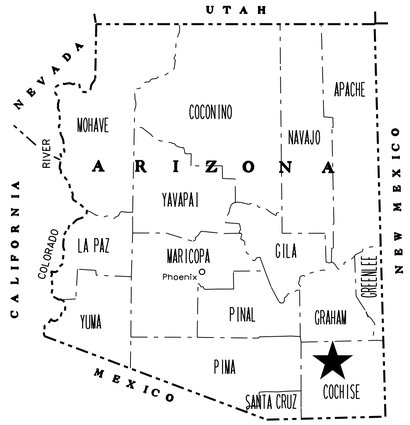
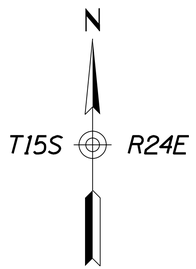
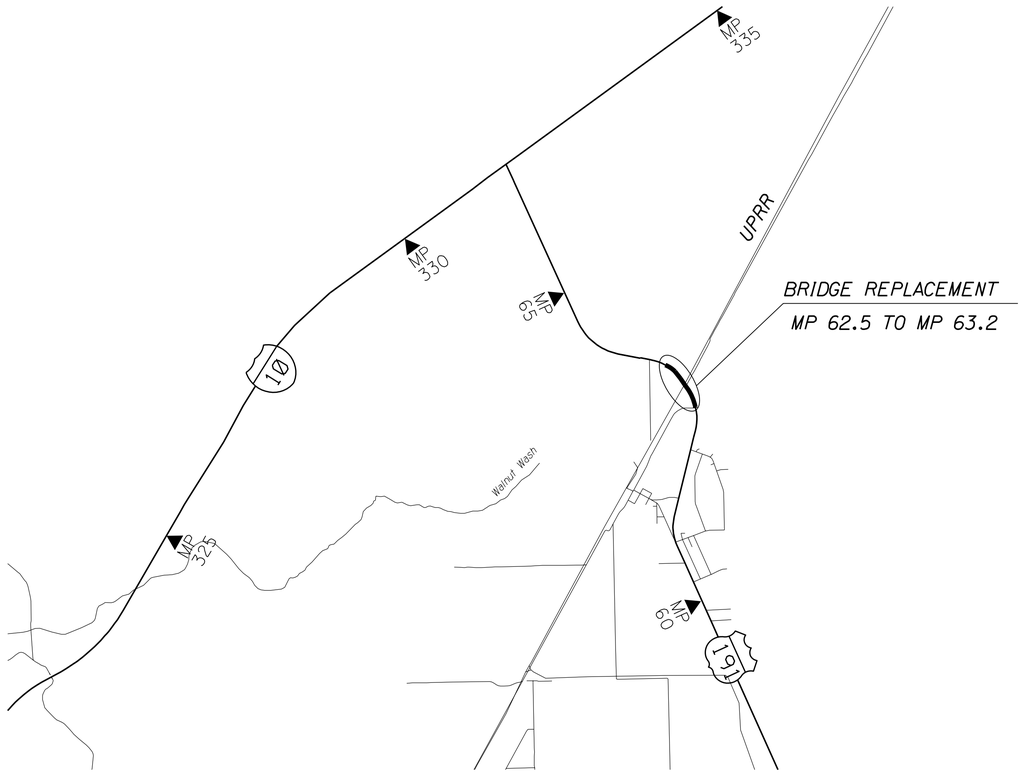
STATE OF ARIZONA
DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION

PROJECT PLANS

STATE HIGHWAY
DOUGLAS – WILLCOX HIGHWAY
US 191







Constructed by:

Construction Company

Completion Date

Red-Lines by:

Construction Administrator Name & Company

Completion Date

Record Drawings by:

Record Drawing Designer Name & Company

Completion Date

COCHISE RAILROAD OVERPASS

PROJECT NO. 191 CH 062 F0383 01C
FEDERAL AID NO. 191–A(205)T

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY ANS OPERATIONS DIVISION
GREG BYRES, P.E., STATE ENGINEER

RECORD DWG DATA	RECORD DWG DATE	_____ OF _____

ADOT STANDARD DRAWINGS

CONSTRUCTION STANDARDS
EFFECTIVE MARCH 2025

DATE	STANDARD	SUBJECT TITLE
5/12	C-01.10 SH 1	SYMBOL LEGEND
5/12	C-01.10 SH 2	SYMBOL LEGEND
5/12	C-01.10 SH 3	SYMBOL LEGEND
5/12	C-01.10 SH 4	SYMBOL LEGEND
12/17	C-01.30 SH 1	GENERAL ABBREVIATIONS
5/12	C-01.30 SH 2	GENERAL ABBREVIATIONS
5/12	C-01.30 SH 3	GENERAL ABBREVIATIONS
5/12	C-02.10	SLOPES, RURAL DIVIDED HIGHWAYS
5/12	C-02.20	SLOPES, RURAL UNDIVIDED AND FRINGE-URBAN HIGHWAYS
5/12	C-02.30	SLOPES, MISCELLANEOUS ROADWAYS
5/12	C-03.10 SH 1	DITCHES, CHANNELS, DIKES AND BERMS, DITCHES AND CHANNELS
5/12	C-03.10 SH 2	DITCHES, CHANNELS, DIKES AND BERMS, DIKES
5/12	C-03.10 SH 3	DITCHES, CHANNELS, DIKES AND BERMS, DITCH DIKE
5/12	C-03.10 SH 4	DITCHES, CHANNELS, DIKES AND BERMS, PIPE BERMS
5/12	C-03.10 SH 5	DITCHES, CHANNELS, DIKES AND BERMS, HEADWALL BERMS
12/17	C-04.10 SH 1	SPILLWAY, EMBANKMENT SINGLE INLET
12/17	C-04.10 SH 2	SPILLWAY, EMBANKMENT DOUBLE INLET
12/17	C-04.20 SH 1	DOWNDRAIN, EMBANKMENT SINGLE INLET
12/17	C-04.20 SH 2	DOWNDRAIN, EMBANKMENT DOUBLE INLET
12/17	C-04.30	SPILLWAY LENGTH TABLE
12/17	C-04.40	DOWNDRAIN LENGTH TABLE
5/12	C-04.50	DOWNDRAIN ENERGY DISSIPATOR
5/12	C-05.10	CURB & GUTTER, CURB, GUTTER
5/12	C-05.12 SH 1	CURB & GUTTER TRANSITIONS
5/12	C-05.12 SH 2	CURB & GUTTER TRANSITIONS
5/12	C-05.12 SH 3	CURB AND GUTTER TRANSITIONS
5/12	C-05.20 SH 1	CONCRETE DRIVEWAYS & SIDEWALKS, DRIVEWAYS
5/12	C-05.20 SH 2	CONCRETE DRIVEWAYS & SIDEWALKS, SIDEWALKS
5/12	C-05.30 SH 1	SIDEWALK RAMP, TYPE A
5/12	C-05.30 SH 2	SIDEWALK RAMP, TYPE B
5/12	C-05.30 SH 3	SIDEWALK RAMP, TYPE C
5/12	C-05.30 SH 4	SIDEWALK RAMP, TYPE D
5/12	C-05.30 SH 5	SIDEWALK RAMP, TYPE E
5/12	C-05.30 SH 6	SIDEWALK RAMP, TYPE F
5/12	C-05.30 SH 7	SIDEWALK RAMP, DETECTABLE WARNING STRIP
5/12	C-05.40	MEDIAN PAVING AND NOSE TAPER
5/12	C-05.50	CONCRETE BUS BAY
5/12	C-06.10 SH 1	DRIVEWAY & TURNOUT LAYOUTS
5/12	C-06.10 SH 2	DRIVEWAY & TURNOUT LAYOUTS
5/12	C-07.01 SH 1	PCCP JOINTS
5/12	C-07.01 SH 2	PCCP JOINTS
5/12	C-07.02	LOAD TRANSFER DOWEL ASSEMBLY
5/12	C-07.03 SH 1	PCCP JOINT LOCATIONS, MAINLINE SKEWED JOINTS
5/12	C-07.03 SH 2	PCCP JOINT LOCATIONS, MAINLINE SKEWED JOINTS
5/12	C-07.03 SH 3	PCCP JOINT LOCATIONS, MAINLINE SKEWED JOINTS
5/12	C-07.03 SH 4	PCCP JOINT LOCATIONS, MAINLINE SKEWED JOINTS
5/12	C-07.03 SH 5	PCCP JOINT LOCATIONS, MAINLINE NON-SKEWED JOINTS
5/12	C-07.03 SH 6	PCCP JOINT LOCATIONS, MAINLINE NON-SKEWED JOINTS
5/12	C-07.03 SH 7	PCCP JOINT LOCATIONS, MAINLINE NON-SKEWED JOINTS
5/12	C-07.03 SH 8	PCCP JOINT LOCATIONS, MAINLINE NON-SKEWED JOINTS
5/12	C-07.04 SH 1	PCCP JOINT LOCATIONS, PARALLEL-TYPE ENTRANCE RAMP WITH AUXILIARY LANE
5/12	C-07.04 SH 2	PCCP JOINT LOCATIONS, PARALLEL-TYPE EXIT RAMP WITH AUXILIARY LANE
5/12	C-07.04 SH 3	PCCP JOINT LOCATIONS, TAPER-TYPE ENTRANCE RAMP
5/12	C-07.04 SH 4	PCCP JOINT LOCATIONS, TAPER-TYPE EXIT RAMP
5/12	C-07.04 SH 5	PCCP JOINT LOCATIONS, CROSSROAD AND RAMP TERMINI
8/21	C-07.06	TRENCH BACKFILL AND PAVEMENT REPLACEMENT
5/12	C-08.20	PAVED GORE AREA
12/17	C-10.00	GUARDRAIL MEASUREMENT LIMITS
12/17	C-10.01	GUARDRAIL INSTALLATION
12/17	C-10.03	W-BEAM GUARDRAIL, MGS BLOCKED-OUT TIMBER POST
12/17	C-10.04	W-BEAM GUARDRAIL, MGS BLOCKED-OUT STEEL POST
12/17	C-10.05 SH 1	W-BEAM GUARDRAIL (MODIFIED) WITH FREEWAY CURB AND GUTTER
12/17	C-10.05 SH 2	W-BEAM GUARDRAIL (MODIFIED) WITH FREEWAY CURB AND GUTTER
12/17	C-10.06	W-BEAM GUARDRAIL LONG-SPAN
12/17	C-10.07 SH 1	W-BEAM GUARDRAIL, BOX CULVERT GUARDRAIL POST
12/17	C-10.07 SH 2	W-BEAM GUARDRAIL, BOX CULVERT GUARDRAIL POST
12/17	C-10.08 SH 1	W-BEAM GUARDRAIL, END ANCHOR
12/17	C-10.08 SH 2	W-BEAM GUARDRAIL, END ANCHOR
12/17	C-10.09	GUARDRAIL POST ROCK INSTALLATION
4/19	C-10.20 SH 1	GUARDRAIL END TERMINAL PAD LAYOUT FOR SOFTSTOP
4/19	C-10.20 SH 2	GUARDRAIL END TERMINAL PAD LAYOUT FOR SOFTSTOP
4/19	C-10.21 SH 1	GUARDRAIL END TERMINAL PAD LAYOUT FOR MSKT
4/19	C-10.21 SH 2	GUARDRAIL END TERMINAL PAD LAYOUT FOR MSKT
4/19	C-10.22 SH 1	GUARDRAIL END TERMINAL PAD LAYOUT FOR MAX-TENSION
4/19	C-10.22 SH 2	GUARDRAIL END TERMINAL PAD LAYOUT FOR MAX-TENSION
4/21	C-10.23 SH 1	GUARDRAIL END TERMINAL PAD LAYOUT FOR SGET
4/21	C-10.23 SH 2	GUARDRAIL END TERMINAL PAD LAYOUT FOR SGET
3/25	C-10.24 SH 1	GUARDRAIL END TERMINAL PAD LAYOUT FOR NGT
3/25	C-10.24 SH 2	GUARDRAIL END TERMINAL PAD LAYOUT FOR NGT
11/19	C-10.26 SH 1	GUARDRAIL END TERMINAL PAD LAYOUT FOR MFLEAT
11/19	C-10.26 SH 2	GUARDRAIL END TERMINAL PAD LAYOUT FOR MFLEAT
12/17	C-10.30 SH 1	GUARDRAIL TRANSITION TO CONCRETE BARRIER, TIMBER POST
12/17	C-10.30 SH 2	GUARDRAIL TRANSITION TO CONCRETE BARRIER, TIMBER POST
12/17	C-10.31 SH 1	GUARDRAIL TRANSITION TO CONCRETE BARRIER, STEEL POST
12/17	C-10.31 SH 2	GUARDRAIL TRANSITION TO CONCRETE BARRIER, STEEL POST
12/17	C-10.38 SH 1	GUARDRAIL TAPER G4 TO MGS W-BEAM WITH STAGGERED POST
12/17	C-10.38 SH 2	GUARDRAIL TAPER G4 TO MGS W-BEAM WITH OFFSET RAIL
12/17	C-10.40	CONCRETE MEDIAN BARRIER, 32" TYPE 'F', CAST-IN-PLACE
12/17	C-10.41	CONCRETE MEDIAN BARRIER, 42" TYPE 'F', CAST-IN-PLACE
12/17	C-10.44 SH 1	CONCRETE MEDIAN BARRIER, 42" TYPE 'F'WITH VARIABLE HEIGHT SIDES, H=0"TO 26"
12/17	C-10.44 SH 2	CONCRETE MEDIAN BARRIER, 42" TYPE 'F'WITH VARIABLE HEIGHT SIDES, H=0"TO 26"
12/17	C-10.45 SH 1	CONCRETE MEDIAN BARRIER, 42" TYPE 'F'WITH VARIABLE HEIGHT SIDES, H=26"TO 60"
12/17	C-10.45 SH 2	CONCRETE MEDIAN BARRIER, 42" TYPE 'F'WITH VARIABLE HEIGHT SIDES, H=26"TO 60"
12/17	C-10.50 SH 1	CONCRETE HALF BARRIER, 32" TYPE 'F', CAST-IN-PLACE
12/17	C-10.50 SH 2	CONCRETE HALF BARRIER, 32" TYPE 'F', PRECAST
12/17	C-10.51	CONCRETE HALF BARRIER, 32" TYPE 'F' WITH SIDEWALK
12/17	C-10.52	CONCRETE HALF BARRIER, 32" TYPE 'F' WITH GUTTER
12/17	C-10.53	CONCRETE HALF BARRIER, 42" TYPE 'F' WITH GUTTER
12/17	C-10.54 SH 1	CONCRETE HALF BARRIER, 32" TYPE 'F' AT PIERS, CAST-IN-PLACE
12/17	C-10.54 SH 2	CONCRETE HALF BARRIER, 32" TYPE 'F' AT PIERS, PRECAST
12/17	C-10.54 SH 3	CONCRETE HALF BARRIER, 32" TYPE 'F' AT PIERS, LAYOUT
12/17	C-10.55 SH 1	CONCRETE HALF BARRIER, 42" TYPE 'F' AT PIERS, CAST-IN-PLACE
12/17	C-10.55 SH 2	CONCRETE HALF BARRIER, 42" TYPE 'F' AT PIERS, PRECAST
12/17	C-10.55 SH 3	CONCRETE HALF BARRIER, 42" TYPE 'F' AT PIERS, LAYOUT
12/17	C-10.70 SH 1	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL, 32" TYPE 'F' WITH CAISSONS
12/17	C-10.70 SH 2	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL, 32" TYPE 'F' WITH CAISSONS
12/17	C-10.70 SH 3	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL, 32" TYPE 'F' WITH CAISSONS
12/17	C-10.71 SH 1	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL, 32" TYPE 'F' WITH CURB & GUTTER
12/17	C-10.71 SH 2	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL, 32" TYPE 'F' WITH CURB & GUTTER
12/17	C-10.72 SH 1	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL, 42" TO 32" TYPE 'F' WITH CAISSONS
12/17	C-10.72 SH 2	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL, 42" TO 32" TYPE 'F' WITH CAISSONS
12/17	C-10.72 SH 3	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL, 42" TO 32" TYPE 'F' WITH CAISSONS
12/17	C-10.73 SH 1	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL, 42" TO 32" TYPE 'F' WITH GUTTER
12/17	C-10.73 SH 2	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL, 42" TO 32" TYPE 'F' WITH GUTTER
12/17	C-10.74	CONCRETE HALF-BARRIER TRANSITION, 42" TO 32" TYPE 'F'
12/17	C-10.75 SH 1	CONCRETE HALF-BARRIER TRANSITION, TYPE 'F' TANGENT DEPARTURE TYPE 1
12/17	C-10.75 SH 2	CONCRETE HALF-BARRIER TRANSITION, TYPE 'F' TANGENT DEPARTURE TYPE 2
12/17	C-10.76	CONCRETE HALF-BARRIER TRANSITION, TYPE 'F' AT RADIUS, 32" TO 0"
4/19	C-10.77	CONCRETE BARRIER TRANSITION TO GUARDRAIL END TERMINAL LAYOUT WITH CURB
12/17	C-10.78	CONCRETE HALF-BARRIER TRANSITION, 32" TYPE 'F' LOW SPEED APPROACH
12/17	C-10.79	CONCRETE HALF-BARRIER TRANSITION, 42" TYPE 'F' TANGENT DEPARTURE
5/12	C-11.10 SH 1	ROADWAY CATTLE GUARD
5/12	C-11.10 SH 2	ROADWAY CATTLE GUARD
5/12	C-11.10 SH 3	ROADWAY CATTLE GUARD
5/12	C-11.10 SH 4	ROADWAY CATTLE GUARD
5/12	C-11.20	CATTLE GUARD, DRAINAGE
5/12	C-12.10 SH 1	FENCE, WOVEN WIRE
5/12	C-12.10 SH 2	FENCE, BARBED WIRE
5/12	C-12.10 SH 3	FENCE, TYPE 1 AND 2 GATES, FLOOD GATE
5/12	C-12.10 SH 4	FENCE, FLOOD GATE INSTALLATION
5/12	C-12.10 SH 5	FENCE, MISCELLANEOUS DETAILS
5/12	C-12.20 SH 1	FENCE, CHAIN LINK, TYPE 1
5/12	C-12.20 SH 2	FENCE, CHAIN LINK, TYPE 2
5/12	C-12.20 SH 3	FENCE, CHAIN LINK, GATES
5/12	C-12.30 SH 1	FENCE, CHAIN LINK CABLE BARRIER
5/12	C-12.30 SH 2	FENCE, CHAIN LINK CABLE BARRIER
5/12	C-12.30 SH 3	FENCE, CHAIN LINK CABLE BARRIER
5/12	C-13.10 SH 1	PIPE CULVERT INSTALLATION
5/12	C-13.10 SH 2	PIPE CULVERT INSTALLATION
8/23	C-13.15	TYPICAL PIPE INSTALLATION
5/12	C-13.20	PIPE, REINFORCED CONCRETE END SECTION
5/12	C-13.25	PIPE, CORRUGATED METAL END SECTION
5/12	C-13.30	PIPE AND PIPE ARCH, CORRUGATED METAL, CONCRETE INVERT PAVING
5/12	C-13.55	PIPE, CATTLE-VEHICLE PASS, MITERED END TREATMENT
5/12	C-13.60	SLOTTED DRAIN DETAILS
5/12	C-13.65	SLOTTED DRAIN INSTALLATION DETAILS
5/12	C-13.70	STORM DRAIN CONNECTION DETAILS
5/12	C-13.75	STORM DRAIN OUTLET BARRIER GATE
5/12	C-13.76	STORM DRAIN OUTLET AND STORM DRAIN PLUG
5/12	C-13.80	PIPE COLLAR DETAILS
5/12	C-15.10	CATCH BASIN, TYPE 1
5/12	C-15.20 SH 1	CATCH BASIN, TYPE 3
5/12	C-15.20 SH 2	CATCH BASIN, TYPE 3
5/12	C-15.20 SH 3	CATCH BASIN, ACCESS FRAME AND COVER DETAILS
5/12	C-15.30	CATCH BASIN, TYPE 4
5/12	C-15.40 SH 1	CATCH BASIN, TYPE 5
5/12	C-15.40 SH 2	CATCH BASIN, TYPE 5
5/12	C-15.50	CATCH BASIN, FRAME AND GRATE
5/12	C-15.70 SH 1	CATCH BASIN, MISCELLANEOUS DETAILS
5/12	C-15.70 SH 2	CATCH BASIN, MISCELLANEOUS DETAILS
5/12	C-15.75	CATCH BASIN, DROP INLET
5/12	C-15.80	CATCH BASIN, FLUSH
5/12	C-15.81	CATCH BASIN, SIDE SLOPE
5/12	C-15.90	CATCH BASIN, MEDIAN DIKE, PRECAST
5/12	C-15.91 SH 1	FREEWAY CATCH BASIN DETAILS
5/12	C-15.91 SH 2	FREEWAY CATCH BASIN DETAILS
5/12	C-15.92 SH 1	CATCH BASIN WITH TYPE 'F' CONCRETE HALF BARRIER
5/12	C-15.92 SH 2	CATCH BASIN WITH TYPE 'F' CONCRETE HALF BARRIER
5/12	C-16.40	IRRIGATION SLEEVES
5/12	C-17.10	RAIL BANK PROTECTION FOR DRAINAGEWAYS, TYPES 1, 2 & 3
5/12	C-17.15	RAIL BANK PROTECTION AT ABUTMENTS, TYPES 4, 5 & 6
5/12	C-17.20	RAIL BANK PROTECTION FOR DRAINAGEWAYS, TYPES 7, 8 & 9
5/12	C-18.10 SH 1	MANHOLE, RISER DETAILS
5/12	C-18.10 SH 2	MANHOLE, BASE DETAILS, NORMAL INSTALLATION
5/12	C-18.10 SH 3	MANHOLE, FRAME AND COVER DETAILS
5/12	C-19.10 SH 1	FORD, CONCRETE WALLS
5/12	C-19.10 SH 2	FORD, TYPES 1 AND 2
5/12	C-21.10	SURVEY MONUMENT FRAME AND COVER
5/12	C-21.20	SURVEY MARKER

ADOT STANDARD DRAWINGS
REVISION DATES and STANDARD NO.'s REVIEW

	NAME	DATE
CONSTRUCTION STANDARDS	Robert Ringwald	06/19/2025

PROJECT NO. 191 CH 62 F0383 01C — 1A OF 91

RECORD DRAWING DATA | FEDERAL ID NO. 191-A(205)T | REC. DWG. DATE | OF

ADOT STANDARD DRAWINGS

TRAFFIC SIGNING & MARKING STANDARDS
(SHEET 1 OF 2)
EFFECTIVE MAY 2025

REVISION DATE	STANDARD NUMBER	SUBJECT : SIGNING AND MARKING DETAILS
6/14	M-1	CURB MARKINGS FOR RAISED MEDIAN AND ISLANDS
1/20	M-2 SHT 1	INTERSECTION STRIPING
5/15	M-2 SHT 2	INTERSECTION STRIPING (TWO-LANE RURAL)
6/14	M-2 SHT 3	CENTERLINE AND REVERSE CURVE DETAILS
6/14	M-3	STRIPING AND DELINEATION FOR FREEWAY TERMINALS
6/14	M-4	PASSING LANE STRIPING DETAILS
6/14	M-5	RAILROAD PAVEMENT MARKINGS
6/14	M-6	WORD MARKINGS
6/14	M-7	PAVEMENT LETTERS
6/14	M-8	PAVEMENT LETTERS
6/14	M-9	PAVEMENT NUMBERS
6/14	M-10 SHT 1	PAVEMENT MARKING SYMBOLS
6/14	M-10 SHT 2	PAVEMENT MARKING SYMBOLS
5/25	M-10 SHT 3	PAVEMENT MARKING SYMBOLS
6/14	M-11	TURN LANE PAVEMENT MARKINGS
6/14	M-12	WRONG-WAY ARROWS
1/19	M-13	PREFERENTIAL LANE PAVEMENT MARKINGS
6/14	M-14	STRIPING AND DELINEATION FOR TRUCK ESCAPE RAMPS
8/20	M-15 SHT 1	PAVEMENT MARKING FOR FREEWAY ENTRANCE RAMP - TAPERED ACCELERATION LANE
8/20	M-15 SHT 2	PAVEMENT MARKING FOR FREEWAY ENTRANCE RAMP - PARALLEL ACCELERATION LANE
8/20	M-15 SHT 3	PAVEMENT MARKING FOR FREEWAY ENTRANCE RAMP - PARALLEL ACCELERATION LANE WITH HOV BYPASS
6/14	M-15 SHT 4	PAVEMENT MARKING FOR FREEWAY PARALLEL - ACCELERATION LANE
8/20	M-16 SHT 1	PAVEMENT MARKING FOR FREEWAY EXIT RAMPS - TAPERED DECELERATION LANE
8/20	M-16 SHT 2	PAVEMENT MARKING FOR FREEWAY EXIT RAMP - PARALLEL DECELERATION LANE
8/20	M-17	FREEWAY LANE DROP PAVEMENT MARKINGS
11/24	M-19 SHT 1	RAISED PAVEMENT MARKER PLAN LEGEND
6/14	M-19 SHT 2	NON-REFLECTIVE RAISED PAVEMENT MARKER DETAILS
11/24	M-19 SHT 3	RETROREFLECTIVE RAISED PAVEMENT MARKER DETAILS
11/24	M-19 SHT 4	RETROREFLECTIVE RAISED PAVEMENT MARKER DETAILS
5/15	M-19 SHT 5	PAVEMENT MARKING DETAILS FOR UNDIVIDED HIGHWAYS
6/14	M-19 SHT 6	RETROREFLECTIVE RAISED PAVEMENT MARKERS (RPM) FOR UNDIVIDED HIGHWAYS
8/20	M-19 SHT 7	FREEWAY AND DIVIDED HIGHWAY EDGE LINE AND LANE STRIPING
5/15	M-19 SHT 8	LANE DROP MARKING AND RAMP OR INTERSECTION GUIDE STRIPING
8/20	M-19 SHT 9	PAVEMENT MARKING CROSS-SECTION DETAILS FOR HIGHWAYS AND FREEWAYS
6/24	M-19 SHT 10	CONTRAST LANE LINE FOR FREEWAY AND DIVIDED HIGHWAY
10/23	M-19 SHT 11	LEAD-LAG CONTRAST PAVEMENT MARKINGS FOR CONCRETE PAVEMENT
6/14	M-20 SHT 1	CHIP SEAL MARKER USAGE FOR TEMPORARY MARKERS
6/14	M-20 SHT 2	CHIP SEAL MARKER USAGE FOR TEMPORARY MARKERS
6/14	M-21	TRANSVERSE RUMBLE STRIP DETAILS
9/21	M-22 SHT 1	LONGITUDINAL RUMBLE STRIP GROOVE, PATTERN - AND LOCATION DETAILS
9/21	M-22 SHT 2	LONGITUDINAL RUMBLE STRIP EXCEPTION DETAILS
9/21	M-22 SHT 3	ENTRANCE AND EXIT RAMPS RUMBLE STRIP INSTALLATION DETAILS
3/22	M-22 SHT 4	CENTERLINE RUMBLE STRIP GROOVE, PATTERN - AND LOCATION DETAILS
6/14	M-23	OBJECT MARKER DETAILS
6/14	M-24	OBJECT MARKER PLACEMENT DETAILS
2/21	M-26 SHT 1	DELINEATOR PLACEMENT AND SPACING
2/21	M-26 SHT 2	DELINEATOR PLACEMENT AND SPACING
2/21	M-26 SHT 3	FLEXIBLE DELINEATOR ASSEMBLIES
2/21	M-26 SHT 4	SQUARE STEEL POST DELINEATOR
2/21	M-26 SHT 5	DELINEATOR FOUNDATION DETAILS
2/21	M-27 SHT 1	DELINEATION DETAILS FOR MEDIAN CROSSOVERS
2/21	M-27 SHT 2	DELINEATION DETAILS FOR MEDIAN CROSSOVERS
6/14	M-29	OFF- MAINLINE REFERENCE MARKER LOCATION DETAIL
6/14	M-30	OFF- MAINLINE REFERENCE MARKER DETAILS
6/14	M-32	BRIDGE AND BARRIER MARKER DETAILS
6/14	M-33	BRIDGE AND BARRIER MARKER PLACEMENT AND INSTALLATION DETAILS
6/14	M-34	GUARDRAIL END TERMINAL DELINEATION DETAILS
6/14	M-35	OBJECT MARKER FOR SAND BARREL CRASH CUSHION

ADOT STANDARD DRAWINGS
REVISION DATES and STANDARD NO.'s REVIEW

	NAME	DATE
SIGNING & MARKING STANDARDS	Rick Ringwald	06/19/2025

PROJECT NO. 191 CH 62 F0383 01C — 1B-1 OF 91

RECORD DRAWING DATA	FEDERAL ID NO. 191-A(205)T	REC. DWG. DATE	OF

ADOT STANDARD DRAWINGS

TRAFFIC SIGNING & MARKING STANDARDS
(SHEET 2 OF 2)
EFFECTIVE MAY 2025

REVISION DATE	STANDARD NUMBER	SUBJECT : SIGNING AND MARKING DETAILS
4/19	S-1 SHT 1	GENERAL SIGNING NOTES
6/14	S-2 SHT 1	S & W BREAKAWAY POST SELECTION CHART
6/14	S-2 SHT 2	S & W BREAKAWAY POST INSTALLATION DETAILS
6/14	S-3 SHT 1	FLAT SHEET SIGNS SQUARE TUBE POST GENERAL NOTES
6/14	S-3 SHT 2	SINGLE POST FLAT SHEET RECTANGULAR SIGN ASSEMBLY - 12, 18 AND 24 INCH WIDTHS
6/14	S-3 SHT 3	SINGLE POST FLAT SHEET RECTANGULAR SIGN ASSEMBLY - 30, 36, 42 AND 54 INCH WIDTHS
6/14	S-3 SHT 4	TWO POST FLAT SHEET RECTANGULAR SIGN ASSEMBLY - 36, 42 AND 48 INCH WIDTHS
6/14	S-3 SHT 5	TWO POST FLAT SHEET RECTANGULAR SIGN ASSEMBLY - 54, 60 AND 72 INCH WIDTHS
6/14	S-3 SHT 6	TWO POST FLAT SHEET RECTANGULAR SIGN ASSEMBLY - 84 - 144 INCH WIDTHS
6/14	S-3 SHT 7	THREE POST FLAT SHEET RECTANGULAR SIGN ASSEMBLY - 48, 60 AND 72 INCH WIDTHS
6/14	S-3 SHT 8	THREE POST FLAT SHEET RECTANGULAR SIGN ASSEMBLY - 84 - 144 INCH WIDTHS
6/14	S-3 SHT 9	WARNING SIGN ASSEMBLY - SINGLE POST
6/14	S-3 SHT 10	WARNING SIGN ASSEMBLY - TWO POST
6/14	S-3 SHT 11	WARNING SIGN ASSEMBLY - THREE POST
6/14	S-3 SHT 12	MULTIPLE ROUTE MARKER ASSEMBLIES
6/14	S-3 SHT 13	SPECIAL SIGN ASSEMBLIES
6/14	S-3 SHT 14	STRINGER DETAILS FOR SQUARE TUBE POSTS
6/14	S-3 SHT 15	SQUARE TUBE SIGN POST FOUNDATION
6/14	S-3 SHT 16	SQUARE TUBE POST SLIP BASE DETAILS
6/14	S-4	W SHAPE BREAKAWAY POST FUSE PLATE AND HINGE DETAILS
6/22	S-5	W SHAPE BREAKAWAY POST DETAILS
6/22	S-6	S4x7.7 BREAKAWAY POST DETAILS
6/14	S-7 SHT 1	ALUMINUM EXTRUSION SIGN PANEL DETAILS
6/14	S-7 SHT 2	ALUMINUM EXTRUSION AUXILIARY SIGN INSTALLATION DETAILS
5/15	S-7 SHT 3	ALUMINUM EXTRUSION EXIT PANEL INSTALLATION DETAIL
6/14	S-8 SHT 1	FLAT SHEET ALUMINUM PANEL ON BREAKAWAY POSTS INSTALLATION DETAIL
6/14	S-8 SHT 2	ALUMINUM EXTRUSION SIGN TO PERFORATED POSTS INSTALLATION DETAIL
8/22	S-9 SHT 1	SIGN INSTALLATION ON POLE
8/22	S-9 SHT 2	SIGNS (BACK TO BACK) INSTALLATION ON POLE
8/22	S-9 SHT 3	SIGN INSTALLATION ON SIGNAL POLE
8/22	S-9 SHT 4	SIGN INSTALLATION ON POLE BAND-TYPE CLAMP
6/14	S-10	MILEPOST AND REFERENCE LOCATION SIGNS
11/22	S-11 SHT 1	TAPERED TUBE SIGN STRUCTURE SINGLE BEAM
4/19	S-11 SHT 2	TAPERED TUBE SIGN STRUCTURE SINGLE BEAM POST AND BEAM DETAILS

REVISION DATE	STANDARD NUMBER	SUBJECT : SIGNING AND MARKING DETAILS
6/14	S-12 SHT 1	TYPE A, B, AND DOWN ARROWS
6/14	S-12 SHT 2	TYPE C AND D ARROWS
6/14	S-12 SHT 3	C2 ARROW DETAIL
6/14	S-13	SIGN IDENTIFICATION DETAILS
6/14	S-14 SHT 1	ROTATING OPEN/CLOSED SIGN
6/14	S-14 SHT 2	ROTATING OPEN/CLOSED SIGN DETAILS
6/14	S-14 SHT 3	ROTATING OPEN/CLOSED SIGN MOUNTING DETAILS
6/14	S-15 SHT 1	FOLDING RECTANGULAR SIGN ASSEMBLY
6/14	S-15 SHT 2	FOLDING RECTANGULAR SIGN OPERATION
6/14	S-15 SHT 3	FOLDING DIAMOND SIGN ASSEMBLY
4/19	S-16 SHT 1	TEMPORARY WOOD POSTS
4/19	S-16 SHT 2	TEMPORARY WOOD POSTS SELECTION CHART
6/14	S-17	END OF ROAD BARRICADE
7/19	S-18 SHT 1	ALUMINUM GRAFFITI SHIELD EXIT AND GUIDE SIGN ASSEMBLY
7/19	S-18 SHT 2	ALUMINUM GRAFFITI SHIELD RIGHT RIDER SIDE PANEL
7/19	S-18 SHT 3	ALUMINUM GRAFFITI SHIELD LEFT RIDER SIDE PANEL
7/19	S-18 SHT 4	ALUMINUM GRAFFITI SHIELD CORNER
7/19	S-18 SHT 5	ALUMINUM GRAFFITI SHIELD SPLICE PLATE
7/19	S-18 SHT 6	ALUMINUM GRAFFITI SHIELD FIN
7/19	S-18 SHT 7	ALUMINUM GRAFFITI SHIELD TOP PANEL
7/19	S-18 SHT 8	ALUMINUM GRAFFITI SHIELD SIDE PANEL
7/19	S-18 SHT 9	ALUMINUM GRAFFITI SHIELD RIGHT TRANSITION FROM RIDER
7/19	S-18 SHT 10	ALUMINUM GRAFFITI SHIELD LEFT TRANSITION FROM RIDER
7/19	S-18 SHT 11	ALUMINUM GRAFFITI SHIELD SPLICE PLATE FOR FIN
12/18	C-1	SAND BARREL CRASH CUSHION
12/18	C-2	SAND BARREL CRASH CUSHION TYPICAL INSTALLATION
6/14	C-3 SHT 1	PRECAST CONCRETE BARRIER STRUCTURAL DETAILS
6/14	C-3 SHT 2	PRECAST CONCRETE BARRIER PIN AND LOOP ASSEMBLY
6/14	C-4 SHT 1	MEDIAN CROSSOVER
6/14	C-4 SHT 2	TYPICAL END TREATMENTS FOR DETOURS USING TEMPORARY CONCRETE BARRIER (TCB)
6/14	C-5 SHT 1	APPROACH PLATE AND TRANSITION SECTION FOR TEMPORARY CONCRETE BARRIER
6/14	C-5 SHT 2	APPROACH PLATE AND TRANSITION SECTION FOR TEMPORARY CONCRETE BARRIER

ADOT STANDARD DRAWINGS
REVISION DATES and STANDARD NO.'s REVIEW

	NAME	DATE
SIGNING & MARKING STANDARDS	Rick Ringwald	06/20/2025

PROJECT NO.			
191 CH 62 F0383 1C	1B-2	OF	91

RECORD DRAWING DATA	FEDERAL ID NO.	REC. DWG. DATE	
	191-A(205)T		OF

ADOT STANDARD DRAWINGS

STRUCTURE DETAIL DRAWINGS
EFFECTIVE NOVEMBER 2024

DATE	STANDARD	SUBJECT TITLE
RAILINGS		
09/24	SD 1.10 (1 OF 2)	38" SINGLE SLOPE BRIDGE BARRIER AND TRANSITION
09/24	SD 1.10 (2 OF 2)	38" SINGLE SLOPE BRIDGE BARRIER AND TRANSITION
10/24	SD 1.11 (1 OF 1)	42" SINGLE SLOPE BRIDGE BARRIER AND TRANSITION
10/24	SD 1.11 (2 OF 2)	42" SINGLE SLOPE BRIDGE BARRIER AND TRANSITION
06/23	SD 1.12	COMBINATION PEDESTIAN-TRAFFIC BRIDGE RAILING
01/20	SD 1.13	PEDESTRIAN FENCE FOR BRIDGE RAILING SD1.12
01/20	SD 1.20	32' TYPE F ROADWAY BARRIER TRANSITION TO 38' SINGLE SLOPE BARRIER
01/20	SD 1.21	32' TYPE F ROADWAY BARRIER TRANSITION TO 42' SINGLE SLOPE BARRIER
01/20	SD 1.22	42' TYPE F ROADWAY BARRIER TRANSITION TO 42' SINGLE SLOPE BARRIER
01/20	SD 1.30	BARRIER JUNCTION BOX
APPROACHES		
08/23	SD 2.01	APPROACH SLAB DETAILS
08/23	SD 2.02	TYPE 1 ANCHOR SLAB DETAILS
08/23	SD 2.03	TYPE 2 ANCHOR SLAB DETAILS
08/23	SD 2.04	SLOPE PAVING DETAILS
DECK JOINTS		
02/20	SD 3.01	DECK JOINT ASSEMBLY - COMPRESSION SEAL
02/20	SD 3.02	DECK JOINT ASSEMBLY - STRIP SEAL
02/20	SD 3.03 (1 OF 2)	DECK JOINT ASSEMBLY - FLANGELESS STRIP SEAL
02/20	SD 3.03 (2 OF 2)	DECK JOINT ASSEMBLY - FLANGELESS STRIP SEAL
SUBSTRUCTURE		
11/12	SD 5.01	STRUCTURAL EXCAVATION - PAYMENT LIMITS
11/12	SD 5.02	STRUCTURE BACKFILL - PAYMENT LIMITS
DRAINAGE STRUCTURES		
05/15	SD 6.01 (1 OF 5)	REINFORCED CONCRETE BOX CULVERTS - MISCELLANEOUS DETAILS
02/12	SD 6.01 (2 OF 5)	REINFORCED CONCRETE BOX CULVERTS - MISCELLANEOUS DETAILS
02/12	SD 6.01 (3 OF 5)	REINFORCED CONCRETE BOX CULVERTS - EXTENSION DETAILS
02/12	SD 6.01 (4 OF 5)	REINFORCED CONCRETE BOX CULVERTS - STRUCTURAL EXCAVATION & STRUCTURE BACKFILL
05/15	SD 6.01 (5 OF 5)	REINFORCED CONCRETE BOX CULVERTS - SINGLE BARREL (0'-30' FILLS)
05/15	SD 6.02 (1 OF 2)	REINFORCED CONCRETE BOX CULVERTS - DOUBLE BARREL (0'-15' FILLS)
05/15	SD 6.02 (2 OF 2)	REINFORCED CONCRETE BOX CULVERTS - DOUBLE BARREL (15'-30' FILLS)
05/15	SD 6.03 (1 OF 2)	REINFORCED CONCRETE BOX CULVERTS - TRIPLE BARREL (0'-15' FILLS)
05/15	SD 6.03 (2 OF 2)	REINFORCED CONCRETE BOX CULVERTS - TRIPLE BARREL (15'-30' FILLS)
05/15	SD 6.04 (1 OF 2)	REINFORCED CONCRETE BOX CULVERTS - FOUR BARREL (0'-15' FILLS)
05/15	SD 6.04 (2 OF 2)	REINFORCED CONCRETE BOX CULVERTS - FOUR BARREL (15'-30' FILLS)
05/15	SD 6.05 (1 OF 2)	REINFORCED CONCRETE BOX CULVERTS - FIVE BARREL (0'-15' FILLS)
05/15	SD 6.05 (2 OF 2)	REINFORCED CONCRETE BOX CULVERTS - FIVE BARREL (15'-30' FILLS)
05/15	SD 6.06 (1 OF 2)	REINFORCED CONCRETE BOX CULVERTS - SIX BARREL (0'-15' FILLS)
05/15	SD 6.06 (2 OF 2)	REINFORCED CONCRETE BOX CULVERTS - SIX BARREL (15'-30' FILLS)
02/12	SD 6.07	REINFORCED CONCRETE BOX CULVERTS - 16'x 14' EQUIPMENT PASS (0'-20' FILLS)
05/15	SD 6.08 (1 OF 8)	REINFORCED CONCRETE BOX CULVERTS - OUTLET WINGS - SKEW 0°to 20° - CULVERT HEIGHT 3'to 7'
02/12	SD 6.08 (2 OF 8)	REINFORCED CONCRETE BOX CULVERTS - OUTLET WINGS - SKEW 0°to 20° - CULVERT HEIGHT 8'to 12'
05/15	SD 6.08 (3 OF 8)	REINFORCED CONCRETE BOX CULVERTS - INLET WINGS - SKEW 0°to 20° - CULVERT HEIGHT 3'to 7'
02/12	SD 6.08 (4 OF 8)	REINFORCED CONCRETE BOX CULVERTS - INLET WINGS - SKEW 0°to 20° - CULVERT HEIGHT 8'to 12'
05/15	SD 6.08 (5 OF 8)	REINFORCED CONCRETE BOX CULVERTS - OUTLET WINGS - SKEW 25°to 45° - CULVERT HEIGHT 3'to 7'
02/12	SD 6.08 (6 OF 8)	REINFORCED CONCRETE BOX CULVERTS - OUTLET WINGS - SKEW 25°to 45° - CULVERT HEIGHT 8'to 12'
05/15	SD 6.08 (7 OF 8)	REINFORCED CONCRETE BOX CULVERTS - INLET WINGS - SKEW 25°to 45° - CULVERT HEIGHT 3'to 7'
02/12	SD 6.08 (8 OF 8)	REINFORCED CONCRETE BOX CULVERTS - INLET WINGS - SKEW 25°to 45° - CULVERT HEIGHT 8'to 12'
05/15	SD 6.09 (1 OF 3)	REINFORCED CONCRETE BOX CULVERTS - HEADWALL QUANTITIES - 2 :1 SLOPE
05/15	SD 6.09 (2 OF 3)	REINFORCED CONCRETE BOX CULVERTS - HEADWALL QUANTITIES - 4 :1 SLOPE
05/15	SD 6.09 (3 OF 3)	REINFORCED CONCRETE BOX CULVERTS - HEADWALL QUANTITIES - 6 :1 SLOPE
05/15	SD 6.10 (1 OF 2)	REINFORCED CONCRETE BOX CULVERTS - INLET OR OUTLET - LEVEL WINGS - CULVERT HEIGHT 3'to 7'
02/12	SD 6.10 (2 OF 2)	REINFORCED CONCRETE BOX CULVERTS - INLET OR OUTLET - LEVEL WINGS - CULVERT HEIGHT 8'to 12'
02/12	SD 6.11 (1 OF 4)	REINFORCED CONCRETE BOX CULVERTS - OUTLET APRON DETAILS
05/15	SD 6.11 (2 OF 4)	REINFORCED CONCRETE BOX CULVERTS - OUTLET APRON - DIMENSIONS & QUANTITIES (2 :1 SLOPE)
05/15	SD 6.11 (3 OF 4)	REINFORCED CONCRETE BOX CULVERTS - OUTLET APRON - DIMENSIONS & QUANTITIES (4 :1 SLOPE)
05/15	SD 6.11 (4 OF 4)	REINFORCED CONCRETE BOX CULVERTS - OUTLET APRON - DIMENSIONS & QUANTITIES (6 :1 SLOPE)
10/24	SD 6.20 (1 OF 5)	PRECAST REINFORCED CONCRETE BOX CULVERTS - SINGLE BARREL NOTES & DIMENSIONS
10/24	SD 6.20 (2 OF 5)	PRECAST REINFORCED CONCRETE BOX CULVERTS - MISCELLANEOUS DETAILS 1
10/24	SD 6.20 (3 OF 5)	PRECAST REINFORCED CONCRETE BOX CULVERTS - END SECTION & CONNECTION DETAILS
10/24	SD 6.20 (4 OF 5)	PRECAST REINFORCED CONCRETE BOX CULVERTS - MISCELLANEOUS DETAILS 2
10/24	SD 6.20 (5 OF 5)	PRECAST REINFORCED CONCRETE BOX CULVERTS - MISCELLANEOUS DETAILS 3
07/12	SD 6.30 (1 OF 5)	PIPE CULVERT HEADWALLS - MISCELLANEOUS DETAILS
07/12	SD 6.30 (2 OF 5)	PIPE CULVERT HEADWALLS - INLET AND OUTLET - 18" to 42" PIPES
07/12	SD 6.30 (3 OF 5)	PIPE CULVERT HEADWALLS - RIGHT ANGLE INLET AND OUTLET - 48" to 84" PIPES
07/12	SD 6.30 (4 OF 5)	PIPE CULVERT HEADWALLS - SKEWED INLET AND OUTLET - 48" to 84" PIPES
07/12	SD 6.30 (5 OF 5)	PIPE CULVERT HEADWALLS - MULTI-PIPE - 48" to 84" PIPES
07/12	SD 6.31 (1 OF 8)	PIPE CULVERT HEADWALLS - RIGHT ANGLE INLET
07/12	SD 6.31 (2 OF 8)	PIPE CULVERT HEADWALLS - RIGHT ANGLE INLET - 2 :1 SLOPE
07/12	SD 6.31 (3 OF 8)	PIPE CULVERT HEADWALLS - RIGHT ANGLE INLET - 4 :1 SLOPE
07/12	SD 6.31 (4 OF 8)	PIPE CULVERT HEADWALLS - RIGHT ANGLE INLET - 6 :1 SLOPE
07/12	SD 6.31 (5 OF 8)	PIPE CULVERT HEADWALLS - RIGHT ANGLE OUTLET
07/12	SD 6.31 (6 OF 8)	PIPE CULVERT HEADWALLS - RIGHT ANGLE OUTLET - 2 :1 SLOPE
07/12	SD 6.31 (7 OF 8)	PIPE CULVERT HEADWALLS - RIGHT ANGLE OUTLET - 4 :1 SLOPE
07/12	SD 6.31 (8 OF 8)	PIPE CULVERT HEADWALLS - RIGHT ANGLE OUTLET - 6 :1 SLOPE
07/12	SD 6.32 (1 OF 8)	PIPE CULVERT HEADWALLS - 15° SKEW INLET
07/12	SD 6.32 (2 OF 8)	PIPE CULVERT HEADWALLS - 15° SKEW INLET - 2 :1 SLOPE
07/12	SD 6.32 (3 OF 8)	PIPE CULVERT HEADWALLS - 15° SKEW INLET - 4 :1 SLOPE
07/12	SD 6.32 (4 OF 8)	PIPE CULVERT HEADWALLS - 15° SKEW INLET - 6 :1 SLOPE
07/12	SD 6.32 (5 OF 8)	PIPE CULVERT HEADWALLS - 15° SKEW OUTLET
07/12	SD 6.32 (6 OF 8)	PIPE CULVERT HEADWALLS - 15° SKEW OUTLET - 2 :1 SLOPE
07/12	SD 6.32 (7 OF 8)	PIPE CULVERT HEADWALLS - 15° SKEW OUTLET - 4 :1 SLOPE
07/12	SD 6.32 (8 OF 8)	PIPE CULVERT HEADWALLS - 15° SKEW OUTLET - 6 :1 SLOPE

DATE	STANDARD	SUBJECT TITLE
DRAINAGE STRUCTURES (Continued)		
07/12	SD 6.33 (1 OF 8)	PIPE CULVERT HEADWALLS - 30° SKEW INLET
07/12	SD 6.33 (2 OF 8)	PIPE CULVERT HEADWALLS - 30° SKEW INLET - 2 :1 SLOPE
07/12	SD 6.33 (3 OF 8)	PIPE CULVERT HEADWALLS - 30° SKEW INLET - 4 :1 SLOPE
07/12	SD 6.33 (4 OF 8)	PIPE CULVERT HEADWALLS - 30° SKEW INLET - 6 :1 SLOPE
07/12	SD 6.33 (5 OF 8)	PIPE CULVERT HEADWALLS - 30° SKEW OUTLET
07/12	SD 6.33 (6 OF 8)	PIPE CULVERT HEADWALLS - 30° SKEW OUTLET - 2 :1 SLOPE
07/12	SD 6.33 (7 OF 8)	PIPE CULVERT HEADWALLS - 30° SKEW OUTLET - 4 :1 SLOPE
07/12	SD 6.33 (8 OF 8)	PIPE CULVERT HEADWALLS - 30° SKEW OUTLET - 6 :1 SLOPE
07/12	SD 6.34 (1 OF 8)	PIPE CULVERT HEADWALLS - 45° SKEW INLET
07/12	SD 6.34 (2 OF 8)	PIPE CULVERT HEADWALLS - 45° SKEW INLET - 2 :1 SLOPE
07/12	SD 6.34 (3 OF 8)	PIPE CULVERT HEADWALLS - 45° SKEW INLET - 4 :1 SLOPE
07/12	SD 6.34 (4 OF 8)	PIPE CULVERT HEADWALLS - 45° SKEW INLET - 6 :1 SLOPE
07/12	SD 6.34 (5 OF 8)	PIPE CULVERT HEADWALLS - 45° SKEW OUTLET
07/12	SD 6.34 (6 OF 8)	PIPE CULVERT HEADWALLS - 45° SKEW OUTLET - 2 :1 SLOPE
07/12	SD 6.34 (7 OF 8)	PIPE CULVERT HEADWALLS - 45° SKEW OUTLET - 4 :1 SLOPE
07/12	SD 6.34 (8 OF 8)	PIPE CULVERT HEADWALLS - 45° SKEW OUTLET - 6 :1 SLOPE
07/12	SD 6.35 (1 OF 2)	PIPE CULVERT HEADWALLS - MULTI-PIPE WITHOUT APRON
07/12	SD 6.35 (2 OF 2)	PIPE CULVERT HEADWALLS - MULTI-PIPE WITH OUTLET APRON
07/12	SD 6.36 (1 OF 4)	PIPE CULVERT HEADWALLS - OUTLET APRONS
07/12	SD 6.36 (2 OF 4)	PIPE CULVERT HEADWALLS - OUTLET APRON STEEL LIST - 2 :1 SLOPE
07/12	SD 6.36 (3 OF 4)	PIPE CULVERT HEADWALLS - OUTLET APRON STEEL LIST - 4 :1 SLOPE
07/12	SD 6.36 (4 OF 4)	PIPE CULVERT HEADWALLS - OUTLET APRON STEEL LIST - 6 :1 SLOPE
RETAINING WALLS		
10/24	SD 7.01 (1 OF 5)	RETAINING WALL (REINFORCED CONCRETE CANTILEVER)
12/21	SD 7.01 (2 OF 5)	RETAINING WALL (REINFORCED CONCRETE CANTILEVER)
12/21	SD 7.01 (3 OF 5)	RETAINING WALL (REINFORCED CONCRETE CANTILEVER)
12/21	SD 7.01 (4 OF 5)	RETAINING WALL (REINFORCED CONCRETE CANTILEVER)
12/21	SD 7.01 (5 OF 5)	RETAINING WALL (REINFORCED CONCRETE CANTILEVER)
12/21	SD 7.02 (1 OF 2)	RETAINING WALL (MASONRY CANTILEVER)
12/21	SD 7.02 (2 OF 2)	RETAINING WALL (MASONRY CANTILEVER)
SOUND BARRIER WALLS		
06/22	SD 8.01	SOUND BARRIER WALL (CONCRETE)
06/22	SD 8.02 (1 OF 2)	SOUND BARRIER WALL (MASONRY)
06/22	SD 8.02 (2 OF 2)	SOUND BARRIER WALL (MASONRY)
TRAFFIC STRUCTURES		
04/19	SD 9.01 (1 OF 5)	MEDIAN SIGN STRUCTURE (TWO SIDED) - ELEVATION & NOTES
03/22	SD 9.01 (2 OF 5)	MEDIAN SIGN STRUCTURE (TWO SIDED) - FOUNDATION DETAILS
04/19	SD 9.01 (3 OF 5)	MEDIAN SIGN STRUCTURE (TWO SIDED) - TYPE A SIGN MOUNT ASSEMBLY
04/19	SD 9.01 (4 OF 5)	MEDIAN SIGN STRUCTURE (TWO SIDED) - TYPE B SIGN MOUNT ASSEMBLY
04/19	SD 9.01 (5 OF 5)	MEDIAN SIGN STRUCTURE (TWO SIDED) - LIGHT SUPPORT AND MISC. DETAILS
04/19	SD 9.02 (1 OF 5)	MEDIAN SIGN STRUCTURE (ONE SIDED) - ELEVATION & NOTES
03/22	SD 9.02 (2 OF 5)	MEDIAN SIGN STRUCTURE (ONE SIDED) - FOUNDATION DETAILS
04/19	SD 9.02 (3 OF 5)	MEDIAN SIGN STRUCTURE (ONE SIDED) - TYPE A SIGN MOUNT ASSEMBLY
04/19	SD 9.02 (4 OF 5)	MEDIAN SIGN STRUCTURE (ONE SIDED) - TYPE B SIGN MOUNT ASSEMBLY
04/19	SD 9.02 (5 OF 5)	MEDIAN SIGN STRUCTURE (ONE SIDED) - LIGHT SUPPORT AND MISC. DETAILS
04/19	SD 9.10 (1 OF 5)	TUBULAR SIGN STRUCTURES - TUBULAR CANTILEVER - GENERAL PLAN
09/23	SD 9.10 (2 OF 5)	TUBULAR SIGN STRUCTURES - TUBULAR CANTILEVER - FOUNDATION DETAILS
04/19	SD 9.10 (3 OF 5)	TUBULAR SIGN STRUCTURES - TUBULAR CANTILEVER - POST AND MAST ARM DETAILS
04/19	SD 9.10 (4 OF 5)	TUBULAR SIGN STRUCTURES - TUBULAR CANTILEVER - SIGN SUPPORT DETAILS
09/23	SD 9.10 (5 OF 5)	TUBULAR SIGN STRUCTURES - TUBULAR CANTILEVER - LIGHT SUPPORT DETAILS
04/19	SD 9.20 (1 OF 5)	TUBULAR SIGN STRUCTURES - TUBULAR FRAME - GENERAL PLAN
09/23	SD 9.20 (2 OF 5)	TUBULAR SIGN STRUCTURES - TUBULAR FRAME - FOUNDATION DETAILS
04/19	SD 9.20 (3 OF 5)	TUBULAR SIGN STRUCTURES - TUBULAR FRAME - POST AND MAST ARM DETAILS
04/19	SD 9.20 (4 OF 5)	TUBULAR SIGN STRUCTURES - TUBULAR FRAME - SIGN SUPPORT DETAILS
09/23	SD 9.20 (5 OF 5)	TUBULAR SIGN STRUCTURES - TUBULAR FRAME - LIGHT SUPPORT AND MISC. DETAILS
04/19	SD 9.50 (1 OF 5)	VARIABLE MESSAGE SIGN - TUBULAR FRAME - PLAN & ELEVATION
04/19	SD 9.50 (2 OF 5)	VARIABLE MESSAGE SIGN - TUBULAR FRAME - MOUNTING DETAILS
04/19	SD 9.50 (3 OF 5)	VARIABLE MESSAGE SIGN - TUBULAR FRAME - MOUNTING & SIGN BRACKET DETAILS
04/19	SD 9.50 (4 OF 5)	VARIABLE MESSAGE SIGN - CATWALK - HANDRAIL DETAILS
04/19	SD 9.50 (5 OF 5)	VARIABLE MESSAGE SIGN - CATWALK - MISCELLANEOUS DETAILS
04/19	SD 9.51	DUAL VARIABLE MESSAGE SIGN - TUBULAR FRAME
04/19	SD 9.52 (1 OF 5)	DYNAMIC MESSAGE SIGN - TUBULAR FRAME - PLAN & ELEVATION
04/19	SD 9.52 (2 OF 5)	DYNAMIC MESSAGE SIGN - TUBULAR FRAME - MOUNTING DETAILS
04/19	SD 9.52 (3 OF 5)	DYNAMIC MESSAGE SIGN - TUBULAR FRAME - MOUNTING DETAILS
04/19	SD 9.52 (4 OF 5)	DYNAMIC MESSAGE SIGN - CATWALK - HANDRAIL DETAILS
04/19	SD 9.52 (5 OF 5)	DYNAMIC MESSAGE SIGN - CATWALK - MISCELLANEOUS DETAILS
04/19	SD 9.53 (1 OF 5)	DMS (VARIABLE TILT CABINET) - TUBULAR FRAME - PLAN & ELEVATION
04/19	SD 9.53 (2 OF 5)	DMS (VARIABLE TILT CABINET) - TUBULAR FRAME - MOUNTING DETAILS
04/19	SD 9.53 (3 OF 5)	DMS (VARIABLE TILT CABINET) - TUBULAR FRAME - MOUNTING DETAILS
04/19	SD 9.53 (4 OF 5)	DMS (VARIABLE TILT CABINET) - CATWALK - HANDRAIL DETAILS
04/19	SD 9.53 (5 OF 5)	DMS (VARIABLE TILT CABINET) - CATWALK - MISCELLANEOUS DETAILS
05/22	SD 9.60 (1 OF 7)	DYNAMIC MESSAGE SIGN (BUTTERFLY) - GENERAL PLAN AND ELEVATION
05/22	SD 9.60 (2 OF 7)	DYNAMIC MESSAGE SIGN (BUTTERFLY) - FOUNDATION DETAILS
05/22	SD 9.60 (3 OF 7)	DYNAMIC MESSAGE SIGN (BUTTERFLY) - DMS MONOTUBE ASSEMBLY
05/22	SD 9.60 (4 OF 7)	DYNAMIC MESSAGE SIGN (BUTTERFLY) - DMS MAST ARM DETAILS
05/22	SD 9.60 (5 OF 7)	DYNAMIC MESSAGE SIGN (BUTTERFLY) - MISCELLANEOUS DETAIL
05/22	SD 9.60 (6 OF 7)	DYNAMIC MESSAGE SIGN (BUTTERFLY) - CATWALK ASSEMBLY AND HANDRAIL
05/22	SD 9.60 (7 OF 7)	DYNAMIC MESSAGE SIGN (BUTTERFLY) - CATWALK DETAILS

ADOT STANDARD DRAWINGS
REVISION DATES and STANDARD NO.'s REVIEW

	NAME	DATE
STRUCTURES STANDARDS	Rick Ringstad	06/19/2025

PROJECT NO. 191 CH 62 F0383 01C — 1D OF 91

RECORD DRAWING DATA | FEDERAL ID NO. 191-A(205)T | REC. DWG. DATE | OF

1. SPILL PREVENTION, CONTROL, AND COUNTERMEASURES – CWA SECTION 311

If total above-ground storage capacity, including mobile re-fuelers stationed on-site, is greater than 1,320 gallons of oil (oils, greases, fuel, asphalt, and asphalt derivatives), where a spill has the potential to reach Waters of the US, the Contractor shall prepare a SPCC plan per contract specifications in Section 104.16 (C) of the Standard Specifications.

2. SURFACE WATER POLLUTION PREVENTION – CWA SECTION 402

☑ Arizona Pollutant Discharge Elimination System (AZPDES) CGP coverage applies (104SWDEQ needed)

3. WORK IN WATERS OF THE UNITED STATES – CWA SECTION 404/401

☑ No Permit Required; Refer to Section 104.16 (D) of the Standard Specifications for General Requirements

4. BIOLOGY PROGRAM – ESA SECTION 7; MBTA, ARIZONA REVISED STATUTES TITLE 17

BIO-1: Environmental Awareness, Monitoring and Avoidance ☑ N/A

BIO-2: Migratory Bird Treaty Act (MBTA) ☐ N/A

The contractor shall avoid nests with relocation directions.

BIO-2A: General Seasonal Restrictions for MBTA, refer to seasonal dates in EPIC and general requirements in 104.16(E) of the Standard Specifications.

If construction occurs during the migratory bird breeding season: March 1 to August 31 refer to Section 104.16 BIO-2 of the specifications for direction.

BIO-2D: MBTA – Active Cliff Swallow Nests ☑ N/A

BIO-3: Burrowing Owls ☑ N/A

BIO-4: Bats ☑ N/A

BIO-5: Sonoran Desert Tortoise ☒ No ☐ Yes

5. VEGETATION PROTECTION PROGRAM – CWA SECTION 402, EO 13122

General (applies to all projects); The contractor shall comply with the requirements specified in Section 104.16 (F) of the Special Provisions and Section 104.16 (B) of the Standard Specifications.

☑ Noxious Species Control Plan (NSCP) required

6. CULTURAL RESOURCES PROGRAM

☑ No Cultural Resources Program Action Required; See Std. Spec. 107.05 and 107.06 for General Requirements

7. HAZARDOUS MATERIALS PROGRAM

General (applies to all projects); See Std. Spec. 107.07 for General Requirements.

☐ No Hazardous Materials Program Action Required

Is Asbestos present? ☐ No ☒ Yes

Is an Asbestos Removal and Disposal Plan Needed? ☐ No ☒ Yes ☐ Other

Refer to Section 10 of the EPIC Sheet for Asbestos Containing Material information and contact ADOT Hazardous Materials Specialist.

Is a NESHAP notice required? ☐ No ☒ Yes

If yes, coordination with the ADOT Hazardous Materials Specialist is required and the NESHAP notification shall be submitted at least ten (10) business days prior to initiation of construction activities to: Arizona Department of Environmental Quality Air Quality Division

Is Lead-based paint present? ☐ No ☒ Yes

Is a Lead Based Paint Abatement Plan needed? ☐ No ☒ Yes ☐ Other

Refer to Section 10 of the EPIC Sheet for Lead Based Paint information and contact ADOT Hazardous Materials Specialist.

8. NOISE PROGRAM

☑ No Noise Program Specific Project Action Required; See Std. Spec. 104.08 for General Requirements

9. AIR QUALITY PROGRAM

☑ No Air Quality Program Action Required; See Std. Spec. 104.08 for General Requirements

Dust Permit needed from: Arizona Department of Environmental Quality Air Quality Division

10. OTHER ENVIRONMENTAL ISSUES

Project Specific Environmental Commitments: ☐ N/A

- The contractor shall complete a National Standards for Hazardous Air Pollutants (NESHAP) notification for the work associated with work on Cochise Railroad Overpass Bridge (Structure #157) being removed, the Concrete Box Culverts (CBCs) with Headwalls, and 2-Cell CBC Replacement and submit to the Engineer, who shall submit it to the Arizona Department of Transportation environmental planning hazardous material coordinator (602.920.3882 or 602.712.7767) for a five (5) working day review and approval. Upon approval, the contractor shall file the notification with the Arizona Department of Environmental Quality at least ten (10) working days prior to the commencement of work.
- For work on the Cochise Railroad Bridge (Structure #157):
  - Prior to beginning any work, an approved contractor shall develop and implement a Lead-Based Paint Removal and Abatement Plan for the removal of the lead-based paint, Toxicity Characteristic Leaching Procedure testing of the generated waste stream, and proper disposal of the waste stream derived from the removal of the girder 4 of Bridge Span 1 and girder 3 of Bridge Span 3, as well as the associated girder bearings, within the project limits. The contractor shall select a lead abatement contractor that meets the qualification requirements specified within the special provisions and as approval by the Engineer. The contractor shall follow all applicable federal, state, and local codes and regulations, including Arizona Department of Transportation Standard Specifications for Road and Bridge Construction (2021 Edition), related to the treatment and handling of lead-based paint. The contractor shall submit the Lead-Based Paint Removal and Abatement Plan to the Engineer and the ADOT Environmental Planning Hazardous Materials Coordinator (602.920.3882 or 602.712.7767) for review and approval at least 10 (ten) working days prior to beginning the work on the Cochise Railroad Bridge.
- Visible fugitive dust emissions from paint removal shall be controlled through wet or dry (e.g., vacuum) means during the removal process. If the liquid waste stream generated by a water-blasting obliteration method passes the Toxicity Characteristic Leaching Process analysis, it may be used as a dust palliative or for compaction on the project. If the water is not used on the project, it shall be properly disposed of in accordance with all applicable federal, state, and local regulations.
- The contractor shall not utilize any abrasive tools or methods for the removal of the cattle guards that would disturb the lead-based paint. This includes, but is not limited to, sawing, grinding, sanding, or heating. Woven straps (not linked chains) may be used to lift the cattle guard grate from the frame.
- Prior to beginning any work, an approved contractor shall develop and implement an Asbestos Removal and Disposal Plan for the removal of the asbestos-containing material from the removal of the bearing pads. The plan shall be submitted to the ADOT Hazardous Materials Coordinator (602.920.3882 or 602.712.7767) and Engineer for review and approval at least 10 (ten) working days prior to beginning the work. The contractor shall select an asbestos abatement contractor that meets the qualification requirements specified within the special provisions and as approval by the Engineer. The contractor shall follow all applicable federal, state, and local codes and regulations, including Arizona Department of Transportation Standard Specifications for Road and Bridge Construction (2021 Edition), related to the treatment, handling, and disposal of asbestos.

Arizona Department of Transportation Environmental Planning Standard Template			
Environmental, Permits, Issues, And Commitments (EPIC) Sheet			
Environmental Planner Name Sarah Karasz		**R.E. Name**	
Environmental Planning Date of Completion 5/30/2023		**R.E. Signature** With the above signature, the R.E. attests that all EPIC work for this project has been satisfactorily completed.	
FEDERAL ID NO.	191-A(205)T		
PROJECT NO.	191 CH 062 F0383 01C		
REC DWG DATE: _____ **OF** _____		1F **OF** 91	**Sheet 1F**

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

INDEX OF SHEETS

Sheet No.	Dwg No.	Sheet Type
1		Face Sheet
1A - 1D		ADOT Standard Drawing Lists
1F		ADOT EPIC Sheet
2	G-1.01	Index of Sheets & Design Data
3	G-1.02	Design Data (Earthwork Summary)
4	G-1.03	Design Data (Pavement Structural Sections/Slope Tables)
5	G-1.04	Earthwork Phasing
6	G-1.05	Bridge Surcharge (Pre-Fill) Detail
7	G-2.01	Typical Section Sheets
8	G-3.01	Barrier Summary Sheet
9	G-3.02	Fence Layout and Summary Sheet
10	G-4.01	Pipe Summary Sheet
11	G-4.02	Box Culvert Summary Sheet
12-14	G-4.03 to G-4.05	Detail Sheets
15-17	C-2.01 to C-2.03	Geometric Data and Layout Sheets
18-23	C-3.01 to C-3.06	Roadway Plan & Profile Sheets
24-25	C-4.01 to C-4.02	Turnout & Driveway Plan & Profile Sheets
26	C-5.01	UPRR Grading Detail
27-28	D-2.01 to D-2.02	Culvert Plan and Profile Sheets
29-31	TC-1.01 to TC-1.03	Maintenance of Traffic Sheets
32-33	TC-2.01 to TC-2.02	Sequencing of Construction Sheet
34	TC-2.03	Advanced Warning Signage
35-36	T-1.01 to T-1.02	Pavement Marking and Signing General Notes and Quantities Sheets
37	T-2.01	Sign Summary Sheet
38-40	T-3.01 to T-3.03	Pavement Marking and Signing Sheets
41	S-1.01	UPRR Structure General Plan Sheet
42	S-1.02	UPRR Structure Elevation Sheet
43	S-1.03	UPRR Structure Typical Section, General Notes and Quantities
44	S-1.04	UPRR General Notes for Overhead Structures
45-65	S-1.05 to S-1.25	UPRR Structure Detail Sheets
66-74	SF-1.01 to SF-1.09	Foundation Data Sheets
75	S-2.01	MSE Wall Location Plan & Index of Sheet
76	S-2.02	MSE Wall General Notes and Quantities Sheet
77-79	S-2.03 to S-2.04	MSE Wall Typical Section Sheets
80-82	S-2.05 to S-2.07	MSE Wall Elevation Sheets
83	S-2.09	MSE Wall Design Data Sheet
84	E-1.01	SWPPP Control Measure Index Sheet
85-87	E-1.02 to E-1.05	SWPPP Details
88	E-1.06	SWPPP Erosion Control Summary Sheet
89-91	E-1.07 to E-1.09	SWPPP Plan Sheets

DESIGN DATA

2023 ADT = 1,355 vpd
2043 ADT = 1,532 vpd

DESIGN SPEED

US 191 (Roadway Realignment including Bridge Approaches) = 55 mph
US 191 (Bridge) = 65 mph

MIDPOINT OF PROJECT

East Zone
State Plane Coordinates

X=779,473
Y=412,601

LENGTH OF PROJECT

US 191 ℄ Sta 100+00.00 to 137+20.06
Mile Post 62.5 to 63.2

REFERENCES

FAS-114-H(1)-41
WPGS-114D
STP-191-A-NFA
MA-206(13)P
U 191-A-501

GENERAL NOTES

1. Roadway plans have been designed utilizing the Construction Standard Drawing (C-Series). Refer to the 1A sheet for a listing of current revision dates.
2. The project roadway shall be striped by the contractor in accordance with the current edition of the Signing and Marking Standard Drawings (M and S-Series) and the pavement marking plans.
3. For Right-of-Way information not shown, see Right-of-Way Project No. 191 CH 038 H6431 01R
4. Bench markers will be furnished by the State and shall be placed by the contractor at no additional cost to the Department: Std C-21.20.
5. Pavement lift thickness is nominal.
6. Where only the horizontal location of an existing utility is shown, the location is approximate. Where both the horizontal and vertical location of an existing utility is shown, the location has been verified by field survey methods. The contractor shall comply with all current AZ811 requirements and Section 107.15 of the Specifications.
7. The average project elevation is 4200'.
8. Changes in location or length of spillway or downdrain installation may be made by the Engineer to improve drainage conditions.
9. Slope rounding shall be applied per Standard C-02 series unless otherwise noted.
11. New Right-of-Way is required. Specific use easements are required: see plans.
12. Project plans have been developed utilizing alignment and survey control sheet. Survey control sheet shall be made available as project advertisement documents.

