

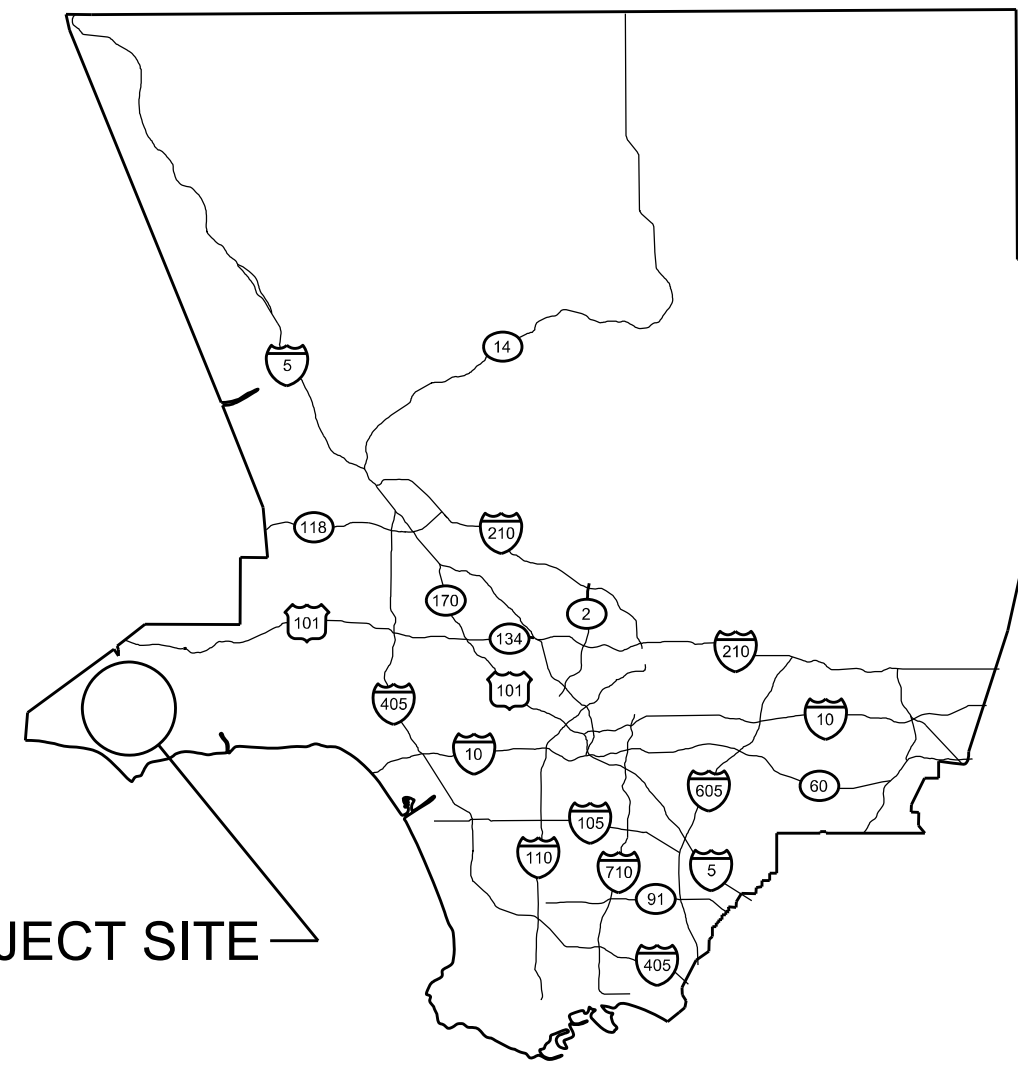
LOS ANGELES COUNTY PUBLIC WORKS

MULHOLLAND HWY, ET AL.

GUARDRAIL REPLACEMENT ON-SYSTEM (2018WOOLSEYFIRE)

INDEX TO PROJECT PLANS

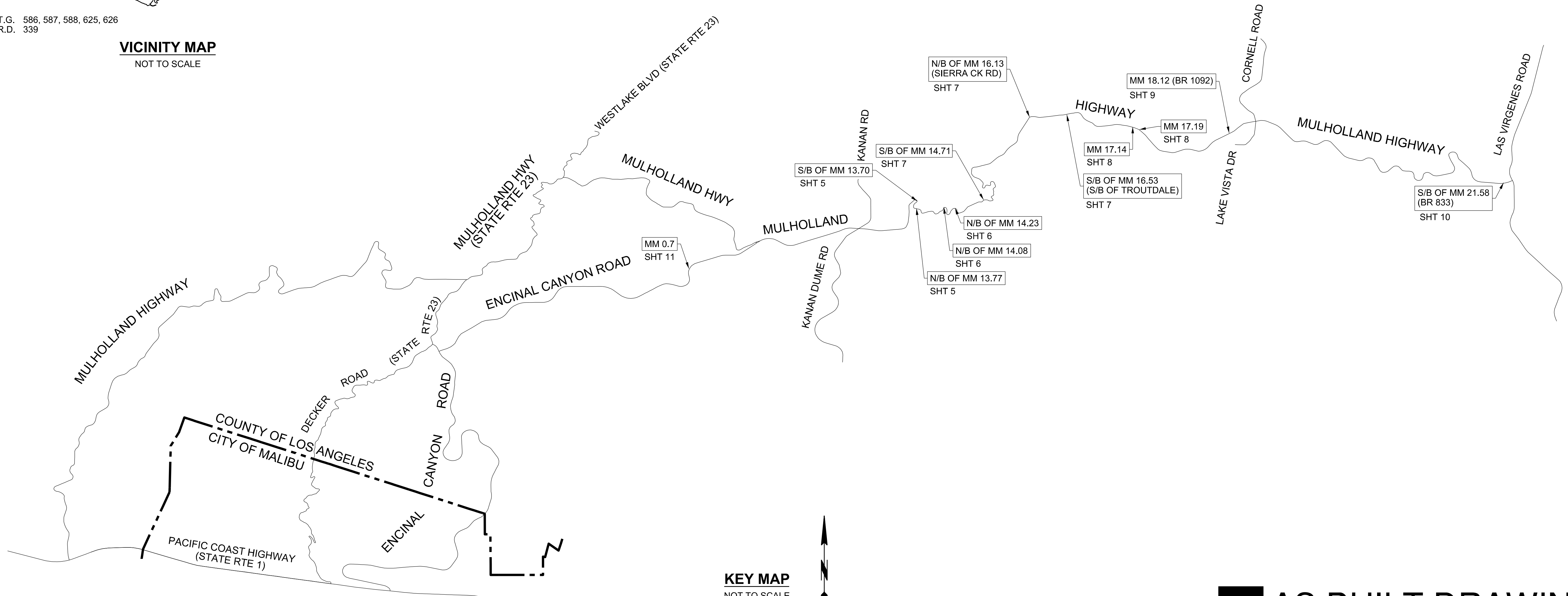
SHEET NUMBER	DESCRIPTION
1	TITLE SHEET
2	NOTES AND REFERENCES
3-4	DETAILS
5-11	GUARDRAIL PLAN



PROJECT SITE

T.G. 586, 587, 588, 625, 626
R.D. 339

VICINITY MAP
NOT TO SCALE



MULHOLLAND HIGHWAY

MULHOLLAND HWY
(STATE RTE 23)

MULHOLLAND HWY

MULHOLLAND

HIGHWAY

MULHOLLAND HIGHWAY

COUNTY OF LOS ANGELES
CITY OF MALIBU

PACIFIC COAST HIGHWAY
(STATE RTE 1)

KEY MAP
NOT TO SCALE

AS BUILT DRAWINGS

PRIME CONTRACTOR LICENSE REQUIRED: CLASS A OR C13

CADD PROJECT FILE NAME
 Mulholland Hwy & Encinal Cyn Rd - Master Plan Set.dgn
 CHECKER
 L. MITCHELL
 DESIGNER
 B. FUNG
 DRAFTER
 B. FUNG



RECOMMENDED BY:
Hector J. Bordas 12/13/2018
ASSISTANT DEPUTY DIRECTOR DATE

SUBMITTED BY:
[Signature] 12/12/2018
DESIGN TEAM II DATE

DATE	MARK	DESCRIPTION
5/12/2021	AS BUILT	
REVISIONS		



LOS ANGELES COUNTY PUBLIC WORKS

MULHOLLAND HWY, ET AL.
GUARDRAIL REPLACEMENT ON-SYSTEM
 (2018WOOLSEYFIRE)
 PROJECT ID NO. RDC0016371
 TITLE SHEET

DATE: 12/11/2018
 PROJECT ENGINEER: *[Signature]*

DWG PH086362 SHEET 1 OF 14

CONSTRUCTION LEGEND

- ① REMOVE AND DISPOSE EXISTING METAL BEAM GUARDRAIL
- ② TRANSITION RAILING (PER CALTRANS STD PLAN AS INDICATED ON PLAN)
- ③ MIDWEST GUARDRAIL SYSTEM (MGS)
- ④ TERMINAL SYSTEM END TREATMENT (AS SHOWN ON PLAN)
- ⑤ MIDWEST GUARDRAIL SYSTEM END ANCHOR ASSEMBLY (TYPE SFT) PER STD PLAN A77S1
- ⑥ DELINEATOR PER CALTRANS STD PLAN A77N4
- ⑦ MIDWEST GUARDRAIL SYSTEM BURIED POST END ANCHOR PER STD PLAN A77T2
- ⑧ METAL BEAM GUARDRAIL (MBGR)
- ⑨ ASPHALT CONCRETE PAVEMENT
- ⑩ HOT MIX ASPHALT DIKE PER CALTRANS STD PLAN A87B (TYPE PER PLAN)
- ⑪ SHOULDER GRADING
- ⑫ CONCRETE BARRIER (TYPE 732 MODIFIED)
- ⑬ REMOVE AND DISPOSE EXST BOLLARD
- ⑭ RURAL CATCH BASIN (MODIFIED)
- ⑮ CRASH CUSHION SYSTEM (TYPE AS SHOWN ON PLAN)
- ⑯ SAWCUT AND REMOVE INTERFERING PORTION OF ROCK

CONSTRUCTION NOTES

- 1. STANDARD PLANS REFERENCED ARE PER THE STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION (SPPWC) UNLESS OTHERWISE NOTED.

GUARDRAIL NOTES

- 1. TERMINAL SYSTEM MUST BE CONSTRUCTED PER MANUFACTURER'S RECOMMENDATION AND INSTALLED PER THE 2018 CALTRANS STANDARD PLAN REFERENCED ON PLAN.
- 2. EACH TERMINAL SYSTEM INSTALLED MUST BE IDENTIFIED BY PAINTING THE TYPE OF THE TERMINAL SYSTEM IN NEAT BLACK LETTERS AND FIGURES 2 INCHES HIGH ON THE BACKSIDE OF THE RAIL ELEMENT BETWEEN SYSTEM POST NUMBERS 4 AND 5.
- 3. ALL GUARDRAIL LENGTH AND LOCATION ARE MEASURED ALONG THE FACE OF THE RAILING, UNLESS OTHERWISE SHOWN ON THE PLANS AND DETAILS OR AS DIRECTED BY THE ENGINEER.
- 4. FOR INSTALLATION OF TERMINAL SYSTEMS, BLACK AND YELLOW RETROREFLECTIVE STRIPED SHEETING SHALL BE ADHERED TO THE APPROACH END (S) OF THE GUARDRAIL. THE STRIPES SHALL BE SLOPED DOWN AT AN ANGLE OF 45 DEGREES TOWARDS THE SIDE OF THE ROADWAY ON WHICH TRAFFIC IS TO PASS THE OBSTRUCTION BEING PROTECTED. THE SHEETING SHALL BE CONSISTENT WITH THE DESIGN PATTERN, COLORS, AND DIRECTION OF A TYPE "P(CA)" OBJECT MARKER PER CALIFORNIA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) 2014 EDITION, SECTION 2C.63 AND SECTION 2C.65.
- 5. THE PROPOSED TERMINAL SYSTEM SHALL BE INSTALLED IN A STRAIGHT FLARE OVER THE ENTIRE LENGTH AND SHOULD NOT BE INSTALLED ON A PARABOLIC CURVE.
- 6. INSTALL DELINEATORS PER CALTRANS STANDARD PLANS A77N4 AND A73C, CLASS 1, TYPE F AT 25' SPACING.

STANDARD PLANS

CALTRANS STANDARD PLANS, 2018 EDITION	
A73C	DELINEATORS, CHANNELIZERS AND BARRICADES
A77L2	MIDWEST GUARDRAIL SYSTEM STANDARD RAILING SECTION (STEEL POST WITH NOTCHED WOOD OR NOTCHED RECYCLED PLASTIC BLOCK)
A77L3	METAL BEAM GUARD RAILING RECONSTRUCT INSTALLATION
RSP A77N3	MIDWEST GUARDRAIL SYSTEM TYPICAL LINE POST EMBEDMENT AND HINGE POINT OFFSET DETAILS (DATED 10/19/18)
A77N4	MIDWEST GUARDRAIL SYSTEM TYPICAL RAILING DELINEATION AND DIKE POSITION DETAILS
A77N5	MINOR CONCRETE VEGETATION CONTROL GUARDRAIL SYSTEM
A77N5A	MINOR CONCRETE VEGETATION CONTROL GUARDRAIL SYSTEM NARROW VEGETATION CONTROL INSTALLATION
A77N6	MINOR CONCRETE VEGETATION CONTROL GUARDRAIL SYSTEM FOR TERMINAL SYSTEM END TREATMENTS
A77R3	MIDWEST GUARDRAIL SYSTEM TYPICAL LAYOUTS FOR ROADSIDE FIXED OBJECTS
A77R4	MIDWEST GUARDRAIL SYSTEM TYPICAL LAYOUTS FOR ROADSIDE FIXED OBJECTS
A77S1	MIDWEST GUARDRAIL SYSTEM END ANCHOR ASSEMBLY (TYPE SFT)
A77T2	MIDWEST GUARDRAIL SYSTEM BURIED POST END ANCHOR
A77U3	MIDWEST GUARDRAIL SYSTEM CONNECTIONS TO ABUTMENTS AND WALLS
A77U4	MIDWEST GUARDRAIL SYSTEM TRANSITION RAILING (TYPE WB-31)
A77U5	MIDWEST GUARDRAIL SYSTEM TRANSITION TO METAL BEAM GUARDRAIL
A87B	HOT MIX ASPHALT DIKES
B11-55	CONCRETE BARRIER TYPE 732
SPPWC, 2012 EDITION	
100-2	TOPOGRAPHY SYMBOLS AND STANDARD ABBREVIATIONS
133-3	ASPHALT CONCRETE PAVEMENT REPLACEMENT

CITY OF LOS ANGELES BUREAU OF ENGINEERING
S-342-4 FRAME AND GRATING FOR CATCH BASINS (BICYCLE SAFE)

LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS STANDARD PLANS, 2000 EDITION
3015-0 RURAL CATCH BASIN

TOPOGRAPHY LEGEND

	EXISTING TOPOGRAPHY	PROPOSED IMPROVEMENTS
CURB		
CURB AND GUTTER		
GUTTER		
PAVEMENT CONCRETE		
AC		
BUILDING		
FENCE		
GUY POLE		
FIRE HYDRANT		
GUY WIRE		
MANHOLE		
POLE		
R/W LINE		
PULL BOX		
SIGNAL CONTROL BOX		
SIGNAL FLASHING TRAFFIC		
STREET LIGHT		
PALM TREE		
OAK TREE		
OTHER TREE		
VALVE		
VAULT		
BRICK (BLOCK) WALL		
CONCRETE WALL		
STONE WALL		
TOP OF SLOPE		
TOE OF SLOPE		
DIRECTION OF TRAFFIC		

CONSTRUCTION SYMBOLS

- INDICATES WORK PER CONSTRUCTION LEGEND
- CURVE DATA SHOWN IN TABLE ON PLAN
- ABOVE LINE: INDICATES THE TYPE OF STANDARD; THICKNESS OF SURFACE MATERIAL IN INCHES; STANDARD PLAN VARIABLES; OR CURB RAMP CASE
- BELOW LINE: REFERENCE TO DETAIL; THICKNESS OR BASE MATERIAL IN INCHES; OR TREE WELL CASE
- ABOVE LINE: NAME OF SECTION
BELOW LINE: SHEET NUMBER OF THE REFERENCED SECTION IF THE SECTION IS NOT ON THE SAME PAGE

ABBREVIATIONS

ABBREVIATION	WORD OR WORDS
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CONT	CONTINUOUS
EP	EDGE OF PAVEMENT
ES	EDGE OF SHOULDER
ETW	EDGE OF TRAVELED WAY
L	LENGTH
LACPW	LOS ANGELES COUNTY PUBLIC WORKS
MOD	MODIFY
PIP	PROTECT IN PLACE
PP	POWER POLE
PROP	PROPOSED
SPPWC	STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION
TOT	TOTAL

AC PAVEMENT CLASS AND GRADE LEGEND

P2 C2-PG 64-10

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 CHECKER: L. MITCHELL
 DESIGNER: B. FUNG
 DRAFTER: B. FUNG

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DATE	MARK	DESCRIPTION
REVISIONS		

