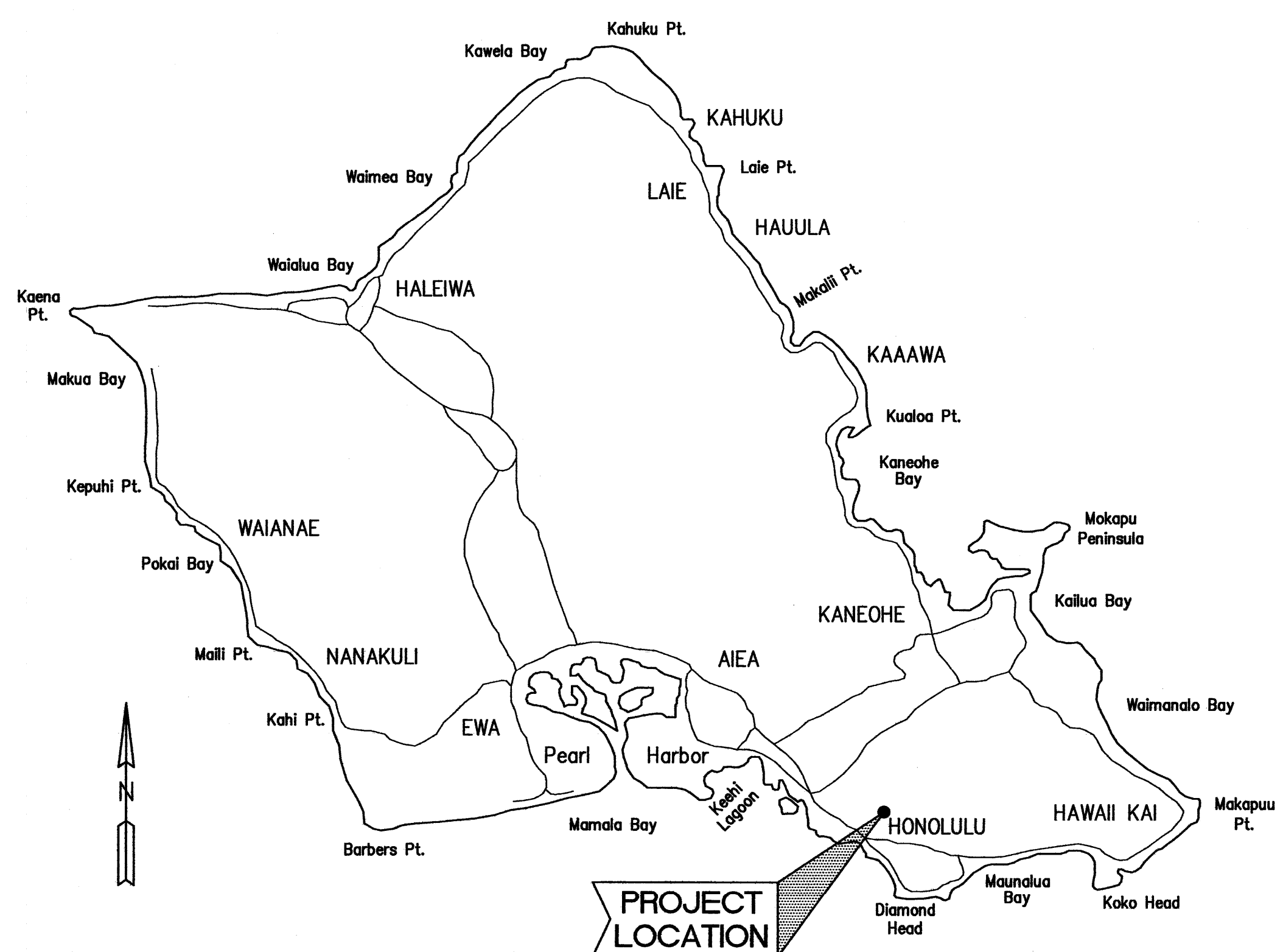


LOCATION MAP
NOT TO SCALE



ISLAND OF OAHU
NOT TO SCALE

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION
FOR
DIVISION OF FORESTRY AND WILDLIFE
JOB NO. D00CO61A

PEDESTRIAN BRIDGE REPLACEMENT
MAKIKI VALLEY TRAIL

HONOLULU, OAHU, HAWAII

TAX MAP KEY: 2-5-019: 008

INDEX OF DRAWINGS		
SHEET NO.	DWG NO.	DESCRIPTION
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3	S-2	EXISTING CONDITIONS & DEMOLITION PLAN
4	S-3	SITE PLAN
5	S-4	BRIDGE PLANS, ELEVATION & TYPICAL SECTION
6	S-5	SECTIONS & DETAILS

APPROVED: _____ DATE: 6/30/15
 LISA J. HADWAY
 ADMINISTRATOR
 DIVISION OF FORESTRY AND WILDLIFE
 DEPARTMENT OF LAND AND NATURAL RESOURCES

APPROVED: _____ DATE: 7/6/15
 CARTY S. CHANG, P.E.
 CHIEF ENGINEER
 ENGINEERING DIVISION
 DEPARTMENT OF LAND AND NATURAL RESOURCES

JOB NO. D00CO61A PEDESTRIAN BRIDGE REPLACEMENT, MAKIKI VALLEY TRAIL

CONSTRUCTION NOTES

- ALL APPLICABLE CONSTRUCTION WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST REVISION OF THE STATE OF HAWAII DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" DATED 2005, AND THE CITY AND COUNTY OF HONOLULU DEPARTMENT OF PUBLIC WORKS (DPW) "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION", DATED SEPTEMBER 1986 AND "STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION", DATED SEPTEMBER 1984, AS APPLICABLE.
- ALL WORK SHALL BE INCLUDED IN THE BASE BID UNLESS OTHERWISE INDICATED. WORK CALLED FOR ON THE PLANS AND NOT ITEMIZED IN THE PROPOSAL, AND ALL WORK NOT CALLED FOR BUT REQUIRED FOR THE CONSTRUCTION OF THE PROJECT SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.
- THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, AND SHALL BE RESPONSIBLE FOR THE REPAIR, RELOCATION OR REPLACEMENT OF SAME IN THE EVENT OF DAMAGES DUE TO HIS CONSTRUCTION PRACTICES, OR INTERFERENCES WITH CONSTRUCTION WORK. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE RESPECTIVE UTILITY COMPANIES AND THE STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF FORESTRY AND WILDLIFE (DLNR-DOFAW).
- THE CONTRACTOR SHALL VERIFY AND CHECK ALL DIMENSIONS AND DETAILS SHOWN ON THE DRAWINGS PRIOR TO START OF CONSTRUCTION. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER FOR CLARIFICATION.
- FIELD ADJUSTMENTS SHALL BE MADE AS APPROVED BY THE ENGINEER.
- CONTRACTOR SHALL COORDINATE HIS OPERATIONS WITH THOSE OF OTHER CONTRACTORS WHO MAY BE EMPLOYED ON ADJACENT OR RELATED STATE PROJECTS AND AVOID UNNECESSARY DELAY OR HINDERANCE IN THE PERFORMANCE OF THEIR RESPECTIVE CONTRACTS.
- NO CONTRACTOR SHALL PERFORM ANY CONSTRUCTION OPERATION SO AS TO CAUSE FALLING ROCKS, SOIL OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW INTO EXISTING DRAINAGE SYSTEMS OR ADJOINING PROPERTIES, STREETS OR NATURAL WATERCOURSES. SHOULD SUCH VIOLATIONS OCCUR, THE CONTRACTOR MAY BE CITED AND THE CONTRACTOR SHALL IMMEDIATELY TAKE ALL REMEDIAL ACTIONS NECESSARY.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE WATER QUALITY AND WATER POLLUTION CONTROL STANDARDS CONTAINED IN HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 54, "WATER QUALITY STANDARDS" AND TITLE 11, CHAPTER 55, "WATER POLLUTION CONTROL", AS WELL AS CHAPTER 14 OF THE REVISED ORDINANCES OF HONOLULU, AS AMENDED. BEST MANAGEMENT PRACTICES SHALL BE EMPLOYED AT ALL TIMES DURING CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO PLAN AND CONSTRUCT BEST MANAGEMENT PRACTICES (BMP) AS REQUIRED BY HIS OPERATIONS TO COMPLY WITH THE LAWS, STANDARDS, RULES, AND/OR POLICIES OF THE CITY, STATE OR FEDERAL REGULATORY AGENCIES. PRIOR TO ACCEPTANCE OF THE PROJECT BY THE STATE, THE CONTRACTOR SHALL BE REQUIRED TO REMOVE ALL BEST MANAGEMENT PRACTICES AND TO RESTORE THE PROJECT SITE TO ITS ORIGINAL CONDITION OR BETTER.
- THE CONTRACTOR SHALL OBSERVE AND COMPLY WITH THE ADMINISTRATIVE RULES OF THE STATE OF HAWAII DEPARTMENT OF HEALTH REGARDING NOISE CONTROL.
- ALL EXISTING TREES ARE TO REMAIN AND SHALL BE PROTECTED FROM DAMAGE DURING CONSTRUCTION.
- PURSUANT TO CHAPTER 6E OF THE HAWAII REVISED STATUTES (HRS), IN THE EVENT ANY ARTIFACTS OR HUMAN REMAINS ARE UNCOVERED DURING CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL IMMEDIATELY SUSPEND WORK AND NOTIFY THE HONOLULU POLICE DEPARTMENT, THE STATE DEPARTMENT OF LAND AND NATURAL RESOURCES-HISTORIC PRESERVATION DIVISION (PH. 808-692-8015), AND THE ENGINEER.
- IN PERFORMING ALL WORK, THE CONTRACTOR SHALL EXERCISE DUE CARE AND CAUTION NECESSARY TO AVOID ANY DAMAGE INFLICTED TO AND IMPAIRMENT IN THE USE OF ANY EXISTING UTILITY LINE. ANY DAMAGE INFLICTED ON EXISTING UTILITY LINES RESULTING FROM CONTRACTOR'S OPERATIONS SHALL BE IMMEDIATELY REPAIRED OR RESTORED AS DIRECTED BY THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
- THE CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY; AND THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE STATE AND ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE STATE OR ENGINEER.
- THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM RUBBISH, DUST, NOISE, EROSION, ETC. THE WORK SHALL BE DONE IN CONFORMANCE WITH THE AIR AND WATER POLLUTION CONTROL STANDARDS AND REGULATIONS OF THE STATE DEPARTMENT OF HEALTH.
- IT IS EXPECTED THAT THE TRAIL WILL REMAIN OPEN TO THE PUBLIC THROUGHOUT THE CONSTRUCTION PERIOD. THE CONTRACTOR SHALL PROVIDE, INSTALL AND MAINTAIN ALL NECESSARY SIGNS, LIGHTS, BARRICADES, MARKERS, CONES AND OTHER PROTECTIVE MEASURES, AND SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE PROTECTION, CONVENIENCE AND SAFETY OF THE PUBLIC. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TEMPORARY SAFE PEDESTRIAN PASSAGEWAY TO BYPASS THE CONSTRUCTION SITE AT ALL TIMES. SHOULD A TRAIL CLOSURE OF LIMITED DURATION BE REQUIRED, THE CONTRACTOR SHALL INFORM DLNR-DOFAW AND THE ENGINEER AT LEAST TWO WEEKS PRIOR TO SUCH CLOSURE SO THAT THE PUBLIC CAN BE PROPERLY NOTIFIED. THE MAXIMUM TRAIL CLOSURE ALLOWED SHALL BE TEN (10) CALENDAR DAYS. THE CONTRACTOR SHALL POST NOTICES OF SUCH CLOSURE AT THE TRAIL HEADS AND INTERSECTION WITH ADJOINING TRAILS AT LEAST ONE WEEK (7 DAYS) PRIOR TO THE CLOSURE STATING CLOSURE START AND END DATES.
- THE CONTRACTOR SHALL RESTORE TO ORIGINAL OR BETTER CONDITION, ALL IMPROVEMENTS DAMAGED AS A RESULT OF THE CONSTRUCTION, INCLUDING PAVEMENTS, EMBANKMENTS, CURBS, SIGNS, LANDSCAPING, STRUCTURES, UTILITIES, WALLS, FENCES, ETC. UNLESS PROVIDED FOR SPECIFICALLY IN THE PROPOSAL. DEMOLITION AND RESTORATION OF EXISTING ITEMS SHALL BE INCIDENTAL AND INCLUDED WITHIN THE AMOUNT PAID FOR INSTALLATION OF NEW ITEMS.
- THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS FROM GOVERNMENT AGENCIES.
- ALL EXISTING UTILITIES TO REMAIN IN USE, WHETHER OR NOT SHOWN ON THE PLANS, SHALL BE PROTECTED AT ALL TIMES BY THE CONTRACTOR DURING CONSTRUCTION UNLESS SPECIFIED ON THE PLANS TO BE ABANDONED. ANY DAMAGES TO EXISTING UTILITIES SHALL BE REPAIRED AND PAID FOR BY THE CONTRACTOR.

