00
C3	33+37.55/52.44RT	7.06	6.25	8.00	N/A	6.5	6.00	3.30	14.00
C4	33+62.55/60.03RT	8.42	5.00	8.50	1.10	9.00	9.50	5.47	7.50**
C5	40+89.18/35.00LT	7.91	5.00	9.0	N/A	6.5	8.50	1.08	9.00
C6	50+32.86/35.00RT	7.46	5.00	6.30	2.06	11.00	12.50	N/A	6.50
C7	50+69.14/35.00RT	6.14	5.00	7.00	2.34	11.00	12.50	2.16	11.00
C8	58+26.52/35.00RT	6.42	5.00	7.00	N/A	6.5	12.50	2.73	7.00**
C9	58+60.24/35.93RT	5.87	5.00	5.75	0.82	7.66	11.00	N/A	7.00
C10	60+63.73/35.00RT	6.49	5.00	7.23	N/A	6.5	8.50	0.60	7.66
C11	60+93.24/35.87RT	6.69	5.32	6.79	N/A	6.5	8.50	N/A	6.50
C12	122+10.96/30.00RT	7.91	5.00	9.06	6.37	15.0	7.50	N/A	6.50
C13	123+54.11/40.38LT	6.21	5.00	6.68	1.43	9.0	7.50	4.45	15.0
C14	123+81.98/40.01LT	5.78	5.00	6.00	N/A	6.5	8.50	2.41	11.00
C16	124+35.32/29.98RT	5.82	5.00	6.60	4.26	15.0	7.50	N/A	6.50
C17	125+64.65/40.00LT	6.18	5.00	6.80	0.66	7.66	7.50	3.06	7.00**
C19	126+44.68/30.00RT	8.45	5.00	9.17	3.73	14.0	7.50	N/A	6.50
C20	127+48.28/39.88LT	6.26	5.00	7.20	0.09	7.66	8.50	1.81	9.00
C21	127+74.88/40.16LT	6.55	5.00	7.00	2.91	11.00	7.91	N/A	6.50
C22	128+63.92/44.18LT	7.23	5.00	7.34	N/A	6.5	VARIES	2.41	11.00
C23	130+80.35/40.00LT	7.82	5.00	8.34	N/A	6.5	7.50	0.26	7.66
C24	135+62.71/34.63LT	5.70	5.00	6.00	N/A	6.5	7.60	0.34	7.66
C25	135+90.18/33.15LT	6.13	5.00	7.50	1.38	9.00	7.50	N/A	6.50
C26	138+19.62/31.00LT	6.73	5.00	8.11	N/A	6.5	7.50	0.17	7.66
C27	138+55.02/30.98LT	6.95	5.00	8.00	N/A	6.5	8.00	N/A	6.50
C28	140+66.36/35.00LT	5.73	5.00	6.14	N/A	6.5	8.00	N/A	6.50
C30	143+10.18/35.00LT	6.61	5.00	7.00	N/A	6.5	8.00	1.20	9.00
C31	143+37.69/35.00LT	6.63	5.00	7.00	N/A	6.5	VARIES	N/A	6.50
C32	146+02.75/35.00LT	7.65	5.00	8.00	N/A	6.5	8.50	1.40	9.00
C33	146+29.06/35.00LT	5.94	5.00	7.60	N/A	6.5	VARIES	N/A	6.50
C34	LEXINGTON ST. 4+43.04/22.50RT	7.50	5.00	8.50	2.48	11.00	9.50	N/A	6.50

WHEELCHAIR RAMP
STYLE "B" – PARALLEL PERPENDICULAR W/ LANDSCAPING STRIP



NOTES:

– SEE CONSTRUCTION STANDARD E 107.6.9
– * CONSTRUCTION TOLERANCE ± 0.5%
– ** SEE CONSTRUCTION STANDARD E 107.9.0
– *** NON–WALKING SURFACE

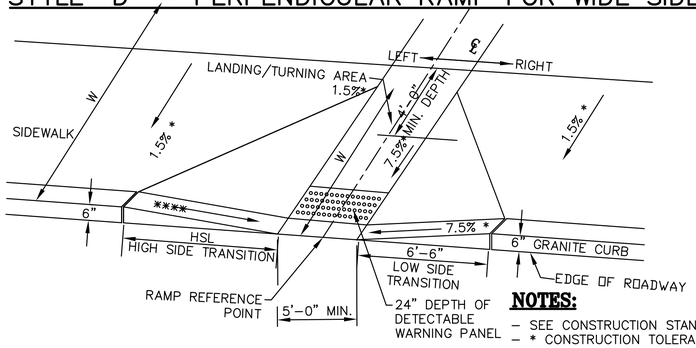
WCR #	C RAMP REFERENCE POINT (STATION/OFFSET) Ref Street for Centerline	WIDTH OF SIDEWALK (W)	LENGTH OF PRIMARY RAMP (W1)	WIDTH OF PRIMARY RAMP	DEPTH OF LEVEL LANDING Min. 4'–0"	TRANSITION LENGTH AND ROADWAY GUTTER SLOPE (%)			
						LEFT SIDE		RIGHT SIDE	
						L	%	L	%
B4	18+39.47/28.49RT	5.0	5.42	8.0	4.94	9.0	1.62	6.50	1.50
B9	23+86.53/26.97RT	5.0	6.81	8.0	4.97	7.66	0.83	6.50	2.14
B31	107+65.16/29.00LT	5.0	3.50	5.0	5.0	14.0	3.61	6.50	3.70

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	194	214
PROJ. FILE NO. 604688			

CONSTRUCTION DETAILS
WHEELCHAIR RAMPS

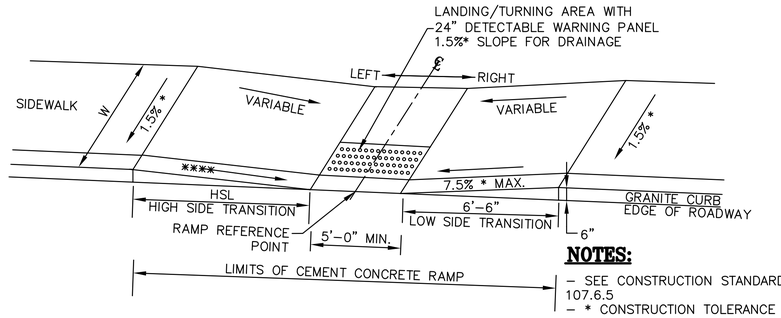
WHEELCHAIR RAMP
STYLE "D" – PERPENDICULAR RAMP FOR WIDE SIDEWALKS



NOTES:
- SEE CONSTRUCTION STANDARD E 107.3.0 AND 107.6.5R
- * CONSTRUCTION TOLERANCE ± 0.5%
- ** ABUTS <6" CURB REVEAL
- *** SIDEWALK ENDS
- **** SEE CONSTRUCTION STANDARD E 107.9.0

WCR #	℄ RAMP REFERENCE POINT (STATION/OFFSET) Ref Street for Centerline	WIDTH OF SIDEWALK (W)	LENGTH OF PRIMARY RAMP (W1)	WIDTH OF PRIMARY RAMP (W1)	DEPTH OF LEVEL LANDING Min. 4'-0"	TRANSITION LENGTH AND ROADWAY GUTTER SLOPE (%)			
						LEFT SIDE		RIGHT SIDE	
						L	%	L	%
D6	38+65.66/37.33RT	VARIES	8.25	5.0	4.0	6.5	N/A	6.5	N/A
D7	43+53.42/39.43LT	VARIES	8.31	5.0	4.0	6.5	N/A	7.66	0.59
D11	48+77.84/37.36LT	12.5	8.09	5.0	4.0	6.5	N/A	11.0	2.44
D12	63+38.28/23.00LT	8.5	8.13	5.0	6.84	8.17	0.56	6.0	N/A
D13	134+50.65/34.69LT	7.5	8.0	5.0	4.0	9.0	1.32	3.25**	N/A
D15	66+53.71/23.00RT	8.5	8.0	5.0	4.0	9.0	1.04	7.66	0.80
D16	68+42.07/35.00RT	8.5	8.0	5.0	4.0	6.5	N/A	6.33	N/A
D17	68+67.90/35.00RT	8.5	8.0	5.0	4.0	6.33	N/A	6.5	N/A
D18	71+02.26/23.00RT	VARIES	8.0	5.0	4.0	7.5**	5.38	6.5	N/A
D21	77+95.27/36.96RT	VARIES	10.89	5.0	4.0	11.0	2.55	6.5	N/A
D22	83+88.62/23.00RT	14.5	8.0	5.0	4.0	9.0	1.28	6.5	N/A
D24	N. Common St. 4+39.32/12.67RT	8.0	8.07	5.0	4.0	9.0	1.57	6.5	N/A
D25	86+38.12/38.34LT	VARIES	6.5	5.0	4.0	6.5	N/A	14.0	3.21
D30	97+01.89/35.77LT	VARIES	8.44	5.0	4.91	11.0	2.31	7.66	0.63
D33	107+65.66/26.00RT	VARIES	7.5	6.0	4.0	6.5	N/A	14.0	3.79
D37	128+88.83/43.76LT	VARIES	6.95	5.0	4.0	6.5	N/A	7.66	0.64
D38	134+67.46/48.38LT	VARIES	8.13	5.0	4.0	7.0**	3.18	6.5	N/A
D40	135+95.95/52.78RT	VARIES	8.0	5.0	N/A	6.5	N/A	14.0	3.79
D41	136+44.98/46.19RT	VARIES	9.04	5.0	4.0	3.83**	0.75	6.5	N/A
D44	146+52.00/23.00LT	VARIES	8.32	5.0	4.0	3.83**	0.81	6.5	N/A
D45	Mill St. 2+48.18/30.51RT	VARIES	8.21	5.0	4.0	15.0	8.16	6.5	N/A
D48	18+39.46/22.53LT	6.0	8.09	6.0	4.0	6.5	N/A*	6.5	N/A*
D50	34+50.81/37.02LT	VARIES	8.13	5.0	4.0	6.5	N/A	14.0	3.96
D51	41+40.19/38.81RT	VARIES	8.28	5.0	4.0	6.5	N/A	9.0	1.74
D52	45+96.12/34.40RT	12.5	6.18	5.0	4.0	7.66	0.74	9.0	1.81
D54	56+04.08/28.37RT	VARIES	8.35	5.0	4.0	7.66	0.33	7.66	0.52
D55	56+52.74/26.14LT	12.5	6.69	5.0	4.0	4.5**	1.28	6.5	N/A
D56	55+71.10/25.00LT	VARIES	8.5	5.0	4.0	7.66	0.69	6.5	N/A
D57	70+78.61/35.08LT	N/A	5.44	5.0	4.0	8.96	N/A	8.97	N/A
D58	70+87.42/22.00LT	N/A	6.10	5.0	4.0	10.46	N/A	4.0	N/A
D59	70+97.48/29.93LT	N/A	5.56	5.0	4.0	4.0	N/A	4.16	N/A
D60	71+66.91/44.25RT	VARIES	8.17	5.0	4.0	15.0	4.77	6.5	N/A
D61	71+91.89/28.94RT	VARIES	8.0	5.0	4.0	15.0	5.58	6.5	N/A
D62	78+14.21/19.51RT	VARIES	8.16	5.0	4.0	15.0	4.28	6.5	N/A
D66	100+15.18/48.34RT	VARIES	8.46	5.0	4.0	9.0	1.64	7.5	4.95
D67	121+88.75/28.56LT	VARIES	9.43	5.0	4.0	4.5**	1.19	6.50	N/A
D68	141+06.18/23.50LT	14.0	8.0	5.0	6.0	3.83*	0.22	6.5	N/A
D69	141+04.91/23.50RT	14.0	8.0	5.0	4.0	6.5	N/A	7.66	0.36
D70	146+25.25/24.01RT	VARIES	8.14	5.0	4.0	6.5	N/A	9.0	1.09
D73	39+58.46/23.00RT	5.5	9.0	8.0	5.87	9.95	N/A	7.95	0.97
D74	39+58.46/23.00LT	8.25	8.0	8.0	4.0	7.95	0.35	7.95	N/A
D75	Church St. 3+69.77/32.68RT	N/A	5.69	5.0	4.0	15.0	4.23	7.0	5.50
D76	Church St. 3+76.73/13.00RT	N/A	13.68	5.0	4.0	6.75	1.34	12.50	0.0
D77	Church St. 3+85.20/33.12RT	N/A	8.0	5.0	4.0	15.0	3.45	7.0	3.98
D78	120+88.62/34.71RT	12.0	8.0	5.0	4.0	6.5	N/A	10.0**	7.47
D79	41+94.62/43.06RT	8.5	4.23	5.0	4.10	7.66	0.24	6.5	N/A

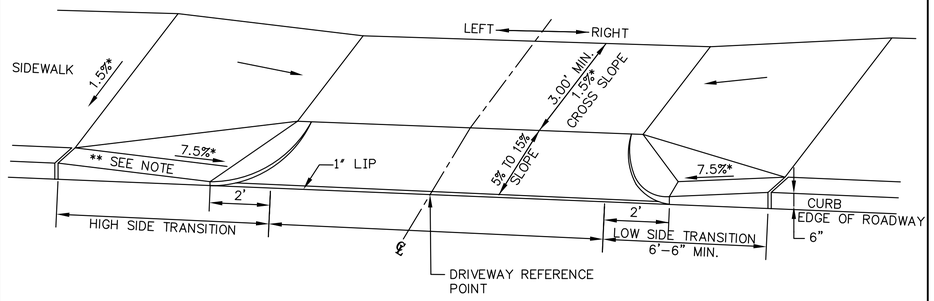
WHEELCHAIR RAMP
STYLE "G" – NARROW SIDEWALK



NOTES:
- SEE CONSTRUCTION STANDARD E 107.2.0 AND 107.6.5
- * CONSTRUCTION TOLERANCE ± 0.5%
- ** ABUTS <6" CURB REVEAL
- *** SIDEWALK ENDS
- **** SEE CONSTRUCTION STANDARD E 107.9.0

WCR #	℄ RAMP REFERENCE POINT (STATION/OFFSET) Ref Street for Centerline	WIDTH OF SIDEWALK (W)	TRANSITION LENGTH AND ROADWAY GUTTER SLOPE (%)			
			LEFT SIDE		RIGHT SIDE	
			L	%	L	%
G1	17+87.31/59.24LT	5.5	6.5	N/A	11.0	2.92
G2	MILL ST. 2+95.59/19.75LT	5.25	6.5	N/A	15.0	8.35
G3	MILL ST. 2+96.29/20.83RT	5.5	15.0	6.02	3.25**	N/A
G4	MILL ST. 2+79.51/33.23RT	5.5	6.5	N/A	15.0	4.06
G5	19+44.45/58.67LT	6	6.5	N/A	9.0	1.79
G6	100+19.08/43.80LT	5.8	7.5**	4.58	11.0	2.22
G7	29+29.97/24.40RT	VARIES	N/A	N/A	11.0	2.05
G8	35+42.63/26.00LT	VARIES	7.66	0.92	7.66	0.70
G9	29+29.97/24.40RT	9.5	6.5	N/A	9.0	1.05
G10	120+20.25/26.16RT	5.5	3.25**	N/A	15.0	4.90

SIDEWALK THROUGH DRIVEWAYS – TYPE F

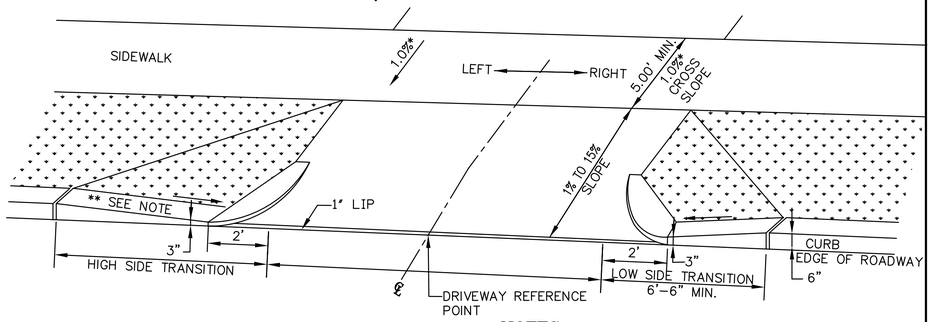


NOTES:

- * CONSTRUCTION TOLERANCE ± 0.5%
- ** SEE CONSTRUCTION STANDARD E 107.8.0 AND 107.9.0
- *** ABUTS <6" CURB REVEAL

DRIVEWAY #	DRIVEWAY REFERENCE POINT		WIDTH OF SIDEWALK	WIDTH OF TRAVEL PATH ACROSS OPENING	LEFT SIDE TRANSITION LENGTH	RIGHT SIDE TRANSITION LENGTH	ROADWAY GUTTER SLOPE
	STATION	OFFSET					
F1	29+54.13	22.67RT	VARIES	3.54	6.50	6.50	1.20%
F2	30+05.68	19.32RT	VARIES	3.62	6.50	9.00	1.20%
F3	30+38.37	26.00LT	4.50	2.32	9.0	6.50	1.95%
F4	31+20.80	26.00LT	4.50	2.33	9.0	6.50	1.95%
F5	31+62.14	15.31RT	6.00	4.00	6.50	9.00	1.27%
F6	32+03.64	18.92RT	VARIES	4.73	6.50	8.00	1.87%
F7	30+62.48	16.70RT	6.00	3.86	6.50	9.00	1.96%
F8	36+04.86	26.00LT	VARIES	5.21	6.50	15.00	0.57%
F10	60+03.51	28.42RT	9.50	5.86	6.50	6.50	0.72%
F11	61+48.26	29.00RT	8.50	5.00	6.50	7.66	0.20%
F14	22+95.61	34.00RT	8.50	5.00	9.00	6.50	1.52%
F15	23+35.07	34.00RT	8.50	5.00	7.66	6.50	0.72%
F16	32+53.09	28.80RT	8.50	5.00	6.50	11.00	2.36%
F17	LEXINGTON ST. 01+62.94	15.00RT	10.00	7.00	7.66	6.50	0.35%
F18	LEXINGTON ST. 03+04.00	15.00RT	10.00	7.00	3.25***	7.0***	3.93%
F19	60+24.66	28.93LT	VARIES	5.00	6.50	N/A	0.59%
F20	59+99.76	29.00LT	VARIES	5.00	N/A	6.50	1.05%
F22	62+86.10	29.02RT	8.50	5.00	6.50	7.66	0.17%
F23	63+70.20	29.00RT	8.50	5.00	N/A	7.66	0.38%
F24	63+96.06	29.00RT	8.50	5.00	6.50	N/A	0.83%
F25	64+73.69	29.00RT	8.50	5.00	7.66	6.50	0.60%
F26	68+35.57	29.00LT	8.50	5.00	6.50	N/A	3.00%
F27	68+80.88	29.00LT	8.50	5.00	N/A	15.0	4.41%
F28	COMMON ST. 01+67.27	22.00LT	8.00	5.00	6.50	15.0	2.11%
F29	91+42.68	29.00RT	8.50	5.00	9.00	6.50	1.47%
F30	91+79.50	28.66RT	8.50	5.00	7.66	6.50	0.96%
F31	91+36.77	29.00LT	8.50	5.00	6.50	7.66	0.08%
F32	94+65.35	29.02RT	8.50	5.00	7.66	6.50	0.20%
F33	99+07.53	29.00LT	8.50	5.00	9.00	6.50	1.37%
F34	102+78.62	29.00LT	8.50	5.00	11.00	6.50	2.61%
F35	109+40.20	29.00LT	8.50	5.00	14.00	6.50	3.98%
F36	114+45.03	29.43LT	8.50	5.00	14.00	6.50	3.37%
F37	124+61.87	33.50LT	9.00	6.00	11.00	5.41***	2.90%
F38	125+17.37	33.50LT	9.00	6.00	9.17***	3.25***	2.25%
F39	127+11.83	24.50RT	8.00	5.00	6.50	11.00	2.41%
F40	137+19.44	34.00RT	8.00	5.00	7.66	6.50	0.88%
F41	137+36.04	25.08LT	8.50	5.50	7.66	6.50	0.27%
F42	142+63.94	28.50RT	9.00	6.00	6.50	7.66	0.95%
F43	140+09.12	28.51RT	9.25	6.25	7.66	6.50	0.04%

SIDEWALK THROUGH DRIVEWAYS W/ WIDE BUFFER – TYPE R



NOTES:

- * CONSTRUCTION TOLERANCE ± 0.5%
- ** SEE CONSTRUCTION STANDARD E 107.8.0 AND 107.9.0 WHERE ABUTTING AREA NOT GRASS

DRIVEWAY #	DRIVEWAY REFERENCE POINT		WIDTH OF SIDEWALK	WIDTH OF TRAVEL PATH ACROSS OPENING	LEFT SIDE TRANSITION LENGTH	RIGHT SIDE TRANSITION LENGTH	ROADWAY GUTTER SLOPE
	STATION	OFFSET					
R1	43+60.56	28.37RT	VARIES	5.00	N/A	6.50	0.15%
R2	45+23.95	25.00RT	12.50	5.00	6.50	6.50	1.37%
R3	45+17.10	25.00LT	12.50	5.00	6.50	6.50	1.41%
R4	45+89.11	25.00LT	12.50	5.00	6.50	6.50	1.87%
R5	46+92.50	25.00LT	12.50	5.00	6.50	6.50	1.59%
R6	46+73.57	25.00RT	VARIES	VARIES	6.50	6.50	0.38%
R7	47+54.67	25.00RT	VARIES	5.00	9.0	6.50	2.59%
R8	48+62.27	25.00RT	12.50	5.00	6.50	6.50	1.25%
R9	50+29.71	25.00LT	12.50	5.00	6.50	6.50	3.12%
R10	50+90.70	25.00LT	12.50	5.00	6.50	6.50	2.38%
R11	51+16.03	25.00LT	12.50	5.00	6.50	6.50	0.48%
R12	51+50.67	25.00RT	12.50	5.00	11.0	6.50	2.36%
R13	52+25.02	25.00LT	12.50	5.00	6.50	6.50	1.16%
R14	57+70.84	25.00LT	12.50	5.00	7.66	6.50	0.74%
R15	57+53.01	25.40RT	12.50	7.50	N/A	7.66	0.57%
R16	57+97.25	25.73RT	12.50	7.50	N/A	N/A	2.73%
R17	58+31.03	25.00LT	12.50	5.00	6.50	6.50	1.09%
R18	58+96.47	25.10LT	VARIES	5.00	6.50	6.50	0.60%
R19	59+31.48	27.27RT	10.50	7.50	6.50	6.50	0.76%
R20	59+41.80	25.59LT	VARIES	5.00	6.50	6.50	0.23%
R21	59+84.98	26.45LT	VARIES	5.00	6.50	6.50	0.41%
R22	60+28.84	27.69LT	VARIES	5.00	6.50	6.50	0.79%
R23	75+84.02	25.96LT	VARIES	5.00	6.50	6.50	4.29%
R24	76+52.83	25.00LT	12.50	5.00	6.50	6.50	3.46%
R25	77+56.96	25.00LT	12.50	5.00	6.50	N/A	3.73%
R26	77+73.87	25.00LT	12.50	5.00	N/A	6.50	3.73%
R27	78+20.72	25.00LT	12.50	5.00	6.50	6.50	4.15%
R28	76+53.76	25.00RT	12.50	5.00	6.50	6.50	2.78%
R29	78+78.81	25.00LT	12.50	5.00	6.50	6.50	4.17%
R30	79+26.35	25.00RT	12.50	5.00	11.0	6.50	2.73%
R31	79+39.19	25.00LT	12.50	5.00	6.50	6.50	3.50%
R32	79+91.46	25.00RT	12.50	5.00	6.50	6.50	4.08%
R33	79+97.60	25.00LT	12.50	5.00	6.50	6.50	3.33%
R34	80+87.23	25.00LT	12.50	5.00	6.50	6.50	3.30%
R35	81+20.20	25.00RT	12.50	5.00	6.50	6.50	4.11%
R36	81+51.42	25.10LT	12.50	5.00	6.50	6.50	3.33%
R37	81+84.20	25.69RT	12.50	5.00	6.50	6.50	2.93%
R38	80+56.82	25.00RT	12.50	5.00	6.50	6.50	3.29%

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	195	214
PROJ. FILE NO. 604688			

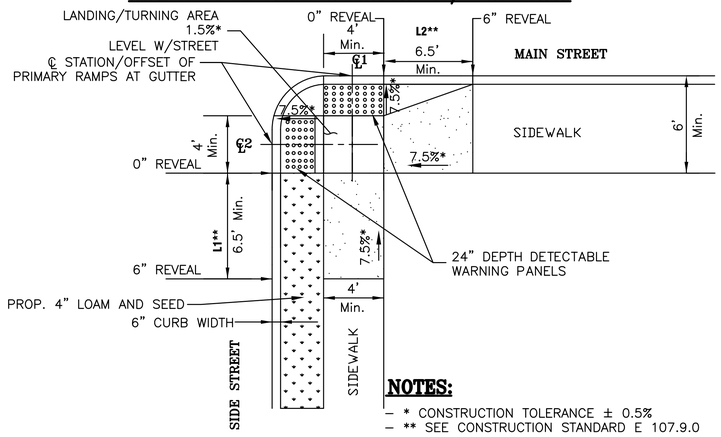
CONSTRUCTION DETAILS
WHEELCHAIR RAMPS

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	196	214
PROJ. FILE NO. 604688			

CONSTRUCTION DETAILS
WHEELCHAIR RAMPS

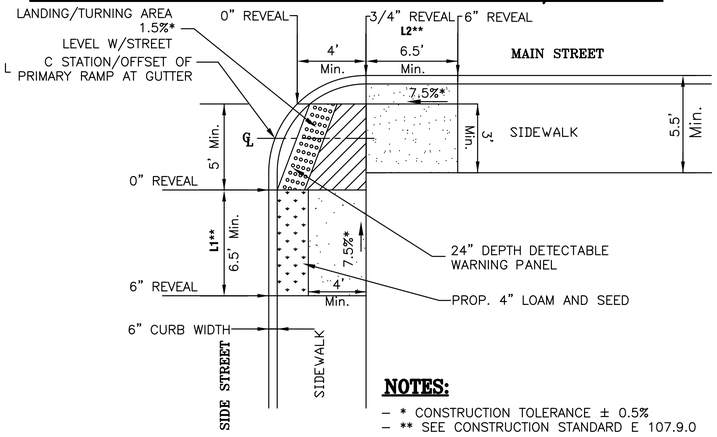
WHEELCHAIR RAMP
STYLE "J" – DOUBLE STREET CROSSING SERVING TWO SIDEWALK DIRECTIONS W/ GRASS



NOTES:
– * CONSTRUCTION TOLERANCE ± 0.5%
– ** SEE CONSTRUCTION STANDARD E 107.9.0

WCR #	℄1 RAMP REFERENCE POINT (STATION/OFFSET) Ref Street for Centerline	℄2 RAMP REFERENCE POINT (STATION/OFFSET) Ref Street for Centerline	RAMP 1 WIDTH	RAMP 2 WIDTH	ROADWAY 1 WIDTH OF SIDEWALK	TRANSITION 1		ROADWAY 2 WIDTH OF SIDEWALK	TRANSITION 2	
						GUTTER GRADE	L1		GUTTER GRADE	L2
J1	121+71.42/26.50RT	121+77.03/31.02RT	5.13	5.0	6.5	4.83	15.0	N/A	1.28	9.0

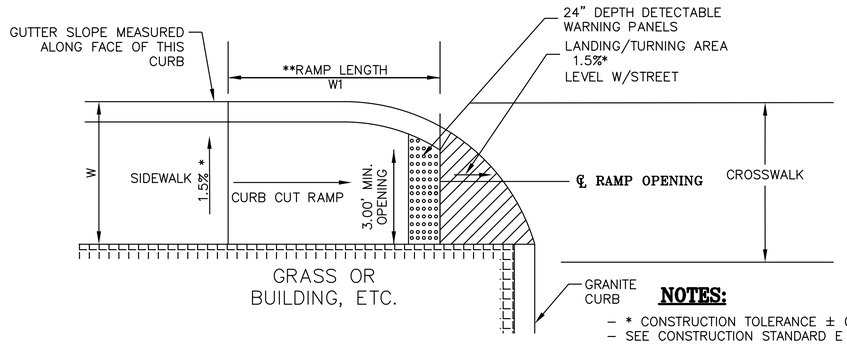
WHEELCHAIR RAMP
STYLE "K" – DIRECTIONAL SINGLE STREET CROSSING SERVING TWO SIDEWALK DIRECTIONS W/ GRASS



NOTES:
– * CONSTRUCTION TOLERANCE ± 0.5%
– ** SEE CONSTRUCTION STANDARD E 107.9.0

WCR #	℄ RAMP REFERENCE POINT (STATION/OFFSET) Ref Street for Centerline	LEVEL LANDING LENGTH	RAMP WIDTH	ROADWAY 1 WIDTH OF SIDEWALK	TRANSITION 1		ROADWAY 2 WIDTH OF SIDEWALK	TRANSITION 2	
					GUTTER GRADE	L1		GUTTER GRADE	L2
K1	124+08.67/29.98RT	7.45	5.00	8.05	N/A	6.5	7.50	4.74	15.0
K2	126+44.89/30.00RT	8.45	5.00	9.17	3.73	14.0	7.50	N/A	6.50

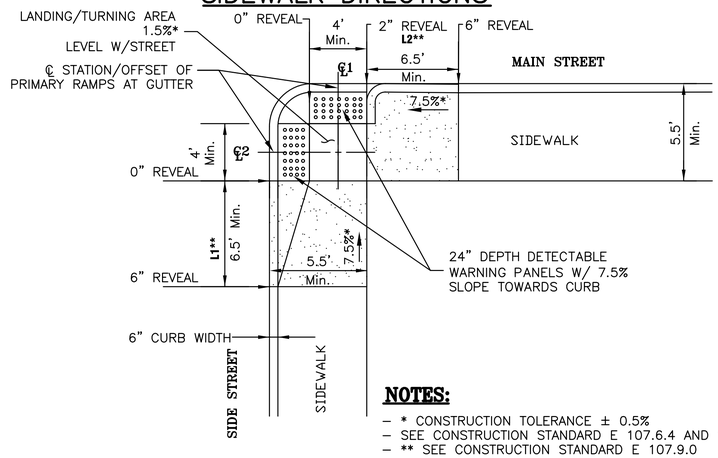
WHEELCHAIR RAMP
STYLE "H" – SINGLE DIRECTION WITH LEVEL ENTRANCE



NOTES:
– * CONSTRUCTION TOLERANCE ± 0.5%
– SEE CONSTRUCTION STANDARD E 107.6.0
– ** SEE CONSTRUCTION STANDARD E 107.9.0

WCR #	℄ RAMP REFERENCE POINT (STATION/OFFSET) Ref Street for Centerline	WIDTH OF SIDEWALK W	WIDTH OF OPENING	ROADWAY GUTTER SLOPE (%)	LENGTH OF RAMP (W1)
H1	25+50.51/40.00RT	8.5	8.5	2.58	6.42
H2	N. COMMON ST. 5+23.06/22.79RT	9.5	9.5	1.16	9.00
H3	100+50.27/96.19RT	4.20	4.20	2.24	7.57
H4	100+62.29/76.14RT	4.39	4.39	1.84	7.60
H5	102+57.19/42.75RT	7.5	7.5	0.59	7.66
H6	102+89.52/42.17RT	7.5	7.5	1.96	6.50
H7	120+37.93/28.98RT	5.5	5.0	4.90	7.5**
H8	Church St. 3+11.39/26.09RT	10.0	5.0	N/A	8.65
H9	Church St. 2+87.39/26.06RT	10.0	5.0	N/A	8.33
H10	Church St. 1+52.38/25.97RT	10.0	5.0	N/A	8.62
H11	Church St. 1+28.36/25.94RT	10.0	5.0	N/A	8.74

WHEELCHAIR RAMP
STYLE "E" – DOUBLE STREET CROSSING SERVING TWO SIDEWALK DIRECTIONS



NOTES:
– * CONSTRUCTION TOLERANCE ± 0.5%
– SEE CONSTRUCTION STANDARD E 107.6.4 AND 107.6.5
– ** SEE CONSTRUCTION STANDARD E 107.9.0

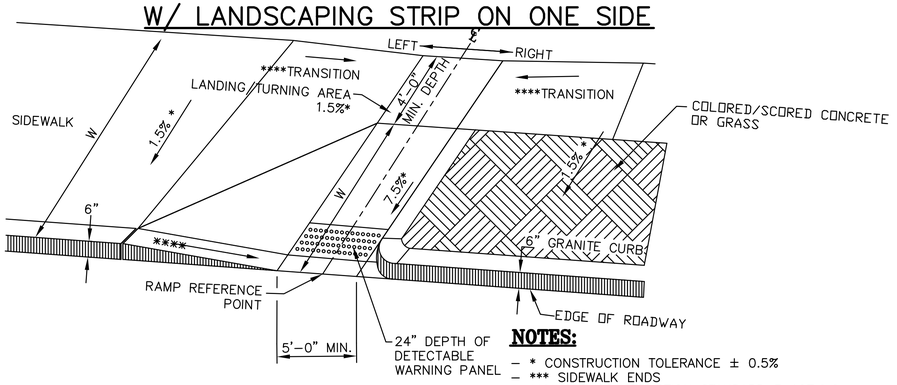
WCR #	℄1 RAMP REFERENCE POINT (STATION/OFFSET) Ref Street for Centerline	℄2 RAMP REFERENCE POINT (STATION/OFFSET) Ref Street for Centerline	RAMP 1 WIDTH	RAMP 2 WIDTH	ROADWAY 1 WIDTH OF SIDEWALK	TRANSITION 1		ROADWAY 2 WIDTH OF SIDEWALK	TRANSITION 2	
						GUTTER GRADE	L1		GUTTER GRADE	L2
E1	LEXINGTON ST. 4+02.56/15.72RT	LEXINGTON ST. 04+07.77/22.10RT	5.0	5.0	10.0	2.14	11.0	8.0	2.13	11.00
E3	125+81.99/39.25LT	125+87.36/33.50LT	6.5	5.0	9.0	2.34	6.50	6.75	2.41	11.00