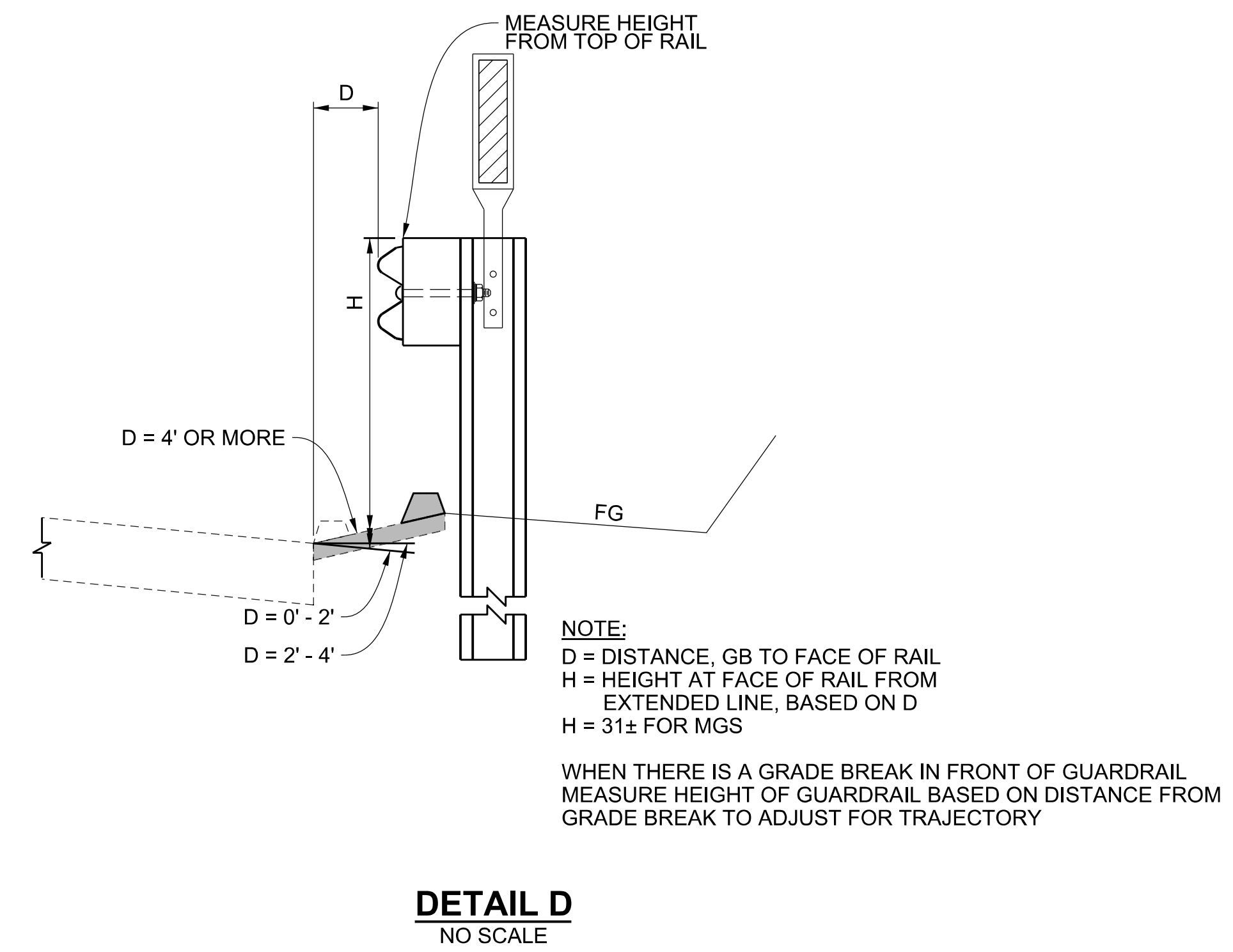
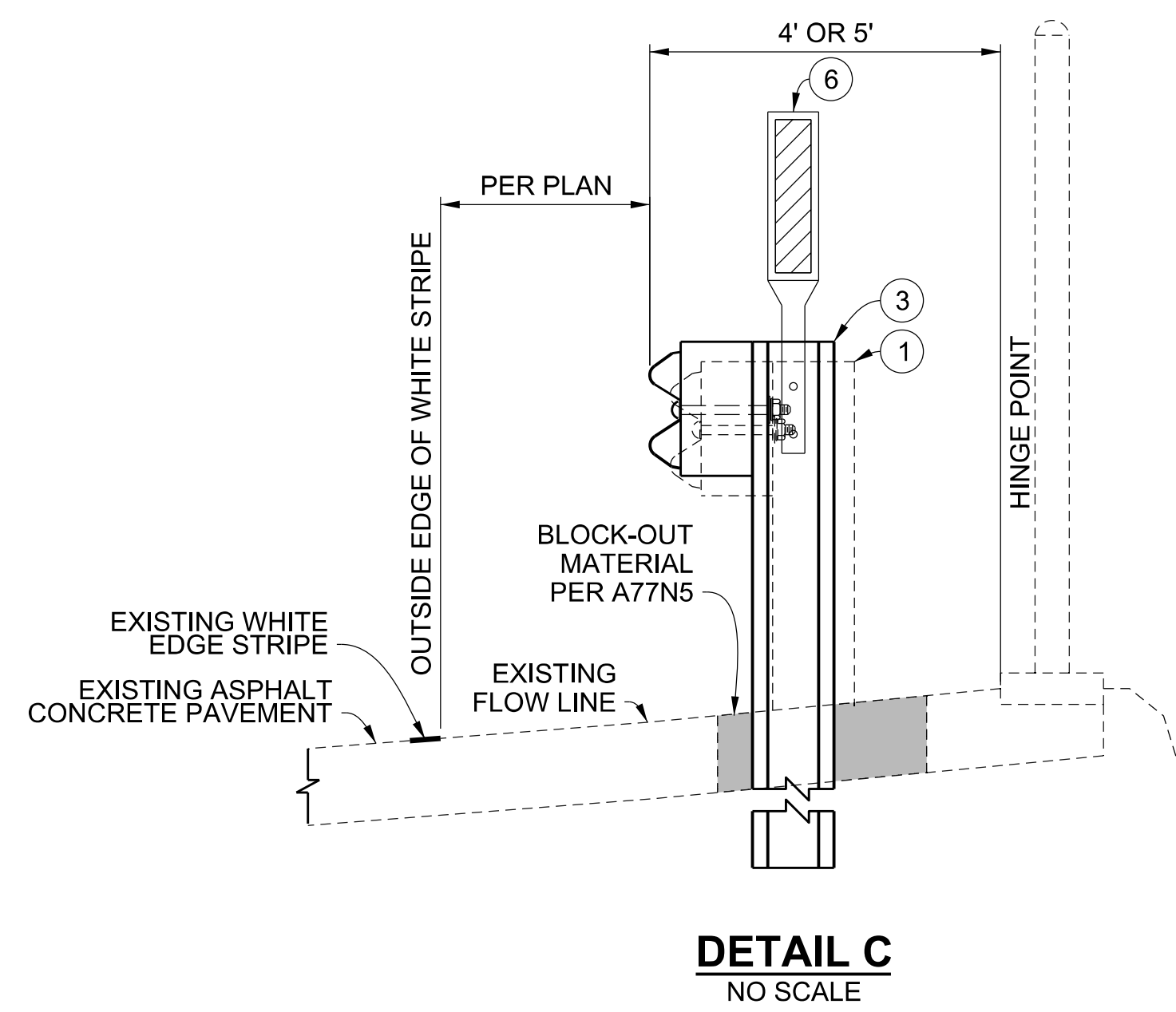
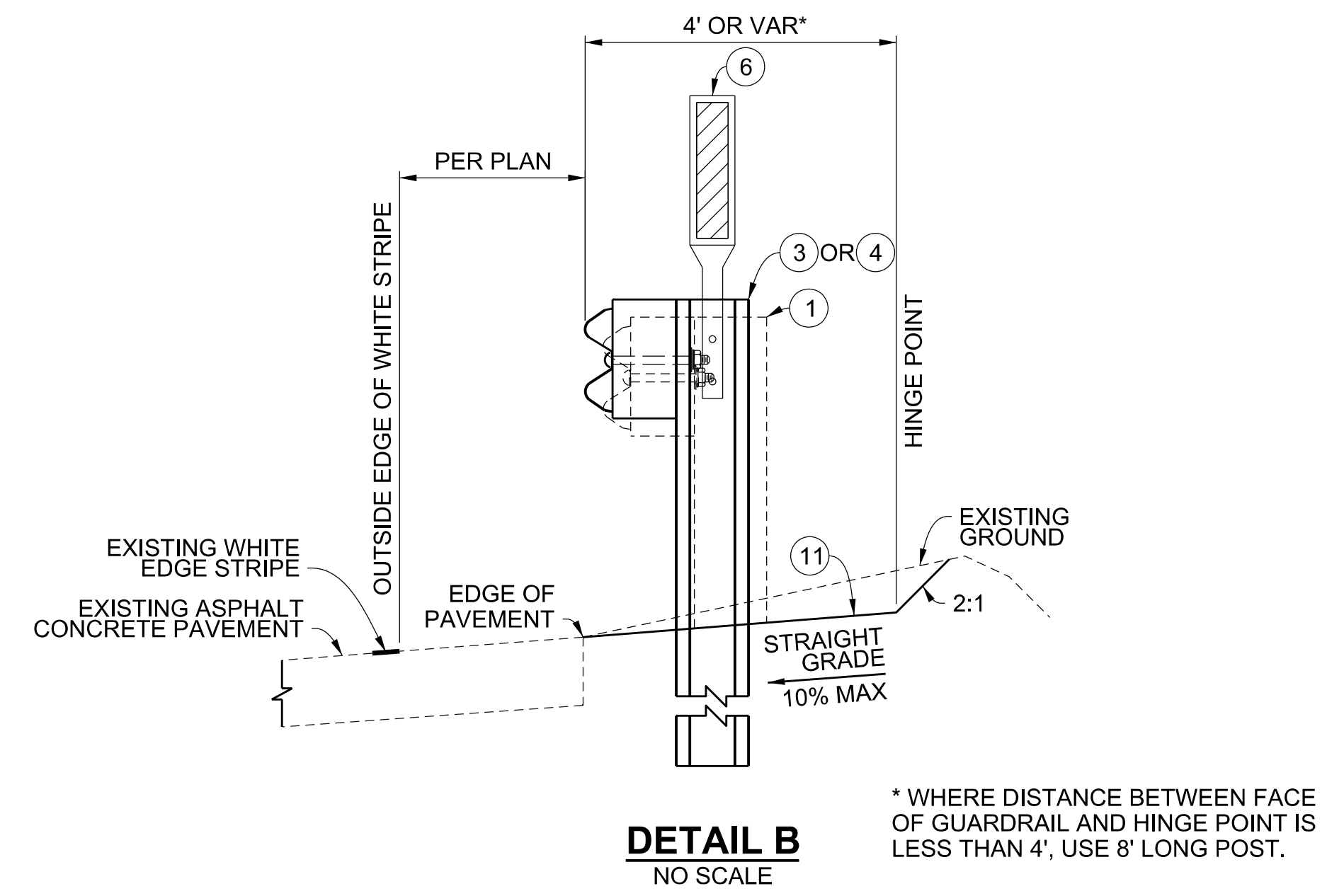
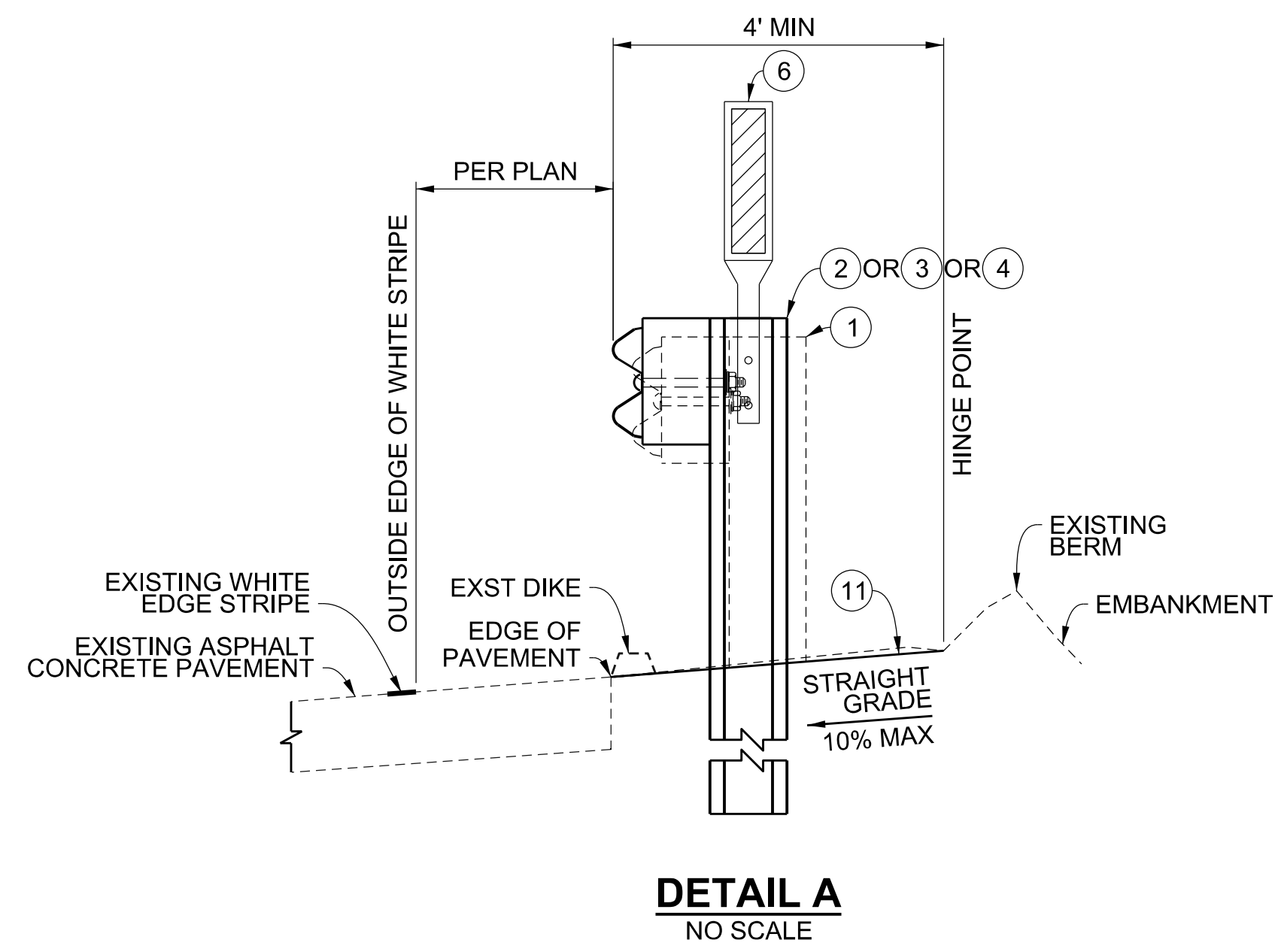


L. P. Mitchell
PROJECT ENGINEER DATE 12/11/2018

LOS ANGELES COUNTY PUBLIC WORKS

MULHOLLAND HWY, ET AL.
GUARDRAIL REPLACEMENT ON-SYSTEM
 (2018WOOLSEYFIRE)
 PROJECT ID NO. RDC0016371
 NOTES AND REFERENCES

