

ROADWAY IMPROVEMENT PLANS FOR: THE CITY OF NEWTON, MASSACHUSETTS MIDDLESEX COUNTY

PLAN OF: BEACON STREET FROM CENTRE STREET TO CHESTNUT HILL DRIVE

CLASS OF 2014 SENIOR DESIGN PROJECT - TRANSPORTATION

ADVISOR:

DANIEL M DULASKI, PHD, PE

PROJECT MANAGER:

NATHAN GOTTIER, EIT

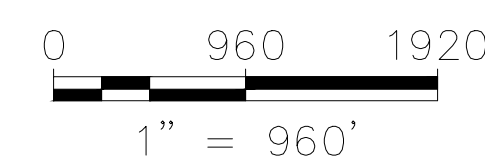
TEAM MEMBERS:

JULIA BIELECKI
DANIEL BLALOCK
MAX JACOBSON
ROXANNE MEUSE
KATHLEEN ROMANO



LOCUS

LENGTH OF PROJECT = 1.7 MILES



| DESIGN DESIGNATION (BEACON STREET) | |
|------------------------------------|----------------|
| DESIGN SPEED | 35 |
| ADT (2004) | 12,500 |
| K | .15 |
| D | 50/50 |
| DHV | 1,875 |
| T | .10 |
| FUNCTIONAL CLASSIFICATION | MINOR ARTERIAL |

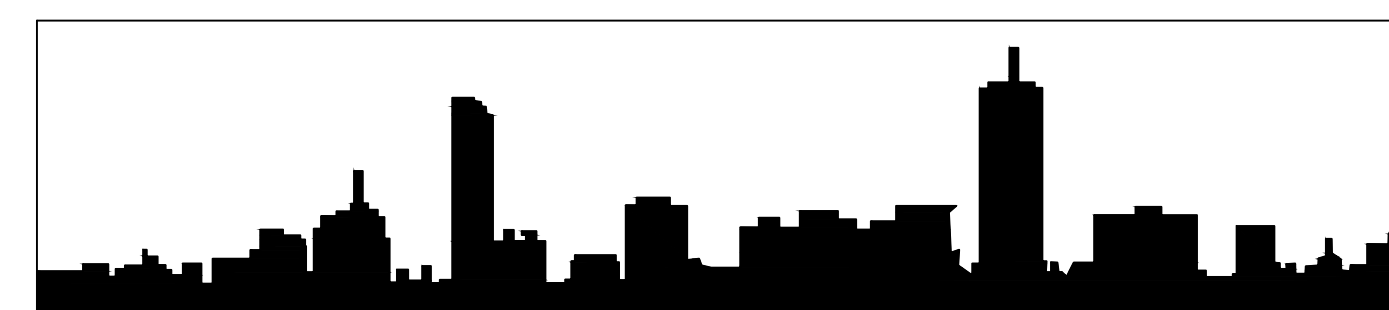
| DRAWING INDEX | |
|-----------------------------------|-------------|
| SHEET TITLE | SHEET INDEX |
| COVER SHEET | 1 |
| LEGEND | 2 |
| KEY PLAN | 3 |
| TYPICAL CROSS SECTIONS | 4-5 |
| CONSTRUCTION PLAN | 6-21 |
| SIGN AND STRIPING | 22-37 |
| SIGNAL HEAD PLAN | 38 |
| SIGNAL TIMING PLAN | 39 |
| SIGN SUMMARY | 40 |
| CONSTRUCTION AND PAVEMENT DETAILS | 41-48 |

THE MASSACHUSETTS HIGHWAY DEPARTMENT 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 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

COVER SHEET AND INDEX



Northeastern University
College of Engineering



NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

| | | |
|------------------|--------------------|---------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: NTS |
| DRAWN BY: JEB | CHECKED BY: KAR | SHEET NO. 1 OF 1 |
| TITLE: COV-01 | | |

GENERAL NOTES

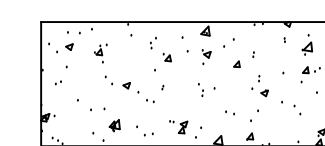
1. WORK ON BEACON STREET SHALL MEET ALL OF THE REQUIREMENTS OF THE CITY OF NEWTON DEPARTMENT OF PUBLIC WORKS.
2. SEE CONSTRUCTION DETAIL SHEET(S) FOR CURB INSTALLATION, PEDESTRIAN RAMP, AND SIDEWALK CONSTRUCTION DETAILS.
3. CONTRACTOR SHALL USE TYPE D-D RAMPS ON STRAIGHT SECTIONS OR TYPE E-D RAMPS ON RADII.
4. CONTRACTOR SHALL ADJUST EXISTING UTILITY COVERS AND CASTINGS TO RE-GRADED SURFACES. THE CONTRACTOR TO COORDINATE WITH THE RESPECTIVE UTILITY COMPANIES FOR GAS/TELECOM/CABLES/ELECTRIC.
5. ALL VERTICAL GRANITE CURBING WITHIN SIDEWALK LIMITS SHALL BE REMOVED AND RESET UNLESS OTHERWISE NOTED
6. SEE CONSTRUCTION DETAIL SHEET(S) FOR TREE TYPES AND INSTALLATION DETAILS.
7. EXISTING FEATURES AT BACK OF SIDEWALK SHALL REMAIN IN PLACE UNLESS OTHERWISE NOTED. DAMAGED FEATURES SHALL BE REPLACED OR REPAIRED AT NO COST TO THE OWNER.
8. MANHOLES TO BE ADJUSTED/RELOCATED PER FIELD INVESTIGATION.
9. REFER TO STRIPING AND SIGNAGE PLANS FOR STRIPING AND SIGNING DETAILS.
10. EXISTING SIDEWALKS TO BE REMOVED WHERE NEW SIDEWALKS, MIXED USE PATHS, AND CYCLE TRACKS ARE PROPOSED UNLESS OTHERWISE NOTED.
11. THE TERM 'MEET EXIST' MEANS TO MEET BOTH THE EXISTING ALIGNMENT AND ELEVATION.
12. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.

| | |
|---------|--|
| ABUT | ABUTMENT |
| ALT | ALTERNATE |
| AADT | ANNUAL AVERAGE DAILY TRAFFIC |
| APPROX | APPROXIMATE |
| AVE | AVENUE |
| BM | BENCH MARK |
| BIT | BITUMINOUS |
| BLVD | BOULEVARD |
| CB | CATCH BASIN |
| CIP | CAST IN PLACE |
| CEM | CEMENT |
| C TO C | CENTER TO CENTER |
| CONC | CONCRETE |
| CONST | CONSTRUCTION |
| CULV | CULVERT |
| DIA | DIAMETER |
| DIST | DISTANCE |
| DWL | DOWEL |
| DR | DRIVE |
| EA | EACH |
| EA | EAST |
| EB | EASTBOUND |
| EL | ELEVATION |
| EQ | EQUAL |
| EXP | EXPANSION |
| EXIST | EXISTING |
| EXT | EXTERIOR |
| FF | FAR FACE |
| FIG | FIGURE |
| GALV | GALVANIZED |
| GALV | GAGE |
| HORIZ | HORIZONTAL |
| HMA | HOT MIX ASPHALT |
| ID | INSIDE DIAMETER |
| INT | INTERIOR |
| JT | JOINT |
| LONGIT | LONGITUDINAL |
| LS | LUMP SUM |
| MassDOT | MASSACHUSETTS DEPARTMENT OF TRANSPORTATION |
| MAX | MAXIMUM |
| MPH | MILES PER HOUR |
| MIN | MINIMUM |

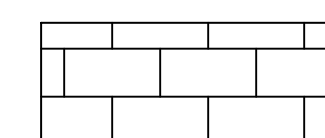
| | |
|--------|--------------------|
| MISC | MISCELLANEOUS |
| MOD | MODIFIED |
| NF | NEAR FACE |
| N | NORTH |
| NB | NORTHBOUND |
| NTS | NOT TO SCALE |
| NO | NUMBER |
| OC | ON CENTER |
| OD | OUTSIDE DIAMETER |
| O TO O | OUTSIDE TO OUTSIDE |
| PVMT | PAVEMENT |
| PROP | PROPOSED |
| R = | RADIUS |
| REINF | REINFORCED |
| REM | REMOVE |
| R & R | REMOVE AND RESET |
| REQ'D | REQUIRED |
| ROW | RIGHT OF WAY |
| RD | ROAD |
| RDWY | ROADWAY |
| RTE | ROUTE |
| SECT | SECTION |
| SDWK | SIDEWALK |
| S | SOUTH |
| SB | SOUTHBOUND |
| SP | SPACES |
| SPEC | SPECIFICATION |
| V | SPEED |
| SQ | SQUARE |
| SF | SQUARE FEET |
| STA | STATION |
| ST | STREET |
| SURF | SURFACING |
| SYM | SYMMETRICAL |
| TAN | TANGENT |
| TEMP | TEMPORARY |
| TYP | TYPICAL |
| VAR | VARIABLE |
| VERT | VERTICAL |
| WS | WEARING SURFACE |
| W | WEST |
| WB | WESTBOUND |

PAVEMENT MARKING SYMBOLS

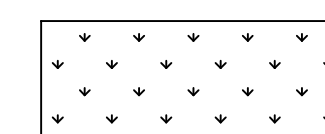
| | |
|---------|---------------------------|
| CW | CROSSWALK |
| SL | STOP LINE |
| SWL/SYL | SOLID WHITE/YELLOW LINE |
| BWL | BROKEN WHITE LINE |
| DYCL | DOUBLE YELLOW CENTER LINE |
| | PAVEMENT ARROW |



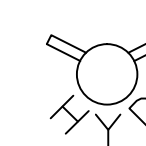
CONCRETE PAVEMENT



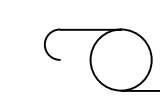
BRICK PAVEMENT



GRASS



EXISTING FIRE HYDRANT

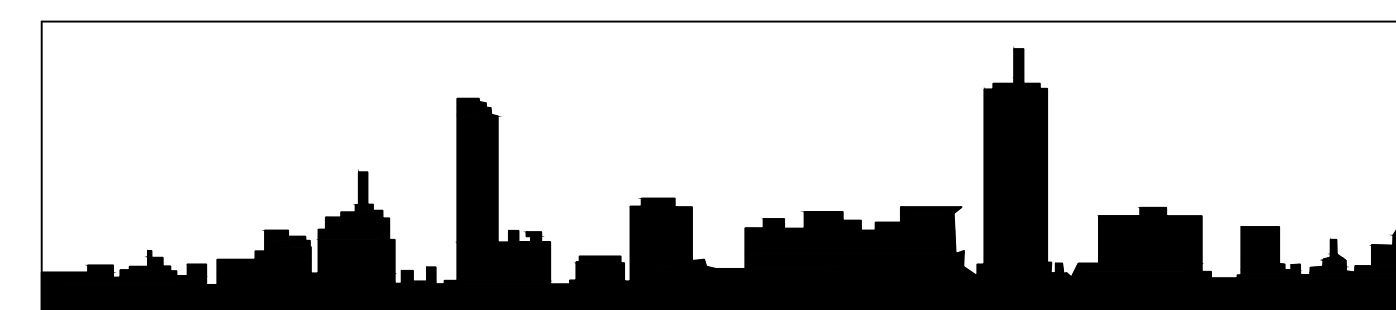


EXISTING UTILITY POLE

LEGEND

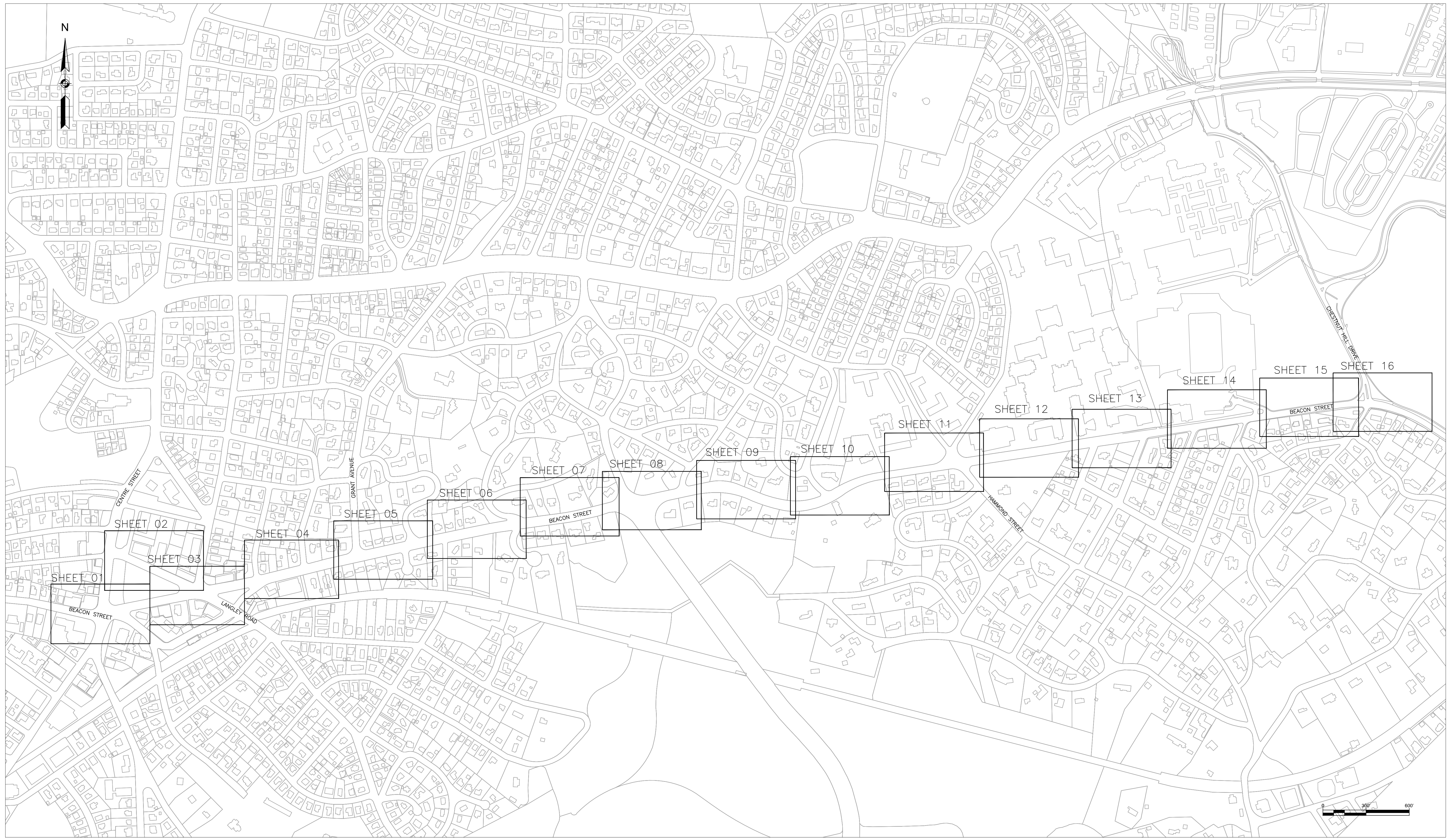


Northeastern University
College of Engineering



NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

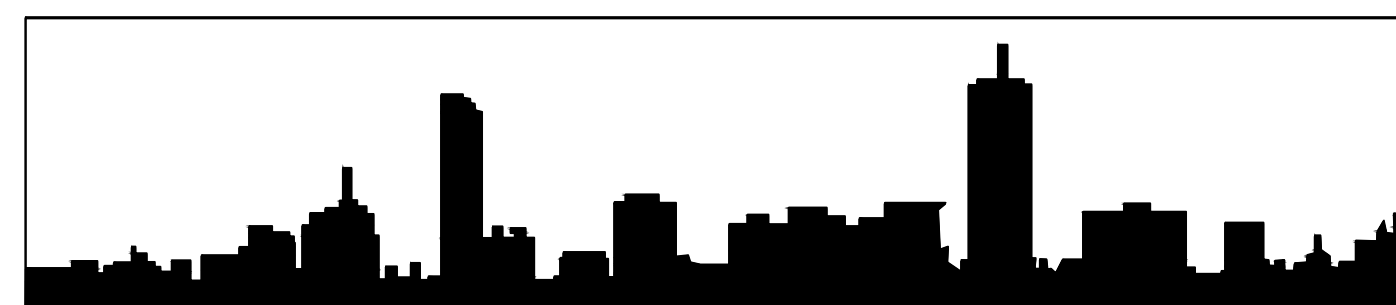
| | | |
|------------------|--------------------|---------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: NTS |
| DRAWN BY: JEB | CHECKED BY: KAR | SHEET NO. 1 OF 1 |
| TITLE: L-01 | | |



KEY PLAN

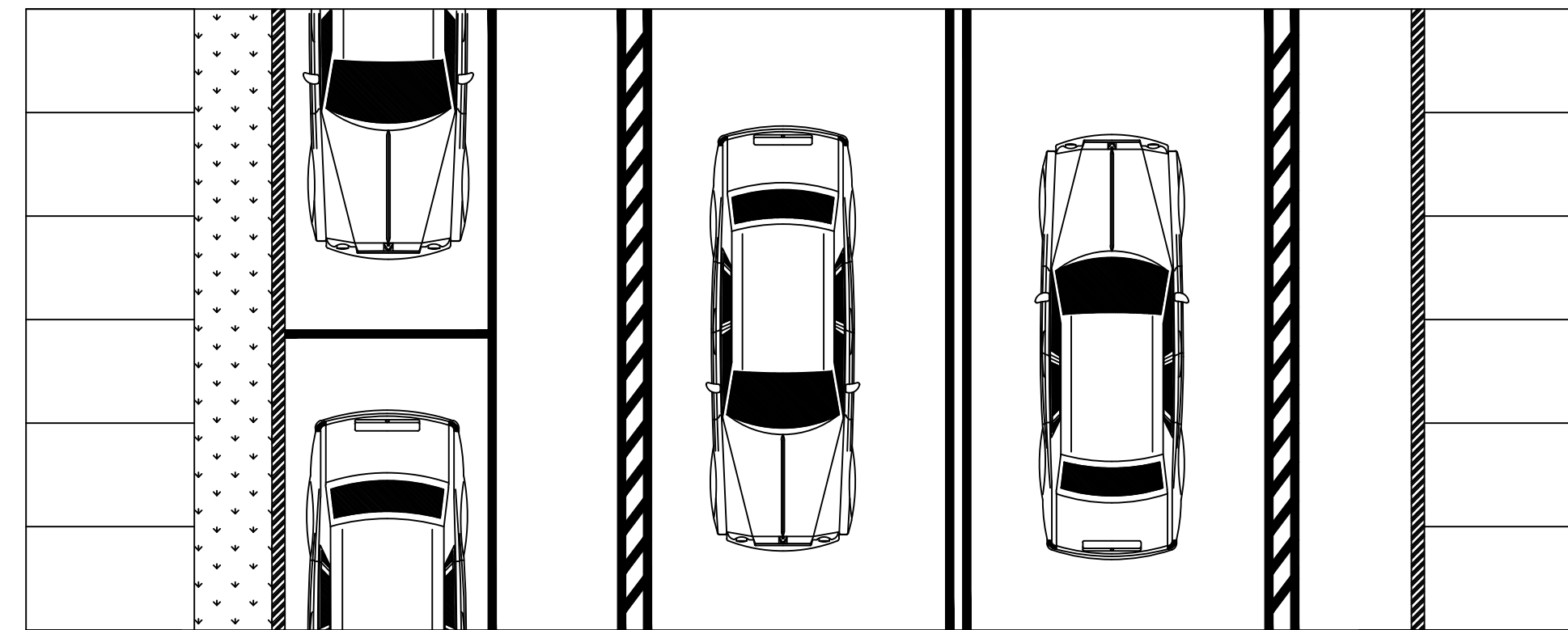
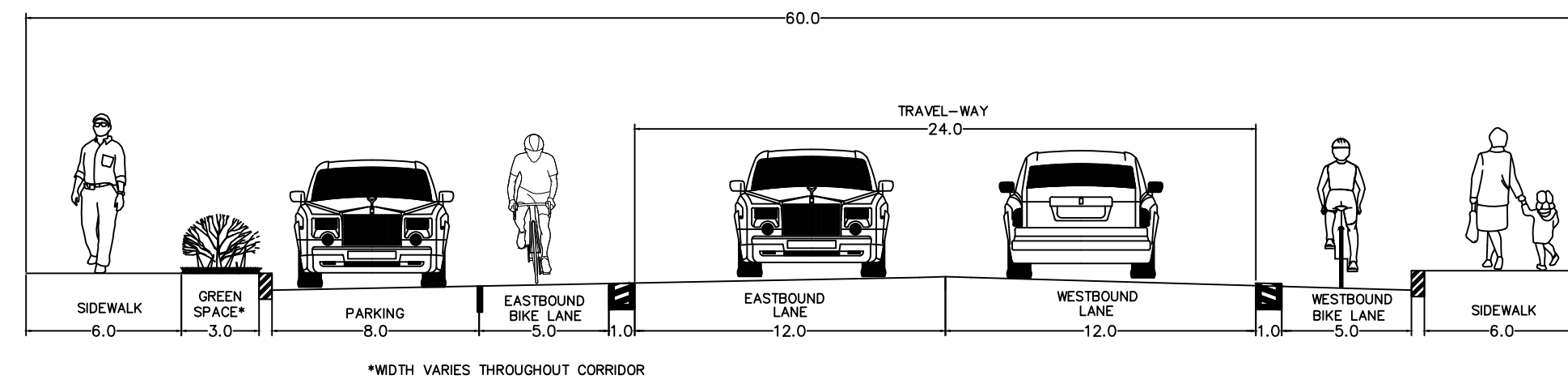


Northeastern University
College of Engineering

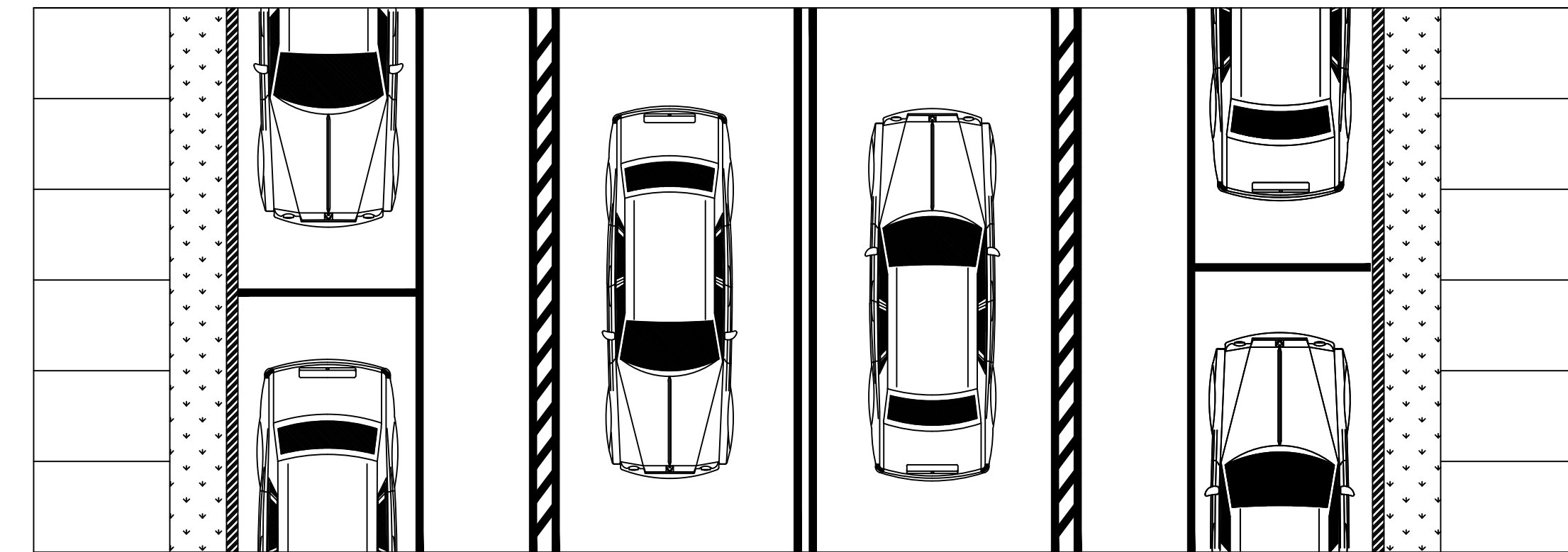
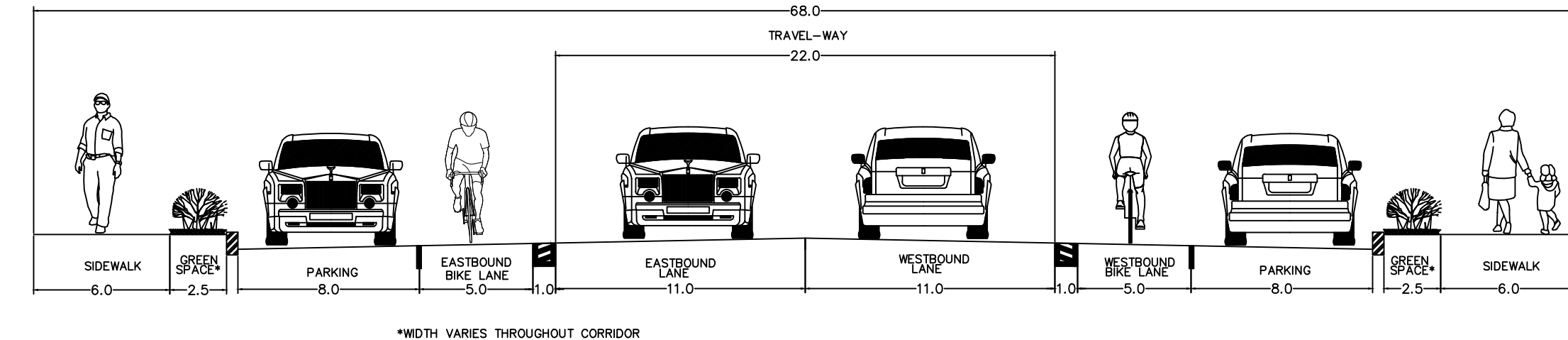


NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

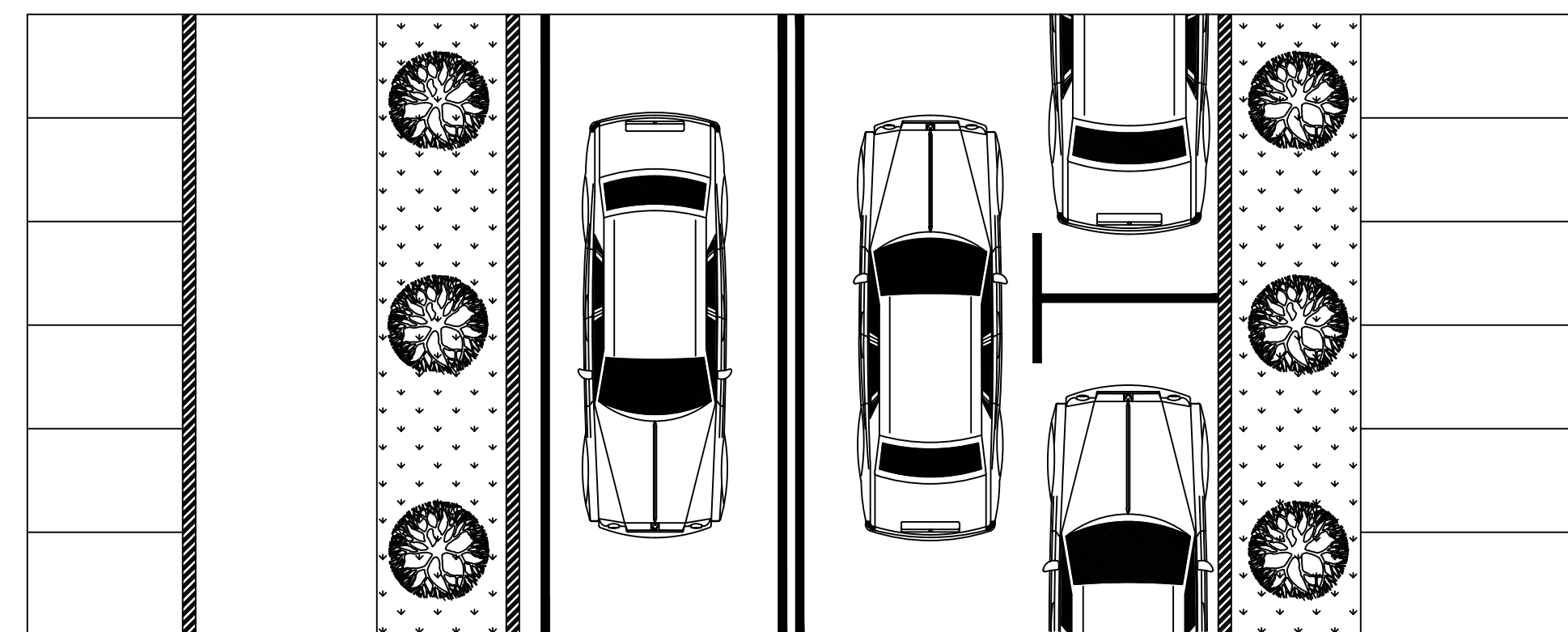
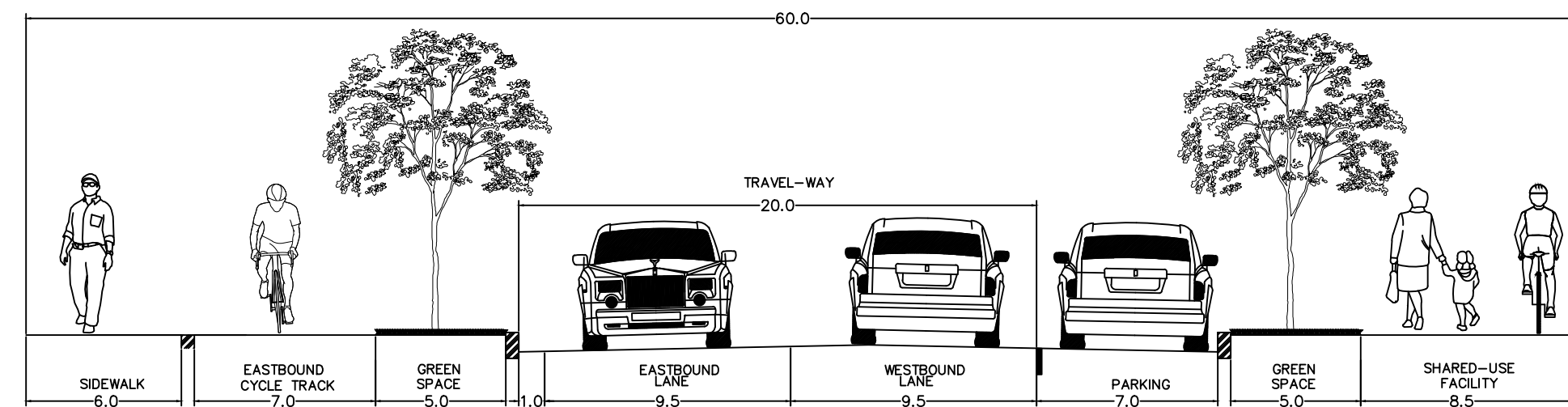
| | | |
|------------------|--------------------|---------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: 1:300 |
| DRAWN BY: KAR | CHECKED BY: MHJ | SHEET NO. 1 OF 1 |
| TITLE: K-01 | | |



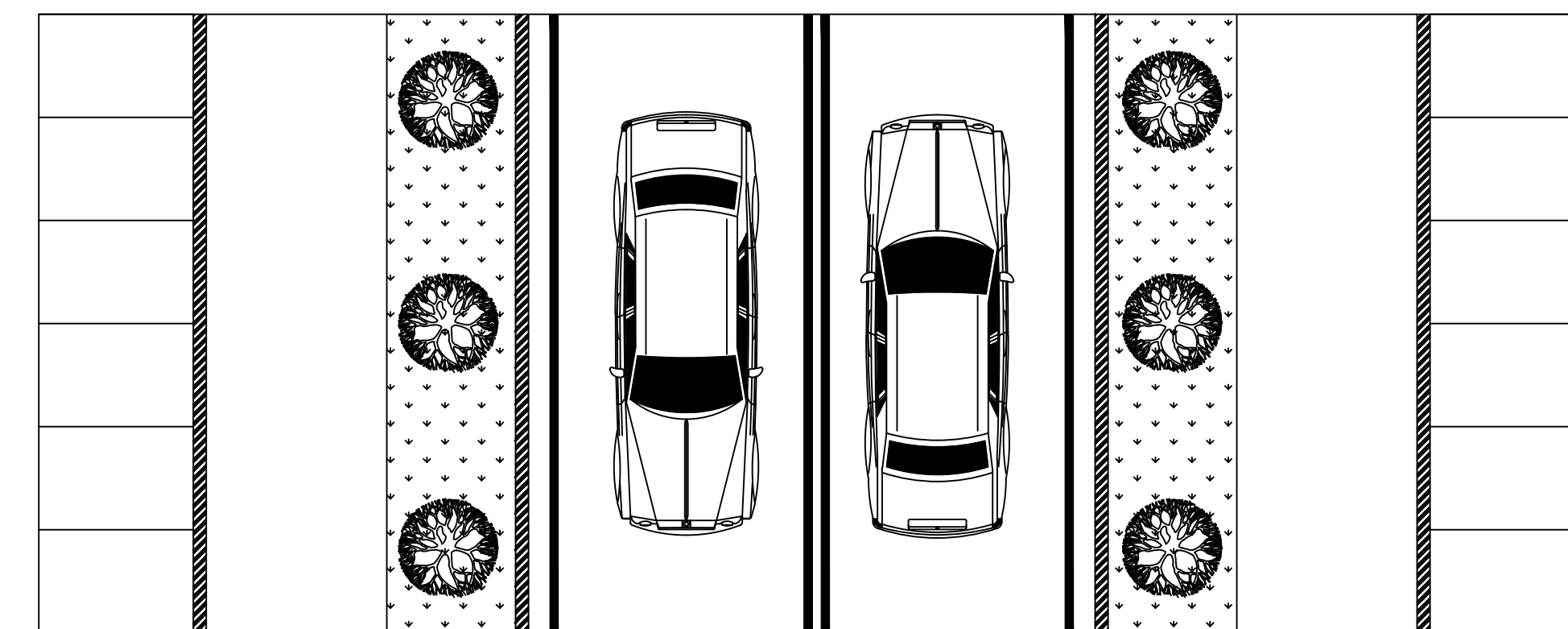
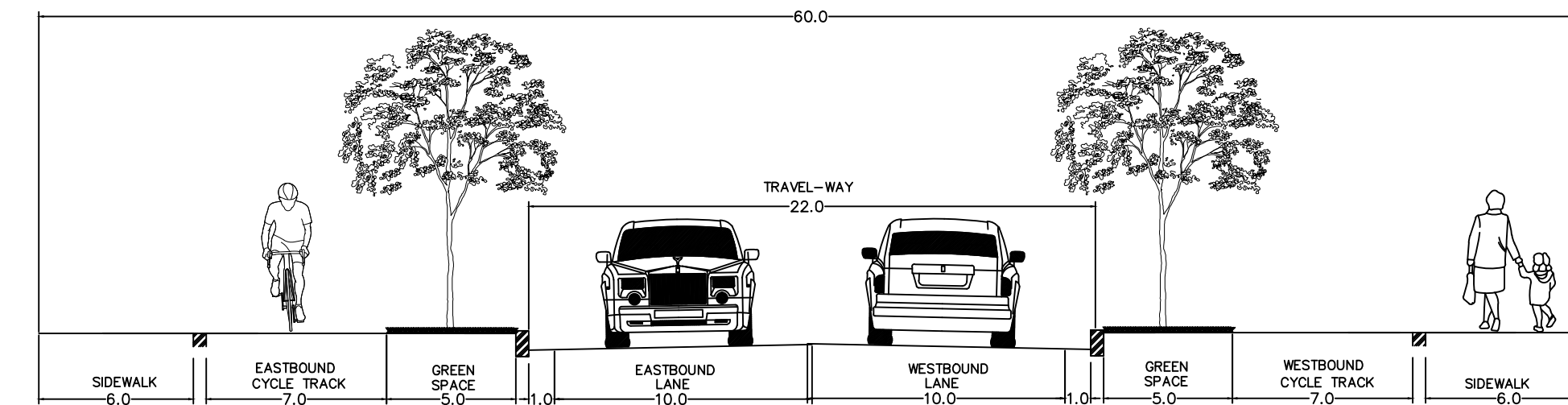
EXISTING



