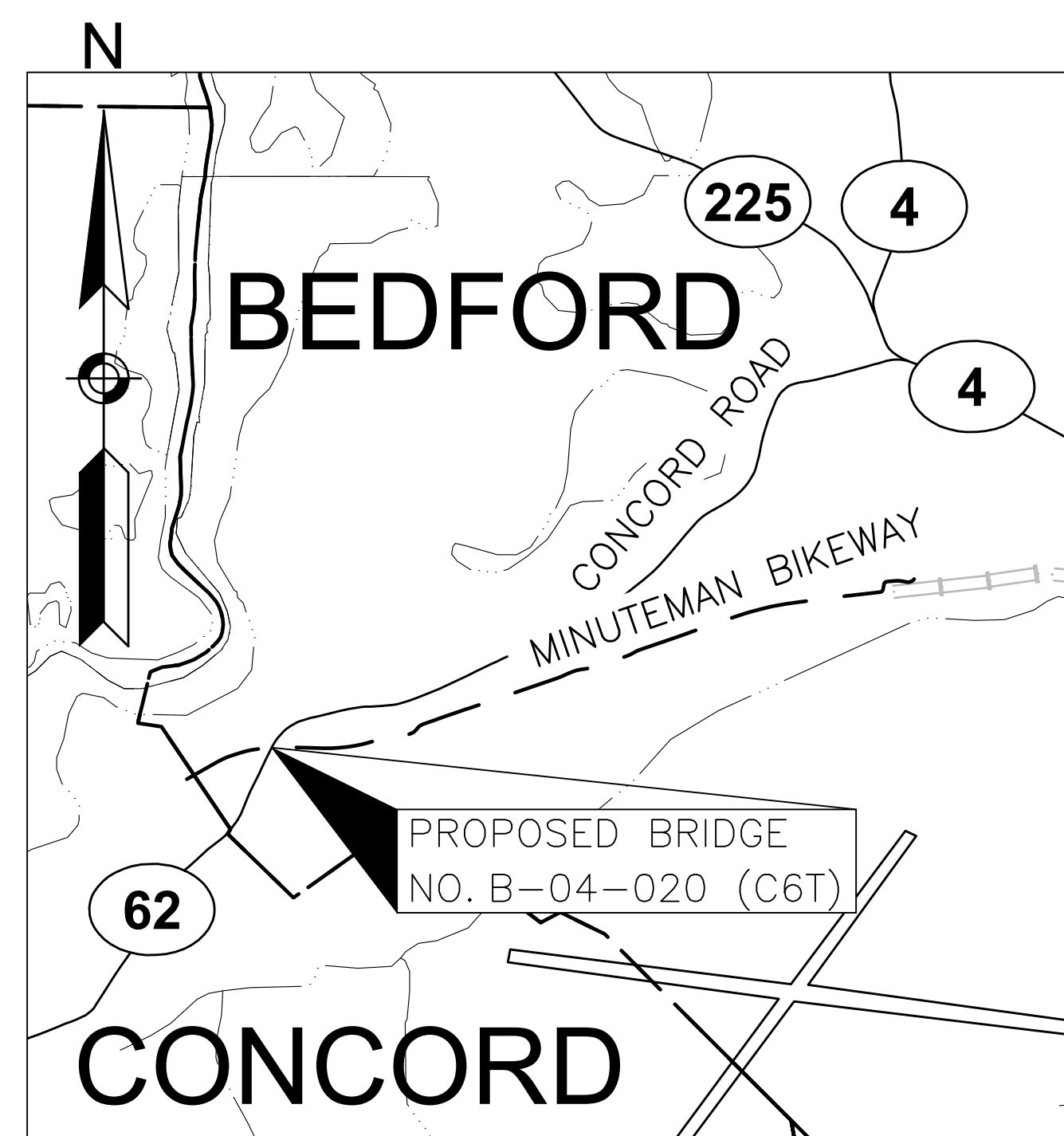


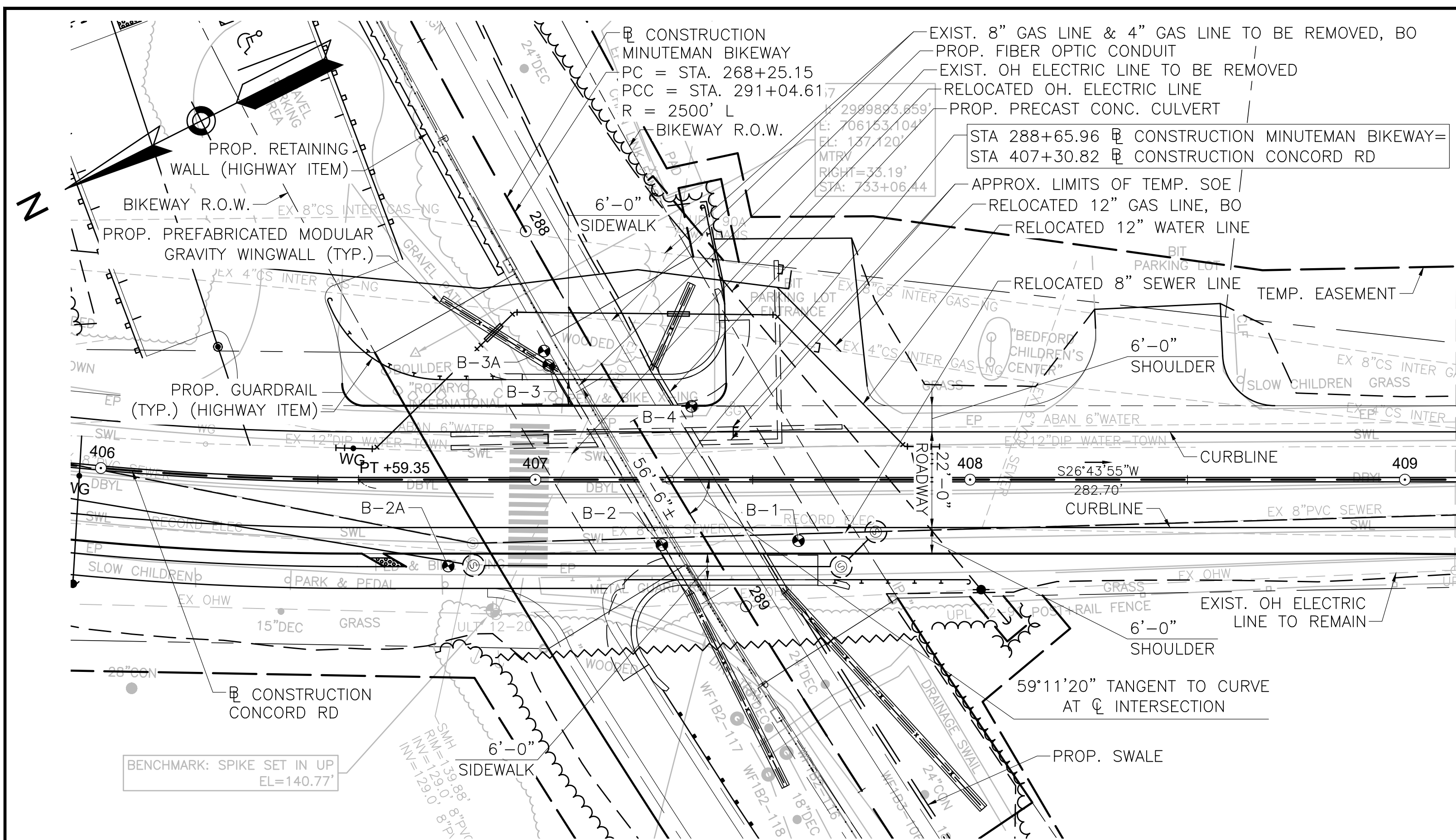
BEDFORD
MINUTEMAN BIKEWAY EXTENSION

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|-------------------------|--------------------|-----------|--------------|
| MA | - | 166 | 182 |
| PROJECT FILE NO. 607738 | | | |

KEY PLAN & PROFILES



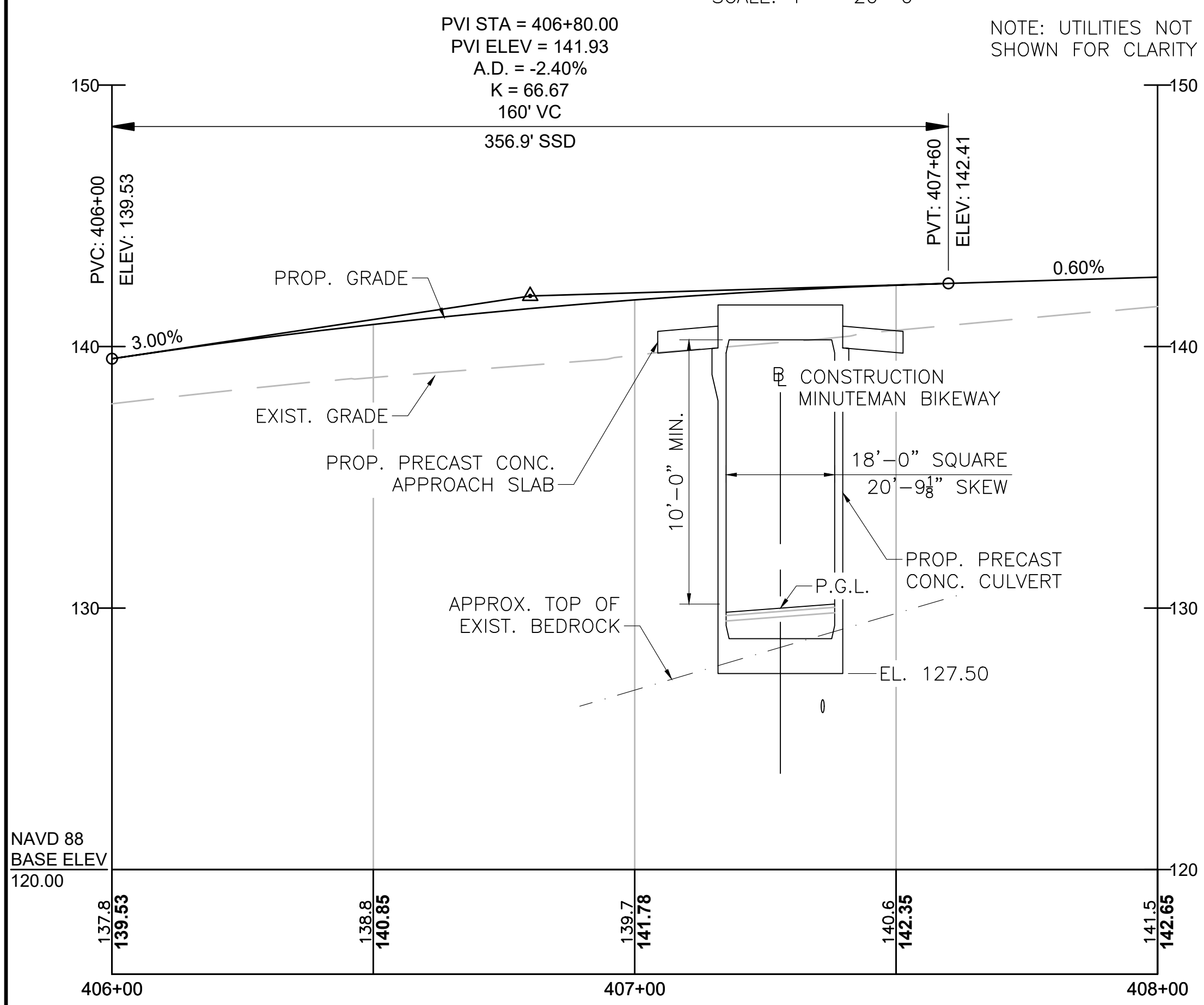
LOCUS
SCALE: 1" = 2000'



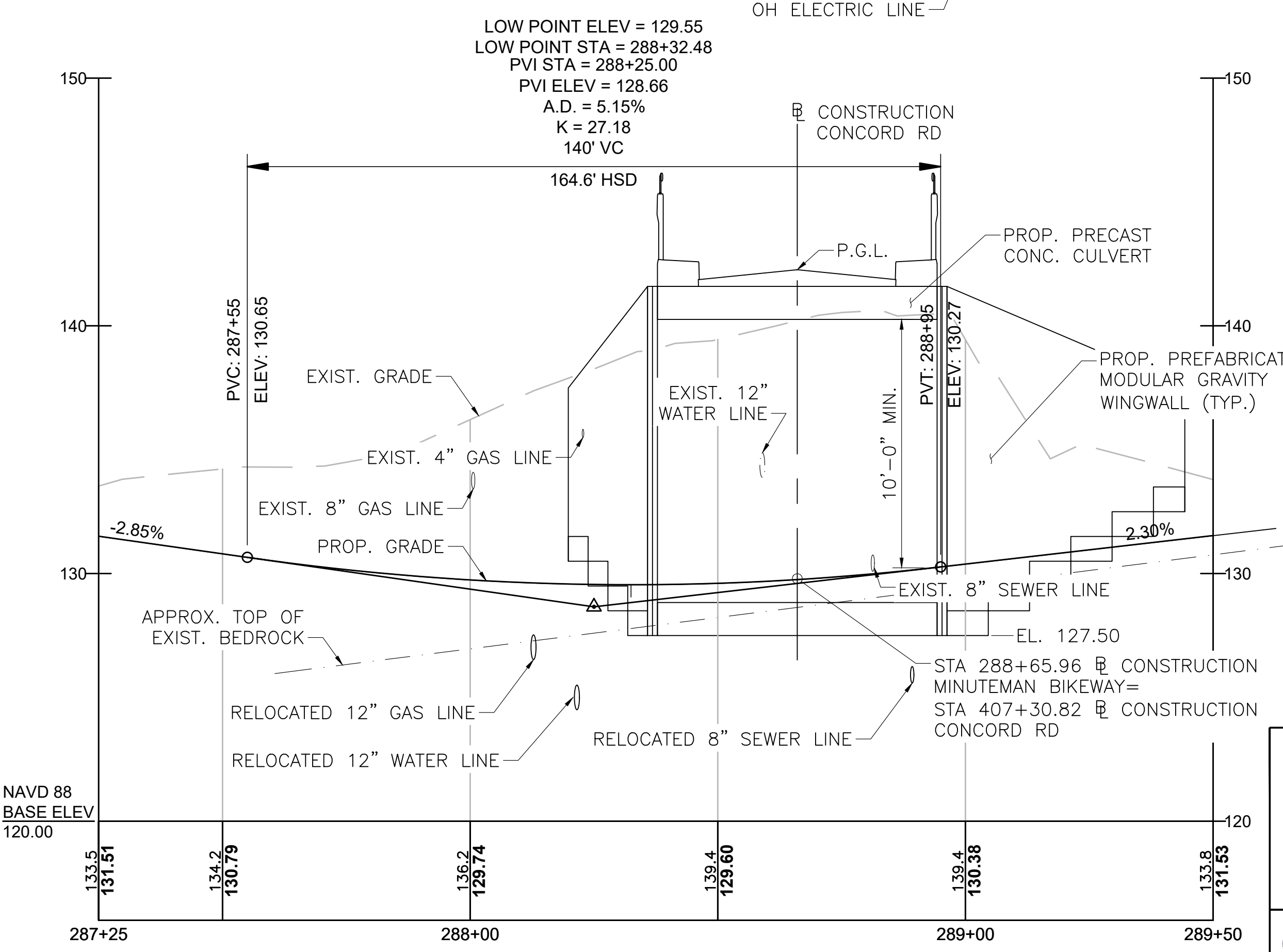
KEY PLAN
SCALE: 1" = 20'-0"

INDEX OF SHEETS

- 01 KEY PLAN & PROFILES
- 02 GENERAL NOTES
- 03 BORING LOGS (1 OF 3)
- 04 BORING LOGS (2 OF 3)
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- 06 GENERAL PLAN & ELEVATION
- 07 CULVERT SECTIONS
- 08 STAGING PLANS
- 09 STAGING SECTIONS
- 10 FOUNDATION PLAN
- 11 WINGWALLS DETAILS
- 12 MISCELLANEOUS DETAILS
- 13 PRECAST DETAILS & TOLERANCES
- 14 BRIDGE BARRIER DETAILS
- 15 HANDRAIL DETAILS
- 16 HIGHWAY GUARDRAIL TRANSITION
- 17 TRANSITION BASE DETAILS



PROFILE - **CONCORD ROAD (RT. 62)**
HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1/4" = 1'-0"



PROFILE - **MINUTEMAN BIKEWAY**
HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1/4" = 1'-0"

| | |
|--|----------------|
| ISSUED FOR CONSTRUCTION | |
| massDOT Highway Division | |
| PROPOSED BRIDGE | |
| BEDFORD | |
| CONCORD ROAD OVER MINUTEMAN BIKEWAY EXTENSION | |
| MASSACHUSETTS DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION 10 PARK PLAZA BOSTON, MASS | |
| STATE BRIDGE ENGINEER | CHIEF ENGINEER |

vhb
VHB
101 Walnut St, P.O. Box 9151
Watertown, MA 02472
617.924.1770 FAX 617.924.2286

607738_BR1(B04020)KEY1.DWG Plotted on 5-Jan-2022 5:40 PM Second Structural Submittal (S2) 14-January-2022

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|-------------------------|--------------------|-----------|--------------|
| MA | - | 167 | 182 |
| PROJECT FILE NO. 607738 | | | |

GENERAL NOTES

GENERAL NOTES:

DESIGN:

IN ACCORDANCE WITH 2020 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION FOR HL-93 LOADING.

MASSDOT BENCH MARK:

PK NAIL 57
EL. 137.12
N 2999893.659
E 706153.104

ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.

DATE:

TO BE PLACED ON THE INSIDE FACE OF THE NORTHWEST AND SOUTHEAST HIGHWAY GUARDRAIL TRANSITIONS. A SHEET SHOWING SIZE AND CHARACTER OF NUMERALS WILL BE FURNISHED. THE DATE USED SHALL BE THE LATEST YEAR OF CONTRACT COMPLETION AS OF THE DATE THE FIRST HIGHWAY GUARDRAIL TRANSITION IS CONSTRUCTED. BOTH HIGHWAY GUAARDRAIL TRANSITIONS SHALL FEATURE THE SAME DATE.

REPORTS:

SEE GEOTECHNICAL REPORT, DATED DECEMBER 2019, REVISED DECEMBER 2020.

SCALES:

SCALES NOTED ON PLANS ARE NOT APPLICABLE TO REDUCED SIZE PRINTS. DIVIDE SCALES BY 2 FOR HALF-SIZE PRINTS (A3).

FOUNDATIONS:

FOUNDATIONS MAY BE ALTERED, IF NECESSARY, TO SUIT CONDITIONS ENCOUNTERED DURING CONSTRUCTION, WITH THE APPROVAL OF THE ENGINEER.

UNSUITABLE MATERIAL:

ALL UNSUITABLE MATERIAL SHALL BE REMOVED WITHIN THE LIMITS OF THE FOUNDATIONS OF THE STRUCTURE, AS DIRECTED BY THE ENGINEER.

ANCHOR BOLTS:

ALL ANCHOR BOLTS SHALL BE SET BY TEMPLATE BEFORE THE CONCRETE IS PLACED.

CONCRETE:

ALL CONCRETE SHALL BE 4000 HP CONCRETE, EXCEPT AS NOTED BELOW: SIDEWALKS, SAFETY CURBS, CP-PL2 BARRIER, AND HIGHWAY GUARDRAIL TRANSITIONS SHALL BE 5000 HP CONCRETE.

REINFORCEMENT:

ALL REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M31 GRADE 60. UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS, ALL BARS SHALL BE LAPPED AS FOLLOWS:

| MODIFICATION CONDITION | #4 BARS | #5 BARS | #6 BARS |
|---|---------|---------|---------|
| 1. NONE | 16" | 19" | 23" |
| 2. 12" CONCRETE BELOW BAR | 20" | 25" | 30" |
| 3. COATED BARS, COVER < 3D _b , OR CLEAR SPACING < 6D _b | 23" | 29" | 34" |
| 4. COATED BARS, ALL OTHER CASES | 18" | 23" | 27" |
| 5. CONDITION 2. AND 3. | 26" | 32" | 39" |
| 6. CONDITION 2. AND 4. | 24" | 30" | 36" |

ALL OTHER BARS SHALL BE LAPPED AS SHOWN ON THE CONSTRUCTION DRAWINGS.

MEMBRANE WATERPROOFING:

ALL MEMBRANE WATERPROOFING USED ON BRIDGE DECKS SHALL BE MEMBRANE WATERPROOFING FOR BRIDGE DECKS-SPRAY APPLIED.

SURVEY:

SURVEY PERFORMED BY VANASSE HANGEN BRUSTLIN, INC., WATERTOWN, MASSACHUSETTS IN 2011 AND UPDATED IN 2016.

ELEVATIONS:

NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988 IS USED THROUGHOUT.

CULVERT & WINGWALLS:

IN ACCORDANCE AND COMPLIANCE WITH THE REQUIREMENTS OF CHAPTER 85 SECTION 35 OF THE MASSACHUSETTS GENERAL LAWS, THE CONTRACTOR SHALL SUBMIT TO THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION ALL CONSTRUCTION DRAWINGS AND DESIGN CALCULATIONS, THAT SHALL BE USED TO FABRICATE AND CONSTRUCT THE STRUCTURE, DENOTED ON THESE PLANS FOR REVIEW AND APPROVAL. THIS APPROVAL SHALL CONSTITUTE THE FINAL APPROVAL, AS STIPULATED BY CHAPTER 85 SECTION 35 OF THE MASSACHUSETTS GENERAL LAWS.

ESTIMATED QUANTITIES:

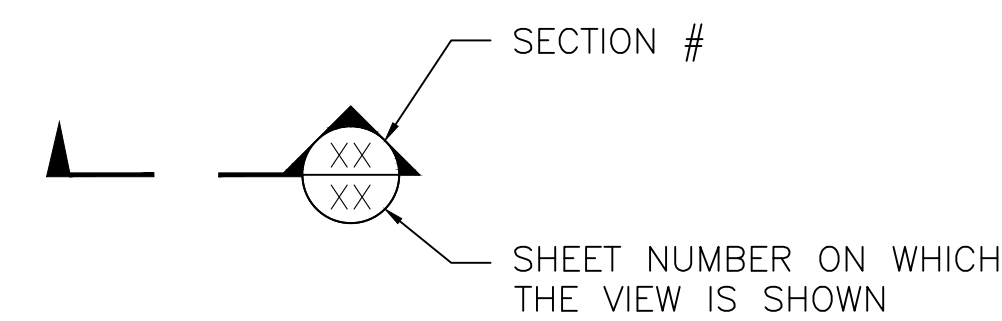
(NOT GUARANTEED)

| DESCRIPTION: | QUANTITY | UNITS |
|--|----------|-------|
| BRIDGE EXCAVATION | 2500 | CY |
| CLASS B ROCK EXCAVATION | 750 | CY |
| GRAVEL BORROW FOR BRIDGE FOUNDATION | 60 | CY |
| GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES | 70 | CY |
| TEMPORARY SHORING | 1 | LS |
| CULVERT STRUCTURE, CULVERT NO. B-04-020 (C6T) | 1 | LS |

| TRAFFIC DATA | | |
|-------------------------------------|--------------|---------------|
| | ROADWAY OVER | ROADWAY UNDER |
| DESIGN YEAR | 2019 | 2019 |
| AVERAGE DAILY TRAFFIC - PRESENT | 9905 VPD | N/A |
| AVERAGE DAILY TRAFFIC - DESIGN YEAR | 10945 VPD | N/A |
| DESIGN HOURLY VOLUME | 1190 VPH | N/A |
| DIRECTIONAL DISTRIBUTION | 54% EB | N/A |
| TRUCK PERCENTAGE - AVERAGE DAY | 1.0% | N/A |
| TRUCK PERCENTAGE - PEAK HOUR | 0.9% | N/A |
| DESIGN SPEED | 40 MPH | 20 MPH |
| DIRECTIONAL DESIGN HOURLY VOLUME | 645 VPH | N/A |

| SEISMIC DESIGN CRITERIA | |
|-------------------------------|-------|
| DESIGN RETURN PERIOD: | 1000 |
| DESIGN SPECTRA | |
| As | .12g |
| SDs | .249g |
| SD1 | .095g |
| SITE CLASS | D |
| SEISMIC DESIGN CATEGORY (SDC) | A |

SECTION MARK:



| MONTH DD, YYYY | ISSUED FOR CONSTRUCTION |
|--------------------------------|-------------------------|
| DATE | DESCRIPTION |
| THIS SHEET IS APPROVED FOR | |
| CONSTRUCTION BY MASSDOT | |
| AUTHORIZED SIGNATORY: | STATE BRIDGE ENGINEER |
| USE ONLY PRINTS OF LATEST DATE | |

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|-------------------------|--------------------|-----------|--------------|
| MA | - | 168 | 182 |
| PROJECT FILE NO. 607738 | | | |

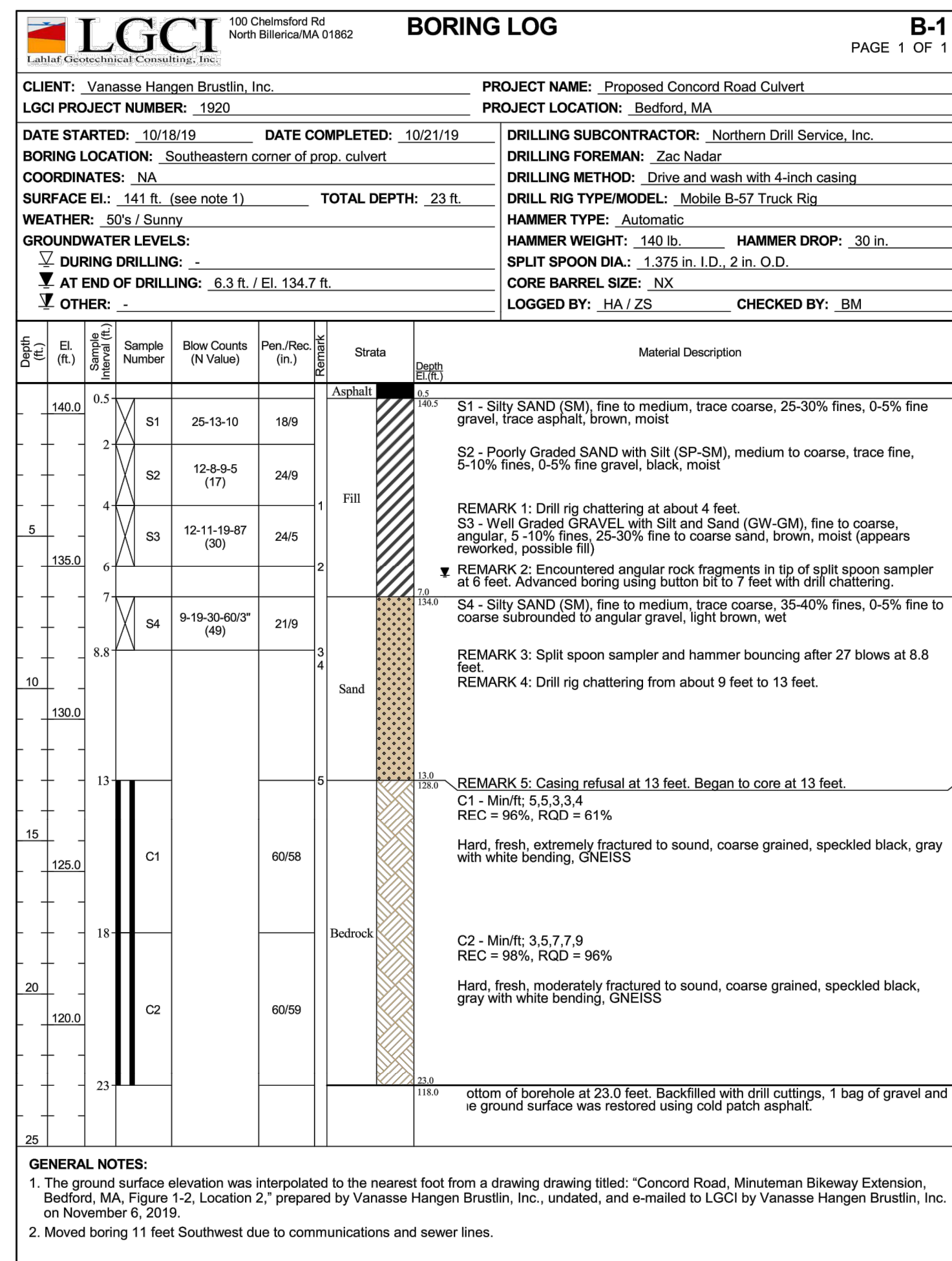
BORING LOGS (1 OF 3)