DWG PH SHEET 2 OF 14



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 DRAFTER: B. FUNG

DATE	MARK	DESCRIPTION
5/12/2021	■	AS BUILT
REVISIONS		

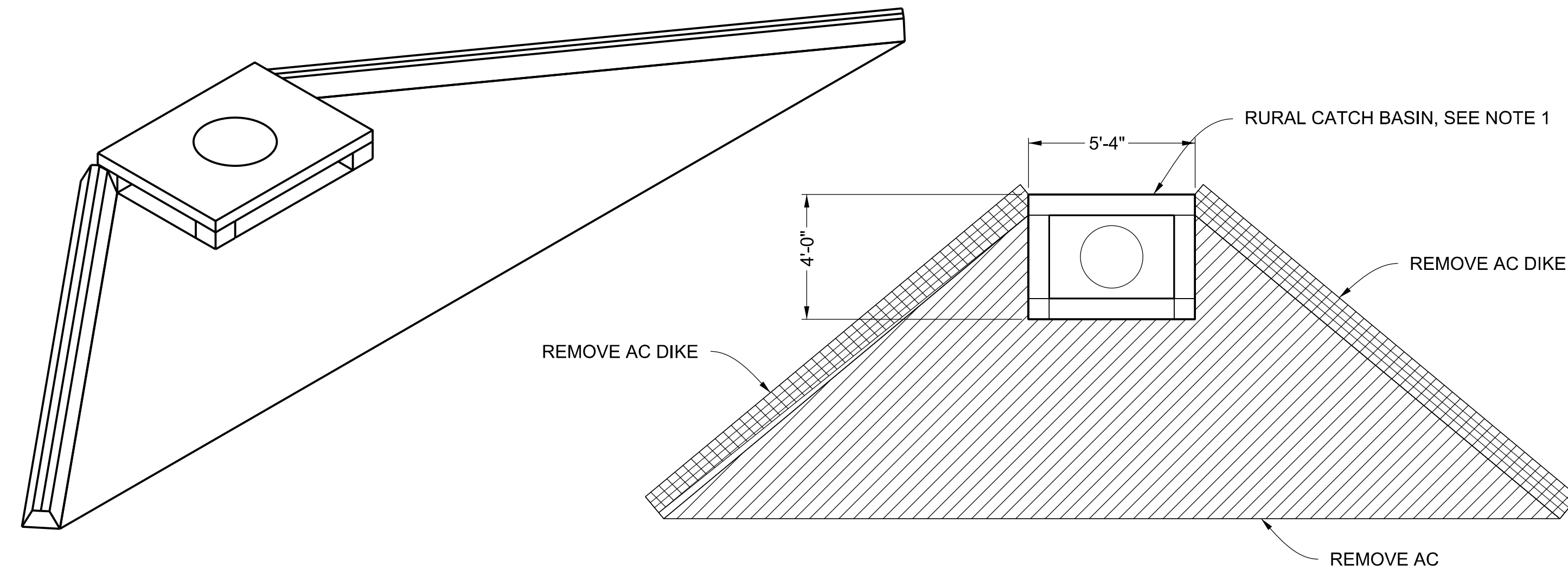


PROJECT ENGINEER: *L. Mitchell* DATE: 12/11/2018

LOS ANGELES COUNTY PUBLIC WORKS

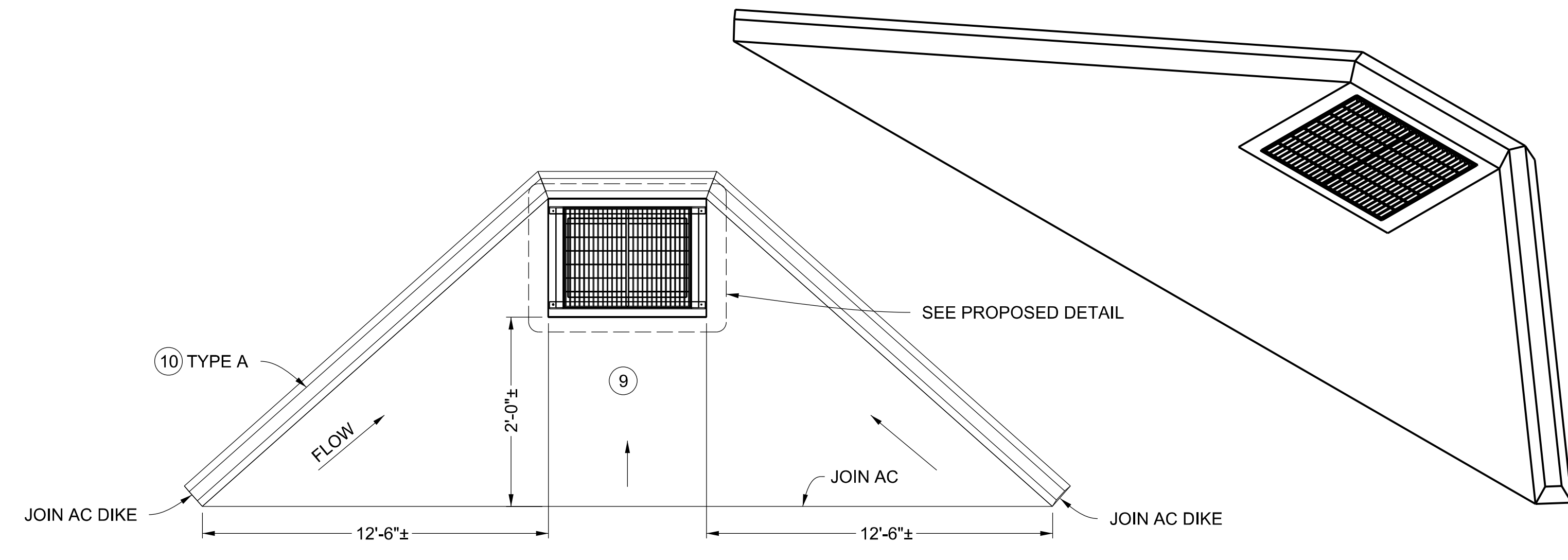
MULHOLLAND HWY, ET AL.
 GUARDRAIL REPLACEMENT ON-SYSTEM
 (2018WOOLSEYFIRE)
 PROJECT ID NO. RDC0016371
 DETAILS

DWG PH SHEET 3 OF 14



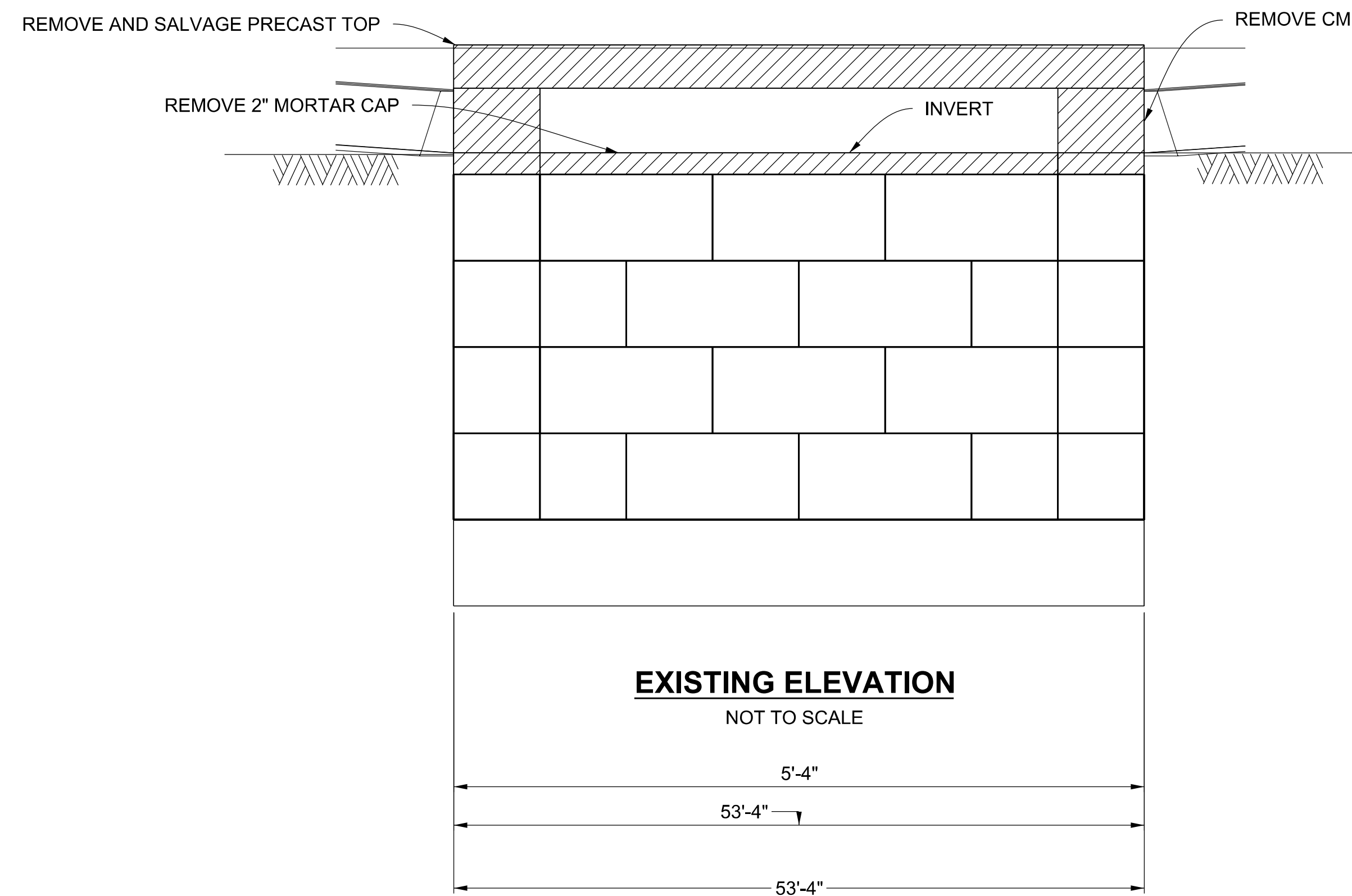
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EXISTING PLAN
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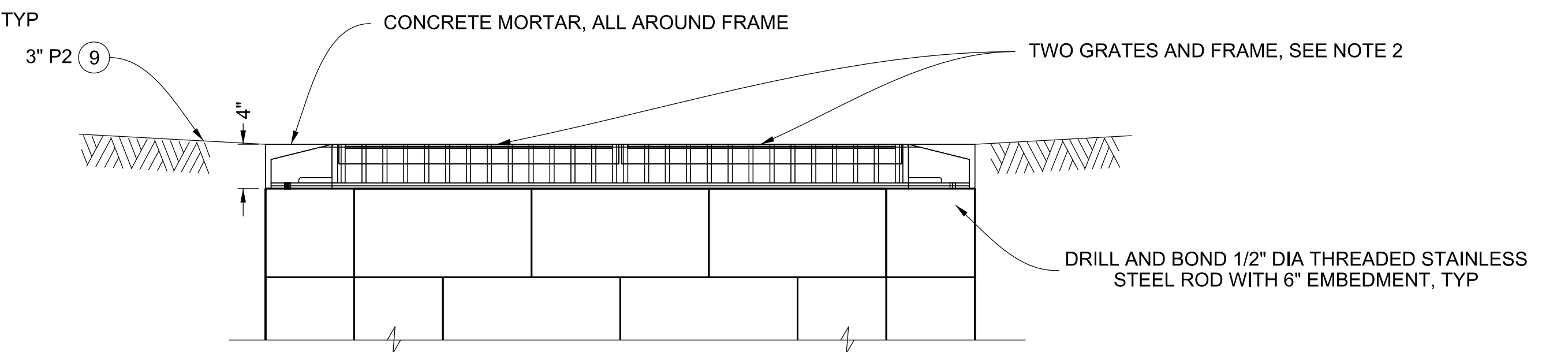


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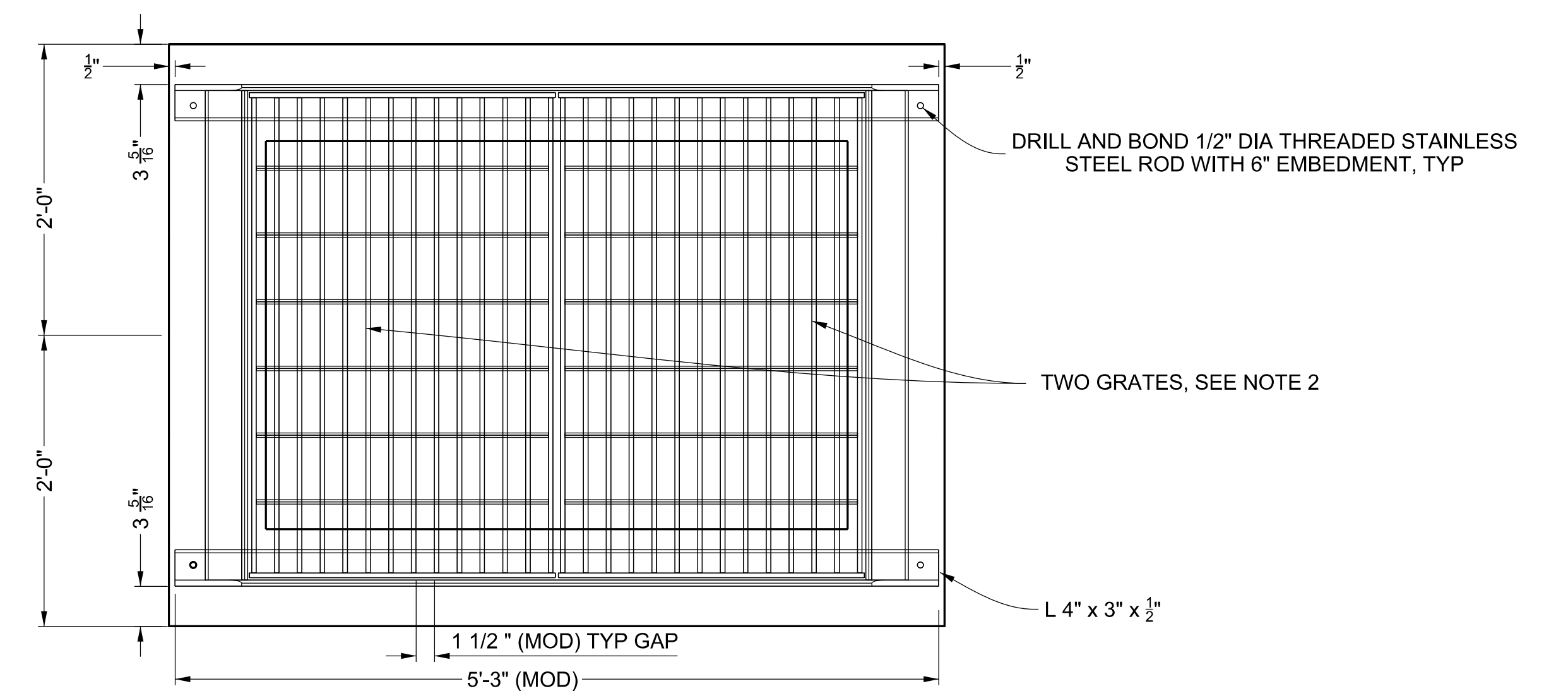
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EXISTING ELEVATION
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PROPOSED ELEVATION
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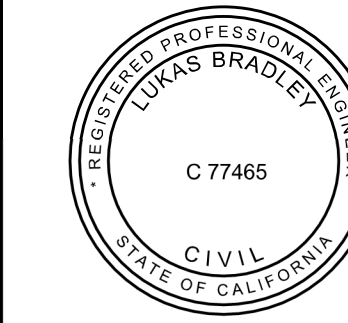
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NOTES

- 1) RURAL CATCH BASIN PER LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS STD PLAN 3015-0
- 2) FRAME AND GRATING FOR CACH BASINS (BICYCLE SAFE) PER LOS ANGELES BUREAU OF ENGINEERING STD PLAN S-342-4. MODIFICATIONS (MOD) SHOWN.

CAD PROJECT FILE NAME: Mulholland Hwy & Encinal Cyn Rd - Master Plan Set.dgn
 CHECKER: M. ORELLANA
 DESIGNER: L. BRADLEY
 DRAFTER: L. BRADLEY

DATE	MARK	DESCRIPTION
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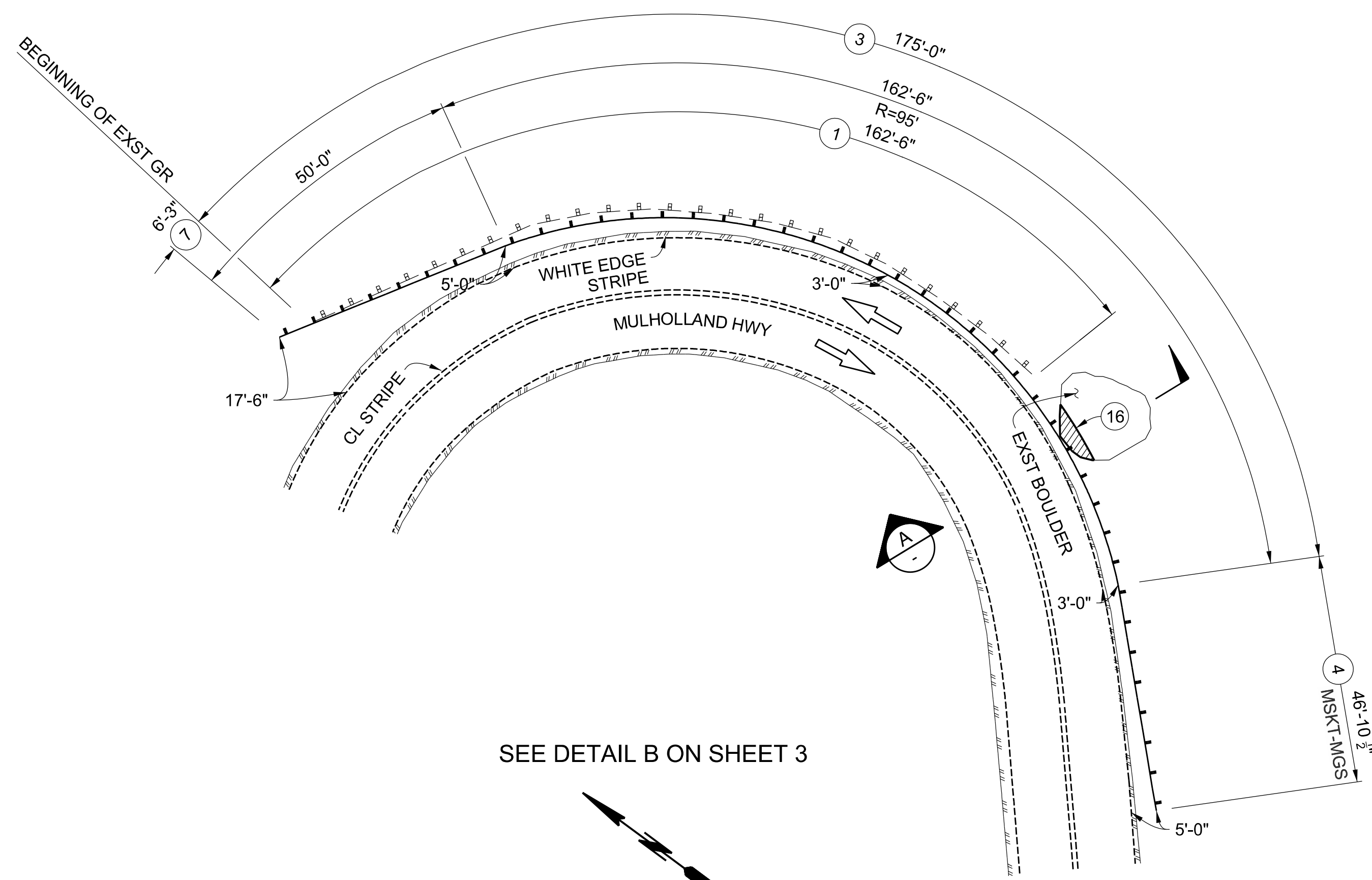


