

EAU

PROJECT ID:

7040-00-72

COUNTY:

CLARK

OCTOBER 2025  
ORDER OF SHEETS

|             |   |                              |
|-------------|---|------------------------------|
| Section No. | 1 | Title                        |
| Section No. | 2 | Typical Sections and Details |
| Section No. | 3 | Estimate of Quantities       |
| Section No. | 3 | Miscellaneous Quantities     |
| Section No. | 4 | Right of Way Plat            |
| Section No. | 5 | Plan and Profile             |
| Section No. | 6 | Standard Detail Drawings     |
| Section No. | 7 | Sign Plates                  |
| Section No. | 8 | Structure Plans              |
| Section No. | 9 | Computer Earthwork Data      |
| Section No. | 9 | Cross Sections               |

TOTAL SHEETS = 130



DESIGN DESIGNATION 7040-00-02

|              |      |   |         |
|--------------|------|---|---------|
| A.A.D.T.     | 2026 | = | 2,110   |
| A.A.D.T.     | 2046 | = | 2,450   |
| D.H.V.       |      | = | 9%      |
| D.D.         |      | = | 50/50   |
| T.           |      | = | 17.8%   |
| DESIGN SPEED |      | = | 55      |
| ESALS        |      | = | 630,000 |

CONVENTIONAL SYMBOLS

PLAN

CORPORATE LIMITS

PROPERTY LINE

LOT LINE

LIMITED HIGHWAY EASEMENT

EXISTING RIGHT OF WAY

PROPOSED OR NEW R/W LINE

SLOPE INTERCEPT

REFERENCE LINE

EXISTING CULVERT

PROPOSED CULVERT  
(Box or Pipe)

COMBUSTIBLE FLUIDS

MARSH AREA

WOODED OR SHRUB AREA

PROFILE

GRADE LINE

ORIGINAL GROUND  
MARSH OR ROCK PROFILE  
(To be noted as such)  
SPECIAL DITCH

GRADE ELEVATION

CULVERT (Profile View)

UTILITIES

ELECTRIC

FIBER OPTIC

GAS

SANITARY SEWER

STORM SEWER

TELEPHONE

WATER

UTILITY PEDESTAL

POWER POLE

TELEPHONE POLE

# STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

## GREENWOOD - SPENCER

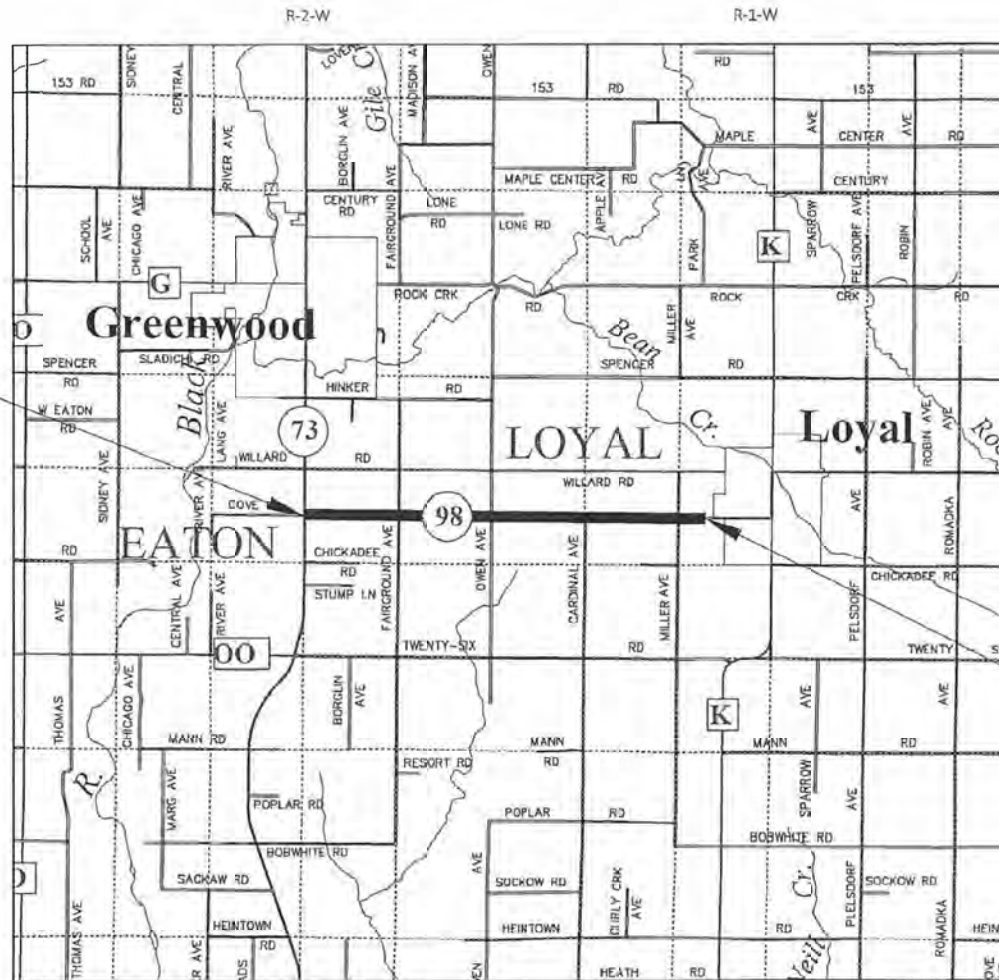
STH 73 TO HELM STREET

STH 98

CLARK COUNTY

STATE PROJECT NUMBER

7040-00-72



BEGIN PROJECT  
STA 0+18.00  
Y = 413,553.777  
X = 684,676.335

T-26-N

END PROJECT  
STA 238+75.51  
Y = 413,522.754  
X = 708,533.476

LAYOUT  
SCALE 0 2.0 MI  
TOTAL NET LENGTH OF CENTERLINE = 4.518 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN  
COORDINATE REFERENCE SYSTEM (WISCRS), CLARK COUNTY,  
NAD83 (YEAR, IN U.S. SURVEY FEET). POSITIONS SHOWN ARE GRID  
COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES  
ARE THE SAME AS GROUND DISTANCES. ELEVATIONS ARE REFERENCED  
TO NAVD 88 MEAN. GPS DERIVED ELEVATIONS ARE BASED ON GEDD 12A.

STATE PROJECT

7040-00-72

FEDERAL PROJECT

PROJECT

CONTRACT

Original Plans Prepared by



Short Elliott Hendrickson Inc.  
326 South Main Street Suite 100  
Rice Lake, WI 54808  
715.236.4000 | Main  
Building a Better World  
for All of Us



*Daniel A. Penzkofer* 4/28/25  
(Signature) (Date)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PREPARED BY

|                     |                   |
|---------------------|-------------------|
| Surveyor            | SEH               |
| Designer            | SEH               |
| Project Manager     | NATHAN ULNESS, PE |
| Regional Examiner   | WISDOT NW REGION  |
| Regional Supervisor | JAMES KOENIG, PE  |

APPROVED FOR THE DEPARTMENT

DATE: 4/29/25 *Nathan Ulness*  
(Signature)

E

STANDARD ABBREVIATIONS

|        |                                                        |         |                                      |
|--------|--------------------------------------------------------|---------|--------------------------------------|
| ABUT   | ABUTMENT                                               | ID      | INSIDE DIAMETER                      |
| AC     | ACRE                                                   | INV     | INVERT                               |
| AGG    | AGGREGATE                                              | IP      | IRON PIPE ON PIN                     |
| AECPRC | APRON ENDWALL FOR CULVERT PIPE REINFORCED CONCRETE     | LHF     | LEFT-HAND FORWARD                    |
| AECPCS | APRON ENDWALL FOR CULVERT PIPE CORRUGATED STEEL        | L       | LENGTH OF CURVE                      |
| ASPH   | ASPHALTIC                                              | LF      | LINEAR FOOT                          |
| AVG    | AVERAGE                                                | LC      | LONG CHORD OF CURVE                  |
| ADT    | AVERAGE DAILY TRAFFIC                                  | LS      | LUMP SUM                             |
| BF     | BACK FACE                                              | MH      | MANHOLE                              |
| BM     | BENCH MARK                                             | MOR     | MID POINT OF RADIUS                  |
| BR     | BRIDGE                                                 | NC      | NORMAL CROWN                         |
| CE     | COMMERCIAL ENTRANCE                                    | NO      | NUMBER                               |
| C/L    | CENTER LINE                                            | OBLIT   | OBLITERATE                           |
| Δ      | CENTRAL ANGLE OR DELTA                                 | PAVT    | PAVEMENT                             |
| COB    | CENTER OF BARRIER                                      | PE      | PRIVATE ENTRANCE                     |
| CONC   | CONCRETE                                               | PVRC    | POINT OF VERTICAL REVERSE CURVE      |
| CPRC   | CULVERT PIPE REINFORCED CONCRETE                       | QOR     | QUARTER POINT OF RADIUS              |
| CPRCHE | CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL | R       | RADIUS                               |
| CR     | CREEK                                                  | REQ'D   | REQUIRED                             |
| CY     | CUBIC YARD                                             | RES     | RESIDENCE OR RESIDENTIAL             |
| C&G    | CURB AND GUTTER                                        | RHF     | RIGHT-HAND FORWARD                   |
| D      | DEGREE OF CURVE                                        | R/W     | RIGHT-OF-WAY                         |
| DHV    | DESIGN HOUR VOLUME                                     | R       | RIVER                                |
| DISCH  | DISCHARGE                                              | RDWY    | ROADWAY                              |
| DG     | DITCH GRADE                                            | R/L     | REFERENCE LINE                       |
| DWY    | DRIVEWAY                                               | SALV    | SALVAGED                             |
| X      | EAST GRID COORDINATE                                   | SAN     | SANITARY SEWER                       |
| EAT    | STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL       | SF      | SQUARE FEET                          |
| EOR    | END POINT OF RADIUS                                    | SY      | SQUARE YARD                          |
| EL     | ELEVATION                                              | SDD     | STANDARD DETAIL DRAWINGS             |
| ENT    | ENTRANCE                                               | STA     | STATION                              |
| ESALS  | EQUIVALENT SINGLE AXLE LOADS                           | SS      | STORM SEWER                          |
| EXC    | EXCAVATION                                             | SSPRC   | STORM SEWER PIPE REINFORCED CONCRETE |
| EBS    | EXCAVATION BELOW SUBGRADE                              | SE      | SUPERELEVATION RATE                  |
| EXIST  | EXISTING                                               | TC      | TOP OF CURB                          |
| FC     | FACE OF CURB                                           | T OR TN | TOWN                                 |
| FF     | FACE TO FACE                                           | T       | TRUCKS (PERCENT OF)                  |
| FERT   | FERTILIZE                                              | TYP     | TYPICAL                              |
| FE     | FIELD ENTRANCE                                         | VAR     | VARIABLE                             |
| FL     | FLOW LINE                                              | VC      | VERTICAL CURVE                       |
| FO     | FIBER OPTIC                                            | Y       | NORTH GRID COORDINATE                |
| CWT    | HUNDREDWEIGHT                                          | YD      | YARD                                 |
| HYD    | HYDRANT                                                |         |                                      |

RUNOFF COEFFICIENT TABLE

|                         | HYDROLOGIC SOIL GROUP |            |            |                       |            |            |                       |            |            |                       |            |            |
|-------------------------|-----------------------|------------|------------|-----------------------|------------|------------|-----------------------|------------|------------|-----------------------|------------|------------|
|                         | A                     |            |            | B                     |            |            | C                     |            |            | D                     |            |            |
|                         | SLOPE RANGE (PERCENT) |            |            | SLOPE RANGE (PERCENT) |            |            | SLOPE RANGE (PERCENT) |            |            | SLOPE RANGE (PERCENT) |            |            |
| LAND USE:               | 0-2                   | 2-6        | 6 & OVER   | 0-2                   | 2-6        | 6 & OVER   | 0-2                   | 2-6        | 6 & OVER   | 0-2                   | 2-6        | 6 & OVER   |
| ROW CROPS               | .08<br>.22            | .16<br>.30 | .22<br>.38 | .12<br>.26            | .20<br>.34 | .27<br>.44 | .15<br>.30            | .24<br>.37 | .33<br>.50 | .19<br>.34            | .28<br>.41 | .38<br>.56 |
| MEDIAN STRIP-<br>TURF   | .19<br>.24            | .20<br>.26 | .24<br>.30 | .19<br>.25            | .22<br>.28 | .26<br>.33 | .20<br>.26            | .23<br>.30 | .30<br>.37 | .20<br>.27            | .25<br>.32 | .30<br>.40 |
| SIDE SLOPE-<br>TURF     |                       |            | .25<br>.32 |                       |            | .27<br>.34 |                       |            | .28<br>.36 |                       |            | .30<br>.38 |
| PAVEMENT:               |                       |            |            |                       |            |            |                       |            |            |                       |            |            |
| ASPHALT                 | .70 - .95             |            |            |                       |            |            |                       |            |            |                       |            |            |
| CONCRETE                | .80 - .95             |            |            |                       |            |            |                       |            |            |                       |            |            |
| BRICK                   | .70 - .80             |            |            |                       |            |            |                       |            |            |                       |            |            |
| DRIVES, WALKS           | .75 - .85             |            |            |                       |            |            |                       |            |            |                       |            |            |
| ROOFS                   | .75 - .95             |            |            |                       |            |            |                       |            |            |                       |            |            |
| GRAVEL ROADS, SHOULDERS | .40 - .60             |            |            |                       |            |            |                       |            |            |                       |            |            |

TOTAL PROJECT AREA = 68.6 ACRES  
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 1.5ACRES

DESIGN CONTACT:

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DNR AREA LIAISON:

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DNR SERVICE CENTER  
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BLACK RIVER FALLS, WI 54615-5450  
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WE ENERGIES - GAS

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ABBOTSFORD, WI 54404  
TELEPHONE: 715.737.7173  
ATTENTION: PAMELA DENZINE  
EMAIL: PAMELA.DENZINE@XCELENERGY.COM

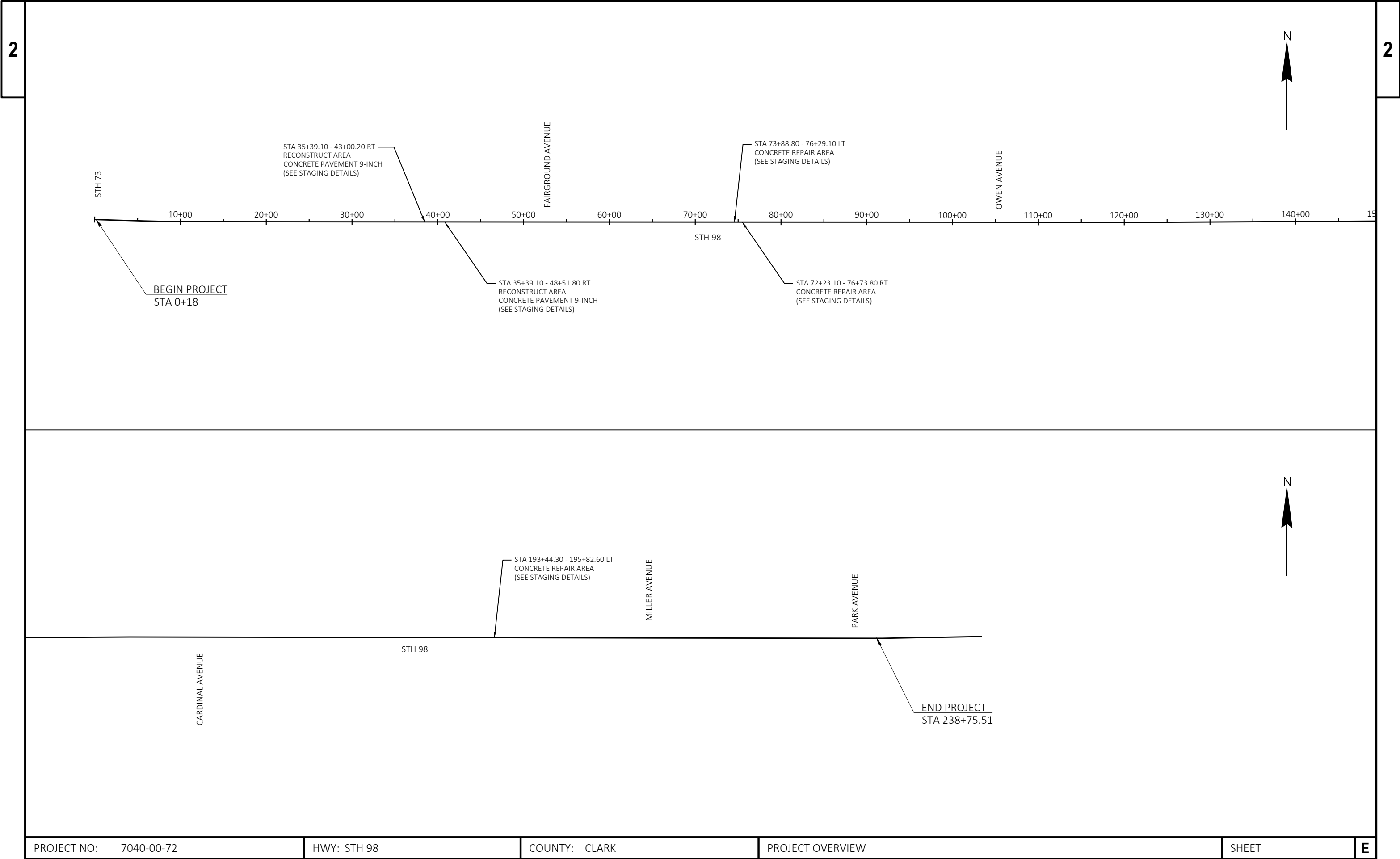
ORDER OF SHEETS - SECTION 2:

GENERAL NOTES  
PROJECT OVERVIEW  
TYPICAL SECTIONS  
CONSTRUCTION DETAILS  
INTERSECTION DETAILS  
EROSION CONTROL  
PERMANENT SIGNING  
TRAFFIC CONTROL DETAILS  
ALIGNMENT DETAILS

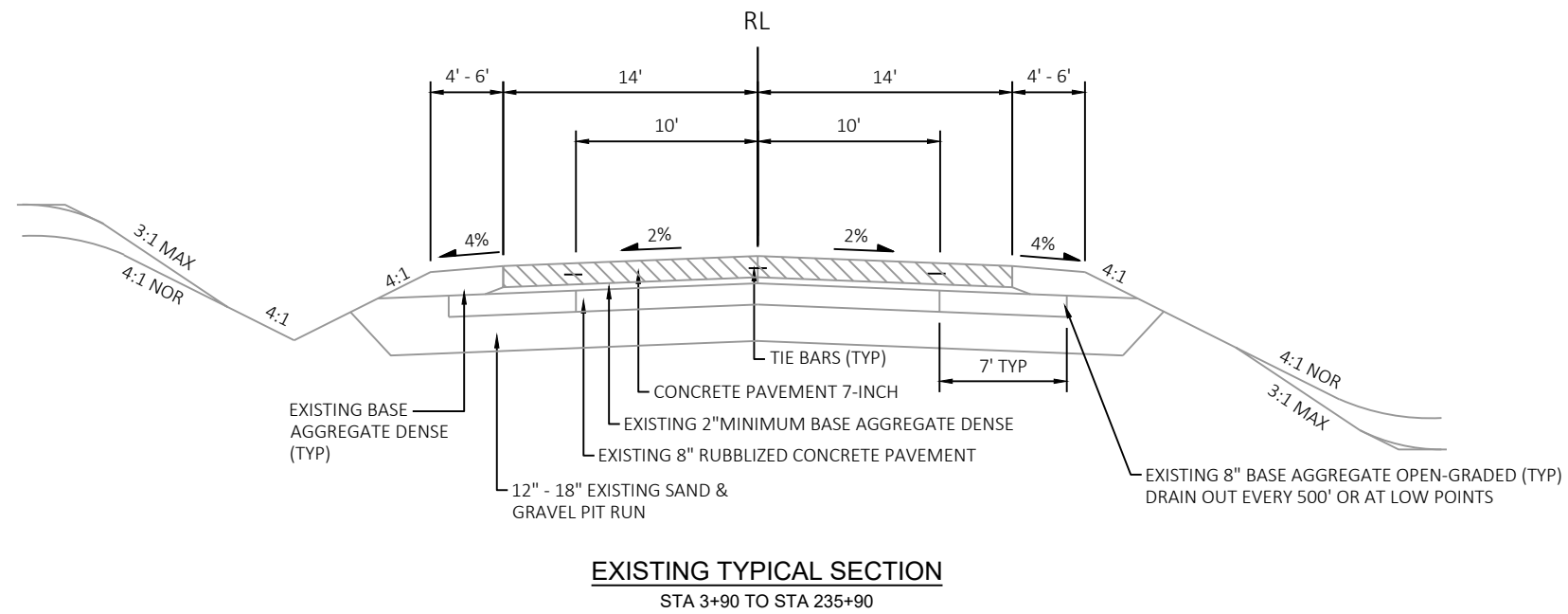
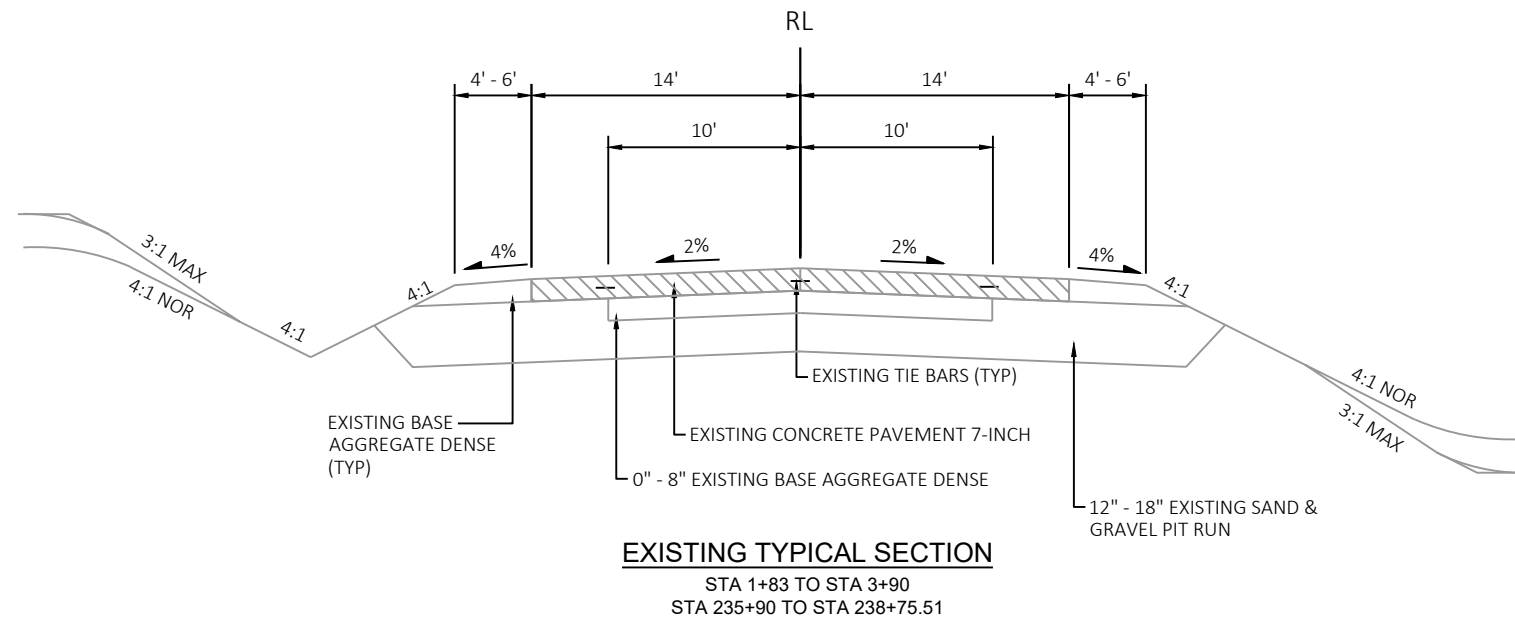
GENERAL NOTES:

- NO TREES OR SHRUBS SHALL BE REMOVED WITHOUT APPROVAL OF THE ENGINEER.
- THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.
- PRIOR TO ORDERING DRAINAGE PIPES AND STRUCTURES, THE CONTRACTOR SHALL VERIFY RELATED DRAINAGE INFORMATION IN THE PLANS WITH THE ENGINEER.
- CONCRETE COLLAR REQUIRED AT JOINTS BETWEEN EXISTING AND NEW CULVERT PIPE.
- JOINT TIES WILL BE REQUIRED ON THE ENDWALL AND LAST 2 SECTIONS PER STD 520 AND 524 ON ALL CULVERT PIPES AND ON ALL SECTIONS OF PIPE RESET. INSTALL JOINT TIE TO CONNECT RESET PIPE SECTIONS TO REMAINING SECTION.
- INLET AND DISCHARGE ELEVATIONS FOR DRAINAGE STRUCTURES SHOWN ON THE PLAN MAY BE ADJUSTED BY THE ENGINEER TO FIT FIELD CONDITIONS.
- WETLANDS, WATERWAYS, AND OTHER ENVIRONMENTALLY SENSITIVE AREAS SHALL BE PROTECTED AT ALL TIMES. DO NOT STORE EQUIPMENT OR MATERIALS NEAR THESE SITES UNLESS APPROVED BY THE ENGINEER.
- BROKEN CONCRETE CONTAINING RE-BAR SHALL NOT BE USED AS RIPRAP.
- CROSS SECTIONS SHOWN INCLUDE THE THICKNESS OF TOPSOIL WHERE REQUIRED. TOPSOIL SHALL BE REPLACED WITH 4-INCH TYPICAL DEPTH.
- TRAFFIC CONTROL DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.
- THE EROSION CONTROL FEATURES AS SHOWN IN THE PLANS ARE AT SUGGESTED LOCATIONS. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.
- ASPHALTIC AND CONCRETE SURFACES SHALL BE SAWCUT AT THE MATCH LINE AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER.
- DISTURBED AREAS WITHIN THE RIGHT OF WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS, SHALL BE SALVAGE TOPSOILED, FERTILIZED AND SEEDED.
- FERTILIZER SHALL NOT BE USED WITHIN 20 FEET OF NAVIGABLE WATERWAYS OR WETLANDS.
- A CONVERSION FACTOR OF 2.0 TONS/CY IS USED TO ESTIMATE QUANTITIES FOR BASE AGGREGATE DENSE.
- PLACE A SUFFICIENT AMOUNT OF GEOGRID TYPE SR IN THE 1' UNPAVED AREA ALONG THE REFERENCE LINE OF STH 98 DURING STAGE 2 TO ALLOW FOR 2.0' OVERLAP WHEN INSTALLING GEOGRID TYPE SR ON THE NEXT STAGE.
- TRAFFIC CONTROL STAGING MAY BE ALTERED AT THE DISCRETION OF THE CONTRACTOR APPROVED BY THE ENGINEER.
- TEMPORARY ASPHALTIC SURFACE CALCULATIONS ARE BASED ON 112 LB/SY/IN.



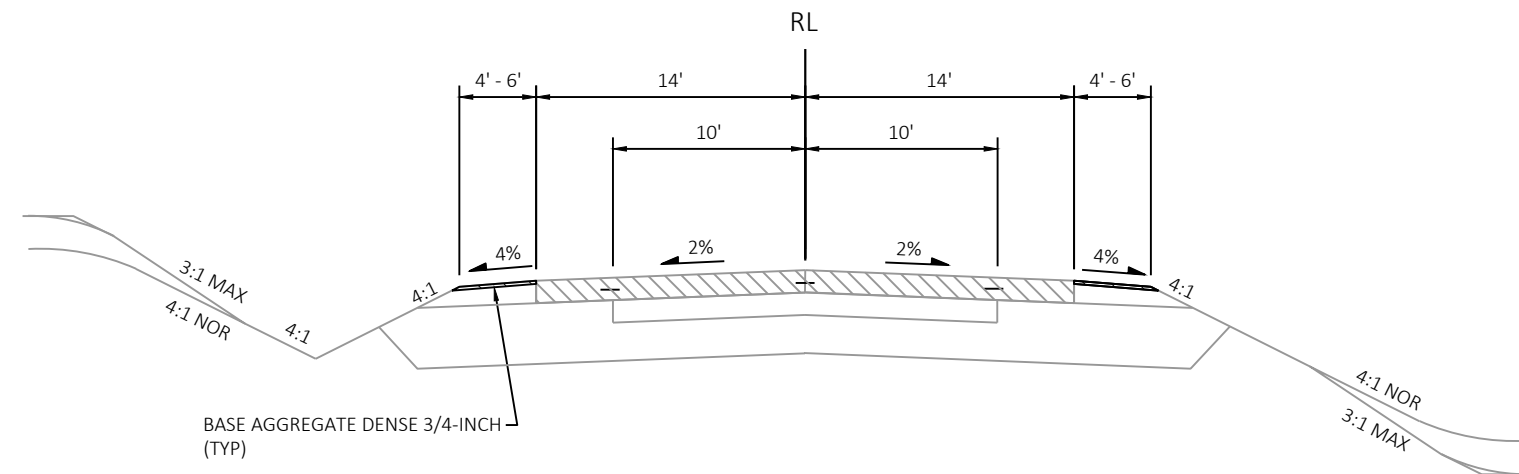


|                        |             |               |                  |       |   |
|------------------------|-------------|---------------|------------------|-------|---|
| PROJECT NO: 7040-00-72 | HWY: STH 98 | COUNTY: CLARK | PROJECT OVERVIEW | SHEET | E |
|------------------------|-------------|---------------|------------------|-------|---|



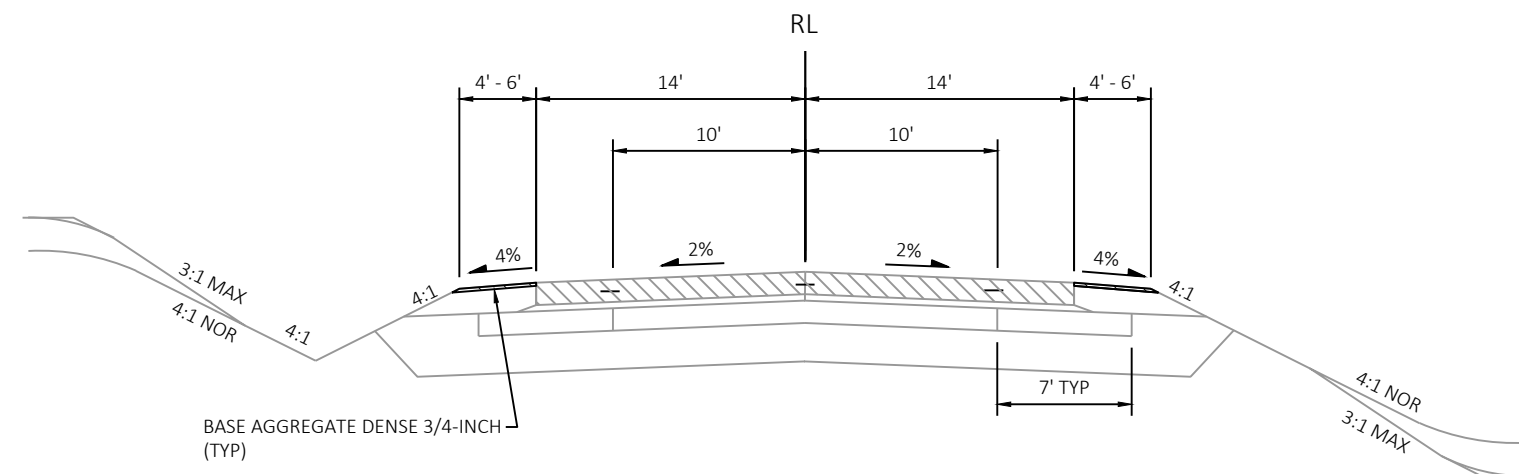
2

2 |



### FINISHED TYPICAL SECTION

STA 1+83 TO STA 3+90  
STA 235+90 TO STA 238+75.51



FINISHED TYPICAL SECTION

STA 3+90 - 35+39.10  
STA 48+51.80 - 235+90 LT  
STA 43+00.10 - 235+90 RT



CONCRETE PAVEMENT 7-INCH REMOVAL AND REPLACEMENT MAY NOT BE REQUIRED TO RESET REQ'D NUMBER OF PIPE SECTIONS. MINIMIZE AREAS OF DISTURBANCE DURING RESET OPERATIONS.

DURING RESET OPERATIONS REMOVE AND RESET ALL SEPARATED PIPES. THIS MAY REQUIRE RESETTNG MORE OR LESS PIPE SECTIONS THAN ESTIMATED IN THE PLANS DEPENDING ON OBSERVED FIELD CONDITIONS AT TIME OF RESET.

CULVERT TRENCH EXCAVATION IS INCIDENTAL TO CULVERT PIPE ITEMS.

CRUSHED ROCK FOR PIPE FOUNDATION/STABILIZATION OR DEWATERING OPERATIONS SHALL BE INCIDENTAL TO THE ITEM RECONDITION CULVERT ENDS

SEE PLANS FOR ESTIMATED NUMBER OF PIPE SECTIONS TO BE RESET AT EACH LOCATION.

TIE AND WRAP ALL RESET PIPE JOINTS. MORTAR FILL ANY VOIDS AROUND TIE EYE BOLT.

MINIMUM TWO JOINT TIES PER PIPE JOINT. MINIMIZE PROTRUSION INTO EXISTING PIPE SECTIONS WITH EYE BOLTS.

EXISTING PIPE SECTIONS TO REMAIN IN PLACE

EXISTING RESET PIPE SECTIONS

DRILL HOLES FOR JOINT TIES

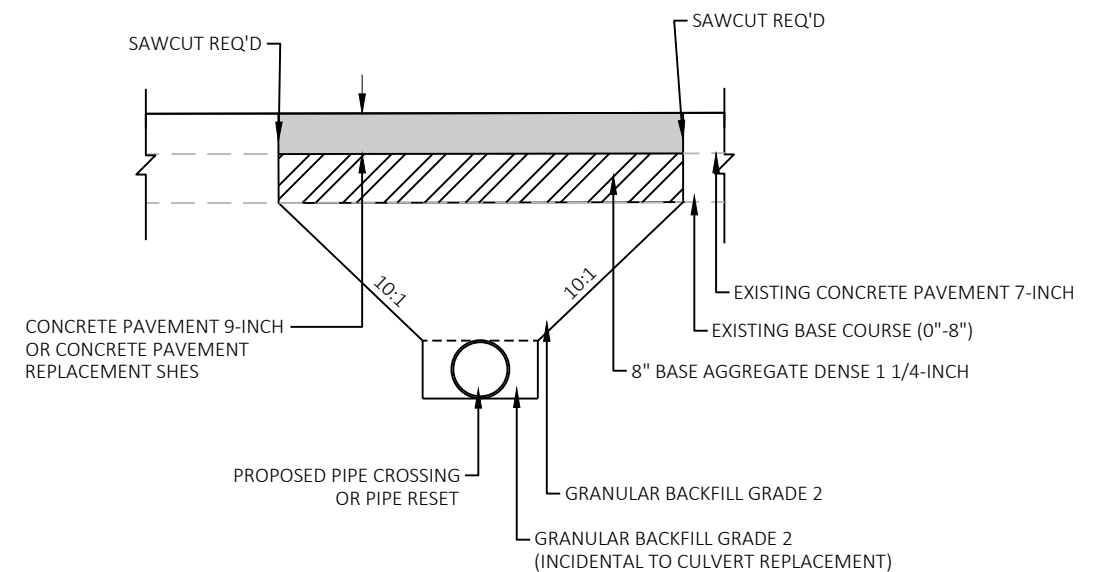
GEOTEXTILE TYPE DF SCHEDULE B REQ'D ALL RESET JOINTS

3.0' MIN

D/2 MIN OVERLAP  
GEOTEXTILE TYPE DF

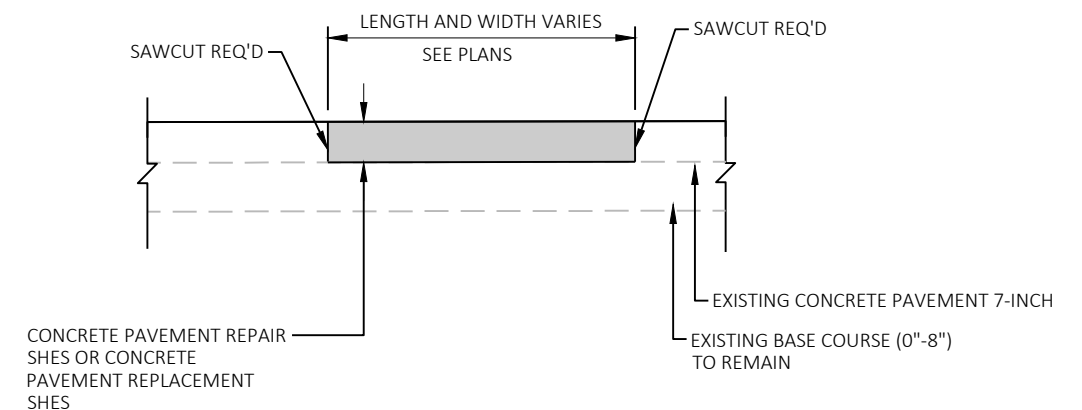
SEE PLANS TO DETERMINE IF APRON ENDWALLS ARE REQ'D AT PIPE LOCATION

### RECONDITION CULVERT ENDS

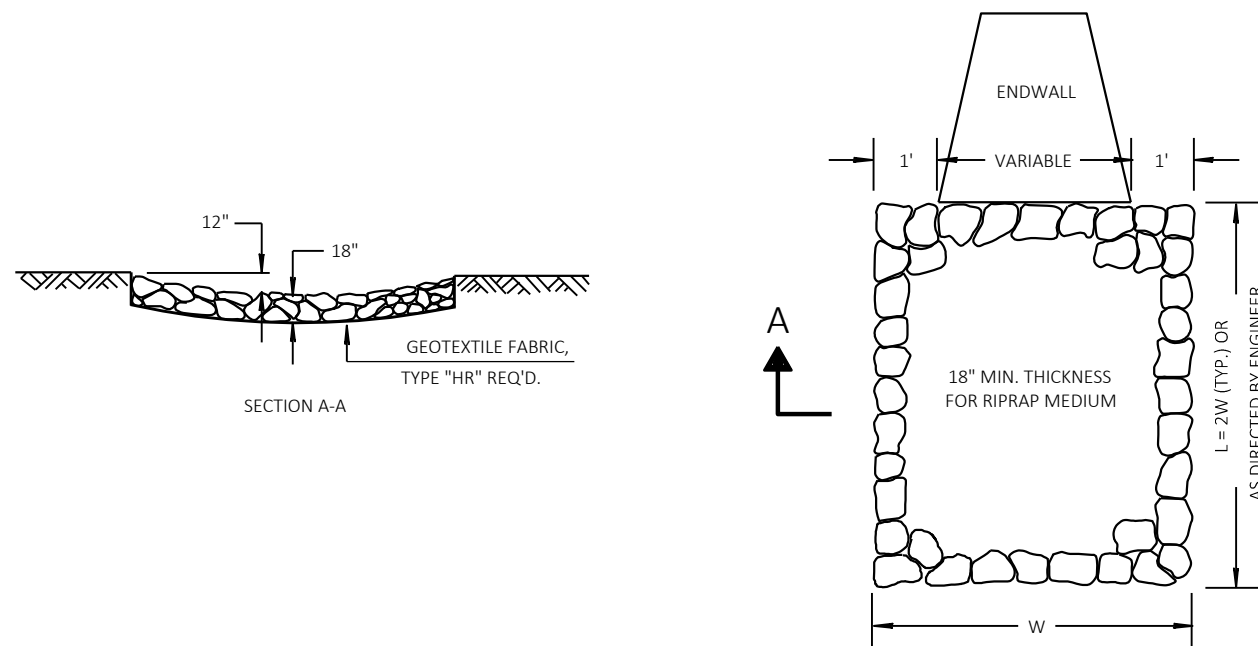


### DETAIL FOR MAINLINE CULVERT PIPE INSTALLATION OR RESET

SEE APPLICABLE WISDOT SDD FOR DRILLED DOWEL BAR, DRILLED TIE BAR, AND ALL STEEL REINFORCEMENT LOCATIONS AND SPACING.

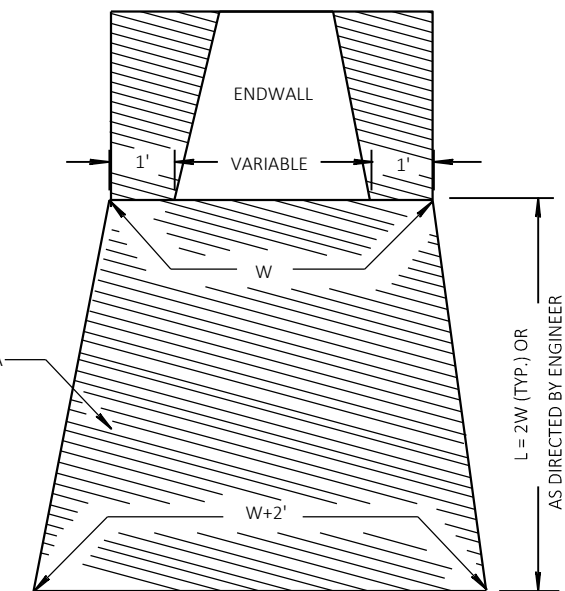


### CONCRETE REPAIR AREA OR REPLACEMENT

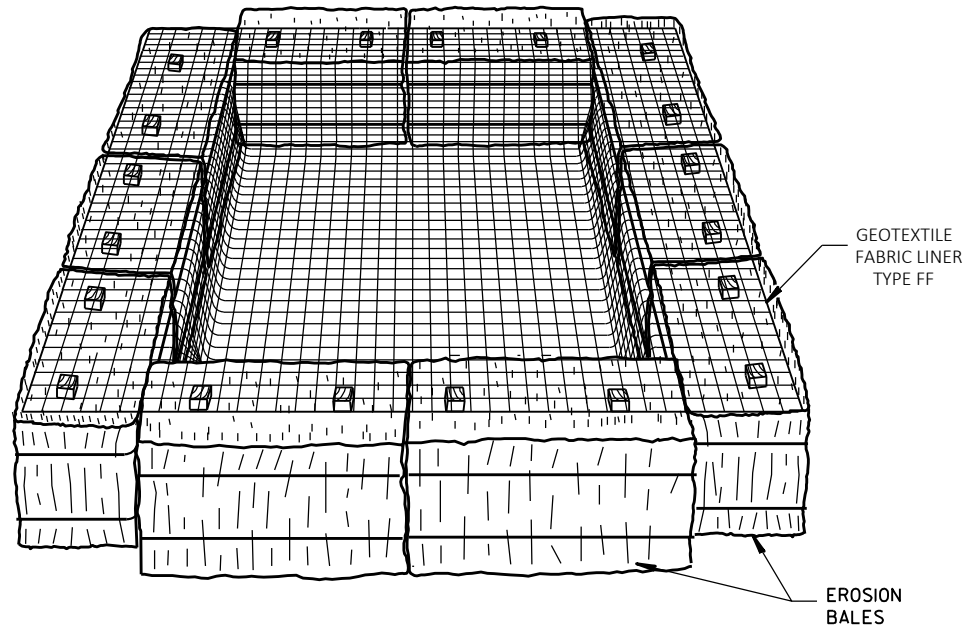


RIPRAP MEDIUM TREATMENT AT CULVERTS

OTHER REQUIRED DIMENSIONS TO MINIMIZE IMPACTS OR STAY WITHIN THE EXISTING RIGHT-OF-WAY ARE SHOWN ELSEWHERE IN THE PLANS.



EROSION MAT TREATMENT AT CULVERTS



### TEMPORARY SETTLING BASIN

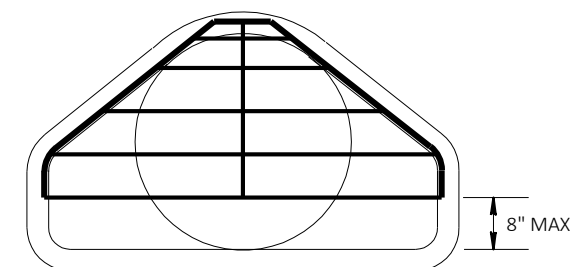
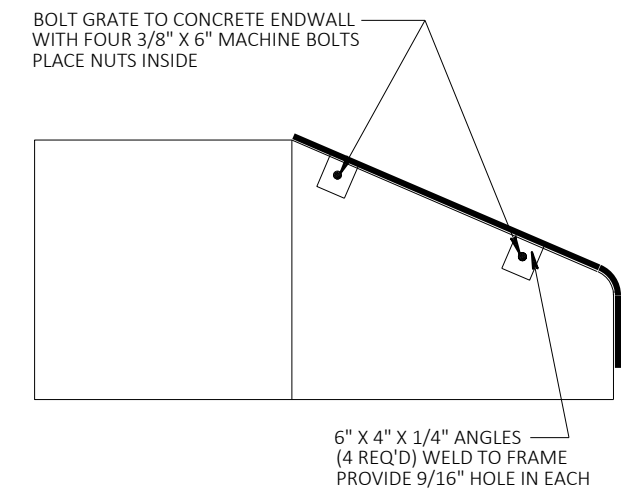
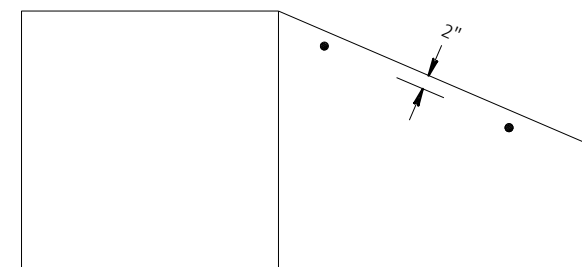
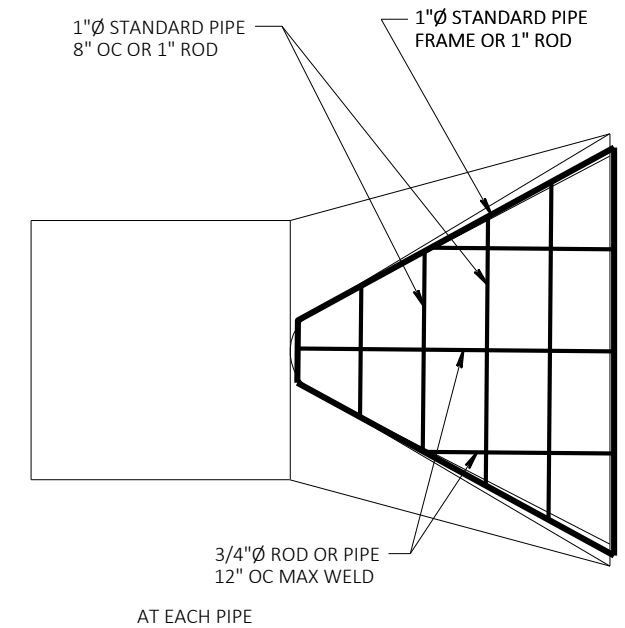
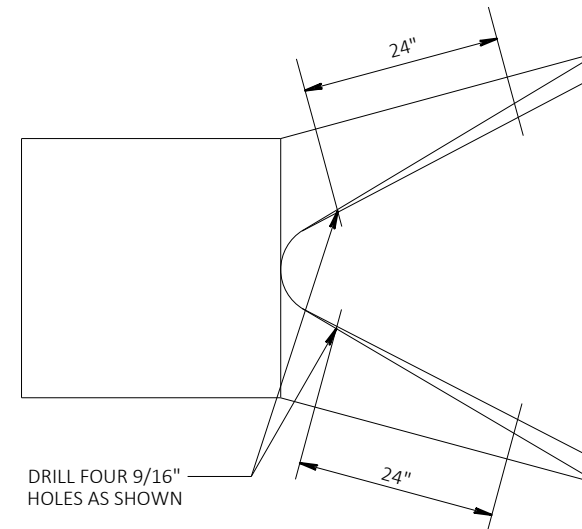
(SIZE TO BE DETERMINED IN FIELD AS INDICATED BELOW:)

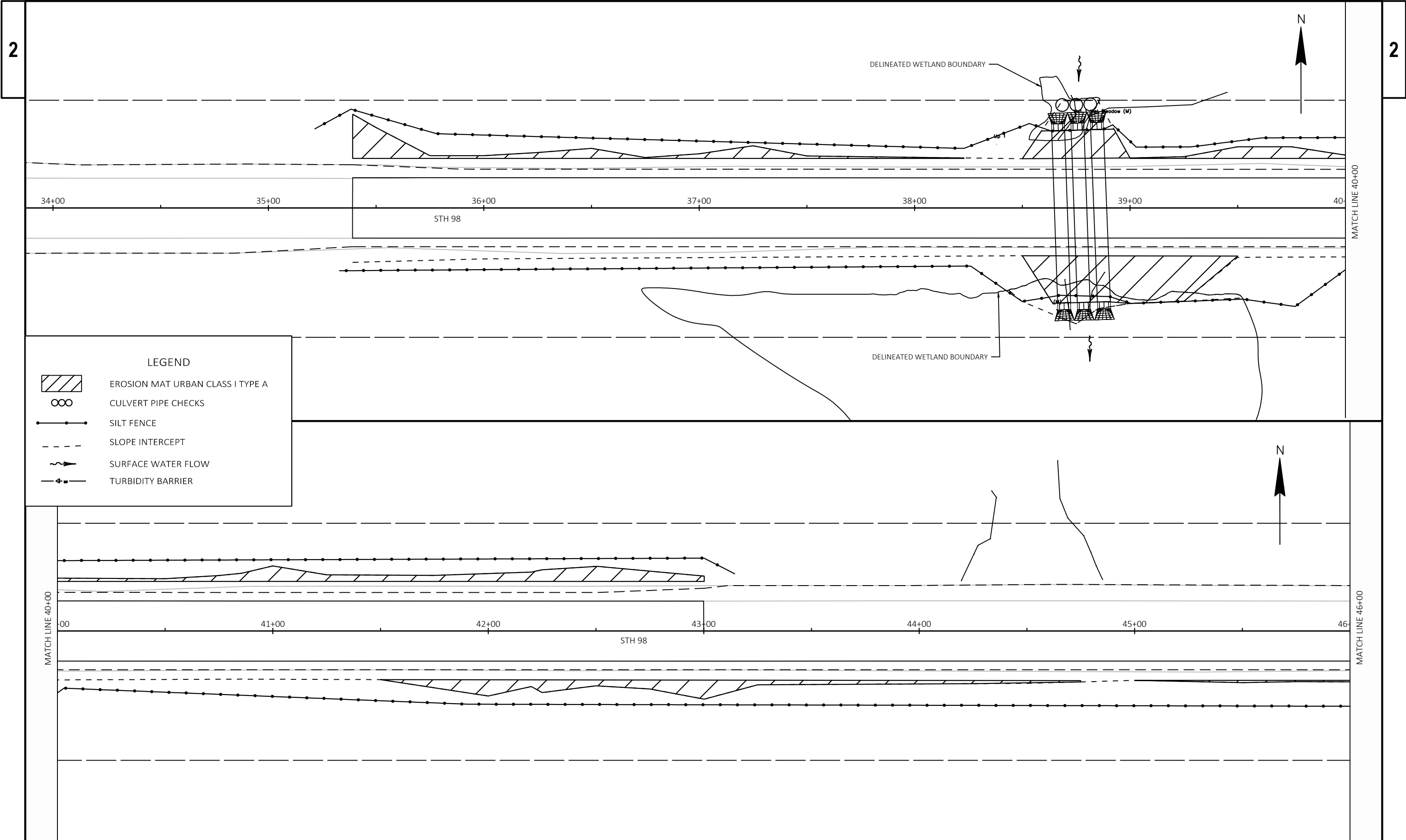
STORAGE VOLUME ( C.F.) = 16 X GPM (PUMP RATE)

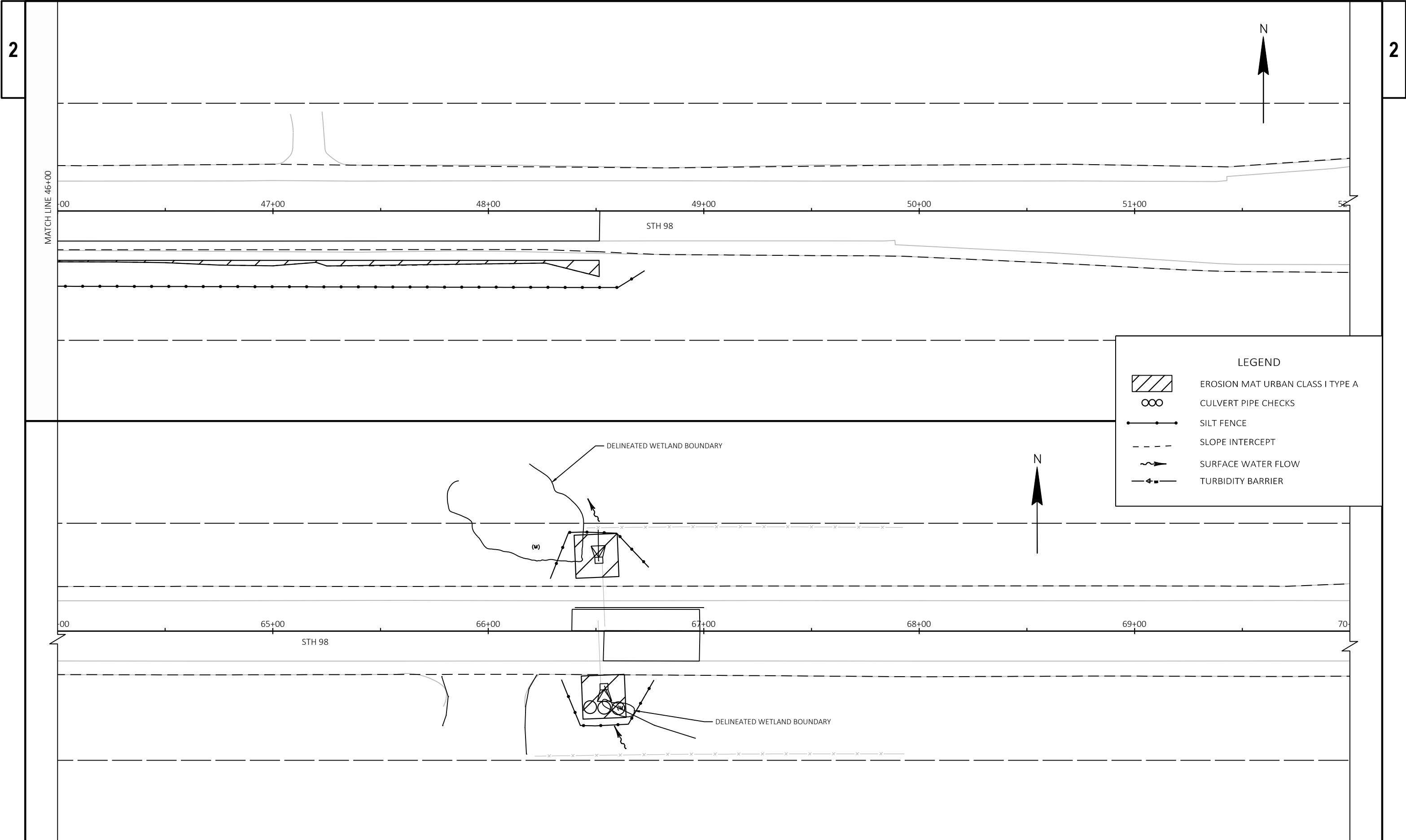
EXAMPLE:  
CONTRACTOR INDICATES PUMP CAPABLE OF 50 GPM  
HEIGHT OF BALES = 1.5 FT.

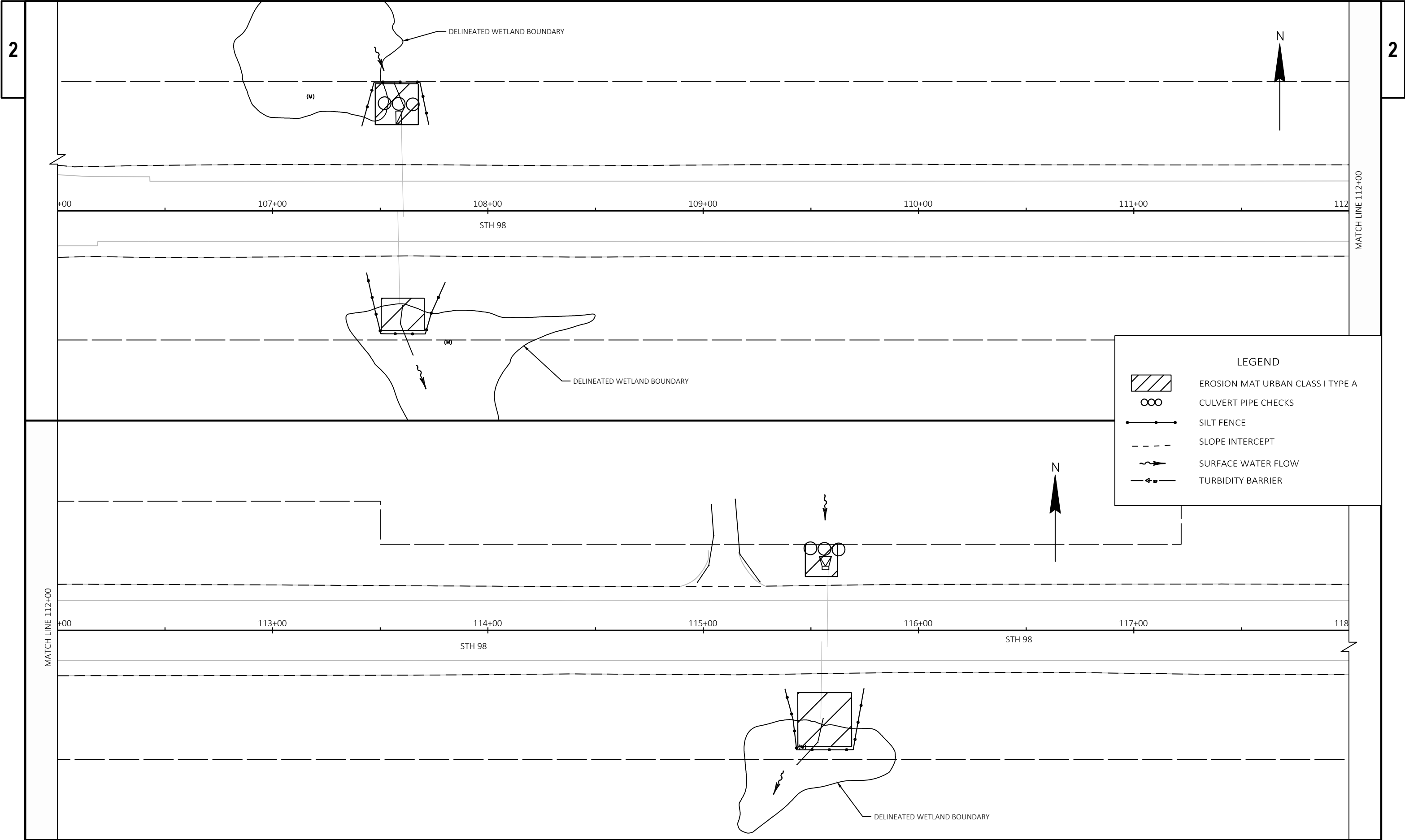
SOLUTION:  
SV ( C.F.) = 16 X 50  
SV = 800 C.F.  
 $\frac{800 \text{ C.F.}}{1.5 \text{ FT.}} = 533 \text{ S.F.}$

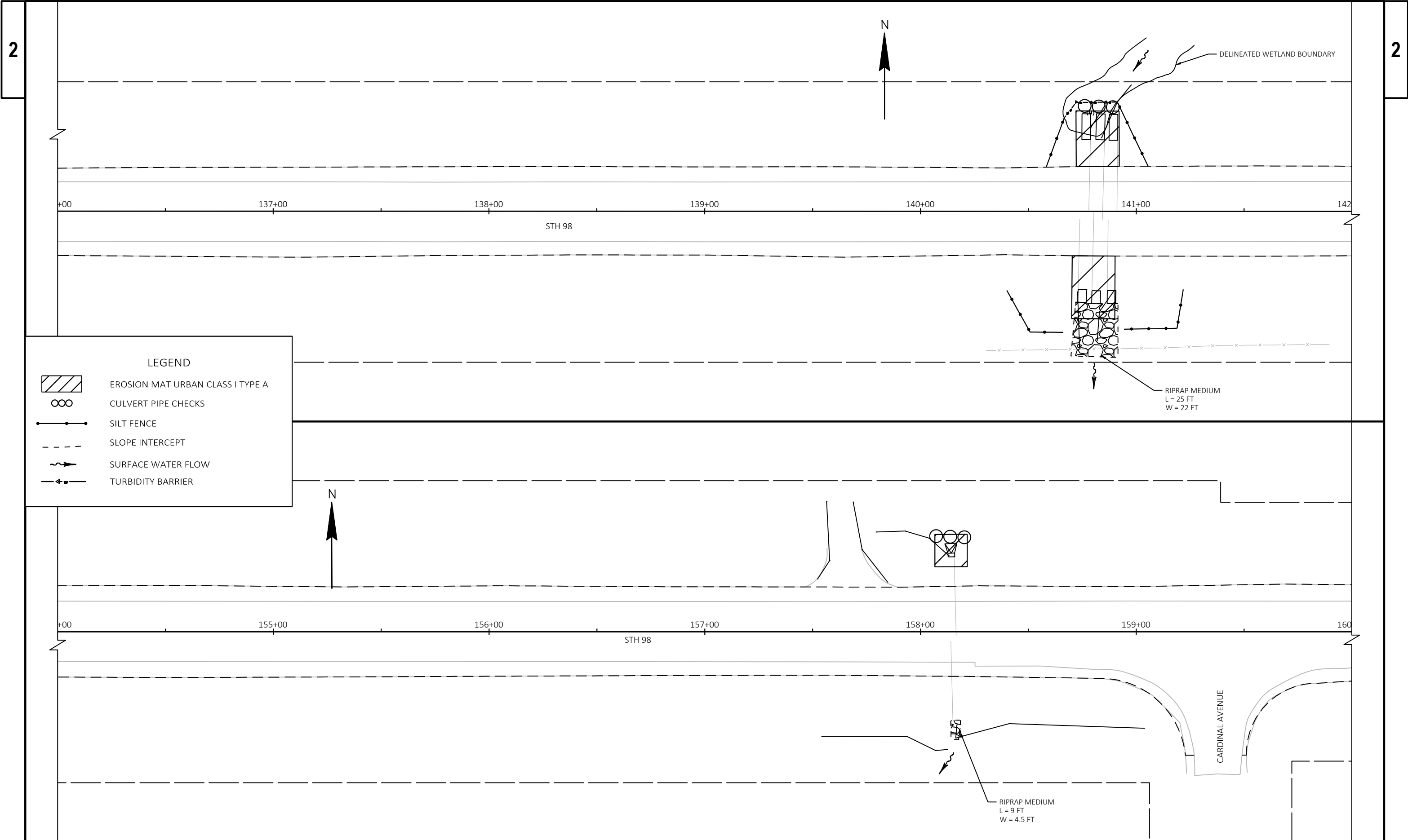
USE A 20 FT. X 27 FT. BASIN

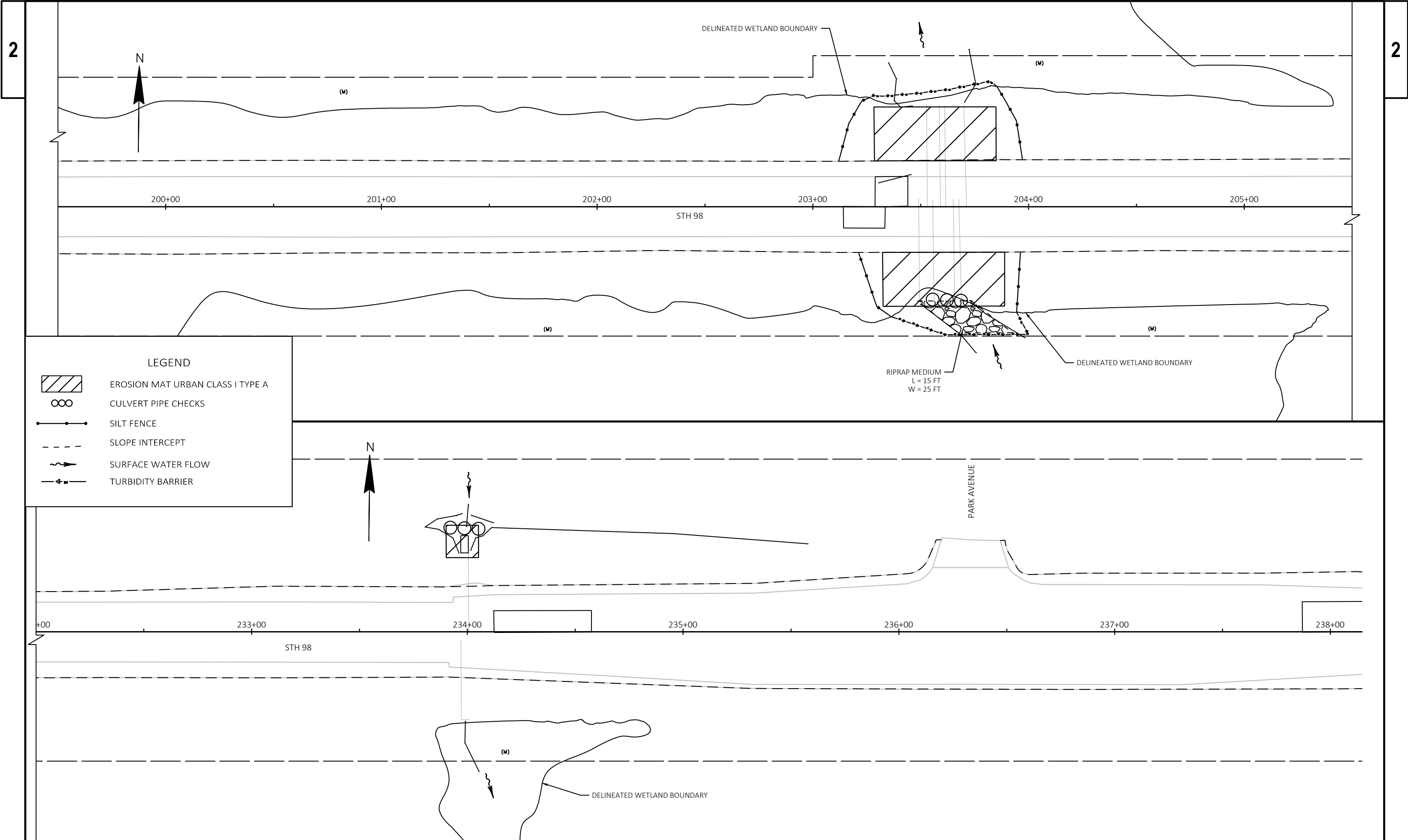








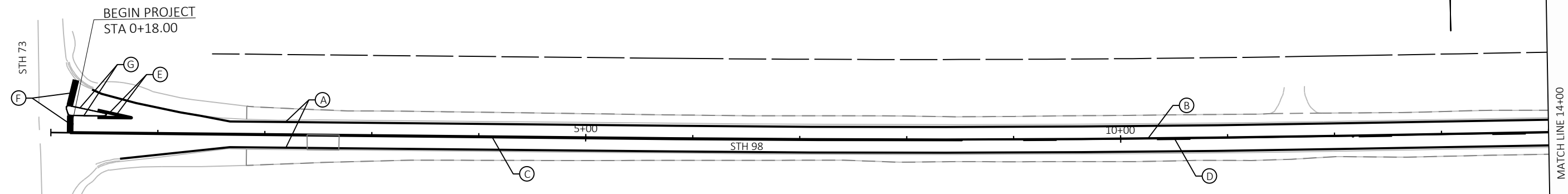




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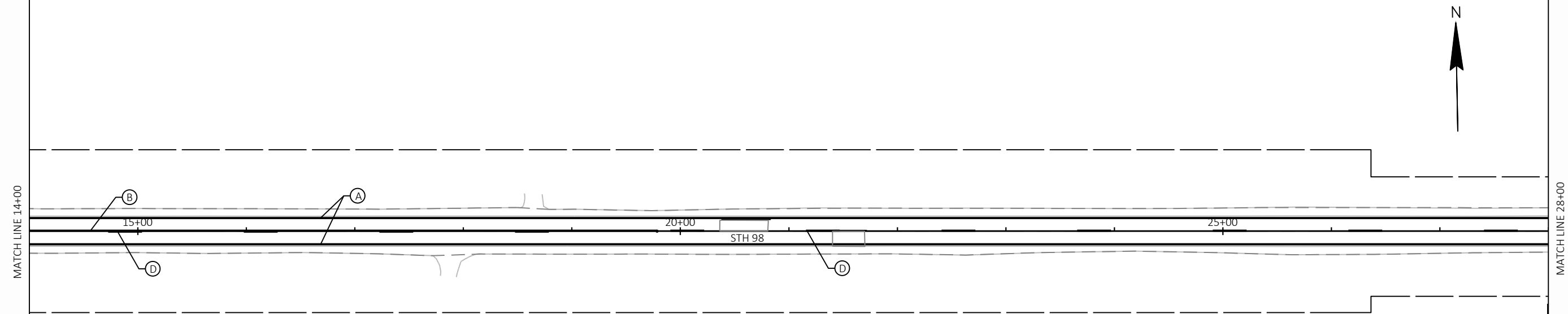
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NOTE: MATCH EXISTING PAVEMENT MARKING IN AREAS  
WHERE NO OTHER WORK IS TAKING PLACE



### MARKING LEGEND

- (A) MARKING LINE GROOVED WET REF EPOXY 6-INCH (WHITE)
- (B) MARKING LINE GROOVED WET REF EPOXY 6-INCH (YELLOW)
- (C) MARKING LINE GROOVED WET REF EPOXY 6-INCH (DOUBLE YELLOW)
- (D) MARKING LINE GROOVED WET REF EPOXY 6-INCH (YELLOW DASHED)
- (E) MARKING LINE GROOVED WET REF EPOXY 10-INCH (WHITE)
- (F) MARKING STOP LINE EPOXY 18-INCH
- (G) MARKING CURB EPOXY



PROJECT NO: 7040-00-72

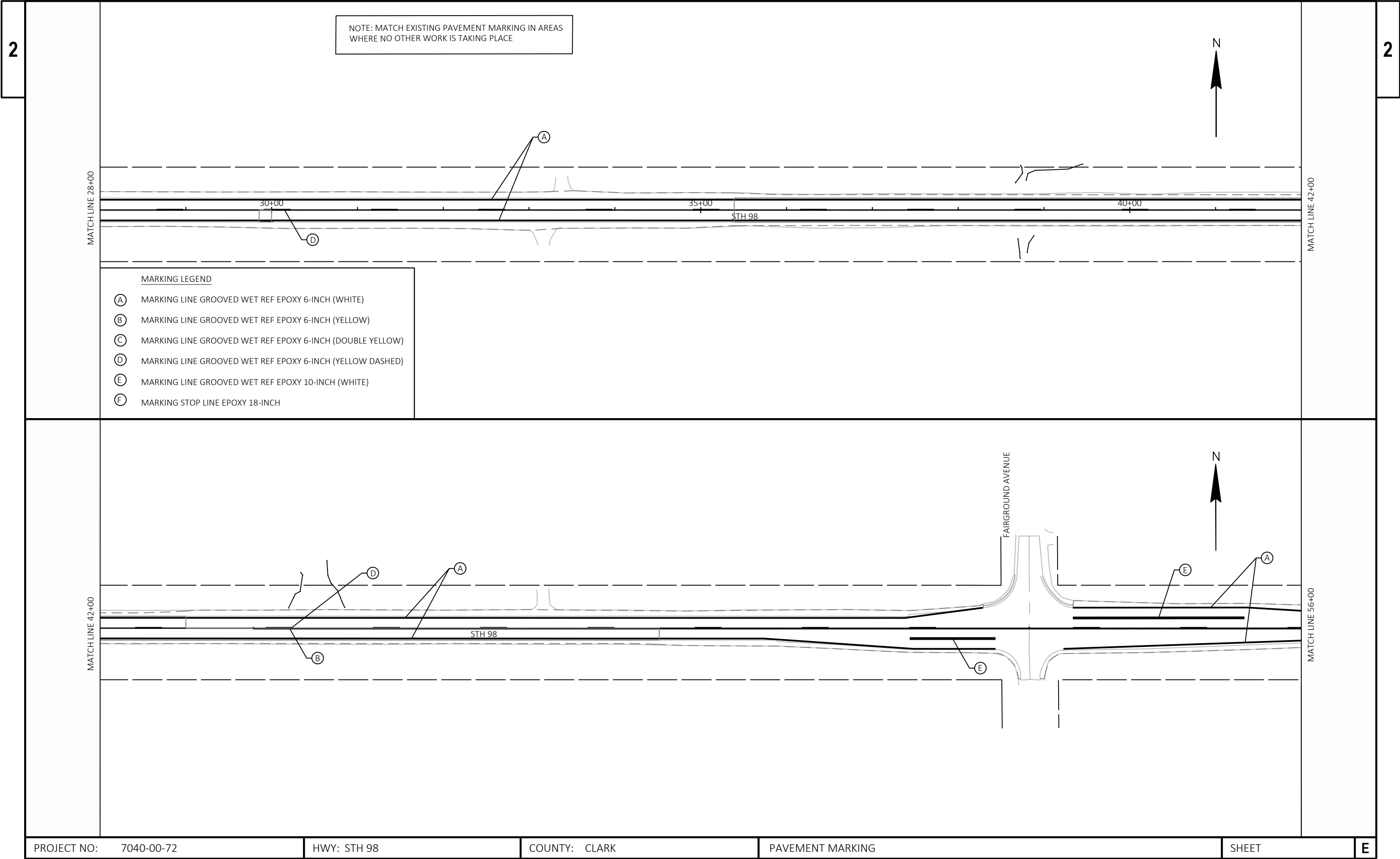
HWY: STH 98

COUNTY: CLARK

PAVEMENT MARKING

SHEET

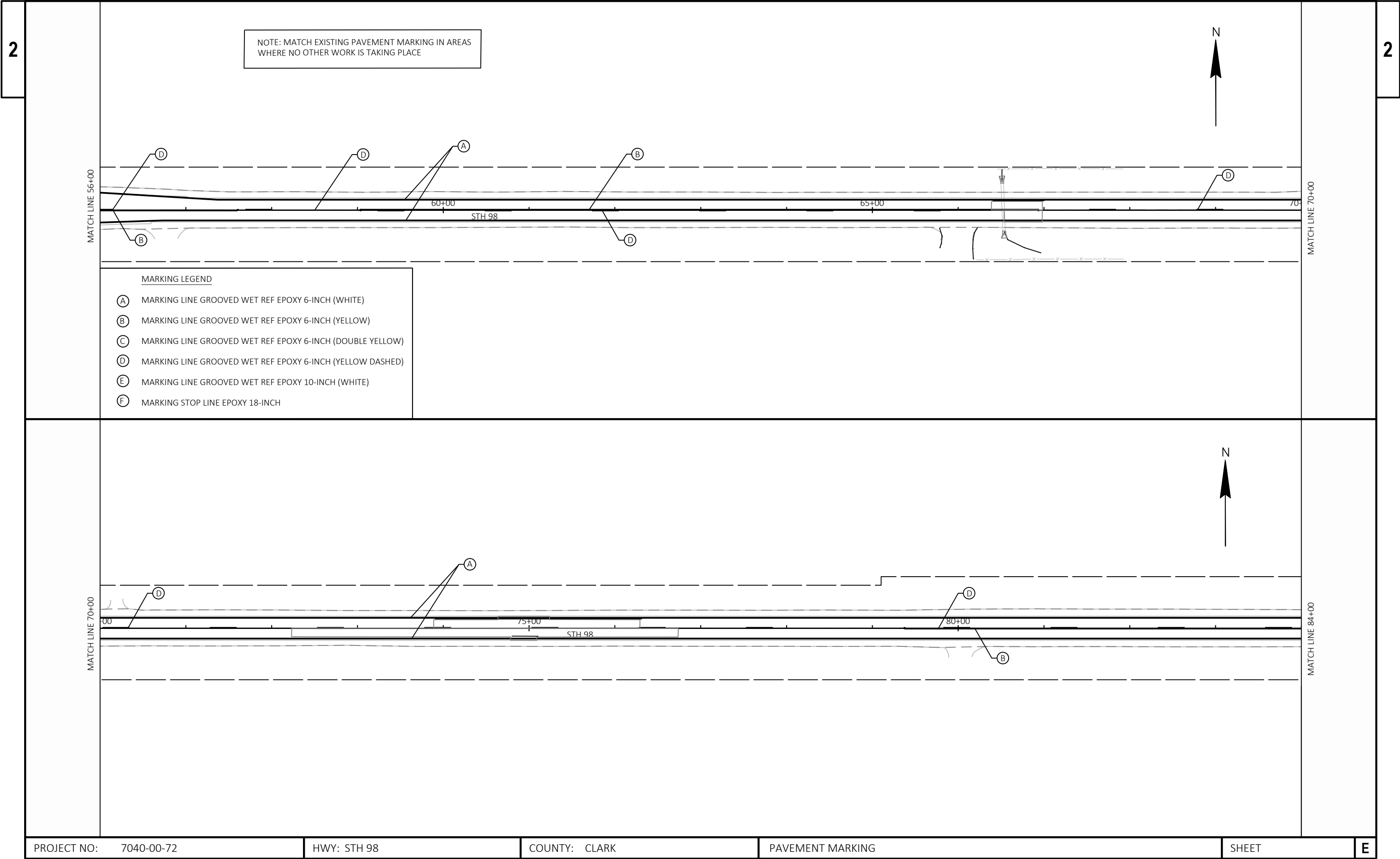
E |



NOTE: MATCH EXISTING PAVEMENT MARKING IN AREAS WHERE NO OTHER WORK IS TAKING PLACE

MARKING LEGEND

- (A) MARKING LINE GROOVED WET REF EPOXY 6-INCH (WHITE)
- (B) MARKING LINE GROOVED WET REF EPOXY 6-INCH (YELLOW)
- (C) MARKING LINE GROOVED WET REF EPOXY 6-INCH (DOUBLE YELLOW)
- (D) MARKING LINE GROOVED WET REF EPOXY 6-INCH (YELLOW DASHED)
- (E) MARKING LINE GROOVED WET REF EPOXY 10-INCH (WHITE)
- (F) MARKING STOP LINE EPOXY 18-INCH



NOTE: MATCH EXISTING PAVEMENT MARKING IN AREAS  
WHERE NO OTHER WORK IS TAKING PLACE



MATCH LINE 84+00

85+00

90+00

95+00

STH 98

MATCH LINE 98+00

MARKING LEGEND

- (A) MARKING LINE GROOVED WET REF EPOXY 6-INCH (WHITE)
- (B) MARKING LINE GROOVED WET REF EPOXY 6-INCH (YELLOW)
- (C) MARKING LINE GROOVED WET REF EPOXY 6-INCH (DOUBLE YELLOW)
- (D) MARKING LINE GROOVED WET REF EPOXY 6-INCH (YELLOW DASHED)
- (E) MARKING LINE GROOVED WET REF EPOXY 10-INCH (WHITE)
- (F) MARKING STOP LINE EPOXY 18-INCH

MATCH LINE 98+00

STH 98

OWEN AVENUE



MATCH LINE 112+00

NOTE: MATCH EXISTING PAVEMENT MARKING IN AREAS  
WHERE NO OTHER WORK IS TAKING PLACE



MATCH LINE 112+00

MATCH LINE 126+00

- MARKING LEGEND
- (A) MARKING LINE GROOVED WET REF EPOXY 6-INCH (WHITE)
  - (B) MARKING LINE GROOVED WET REF EPOXY 6-INCH (YELLOW)
  - (C) MARKING LINE GROOVED WET REF EPOXY 6-INCH (DOUBLE YELLOW)
  - (D) MARKING LINE GROOVED WET REF EPOXY 6-INCH (YELLOW DASHED)
  - (E) MARKING LINE GROOVED WET REF EPOXY 10-INCH (WHITE)
  - (F) MARKING STOP LINE EPOXY 18-INCH

115+00

STH 98

120+00

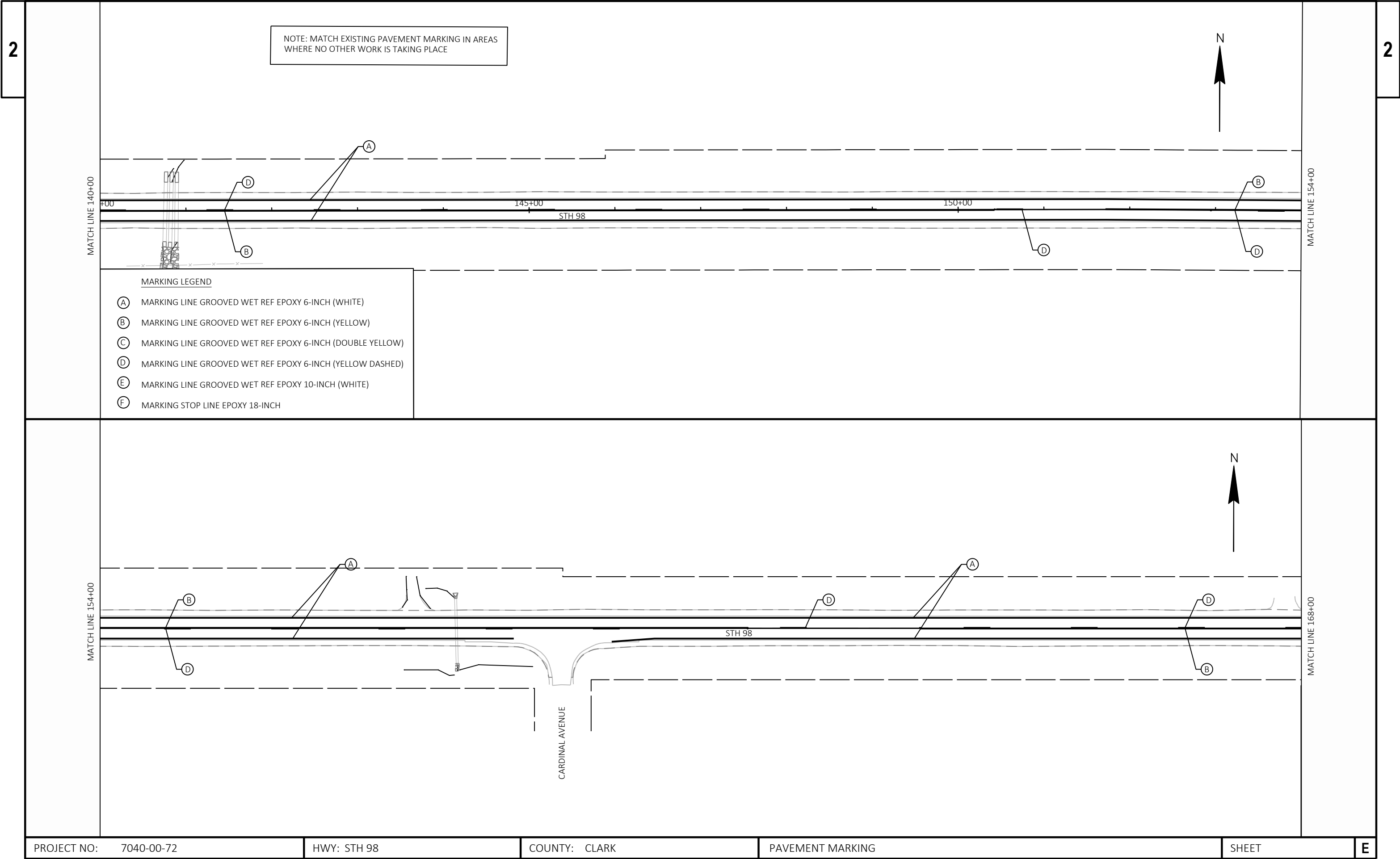
125+00

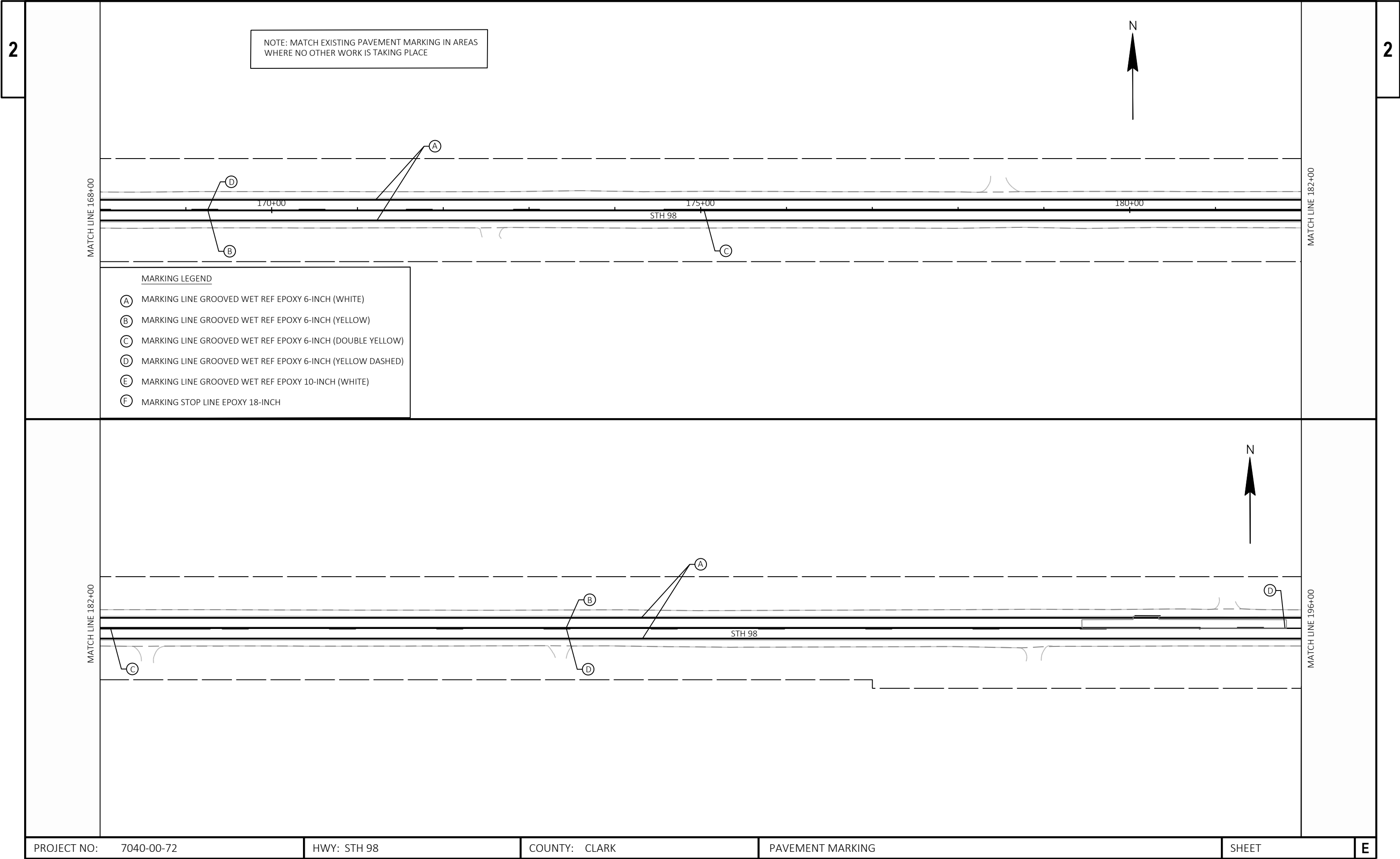
MATCH LINE 126+00

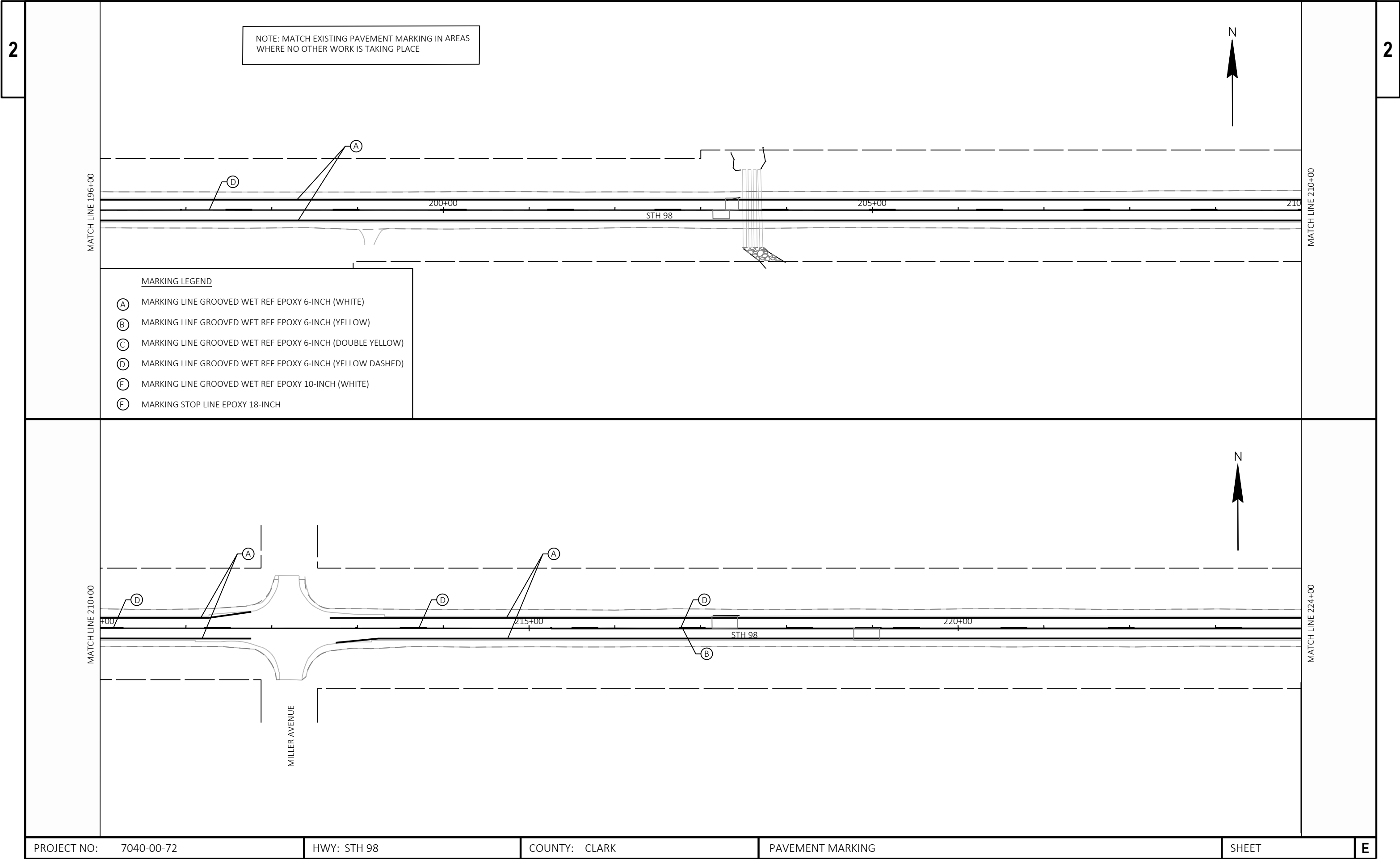
MATCH LINE 140+00



STH 98





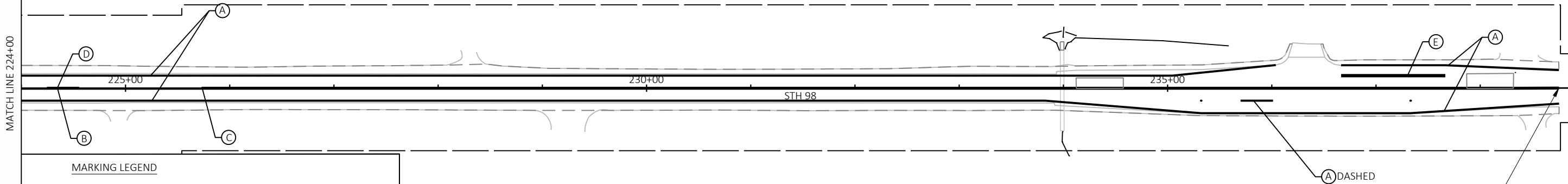


NOTE: MATCH EXISTING PAVEMENT MARKING IN AREAS WHERE NO OTHER WORK IS TAKING PLACE



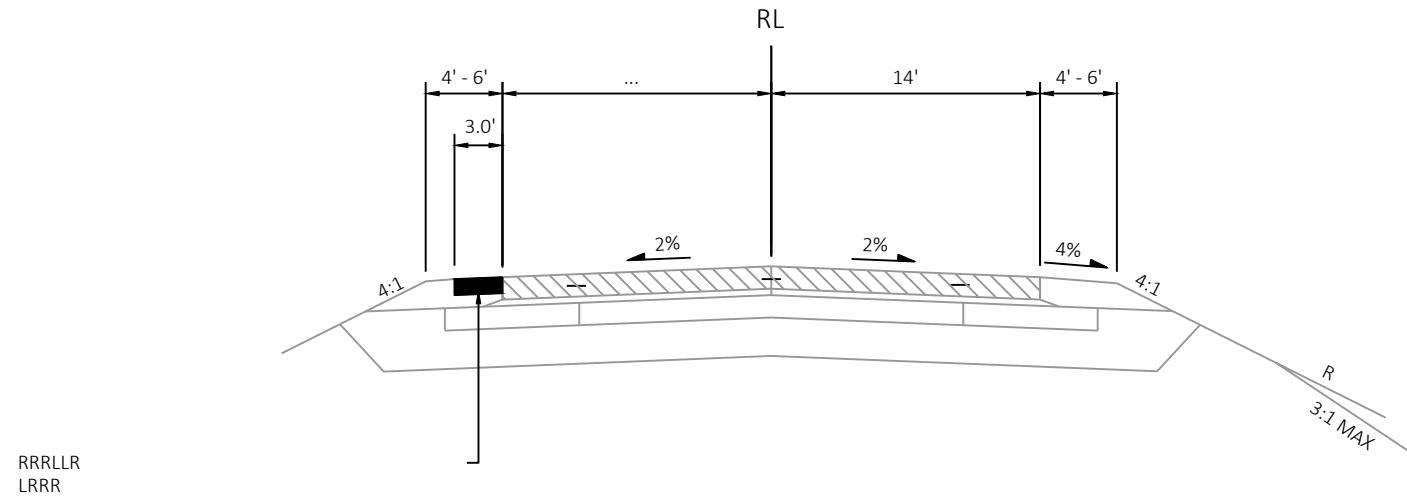
PARK AVENUE

MATCH LINE 224+00

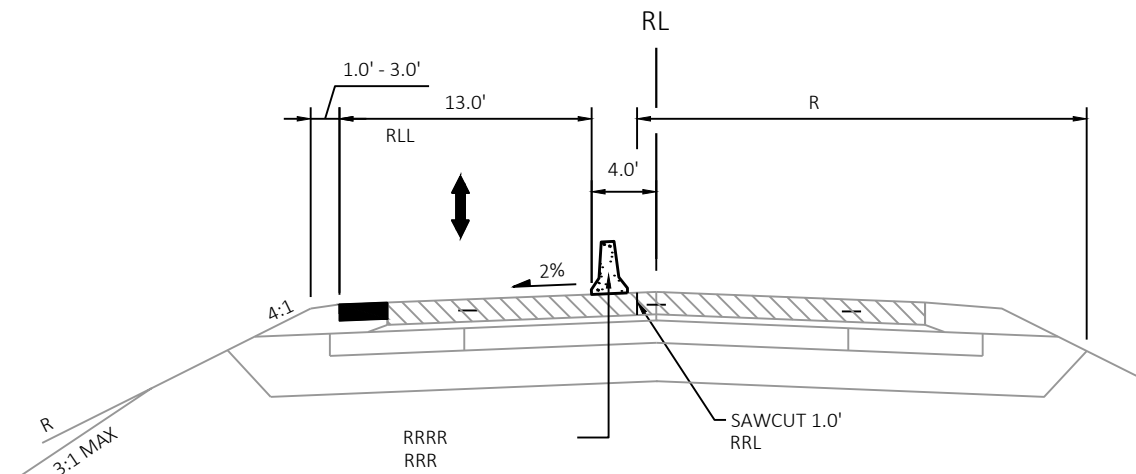


MARKING LEGEND

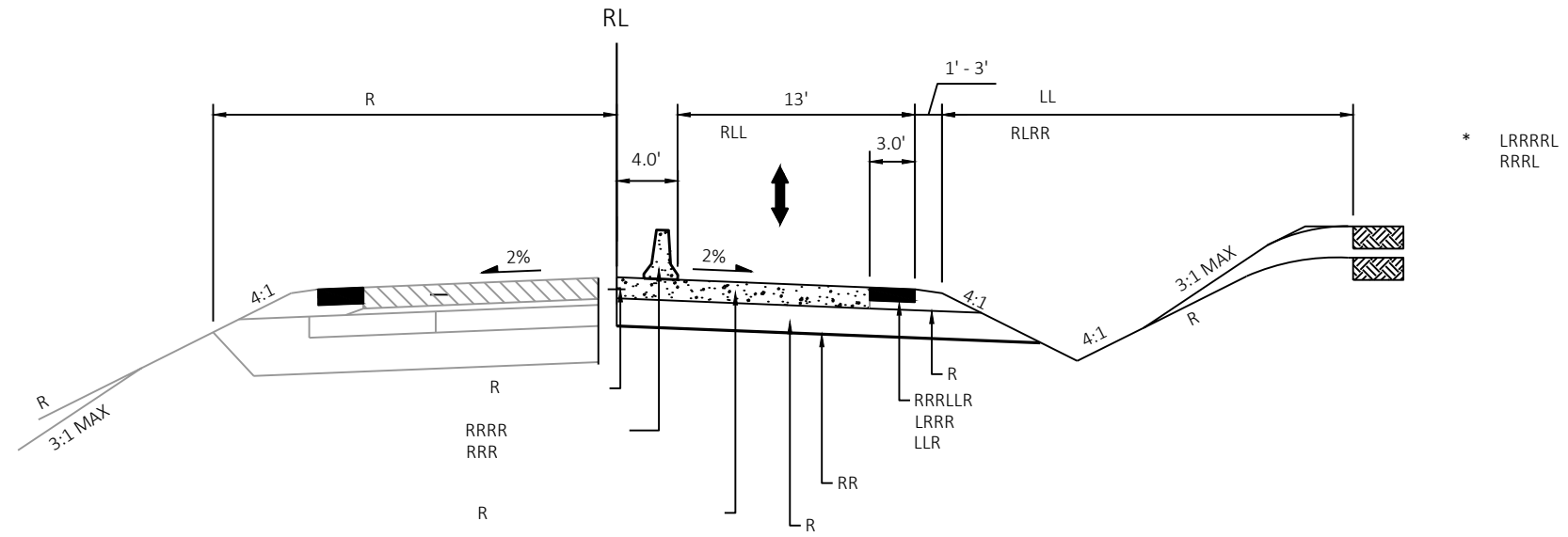
- (A) MARKING LINE GROOVED WET REF EPOXY 6-INCH (WHITE)
- (B) MARKING LINE GROOVED WET REF EPOXY 6-INCH (YELLOW)
- (C) MARKING LINE GROOVED WET REF EPOXY 6-INCH (DOUBLE YELLOW)
- (D) MARKING LINE GROOVED WET REF EPOXY 6-INCH (YELLOW DASHED)
- (E) MARKING LINE GROOVED WET REF EPOXY 10-INCH (WHITE)
- (F) MARKING STOP LINE EPOXY 18-INCH



TRAFFIC CONTROL STAGE 1  
FLAGGING OPERATIONS

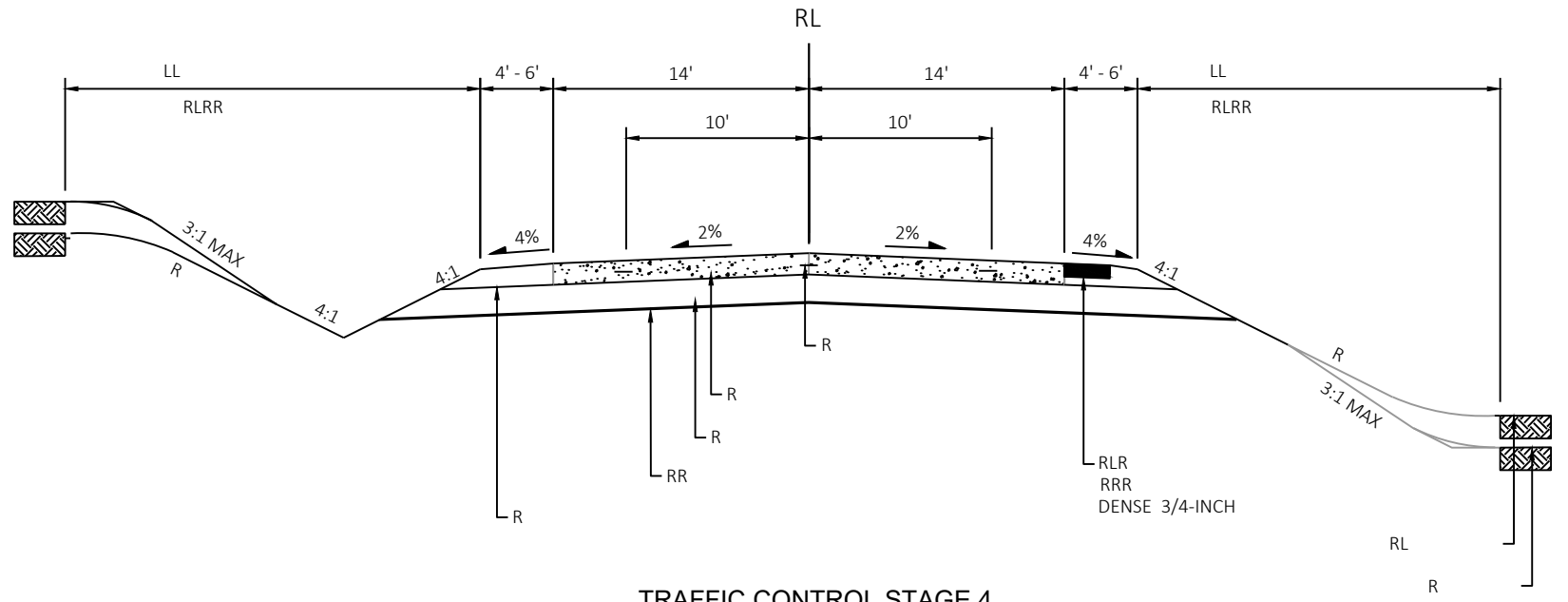


TRAFFIC CONTROL STAGE 2  
TEMPORARY SIGNALS



**TRAFFIC CONTROL STAGE 3**  
TEMPORARY SIGNALS

RRRRRRRR  
RLRRLR  
RRRRLL  
RRLRRR  
RLLRLR



**TRAFFIC CONTROL STAGE 4**  
FLAGGING OPERATIONS

**GENERAL NOTES:**

PLACE TEMPORARY TRAFFIC SIGNALS AND SIGNING PER STANDARD DETAIL DRAWING TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS.