- CONTRACTOR SHALL MAKE ARRANGEMENTS FOR TEMPORARY UTILITIES SUCH AS ELECTRICITY, WATER, ETC. AND TEMPORARY SANITATION FACILITIES REQUIRED FOR HIS OPERATIONS. ALL COSTS FOR TEMPORARY UTILITIES AND SANITATION FACILITIES SHALL BE BORNE BY THE CONTRACTOR.
- DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALE. IF DIMENSIONAL ERRORS OR CONFLICTS ARISE, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND SHALL WAIT FOR CLARIFICATION BEFORE RESUMING OR COMMENCING WORK ON THE DISCREPANCY ITEM.
- ALL CONSTRUCTION AND GRADING STAKEOUT SHALL BE PERFORMED BY A HAWAII LICENSED PROFESSIONAL LAND SURVEYOR HIRED AND PAID FOR BY THE CONTRACTOR.
- THE CONTRACTOR SHALL OBSERVE AND COMPLY WITH ALL FEDERAL, STATE, AND LOCAL LAWS REQUIRED FOR THE PROTECTION OF PUBLIC HEALTH, SAFETY, AND ENVIRONMENTAL QUALITY.
- DUE TO LIMITED SPACE AT THE JOB SITE AND TRAIL HEAD VEHICLE PARKING AND ADDITIONAL CONSTRUCTION STAGING AREA FOR TEMPORARY STORAGE OF CONTRACTOR'S EQUIPMENT AND MATERIALS MAY BE REQUIRED. CONTRACTOR IS HEREBY INFORMED THAT SUCH AREAS ARE NOT AVAILABLE AT OR NEAR THE PROJECT SITE AND WILL NOT BE PROVIDED BY THE STATE. CONTRACTOR SHALL CONSOLIDATE THE USE OF CONSTRUCTION VEHICLES TO AVAILABLE SPACE AT THE TRAIL HEAD. ALL COSTS INCURRED FOR OFF-SITE PARKING, STAGING AND STORAGE AREA SHALL BE BORNE BY THE CONTRACTOR.

DEMOLITION NOTES

- BEFORE COMMENCING DEMOLITION WORK, VERIFY WITH THE ENGINEER AND DLNR-DOFAW THE ITEMS TO BE REMOVED AND SALVAGED.
- USE ALL MEANS NECESSARY TO PROTECT ADJACENT STRUCTURES AND ITEMS TO REMAIN. IN THE EVENT OF ANY DAMAGE TO EXISTING ITEMS TO REMAIN IMMEDIATELY NOTIFY THE ENGINEER. REPAIRS OR REPLACEMENT SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER.
- PRESERVE AND PROTECT ALL EXISTING TREES AND SHRUBS. CLEAR (CUT DOWN) VEGETATION ONLY AS NEEDED TO ACCOMMODATE CONSTRUCTION. DO NOT GRUB VEGETATION EXCEPT AT THE ABUTMENTS.
- THE CONTRACTOR SHALL PROTECT AND MINIMIZE DAMAGE TO ALL EXISTING PLANTS AND SIGNIFICANT ROOTS OVER 1" DIAMETER THAT ARE TO REMAIN. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ALL PLANT MATERIAL AND ROOTS THAT AFFECT CONSTRUCTION.
- EXTENT OF REMOVAL AS INDICATED IS APPROXIMATE. CONTRACTOR SHALL VERIFY THE EXTENT OF REMOVAL WORK AND MAKE ADJUSTMENTS TO PROPERLY ACCOMMODATE HIS METHOD OF CONSTRUCTING NEW WORK. ADDITIONAL REMOVAL, PATCHING, AND RESTORATION REQUIRED TO ACCOMMODATE CONSTRUCTION OR MAKE THE WORK COMPLETE SHALL BE CONSIDERED INCIDENTAL TO THE NEW WORK.
- CONTRACTOR SHALL TURN IN SALVAGED ITEMS AS DIRECTED BY THE ENGINEER. ALL OTHER DEBRIS, RUBBISH, ETC. RESULTING FROM DEMOLITION WORK SHALL BE PROMPTLY REMOVED FROM THE JOB SITE AND PROPERLY DISPOSED.
- THE CONTRACTOR SHALL HAVE THE BUILDING MATERIALS FOR THE BRIDGE AVAILABLE FOR INSPECTION BY THE ENGINEER AT THE PROJECT SITE OR AT HIS BASE YARD PRIOR TO BEGINNING THE DEMOLITION WORK.
- REFER TO THE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

TOPOGRAPHICAL SURVEY NOTES

- TOPOGRAPHICAL SURVEY WAS OBTAINED FROM THE TOPOGRAPHIC SURVEY MAP PREPARED BY CONTROLPOINT SURVEYING, INC. DATED OCTOBER 13, 2014 (CONTROLPOINT JOB NO. 14155).
- THE UTILITIES SHOWN HAVE BEEN LOCATED FROM VISIBLE EVIDENCE FOUND DURING FIELD SURVEY. THE SURVEYOR MAKES NO GUARANTEE THAT THE UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATIONS INDICATED EXCEPT THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED UNDERGROUND UTILITIES.
- ALL SURVEY CONTROLS ARE ASSUMED. SEE SHEET S-2 FOR PROJECT BENCHMARK.

DESIGN LOADS

DEAD LOAD OF MATERIALS: BASED UPON WEIGHT OF MATERIALS

LIVE LOADS: BRIDGE DECK: 90 PSF
RAILINGS: 50 PLF OR 200 LBS CONCENTRATED LOAD (ANY DIRECTION)

WIND LOAD: BASIC WIND SPEED = 100 MPH; $I_r=1.15$ (PER AASHTO)
50 PSF HORIZONTAL; 20 PSF UPLIFT PRESSURE

SEISMIC: NOT REQUIRED PER AASHTO FOR SINGLE SPAN BRIDGES.

