

STRUCTURAL NOTES

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	56A-03-00	2004	61	66

1. GENERAL SPECIFICATIONS: HAWAII STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND PUBLIC WORKS CONSTRUCTION, 1994, TOGETHER WITH SPECIAL PROVISIONS PREPARED FOR THIS CONTRACT.
2. DESIGN SPECIFICATIONS: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 2ND EDITION, 1998, INCLUDING SUBSEQUENT INTERIM SPECIFICATIONS.
3. LOADS:
- A. LIVE LOAD: HL-93
- B. SEISMIC LOAD: ACCELERATION COEFFICIENT = 0.09
SEISMIC PERFORMANCE ZONE = 1
IMPORTANCE CATEGORY = CRITICAL BRIDGE
SOIL PROFILE TYPE III (S = 1.5)
- C. RAILING TEST LEVEL = TL-2
4. MATERIALS:
- A. MINIMUM CONCRETE COMPRESSIVE STRENGTH (AT 28 DAYS) SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED:
- 1) PRESTRESSED CONCRETE PILES = SEE PRESTRESSED PILE NOTES
- 2) ALL OTHER CONCRETE = 4,000 PSI.
- B. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, UNLESS OTHERWISE NOTED.
- C. ALL MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 AND BE HOT-DIP GALVANIZED AFTER FABRICATION, UNLESS OTHERWISE NOTED.
- D. ALL ANCHOR BOLTS SHALL CONFORM TO ASTM A307, GRADE A. ALL NUTS SHALL CONFORM TO ASTM A563, GRADE DH. ALL BOLTS AND NUTS SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION, UNLESS OTHERWISE NOTED.
- E. ELASTOMERIC BEARING PADS SHALL BE 60 HARDNESS MINIMUM. STEEL LAMINATIONS SHALL BE 1/8 INCHES THICK ASTM A36 STEEL PLATES.
- F. FOR MATERIALS OF PRESTRESSED PILES, SEE APPLICABLE PRESTRESSED PILE NOTES.
5. REINFORCEMENT:
- A. UNLESS OTHERWISE NOTED, THE COVERING MEASURED FROM THE SURFACE OF THE CONCRETE TO THE FACE OF ANY REINFORCING BARS SHALL BE AS FOLLOWS:
- 1) FORMED SURFACES EXPOSED TO EARTH AND WEATHER = 2" CLEAR
- 2) BOTTOM AND SIDES OF FOOTINGS AND WHERE CONCRETE IS DEPOSITED ON GRADE = 3" CLEAR.
- 3) PRESTRESSED PILES = 2" CLEAR.
- B. MINIMUM CLEAR SPACING BETWEEN PARALLEL BARS SHALL BE 1 1/2 TIMES THE DIAMETER OF THE BAR (FOR NON BUNDLED BARS) OR 1 1/2 TIMES THE DIAMETER DERIVED FROM THE EQUIVALENT AREA OF THE BARS (FOR BUNDLED BARS), BUT IN NO CASE SHALL THE CLEAR DISTANCE BETWEEN THE PARALLEL BARS BE LESS THAN 1 1/2 TIMES THE MAXIMUM SIZE OF THE COARSE AGGREGATE OR 1 1/2 INCHES.
- C. ALL DIMENSION RELATING TO REINFORCING BARS (E.G. SPACING OF BARS, ETC.) ARE TO CENTER OF BARS, UNLESS OTHERWISE NOTED.
- D. REINFORCING BARS SHALL BE DETAILED IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 2ND EDITION, 1998, INCLUDING SUBSEQUENT INTERIM SPECIFICATIONS.
- E. REINFORCING BARS SHALL BE SECURELY TIED AT ALL INTERSECTIONS AND LAP SPLICES EXCEPT WHERE THE SPACING OF INTERSECTIONS IS LESS THAN 12 INCHES IN EACH DIRECTION, IN WHICH CASE ALTERNATE INTERSECTIONS SHALL BE TIED.
6. TRUSS BEARING PEDESTAL:
- A. PEDESTAL ELEVATION FOR TRUSS BEARING SHALL BE DETERMINED BY THE CONTRACTOR. PEDESTAL ELEVATIONS SHALL TAKE INTO CONSIDERATION, A.C. OVERLAY THICKNESS, DEPTH FROM BRIDGE DECK TO BOTTOM OF TRUSS BEARING PLATE (PER MANUFACTURER), SLIDING PLATE THICKNESS, ELASTOMERIC BEARING PAD THICKNESS, AND BEARING PLATE THICKNESS.
7. GENERAL CONSTRUCTION NOTES:
- A. SEE STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.
- B. ALL ITEMS NOTED INCIDENTAL WILL NOT BE PAID FOR SEPARATELY.
- C. STANDARD DETAIL DRAWINGS REFER TO ALL STRUCTURES IN GENERAL, EXCEPT FOR MODIFICATIONS AS MAY BE REQUIRED FOR SPECIAL CONDITIONS. FOR SUCH MODIFICATIONS, REFER TO THE CORRESPONDING DETAILED DRAWINGS.
- D. THE CONTRACTOR SHALL COMPLY WITH ALL CONSTRUCTION PERMITS FOR THIS PROJECT. IN ADDITION, THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS OF THE FEDERAL, STATE AND COUNTY GOVERNMENTS.
- E. THE CONTRACTOR SHALL UTILIZE APPROPRIATE EROSION CONTROL MEASURES DURING CONSTRUCTION AND SHALL PERFORM CONSTRUCTION ACTIVITIES AFFECTING OR AFFECTED BY THE STREAM ONLY DURING PERIODS OF LOW STREAM FLOW. THE CONTRACTOR SHALL PREVENT DEBRIS AND CONSTRUCTION MATERIALS, INCLUDING CEMENT OR CONCRETE, PETROLEUM PRODUCTS, AND OTHER POLLUTANTS FROM ENTERING THE STREAM. WASH AND DUST CONTROL WATER SHALL BE PROPERLY DISPOSED.
- F. IN THE EVENT THAT SUBSURFACE CULTURAL REMAINS SUCH AS ARTIFACTS, BURIALS OR DEPOSITS OF SHELLS OR CHARCOAL ARE ENCOUNTERED DURING EXCAVATION WORK, THE CONTRACTOR SHALL STOP WORK IN THE AREA OF THE FIND AND CONTACT THE ENGINEER IMMEDIATELY. WORK MAY RECOMMENCE ONLY WITH THE ENGINEER'S APPROVAL.
- G. UNLESS OTHERWISE NOTED, ALL VERTICAL DIMENSIONS ARE MEASURED PLUMB.
- H. THE CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS BEFORE COMMENCING WITH WORK.
- I. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITY LINES AND NOTIFY THE RESPECTIVE OWNERS BEFORE COMMENCING THE WORK OF EXCAVATION OR PILE DRIVING.
- J. FOR CONCRETE FINISH, SEE STANDARD SPECIFICATIONS.
- K. UNLESS OTHERWISE NOTED, ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED 3/4" x 3/4".