EXISTING



PREFERRED
TYPICAL STATION 0+00 TO 11+70

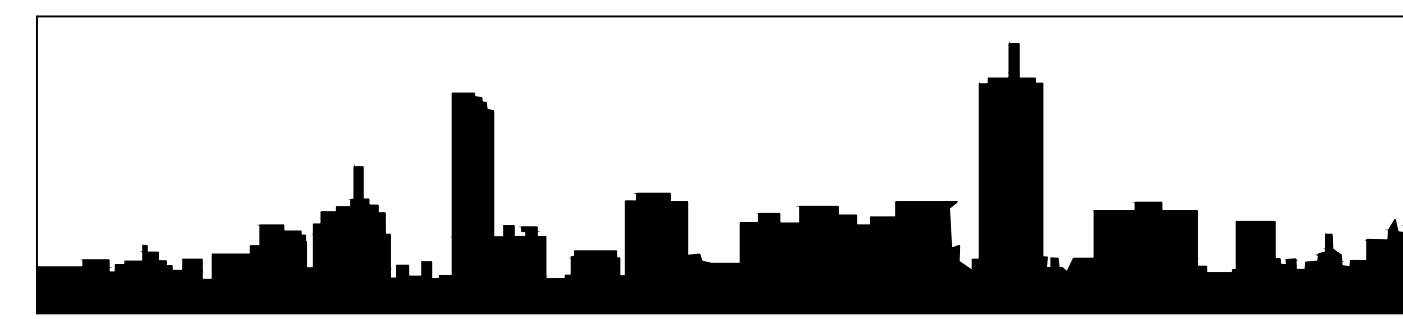


PREFERRED
TYPICAL STATION 11+70 TO 68+33

TYPICAL CROSS SECTION

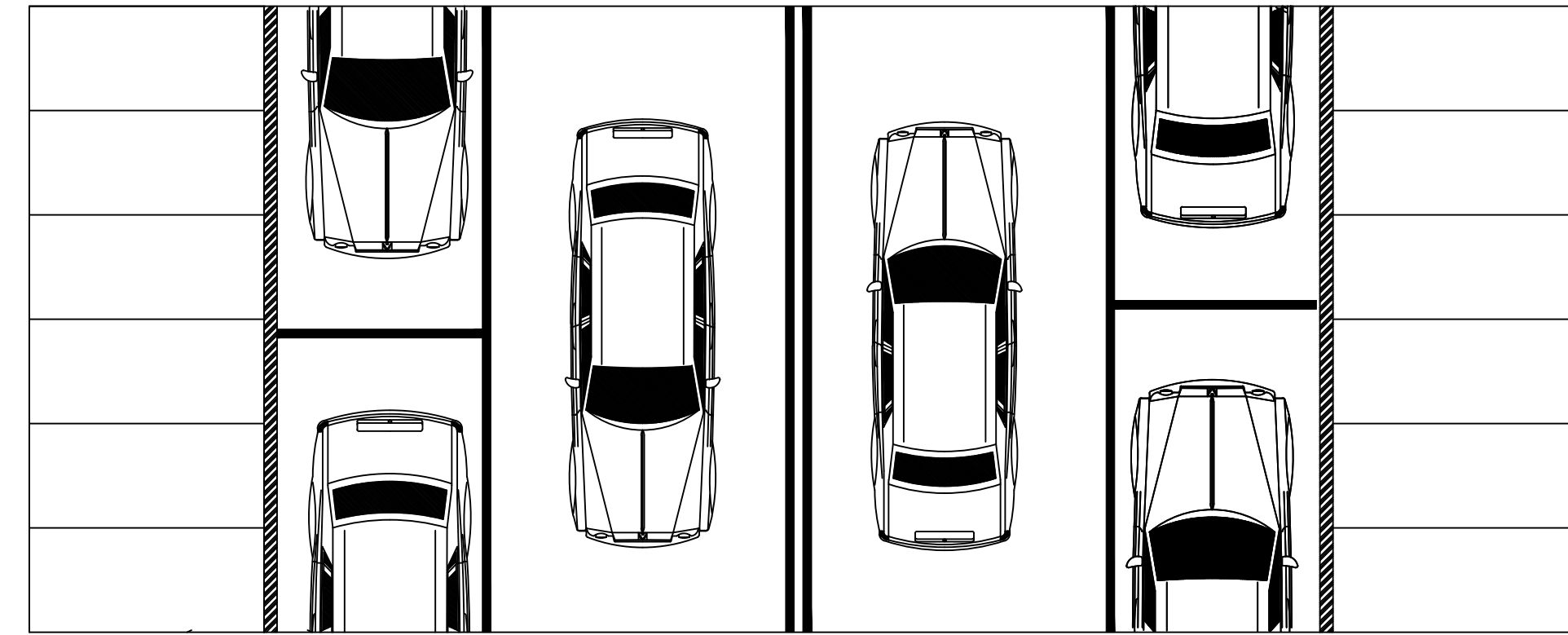
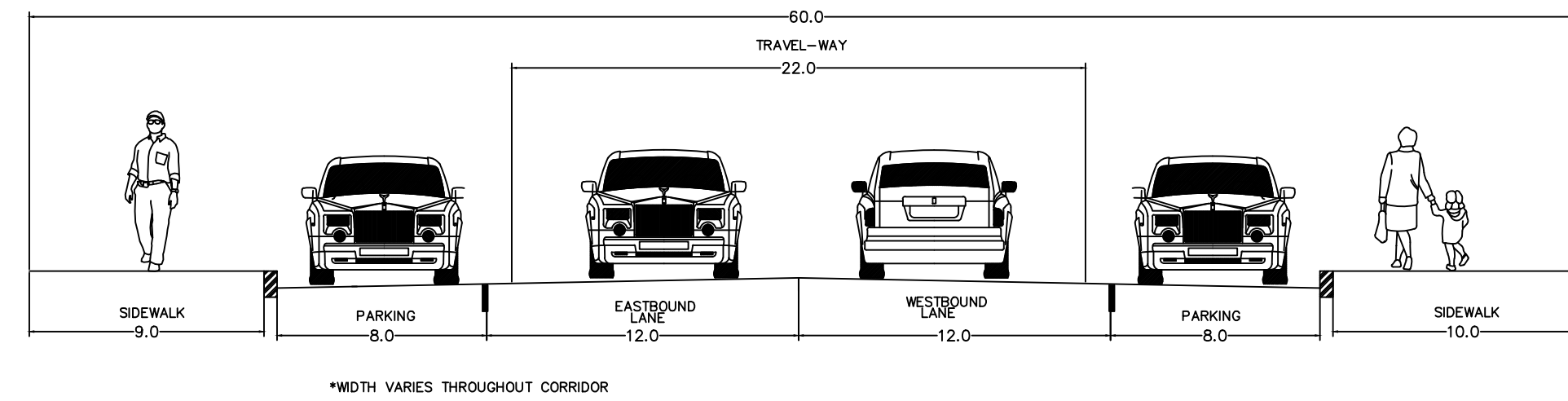


Northeastern University
College of Engineering

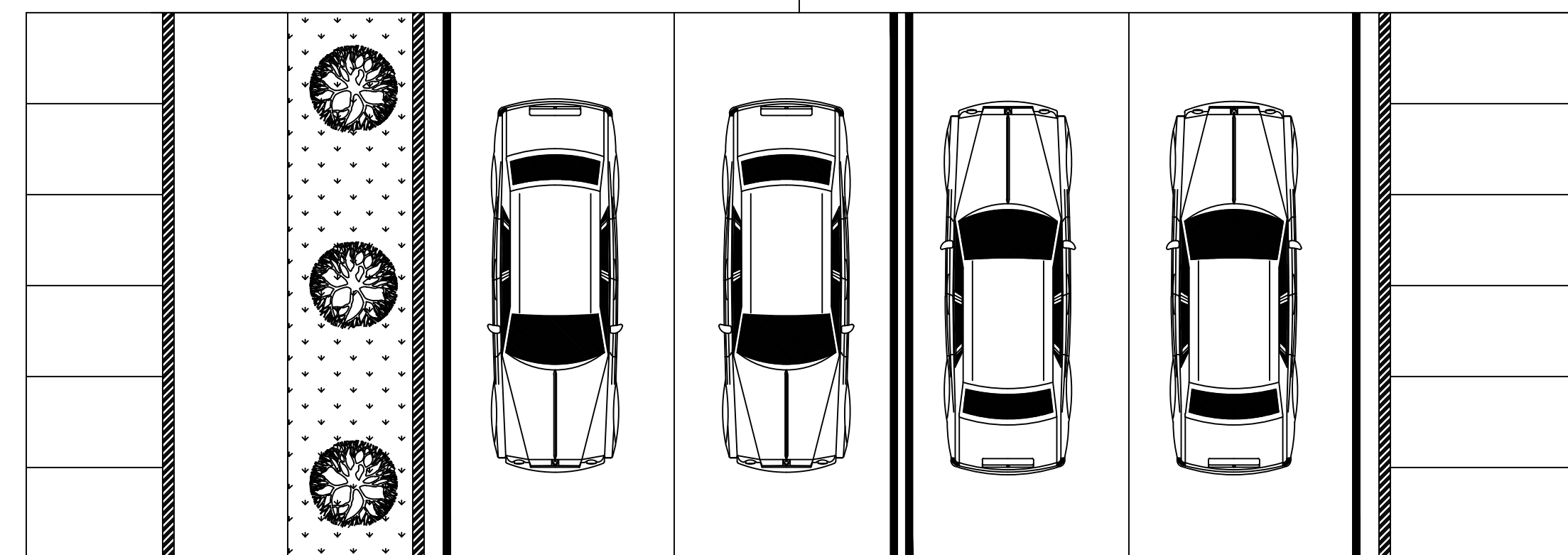
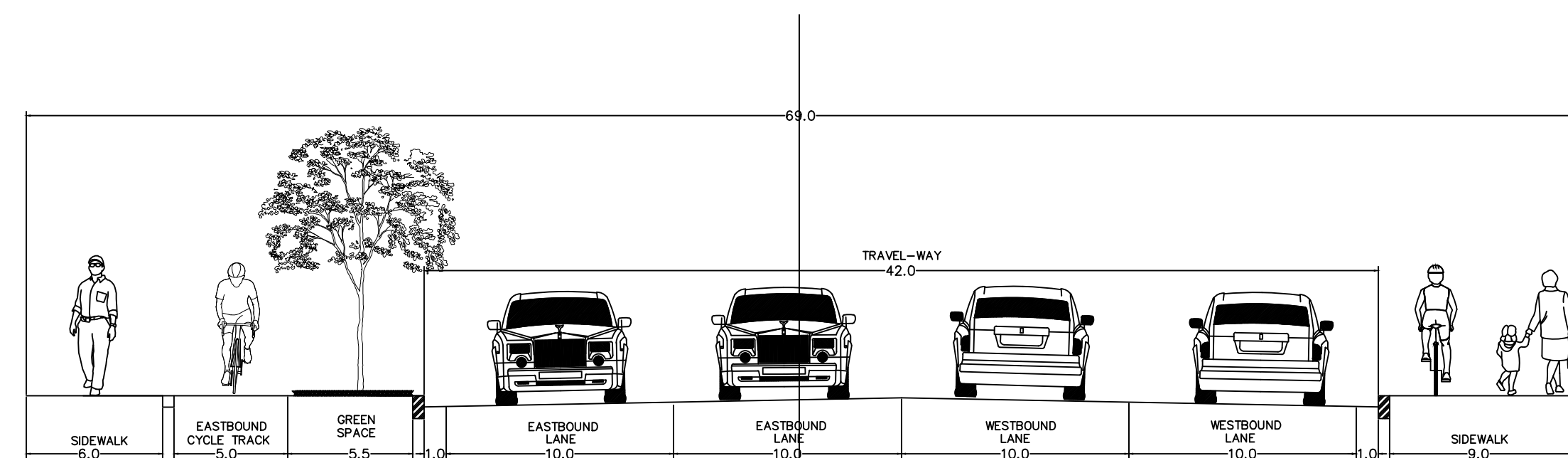


NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

| | | |
|-----------------|--------------------|---------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: 1:6 |
| DRAWN BY: DB | CHECKED BY: KAR | SHEET NO. 1 OF 2 |
| TITLE: XC-01 | | |



EXISTING



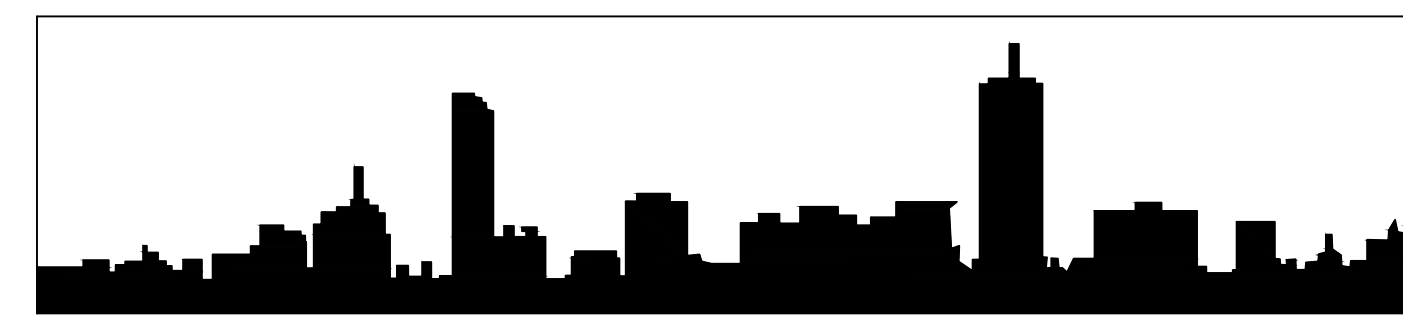
PREFERRED

TYPICAL STATION 68+33 TO 94+26

CYCLE TRACK AT CURB

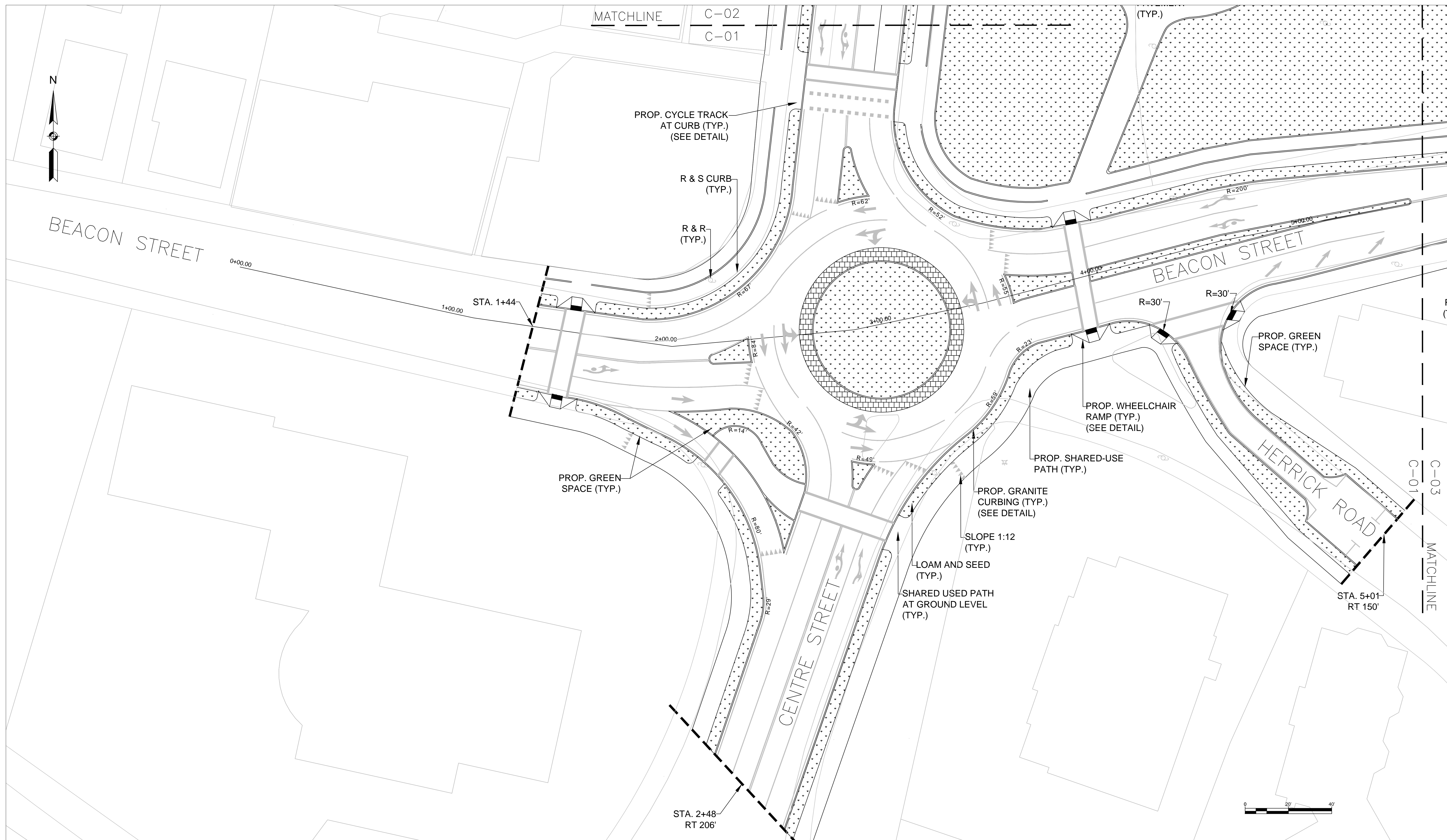


Northeastern University
College of Engineering



NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

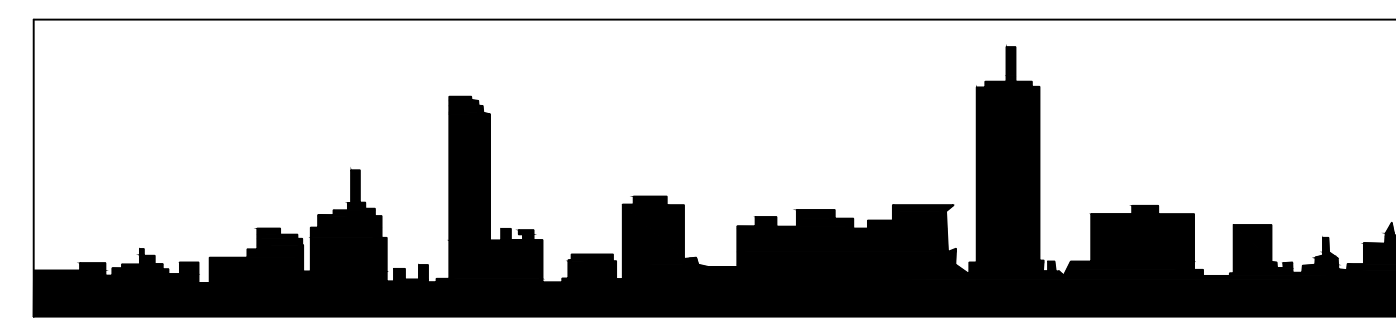
| | | |
|-----------------|--------------------|---------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: 1:6 |
| DRAWN BY: DB | CHECKED BY: KAR | SHEET NO. 2 OF 2 |
| TITLE: | | XC-02 |



CONSTRUCTION PLAN
STATION 1+44 TO 5+65

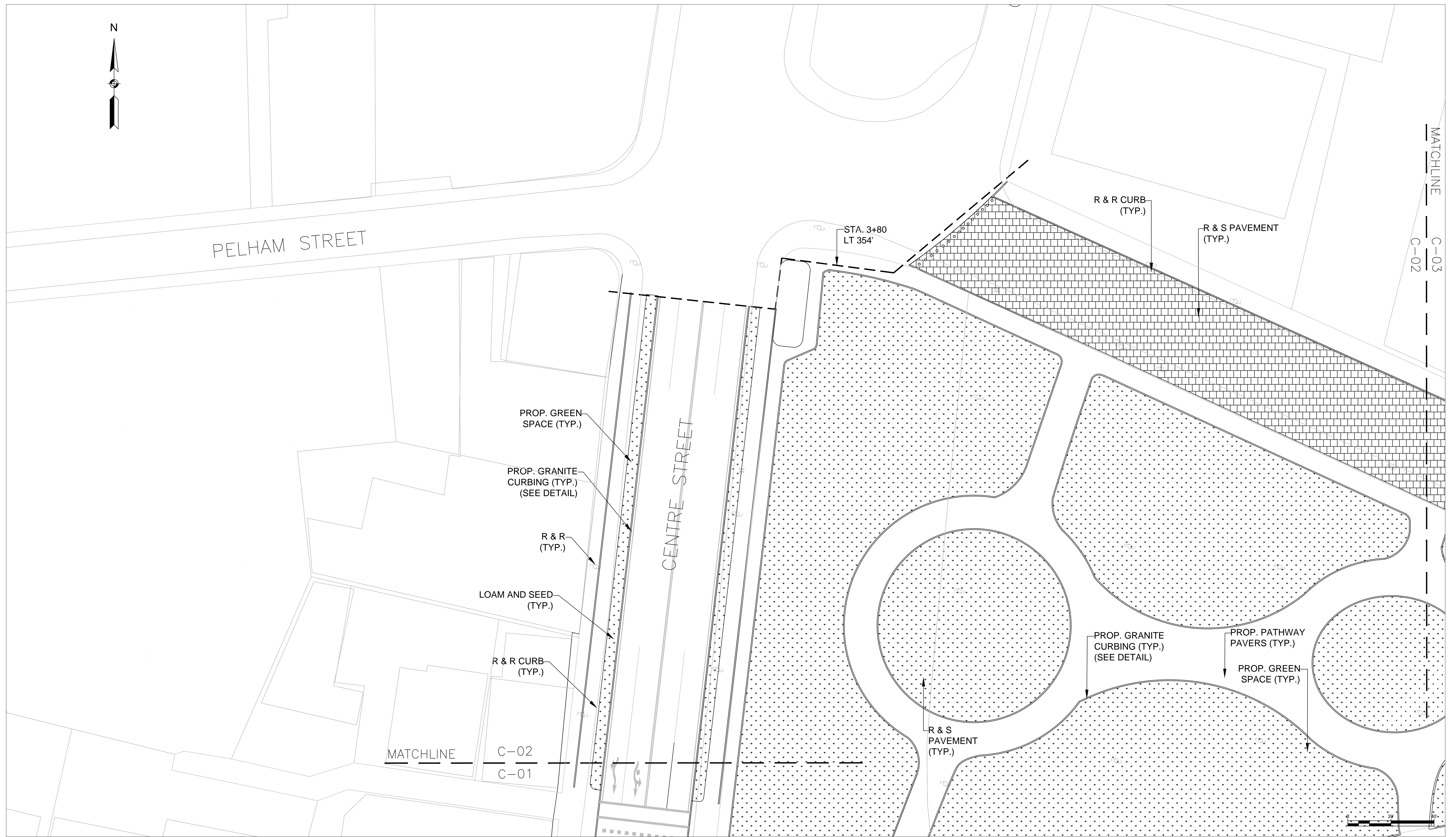


Northeastern University
College of Engineering



NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

| | | |
|------------------|--------------------|----------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: 1:20 |
| DRAWN BY: KAR | CHECKED BY: MHJ | SHEET NO. 1 OF 16 |
| TITLE: C-01 | | |



CONSTRUCTION PLAN
STATION 3+86 TO 7+72

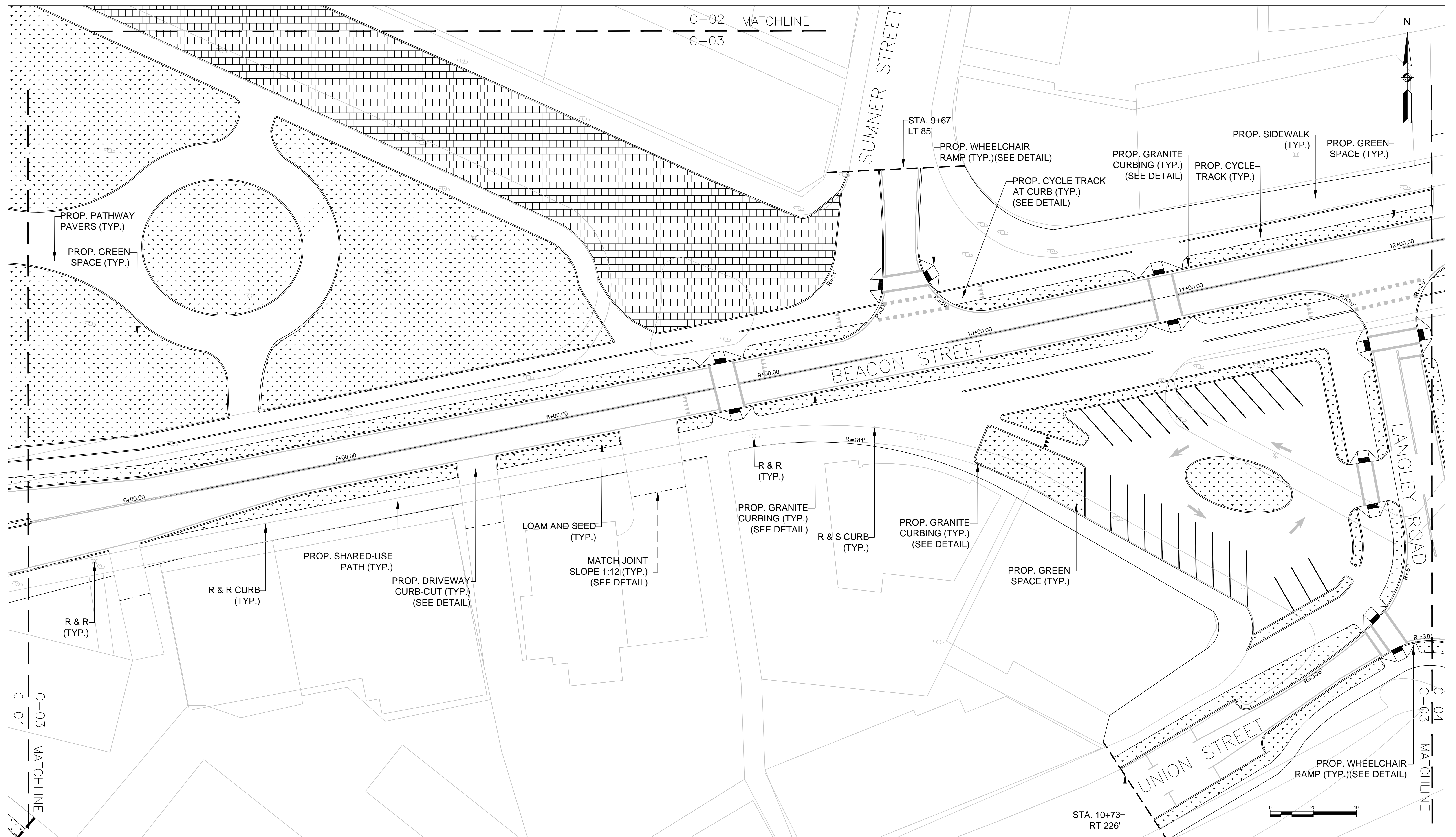


Northeastern University
College of Engineering



NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

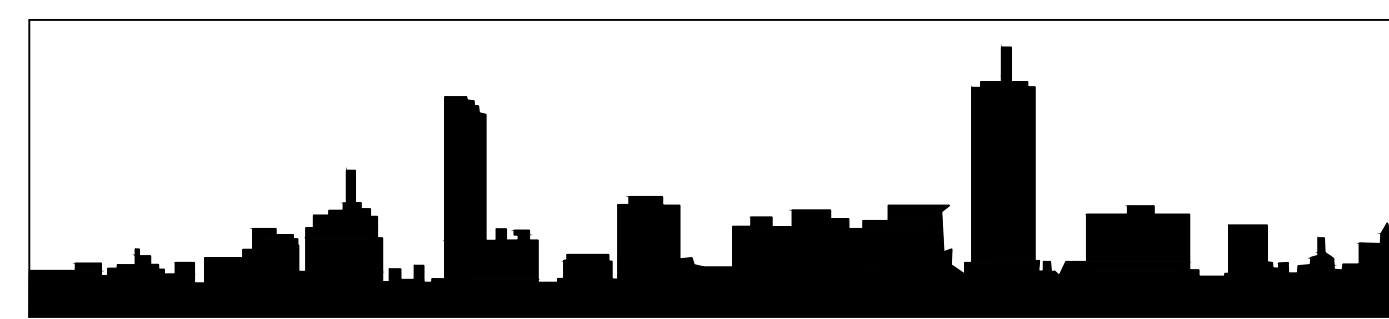
| | | |
|------------------|--------------------|----------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: 1:20 |
| DRAWN BY: MHJ | CHECKED BY: KAR | SHEET NO. 2 OF 16 |
| TITLE: C-02 | | |



CONSTRUCTION PLAN
STATION 5+65 TO 12+27

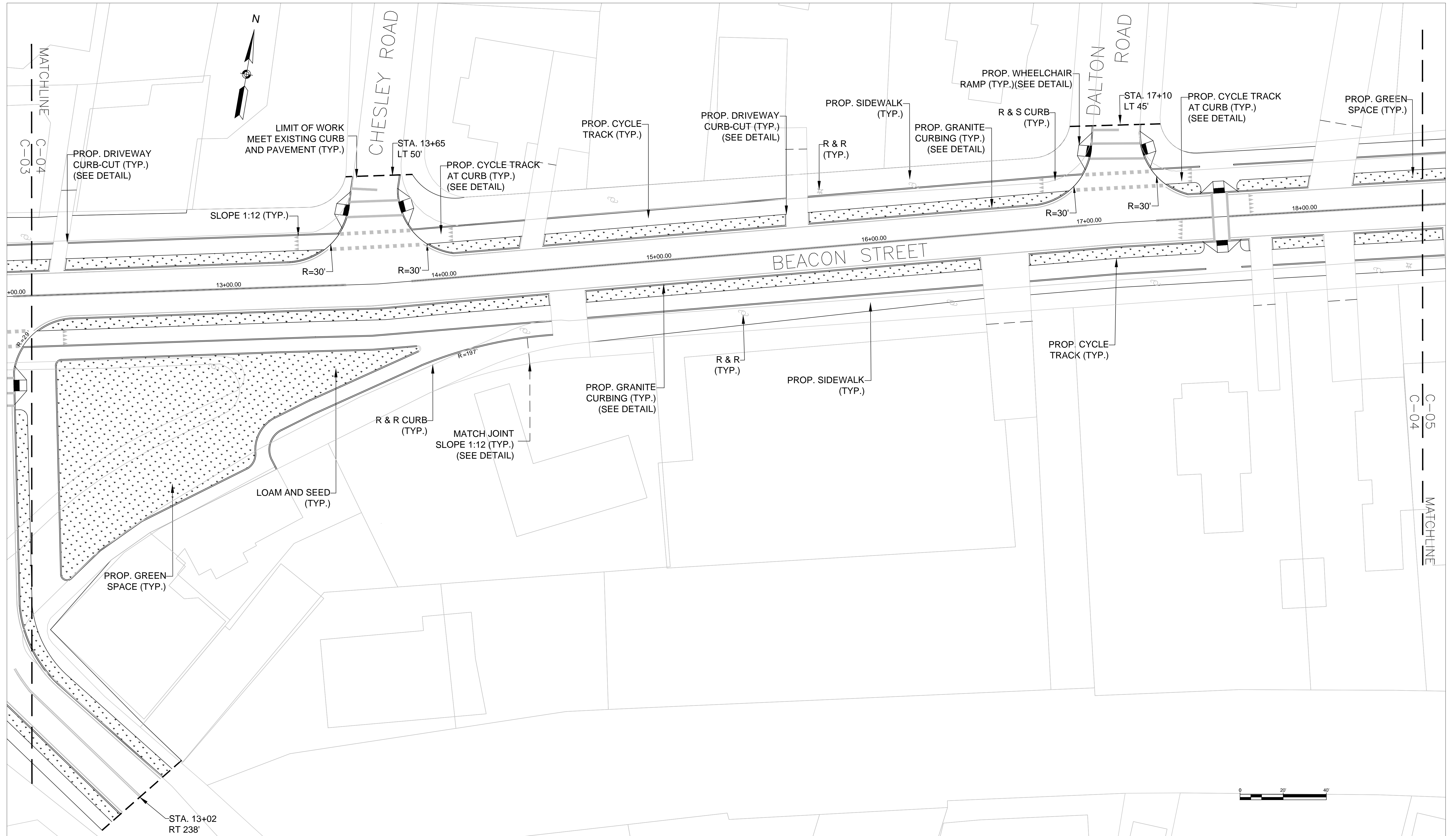


Northeastern University
College of Engineering



NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

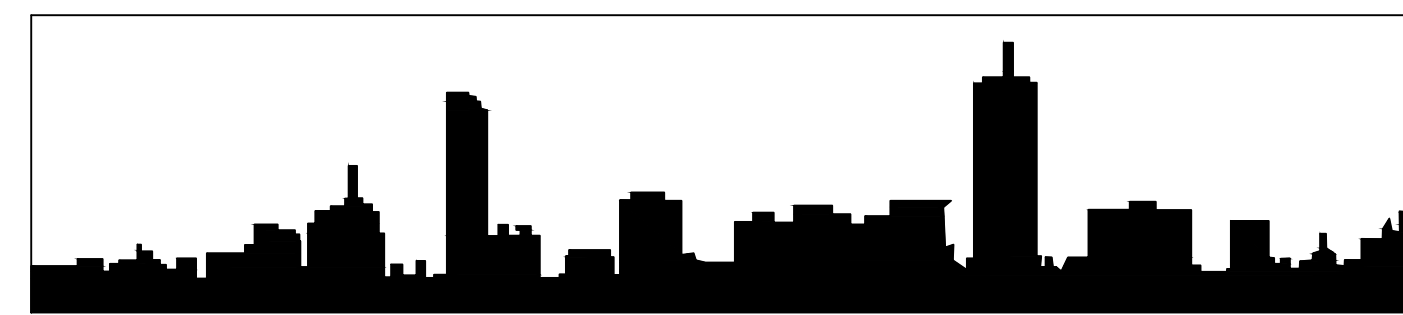
| | | |
|------------------|--------------------|----------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: 1:20 |
| DRAWN BY: MHJ | CHECKED BY: KAR | SHEET NO. 3 OF 16 |
| TITLE: C-03 | | |



CONSTRUCTION PLAN
STATION 12+27 TO 18+60

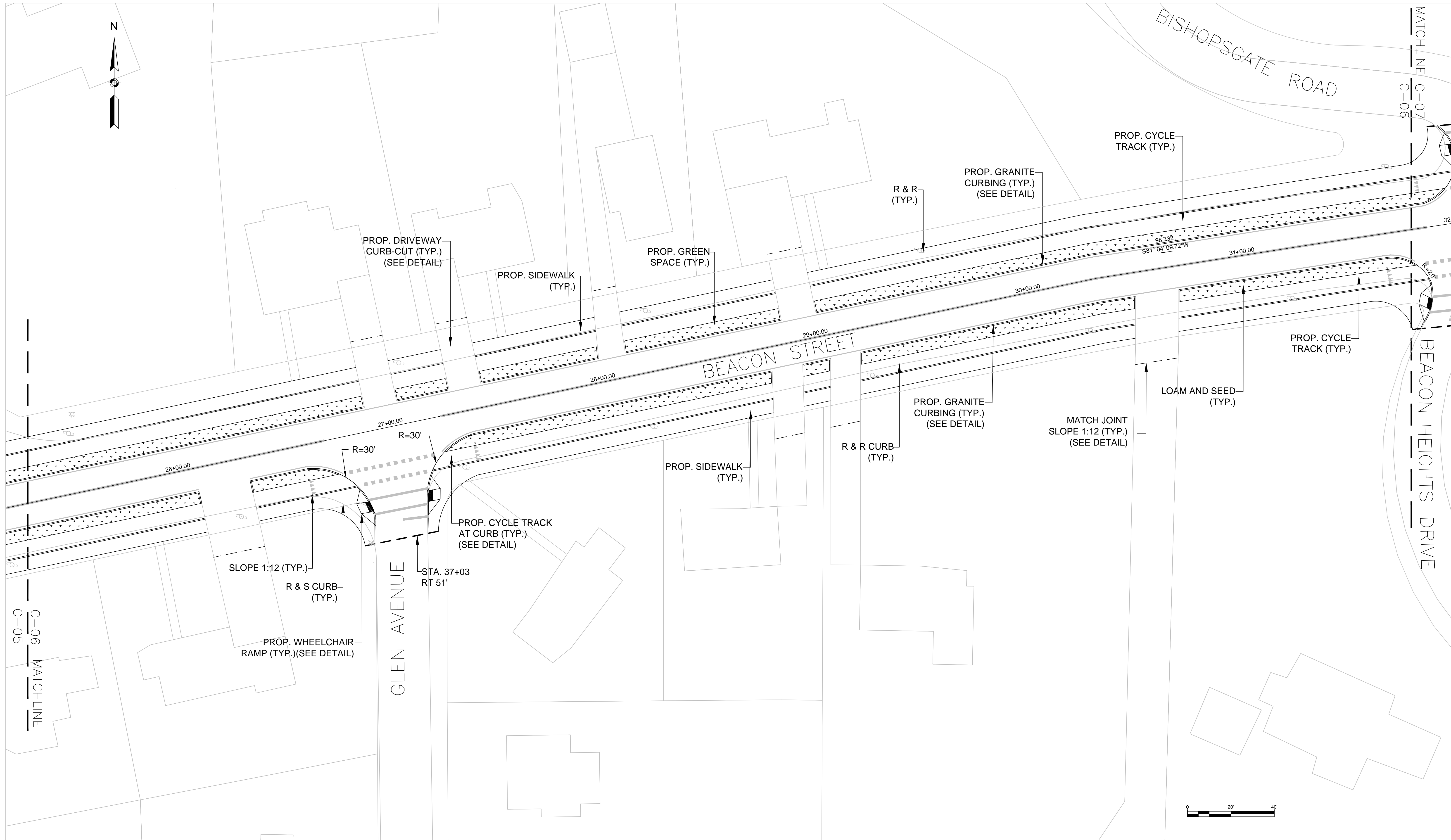


Northeastern University
College of Engineering



NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

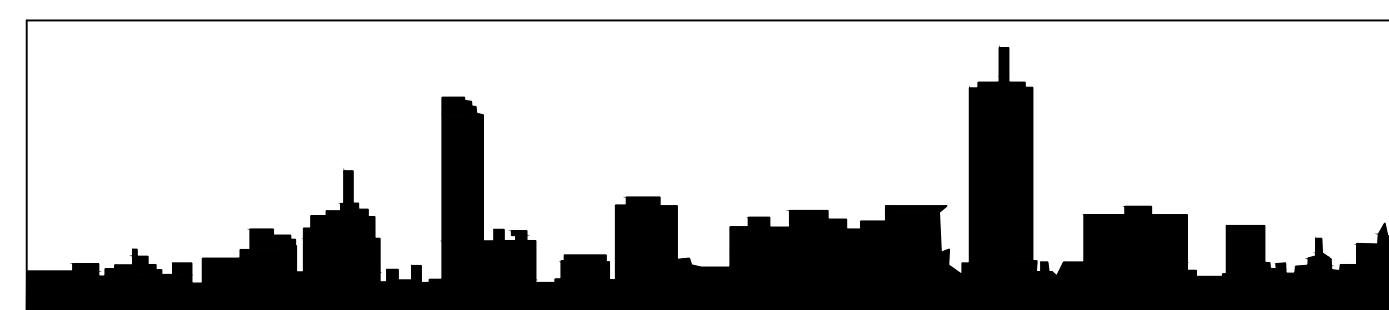
| | | |
|------------------|--------------------|----------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: 1:20 |
| DRAWN BY: MHJ | CHECKED BY: KAR | SHEET NO. 4 OF 16 |
| TITLE: C-04 | | |



