

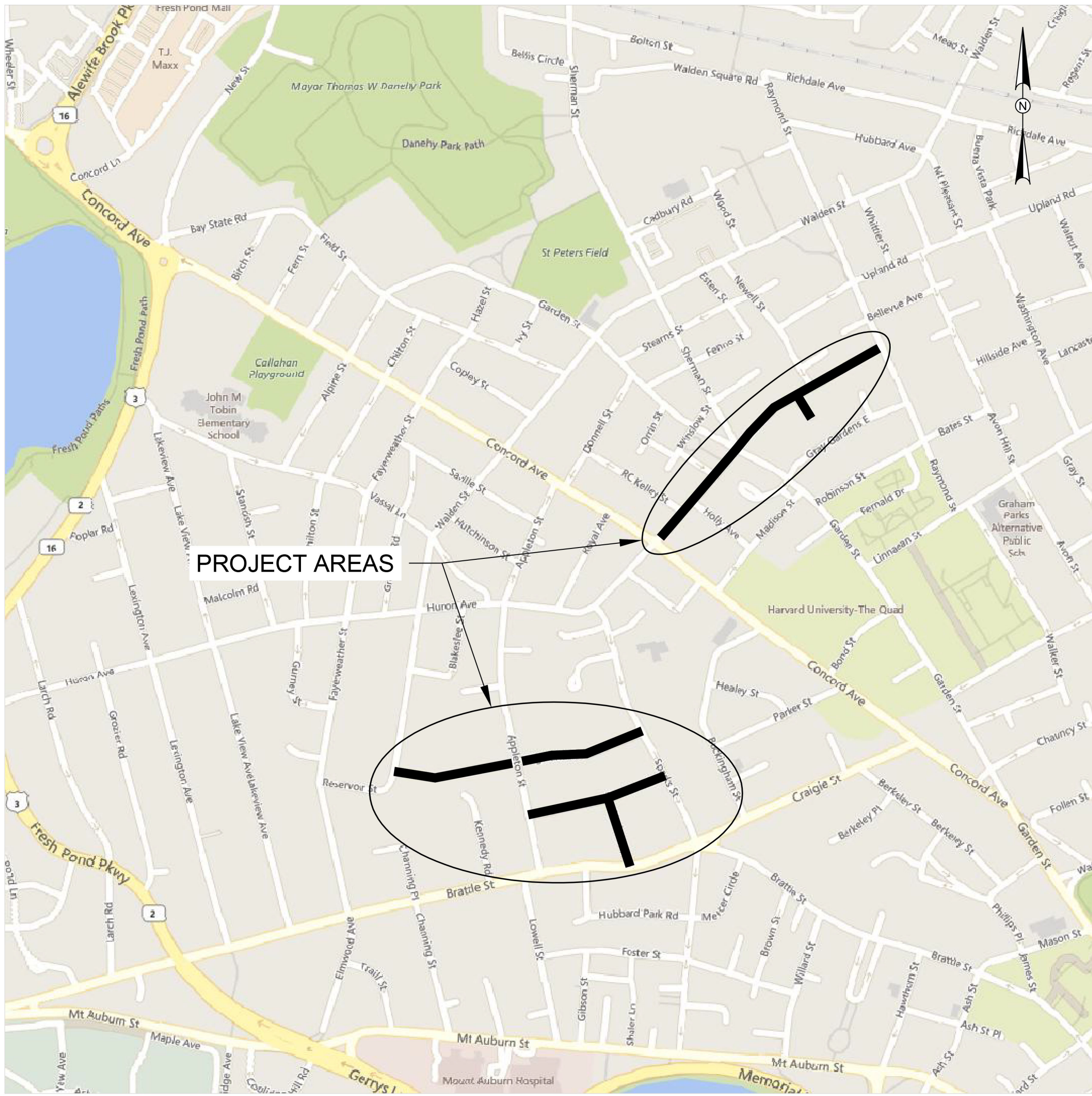
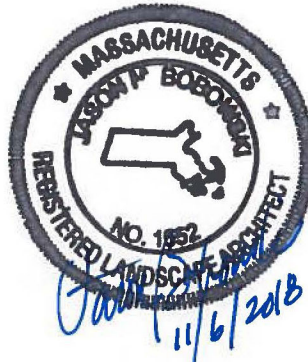
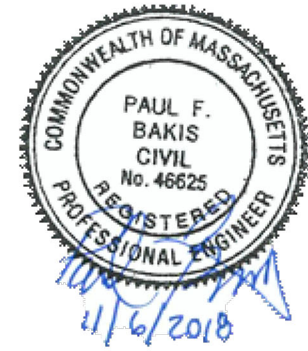
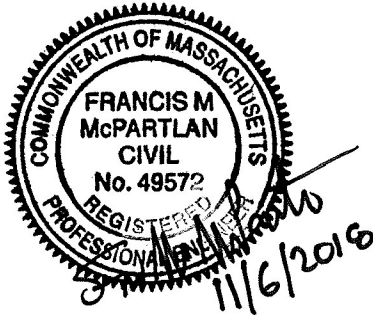
# CITY OF CAMBRIDGE, MASSACHUSETTS

## CHAPTER 90 CONTRACT 23A RIEDESEL AVE, BREWSTER STREET, HIGHLAND AVE, AND HURON AVE

ISSUED FOR BID SET  
NOVEMBER 2018

FILE NO. 8310

PREPARED BY PROJECT DESIGN TEAM:



PREPARED FOR:



LOCATION PLAN  
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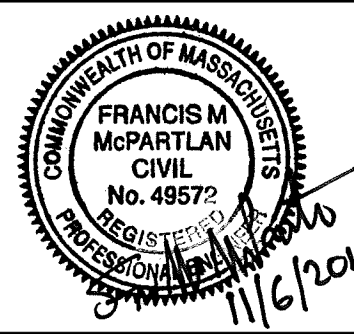
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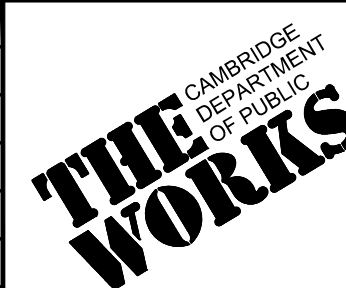
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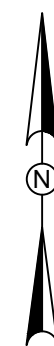
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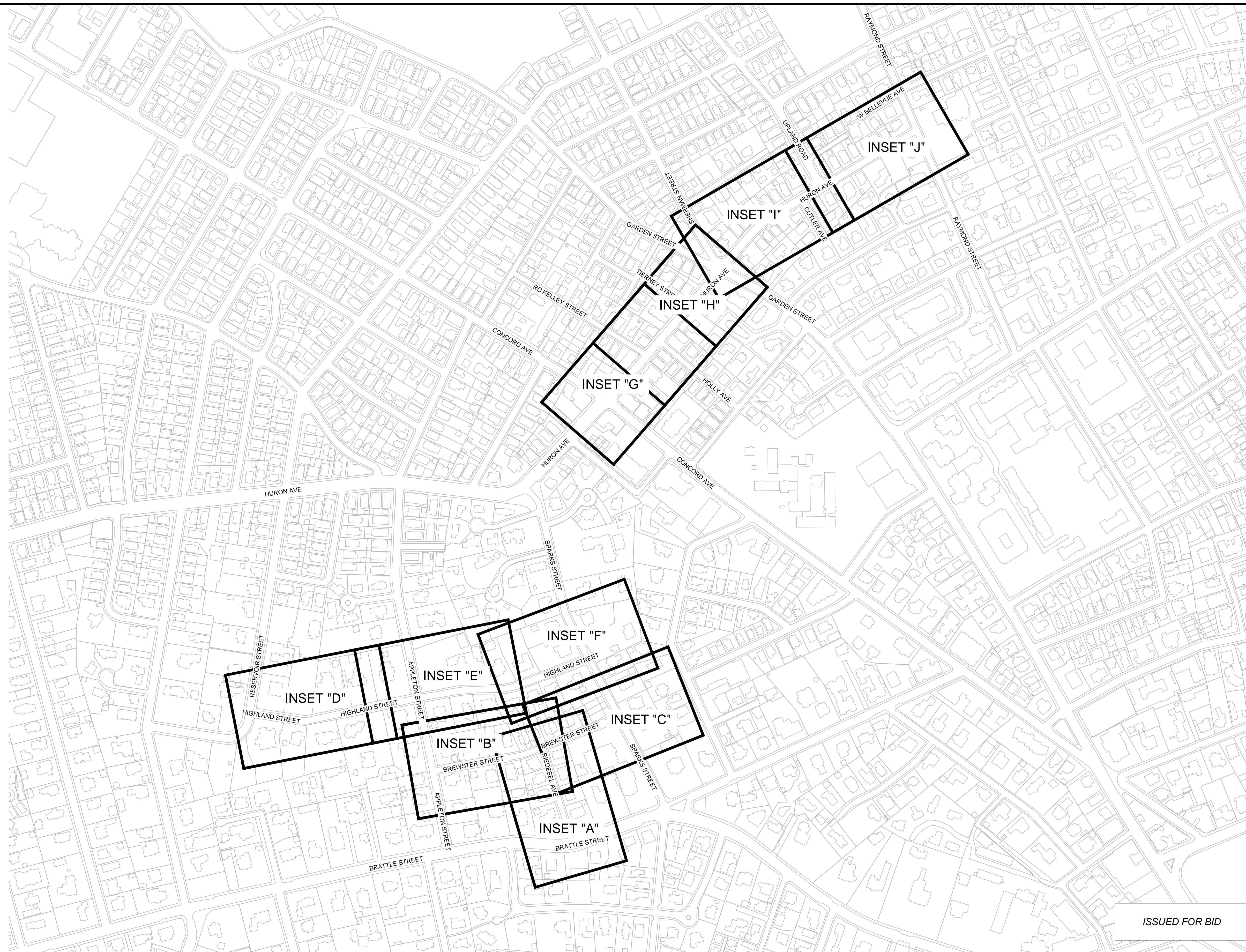


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SCALE: 1" = 200' SCALE IN FEET

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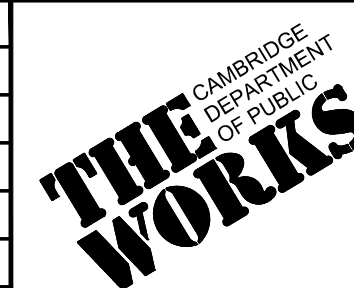


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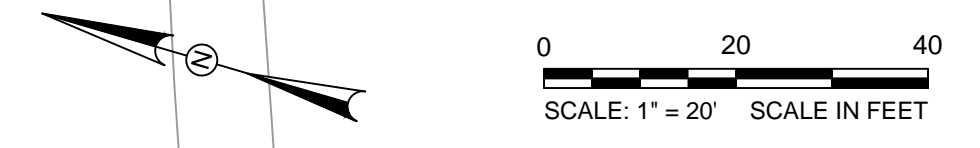


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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                      |
| Project | CHAPTER 90 CONTACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
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|          |      |
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| Sheet    | G-3  |
| File No. | 8310 |

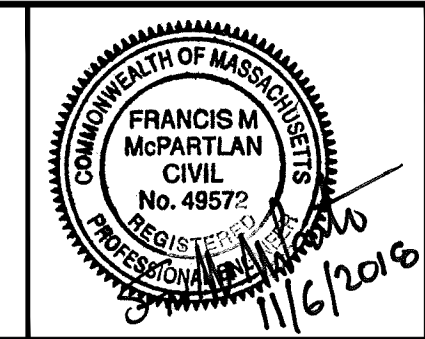


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| L1                                      | 200+00.00        | 2963201.833 | 755602.625 |            | S16°50'07"E<br>428.76' | 204+28.76      | 2962791.447 | 755726.804 |



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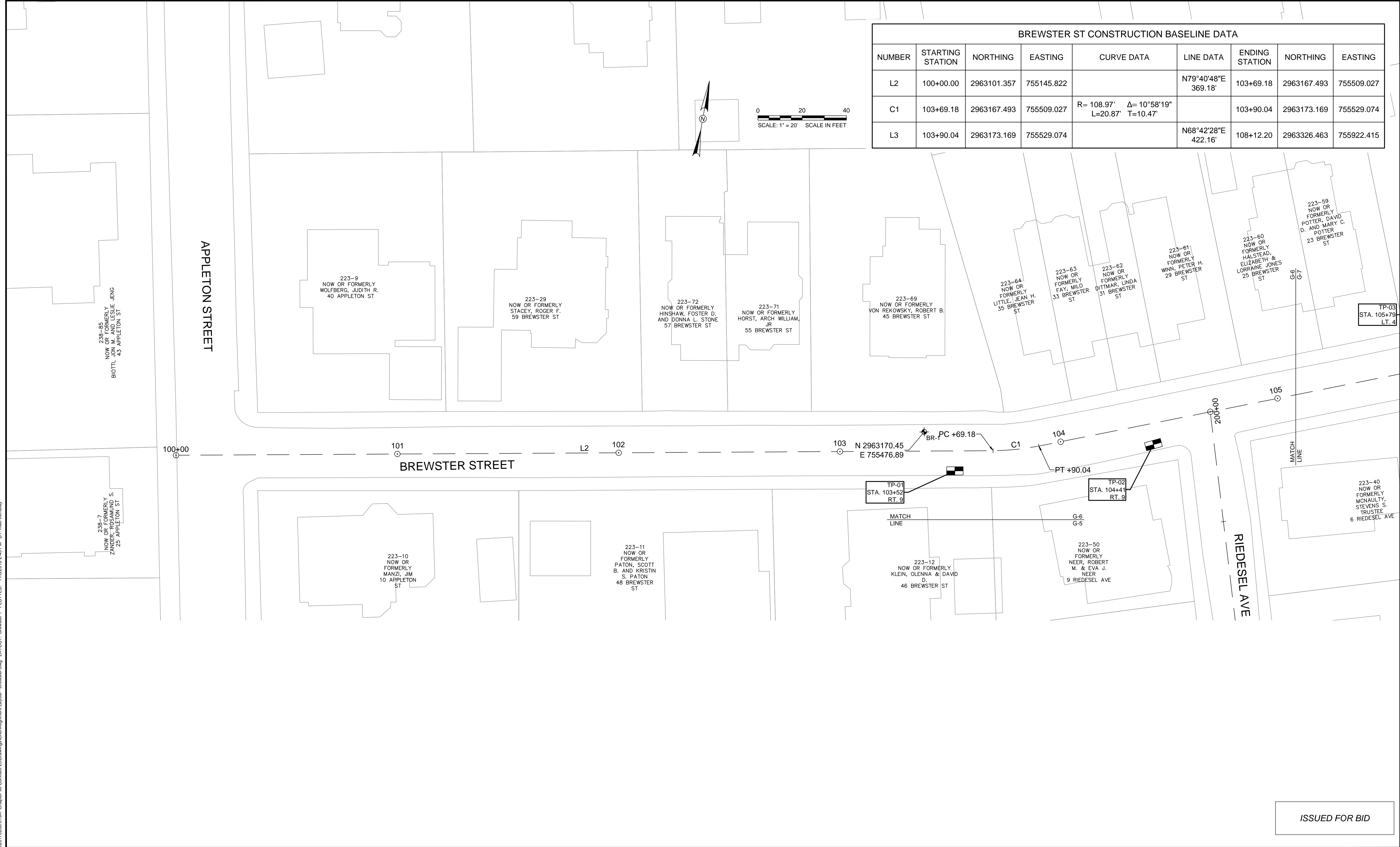
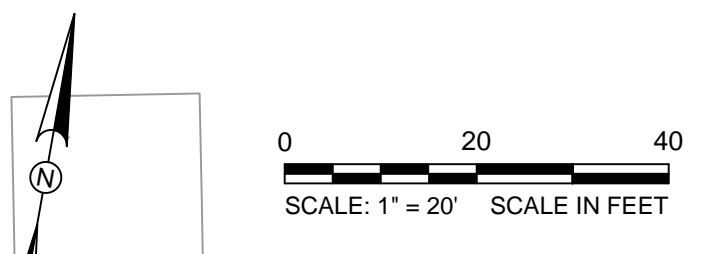
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| Checked by  | JM            | No.       | Description |
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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                      |
| Project | CHAPTER 90 CONTACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | RIEDESEL AVE - BASELINE ALIGNMENT<br>SHEET 1 OF 1     |

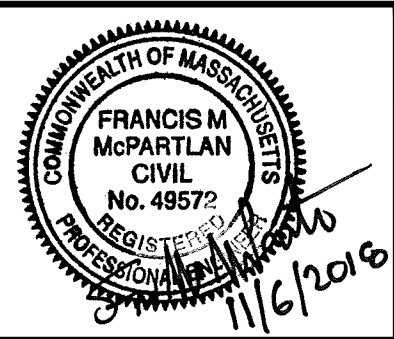
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| Sheet    | G-5  |
| File No. | 8310 |

| BREWSTER ST CONSTRUCTION BASELINE DATA |                  |             |            |  |                        |                |             |            |
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| L2                                     | 100+00.00        | 2963101.357 | 755145.822 |  | N79°40'48"E<br>369.18' | 103+69.18      | 2963167.493 | 755509.027 |
| C1                                     | 103+69.18        | 2963167.493 | 755509.027 | R= 108.97' Δ= 10°58'19"<br>L=20.87' T=10.47' |                        | 103+90.04      | 2963173.169 | 755529.074 |
| L3                                     | 103+90.04        | 2963173.169 | 755529.074 |  | N68°42'28"E<br>422.16' | 108+12.20      | 2963326.463 | 755922.415 |



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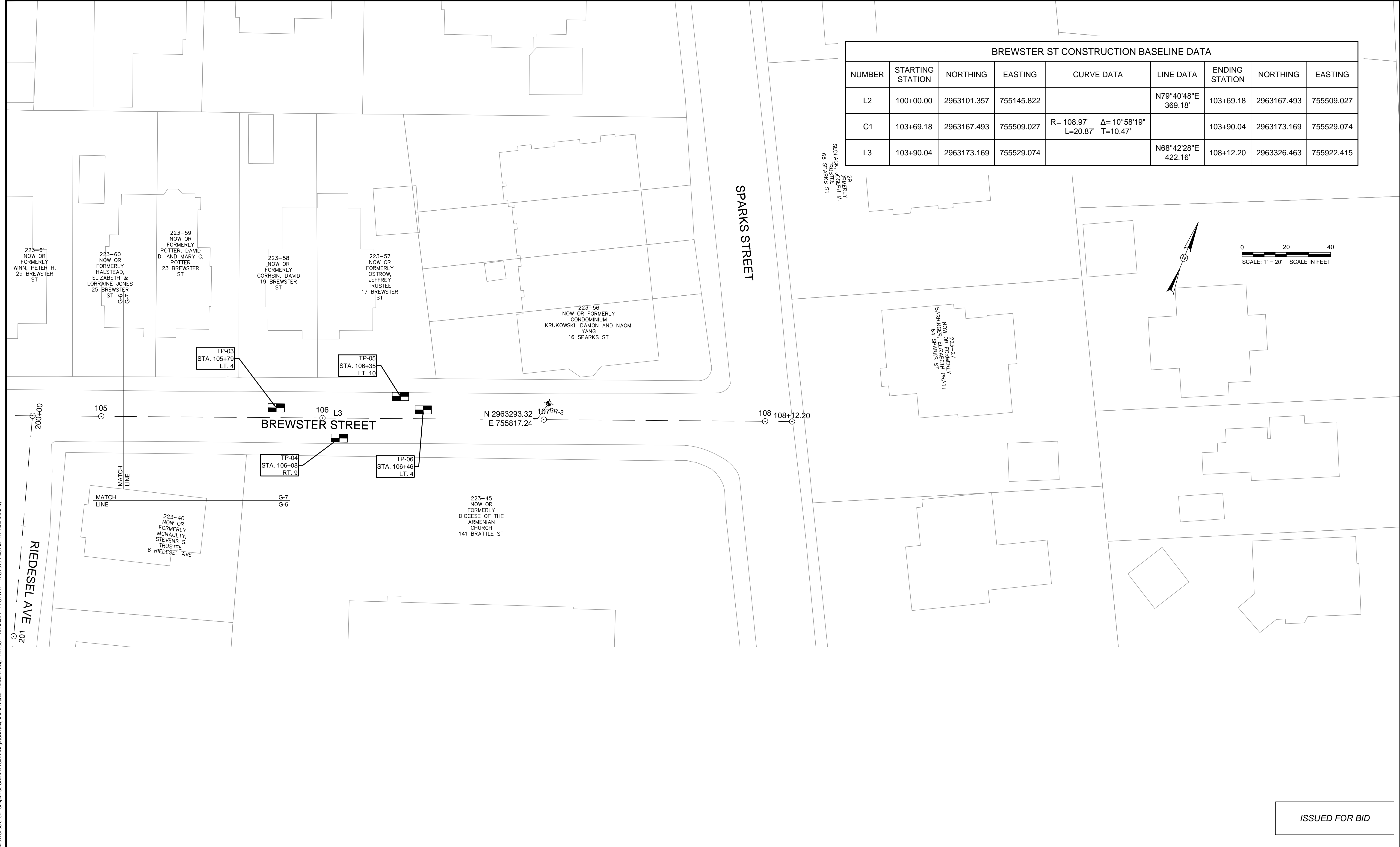
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| Project | CHAPTER 90 CONTACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | BREWSTER STREET - BASELINE ALIGNMENT<br>SHEET 1 OF 2  |

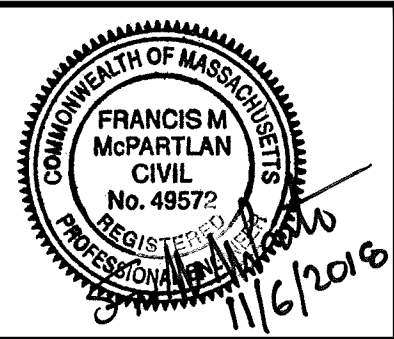
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| Sheet    | G-6  |
| File No. | 8310 |

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| C1                                     | 103+69.18        | 2963167.493 | 755509.027 | R= 108.97' Δ= 10°58'19"<br>L=20.87' T=10.47' |                        | 103+90.04      | 2963173.169 | 755529.074 |
| L3                                     | 103+90.04        | 2963173.169 | 755529.074 |  | N68°42'28"E<br>422.16' | 108+12.20      | 2963326.463 | 755922.415 |



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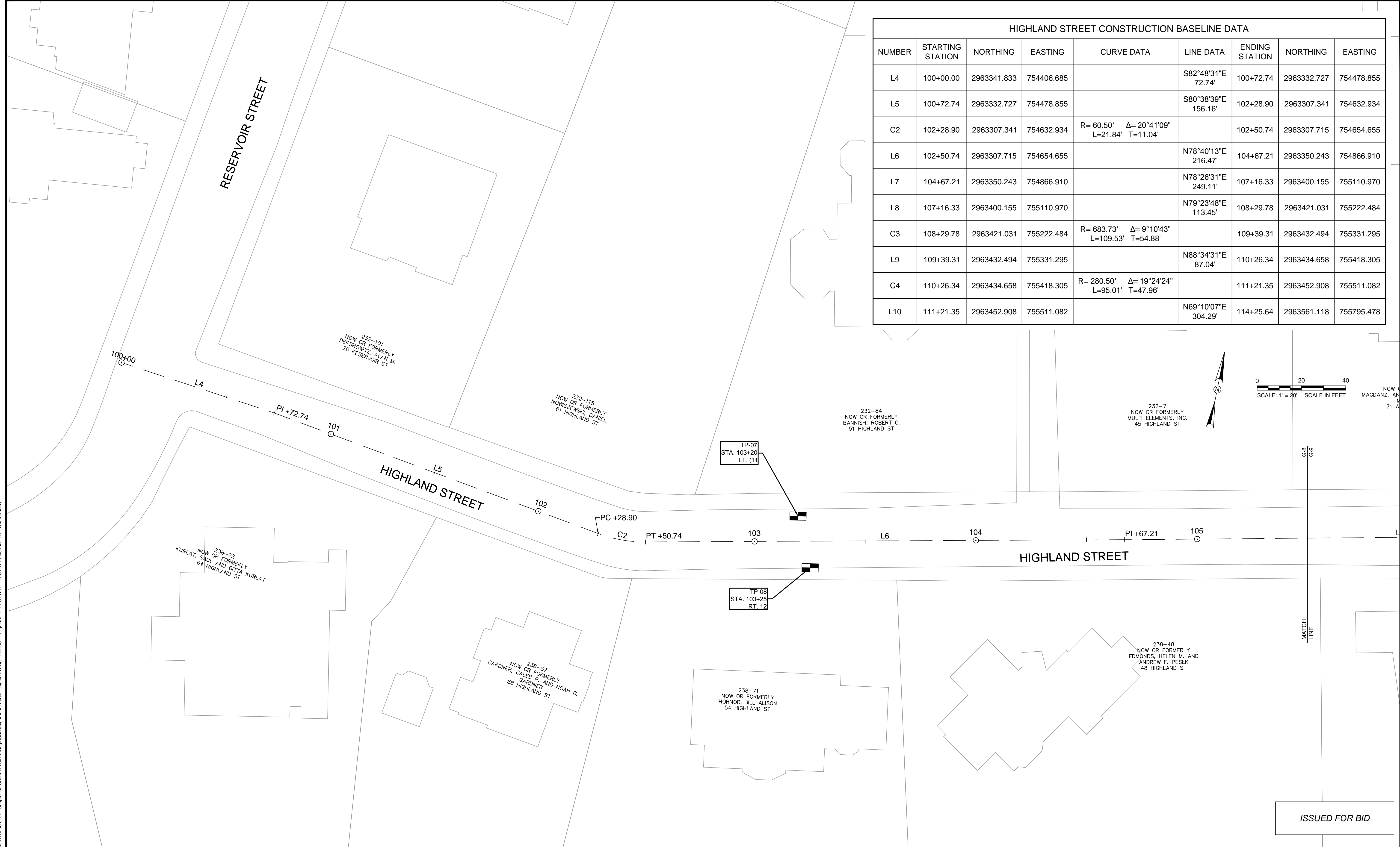
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| Project | CHAPTER 90 CONTACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | BREWSTER STREET - BASELINE ALIGNMENT<br>SHEET 2 OF 2  |

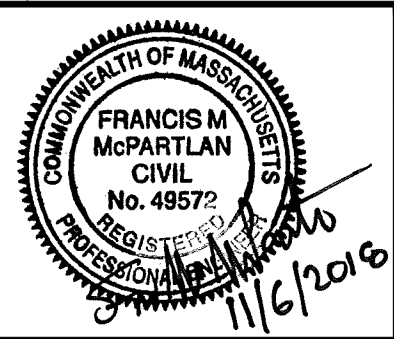
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| Sheet    | G-7  |
| File No. | 8310 |

| HIGHLAND STREET CONSTRUCTION BASELINE DATA |                  |             |            |  |                        |                |             |            |
|--|------------------|-------------|------------|--|------------------------|----------------|-------------|------------|
| NUMBER                                     | STARTING STATION | NORTHING    | EASTING    | CURVE DATA                                   | LINE DATA              | ENDING STATION | NORTHING    | EASTING    |
| L4   | 100+00.00        | 2963341.833 | 754406.685 |  | S82°48'31"E<br>72.74'  | 100+72.74      | 2963332.727 | 754478.855 |
| L5   | 100+72.74        | 2963332.727 | 754478.855 |  | S80°38'39"E<br>156.16' | 102+28.90      | 2963307.341 | 754632.934 |
| C2   | 102+28.90        | 2963307.341 | 754632.934 | R= 60.50' Δ= 20°41'09"<br>L=21.84' T=11.04'  |                        | 102+50.74      | 2963307.715 | 754654.655 |
| L6   | 102+50.74        | 2963307.715 | 754654.655 |  | N78°40'13"E<br>216.47' | 104+67.21      | 2963350.243 | 754866.910 |
| L7   | 104+67.21        | 2963350.243 | 754866.910 |  | N78°26'31"E<br>249.11' | 107+16.33      | 2963400.155 | 755110.970 |
| L8   | 107+16.33        | 2963400.155 | 755110.970 |  | N79°23'48"E<br>113.45' | 108+29.78      | 2963421.031 | 755222.484 |
| C3   | 108+29.78        | 2963421.031 | 755222.484 | R= 683.73' Δ= 9°10'43"<br>L=109.53' T=54.88' |                        | 109+39.31      | 2963432.494 | 755331.295 |
| L9   | 109+39.31        | 2963432.494 | 755331.295 |  | N88°34'31"E<br>87.04'  | 110+26.34      | 2963434.658 | 755418.305 |
| C4   | 110+26.34        | 2963434.658 | 755418.305 | R= 280.50' Δ= 19°24'24"<br>L=95.01' T=47.96' |                        | 111+21.35      | 2963452.908 | 755511.082 |
| L10  | 111+21.35        | 2963452.908 | 755511.082 |  | N69°10'07"E<br>304.29' | 114+25.64      | 2963561.118 | 755795.478 |



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CAD FILE: G:\clients\cambridge\MA\20170208.019A - Chapter 90 Contact 23A\Drawings\CAD\Alignment Layout - Highland.dwg LAYOUT: Highland 1 PLOTTED: 11/6/2016 2:45 PM BY: matt.tremblay



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| Scale       | AS NOTED      |     |             |      |
| Date        | NOVEMBER 2016 |     |             |      |
| Job No.     | 20170208.019A |     |             |      |
| Designed by | FMM           |     |             |      |
| Drawn by    | MT            |     |             |      |
| Checked by  | JM            | No. | Description | Date |
| Approved by | FMM           |     | REVISIONS   |      |



|         |   |
|---------|---|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                      |
| Project | CHAPTER 90 CONTACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HIGHLAND STREET - BASELINE ALIGNMENT<br>SHEET 1 OF 3  |

|          |      |
|----------|------|
| Sheet    | G-8  |
| File No. | 8310 |

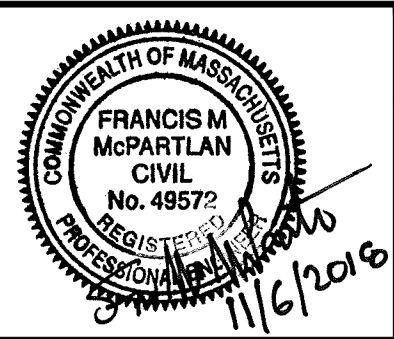


| HIGHLAND STREET CONSTRUCTION BASELINE DATA |                  |             |            |  |                        |                |             |            |  |
|--|------------------|-------------|------------|--|------------------------|----------------|-------------|------------|--|
| NUMBER                                     | STARTING STATION | NORTHING    | EASTING    | CURVE DATA                                   | LINE DATA              | ENDING STATION | NORTHING    | EASTING    |  |
| L4   | 100+00.00        | 2963341.833 | 754406.685 |  | S82°48'31"E<br>72.74'  | 100+72.74      | 2963332.727 | 754478.855 |  |
| L5   | 100+72.74        | 2963332.727 | 754478.855 |  | S80°38'39"E<br>156.16' | 102+28.90      | 2963307.341 | 754632.934 |  |
| C2   | 102+28.90        | 2963307.341 | 754632.934 | R= 60.50' Δ= 20°41'09"<br>L=21.84' T=11.04'  |                        | 102+50.74      | 2963307.715 | 754654.655 |  |
| L6   | 102+50.74        | 2963307.715 | 754654.655 |  | N78°40'13"E<br>216.47' | 104+67.21      | 2963350.243 | 754866.910 |  |
| L7   | 104+67.21        | 2963350.243 | 754866.910 |  | N78°26'31"E<br>249.11' | 107+16.33      | 2963400.155 | 755110.970 |  |
| L8   | 107+16.33        | 2963400.155 | 755110.970 |  | N79°23'48"E<br>113.45' | 108+29.78      | 2963421.031 | 755222.484 |  |
| C3   | 108+29.78        | 2963421.031 | 755222.484 | R= 683.73' Δ= 9°10'43"<br>L=109.53' T=54.88' |                        | 109+39.31      | 2963432.494 | 755331.295 |  |
| L9   | 109+39.31        | 2963432.494 | 755331.295 |  | N88°34'31"E<br>87.04'  | 110+26.34      | 2963434.658 | 755418.305 |  |
| C4   | 110+26.34        | 2963434.658 | 755418.305 | R= 280.50' Δ= 19°24'24"<br>L=95.01' T=47.96' |                        | 111+21.35      | 2963452.908 | 755511.082 |  |
| L10  | 111+21.35        | 2963452.908 | 755511.082 |  | N69°10'07"E<br>304.29' | 114+25.64      | 2963561.118 | 755795.478 |  |



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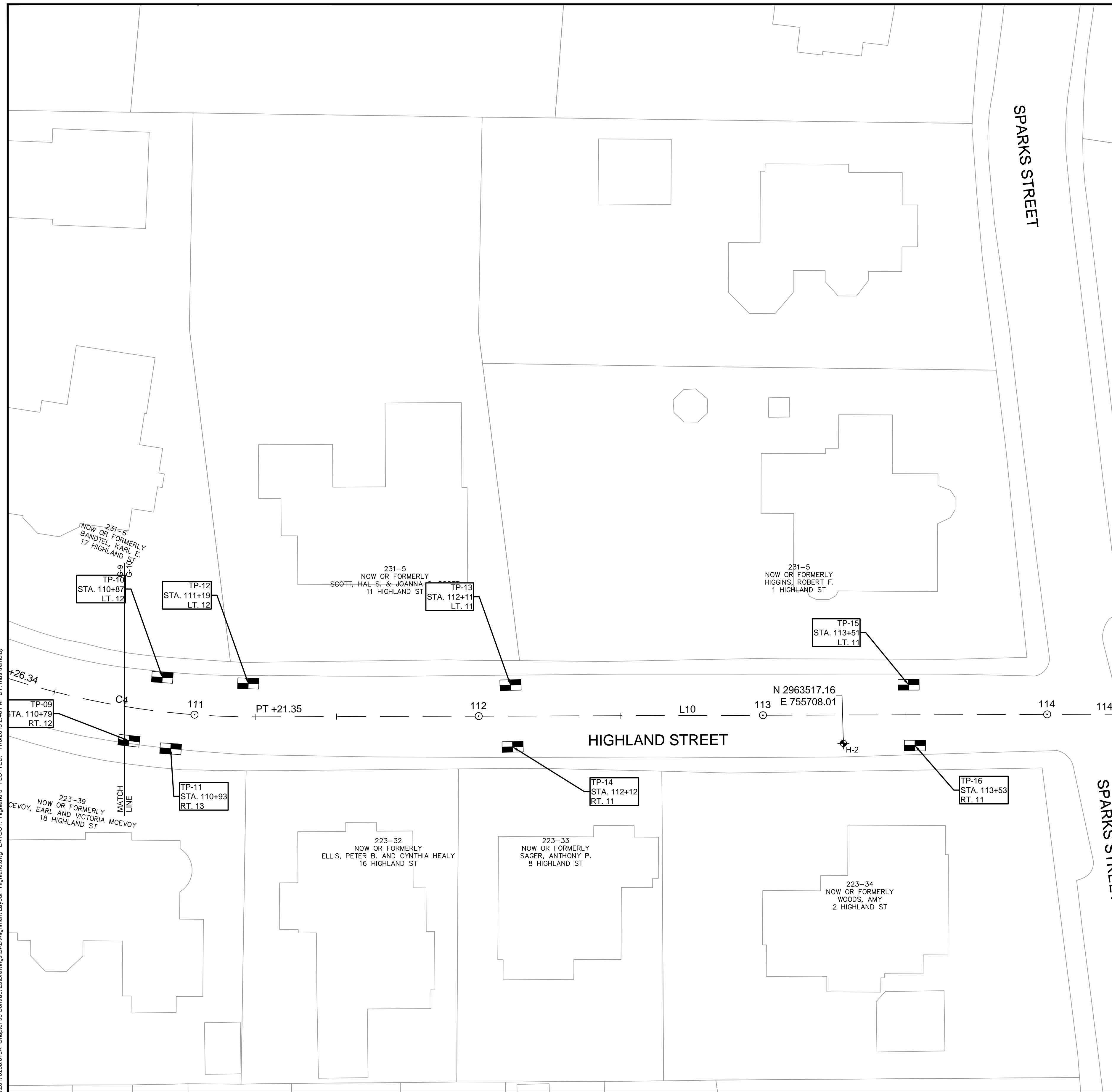
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| Designed by | FMM           |     |             |      |
| Drawn by    | MT            |     |             |      |
| Checked by  | JM            | No. | Description | Date |
| Approved by | FMM           |     | REVISIONS   |      |



|         |   |
|---------|---|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                      |
| Project | CHAPTER 90 CONTACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HIGHLAND STREET - BASELINE ALIGNMENT<br>SHEET 2 OF 3  |

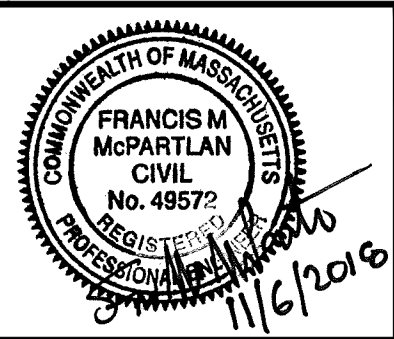
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| Sheet    | G-9  |
| File No. | 8310 |

| HIGHLAND STREET CONSTRUCTION BASELINE DATA |                  |             |            |  |                        |                |             |            |
|--|------------------|-------------|------------|--|------------------------|----------------|-------------|------------|
| NUMBER                                     | STARTING STATION | NORTHING    | EASTING    | CURVE DATA                                   | LINE DATA              | ENDING STATION | NORTHING    | EASTING    |
| L4   | 100+00.00        | 2963341.833 | 754406.685 |  | S82°48'31"E<br>72.74'  | 100+72.74      | 2963332.727 | 754478.855 |
| L5   | 100+72.74        | 2963332.727 | 754478.855 |  | S80°38'39"E<br>156.16' | 102+28.90      | 2963307.341 | 754632.934 |
| C2   | 102+28.90        | 2963307.341 | 754632.934 | R= 60.50' Δ= 20°41'09"<br>L=21.84' T=11.04'  |                        | 102+50.74      | 2963307.715 | 754654.655 |
| L6   | 102+50.74        | 2963307.715 | 754654.655 |  | N78°40'13"E<br>216.47' | 104+67.21      | 2963350.243 | 754866.910 |
| L7   | 104+67.21        | 2963350.243 | 754866.910 |  | N78°26'31"E<br>249.11' | 107+16.33      | 2963400.155 | 755110.970 |
| L8   | 107+16.33        | 2963400.155 | 755110.970 |  | N79°23'48"E<br>113.45' | 108+29.78      | 2963421.031 | 755222.484 |
| C3   | 108+29.78        | 2963421.031 | 755222.484 | R= 683.73' Δ= 9°10'43"<br>L=109.53' T=54.88' |                        | 109+39.31      | 2963432.494 | 755331.295 |
| L9   | 109+39.31        | 2963432.494 | 755331.295 |  | N88°34'31"E<br>87.04'  | 110+26.34      | 2963434.658 | 755418.305 |
| C4   | 110+26.34        | 2963434.658 | 755418.305 | R= 280.50' Δ= 19°24'24"<br>L=95.01' T=47.96' |                        | 111+21.35      | 2963452.908 | 755511.082 |
| L10  | 111+21.35        | 2963452.908 | 755511.082 |  | N69°10'07"E<br>304.29' | 114+25.64      | 2963561.118 | 755795.478 |



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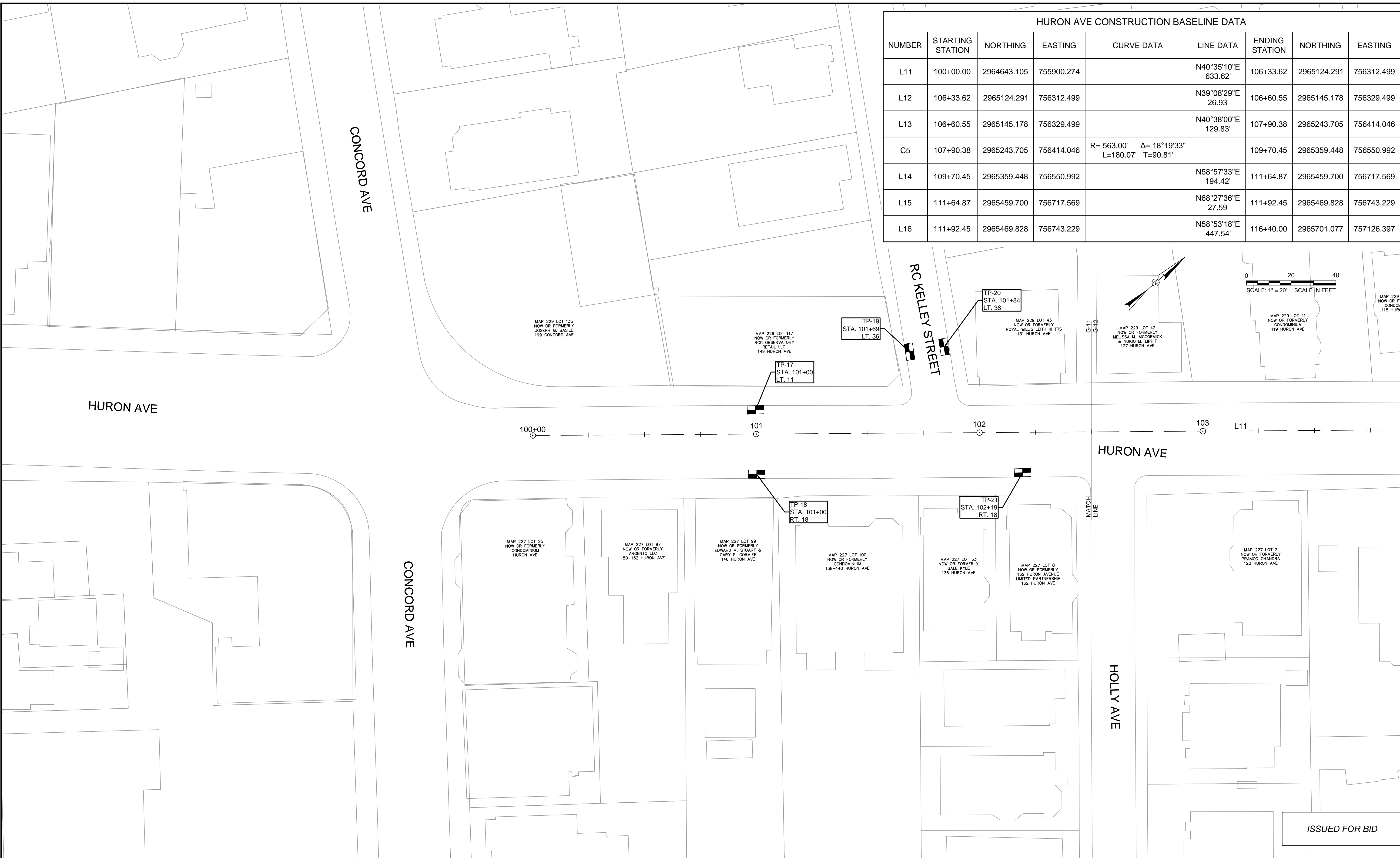
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| Designed by | FMM           |     |             |
| Drawn by    | MT            |     |             |
| Checked by  | JM            | No. | Description |
| Approved by | FMM           |     | REVISIONS   |



|         |   |
|---------|---|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                      |
| Project | CHAPTER 90 CONTACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HIGHLAND STREET - BASELINE ALIGNMENT<br>SHEET 3 OF 3  |

|          |      |
|----------|------|
| Sheet    | G-10 |
| File No. | 8310 |

| HURON AVE CONSTRUCTION BASELINE DATA |                  |             |            |   |                        |                |             |            |  |
|--------------------------------------|------------------|-------------|------------|---|------------------------|----------------|-------------|------------|--|
| NUMBER                               | STARTING STATION | NORTHING    | EASTING    | CURVE DATA                                    | LINE DATA              | ENDING STATION | NORTHING    | EASTING    |  |
| L11                                  | 100+00.00        | 2964643.105 | 755900.274 |   | N40°35'10"E<br>633.62' | 106+33.62      | 2965124.291 | 756312.499 |  |
| L12                                  | 106+33.62        | 2965124.291 | 756312.499 |   | N39°08'29"E<br>26.93'  | 106+60.55      | 2965145.178 | 756329.499 |  |
| L13                                  | 106+60.55        | 2965145.178 | 756329.499 |   | N40°38'00"E<br>129.83' | 107+90.38      | 2965243.705 | 756414.046 |  |
| C5                                   | 107+90.38        | 2965243.705 | 756414.046 | R= 563.00' Δ= 18°19'33"<br>L=180.07' T=90.81' |                        | 109+70.45      | 2965359.448 | 756550.992 |  |
| L14                                  | 109+70.45        | 2965359.448 | 756550.992 |   | N58°57'33"E<br>194.42' | 111+64.87      | 2965459.700 | 756717.569 |  |
| L15                                  | 111+64.87        | 2965459.700 | 756717.569 |   | N68°27'36"E<br>27.59'  | 111+92.45      | 2965469.828 | 756743.229 |  |
| L16                                  | 111+92.45        | 2965469.828 | 756743.229 |   | N58°53'18"E<br>447.54' | 116+40.00      | 2965701.077 | 757126.397 |  |

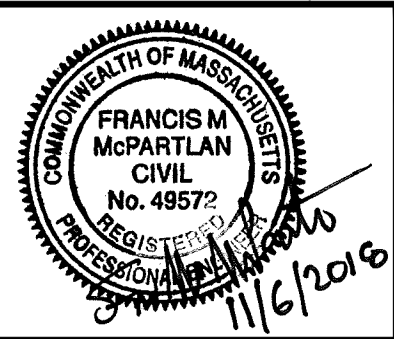


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**HATCH**  
27 Congress Street, Salem, MA 01970  
tel. 978-740-0096 www.hatch.com



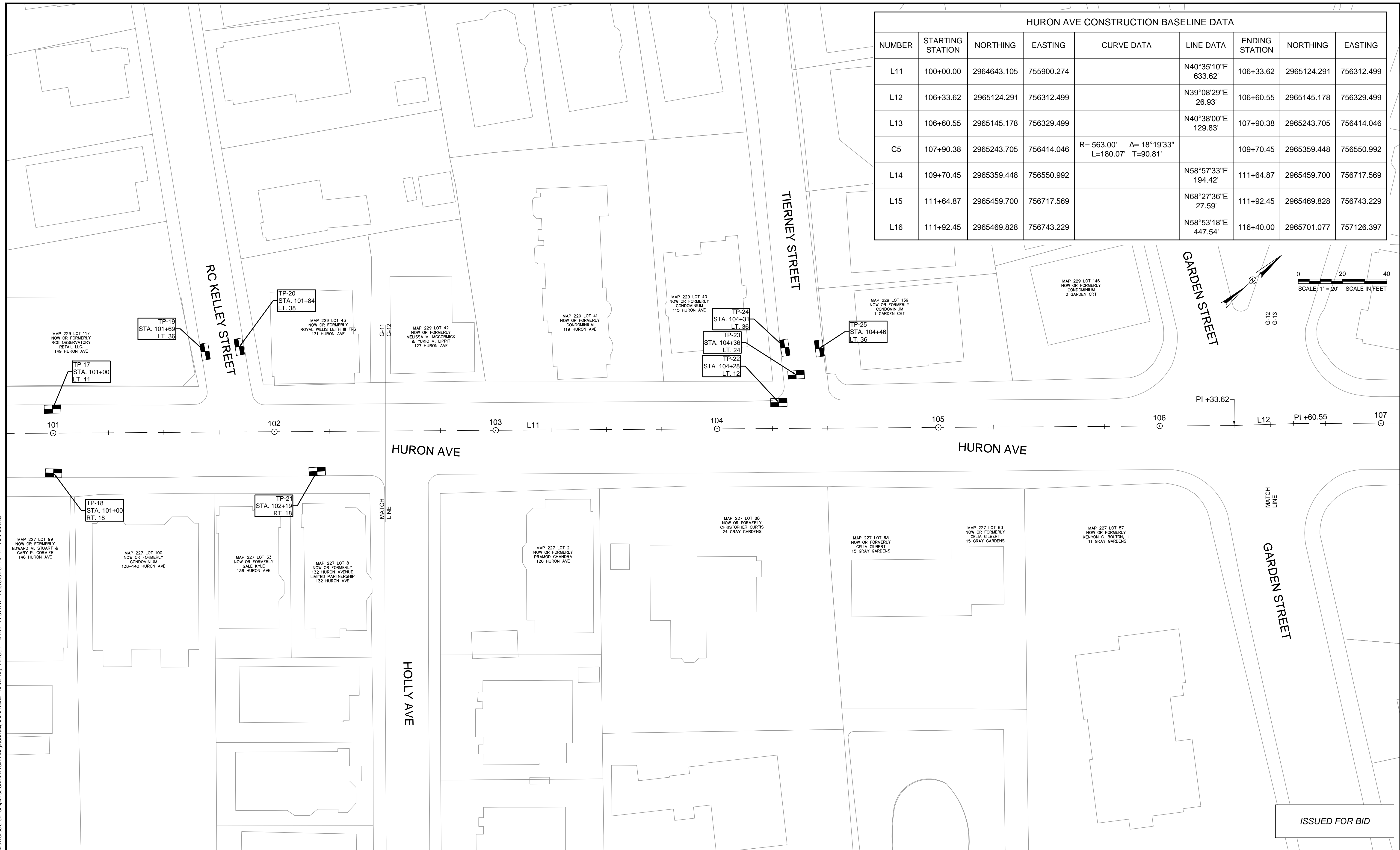
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| Job No.     | 20170208.019A |     |             |      |
| Designed by | FMM           |     |             |      |
| Drawn by    | MT            |     |             |      |
| Checked by  | JM            | No. | Description | Date |
| Approved by | FMM           |     | REVISIONS   |      |



|         |   |
|---------|---|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                      |
| Project | CHAPTER 90 CONTACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HURON AVE - BASELINE ALIGNMENT<br>SHEET 1 OF 4        |

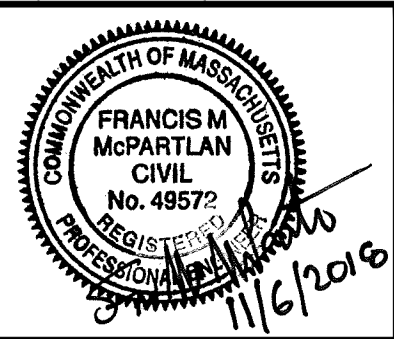
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| Sheet    | G-11 |
| File No. | 8310 |

| HURON AVE CONSTRUCTION BASELINE DATA |                  |             |            |   |                        |                |             |            |  |
|--------------------------------------|------------------|-------------|------------|---|------------------------|----------------|-------------|------------|--|
| NUMBER                               | STARTING STATION | NORTHING    | EASTING    | CURVE DATA                                    | LINE DATA              | ENDING STATION | NORTHING    | EASTING    |  |
| L11                                  | 100+00.00        | 2964643.105 | 755900.274 |   | N40°35'10"E<br>633.62' | 106+33.62      | 2965124.291 | 756312.499 |  |
| L12                                  | 106+33.62        | 2965124.291 | 756312.499 |   | N39°08'29"E<br>26.93'  | 106+60.55      | 2965145.178 | 756329.499 |  |
| L13                                  | 106+60.55        | 2965145.178 | 756329.499 |   | N40°38'00"E<br>129.83' | 107+90.38      | 2965243.705 | 756414.046 |  |
| C5                                   | 107+90.38        | 2965243.705 | 756414.046 | R= 563.00' Δ= 18°19'33"<br>L=180.07' T=90.81' |                        | 109+70.45      | 2965359.448 | 756550.992 |  |
| L14                                  | 109+70.45        | 2965359.448 | 756550.992 |   | N58°57'33"E<br>194.42' | 111+64.87      | 2965459.700 | 756717.569 |  |
| L15                                  | 111+64.87        | 2965459.700 | 756717.569 |   | N68°27'36"E<br>27.59'  | 111+92.45      | 2965469.828 | 756743.229 |  |
| L16                                  | 111+92.45        | 2965469.828 | 756743.229 |   | N58°53'18"E<br>447.54' | 116+40.00      | 2965701.077 | 757126.397 |  |



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CAD FILE: G:\clients\cambridge\MA20170208.019A - Chapter 90 Contact 23A\Drawings\CAD\Alignment Layout - Huron.dwg LAYOUT: Huron 2 PLOTTED: 11/6/2016 2:51 PM BY: matt.irembly



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| Scale       | AS NOTED      |     |             |      |
| Date        | NOVEMBER 2016 |     |             |      |
| Job No.     | 20170208.019A |     |             |      |
| Designed by | FMM           |     |             |      |
| Drawn by    | MT            |     |             |      |
| Checked by  | JM            | No. | Description | Date |
| Approved by | FMM           |     | REVISIONS   |      |



|         |   |
|---------|---|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                      |
| Project | CHAPTER 90 CONTACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HURON AVE - BASELINE ALIGNMENT<br>SHEET 2 OF 4        |

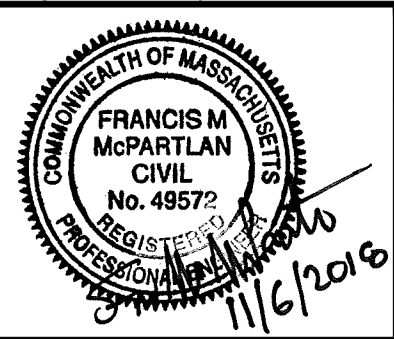
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| Sheet    | G-12 |
| File No. | 8310 |

| CUTLER AVENUE CONSTRUCTION BASELINE DATA |                  |             |            |            |                        |                |             |            |
|--|------------------|-------------|------------|------------|------------------------|----------------|-------------|------------|
| NUMBER                                   | STARTING STATION | NORTHING    | EASTING    | CURVE DATA | LINE DATA              | ENDING STATION | NORTHING    | EASTING    |
| L17                                      | 200+00.00        | 2965413.596 | 756640.963 |            | S31°02'27"E<br>170.01' | 201+70.01      | 2965267.934 | 756728.626 |

| HURON AVE CONSTRUCTION BASELINE DATA |                  |             |            |   |                        |                |             |            |  |
|--------------------------------------|------------------|-------------|------------|---|------------------------|----------------|-------------|------------|--|
| NUMBER                               | STARTING STATION | NORTHING    | EASTING    | CURVE DATA                                    | LINE DATA              | ENDING STATION | NORTHING    | EASTING    |  |
| L11                                  | 100+00.00        | 2964643.105 | 755900.274 |   | N40°35'10"E<br>633.62' | 106+33.62      | 2965124.291 | 756312.499 |  |
| L12                                  | 106+33.62        | 2965124.291 | 756312.499 |   | N39°08'29"E<br>26.93'  | 106+60.55      | 2965145.178 | 756329.499 |  |
| L13                                  | 106+60.55        | 2965145.178 | 756329.499 |   | N40°38'00"E<br>129.83' | 107+90.38      | 2965243.705 | 756414.046 |  |
| C5                                   | 107+90.38        | 2965243.705 | 756414.046 | R= 563.00' Δ= 18°19'33"<br>L=180.07' T=90.81' |                        | 109+70.45      | 2965359.448 | 756550.992 |  |
| L14                                  | 109+70.45        | 2965359.448 | 756550.992 |   | N58°57'33"E<br>194.42' | 111+64.87      | 2965459.700 | 756717.569 |  |
| L15                                  | 111+64.87        | 2965459.700 | 756717.569 |   | N68°27'36"E<br>27.59'  | 111+92.45      | 2965469.828 | 756743.229 |  |
| L16                                  | 111+92.45        | 2965469.828 | 756743.229 |   | N58°53'18"E<br>447.54' | 116+40.00      | 2965701.077 | 757126.397 |  |



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| Scale       | AS NOTED      |     |             |      |
| Date        | NOVEMBER 2016 |     |             |      |
| Job No.     | 20170208.019A |     |             |      |
| Designed by | FMM           |     |             |      |
| Drawn by    | MT            |     |             |      |
| Checked by  | JM            | No. | Description | Date |
| Approved by | FMM           |     | REVISIONS   |      |

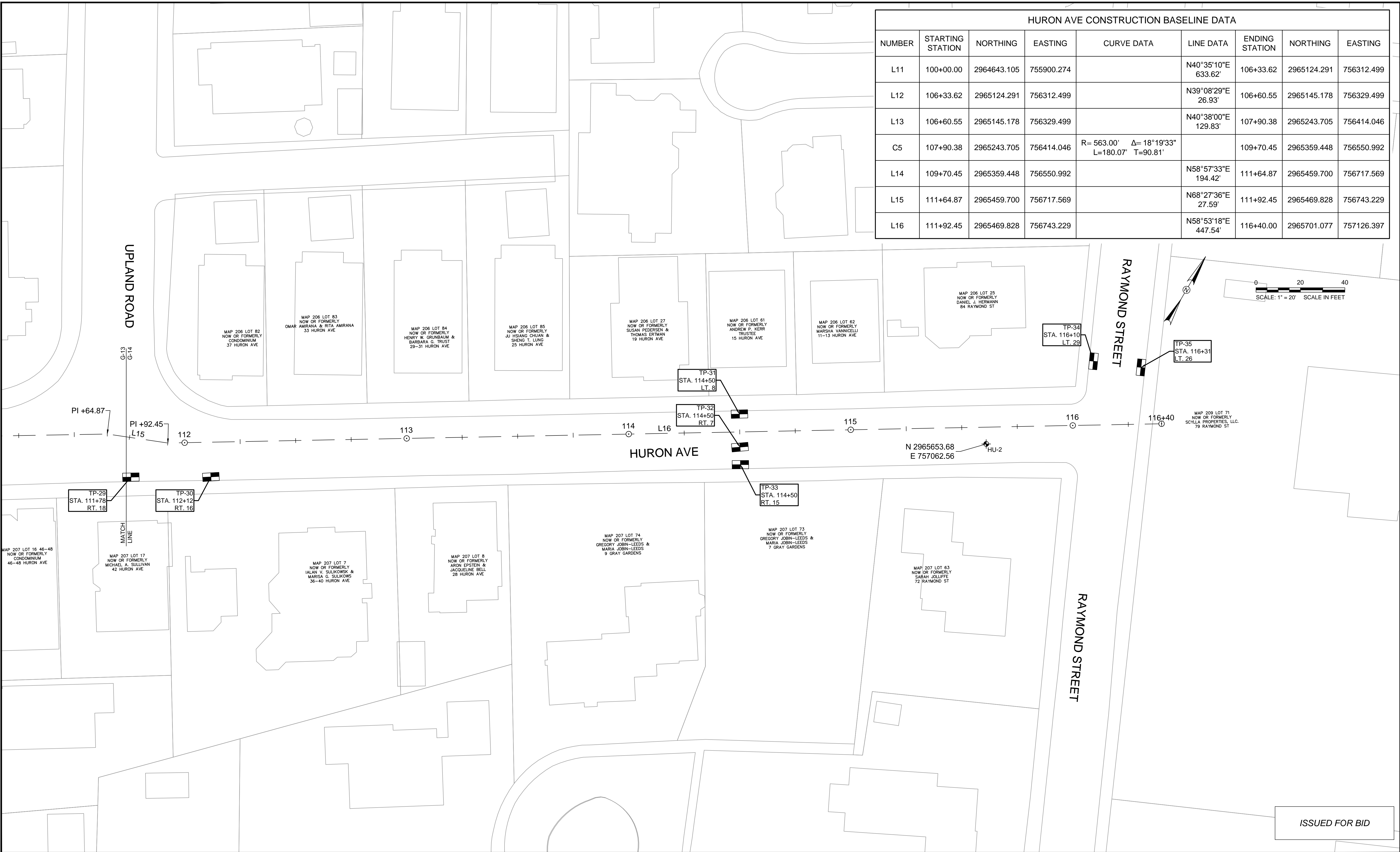


|         |   |
|---------|---|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                      |
| Project | CHAPTER 90 CONTACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HURON AVE - BASELINE ALIGNMENT<br>SHEET 3 OF 4        |

|          |      |
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| Sheet    | G-13 |
| File No. | 8310 |

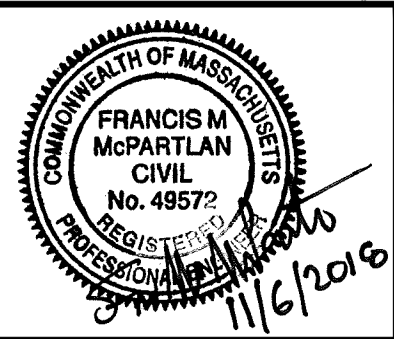
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| HURON AVE CONSTRUCTION BASELINE DATA |                  |             |            |   |                        |                |             |            |
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| NUMBER                               | STARTING STATION | NORTHING    | EASTING    | CURVE DATA                                    | LINE DATA              | ENDING STATION | NORTHING    | EASTING    |
| L11                                  | 100+00.00        | 2964643.105 | 755900.274 |   | N40°35'10"E<br>633.62' | 106+33.62      | 2965124.291 | 756312.499 |
| L12                                  | 106+33.62        | 2965124.291 | 756312.499 |   | N39°08'29"E<br>26.93'  | 106+60.55      | 2965145.178 | 756329.499 |
| L13                                  | 106+60.55        | 2965145.178 | 756329.499 |   | N40°38'00"E<br>129.83' | 107+90.38      | 2965243.705 | 756414.046 |
| C5                                   | 107+90.38        | 2965243.705 | 756414.046 | R= 563.00' Δ= 18°19'33"<br>L=180.07' T=90.81' |                        | 109+70.45      | 2965359.448 | 756550.992 |
| L14                                  | 109+70.45        | 2965359.448 | 756550.992 |   | N58°57'33"E<br>194.42' | 111+64.87      | 2965459.700 | 756717.569 |
| L15                                  | 111+64.87        | 2965459.700 | 756717.569 |   | N68°27'36"E<br>27.59'  | 111+92.45      | 2965469.828 | 756743.229 |
| L16                                  | 111+92.45        | 2965469.828 | 756743.229 |   | N58°53'18"E<br>447.54' | 116+40.00      | 2965701.077 | 757126.397 |



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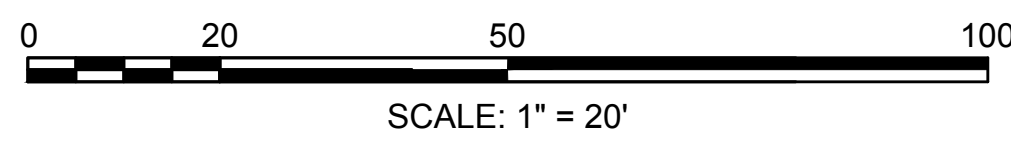
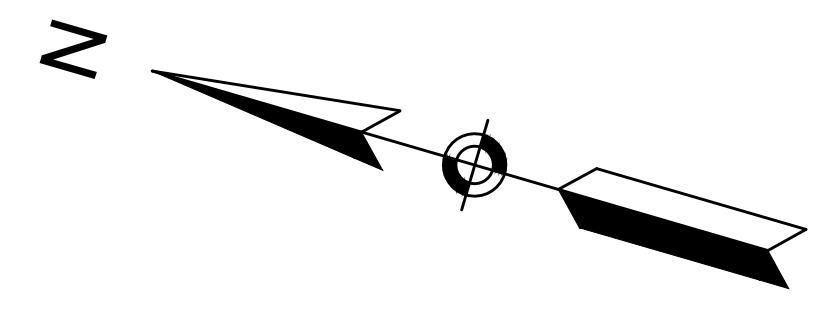
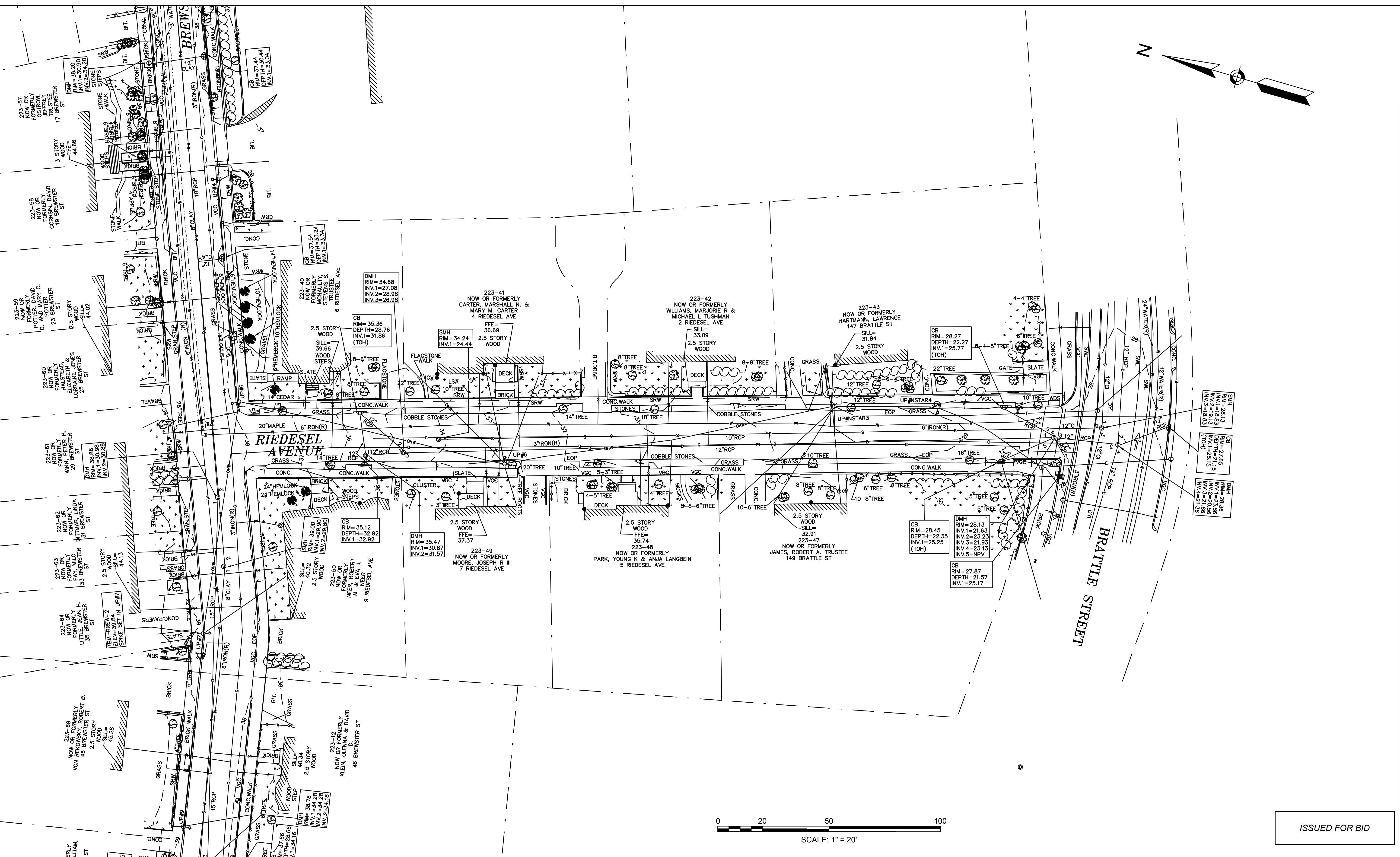
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| Job No.     | 20170208.019A |     |             |      |
| Designed by | FMM           |     |             |      |
| Drawn by    | MT            |     |             |      |
| Checked by  | JM            | No. | Description | Date |
| Approved by | FMM           |     | REVISIONS   |      |



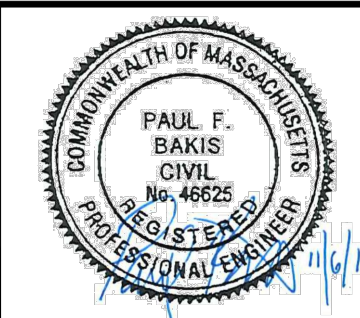
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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                      |
| Project | CHAPTER 90 CONTACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HURON AVE - BASELINE ALIGNMENT<br>SHEET 4 OF 4        |

|          |      |
|----------|------|
| Sheet    | G-14 |
| File No. | 8310 |

CAD FILE: I:\eng\16042-46 Cambridge Chapter 90 Contract 231-DDD\WG\Plan Sheets\Package 1959\Existing Conditions\Existing Conditions Plan - All Sheets.dwg LAYOUT: Riedesel PLOTTED: 11/7/2018 7:33 AM BY: bakis, paul



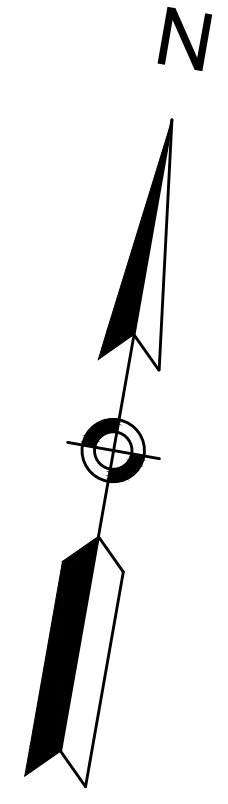
ISSUED FOR BID



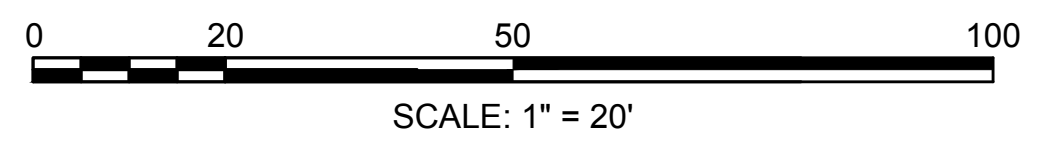
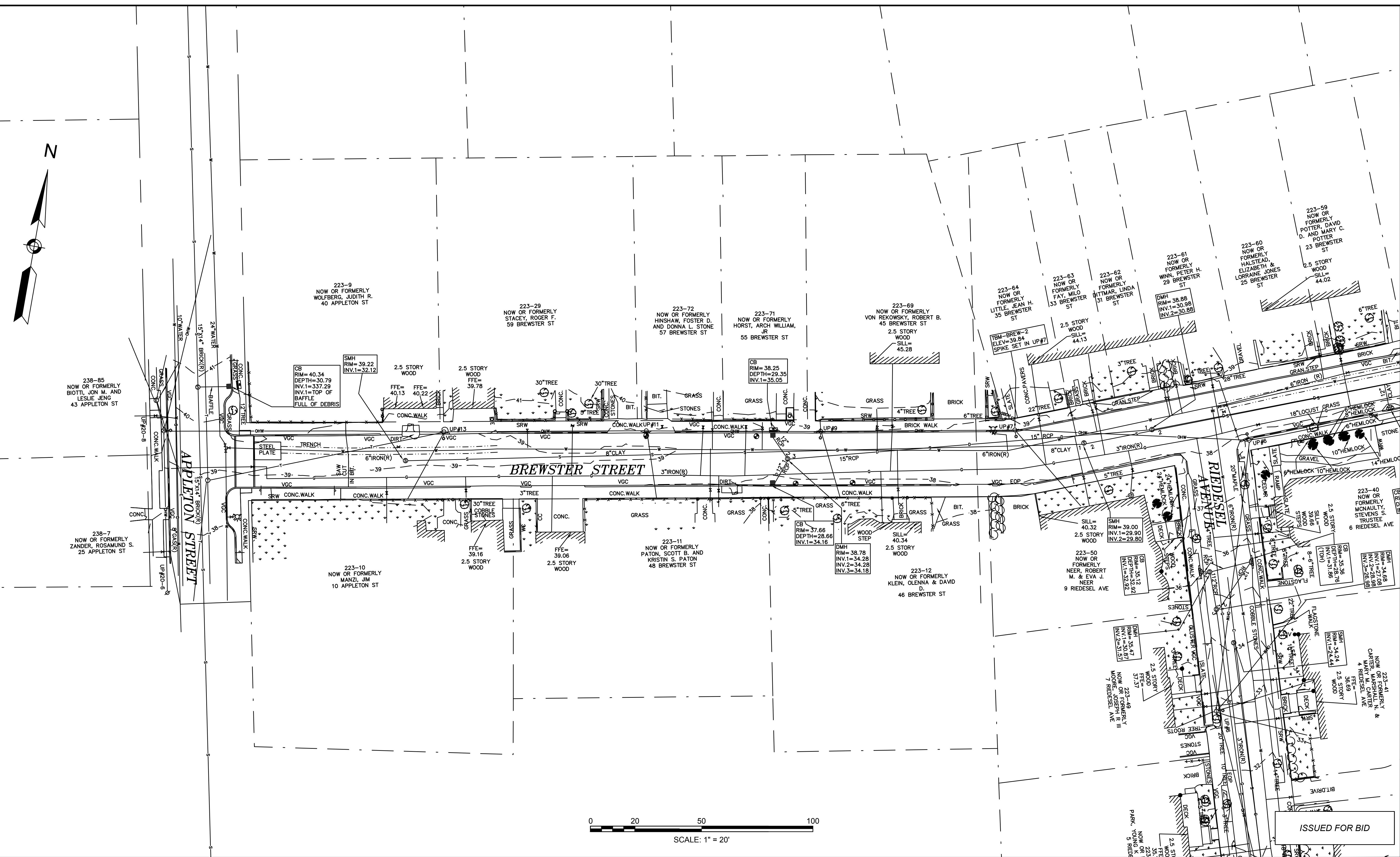
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| Job No.     | 20170208.019A |     |             |      |
| Designed by | JRH           |     |             |      |
| Drawn by    | JRH           |     |             |      |
| Checked by  | PFB           | No. | Description | Date |
| Approved by | PFB           |     | REVISIONS   |      |



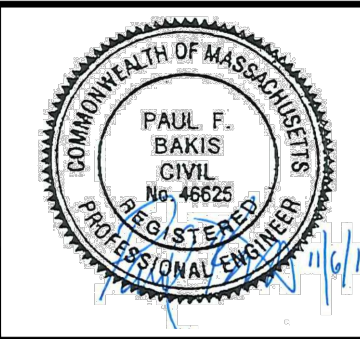
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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       | Sheet    | EC-1 |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT | File No. | 8310 |
| Drawing | RIEDEL AVENUE - EXISTING CONDITIONS<br>SHEET 1 OF 1    |          |      |



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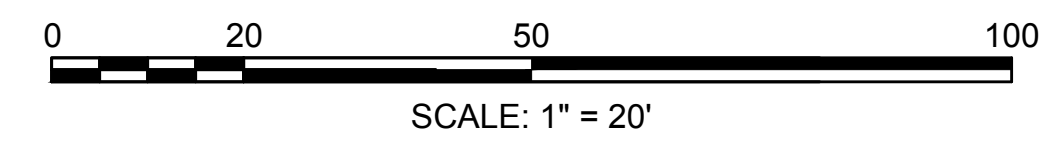
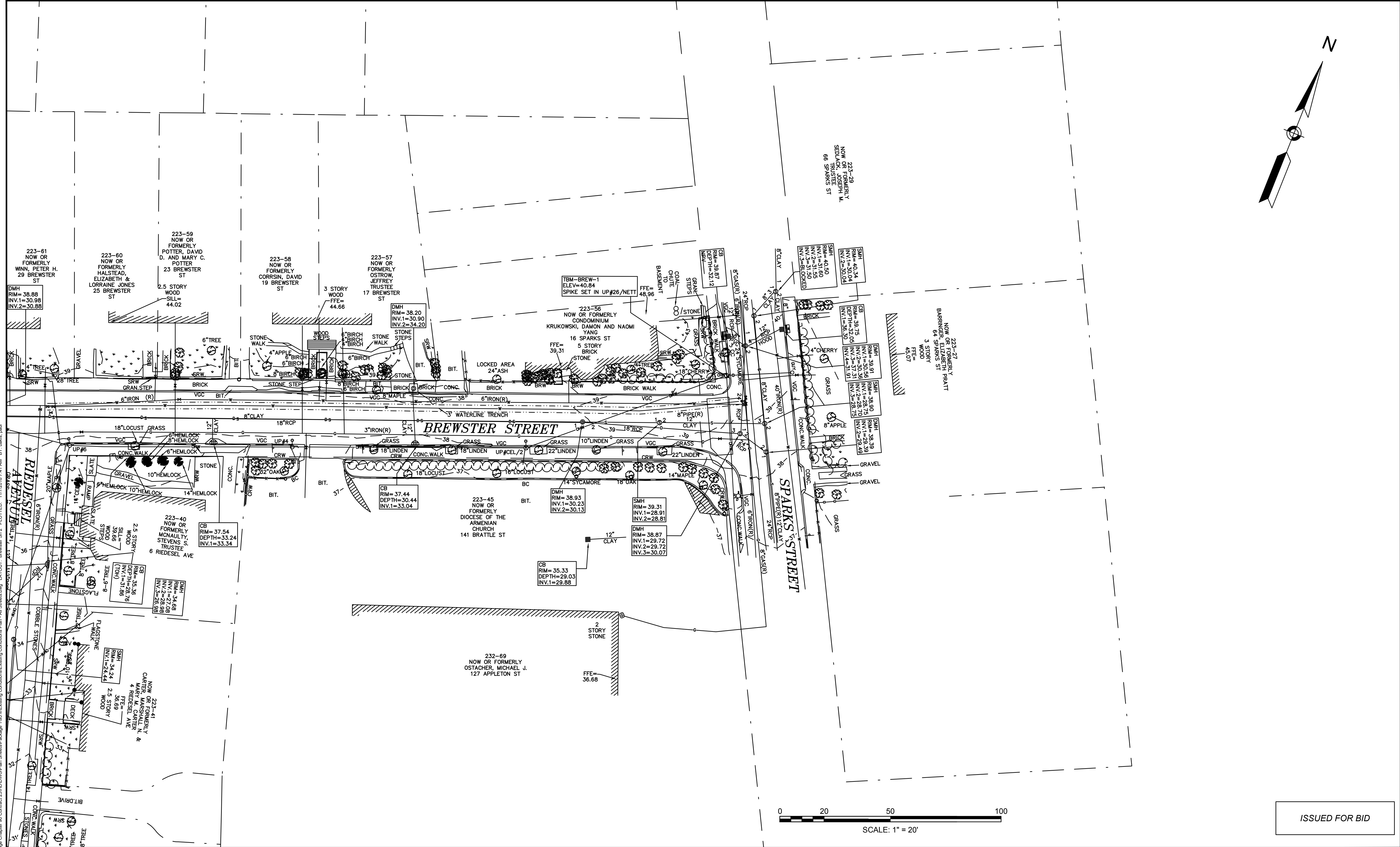
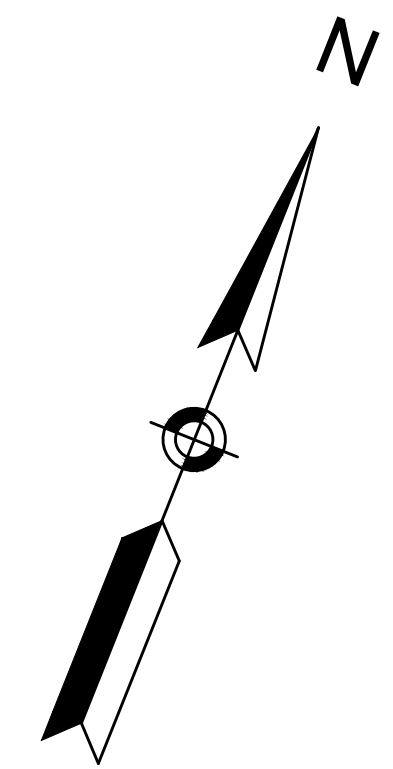
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| Job No.     | 20170208.019A |     |             |      |
| Designed by | JRH           |     |             |      |
| Drawn by    | JRH           |     |             |      |
| Checked by  | PFB           | No. | Description | Date |
| Approved by | PFB           |     | REVISIONS   |      |



|         |  |
|---------|--|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | BREWSTER STREET - EXISTING CONDITIONS<br>SHEET 1 OF 2  |

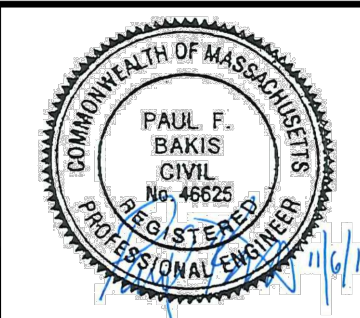
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| Sheet    | EC-2 |
| File No. | 8310 |





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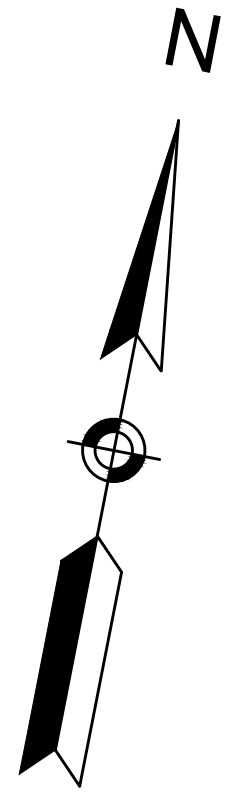


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| Checked by  | PFB           | No. | Description |
| Approved by | PFB           |     | REVISIONS   |



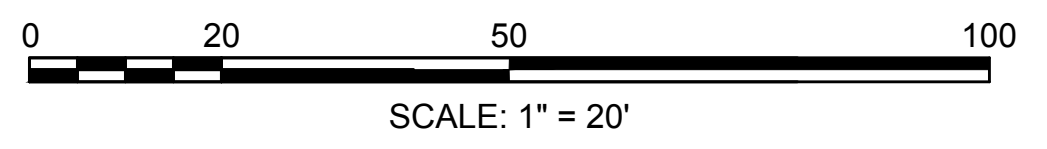
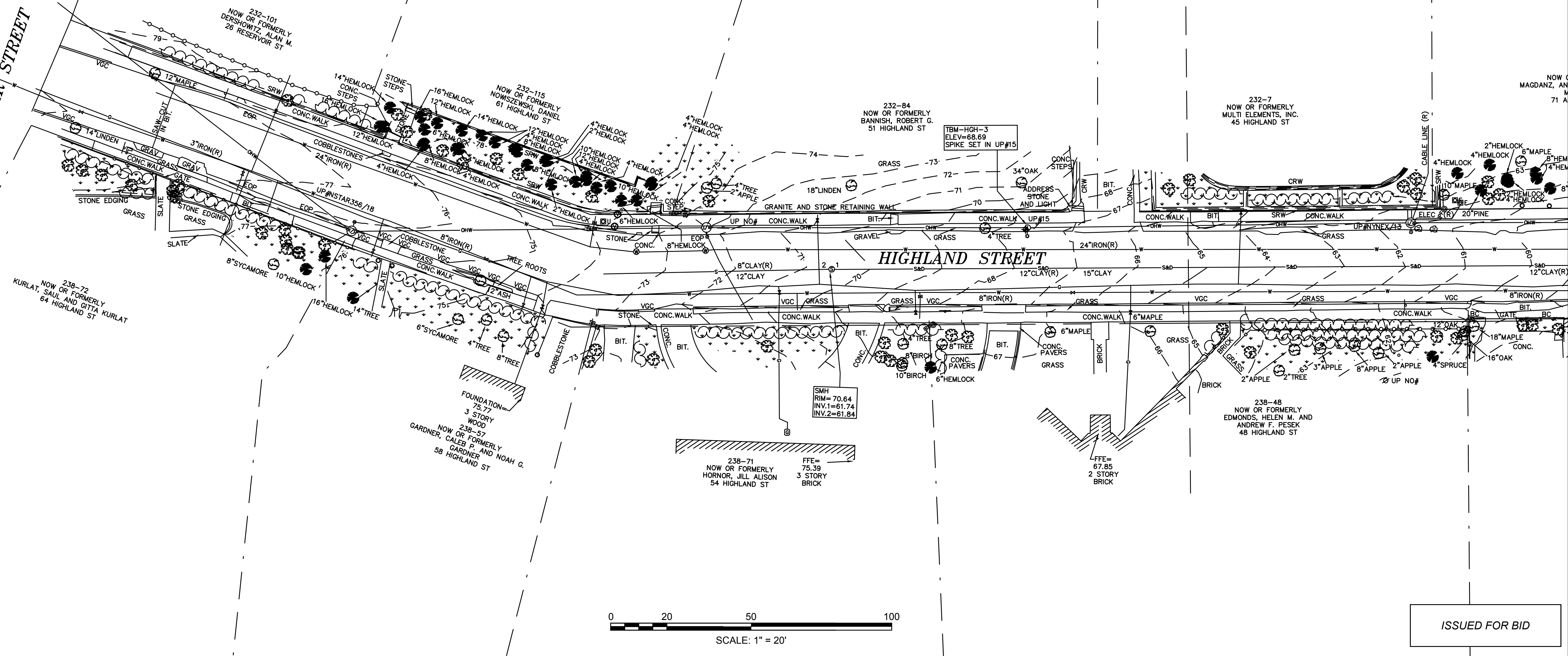
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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | BREWSTER STREET - EXISTING CONDITIONS<br>SHEET 2 OF 2  |

|          |      |
|----------|------|
| Sheet    | EC-3 |
| File No. | 8310 |



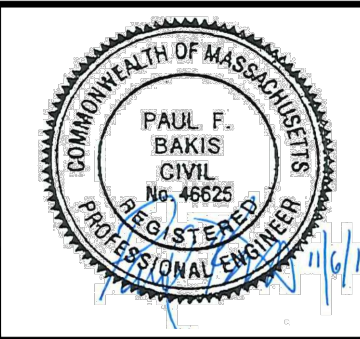
RESERVOIR STREET

HIGHLAND STREET



ISSUED FOR BID

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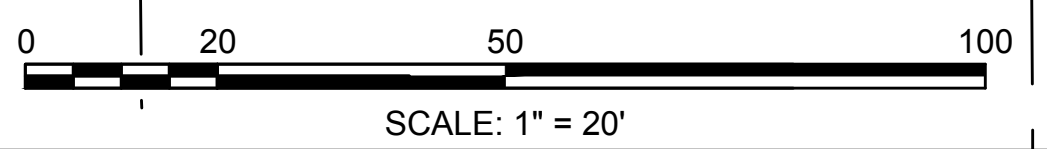
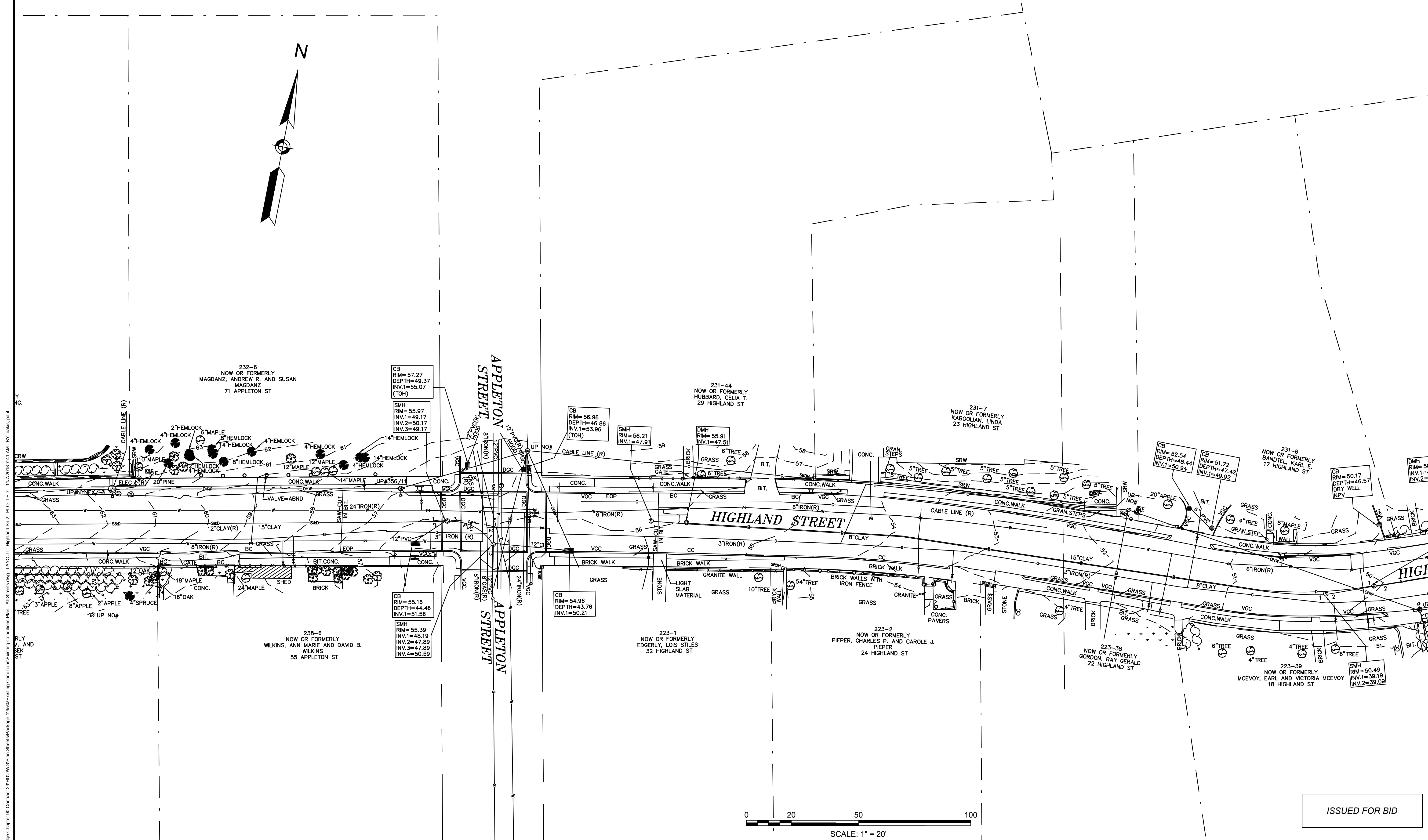
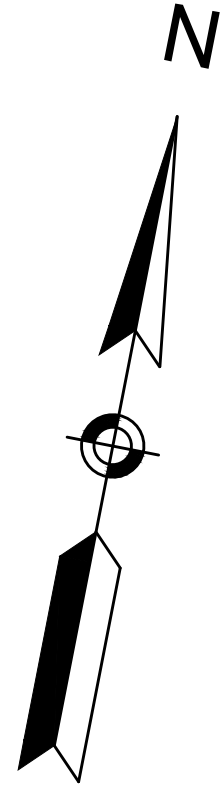


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| Approved by | PFB           |     | REVISIONS   |



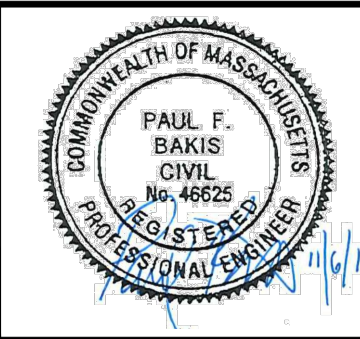
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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HIGHLAND STREET - EXISTING CONDITIONS<br>SHEET 1 OF 3  |

|          |      |
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| Sheet    | EC-4 |
| File No. | 8310 |

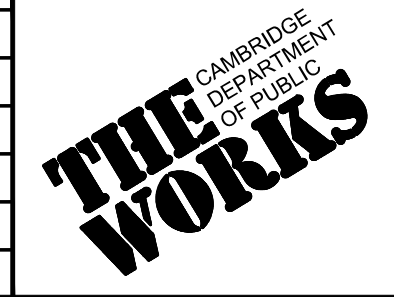


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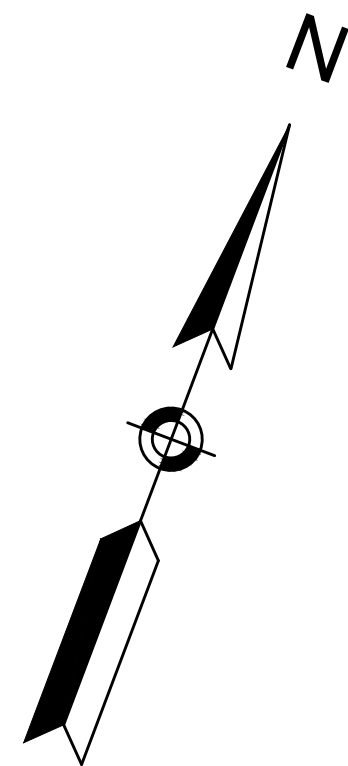


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| Date        | NOVEMBER 2018 |     |             |
| Job No.     | 20170208.019A |     |             |
| Designed by | JRH           |     |             |
| Drawn by    | JRH           |     |             |
| Checked by  | PFB           | No. | Description |
| Approved by | PFB           |     | Date        |
|             |               |     | REVISIONS   |



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|---------|--|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HIGHLAND STREET - EXISTING CONDITIONS<br>SHEET 2 OF 3  |

|          |      |
|----------|------|
| Sheet    | EC-5 |
| File No. | 8310 |



DMH  
RIM=46.50  
INV.1=38.15  
INV.2=38.03  
INV.3=41.75

CB  
RIM=51.72  
PTH=47.42  
I=49.92

231-8  
NOW OR FORMERLY  
BANDTEL, KARL E.  
17 HIGHLAND ST

CB  
RIM=50.17  
DEPTH=46.57  
DRY WELL  
NPV

DMH  
RIM=50.10  
INV.1=40.80  
INV.2=40.70

231-5  
NOW OR FORMERLY  
SCOTT, HAL S. & JOANNA C. SCOTT  
11 HIGHLAND ST

231-5  
NOW OR FORMERLY  
HIGGINS, ROBERT F.  
1 HIGHLAND ST

CB  
RIM=44.17  
DEPTH=39.57  
INV.1=41.67

SMH  
RIM=44.52  
INV.1=36.22  
INV.2=36.12

228-61  
NOW OR FORMERLY  
FELDMAN, S. ST  
72 SPARKS ST

228-61  
NOW OR FORMERLY  
70 SPARKS ST

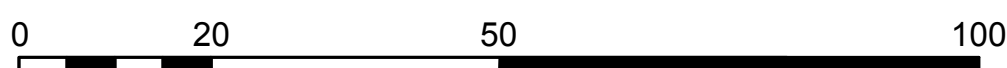
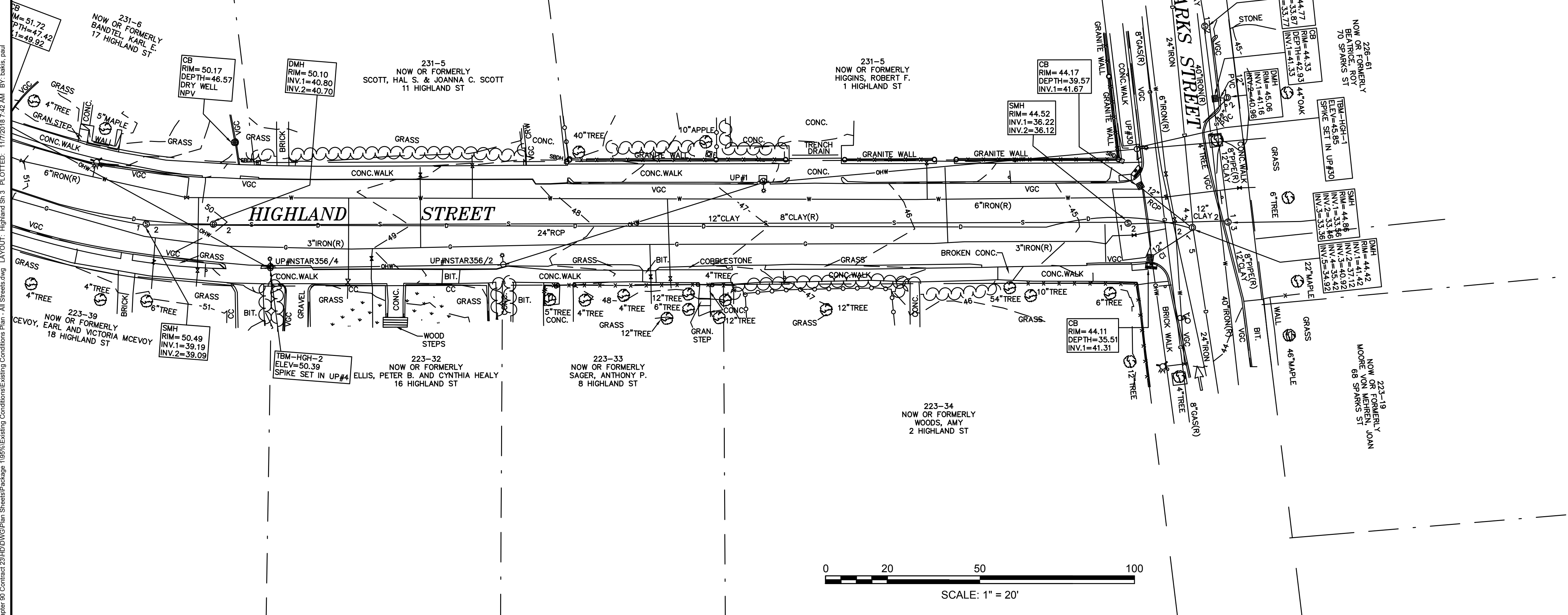
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INV.1=41.33

SMH  
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INV.1=41.16  
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CB  
RIM=44.88  
DEPTH=40.92  
INV.1=41.72  
INV.2=40.92  
INV.3=33.38

DMH  
RIM=44.42  
INV.1=41.72  
INV.2=40.92  
INV.3=33.38

223-19  
NOW OR FORMERLY  
MOORE VON MIERHEU, JOAN  
68 SPARKS ST



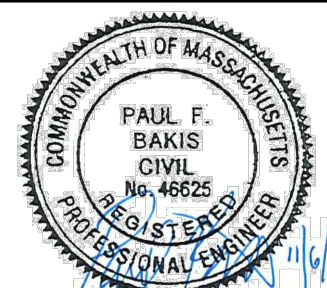
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ISSUED FOR BID

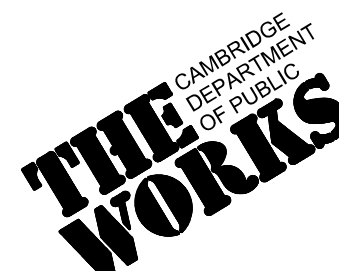
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tel. 978-740-0096 www.hatch.com

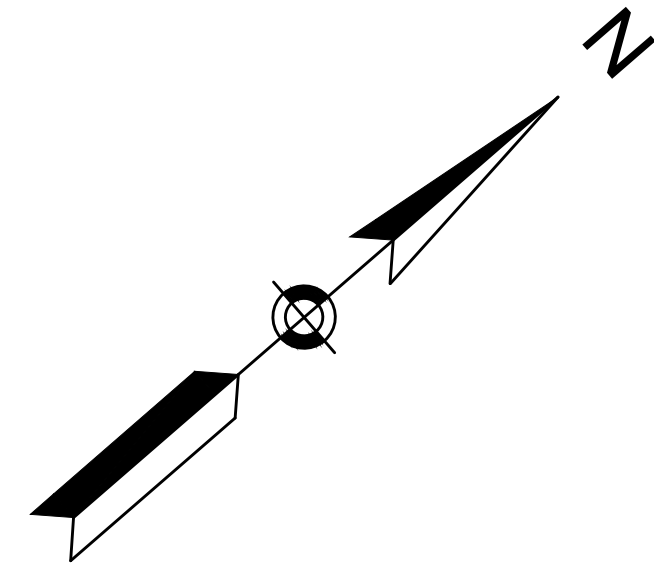


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| Scale       | AS NOTED      |     |             |
| Date        | NOVEMBER 2018 |     |             |
| Job No.     | 20170208.019A |     |             |
| Designed by | JRH           |     |             |
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| Checked by  | PFB           | No. | Description |
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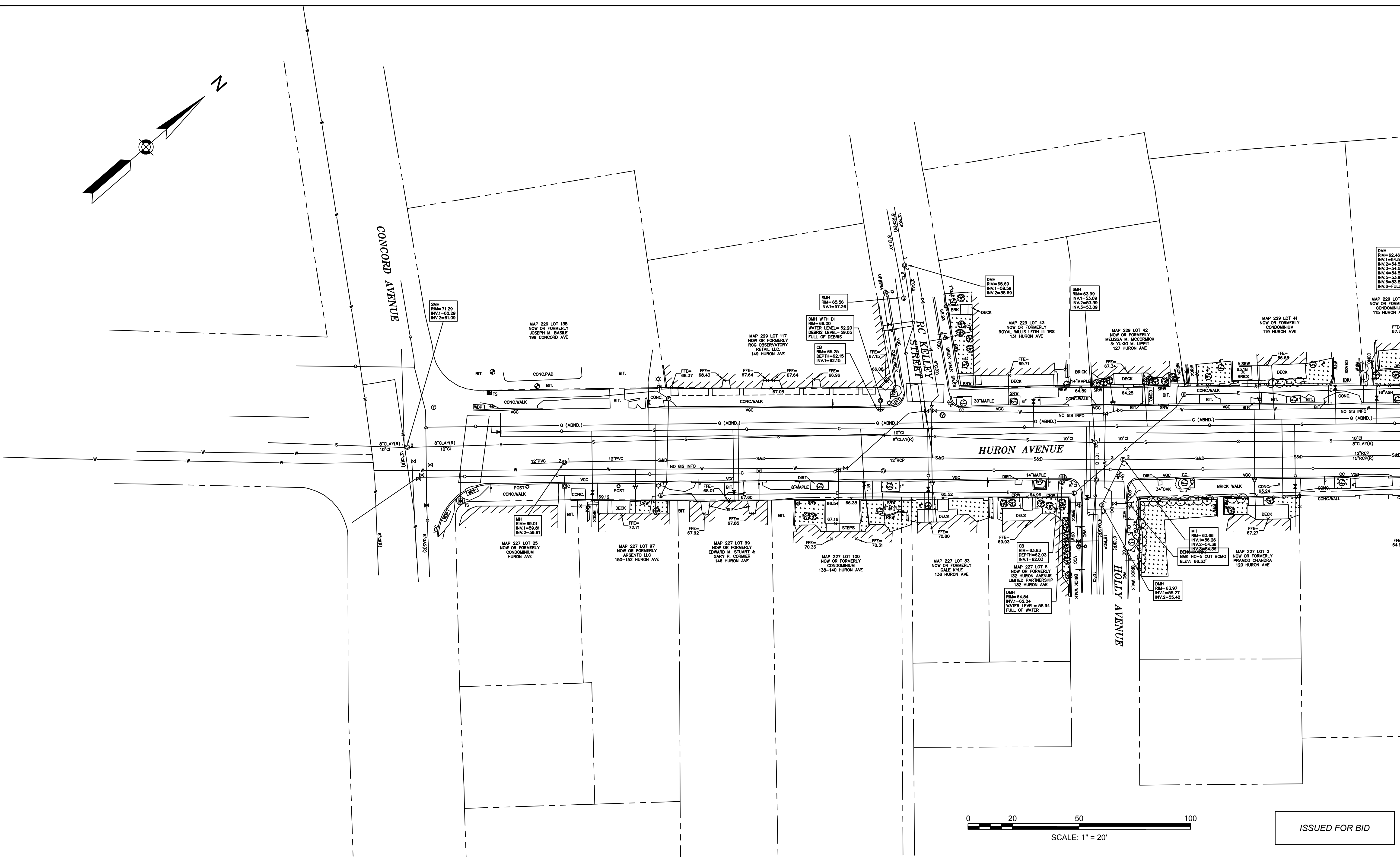


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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HIGHLAND STREET - EXISTING CONDITIONS<br>SHEET 3 OF 3  |

|          |      |
|----------|------|
| Sheet    | EC-6 |
| File No. | 8310 |



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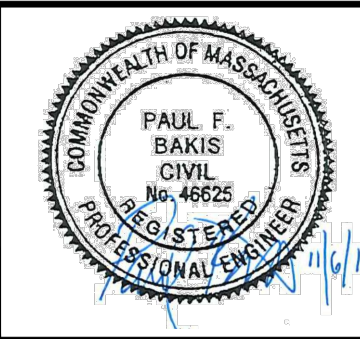


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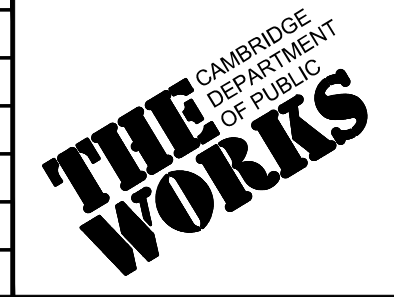


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| Date        | NOVEMBER 2018 |     |             |
| Job No.     | 20170208.019A |     |             |
| Designed by | SPR           |     |             |
| Drawn by    | SPR           |     |             |
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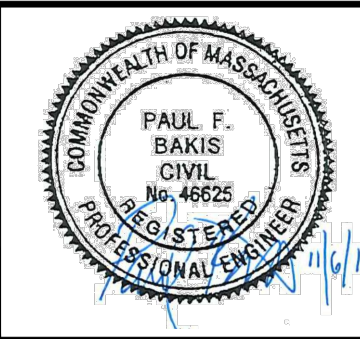
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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HURON AVENUE - EXISTING CONDITIONS<br>SHEET 1 OF 4     |

|          |      |
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| Sheet    | EC-7 |
| File No. | 8310 |

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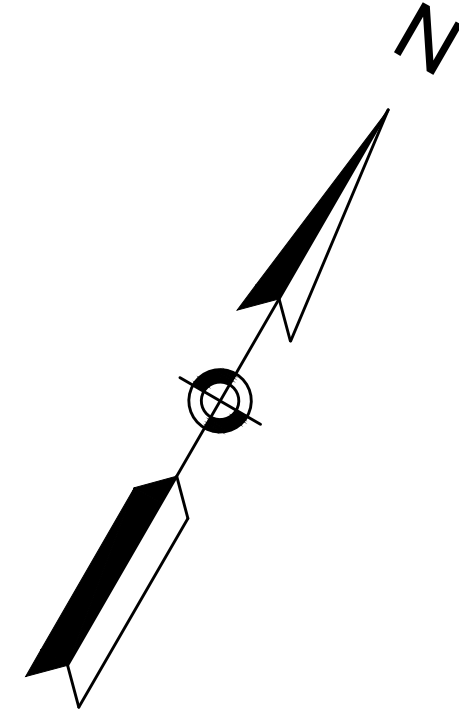


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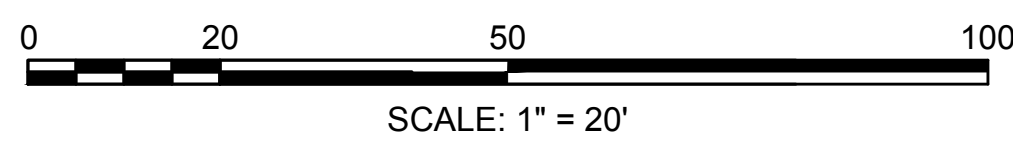
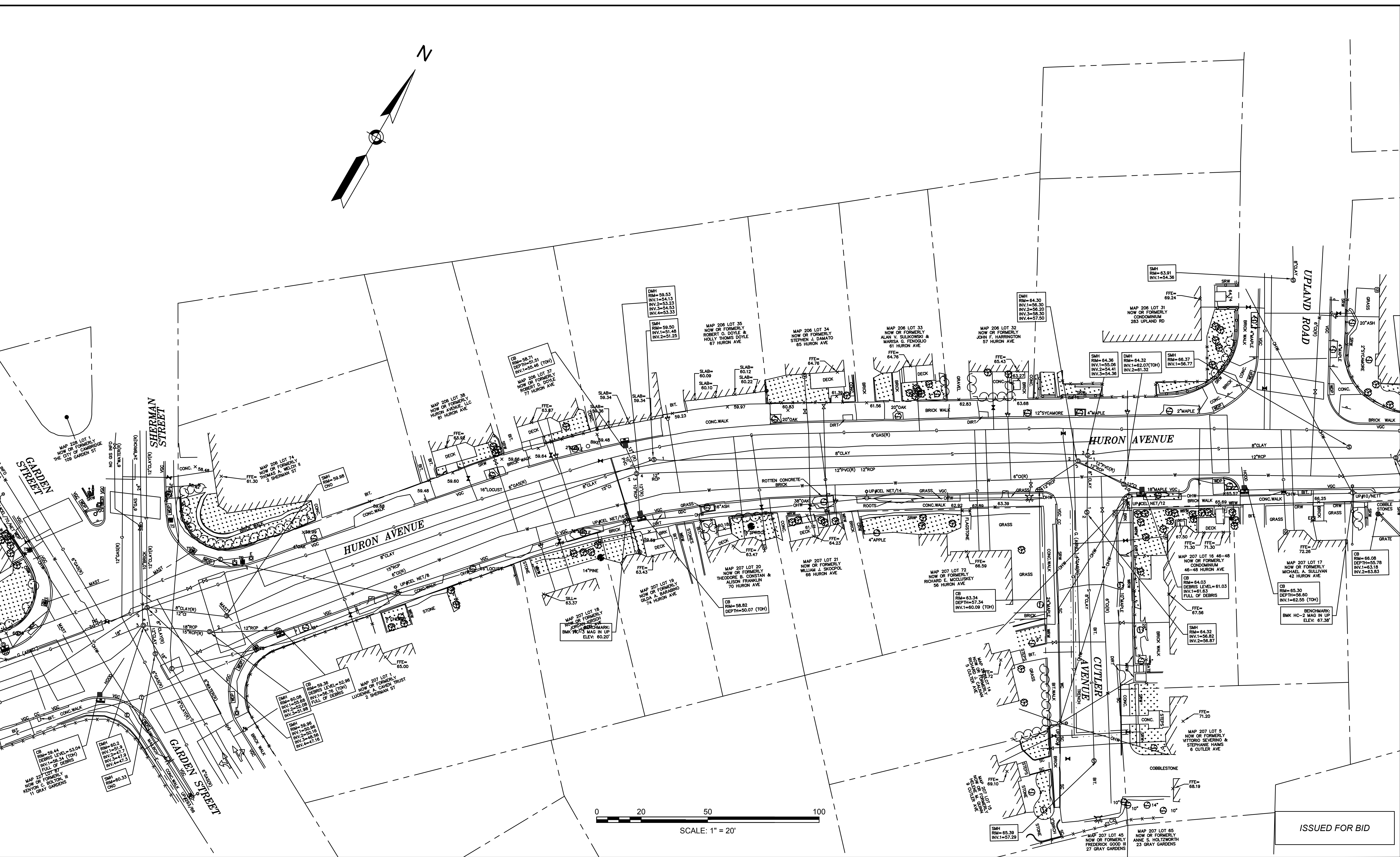


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| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HURON AVENUE - EXISTING CONDITIONS<br>SHEET 2 OF 4     |

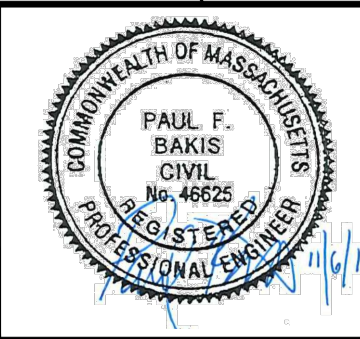
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| File No. | 8310 |



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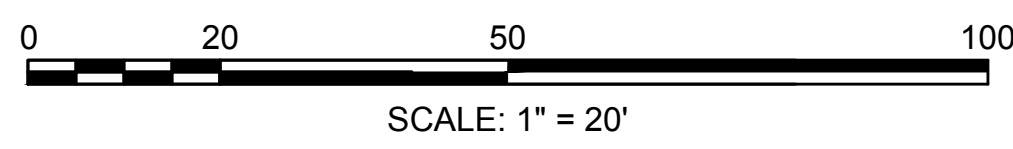
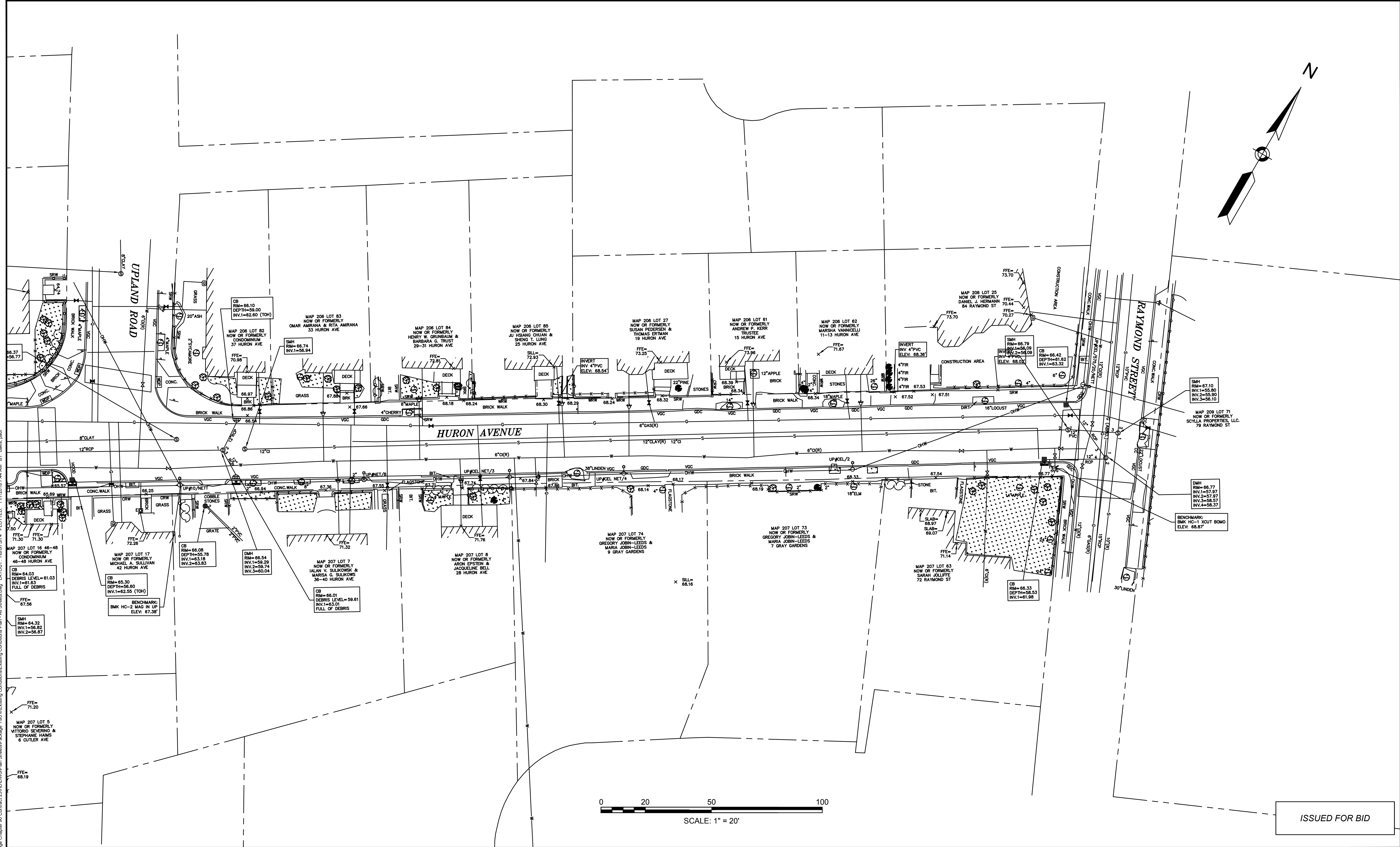
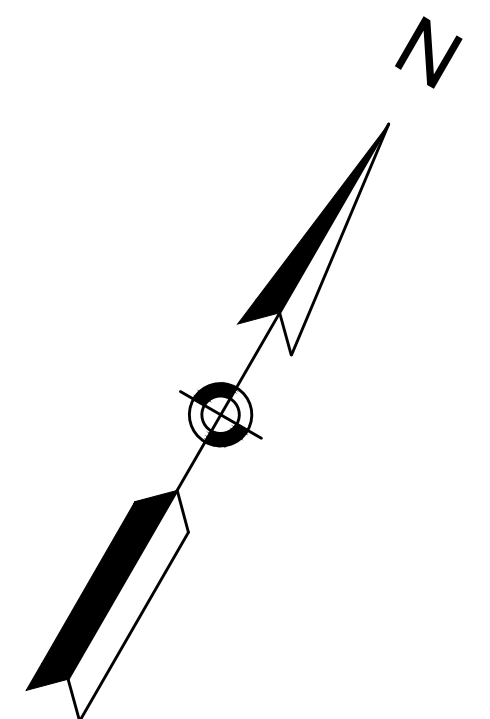


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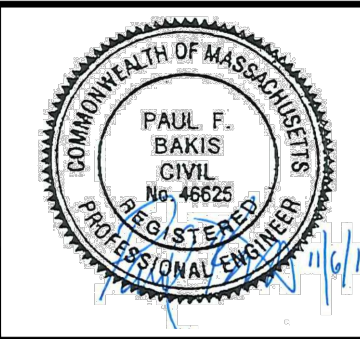
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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HURON AVENUE - EXISTING CONDITIONS<br>SHEET 3 OF 4     |

|          |      |
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| Sheet    | EC-9 |
| File No. | 8310 |



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| Designed by | SPR           |     |             |      |
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| Checked by  | PFB           | No. | Description | Date |
| Approved by | PFB           |     | REVISIONS   |      |



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|---------|--|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HURON AVENUE - EXISTING CONDITIONS<br>SHEET 4 OF 4     |

|          |       |
|----------|-------|
| Sheet    | EC-10 |
| File No. | 8310  |



| MANHOLE DIAMETER | SIDE WALL MIN. THICKNESS | BOTTOM SLAB MIN. THICKNESS | MAX PIPE DIAMETER DI/PVC |
|------------------|--------------------------|----------------------------|--------------------------|
| 4"               | 5"                       | 6"                         | 24"                      |
| 5"               | 6"                       | 8"                         | 36"                      |
| 6"               | 6"                       | 8"                         | 48"                      |
| 8"               | 8"                       | 8"                         | 66"                      |
| 10"              | 10"                      | 10"                        | 72"                      |

\* MAY VARY DEPENDING ON SIZE AND LOCATION OF ADDITIONAL PENETRATIONS OR RELATIONSHIP OF PENETRATIONS IN MANHOLE

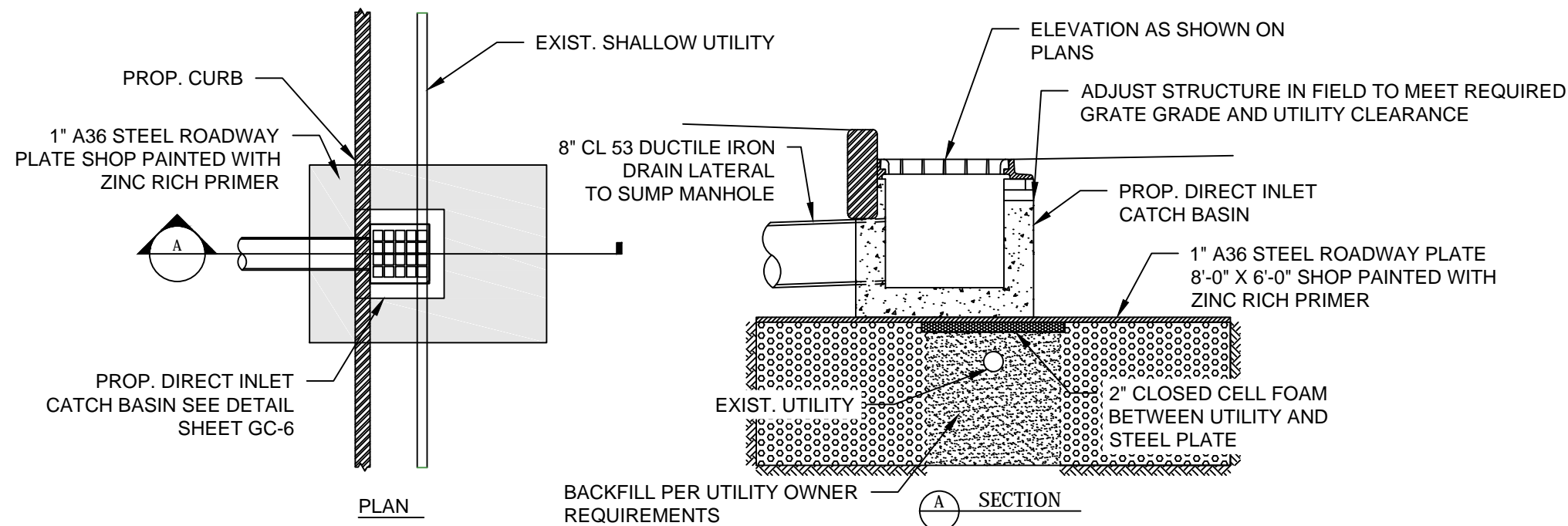
**MANHOLE GENERAL NOTES:**

- HIGHEST POINT OF BRICK TABLE AT MANHOLE WALL, TO BE AT ELEV. OF CURB OF PIPE. TABLE TO SLOPE AT 8.3%.
- SEWER OR DRAIN MANHOLE DIAMETER SHALL BE 4", 5", 6", 8" OR 10" AS SHOWN ON PLAN/PROFILE VIEWS.
- DESIGN PRECAST SECTIONS WITH FRAME AND COVER FOR AASHTO H20 LOADINGS, UNLESS OTHERWISE NOTED
- MANHOLES LARGER THAN 4" IN DIAMETER AT THE BASE SHALL BE REDUCED IN DIAMETER TO 4" AT THE NEXT RISER SECTION UNLESS NOTED OTHERWISE ON PLANS.
- PRECAST MANHOLES SHALL BE PRE-ORDERED WITH PENETRATIONS AT ELEVATIONS INDICATED ON CONTRACT DRAWINGS.