BORING NO. B-1
STATION: 288+93.42
OFFSET: 18.17', LT
NORTHING: 2999834.38
EASTING: 706075.01
GROUND ELEVATION: 141.05
(SEE NOTE 9)

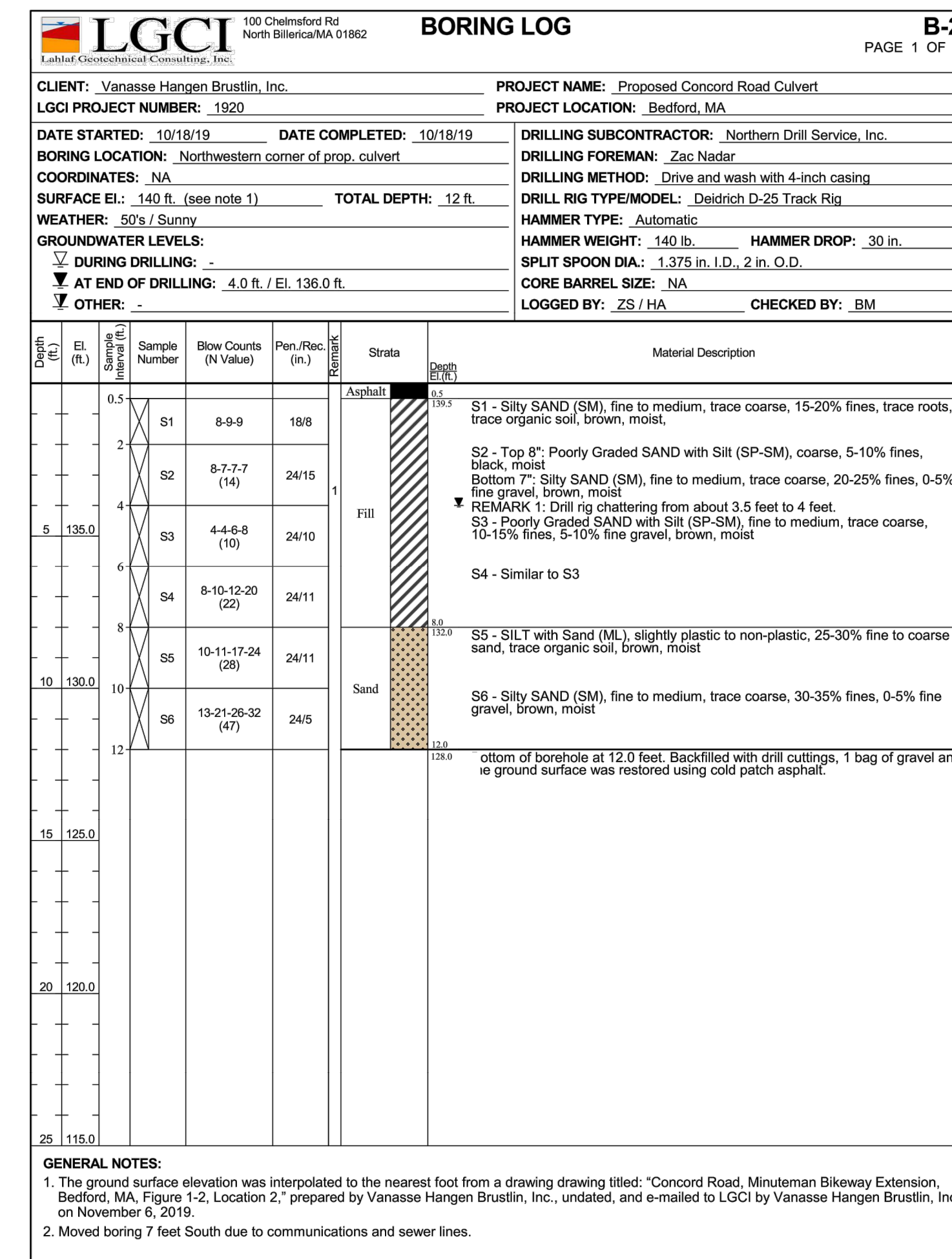
BORING NO. B-2
STATION: 288+77.91
OFFSET: 9.18', RT
NORTHING: 2999862.88
EASTING: 706088.29
GROUND ELEVATION: 140.53
(SEE NOTE 9)

NOTES:

1. LOCATION OF BORINGS SHOWN ON THE PLAN THUS:
2. BORINGS ARE TAKEN FOR PURPOSE OF DESIGN AND SHOW CONDITIONS AT BORING POINTS ONLY, BUT DO NOT NECESSARILY SHOW THE NATURE OF THE MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.
3. WATER LEVELS SHOWN ON THE BORING LOGS WERE OBSERVED AT THE TIME OF TAKING BORINGS AND DO NOT NECESSARILY SHOW THE TRUE GROUND WATER LEVEL.
4. FIGURES IN COLUMNS INDICATE NUMBER OF BLOWS REQUIRED TO DRIVE A 1 3/8" I.D. SPLIT SPOON SAMPLER 6" USING A 140 POUND WEIGHT FALLING 30".
5. BORING SAMPLES ARE STORED AT A STORAGE FACILITY LOCATED ON ROUTE 114 (219 WINTHROP AVE.) IN LAWRENCE, MA. THE CONTRACTOR MAY EXAMINE THE SOIL AND ROCK SAMPLES BY CONTACTING THE MASSDOT GEOTECHNICAL SECTION AT 10 PARK PLAZA, BOSTON, MA.
6. ALL BORINGS WERE MADE IN OCTOBER 2019.
7. BORINGS WERE MADE BY NORTHERN DRILL SERVICE, INC. 130 E MAIN STREET, NORTHBOROUGH, MA 01532
8. THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988 IS USED THROUGHOUT.
9. BORING LOCATIONS AND GROUND ELEVATIONS ARE APPROXIMATE.



BOTTOM OF
CULVERT EL.
127.50



BOTTOM OF
CULVERT EL.
127.50

| | |
|--|-------------------------|
| MONTH DD, YYYY | ISSUED FOR CONSTRUCTION |
| DATE | DESCRIPTION |
| THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT | |
| AUTHORIZED SIGNATORY: | STATE BRIDGE ENGINEER |
| USE ONLY PRINTS OF LATEST DATE | |

BEDFORD
MINUTEMAN BIKEWAY EXTENSION

| | | | |
|-------|--------------------|-----------|--------------|
| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
| MA | - | 169 | 182 |

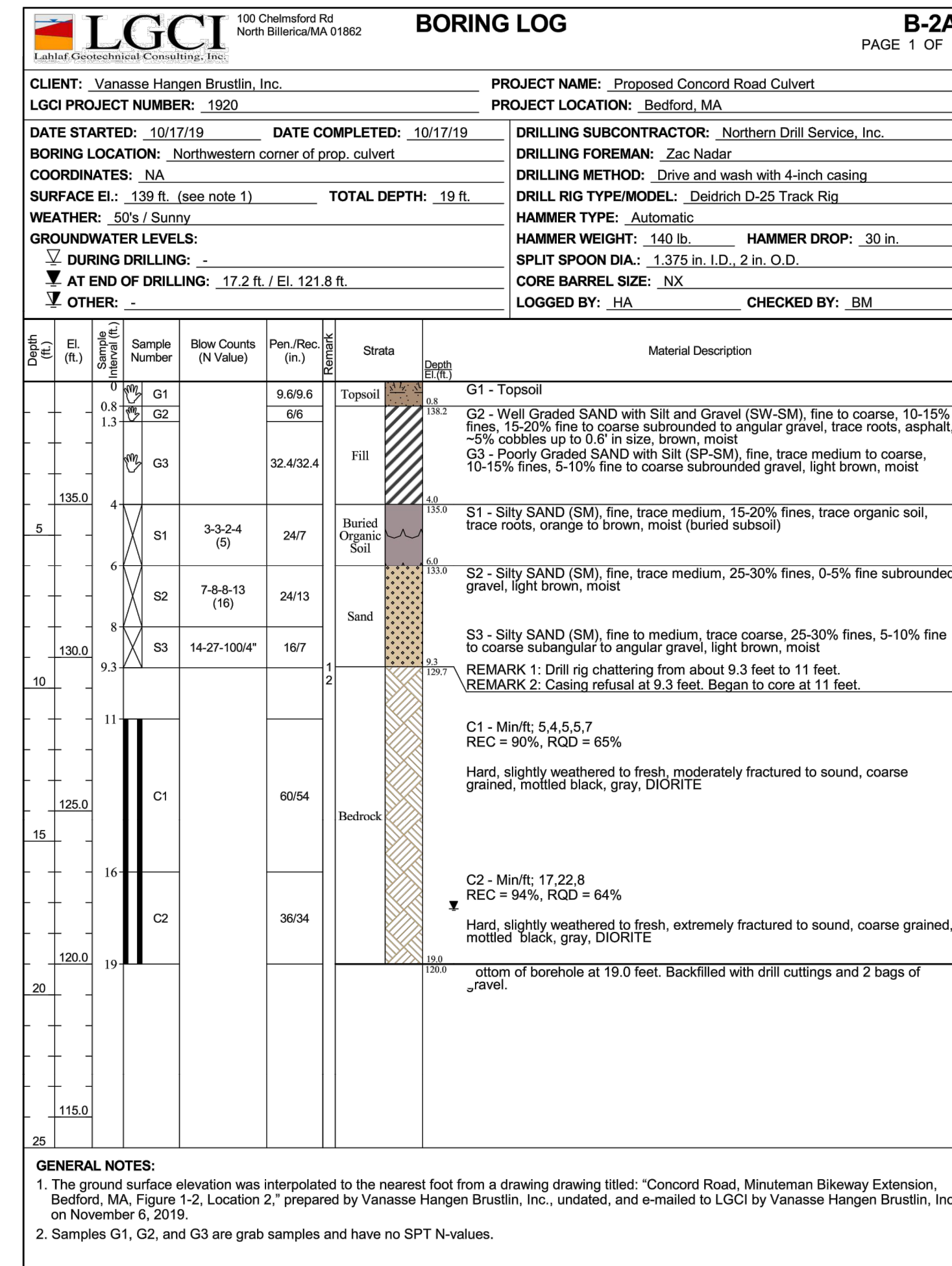
PROJECT FILE NO. 607738

BORING LOGS (2 OF 3)

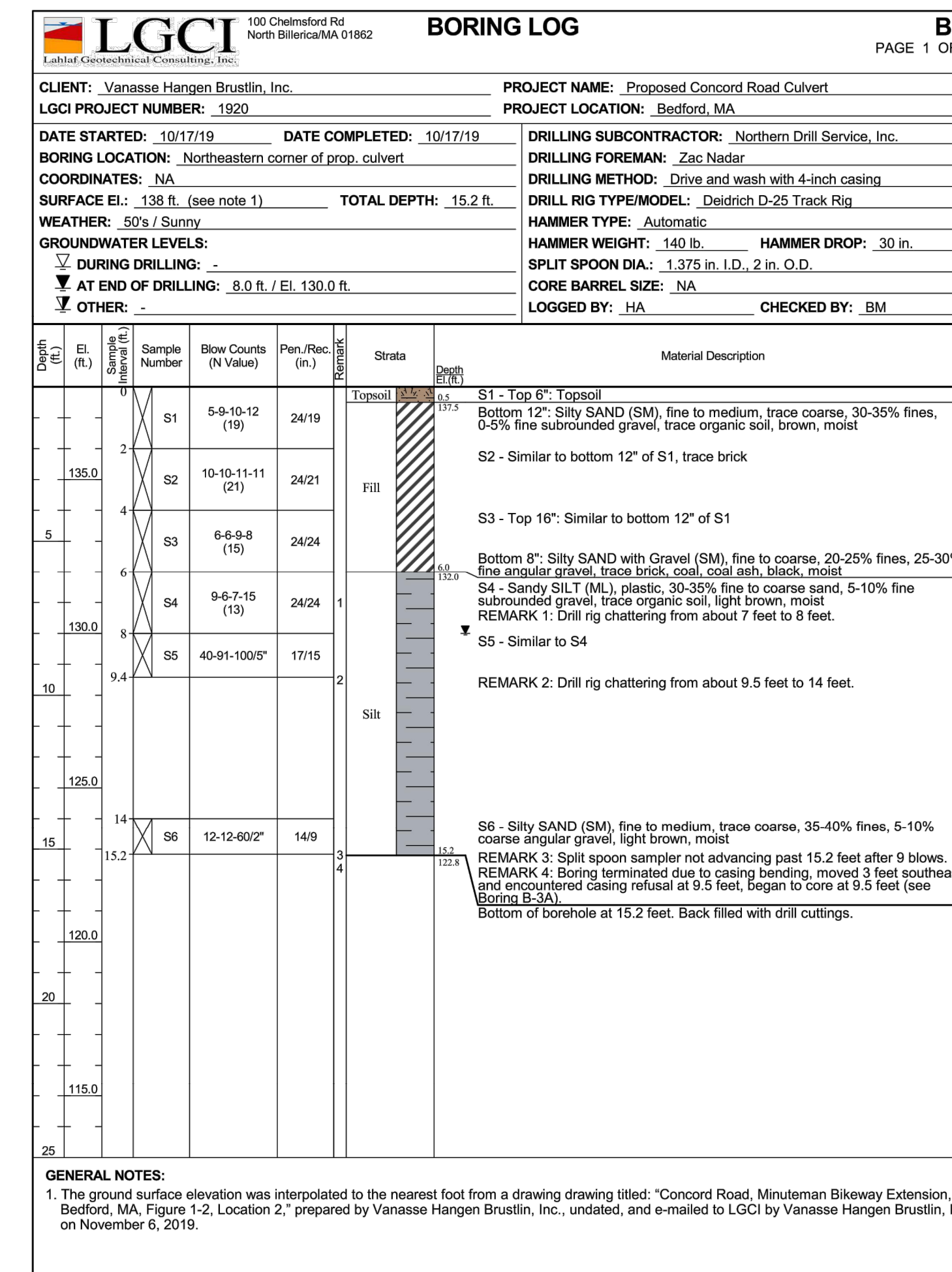
BORING NO. B-2A
STATION: 288+57.16
OFFSET: 53.86', RT
NORTHING: 2999908.93
EASTING: 706106.02
GROUND ELEVATION: 139.54
(SEE NOTE 9, SHEET 03 OF 17)

BORING NO. B-3
STATION: 288+29.32
OFFSET: 10.65', RT
NORTHING: 2999867.54
EASTING: 706136.86
GROUND ELEVATION: 138.23
(SEE NOTE 9, SHEET 03 OF 17)

NOTE: SEE SHEET 03 OF 17 FOR BORING NOTES.



BOTTOM OF
CULVERT EL.
127.50



| | |
|--|-------------------------|
| MONTH DD, YYYY | ISSUED FOR CONSTRUCTION |
| DATE | DESCRIPTION |
| THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT | |
| AUTHORIZED SIGNATORY: | STATE BRIDGE ENGINEER |
| USE ONLY PRINTS OF LATEST DATE | |

SHEET 04 OF 17 SHEETS BRIDGE NO. B-04-020 (C6T)

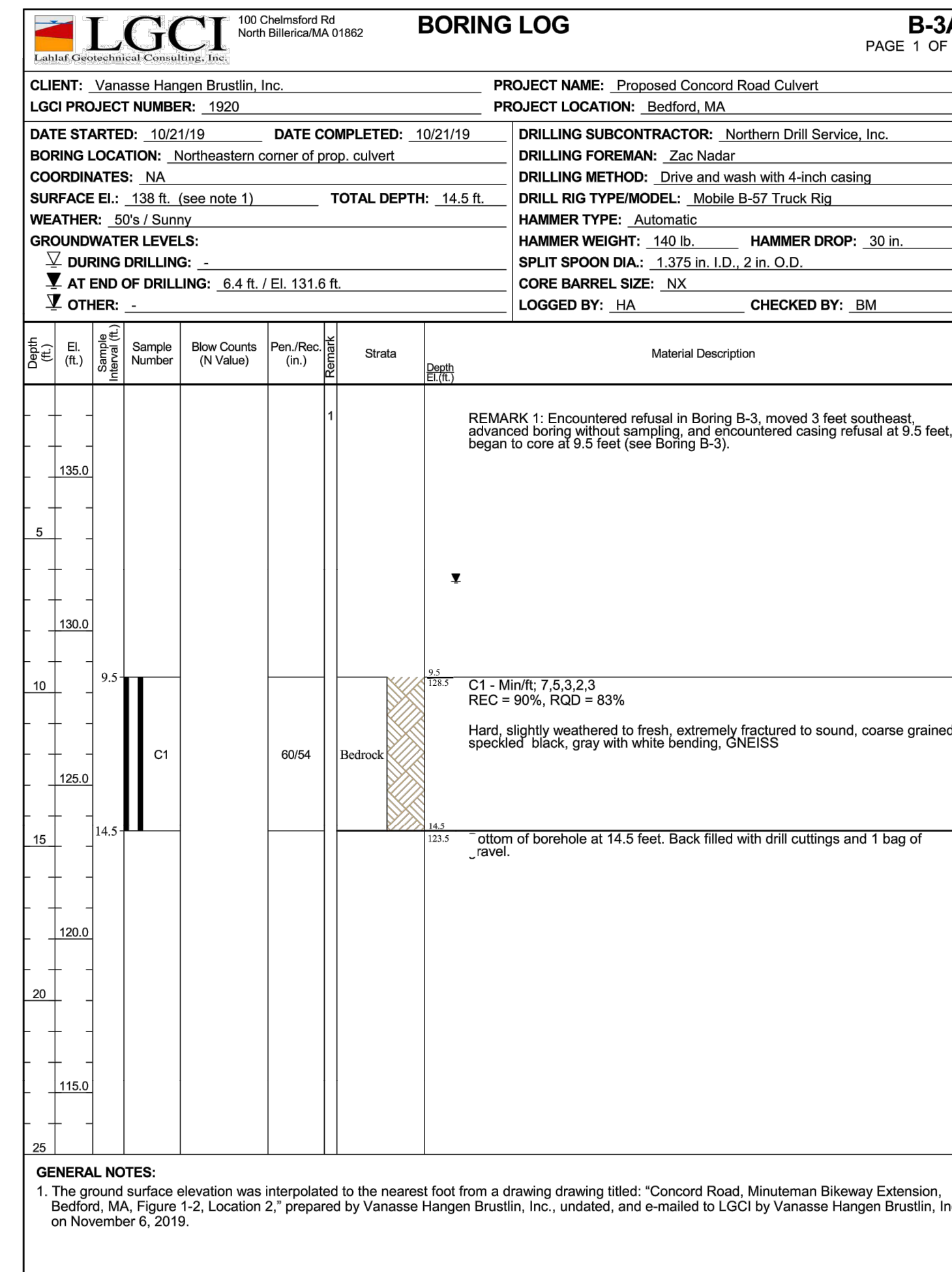
BEDFORD
MINUTEMAN BIKEWAY EXTENSION

| | | | |
|-----------------------------|--------------------|-----------|--------------|
| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
| MA | - | 170 | 182 |
| PROJECT FILE NO. 607738 | | | |
| BORING LOGS (3 OF 3) | | | |

BORING NO. B-3A
STATION: 288+25.96
OFFSET: 9.92, RT
NORTHING: 2999867.01
EASTING: 706140.27
GROUND ELEVATION: 138.00
(SEE NOTE 9, SHEET 03 OF 17)

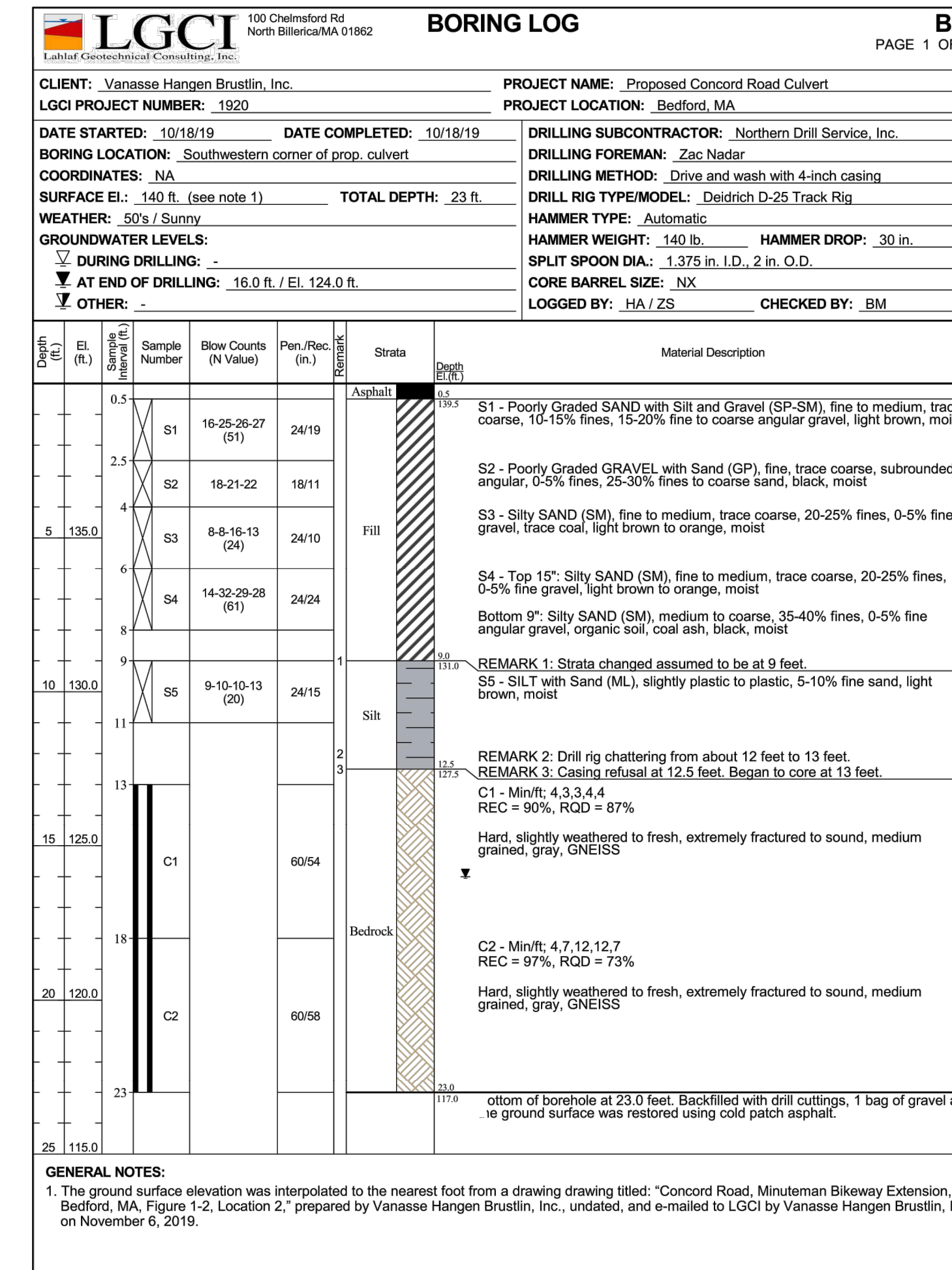
BORING NO. B-4
STATION: 288+54.02
OFFSET: 12.97, LT
NORTHING: 2999842.46
EASTING: 706113.66
GROUND ELEVATION: 139.66
(SEE NOTE 9, SHEET 03 OF 17)

NOTE: SEE SHEET 03 OF 17 FOR BORING NOTES.



BOTTOM OF
CULVERT EL.
127.50

BOTTOM OF
CULVERT EL.
127.50

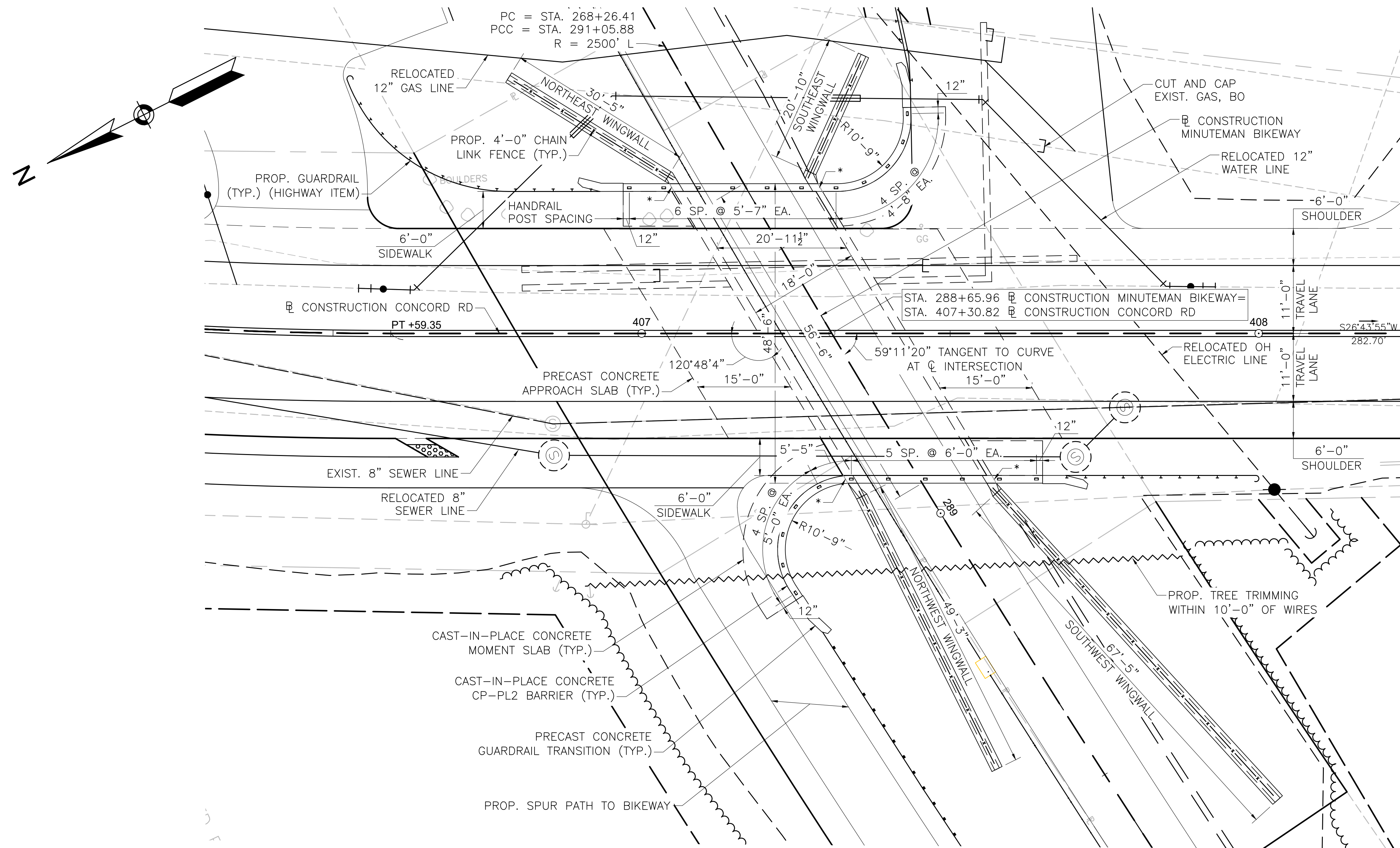


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| MONTH DD, YYYY | ISSUED FOR CONSTRUCTION |
| DATE | DESCRIPTION |
| THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT | |
| AUTHORIZED SIGNATORY: | STATE BRIDGE ENGINEER |
| USE ONLY PRINTS OF LATEST DATE | |