8. ACROW PANEL BRIDGE:
- A. ACROW PANEL BRIDGE SHALL BE A PRE-ENGINEERED STEEL TRUSS BRIDGE AS DESIGNED AND SUPPLIED BY ACROW CORPORATION OF AMERICA, OR AN APPROVED EQUIVALENT.
- B. THE WIDTH AND LENGTH OF THE BRIDGE SHALL CONFORM TO THE DIMENSIONS SHOWN ON THE PLANS.
- C. THE CONTRACTOR SHALL SUBMIT A DETAILED DESIGN AND STRUCTURAL CALCULATIONS OF THE BRIDGE FOR THE APPROVAL OF THE ENGINEER. THE DETAILED DESIGN AND STRUCTURAL CALCULATIONS SHALL BE STAMPED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE OF HAWAII.
- D. THE DESIGN AND CONSTRUCTION OF THE BRIDGE SHALL BE IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 2ND EDITION, 1998, INCLUDING SUBSEQUENT INTERIM SPECIFICATIONS, THE HAWAII STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND PUBLIC WORKS CONSTRUCTION 1994 AND THE SPECIAL PROVISIONS PREPARED FOR THIS CONTRACT. THE DESIGN VEHICULAR LIVE LOAD SHALL BE HL-93.
- E. THE BRIDGE SHALL BE PROVIDED WITH FHWA APPROVED NCHRP 350 COMPLIANT TEST LEVEL TWO (TL-2) BRIDGE RAILINGS.
9. FOUNDATION:
- THESE FOUNDATION NOTES WERE BASED ON RECOMMENDATIONS CONTAINED IN A SOILS INVESTIGATION REPORT BY ERNEST K. HIRATA & ASSOCIATES, INC. DATED OCTOBER 1, 2002 ALONG WITH FAX MEMORANDUMS DATED FEBRUARY 26, 2003 AND APRIL 10, 2003. THE REPORT SHALL BE CONSIDERED AS PART OF THE CONSTRUCTION DOCUMENTS AND ITS RECOMMENDATIONS SHALL BE IMPLEMENTED UNLESS OTHERWISE DIRECTED BY THE SOILS ENGINEER.
- A. 16 1/2" OCTAGONAL PRESTRESSED PILES:
- 1) THE VERTICAL LOAD CAPACITY FOR THE 16 1/2" OCTAGONAL PRESTRESSED PILES ARE FROM FRICTION BETWEEN THE PILE SURFACE AND THE SURROUNDING SOILS. THE PILES SHALL BE EMBEDDED A MINIMUM OF 25 FEET INTO THE STIFF, MOTTLED BROWN AND GRAYISH BROWN CLAYEY SILT. THE FOLLOWING VERTICAL LOAD CAPACITIES WERE USED FOR DESIGN:
- A) STRENGTH LIMIT STATE = 126 KIPS PER PILE
- B) EXTREME EVENT LIMIT STATE = 226 KIPS PER PILE.
- 2) THE FOLLOWING LATERAL LOAD CAPACITIES (BASED ON APPROXIMATELY 1" DEFLECTION) FOR THE 16 1/2" OCTAGONAL PRESTRESSED PILES (FIXED-HEAD CONDITION) WERE USED FOR DESIGN:
- A) FRONT ROW = 10 KIPS PER PILE
- B) SECOND ROW = 8 KIPS PER PILE
- C) THIRD ROW PLUS = 7 KIPS PER PILE.
- 3) THE 16 1/2" OCTAGONAL PRESTRESSED PILES ESTIMATED TIP ELEVATIONS SHOWN ON THE PLANS ARE BASED ON THE BORING DATA. THE PILES SHALL BE DRIVEN WITH A HAMMER DELIVERING APPROXIMATELY 27,000 FOOT-POUNDS OF ENERGY PER BLOW. THE MINIMUM DRIVING RESISTANCE WILL DEPEND ON THE TYPE OF HAMMER AND PILE DRIVING EQUIPMENT USED. FINAL DETERMINATION WILL BE SPECIFIED AFTER DRIVING INDICATOR TEST PILES.
- 4) AT ABUTMENT NO. 2 FOUNDATION, NUMEROUS COBBLES AND BOULDERS WERE ENCOUNTERED WITHIN THE UPPER FIVE FEET. TO REDUCE POTENTIAL OF DAMAGING THE PILES DURING DRIVING OPERATIONS, THE PILE LOCATIONS SHALL BE PRE-DRILLED TO AN ELEVATION OF -4.00 FEET MINIMUM. THE PRE-DRILLED HOLES SHALL BE SLIGHTLY LARGER THAN THE PILE DIAMETER. THE ANNULAR SPACE BETWEEN THE PILE AND SIDEWALLS OF THE PRE-DRILLED HOLE SHALL BE BACKFILLED WITH EITHER CLEAN SAND, COMPACTED BY WATER JETTING, OR SAND-CEMENT GROUT.
- 5) FOR 16 1/2" OCTAGONAL PRESTRESSED PILE DETAILS, REFER TO PLAN SHEET S-3 AND THE STATE OF HAWAII, DEPARTMENT OF TRANSPORTATION STANDARD PLANS B-12 AND B-13.
- 6) TWO INDICATOR TEST PILES SHALL BE DRIVEN AT EACH ABUTMENT (FOUR TOTAL) AT THE LOCATIONS SHOWN IN THE CONTRACT PLANS. THE INDICATOR TEST PILES SHALL BE AT LEAST 10 FEET LONGER THAN THAT ESTIMATED FOR THE PRODUCTION PILES. THE SOILS ENGINEER OF RECORD SHALL BE PRESENT DURING THE DRIVING OF THE INDICATOR TEST PILES.
- 7) A STATIC LOAD TEST SHALL BE CONDUCTED ON ONE OF THE INDICATOR TEST PILES TO CONFIRM THAT THE PILE IS CAPABLE OF SUPPORTING THE DESIGN LOAD. THE LOAD TEST PILE WILL BE DETERMINED BY THE ENGINEER AFTER ALL OF THE INDICATOR TEST PILES HAVE BEEN PLACED. THE LOAD TEST PILE SHALL BE SUBJECTED TO AT LEAST 200 PERCENT OF THE STRENGTH LIMIT STATE VERTICAL LOAD CAPACITY.
- B. ABUTMENTS AND WING WALLS:
- 1) DESIGN EQUIVALENT FLUID PRESSURE:
- A) ACTIVE EARTH PRESSURE:
- ABOVE GROUNDWATER LEVEL = 40 PCF
- BELOW GROUNDWATER LEVEL = 82 PCF
- B) AT-REST EARTH PRESSURE:
- ABOVE GROUNDWATER LEVEL = 61 PCF
- BELOW GROUNDWATER LEVEL = 93 PCF
- 2) PASSIVE EARTH PRESSURE:
- A) STRENGTH LIMIT STATE:
- ABOVE GROUNDWATER LEVEL = 210 PCF
- BELOW GROUNDWATER LEVEL = 110 PCF
- B) EXTREME EVENT LIMIT STATE:
- ABOVE GROUNDWATER LEVEL = 420 PCF
- BELOW GROUNDWATER LEVEL = 220 PCF
- 3) LIVE LOAD SURCHARGE:
- A) FREESTANDING WALL = 0.33 x SOIL WEIGHT
- B) RESTRAINED WALL = 0.55 x SOIL WEIGHT
- 4) SOIL UNIT WEIGHT = 110 PCF

- C. BACKFILL MATERIAL:
- 1) THE ONSITE CLAYEY SILT MAY BE REUSED AS BACKFILL MATERIAL PROVIDED ALL ROCK FRAGMENTS LARGER THAN THREE INCHES IN MAXIMUM DIMENSION ARE REMOVED.
- 2) IMPORTED STRUCTURAL FILL SHALL BE IN ACCORDANCE WITH REQUIREMENTS FOR STRUCTURAL BACKFILL MATERIAL A AS INDICATED IN SECTION 703.20 OF THE HAWAII STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND PUBLIC WORKS CONSTRUCTION, 1994 AND THE SPECIAL PROVISIONS.
- 3) PREPARATION OF THE SUBGRADE PRIOR TO BACKFILL PLACEMENT AND PLACEMENT OF THE BACKFILL MATERIAL SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND PUBLIC WORKS CONSTRUCTION, 1994 AND THE SPECIAL PROVISIONS.

INDEX TO DRAWINGS

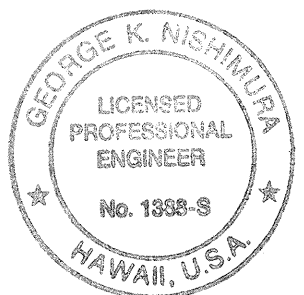
DRAW NO.	DESCRIPTION
S-1	INDEX TO DRAWINGS, ABBREVIATIONS, SUMMARY OF ESTIMATED QUANTITIES, STRUCTURAL NOTES
S-2	BRIDGE PLAN, BRIDGE LONGITUDINAL SECTION / ELEVATION
S-3	FOUNDATION PLAN, TYPICAL ABUTMENT ELEVATION, TYPICAL PILE DETAIL
S-4	ABUTMENT SECTIONS AND DETAILS
S-5	END POST DETAILS
S-6	END POST SECTIONS, BEARING DETAILS

SUMMARY OF ESTIMATED QUANTITIES

ITEM NO.	CONTRACT ITEM	QUANTITY	UNIT
206.6000	STRUCTURE EXCAVATION FOR BRIDGE ABUTMENTS AND WING WALLS	225	C.Y.
206.7200	STRUCTURE BACKFILL FOR BRIDGE ABUTMENTS AND WING WALLS	230	C.Y.
206.8000	FILTER MATERIAL	5	C.Y.
503.1090	CONCRETE IN BRIDGE ABUTMENTS AND WING WALLS (INCLUDING END POST)	(200)	(C.Y.) L.S.
505.0010	16 1/2" OCTAGONAL PRESTRESSED PILE LOAD TEST	1	EACH
505.0410	16 1/2" OCTAGONAL PRESTRESSED PILES, FURNISHED	2,840	L.F.
505.4100	16 1/2" OCTAGONAL PRESTRESSED PILES, DRIVEN	2,500	L.F.
505.6000	DRILLED HOLES	150	L.F.
602.0091	REINFORCING STEEL IN BRIDGE ABUTMENT AND WING WALLS (INCLUDING END POST)	(43,000)	(LBS.) L.S.
660.1000	ACROW PANEL BRIDGE	1	(EACH) L.S.

ABBREVIATIONS

Ø -----DIAMETER	F.B.-----FLAT BAR	PCF-----POUNDS PER CUBIC FEET
# -----NUMBER OR POUND	F.F.-----FAR FACE	PL., PL.-----PLATE
A.B.-----ANCHOR BOLT	G-----GIRDER	PSF-----POUNDS PER SQUARE FEET
A.C.-----ASPHALT CONCRETE	GALV.-----GALVANIZED	PSI-----POUNDS PER SQUARE INCH
AZ.-----AZIMUTH	G.J.-----GROOVED JOINT	PVC.-----POLYVINYL CHLORIDE
BOT., BOTT., B--BOTTOM		R, RAD.-----RADIUS
C.J.-----CONSTRUCTION JOINT	HORIZ., H----HORIZONTAL	REBAR-----REINFORCING BAR
CL-----CENTERLINE	IN.-----INCH	REF.-----REFERENCE
C.G.-----CENTER OF GRAVITY	JT.-----JOINT	REINF.-----REINFORCED, REINFORCING, REINFORCEMENT
CLR., CL.-----CLEAR		R.O.W.-----RIGHT-OF-WAY
CONC.-----CONCRETE	K-----KIPS	SHT.-----SHEET
CONT.-----CONTINUOUS	KSI-----KIPS PER SQUARE INCH	SL.-----SLOPE
C.Y.-----CUBIC YARD		STA.-----STATION
DBL.-----DOUBLE	LB., LBS.----POUND, POUNDS	STD.-----STANDARD
DET.-----DETAIL	L.F.-----LINEAR FEET	STIRR.-----STIRRUP
D.I.-----DUCTILE IRON	L.S.-----LUMP SUM	SYM., SYMM.--SYMMETRICAL
DIA.-----DIAMETER		
DN.-----DOWN	MAX.-----MAXIMUM	THK., TH.----THICK
DWG.-----DRAWING	MIN.-----MINIMUM	TYP.-----TYPICAL
E.F.-----EACH FACE	NO., #-----NUMBER	VERT., V----VERTICAL
E.J.-----EXPANSION JOINT	N.F.-----NEAR FACE	
ELEV., EL.----ELEVATION	N.T.S.-----NOT TO SCALE	
E.W.-----EACH WAY		
EXP.-----EXPANSION	O.C.-----ON CENTER	W/-----WITH