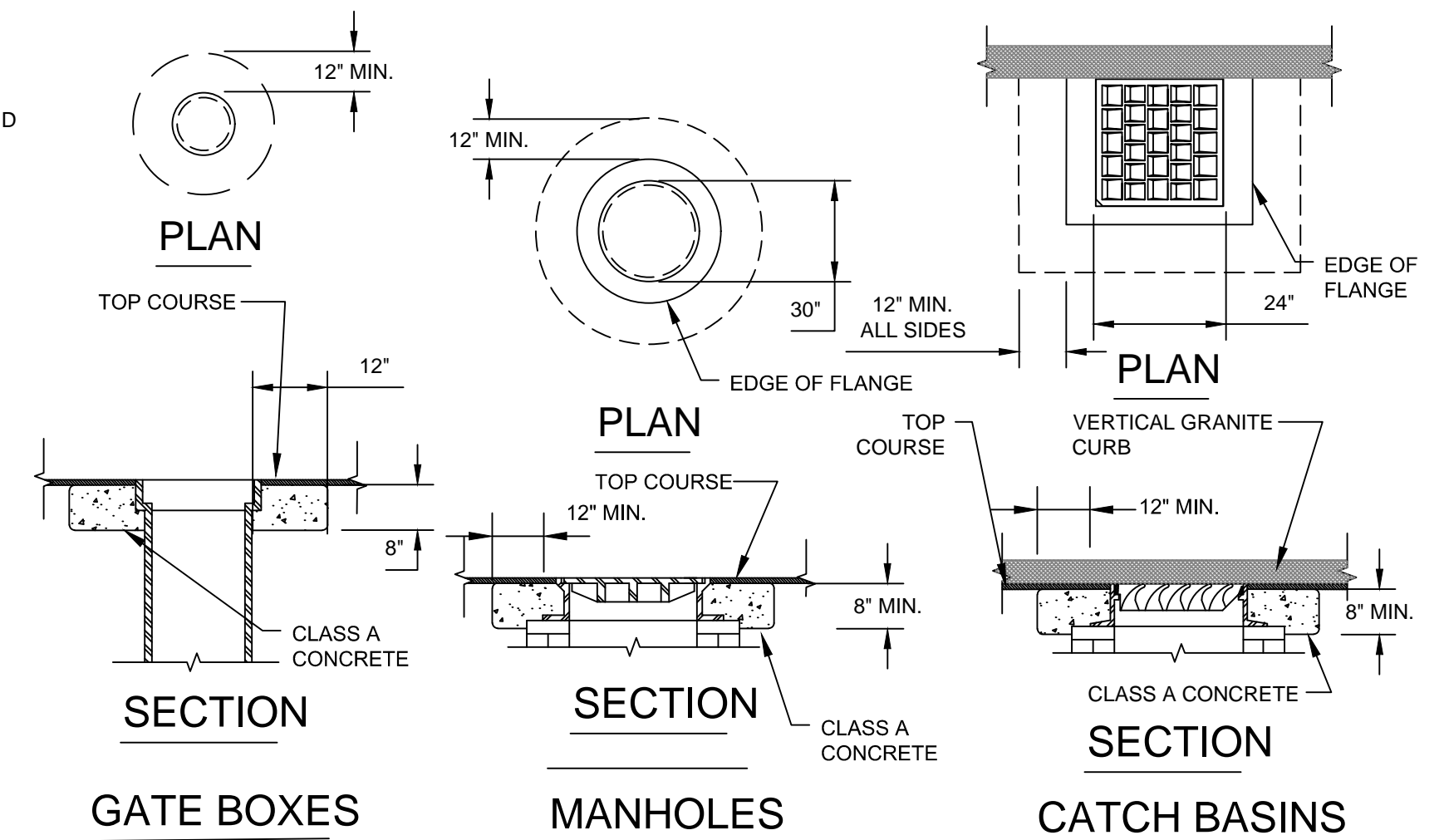
**TRENCH PAY LIMIT TABLE FOR MANHOLES**

| WALL THICKNESS | MAX TRENCH WIDTH |
|----------------|------------------|
| LESS THAN 6"   | I.D. + 5'-0"     |
| 6" TO 12"      | I.D. + 6'-0"     |
| 13" TO 18"     | I.D. + 7'-0"     |
| 19" & GREATER  | O.D. + 6'-0"     |

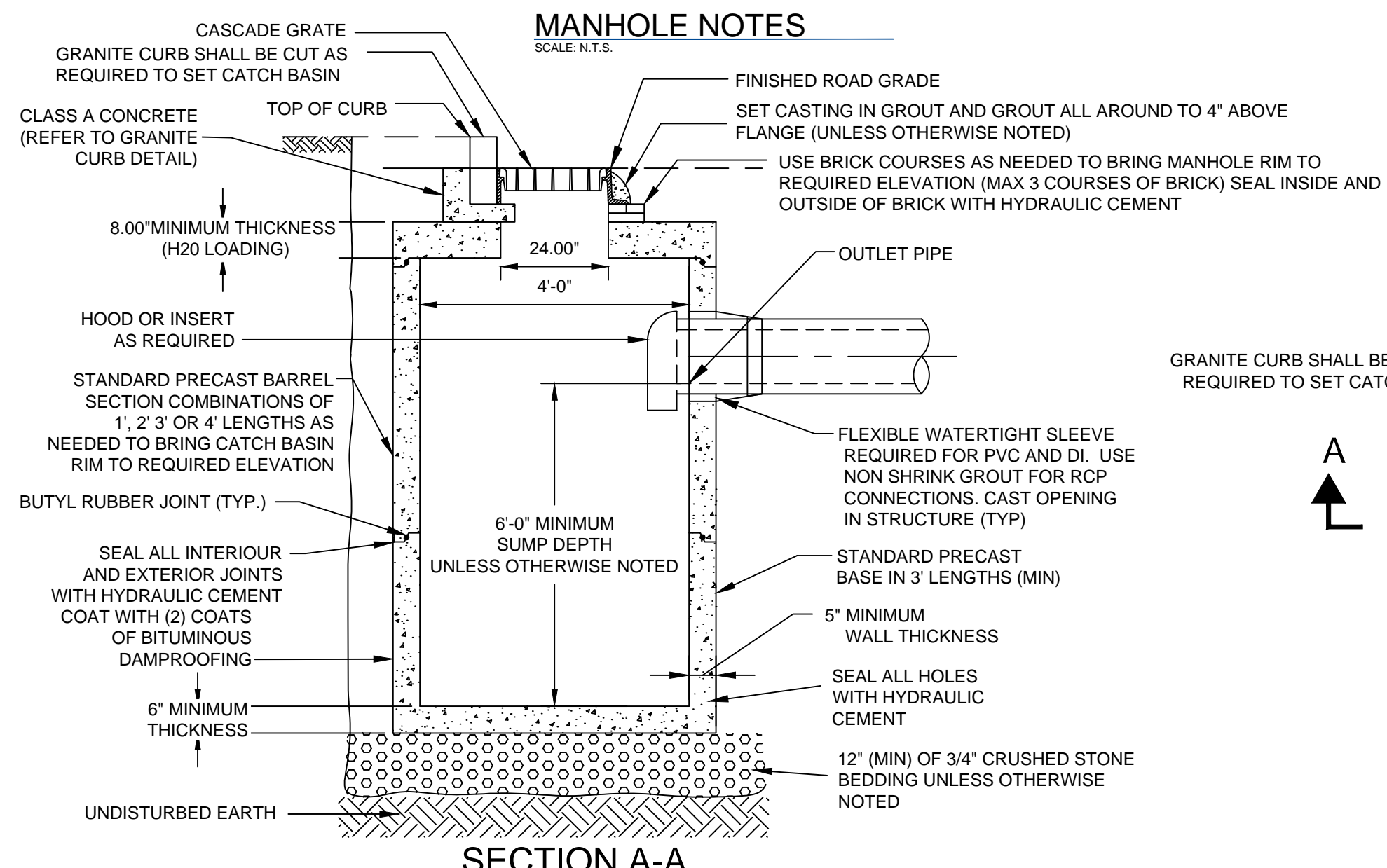
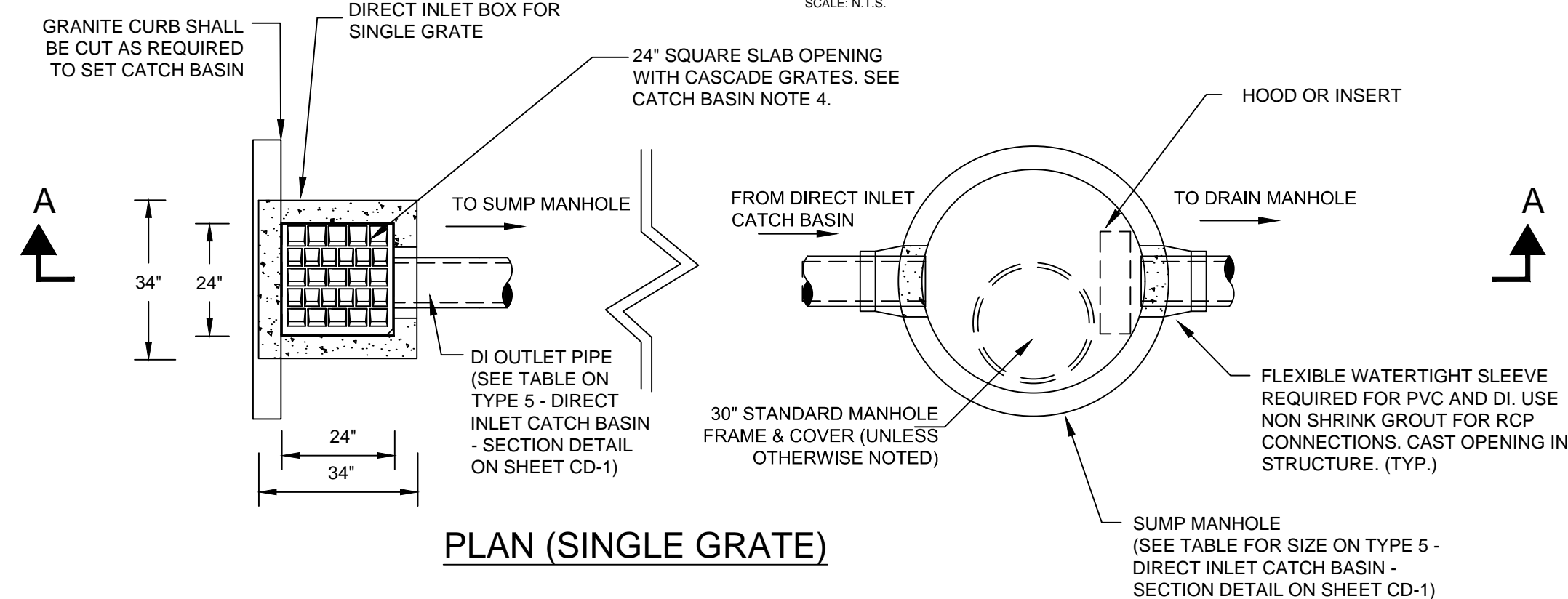
I.D. = INSIDE DIMENSION  
O.D. = OUTSIDE DIMENSION  
FOR TRENCHES GREATER THAN 5' DEEP  
ADD 3' FOR TEMPORARY SUPPORT OF EXCAVATION



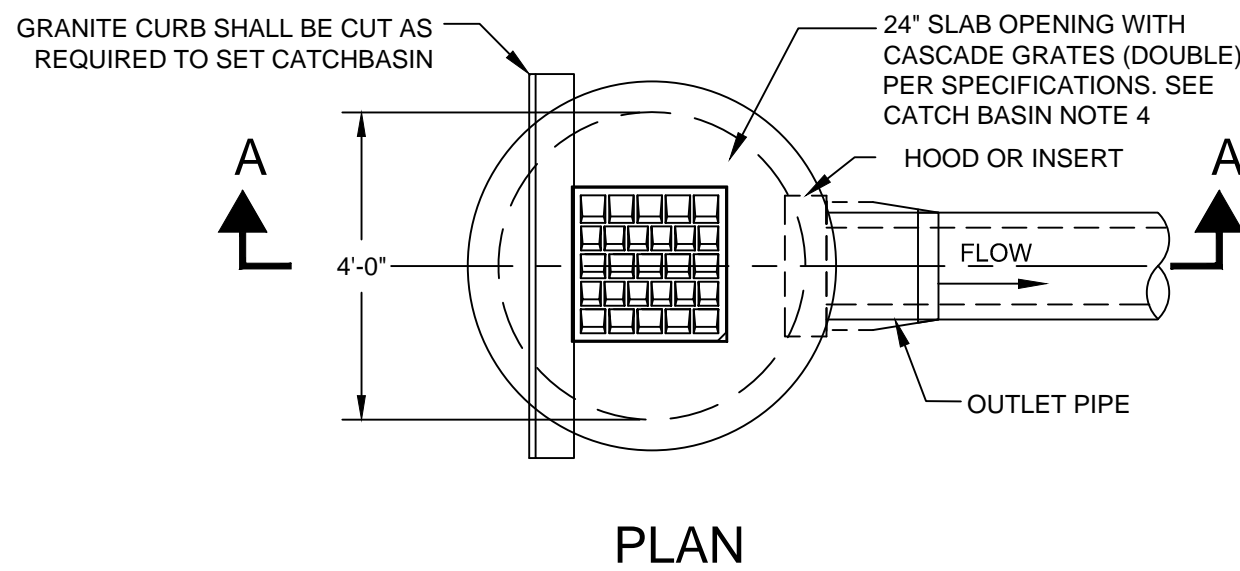
**STEEL PLATE SUPPORT OVER EXIST. SHALLOW UTILITY**



**RAISING CASTINGS DETAILS**

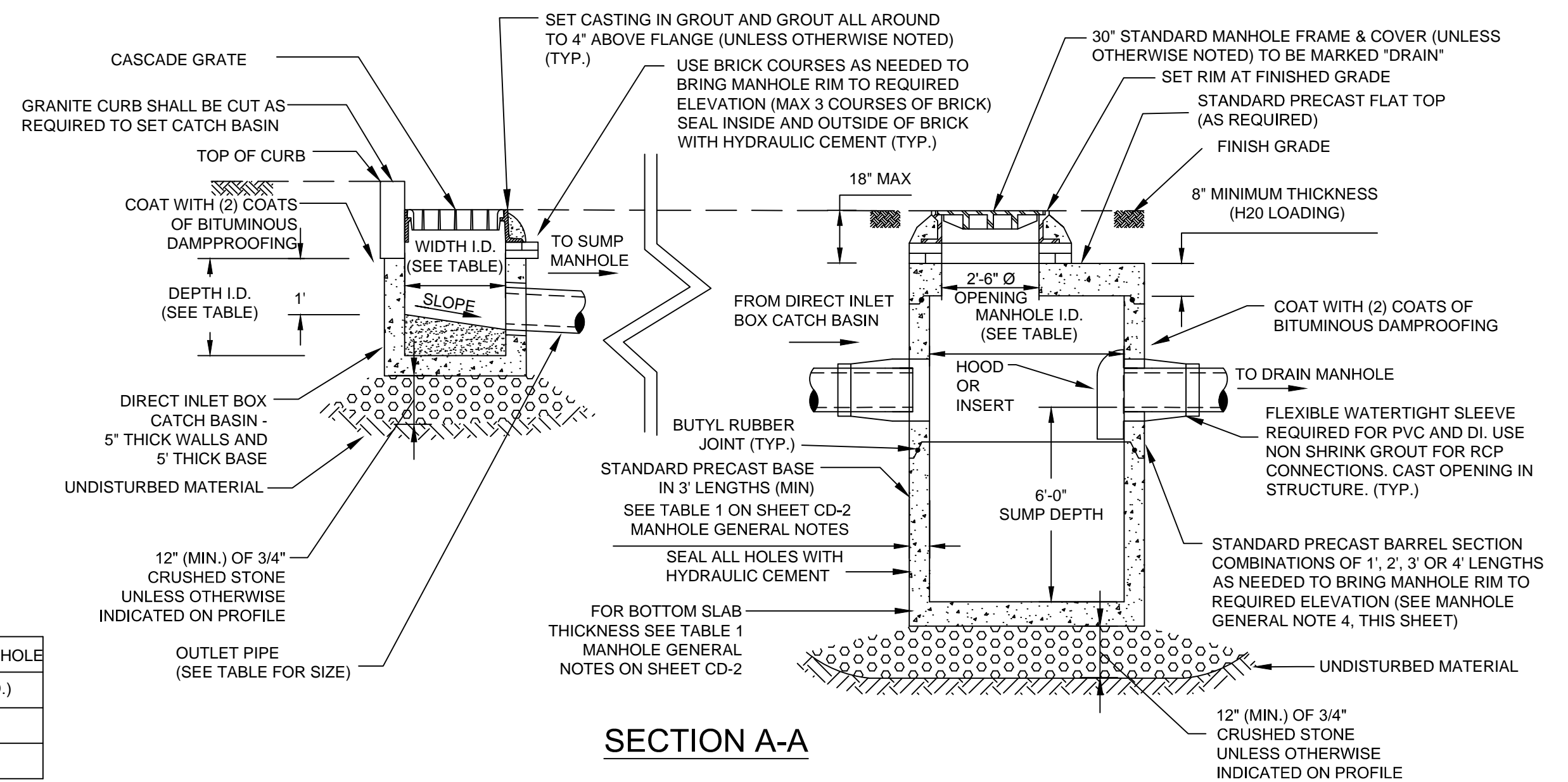


**TYPE 1 - SINGLE GRATE CATCH BASIN**



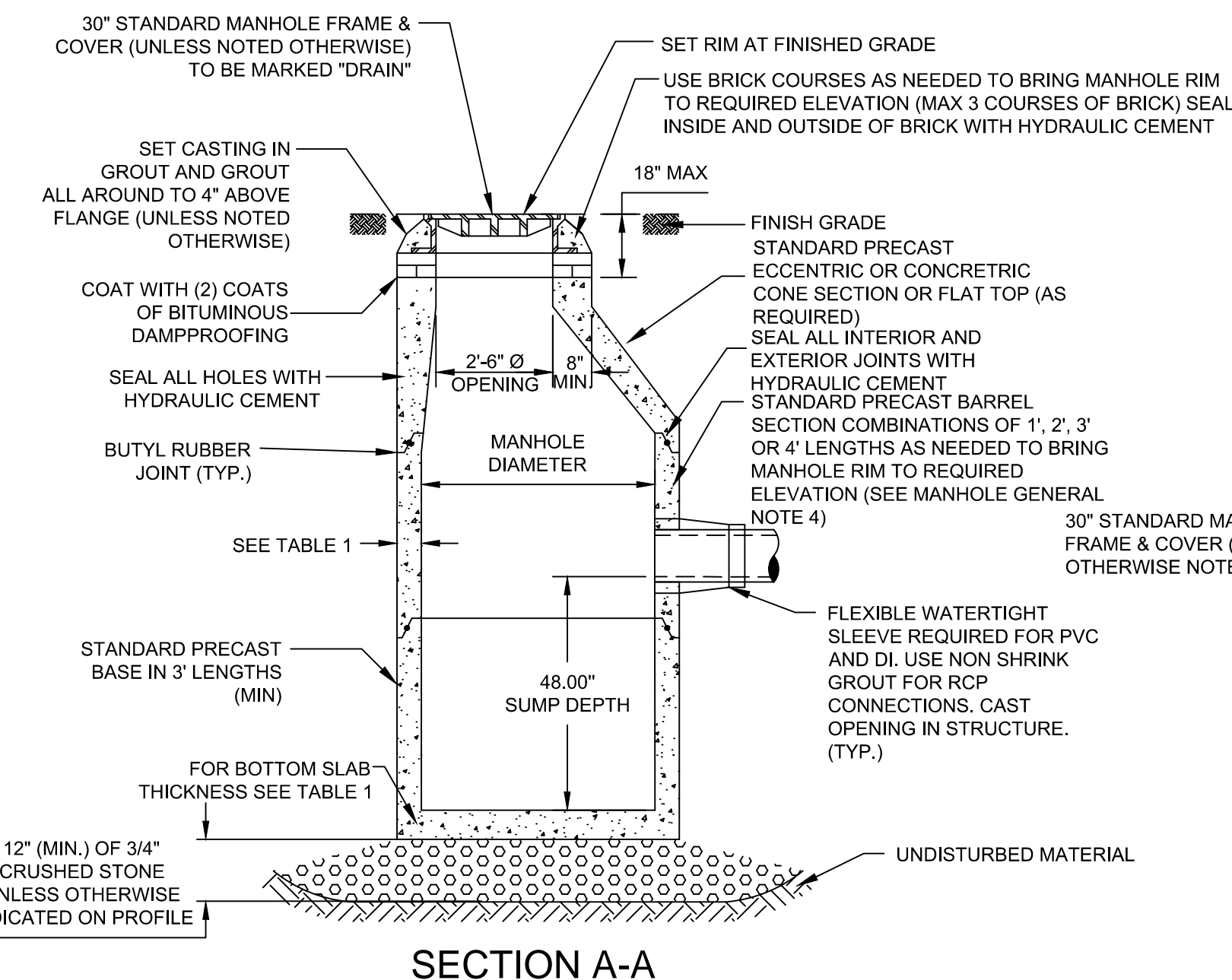
**PLAN**

**TYPE 5 - DIRECT INLET CATCH BASIN - PLAN**



**SECTION A-A**

**TYPE 5 - DIRECT INLET CATCH BASIN - SECTION**



**TYPE 4 - SUMP MANHOLE**

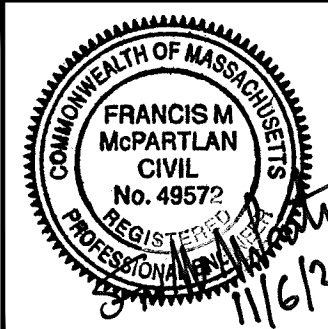
|              | PRECAST DIRECT INLET BOX |               |              | OUTLET PIPE | SUMP MANHOLE |
|--------------|--------------------------|---------------|--------------|-------------|--------------|
|              | WIDTH (I.D.)             | LENGTH (I.D.) | DEPTH (I.D.) | Ø (I.D.)    | Ø (I.D.)     |
| SINGLE GRATE | 24"                      | 24"           | 24"          | 12"         | 4"           |
| DOUBLE GRATE | 24"                      | 48"           | 36"          | 15"         | 5"           |

I.D. = INSIDE DIMENSION

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tel. 978-740-0096 www.hatch.com

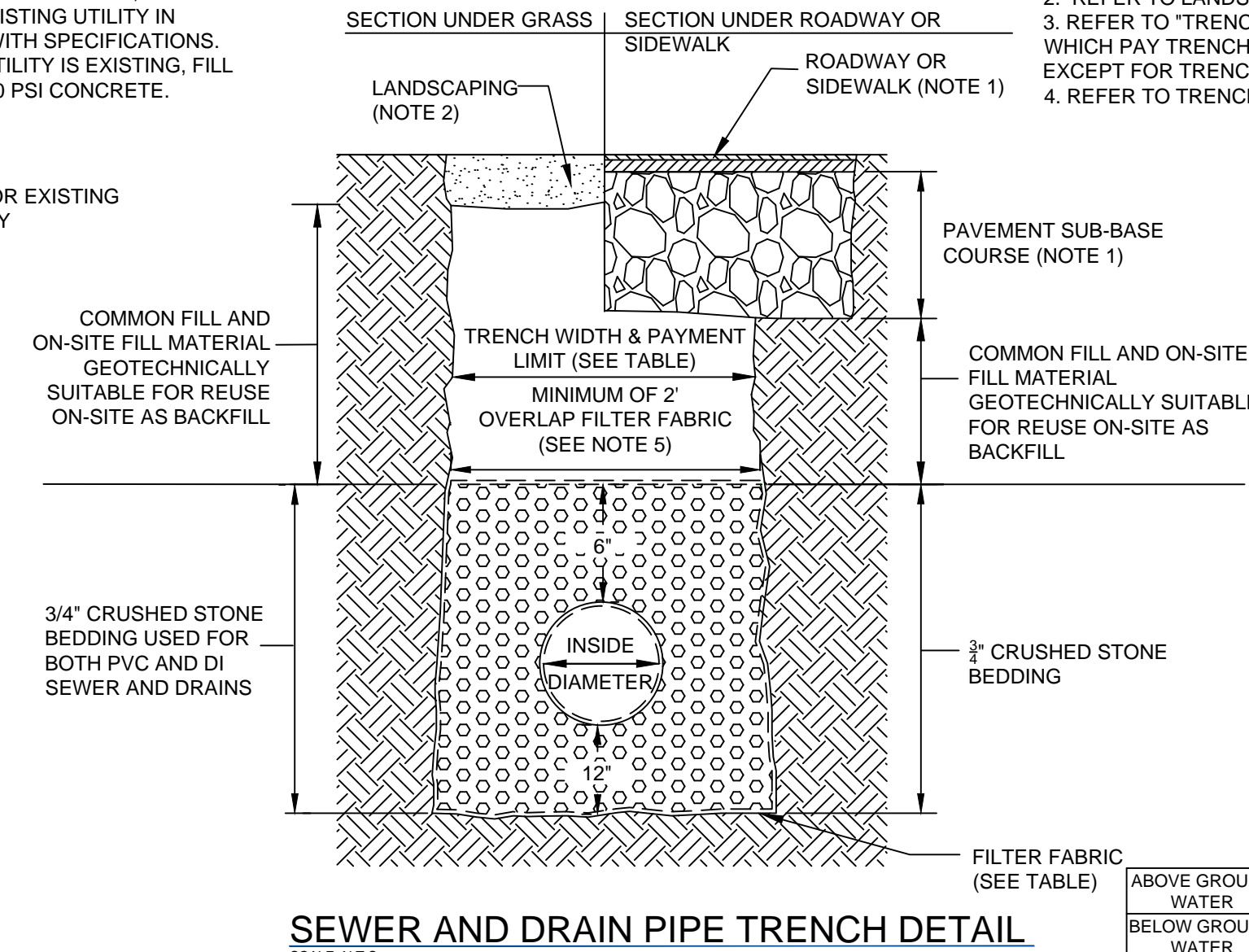
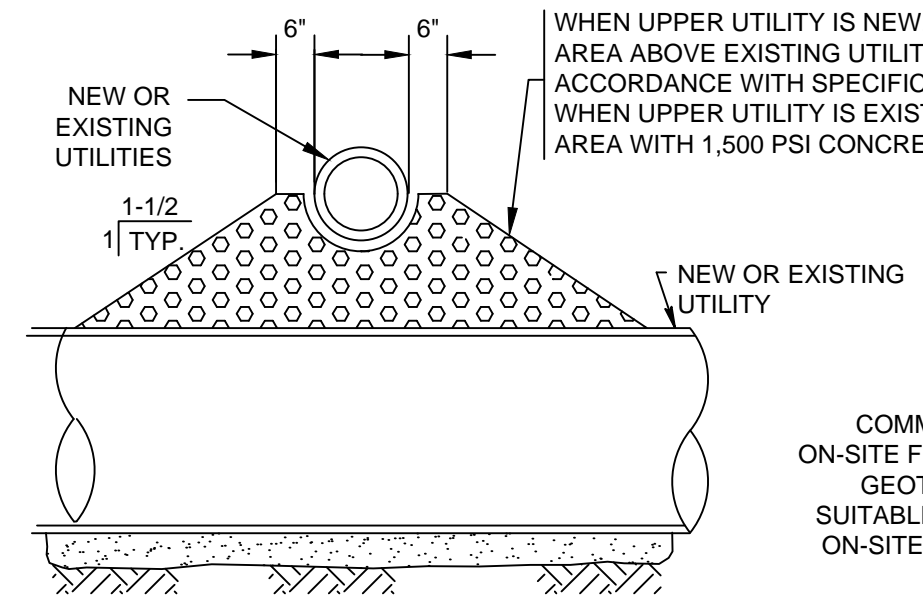
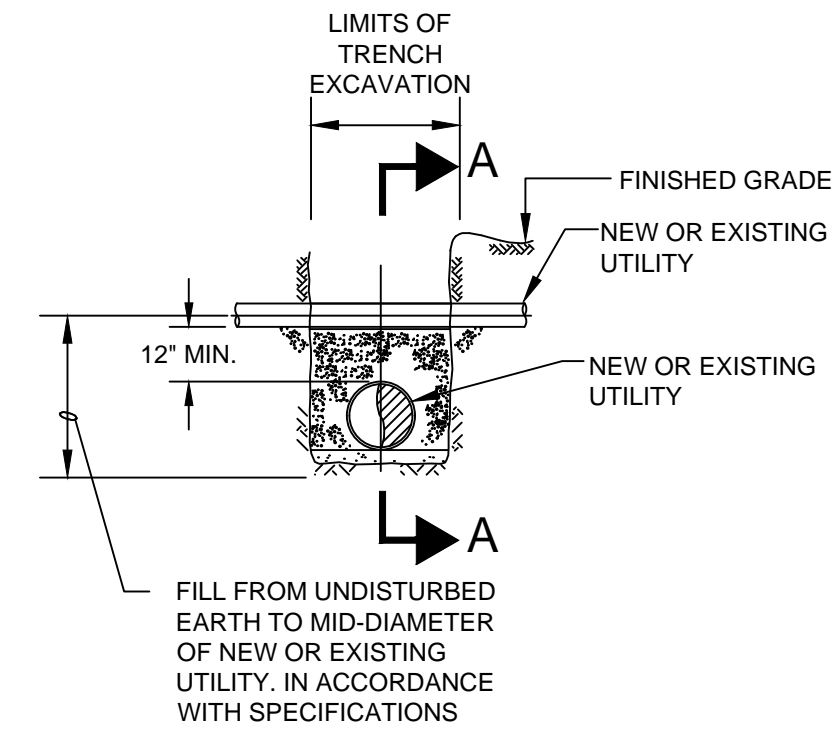


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|-------------|---------------|-----|-------------|------|
| Scale       | AS NOTED      |     |             |      |
| Date        | NOVEMBER 2018 |     |             |      |
| Job No.     | 20170208.019A |     |             |      |
| Designed by | FMM           |     |             |      |
| Drawn by    | MT            |     |             |      |
| Checked by  | JM            | No. | Description | Date |
| Approved by | FMM           |     | REVISIONS   |      |



|         |  |          |      |
|---------|--|----------|------|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                   | Sheet    | CD-1 |
| Project | CHAPTER 90 CONTACT 23A ROADWAY IMPROVEMENT PROJECT | File No. | 8310 |
| Drawing | GENERAL CIVIL DETAILS SHEET 1 OF 4                 |          |      |

CAD FILE: G:\clients\Cambridge\_MA\20170208.019A - Chapter 90 Contact 23A\Drawings\CAD\Civil General Details 1.dwg LAYOUT: 22x34.dwg PLOTTED: 11/02/2018 2:57 PM BY: matt.tremblay



**TRENCH PAY LIMIT TABLE FOR PIPES**

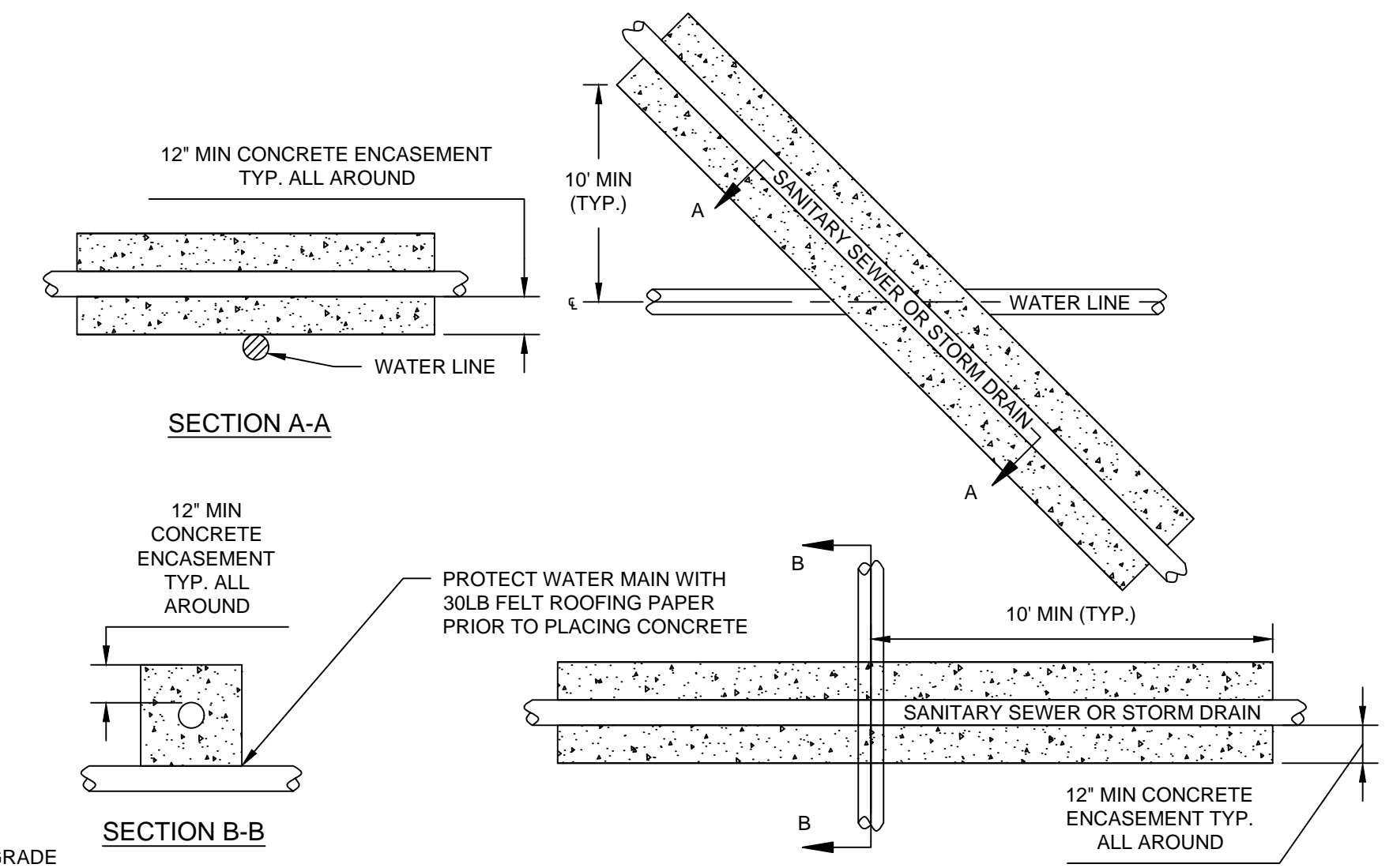
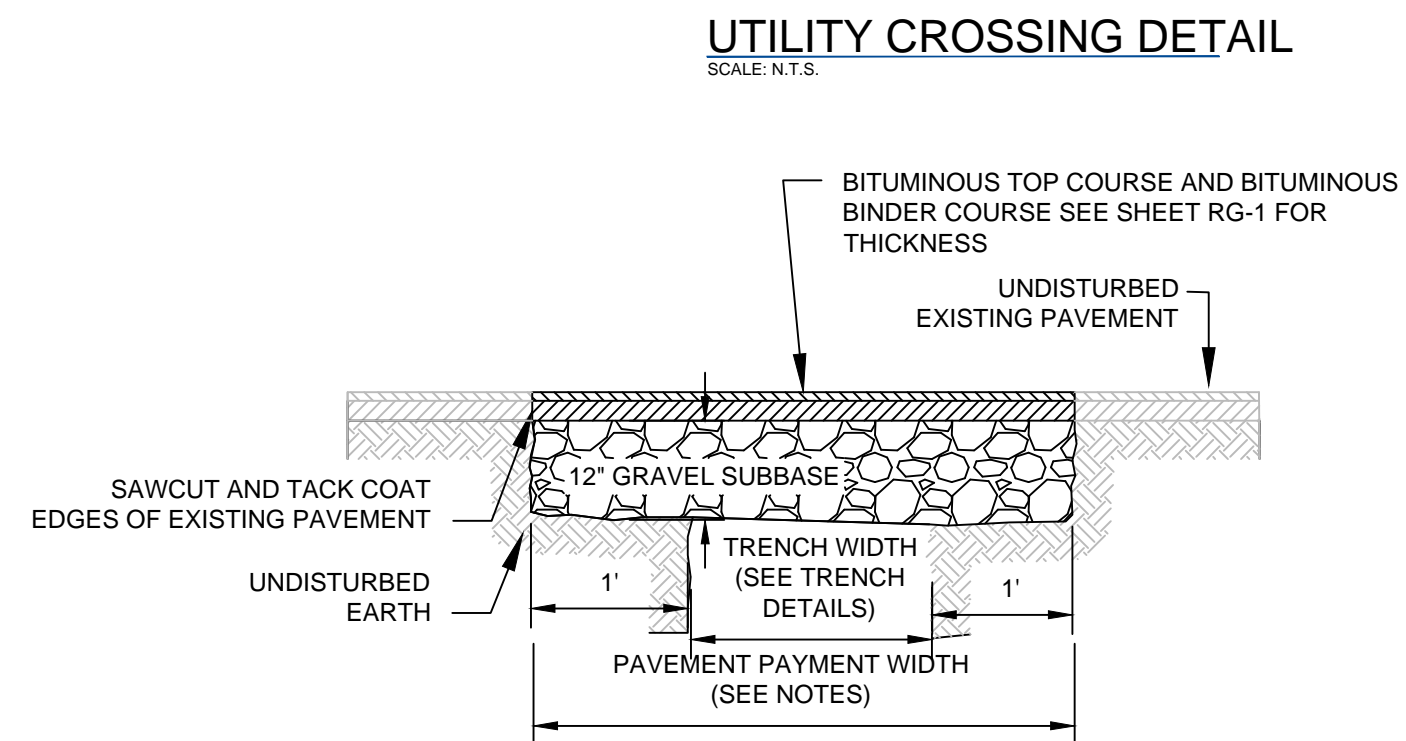
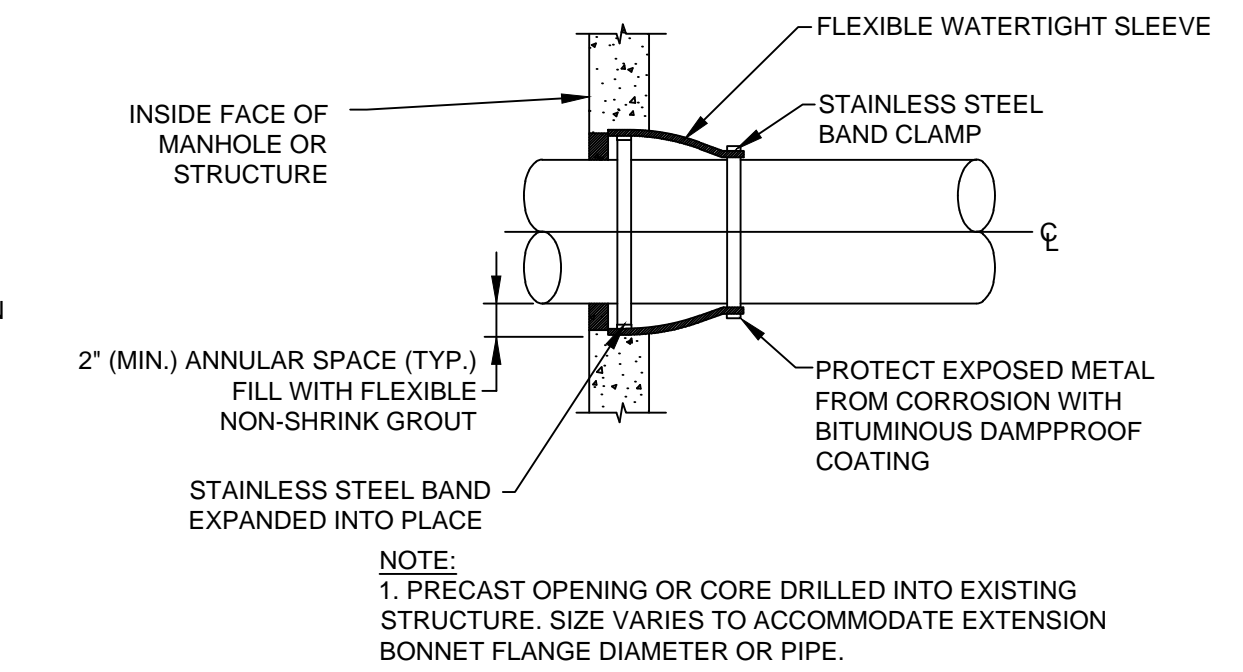
| PIPE SIZE (DIA.) | MAX TRENCH WIDTH |
|------------------|------------------|
| LESS THAN 2"     | 2'-0"            |
| 2" TO 6"         | 3'-0"            |
| 8" TO 22"        | 4'-0"            |
| 24" & GREATER    | I.D. + 2'-0"     |

I.D. = INSIDE DIMENSION

FOR TRENCHES GREATER THAN 5' DEEP ADD MAXIMUM 3' FOR TEMPORARY SUPPORT OF EXCAVATION

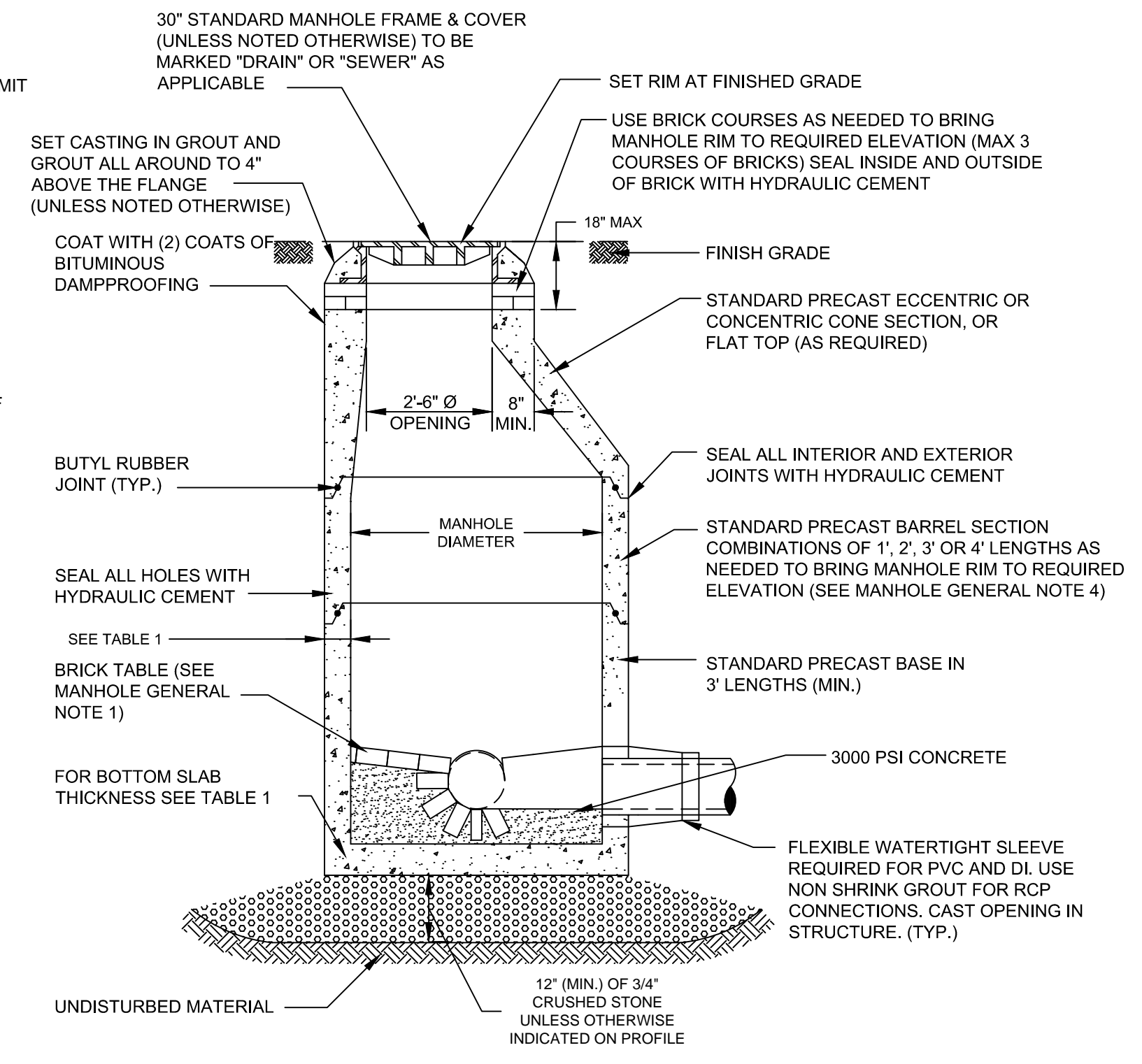
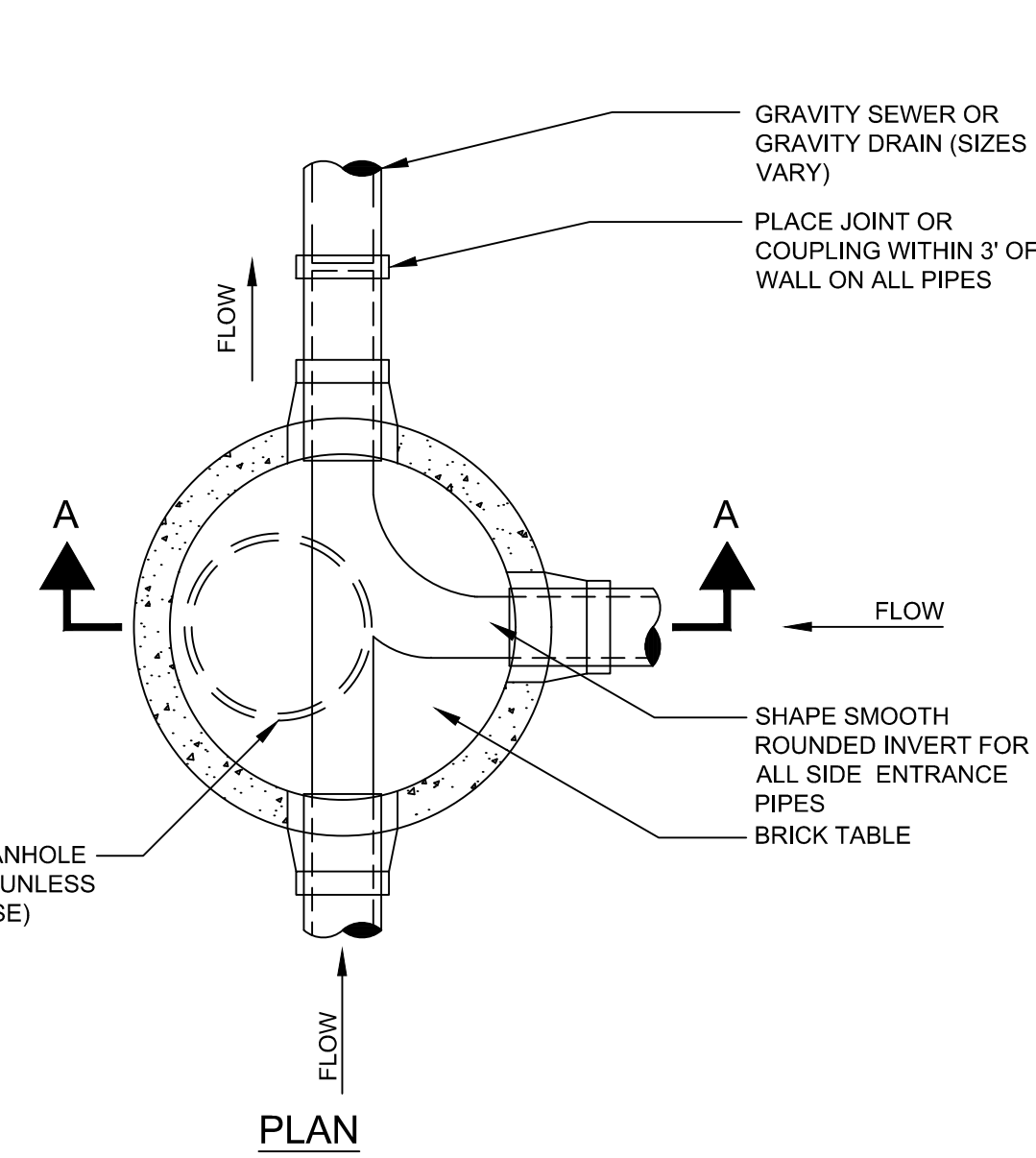
**FILTER FABRIC USE**

|                    | SOIL TYPE                  |                            |
|--------------------|----------------------------|----------------------------|
|                    | SILT OR CLAY               | GRANULAR SOIL              |
| ABOVE GROUND WATER | FILTER FABRIC NOT REQUIRED | FILTER FABRIC NOT REQUIRED |
| BELOW GROUND WATER | FILTER FABRIC REQUIRED     | FILTER FABRIC NOT REQUIRED |

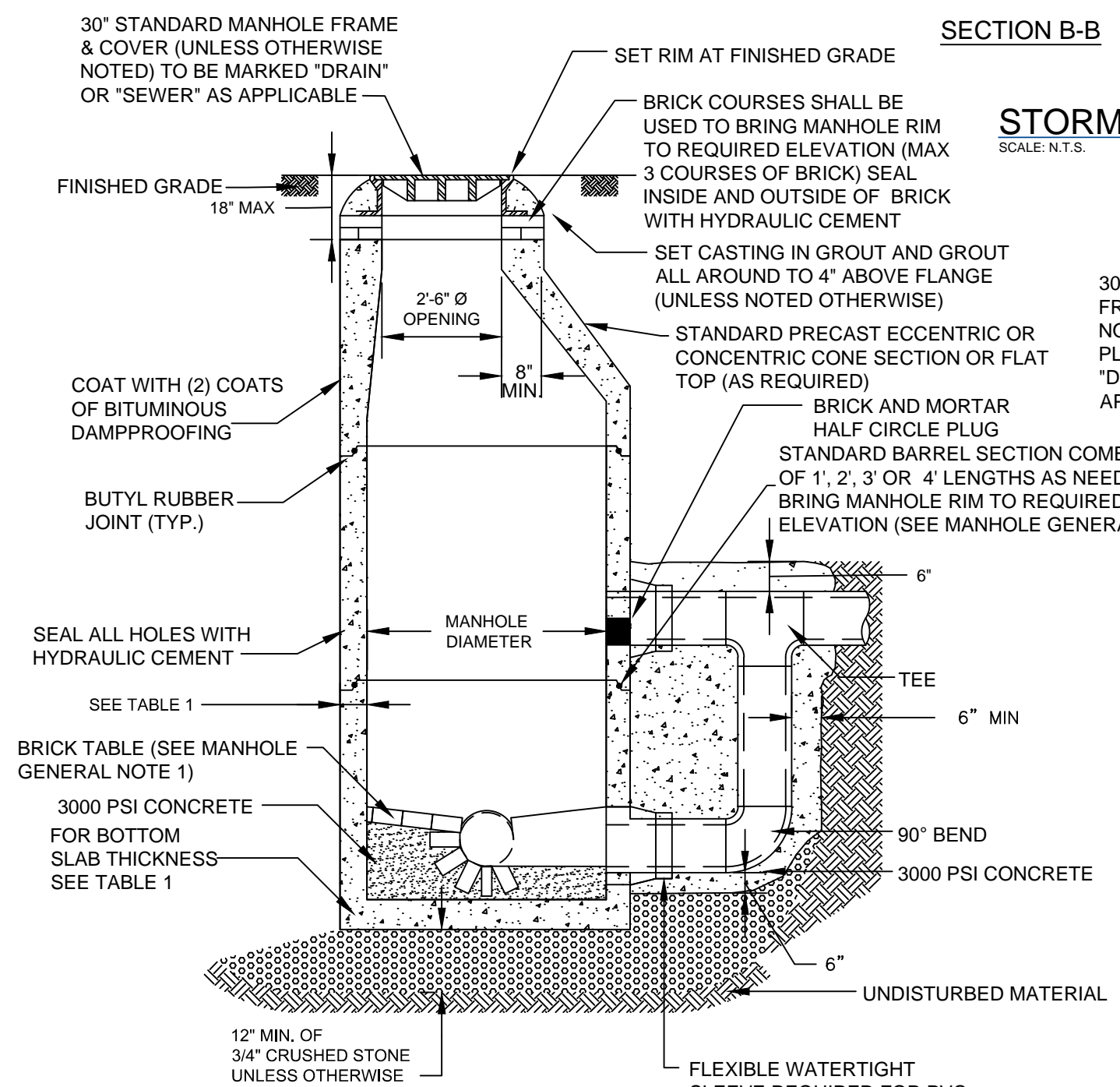


- NOTES:**
- PERMANENT TRENCH PAVEMENT PAYMENT WIDTH SHALL BE THE TRENCH PAY LIMIT PLUS 2 FEET
  - TEMPORARY TRENCH PAVEMENT PAYMENT WIDTH SHALL BE EQUAL TO THE TRENCH PAYMENT LIMIT
  - REMOVE AND DISPOSE ALL TEMPORARY PAVEMENT AS REQUIRED. RESTORE AND COMPACT SUBBASE AS REQUIRED PRIOR TO PERMANENT TRENCH PAVEMENT.

**TRENCH RESTORATION PAVEMENT DETAIL**  
SCALE: N.T.S.

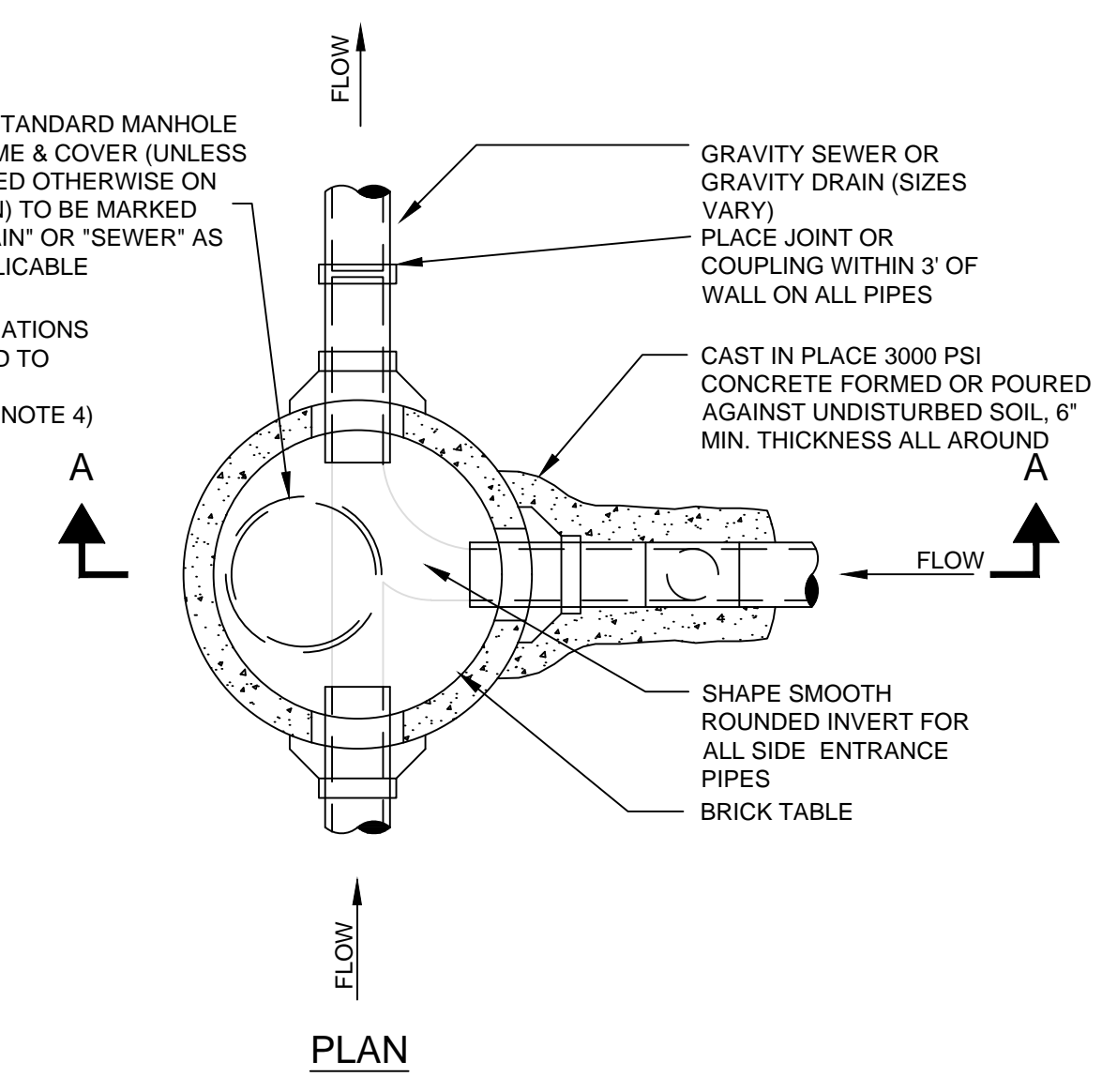


**TYPE 1 - MANHOLE**  
SCALE: N.T.S.



**SECTION A-A**  
SCALE: N.T.S.

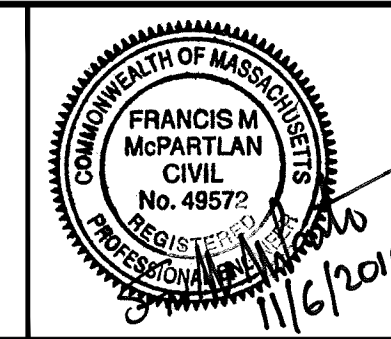
**STORM DRAIN AND SANITARY SEWER CROSSING ABOVE WATERMAIN**  
SCALE: N.T.S.



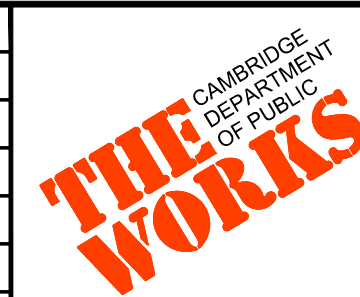
**TYPE 3 - DROP MANHOLE**  
SCALE: N.T.S.

ISSUED FOR BID

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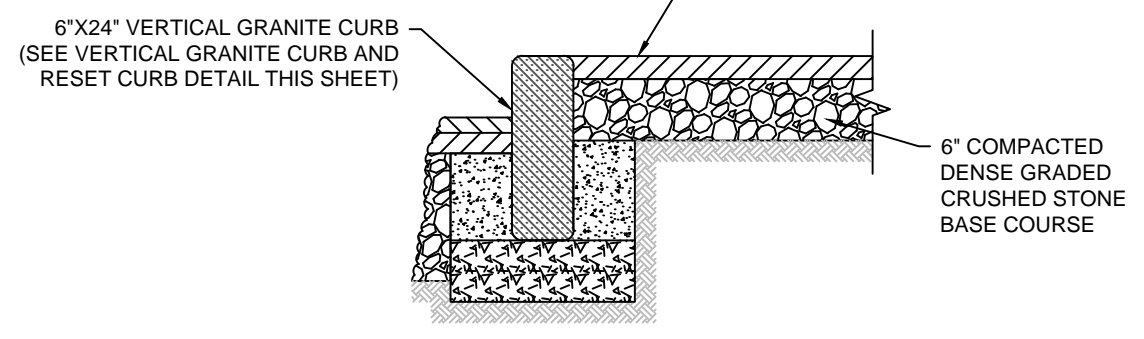


|             |               |     |             |      |
|-------------|---------------|-----|-------------|------|
| Scale       | AS NOTED      |     |             |      |
| Date        | NOVEMBER 2018 |     |             |      |
| Job No.     | 20170208.019A |     |             |      |
| Designed by | FMM           |     |             |      |
| Drawn by    | MT            |     |             |      |
| Checked by  | JM            | No. | Description | Date |
| Approved by | FMM           |     | REVISIONS   |      |

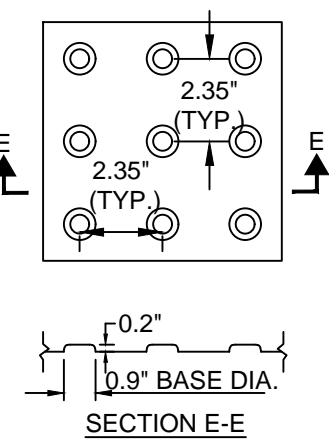


|         |  |
|---------|--|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                   |
| Project | CHAPTER 90 CONTACT 23A ROADWAY IMPROVEMENT PROJECT |
| Drawing | GENERAL CIVIL DETAILS SHEET 2 OF 4                 |

|          |      |
|----------|------|
| Sheet    | CD-2 |
| File No. | 8310 |



**2" TEMPORARY ASPHALT SIDEWALK**  
SCALE: N.T.S.



**NOTES:**

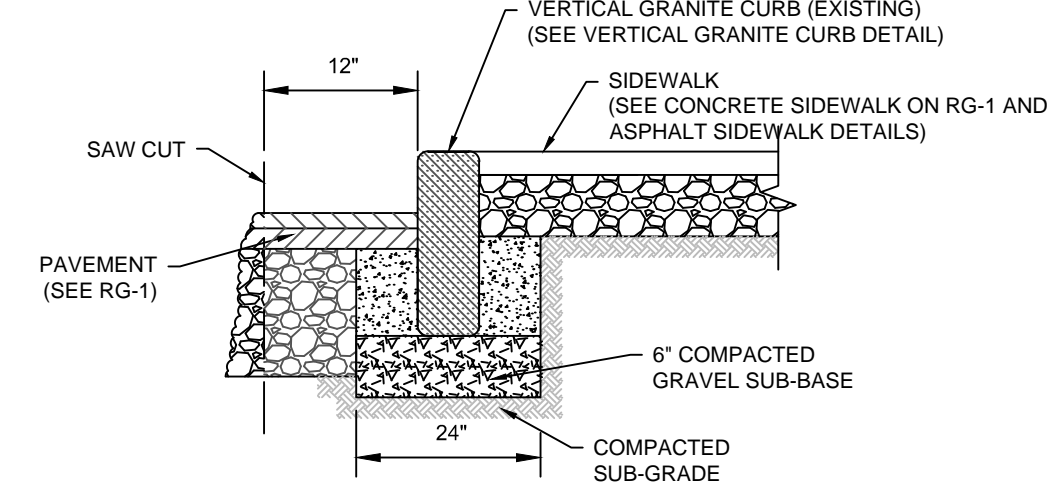
1. DETECTABLE WARNING SURFACES SHALL CONTRAST VISUALLY WITH ADJACENT WALKING SURFACES EITHER LIGHT-ON-DARK OR DARK-ON-LIGHT.
2. DETECTABLE WARNING PANELS SHALL EXTEND A MIN. OF 2' IN RAMP AND BE CONSTRUCTED OF CAST IRON.
3. DETECTABLE WARNING PANELS WITHIN THE LIMITS OF BRICK OR CONCRETE PAVER INTERSECTIONS (AT-GRADE OR RAISED) TO BE COATED WITH YELLOW POWDER COAT PAINT PROVIDED BY THE MANUFACTURER.

**DETECTABLE WARNING PANEL**  
SCALE: N.T.S.

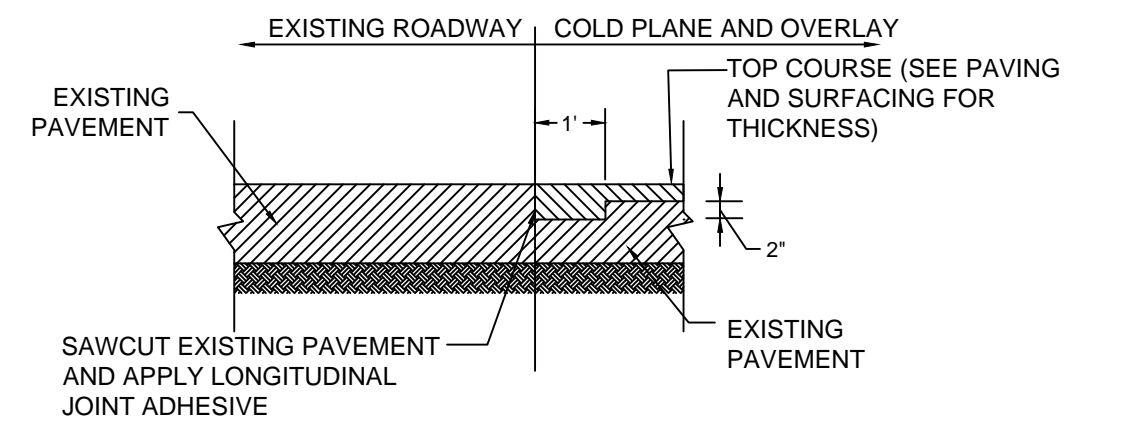
**TRANSITION CHART \***

| ROADWAY PROFILE GRADE | LENGTH OF CURB |
|-----------------------|----------------|
| 0.00                  | 6'-6"          |
| >0.00 TO 0.01         | 7'-8"          |
| >0.01 TO 0.02         | 9'-0"          |
| >0.02 TO 0.03         | 11'-0"         |
| >0.03 TO 0.04         | 14'-0"         |
| >0.04                 | 15'-0" MAX.    |

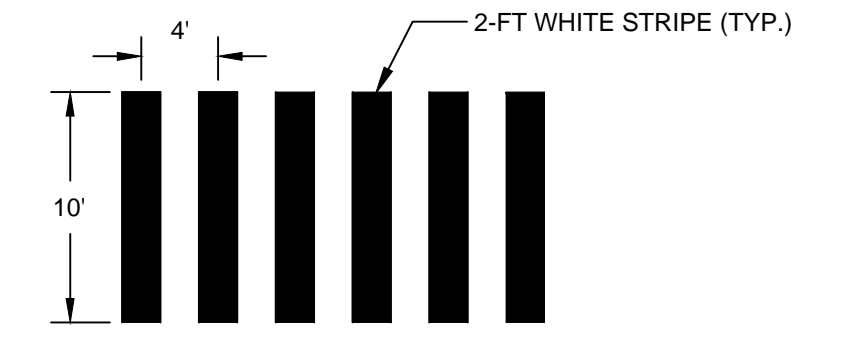
\* BASED ON A DESIGN SLOPE OF 7.5% AND 6" CURB REVEAL.



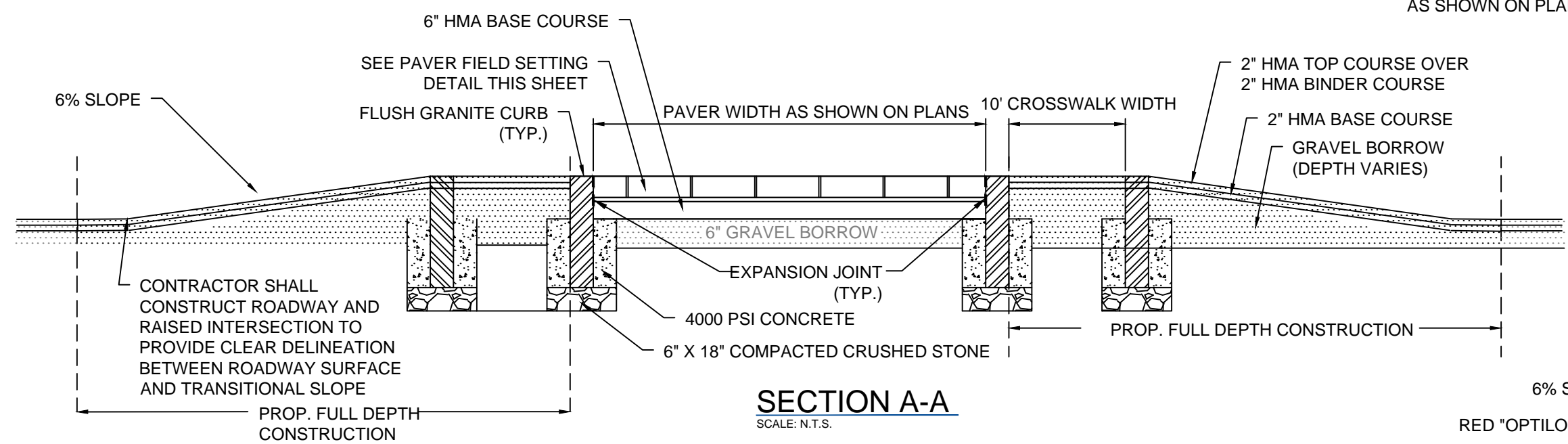
**RESET CURB**  
SCALE: N.T.S.



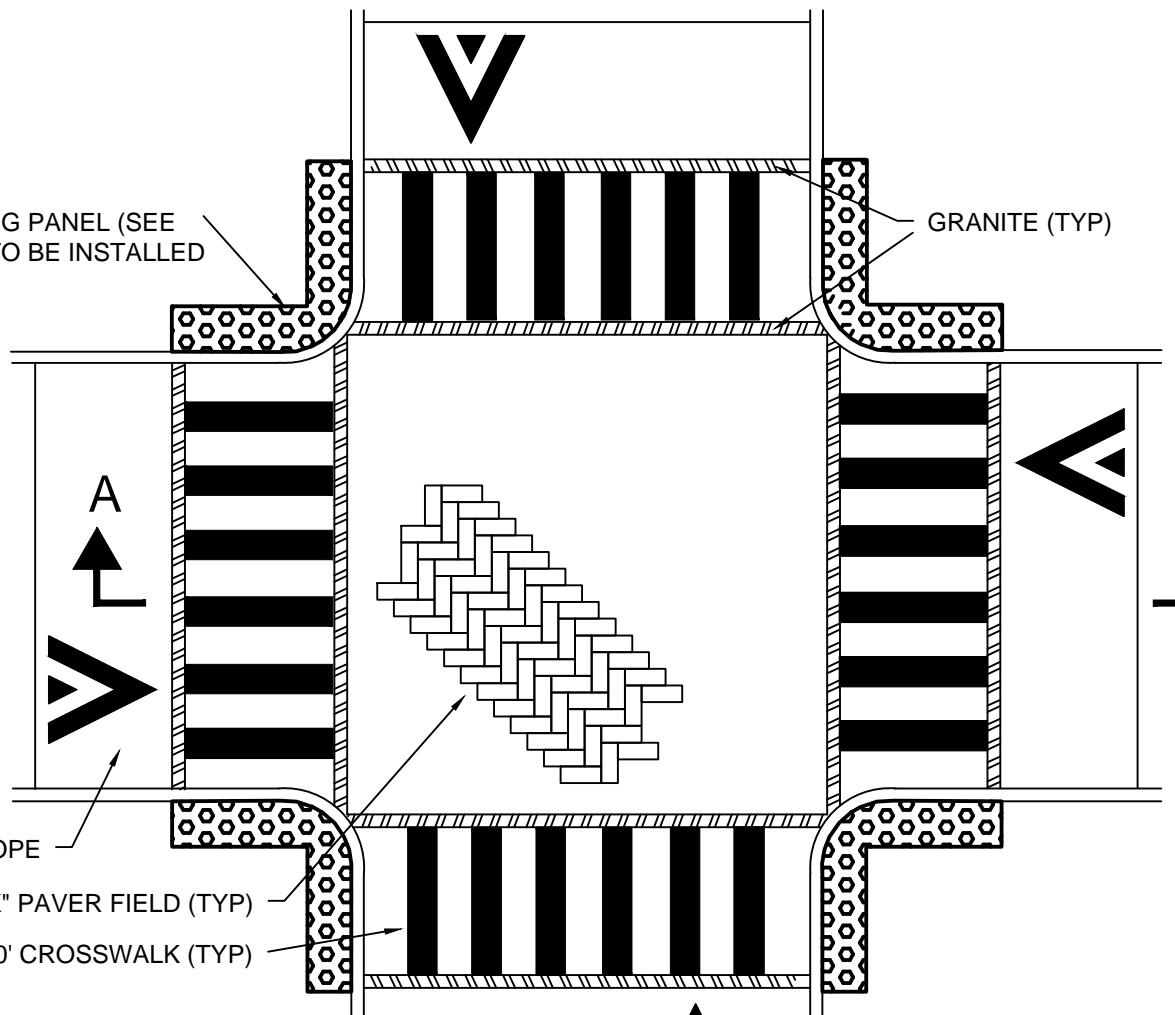
**COLD PLANE AND OVERLAY JOINT DETAIL**  
SCALE: N.T.S.



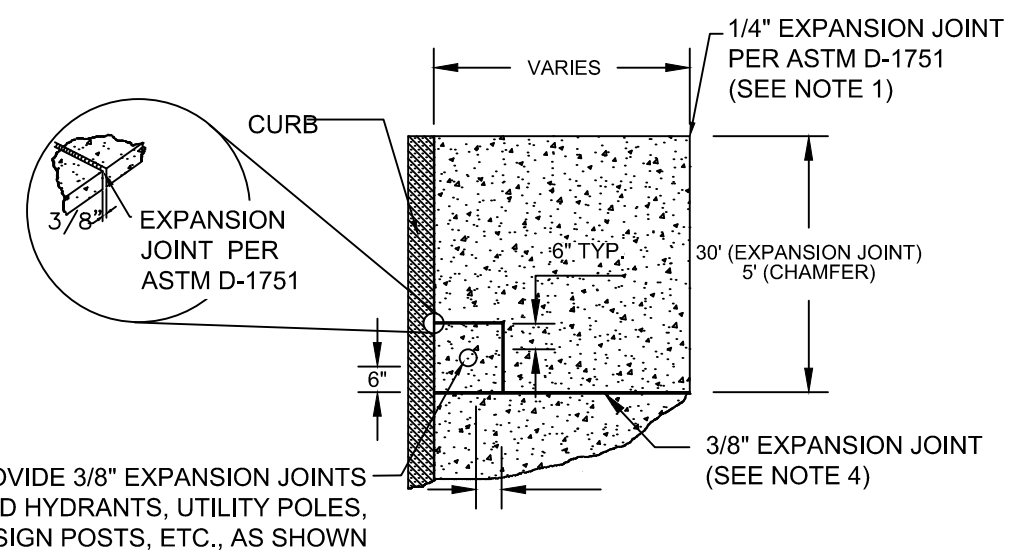
**CAMBRIDGE STANDARD CROSSWALK**  
SCALE: N.T.S.



**SECTION A-A**  
SCALE: N.T.S.



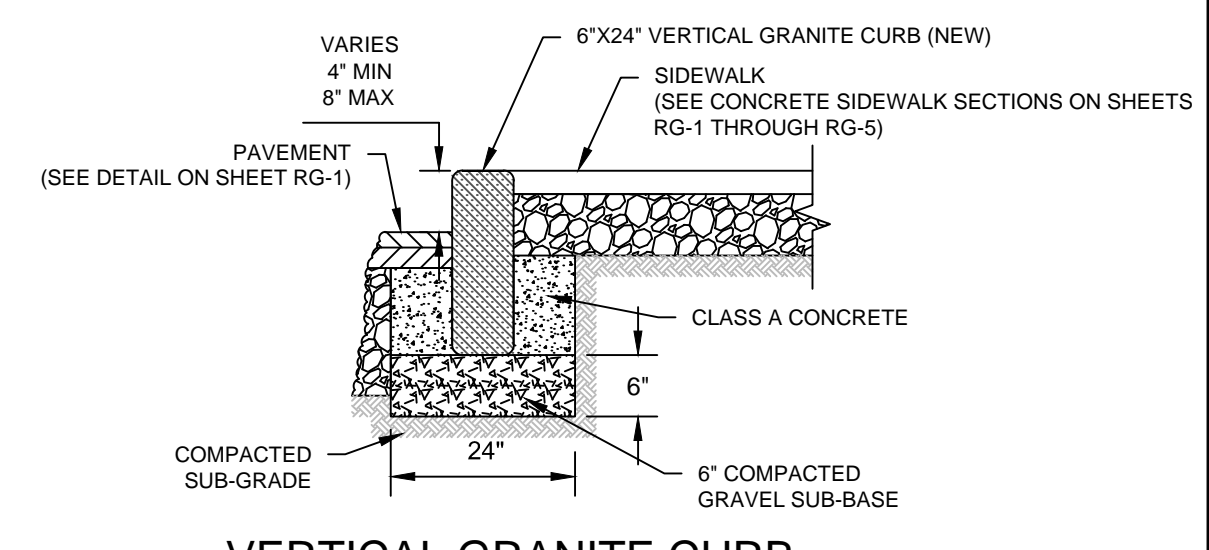
**4-WAY RAISED INTERSECTION PLAN**  
SCALE: N.T.S.



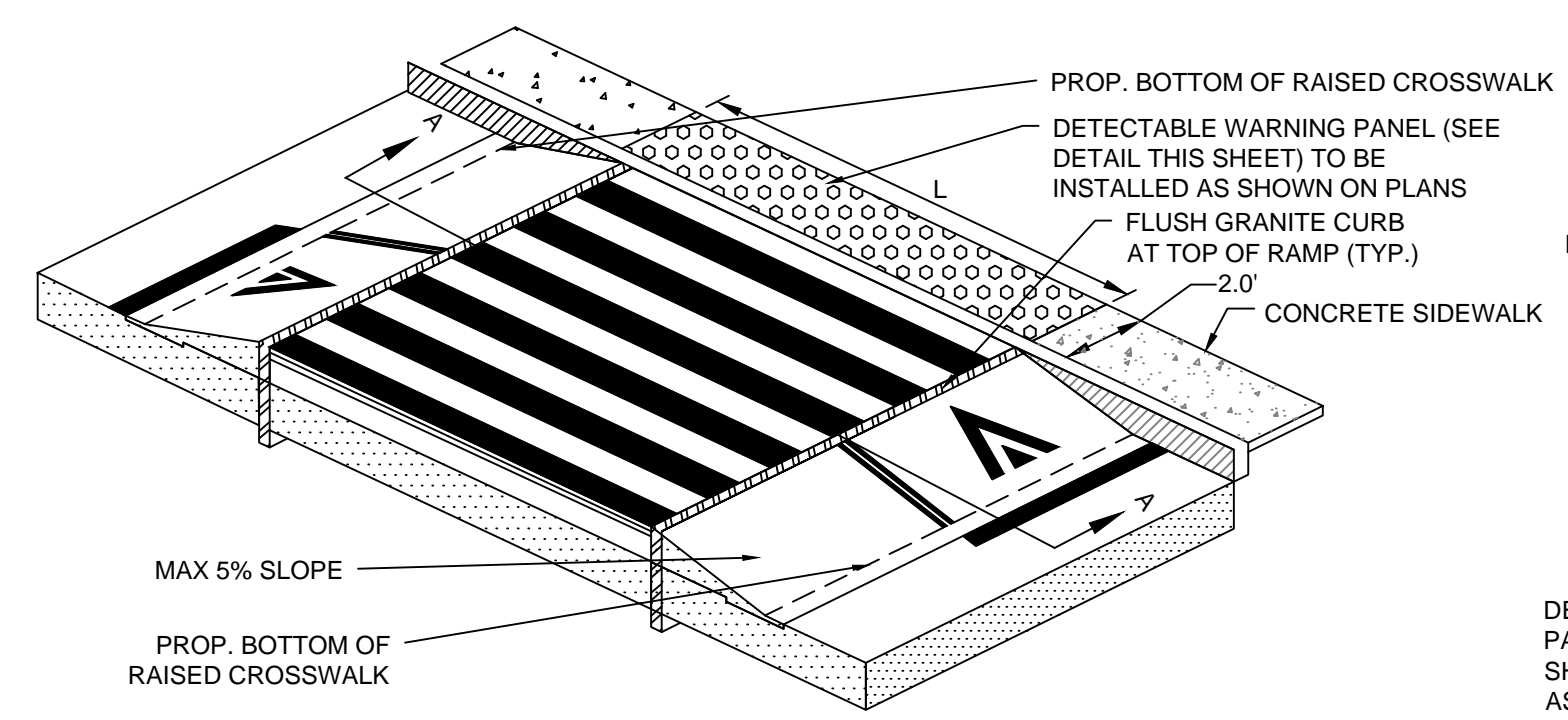
**NOTES:**

1. EXPANSION JOINTS SHALL BE INSTALLED AT BACK OF SIDEWALK STEPS, WALLS, BUILDINGS, AND OTHER STRUCTURES.
2. EXPANSION JOINTS AT BUILDINGS SHALL BE GAULKED.
3. EXPANSION JOINTS SHALL BE USED AT TRANSITIONS BETWEEN NEW AND EXISTING SIDEWALK JOINTS.
4. EXPANSION JOINTS OF 3/8-IN THICK FOAM SHALL BE PLACED EVERY 30 FEET PERPENDICULAR TO CURB ALIGNMENT EXTENDING THROUGH THE SIDEWALK DEPTH. SEE SECTION 02524-3.2C OF THE CONTRACT DOCUMENTS.

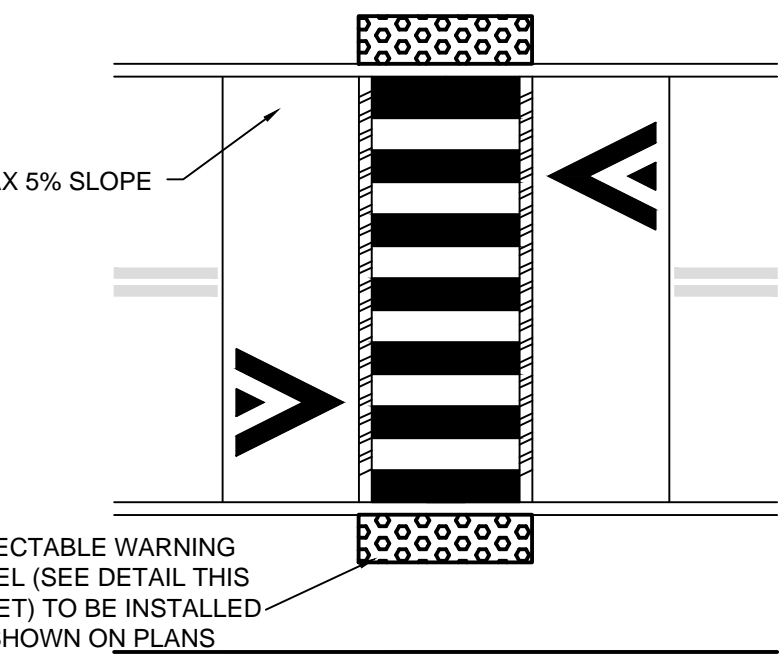
**EXPANSION JOINT**  
SCALE: N.T.S.



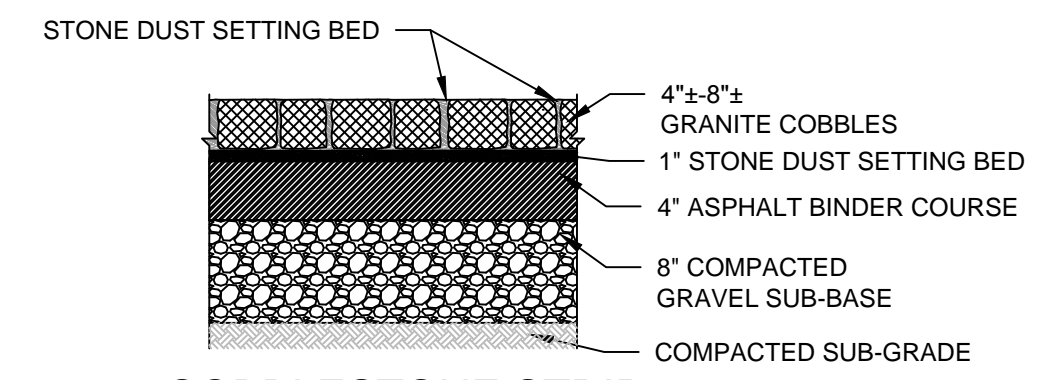
**VERTICAL GRANITE CURB**  
SCALE: N.T.S.



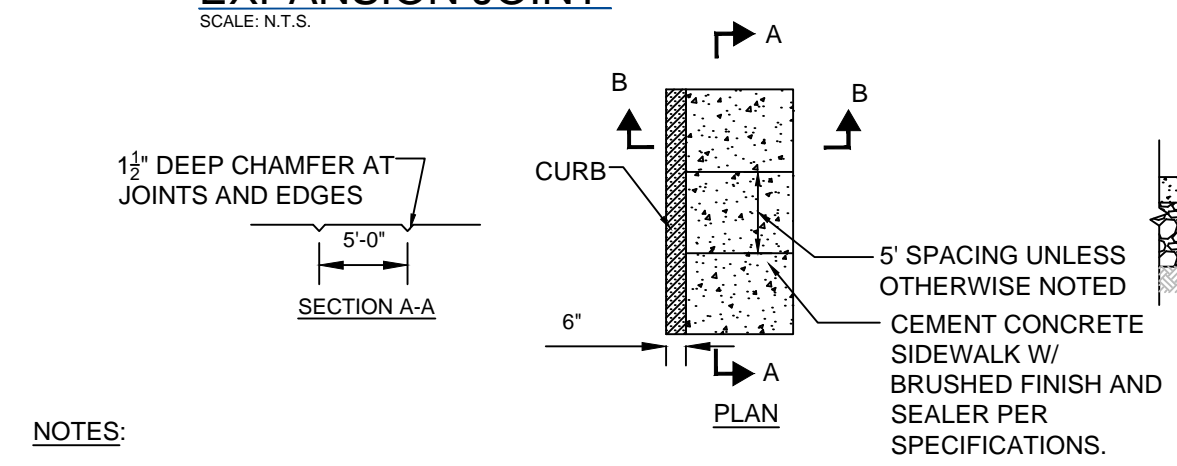
**RAISED CROSSWALK ISOMETRIC PLAN**  
SCALE: N.T.S.



**RAISED CROSSWALK PLAN VIEW**  
SCALE: N.T.S.



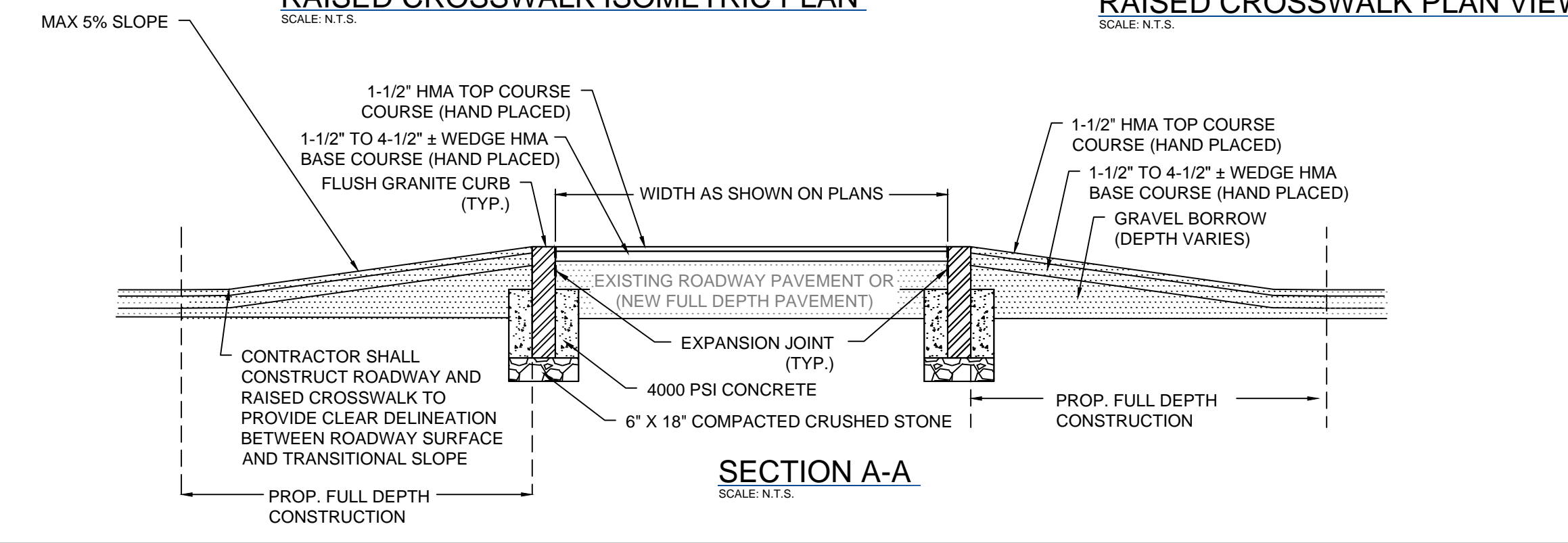
**COBBLESTONE STRIP**  
SCALE: N.T.S.



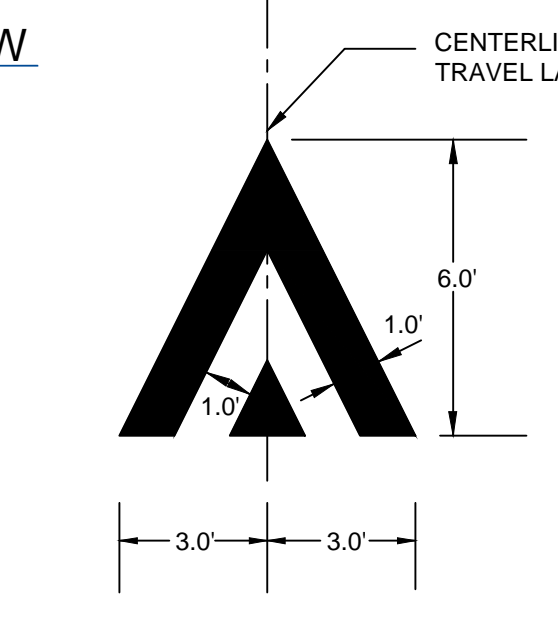
**CONCRETE SIDEWALK**  
SCALE: N.T.S.