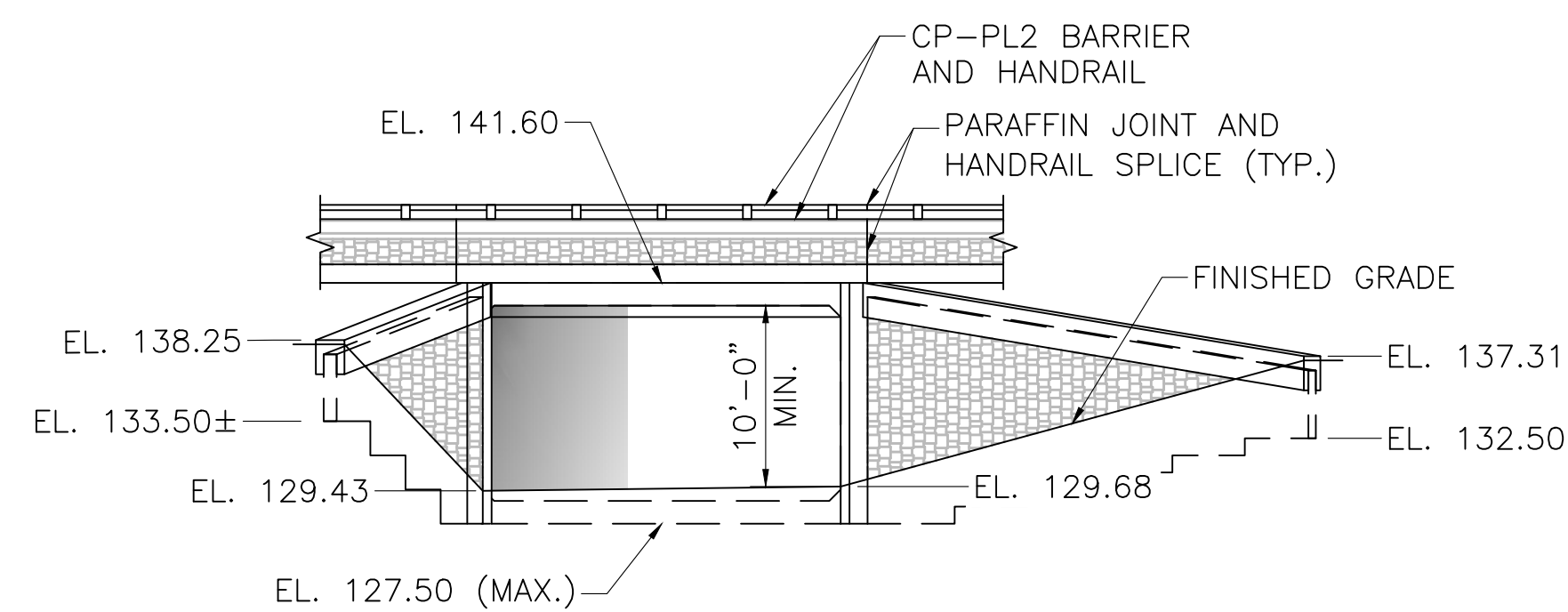
BEDFORD
MINUTEMAN BIKEWAY EXTENSION

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|-------------------------------------|--------------------|-----------|--------------|
| MA | - | 171 | 182 |
| PROJECT FILE NO. 607738 | | | |
| GENERAL PLAN & ELEVATION | | | |

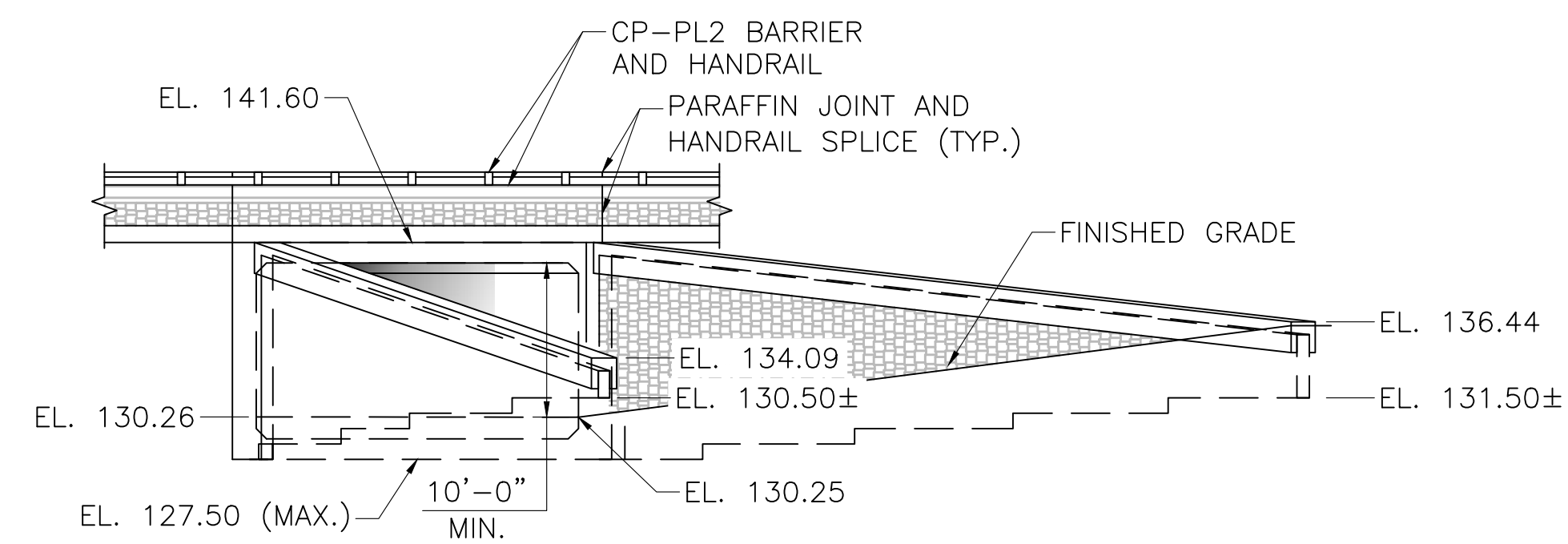
* NOTE: PARAFFIN JOINTS THROUGH BARRIER OVER EDGE OF CULVERT AT FOUR CORNERS OF CULVERT. SEE DETAILS SHEET 14 OF 17.



GENERAL PLAN
SCALE: 1" = 10'-0"



EAST PORTAL ELEVATION
SCALE: 1" = 10'-0"

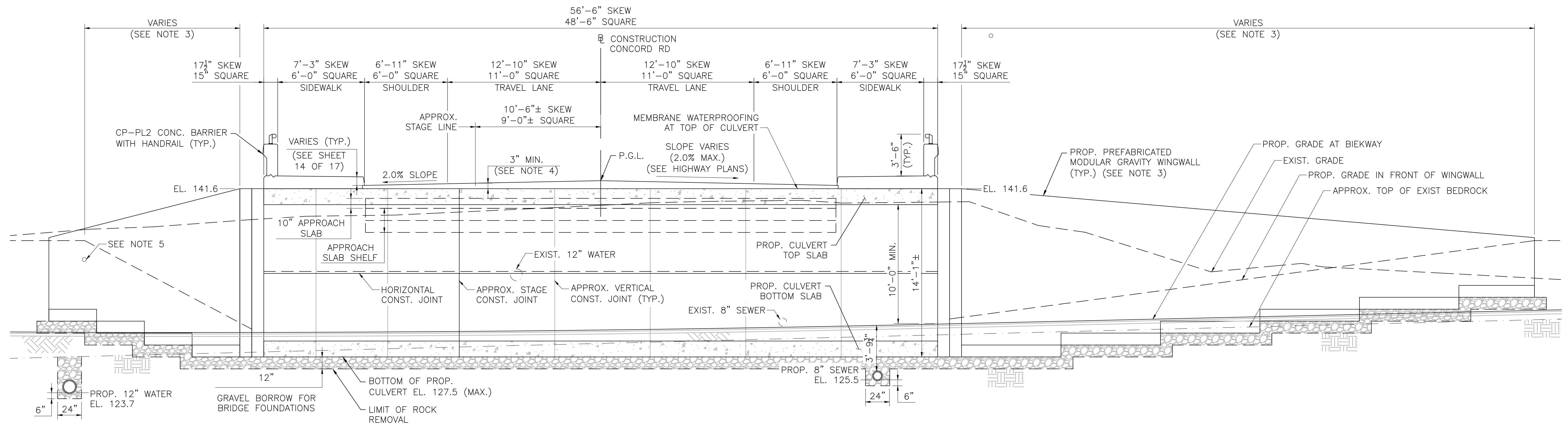


WEST PORTAL ELEVATION
SCALE: 1" = 10'-0"

| MONTH DD, YYYY | ISSUED FOR CONSTRUCTION |
|--|-------------------------|
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| USE ONLY PRINTS OF LATEST DATE | |

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|-------------------------|--------------------|-----------|--------------|
| MA | - | 172 | 182 |
| PROJECT FILE NO. 607738 | | | |

CULVERT SECTIONS

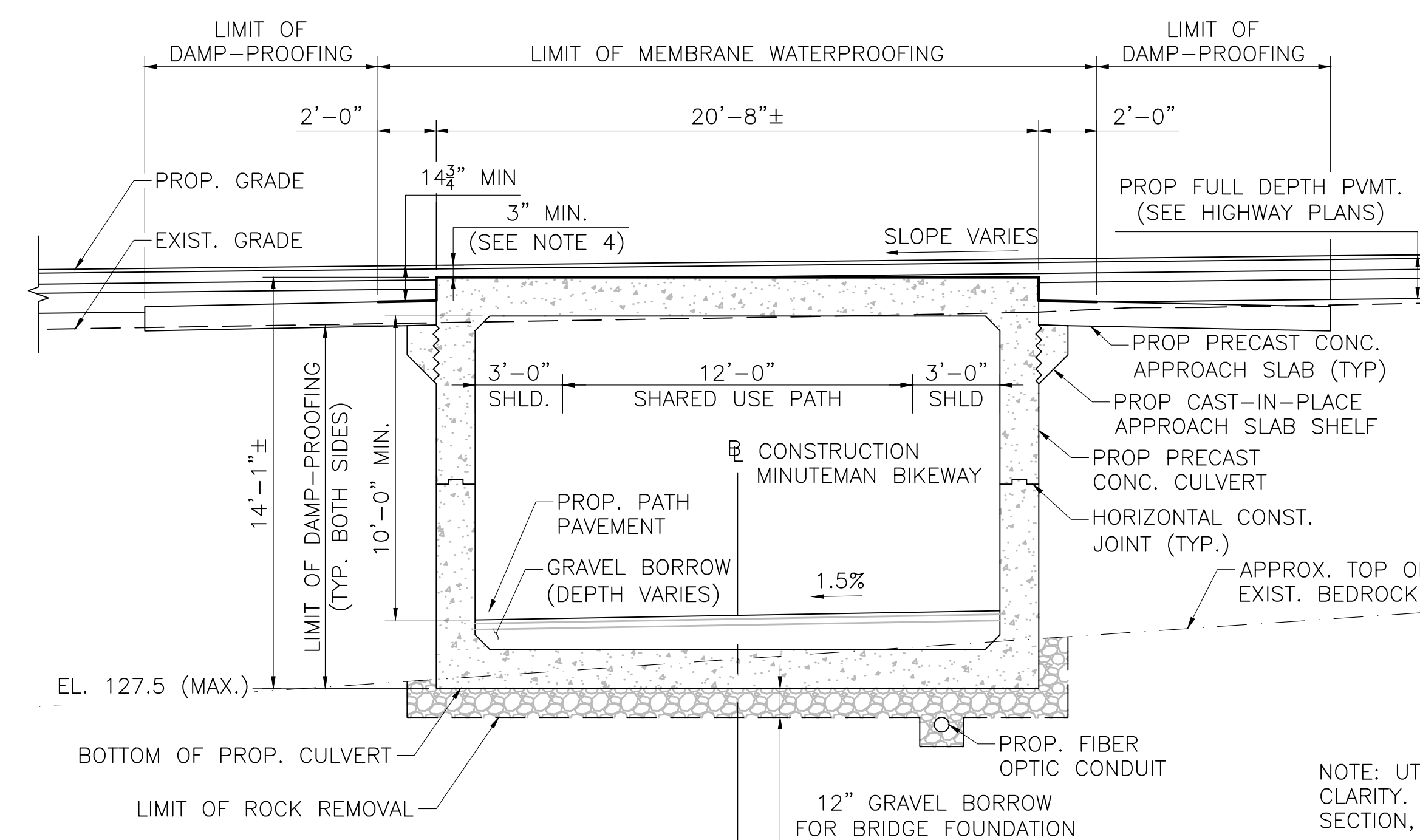


CULVERT LONGITUDINAL SECTION

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

NOTES:

- STRENGTH I LIMIT STATE:
FACTORED SOIL BEARING PRESSURE = 1.5 KSF
FACTORED SOIL BEARING RESISTANCE = 20.3 KSF
FACTORED BEARING RESISTANCE IS THE PRODUCT OF THE NOMINAL BEARING RESISTANCE OF 45.1 KSF AND A RESISTANCE FACTOR OF 0.45
- SERVICE I LIMIT STATE:
FACTORED SOIL BEARING PRESSURE = 1.1 KSF
FACTORED SOIL BEARING RESISTANCE = 45.1 KSF
FACTORED BEARING RESISTANCE IS THE PRODUCT OF THE NOMINAL BEARING RESISTANCE OF 45.1 KSF AND A RESISTANCE FACTOR OF 1.0
- WINGWALLS ARE SHOWN FOR GRAPHICAL PURPOSES ONLY. SEE SHEET 11 OF 17 OF FOR WINGWALL ELEVATIONS. SEE SHEET 10 OF 17 FOR WINGWALL LAYOUT.
- PROPOSED BRIDGE PAVEMENT OVERLAY INCLUDES:
a. 1.5" SUPERPAVE BRIDGE SURFACE COURSE 12.5 - POLYMER (SSC-B-12.5-P)
b. OVER 1.5" SUPERPAVE BRIDGE PROTECTIVE COURSE 12.5 (SPC-B-12.5)
c. OVER LEVELING COURSE
d. OVER SPRAY-APPLIED MEMBRANE WATERPROOFING.
- EXIST. 4" GAS LINE SHOWN, EXIST 8" GAS LINE AND PROP. 12" GAS LINE ARE OUTSIDE THE LIMITS OF THE CULVERT LONGITUDINAL SECTION VIEW.



CULVERT TRANSVERSE SECTION

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

| MONTH DD, YYYY | ISSUED FOR CONSTRUCTION |
|--|-------------------------|
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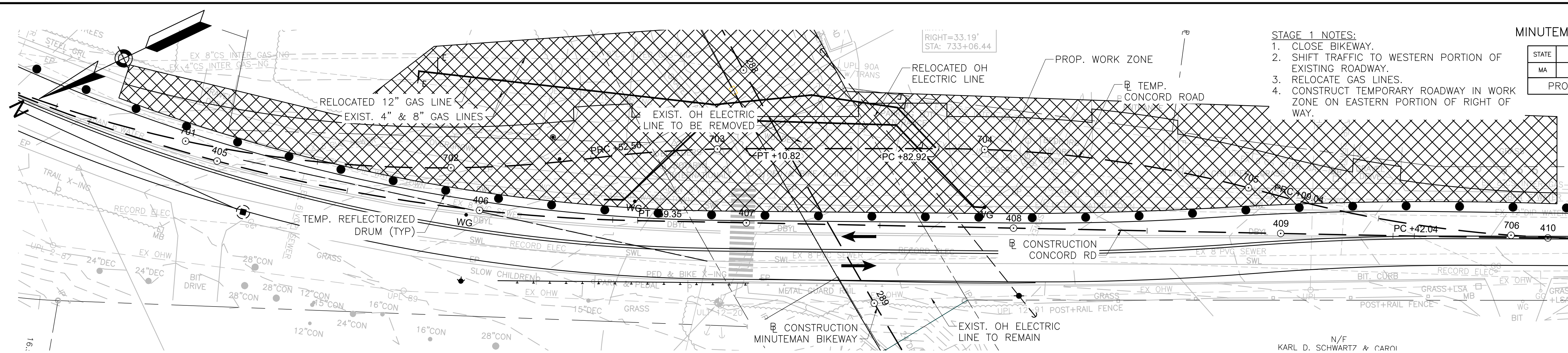
| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|-------|--------------------|-----------|--------------|
| MA | - | 173 | 182 |

PROJECT FILE NO. 607738

STAGING PLANS

STAGE 1 NOTES:

1. CLOSE BIKEWAY.
2. SHIFT TRAFFIC TO WESTERN PORTION OF EXISTING ROADWAY.
3. RELOCATE GAS LINES.
4. CONSTRUCT TEMPORARY ROADWAY IN WORK ZONE ON EASTERN PORTION OF RIGHT OF WAY.

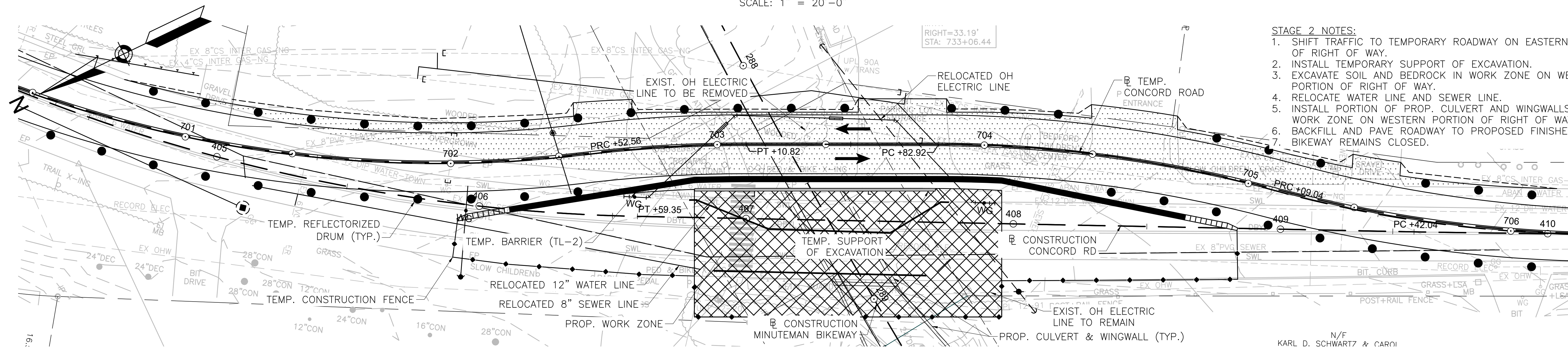


STAGING PLAN - STAGE 1

SCALE: 1" = 20'-0"

STAGE 2 NOTES:

1. SHIFT TRAFFIC TO TEMPORARY ROADWAY ON EASTERN PORTION OF RIGHT OF WAY.
2. INSTALL TEMPORARY SUPPORT OF EXCAVATION.
3. EXCAVATE SOIL AND BEDROCK IN WORK ZONE ON WESTERN PORTION OF RIGHT OF WAY.
4. RELOCATE WATER LINE AND SEWER LINE.
5. INSTALL PORTION OF PROP. CULVERT AND WINGWALLS IN WORK ZONE ON WESTERN PORTION OF RIGHT OF WAY.
6. BACKFILL AND PAVE ROADWAY TO PROPOSED FINISHED GRADE.
7. BIKEWAY REMAINS CLOSED.

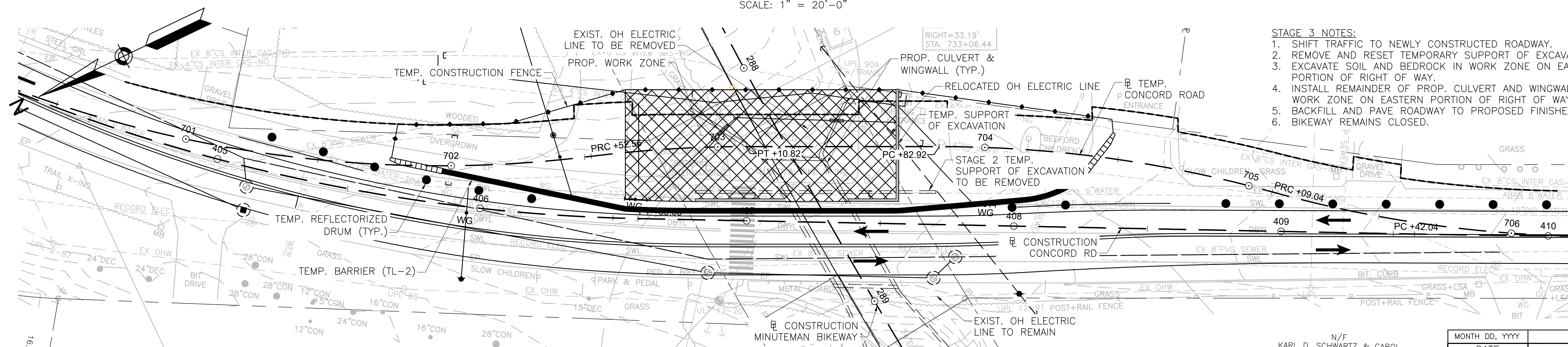


STAGING PLAN - STAGE 2

SCALE: 1" = 20'-0"

STAGE 3 NOTES:

1. SHIFT TRAFFIC TO NEWLY CONSTRUCTED ROADWAY.
2. REMOVE AND RESET TEMPORARY SUPPORT OF EXCAVATION.
3. EXCAVATE SOIL AND BEDROCK IN WORK ZONE ON EASTERN PORTION OF RIGHT OF WAY.
4. INSTALL REMAINDER OF PROP. CULVERT AND WINGWALLS IN WORK ZONE ON EASTERN PORTION OF RIGHT OF WAY.
5. BACKFILL AND PAVE ROADWAY TO PROPOSED FINISHED GRADE.
6. BIKEWAY REMAINS CLOSED.



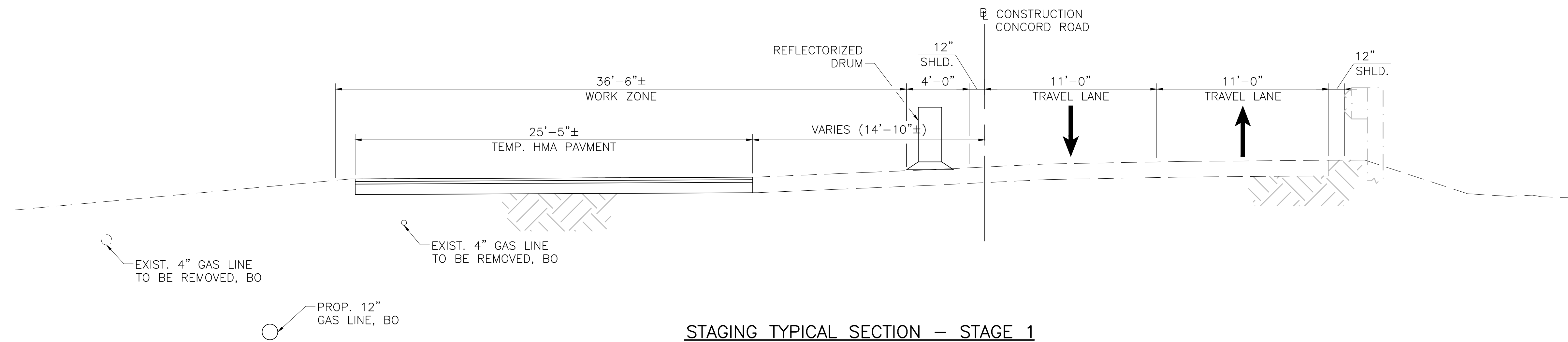
STAGING PLAN - STAGE 3

SCALE: 1" = 20'-0"

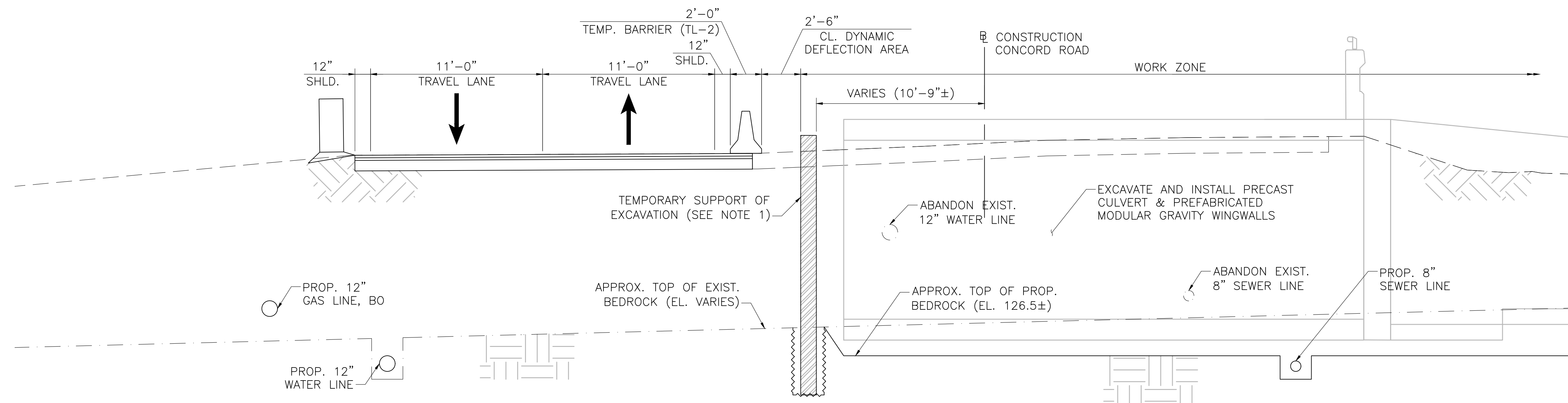
| MONTH DD, YYYY | ISSUED FOR CONSTRUCTION |
|--|-------------------------|
| DATE | DESCRIPTION |
| THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT | |
| AUTHORIZED SIGNATORY: | STATE BRIDGE ENGINEER |
| USE ONLY PRINTS OF LATEST DATE | |

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|-------|--------------------|-----------|--------------|
| MA | - | 174 | 182 |

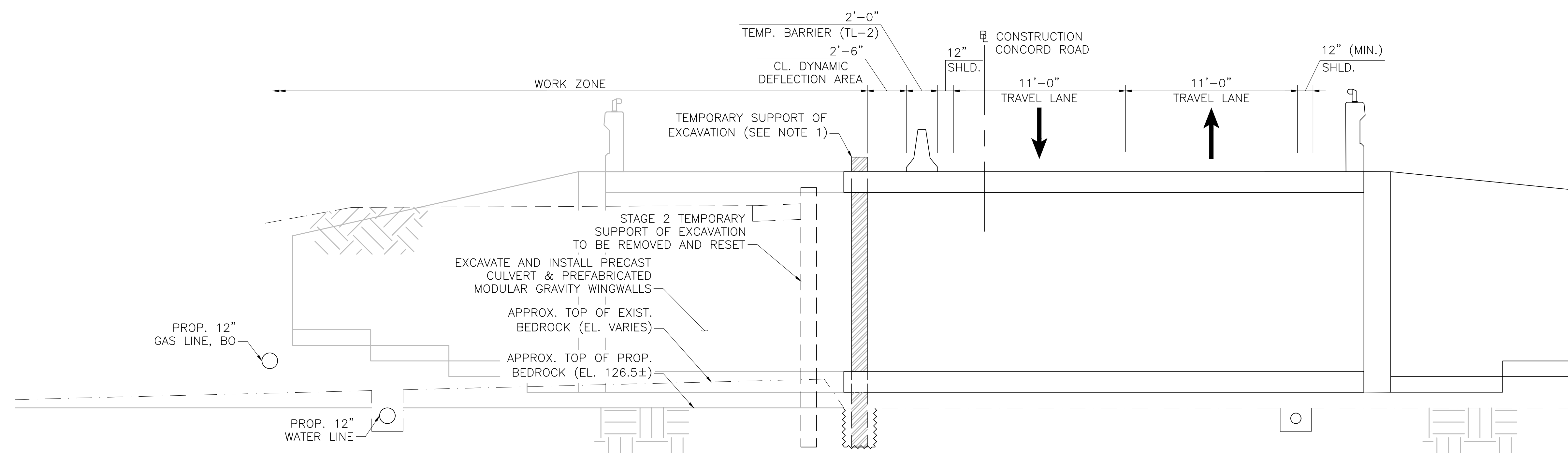
PROJECT FILE NO. 607738
STAGING SECTIONS



STAGING TYPICAL SECTION - STAGE 1
SCALE: 1/4" = 1'-0"



STAGING TYPICAL SECTION - STAGE 2
SCALE: 1/4" = 1'-0"



STAGING TYPICAL SECTION - STAGE 3
SCALE: 1/4" = 1'-0"

NOTES:

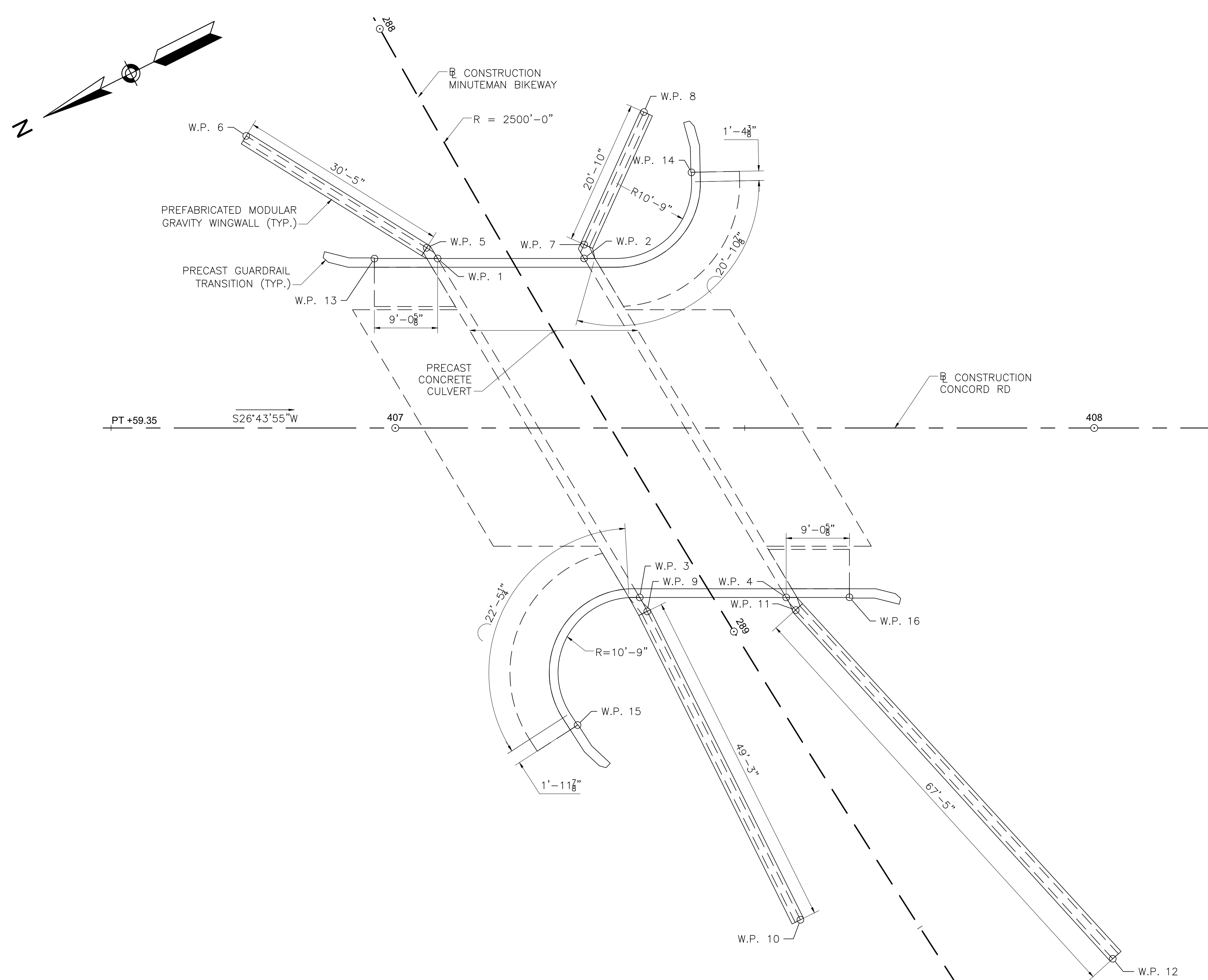
- TEMPORARY SUPPORT OF EXCAVATION SHOWN IS PRELIMINARY ONLY. CONTRACTOR SHALL DESIGN SUPPORT OF EXCAVATION SYSTEM IN ACCORDANCE WITH PROJECT SPECIAL PROVISIONS AND WITH CONSIDERATION FOR PRESENCE OF BEDROCK AND PROP. DIRECT FIBER OPTIC CONDUIT.
- FOR ALL OTHER STAGING NOTES, SEE SHEET 08 OF 17.

| MONTH DD, YYYY | ISSUED FOR CONSTRUCTION |
|--|-------------------------|
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| AUTHORIZED SIGNATORY: | STATE BRIDGE ENGINEER |
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BEDFORD
MINUTEMAN BIKEWAY EXTENSION

| | | | |
|-------------------------|--------------------|-----------|--------------|
| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
| MA | - | 175 | 182 |
| PROJECT FILE NO. 607738 | | | |

FOUNDATION PLAN



FOUNDATION PLAN
SCALE: 1/8" = 1'-0"

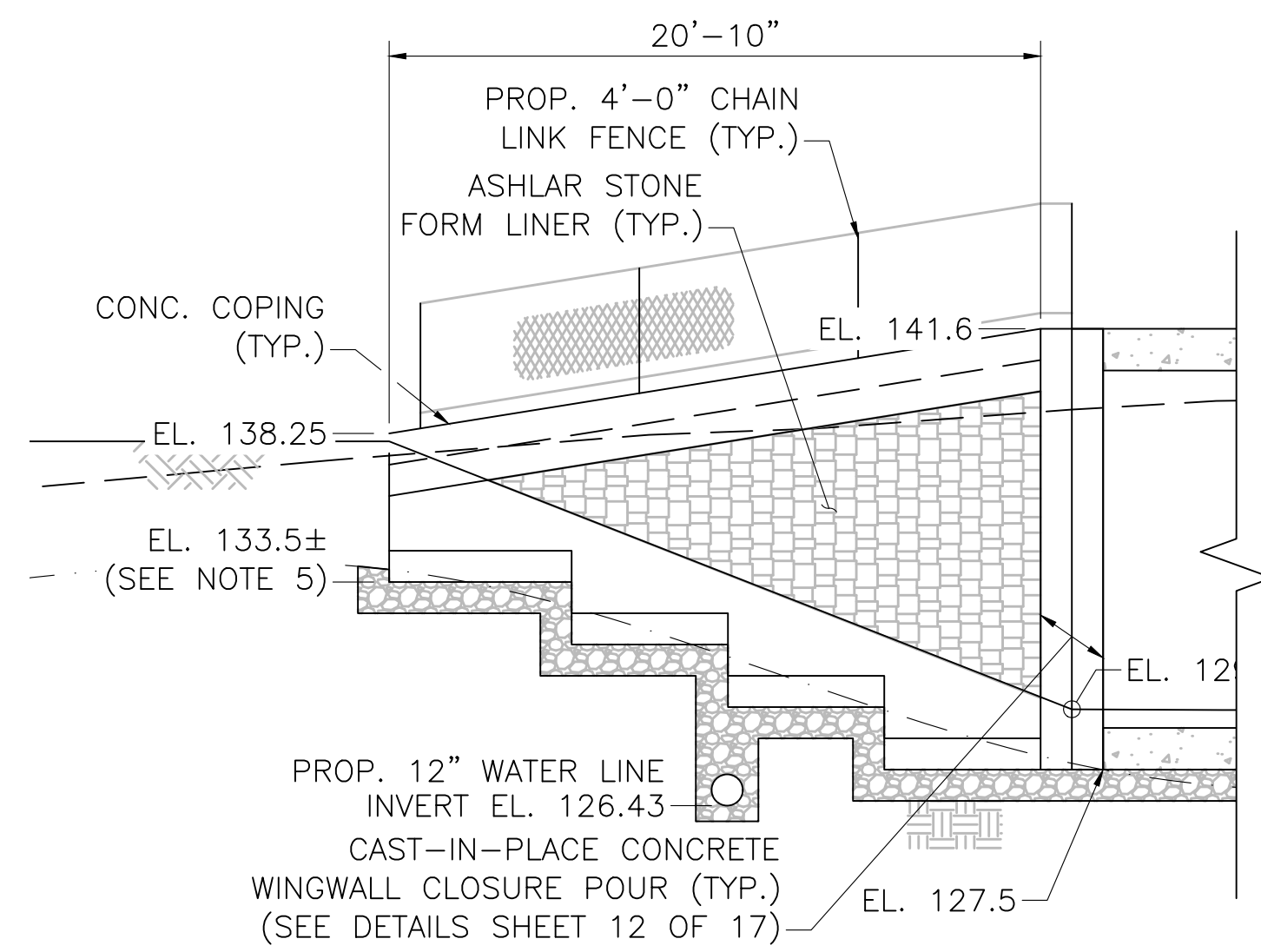
| ELEMENT | WORKING POINTS | | | | |
|---------------------|----------------|-----------|-------------|-------------|------------|
| | W.P. # | STA. | OFFSET (FT) | NORTHING | EASTING |
| CULVERT | 1 | 288+32.57 | 9.07 RT | 2999861.656 | 706142.156 |
| | 2 | 288+43.10 | 9.05 LT | 2999845.685 | 706123.573 |
| | 3 | 288+88.83 | 8.95 RT | 2999858.619 | 706087.075 |
| | 4 | 288+99.77 | 8.93 LT | 2999841.678 | 706067.258 |
| WINGWALL | 5 | 288+30.48 | 9.68 RT | 2999860.834 | 706142.544 |
| | 6 | 288+03.96 | 24.17 RT | 2999882.359 | 706161.676 |
| | 7 | 288+41.37 | 10.06 LT | 2999846.167 | 706126.034 |
| | 8 | 288+29.17 | 26.96 LT | 2999830.003 | 706139.129 |
| | 9 | 288+91.07 | 9.07 RT | 2999861.716 | 706075.128 |
| | 10 | 289+39.90 | 13.81 RT | 2999861.984 | 706025.883 |
| | 11 | 289+02.00 | 9.14 LT | 2999813.421 | 706061.280 |
| | 12 | 289+68.85 | 20.72 LT | 2999824.587 | 706000.769 |
| BARRIER MOMENT SLAB | 13 | 288+28.07 | 16.91 RT | 2999873.872 | 706137.769 |
| | 14 | 288+40.15 | 28.52 LT | 2999827.812 | 706123.572 |
| | 15 | 288+99.69 | 26.06 RT | 2999877.931 | 706065.076 |
| | 16 | 289+04.54 | 16.63 LT | 2999834.980 | 706063.877 |

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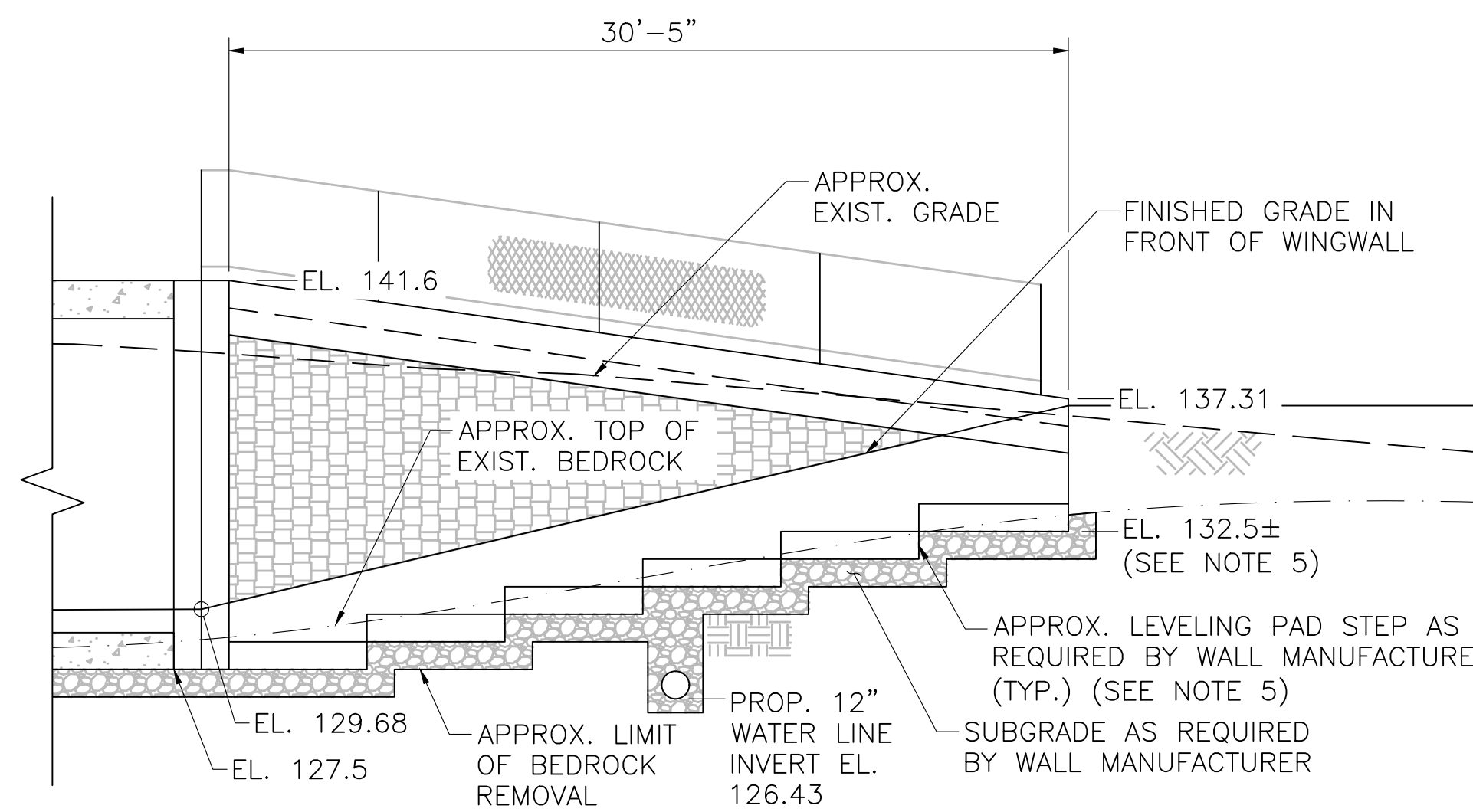
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|-------------------------|--------------------|-----------|--------------|
| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
| MA | - | 176 | 182 |
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WINGWALLS DETAILS

NOTE: LOOKING UPSTATION



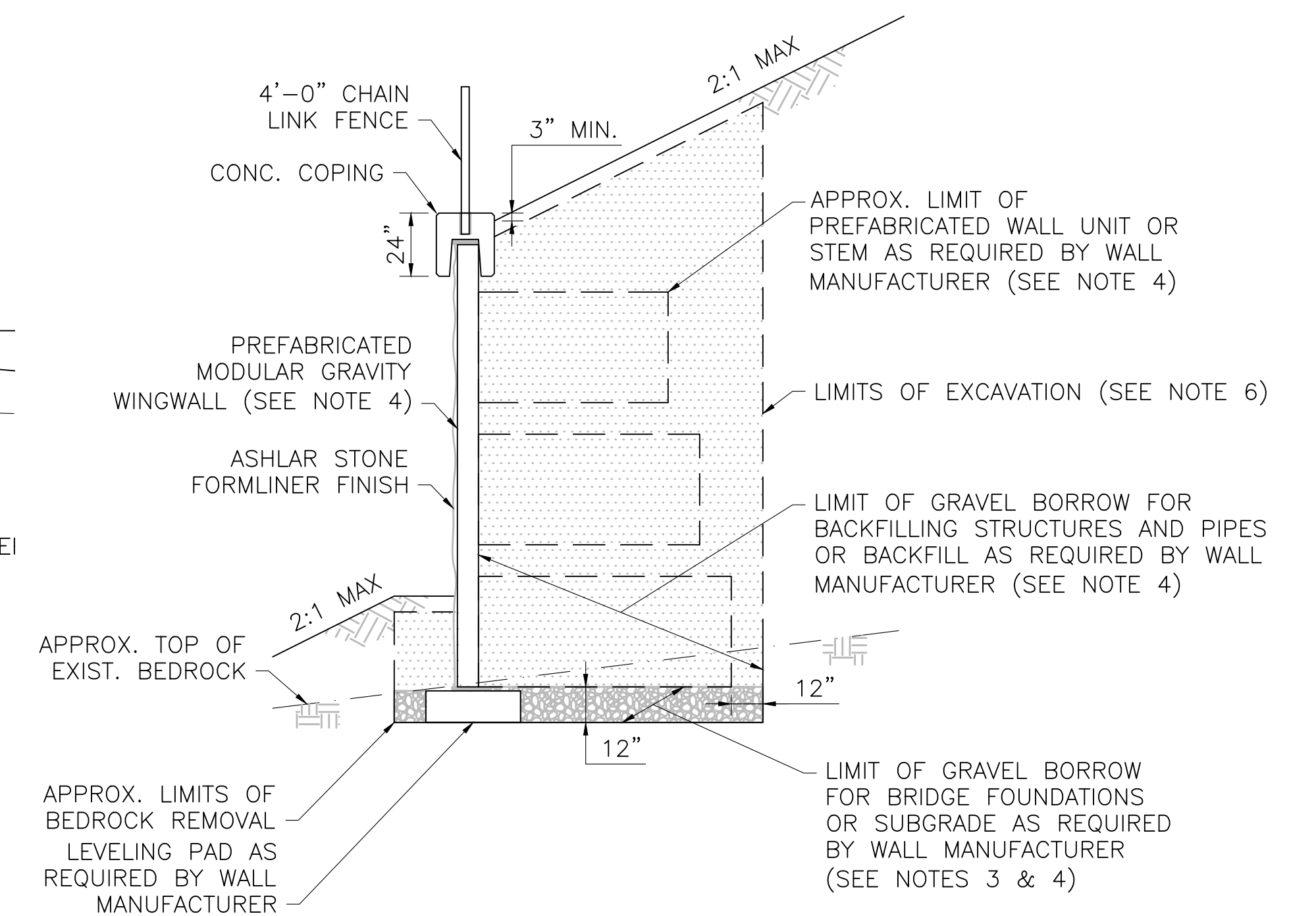
SOUTHEAST WINGWALL



NORTHEAST WINGWALL

WINGWALL DEVELOPED ELEVATION - EAST END

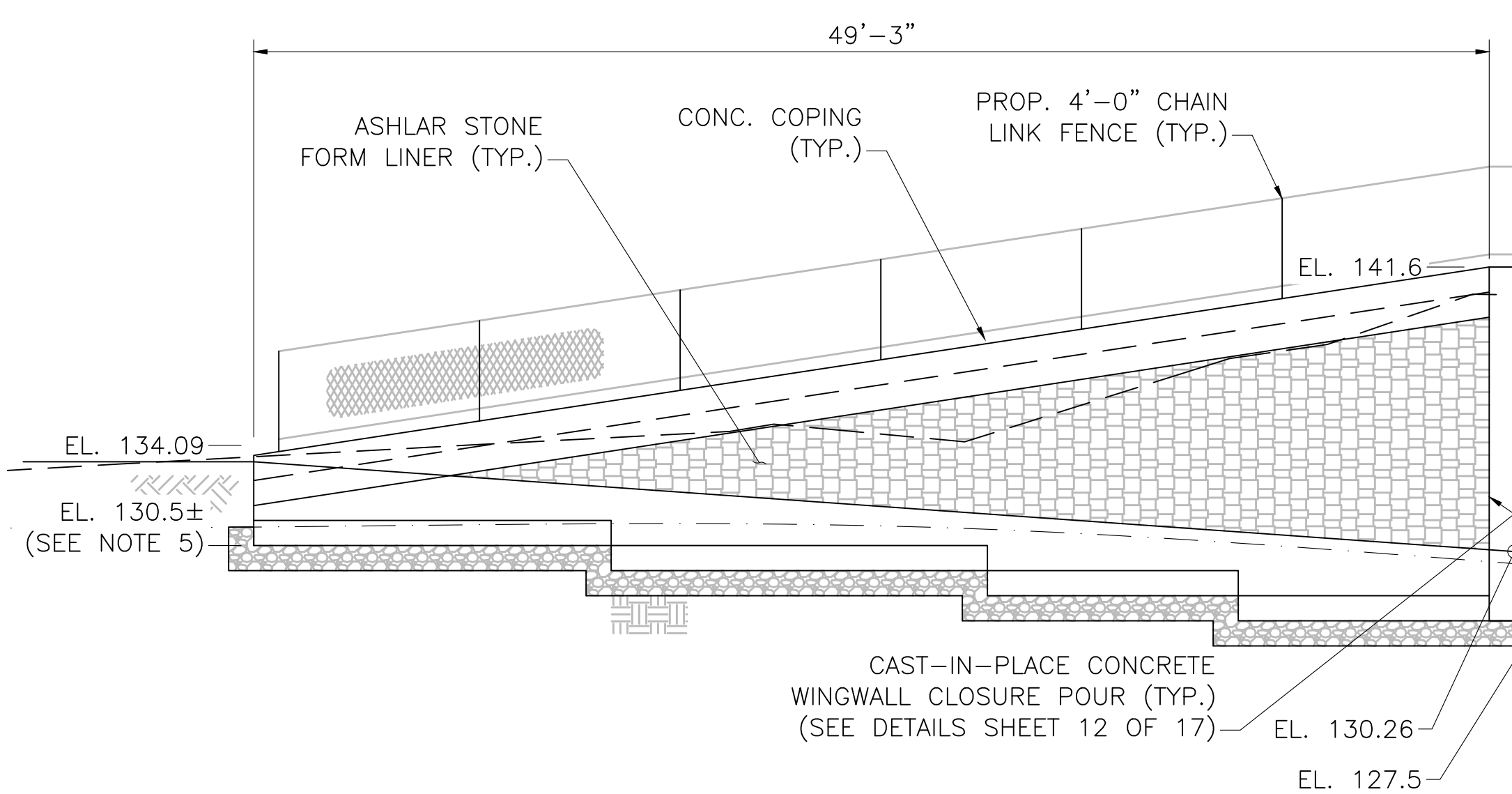
SCALE: 3/16" = 1'-0"



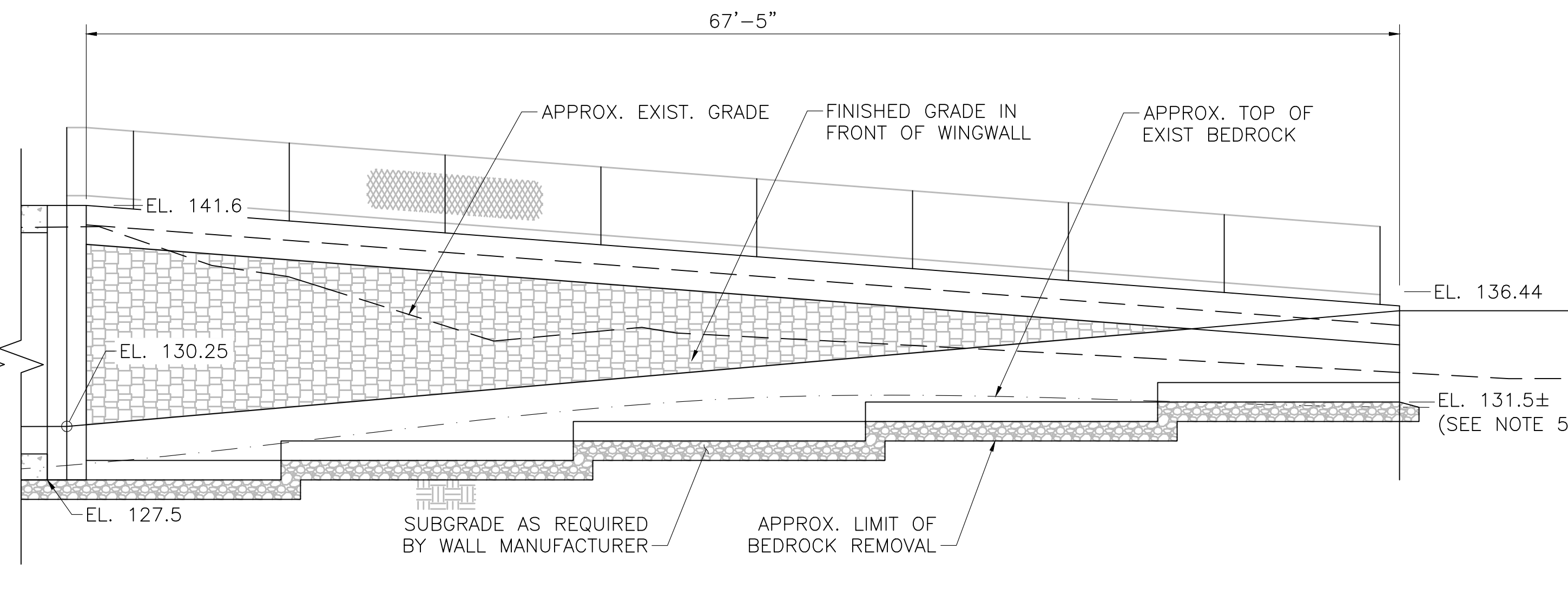
WINGWALL TYPICAL SECTION

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

NOTE: LOOKING DOWNSTATION



NORTHWEST WINGWALL



SOUTHWEST WINGWALL

WINGWALL DEVELOPED ELEVATION - WEST END

SCALE: 3/16" = 1'-0"

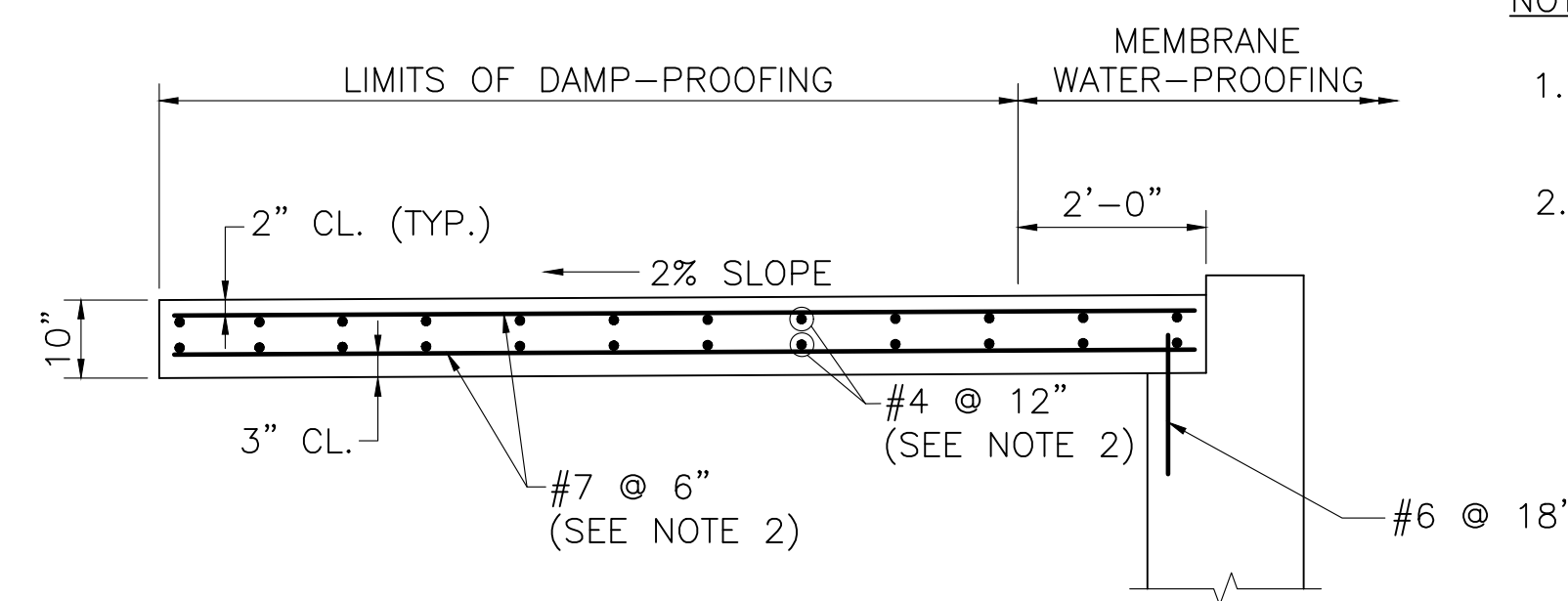
NOTES:

- 4" Ø WEEP HOLES 10'-0" O.C. PROVIDE 1 CUBIC YARD OF CRUSHED STONE AT EACH END OF WEEP HOLE.
- THE CONTRACTOR SHALL DETERMINE THE FACTORED BEARING PRESSURE PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
- FACTORED BEARING RESISTANCE = 20.3 KSF FACTORED BEARING RESISTANCE IS THE PRODUCT OF THE NOMINAL BEARING RESISTANCE 45.1 AND A RESISTANCE FACTOR OF 0.45.
- RETAINING WALL TYPE SHOWN IS PRELIMINARY ONLY. PREFABRICATED WALL SYSTEM SHALL BE DESIGNED BY THE CONTRACTOR.
- TOP OF EXIST. BEDROCK IS SHOWN APPROXIMATELY, AND SHALL BE VERIFIED IN FIELD BY THE CONTRACTOR. BOTTOM OF WALL STEPS ARE SHOWN APPROXIMATELY, AND SHALL BE DETERMINED BY WALL MANUFACTURER IN ACCORDANCE WITH PROJECT SPECIAL PROVISIONS AND GEOTECHNICAL RECOMMENDATIONS.
- EXCAVATION SHALL NOT EXTEND BEYOND THE LIMITS SHOWN ON SHEET 06 OF 17.

