

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75)	2024	2	37

GENERAL CONSTRUCTION NOTES

1. Construction within the State's Right-of-Way, including the legal relations and responsibility to the public, shall be in accordance with the current Standard Specifications for Road and Bridge Construction, dated 2005.
2. All applicable construction work within the City's Right-of-Way and City property shall be done in accordance with the Standard Specifications for Public Works Construction, September 1986 and the Standard Details for Public Works Construction, September 1984, as amended, of the Department of Public Works, City and County of Honolulu and the Counties of Kauai, Maui, and Hawaii.
3. The underground pipes, cables or ductlines known to exist by the engineer from his search of records are indicated on the plans. The Contractor shall verify the locations and depths of the facilities and exercise proper care in excavating in the area. Wherever connections of new utilities to existing utilities are shown on the plans, the Contractor shall expose the existing lines at the proposed connections to verify their locations and depths prior to excavation for the new lines. If utilities not shown are encountered, or if potential utility conflicts arise, notify the Engineer immediately. The Contractor shall provide structural support for all existing utility lines uncovered in the trenches.
4. The existing utilities have been shown on these plans insofar as it is possible to do so. Their locations as shown are approximately only. The Contractor shall not assume that where no utilities are shown, none exist.

The Contractor shall be responsible for using all possible means to ascertain the exact locations of all existing utilities, whether shown on the plans or not, including, but not limited to, independently checking the site, probing the areas to be excavated, and contacting the various government agencies and utility companies to arrange for research of their records and for their toning of their utilities (i.e. Hawaiian Electric Company, Honolulu Board of Water Supply, Hawaii Gas, Spectrum, Hawaiian Telcom). The Contractor shall immediately notify the Engineer if the locations of existing utilities differ materially from that shown on the plans.

5. 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 city drainage systems, adjoining properties, streets, or natural watercourses. Should such violations occur, the Contractor may be cited and the Contractor shall immediately make any remedial actions necessary.

6. The General Contractor/Developer/Owner of the project shall be responsible for conformance with applicable provisions of the 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 time during construction.

The General Contractor/Developer/Owner of the project shall obtain National Pollutant Discharge Elimination System (NPDES) Permit Coverage(s) for the following:

1. Storm water discharges associated with construction activities that disturb one (1) acre or more, and
2. Discharges of hydrotesting effluent, dewatering effluent, and well drilling effluent to state waters.

In accordance with State Law, all discharges related to project construction or operations are required to comply with State Water Quality Standards (Hawaii Administrative Rules, Chapter 11-54). Best management practices shall be used to minimize or prevent the discharge of sediment, debris, and other pollutants to

GENERAL CONSTRUCTION NOTES (CON'T.)

State Waters. Permit coverage is available from the Department of Health, Clean Water Branch at <http://health.hawaii.gov/cwb>. The Contractor is responsible for obtaining other Federal, State, or Local Authorizations as required by Law.

7. Confined space for entry by city personnel, including inspectors, into a permit required confined space as defined in 29 CFR Part 1910.146(b), the Contractor shall be responsible for providing:
 - I. All safety equipment required by the confined space regulations applicable to all parties other than the construction industry, to include, but not limited to, the following:
 - A. Full body harnesses for up to two personnel.
 - B. Lifeline and associated clips.
 - C. Ingress/egress and fall protection equipment.
 - D. Two-way radios (walkie-talkies) if out of line-of-sight.
 - E. Emergency (escape) respirator (10 minute duration).
 - F. Cellular telephone to call for emergency assistance.
 - G. Continuous gas detector (calibrated) to measure oxygen, hydrogen sulfide, carbon monoxide and flammables (capable of monitoring at a distance of at least 20-feet away).
 - H. Personal multi-gas detector to be carried by inspector
 - II. Continuous forced air ventilation adequate to provide safe entry conditions.
 - III. One attendant/rescue personnel topside (two, if conditions warrant it).

8. Pursuant to Chapter 6E, 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 (692-8015).

9. For Bench Marks, see Sheet No. C-9.

10. The Contractor shall observe and comply with all Federal, State and Local Laws required for the protection of public health, safety and environmental quality.

11. Utilities shall be installed in accordance with Ordinance Nos. 2875 and 3375 (underground utilities).

12. The Contractor, at his own expense, shall keep the project and surrounding area free from dust nuisance. The work shall be in conformance with the Air Pollution Control Standards and Regulations of the State Department of Health.

13. All existing utilities, whether or not shown on the plans, shall be protected at all times unless otherwise noted.

14. The Contractor shall provide, install and maintain all necessary signs, lights, flares, barricades, markers, cones, and other protective facilities, and shall take all necessary precautions for the protection, convenience and safety of the public.

15. During non-working hours, the trenches on city streets shall be covered with non-skid steel plates and all lanes maintained open for traffic.

16. For projects abutting State Highways Right-of-Way, the Owner or his Authorized Representative shall notify the State Department of Transportation, Highways Division, Oahu District, Drainage Discharge Unit at 831-6793 for an assessment of State Highways Permit Requirements.

17. Contractor to provide As-Built drawings.

GRADING NOTES

1. All grading work shall be done in accordance with Chapter 14, Articles 13, 14, 15 and 16, as related to grading, soil erosion and sediment control of the Revised Ordinances of Honolulu, 1990, as amended, and Geotechnical Exploration Report by PSC Consultants, LLC dated July 16, 2019.

2. No Contractor shall perform any grading operation so as to cause falling rocks, soil or debris in any form to fall, slide or flow onto adjoining properties, streets or natural watercourses. Should such violations occur, the Contractor may be cited and the Contractor shall immediately make all remedial actions necessary.

3. The Contractor, at his own expense, shall keep the project area and surrounding area free from dust nuisance. The work shall be in conformance with the Air Pollution Control Standards contained in the Hawaii Administrative Rules, Title 11, Chapter 60J, "Air Pollution Control".

4. The underground pipes, cables or ductlines known to exist by the Engineer from his search of records are indicated on the plans. The Contractor shall verify the locations and depths of the facilities and exercise proper care in excavating in the area. Wherever connections of new utilities are shown on the plans, the Contractor shall expose the existing lines at the proposed connections to verify their locations and depths prior to excavation for the new lines.

5. Adequate provisions shall be made to prevent surface waters from damaging the cut face of an excavation or the sloped surfaces of a fill. Furthermore, adequate provisions shall be made to prevent sediment-laden runoff from leaving the site.

6. All slopes and exposed areas shall be sodded or planted as soon as final grades have been established. Planting shall not be delayed until all grading work has been completed. Grading to final grade shall be continuous, and any area, within which work has been interrupted or delayed shall be planted.

7. Fills on slopes steeper than 5:1 shall be keyed.

8. The City shall be informed of the location of the borrow/disposal site for the project when the application for a grading permit is made. The borrow/disposal site must also fulfill the requirements of the Grading Ordinance.

9. No grading work shall be done on Saturdays, Sundays and Holidays at any time without prior notice to the Director, D.P.P., provided such grading work is also in conformance with the Community Noise Control Standards contained in the Hawaii Administrative Rules, Title 11, Chapter 46, "Community Noise Control".

10. The limits of the area to be graded shall be flagged before the commencement of the grading work.

11. The General Contractor/Developer/Owner of the project shall be responsible for all grading operations to be performed in conformance with applicable provisions of the 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 time during construction.

The General Contractor/Developer/Owner of the project shall obtain National Pollutant Discharge Elimination System (NPDES) Permit Coverage(s) for the following:

1. Storm water discharges associated with construction activities that disturb one (1) acre or more, and
2. Discharges of hydrotesting effluent, dewatering effluent, and well drilling effluent to state waters.

GRADING NOTES (CON'T.)

In accordance with State Law, all discharges related to project construction or operations are required to comply with State Water Quality Standards (Hawaii Administrative Rules, Chapter 11-54). Best management practices shall be used to minimize or prevent the discharge of sediment, debris, and other pollutants to State Waters. Permit coverage is available from the Department of Health, Clean Water Branch at <http://health.hawaii.gov/cwb>. The Contractor is responsible for obtaining other Federal, State, or Local Authorizations as required by Law.

12. Where applicable and feasible, the measures to control erosion and other pollutants shall be in place before any earth moving phase of the grading is initiated.

13. Temporary erosion controls shall not be removed before permanent erosion controls are in-place and established.

14. Temporary erosion control procedures shall be submitted for approval prior to application for grading permit.


15. If the grading work involves contaminated soil, then all grading work shall be done in conformance with Applicable State and Federal Requirements.

16. Building permit for retaining walls shall be obtained prior to commencement of grading work on site.

17. For non-city projects, the Contractor shall notify the Civil Engineering Branch, D.P.P. at 768-8084 to arrange for inspectional services and submit two (2) sets of approved construction plans seven (7) days prior to commencement of construction work. For City projects, the Contractor shall coordinate inspectional services with the responsible city agency.

18. Pursuant to Chapter 6e, 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 (692-8015). In addition, for non-City projects, the Contractor shall inform the Civil Engineering Branch, D.P.P. (768-8084); and for City projects, notify the responsible City agency.

19. For all projects, which will disturb one (1) acre or more of land, the Contractor shall not start construction until a Notice of General Permit Coverage (NGPC) is received from the Department of Health, State of Hawaii, and has satisfied any other applicable requirements of the NPDES permit program. Also, for non-City and other non-governmental agency projects, the Contractor shall provide a written copy of the NGPC to the Permitting and Inspection Section, Civil Engineering Branch, D.P.P. at least seven (7) calendar days before the start of the construction. For city or other governmental projects, the Contractor shall provide a written copy of the NGPC to the appropriate city department or governmental agency per their requirements.



ANSON M. MURAYAMA
LICENSED PROFESSIONAL ENGINEER
No. 6975-C
HAWAII, U.S.A.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GENERAL NOTES - 1

HALAWA-LULUKU INTERPRETIVE DEVELOPMENT
LULUKU PROJECT AREA
FEDERAL-AID PROJECT NO. I-H3-1(75)

Scale: NO SCALE Date: JULY 2023

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/24

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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GRADING NOTES (CON'T.)

20. All grading and construction work shall implement measures to ensure that the discharge of pollutants from the construction site will be reduced to the maximum extent practicable and will not cause or contribute to an exceedence of Water Quality Standards.
21. Non-compliance to any of the above requirements shall mean immediate suspension of all work, and remedial work shall commence immediately all costs incurred shall be billed to the Violator. Furthermore, Violators shall be subjected to Administrative, Civil and/or Criminal Penalties.
22. For Bench Marks, see Sheet No. C-9.

NOTES FOR CONSTRUCTION WITHIN STATE R/W

1. Construction within the State's Right-of-Way, including the legal relations and responsibility to the public, shall be in accordance with the current Standard Specifications for Road and Bridge Construction dated 2005 and the Specifications for Installation of Miscellaneous Improvements Within State Highways, of the State Highways Division.
2. Work may be performed between the hours of 8:30 a.m. and 3:00 p.m. Monday through Friday, except State Holidays, unless when otherwise approved in writing by the District Engineer.
3. Existing drainage systems shall be functional at all times.
4. The Contractor shall exercise care to minimize damages to existing highway improvements. All damages shall be repaired by the Contractor, at his expense, to the satisfaction of the District Engineer.
5. Approval of permit construction plans shall be valid for a period of one (1) year from the date of notification of approval to the Applicant. In the event construction does not commence within this one-year period, the Applicant will be required to resubmit the construction plans for the Division's Review and Re-Approval.
6. All regulatory, guide, and construction signs and barricades shall have a high-intensity reflective background.
7. The Contractor shall inform the State Highway's Permit Office (831-6712) at least two (2) weeks prior to closing any lanes.
8. Driveways shall be kept open unless the owners of the properties using these rights-of-way are otherwise provided for satisfactorily.
9. The Contractor shall exercise care when performing work in or adjacent to the State Right-of-Way. Damages to existing facilities shall be immediately reported to the respective utility companies, and/or city or state agencies. The repair work shall be done at the Contractor's expense.
10. The Contractor shall notify the Department of Transportation Services, Public Transit Division at 768-8396 and Oahu Transit Services, Inc. (Bus Operations: 848-4578 or 852-6016 and Para-Transit Operations: 454-5041 or 454-5020) two weeks prior to commencing any work. The Contractor shall inform of the location and scope of work, proposed closure of any street or traffic lanes, and the need to relocate any bus stop.

NOTES FOR CONSTRUCTION WITHIN STATE R/W (CON'T.)

11. The Permit to perform work upon State Highways may be revoked because of default in any of the following, but not limited to, conditions:
 - a. Work performed before or after permitted hours.
 - b. Failure to maintain roadway surfaces in a smooth and safe condition.
 - c. Failure to clean up construction debris generated from project work.
 - d. Failure to provide proper traffic control.
 - e. Failure to replace damaged pavement markings and signs.
 - f. Failure to maintain highway lights and/or traffic signal systems.
 - g. Failure to address public complaints to the satisfaction of the District Engineer.
12. The Contractor shall provide the District Engineer with As-Built Plans upon completion of the work done in the State Right-of-Way. This shall be done prior to the Department's release of the Performance Bond.

PUBLIC HEALTH, SAFETY AND CONVEYANCE NOTES


1. The Contractor shall observe and comply with all Federal, State and Local Laws required for the protection of public health and safety and environmental quality.
2. The Contractor at his own expense shall keep the project and its surrounding areas free from dust nuisance. The work shall be in conformance with the Air Pollution Standards and Regulations of the State Department of Health. Contractor shall be in conformance with the Hawaii Administrative Rules, Chapter 11-60J-33.
3. The Contractor shall provide, install and maintain all necessary signs, lights, flares, barricades, markers, cones and other protective facilities and take all necessary precautions for the protection, conveyance and safety of the public.
4. The Contractor shall notify the Owner and Engineer upon discovery of stained soil or olfactory evidence of a suspected petroleum or solvent release into the environment. If there are any fuel spillages, existing leaks, etc. found during construction, report the foregoing to the Hazardous Evaluation and Emergency Response Unit (ph. no. 586-4249) or the Department of Health. For non-working hours, call the State Hospital Operator (ph. no. 247-2191).

ARCHAEOLOGICAL NOTE

If during construction, any previously unidentified sites or remains (such as artifacts, shell, bone, or charcoal deposits, human burials, rock or coral alignments, pavings, or walls) are encountered, the Applicant shall stop work and contact the State DLNR Historic Sites Office at 692-8015 immediately. Work in the immediate area shall be stopped until the office is able to access the impact and make further recommendations for mitigative activity.

DISABILITY AND COMMUNICATION ACCESS BOARD (DCAB REQUIREMENTS)

This project shall meet the Accessibility Requirements of Hawaii Revised Statutes (HRS) 103-50 and the 2010 ADA Standards for Accessible Design Sections 201.3 and 206.

	STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
	<p><u>GENERAL NOTES - 2</u></p> <p>HALAWA-LULUKU INTERPRETIVE DEVELOPMENT LULUKU PROJECT AREA FEDERAL-AID PROJECT NO. I-H3-1(75)</p>
<p>THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/24</p>	<p>Scale: NO SCALE Date: JULY 2023</p>

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SEWER NOTES

- All sewer construction shall be performed in accordance with the City's Standard Specifications, September 1986, the Department of Environmental Services Wastewater System Design Standards, July 2017, and Wastewater System Standard Details, July 2017, Current City Practices and Revised Ordinances of Honolulu, 1990 as amended.
- In the event that any change in alignment or grade for the proposed sewers are required due to unforeseen conflict with other utilities, the Engineer in charge or the Maker of the Plans shall be responsible for the required changes which are to be presented to the Department of Planning and Permitting (DPP) for approval.
- The Contractor shall notify the Construction Management Branch, Wastewater Engineering and Construction Division, Env, at 768-8785, or 768-8755 to arrange for inspection services and submit four (4) sets of approved construction plans to the Wastewater Branch, DPP seven (7) prior to commencement of sewer work. The Contractor shall pay for all inspection costs.
- Crushed rock cradle is permitted where soil is stable. In areas of unstable soil, the Maker of the Plans and the Construction Engineer will determine the pipe support required.
- The underground pipes, cables or ductlines known to exist by the Engineer from his research of records are indicated on the plans. The Contractor shall verify the location and depth of the facilities, including and affecting sewer lines, in the presence of the Wastewater Inspector and exercise proper care in excavating the area. The Contractor shall be responsible and shall pay for all damaged utilities.
- Sewer lateral shall be clear of and not conflicting with any other utility. Minimum horizontal and vertical clearances shall be strictly observed and followed.
- Slope for sewer laterals shall be a minimum of 2.00% unless otherwise noted.
- Building plumbing facilities shall be controlled by sewer lateral inverts.
- The Contractor shall be responsible for maintaining continuous service to all affected areas during construction.
- The Consulting Engineer shall submit to the Wastewater Branch, DPP "as-built" tracings and electronic files of the construction plans as actually constructed, showing all changes from the original plans.
- The Contractor shall be responsible for any sewage spills caused during construction. The Contractor shall notify the State Department of Health and utilize appropriate sampling and analyzing procedures. The Contractor shall be responsible for all public notifications and press releases.
- The Contractor shall install "Rainstopper" manhole inserts or manhole inflow inserts in all sewer manholes with Type "SA" Frame and Cover.
- No rungs shall be installed inside new sewer manholes.
- The Contractor shall obtain approval for advance sewer riser agreement at the DPP and obtain building permit for plumbing work before any advance riser is made.
- S4C Pipe Cradle Seals shall be installed ten (10) feet from all sewer manholes to prevent soil mitigation. See detail on sheet no. C-13.
- Geotextile fabric to envelop the pipe cradle and select backfill material shall be provided where water or unstable soil condition are encountered.
- All sewer pipe joints within easements shall be wrapped with Geotextile Root Barrier.

SEWER NOTES (CON'T.)

- Confined Spaces
For entry by City Personnel, including Inspectors, into a permit-required confined space as defined in 29 CFR Part 1910.146(b), the Contractor shall be responsible or providing:
 - All safety equipment required by the confined space regulations applicable to all parties other than the construction industry, to include, but not limited to, the following:
 - Full body harnesses for up to two personnel.
 - Lifeline and associated clips.
 - Ingress/egress and fall protection equipment.
 - Two-way radios (walkie-talkies) if out of line-of-sight.
 - Emergency (escape) respirator (10 minute duration).
 - Cellular telephone to call for emergency assistance.
 - Continuous gas detector (calibrated) to measure oxygen, hydrogen sulfide, carbon monoxide and flammables (capable of monitoring at a distance of least 20-feet away.)
 - Personal multi-gas detector to be carried by inspector
 - Continuous forced air ventilation adequate to provide safe entry conditions.
 - One Attendant/Rescue Personnel topside (two, if conditions warrant it).
- When connecting to a live sewer line, the contractor shall abide by all conditions that the state department of health sets forth to mitigate any wastewater spill that may occur. The contractor shall inform the city inspector five (5) working days prior to the actual connection. The Contractor shall be responsible for any fines and penalties due to any spills resulting from the connection.
- If Contractor encounters flow monitoring devices such as a special sewer manhole covers embedded with solar panels, contact Collection Systems Maintenance (CSM), ENV at 768-7272 to coordinate temporary removal.
- Contractor shall maintain visibility and maintenance access to live sewer manhole locations at all times, including during non-work hours and paving operations.
- For precast sewer manholes, the Consulting Engineer shall submit four (4) sets of shop drawings to the Wastewater Branch, DPP for approval. After the shop drawings are approved, the manufacturer shall notify the Construction Management Branch, Wastewater Engineering and Construction Division, ENV, at 768-8785, 768-8755 to arrange for inspection services for concrete pours made at its plant seven (7) days prior to pour.

WATER NOTES

- Unless otherwise specified, all materials and construction of water system facilities and appurtenances shall be in accordance with the City and County of Honolulu, Board of Water Supply's Water System Standards, dated 2002, the Water System External Corrosion Control Standards, Volume 3, dated 2021, and all subsequent amendments and additions.
- No deviation to the Board of Water Supply 2002 Water System Standards as amended, shall be allowed without the Manager and Chief Engineer's Approval.
- All plans approved by the Board of Water Supply are based solely on the adequacy the water supply.
- The existence and location of underground utilities and structures as shown on the plans are from the latest available data, but are not guaranteed as to their accuracy or the encountering of other obstacles during the course of the work, the Contractor shall be responsible and pay for all damages to existing utilities. The Contractor shall not assume that where no utilities are shown, none exist.

WATER NOTES (CON'T.)

- The Contractor shall be responsible for the protection of all waterlines during construction. The Contractor shall be especially careful when excavating behind waterlines, tees, and bends wherever there is a possibility of waterline movement due to the removal of the supporting earth beyond the existing reaction blocks. the Contractor shall take whatever measures necessary to protect the waterlines, such as constructing special reaction blocks (with BWS Approval) and/or modifying his construction method.
- When a utility (gas, sewer, electrical duct line, fiber optic, drainage, etc.) crosses below a Board of Water Supply water main, the Designer of Record and their Construction Engineer shall be responsible for determining the adequate water main structural support and submit the construction method and shop drawing, stamped by a Licensed Engineer and reviewed and accepted by the Designer of Record, to the Board of Water Supply for review and approval. All work shall be at no cost to the Board of Water Supply.
- The Contractor shall notify BWS Capital Projects Division, Construction Section in writing or call (808) 748-5730, and submit six (6) sets of 24" x 36" approved construction drawings. One week prior to commencing construction activities.
- Re-approval shall be required if this project is not under construction within a period of two (2) years.
- Prior to any excavating, the Contractor shall verify in the field, the location of existing waterlines and appurtenances.
- Any adjustments to the existing water system required during construction, to meet the requirements of the BWS Standards, whether shown on the plans or not, shall be done by the Contractor at no cost to the Board of Water Supply.
- Nuts and bolts for flange connections within meter boxes shall be bronze or stainless steel except coupling adapters where "Cor-Tens" (U.S. Steel) or "Mayari" (Bethlehem Steel) may be used. Flange connections outside of meter box may use "Cor-Ten" or "Mayari" type nuts and bolts.
- The Contractor shall chlorinate the entire inside surface of each pipe and fitting with disinfection solution of 5 ounces of sodium hypochlorite mixed with 10 gallons of water. (for connection only)
- Contractor shall cut and plug all existing unused laterals at the main whether or not shown on the plans. Meter and valve boxes to be or already abandoned shall be demolished or removed and properly disposed of. The damaged area shall be repaired to an equal or better condition than the immediate area. All work shall be done at the expense of the Contractor.
- Board of Water Supply Approval of these plans does not constitute a water commitment. Availability of water will be determined when a building permit application is presented to the Department. Water commitment will depend upon the status of the water system at that time. Should water service be made available, the water commitment will be effective when the project receives an approved building permit from the Building Department. All water commitments will be canceled in the event the building permit is canceled.
- The project shall be subject to the Board of Water Supply's cross-connection control requirements prior to issuance of the building permit.


WATER NOTES (CON'T.)

- The installation, chlorination and testing of the water main and facilities after the meter shall not be the responsibility of the Board of Water Supply.
- The backflow preventer device must be installed before meter is issued.
- The Contractor shall furnish and install an insulating corporation stop and petrolatum wax tape at all taps (for DI pipe and copper lateral combination only).
- The Contractor/Developer shall obtain a NPDES Permit prior to chlorination and/or dewatering. A copy of the permit shall be submitted to the Board of Water Supply, Capital Projects Division, Construction Section.
- Pipe cushion shall be of high resistivity material. The Contractor shall submit a soil certification that high resistant cushion material has a resistivity greater than 5,000 ohm-cm. Remainder of the backfill material shall be as specified in the Water System Standards. Pipe cushion and backfill material shall contain no hazardous substances above regulatory action levels including but not limited to lead, asbestos, mercury chromium, cadmium, zinc, strontium, and polychlorinated biphenyls (pcb).
- Install 4 mil thick, non-metallic, blue colored, 6 inches wide warning tape over centerline of the pipe and below the base course along the entire length of trench. Tape should be marked with "Caution Water Line Buried Below".
- All water mains and appurtenances shall be subject to hydrostatic test pressure of 200 by the Contractor in accordance with Division 300 - Construction, Section 302.28, Pipe Pressure Test if the "Water System Standards" dated 2002. During the 30-minute pressure test, the pressure shall not drop more than 10 psi.
- After installation of tapping sleeve and tapping valve and prior to tapping the existing water main, the assembly shall be pressure tested at 200 psi on both sides of the valve and in accordance with the Water System Standards, dated 2002.
- Prior to installation, the Contractor shall submit for approval by Board of Water Supply, the manufacturer's certification that all cast iron (gray or ductile) fittings for the project conform in all respects to the Water System Standards, dated 2002 and addendums.
- Polygon shape for mechanical joint glands are described in AWWA Standard C111 shall be "straight-sided" or an approved equal on a job-to-job basis.

APPROVED:

CHIEF, WASTEWATER BRANCH, D.P.P. DATE

MANAGER AND CHIEF ENGINEER, BOARD OF WATER SUPPLY
CITY & COUNTY OF HONOLULU
FOR WORK AFFECTING THIS FACILITIES IN CITY/STATE
RIGHT-OF-WAY AND EASEMENTS ONLY DATE

 <p>ANSON M. MURAYAMA LICENSED PROFESSIONAL ENGINEER No. 6975-C HAWAII, U.S.A.</p> <p><i>Anson M. Murayama</i> THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/24</p>	<p>STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION</p> <p>GENERAL NOTES - 3</p> <p><u>HALAWA-LULUKU INTERPRETIVE DEVELOPMENT</u> <u>LULUKU PROJECT AREA</u> <u>FEDERAL-AID PROJECT NO. I-H3-1(75)</u></p> <p>Scale: NO SCALE Date: JULY 2023</p>
	<p>SHEET No. C-3 OF 37 SHEETS</p>

WATER NOTES (CON'T.)

26. All ductile iron fittings and metallic valves shall have a factory applied coating and wrapped with petrolatum wax tape.
27. All ductile iron pipe, including sections requiring reinforced concrete jacketing, shall be ductile iron Class 53 with a bonded dielectric coating as per the Board of Water Supply 2002 Water Systems Standards as amended.
28. Two-way blue reflective hydrant markers type db shall be installed at all new future hydrant installations. Contractor shall verify the exact locations of hydrant markers with the nearest Honolulu Fire Department Battalion Chief.
29. The Contractor shall install electronic markers to all mains and test the electronic markers prior to installations to verify proper operation. Board of Water Supply Personnel shall verify the number and locations of placed electronic markers before final paving of the project.
30. At utility crossings where proper compaction under a water main is difficult to achieve, CLSM shall be installed in place of backfill material and pipe cushion material. CLSM mixture to be furnished shall be in accordance with Division 200 - Materials, Section 209.06 controlled low strength material (CLSM) of the Water System Standards, as amended.

Flow Requirements

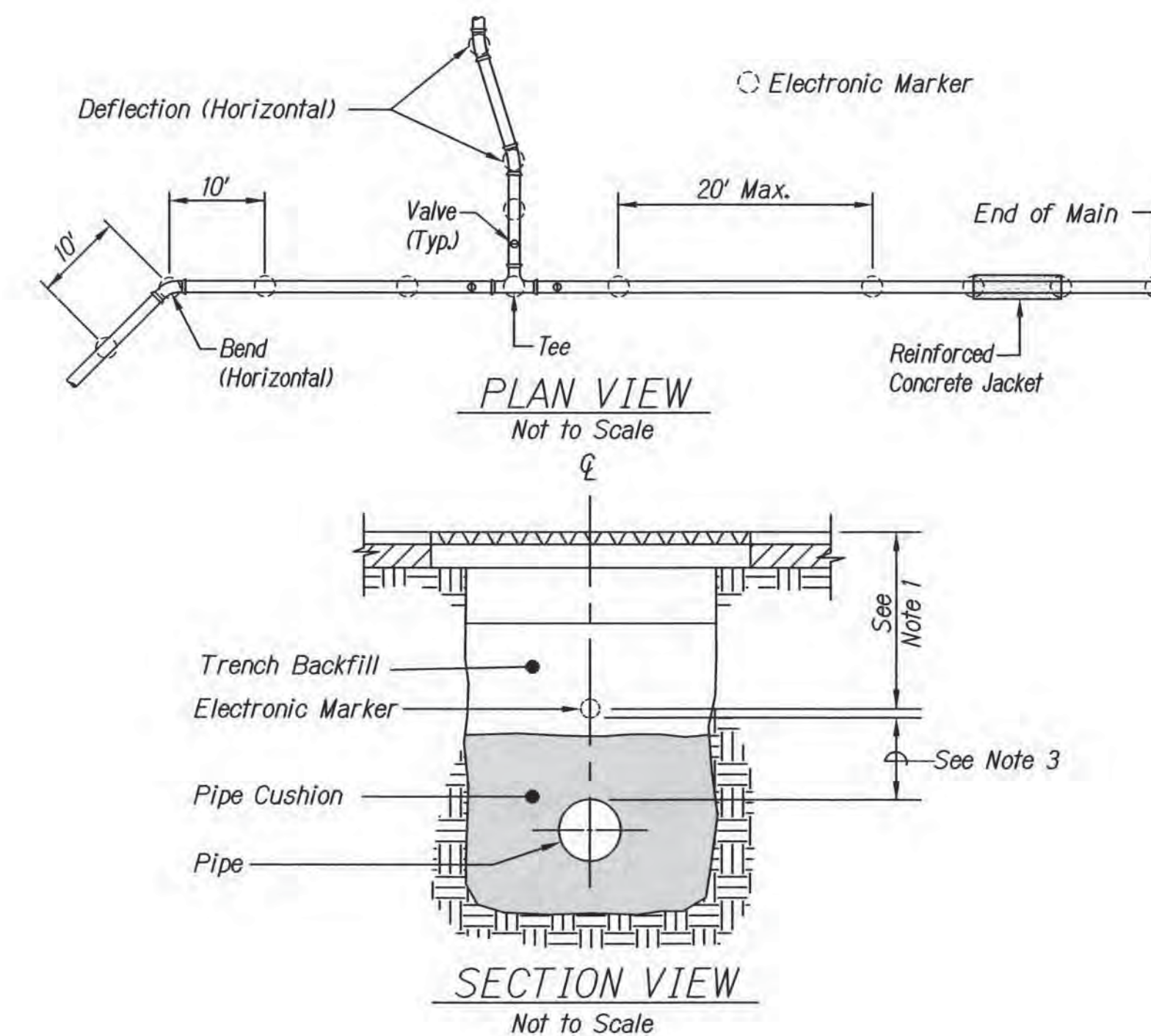
	Fixture Units (FU)	Gallons Per Minute (GPM)	Gallons Per Day (GPD)
Domestic	20	35	700
Irrigation	-	-	-
Total	20	35	700

For Estimating Purposes Only:

Description of Work	Estimate
New 1 1/2" Domestic Service	
New 1" Meter	\$109.00
Installation Charge	\$180.00
One-Time Charge	N/A
Total Installation Charge	\$289.00
Water System Facilities Charges (WSFC)	
20.0 F.U. @ \$620.85 = \$12,417.00	\$12,417.00
*Credit	
P/ID _____	
P/ID _____	
Fire Service	
Meter	
Installation Charge	N/A
One-Time Charge	N/A
TOTAL	\$12,706.00

*Credits will be determined when the building permit application is submitted for BWS Review and Approval.

This estimate is subject to change. A formal written quotation may be obtained and all payment for the charges shown on the quotation made within 30 days after the construction plan is approved by BWS. If payments are not received within the 30 day period, the project will be subject to the prevailing rates.



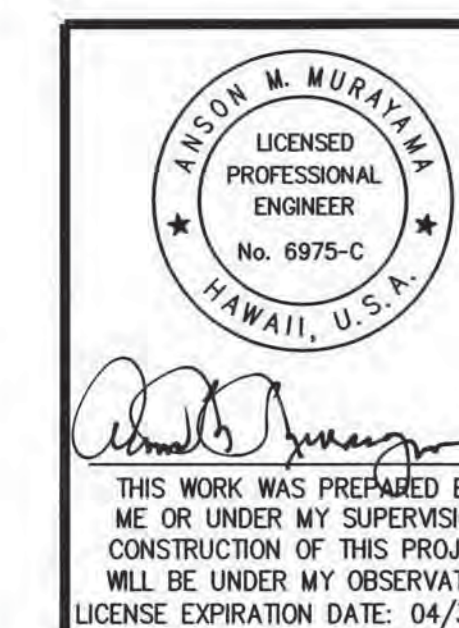
NOTES:

1. Install electronic marker over centerline of pipe at minimum of 2 feet and a maximum depth of 3 feet from finish grade.
2. Install trench backfill and pipe cushion material in accordance to the plans and specifications.
3. Install electronic marker at a minimum clearance of 6-inches above the pipe or concrete jacket.

TYPICAL ELECTRONIC MARKER INSTALLATION
Not to Scale

APPROVED:

MANAGER AND CHIEF ENGINEER, BOARD OF WATER SUPPLY
CITY & COUNTY OF HONOLULU
(FOR WORK AFFECTING BWS FACILITIES IN CITY/STATE
RIGHT-OF-WAY AND BWS EASEMENTS ONLY)



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GENERAL NOTES - 4

HALAWA-LULUKU INTERPRETIVE DEVELOPMENT
LULUKU PROJECT AREA
FEDERAL-AID PROJECT NO. I-H3-1(75)

Scale: NO SCALE Date: JULY 2023

WATER POLLUTION AND EROSION CONTROL NOTES:

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75)	2024	6	37

A. GENERAL:

- See Special Provisions Section 209 - Water Pollution and Erosion Control. Section 209 describes but is not limited to: submittal requirements; scheduling of a water pollution and erosion control conference with the Engineer; construction requirements; method of measurement; and basis of payment. In addition, Appendix A lists potential pollutant sources and corresponding BMPs used to mitigate the pollutants.
- Follow the guidelines in the current HDOT Construction Best Management Practices Field Manual in developing, installing and maintaining the Best Management Practices (BMP) for the project. For any conflicting requirements between the Manual and applicable bid documents, the applicable bid documents will govern. Should a requirement not be clearly described within the applicable bid documents, the Contractor shall notify the Engineer immediately for interpretation. For the purposes of clarification under Note A.2, "applicable bid documents" include the construction plans, standard specifications, Special Provisions, Permits, and the Storm Water Pollution Prevention Plan (SWPPP) when applicable.
- Follow the guidelines in the Honolulu's City & County "Rules Relating to Soil Erosion Standards and Guidelines" along with applicable Soil Erosion Guidelines for projects on Maui, Molokai, Kauai, and Hawaii.
- The Engineer may assess liquidated damages of up to \$27,500 for non-compliance of each BMP requirement and each requirement stated in Section 209 and special provisions, for every day of non-compliance. There is no maximum limit on the amount assessed per day.
- The Engineer will deduct the cost from the progress payment for all citations received by the Department for non-compliance, or the Contractor shall reimburse the State for the full amount of the outstanding cost incurred by the State.
- If necessary, install a rain gage prior to any field work including the installation of any site-specific best management practices. The rain gage shall have a tolerance of at least 0.05 inches of rainfall. Install the rain gage on the project site in an area that will not deter rainfall from entering the gage opening. Do not install in a location where rain water may splash into rain gage. The rain gage installation shall be staked and plumbed. Do not begin field work until the rain gage is installed and site-specific best management practices are in-place.
- Submit Site-Specific BMP Plan to the Engineer along with a completed Site-Specific BMP Review Checklist within 21 calendar days of date of award. The Site-Specific BMP Review Checklist may be obtained from <http://www.stormwaterhawaii.com>.