**NOTES:**

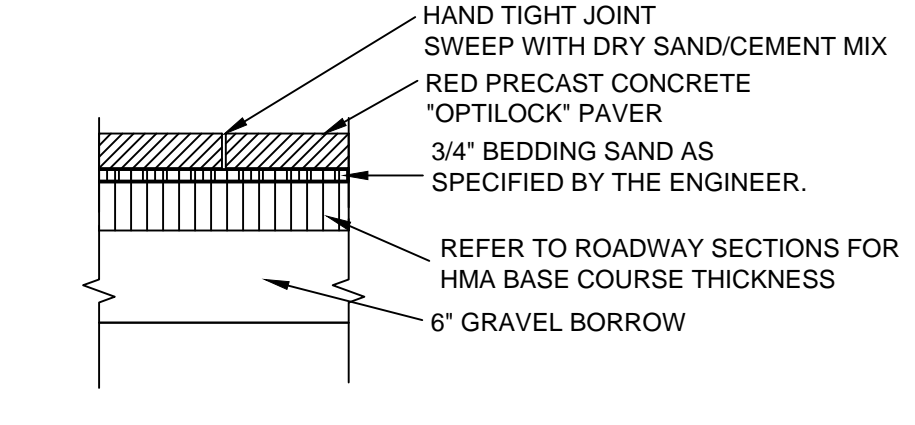
1. NEW SIDEWALK SHALL MATCH WIDTH OF EXISTING SIDEWALK, UNLESS OTHERWISE NOTED.
2. SIDEWALK MATERIAL TO MATCH EXISTING SIDEWALK, UNLESS OTHERWISE NOTED.
3. SIDEWALKS TO BE BUILT ACCORDING TO PROWAG AND MA AAB REGULATIONS, 1.5% MAX (0.5% TOLERANCE) CROSS SLOPE.
4. AROUND HYDRANTS, UTILITY POLES, SIGN POSTS ETC., SEE EXPANSION JOINT DETAIL (THIS SHEET).
5. SEE ROADWAY GRADING AND DETAILED GRADING SHEETS FOR SIDEWALK GRADES.
6. MINIMUM CLEARANCE OF 3' SHALL BE PROVIDED AT EXISTING TREE PITS. MINIMUM CLEARANCE OF 4' SHALL BE PROVIDED AT ALL OTHER LOCATIONS.



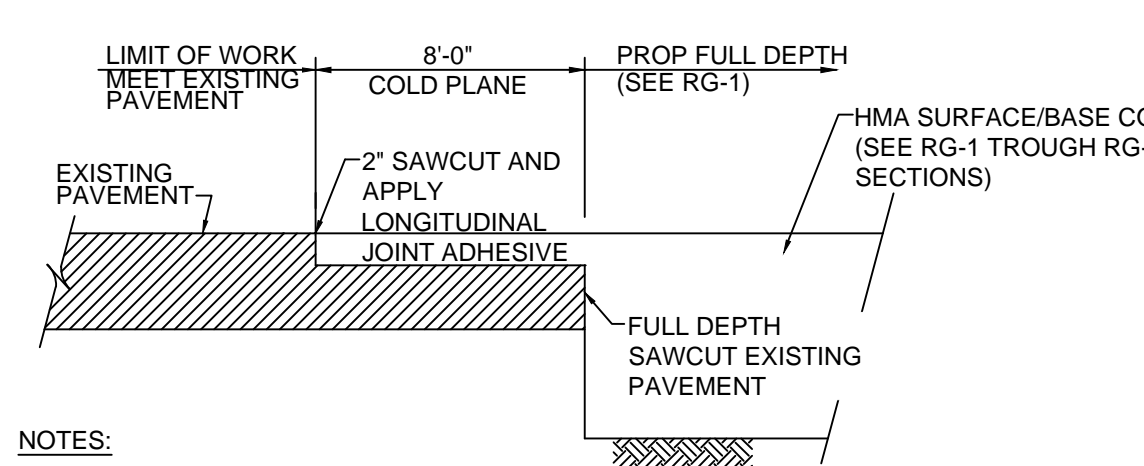
**SECTION A-A**  
SCALE: N.T.S.



**RAMP MARKING DETAIL**  
SCALE: N.T.S.



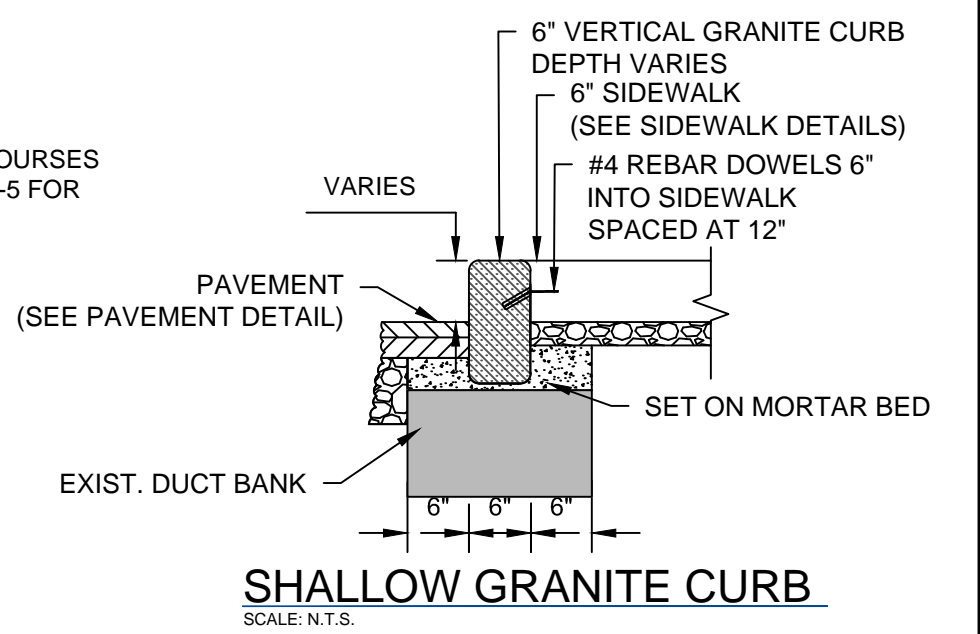
**PAVER "FIELD" SETTING DETAIL**  
SCALE: N.T.S.



**NOTES:**

1. CLEAN ALL COLD PLANED SURFACES BEFORE APPLYING JOINT ADHESIVE, TACK COAT AND FINAL PAVEMENT.
2. APPLY TACK COAT TO COLD PLANED SURFACES PRIOR TO BEING OVERLAID AT THE RATE OF 0.10 GALLONS PER SQUARE YARD.
3. TEMPORARY PAVEMENT SHALL BE PLACED ALONG ANY LIP CREATED BY PAVEMENT REMOVAL. TEMPORARY PAVEMENT SHALL BE PLACED AT A SLOPE OF LESS THAN 1V:3H.

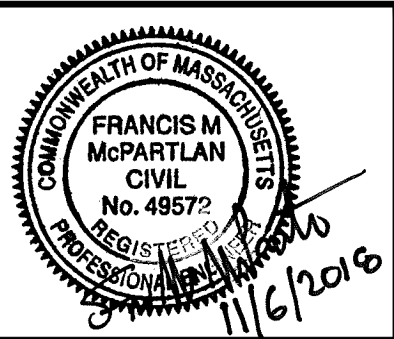
**PAVEMENT TRANSITION**  
SCALE: N.T.S.



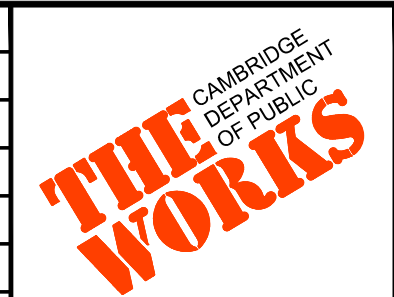
**SHALLOW GRANITE CURB**  
SCALE: N.T.S.

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|             |               |     |             |
|-------------|---------------|-----|-------------|
| Scale       | AS NOTED      |     |             |
| Date        | NOVEMBER 2018 |     |             |
| Job No.     | 20170208.019A |     |             |
| Designed by | FMM           |     |             |
| Drawn by    | MT            |     |             |
| Checked by  | JM            | No. | Description |
| Approved by | FMM           |     | REVISIONS   |

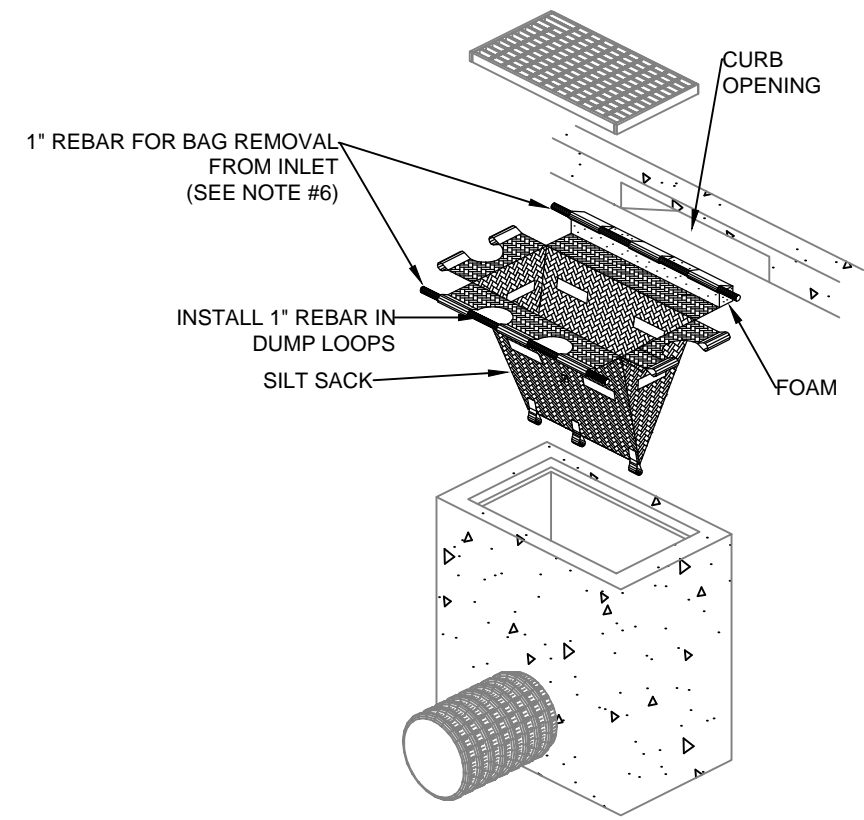


|         |   |
|---------|---|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                      |
| Project | CHAPTER 90 CONTACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | GENERAL CIVIL DETAILS<br>SHEET 3 OF 4                 |

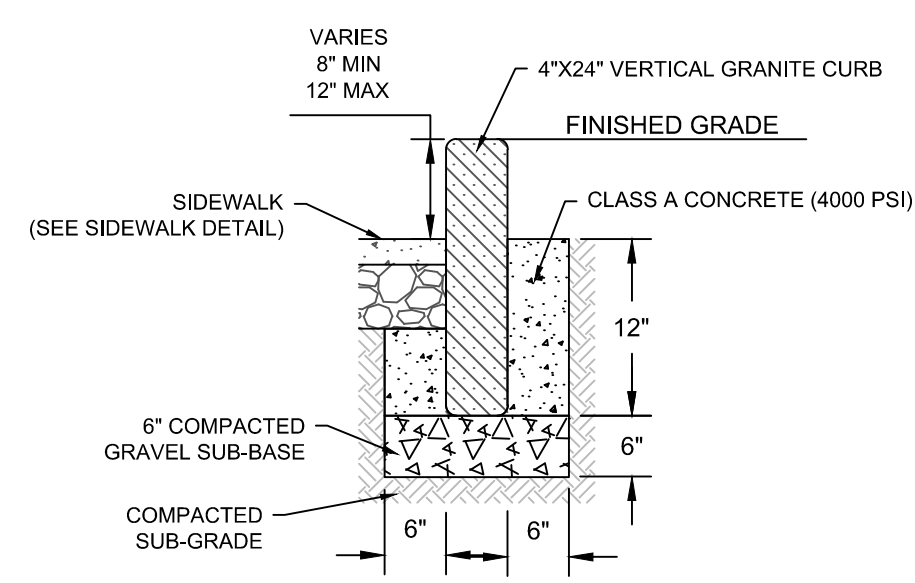
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| Sheet    | CD-3 |
| File No. | 8310 |

**NOTES FOR EROSION CONTROL:**

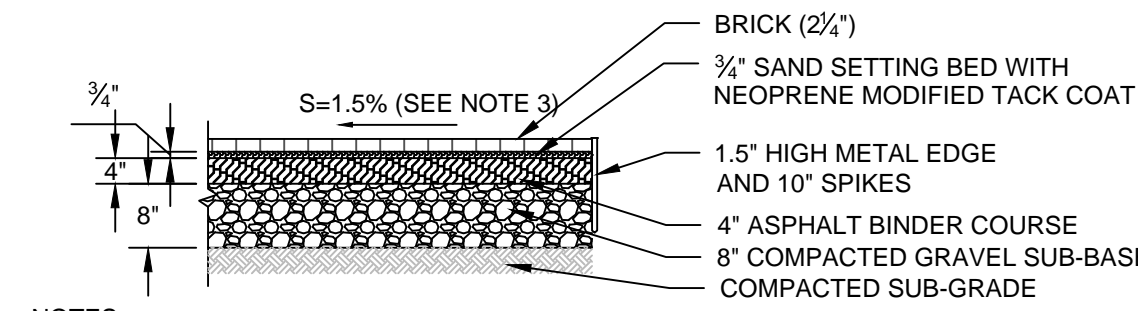
1. CONTRACTOR SHALL REMOVE SEDIMENT AS NECESSARY TO MAINTAIN LEVEL BELOW OVERFLOW HOLES IN SILT SACK.
2. SILT SACK SHALL BE USED ON ALL CATCH BASINS WITHIN CONSTRUCTION ZONE OR AS DIRECTED BY THE ENGINEER.
3. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING SEDIMENTATION BARRIERS THROUGHOUT THE DURATION OF THE PROJECT.
4. CONTRACTOR SHALL REMOVE AND LEGALLY DISPOSE OF SEDIMENT AS REQUIRED.
5. CONTRACTOR SHALL REMOVE SILT SACKS AND LEGALLY DISPOSE OF THEM OFF-SITE, UPON COMPLETION OF THE PROJECT AND AS REQUIRED.
6. 1" REBAR FOR BAG REMOVAL SHALL BE REMOVED DURING WINTER MONTHS AT LOCATIONS WHERE FLOW ACTIVITY IS. BARS SHALL BE REINSTALLED AFTER SNOW SEASON IS COMPLETE.



**SILTSACK**  
SCALE: N.T.S.

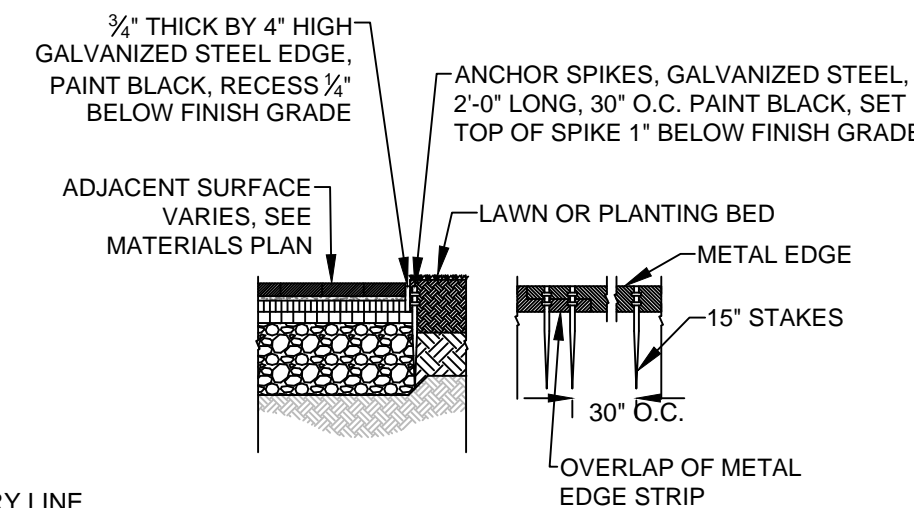


**BACK OF SIDEWALK CURB**  
SCALE: N.T.S.

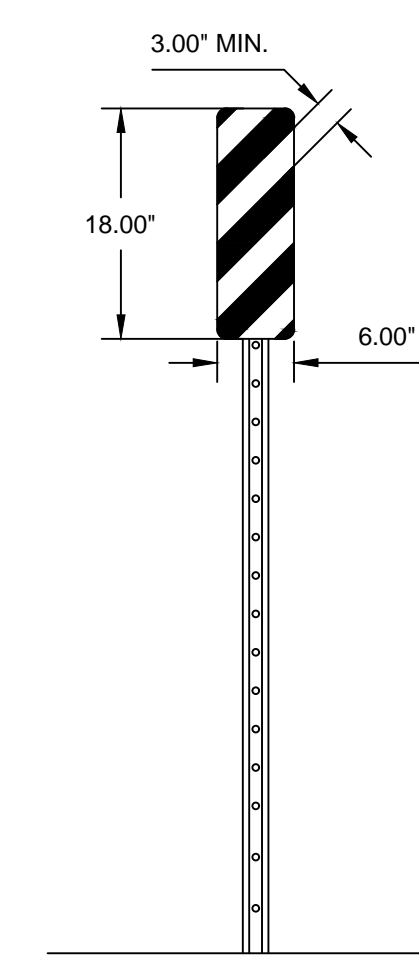


- NOTES:**
1. NEW SIDEWALK SHALL MATCH WIDTH OF EXISTING SIDEWALK, UNLESS OTHERWISE NOTED.
  2. SIDEWALK MATERIAL TO MATCH EXISTING SIDEWALK, UNLESS OTHERWISE NOTED.
  3. SIDEWALKS TO BE BUILT ACCORDING TO PROWAG AND MA AAB REGULATIONS, 2.0% MAX (0% TOLERANCE) CROSS SLOPE. SEE ROADWAY GRADING, RESTORATION PLANS, AND CROSS SECTION SHEETS FOR SIDEWALK GRADES.

**BRICK SIDEWALK**  
SCALE: N.T.S.

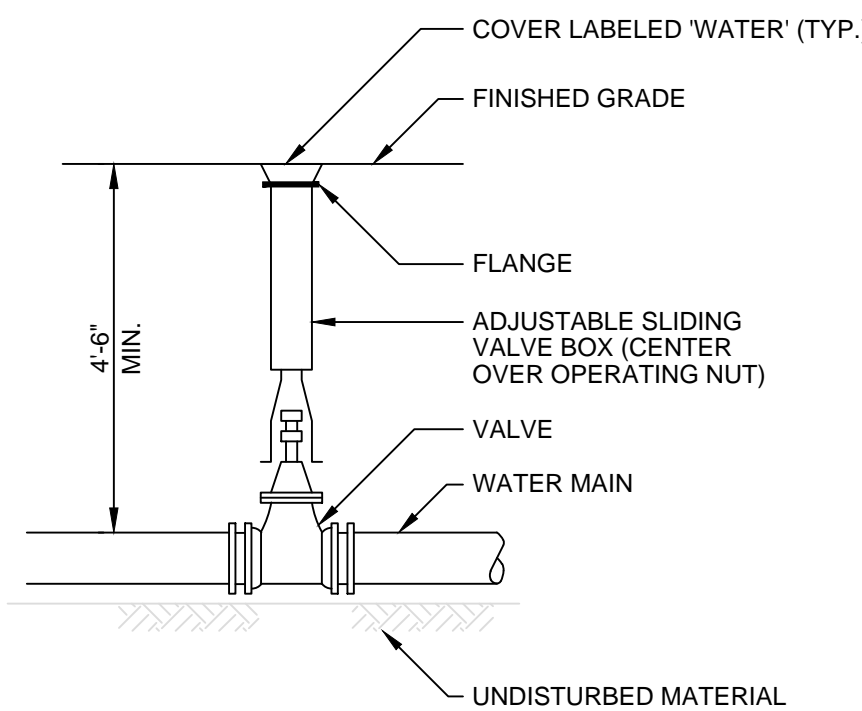


**METAL EDGING**  
SCALE: N.T.S.

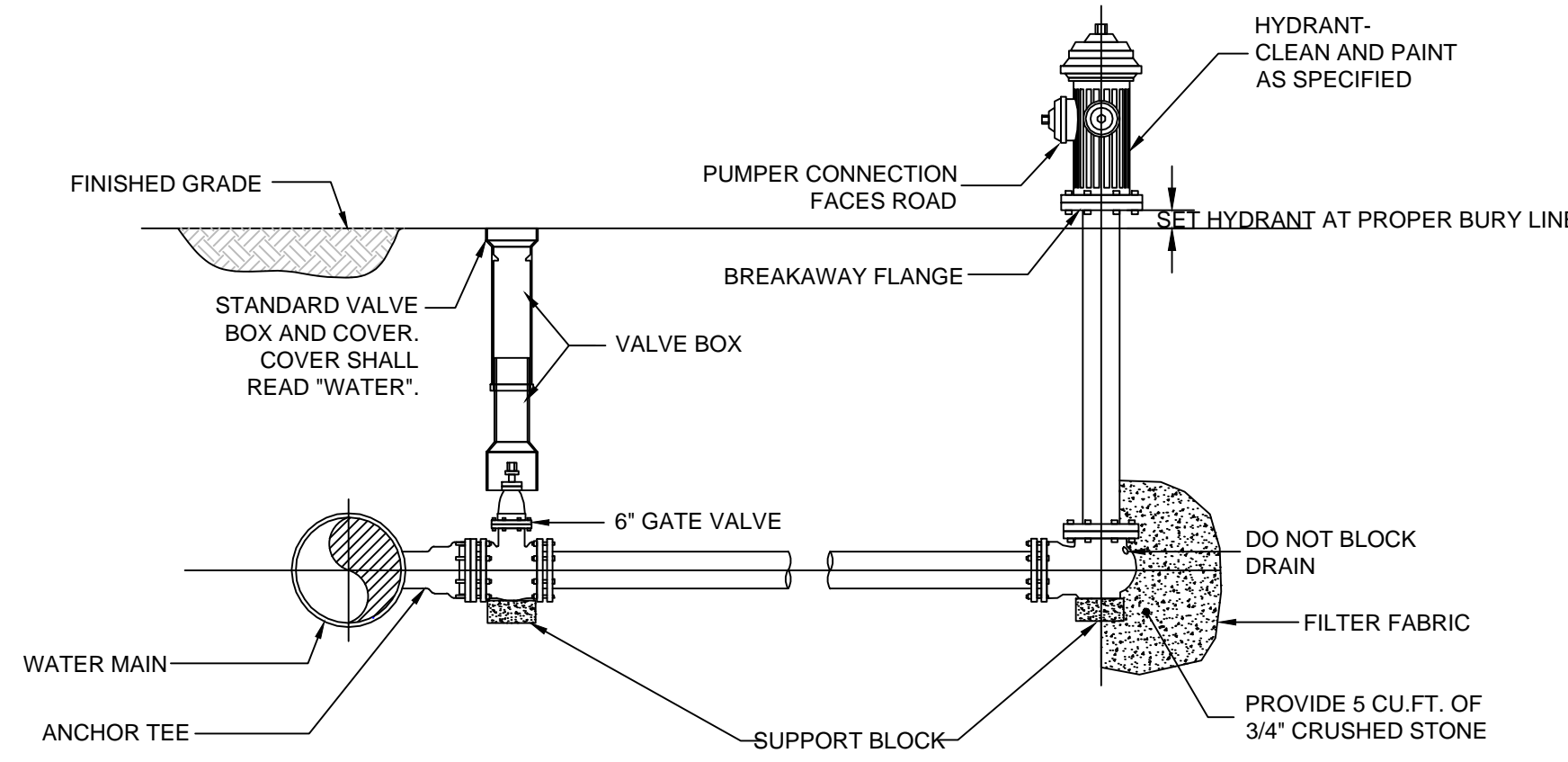


- NOTES:**
1. CURB MARKER SHALL BE TYPE OM3-R PER MUTCD STANDARDS.
  2. MOUNTING HEIGHT SHALL CONFORM TO MUTCD STANDARDS

**CURB MARKER**  
SCALE: N.T.S.

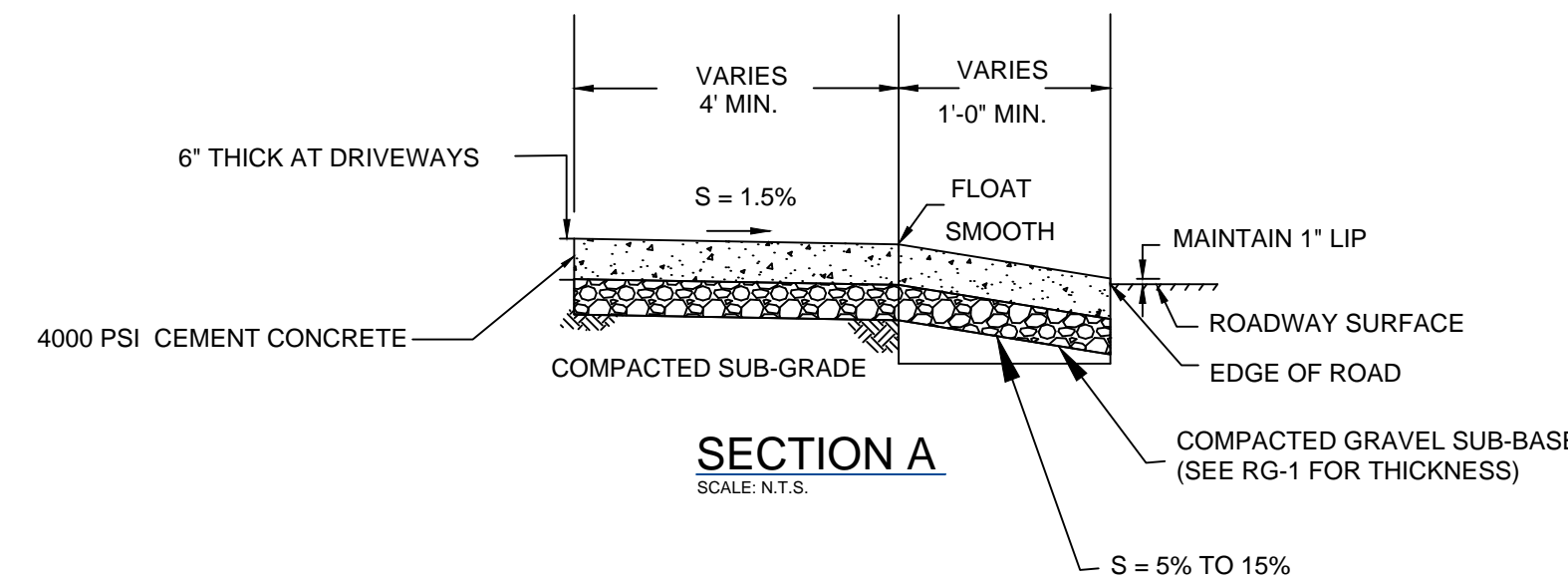


**TYPICAL VALVE BOX DETAIL**  
N.T.S.

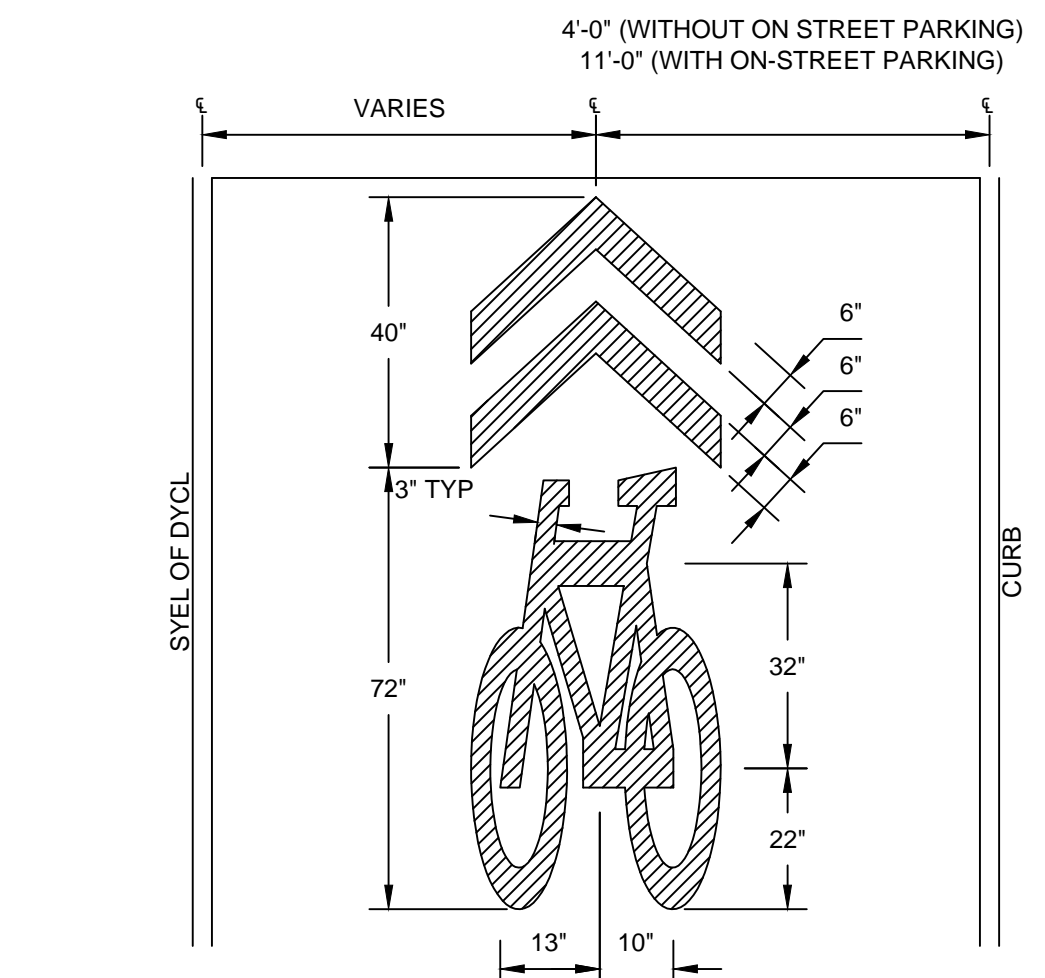


- NOTES:**
1. PROVIDE HYDRANT AND VALVE JOINTS WITH RESTRAINED MECHANICAL JOINTS.
  2. SUPPORT BLOCKS TO BE PRESSURE TREATED WOOD OR CONCRETE MASONRY BLOCK.
  3. ALL VALVES OPEN LEFT.

**HYDRANT SETTING WITH GATE VALVE**  
N.T.S.

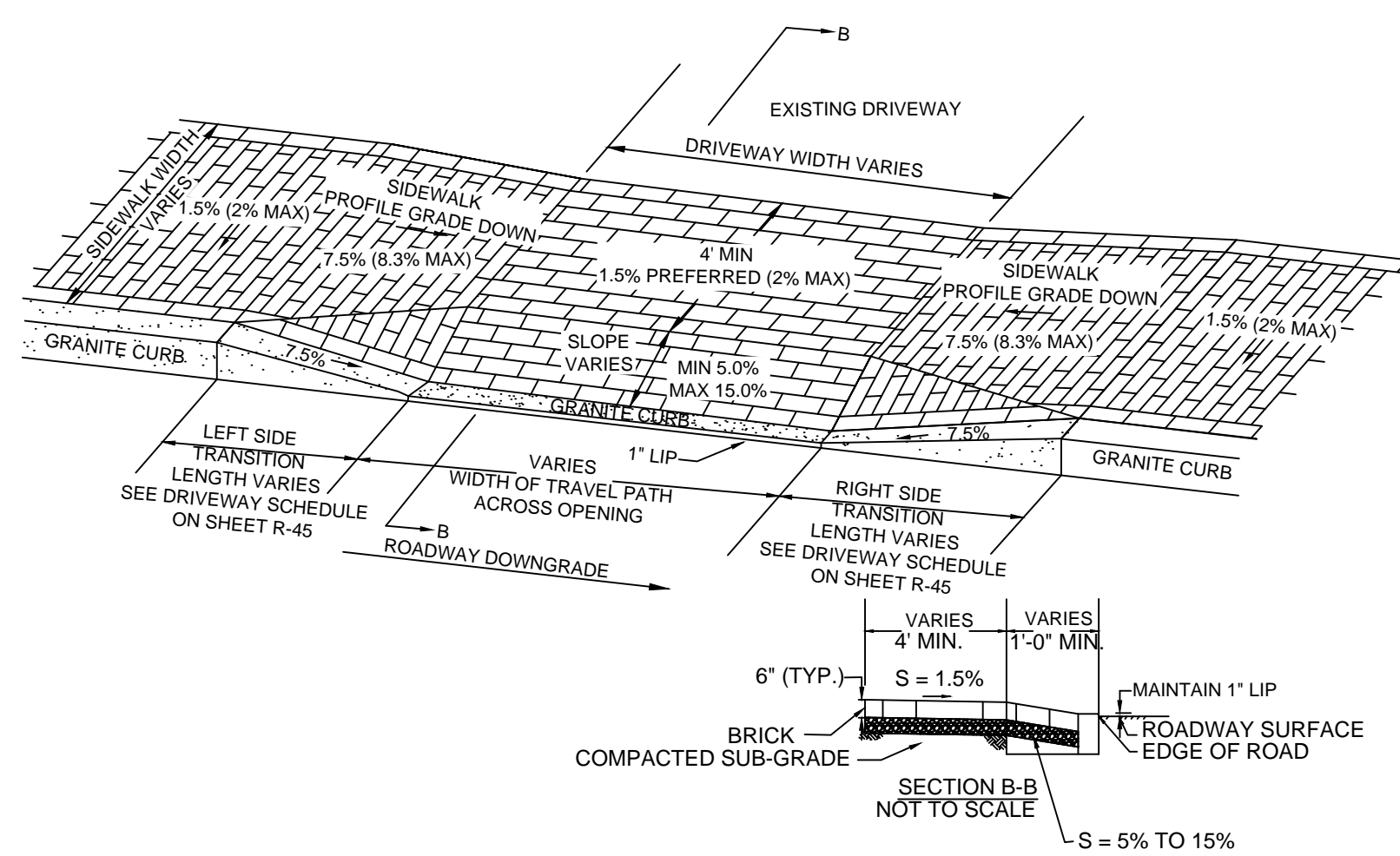


**SECTION A**  
SCALE: N.T.S.

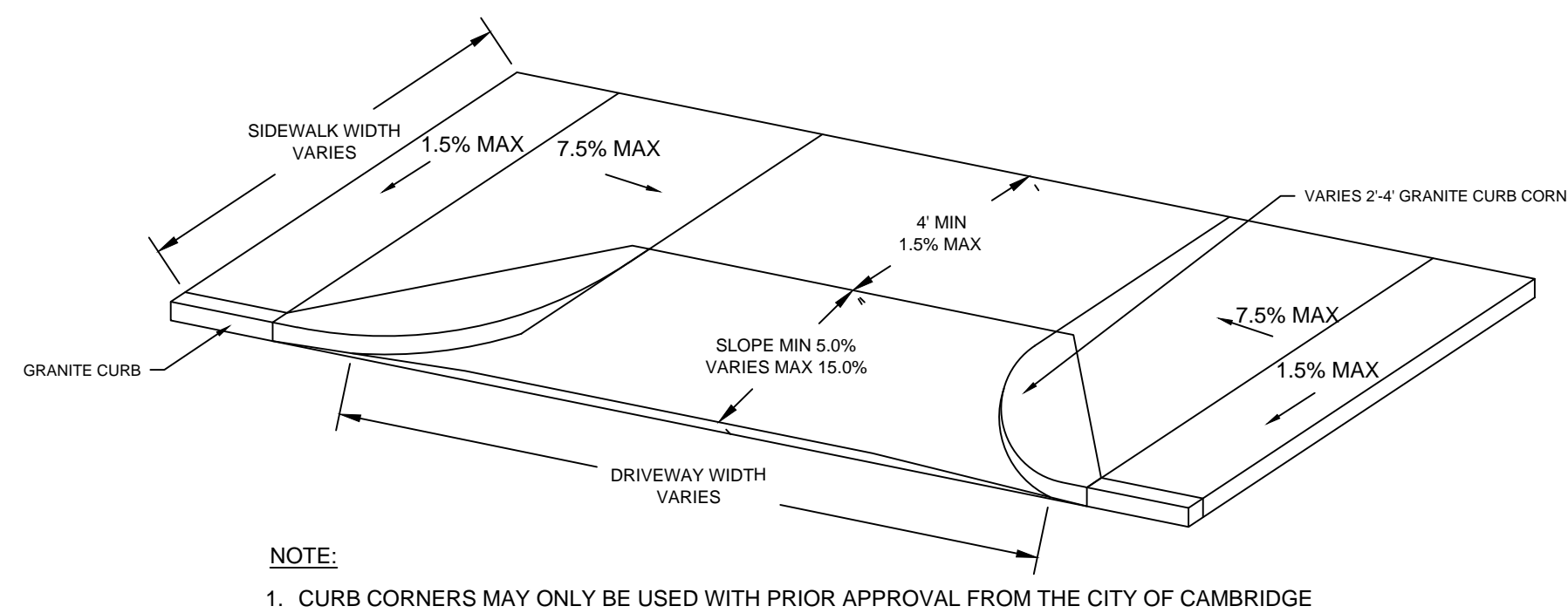


- NOTES:**
1. REFER TO FIGURE 9C-9 IN THE MUTCD FOR MORE DETAIL.
  2. SHARED LANE MARKINGS SHALL BE PERFORMED THERMOPLASTIC.

**SHARED LANE PVMT. MARKING**  
SCALE: N.T.S.

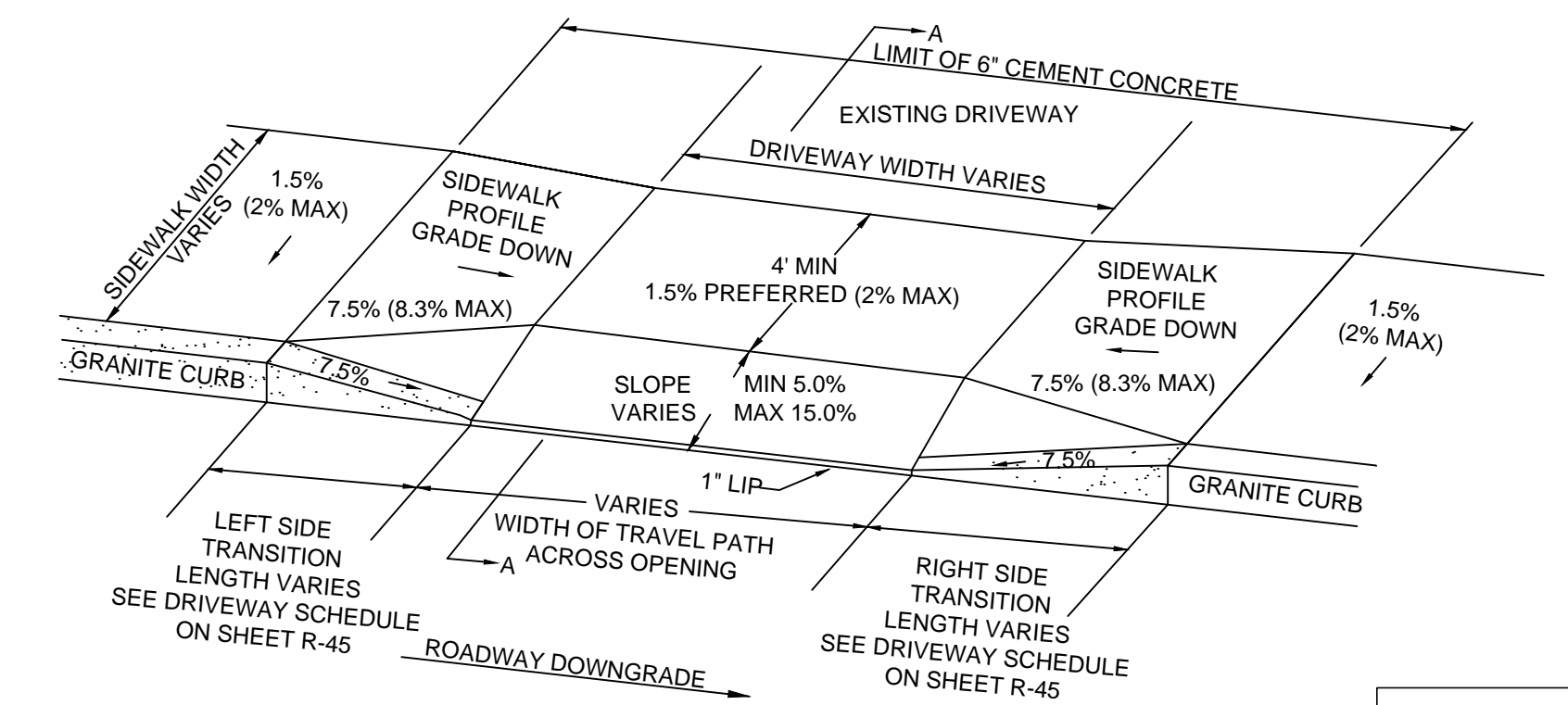


**BRICK DRIVEWAY AT SIDEWALK**  
SCALE: N.T.S.



- NOTE:**
1. CURB CORNERS MAY ONLY BE USED WITH PRIOR APPROVAL FROM THE CITY OF CAMBRIDGE

**DRIVEWAY DETAIL WITH CURB CORNERS**  
SCALE: N.T.S.

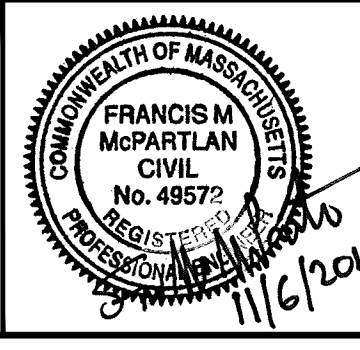


**CONCRETE DRIVEWAY AT SIDEWALK**  
SCALE: N.T.S.

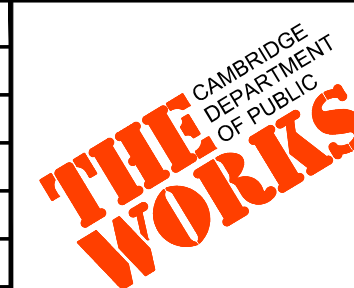
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|-------------|---------------|-----|-------------|------|
| Scale       | AS NOTED      |     |             |      |
| Date        | NOVEMBER 2018 |     |             |      |
| Job No.     | 20170208.019A |     |             |      |
| Designed by | FMM           |     |             |      |
| Drawn by    | MT            |     |             |      |
| Checked by  | JM            | No. | Description | Date |
| Approved by | FMM           |     | REVISIONS   |      |



|         |   |          |      |
|---------|---|----------|------|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                      | Sheet    | CD-4 |
| Project | CHAPTER 90 CONTACT 23A<br>ROADWAY IMPROVEMENT PROJECT | File No. | 8310 |
| Drawing | GENERAL CIVIL DETAILS<br>SHEET 4 OF 4                 |          |      |

DRAINAGE STRUCTURE SCHEDULE

| STREET       | ID          | STATION              | INV. IN                  | INV. OUT | HOOD | DIA (FT) | STRUCTURE TYPE               | RIM (EG) | RIM (FG) | PIPE OUT DIAMETER / MATERIAL / DIRECTION | DOWNSTREAM STRUCTURE |
|--------------|-------------|----------------------|--------------------------|----------|------|----------|------------------------------|----------|----------|--|----------------------|
| RIEDEL AVE   | D31CBN1908  | 200+65.91 (11.23' L) | -                        | EXISTING | -    | EXISTING | EXIST CB                     | 35.36    | 35.74    | EXISTING                                 | EXISTING             |
| RIEDEL AVE   | CB-01       | 200+67.68 (11.33' R) | -                        | 31.77    | -    | 4        | TYPE-5 CB                    | 35.12    | 35.62    | 12" PVC SD - EAST                        | DMH-02               |
| RIEDEL AVE   | DMH-02      | 200+68.10 (7.62' R)  | 31.67                    | 31.57    | YES  | 4        | TYPE-4 DMH                   | 35.47    | 35.63    | 12" RCP SD - SOUTH                       | EXIST D31DMH1910     |
| RIEDEL AVE   | D31CBN1906  | 203+53.57 (13.44' R) | -                        | EXISTING | -    | EXISTING | EXIST CB                     | 28.45    | 28.37    | EXISTING                                 | EXISTING             |
| RIEDEL AVE   | D31CBN1907  | 203+55.04 (10.81' L) | -                        | EXISTING | -    | EXISTING | EXIST CB                     | 28.27    | 28.27    | EXISTING                                 | EXISTING             |
| RIEDEL AVE   | D31DMH1905  | 203+77.51 (2.76' R)  | -                        | EXISTING | -    | EXISTING | EXIST DMH                    | 28.13    | 28.27    | EXISTING                                 | EXISTING             |
| BREWSTER ST  | CB-03       | 102+62.08 (9.65' L)  | -                        | 35.40    | -    | 4        | TYPE-5 CB                    | -        | 38.56    | 12" PVC SD - EAST                        | DMH-05               |
| BREWSTER ST  | CB-04       | 102+66.32 (10.20' R) | -                        | 34.55    | YES  | 4        | TYPE-1 CB                    | -        | 37.78    | 12" PVC SD - EAST                        | DMH-06               |
| BREWSTER ST  | DMH-05      | 102+71.62 (10.74' L) | 35.30                    | 35.05    | YES  | 4        | TYPE-4 DMH                   | 38.25    | 38.57    | EXISTING                                 | EXIST D31DMH2215     |
| BREWSTER ST  | DMH-06      |                      |                          |          |      |          | SEE CONTROL MANHOLE SCHEDULE |          |          |  |                      |
| BREWSTER ST  | D31DMH2215  | 102+78.20 (0.31' L)  | 34.28 / 34.28            | EXISTING | -    | EXISTING | EXIST DMH                    | 38.78    | 38.71    | EXISTING                                 | EXISTING             |
| BREWSTER ST  | DMH-07      | 104+41.19 (9.99' R)  | 31.99                    | 31.37    | -    | 4        | TYPE-1 DMH                   | -        | 38.28    | 12" PVC SD - NORTH                       | EXIST D31DMH2210     |
| BREWSTER ST  | D31DMH2210  | 104+43.13 (0.42' L)  | 31.23                    | EXISTING | -    | EXISTING | EXIST DMH                    | 38.88    | 38.65    | EXISTING                                 | EXISTING             |
| BREWSTER ST  | CB-08       | 105+41.13 (10.95' R) | -                        | 34.74    | -    | 4        | TYPE-1 CB                    | -        | 37.90    | 12" PVC SD - EAST                        | DMH-09               |
| BREWSTER ST  | DMH-09      |                      |                          |          |      |          | SEE CONTROL MANHOLE SCHEDULE |          |          |  |                      |
| BREWSTER ST  | DMH-10      | 105+79.09 (4.45' L)  | 33.87 / 30.60            | 30.50    | -    | 5        | TYPE-1 DMH                   | -        | 38.17    | 18" PVC SD - EAST                        | EXIST 18" RCP        |
| BREWSTER ST  | CB-11       | 106+35.01 (10.98' L) | -                        | 32.70    | YES  | 4        | TYPE-1 CB                    | -        | 38.70    | 12" PVC SD - SOUTHEAST                   | DMH-12               |
| BREWSTER ST  | D31CBN2208  | 106+41.13 (10.98' R) | 31.94                    | 31.28    | YES  | EXISTING | EXIST CB                     | 37.44    | 37.63    | 12" PVC SD - NORTH                       | DMH-12               |
| BREWSTER ST  | DMH-12      | 106+45.38 (4.15' L)  | 32.96 / 31.04 / 30.29    | 30.19    | -    | 5        | TYPE-1 DMH                   | -        | 38.23    | 18" PVC SD - EAST                        | EXIST 18" RCP        |
| HIGHLAND AVE | CB-13       | 103+19.70 (11.37' L) | -                        | 66.71    | YES  | 4        | TYPE-1 CB                    | -        | 70.71    | 12" PVC SD - SOUTHEAST                   | DMH-15               |
| HIGHLAND AVE | CB-14       | 103+25.06 (12.01' R) | -                        | 65.83    | YES  | 4        | TYPE-1 CB                    | -        | 69.83    | 12" PVC SD - NORTH                       | DMH-15               |
| HIGHLAND AVE | DMH-15      | 103+29.59 (0.68' L)  | 66.48 / 65.60 / 61.84    | 61.74    | -    | 5        | TYPE-3 DMH                   | 70.64    | 70.63    | 15" PVC SD - EAST                        | EXIST 15" CLAY       |
| HIGHLAND AVE | CB-16       | 110+78.56 (13.00' R) | -                        | 46.44    | YES  | 4        | TYPE-1 CB                    | -        | 50.10    | 12" PVC SD - NORTHEAST                   | DMH-18               |
| HIGHLAND AVE | CB-17       | 110+87.60 (12.67' L) | -                        | 46.61    | YES  | 4        | TYPE-1 CB                    | -        | 50.10    | 12" PVC SD - SOUTHWEST                   | DMH-19               |
| HIGHLAND AVE | DMH-18      |                      |                          |          |      |          | SEE CONTROL MANHOLE SCHEDULE |          |          |  |                      |
| HIGHLAND AVE | D31DMH2305  | 110+99.61 (0.34' L)  | 45.80/45.80              | EXISTING | -    | EXISTING | EXIST DMH                    | 50.10    | 49.97    | EXISTING                                 | EXISTING             |
| HIGHLAND AVE | DMH-19      |                      |                          |          |      |          | SEE CONTROL MANHOLE SCHEDULE |          |          |  |                      |
| HIGHLAND AVE | CB-20       | 113+80.67 (12.25' L) | 40.78                    | 40.28    | YES  | 4        | TYPE-1 CB                    | -        | 44.76    | 12" PVC SD - SOUTH                       | DMH-21               |
| HIGHLAND AVE | DMH-21      | 113+81.59 (4.00' L)  | 40.13 / 39.59 / 37.6±    | 37.5±    | -    | 5        | TYPE-1 DOGHOUSE DMH          | -        | 44.40    | 24" PVC SD - EAST                        | EXIST 24" RCP        |
| HIGHLAND AVE | CB-22       | 113+84.82 (12.79' R) | 40.35                    | 39.85    | YES  | 4        | TYPE-1 CB                    | -        | 44.51    | 12" PVC SD - NORTHWEST                   | DMH-21               |
| HIGHLAND AVE | CB-23       | 113+99.73 (31.06' L) | -                        | 40.40    | YES  | 4        | TYPE-1 CB                    | -        | 44.40    | 12" PVC SD - EAST                        | DMH-24               |
| HIGHLAND AVE | DMH-24      | 114+13.19 (32.43' L) | 40.19 / 36.1±            | 36.1±    | -    | 5        | TYPE-3 DMH                   | -        | 44.63    | 24" IRON SD - SOUTH                      | EXIST 24" IRON       |
| HURON AVE    | CB-25       | 101+00.00 (11.71' L) | -                        | 61.74    | YES  | 4        | TYPE-1 CB                    | -        | 66.74    | 12" PVC SD - SOUTHEAST                   | DMH-27               |
| HURON AVE    | CB-26       | 101+00.00 (19.71' R) | -                        | 61.65    | YES  | 4        | TYPE-1 CB                    | -        | 66.65    | 12" PVC SD - NORTHWEST                   | DMH-27               |
| HURON AVE    | DMH-27      | 101+02.00 (10.17' R) | 61.42 / 61.42 / 58.0±    | 57.9±    | -    | 5        | TYPE-1 DOGHOUSE DMH          | -        | 66.81    | 12" PVC CS - NORTHEAST                   | EXIST 12" RCP        |
| HURON AVE    | CB-28       | 101+67.13 (36.22' L) | -                        | 60.27    | -    | 4        | TYPE-1 CB                    | -        | 65.27    | 12" PVC SD - EAST                        | DMH-30               |
| HURON AVE    | DMH-29      | 101+76.70 (10.20' R) | 56.40 / 56.3±            | 56.2±    | -    | 5        | TYPE-1 DOGHOUSE DMH          | -        | 65.27    | 12" RCP CS - NORTHEAST                   | EXIST 12" RCP        |
| HURON AVE    | DMH-30      | 101+77.30 (23.15' L) | 59.90 / 59.90            | 56.7     | -    | 4        | TYPE-1 DMH                   | -        | 65.80    | 12" PVC SD - SOUTHEAST                   | DMH-29               |
| HURON AVE    | CB-31       | 101+85.88 (39.03' L) | -                        | 60.08    | -    | 4        | TYPE-5 CB                    | -        | 65.08    | 12" PVC SD - SOUTHEAST                   | DMH-30               |
| HURON AVE    | CB-32       | 102+13.87 (19.70' R) | -                        | 60.58    | -    | 4        | TYPE-5 CB                    | -        | 64.58    | 12" PVC SD - NORTHEAST                   | CB-33                |
| HURON AVE    | CB-33       | 102+23.86 (19.71' R) | 60.43                    | 60.33    | YES  | 4        | TYPE-1 CB                    | -        | 64.38    | 12" PVC SD - NORTHWEST                   | DMH-34               |
| HURON AVE    | DMH-34      | 102+24.02 (11.05' R) | 60.20 / 55.3±            | 55.2±    | -    | 4        | TYPE-1 DOGHOUSE DMH          | -        | 64.44    | 12" RCP SD - NORTHEAST                   | EXIST 12" RCP        |
| HURON AVE    | CB-35       | 104+28.00 (11.72' L) | -                        | 56.51    | -    | 4        | TYPE-5 CB                    | -        | 61.51    | 12" PVC SD - NORTHWEST                   | DMH-37               |
| HURON AVE    | CB-36       | 104+28.82 (36.11' L) | -                        | 56.11    | -    | 4        | TYPE-5 CB                    | -        | 61.11    | 12" PVC SD - SOUTHEAST                   | DMH-37               |
| HURON AVE    | DMH-37      | 104+35.88 (24.21' L) | 55.71 / 55.71 / 55.71    | 54.21    | -    | 5        | TYPE-5 DMH                   | -        | 61.80    | 15" PVC SD - SOUTHEAST                   | DMH-38               |
| HURON AVE    | DMH-38      | 104+36.23 (9.97' R)  | 54.70 / 51.5±            | 51.4±    | -    | 5        | TYPE-1 DMH                   | -        | 61.77    | 15" RCP CS - NORTHEAST                   | EXIST 15" RCP        |
| HURON AVE    | CB-39       | 104+48.17 (38.19' L) | -                        | 55.97    | -    | 4        | TYPE-5 CB                    | -        | 60.97    | 12" PVC SD - SOUTHEAST                   | DMH-37               |
| HURON AVE    | CB-40       | 105+78.45 (11.73' L) | -                        | 55.79    | YES  | 4        | TYPE-5 CB                    | -        | 59.70    | 12" RCP SD NORTHWEST                     | EXIST D37DMH0600     |
| HURON AVE    | CB-41       | 108+60.91 (19.72' R) | -                        | 54.07    | -    | 4        | TYPE-5 CB                    | -        | 59.07    | 12" PVC SD - NORTHEAST                   | EXIST D37CBN1105     |
| HURON AVE    | CB-42       | 108+49.97 (11.72' L) | -                        | 54.66    | -    | 4        | TYPE-5 CB                    | -        | 58.95    | 12" PVC SD - NORTHEAST                   | EXIST D37CBN1104     |
| HURON AVE    | D37CBN1104  | 108+70.36 (11.73' L) | 54.50                    | EXISTING | YES  | EXISTING | EXIST CB                     | 58.71    | 59.05    | EXISTING                                 | EXISTING             |
| HURON AVE    | D37CBN1105  | 108+71.03 (19.67' R) | 55.06 / 53.99            | EXISTING | YES  | EXISTING | EXIST CB                     | 58.82    | 59.10    | EXISTING                                 | EXISTING             |
| HURON AVE    | DMH-43      | 110+10.07 (8.04' R)  | 58.84 / 55.4±            | 55.3±    | -    | 5        | TYPE-1 DOGHOUSE DMH          | -        | 62.44    | 12" RCP CS - SOUTHWEST                   | EXIST 12" RCP        |
| HURON AVE    | DMH-44      |                      |                          |          |      |          | SEE CONTROL MANHOLE SCHEDULE |          |          |  |                      |
| HURON AVE    | D37CBN1106  | 110+54.36 (19.90' R) | -                        | 59.70    | -    | EXISTING | EXIST CB                     | 63.34    | 63.50    | 12" PVC SD - SOUTHWEST                   | DMH-44               |
| HURON AVE    | D37DMH1115A | 110+92.23 (18.30' R) | 61.32                    | EXISTING | -    | EXISTING | EXIST DMH                    | 64.32    | 64.32    | EXISTING                                 | EXISTING             |
| HURON AVE    | CB-45       | 111+00.42 (20.87' R) | -                        | 61.63    | -    | 4        | TYPE-5 CB                    | 64.03    | 64.03    | 12" PVC SD - WEST                        | EXIST D37DMH1115A    |
| HURON AVE    | DMH-46      | 111+45.36 (8.15' R)  | 57.8± / XX.XX            | 57.7±    | X    | 5        | TYPE-1 DOGHOUSE DMH          | -        | 65.62    | EXISTING                                 | EXISTING             |
| HURON AVE    | D37CBN1108  | 111+46.49 (21.52' R) | 62.5± / 60.36            | 59.86    | YES  | EXISTING | EXIST CB                     | 65.30    | 65.23    | 12" PVC SD - NORTHWEST                   | DMH-46               |
| HURON AVE    | DMH-47      |                      |                          |          |      |          | SEE CONTROL MANHOLE SCHEDULE |          |          |  |                      |
| HURON AVE    | D37DMH1120  | 112+15.19 (4.13' R)  | EXISTING / 62.36 / 59.40 | EXISTING | -    | EXISTING | EXIST DMH                    | 66.54    | 66.54    | EXISTING                                 | EXISTING             |
| HURON AVE    | D31CBN5613  | 112+20.54 (16.81' R) | -                        | 63.01    | -    | EXISTING | EXIST CB                     | 66.01    | 65.96    | 12" PVC SD - SOUTHWEST                   | DMH-47               |
| HURON AVE    | D31CBN5614  | 112+21.68 (9.53' L)  | -                        | EXISTING | -    | EXISTING | EXIST CB                     | 66.10    | 66.06    | EXISTING                                 | EXISTING             |
| HURON AVE    | DMH-48      | 112+37.41 (9.09' R)  | 59.73                    | 59.63    | -    | 4        | TYPE-1 DMH                   | -        | 67.80    | 12" PVC SD - SOUTHWEST                   | EXIST D37DMH1120     |
| HURON AVE    | CB-49       | 114+50.00 (9.01' L)  | -                        | 63.48    | -    | 4        | TYPE-5 CB                    | -        | 67.48    | 12" PVC SD - SOUTHEAST                   | DMH-50               |
| HURON AVE    | DMH-50      | 114+50.00 (6.85' R)  | 63.25 / 63.36            | 62.91    | -    | 4        | TYPE-5 DMH                   | -        | 67.80    | 12" PVC SD - SOUTHWEST                   | DMH-48               |
| HURON AVE    | CB-51       | 114+50.00 (15.70' R) | -                        | 63.45    | -    | 4        | TYPE-5 CB                    | -        | 67.45    | 12" PVC SD - NORTHWEST                   | DMH-50               |
| HURON AVE    | CB-52       | 115+82.96 (15.97' R) | -                        | 61.98    | YES  | 4        | TYPE-5 CB                    | -        | 66.70    | 12" PVC SD - NORTHEAST                   | EXIST 12" RCP        |
| HURON AVE    | CB-53       | 115+86.41 (9.65' L)  | -                        | 63.50    | -    | 4        | TYPE-5 CB                    | -        | 66.84    | 12" DI SD - NORTHEAST                    | DMH-54               |
| HURON AVE    | DMH-54      | 115+96.96 (8.64' L)  | 63.42                    | 63.32    | YES  | EXIST    | TYPE-5 DMH                   | -        | 67.60    | EXISTING                                 | EXISTING             |
| HURON AVE    | CB-55       | 116+08.34 (28.87' L) | -                        | 63.28    | -    | 4        | TYPE-1 CB                    | -        | 67.28    | 12" PVC SD - EAST                        | DMH-56               |
| HURON AVE    | DMH-56      | 116+18.97 (27.51' L) | 63.12 / 63.43 / 58.4±    | 58.3±    | -    | 5        | TYPE-1 DOGHOUSE DMH          | -        | 67.65    | 12" PVC SD - SOUTH                       | D31DMH5135           |
| HURON AVE    | CB-57       | 116+33.43 (25.22' L) | -                        | 63.56    | -    | 4        | TYPE-1 CB                    | -        | 67.56    | 12" PVC SD - SOUTHWEST                   | DMH-56               |

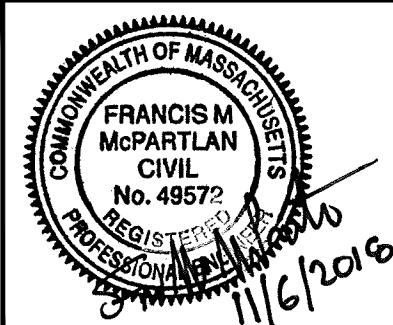
CONTROL MANHOLE SCHEDULE

| STREET       | ID     | STATION              | INV. IN | INV. OUT       | WEIR ELEV | DIA (FT) | STRUCTURE TYPE | RIM (EG) | RIM (FG)      | DIAMETER / MATERIAL / DIRECTION                       | DOWNSTREAM STRUCTURE       |
|--------------|--------|----------------------|---------|----------------|-----------|----------|----------------|----------|---------------|---|----------------------------|
| BREWSTER ST  | DMH-06 | 102+76.27 (10.09' R) | 34.40   | 34.40          | 35.40     | 6        | CONTROL DMH    | -        | 37.90 / 38.30 | 6" PERF. PVC SD - EAST<br>12" PVC SD - NORTH          | DMH-07<br>EXIST D31DMH2215 |
| BREWSTER ST  | DMH-09 | 105+73.54 (11.32' R) | 34.25   | 34.25<br>34.15 | 35.25     | 6        | CONTROL DMH    | -        | 37.75 / 38.15 | 6" PERF. PVC SD - EAST<br>12" PVC SD - NORTHEAST      | D31CBN2208<br>DMH-10       |
| HIGHLAND AVE | DMH-18 | 110+92.82 (13.00' R) | 46.21   | 46.21<br>46.11 | 47.21     | 6        | CONTROL DMH    | -        | 49.90 / 50.24 | 6" PERF. PVC SD - EAST<br>12" PVC SD - NORTH          | D31DMH2305<br>CB-22        |
| HIGHLAND AVE | DMH-19 | 111+19.27 (12.99' L) | 46.12   | 46.12<br>46.02 | 47.12     | 6        | CONTROL DMH    | -        | 49.66 / 49.91 | 6" PERF. PVC SD - EAST<br>12" PVC SD - SOUTHWEST      | D31DMH2305<br>CB-20        |
| HURON AVE    | DMH-44 | 110+20.78 (20.28' R) | 59.19   | 59.19<br>50.09 | 60.19     | 6        | CONTROL DMH    | -        | 62.69 / 63.19 | 6" PERF. PVC SD - SOUTHWEST<br>12" PVC SD - NORTHWEST | D37CBN1105<br>DMH-43       |
| HURON AVE    | DMH-47 | 112+11.66 (16.77' R) | 62.66   | 62.66<br>62.56 | 63.66     | 6        | CONTROL DMH    | -        | 66.16 / 66.24 | 6" PERF. PVC SD - SOUTHWEST<br>12" PVC SD - NORTH     | D37CBN1108<br>D37DMH1120   |

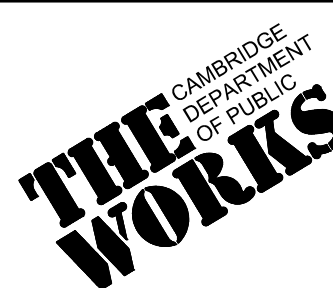
ISSUED FOR BID



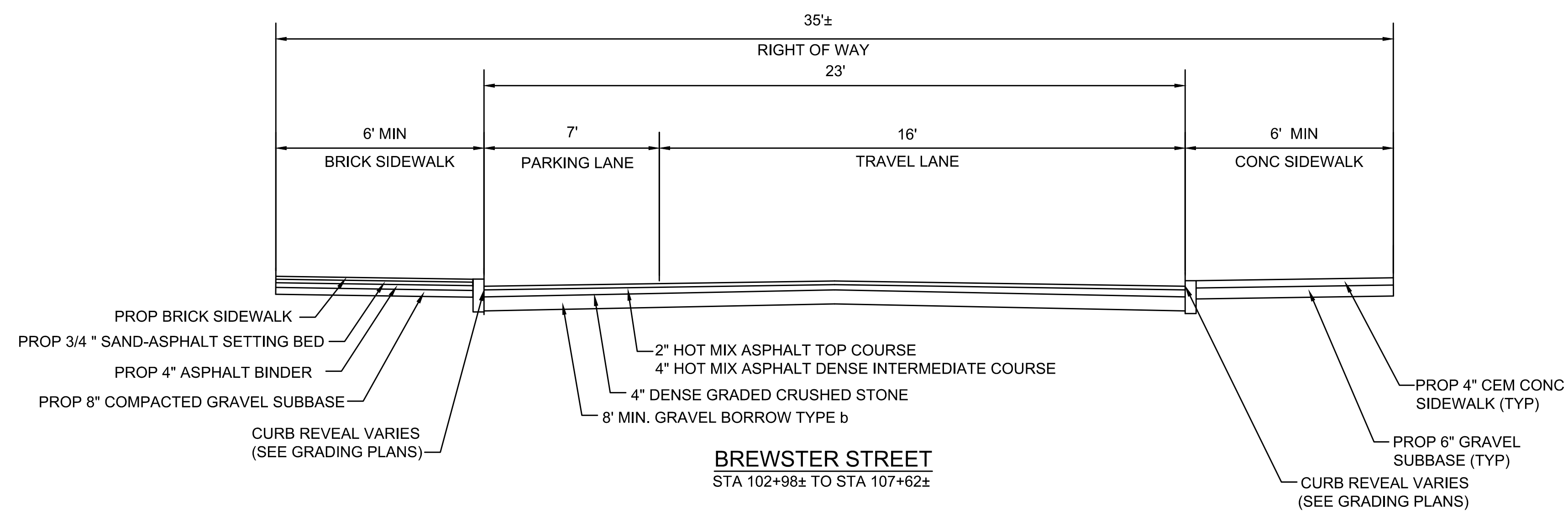
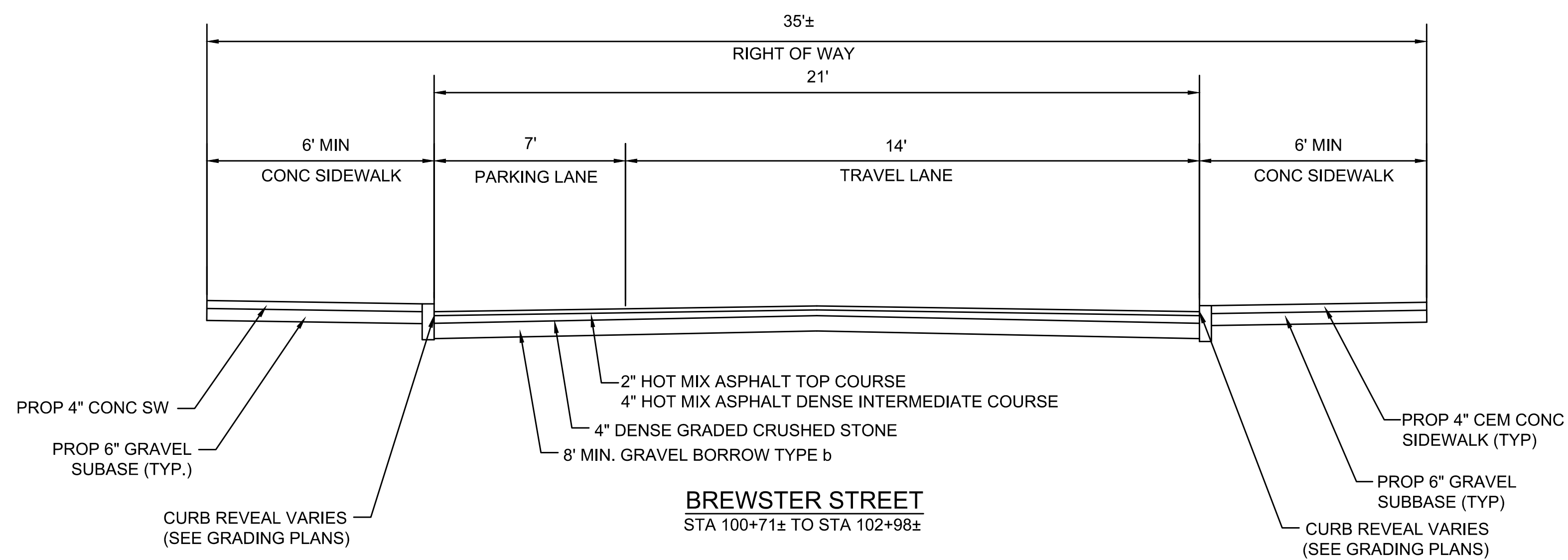
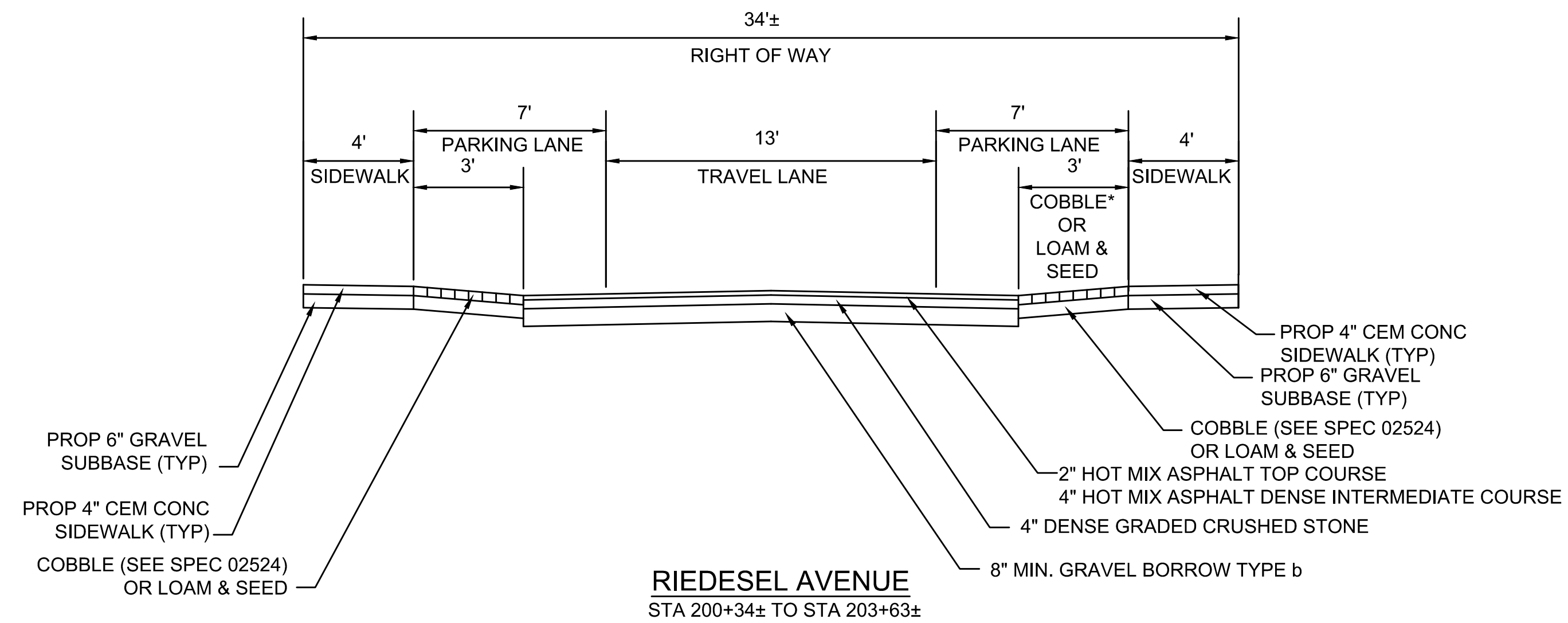
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|             |               |     |             |      |  |
|-------------|---------------|-----|-------------|------|--|
| Scale       | AS NOTED      |     |             |      |  |
| Date        | NOVEMBER 2016 |     |             |      |  |
| Job No.     | 20170208.019A |     |             |      |  |
| Designed by | FMM           |     |             |      |  |
| Drawn by    | MT            |     |             |      |  |
| Checked by  | JM            | No. | Description | Date |  |
| Approved by | FMM           |     | REVISIONS   |      |  |



|         |   |          |      |
|---------|---|----------|------|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                      | Sheet    | CD-5 |
| Project | CHAPTER 90 CONTACT 23A<br>ROADWAY IMPROVEMENT PROJECT | File No. | 8310 |
| Drawing | CIVIL GENERAL<br>DRAINAGE STRUCTURE SCHEDULE          |          |      |



**FULL DEPTH PAVEMENT:**

SURFACE: 2" HOT MIX ASPHALT TOP COURSE 12.5 (SSC-12.5) OVER  
4" HOT MIX ASPHALT DENSE INTERMEDIATE COURSE 19.0 (SIC-19.0) OVER

BASE: 4" DENSE GRADED CRUSHED STONE

SUBBASE: 8" MIN GRAVEL BORROW TYPE b

**FULL DEPTH PAVEMENT (4 FT WIDE OR LESS):**

SURFACE: 2" HOT MIX ASPHALT TOP COURSE 12.5 (SSC-12.5) OVER

BASE: 10" HIGHLY EARLY STRENGTH CEMENT CONCRETE BASE COURSE OVER

SUBBASE: 6" GRAVEL BORROW TYPE b

**PAVEMENT MILL AND HMA OVERLAY:**

MILLING: 2" MICROMILL

SURFACE: 2" HMA

**ASPHALT EMULSION FOR TACK COAT:**

ASPHALT EMULSION FOR TACK COAT SHALL BE PLACED ON ALL MILLED SURFACES (APPLICATION RATE=0.07 GAL/SY) AND BETWEEN ALL NEW PAVEMENT LAYERS (APPLICATION RATE=0.05 GAL/SY).

**CEMENT CONCRETE SIDEWALK:**

SURFACE: 4" CEMENT CONCRETE (4000 PSI, 3/4", 610 M4.02) SIDEWALK OVER

SUBBASE: 6" GRAVEL BORROW TYPE b

**CEMENT CONCRETE WHEELCHAIR RAMPS AND DRIVEWAYS:**

SURFACE: 6" CEMENT CONCRETE (4000 PSI, 3/4", 610 M4.02) SIDEWALK OVER

SUBBASE: 6" GRAVEL BORROW TYPE b

**BRICK SIDEWALK:**

SURFACE: 2-1/4" BRICK OVER

SUBBASE: TACK COAT

3/4" SAND-ASPHALT SETTING BED

ASPHALT TACK COAT

4" ASPHALT BINDER COURSE

8" COMPACTED GRAVEL SUB-BASE

**COBBLES IN ROADWAY (RIEDESEL AVENUE SEE SPEC 02524):**

SURFACE: 4"-8"± EXISTING GRANITE COBBLES OVER

SUBBASE: 1" STONE DUST SETTING BED

4" ASPHALT BINDER COURSE

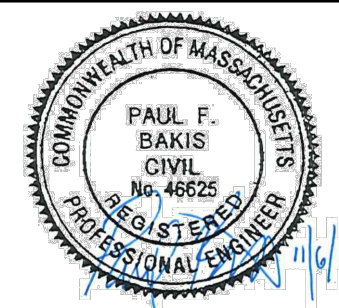
8" COMPACTED GRAVEL SUB-BASE

ISSUED FOR BID

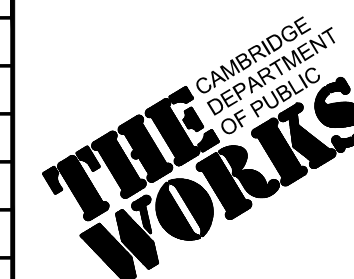
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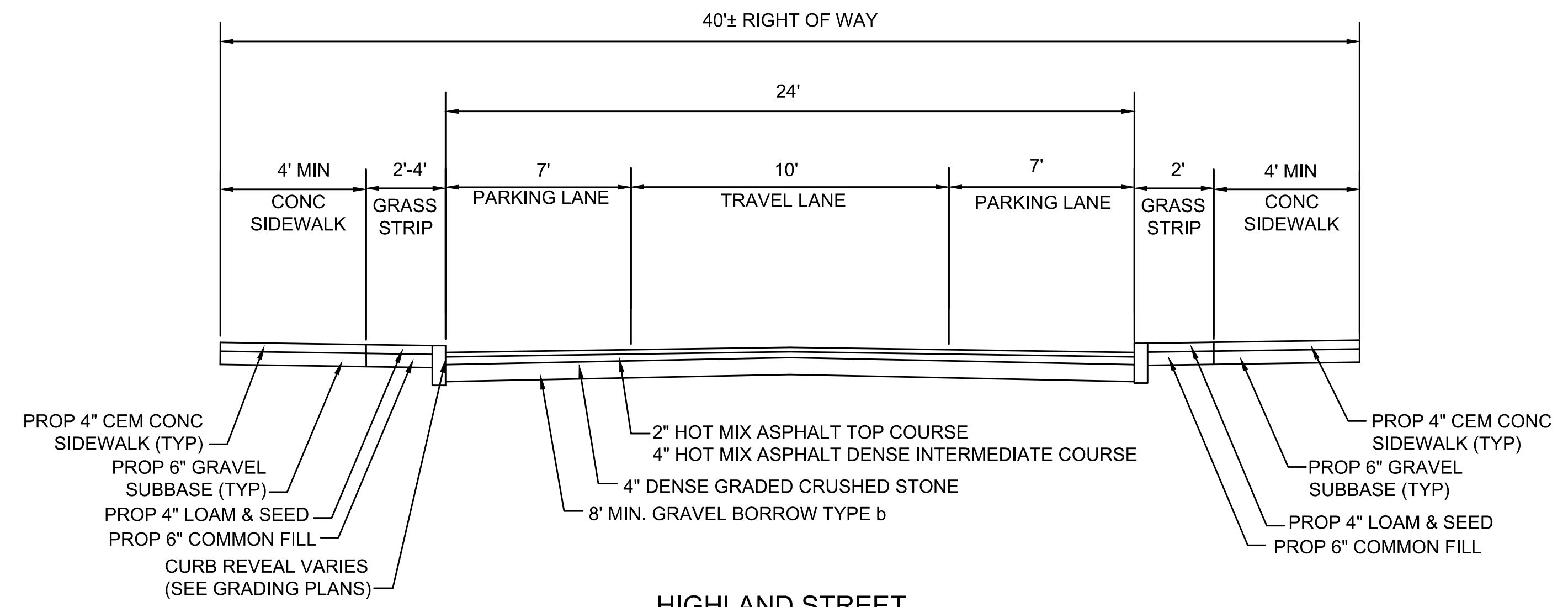


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| Scale       | AS NOTED      |     |             |      |
| Date        | NOVEMBER 2018 |     |             |      |
| Job No.     | 20170208.019A |     |             |      |
| Designed by | JRH           |     |             |      |
| Drawn by    | JRH           |     |             |      |
| Checked by  | PFB           | No. | Description | Date |
| Approved by | PFB           |     | REVISIONS   |      |

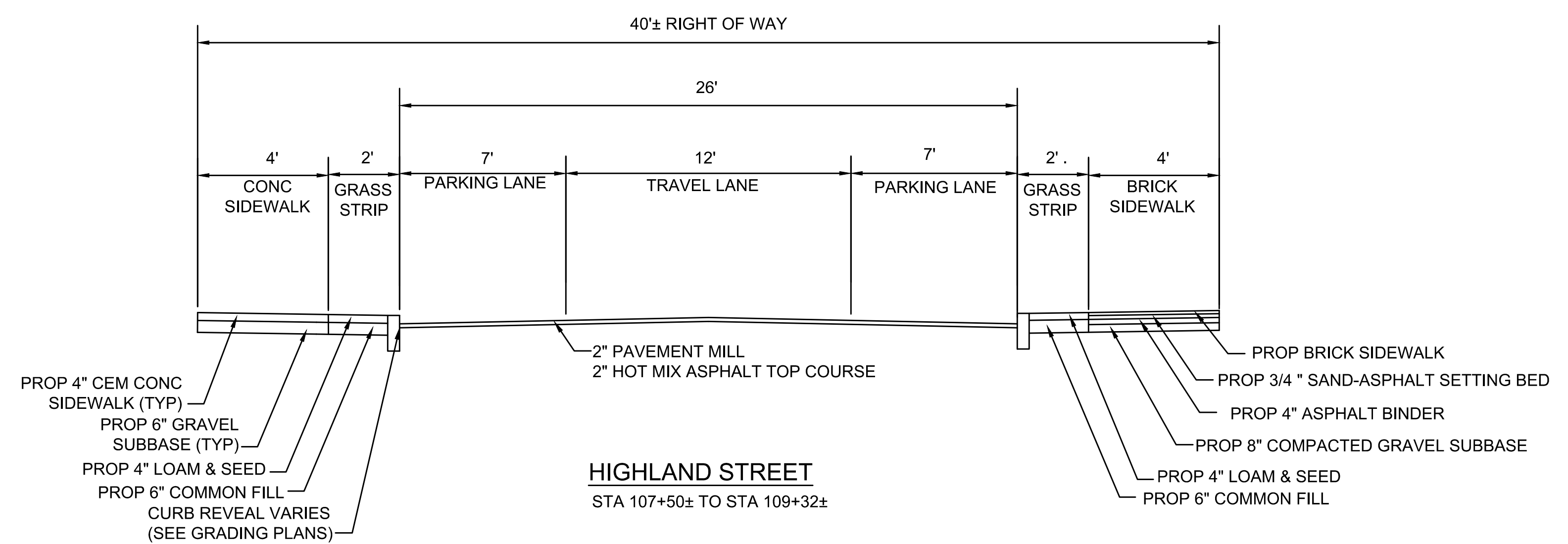


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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                            |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT      |
| Drawing | RIEDESEL AVE & BREWSTER ST TYPICAL SECTIONS<br>SHEET 1 OF 5 |

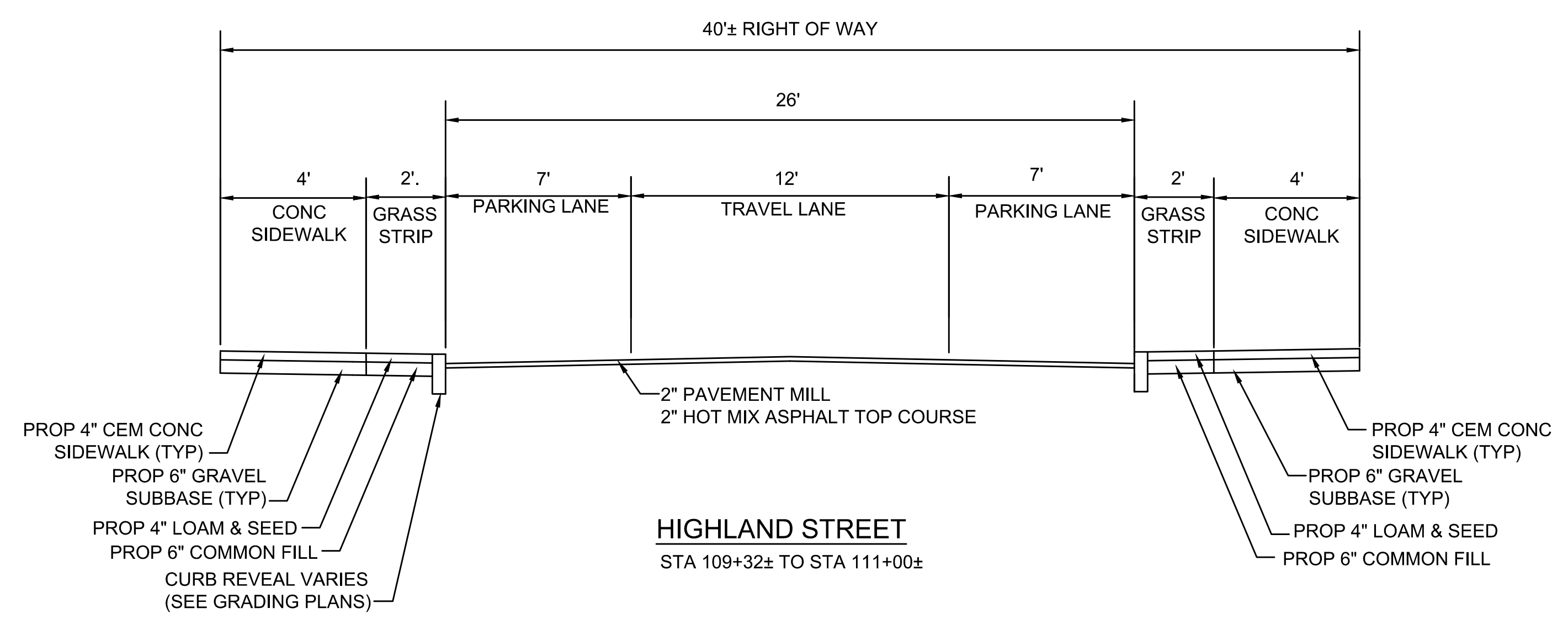
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| File No. | 8310 |



**HIGHLAND STREET**  
STA 100+54± TO STA 106+60±



**HIGHLAND STREET**  
STA 107+50± TO STA 109+32±



**HIGHLAND STREET**  
STA 109+32± TO STA 111+00±

**FULL DEPTH PAVEMENT:**  
SURFACE: 2" HOT MIX ASPHALT TOP COURSE 12.5 (SSC-12.5) OVER  
4" HOT MIX ASPHALT DENSE INTERMEDIATE COURSE 19.0 (SIC-19.0) OVER  
BASE: 4" DENSE GRADED CRUSHED STONE  
SUBBASE: 8" MIN GRAVEL BORROW TYPE b

**FULL DEPTH PAVEMENT (4 FT WIDE OR LESS):**  
SURFACE: 2" HOT MIX ASPHALT TOP COURSE 12.5 (SSC-12.5) OVER  
BASE: 10" HIGHLY EARLY STRENGTH CEMENT CONCRETE BASE COURSE OVER  
SUBBASE: 6" GRAVEL BORROW TYPE b

**PAVEMENT MILL AND HMA OVERLAY:**  
MILLING: 2" MICROMILL  
SURFACE: 2" HMA  
**ASPHALT EMULSION FOR TACK COAT:**  
ASPHALT EMULSION FOR TACK COAT SHALL BE PLACED ON ALL MILLED SURFACES (APPLICATION RATE=0.07 GAL/SY) AND BETWEEN ALL NEW PAVEMENT LAYERS (APPLICATION RATE=0.05 GAL/SY).

**CEMENT CONCRETE SIDEWALK:**  
SURFACE: 4" CEMENT CONCRETE (4000 PSI, 3/4", 610 M4.02) SIDEWALK OVER  
SUBBASE: 6" GRAVEL BORROW TYPE b

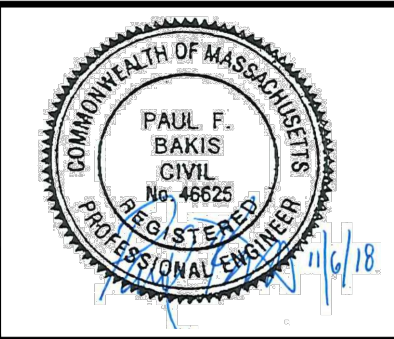
**CEMENT CONCRETE WHEELCHAIR RAMPS AND DRIVEWAYS:**  
SURFACE: 6" CEMENT CONCRETE (4000 PSI, 3/4", 610 M4.02) SIDEWALK OVER  
SUBBASE: 6" GRAVEL BORROW TYPE b

**BRICK SIDEWALK:**  
SURFACE: 2-1/4" BRICK OVER  
SUBBASE: TACK COAT  
3/4" SAND-ASPHALT SETTING BED  
ASPHALT TACK COAT  
4" ASPHALT BINDER COURSE  
8" COMPACTED GRAVEL SUB-BASE

**COBBLES IN ROADWAY (RIEDEL AVENUE SEE SPEC 02524):**  
SURFACE: 4"-8"± EXISTING GRANITE COBBLES OVER  
SUBBASE: 1" STONE DUST SETTING BED  
4" ASPHALT BINDER COURSE  
8" COMPACTED GRAVEL SUB-BASE

ISSUED FOR BID

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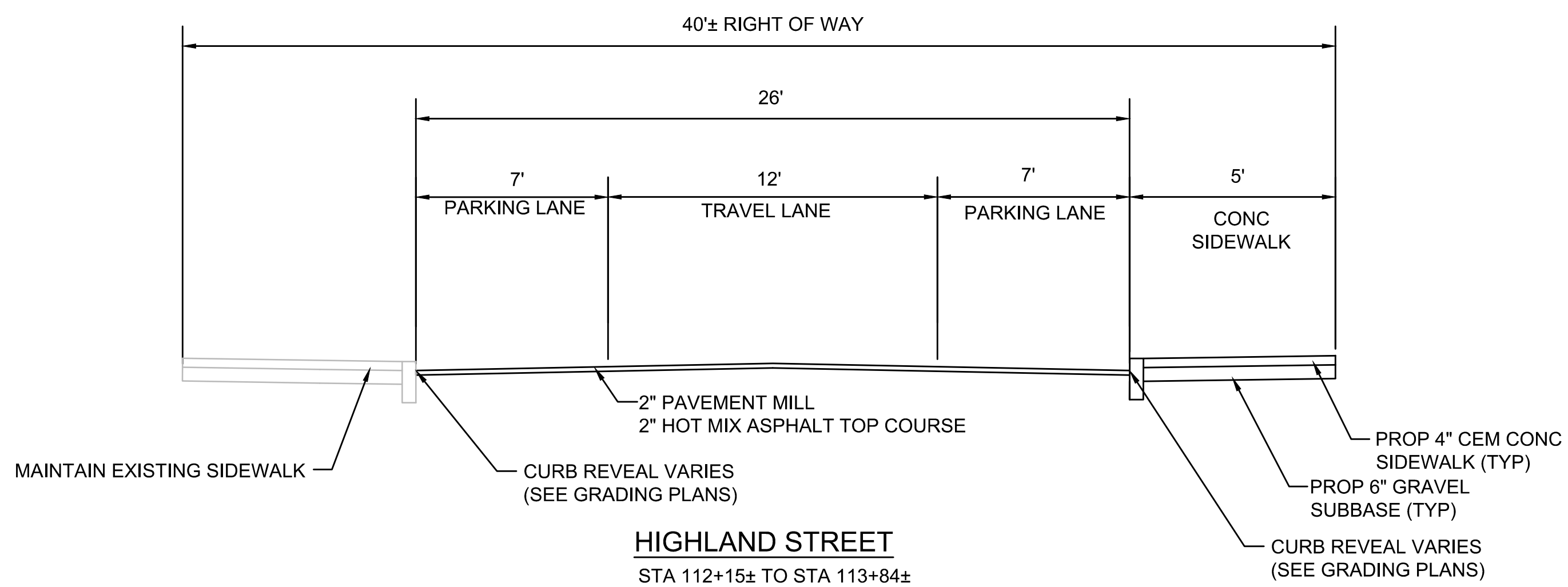
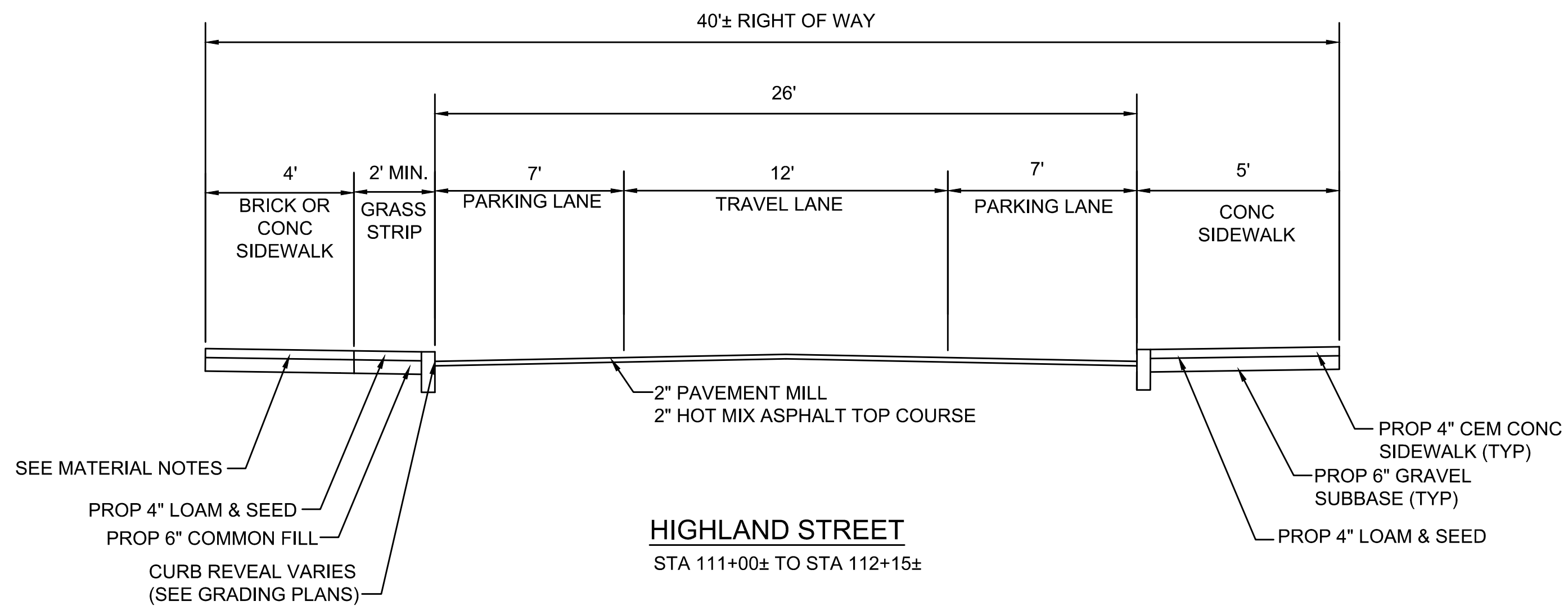


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| Scale       | AS NOTED      |     |             |      |
| Date        | NOVEMBER 2018 |     |             |      |
| Job No.     | 20170208.019A |     |             |      |
| Designed by | JRH           |     |             |      |
| Drawn by    | JRH           |     |             |      |
| Checked by  | PFB           | No. | Description | Date |
| Approved by | PFB           |     | REVISIONS   |      |



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|---------|--|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HIGHLAND STREET TYPICAL SECTIONS<br>SHEET 2 OF 5       |

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| Sheet    | RG-2 |
| File No. | 8310 |



**FULL DEPTH PAVEMENT:**

SURFACE: 2" HOT MIX ASPHALT TOP COURSE 12.5 (SSC-12.5) OVER  
4" HOT MIX ASPHALT DENSE INTERMEDIATE COURSE 19.0 (SIC-19.0) OVER

BASE: 4" DENSE GRADED CRUSHED STONE

SUBBASE: 8" MIN GRAVEL BORROW TYPE b

**FULL DEPTH PAVEMENT (4 FT WIDE OR LESS):**

SURFACE: 2" HOT MIX ASPHALT TOP COURSE 12.5 (SSC-12.5) OVER

BASE: 10" HIGHLY EARLY STRENGTH CEMENT CONCRETE BASE COURSE OVER

SUBBASE: 6" GRAVEL BORROW TYPE b

**PAVEMENT MILL AND HMA OVERLAY:**

MILLING: 2" MICROMILL

SURFACE: 2" HMA

**ASPHALT EMULSION FOR TACK COAT:**

ASPHALT EMULSION FOR TACK COAT SHALL BE PLACED ON ALL MILLED SURFACES (APPLICATION RATE=0.07 GAL/SY) AND BETWEEN ALL NEW PAVEMENT LAYERS (APPLICATION RATE=0.05 GAL/SY).

**CEMENT CONCRETE SIDEWALK:**

SURFACE: 4" CEMENT CONCRETE (4000 PSI, 3/4", 610 M4.02) SIDEWALK OVER

SUBBASE: 6" GRAVEL BORROW TYPE b

**CEMENT CONCRETE WHEELCHAIR RAMPS AND DRIVEWAYS:**

SURFACE: 6" CEMENT CONCRETE (4000 PSI, 3/4" , 610 M4.02) SIDEWALK OVER

SUBBASE: 6" GRAVEL BORROW TYPE b

**BRICK SIDEWALK:**

SURFACE: 2-1/4" BRICK OVER

SBUBASE: TACK COAT

3/4" SAND-ASPHALT SETTING BED

ASPHALT TACK COAT

4" ASPHALT BINDER COURSE

8" COMPACTED GRAVEL SUB-BASE

**COBBLES IN ROADWAY (RIEDEL AVENUE SEE SPEC 02524):**

SURFACE: 4"-8"± EXISTING GRANITE COBBLES OVER

SUBBASE: 1" STONE DUST SETTING BED

4" ASPHALT BINDER COURSE

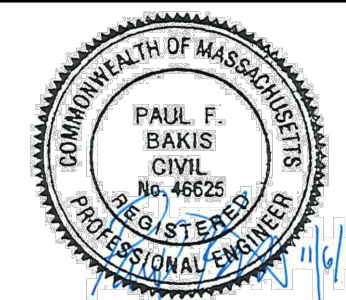
8" COMPACTED GRAVEL SUB-BASE

ISSUED FOR BID

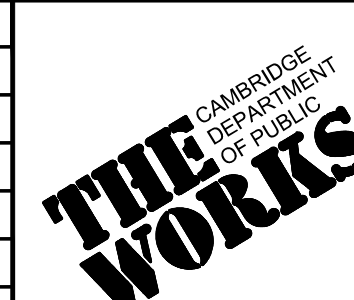
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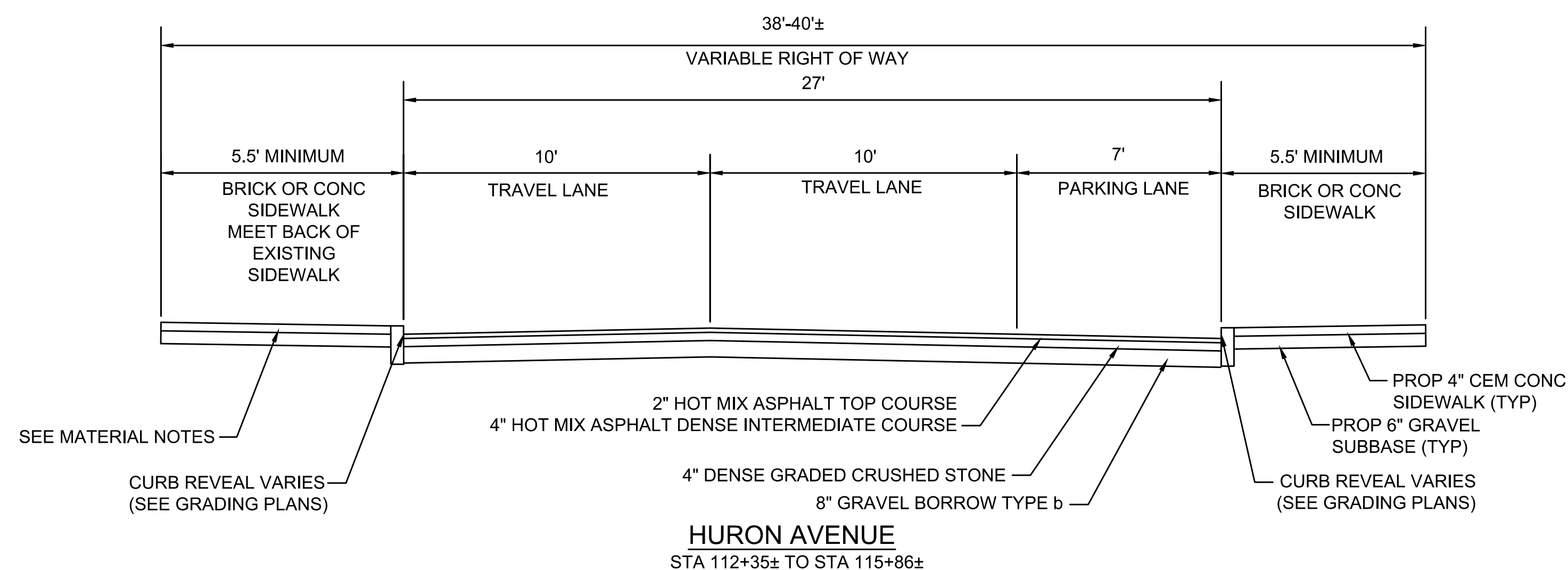
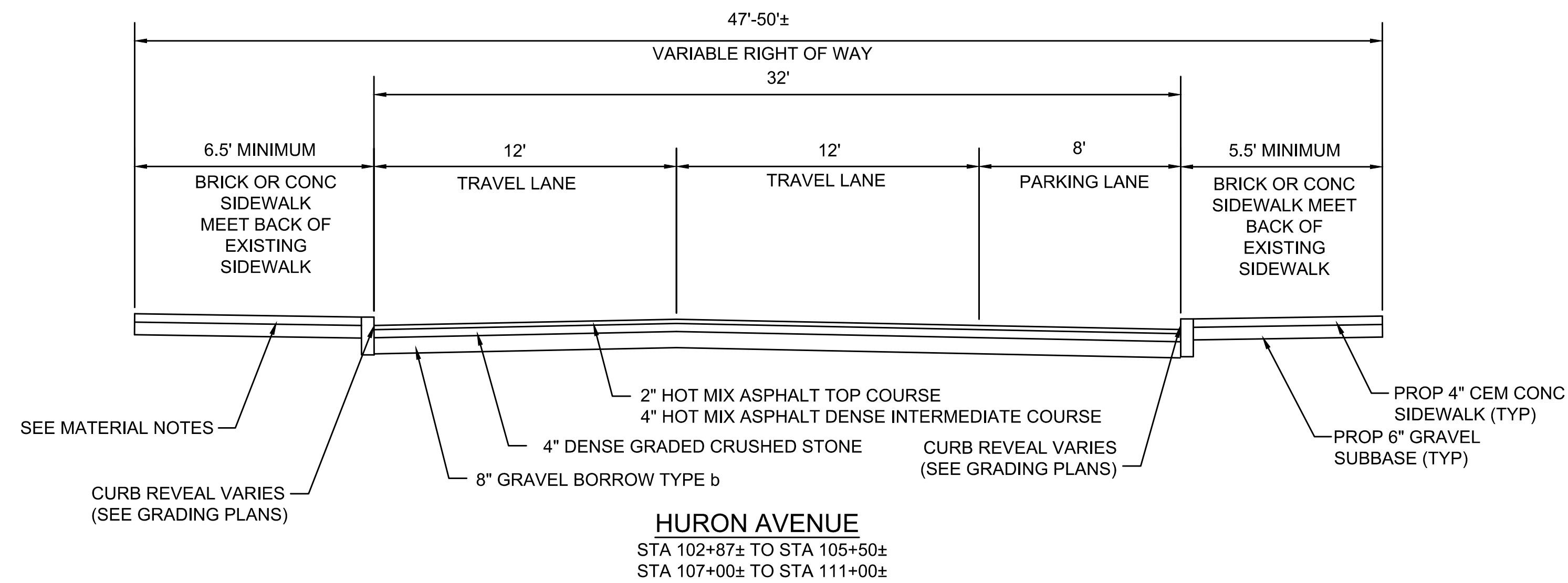
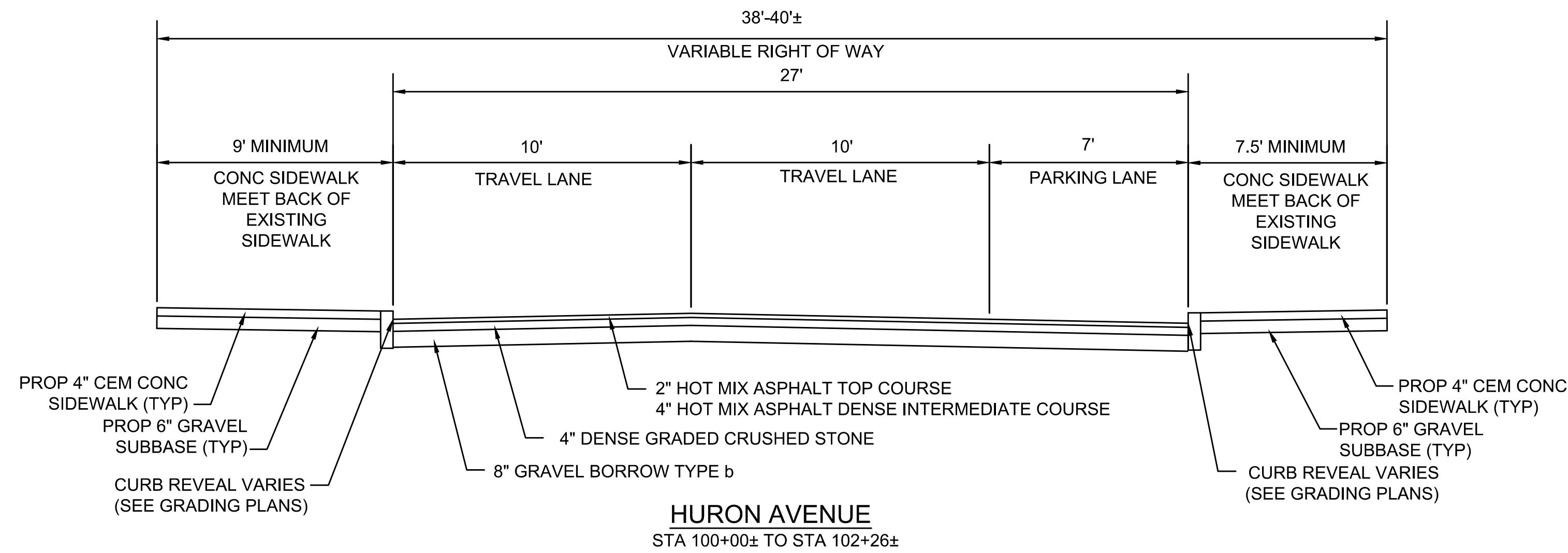
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| Date        | NOVEMBER 2018 |     |             |      |
| Job No.     | 20170208.019A |     |             |      |
| Designed by | JRH           |     |             |      |
| Drawn by    | JRH           |     |             |      |
| Checked by  | PFB           | No. | Description | Date |
| Approved by | PFB           |     | REVISIONS   |      |



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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HIGHLAND STREET TYPICAL SECTIONS<br>SHEET 3 OF 5       |

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| Sheet    | RG-3 |
| File No. | 8310 |





**FULL DEPTH PAVEMENT:**

SURFACE: 2" HOT MIX ASPHALT TOP COURSE 12.5 (SSC-12.5) OVER  
4" HOT MIX ASPHALT DENSE INTERMEDIATE COURSE 19.0 (SIC-19.0) OVER  
BASE: 4" DENSE GRADED CRUSHED STONE  
SUBBASE: 8" MIN GRAVEL BORROW TYPE b

**FULL DEPTH PAVEMENT (4 FT WIDE OR LESS):**

SURFACE: 2" HOT MIX ASPHALT TOP COURSE 12.5 (SSC-12.5) OVER  
BASE: 10" HIGHLY EARLY STRENGTH CEMENT CONCRETE BASE COURSE OVER  
SUBBASE: 6" GRAVEL BORROW TYPE b

**PAVEMENT MILL AND HMA OVERLAY:**

MILLING: 2" MICROMILL

SURFACE: 2" HMA

**ASPHALT EMULSION FOR TACK COAT:**

ASPHALT EMULSION FOR TACK COAT SHALL BE PLACED ON ALL MILLED SURFACES (APPLICATION RATE=0.07 GAL/SY) AND BETWEEN ALL NEW PAVEMENT LAYERS (APPLICATION RATE=0.05 GAL/SY).