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	197	214
PROJ. FILE NO. 604688			

CONSTRUCTION DETAILS
WHEELCHAIR RAMPS

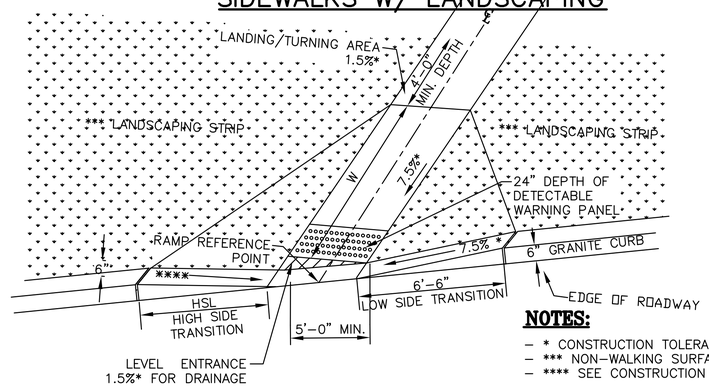
WHEELCHAIR RAMP
STYLE "M" – PERPENDICULAR RAMP FOR WIDE SIDEWALKS W/ LANDSCAPING STRIP ON ONE SIDE



NOTES:
– * CONSTRUCTION TOLERANCE ± 0.5%
– *** SIDEWALK ENDS
– **** SEE CONSTRUCTION STANDARD E 107.9.0

WCR #	℄ RAMP REFERENCE POINT (STATION/OFFSET) Ref Street for Centerline	WIDTH OF SIDEWALK (W)	LENGTH OF PRIMARY RAMP (W1)	WIDTH OF PRIMARY RAMP (W1)	DEPTH OF LEVEL LANDING Min. 4'–0"	TRANSITION LENGTH AND ROADWAY GUTTER SLOPE (%)			
						LEFT SIDE		RIGHT SIDE	
						L	%	L	%
M1	N. COMMON ST. 4+76.16/27.99RT	12.00	8.00	5.0	4.0	7.66	0.30	6.5	0.61
M2	117+78.97/41.39RT	9.5	5.82	5.0	4.0	11.0	2.78	6.5	N/A
M3	128+37.56/38.70RT	7.5	4.40	5.0	4.0	6.5	N/A	9.0	1.88
M4	130+63.25/39.25RT	7.0	2.82	5.0	4.0	14.0	3.36	6.5	N/A
M5	130+94.88/38.84RT	7.5	5.24	5.0	4.01	6.5	N/A	15.0	4.27
M6	140+93.83/35.50LT	VARIES	3.26	5.0	3.22	6.5	N/A	N/A	N/A
M7	142+07.16/38.06RT	8.0	5.49	5.0	4.0	6.5	N/A	11.0	2.27
M8	141+71.98/36.72RT	VARIES	10.98	5.0	4.0	N/A	N/A	9.0	1.27
M9	CHURCH ST. 3+88.07/22.00LT	11.7	7.66	5.0	4.0	7.67	0.49	6.5	N/A
M10	71+35.37/42.68LT	VARIES	3.45	5.0	4.0	6.5	N/A	15.0	6.18
M11	74+16.31/39.68LT	8.5	4.30	5.0	4.05	14.0	3.50	11.0	2.79
M12	84+15.92/43.51RT	VARIES	6.94	5.0	4.99	7.66	0.51	7.66	0.14
M13	115+48.58/45.00LT	7.5	3.29	5.0	4.03	14.0	3.24	6.5	N/A
M14	117+40.76/46.83LT	7.5	3.64	5.0	4.0	14.0	3.91	6.5	N/A
M15	135+42.95/48.10RT	7.5	4.74	5.0	4.0	6.5	N/A	9.0	1.31

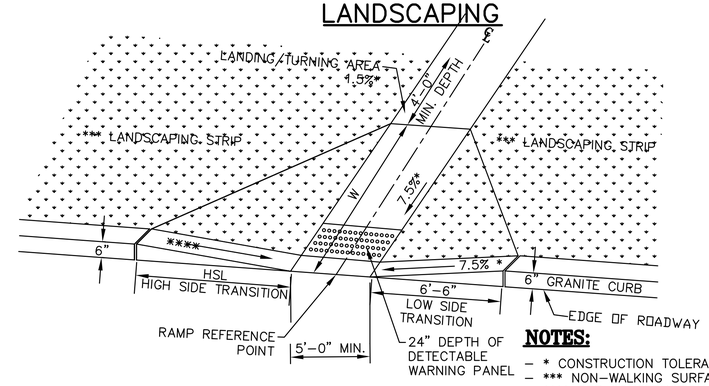
WHEELCHAIR RAMP
STYLE "N" – DIRECTIONAL PERPENDICULAR RAMP FOR SIDEWALKS W/ LANDSCAPING



NOTES:
– * CONSTRUCTION TOLERANCE ± 0.5%
– *** NON–WALKING SURFACE
– **** SEE CONSTRUCTION STANDARD E 107.9.0

WCR #	℄ RAMP REFERENCE POINT (STATION/OFFSET) Ref Street for Centerline	WIDTH OF SIDEWALK (W)	LENGTH OF PRIMARY RAMP (W1)	WIDTH OF PRIMARY RAMP (W1)	DEPTH OF LEVEL LANDING Min. 4'–0"	TRANSITION LENGTH AND ROADWAY GUTTER SLOPE (%)			
						LEFT SIDE		RIGHT SIDE	
						L	%	L	%
N1	18+58.72/41.02LT	6.0	8.00	6.0	4.0	6.5	N/A	6.5	N/A
N2	34+26.72/54.78RT	5.0	12.92	5.0	4.0	6.5	N/A	6.5	N/A
N3	119+11.92/32.09RT	N/A	7.0	5.0	4.0	6.5	N/A	9.0	1.36

WHEELCHAIR RAMP
STYLE "P" – PERPENDICULAR RAMP FOR SIDEWALKS W/ LANDSCAPING



NOTES:
– * CONSTRUCTION TOLERANCE ± 0.5%
– *** NON–WALKING SURFACE
– **** SEE CONSTRUCTION STANDARD E 107.9.0

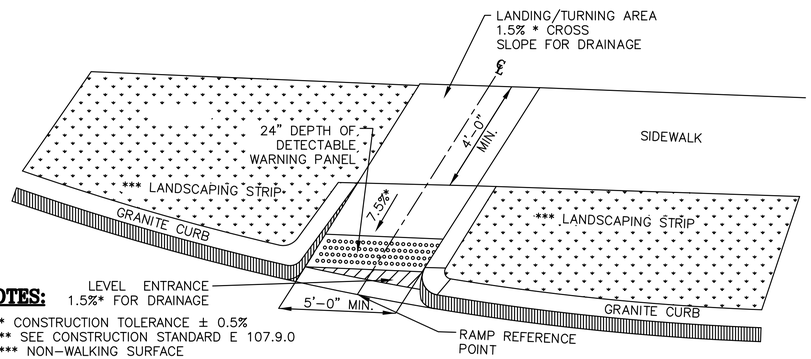
WCR #	℄ RAMP REFERENCE POINT (STATION/OFFSET) Ref Street for Centerline	WIDTH OF SIDEWALK (W)	LENGTH OF PRIMARY RAMP (W1)	WIDTH OF PRIMARY RAMP (W1)	DEPTH OF LEVEL LANDING Min. 4'–0"	TRANSITION LENGTH AND ROADWAY GUTTER SLOPE (%)			
						LEFT SIDE		RIGHT SIDE	
						L	%	L	%
P1	18+07.66/47.55LT	6.0	11.00	6.0	4.0	6.5	N/A*	6.5	N/A*
P2	34+77.79/49.52RT	5.0	8.00	5.0	4.0	6.5	N/A	6.5	N/A
P3	63+34.28/23.00RT	14.5	7.66	5.0	6.84	6.5	N/A	7.66	0.24

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	198	214
PROJ. FILE NO. 604688			

CONSTRUCTION DETAILS
WHEELCHAIR RAMPS

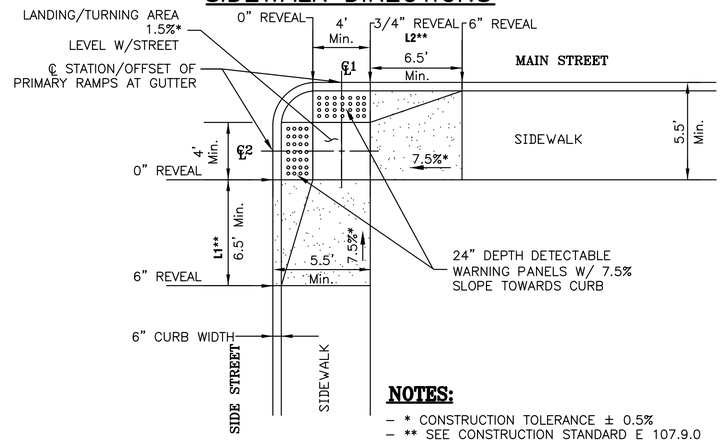
WHEELCHAIR RAMP
STYLE "S" – DIRECTIONAL PARALLEL PERPENDICULAR W/ LANDSCAPING STRIPS



NOTES:
– * CONSTRUCTION TOLERANCE ± 0.5%
– ** SEE CONSTRUCTION STANDARD E 107.9.0
– *** NON–WALKING SURFACE

WCR #	℄ RAMP REFERENCE POINT (STATION/OFFSET) Ref Street for Centerline	WIDTH OF SIDEWALK W	WIDTH OF OPENING	ROADWAY GUTTER SLOPE (%)	LENGTH OF RAMP (W1)
S1	92+83.36/35.54LT	VARIES	5.00	0.30	7.66
S2	67+34.53/40.21LT	VARIES	8.0	2.43	11.0
S3	86+66.02/36.97LT	N/A	8.0	3.67	5.00
S4	86+92.34/36.62LT	N/A	8.0	0.67	2.00
S5	86+83.43/23.00LT	N/A	8.0	1.04	7.60

WHEELCHAIR RAMP
STYLE "T" – DOUBLE STREET CROSSING SERVING TWO SIDEWALK DIRECTIONS



NOTES:
– * CONSTRUCTION TOLERANCE ± 0.5%
– ** SEE CONSTRUCTION STANDARD E 107.9.0

WCR #	℄1 RAMP REFERENCE POINT (STATION/OFFSET) Ref Street for Centerline	℄2 RAMP REFERENCE POINT (STATION/OFFSET) Ref Street for Centerline	RAMP 1 WIDTH	RAMP 2 WIDTH	ROADWAY 1 WIDTH OF SIDEWALK	TRANSITION 1		ROADWAY 2 WIDTH OF SIDEWALK	TRANSITION 2	
						GUTTER GRADE	L1		GUTTER GRADE	L2
T1	131+19.93/34.00LT	131+14.82/40.02LT	5.0	5.0	7.5	N/A	6.5	8.0	N/A	6.5

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

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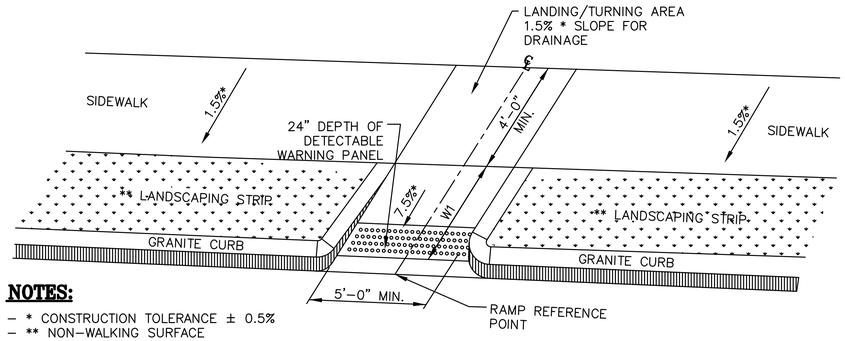
MASS.	xxxxx	199	214
PROJ. FILE NO. 604688			

CONSTRUCTION DETAILS
WHEELCHAIR RAMPS

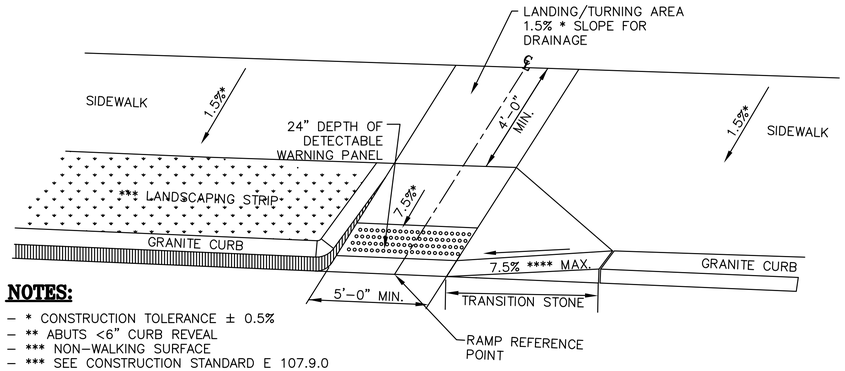
WHEELCHAIR RAMP
STYLE "U" – PERPENDICULAR W/ LANDSCAPING STRIP



NOTES:
– * CONSTRUCTION TOLERANCE ± 0.5%
– ** NON–WALKING SURFACE

WCR #	℄ RAMP REFERENCE POINT (STATION/OFFSET) Ref Street for Centerline	WIDTH OF SIDEWALK W	WIDTH OF OPENING	ROADWAY GUTTER SLOPE (%)	LENGTH OF RAMP (W1)
U1	19+36.95/26.00RT	5.0	8.0	1.85	9.03
U2	43+99.73/19.60LT	VARIES	8.0	1.16	13.46
U3	48+5.26/18.57LT	VARIES	8.0	1.07	12.93
U4	48+26.80/33.56LT	VARIES	8.0	0.31	11.54
U5	71+76.77/23.00LT	8.5	8.0	6.68	9.51
U6	78+05.50/25.00LT	12.5	5.0	4.11	6.5
U7	92+62.30/23.01LT	VARIES	8.0	4.12	10.13
U8	92+62.22/23.00RT	VARIES	8.0	0.22	8.53
U9	113+93.89/22.58LT	VARIES	8.0	2.96	10.17
U10	48+5.26/18.00RT	VARIES	8.0	1.67	9.71
U11	19+37.45/25.00LT	6.0	6.0	1.65	7.91
U12	19+25.02/35.42LT	5.0	5.0	0.00	9.43
U13	19+38.40/40.71LT	6.0	6.0	1.23	4.05
U14	29+20.68/42.07LT	6.0	6.0	0.30	6.86
U15	29+24.11/27.51LT	6.0	6.0	1.43	4.28
U16	29+42.60/37.28LT	6.0	6.0	3.17	12.13

WHEELCHAIR RAMP
STYLE "V" – PERPENDICULAR W/ LANDSCAPING STRIP ON ONE SIDE



NOTES:
– * CONSTRUCTION TOLERANCE ± 0.5%
– ** ABUTS <6" CURB REVEAL
– *** NON–WALKING SURFACE
– *** SEE CONSTRUCTION STANDARD E 107.9.0