THIS WORK WAS PREPARED BY
NAT. CIVIL ENGINEER
09/30/04
Expiration Date of Professional License

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

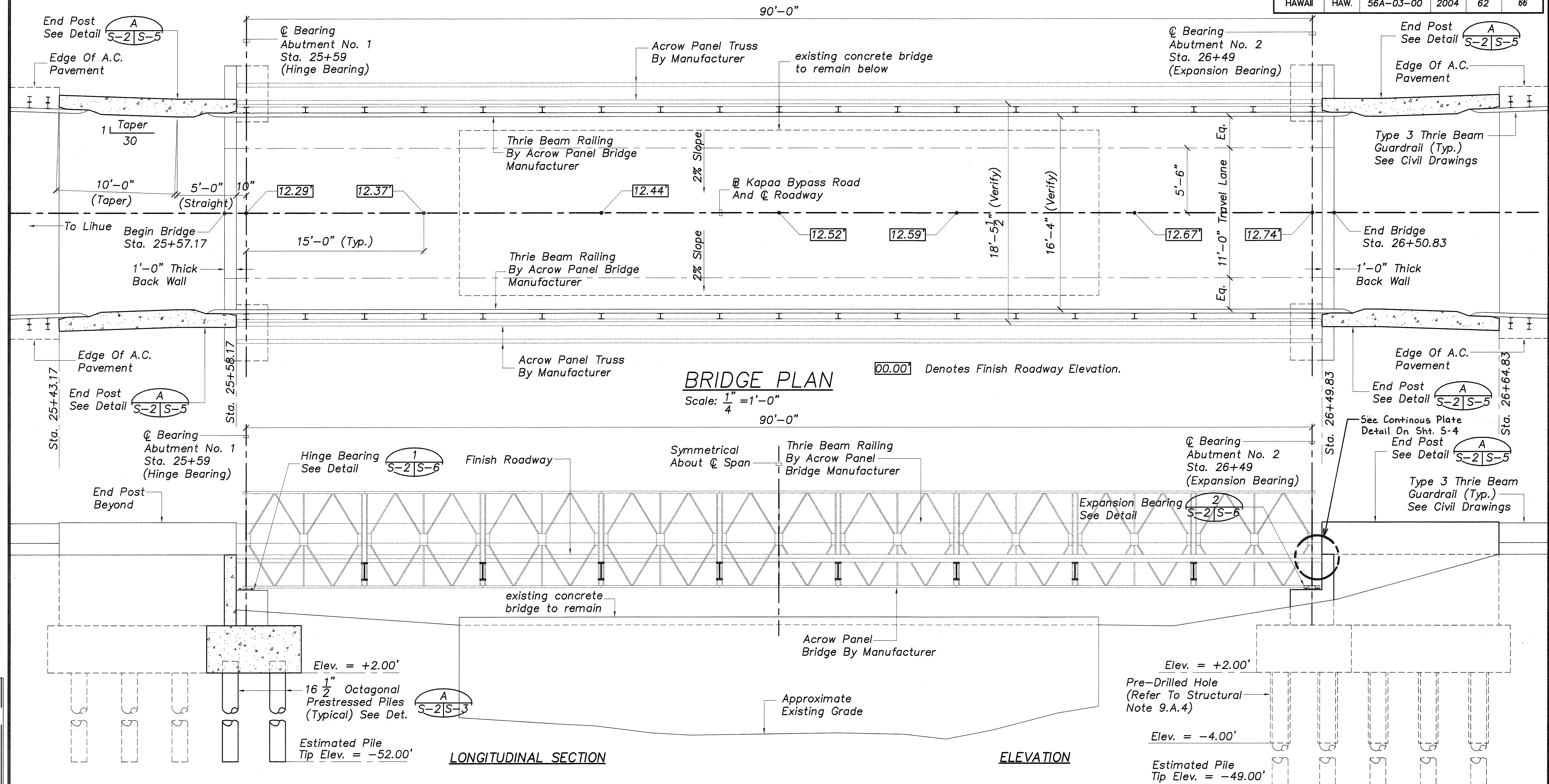
INDEX TO DRAWINGS, ABBREVIATIONS,
SUMMARY OF ESTIMATED QUANTITIES,
STRUCTURAL NOTES

KUHIO HIGHWAY IMPROVEMENTS
Extension Of Temporary Kapaa Bypass Road
Project No. 56A-03-00

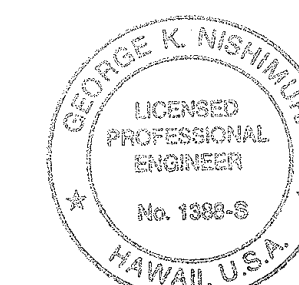
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SHEET No. S-1 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	56A-03-00	2004	62	66



DATE	_____
DESIGNED BY	_____
CHECKED BY	_____
NOTED BY	_____
ORIGINAL PLAN BOOK	_____
NO.	_____



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HIGHWAYS DIVISION

**BRIDGE PLAN, BRIDGE
LONGITUDINAL SECTION / ELEVATION**

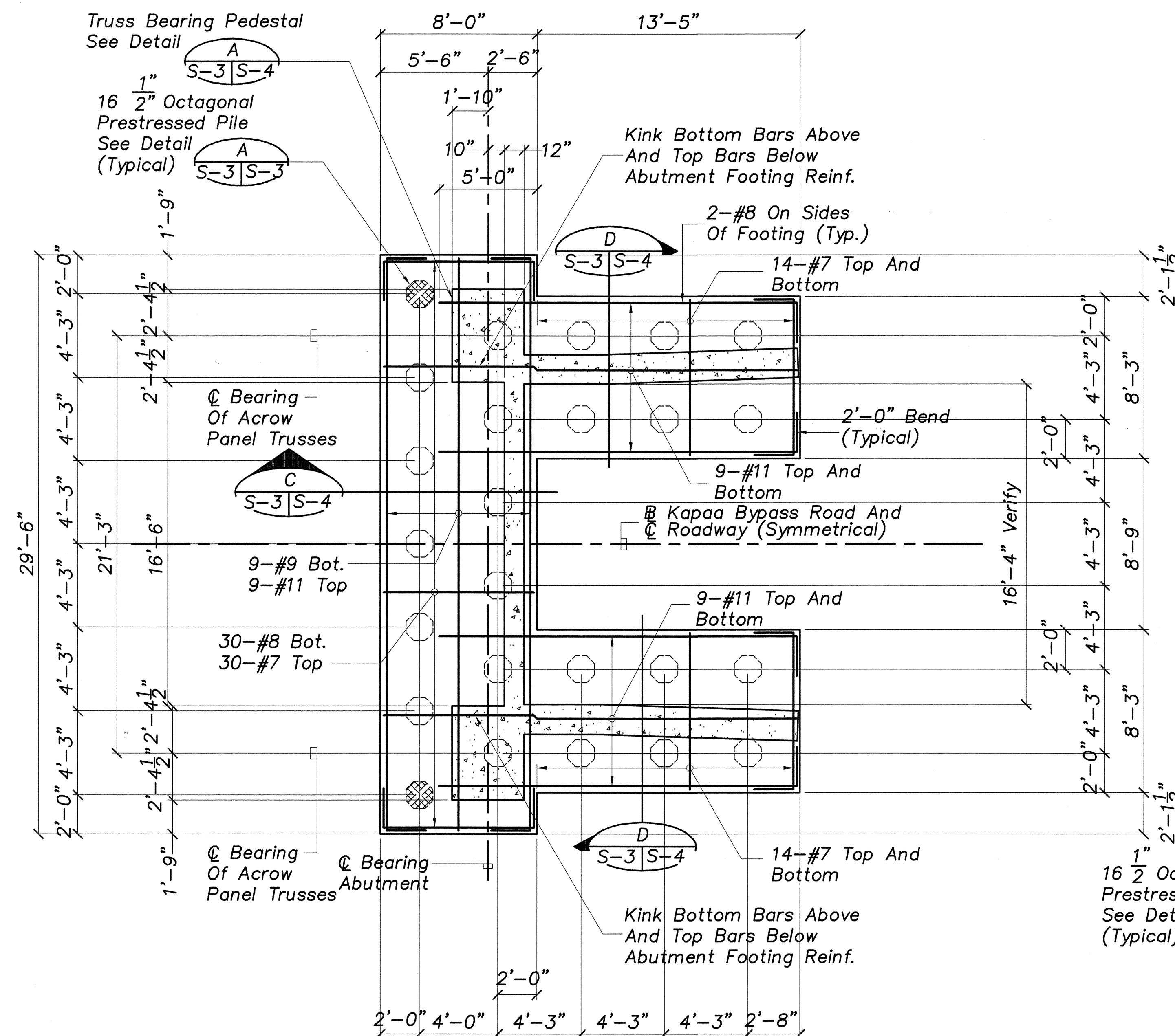
KUHIO HIGHWAY IMPROVEMENTS
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Project No. 56A-03-00