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MISCELLANEOUS DETAILS

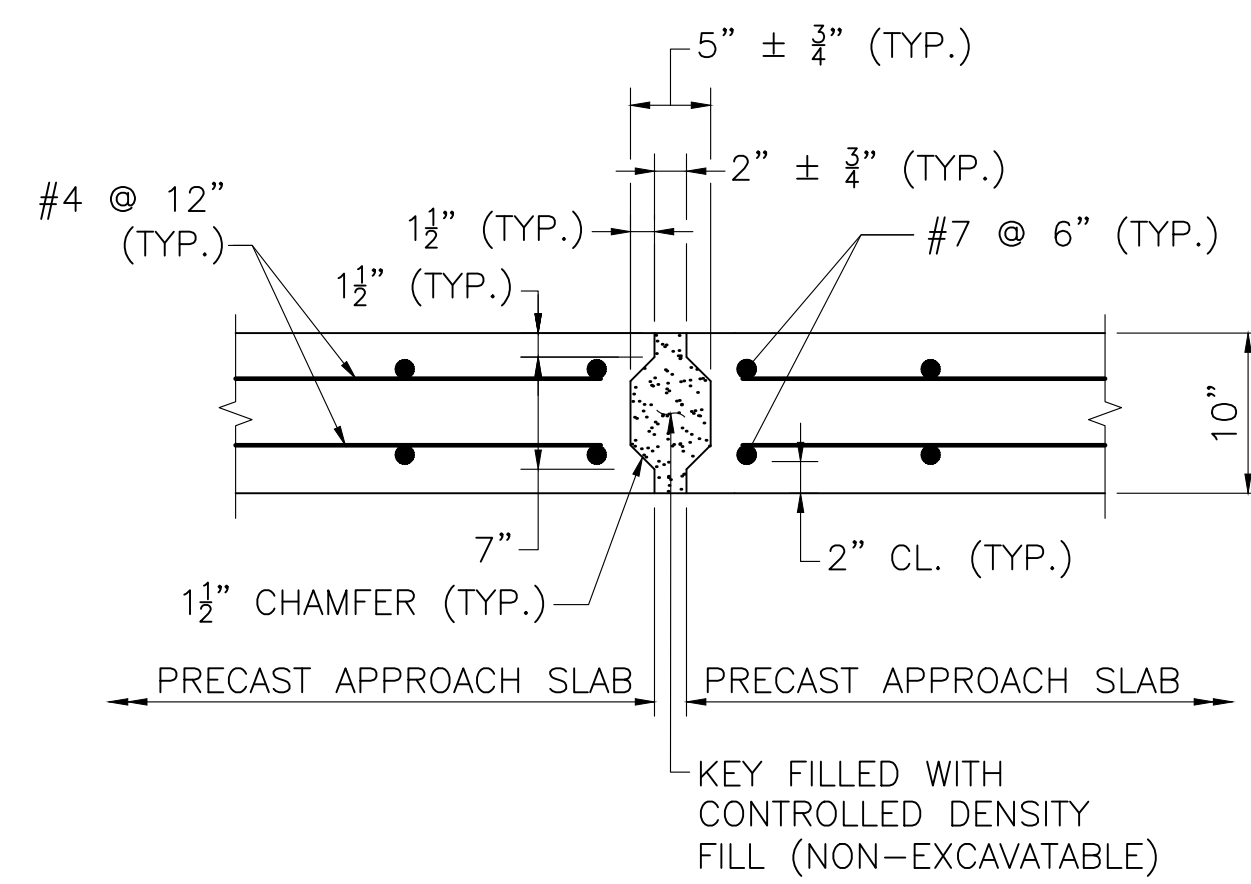


PRECAST APPROACH SLAB

SCALE: 1/2" = 1'-0"

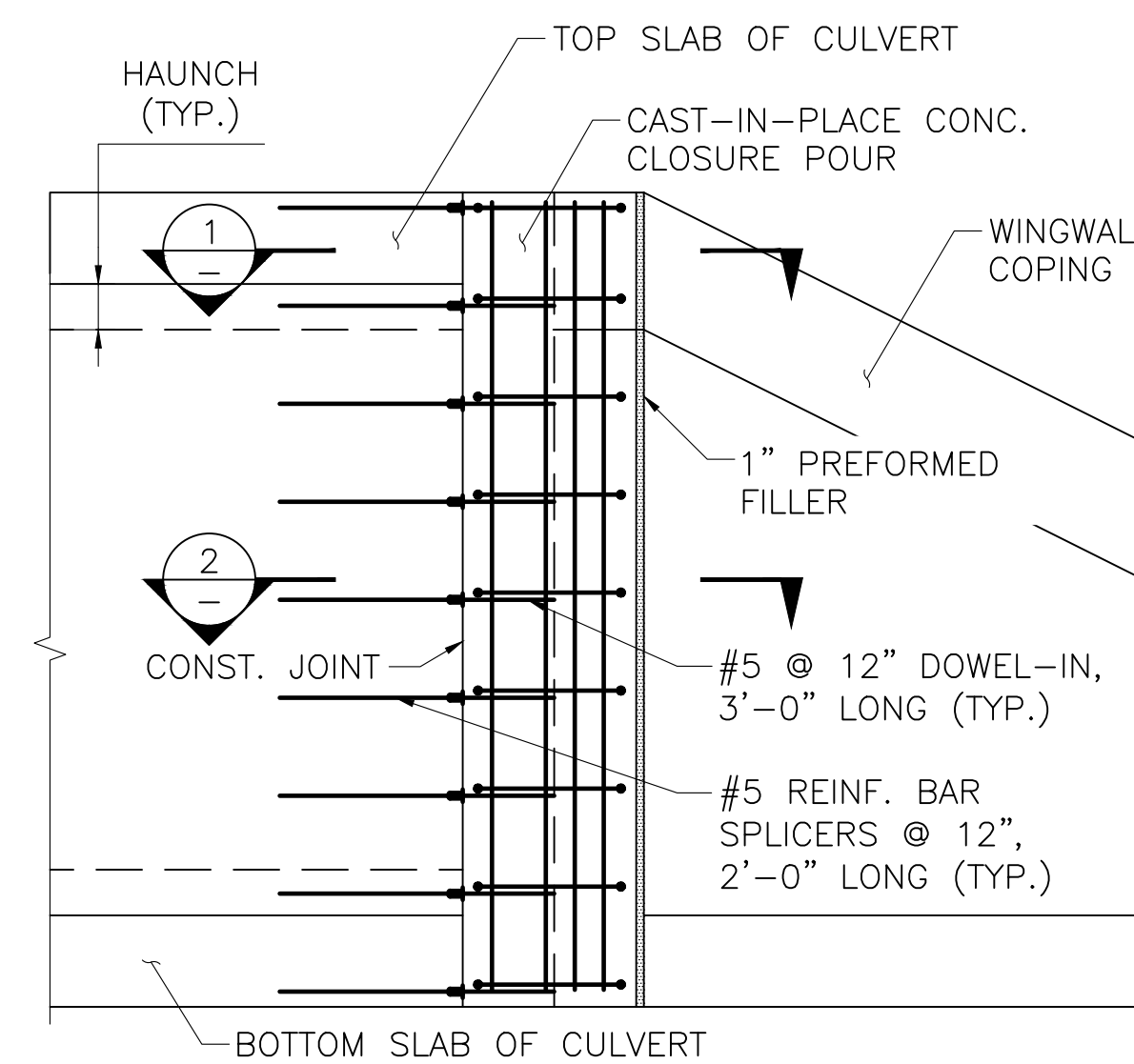
NOTES:

1. APPROACH SLAB SHALL BE 4000 PSI, 3/4" IN, 610 CEMENT CONCRETE.
2. PLACE LONGITUDINAL REINFORCEMENT PARALLEL TO BASELINE. PLACE TRANSVERSE REINFORCEMENT PARALLEL TO FACE OF RIGID FRAME.



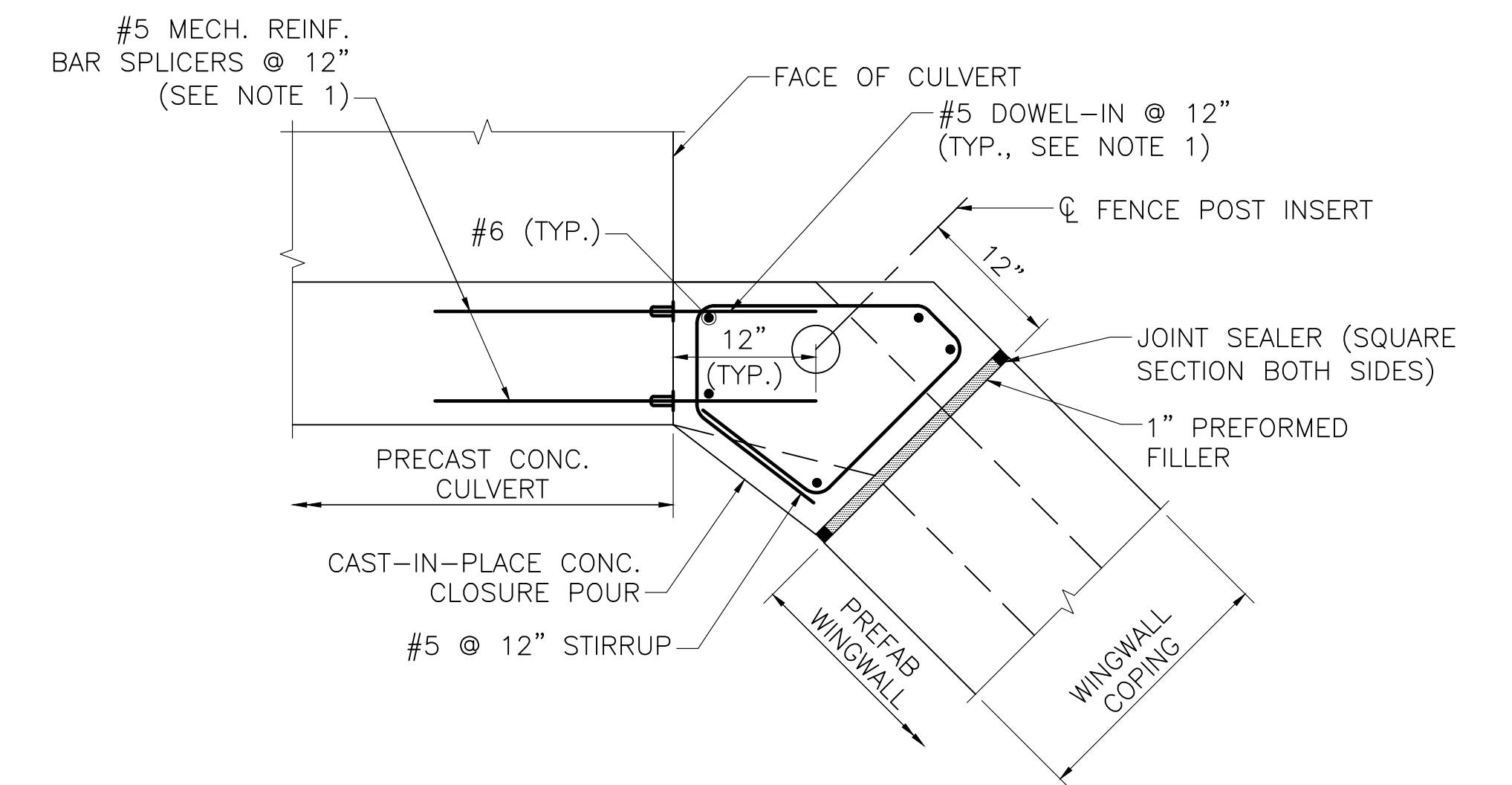
APPROACH SLAB SHIELD KEY DETAIL

SCALE: 3/4" = 1'-0"



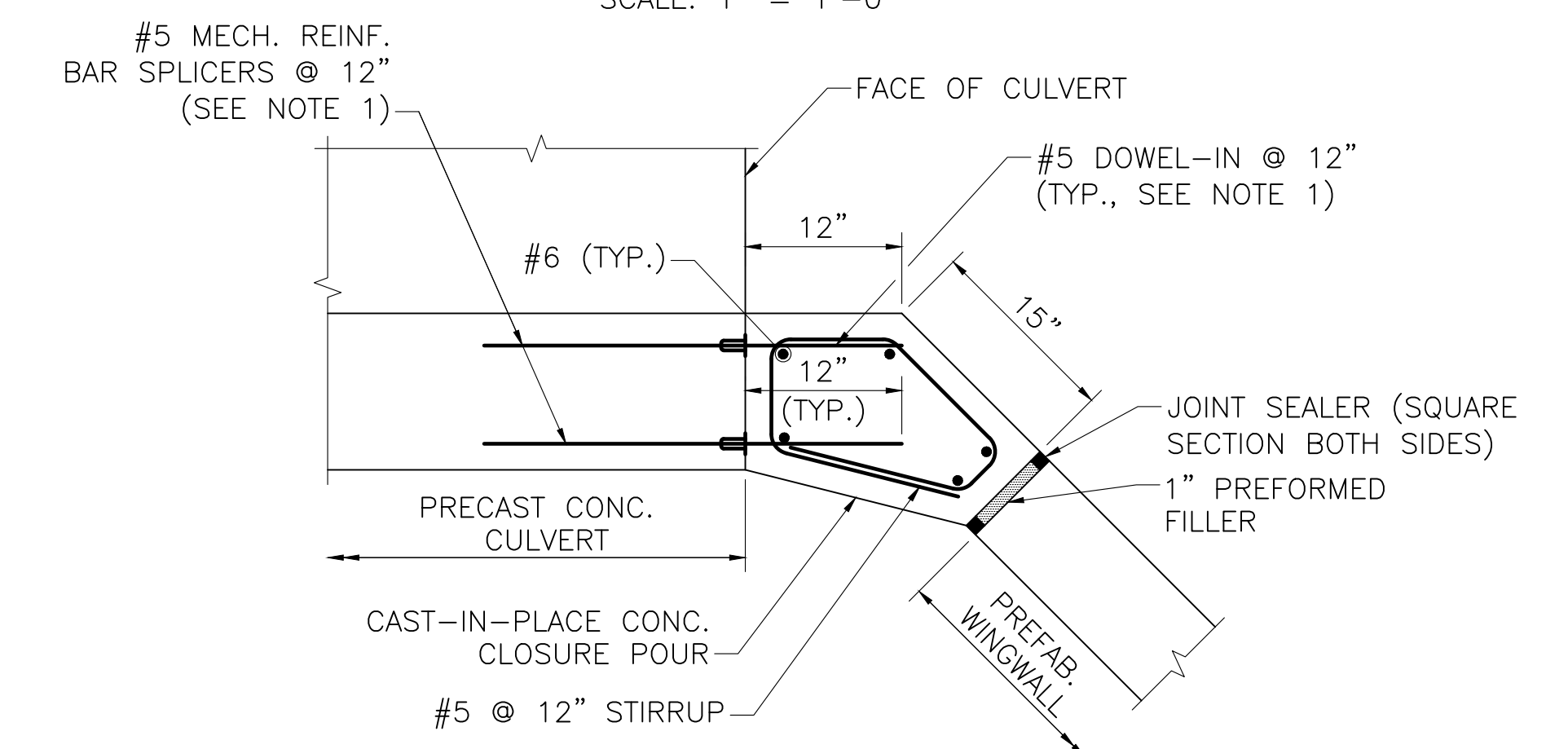
WINGWALL CLOSURE POUR DETAIL

SCALE: 1/2" = 1'-0"



SECTION 1

SCALE: 1" = 1'-0"

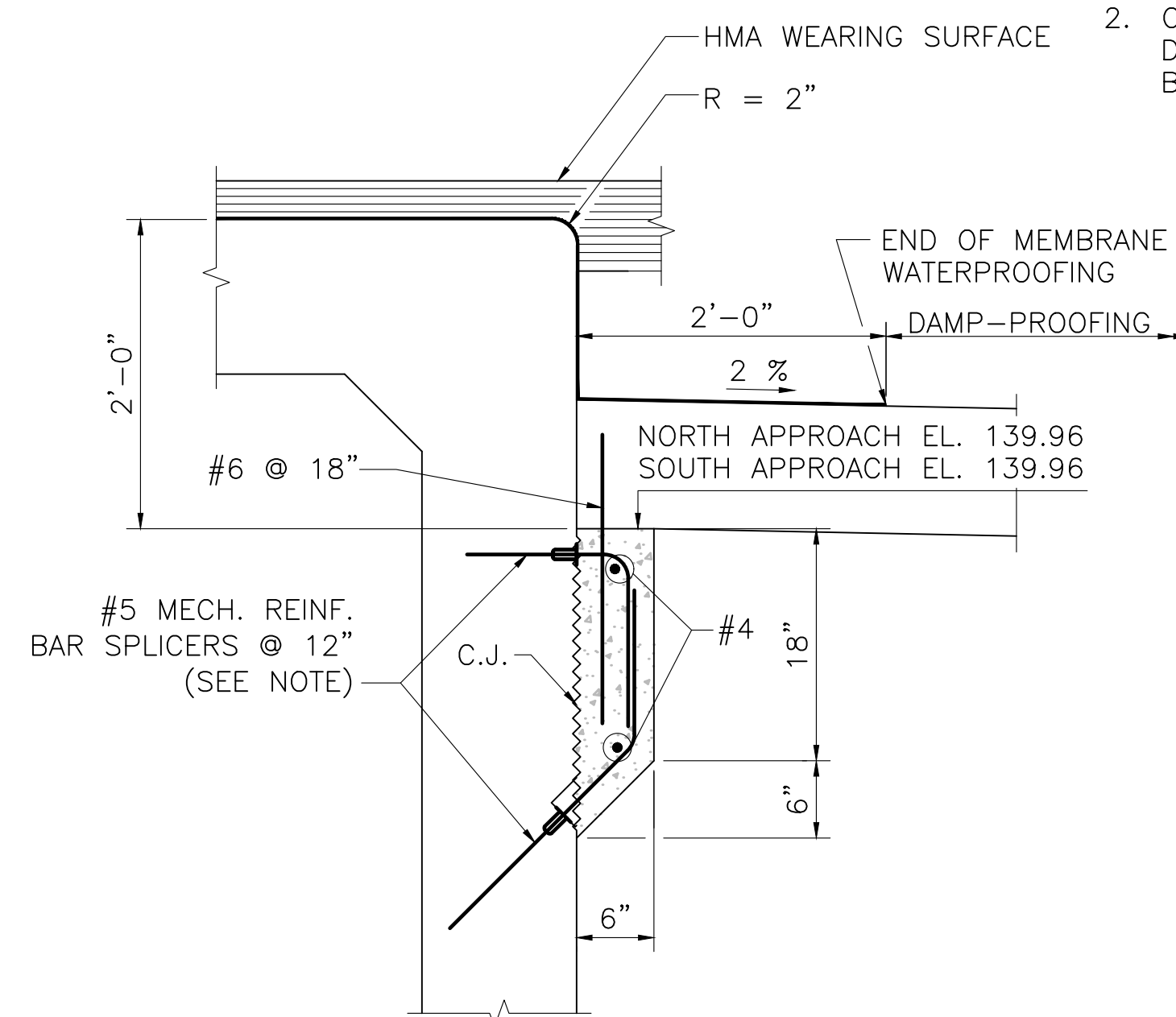


SECTION 2

SCALE: 1" = 1'-0"

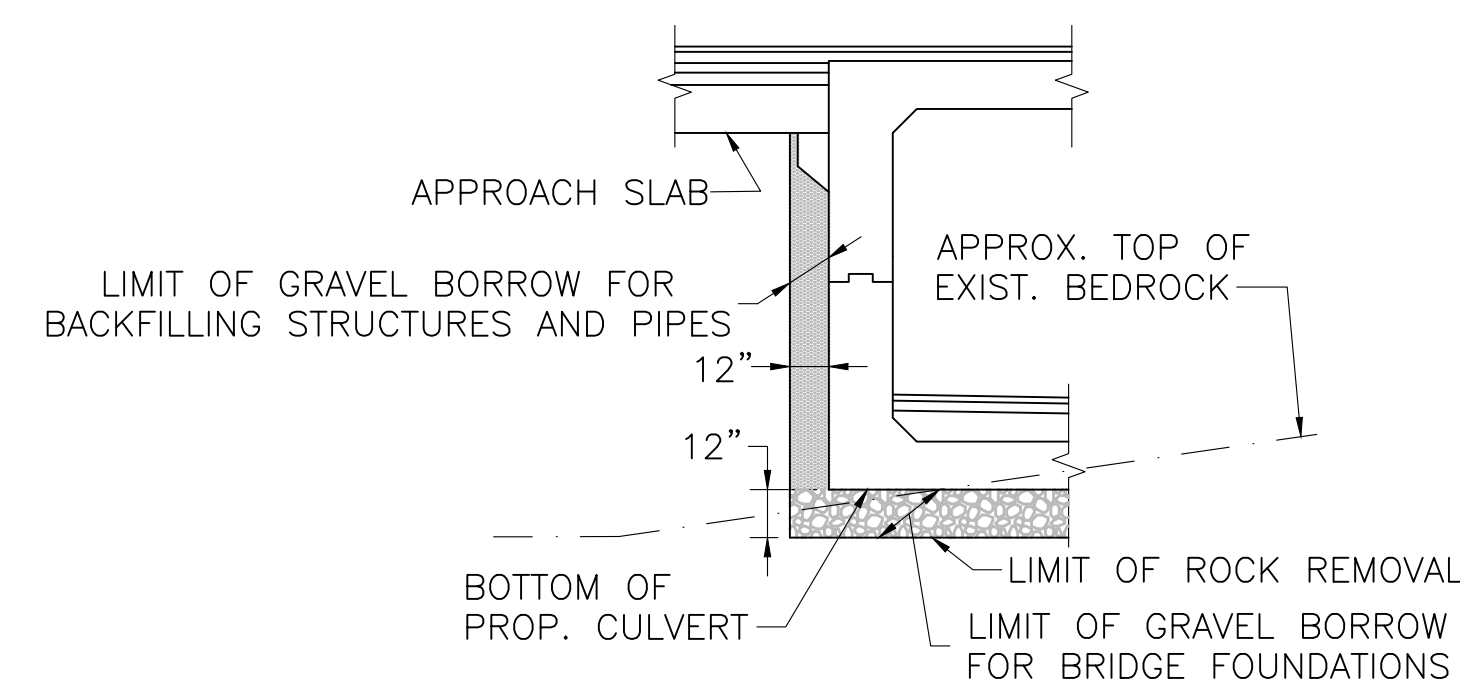
NOTES:

1. PRECAST CULVERT AND APPROACH SLAB REINFORCEMENT NOT SHOWN FOR CLARITY.
2. CONTRACTOR MAY SUBSTITUTE #5 DOWELS FOR MECHANICAL REINFORCING BAR SPLICERS AND THREADED REBARS.



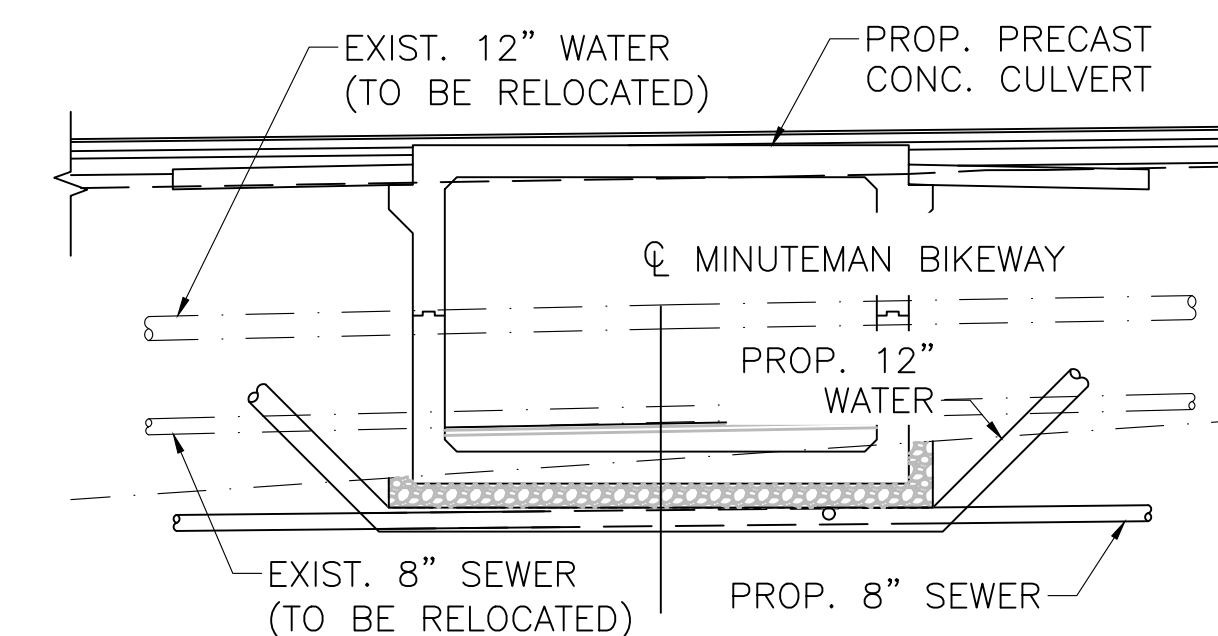
CAST-IN-PLACE APPROACH SLAB SHELF DETAIL

SCALE: 1" = 1'-0"



LIMITS OF GRAVEL BORROW

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



UTILITIES AT TRANSVERSE SECTION

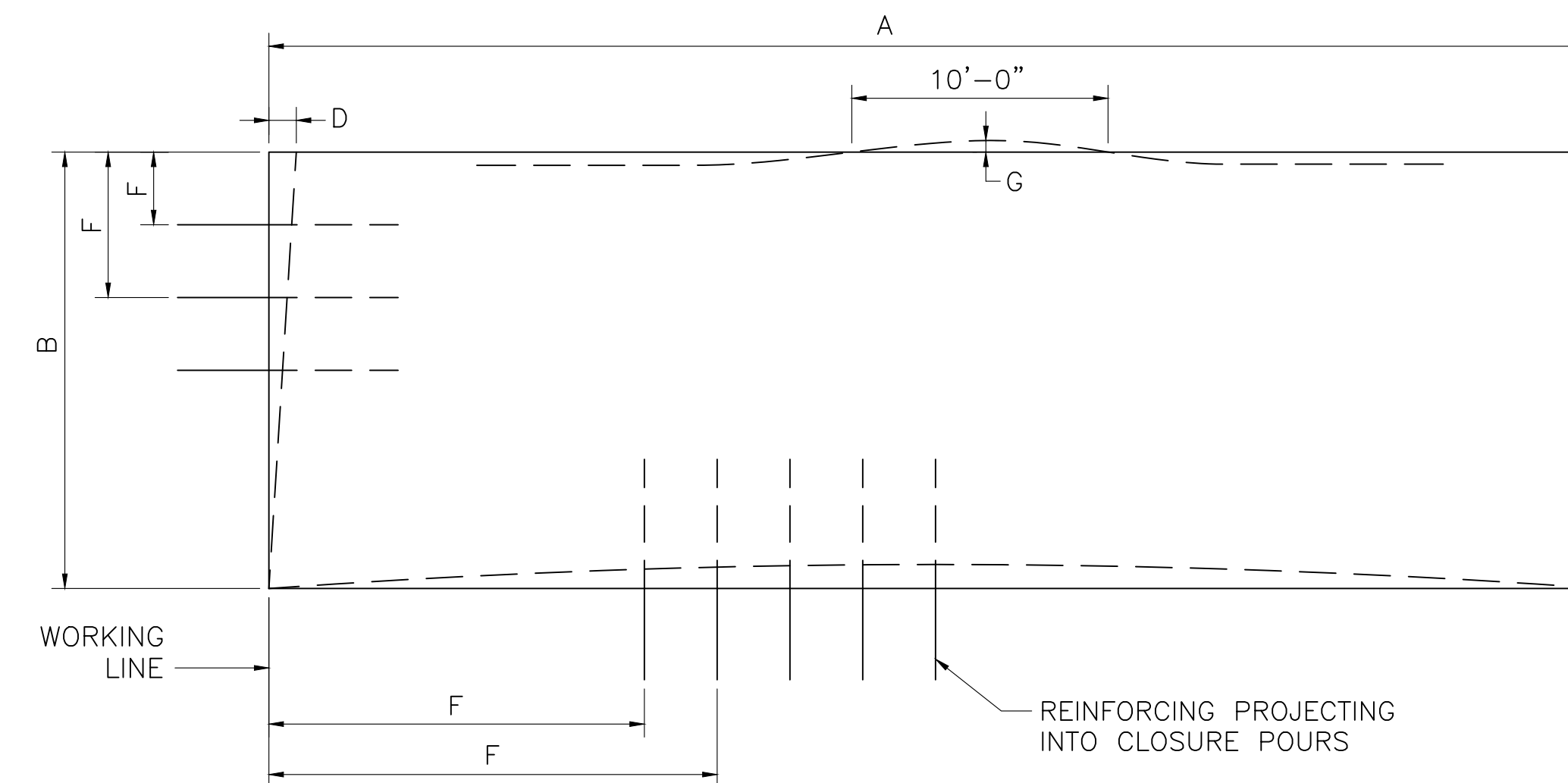
SCALE: 1/8" = 1'-0"