THE EXACT NUMBER, LOCATION, AND SPACING OF DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

PLACE ADDITIONAL WIDTH RESTRICTION SIGNS (W12-52 AND W057-52) AT STH 73 AND CTH K IN ACCORDANCE WITH SDD ADVANCED WIDTH RESTRICTION SIGNING.

REMOVAL AND REPLACEMENT OF TEMPORARY PAVEMENT MARKING SHALL BE COMPLETED IN ACCORDANCE WITH SDD TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS .

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

OMIT END ROAD WORK SIGNS IF SIMULTANEOUS WORK IS BEING COMPLETED IN OTHER LOCATIONS ON THE PROJECT AND SIGNS ARE FOUND ELSEWHERE.

**STA 35+00 - STA 49+00 STAGE 2:**

PRIOR TO PLACING TRAFFIC CONTROL ITEMS FOR STAGE 3, CONSTRUCT TEMPORARY WIDENING BETWEEN STA 31+88 - STA 51+65 LT DURING STAGE 2 CLOSURE.

UTILIZING SDD: TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS SHIFT TRAFFIC TO UTILIZE THE EXISTING WESTBOUND TRAFFIC LANE.

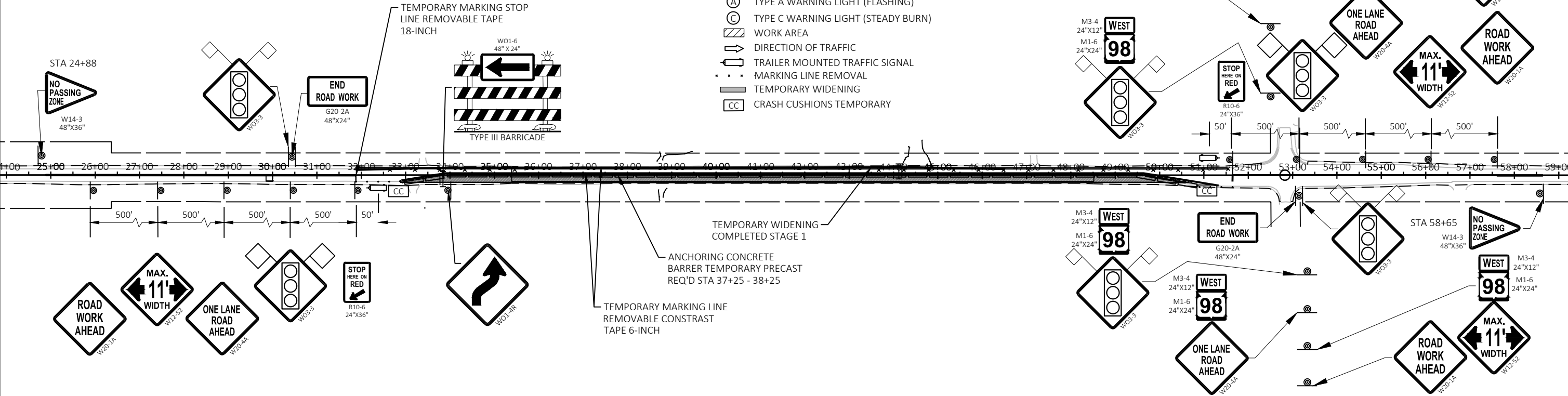
REMOVE EXISTING CONCRETE PAVEMENT AND REQUIRED SUBGRADE MATERIALS.

CONSTRUCT ALL REQUIRED BASE MATERIALS, GEOGRID, CONCRETE PAVEMENT, PIPE IMPROVEMENTS, GRADING, AND TURF ESTABLISHMENT RT.

| SIGNAL TIMING INFORMATION |        |        |     |         |      |       |      |             |      |
|---------------------------|--------|--------|-----|---------|------|-------|------|-------------|------|
| LOCATION                  | STAGE# | YELLOW |     | ALL RED |      | GREEN |      | TOTAL SPLIT |      |
|                           |        | Φ 3    | Φ 4 | Φ 3     | Φ 4  | Φ 3   | Φ 4  | Φ 3         | Φ 4  |
|                           |        | EB     | WB  | EB      | WB   | EB    | WB   | EB          | WB   |
| STA 35+00 - STA 49+00     | 2      | 2.8    | 2.8 | 54.3    | 54.3 | 22.8  | 22.8 | 80.0        | 80.0 |
|                           | 3*     | 2.8    | 2.8 | 40.4    | 40.4 | 21.8  | 21.8 | 65.0        | 65.0 |

\* SHORTENED WORK ZONE FOR STAGE 3. SEE PLANS FOR LIMITS.

- LEGEND**
- TYPE III BARRICADE
  - TYPE III BARRICADE WTH ATTACHED SIGN
  - TRAFFIC CONTROL DRUM
  - TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
  - SIGN ON PERMANENT SUPPORT
  - SIGN ON TEMPORARY SUPPORT
  - TYPE A WARNING LIGHT (FLASHING)
  - TYPE C WARNING LIGHT (STEADY BURN)
  - WORK AREA
  - DIRECTION OF TRAFFIC
  - TRAILER MOUNTED TRAFFIC SIGNAL
  - MARKING LINE REMOVAL
  - TEMPORARY WIDENING
  - CRASH CUSHIONS TEMPORARY



**GENERAL NOTES:**

PLACE TEMPORARY TRAFFIC SIGNALS AND SIGNING PER STANDARD DETAIL DRAWING TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS.

THE EXACT NUMBER, LOCATION, AND SPACING OF DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

PLACE ADDITIONAL WIDTH RESTRICTION SIGNS (W12-52 AND W057-52) AT STH 73 AND CTH K IN ACCORDANCE WITH SDD ADVANCED WIDTH RESTRICTION SIGNING.

REMOVAL AND REPLACEMENT OF TEMPORARY PAVEMENT MARKING SHALL BE COMPLETED IN ACCORDANCE WITH SDD TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS .

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

OMIT END ROAD WORK SIGNS IF SIMULTANEOUS WORK IS BEING COMPLETED IN OTHER LOCATIONS ON THE PROJECT AND SIGNS ARE FOUND ELSEWHERE.

**STA 72+00 - STA 77+00 STAGE 2:**

PRIOR TO PLACING TRAFFIC CONTROL ITEMS FOR STAGE 3, CONSTRUCT TEMPORARY WIDENING BETWEEN STA 70+89 - STA 79+73 LT DURING STAGE 2 CLOSURE.

UTILIZING SDD: TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS SHIFT TRAFFIC TO UTILIZE THE EXISTING EASTBOUND TRAFFIC LANE. IF CONTRACTOR IS ABLE TO COMPLETE REMOVALS AND NEW INSTALLATIONS WITHIN 72 HOURS OF EACH OTHER, REPLACE CONCRETE BARRIER WALL WITH DRUMS. DROP OFF CAN NOT REMAIN FOR MORE THAN 72 HOURS.

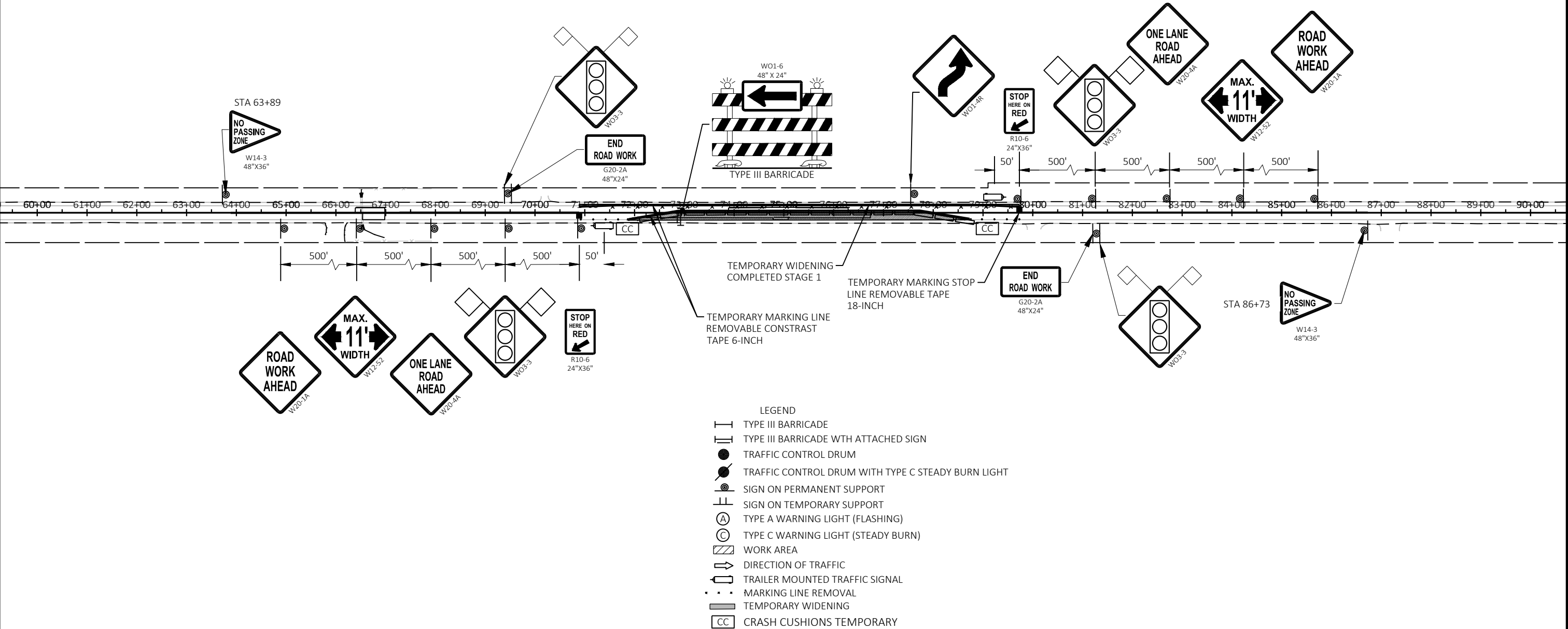
REMOVE EXISTING CONCRETE PAVEMENT AND REQUIRED SUBGRADE MATERIALS.

CONSTRUCT ALL REQUIRED BASE MATERIALS, CONCRETE PAVEMENT, GRADING, AND TURF ESTABLISHMENT RT.

| SIGNAL TIMING INFORMATION |        |        |     |         |      |       |      |             |      |
|---------------------------|--------|--------|-----|---------|------|-------|------|-------------|------|
| LOCATION                  | STAGE# | YELLOW |     | ALL RED |      | GREEN |      | TOTAL SPLIT |      |
|                           |        | Φ 3    | Φ 4 | Φ 3     | Φ 4  | Φ 3   | Φ 4  | Φ 3         | Φ 4  |
|                           |        | EB     | WB  | EB      | WB   | EB    | WB   | EB          | WB   |
| STA 72+00 - STA 77+00     | 2      | 2.8    | 2.8 | 24.6    | 24.6 | 22.6  | 22.6 | 50.0        | 50.0 |
|                           | 3      | 2.8    | 2.8 | 24.6    | 24.6 | 22.6  | 22.6 | 50.0        | 50.0 |



INSTALL ON EACH APPROACH AT THE CLOSEST INTERSECTION WITH A STATE OR COUNTY TRUNK HIGHWAY, OR AS DIRECTED BY THE ENGINEER. WIDTH ON SIGN TO BE APPROXIMATELY 1 FOOT LESS THAN AVAILABLE. SEE SDD "TRAFFIC CONTROL, ADVANCED WIDTH RESTRICTION SIGNING"



- LEGEND**
- TYPE III BARRICADE
  - TYPE III BARRICADE WITH ATTACHED SIGN
  - TRAFFIC CONTROL DRUM
  - TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
  - SIGN ON PERMANENT SUPPORT
  - SIGN ON TEMPORARY SUPPORT
  - TYPE A WARNING LIGHT (FLASHING)
  - TYPE C WARNING LIGHT (STEADY BURN)
  - WORK AREA
  - DIRECTION OF TRAFFIC
  - TRAILER MOUNTED TRAFFIC SIGNAL
  - MARKING LINE REMOVAL
  - TEMPORARY WIDENING
  - CRASH CUSHIONS TEMPORARY

GENERAL NOTES:

PLACE TEMPORARY TRAFFIC SIGNALS AND SIGNING PER STANDARD  
DETAIL DRAWING TRAFFIC CONTROL, ONE LANE ROAD  
WITH TEMPORARY SIGNALS.

THE EXACT NUMBER, LOCATION, AND SPACING OF DEVICES  
SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

PLACE ADDITIONAL WIDTH RESTRICTION SIGNS (W12-52 AND W057-52)  
AT STH 73 AND CTH K IN ACCORDANCE WITH SDD ADVANCED WIDTH RESTRICTION  
SIGNING.

REMOVAL AND REPLACEMENT OF TEMPORARY PAVEMENT MARKING SHALL BE  
COMPLETED IN ACCORDANCE WITH SDD TRAFFIC CONTROL, ONE LANE ROAD WITH  
TEMPORARY SIGNALS .

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

OMIT END ROAD WORK SIGNS IF SIMULTANEOUS WORK IS BEING COMPLETED  
IN OTHER LOCATIONS ON THE PROJECT AND SIGNS ARE FOUND ELSEWHERE.

STA 35+00 - STA 49+00 STAGE 3:

PRIOR TO PLACING TRAFFIC CONTROL ITEMS FOR STAGE 2, CONSTRUCT  
TEMPORARY WIDENING BETWEEN STA 31+88 - STA 48+51 RT UTILIZING SDD:  
TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATIONS.

UTILIZING SDD: TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS  
SHIFT TRAFFIC TO UTILIZE THE EXISTING EASTBOUND TRAFFIC LANE.

COORDINATE WITH GAS UTILITY ON WHETHER ACCESS NEEDS TO BE PROVIDED  
FOR THE FIELD ENTRANCE AT STA 44+50 LT.

SAWCUT EXISTING CONCRETE PAVEMENT. REMOVE EXISTING CONCRETE  
PAVEMENT AND REQUIRED SUBGRADE MATERIALS.

CONSTRUCT ALL REQUIRED BASE MATERIALS, GEOGRID, CONCRETE PAVEMENT,  
PIPE IMPROVEMENTS, GRADING, TEMPORARY WIDENING, AND TURF  
ESTABLISHMENT LT.

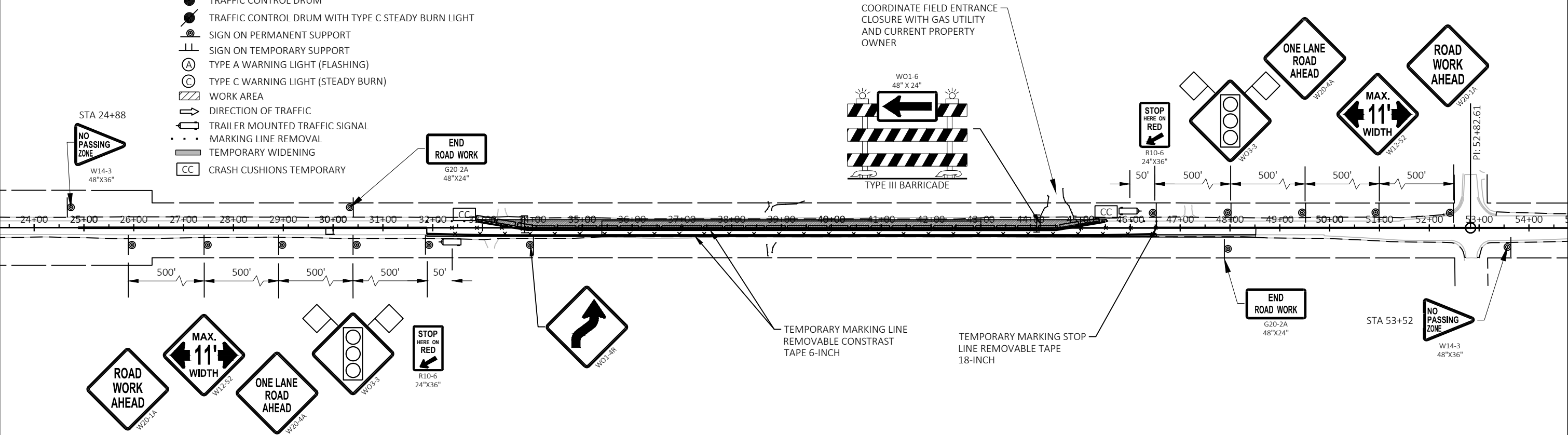
| SIGNAL TIMING INFORMATION |        |        |     |         |      |       |      |             |      |
|---------------------------|--------|--------|-----|---------|------|-------|------|-------------|------|
| LOCATION                  | STAGE# | YELLOW |     | ALL RED |      | GREEN |      | TOTAL SPLIT |      |
|                           |        | Φ 3    | Φ 4 | Φ 3     | Φ 4  | Φ 3   | Φ 4  | Φ 3         | Φ 4  |
|                           |        | EB     | WB  | EB      | WB   | EB    | WB   | EB          | WB   |
| STA 35+00 -<br>STA 49+00  | 2      | 2.8    | 2.8 | 54.3    | 54.3 | 22.8  | 22.8 | 80.0        | 80.0 |
|                           | 3*     | 2.8    | 2.8 | 40.4    | 40.4 | 21.8  | 21.8 | 65.0        | 65.0 |

\* SHORTENED WORK ZONE FOR STAGE 3. SEE PLANS FOR LIMITS.



INSTALL ON EACH APPROACH AT THE CLOSEST  
INTERSECTION WITH A STATE OR COUNTY  
TRUNK HIGHWAY, OR AS DIRECTED BY THE  
ENGINEER. WIDTH ON SIGN TO BE  
APPROXIMATELY 1 FOOT LESS THAN AVAILABLE.  
SEE SDD "TRAFFIC CONTROL, ADVANCED WIDTH  
RESTRICTION SIGNING"

- LEGEND
- TYPE III BARRICADE
  - TYPE III BARRICADE WTH ATTACHED SIGN
  - TRAFFIC CONTROL DRUM
  - TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
  - SIGN ON PERMANENT SUPPORT
  - SIGN ON TEMPORARY SUPPORT
  - TYPE A WARNING LIGHT (FLASHING)
  - TYPE C WARNING LIGHT (STEADY BURN)
  - WORK AREA
  - DIRECTION OF TRAFFIC
  - TRAILER MOUNTED TRAFFIC SIGNAL
  - MARKING LINE REMOVAL
  - TEMPORARY WIDENING
  - CC CRASH CUSHIONS TEMPORARY



**GENERAL NOTES:**

PLACE TEMPORARY TRAFFIC SIGNALS AND SIGNING PER STANDARD DETAIL DRAWING TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS.

THE EXACT NUMBER, LOCATION, AND SPACING OF DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

PLACE ADDITIONAL WIDTH RESTRICTION SIGNS (W12-52 AND W057-52) AT STH 73 AND CTH K IN ACCORDANCE WITH SDD ADVANCED WIDTH RESTRICTION SIGNING.

REMOVAL AND REPLACEMENT OF TEMPORARY PAVEMENT MARKING SHALL BE COMPLETED IN ACCORDANCE WITH SDD TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS .

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

OMIT END ROAD WORK SIGNS IF SIMULTANEOUS WORK IS BEING COMPLETED IN OTHER LOCATIONS ON THE PROJECT AND SIGNS ARE FOUND ELSEWHERE.

**STA 72+00 - STA 77+00 STAGE 3:**

PRIOR TO PLACING TRAFFIC CONTROL ITEMS FOR STAGE 2, CONSTRUCT TEMPORARY WIDENING BETWEEN STA 70+89 - STA 79+73 RT UTILIZING SDD: TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATIONS.

UTILIZING SDD: TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS SHIFT TRAFFIC TO UTILIZE THE EXISTING EASTBOUND TRAFFIC LANE. IF CONTRACTOR IS ABLE TO COMPLETE REMOVALS AND NEW INSTALLATIONS WITHIN 72 HOURS OF EACH OTHER, REPLACE CONCRETE BARRIER WALL WITH DRUMS. DROP OFF CAN NOT REMAIN FOR MORE THAN 72 HOURS.

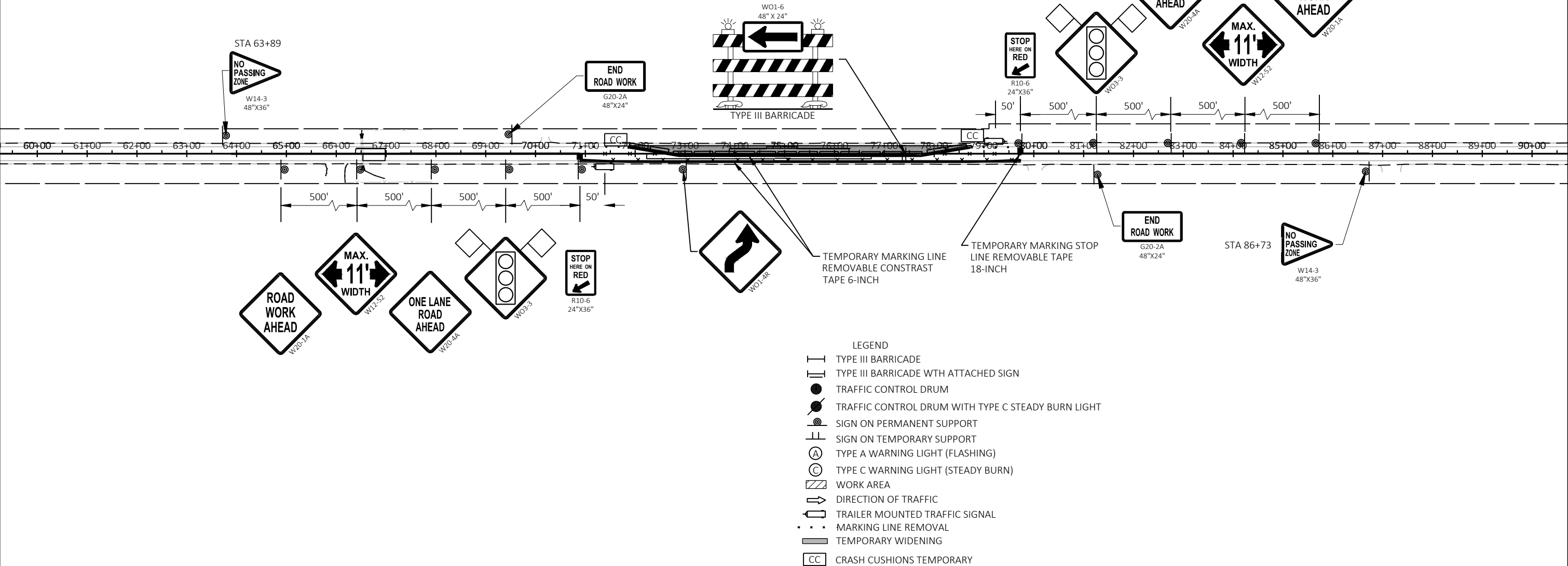
SAWCUT EXISTING CONCRETE PAVEMENT. REMOVE EXISTING CONCRETE PAVEMENT AND REQUIRED SUBGRADE MATERIALS.

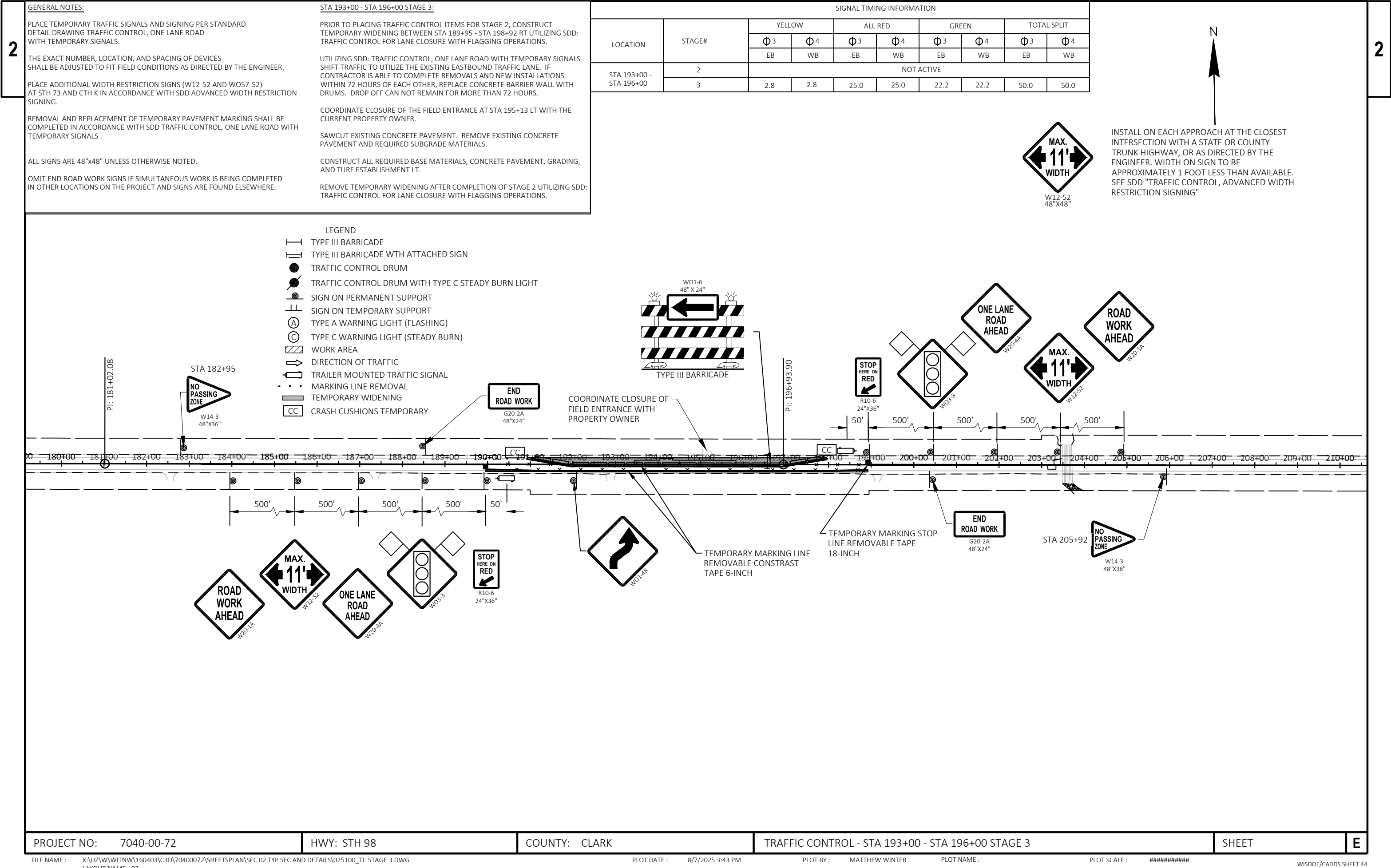
CONSTRUCT ALL REQUIRED BASE MATERIALS, CONCRETE PAVEMENT, GRADING, TEMPORARY WIDENING, AND TURF ESTABLISHMENT LT.

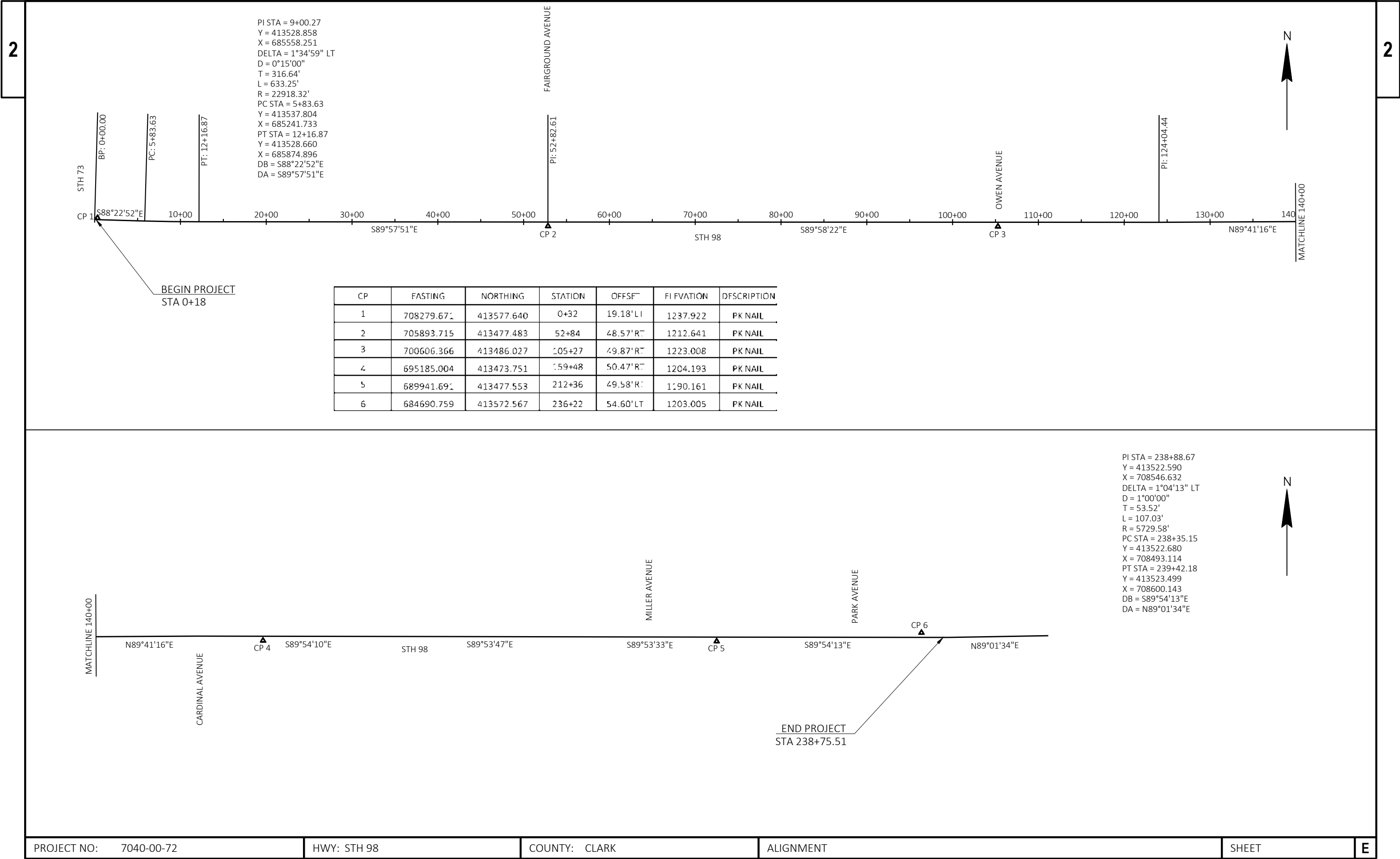
| SIGNAL TIMING INFORMATION |        |        |     |         |      |       |      |             |      |
|---------------------------|--------|--------|-----|---------|------|-------|------|-------------|------|
| LOCATION                  | STAGE# | YELLOW |     | ALL RED |      | GREEN |      | TOTAL SPLIT |      |
|                           |        | Φ 3    | Φ 4 | Φ 3     | Φ 4  | Φ 3   | Φ 4  | Φ 3         | Φ 4  |
|                           |        | EB     | WB  | EB      | WB   | EB    | WB   | EB          | WB   |
| STA 72+00 - STA 77+00     | 2      | 2.8    | 2.8 | 24.6    | 24.6 | 22.6  | 22.6 | 50.0        | 50.0 |
|                           | 3      | 2.8    | 2.8 | 24.6    | 24.6 | 22.6  | 22.6 | 50.0        | 50.0 |



INSTALL ON EACH APPROACH AT THE CLOSEST INTERSECTION WITH A STATE OR COUNTY TRUNK HIGHWAY, OR AS DIRECTED BY THE ENGINEER. WIDTH ON SIGN TO BE APPROXIMATELY 1 FOOT LESS THAN AVAILABLE. SEE SDD "TRAFFIC CONTROL, ADVANCED WIDTH RESTRICTION SIGNING"







|                        |             |               |           |       |   |
|------------------------|-------------|---------------|-----------|-------|---|
| PROJECT NO: 7040-00-72 | HWY: STH 98 | COUNTY: CLARK | ALIGNMENT | SHEET | E |
|------------------------|-------------|---------------|-----------|-------|---|

Estimate Of Quantities

7040-00-72

| Line | Item       | Item Description                                              | Unit | Total     | Qty       |
|------|------------|---------------------------------------------------------------|------|-----------|-----------|
| 0002 | 201.0105   | Clearing                                                      | STA  | 1.000     | 1.000     |
| 0004 | 201.0205   | Grubbing                                                      | STA  | 1.000     | 1.000     |
| 0006 | 203.0220   | Removing Structure (structure) 01. STA 37+77                  | EACH | 1.000     | 1.000     |
| 0008 | 204.0100   | Removing Concrete Pavement                                    | SY   | 3,226.000 | 3,226.000 |
| 0010 | 205.0100   | Excavation Common                                             | CY   | 2,714.000 | 2,714.000 |
| 0012 | 209.2500   | Backfill Granular Grade 2                                     | TON  | 460.000   | 460.000   |
| 0014 | 211.0400   | Prepare Foundation for Asphaltic Shoulders                    | STA  | 67.000    | 67.000    |
| 0016 | 213.0100   | Finishing Roadway (project) 01. 7040-00-72                    | EACH | 1.000     | 1.000     |
| 0018 | 305.0110   | Base Aggregate Dense 3/4-Inch                                 | TON  | 3,110.000 | 3,110.000 |
| 0020 | 305.0120   | Base Aggregate Dense 1 1/4-Inch                               | TON  | 2,590.000 | 2,590.000 |
| 0022 | 415.0090   | Concrete Pavement 9-Inch                                      | SY   | 3,226.000 | 3,226.000 |
| 0024 | 416.0610   | Drilled Tie Bars                                              | EACH | 709.000   | 709.000   |
| 0026 | 416.0620   | Drilled Dowel Bars                                            | EACH | 340.000   | 340.000   |
| 0028 | 416.1715   | Concrete Pavement Repair SHES                                 | SY   | 500.000   | 500.000   |
| 0030 | 416.1720   | Concrete Pavement Replacement                                 | SY   | 1,090.000 | 1,090.000 |
| 0032 | 416.1725   | Concrete Pavement Replacement SHES                            | SY   | 1,065.000 | 1,065.000 |
| 0034 | 465.0125   | Asphaltic Surface Temporary                                   | TON  | 569.000   | 569.000   |
| 0036 | 520.8000   | Concrete Collars for Pipe                                     | EACH | 12.000    | 12.000    |
| 0038 | 520.8700   | Cleaning Culvert Pipes                                        | EACH | 12.000    | 12.000    |
| 0040 | 522.0430   | Culvert Pipe Reinforced Concrete Class IV 30-Inch             | LF   | 6.000     | 6.000     |
| 0042 | 522.0442   | Culvert Pipe Reinforced Concrete Class IV 42-Inch             | LF   | 8.000     | 8.000     |
| 0044 | 522.0448   | Culvert Pipe Reinforced Concrete Class IV 48-Inch             | LF   | 54.000    | 54.000    |
| 0046 | 522.0460   | Culvert Pipe Reinforced Concrete Class IV 60-Inch             | LF   | 240.000   | 240.000   |
| 0048 | 522.1030   | Apron Endwalls for Culvert Pipe Reinforced Concrete 30-Inch   | EACH | 2.000     | 2.000     |
| 0050 | 522.1036   | Apron Endwalls for Culvert Pipe Reinforced Concrete 36-Inch   | EACH | 2.000     | 2.000     |
| 0052 | 522.1060   | Apron Endwalls for Culvert Pipe Reinforced Concrete 60-Inch   | EACH | 6.000     | 6.000     |
| 0054 | 603.8000   | Concrete Barrier Temporary Precast Delivered                  | LF   | 5,132.000 | 5,132.000 |
| 0056 | 603.8125   | Concrete Barrier Temporary Precast Installed                  | LF   | 5,132.000 | 5,132.000 |
| 0058 | 603.8500   | Anchoring Concrete Barrier Temporary Precast                  | LF   | 100.000   | 100.000   |
| 0060 | 606.0200   | Riprap Medium                                                 | CY   | 52.000    | 52.000    |
| 0062 | 611.9850.S | Pipe Grates (size) 01. 30-Inch                                | EACH | 1.000     | 1.000     |
| 0064 | 611.9850.S | Pipe Grates (size) 02. 36-Inch                                | EACH | 2.000     | 2.000     |
| 0066 | 611.9850.S | Pipe Grates (size) 03. 60-Inch                                | EACH | 3.000     | 3.000     |
| 0068 | 614.0905   | Crash Cushions Temporary                                      | EACH | 10.000    | 10.000    |
| 0070 | 618.0100   | Maintenance and Repair of Haul Roads (project) 01. 7040-00-72 | EACH | 1.000     | 1.000     |
| 0072 | 619.1000   | Mobilization                                                  | EACH | 1.000     | 1.000     |
| 0074 | 624.0100   | Water                                                         | MGAL | 58.000    | 58.000    |
| 0076 | 625.0100   | Topsoil                                                       | SY   | 1,813.000 | 1,813.000 |
| 0078 | 628.1504   | Silt Fence                                                    | LF   | 3,488.000 | 3,488.000 |
| 0080 | 628.1520   | Silt Fence Maintenance                                        | LF   | 3,488.000 | 3,488.000 |
| 0082 | 628.1905   | Mobilizations Erosion Control                                 | EACH | 6.000     | 6.000     |
| 0084 | 628.1910   | Mobilizations Emergency Erosion Control                       | EACH | 3.000     | 3.000     |
| 0086 | 628.2006   | Erosion Mat Urban Class I Type A                              | SY   | 1,813.000 | 1,813.000 |
| 0088 | 628.6005   | Turbidity Barriers                                            | SY   | 65.000    | 65.000    |
| 0090 | 628.7555   | Culvert Pipe Checks                                           | EACH | 80.000    | 80.000    |
| 0092 | 629.0210   | Fertilizer Type B                                             | CWT  | 2.800     | 2.800     |
| 0094 | 630.0110   | Seeding Mixture No. 10                                        | LB   | 92.000    | 92.000    |
| 0096 | 630.0200   | Seeding Temporary                                             | LB   | 92.000    | 92.000    |
| 0098 | 630.0500   | Seed Water                                                    | MGAL | 42.000    | 42.000    |

Estimate Of Quantities

7040-00-72

| Line | Item     | Item Description                                                           | Unit | Total      | Qty        |
|------|----------|----------------------------------------------------------------------------|------|------------|------------|
| 0100 | 633.5200 | Markers Culvert End                                                        | EACH | 14.000     | 14.000     |
| 0102 | 642.5001 | Field Office Type B                                                        | EACH | 1.000      | 1.000      |
| 0104 | 643.0300 | Traffic Control Drums                                                      | DAY  | 5,450.000  | 5,450.000  |
| 0106 | 643.0420 | Traffic Control Barricades Type III                                        | DAY  | 170.000    | 170.000    |
| 0108 | 643.0705 | Traffic Control Warning Lights Type A                                      | DAY  | 340.000    | 340.000    |
| 0110 | 643.0715 | Traffic Control Warning Lights Type C                                      | DAY  | 3,740.000  | 3,740.000  |
| 0112 | 643.0900 | Traffic Control Signs                                                      | DAY  | 6,602.000  | 6,602.000  |
| 0114 | 643.1050 | Traffic Control Signs PCMS                                                 | DAY  | 14.000     | 14.000     |
| 0116 | 643.3185 | Temporary Marking Line Removable Contrast Tape 6-Inch                      | LF   | 11,261.000 | 11,261.000 |
| 0118 | 643.3850 | Temporary Marking Stop Line Removable Tape 18-Inch                         | LF   | 120.000    | 120.000    |
| 0120 | 643.5000 | Traffic Control                                                            | EACH | 1.000      | 1.000      |
| 0122 | 645.0120 | Geotextile Type HR                                                         | SY   | 103.000    | 103.000    |
| 0124 | 645.0220 | Geogrid Type SR                                                            | SY   | 5,530.000  | 5,530.000  |
| 0126 | 646.2040 | Marking Line Grooved Wet Ref Epoxy 6-Inch                                  | LF   | 71,483.000 | 71,483.000 |
| 0128 | 646.4040 | Marking Line Grooved Wet Ref Epoxy 10-Inch                                 | LF   | 464.000    | 464.000    |
| 0130 | 646.6120 | Marking Stop Line Epoxy 18-Inch                                            | LF   | 40.000     | 40.000     |
| 0132 | 646.8120 | Marking Curb Epoxy                                                         | LF   | 83.000     | 83.000     |
| 0134 | 646.9010 | Marking Removal Line Water Blasting 4-Inch                                 | LF   | 6,212.000  | 6,212.000  |
| 0136 | 650.4500 | Construction Staking Subgrade                                              | LF   | 1,313.000  | 1,313.000  |
| 0138 | 650.6000 | Construction Staking Pipe Culverts                                         | EACH | 3.000      | 3.000      |
| 0140 | 650.7000 | Construction Staking Concrete Pavement                                     | LF   | 1,313.000  | 1,313.000  |
| 0142 | 650.9911 | Construction Staking Supplemental Control (project) 01. 7040-00-72         | EACH | 1.000      | 1.000      |
| 0144 | 650.9920 | Construction Staking Slope Stakes                                          | LF   | 1,313.000  | 1,313.000  |
| 0146 | 661.0101 | Temporary Traffic Signals for Bridges (structure) 01. Pavement Replacement | EACH | 5.000      | 5.000      |
| 0148 | 690.0250 | Sawing Concrete                                                            | LF   | 5,747.000  | 5,747.000  |
| 0150 | 715.0720 | Incentive Compressive Strength Concrete Pavement                           | DOL  | 970.000    | 970.000    |
| 0152 | ASP.1T0A | On-the-Job Training Apprentice at \$5.00/HR                                | HRS  | 800.000    | 800.000    |
| 0154 | ASP.1T0G | On-the-Job Training Graduate at \$5.00/HR                                  | HRS  | 600.000    | 600.000    |
| 0156 | SPV.0060 | Special 01. Recondition Culvert Ends 30-Inch                               | EACH | 5.000      | 5.000      |
| 0158 | SPV.0060 | Special 02. Recondition Culvert Ends 36-Inch                               | EACH | 4.000      | 4.000      |
| 0160 | SPV.0060 | Special 03. Recondition Culvert Ends 42-Inch                               | EACH | 17.000     | 17.000     |
| 0162 | SPV.0060 | Special 04. Recondition Culvert Ends 48-Inch                               | EACH | 22.000     | 22.000     |

CLEARING & GRUBBING

|                |               |                   |     |     |         |
|----------------|---------------|-------------------|-----|-----|---------|
|                |               | 201.0105 201.0205 |     |     |         |
|                |               | CLEARING GRUBBING |     |     |         |
| CATEGORY       | STATION       | LOCATION          | STA | STA | REMARKS |
| 0010           | 38+00 - 39+00 | LT&RT             | 1   | 1   | -       |
| PROJECT TOTALS |               |                   | 1   | 1   |         |

REMOVING CONCRETE PAVEMENT

|                |       |                            |          |       |         |
|----------------|-------|----------------------------|----------|-------|---------|
|                |       | 204.0100                   |          |       |         |
|                |       | REMOVING CONCRETE PAVEMENT |          |       |         |
| CATEGORY       | STAGE | STATION                    | LOCATION | SY    | REMARKS |
| 0010           | 2     | 35+39 - 48+52              | RT       | 2,042 | -       |
| STAGE 2 TOTAL  |       |                            |          | 2,042 |         |
| 0010           | 3     | 35+39 - 43+00              | LT       | 1,184 | -       |
| STAGE 3 TOTAL  |       |                            |          | 1,184 |         |
| PROJECT TOTALS |       |                            |          | 3,226 |         |

REMOVING CULVERT PIPE

|                |         |                                |      |                |  |
|----------------|---------|--------------------------------|------|----------------|--|
|                |         | 203.0220                       |      |                |  |
|                |         | REMOVING STRUCTURE (STA 37+77) |      |                |  |
| CATEGORY       | STATION | LOCATION                       | EACH | REMARKS        |  |
| 0010           | 37+77   | LT&RT                          | 1    | 3-RCCP 60-INCH |  |
| PROJECT TOTALS |         |                                | 1    |                |  |

| EARTHWORK SUMMARY (PROJECT ID 7040 00 72) |       |          |                                     |                                           |                        |                 |               |                       |
|-------------------------------------------|-------|----------|-------------------------------------|-------------------------------------------|------------------------|-----------------|---------------|-----------------------|
| FROM/TO STATION                           | STAGE | LOCATION | 205.0100 EXCAVATION COMMON (1) (CY) | SALVAGED / UNUSABLE PAVEMENT MATERIAL (3) | AVAILABLE MATERIAL (4) | UNEXPANDED FILL | EXPANDED FILL | MASS ORDINATE +/- (5) |
|                                           |       |          | CUT (2)                             |                                           |                        |                 | FACTOR 1.25   |                       |
| 31+88 - 79+73                             | 1     | LT       | 158                                 | 0                                         | 158                    | 0               | 0             | 158                   |
| 35+39 - 198+92                            | 2     | RT       | 1,641                               | 731                                       | 910                    | 110             | 138           | 773                   |
| 35+39 - 43+00                             | 3     | LT       | 915                                 | 418                                       | 497                    | 70              | 88            | 410                   |
| PROJECT TOTAL                             |       |          | 2,714                               |                                           |                        |                 |               |                       |

NOTES:  
(1) COMMON EXCAVATION IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS. ITEM NUMBER 205.0100  
(2) SALVAGED/UNUSABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.  
(3) SALVAGED/UNUSABLE PAVEMENT MATERIAL, INCLUDES EXISTING CONCRETE PAVEMENT AND RUBBILIZED CONCRETE PAVEMENT  
(4) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSABLE PAVEMENT MATERIAL  
(5) THE MASS ORDINATE + OR - QTY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION. MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.

| BASE AGGREGATE ITEMS                               |       |                 |          |       |       |      |       |              |
|----------------------------------------------------|-------|-----------------|----------|-------|-------|------|-------|--------------|
| 305.0110      305.0120      624.0100      645.0220 |       |                 |          |       |       |      |       |              |
| BASE AGGREGATE      BASE AGGREGATE                 |       |                 |          |       |       |      |       |              |
| DENSE      DENSE      GEOGRID                      |       |                 |          |       |       |      |       |              |
| 3/4-INCH      1 1/4-INCH      WATER      TYPE SR   |       |                 |          |       |       |      |       |              |
| CATEGORY                                           | STAGE | STATION         | LOCATION | TON   | TON   | MGAL | SY    | REMARKS      |
| 0010                                               | 2     | 35+39 - 48+52   | RT       | 420   | 1,640 | 21   | 3,500 | -            |
| STAGE 2 TOTAL                                      |       |                 |          | 420   | 1,640 | 21   | 3,500 |              |
| 0010                                               | 3     | 35+39 - 43+00   | LT       | 240   | 950   | 12   | 2,030 | -            |
|                                                    |       | 70+88 - 79+73   | LT       | 90    | -     | 1    | -     | -            |
| STAGE 3 TOTAL                                      |       |                 |          | 330   | 950   | 13   | 2,030 |              |
| 0010                                               | 4     | 31+88 - 46+52   | RT       | 140   | -     | 1    | -     | -            |
|                                                    |       | 70+88 - 79+73   | RT       | 90    | -     | 1    | -     | -            |
|                                                    |       | 189+92 - 198+92 | RT       | 90    | -     | 1    | -     | -            |
| STAGE 4 TOTAL                                      |       |                 |          | 320   | 0     | 3    | 0     |              |
| 0010                                               | 5     | 1+83 - 53+00    | LT&RT    | 370   | -     | 4    | -     | TOP DRESSING |
|                                                    |       | 53+00 - 105+00  | LT&RT    | 470   | -     | 5    | -     | TOP DRESSING |
|                                                    |       | 105+00 - 212+00 | LT&RT    | 970   | -     | 10   | -     | TOP DRESSING |
|                                                    |       | 212+00 - 238+76 | LT&RT    | 230   | -     | 2    | -     | TOP DRESSING |
| STAGE 5 TOTAL                                      |       |                 |          | 2,040 | 0     | 21   | 0     |              |
| PROJECT TOTALS                                     |       |                 |          | 3,110 | 2,590 | 58   | 5,530 |              |

| CONCRETE PAVEMENT                                                              |       |                 |          |       |      |      |     |       |       |
|--------------------------------------------------------------------------------|-------|-----------------|----------|-------|------|------|-----|-------|-------|
| 415.0090      416.0610      416.0620      416.1715      416.1725      416.1725 |       |                 |          |       |      |      |     |       |       |
| CONCRETE      DRILLED      DRILLED      CONCRETE      CONCRETE      CONCRETE   |       |                 |          |       |      |      |     |       |       |
| PAVEMENT      TIE      DOWEL      PAVEMENT REPAIR      PAVEMENT      PAVEMENT  |       |                 |          |       |      |      |     |       |       |
| 9-INCH      BARS      BARS      SHES      REPLACEMENT      REPLACEMENT SHES    |       |                 |          |       |      |      |     |       |       |
| CATEGORY                                                                       | STAGE | STATION         | LOCATION | SY    | EACH | EACH | SY  | SY    | SY    |
| 0010                                                                           | 2     | 0+18 - 53+00    | RT       | 2,042 | 208  | 64   | -   | -     | 115   |
|                                                                                |       | 53+00 - 105+00  | RT       | -     | 140  | 32   | -   | 519   | 71    |
|                                                                                |       | 105+00 - 212+00 | RT       | -     | 10   | 16   | -   | -     | 22    |
|                                                                                |       | 212+00 - 238+76 | RT       | -     | 10   | 16   | -   | -     | 48    |
| STAGE 2 TOTAL                                                                  |       |                 |          | 2,042 | 368  | 128  | 0   | 519   | 256   |
| 0010                                                                           | 3     | 0+18 - 53+00    | LT       | 1,184 | 30   | 32   | -   | -     | 50    |
|                                                                                |       | 53+00 - 105+00  | LT       | -     | 85   | 32   | -   | 293   | 67    |
|                                                                                |       | 105+00 - 212+00 | LT       | -     | 71   | 32   | -   | 278   | 24    |
|                                                                                |       | 212+00 - 238+76 | LT       | -     | 5    | 16   | -   | -     | 168   |
| STAGE 3 TOTAL                                                                  |       |                 |          | 1,184 | 191  | 112  | 0   | 571   | 309   |
| 0010                                                                           |       | UNDISTRIBTED    | LT&RT    | -     | 150  | 100  | 500 | -     | 500   |
| PROJECT TOTALS                                                                 |       |                 |          | 3,226 | 709  | 340  | 500 | 1,090 | 1,065 |

| GRANULAR BACKFILL |       |               |          |          |                       |
|-------------------|-------|---------------|----------|----------|-----------------------|
|                   |       |               |          | 209.2500 |                       |
|                   |       |               |          | BACKFILL |                       |
|                   |       |               |          | GRANULAR |                       |
|                   |       |               |          | GRADE 2  |                       |
| CATEGORY          | STAGE | STATION       | LOCATION | TON      | REMARKS               |
| 0010              | 2     | 35+39 - 48+52 | RT       | 230      | CULVERT PIPE BACKFILL |
| STAGE 2 TOTAL     |       |               |          | 230      |                       |
| 0010              | 3     | 35+39 - 43+00 | LT       | 230      | CULVERT PIPE BACKFILL |
| STAGE 3 TOTAL     |       |               |          | 230      |                       |
| PROJECT TOTALS    |       |               |          | 460      |                       |

| ASPHALTIC ITEMS |       |                 |          |                     |           |         |
|-----------------|-------|-----------------|----------|---------------------|-----------|---------|
|                 |       |                 |          | 211.0400            | 465.0125  |         |
|                 |       |                 |          | PREPARE             | ASPHALTIC |         |
|                 |       |                 |          | FOUNDATION FOR      | SURFACE   |         |
|                 |       |                 |          | ASPHALTIC SHOULDERS | TEMPORARY |         |
| CATEGORY        | STAGE | STATION         | LOCATION | STA                 | TON       | REMARKS |
| 0010            | 1     | 31+88 - 51+53   | LT       | 21                  | 183       | -       |
|                 |       | 70+88 - 79+73   | LT       | 10                  | 83        | -       |
|                 |       | STAGE 1 TOTAL   |          | 36                  | 303       |         |
| 0010            | 2     | 31+88 - 46+52   | RT       | 16                  | 137       | -       |
|                 |       | 70+88 - 79+73   | RT       | 10                  | 83        | -       |
|                 |       | 189+95 - 198+92 | RT       | 10                  | 84        | -       |
|                 |       | STAGE 2 TOTAL   |          | 31                  | 266       |         |
| PROJECT TOTALS  |       |                 |          | 67                  | 569       |         |

CULVERT PIPE ITEMS

| CATEGORY | STATION | LOCATION | 520.8000 | 520.8700 | 522.0430          | 522.0442          | 522.0448          | 522.1030         | 522.1036         | 611.9850.S    | 611.9850.S    | 633.5200* | SPV.0060.01 | SPV.0060.02 | SPV.0060.03 | SPV.0060.04 | REMARKS |
|----------|---------|----------|----------|----------|-------------------|-------------------|-------------------|------------------|------------------|---------------|---------------|-----------|-------------|-------------|-------------|-------------|---------|
|          |         |          | CONCRETE | CLEANING | CULVERT PIPE      | CULVERT PIPE      | CULVERT PIPE      | APRON ENDWALLS   | APRON ENDWALLS   | PIPE          | PIPE          | MARKERS   | CULVERT     | CULVERT     | CULVERT     | CULVERT     |         |
|          |         |          | COLLARS  | CULVERT  | CONCRETE CLASS IV | CONCRETE CLASS IV | CONCRETE CLASS IV | PIPE REINFORCED  | PIPE REINFORCED  | GRATES        | GRATES        | CULVERT   | ENDS        | ENDS        | ENDS        | ENDS        |         |
|          |         |          | FOR PIPE | PIPES    | 30-INCH           | 42-INCH           | 48-INCH           | CONCRETE 30-INCH | CONCRETE 36-INCH | 01. (30-INCH) | 02. (36-INCH) | END       | 30-INCH     | 36-INCH     | 42-INCH     | 48-INCH     |         |
| 0010     | 66+51   | LT&RT    | 2        | 1        | -                 | -                 | -                 | -                | 2                | -             | 2             | 2         | -           | 4           | -           | -           | -       |
|          | 107+58  | LT       | 1        | 1        | 6                 | -                 | -                 | -                | -                | -             | -             | 2         | 2           | -           | -           | -           | -       |
|          | 115+55  | LT&RT    | 1        | 1        | -                 | -                 | -                 | 1                | -                | -             | -             | 2         | 3           | -           | -           | -           | -       |
|          | 140+74  | LT&RT    | 2        | 1        | -                 | -                 | 18                | -                | -                | -             | -             | -         | -           | -           | -           | 5           | -       |
|          | 140+81  | LT&RT    | 2        | 1        | -                 | -                 | 18                | -                | -                | -             | -             | 2         | -           | -           | -           | 5           | -       |
| 140+88   | LT&RT   | 2        | 1        | -        | -                 | 18                | -                 | -                | -                | -             | -             | -         | -           | -           | -           | 5           | -       |
| 158+14   | LT      | 1        | 1        | -        | -                 | -                 | -                 | 1                | -                | 1             | -             | 2         | -           | -           | -           | -           | -       |
| 203+50   | LT&RT   | -        | 1        | -        | -                 | -                 | -                 | -                | -                | -             | -             | -         | -           | -           | -           | 7           | -       |
| 203+56   | LT&RT   | -        | 1        | -        | -                 | -                 | -                 | -                | -                | -             | -             | 2         | -           | -           | 5           | -           | -       |
| 203+62   | LT&RT   | -        | 1        | -        | -                 | -                 | -                 | -                | -                | -             | -             | -         | -           | -           | 5           | -           | -       |
| 203+68   | LT&RT   | -        | 1        | -        | -                 | -                 | -                 | -                | -                | -             | -             | -         | -           | -           | 5           | -           | -       |
| 233+97   | LT      | 1        | 1        | -        | 8                 | -                 | -                 | -                | -                | -             | -             | -         | -           | -           | 2           | -           | -       |
|          |         |          | 12       | 12       | 6                 | 8                 | 54                | 2                | 2                | 1             | 2             | 12        | 5           | 4           | 17          | 22          |         |

\*ADDITIONAL QUANTITIES SHOWN ELSEWHERE

CULVERT PIPE REPLACEMENT

| CATEGORY | STATION | ***INLET |            | ***OUTLET |         |            | SLOPE (%) | LOCATION | 522.0460          | 522.1060        | 611.9850.S    | 633.5200* | REMARKS |
|----------|---------|----------|------------|-----------|---------|------------|-----------|----------|-------------------|-----------------|---------------|-----------|---------|
|          |         | OFFSET   | ELEV. (FT) | STATION   | OFFSET  | ELEV. (FT) |           |          | CULVERT PIPE      | APRON ENDWALLS  | PIPE          | MARKERS   |         |
|          |         |          |            |           |         |            |           |          | REINFORCED        | FOR CULVERT     | GRATES        | CULVERT   |         |
|          |         |          |            |           |         |            |           |          | CONCRETE CLASS IV | PIPE REINFORCED | 03. (60-INCH) | END       |         |
| 0010     | 38+67   | 35.8'LT  | 1169.92    | 38+69     | 43.9'RT | 1169.00    | 1.15%     | LT&RT    | 80                | 2               | 1             | -         | -       |
|          | 38+76   | 36.1'LT  | 1169.92    | 38+78     | 43.8'RT | 1169.00    | 1.15%     | LT&RT    | 80                | 2               | 1             | 2         | -       |
|          | 38+85   | 36.4'LT  | 1169.92    | 38+88     | 43.6'RT | 1169.00    | 1.15%     | LT&RT    | 80                | 2               | 1             | -         | -       |
|          |         |          |            |           |         |            |           |          | 240               | 6               | 3             | 2         |         |

\*ADDITIONAL QUANTITIES SHOWN ELSEWHERE

\*\*\* PIPE INVERT AND STATION/OFFSET AT END OF PIPE

CONCRETE BARRIER TEMPORARY PRECAST

|          |       |                 |          | 603.8000          | 603.8125          | 603.8500           |         |  |
|----------|-------|-----------------|----------|-------------------|-------------------|--------------------|---------|--|
|          |       |                 |          | CONCRETE          | CONCRETE          | ANCHORING CONCRETE |         |  |
|          |       |                 |          | BARRIER TEMPORARY | BARRIER TEMPORARY | BARRIER TEMPORARY  |         |  |
|          |       |                 |          | PRECAST DELIVERED | PRECAST INSTALLED | PRECAST            |         |  |
| CATEGORY | STAGE | STATION         | LOCATION | LF                | LF                | LF                 | REMARKS |  |
| 0010     | 2     | 32+87 - 50+65   | RT       | 1,780             | 1,780             | 100                | -       |  |
|          |       | 71+87 - 78+75   | RT       | 690               | 690               | -                  | -       |  |
|          |       | STAGE 2 TOTAL   |          | 2,470             | 2,470             | 100                |         |  |
| 0010     | 3     | 32+87 - 45+52   | LT       | 1,267             | 1,267             | -                  | -       |  |
|          |       | 71+87 - 78+75   | LT       | 690               | 690               | -                  | -       |  |
|          |       | 190+93 - 197+94 | LT       | 705               | 705               | -                  | -       |  |
|          |       | STAGE 3 TOTAL   |          | 2,662             | 2,662             | 0                  |         |  |
|          |       | PROJECT TOTALS  |          |                   | 5,132             | 5,132              | 100     |  |

RIPRAP

|                |         |          |    | 606.0200 | 645.0120   | REMARKS |
|----------------|---------|----------|----|----------|------------|---------|
|                |         |          |    | RIPRAP   | GEOTEXTILE |         |
|                |         |          |    | MEDIUM   | TYPE HR    |         |
| CATEGORY       | STATION | LOCATION | CY | SY       |            |         |
| 0010           | 140+81  | RT       | 29 | 57       |            | -       |
|                | 158+14  | RT       | 2  | 5        |            | -       |
|                | 203+59  | RT       | 21 | 41       |            | -       |
| PROJECT TOTALS |         |          | 52 | 103      |            |         |

FINISHING ITEMS

|                |                   |                   |         | 630.0110 |           |       |    |
|----------------|-------------------|-------------------|---------|----------|-----------|-------|----|
|                |                   | 629.0210          | SEEDING | 630.0200 | 630.0500  |       |    |
|                |                   | FERTILIZER        | MIXTURE | SEEDING  | SEED      |       |    |
|                |                   | TOPSOIL           | TYPE B  | NO. 10   | TEMPORARY | WATER |    |
| CATEGORY       | STATION - STATION | SY                | CWT     | LB       | LB        | MGAL  |    |
| 0010           | 0+18 - 53+00      | 707               | 1.2     | 50       | 50        | 20    |    |
| 0010           | 53+00 - 105+00    | 89                | 0.1     | 2        | 2.4       | 2     |    |
| 0010           | 105+00 - 212+00   | 657               | 0.5     | 20       | 20        | 10    |    |
| 0010           |                   | UNDISTRIBUTED QTY | 360     | 1.0      | 20        | 20    | 10 |
| PROJECT TOTALS |                   | 1,813             | 2.8     | 92       | 92        | 42    |    |

EROSION CONTROL

|               |                 |       | 628.2006      |                    |               |                 | 628.1910      |                |                |         |
|---------------|-----------------|-------|---------------|--------------------|---------------|-----------------|---------------|----------------|----------------|---------|
|               |                 |       | EROSION       |                    |               |                 | 628.7555      | 628.1905       | MOBILIZATONS   |         |
|               |                 |       | 628.1504      | 628.1520           | MAT URBAN     | 628.6005        | CULVERT       | MOBILIZATIONS  | EMERGENCY      |         |
|               |                 |       | SILT          | SILT FENCE         | CLASS I       | TURBIDITY       | PIPE          | EROSION        | EROSION        |         |
|               |                 |       | <u>FENCE</u>  | <u>MAINTENANCE</u> | <u>TYPE A</u> | <u>BARRIERS</u> | <u>CHECKS</u> | <u>CONTROL</u> | <u>CONTROL</u> |         |
| CATEGORY      | STATION         | LT/RT | LF            | LF                 | SY            | SY              | EACH          | EACH           | EACH           | REMARKS |
| 0010          | 0+18 - 53+00    | LT&RT | 2160          | 2160               | 707           | -               | 24            | 6              | 3              | -       |
| 0010          | 53+00 - 105+00  | LT&RT | 136           | 136                | 89            | -               | 3             | -              | -              | -       |
| 0010          | 105+00 - 212+00 | LT&RT | 492           | 492                | 657           | 55              | 33            | -              | -              | -       |
| 0010          |                 |       | UNDISTRIBUTED | 700                | 700           | 360             | 10            | 20             | -              | -       |
| PROJECT TOTAL |                 |       | 3488          | 3488               | 1813          | 65              | 80            | 6              | 3              |         |

CRASH CUSHIONS

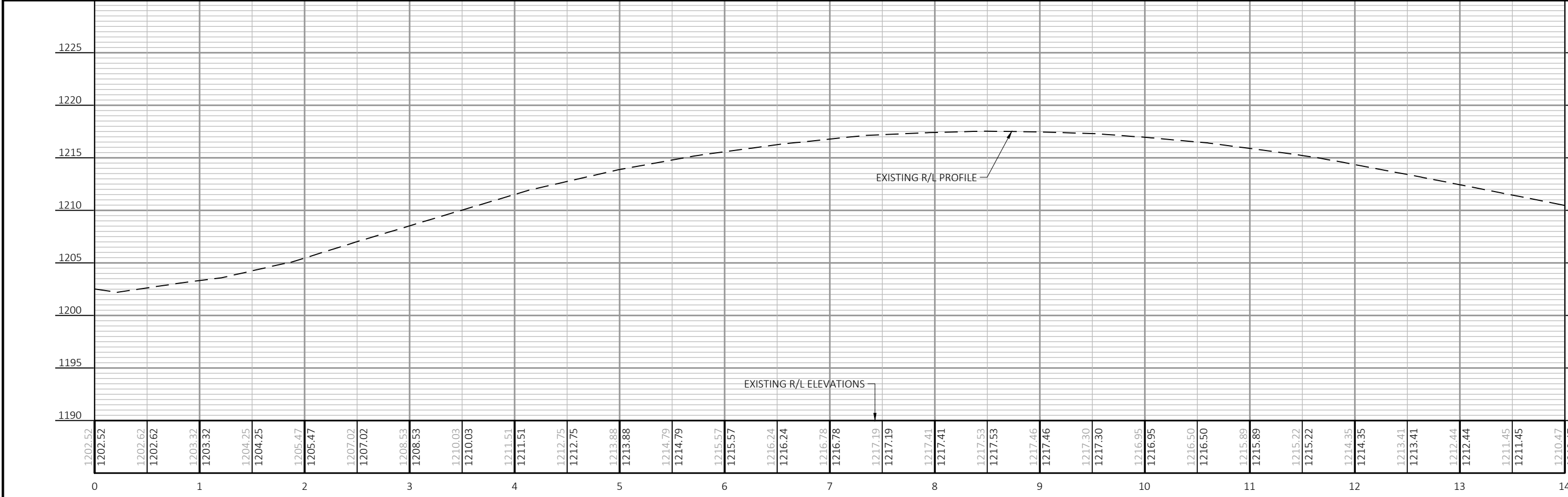
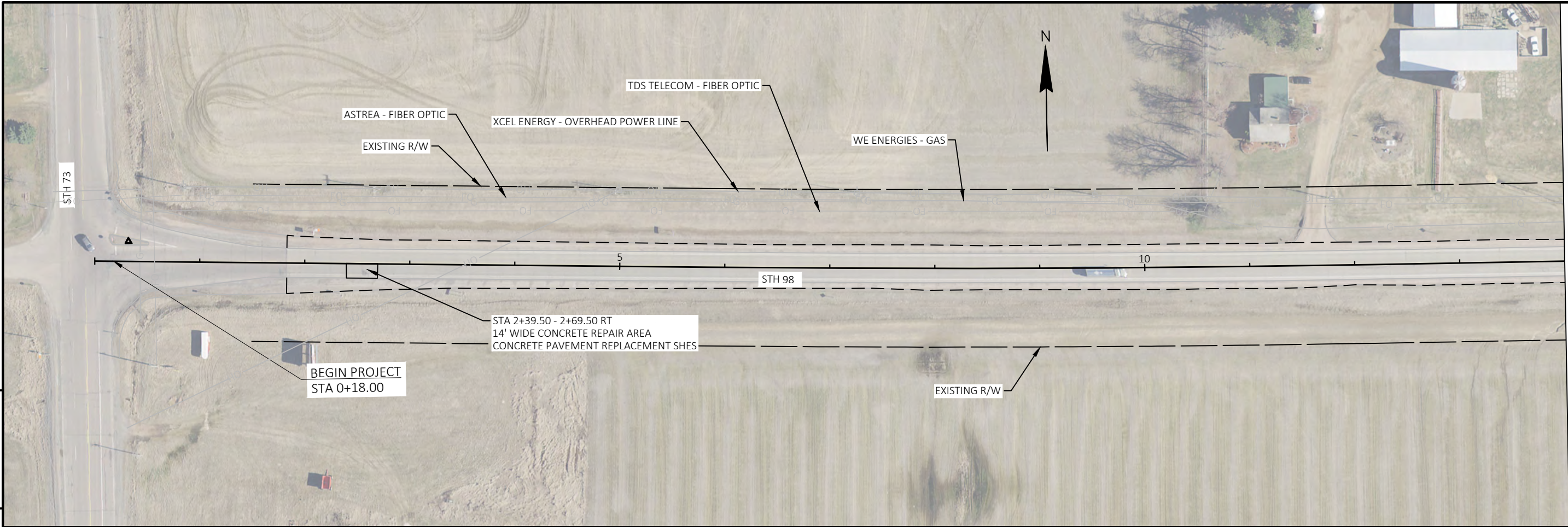
|                |       |         |          | 614.0905  |            |                |       |                |          |                            |         |
|----------------|-------|---------|----------|-----------|------------|----------------|-------|----------------|----------|----------------------------|---------|
|                |       |         |          | CRASH     |            |                |       |                |          |                            |         |
|                |       |         |          | CUSHIONS  |            |                |       |                |          |                            |         |
| CATEGORY       | STAGE | STATION | LOCATION | TEMPORARY | BACK WIDTH | OBJECT         | CRASH | TRAFFIC        | TRAFFIC  | CRASH                      | REMARKS |
|                |       |         |          | EACH      | FT         | MARKING        | LEVEL | DIRECTION      | LOCATION | CUSHION                    |         |
| 0010           | 2     | 32+87   | RT       | 1         | 2          | OM-3L (W5-58L) | TL-3  | UNIDIRECTIONAL | LT       | TEMPORARY CONCRETE BARRIER | -       |
|                |       | 50+65   | RT       | 1         | 2          | OM-3R (W5-58R) | TL-3  | UNIDIRECTIONAL | RT       | TEMPORARY CONCRETE BARRIER | -       |
|                |       | 71+87   | RT       | 1         | 2          | OM-3L (W5-58L) | TL-3  | UNIDIRECTIONAL | LT       | TEMPORARY CONCRETE BARRIER | -       |
|                |       | 78+75   | RT       | 1         | 2          | OM-3R (W5-58R) | TL-3  | UNIDIRECTIONAL | RT       | TEMPORARY CONCRETE BARRIER | -       |
| STAGE 2 TOTAL  |       |         |          | 2         |            |                |       |                |          |                            |         |
| 0010           | 3     | 32+87   | LT       | 1         | 2          | OM-3R (W5-58R) | TL-3  | UNIDIRECTIONAL | RT       | TEMPORARY CONCRETE BARRIER | -       |
|                |       | 45+52   | LT       | 1         | 2          | OM-3L (W5-58L) | TL-3  | UNIDIRECTIONAL | LT       | TEMPORARY CONCRETE BARRIER | -       |
|                |       | 71+87   | LT       | 1         | 2          | OM-3R (W5-58R) | TL-3  | UNIDIRECTIONAL | RT       | TEMPORARY CONCRETE BARRIER | -       |
|                |       | 78+75   | LT       | 1         | 2          | OM-3L (W5-58L) | TL-3  | UNIDIRECTIONAL | LT       | TEMPORARY CONCRETE BARRIER | -       |
|                |       | 190+93  | LT       | 1         | 2          | OM-3R (W5-58R) | TL-3  | UNIDIRECTIONAL | RT       | TEMPORARY CONCRETE BARRIER | -       |
|                |       | 197+94  | LT       | 1         | 2          | OM-3L (W5-58L) | TL-3  | UNIDIRECTIONAL | LT       | TEMPORARY CONCRETE BARRIER | -       |
| STAGE 3 TOTAL  |       |         |          | 6         |            |                |       |                |          |                            |         |
| PROJECT TOTALS |       |         |          | 8         |            |                |       |                |          |                            |         |

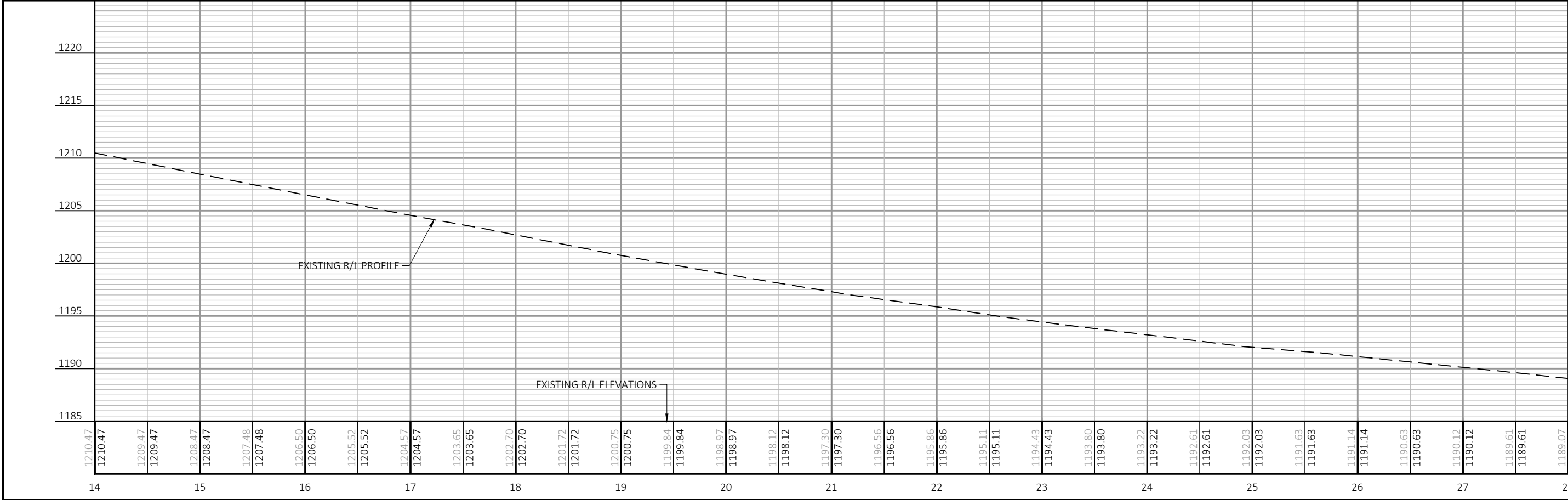
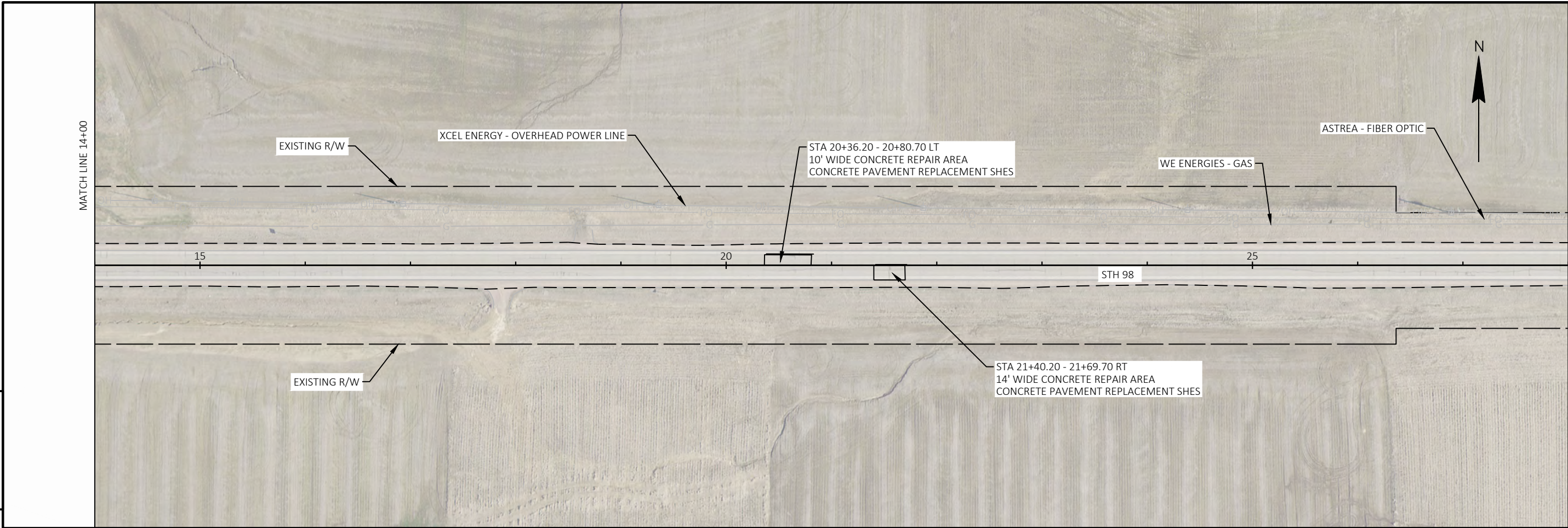
| TRAFFIC CONTROL |                 |          |                |                       |       |                                     |      |                       |      |                       |       |                       |       |                            |      |                                |
|-----------------|-----------------|----------|----------------|-----------------------|-------|-------------------------------------|------|-----------------------|------|-----------------------|-------|-----------------------|-------|----------------------------|------|--------------------------------|
| CATEGORY        | STAGE           | LOCATION | APPROX.        | 643.0300              |       | 643.0420                            |      | 643.0705              |      | 643.0715              |       | 643.0900              |       | 643.1050                   |      | NOTES                          |
|                 |                 |          | SERVICE PERIOD | TRAFFIC CONTROL DRUMS | DAYS  | TRAFFIC CONTROL BARRICADES TYPE III | QTY. | WARNING LIGHTS TYPE A | DAYS | WARNING LIGHTS TYPE C | QTY.  | TRAFFIC CONTROL SIGNS | DAYS  | TRAFFIC CONTROL SIGNS PCMS | DAYS |                                |
| 0010            | ADVANCE WARNING | STH 98   | 7              | 0                     | 0     | 0                                   | 0    | 0                     | 0    | 0                     | 0     | 0                     | 0     | 2                          | 14   | PRE-WARN PRIOR TO CONSTRUCTION |
| 0010            | ADVANCE WARNING | STH 98   | 94             | 0                     | 0     | 0                                   | 0    | 0                     | 0    | 0                     | 0     | 23                    | 2,162 | 0                          | 0    | ENTIRE PROJECT                 |
| SUBTOTAL        |                 |          |                |                       | 0     |                                     | 0    |                       | 0    |                       | 0     |                       | 2,162 |                            | 14   |                                |
| 0010            | 2               | STH 98   | 40             | 65                    | 2,600 | 2                                   | 80   | 4                     | 160  | 44                    | 1,760 | 66                    | 2,640 | 0                          | 0    | -                              |
| STAGE 2 TOTAL   |                 |          |                |                       | 2,600 |                                     | 80   |                       | 160  |                       | 1,760 |                       | 2,640 |                            | 0    |                                |
| 0010            | 3               | STH 98   | 30             | 95                    | 2,850 | 3                                   | 90   | 6                     | 180  | 66                    | 1,980 | 60                    | 1,800 | 0                          | 0    | -                              |
| STAGE 3 TOTAL   |                 |          |                |                       | 2,850 |                                     | 90   |                       | 180  |                       | 1,980 |                       | 1,800 |                            | 0    |                                |
| PROJECT TOTALS  |                 |          |                |                       | 5,450 |                                     | 170  |                       | 340  |                       | 3,740 |                       | 6,602 |                            | 14   |                                |