PROJECT ENGINEER: *Lukas Bradley* DATE: 12-13-2018

LOS ANGELES COUNTY PUBLIC WORKS

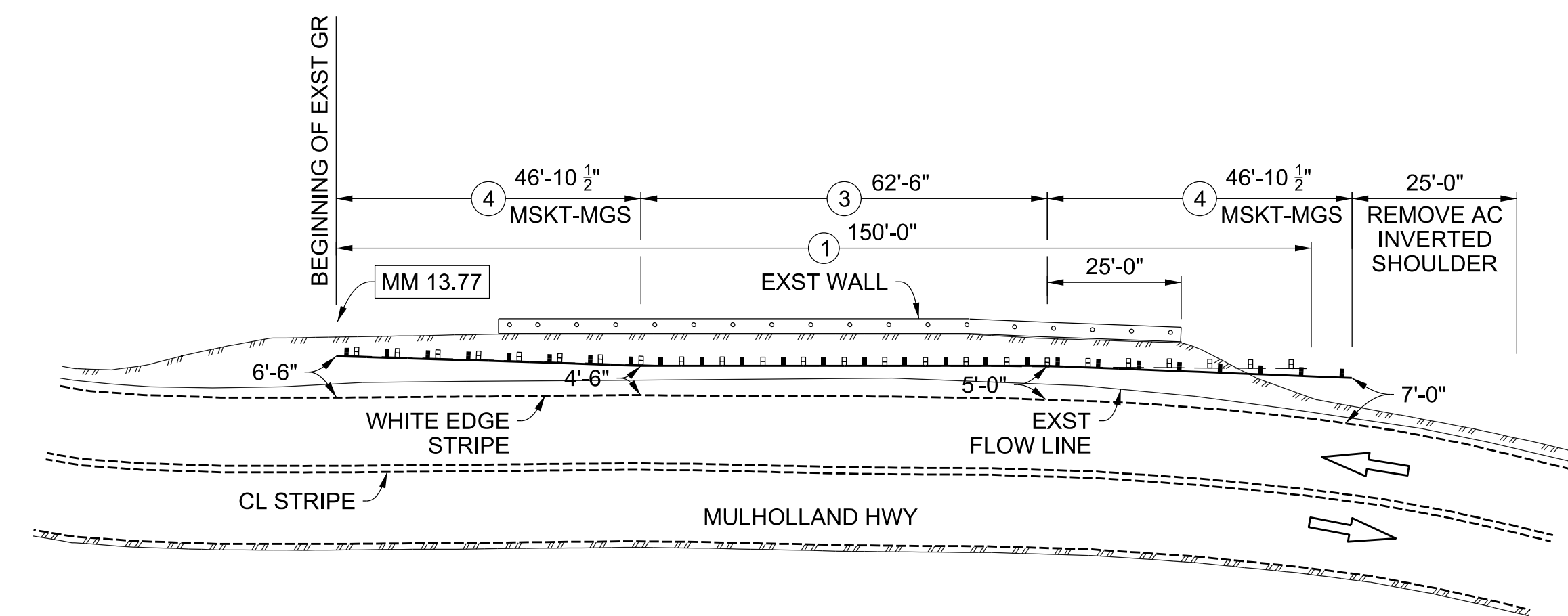
MULHOLLAND HWY, ET AL.
 GUARDRAIL REPLACEMENT ON-SYSTEM
 (2018WOOLSEYFIRE)
 PROJECT ID NO. RDC0016371
 DETAILS

DWG PH SHEET 4 OF 14



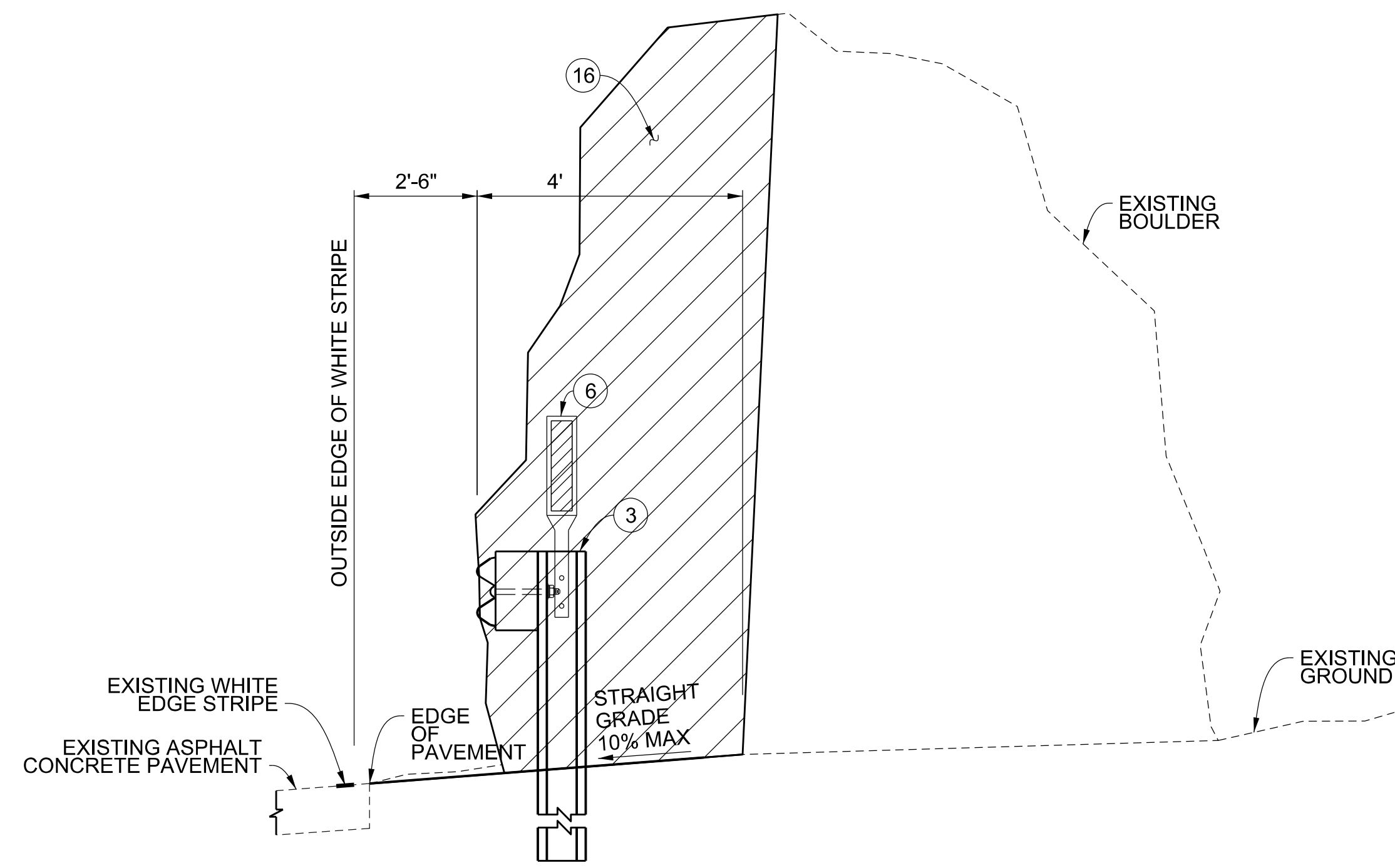
SEE DETAIL B ON SHEET 3

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SEE DETAIL C ON SHEET 3

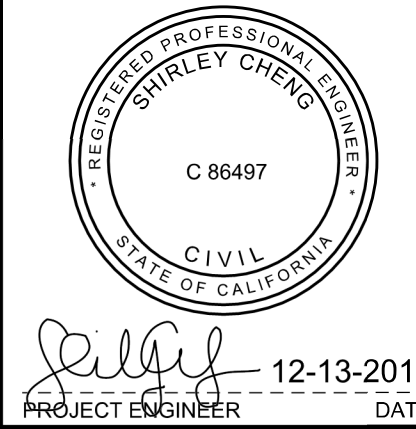
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NOT TO SCALE



SECTION A-A
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 CHECKER: M. ORELLANA
 DESIGNER: S. CHENG
 DRAFTER: J. FLORES

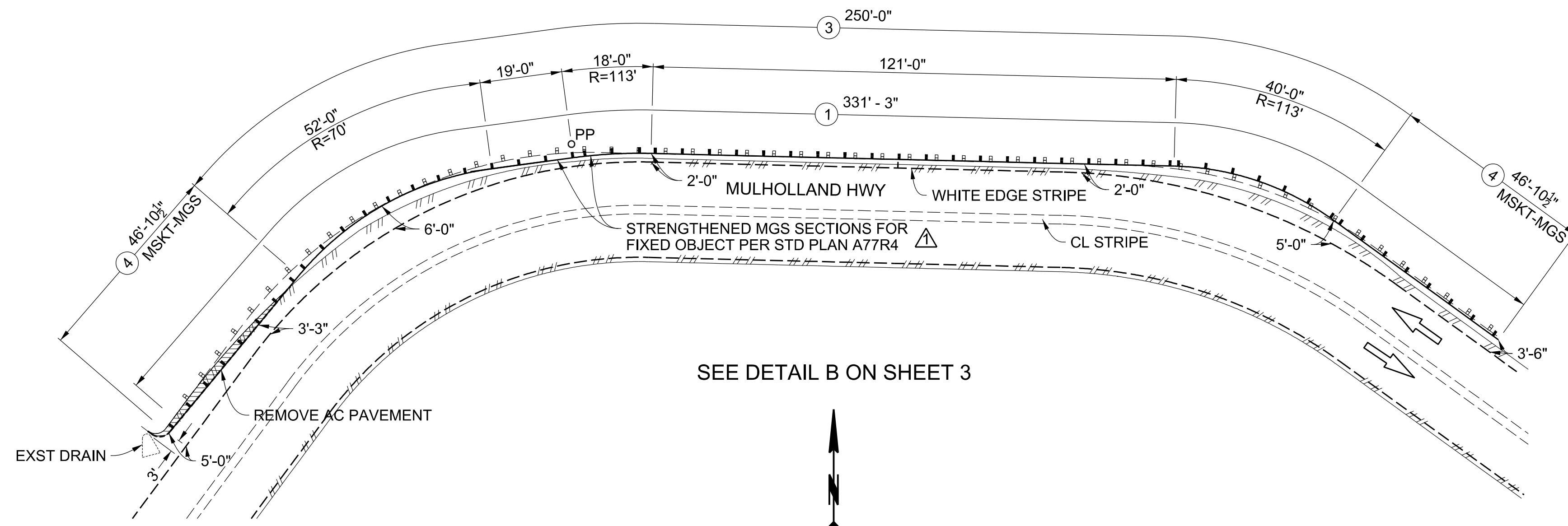
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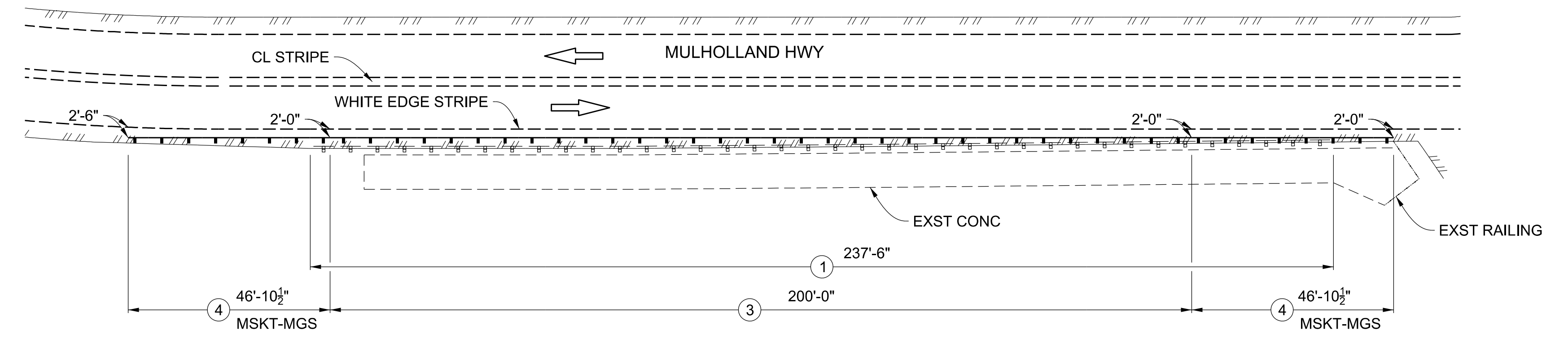
MULHOLLAND HWY, ET AL.
 GUARDRAIL REPLACEMENT ON-SYSTEM
 (2018WOOLSEYFIRE)
 PROJECT ID NO. RDC0016371
 GUARDRAIL PLAN

DATE: 12-13-2018
 PROJECT ENGINEER: [Signature]
 DWG: PH SHEET 5 OF 14



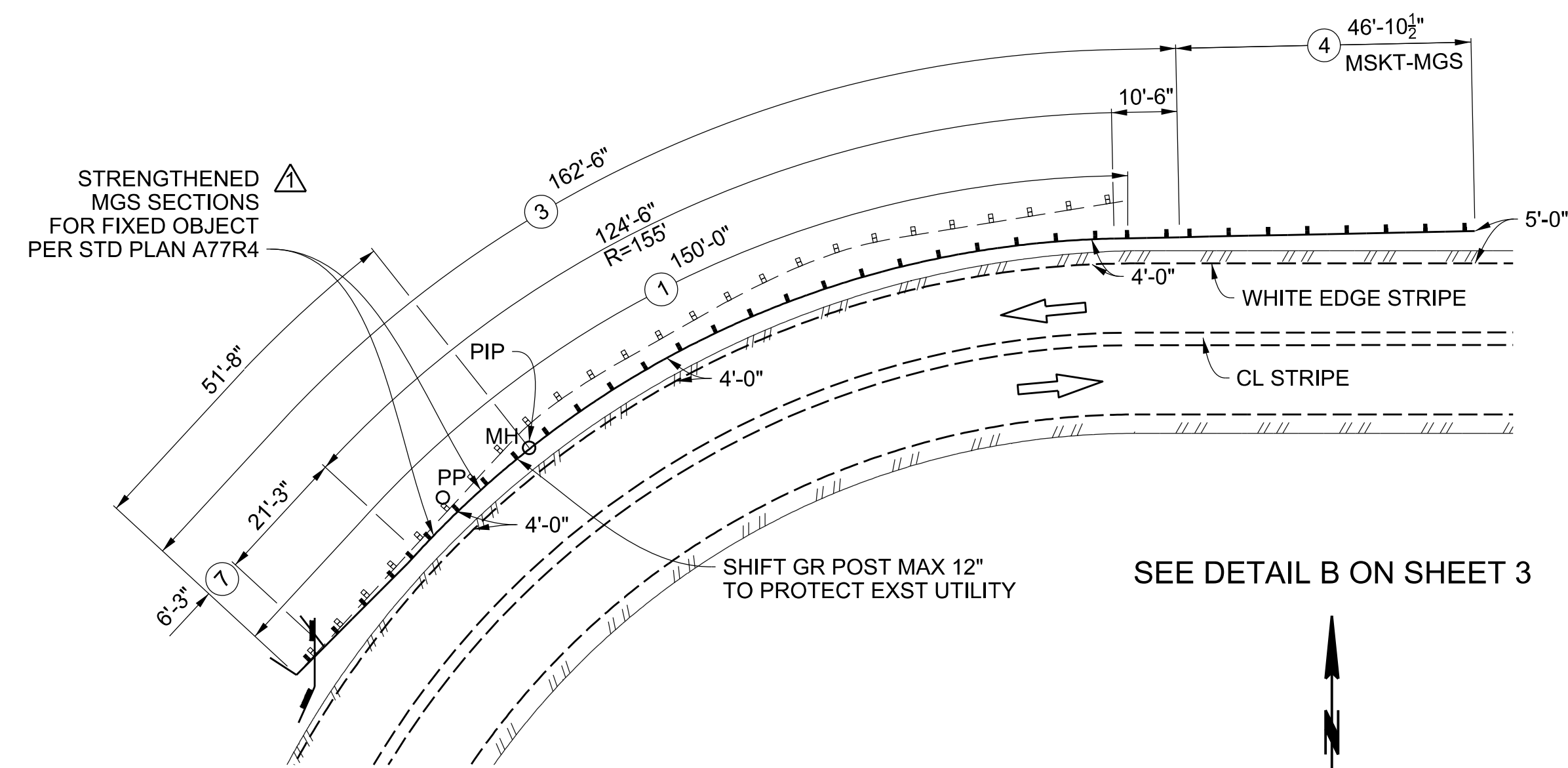
SEE DETAIL B ON SHEET 3

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SEE DETAIL C ON SHEET 3

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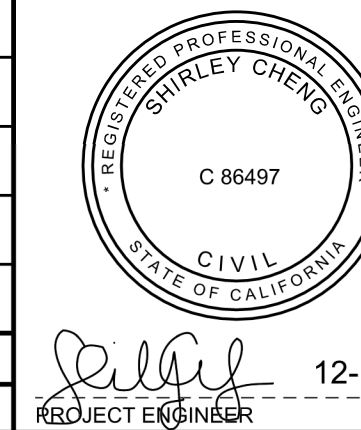


SEE DETAIL B ON SHEET 3

MULHOLLAND HWY AT N/B OF MM 16.13
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DRAFTER: S. CHENG
 DESIGNER: S. CHENG
 CHECKER: M. ORELLANA
 CADD PROJECT FILE NAME: \$FILESS\$