Call at least two full working days before you begin excavation.
ARIZONA 811 Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
in Maricopa County: (602) 263-1100

REGISTERED PROFESSIONAL ENGINEER
CERTIFICATE NO. 54085
THOMAS W. WOLF
Date Signed 06/25/25
ARIZONA, U.S.A.

	NAME	DATE
DESIGN	T WOLF	6/25
DRAWN	T WOLF	6/25
CHECKED	A ALDERINK	6/25
TEAM LEADER	R RINGWALD	6/25

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADWAY DESIGN SECTION

DESIGN DATA
INDEX OF SHEETS

ROUTE: US 191
MILEPOST: 62.5-63.2
STRUCTURE NO.:

F.H.W.A. Arizona Division

STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
ARIZ.	191 CH 062	191-A(205)T	2	91	

LOCATION: COCHISE OVERPASS
DWG NO: G-1.01
TRACS NO. F0383 01C
____ OF ____

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SURVEY NO.	FINISHED PLANS-	REVISIONS-	LOCATION-	DATE-

EARTHWORK SUMMARY

ITEM #	EARTHWORK QUANTITIES	TOTAL	NOTES
2030301	Roadway Excavation	15,451 CY	Includes US191 & UPRR Grading (Not Available for Embankment, Waste Material)
	Structural Excavation	446 CY	(Not Available for Embankment, Waste Material)
	Pipe Excavation	48 CY	(Not Available for Embankment, Waste Material)
	Total Excavation	16,214 CY	
	Total Roadway Embankment	30,518 CY	
	Ground Compaction	7,846 CY	
	Net Embankment	38,364 CY	
2030904	Borrow (In Place)	38,364 CY	
	For Informational Purposes		
	Structure Backfill	342 CY	
	Pipe Backfill	56 CY	

Notes:

Waste Material Cannot be used for PreLoading Material as the Existing Roadway Must Remain During the Pre-Loading Phase.

Waste Material Not Available for Embankment Shall Become the Property of the Contractor and Must be Hauled Off-Site. No Stockpiling will be Allowed within the Project Limits.

SURVEY NO.	FINISHED PLANS-	REVISIONS-	LOCATION-	DATE-

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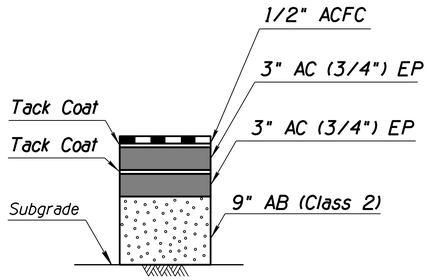
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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADWAY DESIGN SECTION

DESIGN DATA SHEET
EARTHWORK SUMMARY

ROUTE	F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US 191		ARIZ.	191 CH 062	191-A(205)T	3	91	
MILEPOST 62.5-63.2	LOCATION COCHISE OVERPASS						DWG NO: G-1.02
STRUCTURE NO.	TRACS NO. F0383 01C						____ OF____

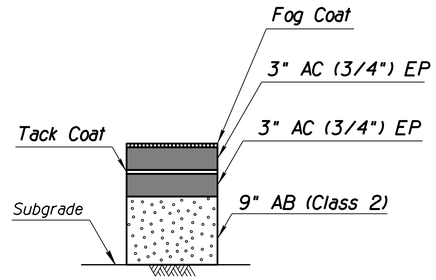
\\aecompw15ics01\1CS_pdf_work_dir\70431\2989_45\h0383ds02.dgn
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Total Thickness = 15 1/2"

SECTION NO. 1

US 191 Travel Lanes



Total Thickness = 15"

SECTION NO. 2

US 191 Travel Lanes, Shoulders, Side Streets

SLOPE TABLE

US 191 Southbound (Left)			US 191 Northbound (Right)		
Begin Station	End Station	Foreslope	Begin Station	End Station	Foreslope
100+00.00	107+00.00	4:1	100+00.00	104+00.00	4:1
107+00.00	108+00.00	4:1 to 2:1	104+00.00	106+00.00	4:1 to 2:1
108+00.00	116+70.00	2:1	106+00.00	109+00.00	2:1
			109+00.00	116+98.40	Wall
119+92.50	130+00.00	2:1			
130+00.00	131+00.00	2:1	120+20.81	126+79.29	Wall
130+00.00	137+19.37	6:1	126+79.29	130+00.00	2:1
			130+00.00	131+00.00	2:1 to 4:1
			131+00.00	137+19.37	4:1

NOTES

1. Refer to Sheet G-2.01 for Typical Sections

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

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TEAM LEADER	R RINGWALD	6/25

TRANSPORTATION

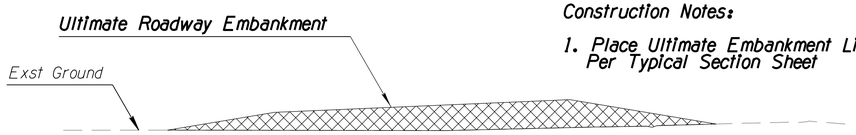
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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADWAY DESIGN SECTION

DESIGN DATA SHEET

ROUTE	F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US 191		ARIZ.	191 CH 062	191-A(205)T	4	91	
MILEPOST 62.5-63.2	LOCATION COCHISE OVERPASS						DWG NO: G-1.03
STRUCTURE NO.	TRACS NO. F0383 01C						____ OF____

Pre–Loading – Phase 1



Construction Notes:

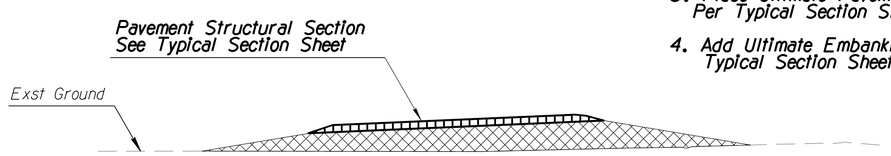
1. Place Ultimate Embankment Limits Per Typical Section Sheet

Roadway Embankment – Below 10'

Final Embankment – Phase 2

Construction Notes:

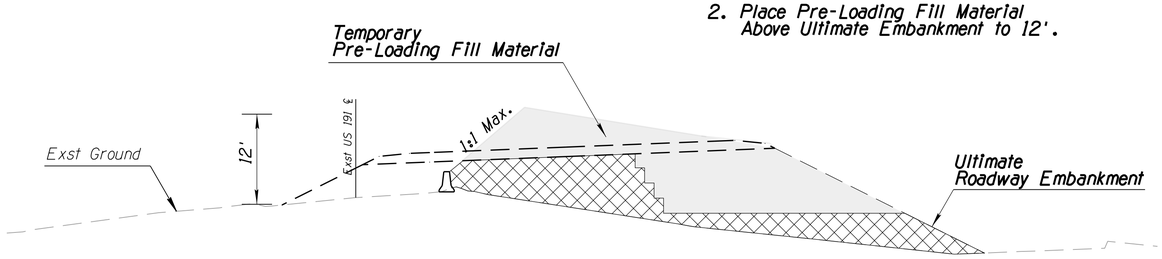
3. Place Ultimate Pavement Section Per Typical Section Sheet.
4. Add Ultimate Embankment Per Typical Section Sheet.



Roadway Embankment – Below 10'

Construction Notes:

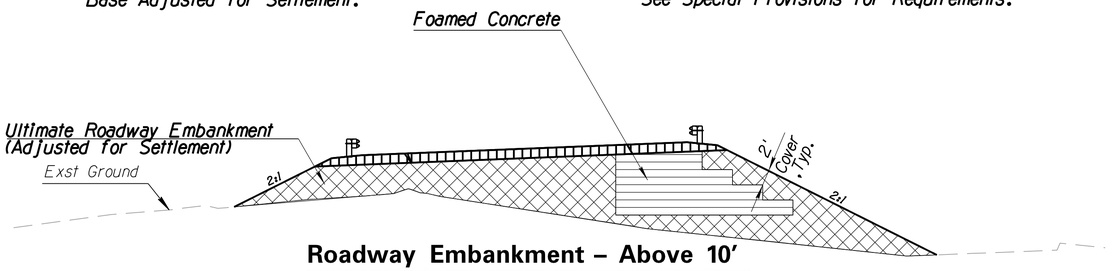
1. Place Ultimate Embankment Limits Per Typical Section Sheets to 10'.
2. Place Pre-Loading Fill Material Above Ultimate Embankment to 12'.



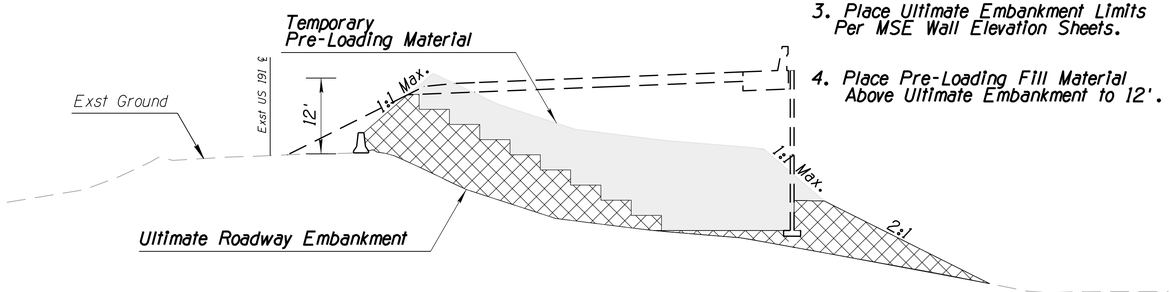
Roadway Embankment – Above 10'

Construction Notes:

5. Remove Temporary Pre-Loading Material. Material Shall be Considered Waste after Removal.
6. Place Ultimate Embankment to Complete Roadway Base Adjusted for Settlement.
7. Place the Ultimate Pavement Section Per Typical Section Sheets.
8. Foamed Concrete to be Placed at 2' Max Lifts. See Special Provisions for Requirements.



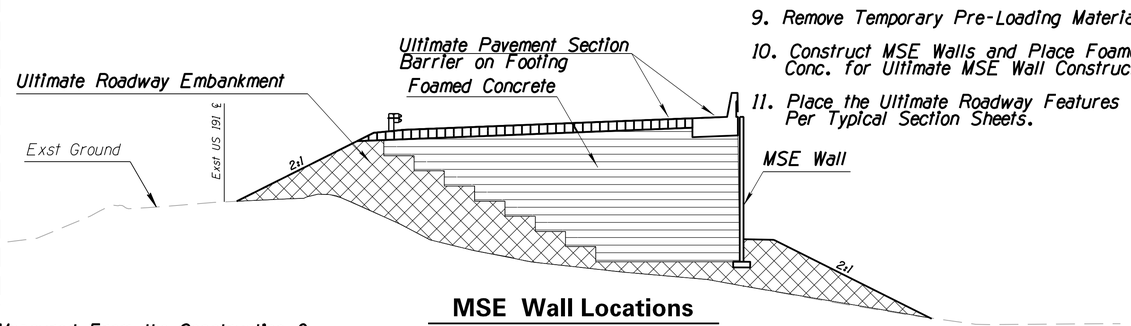
Roadway Embankment – Above 10'



MSE Wall Locations

Construction Notes:

3. Place Ultimate Embankment Limits Per MSE Wall Elevation Sheets.
4. Place Pre-Loading Fill Material Above Ultimate Embankment to 12'.



MSE Wall Locations

Construction Notes:

9. Remove Temporary Pre-Loading Material.
10. Construct MSE Walls and Place Foamed Conc. for Ultimate MSE Wall Construction.
11. Place the Ultimate Roadway Features Per Typical Section Sheets.

NOTES:

Embankment Fill Height Measured From the Construction ℄

Ultimate Roadway Embankment. To Remain In-Place.

Temporary Pre-Loading Material. (On-Site Material) Roadway Excavation Will not be Available for this Phase.

Foamed Concrete

Ultimate Pavement Section

(NTS)

SURVEY NO. | FINISHED PLANS | REVISIONS | LOCATION | DATE

Call at least two full working days before you begin excavation. ARIZONA 811 Arizona Blue Stake, Inc. Dial 8-1-1 or 1-800-STAKE-IT (782-5348) in Maricopa County: (602) 263-1100

REGISTERED PROFESSIONAL ENGINEER — CERTIFICATE NO. 54085 — THOMAS W. WOLF — Date Signed 06/30/25 — ARIZONA, U.S.A.

	NAME	DATE
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CHECKED	A ALDERINK	6/25
TEAM LEADER	R RINGWALD	6/25

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADWAY DESIGN SECTION

EARTHWORK PHASING (NTS)

ROUTE: US 191
MILEPOST: 62.5-63.2
STRUCTURE NO.:

F.H.W.A. Arizona Division

STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
ARIZ.	191 CH 062	191-A(205)T	5	91	

LOCATION: COCHISE OVERPASS

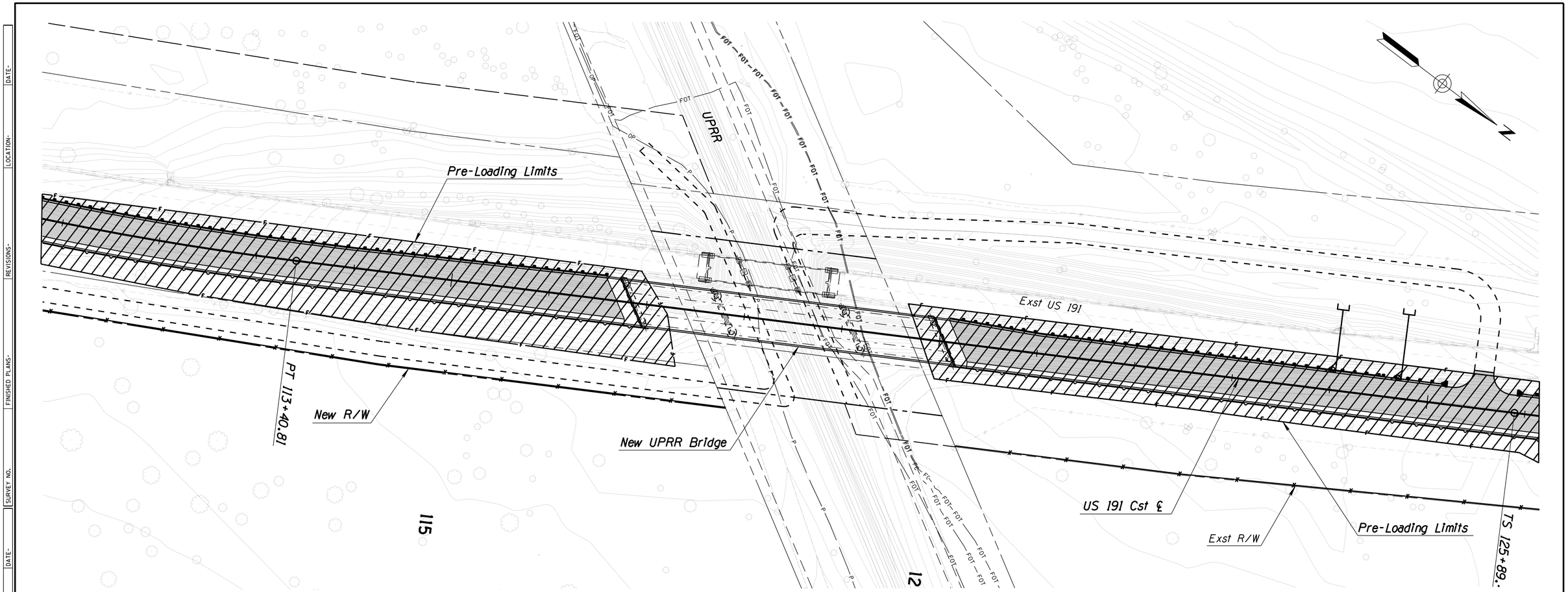
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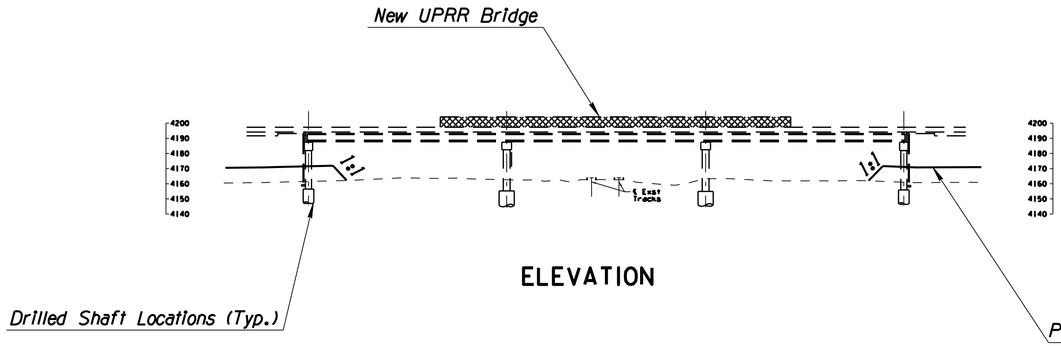
TRACS NO. F0383 01C

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SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-





ELEVATION

UPRR BRIDGE

LEGEND

Pre-Loading Limits

Notes:

1. *Extend Pre-Fill Loading Material 15' Beyond the Center of Abutment Shafts.*
2. *See Structures Plans for Drilled Shaft Locations.*

BRIDGE SURCHARGE (PRE-FILL) DETAIL

Call at least two full working days before you begin excavation. ARIZONA 811 Arizona Blue Stake, Inc. Dial 8-1-1 or 1-800-STAKE-IT (782-5348) in Maricopa County: (602) 263-1100

REGISTERED PROFESSIONAL ENGINEER — CERTIFICATE NO. 54085 THOMAS W. WOLF — Date Signed 06/20/25 — ARIZONA, U.S.A.

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ROADWAY DESIGN SECTION

US 191
BRIDGE SURCHARGE DETAIL

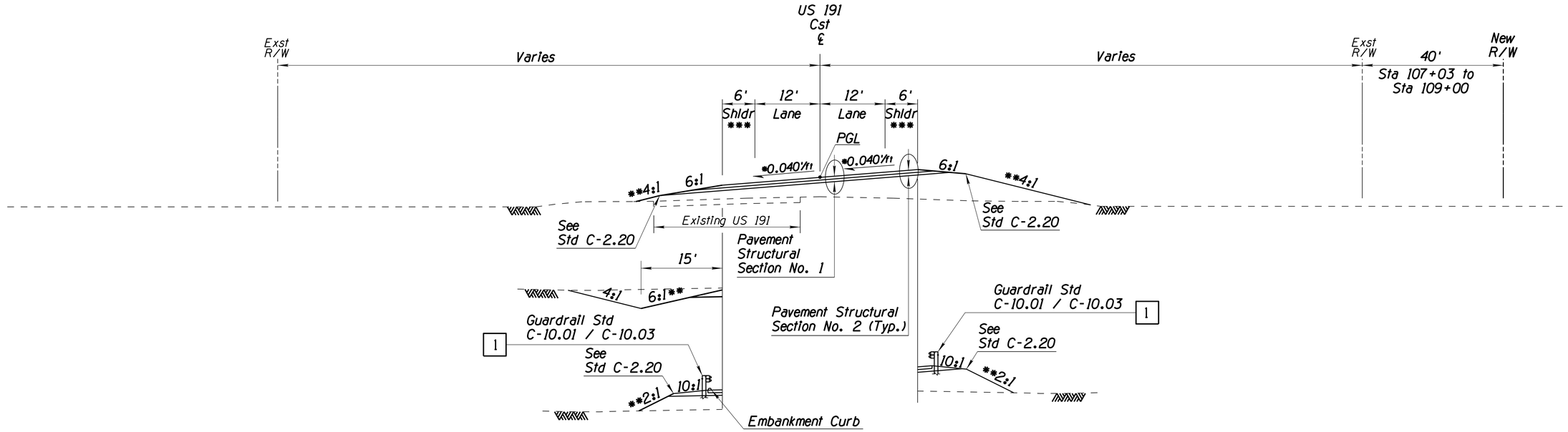
ROUTE: US 191
MILEPOST: 62.5-63.2
STRUCTURE NO.

F.H.W.A. Arizona Division

STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
ARIZ.	191 CH 062	191-A(205)T	6	91	

LOCATION: COCHISE OVERPASS
DWG NO: G-1.05
TRACS NO. F0383 01C
____ OF ____

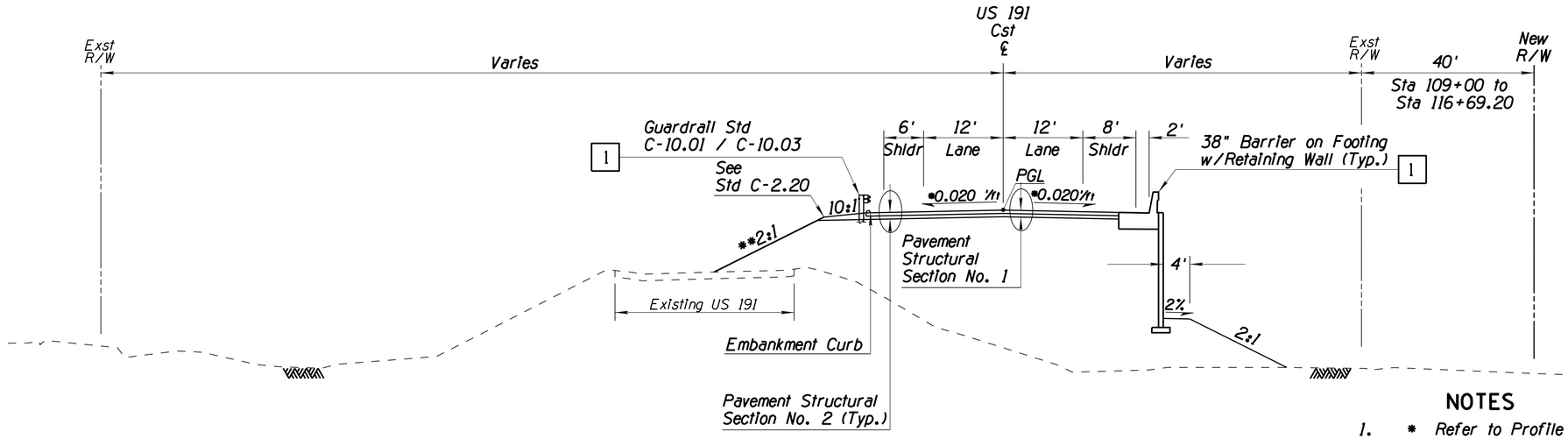
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TYPICAL SECTION

Sta 100+00.00 to Sta 109+00.00
Sta 126+79.65 to Sta 137+20.06

1 Refer to Barrier Summary Sheet for Barrier Limits.



TYPICAL SECTION

Sta 109+00.00 to Sta 116+69.20
(Sta 116+69.20 to Sta 120+20.59 UPRR Bridge / Approach Slabs)
Sta 120+20.59 to Sta 126+79.65

NOTES

1. * Refer to Profile Sheets for Superelevation.
2. ** Refer to Sheet G-1.03 for Slope Table
3. Refer to Sheet G-1.03 for Pavement Structural Section
4. Refer to Structures Sheets for MSE Wall Information.
5. Refer to Roadway Plan Sheets for Shoulder Tapers.
6. *** See Roadway Plans for Taper Limits to Match Existing Taper Widths

Call at least two full working days before you begin excavation
ARIZONA 811 Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
in Maricopa County: (602) 263-1100

REGISTERED PROFESSIONAL ENGINEER
54085
THOMAS W. WOLF
Date Signed 06/25/25
ARIZONA, U.S.A.

	NAME	DATE
DESIGN	T WOLF	6/25
DRAWN	T WOLF	6/25
CHECKED	A ALDERINK	6/25
TEAM LEADER	R RINGWALD	6/25

TRANSPORTATION
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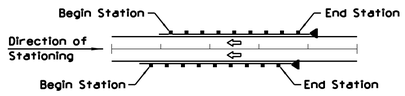
ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADWAY DESIGN SECTION

TYPICAL SECTIONS
(NTS)

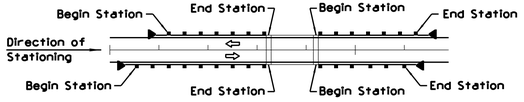
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US 191		ARIZ.	191 CH 062	191-A(205)T	7	91	
MILEPOST 62.5-63.2	LOCATION COCHISE OVERPASS						DWG NO: G-2.01
STRUCTURE NO.	TRACS NO. F0383 01C						____ OF____

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

ONE-WAY ROADWAY



TWO-WAY ROADWAY WITH STRUCTURE ◒



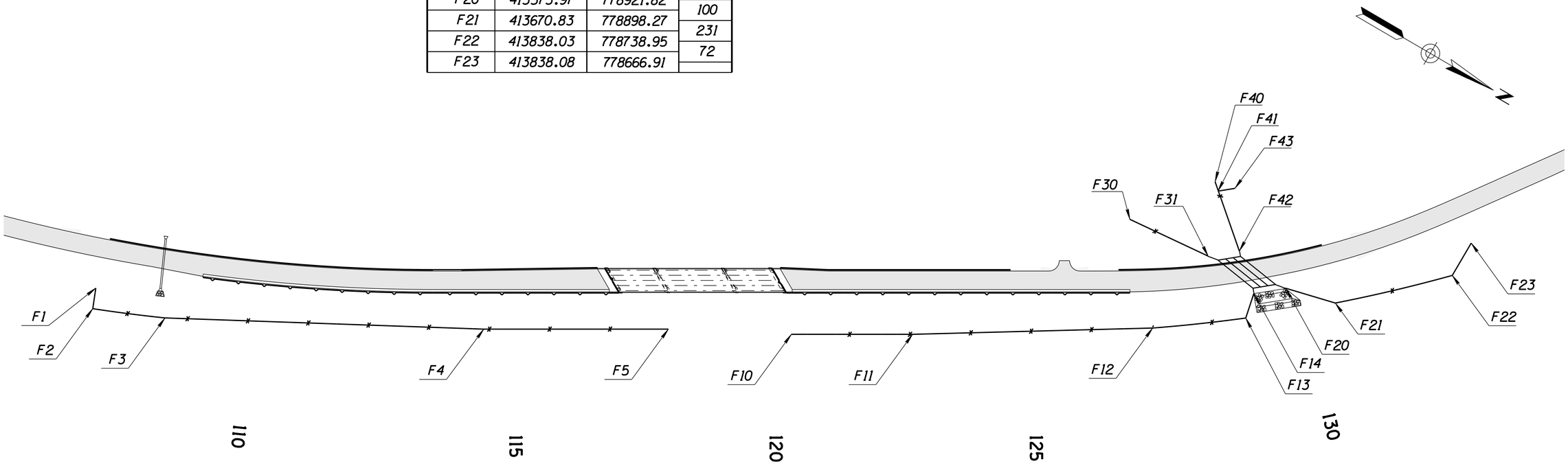
DIVIDED ROADWAY WITH HIGH TENSION MEDIAN CABLE BARRIER



| LOCATION | | BARRIER | | | | | | | | | | | | | | | | | | | | | | | | | | | | | TRANSITION | | END TREATMENT | | | | | | | | | | | | | | | | | | |

NEW FENCE SUMMARY C-12.10 (TYPE 2) (BARBED WIRE)			
Fence Ref No	N	E	LF
F1	411600.12	780075.32	
			40
F2	411615.10	780112.47	
			140
F3	411743.93	780057.78	
			613
F4	412283.61	779767.95	
			355
F5	412589.77	779588.31	
F10	412798.90	779477.64	
			233
F11	412999.91	779360.14	
			461
F12	413392.08	779116.86	
			180
F13	413536.79	779009.94	
			50
F14	413526.42	778961.69	
F20	413573.97	778921.82	
			100
F21	413670.83	778898.27	
			231
F22	413838.03	778738.95	
			72
F23	413838.08	778666.91	

NEW FENCE SUMMARY C-12.10 (TYPE 2) (BARBED WIRE)			
Fence Ref No	N	E	LF
F30	413248.78	778958.50	
			166
F31	413414.13	778943.68	
F40	413353.79	778813.51	
			19
F41	413367.60	778826.16	
			122
F42	413461.27	778905.03	
F41	See Above		
			33
F43	413393.01	778805.15	
		Total =	2,815



Call at least two full working days before you begin excavation.
ARIZONA 811
Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
in Maricopa County: (602) 263-1100

REGISTERED PROFESSIONAL ENGINEER — CERTIFICATE NO. 54085 — THOMAS W. WOLF — Date Signed 06/20/25 — ARIZONA, U.S.A.

	NAME	DATE
DESIGN	T WOLF	6/25
DRAWN	T WOLF	6/25
CHECKED	A ALDERINK	6/25
TEAM LEADER	R RINGWALD	6/25

TRANSPORTATION

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FENCE LAYOUT AND SUMMARY SHEET

ROUTE	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US 191	ARIZ.	191 CH 062	191-A(205)T	9	91	
MILEPOST 62.5-63.2	LOCATION: COCHISE OVERPASS					DWG NO: G-3.02
STRUCTURE NO.	TRACS NO. F0383 01C					____ OF ____

F.H.W.A. Arizona Division

SURVEY NO. | FINISHED PLANS | REVISIONS | LOCATION | DATE

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NOTE:
THE ZEROS IN PARENTHESES (0, 0.0 & 0.000) INDICATE THE DIMENSIONAL PRECISION FOR THAT COLUMN

NOTE:
FOR PIPE CULVERT PLACEMENT SEE STANDARD DRAWINGS C-13.10 AND C-13.15

NOTE:
PIPE OPTIONS SELECTED ARE THOSE REQUIRED TO MEET MINIMUM SERVICE LIFE.
ALLOWABLE PIPE OPTIONS ARE INDICATED WITH THE LETTER 'X' IN THE SPACE. BLANK SPACES ARE NOT ALLOWABLE ALTERNATES.

CSP - CORRUGATED STEEL PIPE
CAP - CORRUGATED ALUMINUM PIPE
RCP - REINFORCED CONCRETE PIPE
NRCP - NON-REINFORCED CONCRETE PIPE
NRCIPCP - NON-REINFORCED CAST-IN-PLACE CONCRETE PIPE
CHDPEPP - CORRUGATED HIGH-DENSITY POLYETHYLENE PLASTIC PIPE

DESCRIPTION							CSP						CAP			RCP		NRCP	NRCIPCP	CHDPEPP	END TREATMENT											QUANTITIES	
			In.	In.	Ft.	Degree	In.	Coating					In.			In.		In.			Each		Catch Basin, Manhole, Headwall & Junction Structure										Cubic Yard	
Station	Plan Reference Number	Controlling Fill Height Range	Size, Corrugated	Size, Smooth	Length (0)	Skew (0)	Corrugation	Wall Thickness (0.000)	Zinc	Bituminous Coated Zinc	Aluminum	Bituminous Coated Aluminum	Bituminous Coated Corrugation	Wall Thickness (0.000)	Uncoated	Bituminous Coated	Class - Non-Trench	Class - Trench	Class	Minimum Wall Thickness (0)	AASHTO M-294 Type C	AASHTO M-294 Type S	End Section	Ea	Ft.				Grate	Ft.			Pipe Excavation (0)	Pipe Backfill (0) C-13.15	Drainage Excavation (0)	Berm/Dike Embankment (0)	REMARKS
																					C-13.20 & C-13.25	Detail	Size, (In) Manhole	Standard or Detail	S-Single / D-Double	Location	H (0.0)	L Wing (0.0)	L 18" Slotted Drain (0)	L 24" Slotted Drain (0)	Type	Elevation (0.00)	Depth	In.	Ft. L (0.0)	Inlet Depression C-15.70				
US191 Sta 108+20.00	13	4	36	36	96		A	0.064	X		X		B	0.060			III	III			2												48	32		2	Detail DA; Dike embkmt cost incl w/ roadway exc cost
Sheet Total																					2												48	32		2	

FILL HEIGHT RANGE TABLE (Ft.)													
RANGE NO.		1	2	3	4	5	6	7	8	9	10	11	12
FILL	>	1	3	5	8	11	15	20	25	30	40	55	70
HEIGHT (Ft.)	≤	3	5	8	11	15	20	25	30	40	55	70	90

◒ SHOULD FIELD CONDITIONS VARY FROM THE RANGE INDICATED, CONTACT DESIGN FOR RE-EVALUATION OF PIPE DESIGN REQUIREMENTS.

PIPE CORRUGATION			
A	2⅔x½	D	6x2
B	3x1	E	3x1 or 9x2½
C	9x2½		

Registered Professional Engineer
Certificate No.
26882
DANIEL STOUGH
Date Signed 6/25/25
ARIZONA, U.S.A.

	NAME	DATE
DESIGN	K LEANDER	6/25
DRAWN	K LEANDER	6/25
CHECKED	D STOUGH	6/25
TEAM LEADER	R RINGWALD	6/25

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INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADWAY DESIGN SECTION

PIPE SUMMARY SHEET

ROUTE: US 191
MILEPOST: 62.09-63.66
STRUCTURE NO.:

F.H.W.A. Arizona Division

STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
ARIZ.	191 CH 062	191-A(205)T	10	91	

LOCATION: COCHISE OVERPASS
TRACS NO. F0383 01C
DWG NO: G-04.01
___ OF ___

DATE- | LOCATION- | REVISIONS- | FINISHED PLANS- | SURVEY NO.

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DESCRIPTION												END TREATMENT														LENGTH OF BARREL & BARREL EXTENSIONS										APPROXIMATE QUANTITIES									REMARKS
												WINGS				APRONS		MISCELLANEOUS																		Lbs.	Ea.	Cubic Yards							
Plan Reference Number ◯ & ◪	Structure Number	New	Extend	Number of Barrels	Barrel Span (0.0)	Barrel Height (0.0)	Culvert Length (0.0)	Skew (Degree) (0)	SD 6.01-1, 6.01-2 Misc Details	SD 6.01-3 Extension Details	◪ Standard or Detail	▼ Location	Inlet Wings	Outlet Wings	◪ Standard or Detail	Apron	◪ Standard or Detail	Scour/Bank Protection	◪ Standard or Detail	Energy Dissipators	Detail	Construction ℄ / Existing & Construction ℄ / Extension Length / Barrel Length / Linear Feet (0.0) / ▲ Left of ℄ / ▲ Right of ℄	I	II	III	IV	V	V	IV	III	II	I	◑ Reinforcing Steel (0)	◑ Place Dowels	◑ Class S Concrete f'c=3,000 PSI	◑ Remove Str Concrete (0)	◑ Structural Excavation (0)	◑ Structure Backfill (0)	Berm Embankment (0)	Dike Embankment (0)	Drainage Excavation (0)	
6	07372	X		3	10	7	87.5	47	X		SD-6.03-2	Left	X		SD-6.08-7								40.5										24565	-	155	-	176	115		6	-	See Detail DB
Station: 129+03.4 US-191 CST												Right		X	SD-6.08-5	X	SD-6.11			X	DB										47.0		30161	-	201	283	135	127		6	-	Dike Embkmt cost incl w/
Existing:																														Box Culvert Total		54726	-	356	283	311	242		12	-	Rdwy Embkmt cost
												Left																														
Station:												Right																														
Existing:																														Box Culvert Total										
												Left																														
Station:												Right																														
Existing:																														Box Culvert Total										
												Left																														
Station:												Right																														
Existing:																														BC Total Next Entry										
BE-H												Left																														
Station:												Right																														
Existing:																														BC Total Next Entry										
BE-J												Left																														
Station:												Right																														
Existing:																														Box Culvert Total										
BE-M												Left																														
Station:												Right																														
Existing:																														Box Culvert Total										
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Existing:																														Box Culvert Total										
												Left																														
Station:												Right																														
Existing:																														Box Culvert Total										
																														Sheet Total		54726	-	356	283	311	242		12	-	

◑ TOTALS SHOWN FOR THE BOX CULVERT INCLUDE THE QUANTITIES FOR HEADWALLS, WINGS, APRONS, CURBS, CUT-OFF WALLS AND LAPS AT CONSTRUCTION JOINTS.

◪ BRIDGE GROUP STRUCTURE DETAIL DRAWINGS SD 6.01 TO SD 6.11

▲ Construction ℄ Looking Ahead

NOTE:
THE ZEROS IN PARENTHESES (0, 0.0 & 0.00) INDICATE THE DIMENSIONAL PRECISION FOR THAT COLUMN

NOTE:
FOR STRUCTURAL EXCAVATION, STRUCTURE BACKFILL PLACEMENT AND MEASUREMENT, SEE STRUCTURE DETAIL DRAWING SD 6.01 (4 OF 5)

Call at least two full working days before you begin excavation.
ARIZONA 811 Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
in Maricopa County: (602) 263-1100

Registered Professional Engineer — Certificate No. 26882 — DANIEL STOUGH — Date Signed 6/25/25 — ARIZONA, U.S.A.

	NAME	DATE
DESIGN	K LEANDER	6/25
DRAWN	K LEANDER	6/25
CHECKED	D STOUGH	6/25
TEAM LEADER	R RINGWALD	6/25

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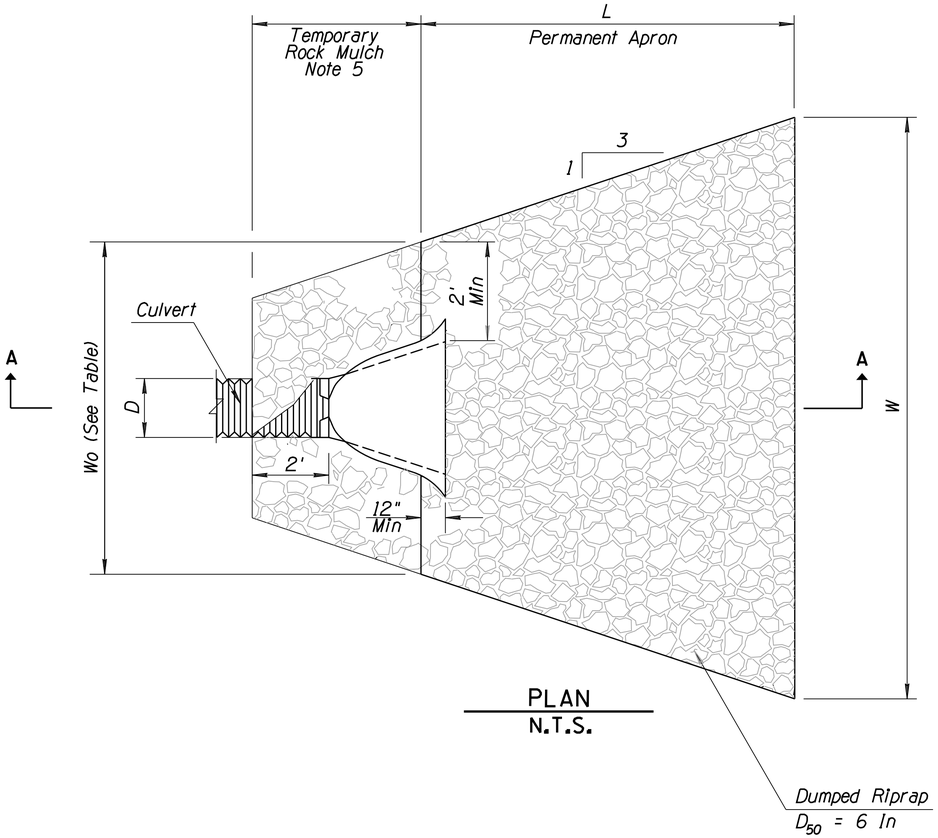
ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADWAY DESIGN SECTION

NEW BOX CULVERT SUMMARY

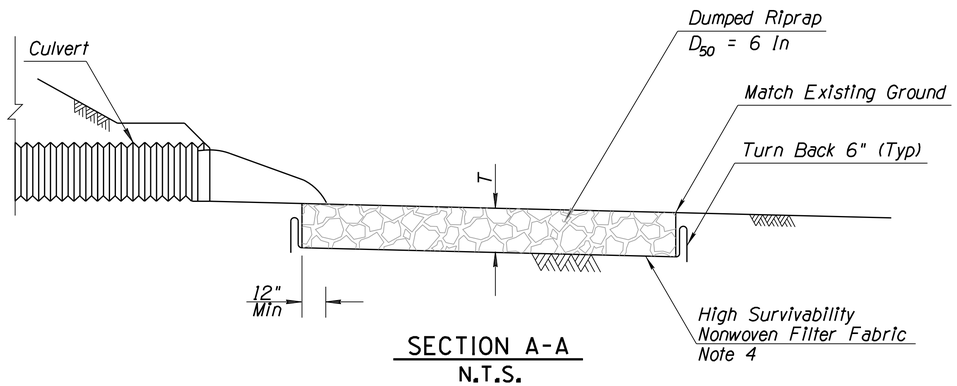
ROUTE	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US 191	ARIZ.	191 CH 062	191-A(205)T	11	91	
MILEPOST 62.09-63.66	F.H.W.A. Arizona Division					
STRUCTURE NO.	LOCATION: COCHISE OVERPASS					DWG NO: G-04.02
	TRACS NO. F0383 01C					___ OF ___

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

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PLAN
N.T.S.



SECTION A-A
N.T.S.

RIPRAP APRON LOCATION AND DIMENSIONS							
Culvert Station	D (IN) W CBC (FT)	Wo (FT)	L [2] (FT)	W (FT)	T (FT)	D_{50}=6" 9130051 (CY)	Remarks
US 191 Sta 108+20.00	36	11	10	17	1.0	6	

NOTES:

1. The geometric shape of the apron may vary to match the existing site conditions as directed by the engineer.
2. L is measured (on pipe alignment) from a point near the edge of apron farthest from the roadway centerline.
3. High Survivability Nonwoven Filter Fabric shall be in accordance with Section 1014-4.03 of the specifications.
4. No separate measurement or direct payment will be made for High Survivability Nonwoven Filter Fabric. The cost of this item is considered as included in the cost of riprap items.
5. See SWPPP Detail E4 for rock mulch installation around culvert end sections or headwalls. See Detail E4 for rock mulch quantities.

Riprap Gradation	
% Passing	D_{50}=6"
100	9"-10"
50	6"-7"
15	3"-4"

DETAIL DA
RIPRAP APRON

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

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ARIZONA 811
Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
in Maricopa County: (602) 263-1100

Certified Professional Engineer — 26882 DANIEL STOUGH — Date Signed 6/25/25 — ARIZONA, U.S.A.

	NAME	DATE
DESIGN	K LEANDER	6/25
DRAWN	K LEANDER	6/25
CHECKED	D STOUGH	6/25
TEAM LEADER	R RINGWALD	6/25

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INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADWAY DESIGN SECTION
DETAIL SHEET
RIPRAP APRON

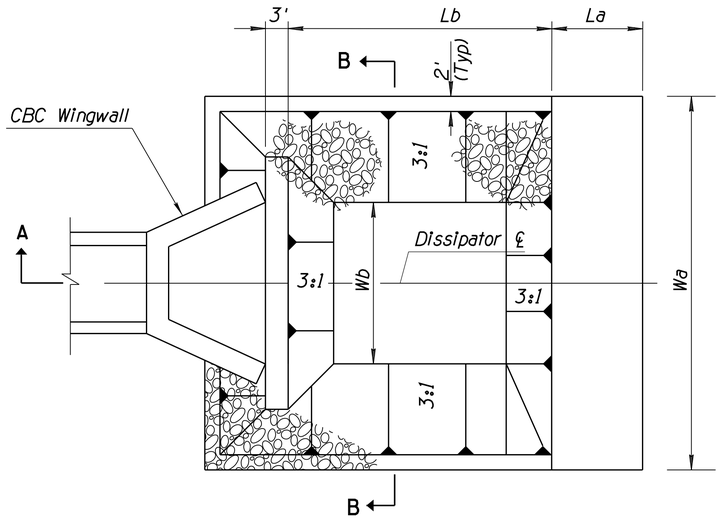
ROUTE US 191
MILEPOST 62.09-63.66
STRUCTURE NO.

F.H.W.A. Arizona Division

STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
ARIZ.	191 CH 062	191-A(205)T	12	91	

LOCATION COCHISE OVERPASS
DWG NO: G-04.03
TRACS NO. F0383 01C
____ OF ____

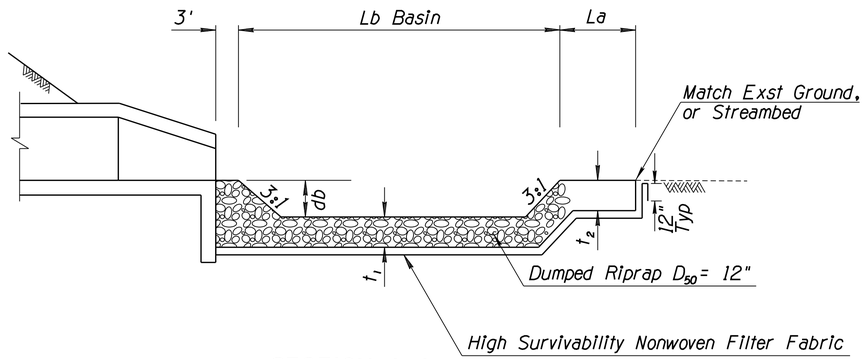
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PLAN
DISSIPATOR TO APRON
N.T.S.

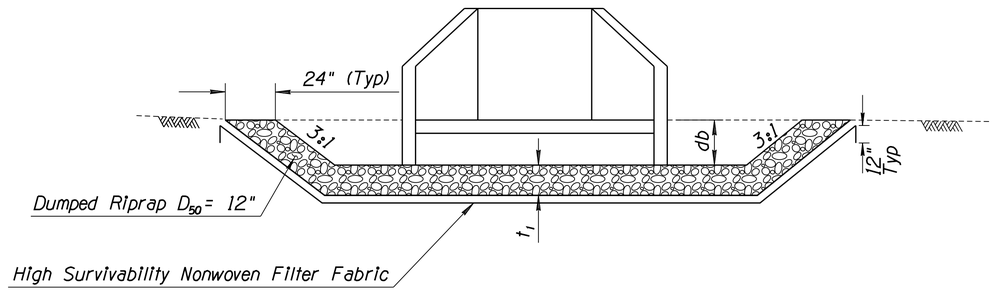
RIPRAP ENERGY DISSIPATOR TO APRON - LOCATIONS

Culvert ID	Culvert Station	La (ft)	Lb (ft)		Wb (ft)	Wa (ft)	Wc (ft)	t_1 (ft)	t_2 (ft)	db (ft)	D_{50} =12" 9130053 (CY)	Remarks
6	US 191 129+03	10	27		53	86	22	2	2	2	217	Walnut Wash crossing



SECTION A-A
N.T.S.

RIPRAP GRADATION	
% Passing	D_{50}=12"
100	18"-21"
50	12"-14"
15	5"-8"



SECTION B-B
N.T.S.

NOTES:

1. *The geometric shape of the apron may vary to match the existing site conditions as directed by the engineer.*
2. *High Survivability Nonwoven Filter Fabric shall be in accordance with Section 1014-4.03 of the specifications.*
3. *No separate measurement or direct payment will be made for high survivability nonwoven filter fabric, The cost of this item is considered as included in the cost of riprap items.*
4. *Slope apron as needed to match existing grade. When joining new channel bottom, see channel profile for bottom elevation.*

DETAIL DB
RIPRAP ENERGY DISSIPATOR

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

Call at least two full working days before you begin excavation.
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Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
in Maricopa County: (602) 263-1100

CERTIFICATE
26882
DANIEL STOUGH
Registered Professional Engineer
Date Signed 6/25/25
ARIZONA, U.S.A.

	NAME	DATE
DESIGN	K LEANDER	6/25
DRAWN	K LEANDER	6/25
CHECKED	D STOUGH	6/25
TEAM LEADER	R RINGWALD	6/25

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INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADWAY DESIGN SECTION

DETAIL SHEET
RIPRAP ENERGY DISSIPATOR

ROUTE US 191
MILEPOST 62.09-63.66
STRUCTURE NO.

F.H.W.A. Arizona Division | STATE ARIZ. | PROJECT NO. 191 CH 062 | FEDERAL ID NO. 191-A(205)T | SHEET NO. 13 | TOTAL SHEETS 91 | RECORD DRAWING

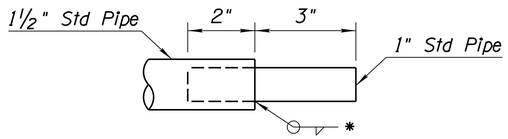
LOCATION COCHISE OVERPASS

DWG NO: G-04.04

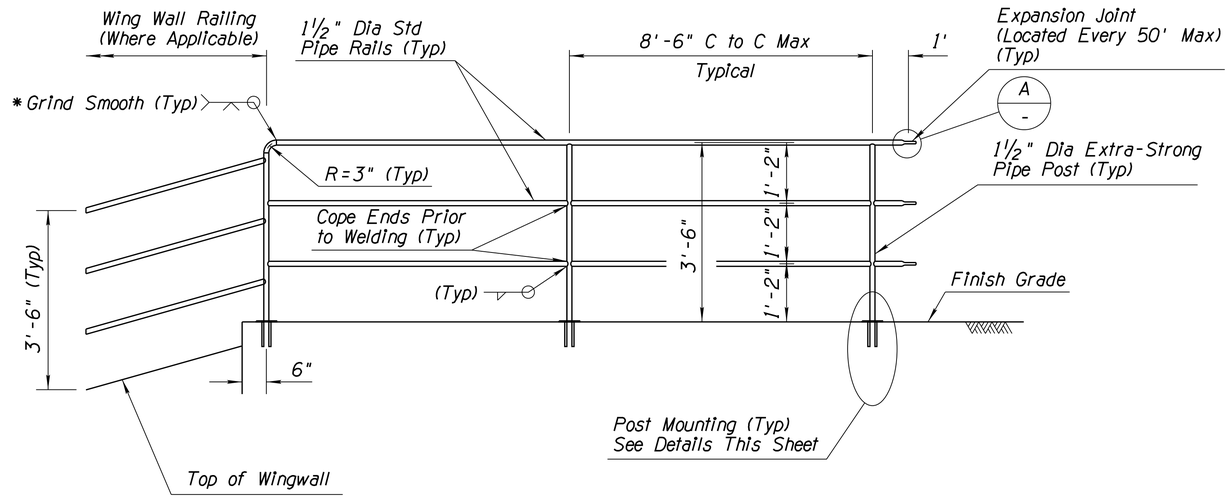
TRACS NO. F0383 01C

____ OF____

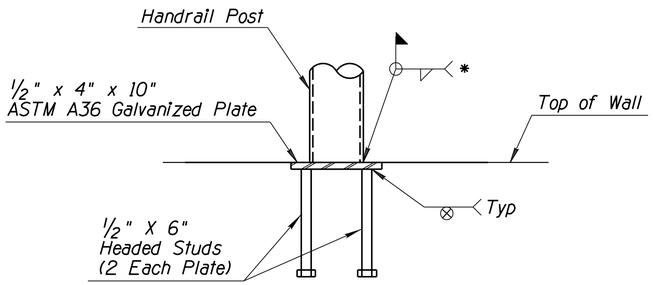
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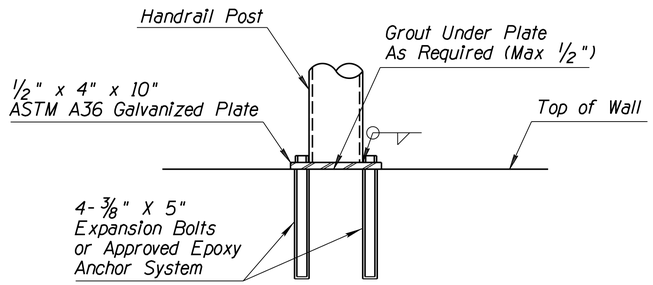
DETAIL A
NTS



METAL HANDRAIL
NTS



WALL MOUNTING DETAIL OPTION 1
ANCHOR PLATE DETAIL
NTS



WALL MOUNTING DETAIL OPTION 2
EXPANSION BOLT DETAIL
NTS

* Coat after welding with an approved organic zinc rich coating intended for repair of galvanized steel surfaces.

NOTES:

1. All welding shall be in accordance with the American Welding Society (AWS) D1.1 using E70xx Electrodes.
2. Posts shall be installed vertically. Railings shall be installed so that they are parallel to the sidewalk or top of wall.
3. Pipe Shall be in accordance with the requirements of ASTM A 53, Type E or S, Grade B (Fy=35ksi).
4. Railing assemblies shall be galvanized after fabrication in accordance with ASTM A 123.
5. Vertical posts to be evenly spaced.
6. Remove all sharp edges.
7. The embedment for anchor Types 1 and 2 shall be located inside the wall reinforcement cage.
8. Metal handrail to be installed on culvert headwall and wingwalls. Type 1 or Type 2 wall mounting detail may be used.

METAL HANDRAIL QUANTITIES

Roadway	STA	Option #	Side	Length
US 191	129+03	1 or 2	West	75
US 191	129+03	1 or 2	East	75

DETAIL DC
METAL HANDRAIL DETAIL

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

Call at least two full working days before you begin excavation. ARIZONA 811 Arizona Blue Stake, Inc. Dial 8-1-1 or 1-800-STAKE-IT (782-5348) in Maricopa County: (602) 263-1100

Registered Professional Engineer — 26882 DANIEL STOUGH — Date Signed 6/25/25 — ARIZONA, U.S.A.

	NAME	DATE
DESIGN	K LEANDER	6/25
DRAWN	K LEANDER	6/25
CHECKED	D STOUGH	6/25
TEAM LEADER	R RINGWALD	6/25

TRANSPORTATION
AECOM TECHNICAL SERVICES, Inc. 7720 N. 16th St., Suite 100 Phoenix, Arizona 85020 T 602.371.1100 — AECOM www.aecom.com

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADWAY DESIGN SECTION
DETAIL SHEET
METAL HANDRAIL DETAIL

ROUTE: US 191
MILEPOST: 62.09-63.66
STRUCTURE NO.

F.H.W.A. Arizona Division

STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
ARIZ.	191 CH 062	191-A(205)T	14	91	

LOCATION: COCHISE OVERPASS
DWG NO: G-04.05
TRACS NO. F0383 01C
____ OF ____

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CENTERLINE CONTROL POINT AND CURVE DATA TABLE

PLAN REF NO.		POINT TYPE	STATION	COORDINATES		SPIRAL TOTAL					SPIRAL MAIN OR CIRCULAR CURVE							SPIRAL CURVE			
				Northing	Easting	Total Delta	T	L	R+o	Ext	Δ	D	R	L	T	Ext	Super	Δ	L	o	t
	US 191 Construction ℄	POB/PC	97+00.00	410591.4673	780184.6917																
(1)	US 191 Construction ℄	PI	98+50.14	410741.5384	780180.2293						6°00'00" Lt	2°00'00"	2,864.79	300.00	150.14	3.93	8%				
	US 191 Construction ℄	PT	100+00.00	410890.3209	780160.1047																
	US 191 Construction ℄	PC	100+48.70	410938.5806	780153.5770																
(2)	US 191 Construction ℄	PI	107+03.27	411587.2438	780065.8373						22°36'19" Lt	1°44'58"	3,275.00	1,292.11	654.57	64.77	4%				
	US 191 Construction ℄	PT	113+40.81	412152.3472	779735.5036																
	US 191 Construction ℄	TS	125+89.44	413230.3101	779105.3756																
	US 191 Construction ℄	SPI	127+10.13	413334.5045	779044.4683		404.83		1480.92									3°20'13" Lt	181.00	0.92	90.49
	US 191 Construction ℄	SC	127+70.44	413384.6513	779010.8825																
(3)	US 191 Construction ℄	PI	129+94.27	413579.8077	778901.0752	24°00'09" Lt		791.01		33.92	17°22'57" Lt	3°52'17"	1,480.00	449.01	226.24	17.19	7.1%				
	US 191 Construction ℄	CS	132+19.45	413714.4078	778708.6797																
	US 191 Construction ℄	SPI	132+73.13	413748.0488	778666.8465		395.74		1480.73									3°06'59" Lt	161.00	0.73	80.49
	US 191 Construction ℄	ST	133+80.45	413810.6750	778579.6571																
	US 191 Construction ℄	PC	137+17.48	414007.2931	778305.9213																
(4)	US 191 Construction ℄	PI	138+71.96	414097.4169	778180.4492						6°06'49" Lt	1°58'50"	2,892.93	308.68	154.48	4.12	8%				
	US 191 Construction ℄	PT/POE	140+26.15	414173.6655	778046.0926																

Notes:

1. All coordinates are ground coordinates and all bearings are grid bearings.
2. All bearings and angles have been rounded to the nearest second.
3. Use the control points provided and their respective state plane coordinates to re-establish the centerline of each roadway.
4. GAF=1.0002931

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ARIZONA 811
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in Maricopa County: (602) 263-1100

REGISTERED PROFESSIONAL ENGINEER
54085
THOMAS W. WOLF
ARIZONA, U.S.A.
Date Signed 06/25/25

	NAME	DATE
DESIGN	T WOLF	6/25
DRAWN	T WOLF	6/25
CHECKED	A ALDERINK	6/25
TEAM LEADER	R RINGWALD	6/25

TRANSPORTATION
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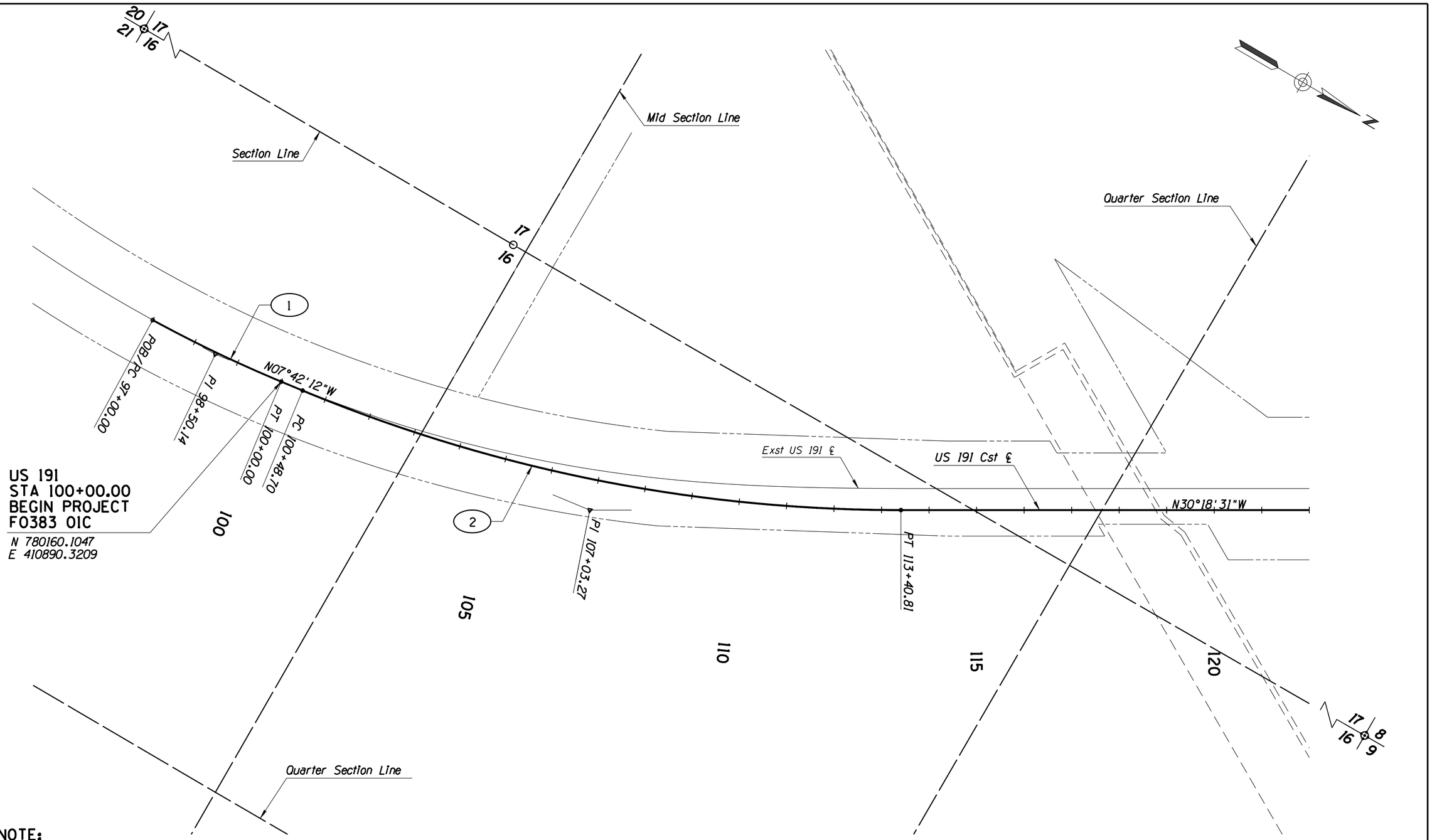
ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADWAY DESIGN SECTION

GEOMETRIC DATA SHEET

ROUTE	F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US 191		ARIZ.	191 CH 062	191-A(205)T	15	91	
MILEPOST 62.5-63.2	LOCATION COCHISE OVERPASS						DWG NO: C-2.01
STRUCTURE NO.	TRACS NO. F0383 01C						___ OF___

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

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NOTE:

1. (1) See Geometric Data Sheet

Call at least two full working days before you begin excavation.
ARIZONA 811 Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348) in Maricopa County: (602) 263-1100

REGISTERED PROFESSIONAL ENGINEER — CERTIFICATE NO. 54085 — THOMAS W. WOLF — ARIZONA, U.S.A.

	NAME	DATE
DESIGN	T WOLF	6/25
DRAWN	T WOLF	6/25
CHECKED	A ALDERINK	6/25
TEAM LEADER	R RINGWALD	6/25

TRANSPORTATION
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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADWAY DESIGN SECTION

GEOMETRIC LAYOUT SHEET

ROUTE: US 191
MILEPOST: 62.5-63.2
STRUCTURE NO.

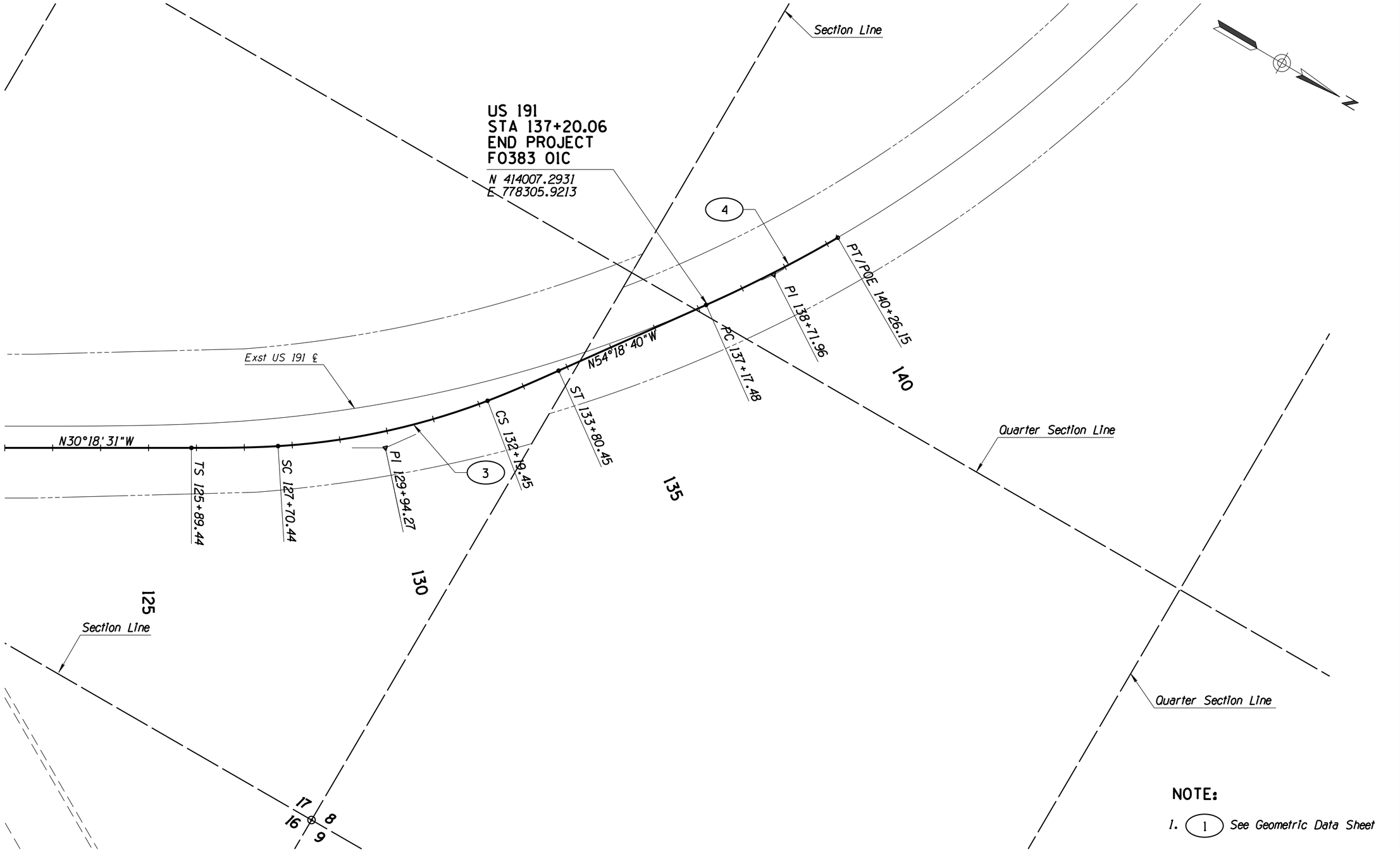
F.H.W.A. Arizona Division

STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
ARIZ.	191 CH 062	191-A(205)T	16	91	

LOCATION: COCHISE OVERPASS
DWG NO: C-2.02
TRACS NO. F0383 01C
___ OF ___

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

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NOTE:

1. (1) See Geometric Data Sheet

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

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in Maricopa County: (602) 263-1100

REGISTERED PROFESSIONAL ENGINEER — CERTIFICATE NO. 54085 — THOMAS W. WOLF — ARIZONA, U.S.A.

	NAME	DATE
DESIGN	T WOLF	6/25
DRAWN	T WOLF	6/25
CHECKED	A ALDERINK	6/25
TEAM LEADER	R RINGWALD	6/25

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ARIZONA DEPARTMENT OF TRANSPORTATION
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ROADWAY DESIGN SECTION

GEOMETRIC LAYOUT SHEET

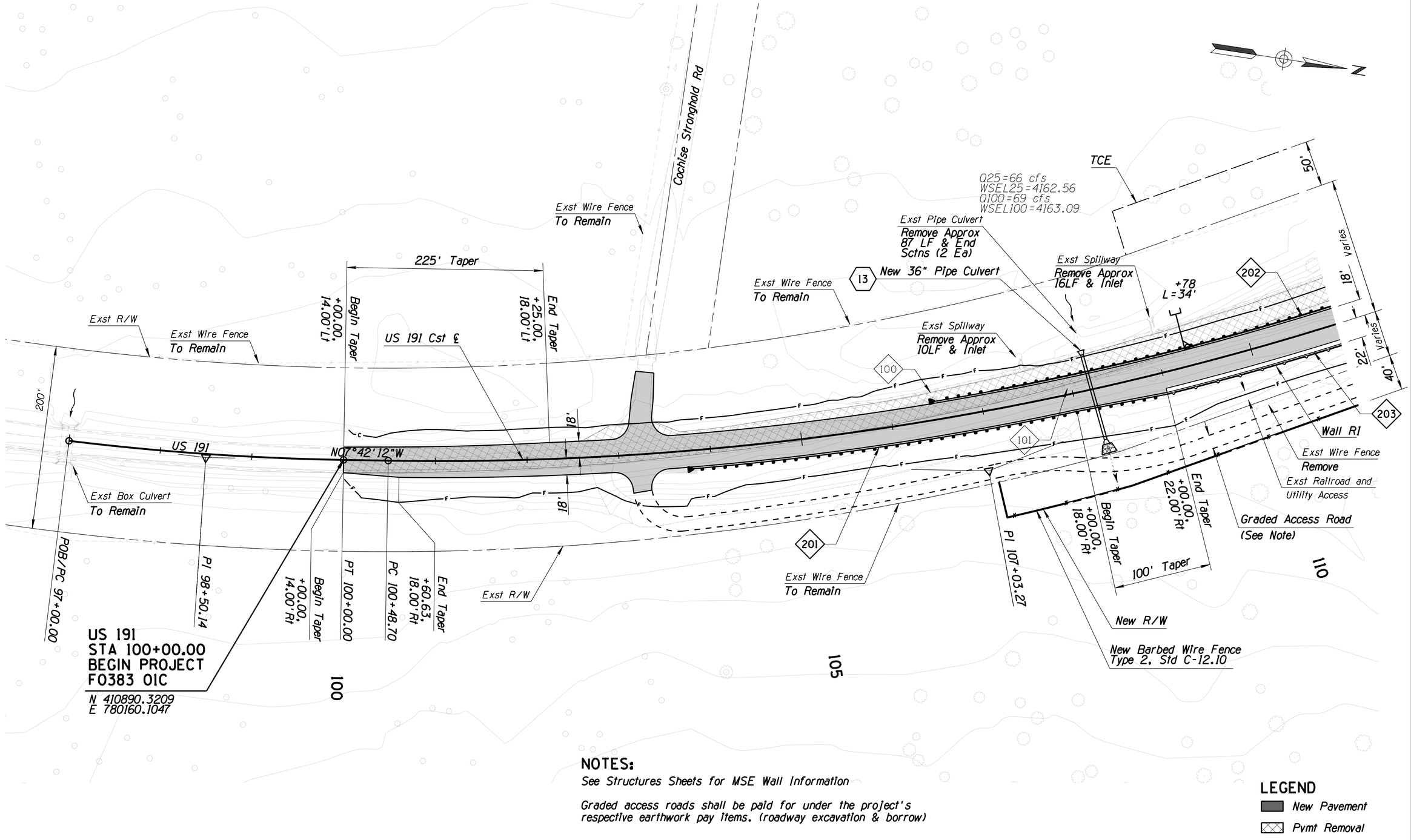
ROUTE: US 191
MILEPOST: 62.5-63.2
STRUCTURE NO.

F.H.W.A. Arizona Division

STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
ARIZ.	191 CH 062	191-A(205)T	17	91	

LOCATION: COCHISE OVERPASS
TRACS NO. F0383 01C
DWG NO: C-2.03
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NOTES:

See Structures Sheets for MSE Wall Information

Graded access roads shall be paid for under the project's respective earthwork pay items. (roadway excavation & borrow)

LEGEND

- New Pavement
- Pvmt Removal

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REGISTERED PROFESSIONAL ENGINEER — CERTIFICATE NO. 54085 — THOMAS W. WOLF — ARIZONA, U.S.A.