**CEMENT CONCRETE SIDEWALK:**

SURFACE: 4" CEMENT CONCRETE (4000 PSI, 3/4", 610 M4.02) SIDEWALK OVER  
SUBBASE: 6" GRAVEL BORROW TYPE b

**CEMENT CONCRETE WHEELCHAIR RAMPS AND DRIVEWAYS:**

SURFACE: 6" CEMENT CONCRETE (4000 PSI, 3/4", 610 M4.02) SIDEWALK OVER  
SUBBASE: 6" GRAVEL BORROW TYPE b

**BRICK SIDEWALK:**

SURFACE: 2-1/4" BRICK OVER

SBUBASE: TACK COAT

3/4" SAND-ASPHALT SETTING BED

ASPHALT TACK COAT

4" ASPHALT BINDER COURSE

8" COMPACTED GRAVEL SUB-BASE

**COBBLES IN ROADWAY (RIEDEL AVENUE SEE SPEC 02524):**

SURFACE: 4"-8"± EXISTING GRANITE COBBLES OVER

SUBBASE: 1" STONE DUST SETTING BED

4" ASPHALT BINDER COURSE

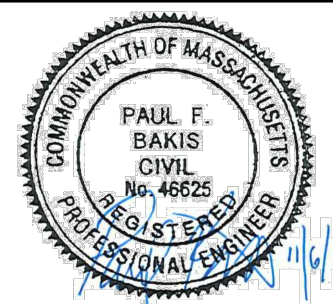
8" COMPACTED GRAVEL SUB-BASE

ISSUED FOR BID

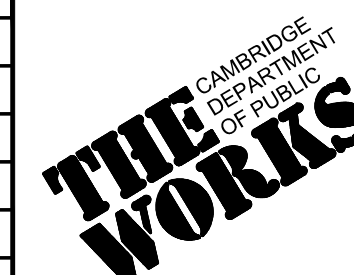
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| Date        | NOVEMBER 2018 |     |             |      |
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| Approved by | PFB           |     | REVISIONS   |      |



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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       | Sheet    | RG-4 |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT | File No. | 8310 |
| Drawing | HURON AVENUE TYPICAL SECTIONS<br>SHEET 4 OF 5          |          |      |

**FULL DEPTH PAVEMENT:**

SURFACE: 2" HOT MIX ASPHALT TOP COURSE 12.5 (SSC-12.5) OVER  
 4" HOT MIX ASPHALT DENSE INTERMEDIATE COURSE 19.0 (SIC-19.0) OVER  
 BASE: 4" DENSE GRADED CRUSHED STONE  
 SUBBASE: 8" MIN GRAVEL BORROW TYPE b

**FULL DEPTH PAVEMENT (4 FT WIDE OR LESS):**

SURFACE: 2" HOT MIX ASPHALT TOP COURSE 12.5 (SSC-12.5) OVER  
 BASE: 10" HIGHLY EARLY STRENGTH CEMENT CONCRETE BASE COURSE OVER  
 SUBBASE: 6" GRAVEL BORROW TYPE b

**PAVEMENT MILL AND HMA OVERLAY:**

MILLING: 2" MICROMILL  
 SURFACE: 2" HMA

**ASPHALT EMULSION FOR TACK COAT:**

ASPHALT EMULSION FOR TACK COAT SHALL BE PLACED ON ALL MILLED SURFACES (APPLICATION RATE=0.07 GAL/SY) AND BETWEEN ALL NEW PAVEMENT LAYERS (APPLICATION RATE=0.05 GAL/SY).

**CEMENT CONCRETE SIDEWALK:**

SURFACE: 4" CEMENT CONCRETE (4000 PSI, 3/4", 610 M4.02) SIDEWALK OVER  
 SUBBASE: 6" GRAVEL BORROW TYPE b

**CEMENT CONCRETE WHEELCHAIR RAMPS AND DRIVEWAYS:**

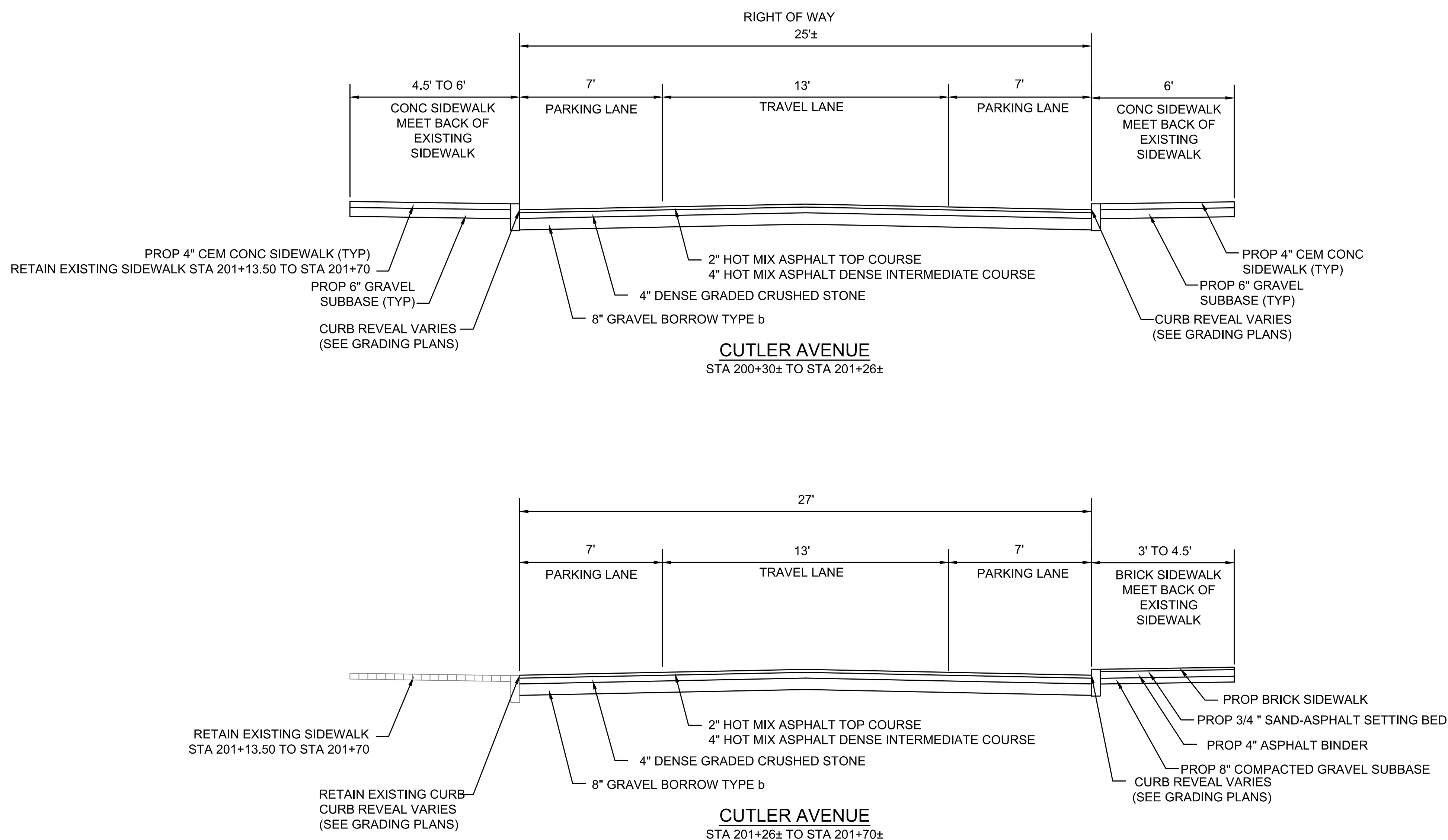
SURFACE: 6" CEMENT CONCRETE (4000 PSI, 3/4" , 610 M4.02) SIDEWALK OVER  
 SUBBASE: 6" GRAVEL BORROW TYPE b

**BRICK SIDEWALK:**

SURFACE: 2-1/4" BRICK OVER  
 SUBBASE: TACK COAT  
 3/4" SAND-ASPHALT SETTING BED  
 ASPHALT TACK COAT  
 4" ASPHALT BINDER COURSE  
 8" COMPACTED GRAVEL SUB-BASE

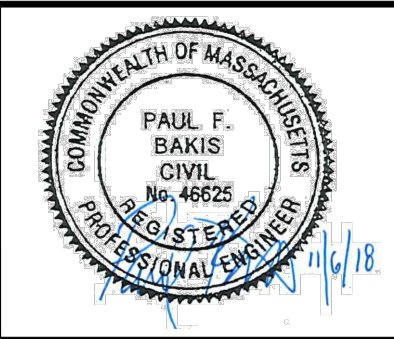
**COBBLES IN ROADWAY (RIEDEL AVENUE SEE SPEC 02524):**

SURFACE: 4"-8"± EXISTING GRANITE COBBLES OVER  
 SUBBASE: 1" STONE DUST SETTING BED  
 4" ASPHALT BINDER COURSE  
 8" COMPACTED GRAVEL SUB-BASE



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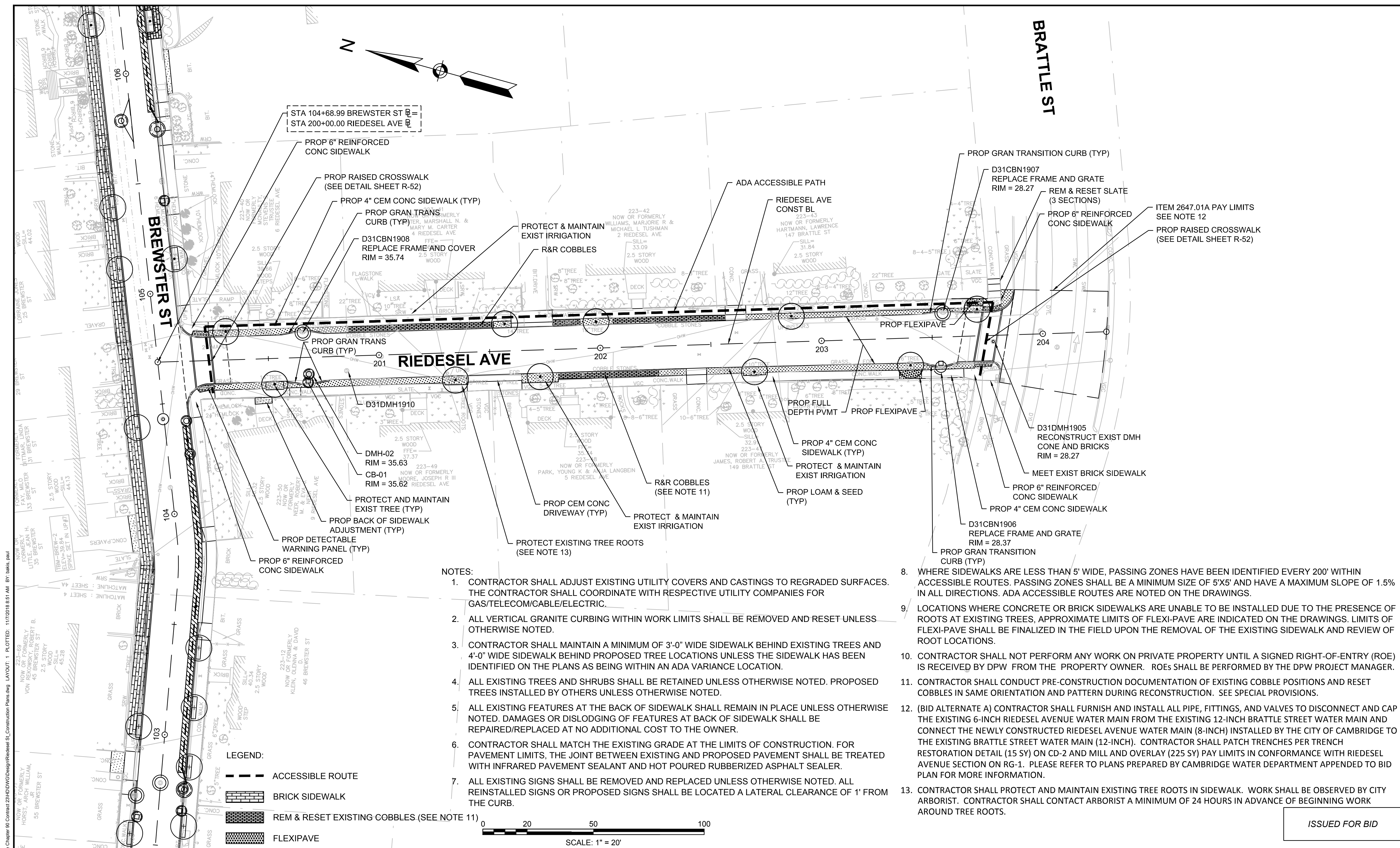


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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | CUTLER AVENUE TYPICAL SECTIONS<br>SHEET 5 OF 5         |

|          |      |
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| Sheet    | RG-5 |
| File No. | 8310 |



**BRATTLE ST**

**BREWSTER ST**

**RIEDESEL AVE**

STA 104+68.99 BREWSTER ST =  
STA 200+00.00 RIEDESEL AVE =

PROP 6" REINFORCED CONC SIDEWALK

PROP RAISED CROSSWALK (SEE DETAIL SHEET R-52)

PROP 4" CEM CONC SIDEWALK (TYP)

PROP GRAN TRANS CURB (TYP)

D31CBN1908 REPLACE FRAME AND COVER RIM = 35.74

PROTECT & MAINTAIN EXIST IRRIGATION

R&R COBBLES

ADA ACCESSIBLE PATH

RIEDESEL AVE CONST BL

PROP GRAN TRANSITION CURB (TYP)

D31CBN1907 REPLACE FRAME AND GRATE RIM = 28.27

REM & RESET SLATE (3 SECTIONS)

PROP 6" REINFORCED CONC SIDEWALK

ITEM 2647.01A PAY LIMITS SEE NOTE 12

PROP RAISED CROSSWALK (SEE DETAIL SHEET R-52)

PROP GRAN TRANS CURB (TYP)

201

D31DMH1910

DMH-02 RIM = 35.63

CB-01 RIM = 35.62

PROTECT AND MAINTAIN EXIST TREE (TYP)

PROP BACK OF SIDEWALK ADJUSTMENT (TYP)

PROP DETECTABLE WARNING PANEL (TYP)

PROP 6" REINFORCED CONC SIDEWALK

R&R COBBLES (SEE NOTE 11)

PROTECT & MAINTAIN EXIST IRRIGATION

PROP CEM CONC DRIVEWAY (TYP)

PROTECT & MAINTAIN EXIST IRRIGATION

PROP 4" CEM CONC SIDEWALK (TYP)

PROTECT & MAINTAIN EXIST IRRIGATION

PROP LOAM & SEED (TYP)

PROP FULL DEPTH PVMT

PROP FLEXIPAVE

D31DMH1905 RECONSTRUCT EXIST DMH CONE AND BRICKS RIM = 28.27

MEET EXIST BRICK SIDEWALK

PROP 6" REINFORCED CONC SIDEWALK

PROP 4" CEM CONC SIDEWALK

D31CBN1906 REPLACE FRAME AND GRATE RIM = 28.37

PROP GRAN TRANSITION CURB (TYP)

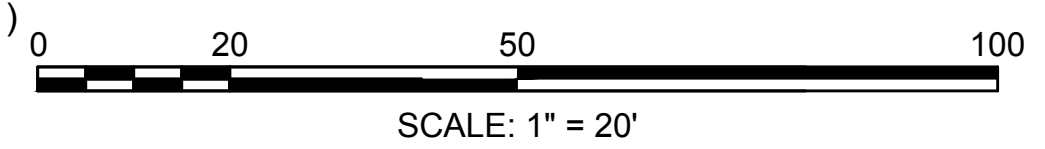
**NOTES:**

1. CONTRACTOR SHALL ADJUST EXISTING UTILITY COVERS AND CASTINGS TO REGRADED SURFACES. THE CONTRACTOR SHALL COORDINATE WITH RESPECTIVE UTILITY COMPANIES FOR GAS/TELECOM/CABLE/ELECTRIC.
2. ALL VERTICAL GRANITE CURBING WITHIN WORK LIMITS SHALL BE REMOVED AND RESET UNLESS OTHERWISE NOTED.
3. CONTRACTOR SHALL MAINTAIN A MINIMUM OF 3'-0" WIDE SIDEWALK BEHIND EXISTING TREES AND 4'-0" WIDE SIDEWALK BEHIND PROPOSED TREE LOCATIONS UNLESS THE SIDEWALK HAS BEEN IDENTIFIED ON THE PLANS AS BEING WITHIN AN ADA VARIANCE LOCATION.
4. ALL EXISTING TREES AND SHRUBS SHALL BE RETAINED UNLESS OTHERWISE NOTED. PROPOSED TREES INSTALLED BY OTHERS UNLESS OTHERWISE NOTED.
5. ALL EXISTING FEATURES AT THE BACK OF SIDEWALK SHALL REMAIN IN PLACE UNLESS OTHERWISE NOTED. DAMAGES OR DISLODGING OF FEATURES AT BACK OF SIDEWALK SHALL BE REPAIRED/REPLACED AT NO ADDITIONAL COST TO THE OWNER.
6. CONTRACTOR SHALL MATCH THE EXISTING GRADE AT THE LIMITS OF CONSTRUCTION. FOR PAVEMENT LIMITS, THE JOINT BETWEEN EXISTING AND PROPOSED PAVEMENT SHALL BE TREATED WITH INFRARED PAVEMENT SEALANT AND HOT POURED RUBBERIZED ASPHALT SEALER.
7. ALL EXISTING SIGNS SHALL BE REMOVED AND REPLACED UNLESS OTHERWISE NOTED. ALL REINSTALLED SIGNS OR PROPOSED SIGNS SHALL BE LOCATED A LATERAL CLEARANCE OF 1' FROM THE CURB.

8. WHERE SIDEWALKS ARE LESS THAN 5' WIDE, PASSING ZONES HAVE BEEN IDENTIFIED EVERY 200' WITHIN ACCESSIBLE ROUTES. PASSING ZONES SHALL BE A MINIMUM SIZE OF 5'X5' AND HAVE A MAXIMUM SLOPE OF 1.5% IN ALL DIRECTIONS. ADA ACCESSIBLE ROUTES ARE NOTED ON THE DRAWINGS.
9. LOCATIONS WHERE CONCRETE OR BRICK SIDEWALKS ARE UNABLE TO BE INSTALLED DUE TO THE PRESENCE OF ROOTS AT EXISTING TREES, APPROXIMATE LIMITS OF FLEXI-PAVE ARE INDICATED ON THE DRAWINGS. LIMITS OF FLEXI-PAVE SHALL BE FINALIZED IN THE FIELD UPON THE REMOVAL OF THE EXISTING SIDEWALK AND REVIEW OF ROOT LOCATIONS.
10. CONTRACTOR SHALL NOT PERFORM ANY WORK ON PRIVATE PROPERTY UNTIL A SIGNED RIGHT-OF-ENTRY (ROE) IS RECEIVED BY DPW FROM THE PROPERTY OWNER. ROEs SHALL BE PERFORMED BY THE DPW PROJECT MANAGER.
11. CONTRACTOR SHALL CONDUCT PRE-CONSTRUCTION DOCUMENTATION OF EXISTING COBBLE POSITIONS AND RESET COBBLES IN SAME ORIENTATION AND PATTERN DURING RECONSTRUCTION. SEE SPECIAL PROVISIONS.
12. (BID ALTERNATE A) CONTRACTOR SHALL FURNISH AND INSTALL ALL PIPE, FITTINGS, AND VALVES TO DISCONNECT AND CAP THE EXISTING 6-INCH RIEDESEL AVENUE WATER MAIN FROM THE EXISTING 12-INCH BRATTLE STREET WATER MAIN AND CONNECT THE NEWLY CONSTRUCTED RIEDESEL AVENUE WATER MAIN (8-INCH) INSTALLED BY THE CITY OF CAMBRIDGE TO THE EXISTING BRATTLE STREET WATER MAIN (12-INCH). CONTRACTOR SHALL PATCH TRENCHES PER TRENCH RESTORATION DETAIL (15 SY) ON CD-2 AND MILL AND OVERLAY (225 SY) PAY LIMITS IN CONFORMANCE WITH RIEDESEL AVENUE SECTION ON RG-1. PLEASE REFER TO PLANS PREPARED BY CAMBRIDGE WATER DEPARTMENT APPENDED TO BID PLAN FOR MORE INFORMATION.
13. CONTRACTOR SHALL PROTECT AND MAINTAIN EXISTING TREE ROOTS IN SIDEWALK. WORK SHALL BE OBSERVED BY CITY ARBORIST. CONTRACTOR SHALL CONTACT ARBORIST A MINIMUM OF 24 HOURS IN ADVANCE OF BEGINNING WORK AROUND TREE ROOTS.

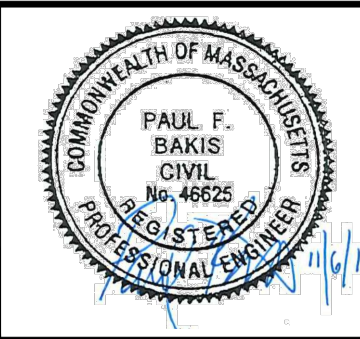
**LEGEND:**

- ACCESSIBLE ROUTE
- BRICK SIDEWALK
- REM & RESET EXISTING COBBLES (SEE NOTE 11)
- FLEXIPAVE



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CAD FILE: I:\eng\16042-48 Cambridge Chapter 90 Contract 23A-DDWG\Design\Road\RIE\RIE\_S1\_Construction Plans.dwg LAYOUT: 1 PLOTTED: 11/7/2018 8:51 AM BY: bakis, paul



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| Scale       | AS NOTED      |     |             |      |
| Date        | NOVEMBER 2018 |     |             |      |
| Job No.     | 20170208.019A |     |             |      |
| Designed by | JRH           |     |             |      |
| Drawn by    | JRH           |     |             |      |
| Checked by  | PFB           | No. | Description | Date |
| Approved by | PFB           |     | REVISIONS   |      |



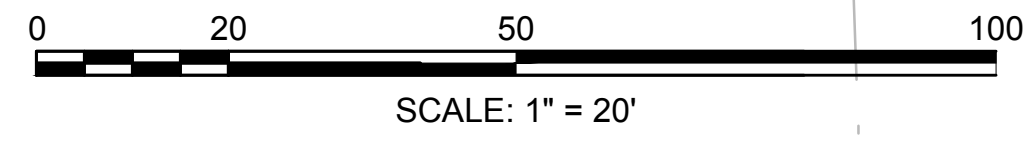
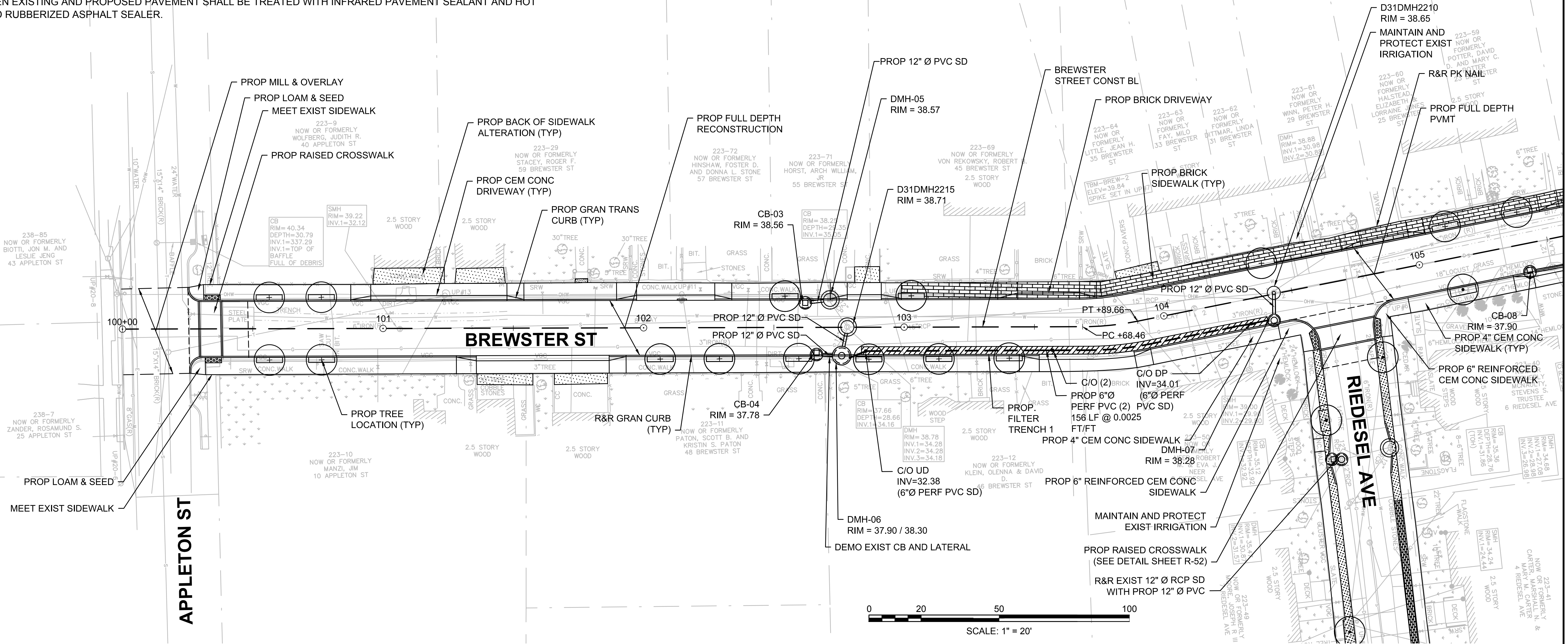
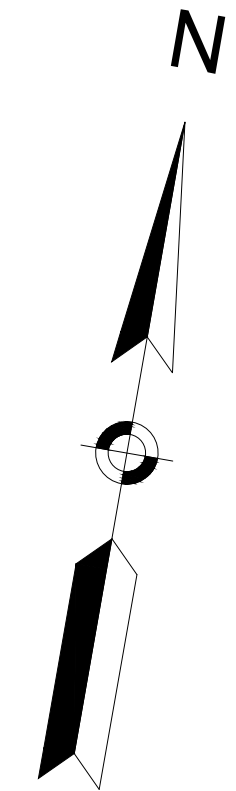
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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       | Sheet    | R-1  |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT | File No. | 8310 |
| Drawing | RIEDESEL AVENUE CONSTRUCTION PLANS<br>SHEET 1 OF 1     |          |      |

NOTES:

1. CONTRACTOR SHALL ADJUST EXISTING UTILITY COVERS AND CASTINGS TO REGRADED SURFACES. THE CONTRACTOR SHALL COORDINATE WITH RESPECTIVE UTILITY COMPANIES FOR GAS/TELECOM/CABLE/ELECTRIC.
2. ALL VERTICAL GRANITE CURBING WITHIN WORK LIMITS SHALL BE REMOVED AND RESET UNLESS OTHERWISE NOTED.
3. CONTRACTOR SHALL MAINTAIN A MINIMUM OF 3'-0" WIDE SIDEWALK BEHIND EXISTING TREES AND 4'-0" WIDE SIDEWALK BEHIND PROPOSED TREE LOCATIONS UNLESS THE SIDEWALK HAS BEEN IDENTIFIED ON THE PLANS AS BEING WITHIN AN ADA VARIANCE LOCATION.
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6. CONTRACTOR SHALL MATCH THE EXISTING GRADE AT THE LIMITS OF CONSTRUCTION. FOR PAVEMENT LIMITS, THE JOINT BETWEEN EXISTING AND PROPOSED PAVEMENT SHALL BE TREATED WITH INFRARED PAVEMENT SEALANT AND HOT POURED RUBBERIZED ASPHALT SEALER.

NOTES:

7. ALL EXISTING SIGNS SHALL BE REMOVED AND REPLACED UNLESS OTHERWISE NOTED. ALL REINSTALLED SIGNS OR PROPOSED SIGNS SHALL BE LOCATED A LATERAL CLEARANCE OF 1' FROM THE CURB.
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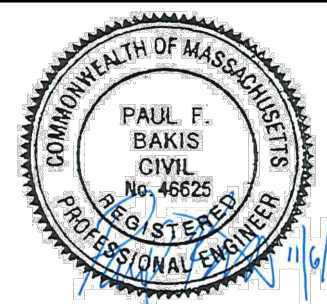


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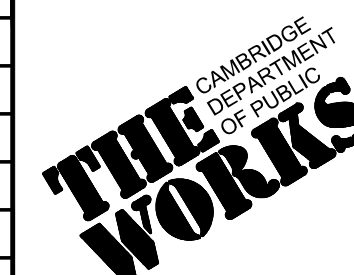
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27 Congress Street, Salem, MA 01970  
tel. 978-740-0096 www.hatch.com



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| Date        | NOVEMBER 2018 |     |             |
| Job No.     | 20170208.019A |     |             |
| Designed by | JRH           |     |             |
| Drawn by    | JRH           |     |             |
| Checked by  | PFB           | No. | Description |
| Approved by | PFB           |     | REVISIONS   |

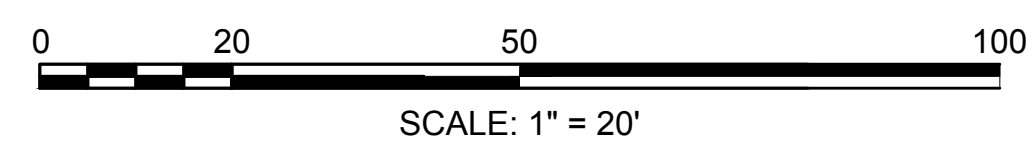
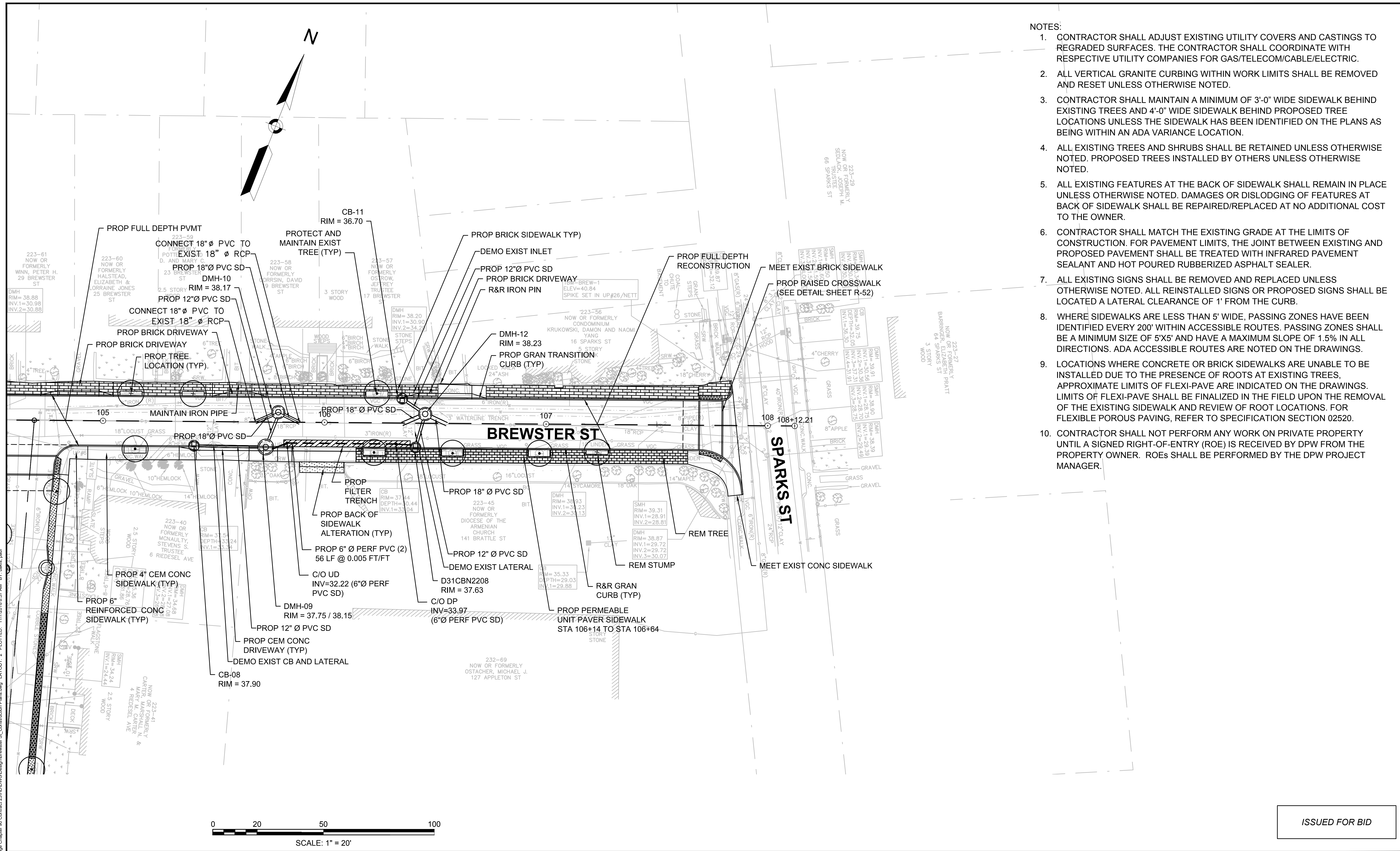


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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | BREWSTER STREET CONSTRUCTION PLAN<br>SHEET 1 OF 2      |

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| Sheet    | R-2  |
| File No. | 8310 |

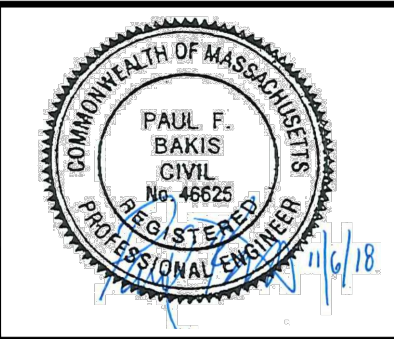
NOTES:

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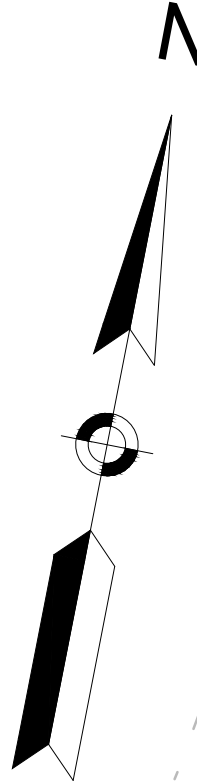


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| Job No.     | 20170208.019A |     |             |
| Designed by | JRH           |     |             |
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| Checked by  | PFB           | No. | Description |
| Approved by | PFB           |     | REVISIONS   |

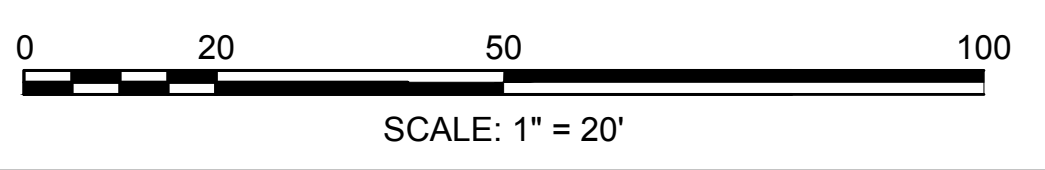
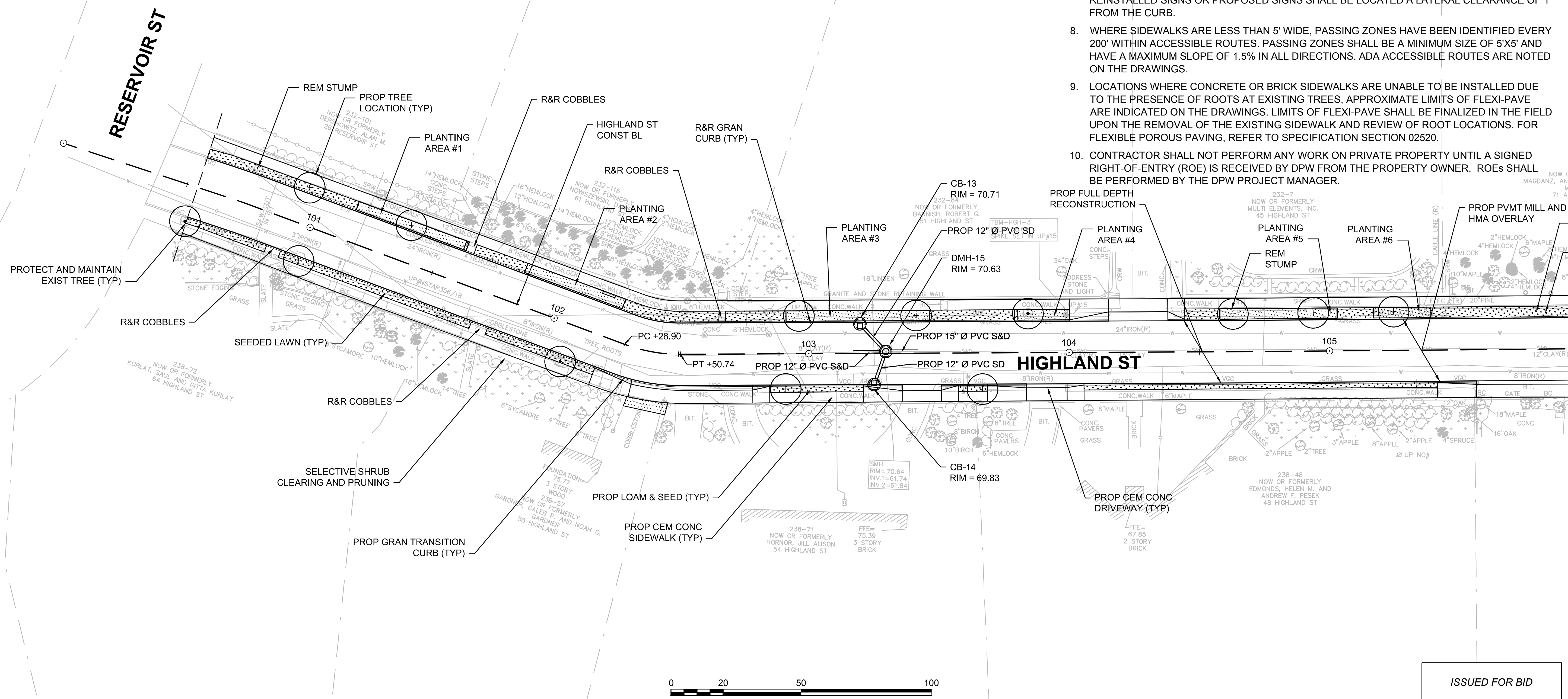


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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | BREWSTER STREET CONSTRUCTION PLANS<br>SHEET 2 OF 2     |

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| Sheet    | R-3  |
| File No. | 8310 |

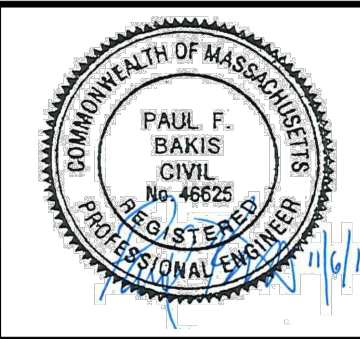


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| Date        | NOVEMBER 2018 |     |             |      |
| Job No.     | 20170208.019A |     |             |      |
| Designed by | JRH           |     |             |      |
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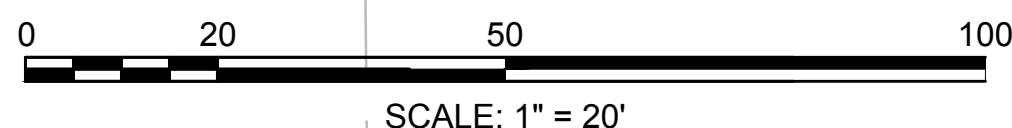
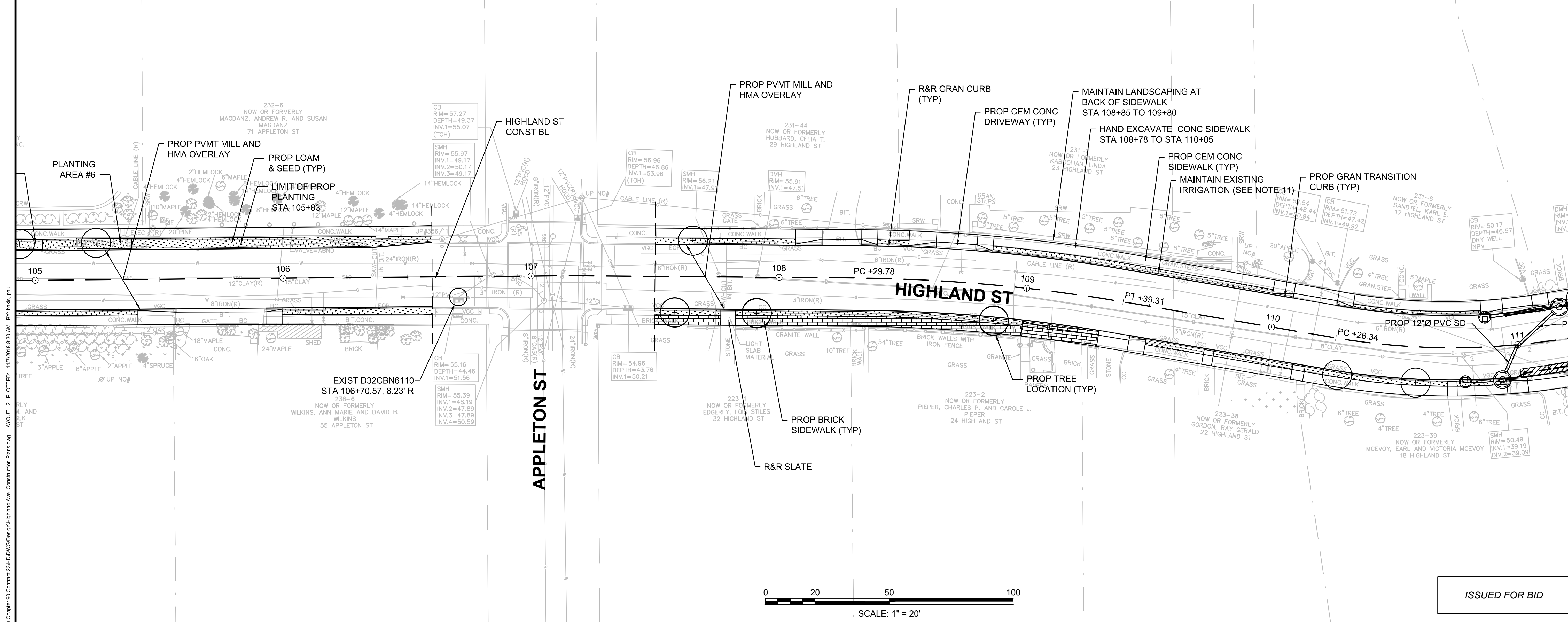
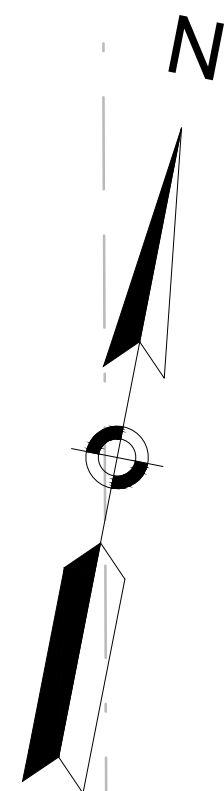


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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HIGHLAND STREET CONSTRUCTION PLANS<br>SHEET 1 OF 3     |

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| Sheet    | R-4  |
| File No. | 8310 |

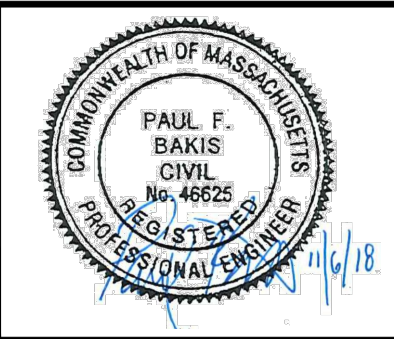
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11. CONTRACTOR SHALL PROTECT AND MAINTAIN EXISTING IRRIGATION AT #23 HIGHLAND. CONTRACTOR SHALL CONTACT RESIDENT AT 23 HIGHLAND A MINIMUM OF 48 HOURS IN ADVANCE OF BEGINNING WORK AROUND IRRIGATION. WORK SHALL BE OBSERVED BY RESIDENT'S LANDSCAPER.



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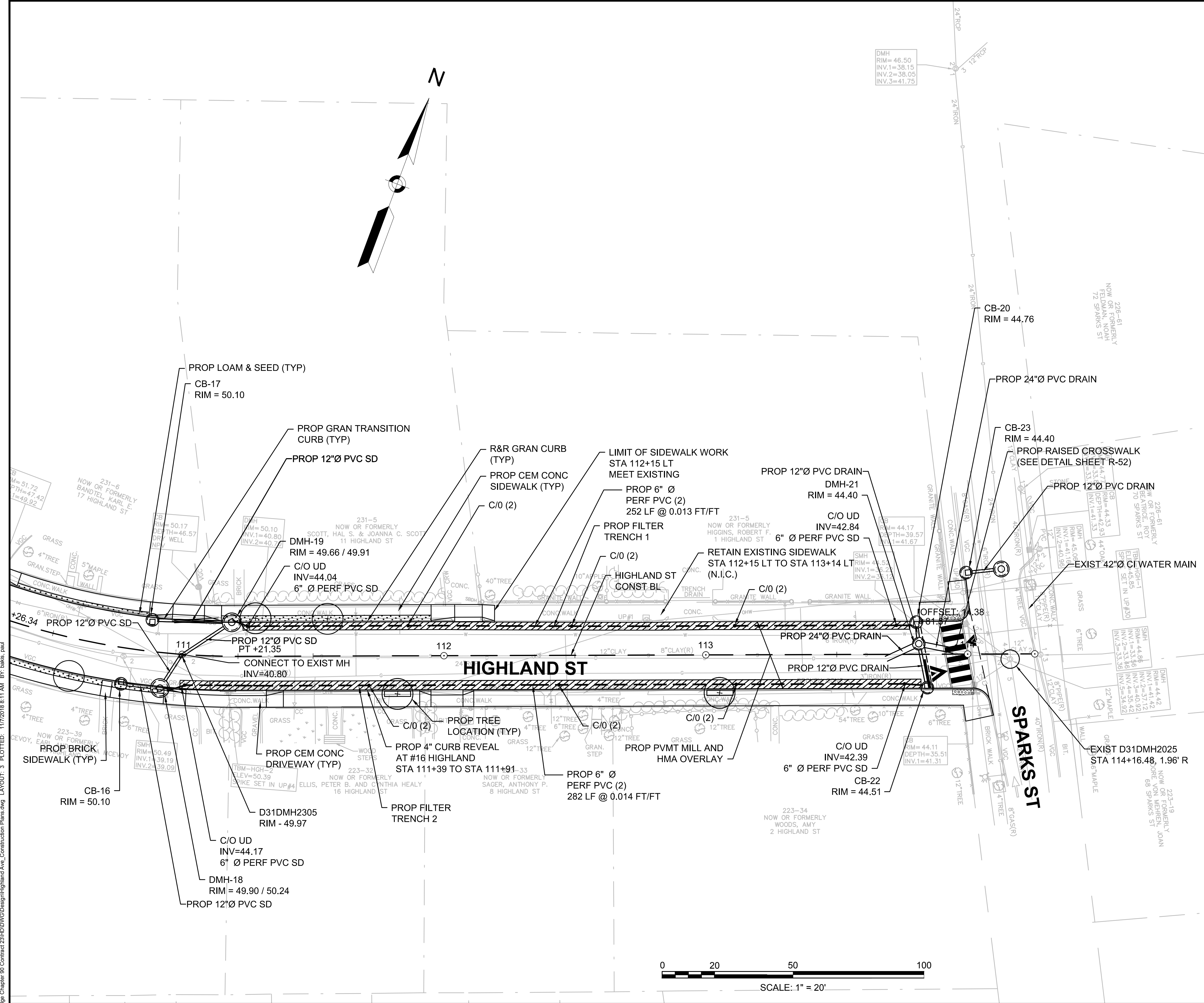


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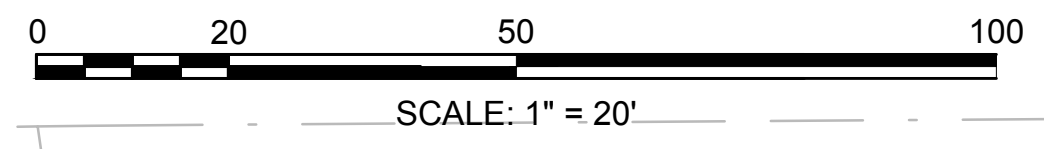


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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HIGHLAND STREET CONSTRUCTION PLANS<br>SHEET 2 OF 3     |

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| Sheet    | R-5  |
| File No. | 8310 |

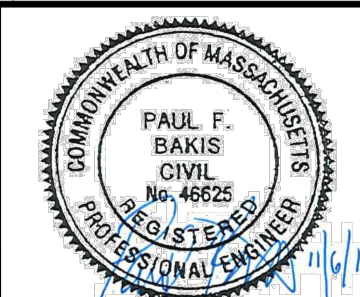


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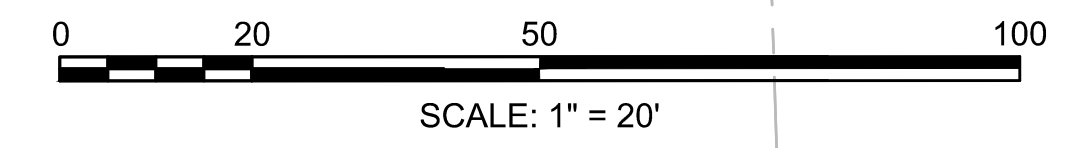
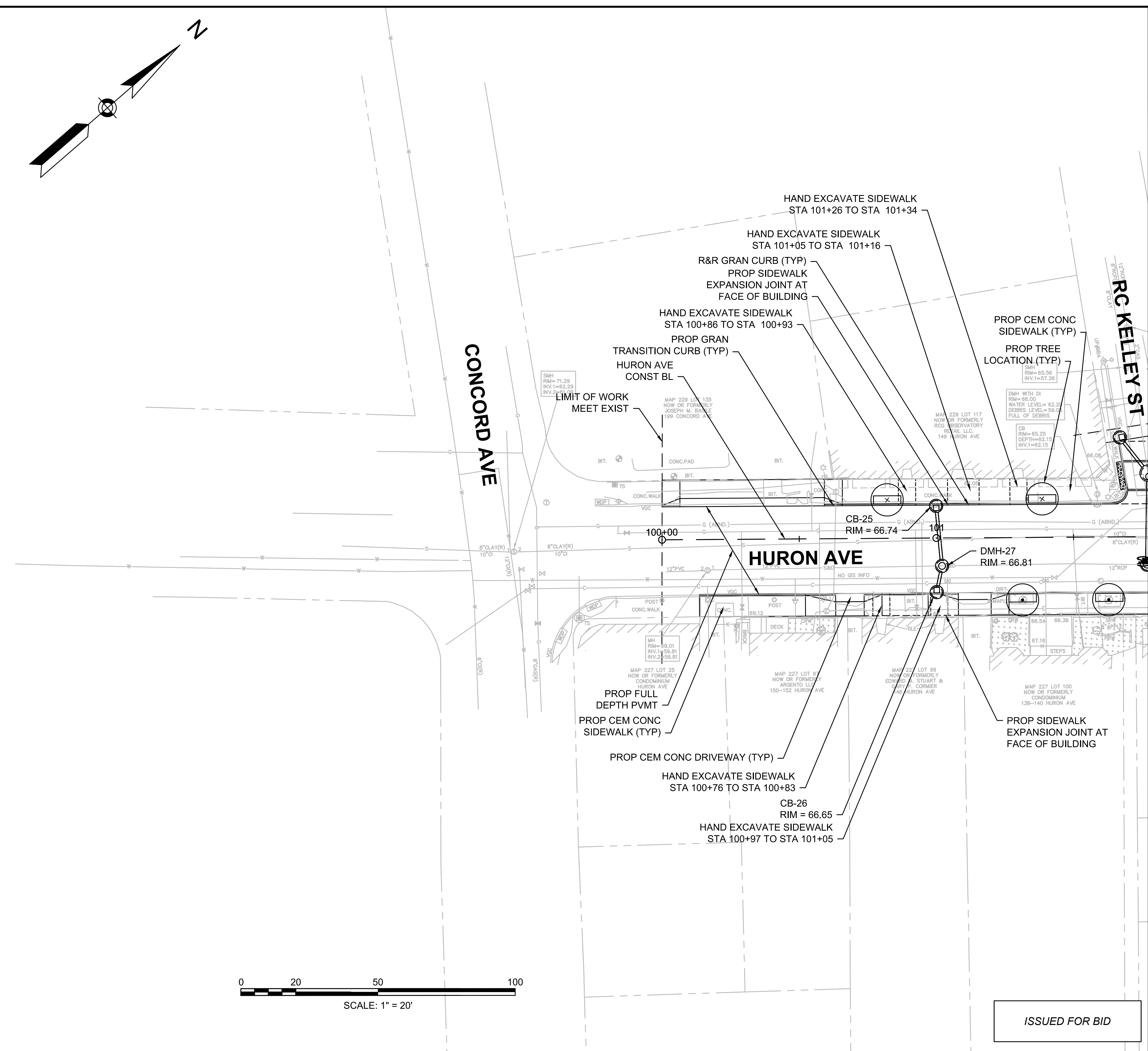
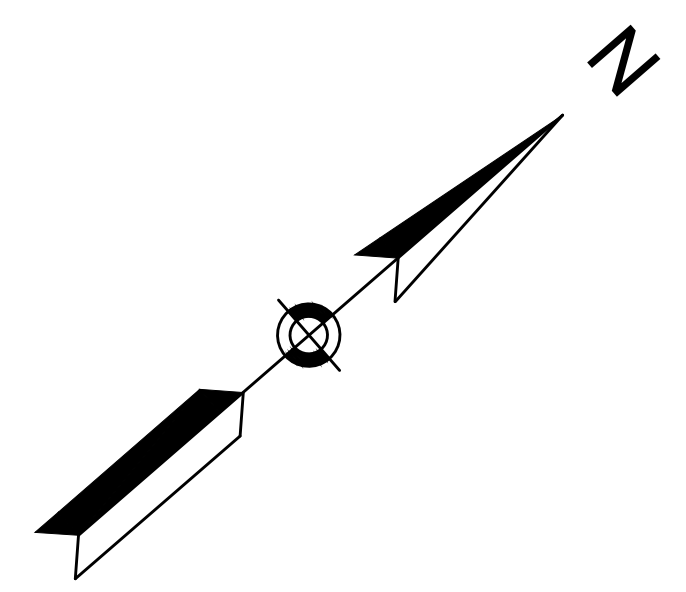
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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HIGHLAND STREET CONSTRUCTION PLANS<br>SHEET 3 OF 3     |

|          |      |
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| Sheet    | R-6  |
| File No. | 8310 |



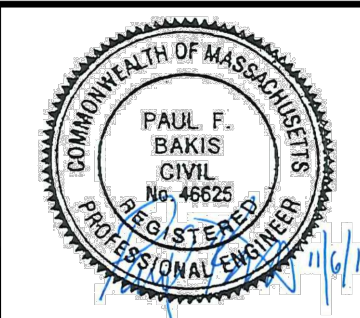
NOTES:

1. CONTRACTOR SHALL ADJUST EXISTING UTILITY COVERS AND CASTINGS TO REGRADED SURFACES. THE CONTRACTOR SHALL COORDINATE WITH RESPECTIVE UTILITY COMPANIES FOR GAS/TELECOM/CABLE/ELECTRIC.
2. ALL VERTICAL GRANITE CURBING WITHIN WORK LIMITS SHALL BE REMOVED AND RESET UNLESS OTHERWISE NOTED.
3. CONTRACTOR SHALL MAINTAIN A MINIMUM OF 3'-0" WIDE SIDEWALK BEHIND EXISTING TREES AND 4'-0" WIDE SIDEWALK BEHIND PROPOSED TREE LOCATIONS UNLESS THE SIDEWALK HAS BEEN IDENTIFIED ON THE PLANS AS BEING WITHIN AN ADA VARIANCE LOCATION.
4. ALL EXISTING TREES AND SHRUBS SHALL BE RETAINED UNLESS OTHERWISE NOTED. PROPOSED TREES INSTALLED BY OTHERS UNLESS OTHERWISE NOTED.
5. ALL EXISTING FEATURES AT THE BACK OF SIDEWALK SHALL REMAIN IN PLACE UNLESS OTHERWISE NOTED. DAMAGES OR DISLODGING OF FEATURES AT BACK OF SIDEWALK SHALL BE REPAIRED/REPLACED AT NO ADDITIONAL COST TO THE OWNER.
6. CONTRACTOR SHALL MATCH THE EXISTING GRADE AT THE LIMITS OF CONSTRUCTION. FOR PAVEMENT LIMITS, THE JOINT BETWEEN EXISTING AND PROPOSED PAVEMENT SHALL BE TREATED WITH INFRARED PAVEMENT SEALANT AND HOT POURED RUBBERIZED ASPHALT SEALER.
7. ALL EXISTING SIGNS SHALL BE REMOVED AND REPLACED UNLESS OTHERWISE NOTED. ALL REINSTALLED SIGNS OR PROPOSED SIGNS SHALL BE LOCATED A LATERAL CLEARANCE OF 1' FROM THE CURB.
8. WHERE SIDEWALKS ARE LESS THAN 5' WIDE, PASSING ZONES HAVE BEEN IDENTIFIED EVERY 200' WITHIN ACCESSIBLE ROUTES. PASSING ZONES SHALL BE A MINIMUM SIZE OF 5'X5' AND HAVE A MAXIMUM SLOPE OF 1.5% IN ALL DIRECTIONS. ADA ACCESSIBLE ROUTES ARE NOTED ON THE DRAWINGS.
9. LOCATIONS WHERE CONCRETE OR BRICK SIDEWALKS ARE UNABLE TO BE INSTALLED DUE TO THE PRESENCE OF ROOTS AT EXISTING TREES, APPROXIMATE LIMITS OF FLEXI-PAVE ARE INDICATED ON THE DRAWINGS. LIMITS OF FLEXI-PAVE SHALL BE FINALIZED IN THE FIELD UPON THE REMOVAL OF THE EXISTING SIDEWALK AND REVIEW OF ROOT LOCATIONS. FOR FLEXIBLE POROUS PAVING, REFER TO SPECIFICATION SECTION 02520.
10. CONTRACTOR SHALL NOT PERFORM ANY WORK ON PRIVATE PROPERTY UNTIL A SIGNED RIGHT-OF-ENTRY (ROE) IS RECEIVED BY DPW FROM THE PROPERTY OWNER. ROEs SHALL BE PERFORMED BY THE DPW PROJECT MANAGER.
11. HAND EXCAVATION REQUIRED AS SHOWN ON THIS SHEET TO PROTECT THE MOSAIC TILES AT THE BUSINESS ENTRANCES ALONG HURON AVE.



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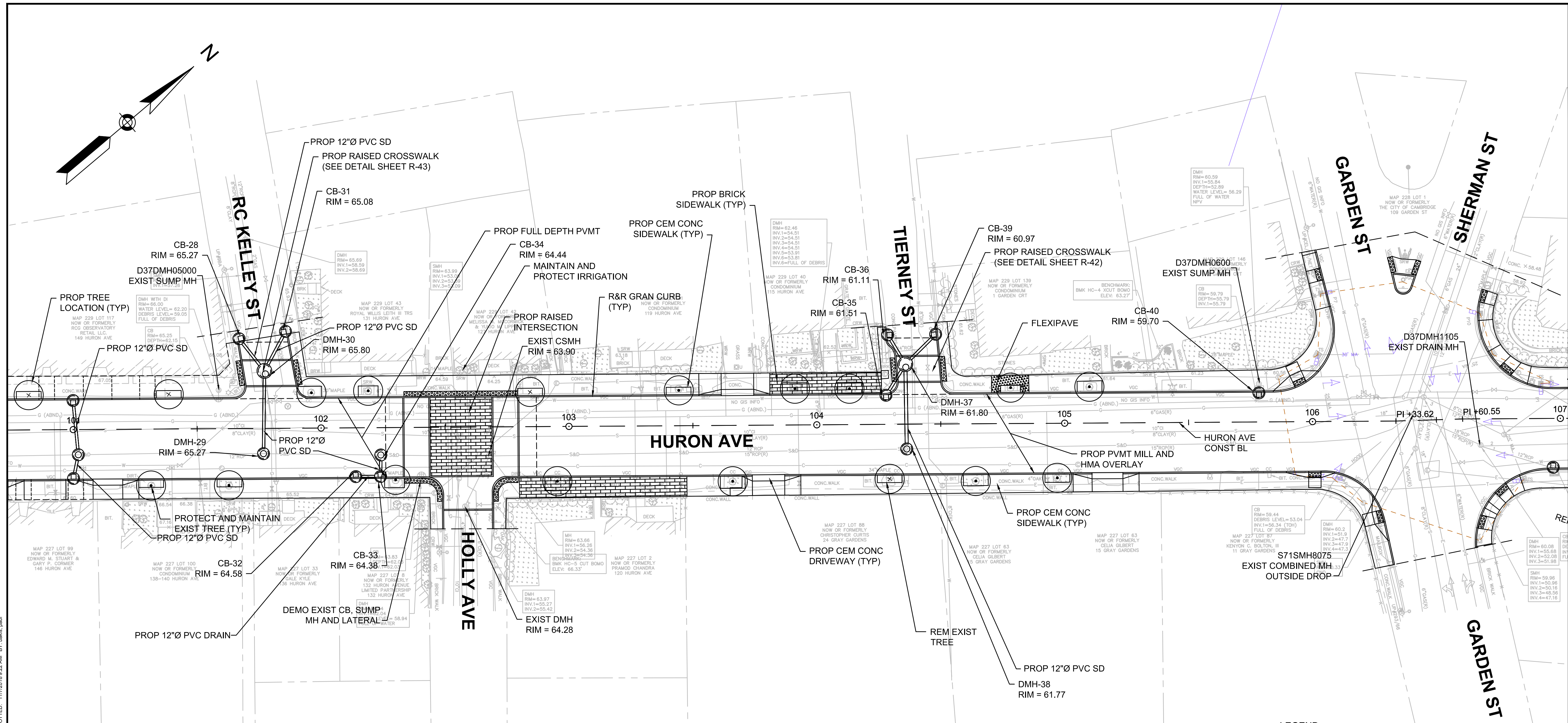


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| Date        | NOVEMBER 2018 |     |             |      |
| Job No.     | 20170208.019A |     |             |      |
| Designed by | JRH           |     |             |      |
| Drawn by    | JRH           |     |             |      |
| Checked by  | PFB           | No. | Description | Date |
| Approved by | PFB           |     | REVISIONS   |      |



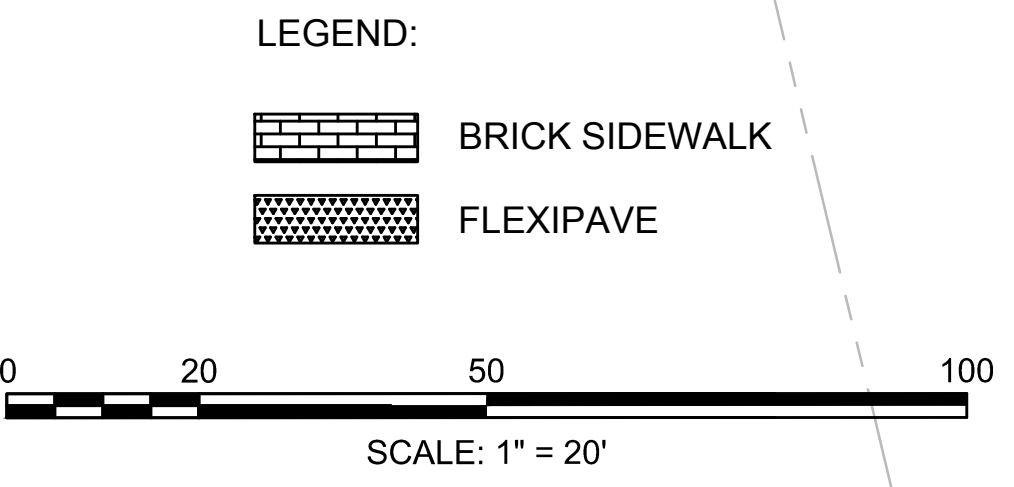
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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HURON AVENUE CONSTRUCTION PLANS<br>SHEET 1 OF 4        |

|          |      |
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| Sheet    | R-7  |
| File No. | 8310 |



- NOTES:
- CONTRACTOR SHALL ADJUST EXISTING UTILITY COVERS AND CASTINGS TO REGRADED SURFACES. THE CONTRACTOR SHALL COORDINATE WITH RESPECTIVE UTILITY COMPANIES FOR GAS/TELECOM/CABLE/ELECTRIC.
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- ALL EXISTING SIGNS SHALL BE REMOVED AND REPLACED UNLESS OTHERWISE NOTED. ALL REINSTALLED SIGNS OR PROPOSED SIGNS SHALL BE LOCATED A LATERAL CLEARANCE OF 1' FROM THE CURB.
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- STRIPING SHOW ON HURON AVE FOR BIDDING PURPOSES ONLY. CONTRACTOR SHALL COORDINATE FINAL STRIPING IN THE FIELD WITH THE CITY OF CAMBRIDGE.
- HAND EXCAVATION REQUIRED AS SHOWN ON THIS SHEET TO PROTECT THE MOSAIC TILES AT THE BUSINESS ENTRANCES ALONG HURON AVE.



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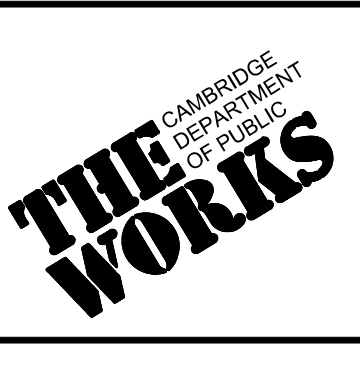
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CIVIL  
No. 48626  
REGISTERED PROFESSIONAL ENGINEER

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| Scale       | AS NOTED      |     |             |      |
| Date        | NOVEMBER 2018 |     |             |      |
| Job No.     | 20170208.019A |     |             |      |
| Designed by | JRH           |     |             |      |
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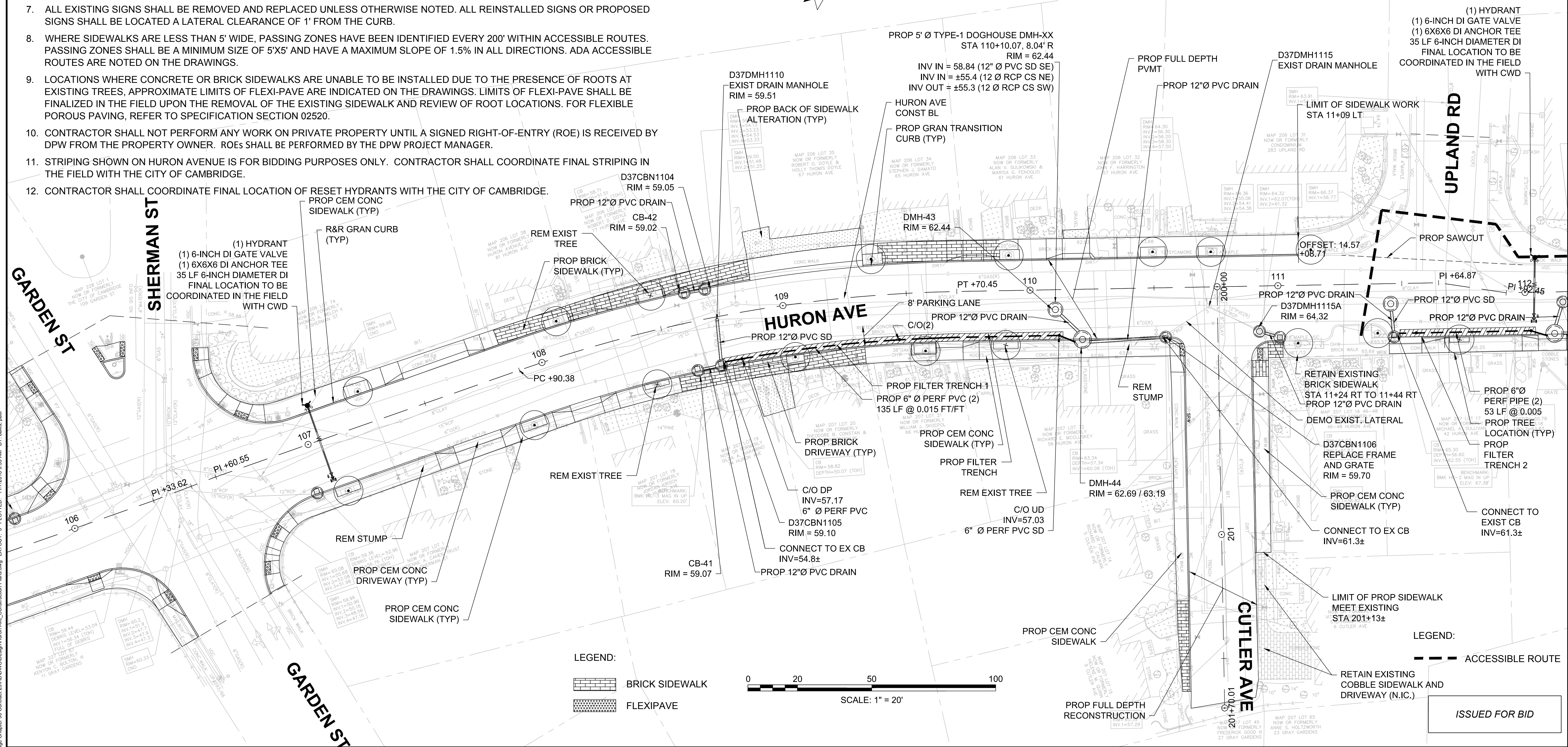
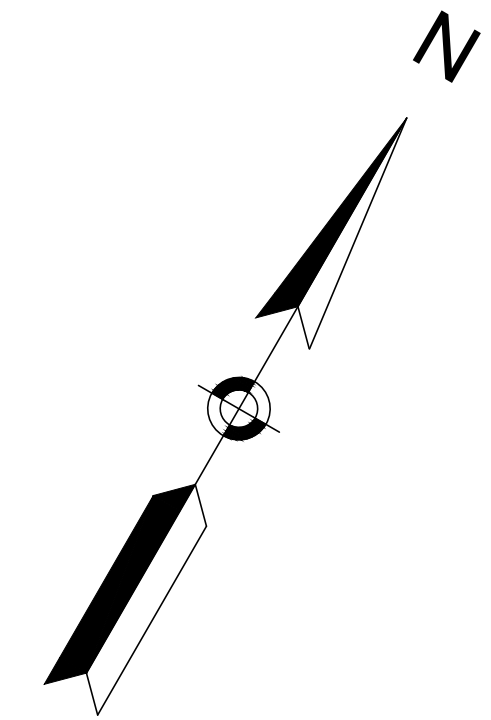


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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HURON AVENUE CONSTRUCTION PLANS<br>SHEET 2 OF 4        |

|          |      |
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| Sheet    | R-8  |
| File No. | 8310 |

**NOTES:**

- CONTRACTOR SHALL ADJUST EXISTING UTILITY COVERS AND CASTINGS TO REGRADED SURFACES. THE CONTRACTOR SHALL COORDINATE WITH RESPECTIVE UTILITY COMPANIES FOR GAS/TELECOM/CABLE/ELECTRIC.
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- CONTRACTOR SHALL COORDINATE FINAL LOCATION OF RESET HYDRANTS WITH THE CITY OF CAMBRIDGE.



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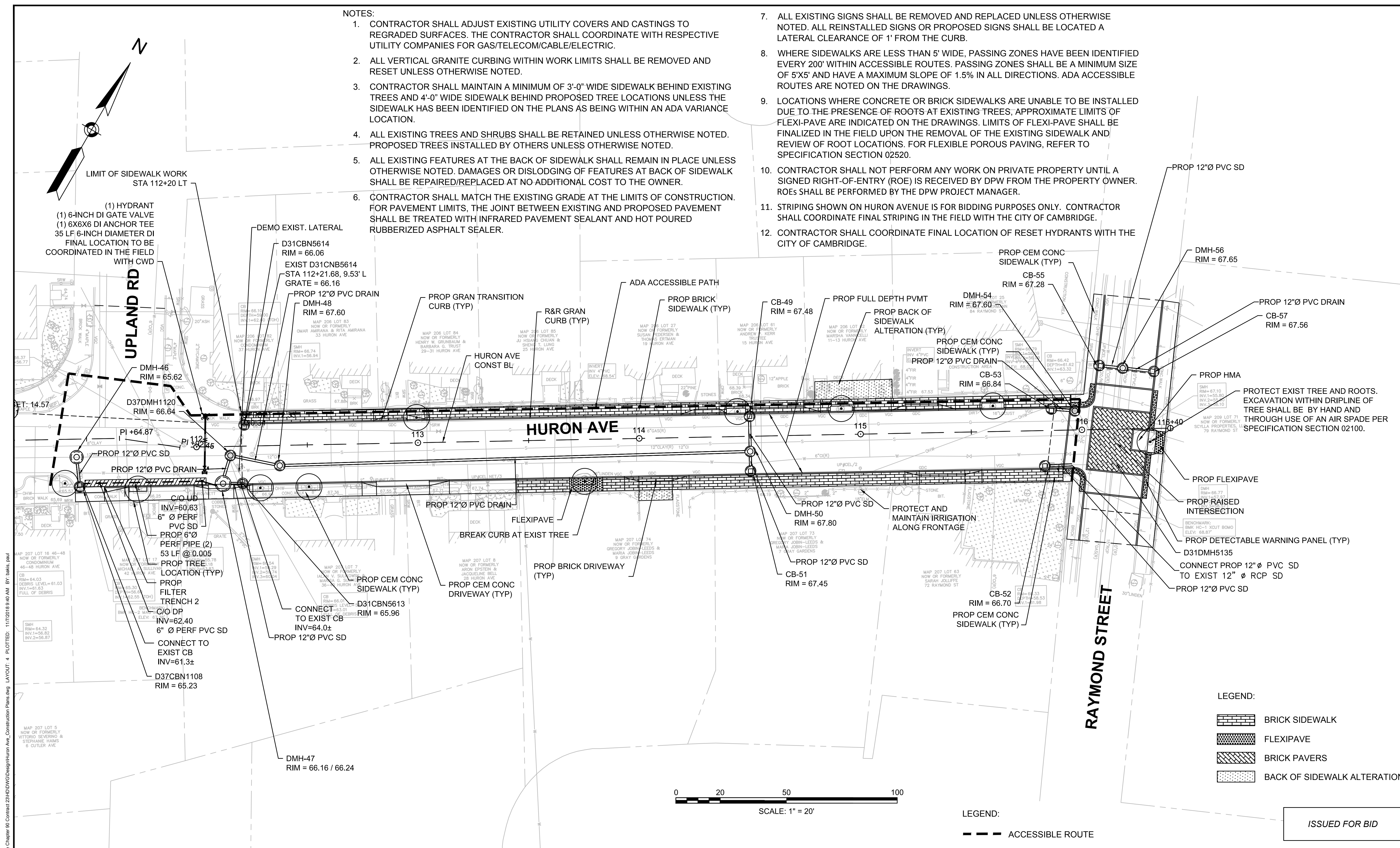


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| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HURON AVENUE CONSTRUCTION PLANS<br>SHEET 3 OF 4        |

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| Sheet    | R-9  |
| File No. | 8310 |

NOTES:

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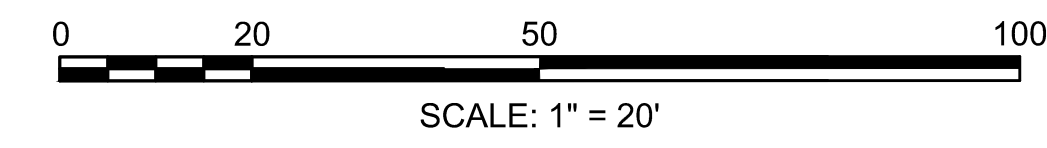


LEGEND:

- BRICK SIDEWALK
- FLEXIPAVE
- BRICK PAVERS
- BACK OF SIDEWALK ALTERATION

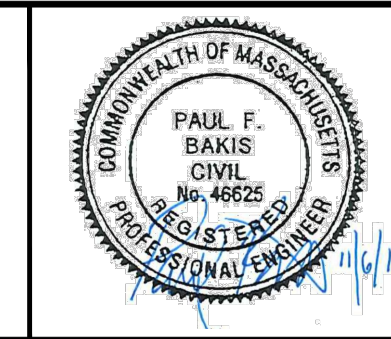
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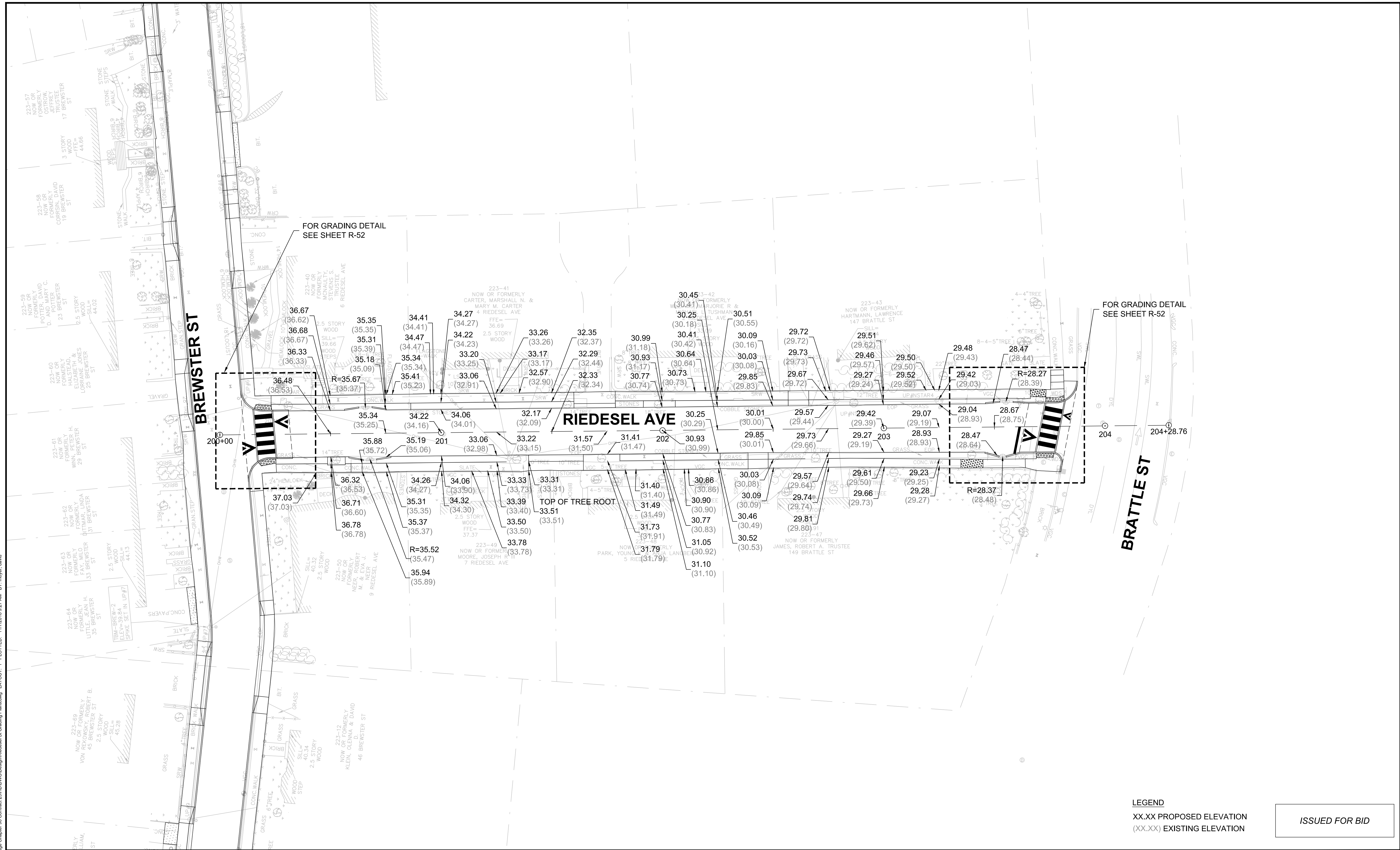


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| Job No.     | 20170208.019A |     |             |      |
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| Drawn by    | JRH           |     |             |      |
| Checked by  | PFB           | No. | Description | Date |
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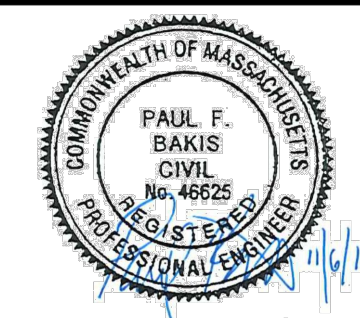
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| Drawing | HURON AVENUE CONSTRUCTION PLANS<br>SHEET 4 OF 4        |          |      |

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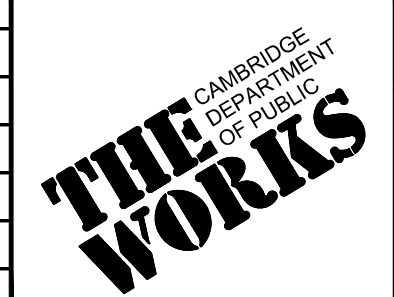


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 (XX.XX) EXISTING ELEVATION

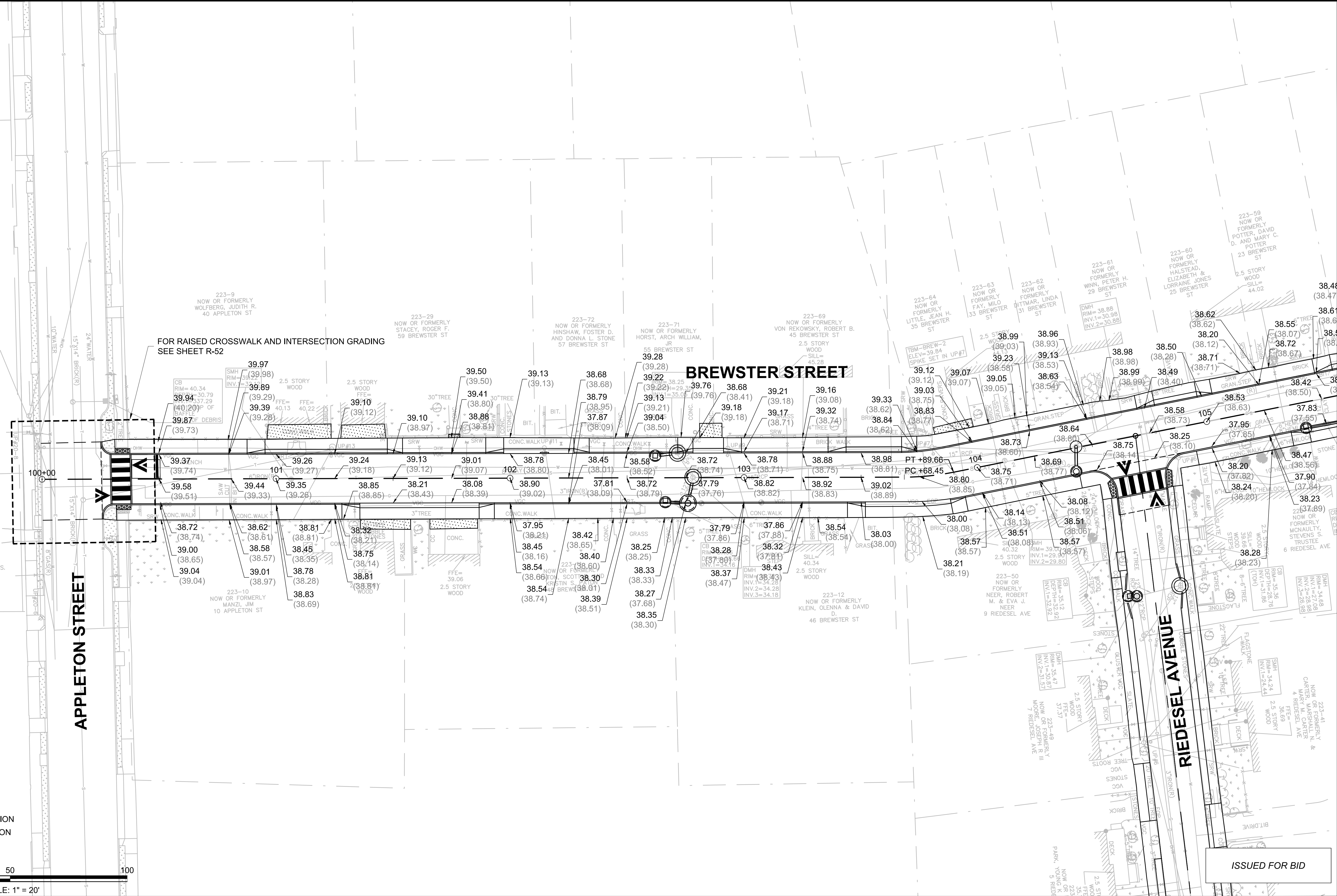
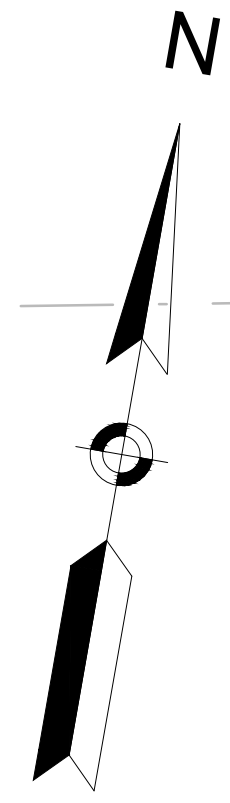
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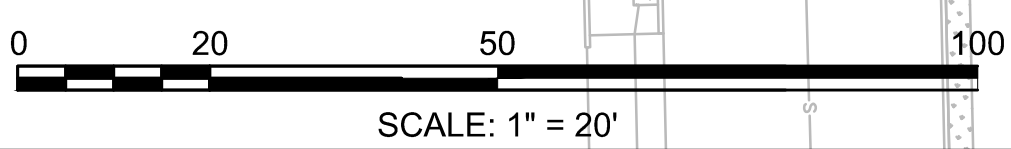
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| Drawn by    | JRH           |     |             |      |
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| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT | File No. | 8310 |
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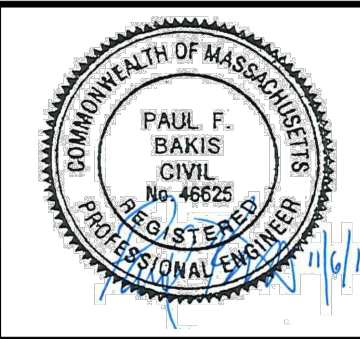


**LEGEND**  
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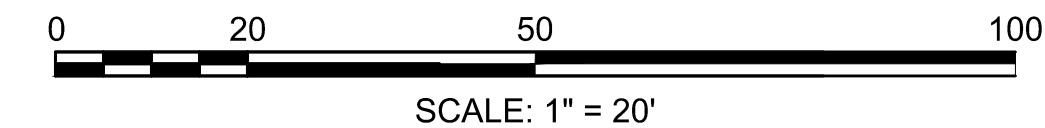


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| Drawing | BREWSTER STREET GRADING PLANS<br>SHEET 1 OF 2          |

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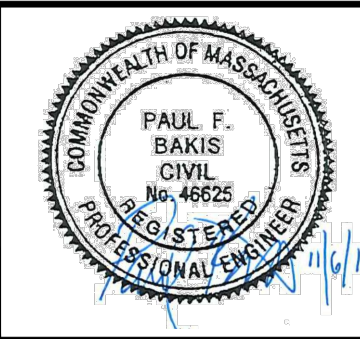


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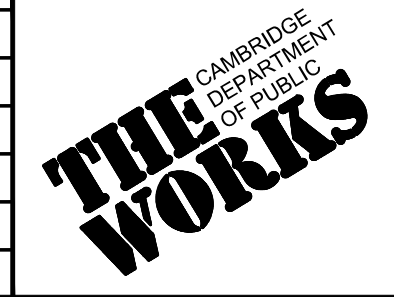


**LEGEND**  
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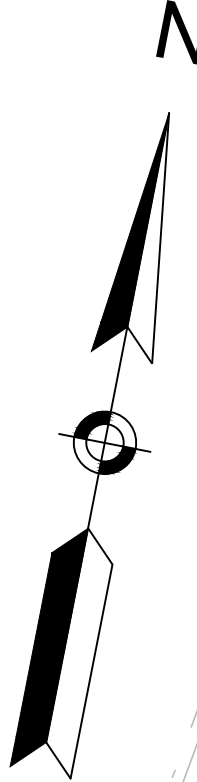


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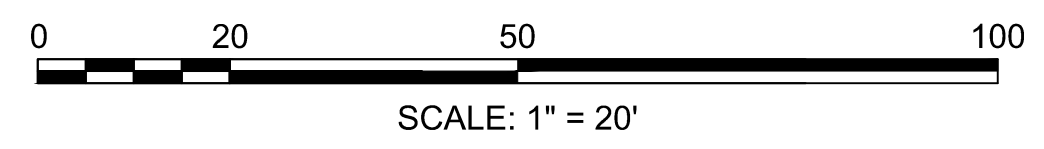
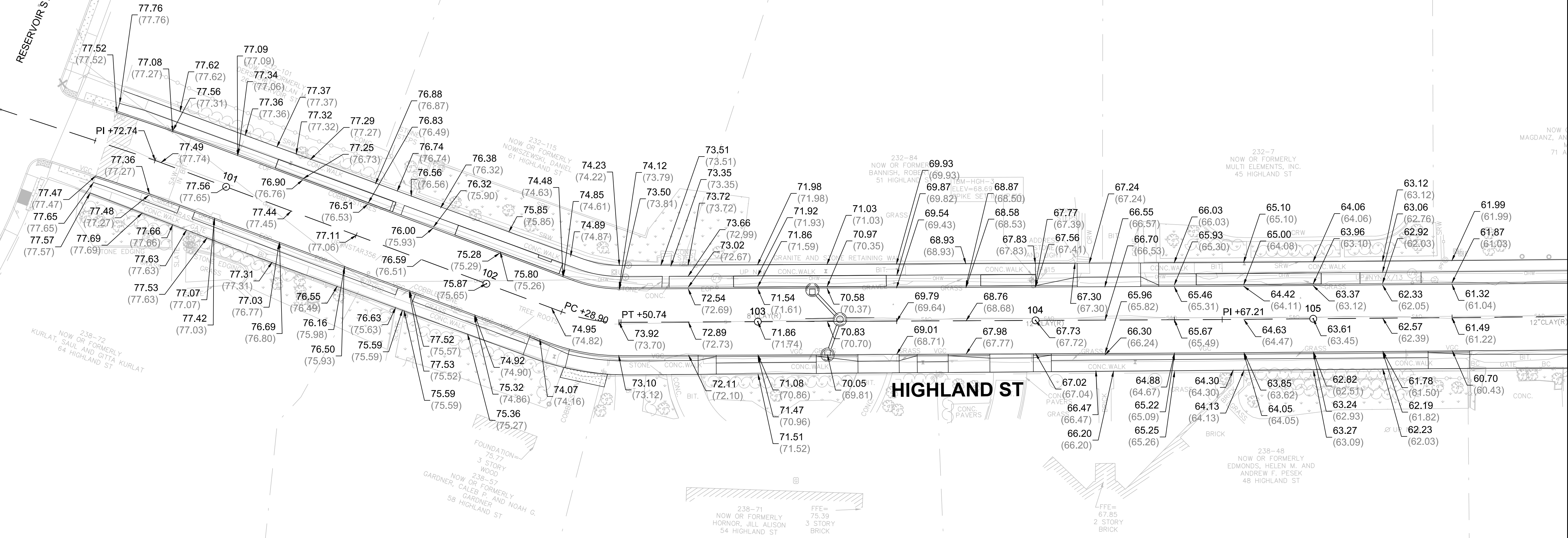


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| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | BREWSTER STREET GRADING PLANS<br>SHEET 2 OF 2          |

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| Sheet    | R-13 |
| File No. | 8310 |



RESERVOIR STREET



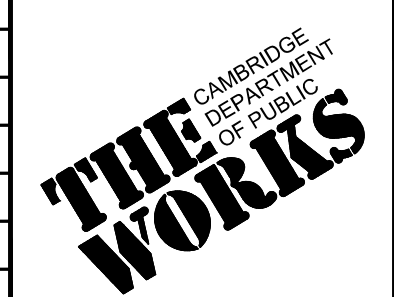
**LEGEND**  
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 (XX.XX) EXISTING ELEVATION

ISSUED FOR BID

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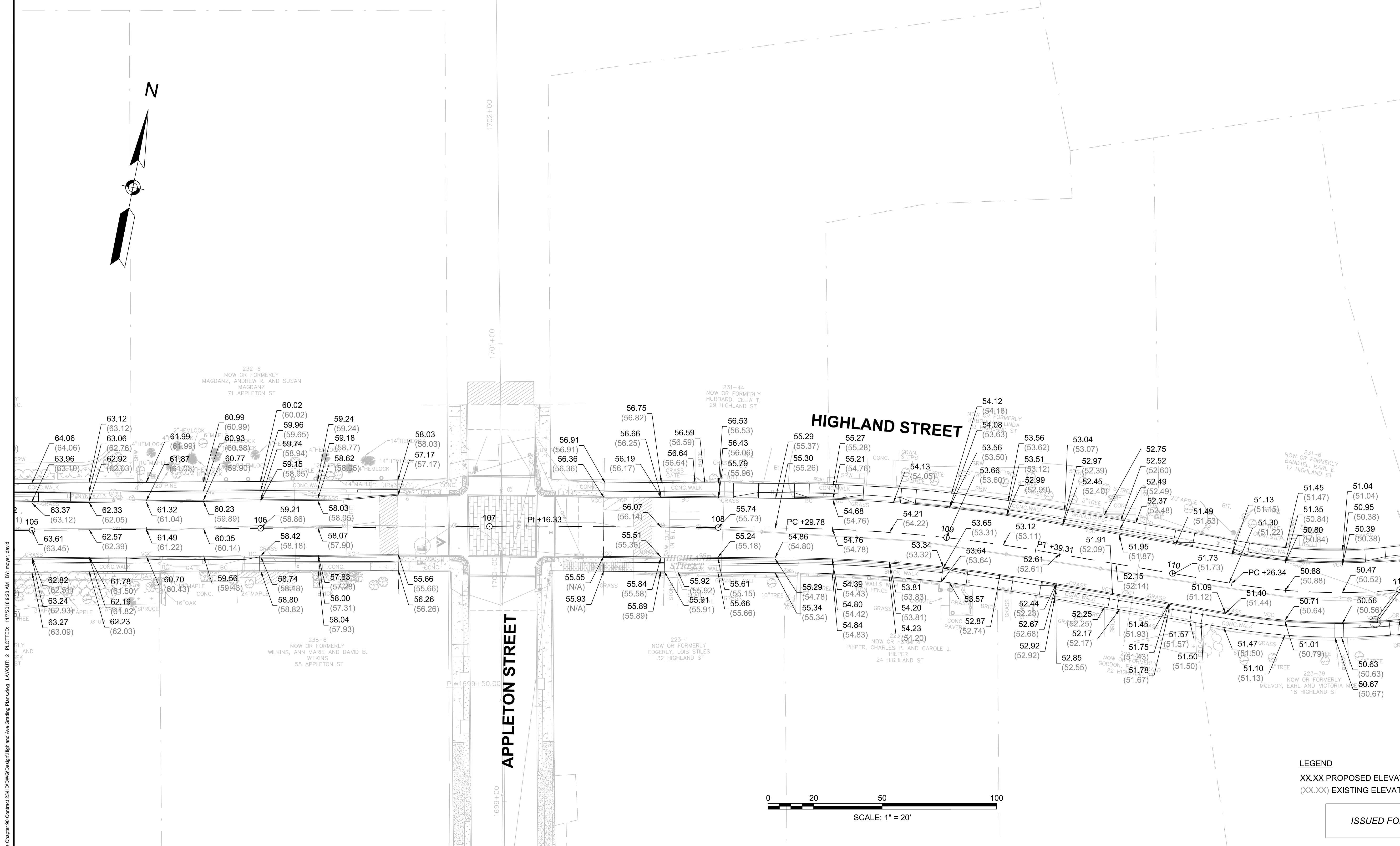
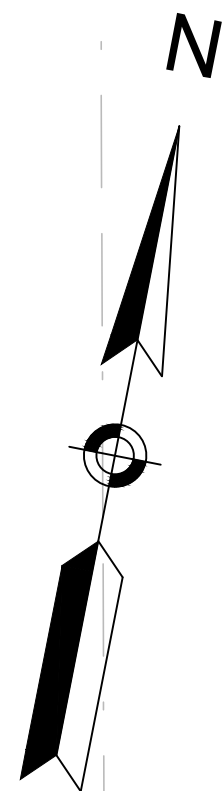
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| Date        | NOVEMBER 2018 |     |             |
| Job No.     | 20170208.019A |     |             |
| Designed by | JRH           |     |             |
| Drawn by    | JRH           |     |             |
| Checked by  | PFB           | No. | Description |
| Approved by | PFB           |     | Date        |



|         |  |
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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HIGHLAND STREET GRADING PLAN<br>SHEET 1 OF 3           |

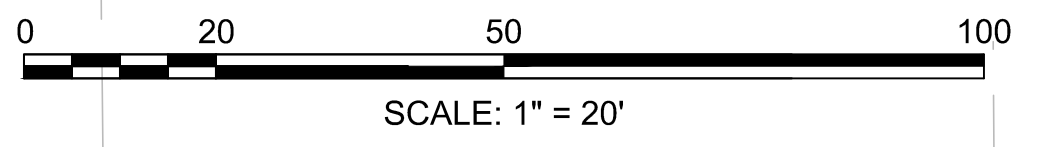
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| Sheet    | R-14 |
| File No. | 8310 |





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**LEGEND**  
 XX.XX PROPOSED ELEVATION  
 (XX.XX) EXISTING ELEVATION



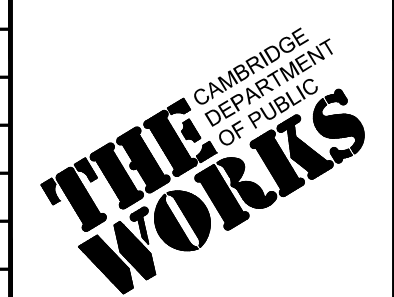
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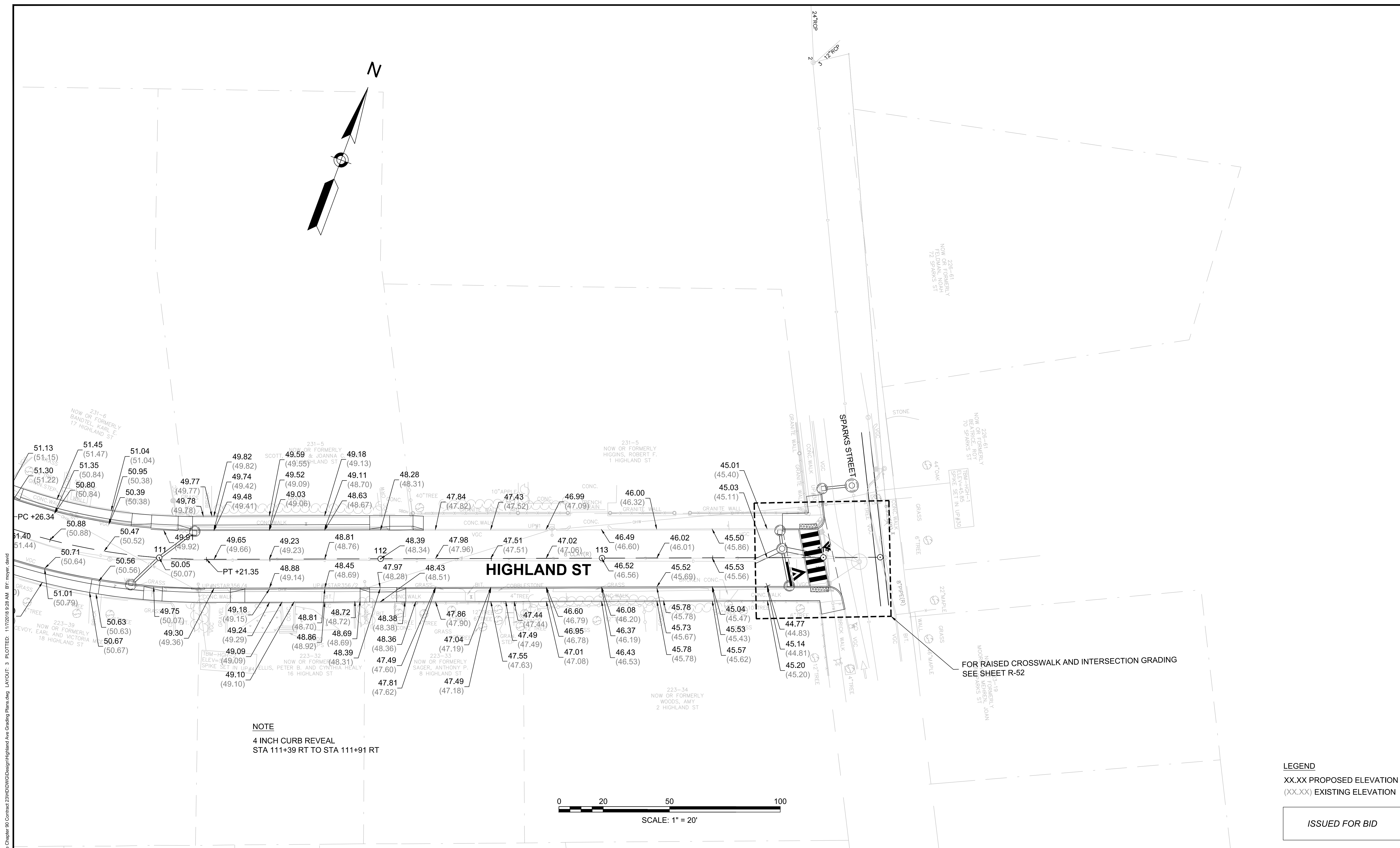
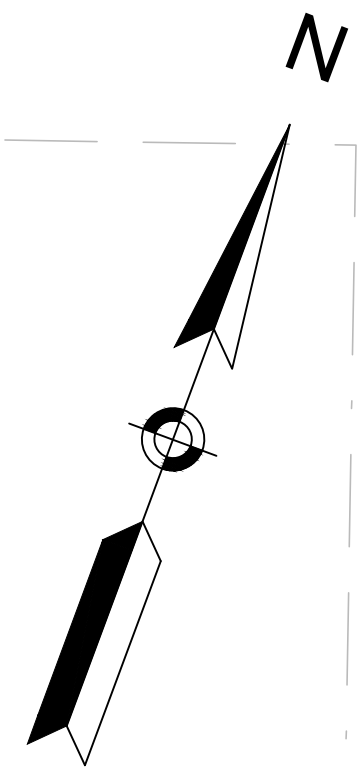


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| Job No.     | 20170208.019A |     |             |
| Designed by | JRH           |     |             |
| Drawn by    | JRH           |     |             |
| Checked by  | PFB           | No. | Description |
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|             |               |     | REVISIONS   |

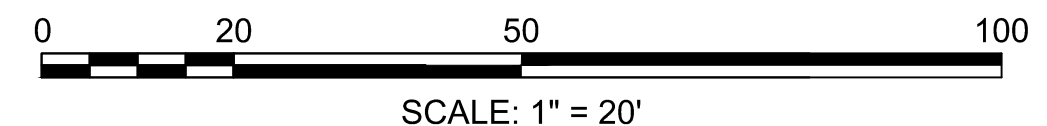


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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HIGHLAND STREET GRADING PLAN<br>SHEET 2 OF 3           |

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| Sheet    | R-15 |
| File No. | 8310 |



NOTE  
4 INCH CURB REVEAL  
STA 111+39 RT TO STA 111+91 RT



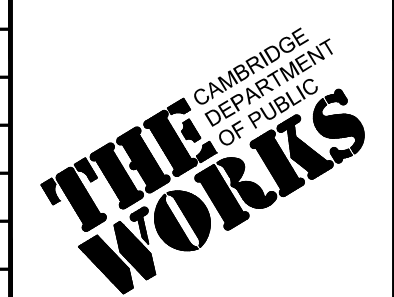
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XX.XX PROPOSED ELEVATION  
(XX.XX) EXISTING ELEVATION