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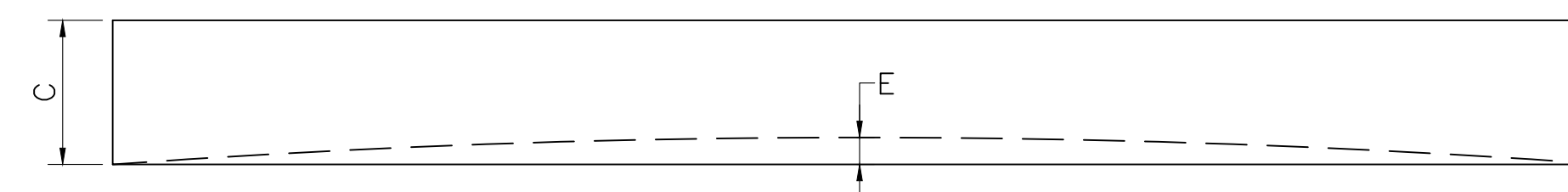
| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
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PRECAST TOLERANCES



PLAN
NOT TO SCALE



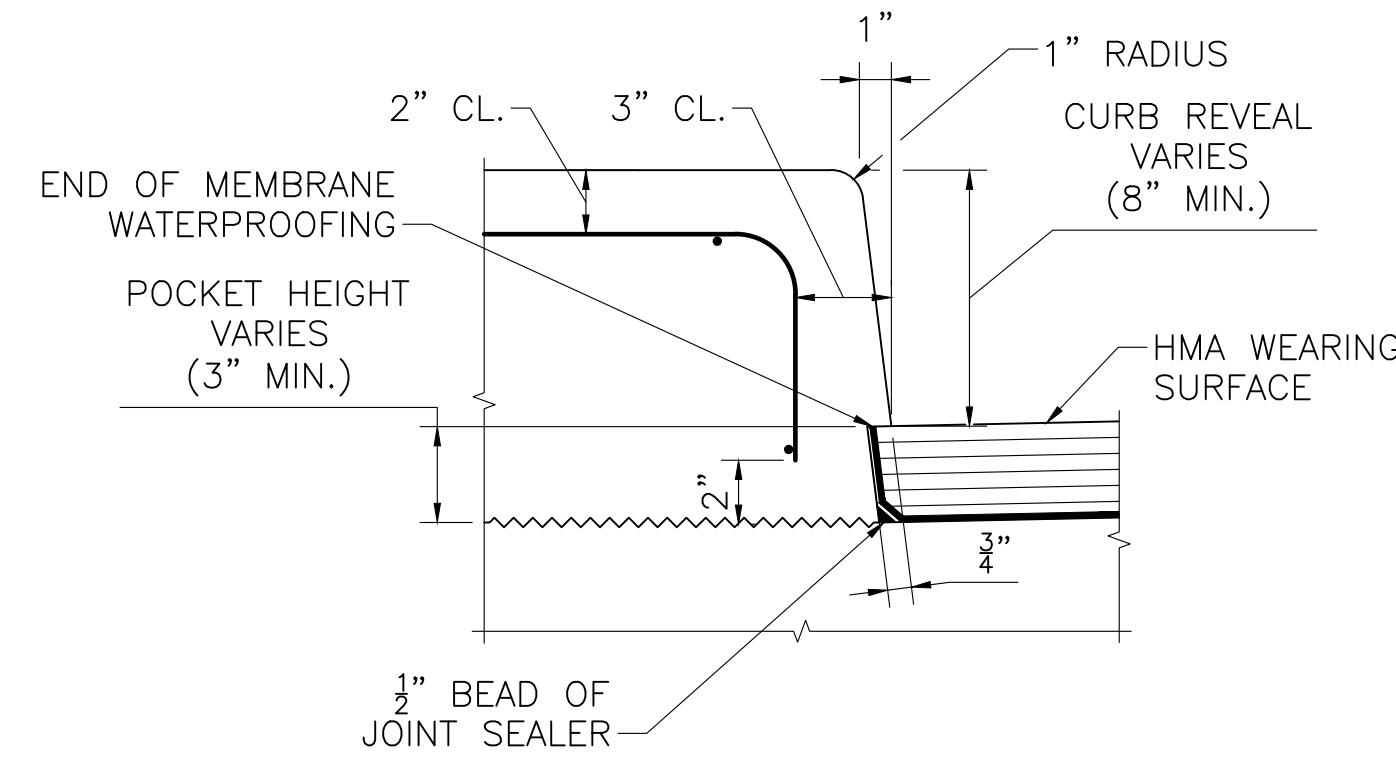
ELEVATION
NOT TO SCALE

APPROACH SLAB FABRICATION TOLERANCES

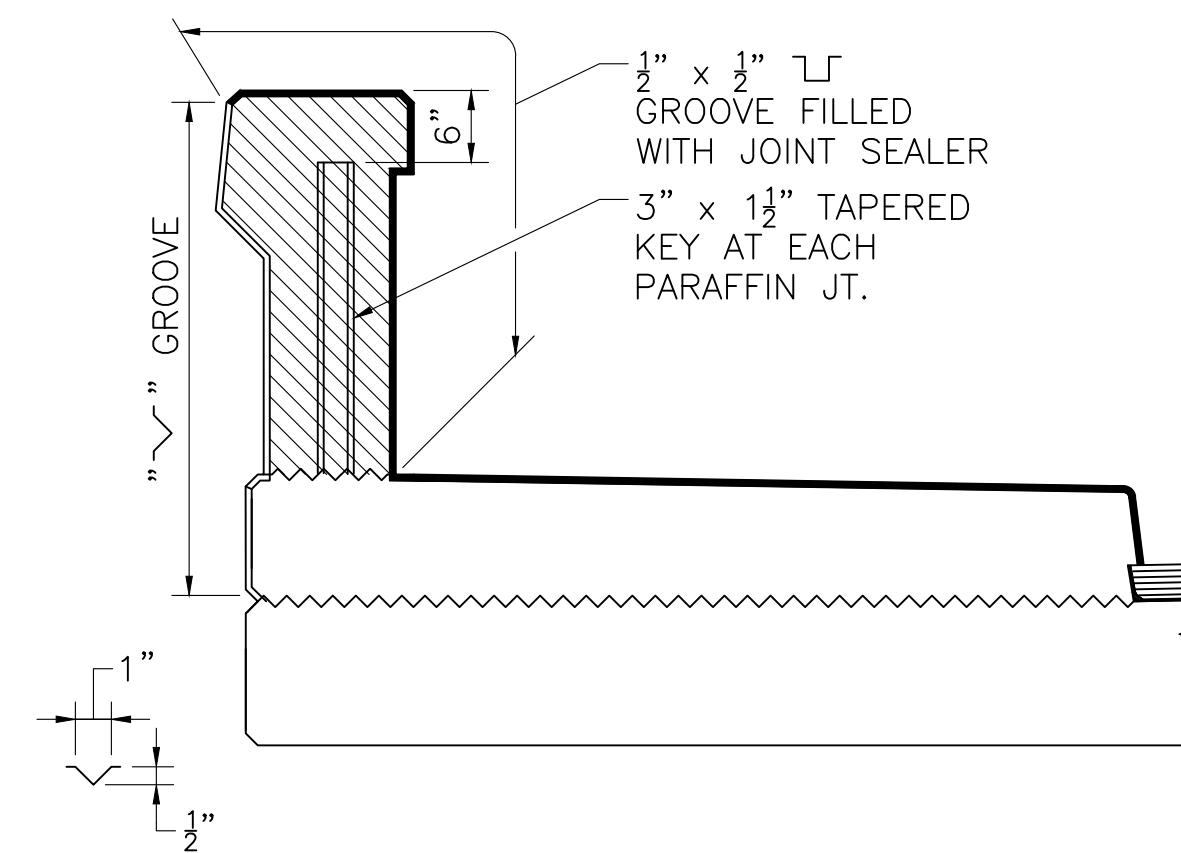
| | | |
|---|---|-------------------------------|
| A | LENGTH | $\pm\frac{1}{4}$ " |
| B | WIDTH (OVERALL) | $\pm\frac{1}{4}$ " |
| C | DEPTH (OVERALL) | $\pm\frac{1}{4}$ " |
| D | VARIATION FROM SPECIFIED PLAN END SQUARENESS OR SKEW | $\pm\frac{1}{2}$ " |
| E | SWEEP OVER MEMBER LENGTH | $\pm\frac{3}{8}$ " |
| F | LOCATION OF GROUTED SPLICE COUPLER MEASURED FROM A WORKING LINE | $\pm\frac{1}{2}$ " |
| G | LOCAL SMOOTHNESS OF ANY SURFACE | $\pm\frac{1}{4}$ " IN 10 FEET |

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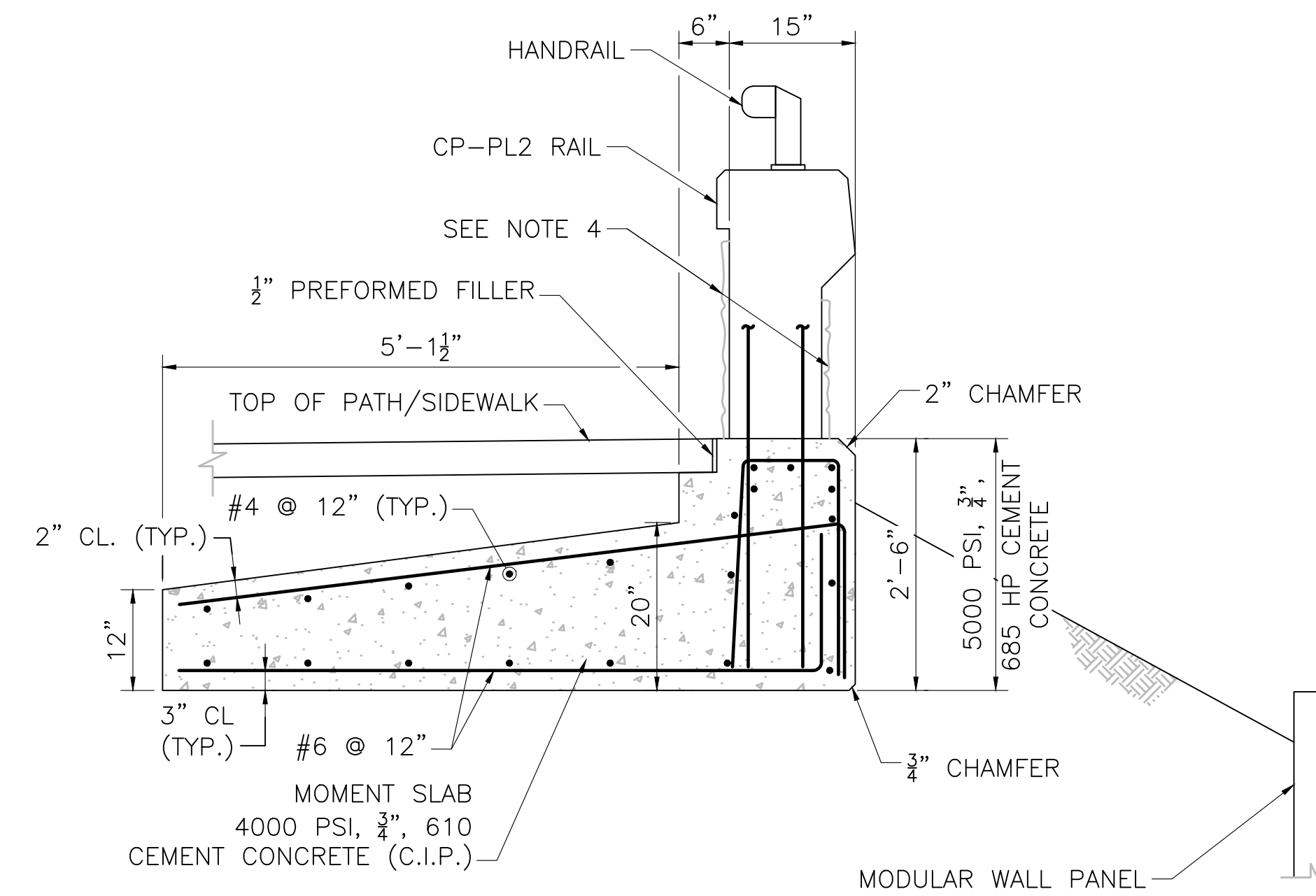
| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
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| BRIDGE BARRIER DETAILS | | | |



FACE OF SIDEWALK CURB DETAILS
SCALE: 2" = 1'-0"

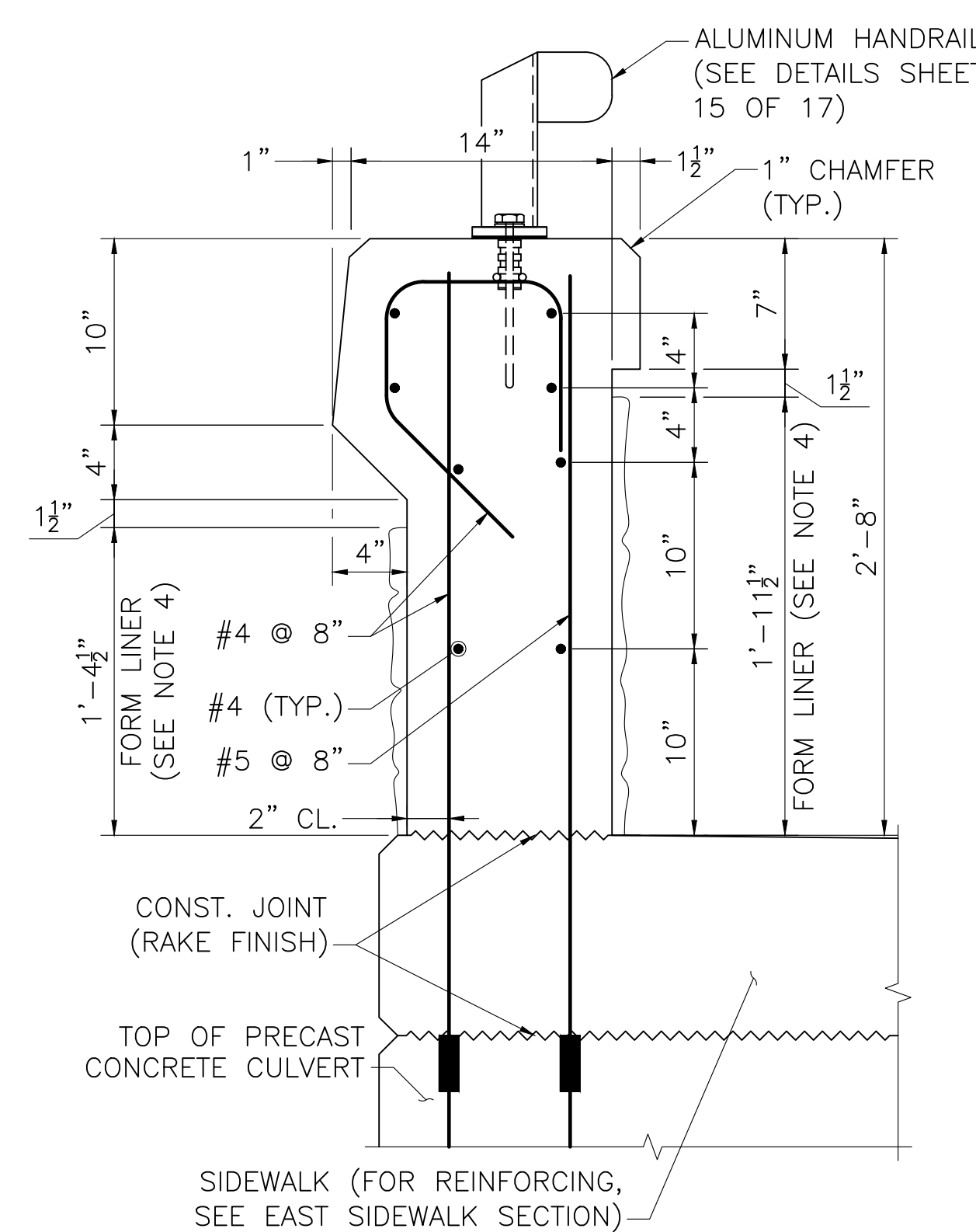


PARAFFIN JOINT DETAILS
SCALE: 3/4" = 1'-0"

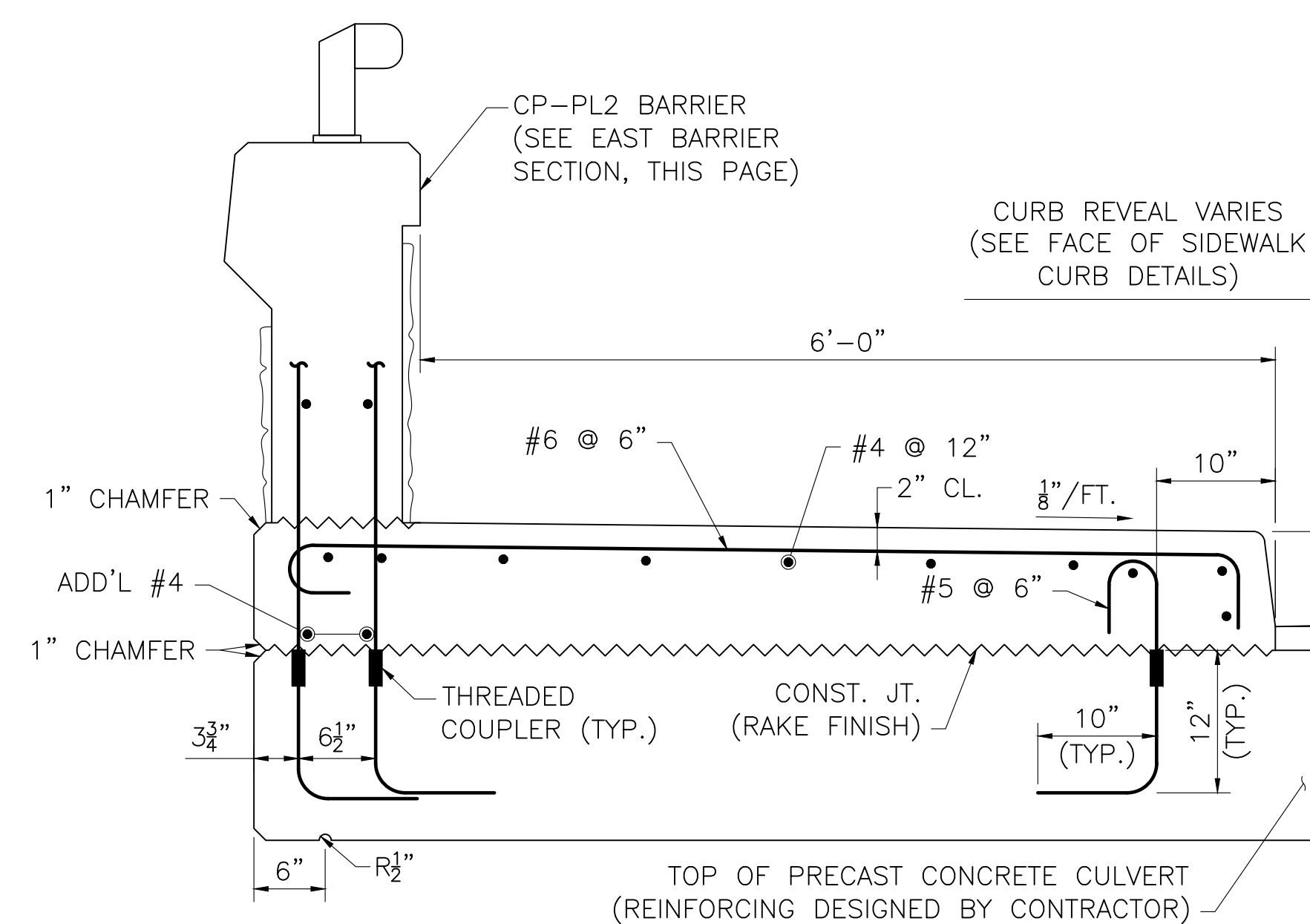


MOMENT SLAB DETAILS
SCALE: 3/4" = 1'-0"

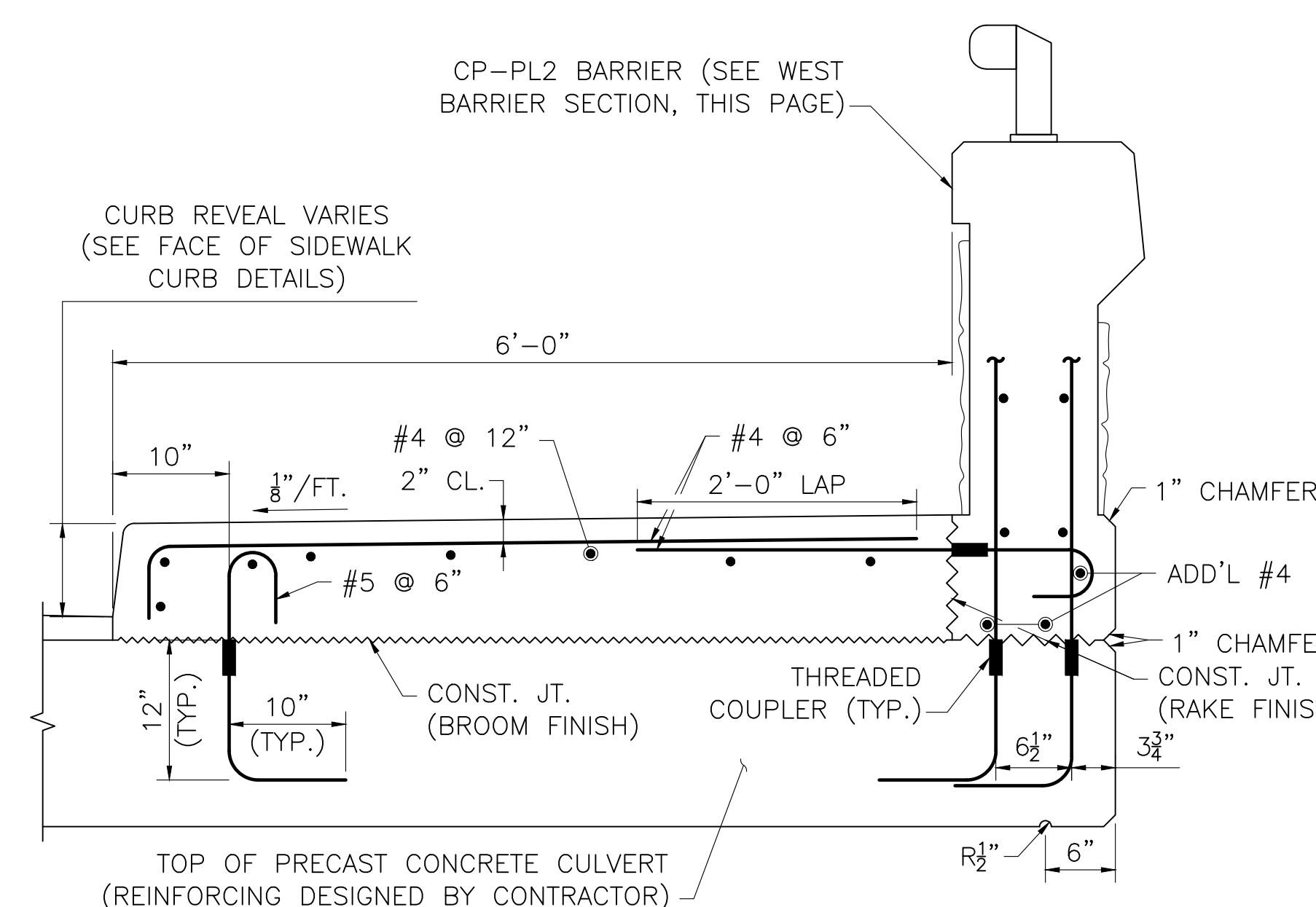
- NOTES:**
- ALL CONCRETE ABOVE SLAB SHALL BE Poured IN ALTERNATING SECTIONS WITH NOT LESS THAN 3 DAYS BETWEEN POURS.
 - DO NOT CARRY LONGITUDINAL BARS THROUGH THE PARAFFIN JOINTS END THE REINFORCEMENT 2" CLEAR OF JOINT.
 - JOINT SHALL BE SQUARE TO FACE OF CURB.
 - BOTH SIDES OF BARRIER SHALL BE CAST WITH AN ASHLAR STONE FORM LINER TO THE LIMITS SHOWN.