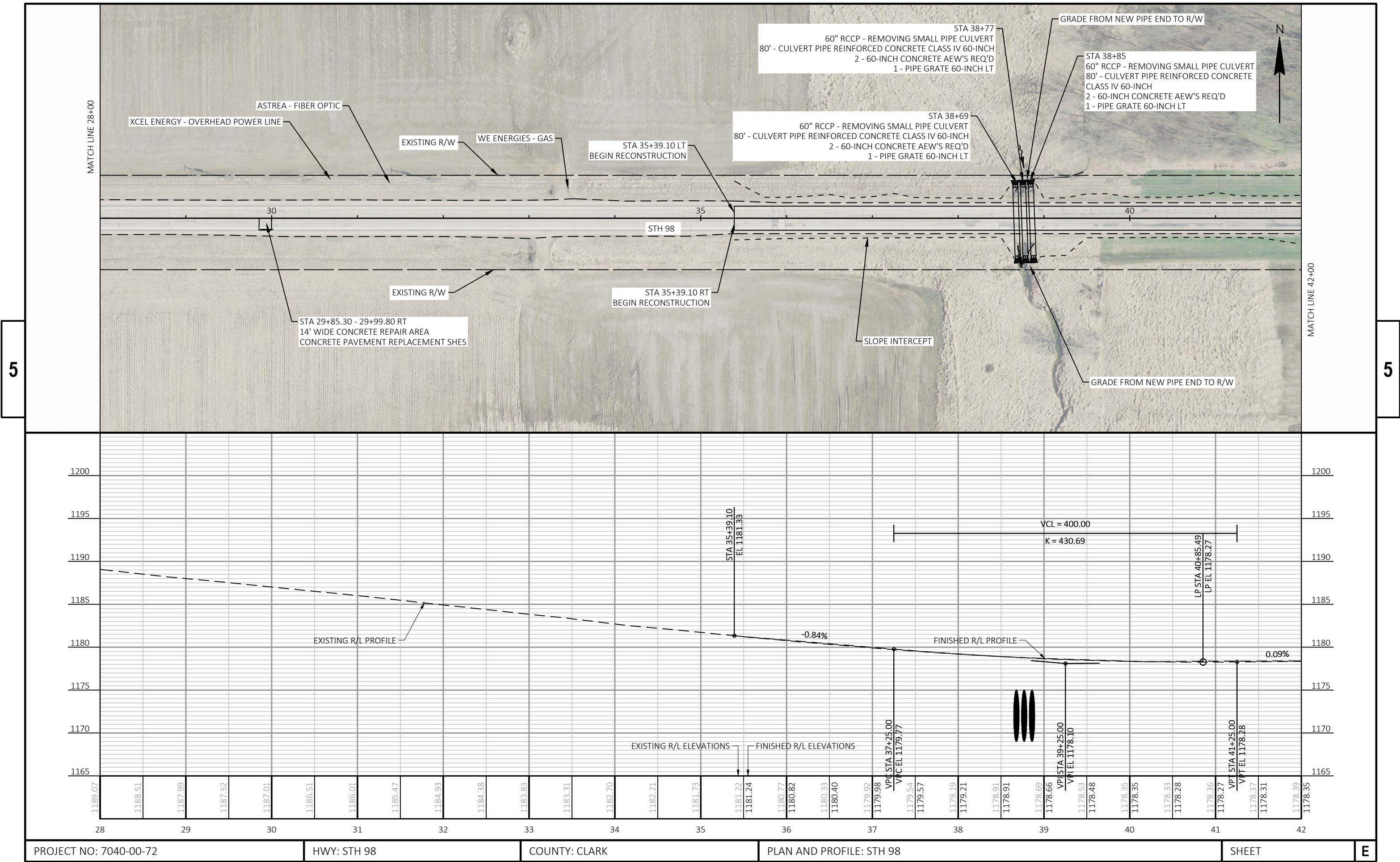
| PERMANENT PAVEMENT MARKING |               |          |                      |            |            |        |                      |            |           |               |       |
|----------------------------|---------------|----------|----------------------|------------|------------|--------|----------------------|------------|-----------|---------------|-------|
| CATEGORY                   | STATION       | LOCATION | 646.2040             |            |            |        | 646.4040             |            | 646.6120  | 646.8120      |       |
|                            |               |          | MARKING LINE GROOVED |            |            |        | MARKING LINE GROOVED |            | MARKING   | MARKING       |       |
|                            |               |          | WET REF EPOXY 6-INCH |            |            |        | WET REF EPOXY        |            | STOP LINE | CURB          |       |
|                            |               |          | SOLID                | 12.5' LINE | 37.5' SKIP | SOLID  | 12.5' LINE           | 37.5' SKIP | 10-INCH   | EPOXY 18-INCH | EPOXY |
|                            |               |          | WHITE                | WHITE      | YELLOW     | YELLOW | WHITE                | WHITE      | WHITE     | YELLOW        |       |
| LF                         | LF            | LF       | LF                   | LF         | LF         | LF     | LF                   | LF         | REMARKS   |               |       |
| 0010                       | 0+18 - 238+76 | LT&RT    | 46,926               | 25         | 19,532     | 5,000  | 464                  | 40         | 83        | -             |       |
| PROJECT TOTALS             |               |          | 71,483               |            |            |        | 464                  | 40         | 83        |               |       |

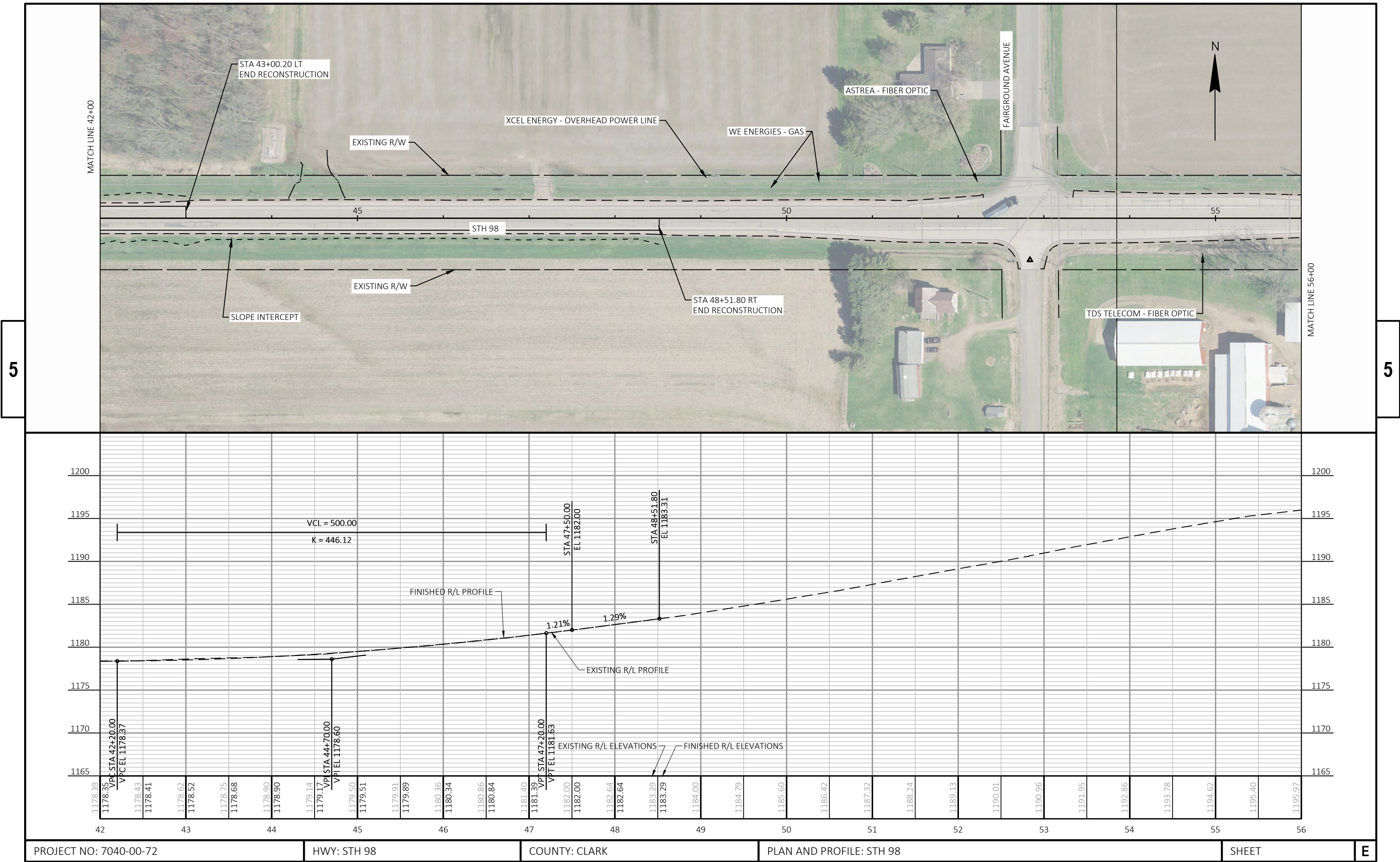
| TEMPORARY PAVEMENT MARKING |       |                 |          |                      |              |                       |              |
|----------------------------|-------|-----------------|----------|----------------------|--------------|-----------------------|--------------|
| CATEGORY                   | STAGE | STATION         | LOCATION | 643.3185             |              | 643.3850              | 646.9010     |
|                            |       |                 |          | TEMPORARY MARKING    |              | TEMPORARY MARKING     | MARKING      |
|                            |       |                 |          | LINE REMOVABLE       |              | STOP LINE REMOVABLE   | REMOVAL LINE |
|                            |       |                 |          | CONTRAST TAPE 6-INCH | TAPE 18-INCH | WATER BLASTING 4-INCH |              |
| 0010                       | 2     | 31+88 - 51+53   | LT&RT    | 3,796                | 24           | 2,392                 | -            |
|                            |       | 70+88 - 79+73   | LT&RT    | 1,571                | 24           | 1,290                 | -            |
| STAGE 2 TOTAL              |       |                 |          | 5,367                | 48           | 3,682                 |              |
| 0010                       | 3     | 31+88 - 46+52   | LT&RT    | 2,726                | 24           | 351                   | -            |
|                            |       | 70+88 - 79+73   | LT&RT    | 1,571                | 24           | 884                   | -            |
|                            |       | 189+95 - 198+92 | LT&RT    | 1,597                | 24           | 1,295                 | -            |
| STAGE 3 TOTAL              |       |                 |          | 5,894                | 72           | 2,530                 |              |
| PROJECT TOTALS             |       |                 |          | 11,261               | 120          | 6,212                 |              |

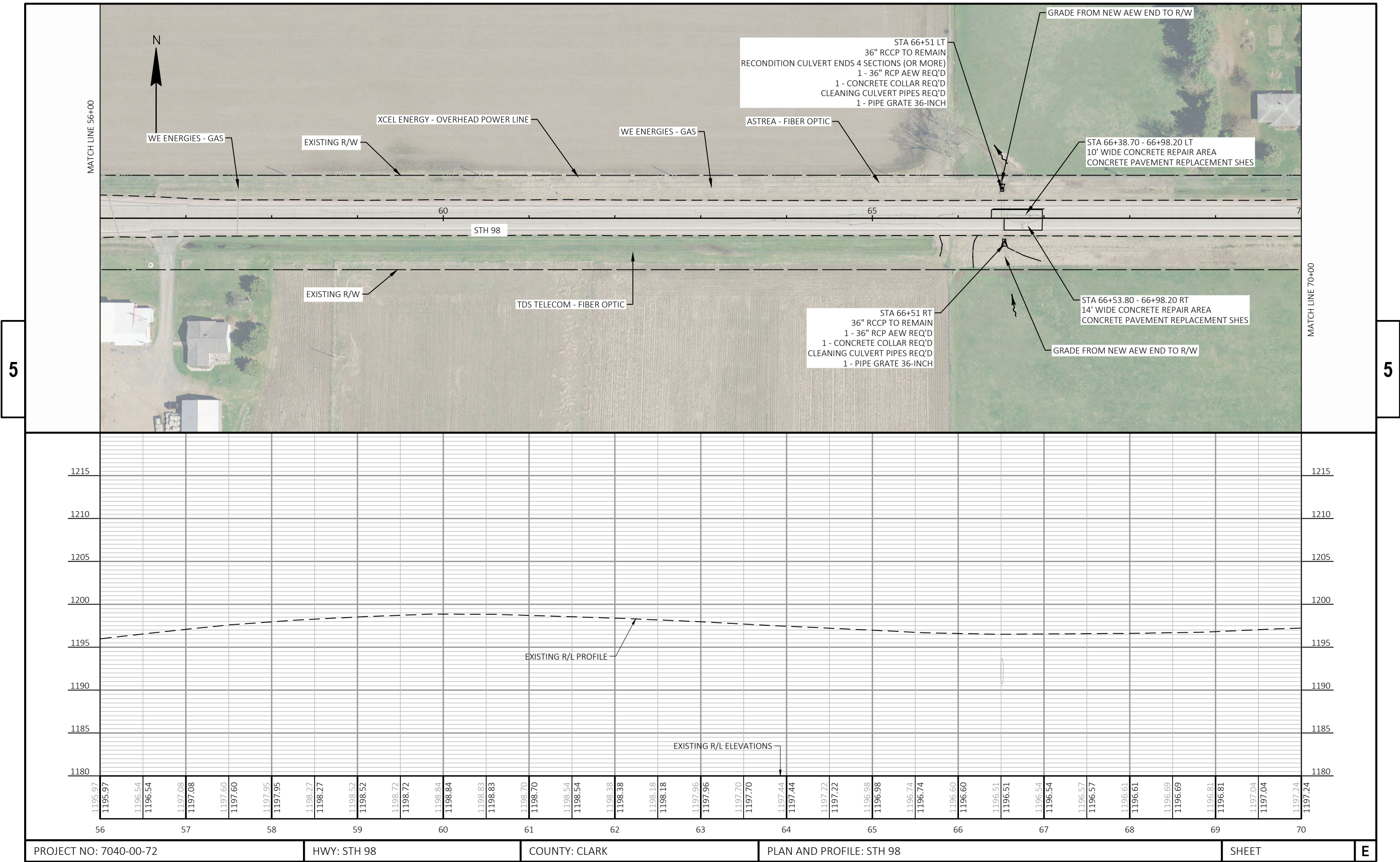
| CONSTRUCTION STAKING |              |          |                  |                       |                           |                                           |                      |         |
|----------------------|--------------|----------|------------------|-----------------------|---------------------------|-------------------------------------------|----------------------|---------|
|                      |              |          | 650.4500         | 650.6000              | 650.7000                  | 650.9911                                  | 650.9920             |         |
|                      |              |          | CONSTRUCTION     | CONSTRUCTION          | CONSTRUCTION              | CONSTRUCTION                              | CONSTRUCTION         |         |
|                      |              |          | STAKING SUBGRADE | STAKING PIPE CULVERTS | STAKING CONCRETE PAVEMENT | STAKING SUPPLEMENTAL CONTROL (7040-00-72) | STAKING SLOPE STAKES |         |
| CATEGORY             | STATION      | LOCATION | LF               | EACH                  | LF                        | EACH                                      | LF                   | REMARKS |
| 0010                 | 0+18 -238+76 | LT&RT    | 1313             | 3                     | 1313                      | 1                                         | 1313                 | -       |
| PROJECT TOTALS       |              |          | 1313             | 3                     | 1313                      | 1                                         | 1313                 |         |

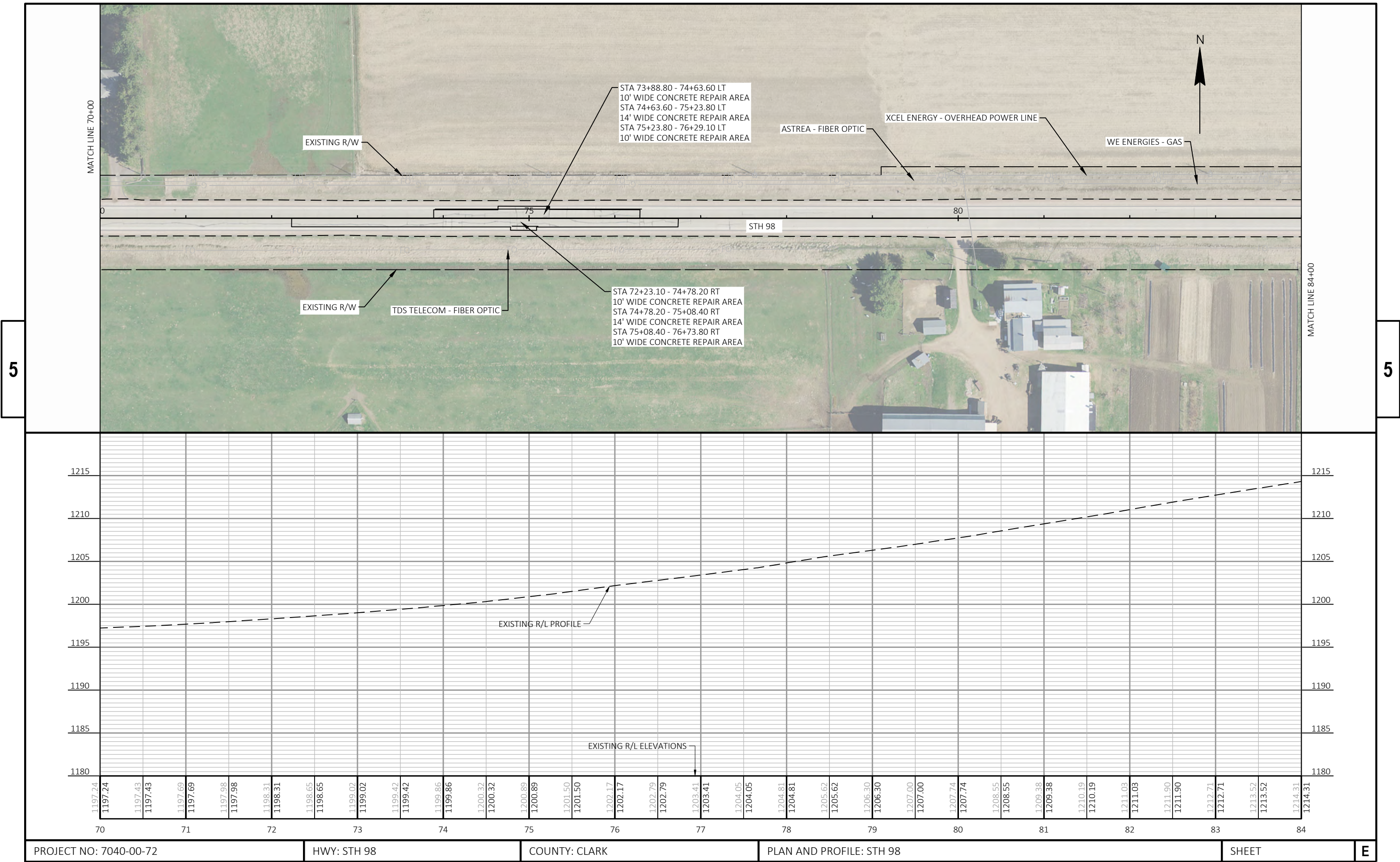












PROJECT NO: 7040-00-72

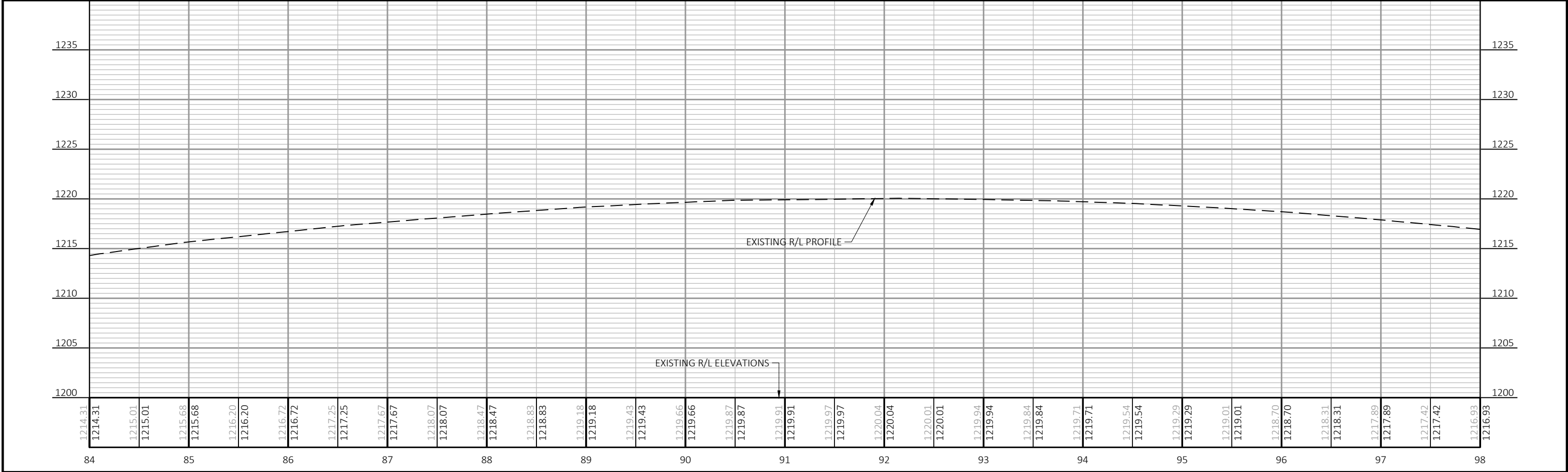
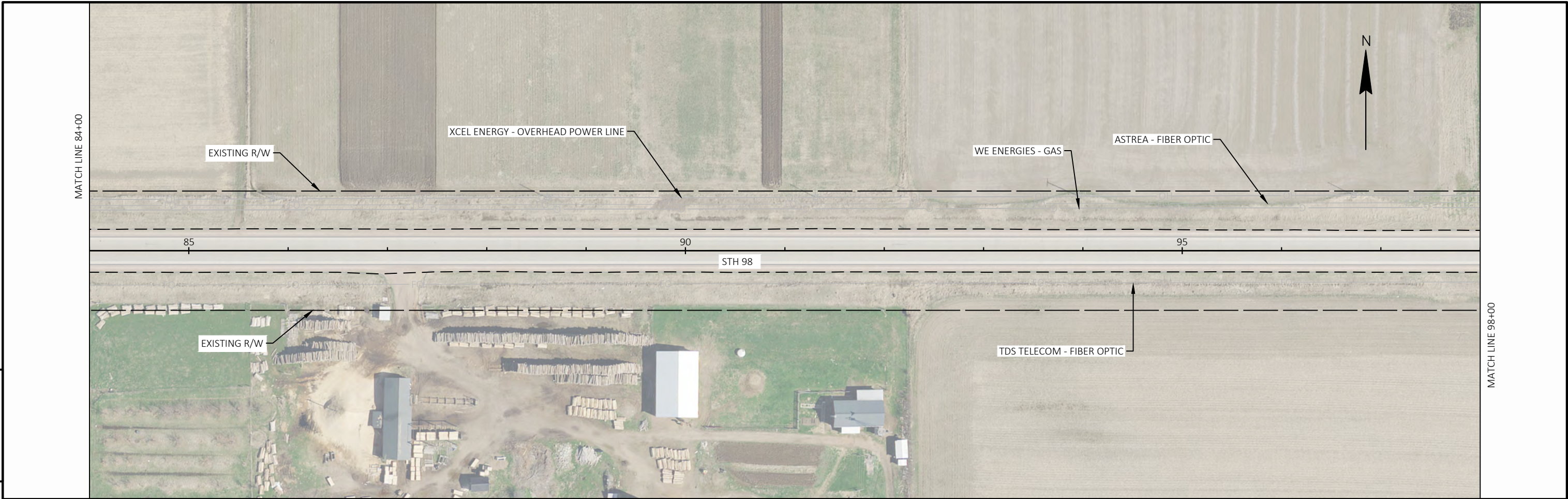
HWY: STH 98

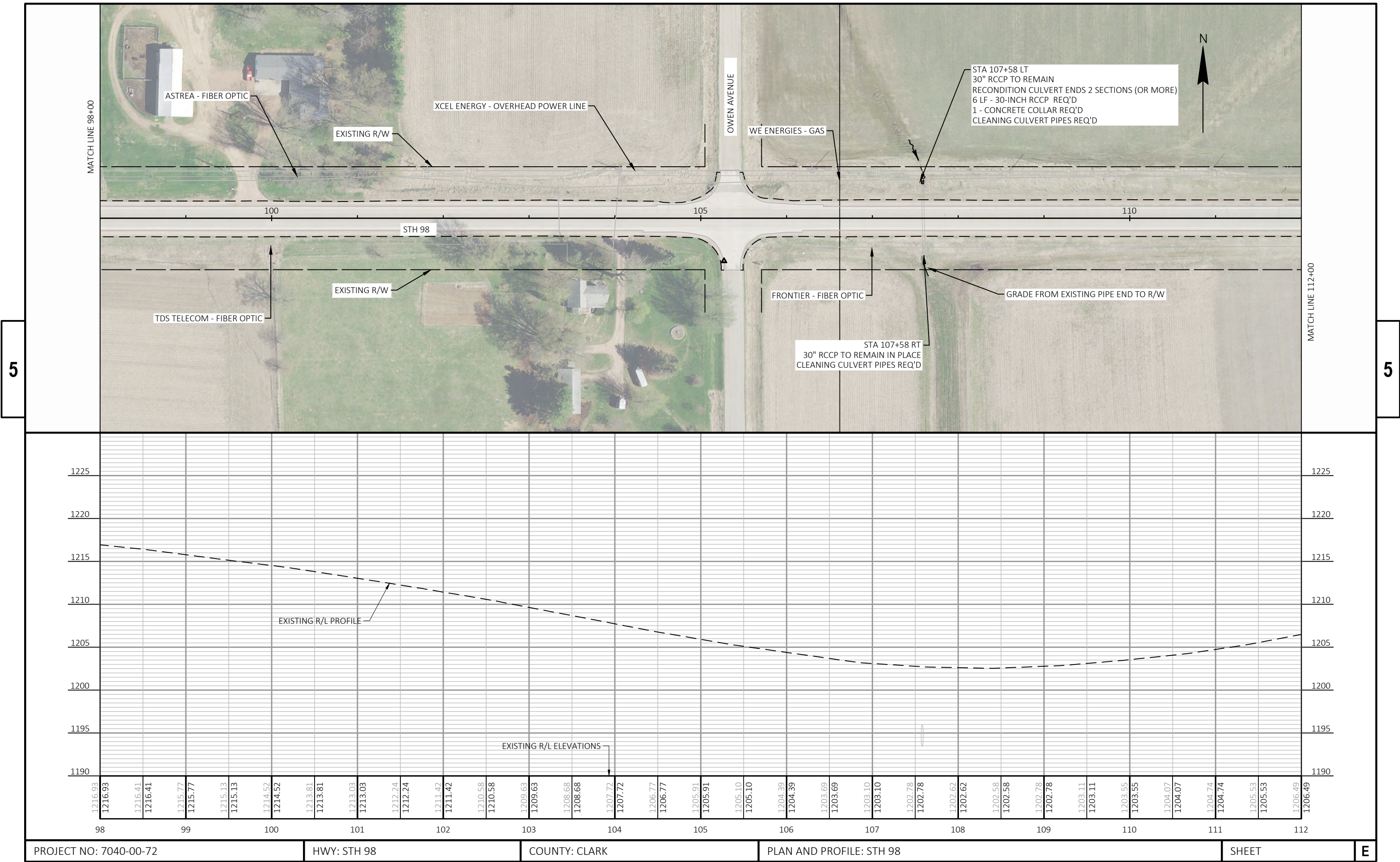
COUNTY: CLARK

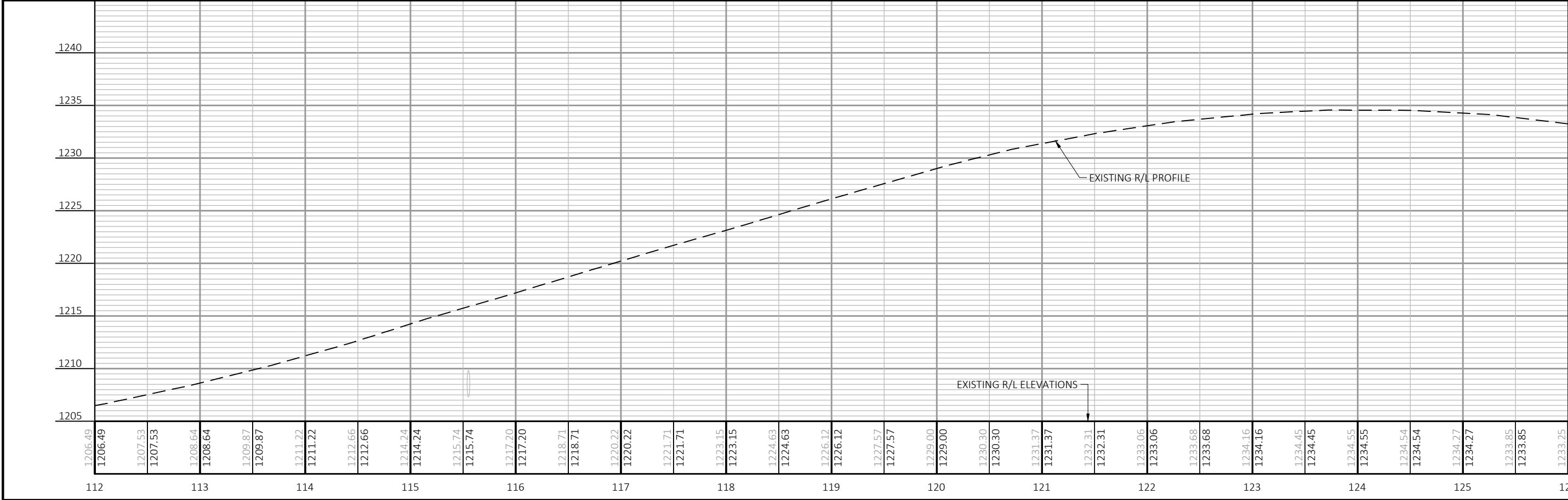
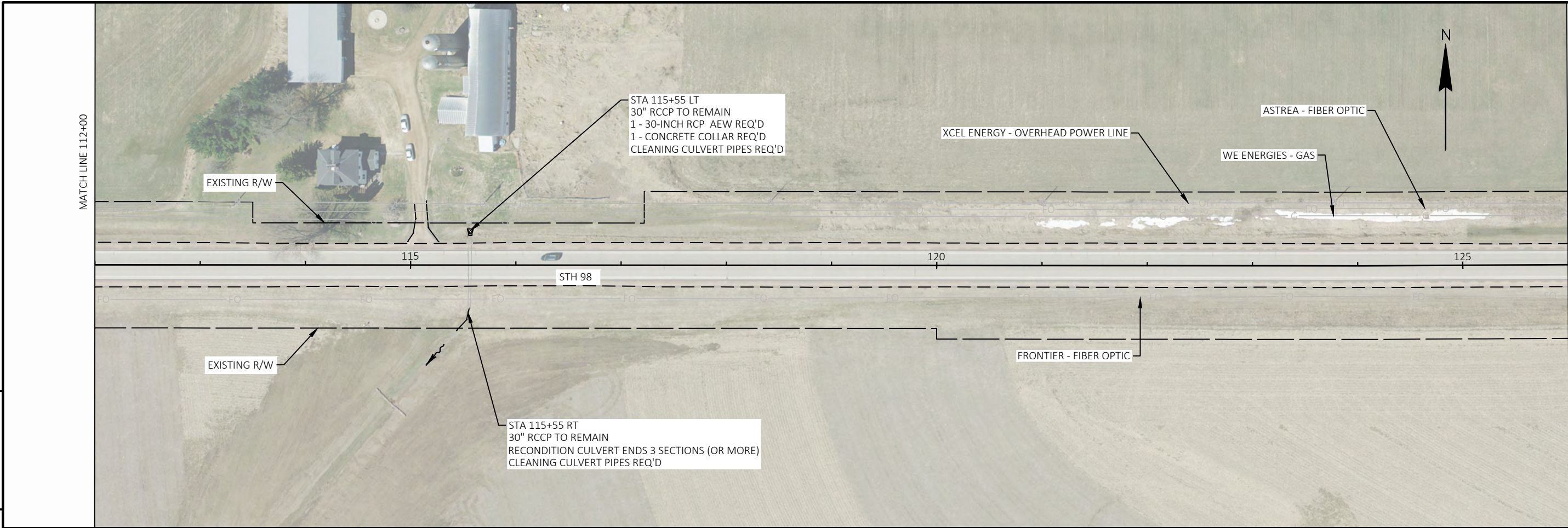
PLAN AND PROFILE: STH 98

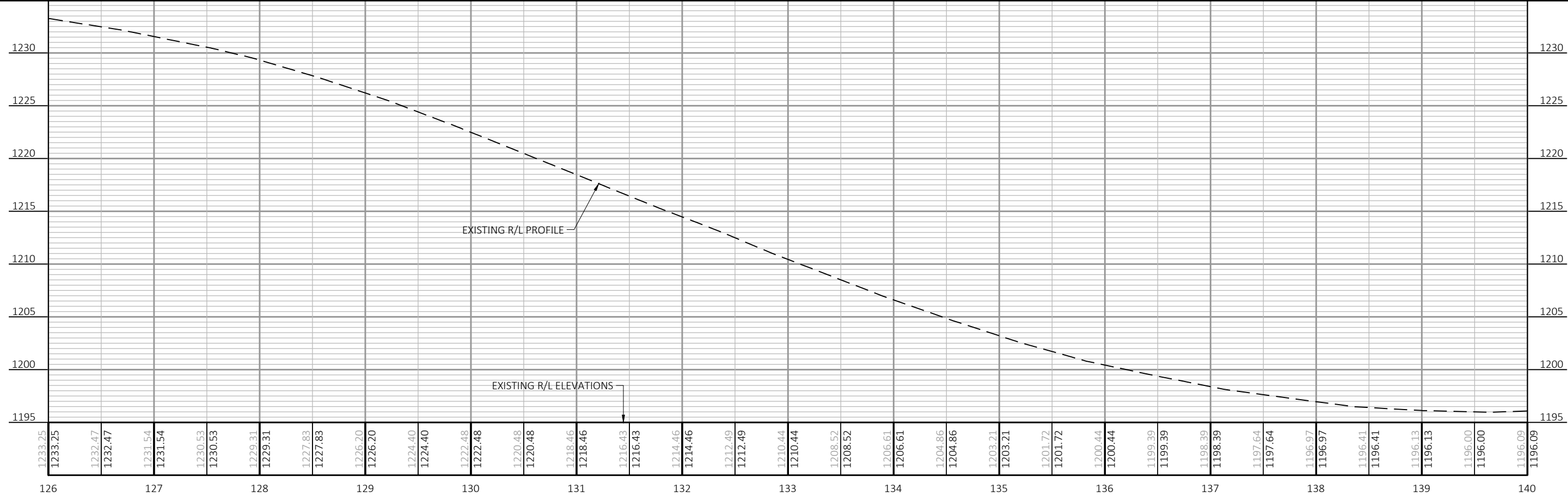
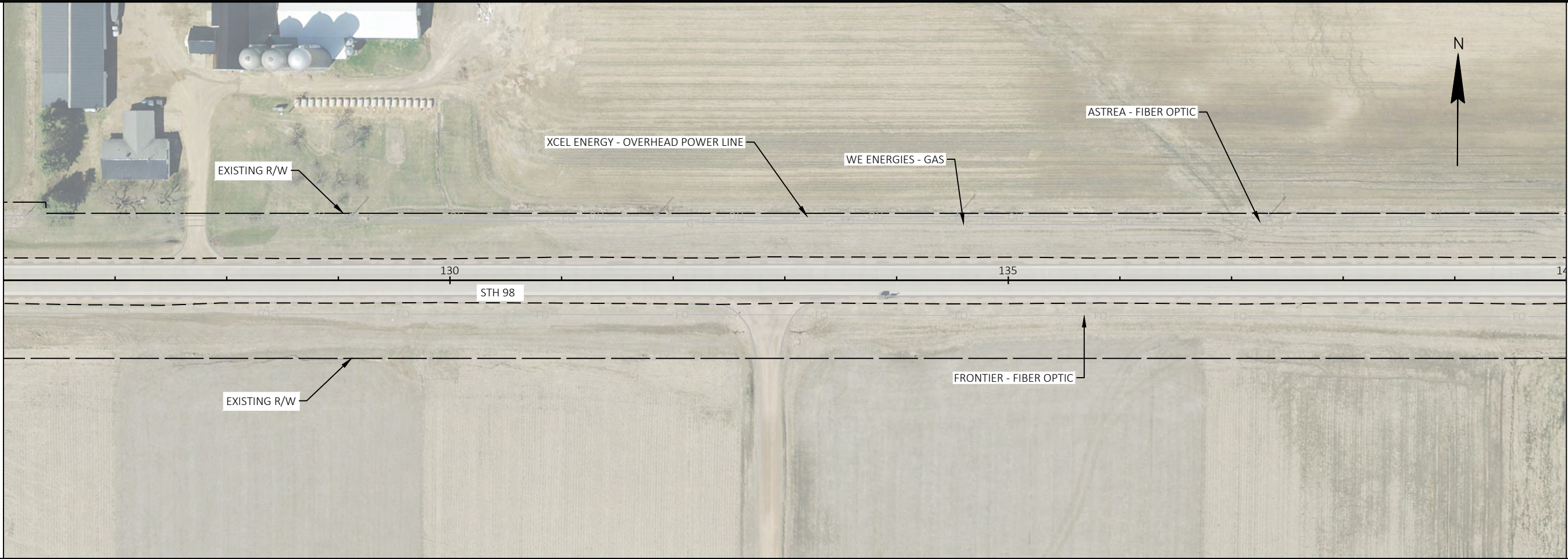
SHEET

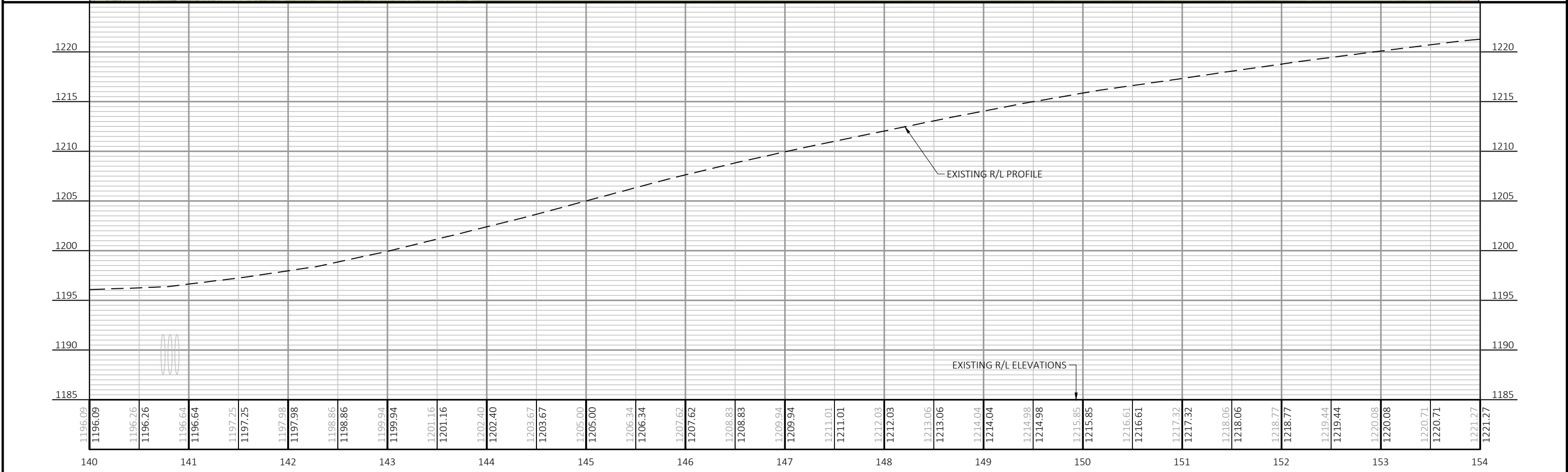
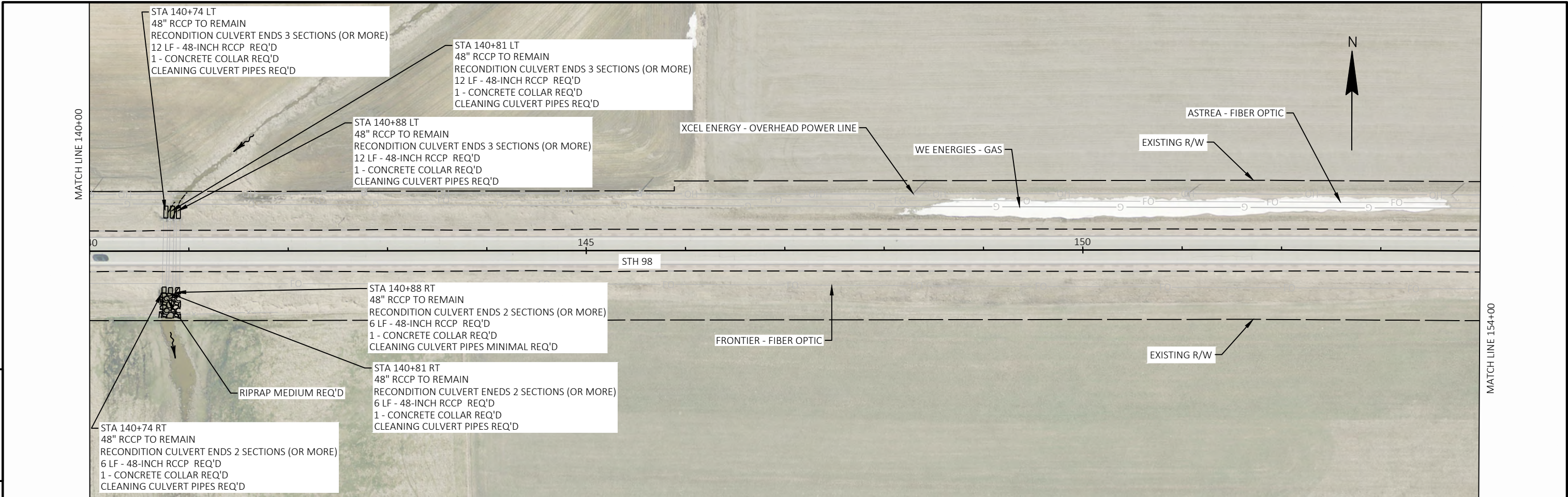
E



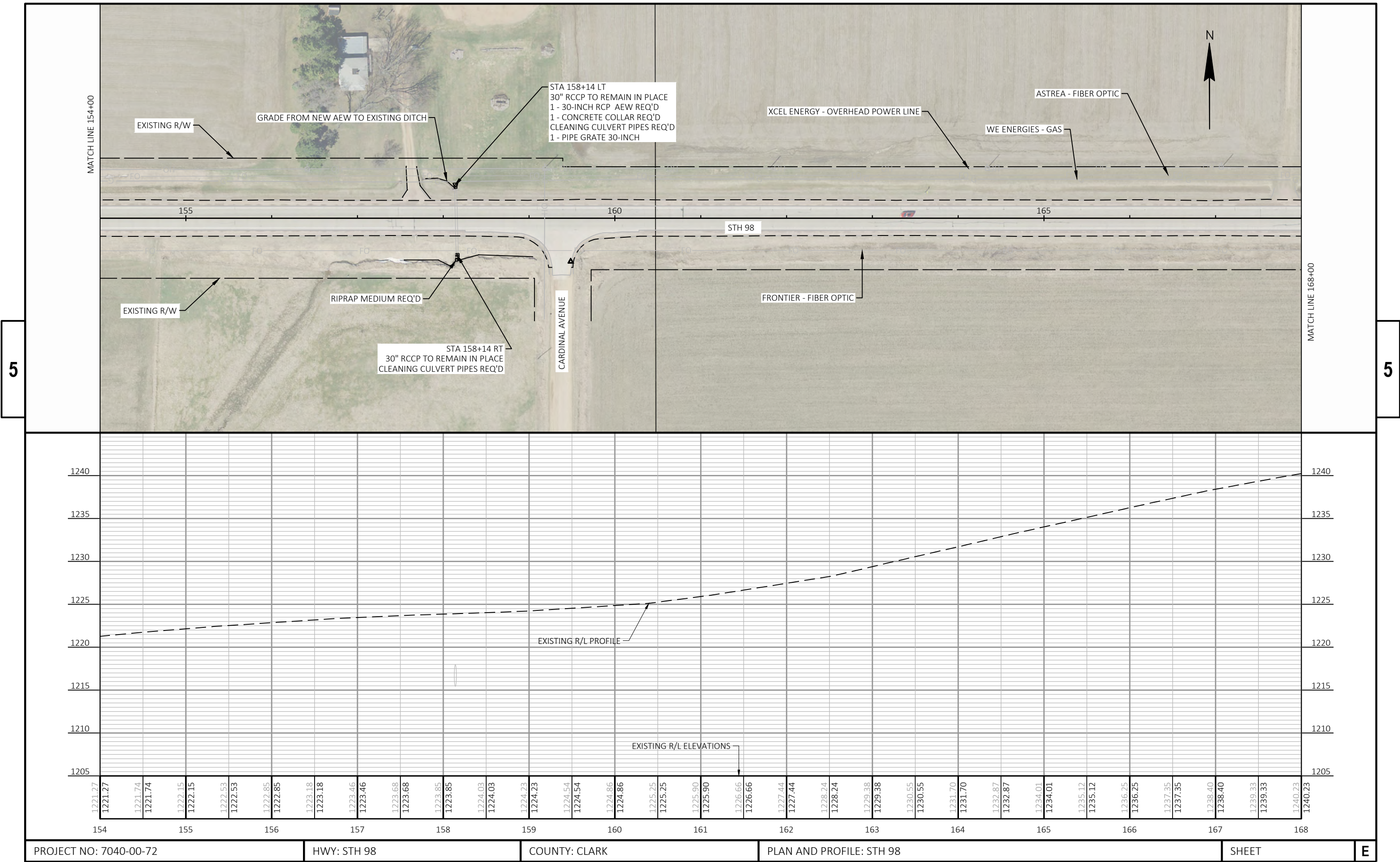


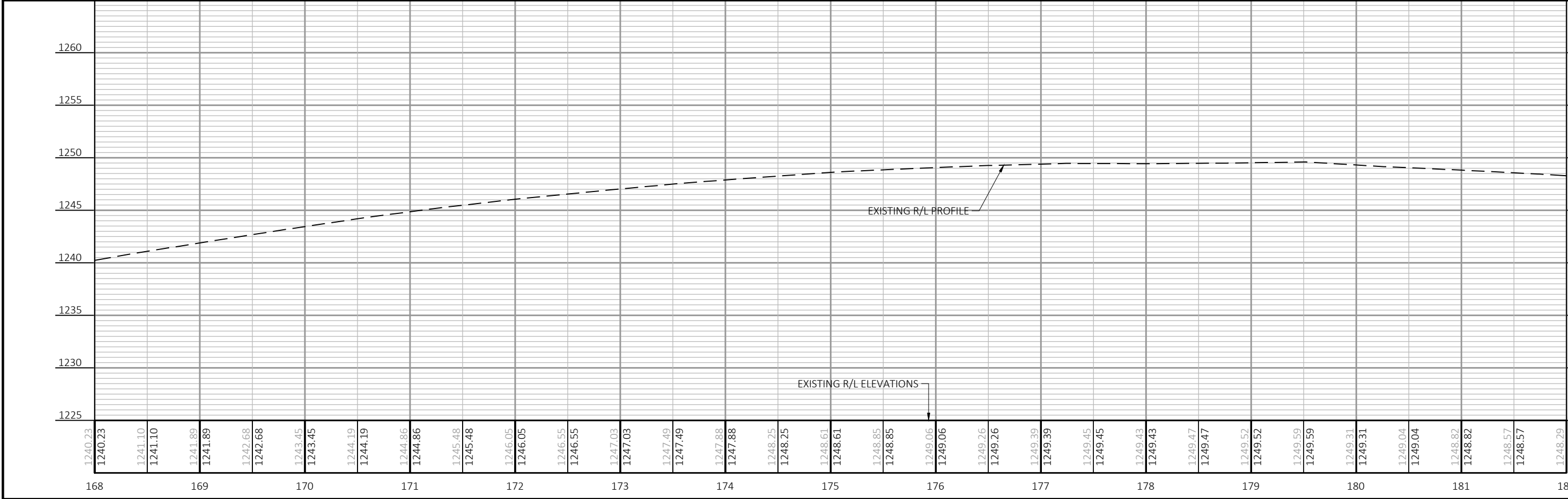
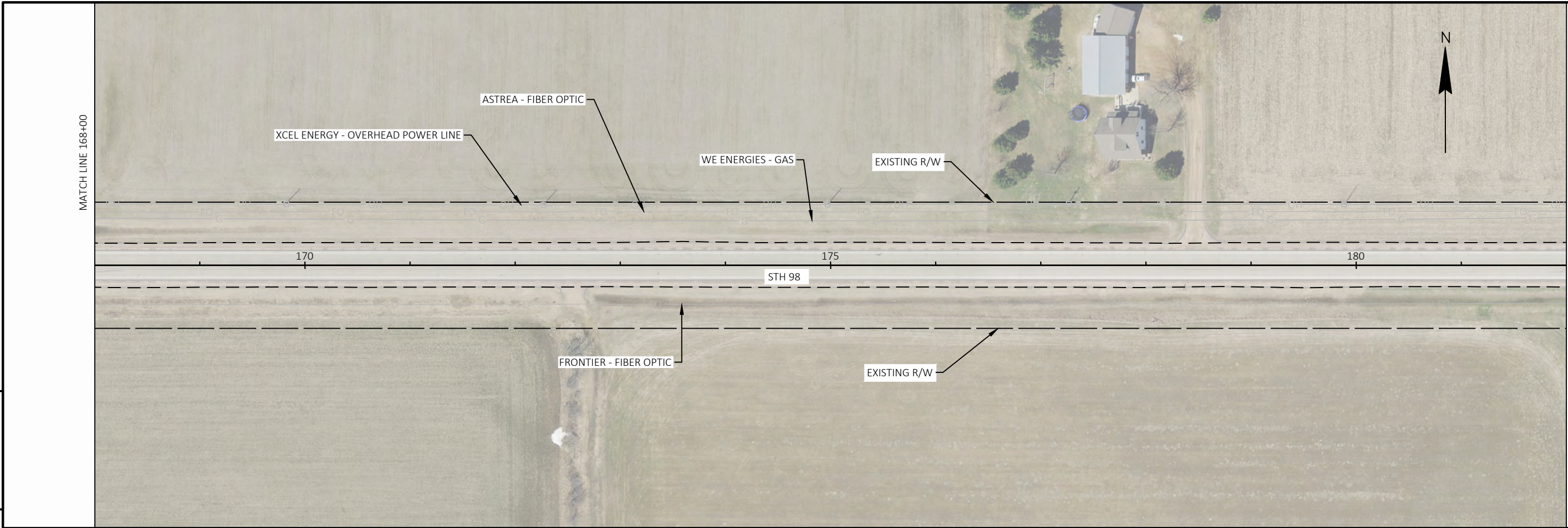


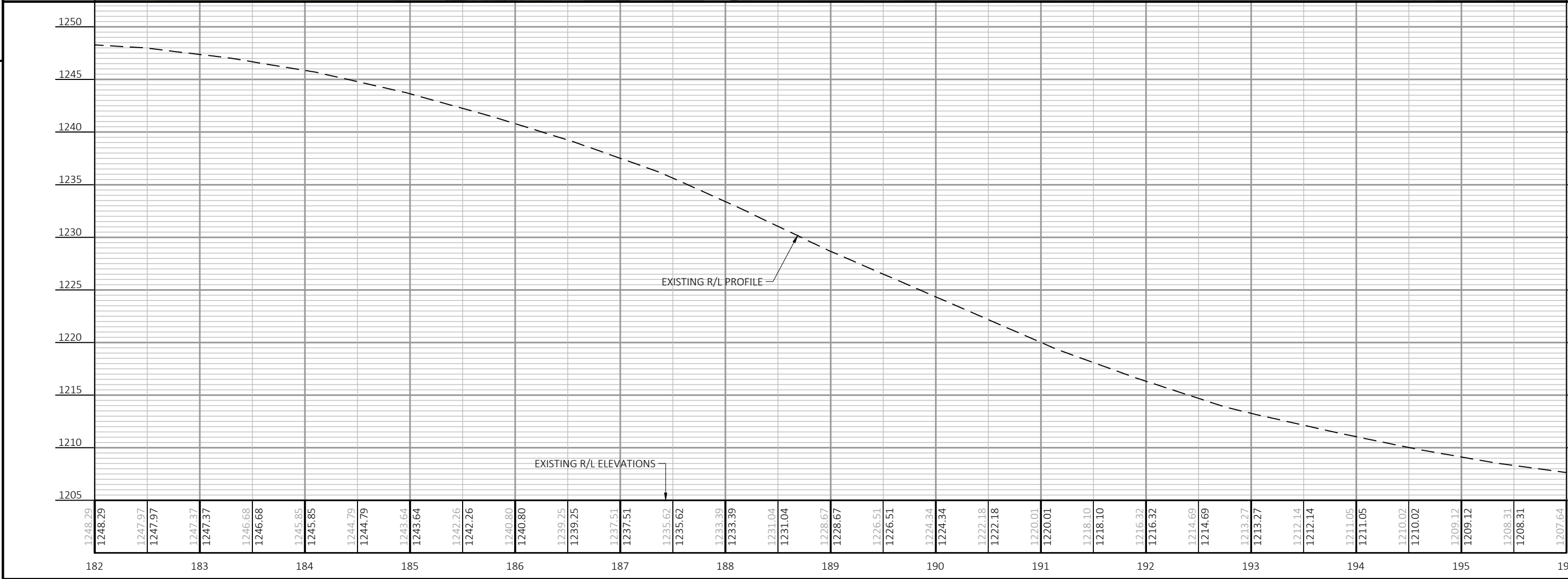
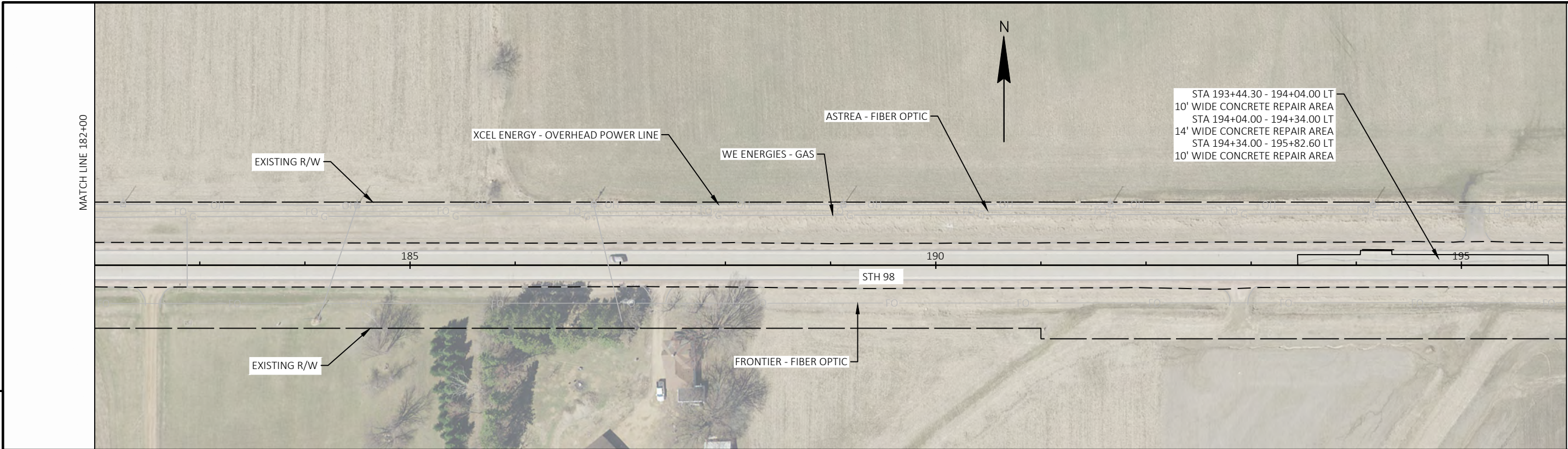


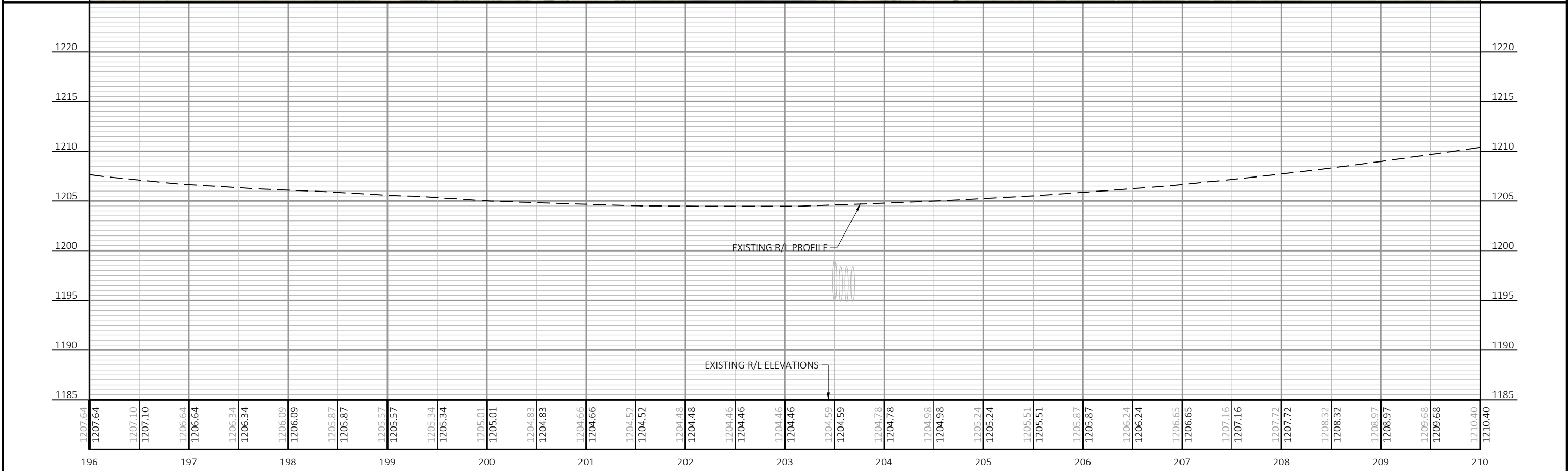
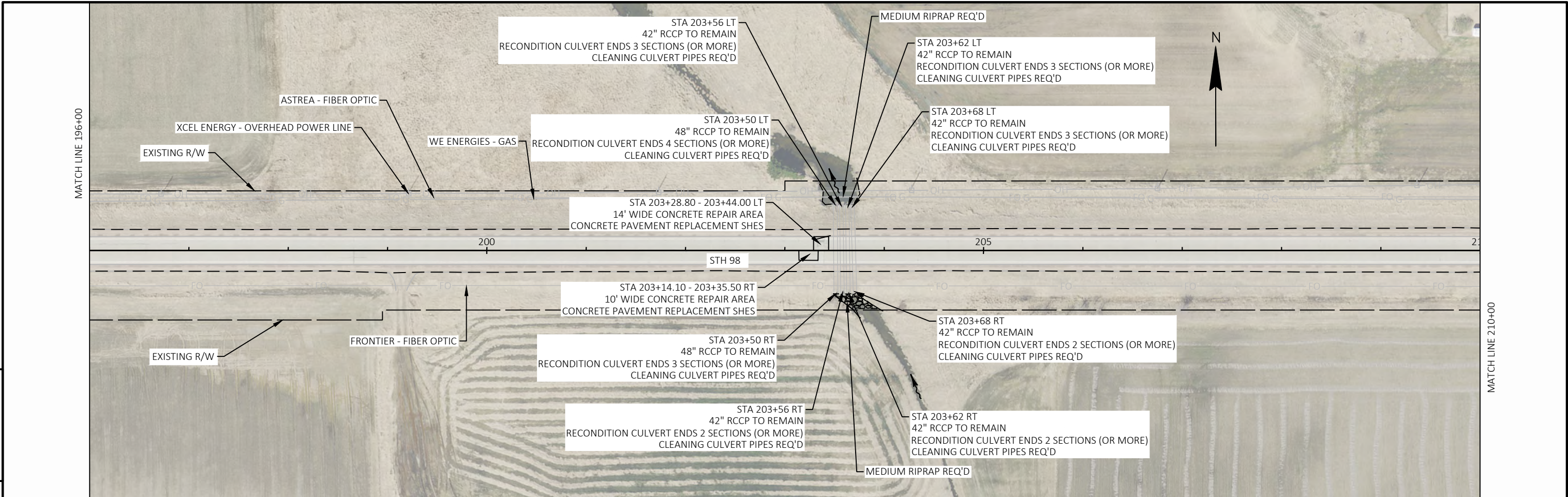


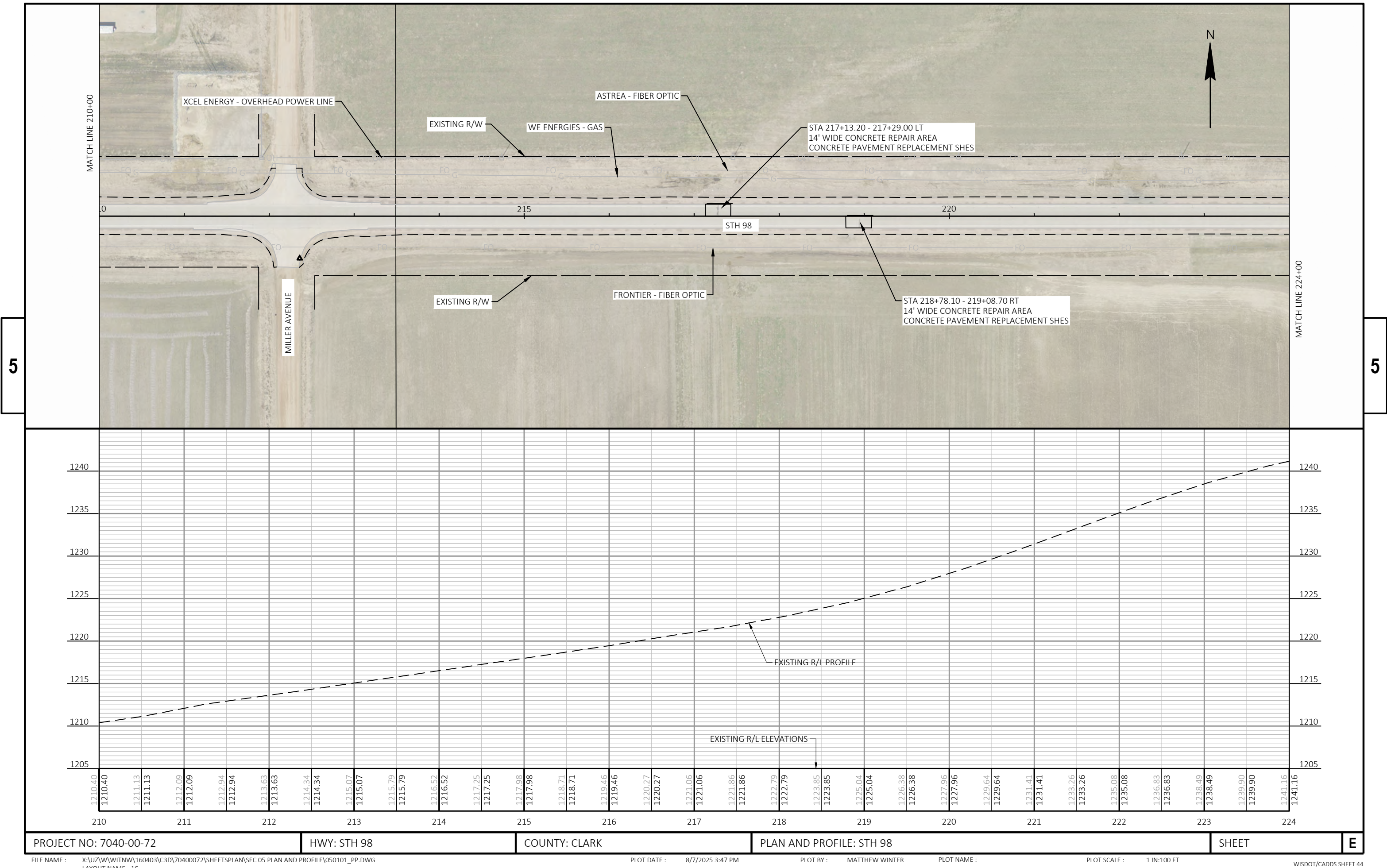
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| PROJECT NO: 7040-00-72 | HWY: STH 98 | COUNTY: CLARK | PLAN AND PROFILE: STH 98 | SHEET | E |
|------------------------|-------------|---------------|--------------------------|-------|---|

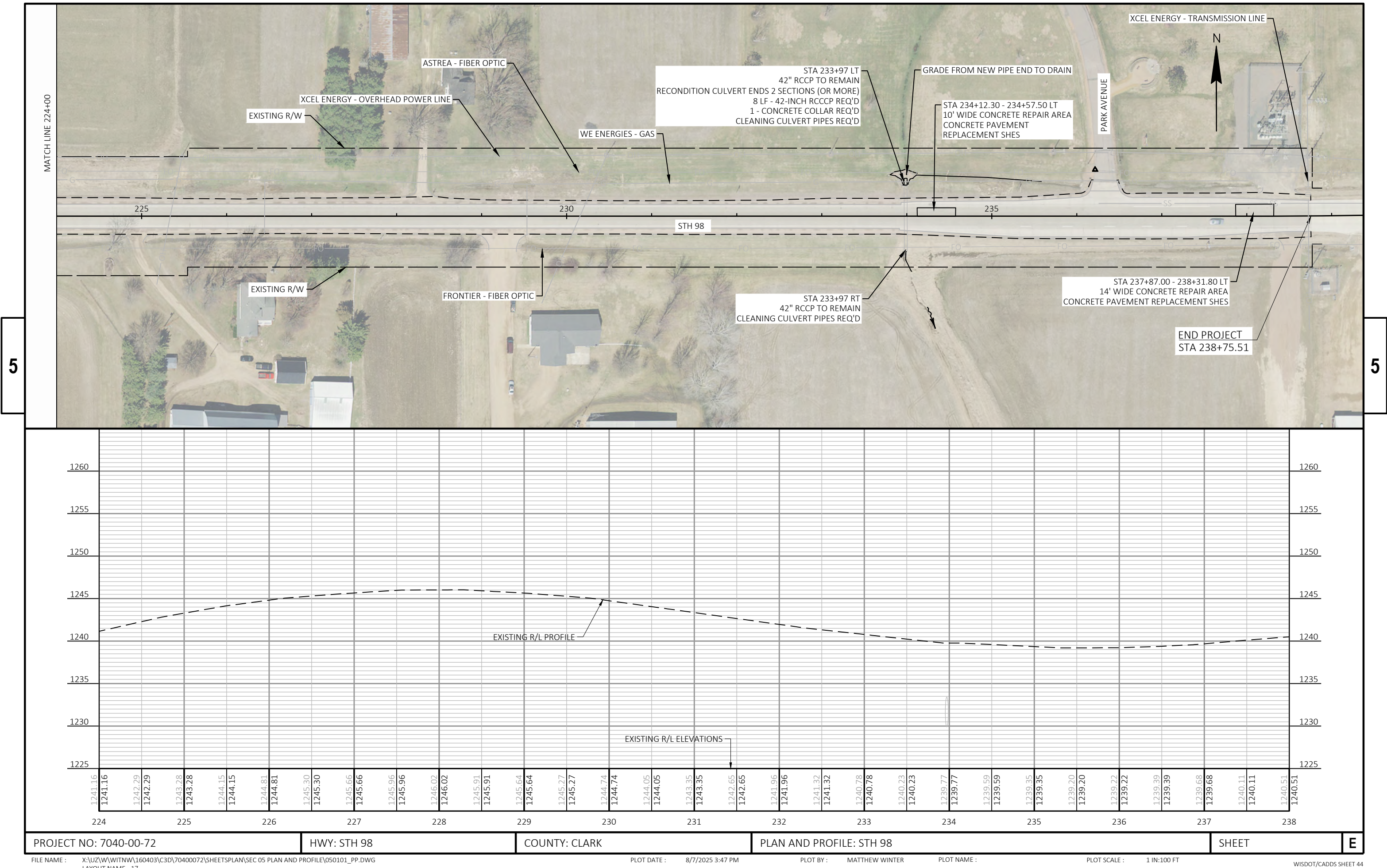












PROJECT NO: 7040-00-72

HWY: STH 98

COUNTY: CLARK

PLAN AND PROFILE: STH 98

SHEET

E

Standard Detail Drawing List

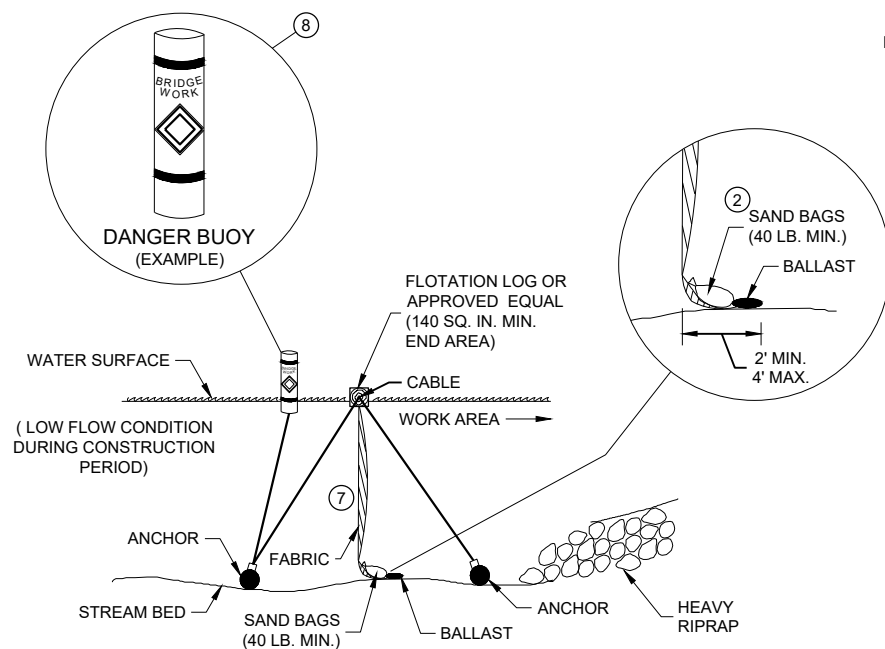
|           |                                                                                                    |
|-----------|----------------------------------------------------------------------------------------------------|
| 08E09-06  | SILT FENCE                                                                                         |
| 08E11-02  | TURBIDITY BARRIER                                                                                  |
| 08E15-01  | CULVERT PIPE CHECK                                                                                 |
| 08F01-11  | APRON ENDWALLS FOR CULVERT PIPE                                                                    |
| 08F04-08  | JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL                                            |
| 13A03-07  | CONCRETE PAVEMENT SHOULDERS                                                                        |
| 13A07-02  | CONTINUOUSLY REINFORCED CONCRETE PAVEMENT REPAIR AND REPLACEMENT                                   |
| 13C01-19  | CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES                                                     |
| 13C09-17A | CONCRETE PAVEMENT REPAIR AND REPLACEMENT                                                           |
| 13C09-17B | CONCRETE PAVEMENT REPAIR AND REPLACEMENT                                                           |
| 13C09-17C | CONCRETE PAVEMENT REPAIR AND REPLACEMENT                                                           |
| 13C11-14A | RURAL DOWELED CONCRETE PAVEMENT                                                                    |
| 13C11-14B | RURAL DOWELED CONCRETE PAVEMENT                                                                    |
| 13C18-08A | CONCRETE PAVEMENT JOINTING                                                                         |
| 13C18-08B | CONCRETE PAVEMENT STEEL REINFORCEMENT                                                              |
| 13C18-08C | CONCRETE PAVEMENT JOINT TYPES                                                                      |
| 14B07-16A | CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"                                                         |
| 14B07-16B | CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"                                                         |
| 14B07-16C | CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"                                                         |
| 14B07-16D | CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"                                                         |
| 14B07-16M | CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"                                                         |
| 14B07-16N | CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"                                                         |
| 14B08-02A | CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS                         |
| 14B08-02B | CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS                         |
| 14B08-02C | CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS                         |
| 15A03-02A | FLEXIBLE MARKER POST FOR CULVERT END                                                               |
| 15A03-02B | FLEXIBLE MARKER POST FOR CULVERT END                                                               |
| 15C02-09F | ADVANCED WIDTH RESTRICTION SIGNING                                                                 |
| 15C04-05  | TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC |
| 15C08-23A | PERMANENT LONGITUDINAL PAVEMENT MARKINGS                                                           |
| 15C08-23B | TEMPORARY LONGITUDINAL PAVEMENT MARKING                                                            |
| 15C08-23D | PAVEMENT MARKING (TURN LANES)                                                                      |
| 15C11-10A | CHANNELIZING DEVICES FLEXIBLE TUBULAR MARKER POST                                                  |
| 15C11-10B | CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS                                  |
| 15C12-09A | TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION                                           |
| 15C19-09A | MOVING PAVEMENT MARKING OPERATION TWO-LANE TWO-WAY ROADWAY                                         |
| 15C33-05  | STOP LINE AND CROSSWALK PAVEMENT MARKING                                                           |
| 15D33-09  | TRAFFIC CONTROL, ONE LANE ROAD WITH TEMPORARY SIGNALS                                              |
| 15D39-02  | TRAFFIC CONTROL, DROP-OFF SIGNING                                                                  |



- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1 1/8" X 1 1/8" OF OAK OR HICKORY.
- ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- ⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.

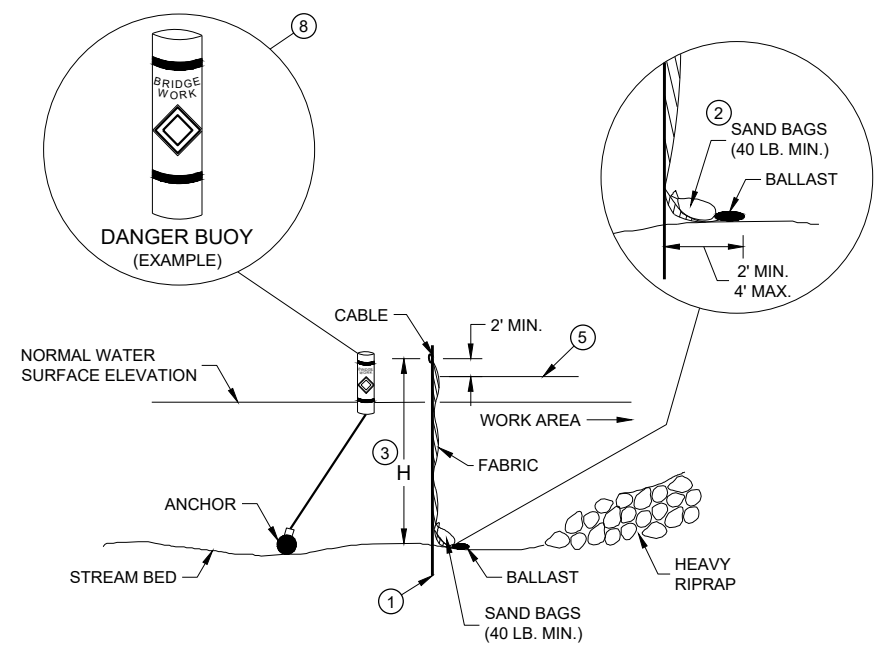


|                                                            |                                                                 |
|------------------------------------------------------------|-----------------------------------------------------------------|
| <b>SILT FENCE</b>                                          |                                                                 |
| <b>STATE OF WISCONSIN<br/>DEPARTMENT OF TRANSPORTATION</b> |                                                                 |
| <b>APPROVED</b><br><u>4-29-05</u><br>DATE                  | <u>/S/ Beth Cannestra</u><br>CHIEF ROADWAY DEVELOPMENT ENGINEER |



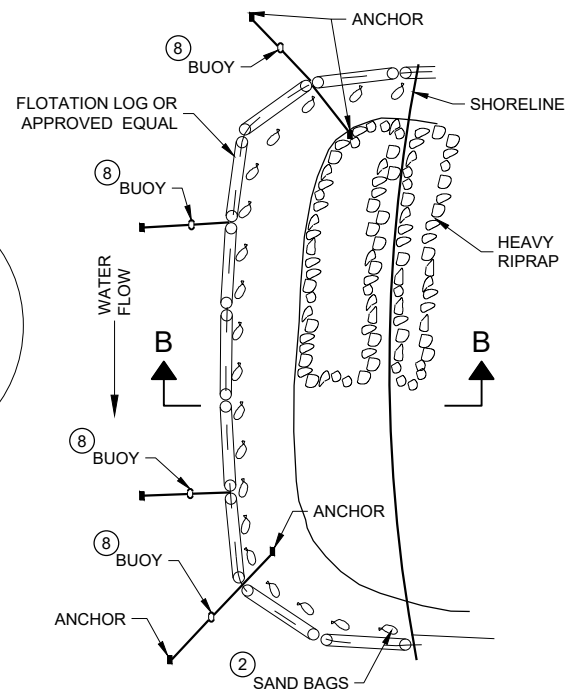
SECTION B - B

### TURBIDITY BARRIER - FLOAT ALTERNATIVE CAUTION - SEE NOTE 6

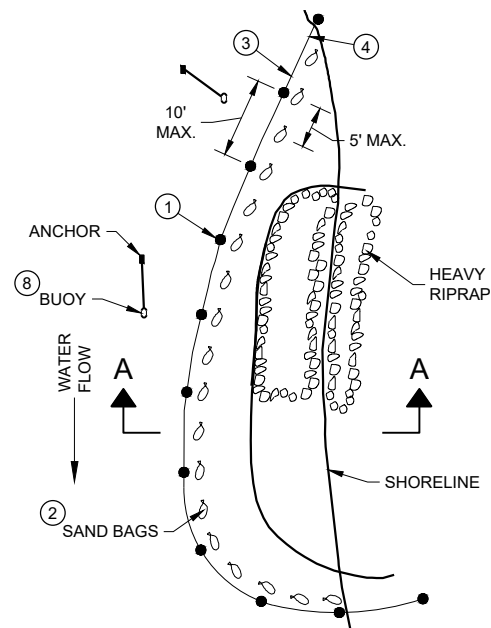


SECTION A - A

### TURBIDITY BARRIER - STANDARD POST INSTALLATION



PLAN VIEW



PLAN VIEW

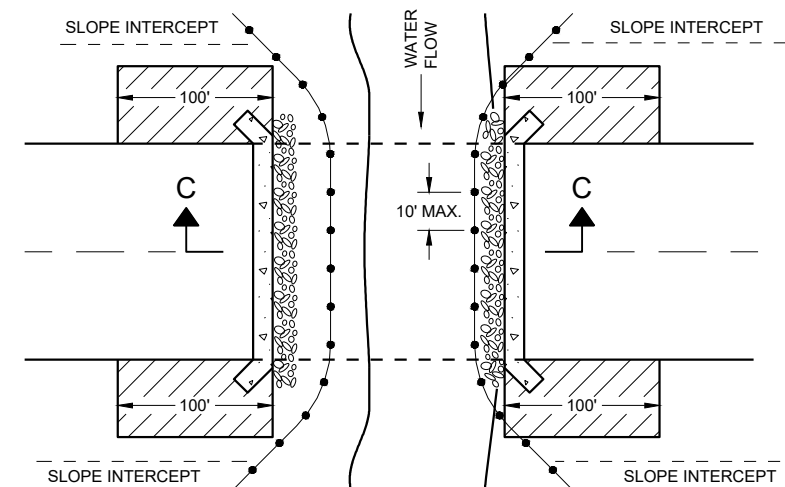
### TURBIDITY BARRIER PLACEMENT DETAILS

### GENERAL NOTES

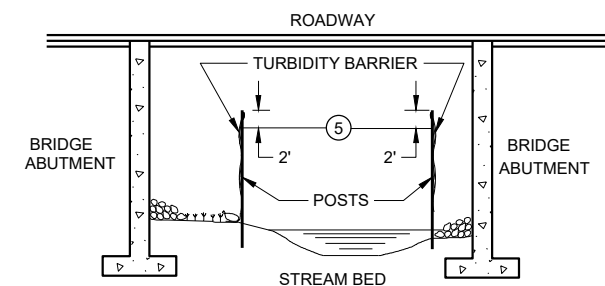
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

TURBIDITY BARRIER MAY BE REMOVED AT THE ENGINEERS DISCRETION, WHEN PERMANENT EROSION CONTROL MEASURES HAVE BEEN ESTABLISHED.

- ① DRIVEN STEEL POSTS, PIPES, OR CHANNELS. LENGTH SHALL BE SUFFICIENT TO SECURELY SUPPORT BARRIER AT HIGH WATER ELEVATIONS.
- ② SAND BAGS TO BE USED AS ADDITIONAL BALLAST WHEN ORDERED BY THE ENGINEER TO MEET ADVERSE FIELD CONDITIONS. SPACE AS APPROPRIATE FOR SITE CONDITIONS.
- ③ WHEN BARRIER HEIGHT "H" EXCEEDS 8 FEET, POST SPACING MAY NEED TO BE DECREASED.
- ④ IN WATERWAYS SUBJECT TO FLUCTUATING WATER ELEVATIONS, PROVISIONS SHOULD BE MADE TO ALLOW THE WATER TO EQUALIZE ON EACH SIDE OF THE BARRIER. THIS MAY BE ACCOMPLISHED BY LEAVING A PORTION OF THE BARRIER OPEN ON THE UPSTREAM END.
- ⑤ ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION PERIOD. MINIMUM BARRIER HEIGHT SHALL BE 2' GREATER THAN EITHER THE Q2 ELEVATION OR THE ESTIMATED HIGH WATER ELEVATION DURING CONSTRUCTION, WHICHEVER IS GREATER.
- ⑥ FLOAT ALTERNATIVE WILL ONLY BE ALLOWED WITH WRITTEN APPROVAL OF THE ENGINEER, AND IS MEANT FOR LOCATIONS WHERE BEDROCK PREVENTS THE INSTALLATION OF POSTS.
- ⑦ ALLOW SUFFICIENT SLACK VERTICALLY AND HORIZONTALLY SO THAT SEDIMENT BUILD UP WILL NOT SEPARATE OR LOWER THE TURBIDITY BARRIER.
- ⑧ USE AS DIRECTED BY COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERWAYS.