ISSUED FOR BID

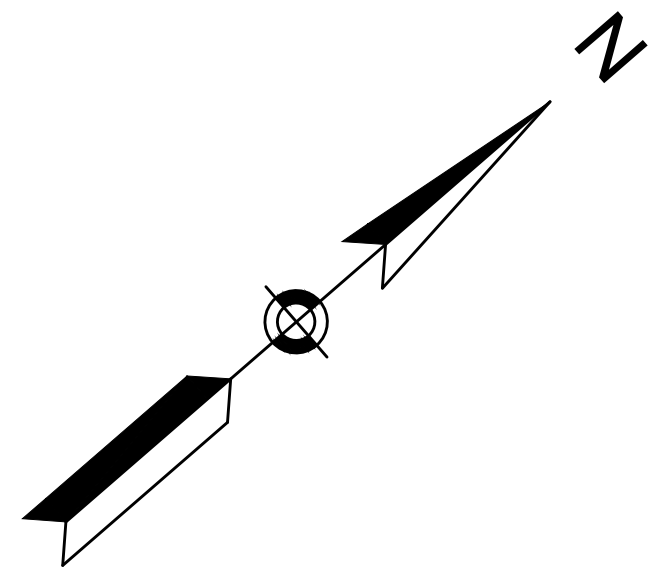
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| Job No.     | 20170208.019A |           |             |
| Designed by | JRH           |           |             |
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| Checked by  | PFB           | No.       | Description |
| Approved by | PFB           |           | Date        |
|             |               | REVISIONS |             |



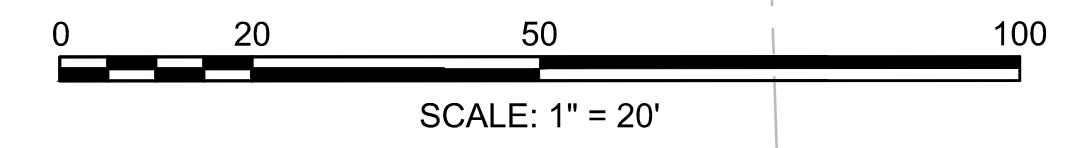
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| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT | File No. | 8310 |
| Drawing | HIGHLAND STREET GRADING PLAN<br>SHEET 3 OF 3           |          |      |



CONCORD AVE

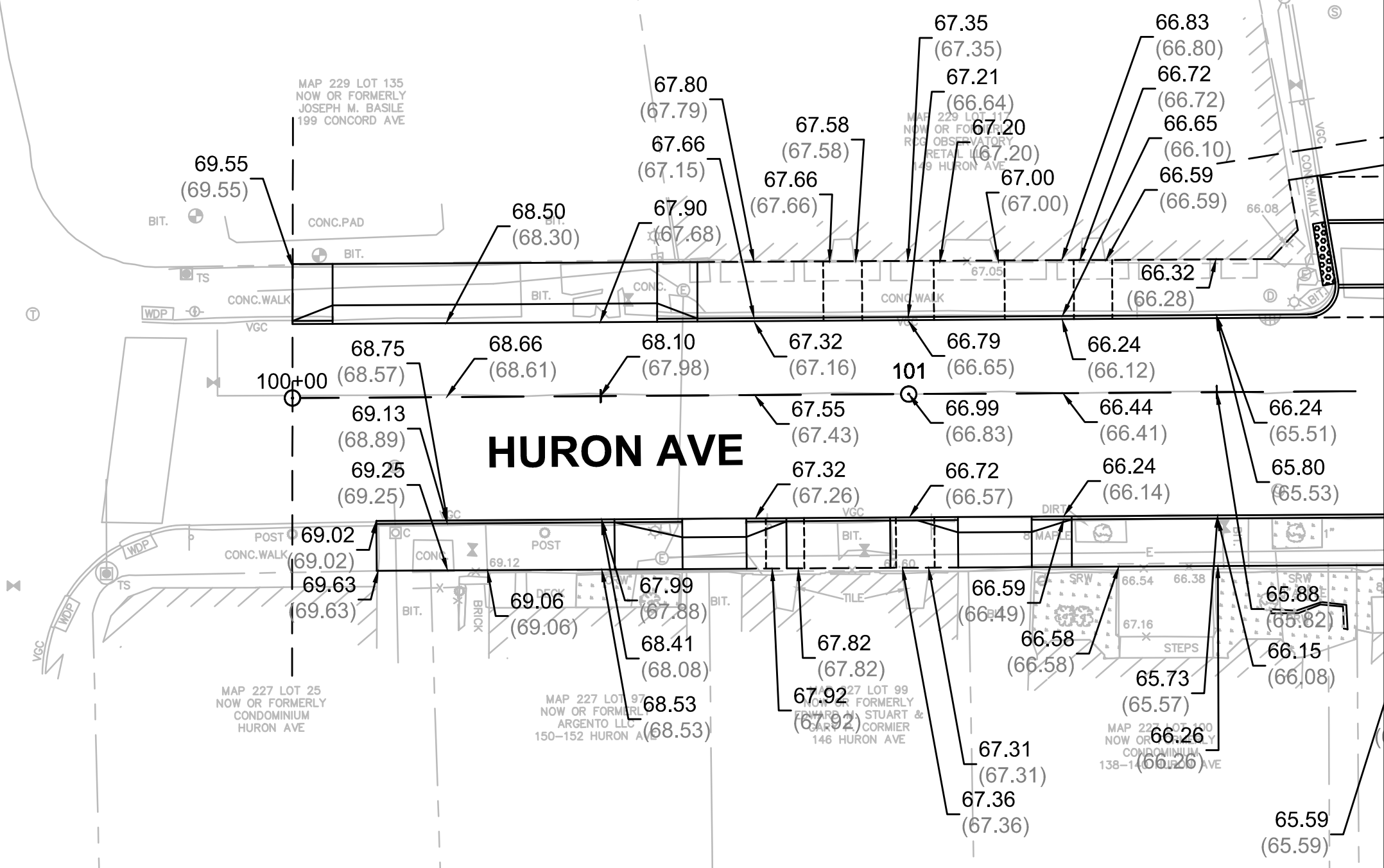
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HURON AVE

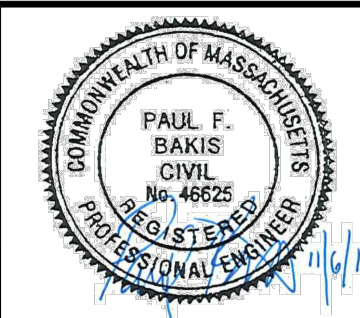


**LEGEND**  
 XX.XX PROPOSED ELEVATION  
 (XX.XX) EXISTING ELEVATION

ISSUED FOR BID



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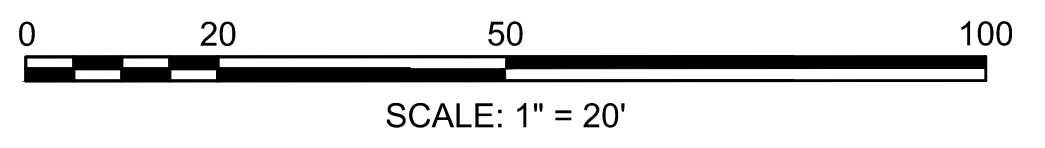
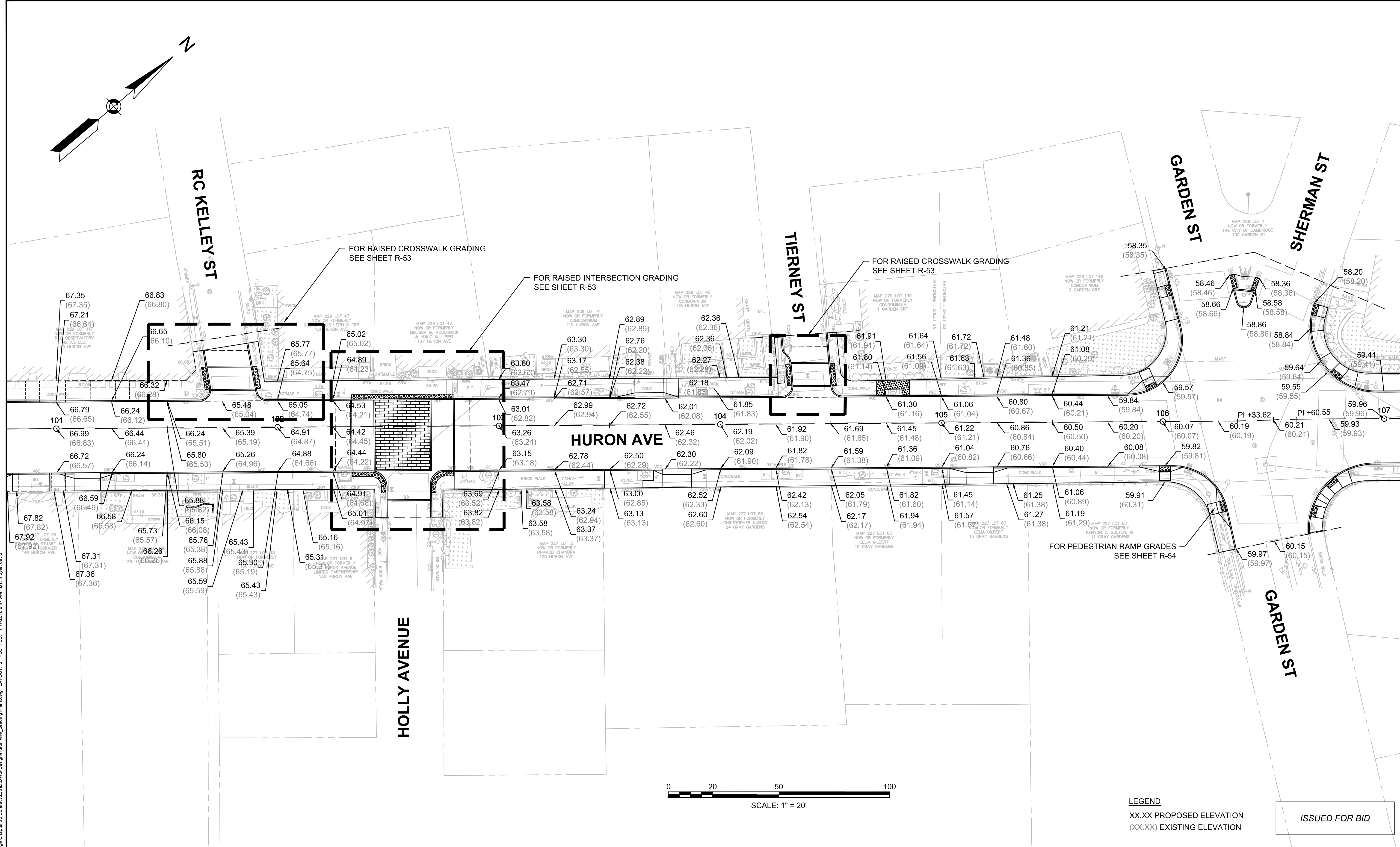
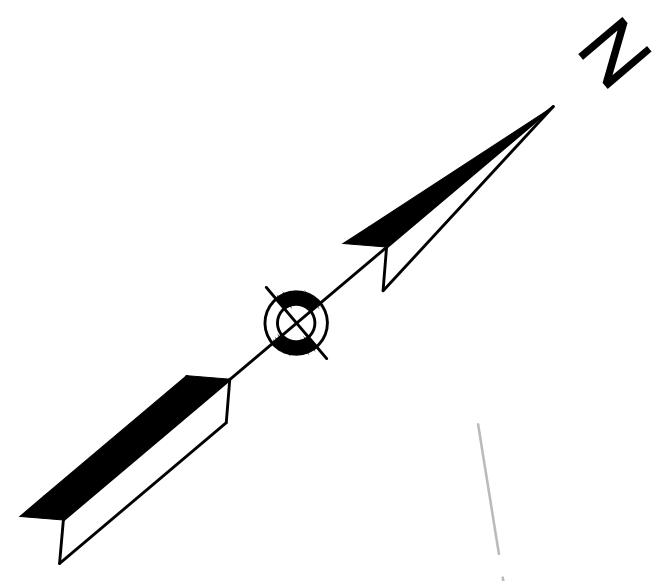


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| Job No.     | 20170208.019A |     |             |      |
| Designed by | SPR           |     |             |      |
| Drawn by    | SPR           |     |             |      |
| Checked by  | PFB           | No. | Description | Date |
| Approved by | PFB           |     | REVISIONS   |      |



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|---------|--|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HURON AVENUE GRADING PLANS<br>SHEET 1 OF 4             |

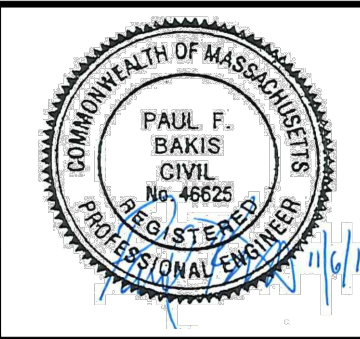
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| Sheet    | R-17 |
| File No. | 8310 |



**LEGEND**  
 XX.XX PROPOSED ELEVATION  
 (XX.XX) EXISTING ELEVATION

ISSUED FOR BID

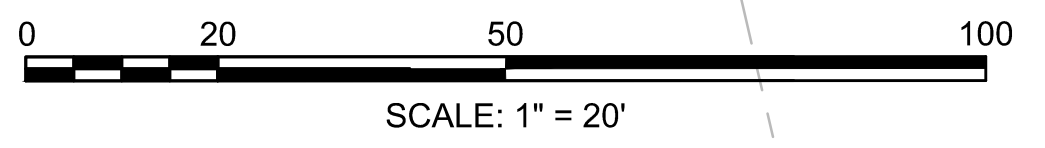
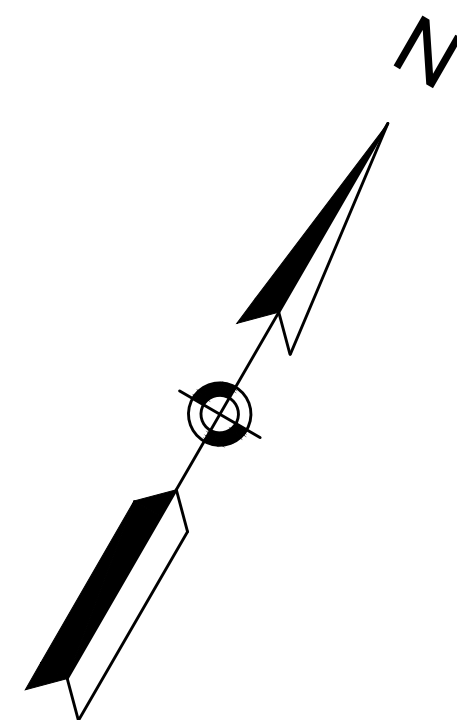
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| Checked by  | PFB           | No. | Description |
| Approved by | PFB           |     | REVISIONS   |



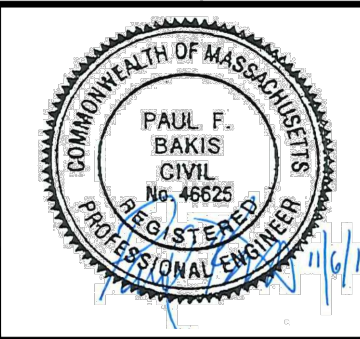
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| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT | File No. | 8310 |
| Drawing | HURON AVENUE GRADING PLANS<br>SHEET 2 OF 4             |          |      |



**LEGEND**  
 XX.XX PROPOSED ELEVATION  
 (XX.XX) EXISTING ELEVATION

ISSUED FOR BID

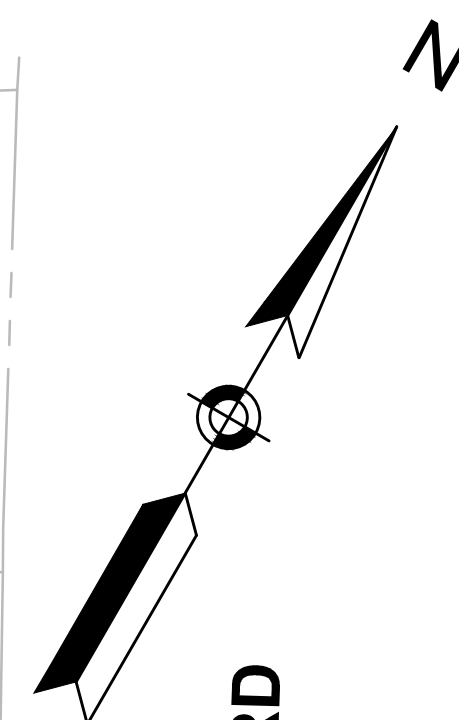
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| Approved by | PFB           |     | REVISIONS   |      |



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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       | Sheet    | R-19 |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT | File No. | 8310 |
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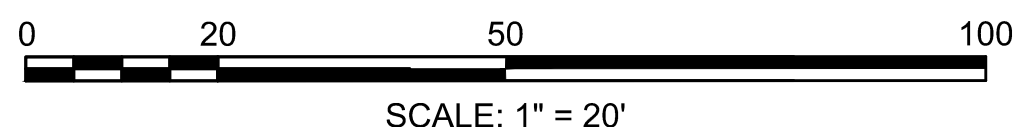


UPLAND RD

HURON AVE

RAYMOND ST

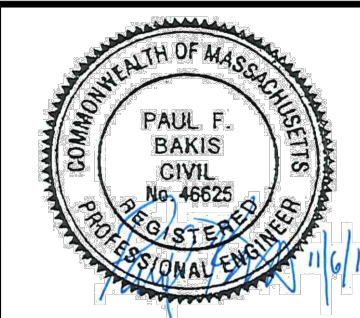
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**LEGEND**  
 XX.XX PROPOSED ELEVATION  
 (XX.XX) EXISTING ELEVATION

ISSUED FOR BID

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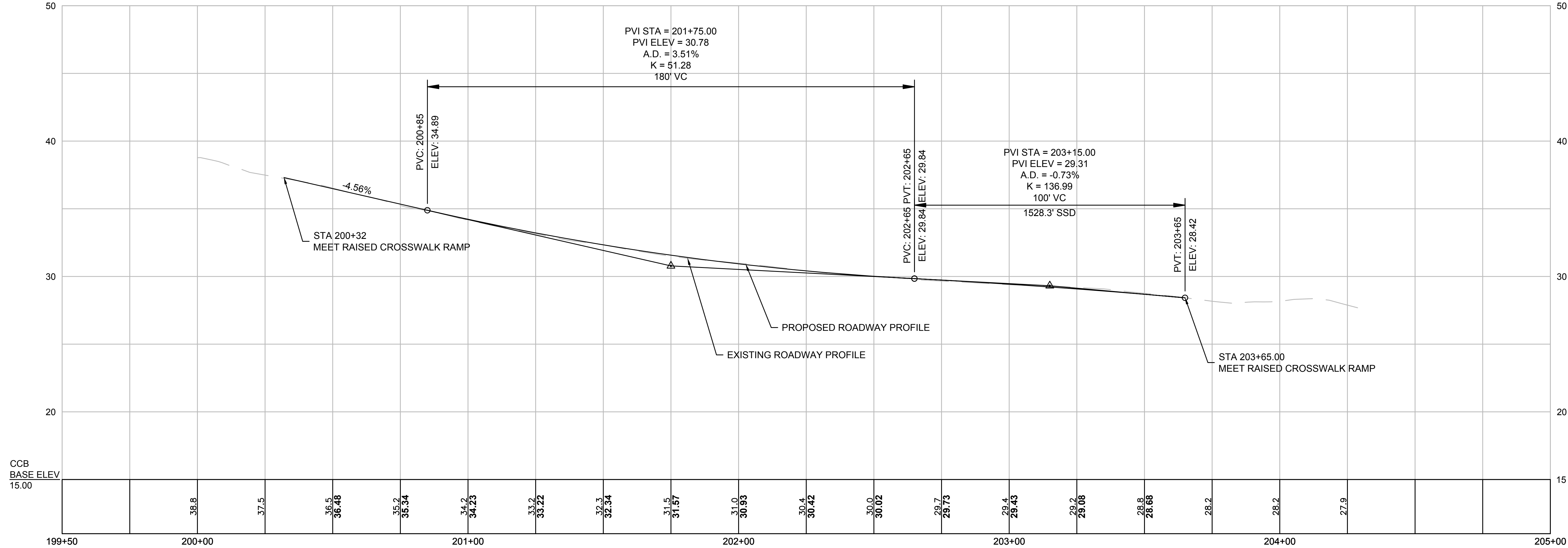
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| Designed by | SPR           |     |             |
| Drawn by    | SPR           |     |             |
| Checked by  | PFB           | No. | Description |
| Approved by | PFB           |     | REVISIONS   |



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|---------|--|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HURON AVENUE GRADING PLANS<br>SHEET 4 OF 4             |

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| Sheet    | R-20 |
| File No. | 8310 |

RIEDESEL AVE



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| Date        | NOVEMBER 2018 |
| Job No.     | 20170208.019A |
| Designed by | JRH           |
| Drawn by    | JRH           |
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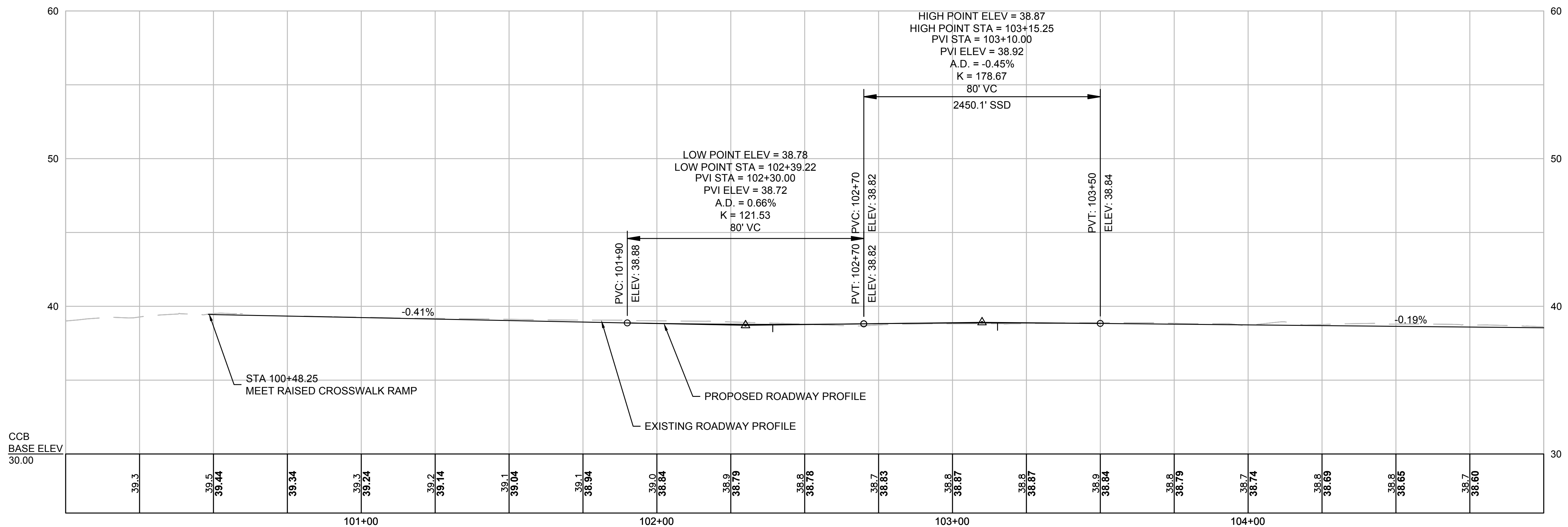
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|     | REVISIONS   |      |



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| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | RIEDESEL AVENUE - ROADWAY PROFILE<br>SHEET 1 OF 1      |

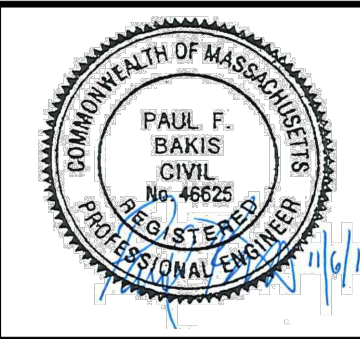
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| Sheet    | R-21 |
| File No. | 8310 |

# BREWSTER ST



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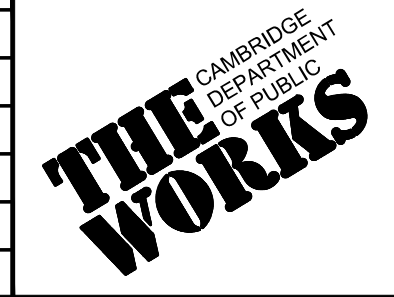
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| Date        | NOVEMBER 2018 |
| Job No.     | 20170208.019A |
| Designed by | JRH           |
| Drawn by    | JRH           |
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| No. | Description | Date |
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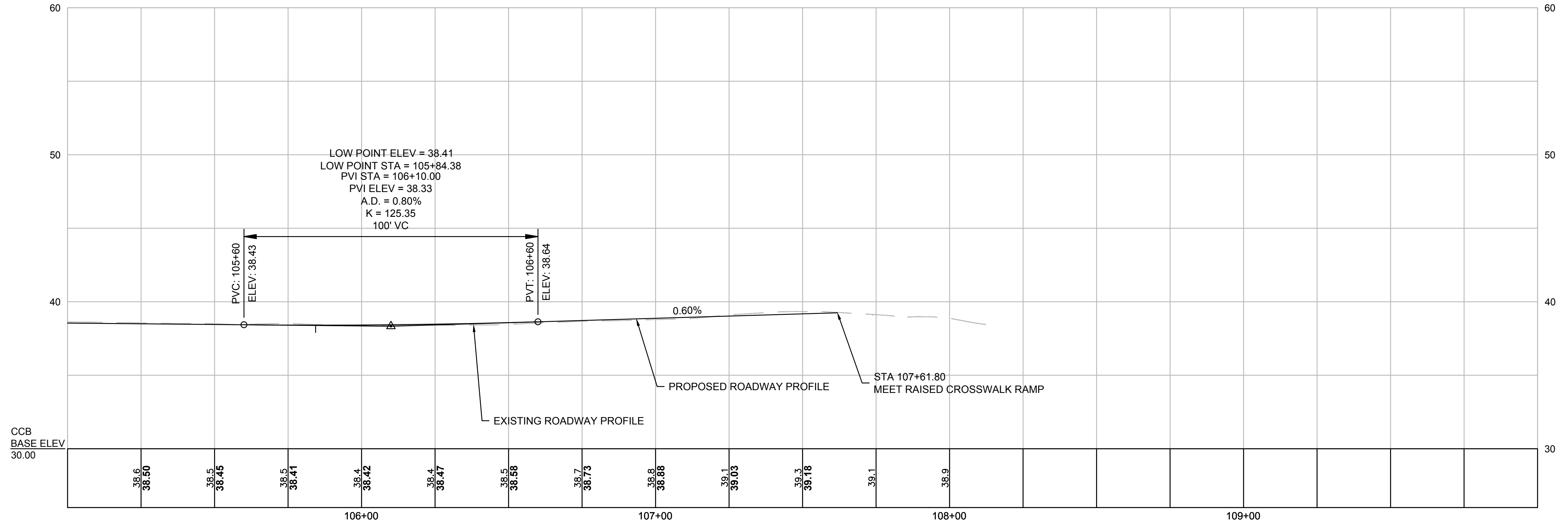


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| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | BREWSTER STREET - ROADWAY PROFILE<br>SHEET 1 OF 2      |

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| Sheet    | R-22 |
| File No. | 8310 |



# BREWSTER ST

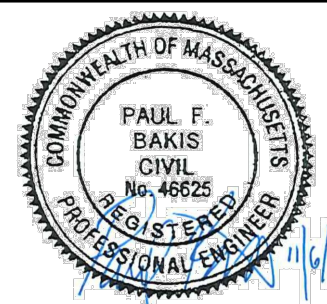


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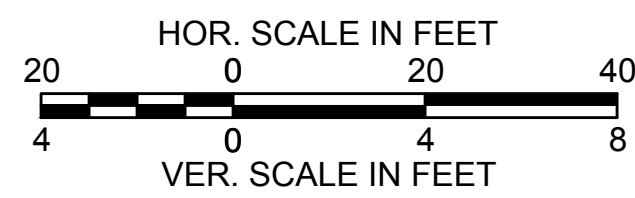
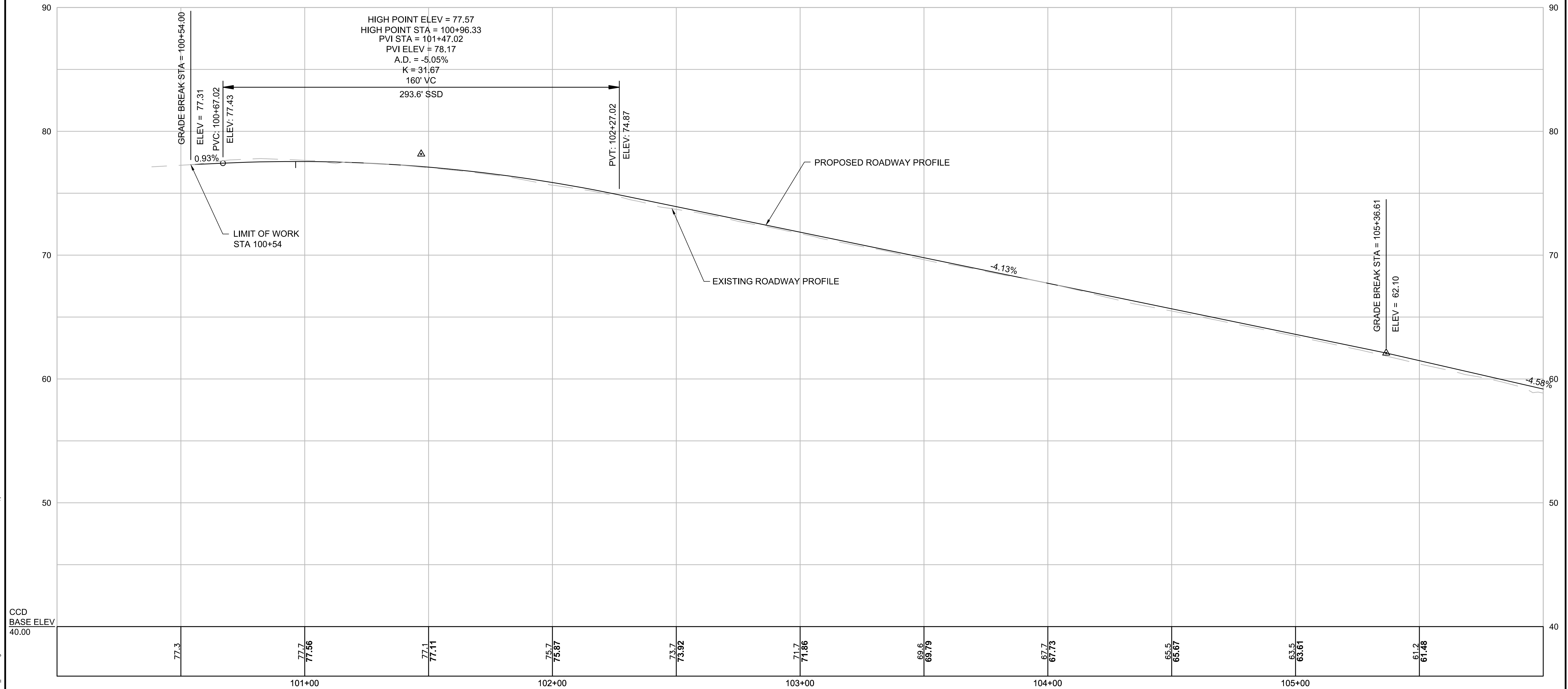
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| Approved by | PFB           |     | REVISIONS   |      |



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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | BREWSTER STREET - ROADWAY PROFILE<br>SHEET 2 OF 2      |

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| Sheet    | R-23 |
| File No. | 8310 |

# HIGHLAND STREET

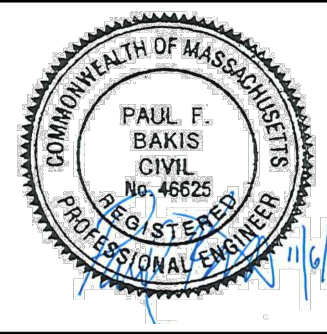


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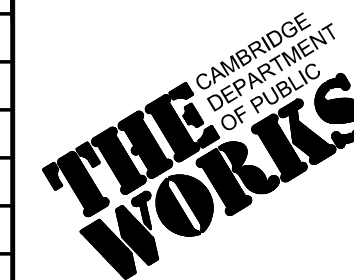
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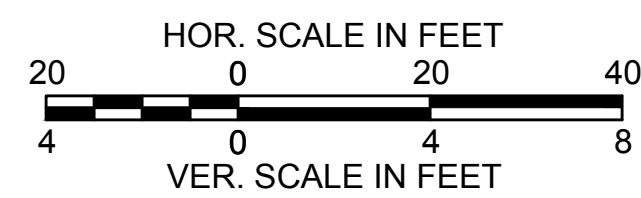
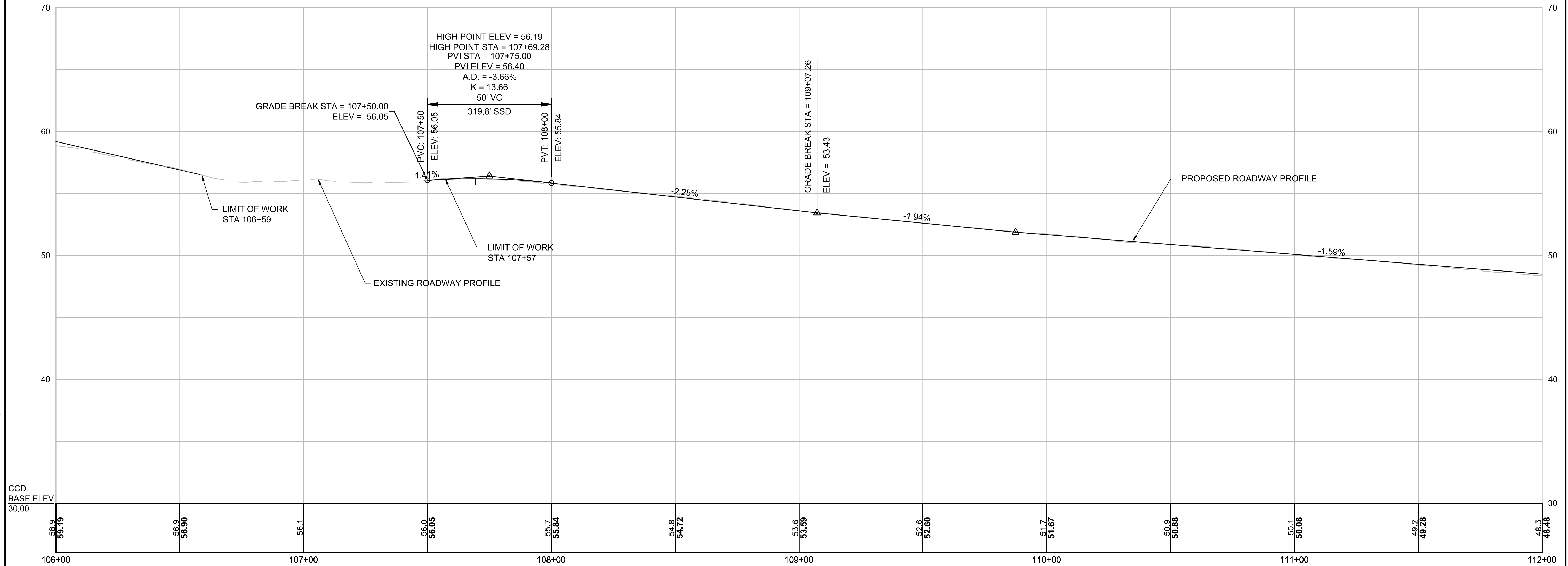


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| Designed by | JRH           |      |             |
| Drawn by    | JRH           |      |             |
| Checked by  | PFB           | No.  | Description |
| Approved by | PFB           |      | REVISIONS   |
|             |               | Date |             |



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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       | Sheet    | R-24 |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT | File No. | 8310 |
| Drawing | HIGHLAND ST PROFILE<br>SHEET 1 OF 3                    |          |      |

# HIGHLAND STREET

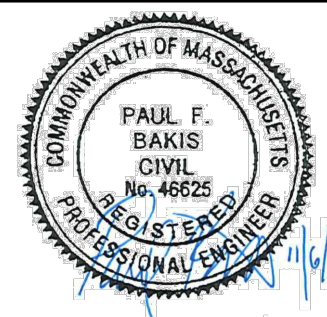


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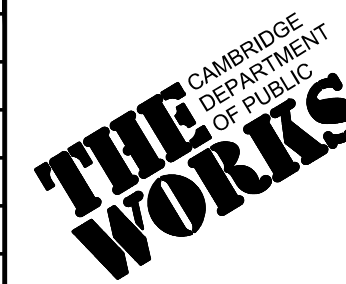
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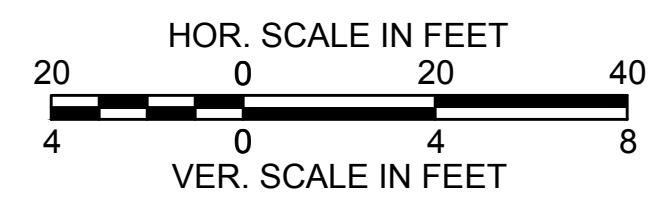
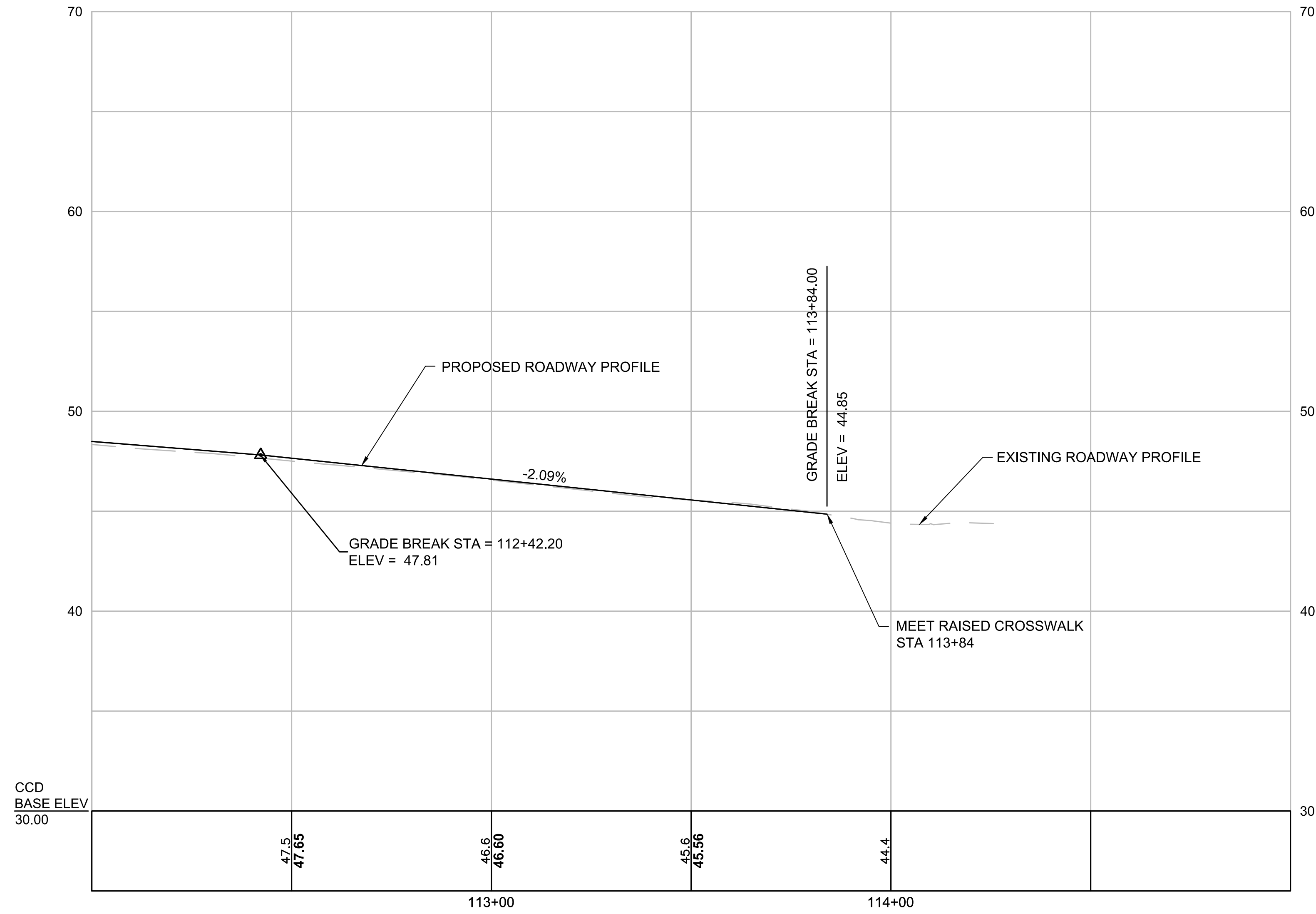


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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       | Sheet    | R-25 |
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| Drawing | HIGHLAND ST PROFILE<br>SHEET 2 OF 3                    |          |      |

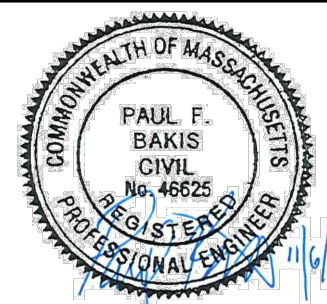
# HIGHLAND STREET



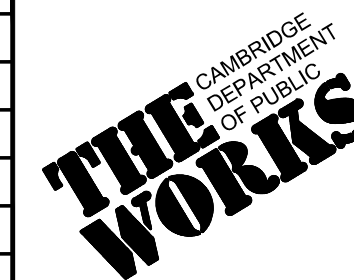
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| Scale       | AS NOTED      |     |             |
| Date        | NOVEMBER 2018 |     |             |
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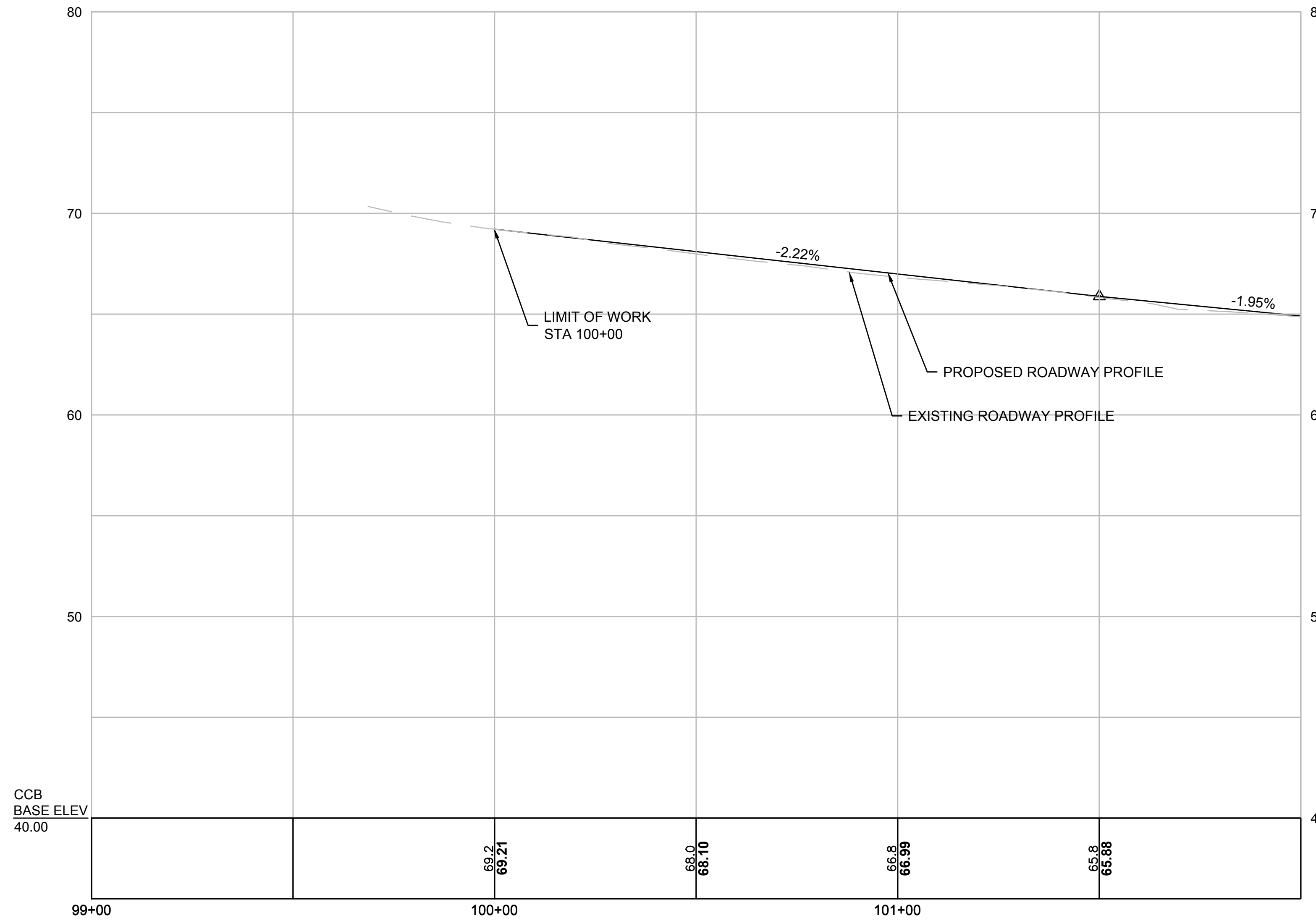


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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HIGHLAND ST PROFILE<br>SHEET 3 OF 3                    |

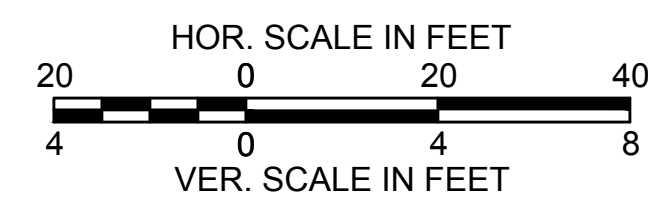
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| Sheet    | R-26 |
| File No. | 8310 |

CAD FILE: I:\mg1\16042-48\Contract 23A\DDWG\Design\Highland Ave\_Profile.dwg LAYOUT: Profile 3 PLOTTED: 11/7/2018 8:34 AM BY: bakis, paul

# HURON AVE



CCB  
BASE ELEV  
40.00

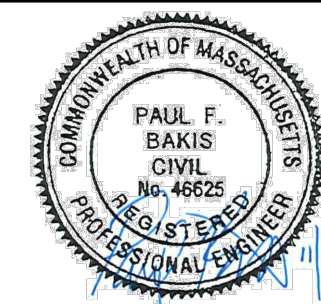


ISSUED FOR BID

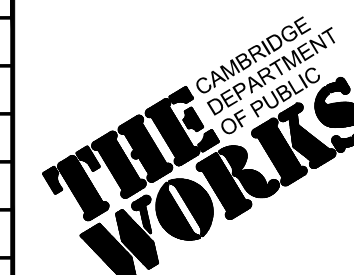
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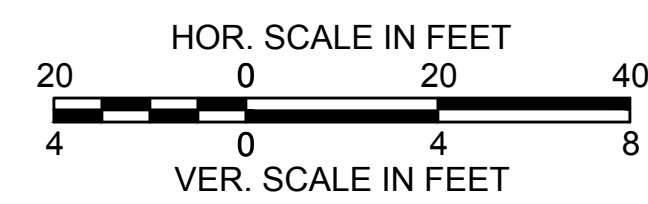
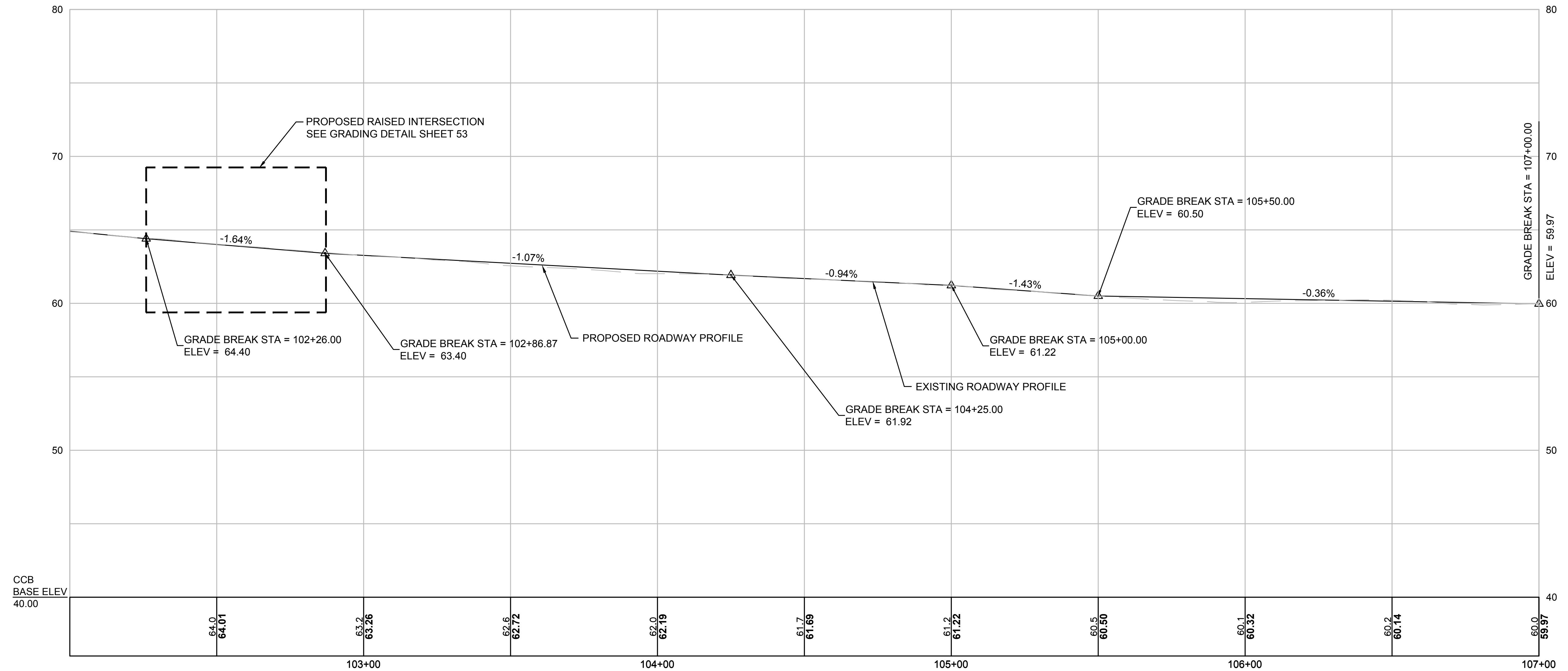
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| Scale       | AS NOTED      |     |             |      |
| Date        | NOVEMBER 2018 |     |             |      |
| Job No.     | 20170208.019A |     |             |      |
| Designed by | SPR           |     |             |      |
| Drawn by    | SPR           |     |             |      |
| Checked by  | DTM           | No. | Description | Date |
| Approved by | PFB           |     | REVISIONS   |      |



|         |  |
|---------|--|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HURON AVENUE PROFILE<br>SHEET 1 OF 4                   |

|          |      |
|----------|------|
| Sheet    | R-27 |
| File No. | 8310 |

# HURON AVE

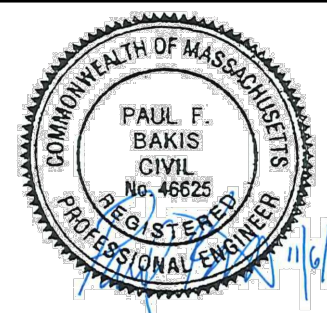


ISSUED FOR BID

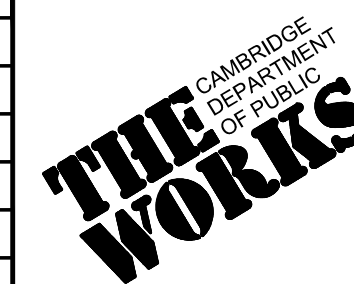
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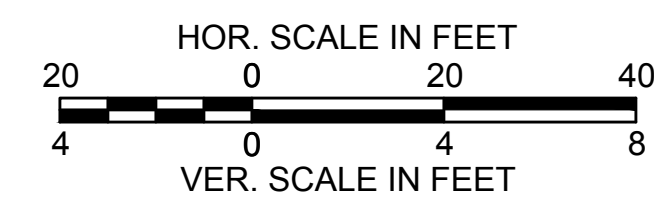
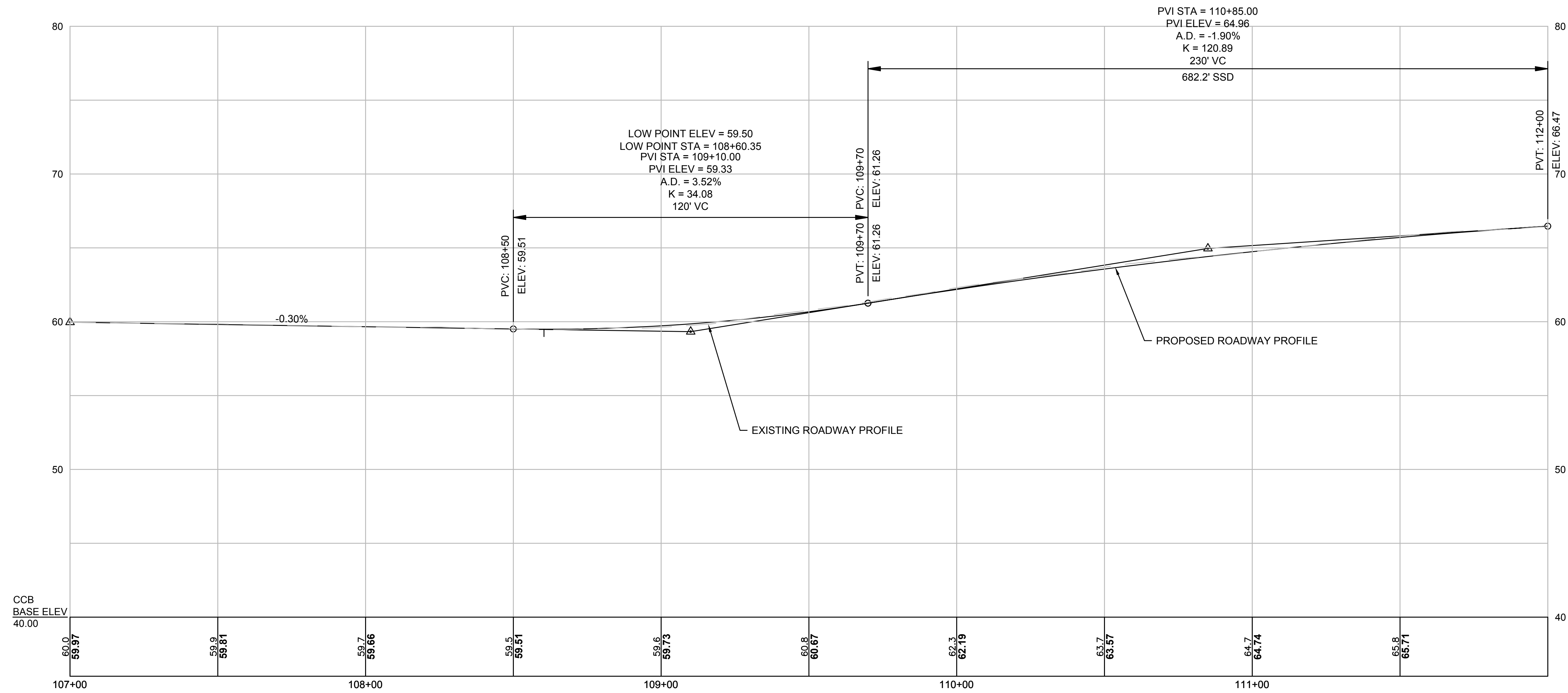
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| Date        | NOVEMBER 2018 |     |             |
| Job No.     | 20170208.019A |     |             |
| Designed by | SPR           |     |             |
| Drawn by    | SPR           |     |             |
| Checked by  | DTM           | No. | Description |
| Approved by | PFB           |     | REVISIONS   |



|         |  |
|---------|--|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HURON AVENUE PROFILE<br>SHEET 2 OF 4                   |

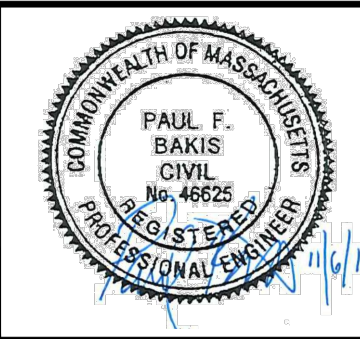
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| Sheet    | R-28 |
| File No. | 8310 |

# HURON AVE



ISSUED FOR BID

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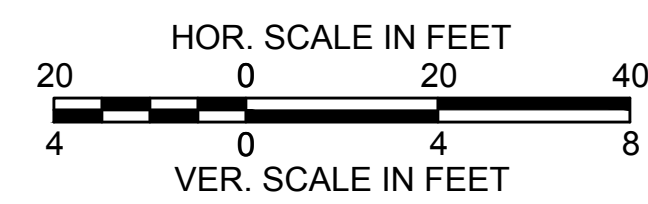
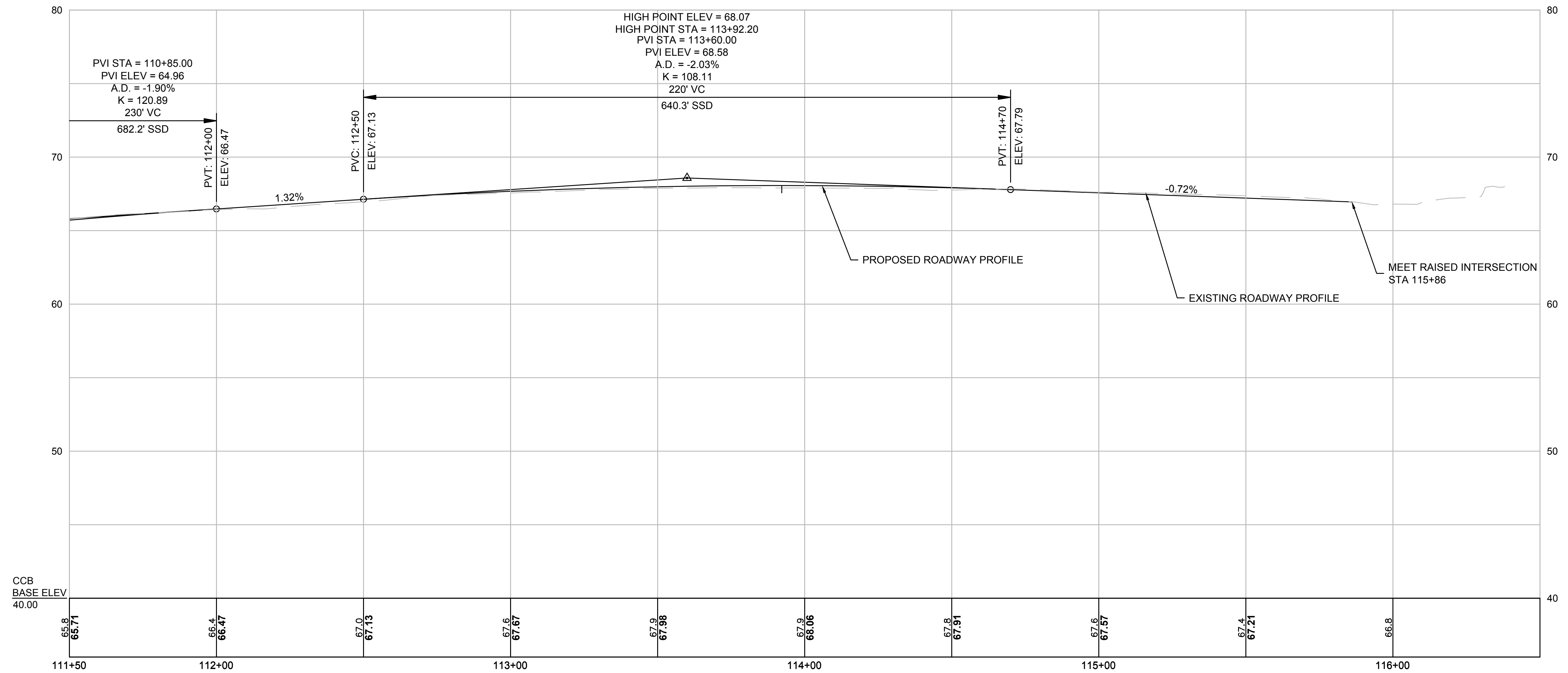
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| Job No.     | 20170208.019A |     |             |
| Designed by | SPR           |     |             |
| Drawn by    | SPR           |     |             |
| Checked by  | DTM           | No. | Description |
| Approved by | PFB           |     | REVISIONS   |



|         |  |
|---------|--|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HURON AVENUE PROFILE<br>SHEET 3 OF 4                   |

|          |      |
|----------|------|
| Sheet    | R-29 |
| File No. | 8310 |

# HURON AVE

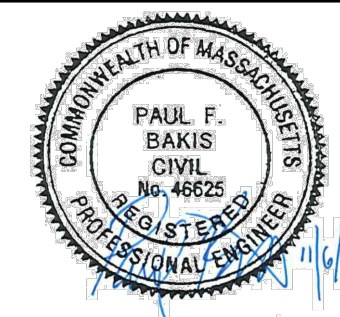


ISSUED FOR BID

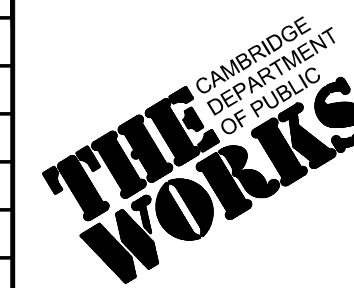
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|             |               |     |             |
|-------------|---------------|-----|-------------|
| Scale       | AS NOTED      |     |             |
| Date        | NOVEMBER 2018 |     |             |
| Job No.     | 20170208.019A |     |             |
| Designed by | SPR           |     |             |
| Drawn by    | SPR           |     |             |
| Checked by  | DTM           | No. | Description |
| Approved by | PFB           |     | REVISIONS   |

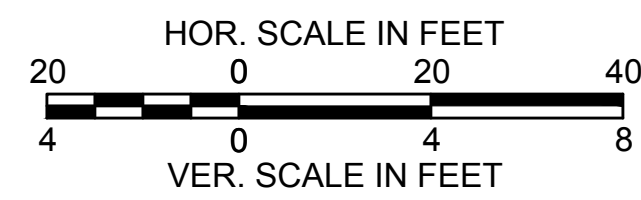
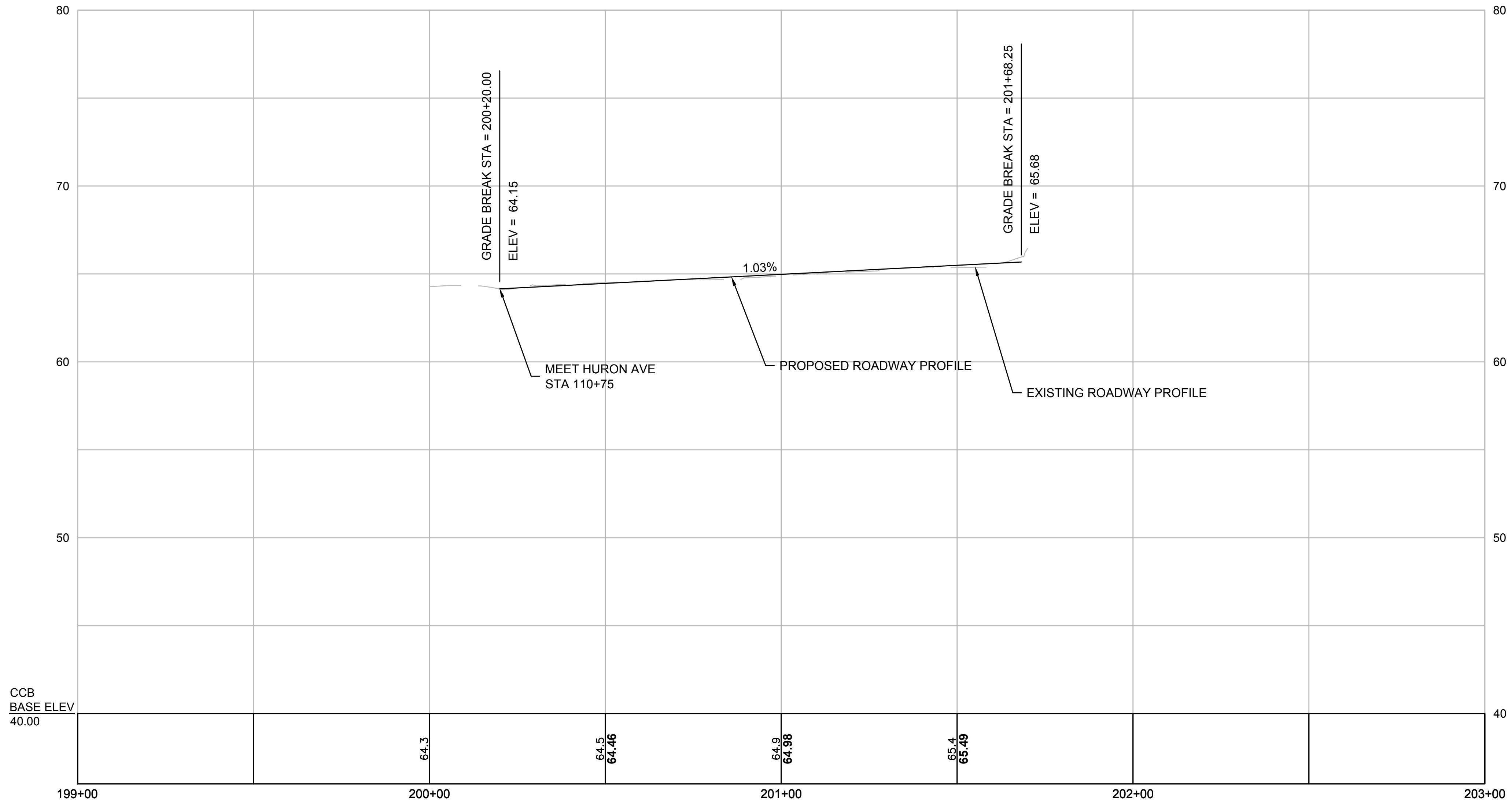


|         |  |
|---------|--|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HURON AVENUE PROFILE<br>SHEET 4 OF 4                   |

|          |      |
|----------|------|
| Sheet    | R-30 |
| File No. | 8310 |



# CUTLER AVENUE



ISSUED FOR BID

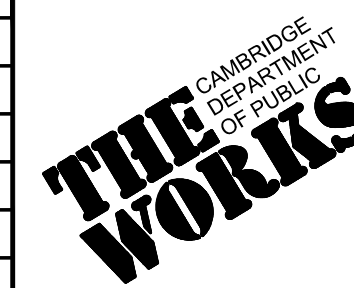
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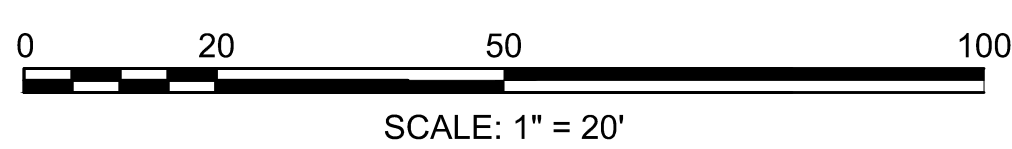
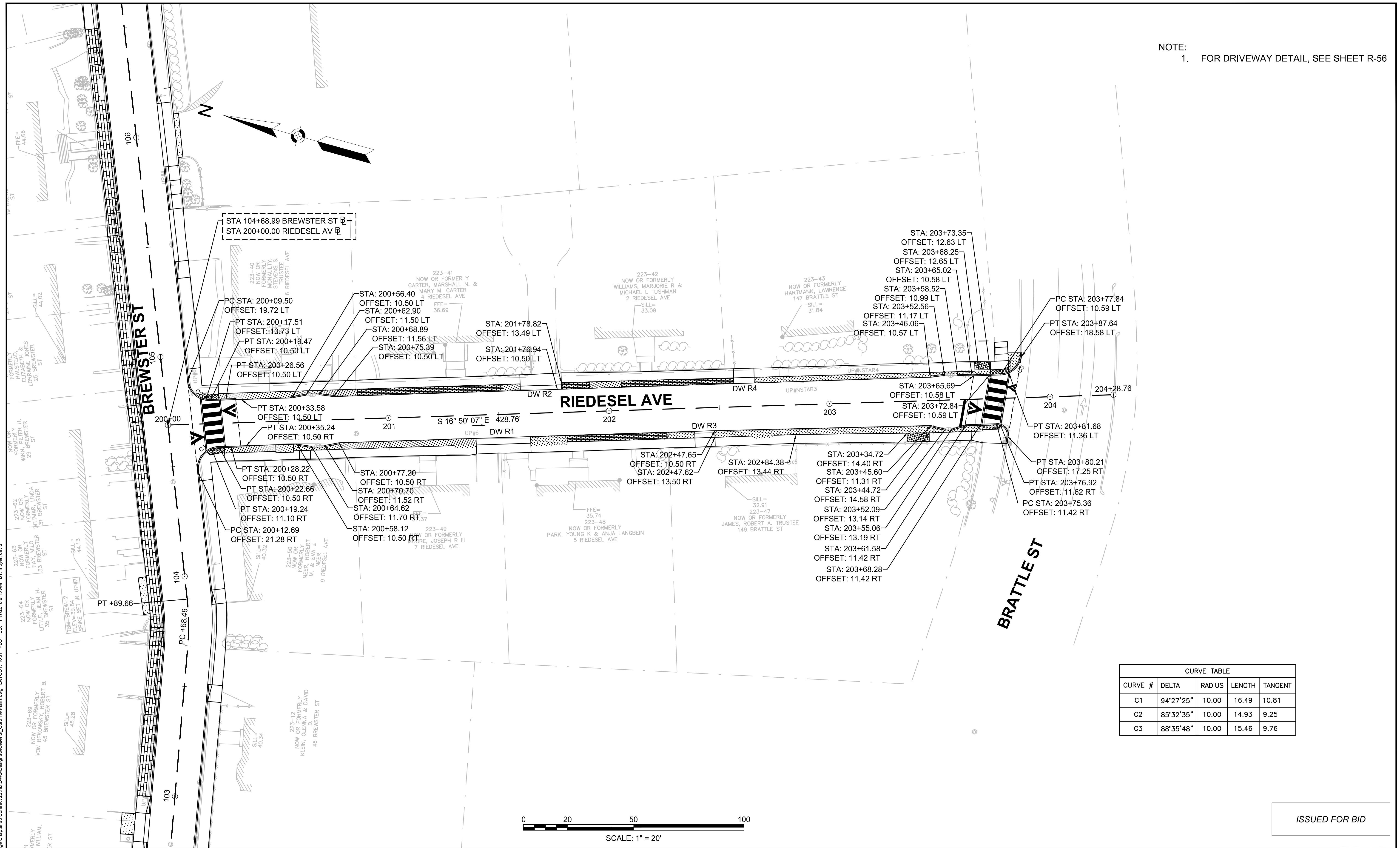
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| Job No.     | 20170208.019A |     |             |
| Designed by | SPR           |     |             |
| Drawn by    | SPR           |     |             |
| Checked by  | DTM           | No. | Description |
| Approved by | PFB           |     | Date        |



|         |  |
|---------|--|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | CUTLER AVENUE PROFILE<br>SHEET 1 OF 1                  |

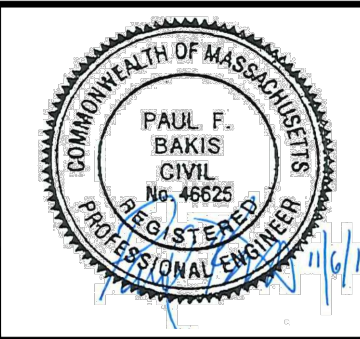
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| Sheet    | R-31 |
| File No. | 8310 |

NOTE:  
1. FOR DRIVEWAY DETAIL, SEE SHEET R-56

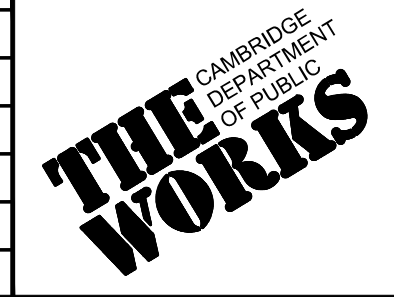


ISSUED FOR BID

CAD FILE: I:\eng\16042-48 Cambridge Chapter 90 Contract 23A-DDWG\Design\Roadway\St\_Curb\_Tie Plans.dwg LAYOUT: R-31 PLOTTED: 11/7/2018 9:13 AM BY: moyer.david



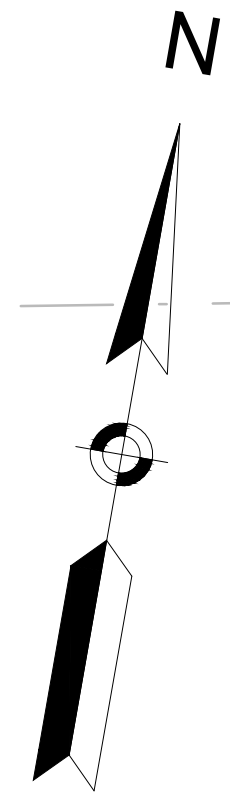
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| Date        | NOVEMBER 2018 |     |             |
| Job No.     | 20170208.019A |     |             |
| Designed by | JRH           |     |             |
| Drawn by    | JRH           |     |             |
| Checked by  | PFB           | No. | Description |
| Approved by | PFB           |     | REVISIONS   |



|         |  |
|---------|--|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | RIEDESEL STREET CURB TIE PLANS<br>SHEET 1 OF 1         |

|          |      |
|----------|------|
| Sheet    | R-32 |
| File No. | 8310 |

NOTE:  
1. FOR DRIVEWAY DETAIL, SEE SHEET R-56



APPLETON STREET

BREWSTER STREET

RIEDEL AVENUE

STA: 100+25.13  
OFFSET: 15.94 LT  
STA: 100+29.06  
OFFSET: 10.62 LT  
STA: 100+30.14  
OFFSET: 10.50 LT  
STA: 100+38.06  
OFFSET: 10.50 LT

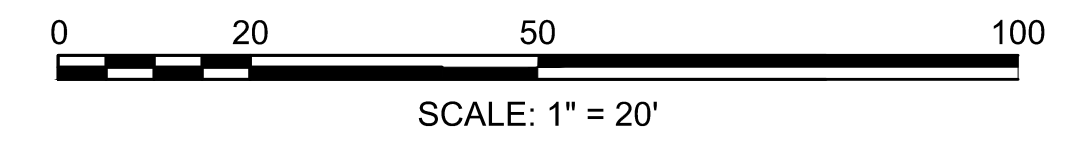
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STA: 100+30.72  
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STA: 100+29.44  
OFFSET: 10.66 RT  
STA: 100+25.74  
OFFSET: 17.03 RT

PT STA: 103+89.66  
OFFSET: 11.00 LT  
PT STA: 103+86.90  
OFFSET: 10.97 LT  
PT +89.66  
L=21.21' R=109.00'  
Δ=11° 08' 56"  
PC STA: 103+65.82  
OFFSET: 10.50 LT

STA 104+68.99 BREWSTER ST @  
STA 200+00.00 RIEDEL AVE @

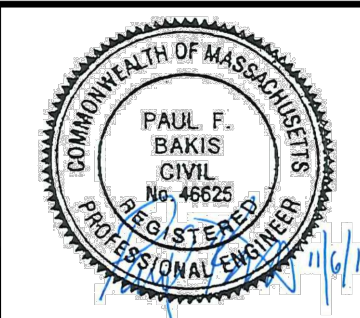
| CURVE TABLE |           |        |        |         |
|-------------|-----------|--------|--------|---------|
| CURVE #     | DELTA     | RADIUS | LENGTH | TANGENT |
| C5          | 88°41'19" | 5.00   | 7.74   | 4.89    |
| C6          | 90°46'17" | 5.00   | 7.92   | 5.07    |

| CURVE TABLE |           |        |        |         |
|-------------|-----------|--------|--------|---------|
| CURVE #     | DELTA     | RADIUS | LENGTH | TANGENT |
| C1          | 11°08'56" | 99.00  | 19.26  | 9.66    |
| C2          | 8°10'46"  | 120.00 | 17.13  | 8.58    |



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CAD FILE: I:\eng\16042-48 Contract 23A\DWG\Design\Brewster St\_Curb\_Tie\_Plans.dwg LAYOUT: R-33 PLOTTED: 11/7/2018 9:15 AM BY: moyer, david



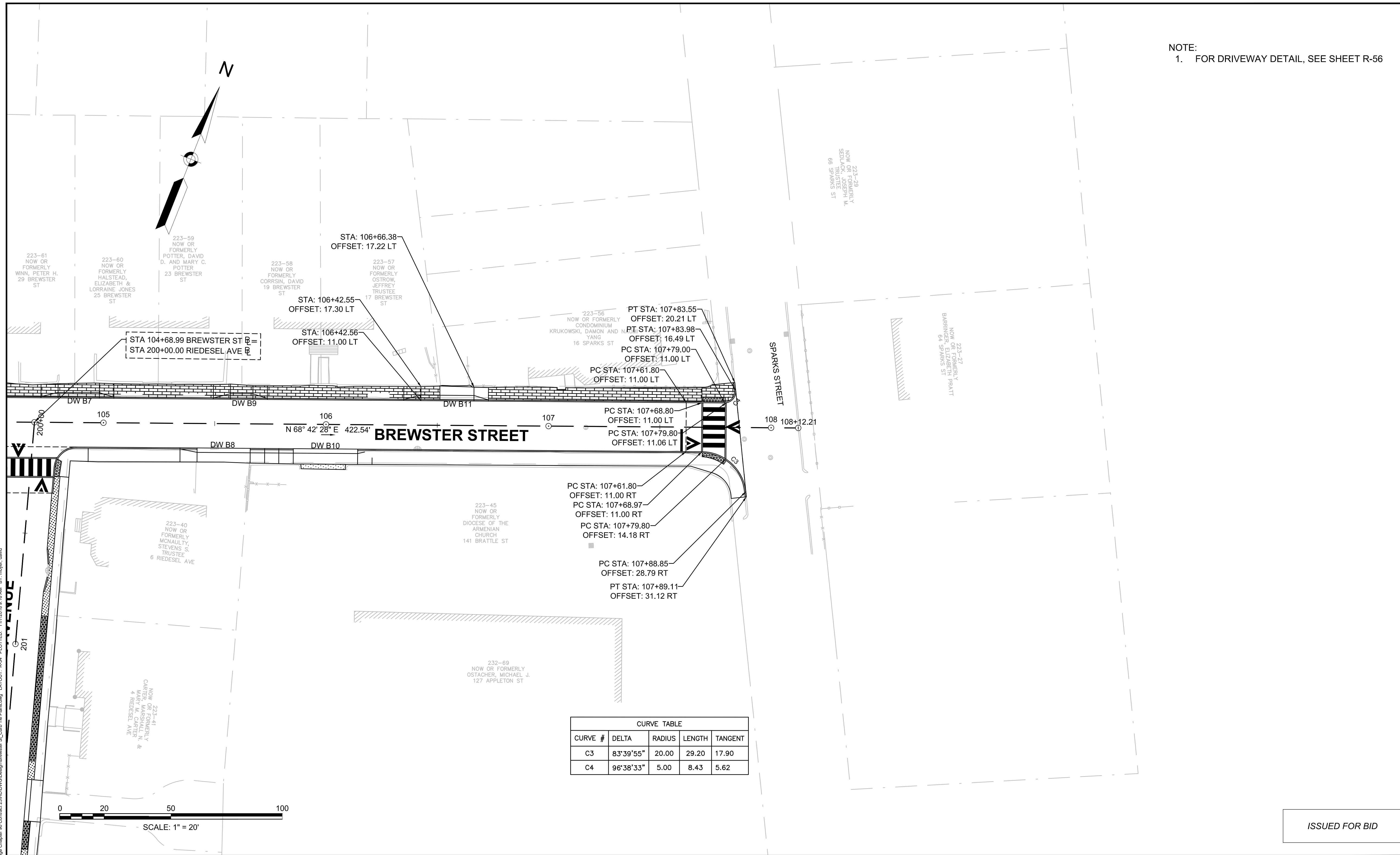
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| Date        | NOVEMBER 2018 |     |             |
| Job No.     | 20170208.019A |     |             |
| Designed by | JRH           |     |             |
| Drawn by    | JRH           |     |             |
| Checked by  | PFB           | No. | Description |
| Approved by | PFB           |     | REVISIONS   |



|         |  |
|---------|--|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | BREWSTER STREET CURB TIE PLAN<br>SHEET 1 OF 2          |

|          |      |
|----------|------|
| Sheet    | R-33 |
| File No. | 8310 |

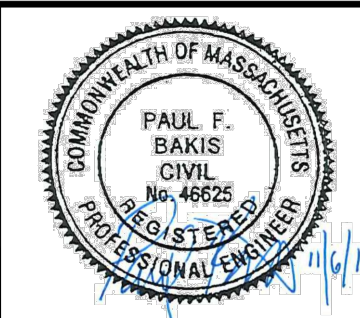
NOTE:  
1. FOR DRIVEWAY DETAIL, SEE SHEET R-56



| CURVE TABLE |           |        |        |         |
|-------------|-----------|--------|--------|---------|
| CURVE #     | DELTA     | RADIUS | LENGTH | TANGENT |
| C3          | 83°39'55" | 20.00  | 29.20  | 17.90   |
| C4          | 96°38'33" | 5.00   | 8.43   | 5.62    |

ISSUED FOR BID

CAD FILE: I:\eng\1604248 Cambridge Chapter 90 Contract 23A\DWG\Design\Brewster St\_Curb Tie Plans.dwg LAYOUT: R-34 PLOTTED: 11/7/2018 9:16 AM BY: meyer, david



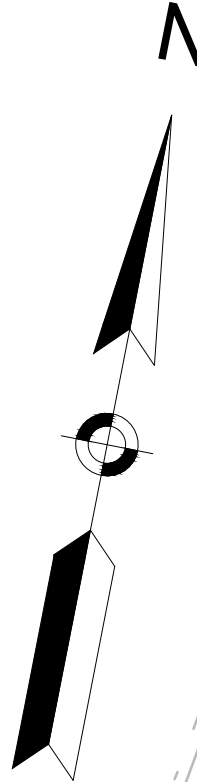
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| Job No.     | 20170208.019A |     |             |
| Designed by | JRH           |     |             |
| Drawn by    | JRH           |     |             |
| Checked by  | PFB           | No. | Description |
| Approved by | PFB           |     | REVISIONS   |



|         |  |
|---------|--|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | BREWSTER STREET CURB TIE PLANS<br>SHEET 2 OF 2         |

|          |      |
|----------|------|
| Sheet    | R-34 |
| File No. | 8310 |

NOTE:  
1. FOR DRIVEWAY DETAIL, SEE SHEET R-56



HIGHLAND ST

BEGIN +00.00

STA: 100+54.23  
OFFSET: 16.28 LT  
STA: 100+54.03  
OFFSET: 12.00 LT  
STA: 100+63.52  
OFFSET: 15.91 LT  
STA: 100+80.07  
OFFSET: 12.00 LT

S 82° 48' 31" E 72.74'

PI +72.74

PT STA: 100+80.07  
OFFSET: 12.00 RT

PC STA: 100+65.41  
OFFSET: 12.00 RT

STA: 100+54.03  
OFFSET: 12.00 RT

S 80° 38' 39" E 156.16'

PI +28.90

PT STA: 102+50.74  
OFFSET: 12.00 LT

PC STA: 102+28.90  
OFFSET: 12.00 LT

PT STA: 102+50.74  
OFFSET: 12.00 RT

PC STA: 102+28.90  
OFFSET: 12.00 RT

L=21.84' R=60.50'  
Δ=20° 41' 09"

PT STA: 102+50.74  
OFFSET: 12.00 LT

PC STA: 102+28.90  
OFFSET: 12.00 LT

PT STA: 102+50.74  
OFFSET: 12.00 RT

PC STA: 102+28.90  
OFFSET: 12.00 RT

N 78° 40' 13" E 216.47'

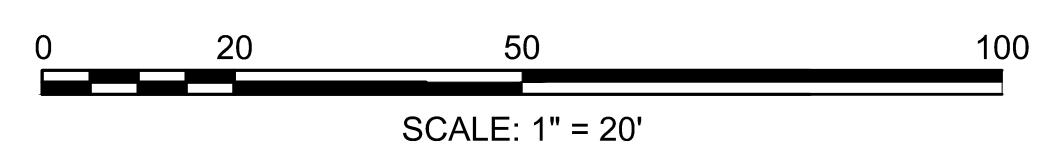
HIGHLAND ST

104

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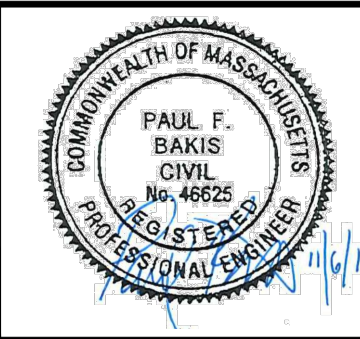
105

| CURVE TABLE |           |        |        |         |
|-------------|-----------|--------|--------|---------|
| CURVE #     | DELTA     | RADIUS | LENGTH | TANGENT |
| C1          | 2°09'52"  | 400.00 | 15.11  | 7.56    |
| C2          | 2°09'52"  | 376.00 | 14.20  | 7.10    |
| C3          | 20°41'09" | 48.50  | 17.51  | 8.85    |
| C4          | 20°41'09" | 72.50  | 26.18  | 13.23   |



ISSUED FOR BID

CAD FILE: I:\eng\16042-48 Cambridge Chapter 90 Contract 23A\DWG\Design\Highland Ave\_Curb Tie Plans.dwg LAYOUT: R-35 PLOTTED: 11/7/2018 9:14 AM BY: moyer.david



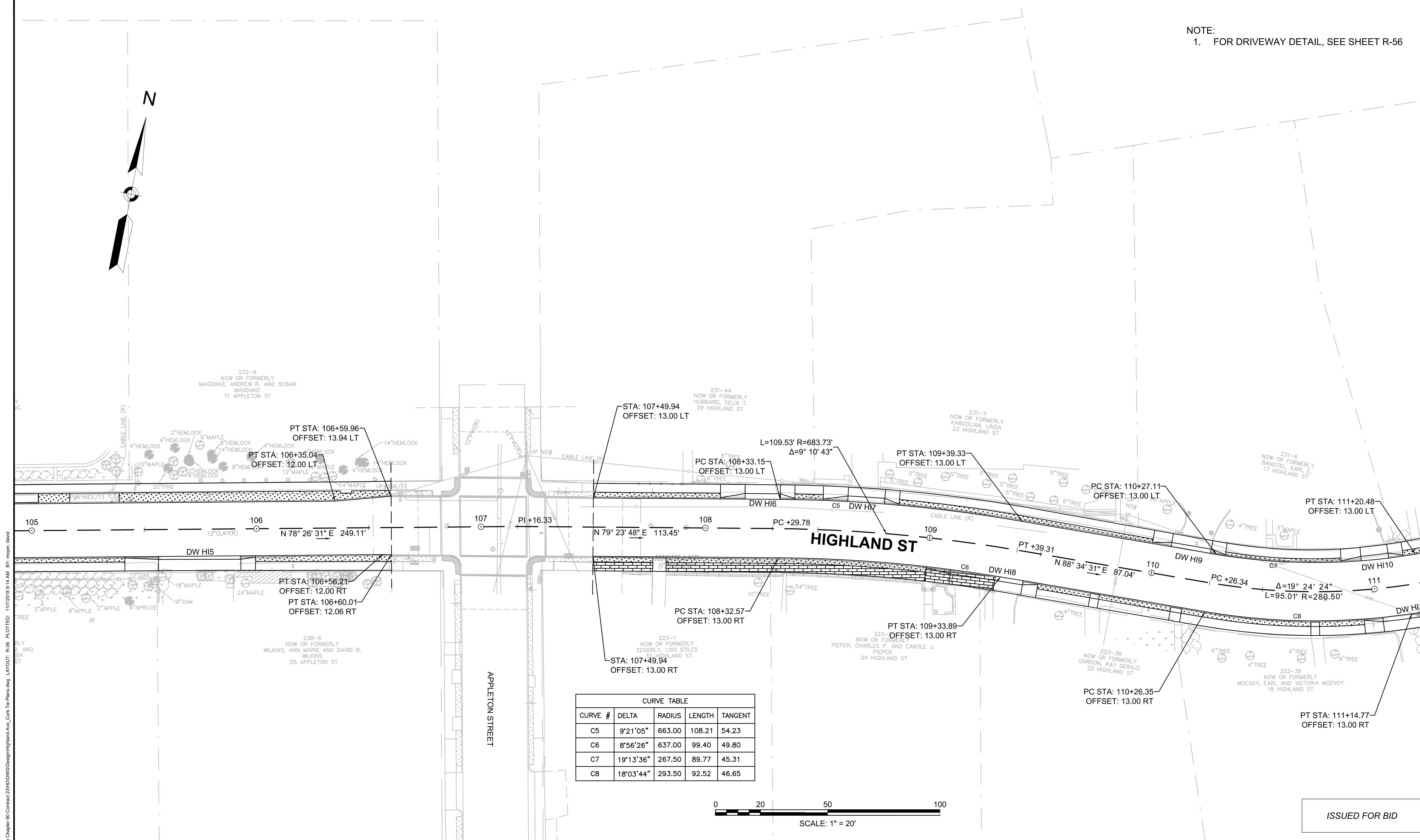
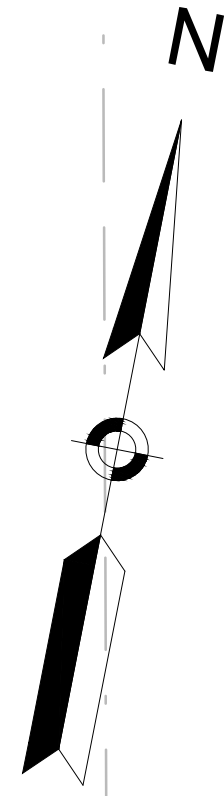
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| Date        | NOVEMBER 2018 |     |             |
| Job No.     | 20170208.019A |     |             |
| Designed by | JRH           |     |             |
| Drawn by    | JRH           |     |             |
| Checked by  | PFB           | No. | Description |
| Approved by | PFB           |     | REVISIONS   |



|         |  |
|---------|--|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HIGHLAND STREET CURB TIE PLANS<br>SHEET 1 OF 3         |

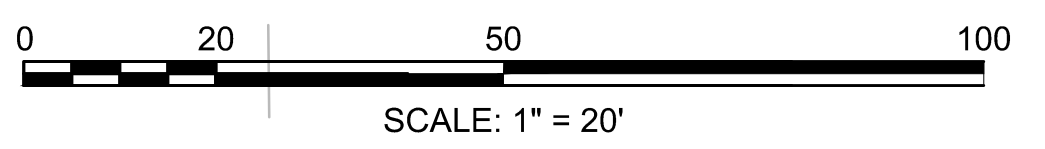
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| Sheet    | R-35 |
| File No. | 8310 |

NOTE:  
1. FOR DRIVEWAY DETAIL, SEE SHEET R-56



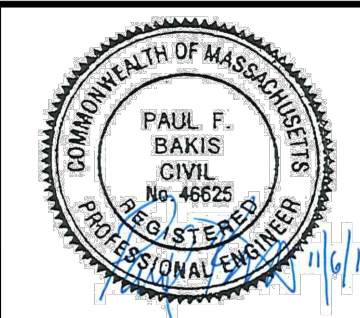
CURVE TABLE

| CURVE # | DELTA     | RADIUS | LENGTH | TANGENT |
|---------|-----------|--------|--------|---------|
| C5      | 9°21'05"  | 663.00 | 108.21 | 54.23   |
| C6      | 8°56'26"  | 637.00 | 99.40  | 49.80   |
| C7      | 19°13'36" | 267.50 | 89.77  | 45.31   |
| C8      | 18°03'44" | 293.50 | 92.52  | 46.65   |



ISSUED FOR BID

CAD FILE: I:\eng\16042-48 Cambridge Chapter 90 Contract 233-DD\DWG\Design\Highland\_Ave\_Curb Tie Plans.dwg PLOTTED: 11/7/2018 9:14 AM BY: moynar.david

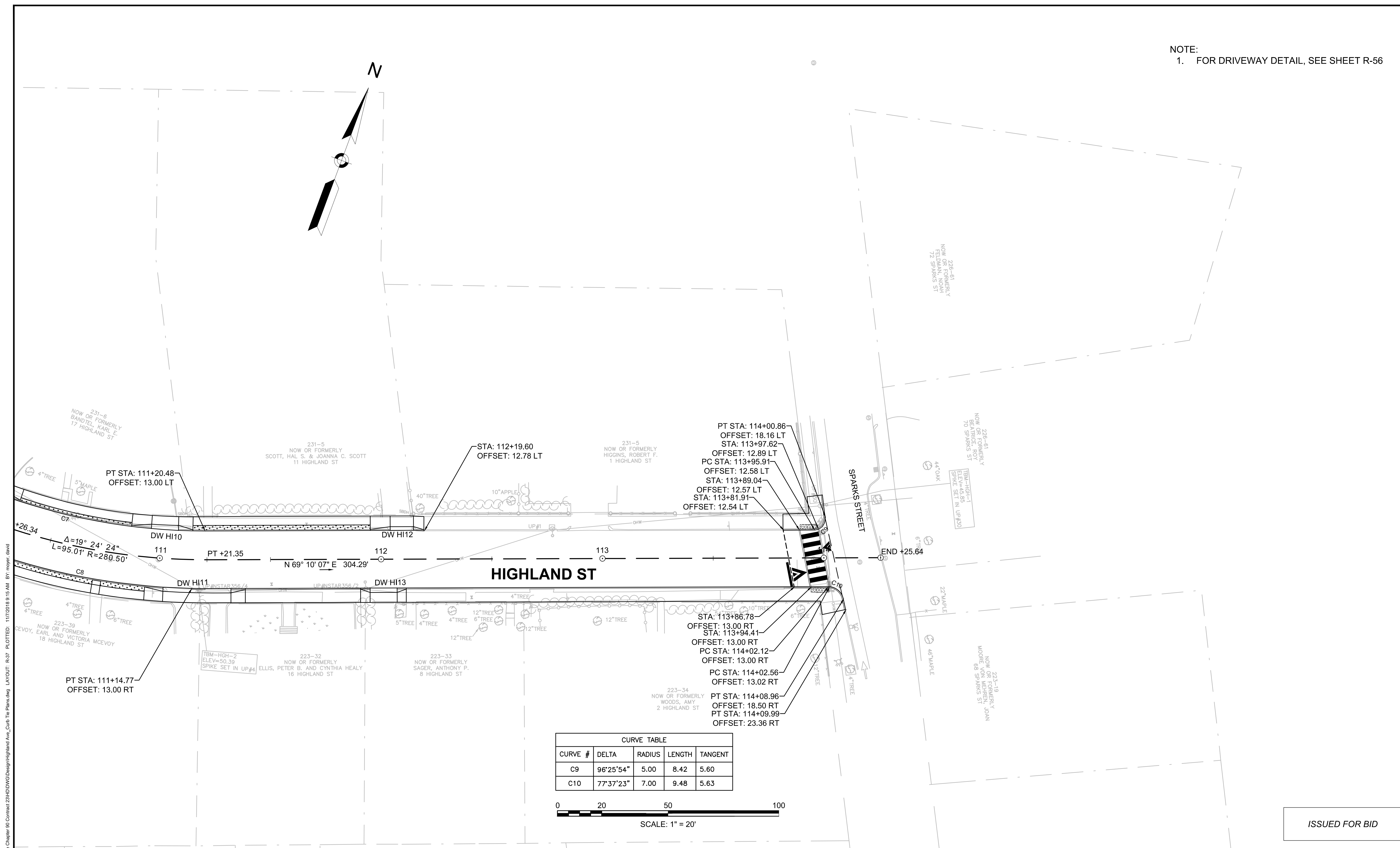


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| Date        | NOVEMBER 2018 |     |             |
| Job No.     | 20170208.019A |     |             |
| Designed by | JRH           |     |             |
| Drawn by    | JRH           |     |             |
| Checked by  | PFB           | No. | Description |
| Approved by | PFB           |     | REVISIONS   |

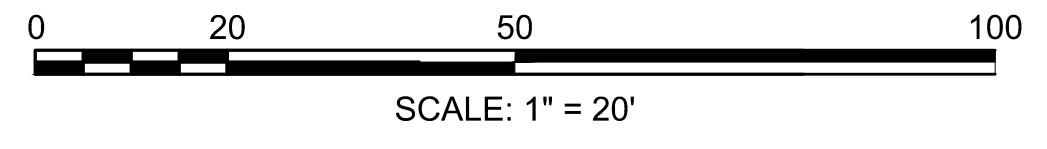


|         |  |          |      |
|---------|--|----------|------|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       | Sheet    | R-36 |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT | File No. | 8310 |
| Drawing | HIGHLAND STREET CURB TIE PLANS<br>SHEET 2 OF 3         |          |      |

NOTE:  
1. FOR DRIVEWAY DETAIL, SEE SHEET R-56

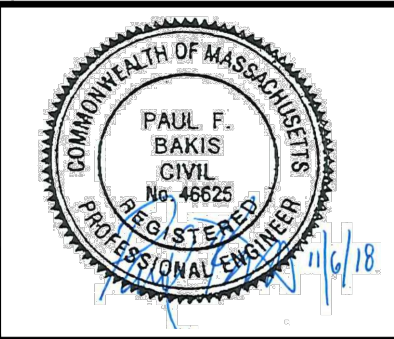


| CURVE TABLE |           |        |        |         |
|-------------|-----------|--------|--------|---------|
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| C9          | 96°25'54" | 5.00   | 8.42   | 5.60    |
| C10         | 77°37'23" | 7.00   | 9.48   | 5.63    |



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CAD FILE: I:\eng\1604248 Cambridge Chapter 90 Contract 23A\DWG\Design\Highland Ave\_Curb Tie Plans.dwg LAYOUT: R-37 PLOTTED: 11/7/2018 9:15 AM BY: moyer.david

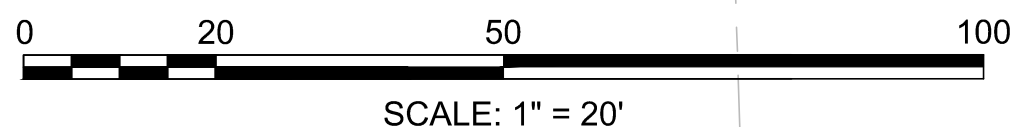
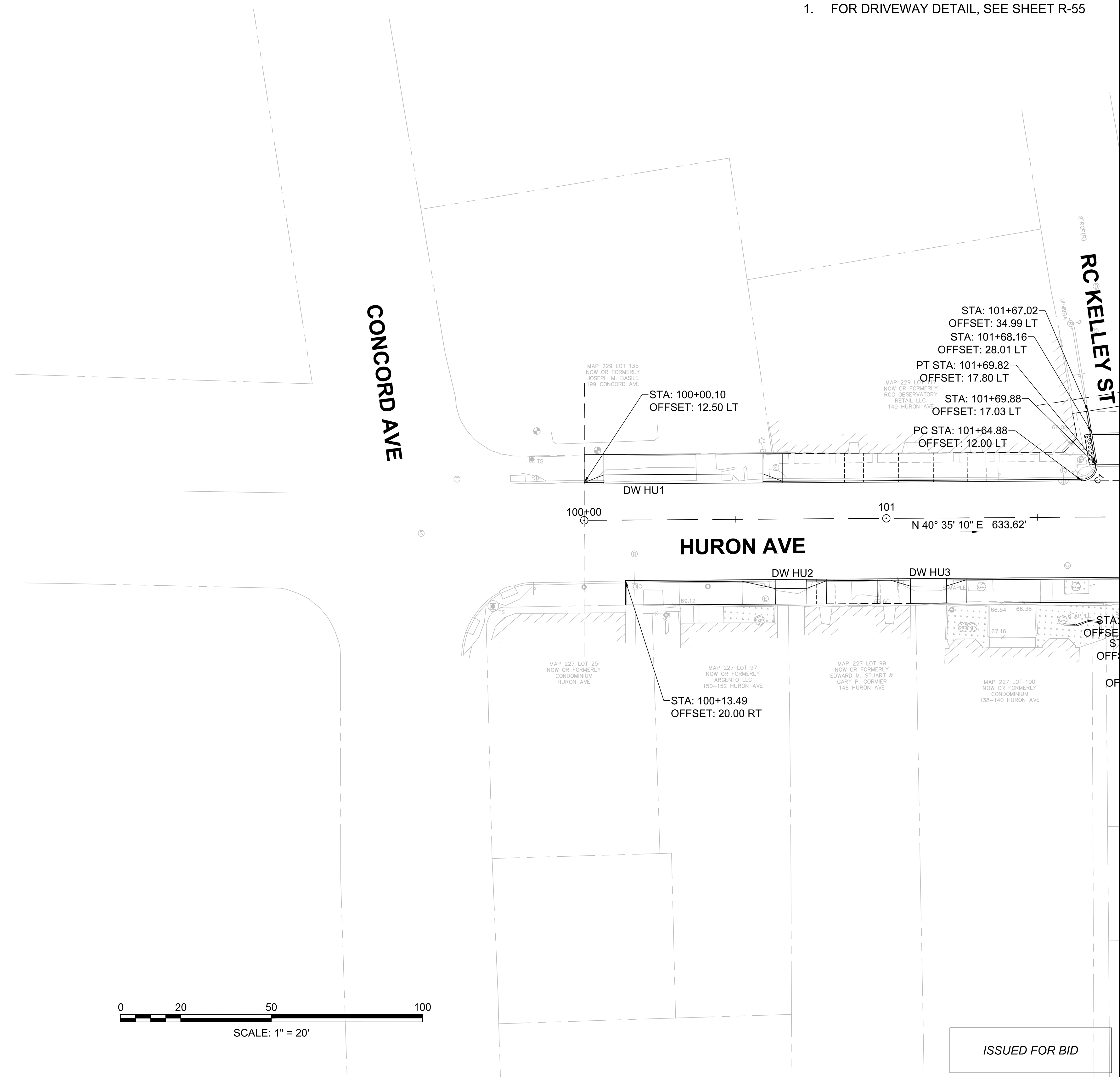
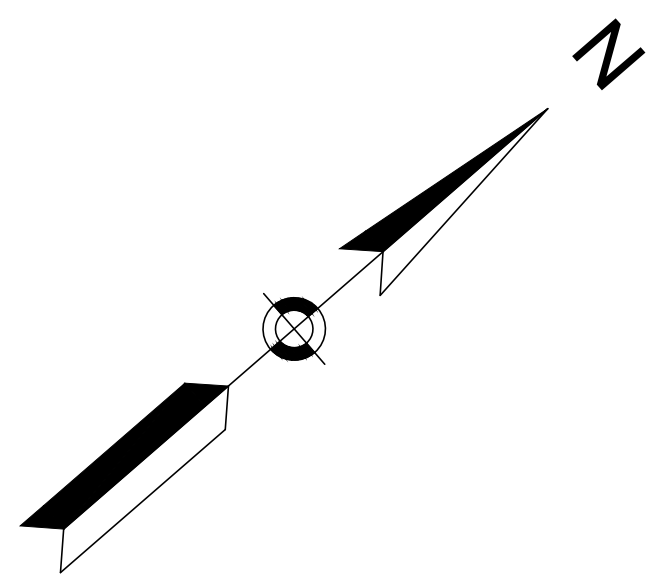


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| Scale       | AS NOTED      |     |             |
| Date        | NOVEMBER 2018 |     |             |
| Job No.     | 20170208.019A |     |             |
| Designed by | JRH           |     |             |
| Drawn by    | JRH           |     |             |
| Checked by  | PFB           | No. | Description |
| Approved by | PFB           |     | REVISIONS   |



|         |  |          |      |
|---------|--|----------|------|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       | Sheet    | R-37 |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT | File No. | 8310 |
| Drawing | HIGHLAND STREET CURB TIE PLANS<br>SHEET 3 OF 3         |          |      |

NOTE:  
1. FOR DRIVEWAY DETAIL, SEE SHEET R-55

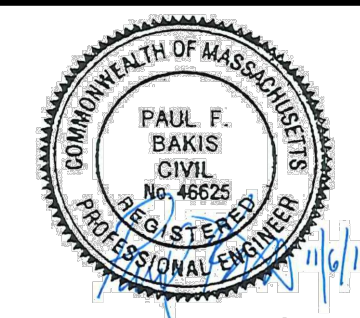


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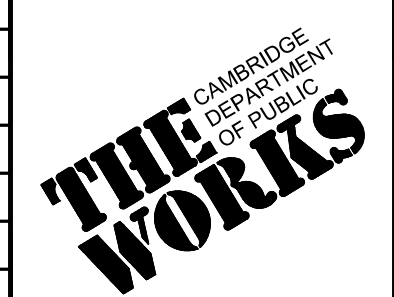
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|-------------|---------------|-----|-------------|------|
| Scale       | AS NOTED      |     |             |      |
| Date        | NOVEMBER 2018 |     |             |      |
| Job No.     | 20170208.019A |     |             |      |
| Designed by | JRH           |     |             |      |
| Drawn by    | JRH           |     |             |      |
| Checked by  | PFB           | No. | Description | Date |
| Approved by | PFB           |     | REVISIONS   |      |