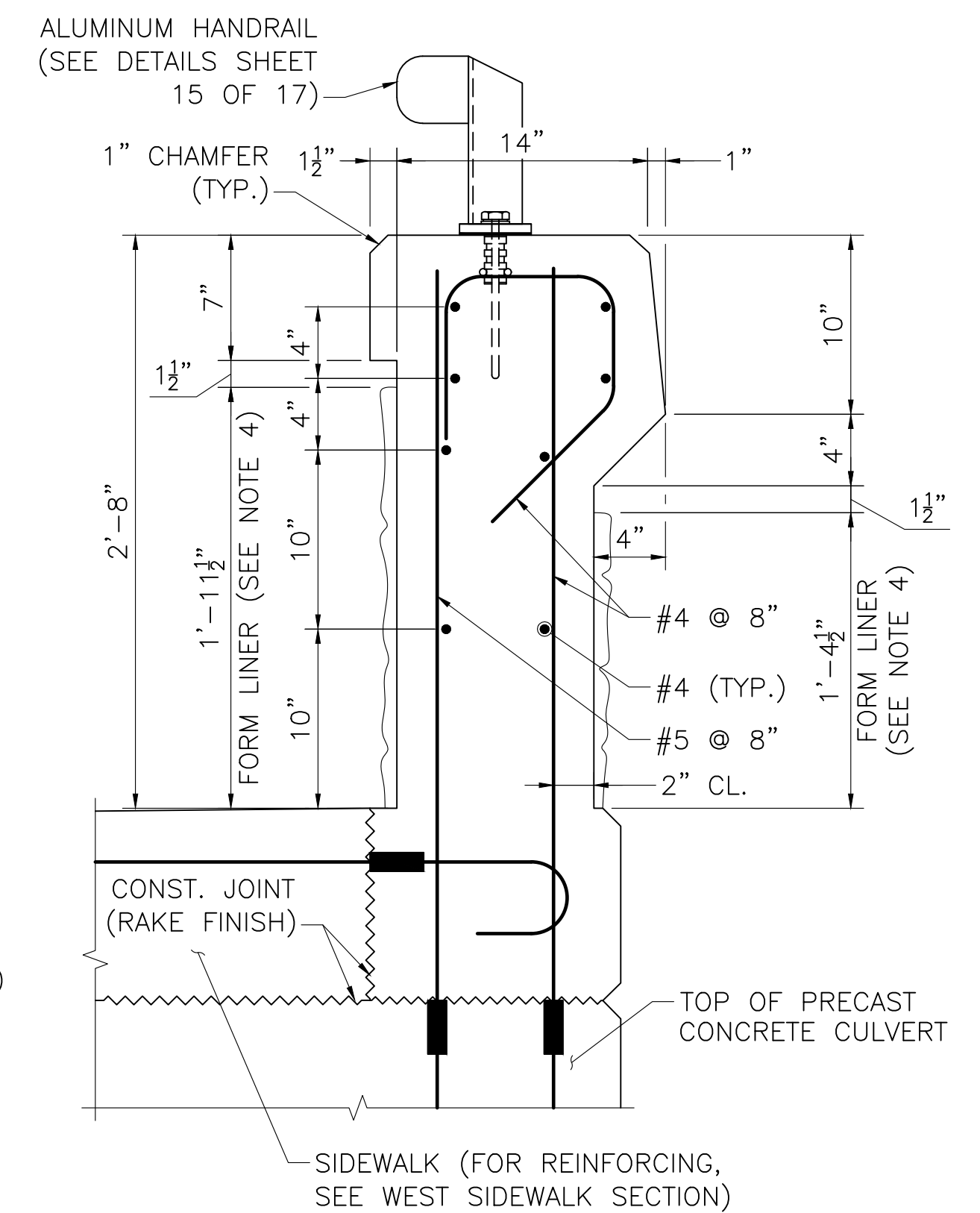
EAST BARRIER SECTION
SCALE: 1 1/2" = 1'-0"



EAST SIDEWALK SECTION
SCALE: 1" = 1'-0"



WEST SIDEWALK SECTION
SCALE: 1" = 1'-0"

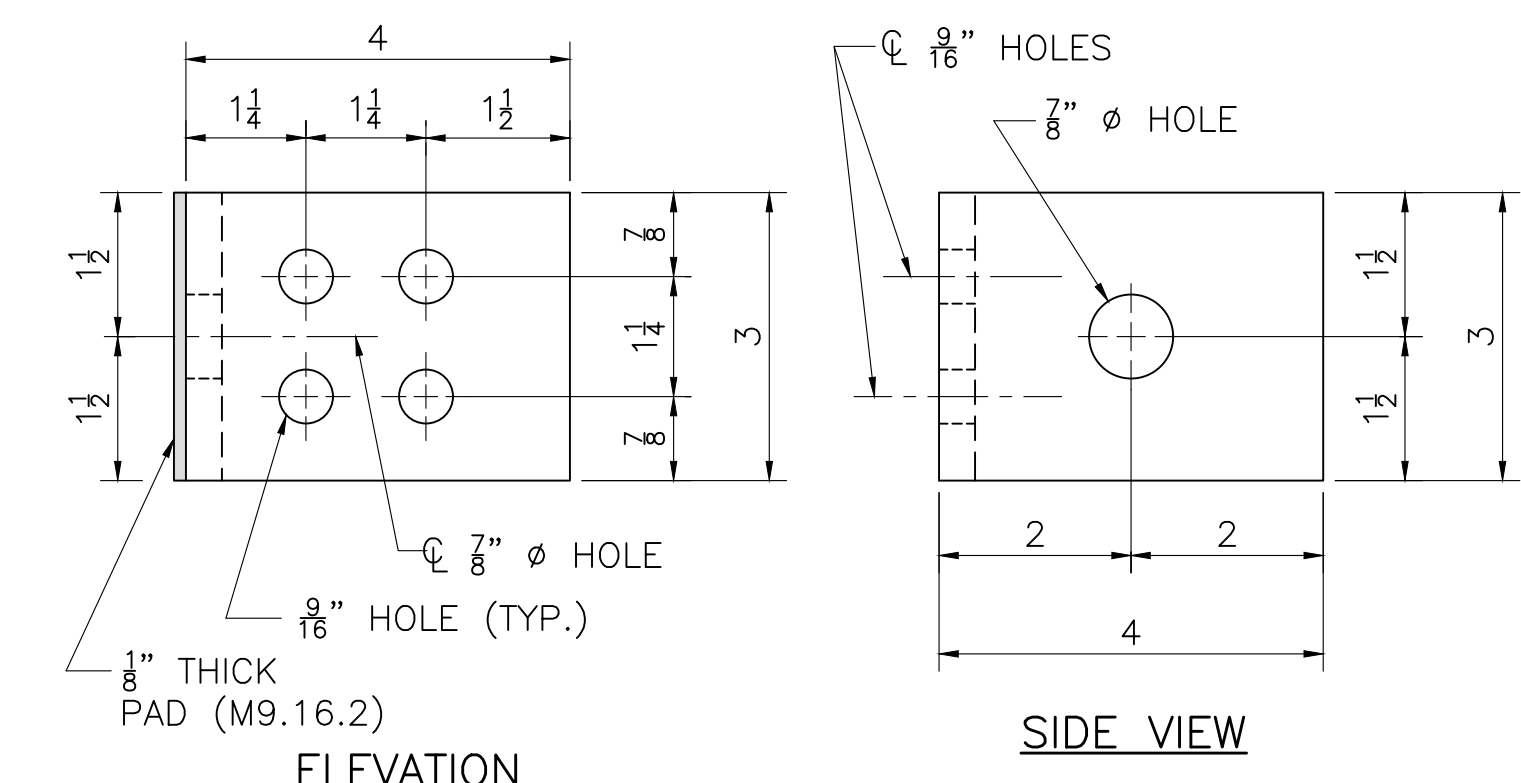
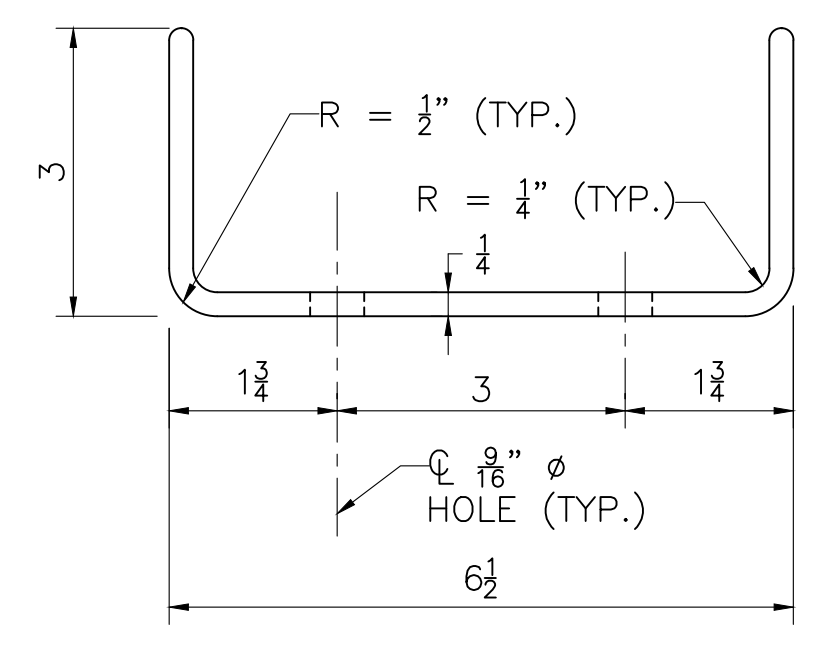
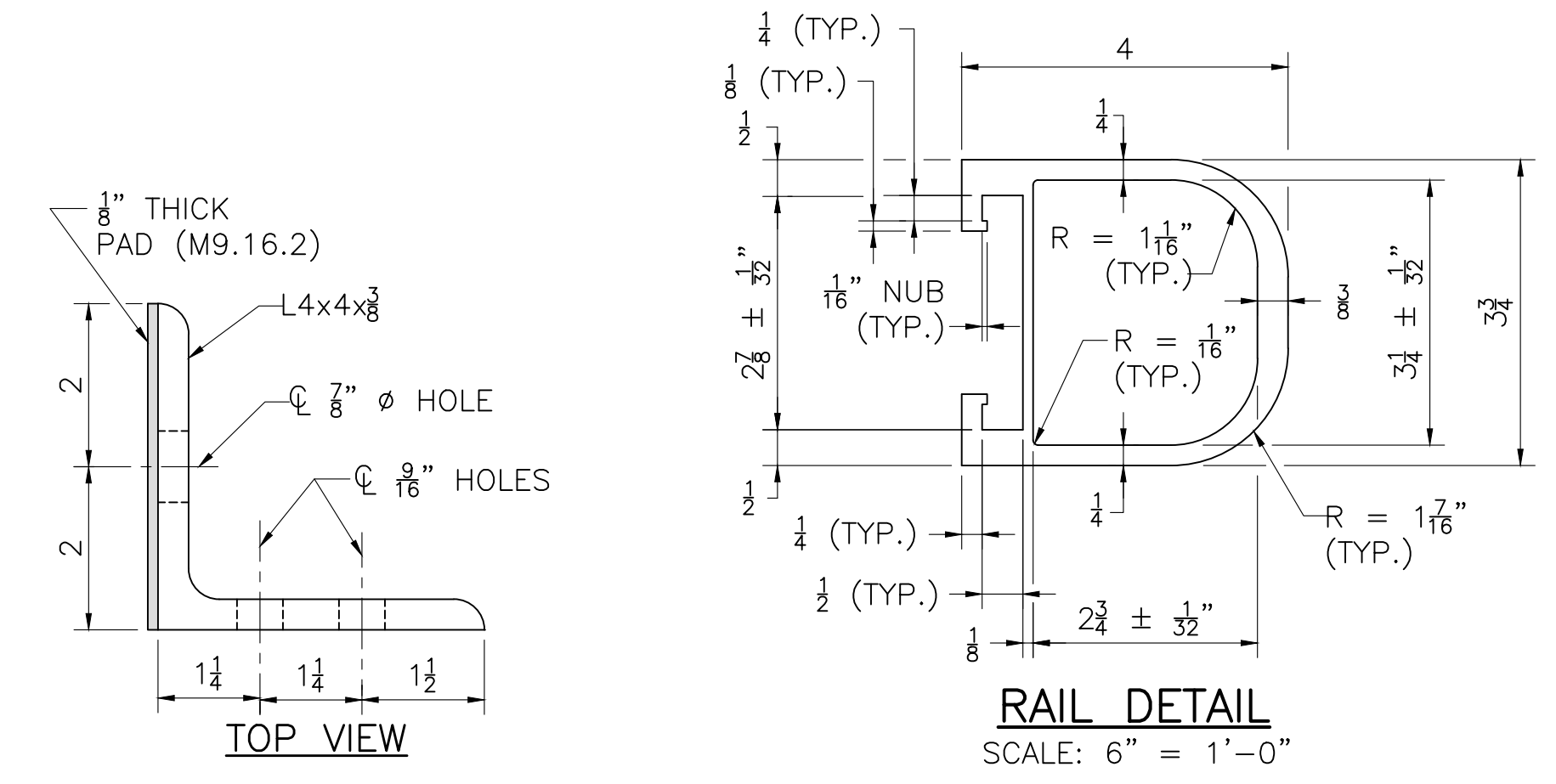
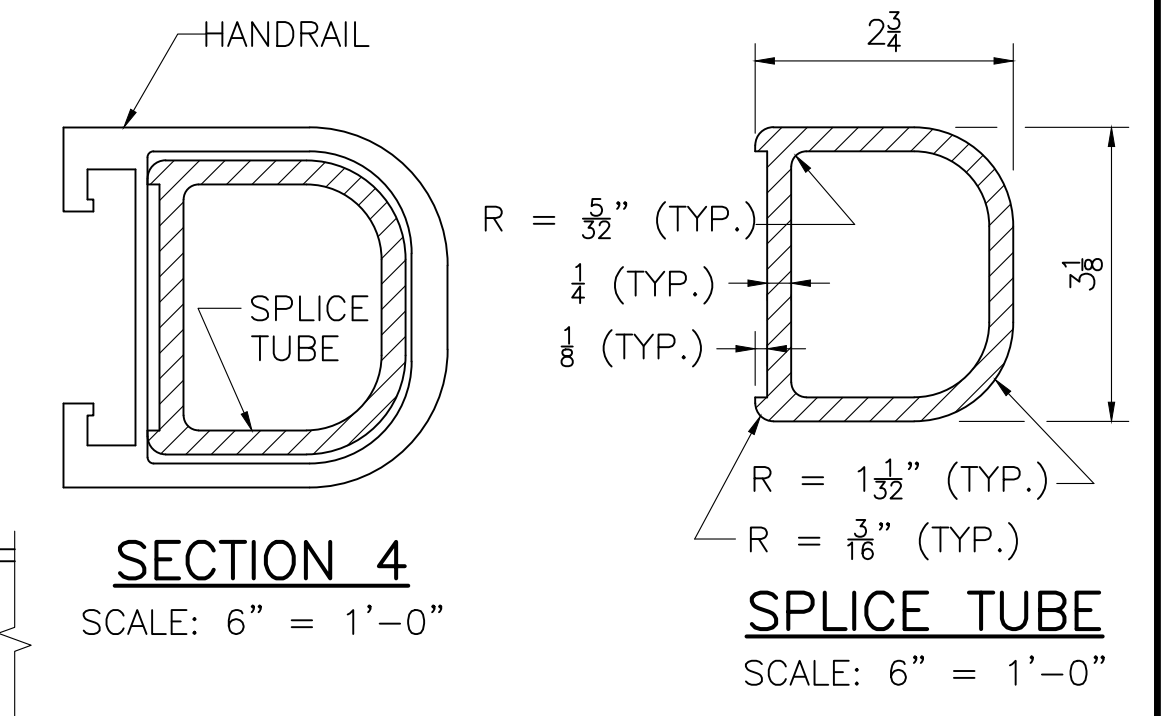
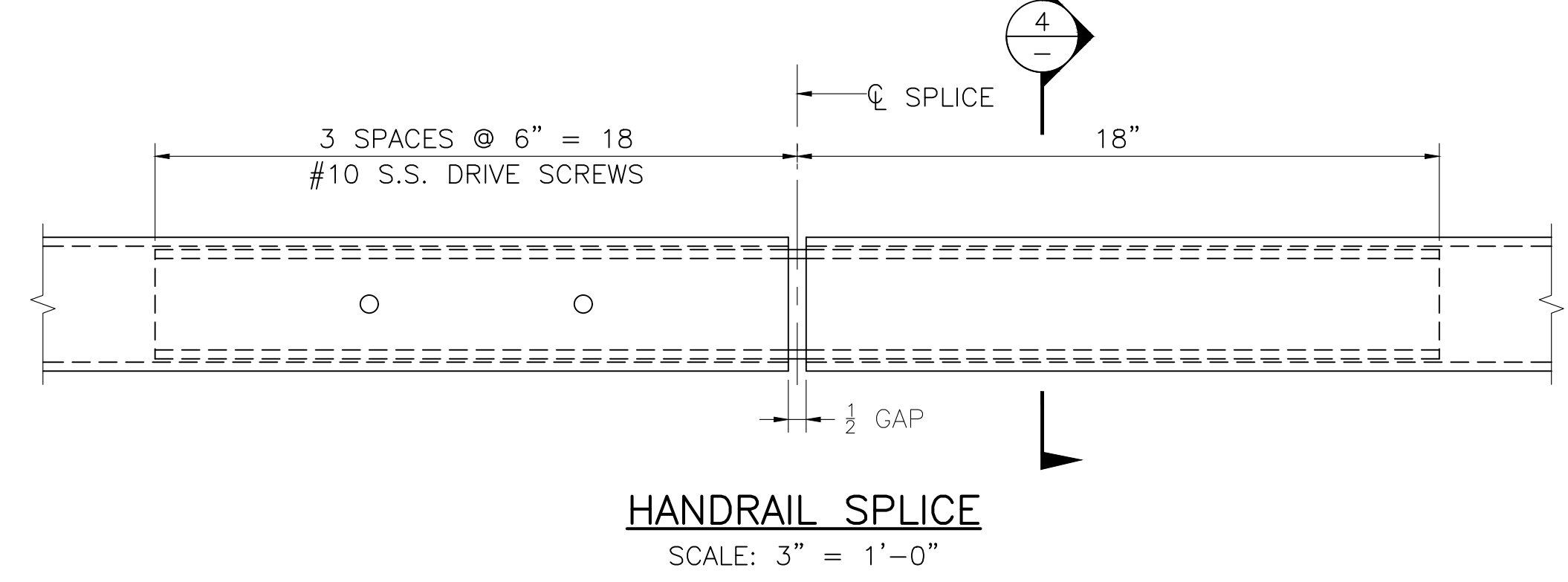
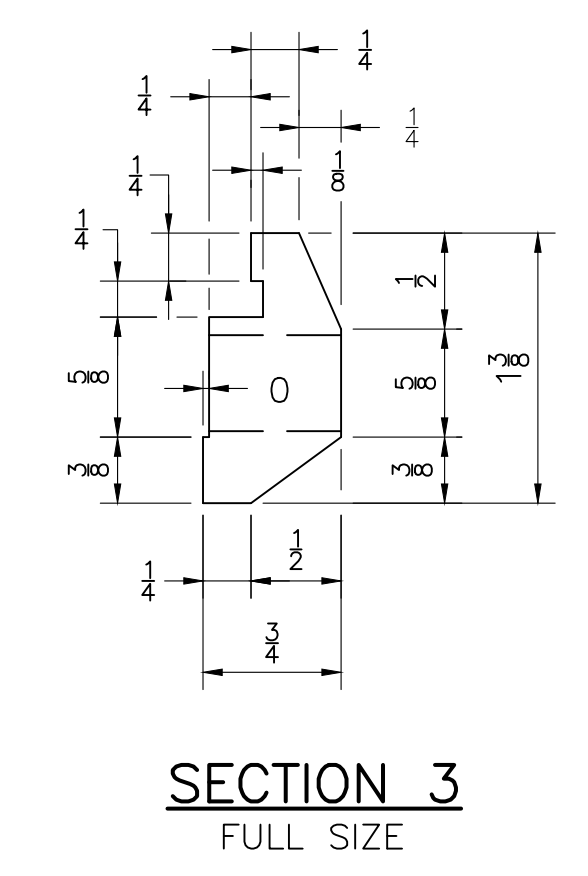
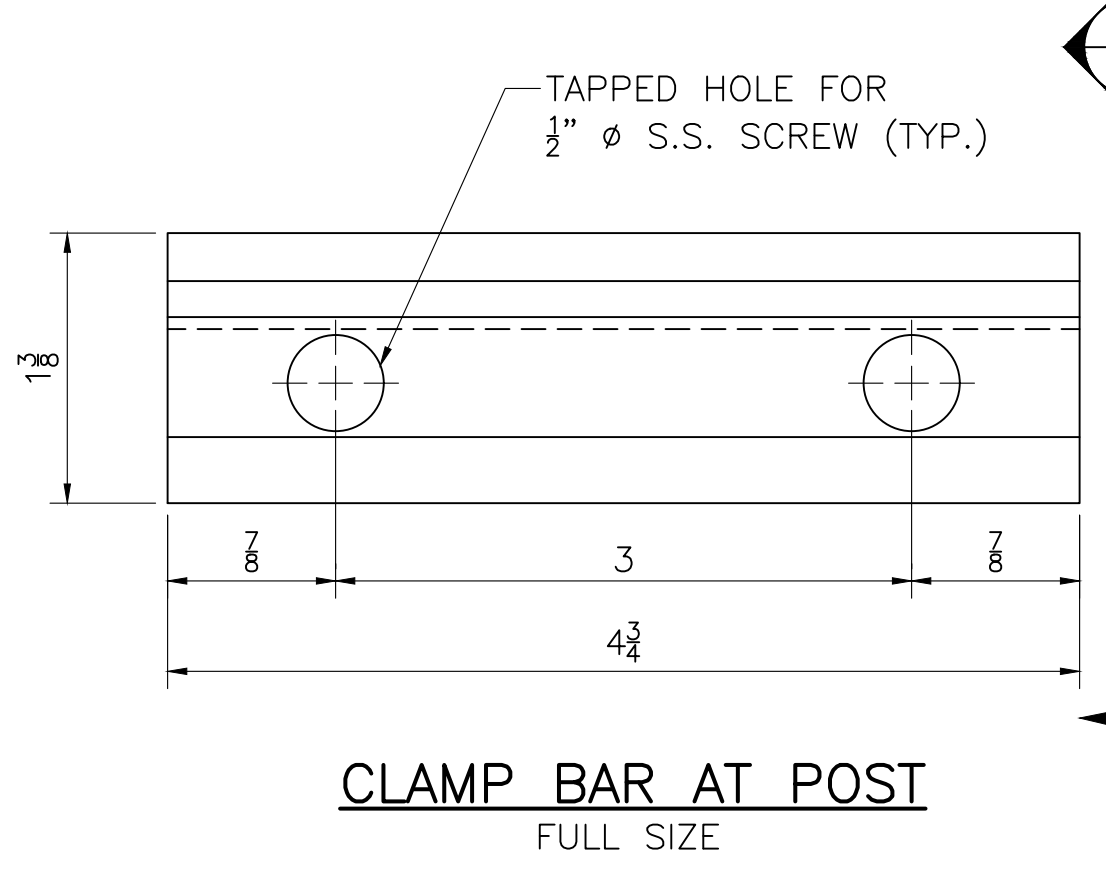
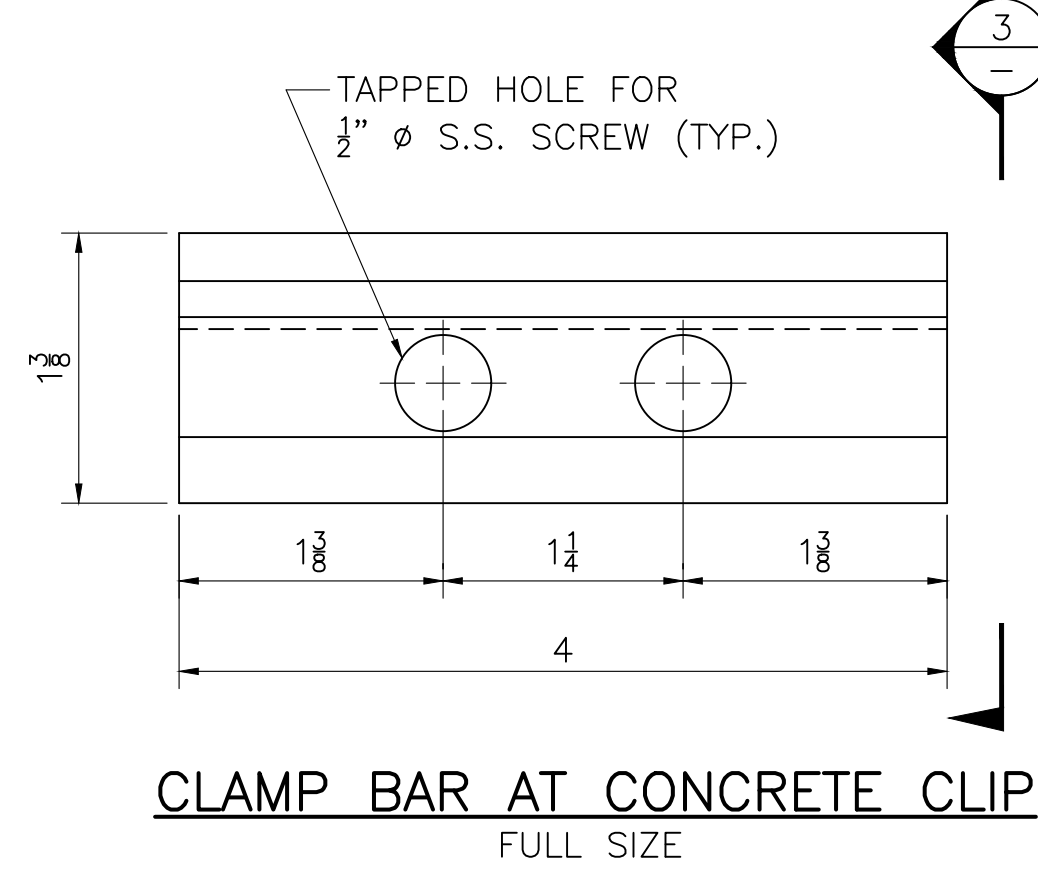
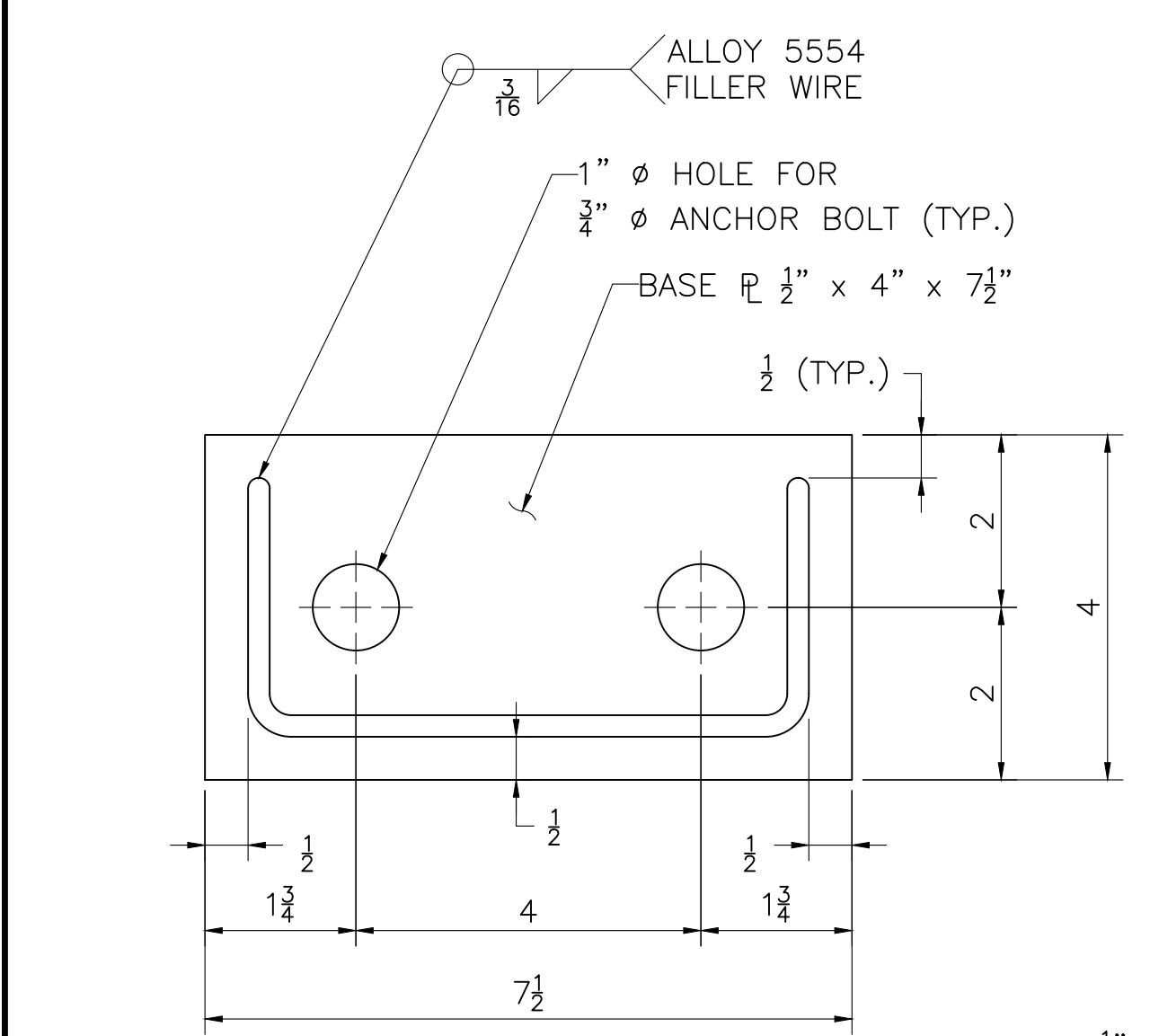
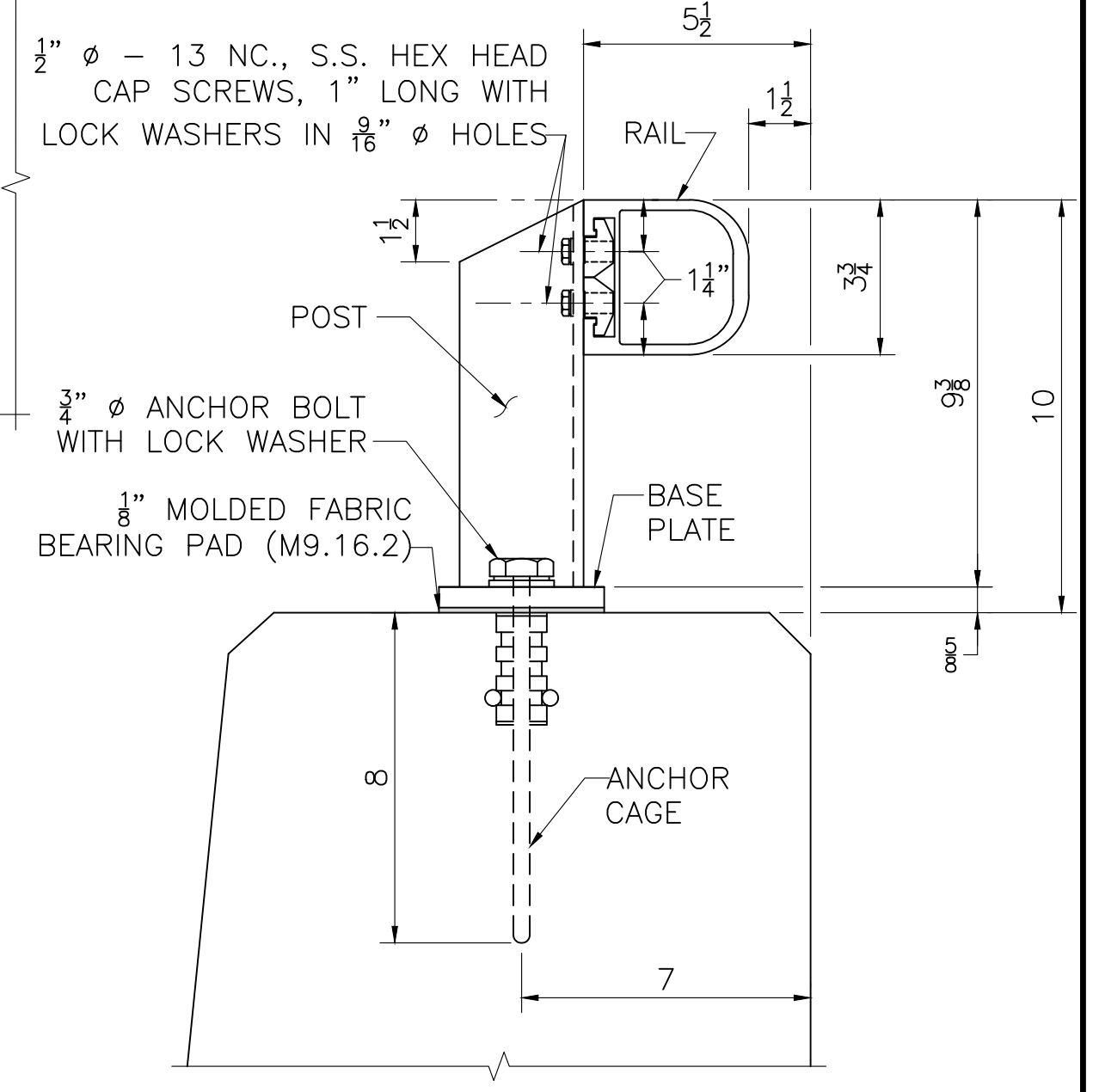
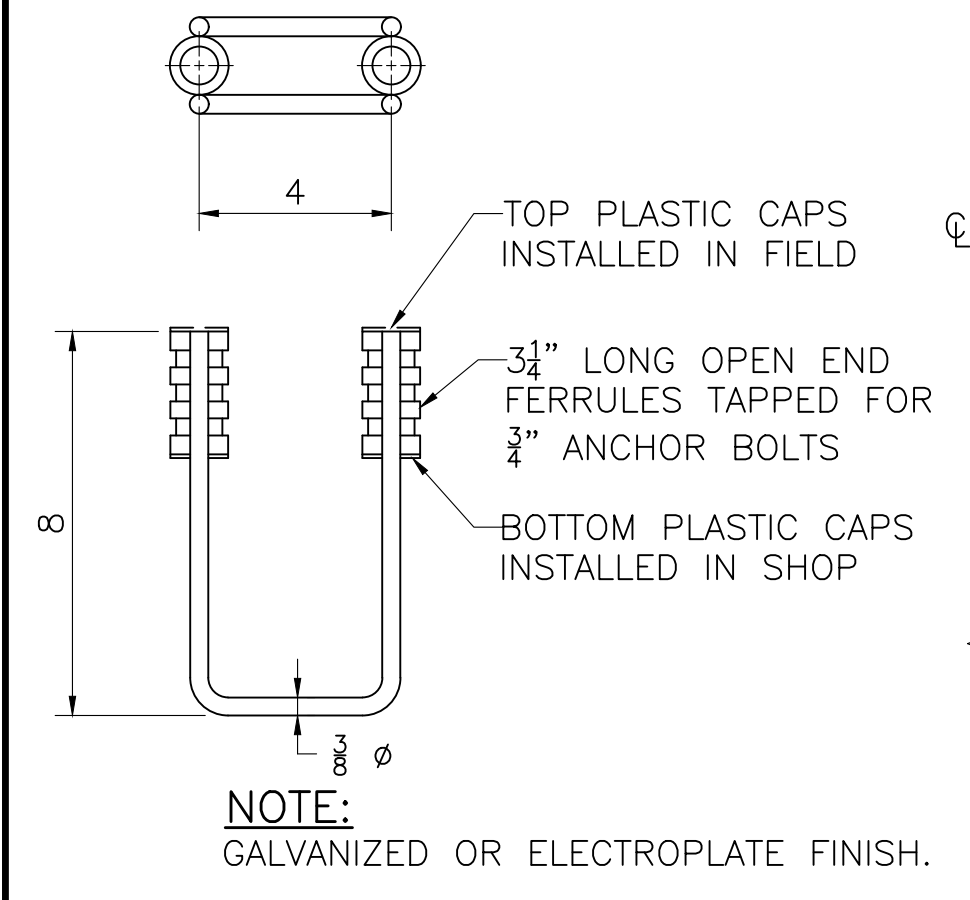
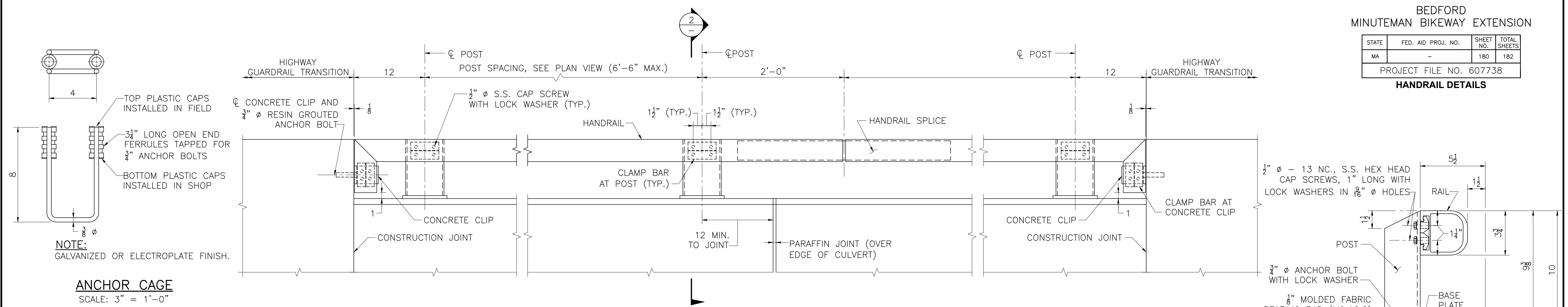