PLAN VIEW



SECTION C - C

### TURBIDITY BARRIER DETAIL SHOWING TYPICAL PLACEMENT AT STRUCTURES

### TURBIDITY BARRIER

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

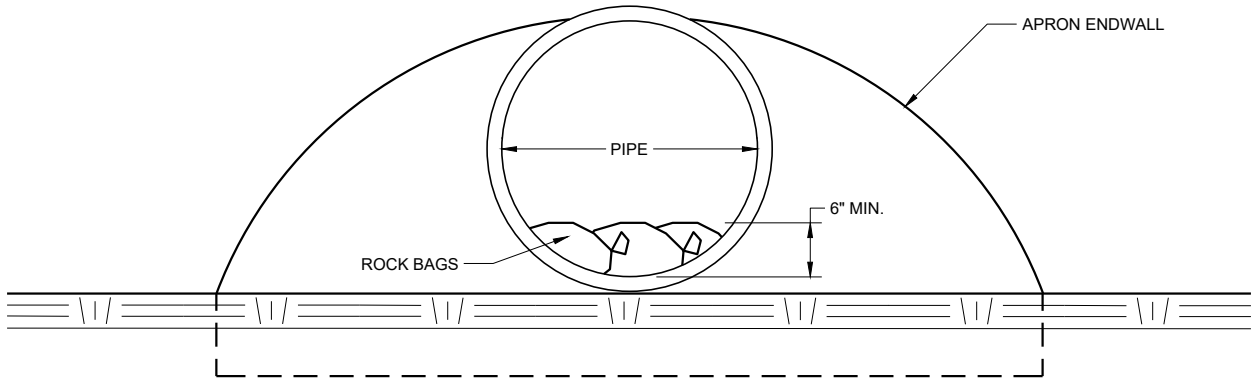
APPROVED

6/4/02

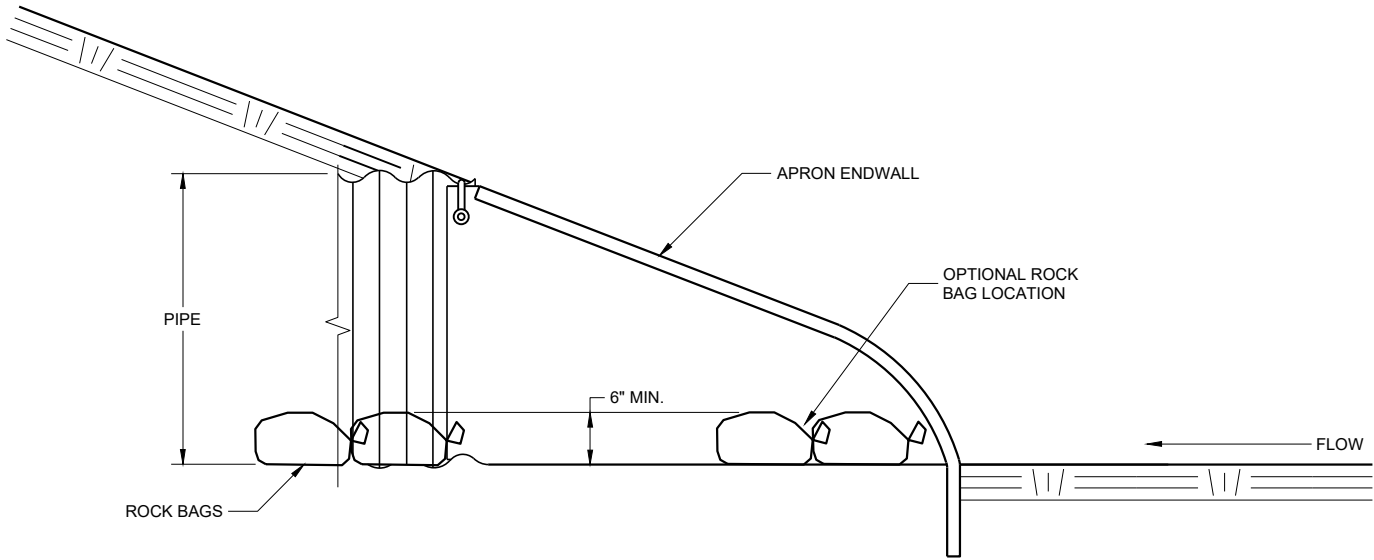
DATE

FHWA

/S/ Beth Canestra  
CHIEF ROADWAY DEVELOPMENT  
ENGINEER



END VIEW



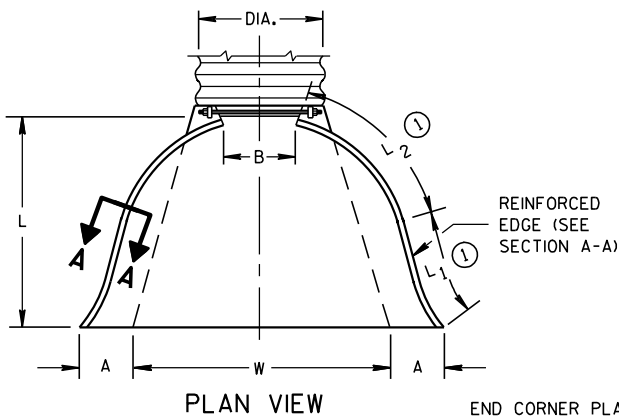
SIDE VIEW

**CULVERT PIPE CHECK**  
(INSTALL ON INLET END ONLY)

|                                                    |                                               |
|----------------------------------------------------|-----------------------------------------------|
| <b>CULVERT PIPE CHECK</b>                          |                                               |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |                                               |
| APPROVED<br>May 2019<br>DATE                       | /S/ Daniel Schave<br>EROSION CONTROL ENGINEER |
| FHWA                                               |                                               |

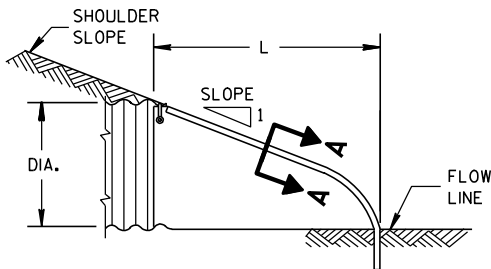
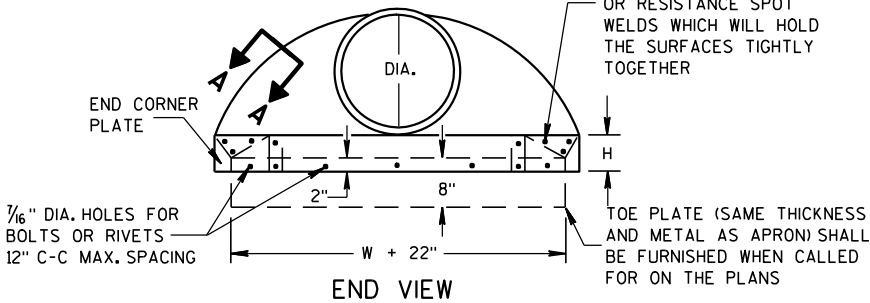
| METAL APRON ENDWALLS |                         |       |                     |             |            |                |         |         |            |                  |   |       |
|----------------------|-------------------------|-------|---------------------|-------------|------------|----------------|---------|---------|------------|------------------|---|-------|
| PIPE DIA.<br>(IN.)   | MIN. THICK.<br>(Inches) |       | DIMENSIONS (Inches) |             |            |                |         |         |            | APPROX.<br>SLOPE |   | BODY  |
|                      | STEEL                   | ALUM. | A<br>(±1")          | B<br>(MAX.) | H<br>(±1") | L<br>(±1 1/2") | L1<br>① | L2<br>① | W<br>(±2") |                  |   |       |
| 12                   | .064                    | .060  | 6                   | 6           | 6          | 21             | 12      | 17 1/2  | 24         | 2 1/2 to 1       | 1 | 1 Pc. |
| 15                   | .064                    | .060  | 7                   | 8           | 6          | 26             | 14      | 21 3/4  | 30         | 2 1/2 to 1       | 1 | 1 Pc. |
| 18                   | .064                    | .060  | 8                   | 10          | 6          | 31             | 15      | 28 1/4  | 36         | 2 1/2 to 1       | 1 | 1 Pc. |
| 21                   | .064                    | .060  | 9                   | 12          | 6          | 36             | 18      | 29 5/8  | 42         | 2 1/2 to 1       | 1 | 1 Pc. |
| 24                   | .064                    | .075  | 10                  | 13          | 6          | 41             | 18      | 37 1/4  | 48         | 2 1/2 to 1       | 1 | 1 Pc. |
| 30                   | .079                    | .075  | 12                  | 16          | 8          | 51             | 18      | 52 1/4  | 60         | 2 1/2 to 1       | 1 | 1 Pc. |
| 36                   | .079                    | .105  | 14                  | 19          | 9          | 60             | 24      | 59 3/4  | 72         | 2 1/2 to 1       | 2 | Pc.   |
| 42                   | .109                    | .105  | 16                  | 22          | 11         | 69             | 24      | 75 5/8  | 84         | 2 1/2 to 1       | 2 | Pc.   |
| 48                   | .109                    | .105  | 18                  | 27          | 12         | 78             | 24      | 81      | 90         | 2 1/4 to 1       | 3 | Pc.   |
| 54                   | .109                    | .105  | 18                  | 30          | 12         | 84             | 30      | 85 1/2  | 102        | 2 1/4 to 1       | 3 | Pc.   |
| 60                   | .109x                   | .105x | 18                  | 33          | 12         | 87             | —       | —       | 114        | 2 to 1           | 3 | Pc.   |
| 66                   | .109x                   | .105x | 18                  | 36          | 12         | 87             | —       | —       | 120        | 2 to 1           | 3 | Pc.   |
| 72                   | .109x                   | .105x | 18                  | 39          | 12         | 87             | —       | —       | 126        | 2 to 1           | 3 | Pc.   |
| 78                   | .109x                   | .105x | 18                  | 42          | 12         | 87             | —       | —       | 132        | 1 1/2 to 1       | 3 | Pc.   |
| 84                   | .109x                   | .105x | 18                  | 45          | 12         | 87             | —       | —       | 138        | 1 1/2 to 1       | 3 | Pc.   |
| 90                   | .109x                   | .105x | 18                  | 37          | 12         | 87             | —       | —       | 144        | 1 1/2 to 1       | 3 | Pc.   |
| 96                   | .109x                   | .105x | 18                  | 35          | 12         | 87             | —       | —       | 150        | 1 1/2 to 1       | 3 | Pc.   |

\* EXCEPT CENTER PANEL  
SEE GENERAL NOTES



END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER

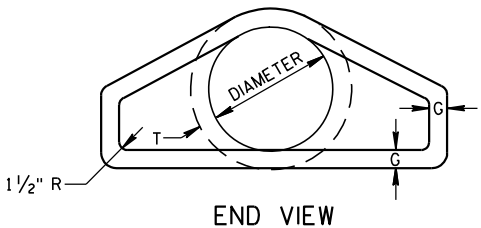
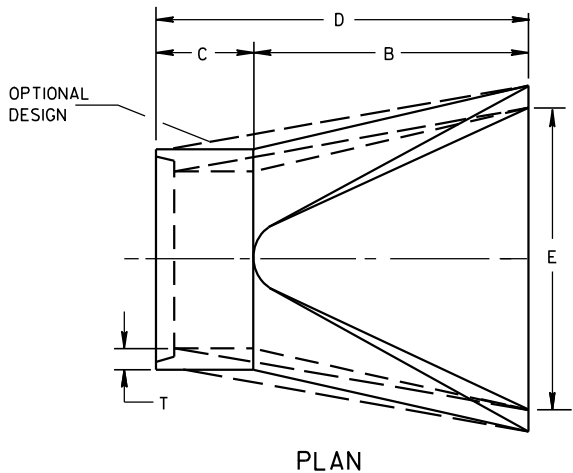
TOE PLATE (SAME THICKNESS AND METAL AS APRON) SHALL BE FURNISHED WHEN CALLED FOR ON THE PLANS



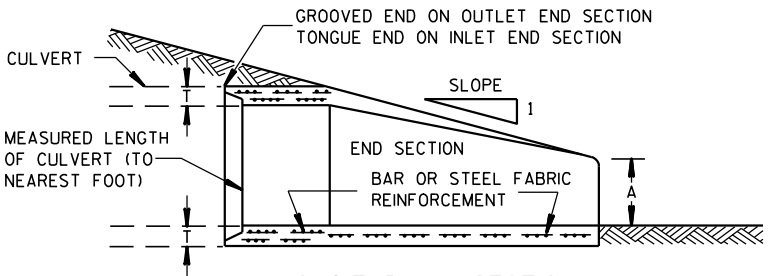
SIDE ELEVATION  
METAL ENDWALLS

| REINFORCED CONCRETE APRON ENDWALLS |                     |        |        |           |            |     |       |                  |  |  |  |  |
|------------------------------------|---------------------|--------|--------|-----------|------------|-----|-------|------------------|--|--|--|--|
| PIPE DIA.<br>(IN.)                 | DIMENSIONS (Inches) |        |        |           |            |     |       | APPROX.<br>SLOPE |  |  |  |  |
|                                    | T                   | A      | B      | C         | D          | E   | G     |                  |  |  |  |  |
| 12                                 | 2                   | 4      | 24     | 48 1/8    | 72 1/8     | 24  | 2     | 3 to 1           |  |  |  |  |
| 15                                 | 2 1/4               | 6      | 27     | 46        | 73         | 30  | 2 1/4 | 3 to 1           |  |  |  |  |
| 18                                 | 2 1/2               | 9      | 27     | 46        | 73         | 36  | 2 1/2 | 3 to 1           |  |  |  |  |
| 21                                 | 2 3/4               | 9      | 36     | 37 1/2    | 73 1/2     | 42  | 2 3/4 | 3 to 1           |  |  |  |  |
| 24                                 | 3                   | 9 1/2  | 43 1/2 | 30        | 73 1/2     | 48  | 3     | 3 to 1           |  |  |  |  |
| 27                                 | 3 1/4               | 10 1/2 | 49 1/2 | 24        | 73 1/2     | 54  | 3 1/4 | 3 to 1           |  |  |  |  |
| 30                                 | 3 1/2               | 12     | 54     | 19 3/4    | 73 1/2     | 60  | 3 1/2 | 3 to 1           |  |  |  |  |
| 36                                 | 4                   | 15     | 63     | 34 3/4    | 97 3/4     | 72  | 4     | 3 to 1           |  |  |  |  |
| 42                                 | 4 1/2               | 21     | 63     | 35        | 98         | 78  | 4 1/2 | 3 to 1           |  |  |  |  |
| 48                                 | 5                   | 24     | 72     | 26        | 98         | 84  | 5     | 3 to 1           |  |  |  |  |
| 54                                 | 5 1/2               | 27     | 65     | 33 1/4-35 | 98 1/4-100 | 90  | 5 1/2 | 2 1/2 to 1       |  |  |  |  |
| 60                                 | 6                   | 30-35  | 60     | 39        | 99         | 96  | 5     | 2 to 1           |  |  |  |  |
| 66                                 | 6 1/2               | 24-30  | 72-78  | 21-27     | 99         | 102 | 5 1/2 | 2 to 1           |  |  |  |  |
| 72                                 | 7                   | 24-36  | 78     | 21        | 99         | 108 | 6     | 2 to 1           |  |  |  |  |
| 78                                 | 7 1/2               | 24-36  | 78     | 21        | 99         | 114 | 6 1/2 | 2 to 1           |  |  |  |  |
| 84                                 | 8                   | 36     | 90 1/2 | 21        | 111 1/2    | 120 | 6 1/2 | 1 1/2 to 1       |  |  |  |  |
| 90                                 | 8 1/2               | 41     | 87 1/2 | 24        | 111 1/2    | 132 | 6 1/2 | 1 1/2 to 1       |  |  |  |  |

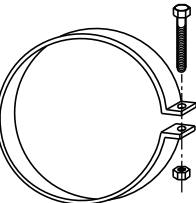
\* MINIMUM  
\*\* MAXIMUM



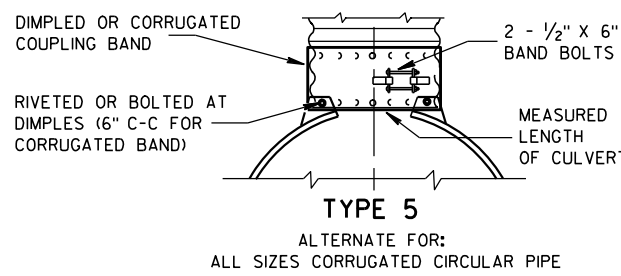
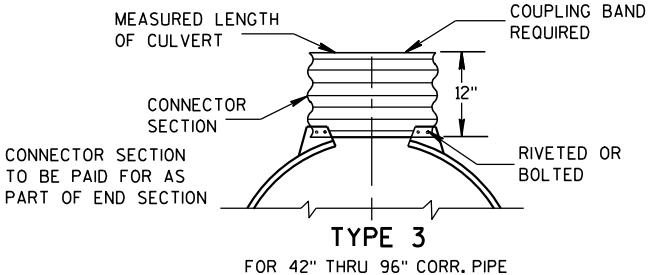
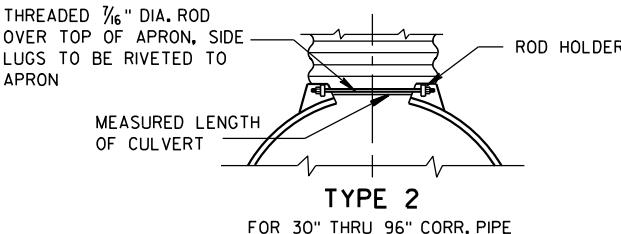
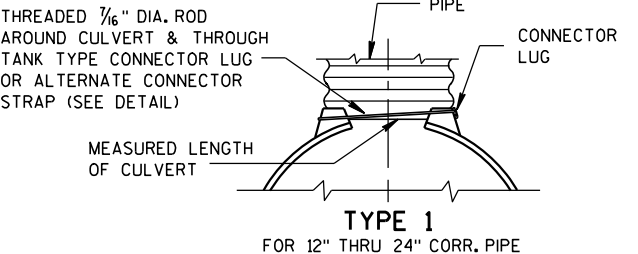
LONGITUDINAL SECTION  
CONCRETE ENDWALLS



1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



ALTERNATE FOR TYPE 1 CONNECTION  
END SECTION CONNECTOR STRAP



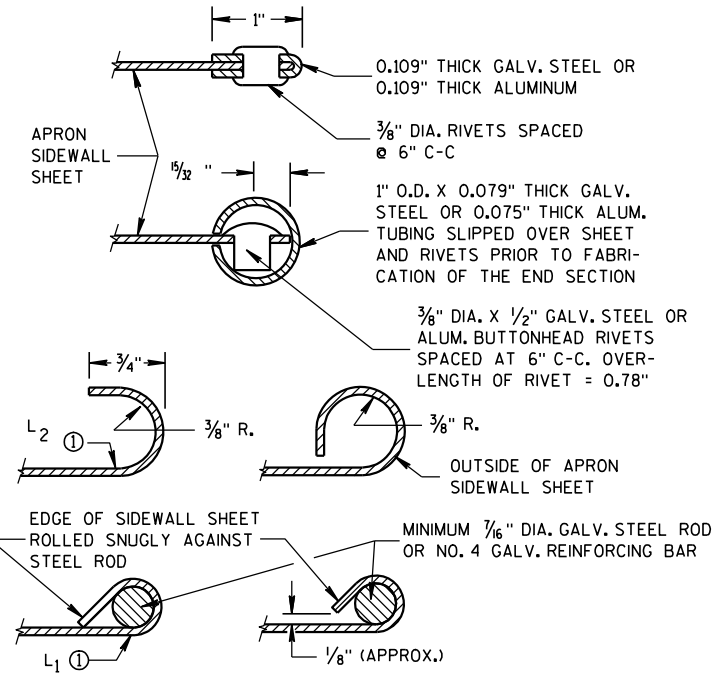
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

FOR CIRCUMFERENTIALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2, 3 OR 5 AS APPLICABLE.

FOR HELICALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2 OR 5.

FOR HELICALLY CORRUGATED PIPES WITH TWO CIRCUMFERENTIAL CORRUGATIONS AT EACH END USE ENDWALL CONNECTION DETAILS 1, 2 OR 3.

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL OR ALUMINUM CULVERT PIPE OR VISE VERSA. GALVANIZED STEEL OR ALUMINUM ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE OF THE SAME METAL.

ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 60" THROUGH 96" DIAMETER APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

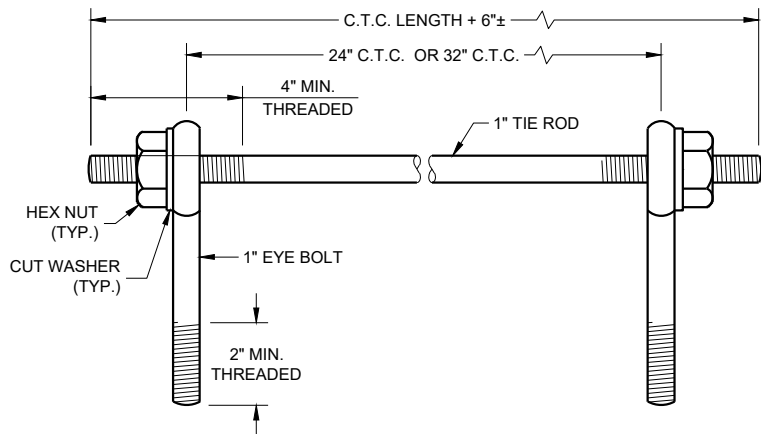
WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR  
CULVERT PIPE

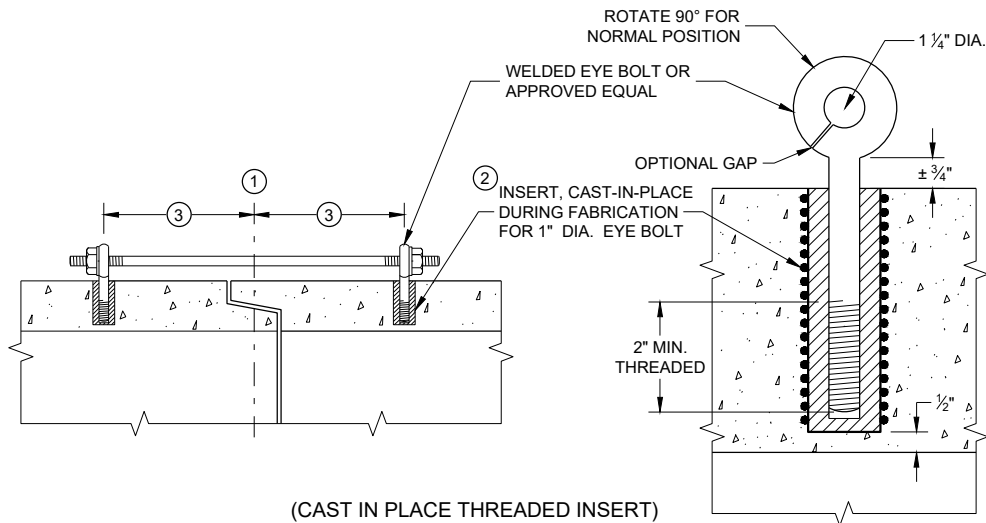
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
11/30/94  
DATE  
/S/ Rory L. Rhinesmith  
CHIEF ROADWAY DEVELOPMENT ENGINEER  
FHWA



EYE BOLTS AND TIE ROD

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 1)



(CAST IN PLACE THREADED INSERT)

LONGITUDINAL SECTIONS

## GENERAL NOTES

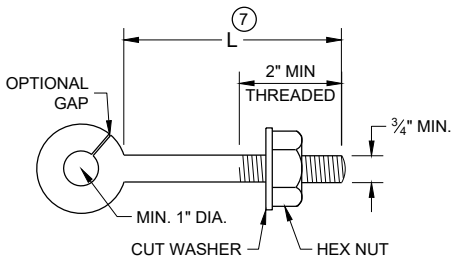
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT AND STORM SEWER PIPE SHALL BE TIED TOGETHER IN THE MANNER ILLUSTRATED BY THIS DETAIL AT LOCATIONS DESIGNATED IN THE STANDARD SPECIFICATIONS AND THE PLAN. THE CONTRACTOR MAY USE EITHER ALTERNATE 1, 2 OR 3 FOR DRAINAGE STRUCTURES. ONLY ALTERNATE 1 AND 3 MAY BE USED FOR CATTLE PASSES, UNLESS OTHERWISE STATED IN THE CONTRACT. THE MATERIALS, FABRICATION AND WORK NECESSARY TO TIE THE PIPE BY THIS DETAIL WILL BE CONSIDERED INCIDENTAL TO THE PIPE AND APRON ENDWALLS IF REQUIRED.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR JOINT TIES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

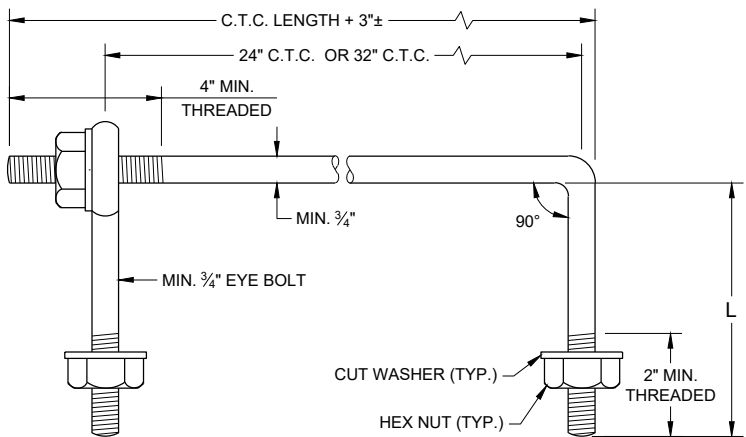
JOINT TIES TO BE HOT-DIP GALVANIZED PER ASTM A 153.

- 1 CENTER LINE OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.
- 2 THE INSIDE OF THE THREADED INSERTS SHALL BE CLEAN TO ALLOW THE INSERTION OF THREADED EYE BOLTS.
- 3 HOLES SHALL BE CAST-IN-PLACE OR DRILLED PER THE APPLICABLE DETAIL, AND EQUAL DISTANCE FROM THE CENTERLINE OF THE JOINT.
- 4 BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2 INCHES.
- 5 OPENING TO BE ROD DIAMETER PLUS 1 INCH.
- 6 LENGTH ADEQUATE TO EXTEND TO WITHIN 1/2 INCH OF THE INNER SURFACE OF THE PIPE.
- 7 EYE BOLT LENGTH DETERMINED BY WALL THICKNESS, BELL THICKNESS AND BOLT PROJECTION INSIDE PIPE.

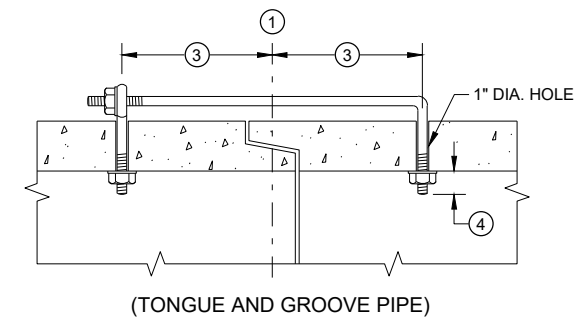


EYE BOLT 7

NOTE: TWO EYE BOLTS MAY BE USED WITH A 30" OR 38" LONG THREADED ROD IN LIEU OF THE 90° BENT TIE ROD.



EYE BOLT AND TIE ROD

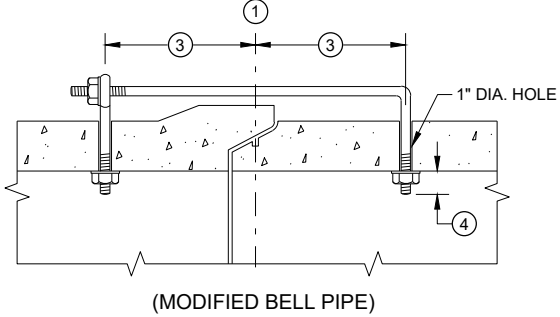


(TONGUE AND GROOVE PIPE)

LONGITUDINAL SECTION

(JOINT TIES FOR 18" TO 66" DIA. CONCRETE PIPE)

EYE BOLT AND TIE ROD ASSEMBLY (ALTERNATE NO. 2)

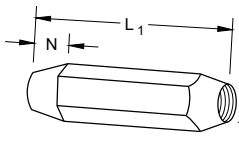


(MODIFIED BELL PIPE)

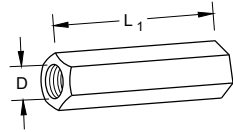
ADJUSTABLE TIE ROD TABLE

| PIPE DIAMETER | TIE ROD DIAMETER | D   | L <sub>1</sub> | N      |
|---------------|------------------|-----|----------------|--------|
| 12 - 60       | 5/8              | 5/8 | 5              | 1/2    |
| 66 - 84       | 3/4              | 3/4 | 5              | 1/2    |
| 90 - 144      | 1                | 1   | 7              | 1 1/16 |

DIMENSIONS SHOWN ARE IN INCHES

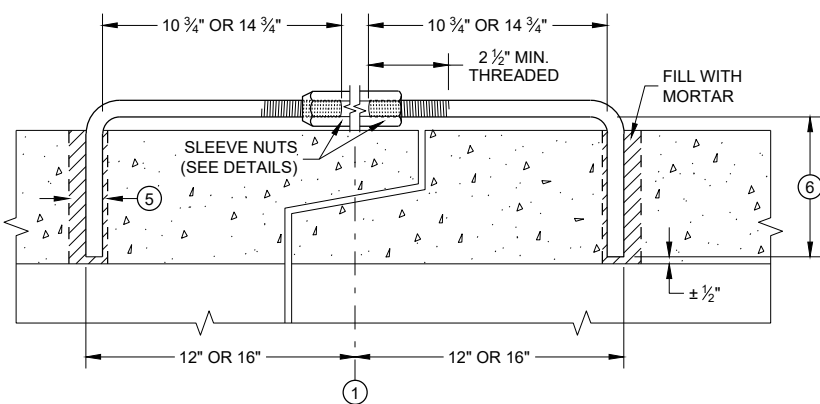


TAPERED



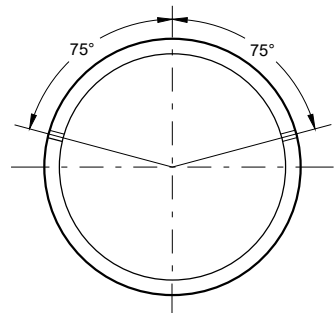
PLAIN

RIGHT AND LEFT THREADS  
SLEEVE NUTS



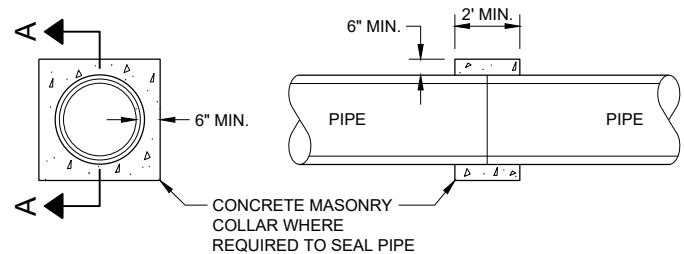
LONGITUDINAL SECTION

ADJUSTABLE TIE ROD (ALTERNATE NO. 3)



PLACEMENT OF (2) CAST-IN-PLACE INSERTS OR HOLES DURING FABRICATION FOR PIPE SECTIONS REQUIRING TIE RODS

TRANSVERSE SECTION



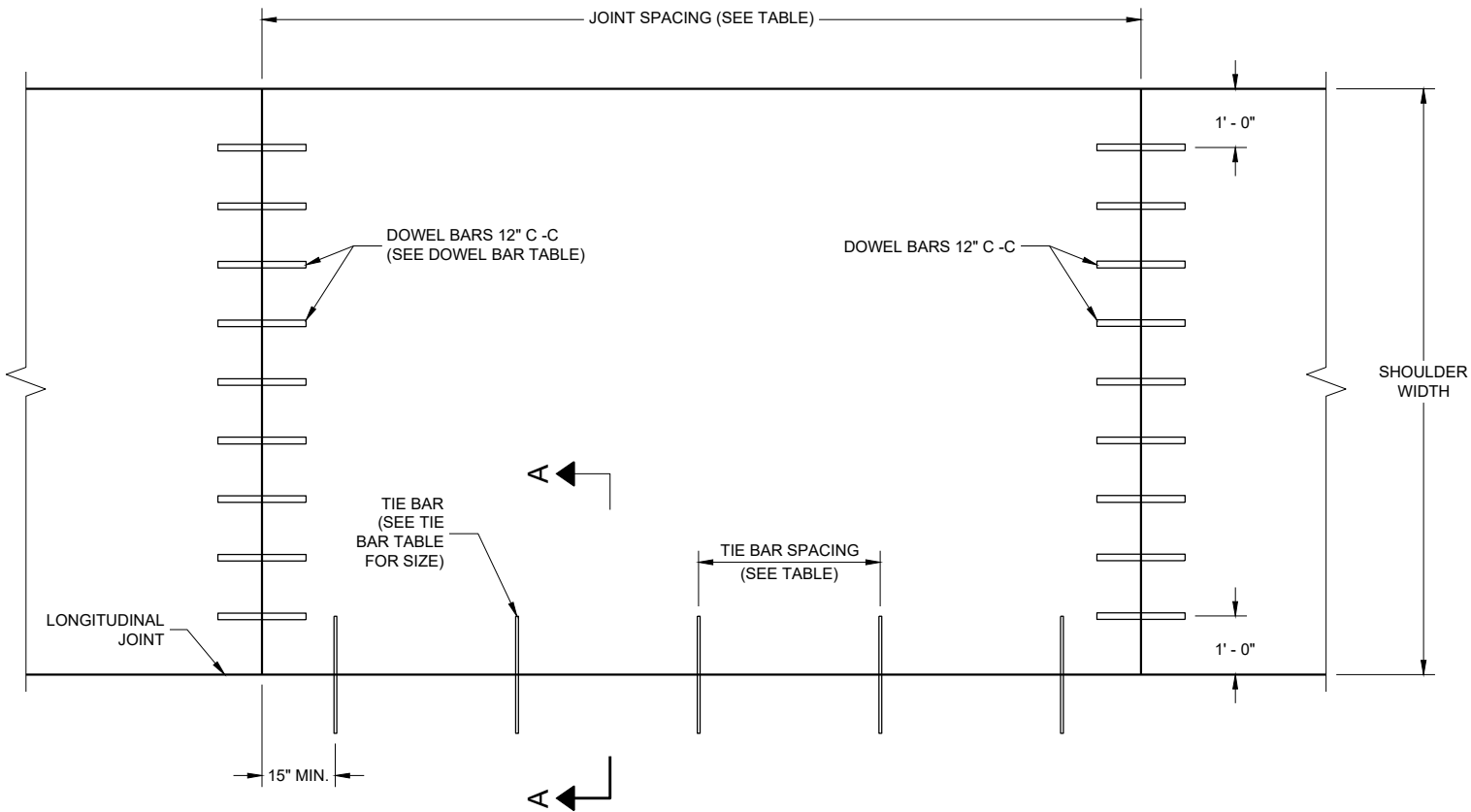
SECTION A - A

CONCRETE COLLAR DETAIL

## JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
November 2021 /S/ Rodney Taylor  
DATE ROADWAY STANDARDS DEVELOPMENT  
ENGINEER  
FHWA



PLAN VIEW  
CONCRETE PAVEMENT SHOULDER

TIE BAR TABLE

| PAVEMENT DEPTH (D) | TIE BAR SIZE | TIE BAR LENGTH (L) | MAX. TIE BAR SPACING |
|--------------------|--------------|--------------------|----------------------|
| <10 1/2"           | NO. 4        | 30"                | 36"                  |
| >10 1/2"           | NO. 5        | 36"                | 36"                  |
|                    | NO. 4 *      | 30"                | 24" **               |

\* SUBSTITUTE BENT BATS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES).

\*\* CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

PAVEMENT DEPTH, DOWEL BAR SIZE  
AND JOINT SPACING TABLE

| PAVEMENT DEPTH (D) | DOWEL BAR DIAMETER *** | CONTRACTION JOINT SPACING |
|--------------------|------------------------|---------------------------|
| 6", 6 1/2"         | NONE                   | 12"                       |
| 7", 7 1/2"         | 1"                     | 14"                       |
| 8" & ABOVE         | 1 1/4"                 | 15"                       |

\*\*\* FOR DOWELED CONCRETE SHOULDERS WITH TRAPEZOIDAL CROSS SECTIONS, CHOSE THE APPROPRIATE DOWEL BAR DIAMETER BASED ON THE SMALLER PAVEMENT DEPTH (LIKELY THE OUTSIDE EDGE OF THE SHOULDER). IF USING BASKETS, USE BASKETS FRO THE AVERAGE THICKNESS OF THE CROSS SECTION.

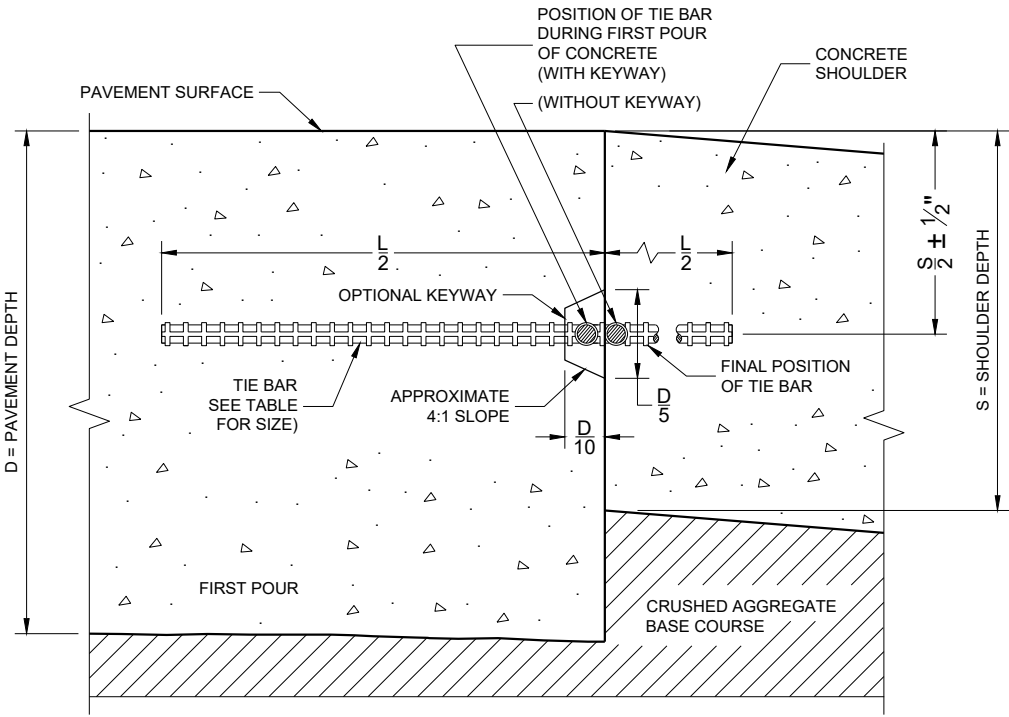
GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

TRANSVERSE JOINT DETAILS ARE SHOWN ELSEWHERE IN THE PLAN.

FINISH THE SHOULDER PAVEMENT CONFORMING TO SUBSECTION 415.3.8 OF THE STANDARD SPECIFICATIONS.

TIE BARS SHALL CONFORM TO SUBSECTION 505.2.4 OF THE STANDARD SPECIFICATIONS.

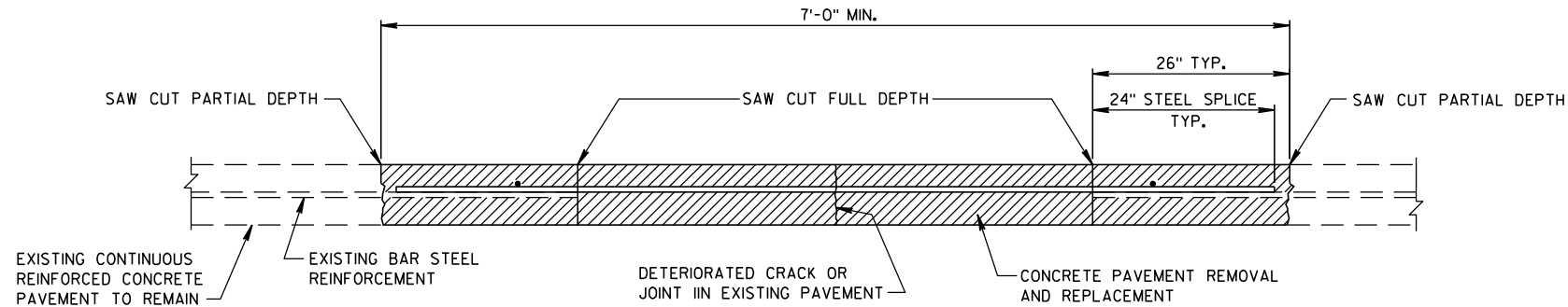


SECTION A - A  
LONGITUDINAL CONSTRUCTION JOINT

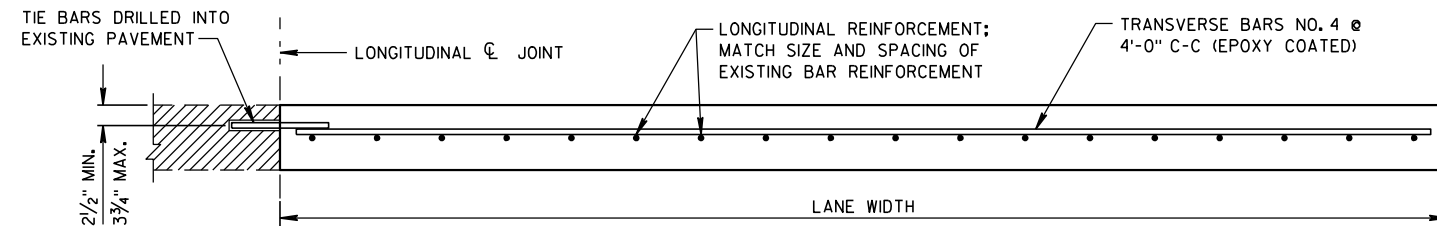
CONCRETE PAVEMENT  
SHOULDERS

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

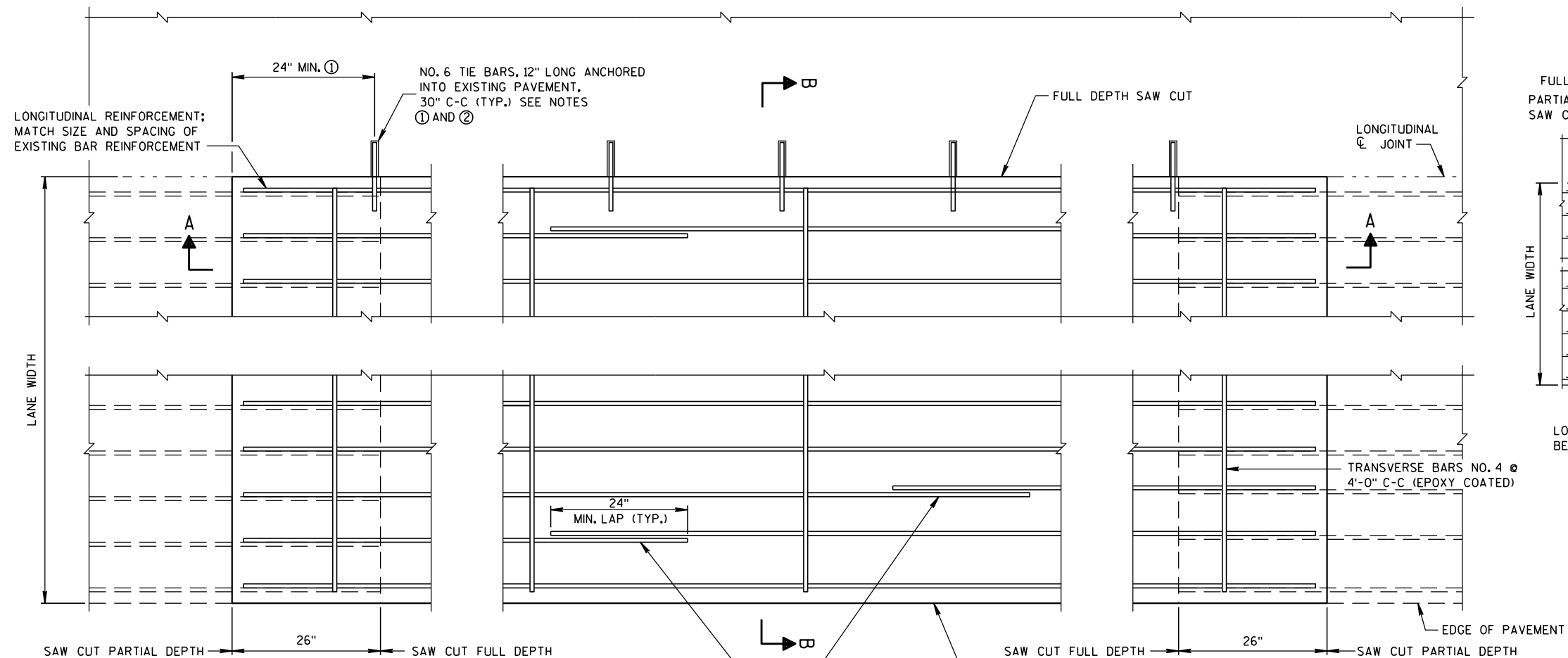
APPROVED  
November 2022  
DATE /S/ Peter Kemp  
PAVEMENT SUPERVISOR  
FHWA



SECTION A-A



SECTION B-B



REINFORCEMENT STEEL PLACEMENT IN CONTINUOUSLY REINFORCED CONCRETE PAVEMENT REPLACEMENT

GENERAL NOTES

PLACE ALL BAR STEEL REINFORCEMENT AT MID PAVEMENT DEPTH UNLESS OTHERWISE NOTED.

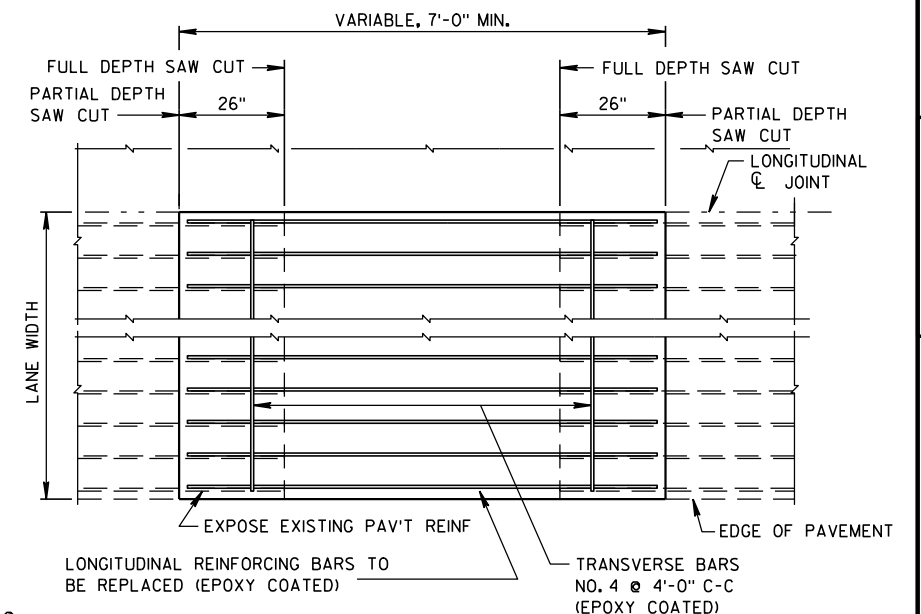
PAY FOR THE TRANSVERSE AND LONGITUDINAL JOINT SAW CUT AS LINEAR FEET OF "SAWING CONCRETE".

WHEN THE PASSING AND TRAVELING LANES ARE TO BE REPLACED, REPLACE THE PASSING LANE FIRST.

ADD TRANSVERSE STEEL BARS TO REPAIRS GREATER THAN 6' IN LENGTH, USE NO. 4 BARS PLACED TRANSVERSELY AND SPACED 4' C-C. PAYMENT SHALL BE INCIDENTAL TO "CONCRETE PAVEMENT CONTINUOUS REINFORCEMENT".

TIE ALL CONCRETE PAVEMENT REPAIRS WHICH ARE GREATER THAN 15' IN LENGTH, AND ARE ADJACENT TO EXISTING CONCRETE PAVEMENT, TO THE EXISTING PAVEMENT USING TIE BARS. DETAILS FOR TIE BAR CONSTRUCTION SHALL CONFORM TO THE STANDARD SPECIFICATIONS AND STANDARD DETAIL DRAWINGS.

- ① PROVIDE A MINIMUM DISTANCE OF 24 INCHES FROM AN EXISTING TRANSVERSE JOINT OR THE EDGE OF REPLACEMENT TO THE CENTER OF THE TIE BAR NEAREST THAT JOINT OR EDGE.
- ② ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.
- ③ SAW CUT THE LONGITUDINAL EDGE JOINT IF THE ADJACENT SHOULDER IS CONCRETE.



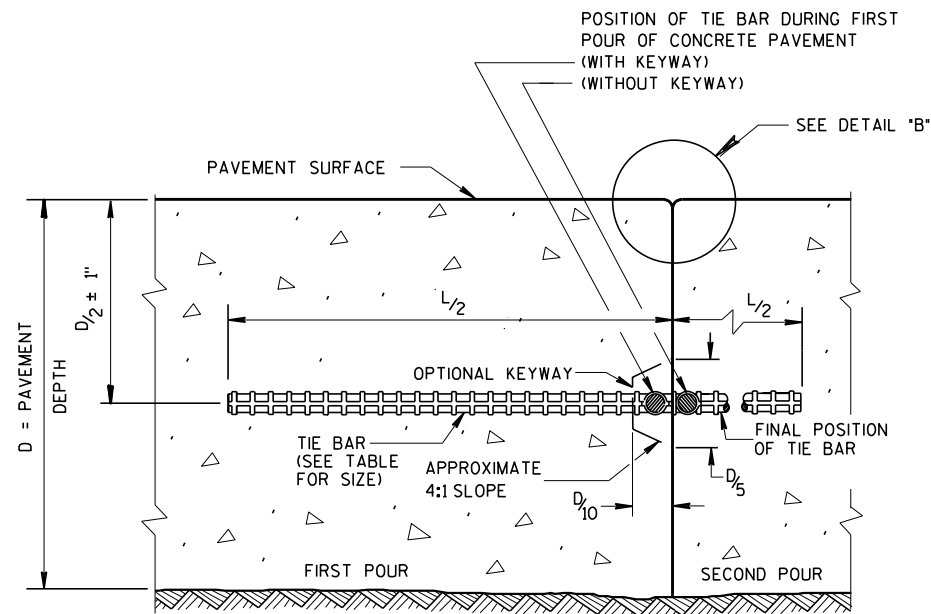
LONGITUDINAL STEEL PLACEMENT IN CRCP REPAIRS

PLAN VIEW

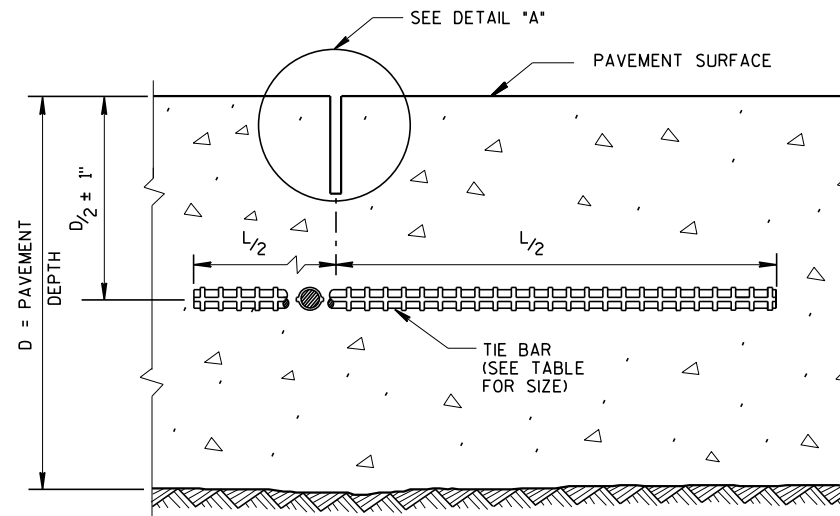
CONTINUOUSLY REINFORCED CONCRETE PAVEMENT REPAIR AND REPLACEMENT

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVED  
DATE 11/1/2011  
DATE 11/1/2011  
/S/ Deb Bischoff  
PAVEMENT POLICY & DESIGN ENGINEER  
FHWA



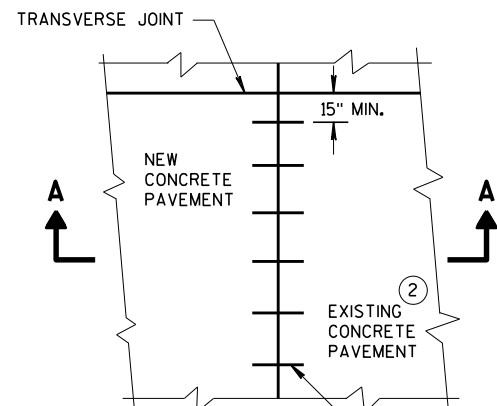
CONSTRUCTION JOINT



SAWED JOINT

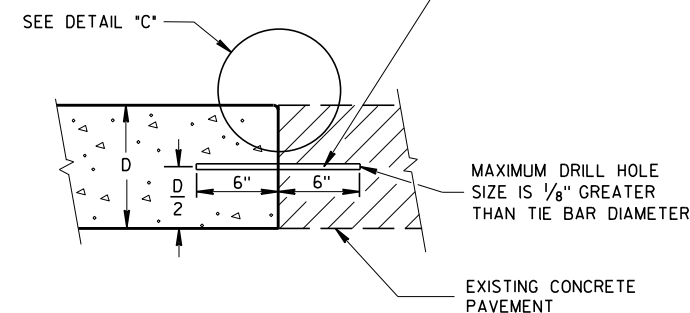
GENERAL NOTES

- CREATE A LONGITUDINAL JOINT FOR PAVEMENT WIDTHS GREATER THAN 15 FEET.
- CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.
- 1 ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.
  - 2 PAVEMENT THAT WAS IN PLACE PRIOR TO THE CONTRACT.

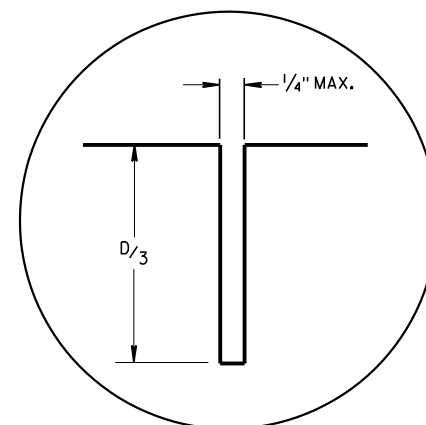


PLAN VIEW

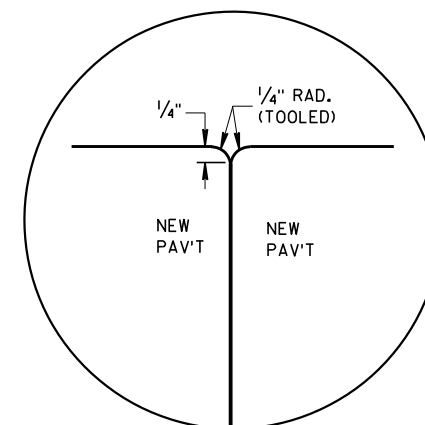
NO. 6 TIE BARS SPACED 30" C-C, INSTALLED PERPENDICULAR TO THE LONGITUDINAL JOINT. ①



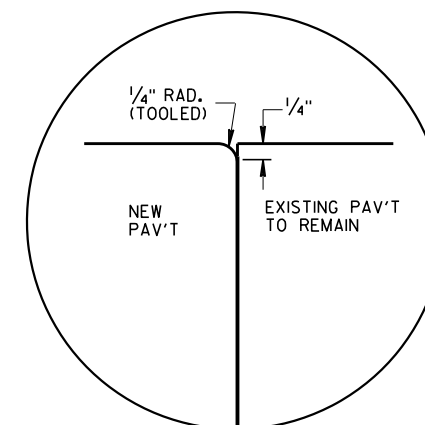
SECTION A-A  
LONGITUDINAL CONSTRUCTION JOINT  
TIE BARS ANCHORED  
INTO EXISTING PAVEMENT



DETAIL "A"



DETAIL "B"



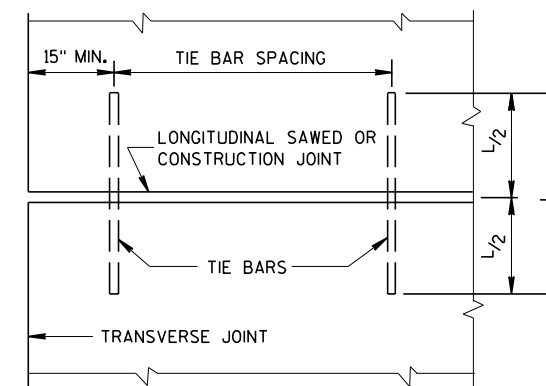
DETAIL "C"

TIE BAR TABLE

| PAVEMENT DEPTH (D) | TIE BAR SIZE | TIE BAR LENGTH (L) | MAX. TIE BAR SPACING |
|--------------------|--------------|--------------------|----------------------|
| < 10 1/2"          | NO. 4        | 30"                | 36"                  |
| ≥ 10 1/2"          | NO. 5        | 36"                | 36"                  |
|                    | NO. 4 *      | 30"                | 24" **               |

\* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

\*\* CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

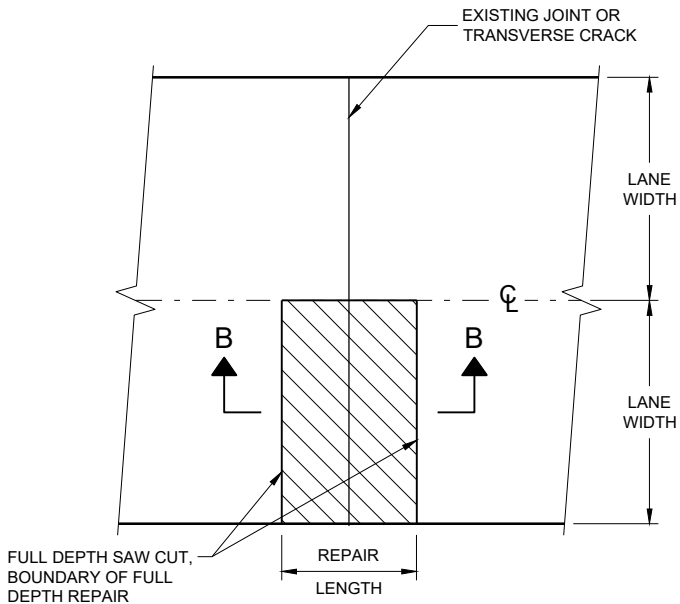
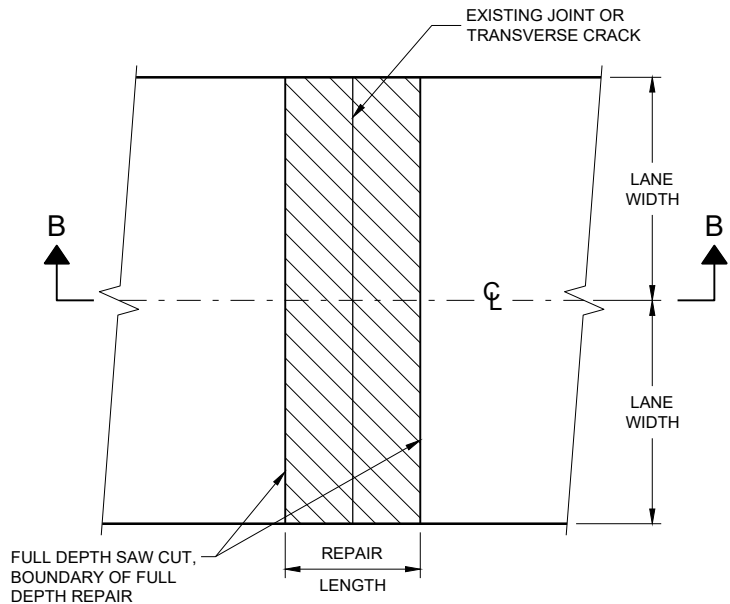


PLAN VIEW  
SHOWING LOCATION OF TIE BARS

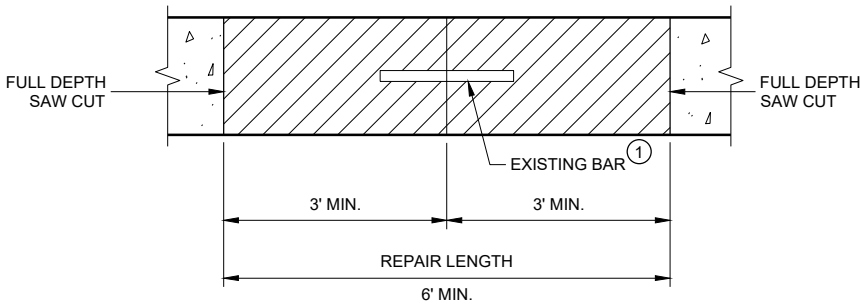
CONCRETE PAVEMENT  
LONGITUDINAL JOINTS AND TIES

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
March 2018 /S/ Peter Kemp, P.E.  
DATE PAVEMENT SUPERVISOR  
FHWA



FULL DEPTH CONCRETE PAVEMENT REMOVAL



CONCRETE REMOVAL

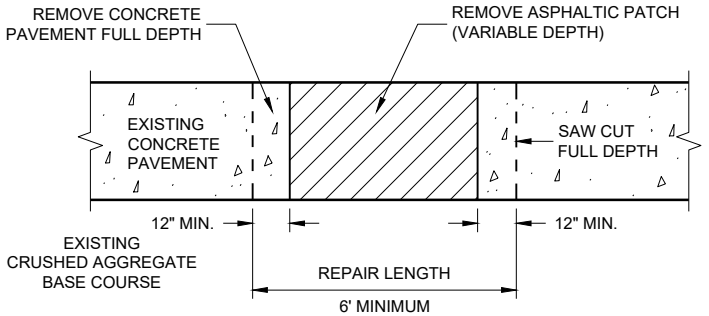
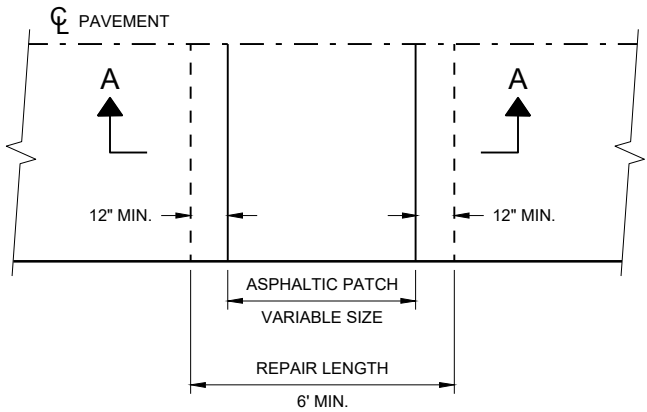
GENERAL NOTES

SAW CUT, DRILL, AND LIFT OUT EXISTING CONCRETE PAVEMENT WITHIN THE BOUNDARIES OF CONCRETE REPAIR AREAS. THE CONTRACTOR MAY MAKE ADDITIONAL SAW CUTS INSIDE THE REPAIR LIMITS TO REDUCE WEIGHT AND SIZE OF CONCRETE PIECES.

PROVIDE A 6 FOOT MINIMUM DISTANCE FROM BOUNDARIES OF CONCRETE REPAIR AREA TO ADJACENT TRANSVERSE JOINT OR CRACK.

THE LENGTH OF THE REPAIRS MAY VARY FROM THE DIMENSIONS SHOWN IF THE EXISTING CONCRETE PAVEMENT IS NON-DOWELED AND THE PAVEMENT IS TO BE OVERLAID AFTER REPAIRING.

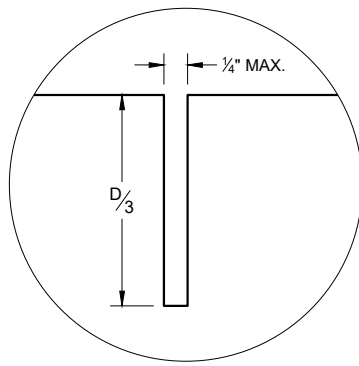
① DOWEL BARS MAY NOT BE PRESENT.



HMA PATCH REMOVAL

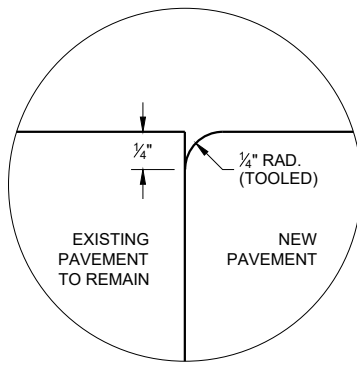
CONCRETE PAVEMENT  
REPAIR AND REPLACEMENT

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

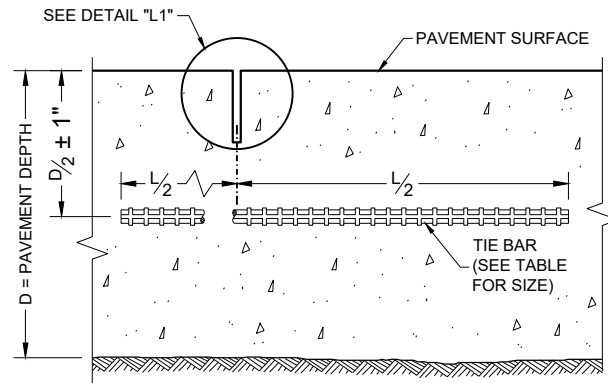


C1

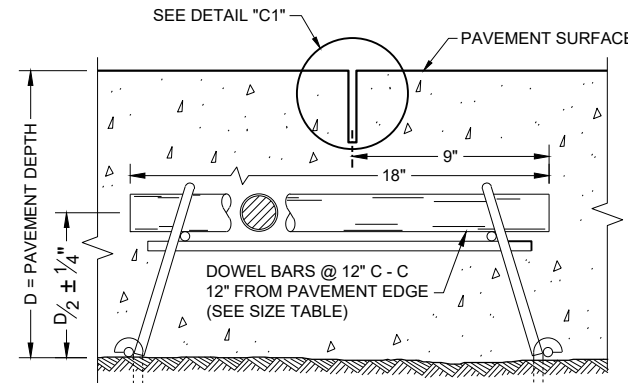
### TRANSVERSE JOINTS



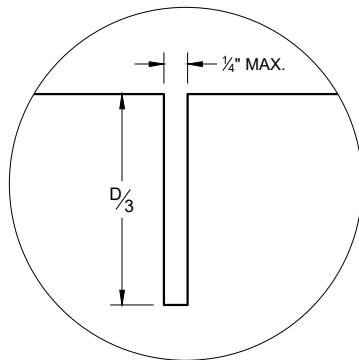
C2



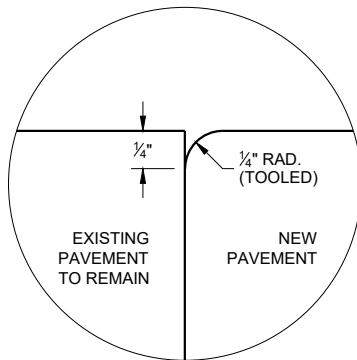
### SECTION C - C SAWED LONGITUDINAL JOINT



### SECTION F - F DOWELED CONTRACTION JOINT

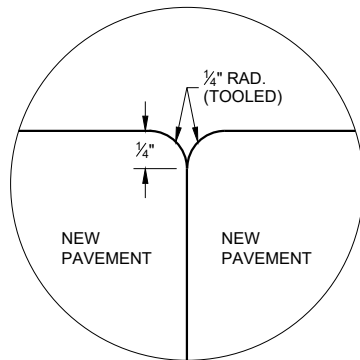


L1

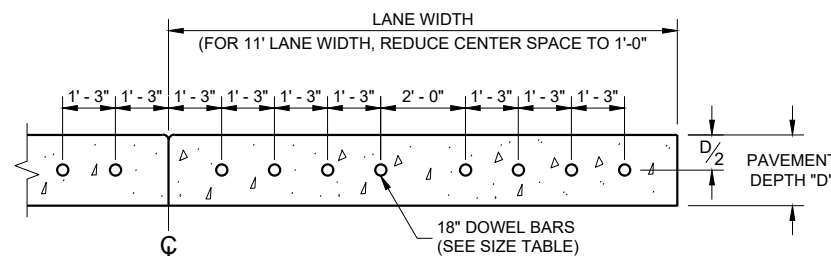


L2

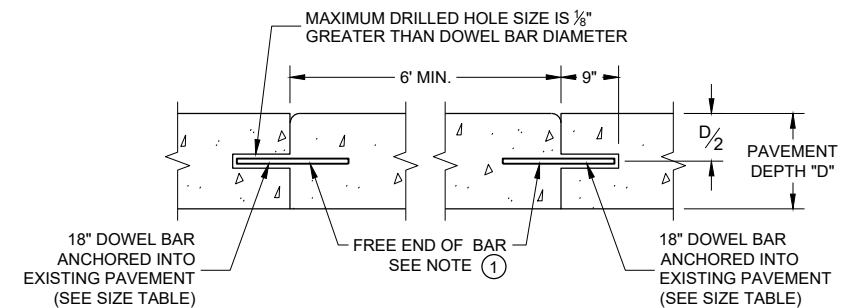
### LONGITUDINAL JOINTS



L3



### SECTION E - E DRILLED DOWEL BAR CONSTRUCTION JOINT



### SECTION D - D

### TIE BAR TABLE

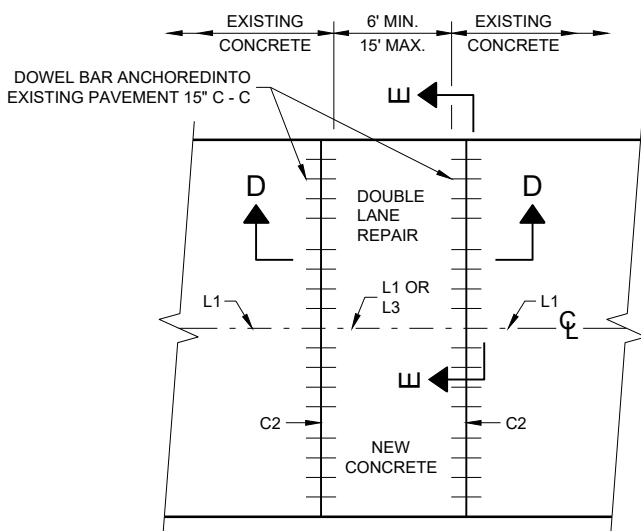
| PAVEMENT DEPTH (D) | TIE BAR SIZE | TIE BAR LENGTH (L) | MAX. TIE BAR SPACING |
|--------------------|--------------|--------------------|----------------------|
| < 10 1/2"          | NO. 4        | 30"                | 36"                  |
| ≥ 10 1/2"          | NO. 5        | 36"                | 36"                  |
|                    | NO. 4 *      | 30"                | 24" **               |

\* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

\*\* CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

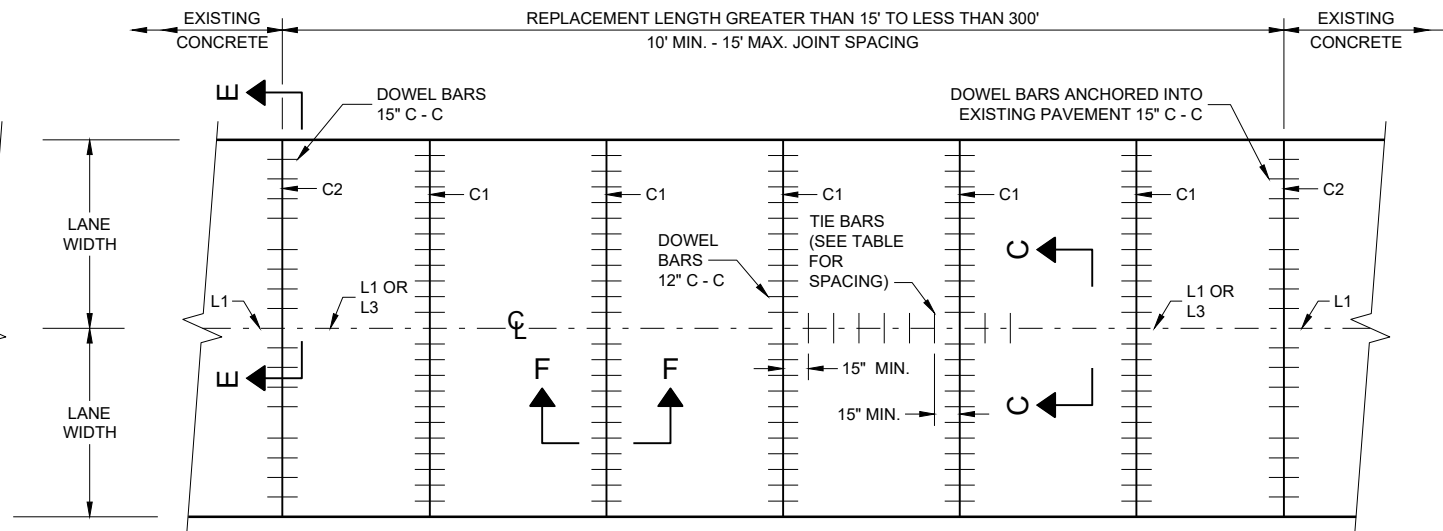
### PAVEMENT DEPTH, DOWEL BAR SIZE AND JOINT SPACING TABLE

| PAVEMENT DEPTH (D) | DOWEL BAR DIAMETER | DRILLED DOWEL BAR DIAMETER | CONTRACTION JOINT SPACING |
|--------------------|--------------------|----------------------------|---------------------------|
| 6", 6 1/2"         | NONE               | NONE                       | 12'                       |
| 7", 7 1/2"         | 1"                 | 1"                         | 14'                       |
| 8" & ABOVE         | 1 1/4"             | 1 1/4"                     | 15'                       |



### PLAN VIEW

### MULTILANE CONCRETE PAVEMENT REPAIR

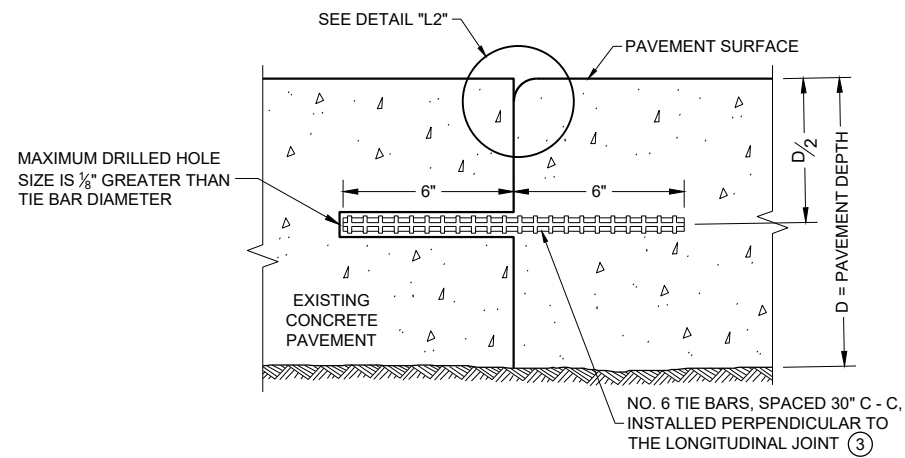


### PLAN VIEW

### MULTILANE CONCRETE PAVEMENT REPLACEMENT

### CONCRETE PAVEMENT REPAIR AND REPLACEMENT

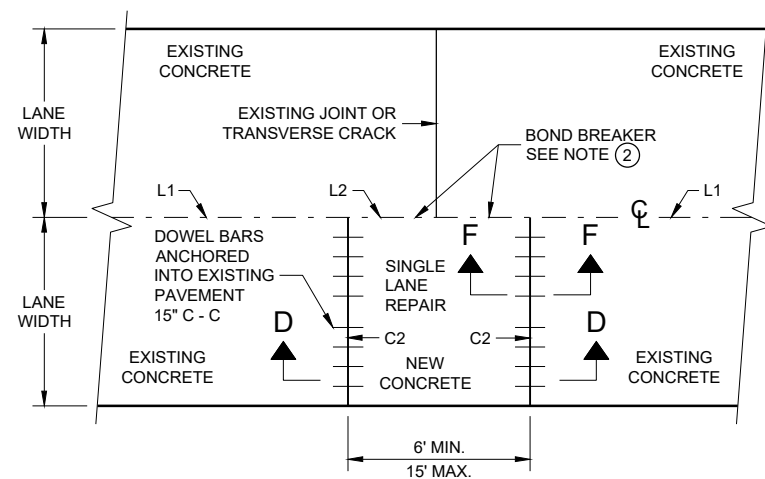
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



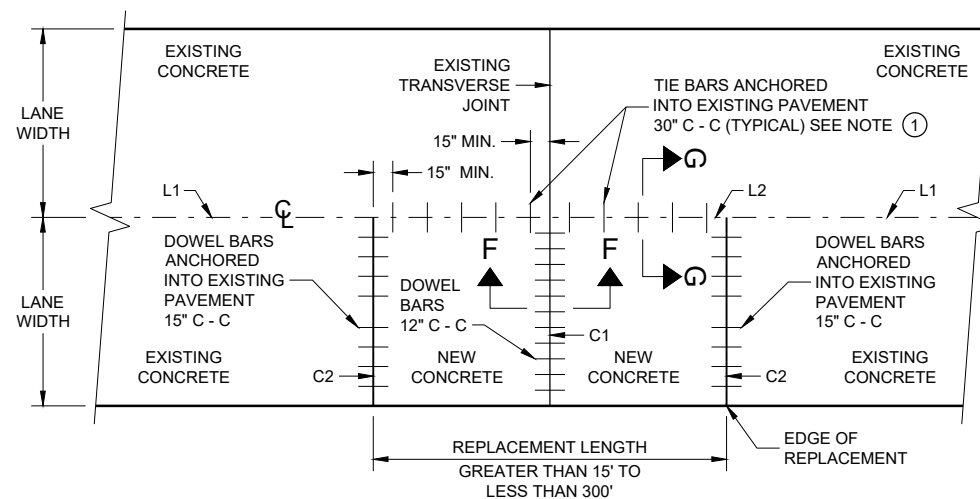
**SECTION G - G**  
**TIE BARS ANCHORED INTO EXISTING PAVEMENT**

### GENERAL NOTES

- ① WITH THE APPROVAL OF THE ENGINEER, FOR SINGLE LANE PAVEMENT REPLACEMENTS LESS THAN 30 FEET IN LENGTH, THE CONTRACTOR MAY INSTALL DRILLED TIE BARS ON 6:1 SKEW HORIZONTALLY, DIRECTION OF SKEW ALTERNATING WITH EACH SUCCESSIVE BAR. DRIVE SKEWED TIE BARS TO A DEPTH OF 6 INCHES IN A HOLE OF SUCH A DIAMETER AS TO PROVIDE A TIGHT DRIVEN FIT.
- ② USE AN ENGINEER APPROVED BOND BREAKER (E.G. RELEASE AGENT, CURING COMPOUND) FOR SINGLE LANE REPAIRS UP TO 15 FEET IN LENGTH.
- ③ ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.



**PLAN VIEW**  
**SINGLE LANE CONCRETE PAVEMENT REPAIR**

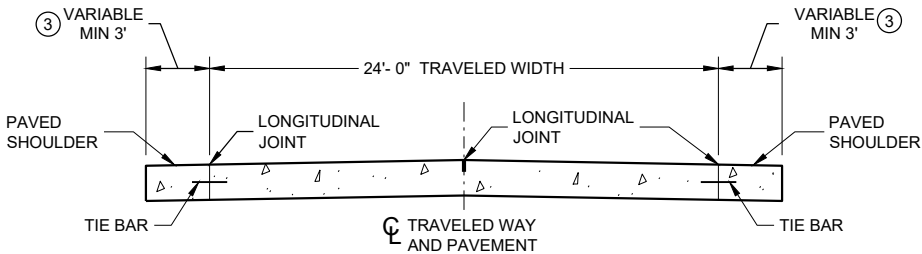


**PLAN VIEW**  
**SINGLE LANE CONCRETE PAVEMENT REPLACEMENT**

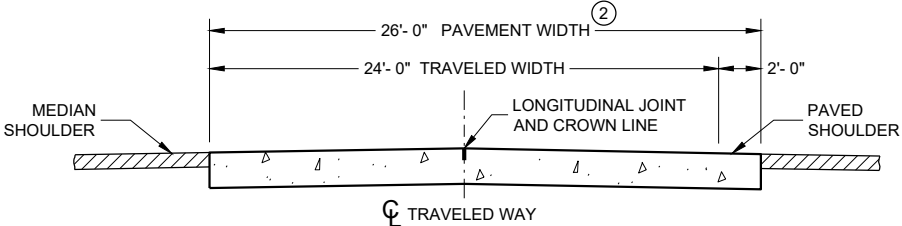
### CONCRETE REPAIR AND REPLACEMENT

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

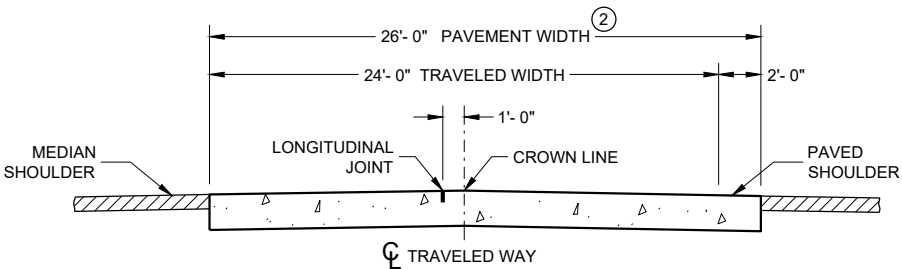
APPROVED  
November 2022 /S/ Peter Kemp P.E.  
DATE PAVEMENT SUPERVISOR  
FHWA



**SECTION A - A**  
**TWO-LANE TWO-WAY HIGHWAY** ①



**SECTION B - B**



**ALTERNATIVE SECTION B - B**  
**DIVIDED HIGHWAY** ①

**GENERAL NOTES**

CONTRACTION JOINTS

CONSTRUCT TRANSVERSE CONTRACTION JOINTS NORMAL TO THE CENTERLINE. SHOW THE LOCATION OF CONTRACTION JOINTS THROUGH INTERSECTIONS ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

FOR PAVEMENT SLABS OF VARYING WIDTHS, LOCATE THE OUTER MOST DOWEL BAR SO THAT THE CENTER OF THE BAR IS A MINIMUM OF 6 INCHES FROM AND A MAXIMUM OF 18 INCHES FROM THE FREE EDGE OF PAVEMENT.

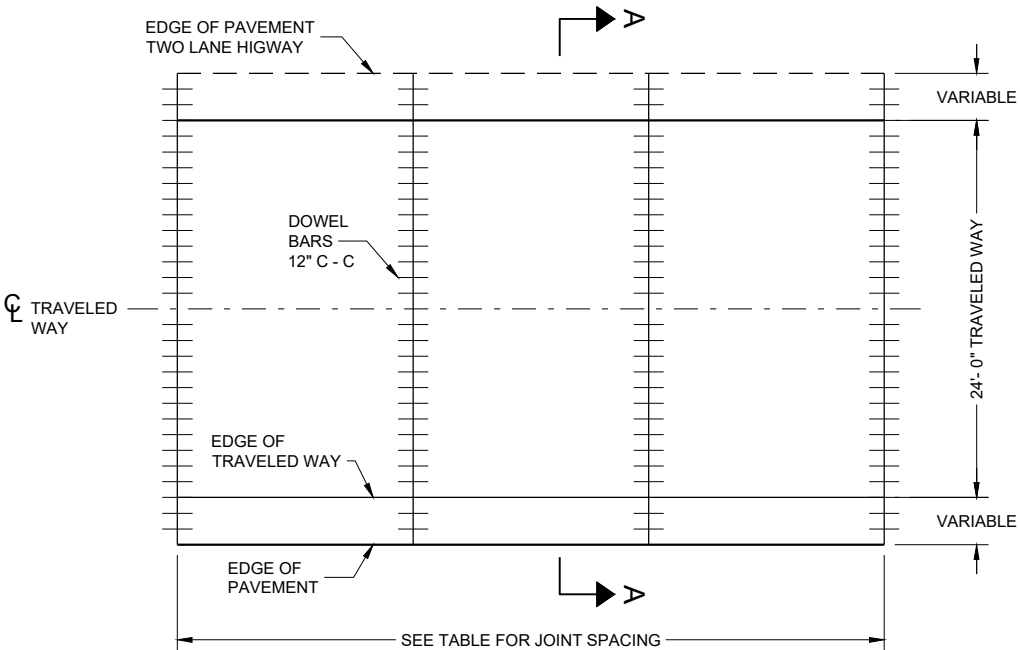
CONSTRUCTION JOINTS

LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO THE CONTRACTION JOINTS.

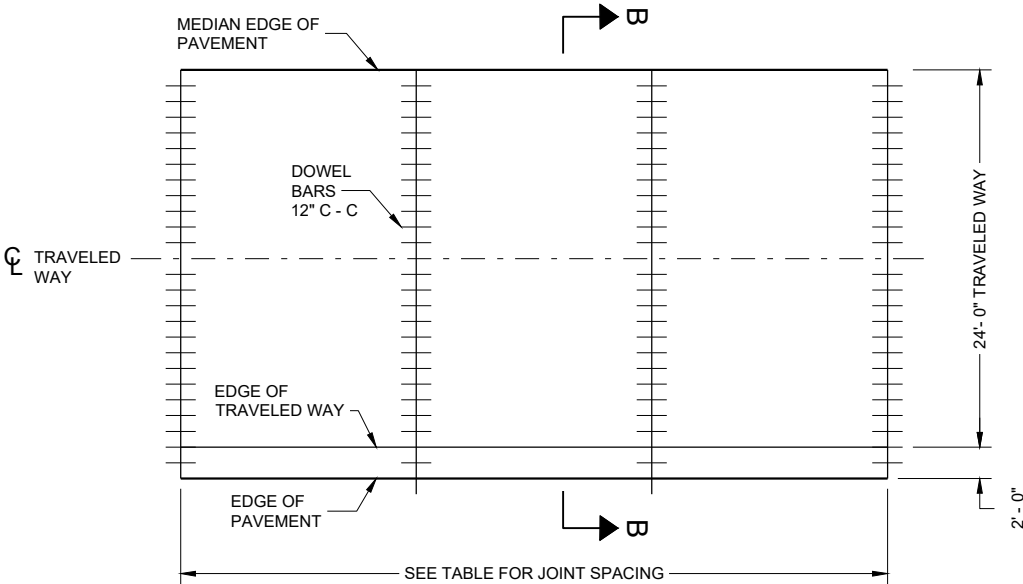
- ① REFER TO TYPICAL CROSS SECTIONS FOR ADDITIONAL DETAILS.
- ② MEASURE THE ENTIRE PAVED WIDTH INCLUDING THE PORTION(S) LABELED "PAVED SHOULDER" AS CONCRETE PAVEMENT.
- ③ SHOULDER WIDTHS LESS THAN 3 FEET SHALL BE PAVED INTEGRAL TO THE MAINLINE CONCRETE PAVEMENT, SEE SECTION B-B.

**PAVEMENT DEPTH, DOWEL BAR SIZE  
AND JOINT SPACING TABLE**

| PAVEMENT DEPTH (D) | DOWEL BAR DIAMETER | CONTRACTION JOINT SPACING |
|--------------------|--------------------|---------------------------|
| 6", 6 ½"           | NONE               | 12'                       |
| 7", 7 ½"           | 1"                 | 14'                       |
| 8" & ABOVE         | 1 ¼"               | 15'                       |



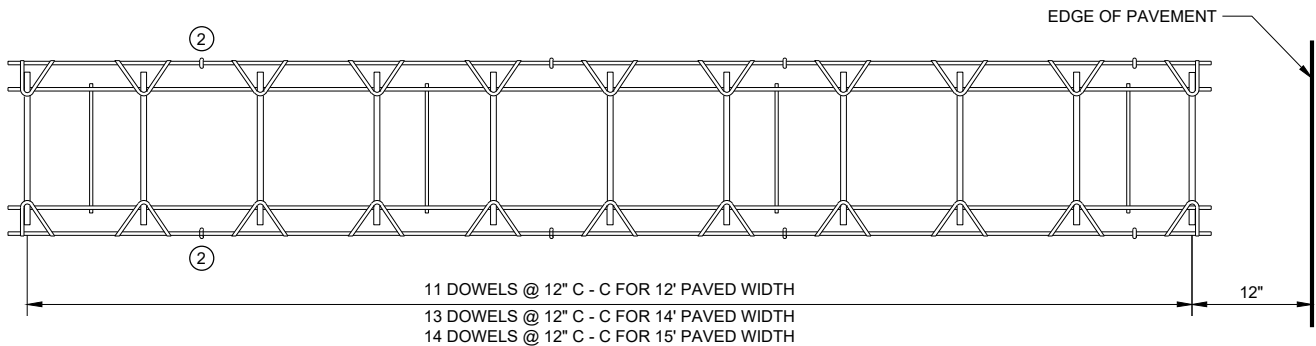
**CONTRACTION JOINT LAYOUT FOR  
TWO-LANE TWO-WAY HIGHWAY**



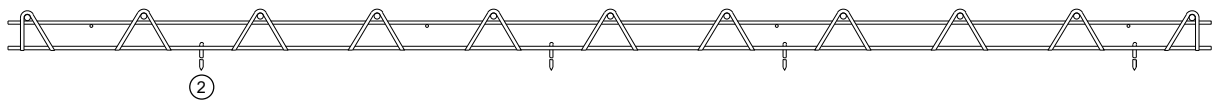
**CONTRACTION JOINT LAYOUT FOR  
DIVIDED HIGHWAY**

**RURAL DOWELED  
CONCRETE PAVEMENT**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

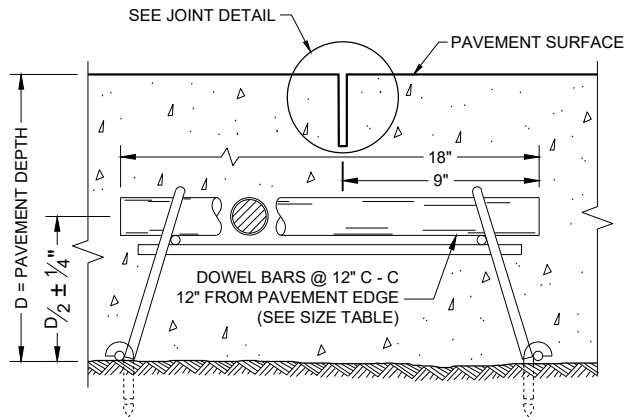


PLAN VIEW

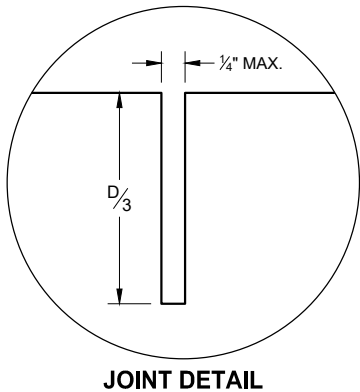


SIDE VIEW  
(NORMAL TO CENTERLINE)

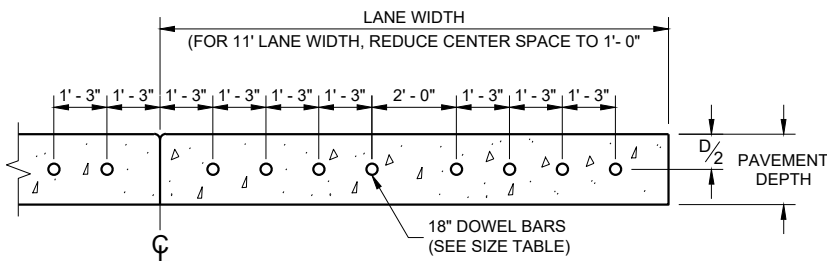
CONTRACTION JOINT DOWEL ASSEMBLY ①



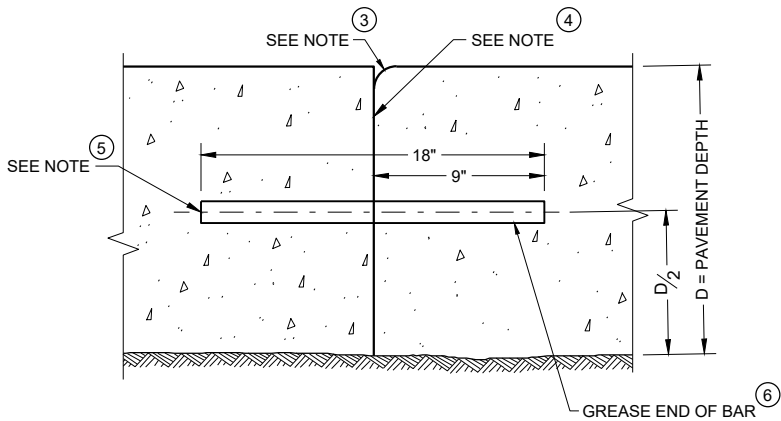
DOWELED CONTRACTION JOINT



JOINT DETAIL



DRILLED DOWEL BAR CONSTRUCTION JOINT ⑦

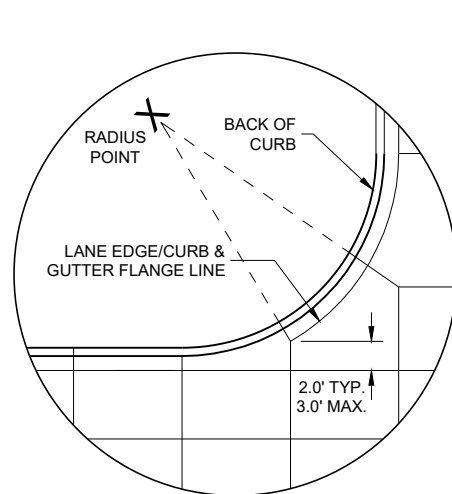


TRANSVERSE CONSTRUCTION JOINT

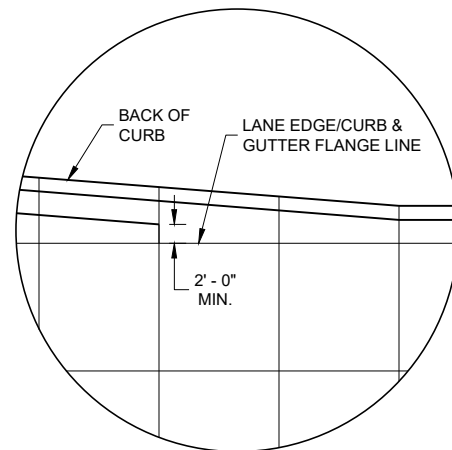
GENERAL NOTES

- ① OBTAIN THE ENGINEER'S APPROVAL FOR THE USE OF ALTERNATIVE DESIGNS OF THE DOWEL ASSEMBLY. USE MECHANICAL DOWEL BAR INSERTERS OR DOWEL ASSEMBLIES WHEN CONSTRUCTION CONTRACTION JOINTS.
- ② SECURE BASKETS WITH ANCHORS TO HOLD DOWEL BARS IN THE CORRECT POSITION AND ALIGNMENT. TYPE, LOCATION, NUMBER AND LENGTH OF ANCHORS ARE DEPENDENT UPON FIELD CONDITIONS.
- ③ FORM OR SAW CONSTRUCTION JOINTS. PROVIDE A  $1/4"$  RADIUS AT FORMED JOINTS.
- ④ PROVIDE A SMOOTH VERTICAL FACE FOR THE ENTIRE DEPTH OF THE PAVEMENT WHEN FORMING CONSTRUCTION JOINTS.
- ⑤ INSTALL DOWEL BARS AT CONSTRUCTION JOINTS BY FORMING OR DRILLING. INSTALL FORMED DOWEL BARS 12 INCHES C - C AND 12 INCHES FROM PAVEMENT EDGE. REMOVE EXCESS CONCRETE FROM THE FREE END OF THE DOWEL BAR IF DOWEL BARS ARE FORMED THROUGH A HEADER BOARD. INSTALL DRILLED DOWEL BARS ACCORDING TO THE "DRILLED DOWEL BAR CONSTRUCTION JOINT" DETAIL.
- ⑥ APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.
- ⑦ ANCHOR DOWEL BARS AND TIE BARS INTO DRILLED HOLES WITH AN EPOXY. MAXIMUM DRILLED HOLE SIZE IS  $1/8"$  GREATER THAN DOWEL BAR DIAMETER, 9 INCHES IN LENGTH.

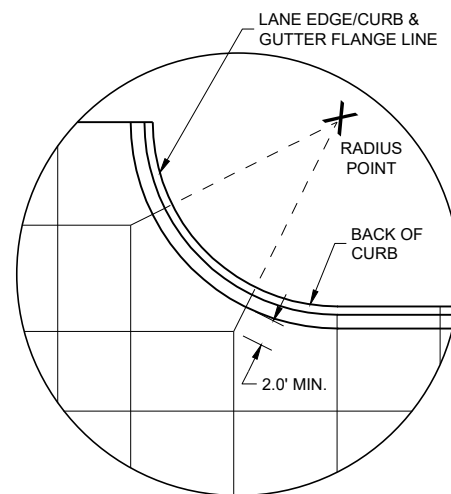
|                                                    |                                            |
|----------------------------------------------------|--------------------------------------------|
| <b>RURAL DOWELED<br/>CONCRETE PAVEMENT</b>         |                                            |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |                                            |
| APPROVED<br>November 2022<br>DATE                  | /S/ Peter Kemp P.E.<br>PAVEMENT SUPERVISOR |
| FHWA                                               |                                            |



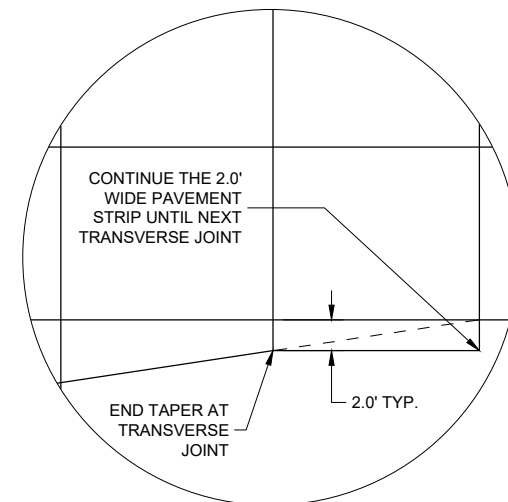
DETAIL "A"



DETAIL "B"



DETAIL "C"



DETAIL "D"

**GENERAL NOTES**

THE PRIMARY ROADWAY CONTROLS THE TRANSVERSE JOINT PATTERN.

ALIGN NEW JOINTS WITH EXISTING JOINTS OR CRACKS.

CONSTRUCT TRANSVERSE JOINTS PERPENDICULAR TO THE ROADWAY.

ADJUST TRANSVERSE JOINTS TO ALIGN WITH UTILITY FIXTURES (E.G. MANHOLES AND INLETS) IN THE PAVEMENT STRUCTURE WHEN POSSIBLE. WATER VALVES DO NOT REQUIRE JOINT ADJUSTMENT.

AVOID SLABS LESS THAN 2 FEET WIDE OR GREATER THAN 15 FEET WIDE.

SEE TABLE FOR TRANSVERSE JOINT SPACING. JOINT SPACING SPECIFIED IS MAXIMUM AND ACTUAL SPACING CAN BE ADJUSTED TO ACCOMMODATE INTERSECTIONS.