GENERAL NOTES

- ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE INTERNATIONAL BUILDING CODE, 2006 EDITION AS AMENDED AND ADOPTED BY THE CITY & COUNTY OF HONOLULU.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ADEQUATE TEMPORARY SHORING AND BRACING OF THE STRUCTURE DURING CONSTRUCTION.
- JOB SITE SAFETY SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. ALL CONTRACTORS SHALL COMPLY WITH APPLICABLE OSHA REQUIREMENTS AND PERFORM THEIR WORK IN A SAFE MANNER.
- ALL CORNERS AND CUT SURFACES EXPOSED TO PEDESTRIAN TRAFFIC AND PASSERS BY SHALL BE ROUNDED AND GROUND SMOOTH.

FOUNDATION NOTES

- FOUNDATIONS SHALL REST ON WELL COMPACTED MATERIAL. SOFT SPOTS OR EXPANSIVE CLAYEY SOIL SHALL BE REMOVED AND REPLACED WITH AGGREGATE BASE COURSE COMPACTED TO 95% COMPACTION.
- CONTRACTOR IS HEREBY INFORMED THAT THE SUBSURFACE CONDITIONS AT THE ABUTMENT LOCATIONS ARE UNKNOWN. CONTRACTOR SHALL ANTICIPATE ENCOUNTERING BEDROCK AND BOULDERS CEMENTED WITH CLAYEY SOIL. CONTRACTOR SHALL EXCAVATE AND REMOVE ROCK, BOULDERS, SOIL AND TREE ROOTS AS REQUIRED TO CONSTRUCT THE ABUTMENT FOUNDATIONS AS DETAILED. ROCK REMOVAL, IF REQUIRED, SHALL BE CONSIDERED INCIDENTAL TO THE WORK AND NO ADDITIONAL COMPENSATION WILL BE MADE THEREFOR.
- COMPACTION TESTS SHALL BE PERFORMED BY AN INDEPENDENT TESTING SERVICE, ARRANGED AND PAID FOR BY THE CONTRACTOR. COST OF COMPACTION TESTING SHALL BE INCIDENTAL AND INCLUDED IN THE VARIOUS AMOUNTS BID FOR NEW WORK. COMPACTION TESTS SHALL BE IN ACCORDANCE WITH ASTM D1557. TEST RESULTS SHALL BE PROMPTLY SUBMITTED TO THE ENGINEER.
- SOIL VALUES USED FOR FOUNDATION DESIGN WERE ASSUMED AS FOLLOWS:
ALLOWABLE SOIL BEARING PRESSURE: 2,000 PSF
COEFFICIENT OF SOIL FRICTION: 0.4
PASSIVE EARTH PRESSURE: 250 PSF/FT

MISCELLANEOUS STEEL NOTES

- ALL STRUCTURAL AND MISCELLANEOUS STEEL SHALL BE STAINLESS STEEL CONFORMING TO ASTM A167 TYPE 316.
- WELDING SHALL BE IN ACCORDANCE WITH THE "STRUCTURAL WELDING CODE" OF THE AMERICAN WELDING SOCIETY AND BE PERFORMED BY CERTIFIED WELDERS. ALL WELDING SHALL BE PERFORMED IN THE SHOP. NO FIELD WELDING WILL BE PERMITTED.
- STAINLESS STEEL AND ALUMINUM SHALL BE FASTENED WITH TYPE 316 STAINLESS STEEL BOLTS AND ANCHOR BOLTS OF EQUAL OR GREATER STRENGTH TO A307 BOLTS. NUTS AND WASHERS SHALL BE MATCHING TYPE 316 STAINLESS STEEL.

ALUMINUM NOTES

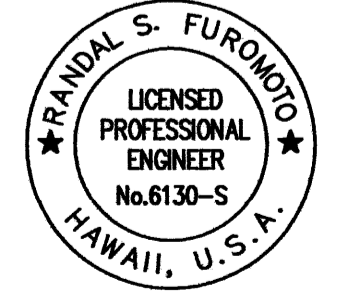
- ALUMINUM SHALL CONFORM TO THE SPECIFICATIONS AND GUIDELINES FOR ALUMINUM STRUCTURES IN THE ALUMINUM DESIGN MANUAL, 2005 EDITION, AS PUBLISHED BY THE ALUMINUM ASSOCIATION, INC.
- ALL STRUCTURAL ALUMINUM USED FOR THIS PROJECT SHALL BE 6005-T5 OR 6061-T6 ALLOY. ALUMINUM ASSOCIATION STANDARD SHAPES WITH SECTION PROPERTIES MEETING OR EXCEEDING THOSE LISTED IN THE ALUMINUM DESIGN MANUAL SHALL BE PROVIDED UNLESS OTHERWISE INDICATED.
- WELDED CONNECTIONS SHALL BE SHOP WELDED WITH 5356 FILLER MATERIAL TO FULLY WELD AND SEAL JOINTS ALONG ALL EDGES OF CONTACT SURFACES UNLESS OTHERWISE INDICATED. ALL WELDS SHALL BE FREE OF VISIBLE DEFECTS AND EXPOSED WELDS SHALL BE GROUND SMOOTH TO TOUCH. WELDED ALUMINUM-TO-ALUMINUM CONNECTIONS MAY BE PROVIDED IN LIEU OF BOLTED CONNECTIONS UNLESS SPECIFICALLY INDICATED THAT THE CONNECTION SHALL BE FIELD BOLTED. HOWEVER, NO FIELD WELDING IS ALLOWED.
- ALL MACHINE BOLTS FOR ALUMINUM-TO-ALUMINUM CONNECTIONS SHALL BE TYPE 316 STAINLESS STEEL WITH MATCHING TYPE 316 STAINLESS STEEL NUTS AND LOCK WASHERS OF EQUAL OR GREATER STRENGTH TO A307 BOLTS.
- CONTRACTOR SHALL EXERCISE CARE TO AVOID DIRECT PERMANENT CONTACT BETWEEN ALUMINUM AND FERROUS METALS OR CONCRETE. PROVIDE NEOPRENE RUBBER GASKETS OR BITUMINOUS PAINT AS REQUIRED. PROVIDE ELASTOMERIC BEARING PAD AT STRINGERS.