	NAME	DATE
DESIGN	T WOLF	6/25
DRAWN	T WOLF	6/25
CHECKED	A ALDERINK	6/25
TEAM LEADER	R RINGWALD	6/25

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADWAY DESIGN SECTION

US 191
ROADWAY PLAN SHEET
Sta 100+00 to 111+00

ROUTE	MILEPOST	STRUCTURE NO.
US 191	62.5-63.2	

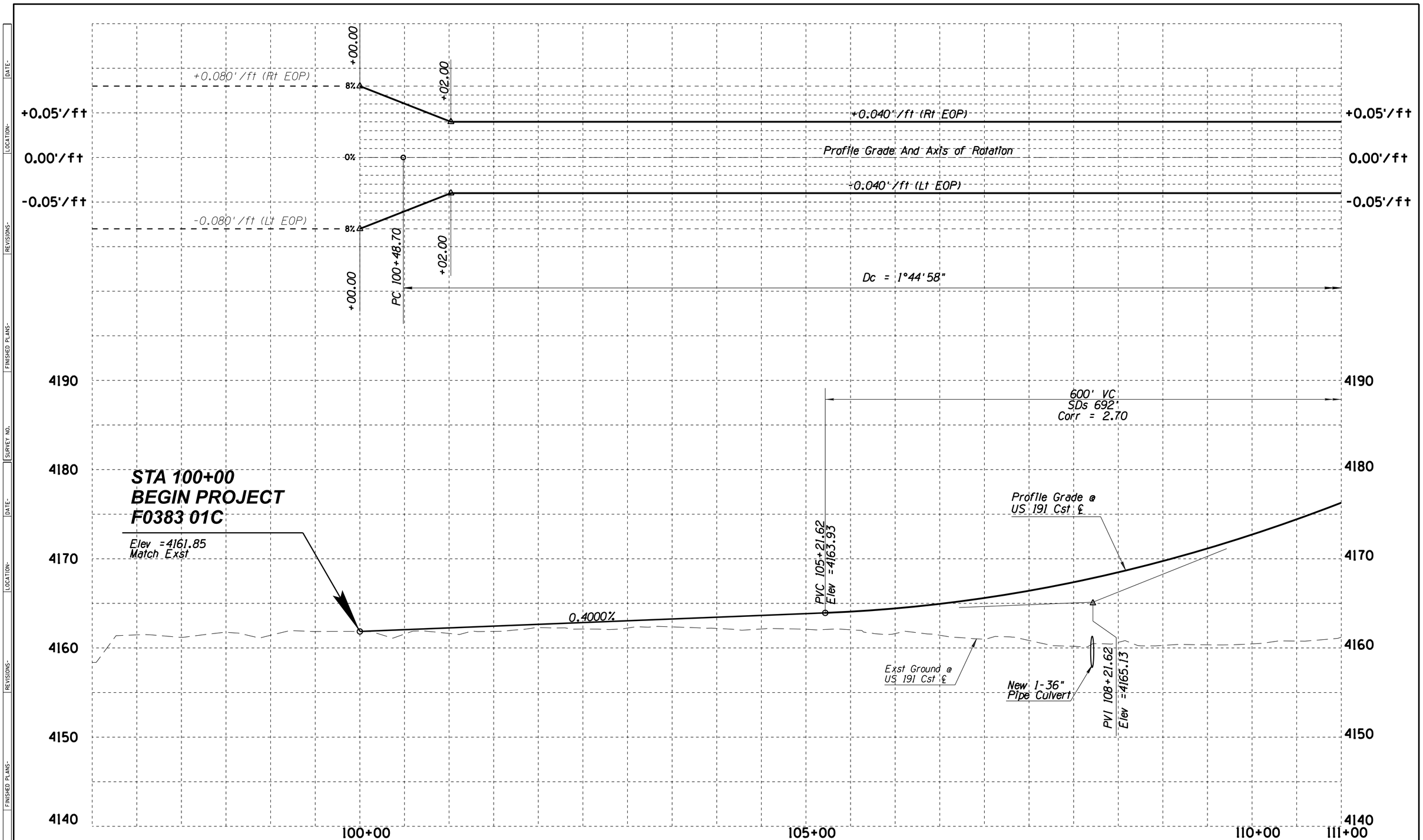
F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
	ARIZ.	191 CH 062	191-A(205)T	18	91	

LOCATION: COCHISE OVERPASS
DWG NO: C-03.01
TRACS NO. F0383 01C
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SURVEY NO. | FINISHED PLANS | REVISIONS | LOCATION | DATE

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SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-



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in Maricopa County: (602) 263-1100

REGISTERED PROFESSIONAL ENGINEER — CERTIFICATE NO. 54085 — THOMAS W. WOLF — Date Signed 06/30/25 — ARIZONA, U.S.A.

	NAME	DATE
DESIGN	T WOLF	6/25
DRAWN	T WOLF	6/25
CHECKED	A ALDERINK	6/25
TEAM LEADER	R RINGWALD	6/25

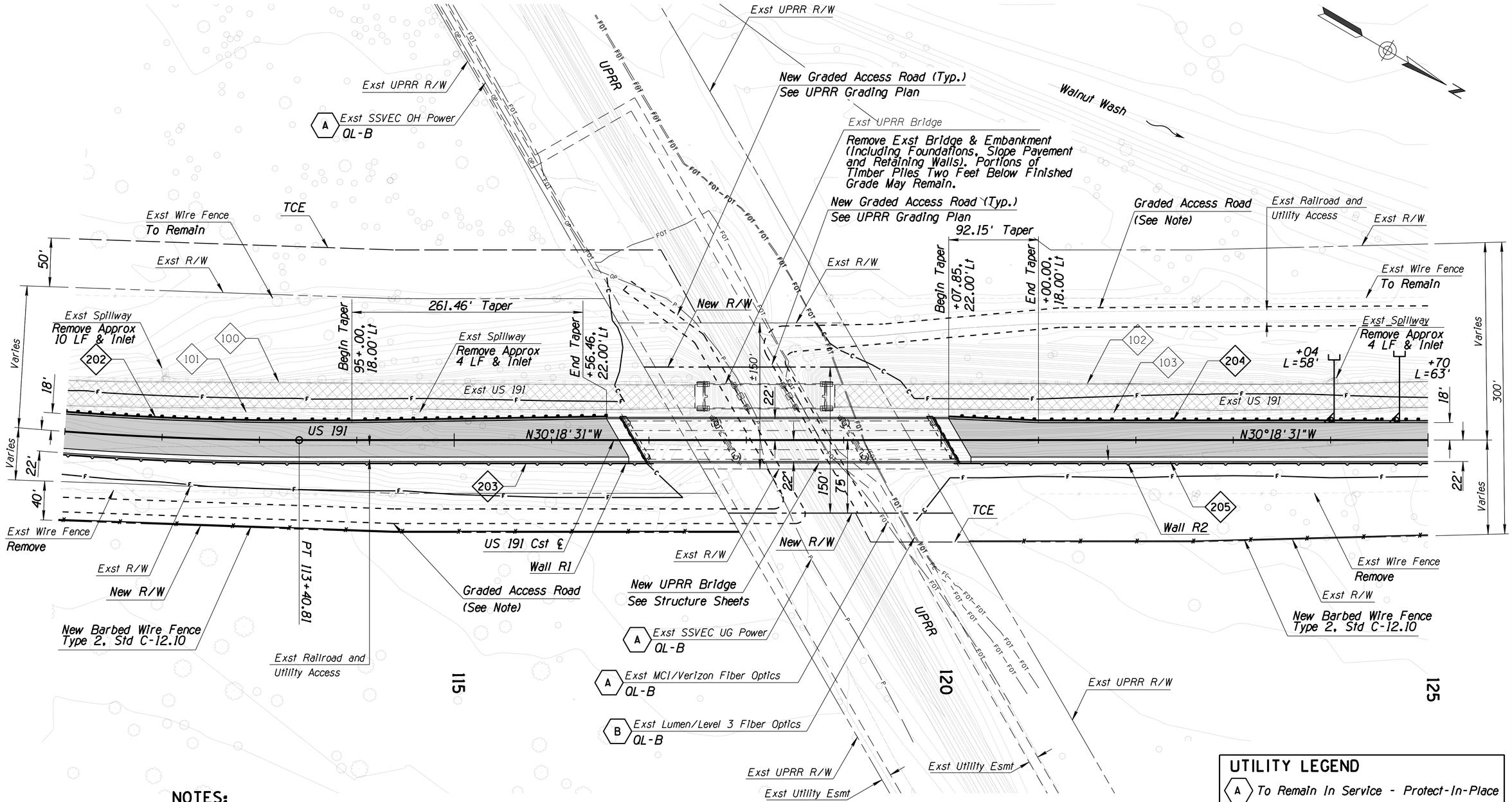
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ROADWAY DESIGN SECTION

US 191
PROFILE SHEET
Sta 100+00 to 111+00

ROUTE	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US 191	ARIZ.	191 CH 062	191-A(205)T	19	91	
MILEPOST 62.5-63.2	F.H.W.A. Arizona Division					
STRUCTURE NO.	LOCATION: COCHISE OVERPASS					DWG NO: C-3.02
	TRACS NO. F0383 01C					___ OF ___

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NOTES:

See Structures Sheets for MSE Wall Information

See DWG C-05.01 For UPRR Grading Plan

Graded access roads shall be paid for under the project's respective earthwork pay items. (roadway excavation & borrow)

LEGEND

- New Pavement
- Pvmt Removal

UTILITY LEGEND

- A To Remain In Service - Protect-In-Place
- B To Be Relocated By Others
- C To Be Abandoned or Removed
- D To Be Constructed By Contractor

Call at least two full working days before you begin excavation.
ARIZONA 811 Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
in Maricopa County: (602) 263-1100

REGISTERED PROFESSIONAL ENGINEER — 54085 THOMAS W. WOLF — Date Signed 06/20/25 — ARIZONA, U.S.A.

	NAME	DATE
DESIGN	T WOLF	6/25
DRAWN	T WOLF	6/25
CHECKED	A ALDERINK	6/25
TEAM LEADER	R RINGWALD	6/25

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADWAY DESIGN SECTION

US 191
ROADWAY PLAN SHEET
Sta 111+00 to 125+00

ROUTE	F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US 191		ARIZ.	191 CH 062	191-A(205)T	20	91	
MILEPOST 62.5-63.2	LOCATION COCHISE OVERPASS						DWG NO: C-03.03
STRUCTURE NO.	TRACS NO. F0383 01C						___ OF___

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

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SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

+0.05'/ft
0.00'/ft
-0.05'/ft

+0.040'/ft (Rt EOP)
-0.040'/ft (Lt EOP)

+09.81
+09.81
PT 113+40.81
+60.81
+62.81

Dc = 1°44'58"

Profile Grade And Axis of Rotation
-0.020'/ft (Rt & Lt EOP)

4200
4190
4180
4170
4160
4150

600' VC
SDs 692'
Corr = 2.70

PVT 111+21.62
Elev =4177.13

4.0000%

PVC 113+00.00
Elev =4184.27

300' VC
SDs 535'
Corr = -1.05

PVI 114+50.00
Elev =4190.27

Profile Grade @
US 191 Cst ℄

PVCC 116+00.00
Elev 4192.07

Exst UPRR ROW

500' VC
SDs 700'
Corr = -1.50

PVI 118+50.00
Elev =4195.07

New UPRR Bridge
See Structure Sheets

Exst UPRR ROW

PVCC 121+00.00
Elev 4192.07

300' VC
SDs 535'
Corr = -1.05

PVI 122+50.00
Elev =4190.27

PVT 124+00.00
Elev =4184.27

-4.0000%

Exst Ground @
US 191 Cst ℄

Exst Lumen FO
To Remain

Exst MCI/Verizon FO
To Remain

Exst Sulphur Springs
Valley UGE
To Remain

111+00 115+00 120+00 125+00

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REGISTERED PROFESSIONAL ENGINEER
54085
THOMAS W. WOLF
Date Signed 6/25/2025
ARIZONA, U.S.A.

	NAME	DATE
DESIGN	T WOLF	6/25
DRAWN	T WOLF	6/25
CHECKED	A ALDERINK	6/25
TEAM LEADER	R RINGWALD	6/25

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INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADWAY DESIGN SECTION

US 191
PROFILE SHEET
Sta 111+00 to 125+00

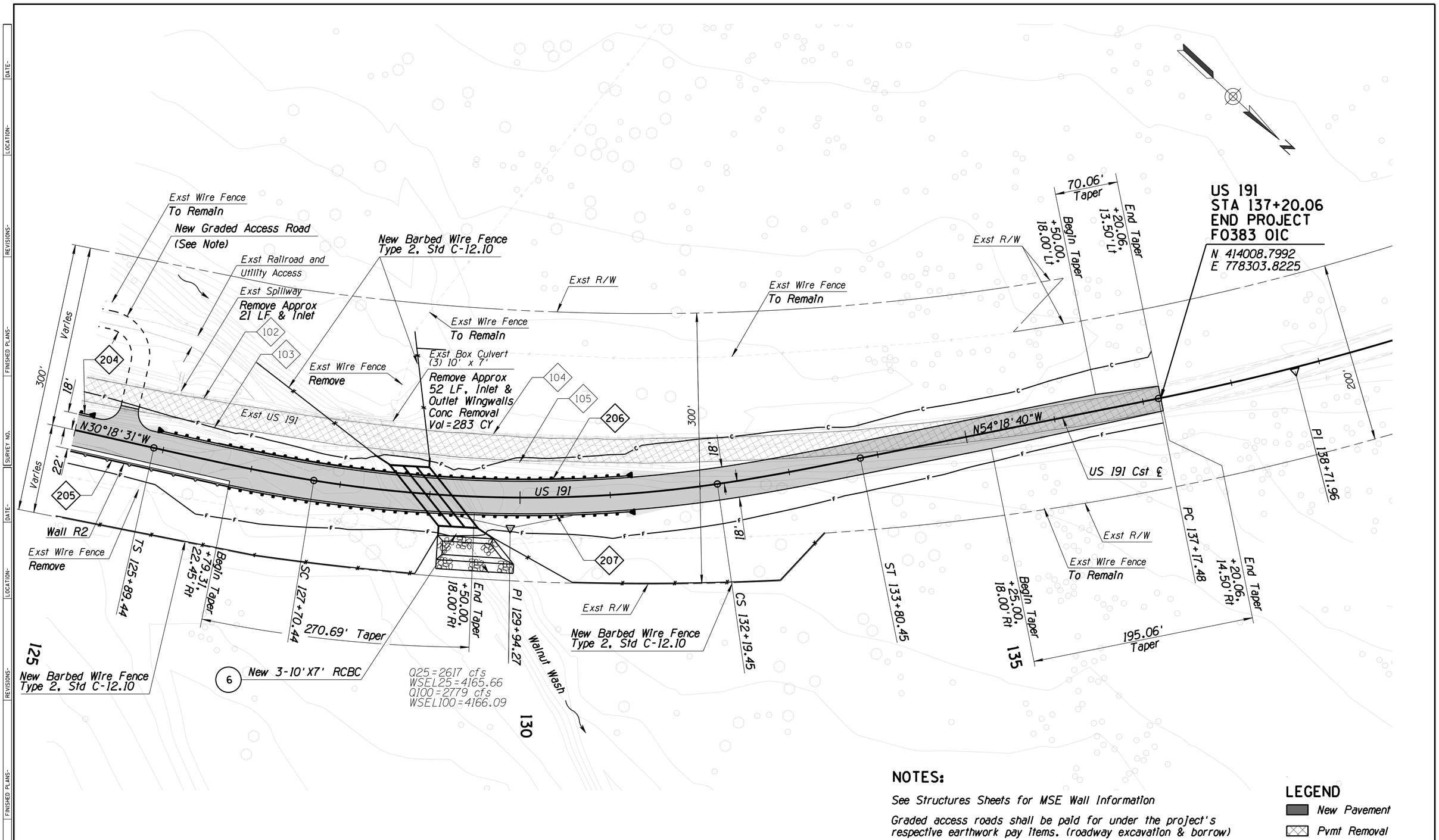
ROUTE: US 191
MILEPOST: 62.5-63.2
STRUCTURE NO.:

F.H.W.A. Arizona Division

STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
ARIZ.	191 CH 062	191-A(205)T	21	91	

LOCATION: COCHISE OVERPASS
DWG NO: C-3.04
TRACS NO. F0383 01C
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NOTES:

See Structures Sheets for MSE Wall Information

Graded access roads shall be paid for under the project's respective earthwork pay items. (roadway excavation & borrow)

LEGEND

- New Pavement
- Pvmt Removal

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CERTIFICATE NO. 54085 THOMAS W. WOLF REGISTERED PROFESSIONAL ENGINEER ARIZONA, U.S.A. Date Signed 06/20/25

	NAME	DATE
DESIGN	T WOLF	6/25
DRAWN	T WOLF	6/25
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INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADWAY DESIGN SECTION

US 191
ROADWAY PLAN SHEET
Sta 125+00 to 137+20

ROUTE: US 191
MILEPOST: 62.5-63.2
STRUCTURE NO.

F.H.W.A. Arizona Division

STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
ARIZ.	191 CH 062	191-A(205)T	22	91	

LOCATION: COCHISE OVERPASS
DWG NO: C-03.05
TRACS NO. F0383 01C
____ OF ____

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

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SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

+0.05'/ft
0.00'/ft
-0.05'/ft

+38.45
TS 125+89.44
+40.42
+70.44
SC 127+70.44
+0.071'/ft (Rt EOP)
-0.071'/ft (Lt EOP)
Profile Grade And Axis of Rotation
Dc = 3°52'17"
+19.45
CS 132+19.45
+80.45
ST 133+80.45
0.020'/ft (Rt EOP)
-0.020'/ft (Lt EOP)
+67.06
+67.06
+20.06
+20.06

+0.05'/ft
0.00'/ft
-0.05'/ft

4190
4180
4170
4160
4150
4140

600' VC
SDs 573'
Corr = 3.30

PVC 126+32.28
Elev =4174.98
-4.0000%
Profile Grade @
US 191 Cst ℄
PVI 129+32.28
Elev =4162.98
PVT 132+32.28
Elev =4164.18
0.4000%
Exst Ground @
US 191 Cst ℄
New 3-10'x7' RCBC

STA 137+20.06
END PROJECT
F0383 01C
Elev =4166.13
Match Exst

125+00
130+00
135+00

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in Maricopa County: (602) 263-1100

REGISTERED PROFESSIONAL ENGINEER
CERTIFICATE NO.
54085
THOMAS W. WOLF
Date Signed 06/30/25
ARIZONA, U.S.A.

	NAME	DATE
DESIGN	T WOLF	6/25
DRAWN	T WOLF	6/25
CHECKED	A ALDERINK	6/25
TEAM LEADER	R RINGWALD	6/25

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INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADWAY DESIGN SECTION

US 191
PROFILE SHEET
Sta 125+00 to 137+20

ROUTE: US 191
MILEPOST: 62.5-63.2
STRUCTURE NO.

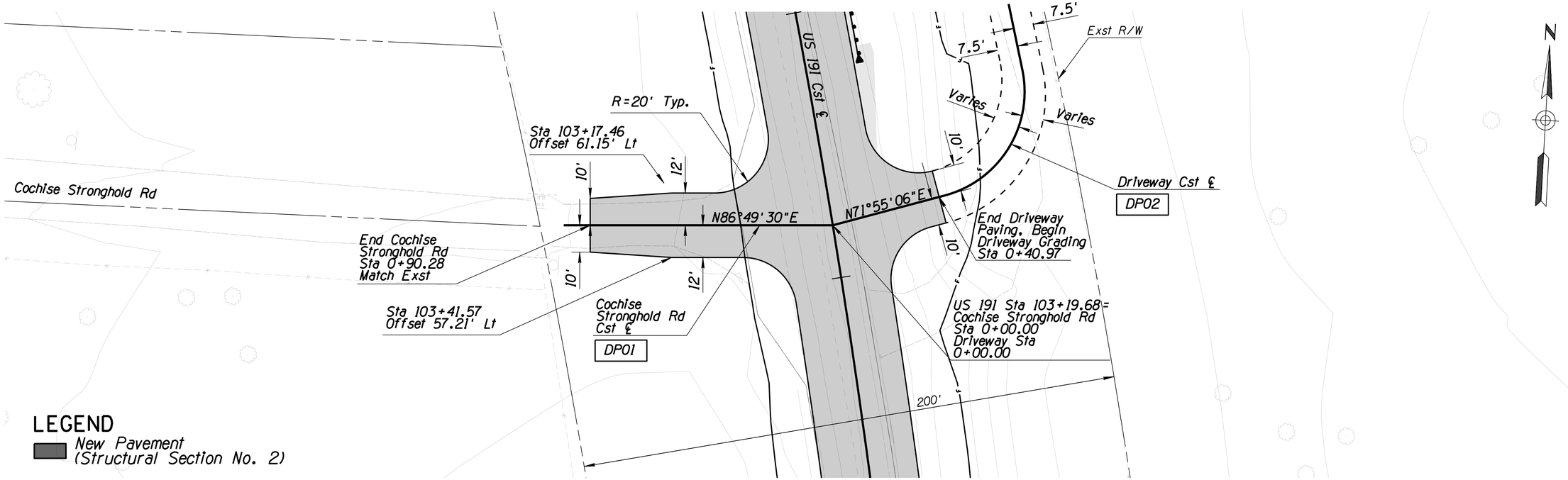
F.H.W.A. Arizona Division

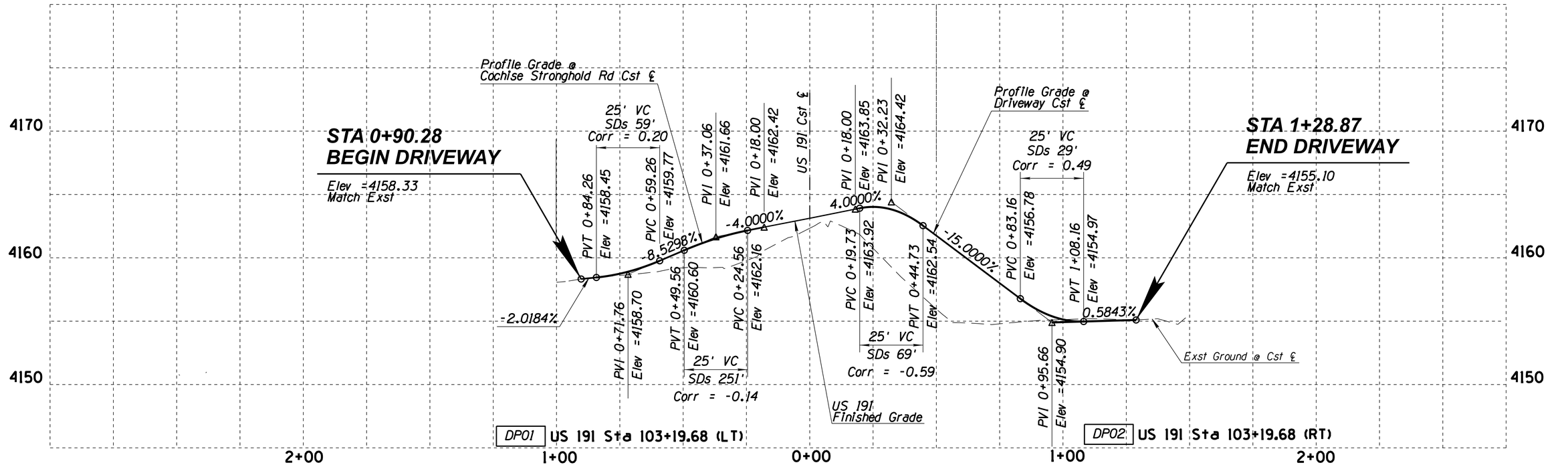
STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
ARIZ.	191 CH 062	191-A(205)T	23	91	

LOCATION: COCHISE OVERPASS
TRACS NO. F0383 01C
DWG NO: C-3.06
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SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-





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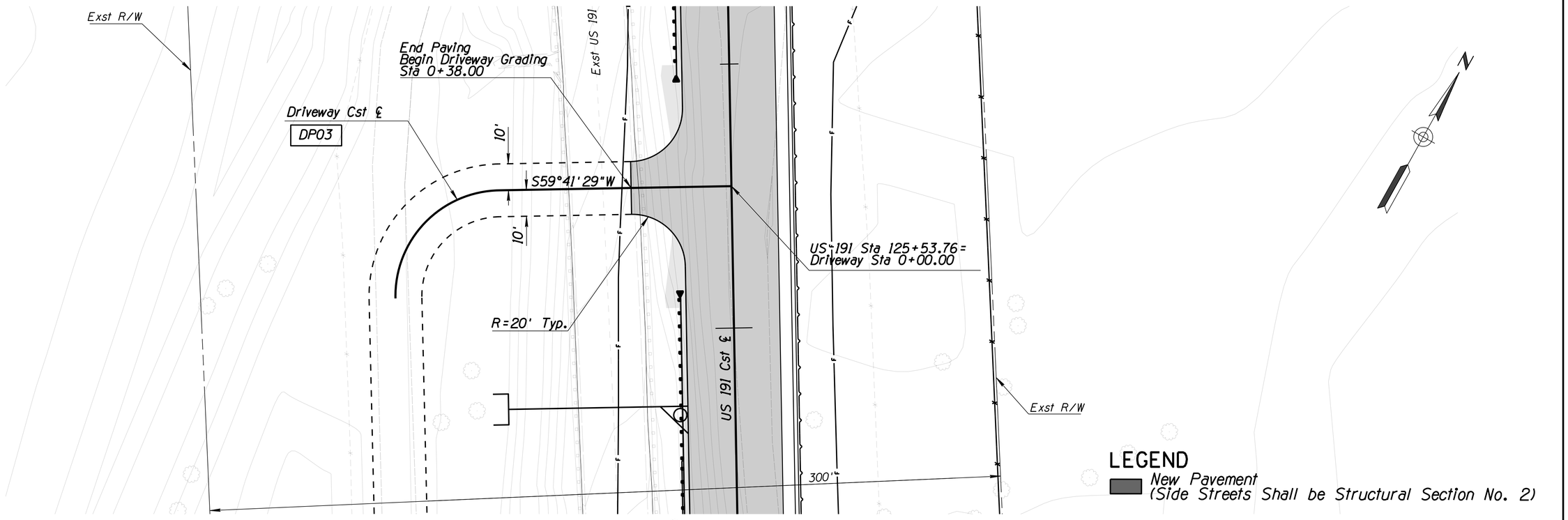
ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADWAY DESIGN SECTION

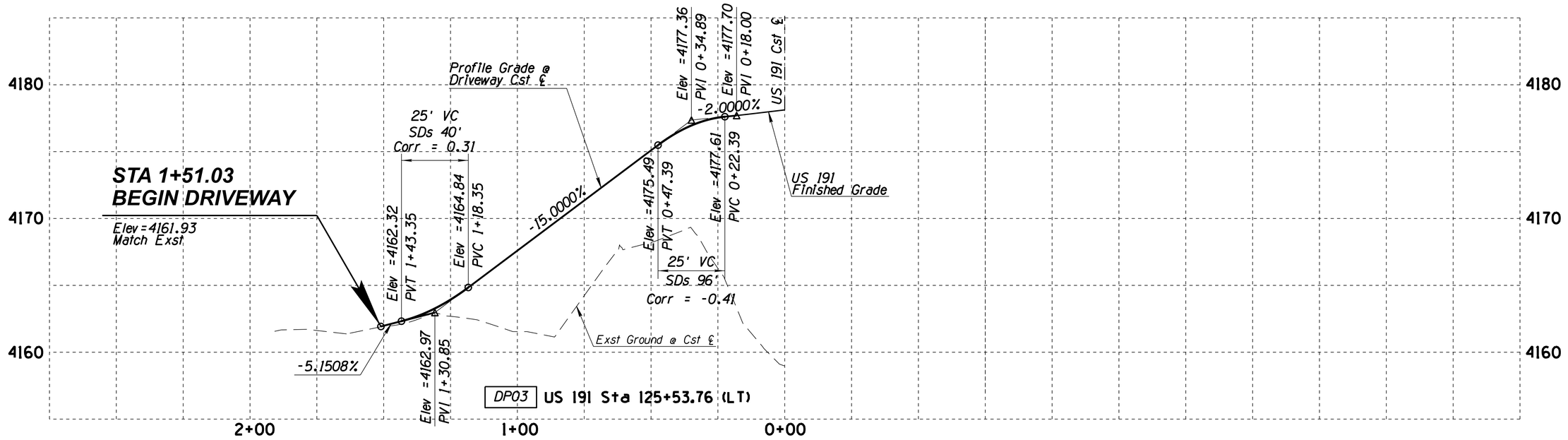
US 191
DRIVEWAY
PLAN AND PROFILE SHEET

ROUTE	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US 191	ARIZ.	191 CH 062	191-A(205)T	24	91	
MILEPOST 62.5-63.2	F.H.W.A. Arizona Division					
STRUCTURE NO.	LOCATION: COCHISE OVERPASS					DWG NO: C-4.01
	TRACS NO. F0383 01C					____ OF ____

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SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-





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ARIZONA, U.S.A.

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US 191
DRIVEWAY
PLAN AND PROFILE SHEET

ROUTE	F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US 191		ARIZ.	191 CH 062	191-A(205)T	25	91	
MILEPOST 62.5-63.2	LOCATION COCHISE OVERPASS						DWG NO: C-4.02
STRUCTURE NO.	TRACS NO. F0383 01C						___ OF ___

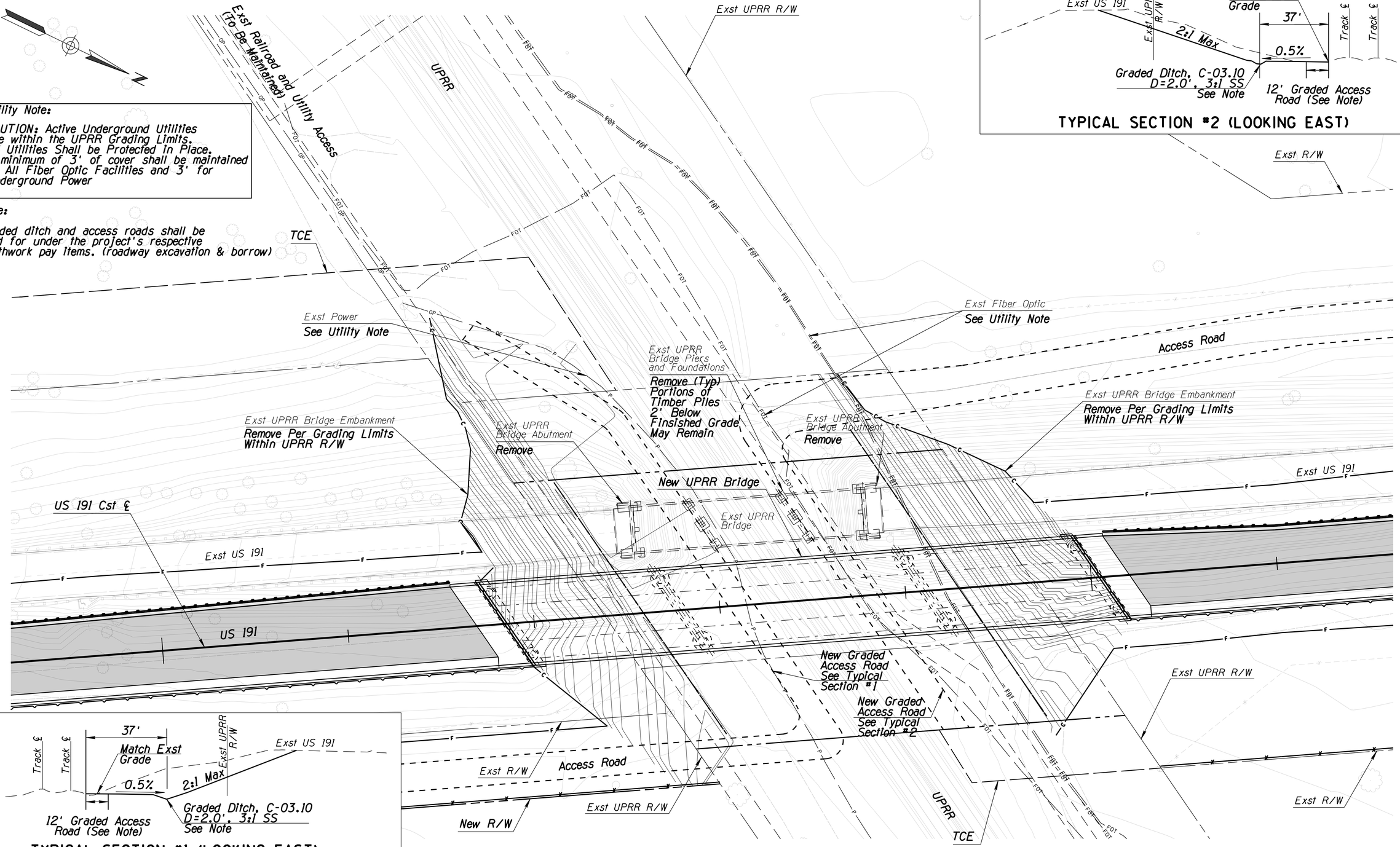
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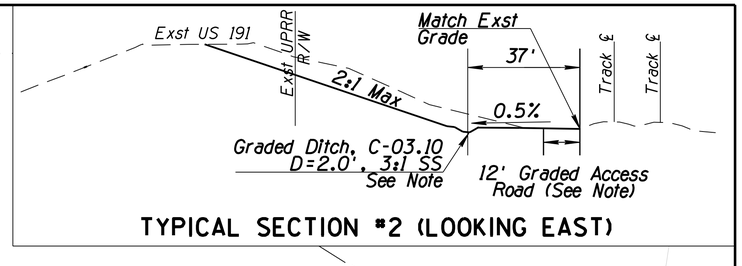
Utility Note:

CAUTION: Active Underground Utilities are within the UPRR Grading Limits. All Utilities Shall be Protected In Place. A minimum of 3' of cover shall be maintained on All Fiber Optic Facilities and 3' for Underground Power

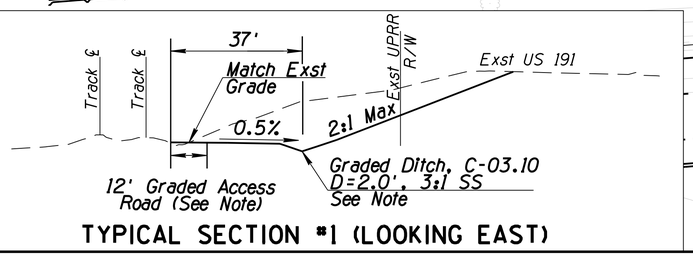
Note:

Graded ditch and access roads shall be paid for under the project's respective earthwork pay items. (roadway excavation & borrow)





TYPICAL SECTION #2 (LOOKING EAST)



TYPICAL SECTION #1 (LOOKING EAST)

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REGISTERED PROFESSIONAL ENGINEER — CERTIFICATE NO. 54085 — THOMAS W. WOLF — Date Signed 06/25/2025 — ARIZONA, U.S.A.

	NAME	DATE
DESIGN	T WOLF	6/25
DRAWN	T WOLF	6/25
CHECKED	A ALDERINK	6/25
TEAM LEADER	R RINGWALD	6/25

TRANSPORTATION

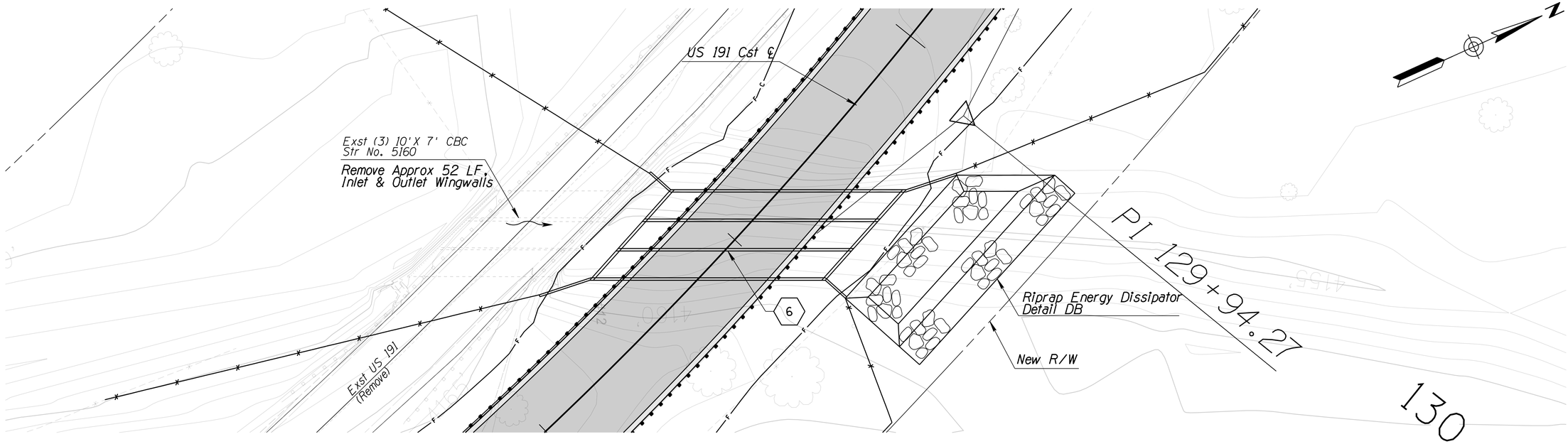
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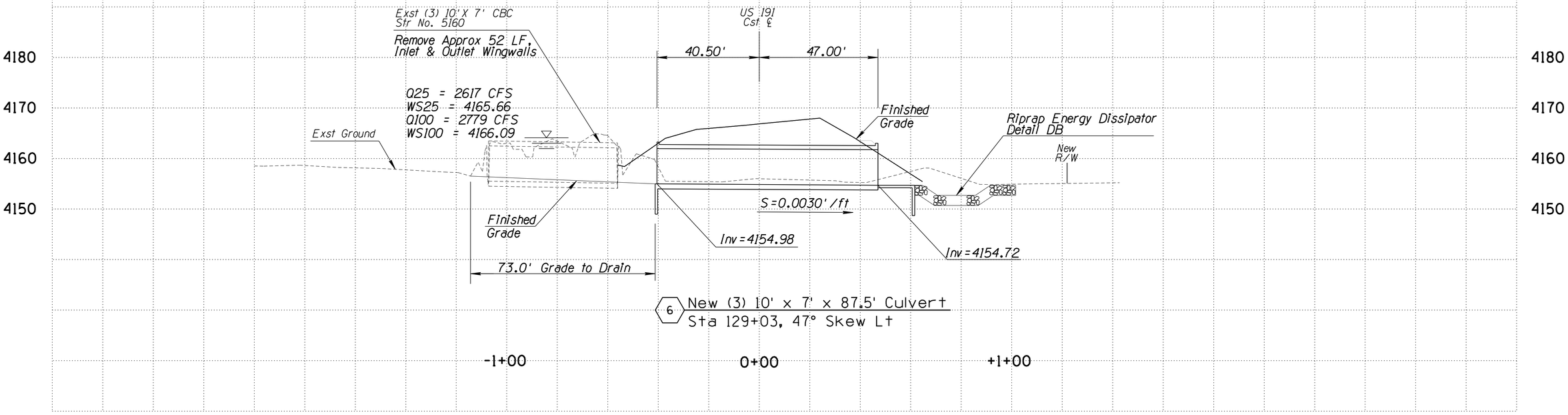
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INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADWAY DESIGN SECTION

US 191
UPRR GRADING PLAN

ROUTE	F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US 191		ARIZ.	191 CH 062	191-A(205)T	26	91	
MILEPOST 62.5-63.2	LOCATION: COCHISE OVERPASS						DWG NO: C-5.01
STRUCTURE NO.	TRACS NO. F0383 01C						___ OF ___

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-





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Registered Professional Engineer — 26882 DANIEL STOUGH — Date Signed 6/25/25 — ARIZONA, U.S.A.

	NAME	DATE
DESIGN	K LEANDER	6/25
DRAWN	K LEANDER	6/25
CHECKED	D STOUGH	6/25
TEAM LEADER	R RINGWALD	6/25

TRANSPORTATION
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ARIZONA DEPARTMENT OF TRANSPORTATION
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ROADWAY DESIGN SECTION

CULVERT 6 PLAN & PROFILE

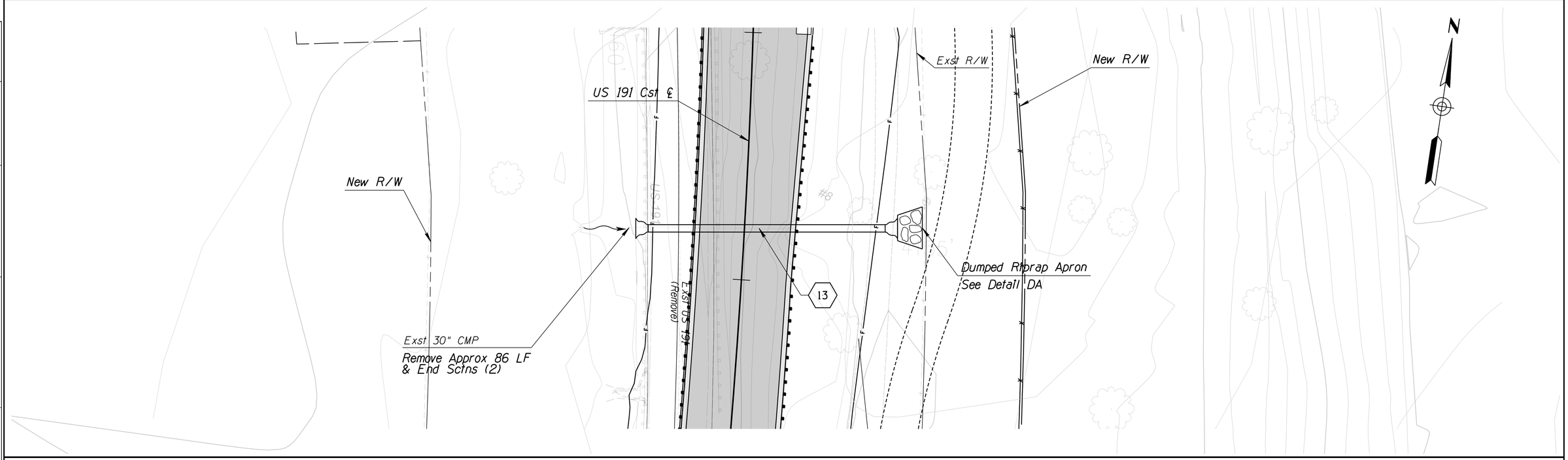
ROUTE: US 191
MILEPOST: 62.09-63.66
STRUCTURE NO.:

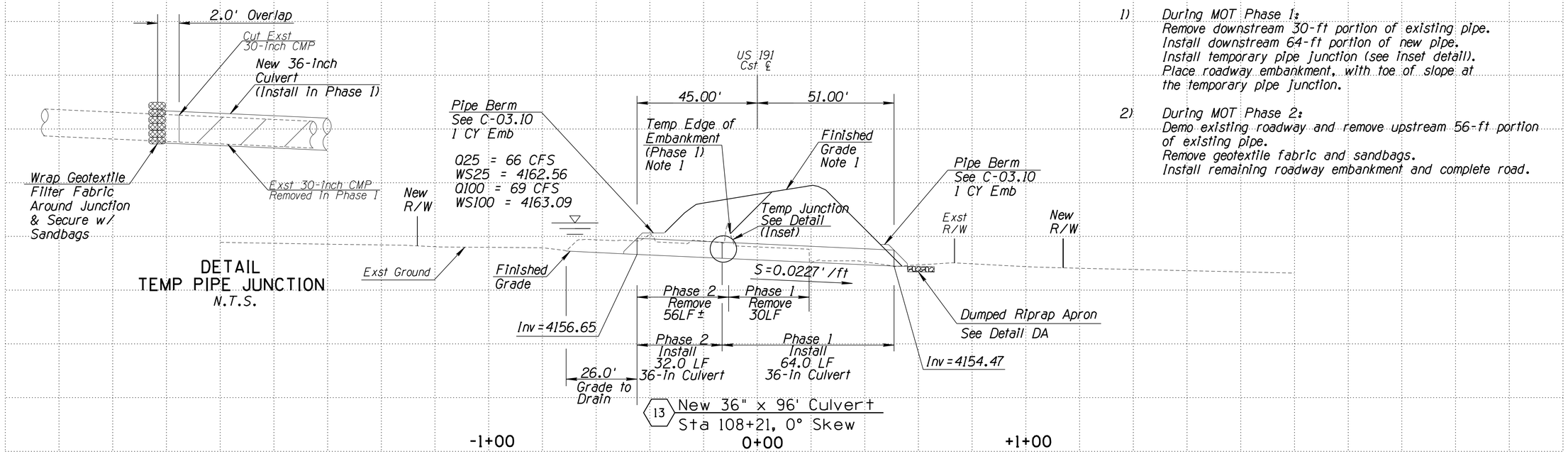
F.H.W.A. Arizona Division

STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
ARIZ.	191 CH 062	191-A(205)T	27	91	

LOCATION: COCHISE OVERPASS
DWG NO: D-02.01
TRACS NO. F0383 01C
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PHASING NOTES:

1) During MOT Phase 1:
Remove downstream 30-ft portion of existing pipe.
Install downstream 64-ft portion of new pipe.
Install temporary pipe junction (see inset detail).
Place roadway embankment, with toe of slope at
the temporary pipe junction.

2) During MOT Phase 2:
Demo existing roadway and remove upstream 56-ft portion
of existing pipe.
Remove geotextile fabric and sandbags.
Install remaining roadway embankment and complete road.

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Registered Professional Engineer — 26882 DANIEL STOUGH — Date Signed 6/25/25 — ARIZONA, U.S.A.

	NAME	DATE
DESIGN	K LEANDER	6/25
DRAWN	K LEANDER	6/25
CHECKED	D STOUGH	6/25
TEAM LEADER	R RINGWALD	6/25

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CULVERT 13 PLAN & PROFILE

ROUTE	F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US 191		ARIZ.	191 CH 062	191-A(205)T	28	91	
MILEPOST 62.09-63.66	LOCATION: COCHISE OVERPASS						DWG NO: D-02.02
STRUCTURE NO.	TRACS NO. F0383 01C						____ OF ____

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

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SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

TRAFFIC CONTROL NOTES:

1. The traffic control plans represent a suggested method for traffic control during construction. The contractor may prepare another traffic control plan in accordance with section 701 of the Specifications. All traffic control plans are subject to approval of the Engineer before beginning construction.

2. Adjustments to the details of these traffic control plans and requirements may be necessary due to construction activities or as directed by the Engineer.

3. All existing signs in conflict with the construction signs shall be removed, relocated, or covered in place, as directed by the Engineer. The contractor shall store and reinstall any signs which are to be removed or relocated in a manner approved by the Engineer at no additional cost to the Department.

4. All existing pavement markings in conflict with the traffic control plans shall be removed by approved methods, as indicated in Section 701 of the Specifications.

5. The retroreflective sheeting on all construction signs shall meet the minimum criteria established in section 1007 of the Specifications and Traffic Guidelines & Processes 380.

6. All construction signs shall have black letters on an orange background, except as otherwise noted.

7. 2 flags shall be mounted on top of all construction signs except the "End Road Work Thank You" sign. Type A flashing warning lights shall be required on all nighttime construction signs except the "End Road Work Thank You" sign.

8. Construction signs shall not be displayed to traffic more than 24 hours prior to the actual start of construction. These signs may be installed sooner but they must be covered or turned away from traffic. The cost for covering or turning them shall be considered part of the sign installation cost. No further compensation will be made. These signs shall be removed within 24 hours after completion of the construction activities.

9. When traffic control devices are not in use, they shall be moved at least 30 feet from the roadway and covered or turned away from traffic.

10. For night work; a type C steady-burning yellow light shall be mounted on every channelizing device in tapers and on tangents.

11. Channelizing devices shall be placed 40 feet on center in tapers and 80 feet on center in tangents, except as otherwise noted on plans.

12. All drawings are schematic only and not to scale. All dimensions are in feet, unless otherwise noted.

13. Signs installed on embedded posts shall be mounted at a minimum height of 7 feet as measured from the bottom of the sign to the near edge of the pavement. All other short-term signs may be installed on spring stands, at the height recommended by the spring stand manufacturer.

14. The nearest edge or corner of a sign shall be approximately 12 feet from the nearest edge of pavement for all signs mounted on embedded posts.

References:

Manual On Uniform Traffic Control Devices Part 6, Temporary Traffic Control, 2009 Edition as amended by the January 2012 ADOT supplement

ADOT Traffic Control Design Guidelines, 2019.

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Registered Professional Engineer — 45815 KATE E. BONDY — Date Signed 06/25/25 — ARIZONA, U.S.A.

	NAME	DATE
DESIGN	J MUNOZ	06/25
DRAWN	A MINUTELLO	06/25
CHECKED	K BONDY	06/25
TEAM LEADER	R RINGWALD	06/25

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TRAFFIC DESIGN SECTION

TRAFFIC CONTROL GENERAL NOTES

ROUTE		STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US 191	F.H.W.A. Arizona Division	ARIZ.	191 CH 062	191-A(205)T	29	91	
MILEPOST 62.09-63.66	LOCATION COCHISE OVERPASS						DWG NO: TC-01.01
STRUCTURE NO. 00157	TRACS NO. F0383 01C						___ OF___

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SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

ESTIMATED QUANTITIES

ITEM NO	ITEM	UNITS	TRAFFIC CONTROL					
			Advance Warning	PHASE 1	PHASE 2	PHASE 3	PHASE 4	TOTAL QUANTITY
	ESTIMATED PHASE CONSTRUCTION DURATION (CALENDAR DAYS)	*DAYS*	682	472	28	28	140	682
7010005	*MAINTENANCE AND PROTECTION OF TRAFFIC*	*L. SUM*						1
7015010	*TEMPORARY CONCRETE BARRIER (INSTALLATION AND REMOVAL)*	*L.FT./DAY*	0	2,560	1,900	3,720	0	8,180
7015020	*TEMPORARY IMPACT ATTENUATORS (INSTALLATION AND REMOVAL)*	*EACH-DAY*	0	3	2	2	2	9
7016020	*TEMPORARY CONCRETE BARRIER (IN-USE)*	*L.FT./DAY*	0	1,208,320	104,160	104,160	336,000	1,752,640
7016021	*TEMPORARY IMPACT ATTENUATORS (IN-USE)*	*EACH-DAY*	0	1,416	84	56	280	1,836
7016067	*CHANGEABLE MESSAGE BOARD (CONTRACTOR FURNISHED)*	*EACH-DAY*	1,392	0	0	0	0	1,392
7016079	*FLAGGING SERVICES (UNIFORMED OFFICER)*	*HOUR*	480	0	0	0	0	480
7017020	*TEMPORARY AND PORTABLE TRAFFIC CONTROL SIGNAL (INSTALL & REMOVE)*	*L.SUM*						1
7017025	*TEMPORARY AND PORTABLE TRAFFIC CONTROL SIGNAL (IN USE)*	*DAY*	0	0	112	112	0	224

Above table shows the quantity of each item multiplied by the estimated days (calendar days) per phase.

LEGEND

- *Changeable Message Board (CMB)*
- *Traffic Sign (Embedded Post)*
- *Flags*
- *Warning Light*
- *Work Zone*

CONSTRUCTION DURATION

Calendar Days per Stage:

Advance Warning Signing - 682 days

Phase 1 - 472 days

Phase 2 - 28 days

Phase 3 - 28 days

Phase 4 - 140 days

Total Calendar Days Duration:
682 Days

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Registered Professional Engineer
45815
KATE E. BONDY
Date Signed 06/25/25
ARIZONA, U.S.A.

	NAME	DATE
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DRAWN	A MINUTELLO	06/25
CHECKED	K BONDY	06/25
TEAM LEADER	R RINGWALD	06/25

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TRAFFIC DESIGN SECTION

TRAFFIC CONTROL QUANTITIES AND LEGENDS

ROUTE		STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US 191	F.H.W.A. Arizona Division	ARIZ.	191 CH 062	191-A(205)T	30	91	
MILEPOST 62.09-63.66	LOCATION: COCHISE OVERPASS						DWG NO: TC-01.02
STRUCTURE NO. 00157	TRACS NO. F0383 01C						___ OF ___

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SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

MAINTENANCE OF TRAFFIC

Phase No.	CONSTRUCTION ACTIVITY	TRAFFIC CONTROL	COMMENTS
Advance Warning (682 Days)	On US 191 install: - Advance Warning	- Provide standard long term advance warning signs, changeable message board signing per DWG TC-01.04 of these traffic control plans. Contractor shall place signs and changeable message boards per ADOT TCDG SA-15.	- Advance warning signs shall be placed on embedded posts for the duration of the project unless otherwise noted.
		US-191 TRAFFIC CONTROL	
Phase 1 (472 Days)	- Construct partial roady embankment preloading fill, Walnut Wash Culvert, and pipe culvert extention - Construct New US 191 Bridge and Approach and Departure off current alignment from Station 107+00 to Station 133+00	- Maintain Traffic on Existing US 191. - Protect Work Zone with TCB. - Taper TCB at 50:1 to meet Existing Bridge barrier ends.	- Pre-loading fill shall remain in place for four months after placement - Maintain each lane of traffic in each direction on US 191.
Phase 2 (28 Days)	- Construct New US 191 Northbound Tie-In on Both Ends. - Install Temporary Pavement at tiein in order to maintain 14' lane in next phase of construction	- Maintain Traffic via Temporary Traffic Signals on Both Ends of the Project Area and place traffic control and signs per MUTCD Figure 6H-12. - Maintain Protection of Work Zone with TCB. - Reduce speed to 25 mph on external approaches.	- Contractor to install TCB tangent to tie-in work zone and 100 feet before and after work zone. - Speed reduction will be implemented utilizing spring stands, additional "Road Work Ahead" signs and temporary relocation of CMBs.
Phase 3 (28 Days)	- Construct New US 191 Southbound Tie-In on Both Ends.	- Maintain Traffic via Temporary Traffic Signals on Both Ends of the Project Area and place traffic control and signs per MUTCD Figure 6H-12. - Shift traffic onto new US 191. - Reduce speed to 25 mph on external approaches. - Protect west side non-constructed portion of US 191 with TCB between tie-ins.	- Contractor to install TCB tangent to tie-in work zone and 100 feet before and after work zone. - Speed reduction will be implemented utilizing spring stands, additional "Road Work Ahead" signs and temporary relocation of CMBs.
Phase 4 (140 Days)	- Construct West Side of New US 191 Pavement Section and Fill Slopes.	- Protect Work zone with TCB along West Side of new US 191.	- Maintain one lane in each direction of travel on US 191.

NOTE:

1. The above duration is in calendar days.

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Professional Engineer — 45815 KATE E. BONDY — Date Signed 06/25/25 — ARIZONA, U.S.A.

	NAME	DATE
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DRAWN	A MINUTELLO	06/25
CHECKED	K BONDY	06/25
TEAM LEADER	R RINGWALD	06/25

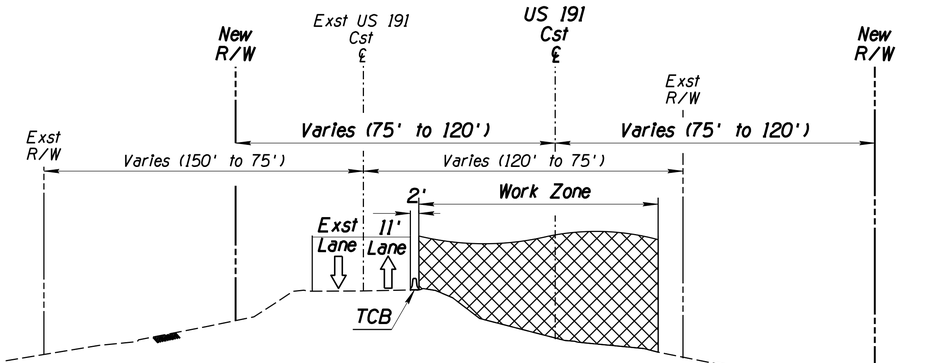
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TRAFFIC DESIGN SECTION

TRAFFIC CONTROL MAINTENANCE OF TRAFFIC

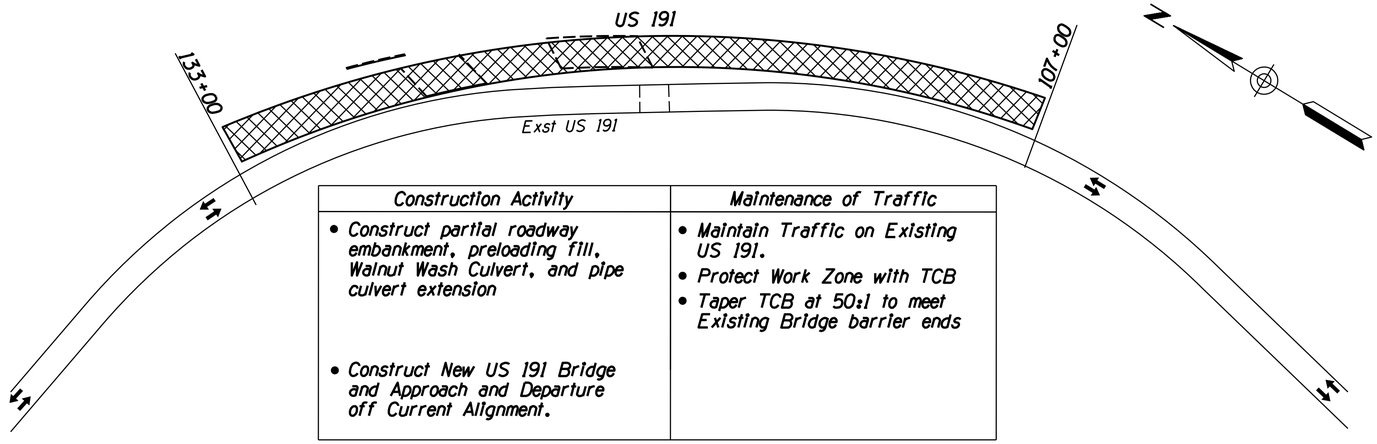
ROUTE	F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US 191		ARIZ.	191 CH 062	191-A(205)T	31	91	
MILEPOST 62.09-63.66	LOCATION COCHISE OVERPASS						DWG NO: TC-01.03
STRUCTURE NO. 00157	TRACS NO. F0383 01C						___ OF ___

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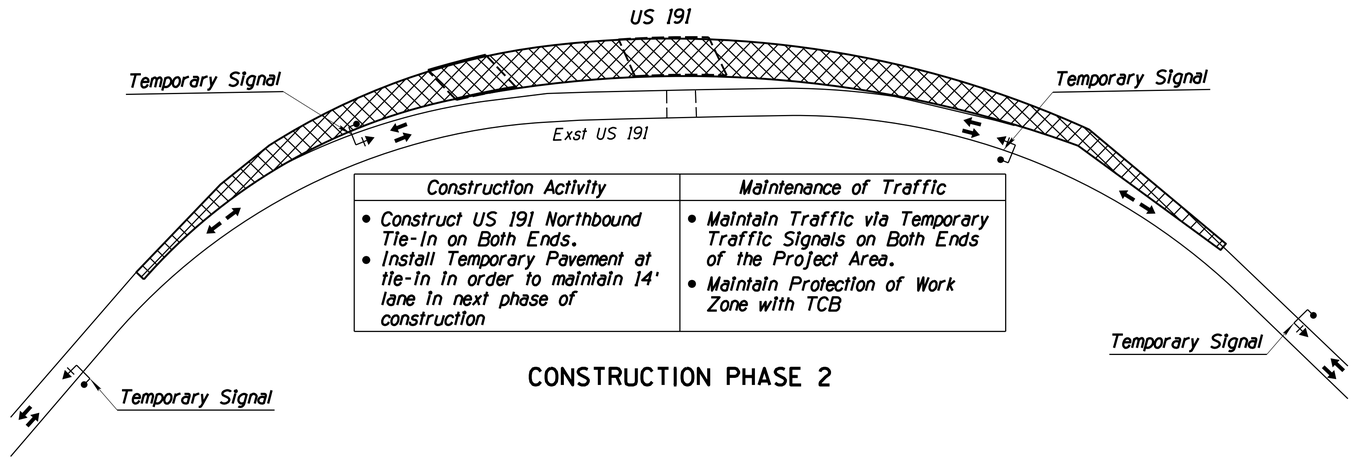
TYPICAL SECTION

Phase 1
Sta 102+00 to 127+50
Phase 2
Sta 111+92 to 130+51



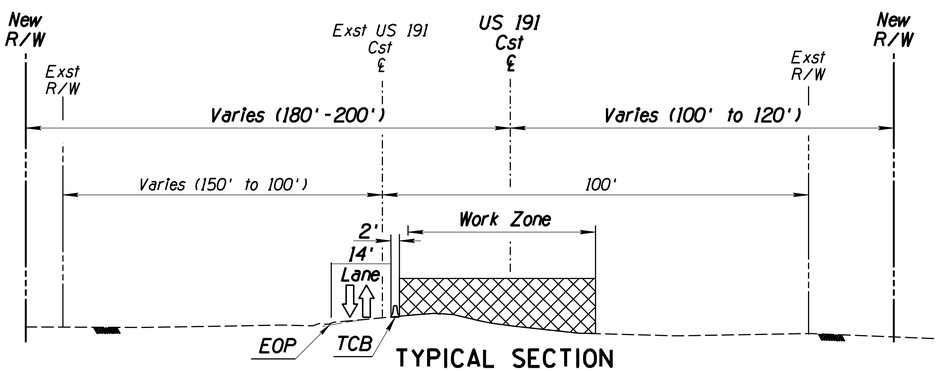
Construction Activity	Maintenance of Traffic
• Construct partial roadway embankment, preloading fill, Walnut Wash Culvert, and pipe culvert extension • Construct New US 191 Bridge and Approach and Departure off Current Alignment.	• Maintain Traffic on Existing US 191. • Protect Work Zone with TCB • Taper TCB at 50:1 to meet Existing Bridge barrier ends

CONSTRUCTION PHASE 1



Construction Activity	Maintenance of Traffic
• Construct US 191 Northbound Tie-In on Both Ends. • Install Temporary Pavement at tie-in in order to maintain 14' lane in next phase of construction	• Maintain Traffic via Temporary Traffic Signals on Both Ends of the Project Area. • Maintain Protection of Work Zone with TCB

CONSTRUCTION PHASE 2



TYPICAL SECTION

Phase 2
Sta 132+84 to Sta 137+20
Sta 100+00 to Sta 109+39

LEGEND:

- Work Zone
- Traffic Flow Arrow
- Temporary Traffic Signal

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ARIZONA 811 Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
in Maricopa County: (602) 263-1100

Registered Professional Engineer — 45815 KATE E. BONDY — Date Signed 06/25/25 — ARIZONA, U.S.A.

	NAME	DATE
DESIGN	J MUNOZ	06/25
DRAWN	A MINUTELLO	06/25
CHECKED	K BONDY	06/25
TEAM LEADER	R RINGWALD	06/25

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
TRAFFIC DESIGN SECTION

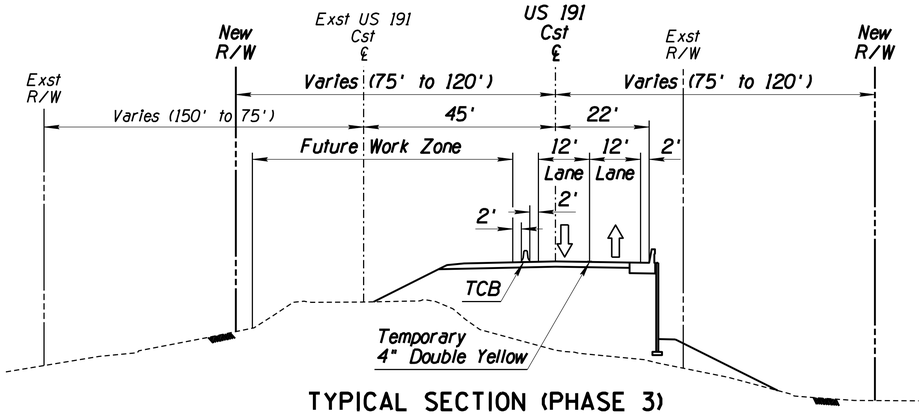
CONSTRUCTION SEQUENCING PHASES 1 - 2

ROUTE	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US 191	ARIZ.	191 CH 062	191-A(205)T	32	91	
MILEPOST 62.09-63.66	LOCATION: COCHISE OVERPASS					DWG NO: TC-02.01
STRUCTURE NO.	TRACS NO. F0383 01C					___ OF ___

F.H.W.A. Arizona Division

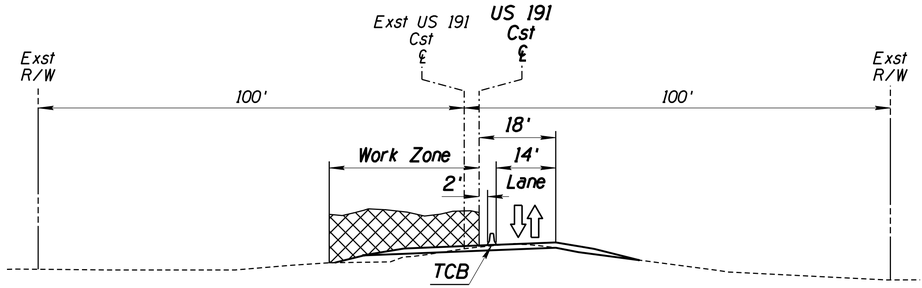
SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

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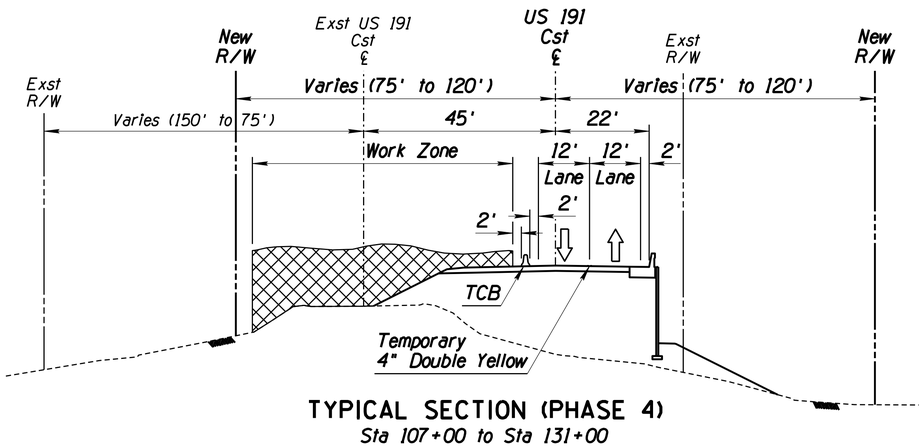
TYPICAL SECTION (PHASE 3)

Sta 107+00 to Sta 131+00



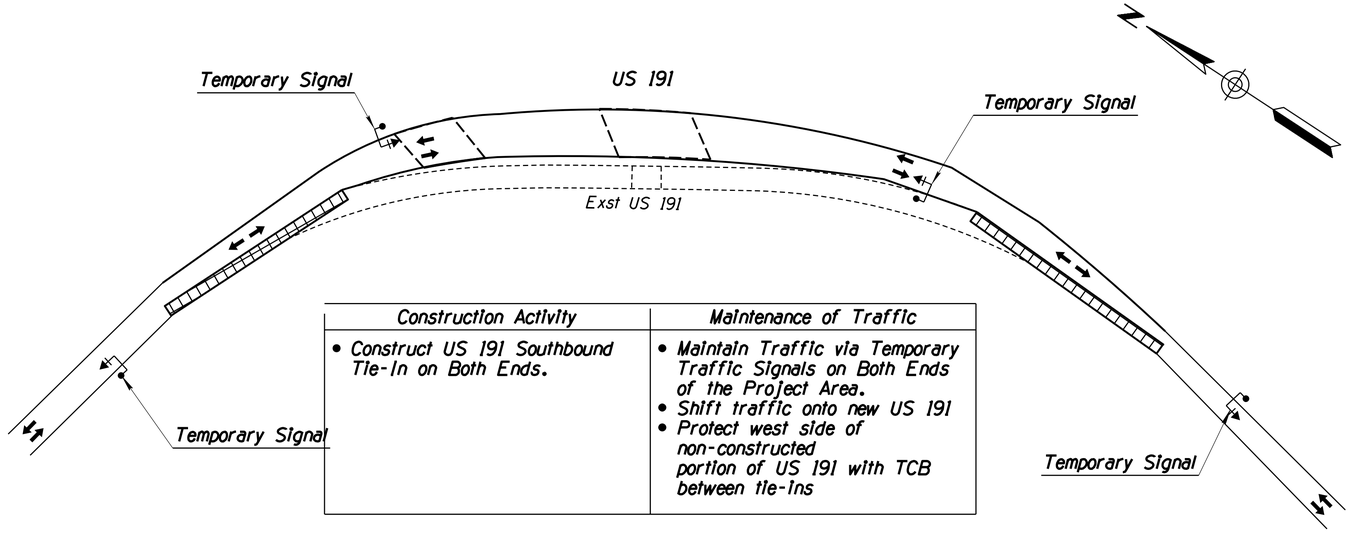
TYPICAL SECTION (PHASE 3)

Sta 100+00 to Sta 104+00
Sta 133+12 to Sta 137+20



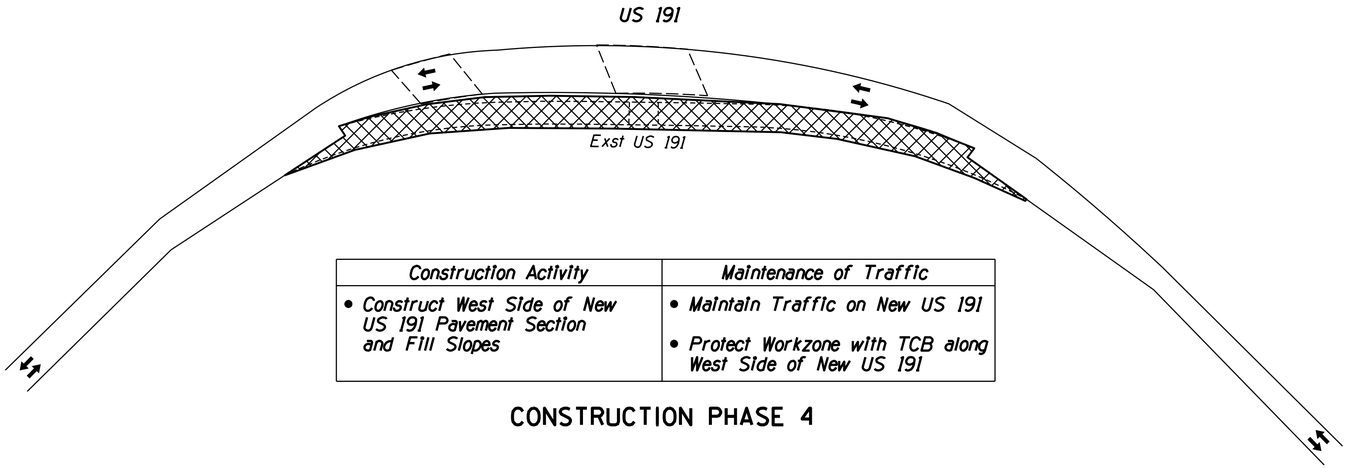
TYPICAL SECTION (PHASE 4)

Sta 107+00 to Sta 131+00



Construction Activity	Maintenance of Traffic
• Construct US 191 Southbound Tie-In on Both Ends.	• Maintain Traffic via Temporary Traffic Signals on Both Ends of the Project Area. • Shift traffic onto new US 191 • Protect west side of non-constructed portion of US 191 with TCB between tie-ins

CONSTRUCTION PHASE 3



Construction Activity	Maintenance of Traffic
• Construct West Side of New US 191 Pavement Section and Fill Slopes	• Maintain Traffic on New US 191 • Protect Workzone with TCB along West Side of New US 191

CONSTRUCTION PHASE 4

LEGEND:

- Work Zone
- Traffic Flow Arrow
- Temporary Traffic Signal

Call at least two full working days before you begin excavation.
ARIZONA 811 Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
in Maricopa County: (602) 263-1100

Registered Professional Engineer
45815 KATE E. BONDY
Date Signed 06/25/25
ARIZONA, U.S.A.