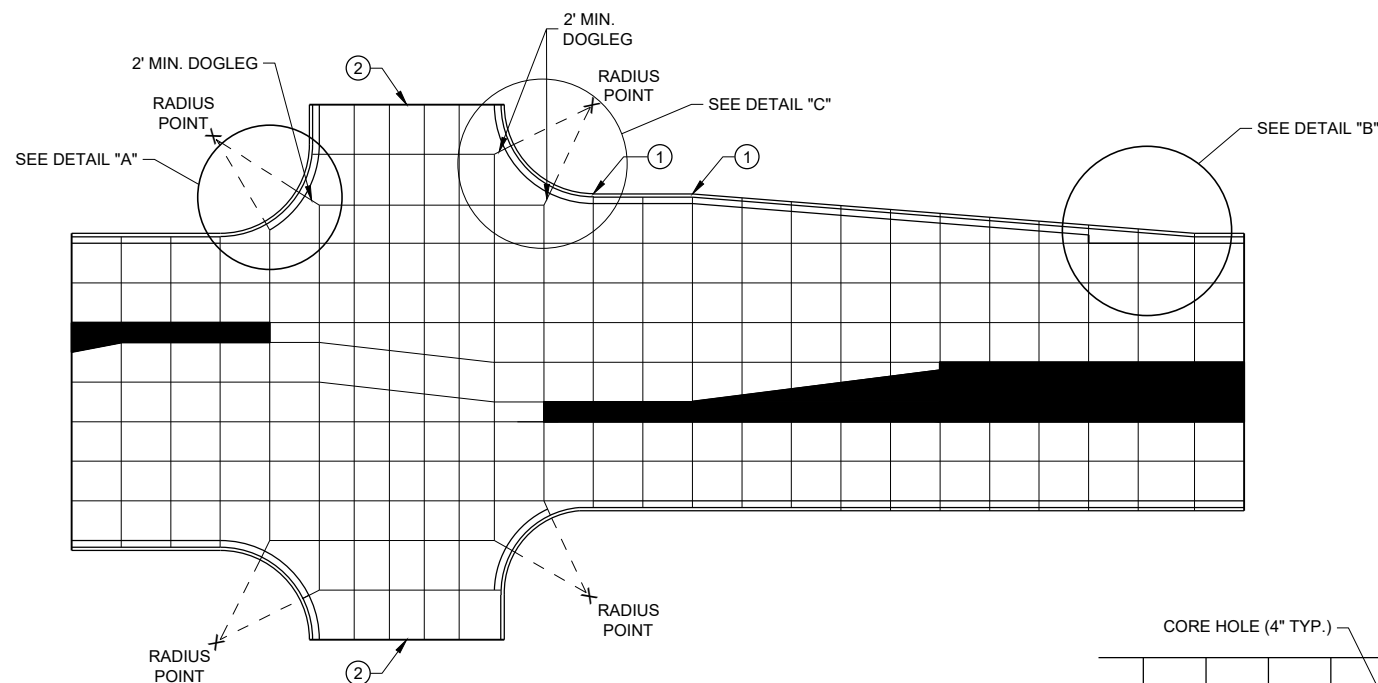
AVOID ANGLES LESS THAN 60° BY DOGLEGGING JOINTS THROUGH CURVE RADIUS POINTS. USE 90° ANGLES WHEN POSSIBLE.

CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

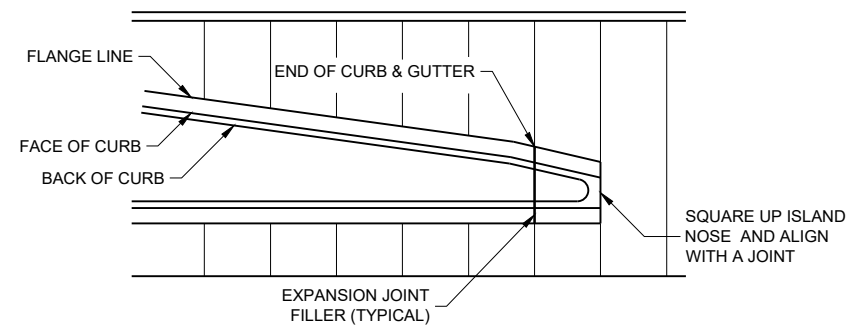
- ① PROVIDE TRANSVERSE JOINTS AT ALL PAVEMENT WIDTH CHANGES.
- ② CONSTRUCT DOWELED EXPANSION JOINT ON THE SIDE ROAD OF AN INTERSECTION IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH. ALIGN EXPANSION JOINT WITH EDGE OF RADIUS.
- ③ THE ENGINEER MAY APPROVE SLIGHT VARIATIONS FROM THESE JOINTING DETAILS.

PAVEMENT DEPTH AND JOINT SPACING TABLE

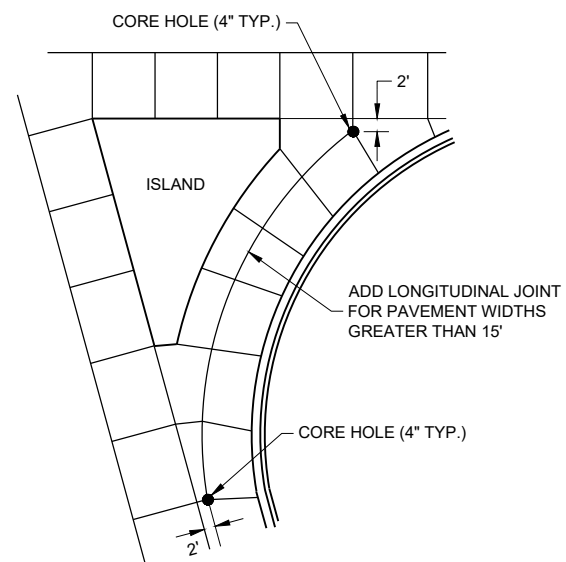
| PAVEMENT DEPTH (D) | CONTRACTION JOINT SPACING |
|--------------------|---------------------------|
| 6", 6 ½"           | 12'                       |
| 7", 7 ½"           | 14'                       |
| 8" & ABOVE         | 15'                       |



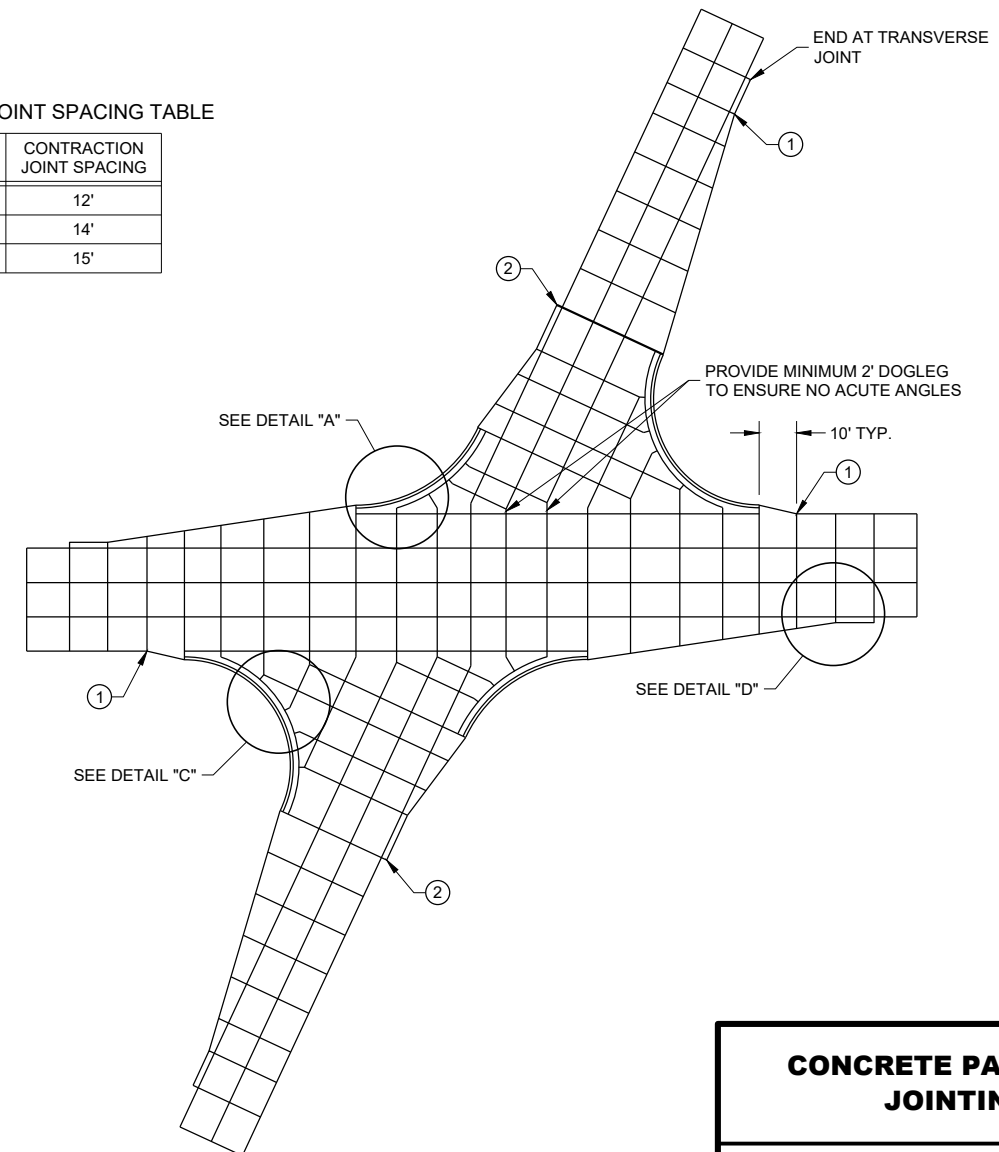
STANDARD INTERSECTION



APPROACH TO MEDIAN



LARGE RIGHT TURN



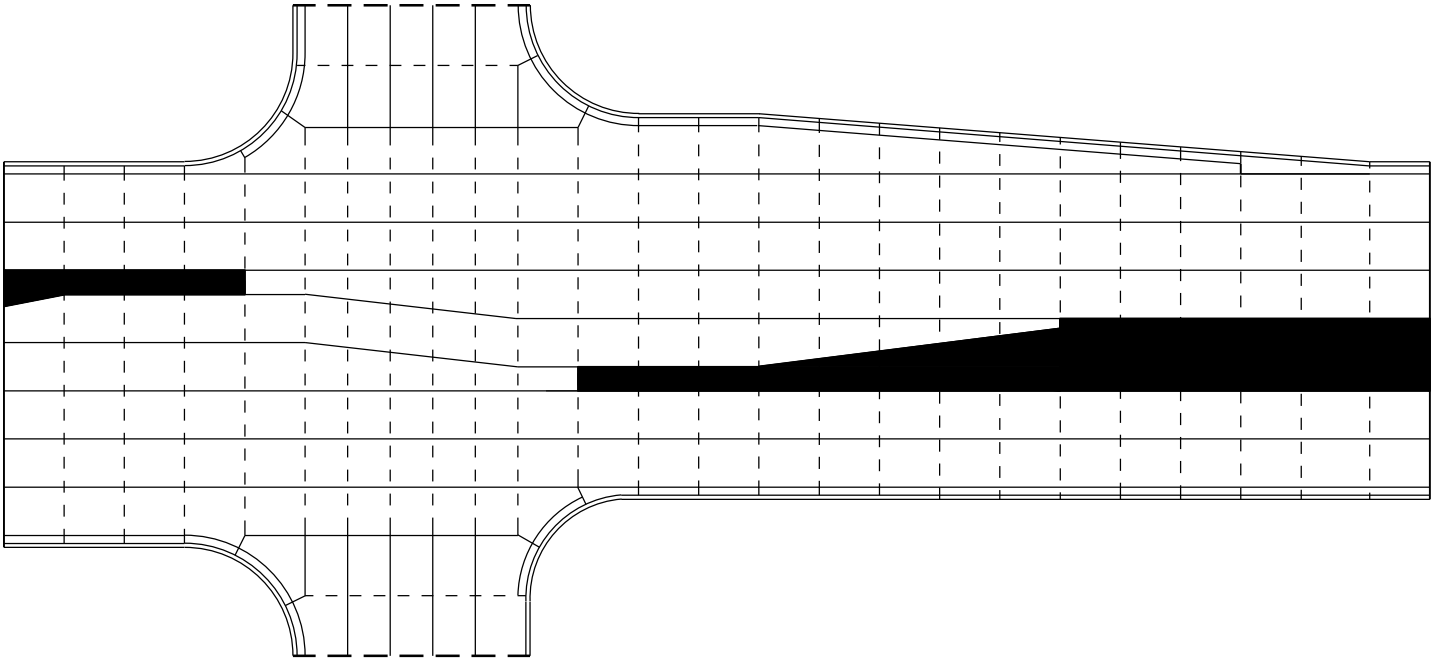
SKEWED INTERSECTION

**CONCRETE PAVEMENT JOINTING**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

LEGEND

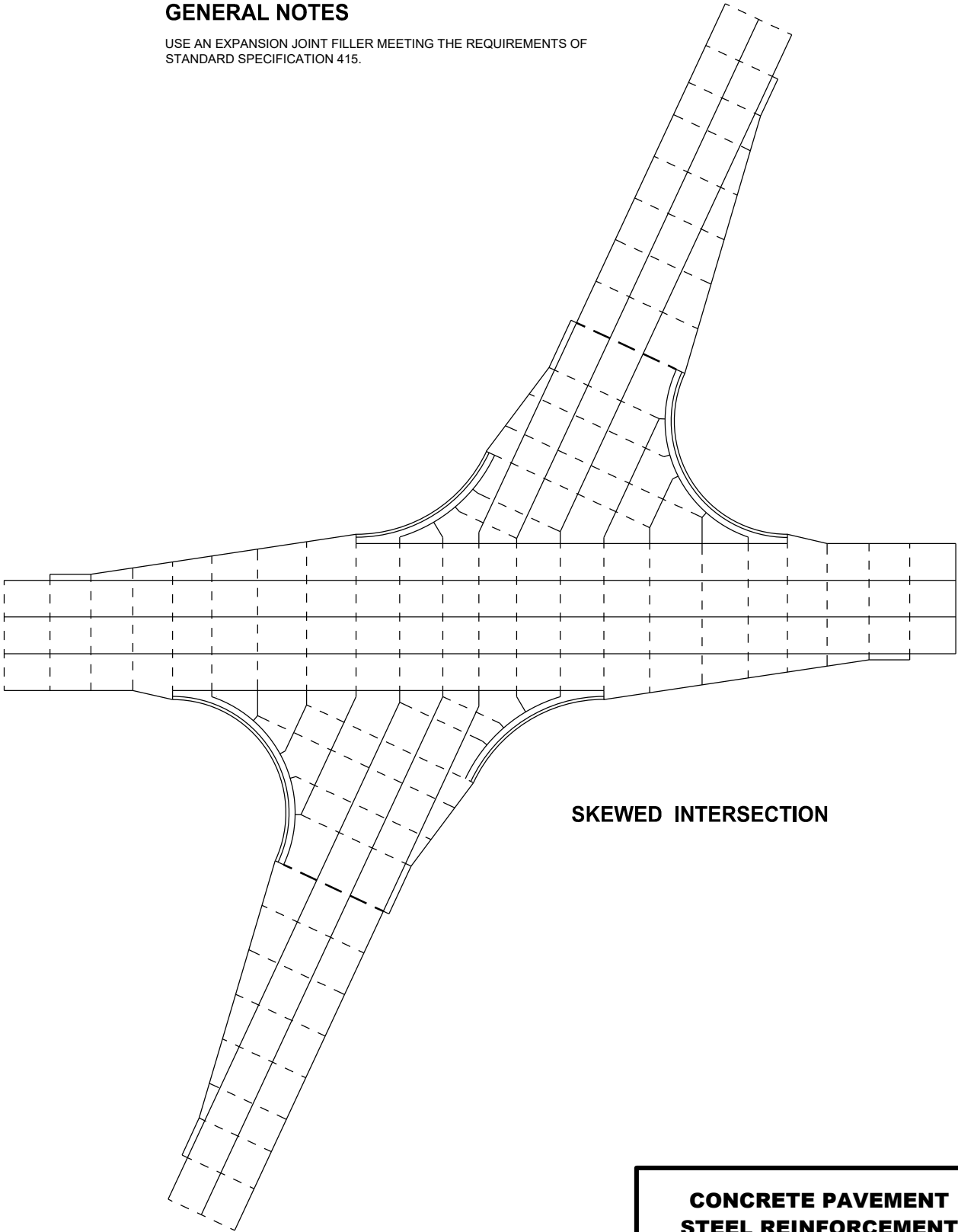
- POTENTIAL DOWELED EXPANSION JOINT
- DOWELED JOINT
- TIED JOINT



STANDARD INTERSECTION

GENERAL NOTES

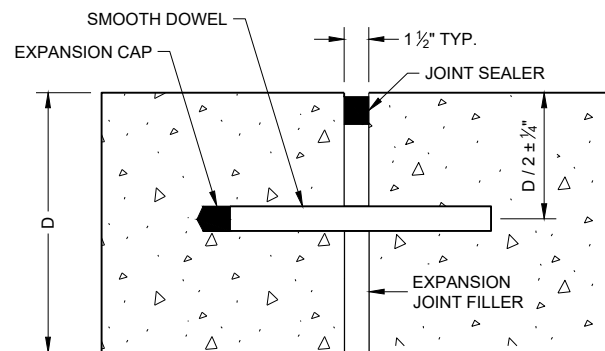
USE AN EXPANSION JOINT FILLER MEETING THE REQUIREMENTS OF STANDARD SPECIFICATION 415.



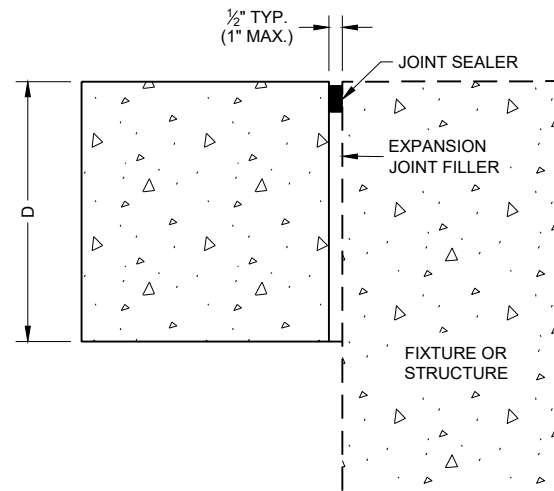
SKEWED INTERSECTION

CONCRETE PAVEMENT  
STEEL REINFORCEMENT

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

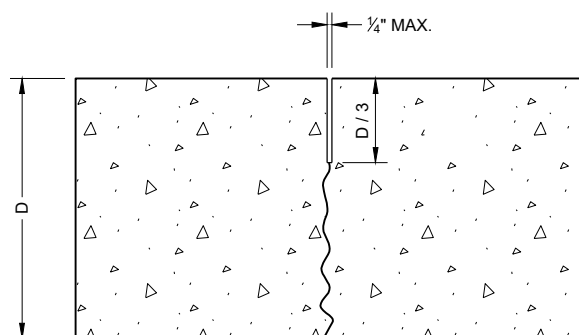


**DOWELED TRANSVERSE** ①

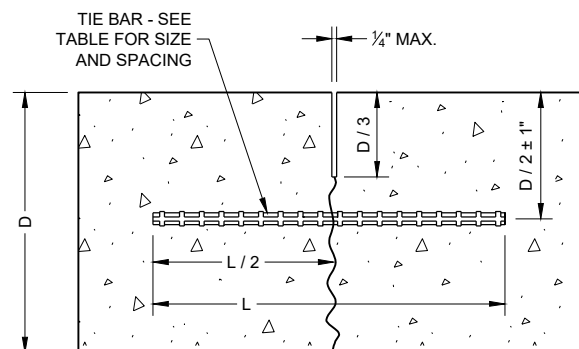


**UNTIED - LONGITUDINAL**

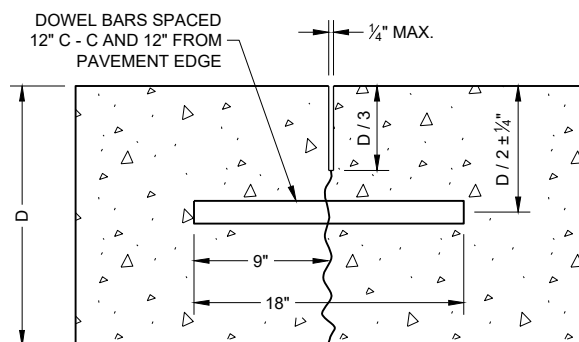
**EXPANSION JOINTS**



**UNDOWELED TRANSVERSE**



**TIED LONGITUDINAL**



**DOWELED TRANSVERSE**

**CONTRACTION JOINTS** ②

**TIE BAR TABLE**

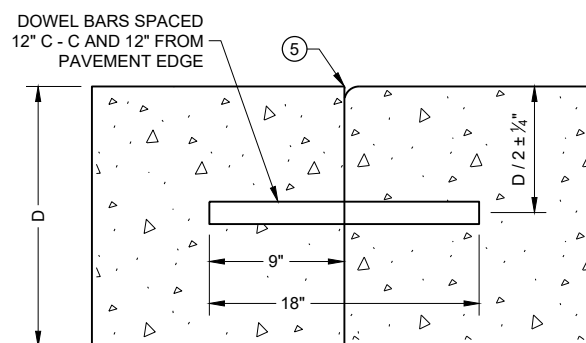
| PAVEMENT DEPTH (D) | TIE BAR SIZE | TIE BAR LENGTH (L) | MAX. TIE BAR SPACING |
|--------------------|--------------|--------------------|----------------------|
| < 10 1/2"          | NO. 4        | 30"                | 36"                  |
| ≥ 10 1/2"          | NO. 5        | 36"                | 36"                  |
|                    | NO. 4 *      | 30"                | 24" **               |

\* SUBSTITUTE BENT BARS AT LONGITUDINAL JOINTS WHEN EQUIPMENT LIMITATIONS DURING CONSTRUCTION WARRANT (e.g. AUXILIARY LANES OR TURN LANES)

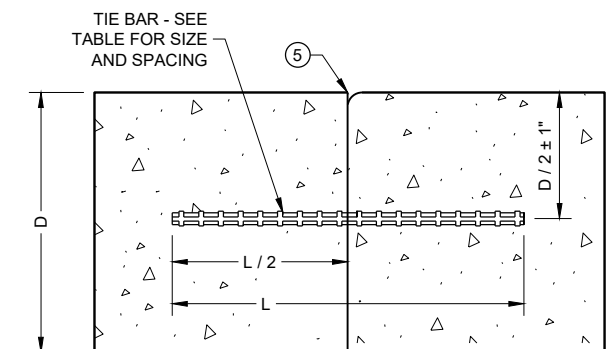
\*\* CONFORM TO 15" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

**GENERAL NOTES**

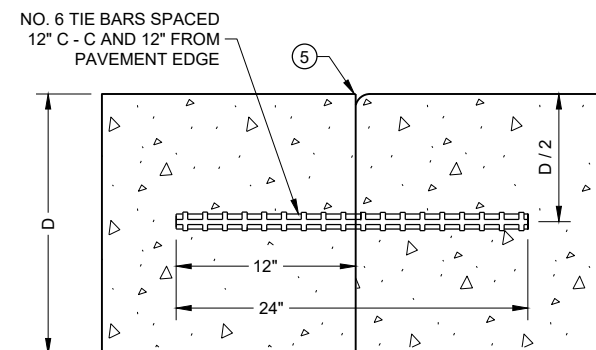
- ① USE DOWELED EXPANSION JOINTS ON SIDE ROADS AT INTERSECTIONS (TO ISOLATE THE SIDE ROAD FROM THE THROUGH STREET) IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH.
- ② SPACE CONTRACTION JOINTS IN ACCORDANCE WITH SDD 13C4, 13C11 OR 13C13.
- ③ LOCATE CONSTRUCTION JOINTS A MINIMUM OF 6 FEET FROM THE NEAREST CONTRACTION JOINT AND ALIGN PARALLEL TO CONTRACTION JOINTS.
- ④ CONSTRUCTION JOINTS CAN BE FORMED OR SAWED.
- ⑤ IF JOINT IS FORMED, PROVIDE A 1/4" RADIUS.
- ⑥ ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.



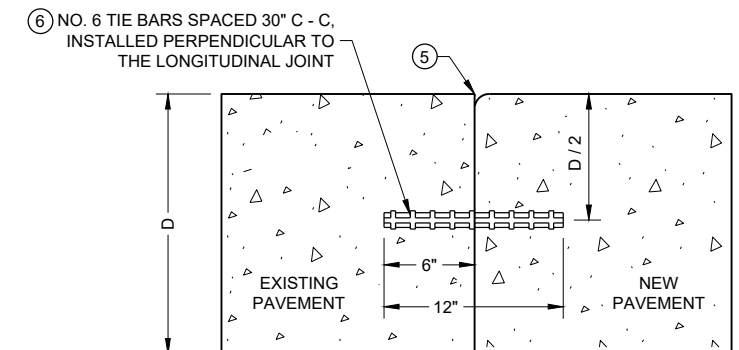
**DOWELED TRANSVERSE** ③



**TIED LONGITUDINAL**



**TIED TRANSVERSE** ③  
(FOR USE ON NON-DOWELED PAVEMENTS ONLY)

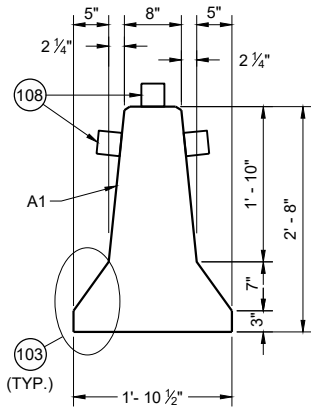


**TIED LONGITUDINAL TO EXISTING**

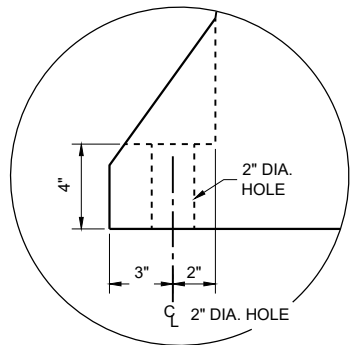
**CONSTRUCTION JOINTS** ④

**CONCRETE PAVEMENT  
JOINT TYPES**

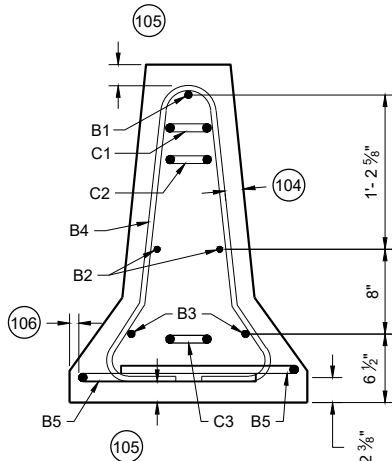
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



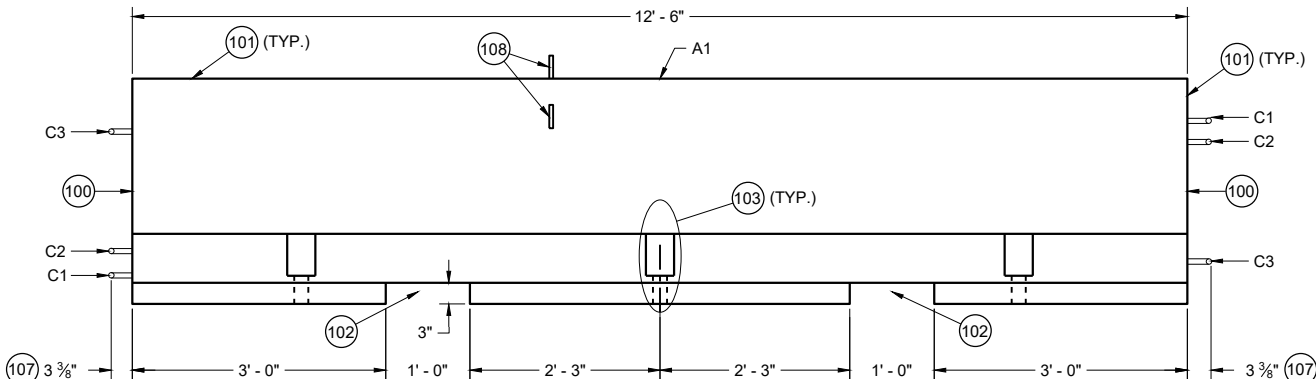
CROSS SECTION



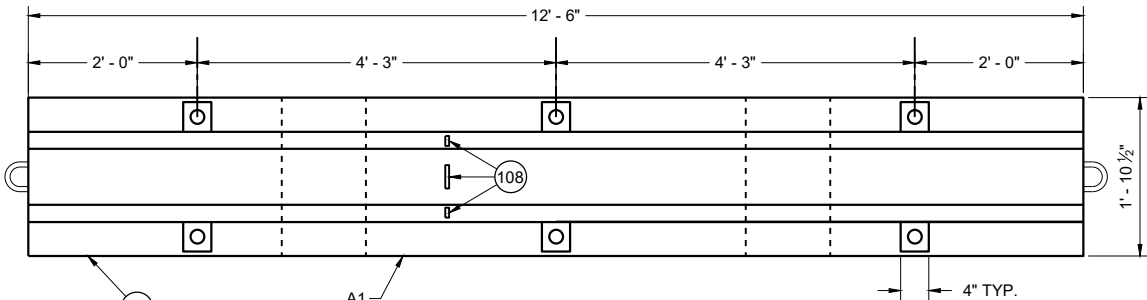
ANCHOR BLOCK  
DETAIL



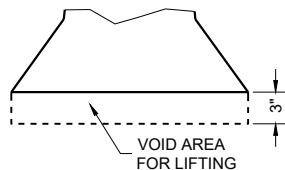
PROFILE VIEW  
TEMPORARY BARRIER REINFORCEMENT



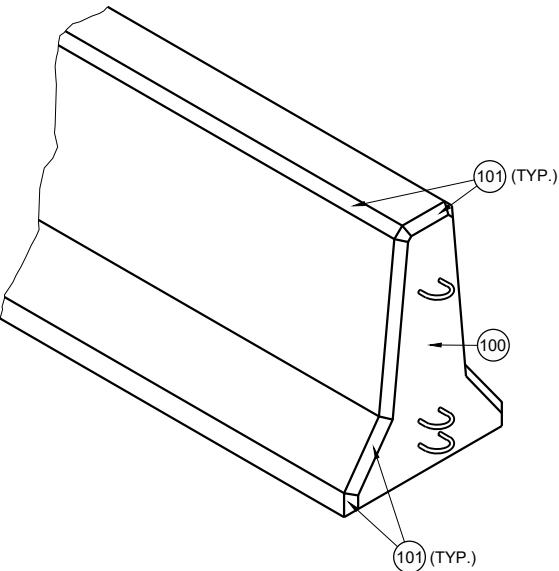
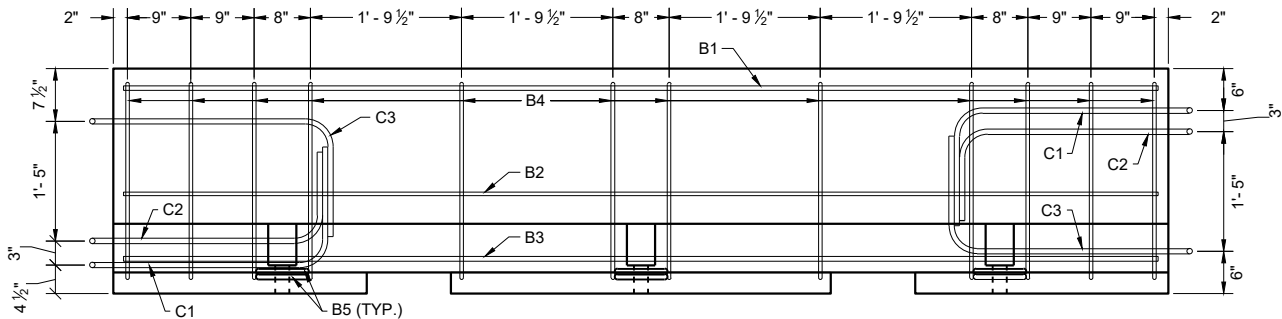
PROFILE VIEW



PLAN VIEW  
TEMPORARY BARRIER



LIFTING SLOT DETAIL  
(TYP.)



GENERAL NOTES

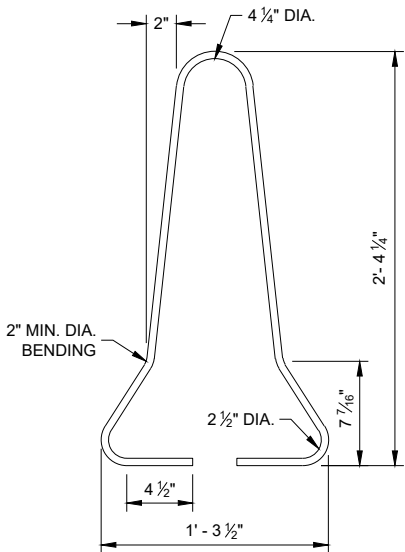
PLACE BARRIER ON PAVED SURFACE. BEFORE PLACEMENT OF TEMPORARY BARRIER, REMOVE ALL LOOSE MATERIAL FROM PAVED SURFACE.

LOOP BARS C1, C2 AND C3 ARE NOT FOR PLACEMENT OR MOVEMENT OF BARRIER.

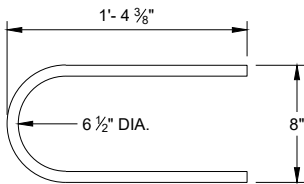
- 100 PERMANENTLY FORM INTO ONE END OF BARRIER THE FOLLOWING INFORMATION:
  - A. TYPE OF BARRIER: WI-CBTP
  - B. MANUFACTURER
  - C. DATE OF MANUFACTURE (MONTH AND YEAR)
- 101 1" OPTIONAL CHAMFER
- 102 SEE LIFTING SLOT DETAIL
- 103 SEE ANCHOR BLOCK DETAIL
- 104 1 3/4" MIN. CLEAR COVER
- 105 2" MIN. CLEAR COVER
- 106 1" MIN. CLEAR COVER
- 107 ± 1/8" MEASURED FROM FACE OF CONCRETE BARRIER TO OUTSIDE OF LOOP BAR (TYP.)
- 108 USE DELINEATORS CONFORMING TO SECTION 633 OF THE STANDARD SPECIFICATIONS. CONTRACTOR MY USE ALTERNATE SHAPES AND HOUSING. INSTALL DELINEATORS ACCORDING TO MANUFACTURERS INSTRUCTION. INSTALL YELLOW REFLECTORS WHEN BARRIER IS LOCATED LEFT OF TRAFFIC AND WHITE WHEN BARRIER IS LOCATED RIGHT OF TRAFFIC. SPACE DELINEATORS A MAXIMUM OF 25 FEET APART, PROVIDE TOP MOUNTED DELINEATORS IN ADDITION TO SIDE MOUNTED DELINEATORS ON BARRIER INSTALLATIONS LOCATED ON A CURVED ALIGNMENT LONGER THAT 200 FEET AND ON BARRIERS USED TO SEPARATE OPPOSING TRAFFIC.

CONCRETE BARRIER  
TEMPORARY PRECAST,  
12' - 6"

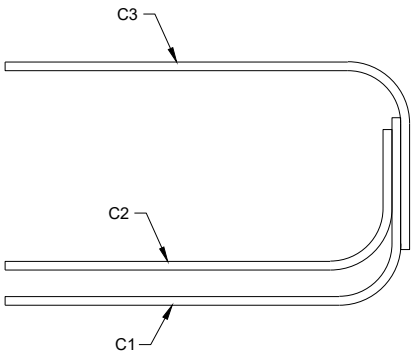
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



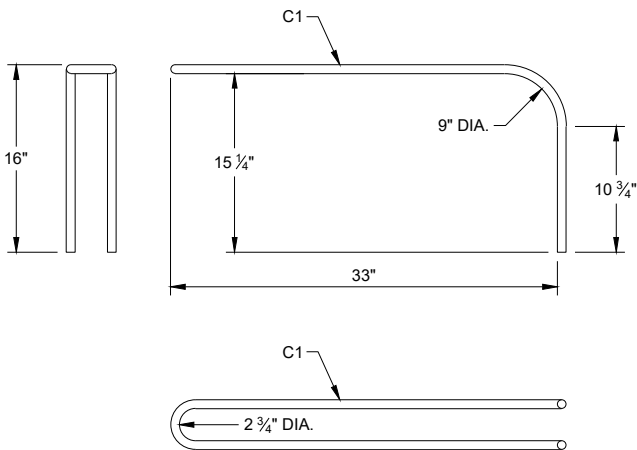
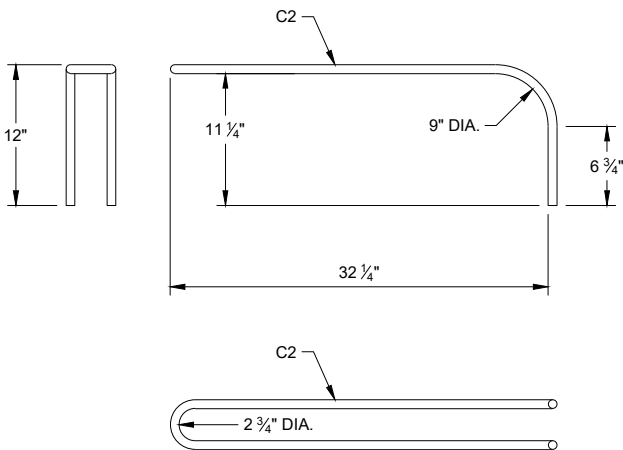
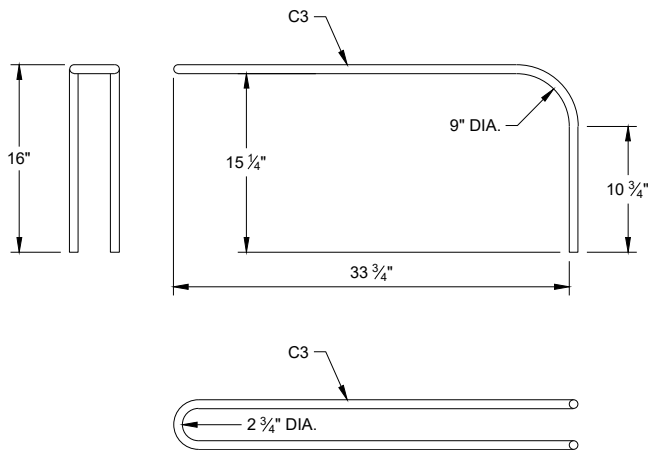
B4 BAR DETAIL



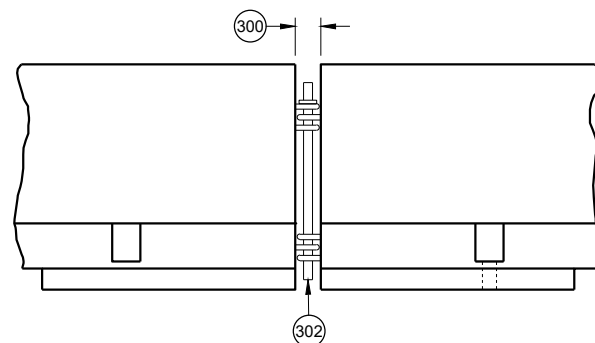
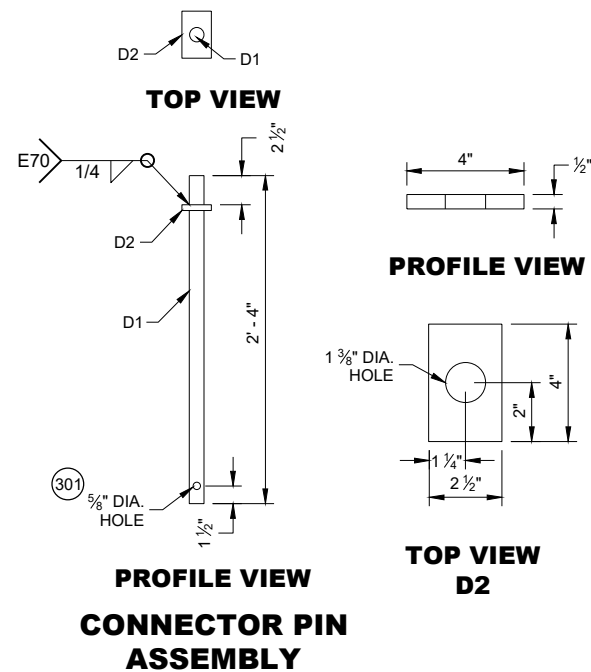
B5 BAR DETAIL



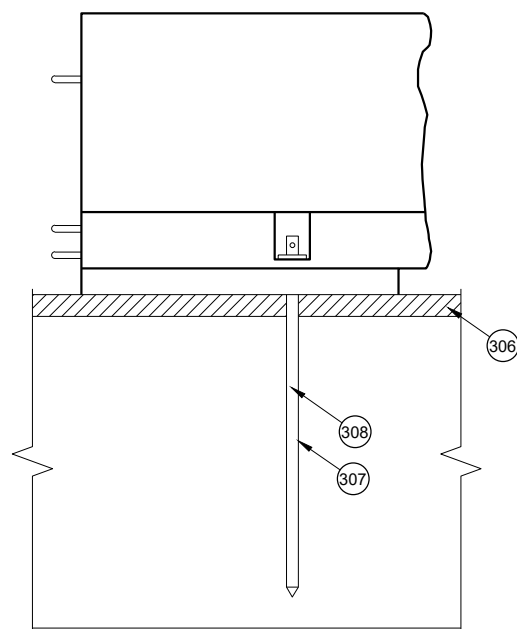
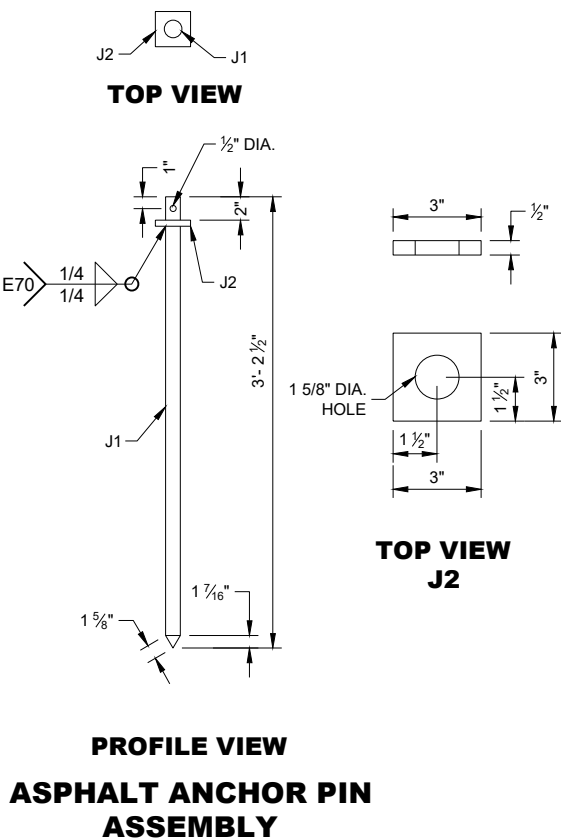
PROFILE VIEW  
LOOP BAR ASSEMBLY



C BAR DETAILS

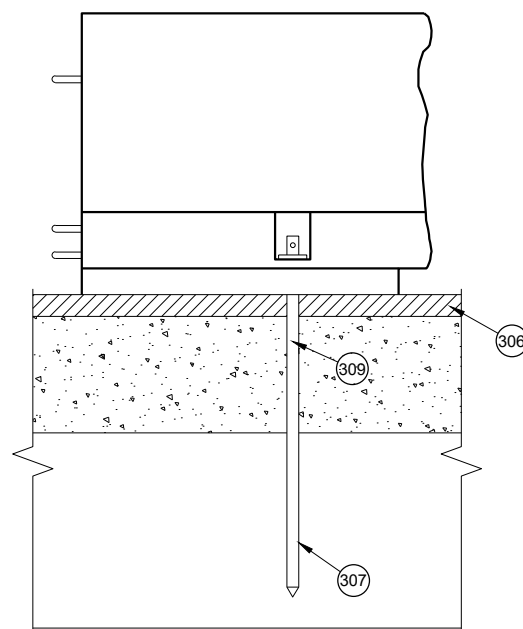


**CONNECTING TEMPORARY  
BARRIER SECTIONS**



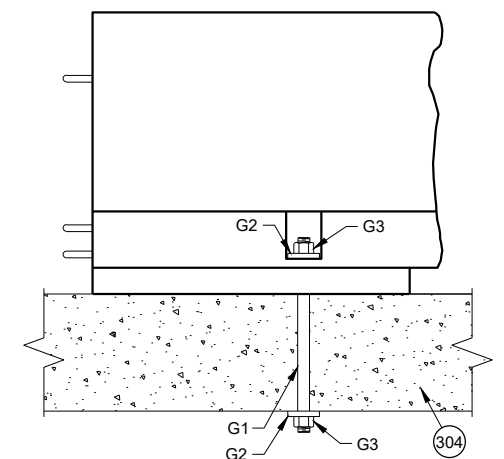
**SIDE VIEW**

**ASPHALT ANCHOR  
INSTALLATION  
THROUGH  
ASPHALT PAVEMENT**



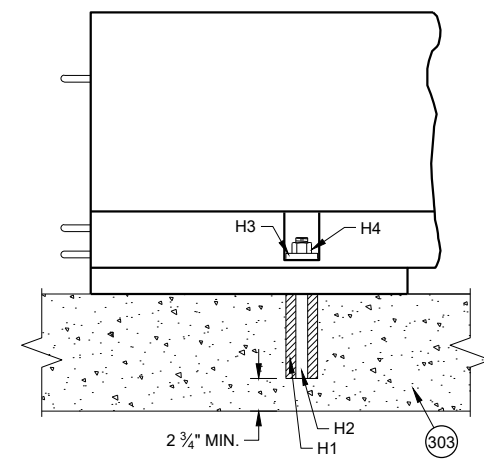
**SIDE VIEW**

**ASPHALT ANCHOR  
INSTALLATION  
THROUGH  
ASPHALT OVERLAY  
ON TOP OF  
CONCRETE PAVEMENT**



**SIDE VIEW**

**THROUGH BOLT ANCHOR  
INSTALLATION**



**SIDE VIEW**

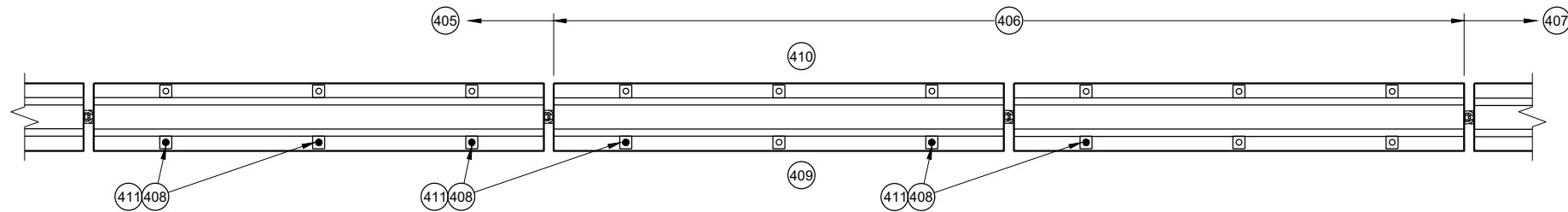
**ADHESIVE ANCHOR  
INSTALLATION**

**GENERAL NOTES**

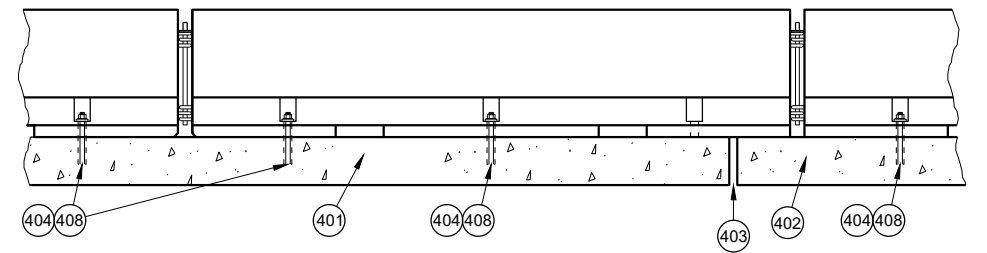
- (300) SET WITH 3 5/8" WOOD BLOCK.
- (301) HOLE IS OPTIONAL.
- (302) CONNECTOR PIN ASSEMBLY.
- (303) CONCRETE PAVEMENT, APPROACH SLAB, OR DECK.
- (304) CONCRETE DECK.
- (305) DO NOT USE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY OR CONCRETE PAVEMENT WITH ASPHALT OVERLAY.
- (306) MINIMUM OF 2" OF ASPHALT.
- (307) ASPHALT ANCHOR PIN ASSEMBLY
- (308) IF DRILLING A PILOT HOLE, THE MAX. DIA. OF THE HOLE IS 3/4"
- (309) WHEN THERE IS ASPHALT OVERLAYING CONCRETE PAVEMENT, A 1 5/8" DIA. PILOT HOLE CAN BE DRILLED INTO THE OVERLAY AND CONCRETE. IF NEEDED DRILL A 3/4" PILOT HOLE IN BASE COURSE.

**CONCRETE BARRIER  
TEMPORARY PRECAST,  
12' - 6"**

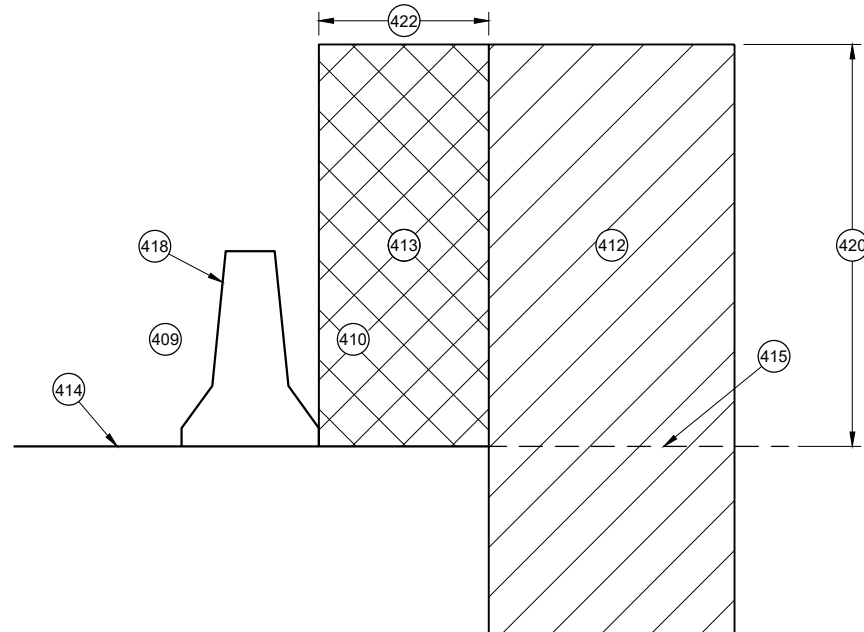
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



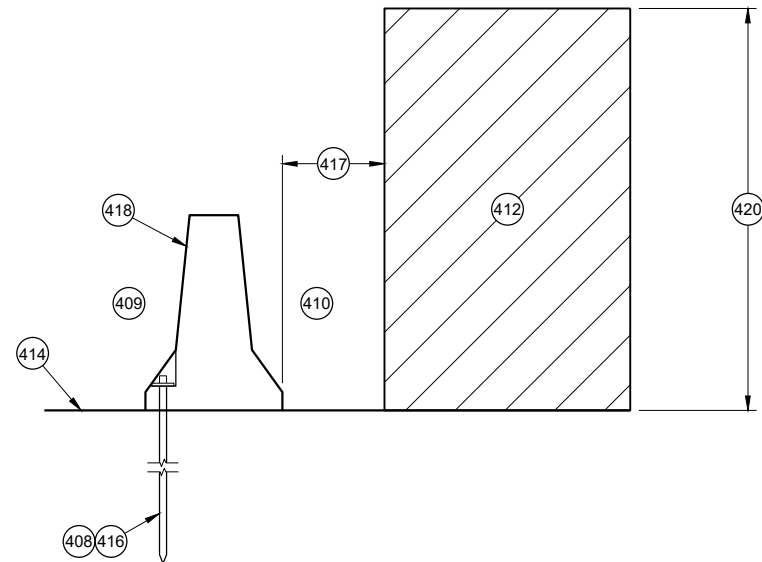
**PLAN VIEW**  
**TRANSITION FROM FREE STANDING TO ANCHORED BARRIER**



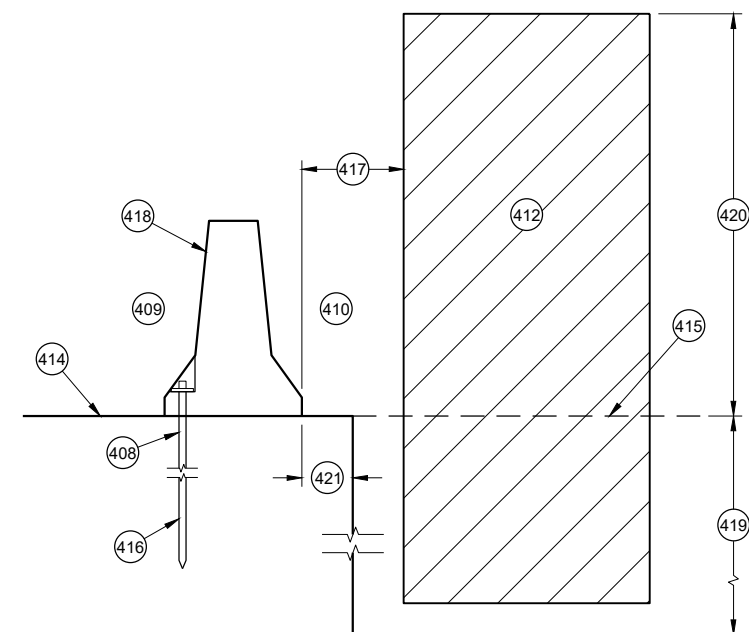
**PROFILE VIEW**  
**ANCHORED BARRIER NEAR EXPANSION JOINT**



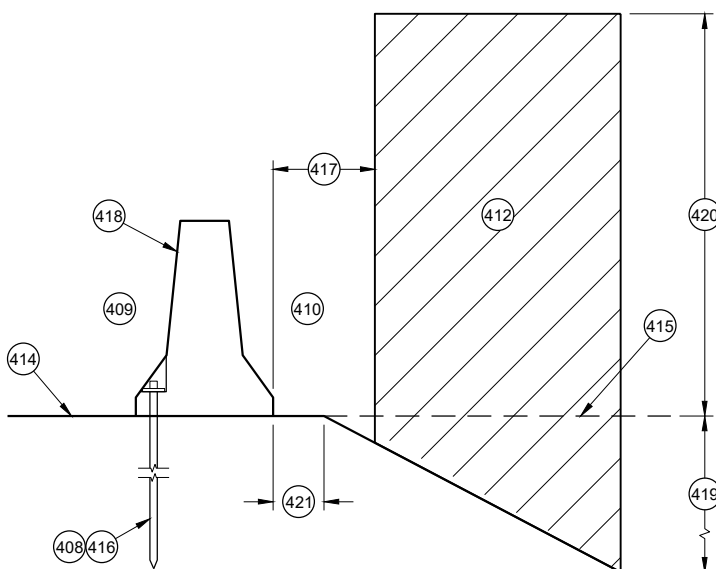
**CROSS SECTION**  
**FREE STANDING BARRIER**



**CROSS SECTION**  
**ANCHORED BARRIER FOR OBJECTS ABOVE  
THE GRADE LINE AND NEAR THE BARRIER**



**CROSS SECTION**  
**ANCHORED BARRIER NEAR VERTICAL DROP OFF**



**CROSS SECTION**  
**ANCHORED BARRIER NEAR A SLOPE**

### GENERAL NOTES

- (400) NO SINGLE CONCRETE BARRIER SECTION SHALL BE ANCHORED TO BOTH THE BRIDGE DECK AND THE APPROACH SLAB. ALL ANCHOR BOLT LOCATIONS SHALL BE ANCHORED TO THE DECK IN ACCORDANCE WITH THE DETAIL. NO MORE THAN ONE ANCHOR BOLT SHALL BE ELIMINATED FROM A BARRIER SECTION WHEN SPANNING AN EXPANSION JOINT.
- (401) CONCRETE DECK
- (402) CONCRETE DECK OR APPROACH SLAB.
- (403) EXPANSION JOINT
- (404) ADHESIVE ANCHOR SHOWN. SEE ANCHOR DETAILS.
- (405) ANCHORED TEMPORARY BARRIER
- (406) TRANSITION FROM ANCHORED TEMPORARY BARRIER TO FREE STANDING
- (407) FREE STANDING BARRIER
- (408) REMOVE ALL ANCHORS WHEN NO LONGER NEEDED. FILL CONCRETE PAVEMENTS, DECKS AND APPROACH SLABS WITH NON-SHRINK COMMERCIAL GROUT FROM THE APPROVED PRODUCT LIST. FILL ASPHALT PAVEMENTS WITH ASTM D6690 TYPE II RUBBERIZED CRACK FILLER.
- (409) TRAFFIC SIDE
- (410) NON-TRAFFIC SIDE
- (411) ANCHOR LOCATION. SEE ANCHORING DETAILS.
- (412) WORK AREA
- (413) AREA FREE OF OBJECTS AND WORKERS
- (414) GRADE LINE
- (415) EXTENDED GRADE LINE
- (416) ANCHORED TEMPORARY BARRIER. SEE BOLT THROUGH DECK, REMOVABLE ADHESIVE ANCHOR, OR AN ASPHALT ANCHOR ROD DETAILS FOR MORE INFORMATION. ASPHALT ANCHOR ROD SHOWN.
- (417) WHEN OBJECTS EXTEND ABOVE THE GRADE. A MINIMUM OF 1 FOOT IS REQUIRED FROM BACK OF BARRIER TO OBJECT.
- (418) OBJECTS ARE NOT TO BE PLACED ON, MOUNTED TO, OR ALLOWED TO LEAN AGAINST THE BARRIER WITHOUT WRITTEN PERMISSION OF THE PROJECT ENGINEER.
- (419) DEPTHS OF 3 FEET OR MORE.
- (420)  $Y = 6.5'$
- (421) OFFSET FROM BACK OF BARRIER EDGE:
 

|                   |      |
|-------------------|------|
| CONCRETE PAVEMENT | 0.5' |
| ASPHALT           | 0.5' |
- (422) POSTED SPEED (MPH):
 

|               |      |
|---------------|------|
| 45 OR GREATER | 4.0' |
| 40 OR LOWER   | 2.0' |

**CONCRETE BARRIER**  
**TEMPORARY PRECAST,**  
**12' - 6"**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

6

SDD 14B07-16m

BILL OF MATERIALS - CONCRETE BARRIER PRECAST

| PART | DESCRIPTION                          | MATERIALS SPECIFICATIONS                                                                                                                                                                                                                          | NOTES                   |
|------|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| A1   | PRECAST TEMPORARY BARRIER - CONCRETE | MIN. = f'c 5000 PSI                                                                                                                                                                                                                               |                         |
| B1   | REBAR                                | STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR                                                                                                                                                                                                      | #5 REBAR, LENGTH 12'-2" |
| B2   | REBAR                                | STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR                                                                                                                                                                                                      | #4 REBAR, LENGTH 12'-2" |
| B3   | REBAR                                | STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR                                                                                                                                                                                                      | #5 REBAR, LENGTH 12'-2" |
| B4   | REBAR                                | STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR                                                                                                                                                                                                      | #4 REBAR, LENGTH 6'-0"  |
| B5   | REBAR                                | STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR                                                                                                                                                                                                      | #6 REBAR, LENGTH 2'-11" |
| B6   | REBAR                                | STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR                                                                                                                                                                                                      | #4 REBAR, LENGTH 1'-11" |
| B7   | REBAR                                | STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR                                                                                                                                                                                                      | #4 REBAR, LENGTH 2'-2"  |
| B8   | REBAR                                | STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR                                                                                                                                                                                                      | #4 REBAR, LENGTH 2'-6"  |
| B9   | REBAR                                | STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR                                                                                                                                                                                                      | #4 REBAR, LENGTH 2'-9"  |
| B10  | REBAR                                | STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR                                                                                                                                                                                                      | #4 REBAR, LENGTH 3'-2"  |
| B11  | REBAR                                | STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR                                                                                                                                                                                                      | #4 REBAR, LENGTH 3'-4"  |
| B12  | REBAR                                | STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR                                                                                                                                                                                                      | #4 REBAR, LENGTH 12'-0" |
| B13  | REBAR                                | STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR                                                                                                                                                                                                      | #4 REBAR, LENGTH 7'-9"  |
| B14  | REBAR                                | STANDARD SPEC. 505.2 GRADE 60 UNCOATED REBAR                                                                                                                                                                                                      | #5 REBAR, LENGTH 11'-9" |
| C1   | LOOP BAR                             | ASTM A709 GRADE 70 SMOOTH BAR OR ASTM A706 GRADE 60 REBAR UNCOATED                                                                                                                                                                                | ¾" DIA.                 |
| C2   | LOOP BAR                             | ASTM A709 GRADE 70 SMOOTH BAR OR ASTM A706 GRADE 60 REBAR UNCOATED                                                                                                                                                                                | ¾" DIA.                 |
| C3   | LOOP BAR                             | ASTM A709 GRADE 70 SMOOTH BAR OR ASTM A706 GRADE 60 REBAR UNCOATED                                                                                                                                                                                | ¾" DIA.                 |
| D1   | CONNECTION PIN - ROD                 | ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI                                                                                    | 1 ¼" DIA.               |
| D2   | CONNECTION PIN - TOP PLATE           | ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI                                                                                    |                         |
| G1   | BOLT THROUGH ANCHOR - THREADED ROD   | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 A307 GRADE A OR SAE J429 GRADE 2 UNC                                                              | 1 ⅝" DIA.               |
| G2   | BOLT THROUGH ANCHOR - WASHER, SQUARE | ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI                                                                                    |                         |
| G3   | BOLT THROUGH ANCHOR - NUT            | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5 |                         |
| H1   | ADHESIVE ANCHOR - ADHESIVE           | ICC-ES-AC308 5 ¼" EMBEDMENT WITH A MIN. BOND STRENGTH OF 1,650 PSI. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.                                                                    |                         |
| H2   | ADHESIVE ANCHOR - THREADED ROD       | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 A307 GRADE A / SAE J429 GRADE 2 UNC                                                               | 1 ⅝" DIA.               |
| H3   | ADHESIVE ANCHOR - WASHER, SQUARE     | ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI                                                                                    |                         |
| H4   | ADHESIVE ANCHOR - NUT                | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5 |                         |
| J1   | ASPHALT ANCHOR PIN - ROD             | ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI                                                                                    | 1 ½" DIA.               |
| J2   | ASPHALT ANCHOR PIN - STOP PLATE      | ASTM A36 MIN. STRENGTH 36 KSI / ASTM A529 MAX. STRENGTH 50 KSI / ASTM A572 MAX STRENGTH 50 KSI / ASTM A709 MAX STRENGTH 50 KSI / ASTM A992 MAX STRENGTH 50 KSI                                                                                    |                         |
| K1   | THRIE BEAM RAIL                      | AASHTO M180 CLASS A TYPE 2 APPROVED PRODUCER                                                                                                                                                                                                      | 12 GAUGE                |
| L1   | THRIE BEAM RAIL - TERMINAL           | AASHTO M180 CLASS A TYPE 2 APPROVED PRODUCER                                                                                                                                                                                                      | 12 GAUGE                |

| PART | DESCRIPTION                                                | MATERIALS SPECIFICATIONS                                                                                                                                                                                                                                               | NOTES             |
|------|------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| M1   | SPLICE BOLT                                                | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 UNC AASHTO M180 HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36                                           | ⅝" DIA.           |
| M2   | SPLICE BOLT - NUT                                          | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5 |                   |
| N1   | THRIE BEAM RAIL TERMINAL - MECHANICAL ANCHOR               | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5 | ¾" DIA. LENGTH 6" |
| N2   | THRIE BEAM RAIL TERMINAL - WASHER                          | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 F436 TYPE 1                                                                                                            |                   |
| N3   | THRIE BEAM RAIL TERMINAL MECHANICAL OR ADHESIVE ANCHOR     | MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 17.9 KIPS AND ULTIMATE SHEAR LOAD 21.96 KIPS. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.                            |                   |
| P1   | THRIE BEAM RAIL CONNECTION 1-BOLT                          | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5 | ¾" DIA.           |
| P2   | THRIE BEAM RAIL CONNECTION 1-WASHER                        | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 F436 TYPE 1                                                                                                                 |                   |
| P3   | THRIE BEAM RAIL CONNETION 1- MECHANICAL OR ADHESIVE ANCHOR | MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 9.48 KIPS AND ULTIMATE SHEAR LOAD 10.48 KIPS. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.                            |                   |
| Q1   | BLOCK WOOD                                                 | SEE STANDARD SPEC. 614                                                                                                                                                                                                                                                 |                   |
| R1   | CAP - BOLT                                                 | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5 | ⅝" DIA.           |
| R2   | CAP- BOLT - WASHER                                         | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 F436 TYPE 1                                                                                                                 |                   |
| R3   | CAP - BOLT - MECHANICAL ANCHOR                             | MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS ULTIMATE TENSILE LOAD 12.14 KIPS AND ULTIMATE SHEAR LOAD 17.5 KIPS.SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.                              | 12 GAUGE          |
| S1   | CAP 42-INCH TOP PLATE                                      | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI                                                                      | 12 GAUGE          |
| S2   | CAP 42-INCH END PLATE                                      | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI                                                                      | 12 GAUGE          |
| S3   | CAP 42-INCH SIDE PLATE                                     | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI                                                                      | 12 GAUGE          |
| S4   | CAP 42-INCH GUSSET 1                                       | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI                                                                      | 12 GAUGE          |
| S5   | CAP 42-INCH GUSSET 2                                       | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI                                                                      | 12 GAUGE          |
| S6   | CAP 42-INCH GUSSET 3                                       | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI                                                                      | 12 GAUGE          |
| S7   | CAP 42-INCH GUSSET 4                                       | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI                                                                      | 12 GAUGE          |

6

SDD 14B07-16m

CONCRETE BARRIER  
TEMPORARY PRECAST,  
12' - 6"

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

BILL OF MATERIALS - CONCRETE BARRIER PRECAST

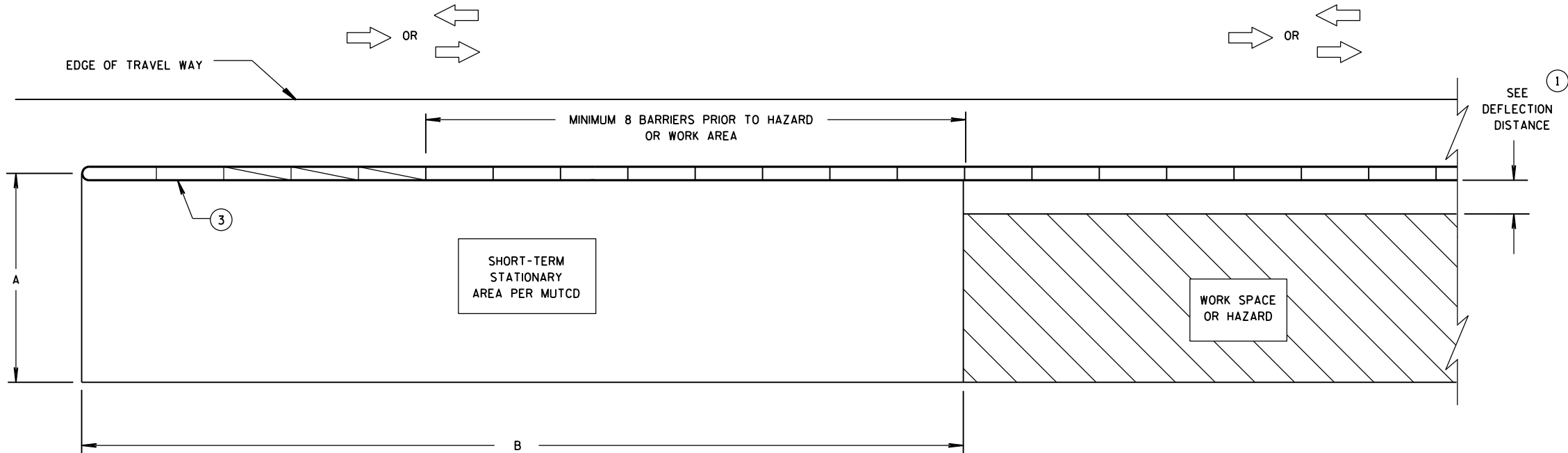
| PART | DESCRIPTION                          | MATERIALS SPECIFICATIONS                                                                                                                                                                          | NOTES    |
|------|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| T1   | CAP 56-INCH TOP PLATE                | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI | 12 GAUGE |
| T2   | CAP 56-INCH END PLATE                | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI | 12 GAUGE |
| T3   | CAP 56-INCH SIDE PLATE 1             | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI | 12 GAUGE |
| T4   | CAP 56-INCH SIDE PLATE 2             | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI | 12 GAUGE |
| T5   | CAP 56-INCH GUSSET 1                 | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI | 12 GAUGE |
| T6   | CAP 56-INCH GUSSET 2                 | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI | 12 GAUGE |
| T7   | CAP 56-INCH GUSSET 3                 | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI | 12 GAUGE |
| T8   | CAP 42-INCH GUSSET 4                 | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI | 12 GAUGE |
| T9   | CAP 42-INCH GUSSET 5                 | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI | 12 GAUGE |
| T10  | CAP 42-INCH GUSSET 6                 | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI | 12 GAUGE |
| T11  | CAP 42-INCH GUSSET 7                 | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI | 12 GAUGE |
| T12  | CAP 42-INCH GUSSET 8                 | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI | 12 GAUGE |
| T13  | CAP 42-INCH GUSSET 9                 | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI | 12 GAUGE |
| T14  | CAP 42-INCH GUSSET 10                | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI | 12 GAUGE |
| T15  | CAP 42-INCH GUSSET 11                | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI | 12 GAUGE |
| T16  | CAP 42-INCH GUSSET 12                | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI | 12 GAUGE |
| U1   | GAP STIFFENER                        | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI |          |
| U2   | GAP STIFFENER<br>- CONNECTOR PLATE 1 | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI |          |
| U3   | GAP STIFFENER<br>- CONNECTOR PLATE 2 | AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI |          |

| PART | DESCRIPTION                                                  | MATERIALS SPECIFICATIONS                                                                                                                                                                                                                                                                                                                                                                       | NOTES   |
|------|--------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| V1   | THRIE BEAM RAIL TERMINAL<br>MECHANICAL OR ADHESIVE<br>ANCHOR | MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS ULTIMATE TENSILE LOAD 24.0 KIPS AND ULTIMATE SHEAR LOAD 21.5 KIPS. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.                                                                                                                                                      | ¾" DIA. |
| V2   | GAP STIFFENER - BOLT - NUT                                   | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C O R MECHANICAL GALVANIZE TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5                                                                                                                                        |         |
| W1   | TOE PLATE                                                    | AASHTO M111/ASTM A123 ASTM A36 MIN STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX. STRENGTH 50 KSI, OR ASTM A709 MAX. STRENGTH 50 KSI, OR ASTM A992 MAX. STRENGTH 50 KSI                                                                                                                                                                                                 |         |
| X1   | TOE PLATE<br>- CONNECTION BOLT                               | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 UNC HEAVY HEX HEAD OR AASTHO M180 HEAD, ASTM F3125 GRADE A325 TYPE 1 HEAVY HEX HEAD OR SAE J429 GRADE 5 HEAVY HEX HEAD / ASTM A449 TYPE 1 HEAVY HEX HEAD. BOLTS MAY BE FULLY THREADED. PROVIDE ENOUGH THREADING FOR PROPER TIGHTENING OF BOLT. | ¾" DIA. |
| X2   | TOE PLATE<br>- CONNECTION BOLT - WASHER                      | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 TYPE 2 F436 TYPE 1 (HARDEN WASHER ONLY)                                                                                                                                                                                                               |         |
| X3   | TOE PLATE -<br>CONNECTION BOLT - NUT                         | HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GALVANIZE TO AASHTO M298 CLASS 55 TYPE 2 / ASTM B695 CLASS 55 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5                                                                                                                                              |         |

CONCRETE BARRIER  
TEMPORARY PRECAST,  
12' - 6"

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
February 2023  
DATE /S/ Rodney Taylor  
ROADWAY STANDARDS DEVELOPMENT  
ENGINEER  
FHWA



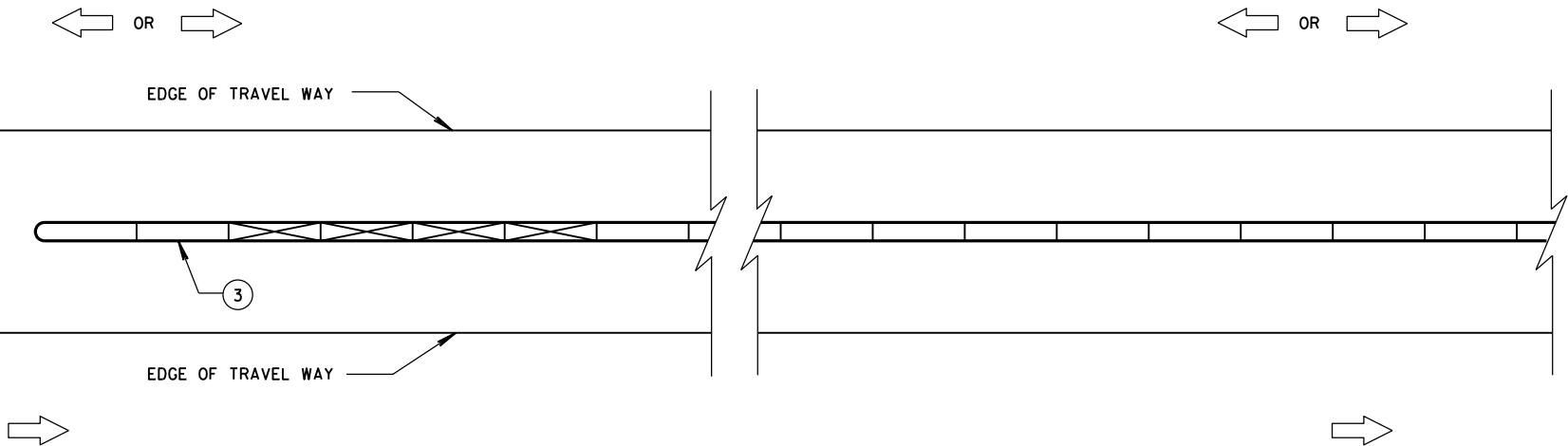
CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER  
INSTALLATION FOR TRAFFIC ON ONE SIDE OF BARRIER

DIMENSION A TABLE ②

| FACILITY               | POSTED SPEED<br>MPH            | DIMENSION A |            |
|------------------------|--------------------------------|-------------|------------|
|                        |                                | MIN.<br>FT  | MAX.<br>FT |
| FREEWAY/EXPRESSWAY     | ALL                            | 15          | 20         |
| NON-FREEWAY/EXPRESSWAY | GREATER THAN<br>OR EQUAL TO 45 | 10          | 15         |
| NON-FREEWAY/EXPRESSWAY | LESS THAN 45                   | 8           | 10         |
| AADT LESS THAN 1,500   | ALL                            | 8           | 10         |

DIMENSION B TABLE ②

| POSTED SPEEDS<br>MPH | DIMENSION B<br>FT |
|----------------------|-------------------|
| 20                   | 115               |
| 25                   | 155               |
| 30                   | 200               |
| 35                   | 250               |
| 40                   | 305               |
| 45                   | 360               |
| 50                   | 425               |
| 55                   | 495               |
| 60                   | 570               |
| 65                   | 645               |



CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER  
INSTALLATION FOR TRAFFIC ON BOTH SIDES OF BARRIER

LEGEND

- DIRECTION OF TRAVEL →
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

GENERAL NOTES

SEE STANDARD DETAIL DRAWING 14B7 FOR MORE INFORMATION.

DETAILS PROVIDE A GENERAL LAYOUT OF TEMPORARY CONCRETE BARRIER, CRASH CUSHIONS, SAND BARREL ARRAYS AND TIE DOWN TRANSITIONS. DETAILS PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.

ADDITIONAL TEMPORARY BARRIER MAY BE REQUIRED TO PROTECT TRAVELING PUBLIC FROM HAZARDS, CONTRACTOR'S OPERATIONS OR TO CONTROL TRAFFIC.

TEMPORARY BARRIER MAY BE REQUIRED TO BE ANCHORED TO PAVEMENT OR BRIDGE DECK.

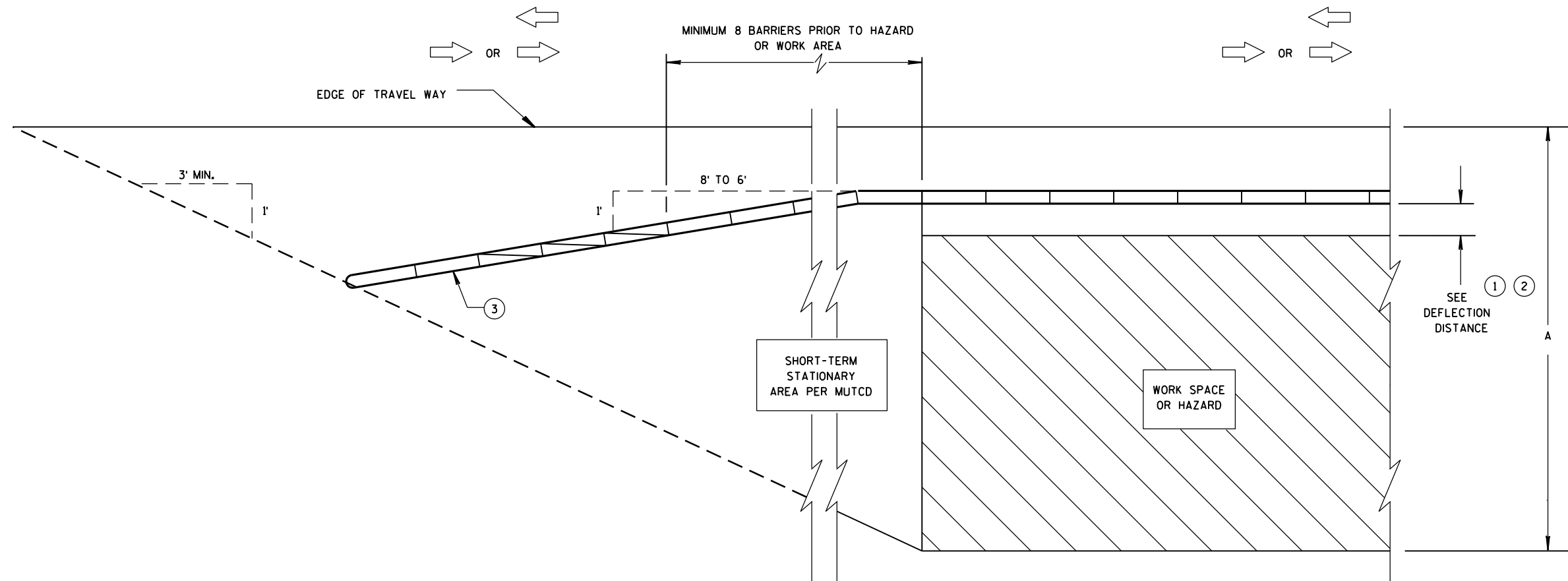
FOR DETAILS ON CRASH CUSHION OR SAND BARREL ARRAYS SEE OTHER SECTIONS OF THE PLAN AND MANUFACTURE'S DETAILS.

SLOPES LEADING TO TEMPORARY BARRIER, CRASH CUSHION OR SAND BARREL ARRAY ARE 10:1 OR LESS.

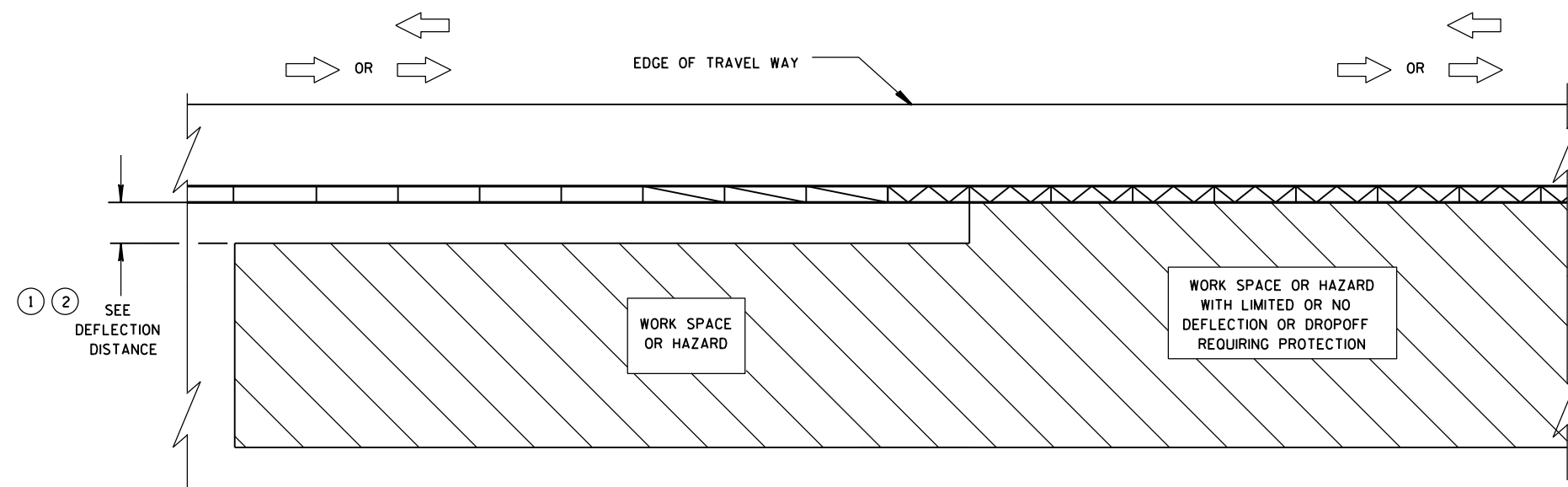
- ① FOR DEFLECTION INFORMATION SEE STANDARD DETAIL DRAWING 14B7.
- ② VALUES PROVIDED MAY NOT FIT ALL POSSIBLE SITUATIONS OR SITE CONDITIONS. SEE OTHER SECTIONS OF THE CONTRACT OR PROJECT ENGINEER FOR MORE DETAILS.
- ③ ANCHOR TEMPORARY BARRIER ACCORDING TO CRASH CUSHION OR SAND BARREL MANUFACTURER'S RECOMMENDATIONS. IF MANUFACTURER'S RECOMMENDATIONS ARE NOT PROVIDED, ANCHOR 3 PINS ON TRAFFIC SIDE.