Scale: As Noted Date: Mar 2004

SHEET No. S-2 OF 6 SHEETS

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	56A-03-00	2004	63	66



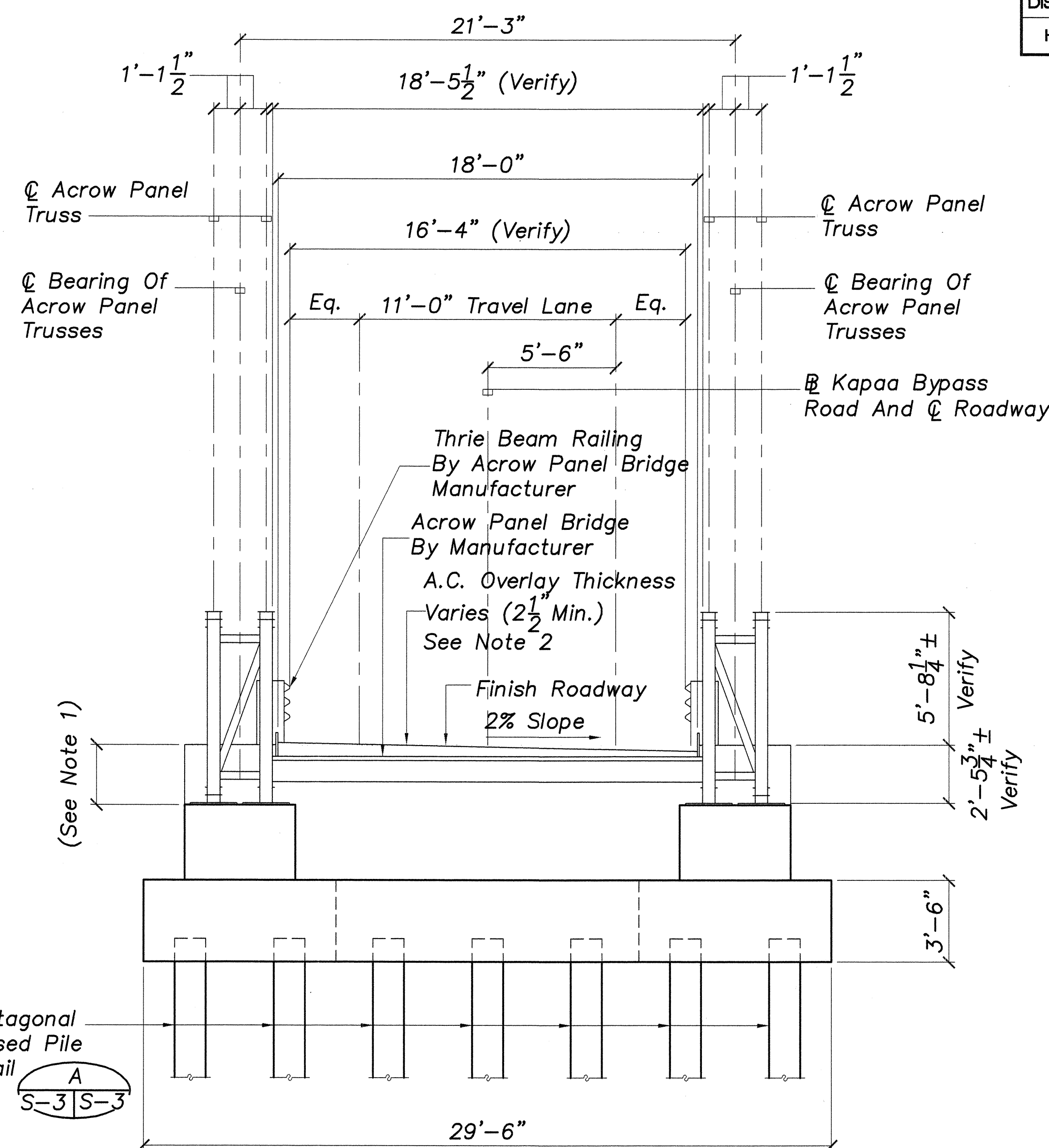
Denotes Indicator Test Piles At Each Abutment Foundation (Four Indicator Test Piles Total)

FOUNDATION PLAN

Scale: $\frac{1}{4}'' = 1'-0''$

PRESTRESSED PILE NOTES

- FINAL CONCRETE COMPRESSIVE STRENGTH SHALL BE 6,000 PSI MINIMUM. CONCRETE COMPRESSIVE STRENGTH AT TRANSFER SHALL BE 4,000 PSI MINIMUM.
- PRESTRESSING STRANDS SHALL BE SEVEN WIRE $\frac{1}{2}''$ DIAMETER LOW RELAXATION STEEL STRANDS (AREA = 0.153 SQ. IN.), WITH AN ULTIMATE STRENGTH OF 270 KSI. FOR PROPERTIES, SEE STATE STANDARD SPECIFICATIONS.
- SPIRAL REINFORCING SHALL BE STEEL WIRE REINFORCEMENT CONFORMING TO ASTM A82. FOR PROPERTIES, SEE STATE STANDARD SPECIFICATIONS.
- THE MINIMUM EFFECTIVE PRESTRESSING FORCE IN THE PILE AFTER ALL LOSSES SHALL BE 165 KIPS. LOSSES ARE DUE TO CREEP, SHRINKAGE, ELASTIC SHORTENING, AND RELAXATION OF STEEL.
- PILES ACCEPTED BY THE ENGINEER SHALL BE OF SOUND CONCRETE. DAMAGED PILES SHALL BE REPLACED OR REPAIRED AS DIRECTED BY THE ENGINEER, AT NO COST TO THE STATE.
- WORK OF CUTTING OFF PRESTRESSED PILES SHALL BE PERFORMED IN SUCH A MANNER AS TO AVOID SPALLING OR DAMAGING OF THE PILE BELOW CUT-OFF. DAMAGED PORTIONS SHALL BE REMOVED AND PILE CUT-OFF ELEVATION LOWERED AS DIRECTED BY THE ENGINEER.
- TOP OF PILE AT CUT-OFF LINE SHALL BE PREPARED AS REQUIRED FOR CONSTRUCTION JOINTS IN SECTION 503 OF THE STANDARD SPECIFICATIONS AND AS AMENDED IN THE SPECIAL PROVISIONS.
- SPLICES IN THE PRESTRESSED PILE WILL NOT BE PERMITTED, UNLESS OTHERWISE APPROVED BY THE ENGINEER.
- FOR ADDITIONAL PILE DETAILS, REFER TO STATE OF HAWAII, DEPARTMENT OF TRANSPORTATION STANDARD PLANS B-12 AND B13.

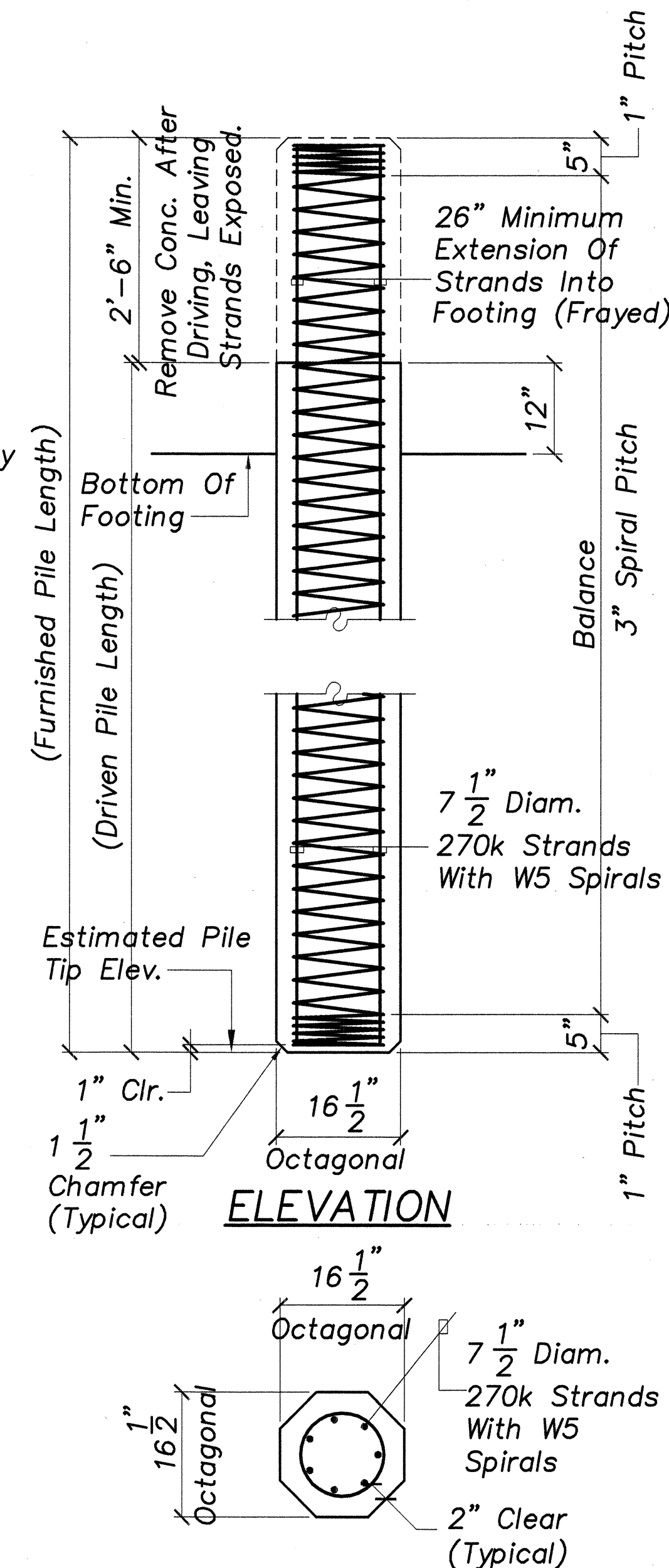


Note:

- Contractor Shall Verify Dimension With Acrow Pane Bridge Manufacturer.
- Bridge Deck For Acrow Panel Bridge Shall Be Level. Cross Slope Of 2% Shall Be From Varying Thickness Of A.C. Overlay ($2\frac{1}{2}''$ Minimum).