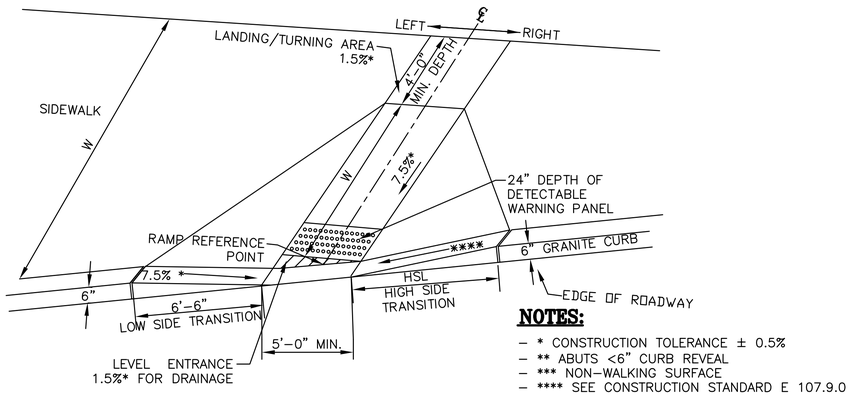
WCR #	C RAMP REFERENCE POINT (STATION/OFFSET) Ref Street for Centerline	WIDTH OF SIDEWALK (W)	LENGTH OF PRIMARY RAMP (W1)	WIDTH OF PRIMARY RAMP	DEPTH OF LEVEL LANDING Min. 4'–0"	TRANSITION LENGTH AND ROADWAY GUTTER SLOPE (%)			
						LEFT SIDE		RIGHT SIDE	
						L	%	L	%
V1	43+97.15/21.14RT	VARIES	11.30	8.0	5.86	N/A	N/A	8.61	N/A
V2	46+35.72/35.90RT	VARIES	8.10	5.0	4.0	6.5	N/A	N/A	N/A
V4	HARRIET AVE. 1+19.79/31.45RT	VARIES	8.0	5.0	4.0	6.5	N/A	N/A	N/A
V5	87+03.78/23.00RT	VARIES	8.5	8.0	4.0	N/A	N/A	6.5	N/A
V6	87+45.22/43.62LT	VARIES	8	5.0	4.0	7.95	0.59	N/A	N/A
V7	87+76.62/52.79LT	VARIES	8.91	5.0	4.0	N/A	N/A	6.5	N/A
V8	88+03.33/53.00LT	VARIES	8.01	5.0	4.0	6.5	N/A	N/A	N/A
V9	113+93.97/23.84RT	VARIES	9.14	8.0	4.0	N/A	N/A	11.0	2.93
V10	88+26.65/23.00LT	VARIES	8.0	5.0	4.0	N/A	N/A	7.95	N/A
V11	99+94.48/35.13RT	VARIES	8.0	5.0	4.0	3.25**	N/A	15.0	4.13
V12	129+08.51/29.00LT	VARIES	11.14	5.0	4.0	11.0	2.89	6.5	N/A
V13	136+61.01/30.43RT	VARIES	8.35	8.0	4.0	N/A	N/A	3.25**	N/A
V14	135+75.32/56.55RT	VARIES	8.0	5.0	N/A	7.66	N/A	N/A	N/A

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	200	214
PROJ. FILE NO. 604688			

CONSTRUCTION DETAILS
WHEELCHAIR RAMPS

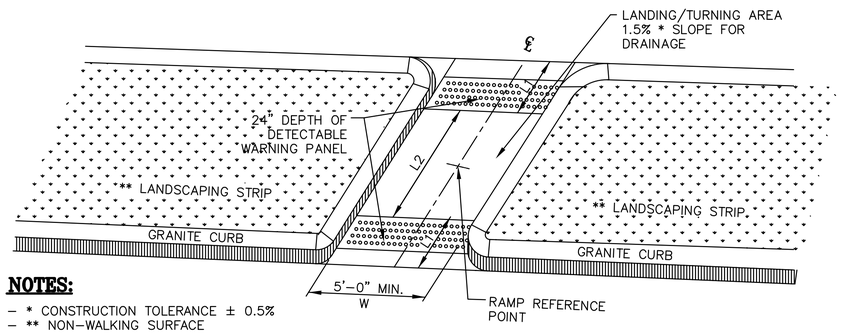
WHEELCHAIR RAMP
STYLE "W" – DIRECTIONAL RAMP FOR WIDE SIDEWALKS



NOTES:
- * CONSTRUCTION TOLERANCE ± 0.5%
- ** ABUTS <6" CURB REVEAL
- *** NON-WALKING SURFACE
- **** SEE CONSTRUCTION STANDARD E 107.9.0

WCR #	℄ RAMP REFERENCE POINT (STATION/OFFSET) Ref Street for Centerline	WIDTH OF SIDEWALK (W)	LENGTH OF PRIMARY RAMP (W1)	WIDTH OF PRIMARY RAMP (W1)	DEPTH OF LEVEL LANDING Min. 4'-0"	TRANSITION LENGTH AND ROADWAY GUTTER SLOPE (%)			
						LEFT SIDE		RIGHT SIDE	
						L	%	L	%
W1	71+21.90/35.00RT	VARIES	8.00	5.0	4.0	7.66	0.28	4.50**	1.34
W2	66+53.02/23.64LT	14.5	8.40	5.0	4.0	6.5	N/A	7.66	0.14
W3	53+51.64/31.30LT	16.2	9.00	5.0	4.0	6.5	N/A	7.66	0.45

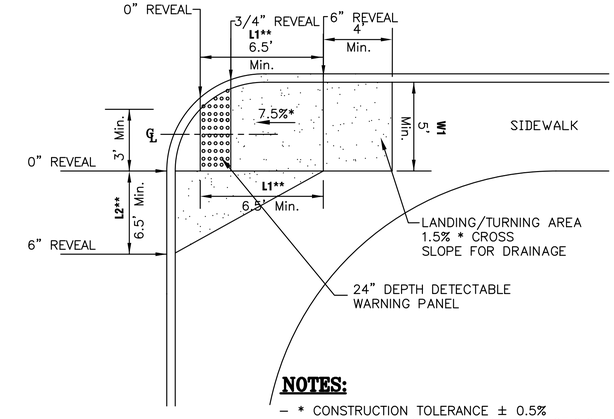
WHEELCHAIR RAMP
STYLE "X" – MEDIAN ISLAND CROSSINGS



NOTES:
- * CONSTRUCTION TOLERANCE ± 0.5%
- ** NON-WALKING SURFACE

WCR #	℄ RAMP REFERENCE POINT (STATION/OFFSET) Ref Street for Centerline	WIDTH OF OPENING (W)	LENGTH OF RAMP (L1)	LENGTH OF LANDING (L2)
X1	63+36.27/00.00	10.0	2.5	3.0
X2	107+65.16/01.50RT	10.0	3.0	4.0

WHEELCHAIR RAMP
STYLE "Y" – SINGLE STREET CROSSING SERVING TWO SIDEWALK DIRECTIONS



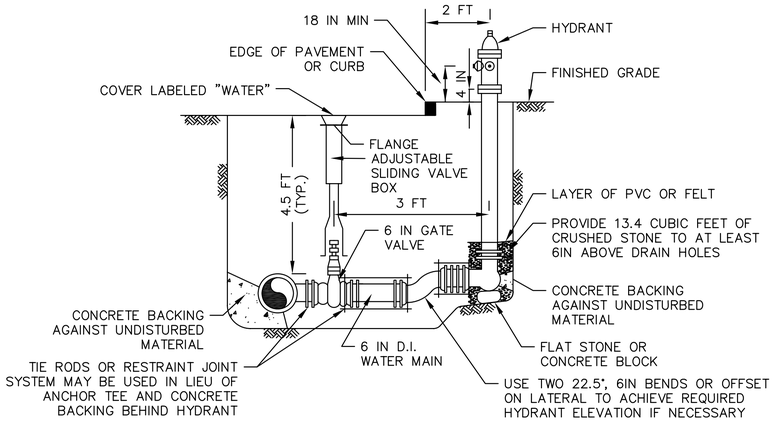
NOTES:
- * CONSTRUCTION TOLERANCE ± 0.5%
- ** SEE CONSTRUCTION STANDARD E 107.9.0

WCR #	℄ RAMP REFERENCE POINT (STATION/OFFSET) Ref Street for Centerline	LEVEL LANDING LENGTH	RAMP WIDTH	ROADWAY 1 WIDTH OF SIDEWALK	TRANSITION 1		ROADWAY 2 WIDTH OF SIDEWALK	TRANSITION 2	
					GUTTER GRADE	L1		GUTTER GRADE	L2
Y1	34+44.44/32.59LT	4.0	7.68	VARIES	2.13	9.0	VARIES	2.13	11.0
Y2	35+17.47/32.50LT	6.24	6.87	VARIES	0.31	7.66	VARIES	2.22	11.0

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

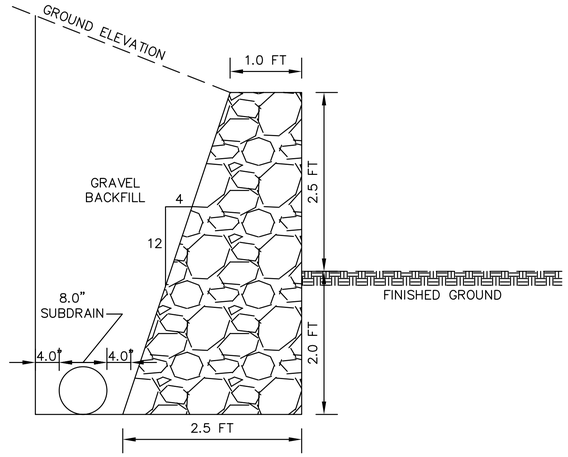
STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	201	214
PROJ. FILE NO. 604688			

CONSTRUCTION DETAILS
MISCELLANEOUS



HYDRANT AND VALVE DETAIL

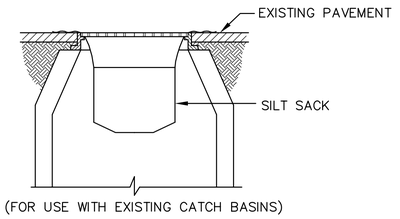
N.T.S.



NOTE: ALL CONCRETE DIMENSIONS SHOWN ARE MINIMUM.

CEMENTED STONE MASONRY WALL LOW

N.T.S.

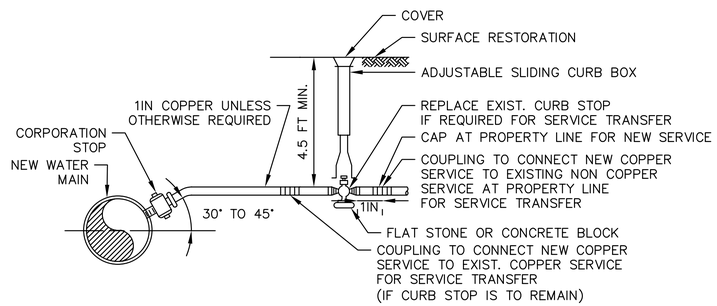


(FOR USE WITH EXISTING CATCH BASINS)

NOTE: SILT SACKS TO BE PLACED IN ALL CATCH BASINS IN THE VICINITY OF NEW CONSTRUCTION. CATCH BASINS ARE TO BE PROTECTED AS SHOWN, WITH MINIMUM WEEKLY MAINTENANCE, OR AS REQUIRED AND REPLACED IF NECESSARY.

SILT SACK INLET PROTECTION

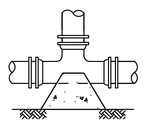
N.T.S.



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

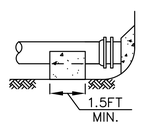
WATER SERVICE DETAIL

N.T.S.



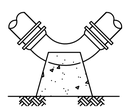
TEE DETAIL

PLAN VIEW
N.T.S.



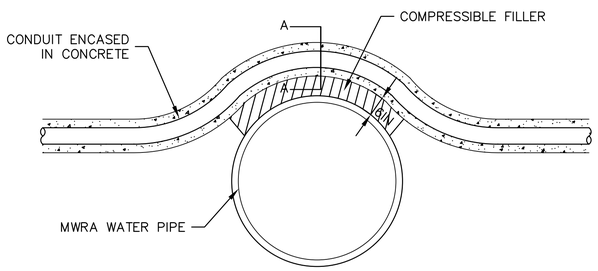
CAP DETAIL (PLUG SIMILAR)

SECTION VIEW
N.T.S



BEND DETAIL

PLAN VIEW
N.T.S.



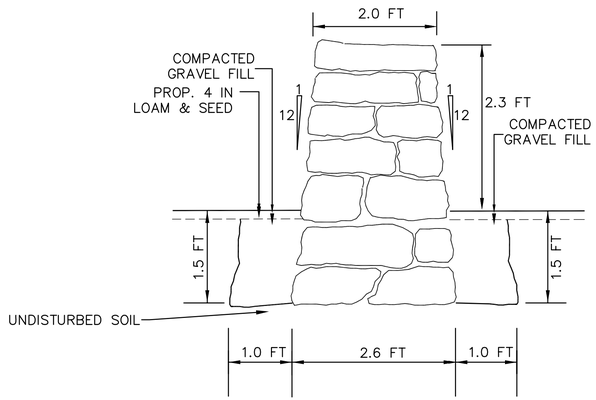
TYPICAL ELECTRICAL CONDUIT CROSSING OVER MWRA WATER PIPE

N.T.S.

2 CONDUIT SECTION

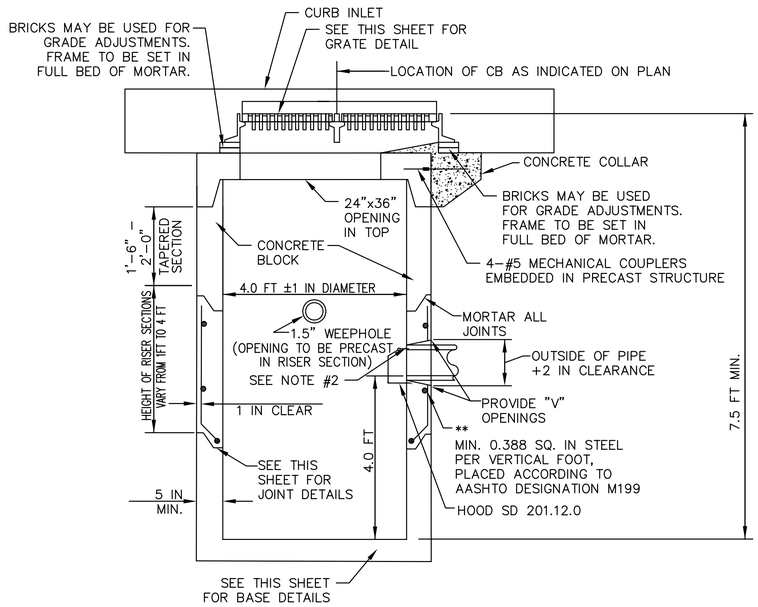
6 CONDUIT SECTION

SECTION A–A



CEMENTED STONE MASONRY WALL BALANCED

SCALE: NONE



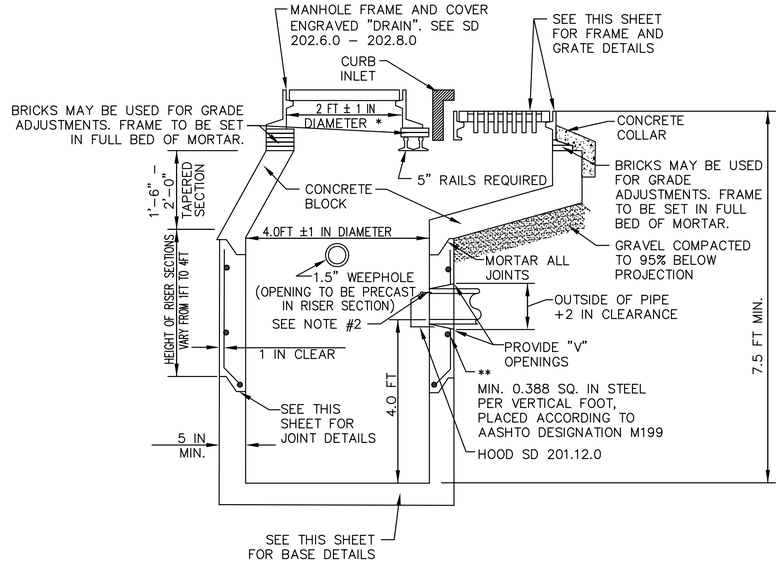
** REINFORCED STEEL BASED ON A WALL THICKNESS OF 5 IN.

NOTES:

1. DETAILS NOT INDICATED ABOVE ARE TO BE SIMILAR TO THOSE SHOWN ON 201.3.0
2. FACE OF PIPE FLUSH OR NOT TO PROJECT MORE THAN 4 IN FROM FACE OF WALL ALONG CENTERLINE OF PIPE.
3. FOR DESCRIPTION, MATERIALS AND CONSTRUCTION METHOD, SEE STANDARD SPECIFICATIONS.
4. ALL CONCRETE TO BE AIR ENTRAINED.
5. DESIGN TO CONFORM TO H.20 LOADING.

CATCH BASIN MUNICIPAL STANDARD TYPE 2

N.T.S.



** REINFORCED STEEL BASED ON A WALL THICKNESS OF 5 IN.

NOTES:

1. DETAILS NOT INDICATED ABOVE ARE TO BE SIMILAR TO THOSE SHOWN ON 201.3.0
2. FACE OF PIPE FLUSH OR NOT TO PROJECT MORE THAN 4 IN FROM FACE OF WALL ALONG CENTERLINE OF PIPE.
3. FOR DESCRIPTION, MATERIALS AND CONSTRUCTION METHOD, SEE STANDARD SPECIFICATIONS.
4. ALL CONCRETE TO BE AIR ENTRAINED.
5. DESIGN TO CONFORM TO H.20 LOADING.