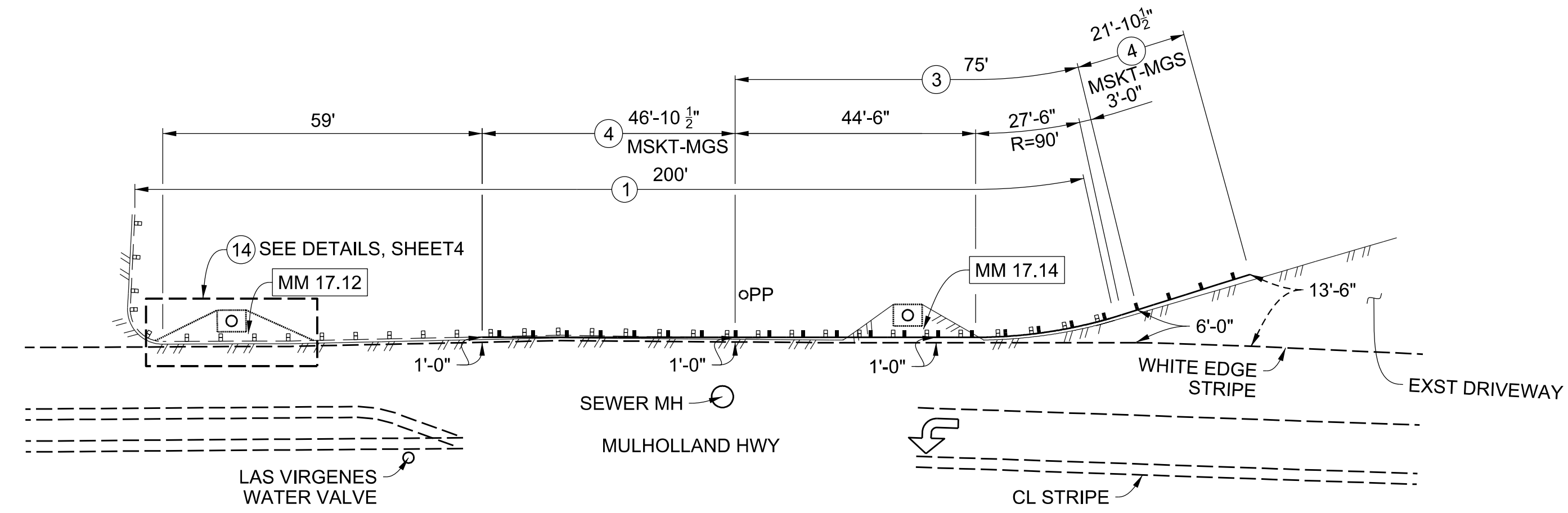
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1-2-2019	▲	REVISED STRENGTHENED MGS
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LOS ANGELES COUNTY PUBLIC WORKS

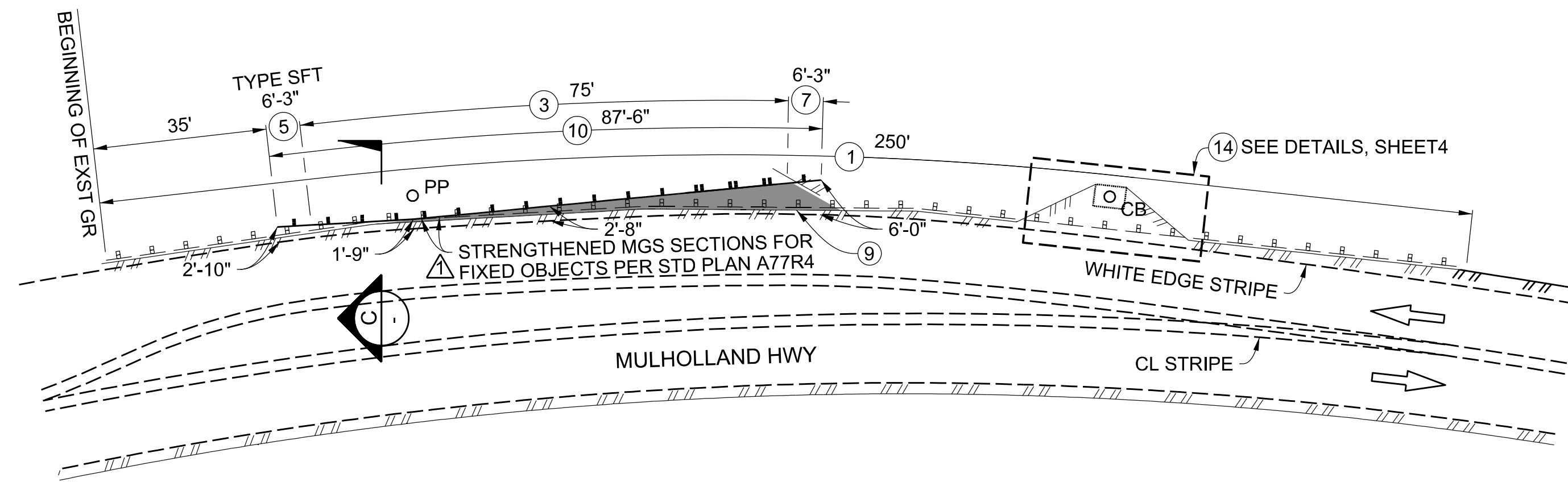
MULHOLLAND HWY, ET AL.
 GUARDRAIL REPLACEMENT ON-SYSTEM
 (2018WOOLSEYFIRE)
 PROJECT ID NO. RDC0016371
 GUARDRAIL PLAN

DWG: PH SHEET 7 OF 14

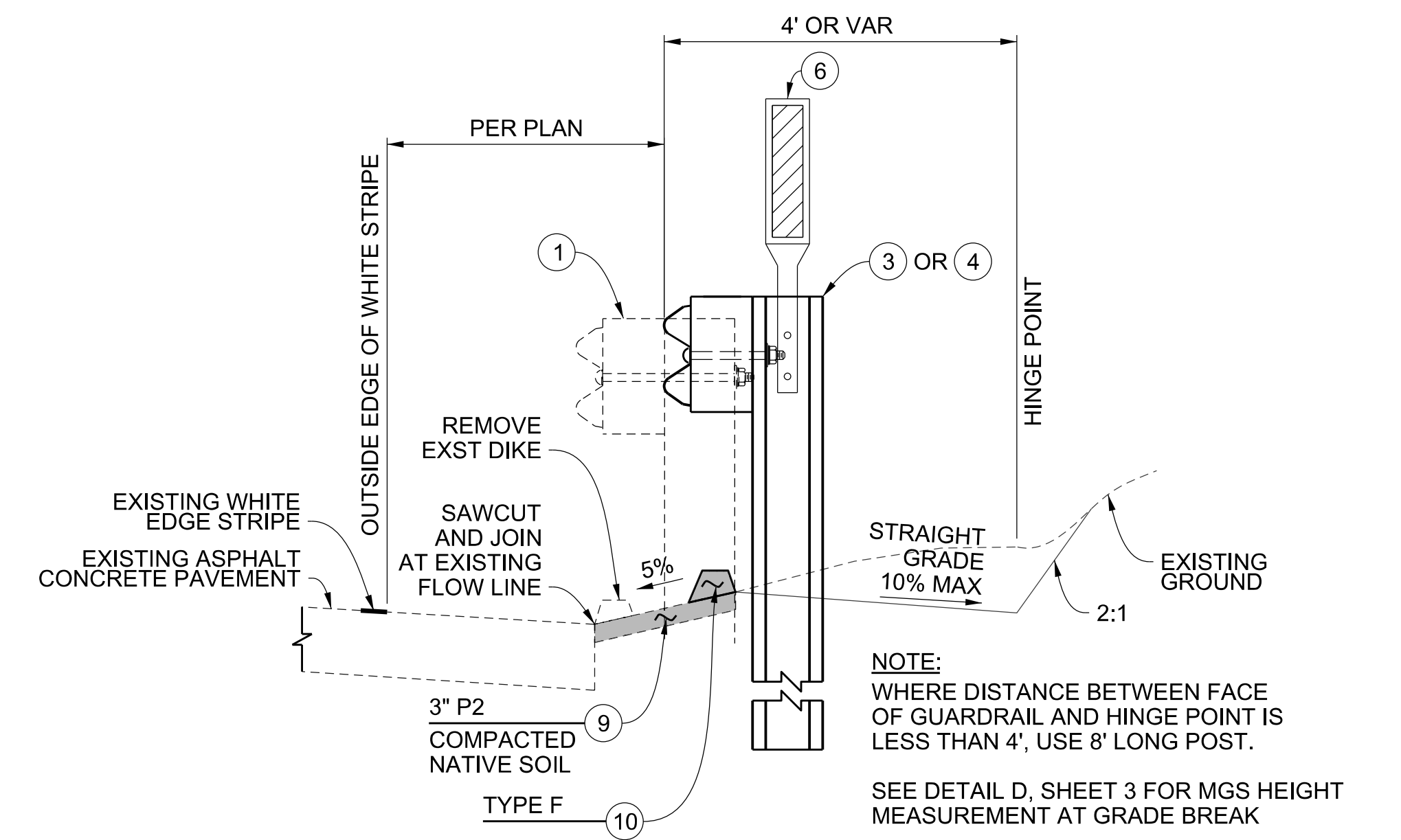


SEE DETAIL A ON SHEET 3

MULHOLLAND HWY AT MM 17.14
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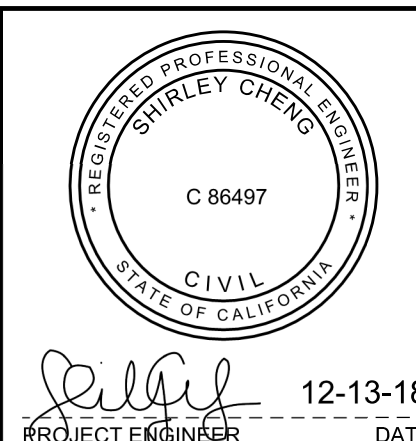
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SECTION C-C
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DRAFTER: S. CHENG
 DESIGNER: S. CHENG
 CHECKER: M. ORELLANA
 CADD PROJECT FILE NAME: \$FILESS\$

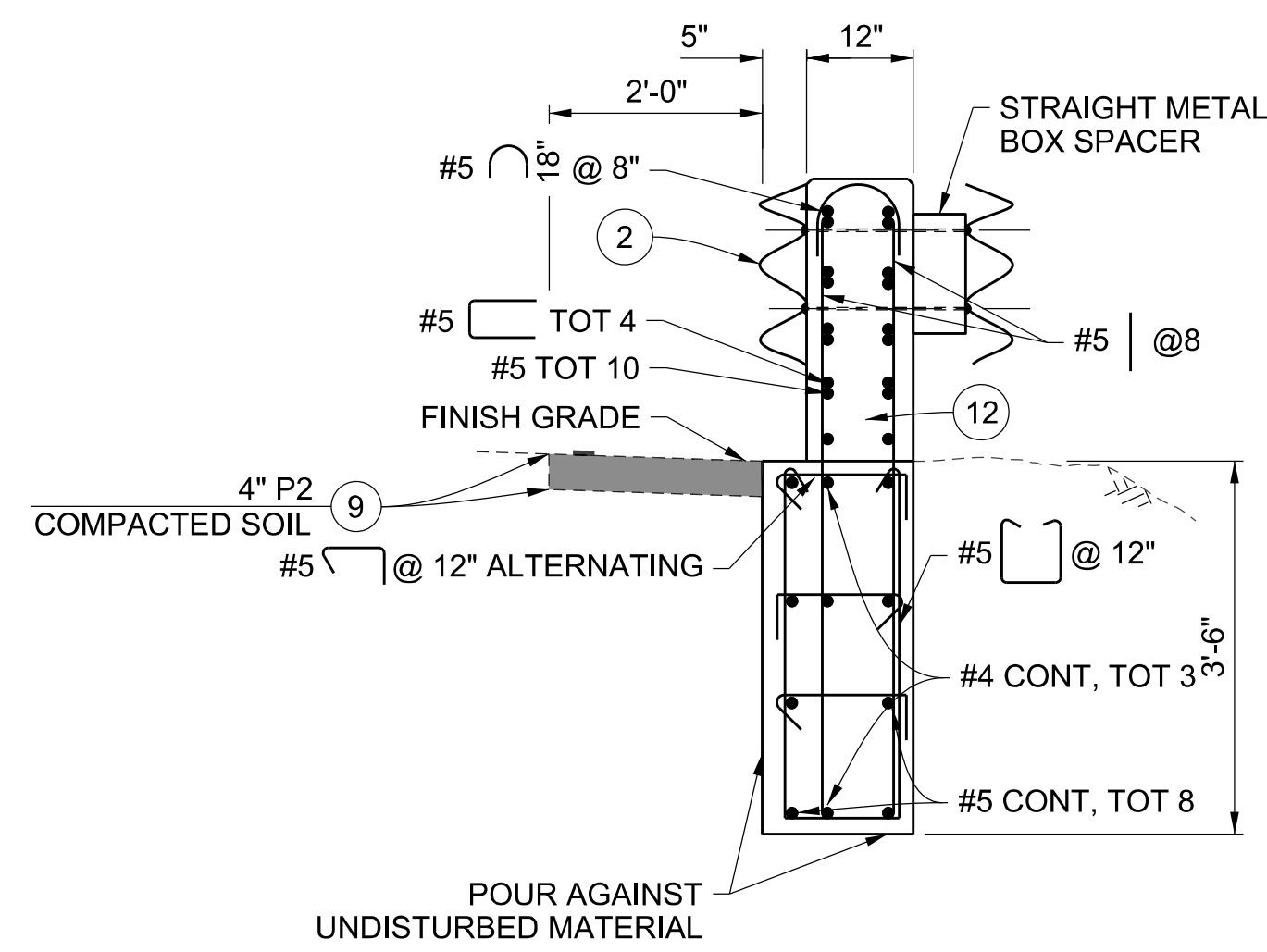
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1-2-2019	▲	REVISED STRENGTHENED MGS
REVISIONS		