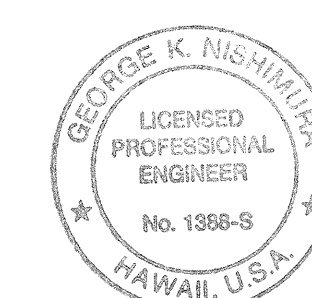
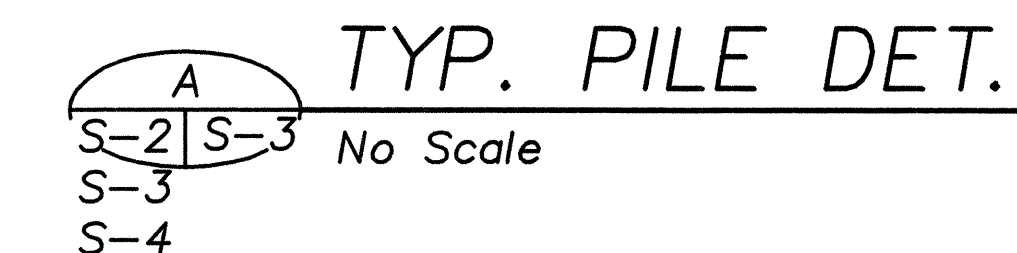
TYPICAL ABUTMENT ELEVATION

Scale: $\frac{1}{4}'' = 1'-0''$



SECTION

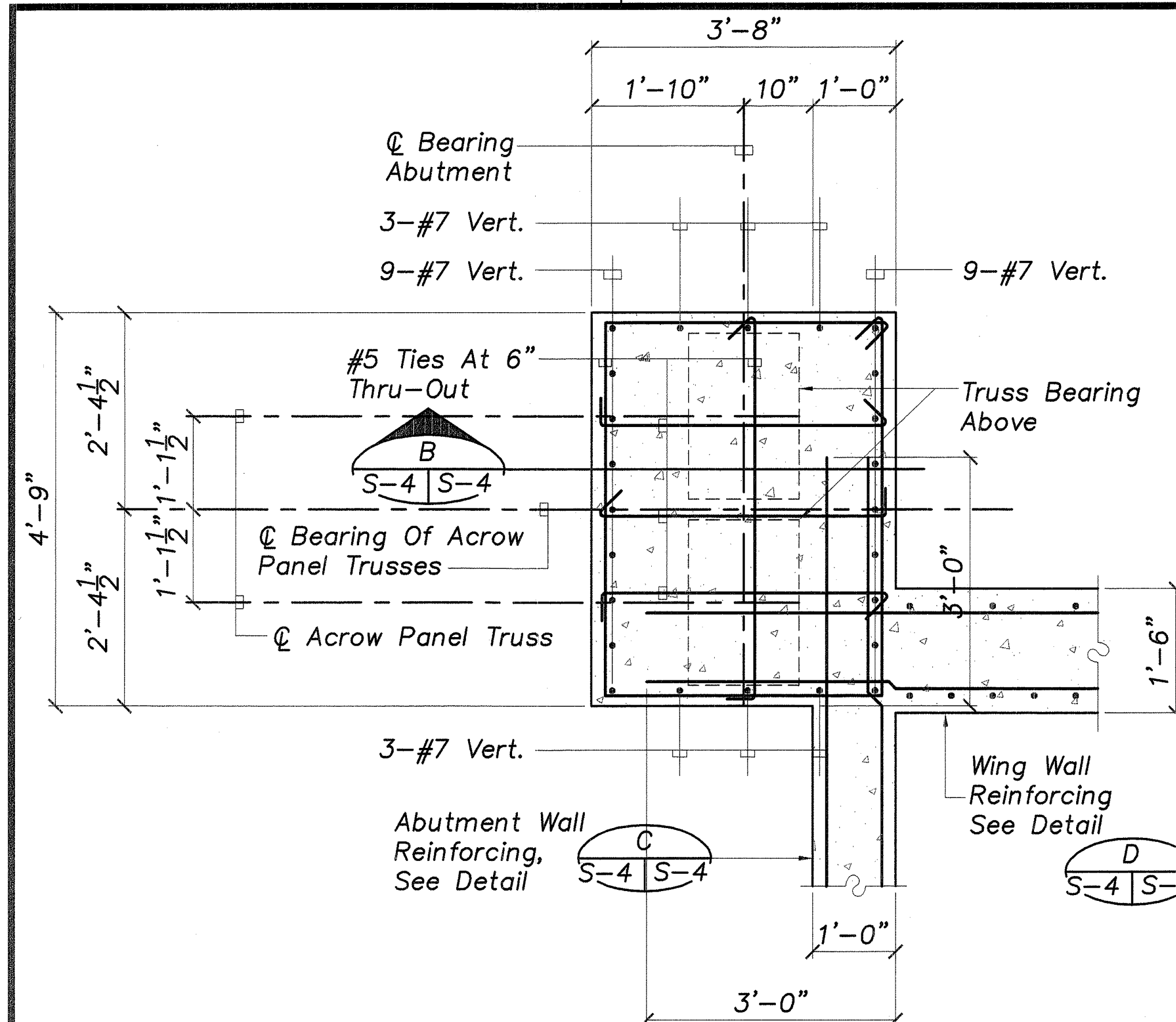
16 1/2" OCTAGONAL PRESTRESSED PILE



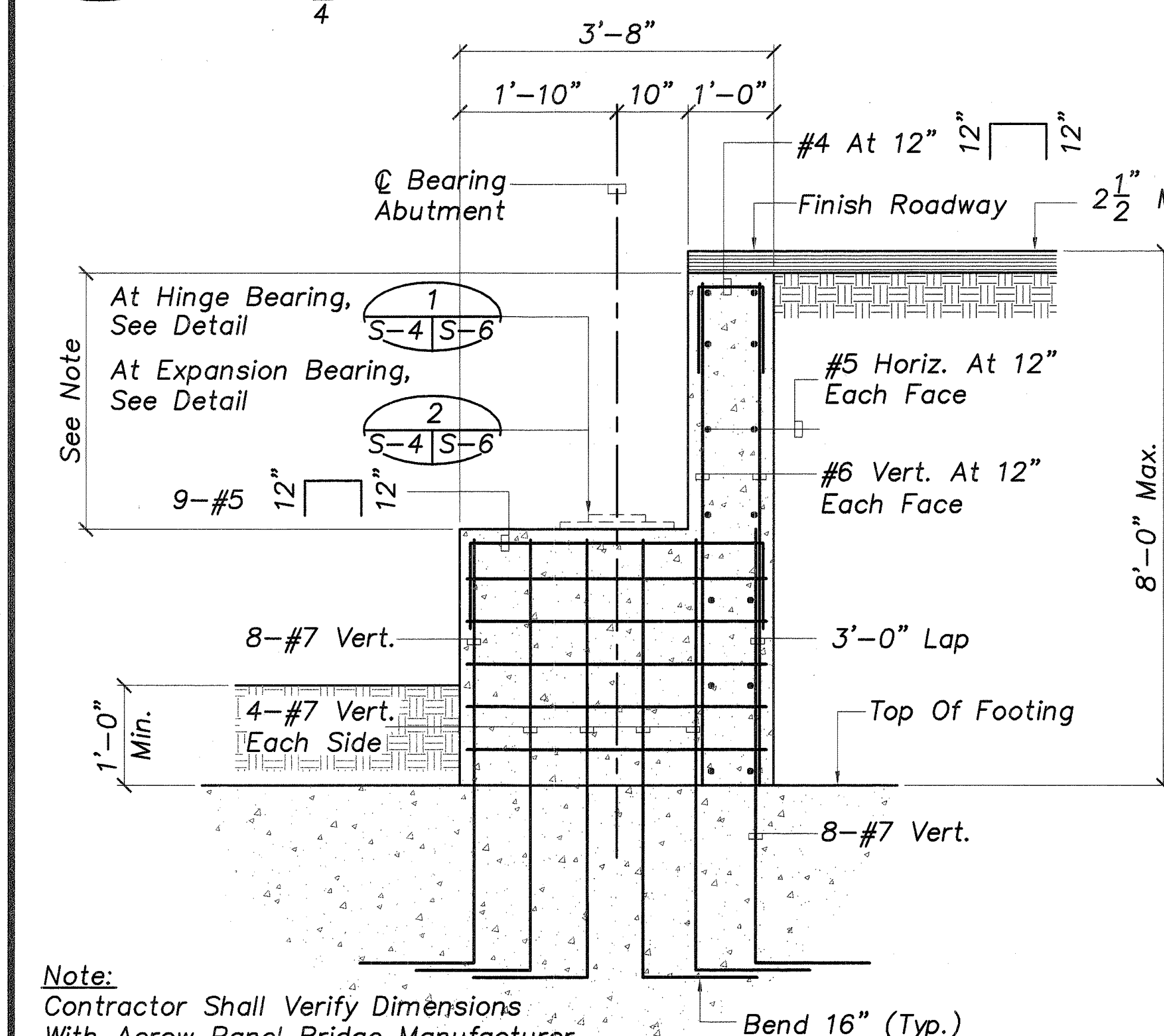
THIS WORK WAS PREPARED BY
 GEORGE K. NISHIMURA
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 HAWAII, U.S.A.