CRASH CUSHION/SAND BARREL  
ARRAY AND OTHER TEMPORARY  
BARRIER LAYOUT DETAILS

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



**CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER  
INSTALLATION FOR TRAFFIC ON ONE SIDE - FLARED INSTALLATION**



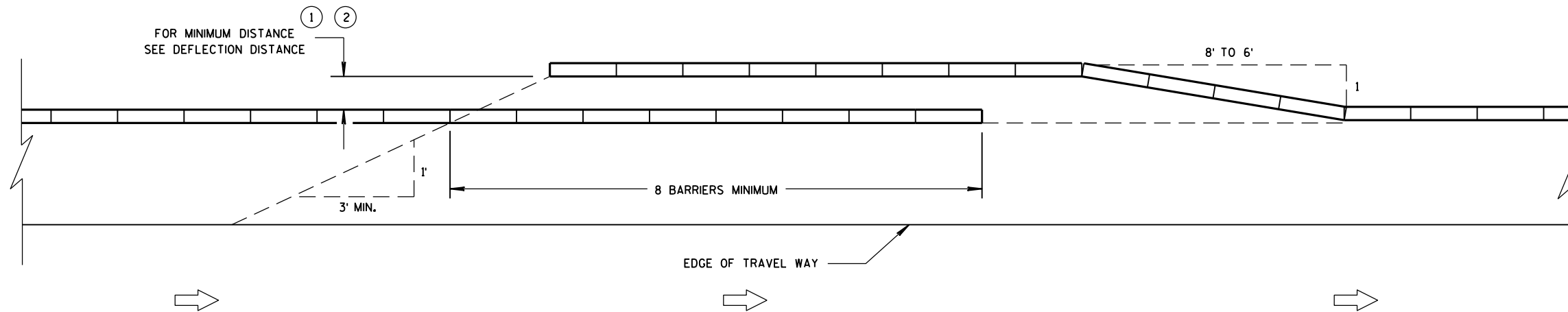
**TRANSITION FROM FREE STANDING TEMPORARY BARRIER  
TO ANCHORED BARRIER**

**LEGEND**

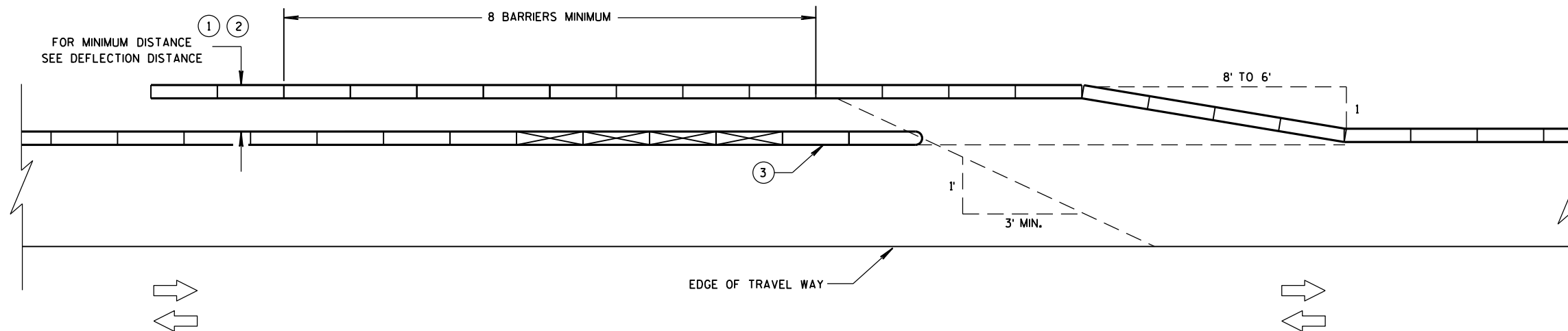
|                                                           |  |
|-----------------------------------------------------------|--|
| DIRECTION OF TRAVEL                                       |  |
| CRASH CUSHION OR SAND BARREL ARRAY                        |  |
| SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS  |  |
| SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS |  |
| 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER                  |  |
| PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET            |  |
| FREE STANDING TEMPORARY BARRIER                           |  |

**CRASH CUSHION/SAND BARREL  
ARRAY AND OTHER TEMPORARY  
BARRIER LAYOUT DETAILS**

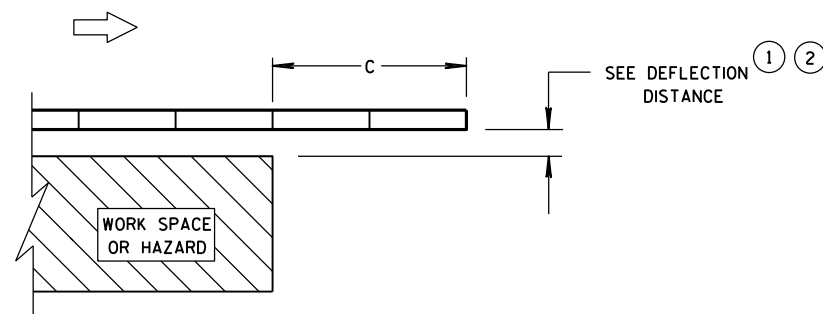
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



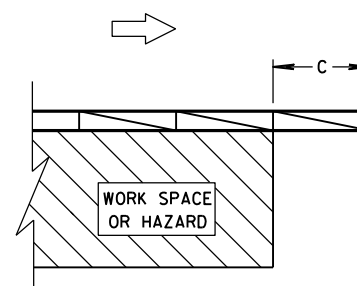
**TEMPORARY BARRIER OVERLAP - ONE-WAY TRAFFIC**



**TEMPORARY BARRIER OVERLAP - TWO-WAY TRAFFIC**



**ENDING TEMPORARY BARRIER  
DOWNSTREAM - UNANCHORED**



**ENDING TEMPORARY BARRIER  
DOWNSTREAM - ANCHORED**

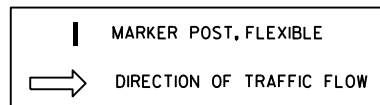
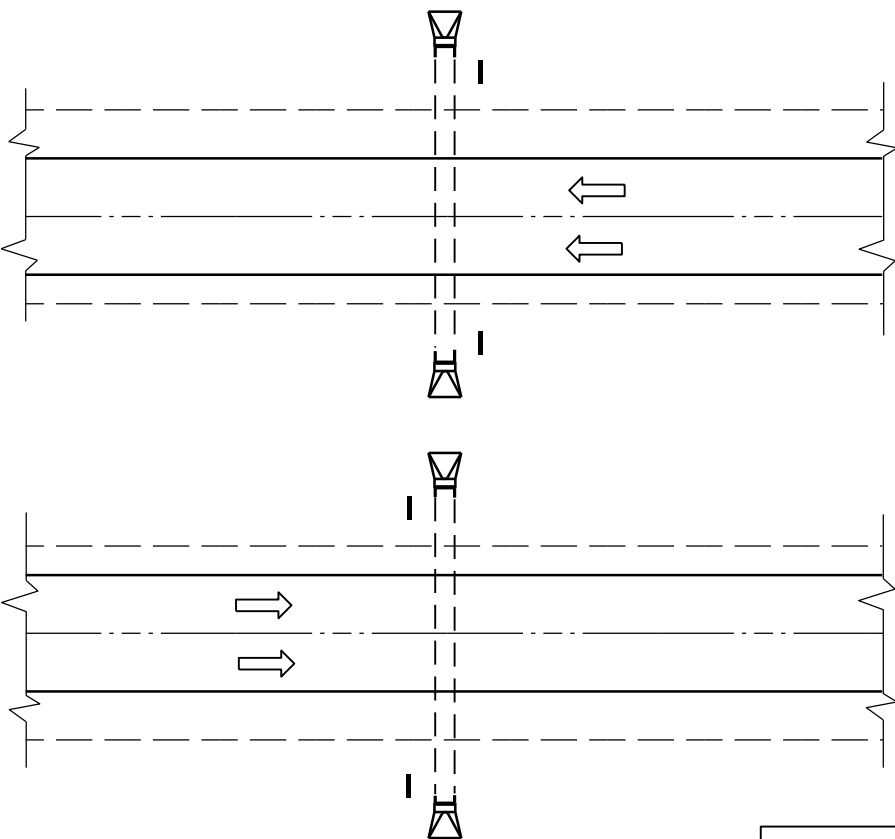
**LEGEND**

|                                                              |  |
|--------------------------------------------------------------|--|
| DIRECTION OF TRAVEL                                          |  |
| CRASH CUSHION OR<br>SAND BARREL ARRAY                        |  |
| SEE FREE STANDING TRANSITION<br>TO TIED-DOWN SYSTEM DETAILS  |  |
| SEE BI-DIRECTIONAL TRANSITION<br>TO TIED-DOWN SYSTEM DETAILS |  |
| 3 PINS PLACED ON<br>TRAFFIC SIDE OF BARRIER                  |  |
| PERMANENT CONCRETE BARRIER<br>OR CONCRETE PARAPET            |  |
| FREE STANDING TEMPORARY<br>BARRIER                           |  |

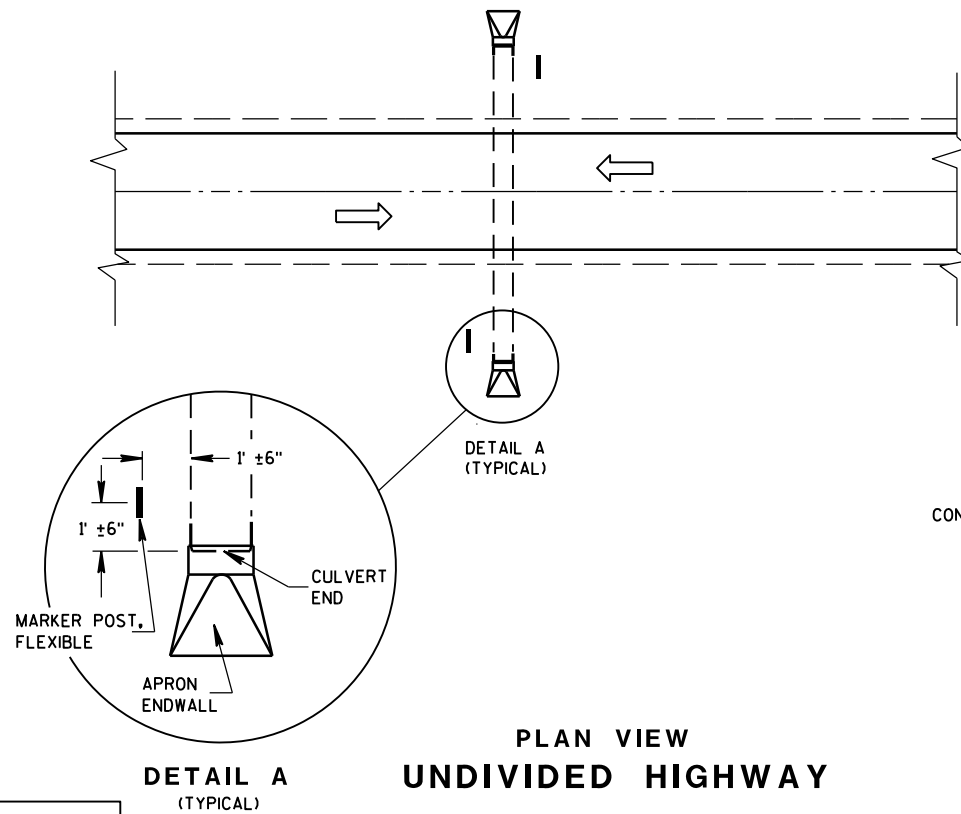
**CRASH CUSHION/SAND BARREL  
ARRAY AND OTHER TEMPORARY  
BARRIER LAYOUT DETAILS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

PLAN VIEW  
DIVIDED HIGHWAY

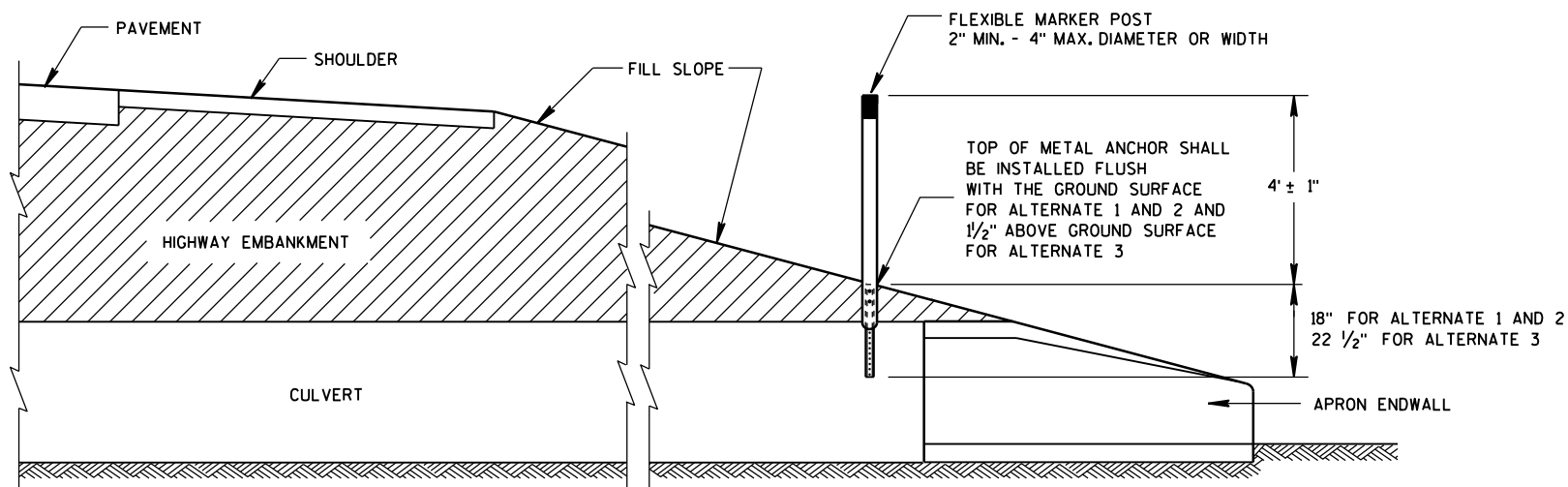


PLAN VIEW  
UNDIVIDED HIGHWAY



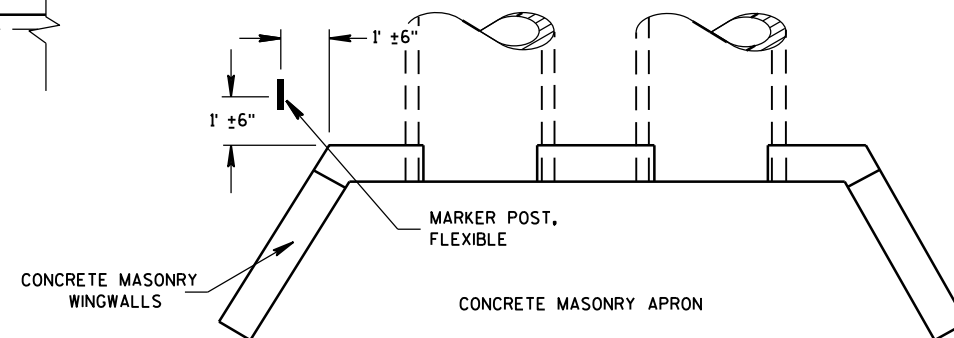
### FLEXIBLE MARKER POST LOCATION

CROSS SECTION  
FLEXIBLE MARKER POST



### GENERAL NOTES

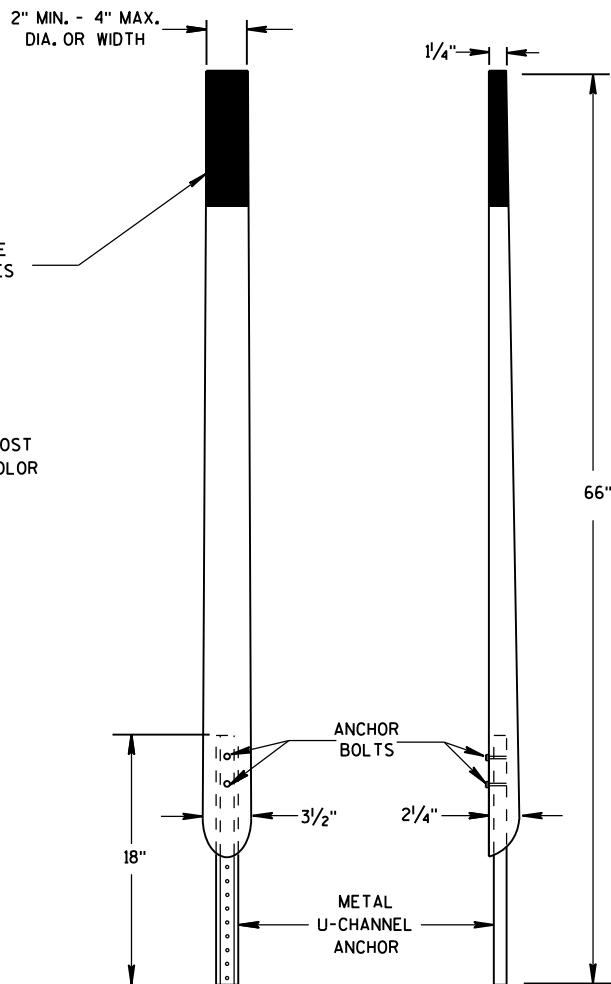
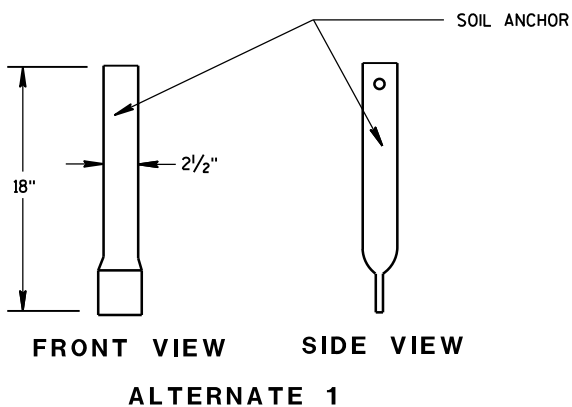
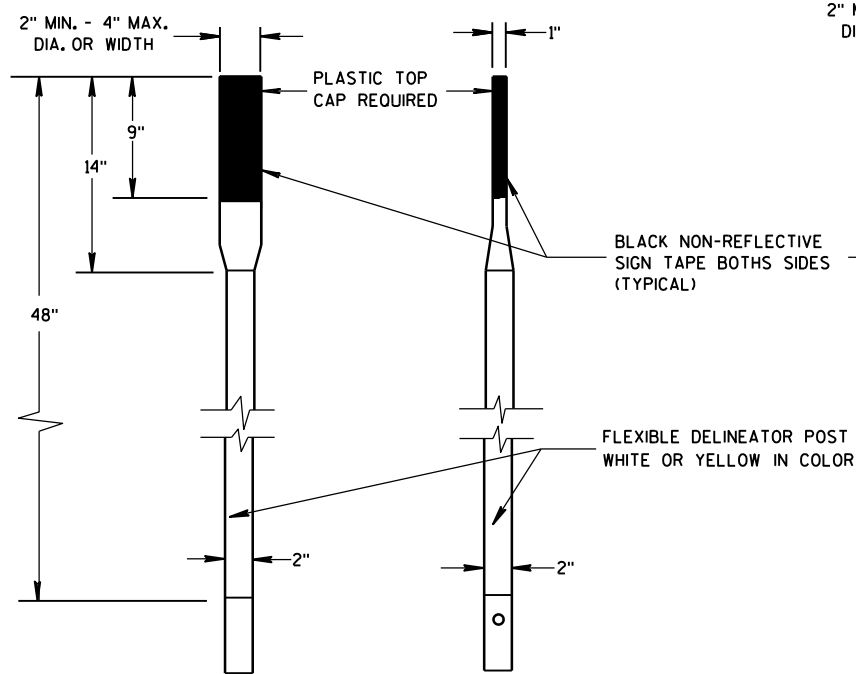
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.



PLAN VIEW  
CONCRETE MASONRY ENDWALLS FOR  
CULVERT PIPE AND PIPE ARCH

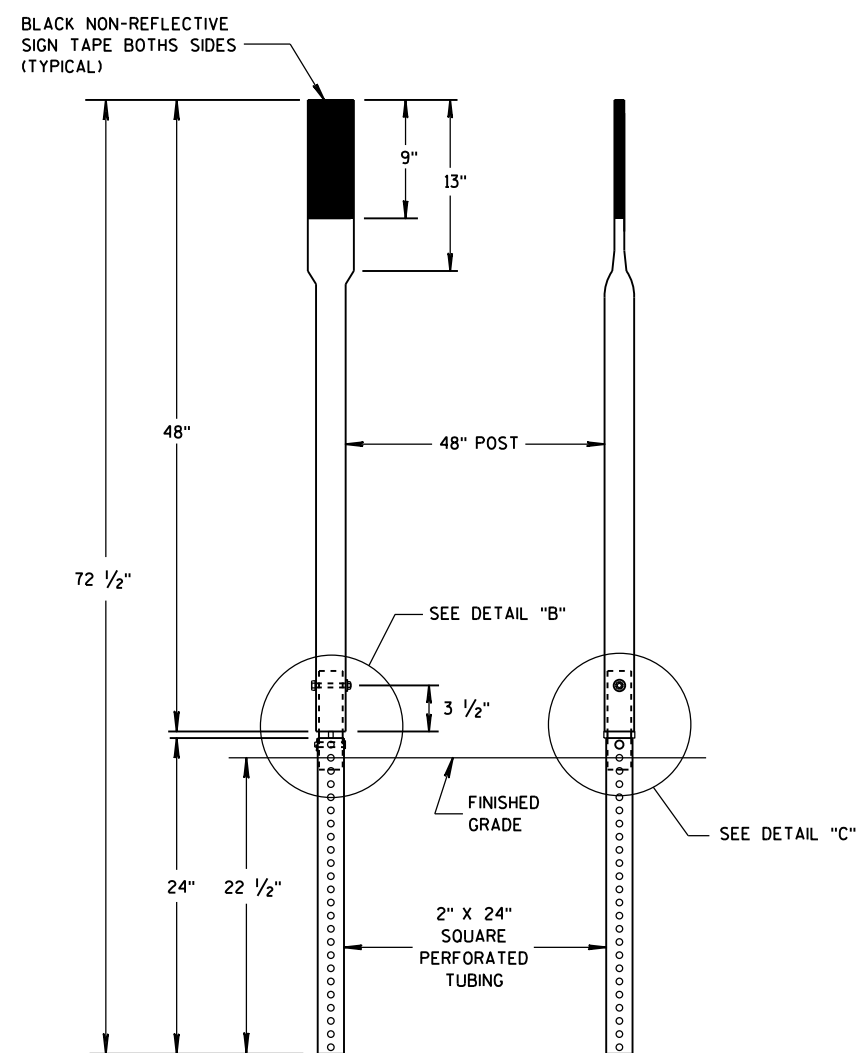
FLEXIBLE MARKER POST  
FOR CULVERT END

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

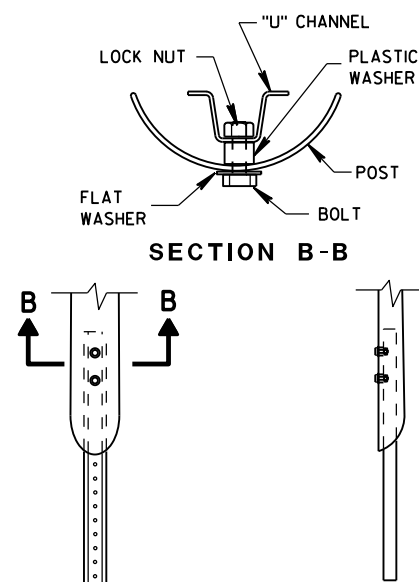
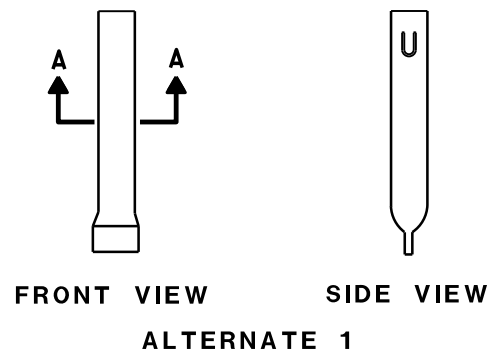
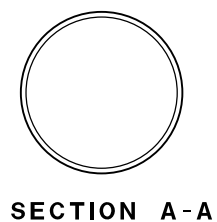
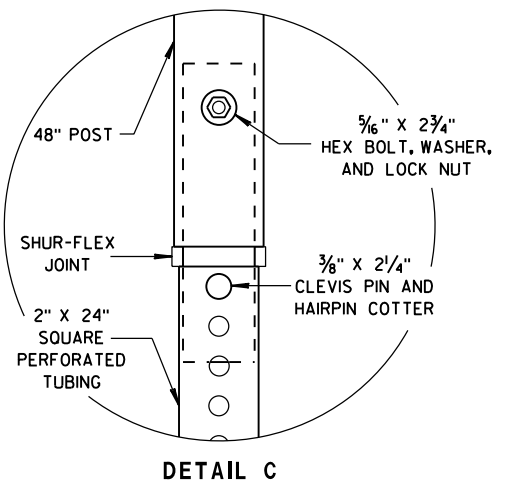
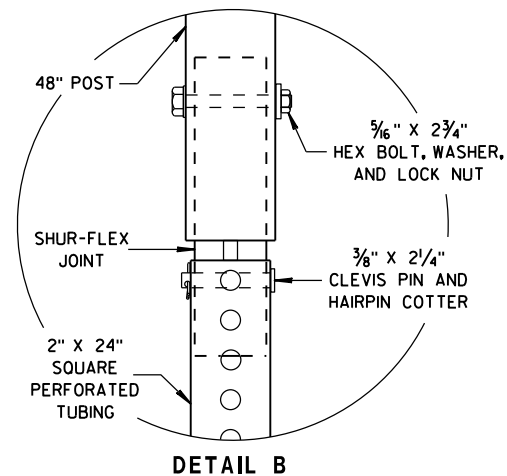
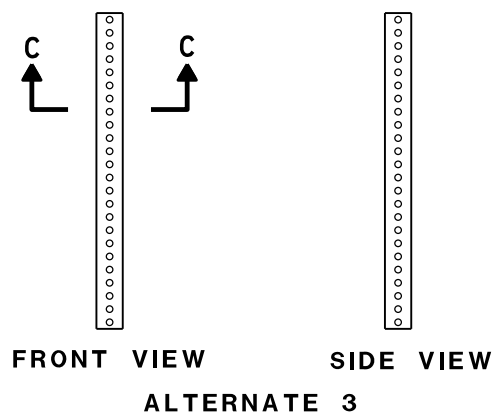
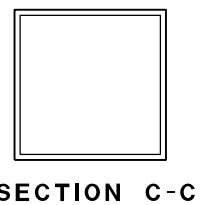


FRONT VIEW SIDE VIEW  
ALTERNATE 2

FLEXIBLE MARKER POSTS



FRONT VIEW SIDE VIEW  
ALTERNATE 3



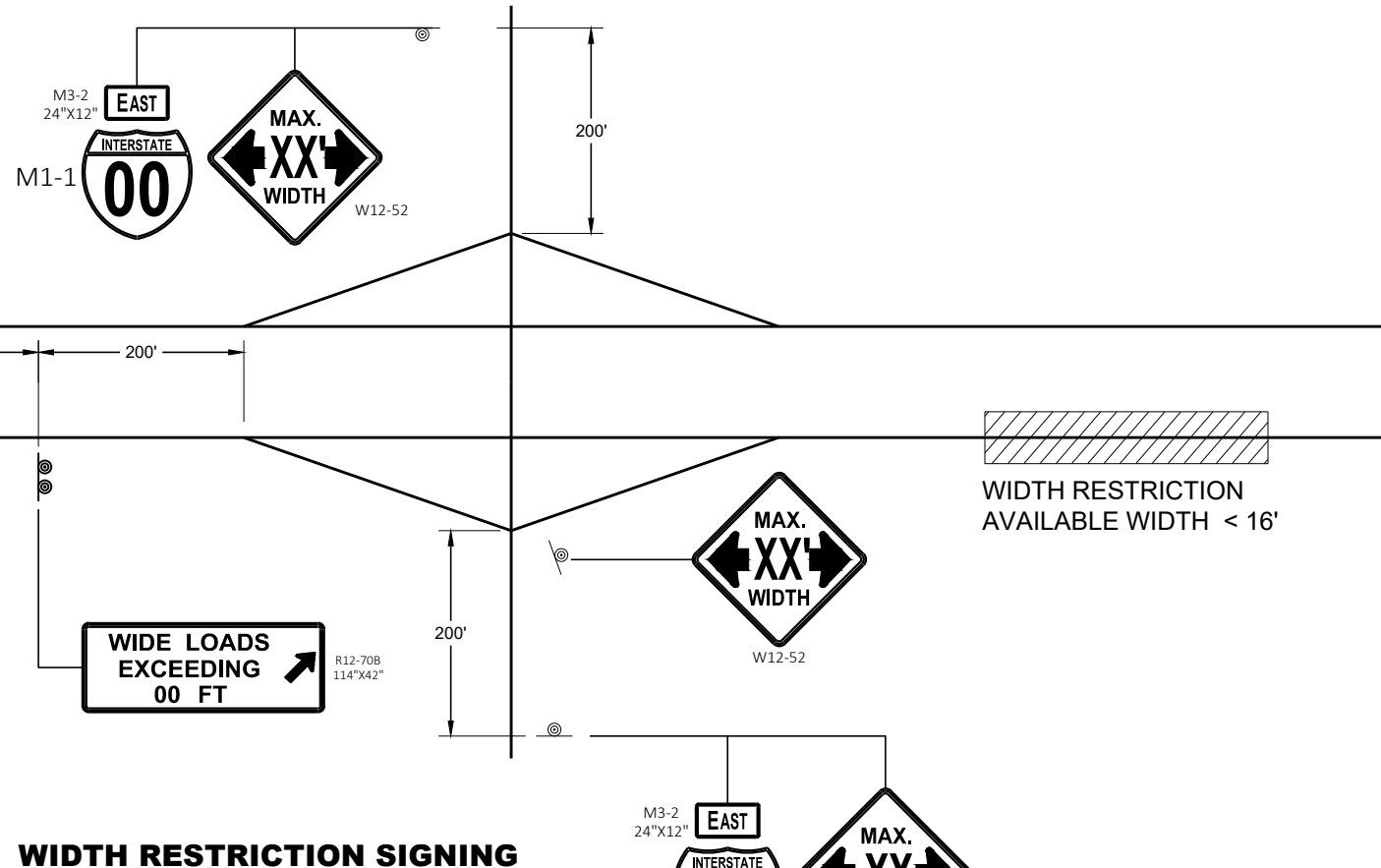
FRONT VIEW SIDE VIEW  
ALTERNATE 2

FLEXIBLE MARKER POST ANCHORS

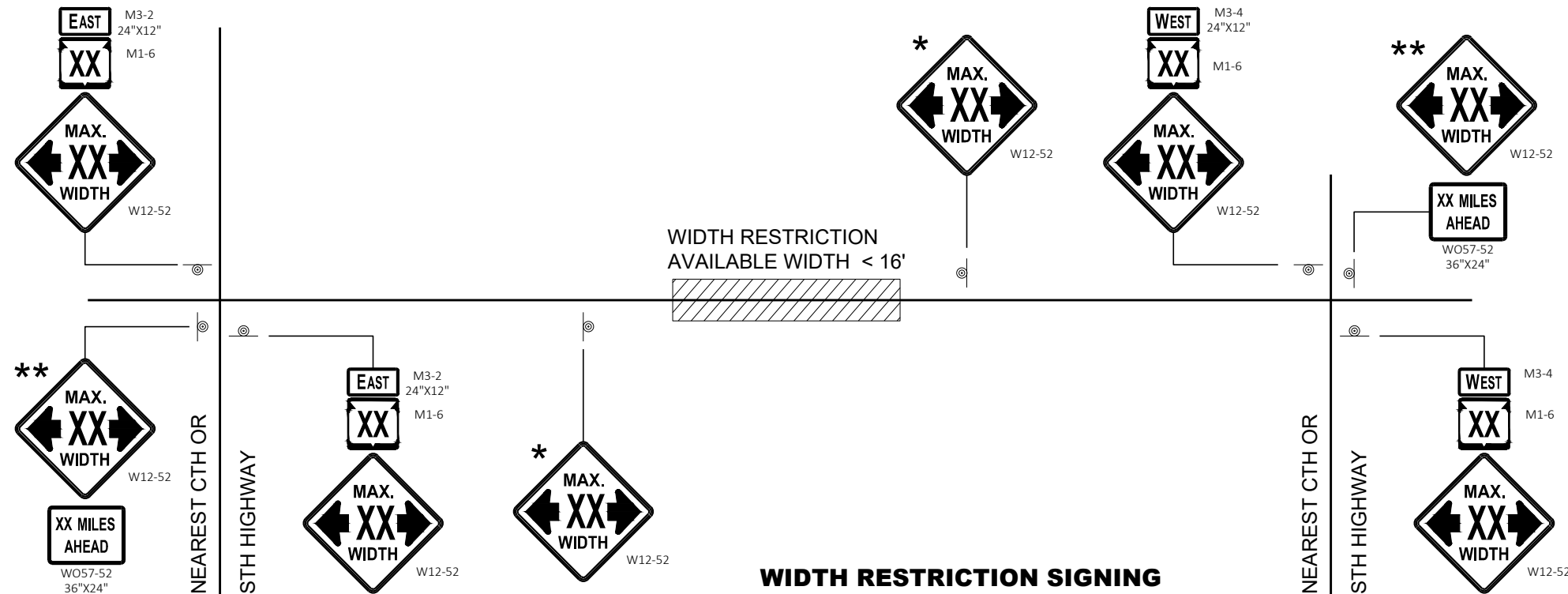
FLEXIBLE MARKER POST  
FOR CULVERT END

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
10/1/2012 /S/ Travis Feltes  
DATE STATE TRAFFIC ENGINEER OF DESIGN  
FHWA



WIDTH RESTRICTION SIGNING



WIDTH RESTRICTION SIGNING  
2 LANE HIGHWAY

LEGEND

⊙ SIGN ON PERMANENT SUPPORT

GENERAL NOTES

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

WIDTH ON SIGN TO BE APPROXIMATELY ONE FOOT LESS THAN AVAILABLE WIDTH.

- \* PLACE 500 FEET AFTER THE W20 - 1A AND 500 FEET BEFORE ADDITIONAL SIGNS FOR ROADWAYS WITH A PRE - CONSTRUCTION SPEED LIMIT OF 45 MPH OR MORE. FOR 35-40 MPH, USE 350 FOOT TYPICAL SPACING. FOR 25-30 MPH, USE 200 FOOT TYPICAL SPACING.
- \*\* SIGN SHALL BE VISIBLE FROM ROADWAY.
- \*\*\* ADDITIONAL SIGNS NEEDED IF THERE IS AN ON RAMP BETWEEN SIGNS.



WIDTH ON SIGN TO BE APPROX. 1 - FOOT LESS THAN AVAILABLE WIDTH

ADVANCED WIDTH  
RESTRICTION SIGNING

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
May 2023  
DATE  
/S/ Andrew Heidtke  
WORK ZONE ENGINEER

FHWA

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

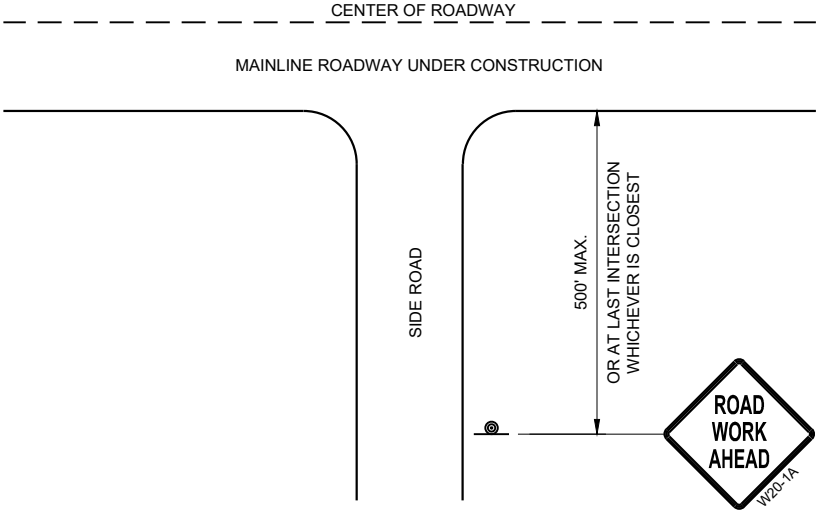
SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

IF A "STOP" SIGN MUST BE REMOVED FOR A WORK OPERATION, A TEMPORARY "STOP" SIGN SHALL BE PLACED PRIOR TO THE SIGN REMOVAL, OR A FLAGGER SHALL BE PROVIDED UNTIL THE SIGN IS REESTABLISHED.

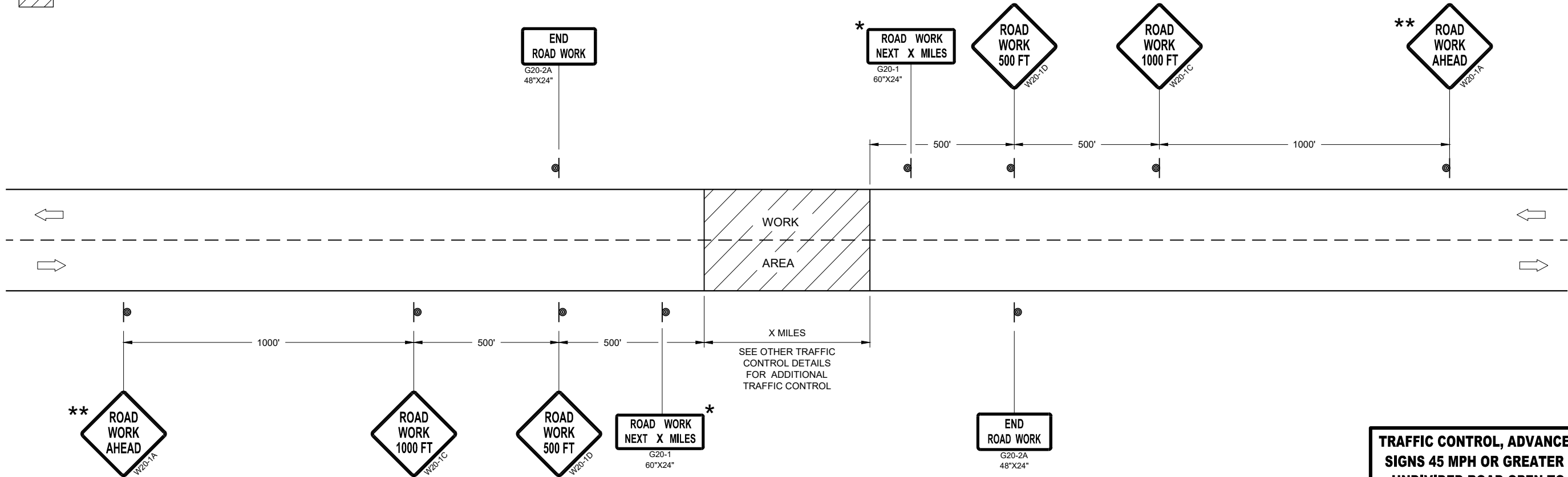
- \* OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS
- \*\* PLACE AN ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  DIRECTION OF TRAFFIC
-  WORK AREA



TYPICAL SIDE ROAD APPROACH  
WARNING SIGN DETAIL

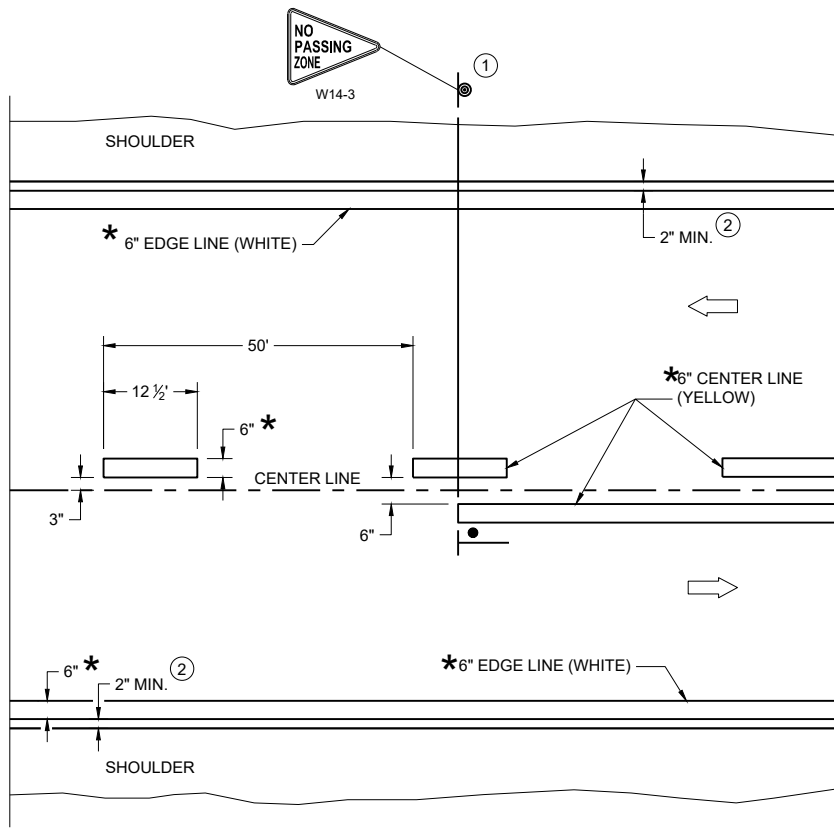


TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45MPH OR GREATER

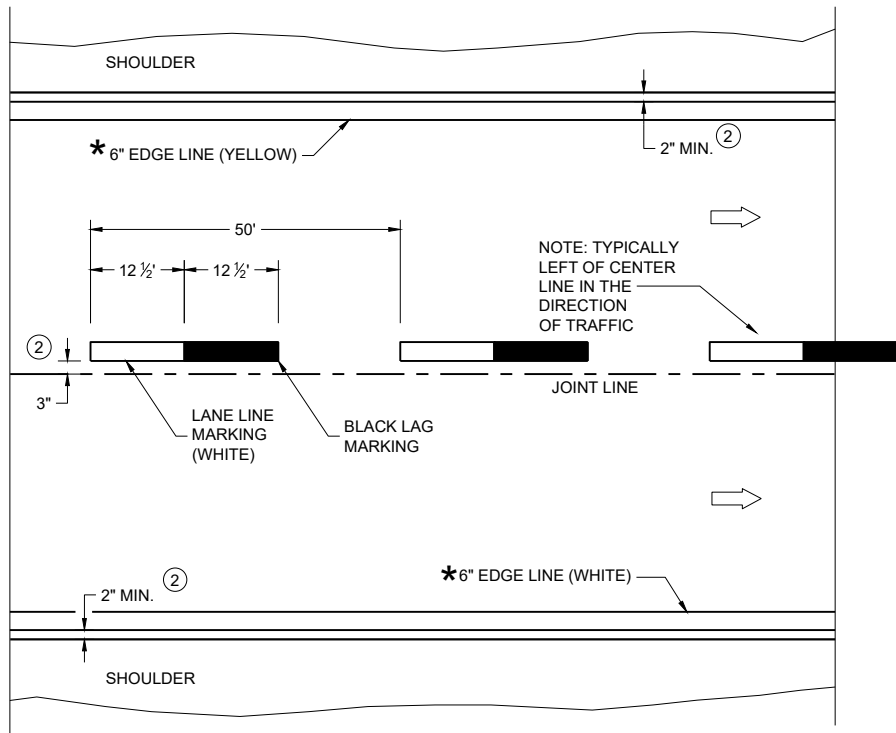
TRAFFIC CONTROL, ADVANCE WARNING  
SIGNS 45 MPH OR GREATER TWO-WAY  
UNDIVIDED ROAD OPEN TO TRAFFIC

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
July 2018 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER  
FHWA



TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING

\* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

- ① LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING
- ② MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

LEGEND

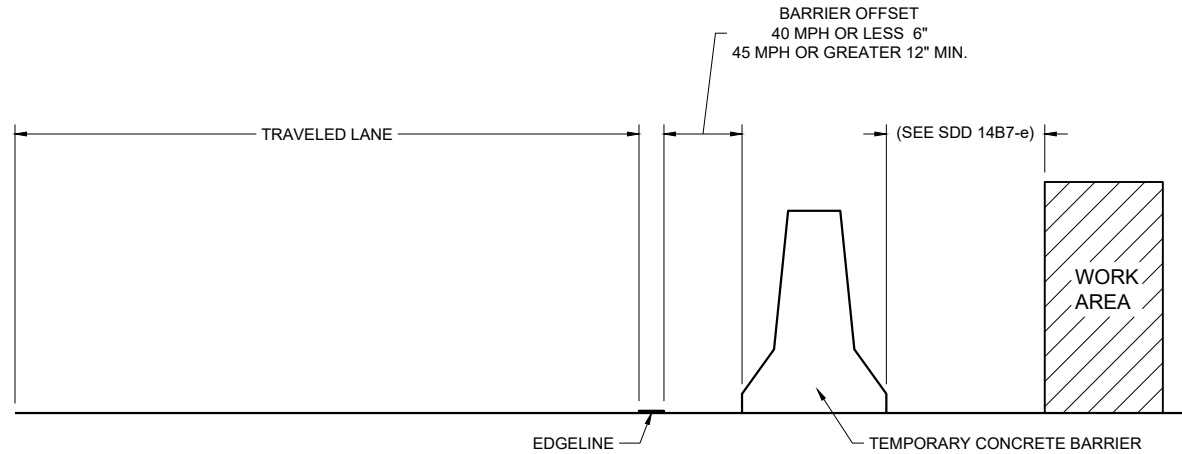
- "T" MARKING
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC

PERMANENT LONGITUDINAL PAVEMENT MARKINGS

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
May 2023 /S/ Jeannie Silver  
DATE Statewide Pavement Marking Engineer

FHWA



TEMPORARY BARRIER OFFSET FROM EDGE LINE

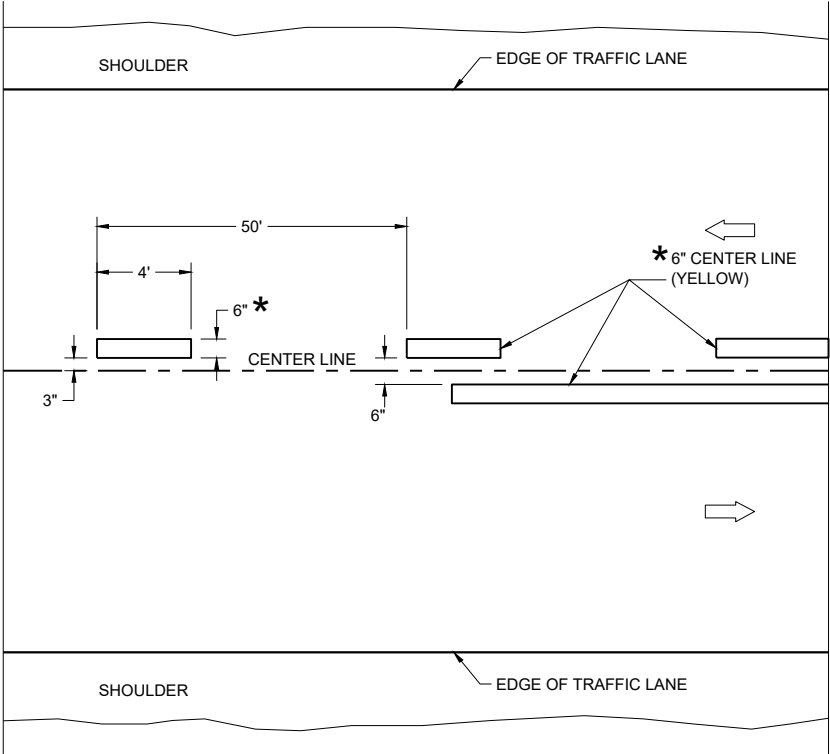
GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

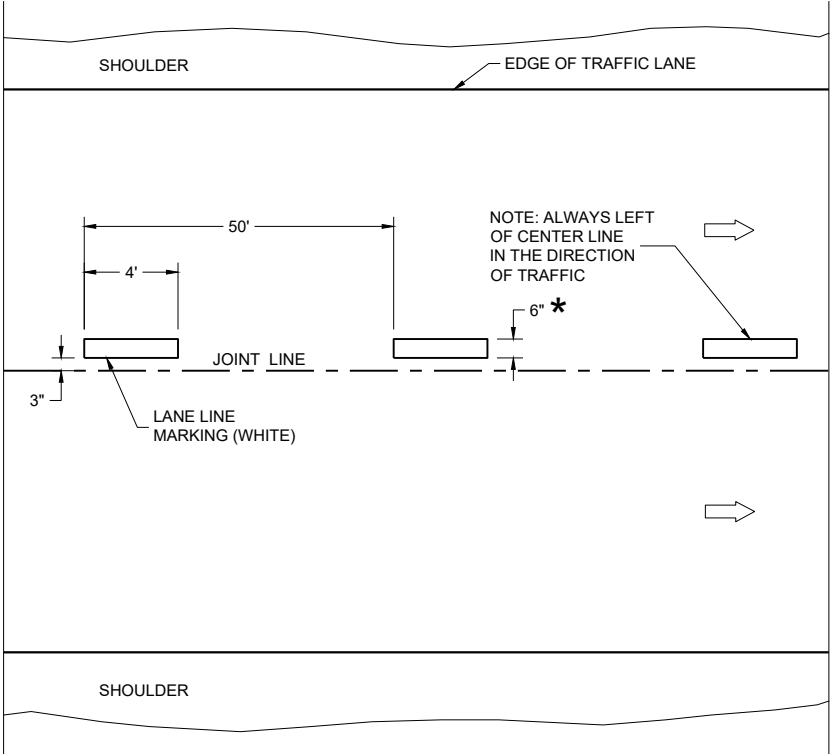
LEGEND

DIRECTION OF TRAFFIC

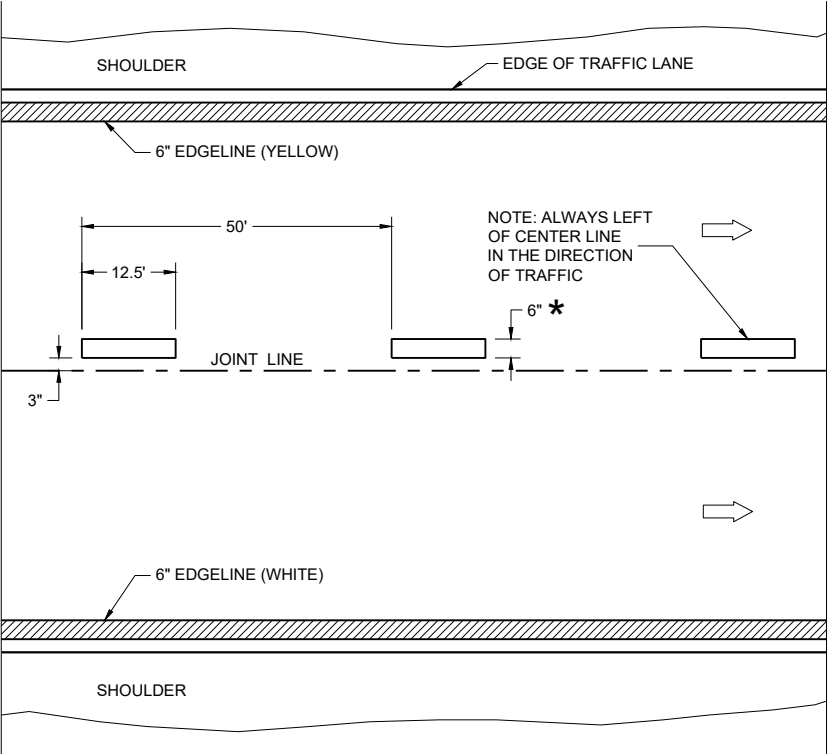
\* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES



TWO WAY TRAFFIC



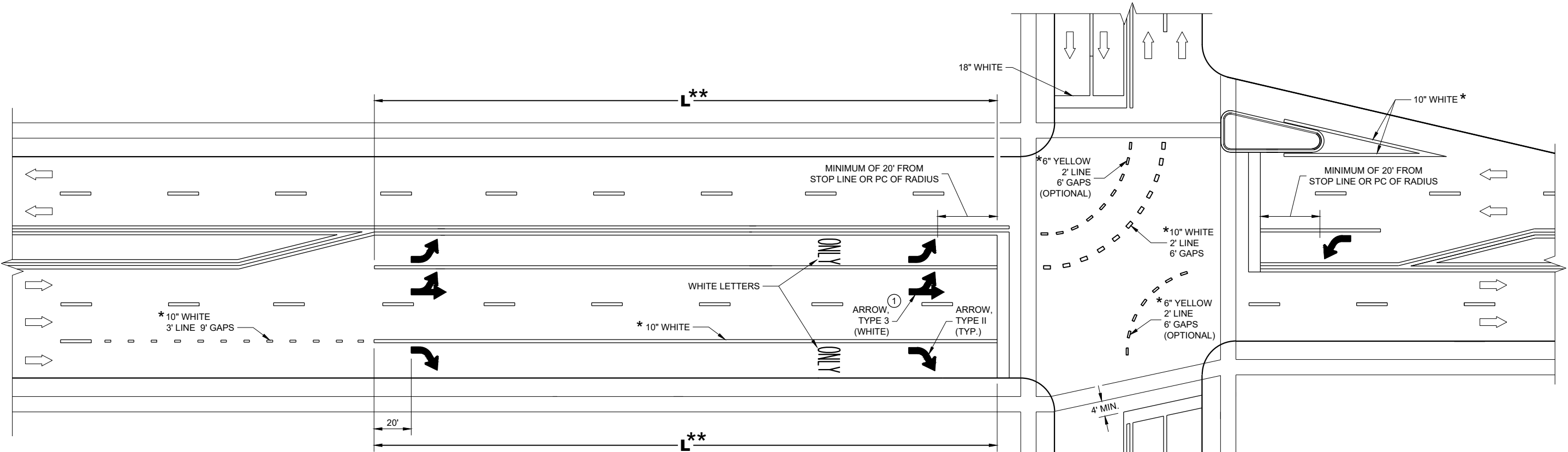
ONE WAY TRAFFIC



FREEWAYS AND EXPRESSWAYS

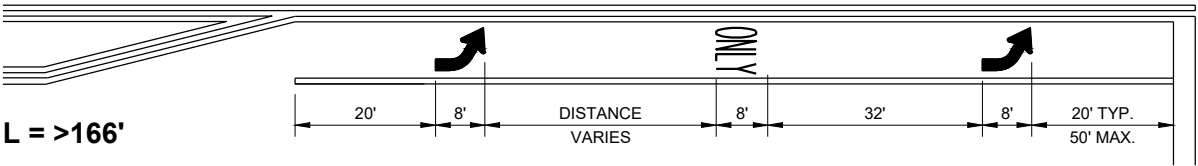
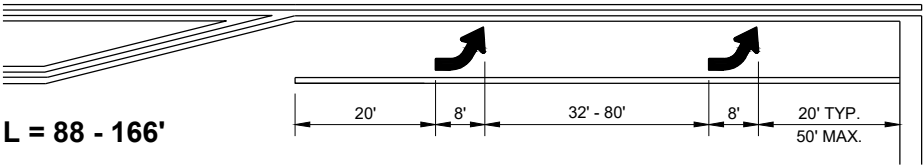
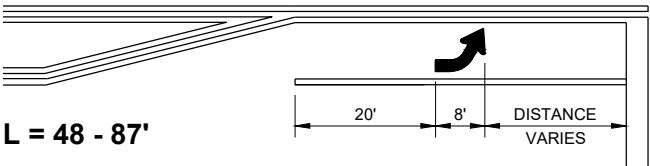
TEMPORARY PAVEMENT MARKING

| TEMPORARY LONGITUDINAL PAVEMENT MARKING            |                                                           |
|----------------------------------------------------|-----------------------------------------------------------|
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION |                                                           |
| APPROVED<br>May 2023<br>DATE                       | /S/ Jeannie Silver<br>Statewide Pavement Marking Engineer |
| FHWA                                               |                                                           |



TURN LANE OPTIONS

LENGTH OF TURN BAY ( **L** ) OF 0 - 47' DOES NOT REQUIRE PAVEMENT MARKING ARROWS OR WORDS



\*\* (SEE TURN LANE OPTIONS FOR PLACEMENT OF PAVEMENT MARKING ARROWS AND WORDS)

GENERAL NOTES

① QUANTITY AND LOCATION OF TYPE 3 ARROWS ARE THE SAME AS THE TYPE II ARROWS IN THE ADJACENT TURN LANE. FOR TURN LANES WITH A PHYSICAL SEPARATION IN THE SAME DIRECTION OF TRAVEL, THE ARROWS AND "ONLY" MARKING MAY BE ELIMINATED.

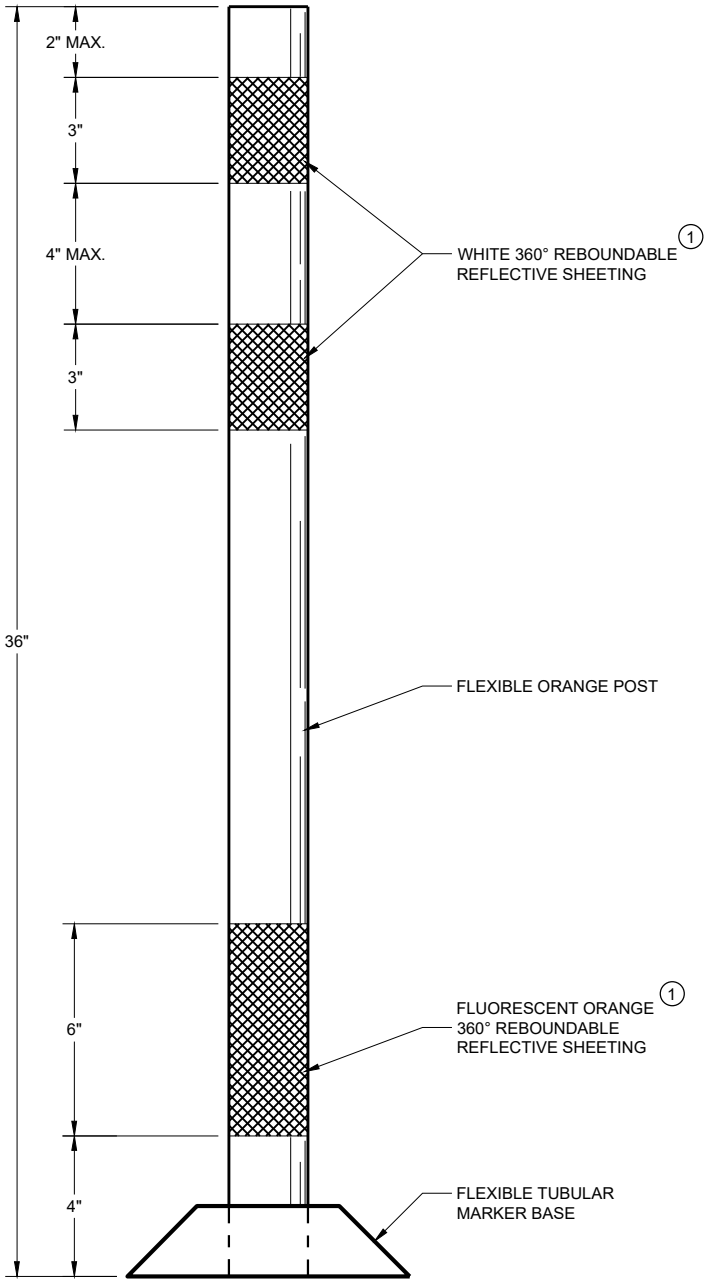
➡ DIRECTION OF TRAFFIC

**L** = LENGTH OF TURN BAY

\* CONFIRM MARKING LINE WIDTH WITH THE MISCELLANEOUS QUANTITIES

PAVEMENT MARKING  
(TURN LANES)

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION



FLEXIBLE TUBULAR  
MARKER POST  
WORK ZONE

GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

SURFACE MOUNTED BASES SHALL BE FURNISHED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS TO BE COMPATIBLE WITH FLEXIBLE TUBULAR MARKER POSTS TO A SIZE AND SHAPE THAT WILL PROVIDE A STABLE POST FOUNDATION WHEN SECURED TO THE PAVEMENT.

THE ASPHALTIC ADHESIVE OR BUTYL PAD FURNISHED SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS, UNLESS DIRECTED BY THE ENGINEER TO USE BOLTS.

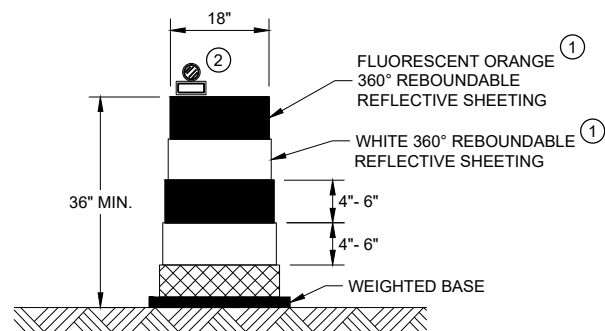
① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.

CHANNELIZING DEVICES  
FLEXIBLE TUBULAR  
MARKER POST

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

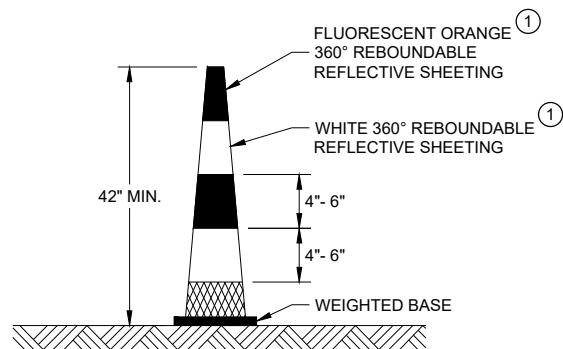
APPROVED  
November 2022 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER

FHWA



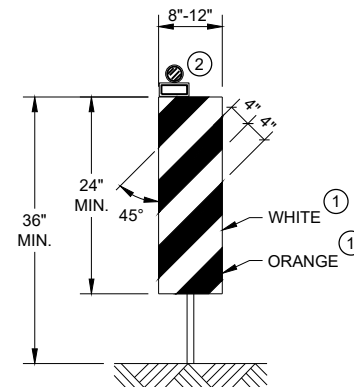
**DRUM**

BALLAST WIDTHS  
RANGE FROM 24"-36"



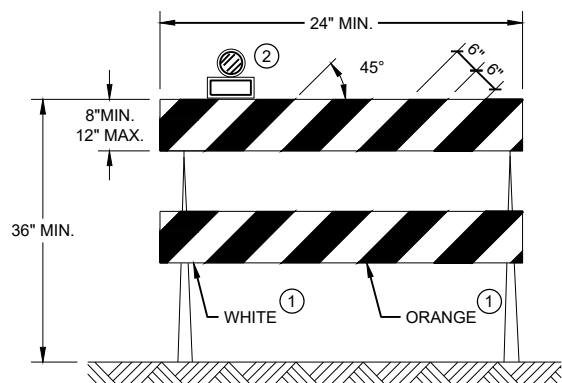
**42" CONE**

DO NOT USE IN TAPERS  
½ SPACING OF DRUMS  
BALLAST WIDTHS  
RANGE FROM 14"-20"



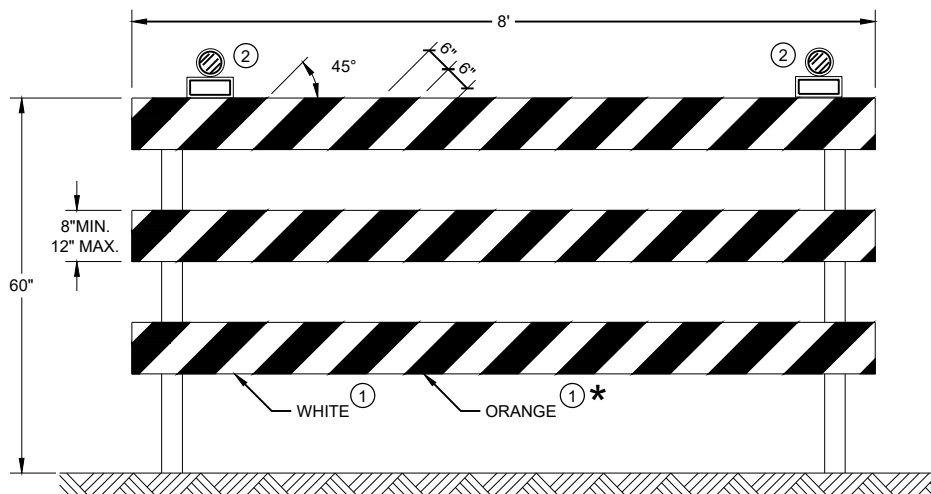
**VERTICAL PANEL**

THE STRIPES SHALL SLOPE DOWNWARD TO  
THE TRAFFIC SIDE FOR CHANNELIZATION.



**TYPE II BARRICADE**

FOR RAILS LESS THAN 36" LONG, 4" WIDE STRIPES  
MAY BE USED. ALL STRIPES SHALL SLOPE DOWNWARD  
TO THE TRAFFIC SIDE FOR CHANNELIZATION.



**TYPE III BARRICADE**

IF SIGN MOUNTED, DO NOT COVER MORE THAN 50% OF THE TOP  
TWO RAILS OR 33% OF THE TOTAL AREA OF THE THREE RAILS.

\* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

**GENERAL NOTES**

- ① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
- ② LOCATION OF WARNING LIGHTS WHEN SHOWN ON THE PLAN.

|                                                                                  |                                          |
|----------------------------------------------------------------------------------|------------------------------------------|
| <b>CHANNELIZING DEVICES<br/>DRUMS, CONES, BARRICADES<br/>AND VERTICAL PANELS</b> |                                          |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION                               |                                          |
| APPROVED<br>November 2022<br>DATE                                                | /S/ Andrew Heidtke<br>WORK ZONE ENGINEER |
| FHWA                                                                             |                                          |

LEGEND

-  SIGN ON PORTABLE OR PERMANENT SUPPORT
-  TEMPORARY PORTABLE RUMBLE STRIP ARRAY
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

GENERAL NOTES

DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS, DEVICES, AND LOCATION OF ALL FLAGGERS SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE FIRST ADVANCE WARNING SIGN SHOULD TYPICALLY BE LOCATED IN ADVANCE OF THE ANTICIPATED TRAFFIC BACKUP OR QUEUE.

WHEN A SIDE ROAD OR RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

FLAGGING

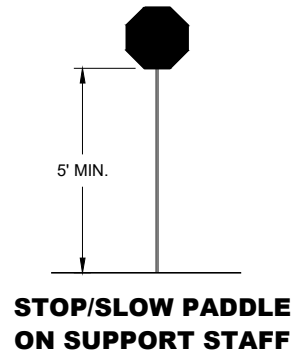
FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT REMOVE TEMPORARY PORTABLE RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

- ① FOR MOVING WORK OPERATIONS, POST ADDITIONAL W20-7A FLAGGER SIGNS AT APPROXIMATELY 3,500' INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.
- ② SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.

WHEN THE DISTANCE BETWEEN FLAGGERS EXCEEDS 2 MILES, A PILOT CAR IS REQUIRED. WHEN CURVES REDUCE SIGHT DISTANCE BELOW 400', A PILOT CAR IS REQUIRED.

TEMPORARY PORTABLE RUMBLE STRIPS

- UTILIZE TEMPORARY PORTABLE RUMBLE STRIPS ON ALL FLAGGING OPERATIONS.
- ③ EACH TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS PLACED TRANSVERSE ACROSS THE LANE AT THE LOCATIONS SHOWN. WITHIN EACH ARRAY, SPACING BETWEEN RUMBLE STRIPS SHALL BE 15 FEET ON CENTER
- ONLY USE TEMPORARY PORTABLE RUMBLE STRIPS FROM THE APPROVED PRODUCTS LIST.
- INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS.
- PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.
- DO NOT INSTALL TEMPORARY PORTABLE RUMBLE STRIPS ON GRAVEL, MILLED SURFACES, OR ASPHALT THAT HAS BEEN PAVED LESS THAN 12 HOURS.

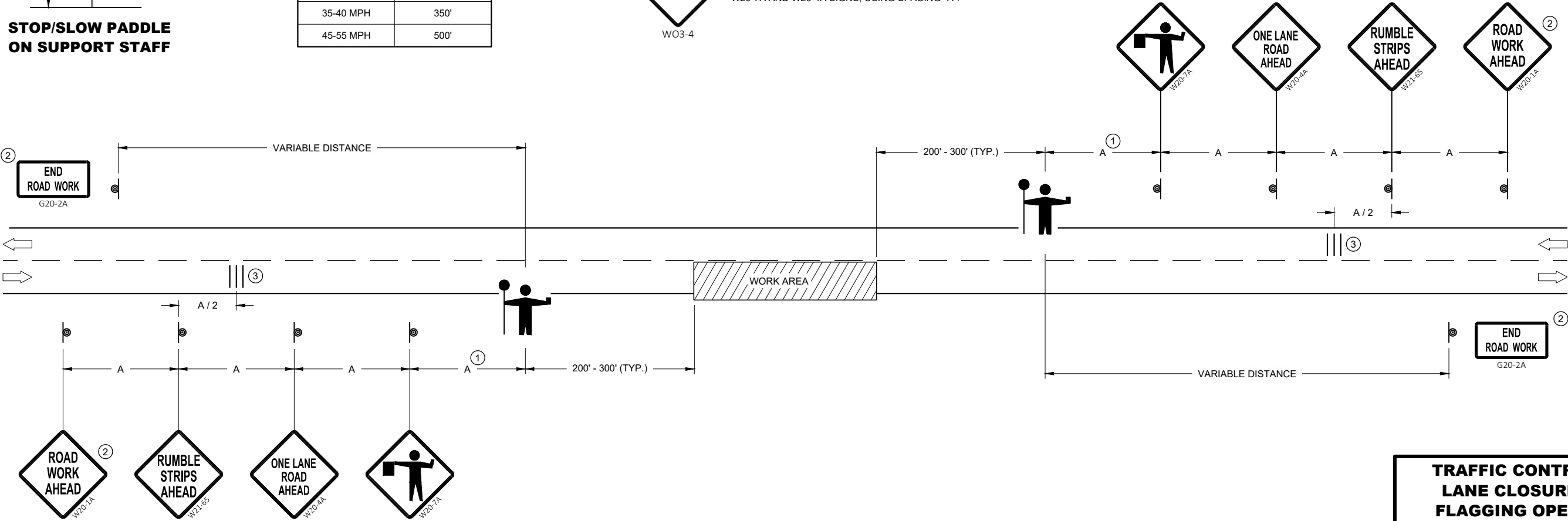


SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

| SPEED LIMIT | SPACING "A" |
|-------------|-------------|
| 25-30 MPH   | 200'        |
| 35-40 MPH   | 350'        |
| 45-55 MPH   | 500'        |



USE OF W03-4 SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7A AND W20-4A SIGNS, USING SPACING "A".



|                                                                         |                                          |
|-------------------------------------------------------------------------|------------------------------------------|
| <b>TRAFFIC CONTROL FOR<br/>LANE CLOSURE WITH<br/>FLAGGING OPERATION</b> |                                          |
| STATE OF WISCONSIN<br>DEPARTMENT OF TRANSPORTATION                      |                                          |
| APPROVED<br>May 2022<br>DATE                                            | /S/ Andrew Heidtke<br>WORK ZONE ENGINEER |
| FHWA                                                                    |                                          |

LEGEND

- V1

LEAD VEHICLE
- V2

MARKING VEHICLE
- V3

SHADOW VEHICLE
- 

TRUCK MOUNTED ATTENUATOR (TMA)
- 

SIGN ON TEMPORARY SUPPORT
- 

DIRECTION OF TRAFFIC

GENERAL NOTES

ALL VEHICLES SHALL BE EQUIPPED WITH TWO 360 DEGREE HIGH INTENSITY YELLOW FLASHING LIGHTS OR STROBE LIGHTS AND OPERATED WITH HEADLIGHTS TURNED ON.

ALL VEHICLES SHALL BE EQUIPPED WITH REAR FACING TYPE B OR C FLASHING ARROW PANEL OPERATING IN CAUTION MODE. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE SPECIFIED.

DISTANCE BETWEEN VEHICLES MAY VARY ACCORDING TO TERRAIN, SIGHT DISTANCE, PAINT DRYING TIME, AND OTHER FACTORS. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, SHADOW VEHICLES SHOULD MAINTAIN THE MINIMUM DISTANCE FROM THE WORK VEHICLE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. SHADOW VEHICLES SHOULD SLOW DOWN IN ADVANCE OF VERTICAL AND HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.

THE WORK AND SHADOW VEHICLES SHOULD PULL OVER PERIODICALLY TO ALLOW TRAFFIC TO PASS.

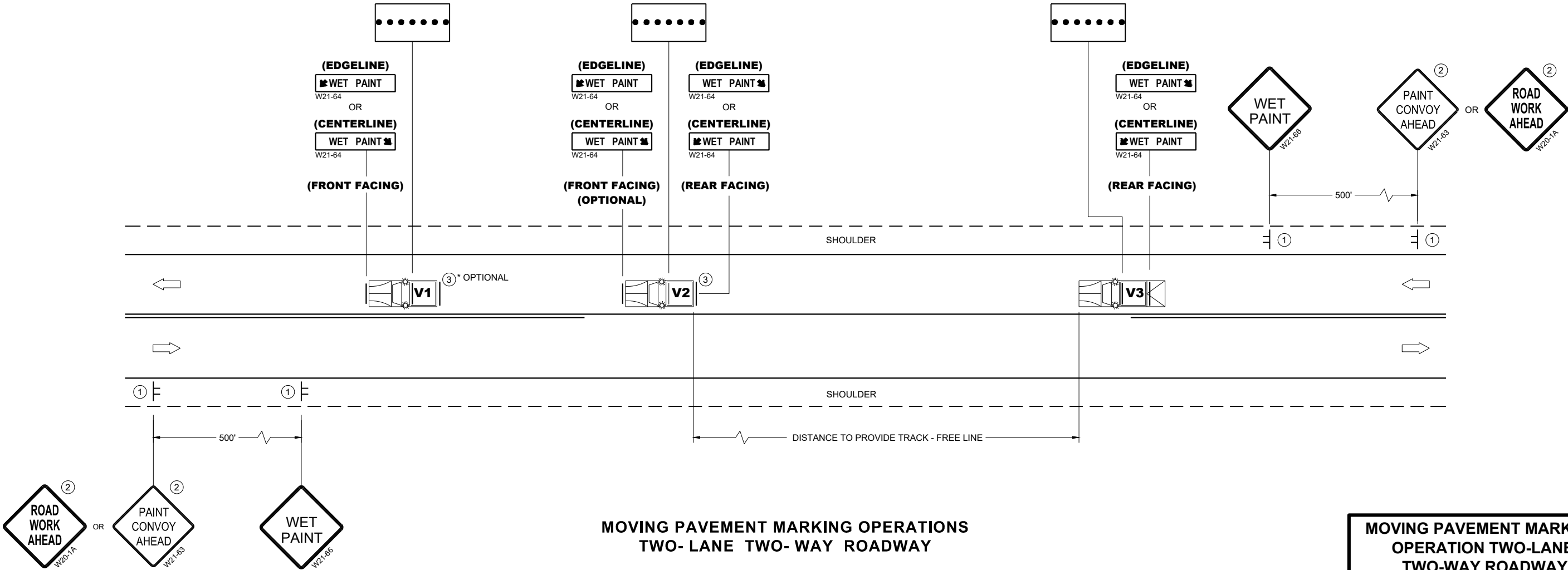
WHEN NO WORK ACTIVITY IS TAKING PLACE, REMOVE OR LAY STATIONARY SIGNS AND SUPPORTS FLAT ON THE GRADE WITH

UPRIGHTS ORIENTED PARALLEL TO AND DOWNSTREAM FROM TRAFFIC.

CONES SHOULD BE USED BETWEEN THE MARKING AND SHADOW VEHICLE AT 100 FOOT SPACING. CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.

CONES SHALL BE A MINIMUM OF 28" FOR WET PAVEMENT MARKING .

- ① SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES AND AFTER EVERY MAJOR INTERSECTION.
- ② IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1A OR W21-63 ARE NOT REQUIRED.
- ③ V1 AND V2 CAN BE SWITCHED SO THAT THE MARKER IS THE LEAD VEHICLE.

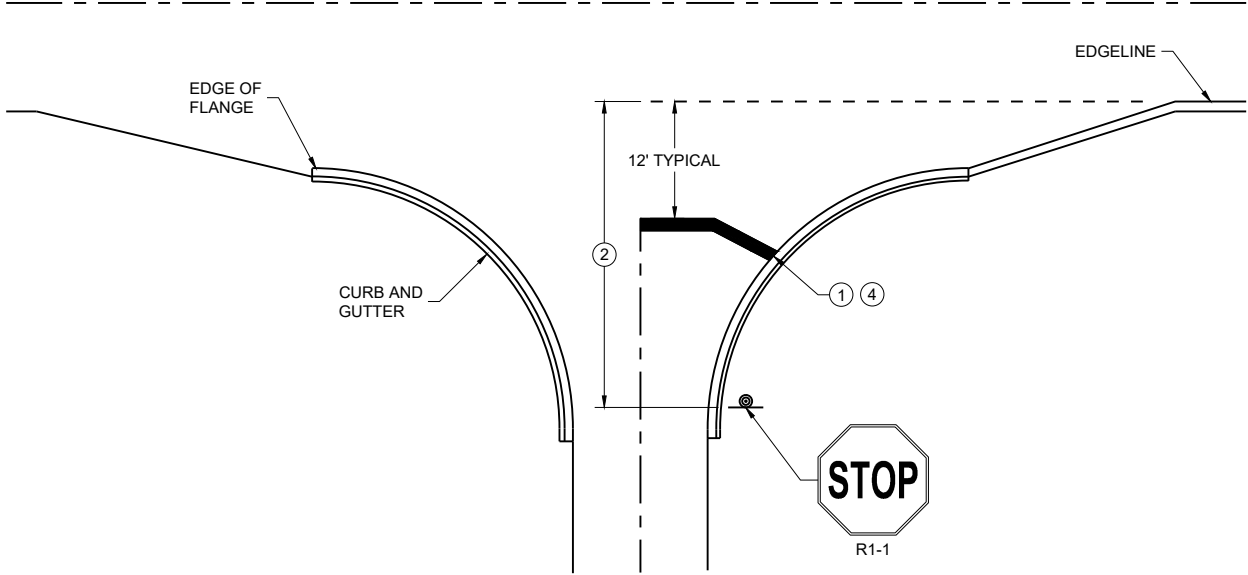


MOVING PAVEMENT MARKING  
OPERATION TWO-LANE  
TWO-WAY ROADWAY

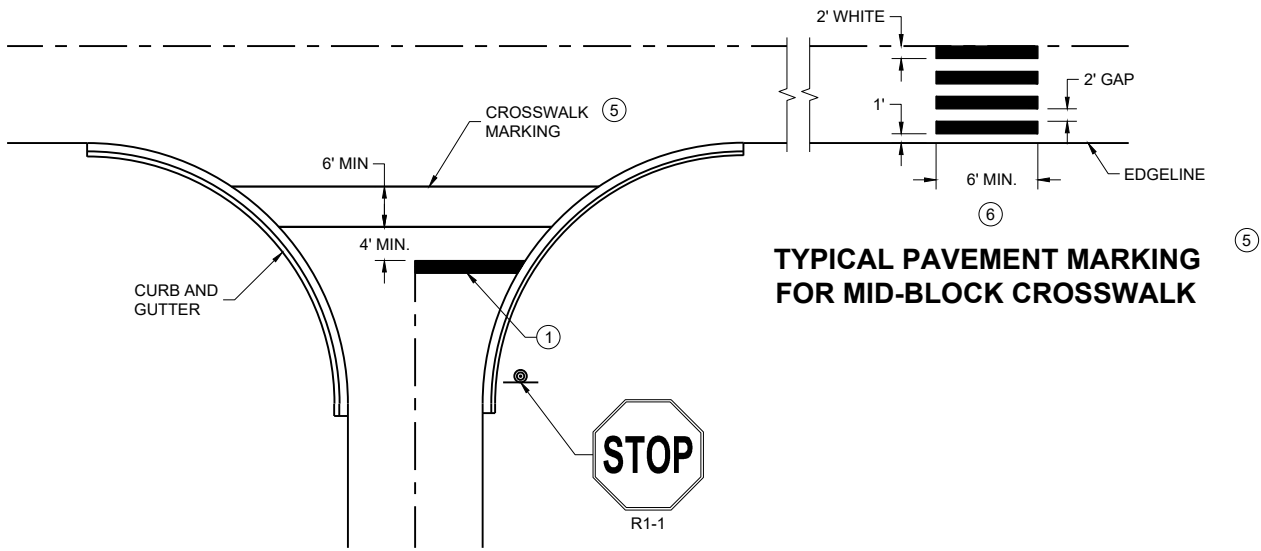
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
March 2024 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER

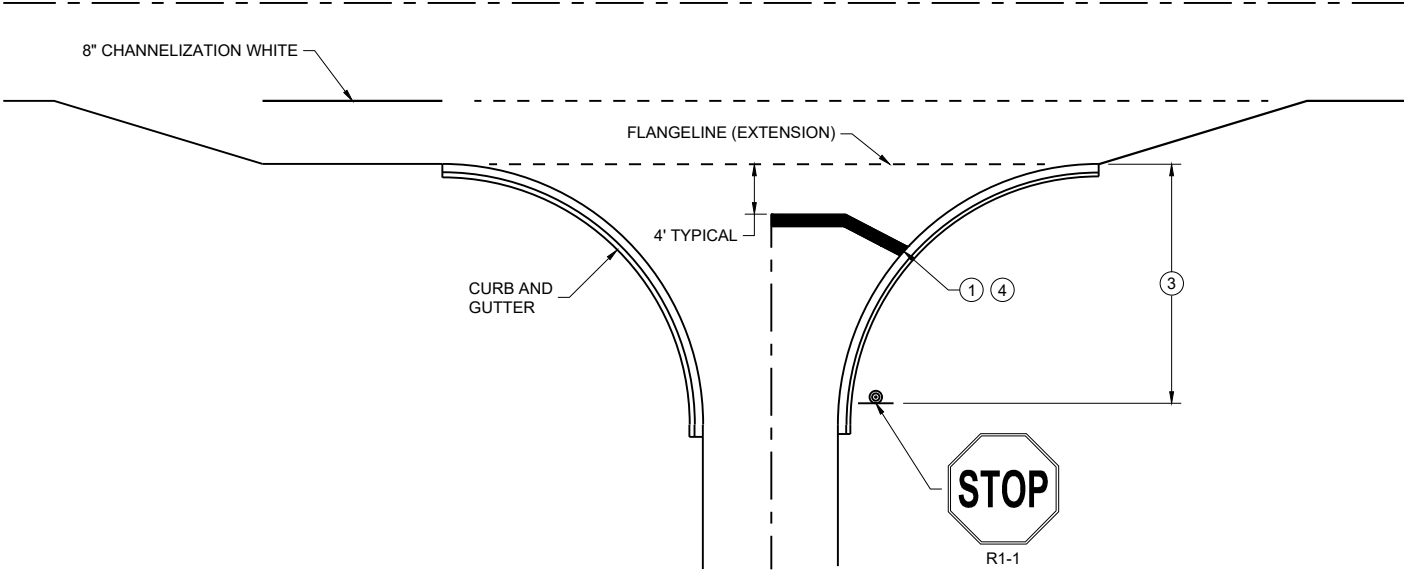
FHWA



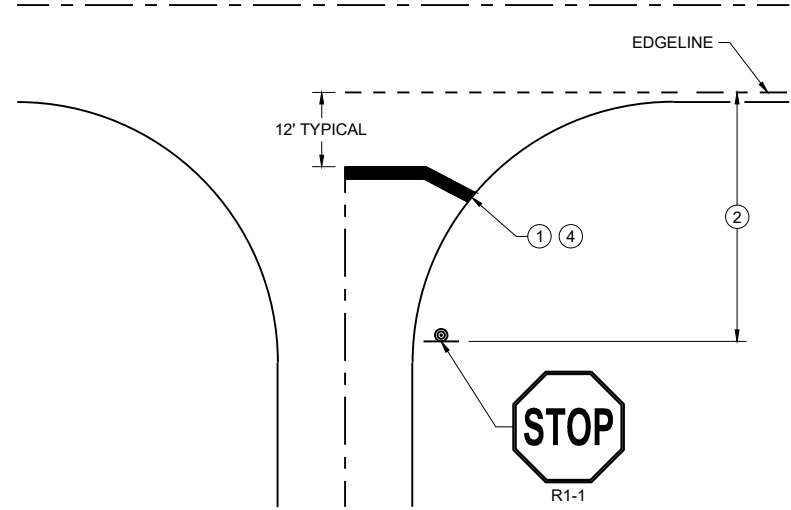
TYPICAL STOP LINE PAVEMENT MARKING WITH CURB AND GUTTER



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDE ROADS WITH CROSSWALK MARKING



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDE ROADS WITH RIGHT TURN LANE



TYPICAL STOP LINE PAVEMENT MARKING WITHOUT CURB AND GUTTER

GENERAL NOTES

STOP SIGN SHALL BE PLACED A MINIMUM OF 6 FEET TO A MAXIMUM OF 50 FEET FROM THE EDGELINE LOCATION.

- 1 18-INCH STOP LINES MAY BE DELETED OR ADDED BY THE REGION MARKING ENGINEER BASED ON VISIBILITY AND SIGHT LINES.
- 2 NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 40 FEET FROM THE EDGELINE.
- 3 NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 30 FEET FROM THE FLANGE LINE EXTENSION.
- 4 MOVE CLOSER TO THE EDGE OF TRAVEL LINE AS NEEDED FOR VISIBILITY AND SIGHT LINES (NO CLOSER THAN 4 FEET).
- 5 LADDER BAR CROSSWALKS SHOULD ONLY BE USED FOR MID BLOCK CROSSINGS. USE 2 - 6" TRANSVERSE LINES.
- 6 POSTED SPEED LIMITS OF 40 MPH OR GREATER USE A MINIMUM WIDTH OF 8' FOR MIDBLOCK CROSSWALKS

STOP LINE AND CROSSWALK PAVEMENT MARKING

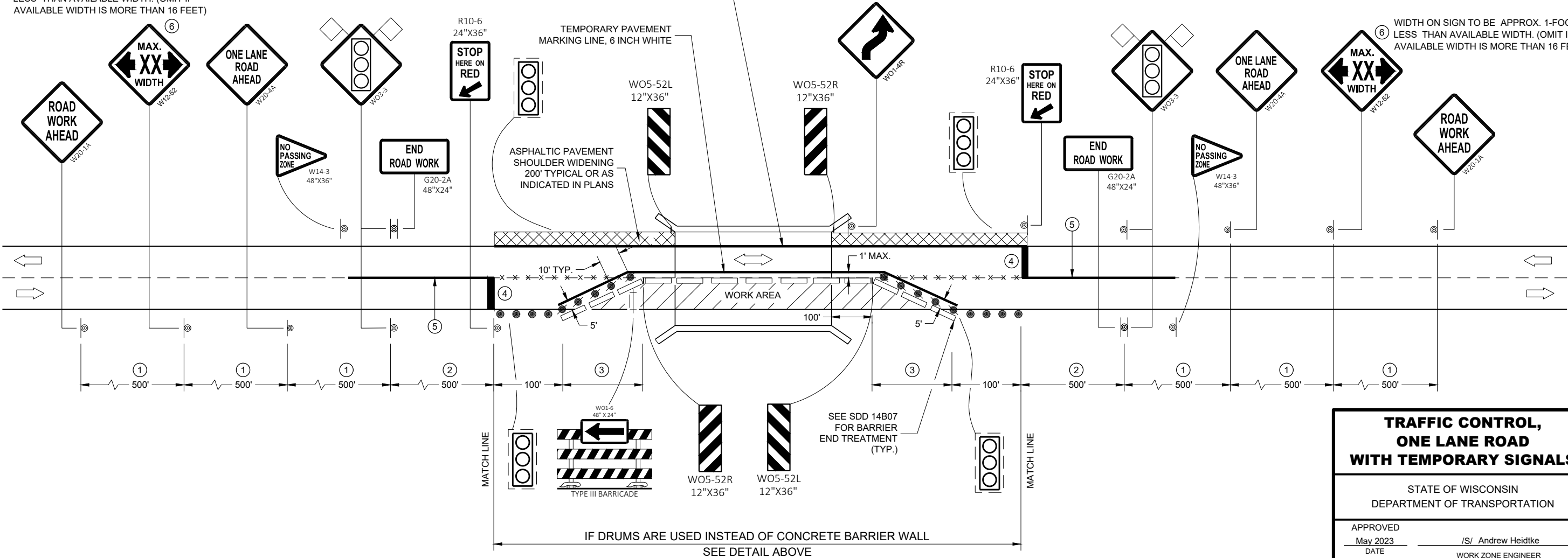
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
March 2024 /S/ Matthew Rauch  
DATE STATE SIGNING AND MARKING  
ENGINEER  
FHWA

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- FLAGS, 16" X 16" MIN. (ORANGE)
- REMOVING PAVEMENT MARKING
- DIRECTION OF TRAFFIC
- ASPHALTIC PAVEMENT WIDENING
- CONCRETE BARRIER TEMPORARY PRECAST
- TEMPORARY SIGNAL. SEE SDD 09G02 FOR EXACT PLACEMENT

WIDTH ON SIGN TO BE APPROX. 1-FOOT LESS THAN AVAILABLE WIDTH. (OMIT IF AVAILABLE WIDTH IS MORE THAN 16 FEET)



GENERAL NOTES

- THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE..
- THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.
- ALL SIGNS ARE 48" x 48" UNLESS OTHERWISE NOTED.
- "WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.
- ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED OR AS APPROVED BY THE ENGINEER.
- REMOVE PAVEMENT MARKING AND PLACE TEMPORARY PAVEMENT MARKING LINES IF THE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.
- INSTALL OVERHEAD TEMPORARY SIGNAL HEADS ABOVE THE MIDDLE OF THE TRAVEL LANE THEY ARE CONTROLLING.
- 500 FOOT SPACING SHOWN IS FOR ROADWAYS WITH A PRE-CONSTRUCTION REGULATORY SPEED LIMIT OF 45 MPH OR MORE. FOR 35 - 40 MPH, USE 350 FOOT TYPICAL SPACING. FOR 25 - 30 MPH, USE 200 FOOT TYPICAL SPACING.
  - USE 300 FOOT SPACING IF THE PRE - CONSTRUCTION REGULATORY SPEED IS 35 MPH OR LESS.
  - DIMENSION DETERMINED BY CBTP TAPER FROM EDGE LINE TO TANGENT SECTION OF THE ROAD.
  - TEMPORARY PAVEMENT MARKING LINE, 18 INCH WHITE STOP LINE.
  - 700 FOOT TEMPORARY PAVEMENT MARKING LINE, 6 INCH DOUBLE YELLOW . WHEN THE DISTANCE FOR THE PRECEDING NO - PASSING ZONE IS LESS THAN THE MINIMUM DISTANCE BETWEEN ZONES AS INDICATED IN THE SPECIFICATIONS, THE TWO ZONES SHALL BE CONNECTED.
  - SEE SDD 15C02 - SHEET "F" FOR ADVANCED WIDTH RESTRICTION SIGNING.

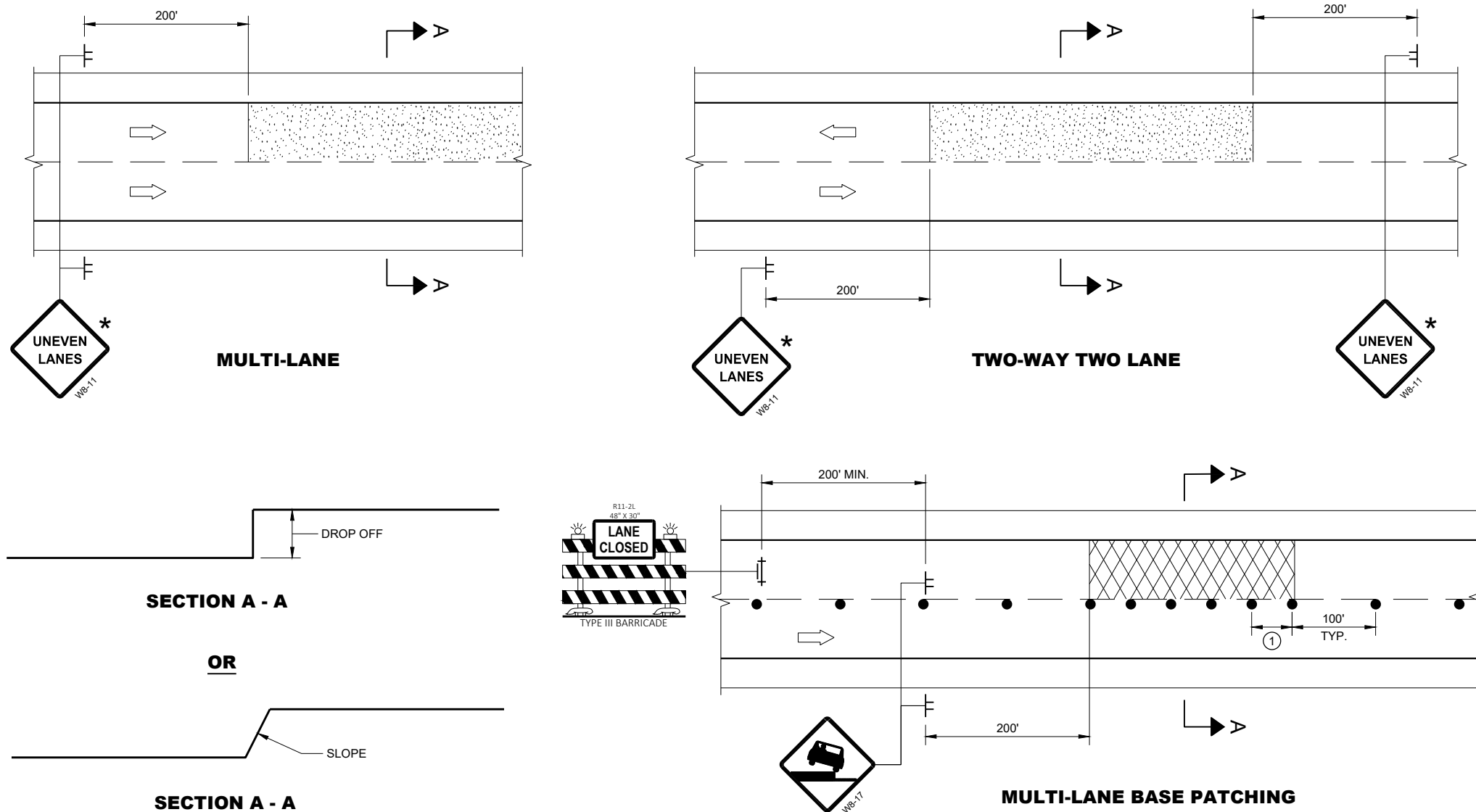
**TRAFFIC CONTROL,  
ONE LANE ROAD  
WITH TEMPORARY SIGNALS**

STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

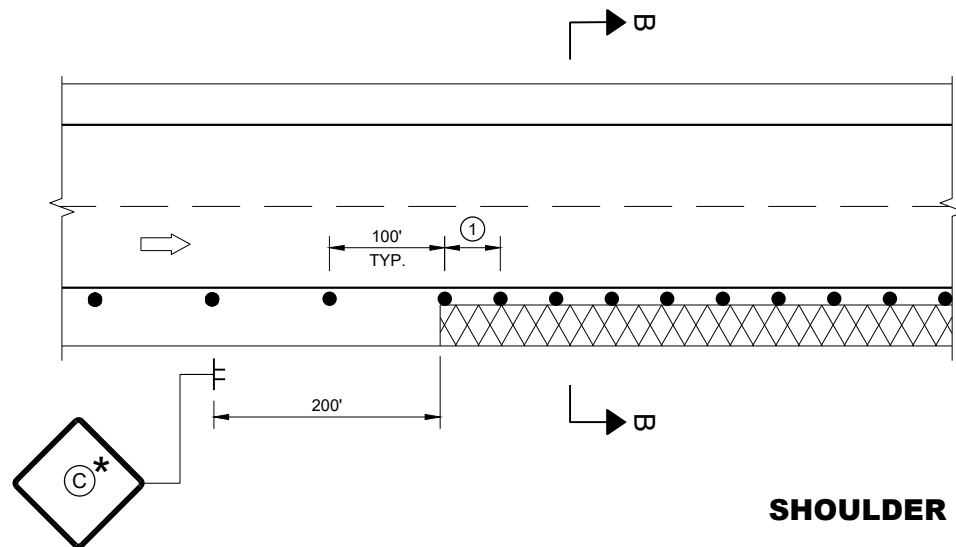
APPROVED  
May 2023  
DATE

/S/ Andrew Heidtke  
WORK ZONE ENGINEER

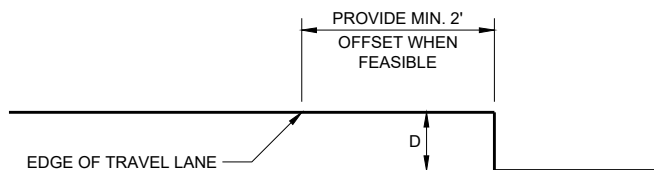
FHWA



ADJACENT LANE DROP-OFFS



SHOULDER DROP-OFFS



SECTION B - B

| D                                     | SIGN (C)                                                                                            |
|---------------------------------------|-----------------------------------------------------------------------------------------------------|
| < 2" WITH A SLOPE STEEPER THAN 3:1    | LOW SHOULDER<br>WO8-9                                                                               |
| 2" < 6" WITH A SLOPE STEEPER THAN 3:1 | SHOULDER DROP - OFF<br>W8-9A<br>PROVIDE A 3:1 OR FLATTER SLOPE OF MATERIAL ADJACENT TO THE PAVEMENT |

GENERAL NOTES

- FOR SPOT LOCATIONS USE ENGINEERING JUDGEMENT WHEN PLACING ADDITIONAL SIGNS.
- ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.
- "WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.
- WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.
- \* IF THE DROP-OFF IS CONTINUOUS ALONG THE PROJECT, PLACE ADDITIONAL SIGNS EVERY 1 MILE AND AFTER EVERY ENTRANCE RAMP.
- ① USE CLOSER SPACING WHEN DELINEATING DROP-OFF.