B. WASTE DISPOSAL:

- Waste Materials**
Collect and store all waste materials in a securely lidded metal dumpster or roll off container with cover to keep rain out or loss of waste during windy conditions. The dumpster shall meet all local and State solid waste management regulations. Deposit all trash and construction debris from the site in the dumpster. Empty the dumpster weekly or when the container is two-thirds full, whichever is sooner. Do not bury construction waste materials onsite. The Contractor's supervisory personnel shall be instructed regarding the correct procedure for waste disposal. Post notices stating these practices in the office trailer, on a weatherproof bulletin board, or other accessible location acceptable to the Engineer. The Contractor shall be responsible for seeing that these procedures are followed. Submit the Solid Waste Disclosure Form for Construction Sites to the Engineer within 21 calendar days of date of award. Provide a copy of all the disposal receipts from the facility permitted by the Department of Health (DOH) to receive solid waste to the Engineer monthly. This should also include documentation from any intermediary facility where solid waste is handled or processed.
- Hazardous Waste**
Dispose all hazardous waste materials in the manner specified by local or State regulations and by the manufacturer. The Contractor's site personnel shall be instructed in these practices and shall be responsible for seeing that these practices are followed.
- Sanitary Waste**
Collect all sanitary waste from the portable units a minimum of once per week, or as required. Position sanitary facilities where they are secure and will not be tipped over or knocked down.



C. EROSION AND SEDIMENT CONTROL INSPECTION AND MAINTENANCE PRACTICES:

- For projects with an NPDES Permit for Construction Activities, inspect at the following intervals. For construction areas discharging to nutrient or sediment impaired waters, inspect all control measures at least once each week and within 24 hours of any rainfall event of 0.25 inches or greater within a 24 hour period. For construction areas discharging to waters not impaired for nutrient or sediments, inspect all control measures weekly. Inspections are only required during the project's normal working hours. The discharge point water classification may be found in the SWPPP.
- For projects without an NPDES Permit for Construction Activities, inspect all control measures weekly.
- Maintain all erosion and sediment control measures in good working order. If repair is necessary, initiate repair immediately and complete by the close of the next work day if the problem does not require significant repair or replacement, or if the problem can be corrected through routine maintenance. When installation of a new erosion or sediment control or a significant repair is needed, install the new or modified control or complete the repair no later than 7 calendar days from the time of discovery. "Immediately" means the Contractor shall take all reasonable measures to minimize or prevent discharge of pollutants until a permanent solution is installed and made operational. If a problem is identified at a time in the day in which it is too late to initiate repair, initiation of repair shall begin on the following work day.
- Remove built-up sediment from silt fence when it has reached one-third the height of the fence. Remove sediment from other perimeter sediment control devices when it has reached one-half the height of the device.
- Inspect silt screen or fence for depth of sediment, tears, to verify that the fabric is securely attached to the fence posts or concrete slab and to verify that the fence posts are firmly in the ground. Inspect and verify the bottom of the silt screen is buried a minimum of 6 inches below the existing ground.
- Inspect temporary and permanent seeding and planting for bare spots, washouts and healthy growth.
- Complete and submit to the Engineer a maintenance inspection report within 24 hours after each inspection.
- Provide a stabilized construction entrance at all points of exit onto paved roads to reduce vehicle tracking of sediments. Include stabilized construction entrance in the Water Pollution, Dust, and Erosion Control submittals. Minimum length should be 50 feet. Minimum width should be 30 feet. Minimum depth should be 12 inches or as recommended by the soils engineer and underlain with geo-textile fabric. If minimum dimensions cannot be met, provide other stabilization techniques that remove sediment prior to exit. Clean the paved street adjacent to the site entrance daily or as required to remove any excess mud, cold-planed materials, dirt or rock tracked from the site. Do not hose down the street without containing or vacuuming wash water. Cover dump trucks hauling material from the construction site with a tarpaulin. Remove sediment tracked onto the street, sidewalk, or other paved area by the end of the day in which the track-out occurs.
- Include designed Concrete Washout Area(s) in the Water Pollution, Dust, and Erosion Control submittals.
- Submit the name of a specific individual designated responsible for inspections, maintenance and repair activities and filling out the inspection and maintenance report.
- Personnel selected for the inspection and maintenance responsibilities shall receive training from the Contractor. They shall be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls used onsite in good working order.
- Contain, remove and dispose slurry generated from saw cutting of pavement in accordance with approved BMP practices. Do not allow discharge into the drainage system or State waters.
- For projects with an NPDES Permit for Construction Activities, immediately initiate stabilizing exposed soil areas upon completion of earth-disturbing activities for areas where earth-disturbing activities have permanently or temporarily ceased. Earth-disturbing activities have permanently ceased when clearing and excavation within any area of the construction site that will not include permanent structures has been completed. Earth-disturbing activities have temporarily ceased when clearing, grading, and excavation within any area of the site that will not include permanent structures will not resume (i.e., the land will be idle) for a period of 14 or more calendar days, but such activities will resume in the future. For construction areas discharging into waters not impaired for nutrients sediments, complete initial stabilization within 14 calendar days after the temporary or permanent cessation of earth-disturbing activities. For construction areas discharging into nutrient or sediment impaired waters, complete initial stabilization within 7 calendar days after the temporary or permanent cessation of earth-disturbing activities. Classification of water at the discharge point may be found in the SWPPP.
- For projects without an NPDES Permit for Construction Activities, complete initial stabilization within 14 calendar days after the temporary or permanent cessation of earth-disturbing activities.

D. GOOD HOUSEKEEPING BEST MANAGEMENT PRACTICES:

- Materials Pollution Prevention Plan**
 - Applicable materials or substances listed below are expected to be present onsite during construction. Other materials and substances not listed below shall be added to the inventory.

<ul style="list-style-type: none"> Concrete Detergents Paints (enamel and latex) Metal Studs Tar Fertilizers Petroleum Based Products 	<ul style="list-style-type: none"> Cleaning Solvents Wood Masonry Block Herbicides and Pesticides Curing Compounds Adhesives
--	--
 - Use Material Management Practices to reduce the risk of spills or other accidental exposure of materials and substances to storm water runoff. Make an effort to store only enough product as is required to do the job.
 - Store all materials stored onsite in a neat, orderly manner in their appropriate containers and if possible under a roof or other enclosure.
 - Keep products in their original containers with the original manufacturer's label.
 - Do not mix substances with one another unless recommended by the manufacturer.
 - Whenever possible, use a product up completely before disposing of the container.
 - Follow manufacturer's recommendations for proper use and disposal.
 - Conduct a daily inspection to ensure proper use and disposal of materials onsite.
- Hazardous Material Pollution Prevention Plan:**
 - Keep products in original containers unless they are not resealable.
 - Retain original labels and Safety Data Sheets (SDS), formerly Material Safety Data Sheets (MSDS).
 - Dispose of surplus products according to manufacturer's instructions and local and State regulations.
- Onsite and Offsite Products Specific Plan**
The following product specific practices shall be followed onsite:
 - Petroleum Based Products:**
Monitor all onsite vehicles for leaks and perform regular preventive maintenance to reduce the chance of leakage. Store petroleum products in tightly sealed containers which are clearly labeled. Apply asphalt substances used onsite according to the manufacturer's recommendation.
 - Fertilizers:**
Apply fertilizers used only in the minimum amounts recommended by the manufacturer and federal, state, and local requirements. Avoid applying just before a heavy rain event. Apply at the appropriate time of year for the location, and preferably timed to coincide as closely as possible to the period of maximum vegetation uptake and event. Once applied, work fertilizer into the soil to limit exposure to storm water. Do not apply to storm conveyance channels with flowing water. Storage shall be in a covered shed or in an area where fertilizer will not come into contact with precipitation or stormwater. Transfer the contents of any partially used bags of fertilizer to a sealable plastic bin to avoid spills.
 - Paints:**
Seal and store all containers when not required for use. Do not discharge excess paint to the drainage system, sanitary sewer system, or State waters. Dispose properly to manufacturers' instructions and State and local regulations.
 - Concrete Trucks:**
Washout or discharge concrete truck drum wash water only at a designated site as far as practicable from storm drain inlets or State waters. Do not discharge water in drainage system or State waters. Disposal by percolation is prohibited. Clean disposal site as required or as requested by the Engineer.

	STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION WATER POLLUTION AND EROSION CONTROL NOTES - 1 HALAWA-LULUKU INTERPRETIVE DEVELOPMENT LULUKU PROJECT AREA FEDERAL-AID PROJECT NO. I-H3-1(75)
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/24	Scale: NO SCALE Date: JULY 2023

WATER POLLUTION AND EROSION CONTROL NOTES (CONT.):

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75)	2024	7	37

4. Spill Control Plan:
- Post a spill prevention plan to include measures to prevent and clean up each spill.
 - The Contractor shall be the spill prevention and clean-up coordinator. Designate at least three site personnel who shall receive spill prevention and cleanup training. These individuals shall each become responsible for a particular phase of prevention and cleanup. Post the names of responsible spill personnel in the material storage area on a weatherproof bulletin board or other accessible location acceptable to the Engineer and in the office trailer onsite.
 - Clearly post manufacturer's recommended methods for spill cleanup. Make site personnel aware of the procedures and the location of information and cleanup supplies.
 - Keep ample materials and equipment necessary for spill cleanup in the material storage area onsite.
 - Clean up all spills immediately after discovery.
 - Keep the spill area well ventilated. Personnel shall wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
 - Report spills of toxic hazardous material to the appropriate State or local government agency, regardless of the size. Where a leak, spill, or other release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302 occurs during a 24-hour period, the Contractor shall notify the Engineer as soon as the Contractor has knowledge of the discharge. The Engineer will notify the National Response Center (NRC) at (800) 424-8802, the Clean Water Branch during regular business hours at 586-4309, and the Hawaii State Hospital Operator at 247-2191 and the Clean Water Branch (DOH-CWB) via email at cleanwaterbranch@doh.hawaii.gov during non-business hours immediately. The Contractor shall also provide to the Engineer within 7 calendar days of knowledge of the release, a description of the release, the circumstances leading to the release, and the date of the release. The Engineer will provide this information to the DOH-CWB. The Engineer will provide information to the NRC if requested.

E. PERMIT REQUIREMENTS:

- The calculated land disturbance area for this project based on the construction plans is 0.80 acre not including Contractor Staging and Storage areas. If the total of the disturbed area and the Contractor Staging and Storage area is one acre or greater, the Contractor shall obtain the NPDES Construction Activities Permit using HDOT's latest SWPPP template. See Hawaii Administrative Rules Chapter 11-55, Appendix C for the definition of land disturbance. The Contractor shall be responsible for obtaining the required NPDES Construction Activities Permit and complying with the requirements of HAR 11-55 including, but not limited to:
 - Deadlines for initiating and completing initial stabilization
 - Increased inspection frequency and installation of rain gage if applicable
 - Deadlines to initiate and complete repairs to BMPs
 - Reporting requirements and corrective action reports

- Comply with all applicable State and Federal Permit conditions. Permits may include, but not limited to the following:
 - NPDES Permit for Hydrotesting Waters

F. SITE-SPECIFIC BMP REQUIREMENTS:

Each BMP below is referenced to the corresponding section of the current HDOT Construction Best Management Practices Field Manual and appropriate Supplemental Sheets. The Manual may be obtained from the HDOT Statewide Stormwater Management Program Website at <http://www.stormwaterhawaii.com/resources/contractors-and-consultants/> under Construction Best Management Practices Field Manual. Supplemental BMP sheets are located at <http://www.stormwaterhawaii.com/resources/contractors-and-consultants/storm-water-pollution-prevention-plan-swPPP/> under Concrete Curing and Irrigation Water.

The requirements for Water Pollution, Dust, and Erosion Control submittals are included in Section 209 of the Hawaii Standard Specifications for Road and Bridge Construction dated 2005 and applicable Special Provisions. A list of pollutant sources and corresponding BMP used to mitigate the pollutants are included in Section 209 of the Special Provisions under Appendix A.

Follow the requirements below:

- Protect all Drainage Inlets receiving runoff from disturbed areas (SC-1)
- Contain on-site runoff using Perimeter Sediment Controls
 - SC-7 Silt Fence or Filter Fabric Fence
 - SC-2 Vegetated Filter Strips and Buffers
 - SC-6 Compost Filter Berm/Sock
 - SC-8 Sandbag Barrier
 - SC-9 Brush or Rock Filter
- Control offsite runoff from entering construction area
 - EC-3 Run-On Diversion
 - EC-6 Earth Dike, Swales, and Ditches
- Incorporate applicable Site Management BMP
 - SM-1 Employee Training
 - SM-2 Material Delivery and Storage
 - SM-3 Stockpile Management
 - SM-6 Solid Waste Management
 - SM-7 Sanitary Waste Management
 - SM-9 Hazardous Materials and Waste Management
 - SM-10 Spill Prevention and Control
 - SM-11 Vehicle and Equipment Cleaning
 - SM-12 Vehicle and Equipment Maintenance
 - SM-13 Vehicle and Equipment Refueling
 - SM-14 Scheduling
 - SM-15 Location of Potential Sources of Sediment
 - SM-16 Staging Area
 - SM-17 Preservation of Existing Vegetation
 - SM-19 Dust Control
- Contain pollutants within the Construction Staging/Storage Area BMP with applicable Perimeter Sediment Controls and Site Management BMP. Include a Stabilized Construction Entrance/Exit (SC-11) for all areas which exit onto a paved street. Restrict vehicle access to these points.
- Manage Concrete Waste including installing a Concrete Washout Area (SM-4) and properly disposing of Concrete Curing Water (California Stormwater BMP Handbook NS-12 Concrete Curing).
- Remove saw cut slurry and hydrodemolition water from the site by vacuuming. Provide storm drain protection and/or perimeter sediment controls during saw cutting and hydrodemolition work.

CONSTRUCTION BMPs NOTES

Sediment and Erosion Control BMP measures shown in the Contract Documents are minimum BMP requirements and do not constitute an acceptable and/or complete Sediment Control Plan. The Contractor shall incorporate additional BMPs based upon their means and methods considering site conditions and construction sequence in accordance with the Contract Documents including applicable permit document requirements. Cost shall be included in Pay Item 209.0100, Installation, Maintenance, Monitoring, and Removal of BMP.

The following special conditions apply to all land disturbance work conducted under the general permit:

A. CONSTRUCTION MANAGEMENT TECHNIQUES INCLUDE:

- Clearing and grubbing shall be held to the minimum necessary for grading and equipment operation.
- Erosion and sediment control measures shall be in place and functional before earth moving operations begin and shall be constructed and maintained throughout the construction period. Temporary measures may be removed at the beginning of the work day, but shall be replaced at the end of the work day.
- All control measures shall be checked and repaired, as necessary, weekly in dry periods and within 24-hour period. During prolonged rainfall, daily checking is necessary. The permittee shall maintain records of checks and repairs.
- A specific individual shall be designated to be responsible for erosion and sediment controls on each project site.

B. VEGETATION CONTROLS INCLUDE:


- Pre-construction vegetative ground or mulch cover shall not be destroyed, removed or disturbed more than 20 calendar days prior to site disturbance.
- Temporary soil stabilization with appropriate vegetation or mulch shall be applied on areas that will remain unfinished for more than 30 calendar days.
- Permanent soil stabilization with perennial vegetation shall be applied as soon as practicable after final grading.

C. STRUCTURAL CONTROLS INCLUDE:

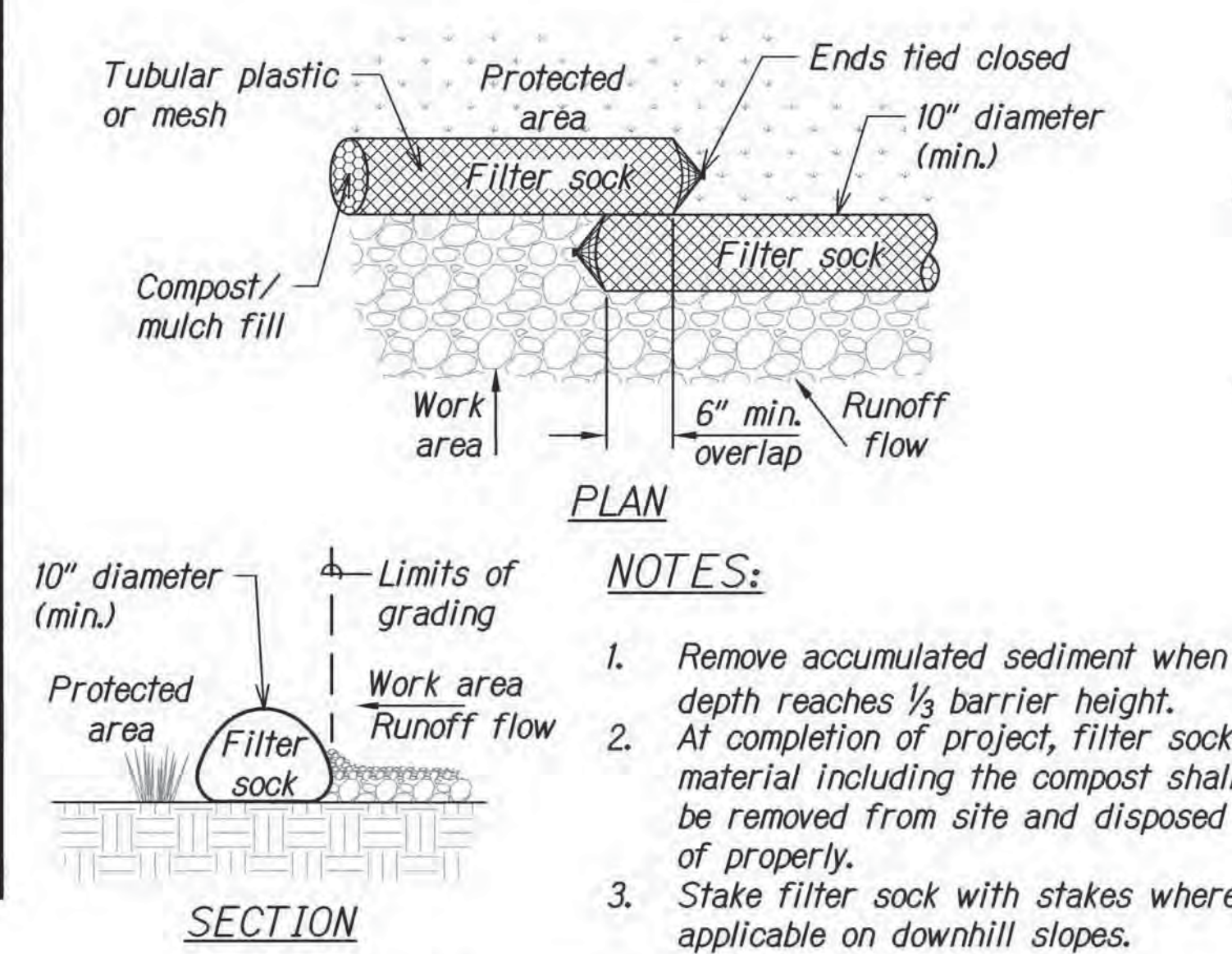
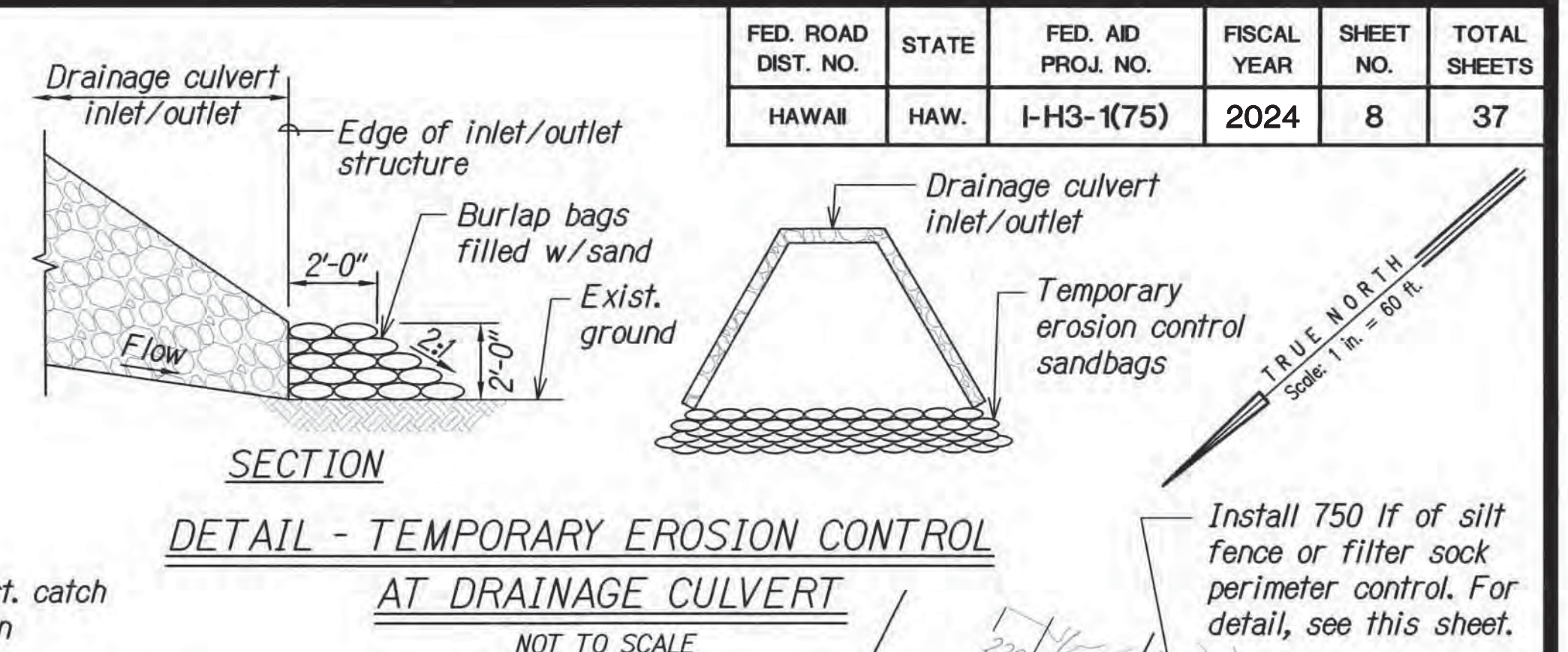
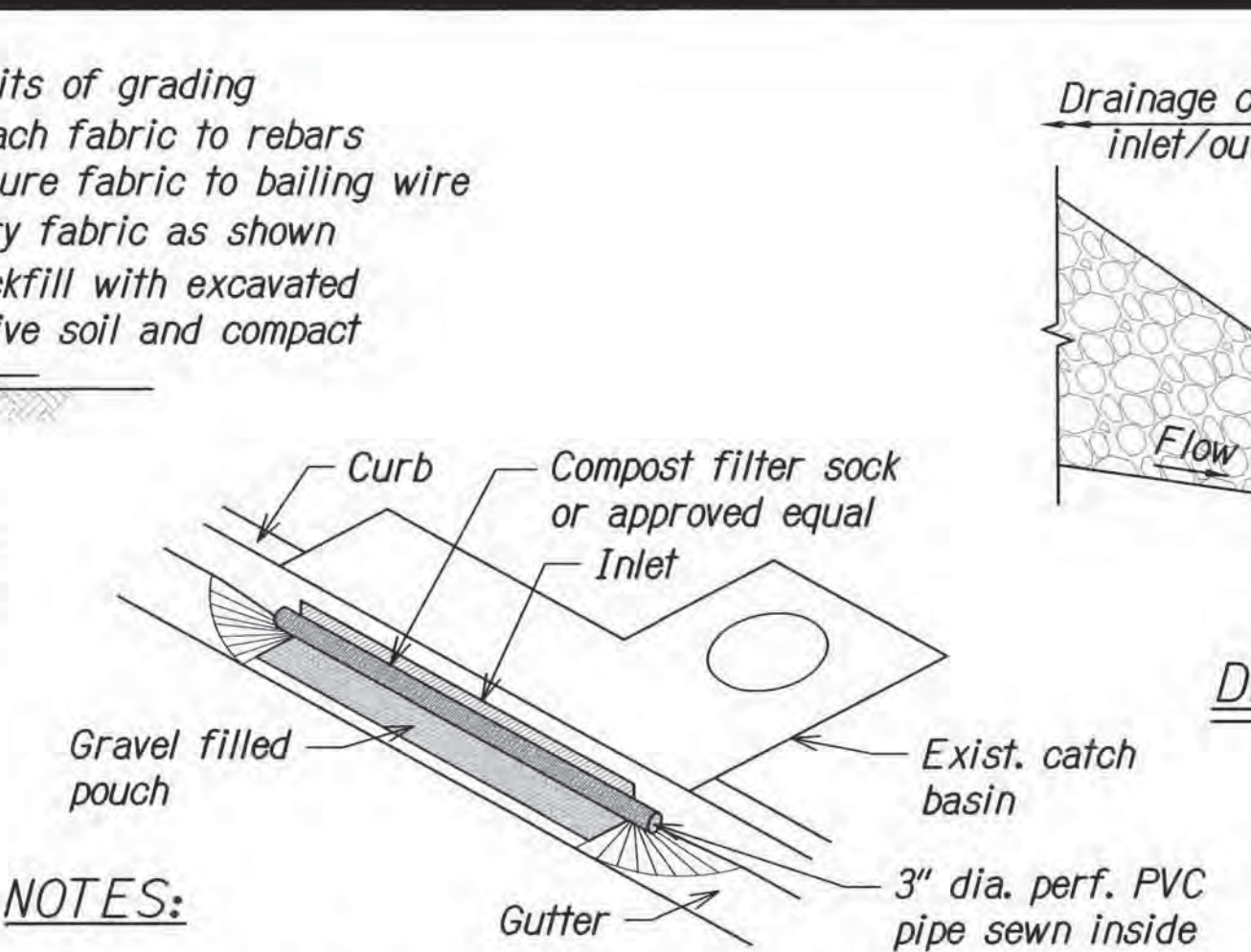
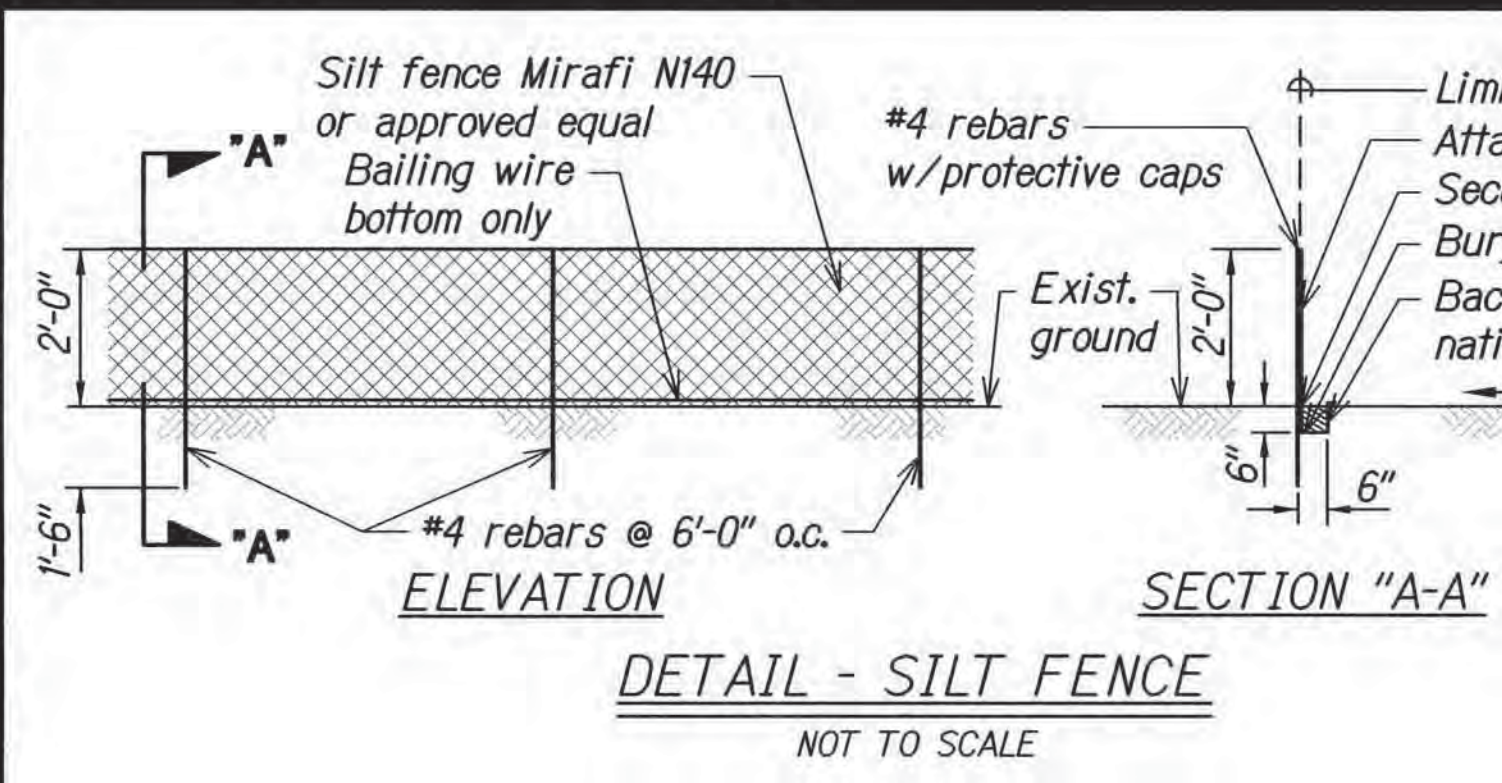
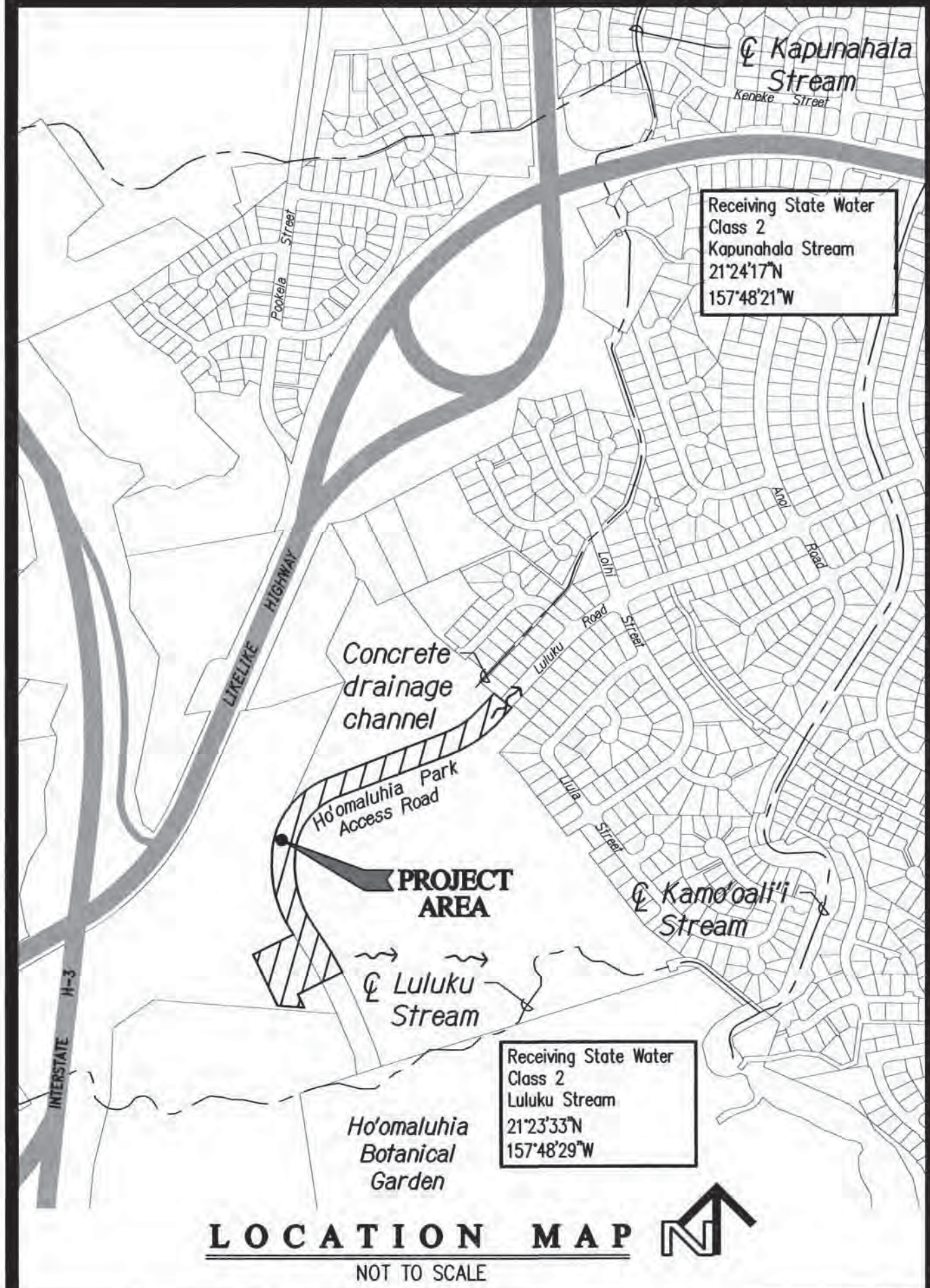
- All surface water flowing toward the construction area shall be diverted by using berms, channels, sediment traps, and other appropriate control measures, as practical.
- Erosion control measures shall be designed according to the size of disturbed or drainage areas, to detain runoff and trap sediment.
- Water must be discharged through a pipe or lined channel so that the discharge does not cause erosion.
- Storm drain inlet protection.