WEST BARRIER SECTION
SCALE: 1 1/2" = 1'-0"

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PROJECT FILE NO. 607738
HANDRAIL DETAILS



- FINISH:**
POSTS, RAILS, BASE PLATES, CONCRETE CLIP AND SPLICE TUBE SHALL RECEIVE A DARK BRONZE ANODIZED FINISH.
- MATERIALS:**
RAIL, POST AND BASE PLATE _____ ASTM B 221, ALLOY 6061-T6
CLAMP BAR, RAIL SPLICE AND CONC. CLIP _____ ASTM B 221, ALLOY 6061-T6
S.S. FASTENERS _____ ASTM A 193 GRADE B8 (TYPE 403)
ANCHOR BOLTS _____ AASHTO M 164 GALVANIZED (ROTATION CAPACITY TEST NOT REQUIRED)
ALUMINUM WASHERS _____ ASTM B 209 ALLOY ALCLAD 2024-T4

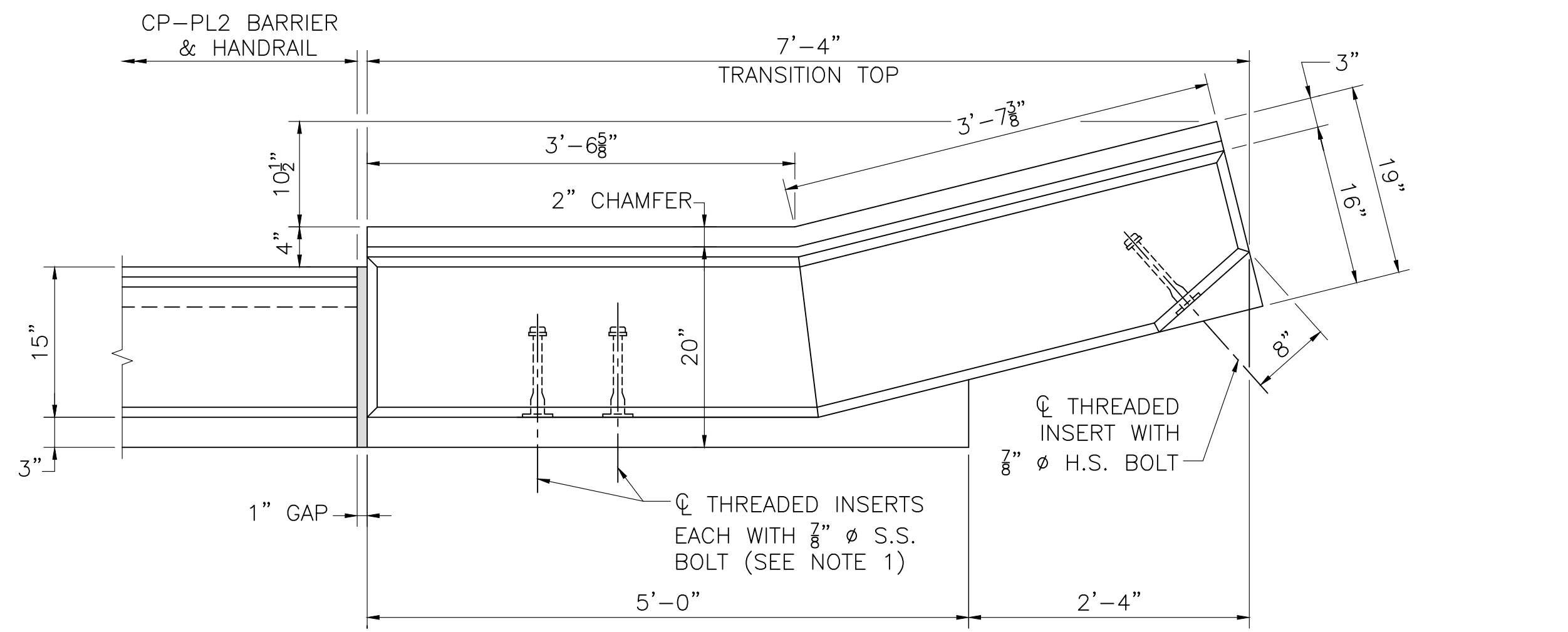
- GENERAL NOTES:**
- RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF FOUR POST, IF POSSIBLE.
 - RAILS SHALL HAVE A HANDRAIL SPLICE IN THE PANEL OVER A BRIDGE EXPANSION JOINT. 1/2" GAP SHALL BE INCREASED AS REQUIRED.
 - OTHER CONFIGURATIONS OF THE INTERNAL WALLS OF THE RAIL EXTRUSION MAY BE SUBMITTED FOR APPROVAL.
 - AT 45° MITRES, TRIM OFF 1/16" NUB ON VERTICAL RAIL SECTION AS NEEDED TO ALLOW BOTTOM HORIZONTAL CLAMP BAR TO PROPERLY ENGAGE THE HORIZONTAL RAIL.

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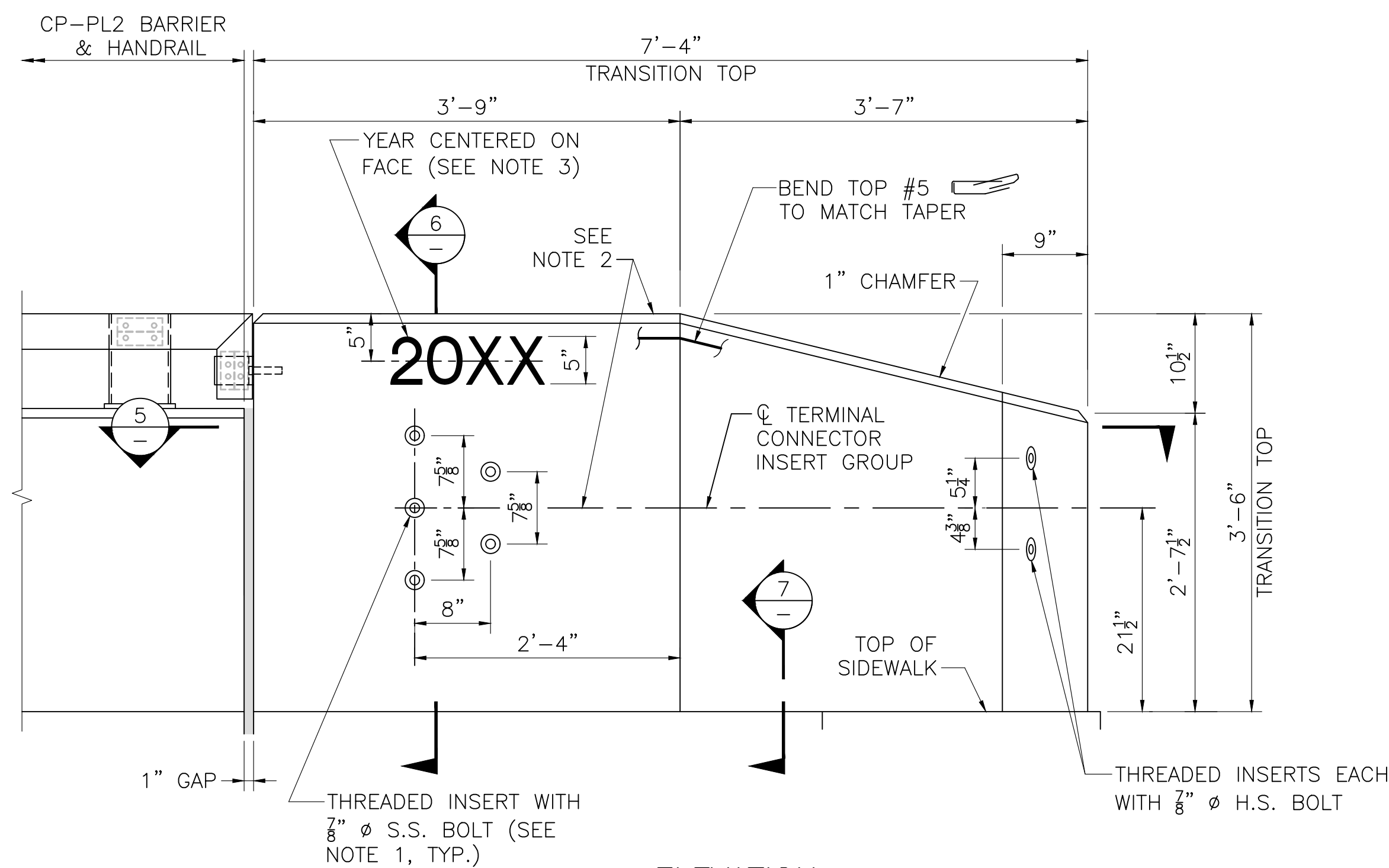
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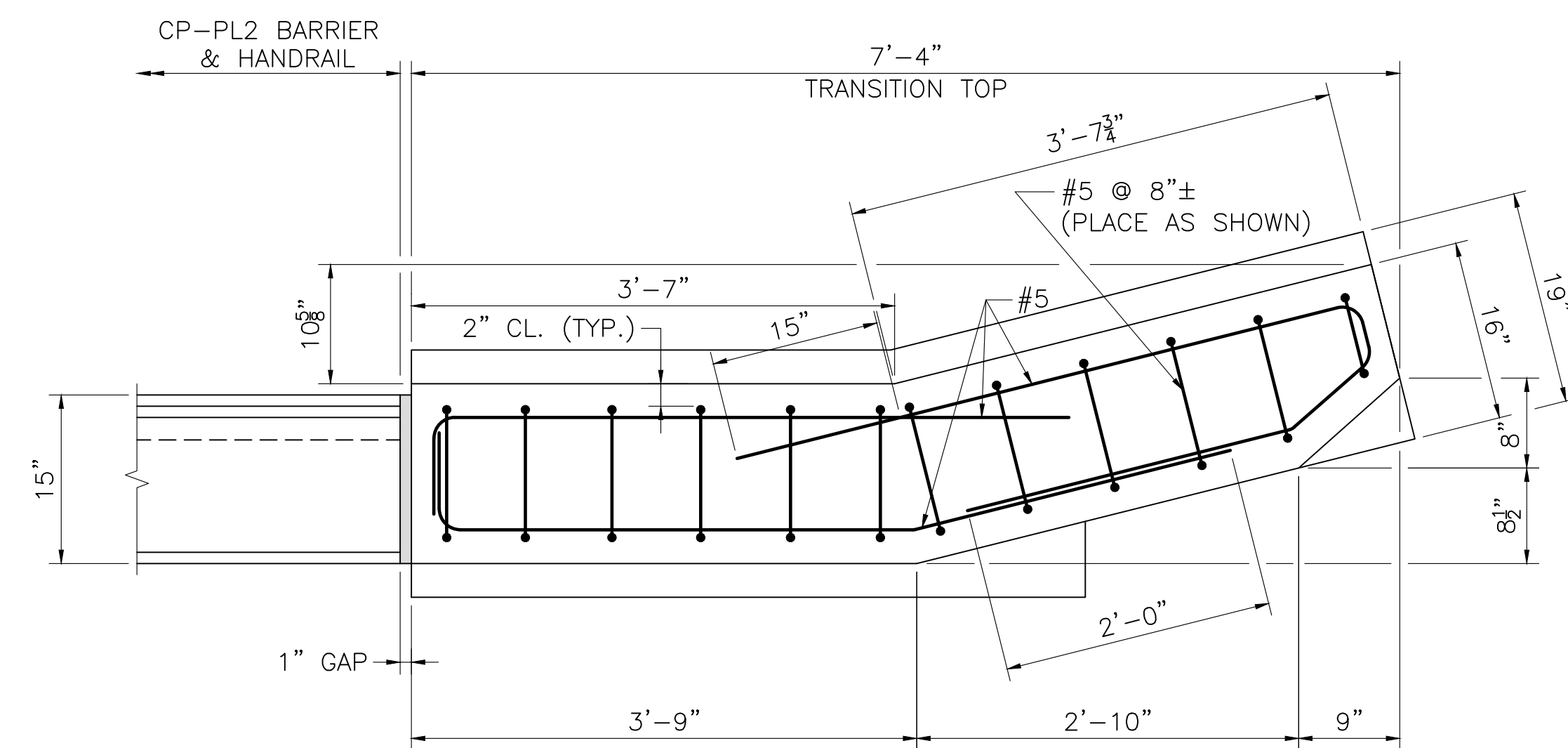
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| HIGHWAY GUARDRAIL TRANSITION | | | |



PLAN
SCALE: 1" = 1'-0"

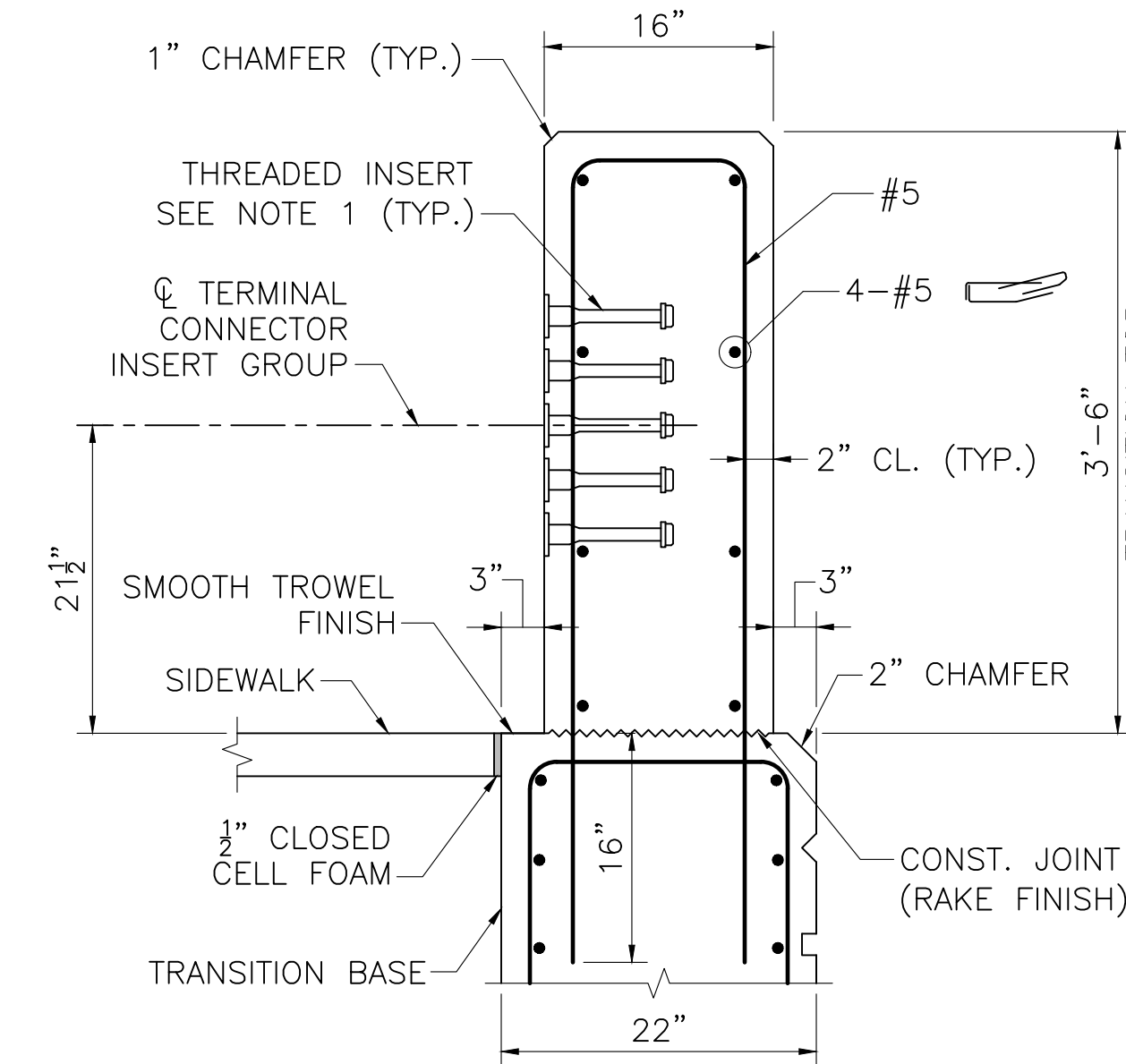


ELEVATION
SCALE: 1" = 1'-0"

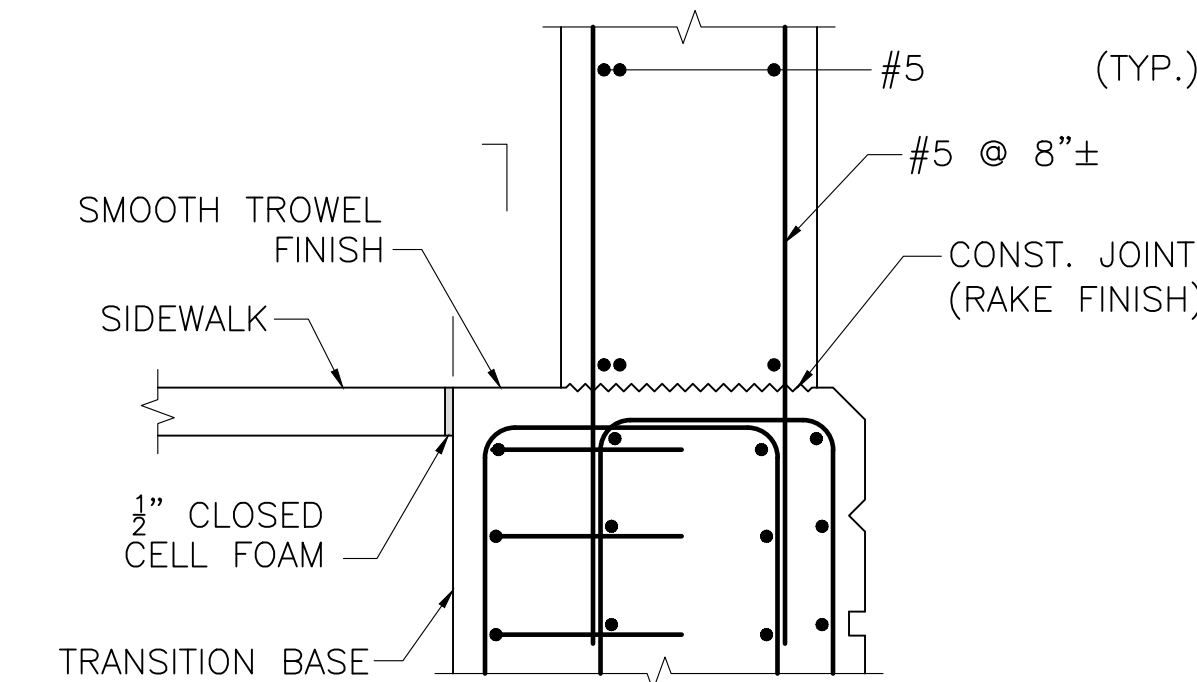


SECTION 5
SCALE: 1" = 1'-0"

TOP OF PRECAST HIGHWAY GUARDRAIL TRANSITION FOR CP-PL2 BARRIER



SECTION 6 AT SIDEWALK
SCALE: 1" = 1'-0"



SECTION 7 AT SIDEWALK
SCALE: 1" = 1'-0"

NOTES:

1. THREADED INSERTS SHALL BE PREQUALIFIED BY THE MANUFACTURER AS BEING CAPABLE OF DEVELOPING A NOMINAL SHEAR RESISTANCE OF 20 KIPS PER 7/8" Ø S.S. BOLT. S.S. BOLTS SHALL BE 7/8" Ø X 1 1/2" LONG FULLY THREADED AISI TYPE 304N STAINLESS STEEL. INSERTS FOR 7/8" S.S. BOLTS SHALL BE GALVANIZED AND CAST INTO THE TRANSITION.
2. FOR AN APPROACH GRADE UP TO 3%, THE TRANSITION MAY BE CAST SQUARE AND SET PLUMB WITH THE MINIMUM EMBEDMENT DEPTH SHOWN. THE TERMINAL CONNECTOR INSERT GROUP SHALL BE SQUARE TO THE POST.

FOR AN APPROACH GRADE IN EXCESS OF 3%, THE TRANSITION TOP AND THE TOP OF THE BRIDGE BARRIERS SHALL FOLLOW THE APPROACH GRADE. THE HEIGHT OF THE TRANSITION TOP SHALL VARY PROVIDED THAT THE MINIMUM DIMENSIONS SHOWN ON THE CONSTRUCTION DRAWINGS ARE MET. THE BOTTOM OF THE TRANSITION BASE SHALL BE SET LEVEL WITH THE MINIMUM EMBEDMENT DEPTH SHOWN. THE TERMINAL CONNECTOR INSERT GROUP SHALL BE SLOPED TO FOLLOW THE APPROACH GRADE.
3. USE LATEST CONTRACT COMPLETION YEAR IN EFFECT WHEN THE FIRST GUARDRAIL TRANSITION IS CAST. USE THIS YEAR FOR ALL GUARDRAIL TRANSITIONS.
4. ALL CONCRETE FOR THE PRECAST HIGHWAY GUARDRAIL TRANSITION SHALL BE 5000 PSI, 3/4", 685 HP CEMENT CONCRETE.
5. LIFTING DEVICES (NOT SHOWN), INCLUDING THEIR NUMBER AND LOCATION, SHALL BE DESIGNED AND DETAILED BY THE PRECASTER. THEY SHALL BE GALVANIZED AND SHALL BE PLACED AND RECESSED IN POCKETS TO PROVIDE 1 1/2" CLEAR COVER TO THE FACE OF THE TRANSITION CONCRETE. THESE DEVICES SHALL BE CLEARLY SHOWN ON THE SHOP DRAWINGS ALONG WITH ALL SUPPORTING CALCULATIONS AND/OR CATALOG CUTS. ONCE THE PRECAST TRANSITION IS SET IN PLACE, THE LIFTING DEVICE POCKETS SHALL BE FILLED WITH A NON-SHRINK GROUT THAT MATCHES THE COLOR OF THE TRANSITION CONCRETE WHEN CURED AND THE FILLED POCKETS SHALL BE RUBBED WITH A CORUNDUM STONE TO BLEND OUT THE JOINTS.

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