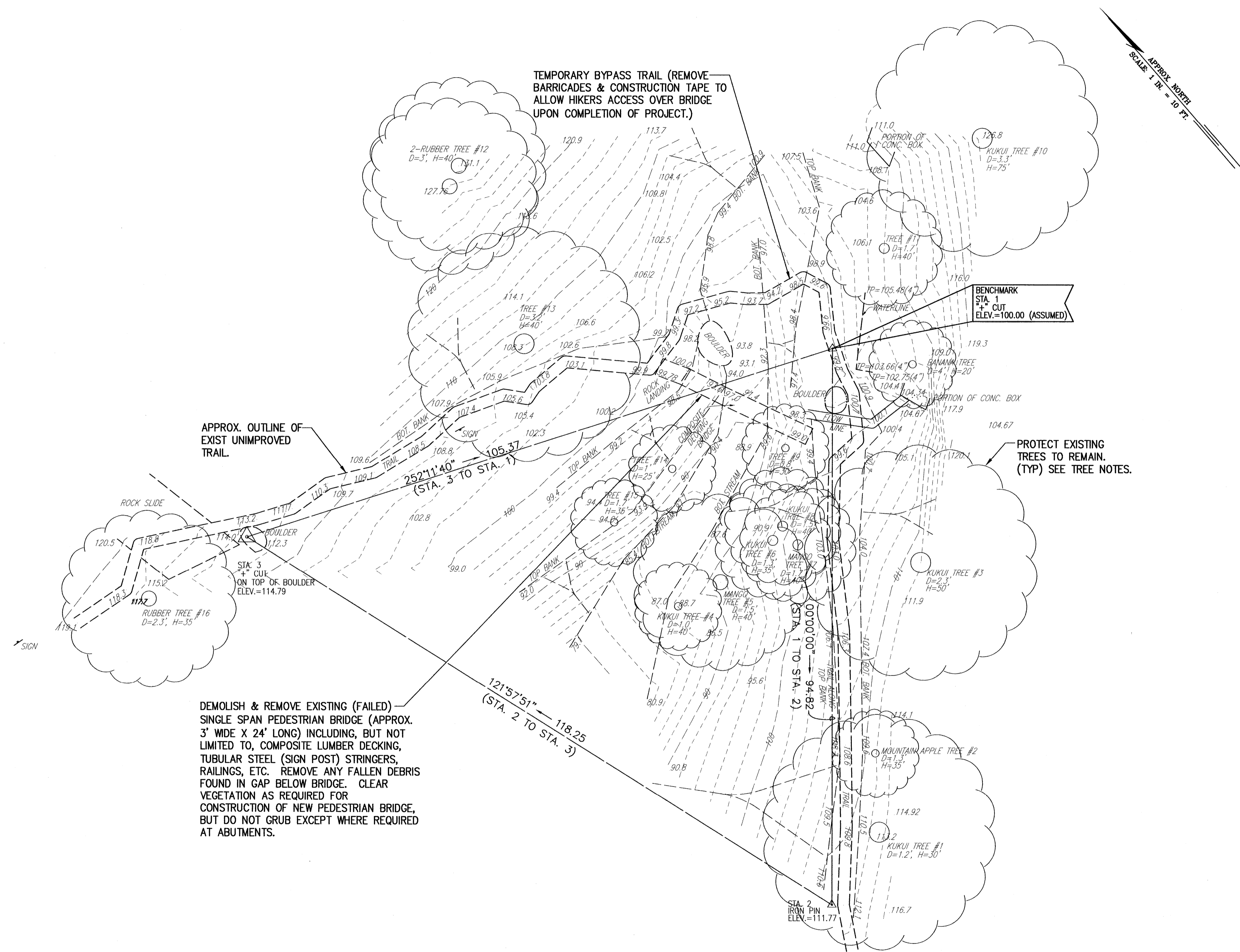
CONCRETE NOTES

- CAST-IN-PLACE CONCRETE SHALL BE NORMAL WEIGHT (STATE CLASS "A") CONCRETE DEVELOPING A MINIMUM COMPRESSIVE STRENGTH (f_c) OF 3,000 PSI AT 28 DAYS WITH A MAXIMUM WATER/CEMENT RATIO OF 0.55. COARSE AGGREGATES SHALL CONFORM TO ASTM C33 SIZE 57 OR 67. A WATER REDUCING AND/OR WATER REDUCING AND SET RETARDING ADMIXTURE CONFORMING TO ASTM C494 TYPE A OR D SHALL BE ADDED TO ALL READY MIXED CONCRETE. PREPACKAGED CONCRETE MIX MAY BE USED IN LIEU OF READY MIX OR JOBSITE MIXED CONCRETE PROVIDED THAT THE ABOVE REQUIREMENTS ARE MET.
- CONCRETE FOR ABUTMENTS SHALL BE COLOR CONDITIONED USING COLORANT ADMIXTURE, "CHROMIX" BY L.M. SCHOFIELD COMPANY OR ACCEPTED EQUAL. COLOR SHALL BE SELECTED BY THE ENGINEER. A BLEND OF NORMAL AND WHITE PORTLAND CEMENT MAY BE REQUIRED TO OBTAIN THE REQUIRED COLOR. SEE SPECIFICATIONS FOR REQUIREMENTS.
- REINFORCING STEEL SHALL BE CLEAN DEFORMED BARS CONFORMING TO ASTM A615 GRADE 60. LAP ALL BARS 40 BAR DIAMETERS AT SPLICES AND STAGGER SPLICES WHEREVER POSSIBLE UNLESS SHOWN OTHERWISE.
- EXCEPT WHERE SPECIFICALLY SHOWN, CONSTRUCTION JOINTS SHALL BE LOCATED BY THE CONTRACTOR SUBJECT TO APPROVAL OF THE ENGINEER. THEY SHALL BE LOCATED TO LEAST IMPAIR THE STRENGTH OF THE STRUCTURE AND TO MINIMIZE SHRINKAGE STRESSES. CLEAN AND ROUGHEN JOINTS FREE OF EXCESS LAITANCE AND DEBRIS, AND PROVIDE KEYWAYS AND DOWELS AS DETAILED OR DIRECTED BEFORE PROCEEDING WITH THE NEXT POUR.
- EPOXY BONDING AGENTS AND GROUTS SHALL CONFORM TO ASTM C881, TYPE IV OR V, CLASS C. GRADE (VISCOSITY) SHALL BE AS SUITABLE FOR THE USE INTENDED. FINE AGGREGATE (CLEAN SAND) MAY BE USED IN EPOXY GROUTS. ALL EPOXIES SHALL BE MIXED AND APPLIED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS. HOLES FOR EPOXY GROUTED ANCHOR BOLTS AND DOWELS SHALL BE INTENTIONALLY ROUGHENED AND CLEANED FREE OF DUST AND DEBRIS PRIOR TO GROUTING. ADJUST HOLE LOCATIONS AS REQ'D TO CLEAR REBARS AND OTHER EMBEDDED ITEMS.

WOOD AND PLASTIC LUMBER NOTES

- LUMBER FOR RAILINGS SHALL BE REDWOOD, SELECT STRUCTURAL, WITH 19% MAXIMUM MOISTURE CONTENT GRADED IN ACCORDANCE WITH THE REDWOOD INSPECTION SERVICE GRADING RULES. USE ONLY CLEAR SELECT STRUCTURAL FOR RAILING CAP AND PICKETS. ALL REDWOOD EXPOSED TO VIEW SHALL BE FREE FROM DEFECTS SUCH AS KNOTS, CHECKS, STAINS, DISCOLORATION, DAMAGE, ETC. THAT MAY IMPAIR APPEARANCE.
- NAILING SCHEDULE SHALL CONFORM TO TABLE 2304.9.1 OF THE INTERNATIONAL BUILDING CODE UNLESS OTHERWISE INDICATED. WHERE SHEET METAL CONNECTORS ARE USED, NAILING AND BOLTING SHALL BE IN ACCORDANCE WITH CONNECTION MANUFACTURER'S INSTRUCTIONS. ALL NAILS AND SCREWS SHALL BE HOT DIP GALVANIZED OR STAINLESS STEEL AND HAVE FULL HEADS. DO NOT MIX GALVANIZED AND STAINLESS STEEL COMPONENTS, AND USE ONLY TYPE 316 STAINLESS STEEL WHERE THERE IS CONTACT OR POSSIBLE CONTACT WITH ALUMINUM.
- PLASTIC LUMBER SHALL BE "EVOLVE" BY RENEW PLASTICS OR APPROVED EQUAL. EXPOSED FACES SHALL HAVE A WOOD GRAINED TEXTURE. COLOR SHALL BE NO. B-99 "DARK REDWOOD" UNLESS OTHERWISE SELECTED BY THE ENGINEER. DECKING SHALL BE 2 x 8 (1 1/2" x 7 1/2") BOARDS. FACING SHALL BE 2X NOMINAL THICKNESS (1.375" MINIMUM OR THICKER). EDGES OF ALL BOARDS SHALL BE SQUARE WITH CORNERS SLIGHTLY ROUNDED.
- PLASTIC LUMBER SHALL BE FASTENED TO SUPPORTS WITH TYPE 316 STAINLESS STEEL MACHINE BOLTS OR DECK SCREWS. COUNTERSINK DECK SCREWS AS REQUIRED TO SET FLUSH WITH THE FACE OF DECKING OR FACING BOARDS.
- NO STRUCTURAL MEMBER SHALL BE CUT OR NOTCHED UNLESS SPECIFICALLY SHOWN OR APPROVED IN ADVANCE BY THE ENGINEER. PROVIDE OVERSIZED GALVANIZED OR STAINLESS STEEL FLAT WASHERS, AS APPROPRIATE, UNDER HEADS AND NUTS OF ALL BOLTS BEARING DIRECTLY ON WOOD OR PLASTIC LUMBER (EXCEPT AT DECK SCREWS FOR DECKING).
- REDWOOD RAILINGS SHALL BE STAINED WITH TRANSPARENT OR SEMI-TRANSPARENT OIL STAIN. COLOR SHALL BE SELECTED BY THE ENGINEER.

REVISION NO.	SYMBOL	DESCRIPTION	SHT./OF	DATE	APPROVED
 <p>STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF FORESTRY AND WILDLIFE PEDESTRIAN BRIDGE REPLACEMENT MAKIKI VALLEY TRAIL CONSTRUCTION NOTES AND GENERAL NOTES</p>					
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.					
DESIGNED:	RF	SUBMITTED:	[Signature]		
DRAWN:	RF	DATE:	JUNE 23, 2015		
CHECKED:	RF	SCALE:	AS NOTED		
APPROVED:	[Signature]	DATE:	JUL - 6 2015		
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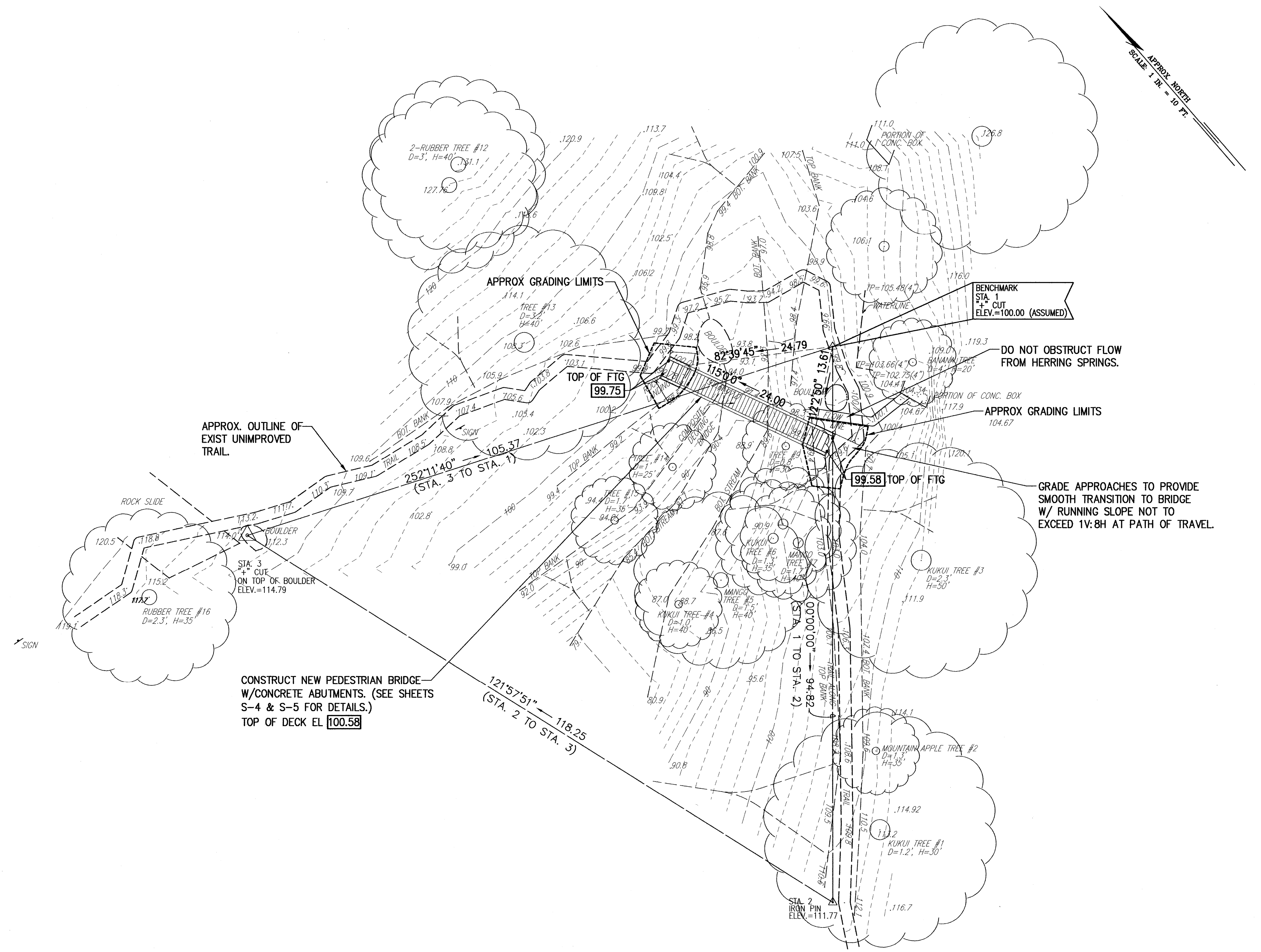