CONSTRUCTION PLAN
STATION 25+29 TO 31+78

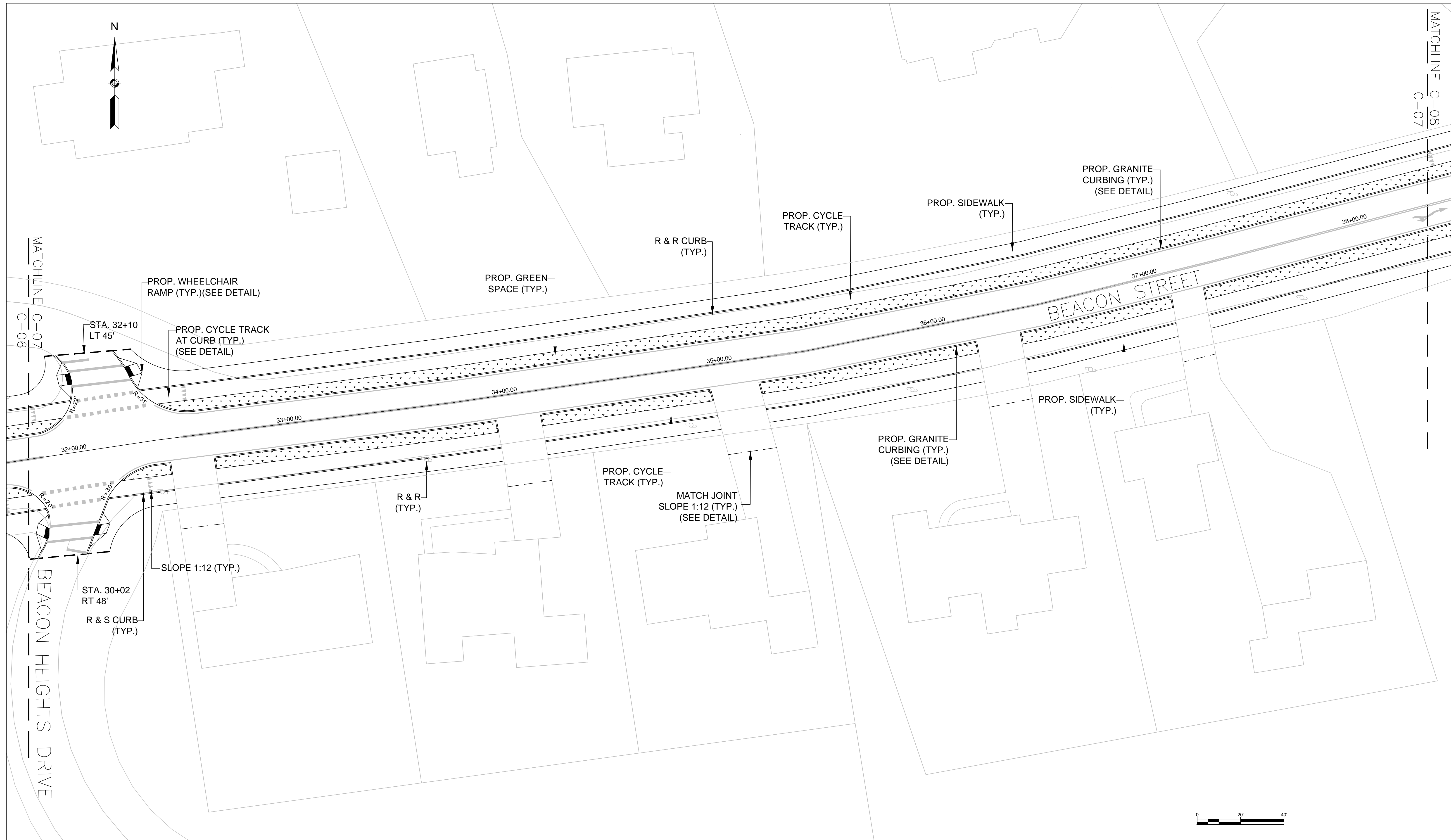


Northeastern University
College of Engineering



NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

| | | |
|------------------|--------------------|----------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: 1:20 |
| DRAWN BY: MHJ | CHECKED BY: KAR | SHEET NO. 6 OF 16 |
| TITLE: C-06 | | |



CONSTRUCTION PLAN
STATION 31+78 TO 38+35

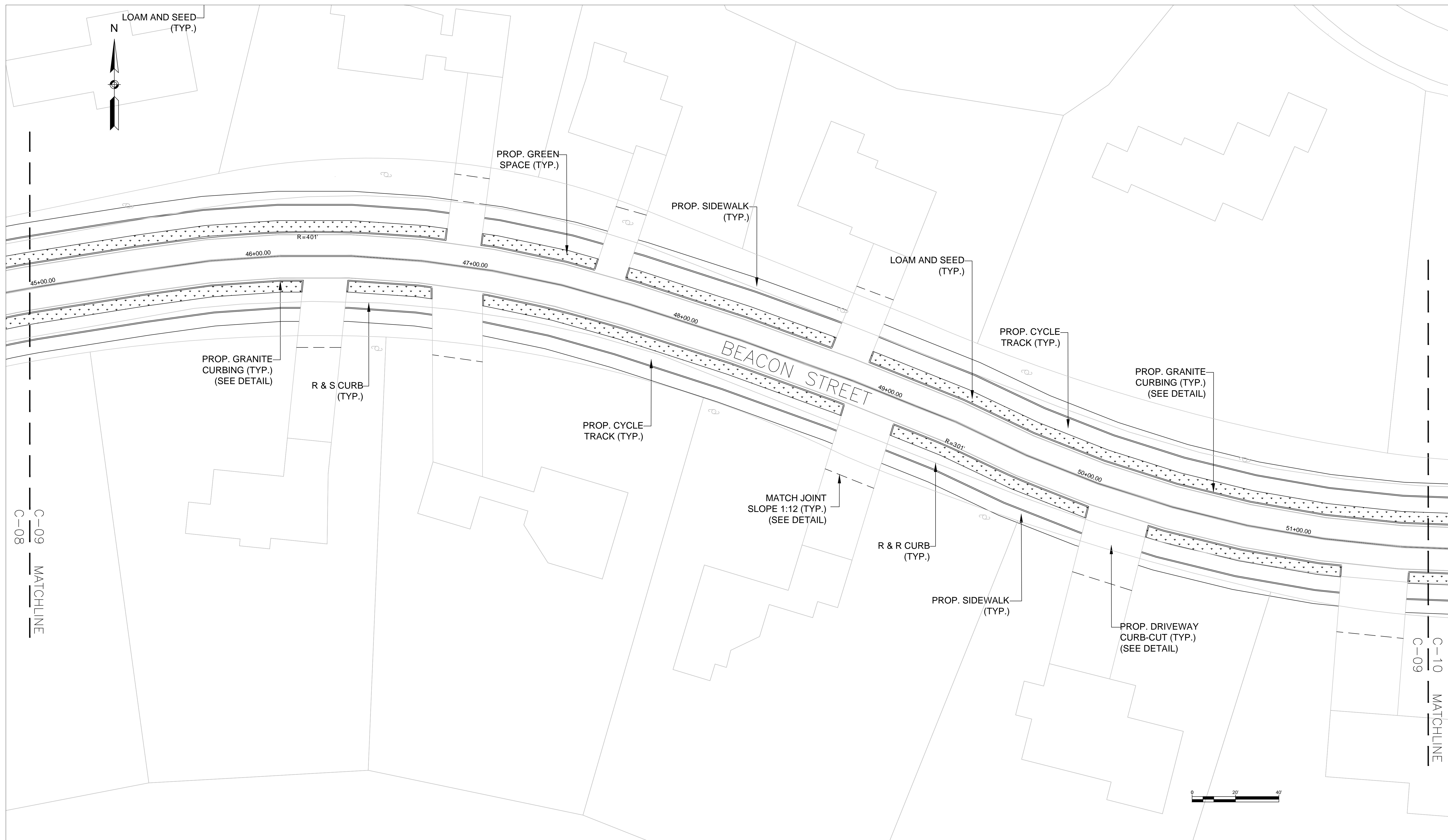


Northeastern University
College of Engineering



NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

| | | |
|------------------|--------------------|----------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: 1:20 |
| DRAWN BY: MHJ | CHECKED BY: KAR | SHEET NO. 7 OF 16 |
| TITLE: C-07 | | |



CONSTRUCTION PLAN
STATION 44+94 TO 51+60

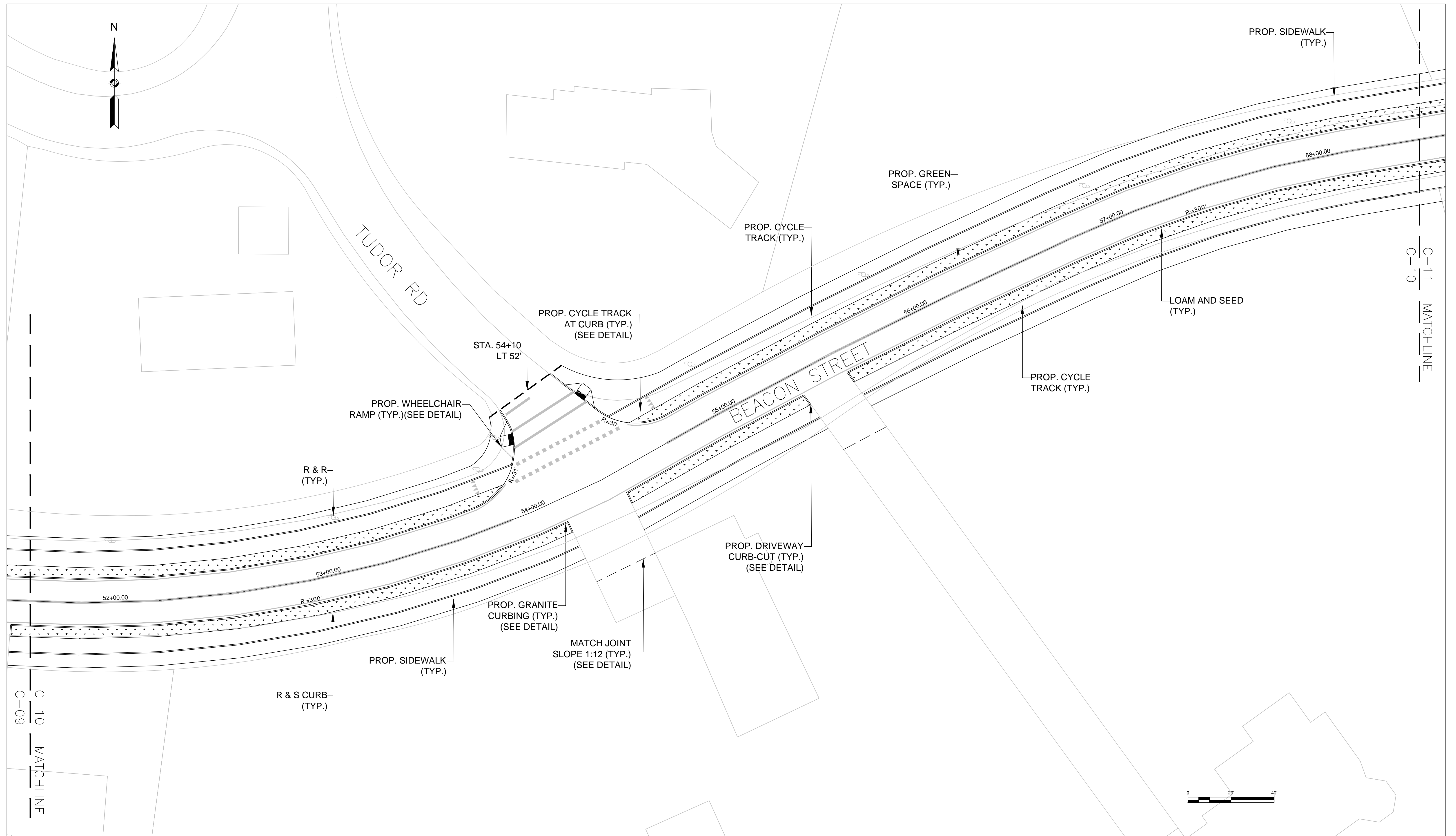


Northeastern University
College of Engineering



NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

| | | |
|------------------|--------------------|----------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: 1:20 |
| DRAWN BY: MHJ | CHECKED BY: KAR | SHEET NO. 9 OF 16 |
| TITLE: C-09 | | |



CONSTRUCTION PLAN
STATION 51+60 TO 58+48

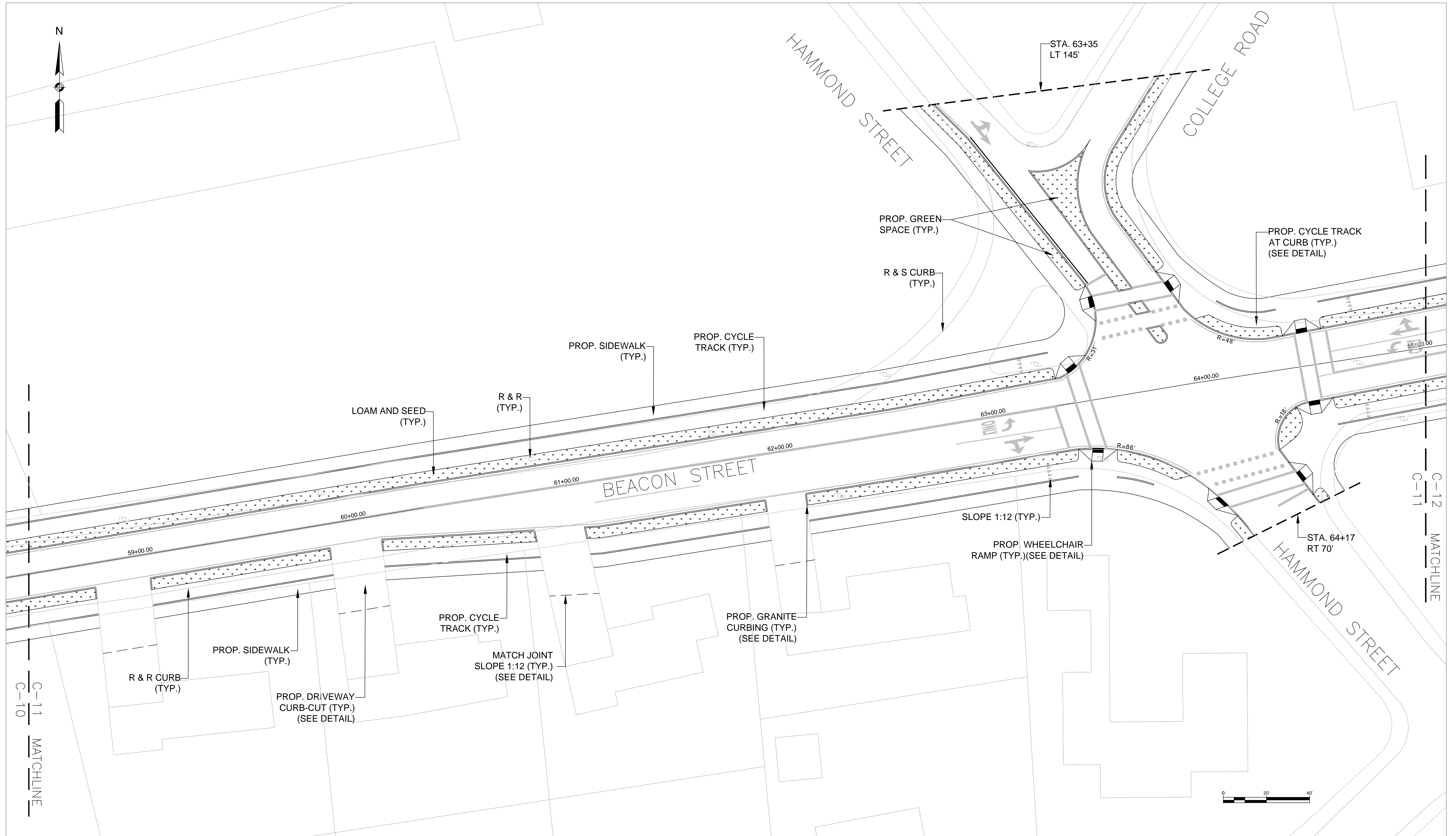


Northeastern University
College of Engineering



NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

| | | |
|------------------|--------------------|-----------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: 1:20 |
| DRAWN BY: MHJ | CHECKED BY: KAR | SHEET NO. 10 OF 16 |
| TITLE: C-10 | | |



CONSTRUCTION PLAN
STATION 58+48 TO 65+03

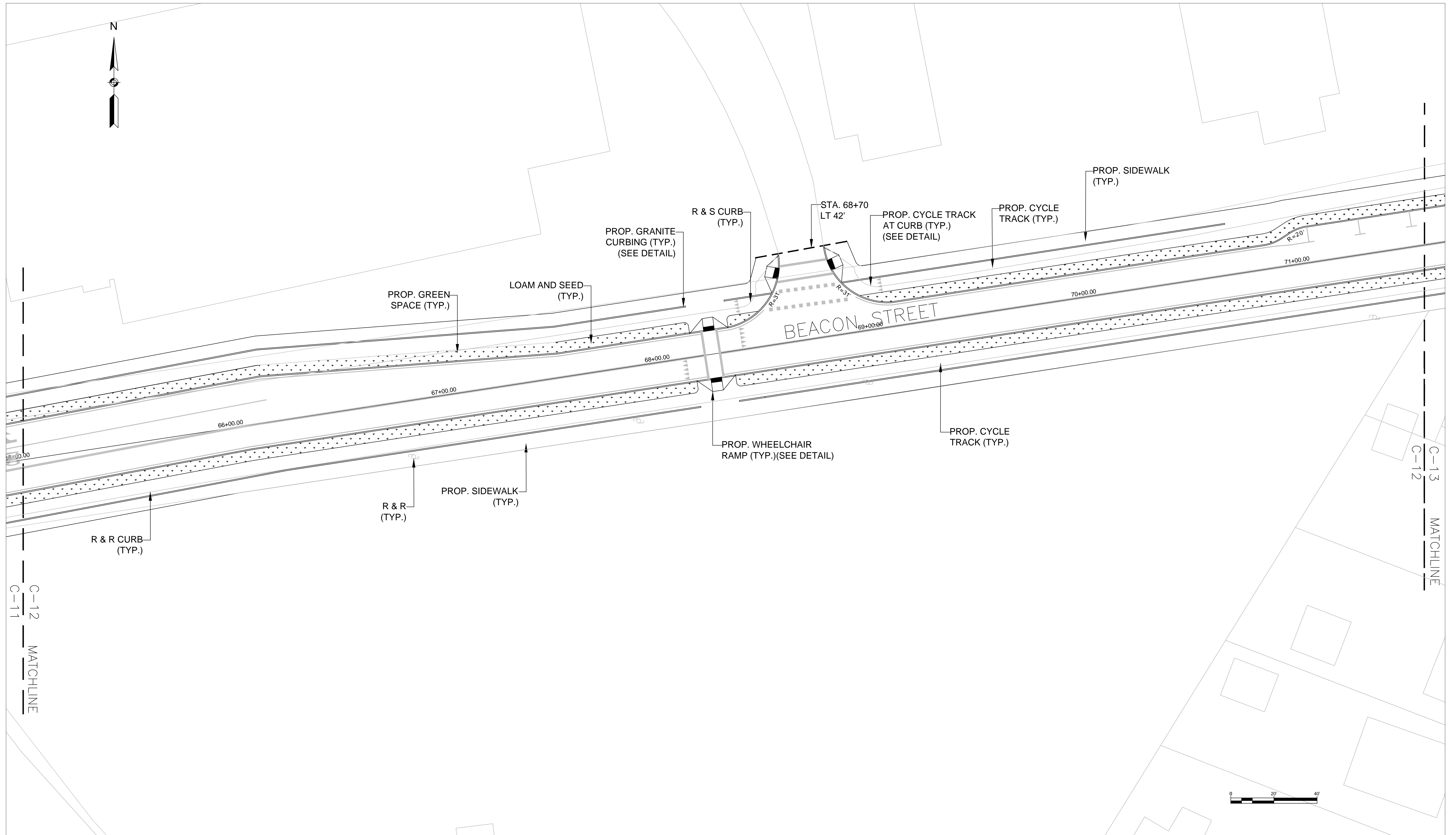


Northeastern University
College of Engineering



NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

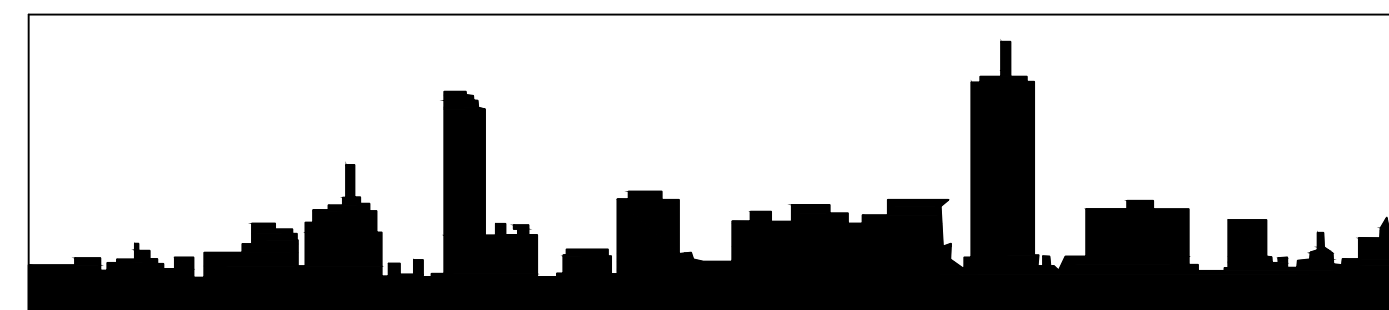
| | | |
|------------------|--------------------|-----------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: 1:20 |
| DRAWN BY: MHJ | CHECKED BY: KAR | SHEET NO. 11 OF 16 |
| TITLE: C-11 | | |



CONSTRUCTION PLAN
STATION 65+03 TO 71+55

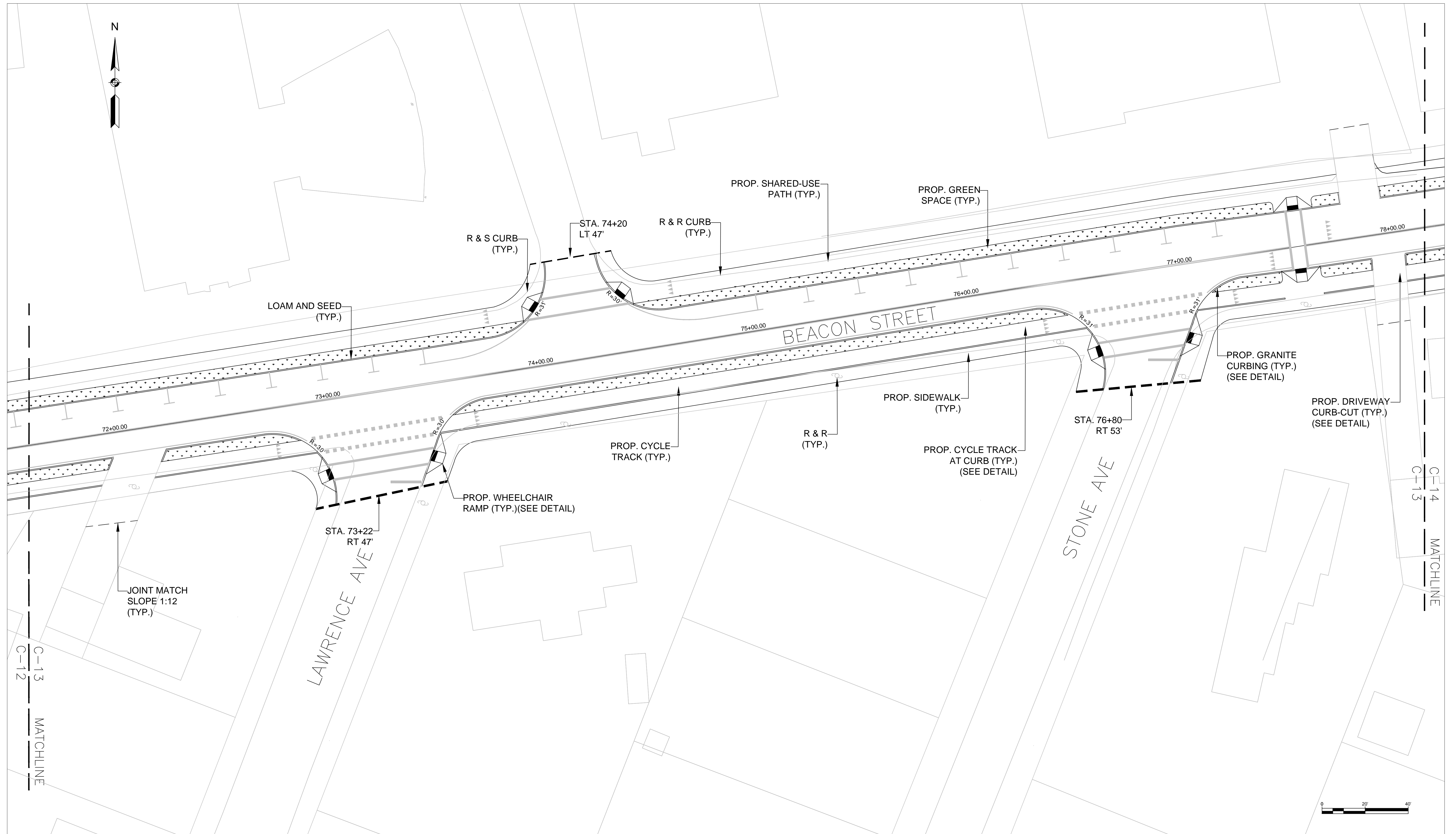


Northeastern University
College of Engineering



NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

| | | |
|------------------|--------------------|-----------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: 1:20 |
| DRAWN BY: MHJ | CHECKED BY: KAR | SHEET NO. 12 OF 16 |
| TITLE: C-12 | | |



CONSTRUCTION PLAN
STATION 71+55 TO 78+15

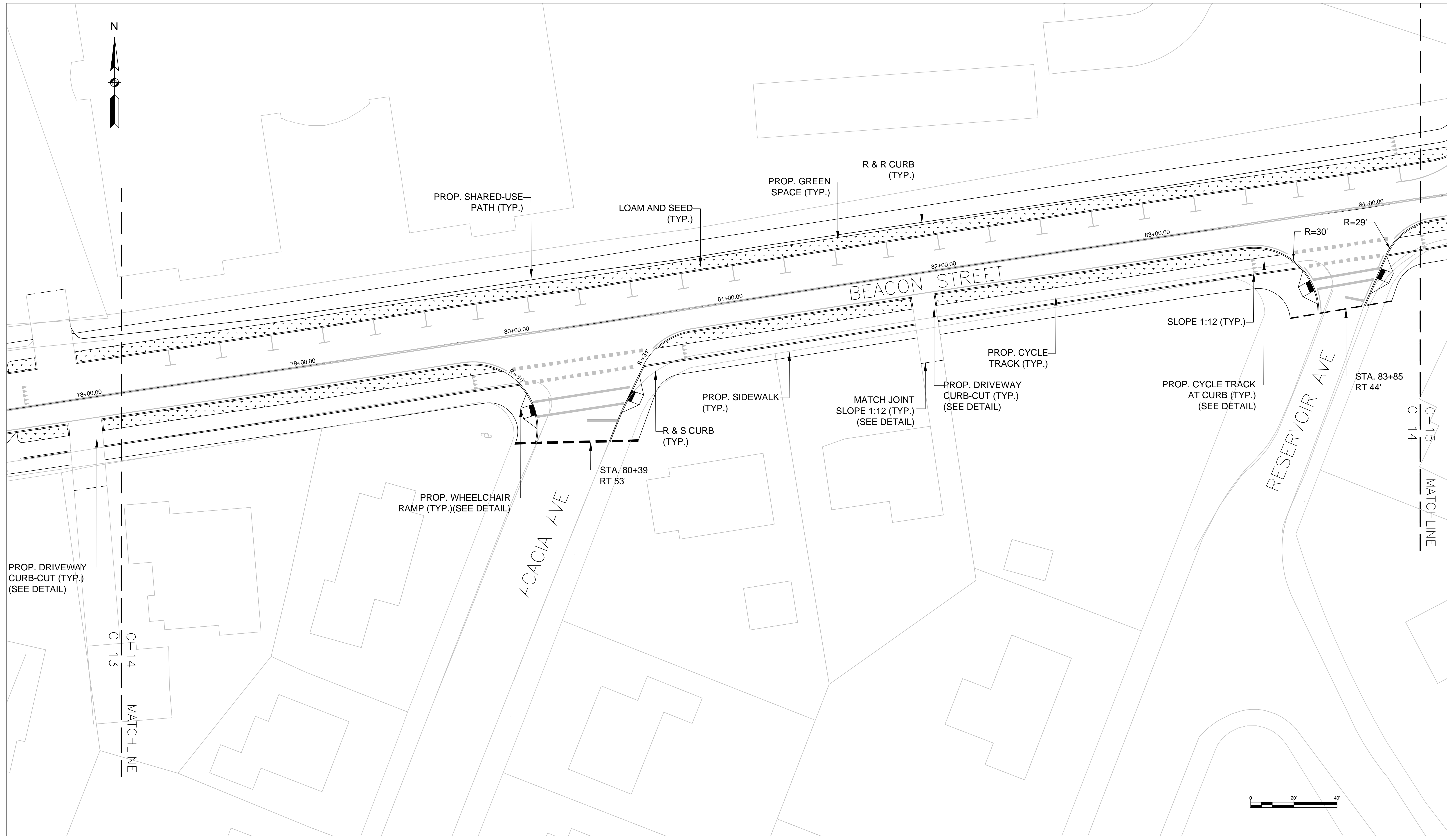


Northeastern University
College of Engineering



NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

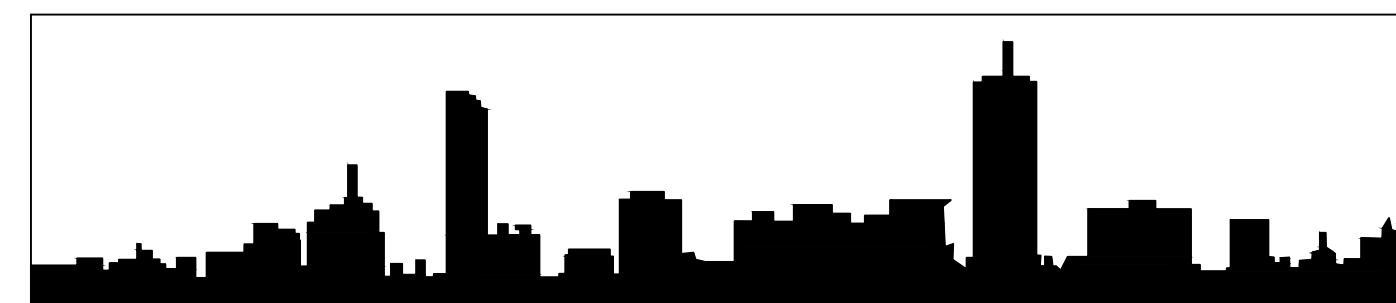
| | | |
|------------------|--------------------|-----------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: 1:20 |
| DRAWN BY: MHJ | CHECKED BY: KAR | SHEET NO. 13 OF 16 |
| TITLE: C-13 | | |



CONSTRUCTION PLAN
STATION 78+15 TO 84+23

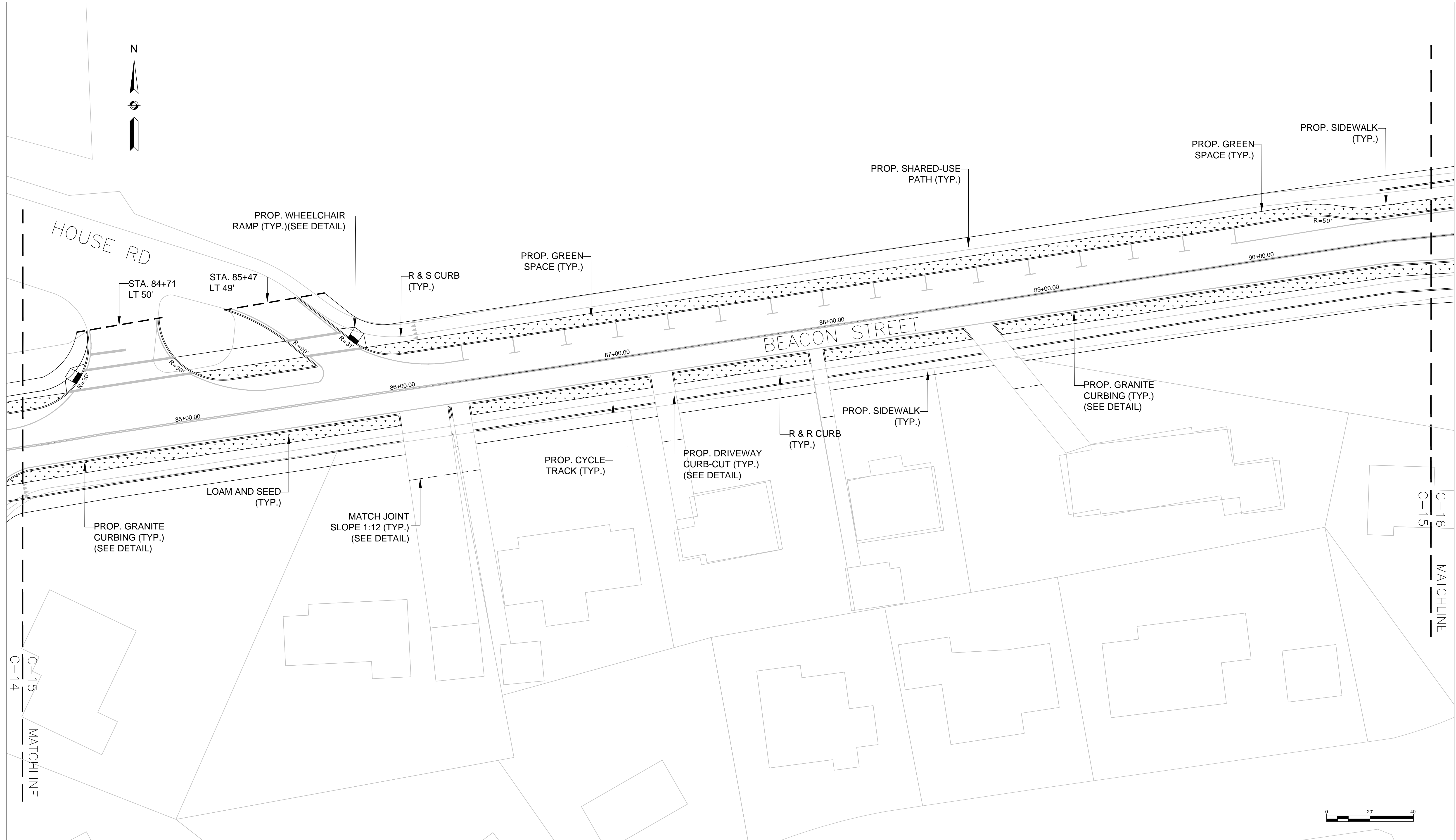


Northeastern University
College of Engineering



NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

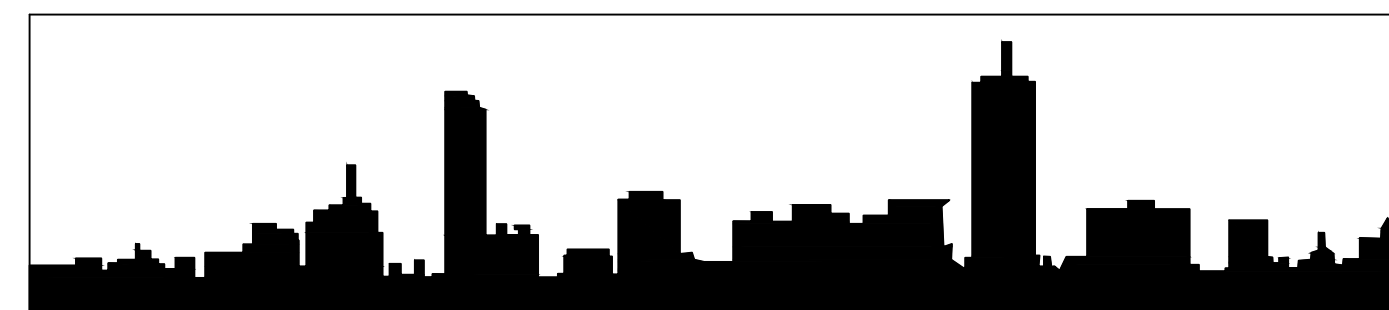
| | | |
|------------------|--------------------|----------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: 1:20 |
| DRAWN BY: MHJ | CHECKED BY: KAR | SHEET NO. 14 OF 6 |
| TITLE: C-14 | | |