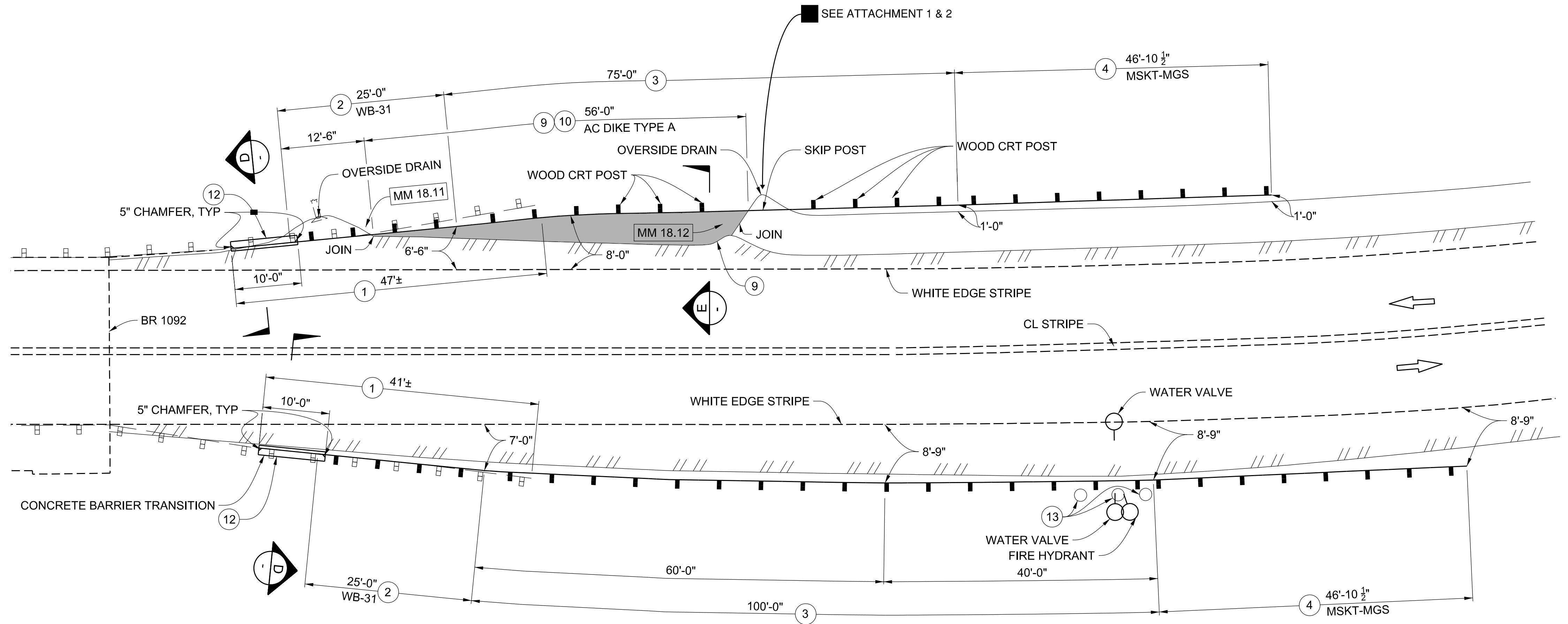
LOS ANGELES COUNTY PUBLIC WORKS

MULHOLLAND HWY, ET AL.
GUARDRAIL REPLACEMENT ON-SYSTEM
 (2018WOOLSEYFIRE)
 PROJECT ID NO. RDC0016371
GUARDRAIL PLAN

DWG: PH SHEET 8 OF 14

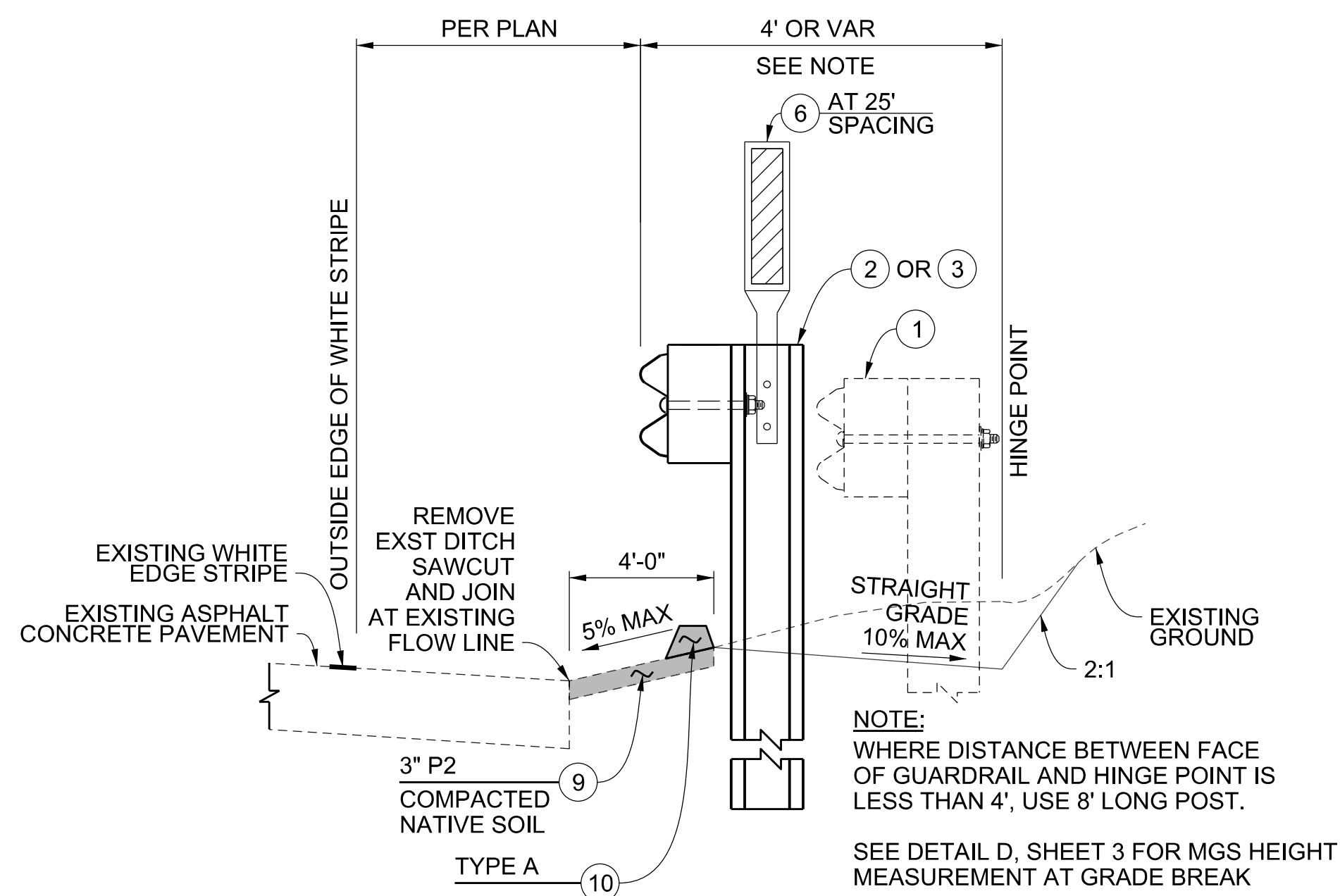


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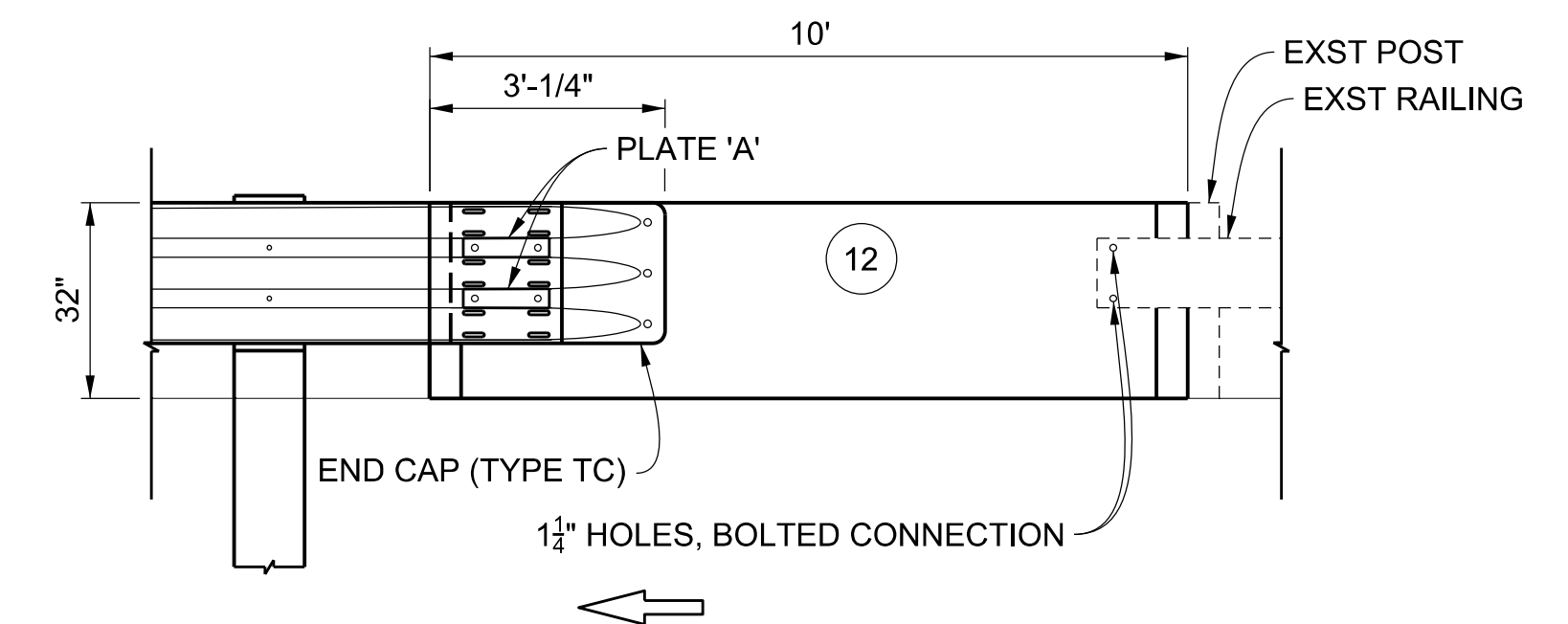
SEE ATTACHMENT 1 & 2

MULHOLLAND HWY AT MM 18.12 (BR 1092)
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SECTION E-E
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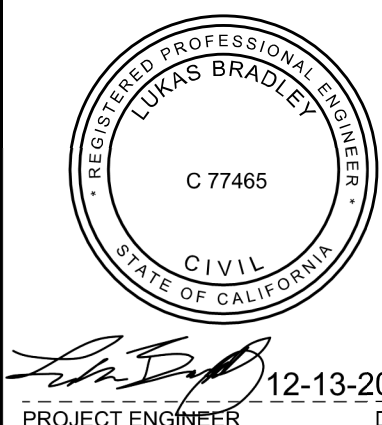
**CONTROLLED RELEASING
TERMINAL (CRT) POST DETAIL**
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ELEVATION
NOT TO SCALE

CAD PROJECT FILE NAME: Mulholland Hwy & Encinal Cyn Rd - Master Plan Set.dgn
 CHECKER: M. ORELLANA
 DESIGNER: L. BRADLEY
 DRAFTER: J. FLORES

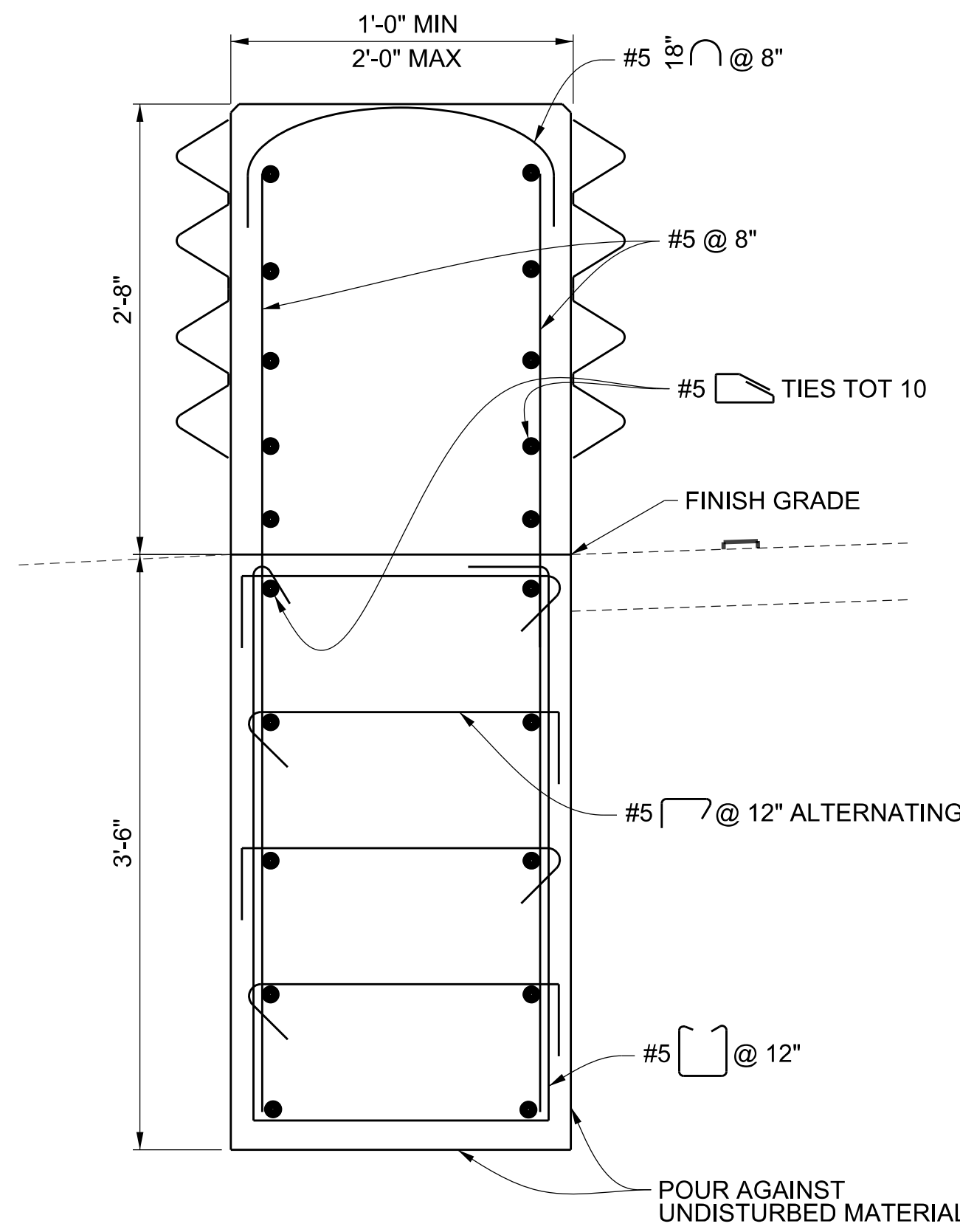
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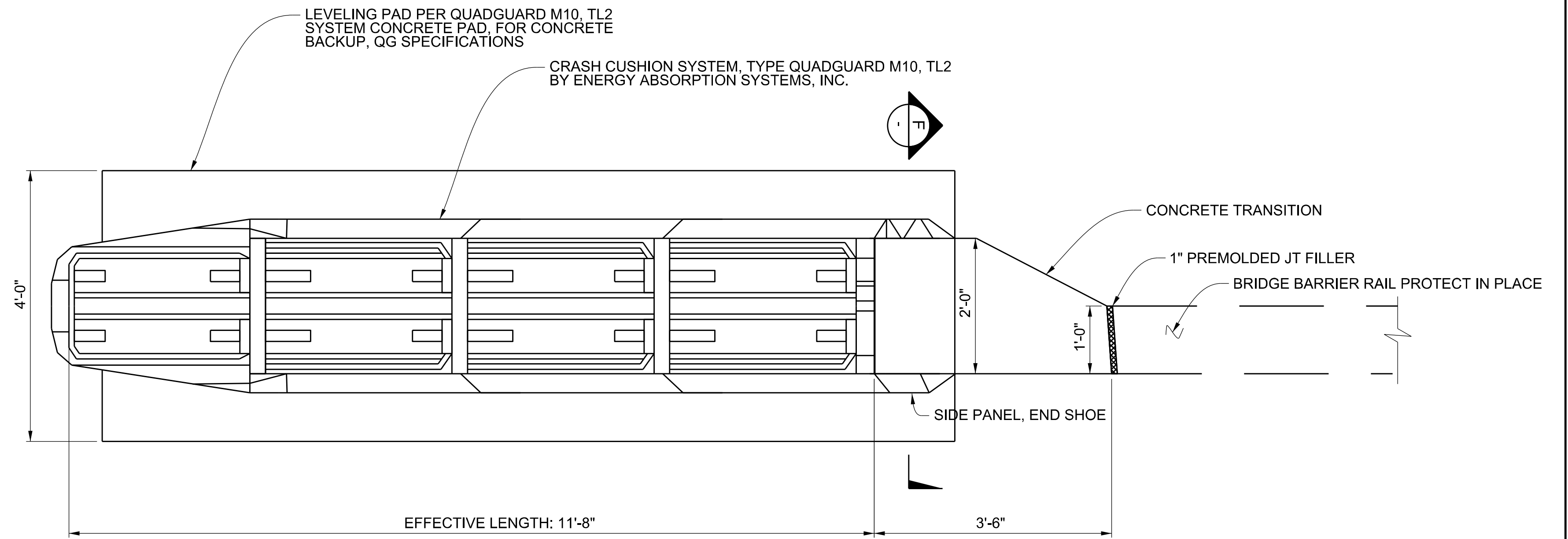
LOS ANGELES COUNTY PUBLIC WORKS

MULHOLLAND HWY, ET AL.
 GUARDRAIL REPLACEMENT ON-SYSTEM
 (2018WOOLSEYFIRE)
 PROJECT ID NO. RDC0016371
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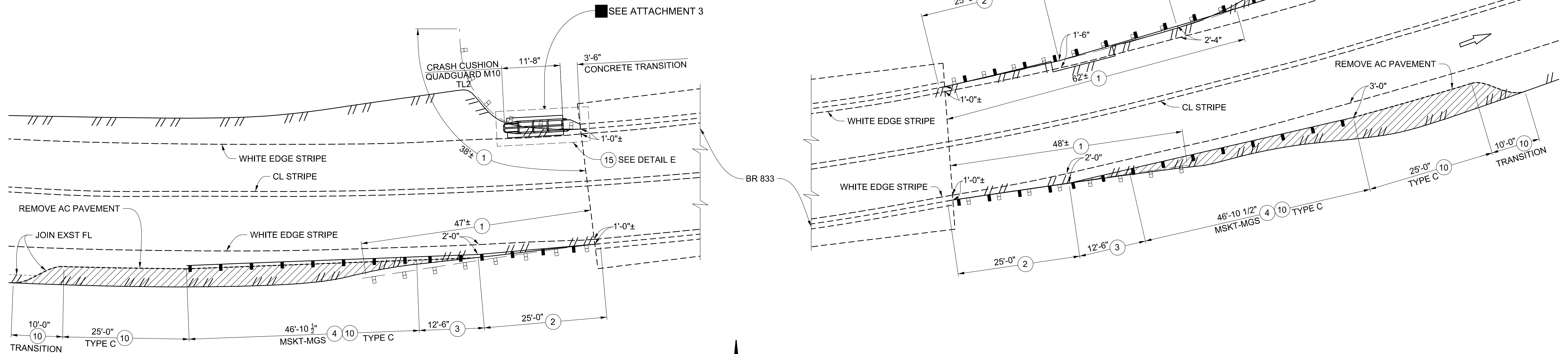
DWG PH SHEET 9 OF 14



SECTION F-F
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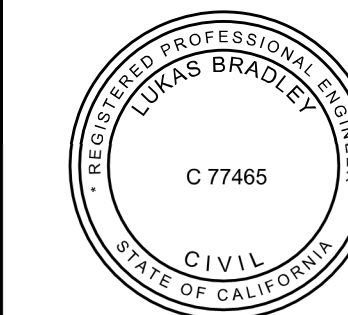
DETAIL E
NOT TO SCALE



PLAN
SCALE: 1" = 10'

MULHOLLAND HWY AT MM 21.58 (BR 833)

DATE	MARK	DESCRIPTION
5/12/2021	■	AS BUILT
REVISIONS		

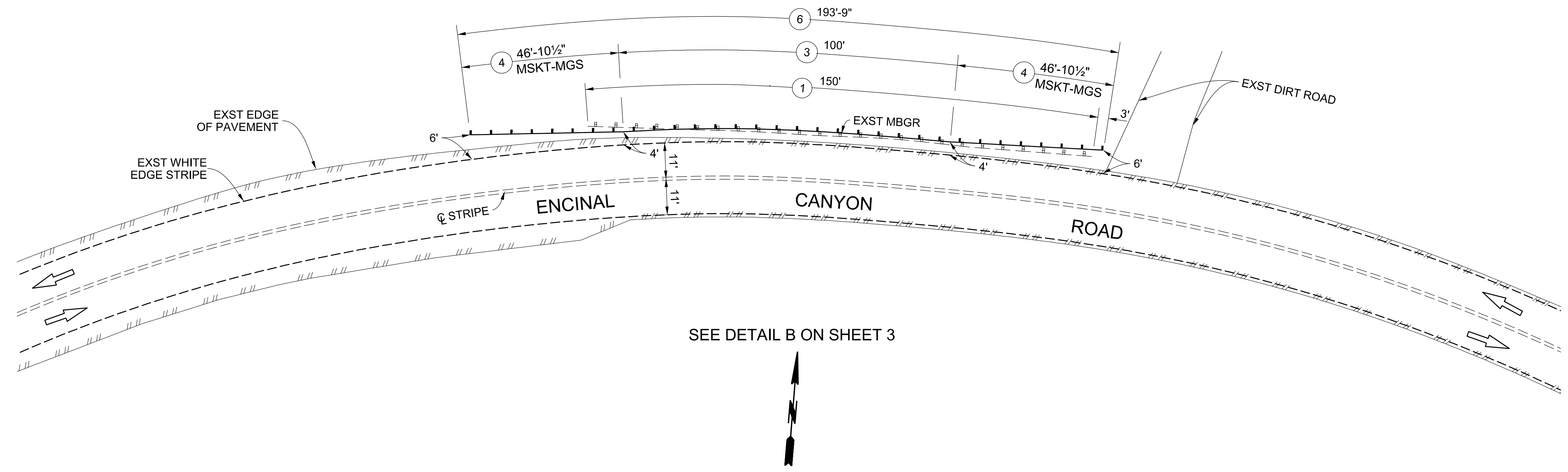


PROJECT ENGINEER
DATE: 12-13-2018

LOS ANGELES COUNTY PUBLIC WORKS

MULHOLLAND HWY, ET AL.
GUARDRAIL REPLACEMENT ON-SYSTEM
(2018WOOLSEYFIRE)
PROJECT ID NO. RDC0016371
GUARDRAIL PLAN

DWG PH SHEET 10 OF 14



SEE DETAIL B ON SHEET 3

ENCINAL CANYON RD AT MM 0.7

DRAFTER: T. LE
 DESIGNER: T. LE
 CHECKER: M. ORELLANA
 CADD PROJECT FILE NAME: Mulholland Hwy & Encinal Cyn Rd - Master Plan Set.dgn