TREE NOTES

1. CONTRACTOR SHALL BE CAREFUL WHEN DOING WORK NEAR EXISTING TREES AND TAKE APPROPRIATE MEASURES TO PROTECT AND PRESERVE THE TREES TO REMAIN. TREE PROTECTION SHALL INVOLVE ERECTING BARRICADES OR CONSTRUCTION FENCES TO PROTECT AND MAINTAIN TREES IN GOOD HEALTH. TREE PROTECTION SHALL ALSO INCLUDE PROTECTING SUBSURFACE ROOT SYSTEMS FROM DAMAGE DUE TO CONSTRUCTION ACTIVITIES AND EQUIPMENT.
2. PRUNING OF TREE ROOTS AND TRIMMING OF TREE CANOPIES AS MAY BE REQUIRED TO ACCOMPLISH THE WORK SHALL BE PERFORMED UNDER THE SUPERVISION OF AN ARBORIST CERTIFIED BY THE INTERNATIONAL SOCIETY OF ARBORICULTURE.
3. ALL DEBRIS SHALL BE REMOVED AND PROPERLY DISPOSED OFF-SITE.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF TREES UNDER HIS CONTROL AND TREES THAT ARE ROOT PRUNED AND/OR TOP TRIMMED, UNTIL THE FINAL INSPECTION DATE OF THE PROJECT OR FOR A PERIOD OF 90 CALENDAR DAYS AFTER COMPLETION OF ALL WORK AFFECTING TREES, WHICHEVER IS LATER. THE CONTRACTOR SHALL BE RESPONSIBLE TO REPLACE ANY TREE WITH LIKE KIND AND SIZE WHICH FAILS TO SURVIVE WITHIN ONE YEAR AFTER THE FINAL INSPECTION DATE DUE TO IMPROPER TREE PROTECTION/MAINTENANCE, ROOT PRUNING AND/OR TOP TRIMMING.
5. THE PROTECTION AND MAINTENANCE OF TREES, AND ALL TREE WORK REQUIRED TO ACCOMPLISH THE WORK OR TO ACCOMMODATE THE CONTRACTOR'S METHODS SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT AND AT PROVIDED AT NO ADDITIONAL COST TO THE STATE.

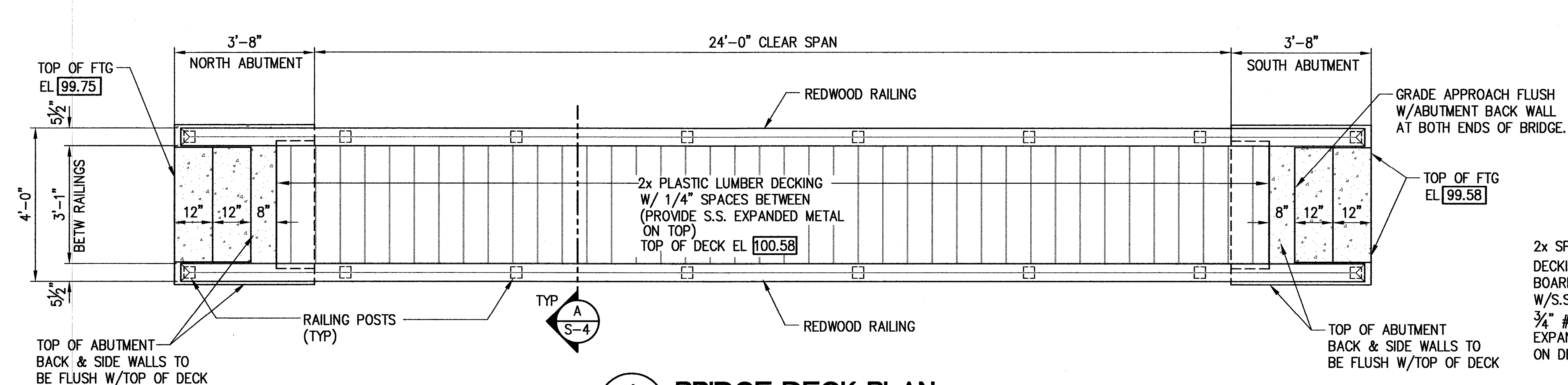
1 EXISTING CONDITIONS AND DEMOLITION PLAN
S-2 SCALE: 1" = 10'

REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF FORESTRY AND WILDLIFE PEDESTRIAN BRIDGE REPLACEMENT MAKIKI VALLEY TRAIL EXISTING CONDITIONS & DEMOLITION PLAN					
		THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. DESIGNED: RF DRAWN: RF CHECKED: RF APPROVED: <i>[Signature]</i> CHIEF ENGINEER			
		SUBMITTED: <i>[Signature]</i> DATE: JUNE 23, 2015 SCALE: AS NOTED		DRAWING NO. S-2 JUL -6 2015 DATE	