D. EROSION CONTROLS / BEST MANAGEMENT PRACTICE INCLUDE:

- Good housekeeping shall be utilized to ensure protection of roadways from mud, dirt, and debris.
- The Contractor shall ensure that all tires of construction vehicles are sufficiently cleaned off so that dirt or debris is not tracked off the construction site. Washing off tires with water will not be acceptable unless the runoff is contained and does not enter the storm drain system or onto the roadway.
- At the end of grading operations and at the completion of project, Contractor shall inspect all catch basins, drain inlets and drain manholes surrounding the project site. Any accumulated sediment and debris found in the storm drain structures shall be removed. Please note that flushing into the drain structures are prohibited.
- Any dirt or grassed area disturbed shall be restored by re-grassing the area or by seeded hydromulch. The grass shall be fully established at completion of project.

 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/24	STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION WATER POLLUTION AND EROSION CONTROL NOTES - 2
	HALAWA-LULUKU INTERPRETIVE DEVELOPMENT LULUKU PROJECT AREA FEDERAL-AID PROJECT NO. I-H3-1(75) Scale: NO SCALE Date: JULY 2023

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75)	2024	8	37



NOTES:

- Sediment and debris at the sediment control filter at catch basins shall be cleaned and removed weekly in dry periods and within 24 hr period during rainfall. Daily checking is necessary. The permittee shall maintain records of checks and removal of sediment and debris.
- During an event of above normal rainfall, the Contractor shall remove sediment filter and replace after event has passed.

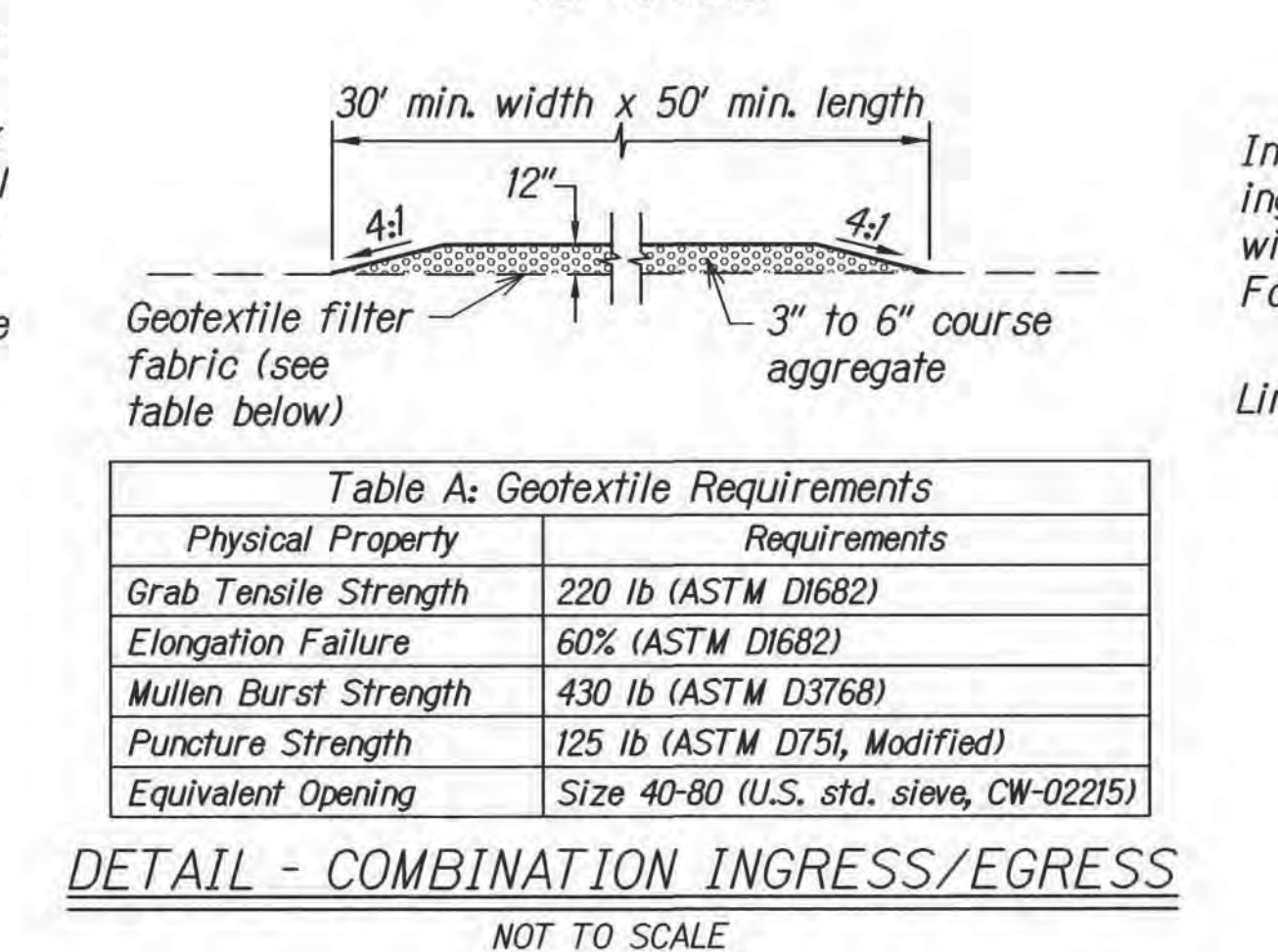
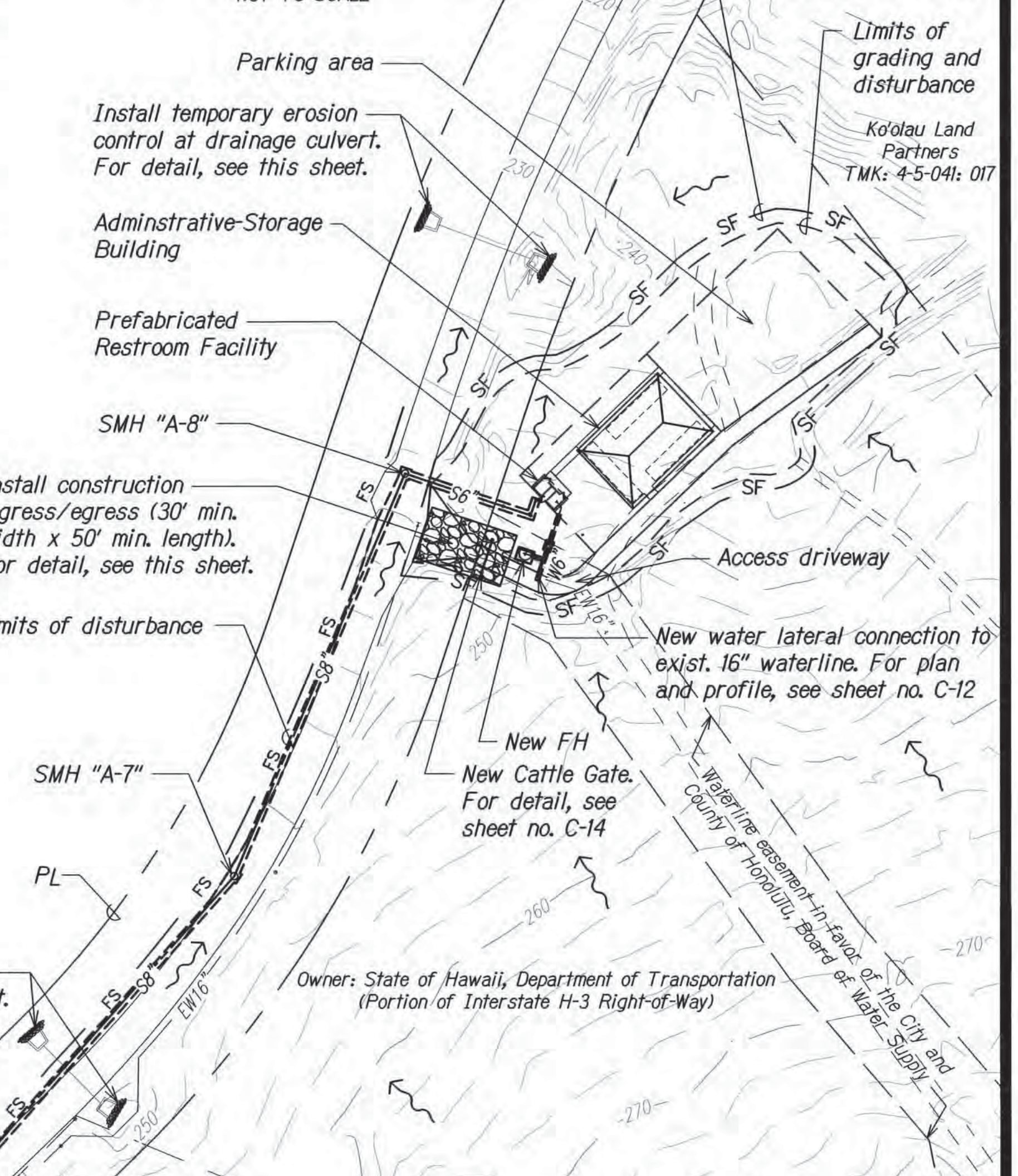
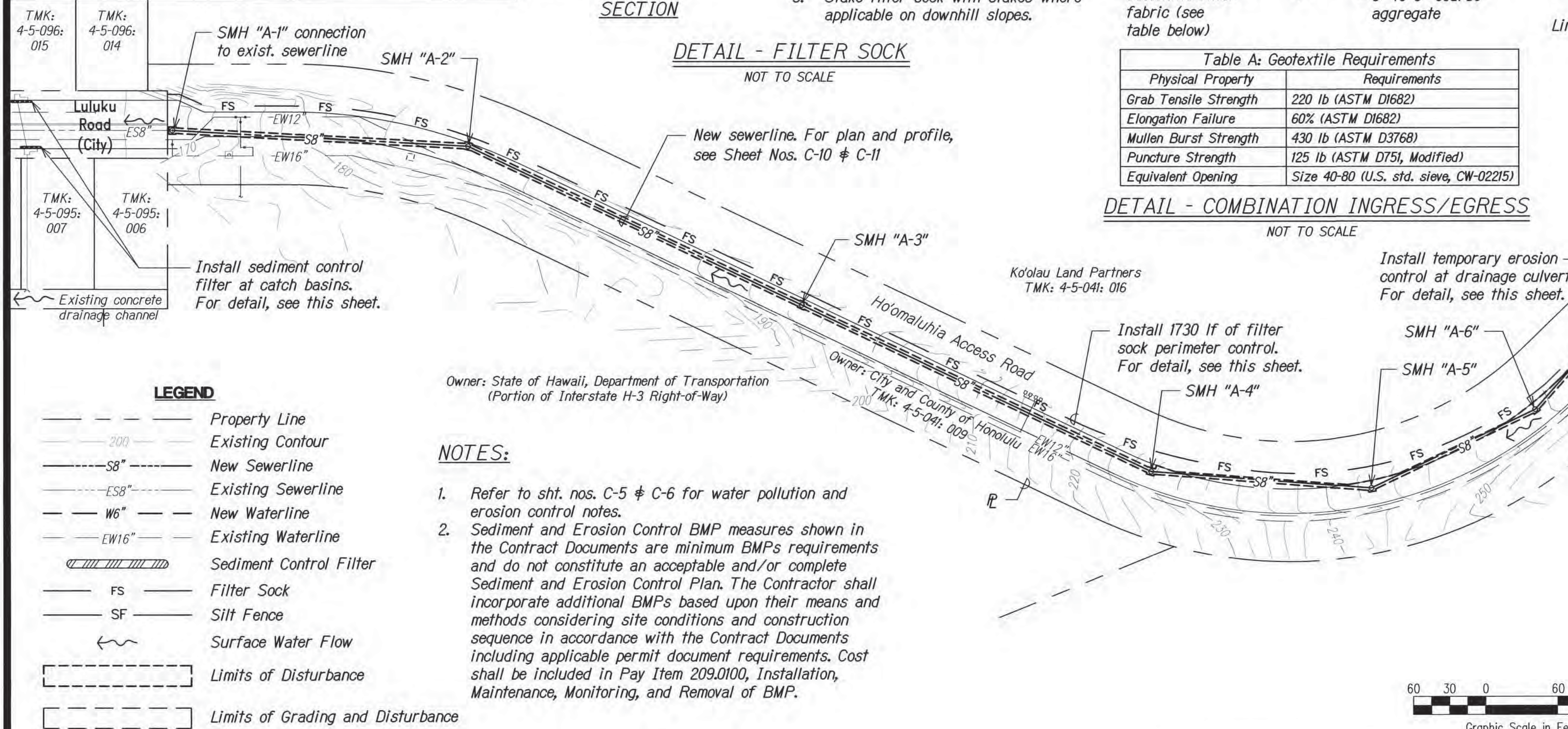


Table A: Geotextile Requirements

Physical Property	Requirements
Grab Tensile Strength	220 lb (ASTM D1682)
Elongation Failure	60% (ASTM D1682)
Mullen Burst Strength	430 lb (ASTM D3768)
Puncture Strength	125 lb (ASTM D751, Modified)
Equivalent Opening	Size 40-80 (U.S. std. sieve, CW-02215)



- LEGEND**
- Property Line
 - - - 200 Existing Contour
 - - - S8 New Sewerline
 - - - ES8 Existing Sewerline
 - - - W6 New Waterline
 - - - EW16 Existing Waterline
 - ▨ Sediment Control Filter
 - FS Filter Sock
 - SF Silt Fence
 - ~ Surface Water Flow
 - Limits of Disturbance
 - Limits of Grading and Disturbance

NOTES:

- Refer to sht. nos. C-5 & C-6 for water pollution and erosion control notes.
- Sediment and Erosion Control BMP measures shown in the Contract Documents are minimum BMPs requirements and do not constitute an acceptable and/or complete Sediment and Erosion Control Plan. The Contractor shall incorporate additional BMPs based upon their means and methods considering site conditions and construction sequence in accordance with the Contract Documents including applicable permit document requirements. Cost shall be included in Pay Item 209.0100, Installation, Maintenance, Monitoring, and Removal of BMP.

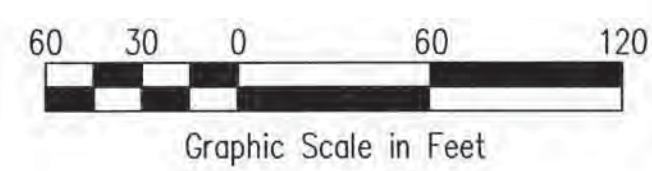
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/24

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**GENERAL LAYOUT PLAN AND
EROSION CONTROL PLAN**

HALAWA-LULUKU INTERPRETIVE DEVELOPMENT
LULUKU PROJECT AREA
FEDERAL-AID PROJECT NO. I-H3-1(75)

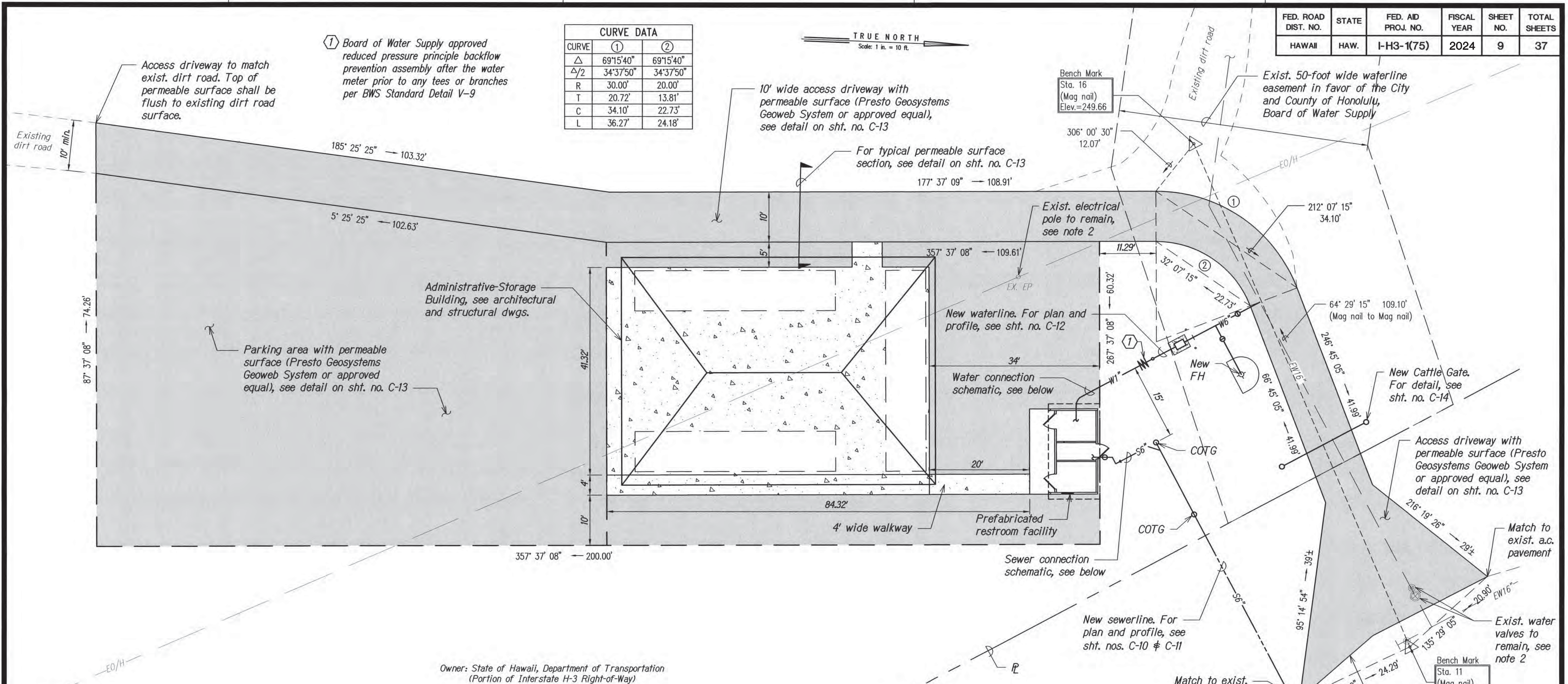
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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75)	2024	9	37

CURVE DATA		
CURVE	①	②
Δ	69°15'40"	69°15'40"
Δ/2	34°37'50"	34°37'50"
R	30.00'	20.00'
T	20.72'	13.81'
C	34.10'	22.73'
L	36.27'	24.18'

TRUE NORTH
Scale: 1 in. = 10 ft.



① Board of Water Supply approved reduced pressure principle backflow prevention assembly after the water meter prior to any tees or branches per BWS Standard Detail V-9

Access driveway to match exist. dirt road. Top of permeable surface shall be flush to existing dirt road surface.

10' wide access driveway with permeable surface (Presto Geosystems Geoweb System or approved equal), see detail on sht. no. C-13

For typical permeable surface section, see detail on sht. no. C-13

Bench Mark Sta. 16 (Mag nail) Elev.=249.66

Exist. 50-foot wide waterline easement in favor of the City and County of Honolulu, Board of Water Supply

Administrative-Storage Building, see architectural and structural dwgs.

Parking area with permeable surface (Presto Geosystems Geoweb System or approved equal), see detail on sht. no. C-13

New waterline. For plan and profile, see sht. no. C-12

Water connection schematic, see below

New FH

New Cattle Gate. For detail, see sht. no. C-14

Access driveway with permeable surface (Presto Geosystems Geoweb System or approved equal), see detail on sht. no. C-13

Sewer connection schematic, see below

New sewerline. For plan and profile, see sht. nos. C-10 & C-11

Match to exist. a.c. pavement

Exist. water valves to remain, see note 2

Owner: State of Hawaii, Department of Transportation (Portion of Interstate H-3 Right-of-Way)

Match to exist. a.c. pavement

Ho'omaluhia Park Access Road
Owner: City and County of Honolulu
TMK: 4-5-041: 009

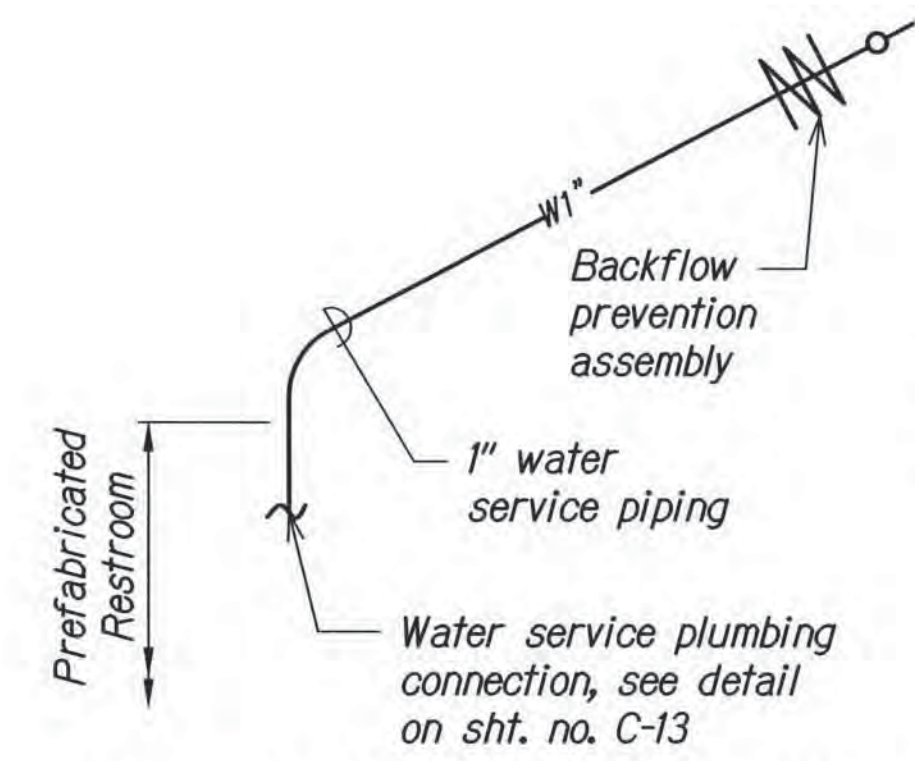
Access driveway to match edge of exist. a.c. pavement. Top of permeable surface shall be flush to existing road surface.

NOTES:

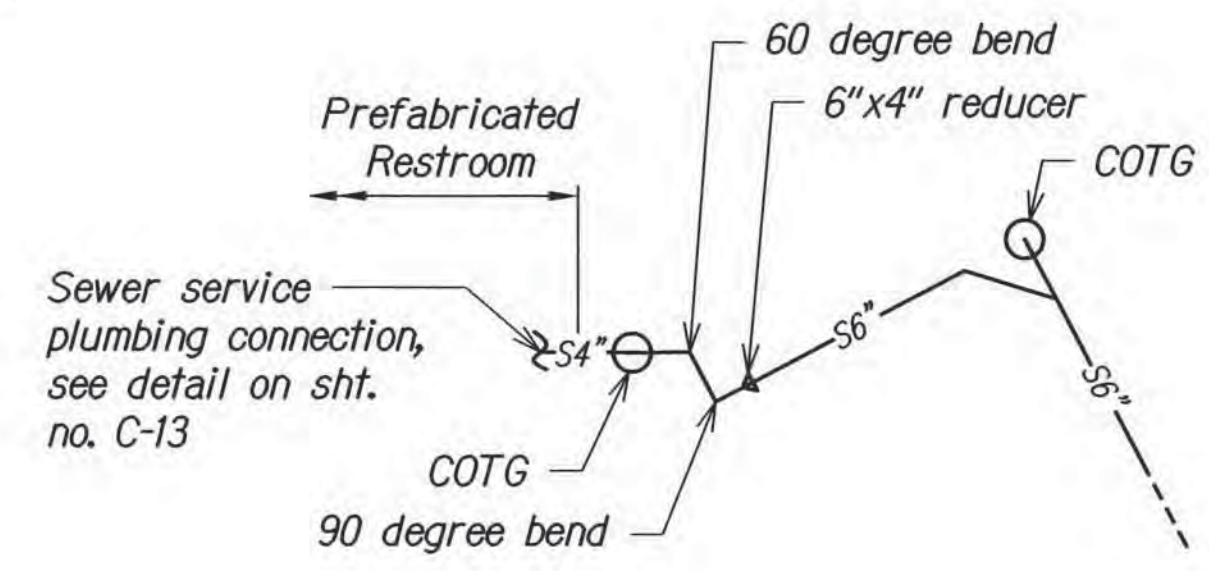
- Contractor shall be responsible for obtaining required permitting for water and sewer service plumbing connection to prefabricated restroom facility, including but not limited to DPP Building Permit.
- Contractor to be aware of and verify all existing utilities onsite. Permeable surface material shall be installed around existing utility manholes/handholes/poles/boxes and shall not interfere with access and maintenance of utility.
- Contractor shall coordinate work with the Department of Parks and Recreation and Ho'omaluhia Botanical Garden personnel prior to ground disturbance within the park property.

LEGEND

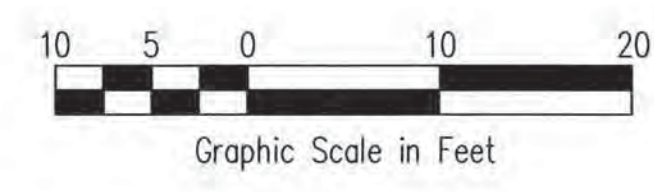
- Property Line
- S6"--- New Sewerline
- W8"--- New Waterline
- EW16"--- Existing Waterline
- EO/H--- Existing Overhead Electric Line
- ▭ Permeable Surface



WATER CONNECTION SCHEMATIC
Scale: 1" = 5'



SEWER CONNECTION SCHEMATIC
Scale: 1" = 5'



ANSON M. MURAYAMA
LICENSED PROFESSIONAL ENGINEER
No. 6975-C
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SITE PLAN

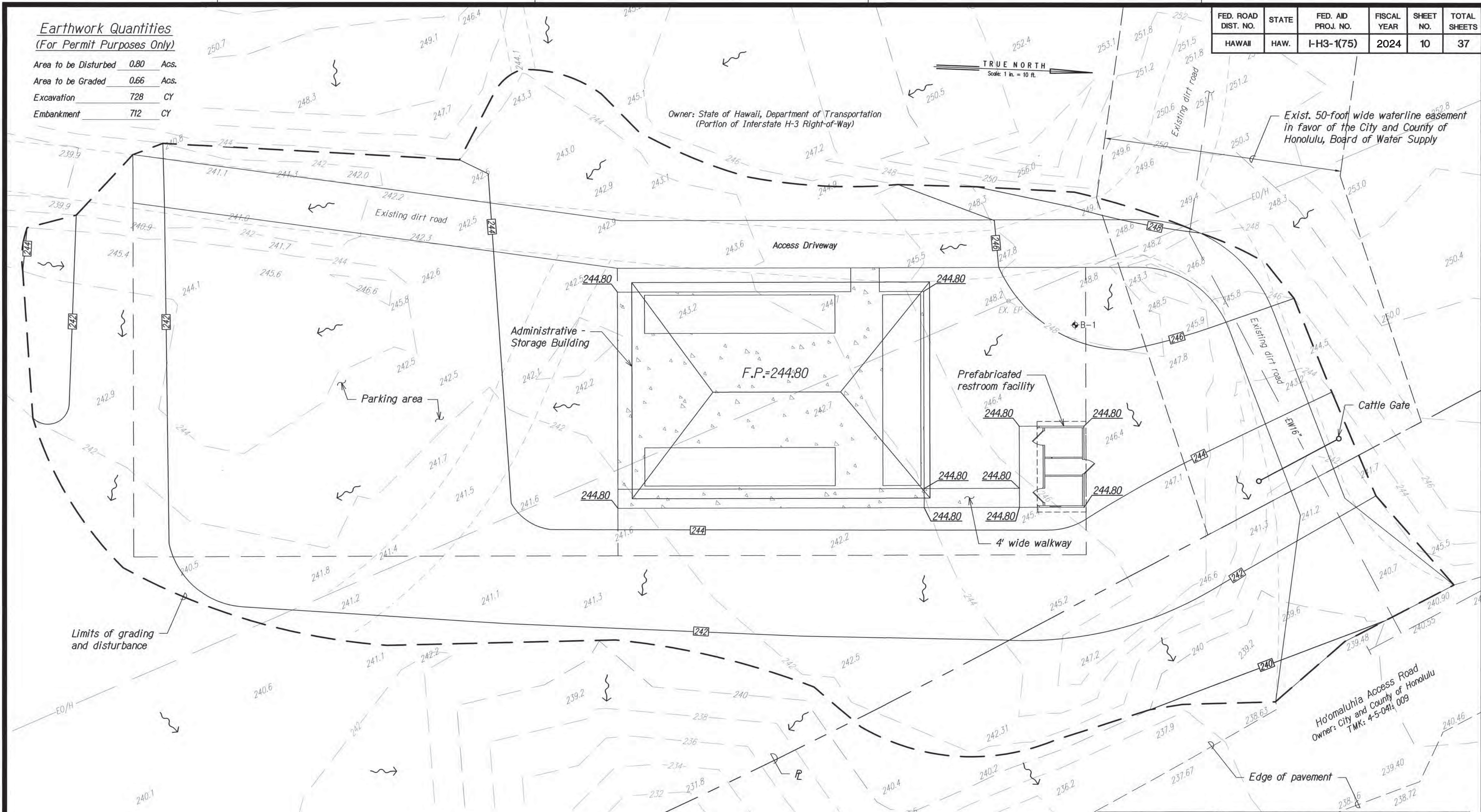
HALAWA-LULUKU INTERPRETIVE DEVELOPMENT
LULUKU PROJECT AREA
FEDERAL-AID PROJECT NO. I-H3-1(75)

Scale: 1 : 10 Date: JULY 2023

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75)	2024	10	37

Earthwork Quantities
(For Permit Purposes Only)

Area to be Disturbed	0.80	Acs.
Area to be Graded	0.66	Acs.
Excavation	728	CY
Embankment	712	CY



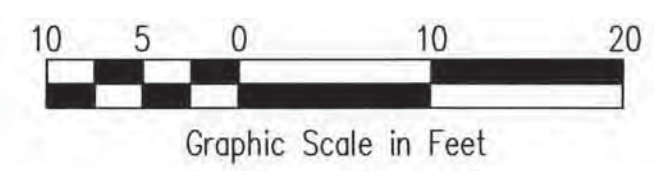
Limits of grading and disturbance

LEGEND

- — — — — Property Line
- 242 — — — — — Finish Contour
- 242 — — — — — Existing Contour
- EW16" — — — — — Existing Waterline
- EO/H — — — — — Existing Overhead Electrical Line
- - - - - Limits of Grading and Disturbance
- ⊕ B-1 Boring Location
- ~ ~ ~ ~ ~ Surface Water Flow

NOTES:

1. Contractor to verify all existing utilities prior to ground disturbance.
2. Contractor shall coordinate work with the Department of Parks and Recreation and Ho'omaluhia Botanical Garden personnel prior to ground disturbance within the park property.