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
FOUNDATION PLAN, TYPICAL ABUTMENT ELEVATION, PILE DETAIL	
KUHIO HIGHWAY IMPROVEMENTS Extension Of Temporary Kapaa Bypass Road Project No. 56A-03-00	
Scale: As Noted	Date: Mar 2004
SHEET No. S-3 OF 6 SHEETS	

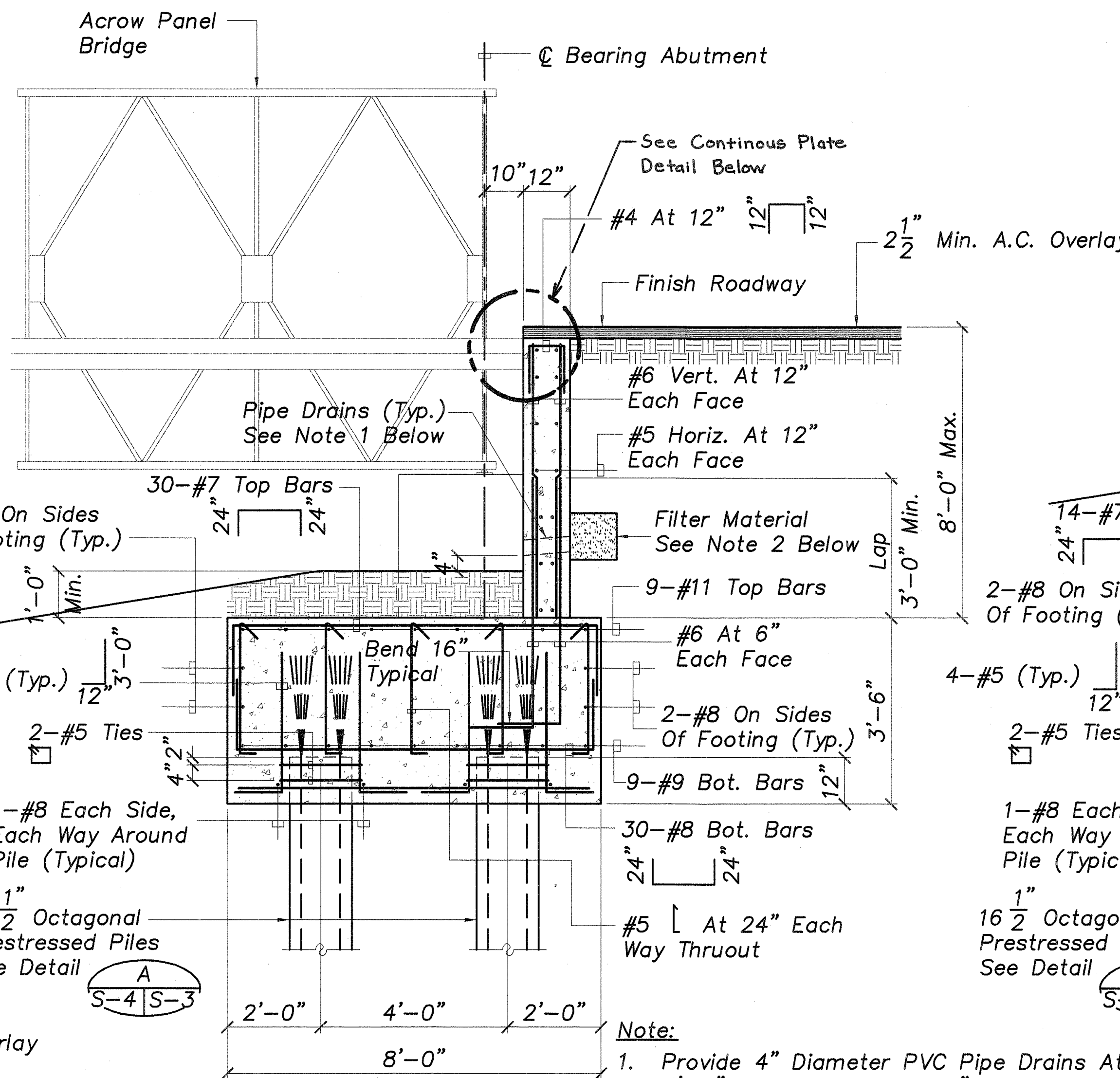
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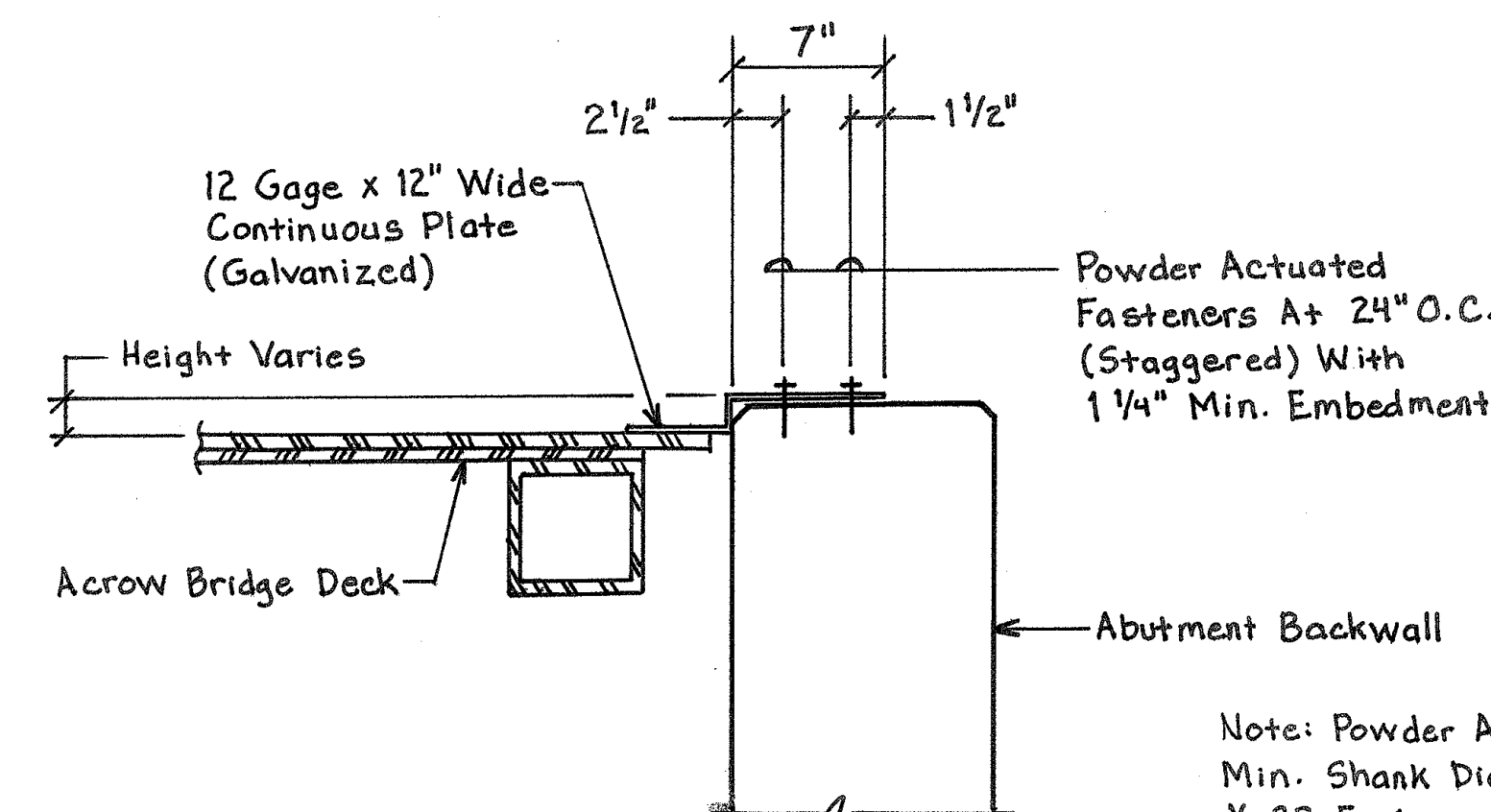
PLAN AT TRUSS BEARING PEDESTAL
Scale: $\frac{3}{4}" = 1'-0"$



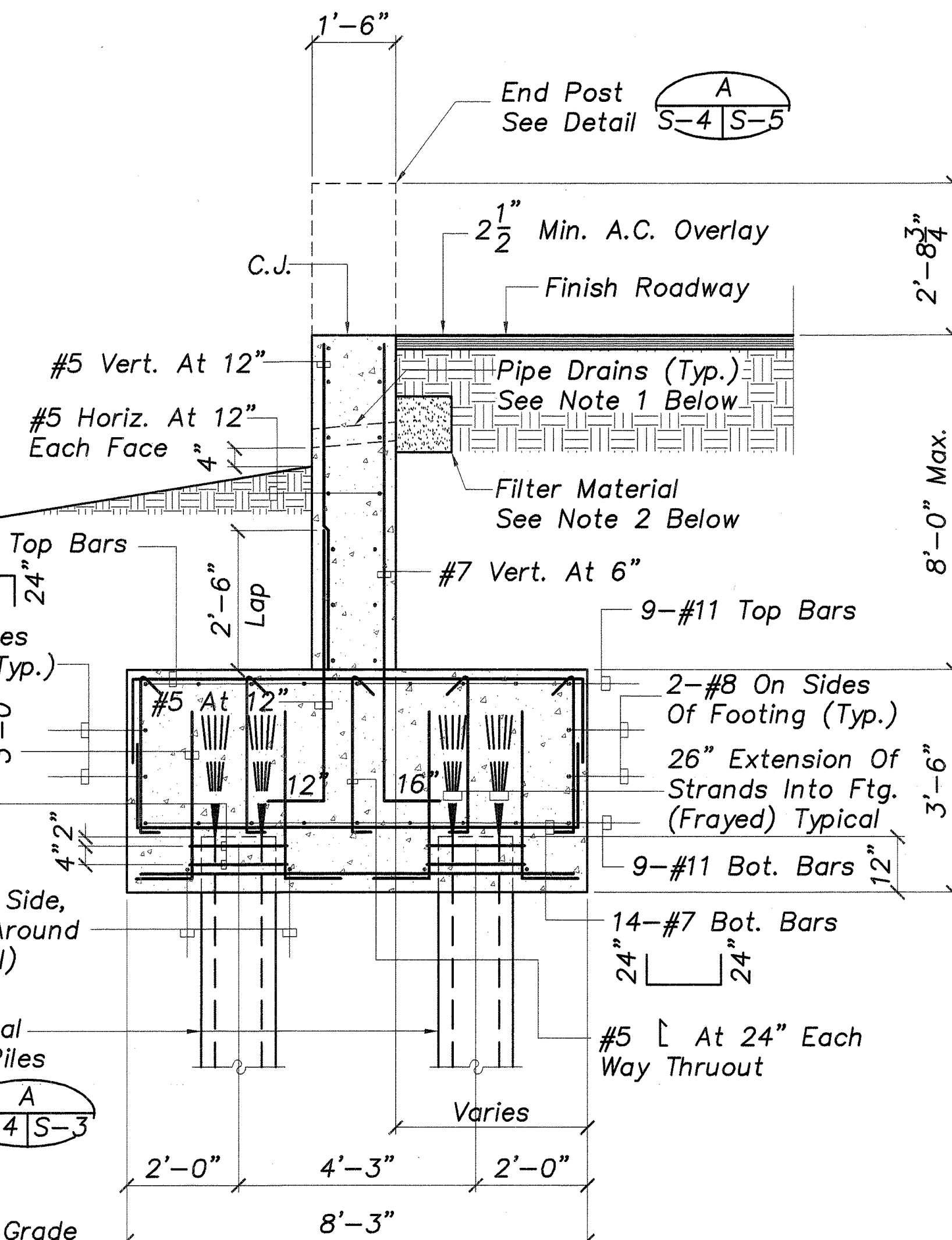
SECTION AT TRUSS BEARING PEDESTAL
Scale: $\frac{3}{4}" = 1'-0"$