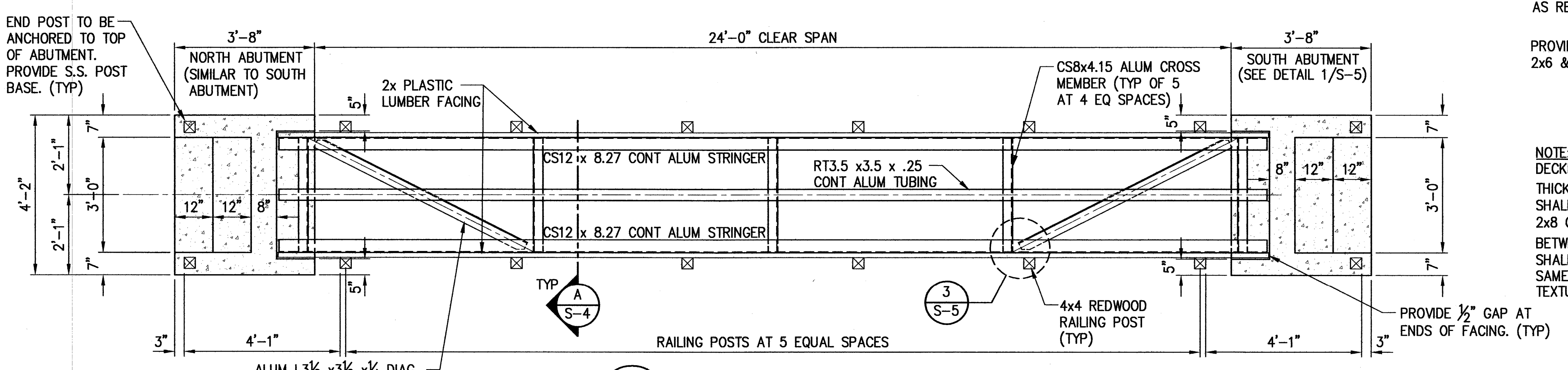


1 SITE PLAN
S-3 SCALE: 1" = 10'

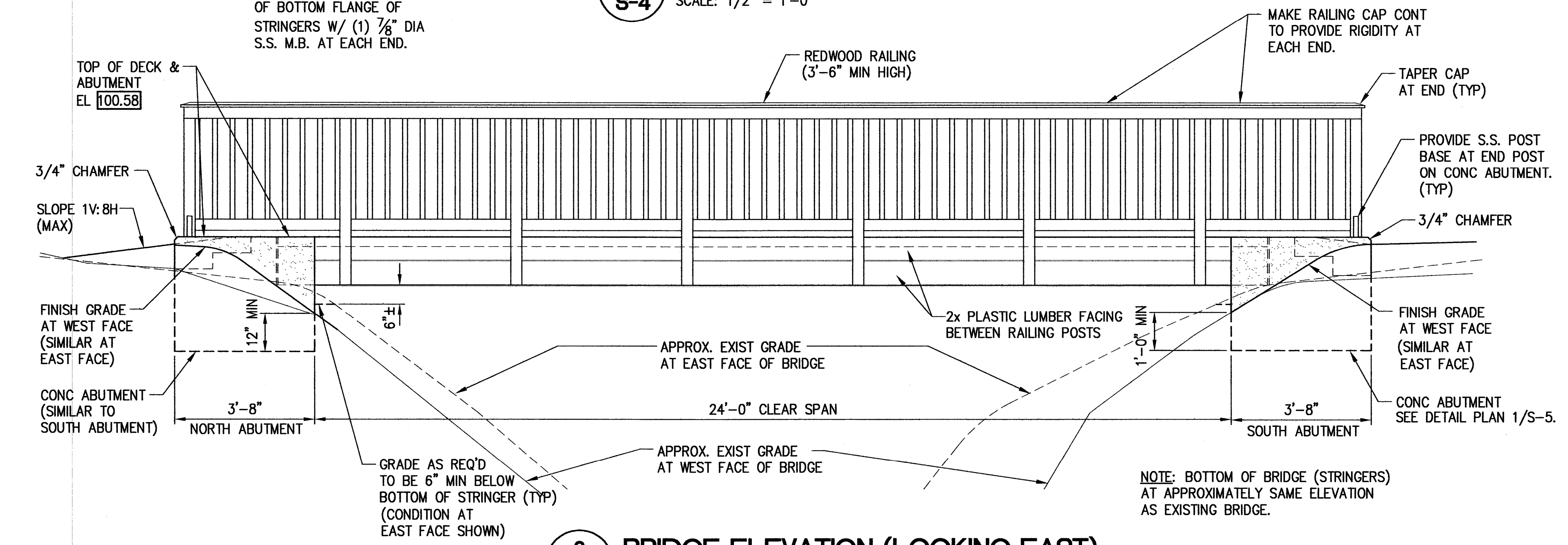
REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF FORESTRY AND WILDLIFE PEDESTRIAN BRIDGE REPLACEMENT MAKIKI VALLEY TRAIL SITE PLAN					
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.					
DESIGNED:	RF	SUBMITTED:	[Signature]		
DRAWN:	RF	DATE:	JUNE 23, 2015		
CHECKED:	RF	SCALE:	AS NOTED		
APPROVED:	[Signature]	EXPIRATION DATE OF THE LICENSE:	APR 30, 2016		
CHIEF ENGINEER:	[Signature]	DATE:	JUL -6 2015		
					S-3



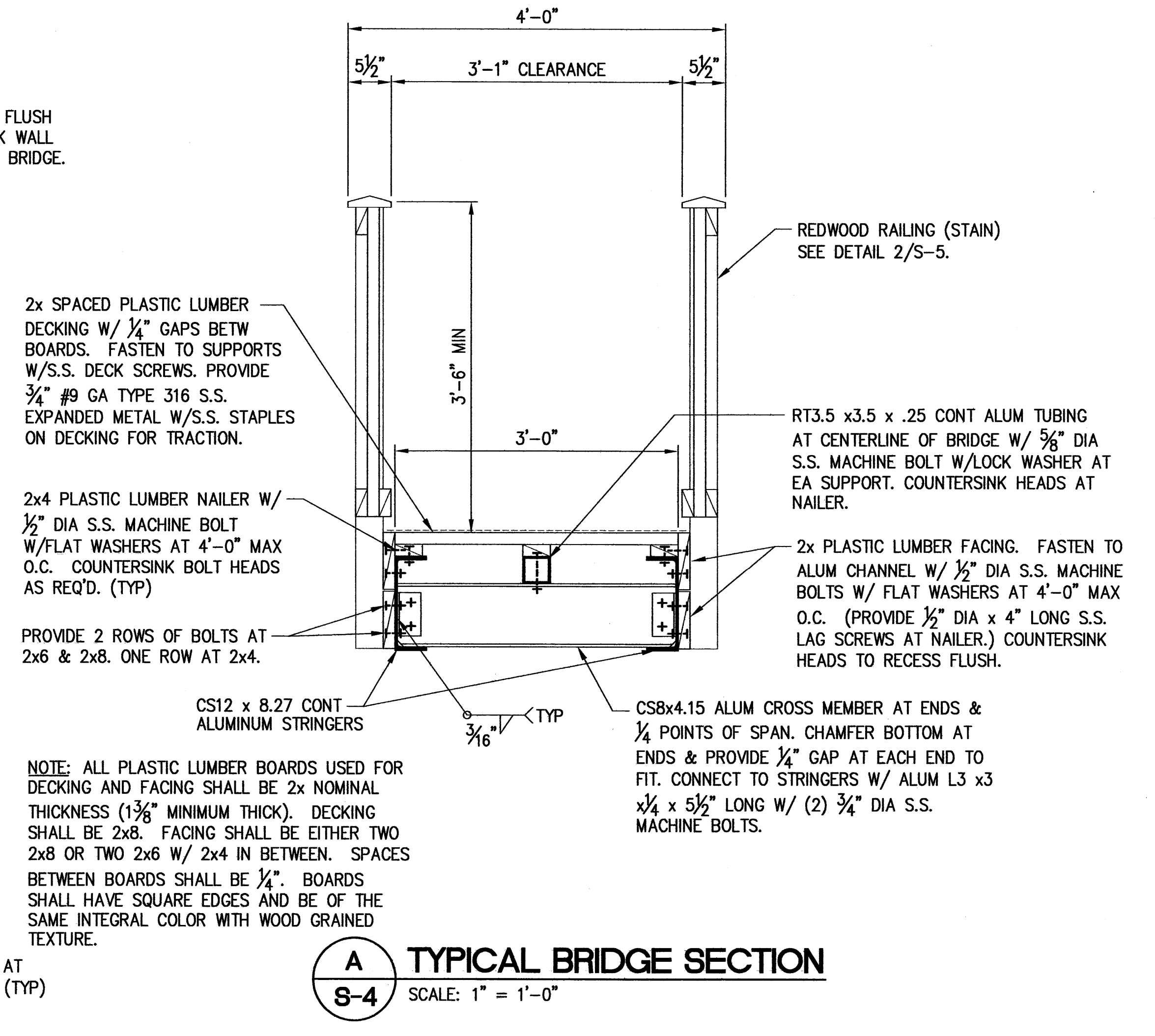
1 BRIDGE DECK PLAN
S-4 SCALE: 1/2" = 1'-0"



2 BRIDGE FRAMING PLAN
S-4 SCALE: 1/2" = 1'-0"



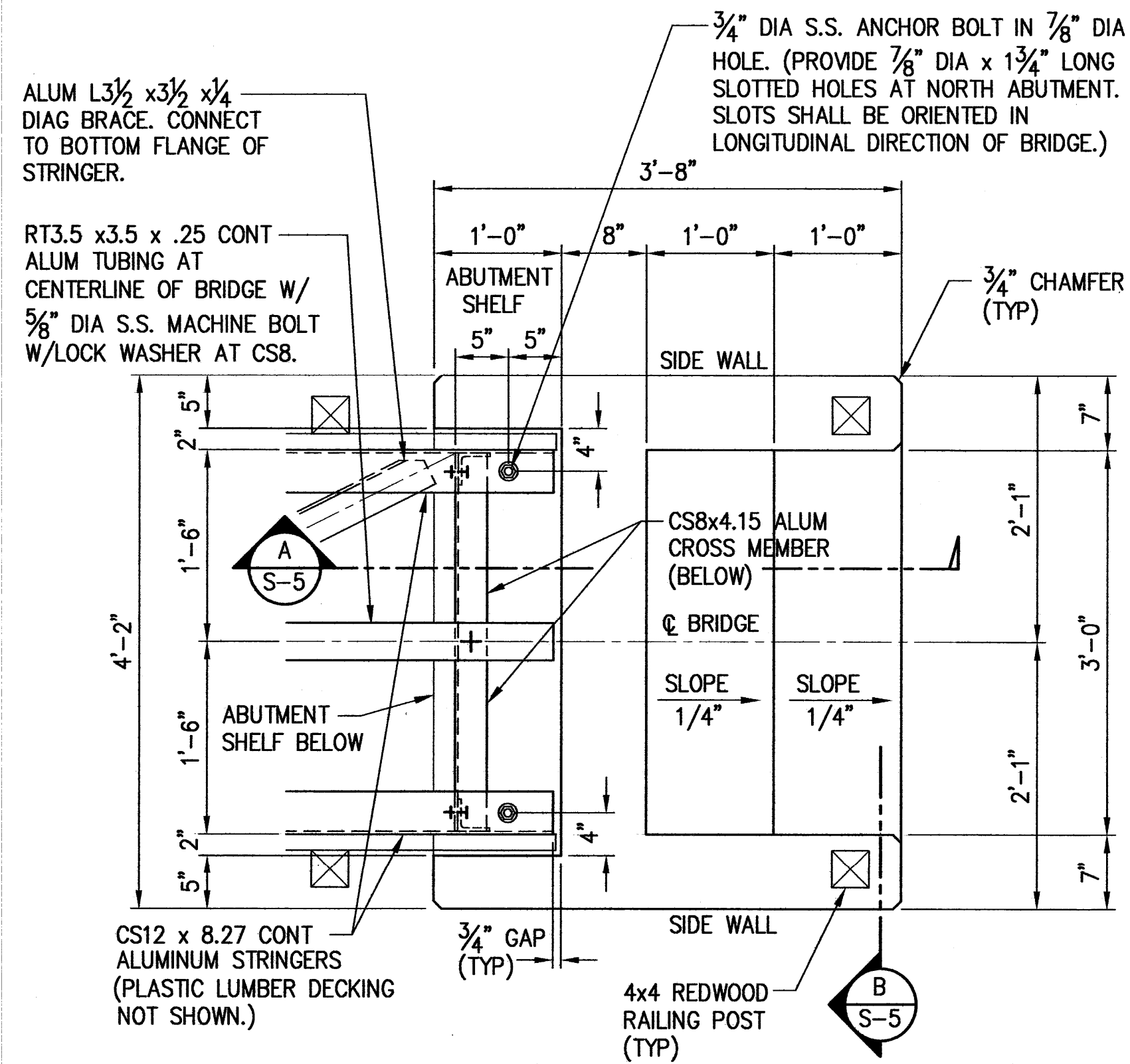
3 BRIDGE ELEVATION (LOOKING EAST)
S-4 SCALE: 1/2" = 1'-0"