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Angelo M. Murayama

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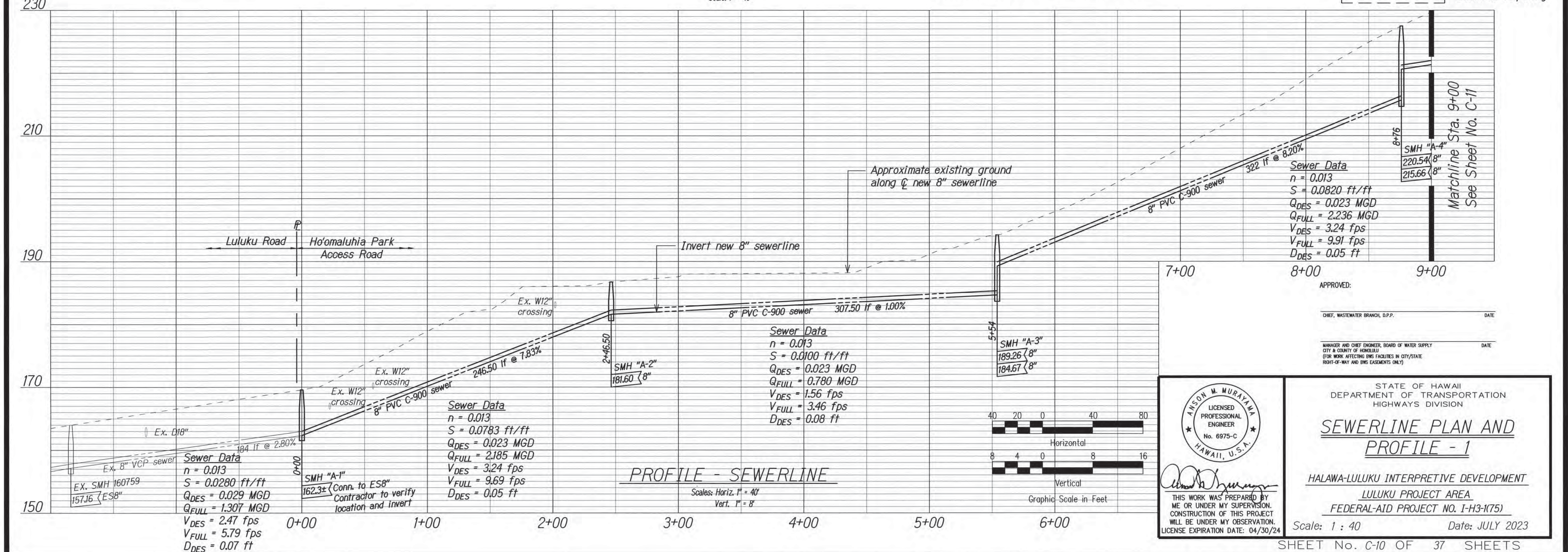
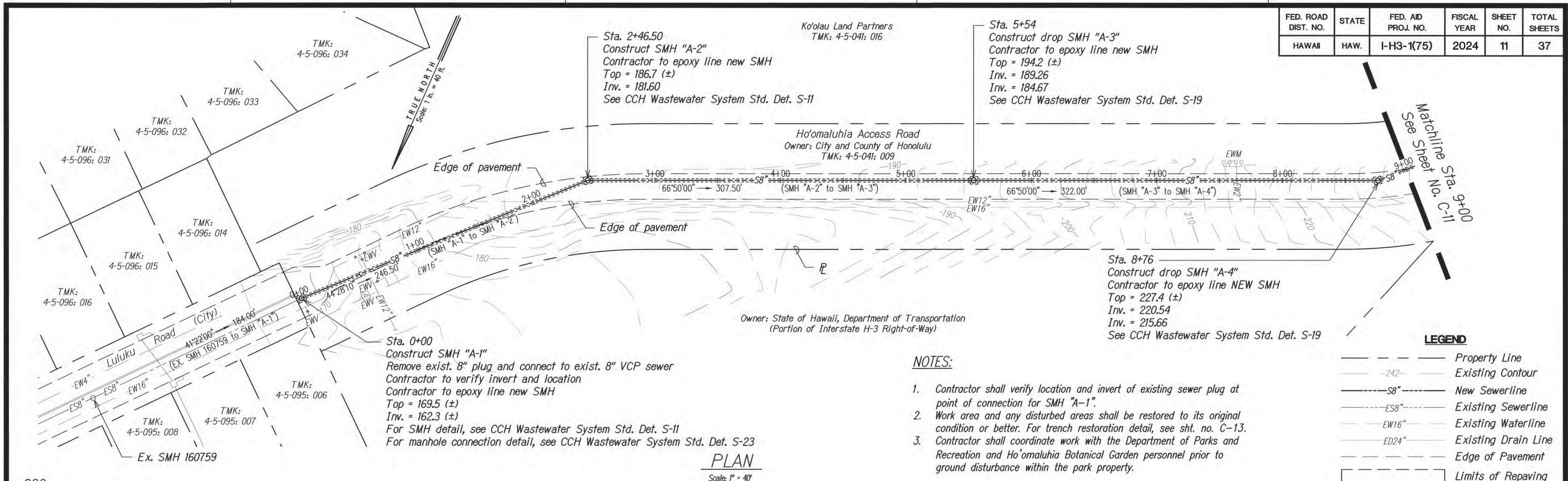
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING PLAN

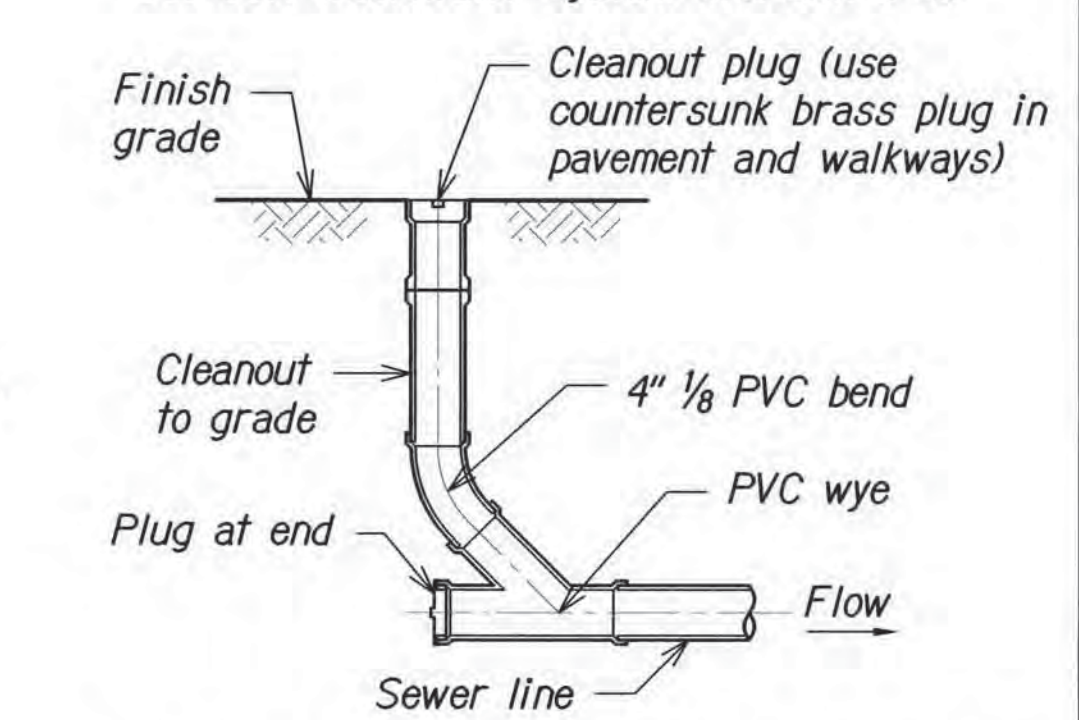
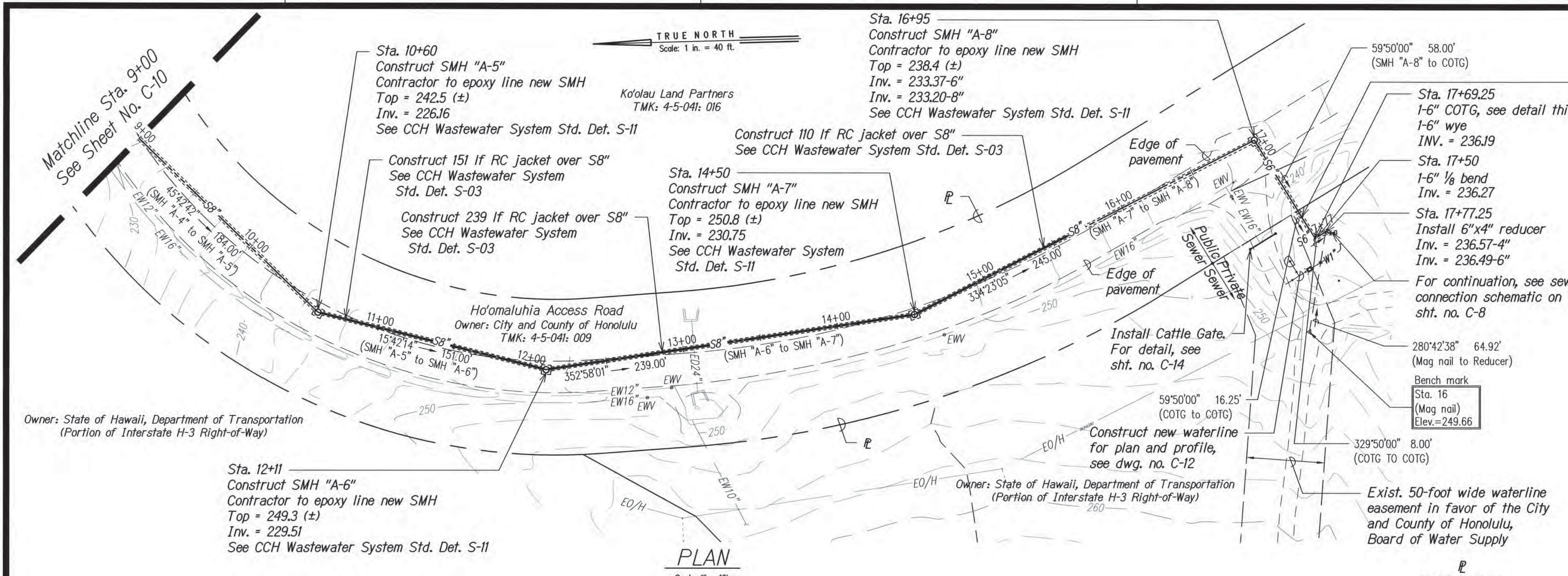
HALAWA-LULUKU INTERPRETIVE DEVELOPMENT
LULUKU PROJECT AREA
FEDERAL-AID PROJECT NO. I-H3-1(75)

Scale: 1 : 10 Date: JULY 2023

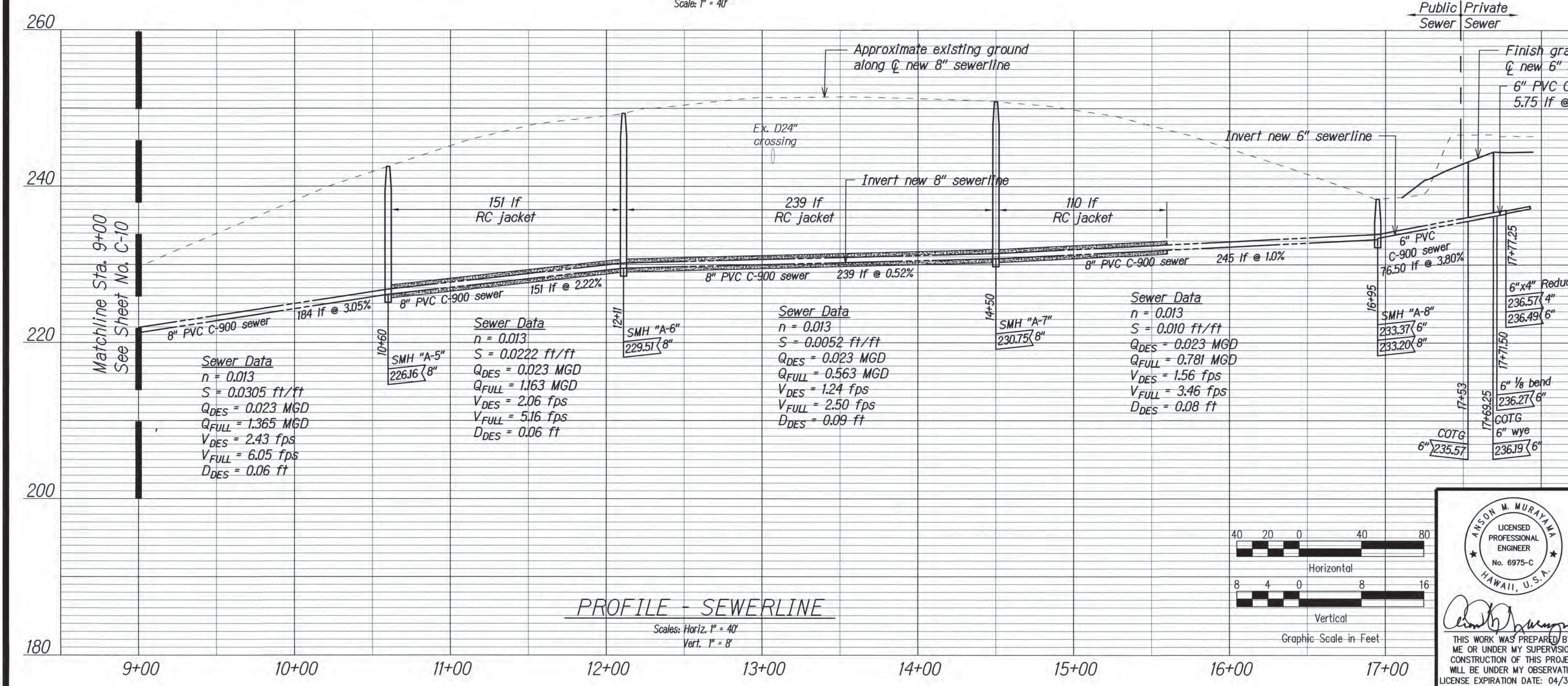
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75)	2024	11	37



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75)	2024	12	37



- NOTES:**
1. Work area and any disturbed areas shall be restored to its original condition or better. For trench restoration detail, see sht. no. C-13.
 2. Contractor shall coordinate work with the Department of Parks and Recreation and Ho'omaluhia Botanical Garden personnel prior to ground disturbance within the park property.



APPROVED:

CHIEF, WASTEWATER BRANCH, D.P.P.

DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**SEWERLINE PLAN AND
PROFILE - 2**

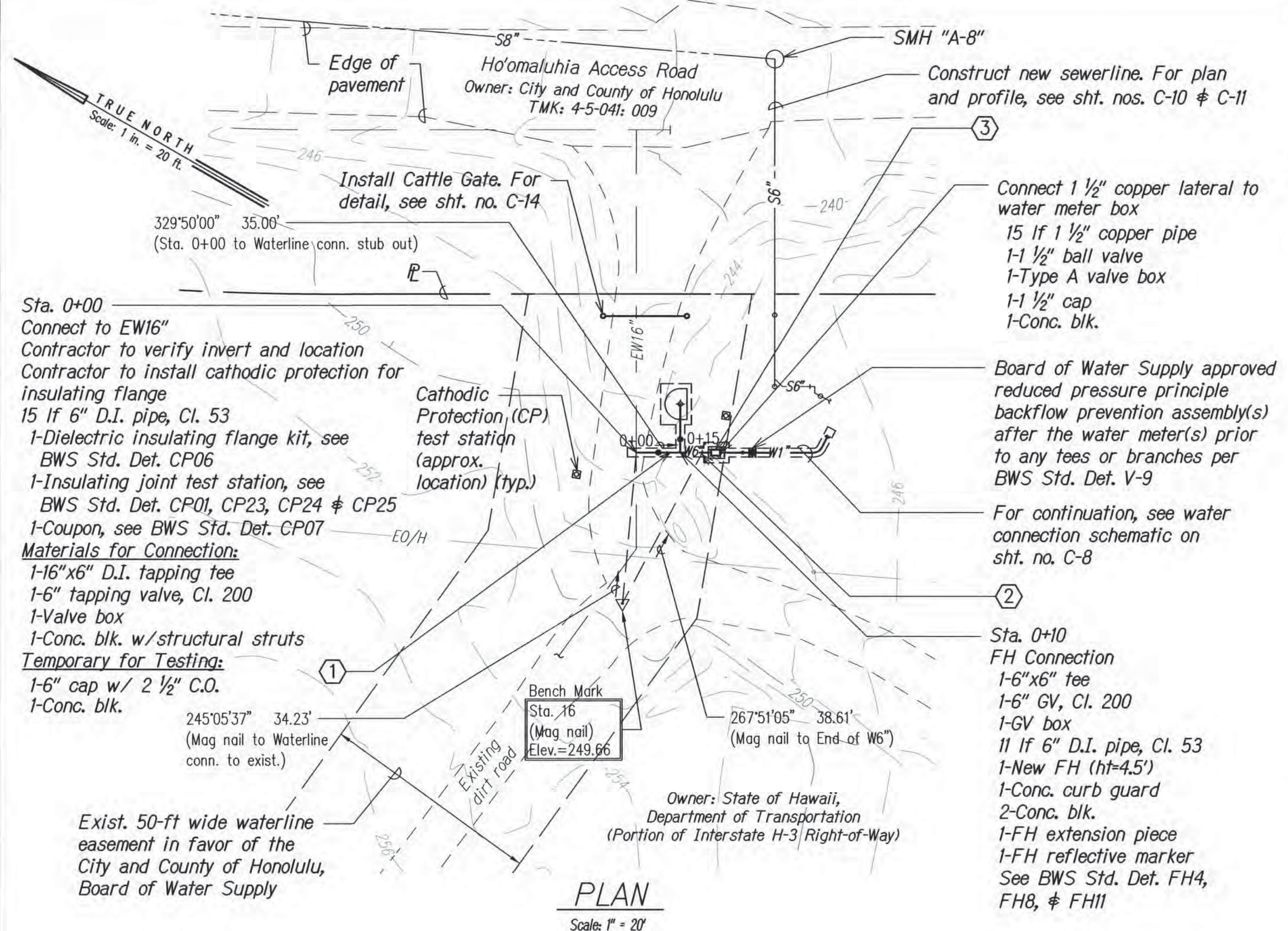
HALAWA-LULUKU INTERPRETIVE DEVELOPMENT
LULUKU PROJECT AREA
FEDERAL-AID PROJECT NO. I-H3-1(75)

Scale: 1 : 40 Date: JULY 2023

ANSON M. MURAYAMA
LICENSED PROFESSIONAL ENGINEER
No. 6975-C
HAWAII, U.S.A.

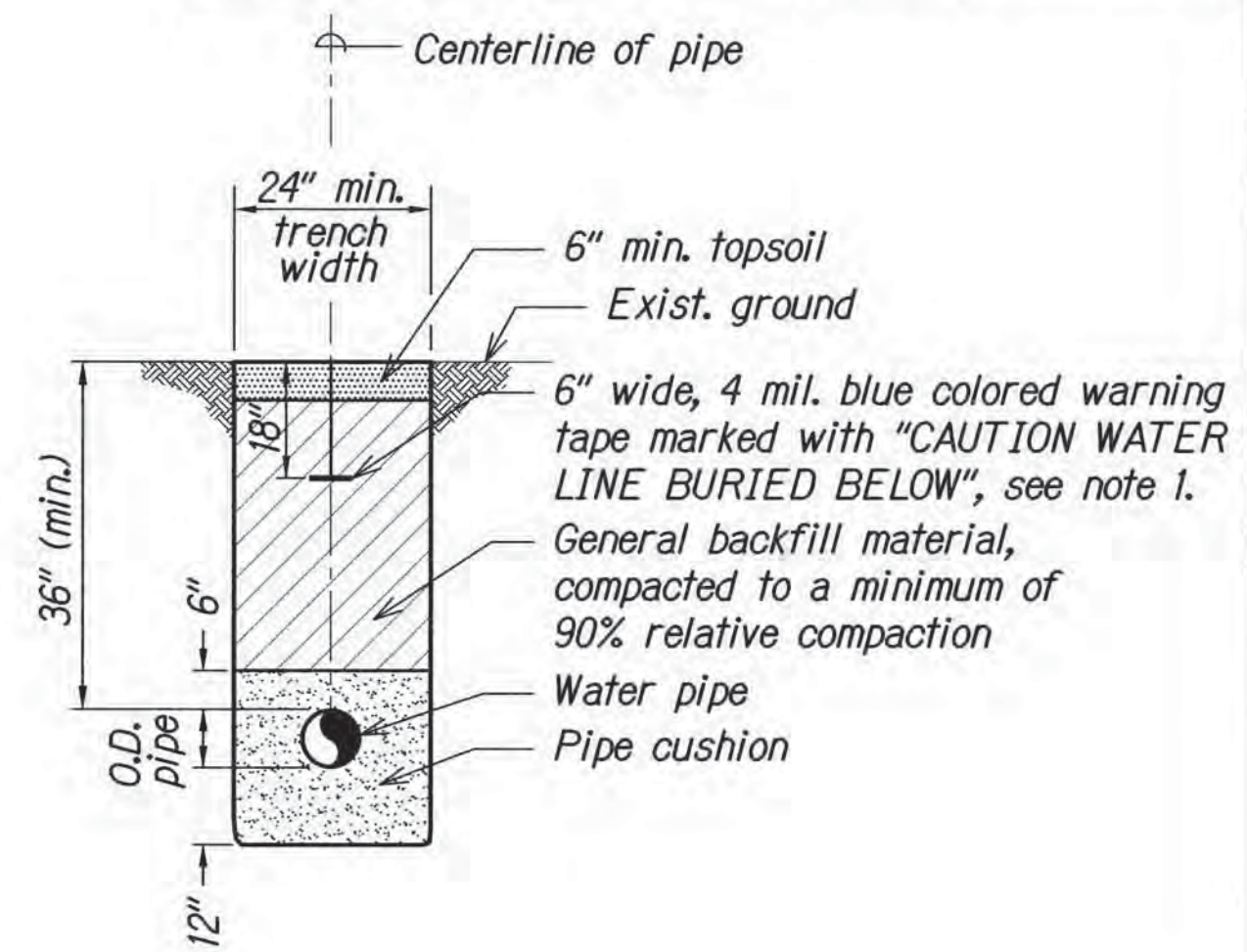
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/24

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75)	2024	13	37

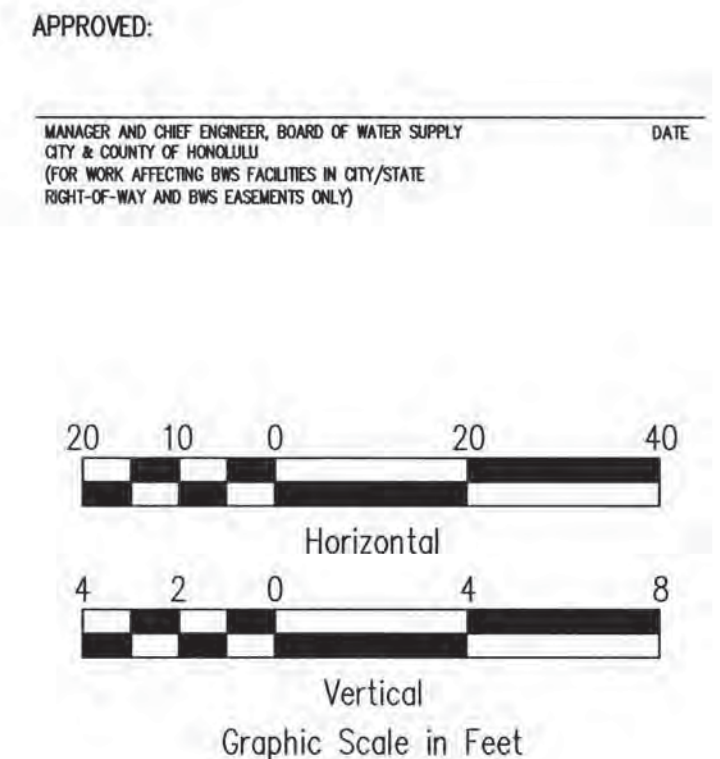
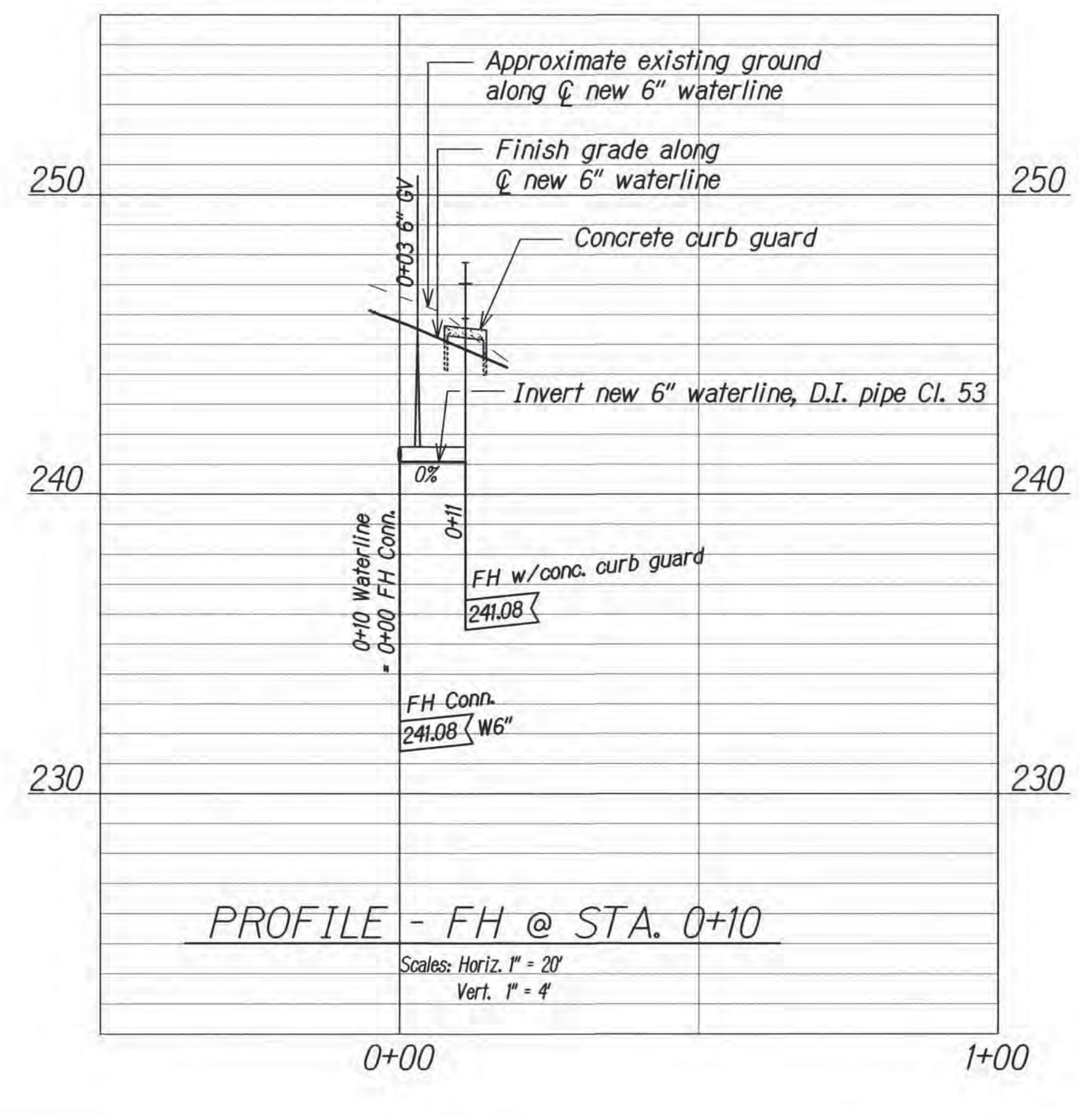
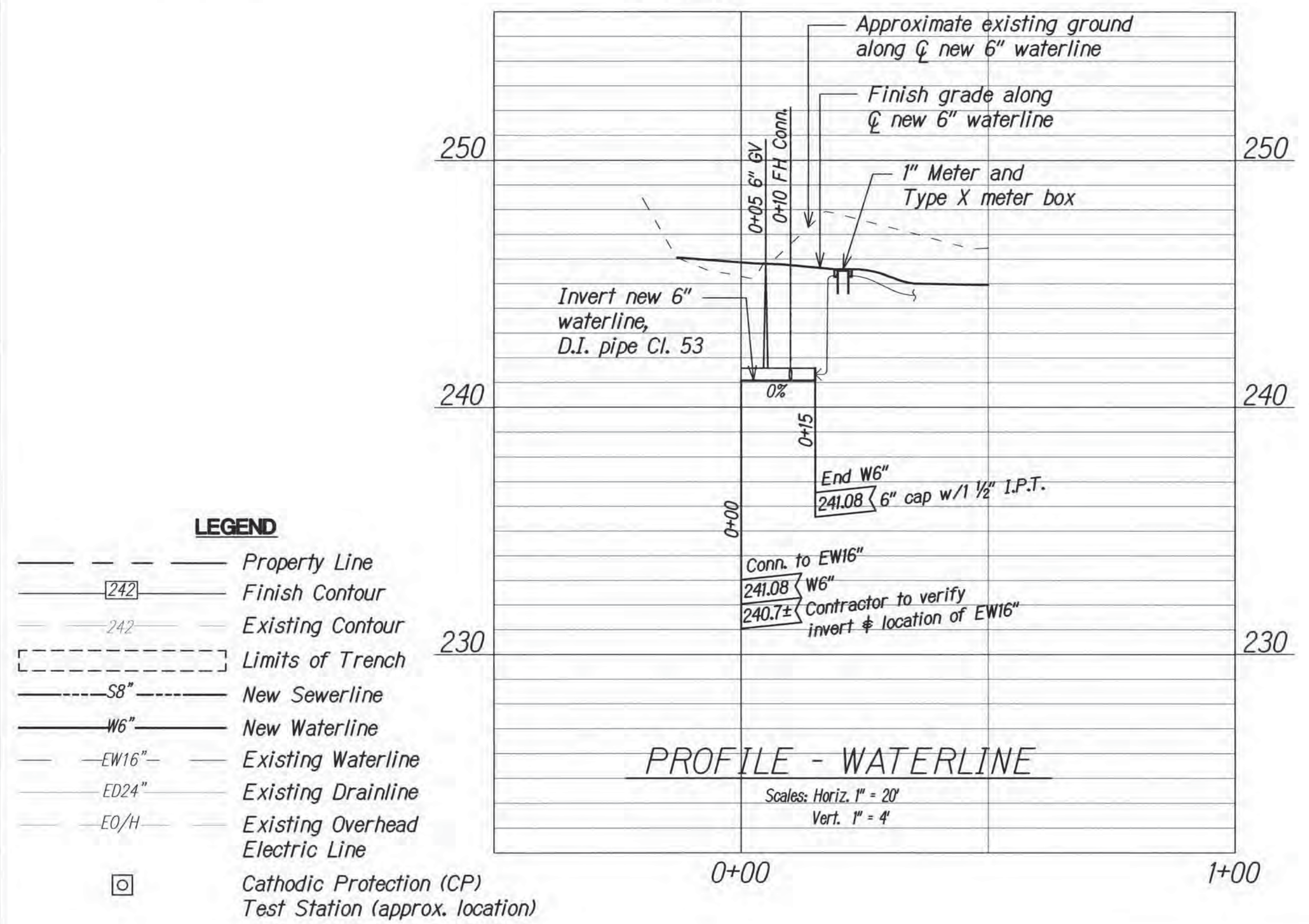


- Sta. 0+08
Install cathodic protection for new section of pipe, see note 3
1-Flush mounted anode test station, see BWS Std. Det. CP01, CP11, CP12, & CP13
2-60 lbs, high-potential magnesium anode
1-Coupon, see BWS Std. Det. CP07
- Sta. 0+15
End of W6"
1-6" cap w/ 1 1/2" I.P.T.
- Install Type C lateral
4.5 lf 1 1/2" Copper pipe
1-Type X meter box
1-Concrete pad
2-Guard posts
See BWS Std. Det. L13, L14, L18, & L19
Contractor to install Type C lateral, blind meter splice length to accommodate a 1" water meter and all appurtenances in accordance with BWS standards. BWS to remove splice and install meter after water service is applied and paid for.
Construct level concrete pad for water meter, See BWS Std. Det. M43

- NOTES:**
- The location of existing utilities are approximate and based on available as-built information. Contractor shall verify location, invert, and crossing of all existing utilities.
 - Contractor shall provide cathodic protection (CP) for new D.I. waterline in accordance with the City and County of Honolulu, Board of Water Supply's "Water System External Corrosion Control Standards" volume 3, dated 2021. New section of pipe is designed for corrosion category B and utilize a GACP system meeting NACE SP0169.
 - Location of CP test stations, as indicated on plans, are approximate only. Exact location of CP equipment, test station, devices, and appurtenances shall be field verified and determined by the Contractor. In case of interference with other work or existing utilities with respect to CP equipment or structures, the Contractor shall furnish all labor and materials necessary to complete the CP installation work.



- NOTES:**
- Install 6" wide, 4 mil. non-metallic blue colored warning tape over centerline of the pipe at min. 18" depth along the entire length of trench. Tape should be marked with "CAUTION WATER LINE BURIED BELOW". Wording shall be 2" high, black text. Payment for the furnishing and installation of the warning tape shall be incidental to the unit price bid for the pipe.
 - For cathodic protection (CP) cables, a min. 4 mil. thick, min. 3" wide inert plastic film caution tape shall be installed over centerline of the CP cables along the entire length of trench. Tape should be marked with "CAUTION: CATHODIC PROTECTION CABLE BURIED BELOW". Wording shall be printed using bold black letters on red colored tape. Payment for the furnishing and installation of the caution tape shall be incidental to the unit price for the CP.
 - Additive Alternate 1 - Connection to existing water main is within proposed access driveway with permeable surface. Refer to site plan on sht. nos. ###.