LEGEND

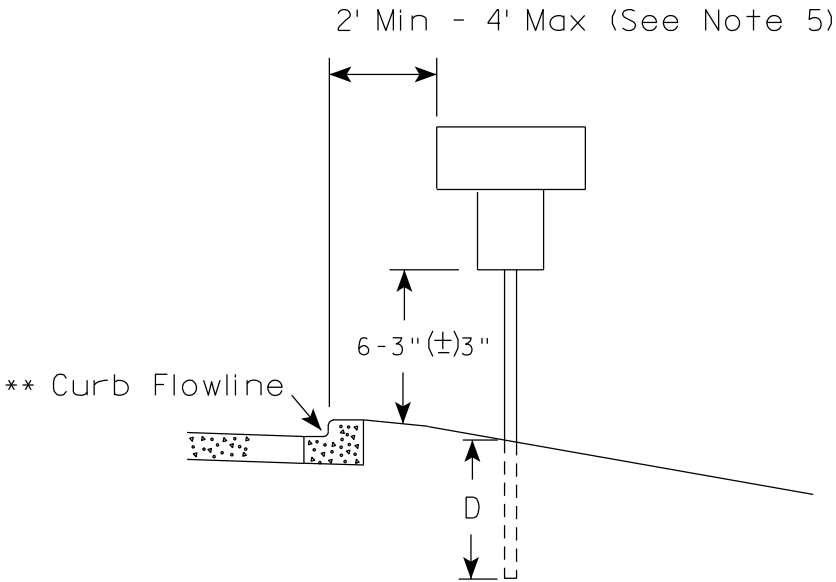
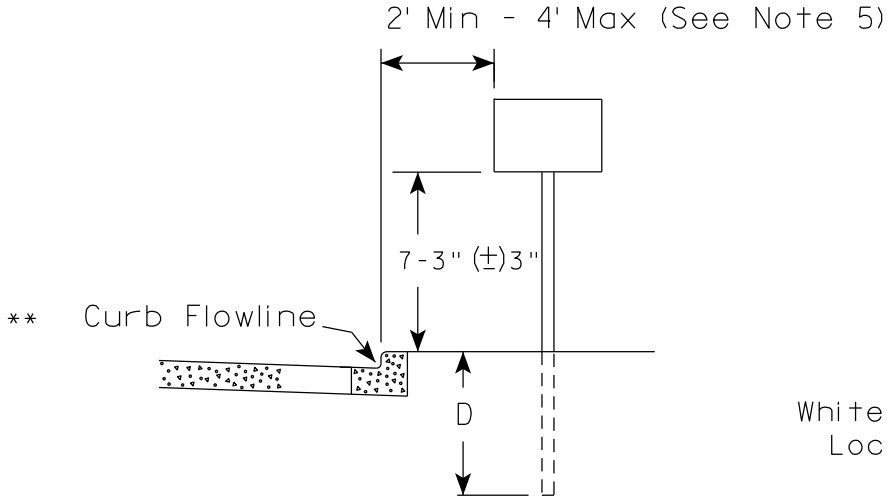
- ┆ SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- ┆ TYPE III BARRICADE WITH ATTACHED SIGN
- ☀ TYPE "A" WARNING LIGHT (FLASHING)
- ➡ DIRECTION OF TRAFFIC
- ▨ WORK AREA WITH DROP-OFF
- ▨ MILLED SURFACE

TRAFFIC CONTROL,  
DROP-OFF SIGNING

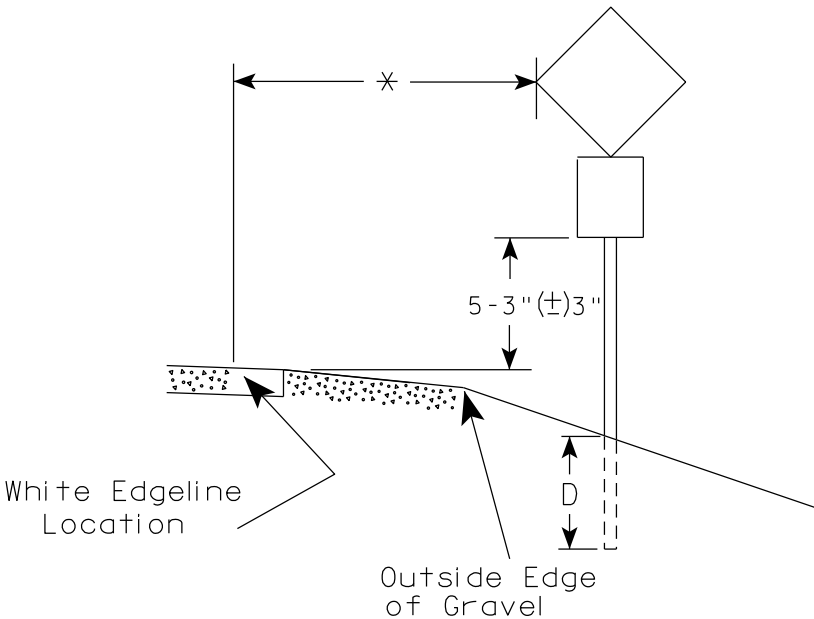
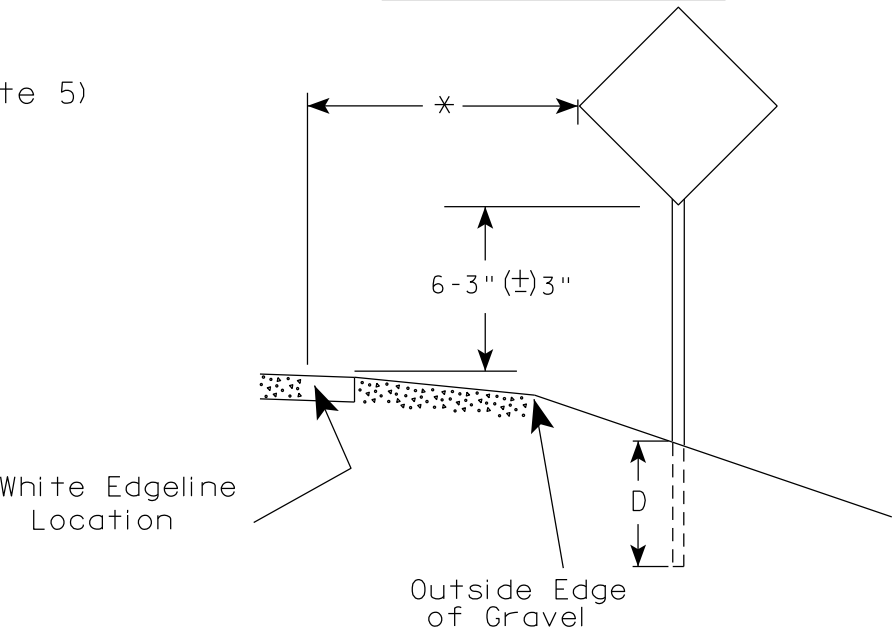
STATE OF WISCONSIN  
DEPARTMENT OF TRANSPORTATION

APPROVED  
March 2018 /S/ Andrew Heidtke  
DATE WORK ZONE ENGINEER  
FHWA

URBAN AREA



RURAL AREA (See Note 2)



GENERAL NOTES

1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on or behind barrier wall, see A4-10 sign plate.  
The Double Arrow sign (W12-1D) shall be mounted at a height of 2'-3" (±) 3". The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±) 3".
3. For expressways and freeways, mounting height is 7'- 3" (±) 3" or 6'-3" (±) 3" depending upon existence of a sub-sign.
4. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±) 3".
5. Offset distance shall be consistent with existing signs or consistent throughout length of project.
6. Folding signs shall be mounted at a height of 5'-3" (±) 3" or as directed by the Engineer.

\* \* The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

\* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

POST EMBEDMENT DEPTH

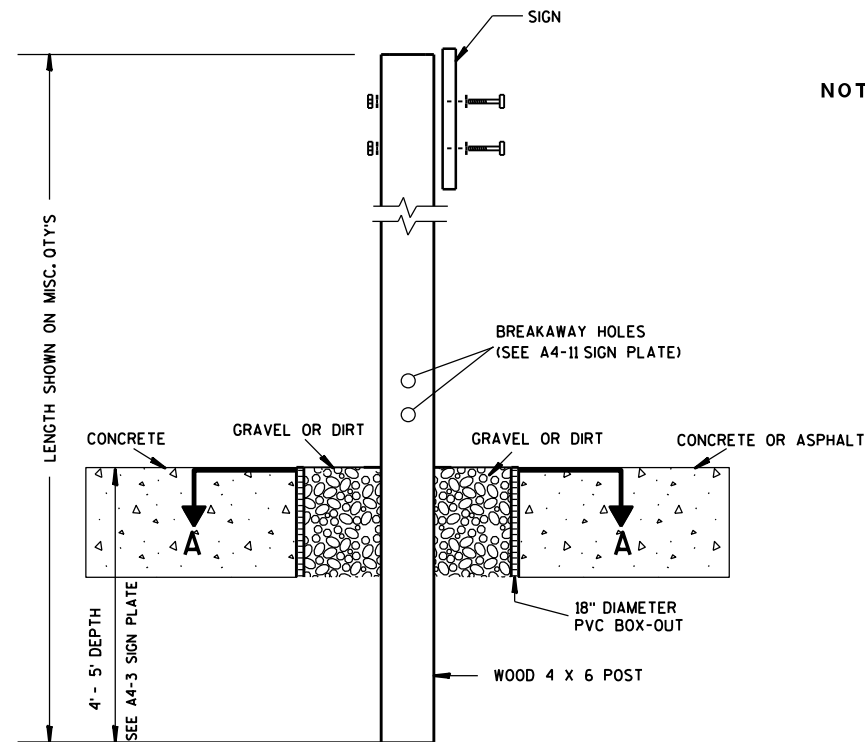
| Area of Sign Installation ( Sq. Ft. ) | D ( Min ) |
|---------------------------------------|-----------|
| 20 or Less                            | 4'        |
| Greater than 20                       | 5'        |

TYPICAL INSTALLATION  
OF PERMANENT TYPE II  
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

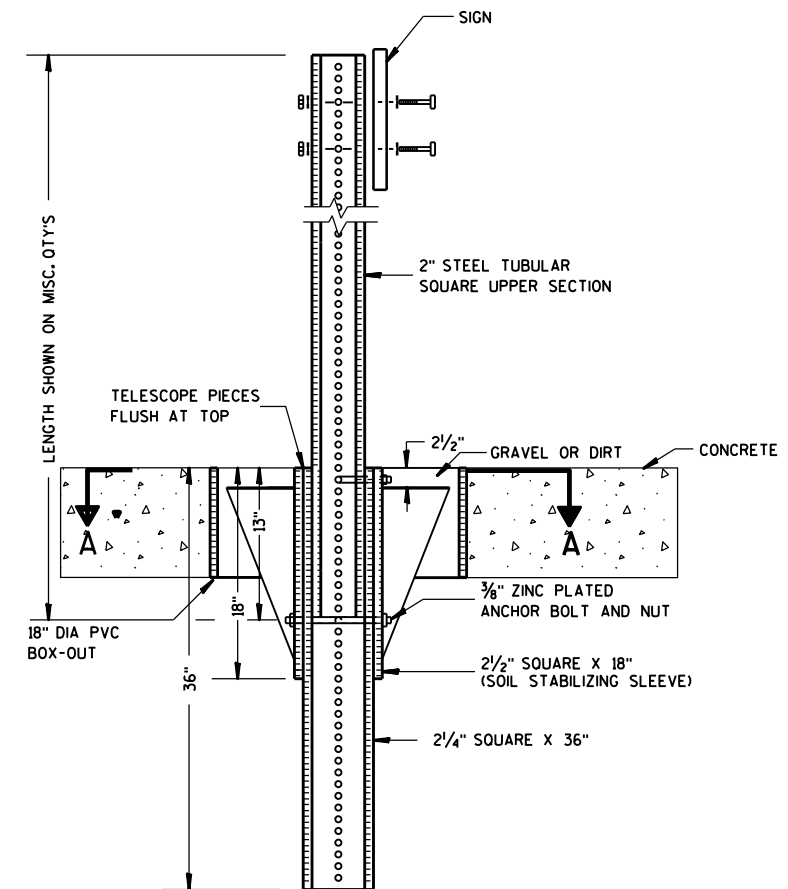
DATE 12/6/23 PLATE NO. A4-3.23



### ELEVATION VIEW

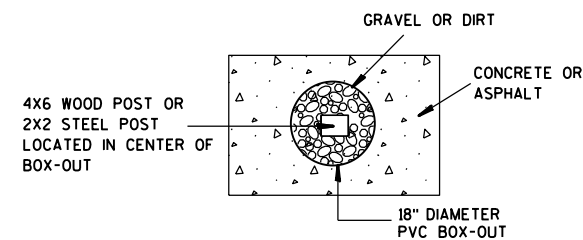
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- NOTES: 1. ALL MATERIAL TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION
2. SEE SIGN PLATE A4-8 FOR SIGN HARDWARE REQUIREMENTS
3. 18 INCH X 18 INCH SQUARE BOX-OUTS MAY BE USED FOR INSTALLATIONS IN EXISTING CONCRETE OR ASPHALT LOCATIONS.



### ELEVATION VIEW

DETAIL OF STEEL 2 X 2 SIGN POST IN BOX-OUT



### PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST  
BOX-OUTS  
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 1/27/14 PLATE NO. A4-3B.1

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E

GENERAL NOTES

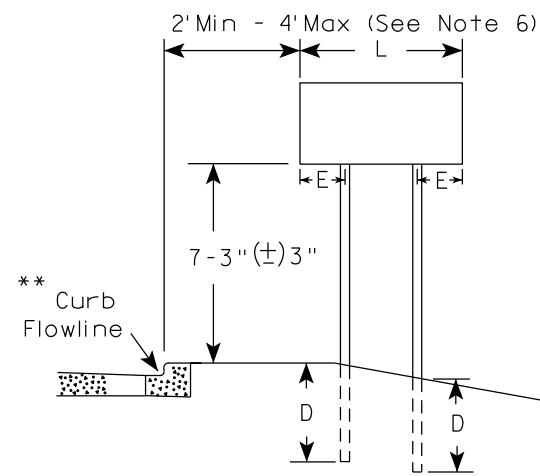
- 1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
- 2. See tables below for required number of posts.
- 3. For expressways and freeways, mounting height is 7'-3" (±) 3" or 6'-3" (±) 3" depending upon existence of sub-sign.
- 4. The (±) tolerance for mounting height is 3 inches.
- 5. J-Assemblies are considered to be one sign for mounting height.
- 6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
- 7. Folding signs shall be mounted at a height of 5'-3" (±) 3" or as directed by the engineer.
- 8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±) 3". The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±) 3".

\* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

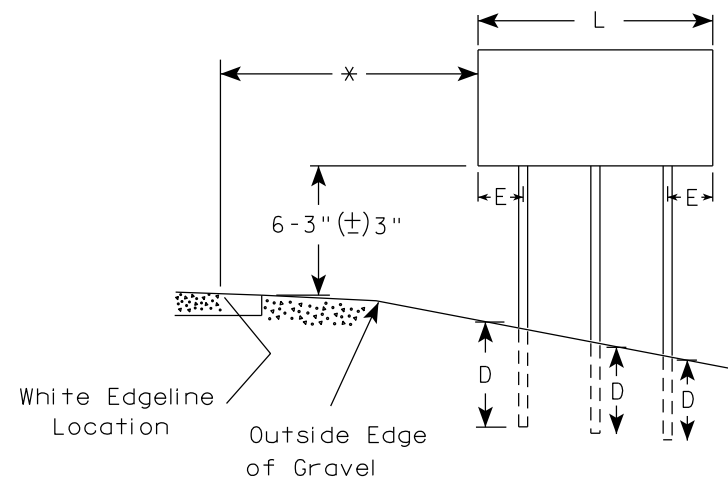
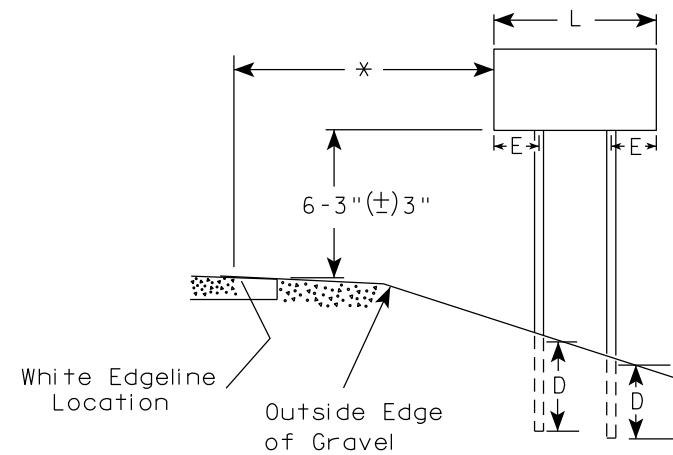
\*\* The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

\*\*\* See A4-3 sign plate for signs 4' or less in width and less than 20 S.F. in area.

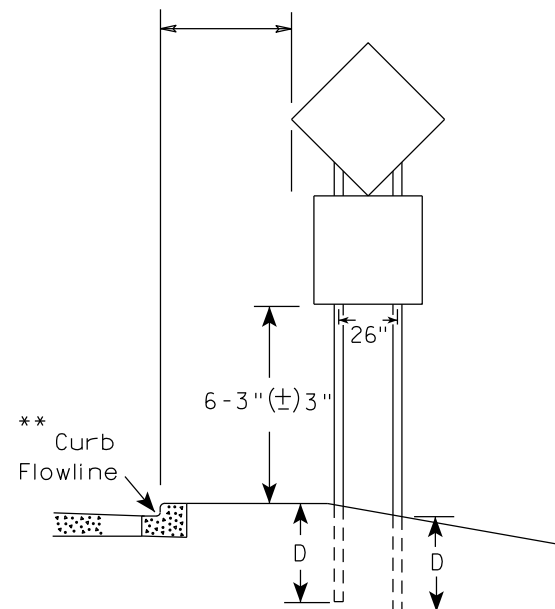
URBAN AREA



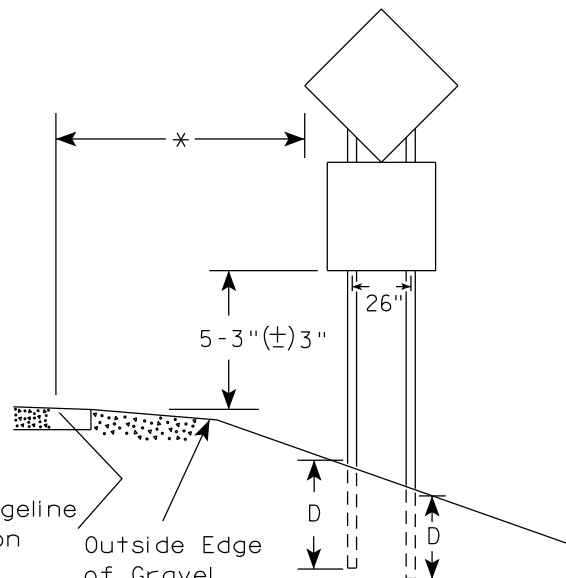
RURAL AREA (See Note 3)



2' Min - 4' Max (See Note 6)



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

| SIGN SHAPE OTHER THAN DIAMOND<br>(TWO POSTS REQUIRED) |     |
|-------------------------------------------------------|-----|
| L                                                     | E   |
| Greater than 48"<br>Less than 60"                     | 12" |
| 60" to 108"                                           | L/5 |

\*\*\*

| SIGN SHAPE OTHER THAN DIAMOND<br>(THREE POSTS REQUIRED) |     |
|---------------------------------------------------------|-----|
| L                                                       | E   |
| Greater than 108"<br>to 144"                            | 12" |

POST EMBEDMENT DEPTH

| Area of Sign<br>Installation<br>( Sq.Ft. ) | D<br>( Min ) |
|--------------------------------------------|--------------|
| 20 or Less                                 | 4'           |
| Greater than 20                            | 5'           |

TYPICAL INSTALLATION  
OF TYPE II SIGNS  
ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 12/6/23 PLATE NO. A4-4.16

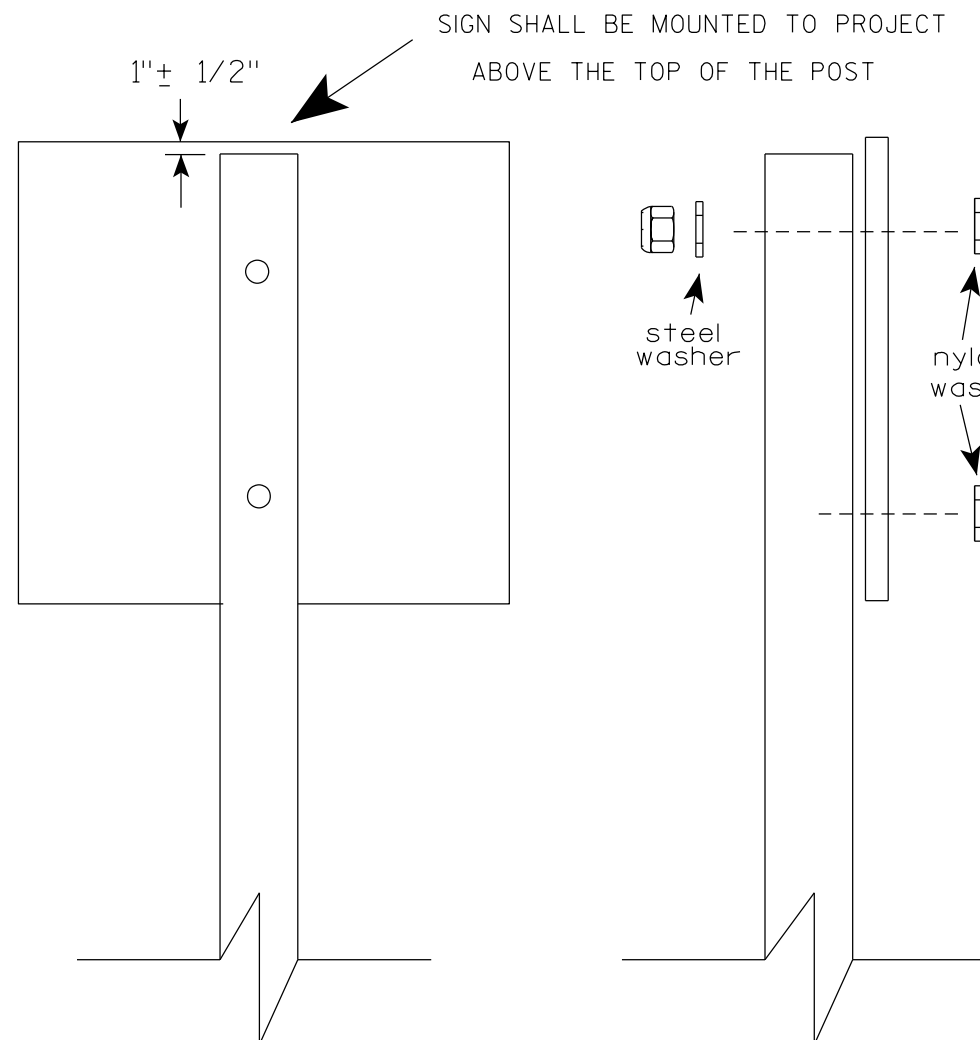
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

- a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
- b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

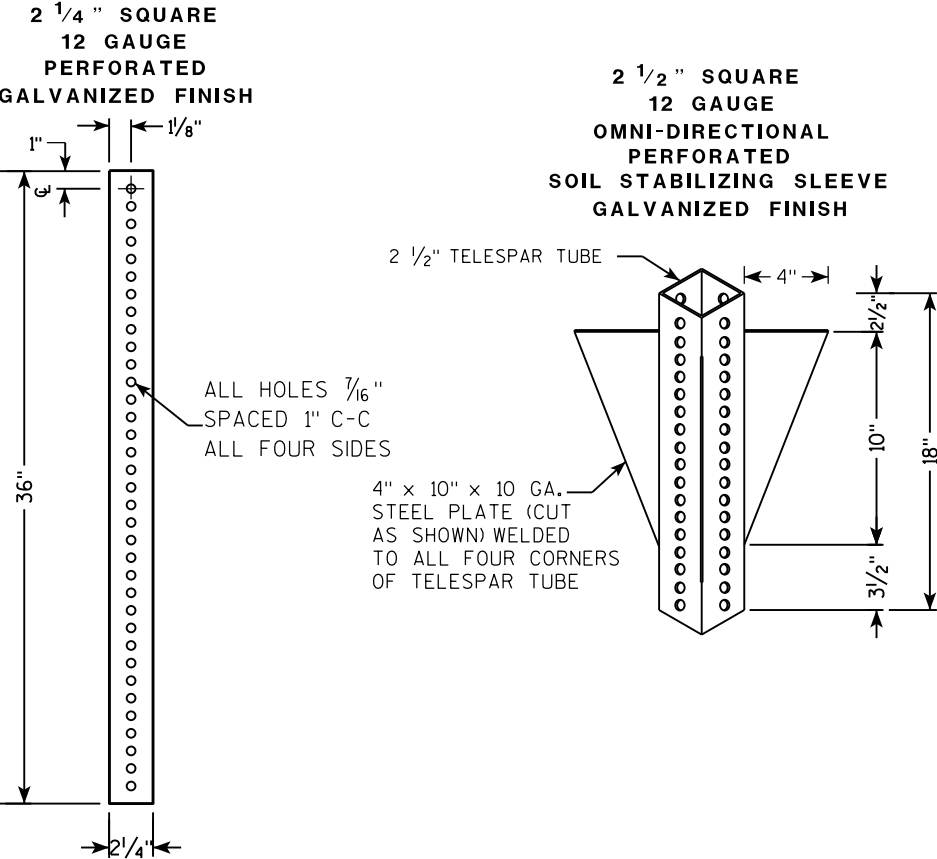
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS -  $\frac{5}{16}$ " X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 6")
- LAG SCREWS -  $\frac{3}{8}$ " X 3" (NO STRINGERS ON BACK OF SIGN)  
 $\frac{3}{8}$ " X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS -  $\frac{3}{8}$ " X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)  
 $\frac{3}{8}$ " X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)
- RIVETS -  $\frac{9}{32}$ " (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL  
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH
- WASHERS (ALL POSTS) -
- 1-1/4" O.D. X  $\frac{3}{8}$ " I.D. X  $\frac{1}{16}$ " STEEL
  - 1-1/4" O.D. X  $\frac{3}{8}$ " I.D. X .080 NYLON

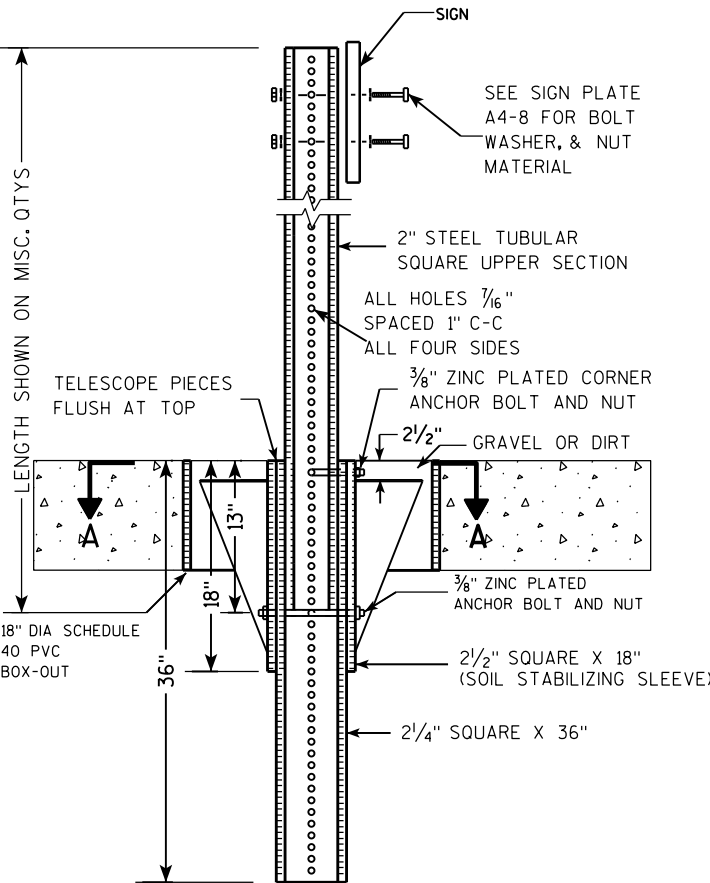
\* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require the use of 3 fasteners.

|                                  |                                                       |
|----------------------------------|-------------------------------------------------------|
| ATTACHMENT OF SIGNS<br>TO POSTS  |                                                       |
| WISCONSIN DEPT OF TRANSPORTATION |                                                       |
| APPROVED                         | <i>Matthew R. Rauch</i><br>For State Traffic Engineer |
| DATE 4/1/2020                    | PLATE NO. A4-8.9                                      |

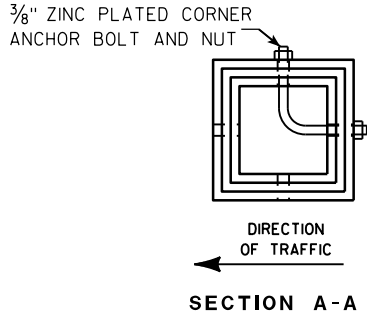
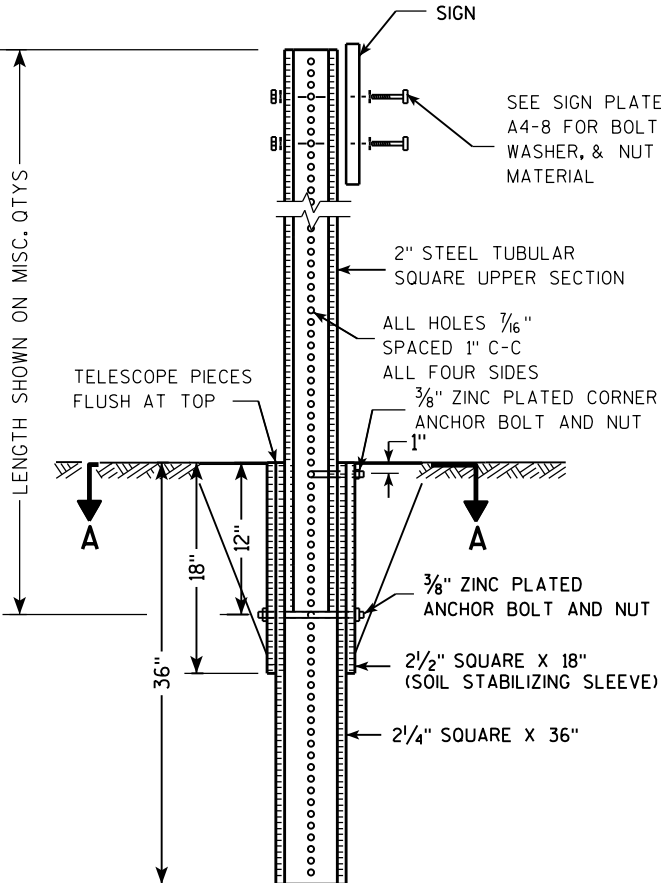
TELESCOPIC TUBING ANCHORS  
TWO PIECE SYSTEM



DETAIL OF TUBULAR STEEL SIGN POST  
(IN POURED CONCRETE OR ASPHALT)



DETAIL OF TUBULAR STEEL SIGN POST  
(IN LOCATIONS OTHER THAN POURED CONCRETE OR ASPHALT)



| Area of Sign Installation (Sq. Ft.)      | Number of Required Posts |
|------------------------------------------|--------------------------|
| 9 or less                                | 1                        |
| Greater than 9 less than or equal to 18  | 2                        |
| Greater than 18 less than or equal to 27 | 3                        |

Signs wider than 3 feet or larger than 9 sq. ft shall be mounted on multiple posts (see above table).

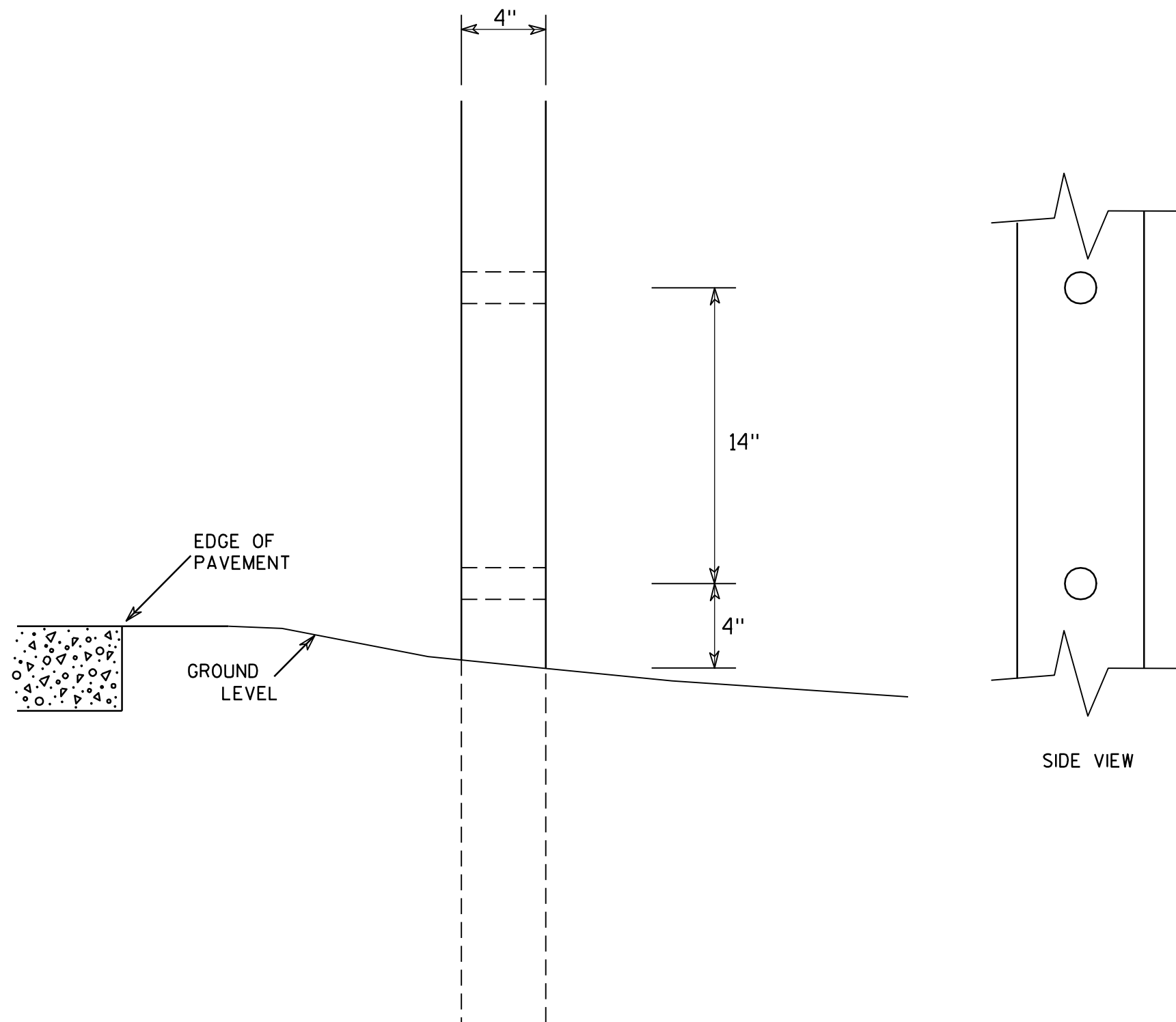
TUBULAR STEEL  
SIGN POST  
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 2/05/15 PLATE NO. A4-9.9

7

GENERAL NOTES

1. All 4 x 6 Wood Posts shall be modified by having two 1½" diameter holes drilled perpendicular to the roadway centerline.

7

# 4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

*Chester J. Spang*  
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

HWY:

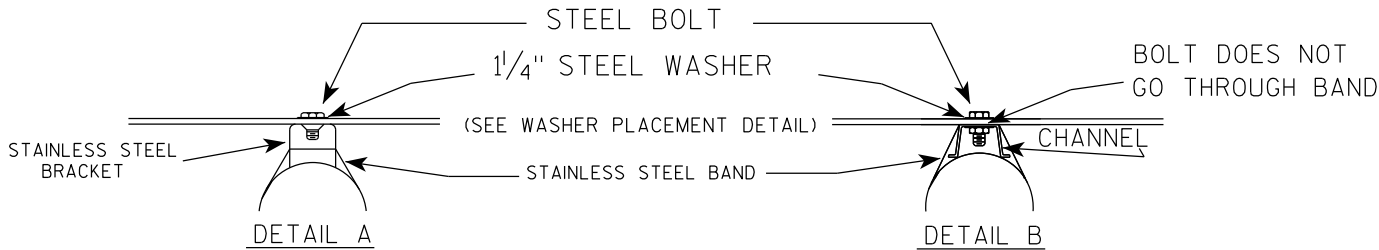
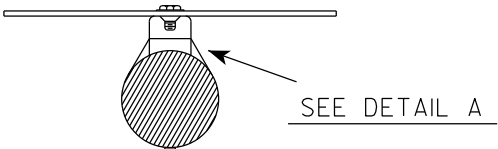
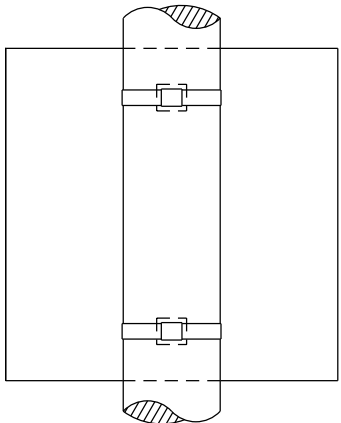
COUNTY:

SHEET NO:

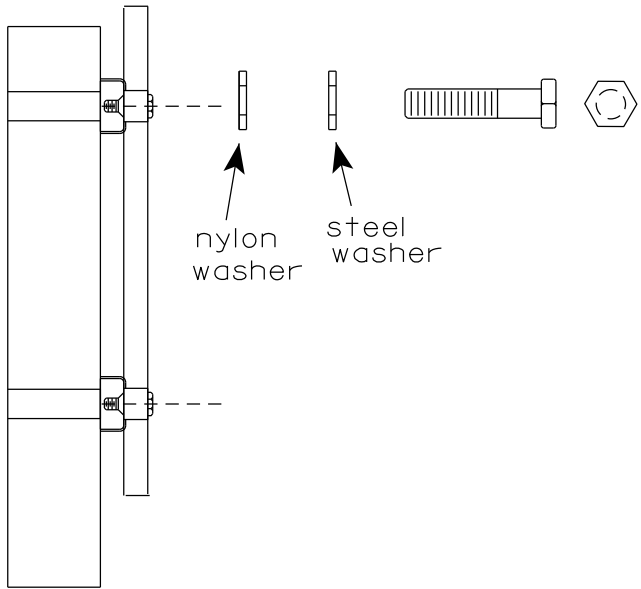
E

BANDING

SINGLE SIGN



WASHER PLACEMENT

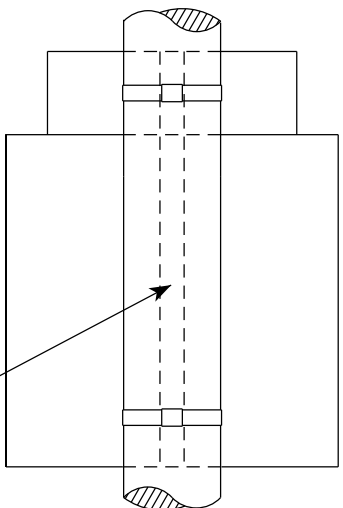


WASHERS (ALL POSTS) -  
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL  
1-1/4" O.D. X 3/8" I.D. X .080 NYLON  
FOR ALL TYPE H SIGNS

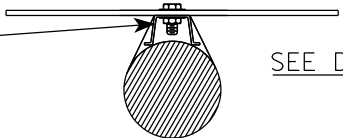
GENERAL NOTES

1. Any sign over 3 feet in width shall use the V-Block banding method. See A5-10 standard plate.
2. Signs 3 feet or greater in height shall have three bracket bands installed. Signs less than 3 feet in height shall have two bracket bands installed.
3. Banding and assembly bracket shall be stainless steel. All bands shall be 3/4" in width and 0.025" thickness.
4. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
  - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
  - b. Electro-galvanized in accordance with ASTM designation: B 633, Type III, SC 3

"J" ASSEMBLY



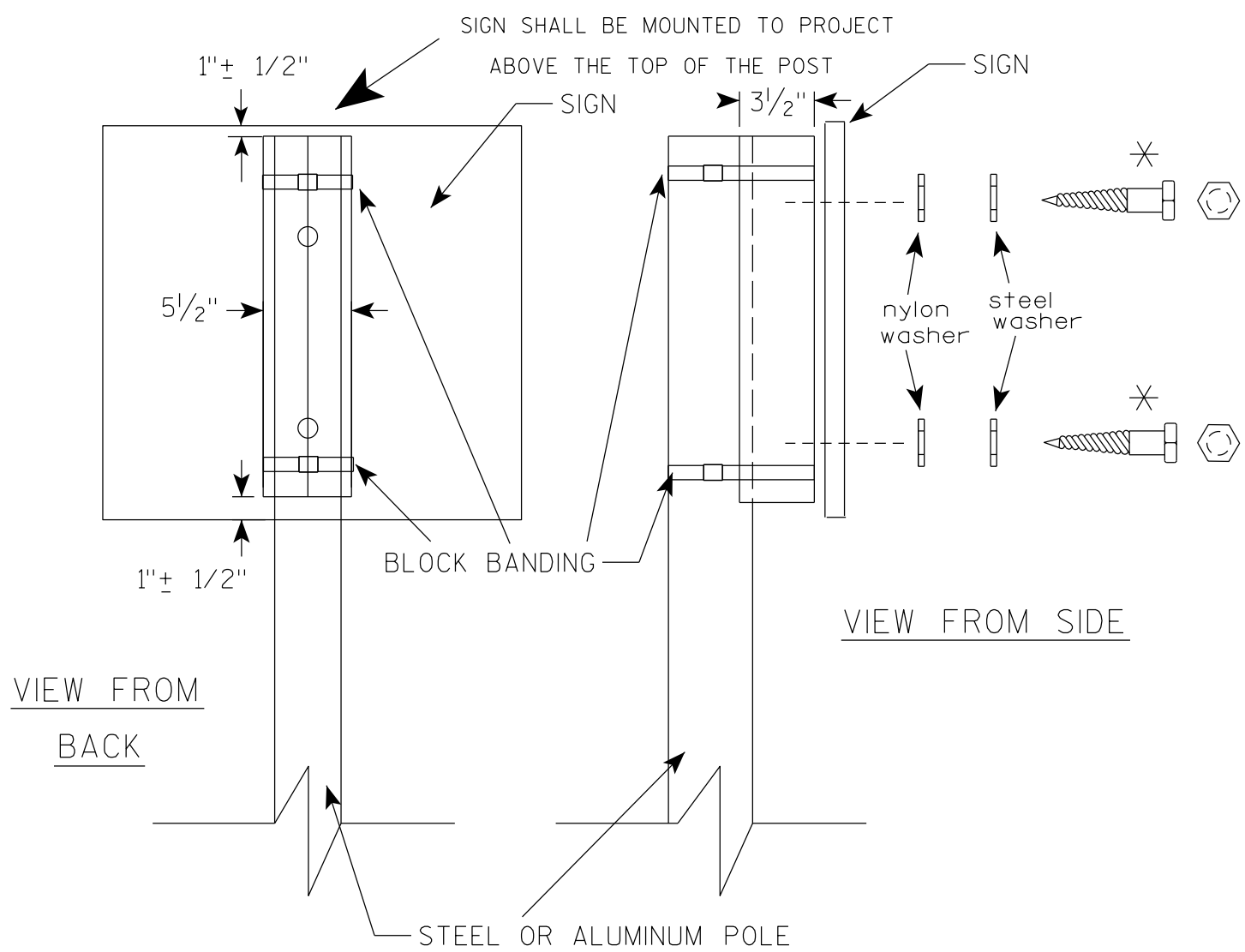
CHANNEL  
SEE TYPICAL PANEL  
INSTALLATION SHEET



STANDARD SIGN  
SIGN BANDING DETAILS

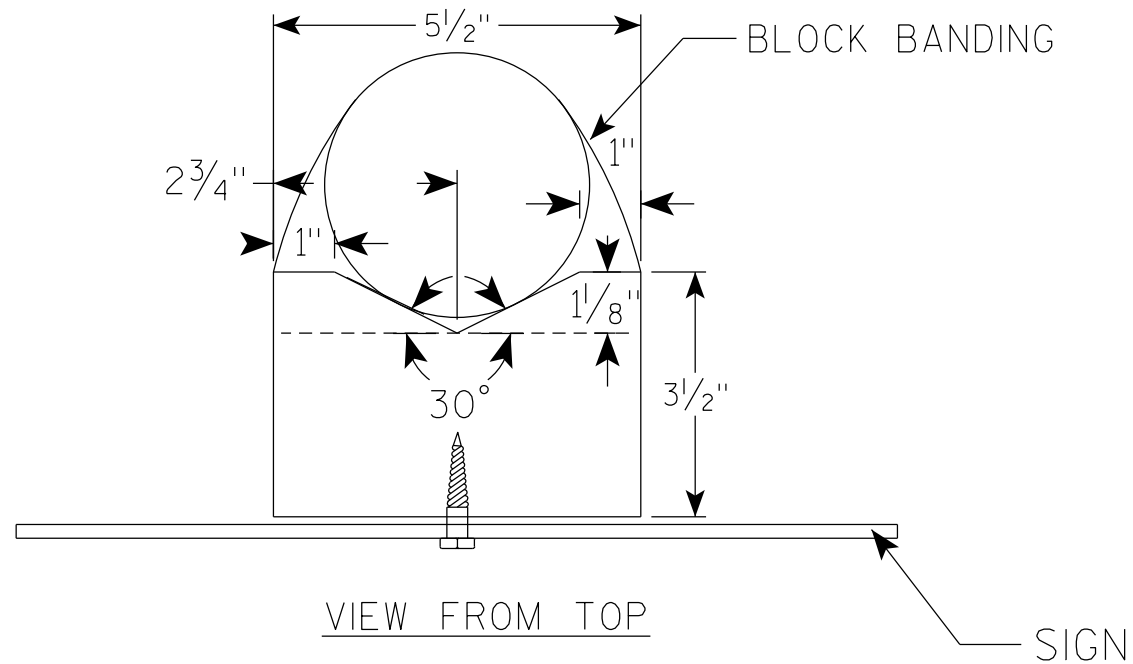
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer  
DATE 6/10/19 PLATE NO. A5-9.4



VIEW FROM  
BACK

VIEW FROM SIDE



VIEW FROM TOP

## GENERAL NOTES

1. WOOD 4"X6" POST MATERIAL SHALL CONFORM TO 507.2.2 OF THE WISDOT STANDARD SPECIFICATIONS
2. BLOCK BANDING AND CLIPS SHALL BE STAINLESS STEEL,  $\frac{3}{4}$ " WIDTH AND 0.025" THICKNESS
3. SIGNS 3' OR GREATER IN HEIGHT SHALL UTILIZE 3 BLOCK BANDS. SIGNS UNDER 3' IN HEIGHT SHALL UTILIZE 2 BLOCK BANDS
4. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA, BUT NORMALLY THERE ARE TWO. FOR SIGNS GREATER THAN 9 S.F. 3 FASTENERS SHALL BE USED.
5. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
  - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
  - b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3
6. ALL BOLTS SHALL HAVE HEXAGONAL HEADS.
7. STEEL WASHERS SHALL BE  $\frac{1}{4}$ " O.D. X  $\frac{3}{8}$ " I.D. X  $\frac{1}{16}$ "
8. NYLON WASHERS SHALL BE  $\frac{1}{4}$ " O.D. X  $\frac{3}{8}$ " I.D. X .080 FOR TYPE H OR TYPE F FACE SIGN

✱ LAG BOLTS SHALL BE  $\frac{3}{8}$ " X  $2\frac{1}{2}$ "

BLOCK BANDING DETAIL  
( V-BLOCK OPTION )

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 4/19/2022 PLATE NO. A5-10.3

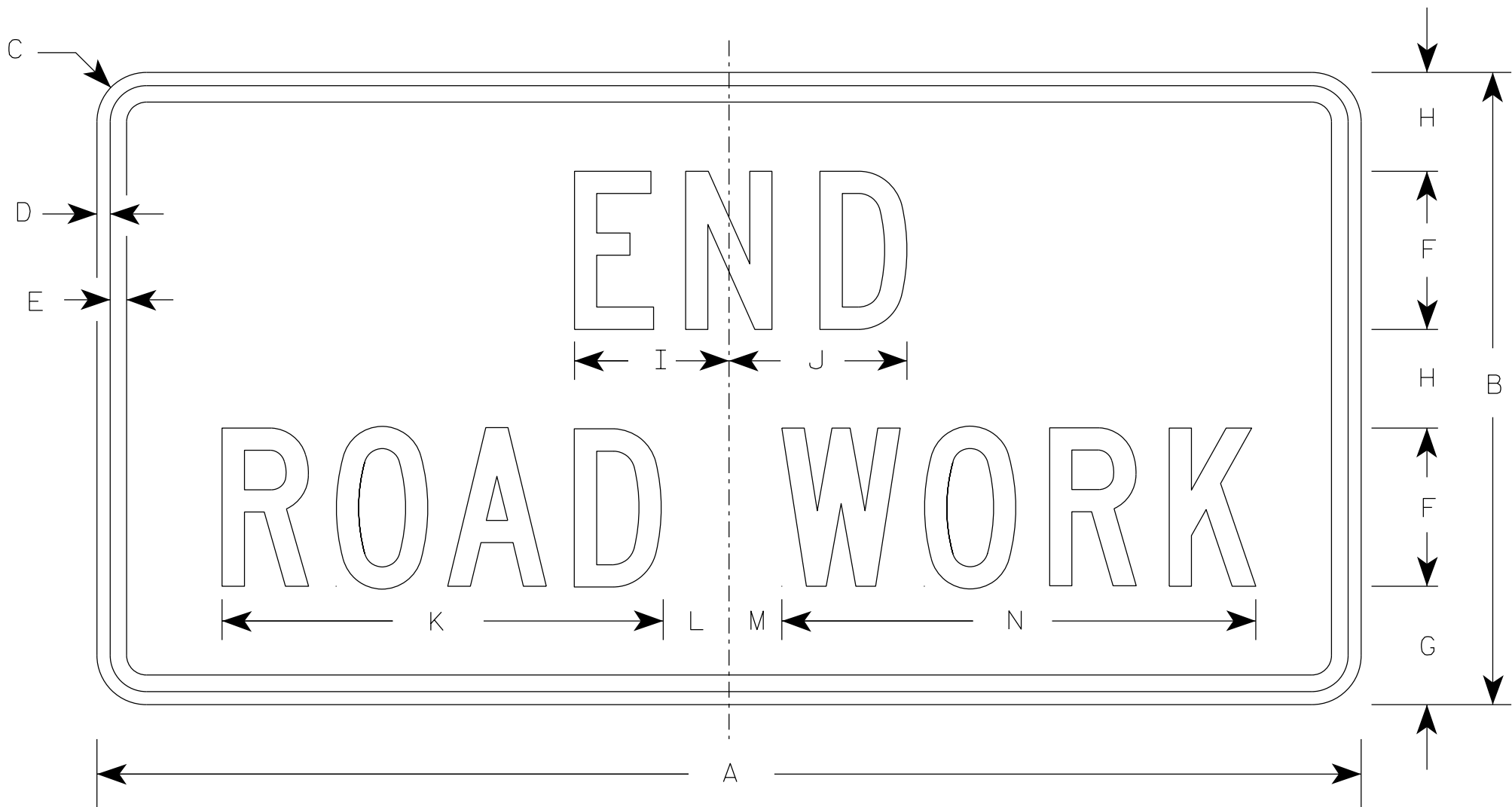
PROJECT NO:

SHEET NO:

E

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:  
Background - Orange  
Message - Black
- 3. Message Series - C
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



G20-2A

| SIZE | A  | B  | C     | D   | E   | F | G     | H     | I     | J     | K      | L     | M     | N      | O | P | Q | R | S | T | U | V | W | X | Y | Z | Area<br>sq. ft. |
|------|----|----|-------|-----|-----|---|-------|-------|-------|-------|--------|-------|-------|--------|---|---|---|---|---|---|---|---|---|---|---|---|-----------------|
| 1    | 36 | 18 | 1 1/2 | 3/8 | 1/2 | 4 | 3 3/4 | 2 1/2 | 4 1/8 | 4 1/8 | 11 1/8 | 2     | 1     | 12 1/8 |   |   |   |   |   |   |   |   |   |   |   |   | 4.5             |
| 2    | 48 | 24 | 1 7/8 | 1/2 | 5/8 | 6 | 4 1/2 | 3 3/4 | 5 7/8 | 6 3/4 | 16 3/4 | 2 1/2 | 1 3/4 | 18 1/2 |   |   |   |   |   |   |   |   |   |   |   |   | 8.0             |
| 2M   | 48 | 24 | 1 7/8 | 1/2 | 5/8 | 6 | 4 1/2 | 3 3/4 | 5 7/8 | 6 3/4 | 16 3/4 | 2 1/2 | 1 3/4 | 18 1/2 |   |   |   |   |   |   |   |   |   |   |   |   | 8.0             |
| 3    | 48 | 24 | 1 7/8 | 1/2 | 5/8 | 6 | 4 1/2 | 3 3/4 | 5 7/8 | 6 3/4 | 16 3/4 | 2 1/2 | 1 3/4 | 18 1/2 |   |   |   |   |   |   |   |   |   |   |   |   | 8.0             |
| 4    | 48 | 24 | 1 7/8 | 1/2 | 5/8 | 6 | 4 1/2 | 3 3/4 | 5 7/8 | 6 3/4 | 16 3/4 | 2 1/2 | 1 3/4 | 18 1/2 |   |   |   |   |   |   |   |   |   |   |   |   | 8.0             |
| 5    | 48 | 24 | 1 7/8 | 1/2 | 5/8 | 6 | 4 1/2 | 3 3/4 | 5 7/8 | 6 3/4 | 16 3/4 | 2 1/2 | 1 3/4 | 18 1/2 |   |   |   |   |   |   |   |   |   |   |   |   | 8.0             |

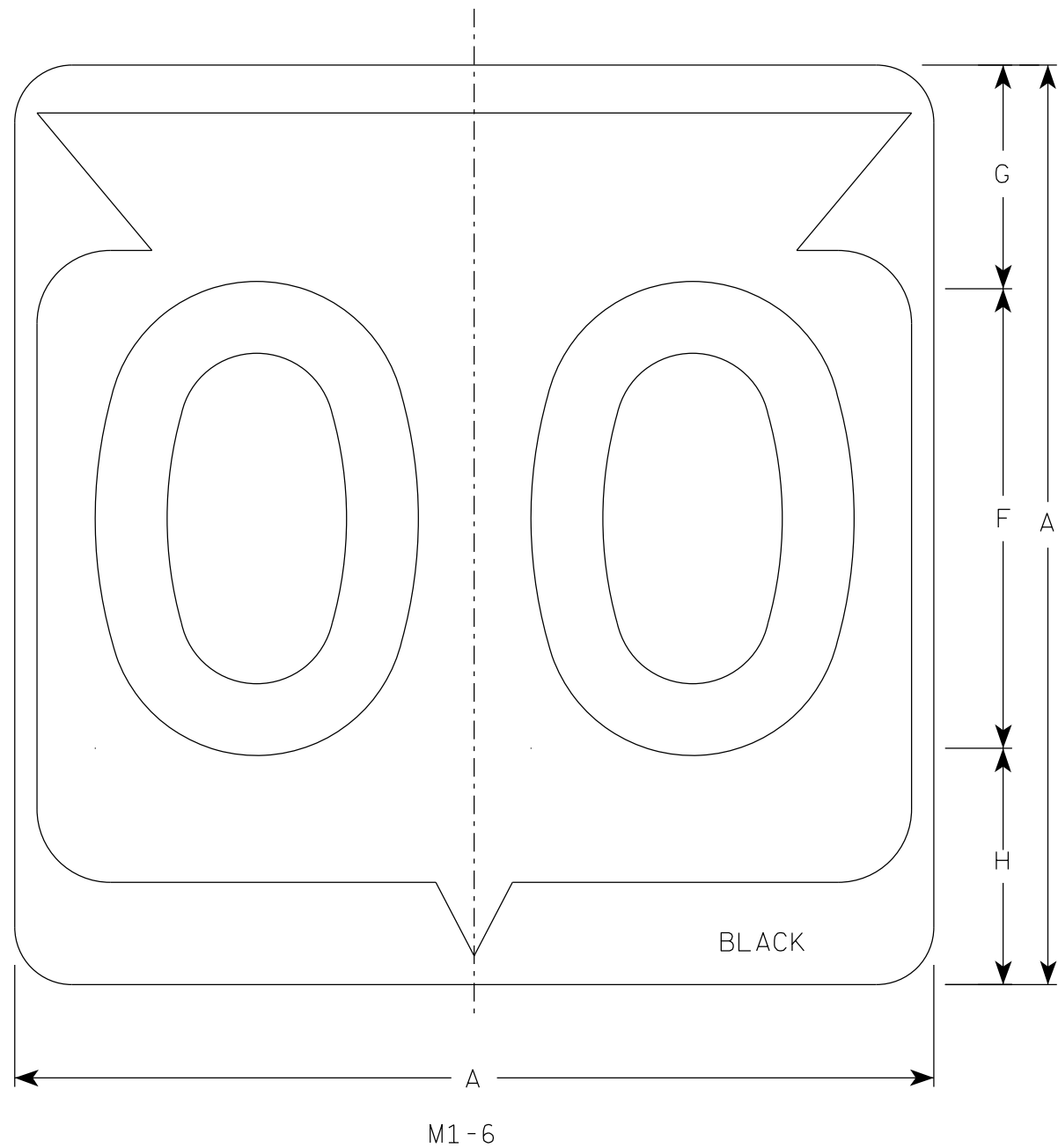
STANDARD SIGN

G20-2A

WISCONSIN DEPT OF TRANSPORTATION

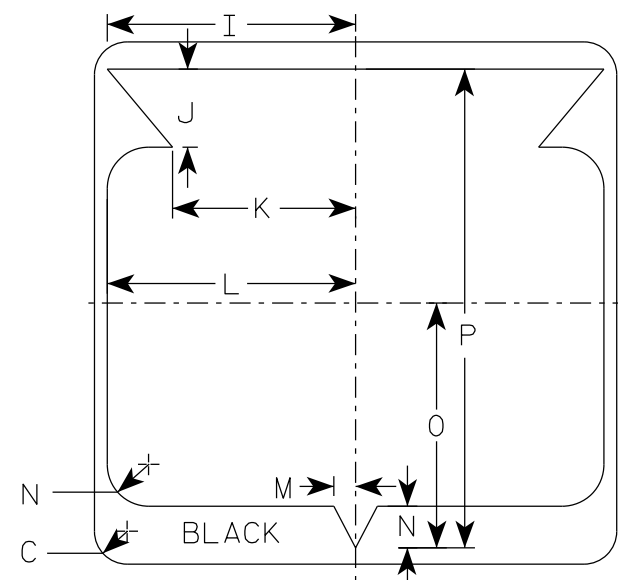
APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 1/26/2023 PLATE NO. G20-2A.10



NOTES

1. Sign is Type II - Type H Reflective
2. Color:  
Background - White  
Message - Black
3. Message Series - D except 3 number signs Series C



| SIZE | A  | B | C     | D | E | F  | G     | H     | I      | J     | K      | L      | M     | N     | O      | P      | Q | R | S | T | U | v | W | X | Y | Z | Area<br>sq. ft. |
|------|----|---|-------|---|---|----|-------|-------|--------|-------|--------|--------|-------|-------|--------|--------|---|---|---|---|---|---|---|---|---|---|-----------------|
| 1    |    |   |       |   |   |    |       |       |        |       |        |        |       |       |        |        |   |   |   |   |   |   |   |   |   |   |                 |
| 2    | 24 |   | 1 1/2 |   |   | 12 | 5 1/2 | 6 1/2 | 10 1/4 | 2 1/2 | 8 7/8  | 11 1/2 | 1     | 1 7/8 | 11 1/4 | 21 7/8 |   |   |   |   |   |   |   |   |   |   | 4.0             |
| 2M   | 24 |   | 1 1/2 |   |   | 12 | 5 1/2 | 6 1/2 | 10 1/4 | 2 1/2 | 8 7/8  | 11 1/2 | 1     | 1 7/8 | 11 1/4 | 21 7/8 |   |   |   |   |   |   |   |   |   |   | 4.0             |
| 3    | 36 |   | 2 1/4 |   |   | 18 | 8 3/4 | 9 1/4 | 15 3/8 | 5 3/8 | 12 5/8 | 17 1/8 | 1 1/2 | 2 7/8 | 16 7/8 | 33     |   |   |   |   |   |   |   |   |   |   | 9.0             |
| 4    | 36 |   | 2 1/4 |   |   | 18 | 8 3/4 | 9 1/4 | 15 3/8 | 5 3/8 | 12 5/8 | 17 1/8 | 1 1/2 | 2 7/8 | 16 7/8 | 33     |   |   |   |   |   |   |   |   |   |   | 9.0             |
| 5    | 36 |   | 2 1/4 |   |   | 18 | 8 3/4 | 9 1/4 | 15 3/8 | 5 3/8 | 12 5/8 | 17 1/8 | 1 1/2 | 2 7/8 | 16 7/8 | 33     |   |   |   |   |   |   |   |   |   |   | 9.0             |

STATE ROUTE MARKER  
M1-6 FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 11/8/2022 PLATE NO. M1-6.11

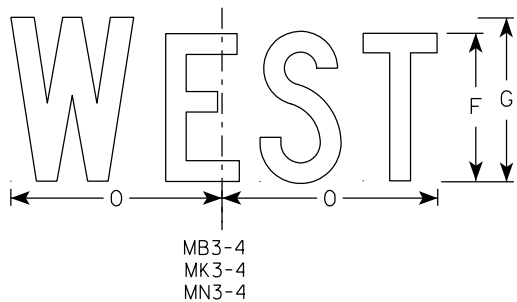
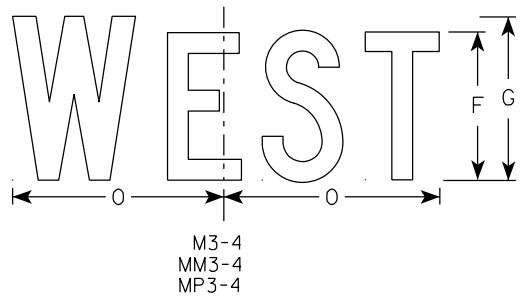
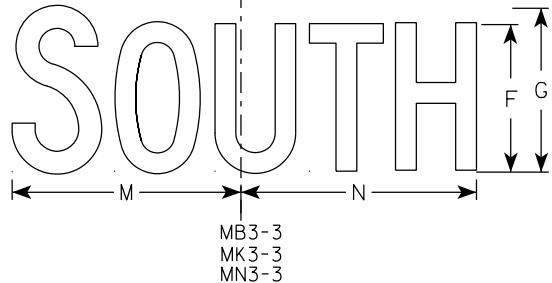
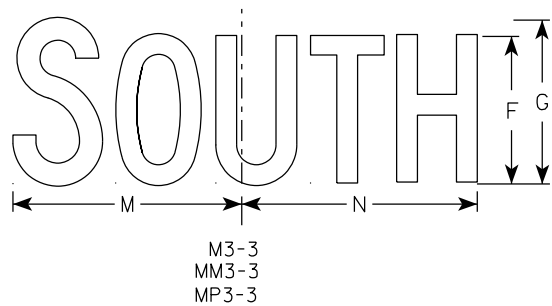
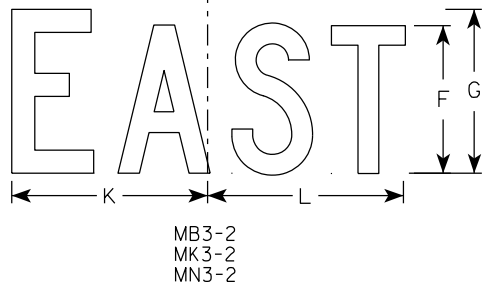
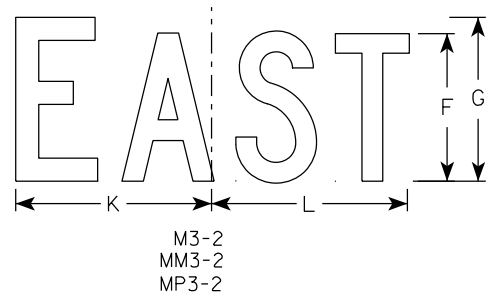
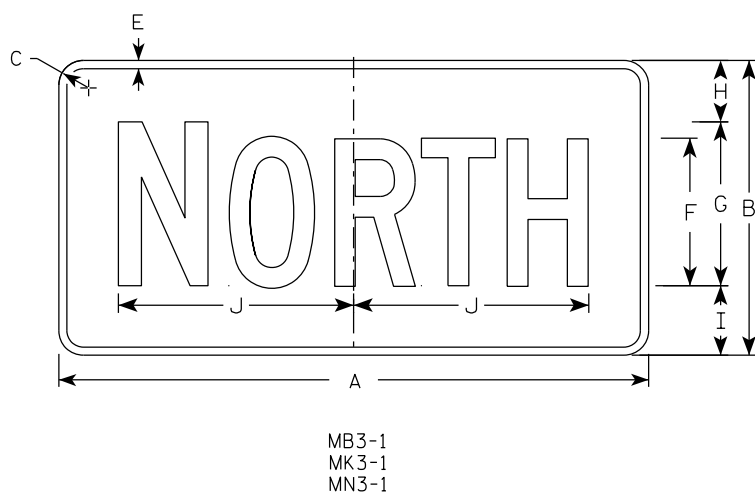
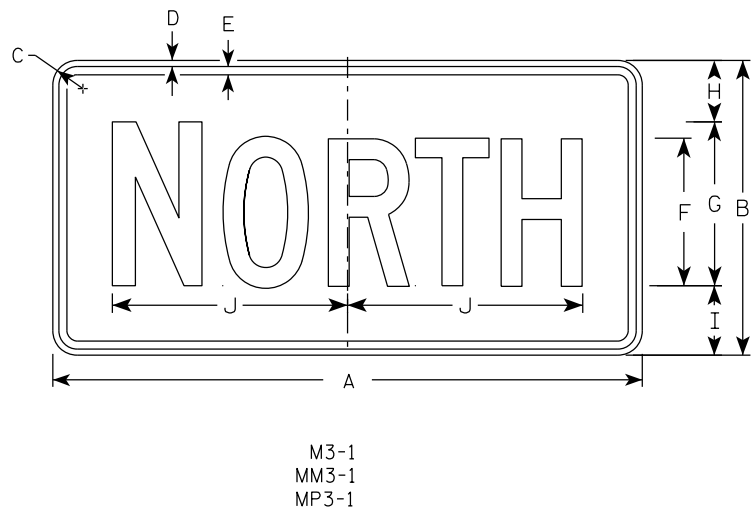
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



NOTES

1. All Signs Type II - Type H Reflective
2. Color:  
Background - See note 5  
Message - See note 5
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. M3-1 thru M3-4 Background - White  
Message - Black  
MB3-1 thru MB3-4 Background - Blue  
Message - White  
MK3-1 thru MK3-4 Background - Green  
Message - White  
MM3-1 thru MM3-4 Background - White  
Message - Green  
MN3-1 thru MN3-4 Background - Brown  
Message - White  
MP3-1 thru MP3-4 Background - White  
Message - Blue
6. Note the first letter of each direction is larger than the remainder of the message.

| SIZE | A  | B  | C     | D   | E   | F | G  | H     | I     | J      | K     | L      | M      | N      | O     | P | Q | R | S | T | U | V | W | X | Y | Z | Area<br>sq. ft. |
|------|----|----|-------|-----|-----|---|----|-------|-------|--------|-------|--------|--------|--------|-------|---|---|---|---|---|---|---|---|---|---|---|-----------------|
| 1    |    |    |       |     |     |   |    |       |       |        |       |        |        |        |       |   |   |   |   |   |   |   |   |   |   |   |                 |
| 2S   | 24 | 12 | 1 1/2 | 3/8 | 3/8 | 6 | 7  | 2 1/4 | 2 3/4 | 10 1/4 | 7 7/8 | 8 3/8  | 10 1/4 | 9 3/4  | 8 3/4 |   |   |   |   |   |   |   |   |   |   |   | 2.00            |
| 2M   | 24 | 12 | 1 1/2 | 3/8 | 3/8 | 6 | 7  | 2 1/4 | 2 3/4 | 10 1/4 | 7 7/8 | 8 3/8  | 10 1/4 | 9 3/4  | 8 3/4 |   |   |   |   |   |   |   |   |   |   |   | 2.00            |
| 3    | 36 | 18 | 1 1/2 | 3/8 | 1/2 | 9 | 10 | 3 3/4 | 4 1/4 | 14 3/8 | 12    | 12 1/8 | 14     | 14 1/8 | 13    |   |   |   |   |   |   |   |   |   |   |   | 4.5             |
| 4    | 36 | 18 | 1 1/2 | 3/8 | 1/2 | 9 | 10 | 3 3/4 | 4 1/4 | 14 3/8 | 12    | 12 1/8 | 14     | 14 1/8 | 13    |   |   |   |   |   |   |   |   |   |   |   | 4.5             |
| 5    | 36 | 18 | 1 1/2 | 3/8 | 1/2 | 9 | 10 | 3 3/4 | 4 1/4 | 14 3/8 | 12    | 12 1/8 | 14     | 14 1/8 | 13    |   |   |   |   |   |   |   |   |   |   |   | 4.5             |

|             |      |         |           |   |
|-------------|------|---------|-----------|---|
| PROJECT NO: | HWY: | COUNTY: | SHEET NO: | E |
|-------------|------|---------|-----------|---|

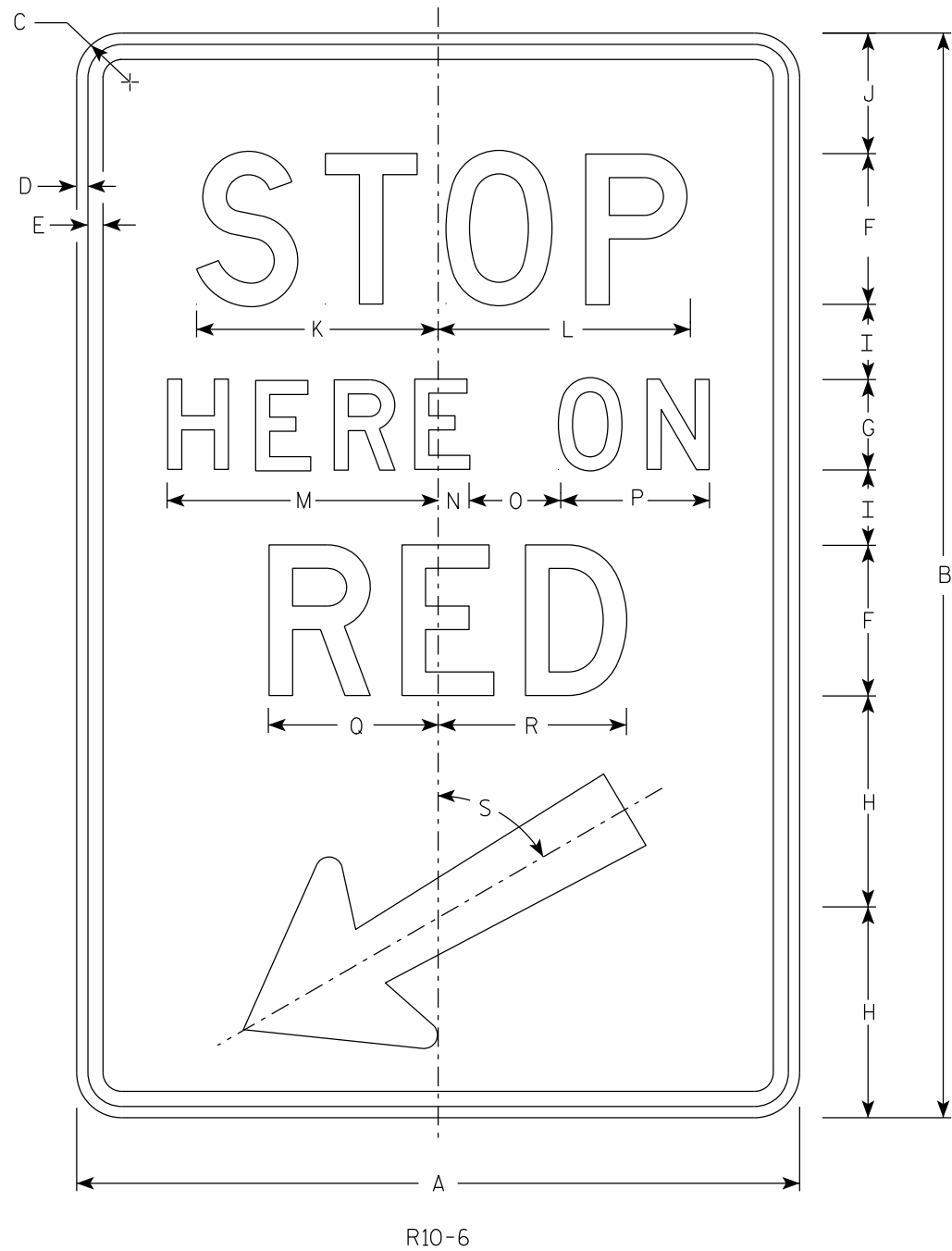
STANDARD SIGNS  
M3-1 THRU M3-4  
SERIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

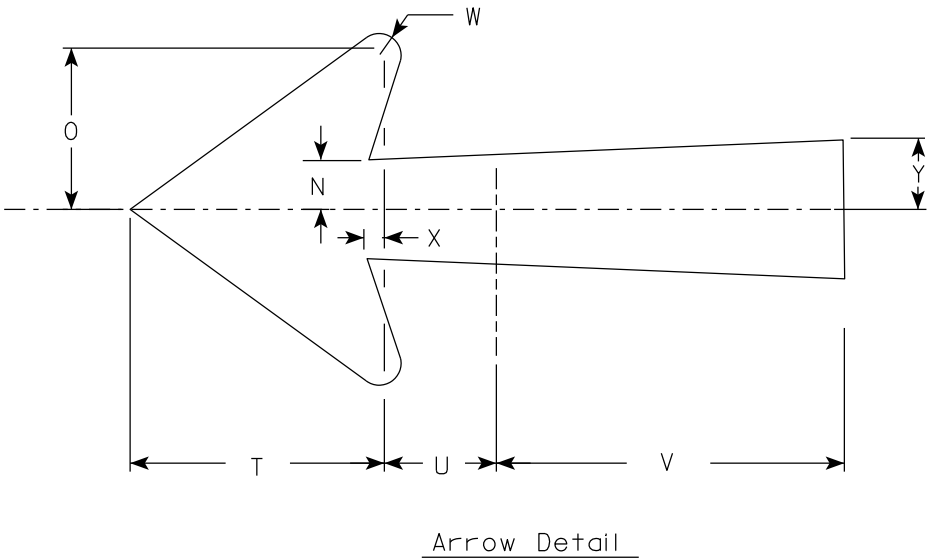
DATE 2/8/2023 PLATE NO. M3-1.15

7



NOTES

- 1. Sign is Type II - Type H Reflective
- 2. Color:  
Background - White  
Message - Black
- 3. Message Series - D



7

| SIZE | A  | B  | C     | D   | E   | F | G | H | I     | J | K | L     | M | N | O | P | Q     | R     | S   | T     | U     | V     | W   | X   | Y     | Z | Areq.<br>sq. ft. |
|------|----|----|-------|-----|-----|---|---|---|-------|---|---|-------|---|---|---|---|-------|-------|-----|-------|-------|-------|-----|-----|-------|---|------------------|
| 1    |    |    |       |     |     |   |   |   |       |   |   |       |   |   |   |   |       |       |     |       |       |       |     |     |       |   |                  |
| 2S   | 24 | 36 | 1 1/2 | 3/8 | 1/2 | 5 | 3 | 7 | 2 1/2 | 4 | 8 | 8 3/8 | 9 | 1 | 3 | 5 | 5 5/8 | 6 1/4 | 60° | 5 1/4 | 2 1/4 | 7 1/8 | 1/2 | 3/8 | 1 3/8 |   | 6.0              |
| 2M   | 24 | 36 | 1 1/2 | 3/8 | 1/2 | 5 | 3 | 7 | 2 1/2 | 4 | 8 | 8 3/8 | 9 | 1 | 3 | 5 | 5 5/8 | 6 1/4 | 60° | 5 1/4 | 2 1/4 | 7 1/8 | 1/2 | 3/8 | 1 3/8 |   | 6.0              |
| 3    |    |    |       |     |     |   |   |   |       |   |   |       |   |   |   |   |       |       |     |       |       |       |     |     |       |   |                  |
| 4    |    |    |       |     |     |   |   |   |       |   |   |       |   |   |   |   |       |       |     |       |       |       |     |     |       |   |                  |
| 5    |    |    |       |     |     |   |   |   |       |   |   |       |   |   |   |   |       |       |     |       |       |       |     |     |       |   |                  |

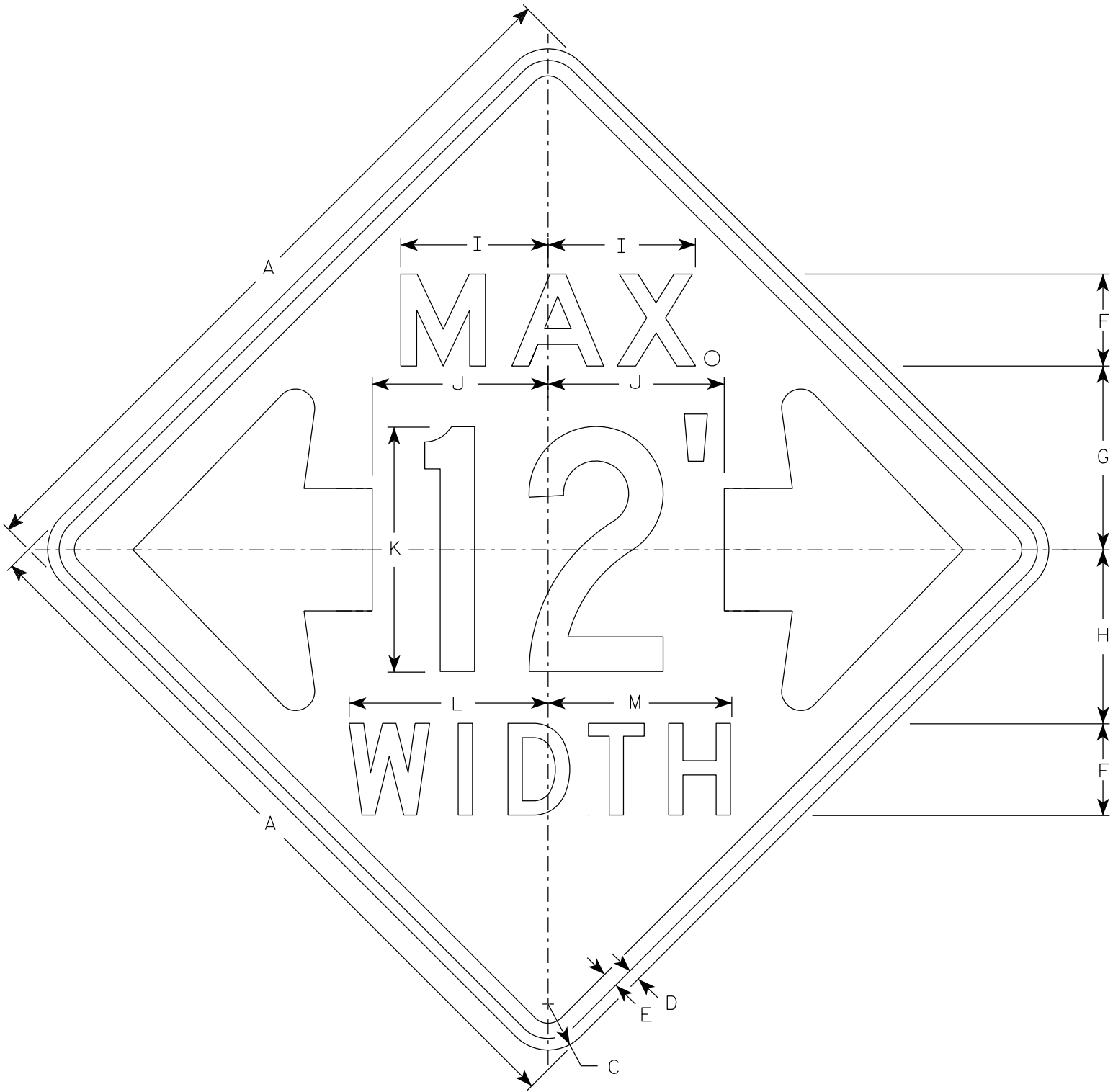
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

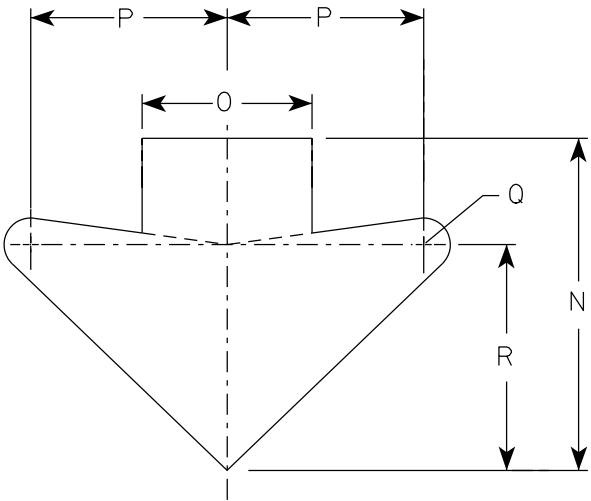
E



W12-52

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:  
Background - Orange  
Message - Black
- 3. Message Series - See note 5
- 4. The top line is series E, the numerals are series C, and the bottom line is series D.
- 5. Substitute appropriate numerals and adjust spacing as required.



ARROW DETAIL

| SIZE | A  | B | C | D | E | F | G  | H    | I   | J    | K  | L  | M  | N    | O | P   | Q   | R    | S | T | U | V | W | X | Y | Z | Area<br>sq. ft. |
|------|----|---|---|---|---|---|----|------|-----|------|----|----|----|------|---|-----|-----|------|---|---|---|---|---|---|---|---|-----------------|
| 1    |    |   |   |   |   |   |    |      |     |      |    |    |    |      |   |     |     |      |   |   |   |   |   |   |   |   |                 |
| 2S   | 48 |   | 3 | ¾ | 1 | 6 | 12 | 11 ⅜ | 9 ⅝ | 11 ½ | 16 | 13 | 12 | 15 ⅝ | 8 | 9 ¼ | 1 ¼ | 10 ⅝ |   |   |   |   |   |   |   |   | 16.0            |
| 2M   | 48 |   | 3 | ¾ | 1 | 6 | 12 | 11 ⅜ | 9 ⅝ | 11 ½ | 16 | 13 | 12 | 15 ⅝ | 8 | 9 ¼ | 1 ¼ | 10 ⅝ |   |   |   |   |   |   |   |   | 16.0            |
| 3    |    |   |   |   |   |   |    |      |     |      |    |    |    |      |   |     |     |      |   |   |   |   |   |   |   |   |                 |
| 4    |    |   |   |   |   |   |    |      |     |      |    |    |    |      |   |     |     |      |   |   |   |   |   |   |   |   |                 |
| 5    |    |   |   |   |   |   |    |      |     |      |    |    |    |      |   |     |     |      |   |   |   |   |   |   |   |   |                 |

STANDARD SIGN

W12-52

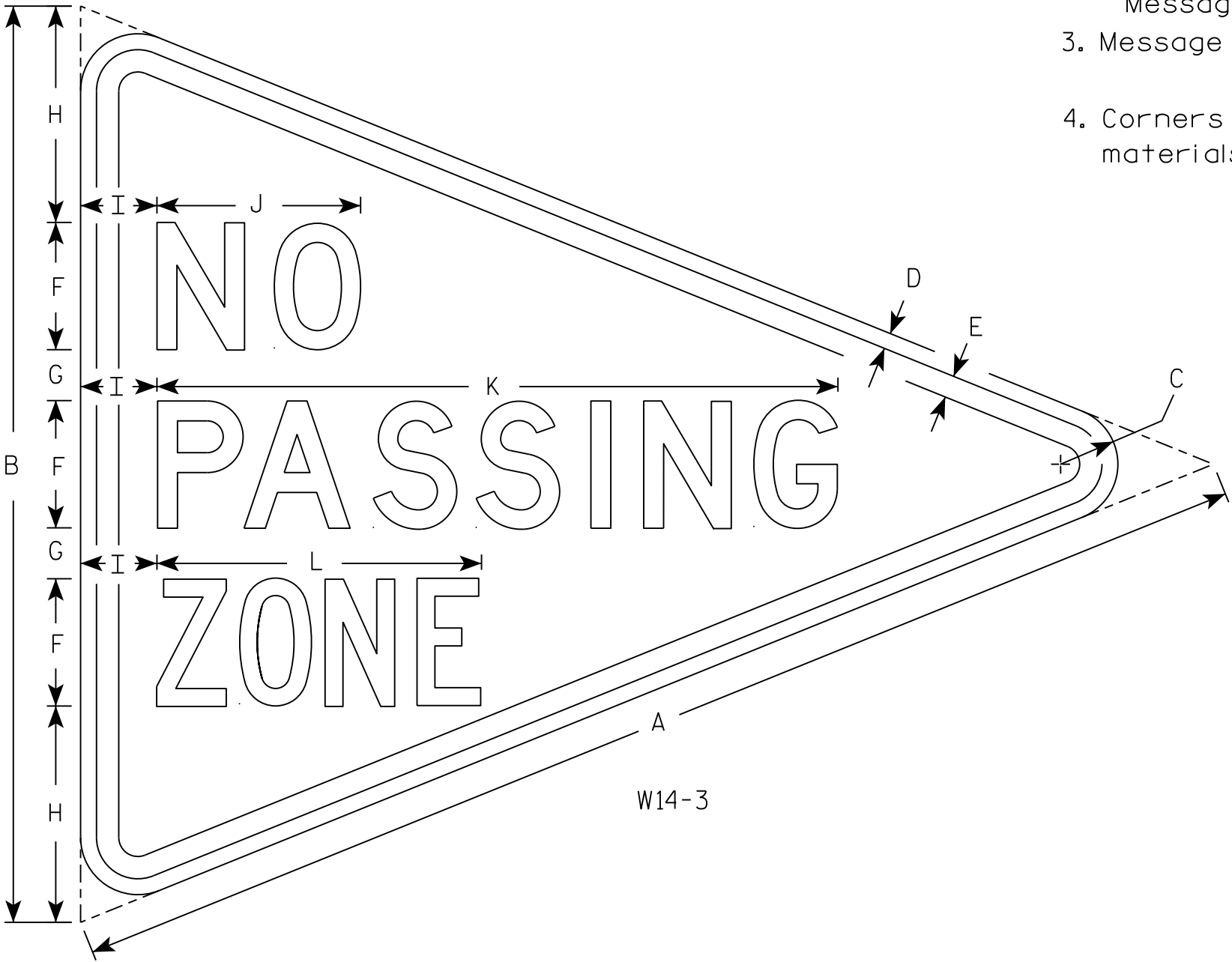
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 3/10/2024 PLATE NO. W12-52.8

NOTES

- 1. Sign is Type II- Type F Reflective
- 2. Color:  
Background - Yellow  
Message - Black
- 3. Message Series - Lines 1 and 2 are Series D.  
Line 3 is series C.
- 4. Corners and borders shall be rounded on all base materials for this sign.