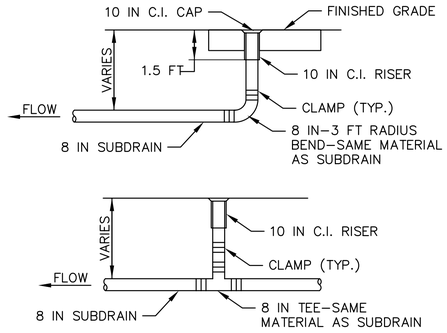
CATCH BASIN MUNICIPAL STANDARD TYPE 3

N.T.S.

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

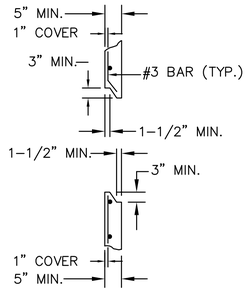
STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	202	214
PROJ. FILE NO. 604688			

CONSTRUCTION DETAILS
DRAINAGE DETAILS



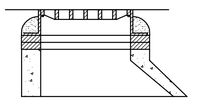
CLEANOUTS FOR 8–INCH SUBDRAIN

N.T.S.



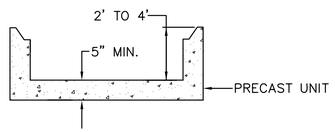
JOINT DETAILS

N.T.S.

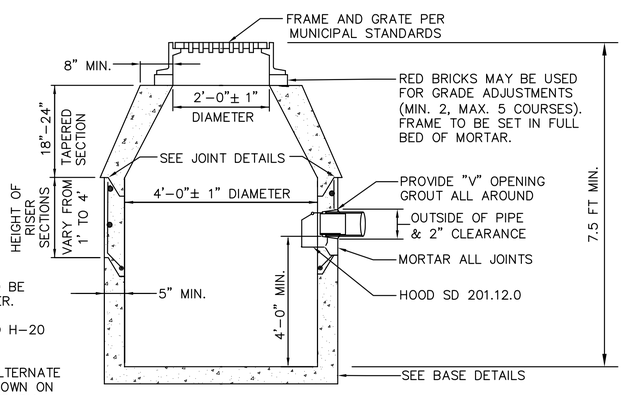


ALTERNATE ECCENTRIC CONE SECTION

ALTERNATE TOP SLAB



BASE DETAILS

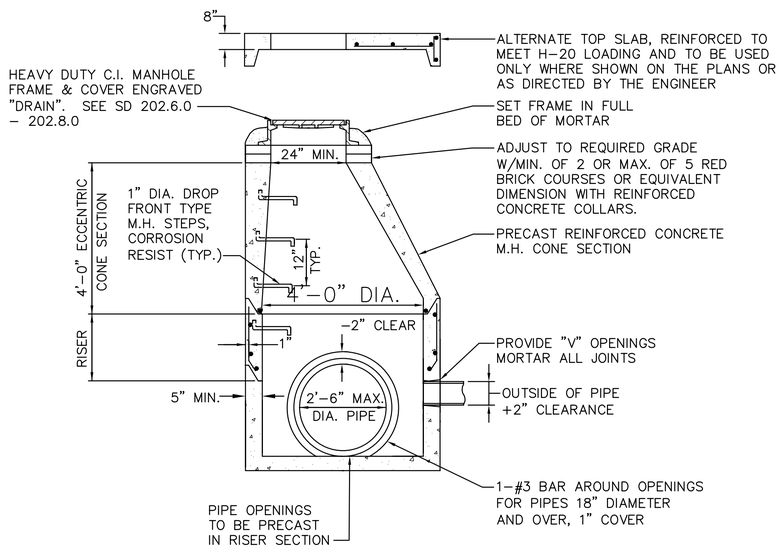


NOTES:

1. ALL PRECAST JOINTS TO BE SEALED WITH BUTYL RUBBER.
2. DESIGN TO CONFORM TO H–20 LOADING.
3. CONTRACTOR TO USE ALTERNATE TOP SLAB ONLY WHERE SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

CATCH BASIN MUNICIPAL STANDARD

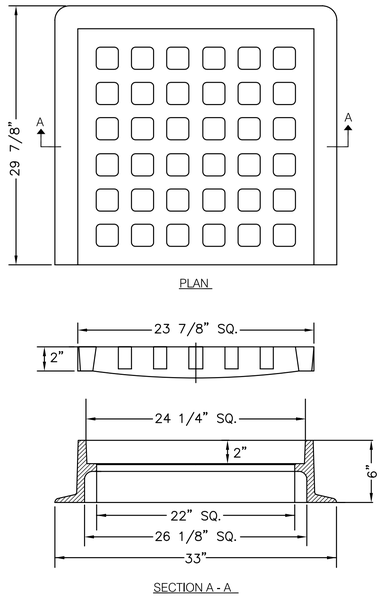
N.T.S.



NOTE:
PREFORMED BITUMASTIC SEALANT AS SPECIFIED. SHALL FILL AT LEAST 75% OF JOINT CAVITY. RUBBER OR "O" RING SET IN RECESS.

MANHOLE MUNICIPAL STANDARD

N.T.S.



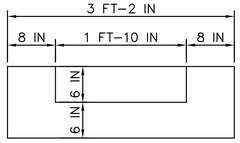
CATCH BASIN FRAME AND GRATE DETAIL

N.T.S.

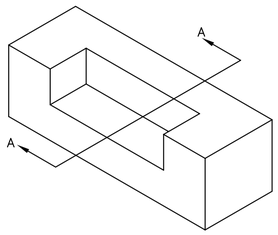
BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	203	214
PROJ. FILE NO. 604688			

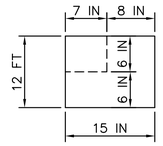
CONSTRUCTION DETAILS
DRAINAGE DETAILS



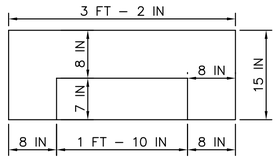
FRONT VIEW



ISOMETRIC VIEW

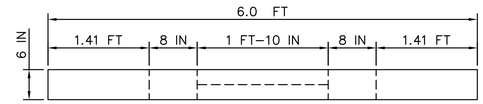


SECTION A–A

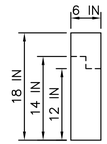


TOP VIEW

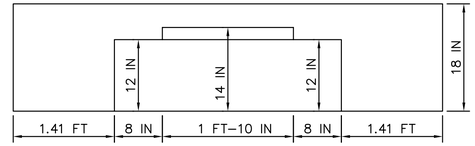
PRECAST CONCRETE THROAT OPENING



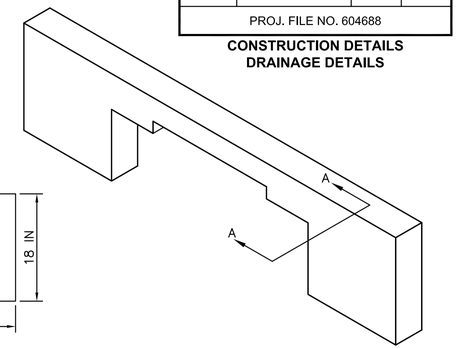
TOP VIEW



SECTION A–A

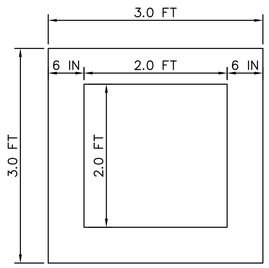


FRONT VIEW

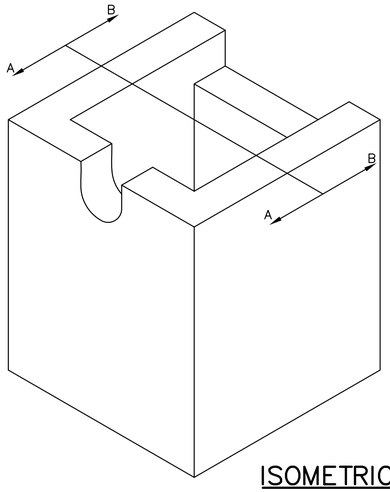


ISOMETRIC VIEW

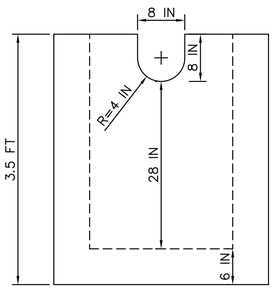
CURB INLET MUNICIPAL STANDARD



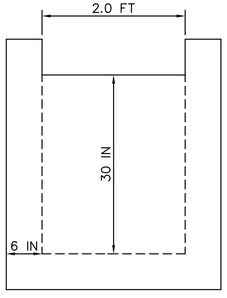
TOP VIEW



ISOMETRIC VIEW

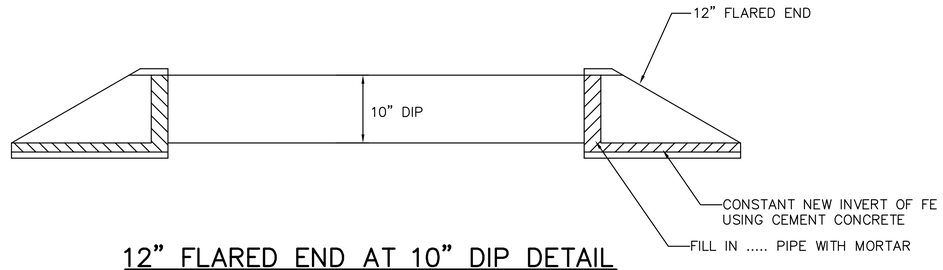


SECTION A–A



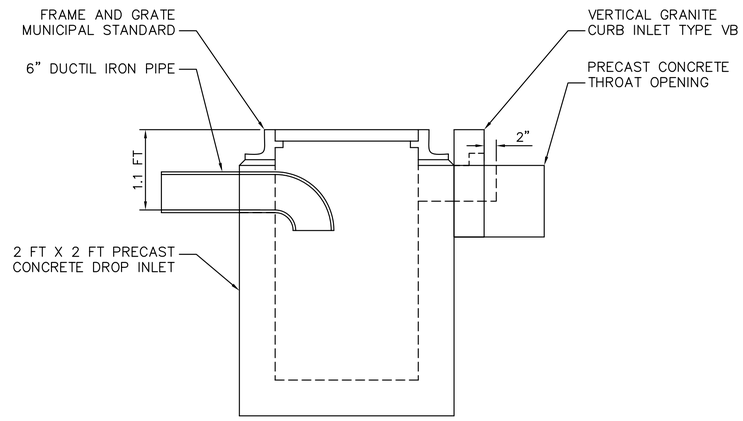
SECTION B–B

2 FT X 2FT DROP INLET



12" FLARED END AT 10" DIP DETAIL

N.T.S.



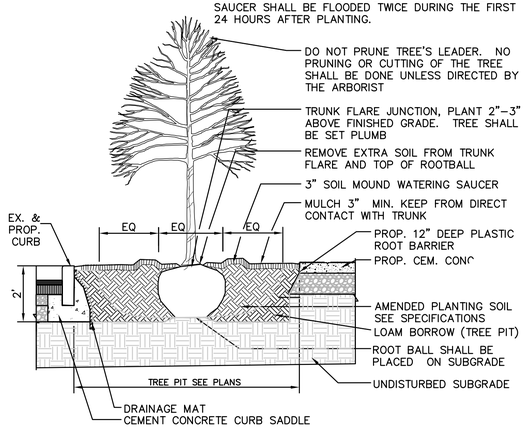
CATCH BASIN MUNICIPAL
STANDARD TYPE 4

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	204	214
PROJ. FILE NO. 604688			

CONSTRUCTION DETAILS
LANDSCAPE DETAILS

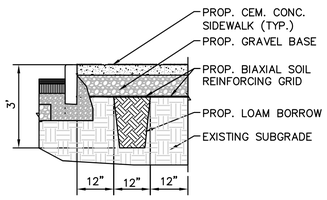
NOTES:
SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
SAUCER SHALL BE FLOODED TWICE DURING THE FIRST 24 HOURS AFTER PLANTING.



TREE PLANTING/ TREE PIT

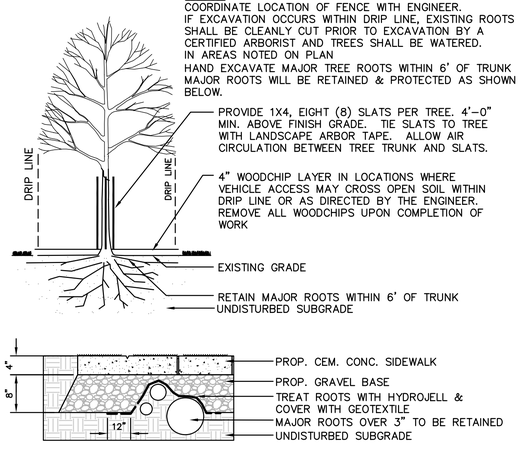
SCALE: NONE

NOTES:
DRAINAGE MAT, AND ROOT PATHS SHALL BE CONSTRUCTED PRIOR TO CONSTRUCTION OF THE SIDEWALK.
MODIFY DEPTH AND LOCATION OF ROOT PATHS TO ACCOMMODATE EXISTING UTILITIES.
TREE PITS SHALL RECEIVE EITHER LOAM & SEED OR MULCH SEE PLANS.



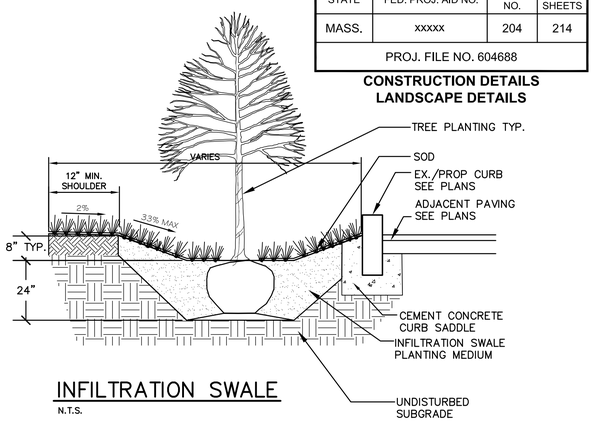
SECTION B–B

NOTES:
COORDINATE LOCATION OF FENCE WITH ENGINEER.
IF EXCAVATION OCCURS WITHIN DRIP LINE, EXISTING ROOTS SHALL BE CLEANLY CUT PRIOR TO EXCAVATION BY A CERTIFIED ARBORIST AND TREES SHALL BE WATERED.
IN AREAS NOTED ON PLAN
HAND EXCAVATE MAJOR TREE ROOTS WITHIN 6' OF TRUNK
MAJOR ROOTS WILL BE RETAINED & PROTECTED AS SHOWN BELOW.



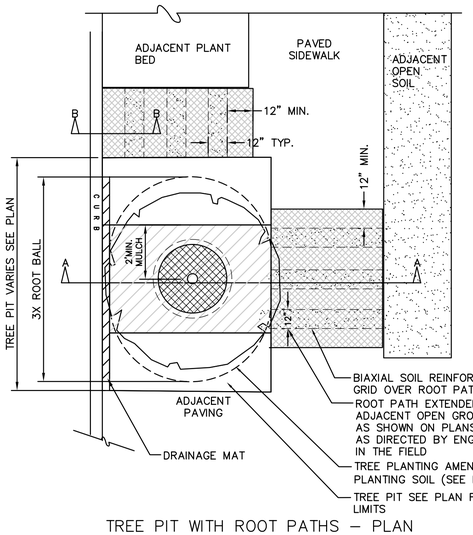
EXISTING TREE PROTECTION

SCALE: NONE

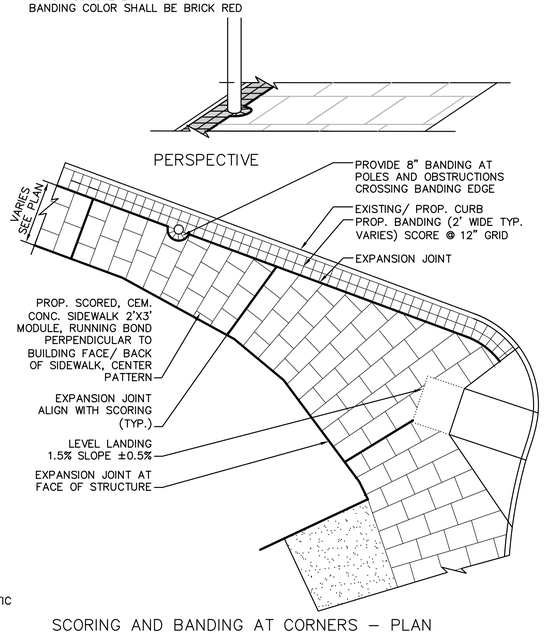


INFILTRATION SWALE

N.T.S.