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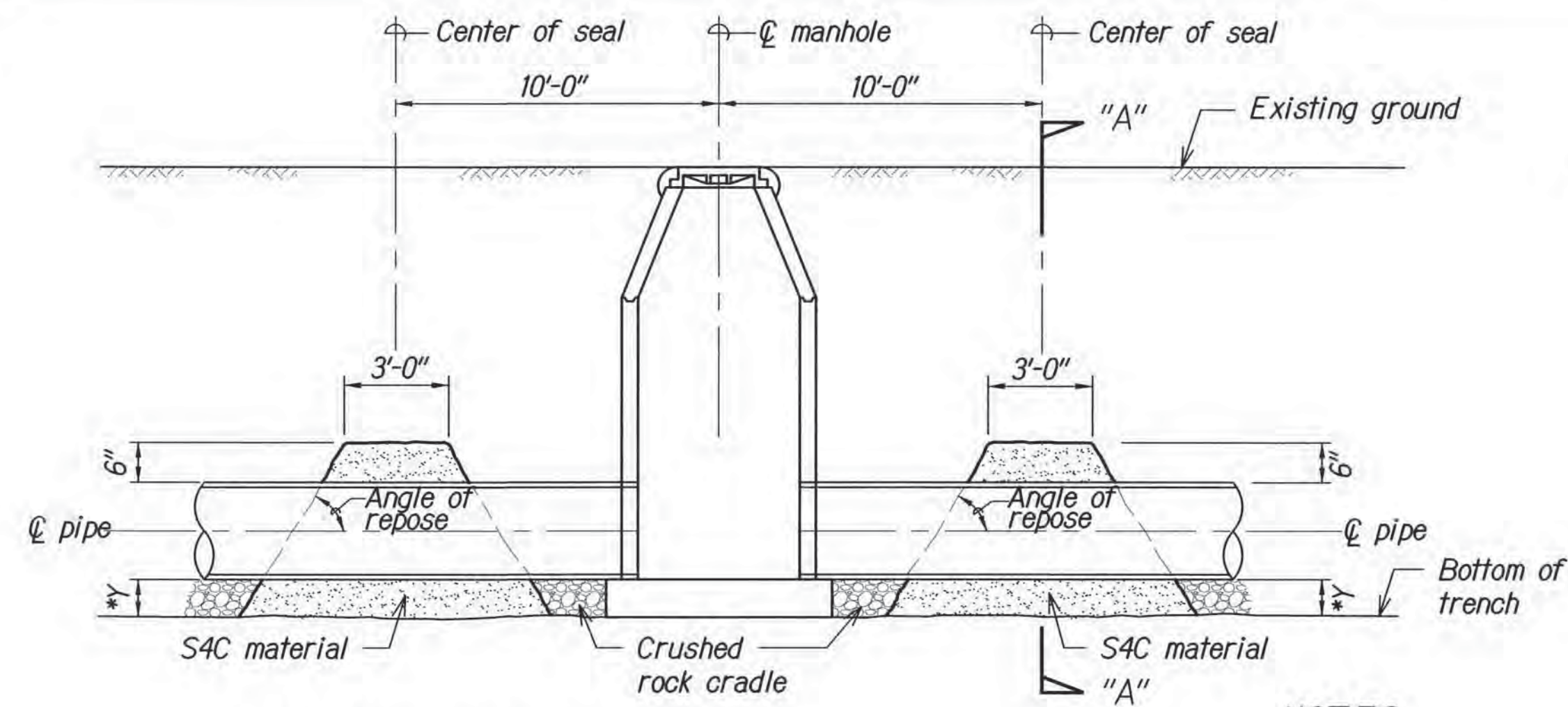
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WATERLINE PLAN AND PROFILE

HALAWA-LULUKU INTERPRETIVE DEVELOPMENT
LULUKU PROJECT AREA
FEDERAL-AID PROJECT NO. I-H3-1(75)

Scale: 1 : 20 Date: JULY 2023

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75)	2024	14	37

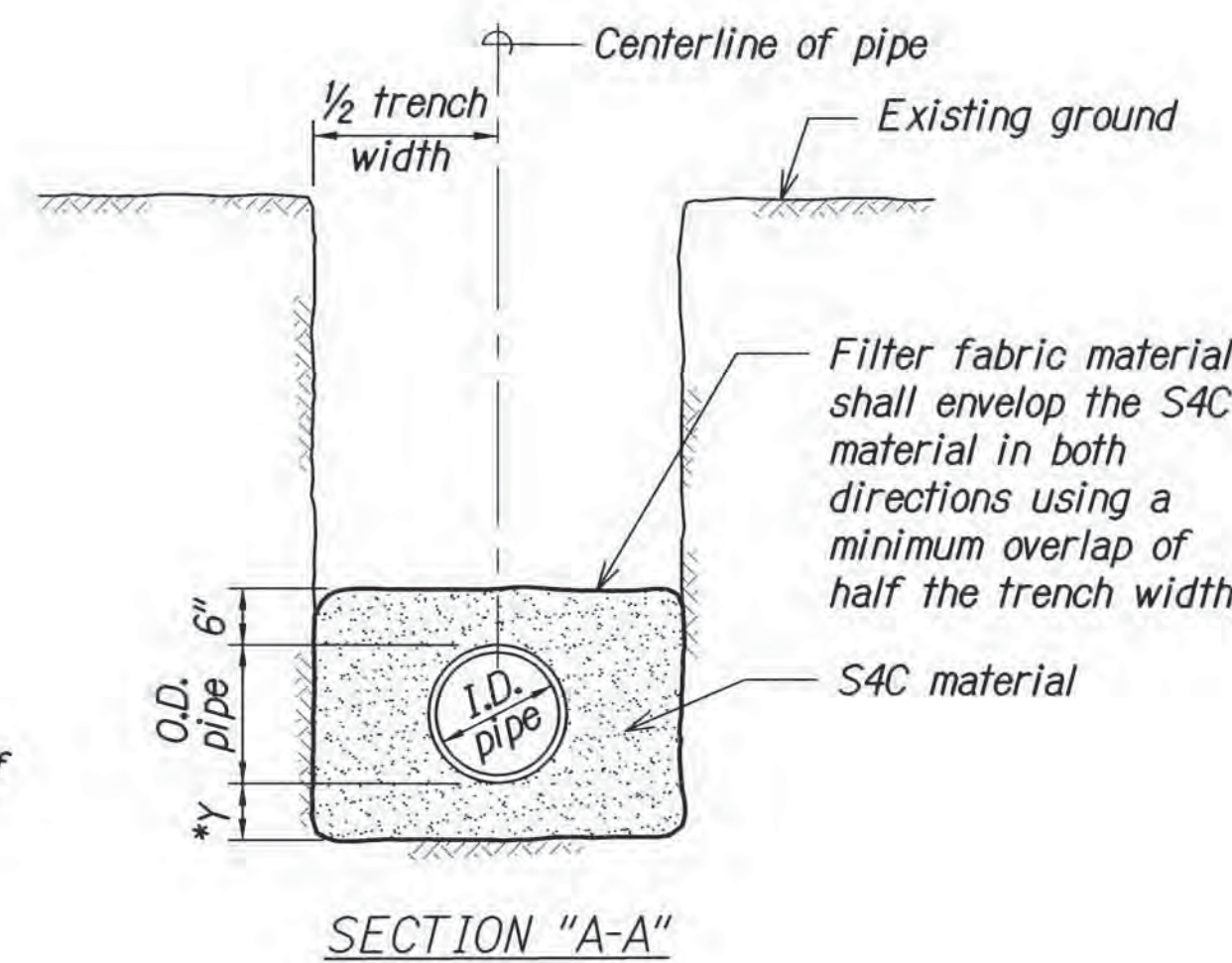


*See C&C of Hon. Std. Det. S-01, for dimension or as specified on the construction plans.

NOTES:

1. Seals shall be placed 10 ft. upstream and downstream from each manhole.
2. Seals shall not be paid for separately but shall be considered incidental to crushed rock cradle.
3. The Contractor shall compact S4C material by ponding and draining. Upon draining, a vibratory machine shall be used until no visible evidence of further consolidation exists.

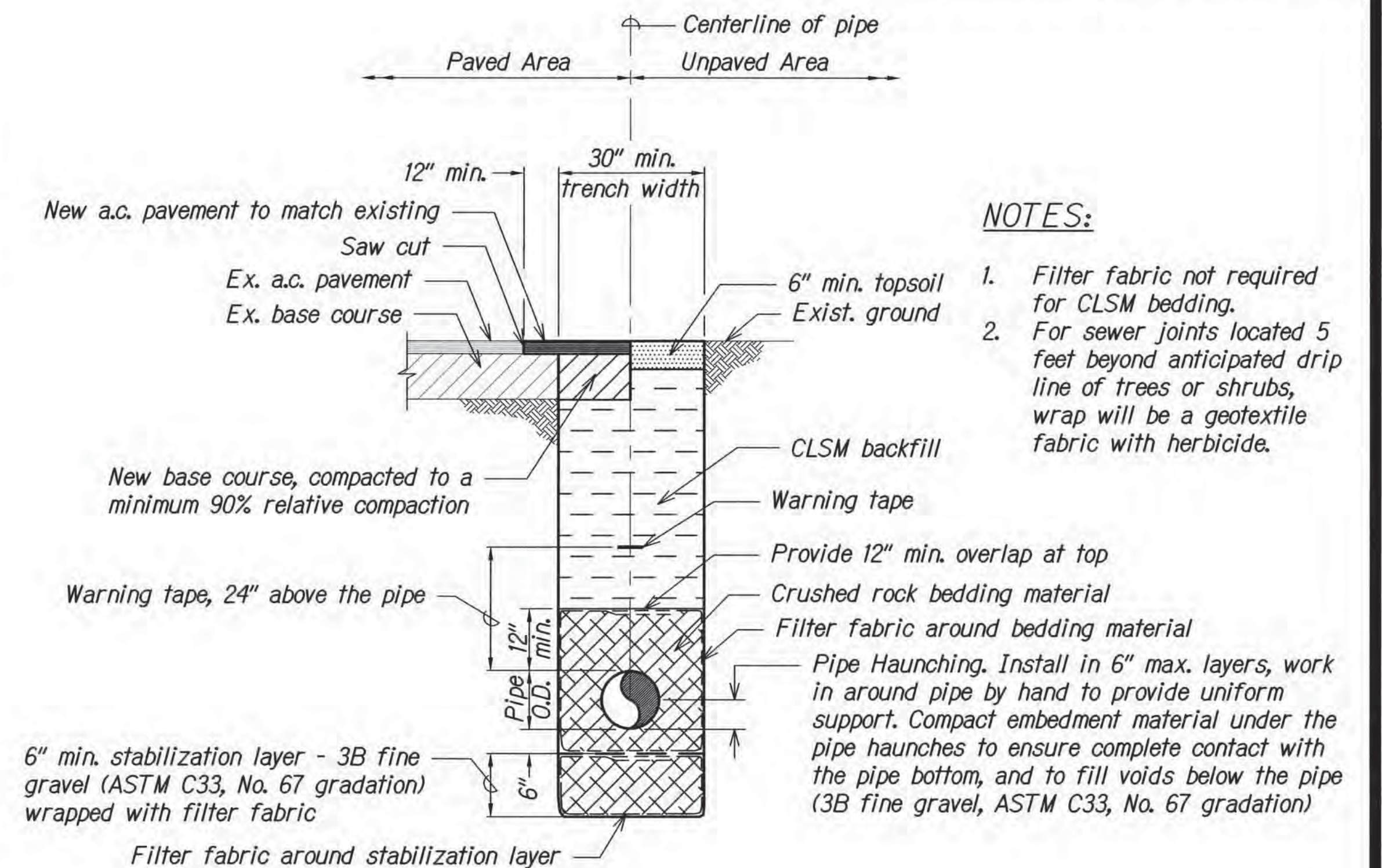
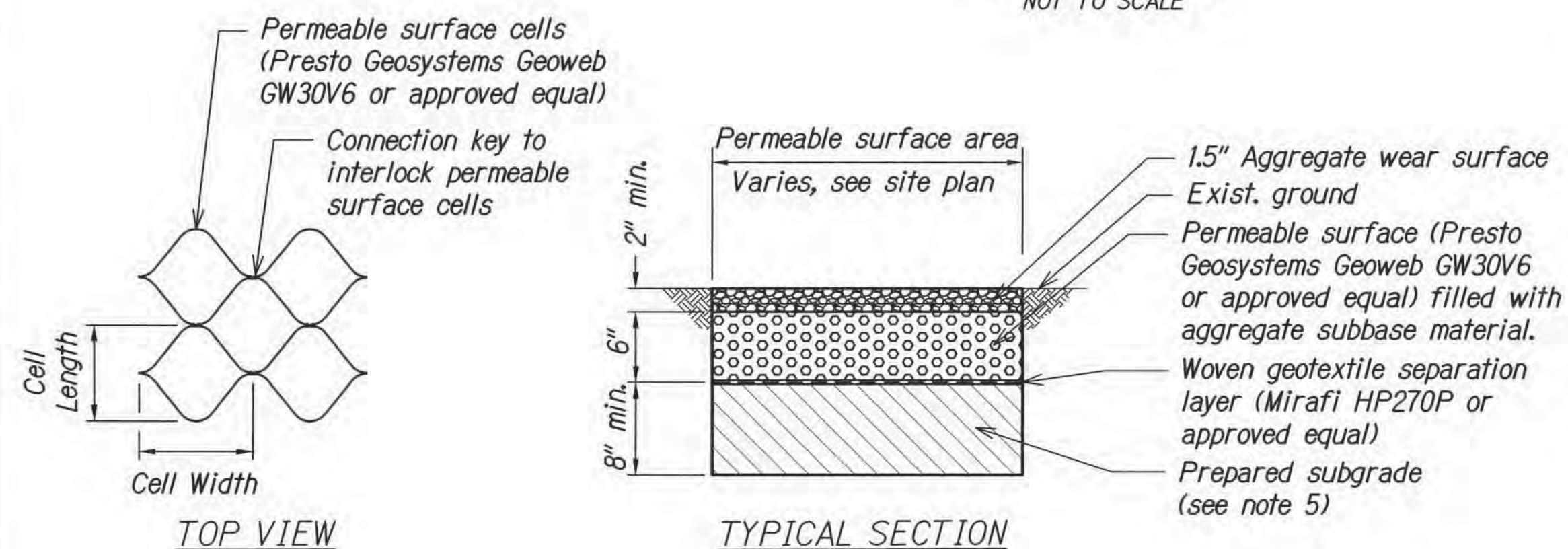
SEAL DETAIL
NOT TO SCALE



NOTES:

1. Refer to geotechnical exploration report for the Luluku project area, prepared by PSC Consultants, LLC, dated July 2019, for existing soil conditions.
2. Refer to site plan, sht. no. C-8, for permeable surface areas.
3. Install permeable surface per manufacturer recommendation.
4. Aggregate wear surface and aggregate subbase infill of permeable surface shall be placed in one compacted lift.
5. Provide woven geotextile separation layer between prepared subgrade and permeable surface. Install per manufacturer recommendation.
6. Prepared subgrade shall be scarified to a minimum depth of 8 inches, moisture-conditioned to about 2 percent above the optimum moisture content, and compacted to no less than 90 percent relative compaction.

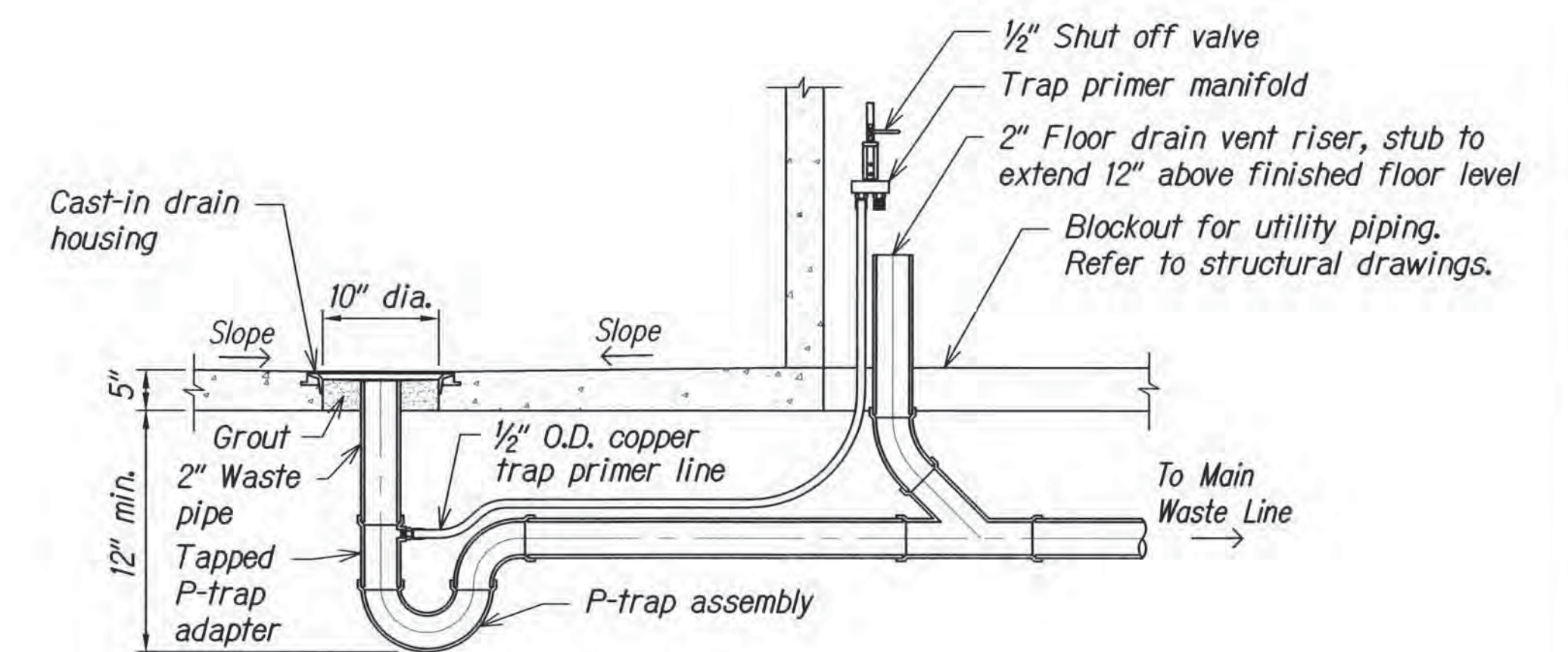
TYPICAL PERMEABLE SURFACE DETAIL
NOT TO SCALE



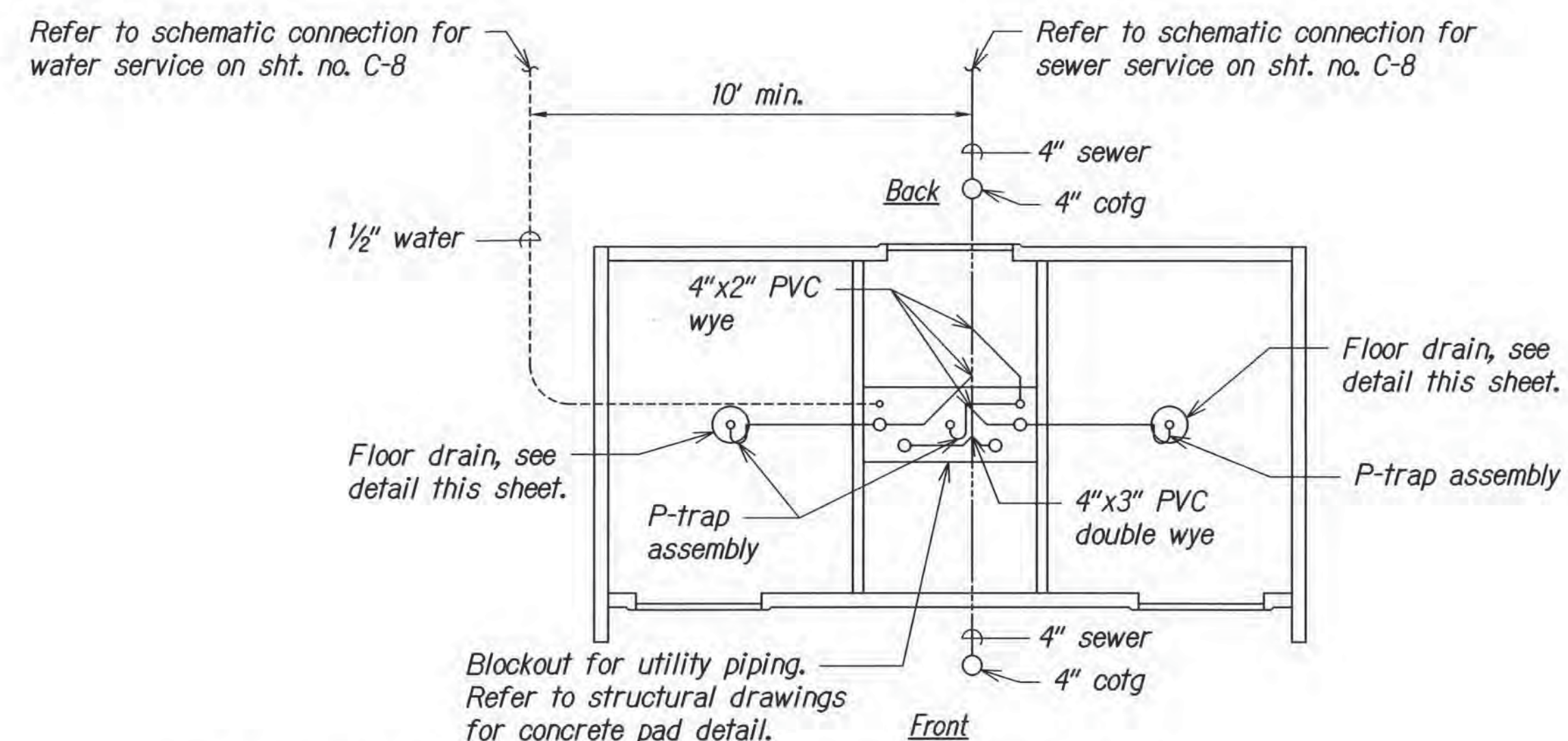
NOTES:

1. Filter fabric not required for CLSM bedding.
2. For sewer joints located 5 feet beyond anticipated drip line of trees or shrubs, wrap will be a geotextile fabric with herbicide.

SEWER PIPE TRENCH RESTORATION DETAIL
NOT TO SCALE



FLOOR DRAIN DETAIL
NOT TO SCALE



PREFABRICATED RESTROOM FLOOR PIPING SCHEMATIC
NOT TO SCALE

NOTES:

1. Refer to structural drawings for restroom facility concrete pad detail.
2. Waste, vent, and water piping to extend 12" above finished floor level.
3. Minimum cover for sewer piping shall be 30" (min.) below finish surface. Install warning tape above sewer pipe.
4. Minimum cover for water piping shall be 12" (min.) below finish surface.

APPROVED:

CHEF, WASTEWATER BRANCH, D.P.F.

DATE

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETAILS - 1

HALAWA-LULUKU INTERPRETIVE DEVELOPMENT

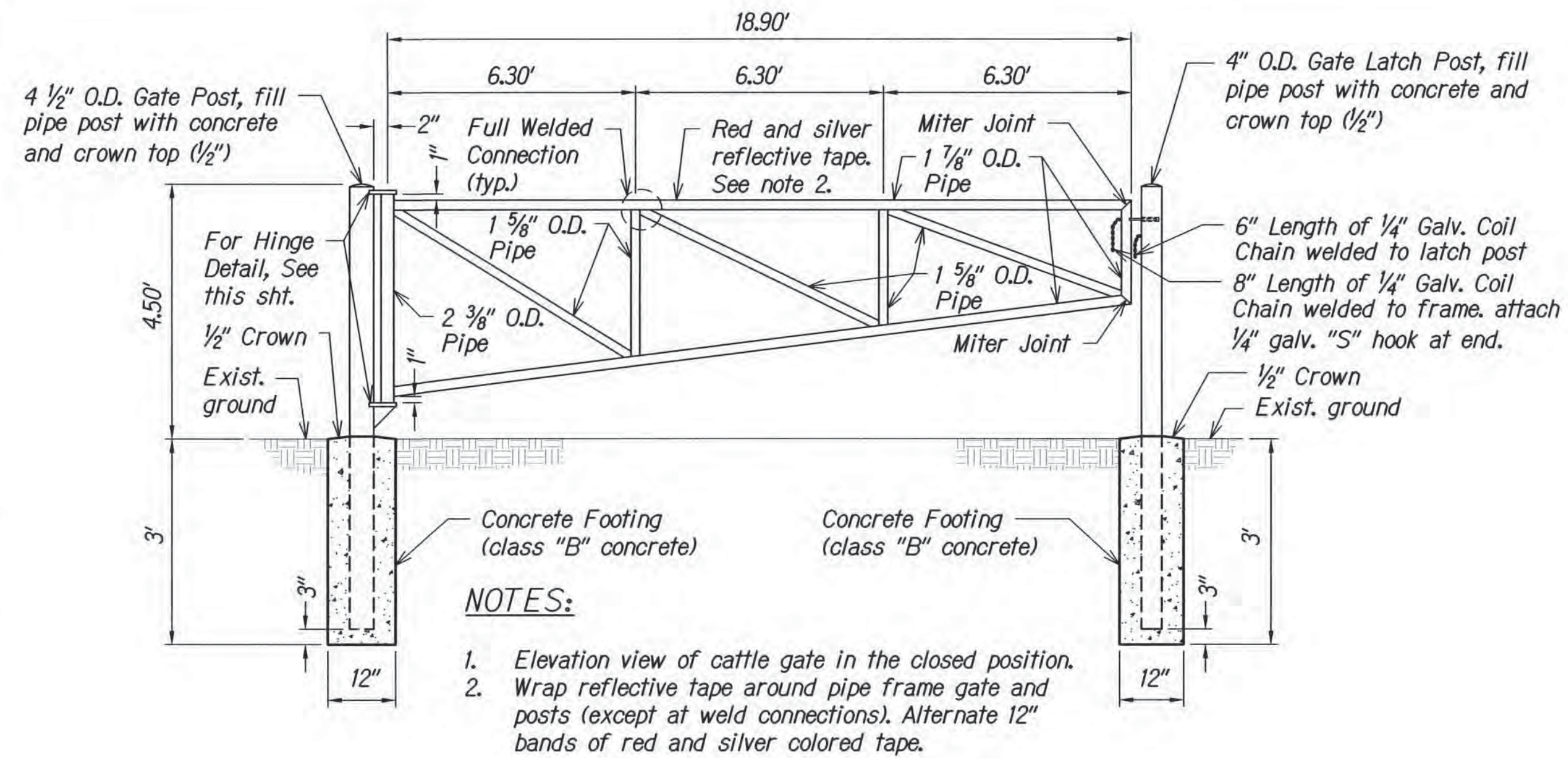
LULUKU PROJECT AREA

FEDERAL-AID PROJECT NO. I-H3-1(75)

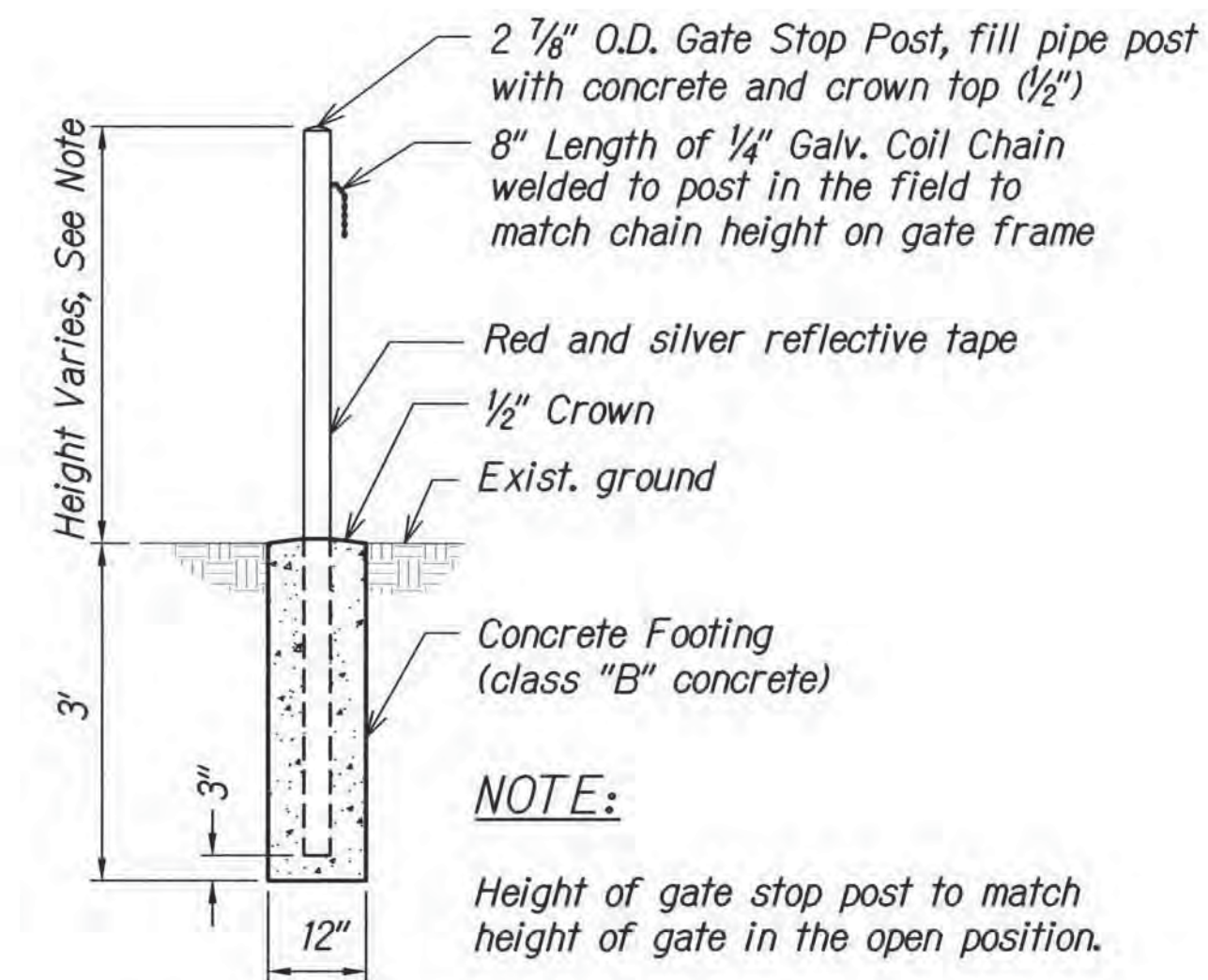
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Date: JULY 2023

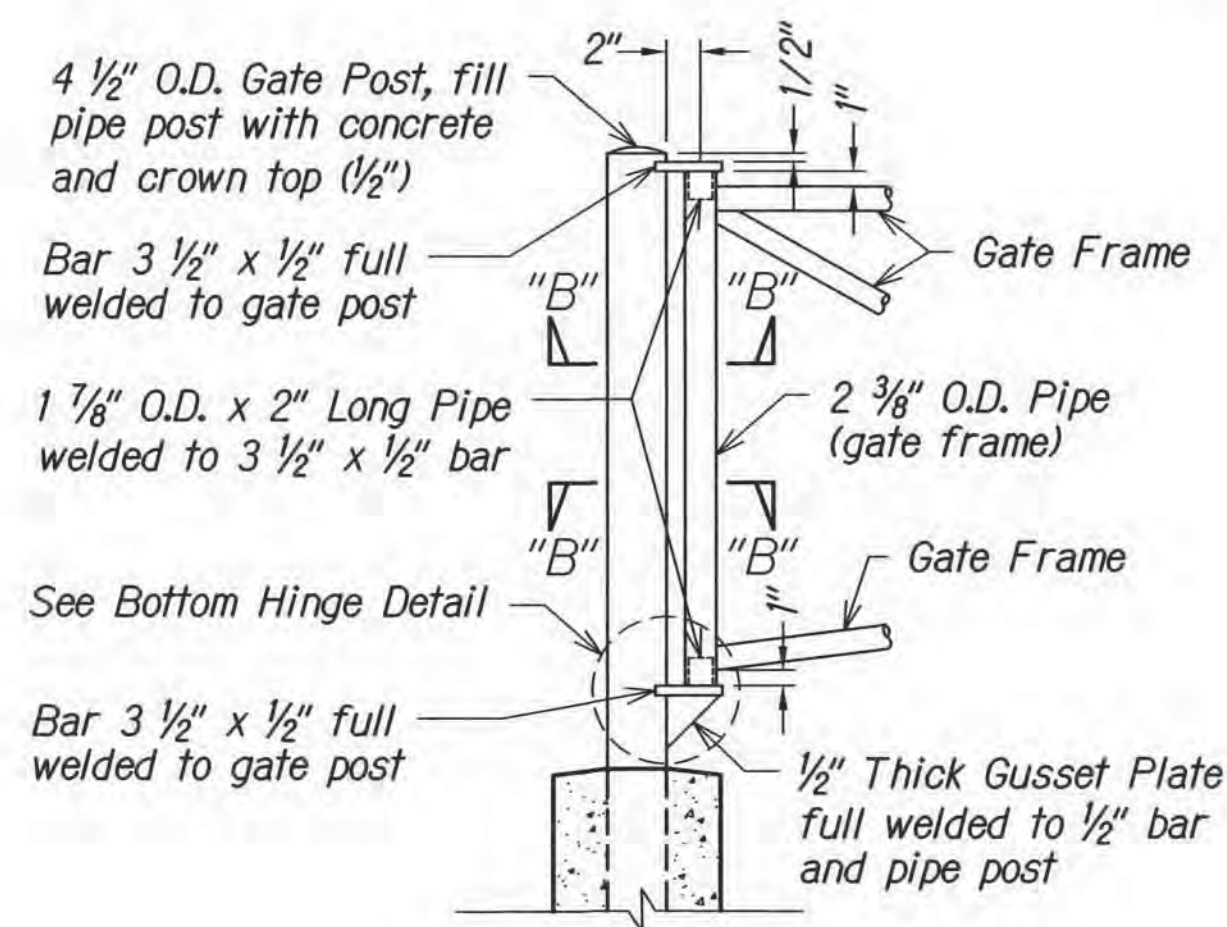
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75)	2024	15	37



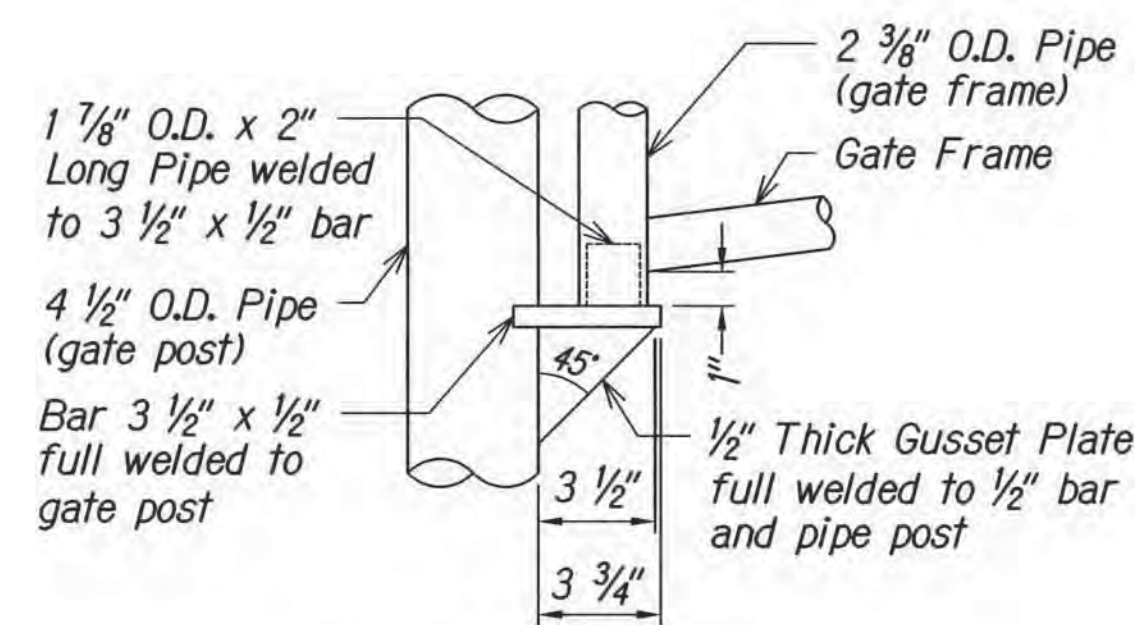
ELEVATION
NOT TO SCALE



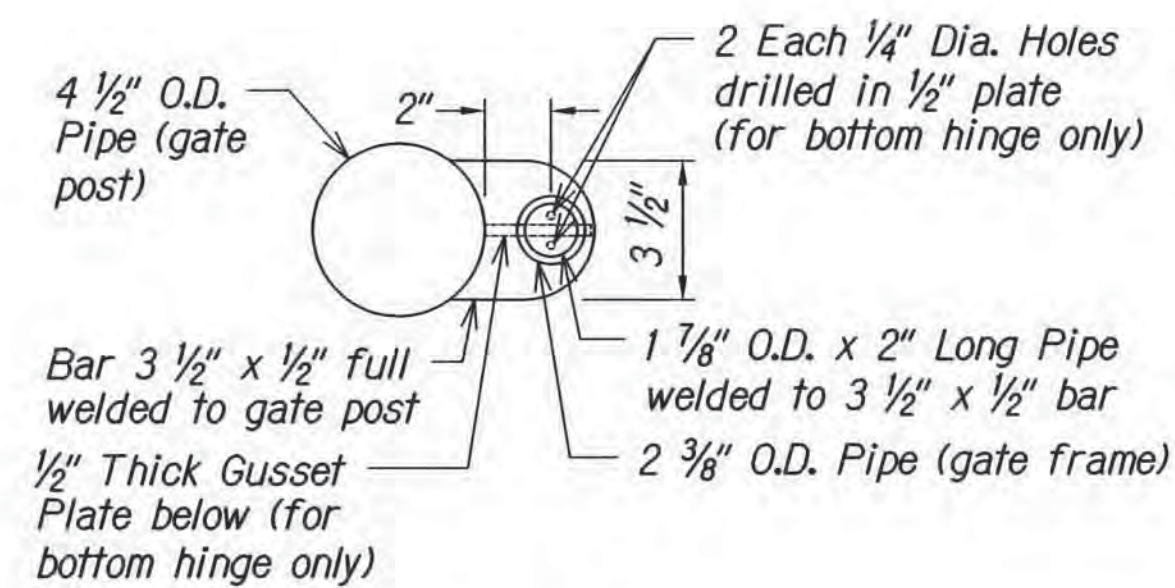
TYPICAL GATE STOP POST
NOT TO SCALE



HINGE DETAIL
NOT TO SCALE



BOTTOM HINGE DETAIL
NOT TO SCALE



SECTION "B-B"
NOT TO SCALE

CATTLE GATE DETAIL
NOT TO SCALE

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HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETAILS - 2