	NAME	DATE
DESIGN	J MUNOZ	06/25
DRAWN	A MINUTELLO	06/25
CHECKED	K BONDY	06/25
TEAM LEADER	R RINGWALD	06/25

TRANSPORTATION
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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
TRAFFIC DESIGN SECTION

CONSTRUCTION SEQUENCING PHASES 3 - 4

ROUTE	MILEPOST	STRUCTURE NO.
US 191	62.09-63.66	

F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
	ARIZ.	191 CH 062	191-A(205)T	33	91	

LOCATION: COCHISE OVERPASS
DWG NO: TC-02.02
TRACS NO. F0383 01C
___ OF ___

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

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① ROAD WORK AHEAD

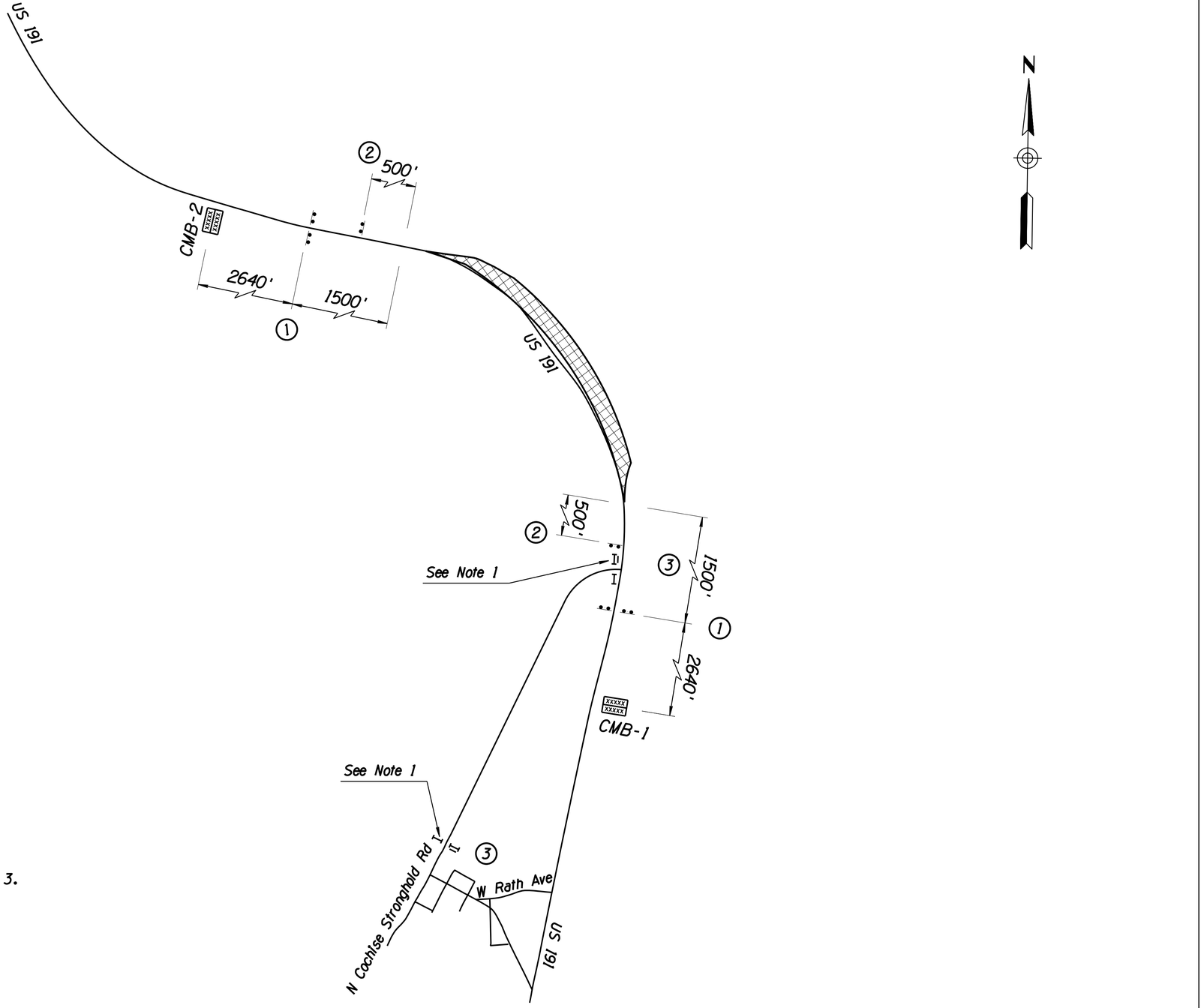
W20-1
36"X 36"
BLACK/ORANGE

② END ROAD WORK THANK YOU

G20-2AZ
48" X 36"
BLACK/ORANGE

③ ROAD CLOSED

R11-2
48"X 30"
BLACK/WHITE



CMB-1, CMB-2

SUGGESTED CHANGEABLE MESSAGE BOARD MESSAGE PRIOR TO PHASES 1

R	O	A	D	W	O	R	K
	D	A	T	E		T	O
		D	A	T	E		

	E	X	P	E	C	T	
	D	E	L	A	Y	S	

SUGGESTED CHANGEABLE MESSAGE BOARD MESSAGE DURING PHASES 2 & 3

T	R	A	F	F	I	C	
	S	I	G	N	A	L	
		A	H	E	A	D	

			B	E			
P	R	E	P	A	R	E	D
	T	O		S	T	O	P

NOTES:

1. Type III Barricades and road closure only to be placed during Phase 3.
2. Signs noted with ① shall be covered in Phases 2 and 3
3. CMBs to be relocated in Phases 2 and 3

Call at least two full working days before you begin excavation. ARIZONA 811 Arizona Blue Stake, Inc. Dial 8-1-1 or 1-800-STAKE-IT (782-5348) in Maricopa County: (602) 263-1100

45815 KATE E. BONDY — Registered Professional Engineer — ARIZONA, U.S.A.

	NAME	DATE
DESIGN	J MUNOZ	06/25
DRAWN	A MINUTELLO	06/25
CHECKED	K BONDY	06/25
TEAM LEADER	R RINGWALD	06/25

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
TRAFFIC DESIGN SECTION

TRAFFIC CONTROL ADVANCE WARNING SIGNING

ROUTE	F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US 191		ARIZ.	191 CH 062	191-A(205)T	34	91	
MILEPOST 62.09-63.66	LOCATION COCHISE OVERPASS						DWG NO: TC-02.03
STRUCTURE NO. 00157	TRACS NO. F0383 01C						___ OF ___

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

PAVEMENT MARKING GENERAL NOTES:

1. All striping shall be in compliance with the ADOT Signing and Marking Standard Drawings and the Manual on Uniform Traffic Control Devices (MUTCD).
2. The pavement marking drawings are schematic only and not to scale. The contractor shall follow all dimensions, details and standards when installing pavement markings and markers.
3. See the following ADOT Standard Drawings for striping detail: M-19.
4. All dimensions are in feet unless otherwise noted on the plans.
5. All striping dimensions are to the face of curb or edge of pavement, unless otherwise noted on the plans.
6. The dimensions shown to pavement striping are to the center of the stripe or in the case of double striping to the center of the double stripe.
7. The permanent pavement marking plans may be modified as directed by the Engineer.
8. The contractor shall be responsible for the layout and installation of permanent pavement markings on the final surface course following control points that have been set no more than 50 feet apart along the lines to be striped.
9. When permanent pavement marking paint is to be applied to new concrete pavement, any curing compound shall be removed per section 704-3.02(D) of the Specifications.
10. All reflective raised pavement markers shall be installed so that the reflective face of each marker is facing the direction of traffic and is perpendicular to the direction of traffic flow.
11. All reflective raised pavement markers shall have an abrasion-resistant coating on the face of the prismatic reflectors and shall conform to detail M-19 of the ADOT Standard Drawings. They shall be installed with a bituminous adhesive which is on the ADOT Approved Products List.
12. Where raised pavement markers are placed along solid striping, the nearest edge of each marker shall be offset two inches from the nearest edge of the stripe.
13. All pre-final lane lines and edge lines shall be 4" reflectorized paint. Pre-final markings shall be placed in the final location. Contact David Lee, ADOT Southern Region Signing and Striping Superintendent, at (520) 838-2827, at least 7 days prior to final striping operations to confirm and approve final striping layout.
14. The final striping shall be 90 mil (0.090 inch) thick extruded alkyd thermoplastic reflectorized striping, as identified in the plans.
15. On new and existing concrete pavement, a primer-sealer, as recommended by the thermoplastic manufacturer per section 704-3.02 (D) of the Standard Specifications, shall be applied to the concrete pavement prior to the placement of the thermoplastic material.

SIGNING GENERAL NOTES:

1. All signs shall be in compliance with the Manual on Uniform Traffic Control Devices (MUTCD), the ADOT Signing And Marking Standard Drawings, the ADOT Traffic Engineering Manual of Approved Signs, these plans, and the special provisions.
2. Signing may be modified as directed by the Engineer. The Engineer may shift the location of a sign to a more favorable location in accordance with the Standard Drawings.
3. Normal offset for all signs shall be 12 feet from edge of pavement to the near edge of the sign unless otherwise noted on the signing summary sheet, on the plans, or as directed by the Engineer.
4. All sign locations and post lengths are approximate. The contractor shall verify the actual sign locations with the Engineer prior to constructing the foundations for the sign supports. The contractor shall verify actual post lengths after final grading.
5. Normal mounting height for the bottom of the lowest sign on the post shall be seven feet above the nearest shoulder edge or top of curb elevation. The bottom of the sign shall be at the least 7 feet above the ground under the sign unless otherwise noted.
6. The contractor shall remove existing signing where indicated in the sign summary. Foundations of the existing signs that are to be removed or relocated shall be removed a minimum of 2 feet below finished grade.
7. The contractor shall inventory all signs to remain or be relocated, and note damaged signs to the Engineer before construction begins. All signs subsequently damaged shall be replaced by the contractor at no additional cost to the Department.
8. All new signs shall be installed on new square tube posts with foundations as indicated in the Std Dwgs S-1 and S-3.
9. All signs shall be fabricated of flat sheet aluminum panels with copy meeting the requirements of sections 608-2.02 through 608-2.12 of the Specifications. All signs shall meet the criteria established for sheeting in section 1007 of the Specifications.
10. Quantities are approximate and for the contractor's information only.
11. All dimensions are in feet, unless otherwise noted.
12. Contact David Lee, ADOT Southern Region Signing and Striping Superintendent, at (520) 838-2827, at least 7 days prior to confirm and approve final signing layout.

SIGN LEGEND:

Existing Sign Post

New Sign Post

PAVEMENT MARKING DETAILS:

40'

6" Double Yellow Thermoplastic Centerline, Type D RPM's at 40' Spacing

6" Solid White Thermoplastic Edge Line

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ARIZONA 811 Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
in Maricopa County: (602) 263-1100

Registered Professional Engineer
CERTIFICATE NO.
45815
KATE E. BONDY
Date Signed 06/25/25
ARIZONA, U.S.A.

	NAME	DATE
DESIGN	J MUNOZ	06/25
DRAWN	A MINUTELLO	06/25
CHECKED	K BONDY	06/25
TEAM LEADER	R RINGWALD	06/25

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
TRAFFIC DESIGN SECTION

SIGNING & PAVEMENT MARKING GENERAL NOTES

ROUTE	F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US 191		ARIZ.	191 CH 062	191-A(205)T	35	91	
MILEPOST 62.09-63.66	LOCATION COCHISE OVERPASS						DWG NO: T-01.01
STRUCTURE NO. 00157	TRACS NO. F0383 01C						___ OF___

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APPROXIMATE PAVEMENT MARKING QUANTITIES			
BID ITEM NO.	ITEM	UNITS	TOTAL
7040005	PAVEMENT MARKING (WHITE EXTRUDED THERMOPLASTIC) (0.090")	L. FT	11,160
7040006	PAVEMENT MARKING (YELLOW EXTRUDED THERMOPLASTIC) (0.090")	L. FT	11,160
7042031	PRIMER-SEALER FOR PCCP THERMOPLASTIC STRIPING	L. FT	2,800
7042051	REMOVAL OF CURING COMPOUND FOR STRIPING	L. FT	2,800
7060015	PAVEMENT MARKER, RAISED, TYPE D	EACH	93
7080201	WATERBORNE-TYPE I PAVEMENT MARKING (PAINTED) (WHITE)	L. FT	7,440
7080202	WATERBORNE-TYPE I PAVEMENT MARKING (PAINTED) (YELLOW)	L. FT	7,440

NOTE:

1. Quantities are shown as 4" equivalents.

APPROXIMATE SIGNING QUANTITIES			
BID ITEM NO.	ITEM	UNITS	TOTAL
2020047	REMOVAL OF SIGNS	EACH	4
6070038	SLIP BASE	EACH	4
6070055	SIGN POST (PERFORATED) (2½ S)	L.FT.	12
6070057	SIGN POST (PERFORATED) (2½ T)	L.FT.	39
6070060	FOUNDATION FOR SIGN POST (CONCRETE)	EACH	4
6080005	WARNING, MARKER, OR REGULATORY SIGN PANEL	SQ.FT.	34
6080025	FLAT SHEET ALUMINUM SIGN PANEL	SQ.FT.	5
7030025	DELINEATOR ASSEMBLY (FLEXIBLE) (DRIVEN FOUNDATION)	EACH	72
7030095	MILEPOST MARKER (S-10)	EACH	2

NOTE:

1. Item number 2020047 includes removal of signs as an assembly, including sign panels, post, and foundation.

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

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in Maricopa County: (602) 263-1100

Registered Professional Engineer — 45815 KATE E. BONDY — Date Signed 06/25/25 — ARIZONA, U.S.A.

	NAME	DATE
DESIGN	J MUNOZ	06/25
DRAWN	A MINUTELLO	06/25
CHECKED	K BONDY	06/25
TEAM LEADER	R RINGWALD	06/25

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ARIZONA DEPARTMENT OF TRANSPORTATION
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TRAFFIC DESIGN SECTION

SIGNING & PAVEMENT MARKING QUANTITIES

ROUTE	F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US 191		ARIZ.	191 CH 062	191-A(205)T	36	91	
MILEPOST 62.09-63.66	LOCATION COCHISE OVERPASS						DWG NO: T-01.02
STRUCTURE NO. 00157	TRACS NO. F0383 01C						___ OF ___

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Plan Sht No.	Sign Number	Sign Code	Work: New	Work: Existing: Replace Panel	Work: Existing: Relocate Panel	Work: Existing: Relocate Str	Work: Existing: Remove	Work: Existing: To Remain	Offset (ft)	Mounting Height (ft)	Background Color	Panel: Legend	Panel: Width (in)	Panel: Height (in)	Panel: Area (sq. ft.)	Panel: Type	Panel: Bid Item Number	Ground Mounted: Foundations	Ground Mounted: Posts: Type	Ground Mounted: Posts: Total length (ft)	Ground Mounted: New Slipbases	Stringer: Type	Stringer: Total Length (ft)	Overhead: Structure Type	Overhead: #of Lights	Remarks
T-03.01	NB1	OM-3(1)R						X				Type 3(1) R														
T-03.01	NB2	OM-3(1)L						X				Type 3(1) L														
T-03.01	NB3	W5-2					X					Narrow Bridge Symbol					2020047									
	+	W13-1P					X					Advisory Speed 45														
T-03.03	NB4	D10-2AZ					X					MILE (63)					2020047									
	SB3	D10-2AZ					X					MILE (63)														Mount Back to Back
T-03.03	NB5	D10-2AZ	X						2	4	GR	MILE (63)					7030095									SEE ADOT STD. S-10
	SB4	D10-2AZ	X								GR	MILE (63)					7030095									Mount Back to Back
T-03.01	SB1	OM-3(1)L						X				Type 3(1) L														
T-03.01	SB2	OM-3(1)R						X				Type 3(1) R														
T-03.03	SB5	W5-2					X					Narrow Bridge Symbol					2020047									
	+	W13-1P					X					Advisory Speed 45														
T-03.03	SB6	W1-2R	X						12	7	YL	Right Curve Symbol	30	30	6.3	RWM	6080005	1	2 1/2S	12	1					
T-03.01	EB1	D3-1	X						12	7	GR	Cochise Stronghold Rd	72	9	4.5	F-Dem	6080025	1	2 1/2T	13	1					
	+	R1-1	X								RD	STOP	36	36	9.0	RWM	6080005									
T-03.01	EB2	D3-1					X					Cochise Stronghold Rd					2020047									
	+	R1-1					X					STOP														
T-03.03	EB3	R1-1	X						12	7	RD	STOP	36	36	9.0	RWM	6080005	1	2 1/2T	13	1					
T-03.01	WB1	R1-1	X						12	7	RD	STOP	36	36	9.0	RWM	6080005	1	2 1/2T	13	1					

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	ARIZ.	191-A(205)T	37	91	·

191 CH 062

DATE- LOCATION- REVISIONS- FINISHED PLANS- SURVEY NO.

Notes:
1. The Engineer will verify post lengths and elevations.
2. The Engineer may shift a sign in order to achieve a more desirable location.
3. Quantities are approximate and for the contractor's information only.
4. Minimum sheeting type shall be Type IX or XI for all signs.

Colors: BK - BLACK, BL - BLUE, BR - BROWN, GR - GREEN, RD - RED, WH - WHITE, YL - FLUORESCENT YELLOW

Panel Types:
- RWM: Regulatory, Warning, or Marker
- F-DA: Flat-sheet aluminum with direct applied or silk-screened characters
- F-Dem: Flat-sheet aluminum with demountable characters
- Ext: Aluminum extrusions
- Incr: Aluminum sheet increment
- Over: Overhead (New overlaid extrusions)
- BRF: Overhead Bridge Fascia Sign Structure

REV	DATE	DESCRIPTION	BY
0	/ /		
	/ /		
	/ /		
	/ /		
	/ /		
	/ /		
	/ /		
	/ /		
	/ /		
	/ /		

Stringer Types: P: Square-tube Post; T: T-section (WT 3x6)

Post Types: S: Single perforated; T: Telescoping perforated

	NAME	DATE
DESIGN	A. MINUTELLO	06/25
DRAWN	A. MINUTELLO	06/25
CHECKED	K. BONDY	06/25

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AECOM TECHNICAL SERVICES, Inc.
7720 N. 16th St., Suite 100
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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
TRAFFIC DESIGN SERVICES

SIGN SUMMARY
US-191 COCHISE

ROUTE: US-191
LOCATION: COCHISE OVERPASS

TRACS NO. F0383 01C | 191-A(205)T

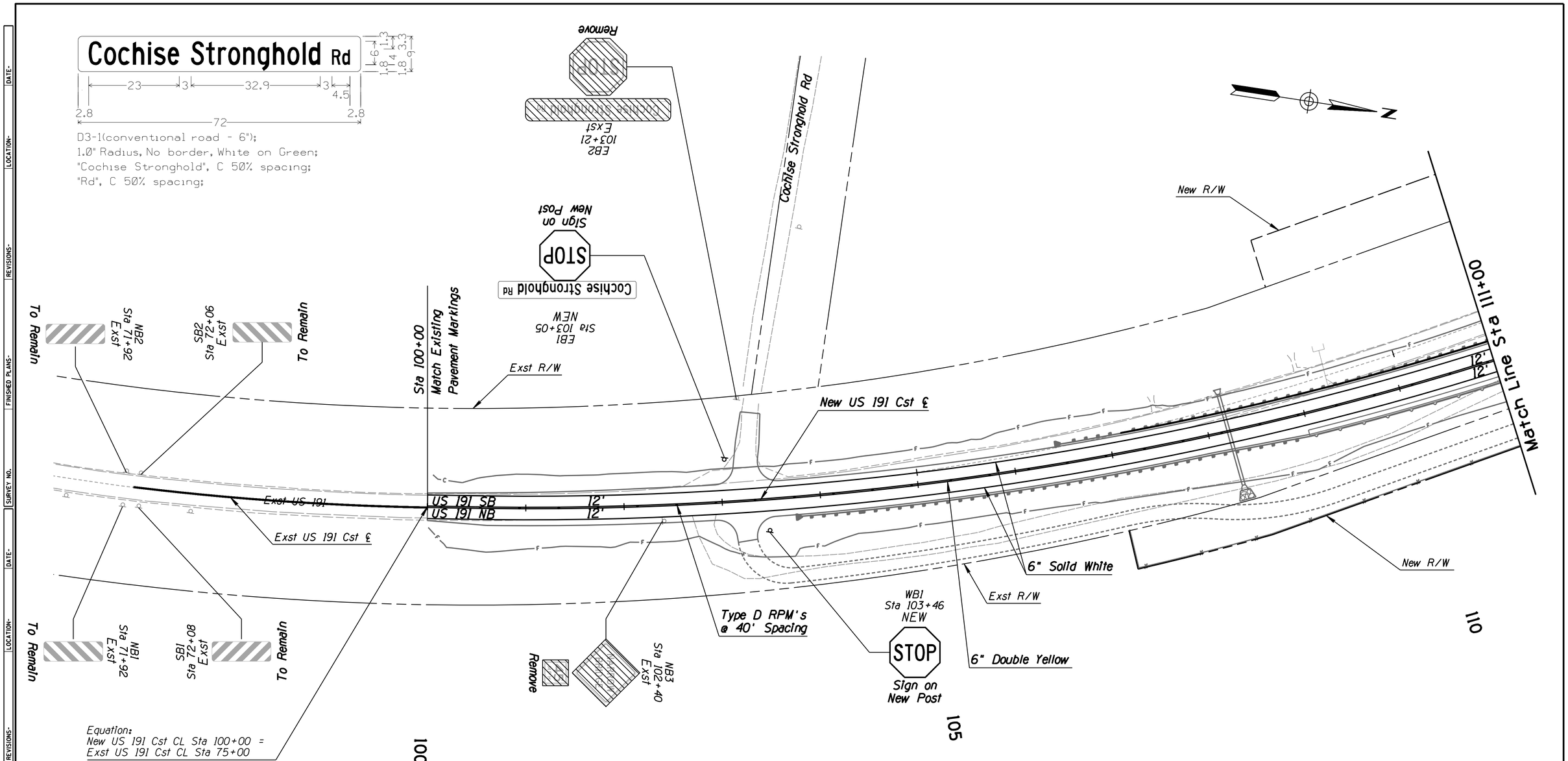
Registered Professional Engineer (Civil) 45815 KATE E. BONDY Date Signed 06/25/2025 ARIZONA, U.S.A.

DWG NO: T-02.01

___ OF ___

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6/10/2025 @ 5:07:09 PM EvansW1

SURVEY NO. | FINISHED PLANS | REVISIONS | LOCATION | DATE



NOTE:

Contractor to Install Single White Flexible Delineators per ADOT Std M-26, Based on Existing US 191 Centerline Sta 63+50 to New US 191 Centerline Sta 107+03 SB & NB, 2' Behind Edge of Pavement with Equal Spacing at 170'. Based on New US 191 Centerline Sta 107+03 to Existing US 191 Centerline Sta 116+51 SB & NB, 2' Behind Edge of Pavement with Equal Spacing at 115'.

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Professional Engineer — 45815 KATE E. BONDY — Date Signed 06/25/25 — ARIZONA, U.S.A.

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DESIGN	J MUNOZ	06/25
DRAWN	A MINUTELLO	06/25
CHECKED	K BONDY	06/25
TEAM LEADER	R RINGWALD	06/25

TRANSPORTATION
AECOM TECHNICAL SERVICES, Inc.
7720 N. 16th St., Suite 100
Phoenix, Arizona 85020
T 602.371.1100
AECOM
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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
TRAFFIC DESIGN SECTION

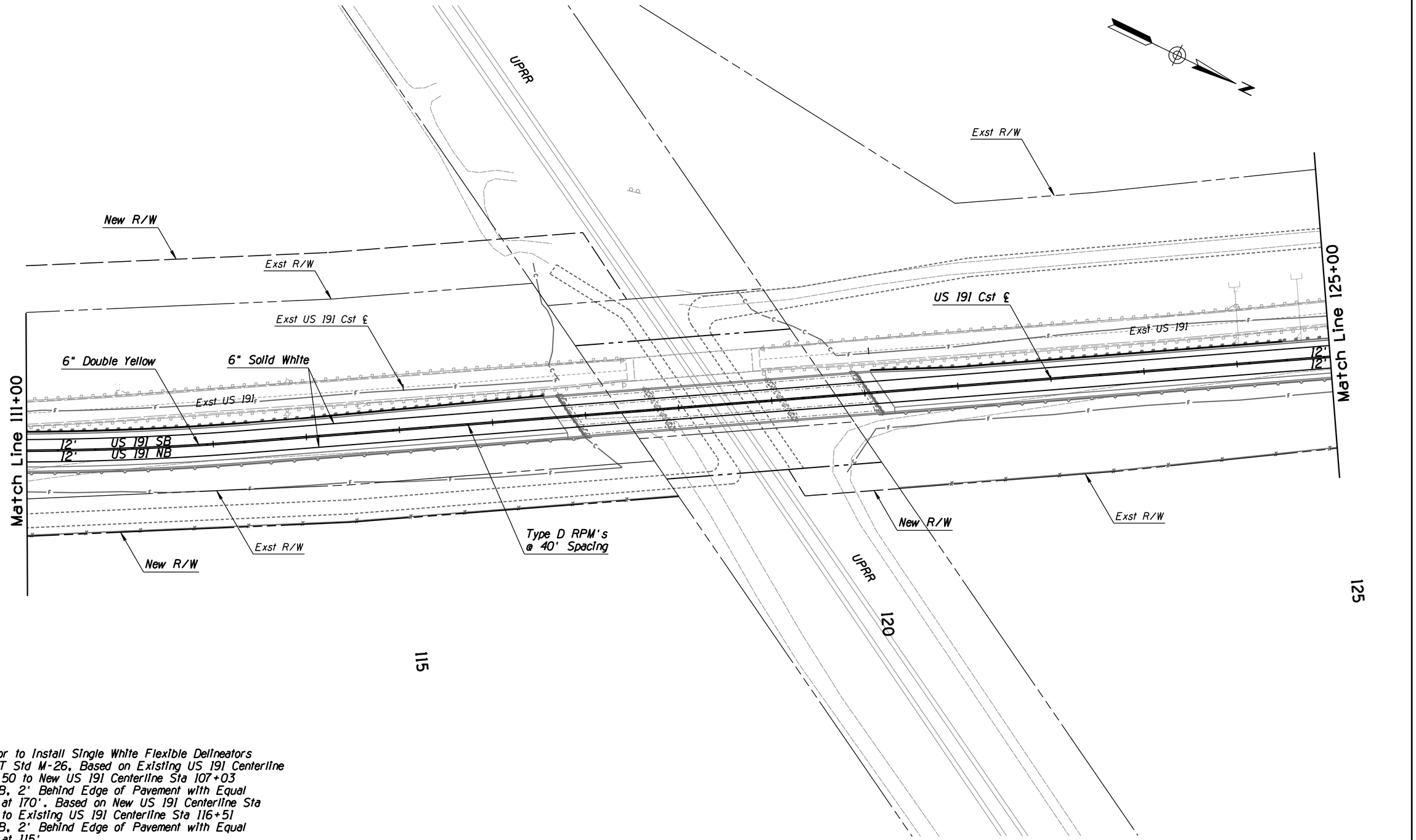
US 191
SIGNING AND PAVEMENT MARKING
Sta 100+00 to 111+00

ROUTE	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US 191	ARIZ.	191 CH 062	191-A(205)T	38	91	
MILEPOST 62.09-63.66	LOCATION: COCHISE OVERPASS					DWG NO: T-03.01
STRUCTURE NO. 00157	TRACS NO. F0383 01C					___ OF___

F.H.W.A. Arizona Division

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SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-



NOTE:

Contractor to Install Single White Flexible Delineators per ADOT Std M-26, Based on Existing US 191 Centerline Sta 63+50 to New US 191 Centerline Sta 107+03 SB & NB, 2' Behind Edge of Pavement with Equal Spacing at 170'. Based on New US 191 Centerline Sta 107+03 to Existing US 191 Centerline Sta 116+51 SB & NB, 2' Behind Edge of Pavement with Equal Spacing at 115'.

Call at least two full working days before you begin excavation.
ARIZONA 811 Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
in Maricopa County: (602) 263-1100

Registered Professional Engineer
45815 KATE E. BONDY
Date Signed 06/26/25
ARIZONA, U.S.A.

	NAME	DATE
DESIGN	J MUNOZ	06/25
DRAWN	A MINUTELLO	06/25
CHECKED	K BONDY	06/25
TEAM LEADER	R RINGWALD	06/25

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
TRAFFIC DESIGN SECTION

US 191
SIGNING AND PAVEMENT MARKING
Sta 111+00 to 125+00

ROUTE US 191
MILEPOST 62.09-63.66
STRUCTURE NO. 00157

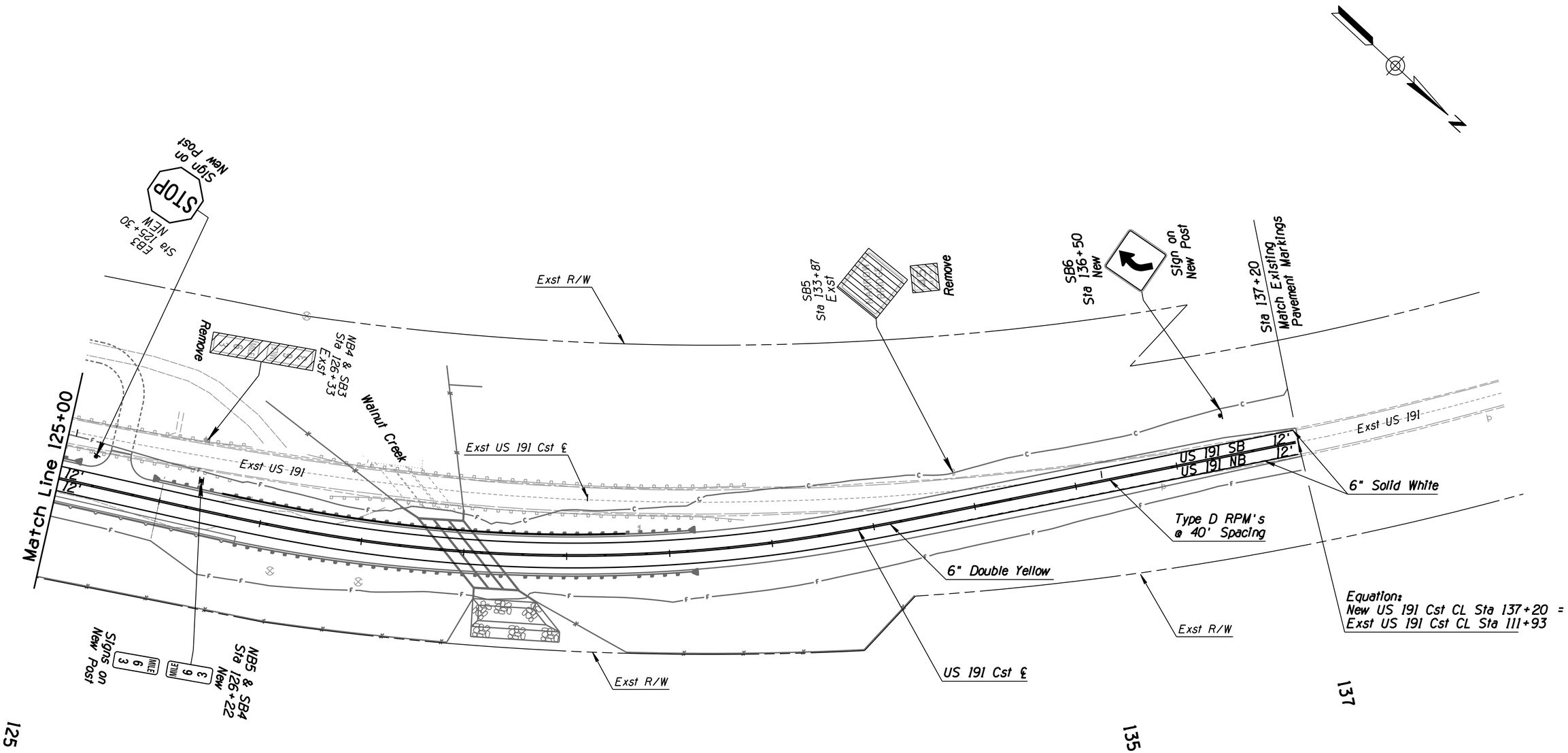
F.H.W.A. Arizona Division

STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
ARIZ.	191 CH 062	191-A(205)T	39	91	

LOCATION COCHISE OVERPASS
TRACS NO. F0383 01C
DWG NO: T-03.02
___ OF___

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SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-



NOTE:

Contractor to Install Single White Flexible Delineators per ADOT Std M-26, Based on Existing US 191 Centerline Sta 63+50 to New US 191 Centerline Sta 107+03 SB & NB, 2' Behind Edge of Pavement with Equal Spacing at 170'. Based on New US 191 Centerline Sta 107+03 to Existing US 191 Centerline Sta 116+51 SB & NB, 2' Behind Edge of Pavement with Equal Spacing at 115'.

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45815 KATE E. BONDY
Registered Professional Engineer
ARIZONA, U.S.A.

	NAME	DATE
DESIGN	J MUNOZ	06/25
DRAWN	A MINUTELLO	06/25
CHECKED	K BONDY	06/25
TEAM LEADER	R RINGWALD	06/25

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
TRAFFIC DESIGN SECTION

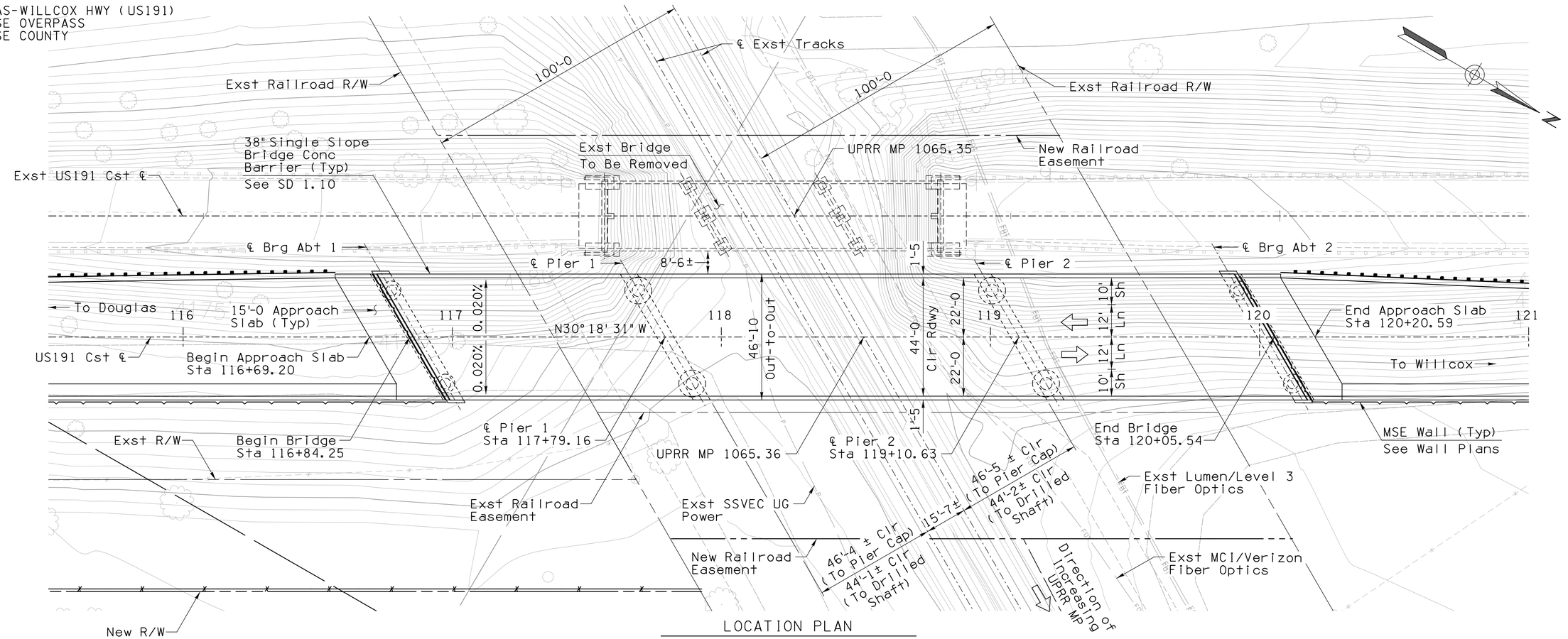
US 191
SIGNING AND PAVEMENT MARKING
Sta 125+00 to 137+20

ROUTE	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US 191	ARIZ.	191 CH 062	191-A(205)T	40	91	
MILEPOST 62.09-63.66	LOCATION	COCHISE OVERPASS				DWG NO: T-03.03
STRUCTURE NO. 00157	TRACS NO.	F0383 01C				___ OF ___

F.H.W.A. Arizona Division

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DOUGLAS-WILLCOX HWY (US191)
COCHISE OVERPASS
COCHISE COUNTY



LOCATION PLAN

New 3-Span Precast Prestressed
UBT66 Concrete Girder Bridge
Skew = 30°04'37"Lt
Scale: 1" = 20'-0

23'-4 (Allowable Min Vert Clr)
23'-7 (Actual Min Vert Clr)

NOTE:

This project is located from railroad milepost 1065.35 to 1065.36 of the Lordsburg subdivision near Cochise, AZ in Cochise County. It is located at Latitude 32.1333N, Longitude 109.9108W.

DECK DRAIN NOTE:

Bridge deck drainage will be collected outside of UPRR Right-of-Way.

DRAWING INDEX

S-1.01 ..... General Plan
S-1.02 ..... Elevation
S-1.03 ..... Typical Section, General Notes & Quantities
S-1.04 ..... UPRR General Notes For Overhead Structures
S-1.05 ..... Foundation Layout
S-1.06 ..... Drilled Shaft Details
S-1.07 ..... Abutment 1 Plan & Elevation
S-1.08 ..... Abutment 2 Plan & Elevation
S-1.09 ..... Abutment Details (1 of 2)
S-1.10 ..... Abutment Details (2 of 2)
S-1.11 ..... Pier Plan & Elevation
S-1.12 ..... Pier Details
S-1.13 ..... Restrainer & Bearing Pad Details
S-1.14 ..... Girder Details (1 of 4)
S-1.15 ..... Girder Details (2 of 4)
S-1.16 ..... Girder Details (3 of 4)
S-1.17 ..... Girder Details (4 of 4)
S-1.18 ..... Framing Plan
S-1.19 ..... Deck Details
S-1.20 ..... Diaphragm Details (1 of 3)
S-1.21 ..... Diaphragm Details (2 of 3)
S-1.22 ..... Diaphragm Details (3 of 3)
S-1.23 ..... Fence Details
S-1.24 ..... Miscellaneous Details
S-1.25 ..... Screed Elevations

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

Call at least two full working days before you begin excavation.
ARIZONA 811 Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
in Maricopa County: (602) 263-1100

Registered Professional Engineer
CERTIFICATE NO. 33244
ROBERT W. RINGWALD
Date Signed 06-30-25

	NAME	DATE
DESIGN	C. LABYE	06/25
DRAWN	T. TALBERT	06/25
CHECKED	B. ANSLEY	06/25

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ARIZONA DEPARTMENT OF TRANSPORTATION
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BRIDGE DESIGN SERVICES

STA 116+
COCHISE UPRR OP
GENERAL PLAN

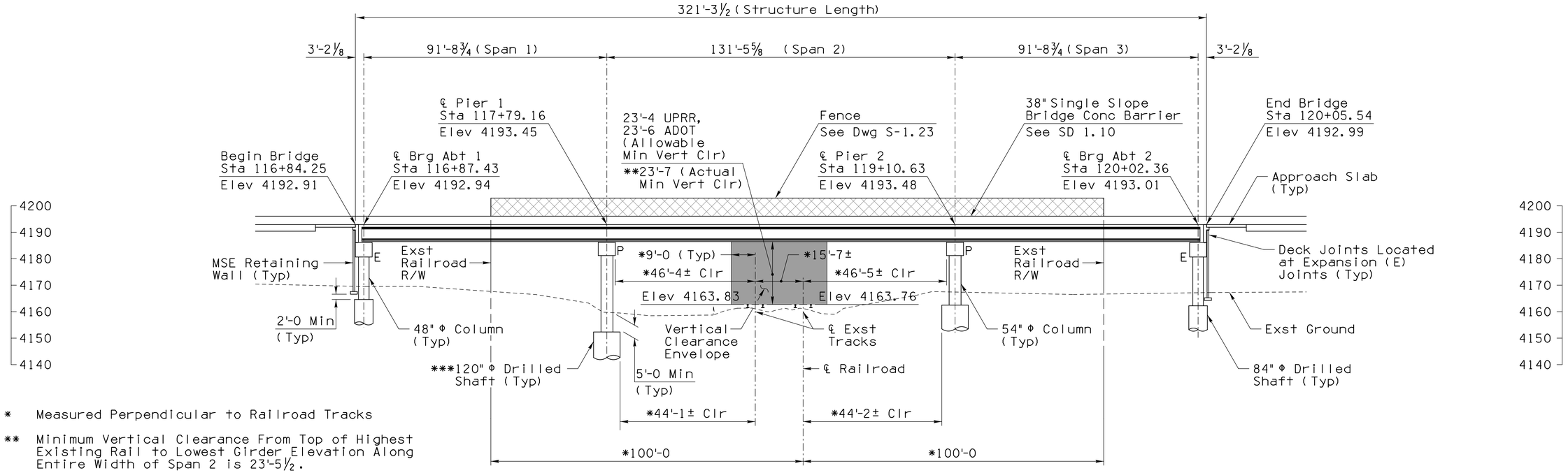
ROUTE	MILEPOST	STRUCTURE NO.
US191	62.63	2530

F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
	ARIZ.	191 CH 062	191-A(205)T	41	91	

LOCATION COCHISE OVERPASS — DWG NO. S-1.01

TRACS NO. F0383 01C — ____ OF ____

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* Measured Perpendicular to Railroad Tracks

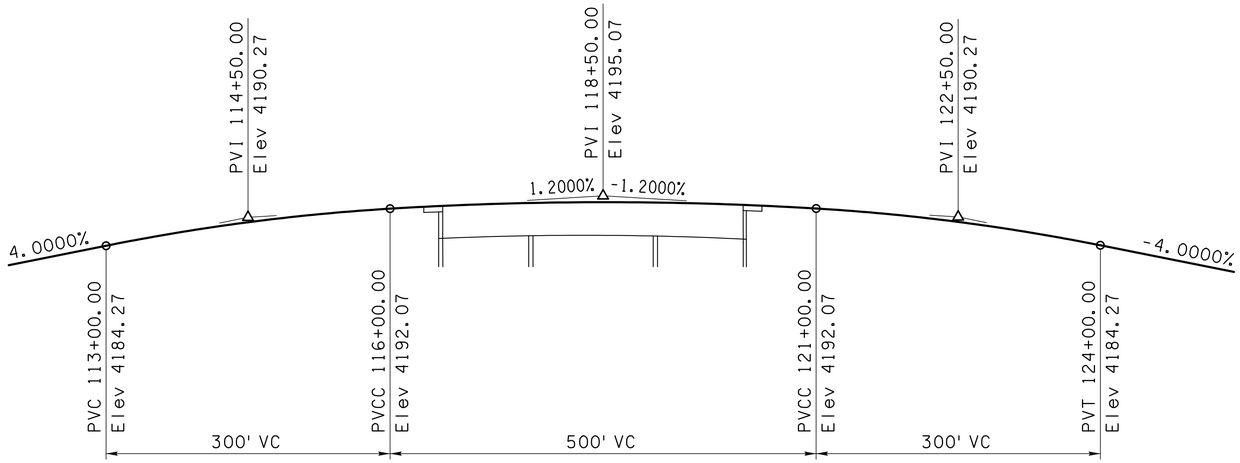
** Minimum Vertical Clearance From Top of Highest Existing Rail to Lowest Girder Elevation Along Entire Width of Span 2 is 23'-5½.

*** Temporary casing may be required for the entire length of shaft at Pier 1 & Pier 2. Casing shall be removed per Section 609-3.08 of the ADOT Standard Specifications. See additional notes for temporary casing on Dwg S-1.06.

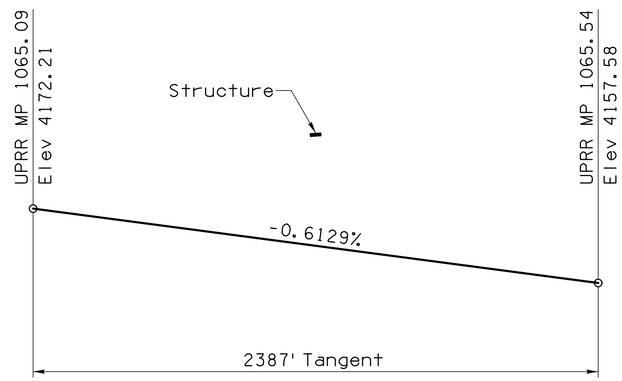
ELEVATION
Scale: 1" = 20'-0

NOTES:

1. Deck joints located at begin/end of bridge.
2. Track profile based on field survey of existing condition.



US191 PROFILE GRADE LINE
NTS



EXST TRACK PROFILE GRADE LINE
NTS

	NAME	DATE
DESIGN	C. LABYE	06/25
DRAWN	T. TALBERT	06/25
CHECKED	B. ANSLEY	06/25

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BRIDGE DESIGN SERVICES

STA 116+
COCHISE UPRR OP
ELEVATION

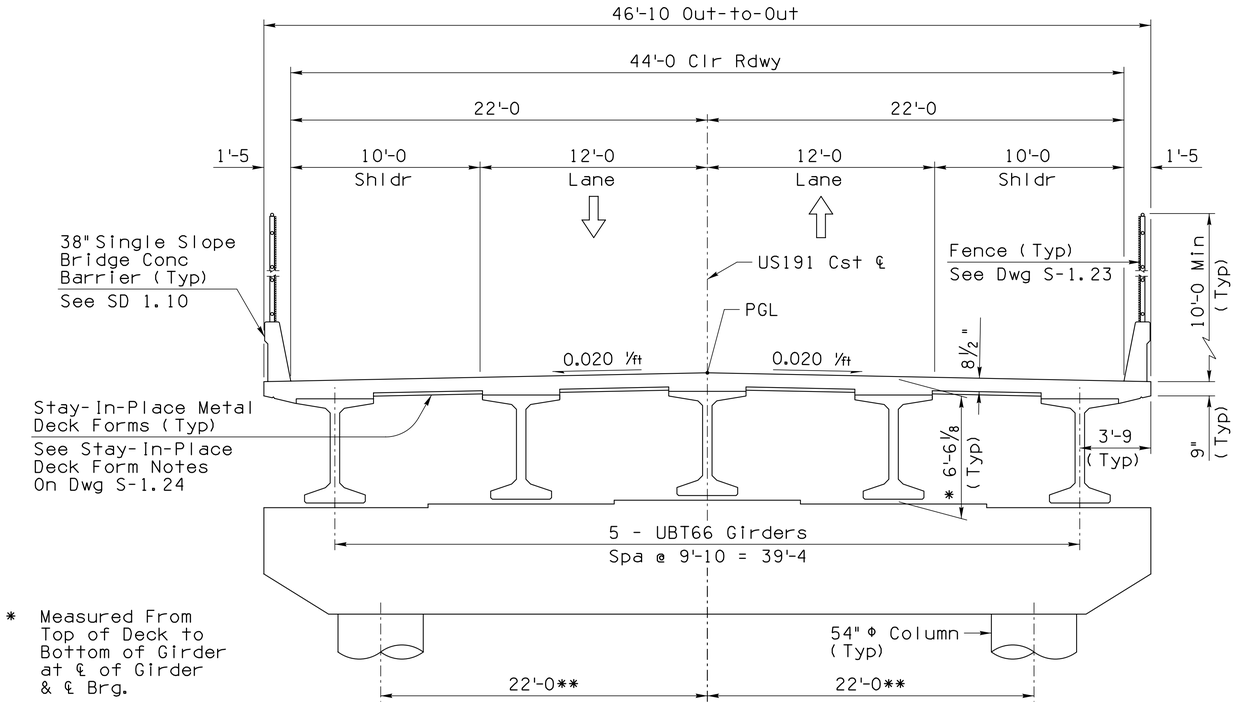
ROUTE US191
MILEPOST 62.63
STRUCTURE NO. 2530

F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
	ARIZ.	191 CH 062	191-A(205)T	42	91	

LOCATION COCHISE OVERPASS
DWG NO. S-1.02
TRACS NO. F0383 01C
____ OF ____

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

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TYPICAL SECTION

Scale: ¼" = 1'-0

* Measured From Top of Deck to Bottom of Girder at ℄ of Girder & ℄ Brg.

** Measured Along Skew.

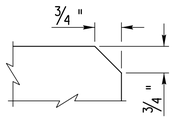
APPROXIMATE QUANTITIES

ITEM	STRUCURAL EXCAVATION CY	STRUCTURE BACKFILL CY	CLASS 'S' CONCRETE F'c=3500 psi CY	CLASS 'S' CONCRETE F'c=4500 psi CY	REINF STEEL LBS	EPOXY COATED REINF STEEL LBS	84" DIA DRILLED SHAFTS LF	120" DIA OR 3 METER Φ DRILLED SHAFTS LF
Abt 1	20	15	117		20,210		136	
Pier 1	25	20	118		30,545			130
Pier 2	50	35	118		30,560			130
Abt 2	40	30	127		22,435		114	
Superstructure				635	9,310	115,470		
Total	135	100	480	635	113,060	115,470	250	260
Record Drawing Total								

Remove Bridge	1 LS
38" Single Slope Barrier (SD 1.10)	703 LF
Approach Slabs (SD 2.01)	1,405 SF
Flangeless Deck Joint Assembly (SD 3.03)	102 LF
Remove Asbestos Material	16 SF
Railroad Fence	464 LF
Vertical Restrainers (Fixed)	16 EA
Vertical Restrainers (Expansion)	8 EA
UBT66 Girders	1,563 LF

NOTE:

Chamfer all exposed corners unless otherwise noted. This note is applicable to all sheets pertaining to the structure.

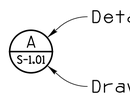


CHAMFER DETAIL

NTS

LEGEND:

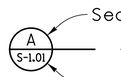
DETAIL Marker



Detail Letter

Drawing Number

SECTION Marker



Section Letter

Drawing Number

NOTE:

A line (—) in place of the Drawing Number indicates that the SECTION or DETAIL is located on the same drawing.

GENERAL NOTES:

Construction Specification - Arizona Department of Transportation Standard Specifications for Road & Bridge Construction, Edition of 2021.

Design Specifications - AASHTO LRFD Bridge Design Specification, 9th Edition 2020.

Dead Load - Dead Load includes allowance of 25 pounds per square foot for future wearing surface & 15 pounds per square foot for metal stay-in-place form for deck.

Composite Design - Dead Load carried by girders only.

Seismic Performance - Seismic Zone 1, Site Class D, Peak Ground Acceleration = 0.111g, S_DS = 0.256g, S_D1 = 0.115g.

Inventory & operating ratings for HL93 are in accordance with AASHTO Manual on Bridge Evaluation, Edition of 2017 in accordance with the Load & Resistance Factor Rating Method.

Loading Class - HL93
Inventory Rating HS - 1.24
Operating Rating HS - 2.10

All concrete shall be Class "S" unless noted otherwise.

For Portland Cement in contact with or within three feet of contact with native or corrosive soils, Portland Cement shall be Type V Cement. See Section 1006-2.01 of the Specifications.

Reinforcing steel shall conform to ASTM Specification A615/A615M. All reinforcing shall be furnished as Grade 60.

All bends & hooks shall meet the requirements of AASHTO Article 5.10.2. All bend dimensions for reinforcing steel shall be out-to-out of bars. All placement dimensions for reinforcing steel shall be to center unless noted otherwise.

All reinforcing within the deck, protruding into the deck, barrier & approach slab as well as tops of the girder stirrups shall be epoxy coated.

All reinforcing steel shall have 2 inch clear cover unless noted otherwise.

All mechanical splices shall conform to the requirements for mechanical connections in Section 605-3.02 of the Specifications.

Stresses:

Superstructure (Deck & Diaphragms)	f'c = 4500 psi
SD 1.10 Barriers & Approach Slab	f'c = 4000 psi
Abutments, Piers & Drilled Shafts	f'c = 3500 psi
Grade 60 transverse deck reinforcing	fs = 24,000 psi
All other Grade 60 reinforcing	fy = 60,000 psi
Prestressing steel (0.6" dia. 7-wire Low Relaxation Strand)	f's = 270,000 psi
Precast Prestressed Girders	See Girder Details

Barriers shall be constructed after spans have taken dead load deflection. Barriers shall not be slip formed.

Dimensions shall not be scaled from drawings.

All welding shall conform to the requirements of the American Welding Society, ANSI/AASHTO/AWS D1.5 Bridge Welding Code (latest edition).

Chamfer all exposed corners ¾" unless noted otherwise.

Construction joints not shown on the plans shall require the approval of the Engineer prior to construction.

ADOT STANDARD DRAWING LIST

SD 1.10, SD 2.01, SD 3.03, SD 5.01, SD 5.02 & SD 7.01.

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

Registered Professional Engineer CERTIFICATE NO. 33244 ROBERT W. RINGWALD Date Signed 06/25/25

	NAME	DATE
DESIGN	C. LABYE	06/25
DRAWN	T. TALBERT	06/25
CHECKED	B. ANSLEY	06/25

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BRIDGE DESIGN SERVICES

STA 116+
COCHISE UPRR OP
TYPICAL SECTION, GENERAL NOTES & QUANTITIES

ROUTE	MILEPOST	STRUCTURE NO.
US191	62.63	2530

F.H.W.A. Arizona Division

STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
ARIZ.	191 CH 062	191-A(205)T	43	91	

LOCATION: COCHISE OVERPASS

DWG NO. S-1.03

TRACS NO. F0383 01C

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SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

UPRR GENERAL NOTES FOR OVERHEAD STRUCTURES:

1. COORDINATION: Use the Union Pacific Railroad Public Projects Manual as a guide for assisting in administering, coordinating, planning, and implementing your project.

2. DESIGN REVIEW: Prior to construction, obtain Railroad review and approval of all relevant construction items, including but not limited to, shoring, track & ground monitoring, erection, demolition, and falsework. All designs must adhere to the most restrictive provisions of the current UPRR and AREMA standards and guidelines in effect at the time the work is executed. Allow a minimum of 4 weeks for review and approval of each submittal. For submittals not in accordance with these notes, longer review times shall be expected.

3. OPERATIONS: Projects shall be designed such that all construction activities and phasing will not compromise safety nor impact Railroad operations.

4. PASSING TRAINS: Railroad requirements do not allow work within 50 feet of track centerline when a train passes the work site and all personnel must clear the area within 25 feet of the track centerline and secure all equipment.

5. WORK WINDOWS: Construction activities must be performed within naturally occurring track windows. Coordinate all requests for construction work windows with the Railroad's Designated Representative to ensure that the work is scheduled to eliminate any potential disruption to the Railroad's operations.

6. TOP OF RAIL SURVEY: Verify the elevation of the existing top-of-rail profile before starting construction. Top-of-rail survey shall be performed for 1000 feet on either side of proposed overhead structure. Additional vertical clearance may be required for adjustment of sag in vertical curve, future track raise, flood considerations, construction and maintenance purposes. Bring all discrepancies to the attention of the Railroad prior to construction.

7. TEMPORARY CONSTRUCTION CLEARANCES: Construction activities are not allowed within the temporary construction clearance envelope per the current UPRR Guidelines for Railroad Grade Separation Projects and Guidelines for Temporary Shoring.

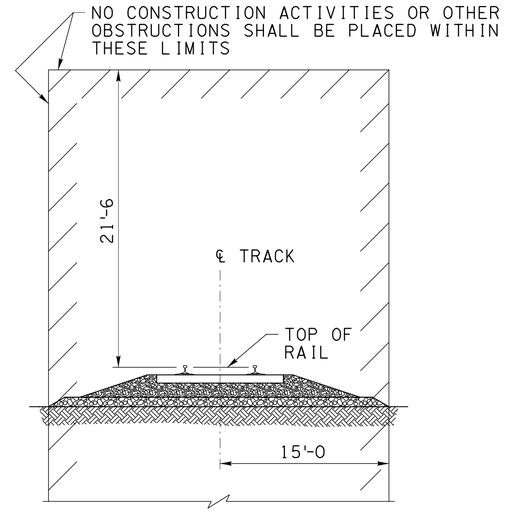
8. PERMANENT CLEARANCE ENVELOPE: The minimum permanent vertical clearance shall be 23'-4" measured from top of highest rail to the lowest obstruction under the structure. The extent of this vertical clearance shall be a minimum of 9 feet to the field side of the outermost existing or future tracks, measured perpendicular from the centerline of said tracks. In curved track, 9 feet shall be increased either 6 inches total or 1.5 inches for every degree of curve, whichever is greater. The permanent vertical clearance shall extend to cover all existing and future tracks, including the space in between.

9. VERIFY PERMANENT CLEARANCES: All permanent clearances shall be verified throughout construction. A compliance report shall be submitted to the Railroad before project closing. All discrepancies shall be brought to the attention of the Railroad.

10. PERMANENT CLEARANCES FOR BID: The permanent vertical and horizontal design clearances, which are specified in the bid documents approved by the Railroad, must be maintained in relation to the top-of-rail and centerline of existing and future tracks, respectively. Any reduction of these clearances is not permitted.

11. DRAINAGE: The proposed project shall not increase the quantity and/or characteristics of the flow in the Railroad's ditches and/or drainage structures.

12. BEFORE YOU DIG: Appropriate measures for the location and protection of UPRR facilities shall be addressed in the plans and contract documents. For specific Railroad requirements and additional information refer to www.up.com/cbud. Abandonment of utilities must follow the UPRR Guidelines For Abandonment of Subsurface Utility Structures.



MINIMUM CONSTRUCTION CLEARANCE ENVELOPE

(NORMAL TO RAILROAD)

Registered Professional Engineer CERTIFICATE NO. 33244 ROBERT W. RINGWALD Date Signed 06/30/25

	NAME	DATE
DESIGN	C. LABYE	06/25
DRAWN	T. TALBERT	06/25
CHECKED	B. ANSLEY	06/25

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
BRIDGE DESIGN SERVICES

STA 116+
COCHISE UPRR OP
UPRR GENERAL NOTES FOR OVERHEAD STRUCTURES

ROUTE	MILEPOST	STRUCTURE NO.
US191	62.63	2530

F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
	ARIZ.	191 CH 062	191-A(205)T	44	91	

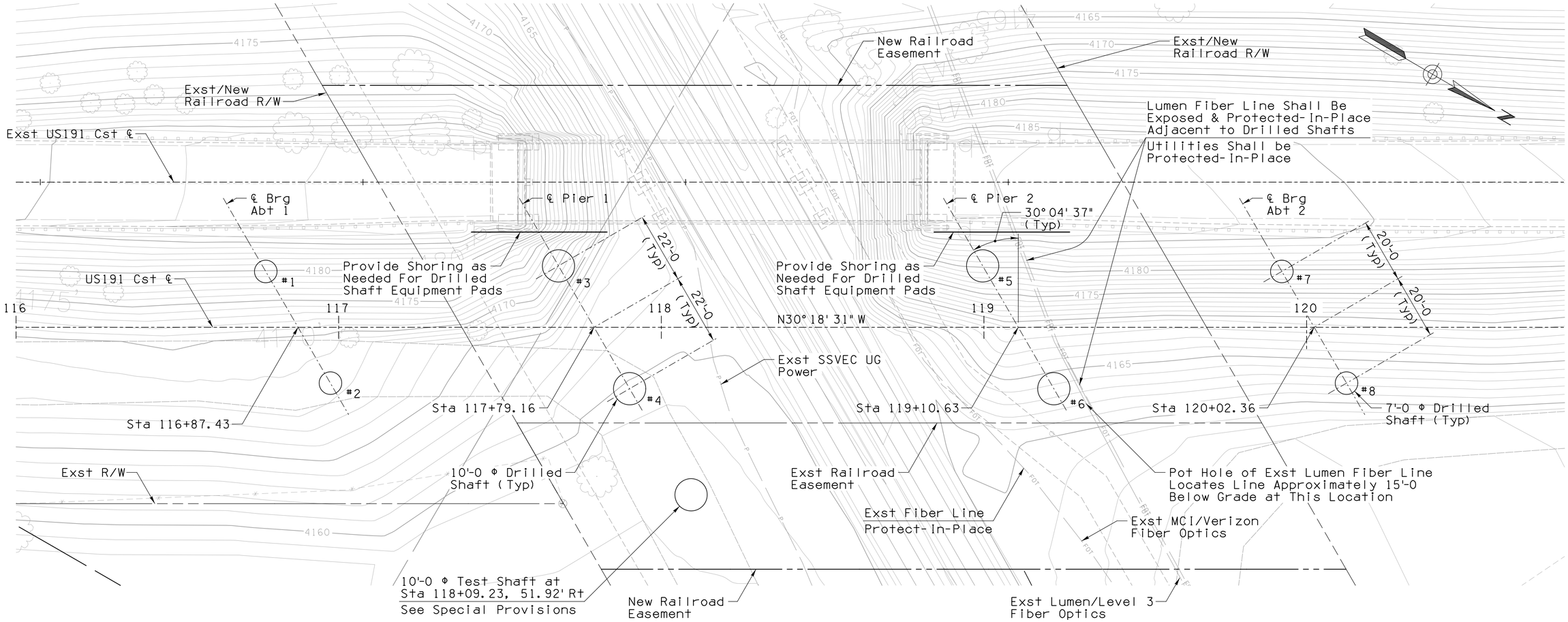
LOCATION: COCHISE OVERPASS

TRACS NO. F0383 01C

DWG NO. S-1.04

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FOUNDATION PLAN

Scale: 1/16" = 1'-0

FOUNDATION NOTES:

1. Information pertaining to the soil & site conditions can be obtained from the Final Geotechnical Exploration Report by Ethos Engineering. It is the responsibility of the contractor to review the Final Geotechnical Report. This report is available through the ADOT Contracts & Specifications website.
2. Contour interval = 1 ft.
3. Contours are based on field survey by ADOT in April 2022.
4. Cost of shoring for drilled shaft equipment pads & to expose & protect-in-place the Lumen fiber line shall be included in the price of the drilled shaft.

THE LOCATION OF ALL UTILITIES IS APPROXIMATE ONLY. LOCATIONS SHOWN REFLECT THE FINDINGS OF THE LATEST AVAILABLE MAPPING.

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

Call at least two full working days before you begin excavation. ARIZONA 811 Arizona Blue Stake, Inc. Dial 8-1-1 or 1-800-STAKE-IT (782-5348) in Maricopa County: (602) 263-1100

Registered Professional Engineer CERTIFICATE NO. 33244 ROBERT W. RINGWALD Date Signed 6/30/25

	NAME	DATE
DESIGN	C. LABYE	06/25
DRAWN	T. TALBERT	06/25
CHECKED	B. ANSLEY	06/25

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Phoenix, Arizona 85020
T 602.371.1100

AECOM
www.aecom.com

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
BRIDGE DESIGN SERVICES

STA 116+
COCHISE UPRR OP
FOUNDATION LAYOUT

ROUTE	MILEPOST	STRUCTURE NO.
US191	62.63	2530

F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
	ARIZ.	191 CH 062	191-A(205)T	45	91	

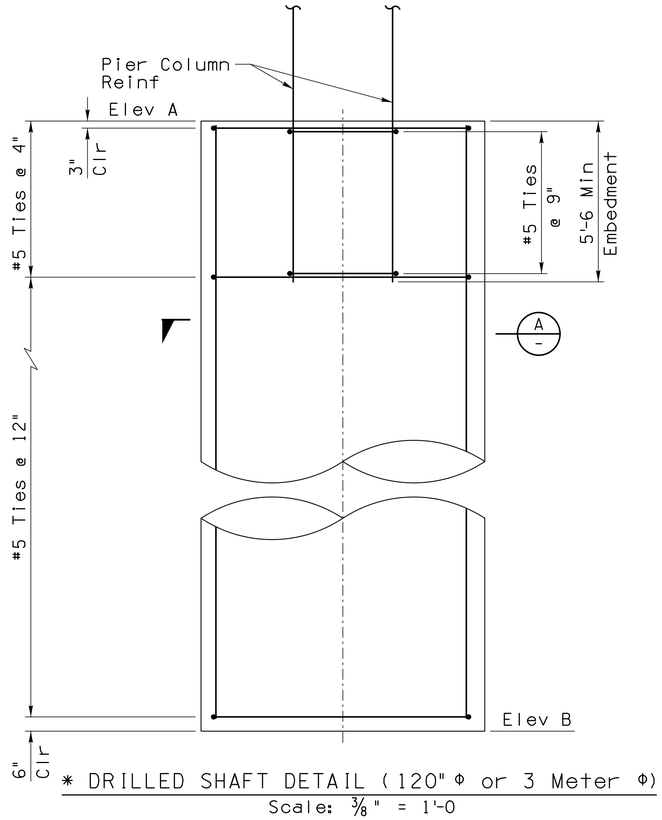
LOCATION COCHISE OVERPASS

DWG NO. S-1.05

TRACS NO. F0383 01C

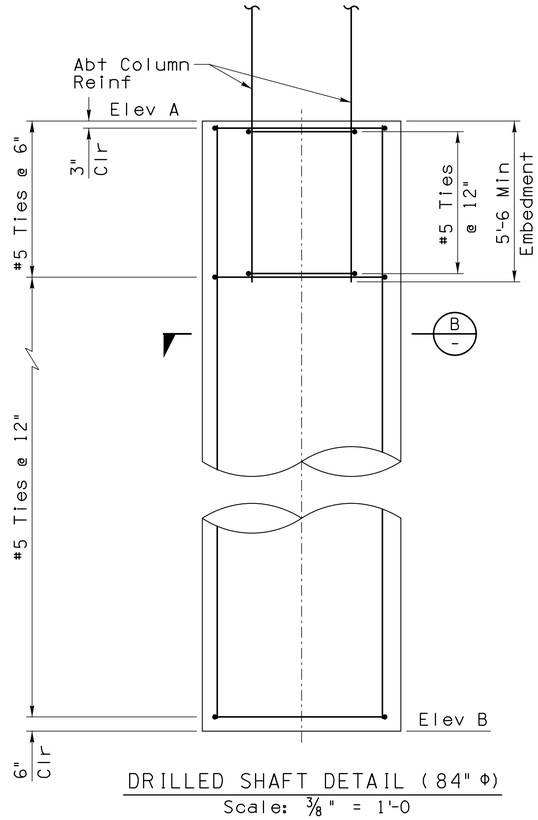
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* DRILLED SHAFT DETAIL (120" Φ or 3 Meter Φ)

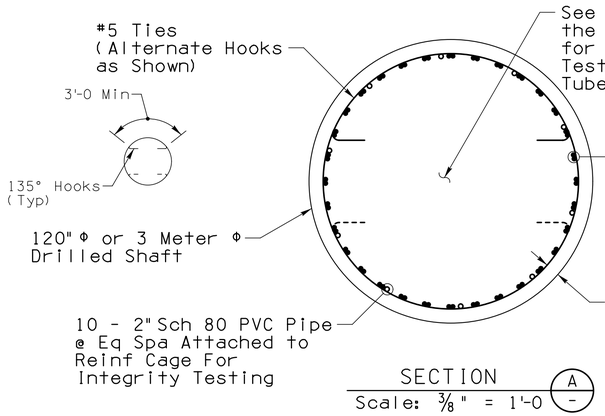
Scale: 3/8" = 1'-0



DRILLED SHAFT DETAIL (84" Φ)

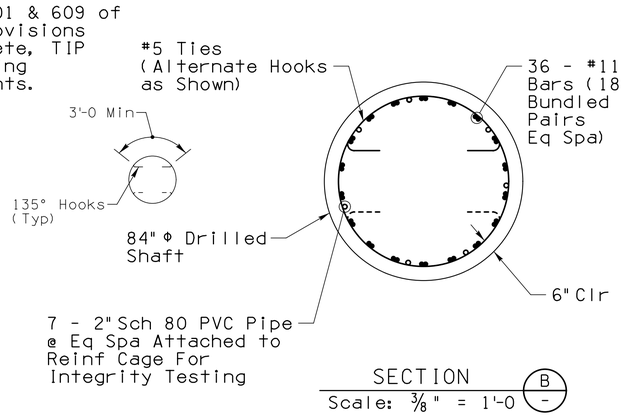
Scale: 3/8" = 1'-0

* Portions of the drilled shaft excavation at piers extend into the UPRR General Shoring Zone A shown in the UPRR Guidelines for Temporary Shoring. Prior to commencing any work, the contractor shall submit calculations & designs signed & sealed by an Engineer registered in the State of Arizona for shoring/casing or showing shoring/casing is not needed for drilled shaft excavation for approval by the Railroad per requirements in the current UPRR Guidelines for Temporary Shoring. If casing is required, it must be temporary & removed during placement of the drilled shaft concrete.