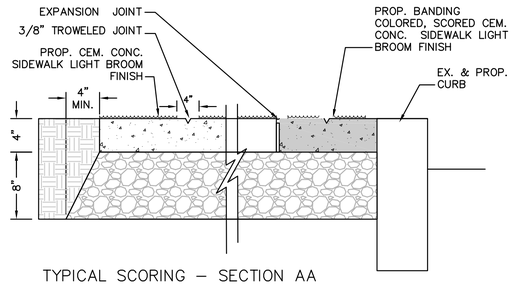


TREE PIT WITH ROOT PATHS – PLAN



SCORING AND BANDING AT CORNERS – PLAN

NOTES:
PROVIDE EXPANSION JOINT @ 20' O.C. MAX. BETWEEN WALK & BANDING AND AT FACE OF STRUCTURES EXPANSION JOINTS SHALL BE SEALED COLOR OF SEALANT TO MATCH CONCRETE.
BANDING COLOR SHALL BE BRICK RED

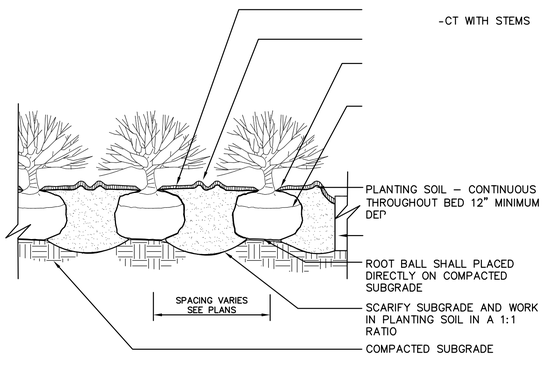


TYPICAL SCORING – SECTION AA

CEM. CONC. SIDEWALK SCORING AND BANDING

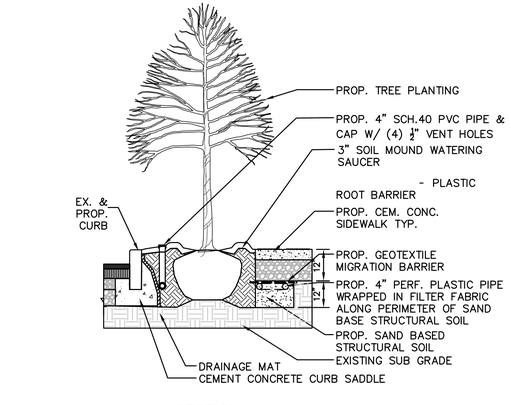
SCALE: NONE

SHRUB PLANTING NOTES:
1. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. NO PRUNING OR CUTTING UNLESS DIRECTED BY THE LANDSCAPE ARCHITECT.
3. SAUCER SHALL BE FLOODED TWICE DURING THE FIRST 24 HOURS AFTER PLANTING.
4. SHRUBS SHALL BE SET PLUMB AND PLANTED SO THAT THE TOP OF THE ROOTBALL IS 1"–2" ABOVE FINISHED GRADE.
5. FOR HEDGE PLANTING SHRUBS SHALL BE SPACED AS CALLED OUT ON PLANS AT QUANTITIES SUFICIENT TO PROVIDE COMPLETE COVERAGE OF AREA INDICATED



SHRUB PLANTING BED (HEDGE)

SCALE: NONE

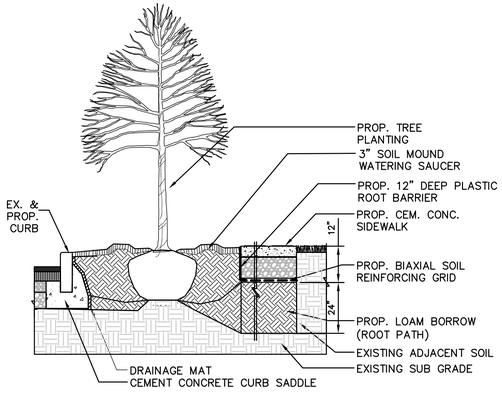


TREE PIT W/
STRUCTURAL SOIL – PLAN

SECTION A–A

STRUCTURAL SOIL (AT TREE PITS)

SCALE: NONE

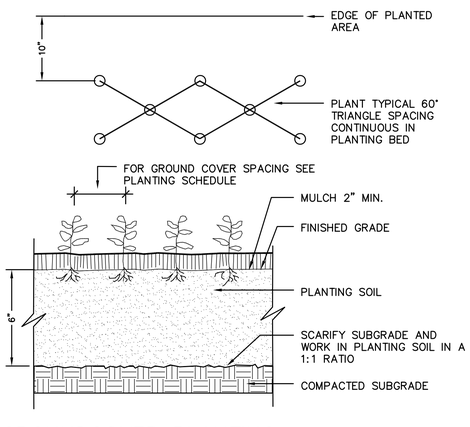


SECTION A–A

ROOT PATHS (AT TREE PIT)

SCALE: NONE

NOTES:
SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS



GROUNDCOVER PLANTING

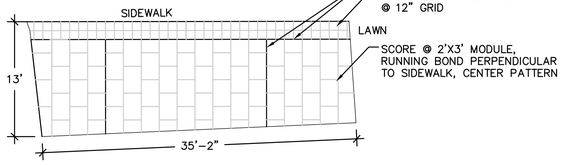
SCALE: NONE

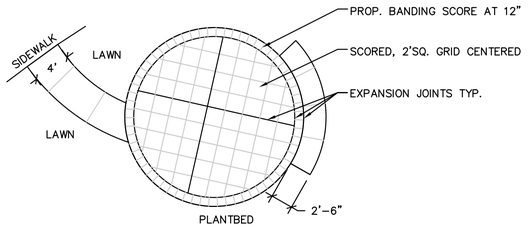
BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	205	214
PROJ. FILE NO. 604688			

CONSTRUCTION DETAILS
STREETSCAPE DETAILS

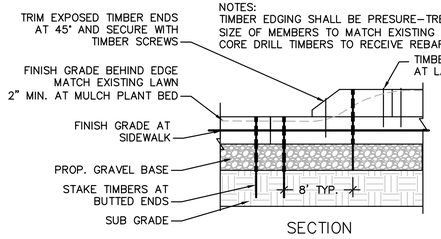
NOTES:
PATERN FOR COLORED SCORED CEMENT CONCRETE AT STATIONS 99+100 RIGHT



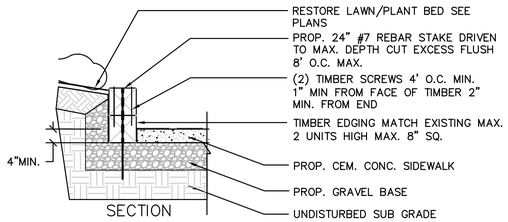


CUSTOM BANDING SCORING PATTERN AREAS
SCALE: NONE

NOTES:
TIMBER EDGING SHALL BE PRESURE-TREATED WOOD. SIZE OF MEMBERS TO MATCH EXISTING UP TO 8"SQ. CORE DRILL TIMBERS TO RECEIVE REBAR STAKES.



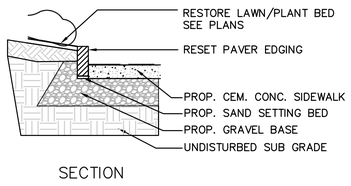
SECTION



SECTION

TIMBER EDGING
SCALE: NONE

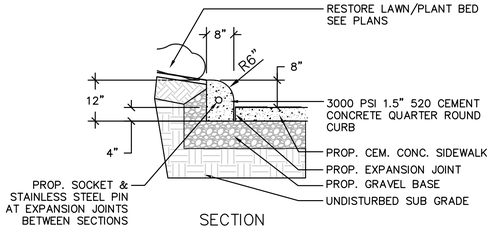
NOTES:
(PAVERS) INCLUDES LOOSE MODULAR BRICK, STONE, AND CONCRETE USED AS EDGING. STOCKPILE EXISTING PAVERS AND RESET TO REASONABLY MATCH ORIGINAL CONDITION.
FINISH GRADE BEHIND EDGE – MATCH EXISTING AT LAWN OR 2" MIN. AT MULCH PLANT BED.
WHERE EXISTING PAVERS ARE MISSING INSUFICIENT OR DETERIORATED THEY SHALL BE REPLACED IN KIND.
WHERE COMPARABLE PAVERS ARE UNAVAILABLE THE ENGINEER SHALL DETERMINE THE APPROPRIATE MATERIAL FOR REPLACEMENT.



SECTION

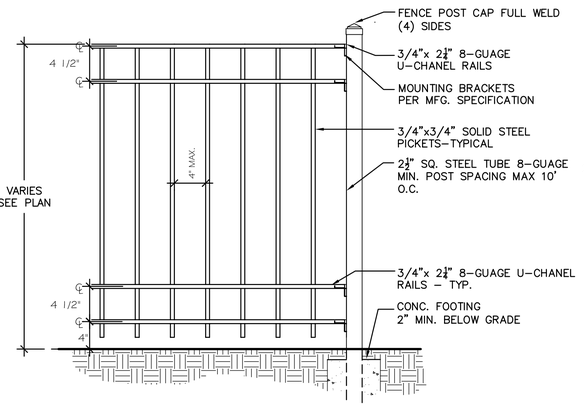
PAVER EDGING
SCALE: NONE

NOTES:
RADIAL CURB TO MATCH EXISTING VERIFY DIMENSIONS IN FIELD.
RADIAL CURB SHALL BE EXTRUDED OR PRECAST.
ALIGN JOINTS WITH SIDEWALK SCORING.
SAW CUT EXISTING CURB AT NEAREST JOINT.

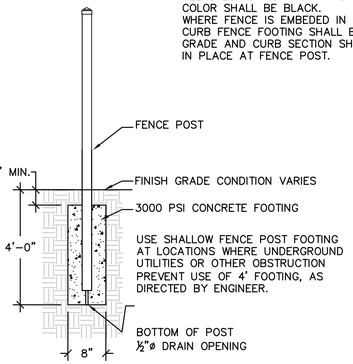


SECTION

CEMENT CONCRETE QUARTER ROUND CURB
SCALE: NONE



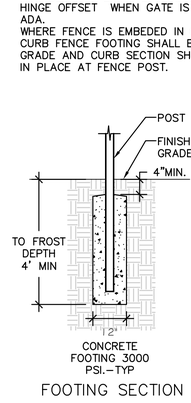
NOTE:
SEE SPECIFICATION FOR FINISH. COLOR SHALL BE BLACK.
WHERE FENCE IS EMBEDED IN CONCRETE CURB FENCE FOOTING SHALL BE SET BELOW GRADE AND CURB SECTION SHALL BE CAST IN PLACE AT FENCE POST.



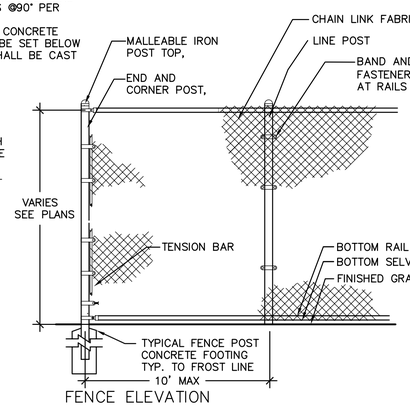
CONC. FOOTING SECTION

ORNAMENTAL STEEL FENCE
SCALE: NONE

NOTE:
SEE SPECIFICATION FOR FRAME MEMBER SIZING, MESH GAUGE & OPENING, FINISH, AND HARDWARE GATES SHALL HAVE 36" MIN. CLEAR OPENING EXCLUDING POST AND HINGE OFFSET WHEN GATE IS @90° PER ADA.
WHERE FENCE IS EMBEDED IN CONCRETE CURB FENCE FOOTING SHALL BE SET BELOW GRADE AND CURB SECTION SHALL BE CAST IN PLACE AT FENCE POST.

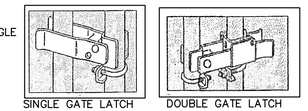


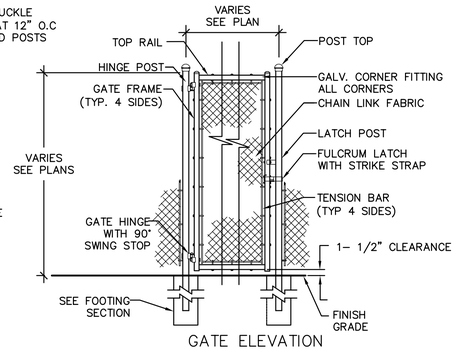
FOOTING SECTION



FENCE ELEVATION

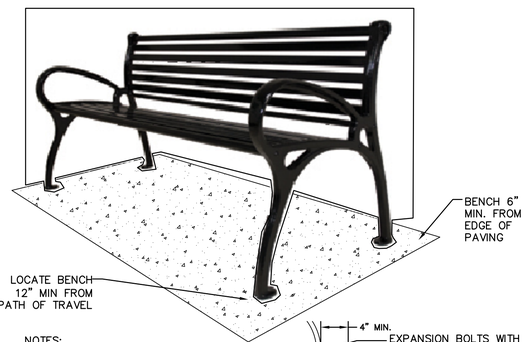
GATE LATCH
GATE LATCHES FOR SINGLE AND DOUBLE GATES





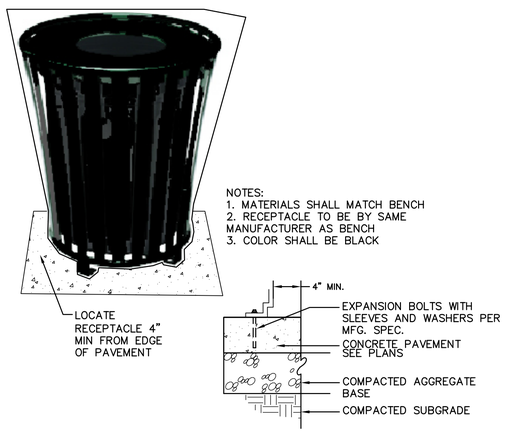
GATE ELEVATION

CHAIN LINK FENCE AND GATE DETAIL
SCALE: NONE



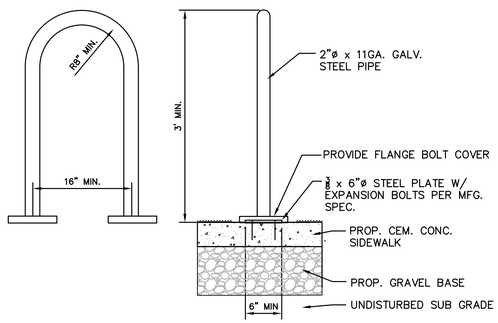
NOTES:
1. ALL STEEL MEMBERS COATED WITH ZINC RICH EPOXY THEN FINISHED WITH POLYESTER POWDER COATING.
2. COLOR SHALL BE BLACK
3. SURFACE MOUNT IN CONCRETE PAVEMENT

BENCH
SCALE: NONE



NOTES:
1. MATERIALS SHALL MATCH BENCH
2. RECEPTACLE TO BE BY SAME MANUFACTURER AS BENCH
3. COLOR SHALL BE BLACK

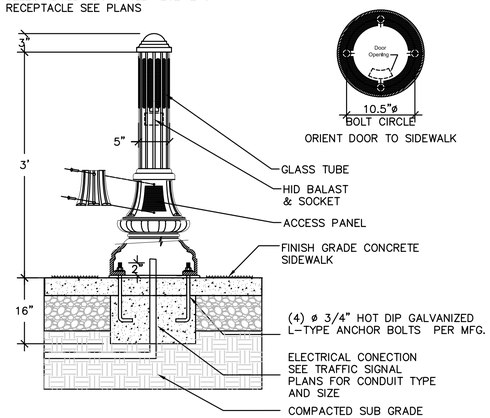
TRASH RECEPTACLE
SCALE: NONE



NOTES:
1. MATERIALS SHALL MATCH BENCH
2. BIKE RACK SHALL BE SURFACE MOUNTED ON CONCRETE PAVEMENT.
3. COLOR SHALL BE BLACK

BIKE RACK

NOTE:
SELECT BOLLARDS SHALL RECEIVE GFI RECEPTACLE SEE PLANS

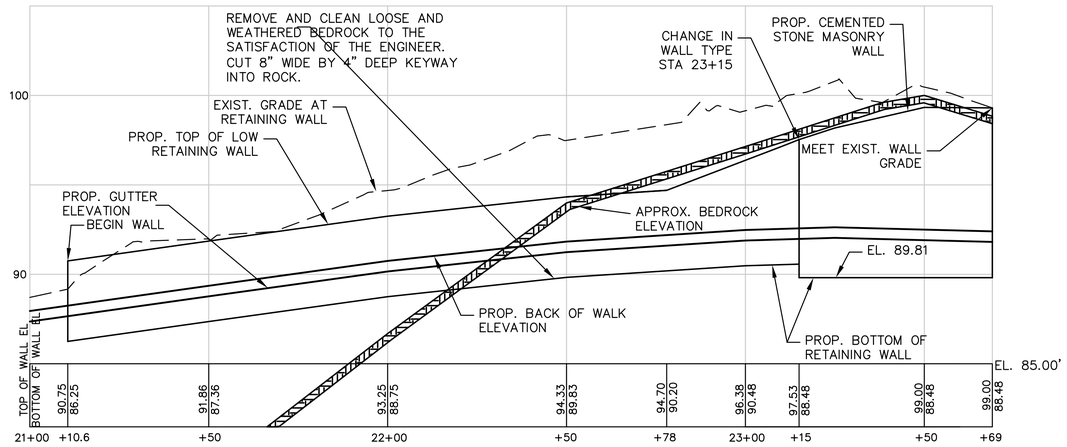


BOLLARD
SCALE: NONE

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	206	214
PROJ. FILE NO. 604688			

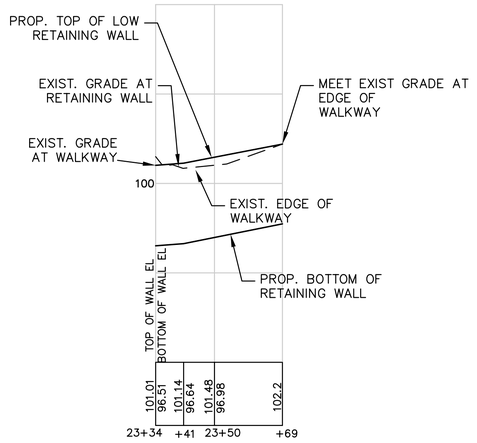
MISCELLANEOUS DETAILS
BRICK WALK STA. 23+90 RT



RETAINING WALL ELEVATION

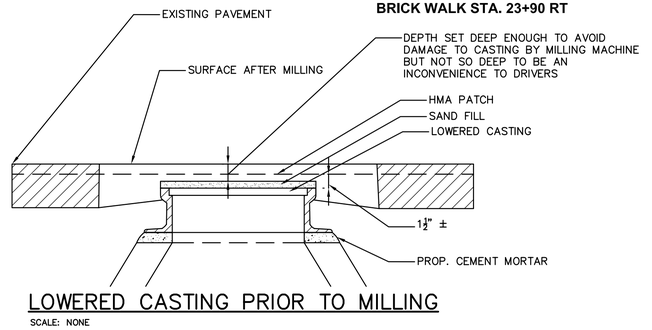
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'

(SEE GRADING AND CURB TIE PLAN FOR HORIZONTAL ALIGNMENT OF WALLS.)