CONSTRUCTION PLAN
STATION 84+23 TO 90+80

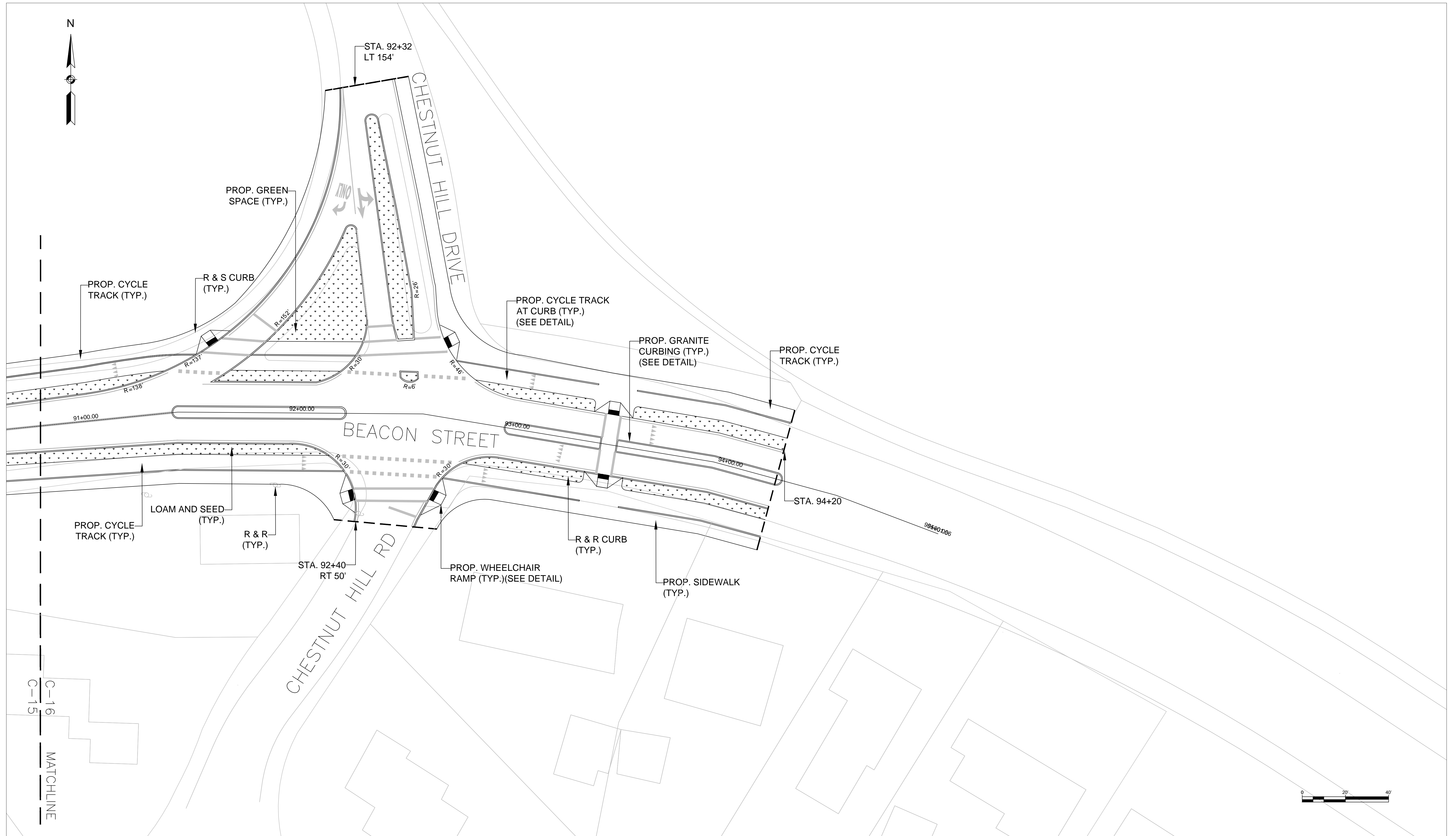


Northeastern University
College of Engineering



NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

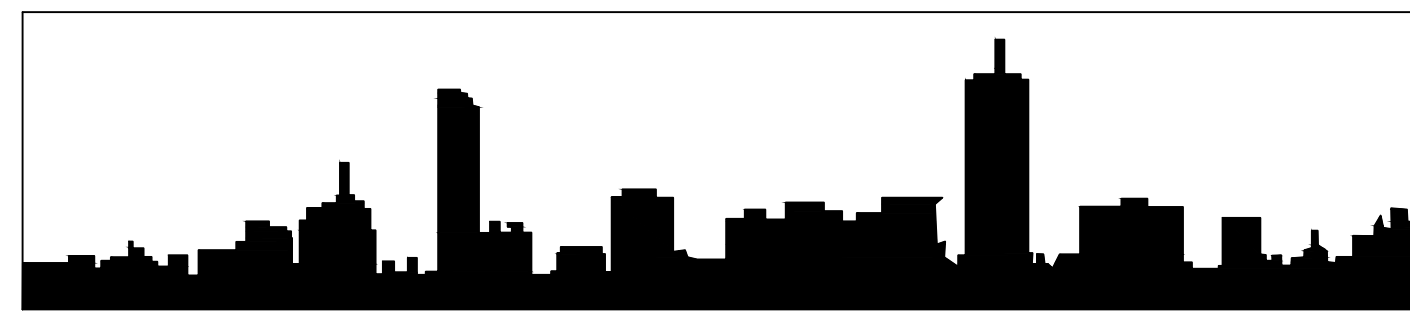
| | | |
|------------------|--------------------|-----------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: 1:20 |
| DRAWN BY: MHJ | CHECKED BY: KAR | SHEET NO. 15 OF 16 |
| TITLE: C-15 | | |



CONSTRUCTION PLAN
STATION 90+80 TO 95+00

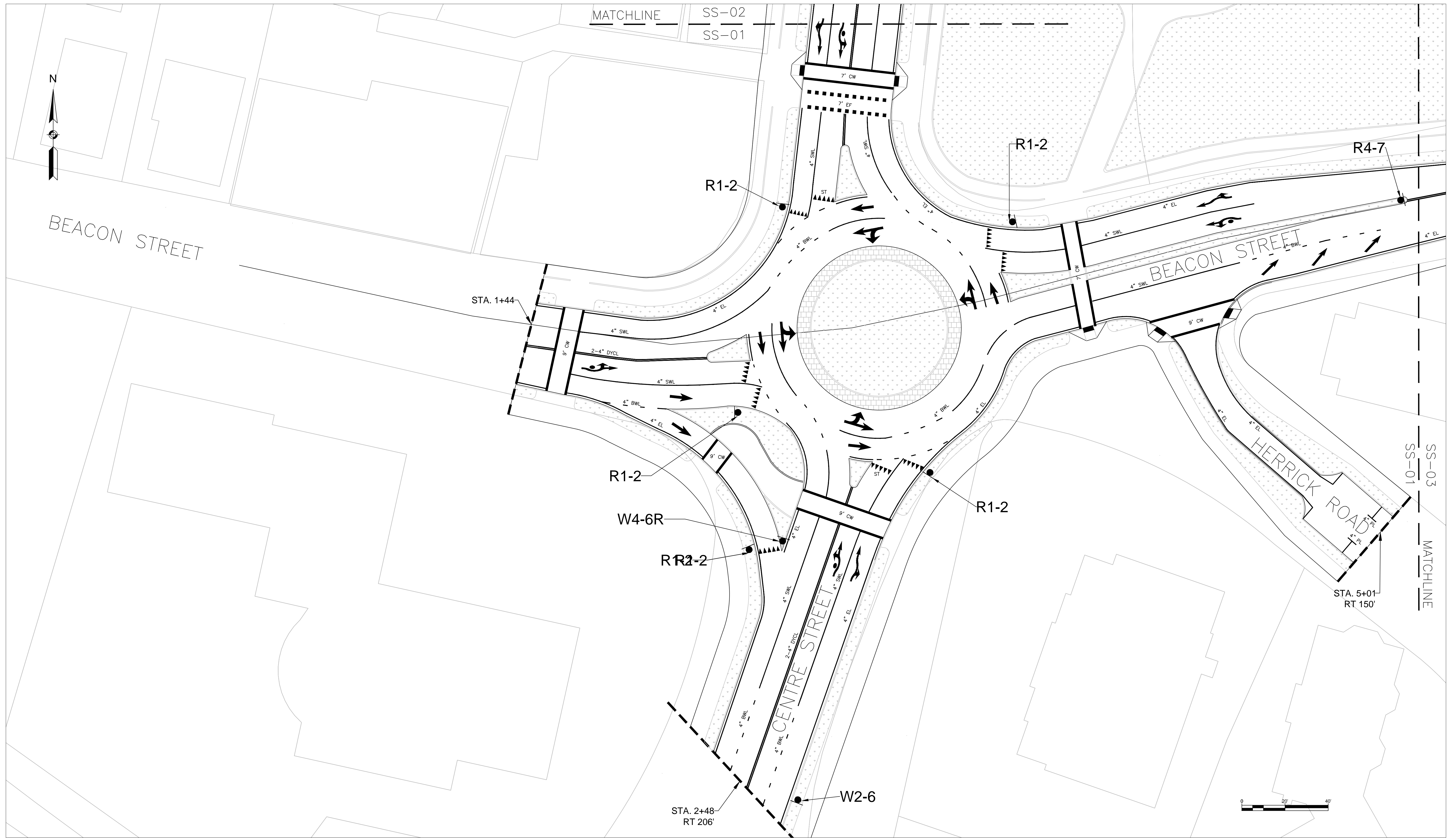


Northeastern University
College of Engineering



NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

| | | |
|------------------|--------------------|-----------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: 1:20 |
| DRAWN BY: MHJ | CHECKED BY: KAR | SHEET NO. 16 OF 16 |
| TITLE: C-16 | | |



SIGNAGE AND STRIPING PLAN
STATION 1+44 TO 5+65

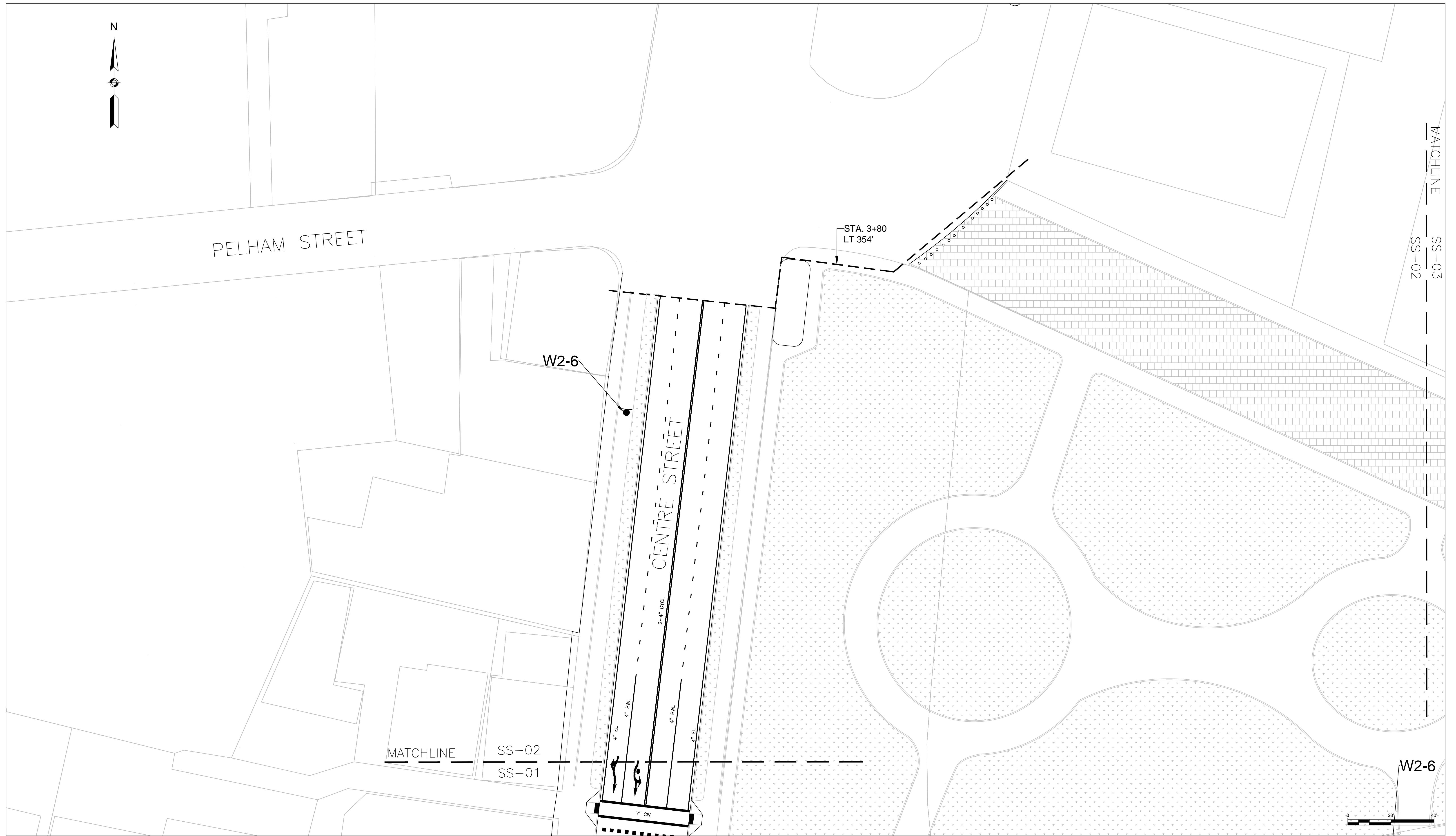


Northeastern University
College of Engineering



NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

| | | |
|------------------|--------------------|----------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: 1:20 |
| DRAWN BY: KAR | CHECKED BY: NMG | SHEET NO. 1 OF 16 |
| TITLE: SS-01 | | |



SIGNAGE AND STRIPING PLAN
STATION 3+86 TO 7+72

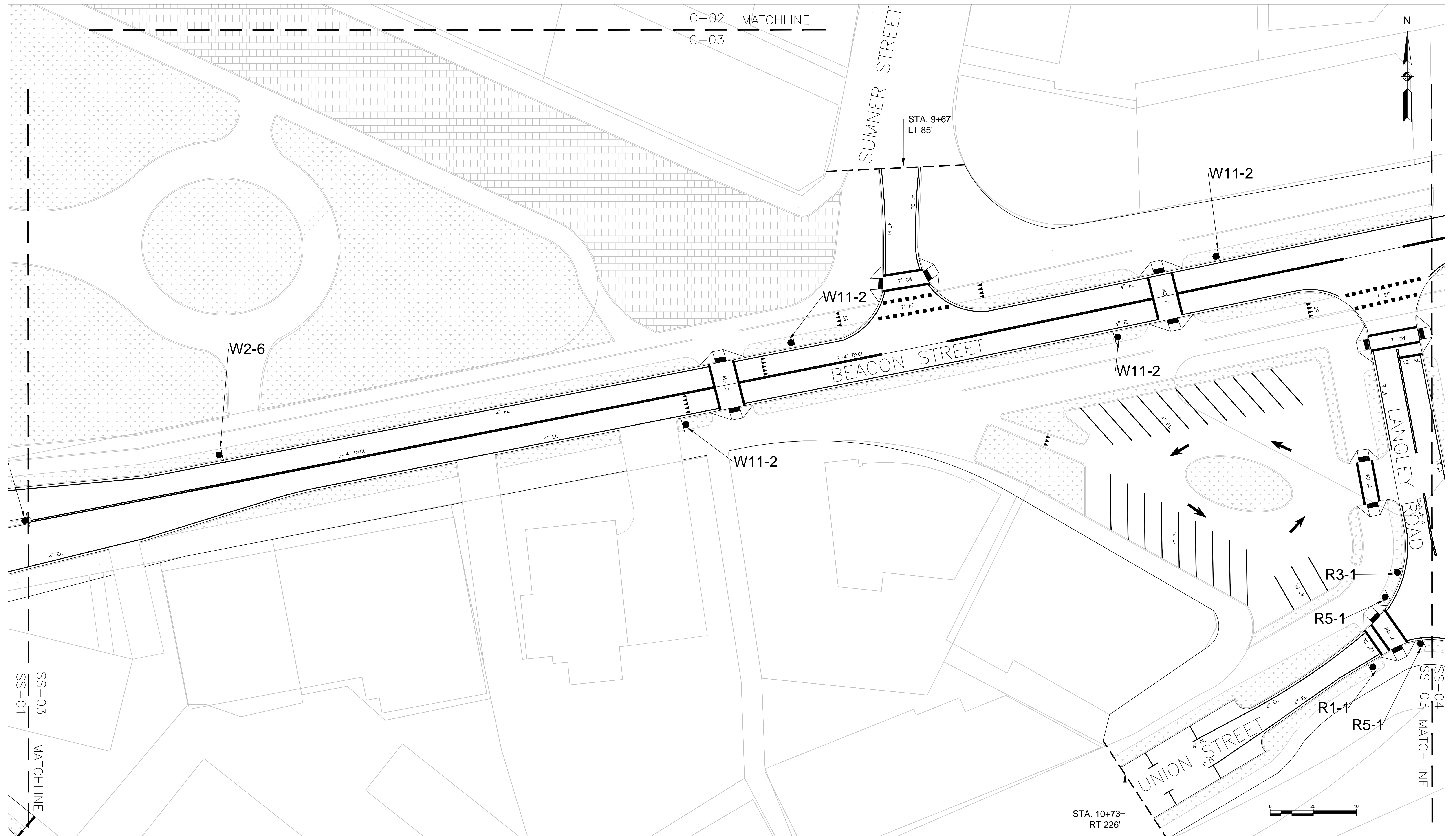


Northeastern University
College of Engineering



NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

| | | |
|------------------|--------------------|----------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: 1:20 |
| DRAWN BY: MHJ | CHECKED BY: NMG | SHEET NO. 2 OF 16 |
| TITLE: SS-02 | | |



SIGNAGE AND STRIPING PLAN
STATION 5+65 TO 12+27

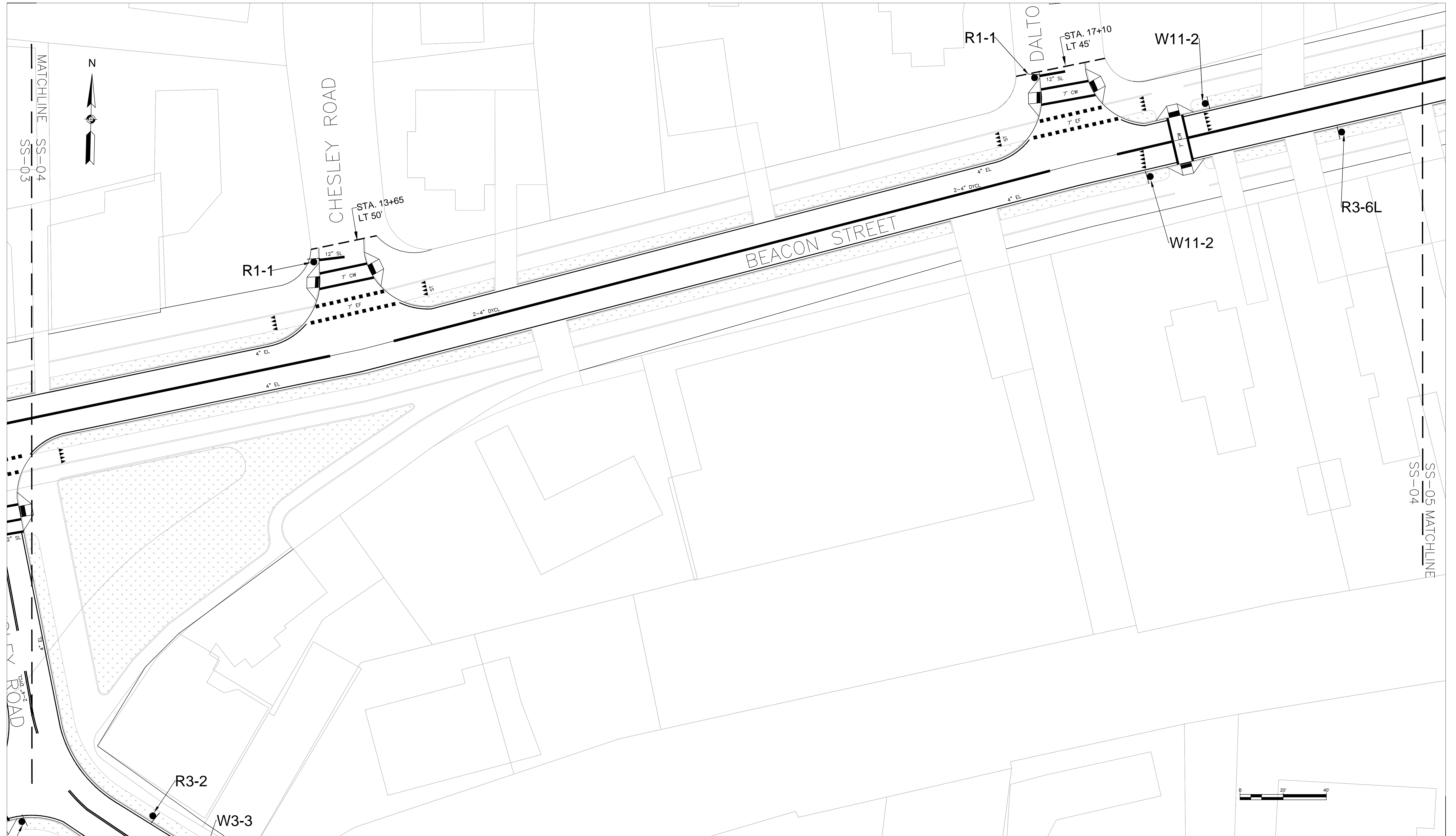


Northeastern University
College of Engineering



NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

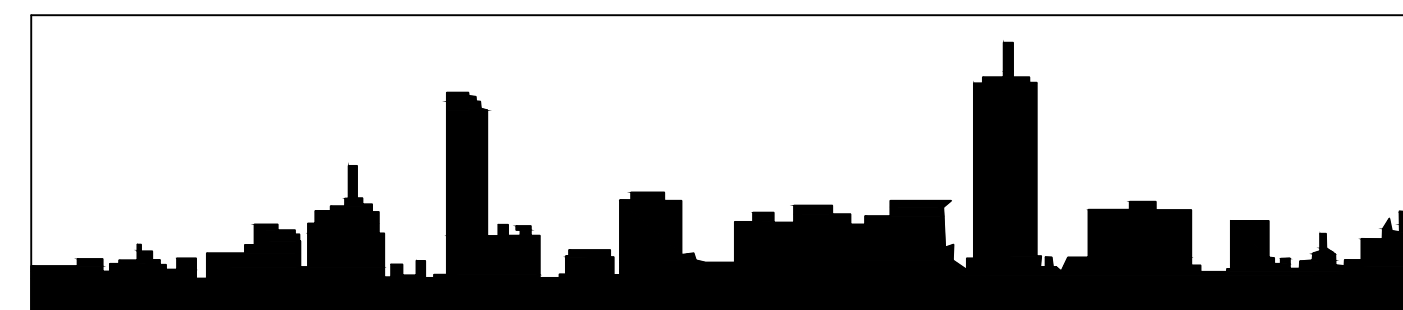
| | | |
|------------------|--------------------|----------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: 1:20 |
| DRAWN BY: MHJ | CHECKED BY: NMG | SHEET NO. 3 OF 16 |
| TITLE: SS-03 | | |



SIGNAGE AND STRIPING PLAN
STATION 12+27 TO 18+60

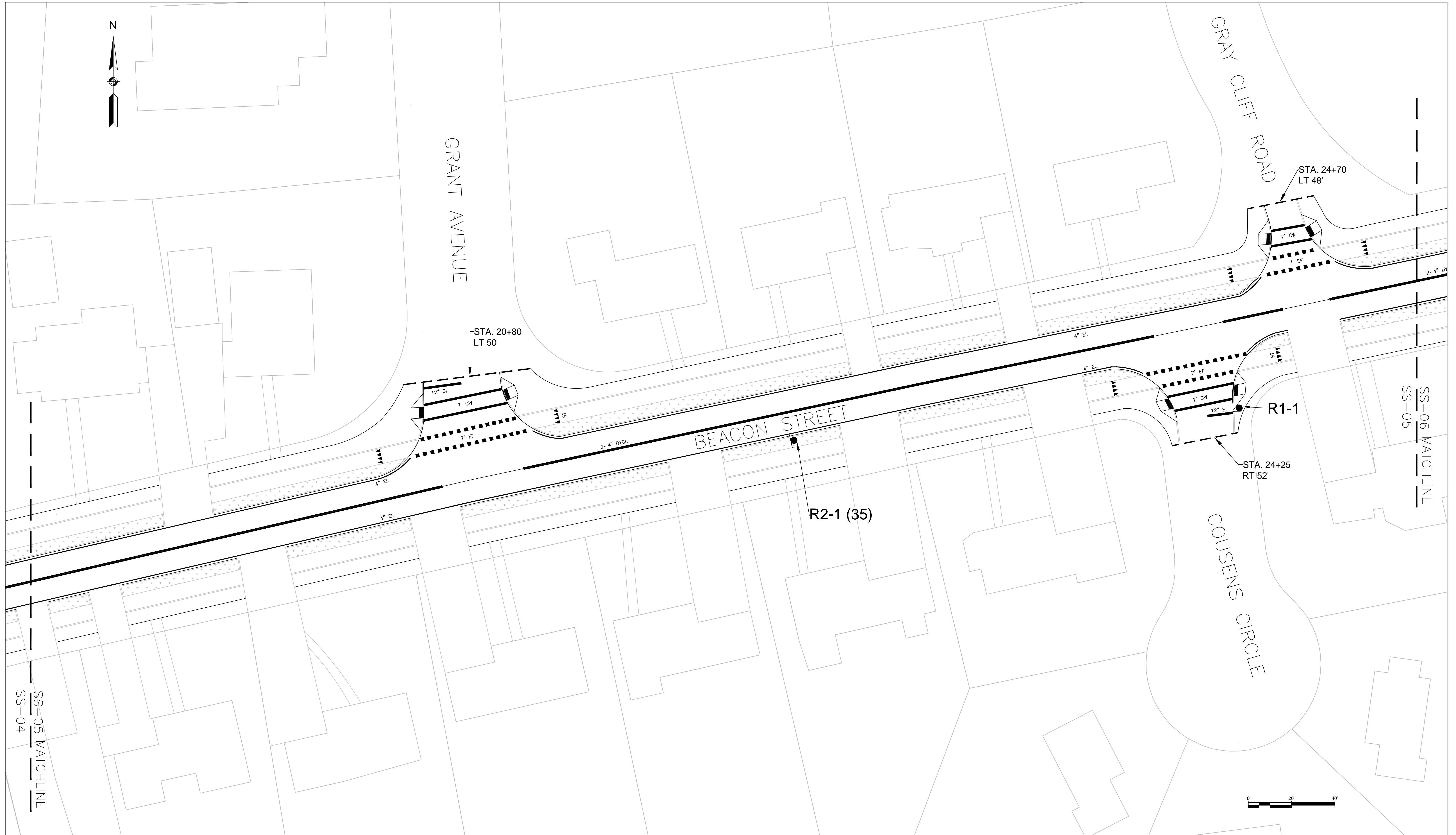


Northeastern University
College of Engineering



NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

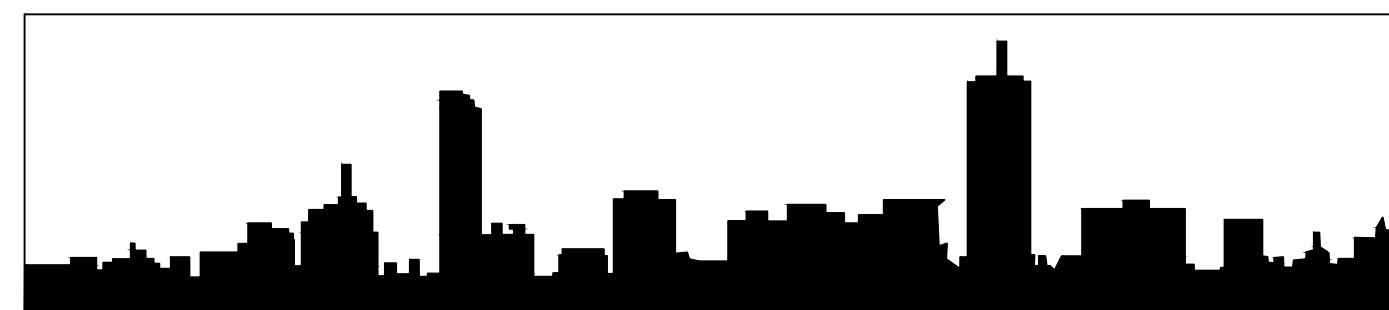
| | | |
|------------------|--------------------|----------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: 1:20 |
| DRAWN BY: MHJ | CHECKED BY: NMG | SHEET NO. 4 OF 16 |
| TITLE: SS-04 | | |



SIGNAGE AND STRIPING PLAN
STATION 18+60 TO 25+29

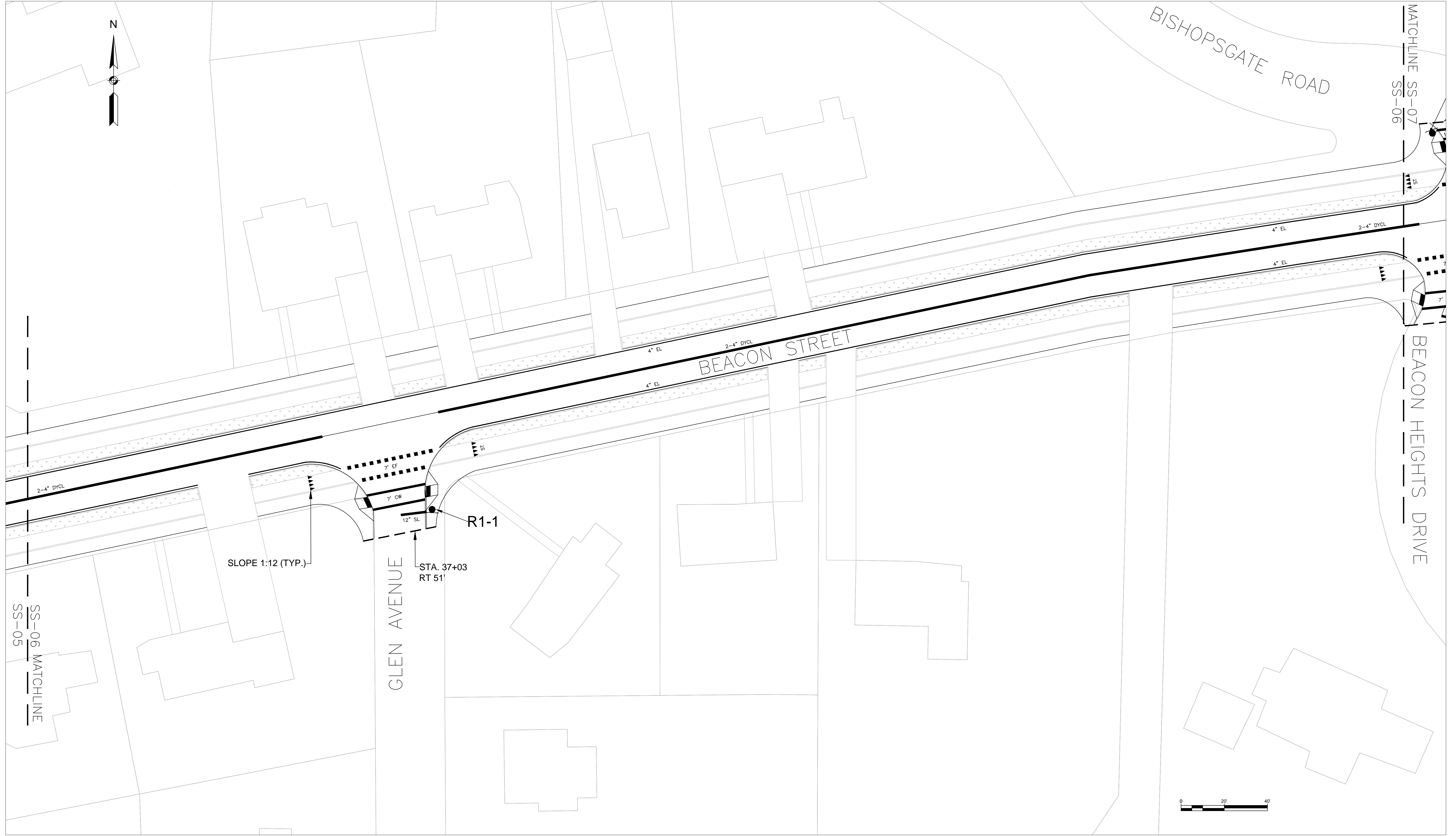


Northeastern University
College of Engineering



NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

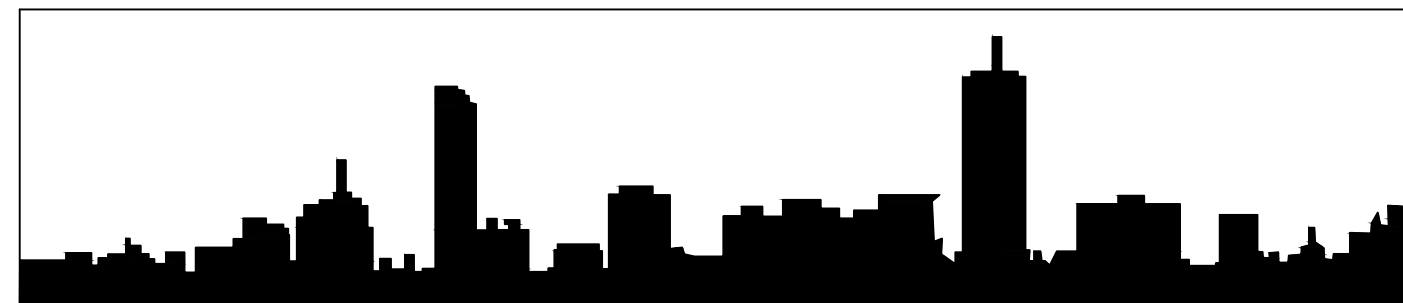
| | | |
|------------------|--------------------|----------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: 1:20 |
| DRAWN BY: MHJ | CHECKED BY: NMG | SHEET NO. 5 OF 16 |
| TITLE: SS-05 | | |



SIGNAGE AND STRIPING PLAN
STATION 25+29 TO 31+78



Northeastern University
College of Engineering



NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

| | | |
|------------------|--------------------|----------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: 1:20 |
| DRAWN BY: MHJ | CHECKED BY: NMG | SHEET NO. 6 OF 16 |
| TITLE: SS-06 | | |