SECTION A

Scale: 3/8" = 1'-0



SECTION B

Scale: 3/8" = 1'-0

DRILLED SHAFT NOTES:

1. The contractor shall select a confirmation shaft in accordance with the Standard Specifications & as approved by the Engineer.
2. The contractor shall orient the drilled shaft reinforcing cage to minimize conflicts with the reinforcing in abutment & pier caps.
3. Number of inspection tubes, inspection tube size, type & details shall be per the Specifications.
4. Inspection tubes shall not be attached to the longitudinal reinforcing.
5. Drilled shaft excavations may encounter caving conditions and/or groundwater. The Contractor shall be prepared in the event such conditions exist.
6. Construction joints not shown on the plans shall require the approval of the Engineer prior to construction. Construction joints below the water line may not be feasible.
7. In the event of a weak layer (silt, clay, loose sand, etc.) at the recommended elevation of the shaft bottom, the shaft shall be extended to bear on firm soil as determined by the Engineer.
8. Concrete shall be placed immediately after the excavation has been completed & the reinforcing cage placed in its position.
9. No excavation, except as required for drilled shaft construction, shall occur below the bottom of the abutment.
10. All reinforcement for the drilled shafts shall be furnished continuous; no laps will be permitted.
11. All reinforcing in drilled shafts, including the steel projecting into the pier & abutment columns shall be included in the cost of the drilled shaft.
12. See Special Provisions for additional drilled shaft requirements.
13. See Pier & Abutment Detail sheets for Column Details.

84" Φ DRILLED SHAFTS						
Drilled Shaft Number	Elev A (Top of Drilled Shaft)	Elev B (Bottom of Shaft)	Drilled Shaft Length	Design Loads (kips)		Strength Axial Capacity (1) (kips)
				Service Limit State	Strength Limit State	
1	4166.00	4098.00	68'-0	821	1109	1271
2	4166.00	4098.00	68'-0	821	1109	1271
7	4155.00	4098.00	57'-0	842	1135	1271
8	4155.00	4098.00	57'-0	842	1135	1271

(1) Axial Capacity reduced by group factor = 0.97

120" Φ or 3 Meter Φ DRILLED SHAFTS						
Drilled Shaft Number	Elev A (Top of Drilled Shaft)	Elev B (Bottom of Shaft)	Drilled Shaft Length	Design Loads (kips)		Strength Axial Capacity (1) (kips)
				Service Limit State	Strength Limit State	
3	4154.50	4089.50	65'-0	1409	1899	1902
4	4154.50	4089.50	65'-0	1409	1899	1902
5	4154.50	4089.50	65'-0	1409	1899	1902
6	4154.50	4089.50	65'-0	1409	1899	1902

(1) Axial Capacity reduced by group factor = 0.84

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

Registered Professional Engineer, State of Arizona, Civil, CERTIFICATE NO. 33244, ROBERT W. RINGWALD

	NAME	DATE
DESIGN	C. LABYE	06/25
DRAWN	T. TALBERT	06/25
CHECKED	B. ANSLEY	06/25

TRANSPORTATION

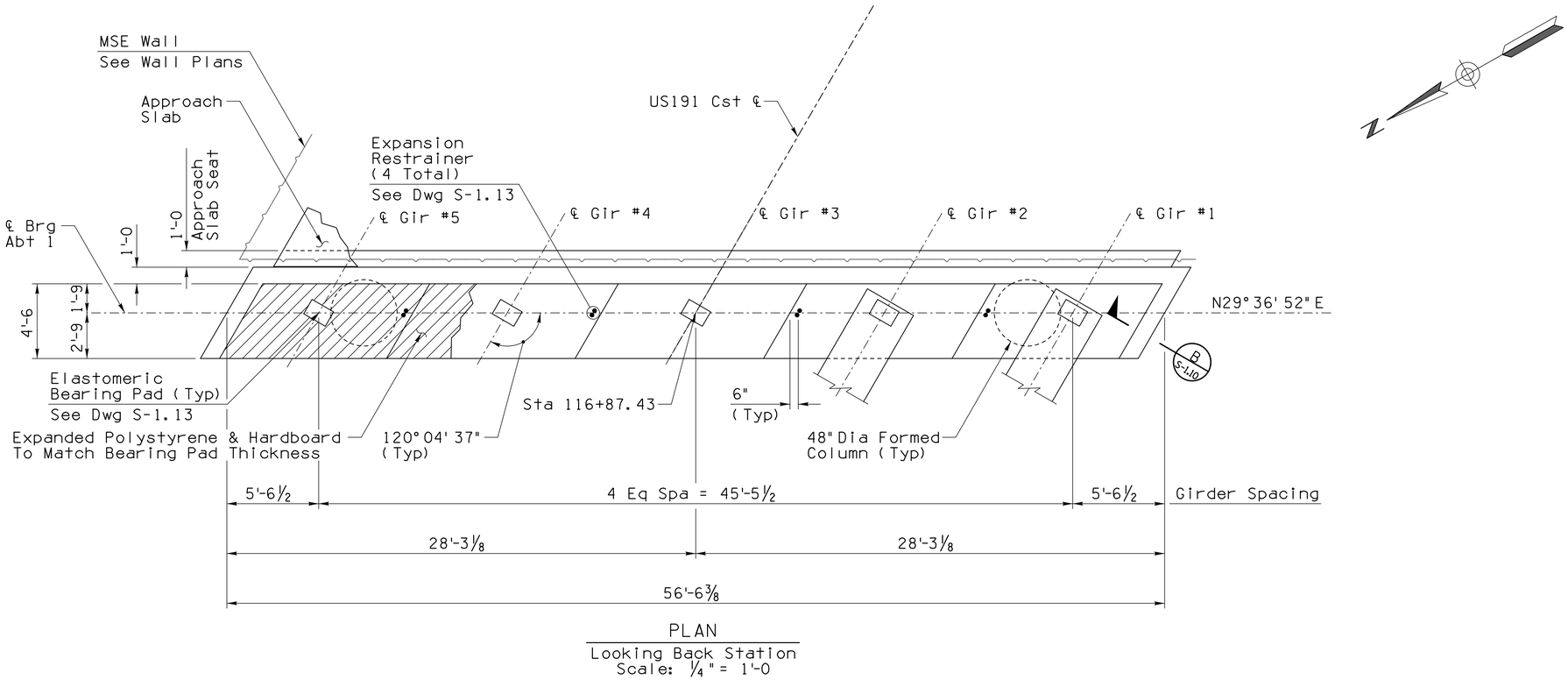
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T 602.371.1100
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ARIZONA DEPARTMENT OF TRANSPORTATION
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STA 116+
COCHISE UPRR OP
DRILLED SHAFT DETAILS

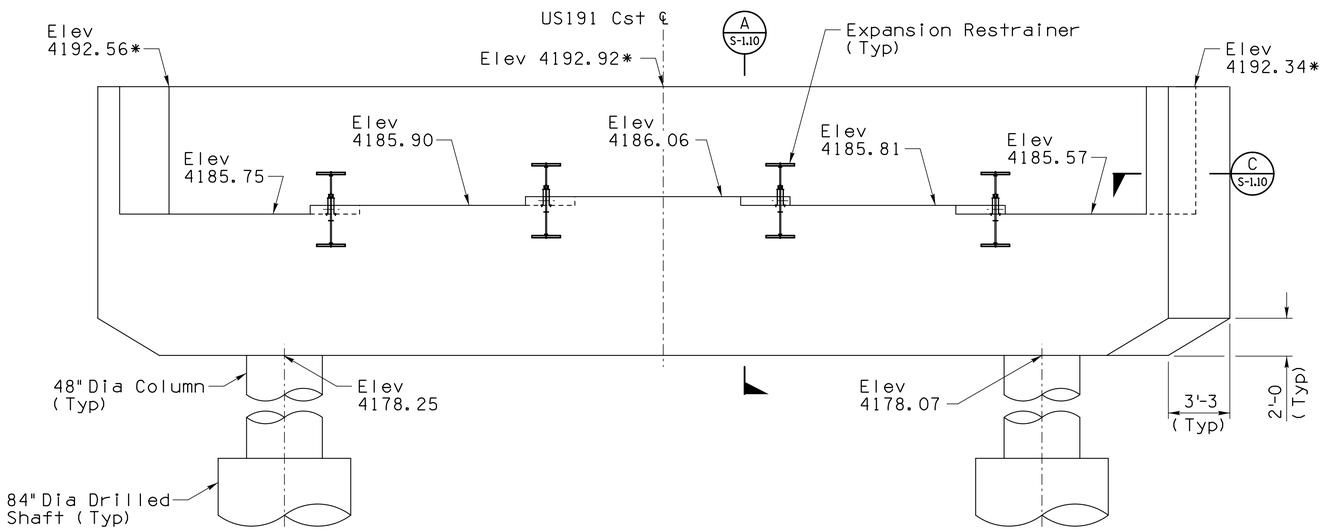
ROUTE	F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US191		ARIZ.	191 CH 062	191-A(205)T	46	91	
MILEPOST 62.63	LOCATION COCHISE OVERPASS						DWG NO. S-1.06
STRUCTURE NO. 2530	TRACS NO. F0383 01C						____ OF____

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PLAN

Looking Back Station
Scale: ¼" = 1'-0



ELEVATION

Looking Back Station
Scale: ¼" = 1'-0

* Elevations shown at front face of backwall.

	NAME	DATE
DESIGN	C. LABYE	06/25
DRAWN	T. TALBERT	06/25
CHECKED	B. ANSLEY	06/25

Registered Professional Engineer CERTIFICATE NO. 33244 ROBERT W. RINGWALD Civil Date Signed 06-30-2025

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BRIDGE DESIGN SERVICES

STA 116+
COCHISE UPRR OP
ABUTMENT 1 PLAN & ELEVATION

ROUTE	MILEPOST	STRUCTURE NO.
US191	62.63	2530

F.H.W.A. Arizona Division

STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
ARIZ.	191 CH 062	191-A(205)T	47	91	

LOCATION: COCHISE OVERPASS

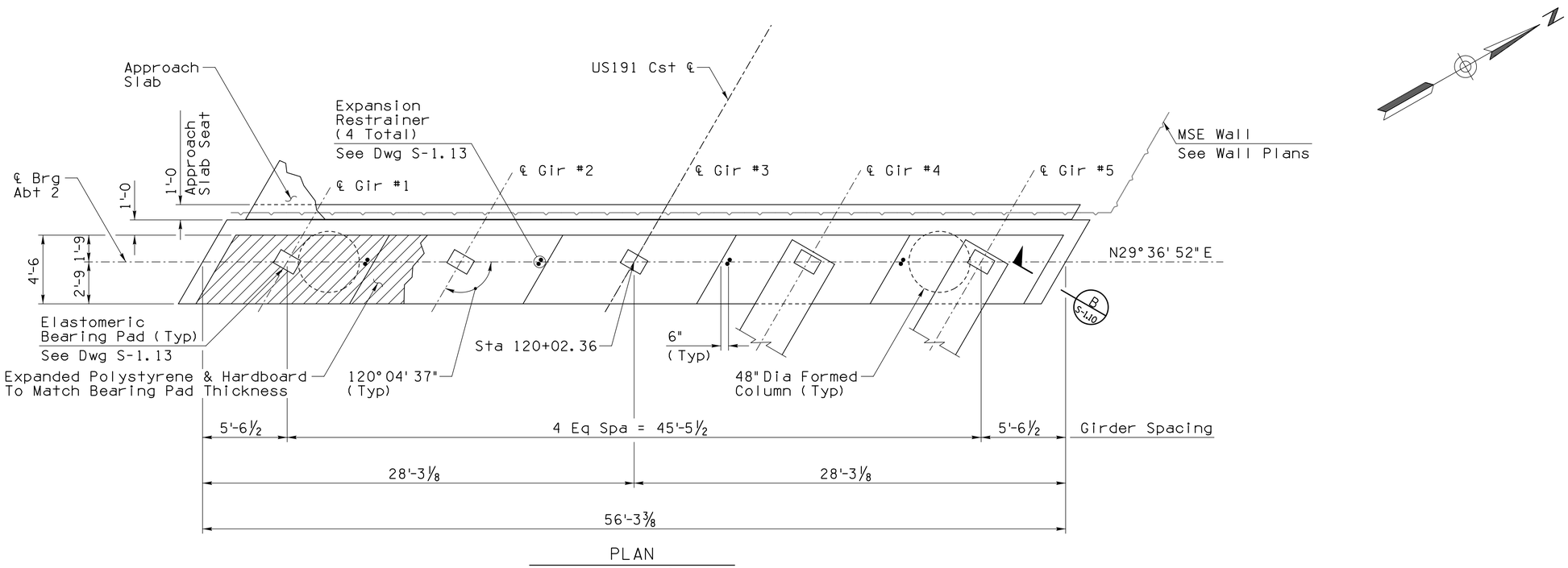
TRACS NO. F0383 01C

DWG NO. S-1.07

____ OF ____

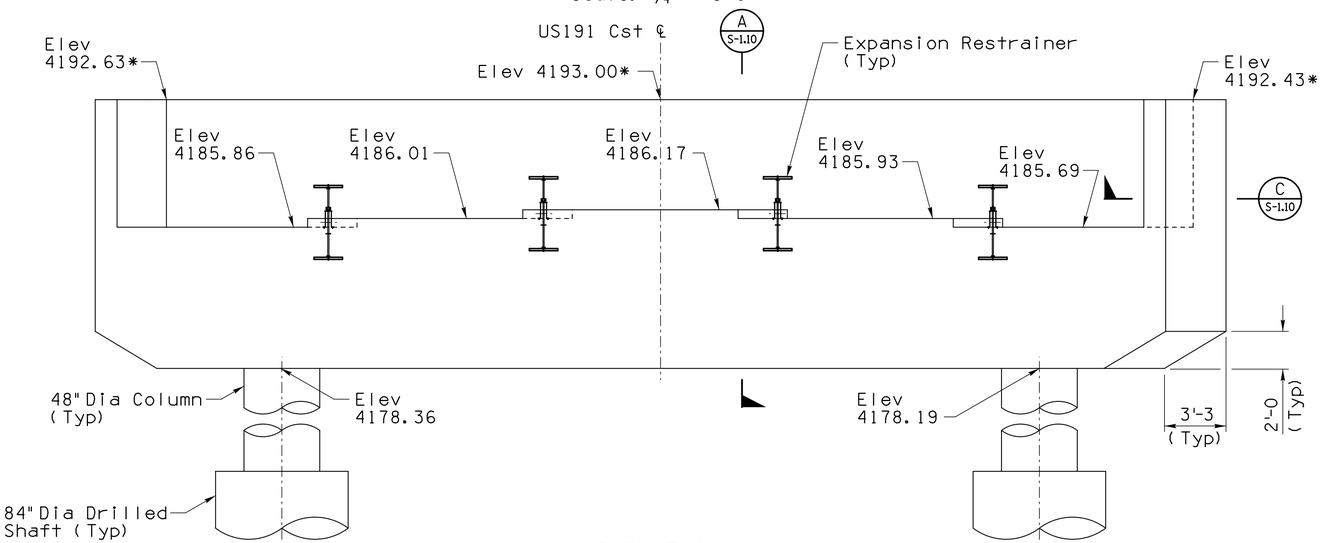
SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

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PLAN

Looking Ahead Station
Scale: ¼" = 1'-0



ELEVATION

Looking Ahead Station
Scale: ¼" = 1'-0

* Elevations shown at front face of backwall.

	NAME	DATE
DESIGN	C. LABYE	06/25
DRAWN	T. TALBERT	06/25
CHECKED	B. ANSLEY	06/25

Registered Professional Engineer — CERTIFICATE NO. 33244 — ROBERT W. RINGWALD — Civil — Date Signed 06-30-2025

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ABUTMENT 2 PLAN & ELEVATION

ROUTE US191
MILEPOST 62.63
STRUCTURE NO. 2530

F.H.W.A. Arizona Division

STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
ARIZ.	191 CH 062	191-A(205)T	48	91	

LOCATION COCHISE OVERPASS

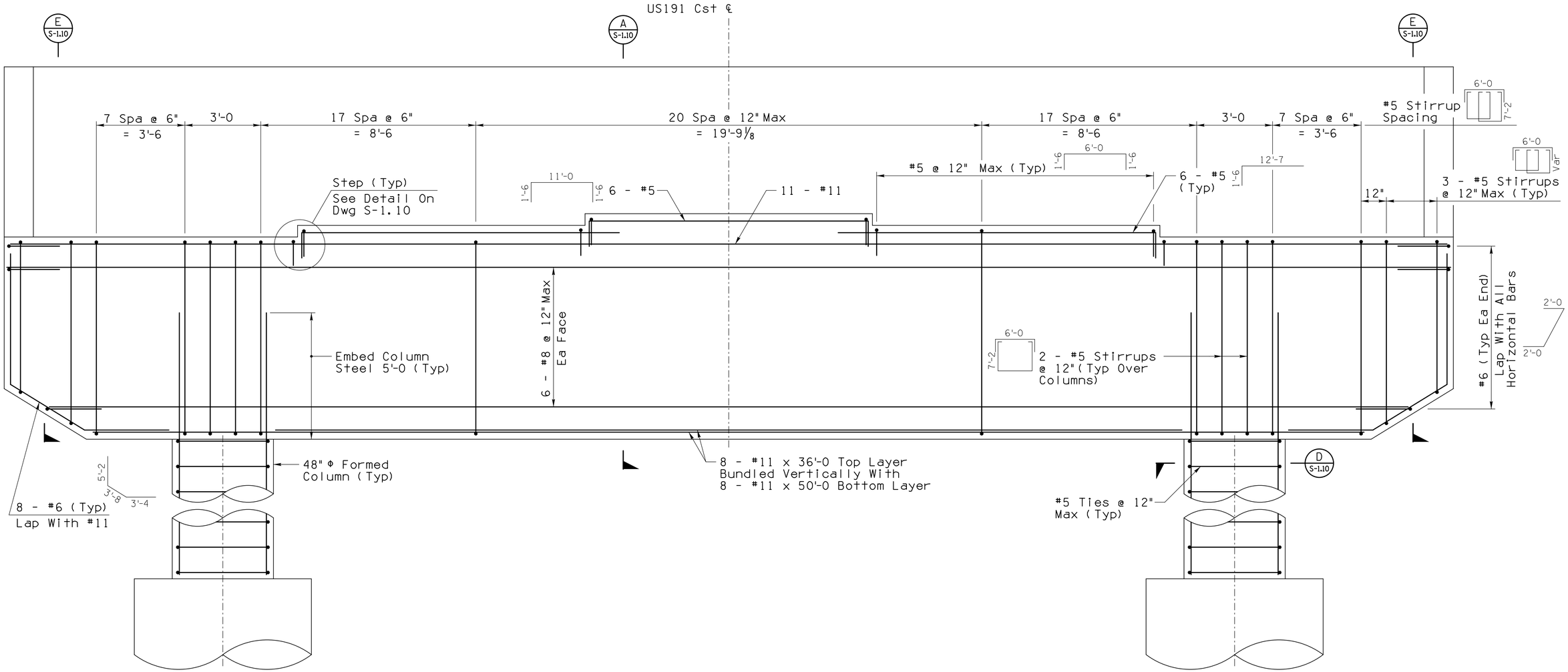
DWG NO. S-1.08

TRACS NO. F0383 01C

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SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

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ABUTMENT NOTES:

1. Laps shall not be allowed in abutment caps. All bars shall be furnished continuously, unless noted otherwise.
2. Stirrups shall be placed parallel to abutment cap ends.

ABUTMENT ELEVATION
Scale: ½" = 1'-0

Registered Professional Engineer CERTIFICATE NO. 33244 ROBERT W. RINGWALD Date Signed 06/30/25

	NAME	DATE
DESIGN	C. LABYE	06/25
DRAWN	T, TALBERT	06/25
CHECKED	B. ANSLEY	06/25

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COCHISE UPRR OP
ABUTMENT DETAILS (1 OF 2)

ROUTE	MILEPOST	STRUCTURE NO.
US191	62.63	2530

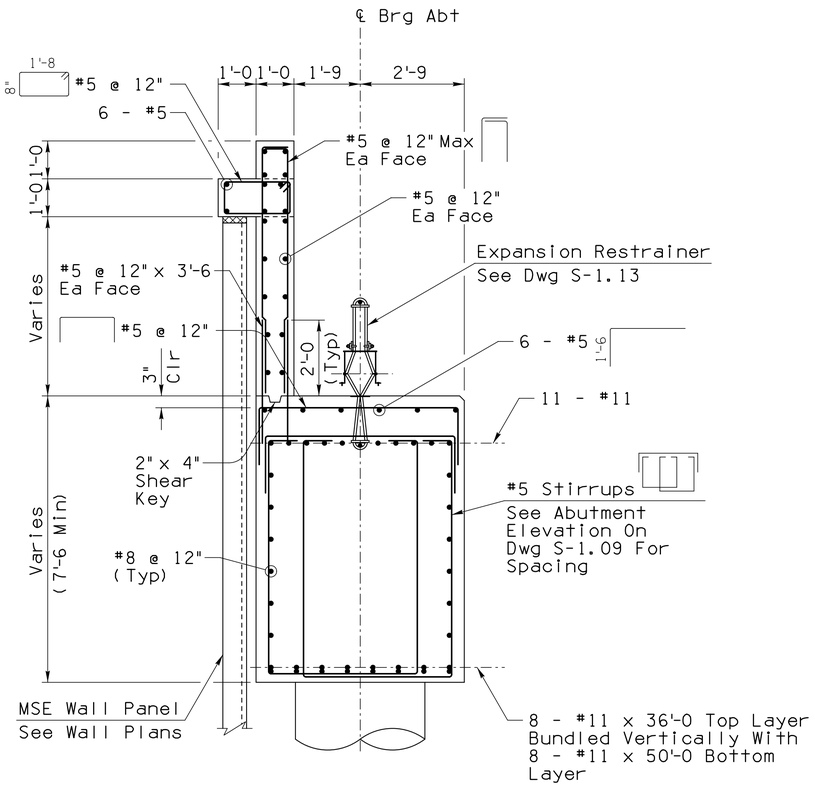
F.H.W.A. Arizona Division

STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
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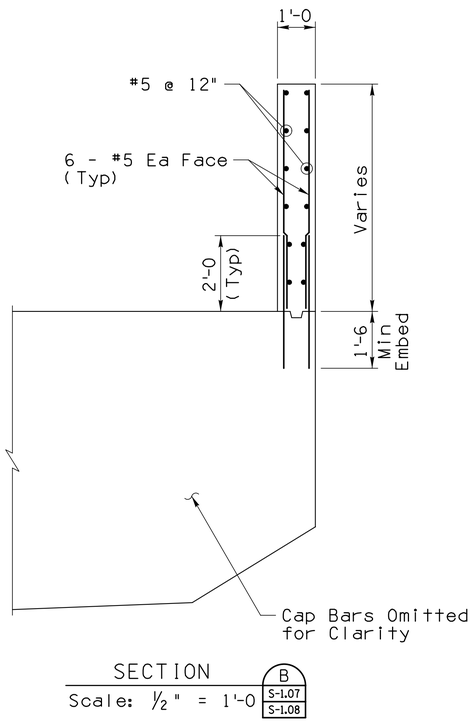
LOCATION: COCHISE OVERPASS
TRACS NO. F0383 01C
DWG NO. S-1.09
____ OF ____

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

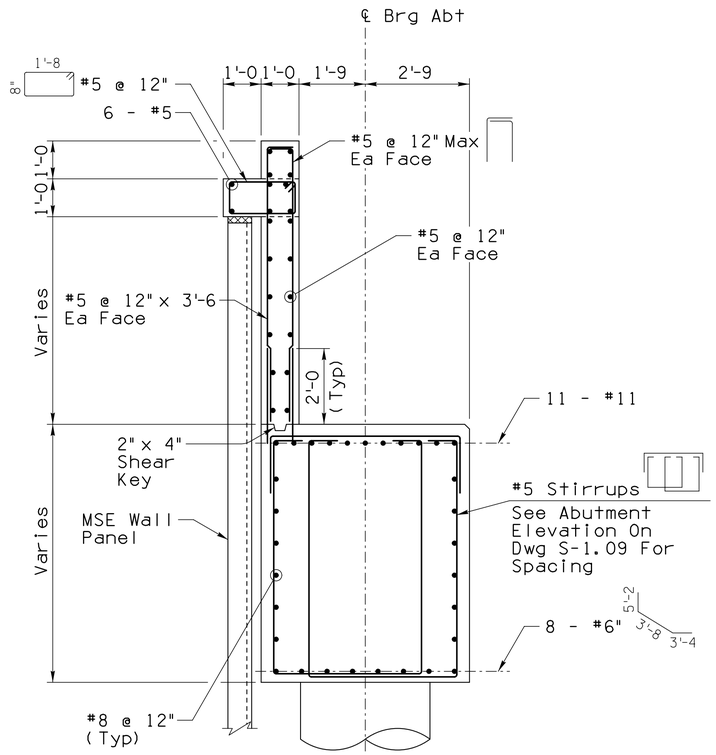
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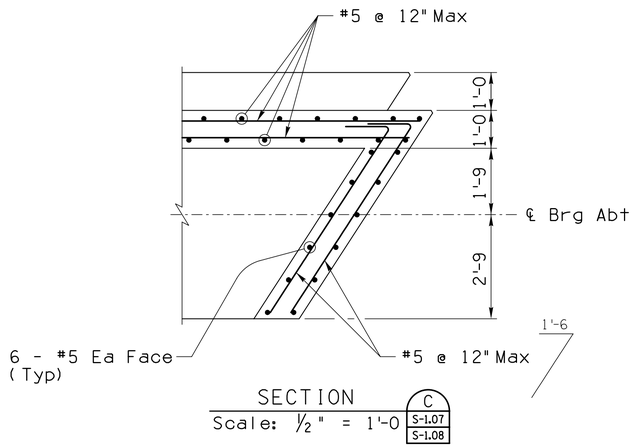
SECTION (A)
Scale: 1/2" = 1'-0
S-1.07 S-1.08 S-1.09



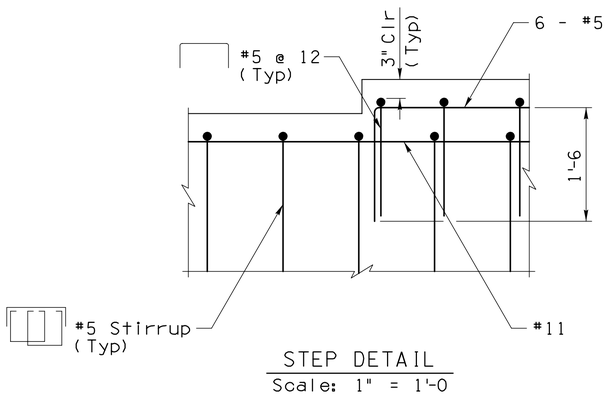
SECTION (B)
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S-1.07 S-1.08



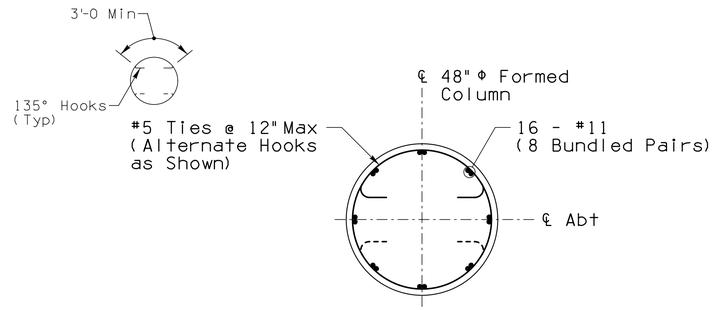
SECTION (E)
Scale: 1/2" = 1'-0
S-1.09



SECTION (C)
Scale: 1/2" = 1'-0
S-1.07 S-1.08



STEP DETAIL
Scale: 1" = 1'-0



SECTION (D)
Scale: 1/2" = 1'-0
S-1.09

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

Registered Professional Engineer
CERTIFICATE NO.
33244
ROBERT W. RINGWALD
Date Signed 6/25/25

	NAME	DATE
DESIGN	C. LABYE	06/25
DRAWN	T. TALBERT	06/25
CHECKED	B. ANSLEY	06/25

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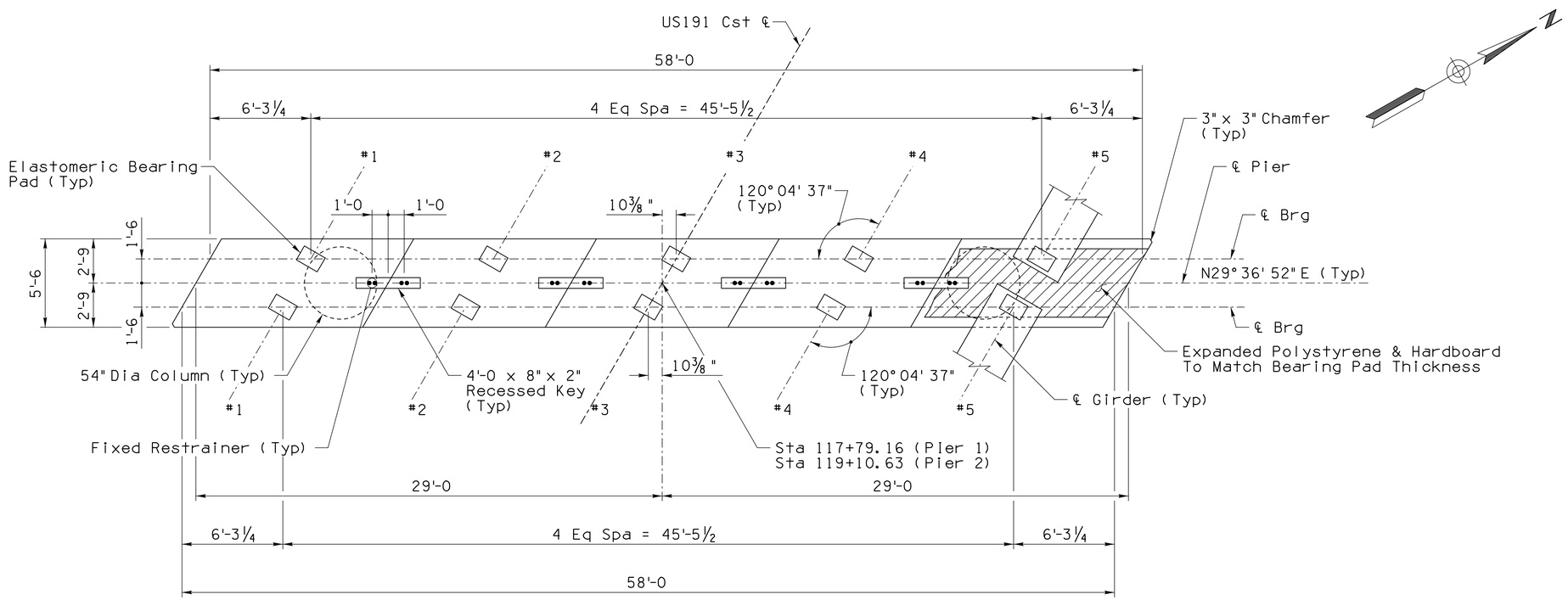
STA 116+
COCHISE UPRR OP
ABUTMENT DETAILS (2 OF 2)

ROUTE	MILEPOST	STRUCTURE NO.
US191	62.63	2530

F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
	ARIZ.	191 CH 062	191-A(205)T	50	91	

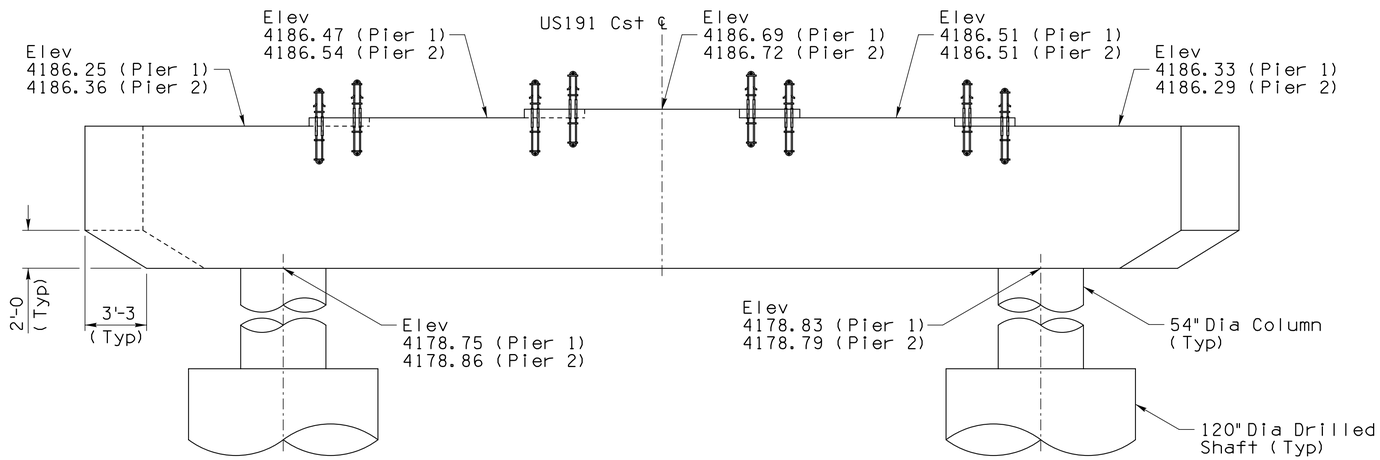
LOCATION: COCHISE OVERPASS
DWG NO. S-1.10
TRACS NO. F0383 01C
____ OF ____

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PIER 1 PLAN SHOWN (PIER 2 SIMILAR)

Looking Ahead Station
Scale: ¼" = 1'-0



PIER 1 ELEVATION (PIER 2 SIMILAR)

Looking Ahead Station
Scale: ¼" = 1'-0

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

Registered Professional Engineer (Civil) CERTIFICATE NO. 33244 ROBERT W. RINGWALD Date Signed 06/25/25

	NAME	DATE
DESIGN	C. LABYE	06/25
DRAWN	T. TALBERT	06/25
CHECKED	B. ANSLEY	06/25

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BRIDGE DESIGN SERVICES

STA 116+
COCHISE UPRR OP
PIER PLAN & ELEVATION

ROUTE	MILEPOST	STRUCTURE NO.
US191	62.63	2530

F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
	ARIZ.	191 CH 062	191-A(205)T	51	91	

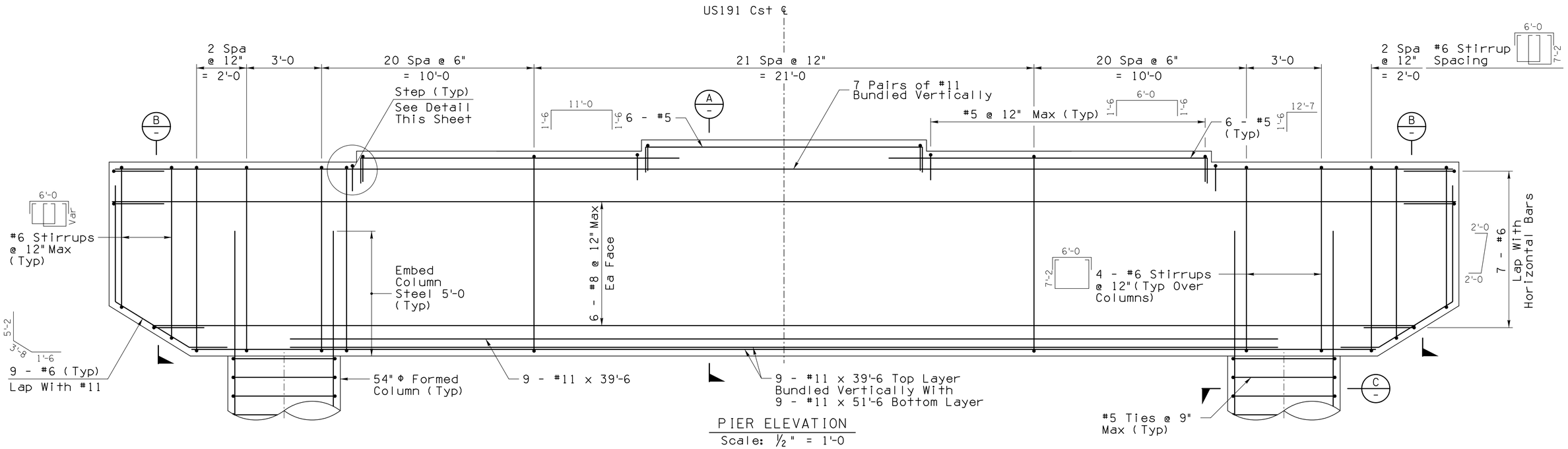
LOCATION COCHISE OVERPASS

DWG NO. S-1.11

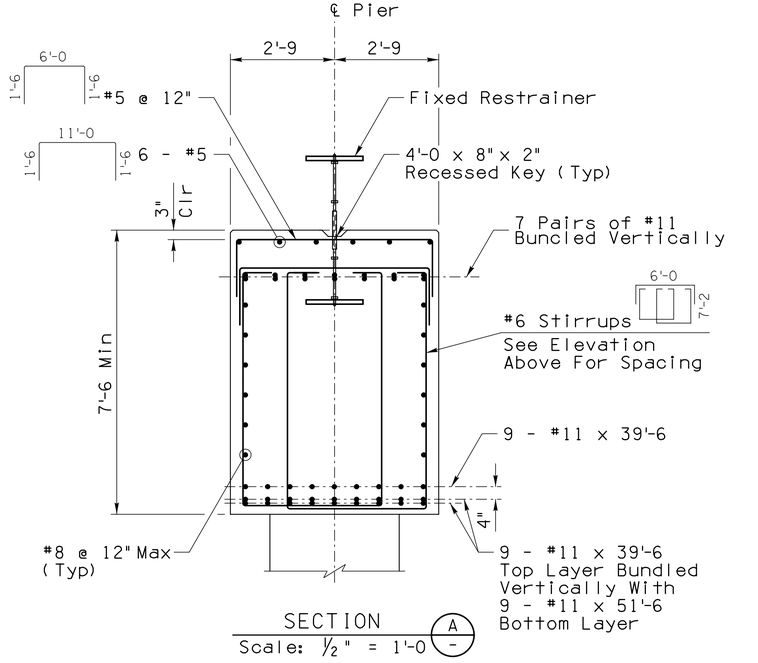
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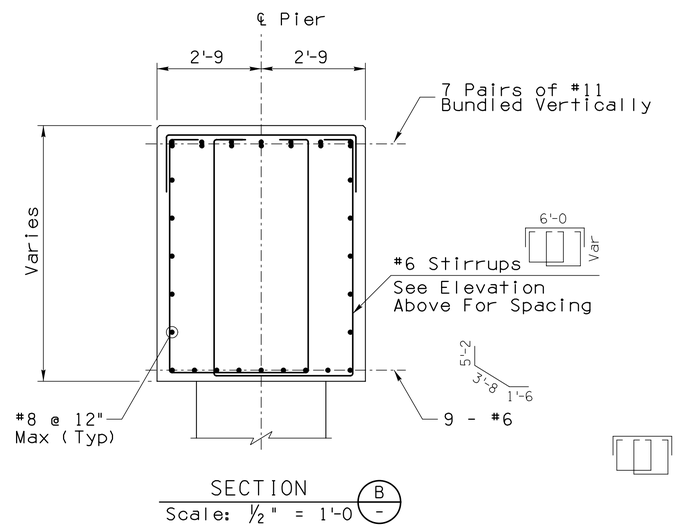
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PIER ELEVATION
Scale: ½" = 1'-0



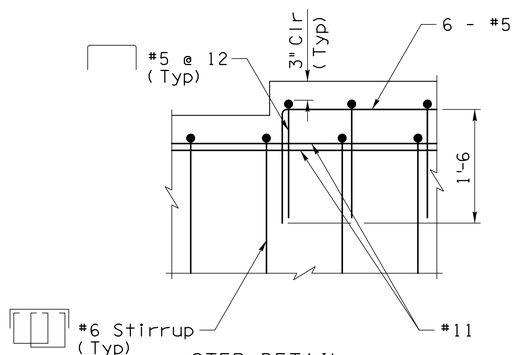
SECTION A
Scale: ½" = 1'-0



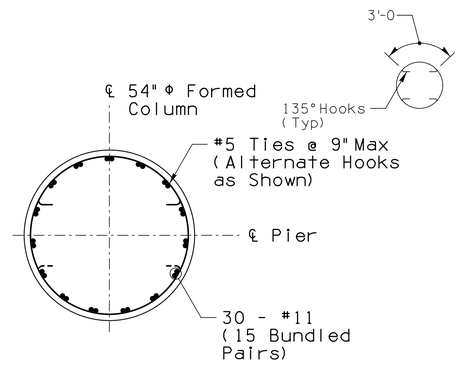
SECTION B
Scale: ½" = 1'-0

PIER NOTES:

1. Laps shall not be allowed in pier caps. All bars shall be furnished continuous, unless noted otherwise.
2. Stirrups shall be placed parallel to pier cap ends.



STEP DETAIL
Scale: 1" = 1'-0



SECTION C
Scale: ½" = 1'-0

	NAME	DATE
DESIGN	C. LABYE	06/25
DRAWN	T. TALBERT	06/25
CHECKED	B. ANSLEY	06/25

Registered Professional Engineer — CERTIFICATE NO. 33244 — ROBERT W. RINGWALD — Civil — Date Signed 06-30-2025

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COCHISE UPRR OP
PIER DETAILS

ROUTE	MILEPOST	STRUCTURE NO.
US191	62.63	2530

F.H.W.A. Arizona Division

STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
ARIZ.	191 CH 062	191-A(205)T	52	91	

LOCATION COCHISE OVERPASS

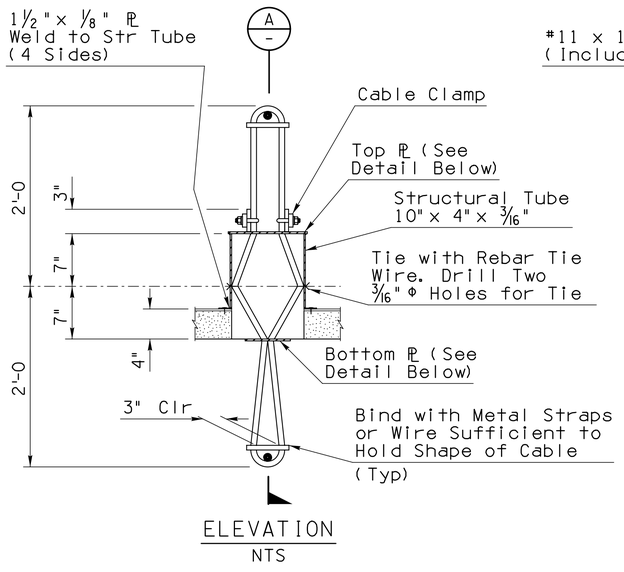
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TRACS NO. F0383 01C

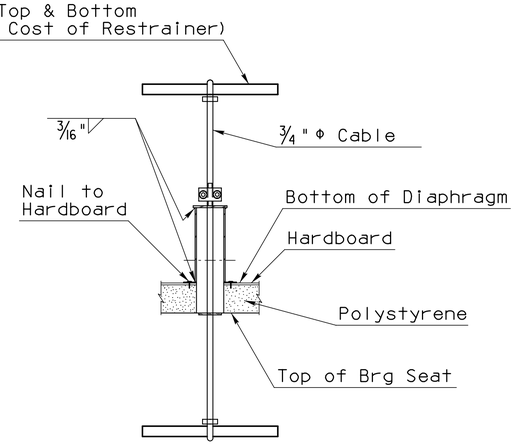
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SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

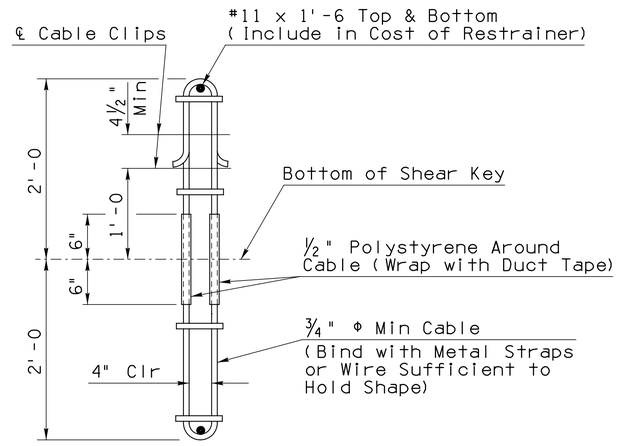
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ELEVATION
NTS

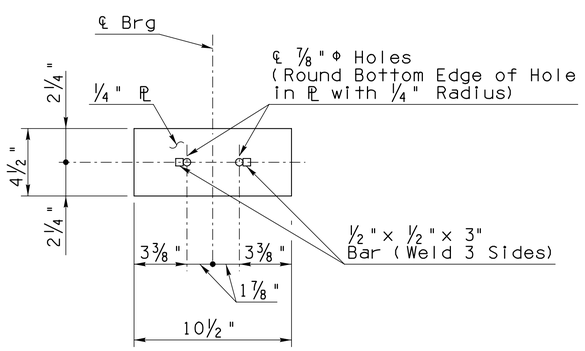


SECTION A–
NTS

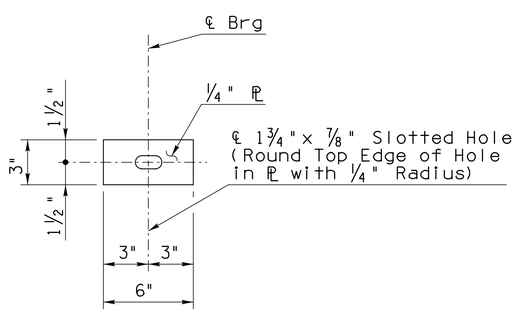


FIXED RESTRAINER DETAIL

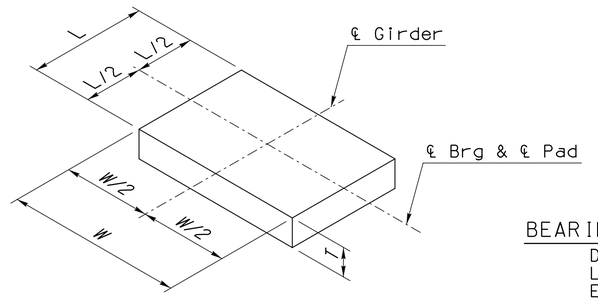
Restrainer Cables shall be ¾" Φ preformed 6x19 galvanized with a minimum breaking strength of 42 kips. One sample of cable 3 feet in length shall be furnished to the Engineer for testing.



TOP PLATE
NTS



BOTTOM PLATE
NTS



STEEL REINFORCED ELASTOMERIC
BEARING PAD DETAIL
NTS

BEARING PAD DESIGN CRITERIA

Design Method A
Low Temperature Zone B
Elastomer Grade 2
130 psi Shear Modulus (Hardness 55)
Elastomeric Bearing Pads Shall Be
Steel Laminated Neoprene Pads

	T	L	W	Design Load
Abts	4"	12"	14"	206 kips
Piers	3"	9"	24"	260 kips

EXPANSION RESTRAINER DETAIL

NOTES:

1. Seal all openings in structural tube to prohibit concrete intrusion.
2. Restrainer Cables shall be ¾" Φ preformed 6x19 galvanized with a minimum breaking strength of 42 kips. One sample of cable between 27" & 33" in length shall be furnished to the Engineer for testing. See Specifications.

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

Registered Professional Engineer
CERTIFICATE NO.
33244
ROBERT W.
RINGWALD
Date Signed 06-30-25

	NAME	DATE
DESIGN	C. LABYE	06/25
DRAWN	T. TALBERT	06/25
CHECKED	B. ANSLEY	06/25

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
BRIDGE DESIGN SERVICES

STA 116+
COCHISE UPRR OP
RESTRAINER & BEARING PAD DETAILS

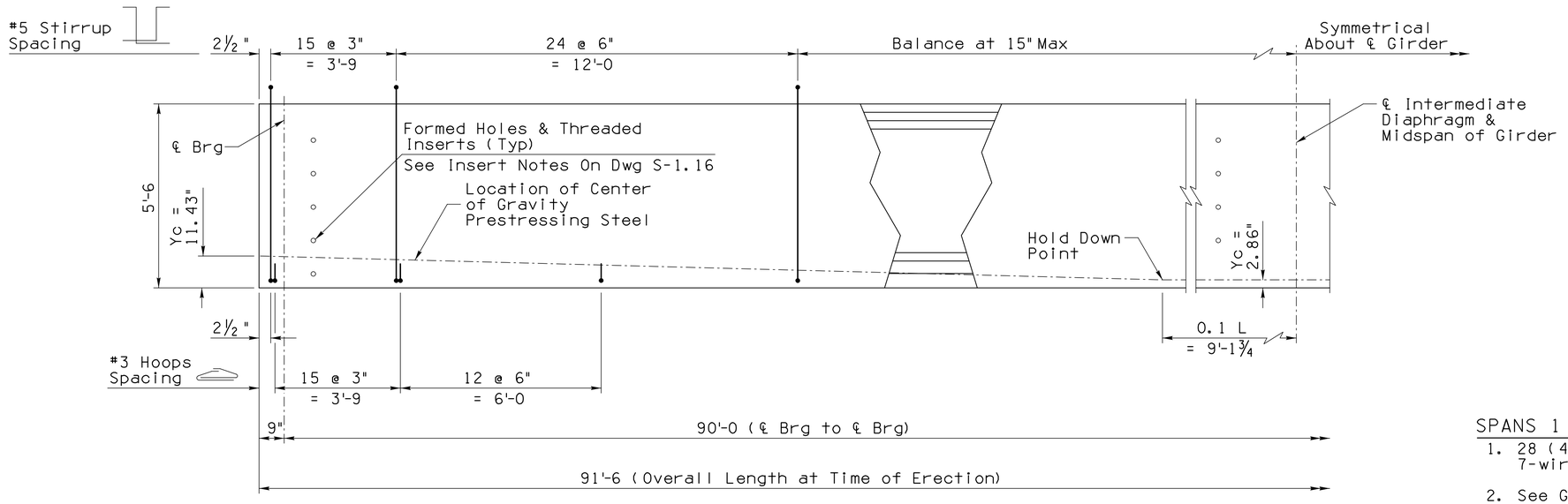
ROUTE US191
MILEPOST 62.63
STRUCTURE NO. 2530

F.H.W.A. Arizona Division

STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
ARIZ.	191 CH 062	191-A(205)T	53	91	

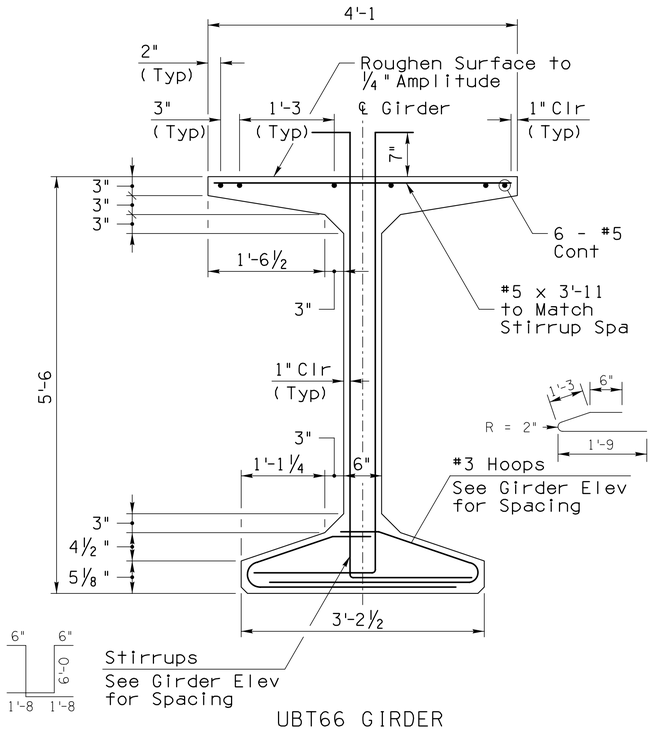
LOCATION COCHISE OVERPASS
DWG NO. S-1.13
TRACS NO. F0383 01C
___ OF ___

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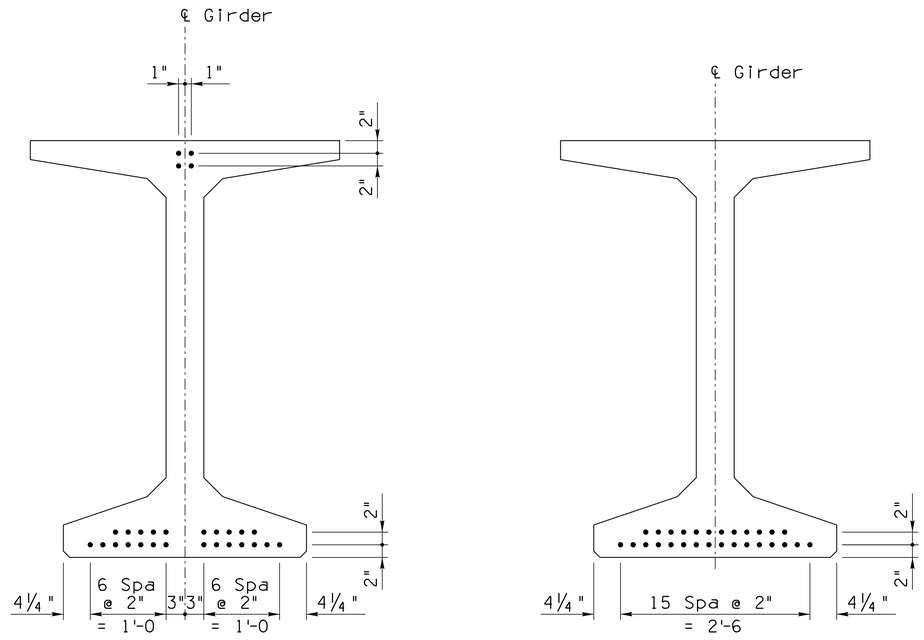
GIRDER ELEVATION - SPANS 1 & 3

Scale: ½" = 1'-0



UBT66 GIRDER

Scale: 1" = 1'-0



AT ENDS

MIDSPAN

STRAND PATTERN - SPANS 1 & 3

Reinforcement Omitted For Clarity

Scale: 1" = 1'-0

SPANS 1 & 3 PRESTRESSING NOTES:

1. 28 (4 harped & 24 straight) 0.6 inch dia 7-wire low-relaxation strands.
2. See General Notes on Dwg S-1.03.
3. Pi = 1230.39 kips. Initial tension before losses.

   Pw = 1046.29 kips. Working force remaining after all losses.

   f'ci = 6500 psi minimum strength at transfer.

   f'c = 9000 psi minimum strength at 28 days.
4. All low-relaxation strands shall be stressed to 0.75 f_pu.
5. All girders shall be prestressed by the pretensioning method only.
6. Use of masked strands will not be allowed.
7. Yc = Distance to center of gravity of prestressing measured from bottom of girder.
8. Cut strands flush with concrete at abutment ends & coat with an approved bituminous material.
9. See Dwg S-1.17 for strand extensions at pier.
10. For release & initial deflections, see Dwg S-1.17.
11. Girder design utilizes transformed section properties of prestressing strands.
12. Tops of girders shall be roughened transversely with a roughness amplitude of ¼".
13. See Insert Detail on Dwg S-1.16 for insert locations.

Registered Professional Engineer CERTIFICATE NO. 33244 ROBERT W. RINGWALD Date Signed 6/30/25

	NAME	DATE
DESIGN	C. LABYE	06/25
DRAWN	T. TALBERT	06/25
CHECKED	B. ANSLEY	06/25

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STA 116+
COCHISE UPRR OP
GIRDER DETAILS (1 OF 4)

ROUTE	MILEPOST	STRUCTURE NO.
US191	62.63	2530

F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
	ARIZ.	191 CH 062	191-A(205)T	54	91	

LOCATION: COCHISE OVERPASS

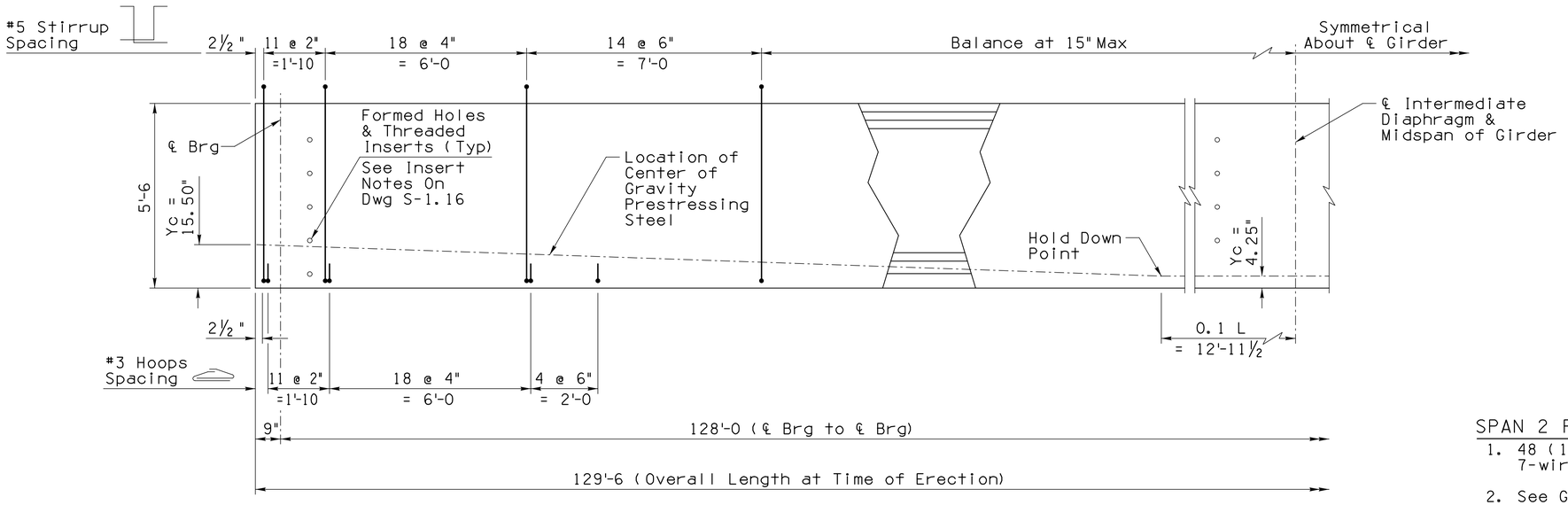
TRACS NO. F0383 01C

DWG NO. S-1.14

____ OF ____

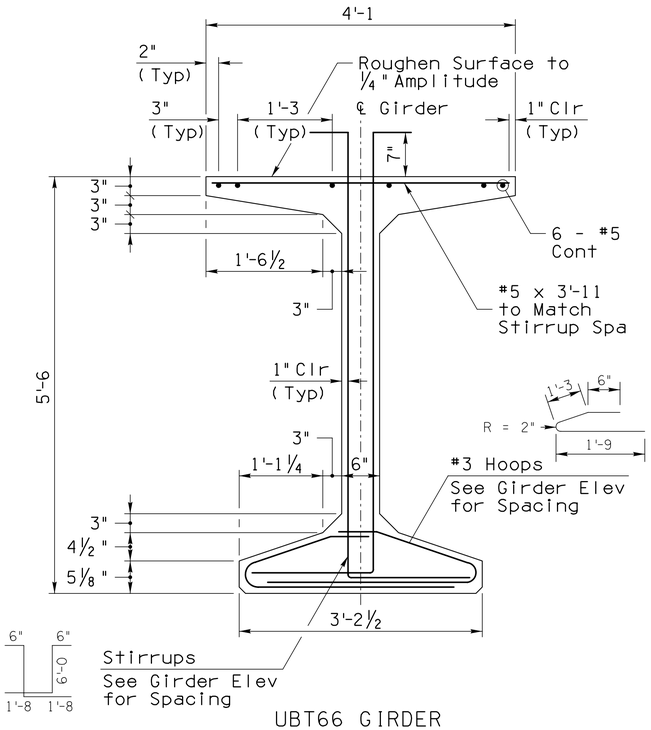
SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

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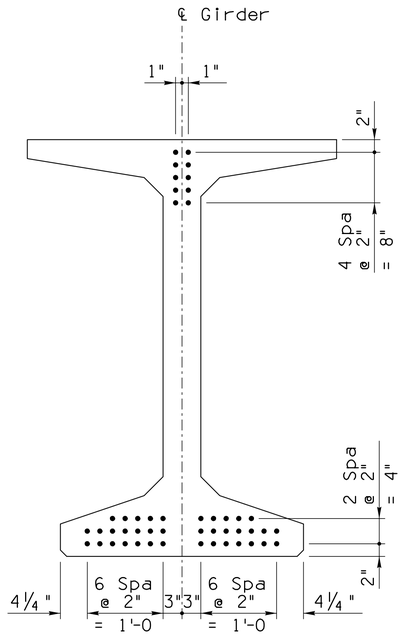
GIRDER ELEVATION - SPAN 2

Scale: ½" = 1'-0

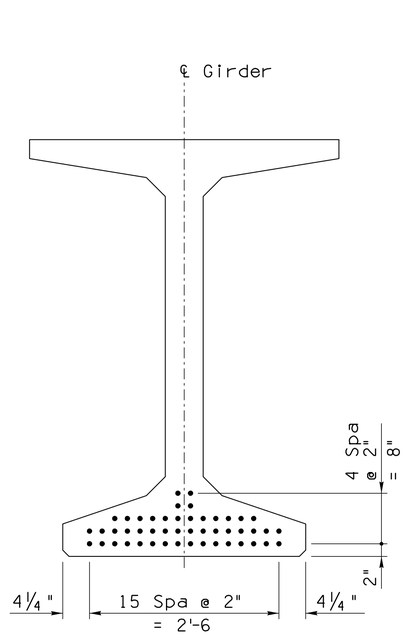


UBT66 GIRDER

Scale: 1" = 1'-0



AT ENDS



MIDSPAN

STRAND PATTERN - SPAN 2

Reinforcement Omitted For Clarity

Scale: 1" = 1'-0

SPAN 2 PRESTRESSING NOTES:

1. 48 (10 harped & 38 straight) 0.6 inch dia 7-wire low-relaxation strands.
2. See General Notes on Dwg S-1.03.
3. Pi = 2109.24 kips. Initial tension before losses.

   Pw = 1721.24 kips. Working force remaining after all losses.

   f'ci = 6900 psi minimum strength at transfer.

   f'c = 9000 psi minimum strength at 28 days.
4. All low-relaxation strands shall be stressed to 0.75 f_pu.
5. All girders shall be prestressed by the pretensioning method only.
6. Use of masked strands will not be allowed.
7. Yc = Distance to center of gravity of prestressing measured from bottom of girder.
8. Cut strands flush with concrete at abutment ends & coat with an approved bituminous material.
9. See Dwg S-1.17 for strand extensions at pier.
10. For release & initial deflections, see Dwg S-1.17.
11. Girder design utilizes transformed section properties of prestressing strands.
12. Tops of girders shall be roughened transversely with a roughness amplitude of ¼".
13. See Insert Detail on Dwg S-1.16 for insert locations.

Registered Professional Engineer CERTIFICATE NO. 33244 ROBERT W. RINGWALD Date Signed 6/30/25

	NAME	DATE
DESIGN	C. LABYE	06/25
DRAWN	T. TALBERT	06/25
CHECKED	B. ANSLEY	06/25

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BRIDGE DESIGN SERVICES

STA 116+
COCHISE UPRR OP
GIRDER DETAILS (2 OF 4)

ROUTE	MILEPOST	STRUCTURE NO.
US191	62.63	2530

F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
	ARIZ.	191 CH 062	191-A(205)T	55	91	

LOCATION: COCHISE OVERPASS

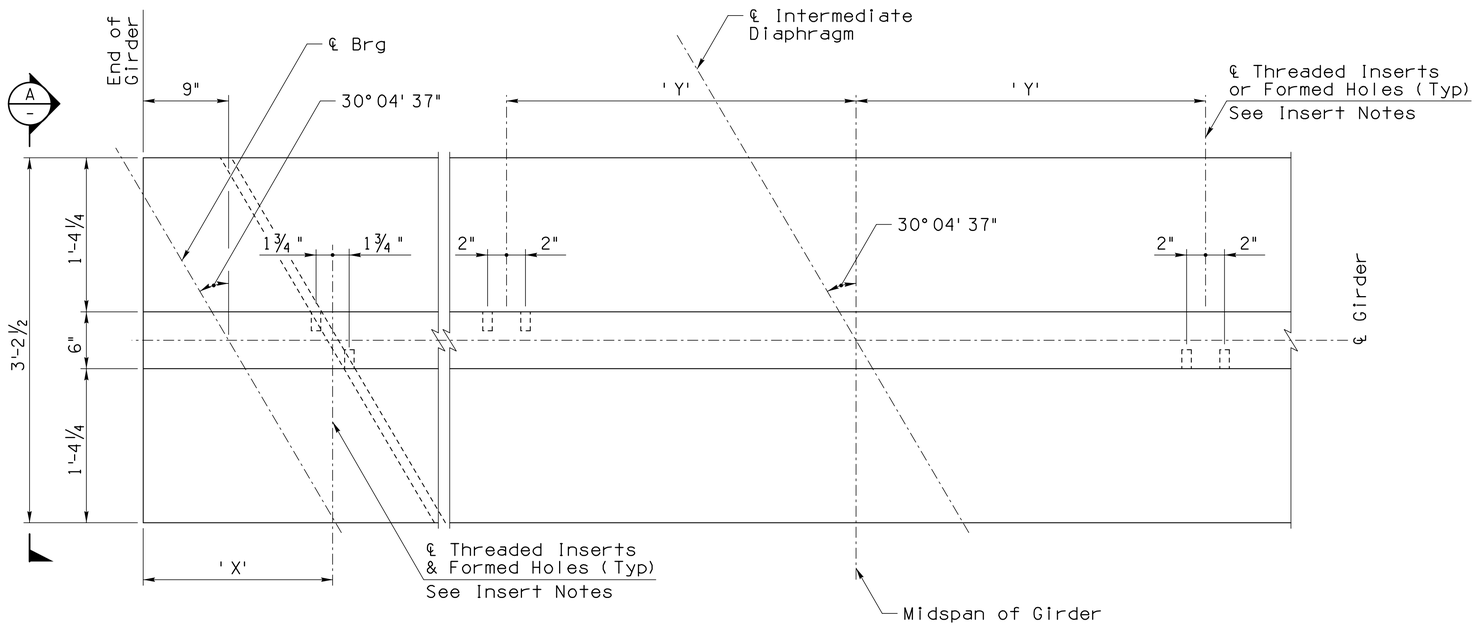
DWG NO. S-1.15

TRACS NO. F0383 01C

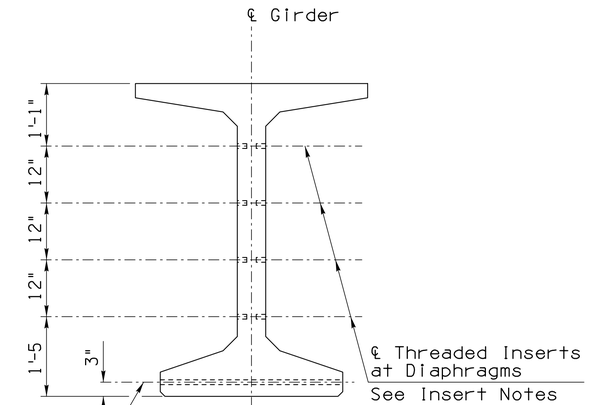
____ OF ____

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

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INSERT DETAIL
Scale: 1½" = 1'-0



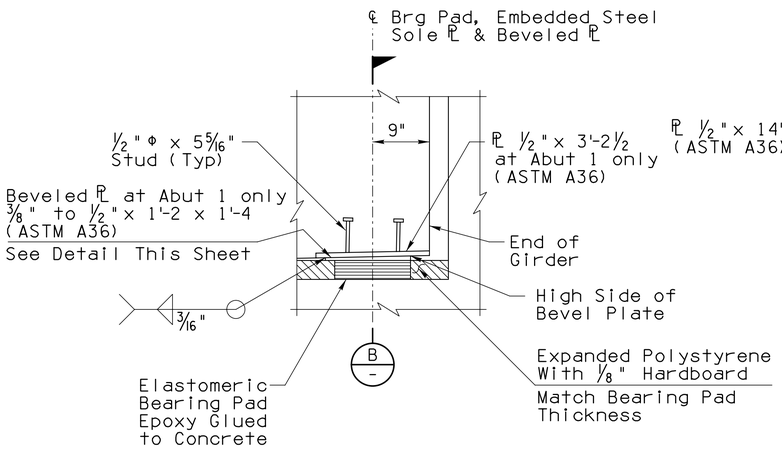
VIEW A-
Scale: ¾" = 1'-0

INSERT TABLE			
Location	' X'		' Y'
	South Support	North Support	
Span 1	3'-5⅛	1'-4⅞	2'-10⅛
Span 2	1'-4⅞	1'-4⅞	2'-10⅛
Span 3	1'-4⅞	3'-5⅛	2'-10⅛

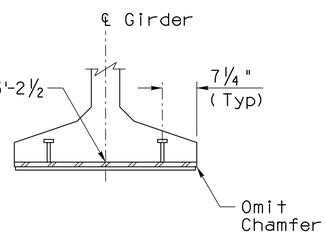
NOTE:
' X' & ' Y' are measured parallel to the girder ℄.

INSERT & FORMED HOLE NOTES:

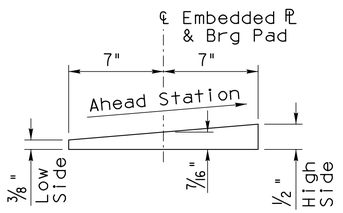
1. Threaded inserts are ferrule loop inserts for #5 reinforcing bars threaded on end. Inserts shall have a 10,800 lb ultimate pullout strength.
2. Threaded inserts shall be placed normal to girder surface.
3. Cost of threaded inserts & threaded bars shall be included in the bid item for prestressed girders.
4. Omit bottom flange formed holes at intermediate diaphragms.