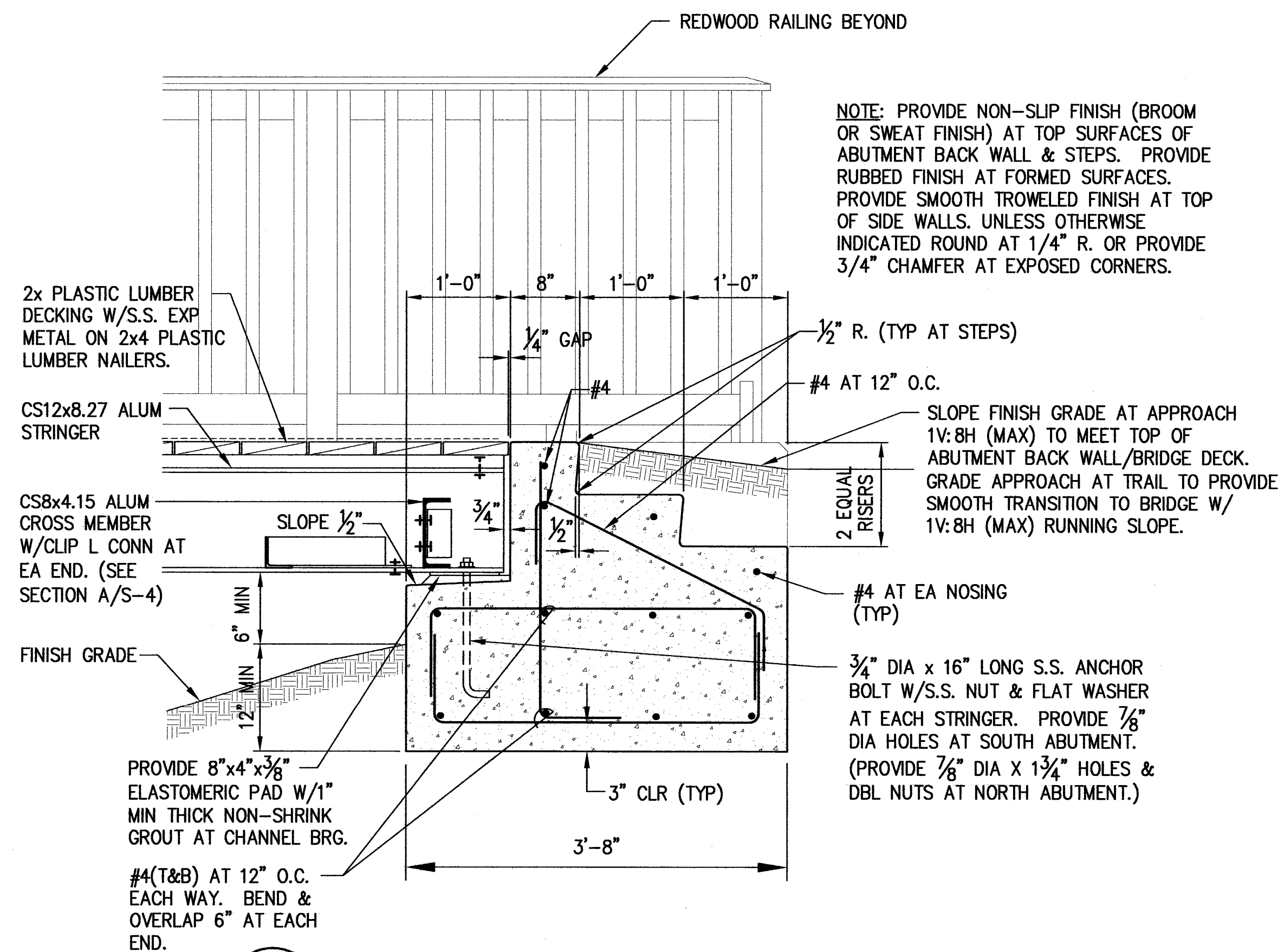
A TYPICAL BRIDGE SECTION
S-4 SCALE: 1" = 1'-0"

NOTE: ALL PLASTIC LUMBER BOARDS USED FOR DECKING AND FACING SHALL BE 2x NOMINAL THICKNESS (1 3/8" MINIMUM THICK). DECKING SHALL BE 2x8. FACING SHALL BE EITHER TWO 2x8 OR TWO 2x6 W/ 2x4 IN BETWEEN. SPACES BETWEEN BOARDS SHALL BE 1/4". BOARDS SHALL HAVE SQUARE EDGES AND BE OF THE SAME INTEGRAL COLOR WITH WOOD GRAINED TEXTURE.

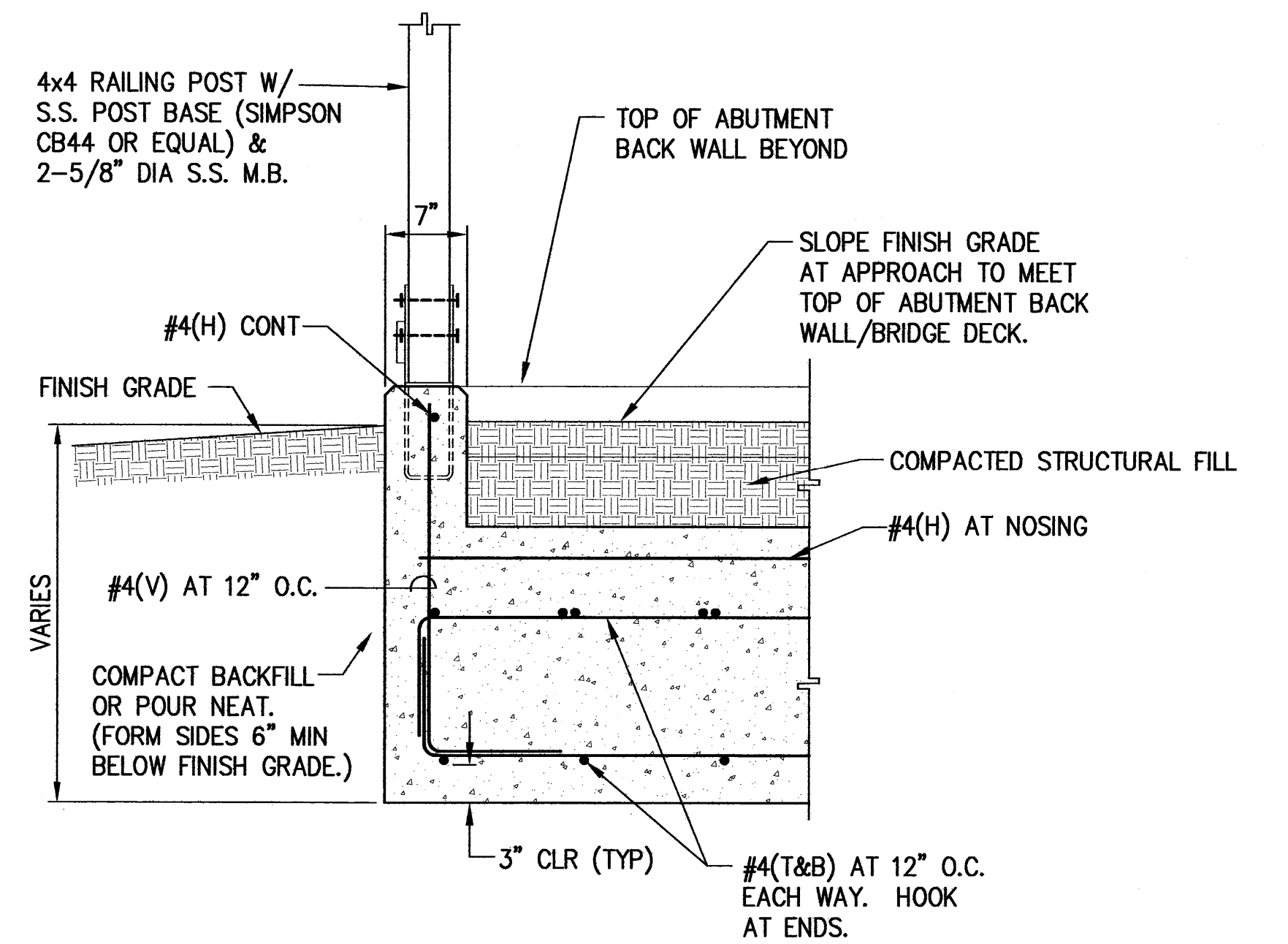
REVISION NO.	SYMBOL	DESCRIPTION	SHT. OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF FORESTRY AND WILDLIFE PEDESTRIAN BRIDGE REPLACEMENT MAKIKI VALLEY TRAIL BRIDGE PLANS, ELEVATION & TYPICAL SECTION					
DESIGNED: RF DRAWN: RF CHECKED: RF			SUBMITTED: [Signature] DATE: JUNE 23, 2015 SCALE: AS NOTED		
APPROVED: [Signature] CHIEF ENGINEER			APRIL 30, 2016 EXPIRATION DATE OF LICENSE		
				JUL -6 2015 DATE	S-4 DRAWING NO.