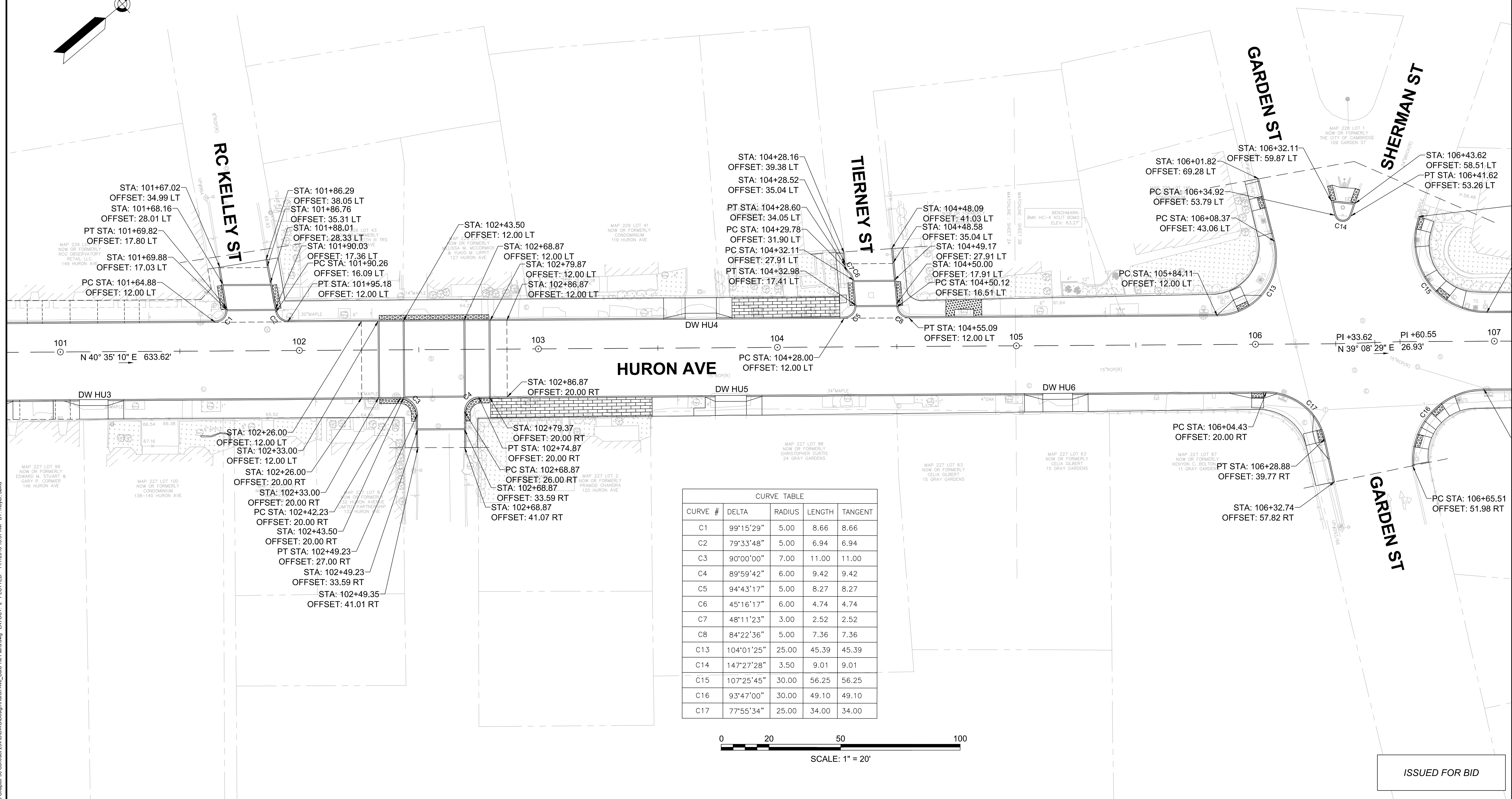
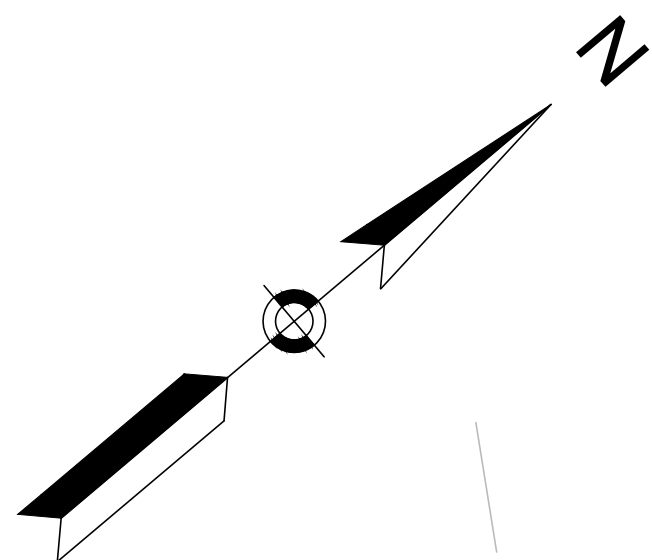


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|---------|--|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HURON AVENUE CURB TIE PLANS<br>SHEET 1 OF 4            |

|          |      |
|----------|------|
| Sheet    | R-38 |
| File No. | 8310 |

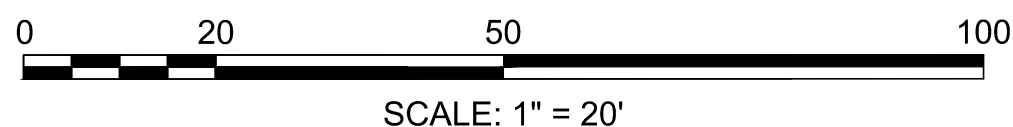


NOTE:  
1. FOR DRIVEWAY DETAIL, SEE SHEET R-55



CURVE TABLE

| CURVE # | DELTA      | RADIUS | LENGTH | TANGENT |
|---------|------------|--------|--------|---------|
| C1      | 99°15'29"  | 5.00   | 8.66   | 8.66    |
| C2      | 79°33'48"  | 5.00   | 6.94   | 6.94    |
| C3      | 90°00'00"  | 7.00   | 11.00  | 11.00   |
| C4      | 89°59'42"  | 6.00   | 9.42   | 9.42    |
| C5      | 94°43'17"  | 5.00   | 8.27   | 8.27    |
| C6      | 45°16'17"  | 6.00   | 4.74   | 4.74    |
| C7      | 48°11'23"  | 3.00   | 2.52   | 2.52    |
| C8      | 84°22'36"  | 5.00   | 7.36   | 7.36    |
| C13     | 104°01'25" | 25.00  | 45.39  | 45.39   |
| C14     | 147°27'28" | 3.50   | 9.01   | 9.01    |
| C15     | 107°25'45" | 30.00  | 56.25  | 56.25   |
| C16     | 93°47'00"  | 30.00  | 49.10  | 49.10   |
| C17     | 77°55'34"  | 25.00  | 34.00  | 34.00   |

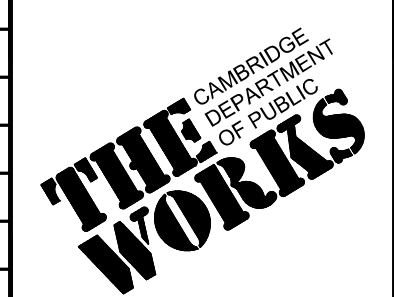


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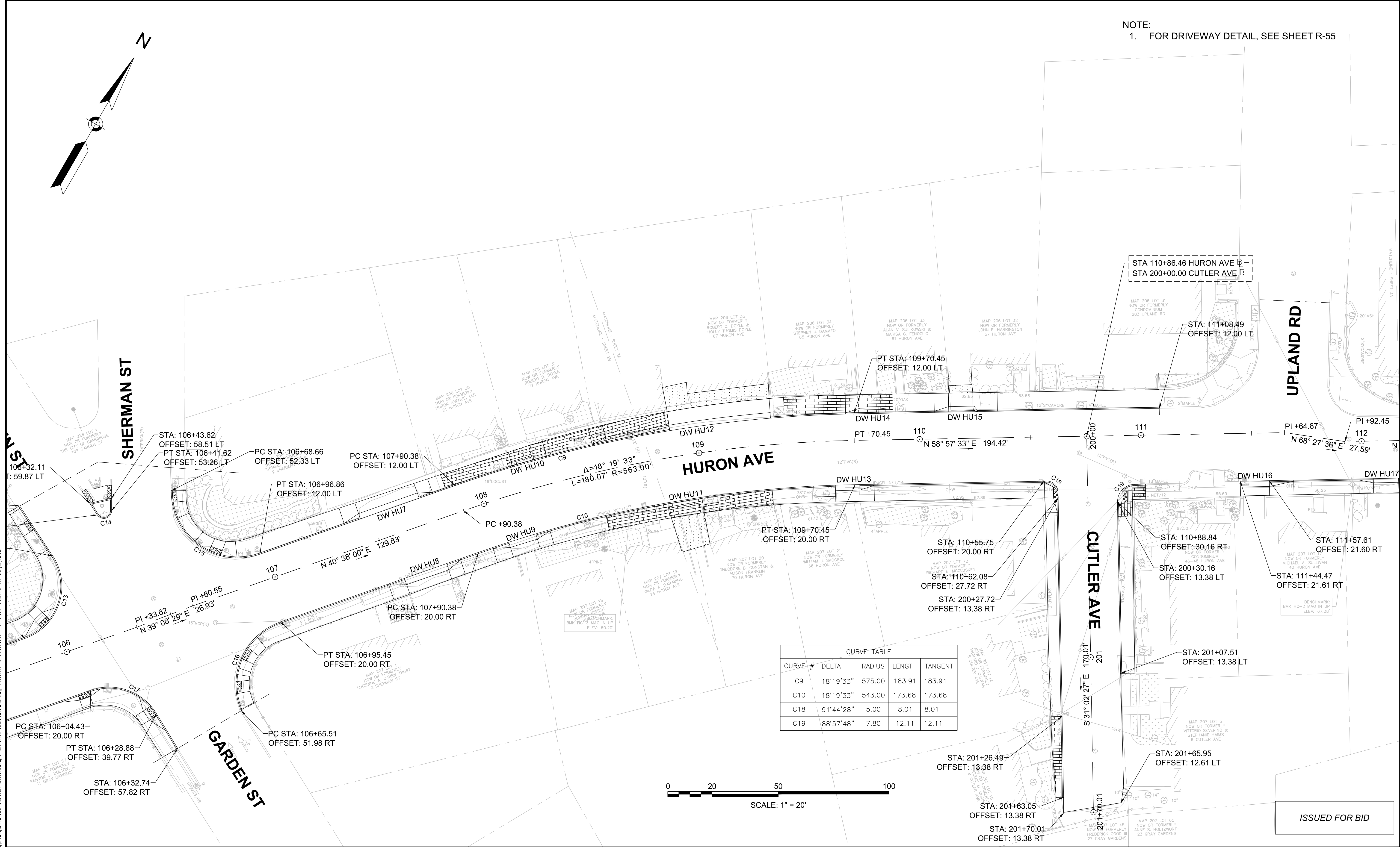
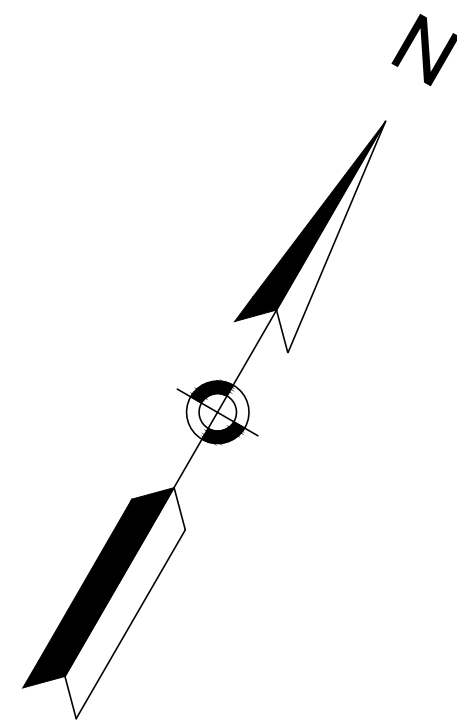


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| Scale       | AS NOTED      |     |             |
| Date        | NOVEMBER 2018 |     |             |
| Job No.     | 20170208.019A |     |             |
| Designed by | JRH           |     |             |
| Drawn by    | JRH           |     |             |
| Checked by  | PFB           | No. | Description |
| Approved by | PFB           |     | REVISIONS   |



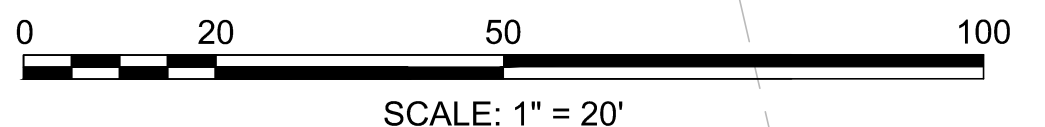
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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       | Sheet    | R-39 |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT | File No. | 8310 |
| Drawing | HURON AVENUE CURB TIE PLANS<br>SHEET 2 OF 4            |          |      |

NOTE:  
1. FOR DRIVEWAY DETAIL, SEE SHEET R-55



CURVE TABLE

| CURVE # | DELTA     | RADIUS | LENGTH | TANGENT |
|---------|-----------|--------|--------|---------|
| C9      | 18°19'33" | 575.00 | 183.91 | 183.91  |
| C10     | 18°19'33" | 543.00 | 173.68 | 173.68  |
| C18     | 91°44'28" | 5.00   | 8.01   | 8.01    |
| C19     | 88°57'48" | 7.80   | 12.11  | 12.11   |

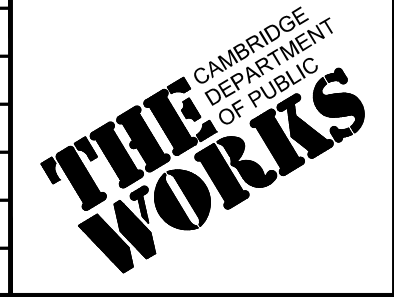


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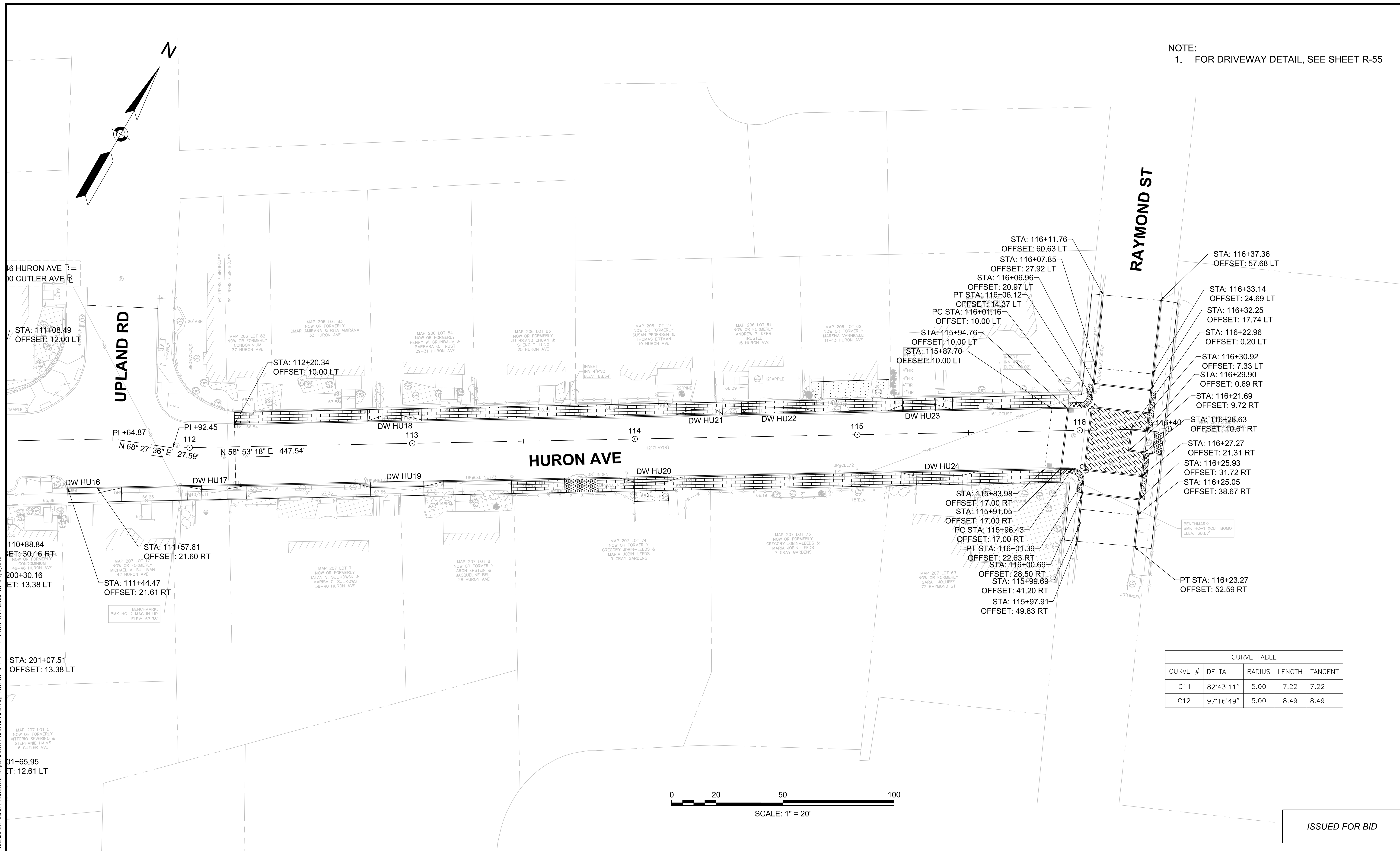
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| Scale       | AS NOTED      |     |             |
| Date        | NOVEMBER 2018 |     |             |
| Job No.     | 20170208.019A |     |             |
| Designed by | JRH           |     |             |
| Drawn by    | JRH           |     |             |
| Checked by  | PFB           | No. | Description |
| Approved by | PFB           |     | REVISIONS   |



|         |  |
|---------|--|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HURON AVENUE CURB TIE PLANS<br>SHEET 3 OF 4            |

|          |      |
|----------|------|
| Sheet    | R-40 |
| File No. | 8310 |

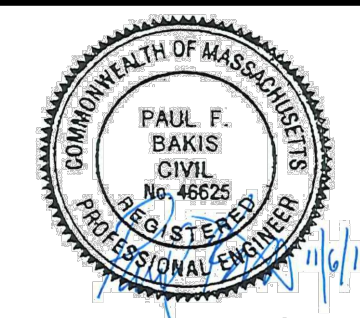
NOTE:  
1. FOR DRIVEWAY DETAIL, SEE SHEET R-55



| CURVE TABLE |           |        |        |         |
|-------------|-----------|--------|--------|---------|
| CURVE #     | DELTA     | RADIUS | LENGTH | TANGENT |
| C11         | 82°43'11" | 5.00   | 7.22   | 7.22    |
| C12         | 97°16'49" | 5.00   | 8.49   | 8.49    |

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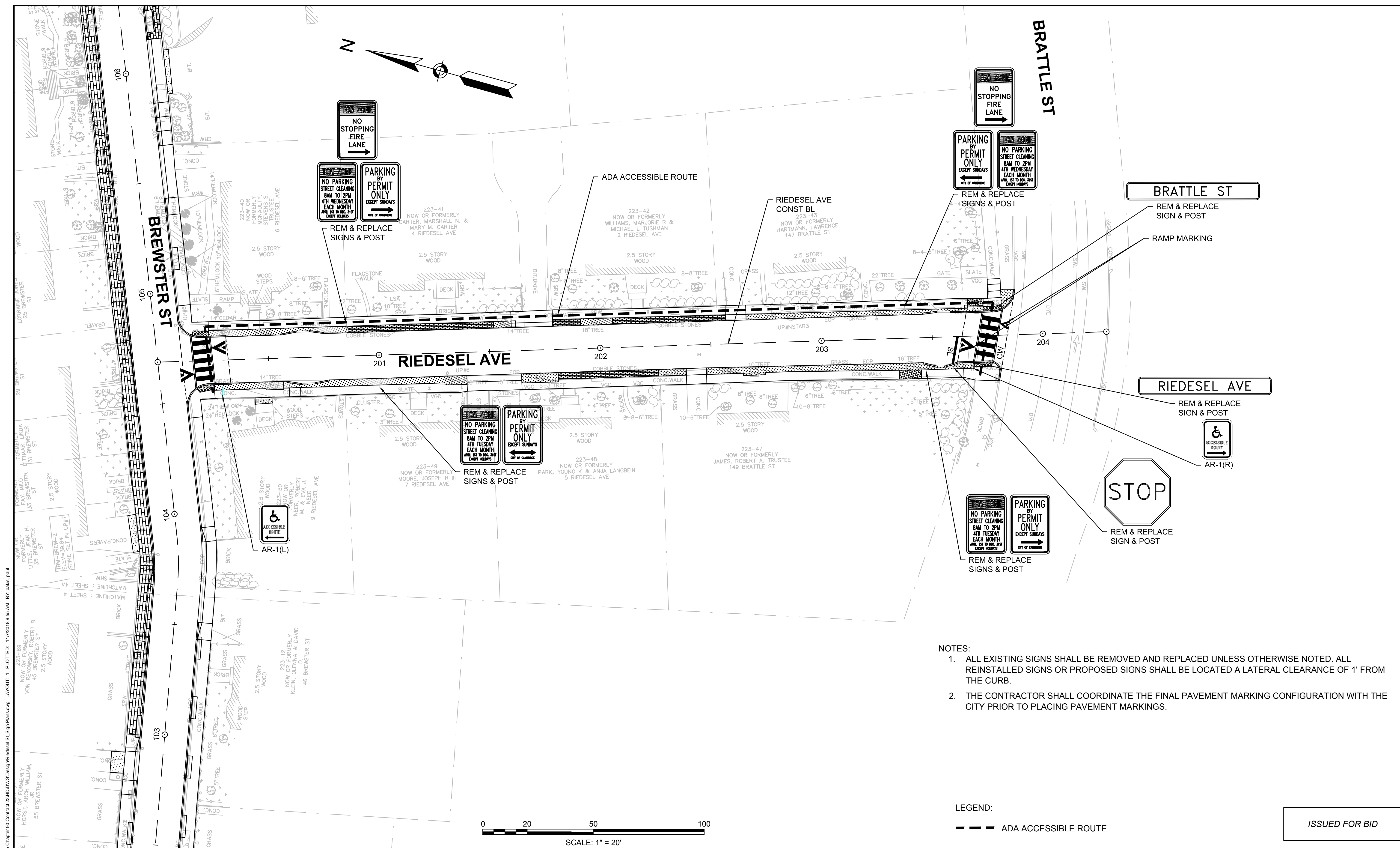


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| Scale       | AS NOTED      |     |             |      |
| Date        | NOVEMBER 2018 |     |             |      |
| Job No.     | 20170208.019A |     |             |      |
| Designed by | JRH           |     |             |      |
| Drawn by    | JRH           |     |             |      |
| Checked by  | PFB           | No. | Description | Date |
| Approved by | PFB           |     | REVISIONS   |      |



|         |  |
|---------|--|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HURON AVENUE CURB TIE PLANS<br>SHEET 4 OF 4            |

|          |      |
|----------|------|
| Sheet    | R-41 |
| File No. | 8310 |



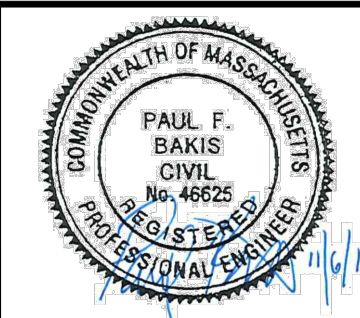
- NOTES:
1. ALL EXISTING SIGNS SHALL BE REMOVED AND REPLACED UNLESS OTHERWISE NOTED. ALL REINSTALLED SIGNS OR PROPOSED SIGNS SHALL BE LOCATED A LATERAL CLEARANCE OF 1' FROM THE CURB.
  2. THE CONTRACTOR SHALL COORDINATE THE FINAL PAVEMENT MARKING CONFIGURATION WITH THE CITY PRIOR TO PLACING PAVEMENT MARKINGS.

LEGEND:

--- ADA ACCESSIBLE ROUTE

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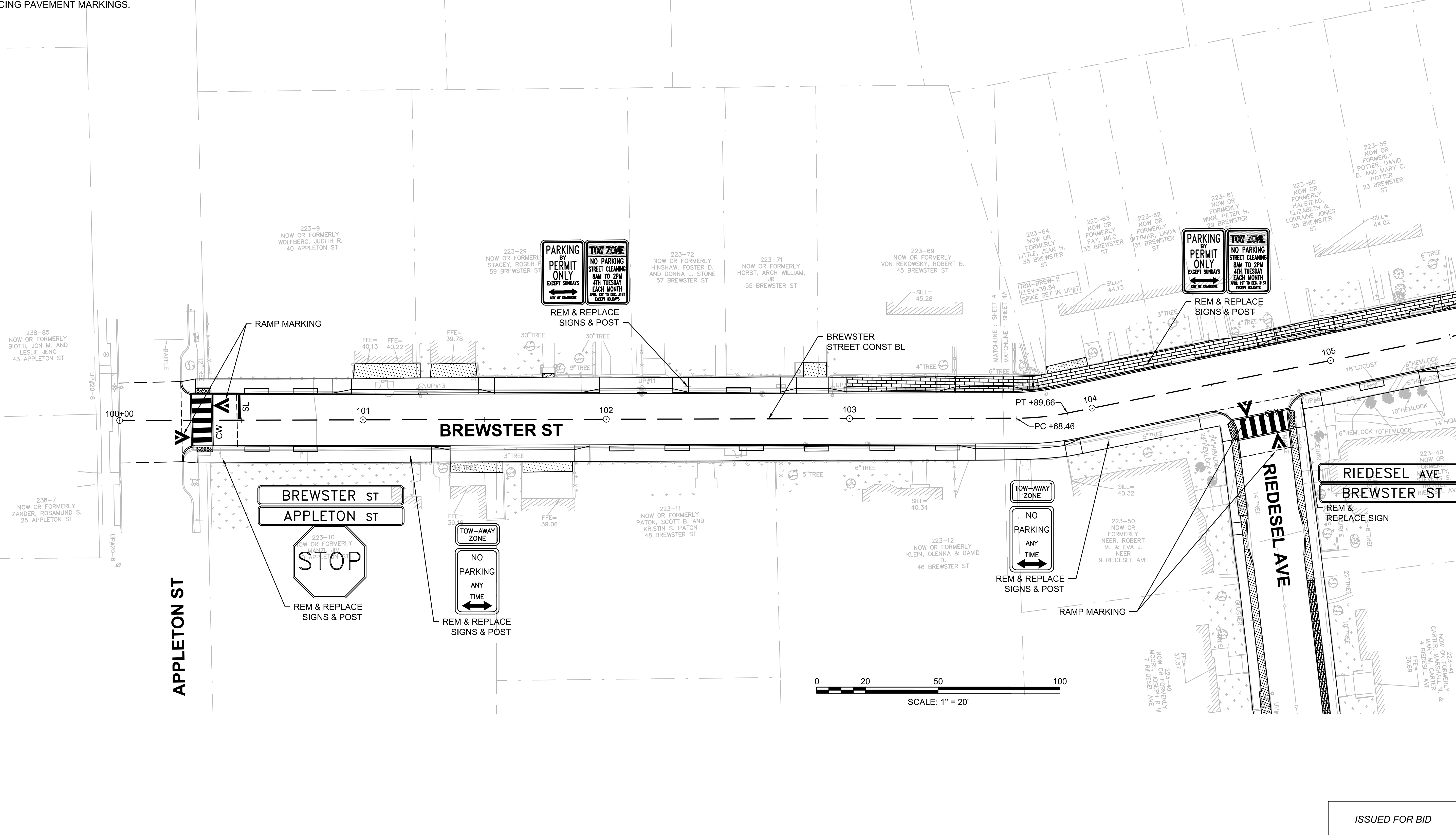
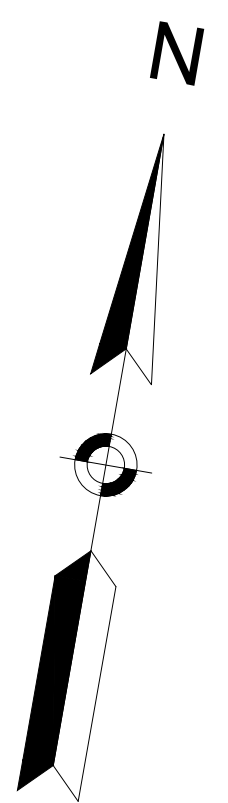
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| Date        | NOVEMBER 2018 |     |             |      |
| Job No.     | 20170208.019A |     |             |      |
| Designed by | JRH           |     |             |      |
| Drawn by    | JRH           |     |             |      |
| Checked by  | PFB           | No. | Description | Date |
| Approved by | PFB           |     | REVISIONS   |      |



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|---------|--|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                             |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT       |
| Drawing | RIEDESEL AVENUE PAVEMENT MARKING & SIGN PLAN<br>SHEET 1 OF 1 |

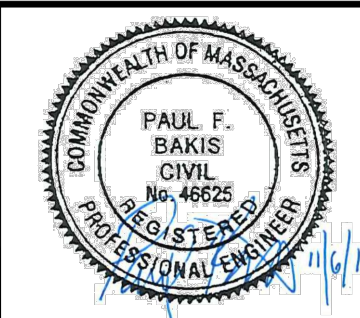
|          |      |
|----------|------|
| Sheet    | R-42 |
| File No. | 8310 |

- NOTES:
1. ALL EXISTING SIGNS SHALL BE REMOVED AND REPLACED UNLESS OTHERWISE NOTED. ALL REINSTALLED SIGNS OR PROPOSED SIGNS SHALL BE LOCATED A LATERAL CLEARANCE OF 1' FROM THE CURB.
  2. THE CONTRACTOR SHALL COORDINATE THE FINAL PAVEMENT MARKING CONFIGURATION WITH THE CITY PRIOR TO PLACING PAVEMENT MARKINGS.



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| Scale       | AS NOTED      |     |             |      |
| Date        | NOVEMBER 2018 |     |             |      |
| Job No.     | 20170208.019A |     |             |      |
| Designed by | JRH           |     |             |      |
| Drawn by    | JRH           |     |             |      |
| Checked by  | PFB           | No. | Description | Date |
| Approved by | PFB           |     | REVISIONS   |      |

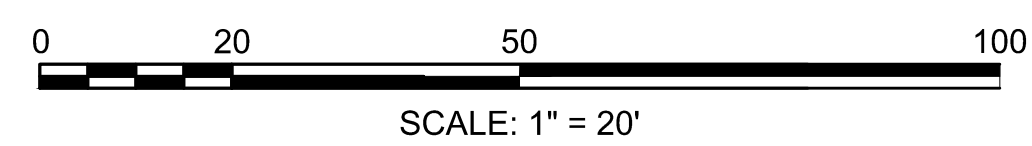
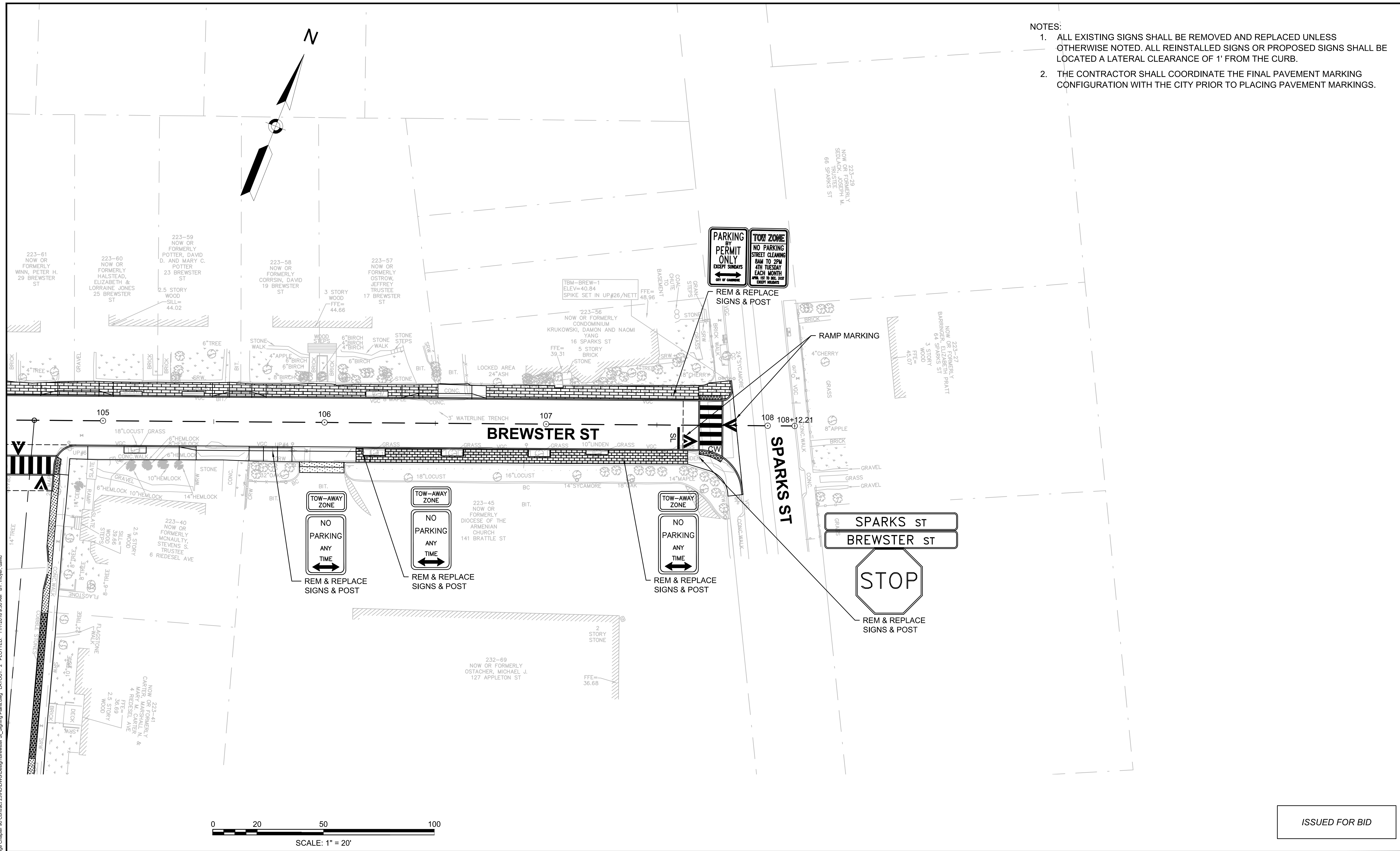


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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                             |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT       |
| Drawing | BREWSTER STREET PAVEMENT MARKING & SIGN PLAN<br>SHEET 1 OF 2 |

|          |      |
|----------|------|
| Sheet    | R-43 |
| File No. | 8310 |

NOTES:

1. ALL EXISTING SIGNS SHALL BE REMOVED AND REPLACED UNLESS OTHERWISE NOTED. ALL REINSTALLED SIGNS OR PROPOSED SIGNS SHALL BE LOCATED A LATERAL CLEARANCE OF 1' FROM THE CURB.
2. THE CONTRACTOR SHALL COORDINATE THE FINAL PAVEMENT MARKING CONFIGURATION WITH THE CITY PRIOR TO PLACING PAVEMENT MARKINGS.

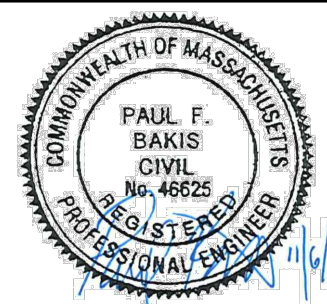


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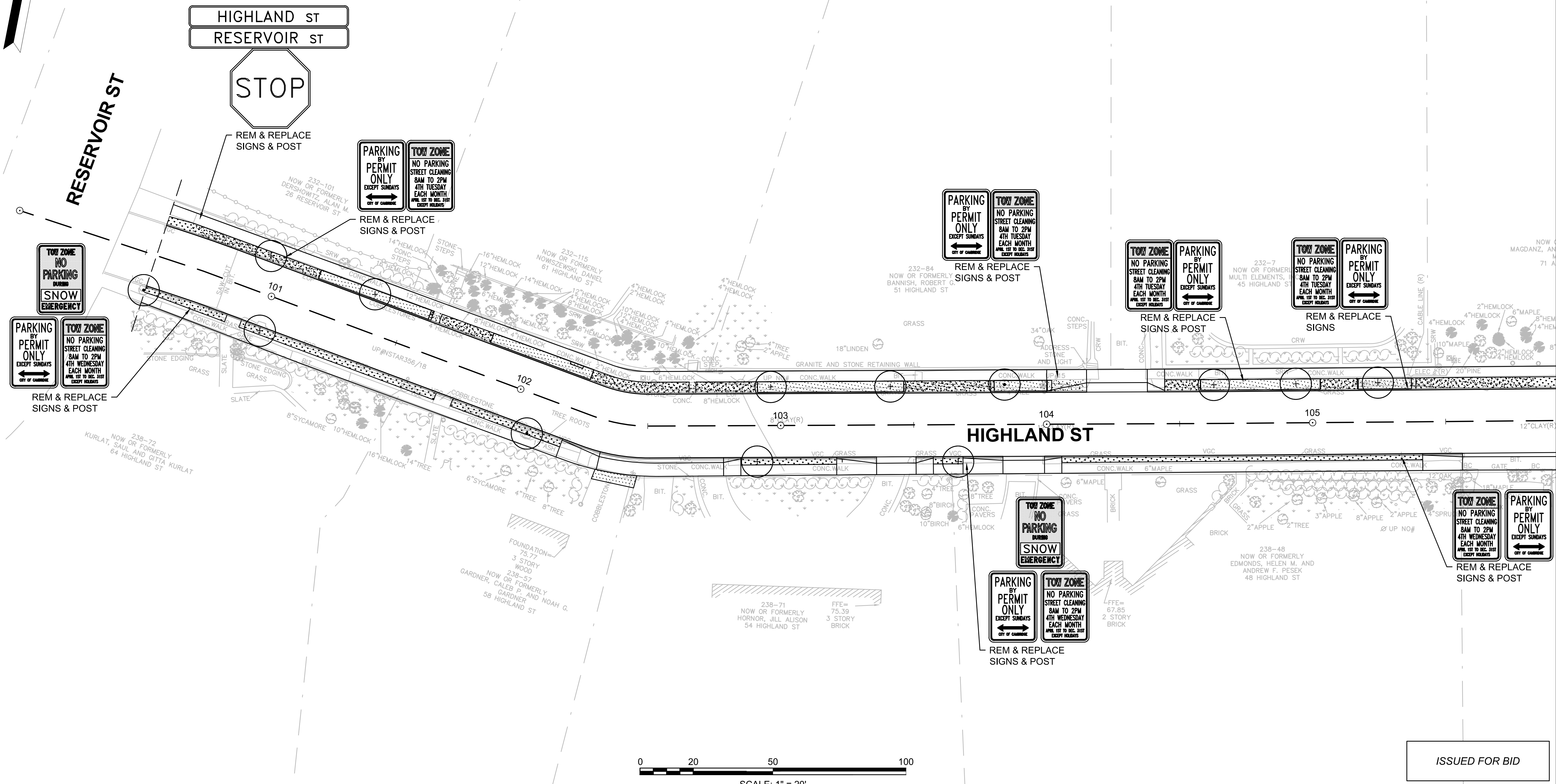
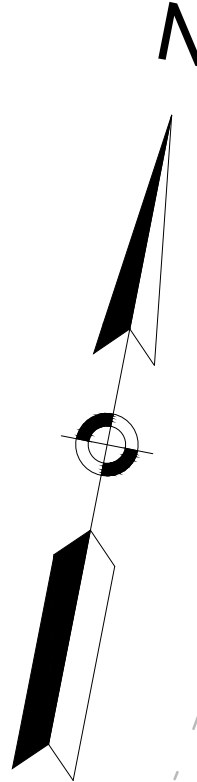
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| Date        | NOVEMBER 2018 |     |             |
| Job No.     | 20170208.019A |     |             |
| Designed by | JRH           |     |             |
| Drawn by    | JRH           |     |             |
| Checked by  | PFB           | No. | Description |
| Approved by | PFB           |     | REVISIONS   |



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|---------|--|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                             |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT       |
| Drawing | BREWSTER STREET PAVEMENT MARKING & SIGN PLAN<br>SHEET 2 OF 2 |

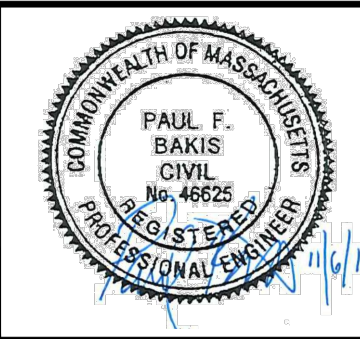
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|----------|------|
| Sheet    | R-44 |
| File No. | 8310 |

- NOTES:
1. ALL EXISTING SIGNS SHALL BE REMOVED AND REPLACED UNLESS OTHERWISE NOTED. ALL REINSTALLED SIGNS OR PROPOSED SIGNS SHALL BE LOCATED A LATERAL CLEARANCE OF 1' FROM THE CURB.
  2. THE CONTRACTOR SHALL COORDINATE THE FINAL PAVEMENT MARKING CONFIGURATION WITH THE CITY PRIOR TO PLACING PAVEMENT MARKINGS.



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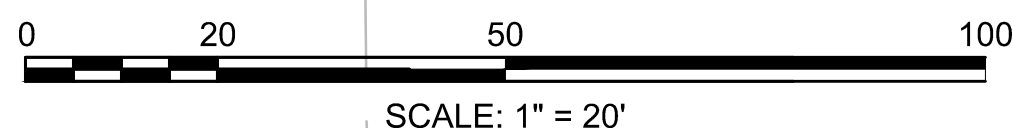
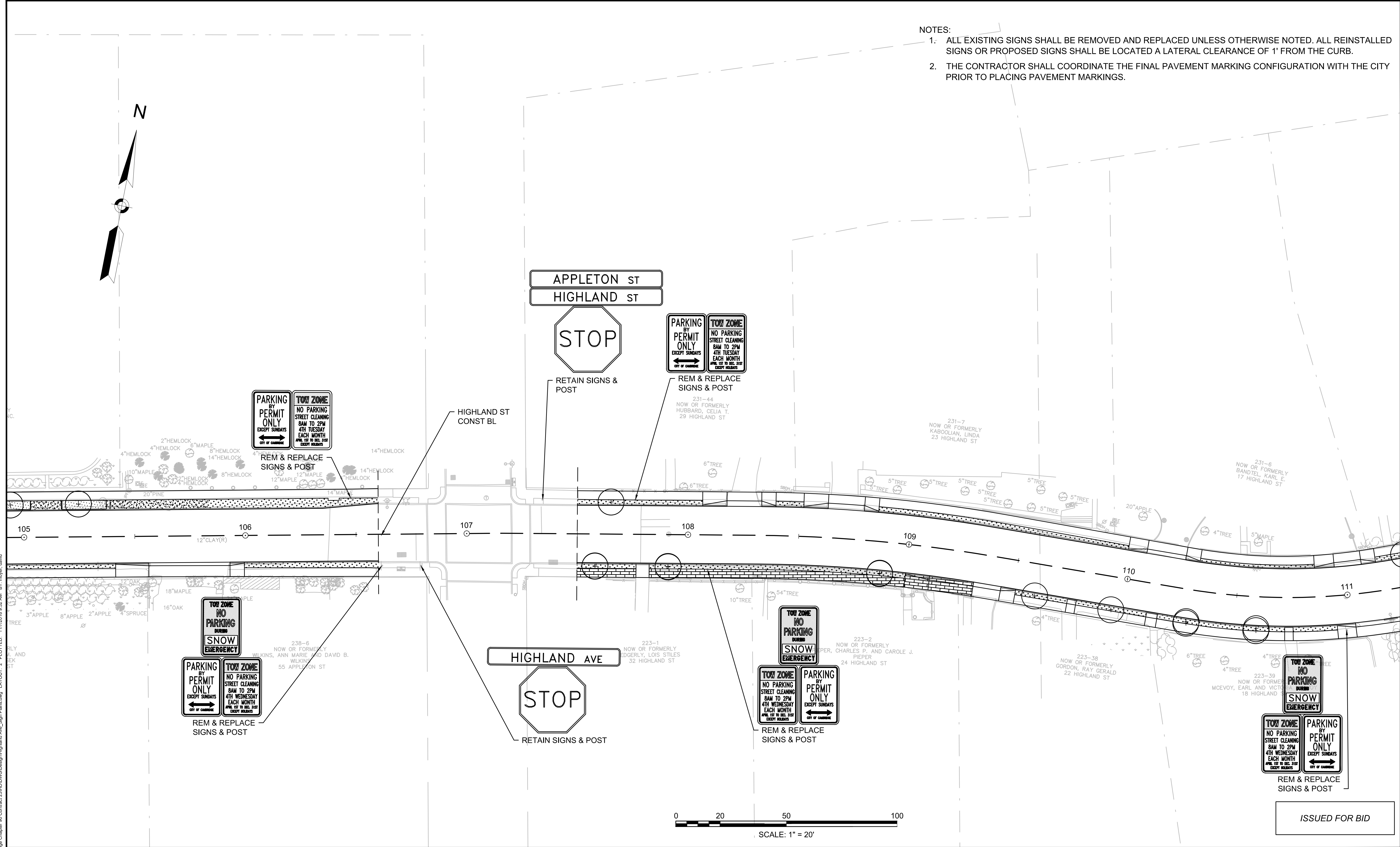
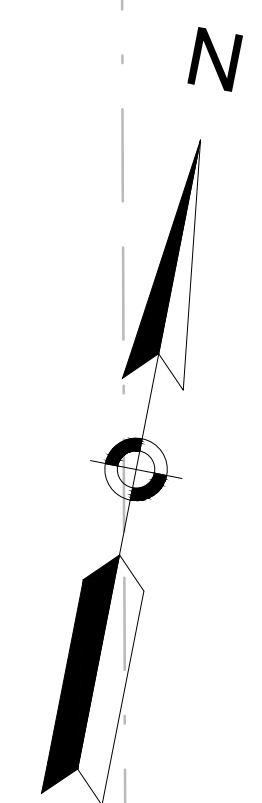
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| Date        | NOVEMBER 2018 |     |             |      |
| Job No.     | 20170208.019A |     |             |      |
| Designed by | JRH           |     |             |      |
| Drawn by    | JRH           |     |             |      |
| Checked by  | PFB           | No. | Description | Date |
| Approved by | PFB           |     | REVISIONS   |      |



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|---------|--|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                             |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT       |
| Drawing | HIGHLAND STREET PAVEMENT MARKING & SIGN PLAN<br>SHEET 1 OF 3 |

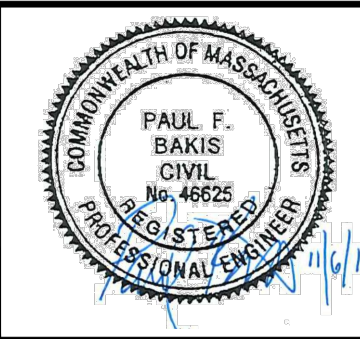
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|----------|------|
| Sheet    | R-45 |
| File No. | 8310 |

- NOTES:
1. ALL EXISTING SIGNS SHALL BE REMOVED AND REPLACED UNLESS OTHERWISE NOTED. ALL REINSTALLED SIGNS OR PROPOSED SIGNS SHALL BE LOCATED A LATERAL CLEARANCE OF 1' FROM THE CURB.
  2. THE CONTRACTOR SHALL COORDINATE THE FINAL PAVEMENT MARKING CONFIGURATION WITH THE CITY PRIOR TO PLACING PAVEMENT MARKINGS.



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| Scale       | AS NOTED      |     |             |
| Date        | NOVEMBER 2018 |     |             |
| Job No.     | 20170208.019A |     |             |
| Designed by | JRH           |     |             |
| Drawn by    | JRH           |     |             |
| Checked by  | PFB           | No. | Description |
| Approved by | PFB           |     | REVISIONS   |



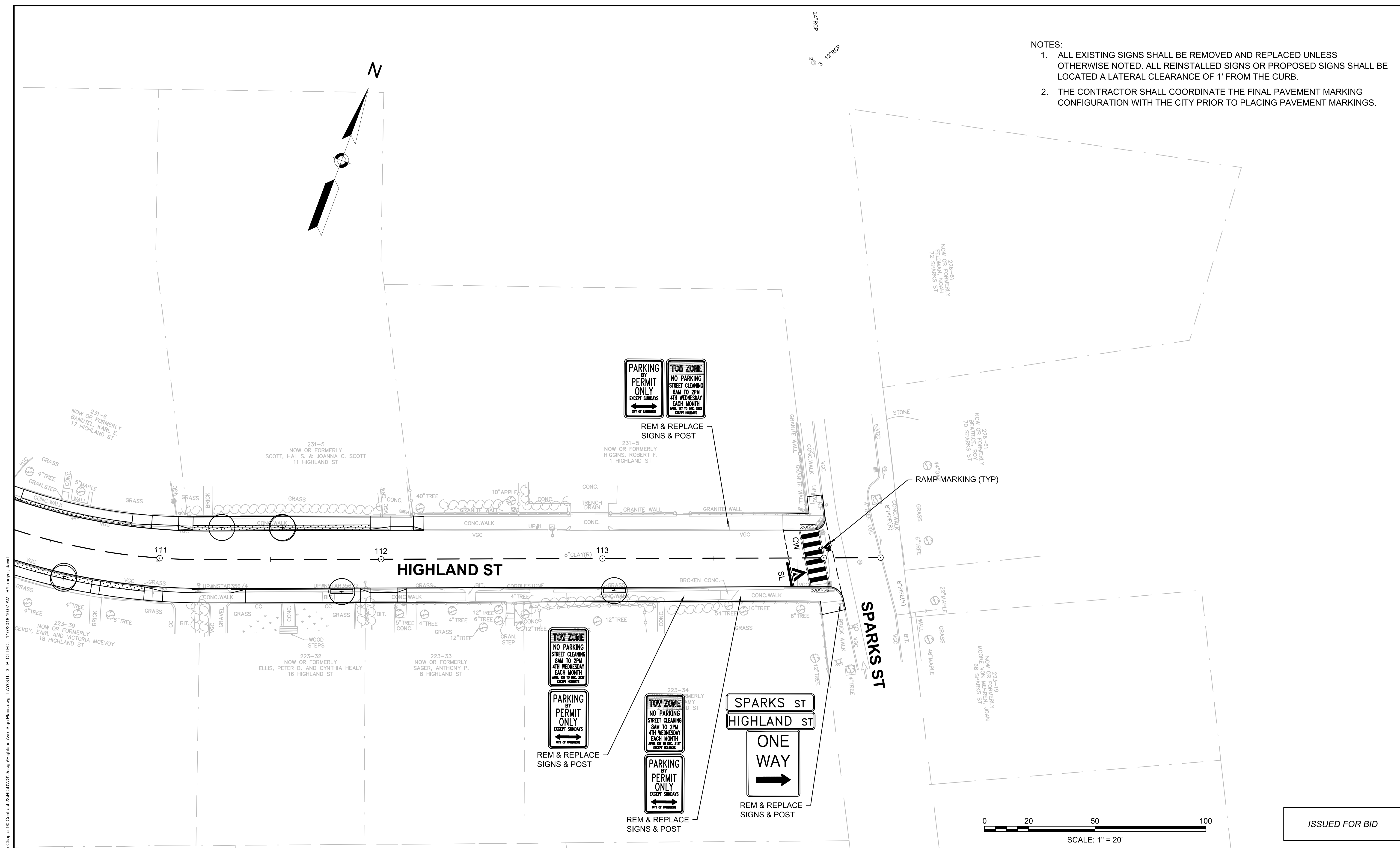
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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                             |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT       |
| Drawing | HIGHLAND STREET PAVEMENT MARKING & SIGN PLAN<br>SHEET 2 OF 3 |

|          |      |
|----------|------|
| Sheet    | R-46 |
| File No. | 8310 |

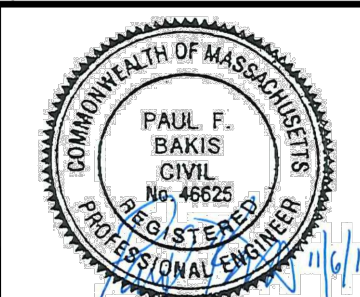


NOTES:

1. ALL EXISTING SIGNS SHALL BE REMOVED AND REPLACED UNLESS OTHERWISE NOTED. ALL REINSTALLED SIGNS OR PROPOSED SIGNS SHALL BE LOCATED A LATERAL CLEARANCE OF 1' FROM THE CURB.
2. THE CONTRACTOR SHALL COORDINATE THE FINAL PAVEMENT MARKING CONFIGURATION WITH THE CITY PRIOR TO PLACING PAVEMENT MARKINGS.



CAD FILE: I:\eng\1604248 Cambridge Chapter 90 Contract 23A\DWG\Design\Highland Ave\_Sign Plans.dwg LAYOUT: 3 PLOTTED: 11/7/2018 10:07 AM BY: moyer, dawd



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| Scale       | AS NOTED      |     |             |
| Date        | NOVEMBER 2018 |     |             |
| Job No.     | 20170208.019A |     |             |
| Designed by | JRH           |     |             |
| Drawn by    | JRH           |     |             |
| Checked by  | PFB           | No. | Description |
| Approved by | PFB           |     | REVISIONS   |



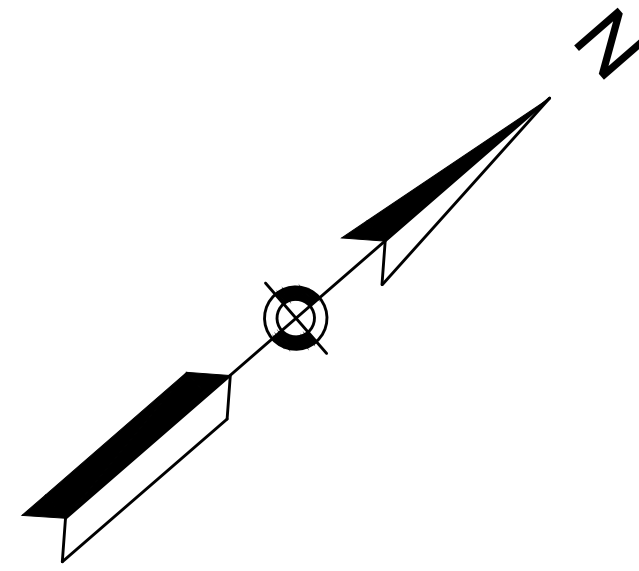
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|---------|--|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                             |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT       |
| Drawing | HIGHLAND STREET PAVEMENT MARKING & SIGN PLAN<br>SHEET 3 OF 3 |

|          |      |
|----------|------|
| Sheet    | R-47 |
| File No. | 8310 |

ISSUED FOR BID

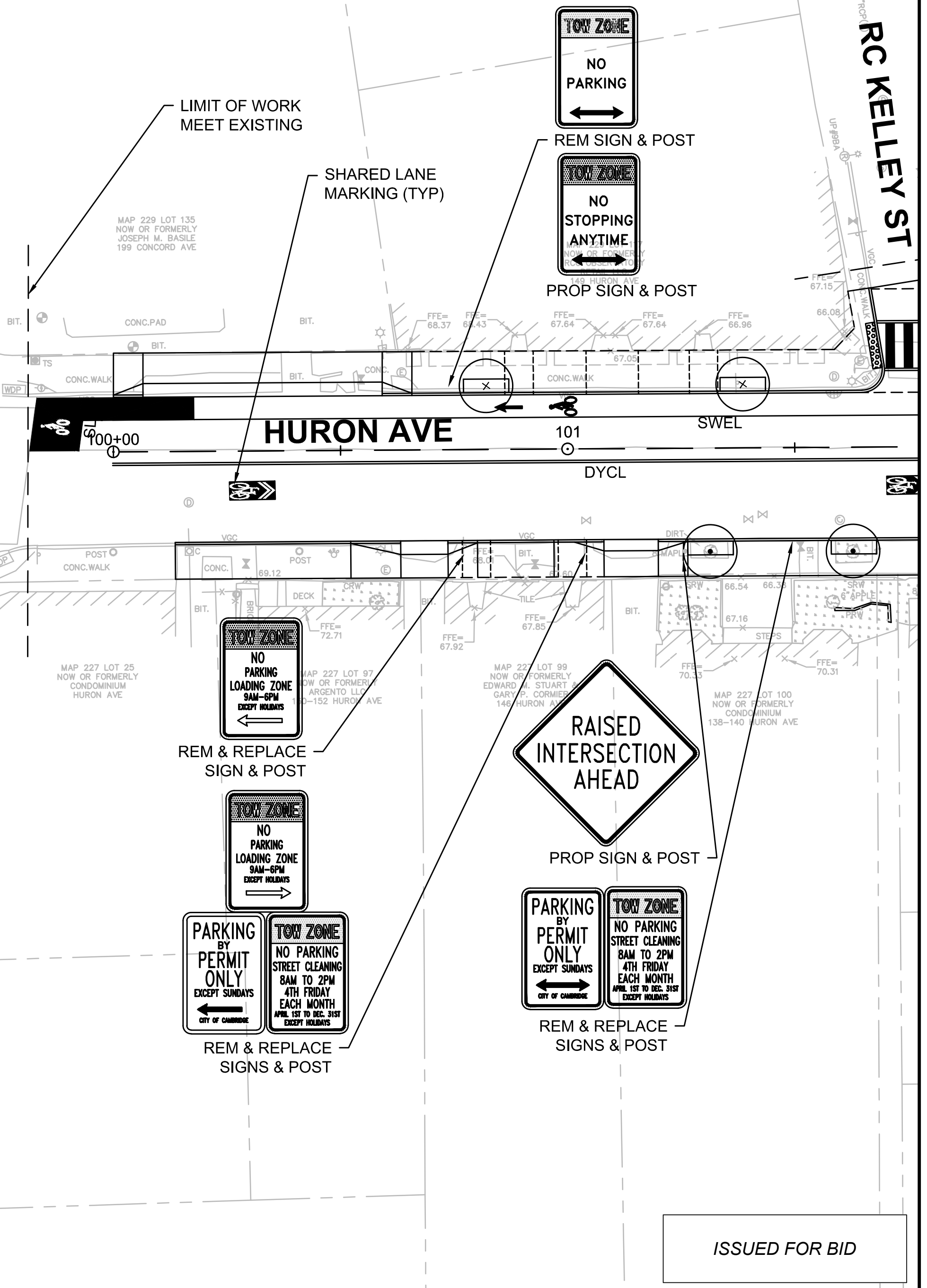
NOTES:

1. ALL EXISTING SIGNS SHALL BE REMOVED AND REPLACED UNLESS OTHERWISE NOTED. ALL REINSTALLED SIGNS OR PROPOSED SIGNS SHALL BE LOCATED A LATERAL CLEARANCE OF 1' FROM THE CURB.
2. THE CONTRACTOR SHALL COORDINATE THE FINAL PAVEMENT MARKING CONFIGURATION WITH THE CITY PRIOR TO PLACING PAVEMENT MARKINGS.
3. SHARED LANE MARKINGS SHALL BE GREEN BACK PREFORM THERMOPLASTIC.



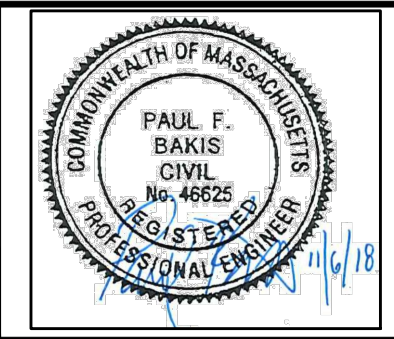
CONCORD AVE

RC KELLEY ST

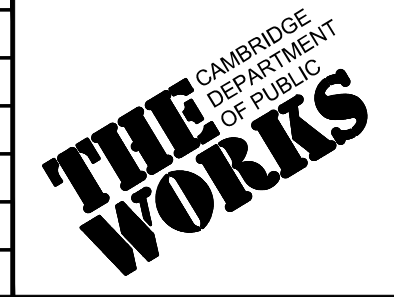


ISSUED FOR BID

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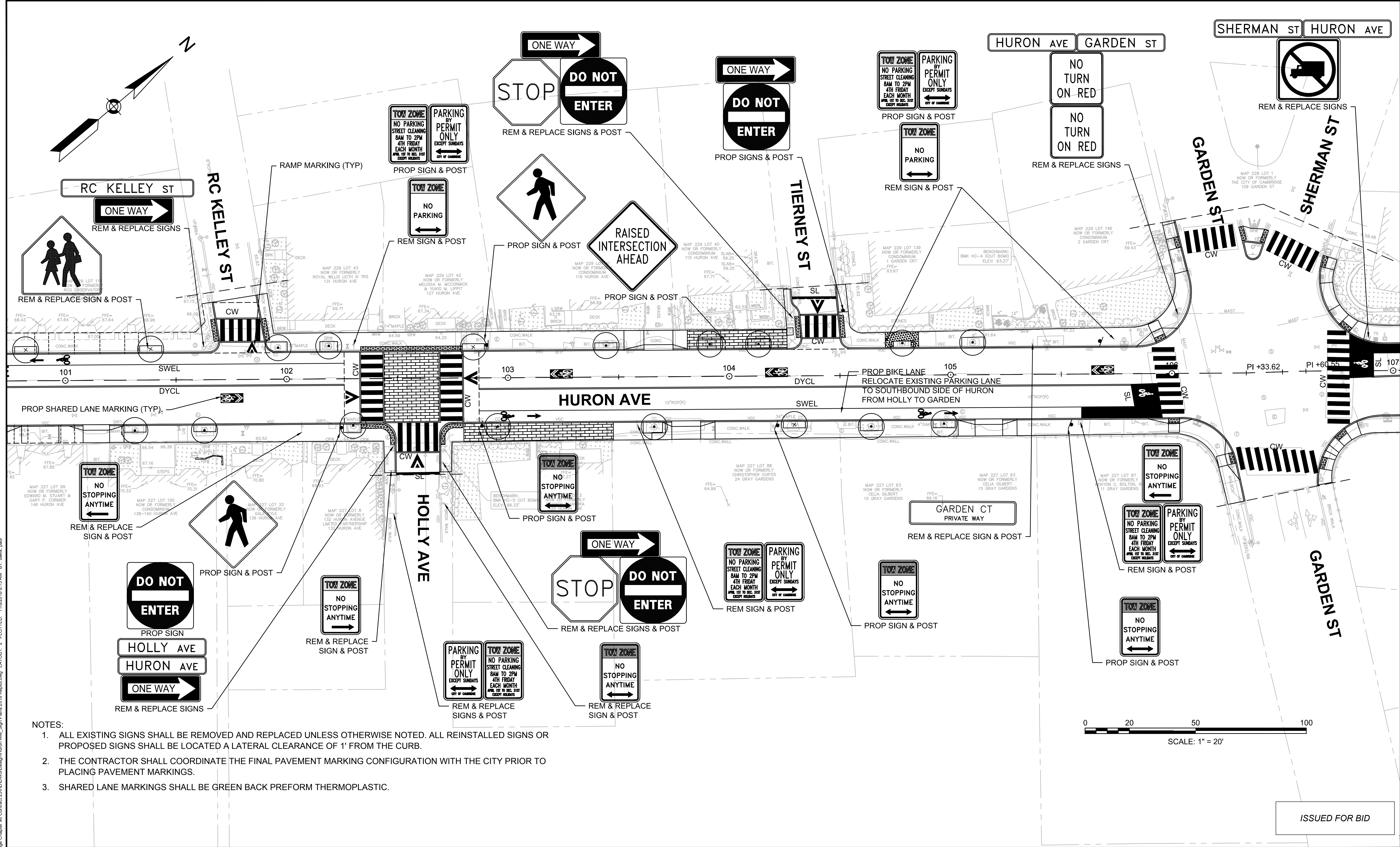
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| Scale       | AS NOTED      |     |             |      |
| Date        | NOVEMBER 2018 |     |             |      |
| Job No.     | 20170208.019A |     |             |      |
| Designed by | JRH           |     |             |      |
| Drawn by    | JRH           |     |             |      |
| Checked by  | PFB           | No. | Description | Date |
| Approved by | PFB           |     | REVISIONS   |      |



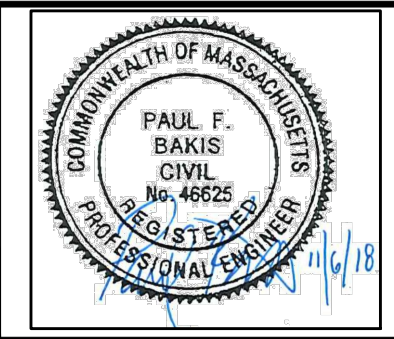
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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HURON AVE PAVEMENT MARKING & SIGN PLAN<br>SHEET 1 OF 4 |

|          |      |
|----------|------|
| Sheet    | R-48 |
| File No. | 8310 |

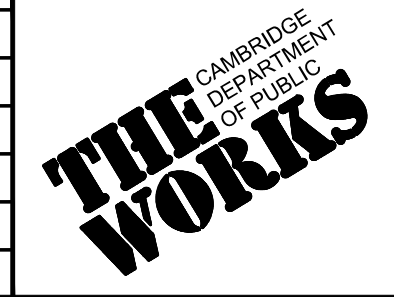
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- NOTES:**
1. ALL EXISTING SIGNS SHALL BE REMOVED AND REPLACED UNLESS OTHERWISE NOTED. ALL REINSTALLED SIGNS OR PROPOSED SIGNS SHALL BE LOCATED A LATERAL CLEARANCE OF 1' FROM THE CURB.
  2. THE CONTRACTOR SHALL COORDINATE THE FINAL PAVEMENT MARKING CONFIGURATION WITH THE CITY PRIOR TO PLACING PAVEMENT MARKINGS.
  3. SHARED LANE MARKINGS SHALL BE GREEN BACK PREFORM THERMOPLASTIC.



|             |               |     |             |
|-------------|---------------|-----|-------------|
| Scale       | AS NOTED      |     |             |
| Date        | NOVEMBER 2018 |     |             |
| Job No.     | 20170208.019A |     |             |
| Designed by | JRH           |     |             |
| Drawn by    | JRH           |     |             |
| Checked by  | PFB           | No. | Description |
| Approved by | PFB           |     | Date        |



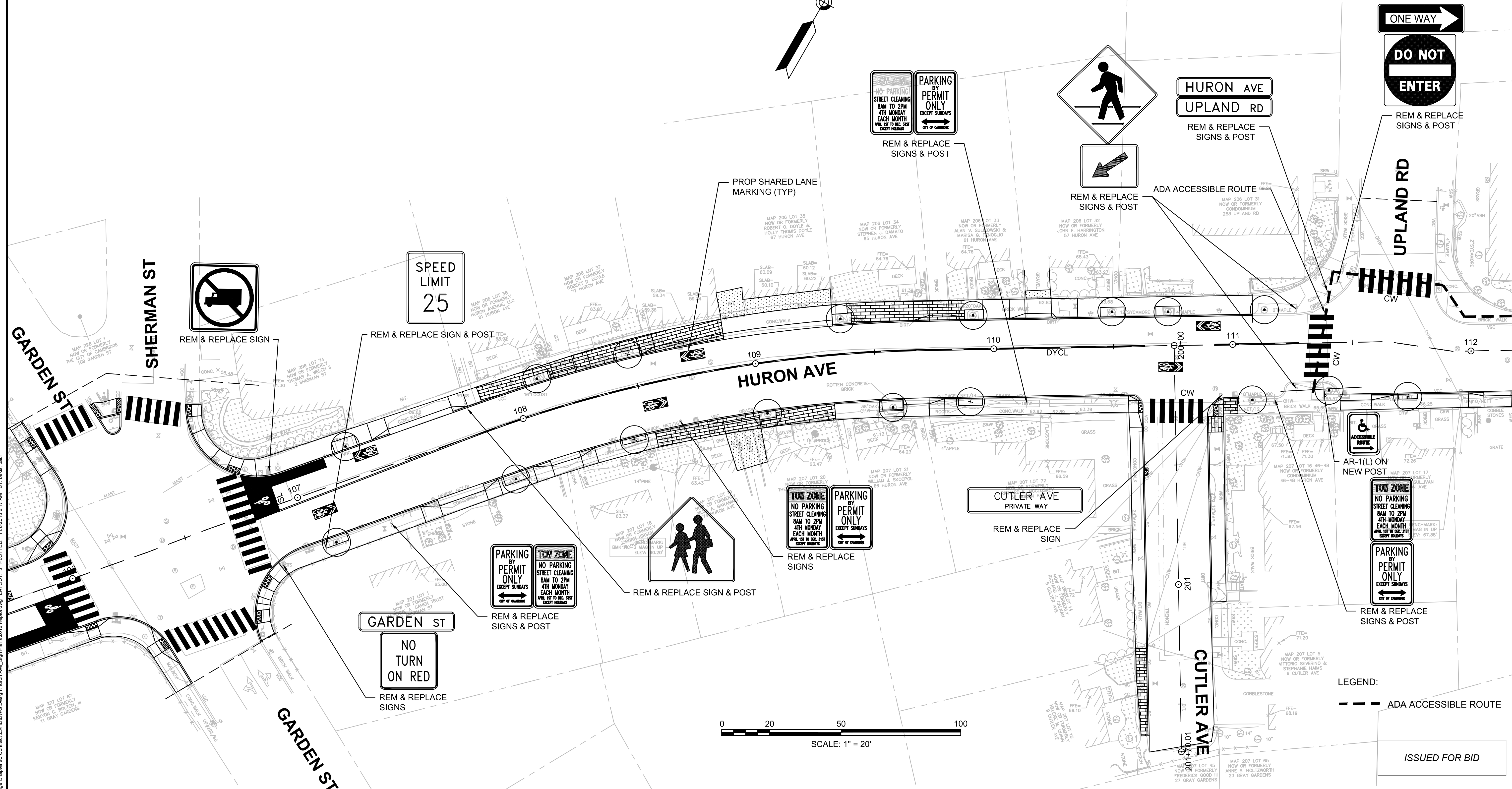
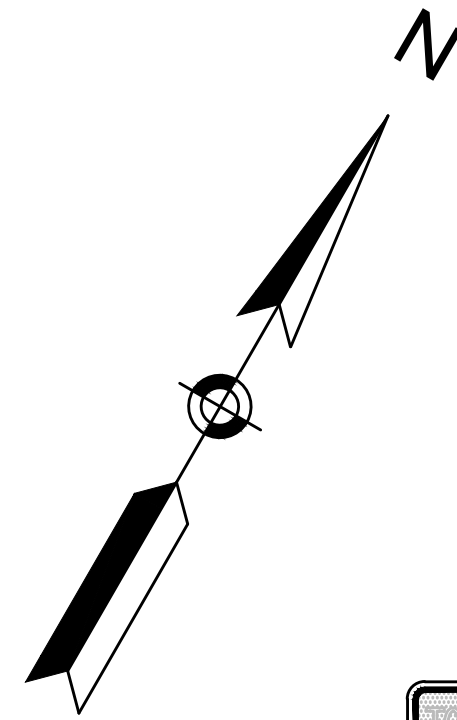
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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HURON AVE PAVEMENT MARKING & SIGN PLAN<br>SHEET 2 OF 4 |

|          |      |
|----------|------|
| Sheet    | R-49 |
| File No. | 8310 |

ISSUED FOR BID

NOTES:

1. ALL EXISTING SIGNS SHALL BE REMOVED AND REPLACED UNLESS OTHERWISE NOTED. ALL REINSTALLED SIGNS OR PROPOSED SIGNS SHALL BE LOCATED A LATERAL CLEARANCE OF 1' FROM THE CURB.
2. THE CONTRACTOR SHALL COORDINATE THE FINAL PAVEMENT MARKING CONFIGURATION WITH THE CITY PRIOR TO PLACING PAVEMENT MARKINGS.
3. SHARED LANE MARKINGS SHALL BE GREEN BACK PREFORM THERMOPLASTIC.



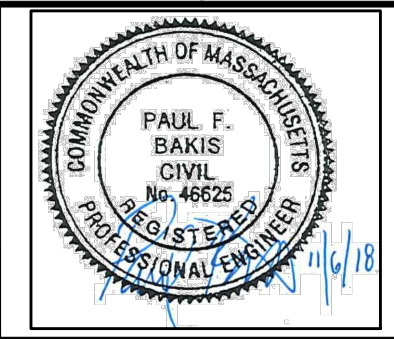
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ISSUED FOR BID

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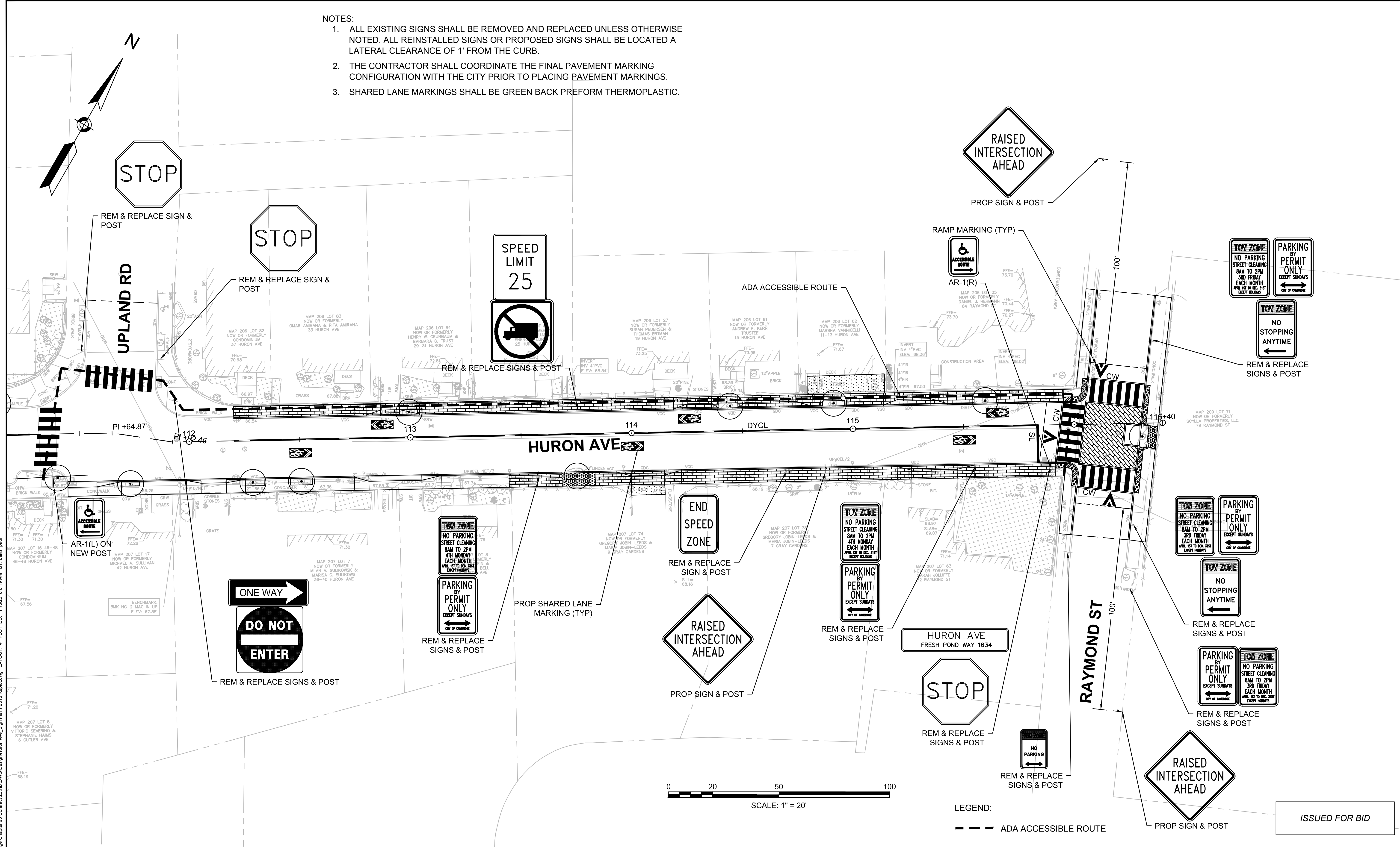


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| Scale       | AS NOTED      |     |             |      |
| Date        | NOVEMBER 2018 |     |             |      |
| Job No.     | 20170208.019A |     |             |      |
| Designed by | JRH           |     |             |      |
| Drawn by    | JRH           |     |             |      |
| Checked by  | PFB           | No. | Description | Date |
| Approved by | PFB           |     | REVISIONS   |      |

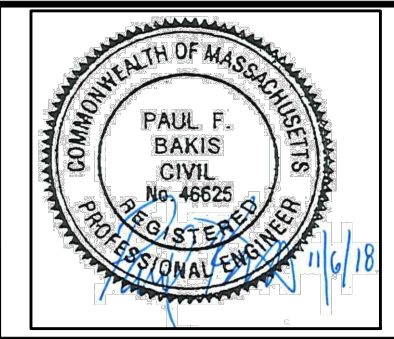


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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       | Sheet    | R-50 |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT | File No. | 8310 |
| Drawing | HURON AVE PAVEMENT MARKING & SIGN PLAN<br>SHEET 3 OF 4 |          |      |

- NOTES:
1. ALL EXISTING SIGNS SHALL BE REMOVED AND REPLACED UNLESS OTHERWISE NOTED. ALL REINSTALLED SIGNS OR PROPOSED SIGNS SHALL BE LOCATED A LATERAL CLEARANCE OF 1' FROM THE CURB.
  2. THE CONTRACTOR SHALL COORDINATE THE FINAL PAVEMENT MARKING CONFIGURATION WITH THE CITY PRIOR TO PLACING PAVEMENT MARKINGS.
  3. SHARED LANE MARKINGS SHALL BE GREEN BACK PREFORM THERMOPLASTIC.



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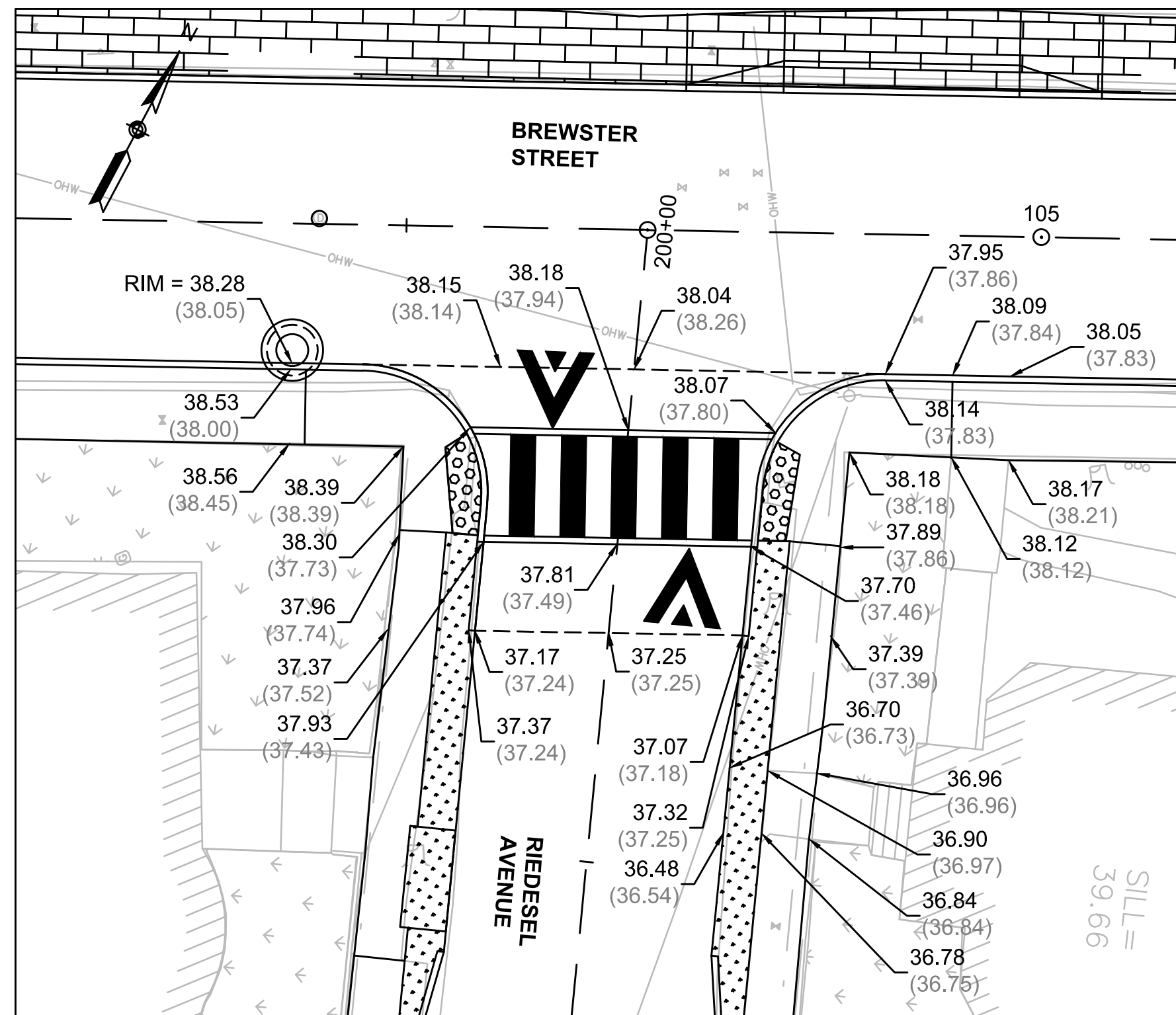
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| Date        | NOVEMBER 2018 |     |             |
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| Designed by | JRH           |     |             |
| Drawn by    | JRH           |     |             |
| Checked by  | PFB           | No. | Description |
| Approved by | PFB           |     | Date        |



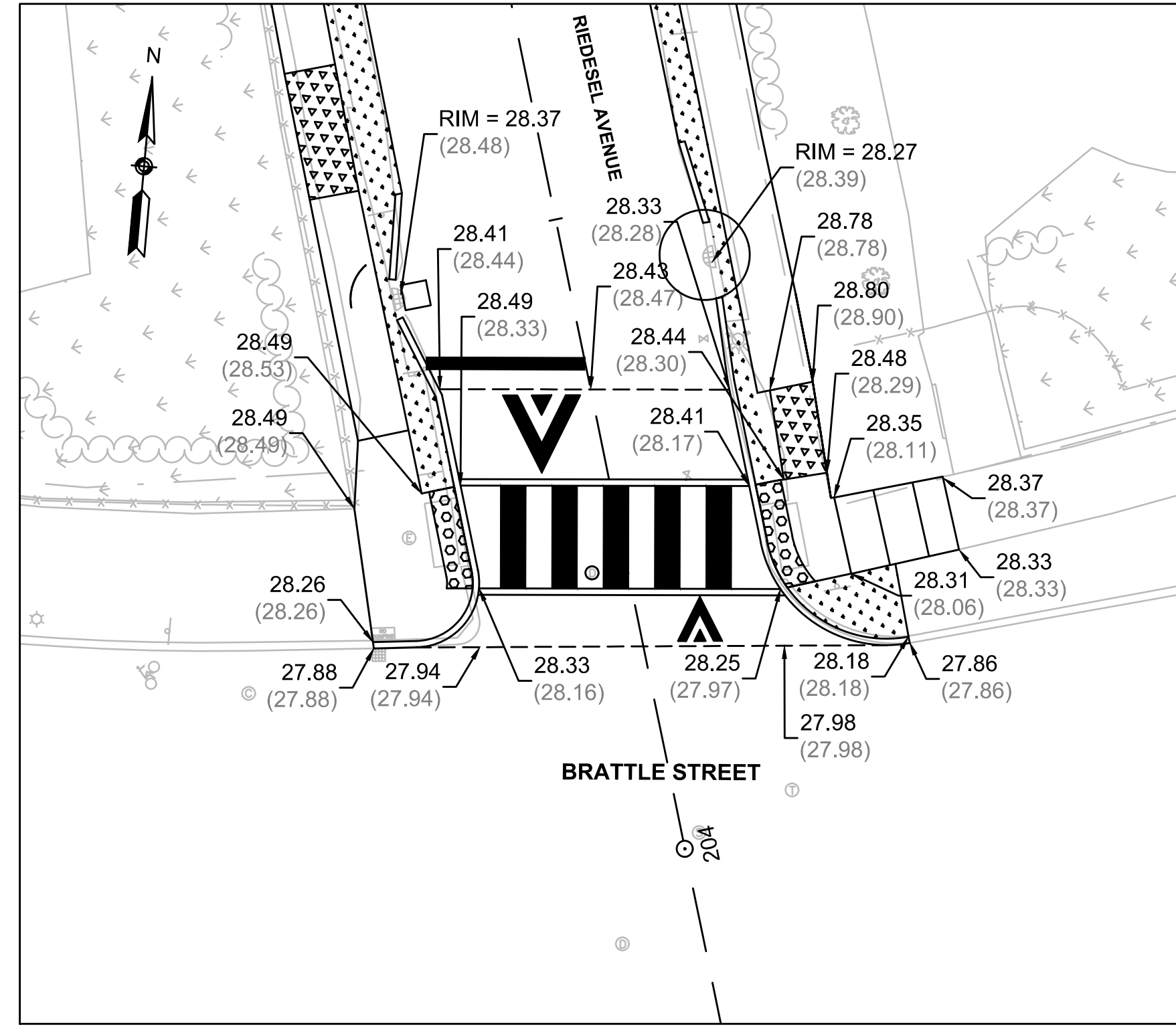
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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | HURON AVE PAVEMENT MARKING & SIGN PLAN<br>SHEET 4 OF 4 |

|          |      |
|----------|------|
| Sheet    | R-51 |
| File No. | 8310 |

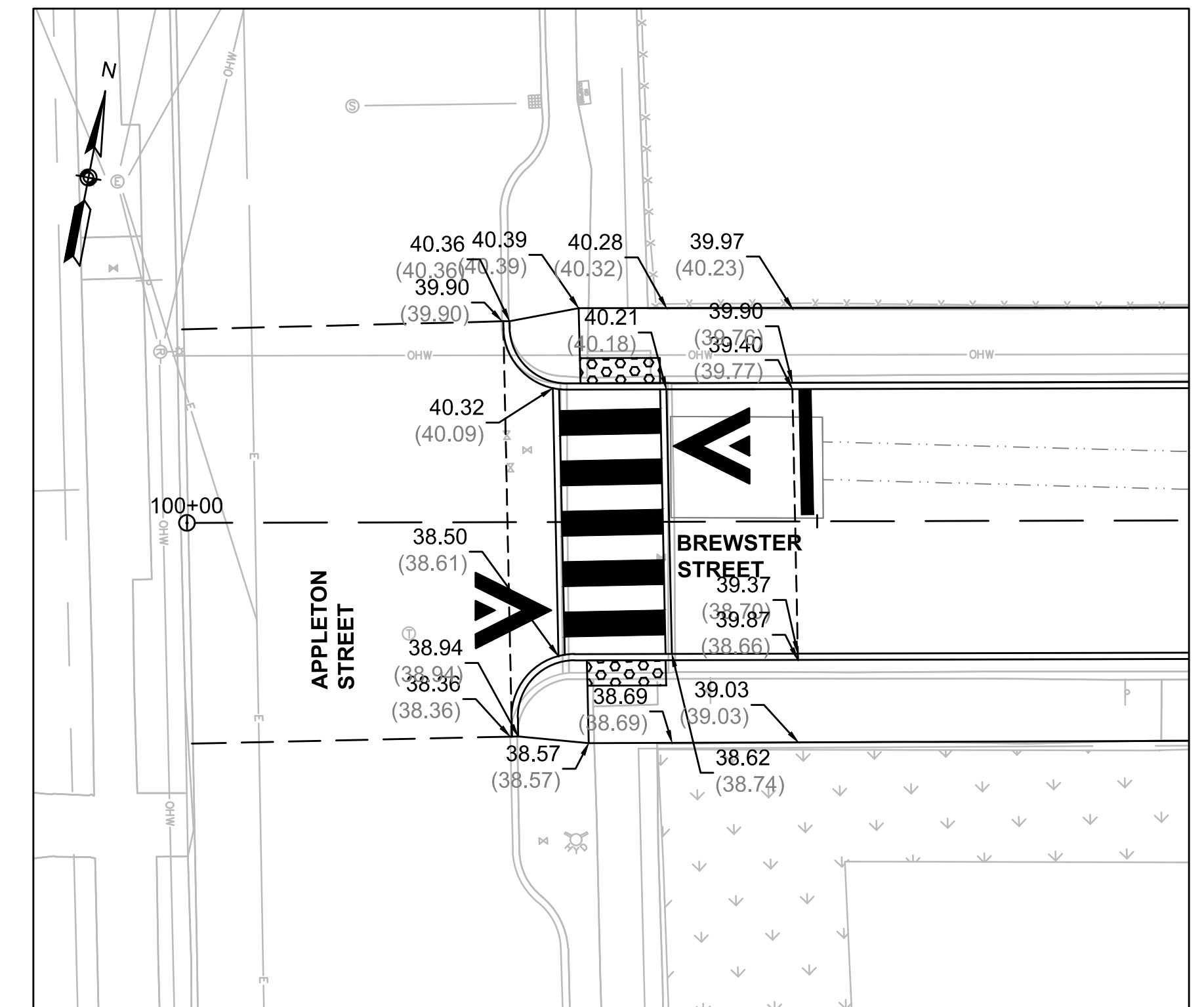
ISSUED FOR BID



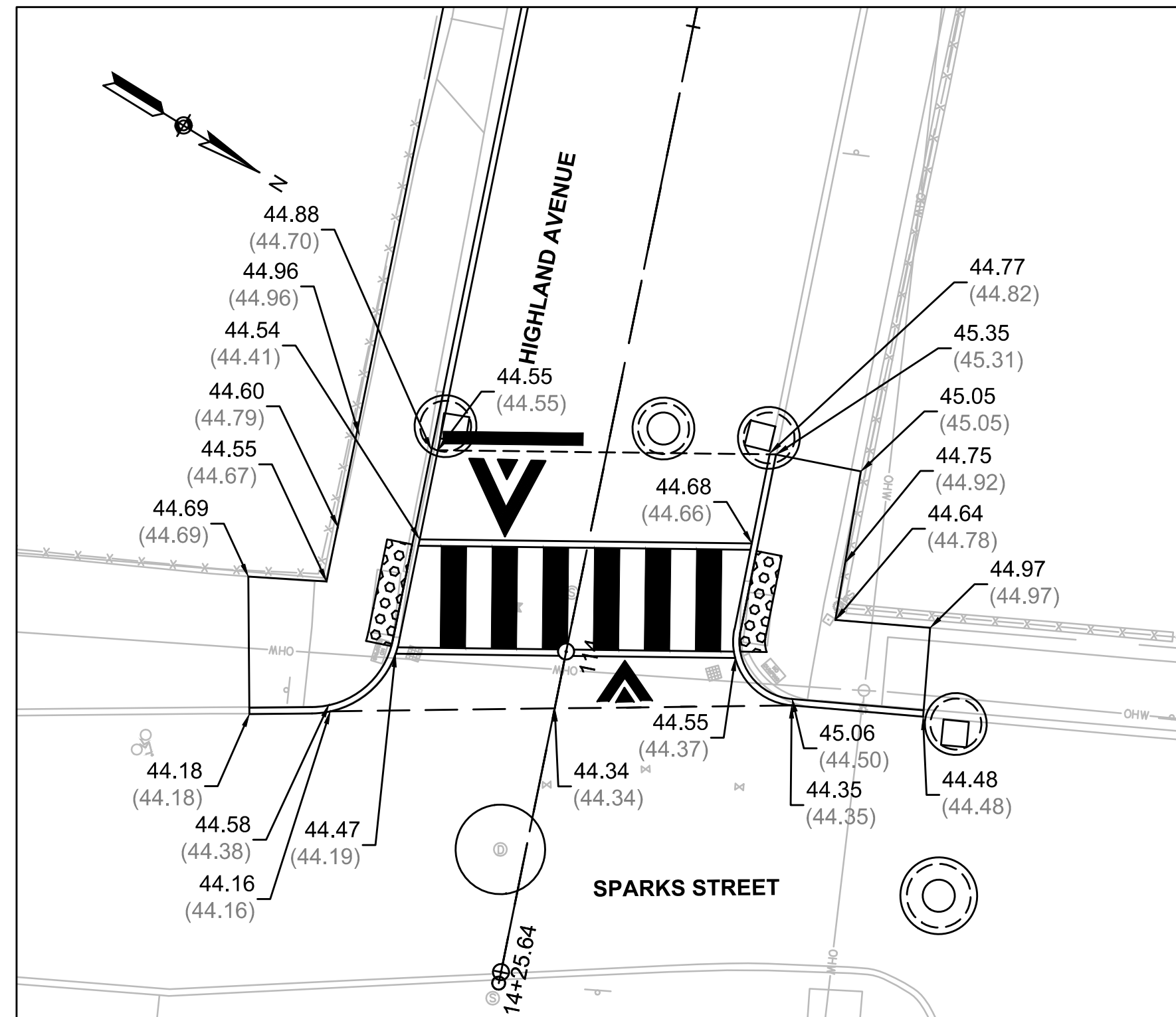
RAISED CROSSWALK GRADING PLAN  
RIEDEL AVENUE AT BREWSTER STREET



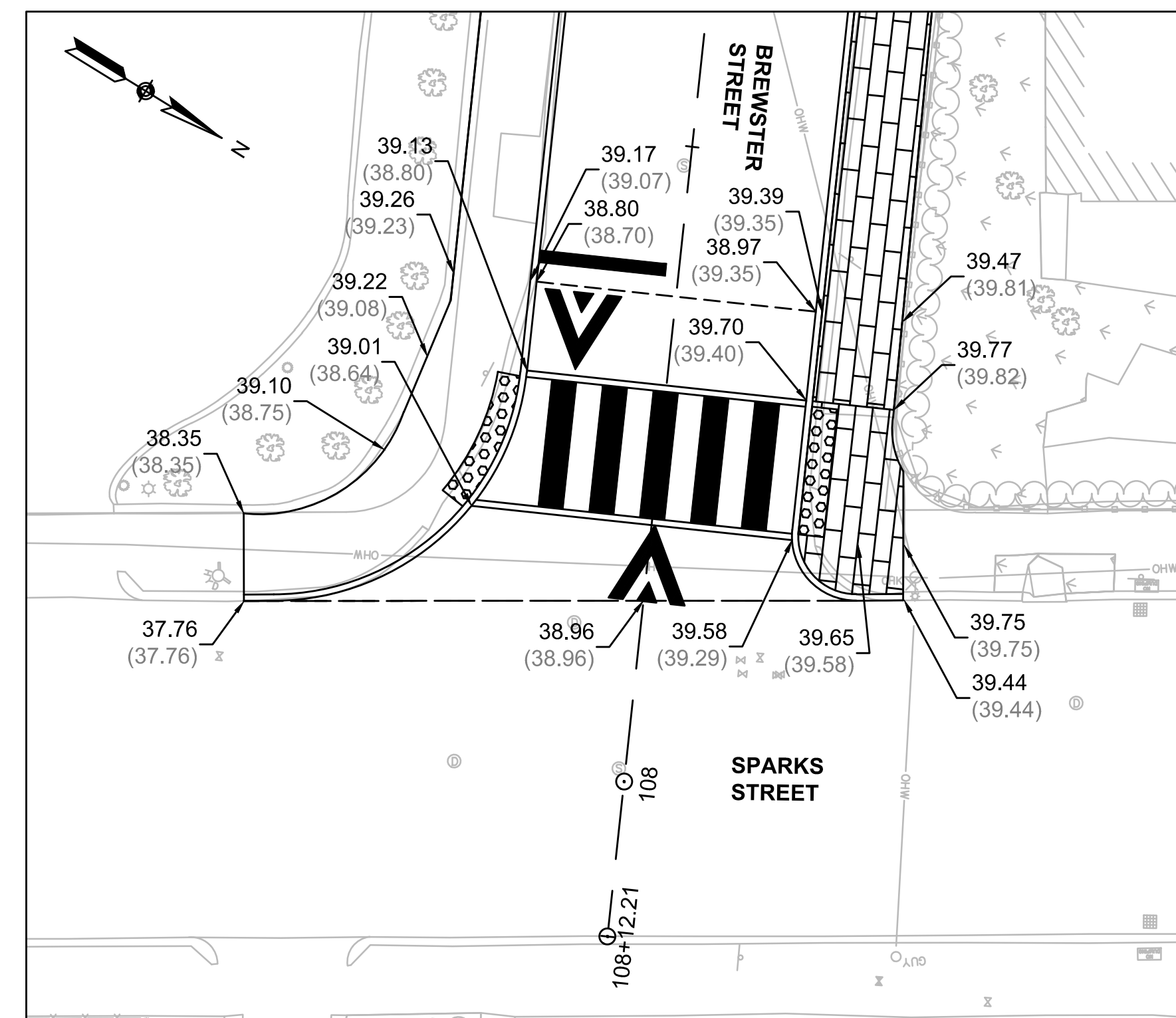
RAISED CROSSWALK GRADING PLAN  
RIEDEL AVENUE AT BRATTLE STREET



RAISED CROSSWALK GRADING PLAN  
BREWSTER STREET AT APPLETON STREET



RAISED CROSSWALK GRADING PLAN  
HIGHLAND AVENUE AT SPARKS STREET



RAISED CROSSWALK GRADING PLAN  
BREWSTER STREET AT SPARKS STREET

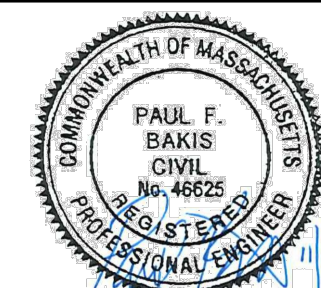


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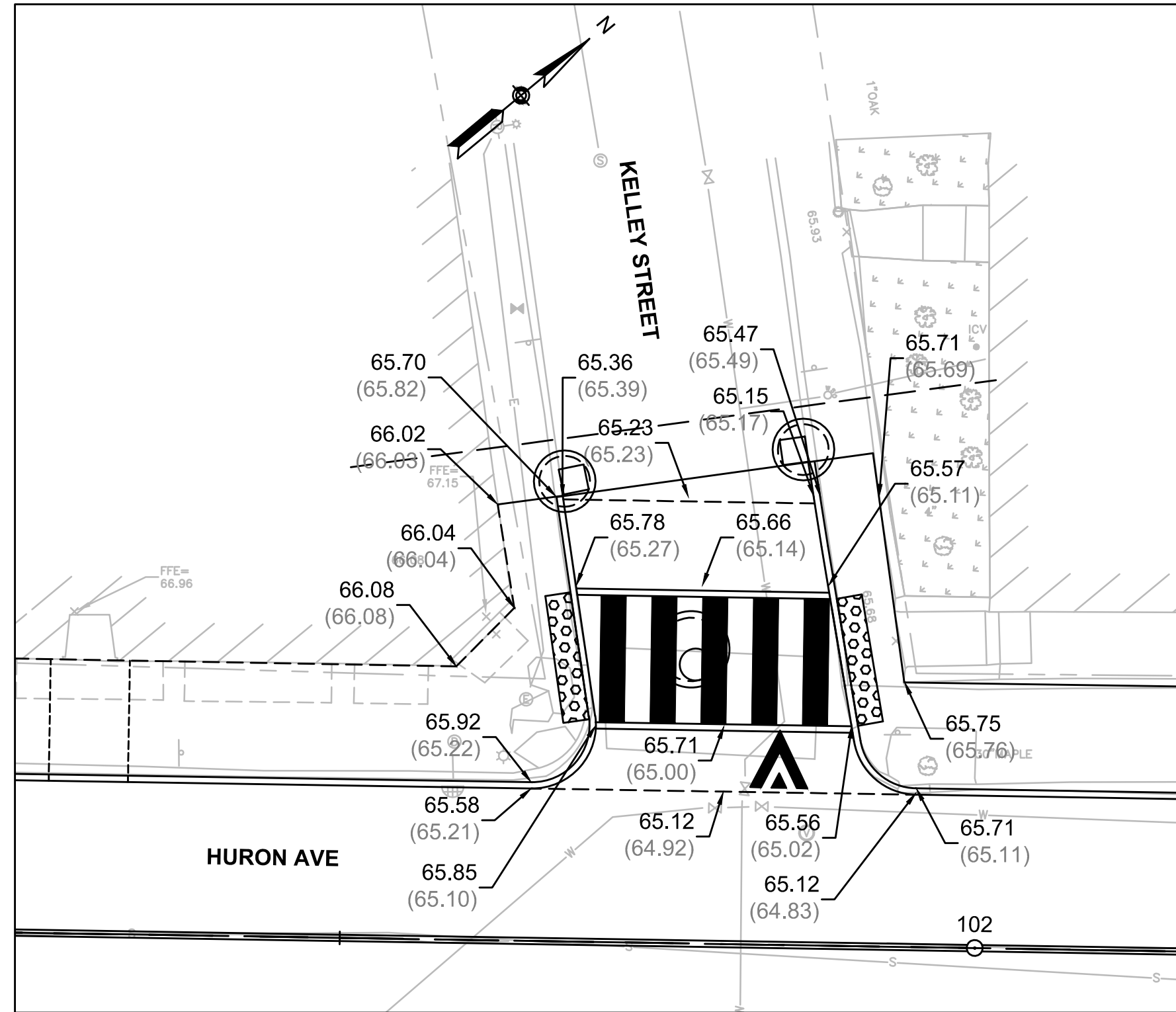


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| Scale       | AS NOTED      |     |             |
| Date        | NOVEMBER 2018 |     |             |
| Job No.     | 20170208.019A |     |             |
| Designed by | JRH           |     |             |
| Drawn by    | JRH           |     |             |
| Checked by  | PFB           | No. | Description |
| Approved by | PFB           |     | REVISIONS   |

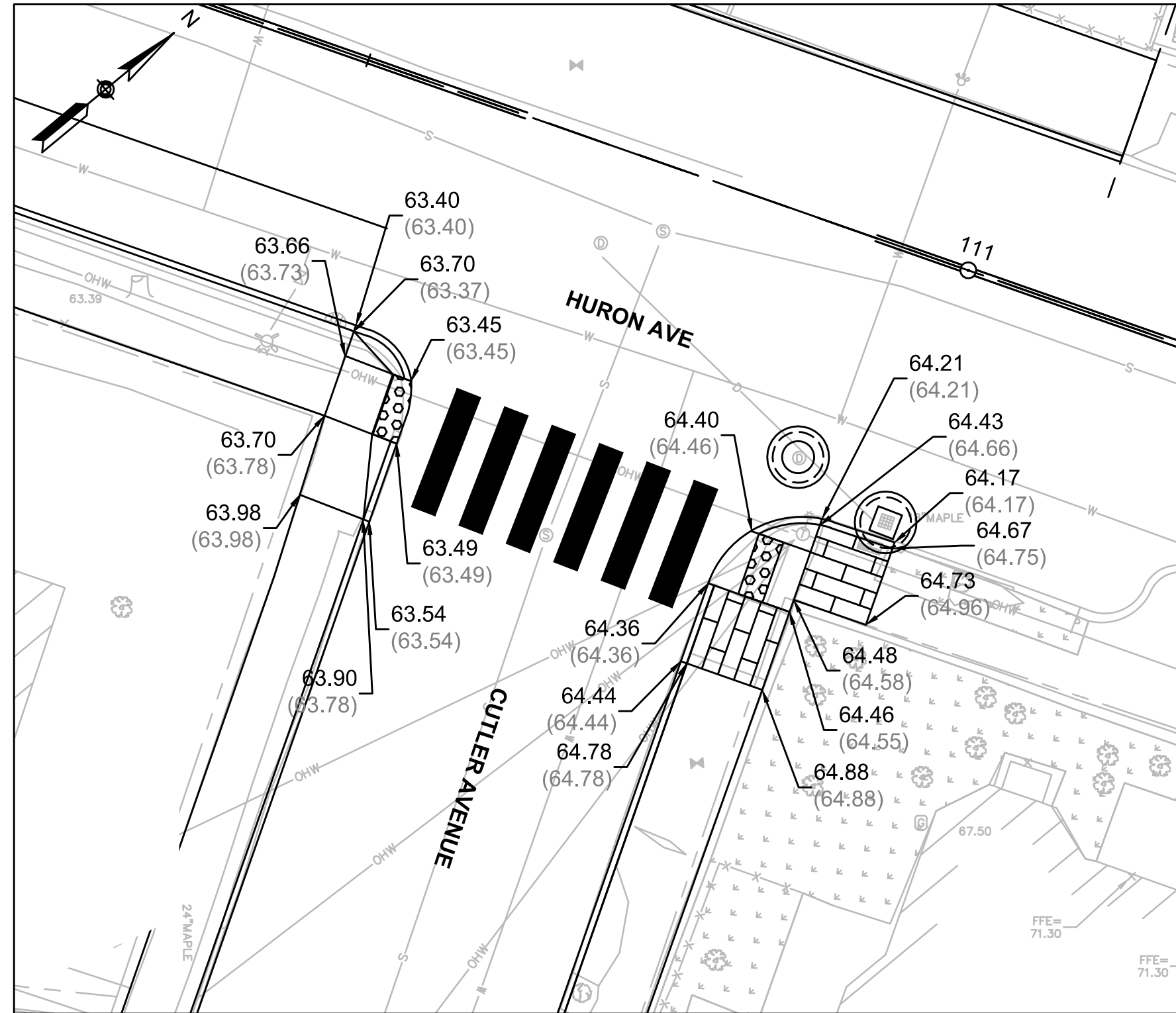


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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | DETAIL GRADING PLANS<br>SHEET 1 OF 2                   |