PLAN
SCALE: 1" = 20'

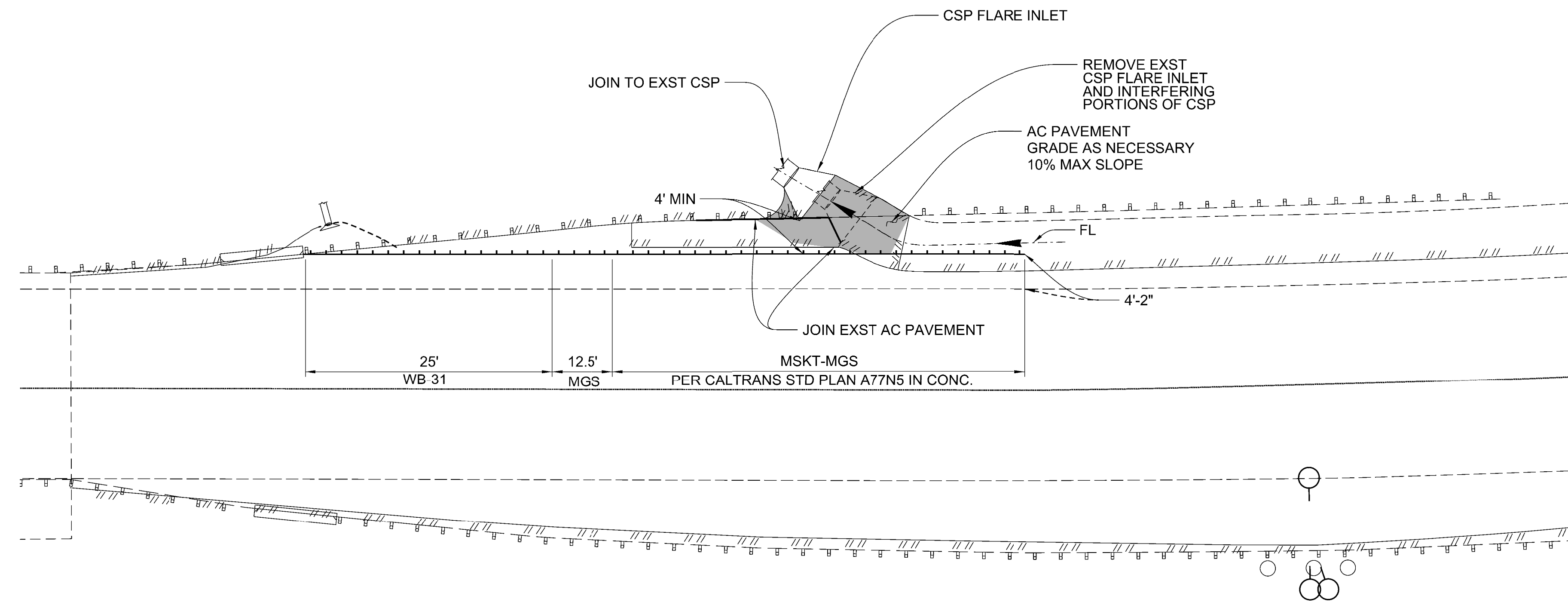
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Chanhe
PROJECT ENGINEER 12-13-2018

LOS ANGELES COUNTY PUBLIC WORKS

MULHOLLAND HWY, ET AL.
 GUARDRAIL REPLACEMENT ON-SYSTEM
 (2018WOOLSEYFIRE)
 PROJECT ID NO. RDC0016371
 GUARDRAIL PLAN

DWG PH SHEET 11 OF 14



MULHOLLAND HIGHWAY AT MM 18.12
 PLAN VIEW
 NOT TO SCALE
 ■ ATTACHMENT 1

DRAFTER: C. TANG
 DESIGNER: C. TANG
 CHECKER: L. MITCHELL
 CADD PROJECT FILE NAME: Mulholland Hwy & Encinal Cyn Rd - Master Plan Set.dgn

DATE	MARK	DESCRIPTION
5/12/2021	■	AS BUILT
REVISIONS		

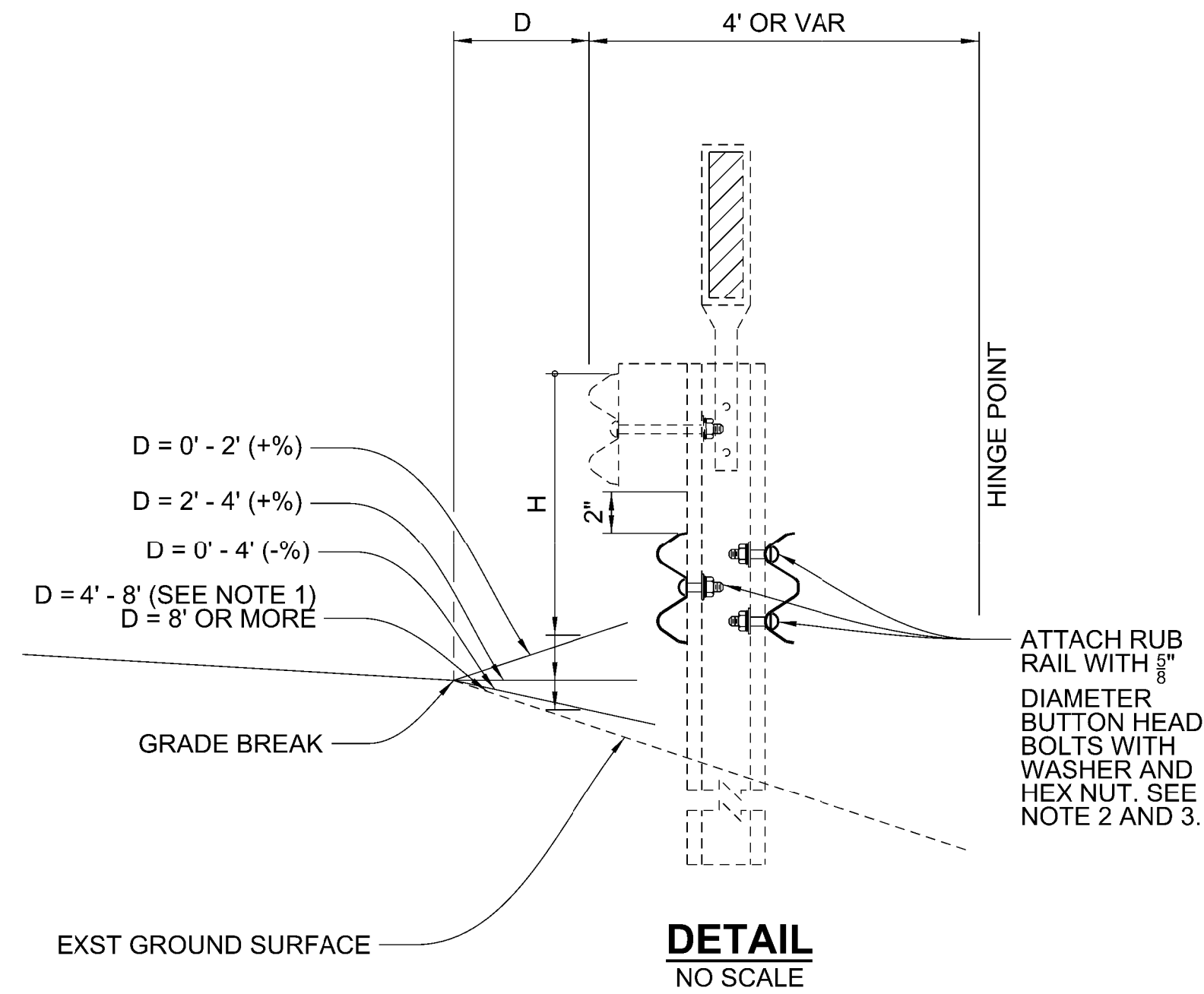


L. P. Mitchell
 PROJECT ENGINEER DATE 5/27/2021

LOS ANGELES COUNTY PUBLIC WORKS

MULHOLLAND HWY, ET AL.
 GUARDRAIL REPLACEMENT ON-SYSTEM
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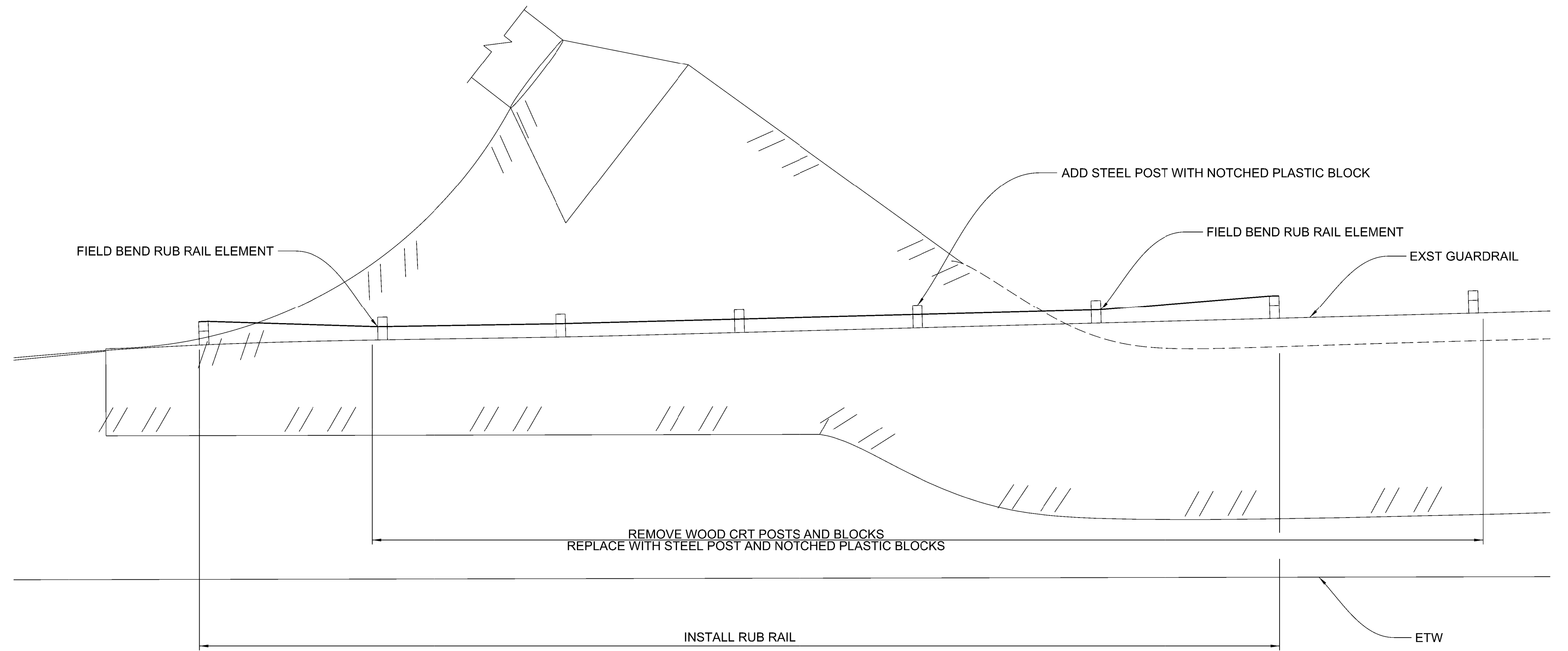
DWG PH SHEET 12 OF 14



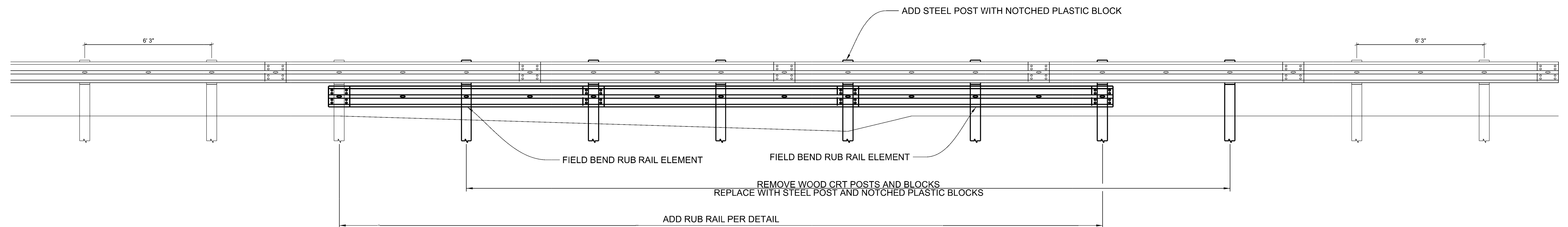
D = DISTANCE, GRADE BREAK TO RAIL
 H = HEIGHT OF FACE OF RAIL FROM EXTENDED LINE, BASED ON D
 H = 31" ± 1" FOR MGS

NOTES

1. WHEN THERE IS A BREAK POINT IN FRONT OF GUARDRAIL BETWEEN 4' AND 8' THE HEIGHT WILL BE DETERMINED BY THE ENGINEER
2. DO NOT INSTALL RUB RAIL ON TERMINAL SYSTEMS OR TRANSITIONS
3. PLACE RUB RAIL (RAIL ELEMENT) AND ATTACH TO POST WITH BUTTON HEAD BOLT AND NO BLOCK WHEN THE HEIGHT OF GUARDRAIL IS MORE THAN 2" ABOVE STANDARD PLACEMENT HEIGHT (H). SPLICE RUB RAIL ELEMENTS USING STANDARD RAIL ELEMENT SPLICES. AT EACH END OF RUB RAIL, FIELD BEND, DRILL, AND BOLT TO BACK OF POST AS SHOWN
4. HOLES CUT THROUGH FLANGE OF STEEL POST SHALL BE 3/4" AND ON THE TRAILING SIDE OF POST.



MULHOLLAND HIGHWAY AT MM 18.12
 PLAN VIEW
 NOT TO SCALE



MULHOLLAND HIGHWAY AT MM 18.12
 ELEVATION VIEW
 NOT TO SCALE

ATTACHMENT 2

CADD PROJECT FILE NAME: Mulholland Hwy & Encinal Cyn Rd - Master Plan Set.dgn
 CHECKER: L. MITCHELL
 DESIGNER: C. TANG
 DRAFTER: C. TANG