GIRDER SHIM DETAIL
NTS



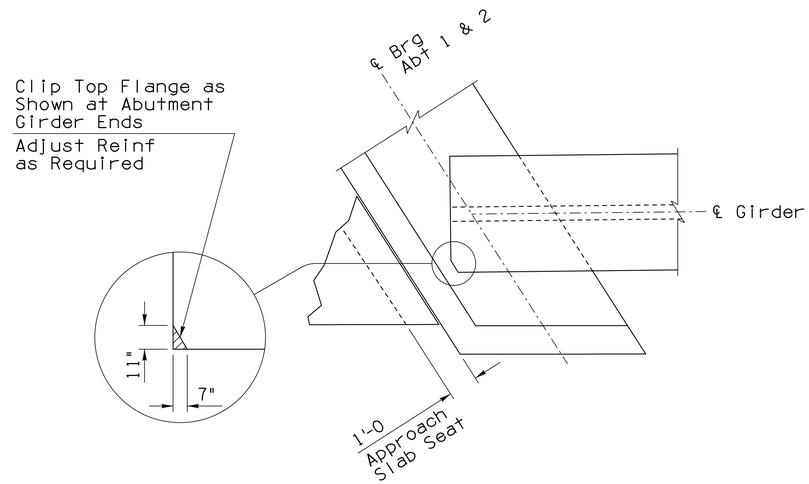
SECTION B-
NTS



BEVELED PLATE DETAIL
NTS

NOTES:

1. Beveled plate shall be placed centered on the bearing & girder.
2. Beveled Plates shall be placed only at Abt 1.



TOP FLANGE CLIP DETAIL
Scale: ⅜" = 1'-0

	NAME	DATE
DESIGN	C. LABYE	06/25
DRAWN	T. TALBERT	06/25
CHECKED	B. ANSLEY	06/25

Registered Professional Engineer — CERTIFICATE NO. 33244 — ROBERT W. RINGWALD — Date Signed 06-30-25

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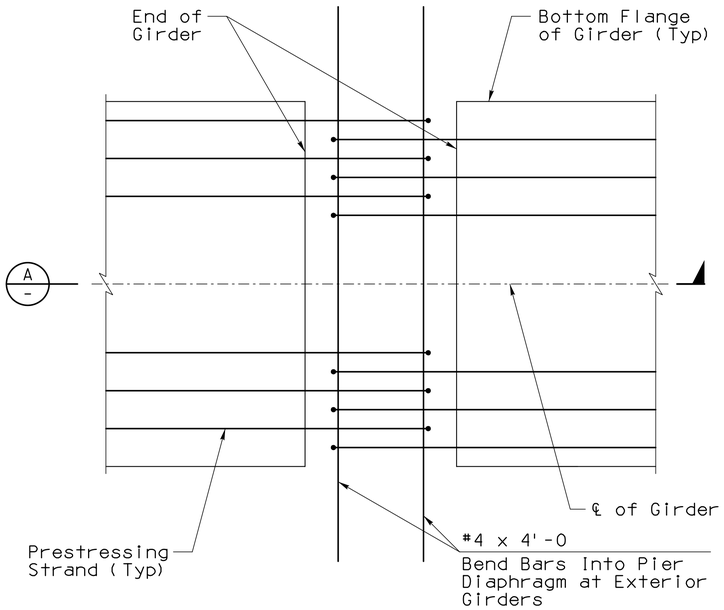
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INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
BRIDGE DESIGN SERVICES

STA 116+
COCHISE UPRR OP
GIRDER DETAILS (3 OF 4)

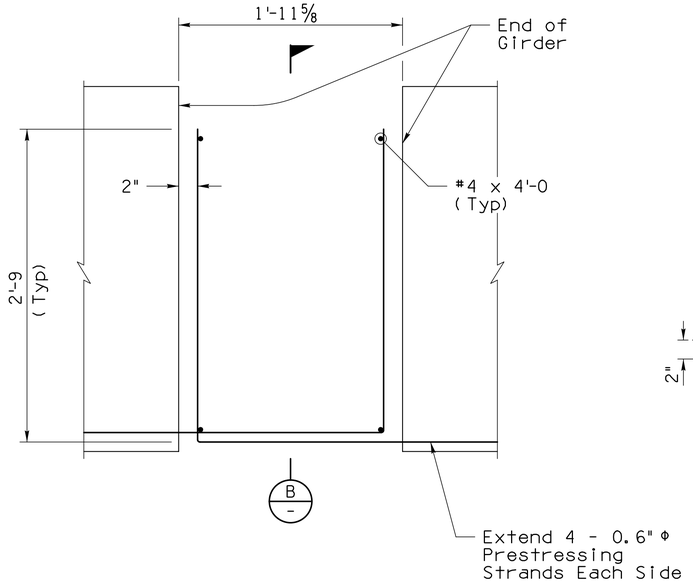
ROUTE	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US191	ARIZ.	191 CH 062	191-A(205)T	56	91	
MILEPOST 62.63	F.H.W.A. Arizona Division					
STRUCTURE NO. 2530	LOCATION: COCHISE OVERPASS					DWG NO. S-1.16
TRACS NO. F0383 01C						___ OF ___

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

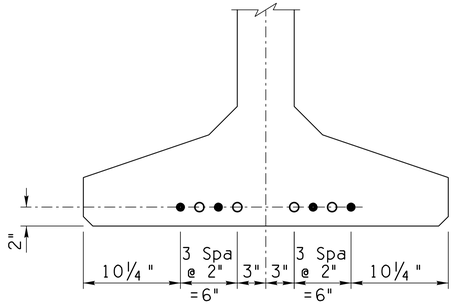
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6/4/2025 @ 3:55:32 PM TalbertT



TYPICAL END OF GIRDER PLAN AT PIER
Scale: 1½" = 1'-0



SECTION
Scale: 1½" = 1'-0 (A)

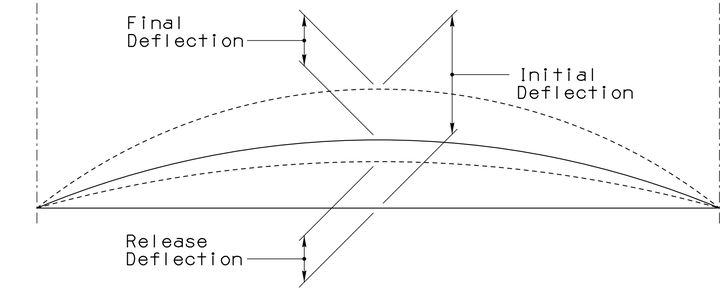


SECTION
Scale: 1½" = 1'-0 (B)

GIRDER STRAND EXTENSION LEGEND

- ○ Extended Strands
- ● Extended Strands for Opposite Girder

NOTE:
Extend 4 - 0.6" Φ prestressing strands from end of girder at pier. Bend strands into pier diaphragm at exterior girders. Bend strands to line up between opposing strands of opposite girders. Extended strands at exterior girders shall be rotated to maintain concrete cover.



DEFLECTION DIAGRAM
NTS

DEFLECTIONS (ft)									
		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Span 1	Release (Up)	0.038	0.068	0.088	0.100	0.105	0.100	0.088	0.068	0.038
Span 2	Release (Up)	0.102	0.178	0.231	0.260	0.271	0.260	0.231	0.178	0.102
Span 3	Release (Up)	0.038	0.068	0.088	0.100	0.105	0.100	0.088	0.068	0.038
Span 1	Initial (Up)	0.068	0.121	0.157	0.179	0.186	0.179	0.157	0.121	0.068
Span 2	Initial (Up)	0.180	0.316	0.665	0.459	0.479	0.459	0.409	0.316	0.180
Span 3	Initial (Up)	0.068	0.121	0.157	0.179	0.186	0.179	0.157	0.121	0.068
Span 1	Final (Down)	0.053	0.090	0.115	0.129	0.134	0.130	0.116	0.091	0.053
Span 2	Final (Down)	0.118	0.195	0.243	0.266	0.276	0.266	0.243	0.195	0.118
Span 3	Final (Down)	0.053	0.091	0.116	0.130	0.134	0.129	0.115	0.090	0.053

DEFLECTION NOTES:

1. Release Deflection equals the deflection that the prestressed girder undergoes at the time of strand release. The Release Deflection includes the dead load of the girder & the release prestressing force (including the effects of elastic shortening).
2. See Screed Elevation Notes on Dwg S-1.25.
3. Initial Deflection equals the deflection the prestressed girder undergoes at the time of erection prior to the diaphragm or deck pours. The Initial Deflection includes the deflection due to the dead load of the girder, the initial prestressing & the effects of creep up to the time of erection. (Assumed at 60 days after release).
4. Final Deflection equals the immediate downward deflection due to the dead load of the deck slab, diaphragms & barriers plus the effects of long-term creep on the composite girders.

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE- | SURVEY NO.

Registered Professional Engineer — CERTIFICATE NO. 33244 — ROBERT W. RINGWALD — State Standard Details

	NAME	DATE
DESIGN	C. LABYE	06/25
DRAWN	T. TALBERT	06/25
CHECKED	B. ANSLEY	06/25

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
BRIDGE DESIGN SERVICES

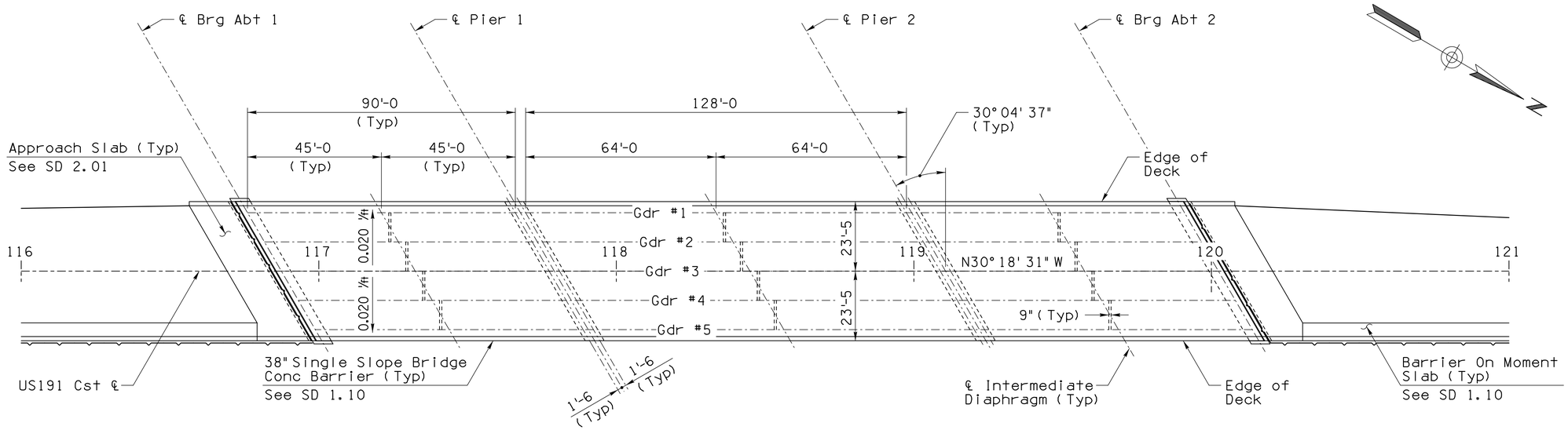
STA 116+
COCHISE UPRR OP
GIRDER DETAILS (4 OF 4)

ROUTE	MILEPOST	STRUCTURE NO.
US191	62.63	2530

F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
	ARIZ.	191 CH 062	191-A(205)T	57	91	

LOCATION: COCHISE OVERPASS
DWG NO. S-1.17
TRACS NO. F0383 01C
____ OF ____

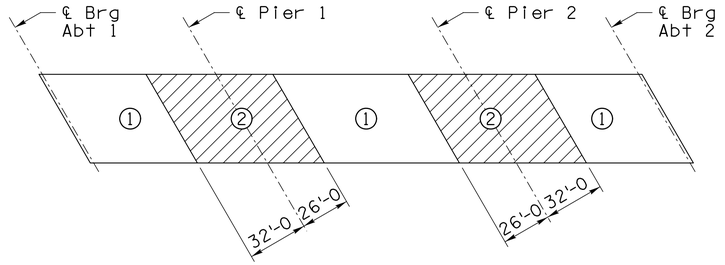
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FRAMING PLAN
Scale: 1" = 20'-0

GIRDER BRACING NOTE:

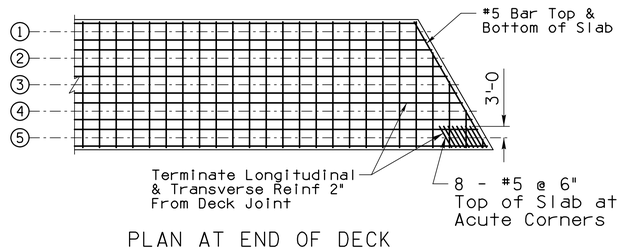
The contractor shall provide temporary bracing for the girders immediately after erection to ensure that they remain stable until the permanent intermediate diaphragms are constructed. The temporary bracing must remain in place until the intermediate diaphragms are poured & the concrete has reached the required 28 day strength. The cost of temporary bracing shall be included in the cost of the girders.



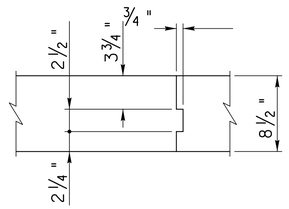
DECK POUR SEQUENCE PLAN
NTS

DECK PLACING NOTES:

1. Intermediate diaphragms & abutment diaphragms shall be poured a minimum of 12 hours prior to the deck pour.
2. Pier diaphragms shall be poured concurrent with the deck pour.
3. Longitudinal construction joints shall not be permitted except as approved by the Engineer.
4. Transverse construction joints shall be located in accordance with the "DECK POUR SEQUENCE PLAN".
5. Reinforcing shall be continuous through construction joints.
6. Construction joints shall be clean & free of laitance prior to placing adjacent concrete.
7. Numbers ① & ② indicate the placing sequence of deck concrete. Place section ② a minimum of 12 hours after the adjacent sections ① have been placed.
8. Sections ① & ② may be placed consecutively, but only in the direction from ① to ② & a minimum of 12 hours after the first section ① has been placed.
9. The contractor shall submit a deck pour schedule to the Engineer for approval prior to placing concrete.
10. Alternate pouring sequences require the Engineer's approval & shall be at no additional cost.



PLAN AT END OF DECK
NTS



KEYED CONSTRUCTION JOINT DETAIL
NTS

Registered Professional Engineer CERTIFICATE NO. 33244 ROBERT W. RINGWALD Date Signed 06/25/25

	NAME	DATE
DESIGN	C. LABYE	06/25
DRAWN	T. TALBERT	06/25
CHECKED	B. ANSLEY	06/25

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
BRIDGE DESIGN SERVICES

STA 116+
COCHISE UPRR OP
FRAMING PLAN

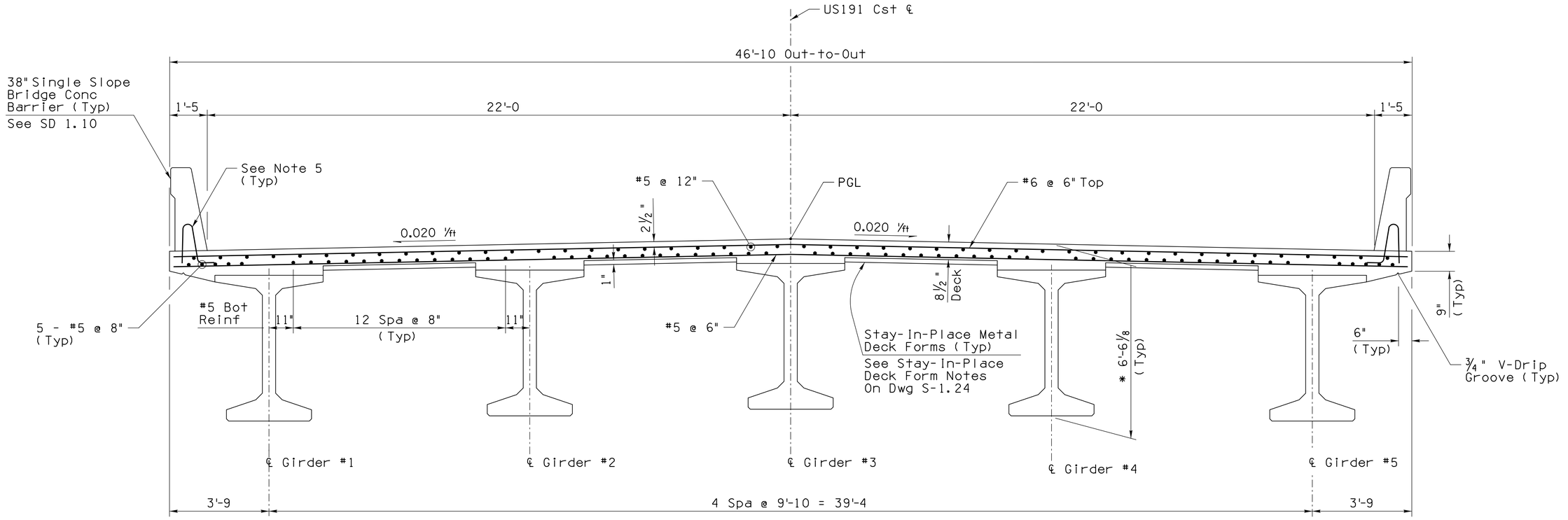
ROUTE	MILEPOST	STRUCTURE NO.
US191	62.63	2530

F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
	ARIZ.	191 CH 062	191-A(205)T	58	91	

LOCATION: COCHISE OVERPASS
DWG NO. S-1.18
TRACS NO. F0383 01C
____ OF ____

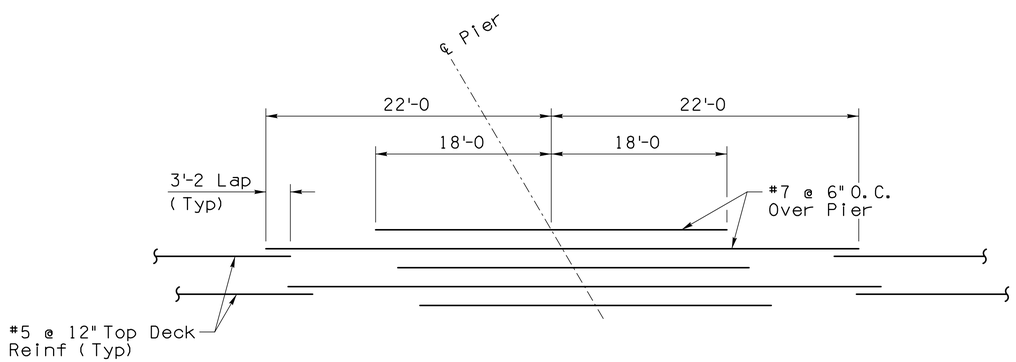
SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

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* Measured From Top of Deck to Bottom of Girder @ ℄ Girder & ℄ Brg.

TYPICAL SECTION THRU DECK
Scale: ½" = 1'-0



PARTIAL DECK TOP
LONGITUDINAL REINFORCING PLAN
NTS

NOTES:

1. All continuous horizontal bars in deck, diaphragms, single slope barrier, excluding transverse bars in the deck slab, may be spliced where required with minimum lap length as specified:

   #4 bars 1'-9
   #5 bars 2'-2
   #6 bars 2'-7

2. Transverse deck reinforcing splices where required shall be:

   Top Bars: 2'-0 minimum lap at centerline of interior bay.
   Bottom Bars: 2'-0 minimum lap at centerline of girder.

3. Bars shall not be spliced within the required lap length of the adjacent bars.

4. Transverse deck reinforcing shall be placed perpendicular to the bridge Cst ℄.

5. See SD 1.10 for details. These bars are included in the linear foot cost of the 38" Single Slope Bridge Concrete Barrier.

	NAME	DATE
DESIGN	C. LABYE	06/25
DRAWN	T. TALBERT	06/25
CHECKED	B. ANSLEY	06/25

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Registered Professional Engineer — CERTIFICATE NO. 33244 — ROBERT W. RINGWALD — State of Arizona

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
BRIDGE DESIGN SERVICES

STA 116+
COCHISE UPRR OP
DECK DETAILS

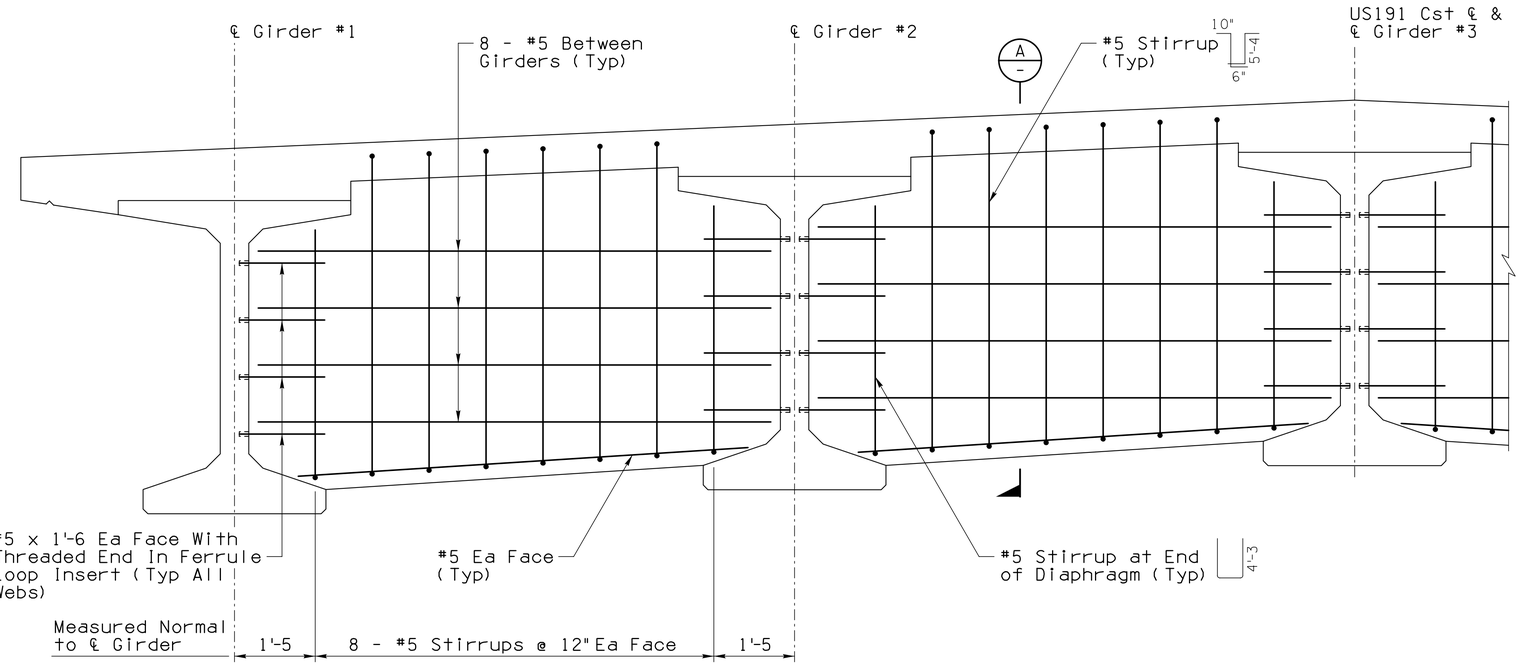
ROUTE	MILEPOST	STRUCTURE NO.
US191	62.63	2530

F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
	ARIZ.	191 CH 062	191-A(205)T	59	91	

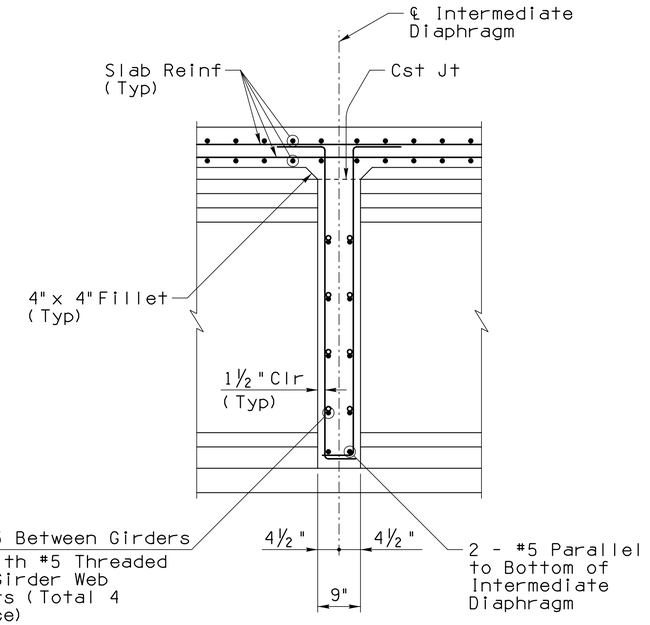
LOCATION: COCHISE OVERPASS
DWG NO. S-1.19
TRACS NO. F0383 01C
____ OF ____

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

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INTERMEDIATE DIAPHRAGM ELEVATION
Scale: 3/4" = 1'-0



SECTION A
Scale: 3/4" = 1'-0

	NAME	DATE
DESIGN	C. LABYE	06/25
DRAWN	T. TALBERT	06/25
CHECKED	B. ANSLEY	06/25

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Registered Professional Engineer CERTIFICATE NO. 33244 ROBERT W. RINGWALD State of Arizona

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
BRIDGE DESIGN SERVICES

STA 116+
COCHISE UPRR OP
DIAPHRAGM DETAILS (1 OF 3)

ROUTE	MILEPOST	STRUCTURE NO.
US191	62.63	2530

F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
	ARIZ.	191 CH 062	191-A(205)T	60	91	

LOCATION COCHISE OVERPASS

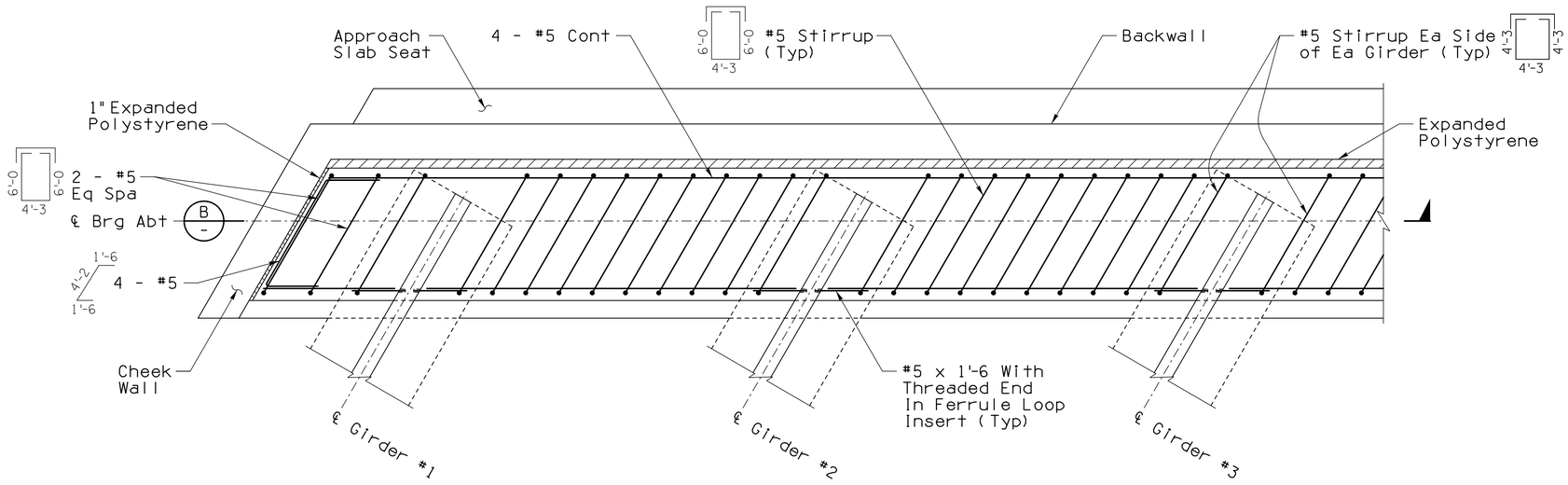
DWG NO. S-1.20

TRACS NO. F0383 01C

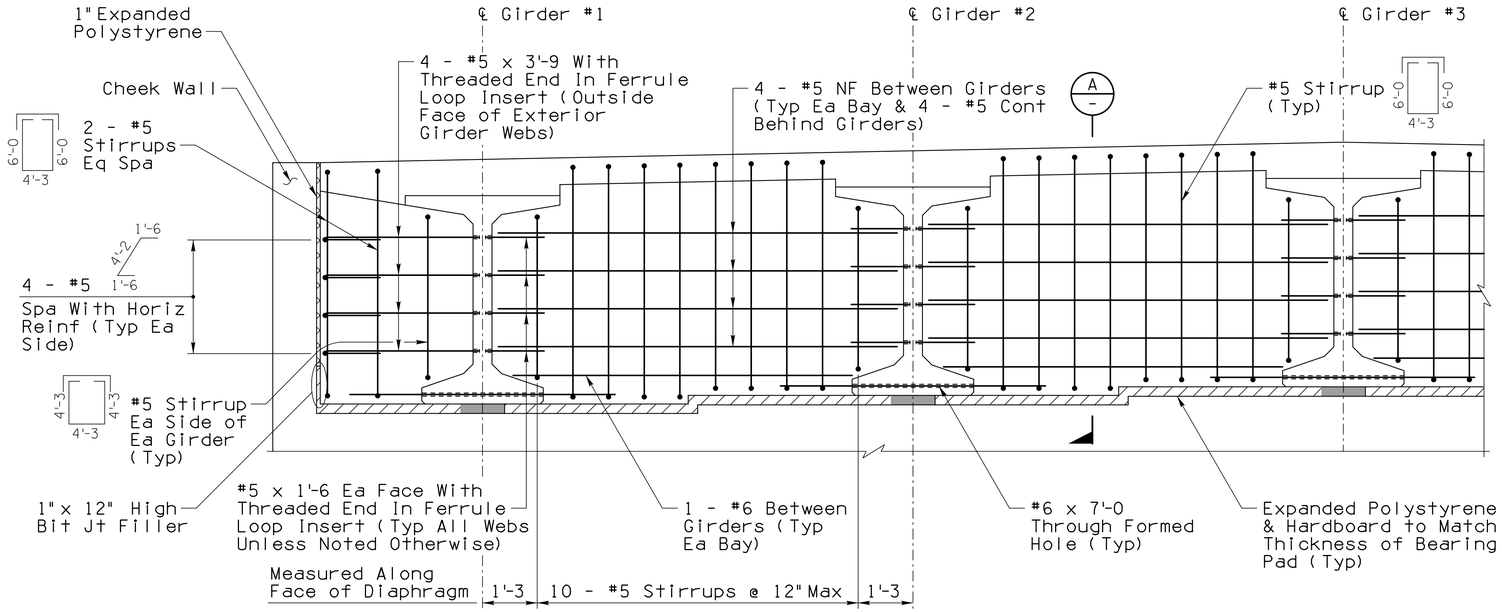
____ OF ____

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

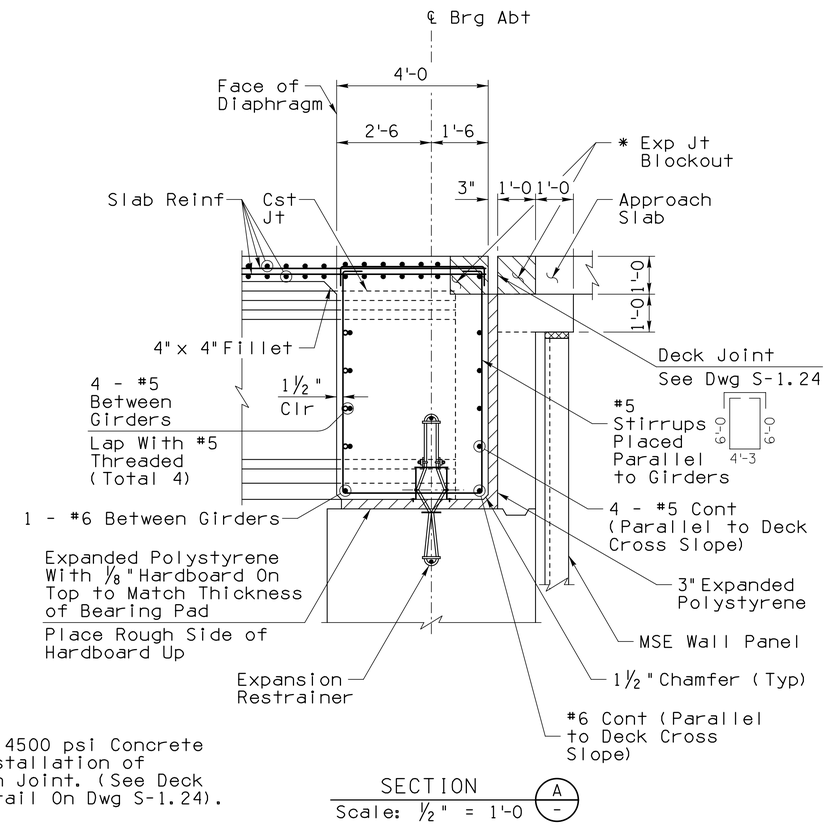
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ABUTMENT DIAPHRAGM PLAN
Scale: ½" = 1'-0



SECTION
Scale: ½" = 1'-0 B –



* Use Only 4500 psi Concrete After Installation of Expansion Joint. (See Deck Joint Detail On Dwg S-1.24).

SECTION
Scale: ½" = 1'-0 A –

	NAME	DATE
DESIGN	C. LABYE	06/25
DRAWN	T. TALBERT	06/25
CHECKED	B. ANSLEY	06/25

Registered Professional Engineer — CERTIFICATE NO. 33244 — ROBERT W. RINGWALD — Date Signed 6/30/25

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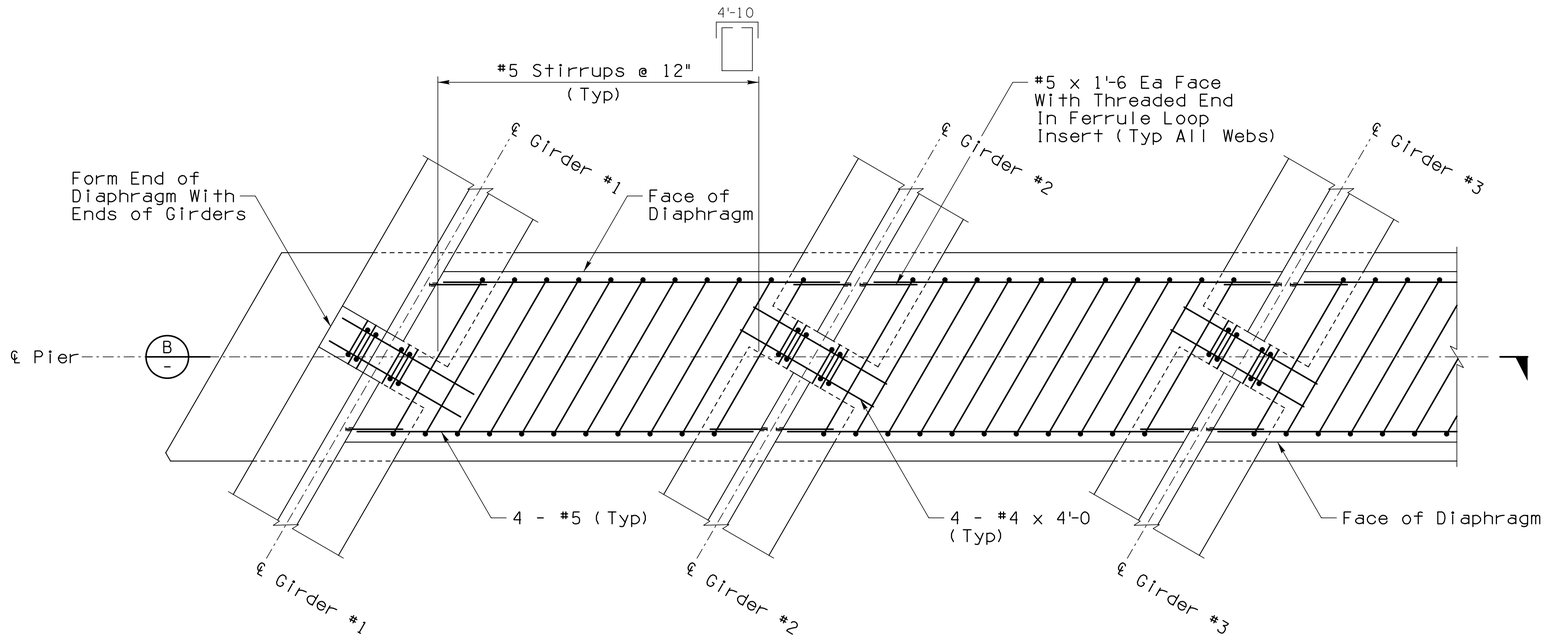
ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
BRIDGE DESIGN SERVICES

STA 89+
COCHISE UPRR OP
DIAPHRAGM DETAILS (2 OF 3)

ROUTE	F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US191		ARIZ.	191 CH 062	191-A(205)T	61	91	
MILEPOST 62.63	LOCATION COCHISE OVERPASS						DWG NO. S-1.21
STRUCTURE NO. 2530	TRACS NO. F0383 01C						____ OF ____

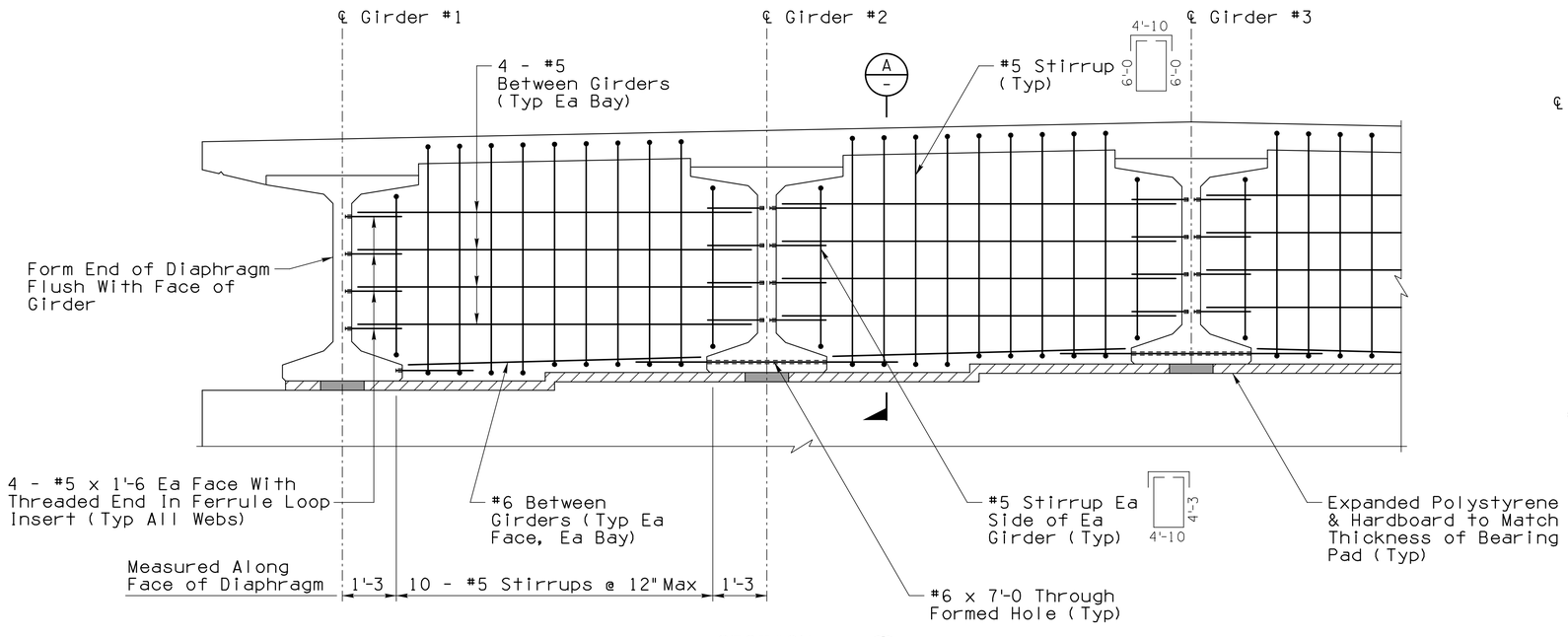
SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

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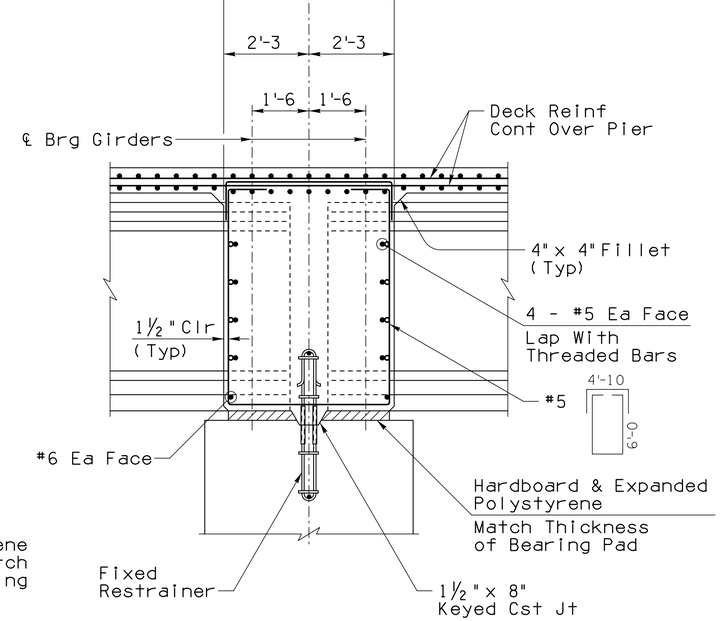
PIER DIAPHRAGM PLAN

Scale: ½" = 1'-0



SECTION

Scale: ½" = 1'-0 (B)



SECTION

Scale: ½" = 1'-0 (A)

	NAME	DATE
DESIGN	C. LABYE	06/25
DRAWN	T. TALBERT	06/25
CHECKED	B. ANSLEY	06/25

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
BRIDGE DESIGN SERVICES

STA 116+
COCHISE UPRR OP
DIAPHRAGM DETAILS (3 OF 3)

ROUTE	MILEPOST	STRUCTURE NO.
US191	62.63	2530

F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
	ARIZ.	191 CH 062	191-A(205)T	62	91	

LOCATION: COCHISE OVERPASS

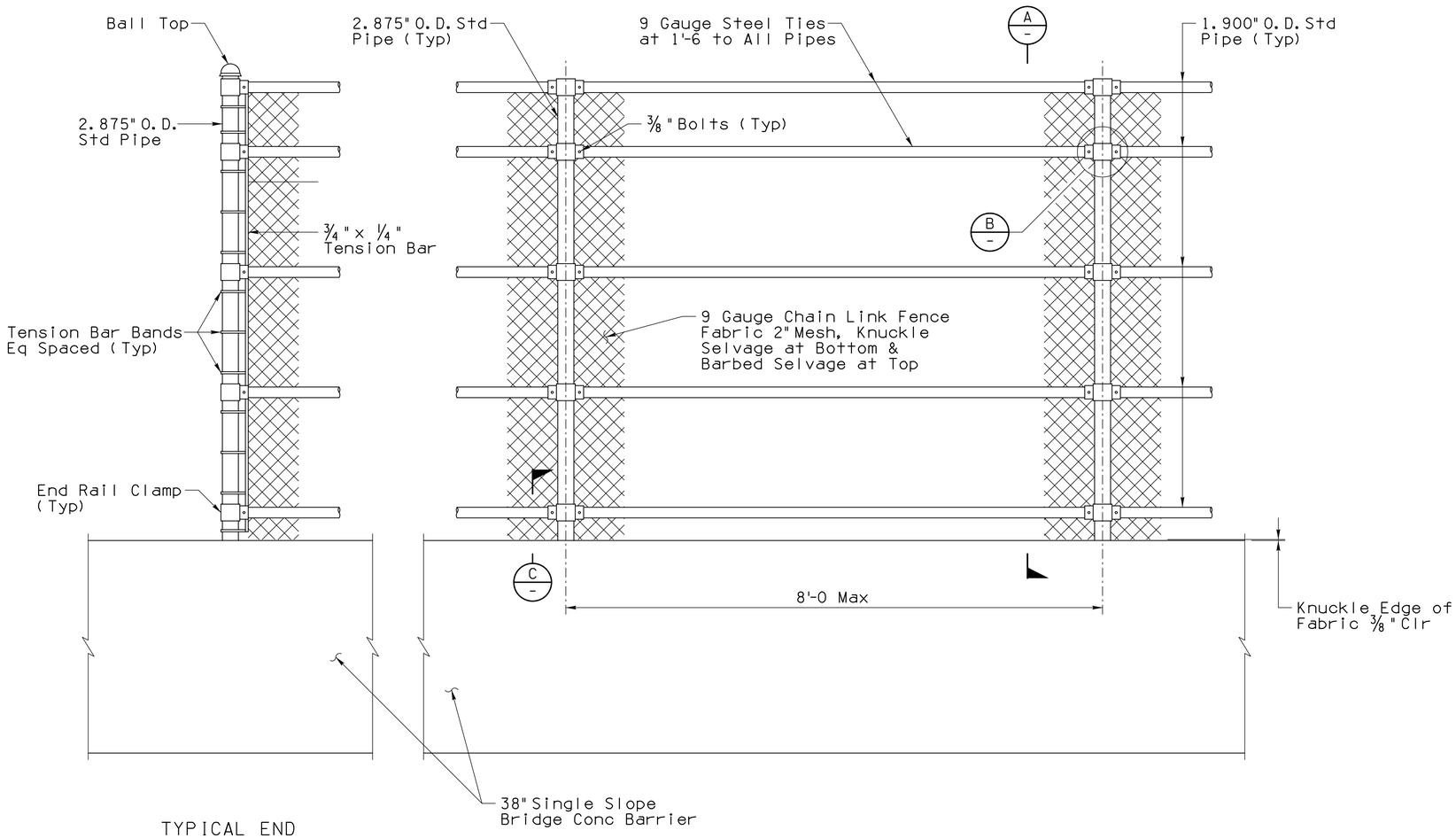
TRACS NO. F0383 01C

DWG NO. S-1.22

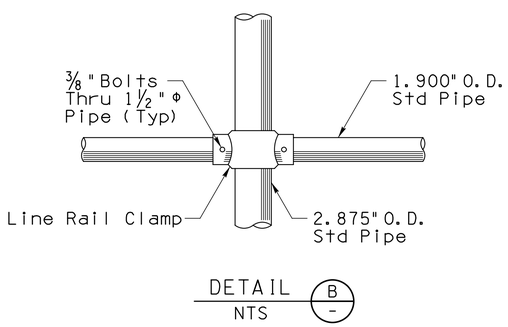
____ OF ____

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

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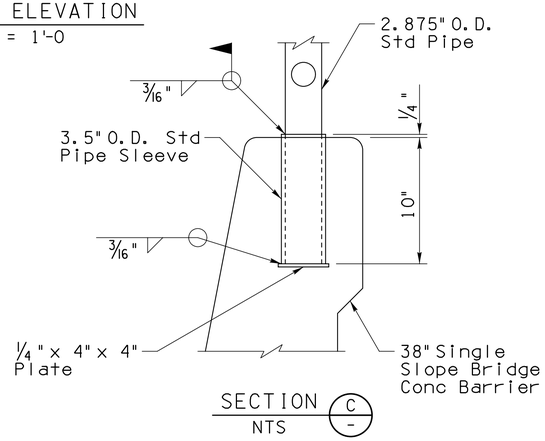


TYPICAL END POST ELEVATION
Scale: 1" = 1'-0

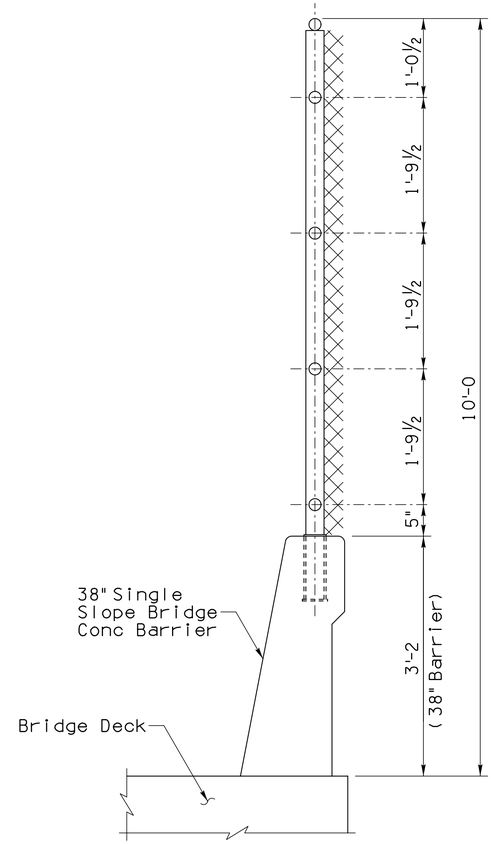


DETAIL B
NTS

TYPICAL PANEL ELEVATION
Scale: 1" = 1'-0



SECTION C
NTS



SECTION A
Scale: 1" = 1'-0

NOTES:

1. Chain link fence fabric, posts, fittings & hardware shall conform to AASHTO M181 - Grade I or Grade II. The zinc coated fabric shall be Class C or D.
2. All galvanizing that has been damaged in handling, transporting or welding shall be repaired by the application of a paste compound of an approved zinc powder & flux.
3. All exposed edges shall be ground smooth.
4. All bolt heads shall be installed on the roadway side.
5. Fence fabric shall be installed on the outside.
6. All welding shall conform to the requirements of the American Welding Society, ANSI/AASHTO/AWS D1.5 Bridge Welding Code, latest edition.

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

Registered Professional Engineer
CERTIFICATE NO. 33244
ROBERT W. RINGWALD
Date Signed 06-30-25

	NAME	DATE
DESIGN	C. LABYE	06/25
DRAWN	T. TALBERT	06/25
CHECKED	B. ANSLEY	06/25

TRANSPORTATION

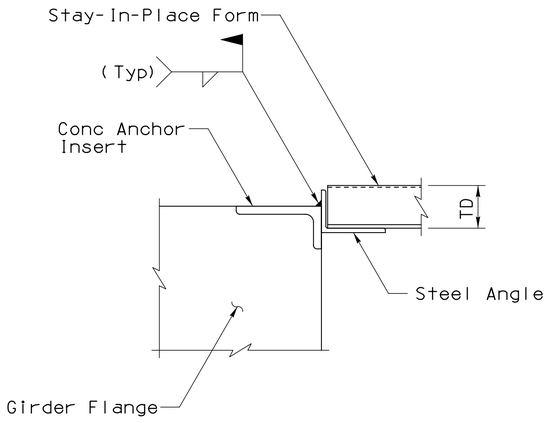
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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
BRIDGE DESIGN SERVICES

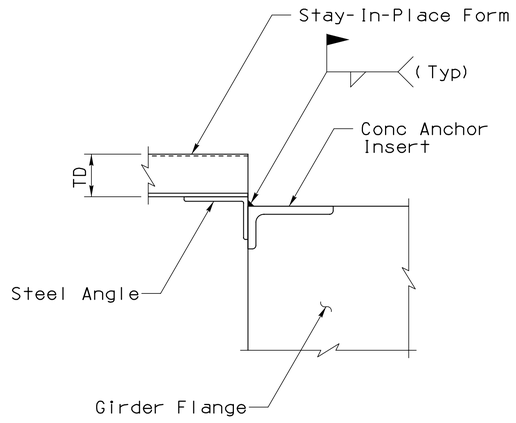
STA 116+
COCHISE UPRR OP
FENCE DETAILS

ROUTE	F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US191		ARIZ.	191 CH 062	191-A(205)T	63	91	
MILEPOST 62.63	LOCATION COCHISE OVERPASS						DWG NO. S-1.23
STRUCTURE NO. 2530	TRACS NO. F0383 01C						____ OF ____

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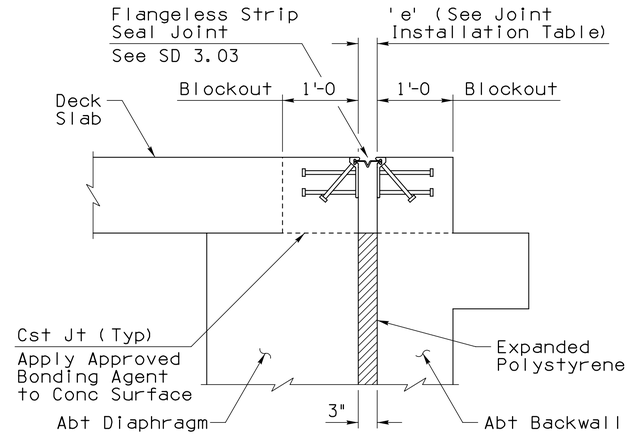
STAY-IN-PLACE FORM
(Build-Up < TD)
NTS



STAY-IN-PLACE FORM
(Build-Up > TD)
NTS

STAY-IN-PLACE DECK FORM NOTES:

1. Stay-in-place metal deck forms shall be used.
2. The elevation at the top of the girders shall be measured after erection of the girders & prior to placement of the deck forms.
3. The stay-in-place deck form manufacturer shall determine the sizes of all fasteners, welds, steel angles, concrete anchor inserts, welded anchors, etc. to support the required loads, including construction loads. The contractor shall submit fastening methods subject to the approval of the Engineer. Steel deck forms & supports shall be 18 gage minimum.
4. The concrete anchor inserts may be cast with the girder to accommodate the use of stay-in-place forms. Alternate methods of support will be considered provided the detail is adequate to support the loads, prevent leakage & allow adjustment for the varying build-up to maintain a constant deck thickness. The deck panels & angles shall be galvanized in accordance with ASTM A123.
5. The contractor shall submit shop drawings showing details of the stay-in-place deck forms including the method of installation, fastening system, design calculations (including forms & fasteners) to the Bridge Engineer for approval. The deck form submittal must be made simultaneously with the precast girder shop drawings to ensure coordination between the girder fabrication & the stay-in-place deck form design. Stay-in-place deck form details & design calculations shall be sealed by a Professional Engineer licensed in the State of Arizona.
6. The contractor shall use due care in the placement of the girders to ensure a constant distance is maintained between girder flanges.
7. The cost of stay-in-place forms is incidental to the cost of superstructure concrete.
8. The bridge design has an assumed dead load of 15 psf for the stay-in-place deck forms & the additional concrete. This dead load is applied to the clear area between girders (form area).



DECK JOINT DETAIL AT ABUTMENTS
Scale: 1" = 1'-0

JOINT INSTALLATION TABLE ABUTMENTS M.R. = 1.15"	
Temperature °F	Opening Width 'e'
90	1 13/16 "
80	1 7/8 "
70	2"
60	2 1/8 "
50	2 3/16 "
40	2 5/16 "
30	2 3/8 "
20	2 1/2 "

	NAME	DATE
DESIGN	C. LABYE	06/25
DRAWN	T. TALBERT	06/25
CHECKED	B. ANSLEY	06/25

Registered Professional Engineer CERTIFICATE NO. 33244 ROBERT W. RINGWALD Civil Date Signed 06-30-2025

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
BRIDGE DESIGN SERVICES

STA 116+
COCHISE UPRR OP
MISCELLANEOUS DETAILS

ROUTE	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US191	ARIZ.	191 CH 062	191-A(205)T	64	91	
MILEPOST 62.63	LOCATION: COCHISE OVERPASS					DWG NO. S-1.24
STRUCTURE NO. 2530	TRACS NO. F0383 01C					___ OF ___

F.H.W.A. Arizona Division

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

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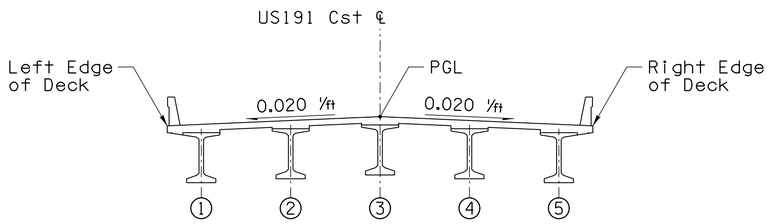
SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

BRIDGE SCREED ELEVATIONS

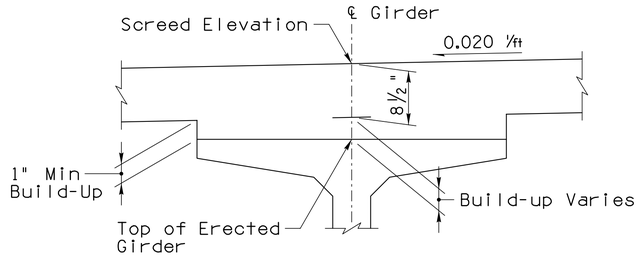
SPAN 1											
	℄ Brg Abt 1	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	℄ Brg Pier 1
Lt Edge Deck	4192.57	4192.65	4192.72	4192.79	4192.84	4192.89	4192.93	4192.97	4192.99	4193.01	4193.02
Girder #1	4192.63	4192.71	4192.78	4192.85	4192.91	4192.96	4193.00	4193.03	4193.06	4193.07	4193.09
Girder #2	4192.78	4192.86	4192.94	4193.01	4193.07	4193.12	4193.17	4193.20	4193.23	4193.25	4193.27
Girder #3	4192.94	4193.02	4193.10	4193.17	4193.23	4193.29	4193.34	4193.37	4193.40	4193.43	4193.44
US191 Cst ℄	4192.94	4193.02	4193.10	4193.17	4193.23	4193.29	4193.34	4193.37	4193.40	4193.43	4193.44
Girder #4	4192.69	4192.78	4192.86	4192.94	4193.00	4193.06	4193.11	4193.15	4193.18	4193.21	4193.23
Girder #5	4192.45	4192.54	4192.62	4192.70	4192.77	4192.83	4192.88	4192.92	4192.96	4192.98	4193.01
Rt Edge Deck	4192.36	4192.45	4192.53	4192.61	4192.68	4192.74	4192.79	4192.84	4192.87	4192.90	4192.92

SPAN 2											
	℄ Brg Pier 1	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	℄ Brg Pier 2
Lt Edge Deck	4193.03	4193.12	4193.20	4193.26	4193.29	4193.30	4193.28	4193.24	4193.17	4193.08	4192.98
Girder #1	4193.10	4193.19	4193.27	4193.33	4193.37	4193.38	4193.36	4193.32	4193.25	4193.16	4193.06
Girder #2	4193.28	4193.37	4193.46	4193.52	4193.56	4193.58	4193.56	4193.52	4193.46	4193.37	4193.27
Girder #3	4193.46	4193.56	4193.65	4193.71	4193.76	4193.77	4193.76	4193.73	4193.66	4193.58	4193.49
US191 Cst ℄	4193.46	4193.56	4193.65	4193.71	4193.76	4193.77	4193.76	4193.73	4193.66	4193.58	4193.49
Girder #4	4193.24	4193.34	4193.44	4193.51	4193.55	4193.57	4193.57	4193.53	4193.48	4193.40	4193.31
Girder #5	4193.02	4193.13	4193.23	4193.30	4193.35	4193.37	4193.37	4193.34	4193.29	4193.21	4193.12
Rt Edge Deck	4192.94	4193.05	4193.14	4193.22	4193.27	4193.30	4193.29	4193.27	4193.21	4193.14	4193.05

SPAN 3											
	℄ Brg Pier 2	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	℄ Brg Abt 2
Lt Edge Deck	4192.96	4192.94	4192.92	4192.89	4192.85	4192.80	4192.75	4192.68	4192.61	4192.53	4192.44
Girder #1	4193.05	4193.03	4193.00	4192.97	4192.94	4192.89	4192.83	4192.77	4192.70	4192.62	4192.53
Girder #2	4193.26	4193.25	4193.23	4193.20	4193.16	4193.12	4193.07	4193.00	4192.93	4192.86	4192.77
Girder #3	4193.48	4193.46	4193.44	4193.42	4193.39	4193.34	4193.29	4193.24	4193.17	4193.09	4193.01
US191 Cst ℄	4193.48	4193.46	4193.44	4193.42	4193.39	4193.34	4193.29	4193.24	4193.17	4193.09	4193.01
Girder #4	4193.30	4193.28	4193.27	4193.25	4193.22	4193.18	4193.13	4193.07	4193.01	4192.93	4192.86
Girder #5	4193.11	4193.11	4193.09	4193.07	4193.04	4193.01	4192.96	4192.91	4192.84	4192.77	4192.70
Rt Edge Deck	4193.04	4193.04	4193.02	4193.01	4192.98	4192.94	4192.90	4192.84	4192.78	4192.71	4192.64



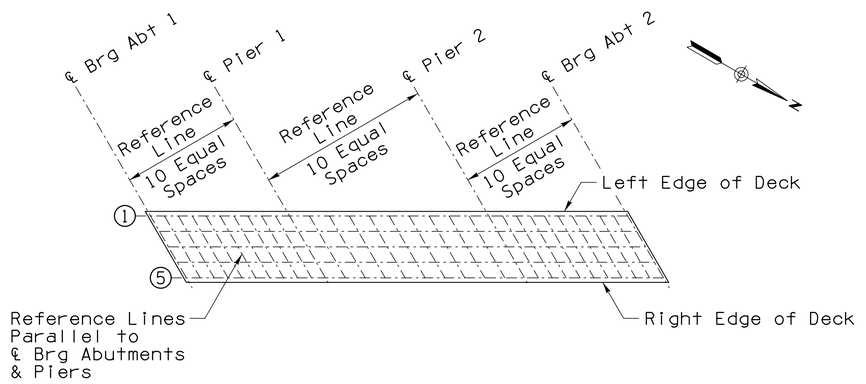
DECK SECTION
NTS



TYPICAL SECTION
NTS

SCREED ELEVATION NOTES:

1. The top of Erected Girder Elevation shall be measured in the field at tenth points & submitted to the Engineer for evaluation of the build-up prior to setting deck forms.
2. The Screed Elevation includes an allowance for the deflection due to the dead load of the concrete deck slab (including stay-in-place form dead load), diaphragms, barriers & the effect of long-term creep.
3. Screed Elevations shall be used in setting screeds. Adjustments to the Screed Elevations, if necessary, will be determined by the Bridge Engineer after reviewing the top of erected girder elevations. DO NOT USE FINISHED GRADE ELEVATIONS FOR SETTING SCREEDS.



TYPICAL SCREED REFERENCE LINE PLAN
NTS

Registered Professional Engineer CERTIFICATE NO. 33244 ROBERT W. RINGWALD Date Signed 6/30/25

	NAME	DATE
DESIGN	C. LABYE	06/25
DRAWN	T. TALBERT	06/25
CHECKED	B. ANSLEY	06/25

TRANSPORTATION
AECOM TECHNICAL SERVICES, Inc.
7720 N. 16th St., Suite 100
Phoenix, Arizona 85020
T 602.371.1100
AECOM
www.aecom.com

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
BRIDGE DESIGN SERVICES

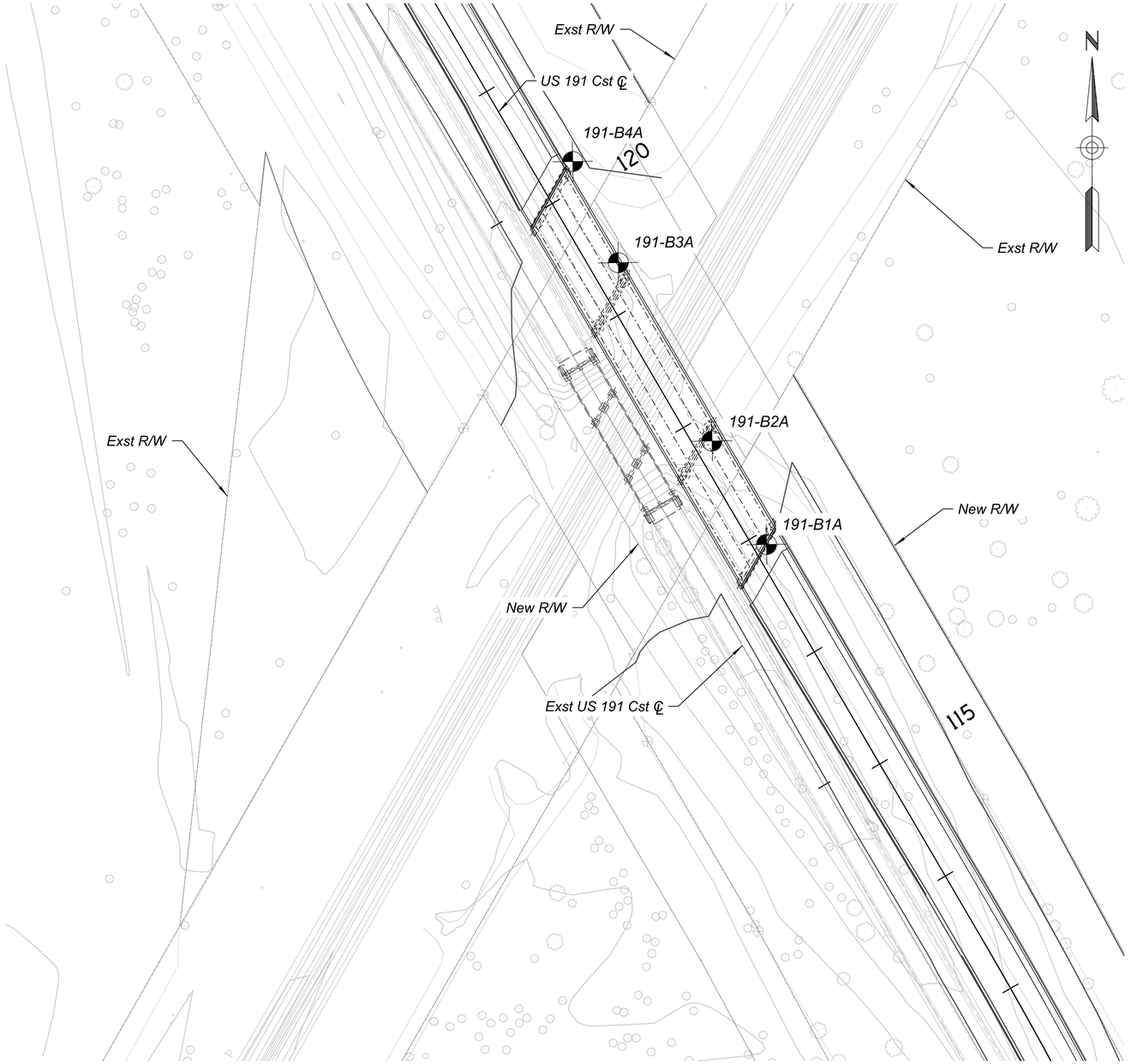
STA 116+
COCHISE UPRR OP
SCREED ELEVATIONS

ROUTE	MILEPOST	STRUCTURE NO.
US191	62.63	2530

F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
	ARIZ.	191 CH 062	191-A(205)T	65	91	

LOCATION: COCHISE OVERPASS
DWG NO. S-1.25
TRACS NO. F0383 01C
___ OF ___

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PLAN

Scale: 1" = 50'-0"

Boring	Depth	US 191 Cst ℄ Station	Offset
191-B1A	101.5 ft	116+90	10 ft R
191-B2A	100.0 ft	117+80	14 ft R
191-B3A	101.5 ft	119+35	21 ft R
191-B4A	100.9 ft	120+20	30 ft R

LEGEND:

Boring Location & ID

NOTES:

1. *General soil descriptions and indicated boundaries are based on engineering interpretation of available subsurface information by the geotechnical engineer and may not reflect actual variation in subsurface conditions between borings and samples. The location of contacts between strata shown on the logs are generally approximate, and changes between material types may be gradual rather than abrupt. Classification of soil materials is in general accordance with ASTM D2488 and is based on field observation unless accompanied by mechanical analysis presented in the Final Geotechnical Exploration Report Revision No. 1.*

2. *The observed water levels and/or moisture conditions indicated on the boring logs are as recorded at the time of exploration. These water levels and/or moisture conditions may vary considerably with time according to the prevailing climate, rainfall or other factors and are otherwise dependent upon the duration of and methods used in the exploration program.*

3. *Sound engineering judgment was exercised in preparing the subsurface information presented on these sheets. This information was prepared and is intended for design and estimate purposes. Its presentation on the plans or elsewhere is for the purpose of providing intended users with access to the same information as the State and its designers. This subsurface information interpretation is presented in good faith and is not intended as a substitute for personal investigation, independent interpretations or judgment of the contractor.*

4. *Excavations may encounter caving sands and groundwater. The contractor shall be prepared to deal with such conditions.*

5. *A 140-lb hammer, 30-inch free-fall, was used to drive the 2-inch O.D. Standard Penetration Test (SPT) split-spoon sampler (ASTM D1586).*

6. *For further Information, refer to the Final Geotechnical Exploration Report Revision No. 1.*

7. *All geotechnical reports prepared for this project shall be considered by the contractor in developing bid documents.*

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

Call at least two full working days before you begin excavation. ARIZONA 811 Arizona Blue Stake, Inc. Dial 8-1-1 or 1-800-STAKE-IT (782-5348) in Maricopa County: (602) 263-1100

Registered Professional Engineer (Civil) CERTIFICATE 37284 DANIEL N. FRECHETTE Date Signed 06/20/2025 ARIZONA, U.S.A.