SIGNAGE AND STRIPING PLAN
STATION 31+78 TO 38+35

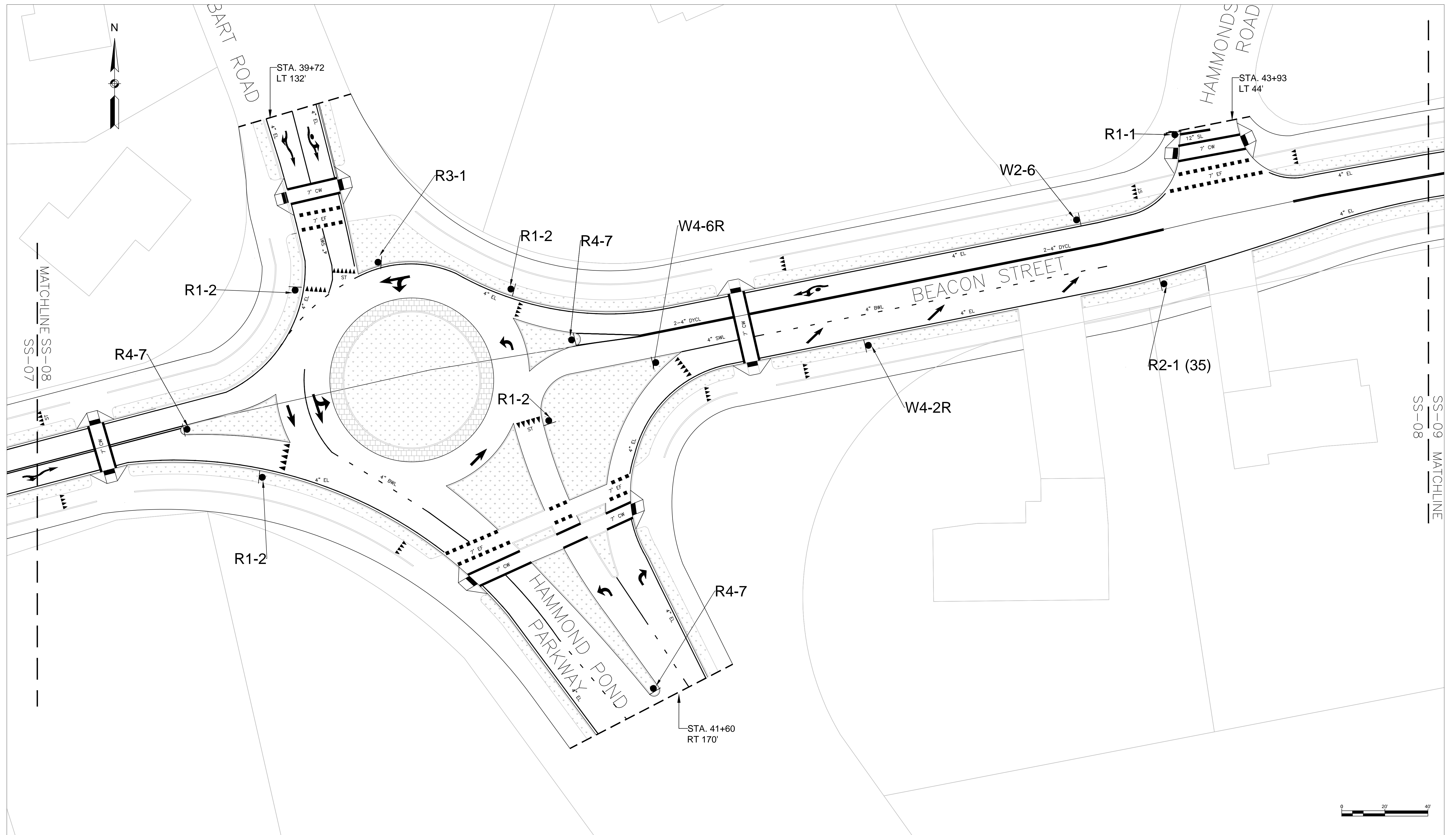


Northeastern University
College of Engineering



NEW ENGLAND STREETScape CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

| | | |
|------------------|--------------------|----------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: 1:20 |
| DRAWN BY: MHJ | CHECKED BY: NMG | SHEET NO. 7 OF 16 |
| TITLE: SS-07 | | |



SIGNAGE AND STRIPING PLAN
STATION 38+35 TO 44+94

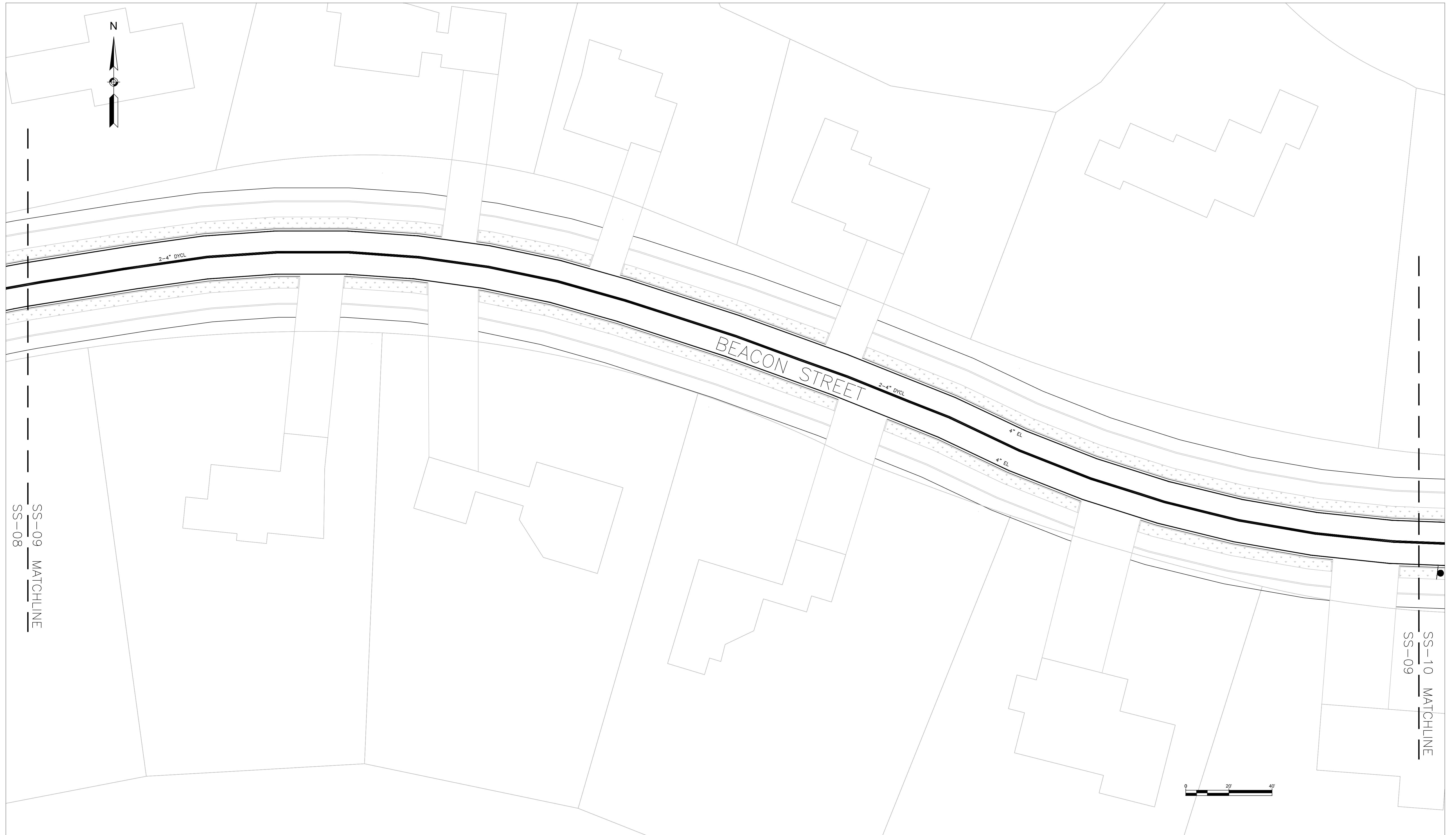


Northeastern University
College of Engineering



NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

| | | |
|------------------|--------------------|----------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: 1:20 |
| DRAWN BY: MHJ | CHECKED BY: NMG | SHEET NO. 8 OF 16 |
| TITLE: SS-08 | | |



SIGNAGE AND STRIPING PLAN
STATION 44+94 TO 51+60

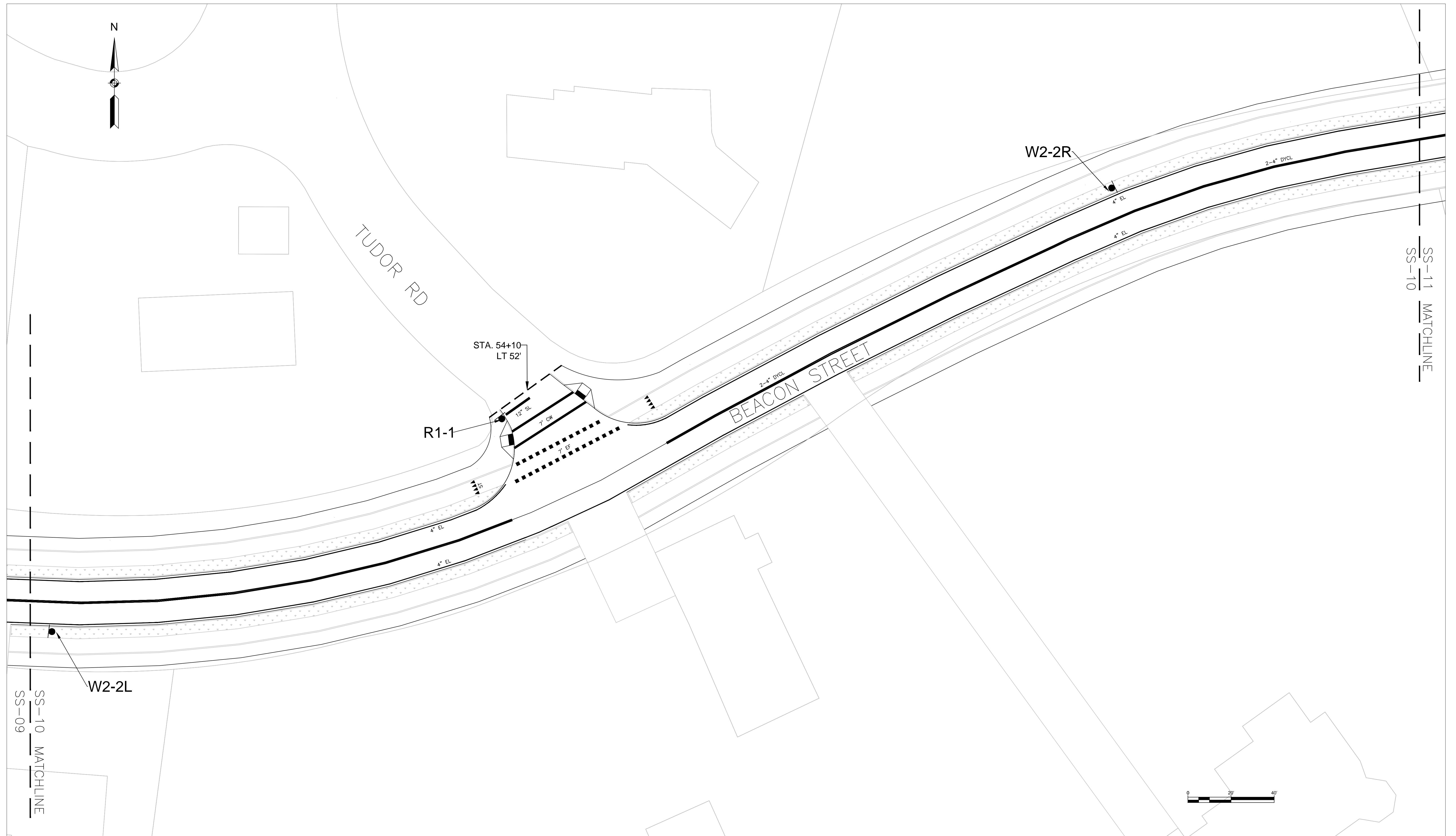


Northeastern University
College of Engineering



NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

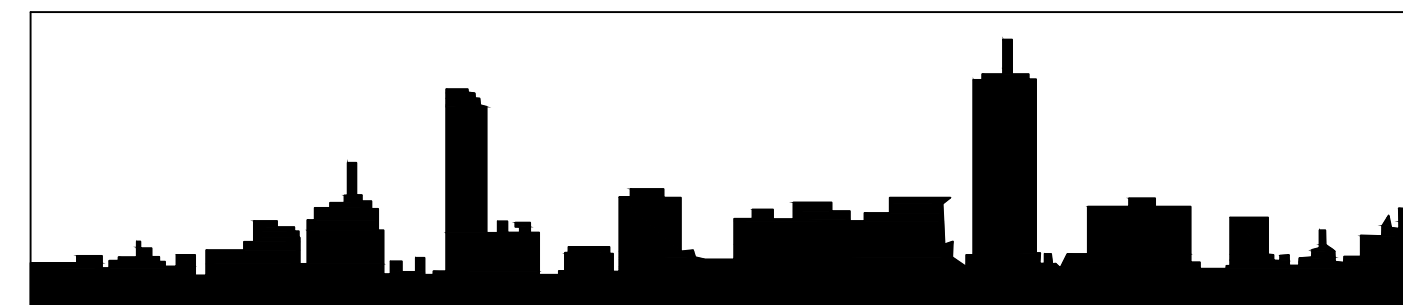
| | | |
|------------------|--------------------|----------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: 1:20 |
| DRAWN BY: MHJ | CHECKED BY: NMG | SHEET NO. 9 OF 16 |
| TITLE: SS-09 | | |



SIGNAGE AND STRIPING PLAN
STATION 51+60 TO 58+48

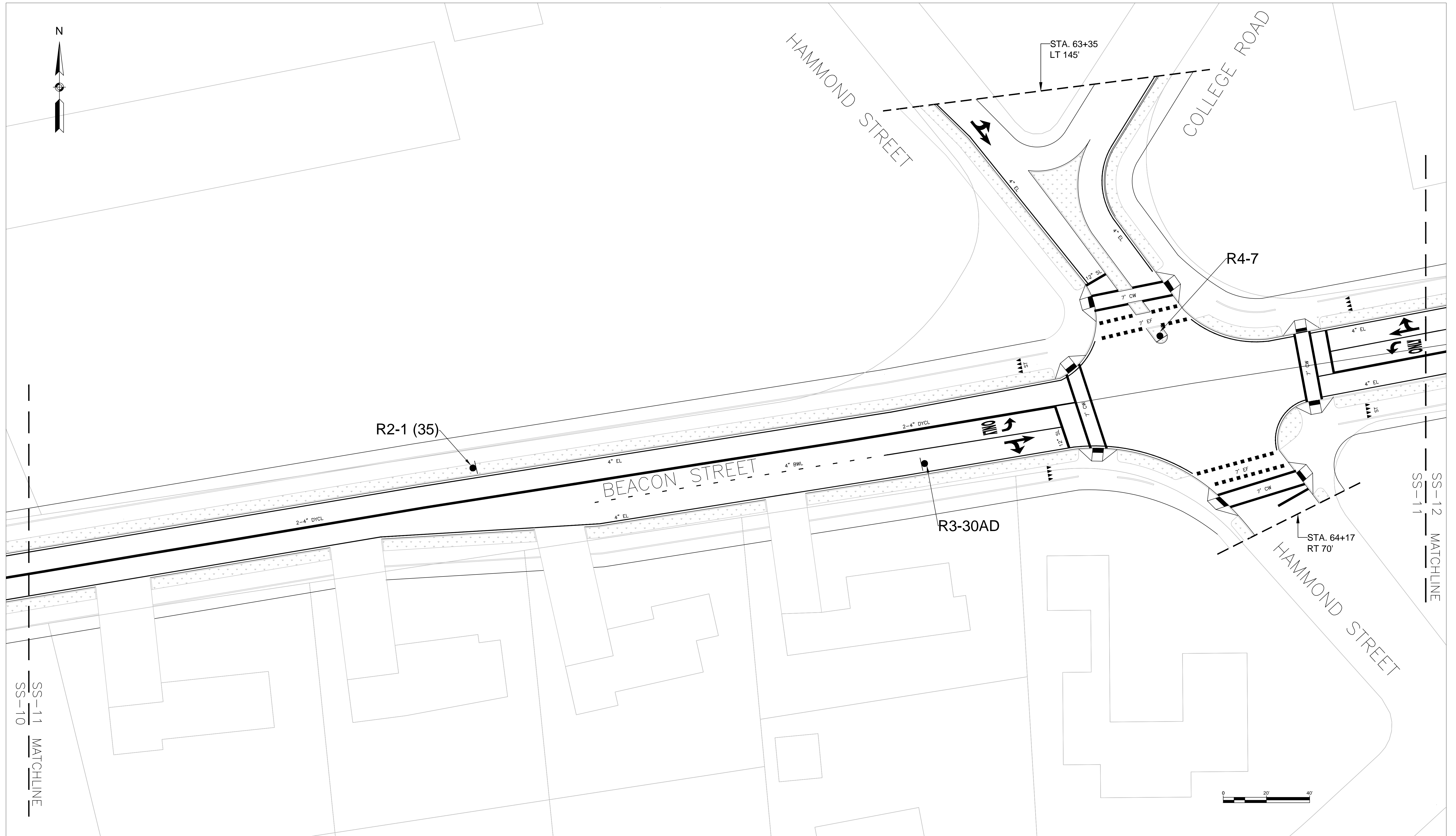


Northeastern University
College of Engineering



NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

| | | |
|------------------|--------------------|-----------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: 1:20 |
| DRAWN BY: MHJ | CHECKED BY: NMG | SHEET NO. 10 OF 16 |
| TITLE: SS-10 | | |



SIGNAGE AND STRIPING PLAN
STATION 58+48 TO 65+03

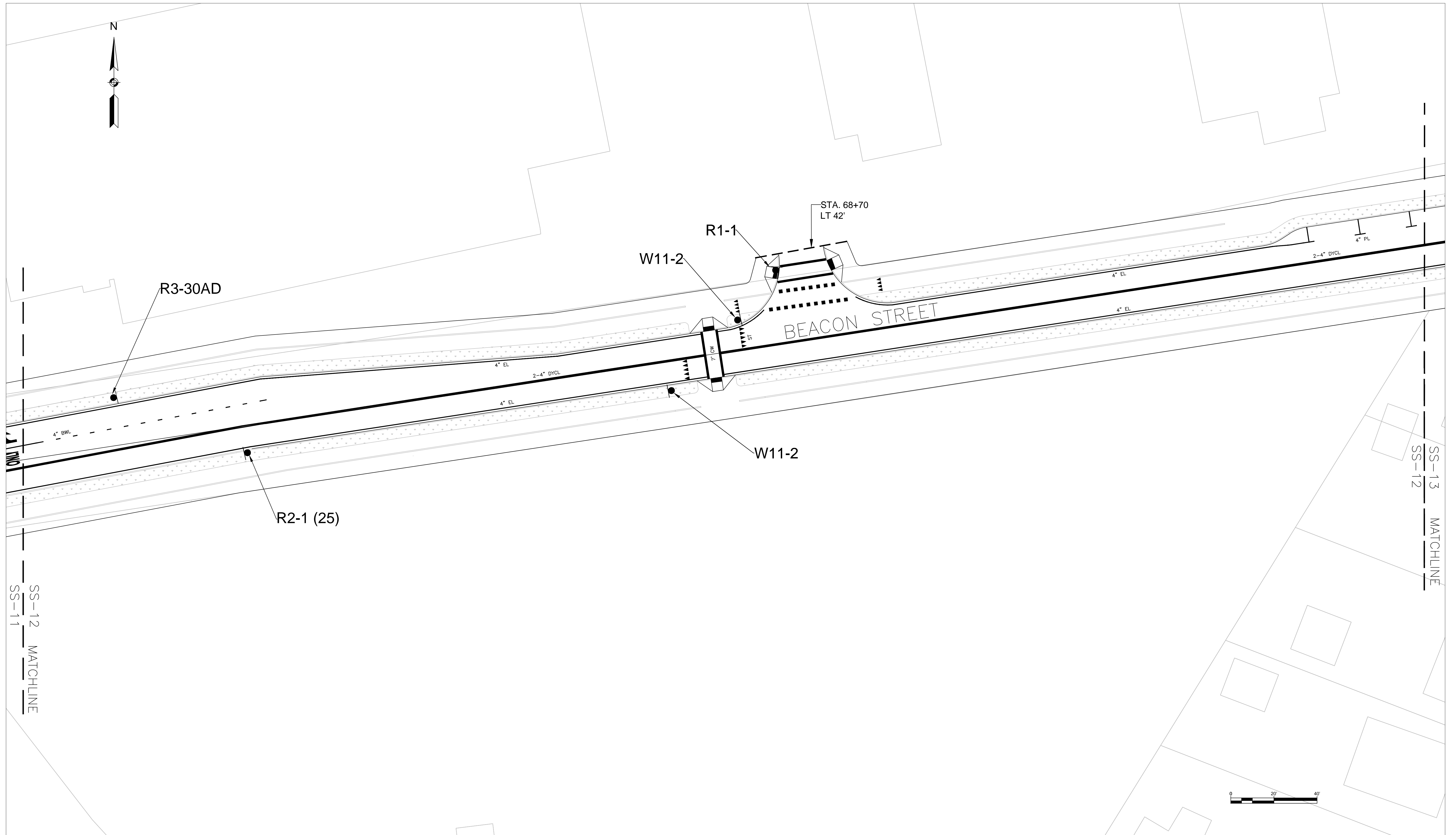


Northeastern University
College of Engineering



NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

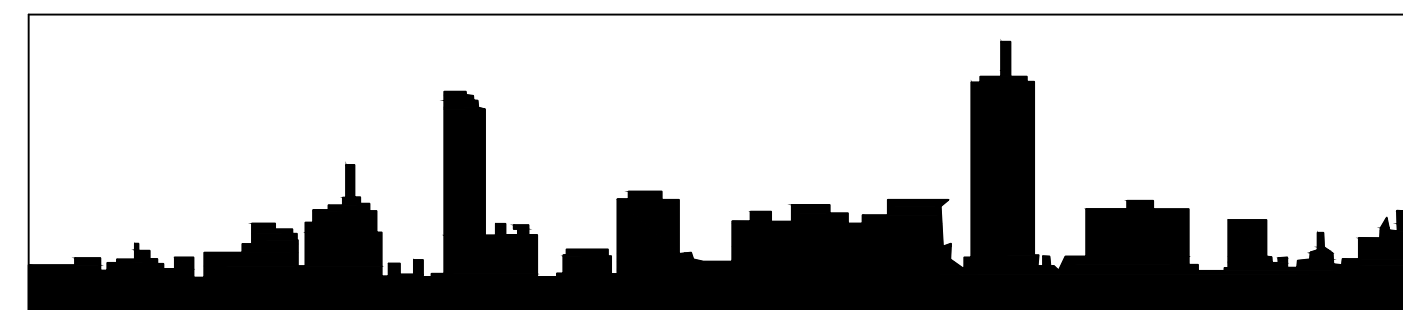
| | | |
|------------------|--------------------|-----------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: 1:20 |
| DRAWN BY: MHJ | CHECKED BY: NMG | SHEET NO. 11 OF 16 |
| TITLE: SS-11 | | |



SIGNAGE AND STRIPING PLAN
STATION 65+03 TO 71+55

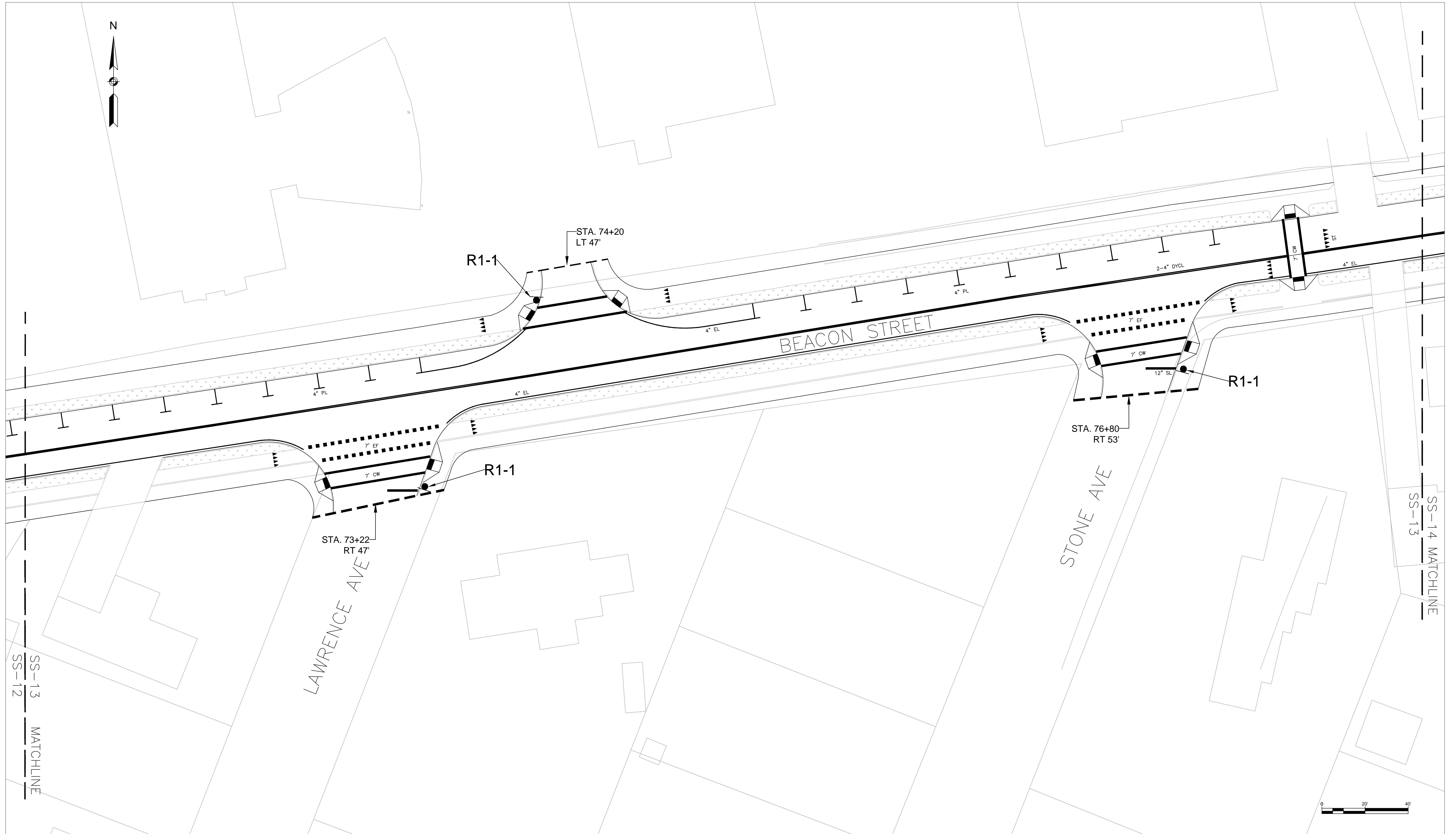


Northeastern University
College of Engineering



NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

| | | |
|------------------|--------------------|-----------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: 1:20 |
| DRAWN BY: MHJ | CHECKED BY: NMG | SHEET NO. 12 OF 16 |
| TITLE: SS-12 | | |



SIGNAGE AND STRIPING PLAN
STATION 71+55 TO 78+15

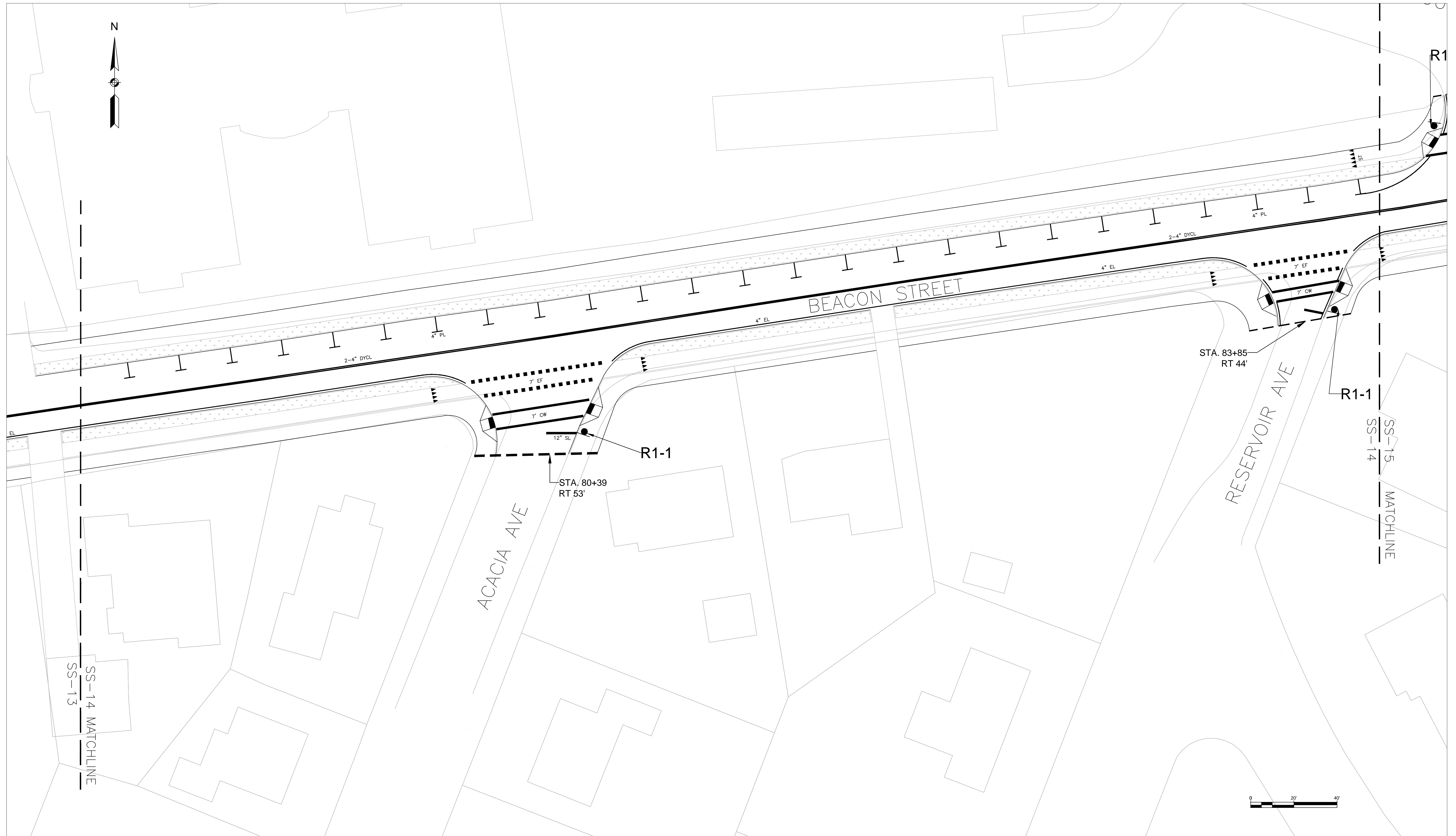


Northeastern University
College of Engineering



NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

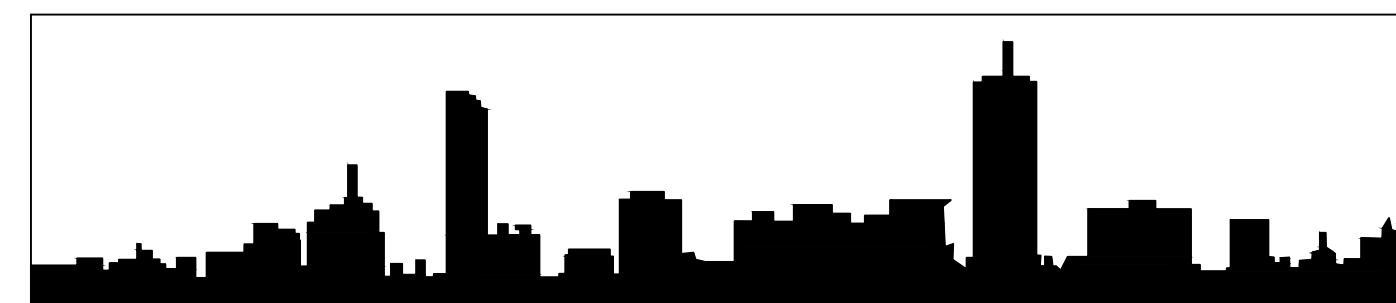
| | | |
|------------------|--------------------|-----------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: 1:20 |
| DRAWN BY: MHJ | CHECKED BY: NMG | SHEET NO. 13 OF 16 |
| TITLE: SS-13 | | |



SIGNAGE AND STRIPING PLAN
STATION 78+15 TO 84+23

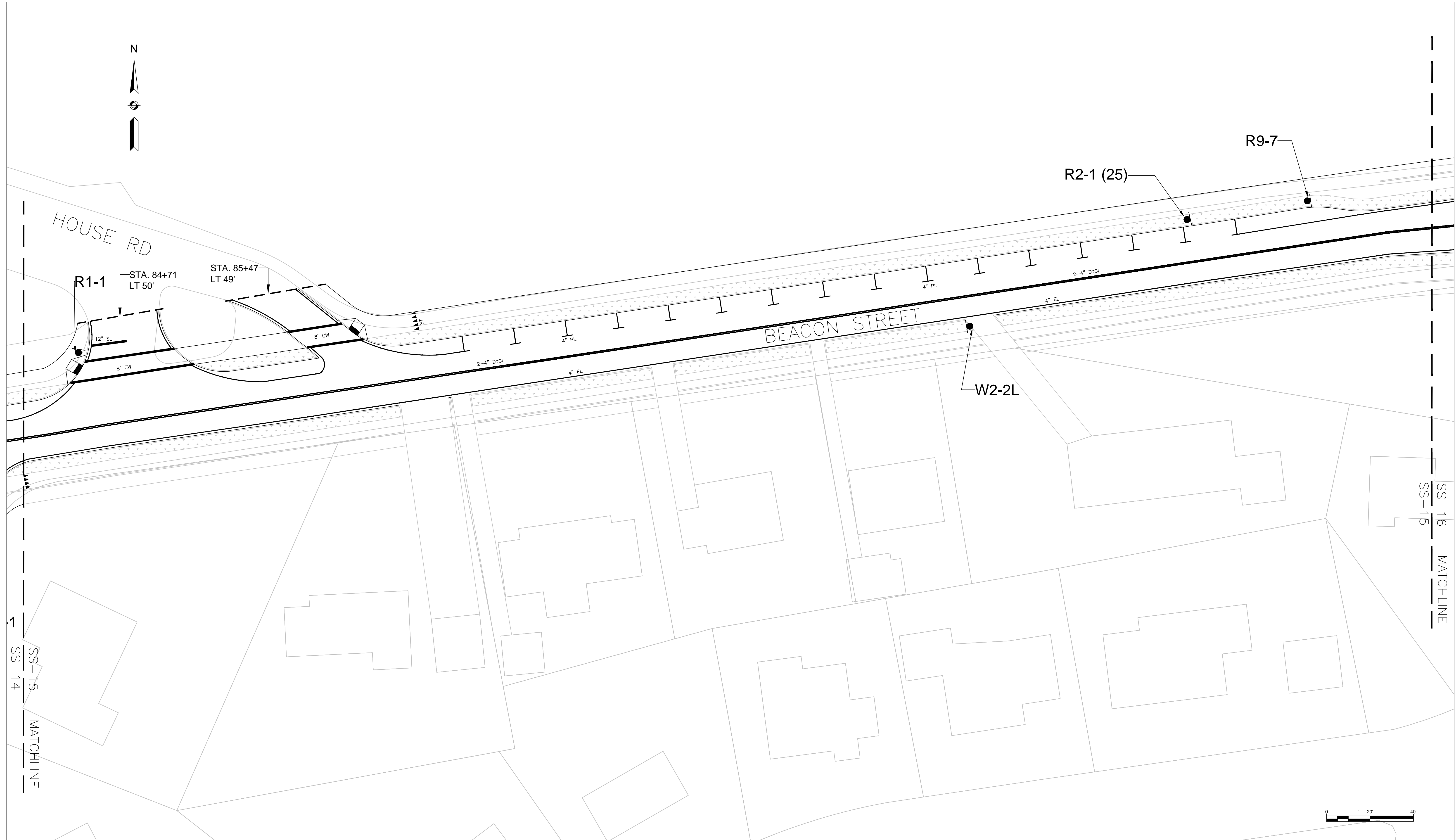


Northeastern University
College of Engineering



NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

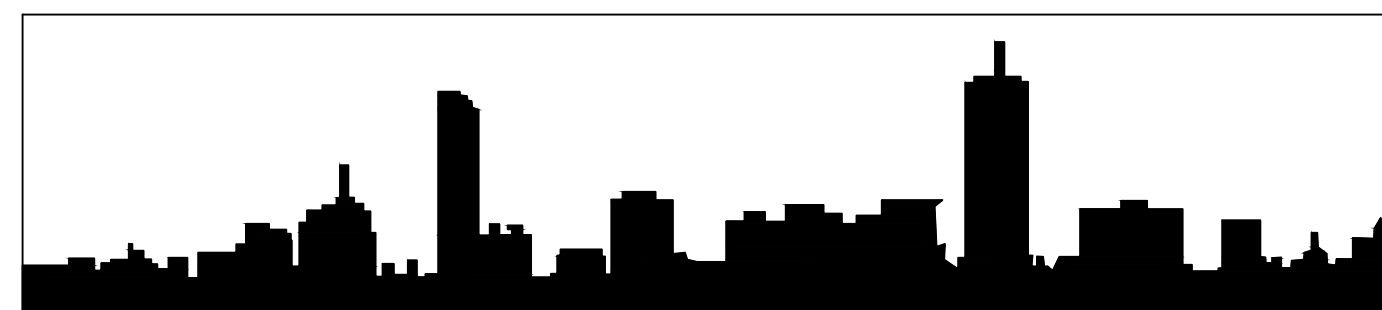
| | | |
|------------------|--------------------|----------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: 1:20 |
| DRAWN BY: MHJ | CHECKED BY: NMG | SHEET NO. 14 OF 6 |
| TITLE: SS-14 | | |