DATE	MARK	DESCRIPTION
5/12/2021	AS BUILT	
REVISIONS		



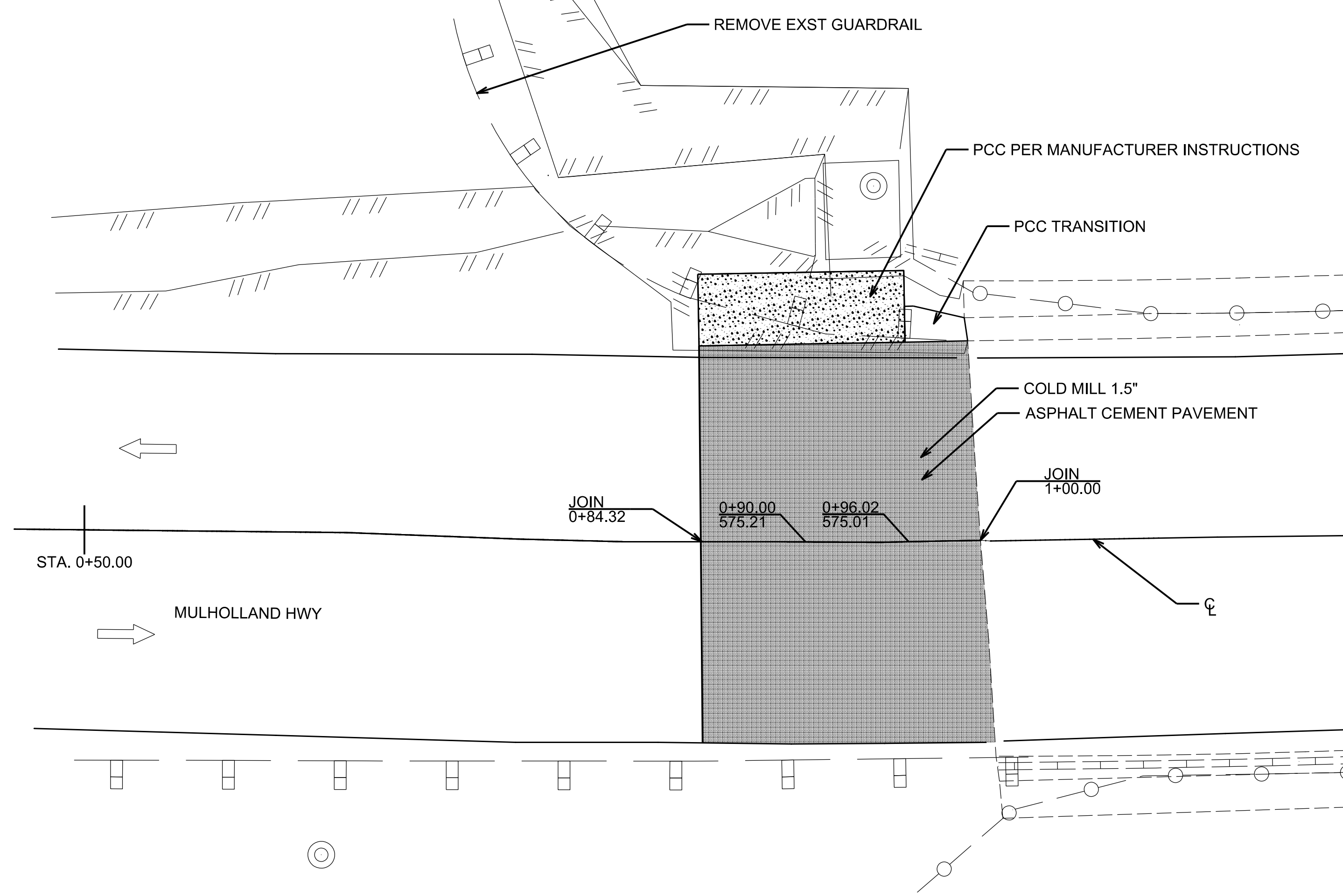
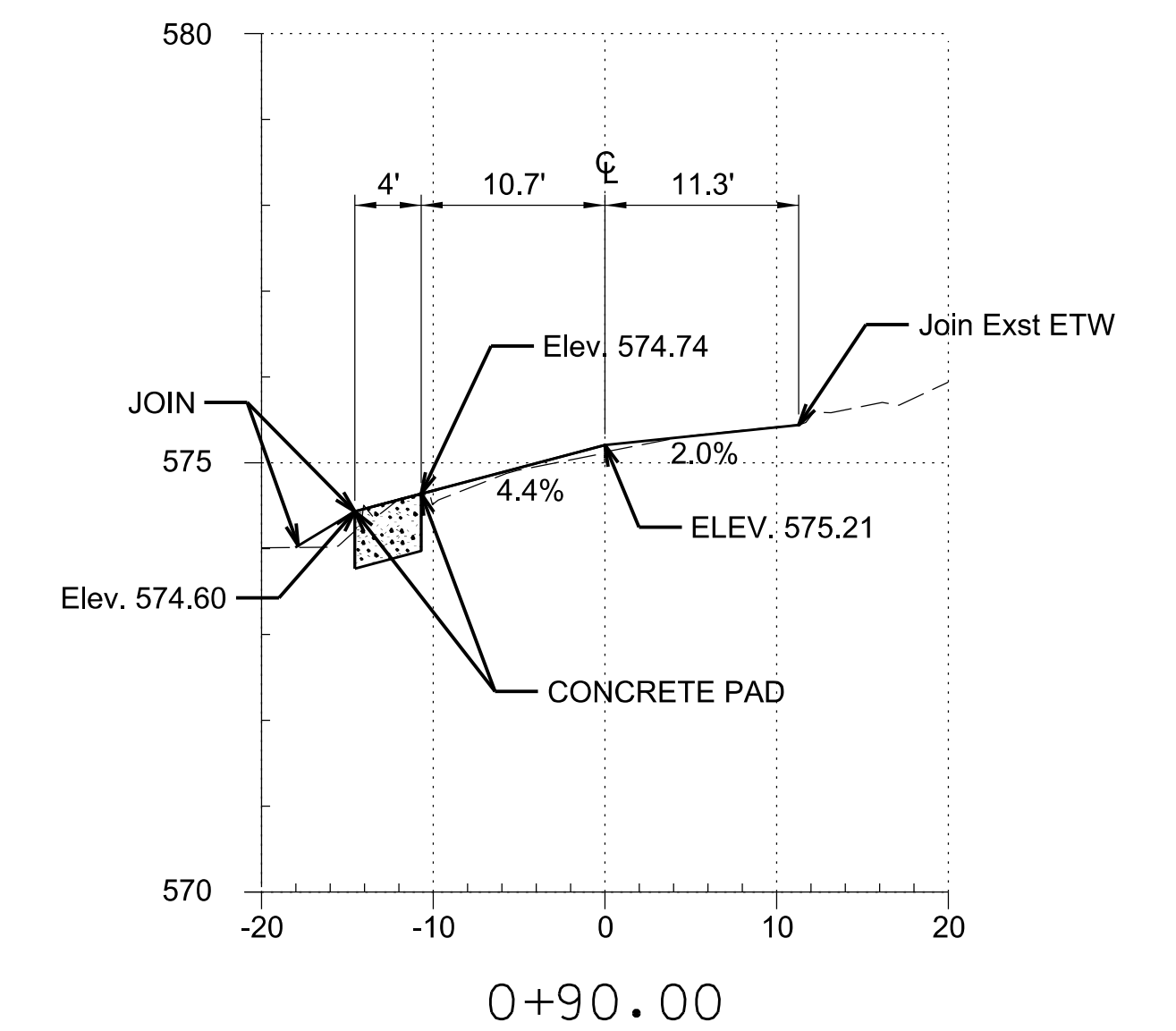
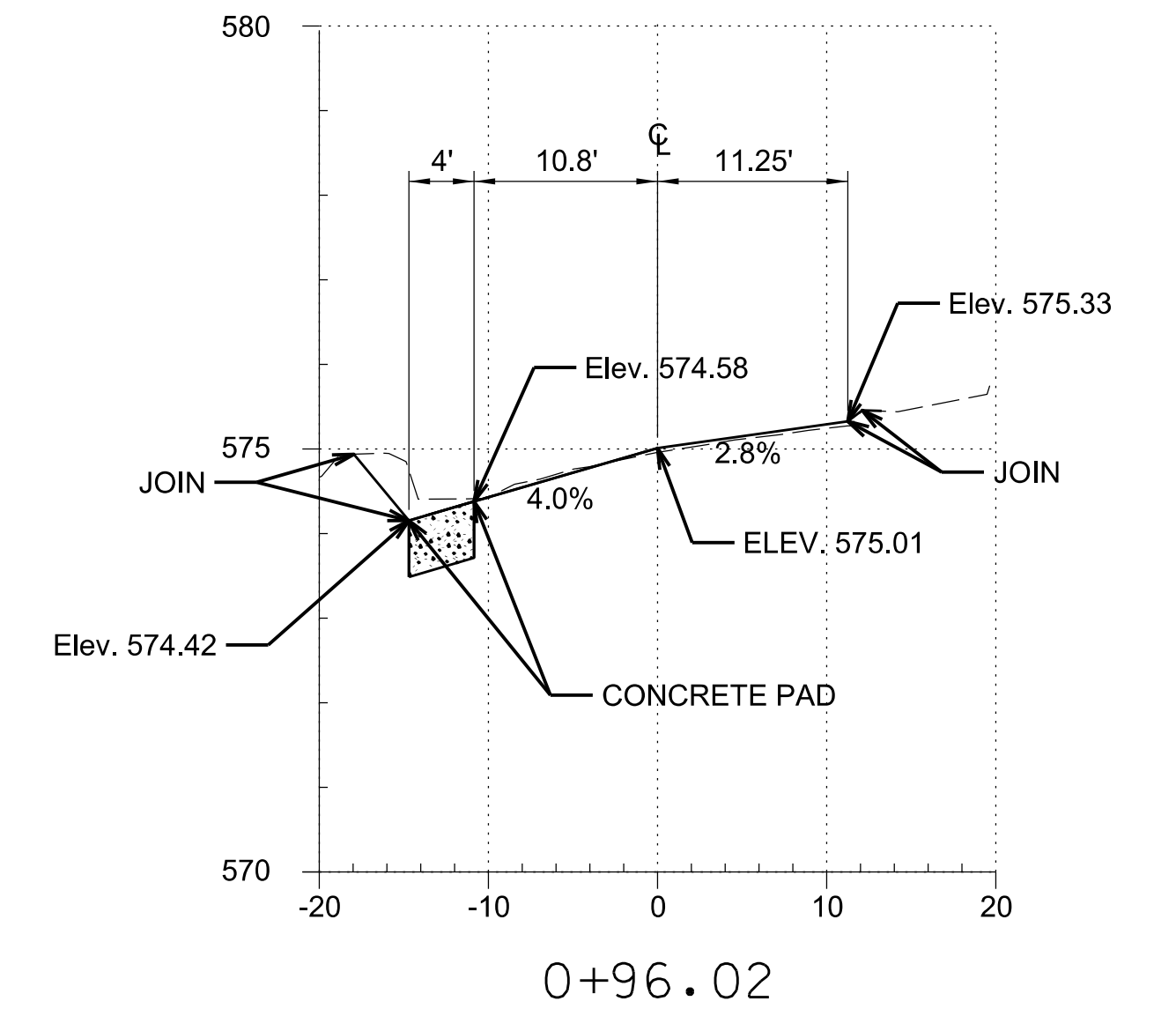
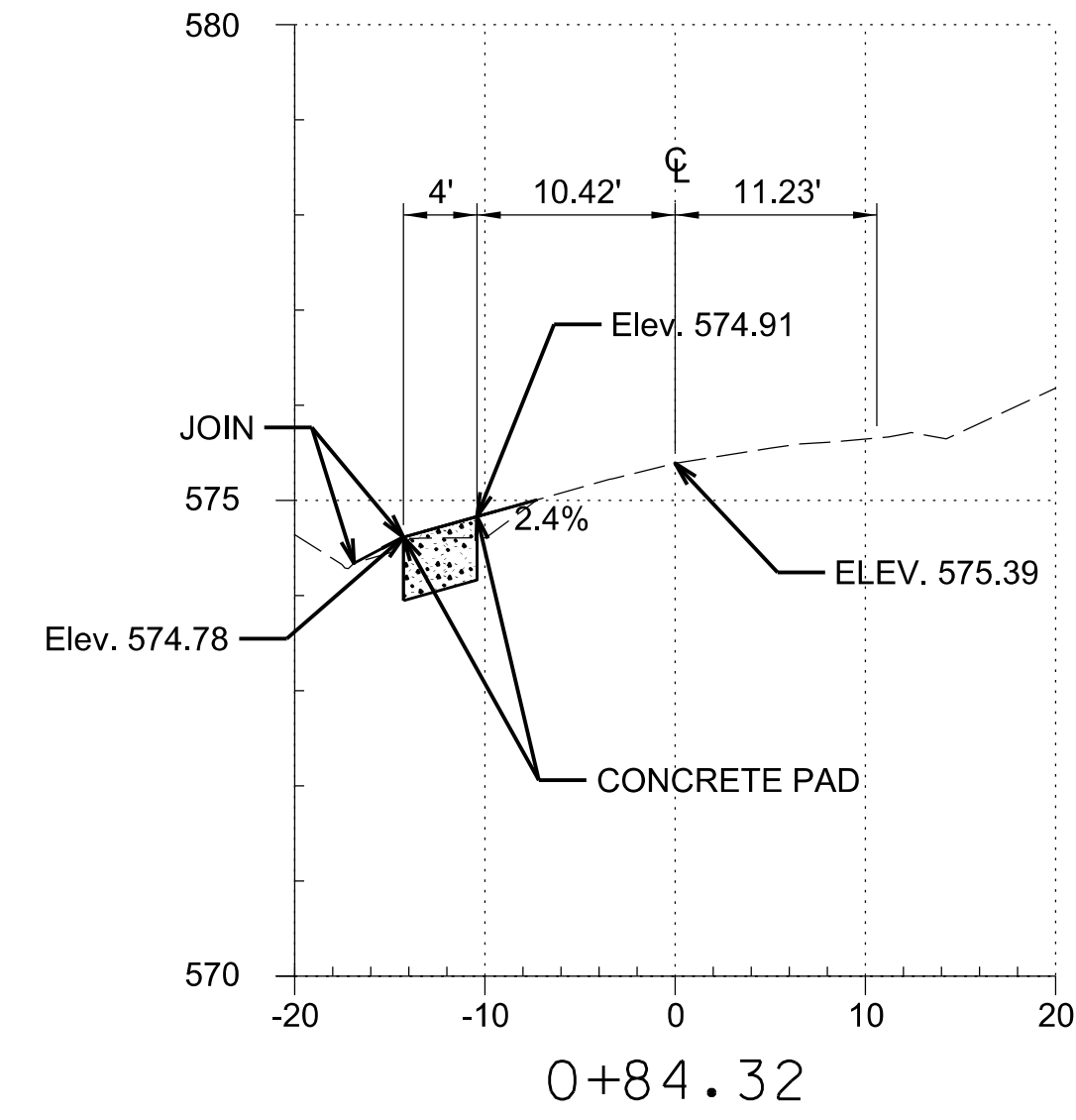
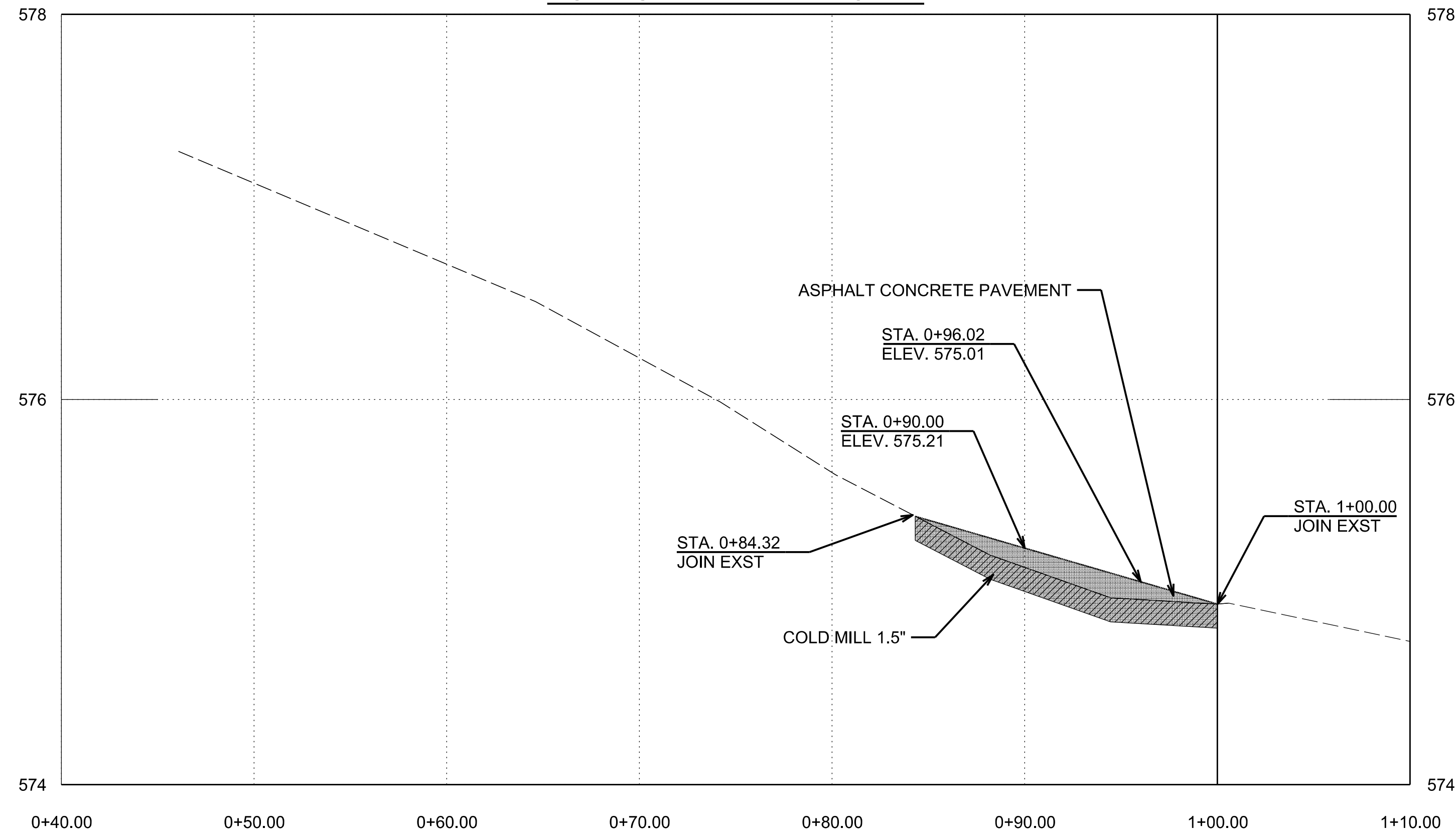
PROJECT ENGINEER: *L. Mitchell* DATE: 5/27/2021

LOS ANGELES COUNTY PUBLIC WORKS

MULHOLLAND HWY, ET AL.
 GUARDRAIL REPLACEMENT ON-SYSTEM
 (2018WOOLSEYFIRE)
 PROJECT ID NO. RDC0016371
 DETAILS

DWG PH SHEET 13 OF 14

ROAD CENTERLINE PROFILE



NOT TO SCALE

ATTACHMENT 3

CADD PROJECT FILE NAME: Mulholland Hwy & Encinal Cyn Rd - Master Plan Set.dgn
 CHECKER: L. MITCHELL
 DESIGNER: C. TANG
 DRAFTER: C. TANG

DATE	MARK	DESCRIPTION
5/12/2021	AS BUILT	
REVISIONS		



PROJECT ENGINEER: *L. Mitchell* DATE: 5/27/2021

LOS ANGELES COUNTY PUBLIC WORKS

MULHOLLAND HWY, ET AL.
 GUARDRAIL REPLACEMENT ON-SYSTEM
 (2018WOOLSEYFIRE)
 PROJECT ID NO. RDC0016371
 DETAILS

DWG PH SHEET 14 OF 14