	NAME	DATE
DESIGN	D. FRECHETTE	06/25
DRAWN	H. MILLS	06/25
CHECKED	D. FRECHETTE	06/25

ethos ENGINEERING, LLC. 9180 S Kyrene Rd Suite #104 Tempe, AZ 85284

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
BRIDGE DESIGN SERVICES

STA 89+
COCHISE UPRR OP
FOUNDATION DATA SHEET 01

ROUTE	F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US191		ARIZ.	191 CH 062	191-A(205)T	66	91	
MILEPOST 62.88	LOCATION COCHISE OVERPASS						DWG NO. SF-1.01
STRUCTURE NO. 2530	TRACS NO. F0383 01D						____ OF____

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LOG OF BORING 191-B1A

ethos ENGINEERING, LLC.	PROJECT NAME: US 191, Cochise Railroad Overpass		BORING ID: 191-B1A
	PROJECT LOCATION: Cochise County, Arizona		SURFACE ELEVATION: 4169'
PROJECT NUMBER: 2022001	CLIENT NAME: AECOM Technical Services, Inc.		DATE STARTED: 10/21/2024 / DATE COMPLETED: 10/22/2024
TOOLING: 4-1/4" ID Hollow Stem Auger	DRILLING METHOD(S): Hollow Stem Auger		HAMMER TYPE: Auto / HAMMER EFFICIENCY: 84%
DRILLING FIRM: Geomechanics Southwest Inc.	DRILLER: B. Noran	FIELD ENGINEER: J. Miller	REVIEWED BY: D. Frechette
DRILL RIG: CME-75/ #120	REPORTED DEPTH: 101.5'	GW DEPTH: 90'	LATITUDE: 32.13334 / LONGITUDE: -109.91036
STATION, OFFSET: US 191 CST CL 116+90 / 10' R			

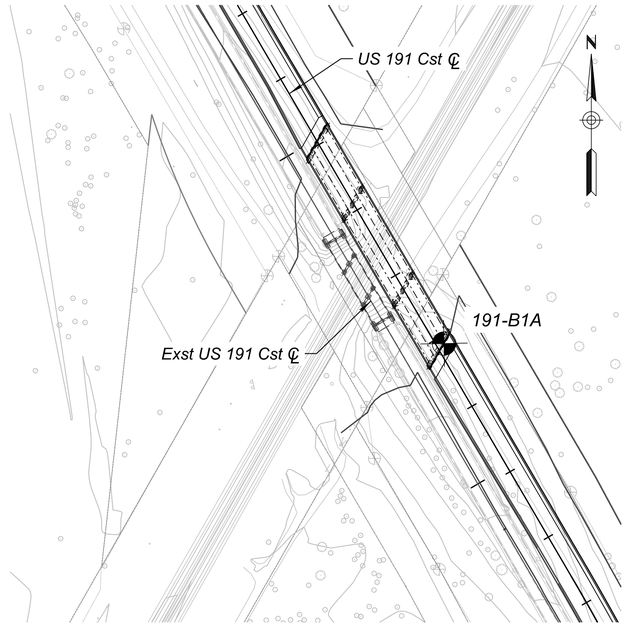
Elevation (feet)	Depth (feet)	Graphic Log	Soil Description and Remarks	Samples: Bulk	Samples: Driven	Samples: Blow Counts/6"	Samples: Pocket Penetrometer (tsf)	Samples: Torvane (tsf)	Laboratory Results: Moisture Content	Laboratory Results: Dry Density (pcf)	Laboratory Results: Atterberg Limits (LL-PL-PI)	Laboratory Results: Fines (%)
4165	0		**FILL**: **CLAYEY SAND WITH GRAVEL** (SC), some predominantly fine subangular gravel, predominantly fine sand, medium plasticity, light brown, slightly moist, firm to very firm			11-15-12 (27)						
			Note: Coarse gravel and cobbles on the surface			11-20-22 (42)						
	5					17-13-22 (35)						
4160												
	10		Note: moderately firm, increased fines and decreased gravel below 10 feet			4-6-7 (13)						
			12.0									
4155			**NATIVE**: **CLAY WITH SAND** (CH), trace to some fine to coarse subangular sand, occasional fine subangular, high plasticity, tan, slightly moist, moderately firm						16.2	92.5	63-21-42	78
	15					3-4-5 (9)	>4.5					
4150			Note: moderate to strong reaction with HCl									
	20		20.0									
			SANDY CLAY (CH), considerable predominantly fine to medium subangular sand, high plasticity, tan, slightly moist, soft			2-3-3 (6)	>4.5	1			59-20-39	59
4145			25.0									
	25		**SILTY, CLAYEY SAND** (SC-SM), predominantly fine sand, low plasticity, light brown, very firm			12-17-17 (34)						
4140			30.0									
	30		**CLAYEY SAND** (SC), rare fine subangular gravel, predominantly fine to medium subangular sand, low plasticity, light brown, slightly moist, firm			19-23-23	1.5		10.9	104.8	35-15-20	39
4135			34.0									
			SANDY CLAY (CL), predominantly fine sand, low to medium plasticity, tan, slightly moist, firm									

LOG OF BORING 191-B1A (CONTINUED)

ethos ENGINEERING, LLC.	PROJECT NAME: US 191, Cochise Railroad Overpass		BORING ID: 191-B1A
	PROJECT LOCATION: Cochise County, Arizona		SURFACE ELEVATION: 4169'
PROJECT NUMBER: 2022001	CLIENT NAME: AECOM Technical Services, Inc.		DATE STARTED: 10/21/2024 / DATE COMPLETED: 10/22/2024
TOOLING: 4-1/4" ID Hollow Stem Auger	DRILLING METHOD(S): Hollow Stem Auger		HAMMER TYPE: Auto / HAMMER EFFICIENCY: 84%
DRILLING FIRM: Geomechanics Southwest Inc.	DRILLER: B. Noran	FIELD ENGINEER: J. Miller	REVIEWED BY: D. Frechette
DRILL RIG: CME-75/ #120	REPORTED DEPTH: 101.5'	GW DEPTH: 90'	LATITUDE: 32.13334 / LONGITUDE: -109.91036
STATION, OFFSET: US 191 CST CL 116+90 / 10' R			

Elevation (feet)	Depth (feet)	Graphic Log	Soil Description and Remarks	Samples: Bulk	Samples: Driven	Samples: Blow Counts/6"	Samples: Pocket Penetrometer (tsf)	Samples: Torvane (tsf)	Laboratory Results: Moisture Content	Laboratory Results: Dry Density (pcf)	Laboratory Results: Atterberg Limits (LL-PL-PI)	Laboratory Results: Fines (%)
			... continued from previous page									
			SANDY CLAY (CL), predominantly fine sand, low to medium plasticity, tan, slightly moist, firm			4-11-12 (23)	>4.5	1				
4130	40		40.5									
			SILTY SAND (SM), trace predominantly fine subangular gravel, predominantly fine to medium subangular sand, nonplastic, light brown, slightly moist, very dense			30-50/5"						
			43.0									
4125	45		**SILTY GRAVEL WITH SAND** (GM), considerable predominantly fine to medium subangular sand, predominantly coarse subangular gravel, nonplastic, brown to gray, slightly moist, very dense			50/5"						
			50.0									
4120	50		**SAND WITH CLAY** (SP-SC), trace to some predominantly fine subangular gravel, predominantly fine to medium subangular sand, low plasticity, tan, dense			9-20-26 (46)	2					
4115												
	55		Note: decreased gravel below 55 feet			11-12-20 (32)						
			58.0									
4110			**CLAY** (CH), occasional fine sand, high plasticity, tan to white, slightly moist to moist, moderately firm									
	60					10-5-6 (11)	3	1				
4105												
	65		Note: hard at 65 feet			11-24-50/5"	>4.5	1	49.5	71.1	129-33-96	97
			Note: tan to light brown below 66 feet									
4100												

CONTINUED ON SHEET SF-1.03



PLAN

Scale: 1" = 100'-0"

LEGEND:

Boring Location & ID

Call at least two full working days before you begin excavation. ARIZONA 811 Arizona Blue Stake, Inc. Dial 8-1-1 or 1-800-STAKE-IT (782-5348) in Maricopa County: (602) 263-1100

Registered Professional Engineer (Civil) 37284 DANIEL N. FRECHETTE Date Signed 06/30/25 ARIZONA, U.S.A.

	NAME	DATE
DESIGN	D. FRECHETTE	06/25
DRAWN	H. MILLS	06/25
CHECKED	D. FRECHETTE	06/25

ethos ENGINEERING, LLC. 9180 S Kyrene Rd Suite #104 Tempe, AZ 85284

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
BRIDGE DESIGN SERVICES

STA 89+
COCHISE UPRR OP
FOUNDATION DATA SHEET 02

ROUTE	MILEPOST	STRUCTURE NO.
US191	62.88	2530

F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
	ARIZ.	191 CH 062	191-A(205)T	67	91	

LOCATION: COCHISE OVERPASS — DWG NO. SF-1.02

TRACS NO. F0383 01D — ____ OF ____

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

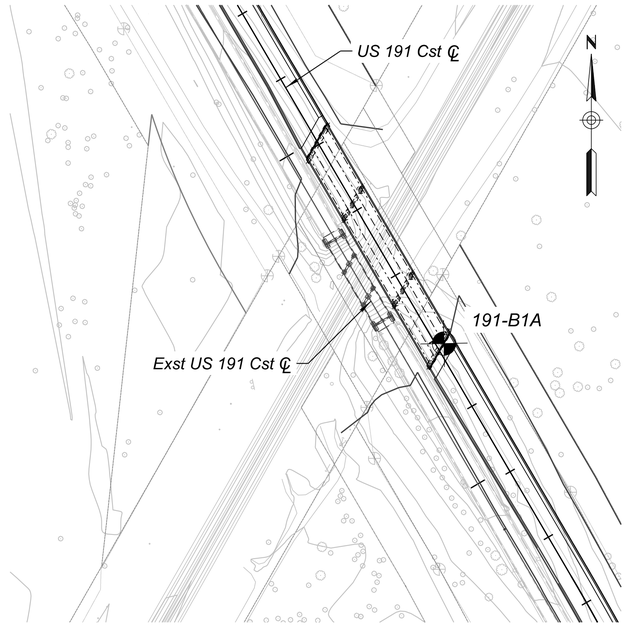
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LOG OF BORING 191-B1A (CONTINUED)

ethos ENGINEERING, LLC.	PROJECT NAME: US 191, Cochise Railroad Overpass		BORING ID: 191-B1A
	PROJECT LOCATION: Cochise County, Arizona		SURFACE ELEVATION: 4169'
PROJECT NUMBER: 2022001	CLIENT NAME: AECOM Technical Services, Inc.		DATE STARTED: 10/21/2024 / DATE COMPLETED: 10/22/2024
TOOLING: 4-1/4" ID Hollow Stem Auger	DRILLING METHOD(S): Hollow Stem Auger		HAMMER TYPE: Auto / HAMMER EFFICIENCY: 84%
DRILLING FIRM: Geomechanics Southwest Inc.	DRILLER: B. Noran	FIELD ENGINEER: J. Miller	REVIEWED BY: D. Frechette
DRILL RIG: CME-75/ #120	REPORTED DEPTH: 101.5'	GW DEPTH: 90'	LATITUDE: 32.13334 / LONGITUDE: -109.91036
STATION, OFFSET: US 191 CST CL 116+90 / 10' R			

Elevation (feet)	Depth (feet)	Graphic Log	Soil Description and Remarks	Samples: Bulk	Samples: Driven	Samples: Blow Counts/6"	Samples: Pocket Penetrometer (tsf)	Samples: Torvane (tsf)	Laboratory Results: Moisture Content	Laboratory Results: Dry Density (pcf)	Laboratory Results: Atterberg Limits (LL-PL-PI)	Laboratory Results: Fines (%)
			... continued from previous page									
			CLAY (CH), occasional fine sand, high plasticity, tan to white, slightly moist to moist, moderately firm		X	6-5-6 (11)	3	0.9				
4095	75				X	4-6-6 (12)	3	0.7				
4090			79.0									
	80		**CLAY WITH SAND** (CH), some predominantly fine sand, high plasticity, tan to white, moist to wet, stiff to very stiff		■				23.2	100.1	67-17-50	80
					X	3-4-7 (11)	3	0.8				
4085	85		Note: hard at 85 feet		X	23-31-30 (61)	4.5	1				
4080												
	90		▼		X	9-11-11 (22)	>4.5	1				
4075												
	95		95.5		▒	10-21			26.2	99.2		
			SAND WITH CLAY AND GRAVEL (SP-SC), considerable predominantly fine subangular gravel, predominantly medium to coarse subangular sand, low plasticity, tan, wet, medium dense									
4070	100		100.0									
			CLAY WITH SAND (CL), some predominantly fine sand, medium plasticity, tan to gray, wet, stiff		X	5-6-8 (14)	3	0.8				
			101.5									

Stopped Auger at 100.0 feet. Stopped sampler at 101.5 feet. Backfilled with cuttings to 20.0 feet. Backfilled with half-sack bentonite slurry to surface.



PLAN

Scale: 1" = 100'-0"

LEGEND:

Boring Location & ID

Call at least two full working days before you begin excavation. ARIZONA 811 Arizona Blue Stake, Inc. Dial 8-1-1 or 1-800-STAKE-IT (782-5348) in Maricopa County: (602) 263-1100

Registered Professional Engineer (Civil) CERTIFICATE NO. 37284 DANIEL N. FRECHETTE Date Signed 06/30/25 ARIZONA, U.S.A.

	NAME	DATE
DESIGN	D. FRECHETTE	06/25
DRAWN	H. MILLS	06/25
CHECKED	D. FRECHETTE	06/25

ethos ENGINEERING, LLC. 9180 S Kyrene Rd Suite #104 Tempe, AZ 85284

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
BRIDGE DESIGN SERVICES

STA 89+
COCHISE UPRR OP
FOUNDATION DATA SHEET 03

ROUTE	F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US191		ARIZ.	191 CH 062	191-A(205)T	68	91	
MILEPOST 62.88	LOCATION: COCHISE OVERPASS						DWG NO. SF-1.03
STRUCTURE NO. 2530	TRACS NO. F0383 01D						____ OF ____

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

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LOG OF BORING 191-B2A

ethos ENGINEERING, LLC.	PROJECT NAME: US 191, Cochise Railroad Overpass	BORING ID	191-B2A
	PROJECT LOCATION: Cochise County, Arizona	SURFACE ELEVATION:	4160'
PROJECT NUMBER: 2022001	CLIENT NAME: AECOM Technical Services, Inc.	DATE STARTED: 09/23/2024	DATE COMPLETED: 09/24/2024
TOOLING: 4-1/4" Hollow Stem Auger	DRILLING METHOD(S): Hollow Stem Auger	HAMMER TYPE: Auto	HAMMER EFFICIENCY: 84%
DRILLING FIRM: Geomechanics Southwest	DRILLER: B. Noran / FIELD ENGINEER: M. Meza	REVIEWED BY: D. Frechette	
DRILL RIG: CME-75/ #120	REPORTED DEPTH: 100' / GW DEPTH: 76'	LATITUDE: 32.13356	LONGITUDE: -109.91049
STATION, OFFSET: US 191 CST CL 117+80 / 14' R			

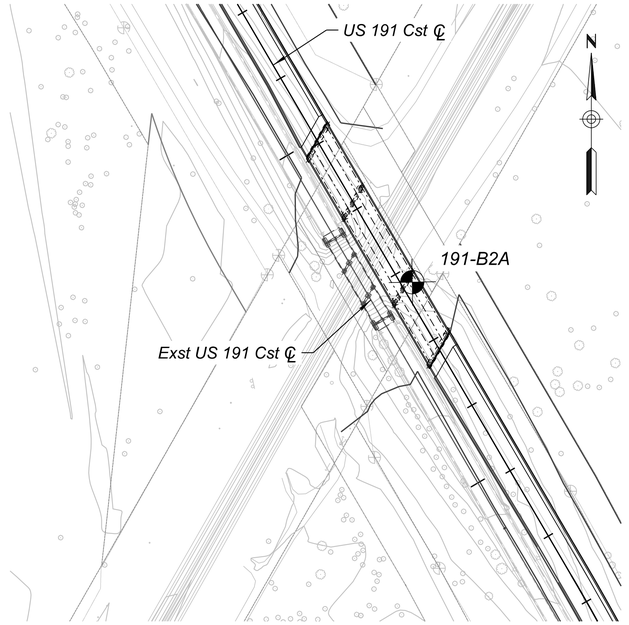
Elevation (feet)	Depth (feet)	Graphic Log	Soil Description and Remarks	Samples: Bulk	Driven	Blow Counts/6"	Pocket Penetrometer (tsf)	Torvane (tsf)	Laboratory Results: Moisture Content	Dry Density (pcf)	Atterberg Limits (LL-PL-PI)	Fines (%)
			SANDY SILTY CLAY WITH GRAVEL (CL-ML), trace to some predominantly fine angular gravel, considerable predominantly fine to medium subangular sand, low plasticity, light brown to brown, slightly moist, firm, moderate reaction with HCl, cemented nodules present			10-10-8 (18)	>4.5					
			3.0									
			CLAYEY SAND WITH GRAVEL (SC), some predominantly fine subangular gravel, fine to coarse subangular sand, high plasticity, light brown to brown, slightly moist, very firm, moderate reaction with HCl, cemented nodules present			20-14-21 (35)	>4.5					
4155	5					20-20-20 (40)					51-23-28	40
4150	10		Note: moderately firm below 10 feet			8-8-6 (14)	4.0					
			13.0									
			CLAY WITH SAND (CL), rare to occasional fine subangular gravel, trace to some fine sand, medium plasticity, gray to grayish brown, slightly moist to moist, moderately firm			3-3-6 (9)	4.0					
4145	15		18.0									
			SILTY, CLAYEY SAND (SC-SM), Trace fine to coarse subangular gravel, fine sand, low plasticity, light brown to light tan, slightly moist, moderately firm			4-17					21-15-6	39
4140	20											
4135	25		Note: hard below 24 feet			10-20-31 (51)						
			28.0									
			CLAY WITH SAND (CL), Occasional fine subangular gravel, trace to some fine sand, moderate reaction with hcl, medium to high plasticity, gray, slightly moist, firm			7-8-14 (22)	1.75					
4130	30											

LOG OF BORING 191-B2A (CONTINUED)

ethos ENGINEERING, LLC.	PROJECT NAME: US 191, Cochise Railroad Overpass	BORING ID	191-B2A
	PROJECT LOCATION: Cochise County, Arizona	SURFACE ELEVATION:	4160'
PROJECT NUMBER: 2022001	CLIENT NAME: AECOM Technical Services, Inc.	DATE STARTED: 09/23/2024	DATE COMPLETED: 09/24/2024
TOOLING: 4-1/4" Hollow Stem Auger	DRILLING METHOD(S): Hollow Stem Auger	HAMMER TYPE: Auto	HAMMER EFFICIENCY: 84%
DRILLING FIRM: Geomechanics Southwest	DRILLER: B. Noran / FIELD ENGINEER: M. Meza	REVIEWED BY: D. Frechette	
DRILL RIG: CME-75/ #120	REPORTED DEPTH: 100' / GW DEPTH: 76'	LATITUDE: 32.13356	LONGITUDE: -109.91049
STATION, OFFSET: US 191 CST CL 117+80 / 14' R			

Elevation (feet)	Depth (feet)	Graphic Log	Soil Description and Remarks	Samples: Bulk	Driven	Blow Counts/6"	Pocket Penetrometer (tsf)	Torvane (tsf)	Laboratory Results: Moisture Content	Dry Density (pcf)	Atterberg Limits (LL-PL-PI)	Fines (%)
			CLAY WITH SAND (CL), Occasional fine subangular gravel, trace to some fine sand, weak lime cementation, moderate reaction with hcl, medium to high plasticity, white, slightly moist, very firm			8-14-17 (31)						
			38.0									
			SILTY SAND WITH GRAVEL (SM), Some predominantly fine angular to subangular gravel, predominantly fine to medium subangular sand, nonplastic, light brown to tan, slightly moist, dense				3.0	0.05	13.8	95.1		
4120	40					13-21-23 (44)	1.25					
			44.0									
			SANDY SILTY CLAY (CL-ML), considerable predominantly fine sand, moderate reaction with hcl, low plasticity, tan to light brown, slightly moist, very firm			12-25-20 (45)	2.75					
4115	45		48.0									
			CLAY WITH SAND (CL), Some fine sand. low plasticity, brown to grayish brown, slightly moist, very firm			19-36	3.0	0.1			23-18-5	63
			50.0									
4110	50		**SAND WITH CLAY** (SP-SC), predominantly fine to medium subangular sand, low plasticity, tan, slightly moist, dense									
			53.0									
			SANDY CLAY (CL), Occasional fine subangular gravel, considerable predominantly fine sand, medium plasticity, gray, slightly moist, firm			7-6-11 (17)	2.5	0.2				
4105	55											
							3.25	0.35	18.7	98.4	89-23-66	65
4100	60					9-14-23 (37)	4.0	0.8				
			62.0									
			SANDY CLAY (CH), considerable predominantly fine sand, weak cementation, high plasticity, gray, slightly moist to moist, very firm			30-50			9.7	112.8		
			63.5									
4095	65		**SAND WITH CLAY** (SP-SC), Occasional fine subangular gravel, predominantly fine to medium subangular sand, moderate reaction with hcl, low plasticity, light reddish brown, slightly moist, very dense									
			67.0									
			CLAY WITH SAND (CL), Occasional fine subangular to subrounded gravel, some to considerable predominantly fine sand, weak reaction with hcl, low plasticity, brownish gray to light brown, slightly moist, firm			10-10-11 (21)	4.0	0.45				
			70.0									

CONTINUED ON SHEET SF-1.05



PLAN

Scale: 1" = 100'-0"

LEGEND:

Boring Location & ID

Call at least two full working days before you begin excavation.
ARIZONA 811 Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348) in Maricopa County: (602) 263-1100

Registered Professional Engineer (Civil) — CERTIFICATE NO. 37284 — DANIEL N. FRECHETTE — Date Signed 06/30/25 — ARIZONA, U.S.A.

	NAME	DATE
DESIGN	D. FRECHETTE	06/25
DRAWN	H. MILLS	06/25
CHECKED	D. FRECHETTE	06/25

ethos ENGINEERING, LLC. 9180 S Kyrene Rd Suite #104 Tempe, AZ 85284

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
BRIDGE DESIGN SERVICES

STA 89+
COCHISE UPRR OP
FOUNDATION DATA SHEET 04

ROUTE	MILEPOST	STRUCTURE NO.
US191	62.88	2530

F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
	ARIZ.	191 CH 062	191-A(205)T	69	91	

LOCATION: COCHISE OVERPASS — DWG NO. SF-1.04

TRACS NO. F0383 01D — ____ OF ____

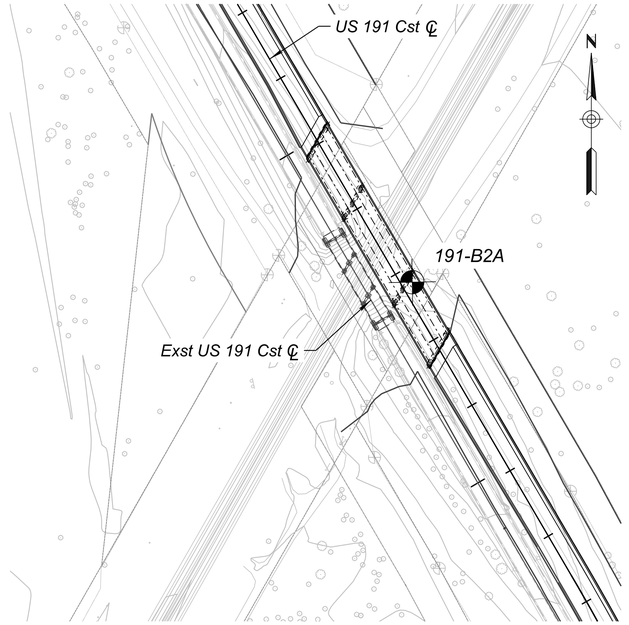
SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

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6/6/2025 @ 8:38:53 AM USER: HMills

LOG OF BORING 191-B2A (CONTINUED)

ethos ENGINEERING, LLC.	PROJECT NAME: US 191, Cochise Railroad Overpass	BORING ID	191-B2A
	PROJECT LOCATION: Cochise County, Arizona	SURFACE ELEVATION:	4160'
PROJECT NUMBER: 2022001	CLIENT NAME: AECOM Technical Services, Inc.	DATE STARTED: 09/23/2024	DATE COMPLETED: 09/24/2024
TOOLING: 4-1/4" Hollow Stem Auger	DRILLING METHOD(S): Hollow Stem Auger	HAMMER TYPE: Auto	HAMMER EFFICIENCY: 84%
DRILLING FIRM: Geomechanics Southwest	DRILLER: B. Noran / FIELD ENGINEER: M. Meza	REVIEWED BY: D. Frechette	
DRILL RIG: CME-75/ #120	REPORTED DEPTH: 100' / GW DEPTH: 76'	LATITUDE: 32.13356	LONGITUDE: -109.91049
STATION, OFFSET: US 191 CST CL 117+80 / 14' R			

Elevation (feet)	Depth (feet)	Graphic Log	Soil Description and Remarks	Bulk	Driven	Samples: Blow Counts/6"	Samples: Pocket Penetrometer (tsf)	Samples: Torvane (tsf)	Laboratory Results: Moisture Content	Laboratory Results: Dry Density (pcf)	Laboratory Results: Atterberg Limits (LL-PL-PI)	Laboratory Results: Fines (%)
			... continued from previous page			10-10-11 (21)	4.0	0.45				
			CLAY WITH SAND (CL), Occasional fine subangular to subrounded gravel, some to considerable predominantly fine sand, weak reaction with hcl, low plasticity, brownish gray to light brown, slightly moist, firm									
4085	75		Note: very stiff to hard and moist to wet below 74 feet			12-26	1.75	0.25	17.6	112.3	24-12-12	73
4080	80					4-11-50/5"	1.5	0.3				
4075	85					3-7-15 (22)	1.0	0.15				
			89.0									
4070	90		**SANDY CLAY** (CL), Rare fine subangular to subrounded gravel, considerable predominantly fine sand, weak reaction with hcl, low plasticity, brownish gray to light brown, moist to wet, very stiff to hard			26-40	1.0	0.15	23.8	99.7	27-11-16	58
4065	95		Note: stiff at 94 feet			3-6-7 (13)	3.75	0.65				
4060	100		100.0			20-10						
			Stopped Auger at 99.0 feet. Stopped Sampler at 100.0 feet. Backfilled with cuttings to 20.0 feet. Backfilled with half-sack bentonite slurry to surface.									



PLAN

Scale: 1" = 100'-0"

LEGEND:

Boring Location & ID

Call at least two full working days before you begin excavation. ARIZONA 811 Arizona Blue Stake, Inc. Dial 8-1-1 or 1-800-STAKE-IT (782-5348) in Maricopa County: (602) 263-1100

Registered Professional Engineer (Civil) CERTIFICATE NO. 37284 DANIEL N. FRECHETTE Date Signed 06/25/25 ARIZONA, U.S.A.

	NAME	DATE
DESIGN	D. FRECHETTE	06/25
DRAWN	H. MILLS	06/25
CHECKED	D. FRECHETTE	06/25

ethos ENGINEERING, LLC. 9180 S Kyrene Rd Suite #104 Tempe, AZ 85284

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
BRIDGE DESIGN SERVICES

STA 89+
COCHISE UPRR OP
FOUNDATION DATA SHEET 05

ROUTE	MILEPOST	STRUCTURE NO.
US191	62.88	2530

F.H.W.A. Arizona Division

STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
ARIZ.	191 CH 062	191-A(205)T	70	91	

LOCATION: COCHISE OVERPASS

DWG NO. SF-1.05

TRACS NO. F0383 01D

____ OF____

DATE- | LOCATION- | REVISIONS- | FINISHED PLANS- | SURVEY NO.

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6/6/2025 @ 8:40:43 AM USER: HMills

LOG OF BORING 191-B3A

ethos ENGINEERING, LLC.	PROJECT NAME: US 191, Cochise Railroad Overpass	BORING ID	191-B3A
	PROJECT LOCATION: Cochise County, Arizona	SURFACE ELEVATION:	4162'
PROJECT NUMBER: 2022001	CLIENT NAME: AECOM Technical Services, Inc.	DATE STARTED: 09/24/2024	DATE COMPLETED: 09/25/2024
TOOLING: 4-1/4" ID Hollow Stem Auger	DRILLING METHOD(S): Hollow Stem Auger	HAMMER TYPE: Auto	HAMMER EFFICIENCY: 84%
DRILLING FIRM: Geomechanics Southwest	DRILLER: B. Noran / FIELD ENGINEER: M. Meza	REVIEWED BY: D. Frechette	
DRILL RIG: CME-75/ #120	REPORTED DEPTH: 101.5' / GW DEPTH: 74'	LATITUDE: 32.13393	LONGITUDE: -109.91072
STATION, OFFSET: US 191 CST CL 119+35 / 21' R			

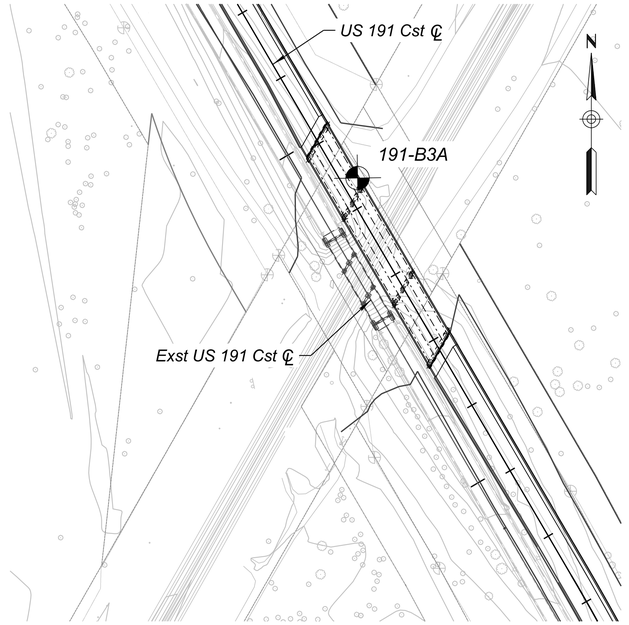
Elevation (feet)	Depth (feet)	Graphic Log	Soil Description and Remarks	Samples: Bulk	Driven	Blow Counts/6"	Pocket Penetrometer (tsf)	Torvane (tsf)	Laboratory Results: Moisture Content	Dry Density (pcf)	Atterberg Limits (LL-PL-PI)	Fines (%)
4160	0		**FILL**: **SANDY SILTY CLAY** (CL-ML), trace fine subangular gravel, considerable fine sand, low plasticity, light brown to light gray, slightly moist, firm, moderate reaction with HCl			7-7-9 (16)	1.75					
	5.0											
4155	5		**NATIVE**: **CLAYEY SAND WITH GRAVEL** (SC), some predominantly fine subangular gravel, fine to coarse subangular sand, high plasticity, brown, slightly moist, moderately firm, moderate reaction with HCl			6-8-7 (15)	>4.5					
	10					9-9	>4.5		23.1	87.1		
4150	15					2-2-1 (3)	3.0					
	20.0											
4145	20		**SAND WITH SILT** (SP-SM), occasional fine subangular gravel, predominantly fine sand, nonplastic, tan to light brown, slightly moist, medium dense, moderate reaction with HCl			8-10-19 (29)	>4.5		22.1	86.5	NP	10
	25.0											
4140	25		**SAND WITH SILT AND GRAVEL** (SP-SM), some predominantly fine subangular gravel, fine to coarse subangular to subrounded sand, nonplastic, tan to light brown, slightly moist, dense, weak reaction with HCl			14-24-23 (47)	>4.5		1.7		NP	10
	29.0											
4135	30		**SANDY CLAY** (CL), considerable predominantly fine sand, medium to high plasticity, brown to light brown, slightly moist, moderately firm to firm, moderate reaction with HCl			10-11	1.7	0.3	33.7	88.4		
4130												

LOG OF BORING 191-B3A (CONTINUED)

ethos ENGINEERING, LLC.	PROJECT NAME: US 191, Cochise Railroad Overpass	BORING ID	191-B3A
	PROJECT LOCATION: Cochise County, Arizona	SURFACE ELEVATION:	4162'
PROJECT NUMBER: 2022001	CLIENT NAME: AECOM Technical Services, Inc.	DATE STARTED: 09/24/2024	DATE COMPLETED: 09/25/2024
TOOLING: 4-1/4" ID Hollow Stem Auger	DRILLING METHOD(S): Hollow Stem Auger	HAMMER TYPE: Auto	HAMMER EFFICIENCY: 84%
DRILLING FIRM: Geomechanics Southwest	DRILLER: B. Noran / FIELD ENGINEER: M. Meza	REVIEWED BY: D. Frechette	
DRILL RIG: CME-75/ #120	REPORTED DEPTH: 101.5' / GW DEPTH: 74'	LATITUDE: 32.13393	LONGITUDE: -109.91072
STATION, OFFSET: US 191 CST CL 119+35 / 21' R			

Elevation (feet)	Depth (feet)	Graphic Log	Soil Description and Remarks	Samples: Bulk	Driven	Blow Counts/6"	Pocket Penetrometer (tsf)	Torvane (tsf)	Laboratory Results: Moisture Content	Dry Density (pcf)	Atterberg Limits (LL-PL-PI)	Fines (%)
4125	40		... continued from previous page **SANDY CLAY** (CL), considerable predominantly fine sand, medium to high plasticity, brown to light brown, slightly moist, moderately firm to firm, moderate reaction with HCl						28.9	83.1	49-15-34	52
	40.0					7-9-10 (19)	4.0	0.55				
4120	45		**CLAYEY SAND WITH GRAVEL** (SC), some predominantly fine angular to subangular gravel, predominantly fine to medium subangular sand, low plasticity, tan to light brown, slightly moist, very firm to hard, moderate reaction with HCl			18-21-30 (51)	1.5	0.01				
						50/5"			4.4	102.7	23-14-9	31
4115	50					12-20-27 (47)						
	54.0											
4110	55		**SILTY, CLAYEY SAND WITH GRAVEL** (SC-SM), some fine to coarse subangular gravel, predominantly fine sand, low plasticity, brown to light brown, moist to wet, moderately firm to firm, weak reaction with HCl			2.0	0.25		15.5	115.2	20-15-5	43
4105						8-11-17 (28)	2.25	0.35				
	60		Note: weakly cemented and very firm at 60 feet			14-13	3.0	0.5	43.8	76.3		
4100	65		Note: light gray below 65 feet			6-7-5 (12)	2.0	0.15				
4095												

CONTINUED ON SHEET SF-1.07



PLAN

Scale: 1" = 100'-0"

LEGEND:

Boring Location & ID

Call at least two full working days before you begin excavation. ARIZONA 811 Arizona Blue Stake, Inc. Dial 8-1-1 or 1-800-STAKE-IT (782-5348) in Maricopa County: (602) 263-1100

Registered Professional Engineer (Civil) — State of ARIZONA — 37284 — DANIEL N. FRECHETTE — Date Signed December 31, 2025 — ARIZONA, U.S.A.

	NAME	DATE
DESIGN	D. FRECHETTE	06/25
DRAWN	H. MILLS	06/25
CHECKED	D. FRECHETTE	06/25

ethos ENGINEERING, LLC. 9180 S Kyrene Rd Suite #104 Tempe, AZ 85284

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
BRIDGE DESIGN SERVICES

STA 89+
COCHISE UPRR OP
FOUNDATION DATA SHEET 06

ROUTE	MILEPOST	STRUCTURE NO.
US191	62.88	2530

F.H.W.A. Arizona Division

STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
ARIZ.	191 CH 062	191-A(205)T	71	91	

LOCATION: COCHISE OVERPASS

DWG NO. SF-1.06

TRACS NO. F0383 01D

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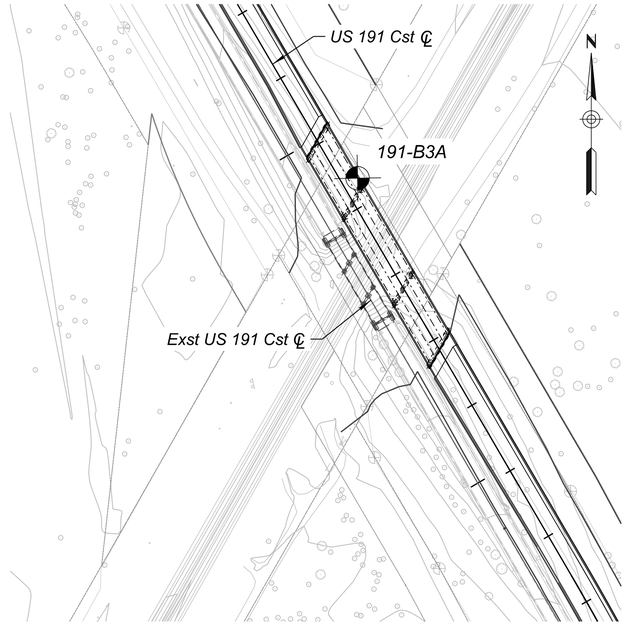
DATE- | LOCATION- | REVISIONS- | FINISHED PLANS- | SURVEY NO.

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6/6/2025 @ 8:43:29 AM USER: HMills

LOG OF BORING 191-B3A (CONTINUED)

ethos ENGINEERING, LLC.	PROJECT NAME: US 191, Cochise Railroad Overpass		BORING ID	191-B3A
	PROJECT LOCATION: Cochise County, Arizona		SURFACE ELEVATION:	4162'
PROJECT NUMBER: 2022001	CLIENT NAME: AECOM Technical Services, Inc.		DATE STARTED: 09/24/2024	DATE COMPLETED: 09/25/2024
TOOLING: 4-1/4" ID Hollow Stem Auger	DRILLING METHOD(S): Hollow Stem Auger		HAMMER TYPE: Auto	HAMMER EFFICIENCY: 84%
DRILLING FIRM: Geomechanics Southwest	DRILLER: B. Noran	FIELD ENGINEER: M. Meza	REVIEWED BY:	D. Frechette
DRILL RIG: CME-75/ #120	REPORTED DEPTH: 101.5'	GW DEPTH: 74'	LATITUDE: 32.13393	LONGITUDE: -109.91072
STATION, OFFSET: US 191 CST CL 119+35 / 21' R				

Elevation (feet)	Depth (feet)	Graphic Log	Soil Description and Remarks	Bulk	Driven	Blow Counts/6"	Pocket Penetrometer (tsf)	Torvane (tsf)	Moisture Content	Dry Density (pcf)	Atterberg Limits (LL-PL-PI)	Fines (%)
				Samples					Laboratory Results			
4090			... continued from previous page **SILTY, CLAYEY SAND WITH GRAVEL** (SC-SM), some fine to coarse subangular gravel, predominantly fine sand, low plasticity, brown to light brown, moist to wet, moderately firm to firm, weak reaction with HCl		X	27-10-10 (20)	3.25	0.35				
	75		75.0									
4085			**SANDY CLAY** (CH), occasional to trace fine subangular gravel, predominantly fine sand, high plasticity, grayish blue to light gray, moist, stiff				3.25	0.25	40.2	79.0	53-16-37	55
					X	3-5-4 (9)	2.0	0.35				
	80		80.0									
4080			**SILTY, CLAYEY SAND** (SC-SM), Trace fine angular gravel, predominantly medium angular sand, low plasticity, grayish red, moist to wet, hard		X	13-18-35 (53)	3.0					
			82.0 **SILTY, CLAYEY SAND WITH GRAVEL** (SC-SM), some predominantly fine subangular to subrounded gravel, predominantly medium to coarse subangular sand, low plasticity, tan, wet, hard, weak to moderate reaction with HCl									
	85		85.0			9-50/5"	2.5					
4075			**SANDY CLAY WITH GRAVEL** (CL), Some predominantly fine angular to subangular gravel, considerable predominantly medium to coarse angular to subangular sand, medium plasticity, light gray to tanish gray, wet, hard									
	90		90.0 **SANDY CLAY** (CL), Rare fine subangular to subrounded gravel, considerable predominantly fine sand, low to medium plasticity, light gray to grayish blue, moist to wet, stiff to very stiff		X	4-5-9 (14)	4.0	0.35				
4070												
	95				X	7-10-12 (22)	3.5	0.15				
4065												
	100				X	6-8-9 (17)	3.0	0.65				
4060			101.5 Stopped Auger at 100.0 feet. Stopped Sampler at 101.5 feet. Backfilled with cuttings to 20.0 feet. Backfilled with half-sack bentonite slurry to surface.									



PLAN

Scale: 1" = 100'-0"

LEGEND:

Boring Location & ID

Call at least two full working days before you begin excavation. ARIZONA 811 Arizona Blue Stake, Inc. Dial 8-1-1 or 1-800-STAKE-IT (782-5348) in Maricopa County: (602) 263-1100

Registered Professional Engineer (Civil) CERTIFICATE NO. 37284 DANIEL N. FRECHETTE Date Signed 06/25/25 ARIZONA, U.S.A.

	NAME	DATE
DESIGN	D. FRECHETTE	06/25
DRAWN	H. MILLS	06/25
CHECKED	D. FRECHETTE	06/25

ethos ENGINEERING, LLC. 9180 S Kyrene Rd Suite #104 Tempe, AZ 85284

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
BRIDGE DESIGN SERVICES

STA 89+
COCHISE UPRR OP
FOUNDATION DATA SHEET 07

ROUTE	MILEPOST	STRUCTURE NO.
US191	62.88	2530

F.H.W.A. Arizona Division

STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
ARIZ.	191 CH 062	191-A(205)T	72	91	

LOCATION: COCHISE OVERPASS

DWG NO. SF-1.07

TRACS NO. F0383 01D

____ OF____

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

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6/6/2025 @ 8:45:37 AM USER: POliden

LOG OF BORING 191-B4A

ethos ENGINEERING, LLC.	PROJECT NAME: US 191, Cochise Railroad Overpass	BORING ID	191-B4A
	PROJECT LOCATION: Cochise County, Arizona	SURFACE ELEVATION:	4158'
PROJECT NUMBER: 2022001	CLIENT NAME: AECOM Technical Services, Inc.	DATE STARTED: 10/23/2024	DATE COMPLETED: 10/24/2024
TOOLING: 4-1/4" Hollow Stem Auger	DRILLING METHOD(S): Hollow Stem Auger	HAMMER TYPE: Auto	HAMMER EFFICIENCY: 84%
DRILLING FIRM: Geomechanics Southwest	DRILLER: B. Noran / FIELD ENGINEER: J. Miller	REVIEWED BY: D. Frechette	
DRILL RIG: CME-75/ #120	REPORTED DEPTH: 100.9' / GW DEPTH: 77'	LATITUDE: 32.13415	LONGITUDE: -109.91082
STATION, OFFSET: US 191 CST CL 120+20 / 30' R			

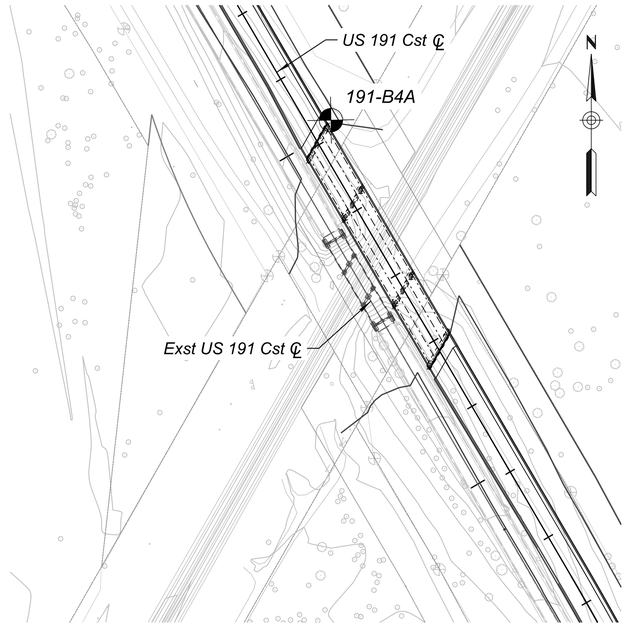
Elevation (feet)	Depth (feet)	Graphic Log	Soil Description and Remarks	Samples: Bulk	Samples: Driven	Samples: Blow Counts/6"	Samples: Pocket Penetrometer (tsf)	Samples: Torvane (tsf)	Lab: Moisture Content	Lab: Dry Density (pcf)	Lab: Atterberg Limits (LL-PL-PI)	Lab: Fines (%)
4155	0		**SANDY SILTY CLAY** (CL-ML), some to considerable predominantly fine to medium subangular sand, medium plasticity, dark brown to brown, slightly moist, moderately firm to firm Note: coarse gravel on surface			6-12-8 (20)						
						5-7-7 (14)						
	5		5.0									
4150			**CLAY** (CH), occasional fine to medium subangular sand, rare fine subangular gravel, high plasticity, tan, slightly moist, soft to moderately firm			6-5-4 (9)						
	10					2-2-3 (5)						
4145												
	15		16.0								59-25-34	93
4140			**GRAVELLY CLAY** (CL), trace fine to medium subangular sand, considerable predominantly coarse subangular gravel, medium to high plasticity, light brown to brown, slightly moist, very firm			11-14-17 (31)						
	20		Note: soft at 20 feet			2-9					47-18-29	61
			21.0									
4135			**CLAY** (CH), occasional fine to medium subangular sand, rare fine subangular gravel, high plasticity, tan, slightly moist, very firm to hard									
	25					6-12-22 (34)	>4.5	0.3				
4130												
	30		Note: white color from 30.0 to 31.5 feet			10-22-32 (54)						
4125												

LOG OF BORING 191-B4A (CONTINUED)

ethos ENGINEERING, LLC.	PROJECT NAME: US 191, Cochise Railroad Overpass	BORING ID	191-B4A
	PROJECT LOCATION: Cochise County, Arizona	SURFACE ELEVATION:	4158'
PROJECT NUMBER: 2022001	CLIENT NAME: AECOM Technical Services, Inc.	DATE STARTED: 10/23/2024	DATE COMPLETED: 10/24/2024
TOOLING: 4-1/4" Hollow Stem Auger	DRILLING METHOD(S): Hollow Stem Auger	HAMMER TYPE: Auto	HAMMER EFFICIENCY: 84%
DRILLING FIRM: Geomechanics Southwest	DRILLER: B. Noran / FIELD ENGINEER: J. Miller	REVIEWED BY: D. Frechette	
DRILL RIG: CME-75/ #120	REPORTED DEPTH: 100.9' / GW DEPTH: 77'	LATITUDE: 32.13415	LONGITUDE: -109.91082
STATION, OFFSET: US 191 CST CL 120+20 / 30' R			

Elevation (feet)	Depth (feet)	Graphic Log	Soil Description and Remarks	Samples: Bulk	Samples: Driven	Samples: Blow Counts/6"	Samples: Pocket Penetrometer (tsf)	Samples: Torvane (tsf)	Lab: Moisture Content	Lab: Dry Density (pcf)	Lab: Atterberg Limits (LL-PL-PI)	Lab: Fines (%)
4120	40		**SAND WITH CLAY** (SP-SC), trace to some predominantly fine subangular gravel, predominantly fine to medium subangular sand, low plasticity, light brown, slightly moist, very dense			17-31-50/4"						
			40.0									
4115			**SILTY GRAVEL WITH SAND** (GM), considerable predominantly fine sand, predominantly coarse subangular gravel, nonplastic, light brown to tan, slightly moist, medium dense to dense			14-17-18 (35)						
	45					17-20			45.4	69.9	NP	18
4110												
	50		50.0									
4105			**SANDY CLAY** (CL), considerable predominantly fine sand, medium to high plasticity, tan to light brown, slightly moist, firm			6-10-12 (22)						
	55					9-10-18 (28)						
4100			56.0 **CLAY WITH SAND** (CL), some to considerable predominantly fine sand, medium to high plasticity, tan, slightly moist, moderately firm to firm									
	60								28.6	86.3	47-16-31	72
4095						4-5-5 (10)						
	65					16-17			32.1	89.5		
4090												

CONTINUED ON SHEET SF-1.09



PLAN

Scale: 1" = 100'-0"

LEGEND:

Boring Location & ID

Call at least two full working days before you begin excavation. ARIZONA 811 Arizona Blue Stake, Inc. Dial 8-1-1 or 1-800-STAKE-IT (782-5348) in Maricopa County: (602) 263-1100

Registered Professional Engineer (Civil) CERTIFICATE NO. 37284 DANIEL N. FRECHETTE Date Signed 06/20/25 ARIZONA, U.S.A.

	NAME	DATE
DESIGN	D. FRECHETTE	06/25
DRAWN	H. MILLS	06/25
CHECKED	D. FRECHETTE	06/25

ethos ENGINEERING, LLC. 9180 S Kyrene Rd Suite #104 Tempe, AZ 85284

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
BRIDGE DESIGN SERVICES

STA 89+
COCHISE UPRR OP
FOUNDATION DATA SHEET 08

ROUTE	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US191	ARIZ.	191 CH 062	191-A(205)T	73	91	
MILEPOST 62.88	LOCATION: COCHISE OVERPASS					DWG NO. SF-1.08
STRUCTURE NO. 2530	TRACS NO. F0383 01D					____ OF ____

F.H.W.A. Arizona Division

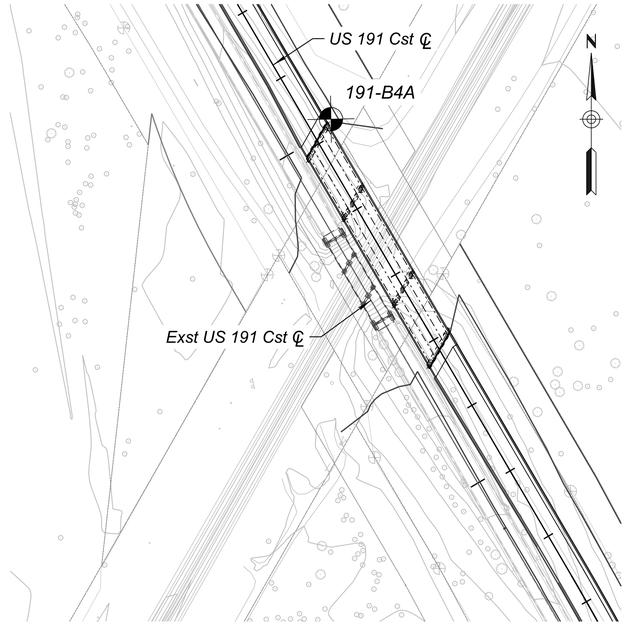
SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

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6/6/2025 @ 8:42:13 AM USER: POliden

LOG OF BORING 191-B4A (CONTINUED)

ethos ENGINEERING, LLC.	PROJECT NAME: US 191, Cochise Railroad Overpass		BORING ID	191-B4A
	PROJECT LOCATION: Cochise County, Arizona		SURFACE ELEVATION:	4158'
PROJECT NUMBER: 2022001	CLIENT NAME: AECOM Technical Services, Inc.		DATE STARTED: 10/23/2024	DATE COMPLETED: 10/24/2024
TOOLING: 4-1/4" Hollow Stem Auger	DRILLING METHOD(S): Hollow Stem Auger		HAMMER TYPE: Auto	HAMMER EFFICIENCY: 84%
DRILLING FIRM: Geomechanics Southwest	DRILLER: B. Noran	FIELD ENGINEER: J. Miller	REVIEWED BY: D. Frechette	
DRILL RIG: CME-75/ #120	REPORTED DEPTH: 100.9'	GW DEPTH: 77'	LATITUDE: 32.13415	LONGITUDE: -109.91082
STATION, OFFSET: US 191 CST CL 120+20 / 30' R				

Elevation (feet)	Depth (feet)	Graphic Log	Soil Description and Remarks	Bulk	Driven	Blow Counts/6"	Pocket Penetrometer (tsf)	Torvane (tsf)	Moisture Content	Dry Density (pcf)	Atterberg Limits (LL-PL-PI)	Fines (%)
			Samples						Laboratory Results			
			... continued from previous page			9-10-19 (29)	>4.5	1				
4085			**CLAY WITH SAND** (CL), some to considerable predominantly fine sand, medium to high plasticity, tan, slightly moist, moderately firm to firm									
			71.0									
	75		**SANDY CLAY** (CL), considerable predominantly fine sand, medium to high plasticity, tan to light brown, slightly moist to moist, firm			4-5-13 (18)						
			76.5									
4080			**SILTY, CLAYEY SAND WITH GRAVEL** (SC-SM), some to considerable predominantly fine subangular gravel, fine to coarse subangular sand, low plasticity, light brown, moist to wet, hard									
	80					22-24-38 (62)			17.2		20-14-6	29
4075												
	85		85.0									
			CLAY WITH SAND (CL), some to considerable predominantly fine sand, medium to high plasticity, brown to light brown, moist, hard			18-36-27 (63)						
4070												
			90.0									
	90		**SILTY GRAVEL WITH SAND** (GM), considerable predominantly fine sand, predominantly coarse subangular gravel, nonplastic, tan, moist to wet, medium dense						28.9	93.0	NP	18
4065						2-6-7 (13)						
	95					5-10-9 (19)						
4060												
	100		Note: very dense at 100 feet			9-50/5"			45.9	74.6		
			100.9									
			Stopped Auger at 100.0 feet. Stopped sampler at 100.9 feet. Backfilled with cuttings to 20.0 feet. Backfilled with half-sack bentonite slurry to surface.									



PLAN

Scale: 1" = 100'-0"

LEGEND:

Boring Location & ID

DATE- | LOCATION- | REVISIONS- | FINISHED PLANS- | SURVEY NO.

Call at least two full working days before you begin excavation. ARIZONA 811 Arizona Blue Stake, Inc. Dial 8-1-1 or 1-800-STAKE-IT (782-5348) in Maricopa County: (602) 263-1100

Registered Professional Engineer (Civil) CERTIFICATE NO. 37284 DANIEL N. FRECHETTE Date Signed 06/25/25 ARIZONA, U.S.A.

	NAME	DATE
DESIGN	D. FRECHETTE	06/25
DRAWN	H. MILLS	06/25
CHECKED	D. FRECHETTE	06/25

ethos ENGINEERING, LLC. 9180 S Kyrene Rd Suite #104 Tempe, AZ 85284

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
BRIDGE DESIGN SERVICES

STA 89+
COCHISE UPRR OP
FOUNDATION DATA SHEET 09

ROUTE	MILEPOST	STRUCTURE NO.
US191	62.88	2530

F.H.W.A. Arizona Division

STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
ARIZ.	191 CH 062	191-A(205)T	74	91	

LOCATION COCHISE OVERPASS

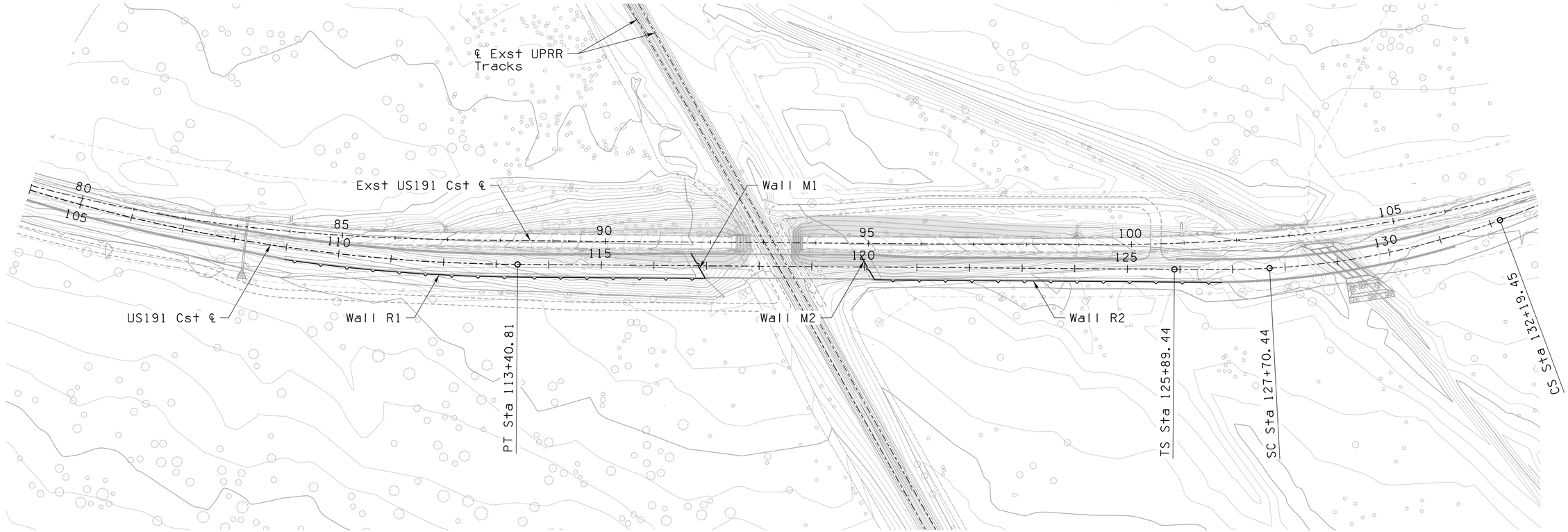
DWG NO. SF-1.09

TRACS NO. F0383 01D

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SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-



LOCATION PLAN
Scale: 1" = 100'-0

RETAINING WALL SHEET INDEX

S-2.01 Location Plan & Index of Sheets
S-2.02 General Notes, Quantities & Wall Summary
S-2.03 Wall Typical Sections (1 of 3)
S-2.04 Wall Typical Sections (2 of 3)
S-2.05 Wall Typical Sections (3 of 3)
S-2.06 Wall R1 Elevation
S-2.07 Wall M1 & Wall M2 Elevations
S-2.08 Wall R2 Elevation

Call at least two full working days before you begin excavation.
ARIZONA 811 Arizona Blue Stake, Inc.
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in Maricopa County: (602) 263-1100

Registered Professional Engineer — CERTIFICATE NO. 37863 — CHRISTOPHER LABYE — 06/30/26

	NAME	DATE
DESIGN	C. LABYE	06/25
DRAWN	T. TALBERT	06/25
CHECKED	B. ANSLEY	06/25

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RETAINING WALL LOCATION PLAN & INDEX OF SHEETS

ROUTE	F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US191		ARIZ.	191 CH 062	191-A(205)T	75	91	
MILEPOST	LOCATION	COCHISE OVERPASS					DWG NO. S-2.01
STRUCTURE NO.	TRACS NO. F0383 01C						____ OF ____

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SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

MSE WALL GENERAL NOTES:

Construction Specifications - Arizona Department of Transportation Standard Specifications for Road & Bridge Construction, Edition of 2021.

Design Specifications:

1. AASHTO LRFD Bridge Design Specifications, 9th Edition, 2020, including any interims.

2. FHWA Geotechnical Engineer Circular No. 11 Design & Construction of Mechanically Stabilized Earth Walls & Reinforced Soil Slopes, NHI Courses No. 132042 & 132043, Publication Nos. FHWA-NHI-10-024 & FHWA-NHI-10-025, Volumes 1 & 2, 2009.

Walls shall be constructed in accordance with the Standards and/or Special Details indicated, unless noted otherwise.

Dimensions shall not be scaled from drawings.

Seismic Performance - Seismic Zone 1, Site Class D, PGA = 0.069g, S_DS = 0.256g, S-D1 = 0.115g.

For foamed concrete in contact with or within three feet of contact with native or corrosive soils, Portland Cement shall be used which conforms to Type V Cement. See Section 1006-2.01 of the Specifications.

Stresses:
Grade 60 reinforcing steel (unless noted otherwise)..... fy = 60,000 psi

See Roadway Plans for Wall General Plan Views.

Temporary Shoring - Temporary shoring may be required for excavation & construction of walls to accomplish the work without adversely affecting existing facilities/utilities. The contractor shall be responsible for providing temporary shoring as required to maintain traffic, to protect utilities, for protection of workers or as otherwise needed to accomplish the work. The contractor shall submit a plan outlining construction procedures, shoring requirements & design to the Engineer for review & approval prior to proceeding with the work. For additional information, see the Special Provisions. No additional payment will be made for temporary shoring.

Walls shall be painted in accordance with the Special Provisions & Standard Specifications.

Retaining wall geometry refers to the exposed face of wall, unless noted otherwise.

Where retaining walls support roadways, the top of wall coping shall follow the profile of the adjacent roadway. The contractor shall verify the top of wall elevations shown on the Project Plans prior to fabricating any wall elements.

For soil boring logs & geotechnical information, refer to the Final Geotechnical Exploration Report by Ethos Engineering. This report is available through the ADOT Contracts & Specifications website.

For MSE Wall Design parameters, see the Final Geotechnical Exploration Report by Ethos Engineering. This report is available through the ADOT Contracts & Specifications website.

All utilities shown in the Project Plans are provided for the contractor's general information only. The locations are approximate. It shall be the contractor's responsibility to determine & coordinate the actual location of utilities in the vicinity of wall construction. Existing utility locations shown reflect the findings of the latest available mapping. Refer to existing condition plans for status of existing utilities.

Finished grade elevations along the front face (FF) of the walls are provided in tables on elevation sheets.

MSE WALL GENERAL NOTES (CONT):

Foamed concrete shall be paid for separately under Item No. 9240047. See Roadway Plans.

Top of leveling pads & foamed concrete limits are placed to ensure that no more than 1200 pounds per square foot (psf) of surcharge will be placed on existing ground as recommended in the Final Geotechnical Exploration Report (dated March 2025). If the contractor proposes to revise the top of leveling pad elevations or foamed concrete limits, the contractor shall submit any variances with calculations demonstrating that the load surcharge is below 1200 psf to the Engineer for approval using the following values:

Assume a 2 foot nominal barrier footing/roadway section which shall be 150 pcf.

Foamed concrete shall be 30 pcf. Height varies from top of wall to top of leveling pad minus the 2 foot nominal barrier footing/roadway section.

Normal roadway embankment shall be 120 pcf.

Existing ground being replaced by foamed concrete in cut situations shall be assumed to be 100 pcf.

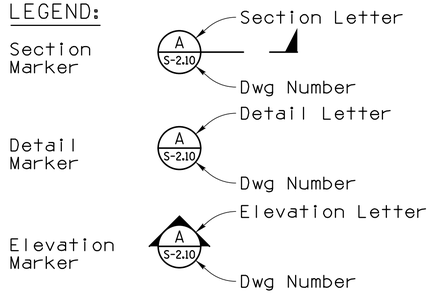
Any variances to wall elevations shall incorporate minimum wall embedments below finished grade at the wall face per Table 2.2/Figure 2-16 of FHWA-NHI-10-024 & in accordance with information provided in the Final Geotechnical Exploration Report.

Mechanically Stabilized Earth (MSE) retaining walls are to be designed by the MSE wall manufacturer & constructed in accordance with the manufacturer's recommendations & the Project Specifications.

The top of leveling pad & finished grade elevations at the front face of wall shall be the minimum required for the MSE wall.

Painting shall be in accordance with Section 610 of the Specifications. Face of Wall & coping shall be painted. The paint color shall be ADOT Tan - (Federal Spec 30318) Flat Finish.

LEGEND:



NOTE:

A line (—) in place of the Drawing Number indicates that the SECTION or DETAIL is located on the same drawing that the SECTION or DETAIL is cut.

Elev = Elevation
TOW = Top of Wall

WALL SUMMARY

Wall No.	Description	Allowable Alternative Wall Type
R1	MSE With Foamed Concrete Fill	None
M1	MSE With Foamed Concrete Fill	None
M2	MSE With Foamed Concrete Fill	None
R2	MSE With Foamed Concrete Fill	None

APPROXIMATE WALL QUANTITIES

Wall No.	MSE Retaining Wall SF
R1	14,576
M1	1158
M2	1836
R2	16,127
Total	33,697
As Built	

Registered Professional Engineer — CERTIFICATE NO. 37863 — CHRISTOPHER LABYE — ARIZONA, USA — 06/30/2025

	NAME	DATE
DESIGN	C. LABYE	06/25
DRAWN	T. TALBERT	06/25
CHECKED	B. ANSLEY	06/25

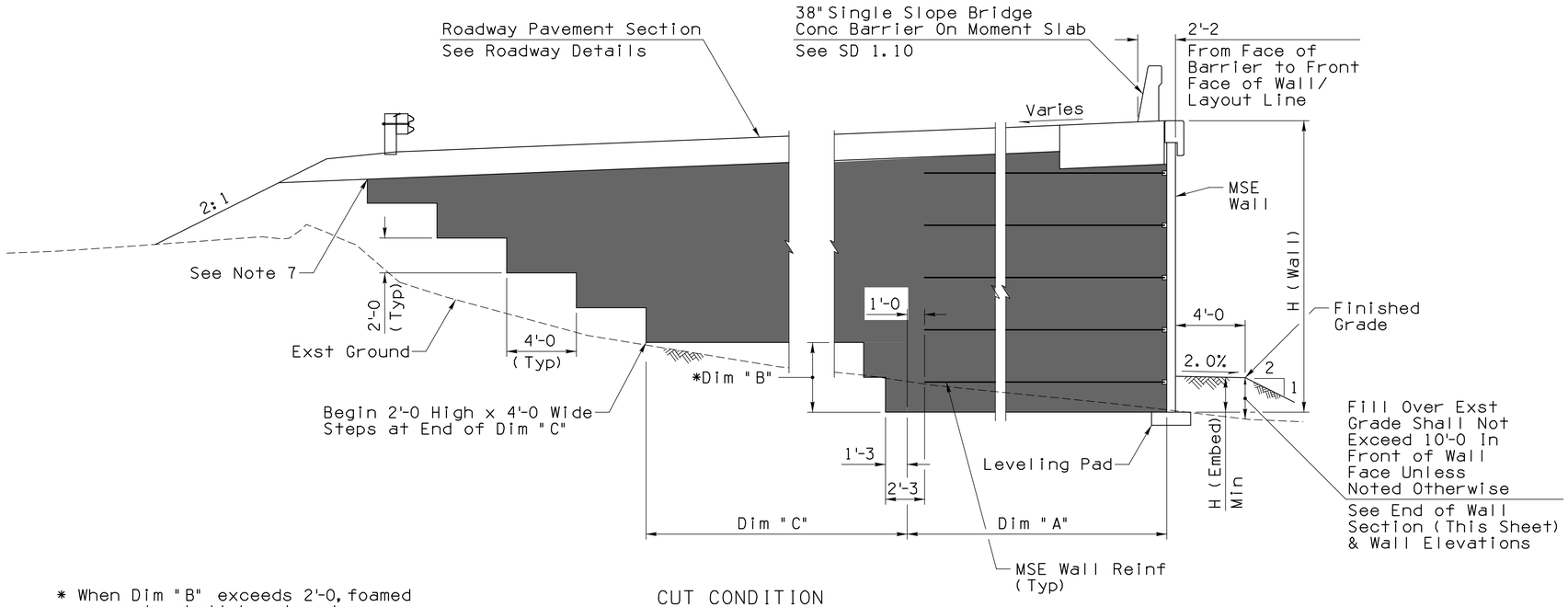
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RETAINING WALL
GENERAL NOTES, QUANTITIES
& WALL SUMMARY

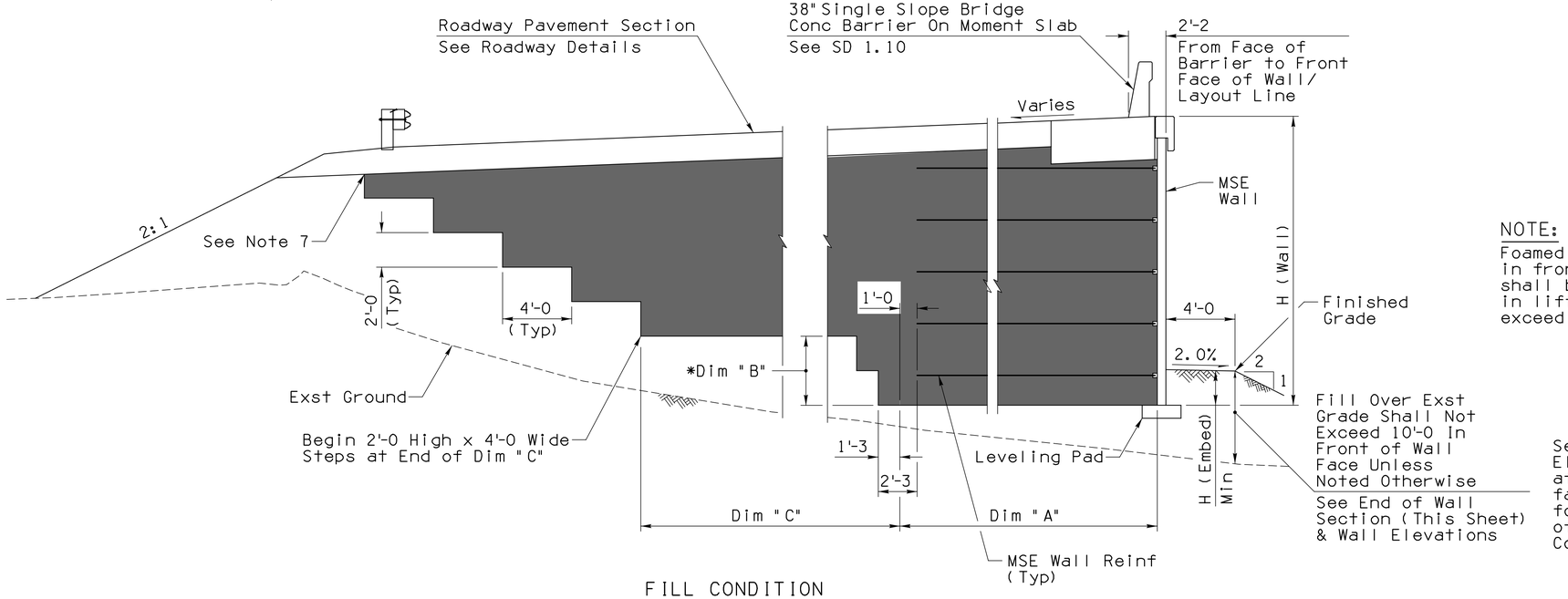
ROUTE	F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US191		ARIZ.	191 CH 062	191-A(205)T	76	91	
MILEPOST	LOCATION: COCHISE OVERPASS						DWG NO. S-2.02
STRUCTURE NO.	TRACS NO. F0383 01C						____ OF____

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* When Dim "B" exceeds 2'-0, foamed concrete shall be placed no steeper than a 2'-0 vertical to 1'-3 horizontal step.

CUT CONDITION
Scale: 1/4" = 1'-0



FILL CONDITION
Scale: 1/4" = 1'-0

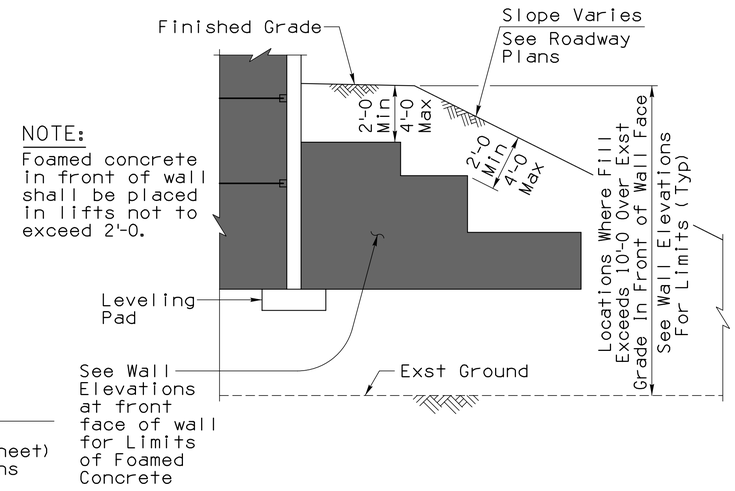
EMBED TABLE	
H(Wall)	H(Embed), Minimum
0 to 13.99'	2'-0
14' to 20.99'	3'-0
21' to 27.99'	4'-0
28' to 34.99'	5'-0
35' to 42.00'	6'-0

LEGEND:

Foamed Concrete. (See Special Provisions).

NOTES:

1. H(wall) = height of wall from top of wall to top of leveling pad.
2. H(embed) = wall embedment below finished grade line (see table this sheet).
3. See Special Provisions for foamed concrete fill & existing ground scarification, etc.
4. Wall layout line is based on assumed minimum nominal structure MSE wall panel thickness of 6" as shown. 1½" of additional thickness for for aesthetics shall be placed outside of wall layout line.
5. See Dwg S-2.04 for Dimensions "A", "B" & "C".
6. See Dwg S-2.04 for Rustication & Coping Details.
7. Foamed concrete steps shall be terminated at bottom of subgrade. The foamed concrete shall be placed with 2'-0 minimum clear to any finished grade or to the bottom of roadway subgrade.
8. A temporary 1:1 max cut slope may be used for construction of MSE walls.