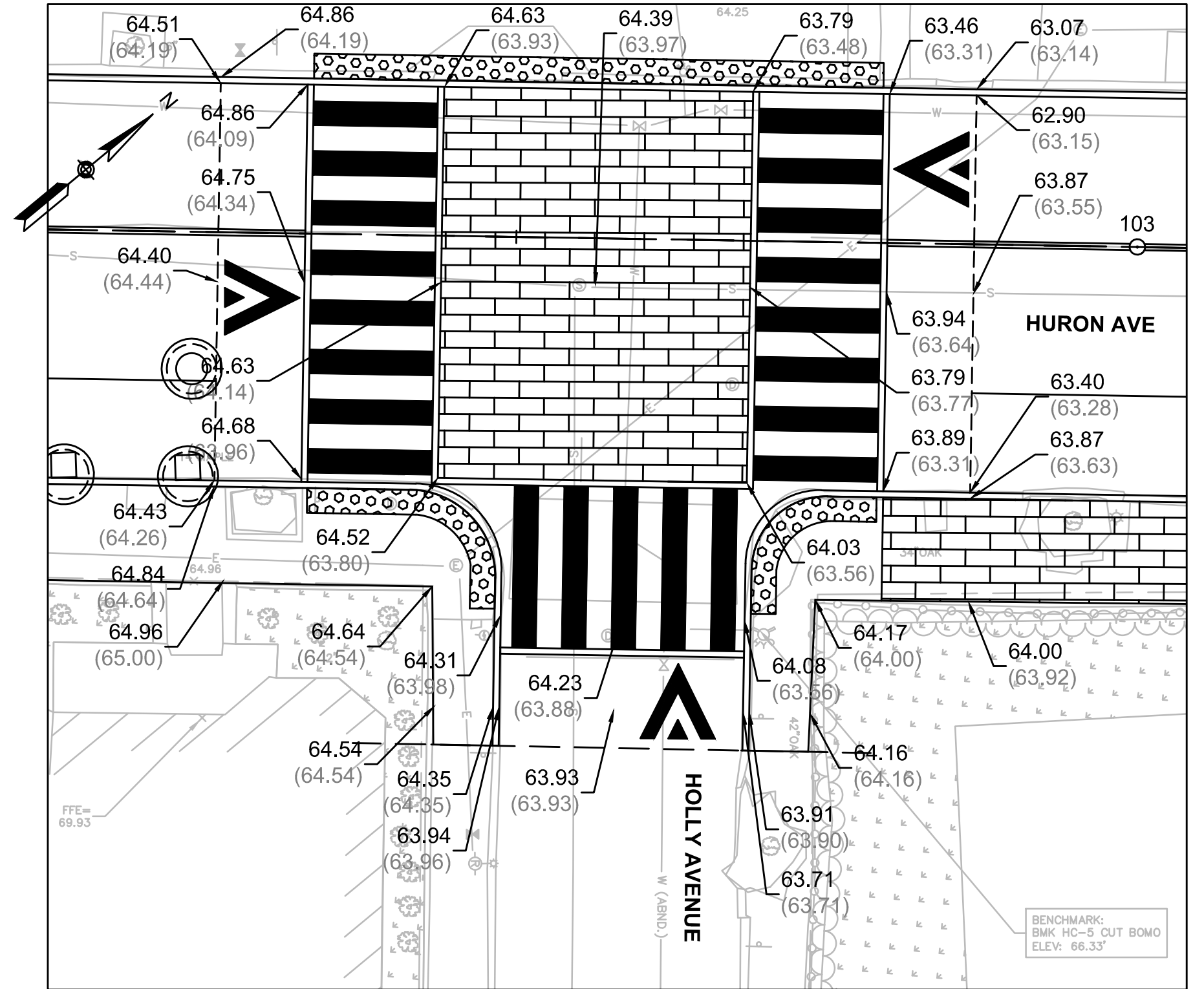
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| Sheet    | R-52 |
| File No. | 8310 |



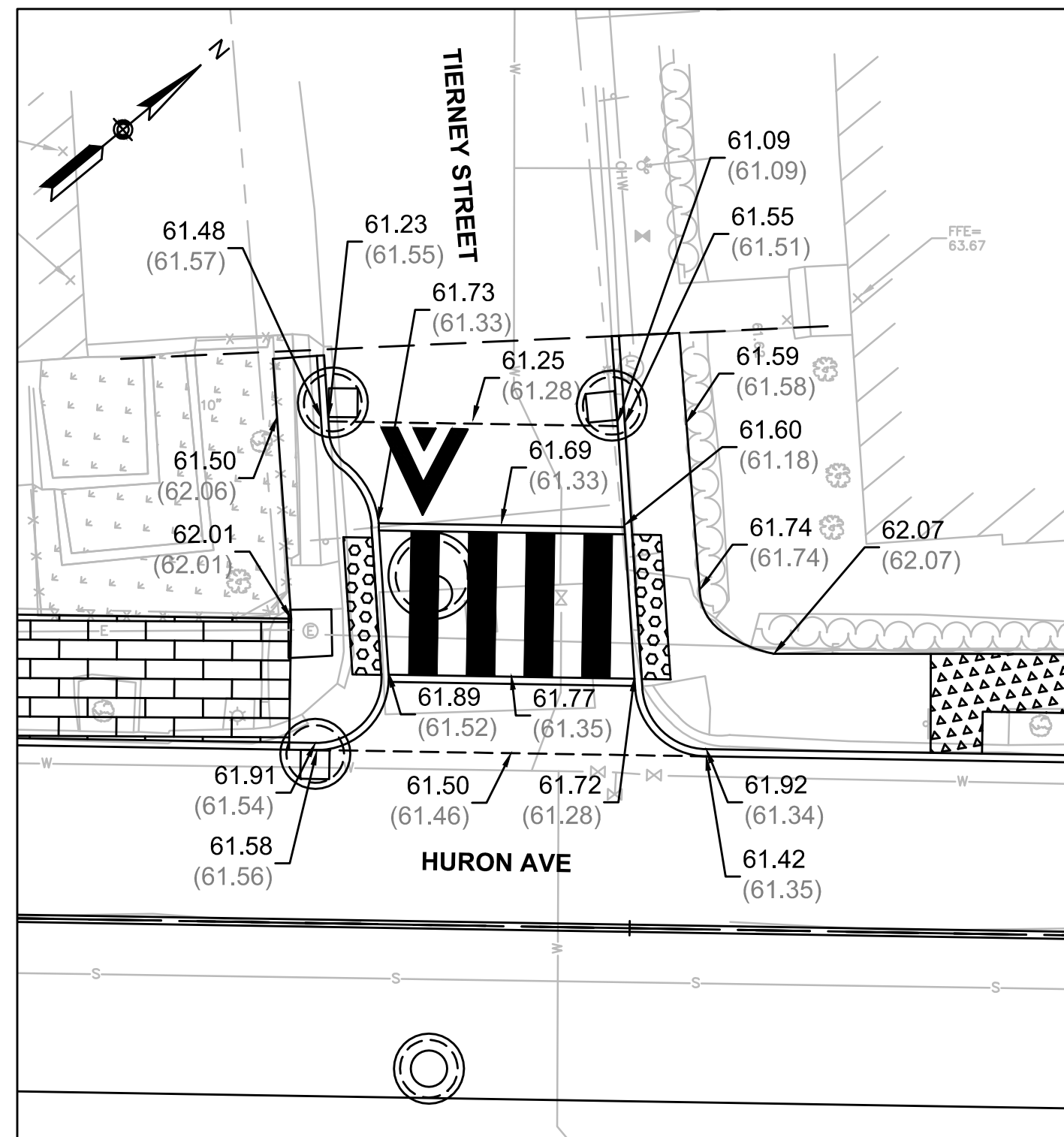
RAISED CROSSWALK GRADING PLAN  
HURON AVENUE AT KELLEY STREET



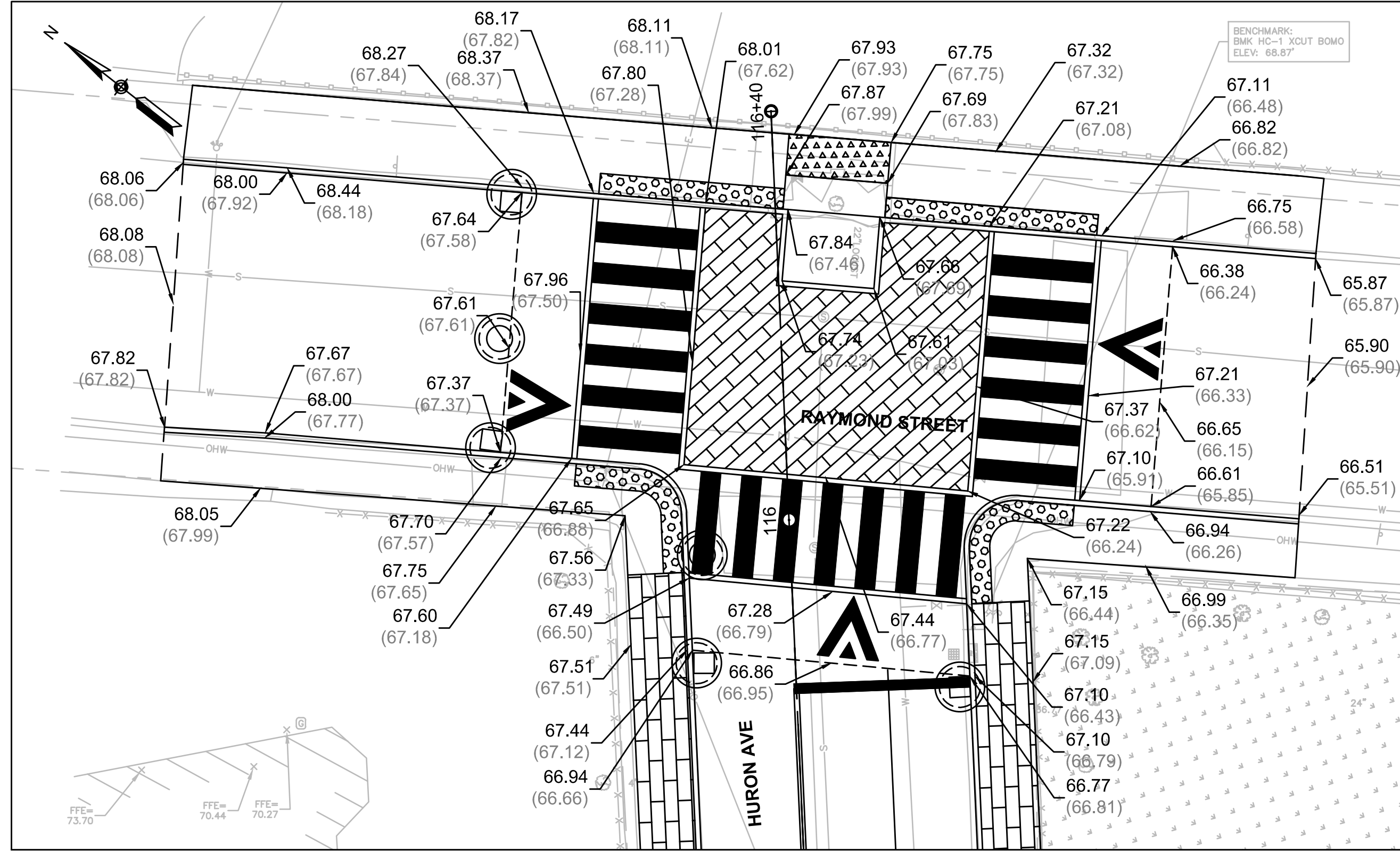
WHEELCHAIR RAMP GRADING PLAN  
HURON AVENUE AT CUTLER AVE



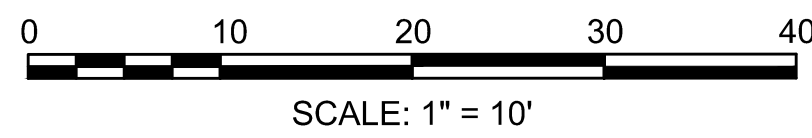
RAISED CROSSWALK GRADING PLAN  
HURON AVENUE AT HOLLY AVENUE



RAISED CROSSWALK GRADING PLAN  
HURON AVENUE AT TIERNY STREET



RAISED CROSSWALK GRADING PLAN  
HURON AVENUE AT RAYMOND STREET



ISSUED FOR BID

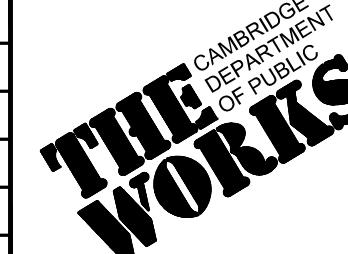
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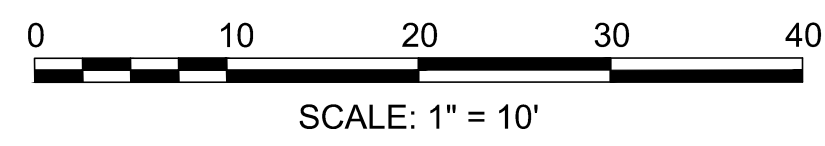
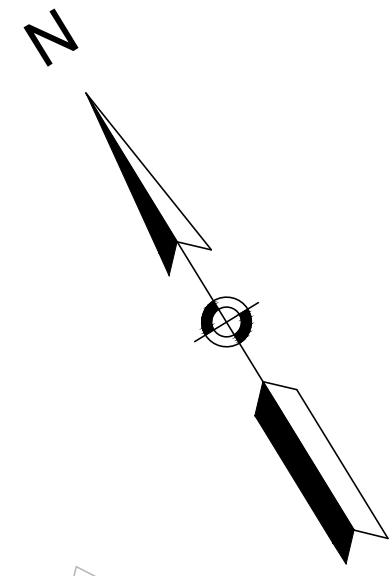


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| Designed by | JRH           |     |             |
| Drawn by    | JRH           |     |             |
| Checked by  | PFB           | No. | Description |
| Approved by | PFB           |     | Date        |



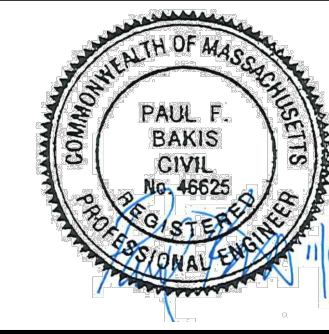
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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | DETAIL GRADING PLANS<br>SHEET 2 OF 2                   |

|          |      |
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| Sheet    | R-53 |
| File No. | 8310 |

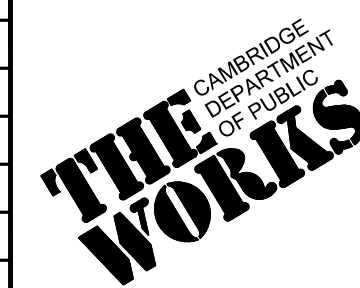


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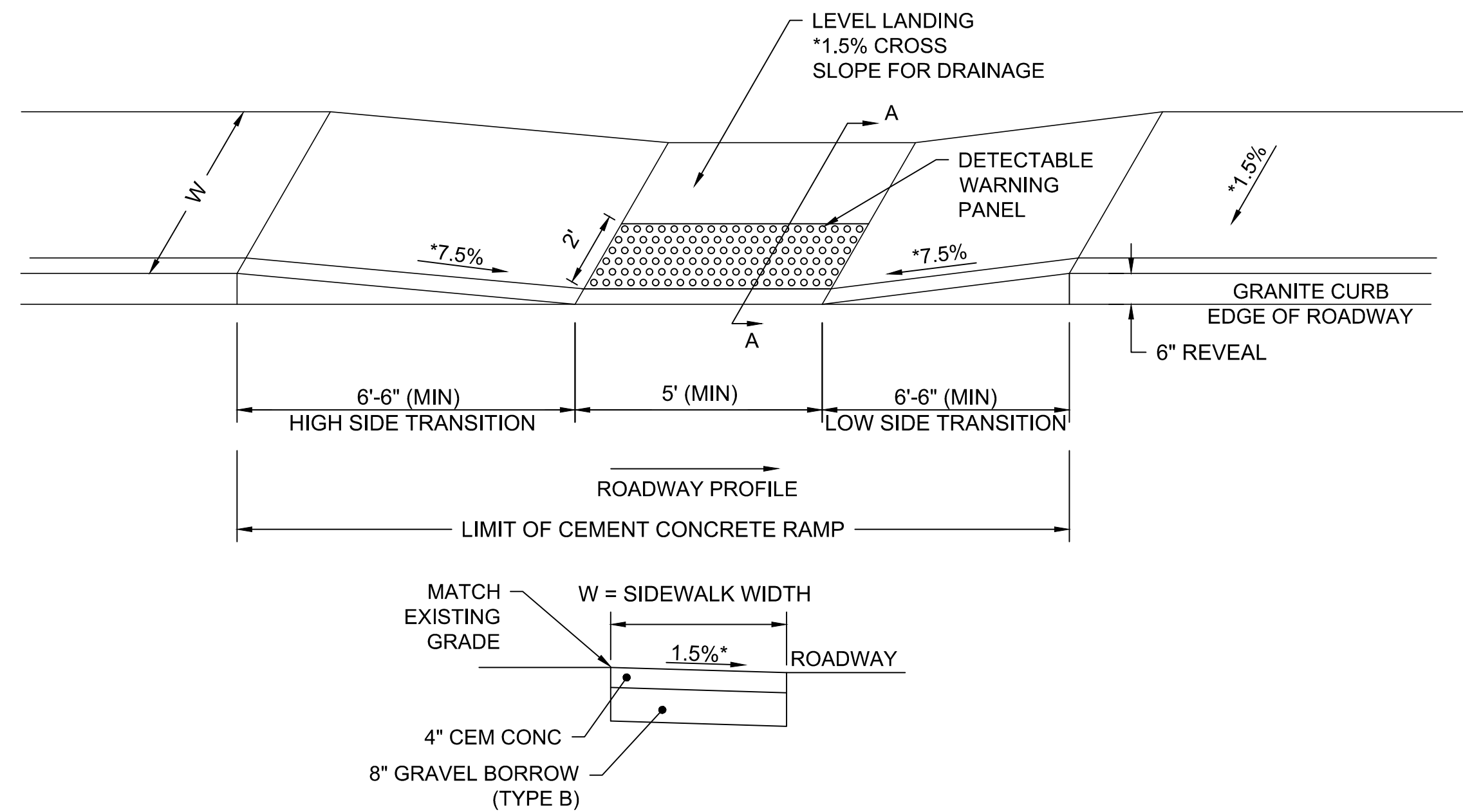
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| Date        | NOVEMBER 2018 |     |             |      |
| Job No.     | 20170208.019A |     |             |      |
| Designed by | JRH           |     |             |      |
| Drawn by    | JRH           |     |             |      |
| Checked by  | PFB           | No. | Description | Date |
| Approved by | PFB           |     | REVISIONS   |      |



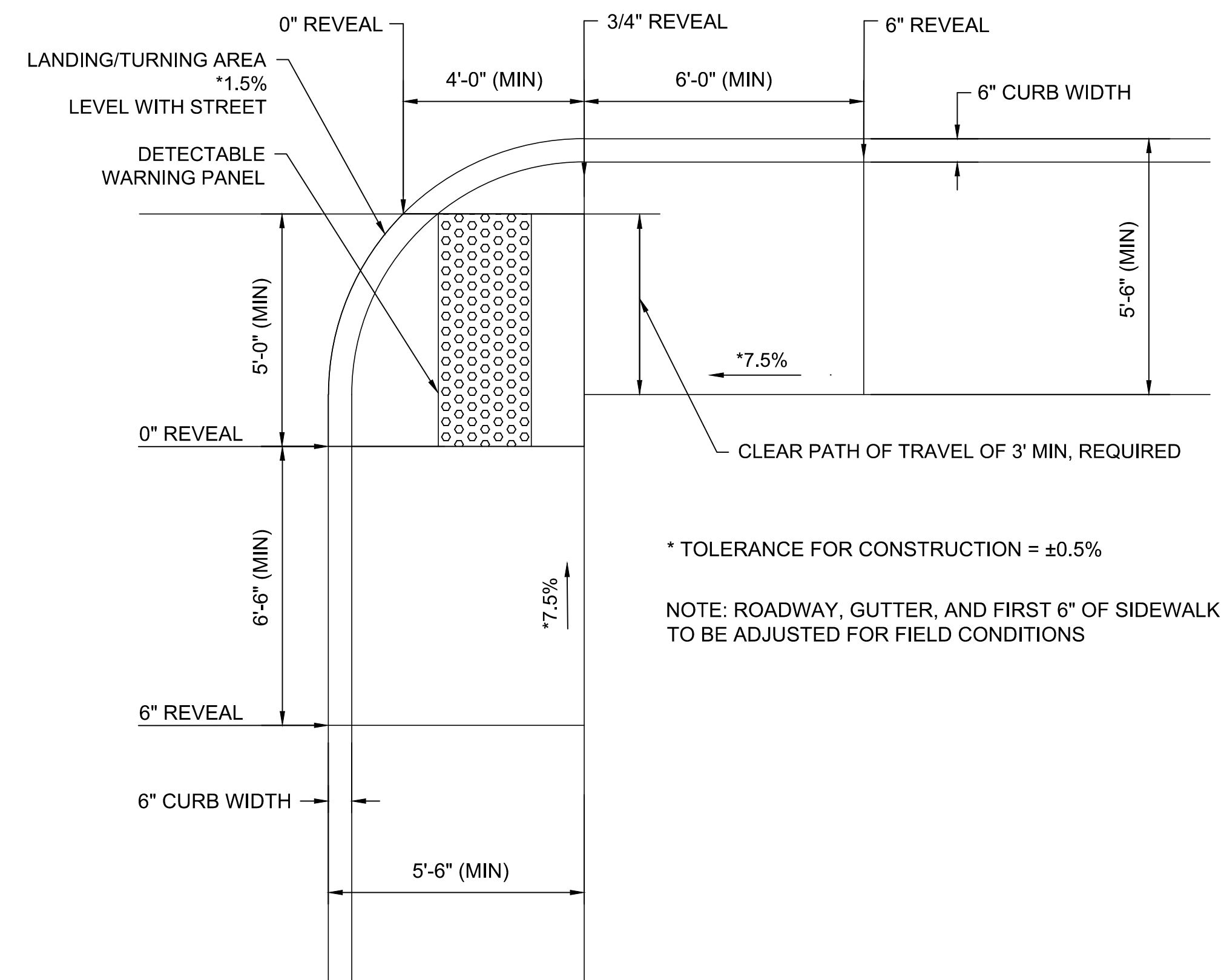
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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | DETAIL GRADING PLANS<br>SHEET 3 OF 4                   |

|          |      |
|----------|------|
| Sheet    | R-54 |
| File No. | 8310 |

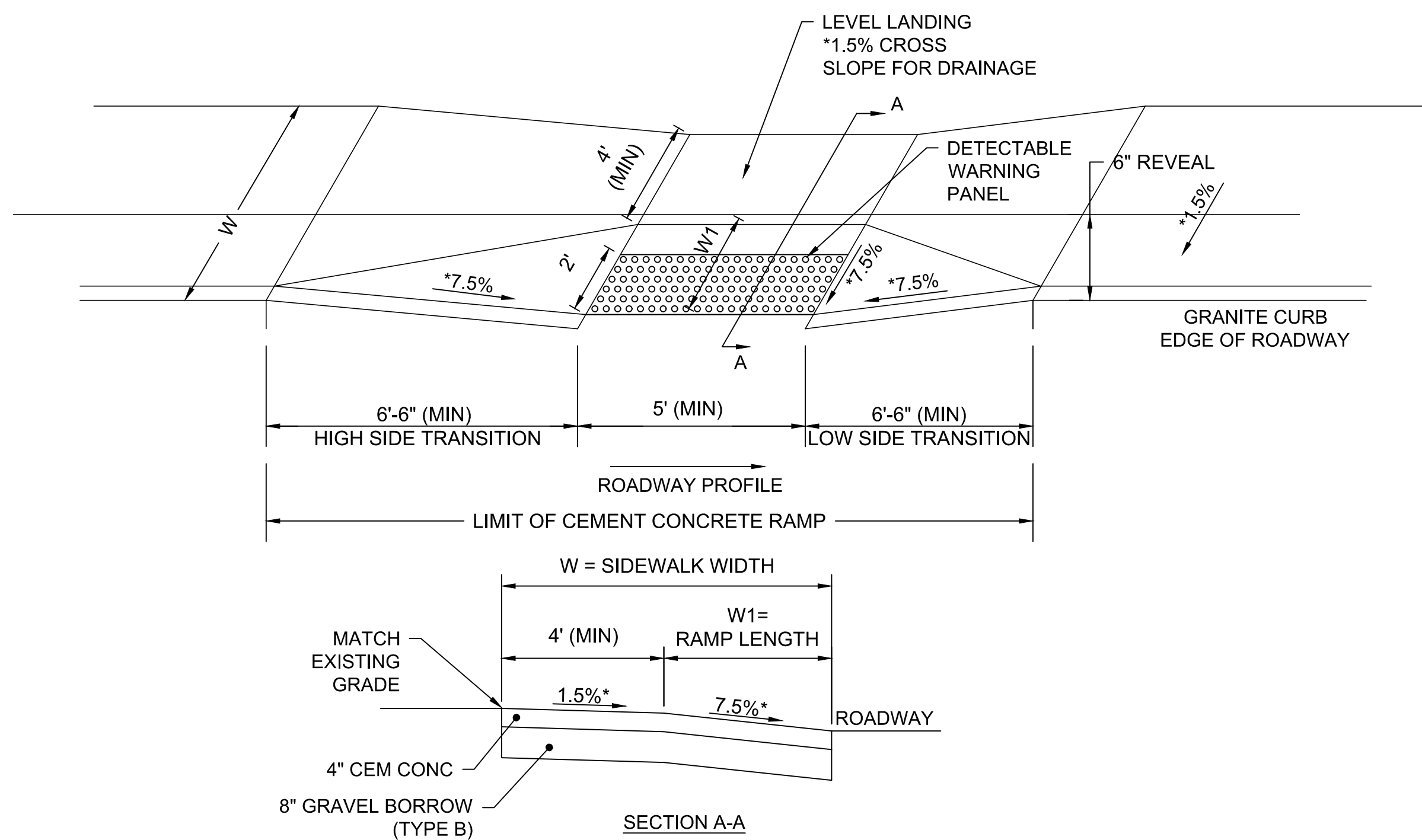




SECTION A-A  
 \* TOLERANCE FOR CONSTRUCTION = ±0.5%  
**PEDESTRIAN RAMP DETAIL 1**  
 NOT TO SCALE



**PEDESTRIAN RAMP DETAIL 3**  
 NOT TO SCALE



SECTION A-A  
 \* TOLERANCE FOR CONSTRUCTION = ±0.5%  
**PEDESTRIAN RAMP DETAIL 2**  
 NOT TO SCALE

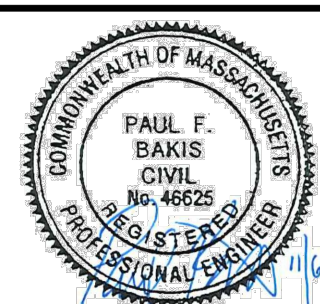
| PEDESTRIAN RAMPS |      |                      |         |         |                       |                       |                        |                      |                   |            |         |
|------------------|------|----------------------|---------|---------|-----------------------|-----------------------|------------------------|----------------------|-------------------|------------|---------|
| WCR#             | TYPE | RAMP REFERENCE POINT |         |         | WIDTH OF SIDEWALK (W) | WIDTH OF RAMP OPENING | DEPTH OF LEVEL LANDING | ROADWAY GUTTER SLOPE | TRANSITION LENGTH |            | REMARKS |
|                  |      | BASELINE             | STATION | OFFSET  |                       |                       |                        |                      | LEFT SIDE         | RIGHT SIDE |         |
| HU1              | 2    | HURON                | 105+95  | 14.9 LT | 9.1                   | 5.0                   | 5.0                    | 1.05%                | 9.0               | 6.5        |         |
| HU2              | 2    | HURON                | 106+01  | 20.0 RT | 6.0                   | 5.0                   | 4.0                    | 1.80%                | 6.5               | 9.0        |         |
| HU3              | 1    | HURON                | 106+04  | 60.0 LT | 5.6                   | 5.0                   | 5.6                    | 2.46%                | 11.0              | 6.5        |         |
| HU4              | 2    | HURON                | 106+28  | 38.0 RT | 8.0                   | 5.0                   | 4.0                    | 0.50%                | 7.67              | 6.5        |         |
| HU5              | 1    | HURON                | 106+67  | 41.4 RT | 5.6                   | 5.3                   | 5.6                    | 0.06%                | 3.25              | 7.67       |         |
| HU6              | 1    | HURON                | 106+68  | 49.8 LT | 6.2                   | 5.3                   | 6.2                    | 5.50%                | N/A               | 7.67       |         |
| HU7              | 1    | HURON                | 106+75  | 27.8 RT | 5.6                   | 5.7                   | 5.6                    | 2.00%                | 6.5               | 4.5        |         |
| HU8              | 1    | HURON                | 106+78  | 19.5 LT | 6.1                   | 5.6                   | 6.1                    | 0.30%                | 6.5               | 7.67       |         |
| HU9              | 2    | HURON                | 110+62  | 25.3 RT | 5.8                   | 5.0                   | 5.2                    | 0.77%                | 6.5               | 6.5        |         |
| HU10             | 3    | HURON                | 110+90  | 27.3 RT | 6.3                   | 5.2                   | 5.8                    | 1.14%                | 6.0               | 6.5        |         |

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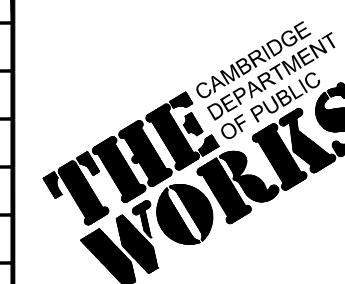
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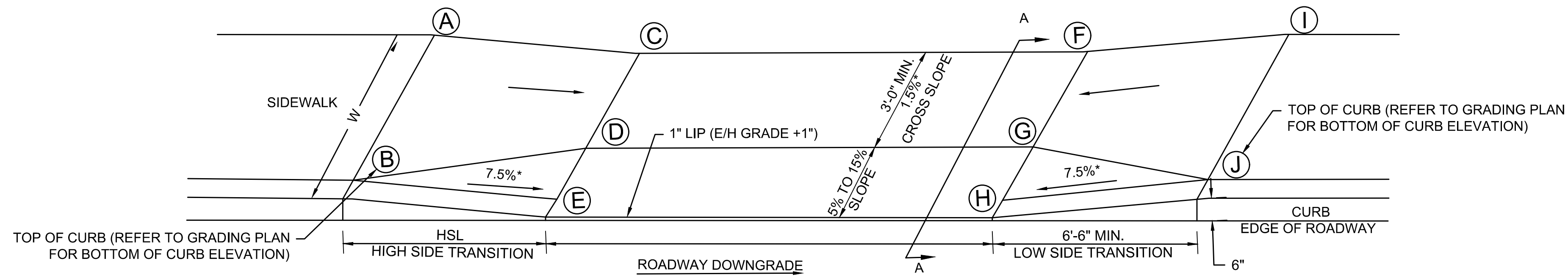


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| Scale       | AS NOTED      |     |             |
| Date        | NOVEMBER 2018 |     |             |
| Job No.     | 20170208.019A |     |             |
| Designed by | JRH           |     |             |
| Drawn by    | JRH           |     |             |
| Checked by  | PFB           | No. | Description |
| Approved by | PFB           |     | REVISIONS   |



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|---------|--|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | PEDESTRIAN RAMP SCHEDULE<br>SHEET 1 OF 1               |

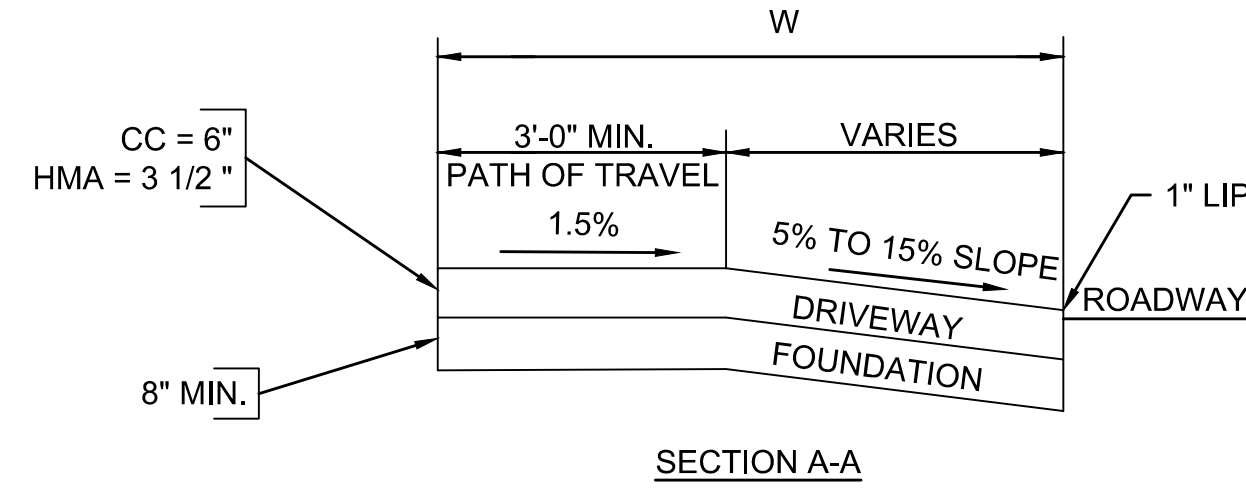
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| Sheet    | R-55 |
| File No. | 8310 |



**LEGEND**

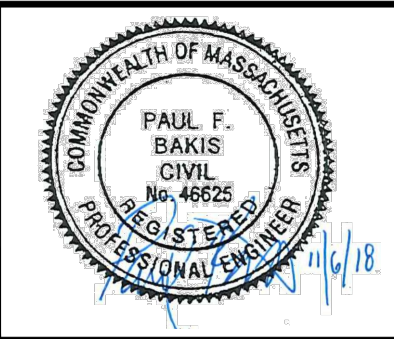
- HSL = HIGH SIDE TRANSITION LENGTH . SEE E 107.9.0
- W = SIDEWALK WIDTH
- \* = TOLERANCE FOR CONSTRUCTION ±.5%
- CC = CEMENT CONCRETE
- HMA = HOT MIX ASPHALT

**DRIVEWAY DETAIL**  
NOT TO SCALE



| DW#  | RAMP REFERENCE POINT |         |           | WIDTH OF RAMP (W1) | WIDTH OF SIDEWALK (W) | WIDTH OF DRIVEWAY AT GUTTER | ROADWAY GUTTER SLOPE | TRANSITION LENGTH |            | ELEVATIONS |       |       |       |       |       |       |       |       |       |
|------|----------------------|---------|-----------|--------------------|-----------------------|-----------------------------|----------------------|-------------------|------------|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|      | BASELINE             | STATION | OFFSET    |                    |                       |                             |                      | LEFT SIDE         | RIGHT SIDE | A          | B     | C     | D     | E     | F     | G     | H     | I     | J     |
|      |                      |         |           |                    |                       |                             |                      |                   |            |            |       |       |       |       |       |       |       |       |       |
| B1   | BREWSTER             | 101+23  | 10.25' LT | 2.0                | 6                     | 52.3                        | -0.5%                | 7.67              | 6.5        | 39.92      | 39.84 | 39.97 | 39.91 | 39.68 | 39.30 | 39.24 | 39.00 | 39.38 | 39.29 |
| B2   | BREWSTER             | 101+62  | 10.75' RT | 2.0                | 6.5                   | 51.0                        | -0.5%                | 6.5               | 7.67       | 38.70      | 38.61 | 38.49 | 38.43 | 38.18 | 38.61 | 38.55 | 38.26 | 38.85 | 38.76 |
| B3   | BREWSTER             | 102+15  | 10.25' LT | 2.0                | 6.5                   | 30.0                        | -0.4%                | 7.67              | 6.5        | 39.43      | 39.34 | 39.28 | 39.22 | 38.98 | 39.40 | 39.34 | 39.10 | 39.37 | 39.28 |
| B4   | BREWSTER             | 102+86  | 10.25' LT | 2.0                | 6.2                   | 13.1                        | 0.2%                 | 7.67              | 6.5        | 39.03      | 38.95 | 39.01 | 38.95 | 38.66 | 39.06 | 39.00 | 38.71 | 39.20 | 39.12 |
| B5   | BREWSTER             | 103+57  | 10.25' LT | 2.0                | 6.1                   | 23.8                        | -0.1%                | 7.67              | 6.5        | 39.10      | 39.03 | 39.12 | 39.08 | 38.93 | 39.01 | 38.97 | 38.93 | 39.02 | 38.95 |
| B6   | BREWSTER             | 103+70  | 11.75' RT | 2.5                | 6.5                   | 36.4                        | -0.1%                | 6.5               | 7.67       | 38.52      | 38.43 | 38.26 | 38.20 | 38.14 | 38.43 | 38.37 | 38.00 | 38.47 | 38.38 |
| B7   | BREWSTER             | 104+90  | 11.25' LT | 2.0                | 6.0                   | 18.6                        | -0.5%                | 7.67              | 6.5        | 39.98      | 38.91 | 38.90 | 38.84 | 38.55 | 38.78 | 38.73 | 38.44 | 38.83 | 38.74 |
| B8   | BREWSTER             | 105+55  | 11.75' RT | 2.0                | 6                     | 23.9                        | -0.5%                | 6.5               | 7.67       | 38.40      | 38.31 | 38.14 | 38.09 | 37.85 | 38.08 | 38.02 | 37.79 | 38.20 | 38.12 |
| B9   | BREWSTER             | 105+63  | 11.25' LT | 2.0                | 6.0                   | 10.1                        | 0.5%                 | 7.67              | 6.5        | 38.64      | 38.55 | 38.41 | 38.35 | 38.05 | 38.54 | 38.48 | 38.18 | 38.48 | 38.40 |
| B10  | BREWSTER             | 106+00  | 11.75' RT | 2.0                | 6.2                   | 28.9                        | -0.1%                | 6.5               | 7.67       | 38.20      | 38.20 | 38.15 | 38.09 | 37.85 | 38.19 | 38.13 | 37.89 | 38.34 | 38.25 |
| B11  | BREWSTER             | 106+54  | 11.25' LT | 2.0                | 5.8                   | 23.8                        | -0.9%                | 7.67              | 6.5        | 38.32      | 38.24 | 38.22 | 38.18 | 37.88 | 38.40 | 38.37 | 38.07 | 38.61 | 38.53 |
| H1   | HIGHLAND             | 102+55  | 12.0' RT  | 2.0                | 6.3                   | 46.7                        | -4.1%                | 6.5               | 15         | 72.06      | 71.99 | 72.25 | 72.21 | 71.98 | 73.66 | 73.62 | 73.38 | 74.44 | 74.37 |
| H12  | HIGHLAND             | 103+44  | 12.0' RT  | 2.0                | 6.3                   | 14.9                        | -4.1%                | 6.5               | 15         | 68.8       | 68.72 | 69.11 | 69.06 | 68.99 | 69.86 | 69.81 | 69.51 | 70.53 | 70.45 |
| H13  | HIGHLAND             | 103+91  | 12.0' RT  | 2.0                | 5.8                   | 15.6                        | -4.1%                | 6.5               | 15         | 67.00      | 66.92 | 67.18 | 67.13 | 66.96 | 67.69 | 67.64 | 67.46 | 68.32 | 68.24 |
| H14  | HIGHLAND             | 104+29  | 12.0' LT  | 3.5                | 8                     | 17.6                        | -4.1%                | 15                | 6.5        | 67.27      | 67.20 | 67.21 | 66.95 | 66.52 | 66.46 | 66.00 | 66.28 | 66.22 |       |
| H15  | HIGHLAND             | 105+75  | 12.0' RT  | 2.0                | 5.8                   | 36.7                        | -4.1%                | 15                | 6.5        | 58.80      | 58.72 | 59.03 | 58.98 | 58.80 | 61.10 | 61.05 | 60.90 | 61.37 | 61.29 |
| H16  | HIGHLAND             | 108+26  | 13.0' LT  | 2.5                | 6                     | 15.7                        | -2.2%                | 11                | 6.5        | 56.32      | 56.23 | 56.17 | 56.11 | 55.81 | 55.90 | 55.84 | 55.54 | 55.65 | 55.56 |
| H17  | HIGHLAND             | 108+71  | 13.0' LT  | 2.5                | 6                     | 16.4                        | -2.2%                | 11                | 6.5        | 55.12      | 55.04 | 54.92 | 54.86 | 54.56 | 54.58 | 54.52 | 54.15 | 54.45 | 54.36 |
| H18  | HIGHLAND             | 109+27  | 13.0' RT  | 2.0                | 6.0                   | 33.8                        | -1.8%                | 6.5               | 11         | 52.95      | 52.86 | 53.10 | 53.04 | 52.74 | 53.32 | 53.26 | 53.04 | 53.54 | 53.45 |
| H19  | HIGHLAND             | 110+16  | 13.0' LT  | 2.0                | 5.5                   | 17.8                        | -1.5%                | 9                 | 6.5        | 52.02      | 51.94 | 51.79 | 51.77 | 51.75 | 51.47 | 51.41 | 51.26 | 51.62 | 51.54 |
| H10  | HIGHLAND             | 111+02  | 13.0' LT  | 2.0                | 5.5                   | 12.3                        | -1.6%                | 9                 | 6.5        | 50.50      | 50.46 | 50.23 | 50.17 | 50.01 | 49.82 | 49.80 | 49.79 | 49.72 | 49.64 |
| H11  | HIGHLAND             | 111+15  | 13.0' RT  | 2.0                | 6                     | 30.1                        | -1.6%                | 6.5               | 9          | 49.59      | 49.51 | 49.62 | 49.56 | 49.26 | 50.05 | 50.00 | 49.76 | 50.22 | 50.13 |
| H12  | HIGHLAND             | 112+10  | 13.0' LT  | 2.0                | 5.5                   | 10.3                        | -1.6%                | 9                 | 6.5        | 48.80      | 48.35 | 48.80 | 48.74 | 48.44 | 48.73 | 48.33 | 47.89 | N/A   | N/A   |
| H13  | HIGHLAND             | 112+01  | 13.0' RT  | 2.5                | 6                     | 10.3                        | -1.6%                | 9                 | 6.5        | 48.80      | 48.71 | 48.80 | 48.74 | 48.37 | 48.73 | 48.67 | 48.30 | 48.38 | 48.3  |
| HU1  | HURON                | 100+31  | 12.0' LT  | 3.0                | 9.2                   | 49.0                        | -2.2%                | 11                | 6.5        | 69.56      | 69.42 | 69.36 | 69.26 | 68.88 | 67.97 | 67.87 | 67.50 | 68.01 | 67.88 |
| HU2  | HURON                | 100+68  | 20.0' RT  | 3.0                | 7.6                   | 10.4                        | -2.2%                | 6.5               | 11         | 67.86      | 67.75 | 67.92 | 67.85 | 67.47 | 68.16 | 68.09 | 67.71 | 68.47 | 68.36 |
| HU3  | HURON                | 101+14  | 20.0' RT  | 3.0                | 7.7                   | 12.0                        | -2.2%                | 6.5               | 11         | 66.66      | 66.66 | 66.80 | 66.73 | 66.42 | 67.08 | 67.01 | 66.65 | 67.41 | 67.30 |
| HU4  | HURON                | 103+68  | 12.0' LT  | 2.5                | 8.5                   | 13.1                        | -1.1%                | 9                 | 6.5        | 62.86      | 62.74 | 62.74 | 62.65 | 62.29 | 62.54 | 62.45 | 62.1  | 62.59 | 62.47 |
| HU5  | HURON                | 103+80  | 20.0' RT  | 2.5                | 7.8                   | 13.1                        | -1.1%                | 6.5               | 9          | 62.68      | 62.57 | 62.62 | 62.54 | 62.32 | 62.66 | 62.58 | 62.40 | 62.91 | 62.60 |
| HU6  | HURON                | 105+17  | 20.0' RT  | 2.5                | 7.2                   | 12.5                        | -1.4%                | 6.5               | 7.67       | 61.38      | 61.28 | 61.22 | 61.15 | 60.86 | 61.29 | 61.22 | 61    | 61.51 | 61.41 |
| HU7  | HURON                | 107+56  | 12.0' LT  | 2.5                | 7.3                   | 50.0                        | -0.3%                | 7.67              | 6.5        | 59.81      | 59.7  | 59.75 | 59.68 | 59.34 | 59.53 | 59.46 | 59.19 | 59.47 | 59.37 |
| HU8  | HURON                | 107+65  | 20.0' RT  | 3.0                | 6.9                   | 20.2                        | -0.3%                | 6.5               | 7.67       | 59.69      | 59.68 | 59.69 | 59.63 | 59.53 | 59.9  | 59.84 | 59.6  | 60.15 | 60.05 |
| HU9  | HURON                | 108+12  | 20.0' RT  | 3.0                | 6.5                   | 7.8                         | -0.3%                | 6.5               | 7.67       | 59.78      | 59.69 | 59.8  | 59.74 | 59.29 | 59.73 | 59.67 | 59.3  | 59.8  | 59.71 |
| HU10 | HURON                | 108+23  | 12.0' LT  | 2.5                | 6.4                   | 8.5                         | -0.3%                | 7.67              | 6.5        | 59.82      | 59.73 | 59.58 | 59.52 | 59.18 | 59.44 | 59.38 | 59.17 | 59.63 | 59.54 |
| HU11 | HURON                | 108+92  | 20.0' RT  | 2.5                | 6.5                   | 15.3                        | 0.8%                 | 6.5               | 6.5        | 59.75      | 59.66 | 59.73 | 59.67 | 59.43 | 59.54 | 59.48 | 59.32 | 59.57 | 59.51 |
| HU12 | HURON                | 108+97  | 12.0' LT  | 2.5                | 7.7                   | 75.0                        | 1.2%                 | 6.5               | 9          | 59.56      | 59.45 | 59.43 | 59.36 | 59.16 | 60.36 | 60.28 | 59.91 | 60.78 | 60.67 |
| HU13 | HURON                | 109+69  | 20.0' RT  | 2.5                | 7.1                   | 7.6                         | 3.2%                 | 6.5               | N/A        | 61.84      | 61.74 | 61.5  | 61.43 | 61.2  | 61.43 | 61.4  | 61.36 | N/A   | N/A   |
| HU14 | HURON                | 109+78  | 12.0' LT  | 2.5                | 8.2                   | 8.2                         | 2.8%                 | 6.5               | 14         | 61.47      | 61.35 | 61.47 | 61.38 | 61.08 | 61.58 | 61.49 | 61.28 | 62.24 | 62.12 |
| HU15 | HURON                | 110+20  | 12.0' LT  | 2.5                | 8.1                   | 11.0                        | 3.0%                 | 6.5               | 11         | 62.46      | 62.34 | 62.77 | 62.68 | 62.31 | 63.02 | 62.93 | 62.65 | 63.48 | 63.36 |
| HU16 | HURON                | 111+50  | 21.6' RT  | 2.5                | 6.1                   | 10.9                        | 2.0%                 | 11                | N/A        | 66.18      | 66.09 | 65.98 | 65.92 | 65.55 | 65.79 | 65.73 | 65.4  | N/A   | N/A   |
| HU17 | HURON                | 112+10  | 17.0' RT  | 2.5                | 6.2                   | 14.9                        | -0.1%                | 9                 | 6.5        | 66.81      | 66.75 | 66.69 | 66.63 | 66.26 | 66.52 | 66.46 | 66.21 | 66.48 | 66.4  |
| HU18 | HURON                | 112+91  | 10.0' LT  | 2.5                | 6                     | 8.6                         | 0.7%                 | 9                 | 6.5        | 67.7       | 67.8  | 67.76 | 67.4  | 67.84 | 67.8  | 67.51 | 68    | 67.93 |       |
| HU19 | HURON                | 112+95  | 17.0' RT  | 2.5                | 6.0                   | 20.3                        | 0.9%                 | 9                 | 6.5        | 67.83      | 67.74 | 67.71 | 67.65 | 67.28 | 67.47 | 67.41 | 67.04 | 67.40 | 67.31 |
| HU20 | HURON                | 114+07  | 17.0' RT  | 2.5                | 5.8                   | 15.0                        | -0.3%                | 7.67              | 6.5        | 68.16      | 68.08 | 68.11 | 68.06 | 67.83 | 68.12 | 68.07 | 67.87 | 68.15 | 68.07 |
| HU21 | HURON                | 114+31  | 10.0' LT  | 2.0                | 5.3                   | 10.7                        | -0.3%                | 6.5               | 3.25       | 68.28      | 68.20 | 68.10 | 68.06 | 67.78 | 68.09 | 68.04 | 67.74 | 68.33 | 68.40 |
| HU22 | HURON                | 114+61  | 10.0' LT  | 2.5                | 5.3                   | 23.0                        | -0.5%                | 3.25              | 7.67       | 68.33      | 68.32 | 68.09 | 68.05 | 67.68 | 68.00 | 67.96 | 67.59 | 68.28 | 68.21 |
| HU23 | HURON                | 115+28  | 10.0' LT  | 2.5                | 5.4                   | 14.8                        | -0.7%                | 6.5               | 7.67       | 67.79      | 67.74 | 67.54 | 67.49 | 67.23 | 67.55 | 67.50 | 67.13 | 67.79 | 67.70 |
| HU24 | HURON                | 115+37  | 17.0' RT  | 3.4                | 6.2                   | 20.6                        | -2.0%                | 6.5               | 7.67       | 67.56      | 67.47 | 67.50 | 67.46 | 66.95 | 67.81 | 67.77 | 67.34 | 67.86 | 67.77 |
| R1   | RIEDEL               | 201+52  | 10.50' RT | 3.0                | 7.2                   | 23.2                        | -3.3%                | N/A               | N/A        | N/A        | N/A   | 32.15 | 32.13 | 31.95 | 32.94 | 32.92 | 32.77 | N/A   | N/A   |
| R2   | RIEDEL               | 201+72  | 12.6' LT  | 2.0                | 7.2                   | 11.5                        | -2.9%                | N/A               | N/A        | N/A        | N/A   | 31.92 | 31.88 | 31.67 | 31.57 | 31.51 | 31.31 | N/A   | N/A   |
| R3   | RIEDEL               | 202+45  | 6.5' RT   | 3.0                | 7.1                   | 9.0                         | -1.5%                | N/A               | N/A        | N/A        | N/A   | 30.14 | 30.12 | 29.96 | 30.29 | 30.27 | 30.11 | N/A   | N/A   |
| R4   | RIEDEL               | 202+59  | 12.9' LT  | 2.6                | 6.7                   | 9.3                         | -1.2%                | N/A               | N/A        | N/A        | N/A   | 30.00 | 29.96 | 29.75 | 29.86 | 29.82 | 29.65 | N/A   | N/A   |

ISSUED FOR BID



|             |               |
|-------------|---------------|
| Scale       | AS NOTED      |
| Date        | NOVEMBER 2018 |
| Job No.     | 20170208.019A |
| Designed by | JRH           |
| Drawn by    | JRH           |
| Checked by  | PFB           |
| Approved by | PFB           |

| No. | Description | Date |
|-----|-------------|------|
|     | REVISIONS   |      |



|         |  |
|---------|--|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | DRIVEWAY SCHEDULE<br>SHEET 1 OF 1                      |

|          |      |
|----------|------|
| Sheet    | R-56 |
| File No. | 8310 |

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## TRAFFIC SIGN SUMMARY

| IDENTIFICATION NUMBER | SIZE OF SIGN |        | TEXT                              | TEXT DIMENSIONS (INCHES) |                  |                 | NUMBER OF SIGNS REQUIRED | POST SIZE AND NUMBER REQUIRED | UNIT AREA (S.F.) | AREA IN SQUARE FEET |
|-----------------------|--------------|--------|-----------------------------------|--------------------------|------------------|-----------------|--------------------------|-------------------------------|------------------|---------------------|
|                       | WIDTH        | HEIGHT |                                   | LETTER HEIGHT            | VERTICAL SPACING | ARROW RTE. MKR. |                          |                               |                  |                     |
| D3-1                  | VARIES       | 12"    | GARDEN ST                         | SEE 2009 MUTCD           |                  |                 | 2                        | P5-1<br>0-REQ                 |                  |                     |
| D3-1                  | VARIES       | 12"    | HURON AVE                         |                          |                  |                 | 4                        | P5-1<br>1-REQ                 |                  |                     |
| D3-1                  | VARIES       | 12"    | UPLAND RD                         |                          |                  |                 | 1                        | P5-1<br>0-REQ                 |                  |                     |
| D3-1                  | VARIES       | 12"    | RC KELLEY ST                      |                          |                  |                 | 1                        | P5-1<br>0-REQ                 |                  |                     |
| D3-1                  | VARIES       | 12"    | HOLLY AVE                         |                          |                  |                 | 1                        | P5-1<br>0-REQ                 |                  |                     |
| D3-1                  | VARIES       | 12"    | APPLETON ST                       |                          |                  |                 | 2                        | P5-1<br>0-REQ                 |                  |                     |
| D3-1                  | VARIES       | 12"    | HIGHLAND ST                       |                          |                  |                 | 4                        | P5-1<br>1-REQ                 |                  |                     |
| D3-1                  | VARIES       | 12"    | RESERVOIR ST                      |                          |                  |                 | 1                        | P5-1<br>0-REQ                 |                  |                     |
| D3-1                  | VARIES       | 12"    | SPARKS ST                         |                          |                  |                 | 2                        | P5-1<br>1-REQ                 |                  |                     |
| D3-1                  | VARIES       | 12"    | BREWSTER ST                       |                          |                  |                 | 2                        | P5-1<br>0-REQ                 |                  |                     |
| D3-1                  | VARIES       | 12"    | RIEDEL AVE                        |                          |                  |                 | 2                        | P5-1<br>1-REQ                 |                  |                     |
| D3-1                  | VARIES       | 12"    | BRATTLE ST                        |                          |                  |                 | 1                        | P5-1<br>1-REQ                 |                  |                     |
| D3-2                  | VARIES       | 12"    | SHERMAN ST                        |                          |                  |                 | 1                        | P5-1<br>0-REQ                 |                  |                     |
| D3-2                  | VARIES       | 30"    | CUTLER AVE<br>PRIVATE WAY         |                          |                  |                 | 1                        | P5-1<br>1-REQ                 |                  |                     |
| D3-2                  | VARIES       | 30"    | HURON AVE<br>FRESH POND WAY 1634  |                          |                  |                 | 1                        | P5-1<br>0-REQ                 |                  |                     |
| D3-2                  | VARIES       | 30"    | GARDEN CT<br>PRIVATE WAY          |                          |                  |                 | 1                        | P5-1<br>1-REQ                 |                  |                     |
| D3-2                  | VARIES       | 30"    | BRATTLE ST<br>WATERTOWN PATH 1630 |                          |                  |                 | 1                        | P5-1<br>1-REQ                 |                  |                     |

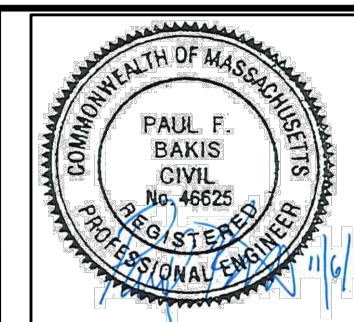
| IDENTIFICATION NUMBER | SIZE OF SIGN |        | TEXT                    | TEXT DIMENSIONS (INCHES) |                  |                 | NUMBER OF SIGNS REQUIRED | POST SIZE AND NUMBER REQUIRED | UNIT AREA (S.F.) | AREA IN SQUARE FEET |
|-----------------------|--------------|--------|-------------------------|--------------------------|------------------|-----------------|--------------------------|-------------------------------|------------------|---------------------|
|                       | WIDTH        | HEIGHT |                         | LETTER HEIGHT            | VERTICAL SPACING | ARROW RTE. MKR. |                          |                               |                  |                     |
| R1-1                  | 30"          | 30"    | STOP                    | SEE 2009 MUTCD           |                  |                 | 11                       | P5-1<br>11-REQ                | 6.25             | 68.75               |
| R2-1                  | 24"          | 30"    | SPEED LIMIT<br>25       |                          |                  |                 | 1                        | P5-1<br>1-REQ                 | 5.00             | 5.00                |
| R5-1                  | 30"          | 30"    | DO NOT<br>ENTER         |                          |                  |                 | 4                        | P5-1<br>0-REQ                 | 6.25             | 25.00               |
| R5-2                  | 24"          | 24"    |                         |                          |                  |                 | 3                        | P5-1<br>0-REQ                 | 4.00             | 12.00               |
| R6-1                  | 36"          | 12"    | ONE WAY                 |                          |                  |                 | 6                        | P5-1<br>2-REQ                 | 3.00             | 18.00               |
| R6-2                  | 24"          | 30"    | ONE WAY                 |                          |                  |                 | 1                        | P5-1<br>0-REQ                 | 5.00             | 5.00                |
| R7-1                  | 12"          | 18"    | NO STOPPING<br>ANY TIME |                          |                  |                 | 6                        | P5-1<br>6-REQ                 | 1.50             | 9.00                |
| R7-1                  | 12"          | 18"    | NO STOPPING<br>ANY TIME |                          |                  |                 | 1                        | P5-1<br>1-REQ                 | 1.50             | 1.50                |
| R7-1                  | 12"          | 18"    | NO STOPPING<br>ANY TIME |                          |                  |                 | 1                        | P5-1<br>1-REQ                 | 1.50             | 1.50                |
| R7-4                  | 12"          | 18"    | NO STOPPING<br>ANY TIME |                          |                  |                 | 5                        | P5-1<br>1-REQ                 | 1.50             | 7.50                |
| R7-4                  | 12"          | 18"    | NO STOPPING<br>ANY TIME |                          |                  |                 | 3                        | P5-1<br>1-REQ                 | 1.50             | 4.50                |
| R10-11B               | 36"          | 36"    | NO TURN<br>ON RED       |                          |                  |                 | 3                        | P5-1<br>0-REQ                 | 9.00             | 27.00               |
| R7-201AP              | 12"          | 6"     | TOW-AWAY<br>ZONE        |                          |                  |                 | 62                       | P5-1<br>0-REQ                 | 0.50             | 31.00               |
| S1-1                  | 36"          | 36"    |                         |                          |                  |                 | 2                        | P5-1<br>2-REQ                 | 9.00             | 18.00               |
| W11-2                 | 30"          | 30"    |                         |                          |                  |                 | 2                        | P5-1<br>2-REQ                 | 6.25             | 12.50               |
| W16-7P                | 21"          | 15"    |                         |                          |                  |                 | 2                        | P5-1<br>0-REQ                 | 2.1875           | 4.375               |

ISSUED FOR BID

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|             |               |     |             |
|-------------|---------------|-----|-------------|
| Scale       | AS NOTED      |     |             |
| Date        | NOVEMBER 2018 |     |             |
| Job No.     | 20170208.019A |     |             |
| Designed by | JRH           |     |             |
| Drawn by    | JRH           |     |             |
| Checked by  | PFB           | No. | Description |
| Approved by | PFB           |     | REVISIONS   |



|         |  |
|---------|--|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | TRAFFIC SIGN SUMMARY<br>SHEET 1 OF 2                   |

|          |      |
|----------|------|
| Sheet    | R-57 |
| File No. | 8310 |

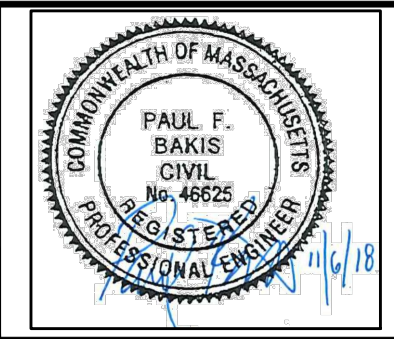
## TRAFFIC SIGN SUMMARY

| IDENTIFICATION NUMBER | SIZE OF SIGN |        | TEXT  | TEXT DIMENSIONS (INCHES)    |                  |                 | NUMBER OF SIGNS REQUIRED | POST SIZE AND NUMBER REQUIRED | UNIT AREA (S.F.) | AREA IN SQUARE FEET |
|-----------------------|--------------|--------|---|-----------------------------|------------------|-----------------|--------------------------|-------------------------------|------------------|---------------------|
|                       | WIDTH        | HEIGHT |   | LETTER HEIGHT               | VERTICAL SPACING | ARROW RTE. MKR. |                          |                               |                  |                     |
| CT-200                | 12"          | 18"    |    | SEE CITY OF CAMBRIDGE SPECS |                  |                 | 35                       | P5-1<br>31-REQ                | 1.50             | 52.50               |
| CT-200                | 12"          | 18"    |    |                             |                  |                 | 1                        | P5-1<br>1-REQ                 | 1.50             | 1.50                |
| CT-200                | 12"          | 18"    |    |                             |                  |                 | 1                        | P5-1<br>1-REQ                 | 1.50             | 1.50                |
| CT-390                | 12"          | 18"    |    |                             |                  |                 | 4                        | P5-1<br>0-REQ                 | 1.50             | 6.00                |
| CT-390                | 12"          | 18"    |    |                             |                  |                 | 6                        | P5-1<br>0-REQ                 | 1.50             | 9.00                |
| CT-390                | 12"          | 18"    |    |                             |                  |                 | 12                       | P5-1<br>0-REQ                 | 1.50             | 18.00               |
| CT-390                | 12"          | 18"    |    |                             |                  |                 | 10                       | P5-1<br>0-REQ                 | 1.50             | 15.00               |
| CT-390                | 12"          | 18"    |    |                             |                  |                 | 5                        | P5-1<br>0-REQ                 | 1.50             | 7.50                |
| CT-199                | 12"          | 18"    |   |                             |                  |                 | 5                        | P5-1<br>0-REQ                 | 1.50             | 7.50                |
| R2-11A                | 18"          | 24"    |  |                             |                  |                 | 1                        | P5-1<br>1-REQ                 | 3.00             | 3.00                |
| AR-1(L)               | 12"          | 18"    |  |                             |                  |                 | 2                        | P5-1<br>3-REQ                 | 1.50             | 3.00                |
| AR-1(R)               | 12"          | 18"    |  |                             |                  |                 | 2                        | P5-1<br>2-REQ                 | 1.50             | 3.00                |
| W17-1                 | 30"          | 30"    |  |                             |                  |                 | 6                        | P5-1<br>6-REQ                 | 6.25             | 37.50               |
| CT-110                | 12"          | 18"    |  |                             |                  |                 | 4                        | P5-1<br>4-REQ                 | 1.50             | 6.00                |
|                       |              |        |   |                             |                  |                 |                          |                               |                  |                     |
|                       |              |        |   |                             |                  |                 |                          |                               |                  |                     |

TOTAL: 409.125 SF

ISSUED FOR BID

CAD FILE: I:\eng\16042-46 Cambridge Chapter 90 Contract 23A-DDWG\Design\Sign Summary.dwg LAYOUT: SIGN SUMMARY 2 PLOTTED: 11/7/2018 11:54 AM BY: bakis, paul

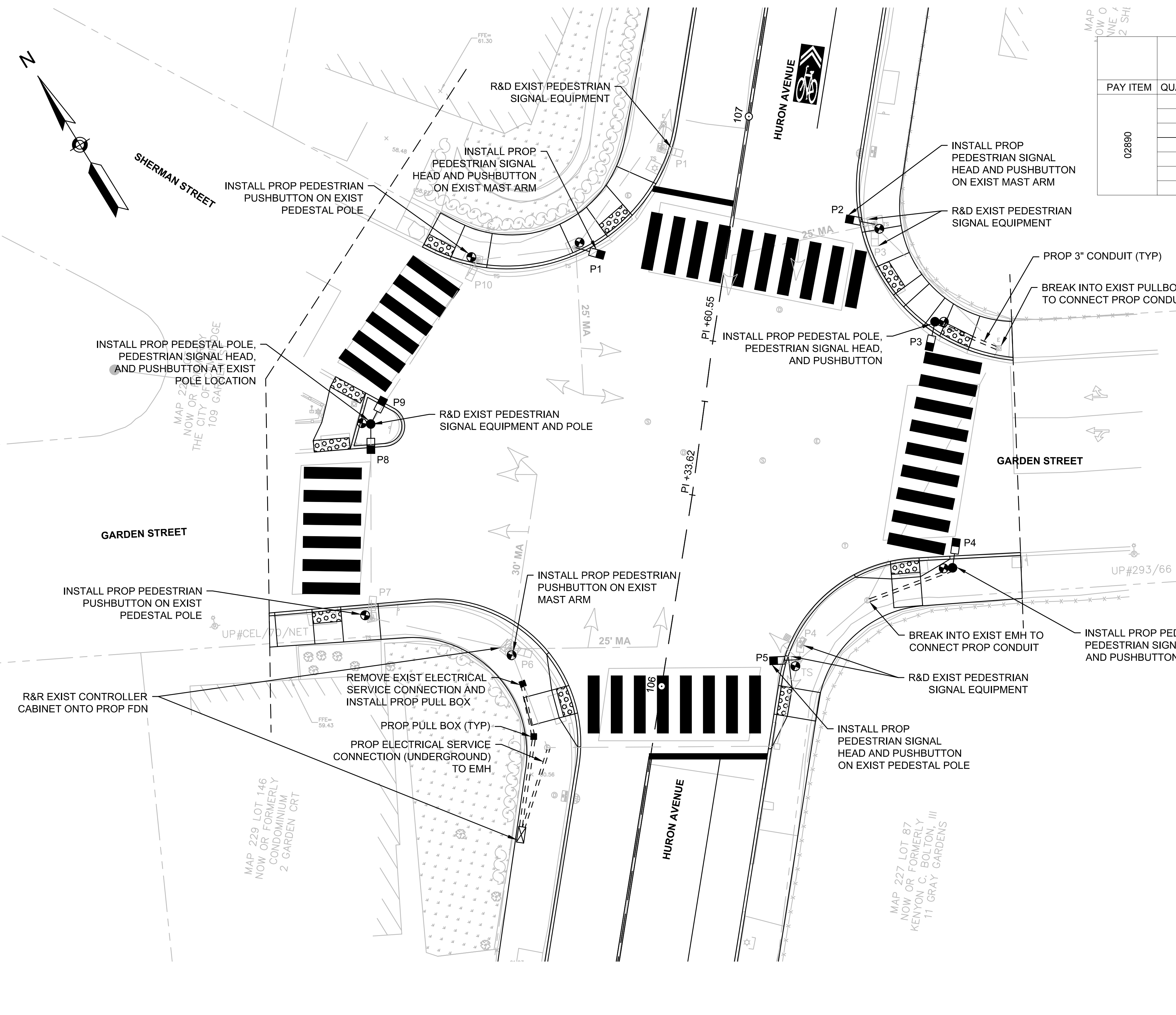


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| Scale       | AS NOTED      |     |             |
| Date        | NOVEMBER 2018 |     |             |
| Job No.     | 20170208.019A |     |             |
| Designed by | JRH           |     |             |
| Drawn by    | JRH           |     |             |
| Checked by  | PFB           | No. | Description |
| Approved by | PFB           |     | REVISIONS   |



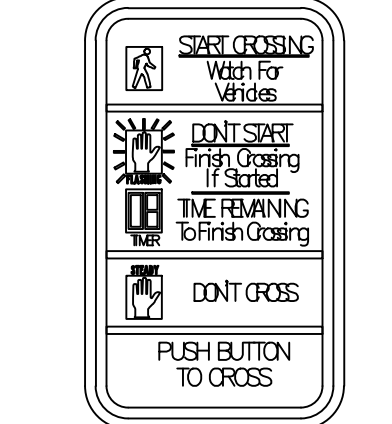
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|---------|--|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | TRAFFIC SIGN SUMMARY<br>SHEET 2 OF 2                   |

|          |      |
|----------|------|
| Sheet    | R-58 |
| File No. | 8310 |



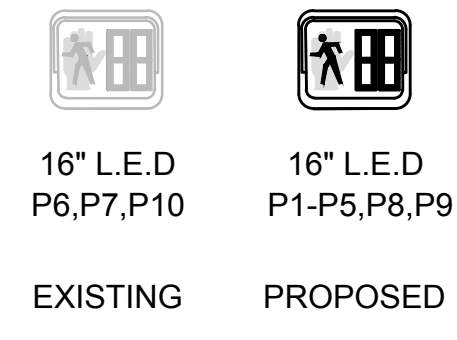
| MAJOR ITEMS REQUIRED   |          |  |
|--|----------|--|
| PAY ITEM   | QUANTITY | ITEM   |
| 02890  | 1        | CONCRETE FOUNDATION FOR NEMA SIZE 6 CABINET                              |
|  | 1        | SERVICE CONNECTION (UNDERGROUND)   |
|  | 3        | 8" SIGNAL POLE, BASE, & FDN  |
|  | 7        | PEDESTRIAN SIGNAL HEAD, SINGLE SECTION W/ COUNTDOWN TIMER                |
|  | 9        | ACCESSIBLE PEDESTRIAN SIGNAL (APS) PUSH BUTTON ASSEMBLY W/ SIGN & SADDLE |
|  | 2        | PULL BOX 12 X 12 INCHES - SD2.031  |
| PLUS ALL NECESSARY DUCT, CABLE, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE INSTALLATION |          |  |

**PEDESTRIAN PUSHBUTTON SIGN DETAIL**

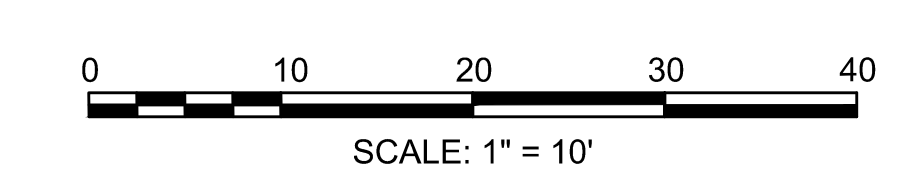


R10-3e  
9" x 15"

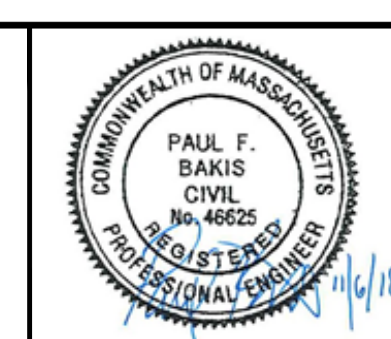
**PEDESTRIAN SIGNAL IDENTIFICATION**



- NOTES:**
- EXIST. SIGNAL TIMINGS SHALL BE RETAINED.
  - EXIST. SIGNAL EQUIPMENT SHALL BE RETAINED, UNLESS OTHERWISE NOTED.



CAD FILE: I:\eng\16042-46 Cambridge Chapter 90 Contract 23A-DDWG\Design\Traffic Signal Plan.dwg LAYOUT: 1 PLOTTED: 10/9/2018 2:41 PM BY: baalis, paul



|             |               |     |             |      |
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| Scale       | AS NOTED      |     |             |      |
| Date        | NOVEMBER 2018 |     |             |      |
| Job No.     | 20170208.019A |     |             |      |
| Designed by | AWL           |     |             |      |
| Drawn by    | AWL           |     |             |      |
| Checked by  | PV            | No. | Description | Date |
| Approved by | PFB           |     | REVISIONS   |      |



|         |  |          |      |
|---------|--|----------|------|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       | Sheet    | TS-1 |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT | File No. | 8310 |
| Drawing | TRAFFIC SIGNAL PLAN<br>SHEET 1 OF 1                    |          |      |

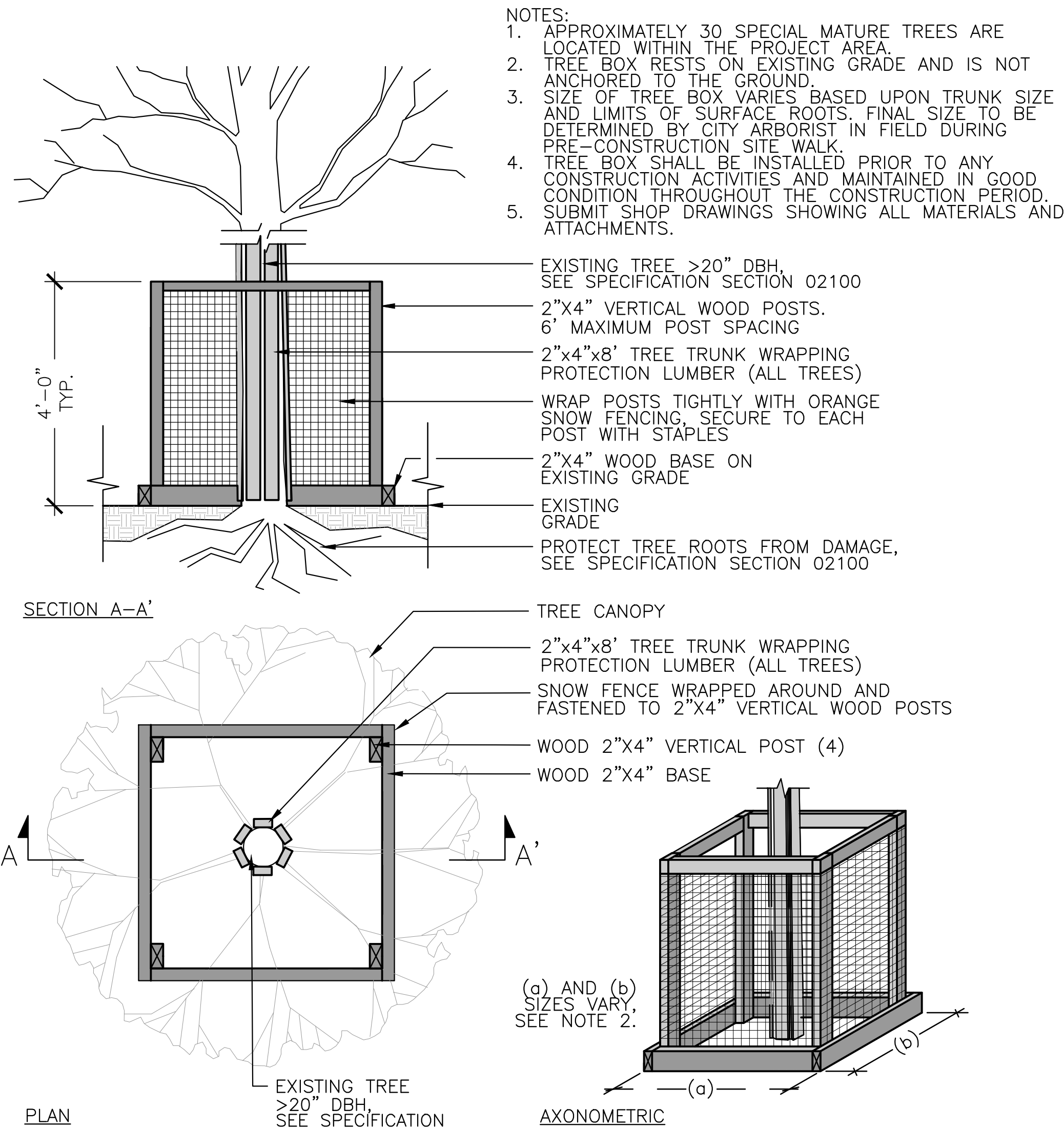
| TREE REMOVAL SCHEDULE |                |         |      |
|-----------------------|----------------|---------|------|
| #                     | STREET NAME    | ADDRESS | QTY. |
| R1                    | HURON AVENUE   | 118     | 1    |
| R2                    | HURON AVENUE   | 78      | 1    |
| R3                    | HURON AVENUE   | 77      | 1    |
| R4                    | HURON AVENUE   | 66      | 1    |
| R5                    | BRATTLE STREET | 141     | 1    |
|                       |                | TOTAL   | 5    |

| STUMP REMOVAL SCHEDULE |                  |         |      |
|------------------------|------------------|---------|------|
| #                      | STREET NAME      | ADDRESS | QTY. |
| S1                     | GARDEN STREET    | 107     | 1    |
| S2                     | HURON AVENUE     | 56      | 1    |
| S3                     | RESERVOIR STREET | 26      | 1    |
| S4                     | HIGHLAND STREET  | 45      | 1    |
| S5                     | APPLETON STREET  | 40      | 1    |
| S6                     | BREWSTER STREET  | 48      | 1    |
| S7                     | BRATTLE STREET   | 141     | 1    |
|                        |                  | TOTAL   | 7    |

| TRENCH ID    | WIDTH W (FT) | LENGTH L (FT) | UPSTREAM DEPTH D-UP (FT) | DOWNSTREAM DEPTH D-DOWN (FT) | AVERAGE DEPTH D (FT) |
|--------------|--------------|---------------|--------------------------|------------------------------|----------------------|
| BREWSTER - 1 | 3.0          | 157.0         | 5.75                     | 6.54                         | 6.15                 |
| BREWSTER - 2 | 3.0          | 57.0          | 5.75                     | 5.95                         | 5.85                 |
| HIGHLAND - 1 | 3.0          | 252.0         | 5.83                     | 4.32                         | 5.08                 |
| HIGHLAND - 2 | 3.5          | 283.0         | 5.98                     | 4.41                         | 5.20                 |
| HURON - 1    | 3.0          | 138.0         | 5.86                     | 4.37                         | 5.12                 |
| HURON - 2    | 3.0          | 55.0          | 5.79                     | 5.20                         | 5.50                 |

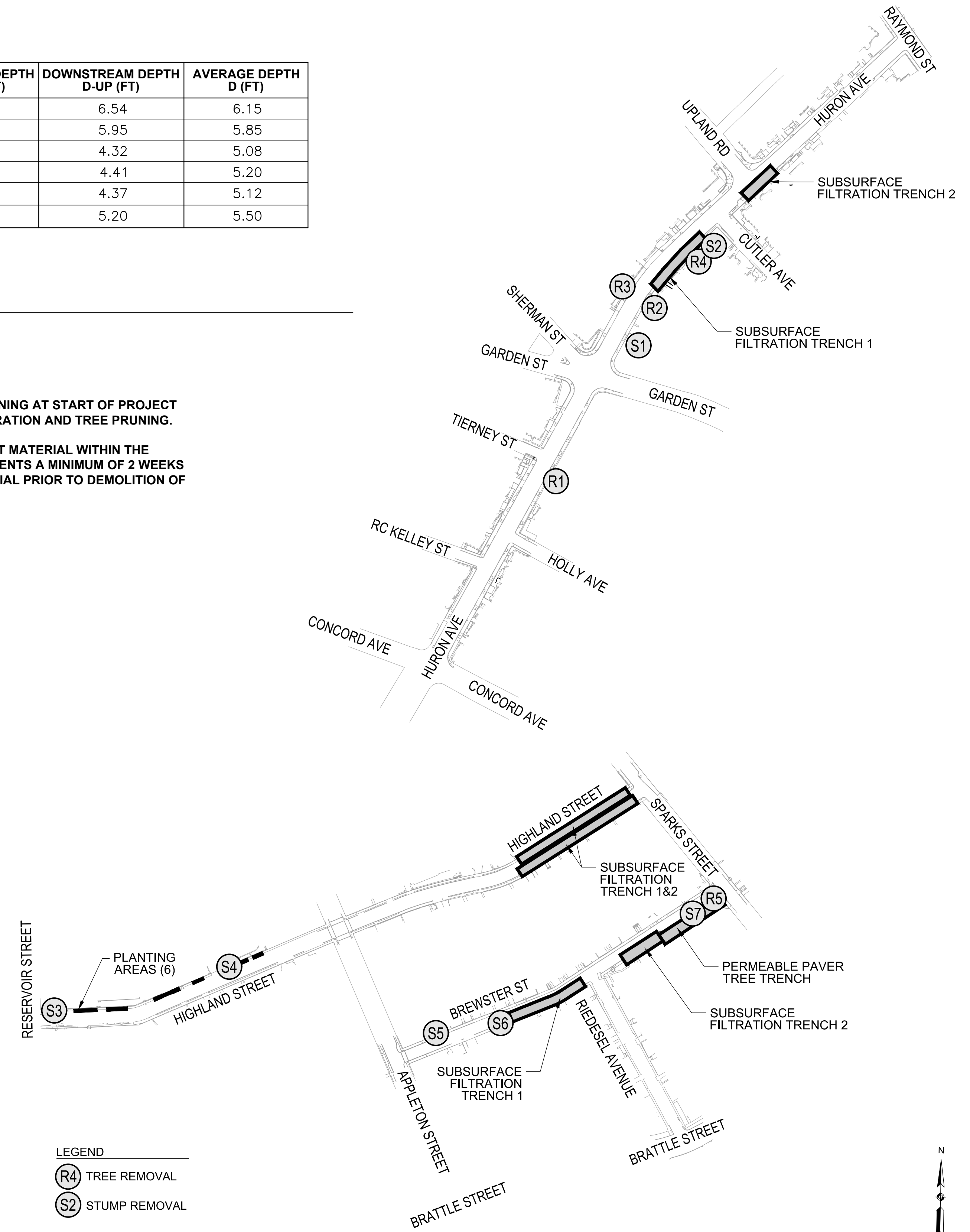
### TREE AND STUMP REMOVAL SCHEDULE

### FILTER TRENCH TABLE



#### NOTES:

- CONTRACTOR TO CONDUCT PROJECT-WIDE PRUNING AT START OF PROJECT PER SPECIFICATION SECTION 02100 SITE PREPARATION AND TREE PRUNING.
- WHERE RESIDENTS CURRENTLY MAINTAIN PLANT MATERIAL WITHIN THE RIGHT-OF-WAY CONTRACTOR SHALL GIVE RESIDENTS A MINIMUM OF 2 WEEKS WRITTEN NOTICE TO REMOVE/RELOCATE MATERIAL PRIOR TO DEMOLITION OF EXISTING SIDEWALK.



### TREE PROTECTION NOT TO SCALE

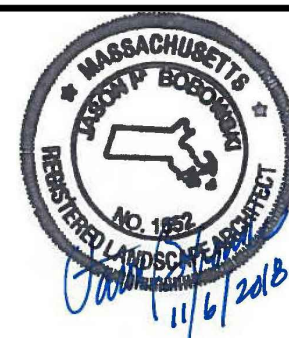
### KEY PLAN: GREEN INFRASTRUCTURE AND PLANTING AREAS

SCALE: 1" = 150'-0"

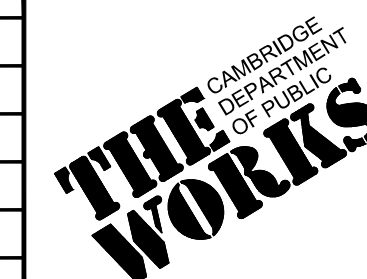
ISSUED FOR BID



27 Congress Street, Salem, MA 01970  
tel. 978-740-0096 www.hatch.com

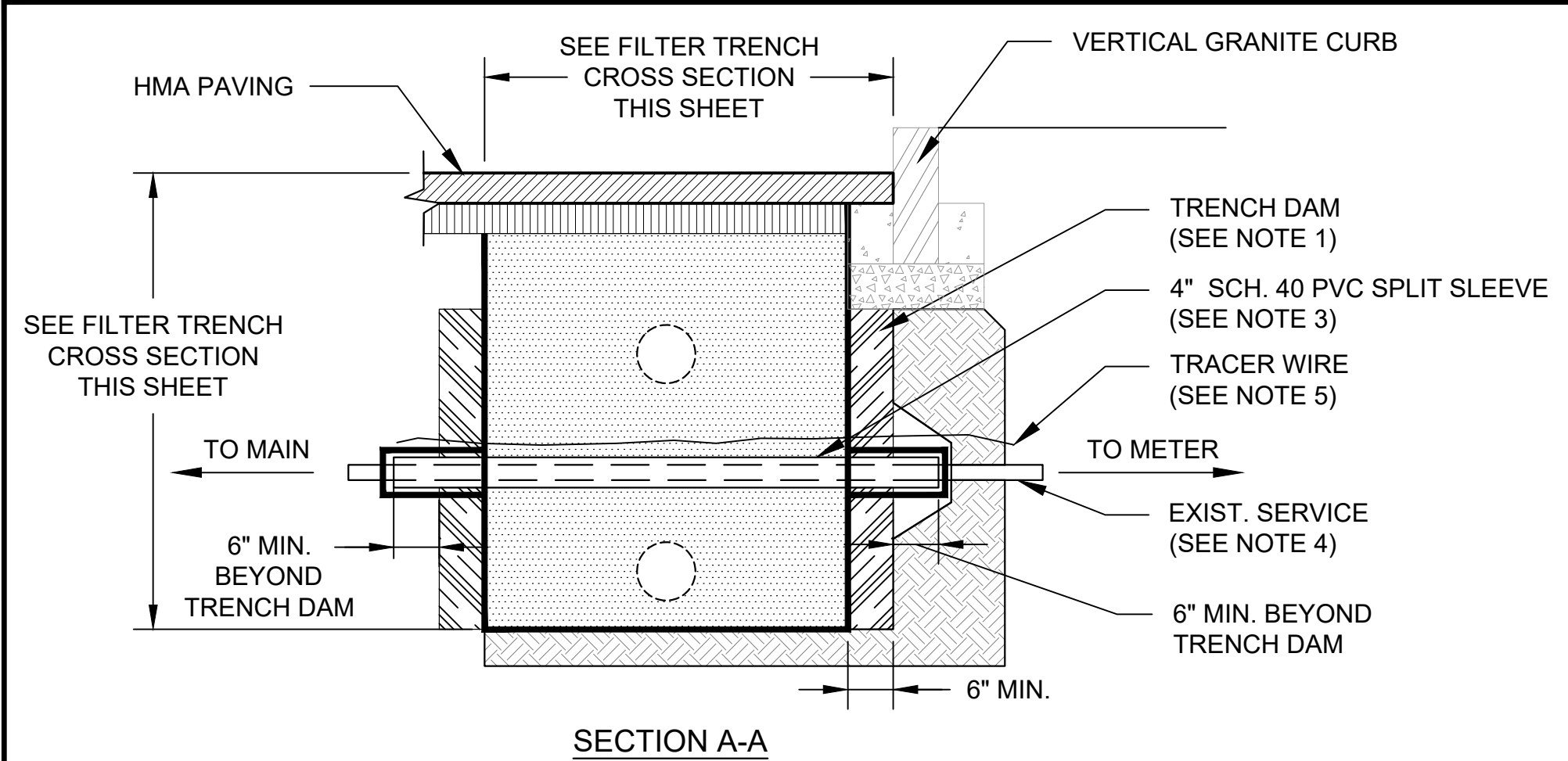


|             |               |     |             |      |
|-------------|---------------|-----|-------------|------|
| Scale       | AS NOTED      |     |             |      |
| Date        | NOVEMBER 2018 |     |             |      |
| Job No.     |               |     |             |      |
| Designed by | HH/JB         |     |             |      |
| Drawn by    | AK/NB         |     |             |      |
| Checked by  | HH/JB         | No. | Description | Date |
| Approved by | DB            |     | REVISIONS   |      |

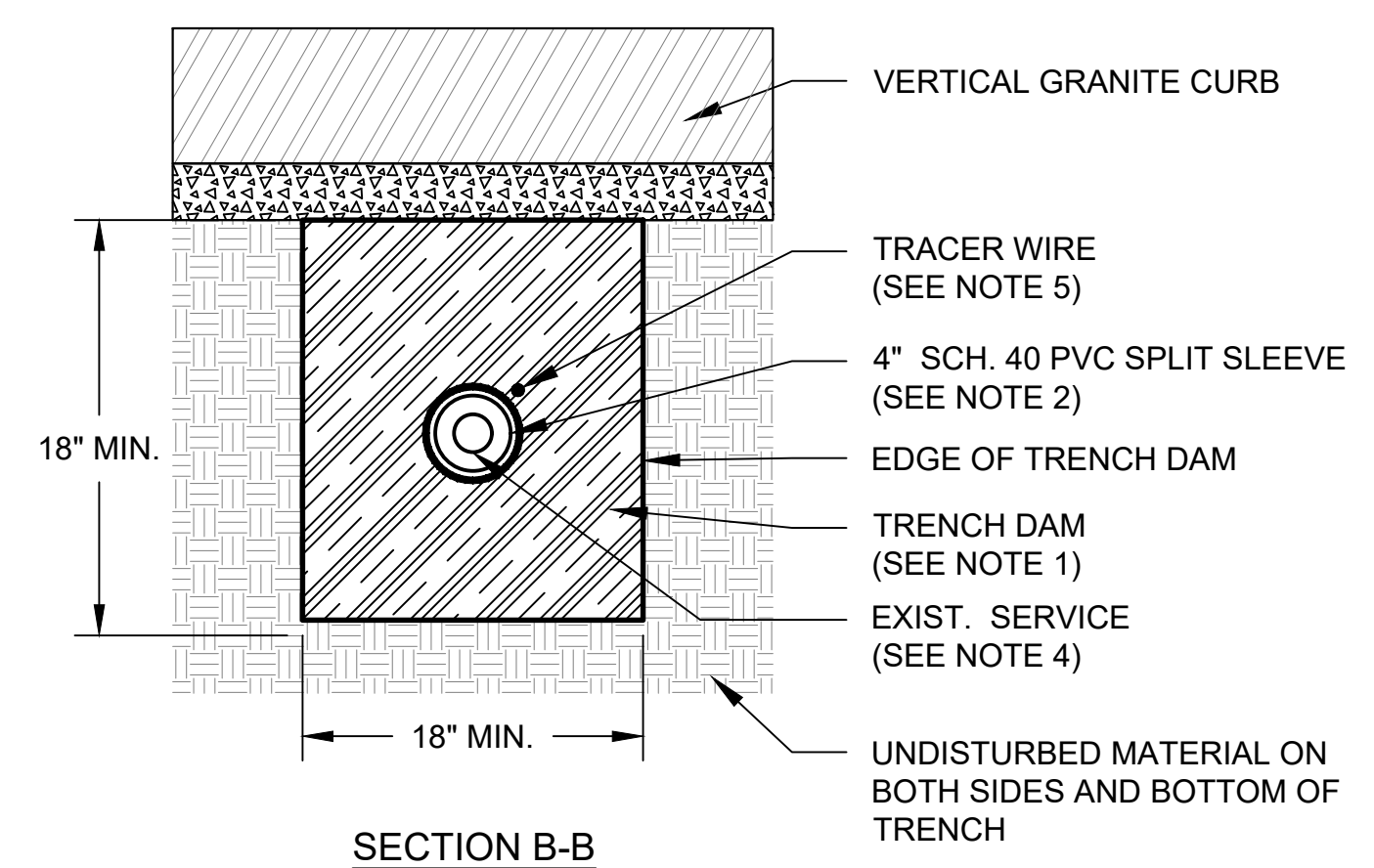


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|---------|--|----------|------|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       | Sheet    | L-1  |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT | File No. | 8310 |
| Drawing | GREEN INFRASTRUCTURE KEY PLAN<br>SHEET 1 OF 1          |          |      |

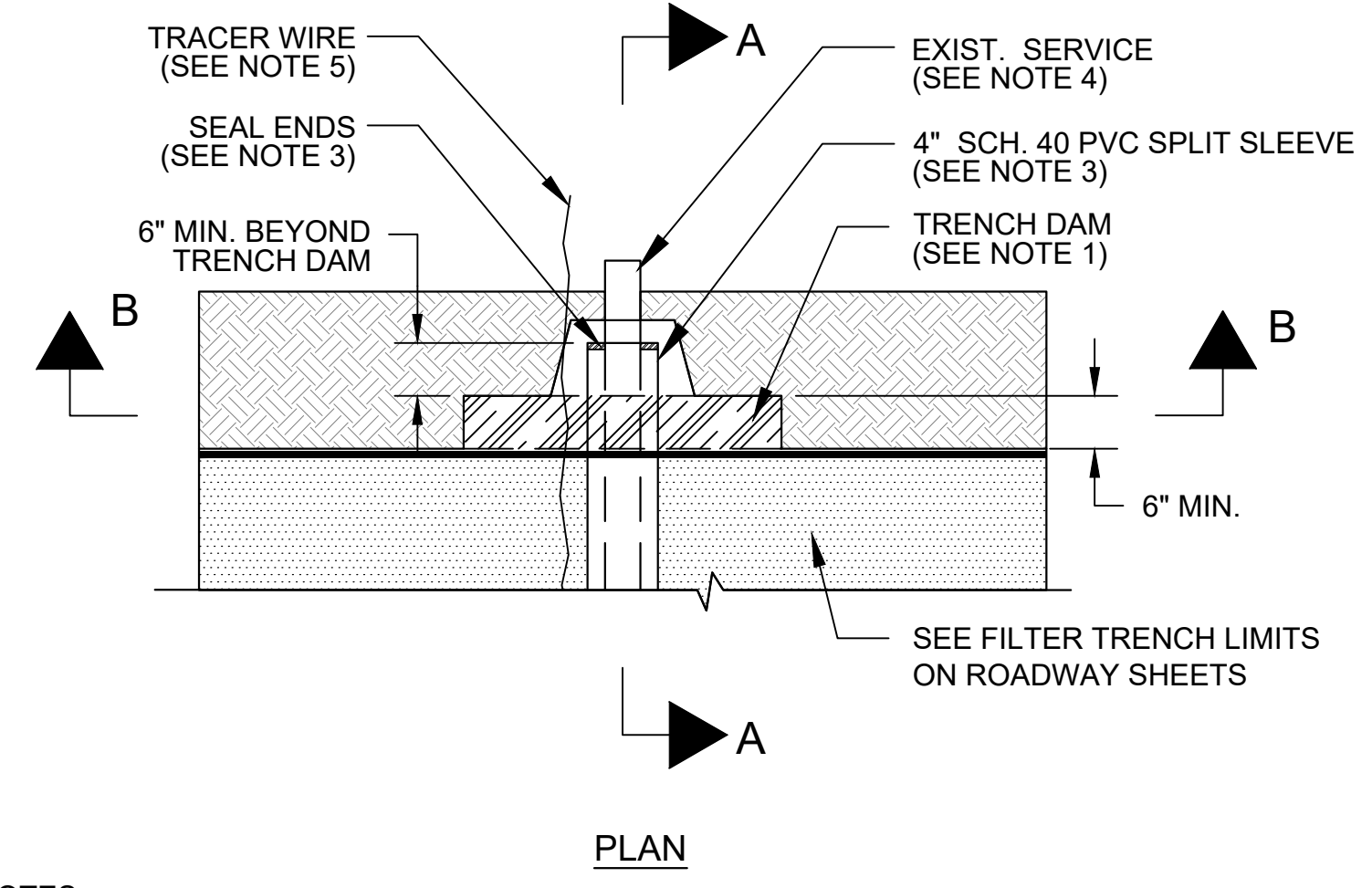
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SECTION A-A



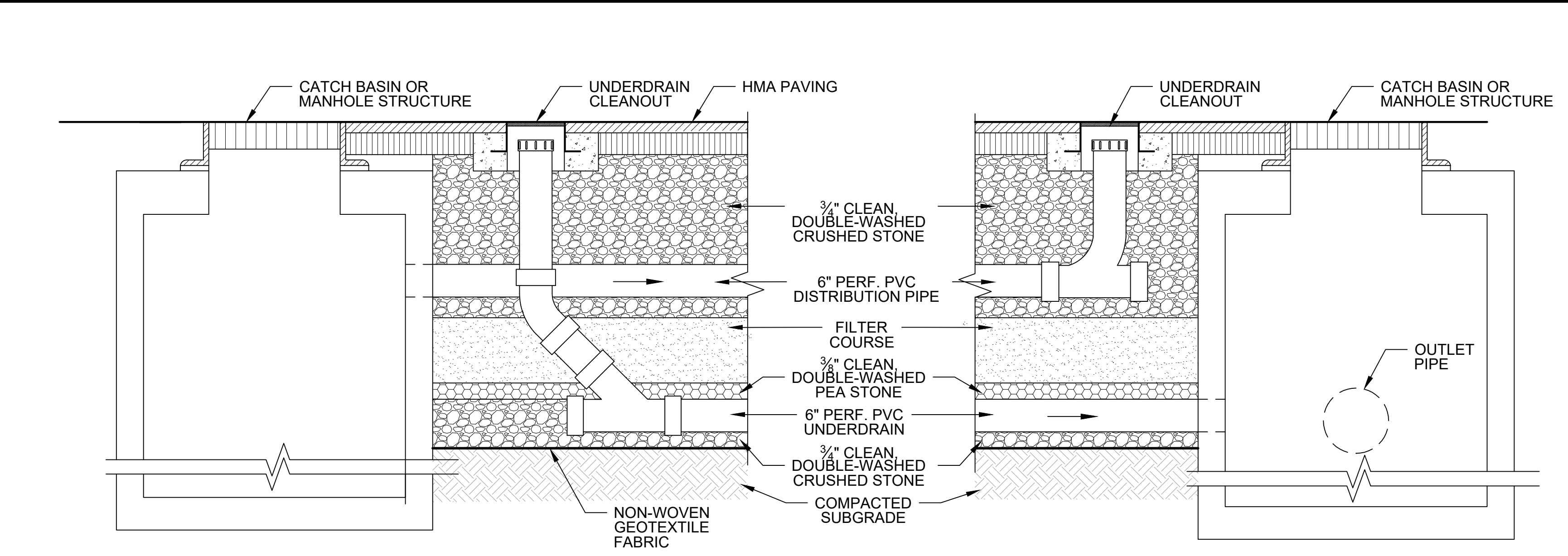
SECTION B-B



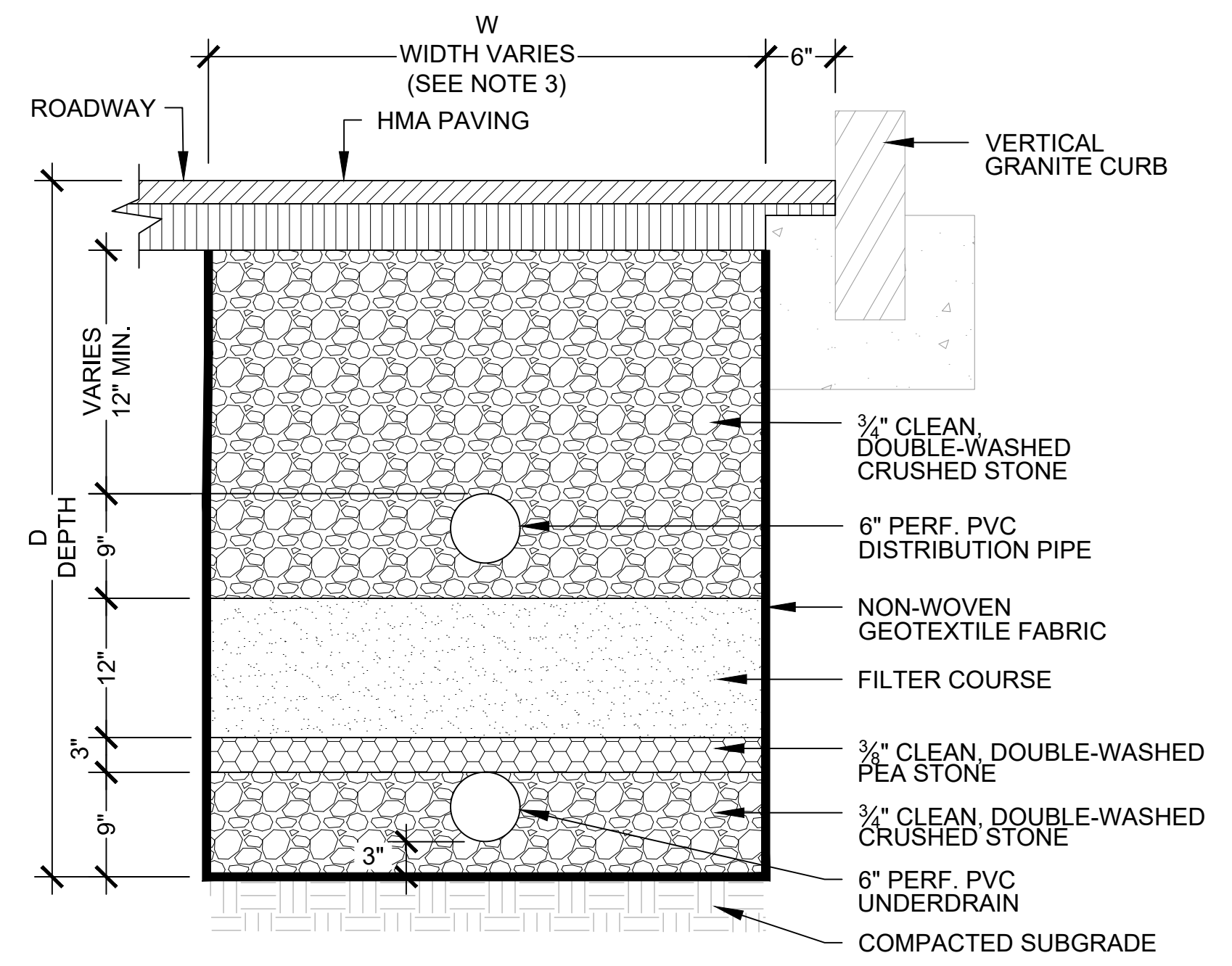
PLAN

- NOTES:
- TRENCH DAM TO BE A BENTONITE CLAY MATERIAL.
  - SPLIT SLEEVE TO EXTEND A MINIMUM OF 6" BEYOND THE LIMITS OF THE FILTER TRENCH AND TRENCH DAM. SPLIT SLEEVE (SPLIT DUCT) TO BE TONGUE & GROOVE WITH STAINLESS STEEL CLAMP.
  - ENDS OF SPLIT SLEEVE TO BE SEALED WITH CLOSED CELL WATERPROOF SPRAY FOAM.
  - CONTRACTOR TO COORDINATE WITH EVERSOURCE GAS IF THE GAS SERVICE MATERIAL IS STEEL. EVERSOURCE GAS TO WRAP SERVICE. SPLIT SLEEVE TO BE OMITTED WHEN STEEL GAS SERVICE IS WRAPPED BY EVERSOURCE GAS.
  - CONTRACTOR TO PROTECT EXISTING TRACER WIRE (COPPER WITH YELLOW SHEATH). TRACER WIRE SHALL REMAIN OUTSIDE GAS SLEEVE.
  - CONTRACTOR TO VERIFY DEPTH OF EXISTING SERVICES, TO DETERMINE UNDERDRAIN AND DISTRIBUTION PIPE CLEARANCES TO BUILDING SERVICES AND TO MAINTAIN POSITIVE SLOPE.
  - TRENCH DAM SHALL ALSO BE INSTALLED AT THE DISTRIBUTION AND UNDERDRAIN PIPES (6" Ø PVC) WITHOUT SPLIT SLEEVES.

4 TRENCH DAM  
SCALE: NTS

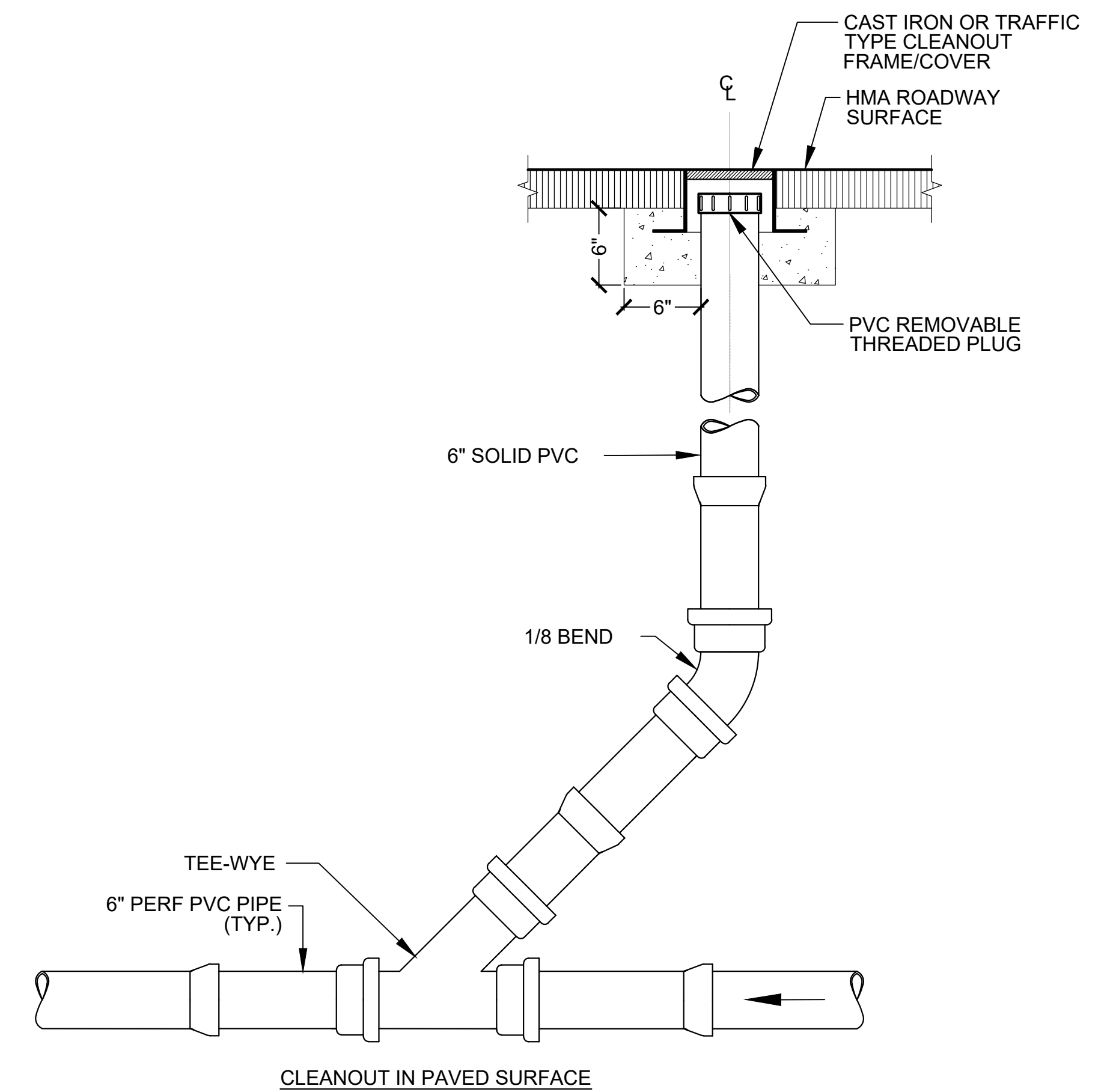


3 FILTER TRENCH LONGITUDINAL SECTION  
SCALE: NTS



2 FILTER TRENCH UNDER HMA - NO EXFILTRATION  
SCALE: NTS

- NOTES:
- CONTRACTOR TO VERIFY DEPTH OF EXISTING SERVICES, TO DETERMINE UNDERDRAIN AND DISTRIBUTION PIPE CLEARANCES TO BUILDING SERVICES AND TO MAINTAIN POSITIVE SLOPE
  - WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION, AND SIZE OF THE UTILITY SHALL BE APPROPRIATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION.
  - SEE SHEET L-1 FOR TRENCH DIMENSIONS (W,L,D).