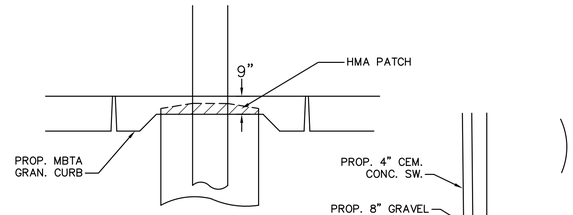
UPPER RETAINGING WALL ELEVATION

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'

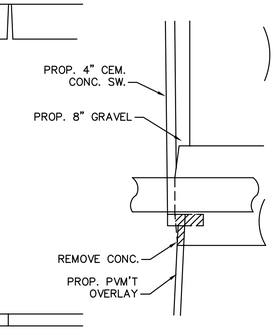


LOWERED CASTING PRIOR TO MILLING

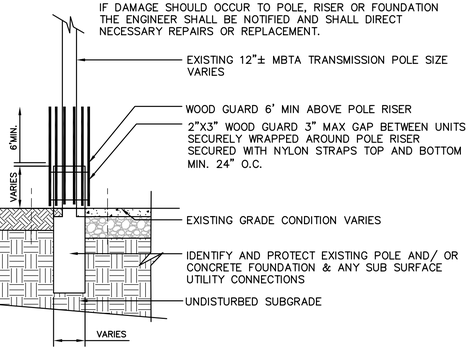
SCALE: NONE



SECTION A+A

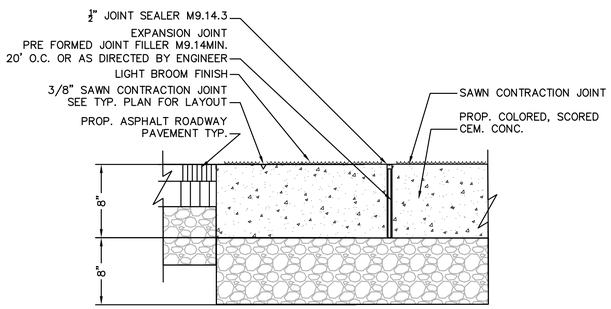


SECTION B+B



PERFORMED JOINT FILLER AND SEALER

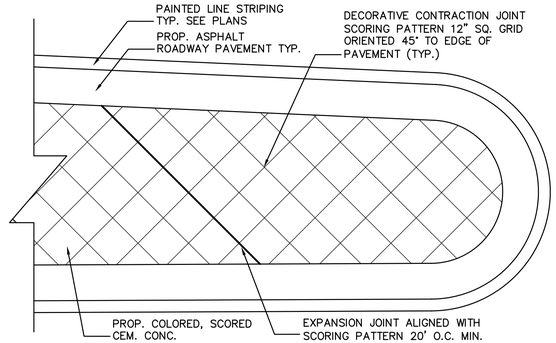
SCALE: NONE



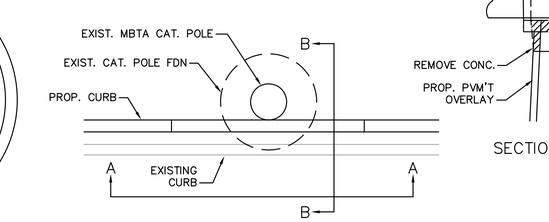
TYPICAL SCORING/JOINTING – SECTION

COLORED SCORED CEMENT CONCRETE PAVEMENT

SCALE: NONE



TYPICAL SCORING/JOINTING – PLAN



PLAN VIEW

WIDENING ROADWAY AT MBTA CAT POLE

SCALE: NONE

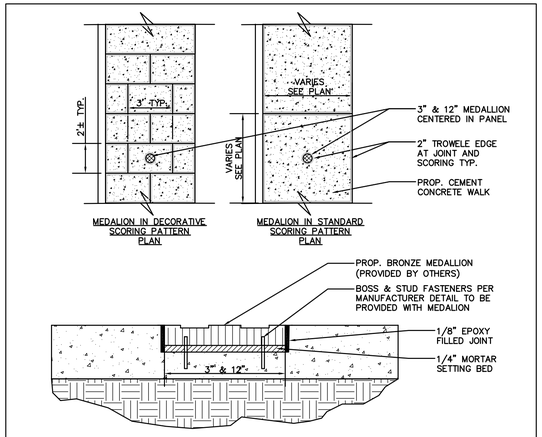
NOTES:
IF EXCAVATION OF MORE THAN 3' OF DEPTH MUST OCCUR AT THE EXISTING POLE BRACING MAY BE REQUIRED AS DIRECTED BY THE ENGINEER.

SIGNIFICANT EXCAVATION AT POLE SHALL NOT BE ALLOWED TO REMAIN OPEN OUTSIDE THE HOURS OF CONSTRUCTION OPERATIONS.

IF DAMAGE SHOULD OCCUR TO POLE, RISER OR FOUNDATION THE ENGINEER SHALL BE NOTIFIED AND SHALL DIRECT NECESSARY REPAIRS OR REPLACEMENT.

EXISTING MBTA POLE PROTECTION

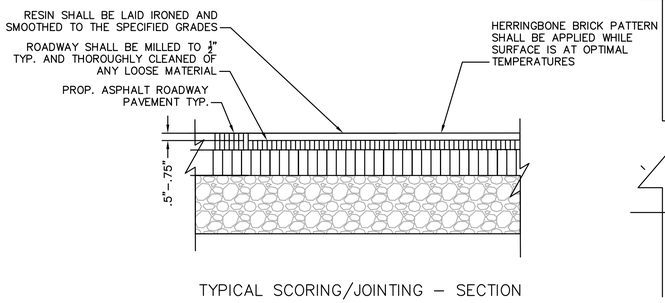
SCALE: NONE



WAVERLY TRAIL MEDALLION INSTALATION

SCALE: NONE

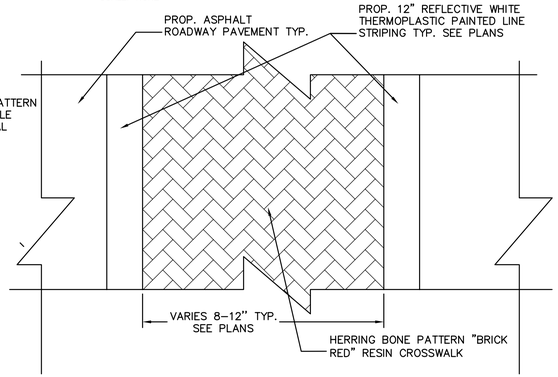
NOTE:
RESIN CROSSWALK SHALL NOT BE OPENED TO VEHICULAR OR PEDESTRIAN TRAFFIC UNTIL IT HAS COOLED AND HARDENED THROUGHOUT TO TEMPERATURE SPECIFIED. SURFACE SHALL BE INSPECTED AND APPROVED BY THE ENGINEER PRIOR TO BEING OPENED TO TRAFFIC.



TYPICAL SCORING/JOINTING – SECTION

COLORED SCORED CEMENT CONCRETE PAVEMENT

SCALE: NONE

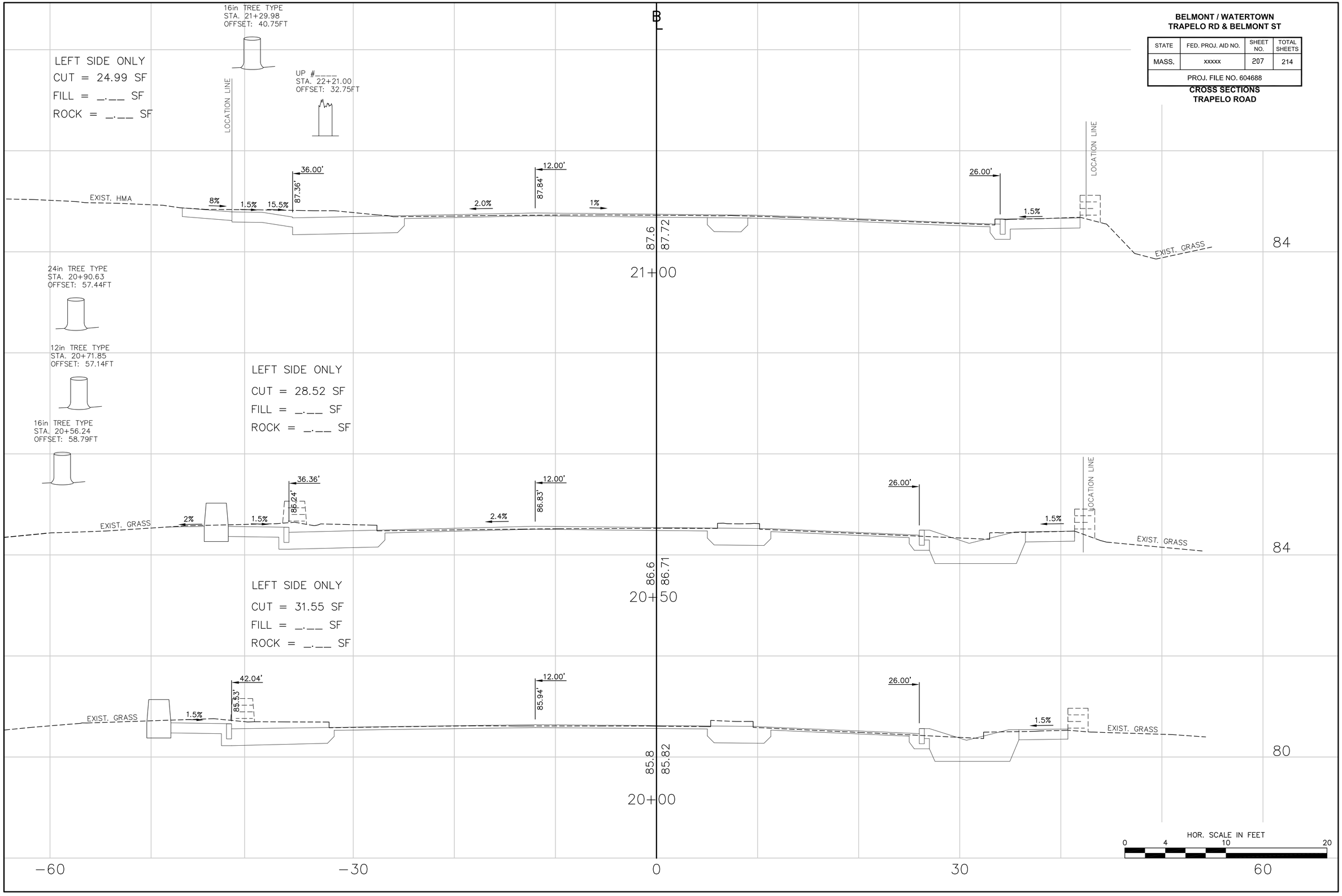


TYPICAL CROSSWALK – SECTION

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	207	214
PROJ. FILE NO. 604688			

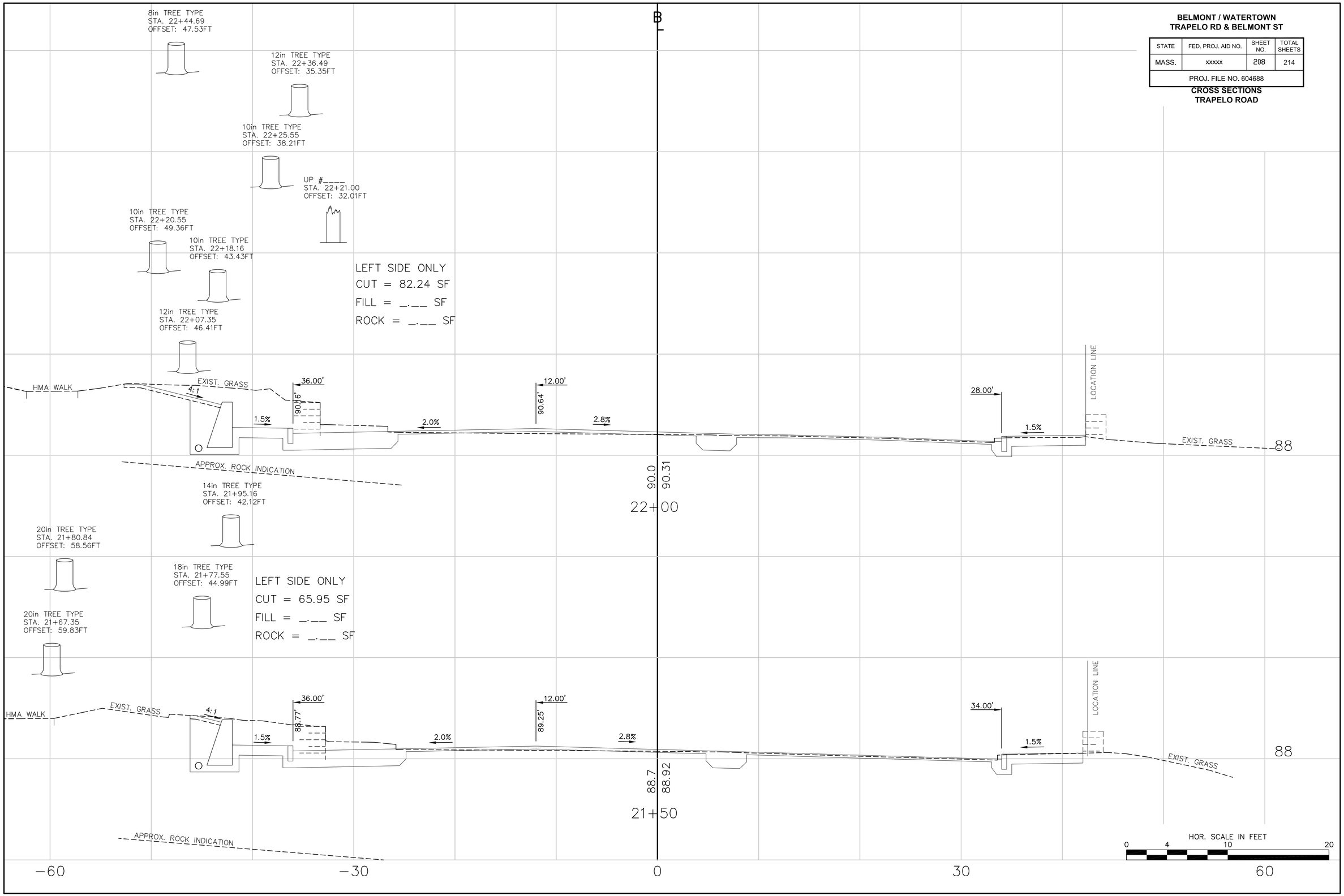
CROSS SECTIONS
TRAPELO ROAD



BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	208	214
PROJ. FILE NO. 604688			