END OF WALL SECTION
Where Fill Exceeds 10'-0 Over Exst Grade
Scale: 3/8" = 1'-0

Registered Professional Engineer, CERTIFICATE NO. 37863, CHRISTOPHER LABYE, 06/30/26, State of Arizona

	NAME	DATE
DESIGN	C. LABYE	06/25
DRAWN	T. TALBERT	06/25
CHECKED	B. ANSLEY	06/25

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BRIDGE DESIGN SERVICES

RETAINING WALL
WALL TYPICAL SECTIONS (1 OF 3)

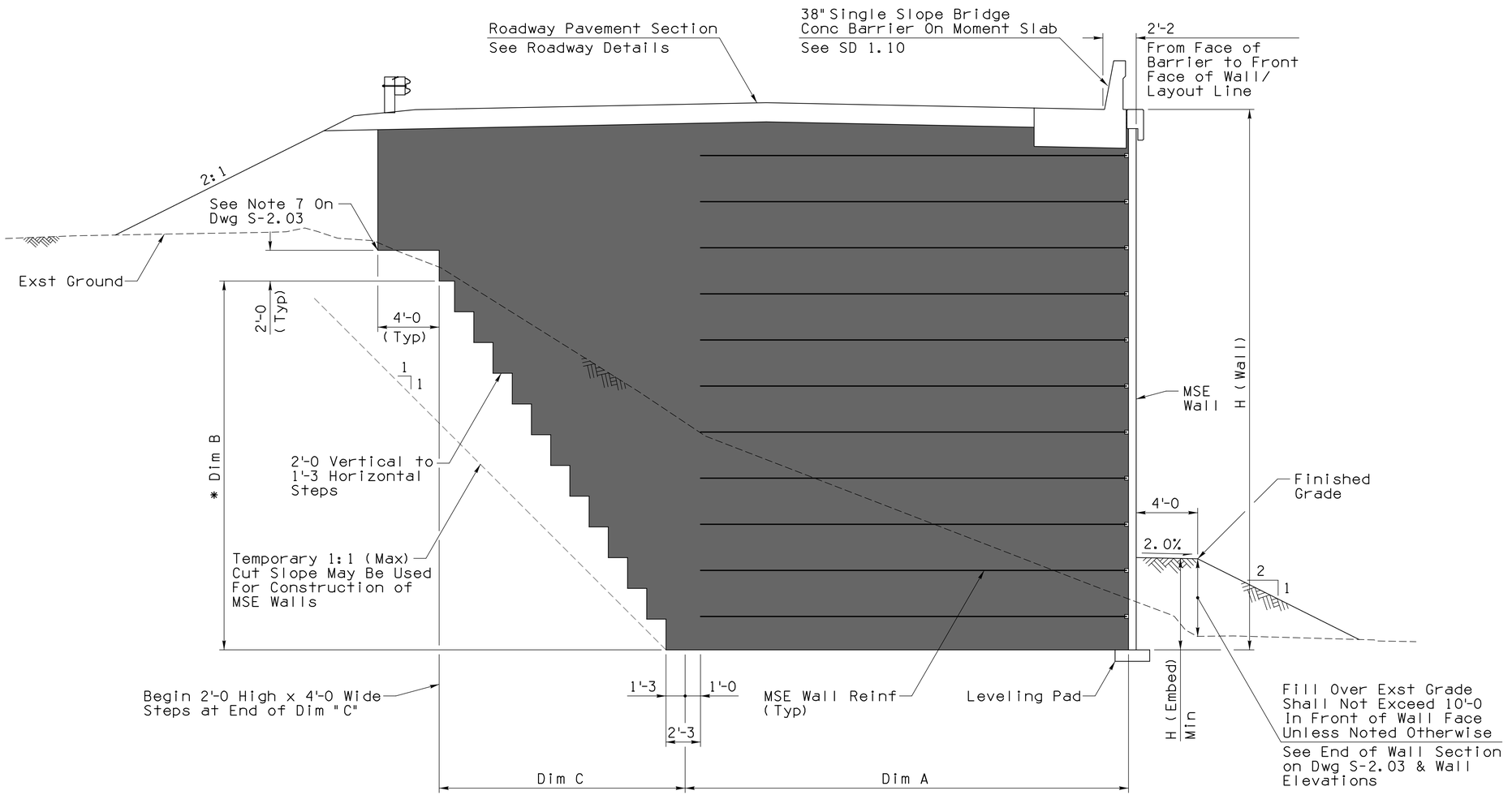
ROUTE: US191
MILEPOST:
STRUCTURE NO.:

F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
	ARIZ.	191 CH 062	191-A(205)T	77	91	

LOCATION: COCHISE OVERPASS
TRACS NO. F0383 01C
DWG NO. S-2.03
___ OF ___

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

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* When Dim "B" exceeds 2'-0, foamed concrete shall be placed no steeper than a 2'-0 vertical to 1'-3 horizontal step.

TYPICAL SECTION
Scale: 1/4" = 1'-0

LEGEND:

Foamed Concrete. (See Special Provisions).

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

Registered Professional Engineer (David) CERTIFICATE NO. 37863 CHRISTOPHER LABYE — Date Signed 06/25/2025

	NAME	DATE
DESIGN	C. LABYE	06/25
DRAWN	T. TALBERT	06/25
CHECKED	B. ANSLEY	06/25

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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
BRIDGE DESIGN SERVICES

RETAINING WALL
WALL TYPICAL SECTIONS (2 OF 3)

ROUTE: US191
MILEPOST:
STRUCTURE NO.:

F.H.W.A. Arizona Division

STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
ARIZ.	191 CH 062	191-A(205)T	78	91	

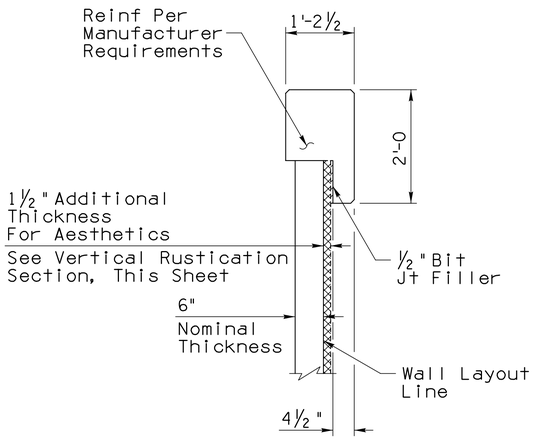
LOCATION: COCHISE OVERPASS
DWG NO. S-2.04
TRACS NO. F0383 01C
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SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

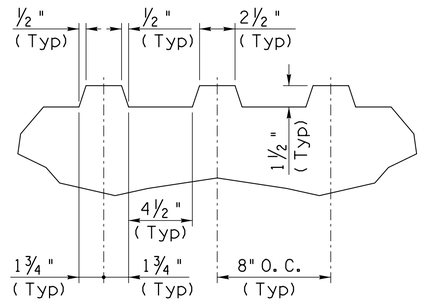
WALL R1 SCHEDULE			
Station	Dim 'A' FT	Dim 'B' FT	Dim 'C' FT
10+00.00	9.0	2.0	13.0
10+50.37	12.0	2.0	12.0
11+00.74	22.0	2.0	4.0
11+51.11	15.0	2.0	11.0
12+01.48	17.0	2.0	15.0
12+51.85	18.0	2.0	10.0
13+02.21	20.0	2.0	6.0
13+52.58	21.0	2.0	4.0
14+02.95	23.0	6.0	2.5
14+53.25	23.0	6.0	2.5
15+03.25	22.0	2.0	4.0
15+53.25	22.0	2.0	4.0
16+03.25	23.0	6.0	2.5
16+53.25	22.0	2.0	4.0
17+03.25	23.0	2.0	4.0
17+53.25	24.0	2.0	4.0
17+78.25 To End of Wall	24.0	2.0	4.0

WALL R2 SCHEDULE			
Station	Dim 'A' FT	Dim 'B' FT	Dim 'C' FT
40+00.00	30.0	24.0	16.25
40+30.08	29.0	24.0	16.25
40+80.08	28.0	18.0	12.5
41+30.08	27.0	16.0	11.25
41+80.08	25.0	12.0	8.75
42+30.08	24.0	6.0	5.0
42+80.08	23.0	6.0	5.0
43+30.08	24.0	4.0	3.75
43+80.08	22.0	2.0	4.0
44+30.08	21.0	2.0	4.0
44+80.08	18.0	2.0	4.0
45+30.08	22.0	2.0	4.0
45+80.09	26.0	2.0	4.0
46+30.29 To End of Wall	37.0	2.0	4.0



CIP COPING - TYPICAL SECTION

Scale: ¾" = 1'-0



VERTICAL RUSTICATION SECTION

NTS

Registered Professional Engineer CERTIFICATE NO. 37863 CHRISTOPHER LABYE (ARIZONA) 2025

	NAME	DATE
DESIGN	C. LABYE	06/25
DRAWN	T. TALBERT	06/25
CHECKED	B. ANSLEY	06/25

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RETAINING WALL
WALL TYPICAL SECTIONS (3 OF 3)

ROUTE US191
MILEPOST
STRUCTURE NO.

F.H.W.A. Arizona Division

STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
ARIZ.	191 CH 062	191-A(205)T	79	91	

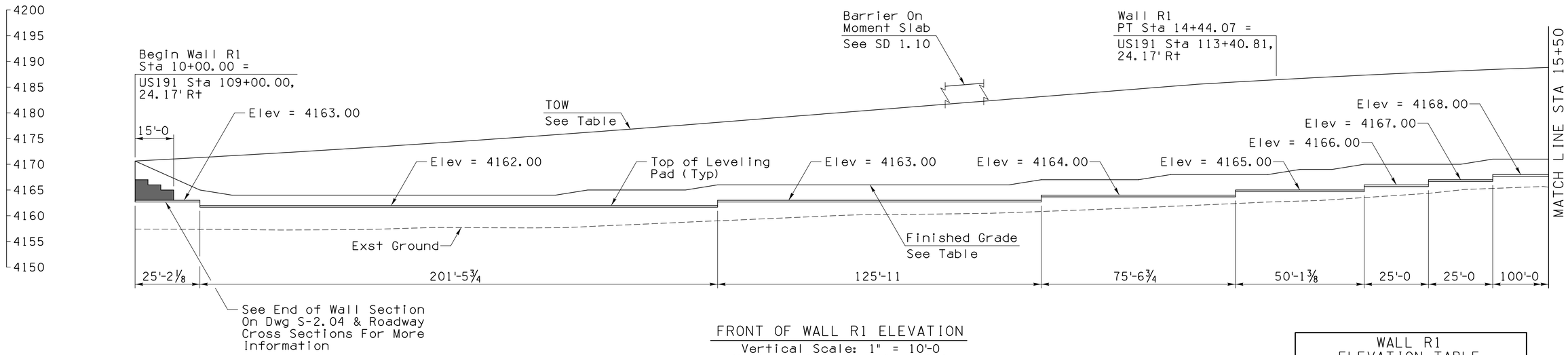
LOCATION COCHISE OVERPASS

DWG NO. S-2.05

TRACS NO. F0383 01C

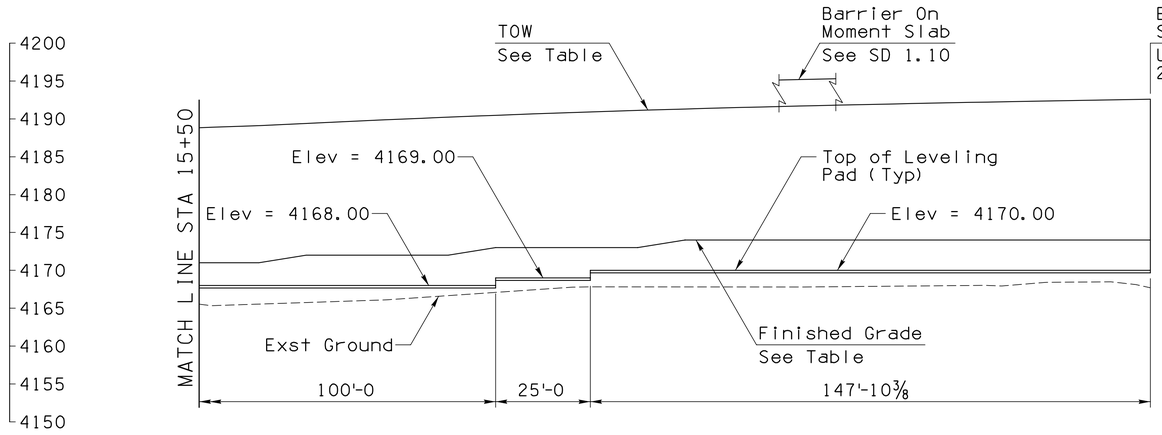
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FRONT OF WALL R1 ELEVATION
Vertical Scale: 1" = 10'-0
Horizontal Scale: 1" = 20'-0

WALL R1 ELEVATION TABLE		
Wall Station	TOW	Finished Grade
10+00.00	4170.62	4170.62
10+25.18	4171.30	4165.00
10+50.37	4172.03	4164.00
10+75.55	4172.79	4164.00
11+00.74	4173.59	4164.00
11+25.92	4174.43	4164.00
11+51.11	4175.30	4164.00
11+76.29	4176.21	4165.00
12+01.48	4177.16	4165.00
12+26.66	4178.15	4166.00
12+51.85	4179.15	4166.00
12+77.03	4180.15	4166.00
13+02.21	4181.15	4166.00
13+27.40	4182.15	4166.00
13+52.58	4183.15	4167.00
13+77.77	4184.15	4167.00
14+02.95	4185.15	4168.00
14+28.14	4185.99	4168.00
14+53.25	4186.69	4169.00
14+78.25	4187.33	4170.00
15+03.25	4187.91	4170.00
15+28.25	4188.43	4171.00
15+53.25	4188.89	4171.00
15+78.25	4189.40	4172.00
16+03.25	4189.96	4172.00
16+28.25	4190.47	4173.00
16+53.25	4190.91	4173.00
16+78.25	4191.30	4174.00
17+03.25	4191.63	4174.00
17+28.25	4191.92	4174.00
17+53.25	4192.17	4174.00
17+78.25	4192.40	4174.00
18+01.11	4192.57	4174.00



FRONT OF WALL R1 ELEVATION
Vertical Scale: 1" = 10'-0
Horizontal Scale: 1" = 20'-0

NOTE:
Wall radius = 3,299.17' from
Wall R1 Sta 10+00.00 to
Wall R1 Sta 14+44.07.

LEGEND:
Foamed Concrete. (See Special Provisions).

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

Registered Professional Engineer — CERTIFICATE NO. 37863 — CHRISTOPHER LABYE — (Civil) — State of Arizona

	NAME	DATE
DESIGN	C. LABYE	06/25
DRAWN	T. TALBERT	06/25
CHECKED	B. ANSLEY	06/25

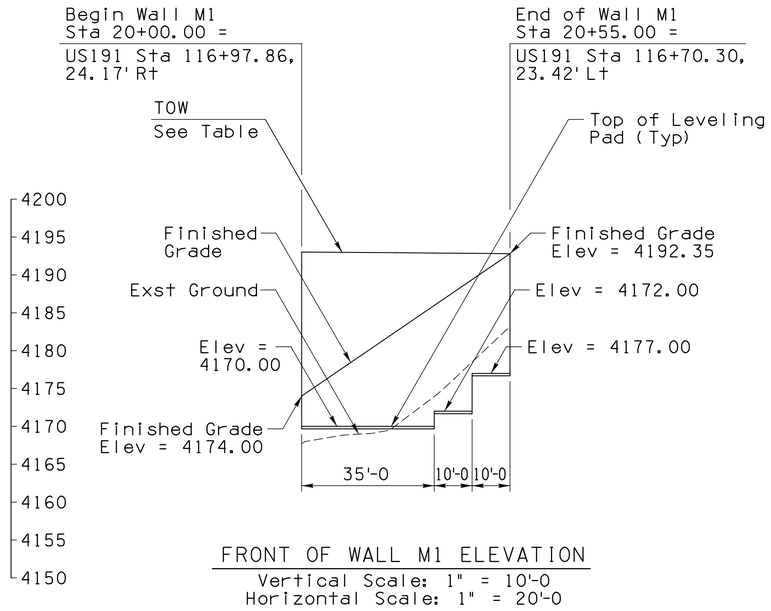
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RETAINING WALL
WALL R1 ELEVATION

ROUTE	F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US191		ARIZ.	191 CH 062	191-A(205)T	80	91	
MILEPOST	LOCATION: COCHISE OVERPASS						DWG NO. S-2.06
STRUCTURE NO.	TRACS NO. F0383 01C						____ OF ____

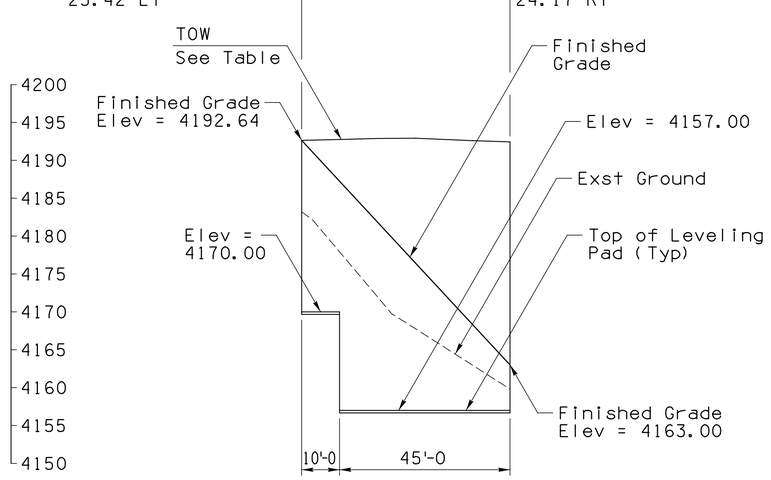
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FRONT OF WALL M1 ELEVATION

Vertical Scale: 1" = 10'-0
Horizontal Scale: 1" = 20'-0

WALL M1 ELEVATION TABLE	
Wall Station	TOW
20+00.00	4192.57
20+25.00	4192.87
20+35.00	4192.76
20+45.00	4192.54
20+55.00	4192.35



FRONT OF WALL M2 ELEVATION

Vertical Scale: 1" = 10'-0
Horizontal Scale: 1" = 20'-0

WALL M2 ELEVATION TABLE	
Wall Station	TOW
30+00.00	4192.64
30+10.00	4192.75
30+20.00	4192.89
30+30.00	4192.92
30+45.00	4192.61
30+55.00	4192.44

NOTE:

Strap lengths for walls M1 & M2 shall be equal to the wall height rounded up to the nearest foot.

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

Registered Professional Engineer — CERTIFICATE NO. 37863 — CHRISTOPHER LABYE — State of Arizona

	NAME	DATE
DESIGN	C. LABYE	06/25
DRAWN	T. TALBERT	06/25
CHECKED	B. ANSLEY	06/25

TRANSPORTATION

AECOM TECHNICAL SERVICES, Inc.
7720 N. 16th St., Suite 100
Phoenix, Arizona 85020
T 602.371.1100

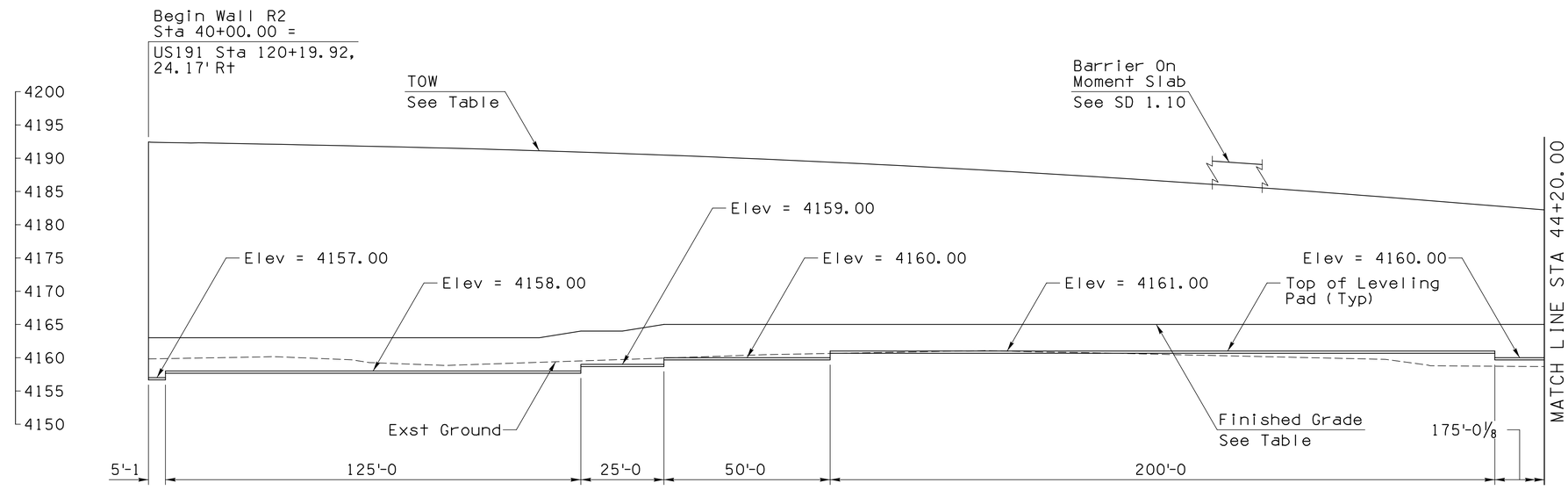
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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
BRIDGE DESIGN SERVICES

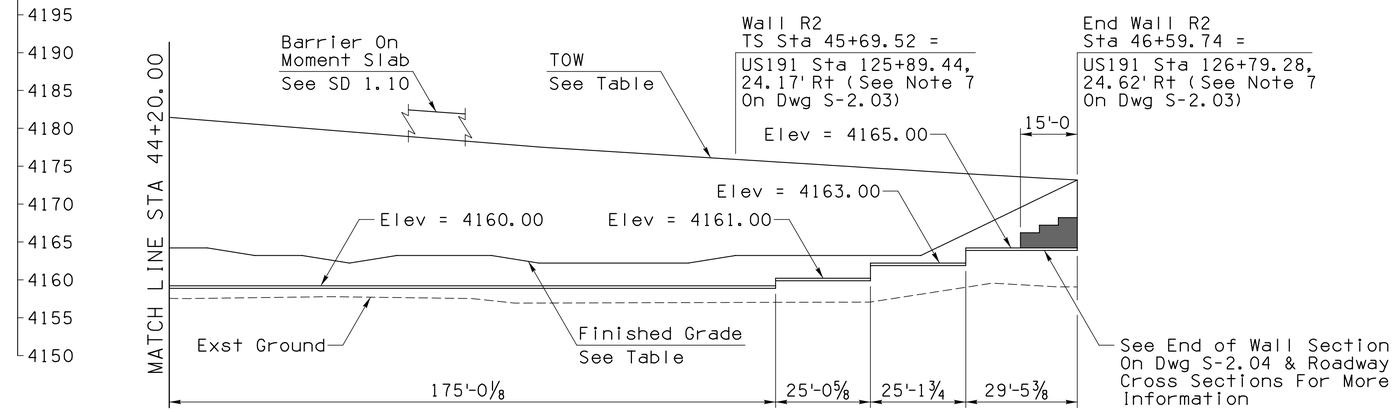
RETAINING WALL
WALLS M1 & M2 ELEVATIONS

ROUTE	F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US191		ARIZ.	191 CH 062	191-A(205)T	81	91	
MILEPOST	LOCATION: COCHISE OVERPASS						DWG NO. S-2.07
STRUCTURE NO.	TRACS NO. F0383 01C						____ OF ____

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FRONT OF WALL R2 ELEVATION
Vertical Scale: 1" = 10'-0
Horizontal Scale: 1" = 20'-0



FRONT OF WALL R2 ELEVATION
Vertical Scale: 1" = 10'-0
Horizontal Scale: 1" = 20'-0

LEGEND:

Foamed Concrete. (See Special Provisions).

WALL R2 ELEVATION TABLE		
Wall Station	TOW	Finished Grade
40+00.00	4192.44	4163.00
40+05.08	4192.40	4163.00
40+30.08	4192.17	4163.00
40+55.08	4191.92	4163.00
40+80.08	4191.63	4163.00
41+05.08	4191.30	4163.00
41+30.08	4190.91	4164.00
41+55.08	4190.47	4165.00
41+80.08	4189.96	4165.00
42+05.08	4189.40	4166.00
42+30.08	4188.78	4165.00
42+55.08	4188.10	4165.00
42+80.08	4187.36	4165.00
43+05.08	4186.57	4165.00
43+30.08	4185.71	4165.00
43+55.08	4184.80	4165.00
43+80.08	4183.83	4165.00
44+05.08	4182.83	4165.00
44+30.08	4181.83	4164.00
44+55.08	4180.83	4163.00
44+80.08	4179.83	4164.00
45+05.08	4178.83	4163.00
45+30.08	4177.93	4163.00
45+55.08	4177.15	4163.00
45+80.09	4176.36	4164.00
46+05.14	4175.58	4165.00
46+30.29	4174.81	4167.00
46+55.46	4174.09	4167.00
46+59.74	4173.97	4173.97

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

Registered Professional Engineer — CERTIFICATE NO. 37863 — CHRISTOPHER LABYE — (civil)

	NAME	DATE
DESIGN	C. LABYE	06/25
DRAWN	T. TALBERT	06/25
CHECKED	B. ANSLEY	06/25

TRANSPORTATION

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INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
BRIDGE DESIGN SERVICES

RETAINING WALL
WALL R2 ELEVATION

ROUTE: US191
MILEPOST:
STRUCTURE NO.

F.H.W.A. Arizona Division

STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
ARIZ.	191 CH 062	191-A(205)T	82	91	

LOCATION: COCHISE OVERPASS
TRACS NO. F0383 01C
DWG NO. S-2.08
____ OF ____

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SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

MSE Wall Summary Table for ADOT											
MSE Retaining Wall	Begin Wall Station	End Wall Station	Retaining Soil Friction Angle	Foundation Soil Friction Angle	Foundation Soil Cohesion (psf)	Ground Improvement	Min Earth Reinforcement Length[1]	Min Wall Embedment[2]	Underdrain Required	Drawdown Analysis	Bench Width
R1	10+00.00	18+01.12	35	27	200	None	1.00H	H/7	No	No	4
M1	20+00.00	20+55.00	35	27	200	None	1.00H	H/7	No	No	4
M2	30+00.00	30+55.00	35	27	200	None	1.00H	H/7	No	No	4
R2	40+00.00	43+05.08	35	27	200	None	0.80H	H/7	No	No	4
R2	43+05.08	46+05.14	35	27	200	None	0.90H	H/7	No	No	4
R2	46+05.14	46+59.74	35	27	200	None	1.00H	H/7	No	No	4

NOTES:

1. Minimum of 8 feet or the length specified, whichever is greater.
2. Minimum of 2 feet or the depth specified, whichever is greater.
3. See Notes on Dwg No. S-2.02.
4. See Typical Sections on Dwg No. S-2.03.

Call at least two full working days before you begin excavation.
ARIZONA 811 Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
in Maricopa County: (602) 263-1100

Registered Professional Engineer (Civil)
CERTIFICATE NO.
37284
DANIEL N. FRECHETTE
Date Signed 06/25/2025
ARIZONA, U.S.A.

	NAME	DATE
DESIGN	D. FRECHETTE	06/25
DRAWN	P. OLIDEN	06/25
CHECKED	D. FRECHETTE	06/25

ethos ENGINEERING, LLC. 9180 S Kyrene Rd Suite #104 Tempe, AZ 85284

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
BRIDGE DESIGN SERVICES

MSE WALL DESIGN DATA

ROUTE	F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US191		ARIZ.	191 CH 062	191-A(205)T	83	91	
MILEPOST 62.88	LOCATION COCHISE OVERPASS						DWG NO. S-2.09
STRUCTURE NO.	TRACS NO. F0383 01D						____ OF ____

CONTROL MEASURE INDEX SHEET (CMIS)

TO BE COMPLETED FOR PROJECTS WITH ONE (1) ACRE OR MORE OF SOIL/GROUND DISTURBANCE OUTSIDE OF JURISDICTIONAL WATERS OF THE U.S. (1 ACRE*)

* For projects that meet the definition of maintenance under AZPDES CGP, the permit threshold is five (≥ 5) acres. Consult with ADOT EP Water Resources Management to define Jurisdictional Waters of the U. S.

I. PROJECT DESCRIPTION

A. Owner Name:

Arizona Department of Transportation
Infrastructure Delivery and Operations Division
Roadway Design Section

B. Project TRACS Number: F0383 01C

C. Project Name/Location (be consistent with the plan set cover sheet): COCHISE RAILROAD OVERPASS

City: COCHISE County: COCHISE

Beginning Latitude (NAD 83): N 32° 7' 44"

Beginning Longitude (NAD 83): W 109° 54' 30"

Ending Latitude (NAD 83): N 32° 8' 15"

Ending Longitude (NAD 83): W 109° 51' 51"

To obtain the project latitude/longitude data, refer to the Flash Earth web link below (Bing Maps with labels):

http://www.flashearth.com/

D. Project Description: Design Bridge Replacement & Box Culvert Replacement.

II. HYDROLOGIC INFORMATION

A. Percentage of the site that is impervious before and after construction:

Percentage before Construction: 6.7%

Percentage after Construction: 9.9%

B. Receiving Water(s), refer to the plan set cover sheet and the NHD Plus HR Availability Map Web Link below:

https://usgs.maps.arcgis.com/apps/MapTools/index.html?appid=41a5c2ca49bd4a83b239450e61022d53

(If unnamed, state as unnamed)

Walnut Wash Channel

III. SOIL STABILIZATION MEASURES

☐ All disturbed soil, which will not be paved, riprapped or otherwise covered to prevent erosion, will be revegetated and/or landscaped in accordance with the project plans and specifications.

IV. MEASURES TO CONTROL STORMWATER AND AIR QUALITY

A. Temporary Stormwater and Air Quality Control Measures (CMs) / Best Management Practices (BMPs)

☐ Temporary Diversion Dikes
☐ Temporary Rock Check Dams
☒ Stabilized Construction Entrance/Exit Gravel Pad
☐ Soil Stabilizer for Wind Erosion and Dust Control
☒ Rock Inlet/Outlet Protection
☐ Sediment Control Berms
☐ Silt Fences
☒ Wattles (Excelsior/Straw/Compost)
☐ Excelsior Logs / Sediment Logs
☐ Erosion Control Mattings
☐ Seeding (Class II with final mulch cover)
☐ Gravelbag
☐ Catch Basin Temporary Fabric Filter
☐ Designated Washout Areas
☐ Protected Chemical and Material Storage Area
☐ Equipment Maintenance Procedures
☐ Others Describe:

B. Permanent and Post-construction Stormwater and Air Quality Control Measures (CMs) / Best ManagementPractices (BMPs):

☐ Crown Ditch/Dike
☒ Rock Protection
☒ Rock Riprap Channel Lining
☐ Sediment Basin
☐ Embankment Curb
☐ Spillways
☐ Downdrains
☐ Minibenching
☐ Solid Waste Management
☐ **Rock-filled Stormwater Infiltration CM/BMP as Infiltration Basin and/or Trench
☐ **Filtration Structures
☐ **Infiltration Basin and/or Trench
☐ **Retention and/or Detention Basins
☐ **Bioretention
☐ **Manufactured Treatment Devices
☒ Seeding established as a perennial vegetative cover with a density of 70% of the native background vegetative cover.
☐ Others Describe:

** Track and report to ADOT EP Water Resources Management:

ADOTWater@azdot.gov

Call at least two full working days before you begin excavation.
ARIZONA 811 Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
in Maricopa County: (602) 263-1100

REGISTERED PROFESSIONAL ENGINEER CERTIFICATE 54085 THOMAS W. WOLF Date Signed 06/30/25 ARIZONA, U.S.A.

	NAME	DATE
DESIGN	A TRAN	6/25
DRAWN	A TRAN	6/25
CHECKED	T WOLF	6/25

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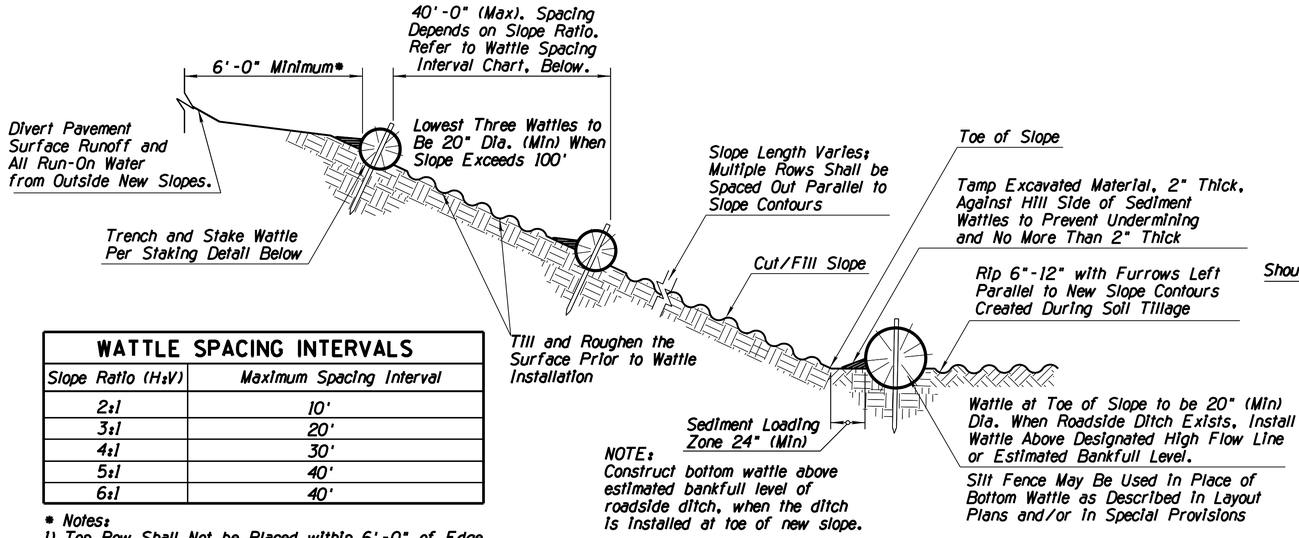
ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADWAY DESIGN SECTION

STORMWATER & AIR QUALITY CONTROL MEASURE INDEX SHEET (CMIS)

ROUTE	F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US 191		ARIZ.	191 CH 062	191-A(205)T	84	91	
MILEPOST 61.9-63.5	LOCATION COCHISE OVERPASS						DWG NO: E-01.01
STRUCTURE NO.	TRACS NO. F0383 01C						___ OF ___

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

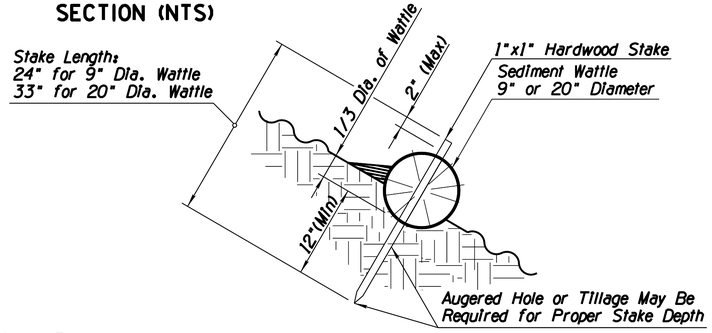
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6/18/2025 @ 4:58:14 PM aecompw15ics01$



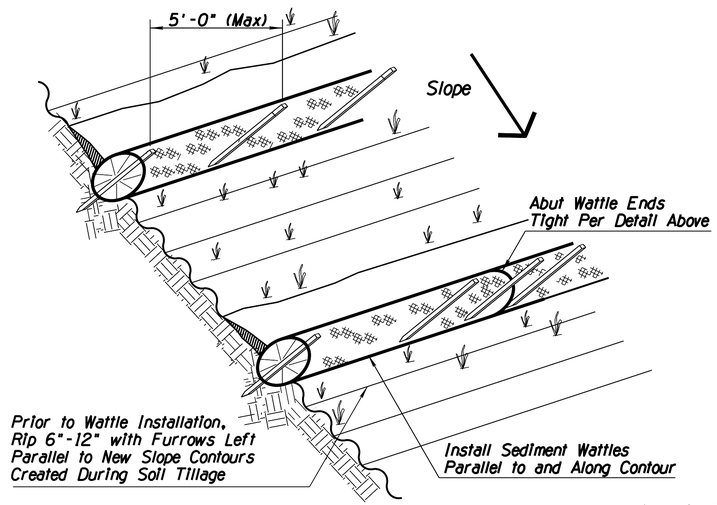
SECTION (NTS)

WATTLE SPACING INTERVALS	
Slope Ratio (H:V)	Maximum Spacing Interval
2:1	10'
3:1	20'
4:1	30'
5:1	40'
6:1	40'

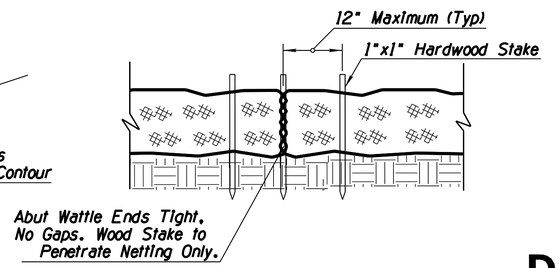
* Notes:
1) Top Row Shall Not be Placed within 6'-0" of Edge of Pavement and 9'-0" from Outside Surface of Barrier.
2) For erosive soils, place rows of wattles closer together.
3) For soils with low erosive potential, place rows of wattles further apart.



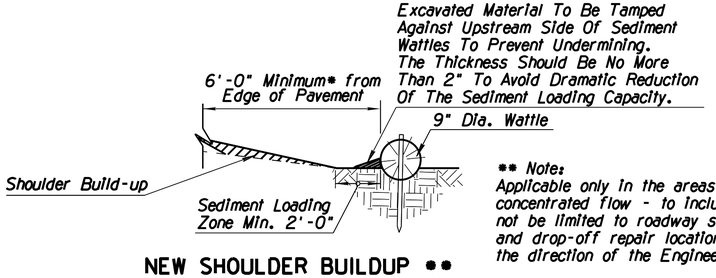
SEDIMENT WATTLE STAKING DETAIL (NTS)



SEDIMENT WATTLE LAYOUT (NTS)



SEDIMENT WATTLE OVERLAP (NTS)



NEW SHOULDER BUILDUP ** PROTECTION SECTION (NTS)

NOTES:

1. Install Sediment Wattles as slopes are constructed to grade or as directed by the Engineer. Select, install and maintain in conformance with manufacturers' specifications to meet site conditions for slope protection and in accordance with good engineering practices. No Sediment Wattles shall be installed in urban freeway medians, nor where cable barrier systems are employed.
2. Sediment Wattles shall be in continuous contact with trench bottom and sides. Do not overlap wattle ends on top of each other. A 20" Dia. wattle may be made from 2-3 rolled excelsior or straw blankets.
3. Butt adjoining wattles tightly against each other. Drive the first end stake of the second wattle at an angle toward the first wattle to help abut them tightly.
4. Repair any rills or gullies promptly. Make field adjustments and corrections of Wattle CM/BMP immediately if it is causing flooding, erosion, and/or affecting roadway safety.
5. Construction of cut slopes 2:1 and steeper in soil and rock materials that can be ripped shall be constructed, whenever possible, by Minibenching. Refer to Slope Minibenching CM/BMP Detail.
6. Loosening surface soil is not required where Minibenches are used. For seeded areas, tillage shall be performed to form minor ridges and furrows parallel to new slope contours and as specified in Section 805 of the Specifications and project special provisions.
7. Divert and direct run-on water from outside of the slopes to the spillways and/or rock riprap/rock mulch. Diversion dikes and/or ditches are necessary on natural undisturbed slopes beyond the top limits of new slopes to divert run-on water.
8. Installation and maintenance of Sediment Wattle CMs/BMPs shall not negatively impact traffic safety, nor the designed function of roadway or bridge drainage facilities.
9. Install and maintain Sediment Wattle CMs/BMPs to carry the stormwater of at least 2-year, 24-hour events.
10. The Sediment Wattle CM/BMP's pay/bid item shall include all materials used for this CM/BMP: all ground preparation, furnishing, installing, maintenance, final removal, and disposal of this temporary CM/BMP, as well as returning the area to an acceptable condition as approved by the Engineer.
11. Refer to Specification Section 810-2.06(C) for Sediment Wattle material specifications.
12. Make field adjustments and corrections to ensure NO sensitive biological resources (native species / habitats) will be adversely impacted.

DETAIL E2
SEDIMENT WATTLE

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

Call at least two full working days before you begin excavation.
ARIZONA 811 Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
in Maricopa County: (602) 263-1100

REGISTERED PROFESSIONAL ENGINEER
CERTIFICATE NO. 54085
THOMAS W. WOLF
Date Signed 06/30/25
ARIZONA, U.S.A.

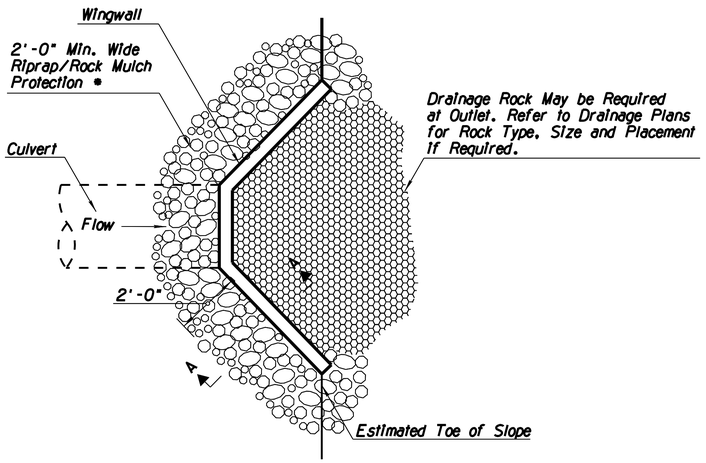
	NAME	DATE
DESIGN	A TRAN	6/25
DRAWN	A TRAN	6/25
CHECKED	T WOLF	6/25

TRANSPORTATION
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7720 N. 16th St., Suite 100
Phoenix, Arizona 85020
T 602.371.1100
AECOM
www.aecom.com

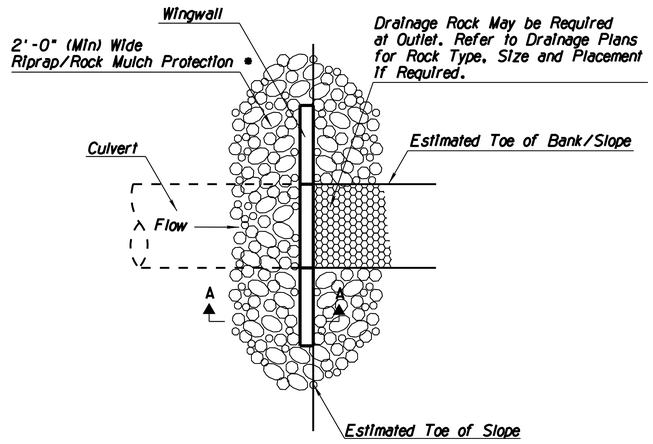
ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADWAY DESIGN SECTION

EROSION/SEDIMENT CONTROL AND WATER QUALITY PROTECTION DETAILS

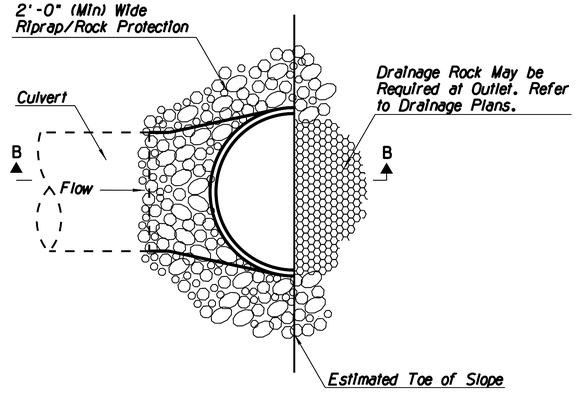
ROUTE		STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US 191	F.H.W.A. Arizona Division	ARIZ.	191 CH 062	191-A(205)T	85	91	
MILEPOST 61.9-63.5	LOCATION: COCHISE OVERPASS						DWG NO: E-01.02
STRUCTURE NO.	TRACS NO. F0383 01C						___ OF ___



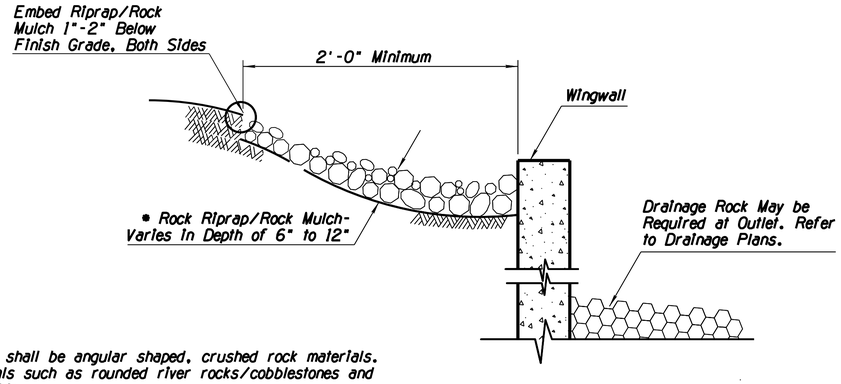
ANGLED HEADWALL
PLAN VIEW (NTS)



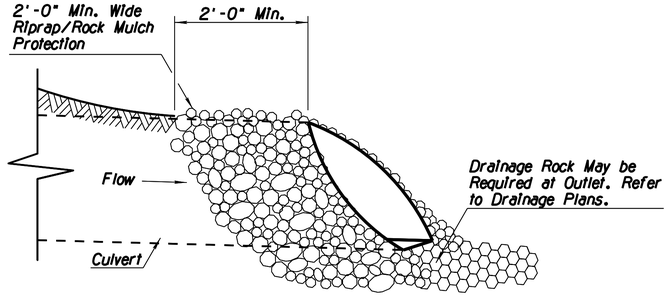
FLUSH HEADWALL
PLAN VIEW (NTS)



FLARED END
PLAN VIEW (NTS)



WINGWALL
SECTION A-A (NTS)



FLARED END
SECTION B-B (NTS)

NOTES:

1. Rock Riprap/Rock Much shall be angular shaped, crushed rock materials. Natural river-run materials such as rounded river rocks/cobblestones and pebbles are NOT acceptable.
2. Rock Riprap/Rock Mulch within the traffic Clear Zone shall conform to the requirements of Section 810-2.03 and Section 913 of the Specifications.
3. Embed rock within traffic recovery area/clear zone into the finished grade so that any portion of the rock above the grade will be less than 4" in height.
4. The installation and maintenance of Rock Protection CMs/BMPs shall not negatively impact traffic safety, nor the designed function of roadway or bridge drainage facilities. Rock Protection CMs/BMPs shall be installed and maintained to carry the stormwater of at least 2-year, 24-hour events.
5. Make field adjustments and corrections of Rock Protection CM/BMP immediately if it is causing flooding, erosion, and/or affecting roadway safety.
6. The Rock Protection CM/BMP's pay/bid item shall include all materials used for this CM/BMP: all ground preparation, furnishing, installing, maintaining as well as returning the area to an acceptable condition as approved by the Engineer.
7. Make field adjustments and corrections to ensure NO sensitive biological resources (native species / habitats) will be adversely impacted.

* Rock protection shall be installed behind applicable box culvert headwall/wingwall where called out in the plans and approved by the Engineer.

DETAIL E4

ROCK PROTECTION FOR INLETS, OUTLETS AND HEADWALL TRANSITION

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

Call at least two full working days before you begin excavation
ARIZONA 811 Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
in Maricopa County: (602) 263-1100

REGISTERED PROFESSIONAL ENGINEER CERTIFICATE NO. 54085 THOMAS W. WOLF State of Registration ARIZONA, U.S.A.

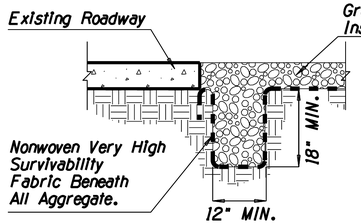
	NAME	DATE
DESIGN	A TRAN	6/25
DRAWN	A TRAN	6/25
CHECKED	T WOLF	6/25

TRANSPORTATION
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7720 N. 16th St., Suite 100
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ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADWAY DESIGN SECTION

EROSION/SEDIMENT CONTROL AND WATER QUALITY PROTECTION DETAILS

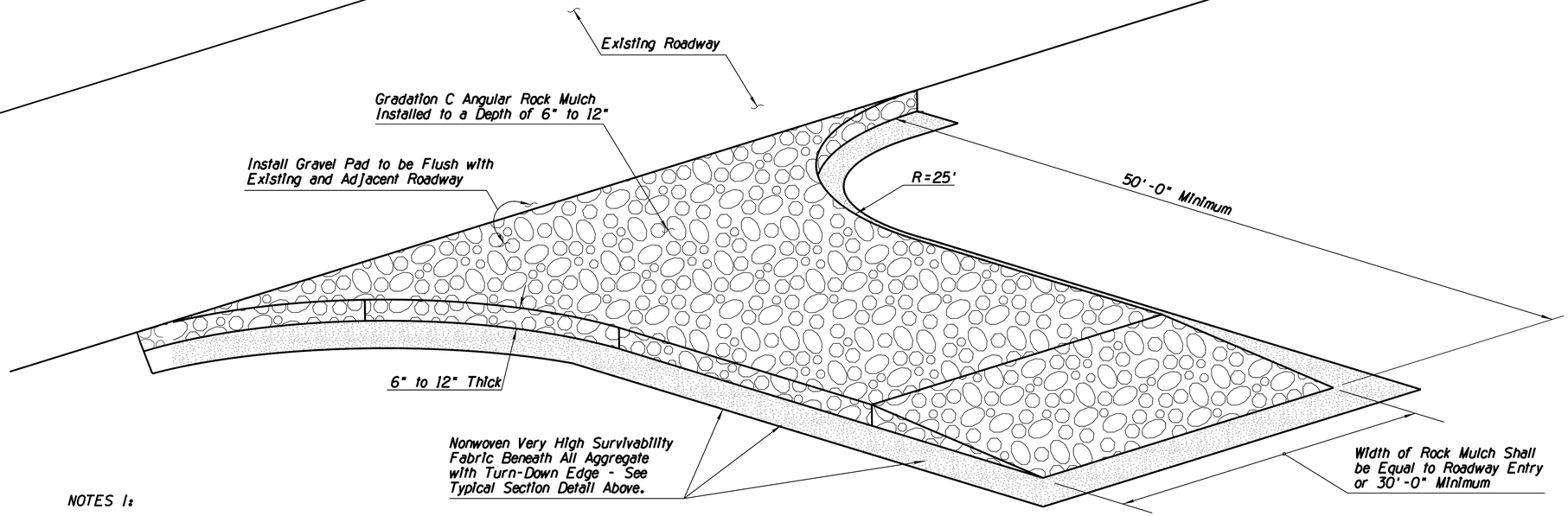
ROUTE	F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US 191		ARIZ.	191 CH 062	191-A(205)T	86	91	
MILEPOST 61.9-63.5	LOCATION COCHISE OVERPASS						DWG NO: E-01.04
STRUCTURE NO.	TRACS NO. F0383 01C						___ OF ___



EDGE TREATMENT TRENCHING TYPICAL SECTION (NTS)

NOTES II:

1. Install nonwoven fabric when water is applied for construction vehicle/equipment cleaning on Gravel Pad.
2. Edge treatment trenching and nonwoven fabric shall not be required if NO wash water is used for vehicle/equipment cleaning.
3. The depth of Gravel Pad varies from 6" to 12" based on the necessities of construction vehicle/equipment as per the approval of the Engineer.



BIRD'S EYE VIEW (NTS)

NOTES I:

1. Install Stabilized Construction Entrance/Exit Gravel Pad CM/BMP for traffic entering or exiting a construction site where sedimentation, clay, silt or other pollutants can be tracked onto public roads and/or adjacent water bodies, as approved by the Engineer. It may also be applied for construction entrance/exit wind erosion/dust control, as approved by the Engineer.
2. Locate new Construction Entrance(s)/Exit(s) at appropriate project entrance/exit points as determined in field with the approval of the Engineer. Relocate Stabilized Construction Entrance/Exit Gravel Pad CM/BMP as needed as project progresses. Replace Rock Mulch materials in drive paths when dirt or mud accumulates.
3. Nonwoven Very High Survivability Fabric shall conform to the standards of Sub-section 1014-4.04 of the Specifications.
4. Rock Mulch materials shall be fractured/crushed rocks in angular shape and as defined in the Sub-section 810-2.03 of the Specifications. Natural river-run materials, especially rounded natural river rocks are not acceptable.
5. Make field adjustments and corrections of Construction Entrance/Exit Gravel Pad CM/BMP immediately if it is causing flooding and/or affecting roadway safety.
6. When paid separately, the Stabilized Construction Entrance/Exit Gravel Pad CM/BMP's pay/bid item shall include all materials used for this CM/BMP: all ground preparation, furnishing, installing, final removal, and disposal of this temporary CM/BMP, as well as returning the area to an acceptable condition as approved by the Engineer.
7. Make field adjustments and corrections to ensure NO sensitive biological resources (native species / habitats) will be adversely impacted.

DETAIL E7

STABILIZED CONSTRUCTION ENTRANCE/EXIT GRAVEL PAD

SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

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in Maricopa County: (602) 263-1100

REGISTERED PROFESSIONAL ENGINEER — CERTIFICATE NO. 54085 — THOMAS W. WOLF — ARIZONA, U.S.A.

	NAME	DATE
DESIGN	A TRAN	6/25
DRAWN	A TRAN	6/25
CHECKED	T WOLF	6/25

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INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADWAY DESIGN SECTION

EROSION/SEDIMENT CONTROL PLAN
WATER QUALITY PROTECTION DETAIL

ROUTE	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US 191	ARIZ.	191 CH 062	191-A(205)T	87	91	
MILEPOST 61.9-63.5	LOCATION: COCHISE OVERPASS					DWG NO: E-01.05
STRUCTURE NO.	TRACS NO. F0383 01C					___ OF___

F.H.W.A. Arizona Division

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SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-

EROSION CONTROL TYPE INSTALLATION & QUANTITY

	LOCATION	E2 20" SEDIMENT WATTLE (LF) Left	E2 Right	E3 9" SEDIMENT WATTLE (LF) Left	E3 Right	E4 ROCK PROTECTION FOR INLET, OUTLET AND HEADWALL (ROCK MULCH) (CY) Left	E4 Right	Construction Entrance (SY) 184 SY/EA Left	Right					QUANTITIES: E2-20" SEDIMENT WATTLE (LF)	E3-9" SEDIMENT WATTLE (LF)	E4-ROCK PROTECTION FOR INLETS, OUTLETS AND HEADWALL TRANSITIONS (ROCK MULCH) (CY)	Construction Entrance (SY) 184 SY/EA					REMARKS
	US 191 Cst ℄																					
PHASE 1	Sta 100+00.00 to Sta 111+00.00	300	500											800								
PHASE 1	Sta 111+00.00 to Sta 125+00.00	1900	1800											3700								
PHASE 1	UPPR Bridge Grading South Slope	0												0								
PHASE 1	UPPR Bridge Grading North Slope	0												0								
PHASE 1	Sta 125+00.00 to Sta 137+20.00	450	350											800								
PHASE 2	Sta 100+00.00 to Sta 111+00.00	1115	2520	375	0									3635	375							
PHASE 2	Sta 111+00.00 to Sta 125+00.00	3000	3130	0	0									6130	0							
PHASE 2	UPPR Bridge Grading South Slope	1175		0										1175	0							
PHASE 2	UPPR Bridge Grading North Slope	985		0										985	0							
PHASE 2	Sta 125+00.00 to Sta 137+20.00	585	2145	775	0									2730	775							
	Sta 108+40.00				2	2										4						
	Sta 128+80.00				6	6										12						
	To Be Determined by Contractor					368	368									736						
	Total													19955	1150	16	736					

CD = Check Dam
RP = Rock Protection e Headwalls
CI = Curb Inlet Protection
RR = Rip Rap Lined Channel
BP = Bridge Protection
SF = Silt Fence
CE = Construction Entrance

CD / E1 Reference letters "CD" correspond to the type of installation. "E1" corresponds to the plan detail number.

NOTES:
1. The placement of all Erosion Control Devices listed above may be subject to change and may be adjusted by the Engineer.
2. Engineer is responsible to verify the contractor has sufficient protective measures in place to contain all storm water runoff sediment within project limits and protect all disturbed slopes from erosion.
3. The Contractor shall monitor/maintain all "Control Measures" during any shutdown period.

NOTES:

1. Make necessary field adjustments to ensure the layout/installation of seeding and erosion/sediment control measures is accomplished according to the actual limits of soil/ground disturbance as approved by the Engineer.

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REGISTERED PROFESSIONAL ENGINEER — 54085 THOMAS W. WOLF — Date Signed 06/30/25 — ARIZONA, U.S.A.

	NAME	DATE
DESIGN	A TRAN	6/25
DRAWN	A TRAN	6/25
CHECKED	T WOLF	6/25

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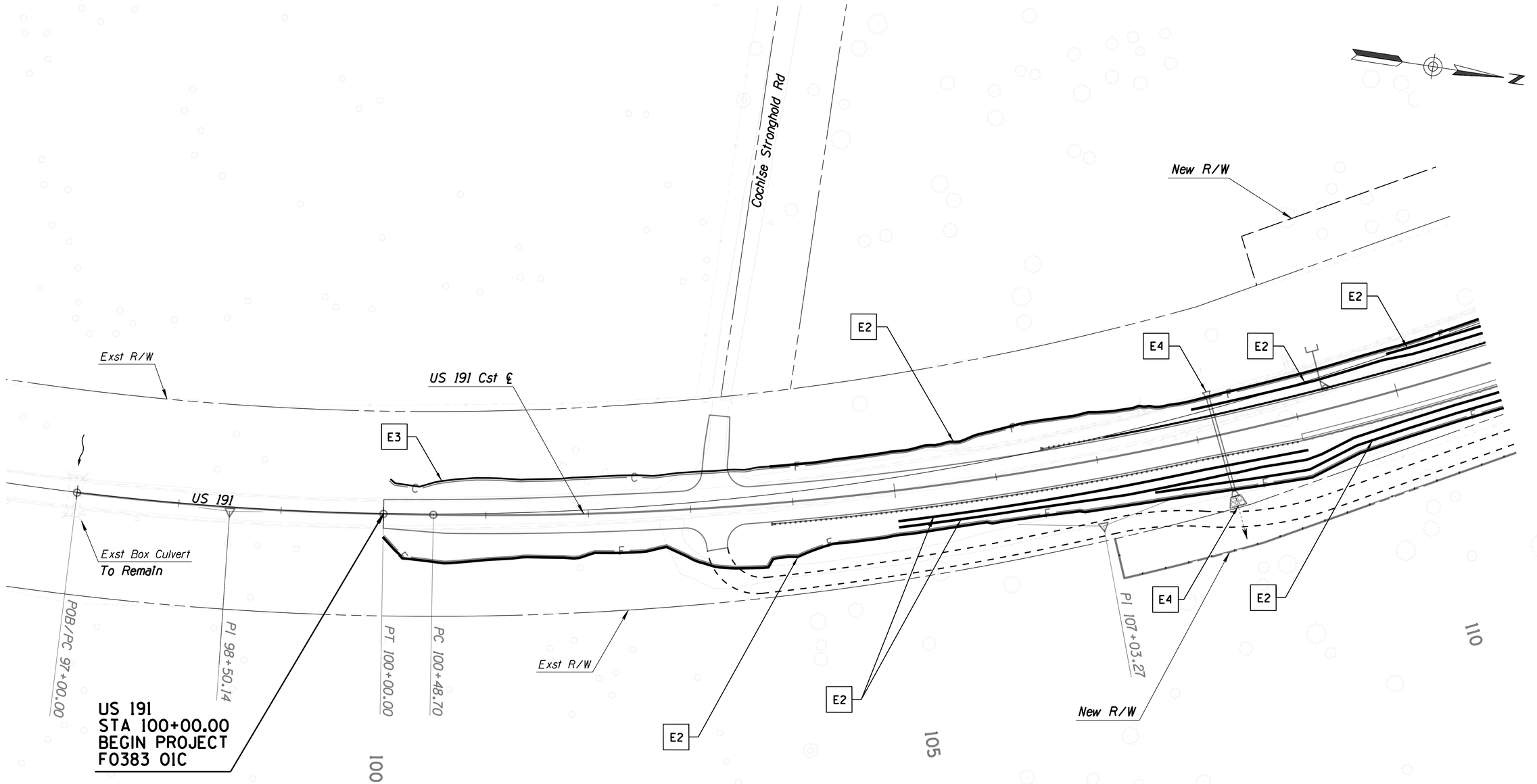
ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADWAY DESIGN SECTION

EROSION/SEDIMENT CONTROL PLAN
EROSION CONTROL SUMMARY

ROUTE		STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US 191	F.H.W.A. Arizona Division	ARIZ.	191 CH 062	191-A(205)T	88	91	
MILEPOST 61.9-63.5	LOCATION: COCHISE OVERPASS						DWG NO: E-01.06
STRUCTURE NO.	TRACS NO. F0383 01C						___ OF___

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SURVEY NO. | FINISHED PLANS- | REVISIONS- | LOCATION- | DATE-



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in Maricopa County: (602) 263-1100

REGISTERED PROFESSIONAL ENGINEER
CERTIFICATE NO.
54085
THOMAS W. WOLF
Date Signed 06/25/2025
ARIZONA, U.S.A.

	NAME	DATE
DESIGN	A TRAN	6/25
DRAWN	A TRAN	6/25
CHECKED	T WOLF	6/25

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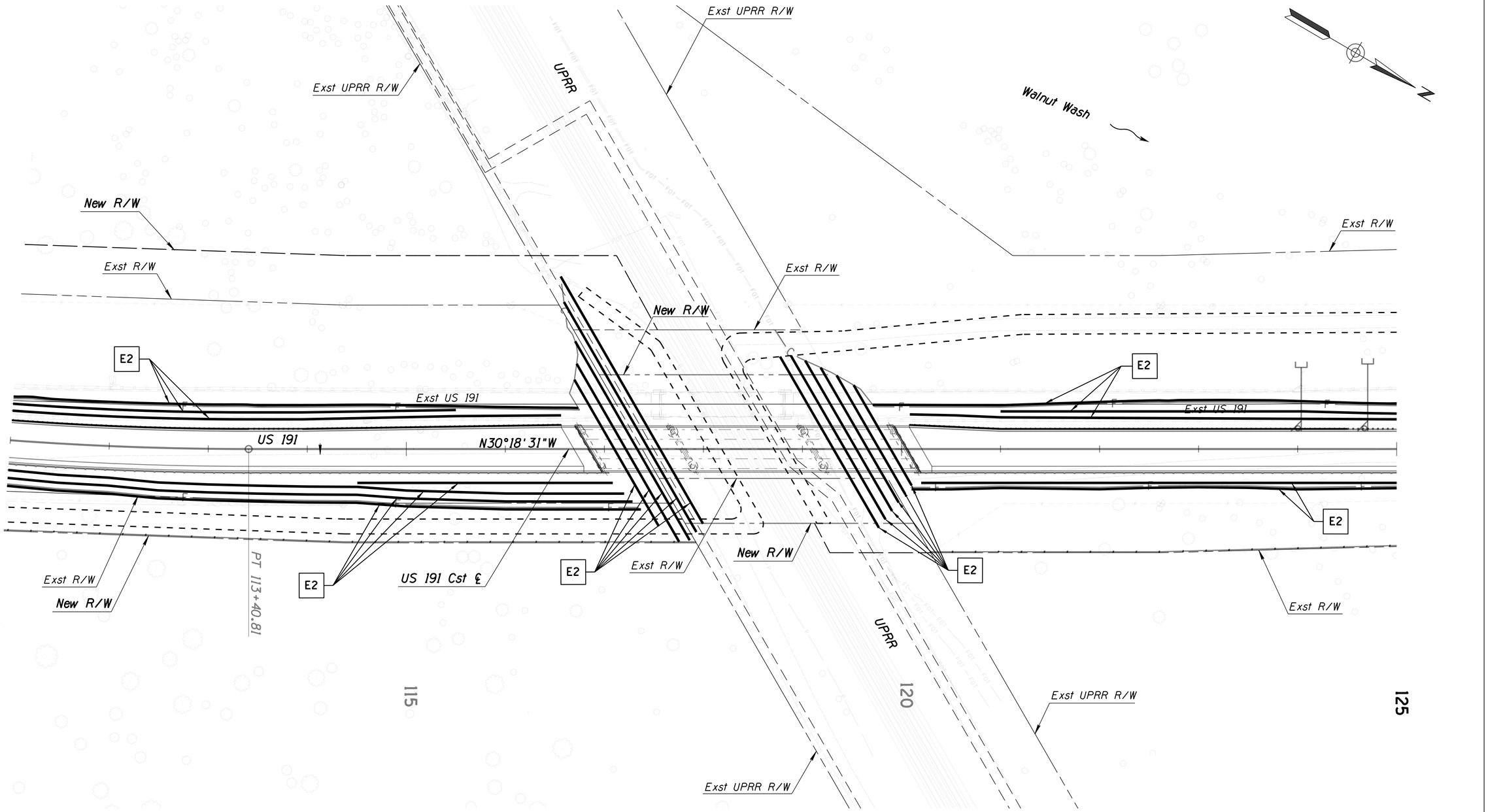
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INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
ROADWAY DESIGN SECTION

US 191
EROSION/SEDIMENT CONTROL PLAN
Sta 100+00 to 111+00

ROUTE	F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US 191		ARIZ.	191 CH 062	191-A(205)T	89	91	
MILEPOST 61.9-63.5	LOCATION COCHISE OVERPASS						DWG NO: E-01.07
STRUCTURE NO.	TRACS NO. F0383 01C						___ OF ___

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REGISTERED PROFESSIONAL ENGINEER — CERTIFICATE NO. 54085 — THOMAS W. WOLF — Date Signed 06/25/2025 — ARIZONA, U.S.A.

	NAME	DATE
DESIGN	A TRAN	6/25
DRAWN	A TRAN	6/25
CHECKED	T WOLF	6/25

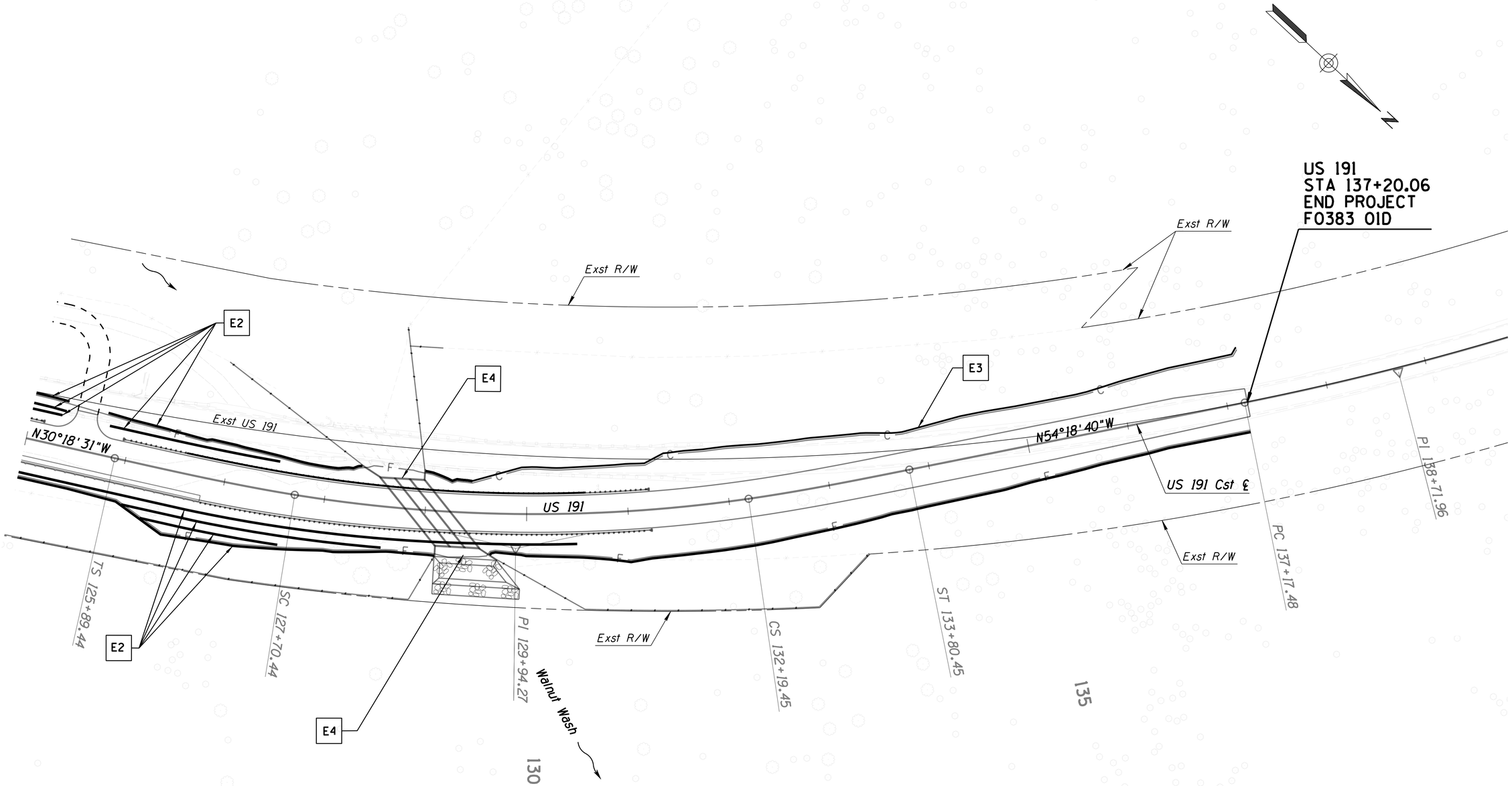
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ROADWAY DESIGN SECTION

US 191
EROSION/SEDIMENT CONTROL PLAN
Sta 111+00 to 125+00

ROUTE	F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US 191		ARIZ.	191 CH 062	191-A(205)T	90	91	
MILEPOST 61.9-63.5	LOCATION COCHISE OVERPASS						DWG NO: E-01.08
STRUCTURE NO.	TRACS NO. F0383 01C						___ OF ___

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REGISTERED PROFESSIONAL ENGINEER — CERTIFICATE NO. 54085 — THOMAS W. WOLF — Date Signed 06/20/25 — ARIZONA, U.S.A.

	NAME	DATE
DESIGN	A TRAN	6/25
DRAWN	A TRAN	6/25
CHECKED	T WOLF	6/25

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ROADWAY DESIGN SECTION

US 191
EROSION/SEDIMENT CONTROL PLAN
Sta 125+00 to 137+20

ROUTE	F.H.W.A. Arizona Division	STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
US 191		ARIZ.	191 CH 062	191-A(205)T	91	91	
MILEPOST 61.9-63.5	LOCATION COCHISE OVERPASS						DWG NO: E-01.09
STRUCTURE NO.	TRACS NO. F0383 01C						___ OF___

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