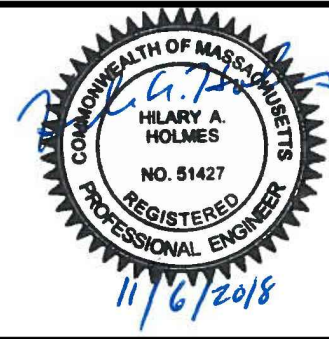


- NOTES:
- THE CONCRETE COLLAR SHALL HAVE GRAVEL BED OF 6" MIN.
  - WHERE CLEANOUTS FOR BOTH THE DISTRIBUTION AND UNDERDRAIN PIPES ARE PROPOSED, THE CLEANOUT FOR THE UNDERDRAIN SHALL BE OFFSET TO ALLOW 6" MIN. OF CLEARANCE FROM THE DISTRIBUTION PIPE.

1 CLEANOUT  
SCALE: NTS

ISSUED FOR BID

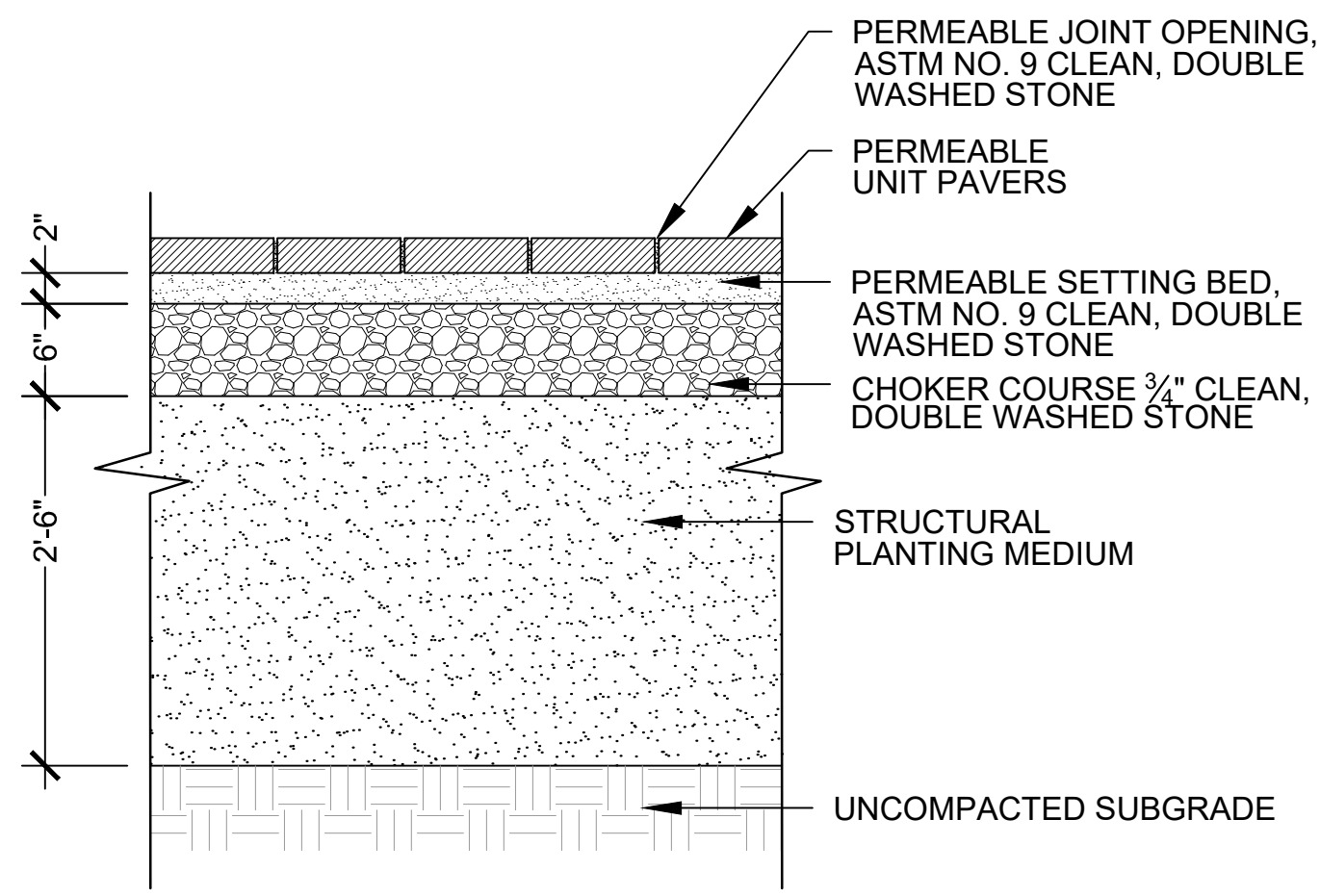
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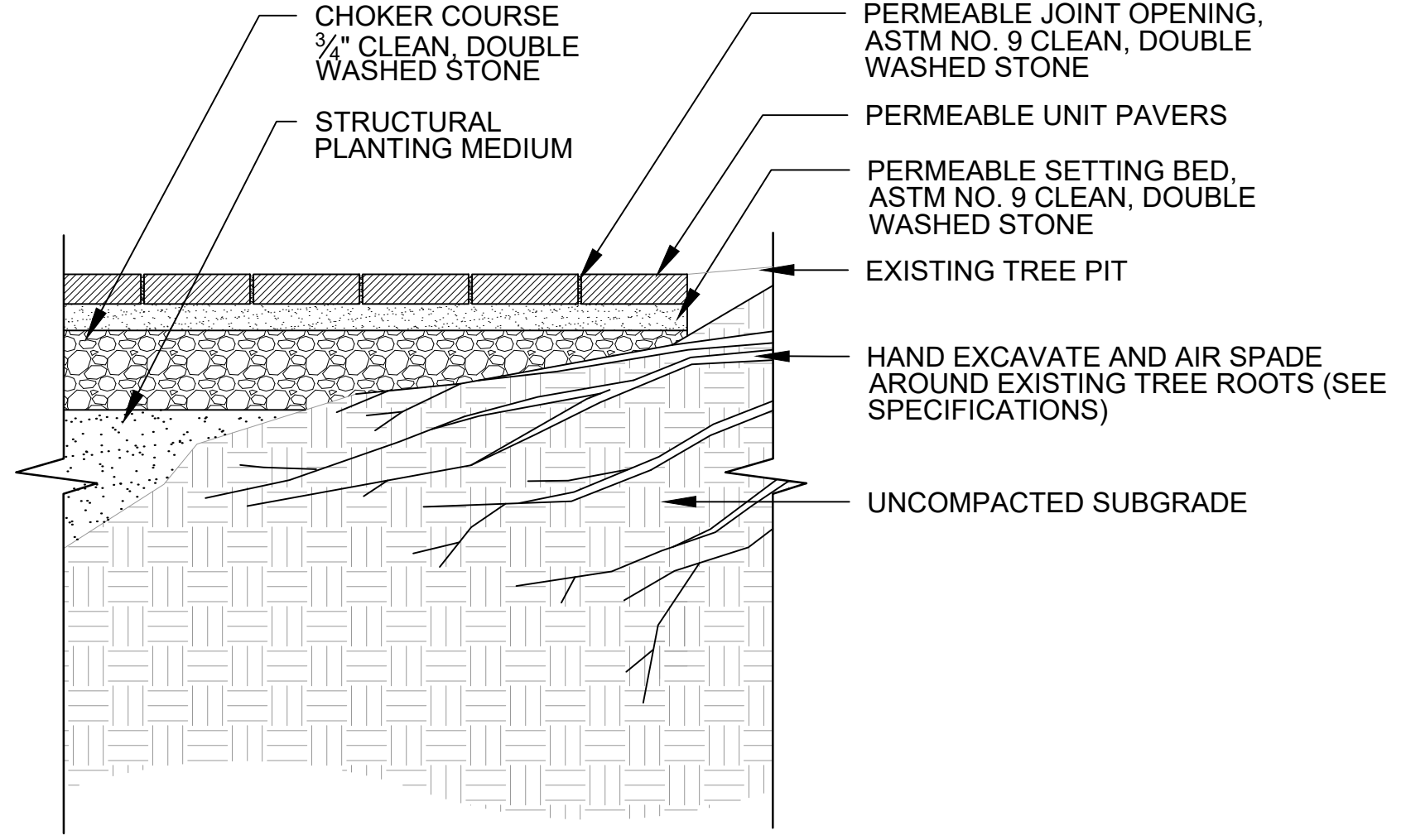
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| Scale       | AS NOTED      |     |             |      |
| Date        | NOVEMBER 2018 |     |             |      |
| Job No.     |               |     |             |      |
| Designed by | HH            |     |             |      |
| Drawn by    | AK/NB         |     |             |      |
| Checked by  | HH/JB         | No. | Description | Date |
| Approved by | DB            |     | REVISIONS   |      |



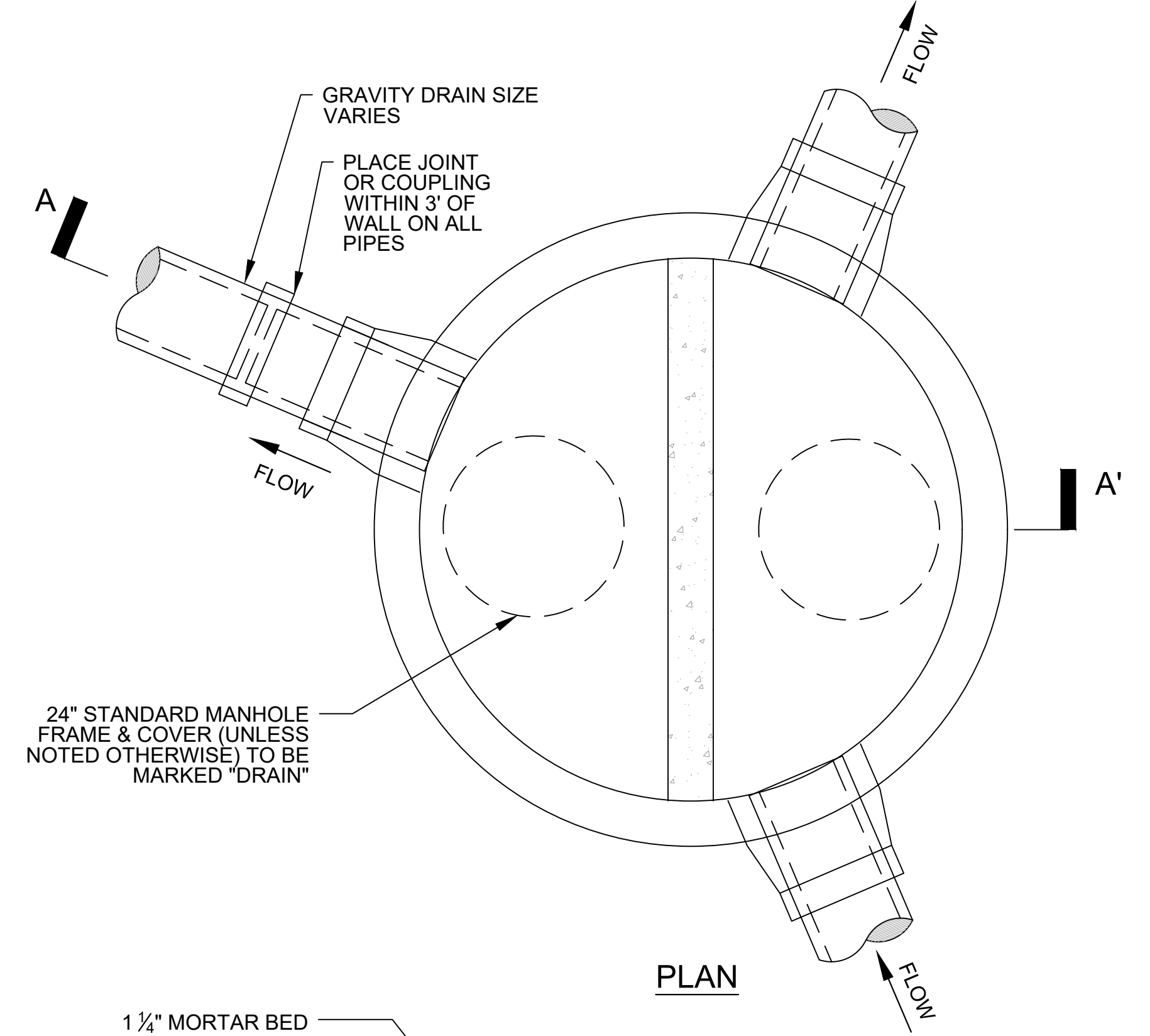
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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       | Sheet    | L-2  |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT | File No. | 8310 |
| Drawing | GREEN INFRASTRUCTURE DETAILS<br>SHEET 1 OF 2           |          |      |



TREATMENT AT NEW TREE PIT

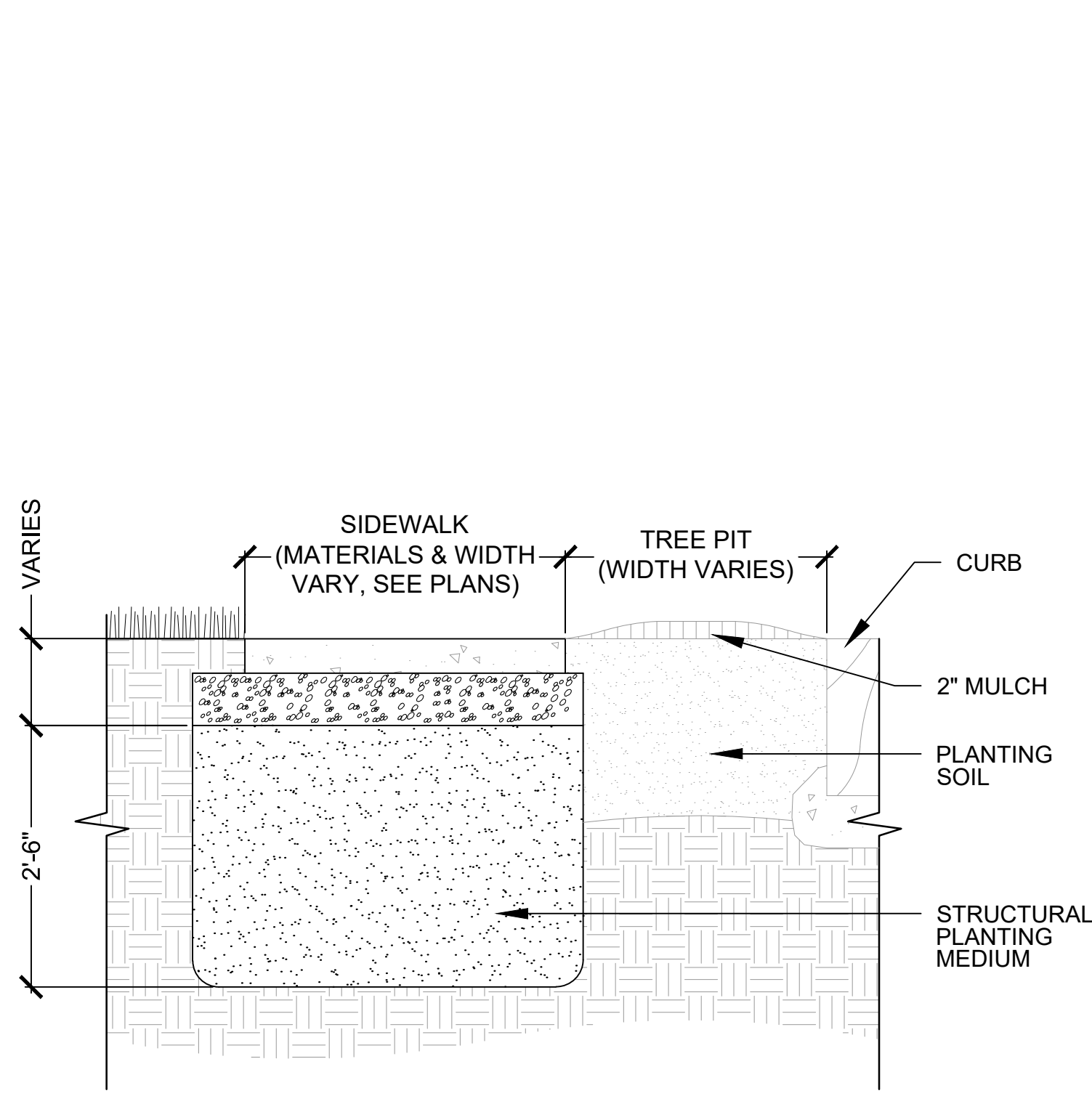


TREATMENT AT EXISTING TREE PIT

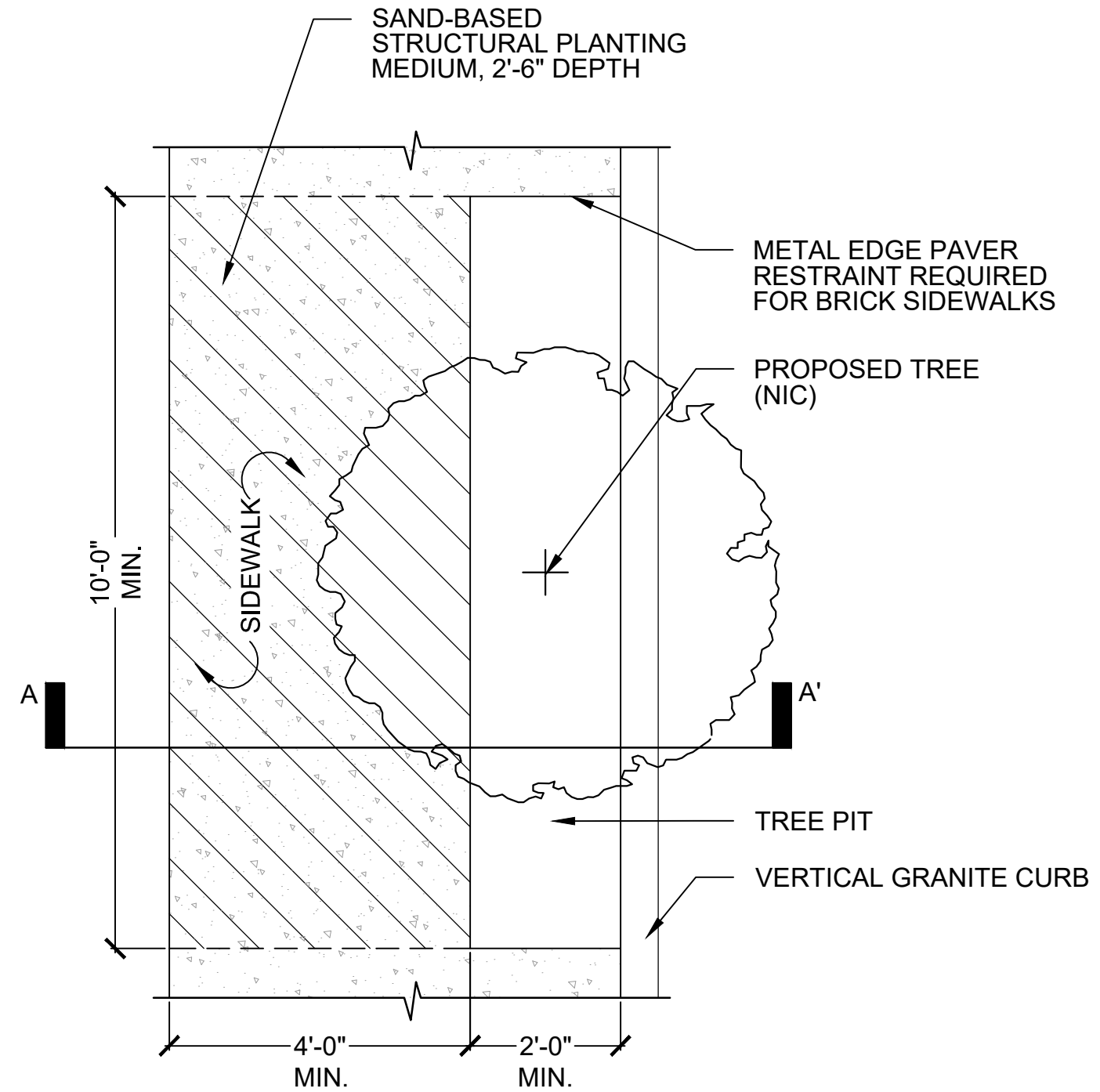


PLAN

**3 PERMEABLE UNIT PAVER SIDEWALK TREATMENTS**  
SCALE: NTS

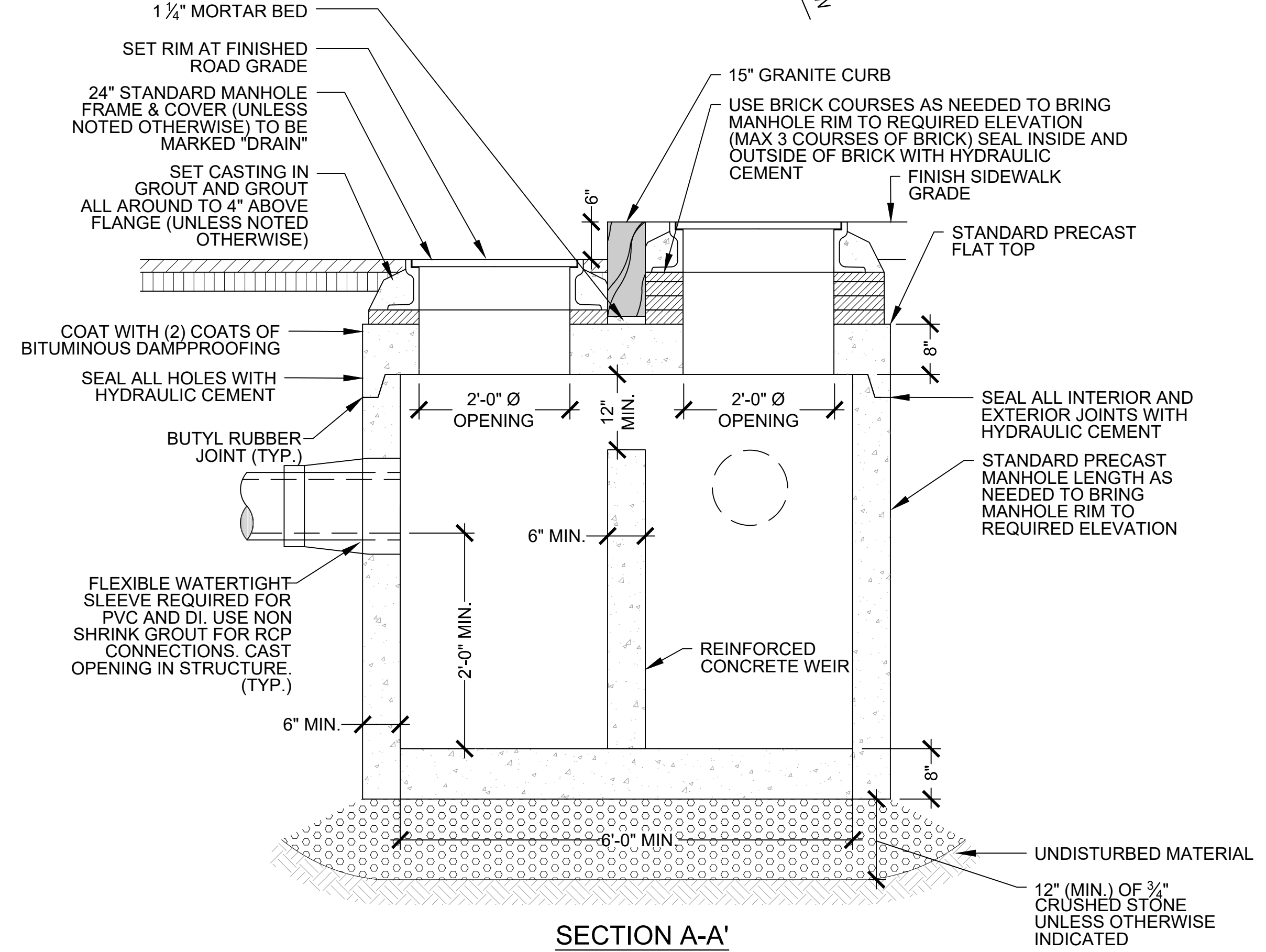


SECTION A-A'



PLAN

NOTE:  
1. CONTRACTOR SHALL PROVIDE APPROXIMATELY 3.7 CY (100 CF) OF STRUCTURAL PLANTING MEDIUM PER EACH STREET TREE PLANTING



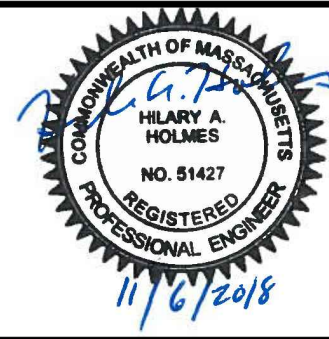
SECTION A-A'

**1 CONTROL MANHOLE**  
SCALE: NTS

**2 STRUCTURAL PLANTING MEDIUM**  
SCALE: NTS

ISSUED FOR BID

CAD FILE: F:\Projects - Active\14-366517 - Chapter 90 - Contract 233 - Project\_Execution\CAD\Fig...\_LID\_Details\_G1.dwg LAYOUT: L3\_PLOTTED: 11/06/2018 3:55 PM BY: keel\_andrew



|             |               |     |             |      |
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| Scale       | AS NOTED      |     |             |      |
| Date        | NOVEMBER 2018 |     |             |      |
| Job No.     |               |     |             |      |
| Designed by | HH            |     |             |      |
| Drawn by    | AK/NB         |     |             |      |
| Checked by  | HH/JB         | No. | Description | Date |
| Approved by | DB            |     | REVISIONS   |      |



|         |  |
|---------|--|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | GREEN INFRASTRUCTURE DETAILS<br>SHEET 2 OF 2           |

|          |      |
|----------|------|
| Sheet    | L-3  |
| File No. | 8310 |

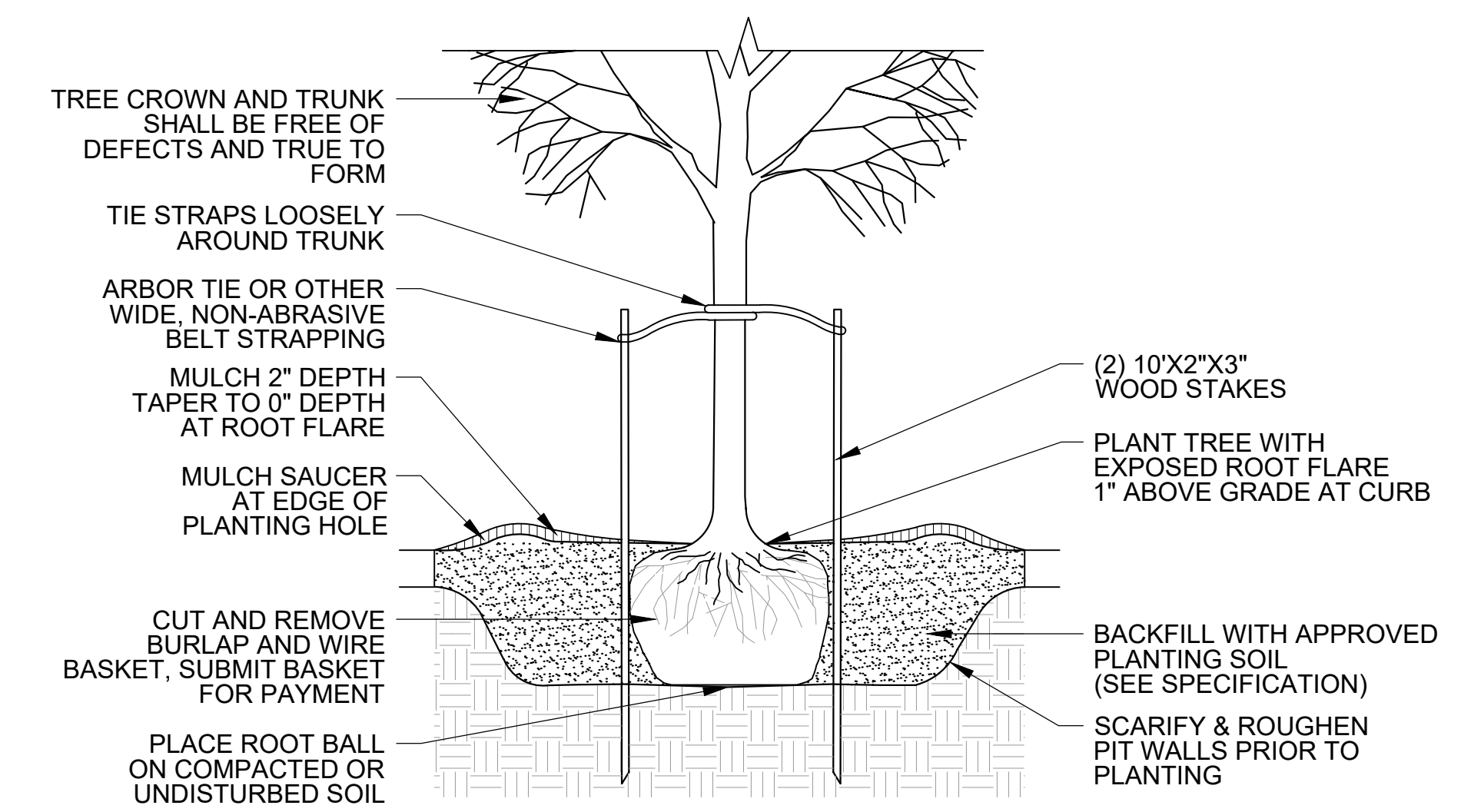


| STREET TREES    |       |   |  |                   |                  |
|-----------------|-------|---|--|-------------------|------------------|
| QTY.            | SYM.  | SCIENTIFIC NAME                             | COMMON NAME                            | MIN. SIZE         | COMMENTS         |
| 3               | AG    | Amelanchier grandifolia 'Autumn Brilliance' | 'Autumn Brilliance' Apple Serviceberry | 2" CAL.           | B&B; Single stem |
| 3               | PX    | Prunus x incam 'Okame'                      | Okame Cherry                           | 2" CAL.           | B&B; Single stem |
| 6               | TOTAL |   |  |                   |                  |
| SHRUBS          |       |   |  |                   |                  |
| QTY.            | SYM.  | SCIENTIFIC NAME                             | COMMON NAME                            | MIN. SIZE         |                  |
| 21              | RA    | Rhus aromatica 'Gro-low'                    | 'Gro-low' Fragrant Sumac               | 18" HT.           |                  |
| 21              | TOTAL |   |  |                   |                  |
| PERENNIALS      |       |   |  |                   |                  |
| QTY.            | SYM.  | SCIENTIFIC NAME                             | COMMON NAME                            | SPACING           | MIN. SIZE        |
| 46              | EP    | Echinacea purpurea 'Kim's Knee High'        | Purple Coneflower                      | 12" O.C.          | #2               |
| 35              | RH    | Rudbeckia hirta                             | Black-eyed Susan                       | 12" O.C.          | #2               |
| 62              | SN    | Symphyotrichum novae-angliae                | New England Aster                      | 12" O.C.          | #2               |
| 26              | SR    | Solidago rugosa 'Fireworks'                 | 'Fireworks' Goldenrod                  | 12" O.C.          | #2               |
| 34              | VL    | Veronia lettermannii 'Iron Butterfly'       | 'Iron Butterfly' Ironweed              | 24" O.C.          | #2               |
| 51              | ZA    | Zizia aurea                                 | Golden Alexanders                      | 12" O.C.          | #2               |
| 254             | TOTAL |   |  |                   |                  |
| GRASSES & FERNS |       |   |  |                   |                  |
| QTY.            | SYM.  | SCIENTIFIC NAME                             | COMMON NAME                            | ON CENTER SPACING | MIN. SIZE        |
| 84              | ES    | Eragrostis spectabilis                      | Purple Love Grass                      | 12" O.C.          | QUART            |
| 46              | PV    | Panicum virgatum 'Shenandoah'               | 'Shenandoah' Switchgrass               | 18" O.C.          | #2               |
| 47              | SS    | Schizachyrium scoparium                     | Little Bluestem                        | 12" O.C.          | QUART            |
| 177             | TOTAL |   |  |                   |                  |

## PLANT SCHEDULE

## 2 TREE PLANTING

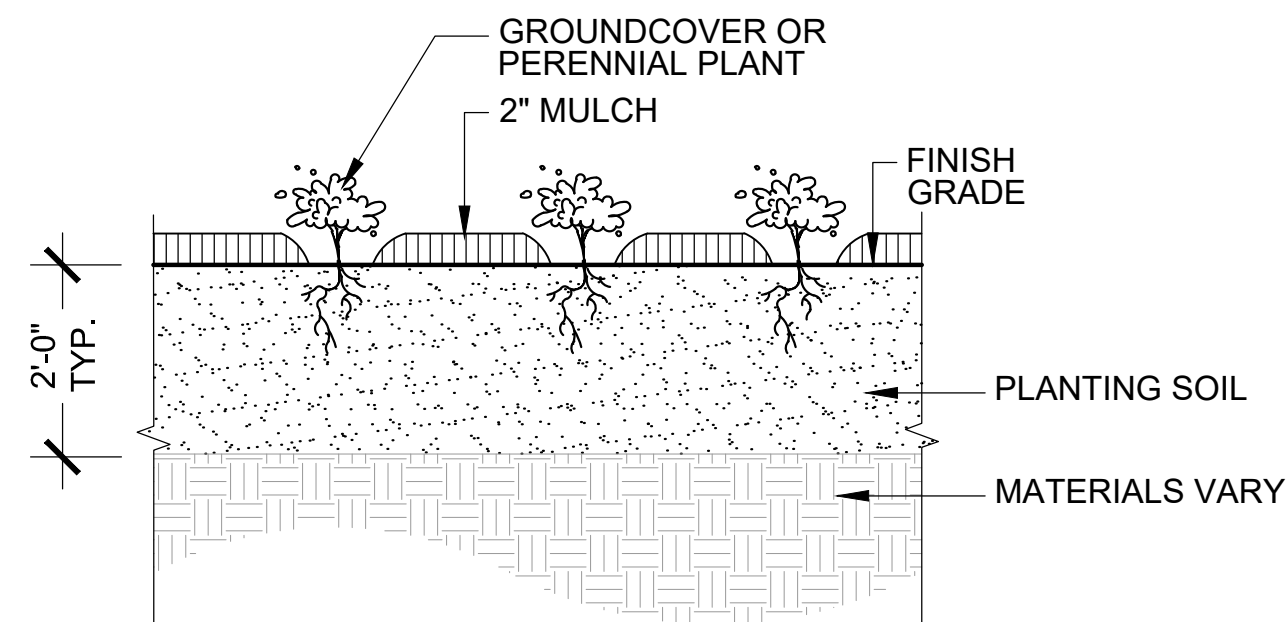
SCALE: NTS



NOTE: PLANTING OF TREES WITHIN PLANTING AREAS SHOWN ON L-5 IS INCLUDED IN THIS CONTRACT. STREET TREE PLANTING WITHIN PROPOSED TREE PITS IS "BY OTHERS".

## 6 PERENNIAL / GROUNDCOVER PLANTING

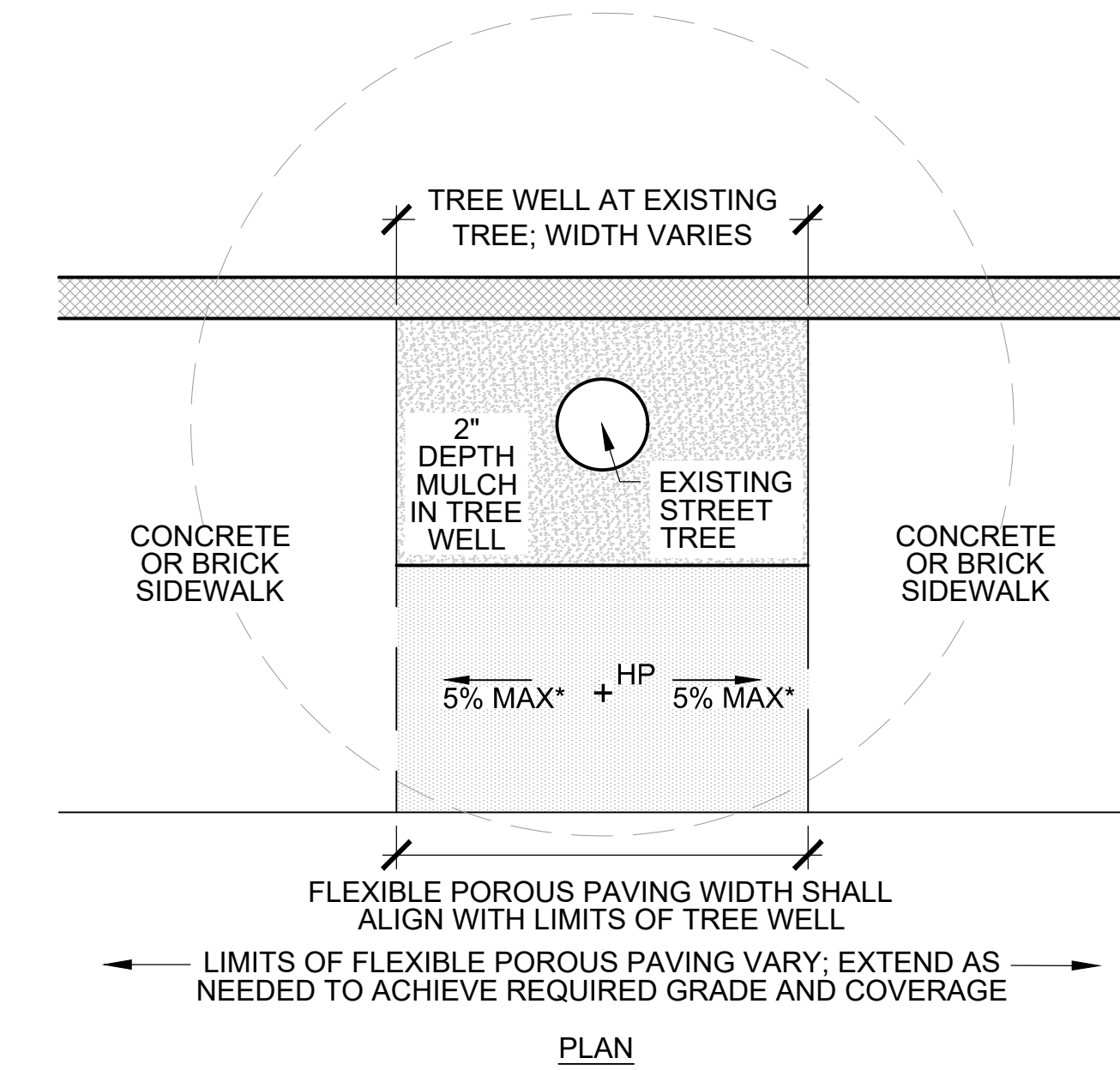
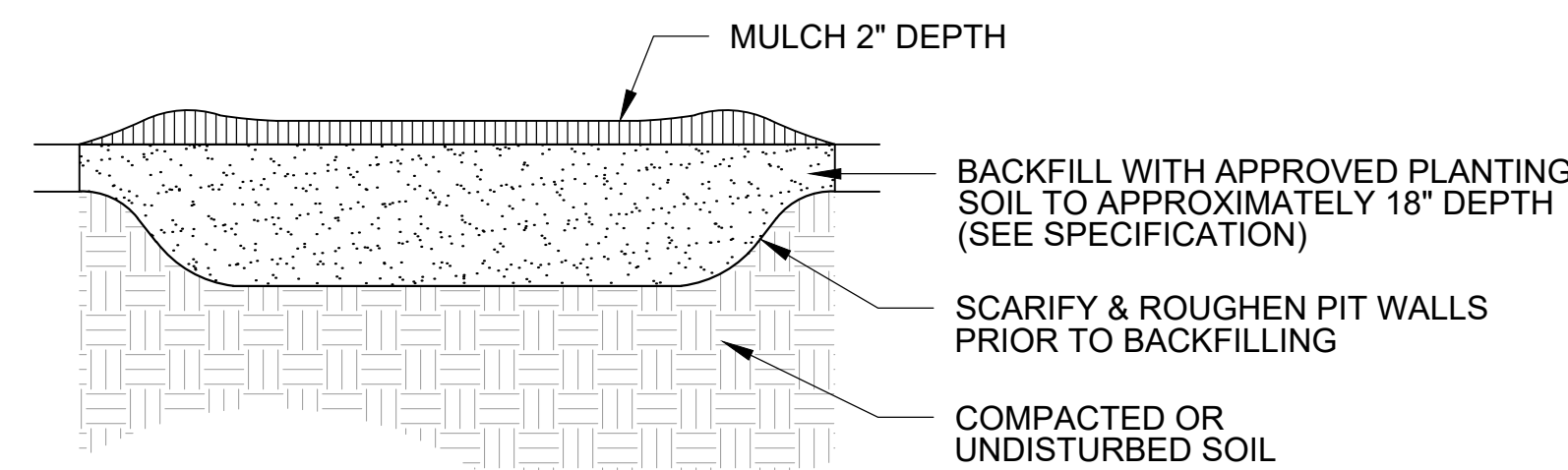
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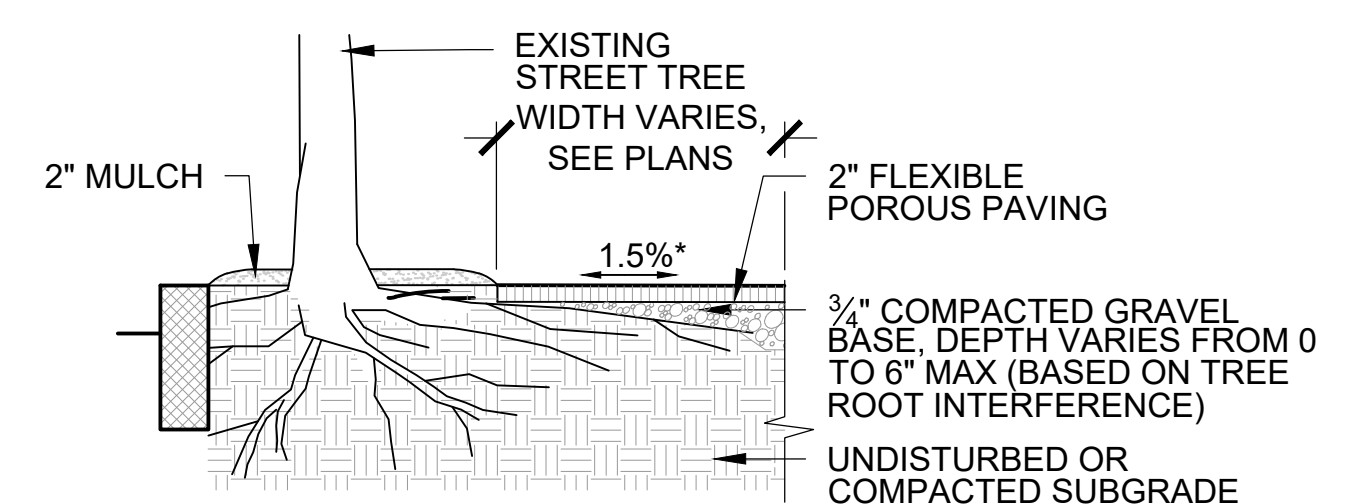
NOTE:  
1. REFER TO PLANT SCHEDULE FOR SIZE AND SPACING.

## 4 NEW TREE PIT

SCALE: NTS



PLAN



SECTION

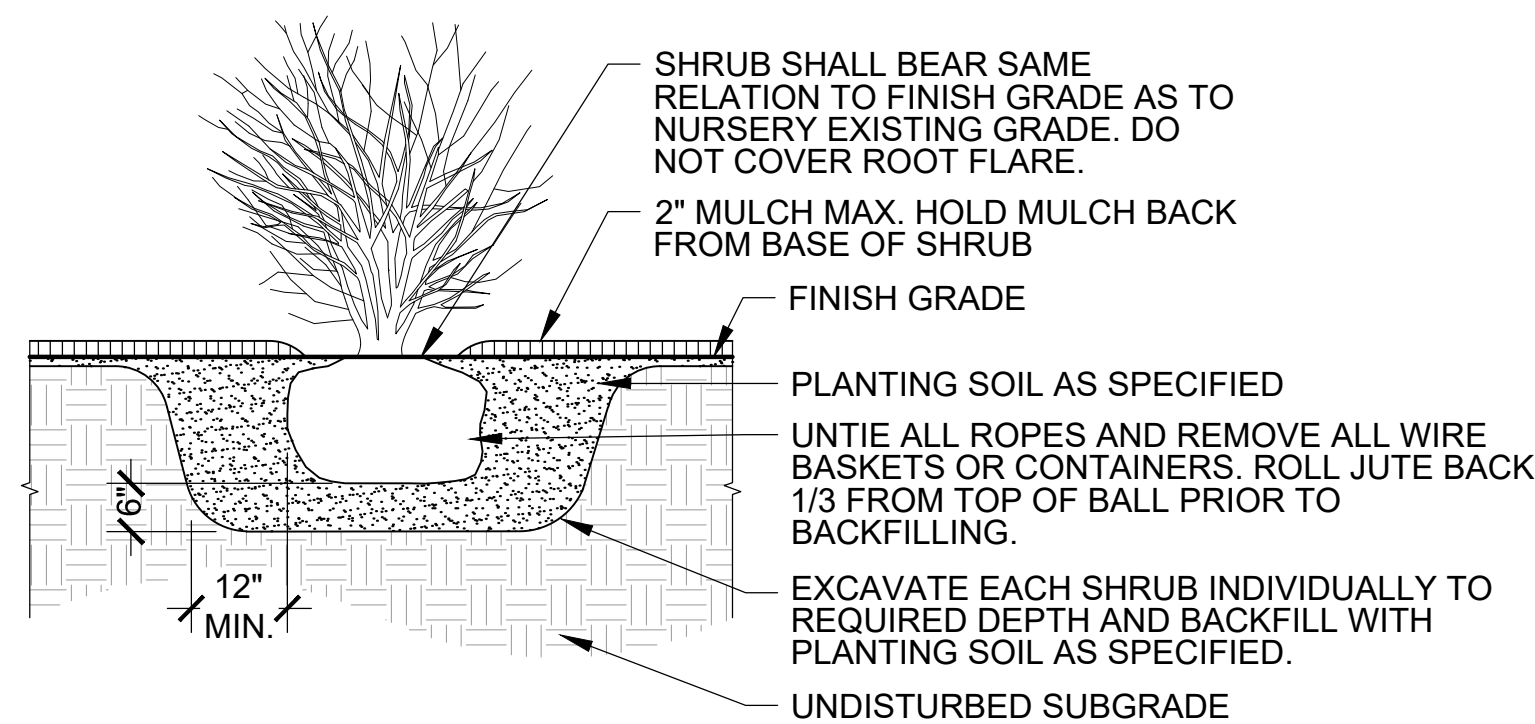
NOTE:  
1. \* FLEXIBLE POROUS PAVING SIDEWALKS TO BE BUILT ACCORDING TO ADA AND MA AAB REGULATIONS, 2.0% MAX (0% TOLERANCE) CROSS SLOPE.  
2. FLEXIBLE POROUS PAVING COLOR SHALL BE REDWOOD.

## 1 FLEXI-PAVE AT EXISTING TREES

SCALE: NTS

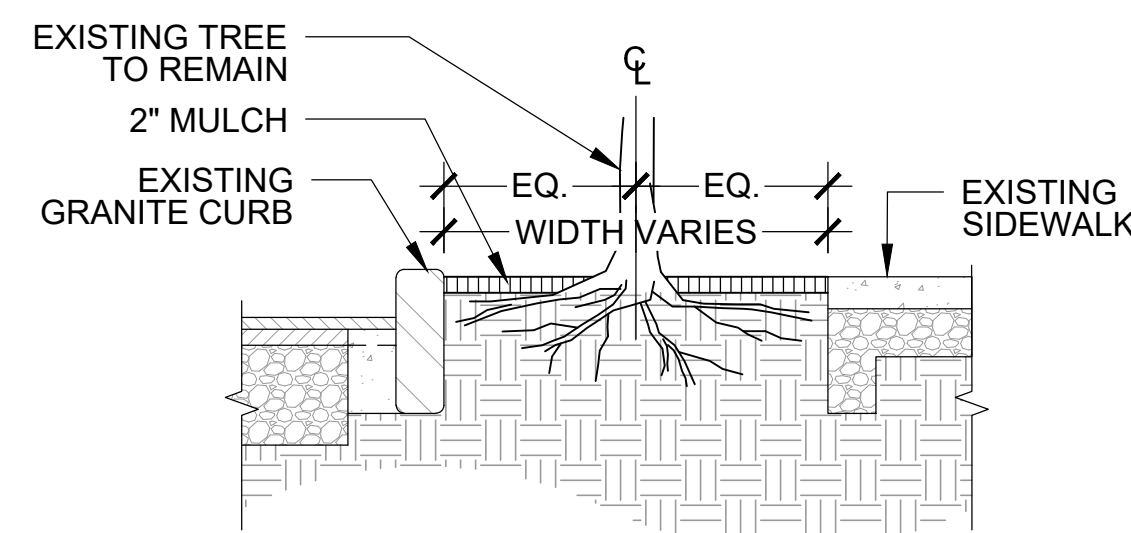
## 5 SHRUB PLANTING

SCALE: NTS



## 3 EXISTING STREET TREE TREATMENT

SCALE: NTS

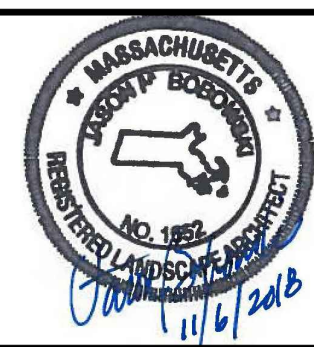


NOTES:  
1. REMOVE ALL WEEDS AND TRIM ALL SUCKERS FLUSH.  
2. SEE SPECIFICATION FOR EXISTING TREE PROTECTION AND MAINTENANCE.  
3. AIRSPADE SOIL FROM AROUND EXISTING ROOTS WITHIN LIMITS OF CANOPY TO A DEPTH ACCOMMODATING NEW SIDEWALK MATERIALS. CLEAN CUT ROOTS ≤1" DIA. WITH SHARP PRUNERS. ROOTS > 1" DIA. REQUIRE ARBORIST APPROVAL PRIOR TO REMOVAL.  
4. AIRSPADE SOIL WITHIN PROPOSED TREE PIT TO LOOSEN SOIL AROUND EXISTING ROOTS. AMEND EXISTING SOIL WITH APPROVED PLANTING SOIL AND BACKFILL PER SPECIFICATIONS.  
5. NEW TREE WELLS FOR EXISTING TREES SHALL BE AS SHOWN ON PLANS.

CAD FILE: F:\Projects - Active\14-366517 - Chapter 90 - Contract 233 - Project\_Execution\CAD\Fig...\_LID\_Details\_P.dwg LAYOUT: L-4 PLOTTED: 11/6/2018 3:53 PM BY: keel, andrew



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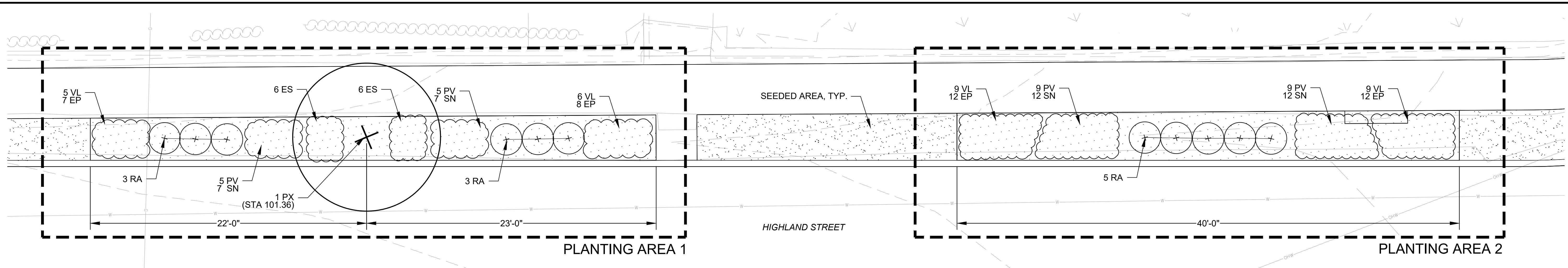
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| Scale       | AS NOTED      |     |             |      |
| Date        | NOVEMBER 2018 |     |             |      |
| Job No.     |               |     |             |      |
| Designed by | JB            |     |             |      |
| Drawn by    | AK / NB       |     |             |      |
| Checked by  | JB            | No. | Description | Date |
| Approved by | DB            |     | REVISIONS   |      |



|         |  |
|---------|--|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT |
| Drawing | PLANTING DETAILS<br>SHEET 1 OF 1                       |

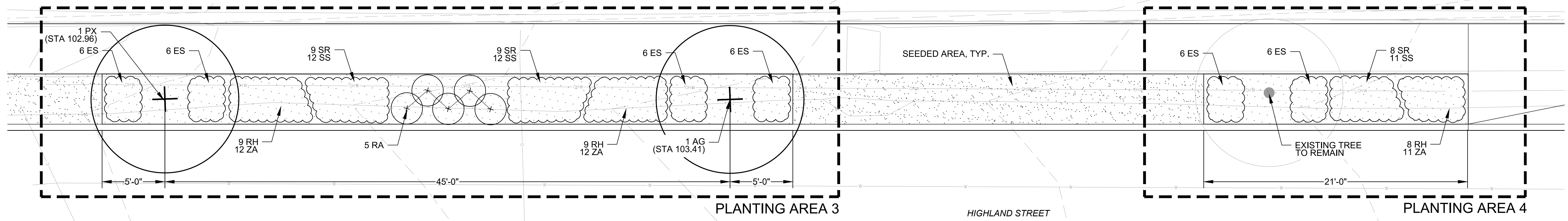
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|----------|------|
| Sheet    | L-4  |
| File No. | 8310 |

ISSUED FOR BID



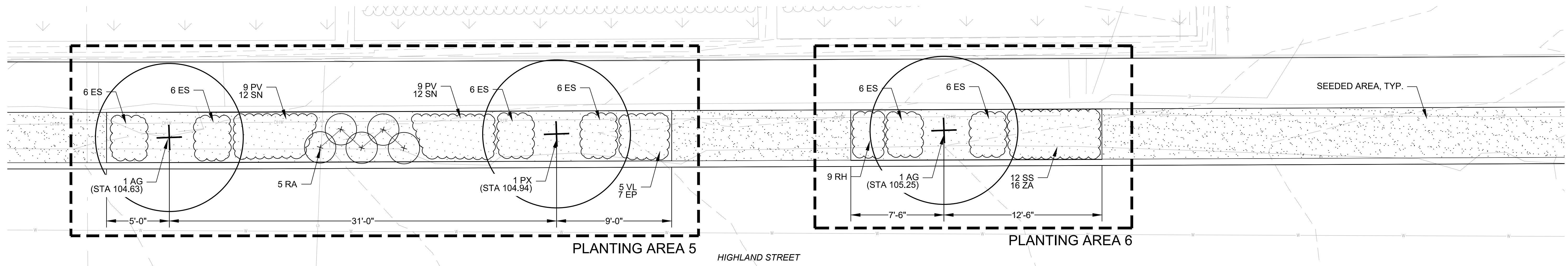
**ENLARGEMENT A: PLANTING AREAS 1 & 2**

SCALE: 1/4" = 1'-0"



**ENLARGEMENT B: PLANTING AREAS 3 & 4**

SCALE: 1/4" = 1'-0"

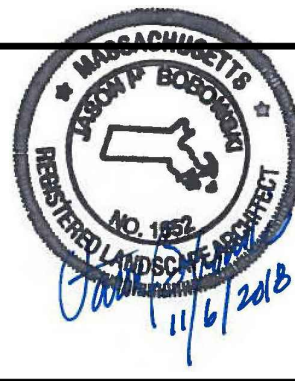


**ENLARGEMENT C: PLANTING AREAS 5 & 6**

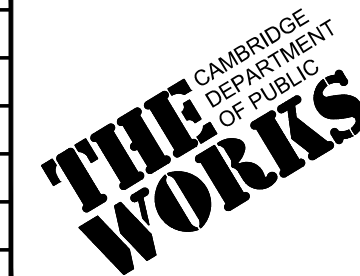
SCALE: 1/4" = 1'-0"

ISSUED FOR BID

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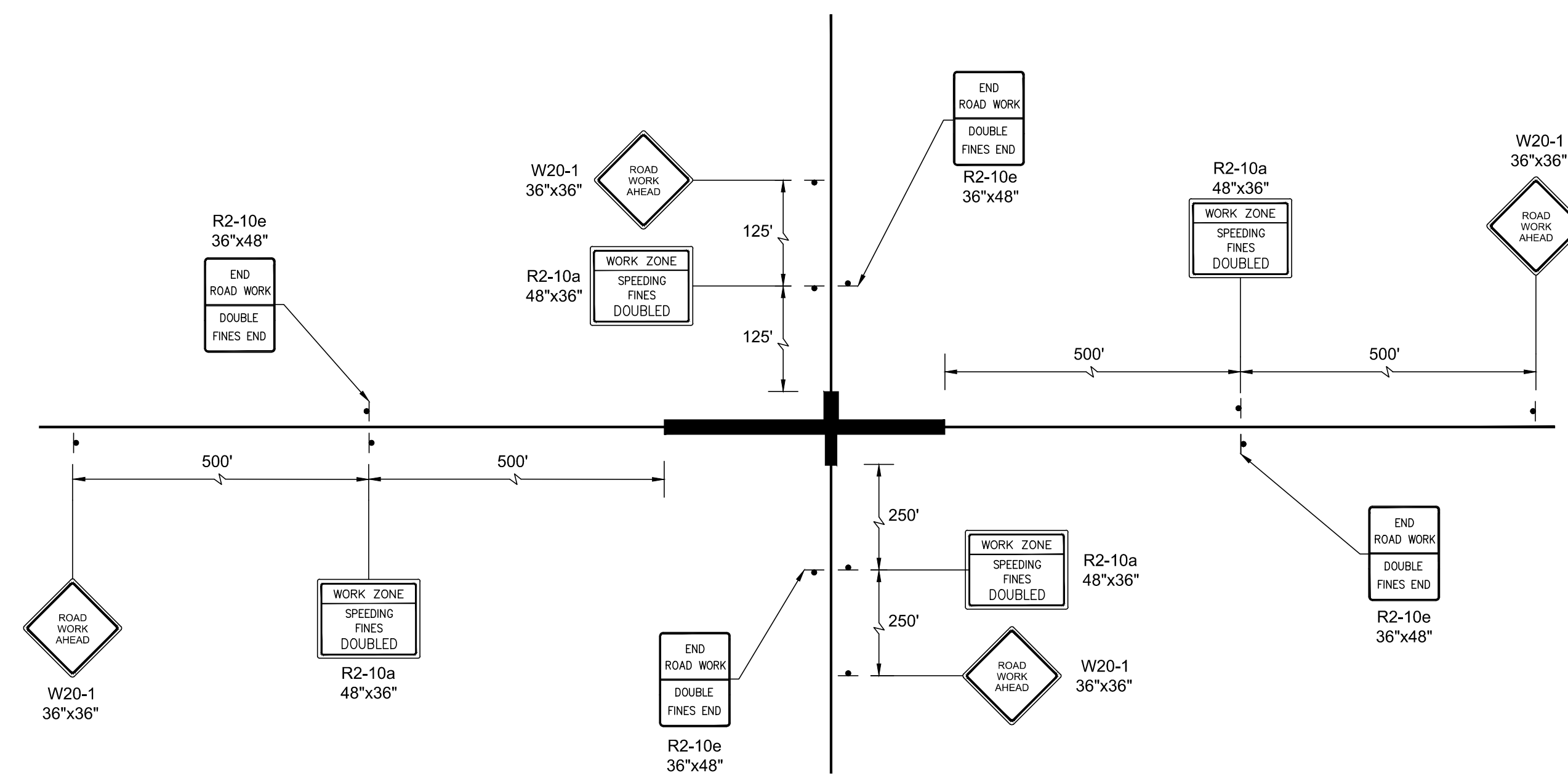


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| Date        | NOVEMBER 2018 |     |             |      |
| Job No.     |               |     |             |      |
| Designed by | JB            |     |             |      |
| Drawn by    | AK / NB       |     |             |      |
| Checked by  | JB            | No. | Description | Date |
| Approved by | DB            |     | REVISIONS   |      |

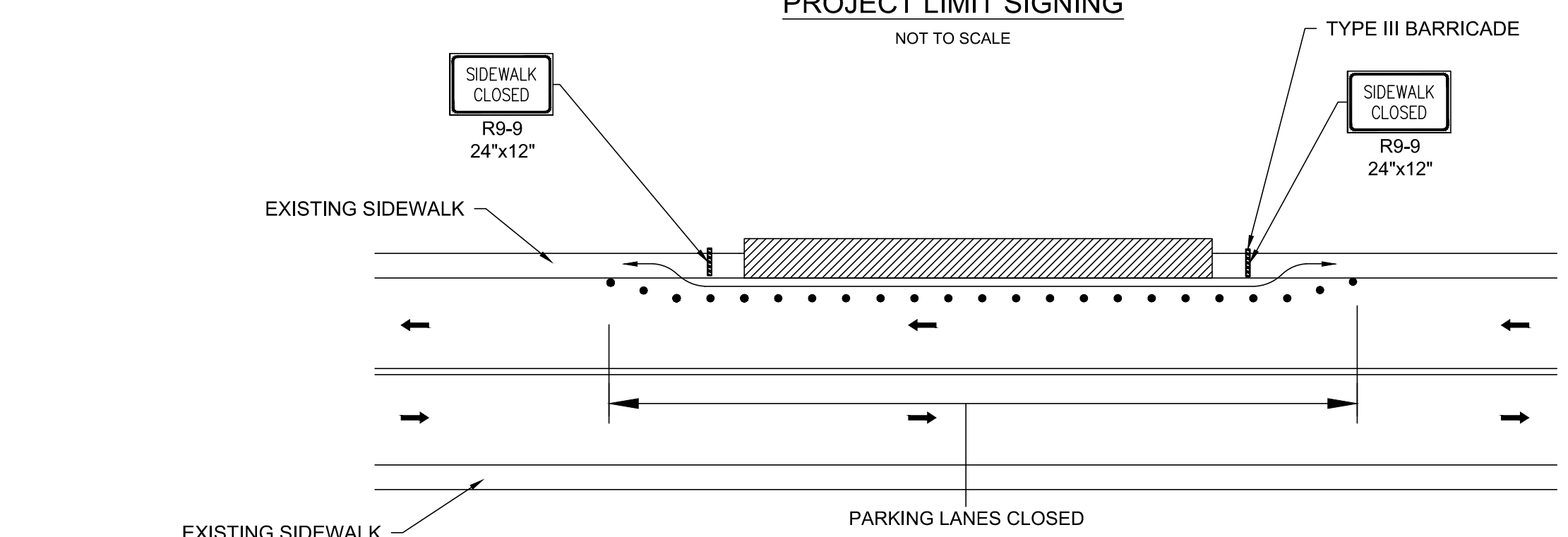


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| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       | Sheet    | L-5  |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT | File No. | 8310 |
| Drawing | HIGHLAND STREET PLANTING AREAS<br>SHEET 1 OF 1         |          |      |

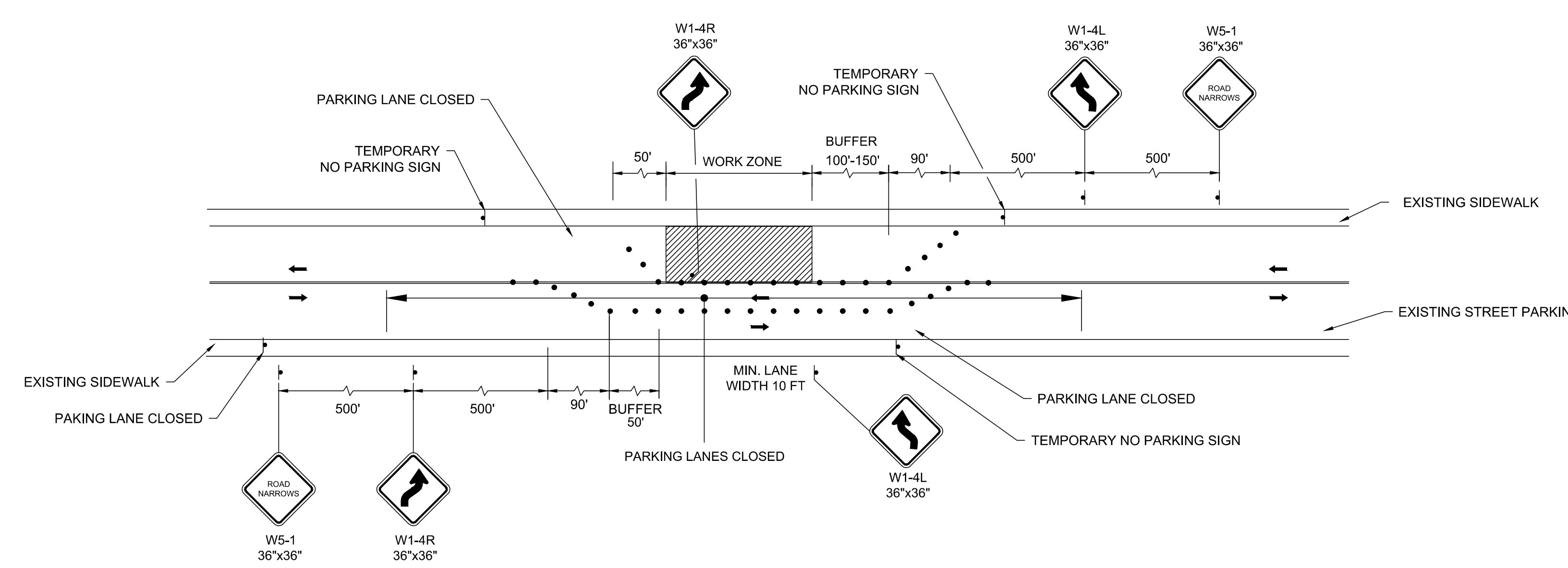
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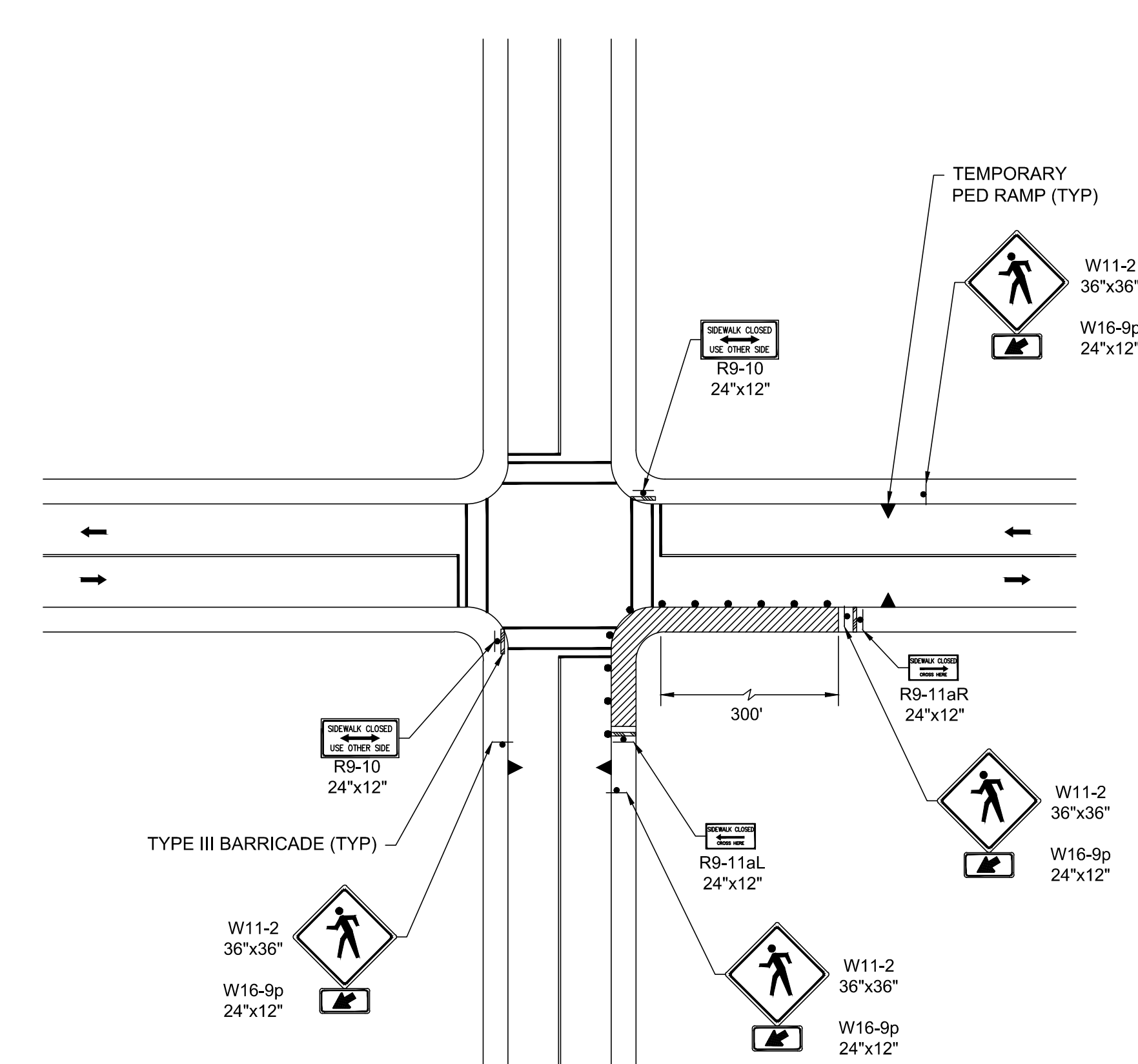
**PROJECT LIMIT SIGNING**  
NOT TO SCALE



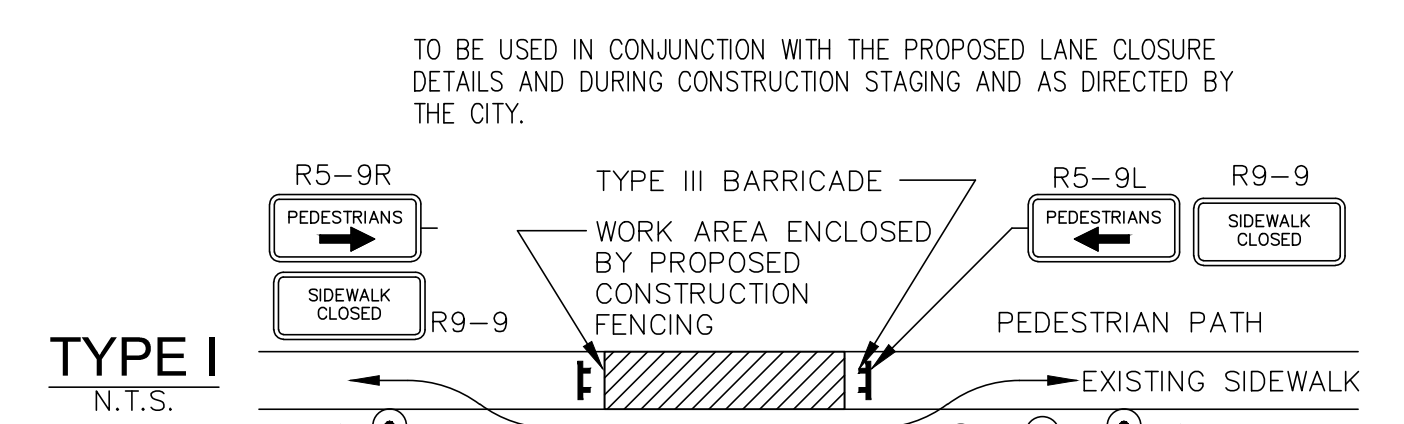
**SIDEWALK CLOSURE**  
NOT TO SCALE



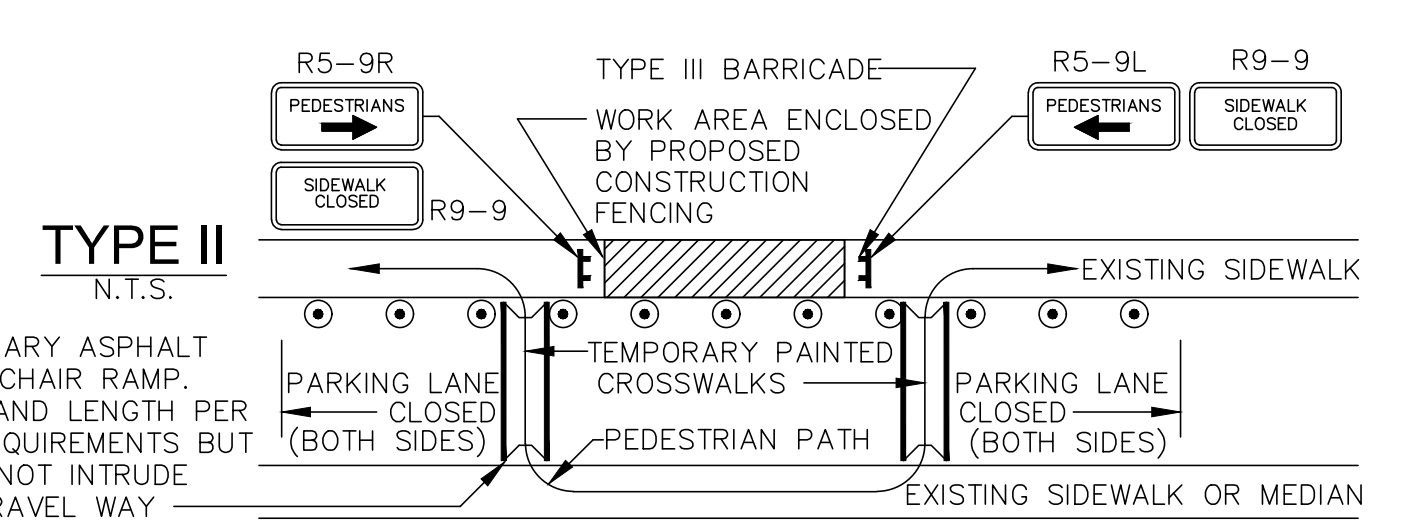
**TWO LANE ROAD SHOULDER AND TRAVEL LANE CLOSURE**  
NOT TO SCALE



**SIDEWALK CORNER CLOSURE**  
NOT TO SCALE



**TYPE I**  
N.T.S.



**TYPE II**  
N.T.S.

TEMPORARY ASPHALT WHEEL CHAIR RAMP WIDTH AND LENGTH PER ADA REQUIREMENTS BUT SHALL NOT INTRUDE INTO TRAVEL WAY

**PEDESTRIAN BYPASS NOTES:**

1. ADDITIONAL ADVANCE WARNING MAY BE REQUIRED BY THE CITY.
2. CONTROLS FOR PEDESTRIAN TRAFFIC ONLY ARE SHOWN. VEHICULAR TRAFFIC SHALL BE MAINTAINED AS DETAILED ELSEWHERE.
3. STREET LIGHTING SHALL BE CONSIDERED WHEN LOCATING CONTROL DEVICES.
4. EXISTING PEDESTRIAN RAMPS SHALL BE CONSIDERED WHEN LOCATING TEMPORARY PAINTED CROSSWALKS. TEMPORARY BITUMINOUS RAMPS ARE REQUIRED FOR TEMPORARILY RELOCATED CROSSWALKS.
5. DIRECTION OF PEDESTRIAN TRAVEL
6. 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 SHALL BE INSTALLED TO CROSS PEDESTRIANS TO THE OPPOSITE SIDE OF THE STREET AS SHOWN IN PEDESTRIAN BYPASS TYPE II, AND AS REQUIRED BY THE ENGINEER.
7. TEMPORARY ASPHALT WHEEL CHAIR RAMPS ARE REQUIRED FOR TEMPORARILY RELOCATED CROSS WALKS WHERE EXISTING WHEEL CHAIR RAMPS DO NOT EXIST.

**PEDESTRIAN BYPASS DETAIL**  
NOT TO SCALE

**LEGEND:**

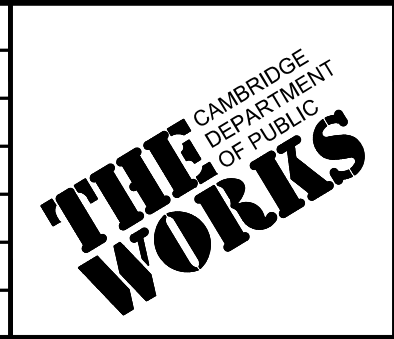
|  |                                |
|--|--------------------------------|
|  | WORK AREA                      |
|  | SIGN                           |
|  | CHANNELIZING DEVICE            |
|  | TYPE III BARRICADE             |
|  | PEDESTRIAN WALKWAY AND RAMP    |
|  | FLOW DIRECTION                 |
|  | PEDESTRIAN CHANNELIZING DEVICE |

- TEMPORARY TRAFFIC CONTROL NOTES:**
1. ALL TRAFFIC CONTROL DEVICES AND WORK ZONE SET-UPS ARE TO BE IN ACCORDANCE WITH MASSDOT AND MUTCD STANDARDS.
  2. DRUM SPACING SHALL BE 25 FEET ON ALL STREETS.
  3. MINIMUM SPACING OF TRAFFIC DEVICES IN A TAPER (DRUMS AND CONES) IS EQUAL IN FEET TO THE POSTED SPEED LIMIT IN MILES PER HOUR.
  4. ALL SIGNS SHOWN SHALL BE MOUNTED ON SUITABLE TEMPORARY SUPPORTS SUCH THAT SIGNS ARE CLEARLY VISIBLE TO APPROACHING TRAFFIC.
  5. MAINTAIN ACCESS TO ALL DRIVEWAYS AND PEDESTRIAN SIDEWALKS AT ALL TIMES, UNLESS OTHERWISE NOTED.
  6. THE FIRST FIVE PLASTIC DRUMS OF A TAPER SHALL BE MOUNTED WITH TYPE A LIGHTS.
  7. THE ADVISORY SPEED LIMIT, IF REQUIRED, SHALL BE DETERMINED BY THE ENGINEER.
  8. DISTANCES ARE A GUIDE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
  9. MINIMUM LANE WIDTH IS 10 FEET, MEASURED FROM THE EDGE OF DRUMS OR MEDIAN BARRIER.
  10. ADA COMPLIANT PEDESTRIAN ACCESS SHALL BE MAINTAINED AT ALL TIMES, INCLUDING PROPER BARRICADES, RAILINGS, RAMPS, AND SIGNAGE FOR PEDESTRIAN DETOURS OR BYPASSES.
  11. CONES MAY BE USED IN LIEU OF DRUMS OUTSIDE OF TAPER AREAS.

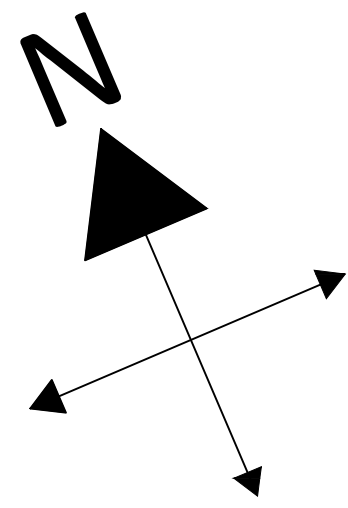
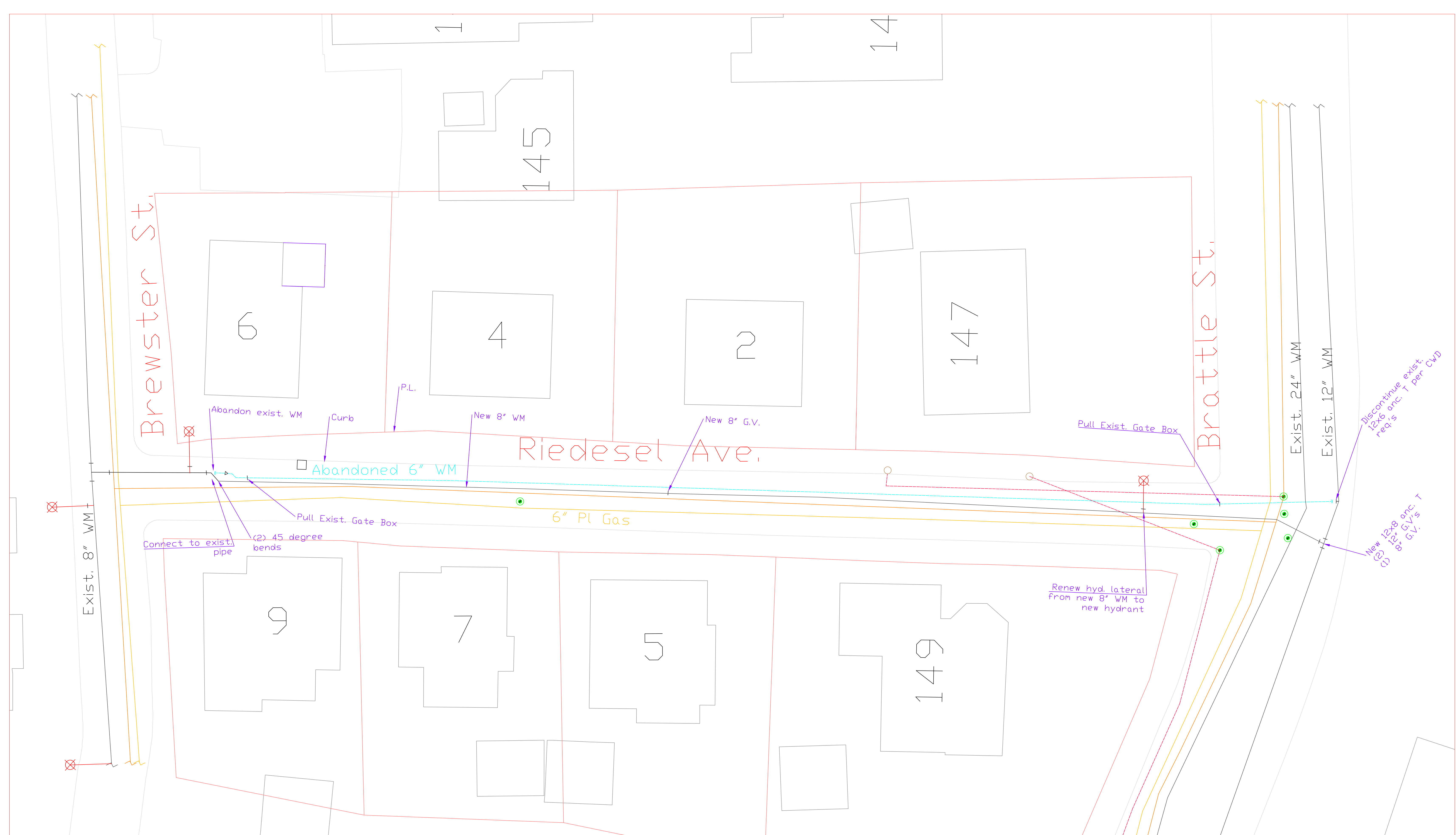
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|             |               |
|-------------|---------------|
| Scale       | AS NOTED      |
| Date        | NOVEMBER 2018 |
| Job No.     | 20170208.019A |
| Designed by | SPR           |
| Drawn by    | SPR           |
| Checked by  | PFB           |
| Approved by | PFB           |

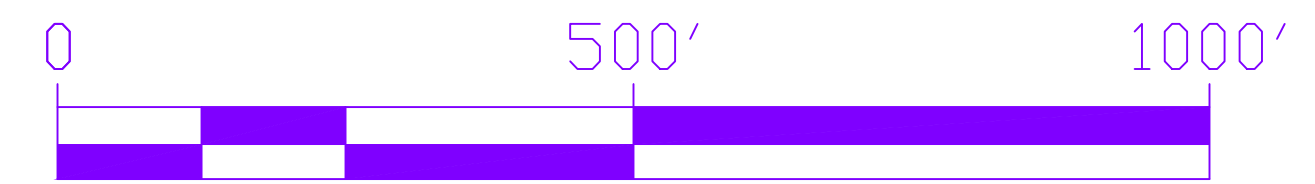


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|---------|--|----------|-------|
| Client  | CITY OF CAMBRIDGE, MASSACHUSETTS                       | Sheet    | TMP-1 |
| Project | CHAPTER 90 CONTRACT 23A<br>ROADWAY IMPROVEMENT PROJECT | File No. | 8310  |
| Drawing | TRAFFIC MANAGEMENT PLAN                                |          |       |



| Legend |                   |  |               |
|--------|-------------------|--|---------------|
|        | Abandoned WM      |  | WM Gate Valve |
|        | Existing WM       |  | Catch Basin   |
|        | Electric          |  | Hydrant       |
|        | Telecommunication |  | Utility Pole  |
|        | Gas               |  | WM Reducer    |
|        | Manhole           |  | WM Cap        |

|   |                   |
|---|-------------------|
| CAMBRIDGE WATER DEPARTMENT  |                   |
| Proposed Conditions<br>Riedesel Avenue  |                   |
| PIPE NO:  | SHEET NO.         |
| DETAIL RECORD NO: RRPDR DISTRIBUTION MAPS, GIS                                    | 1                 |
| PREPARED BY: MAINTENANCE ENGINEERING & DISTRIBUTION<br>CAMBRIDGE WATER DEPARTMENT | SHEET: 1<br>OF: 1 |



Discontinue exist. 12x8 anc. T req's

New 12x8 anc. T (2) 8" G.V.'s

Renew hyd. lateral from new 8" WM to new hydrant

Riedesel Ave.

Brewster St.

Brattle St.

6

4

2

147

9

7

5

149

1

14

145

Exist. 8" WM

Exist. 24" WM

Exist. 12" WM

Abandon exist. WM

Curb

P.L.

New 8" WM

New 8" G.V.

Pull Exist. Gate Box

Abandoned 6" WM

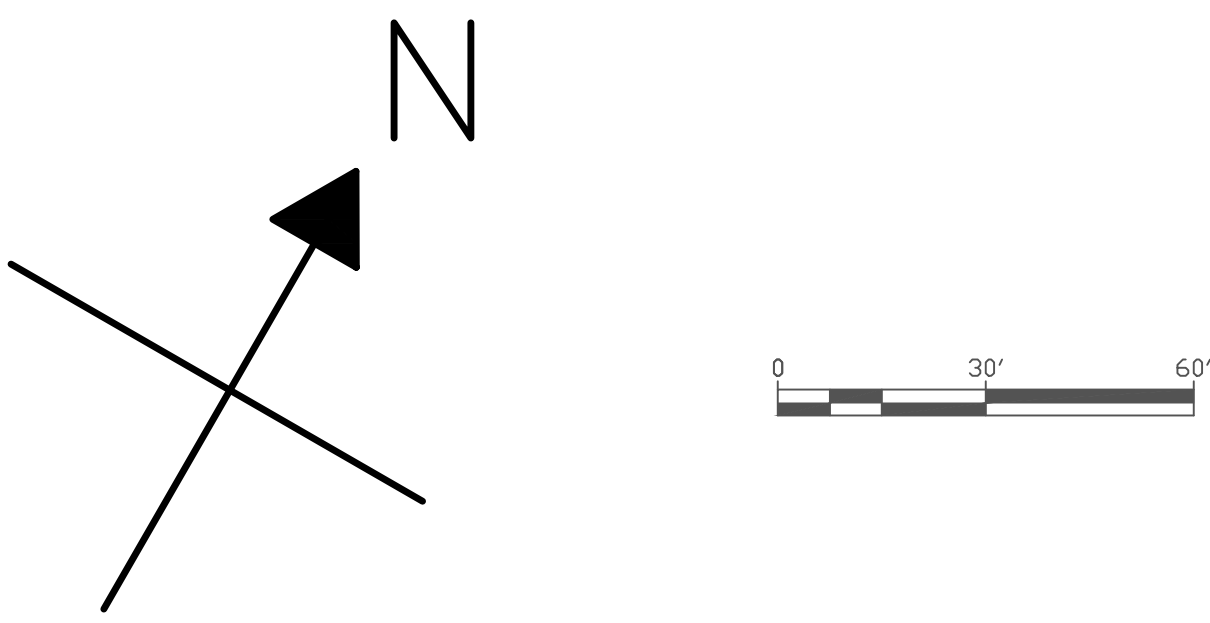
6" PL Gas

Connect to exist. pipe

(2) 45 degree bends

Pull Exist. Gate Box

New 12x8 anc. T (2) 8" G.V.'s




| Legend |                           |
|--------|---------------------------|
|        | Proposed water main       |
|        | Existing water main       |
|        | Electrical line           |
|        | Storm/drain line          |
|        | Sewer line                |
|        | Combined drain/sewer line |
|        | Gas line                  |
|        | Limit of Pavement         |
|        | Fire hydrants             |
|        | Tees                      |
|        | Caps                      |
|        | Catch basins              |
|        | Manholes                  |
|        | Gate valves               |

| 4   | IEL  |    | FOURTH SUBMITTAL |          |
|-----|------|----|------------------|----------|
| 3   | IEL  |    | THIRD SUBMITTAL  |          |
| 2   | IEL  |    | SECOND SUBMITTAL |          |
| 1   | IEL  |    | FIRST SUBMITTAL  |          |
| NO. | DATE | BY | CHK'D            | REVISION |

DATE: JULY 20 2018  
 SCALE: AS NOTED

DESIGNED BY: \_\_\_\_\_  
 DRAWN BY: Water Engineers  
 CHECKED BY: \_\_\_\_\_  
 APPROVED BY: \_\_\_\_\_



**CAMBRIDGE WATER DEPARTMENT**

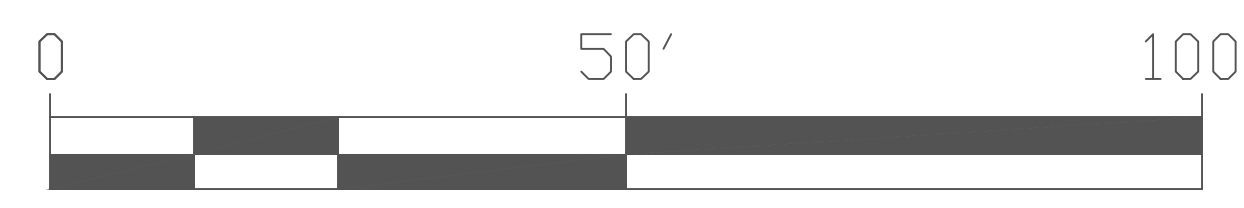
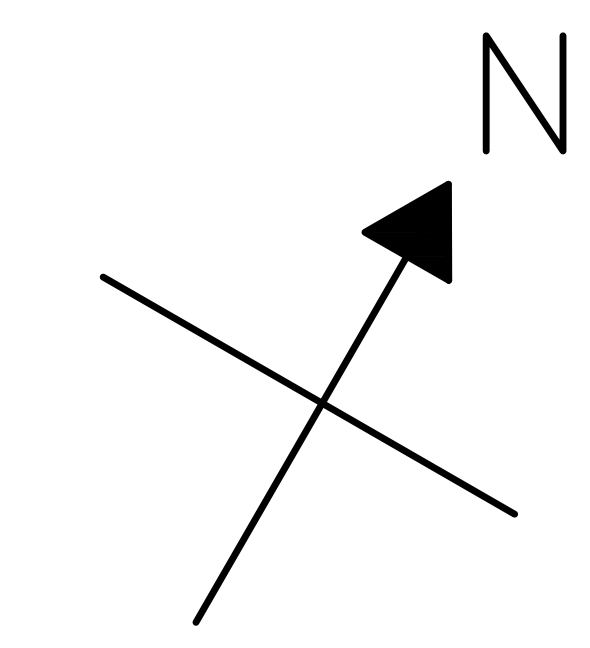
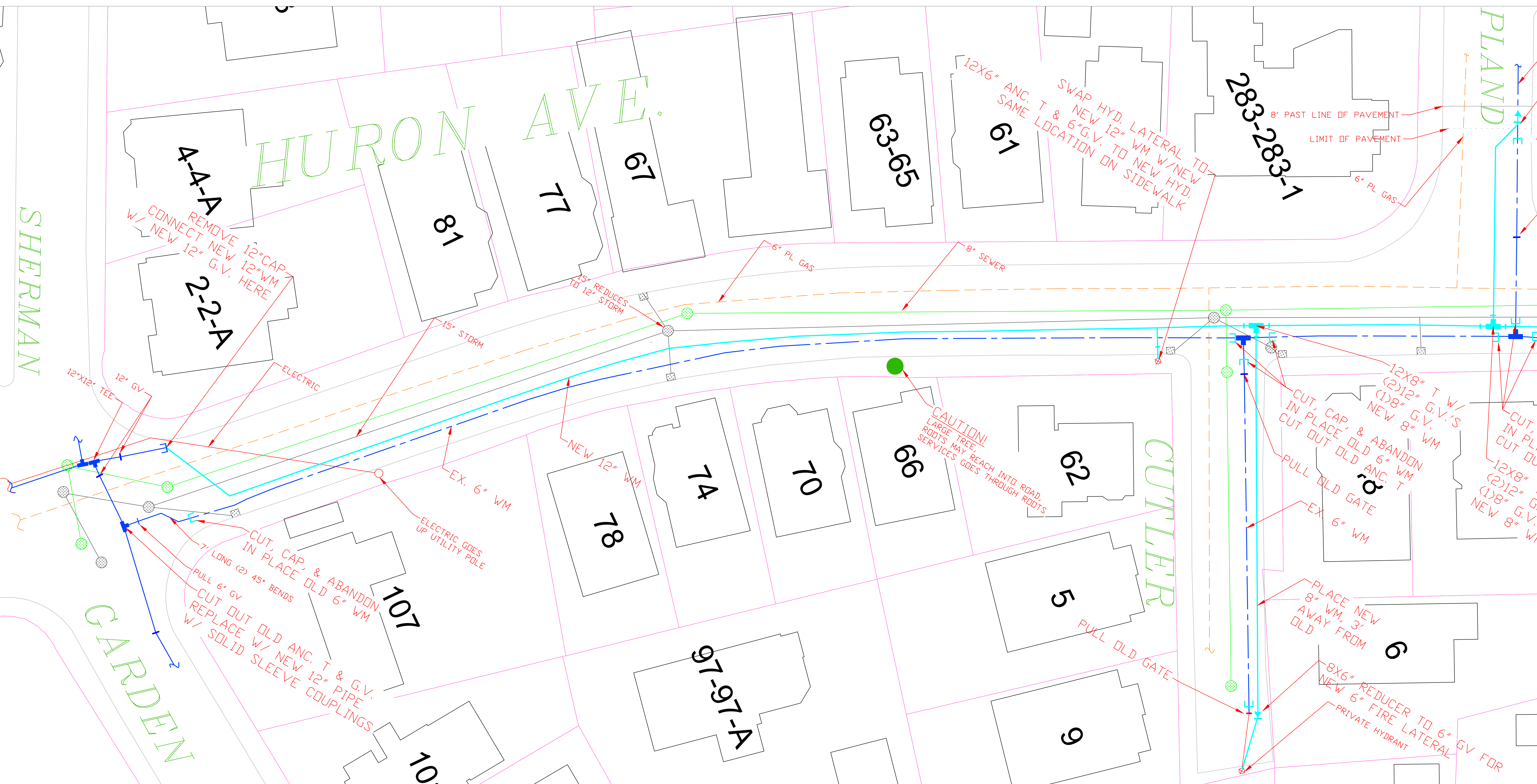
**HURON AVE. PROJECT – NEW W.M.**

HURON AVE. BETWEEN GARDEN ST. AND RAYMOND ST.

**FULL SITE PLANS**

GARDEN ST. TO RAYMOND ST.

|   |                    |
|---|--------------------|
| PIPE NO:  | SHEET NO. <b>1</b> |
| DETAIL RECORD NO: REFER DISTRIBUTION MAPS, GIS                                    | SHEET: <b>1</b>    |
| PREPARED BY: MAINTENANCE ENGINEERING & DISTRIBUTION<br>CAMBRIDGE WATER DEPARTMENT | OF: <b>3</b>       |




| Legend                                    |                           |
|---|---------------------------|
| <span style="color: cyan;">—</span>       | Proposed water main       |
| <span style="color: blue;">—</span>       | Existing water main       |
| <span style="color: red;">—</span>        | Electrical line           |
| <span style="color: grey;">—</span>       | Storm/drain line          |
| <span style="color: green;">—</span>      | Sewer line                |
| <span style="color: purple;">—</span>     | Combined drain/sewer line |
| <span style="color: orange;">—</span>     | Gas line                  |
| <span style="color: grey;">- - - -</span> | Limit of Pavement         |
|   | Fire hydrants             |
|   | Catch basins              |
|   | Manholes                  |
|   | Gate valves               |
|   | Tees                      |
|   | Caps                      |

| NO. | DATE | BY  | CHK'D | REVISION         |
|-----|------|-----|-------|------------------|
| 4   |      | IEL |       | FOURTH SUBMITTAL |
| 3   |      | IEL |       | THIRD SUBMITTAL  |
| 2   |      | IEL |       | SECOND SUBMITTAL |
| 1   |      | IEL |       | FIRST SUBMITTAL  |

DATE: JULY 20 2018  
 SCALE: AS NOTED

DESIGNED BY:  
 DRAWN BY: *Water Intern*  
 CHECKED BY:  
 APPROVED BY:



**CAMBRIDGE WATER DEPARTMENT**

**12" NEW WATER MAINS**

HURON AVE. BETWEEN GARDEN ST. AND RAYMOND ST.

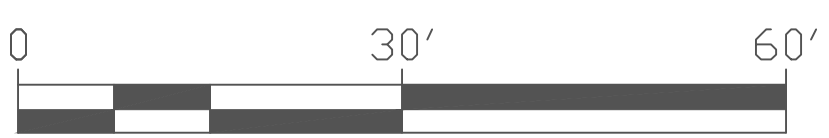
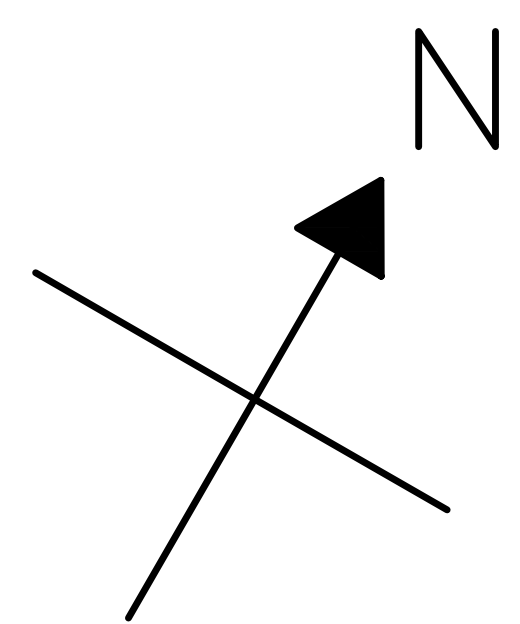
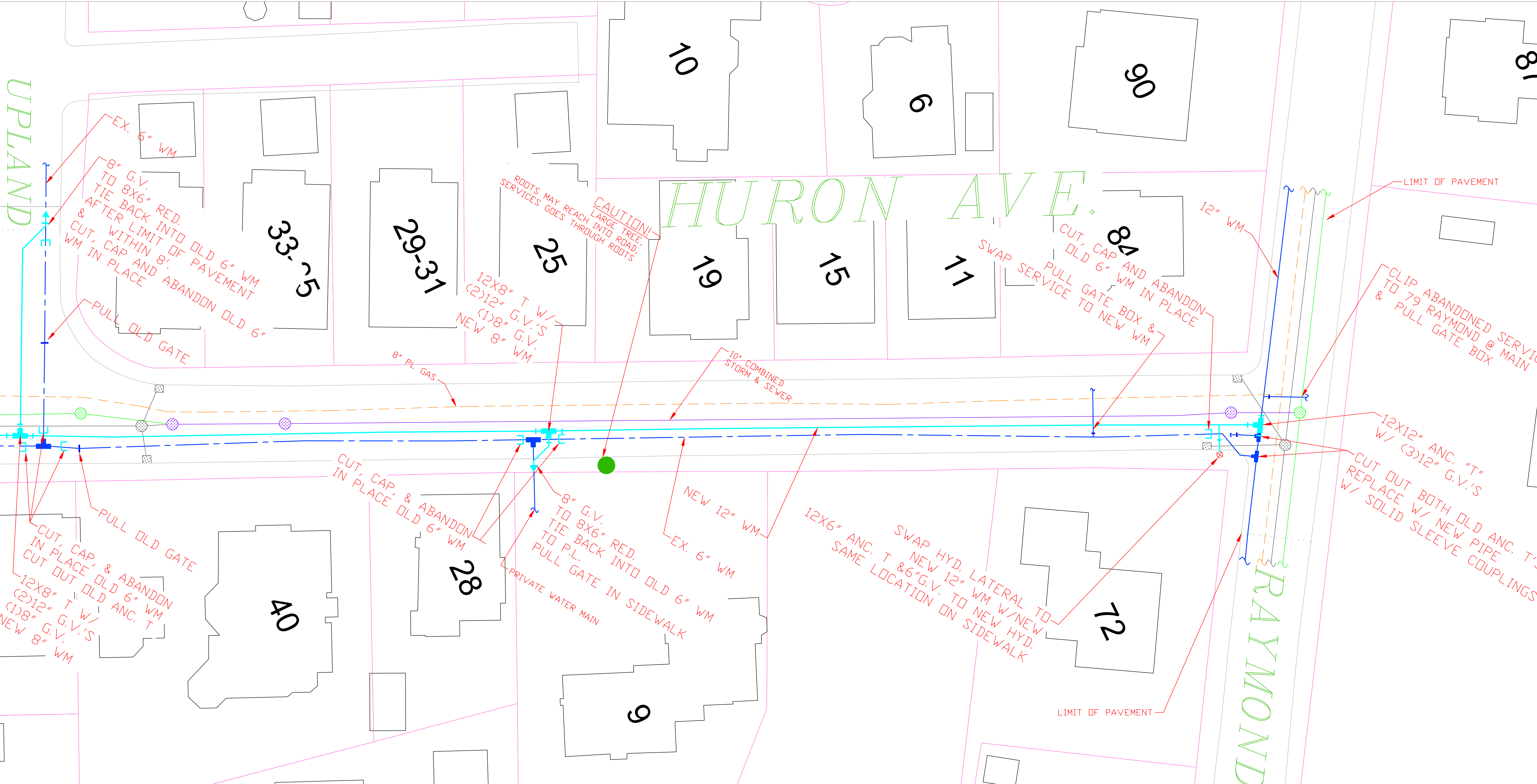
SITE PLANS  
 GARDEN ST. TO UPLAND RD.

|  |                   |
|--|-------------------|
| PIPE NO:   | SHEET NO.         |
| DETAIL RECORD NO: REFER DISTRIBUTION MAPS, GIS                                       | 2                 |
| PREPARED BY:<br>MAINTENANCE ENGINEERING & DISTRIBUTION<br>CAMBRIDGE WATER DEPARTMENT | SHEET: 2<br>OF: 3 |

UPLAND

HURON AVE.

RAYMOND



| Legend                                    |                           |
|---|---------------------------|
| <span style="color: cyan;">—</span>       | Proposed water main       |
| <span style="color: blue;">—</span>       | Existing water main       |
| <span style="color: red;">—</span>        | Electrical line           |
| <span style="color: grey;">—</span>       | Storm/drain line          |
| <span style="color: green;">—</span>      | Sewer line                |
| <span style="color: purple;">—</span>     | Combined drain/sewer line |
| <span style="color: orange;">—</span>     | Gas line                  |
| <span style="color: pink;">- - - -</span> | Limit of Pavement         |
|   | Fire hydrants             |
|   | Catch basins              |
|   | Manholes                  |
|   | Gate valves               |
|   | Tees                      |
|   | Caps                      |

**CAMBRIDGE WATER DEPARTMENT**

**12" NEW WATER MAINS**  
HURON AVE. BETWEEN GARDEN ST. AND RAYMOND ST.

SITE PLANS  
UPLAND RD. TO RAYMOND ST.

|   |          |
|---|----------|
| PIPE NO:  | 3        |
| DETAIL RECORD NO: REFER DISTRIBUTION MAPS, GIS                                    | SHEET: 3 |
| PREPARED BY: MAINTENANCE ENGINEERING & DISTRIBUTION<br>CAMBRIDGE WATER DEPARTMENT | OF: 3    |

|     |      |     |       |                  |                     |                               |             |              |
|-----|------|-----|-------|------------------|---------------------|-------------------------------|-------------|--------------|
| NO. | DATE | BY  | CHK'D | REVISION         | DESIGNED BY:        | DRAWN BY: <i>Water Intern</i> | CHECKED BY: | APPROVED BY: |
| 4   |      | IEL |       | FOURTH SUBMITTAL | DATE: JULY 20, 2018 |                               |             |              |
| 3   |      | IEL |       | THIRD SUBMITTAL  | SCALE: AS NOTED     |                               |             |              |
| 2   |      | IEL |       | SECOND SUBMITTAL |                     |                               |             |              |
| 1   |      | IEL |       | FIRST SUBMITTAL  |                     |                               |             |              |