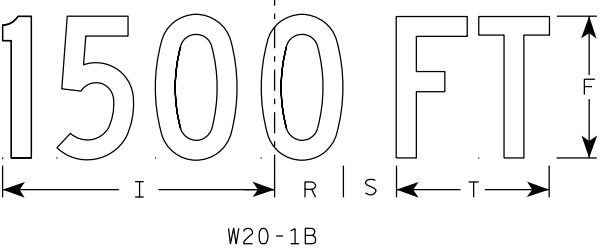
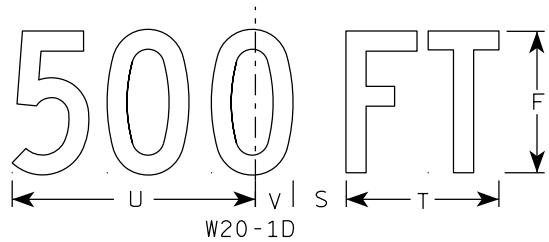
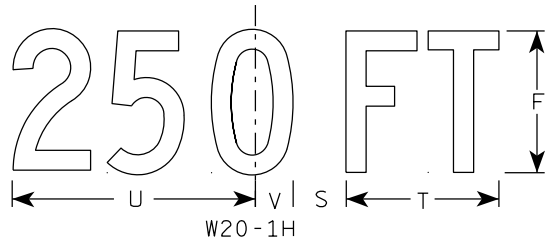
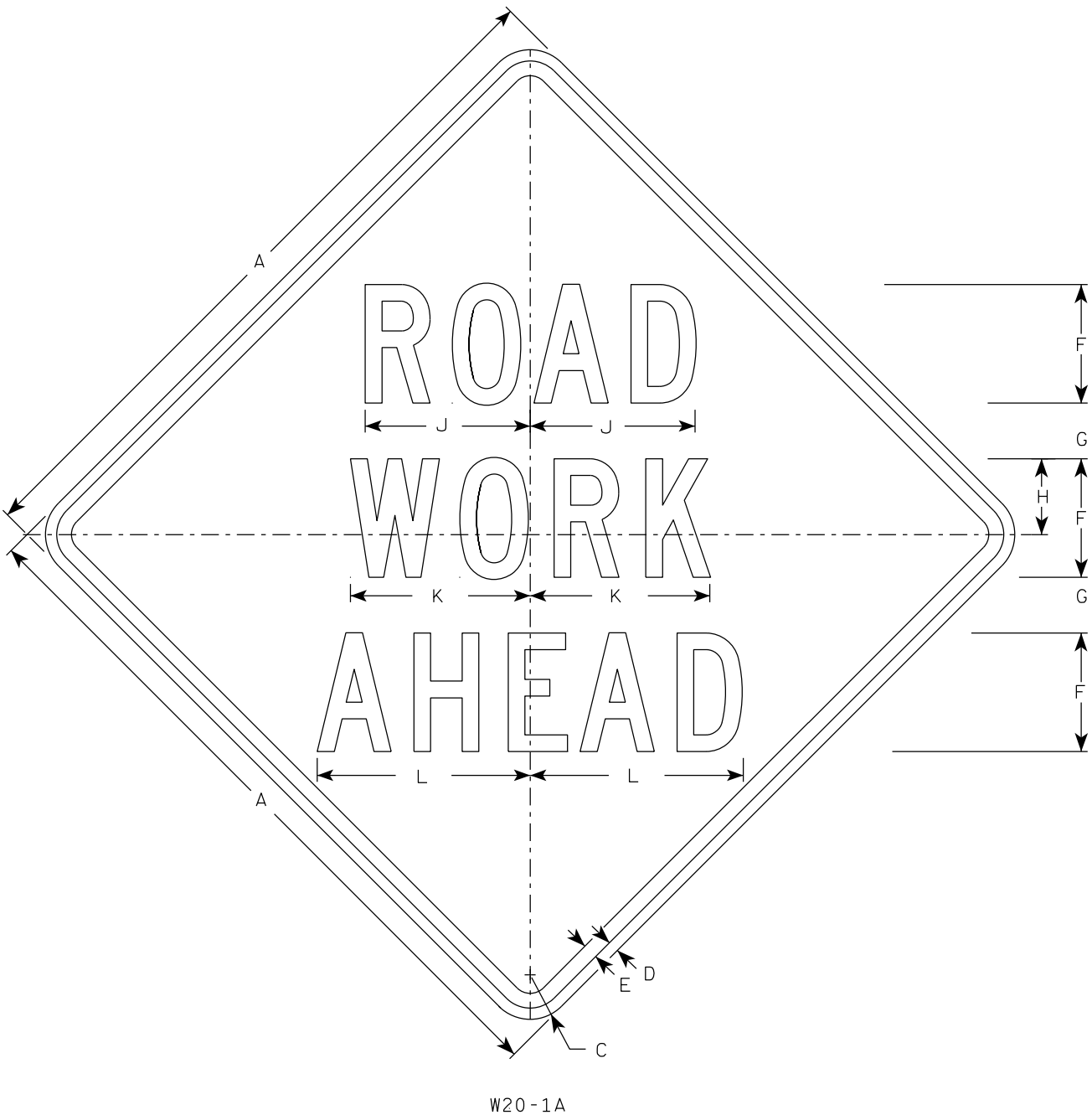
| SIZE | A  | B  | C     | D   | E   | F | G | H     | I | J | K      | L      | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | Area<br>sq. ft. |
|------|----|----|-------|-----|-----|---|---|-------|---|---|--------|--------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----------------|
| 1    |    |    |       |     |     |   |   |       |   |   |        |        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                 |
| 2S   | 48 | 36 | 2 1/4 | 5/8 | 7/8 | 5 | 2 | 8 1/2 | 3 | 8 | 26 3/4 | 12 3/4 |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 5.56            |
| 2M   |    |    |       |     |     |   |   |       |   |   |        |        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                 |
| 3    |    |    |       |     |     |   |   |       |   |   |        |        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                 |
| 4    |    |    |       |     |     |   |   |       |   |   |        |        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                 |
| 5    |    |    |       |     |     |   |   |       |   |   |        |        |   |   |   |   |   |   |   |   |   |   |   |   |   |   |                 |

STANDARD SIGN  
W14-3

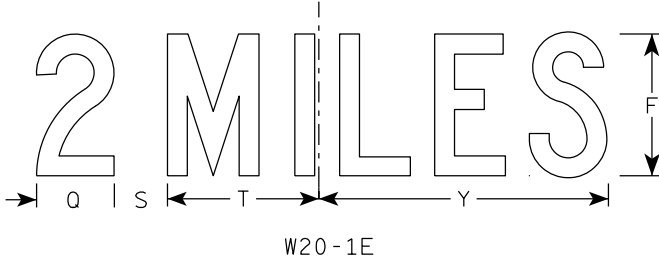
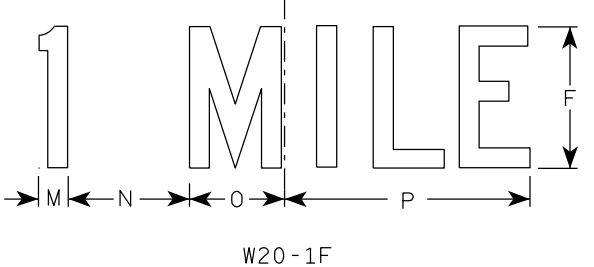
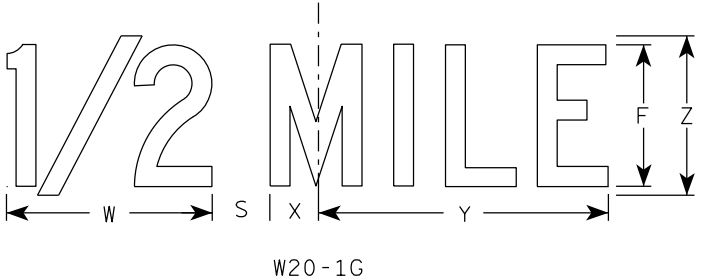
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 3/21/17 PLATE NO. W14-3.10



- NOTES
1. Sign is Type II - Type F Reflective
  2. Color:  
Background - Orange  
Message - Black
  3. Message Series - C
  4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



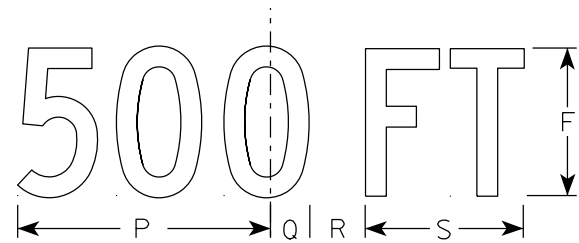
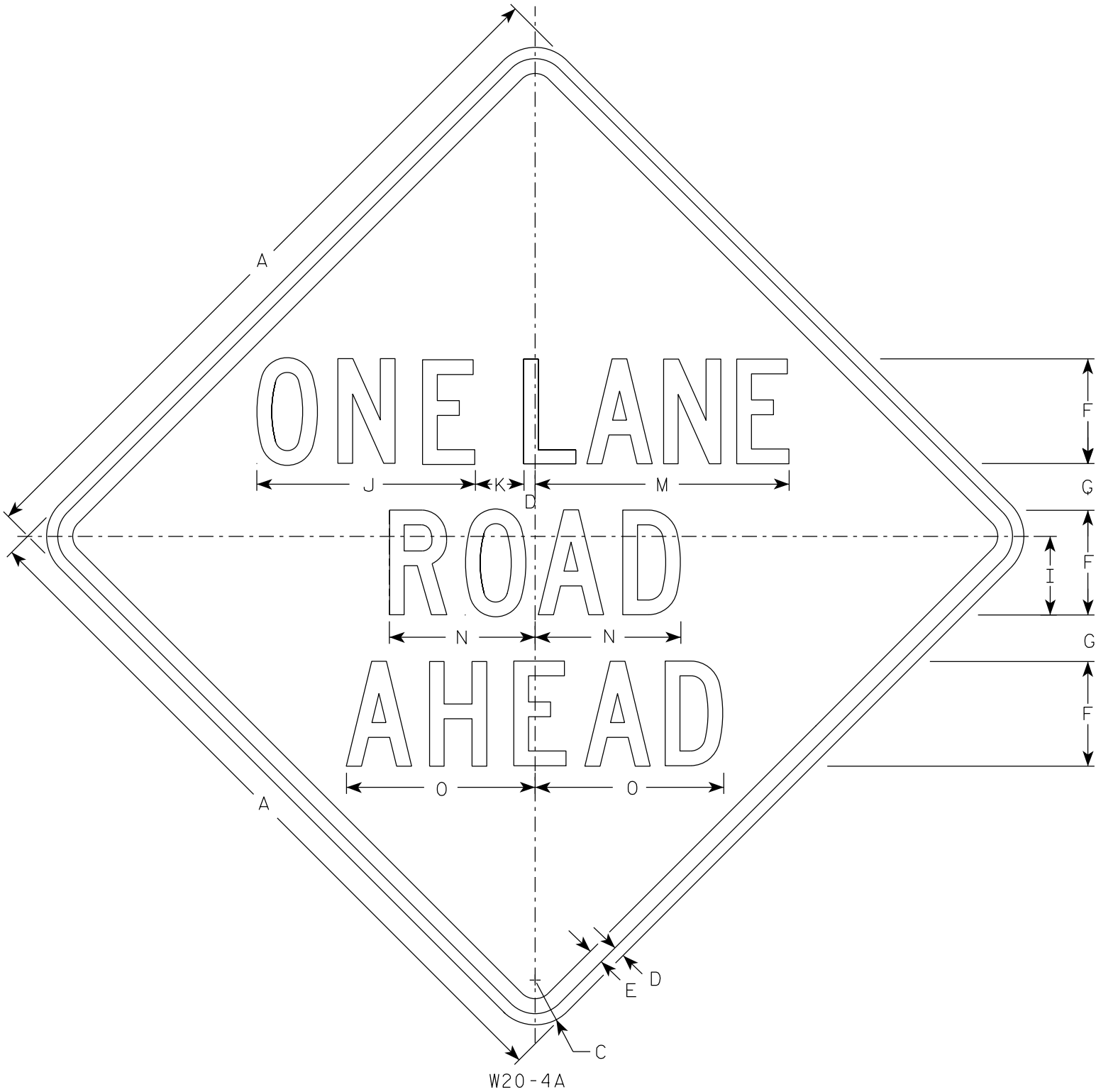
| SIZE | A  | B | C     | D   | E   | F | G     | H     | I      | J      | K      | L      | M     | N     | O     | P      | Q     | R     | S     | T     | U      | v     | W      | X     | Y      | Z | Area<br>sq. ft. |
|------|----|---|-------|-----|-----|---|-------|-------|--------|--------|--------|--------|-------|-------|-------|--------|-------|-------|-------|-------|--------|-------|--------|-------|--------|---|-----------------|
| 1    | 36 |   | 2 1/4 | 5/8 | 3/4 | 5 | 2 5/8 | 3 1/4 | 10 1/8 | 7      | 7 5/8  | 8 7/8  | 1 1/8 | 4 1/2 | 3 1/2 | 9      | 3 1/4 | 2 1/2 | 2 1/4 | 5 5/8 | 9      | 1 3/8 | 8      | 1 3/4 | 10 3/4 | 6 | 9.0             |
| 2S   | 48 |   | 3     | 3/4 | 1   | 8 | 3 3/4 | 5 1/8 | 15 3/8 | 11 1/8 | 12 1/8 | 14 3/8 | 1 5/8 | 6 7/8 | 5 3/8 | 13 7/8 | 4 3/8 | 3 7/8 | 3     | 8 5/8 | 13 3/4 | 2 1/8 | 11 7/8 | 2 3/4 | 16 3/8 | 9 | 16.0            |
| 2M   | 48 |   | 3     | 3/4 | 1   | 8 | 3 3/4 | 5 1/8 | 15 3/8 | 11 1/8 | 12 1/8 | 14 3/8 | 1 5/8 | 6 7/8 | 5 3/8 | 13 7/8 | 4 3/8 | 3 7/8 | 3     | 8 5/8 | 13 3/4 | 2 1/8 | 11 7/8 | 2 3/4 | 16 3/8 | 9 | 16.0            |
| 3    | 48 |   | 3     | 3/4 | 1   | 8 | 3 3/4 | 5 1/8 | 15 3/8 | 11 1/8 | 12 1/8 | 14 3/8 | 1 5/8 | 6 7/8 | 5 3/8 | 13 7/8 | 4 3/8 | 3 7/8 | 3     | 8 5/8 | 13 3/4 | 2 1/8 | 11 7/8 | 2 3/4 | 16 3/8 | 9 | 16.0            |
| 4    | 48 |   | 3     | 3/4 | 1   | 8 | 3 3/4 | 5 1/8 | 15 3/8 | 11 1/8 | 12 1/8 | 14 3/8 | 1 5/8 | 6 7/8 | 5 3/8 | 13 7/8 | 4 3/8 | 3 7/8 | 3     | 8 5/8 | 13 3/4 | 2 1/8 | 11 7/8 | 2 3/4 | 16 3/8 | 9 | 16.0            |
| 5    | 48 |   | 3     | 3/4 | 1   | 8 | 3 3/4 | 5 1/8 | 15 3/8 | 11 1/8 | 12 1/8 | 14 3/8 | 1 5/8 | 6 7/8 | 5 3/8 | 13 7/8 | 4 3/8 | 3 7/8 | 3     | 8 5/8 | 13 3/4 | 2 1/8 | 11 7/8 | 2 3/4 | 16 3/8 | 9 | 16.0            |

STANDARD SIGN  
W20-1A, B, C, D, E, F, G & H

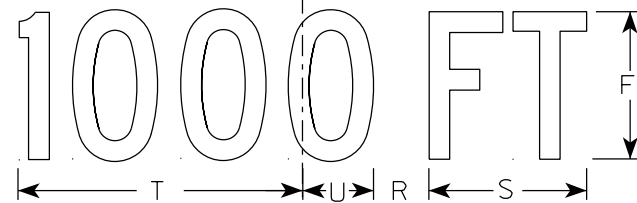
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

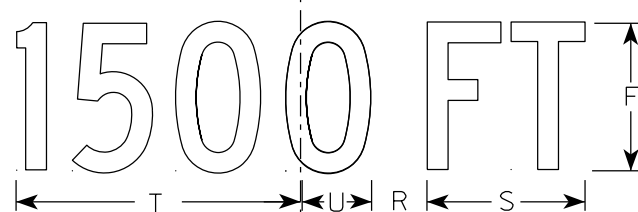
DATE 1/10/2024 PLATE NO. W20-1.12



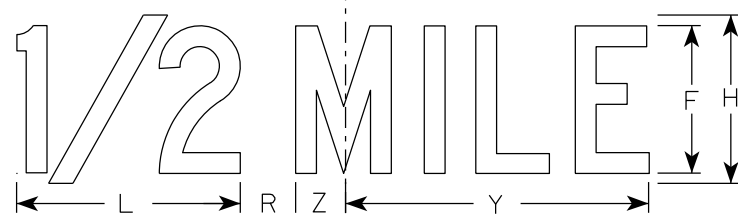
W20-4D



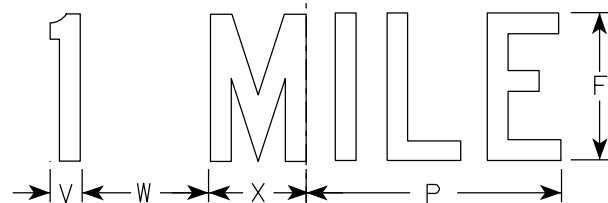
W20-4C



W20-4B



W20-4G



W20-4F

NOTES

- Sign is Type II - Type F Reflective
- Color:  
Background - Orange  
Message - Black
- Message Series - C
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

| SIZE | A  | B | C     | D   | E   | F | G     | H | I     | J      | K     | L      | M      | N     | O      | P  | Q     | R     | S     | T      | U     | V     | W     | X     | Y      | Z     | Area<br>sq. ft. |
|------|----|---|-------|-----|-----|---|-------|---|-------|--------|-------|--------|--------|-------|--------|----|-------|-------|-------|--------|-------|-------|-------|-------|--------|-------|-----------------|
| 1    | 36 |   | 2 1/4 | 5/8 | 3/4 | 5 | 2 3/8 | 6 | 3 3/4 | 10 3/8 | 2 3/8 | 8      | 13 1/2 | 7     | 8 7/8  | 9  | 1 3/8 | 1 7/8 | 5 5/8 | 10 1/8 | 2 1/2 | 1 1/8 | 4 1/2 | 3 1/2 | 10 3/4 | 1 3/4 | 9.0             |
| 2S   | 48 |   | 3     | 3/4 | 1   | 7 | 3 1/8 | 8 | 5 1/4 | 14 5/8 | 3 1/4 | 10 5/8 | 17 3/4 | 9 3/4 | 12 5/8 | 12 | 1 7/8 | 2 5/8 | 7 1/2 | 13 1/2 | 3 3/8 | 1 1/2 | 6     | 4 5/8 | 14 3/8 | 2 3/8 | 16.0            |
| 2M   | 48 |   | 3     | 3/4 | 1   | 7 | 3 1/8 | 8 | 5 1/4 | 14 5/8 | 3 1/4 | 10 5/8 | 17 3/4 | 9 3/4 | 12 5/8 | 12 | 1 7/8 | 2 5/8 | 7 1/2 | 13 1/2 | 3 3/8 | 1 1/2 | 6     | 4 5/8 | 14 3/8 | 2 3/8 | 16.0            |
| 3    | 48 |   | 3     | 3/4 | 1   | 7 | 3 1/8 | 8 | 5 1/4 | 14 5/8 | 3 1/4 | 10 5/8 | 17 3/4 | 9 3/4 | 12 5/8 | 12 | 1 7/8 | 2 5/8 | 7 1/2 | 13 1/2 | 3 3/8 | 1 1/2 | 6     | 4 5/8 | 14 3/8 | 2 3/8 | 16.0            |
| 4    | 48 |   | 3     | 3/4 | 1   | 7 | 3 1/8 | 8 | 5 1/4 | 14 5/8 | 3 1/4 | 10 5/8 | 17 3/4 | 9 3/4 | 12 5/8 | 12 | 1 7/8 | 2 5/8 | 7 1/2 | 13 1/2 | 3 3/8 | 1 1/2 | 6     | 4 5/8 | 14 3/8 | 2 3/8 | 16.0            |
| 5    | 48 |   | 3     | 3/4 | 1   | 7 | 3 1/8 | 8 | 5 1/4 | 14 5/8 | 3 1/4 | 10 5/8 | 17 3/4 | 9 3/4 | 12 5/8 | 12 | 1 7/8 | 2 5/8 | 7 1/2 | 13 1/2 | 3 3/8 | 1 1/2 | 6     | 4 5/8 | 14 3/8 | 2 3/8 | 16.0            |

STANDARD SIGN  
W20-4A, B, C, D, F & G

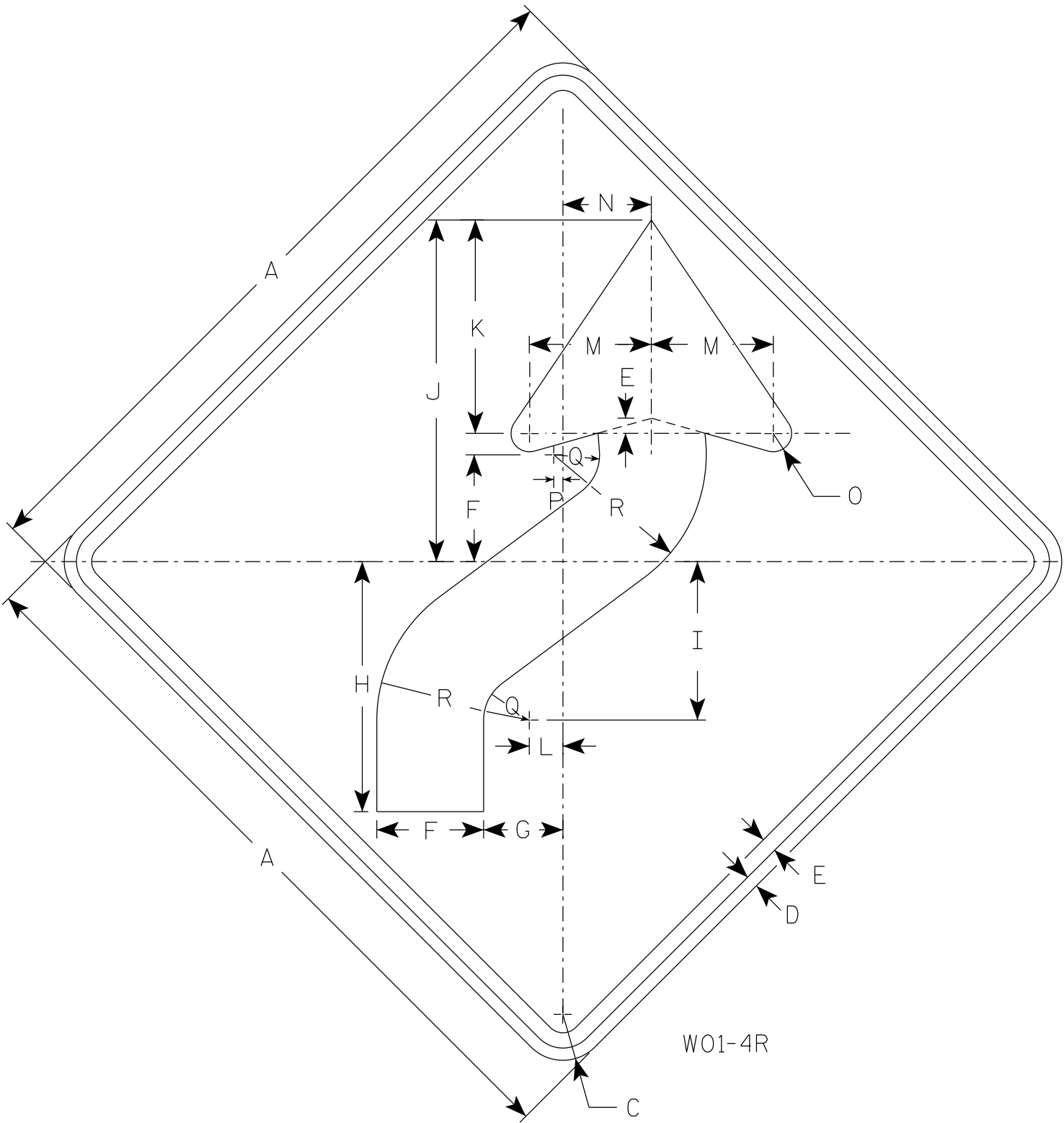
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 1/10/2024 PLATE NO. W20-4.10

PROJECT NO: SHEET NO: E

FILE NAME : C:\CAEfiles\Projects\tr\_stdplate\W204.DGN PLOT DATE : 10-JAN 2024 1:44 PLOT BY : dotc4c WISDOT/CADDs SHEET 42



NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:  
Background - Orange  
Message - Black
- 3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- 4. W01-4L is the same as W01-4R except the arrow is reversed along the vertical centerline.

| SIZE | A  | B | C     | D   | E   | F     | G     | H      | I      | J      | K      | L     | M | N     | O     | P   | Q     | R     | S | T | U | V | W | X | Y | Z | Area<br>sq. ft. |
|------|----|---|-------|-----|-----|-------|-------|--------|--------|--------|--------|-------|---|-------|-------|-----|-------|-------|---|---|---|---|---|---|---|---|-----------------|
| 1    | 36 |   | 2 1/4 | 5/8 | 3/4 | 5 1/4 | 4     | 12 3/8 | 7 7/8  | 16 7/8 | 10 1/2 | 1 5/8 | 6 | 4 1/2 | 1     | 1/2 | 2 1/4 | 7 1/2 |   |   |   |   |   |   |   |   | 9.0             |
| 2S   | 48 |   | 3     | 3/4 | 1   | 7     | 5 1/4 | 16 1/2 | 10 1/2 | 22 1/2 | 14     | 2 1/4 | 8 | 6     | 1 1/4 | 5/8 | 3     | 10    |   |   |   |   |   |   |   |   | 16.0            |
| 2M   | 48 |   | 3     | 3/4 | 1   | 7     | 5 1/4 | 16 1/2 | 10 1/2 | 22 1/2 | 14     | 2 1/4 | 8 | 6     | 1 1/4 | 5/8 | 3     | 10    |   |   |   |   |   |   |   |   | 16.0            |
| 3    | 48 |   | 3     | 3/4 | 1   | 7     | 5 1/4 | 16 1/2 | 10 1/2 | 22 1/2 | 14     | 2 1/4 | 8 | 6     | 1 1/4 | 5/8 | 3     | 10    |   |   |   |   |   |   |   |   | 16.0            |
| 4    | 48 |   | 3     | 3/4 | 1   | 7     | 5 1/4 | 16 1/2 | 10 1/2 | 22 1/2 | 14     | 2 1/4 | 8 | 6     | 1 1/4 | 5/8 | 3     | 10    |   |   |   |   |   |   |   |   | 16.0            |
| 5    | 48 |   | 3     | 3/4 | 1   | 7     | 5 1/4 | 16 1/2 | 10 1/2 | 22 1/2 | 14     | 2 1/4 | 8 | 6     | 1 1/4 | 5/8 | 3     | 10    |   |   |   |   |   |   |   |   | 16.0            |

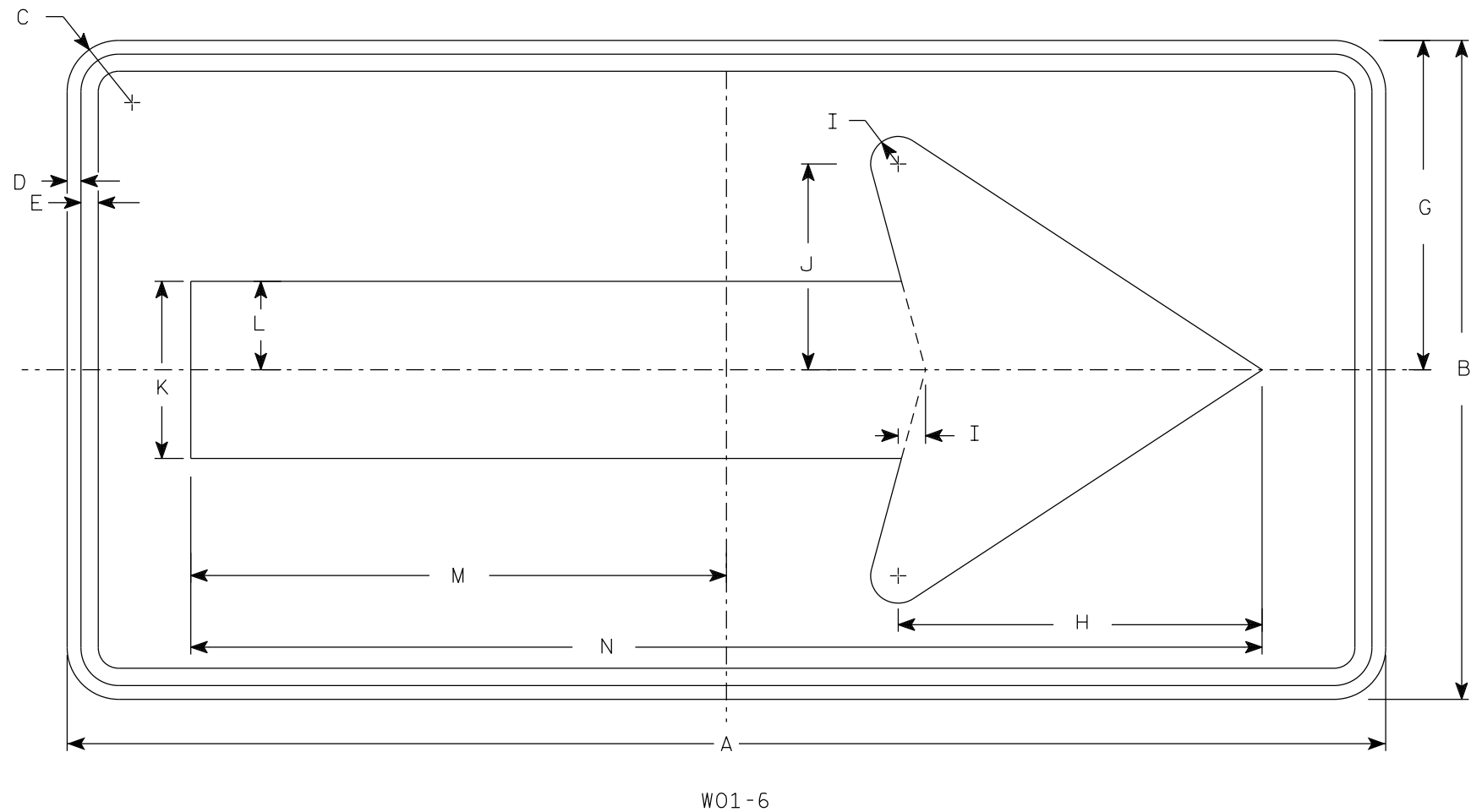
STANDARD SIGN  
W01-4

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
for State Traffic Engineer

DATE 1/24/2024 PLATE NO. W01-4.2

7



NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:  
Background - Orange  
Message - Black
- 3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

7

| SIZE | A  | B  | C     | D   | E   | F | G  | H      | I     | J     | K     | L     | M      | N      | O | P | Q | R | S | T | U | V | W | X | Y | Z | Area<br>sq. ft. |
|------|----|----|-------|-----|-----|---|----|--------|-------|-------|-------|-------|--------|--------|---|---|---|---|---|---|---|---|---|---|---|---|-----------------|
| 1    |    |    |       |     |     |   |    |        |       |       |       |       |        |        |   |   |   |   |   |   |   |   |   |   |   |   |                 |
| 2S   | 48 | 24 | 1 7⁄8 | 1⁄2 | 5⁄8 |   | 12 | 13 1⁄4 | 1     | 7 1⁄2 | 6 1⁄2 | 3 1⁄4 | 19 1⁄2 | 39     |   |   |   |   |   |   |   |   |   |   |   |   | 8.0             |
| 2M   | 48 | 24 | 1 7⁄8 | 1⁄2 | 5⁄8 |   | 12 | 13 1⁄4 | 1     | 7 1⁄2 | 6 1⁄2 | 3 1⁄4 | 19 1⁄2 | 39     |   |   |   |   |   |   |   |   |   |   |   |   | 8.0             |
| 3    | 60 | 30 | 1 7⁄8 | 1⁄2 | 5⁄8 |   | 15 | 16 1⁄4 | 1 1⁄4 | 9 1⁄4 | 8     | 4     | 24 3⁄8 | 48 3⁄4 |   |   |   |   |   |   |   |   |   |   |   |   | 12.5            |
| 4    | 60 | 30 | 1 7⁄8 | 1⁄2 | 5⁄8 |   | 15 | 16 1⁄4 | 1 1⁄4 | 9 1⁄4 | 8     | 4     | 24 3⁄8 | 48 3⁄4 |   |   |   |   |   |   |   |   |   |   |   |   | 12.5            |
| 5    | 60 | 30 | 1 7⁄8 | 1⁄2 | 5⁄8 |   | 15 | 16 1⁄4 | 1 1⁄4 | 9 1⁄4 | 8     | 4     | 24 3⁄8 | 48 3⁄4 |   |   |   |   |   |   |   |   |   |   |   |   | 12.5            |

STANDARD SIGN

W01-6

WISCONSIN DEPT OF TRANSPORTATION

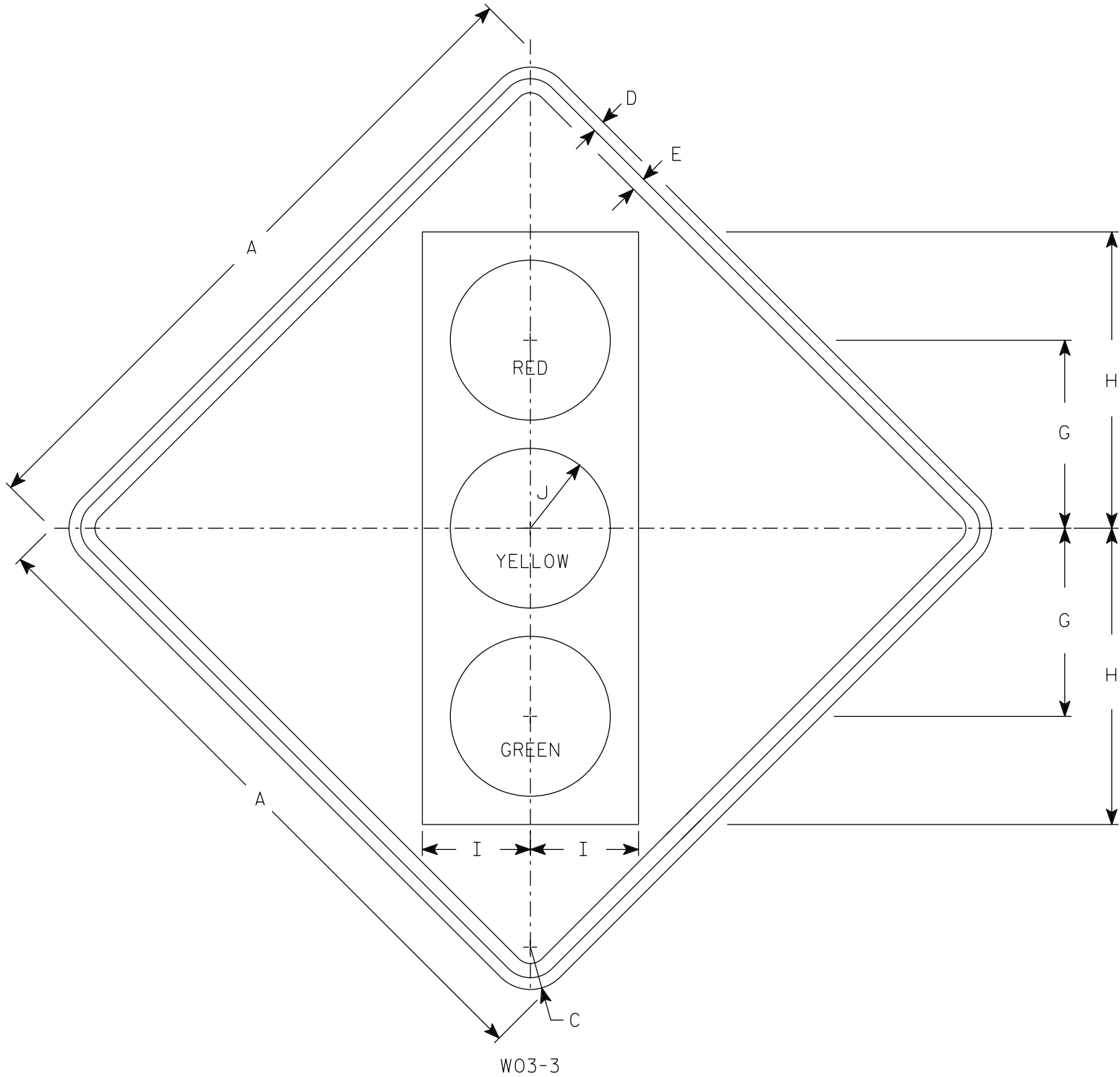
APPROVED

Matthew R. Rauch

for State Traffic Engineer

DATE 1/24/2024

PLATE NO. W01-6.2



NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
  - Background - Orange
  - Message - See Note 4
- 3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- 4. Symbol and border are non-reflective black.
  - Top circle - Type H Reflectorized Red
  - Center circle - Same as background
  - Bottom circle - Type H Reflectorized Green

| SIZE | A  | B | C     | D   | E   | F | G      | H      | I     | J     | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | Area<br>sq. ft. |
|------|----|---|-------|-----|-----|---|--------|--------|-------|-------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----------------|
| 1    | 36 |   | 2 1/4 | 5/8 | 3/4 |   | 10     | 15 3/4 | 5 3/4 | 4 1/4 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 9.0             |
| 2S   | 48 |   | 3     | 3/4 | 1   |   | 12 1/2 | 20     | 7 1/2 | 5     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 16.0            |
| 2M   | 48 |   | 3     | 3/4 | 1   |   | 12 1/2 | 20     | 7 1/2 | 5     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 16.0            |
| 3    | 48 |   | 3     | 3/4 | 1   |   | 12 1/2 | 20     | 7 1/2 | 5     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 16.0            |
| 4    | 48 |   | 3     | 3/4 | 1   |   | 12 1/2 | 20     | 7 1/2 | 5     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 16.0            |
| 5    | 48 |   | 3     | 3/4 | 1   |   | 12 1/2 | 20     | 7 1/2 | 5     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | 16.0            |

STANDARD SIGN  
W03-3

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*  
For State Traffic Engineer

DATE 1/24/2024 PLATE NO. W03-3.2

| EARTHWORK DATA |         |              |          |                                     |        |        |                                     |        |        |                     |        |               |
|----------------|---------|--------------|----------|-------------------------------------|--------|--------|-------------------------------------|--------|--------|---------------------|--------|---------------|
| STAGE          | STATION | REAL STATION | DISTANCE | AREA (SF)                           |        |        | INCREMENTAL VOL (CY) (UNADJUSTED)   |        |        | CUMULATIVE VOL (CY) |        |               |
|                |         |              |          | SALVAGED/UNUSABLE PAVEMENT MATERIAL |        |        | SALVAGED/UNUSABLE PAVEMENT MATERIAL |        |        | EXPANDED            |        |               |
|                |         |              |          | CUT                                 | FILL   |        | CUT                                 | FILL   |        | CUT                 | FILL   | MASS ORDINATE |
|                |         |              |          | NOTE 1                              | NOTE 2 | NOTE 3 | NOTE 1                              | NOTE 2 | NOTE 3 | NOTE 1              | NOTE 2 | NOTE 4        |
| 1              | 31+88   | 3188         | 0        | 1.50                                | 0.00   | 0.00   | 0                                   | 0      | 0      | 0                   | 0      | 0             |
|                | 32+00   | 3200         | 12       | 1.50                                | 0.00   | 0.00   | 1                                   | 0      | 0      | 1                   | 0      | 1             |
|                | 33+00   | 3300         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 6                   | 0      | 6             |
|                | 34+00   | 3400         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 12                  | 0      | 12            |
|                | 35+00   | 3500         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 17                  | 0      | 17            |
|                | 36+00   | 3600         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 23                  | 0      | 23            |
|                | 37+00   | 3700         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 28                  | 0      | 28            |
|                | 38+00   | 3800         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 34                  | 0      | 34            |
|                | 39+00   | 3900         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 40                  | 0      | 40            |
|                | 40+00   | 4000         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 45                  | 0      | 45            |
|                | 41+00   | 4100         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 51                  | 0      | 51            |
|                | 42+00   | 4200         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 56                  | 0      | 56            |
|                | 43+00   | 4300         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 62                  | 0      | 62            |
|                | 44+00   | 4400         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 67                  | 0      | 67            |
|                | 45+00   | 4500         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 73                  | 0      | 73            |
|                | 46+00   | 4600         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 78                  | 0      | 78            |
|                | 47+00   | 4700         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 84                  | 0      | 84            |
|                | 48+00   | 4800         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 90                  | 0      | 90            |
|                | 49+00   | 4900         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 95                  | 0      | 95            |
|                | 50+00   | 5000         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 101                 | 0      | 101           |
|                | 51+00   | 5100         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 106                 | 0      | 106           |
|                | 51+53   | 5153         | 53       | 1.50                                | 0.00   | 0.00   | 3                                   | 0      | 0      | 109                 | 0      | 109           |
|                | 70+88   | 7088         | 0        | 1.50                                | 0.00   | 0.00   | 0                                   | 0      | 0      | 109                 | 0      | 109           |
|                | 71+00   | 7100         | 12       | 1.50                                | 0.00   | 0.00   | 1                                   | 0      | 0      | 110                 | 0      | 110           |
|                | 72+00   | 7200         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 115                 | 0      | 115           |
|                | 73+00   | 7300         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 121                 | 0      | 121           |
|                | 74+00   | 7400         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 127                 | 0      | 127           |
|                | 75+00   | 7500         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 132                 | 0      | 132           |
|                | 76+00   | 7600         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 138                 | 0      | 138           |
|                | 77+00   | 7700         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 143                 | 0      | 143           |
|                | 78+00   | 7800         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 149                 | 0      | 149           |
|                | 79+00   | 7900         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 154                 | 0      | 154           |
|                | 79+73   | 7973         | 73       | 1.50                                | 0.00   | 0.00   | 4                                   | 0      | 0      | 158                 | 0      | 158           |
|                |         |              |          |                                     |        |        | 158                                 | 0      | 0      |                     |        |               |

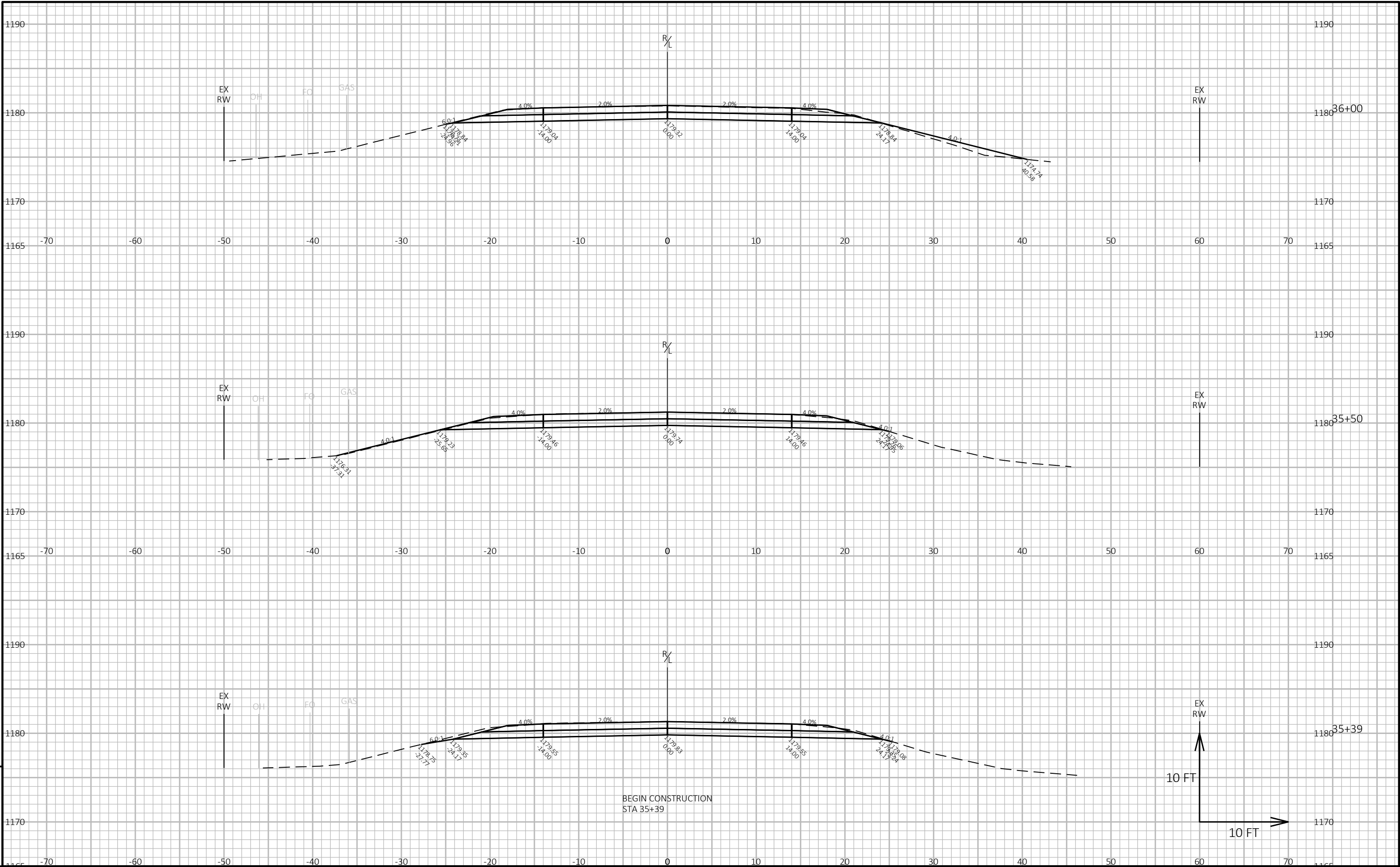
|                                         |                                                                                                                                                                       |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NOTES:                                  |                                                                                                                                                                       |
| 1 - CUT                                 | CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL                                                                                                                      |
| 2 - SALVAGED/UNUSABLE PAVEMENT MATERIAL | THIS DOES NOT SHOW UP IN CROSS SECTIONS                                                                                                                               |
| 3 - FILL                                | DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME                                                                                                                         |
| 4 - MASS ORDINATE                       | IF MARSH AND EBS TO BE BACKFILLED WITH BASE AGGREGATE: [CUT - SALVAGED PAVT - ROCK EXCAVATION - ((FILL - REDUCED MARSH IN FILL - REDUCED EBS IN FILL) * FILL FACTOR)] |

| EARTHWORK DATA |         |              |          |                                     |        |        |                                     |        |        |                     |        |               |
|----------------|---------|--------------|----------|-------------------------------------|--------|--------|-------------------------------------|--------|--------|---------------------|--------|---------------|
| STAGE          | STATION | REAL STATION | DISTANCE | AREA (SF)                           |        |        | INCREMENTAL VOL (CY) (UNADJUSTED)   |        |        | CUMULATIVE VOL (CY) |        |               |
|                |         |              |          | SALVAGED/UNUSABLE PAVEMENT MATERIAL |        |        | SALVAGED/UNUSABLE PAVEMENT MATERIAL |        |        | EXPANDED FILL       |        |               |
|                |         |              |          | CUT                                 | FILL   |        | CUT                                 | FILL   |        | CUT                 | FILL   | MASS ORDINATE |
|                |         |              |          | NOTE 1                              | NOTE 2 | NOTE 3 | NOTE 1                              | NOTE 2 | NOTE 3 | NOTE 1              | NOTE 2 | NOTE 4        |
| 2              | 31+88   | 3188         | 0        | 1.50                                | 0.00   | 0.00   | 0                                   | 0      | 0      | 0                   | 0      | 0             |
|                | 32+00   | 3200         | 12       | 1.50                                | 0.00   | 0.00   | 1                                   | 0      | 0      | 1                   | 0      | 1             |
|                | 33+00   | 3300         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 6                   | 0      | 6             |
|                | 34+00   | 3400         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 12                  | 0      | 12            |
|                | 35+00   | 3500         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 17                  | 0      | 17            |
|                | 35+39   | 3539         | 39       | 31.55                               | 14.83  | 0.00   | 24                                  | 11     | 0      | 41                  | 0      | 30            |
|                | 35+50   | 3550         | 11       | 31.25                               | 14.83  | 0.00   | 13                                  | 6      | 0      | 54                  | 0      | 37            |
|                | 36+00   | 3600         | 50       | 29.77                               | 14.83  | 0.00   | 56                                  | 27     | 0      | 110                 | 0      | 66            |
|                | 36+50   | 3650         | 50       | 28.86                               | 14.83  | 0.00   | 54                                  | 27     | 0      | 165                 | 0      | 93            |
|                | 37+00   | 3700         | 50       | 29.03                               | 14.83  | 0.00   | 54                                  | 27     | 0      | 218                 | 0      | 119           |
|                | 37+50   | 3750         | 50       | 29.93                               | 14.83  | 0.00   | 55                                  | 27     | 0      | 273                 | 0      | 146           |
|                | 38+00   | 3800         | 50       | 30.14                               | 14.83  | 0.00   | 56                                  | 27     | 0      | 329                 | 0      | 174           |
|                | 38+50   | 3850         | 50       | 30.17                               | 14.83  | 0.00   | 56                                  | 27     | 0      | 384                 | 0      | 203           |
|                | 38+75   | 3875         | 25       | 29.85                               | 14.83  | 81.68  | 28                                  | 14     | 38     | 412                 | 47     | 170           |
|                | 38+79   | 3878.5       | 4        | 29.86                               | 14.83  | 83.94  | 4                                   | 2      | 11     | 416                 | 61     | 158           |
|                | 39+00   | 3900         | 22       | 29.89                               | 14.83  | 71.09  | 24                                  | 12     | 42     | 440                 | 113    | 118           |
|                | 39+50   | 3950         | 50       | 30.56                               | 14.83  | 0.00   | 56                                  | 27     | 20     | 496                 | 137    | 122           |
|                | 40+00   | 4000         | 50       | 31.00                               | 14.83  | 0.00   | 57                                  | 27     | 0      | 553                 | 137    | 151           |
|                | 40+50   | 4050         | 50       | 31.09                               | 14.83  | 0.00   | 57                                  | 27     | 0      | 610                 | 137    | 182           |
|                | 41+00   | 4100         | 50       | 31.10                               | 14.83  | 0.00   | 58                                  | 27     | 0      | 668                 | 137    | 212           |
|                | 41+50   | 4150         | 50       | 29.82                               | 14.83  | 0.00   | 56                                  | 27     | 0      | 724                 | 137    | 241           |
|                | 42+00   | 4200         | 50       | 31.33                               | 14.83  | 0.00   | 57                                  | 27     | 0      | 781                 | 137    | 270           |
|                | 42+50   | 4250         | 50       | 33.10                               | 14.83  | 0.00   | 60                                  | 27     | 0      | 841                 | 137    | 302           |
|                | 43+00   | 4300         | 50       | 34.85                               | 14.83  | 0.00   | 63                                  | 27     | 0      | 903                 | 137    | 337           |
|                | 43+50   | 4350         | 50       | 32.65                               | 14.83  | 0.00   | 63                                  | 27     | 0      | 966                 | 137    | 372           |
|                | 44+00   | 4400         | 50       | 31.19                               | 14.83  | 0.00   | 59                                  | 27     | 0      | 1,025               | 137    | 404           |
|                | 44+50   | 4450         | 50       | 30.81                               | 14.83  | 0.00   | 57                                  | 27     | 0      | 1,082               | 137    | 434           |
|                | 45+00   | 4500         | 50       | 30.68                               | 14.83  | 0.00   | 57                                  | 27     | 0      | 1,139               | 137    | 463           |
|                | 45+50   | 4550         | 50       | 31.18                               | 14.83  | 0.00   | 57                                  | 27     | 0      | 1,197               | 137    | 493           |
|                | 46+00   | 4600         | 50       | 30.64                               | 14.83  | 0.00   | 57                                  | 27     | 0      | 1,254               | 137    | 523           |
|                | 46+50   | 4650         | 50       | 31.27                               | 14.83  | 0.00   | 57                                  | 27     | 0      | 1,311               | 137    | 553           |
|                | 47+00   | 4700         | 50       | 31.84                               | 14.83  | 0.00   | 58                                  | 27     | 0      | 1,370               | 137    | 584           |
|                | 47+50   | 4750         | 50       | 31.03                               | 14.83  | 0.00   | 58                                  | 27     | 0      | 1,428               | 137    | 615           |
|                | 48+00   | 4800         | 50       | 30.70                               | 14.83  | 0.00   | 57                                  | 27     | 0      | 1,485               | 137    | 644           |
|                | 48+50   | 4850         | 50       | 31.08                               | 14.83  | 0.44   | 57                                  | 27     | 0      | 1,542               | 138    | 674           |
|                | 70+88   | 7088         | 0        | 1.50                                | 0.00   | 0.00   | 0                                   | 0      | 0      | 1,542               | 138    | 674           |
|                | 71+00   | 7100         | 12       | 1.50                                | 0.00   | 0.00   | 1                                   | 0      | 0      | 1,543               | 138    | 674           |
|                | 72+00   | 7200         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 1,548               | 138    | 680           |
|                | 73+00   | 7300         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 1,554               | 138    | 685           |
|                | 74+00   | 7400         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 1,560               | 138    | 691           |
|                | 75+00   | 7500         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 1,565               | 138    | 696           |
|                | 76+00   | 7600         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 1,571               | 138    | 702           |
|                | 77+00   | 7700         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 1,576               | 138    | 708           |
|                | 78+00   | 7800         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 1,582               | 138    | 713           |
|                | 79+00   | 7900         | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 1,587               | 138    | 719           |
|                | 79+73   | 7973         | 73       | 1.50                                | 0.00   | 0.00   | 4                                   | 0      | 0      | 1,591               | 138    | 723           |
|                | 189+95  | 18995        | 0        | 1.50                                | 0.00   | 0.00   | 0                                   | 0      | 0      | 1,591               | 138    | 723           |
|                | 190+00  | 19000        | 5        | 1.50                                | 0.00   | 0.00   | 0                                   | 0      | 0      | 1,592               | 138    | 723           |
|                | 191+00  | 19100        | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 1,597               | 138    | 729           |
|                | 192+00  | 19200        | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 1,603               | 138    | 734           |
|                | 193+00  | 19300        | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 1,608               | 138    | 740           |
|                | 194+00  | 19400        | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 1,614               | 138    | 745           |
|                | 195+00  | 19500        | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 1,619               | 138    | 751           |
|                | 196+00  | 19600        | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 1,625               | 138    | 756           |
|                | 197+00  | 19700        | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 1,631               | 138    | 762           |
|                | 198+00  | 19800        | 100      | 1.50                                | 0.00   | 0.00   | 6                                   | 0      | 0      | 1,636               | 138    | 767           |
|                | 198+92  | 19892        | 92       | 1.50                                | 0.00   | 0.00   | 5                                   | 0      | 0      | 1,641               | 138    | 773           |
|                |         |              |          |                                     |        |        | 1641                                | 731    | 110    |                     |        |               |

| NOTES:                                  |                                                                                                                                                                           |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 - CUT                                 | CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL                                                                                                                          |
| 2 - SALVAGED/UNUSABLE PAVEMENT MATERIAL | THIS DOES NOT SHOW UP IN CROSS SECTIONS                                                                                                                                   |
| 3 - FILL                                | DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME                                                                                                                             |
| 4 - MASS ORDINATE                       | IF MARSH AND EBS TO BE BACK FILLED WITH BASE AGGREGATE:<br>(CUT - SALVAGED PAVT - ROCK EXCAVATION - ((FILL - REDUCED MARSH IN FILL - REDUCED EBS IN FILL) * FILL FACTOR); |

| EARTHWORK DATA |         |                 |          |           |                                        |        |                                   |                                        |        |                     |                  |                  |
|----------------|---------|-----------------|----------|-----------|----------------------------------------|--------|-----------------------------------|----------------------------------------|--------|---------------------|------------------|------------------|
| STAGE          | STATION | REAL<br>STATION | DISTANCE | AREA (SF) |                                        |        | INCREMENTAL VOL (CY) (UNADJUSTED) |                                        |        | CUMULATIVE VOL (CY) |                  |                  |
|                |         |                 |          | CUT       | SALVAGED/UNUSABLE<br>PAVEMENT MATERIAL | FILL   | CUT                               | SALVAGED/UNUSABLE<br>PAVEMENT MATERIAL | FILL   | CUT                 | EXPANDED<br>FILL | MASS<br>ORDINATE |
|                |         |                 |          | NOTE 1    | NOTE 2                                 | NOTE 3 | NOTE 1                            | NOTE 2                                 | NOTE 3 | NOTE 1              | NOTE 2           | NOTE 4           |
| 3              | 35+39   | 3539            | 0        | 33.40     | 14.83                                  | 0.00   | 0                                 | 0                                      | 0      | 0                   | 0                | 0                |
|                | 35+50   | 3550            | 11       | 32.66     | 14.83                                  | 0.90   | 13                                | 6                                      | 0      | 13                  | 0                | 7                |
|                | 36+00   | 3600            | 50       | 31.34     | 14.83                                  | 0.00   | 59                                | 27                                     | 1      | 73                  | 1                | 38               |
|                | 36+50   | 3650            | 50       | 30.00     | 14.83                                  | 0.00   | 57                                | 27                                     | 0      | 130                 | 1                | 67               |
|                | 37+00   | 3700            | 50       | 30.60     | 14.83                                  | 0.00   | 56                                | 27                                     | 0      | 186                 | 1                | 96               |
|                | 37+50   | 3750            | 50       | 31.52     | 14.83                                  | 0.00   | 58                                | 27                                     | 0      | 243                 | 1                | 126              |
|                | 38+00   | 3800            | 50       | 31.59     | 14.83                                  | 0.00   | 58                                | 27                                     | 0      | 302                 | 1                | 157              |
|                | 38+50   | 3850            | 50       | 32.11     | 14.83                                  | 0.00   | 59                                | 27                                     | 0      | 361                 | 1                | 188              |
|                | 38+75   | 3875            | 25       | 32.19     | 14.83                                  | 69.59  | 30                                | 14                                     | 32     | 390                 | 42               | 164              |
|                | 38+79   | 3878.5          | 4        | 32.16     | 14.83                                  | 69.92  | 4                                 | 2                                      | 9      | 394                 | 53               | 155              |
|                | 39+00   | 3900            | 22       | 32.02     | 14.83                                  | 0.00   | 26                                | 12                                     | 28     | 420                 | 88               | 134              |
|                | 39+50   | 3950            | 50       | 33.98     | 14.83                                  | 0.00   | 61                                | 27                                     | 0      | 481                 | 88               | 168              |
|                | 40+00   | 4000            | 50       | 32.76     | 14.83                                  | 0.00   | 62                                | 27                                     | 0      | 543                 | 88               | 202              |
|                | 40+50   | 4050            | 50       | 32.35     | 14.83                                  | 0.00   | 60                                | 27                                     | 0      | 603                 | 88               | 235              |
|                | 41+00   | 4100            | 50       | 33.78     | 14.83                                  | 0.00   | 61                                | 27                                     | 0      | 664                 | 88               | 269              |
|                | 41+50   | 4150            | 50       | 33.05     | 14.83                                  | 0.00   | 62                                | 27                                     | 0      | 726                 | 88               | 303              |
|                | 42+00   | 4200            | 50       | 33.14     | 14.83                                  | 0.00   | 61                                | 27                                     | 0      | 788                 | 88               | 337              |
|                | 42+50   | 4250            | 50       | 35.19     | 14.83                                  | 0.00   | 63                                | 27                                     | 0      | 851                 | 88               | 373              |
|                | 43+00   | 4300            | 50       | 34.25     | 14.83                                  | 0.00   | 64                                | 27                                     | 0      | 915                 | 88               | 410              |
|                |         |                 |          |           |                                        |        | 915                               | 418                                    | 70     |                     |                  |                  |

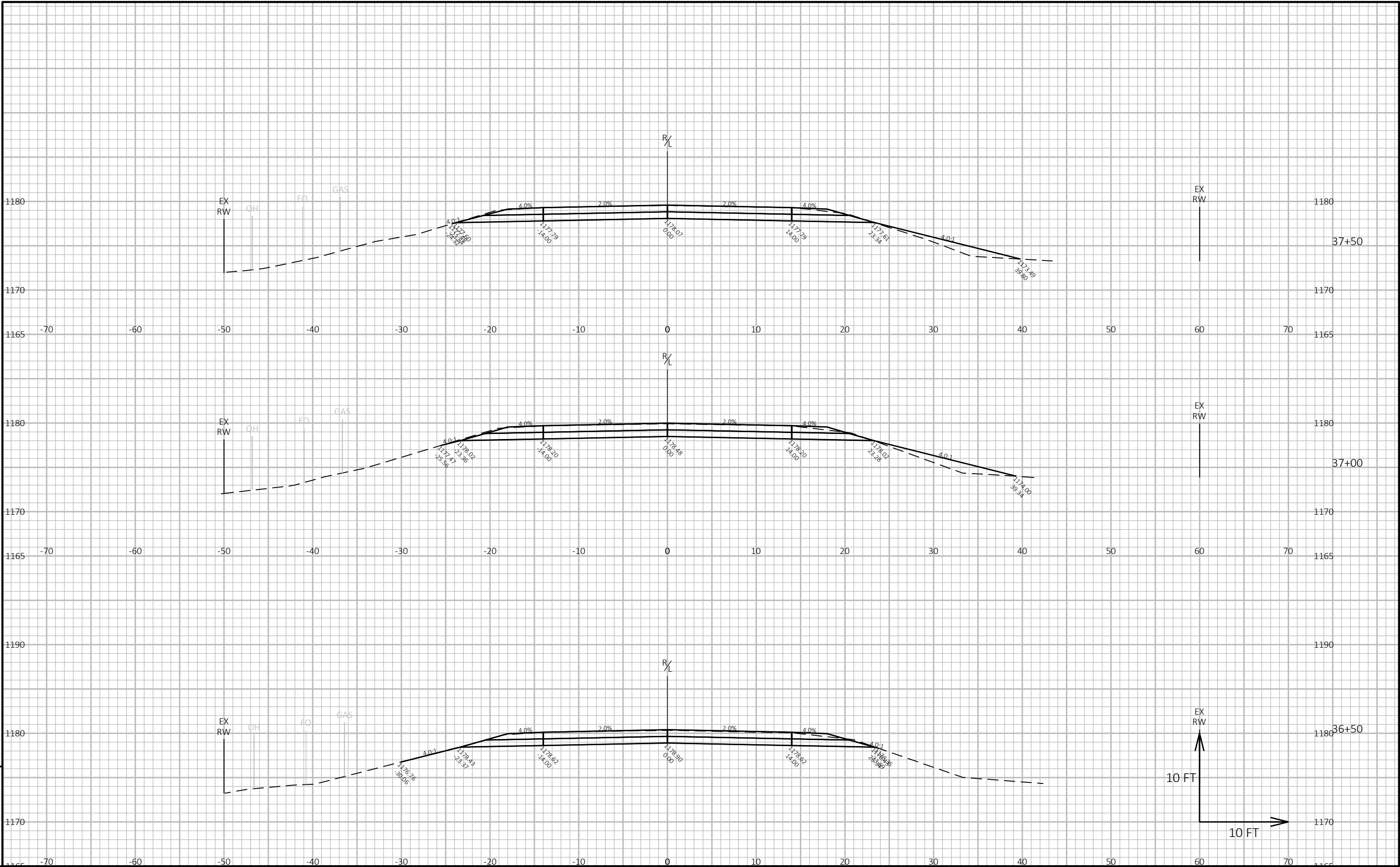
|                                         |                                                                                                                                                                       |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NOTES:                                  |                                                                                                                                                                       |
| 1 - CUT                                 | CUT INCLUDES SALVAGED/UNUSABLE PAVEMENT MATERIAL                                                                                                                      |
| 2 - SALVAGED/UNUSABLE PAVEMENT MATERIAL | THIS DOES NOT SHOW UP IN CROSS SECTIONS                                                                                                                               |
| 3 - FILL                                | DOES NOT INCLUDE UNUSABLE PAVEMENT EXC VOLUME                                                                                                                         |
| 4 - MASS ORDINATE                       | IF MARSH AND EBS TO BE BACKFILLED WITH BASE AGGREGATE: [CUT - SALVAGED PAVT - ROCK EXCAVATION - ((FILL - REDUCED MARSH IN FILL - REDUCED EBS IN FILL) * FILL FACTOR)] |

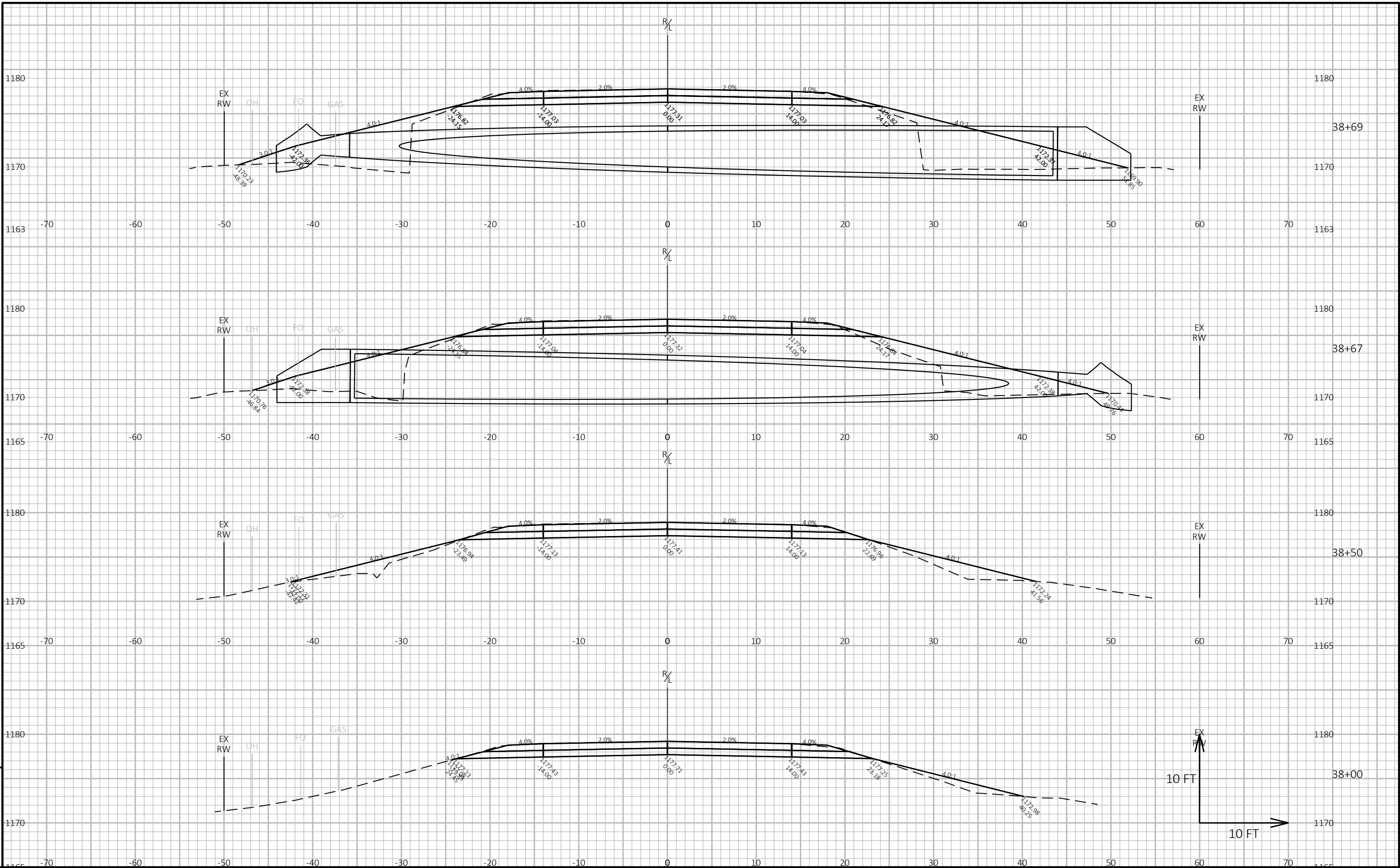


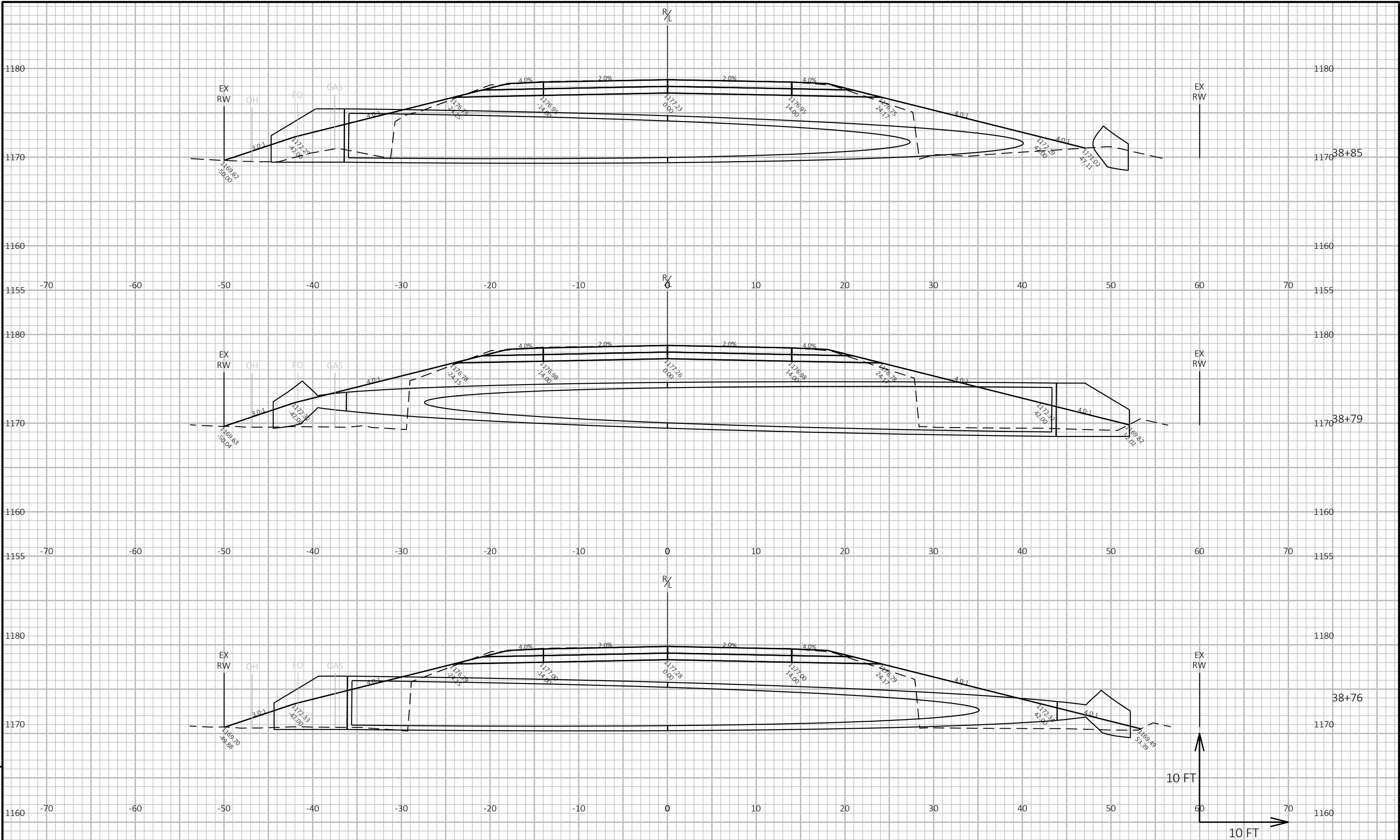
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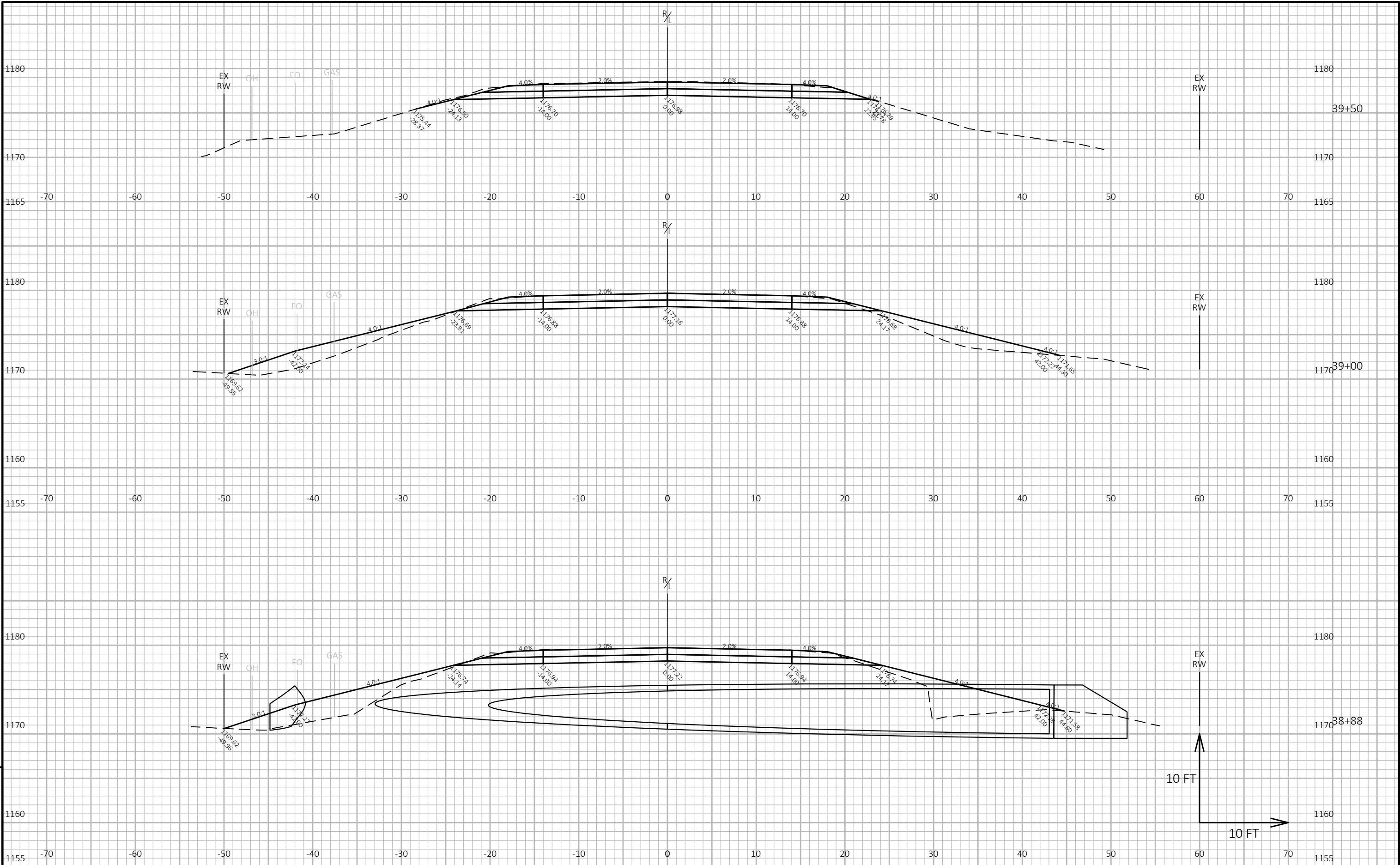
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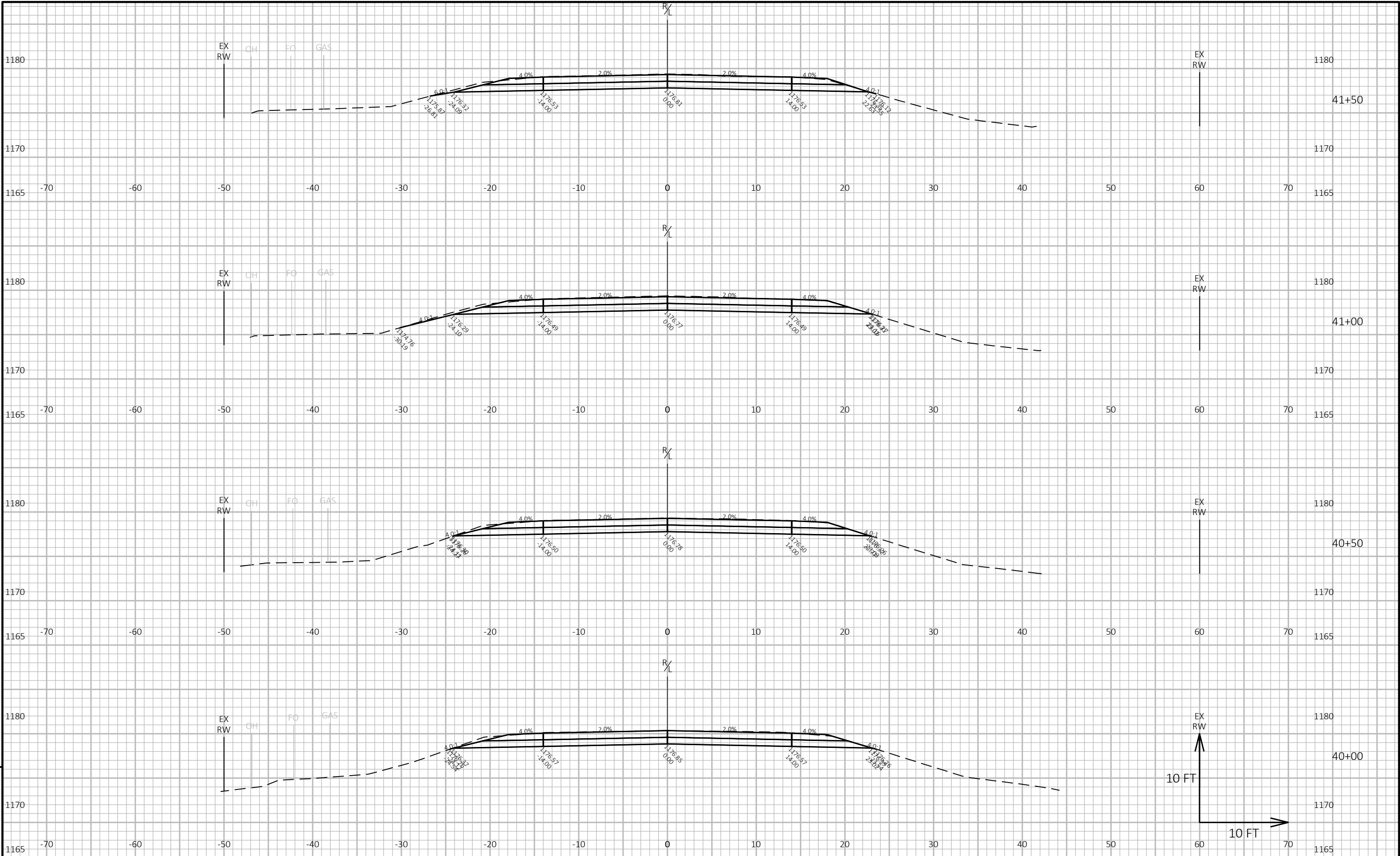
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|------------------------|-------------|---------------|------------------------|---------|
| PROJECT NO: 7040-00-72 | HWY: STH 98 | COUNTY: CLARK | CROSS SECTIONS: STH 98 | SHEET E |
|------------------------|-------------|---------------|------------------------|---------|

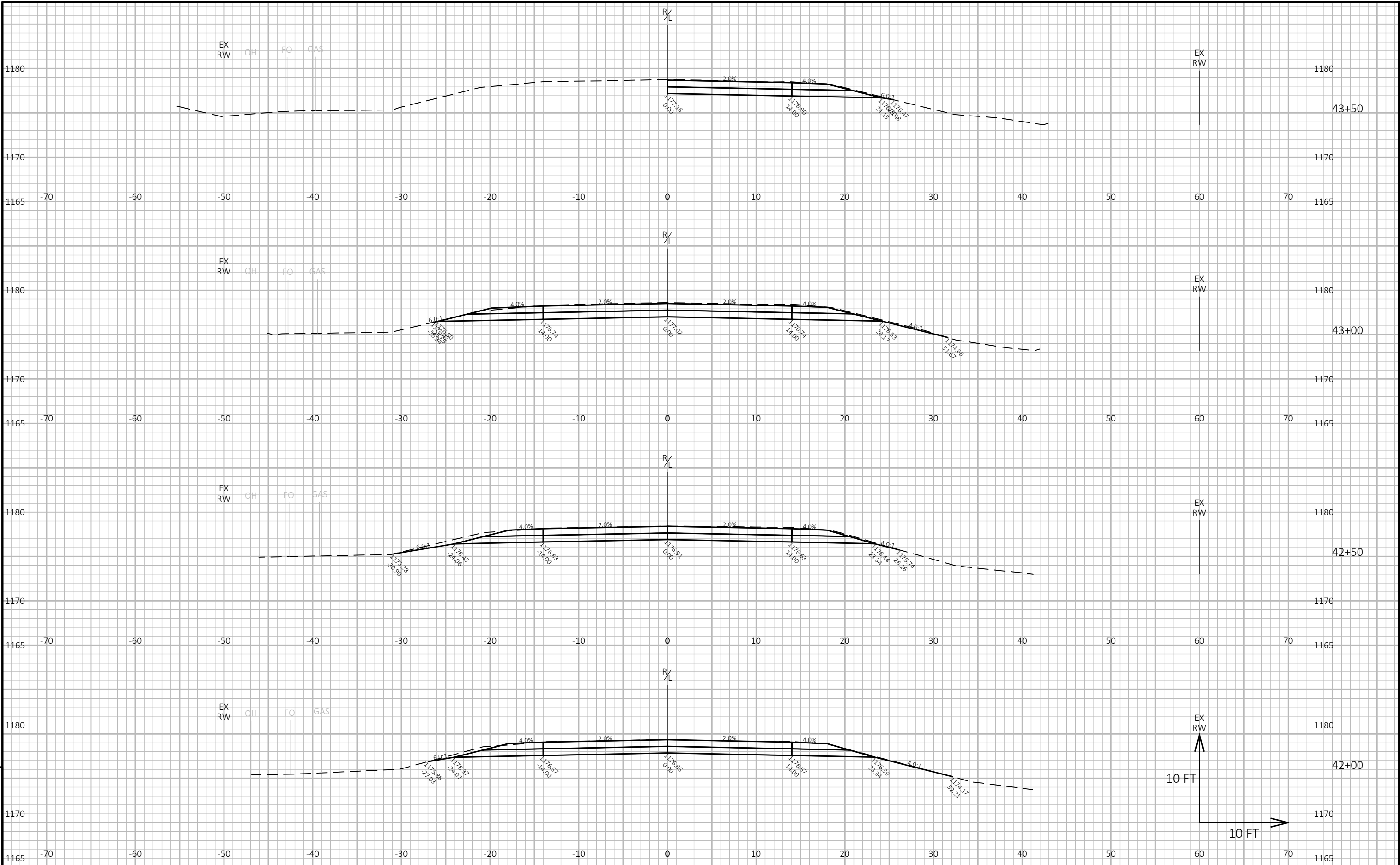


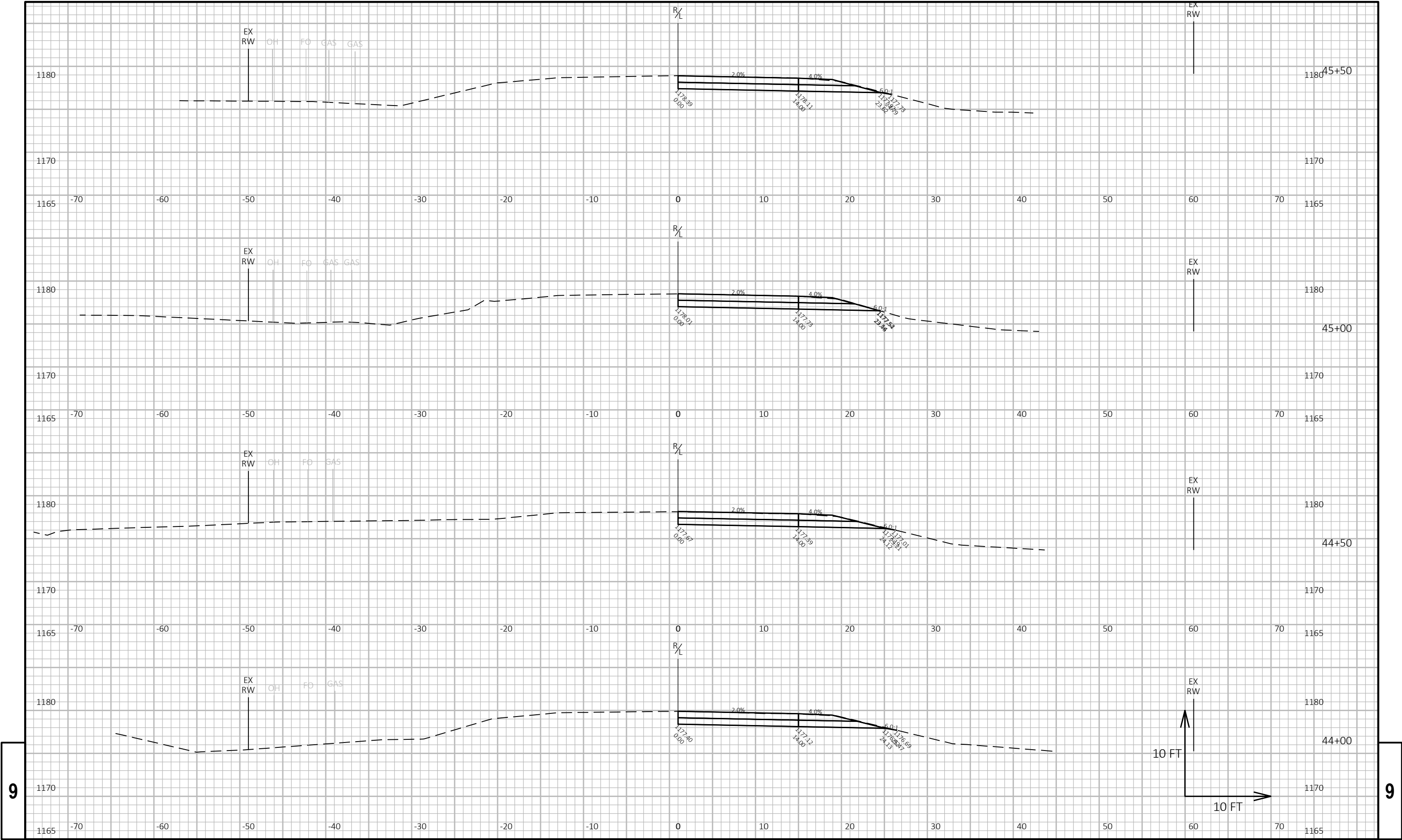








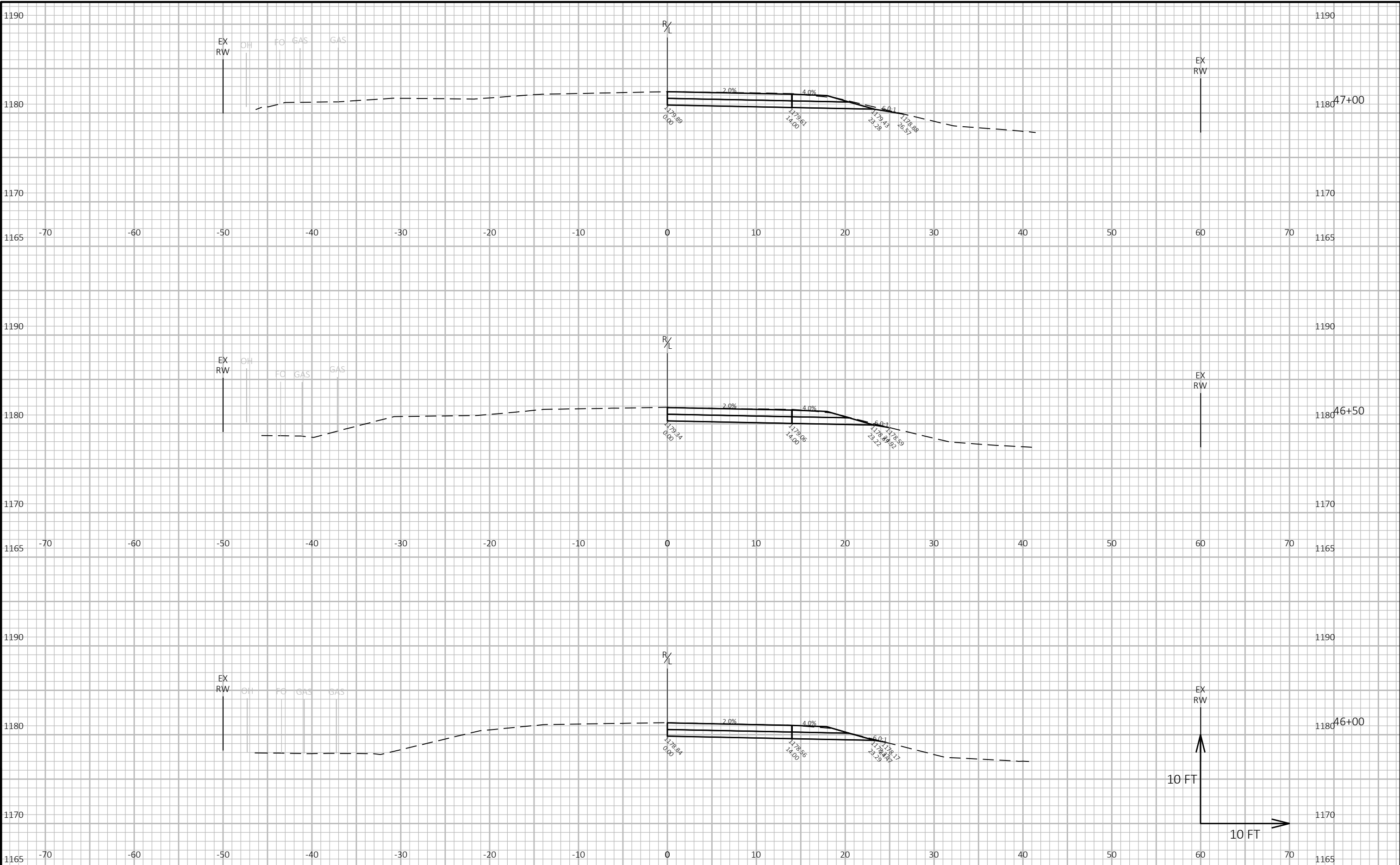


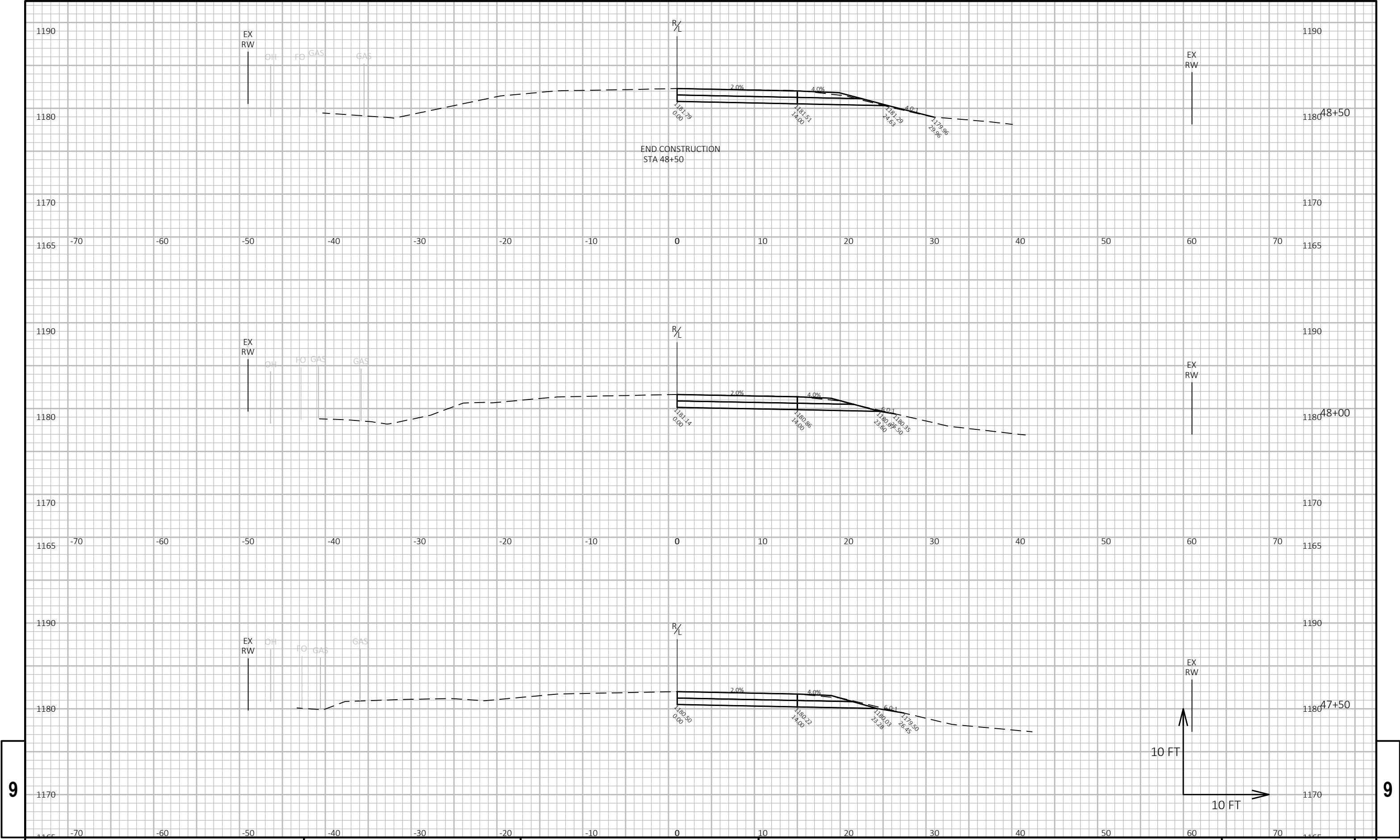


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|             |            |             |               |                 |        |       |   |
|-------------|------------|-------------|---------------|-----------------|--------|-------|---|
| PROJECT NO: | 7040-00-72 | HWY: STH 98 | COUNTY: CLARK | CROSS SECTIONS: | STH 98 | SHEET | E |
|-------------|------------|-------------|---------------|-----------------|--------|-------|---|

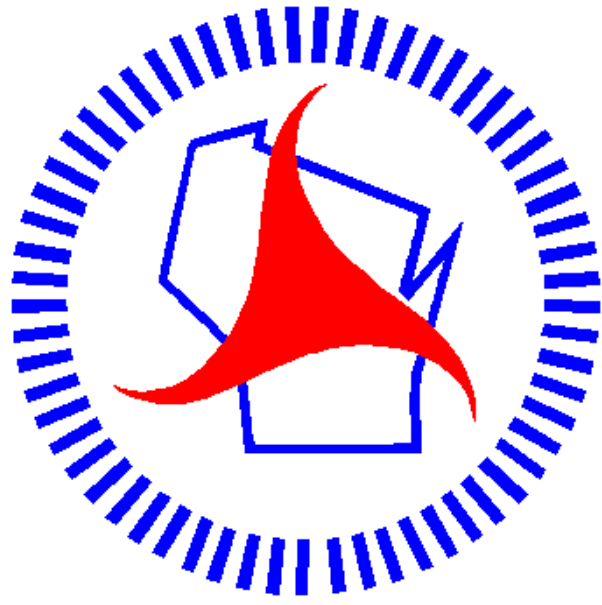




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## Notes



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