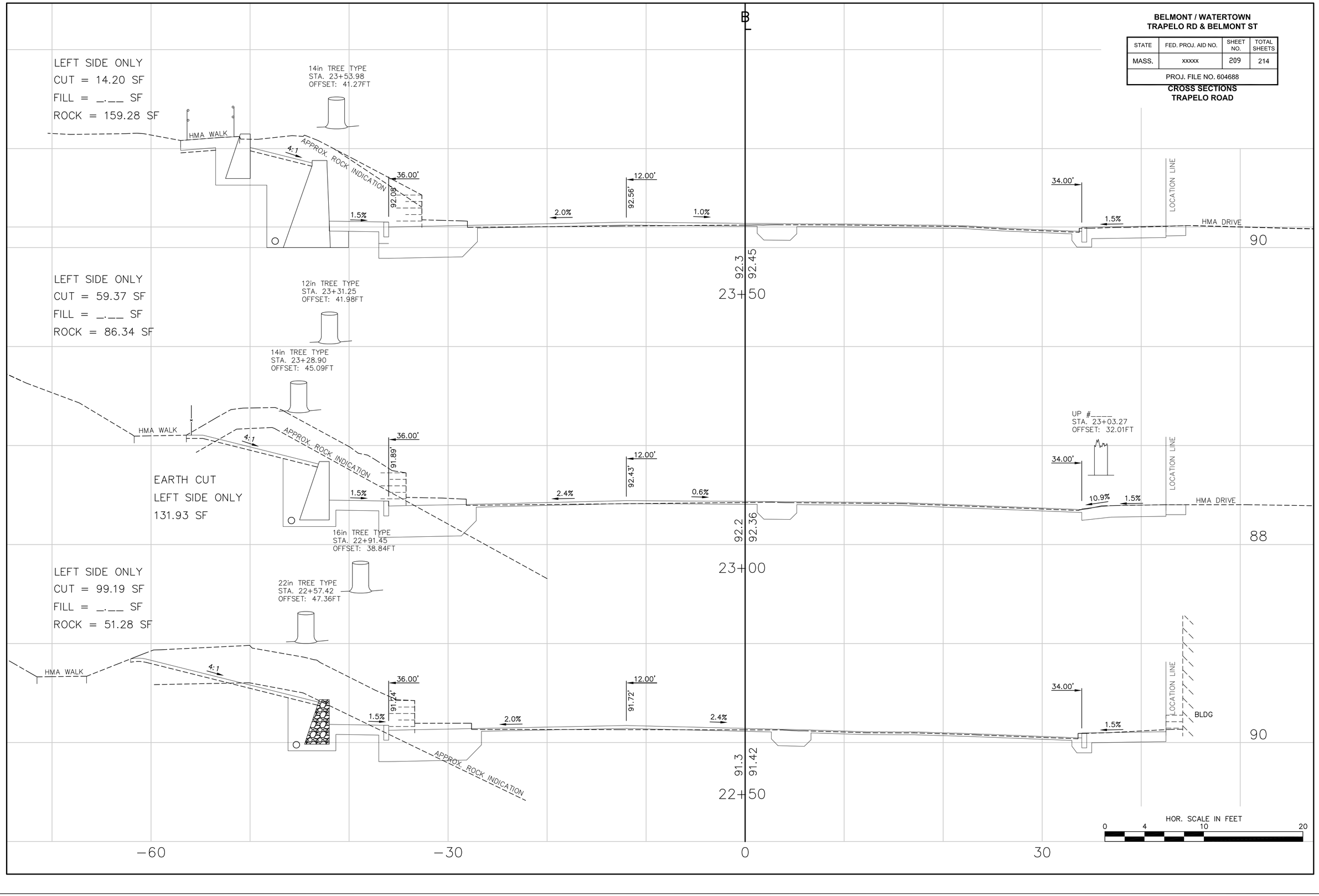
CROSS SECTIONS
TRAPELO ROAD



BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	209	214
PROJ. FILE NO. 604688			

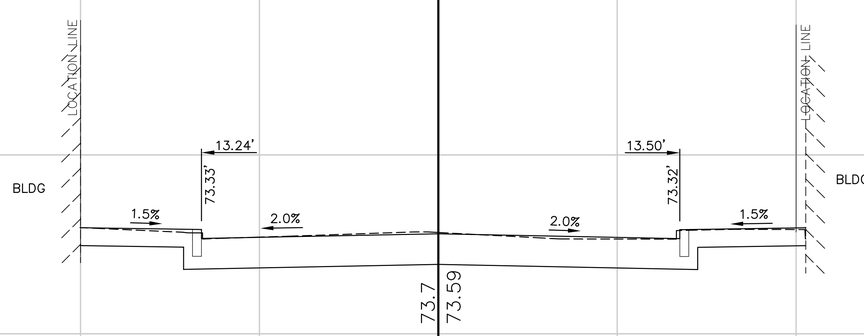
CROSS SECTIONS
TRAPELO ROAD



BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	210	214
PROJ. FILE NO. 604688			

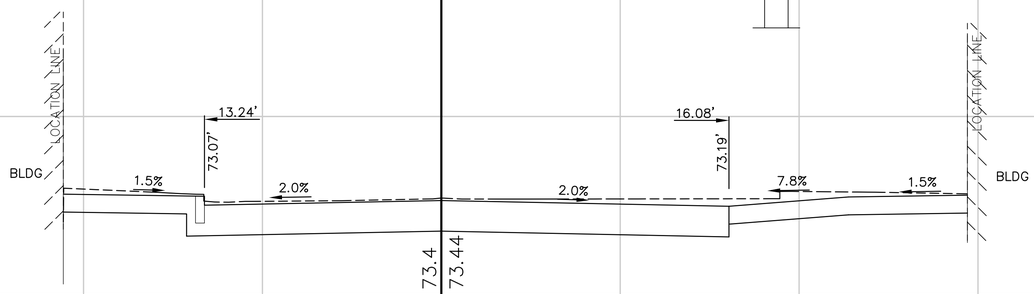
CROSS SECTIONS
BEECH STREET



0+75

CUT = 60.94 SF
FILL = _.__ SF
ROCK = _.__ SF

68



0+50

CUT = 83.81 SF
FILL = _.__ SF
ROCK = _.__ SF

68

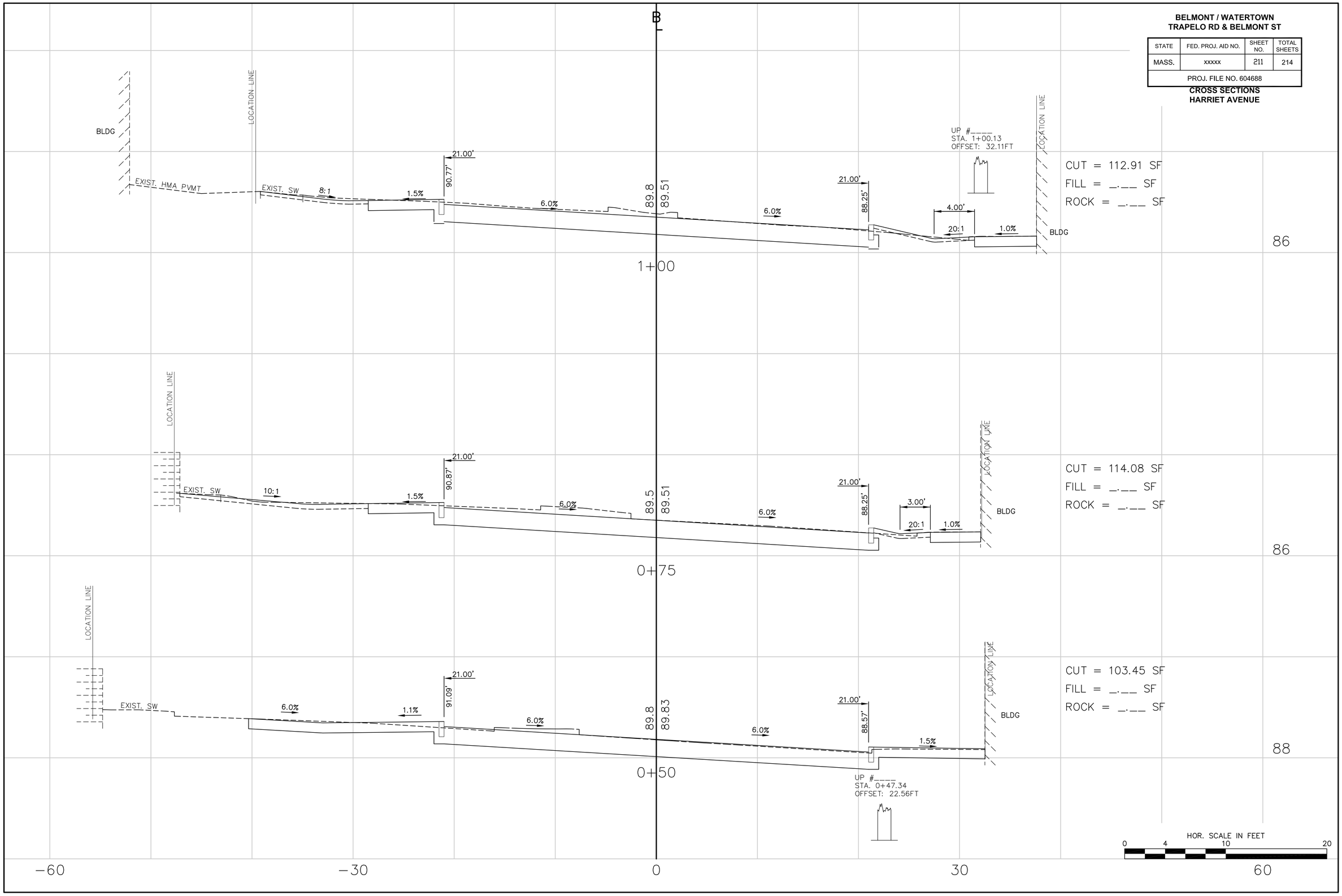
HOR. SCALE IN FEET
0 4 10 20

−60 −30 0 30 60

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	211	214
PROJ. FILE NO. 604688			

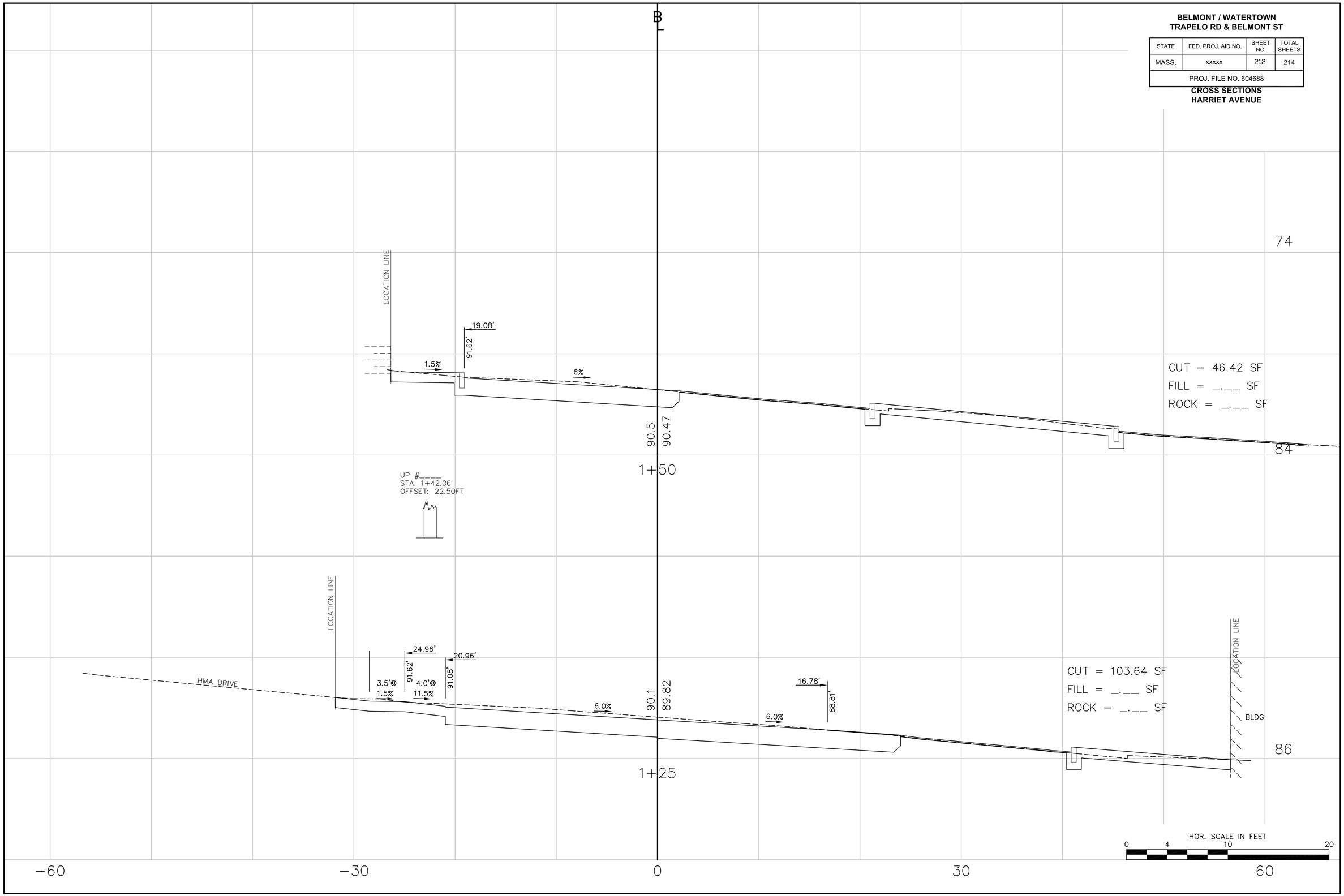
CROSS SECTIONS
HARRIET AVENUE



BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	212	214
PROJ. FILE NO. 604688			

CROSS SECTIONS
HARRIET AVENUE



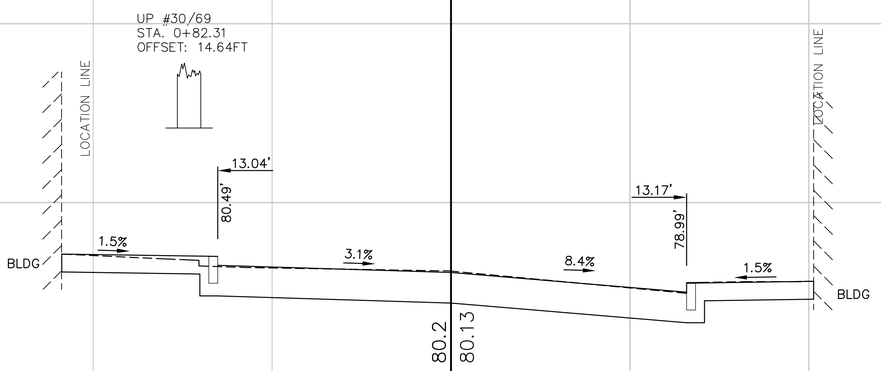
BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	213	214
PROJ. FILE NO. 604688			

CROSS SECTIONS
SCHOOL STREET NORTH

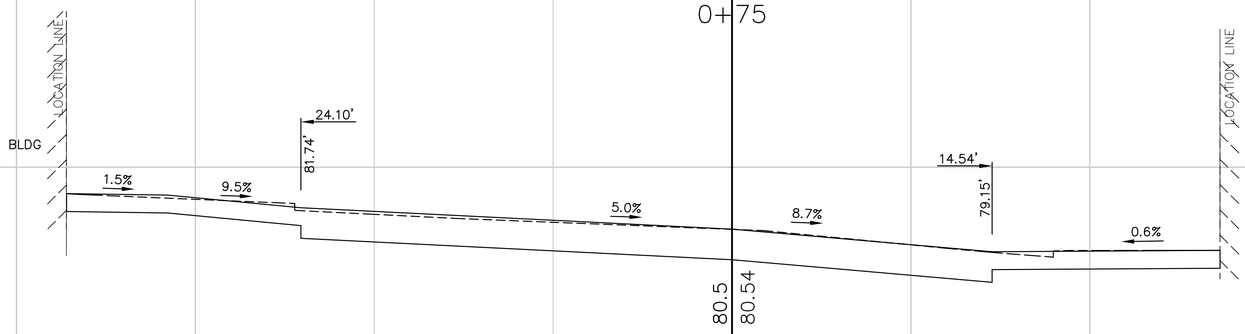
CUT = 60.20 SF
FILL = _.__ SF
ROCK = _.__ SF

74



CUT = 61.72 SF
FILL = _.__ SF
ROCK = _.__ SF

74



CUT = 88.38 SF
FILL = _.__ SF
ROCK = _.__ SF

74

HOR. SCALE IN FEET
0 4 10 20

−60 −30 0 30 60

BELMONT / WATERTOWN
TRAPELO RD & BELMONT ST

STATE	FED. PROJ. AID NO.	SHEET NO.	TOTAL SHEETS
MASS.	xxxxx	214	214
PROJ. FILE NO. 604688			

CROSS SECTIONS
GROVE STREET