SECTION
Scale: $\frac{1}{2}" = 1'-0"$

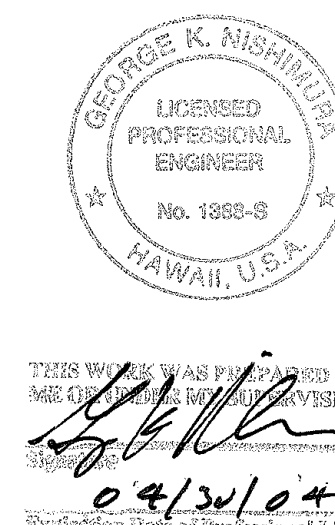


CONTINUOUS PLATE DETAIL
NTS



SECTION
Scale: $\frac{1}{2}" = 1'-0"$

- Note:**
- Provide 4" Diameter PVC Pipe Drains At 5'-0" o.c. Maximum At 4" Above Finish Grade In Abutment And Wing Walls. Adjust Horizontal Bars To Clear Drains.
 - Provide 12"x12"x12" Filter Material Wrapped With Filter Fabric At All Pipe Drains.



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ABUTMENT SECTIONS AND DETAILS

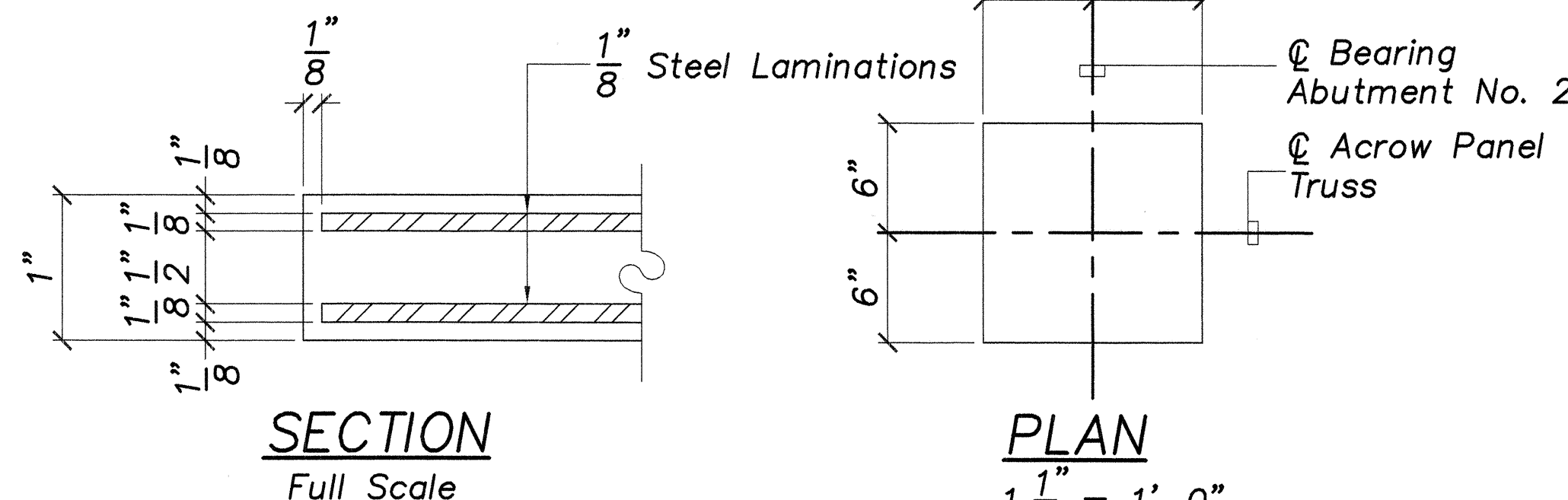
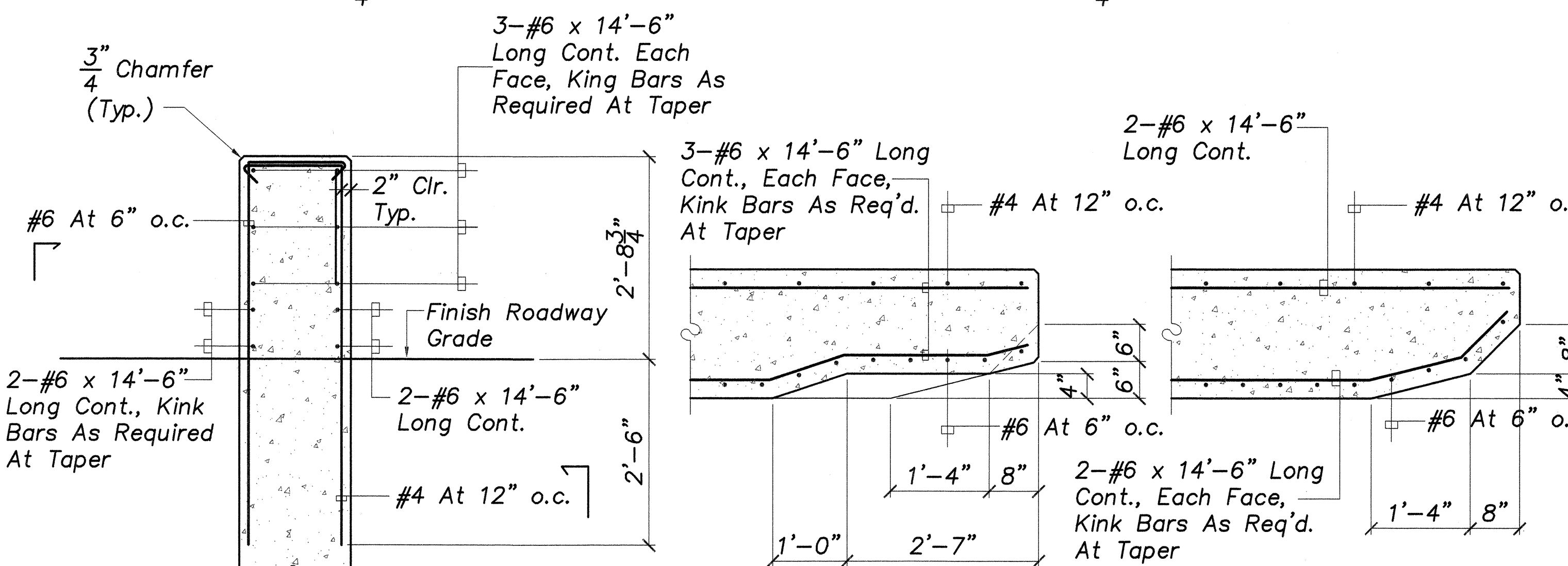
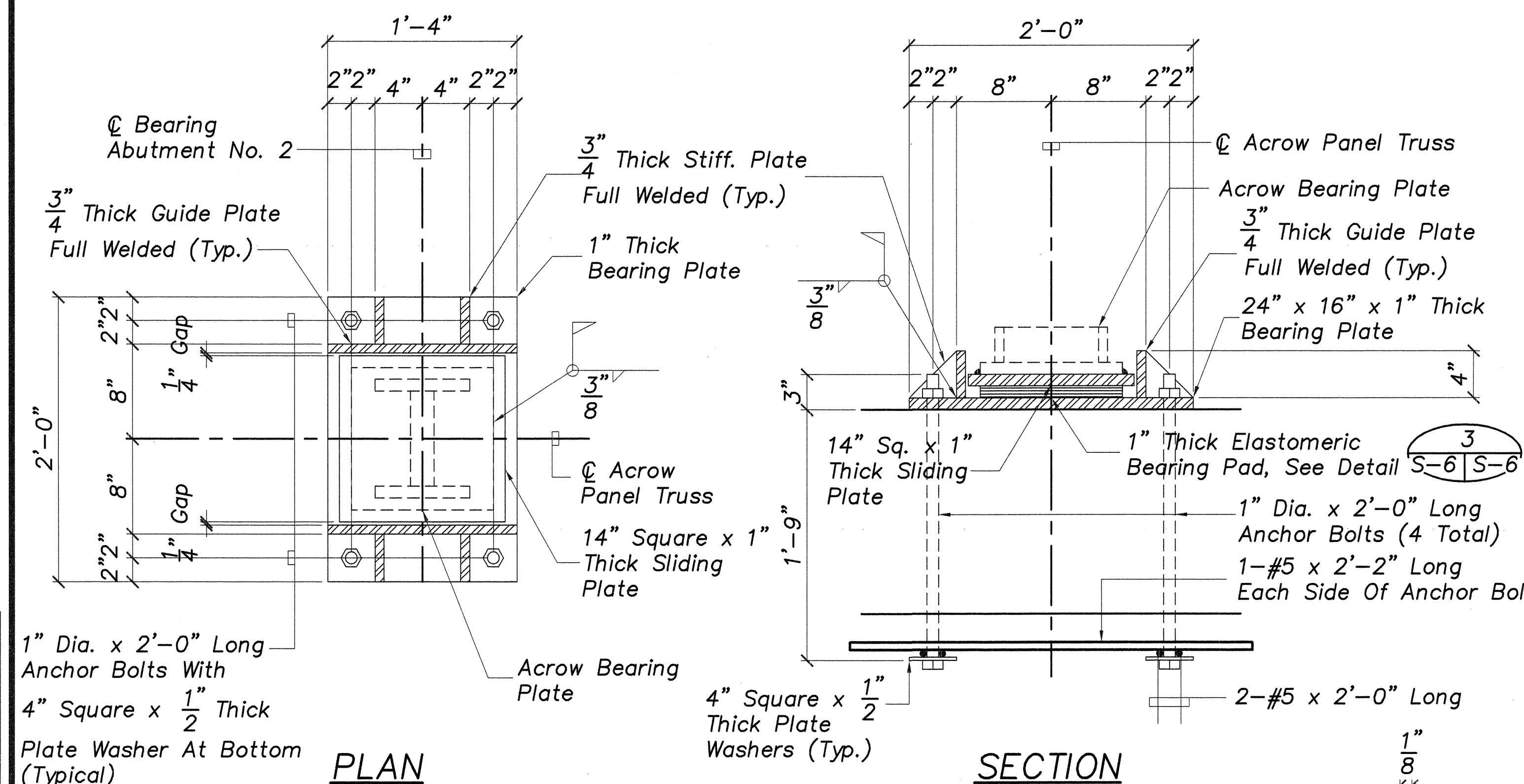
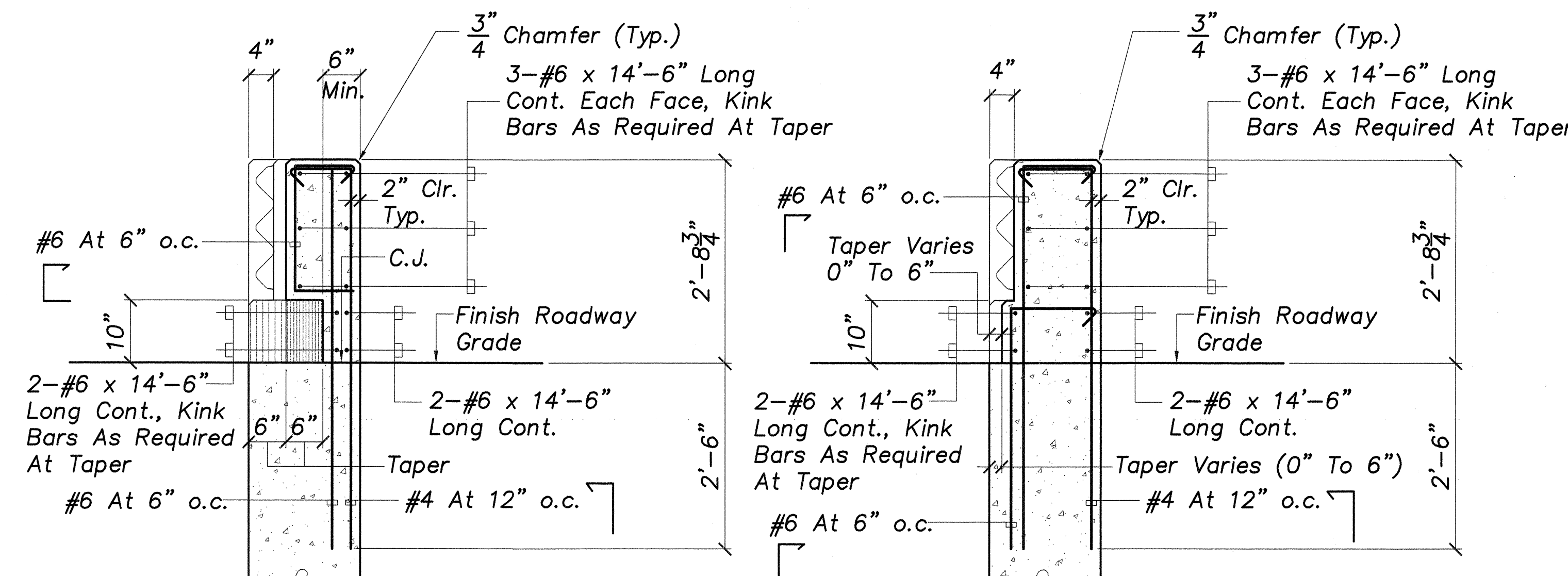
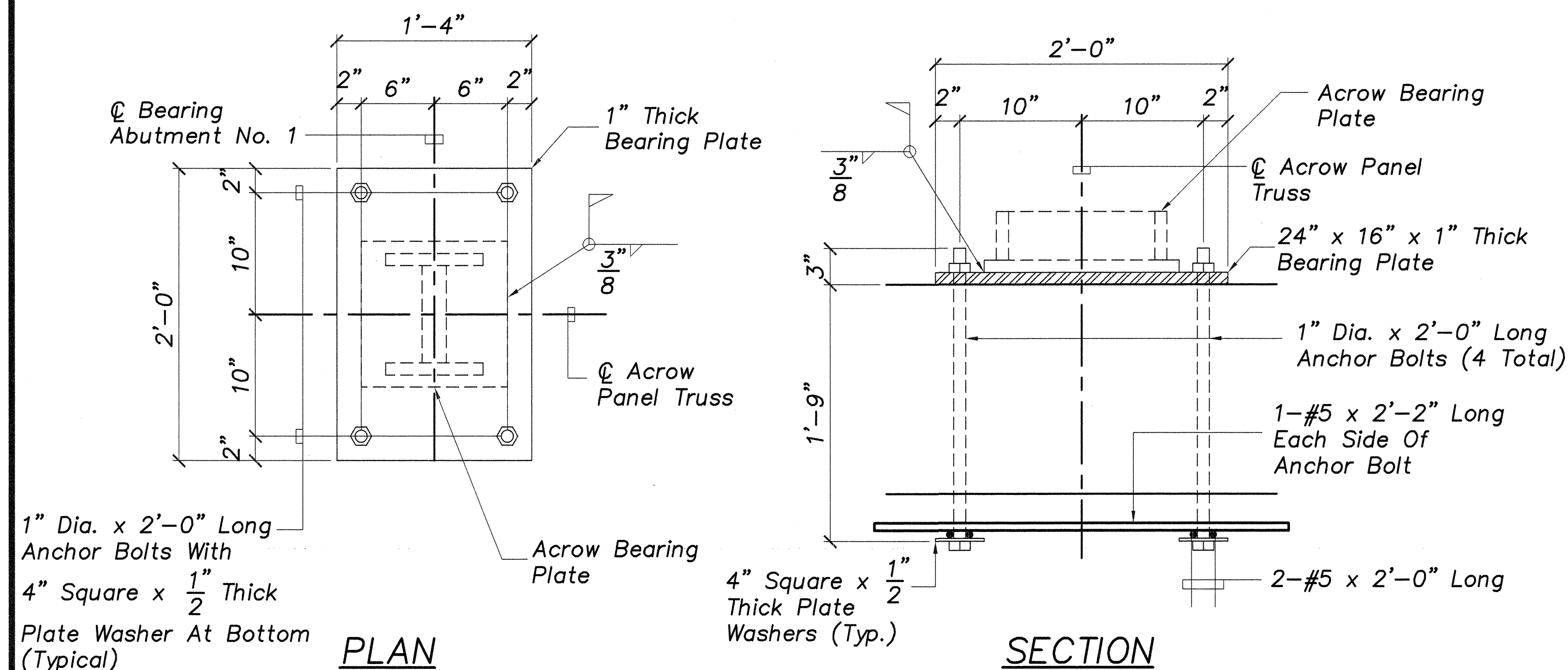