SIGNAGE AND STRIPING PLAN
STATION 84+23 TO 90+80

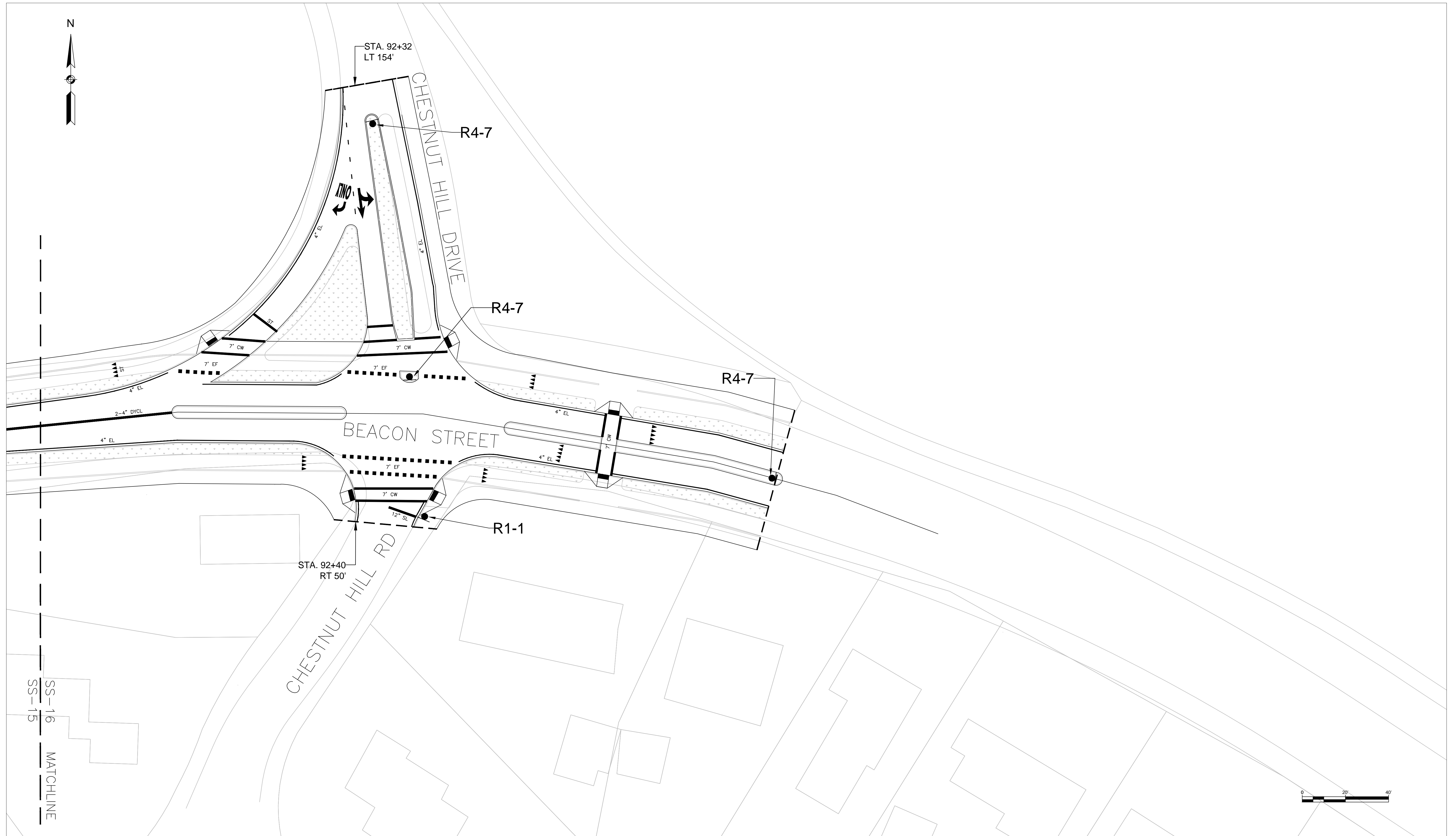


Northeastern University
College of Engineering



NEW ENGLAND STREETScape CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

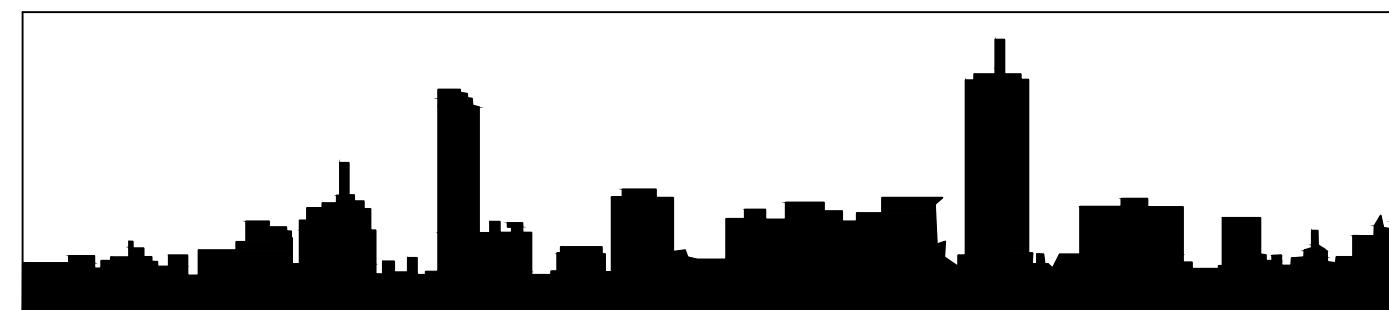
| | | |
|------------------|--------------------|-----------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: 1:20 |
| DRAWN BY: MHJ | CHECKED BY: NMG | SHEET NO. 15 OF 16 |
| TITLE: SS-15 | | |



SIGNAGE AND STRIPING PLAN
STATION 90+80 TO 95+00

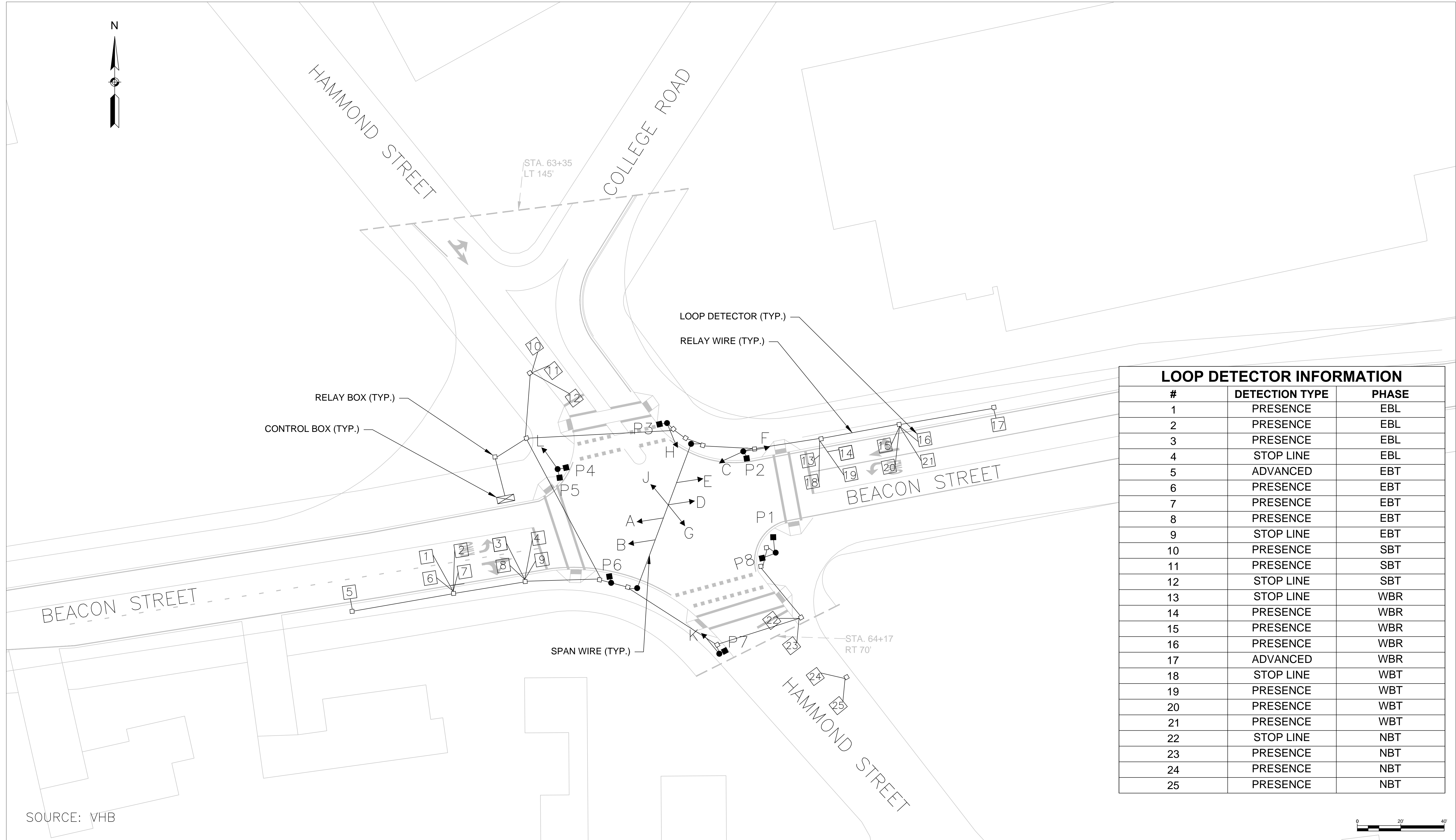


Northeastern University
College of Engineering



NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

| | | |
|------------------|--------------------|-----------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: 1:20 |
| DRAWN BY: MHJ | CHECKED BY: NMG | SHEET NO. 16 OF 16 |
| TITLE: SS-16 | | |



| LOOP DETECTOR INFORMATION | | |
|---------------------------|----------------|-------|
| # | DETECTION TYPE | PHASE |
| 1 | PRESENCE | EBL |
| 2 | PRESENCE | EBL |
| 3 | PRESENCE | EBL |
| 4 | STOP LINE | EBL |
| 5 | ADVANCED | EBT |
| 6 | PRESENCE | EBT |
| 7 | PRESENCE | EBT |
| 8 | PRESENCE | EBT |
| 9 | STOP LINE | EBT |
| 10 | PRESENCE | SBT |
| 11 | PRESENCE | SBT |
| 12 | STOP LINE | SBT |
| 13 | STOP LINE | WBR |
| 14 | PRESENCE | WBR |
| 15 | PRESENCE | WBR |
| 16 | PRESENCE | WBR |
| 17 | ADVANCED | WBR |
| 18 | STOP LINE | WBT |
| 19 | PRESENCE | WBT |
| 20 | PRESENCE | WBT |
| 21 | PRESENCE | WBT |
| 22 | STOP LINE | NBT |
| 23 | PRESENCE | NBT |
| 24 | PRESENCE | NBT |
| 25 | PRESENCE | NBT |

SOURCE: VHB

SIGNAL HEAD DESIGN
INTERSECTION OF HAMMOND ST.
AND BEACON ST.



Northeastern University
College of Engineering



NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

| | | |
|-----------------|--------------------|---------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: 1:20 |
| DRAWN BY: DB | CHECKED BY: KAR | SHEET NO. 1 OF 1 |
| TITLE: SH-01 | | |

SEQUENCE AND TIMING

| STREET | DIRECTION | HOUSINGS | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | FLASH OPER. |
|------------------|-----------|----------|-------|----|----|------|------|----|-------|----|----|-------------|
| BEACON ST | EB | A | R | R | R | ←G-R | ←Y-R | R | G | Y | R | FY |
| BEACON ST | EB | B,C | G | Y | R | R | R | R | G | Y | R | FY |
| BEACON ST | WB | D | R | R | R | ←G-R | ←Y-R | R | G | Y | R | FY |
| BEACON ST | WB | E,F | R | R | R | R | R | R | G | Y | R | FY |
| HAMMOND ST | NB | G,H | G | Y | R | R | R | R | R | R | R | FR |
| HAMMOND ST | SB | J,K | G | Y | R | R | R | R | R | R | R | FR |
| PEDESTRIAN X-ING | NB-SB | P1-P2 | W/FDW | DW | DW | DW | DW | DW | DW | DW | DW | OUT |
| PEDESTRIAN X-ING | EB-WB | P3-P4 | DW | DW | DW | DW | DW | DW | W/FDW | DW | DW | OUT |
| PEDESTRIAN X-ING | NB-SB | P5-P6 | W/FDW | DW | DW | DW | DW | DW | DW | DW | DW | OUT |
| PEDESTRIAN X-ING | EB-WB | P7-P8 | DW | DW | DW | DW | DW | DW | W/FDW | DW | DW | OUT |

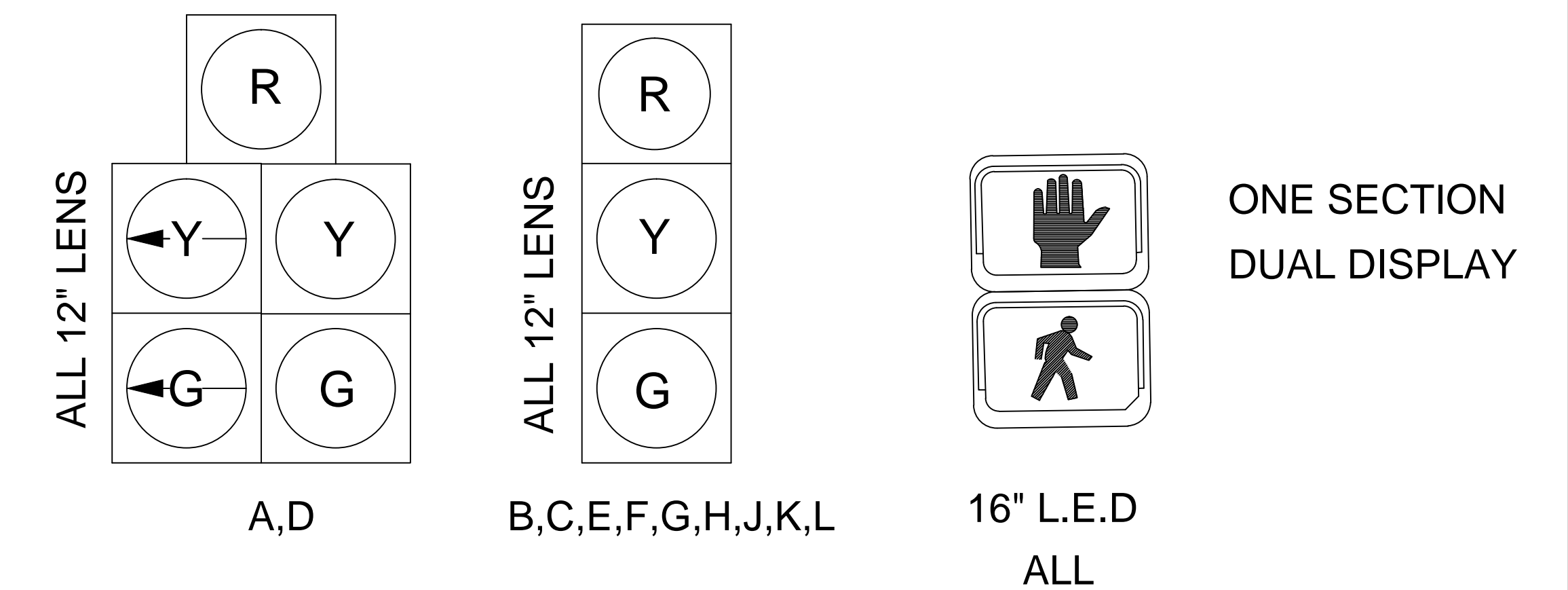
TIMING IN SECONDS

| | | | | | | | | | |
|-------------------------|----|-----|---|-----|---|---|-----|---|---|
| MINIMUM GREEN (INITIAL) | 8 | | | 4 | | | 6 | | |
| PASSAGE TIME (VEHICLE) | 3 | | | 2 | | | 3 | | |
| MAXIMUM 1 | 25 | | | 10 | | | 40 | | |
| MAXIMUM 2 | 25 | | | 10 | | | 40 | | |
| YELLOW CLEARANCE | | 3 | | | 3 | | | 3 | |
| RED CLEARANCE | | | 2 | | | 2 | | | 3 |
| WALK (W) | 7 | | | | | | 7 | | |
| PEDESTRIAN CLEARANCE | 17 | | | | | | 13 | | |
| RECALL | | OFF | | OFF | | | OFF | | |
| MEMORY | | | | | | | | | |

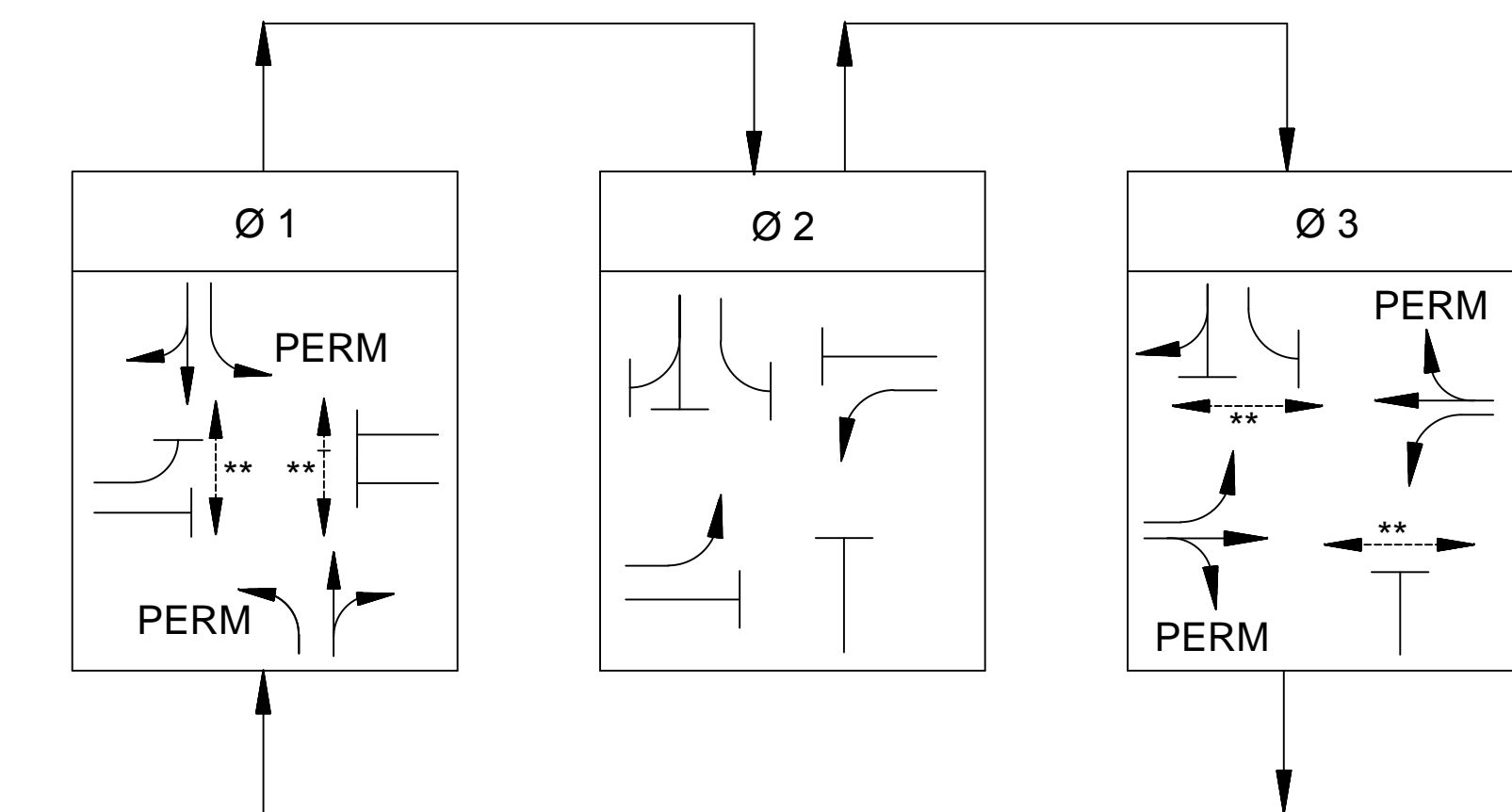
NOTES:

1. AUTOMATIC FLASHING OPERATION PER M.U.T.C.D. SECTION 4D.12
2. ** NORMALLY DW, W/FDW UPON PEDESTRIAN PUSH BUTTON ACTUATION.
3. PERM = PERMISSIVE
4. MAXIMUM 1 = NORMAL OPERATION
5. MAXIMUM 2 = NOT USED
6. STOP AND GO OPERATION FOR 24 HOURS PER DAY. FLASHING OPERATION FOR EMERGENCY ONLY.

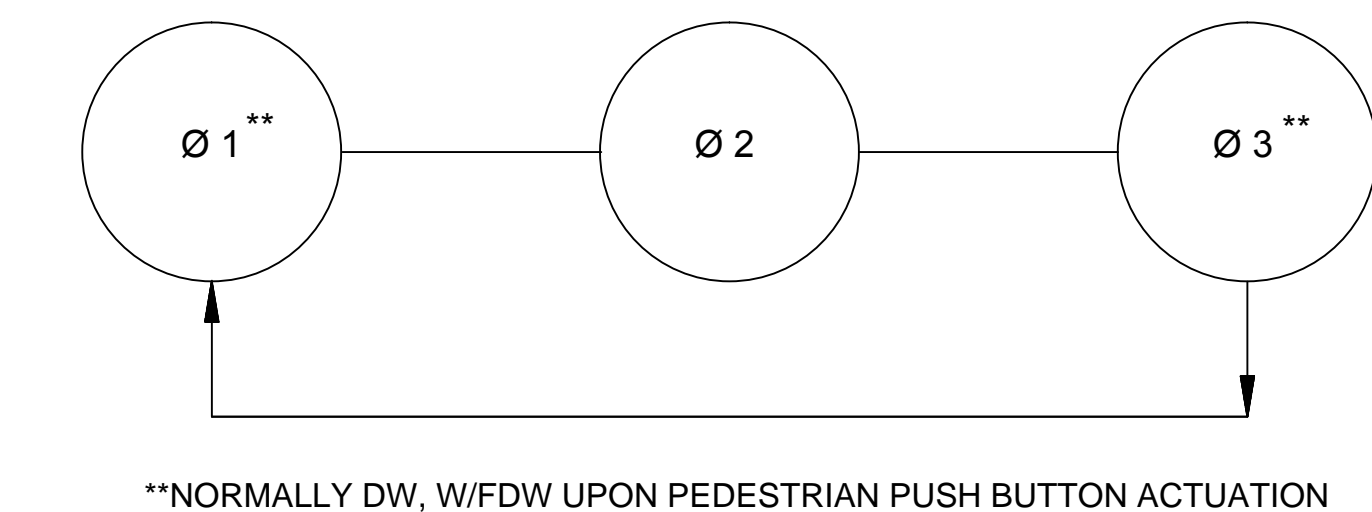
SIGNAL IDENTIFICATION



PROPOSED PREFERENTIAL PHASING SEQUENCE



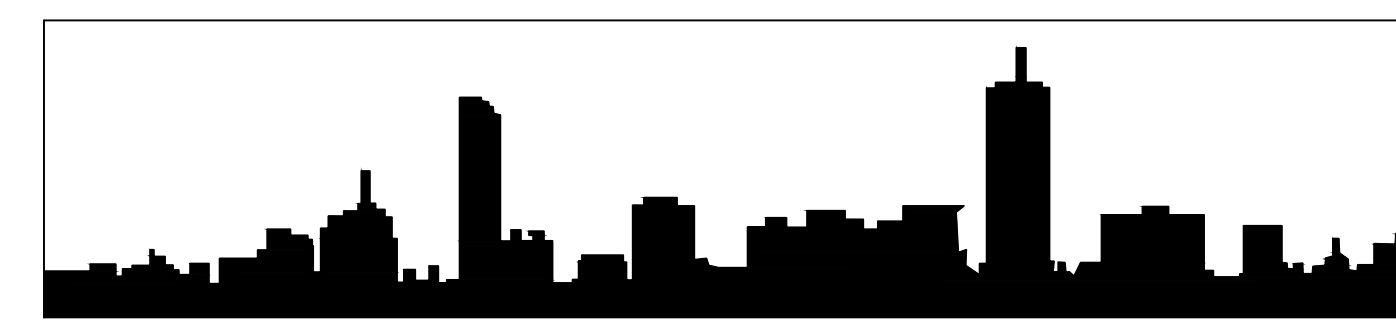
PROPOSED PREFERENTIAL PHASE SEQUENCE



BEACON ST. AND
HAMMOND ST.



Northeastern University
College of Engineering



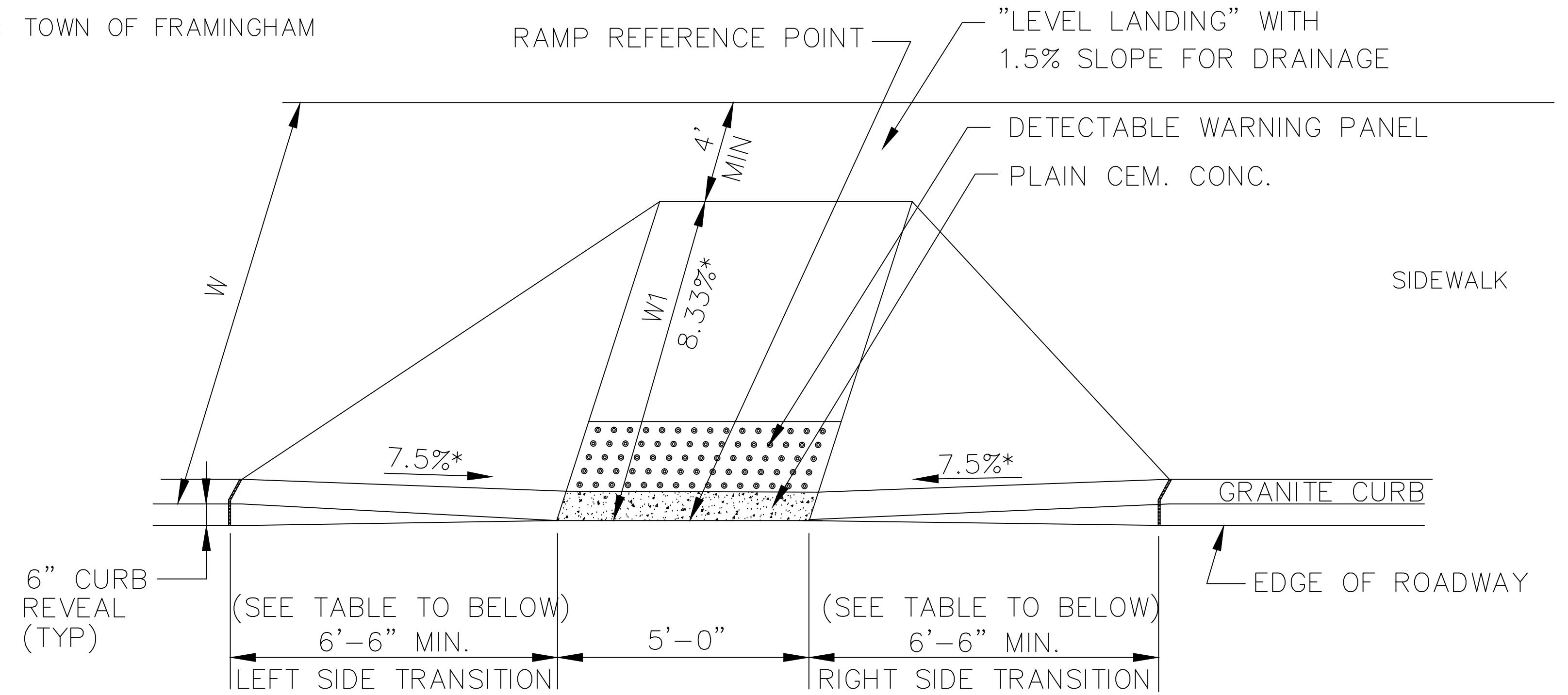
NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

| | | |
|---------------------------------|--------------------|---------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: NTS |
| DRAWN BY: MHJ | CHECKED BY: KAR | SHEET NO. 1 OF 1 |
| TITLE: TRAFFIC SIGNAL TIMING | | |

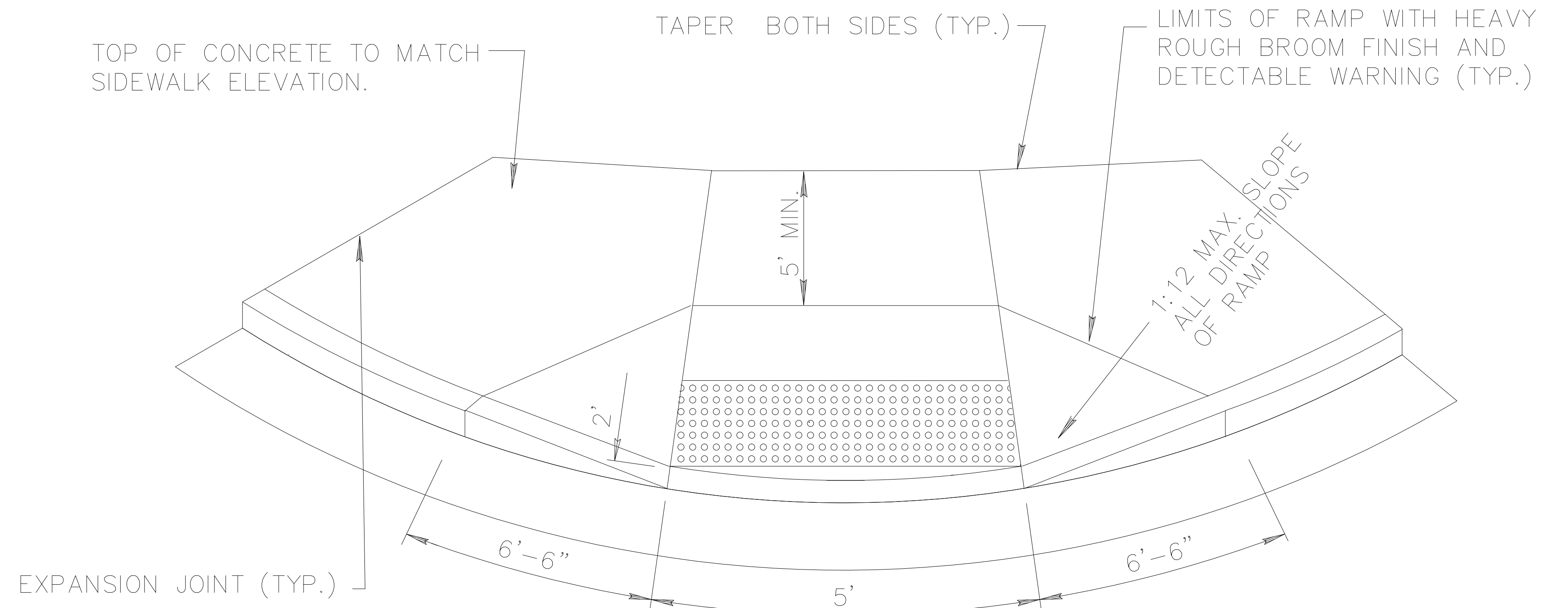
GENERAL NOTES:

1. ROADWAY SIDEWALK CROSS SLOPES, FOR BRICK, CEMENT CONCRETE, AND BITUMINOUS CONCRETE, AS INDICATED IN THE CONSTRUCTION STANDARDS, WILL BE 1.5%. A CONSTRUCTION TOLERANCE OF $\pm 0.5\%$ IS ACCEPTABLE ON ROADWAY SIDEWALKS. SIDEWALKS ON BRIDGES WILL BE CONSTRUCTED TO A CROSS SLOPE OF 1.0% IN ACCORD WITH MASSDOT BRIDGE POLICY. IN ACCORDANCE WITH 521 CMR THE RULES AND REGULATIONS OF THE ARCHITECTURAL ACCESS BOARD (AAB), THE SIDEWALK CROSS SLOPE CANNOT EXCEED 2.0%.
2. AN UNOBSTRUCTED PATH OF TRAVEL WITH A MINIMUM WIDTH OF 3'-3" (PREFERRED MINIMUM WIDTH OF 5'-0" FOR SIDEWALK MAINTENANCE) SHALL BE MAINTAINED PAST ALL OBSTRUCTIONS (UTILITY POLES, SIGNS, SIGNAL FOUNDATIONS, MASTS, MAILBOXES, ALONG DRIVE OPENINGS, ETC.).
3. THE WHEELCHAIR RAMP SLOPES AND SIDE SLOPES (TRANSITIONS) WILL BE MAXIMUM OF 7.5% WITH A CONSTRUCTION TOLERANCE OF $\pm 0.5\%$. HOWEVER THESE SLOPES MAY BE FLATTER WHEN WARRANTED BY SURROUNDING CONDITIONS.
4. WHERE THE ROADWAY PROFILE EXCEEDS 4%, THE HIGH SIDE TRANSITION LENGTH UNDER ANY CONDITIONS NEED NOT EXCEED 15'-0".
5. IN NO CASE WHERE A STOP LINE IS WARRANTED, SHALL A RAMP BE PLACED ON THE TRAFFIC APPROACH SIDE OF THAT STOP LINE.
6. FIXED OBJECTS (I.E. UTILITY POLES, HYDRANTS, SIGNS, SIGNAL FOUNDATIONS, ETC.) MUST NOT ENCR OACH ON ANY PART OF THE WHEELCHAIR RAMP INCLUDING TRANSITION SLOPES.
7. AT NO TIME IS ANY PART OF THE WHEELCHAIR RAMP, EXCLUDING CURB TRANSITIONS TO BE LOCATED OUTSIDE THE CROSSWALK. THE WHEELCHAIR RAMP ENTRANCE IS TO BE CENTERED IN THE CROSSWALK WHENEVER POSSIBLE.
8. CATCH BASINS WHICH ARE TO BE LOCATED IN THE VICINITY OF A WHEELCHAIR RAMP SHALL BE LOCATED UPGRADE OF THE RAMP ENTRANCE.
9. THE ENTRANCE OF A WHEELCHAIR RAMP SHALL BE FLUSH WITH THE ROADWAY.
10. TESTING SURFACE: WHEN TESTING WITH A STRAIGHTEDGE PLACED PARALLEL TO THE LINE OF THE SLOPE THERE SHALL BE NO DEVIATION FROM A TRUE SURFACE IN EXCESS OF $\frac{1}{4}$ ".
11. WHEELCHAIR RAMPS ON BRIDGES SHOULD BE AVOIDED. IF A WHEELCHAIR RAMP IS REQUIRED TO BE PLACED ON A BRIDGE, PRIOR WRITTEN APPROVAL IS REQUIRED. SPECIAL DETAILING OF THE REINFORCEMENT AND CURB SYSTEM WILL BE REQUIRED TO MAINTAIN THE PREFORMANCE OF THE RAILING/BARRIER SYSTEM.
12. WHEELCHAIR RAMPS SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE CURRENT REGULATIONS OF THE ARCHITECTURAL ACCESS BOARD, THE AMERICANS WITH DISABILITIES ACT AND THE CURRENT MASSHIGHWAY CONSTRUCTION STANDARDS.