HALAWA-LULUKU INTERPRETIVE DEVELOPMENT
LULUKU PROJECT AREA
FEDERAL-AID PROJECT NO. I-H3-1(75)

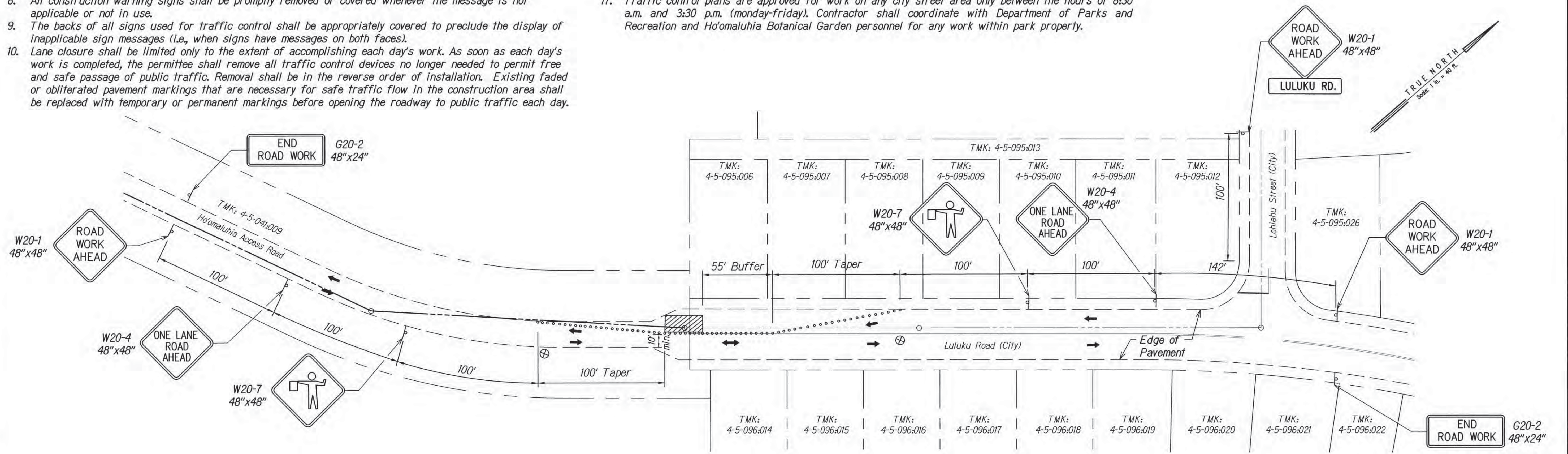
Scale: NO SCALE Date: JULY 2023

TRAFFIC CONTROL NOTES

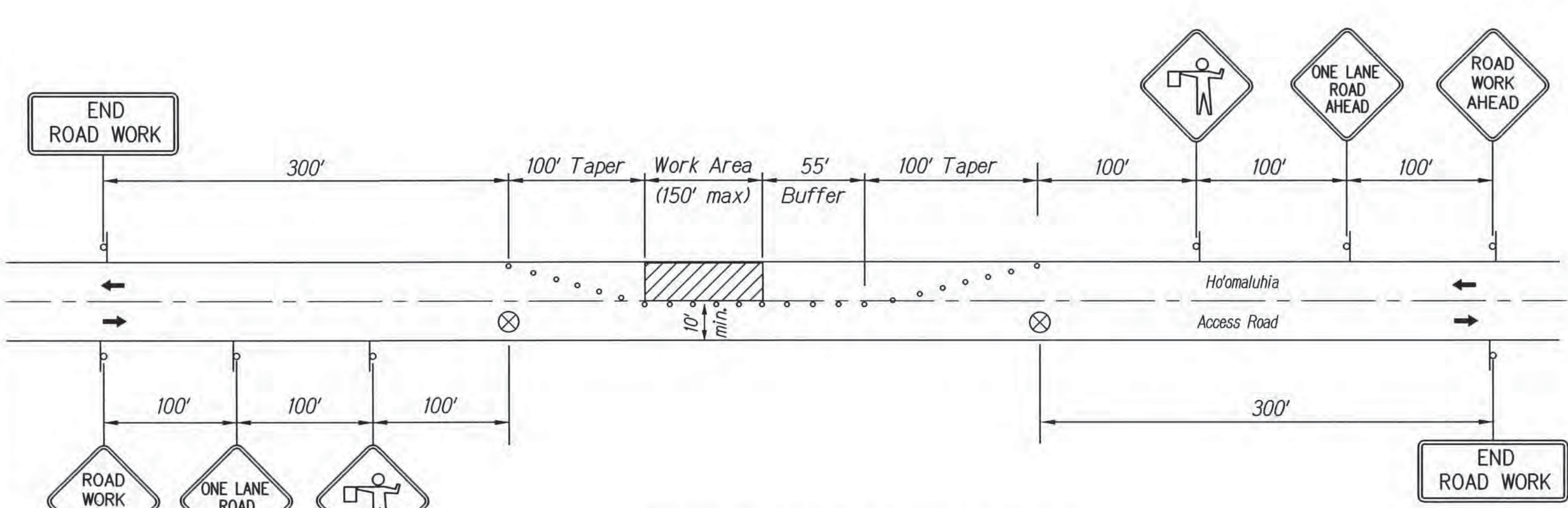
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75)	2024	16	37

- The permittee shall make minor adjustments at intersections, driveways, bridges, structures, etc., to fit field conditions.
- Cones or delineators shall be extended to point where they are visible to approaching traffic.
- Traffic control devices shall be installed such that the sign or device farthest from the work area shall be placed first. The others shall then be placed progressively toward the work area.
- Regulatory and warning signs within the construction zone that are in conflict with the traffic control plans shall be removed or covered.
- Police officers shall be in sight of each other or in direct communication at all times.
- When required by the issuing office, the permittee shall install a flashing arrow signal as shown on the traffic control plans.
- All traffic lanes shall be a minimum of 10 feet wide.
- All construction warning signs shall be promptly removed or covered whenever the message is not applicable or not in use.
- The backs of all signs used for traffic control shall be appropriately covered to preclude the display of inapplicable sign messages (i.e., when signs have messages on both faces).
- Lane closure shall be limited only to the extent of accomplishing each day's work. As soon as each day's work is completed, the permittee shall remove all traffic control devices no longer needed to permit free and safe passage of public traffic. Removal shall be in the reverse order of installation. Existing faded or obliterated pavement markings that are necessary for safe traffic flow in the construction area shall be replaced with temporary or permanent markings before opening the roadway to public traffic each day.

- Permanent pavement markings and traffic signs shall be replaced upon completion of each phase of work.
- Cones and delineators shall be spaced at a maximum of 20 feet apart. A minimum of six channelizing devices shall be used for each taper length.
- Driveways shall be kept open unless the owners of the property using the driveway are otherwise provided for satisfactorily. Further, the permittee shall control traffic going into and out of driveways.
- Buffer and taper area on approach to any work area shall be kept clear of vehicles and equipment.
- A high level warning device (flag tree) shall be installed on approach to all work areas.
- "NO PARKING" signs shall be posted within any work area and for the buffer and taper areas approaching the work area.
- Traffic control plans are approved for work on any city street area only between the hours of 8:30 a.m. and 3:30 p.m. (Monday-Friday). Contractor shall coordinate with Department of Parks and Recreation and Ho'omaluhia Botanical Garden personnel for any work within park property.



Traffic Control Plan for Luluku Road And Ho'omaluhia Access Road
Scale: 1" = 40'



Typical Traffic Control Plan (Two Flagger Operation)
Not to Scale

LEGEND

- Sign
- Cone or Delineator
- Direction of Traffic
- Police Officer
- Work Area

W20-1 48"x48" ROAD WORK AHEAD

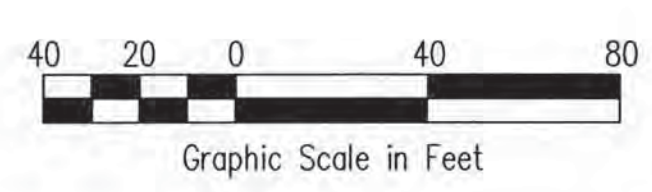
W20-4 48"x48" ONE LANE ROAD AHEAD

W20-7 48"x48" WORKER AHEAD

G20-2 48"x24" END ROAD WORK

- NOTES:**
- Typical traffic control plan shall be used for installation of new sewer line work on Ho'omaluhia Access Road.
 - Contractor shall coordinate with Department of Parks and Recreation and Ho'omaluhia Botanical Garden personnel for any work within park property.

APPROVED: _____ DATE _____
CHIEF, TRAFFIC REVIEW BRANCH, D.P.P. (FOR WORK WITHIN CITY ROW ONLY)



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/24

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN

HALAWA-LULUKU INTERPRETIVE DEVELOPMENT
LULUKU PROJECT AREA
FEDERAL-AID PROJECT NO. I-H3-1(75)

Scale: 1 : 40 Date: JULY 2023

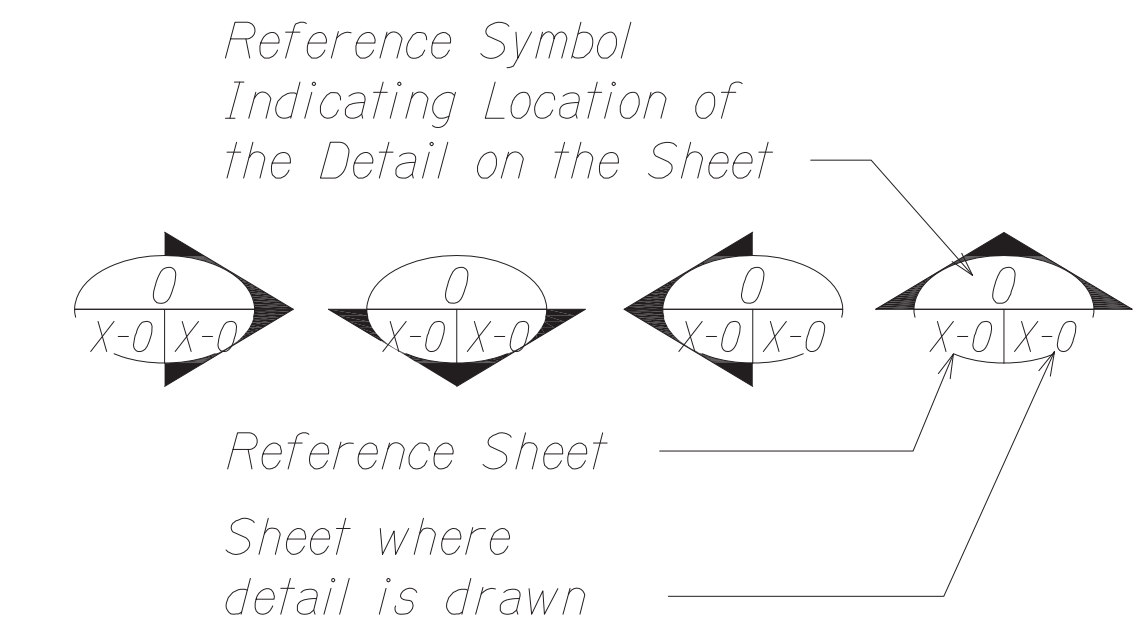
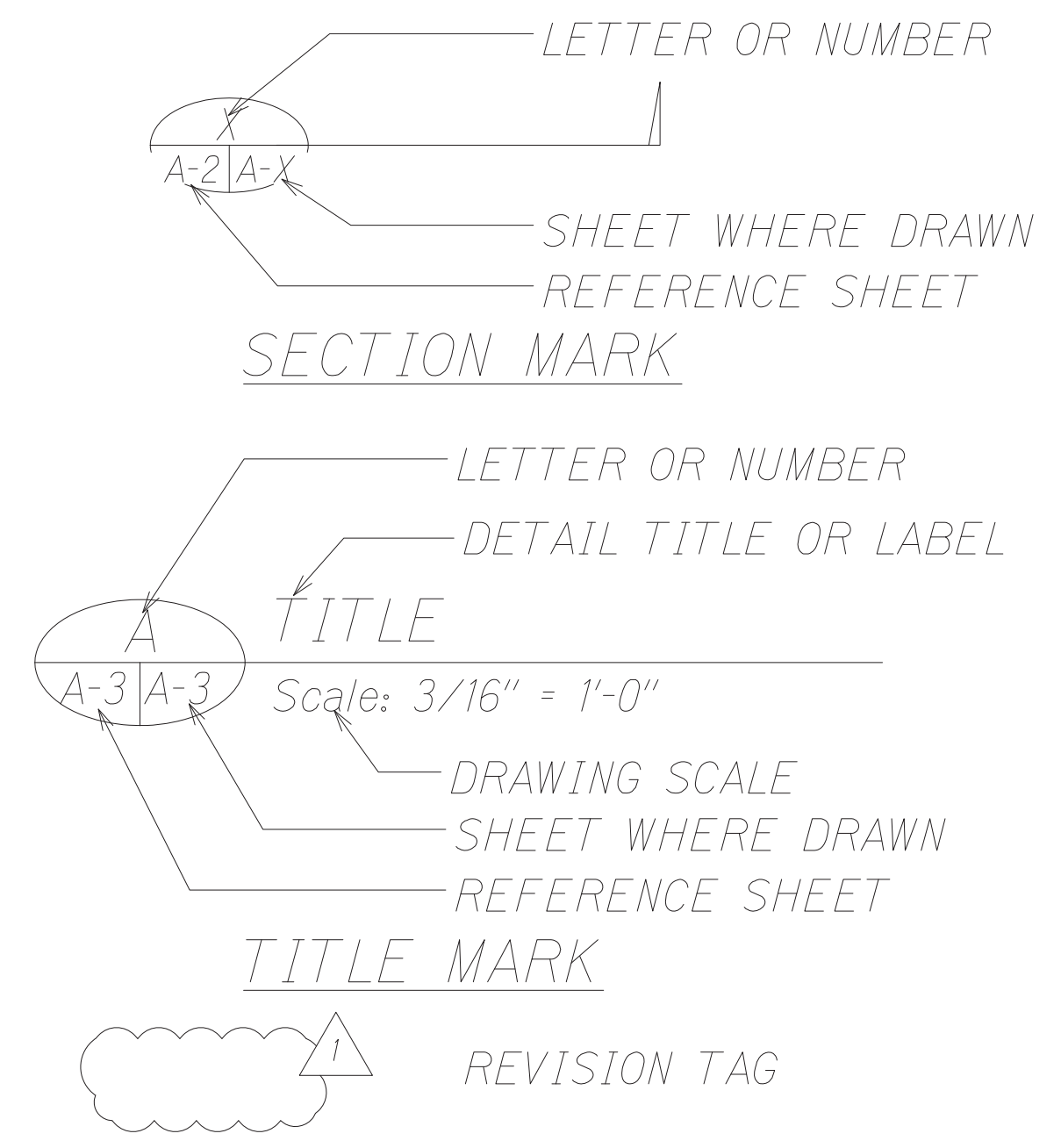
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75)	2024	17	37

ABBREVIATIONS

SYMBOLS LEGEND

GENERAL NOTES

AB	ANCHOR BOLT	∅ OR DIA	DIAMETER	INSUL	INSULATION	REQ'D	REQUIRED
ABV	ABOVE	DET	DETAIL	INT	INTERIOR	RF	ROOF
AC	ASPHALT CONCRETE	DIM	DIMENSION			RO	ROUGH OPENING
A/C	AIR CONDITIONING	DN	DOWN	JT	JOINT		
⌘	AND	DS	DOWNSPOUT			SCHED	SCHEDULED
@	AT	DWGS	DRAWINGS	MANUF,MFR	MANUFACTURER	SF	SQUARE FEET
AFF	ABOVE FINISHED FLOOR	EFS	EXTERIOR FINISH SYSTEM	MAX	MAXIMUM	SHT	SHEET
AFG	ABOVE FINISHED GRADE	ELEC	ELECTRICAL	MET, MTL	METAL	SIM	SIMILAR
ALUM	ALUMINUM	EQUIP	EQUIPMENT	MIN	MINIMUM	SL	SLOPE
ANOD	ANODIZED	EX, EXIST	EXISTING	MISC	MISCELLANEOUS	SPECS	SPECIFICATIONS
APPROX	APPROXIMATE	EXP	EXPANSION, EXPANDED	MTD	MOUNTED	SQ	SQUARE
		EXT	EXTERIOR	#	NUMBER, POUND	SST	STAINLESS STEEL
BD	BOARD			NIC	NOT IN CONTRACT	STD	STANDARD
BLDG	BUILDING			NO	NUMBER	STL	STEEL
BLKG	BLOCKING	FF	FINISH FLOOR	OC	ON CENTER	STRUCT	STRUCTURAL
BOT	BOTTOM	FFE	FINISH FLOOR ELEVATION	OD	OUTSIDE DIAMETER	SUSP	SUSPENDED
BS	BOTH SIDES			OPG	OPENING	THK	THICK
B/W	BETWEEN	FIN	FINISH	OPP	OPPOSITE	THRU	THROUGH
		FLR	FLOOR			TYP	TYPICAL
		FRP	FIBERGLASS REINFORCED PLASTIC	%	PERCENT	VERT	VERTICAL
CJ	CONTROL JOINT			PERP	PERPENDICULAR	VTR	VENT THRU ROOF
C	CENTERLINE			PF	PREFINISHED		
CLR	CLEAR			PL	PLATE	W/	WITH
CLG	CEILING			PRE-FAB	PREFABRICATED	W/O	WITHOUT
CMU	CONCRETE MASONRY UNIT	GA	GAUGE	PT	PAINT	WD	WOOD
		GALV	GALVANIZED			WDW	WINDOW
COL	COLUMN			R	RADIUS	WP	WATERPROOF
CONC	CONCRETE	H, HT	HIGH, HEIGHT	REINF	REINFORCEMENT		
CONT	CONTINUOUS	HOR	HORIZONTAL				
		HP	HIGH POINT				



- ALL WORK SHOWN SHALL BE CONSIDERED NEW WORK, UNLESS OTHERWISE NOTED. VERIFY ALL EXISTING CONDITIONS, DIMENSIONS, ELEVATIONS, AND CLEARANCES AT THE JOBSITE PRIOR TO COMMENCEMENT OF WORK.
- ALL EXISTING CONDITIONS MAY VARY AND SHALL BE CONSIDERED PLUS/MINUS (+). CONTRACTOR SHALL VERIFY DIMENSIONS AT THE JOBSITE PRIOR TO THE COMMENCEMENT OF WORK. NOTIFY AND COORDINATE WITH THE ENGINEER IN CHARGE OF ANY MAJOR DEVIATION FROM THIS PLAN DUE TO UNFORESEEN OR VARYING FIELD CONDITIONS. ANY CHANGES OR MODIFICATIONS SHALL BE APPROVED BY THE ADMINISTRATIVE CONTRACTING OFFICER PRIOR TO ACCOMPLISHMENT.
- CONTRACTOR SHALL USE CAUTION SO THAT EXISTING FEATURES ARE NOT DAMAGED. ALL WORK DAMAGED IN THE PERFORMANCE OF NEW WORK SHALL BE REPAIRED TO ORIGINAL OR NEW CONDITION AT CONTRACTOR'S EXPENSE.
- THE CONTRACTOR SHALL OBSERVE AND COMPLY WITH ALL FEDERAL, STATE, AND LOCAL LAWS REQUIRED FOR THE PROTECTION OF PUBLIC HEALTH, SAFETY AND ENVIRONMENTAL QUALITY.
- CONTRACTOR SHALL PROTECT THE BUILDING INTERIOR INCLUDING THE ROOF ATTIC FROM WEATHER DURING DEMOLITION AND CONSTRUCTION.

EXTERIOR ELEVATION SYMBOLS

LICENSE EXPIRES: 4/30/24
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY SUPERVISION AS DEFINED IN HAWAII TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII

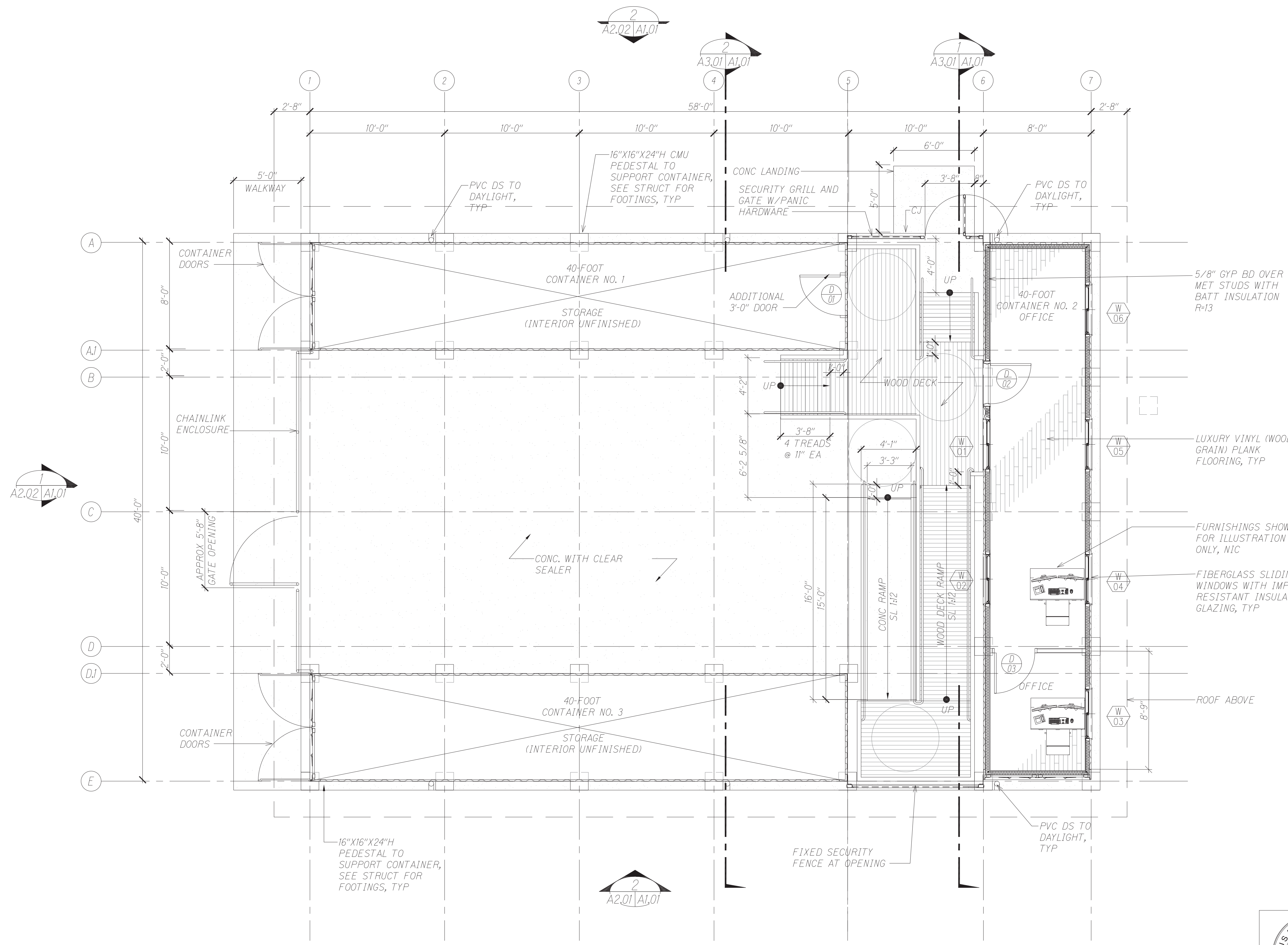
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ABBREVIATIONS, SYMBOLS LEGEND,
GENERAL NOTES

HALAWA-LULUKU INTERPRETIVE DEVELOPMENT
LULUKU PROJECT AREA
FEDERAL-AID PROJECT NO. I-H3-1(75)
Scale: 1/4"=1'-0" Date: JULY 2023

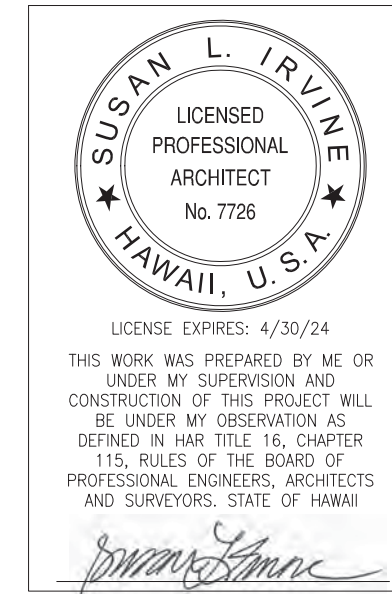
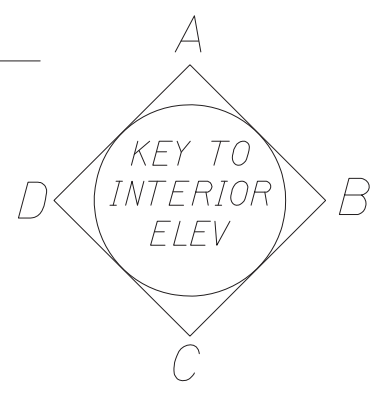
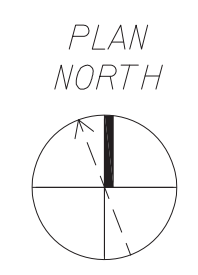
SHEET No. A0.01 OF 37 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75)	2024	18	37



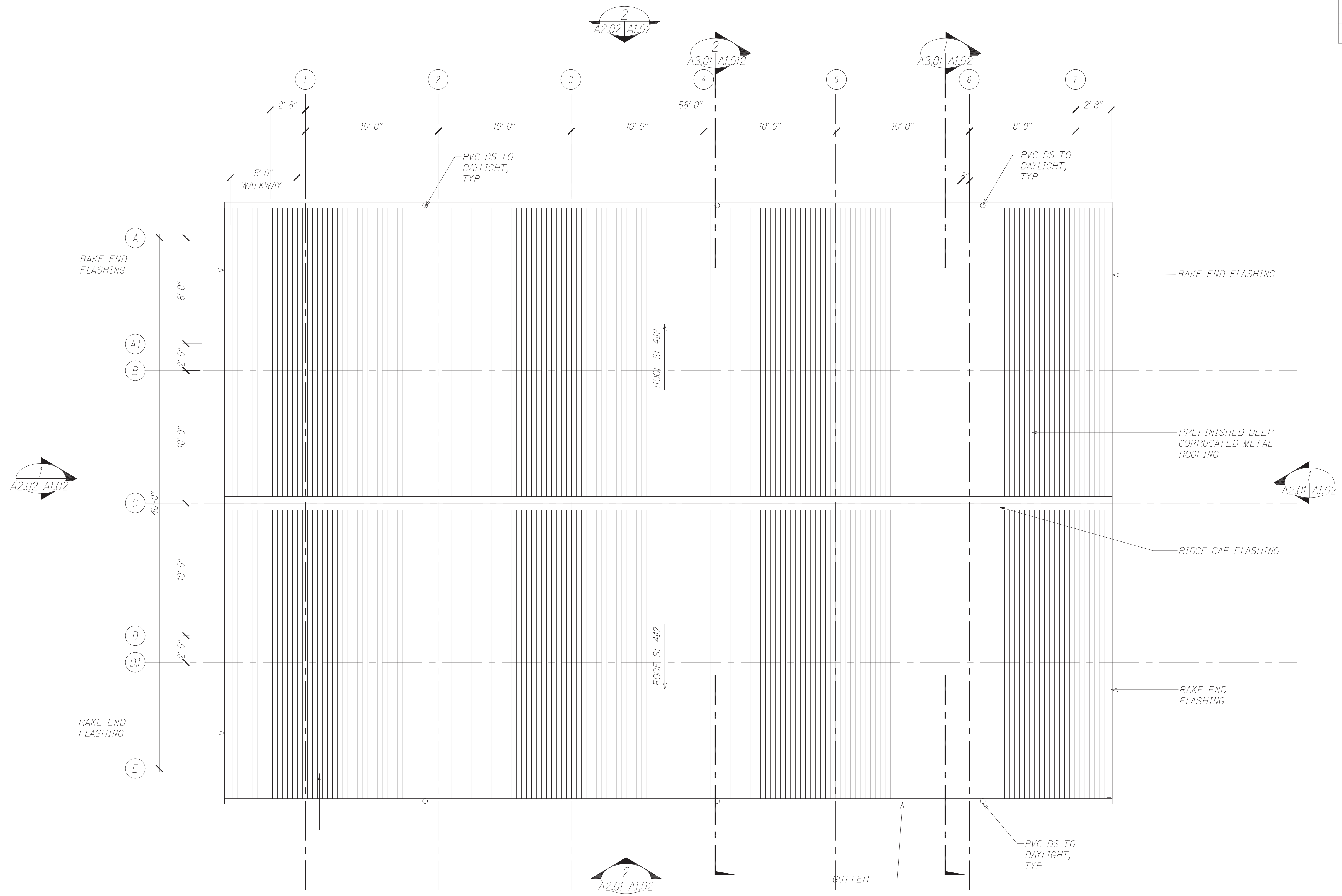
- NOTES:
- Shipping Containers for this project shall be modified as a prefabricated unit from a reputable company specializing in such work.
 - Prefabricated Container No. 1 includes:
 - Exterior Paint finish, color as scheduled.
 - New single leaf door as scheduled with lockable hardware.
 - Prefabricated Container No. 2 includes complete shop drawings to be used for Building Permitting:
 - Exterior Paint finish, color as scheduled.
 - Exterior ADA Accessible Door with lockable hardware.
 - Internal gypsum board walls as indicated.
 - Two Interior ADA Accessible Doors with lockable hardware.
 - Exterior walls are to be insulated with batt insulation to meet the minimum ASHRAE 90.1, sheathed in 1/2" gypsum board, painted.
 - Six exterior sliding windows with insect screens.
 - Luxury Vinyl Flooring planks throughout with resilient cove base.
 - Mini-blind window coverings.
 - Electrical outlets located at 15-inches above finish floor.
 - Light fixtures with ADA compliant light switches.
 - Prefabricated Container No. 3 includes:
 - Exterior Paint finish, color as scheduled.