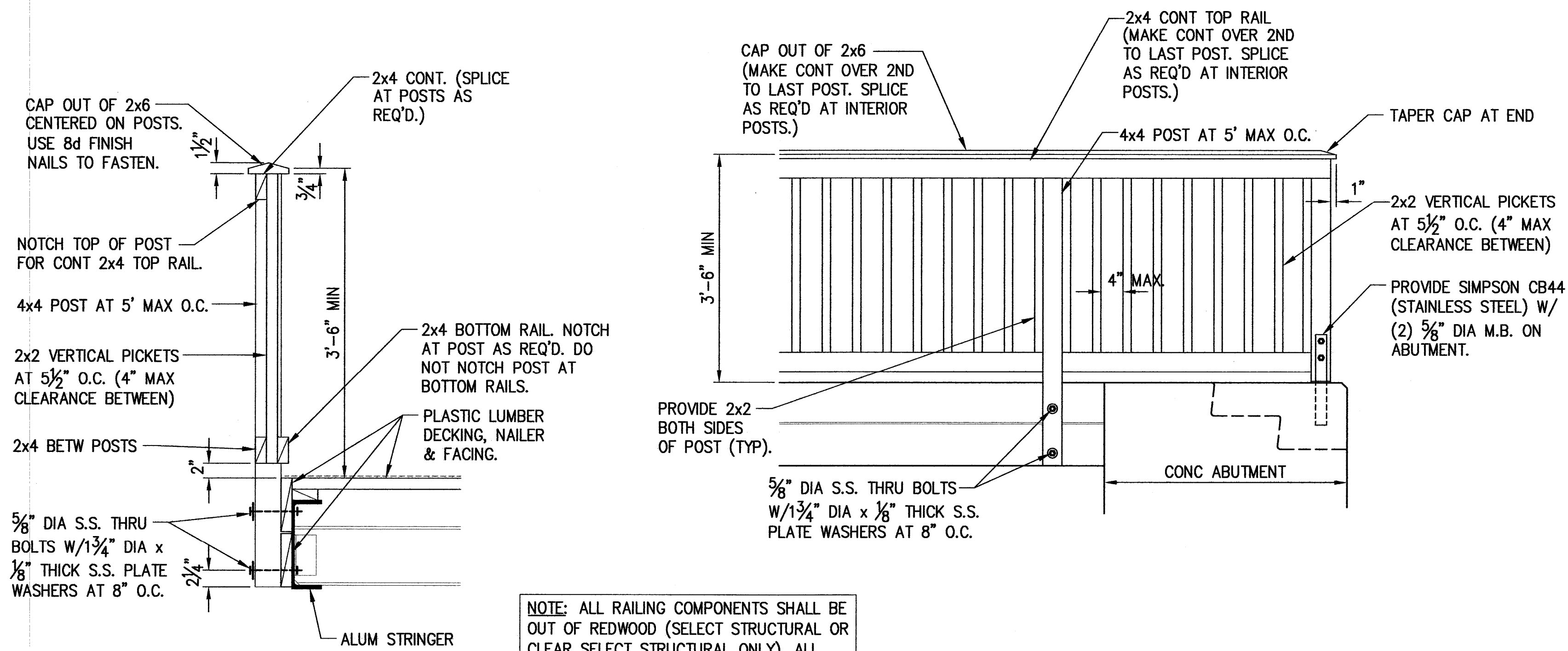
1 **DETAIL-PLAN AT SOUTH ABUTMENT**
S-5 (NORTH ABUTMENT SIMILAR AS NOTED.)
 SCALE: 1" = 1'-0"



A **SOUTH ABUTMENT SECTION**
S-5 (NORTH ABUTMENT SIMILAR AS NOTED.)
 SCALE: 1" = 1'-0"



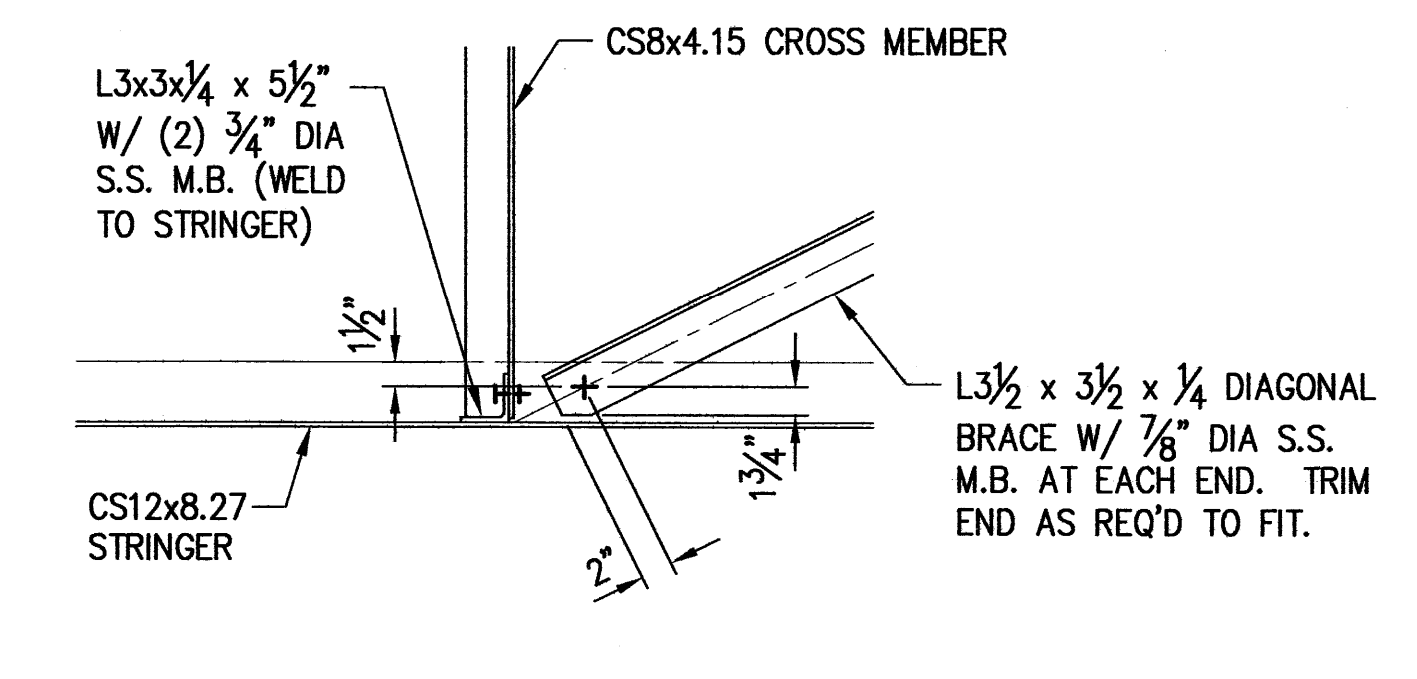
B **ABUTMENT SECTION AT END POST**
S-5 SCALE: 1" = 1'-0"



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

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

2 **RAILING DETAILS**
S-5 SCALE: AS NOTED



3 **CONNECTION DETAIL AT BRACING**
S-5 SCALE: 1" = 1'-0"

NOTE: ALL RAILING COMPONENTS SHALL BE OUT OF REDWOOD (SELECT STRUCTURAL OR CLEAR SELECT STRUCTURAL ONLY). ALL HARDWARE (BOLTS, NUTS, WASHERS, ETC.) EXCEPT FOR NAILS SHALL BE TYPE 316 STAINLESS STEEL. NAILS SHALL BE HOT DIP GALVANIZED. SEE SPECS FOR PAINTING.

REVISION NO.	SYMBOL	DESCRIPTION	SHEET OF	DATE	APPROVED
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF FORESTRY AND WILDLIFE PEDESTRIAN BRIDGE REPLACEMENT MAKIKI VALLEY TRAIL SECTIONS & DETAILS					
LICENSED PROFESSIONAL ENGINEER No. 6130-S HAWAII, U.S.A.					
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.					
DESIGNED:	RF	SUBMITTED:	[Signature]		
DRAWN:	RF	DATE:	JUNE 23, 2015		
CHECKED:	RF	SCALE:	AS NOTED		
APPROVED:	[Signature]	EXPIRATION DATE OF THE LICENSE:	APR 30, 2016		
CHIEF ENGINEER	[Signature]	DATE:	JUL - 6 2015		
					S-5