SOURCE: TOWN OF FRAMINGHAM



WHEELCHAIR RAMP TYPE B
NOT TO SCALE

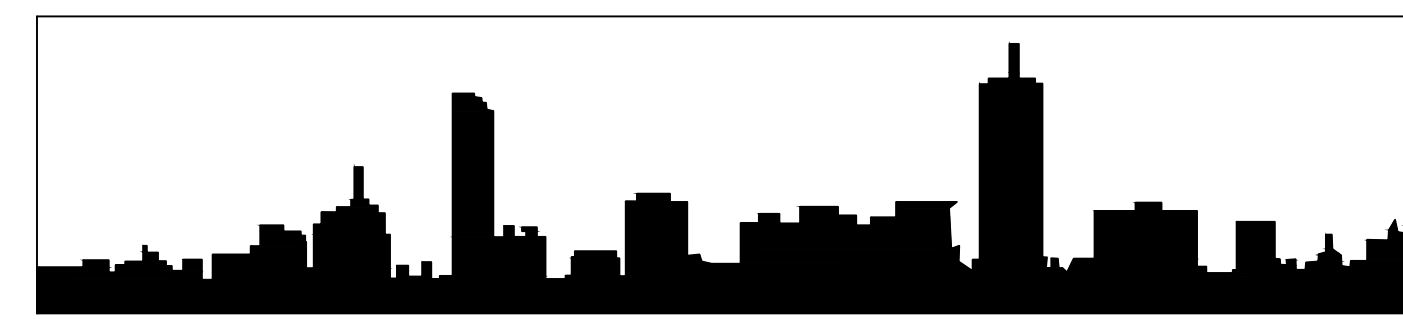


WHEELCHAIR RAMP TYPE E
NOT TO SCALE

SIDEWALK DETAILS

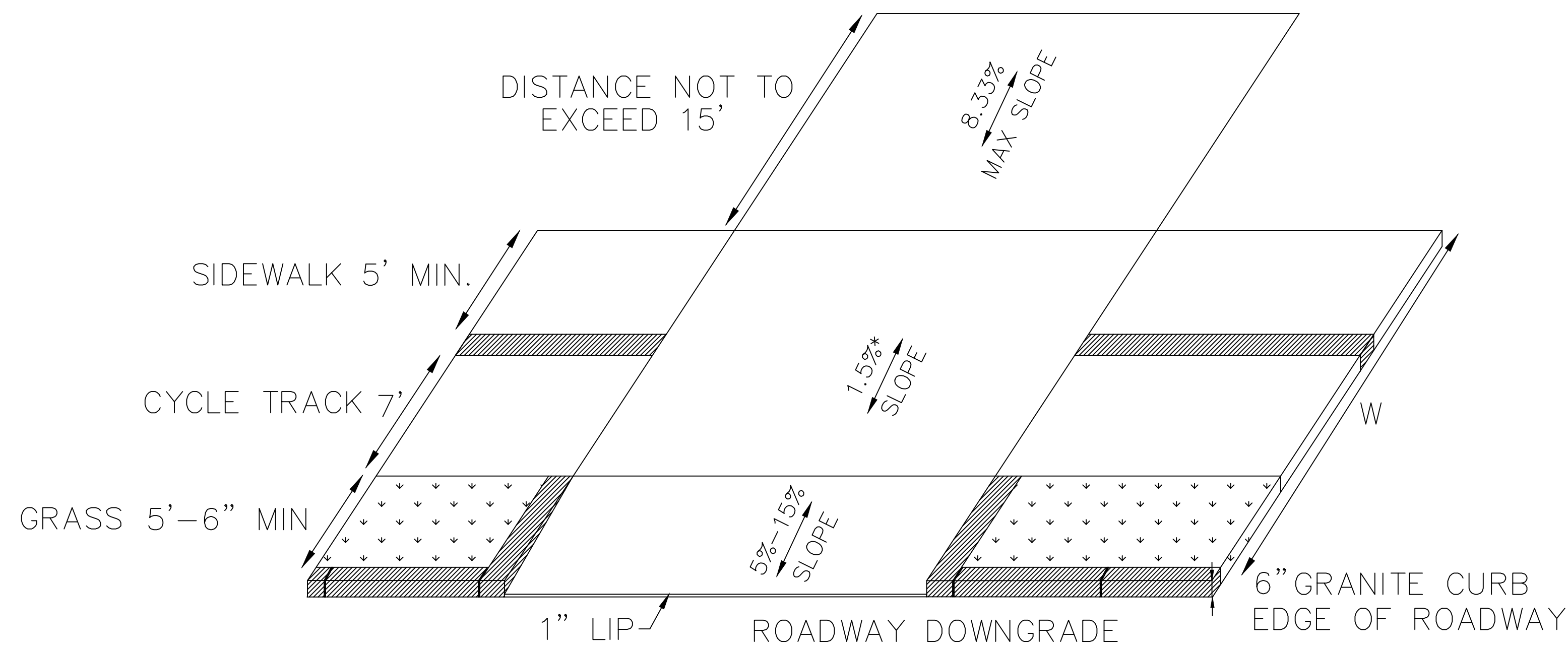


Northeastern University
College of Engineering



NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

| | | |
|------------------|--------------------|---------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: NTS |
| DRAWN BY: KAR | CHECKED BY: N/A | SHEET NO. 1 OF 8 |
| TITLE: D-01 | | |



SIDEWALK THROUGH DRIVEWAYS WITHOUT CURB RETURNS (PREFERRED)

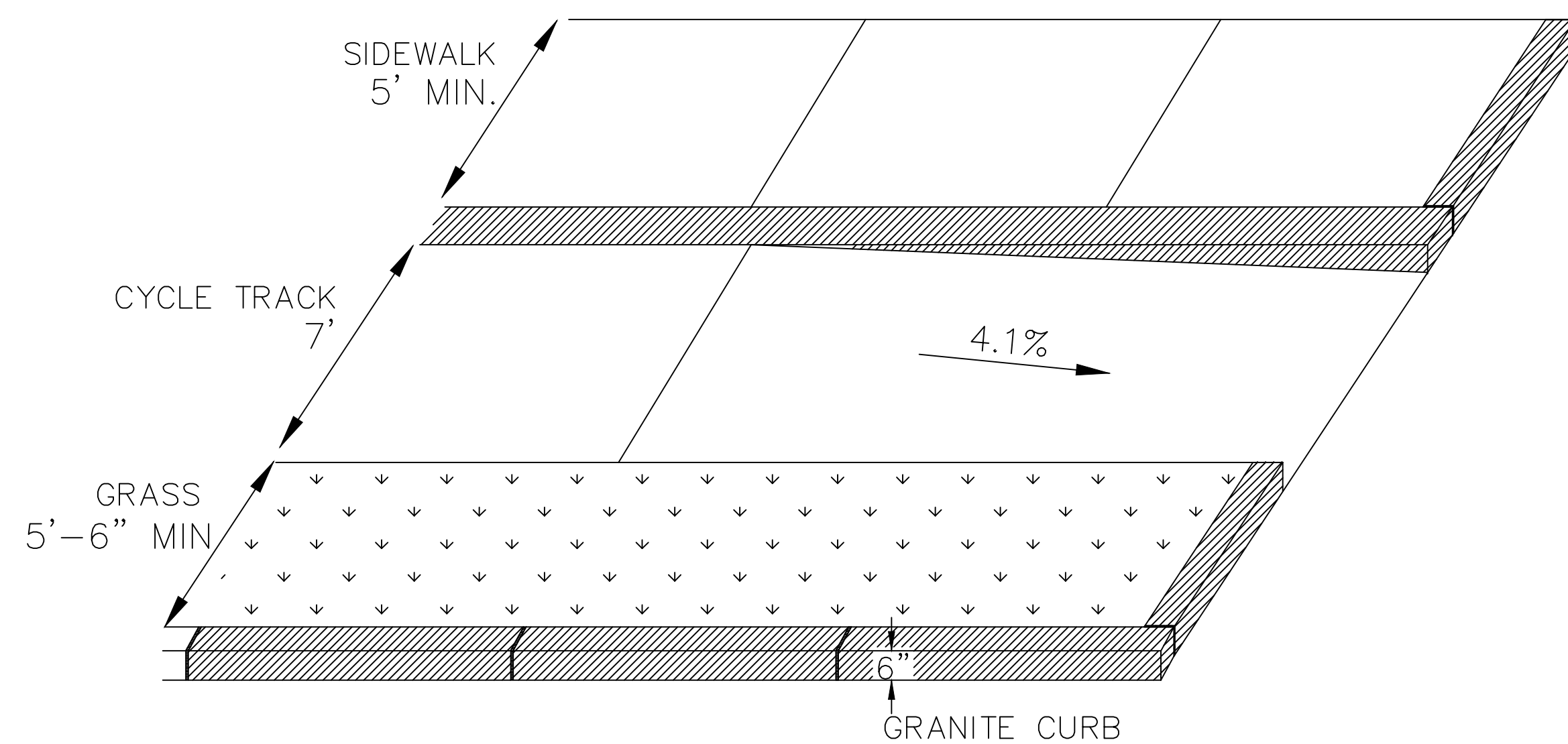
NOT TO SCALE

LEGEND:

W = TOTAL WIDTH
 * = TOLERANCE FOR CONSTRUCTION $\pm 0.5\%$

NOTES:

1. DRIVEWAYS SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE CURRENT REGULATIONS OF THE ARCHITECTURAL ACCESS BOARD, THE AMERICANS WITH DISABILITIES ACT AND THE CURRENT MASSHIGHWAY CONSTRUCTION STANDARDS.
2. WHERE NEW DRIVEWAYS CROSS EXISTING SIDEWALKS, THE SIDEWALK PORTION SHALL BE ASPHALT, NOT CONCRETE.



CYCLE TRACK AT CURB (PREFERRED)

NOT TO SCALE

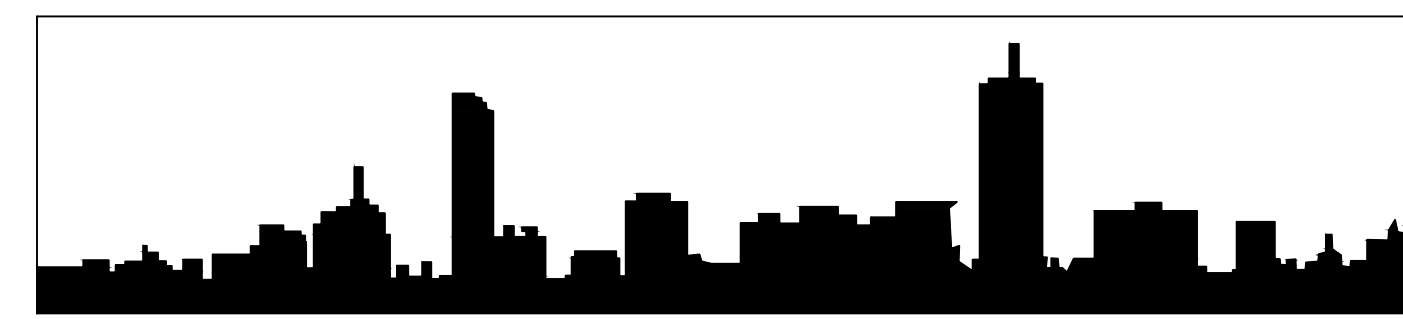
NOTES:

1. CYCLE TRACK SHALL BE CONSTRUCTED OF 2" HOT-MIX ASPHALT.
2. WHERE NEW CYCLE TRACK CROSSES EXISTING SIDEWALKS, THE SIDEWALK PORTION SHALL BE ASPHALT.
3. WHERE NEW CYCLE TRACK CROSSES EXISTING DRIVEWAY, DRIVEWAY PORTION SHALL BE ASPHALT. SLOPE OF DRIVEWAY SHALL CHANGE TO MEET GRADE OF NEW CYCLE TRACK.

CURB DETAILS



Northeastern University
 College of Engineering



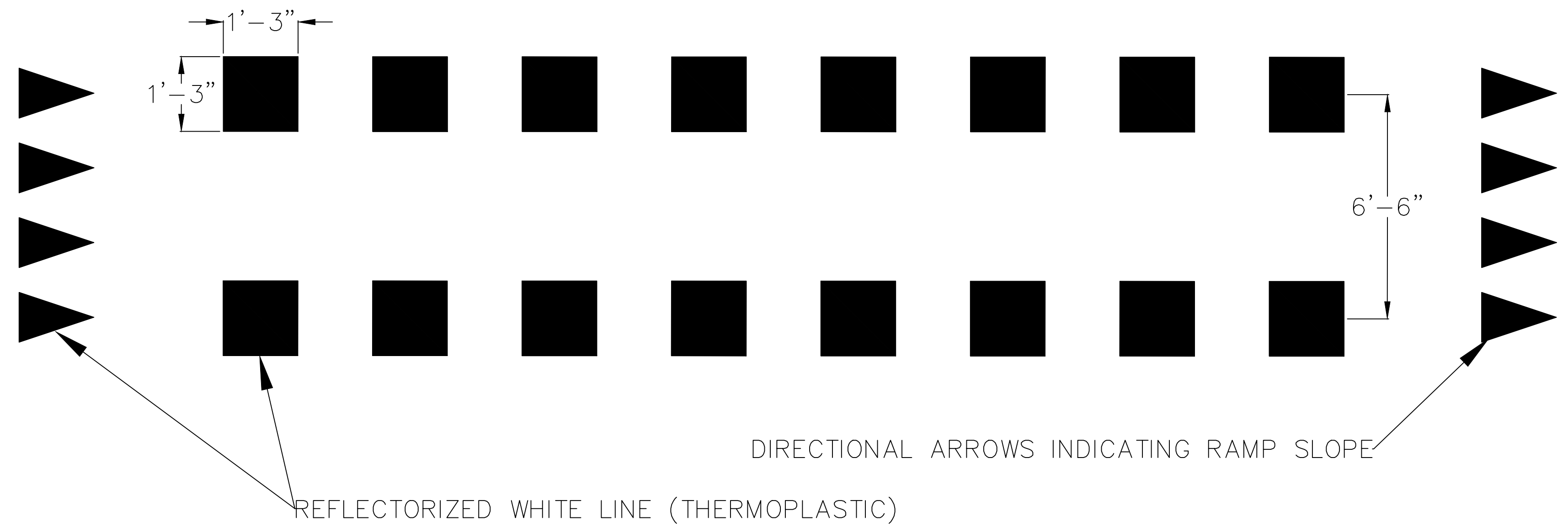
NEW ENGLAND STREETSCAPE CONSULTING
 NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
 BOSTON, MA 02115

| | | |
|------------------|--------------------|---------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: NTS |
| DRAWN BY: MHJ | CHECKED BY: KAR | SHEET NO. 2 OF 8 |
| TITLE: D-02 | | |

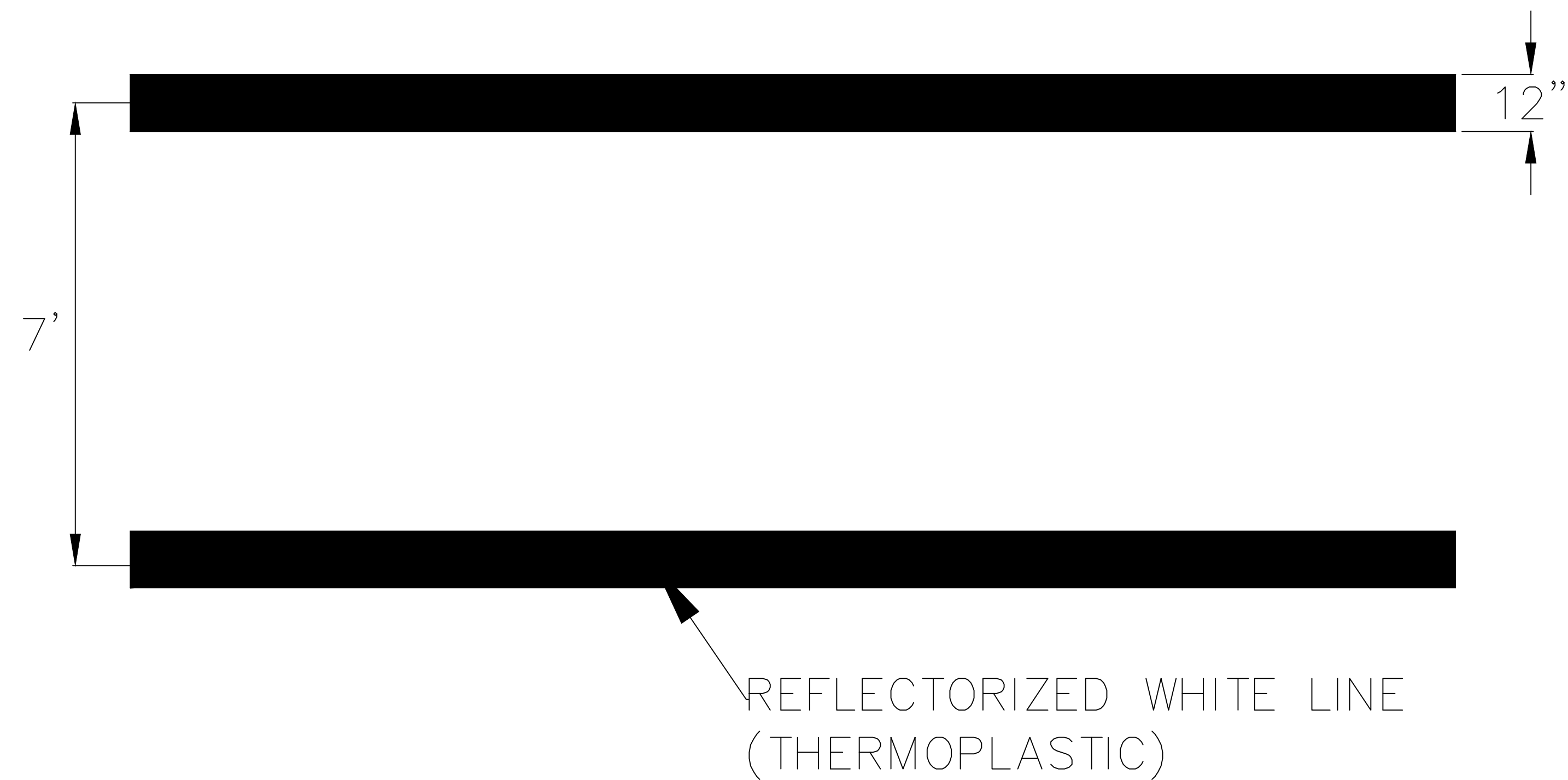
PEDESTRIAN AND BICYCLE CROSSING INSTALLATION NOTES

SOURCE: TOWN OF FRAMINGHAM

1. ALL MARKINGS FOR CROSSINGS SHALL CONFORM TO THE MASSACHUSETTS HIGHWAY DEPARTMENT/CITY OF NEWTON STANDARDS AND SPECIFICATIONS.
2. PERMANENT MARKINGS MAY BE MODIFIED AS DIRECTED BY THE TRAFFIC ENGINEER.
3. THE CROSSWALK MARKING DRAWINGS ARE SCHEMATIC. THE CONTRACTOR SHALL FOLLOW ALL DIMENSIONS, DETAILS, AND STANDARDS WHEN INSTALLING PAVEMENT MARKINGS, STRIPING, AND MARKERS.
4. ACCESSIBLE PEDESTRIAN CROSSINGS SHALL BE WITHIN THE MARKED CROSSWALK.
5. DETECTABLE WARNINGS ARE REQUIRED AT ALL STREET INTERSECTIONS AND MARKED MID-BLOCK CROSSWALKS.
6. CONTRACTOR SHALL FOLLOW ALL SPECIFICATIONS AND STANDARDS FOR INSTALLATION OF CROSSWALK AND ELEPHANT FEET CROSSINGS.
7. SHARK TEETH SHALL BE INSTALLED WITH TRIANGLE APEX POINTING IN DIRECTION OF UPWARD SLOPE.
8. ALL LONGITUDINAL STRIPING SHALL BE 60 MIL (0.060") THICK HOT-SPRAYED THERMOPLASTIC REFLECTORIZED STRIPING PLACED AS NOTED ON FINAL SURFACE COURSE.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LAYOUT AND INSTALLATION OF PAVEMENT MARKINGS ON FINAL SURFACE COURSE FOLLOWING CONTROL POINTS THAT HAVE BEEN SET.
10. THE CONTRACTOR SHALL CLEAN THE ROADWAY SURFACE TO THE SATISFACTION OF THE TRAFFIC ENGINEER BY SWEEPING AND AIR-JET BLOWING IMMEDIATELY PRIOR TO THE PLACEMENT OF ALL PAVEMENT MARKINGS. THE TEMPERATURE SHALL NOT BE LESS THAN 50 DEGREES F FOR THE PLACEMENT OF HOT SPRAYED THERMOPLASTIC STRIPING.
11. THE ENGINEER OF RECORD SHALL BE REQUIRED TO PRODUCE AS-BUILT MARKING PLANS WITHIN 90 DAYS OF MARKING COMPLETION.
12. FOR ALL CONSTRUCTION, ALL PAVEMENT MARKINGS SHALL BE INSTALLED AND SHALL BE PAID FOR BY THE PROJECT OWNER/DEVELOPER.
13. FINAL INSPECTION AND ACCEPTANCE OF PAVEMENT MARKINGS SHALL BE PERFORMED BY THE TRAFFIC ENGINEER.



ELEPHANT FEET (BICYCLE CROSSING)
NOT TO SCALE

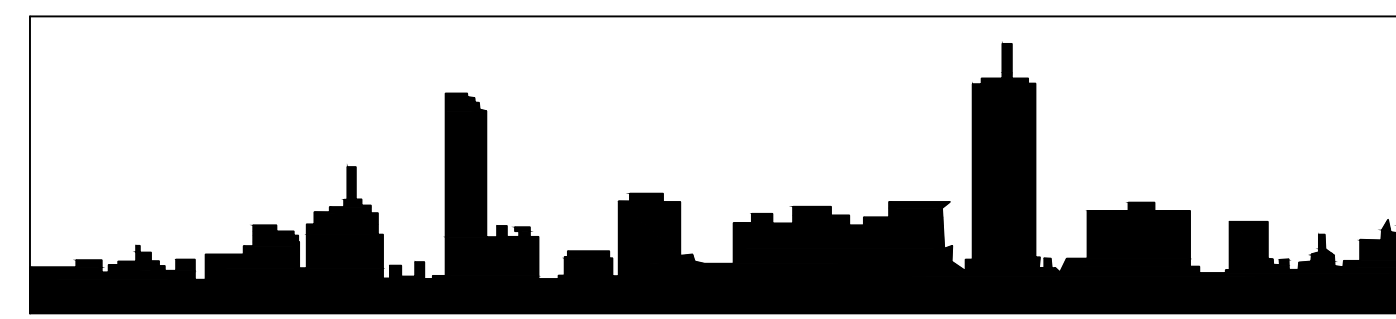


PEDESTRIAN CROSSWALK
NOT TO SCALE

CROSSING DETAILS



Northeastern University
College of Engineering

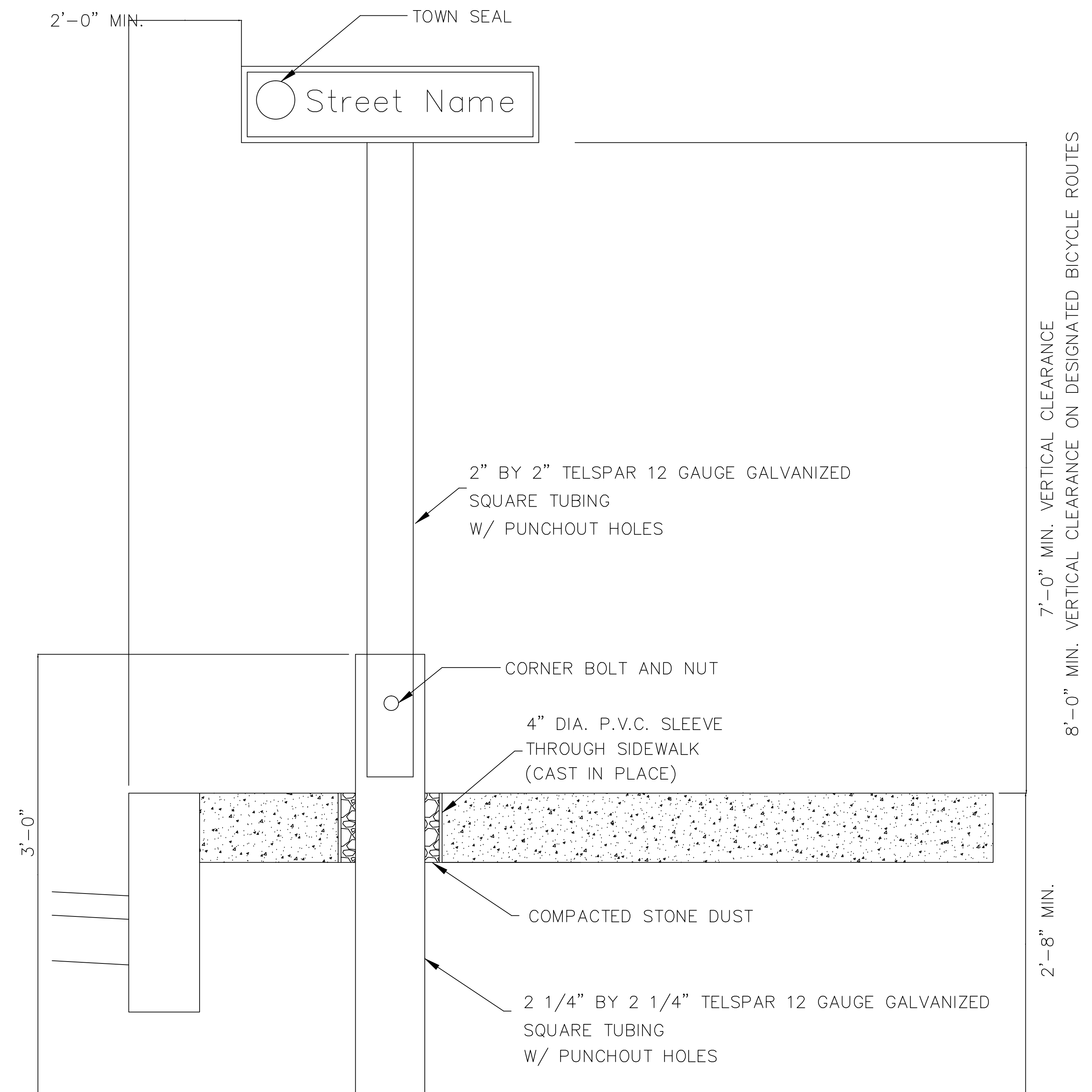


NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

| | | |
|------------------|--------------------|---------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: NTS |
| DRAWN BY: JEB | CHECKED BY: KAR | SHEET NO. 3 OF 8 |
| TITLE: D-03 | | |

STREET SIGN CONSTRUCTION NOTES

1. EACH SIGN SHALL CONSIST OF (2) SINGLE SIDED PLATES USING DRIVE PINS TO SECURE PLATES TO POST.
2. OUTER EDGE OF SIGN SHALL BE SECURED WITH POP RIVETS AND 2" SPACER BETWEEN THE 2 PLATES.
3. FONT SHALL BE HIGHWAY GOTHIC B.
4. PLATES SHALL HAVE ROUNDED CORNERS.
5. WHITE AVERY-DENNISON PRISMATIC PLATE SHALL BE UTILIZED.
6. THE SIGNS SHALL INCLUDE 5.5" TOWN SEALS (2 REQUIRED).
7. THE SIGNS SHALL INCLUDE A 0.5" WHITE BORDER.



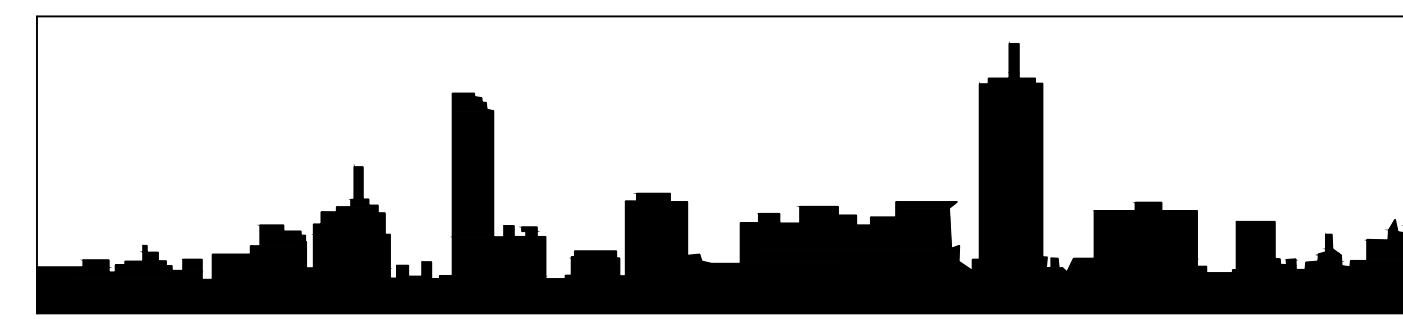
STREET SIGN DETAIL (SIDEWALK INSTALLATION)

NOT TO SCALE

SIGN DETAILS



Northeastern University
College of Engineering

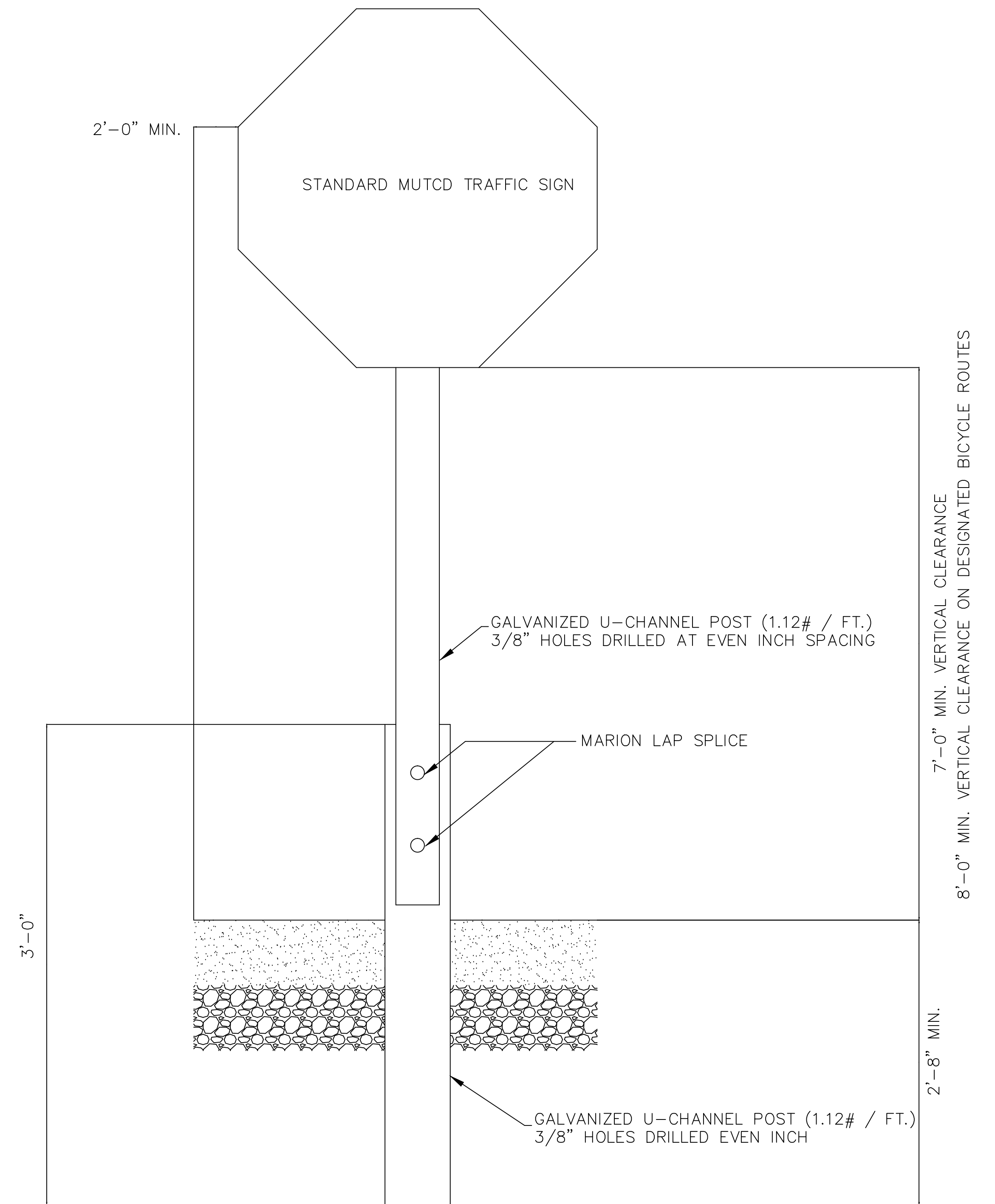


NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

| | | |
|------------------|--------------------|---------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: NTS |
| DRAWN BY: JEB | CHECKED BY: KAR | SHEET NO. 4 OF 8 |
| TITLE: D-04 | | |

TRAFFIC SIGN INSTALLATION NOTES

1. ALL NEW SIGNS SHALL BE INSTALLED ONLY UPON RESOLUTION OF THE BOARD OF SELECTMEN OR ORDER OF THE TRAFFIC AND ROADWAY SAFETY COMMITTEE, AS APPLICABLE.
2. TYPICALLY, SIGNS SHOULD BE ERECTED INDIVIDUALLY ON SEPARATE POSTS EXCEPT WHERE ONE SIGN SUPPLEMENTS ANOTHER OR WHERE DIRECTIONAL SIGNS MUST BE GROUPED. WHEN USING SUPPLEMENTAL SIGNS, DO NOT OVERLAP WITH THE PRIMARY SIGN. WARNING AND REGULATORY SIGNS SHALL NOT BE COMBINED. IF IN DOUBT ABOUT COMBINING SIGNS, CHECK WITH THE TOWN ENGINEER.
3. THE ENTIRE SIGN SHAPE MUST BE VISIBLE.
4. SIGNS SHALL BE LOCATED SO THEY ARE VISIBLE AT NIGHT.
5. SIGNS SHALL BE LOCATED SO THAT THEY DO NOT BLOCK OR OBSCURE OTHER SIGNS.
6. THE OUTER EDGE OF A SIGN SHALL BE OFFSET A MINIMUM OF TWO FEET HORIZONTALLY FROM THE FACE OF CURB. WHERE SIDEWALK IS LESS THAN FIVE FEET WIDE, ONE FOOT FROM FACE OF CURB IS PERMISSIBLE.
7. SIGNS SHALL BE INSTALLED TO PROVIDE 7 FEET OF VERTICAL CLEARANCE ABOVE SIDEWALKS OR ANY LOCATION WHERE PEDESTRIANS MAY BE PRESENT (8 FEET OF VERTICAL CLEARANCE SHALL BE PROVIDED ON DESIGNATED BICYCLE ROUTES).
8. IF NO SIDEWALK IS PRESENT, SIGNS SHALL BE LOCATED SIX FEET FROM THE EDGE OF PAVEMENT, MEASURED FROM OUTER SIGN EDGE.
9. SIGNS MAY BE INSTALLED ON EXISTING STREET LIGHT POLES, TRAFFIC SIGNAL POLES, ETC., USING METRO WING BRACKETS, WHEN APPROPRIATE AND AS APPROVED, TO REDUCE THE NUMBER OF POSTS. SIGNS SHALL NOT BE INSTALLED ON POWER POLES.
10. SIGNS SHALL BE INSTALLED AT APPROXIMATELY A RIGHT ANGLE TO THE TRAFFIC APPROACH DIRECTION. SIGNS SHALL BE TURNED SLIGHTLY AWAY FROM ROAD TO PREVENT "FLASHBACK" OF REFLECTION.
11. UPON COMPLETION OF SIGN INSTALLATION, THE CONTRACTOR AND ENGINEER SHALL INSPECT THE SIGN'S VISIBILITY AND SHALL CHECK THE SIGN'S LOCATION FOR SUFFICIENT ADVANCE WARNING. THIS SHALL BE ACCOMPLISHED BY DRIVING TOWARDS THE SIGN AT A SAFE AND PRUDENT SPEED, OR AT A SPEED NEAR TO THE SPEED LIMIT.
12. STREET SIGNS ARE TO BE MOUNTED ON A 2" X 2" SQUARE GALVANIZED POST. ALL OTHER SIGNS ARE TO BE MOUNTED ON A U-CHANNEL POST.
13. ALL SIGN POSTS MOUNTED IN CONCRETE MUST BE SLEEVED WITH A CAST-IN-PLACE 4" PVC PIPE.
14. PROPOSED SIGN LOCATIONS SHALL BE STAKED IN THE FIELD FOR REVIEW AND APPROVED BY TOWN, PRIOR TO INSTALLATION.
15. ALL PEDESTRIAN CROSSING SIGNAGE SHALL BE FLUORESCENT YELLOW-GREEN (FYG) IN COLOR.
16. BEFORE ANY SIGNS ARE REMOVED OR COVERED, NOTIFICATION SHALL BE GIVEN TO HIGHWAY DIRECTOR OR OPERATIONS MANAGER.
17. ALL MID-BLOCK CROSSWALKS SHALL HAVE BACK-TO-BACK SIGNS WITH APPROPRIATE SUPPLEMENTAL DOWNWARD FACING ARROW.