1 ADMINISTRATIVE - STORAGE BUILDING OVERALL FLOOR PLAN
 A1.01/A1.01 Scale: 1/4" = 1'-0"

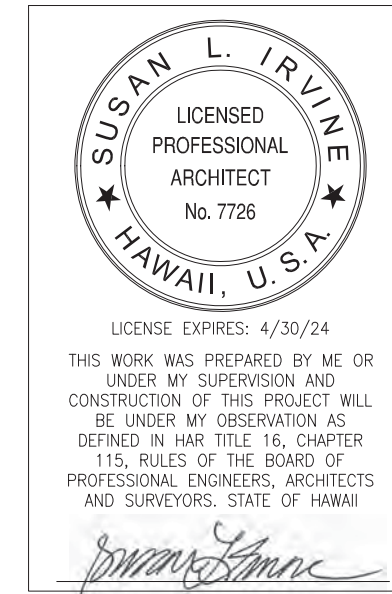
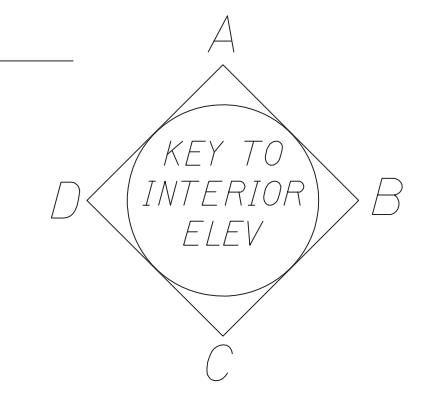
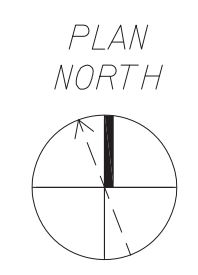


STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
 LULUKU CONTAINER SHED
 ADMINISTRATIVE-STORAGE BUILDING
 OVERALL BUILDING FLOOR PLAN
 HALAWA-LULUKU INTERPRETIVE DEVELOPMENT
 LULUKU PROJECT AREA
 FEDERAL-AID PROJECT NO. I-H3-1(75)
 Scale: 1/4"=1'-0" Date: JULY 2023
 SHEET No. A1.01 OF 37 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75)	2024	19	37

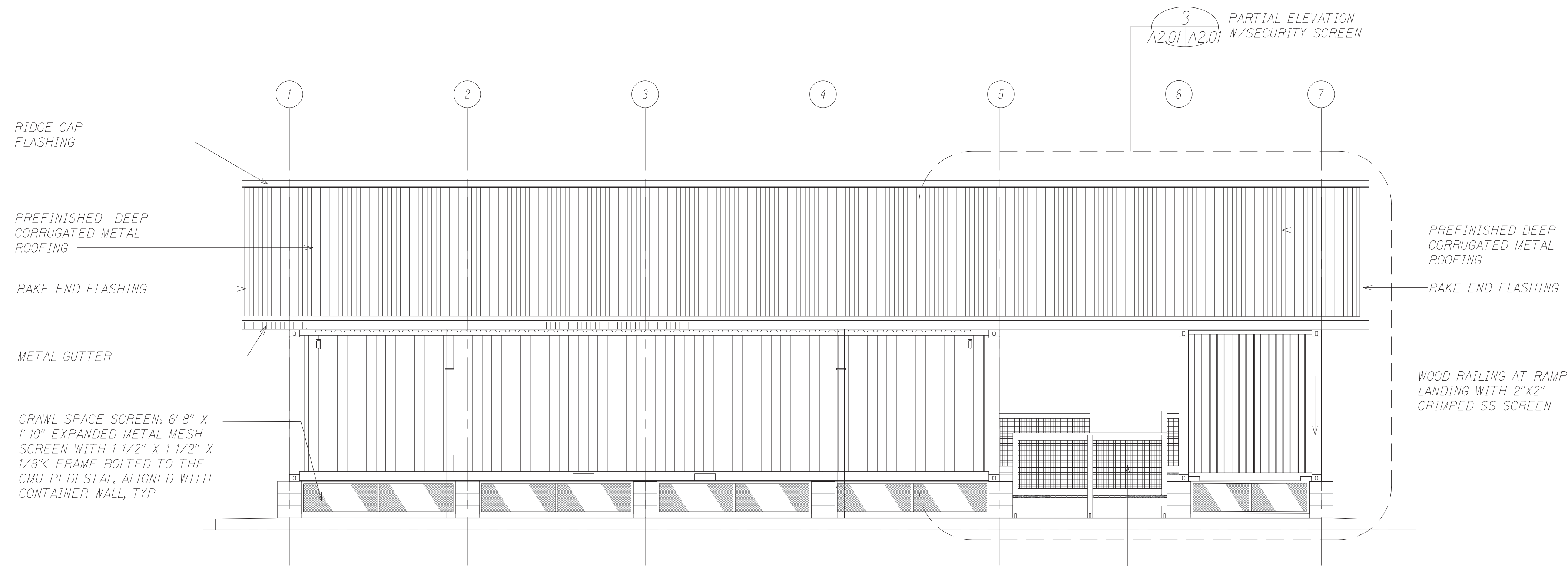


1 ADMINISTRATIVE - STORAGE BUILDING OVERALL ROOF PLAN
 A1.01 | A1.01 Scale: 1/4" = 1'-0"



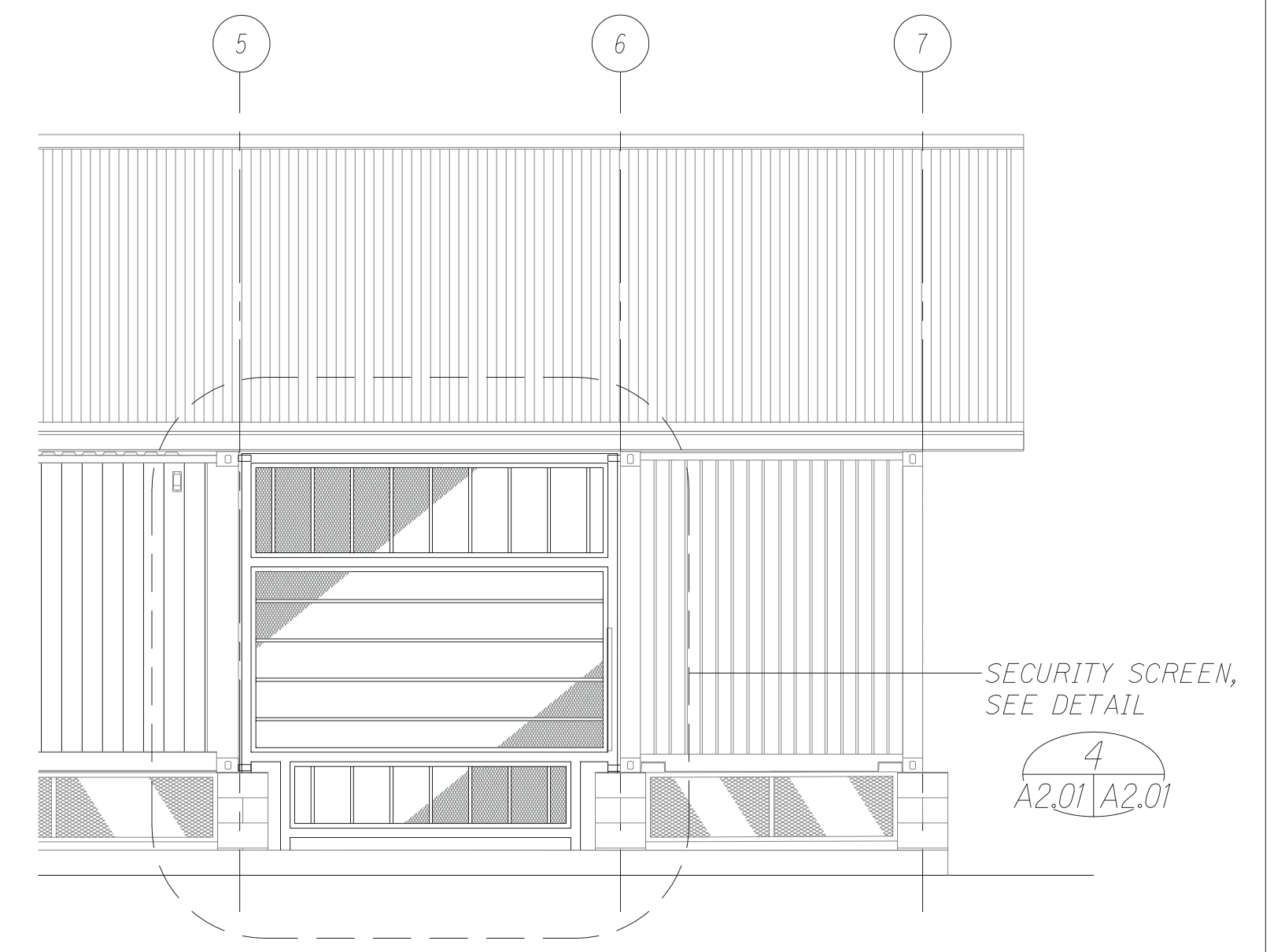
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
 LULUKU CONTAINER SHED
 ADMINISTRATIVE-STORAGE BUILDING
 OVERALL BUILDING FLOOR PLAN
 HALAWA-LULUKU INTERPRETIVE DEVELOPMENT
 LULUKU PROJECT AREA
 FEDERAL-AID PROJECT NO. I-H3-1(75)
 Scale: 1/4"=1'-0" Date: JULY 2023
 SHEET No. A1.02 OF 37 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75)	2024	20	37

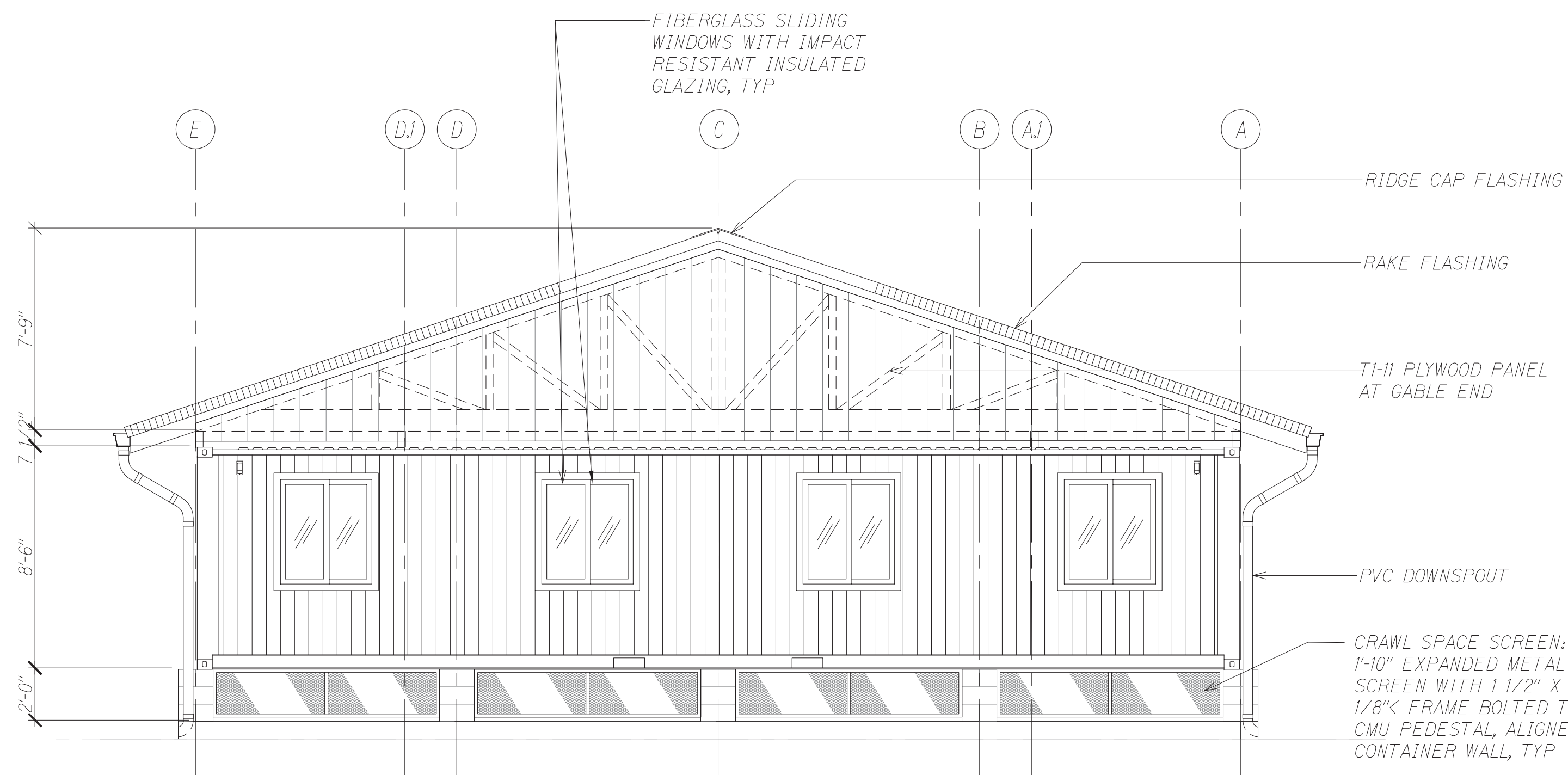


2 ADMINISTRATIVE - STORAGE BUILDING ELEVATION C
 A1.01 A2.01 Scale: 1/4" = 1'-0"

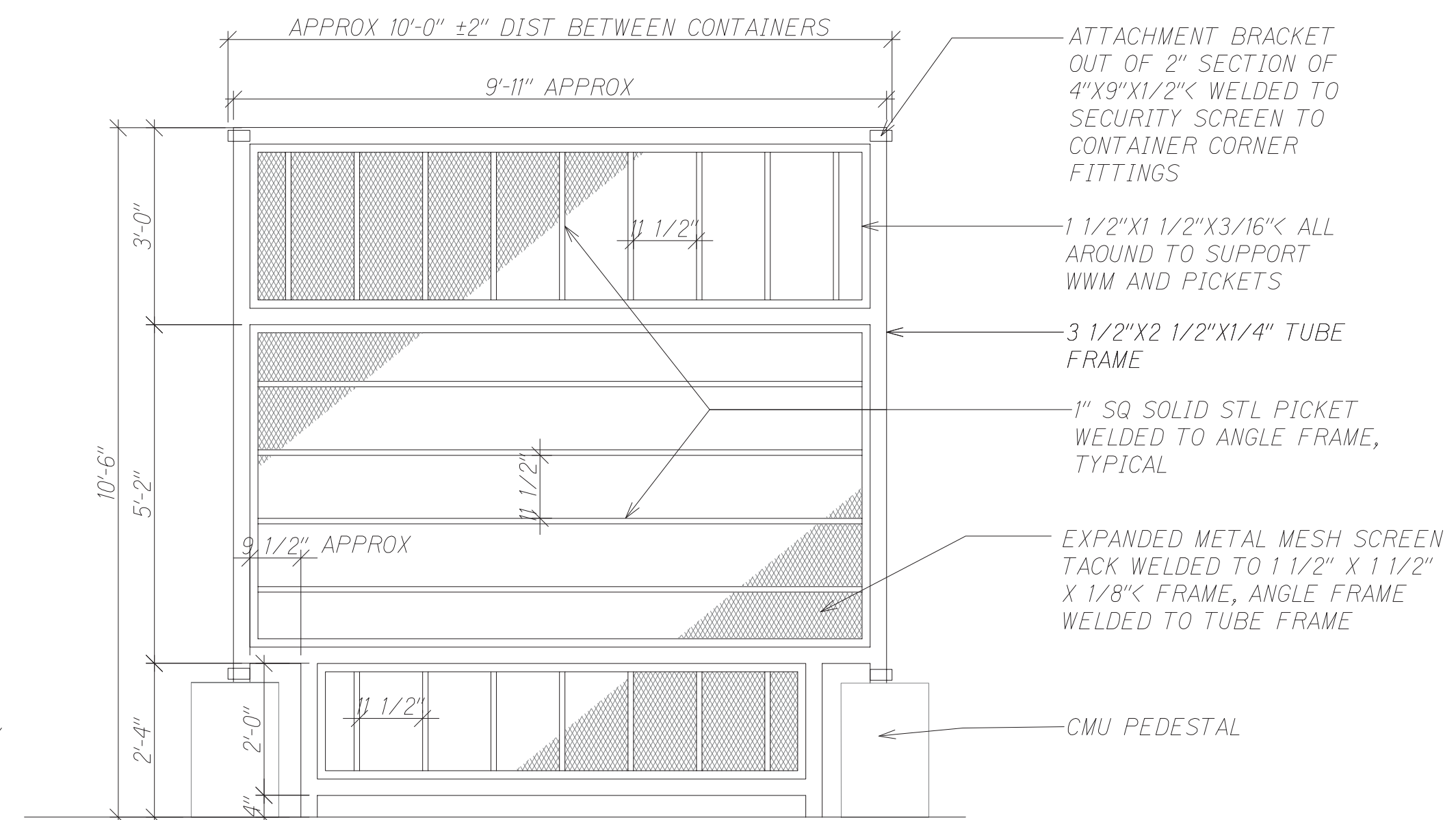
RAMP RAILING BEYOND, SECURITY SCREEN, SCREEN NOT SHOWN FOR CLARITY IN THIS VIEW



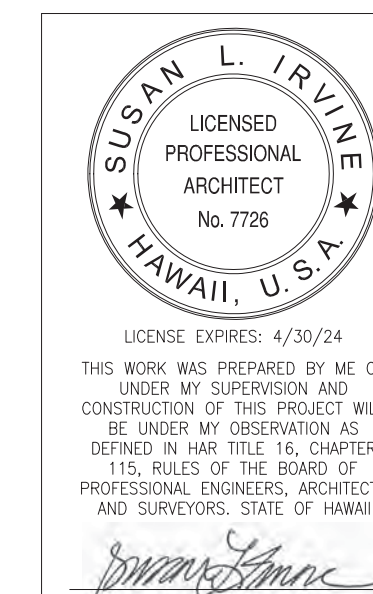
3 PARTIAL ELEVATION W/SECURITY SCREEN
 A2.01 A2.01 Scale: 1/4" = 1'-0"



1 ADMINISTRATIVE - STORAGE BUILDING ELEVATION B
 A1.01 A2.01 Scale: 1/4" = 1'-0"



4 SECURITY SCREEN DETAIL
 A2.01 A2.01 Scale: 1/2" = 1'-0"

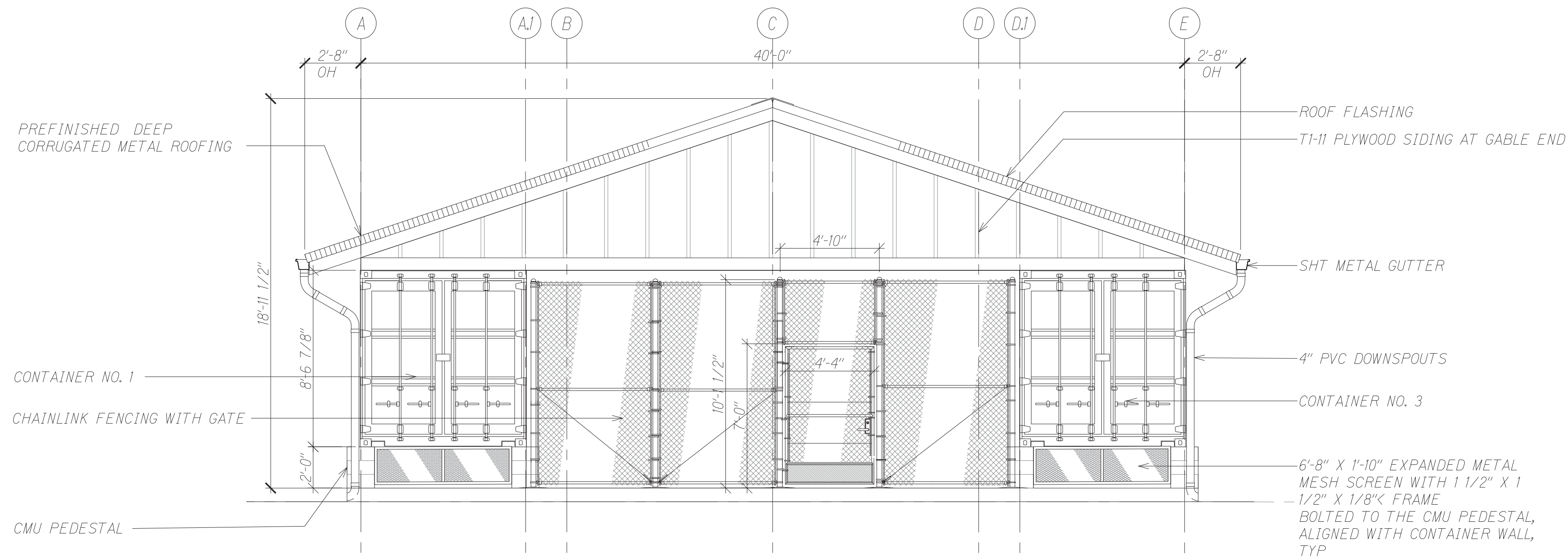


LICENSE EXPIRES: 4/30/24
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY SUPERVISION AS DEFINED IN H.A.R. TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII

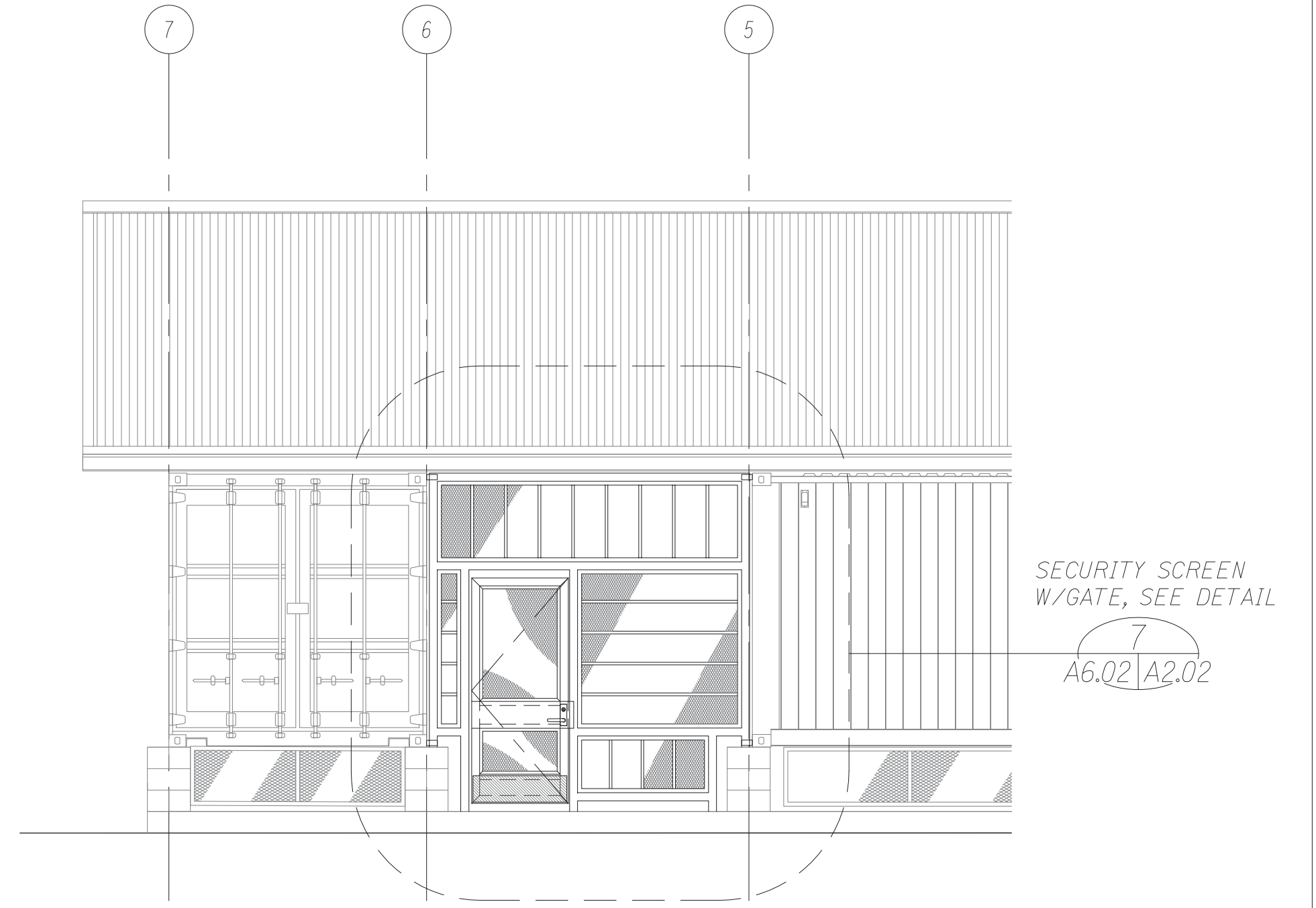
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
 LULUKU CONTAINER SHED
 ADMINISTRATIVE-STORAGE BUILDING
 EXTERIOR BUILDING ELEVATIONS
 HALAWA-LULUKU INTERPRETIVE DEVELOPMENT
 LULUKU PROJECT AREA
 FEDERAL-AID PROJECT NO. I-H3-1(75)
 Scale: 1/4"=1'-0" Date: JULY 2023



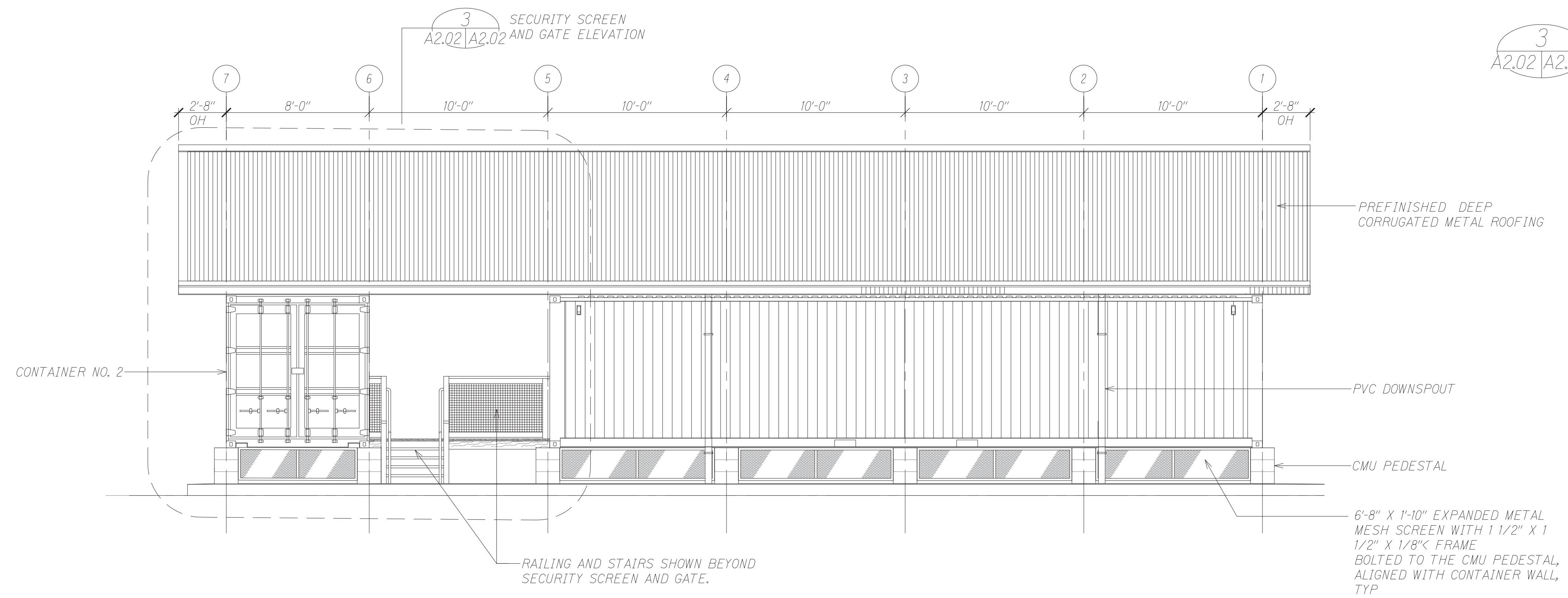
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75)	2024	21	37



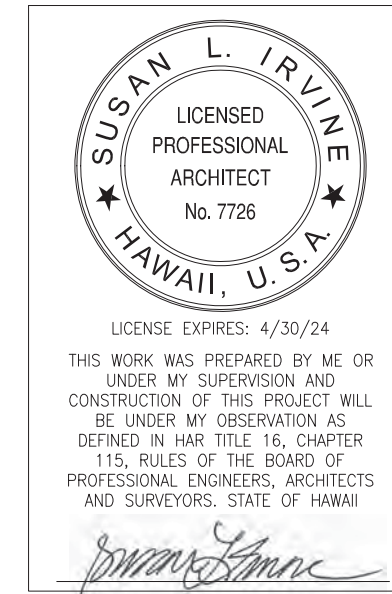
1 ADMINISTRATIVE - STORAGE BUILDING ELEVATION D
A1.01 | A2.02 Scale: 1/4" = 1'-0"



3 PARTIAL ELEVATION W/SECURITY SCREEN AND GATE
A2.02 | A2.02 Scale: 3/8" = 1'-0"

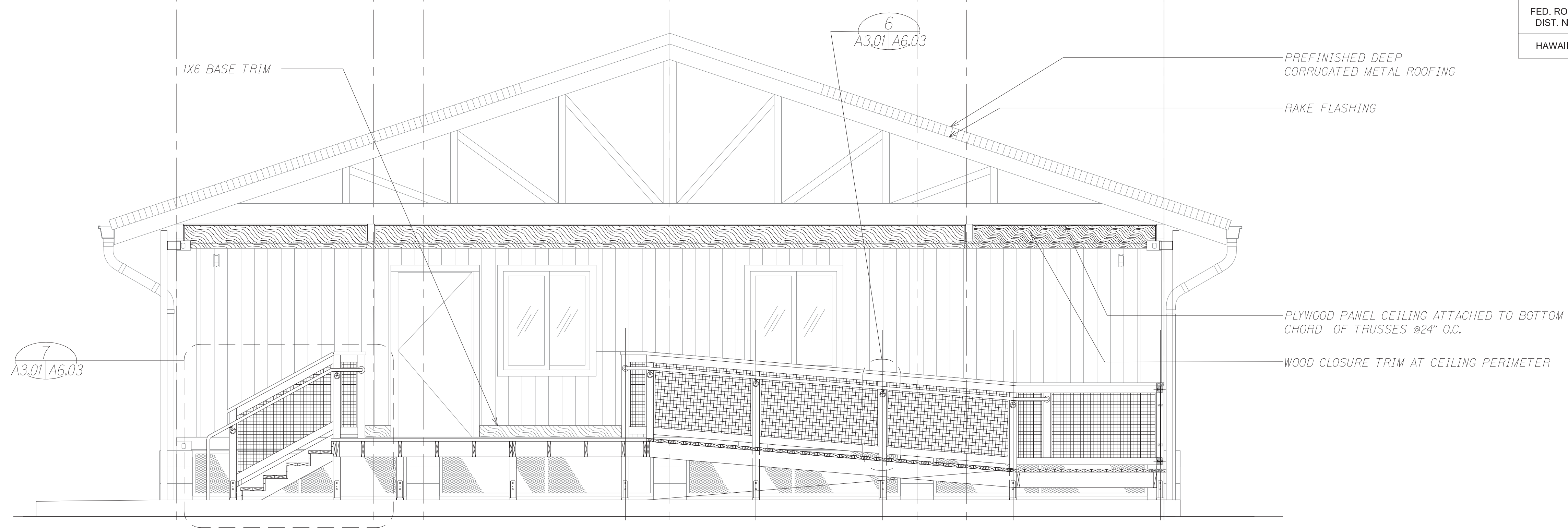


2 ADMINISTRATIVE - STORAGE BUILDING ELEVATION A
A-1.01 | A2.02 Scale: 1/4" = 1'-0"

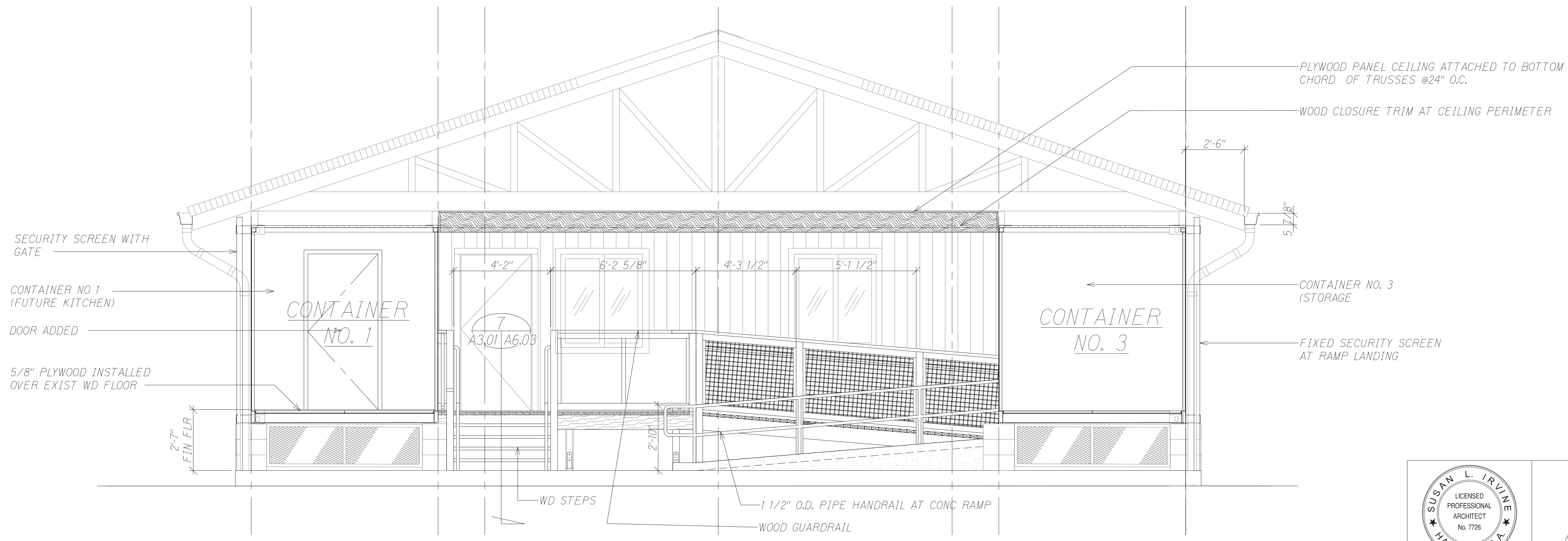


STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
LULUKU CONTAINER SHED
ADMINISTRATIVE-STORAGE BUILDING
EXTERIOR BUILDING ELEVATIONS
HALAWA-LULUKU INTERPRETIVE DEVELOPMENT
LULUKU PROJECT AREA
FEDERAL-AID PROJECT NO. I-H3-1(75)
Scale: 1/4"=1'-0" Date: JULY 2023

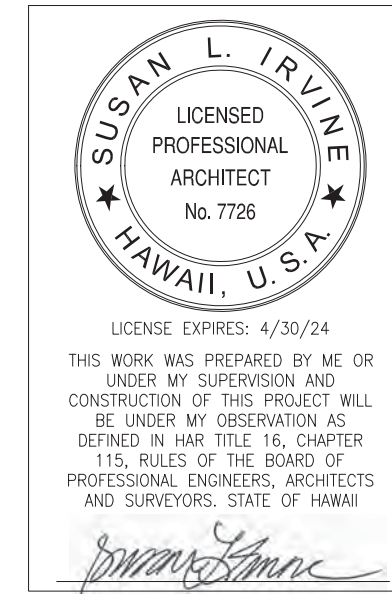
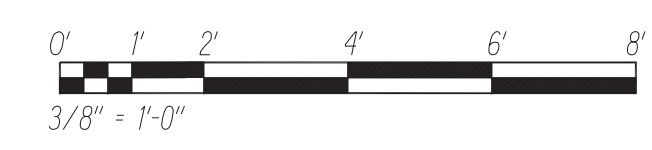
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75)	2024	22	37



1 SECTION THROUGH STAIR, PORCH AND UPPER RAMP
 A1.01 | A3.01 | A6.03 Scale: 3/8" = 1'-0"



2 SECTION THROUGH CONTAINER NO. 1 AND CONTAINER NO. 3
 A1.01 | A3.01 | A6.03 Scale: 3/8" = 1'-0"



STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
 LULUKU CONTAINER SHED
 ADMINISTRATIVE-STORAGE BUILDING
 BUILDING SECTIONS
 HALAWA-LULUKU INTERPRETIVE DEVELOPMENT
 LULUKU PROJECT AREA
 FEDERAL-AID PROJECT NO. I-H3-1(75)
 Scale: 1/4"=1'-0" Date: JULY 2023

DOOR SCHEDULE

BUILDING	DOOR NUMBER	SIZE (WXH)	THICKNESS	TYPE	DOOR CONSTRUCTION	FRAME CONSTRUCTION	DOOR # FRAME FINISH	DETAILS			FIRE RATING	HDWE GROUP	REMARKS
								HEAD	JAMB	THRESH			
CONTAINER	G 01	3'-0" X 7'-0"	2"	C	STL	STL	PT	1/A6.02	4/A6.02, 5/A6.02	3/A6.02	--	03	CUSTOM STEEL GATE
	G 02	4'-4" X 7'-0"	2"	D	STL	STL	GM	2/A6.04			--	04	CHAINLINK GATE
	D 01	3'-0" X 7'-0"	1 3/4"	A	STL	STL	PT	1/A6.01	2/A6.01	3/A6.01	--	01	CONTAINER #1 - EXT DR
	D 02	3'-0" X 7'-0"	1 3/4"	A	STL	STL	PT	1/A6.01	2/A6.01	3/A6.01	--	01	CONTAINER #2 - EXT DR
	D 03	3'-0" X 7'-0"	1 3/4"	B	WD	STL	PT	4/A6.01	4/A6.01	5/A6.01	--	02	CONTAINER #2 - INTR DR