KUHIO HIGHWAY IMPROVEMENTS
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Project No. 56A-03-00

Scale: As Noted Date: Mar 2004
SHEET No. S-4 OF 6 SHEETS

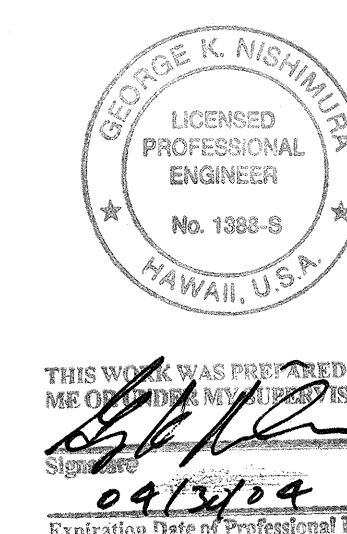
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DRAWN BY	
DESIGNED BY	
CHECKED BY	
NOTED BY	
NO.	

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	56A-03-00	2004	66	66



SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
DESIGNED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**END POST SECTIONS,
BEARING DETAILS**

KUHIO HIGHWAY IMPROVEMENTS
Extension Of Temporary Kapaa Bypass Road
Project No. 56A-03-00

Scale: As Noted Date: Mar 2004
SHEET No. S-6 OF 6 SHEETS