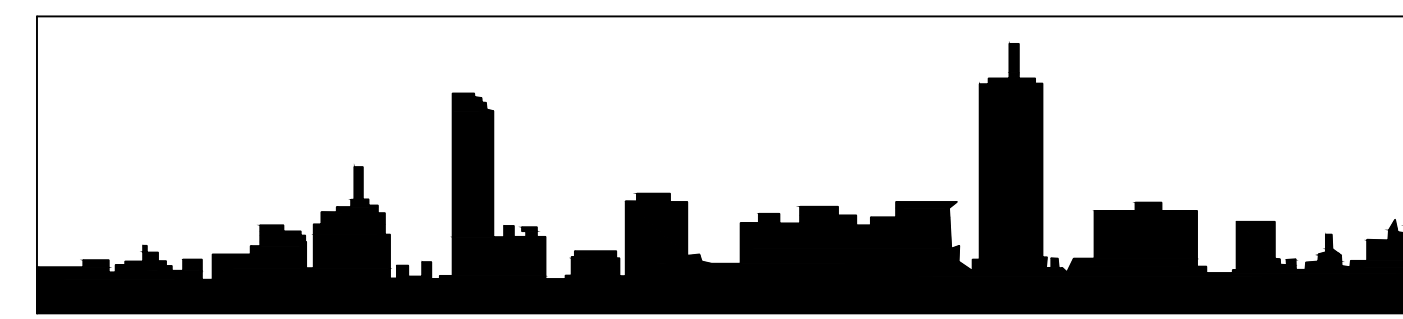
TRAFFIC SIGN DETAIL (NON-SIDEWALK INSTALLATION)

NOT TO SCALE

SIGN DETAILS



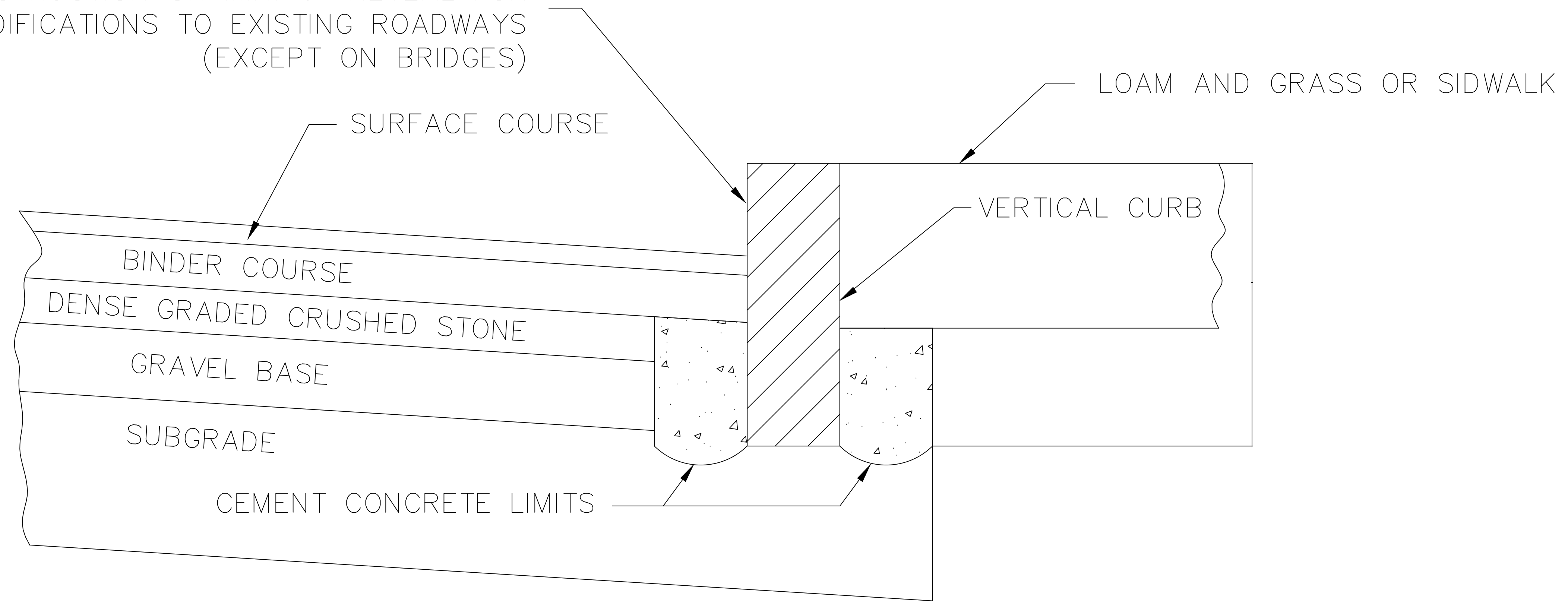
Northeastern University
College of Engineering



NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

| | | |
|------------------|--------------------|---------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: NTS |
| DRAWN BY: JEB | CHECKED BY: KAR | SHEET NO. 5 OF 8 |
| TITLE: D-05 | | |

MIN. 7" REVEAL FOR FULL ROADWAY/SIDEWALK RECONSTRUCTION OR MIN. 6" REVEAL FOR MODIFICATIONS TO EXISTING ROADWAYS (EXCEPT ON BRIDGES)



TYPICAL VERTICAL GRANITE CURB DETAIL

NOT TO SCALE

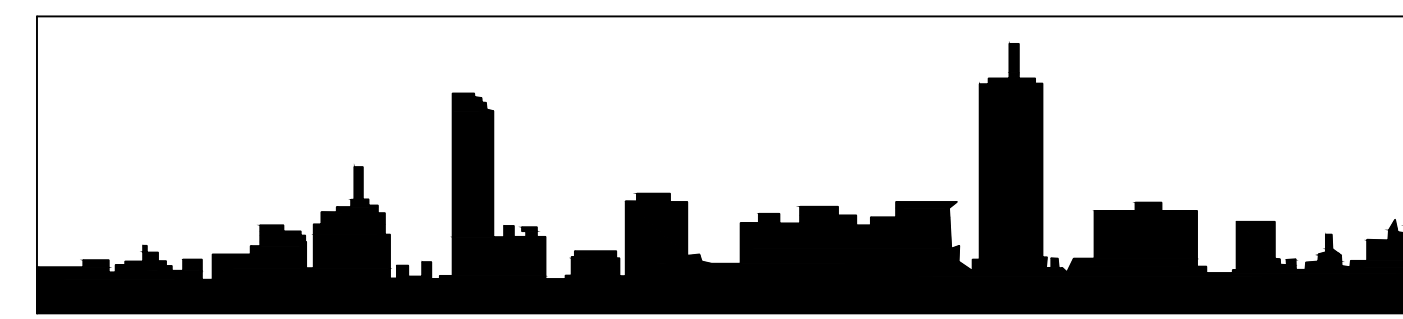
NOTES:

1. CUT NEAT LINE 6" FROM CURB LINE AND REMOVE BASE AND SUBGRADE, REPLACE WITH CEMENT CONCRETE. COVER WITH BINDER AND TOP COURSE TO CURB.
2. ANY DESIGNATED CEMENT CONCRETE THAT IS ACCEPTABLE UNDER SECTION M4 OF THE STANDARD MHD SPECIFICATIONS MAY BE USED; ALL TEST REQUIREMENTS ARE WAIVED. BITUMINOUS CONCRETE SHALL NOT BE USED AS A SUBSTITUTE.

VERTICAL GRANITE CURB
DETAIL

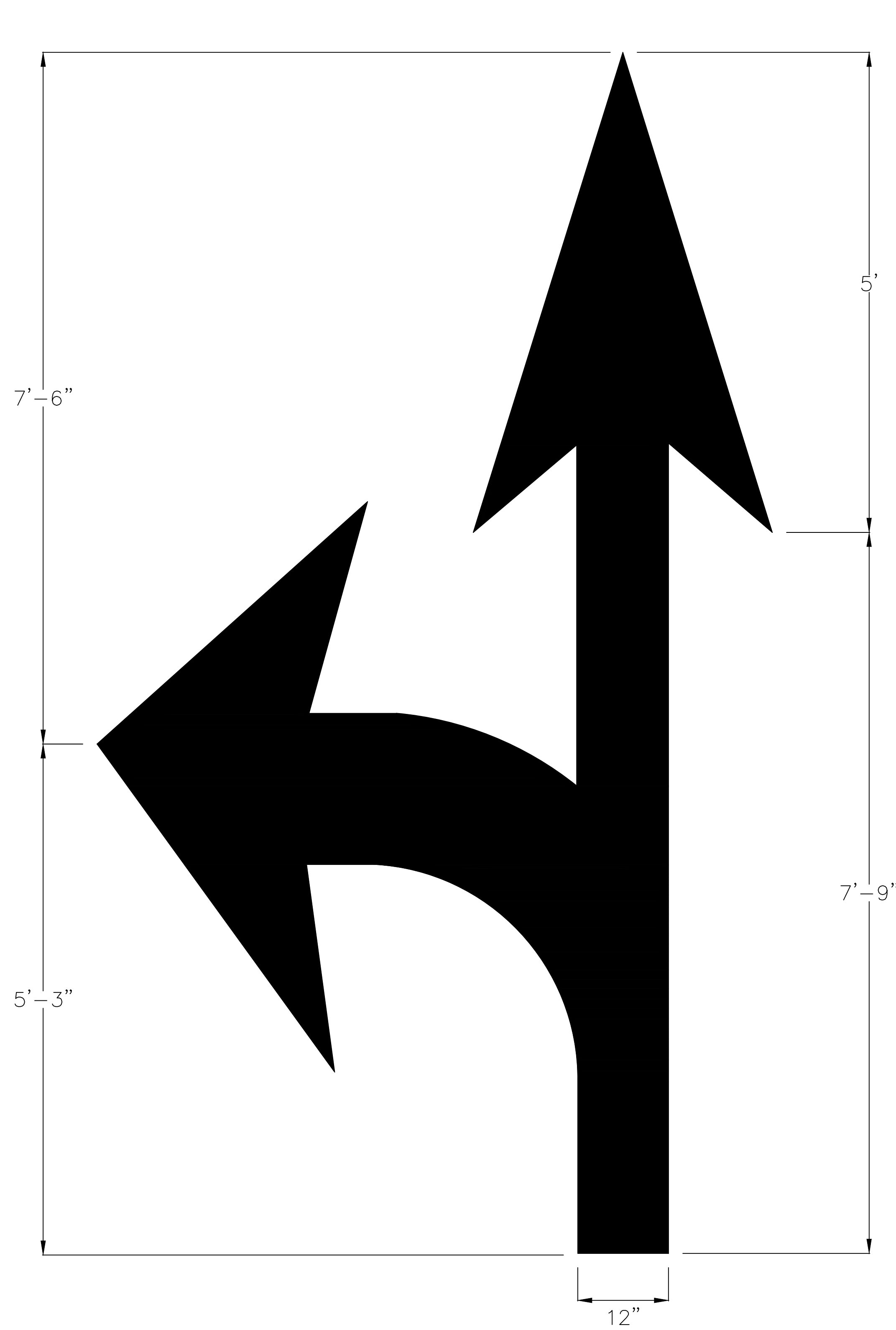


Northeastern University
College of Engineering

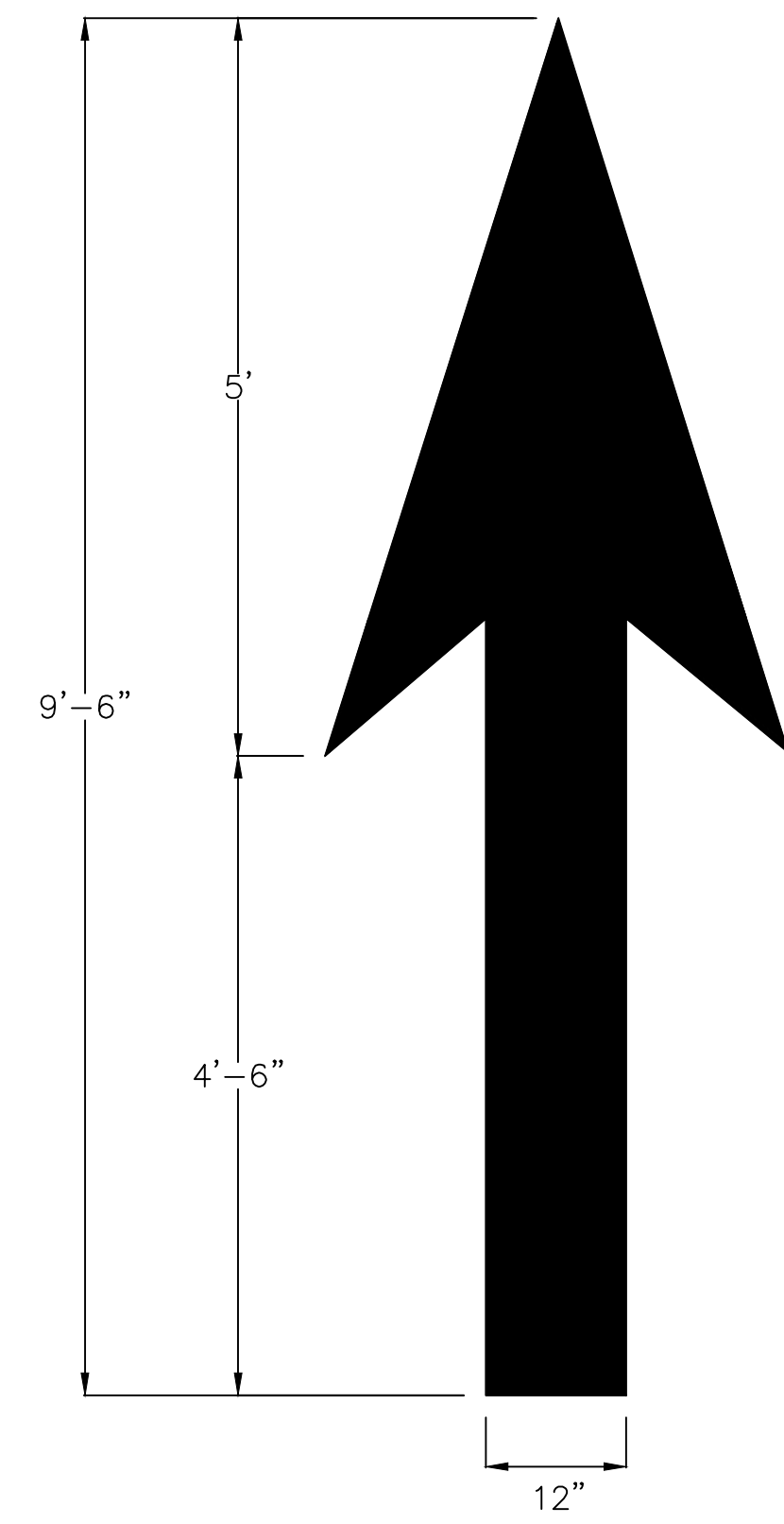


NEW ENGLAND STREETSCAPE CONSULTING
NORTHEASTERN UNIVERSITY 360 HUNTINGTON AVE
BOSTON, MA 02115

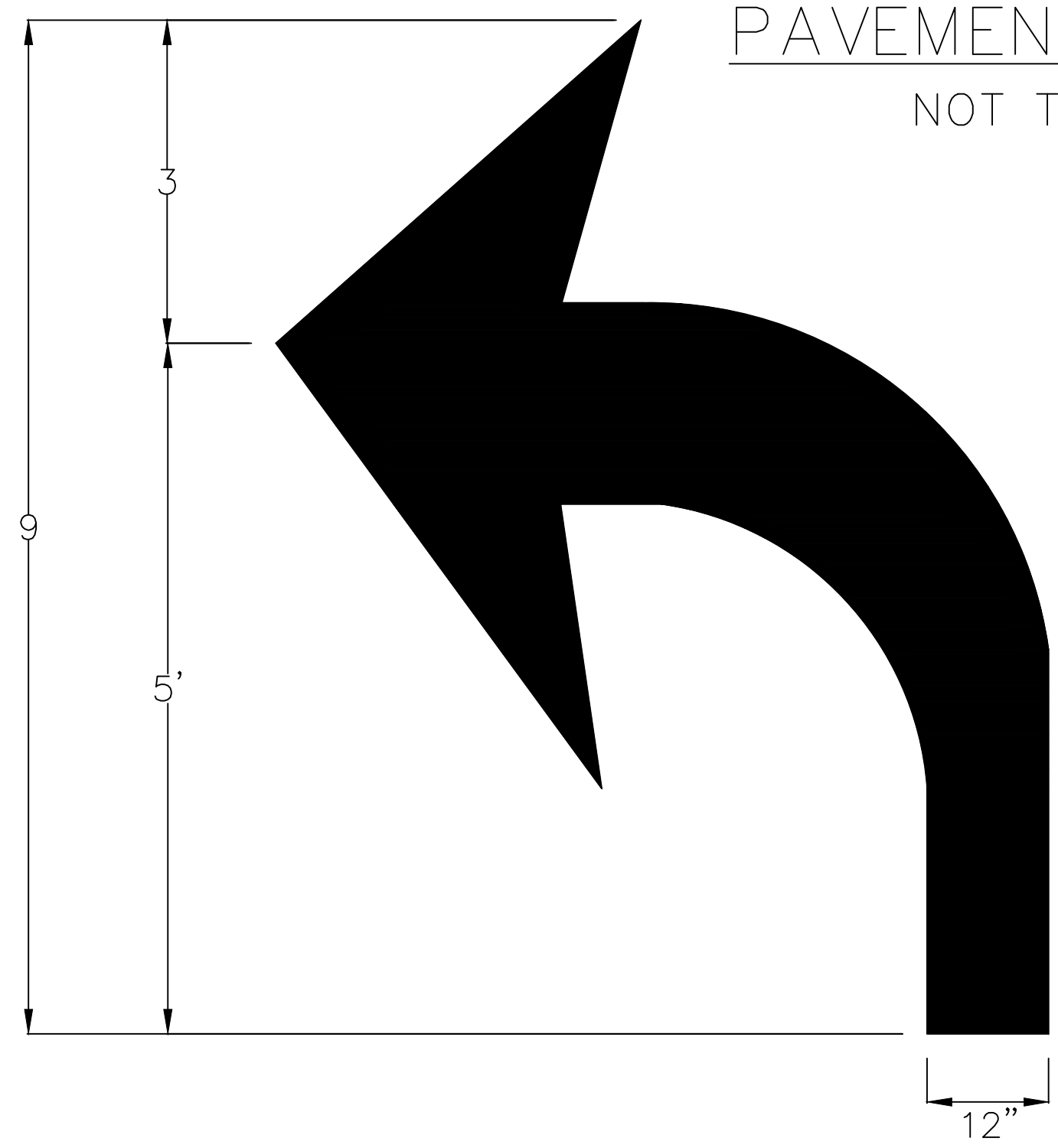
| | | |
|------------------|--------------------|---------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: NTS |
| DRAWN BY: MHJ | CHECKED BY: KAR | SHEET NO. 6 OF 8 |
| TITLE: D-06 | | |



LEFT TURN AND FORWARD
ARROW PAVEMENT MARKING
NOT TO SCALE

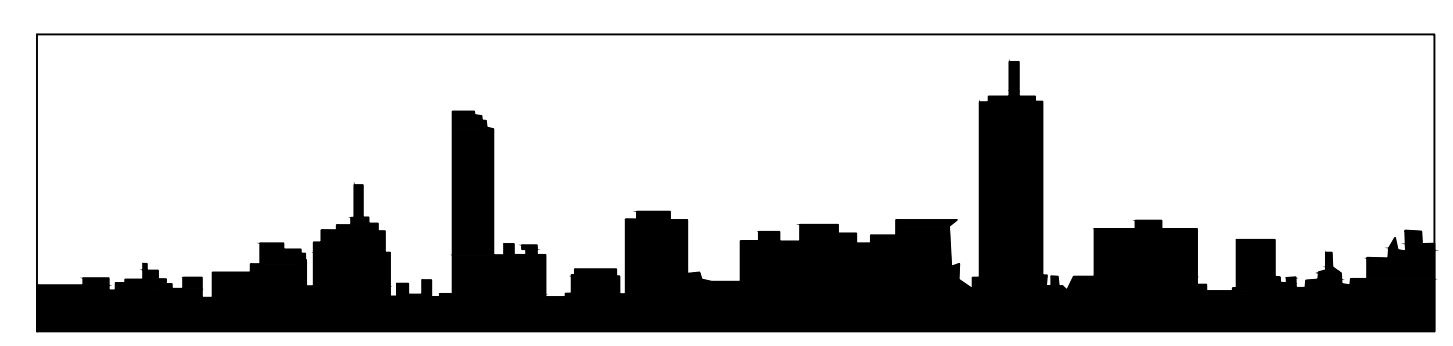


FORWARD ARROW
PAVEMENT MARKING
NOT TO SCALE



LEFT TURN ARROW
PAVEMENT MARKING
NOT TO SCALE

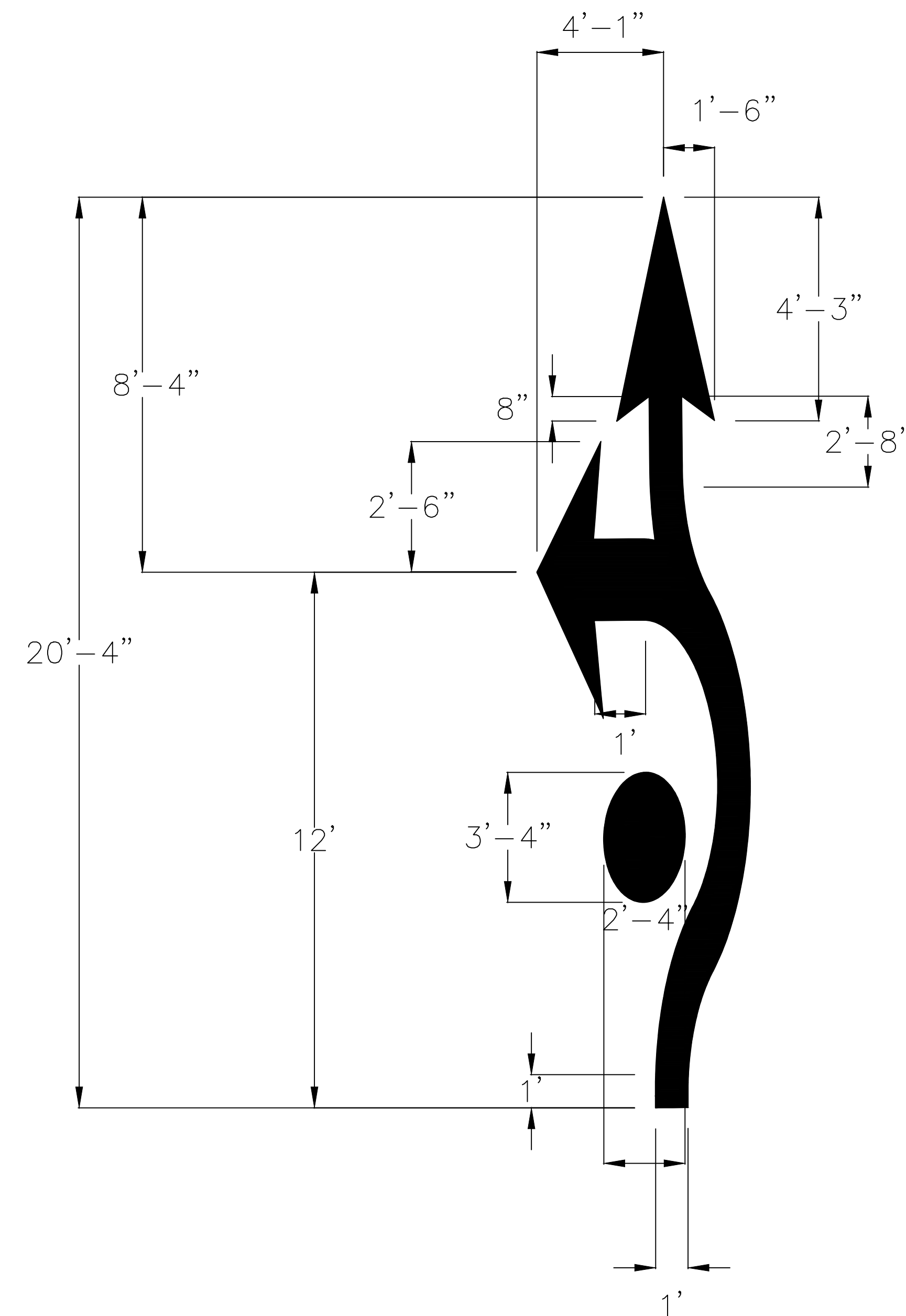
- PAVEMENT MARKINGS INSTALLATION NOTES
1. ALL PAVEMENT MARKINGS SHALL CONFORM TO THE MASSACHUSETTS HIGHWAY DEPARTMENT/CITY OF NEWTON STANDARDS AND SPECIFICATIONS.
 2. PERMANENT PAVEMENT MARKINGS MAY BE MODIFIED AS DIRECTED BY THE TRAFFIC ENGINEER.
 3. ALL LANE DIMENSIONS ARE FROM THE CENTER OF THE LANE LINE, CENTER OF DOUBLE LANE LINE, FACE OF CURB, OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
 4. THE PAVEMENT MARKING DRAWINGS ARE SCHEMATIC. THE CONTRACTOR SHALL FOLLOW ALL DIMENSIONS, DETAILS, AND STANDARDS WHEN INSTALLING PAVEMENT MARKINGS, STRIPING, AND MARKERS.
 5. ALL LONGITUDINAL STRIPING SHALL BE 60 MIL (0.060") THICK HOT-SPRAYED THERMOPLASTIC REFLECTORIZED STRIPING PLACED AS NOTED ON FINAL SURFACE COURSE.
 6. ALL TRANSVERSE MARKINGS SHALL BE 90 MIL (0.090") THICK HOT-SPRAYED THERMOPLASTIC STRIPING. ALL PAVEMENT ARROWS AND LEGENDS SHALL BE 90 MIL (0.090") THICK HOT-SPRAYED THERMOPLASTIC STRIPING. EXTRUDED THERMOPLASTIC OR PREFORMED APPLICATIONS MAY BE USED IF APPROVED BY THE TRAFFIC ENGINEER.
 7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LAYOUT AND INSTALLATION OF PAVEMENT MARKINGS ON FINAL SURFACE COURSE FOLLOWING CONTROL POINTS THAT HAVE BEEN SET.
 8. THE CONTRACTOR SHALL CLEAN THE ROADWAY SURFACE TO THE SATISFACTION OF THE TRAFFIC ENGINEER BY SWEEPING AND AIR-JET BLOWING IMMEDIATELY PRIOR TO THE PLACEMENT OF ALL PAVEMENT MARKINGS. THE TEMPERATURE SHALL NOT BE LESS THAN 50 DEGREES F FOR THE PLACEMENT OF HOT SPRAYED THERMOPLASTIC STRIPING.
 9. THE ENGINEER OF RECORD SHALL BE REQUIRED TO PRODUCE AS-BUILT STRIPING PLANS WITHIN 90 DAYS OF STRIPING COMPLETION.
 10. FOR ALL CONSTRUCTION, ALL PAVEMENT MARKINGS AND SIGNING SHALL BE INSTALLED AND SHALL BE PAID FOR BY THE PROJECT OWNER/DEVELOPER.
 11. FINAL INSPECTION AND ACCEPTANCE OF PAVEMENT MARKINGS SHALL BE PERFORMED BY THE TRAFFIC ENGINEER.



| | | |
|------------------|--------------------|---------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: NTS |
| DRAWN BY: MHJ | CHECKED BY: KAR | SHEET NO. 7 OF 8 |
| TITLE: D-07 | | |

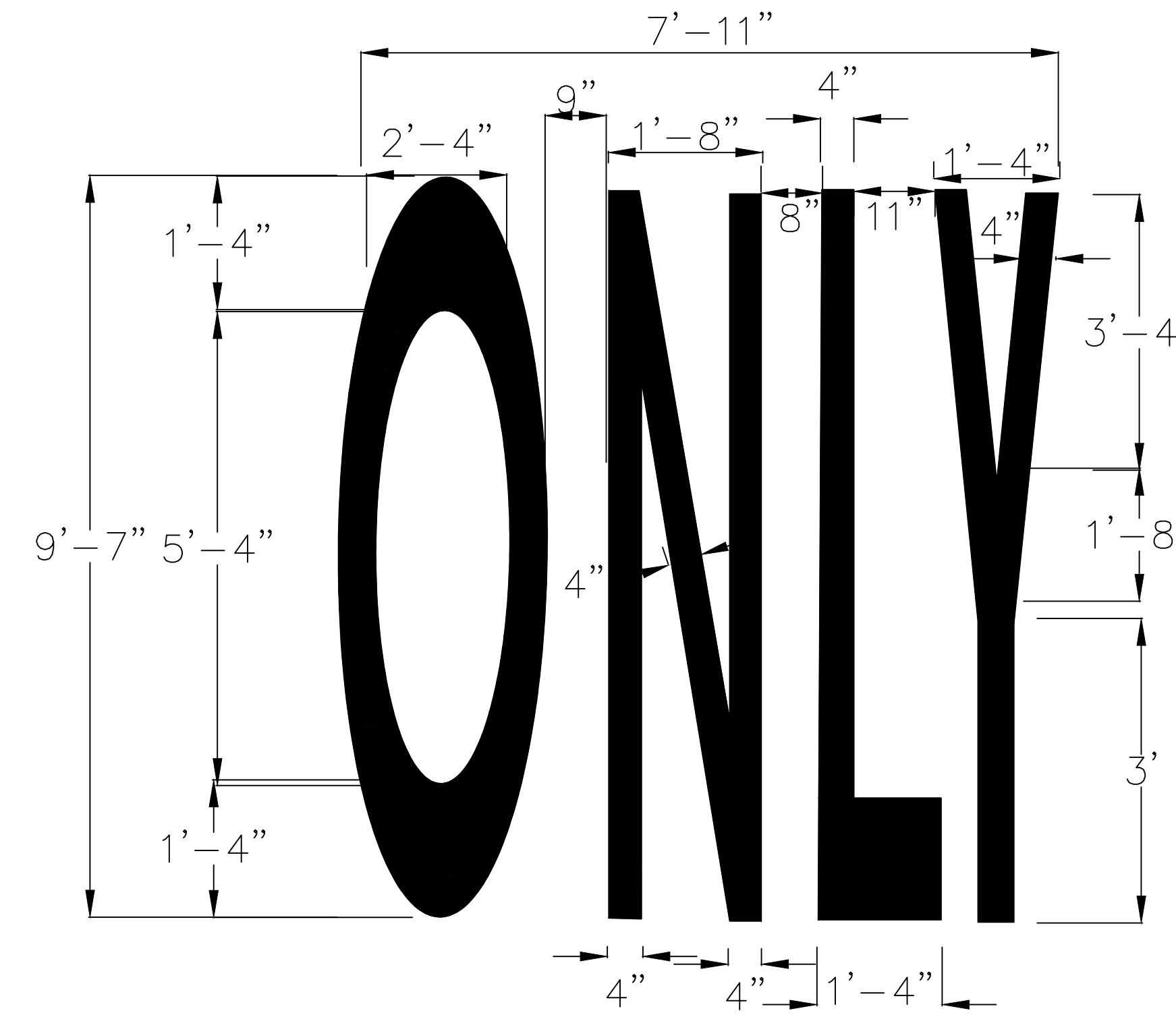
PAVEMENT MARKINGS INSTALLATION NOTES

1. ALL PAVEMENT MARKINGS SHALL CONFORM TO THE MASSACHUSETTS HIGHWAY DEPARTMENT/CITY OF NEWTON STANDARDS AND SPECIFICATIONS.
2. PERMANENT PAVEMENT MARKINGS MAY BE MODIFIED AS DIRECTED BY THE TRAFFIC ENGINEER.
3. ALL LANE DIMENSIONS ARE FROM THE CENTER OF THE LANE LINE, CENTER OF DOUBLE LANE LINE, FACE OF CURB, OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
4. THE PAVEMENT MARKING DRAWINGS ARE SCHEMATIC. THE CONTRACTOR SHALL FOLLOW ALL DIMENSIONS, DETAILS, AND STANDARDS WHEN INSTALLING PAVEMENT MARKINGS, STRIPING, AND MARKERS.
5. ALL LONGITUDINAL STRIPING SHALL BE 60 MIL (0.060") THICK HOT-SPRAYED THERMOPLASTIC REFLECTORIZED STRIPING PLACED AS NOTED ON FINAL SURFACE COURSE.
6. ALL TRANSVERSE MARKINGS SHALL BE 90 MIL (0.090") THICK HOT-SPRAYED THERMOPLASTIC STRIPING. ALL PAVEMENT ARROWS AND LEGENDS SHALL BE 90 MIL (0.090") THICK HOT-SPRAYED THERMOPLASTIC STRIPING. EXTRUDED THERMOPLASTIC OR PREFORMED APPLICATIONS MAY BE USED IF APPROVED BY THE TRAFFIC ENGINEER.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LAYOUT AND INSTALLATION OF PAVEMENT MARKINGS ON FINAL SURFACE COURSE FOLLOWING CONTROL POINTS THAT HAVE BEEN SET.
8. THE CONTRACTOR SHALL CLEAN THE ROADWAY SURFACE TO THE SATISFACTION OF THE TRAFFIC ENGINEER BY SWEEPING AND AIR-JET BLOWING IMMEDIATELY PRIOR TO THE PLACEMENT OF ALL PAVEMENT MARKINGS. THE TEMPERATURE SHALL NOT BE LESS THAN 50 DEGREES F FOR THE PLACEMENT OF HOT SPRAYED THERMOPLASTIC STRIPING.
9. THE ENGINEER OF RECORD SHALL BE REQUIRED TO PRODUCE AS-BUILT STRIPING PLANS WITHIN 90 DAYS OF STRIPING COMPLETION.
10. FOR ALL CONSTRUCTION, ALL PAVEMENT MARKINGS AND SIGNING SHALL BE INSTALLED AND SHALL BE PAID FOR BY THE PROJECT OWNER/DEVELOPER.
11. FINAL INSPECTION AND ACCEPTANCE OF PAVEMENT MARKINGS SHALL BE PERFORMED BY THE TRAFFIC ENGINEER.



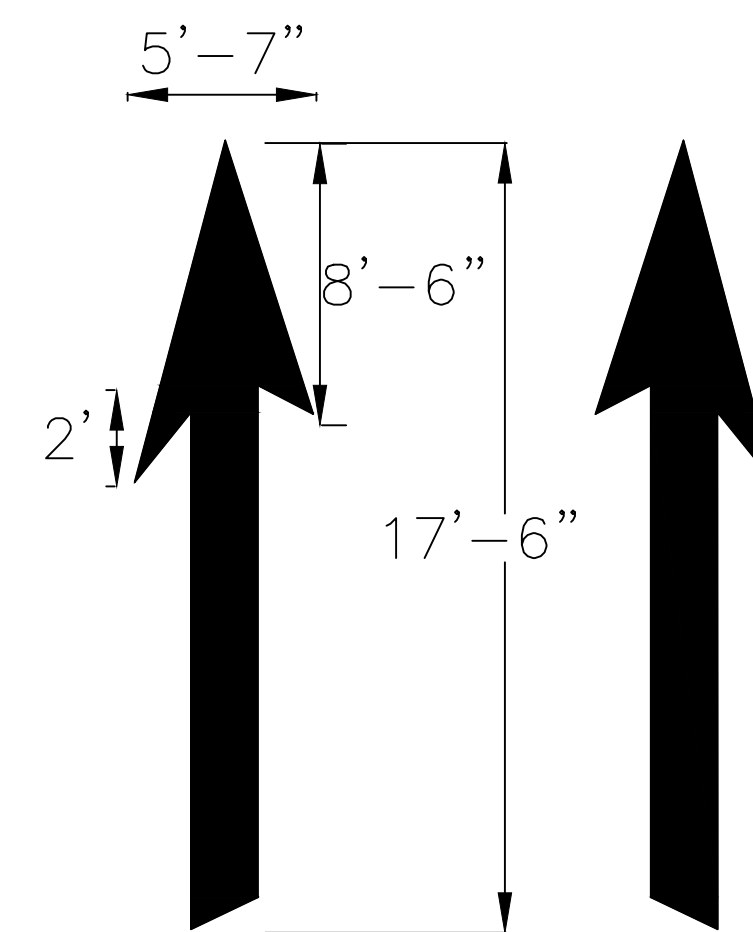
FISH HOOK ARROW
PAVEMENT MARKING

NOT TO SCALE



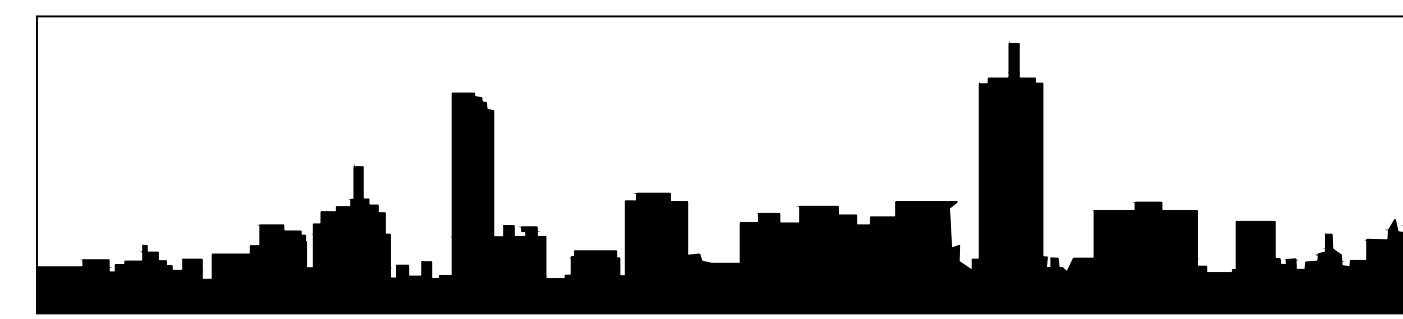
”ONLY” WORD MARKING
PAVEMENT MARKING

NOT TO SCALE



RIGHT LANE/LEFT LANE DROP ARROW
PAVEMENT MARKING

NOT TO SCALE



| | | |
|------------------|--------------------|---------------------|
| PROJECT NO. | DATE: 4/16/14 | SCALE: NTS |
| DRAWN BY: JEB | CHECKED BY: KAR | SHEET NO. 8 OF 8 |
| TITLE: D-08 | | |