DOOR NOTES

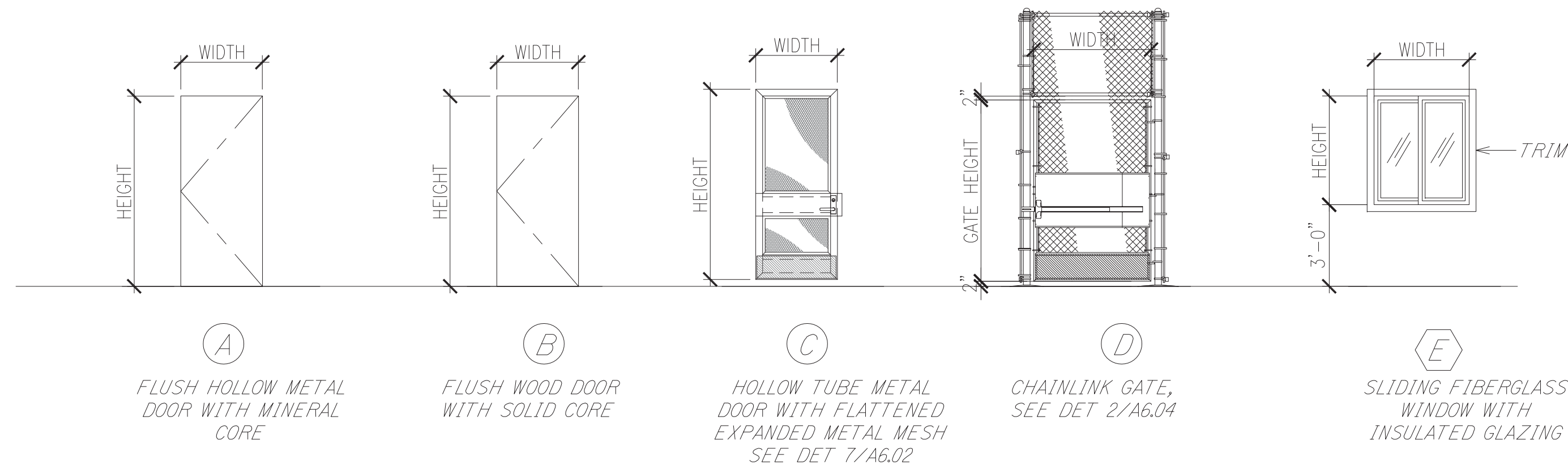
DOOR CONSTRUCTION:
STL STEEL, FLUSH WITH MINERAL CORE
WD WOOD, FLUSH WITH SOLID CORE

FRAME CONSTRUCTION:
STL STEEL
WD WOOD

DOOR # FRAME FINISH:
PT PAINTED, SEE FINISH SCHED FOR COLOR

DOOR AND WINDOW TYPES

SCALE: 1/4"=1'-0"



WINDOW SCHEDULE

WINDOW NUMBER	SIZE (WXH)	WINDOW TYPE	WINDOW FRAME CONSTRUCTION	WINDOW FRAME FINISH	GLAZING	DETAILS				REMARKS
						HEAD	JAMB	SILL	MULLION	
W01	3'-6" X 4'-0"	E	FG	ICL	IGU	6/A6.01	7/A6.01	9/A6.01	8/A6.01	WITH INSECT SCREEN
W02										
W03										
W04										
W05										

WINDOW NOTES

WINDOW FRAME CONSTRUCTION:
FG FIBERGLASS

WINDOW FRAME FINISH:
ICL INTEGRATED COLOR (BRONZE/DARK BROWN)

GLAZING:
IGU INSULATED GLAZING UNIT (1 1/16" WITH LOW-E, IMPACT RESISTANT)

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75)	2024	23	37

FINISH SCHEDULE

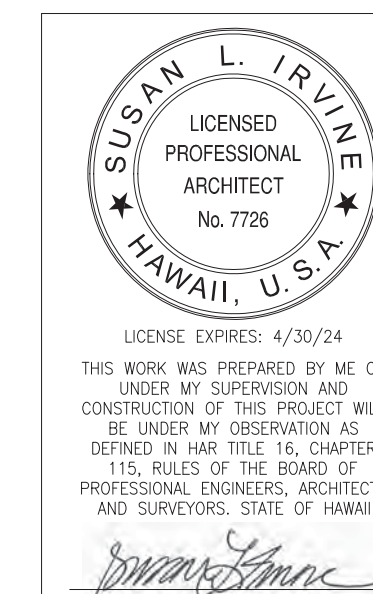
ROOM NAME	FLOORING	WALL BODY	COLUMNS, CMU PEDESTALS	WINDOWS	DOORS	RAILINGS, (EXCLUDING INFILL PANEL)	CELLING	EXPOSED WOOD FRAMING	CRAWL SPACE METAL SECURITY SCREEN	REMARKS
CONTAINER NO. 1 - EXTERIOR	--	PT-1	PT-2	--	PT-3	--	--	--	PT-3	
CONTAINER NO. 1 - INTERIOR	PT-2	PT-3	--	--	PT-3	--	PT-3	--	--	PROVIDE FINISH OVER ADDITIONAL LAYER OF 3/4" PLYWOOD OVER EXIST CONTAINER FLOOR
CONTAINER NO. 2 - EXTERIOR	--	PT-1	PT-2	--	PT-3	--	--	--	--	
CONTAINER NO. 2 - INTERIOR	PT-2	PT-3	--	--	PT-3	--	PT-3	--	--	PROVIDE FINISH OVER ADDITIONAL LAYER OF 3/4" PLYWOOD OVER EXIST CONTAINER FLOOR
HALAU	CS-1	--	PT-3	--	--	PT-3	ST-1	ST-2	--	

NOTES:

- MATERIALS AND FINISHES SPECIFIED ARE INTENDED TO BE USED AS A GUIDE TO DESIGNATE COLOR AND PATTERN. OTHER BRANDS EQUAL TO THAT MENTIONED MAY BE USED PROVIDED IT MATCHES THE DESIGNATED COLOR AND PATTERN OF THE MATERIAL AND MEETS THE REQUIREMENTS OF THE SPECIFICATIONS. THE CONTRACTOR SHALL SUBMIT AND OBTAIN APPROVAL OF SUBSTITUTION PRIOR TO ORDERING OF MATERIALS AND FINISHES.
- SEALANTS, CAULKING, AND OTHER MISCELLANEOUS MATERIALS SHALL MATCH THE COLOR OF THE ADJACENT FINISHES/SURFACES.

MATERIALS SCHEDULE

KEY ABBREV	MATERIAL DESCRIPTION	MANUFACTURER	STYLE NUMBER	STYLE NAME / COLOR	REMARKS
CS-1	CONCRETE SEALER, CLEAR	SCHOFIELD SYSTEMS	CURESEAL-W	CLEAR	
PT-1	PAINT / COATING - BODY	SHERWIN-WILLIAMS	SW 2851	SAGE GREEN LIGHT	EXTERIOR BODY
PT-2	PAINT / COATING - ACCENT	SHERWIN-WILLIAMS	SW 9615	PROSPECT	CMU PEDESTAL, EXPANDED METAL MESH SCREENS, GUARDRAILS
PT-3	PAINT / COATING - TRIM	SHERWIN-WILLIAMS	SW 9591	WHISPER	COLUMNS, CRAWL SPACE SCREEN FRAMES
PT-4	PAINT / COATING - PREFINISHED METAL ROOFING	HPM ROOFING	SW 9591	Polyvinylidene Fluoride (PVDF) - FORREST GREEN	ROOF
ST-1	WOOD STAIN	SHERWIN-WILLIAMS	SW 3509	Baja Beige	Ceiling
ST-2	WOOD STAIN	SHERWIN-WILLIAMS	SW 3505	Yankee Barn	Exposed Framing Members (trusses)



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

LULUKU CONTAINER SHED
ADMINISTRATIVE-STORAGE BUILDING

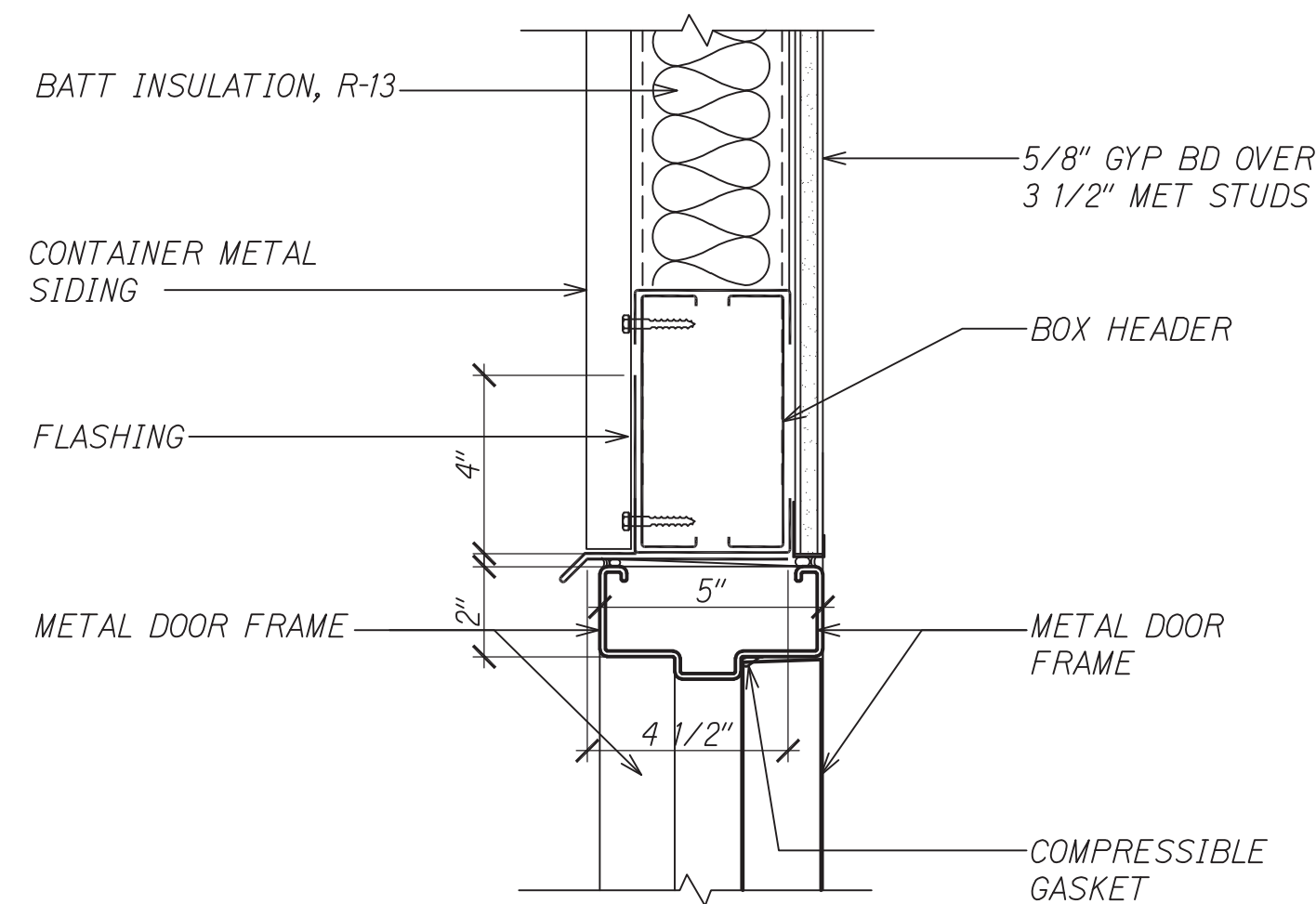
DOOR # WINDOW SCHEDULE, DOOR # WINDOW TYPES,
FINISH SCHEDULE, MATERIALS SCHEDULE

HALAWA-LULUKU INTERPRETIVE DEVELOPMENT
LULUKU PROJECT AREA
FEDERAL-AID PROJECT NO. I-H3-1(75)

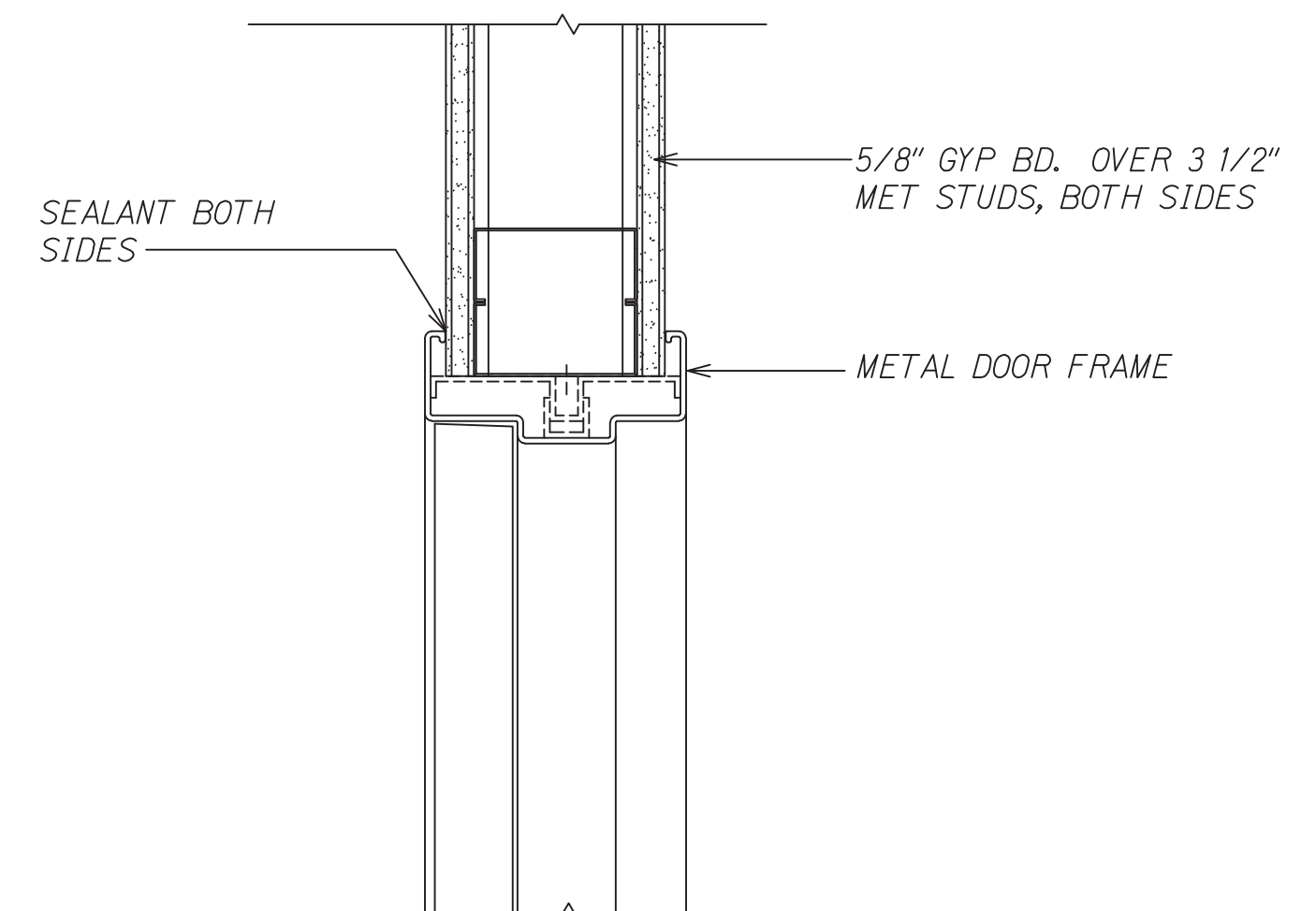
Scale: As-Noted Date: JULY 2023

SHEET No. A5.01 OF 37 SHEETS

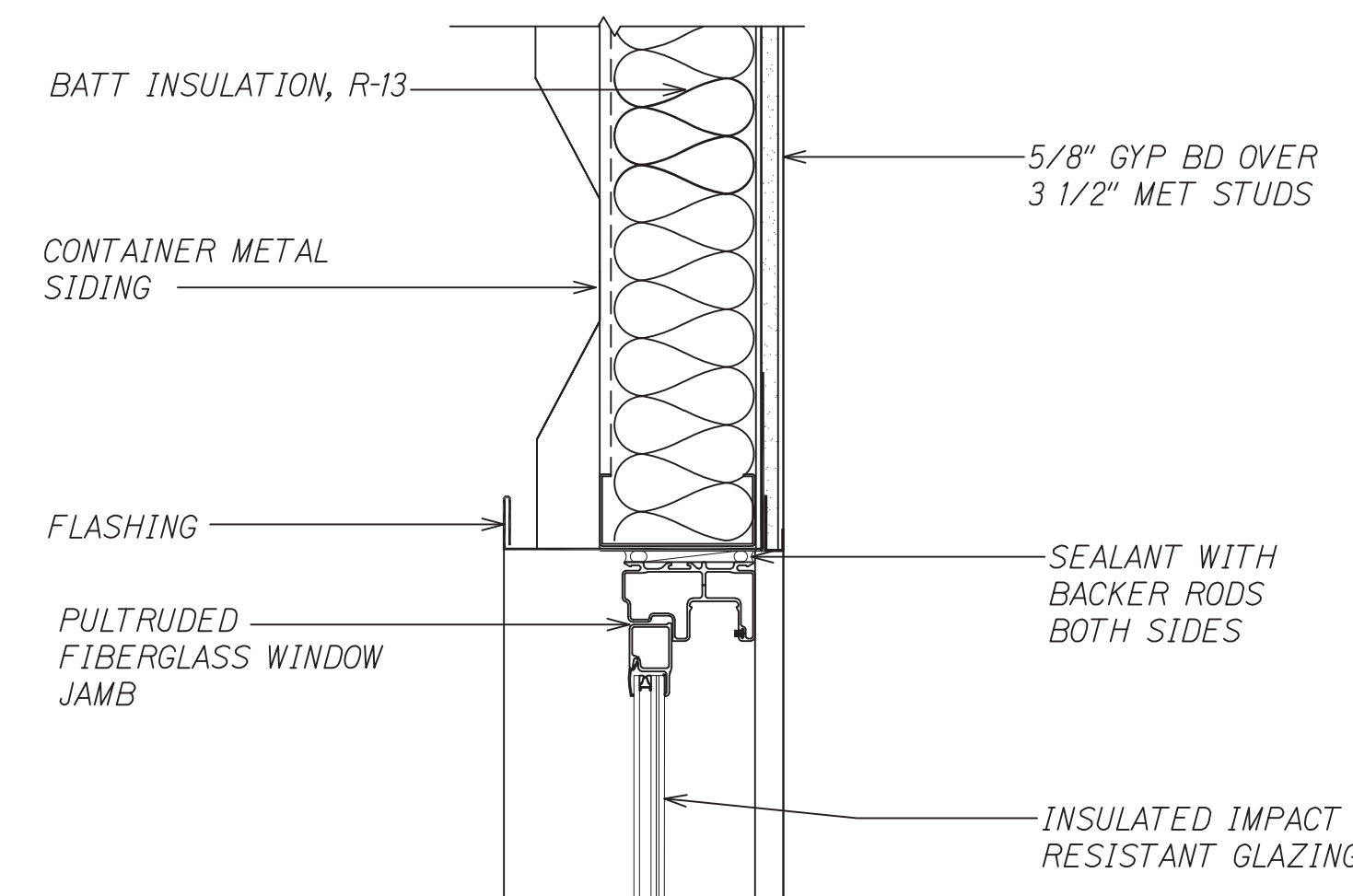
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75)	2024	24	37



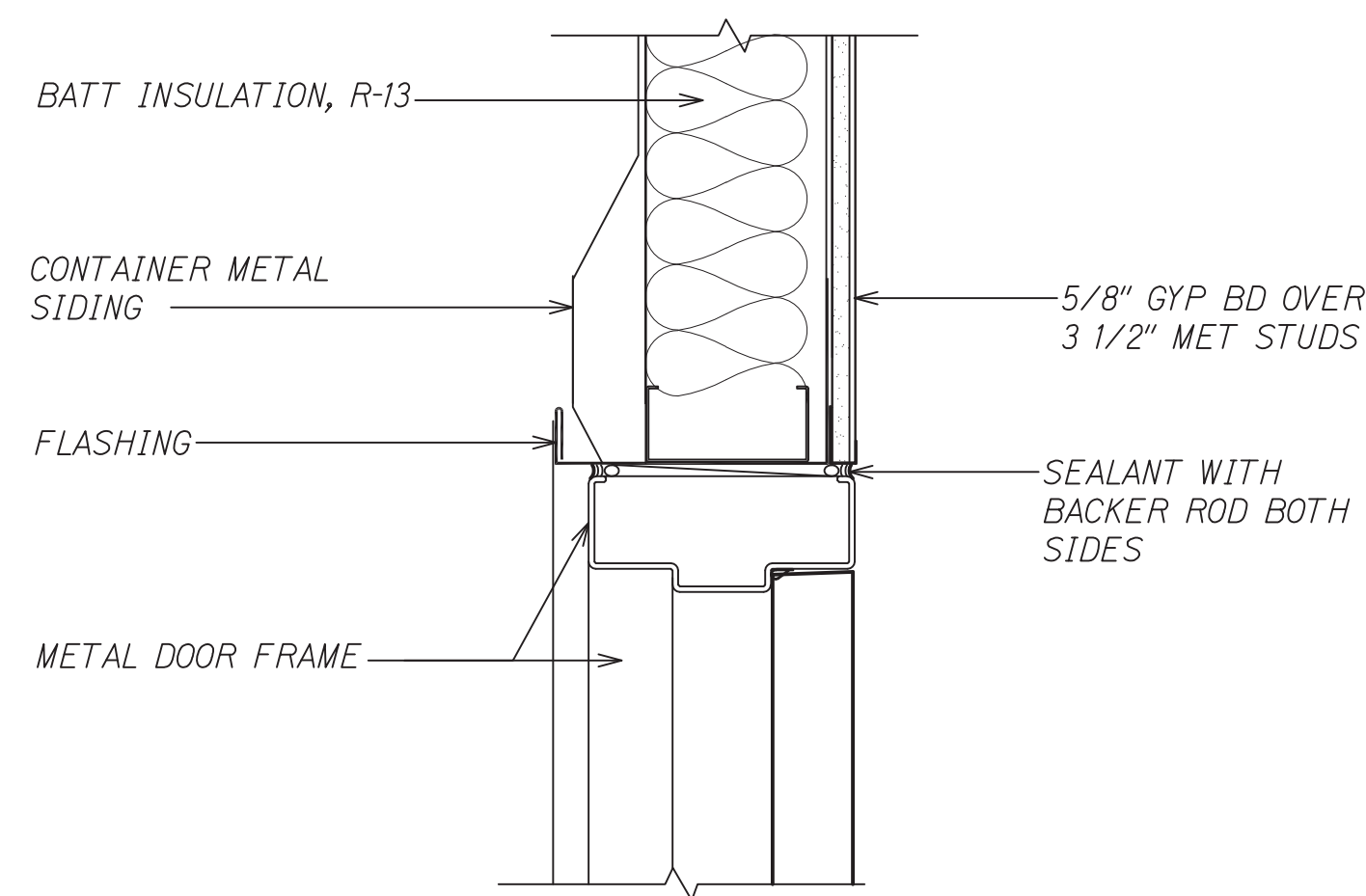
1 DOOR HEAD DETAIL
A5.02 | A6.01 Scale: 3" = 1'-0"



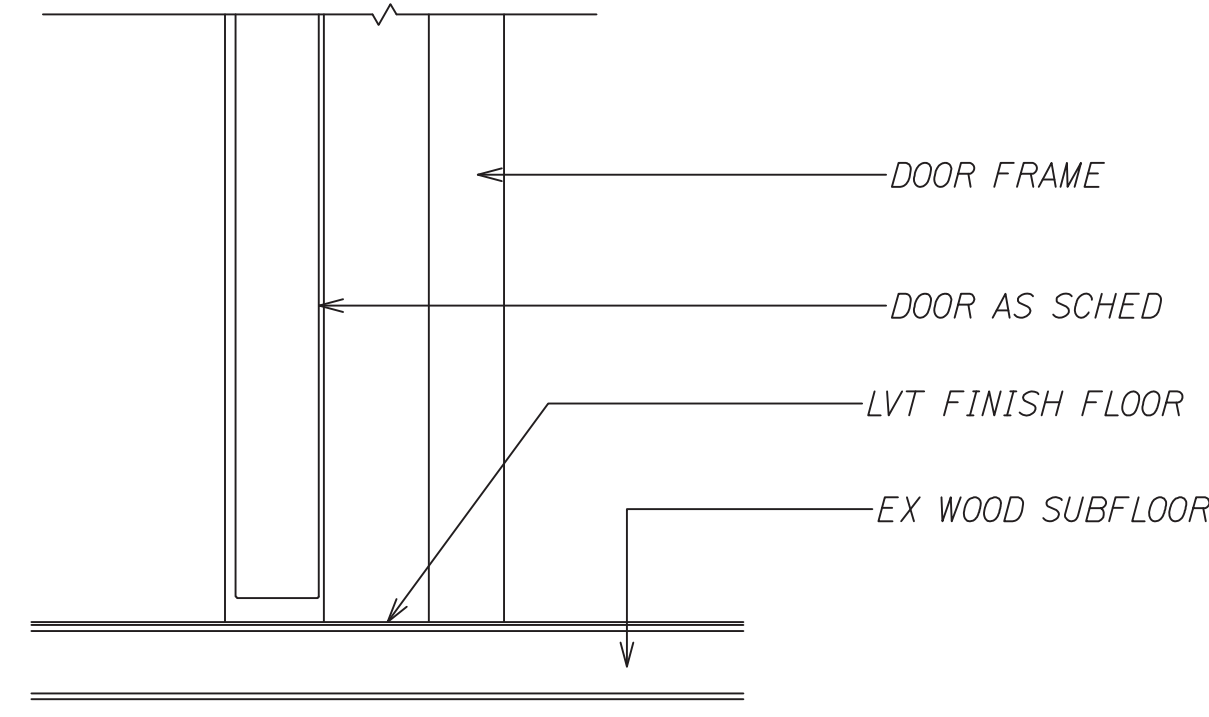
4 DOOR HEAD DETAIL (JAMB SIM)
A5.02 | A6.01 Scale: 3" = 1'-0"



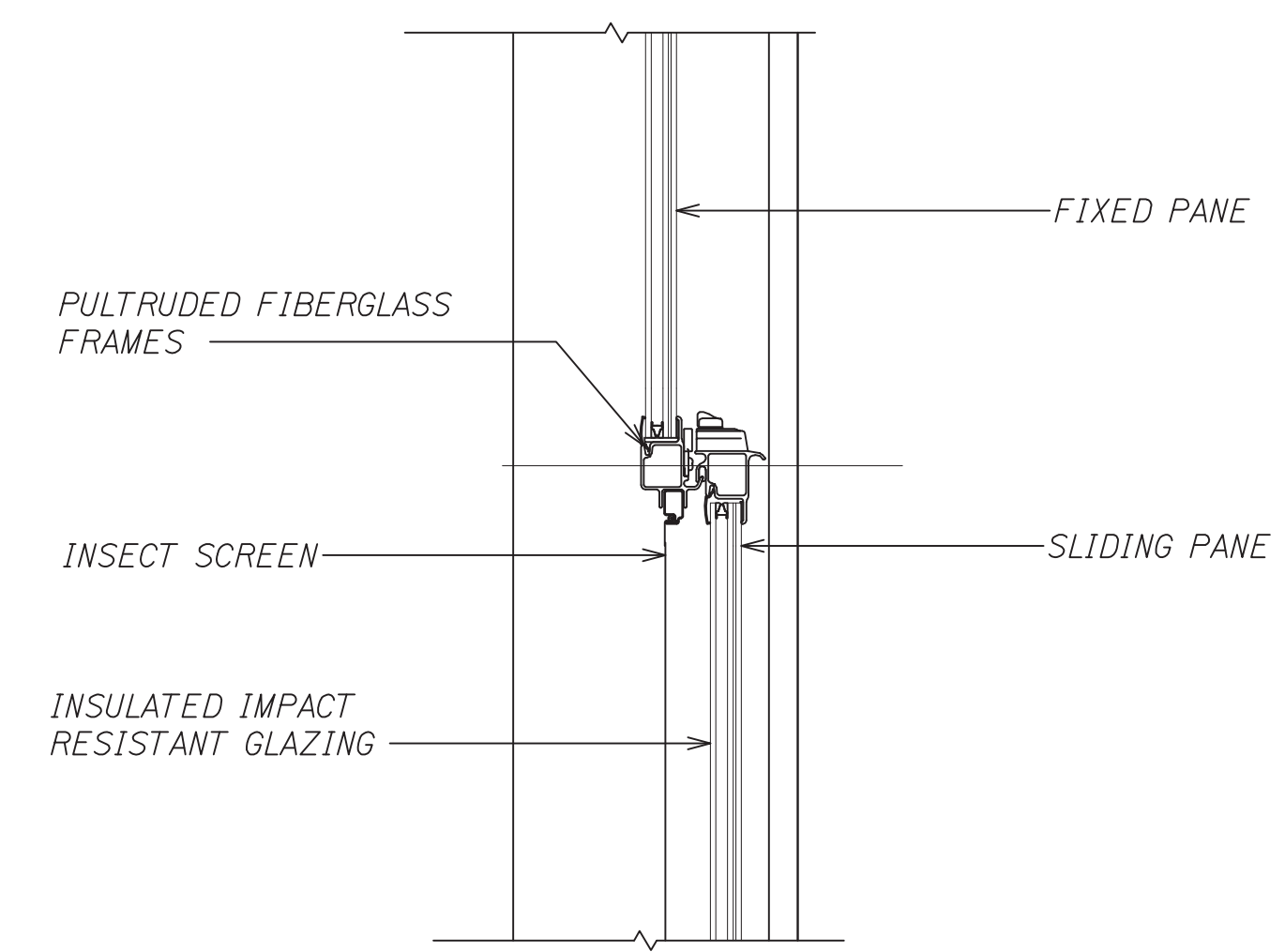
7 DOOR JAMB DETAIL
A5.02 | A6.01 Scale: 3" = 1'-0"



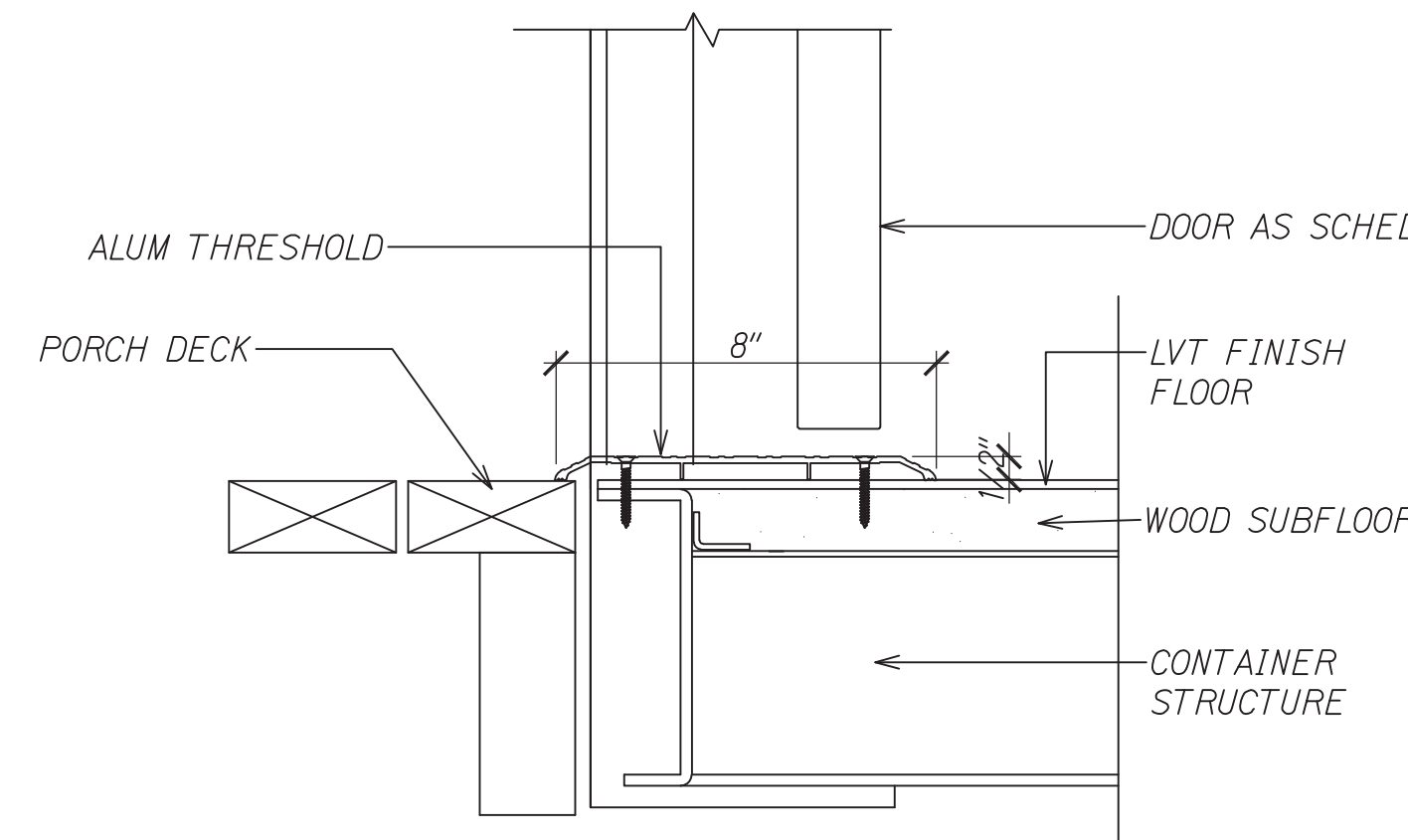
2 DOOR JAMB DETAIL
A5.02 | A6.01 Scale: 3" = 1'-0"



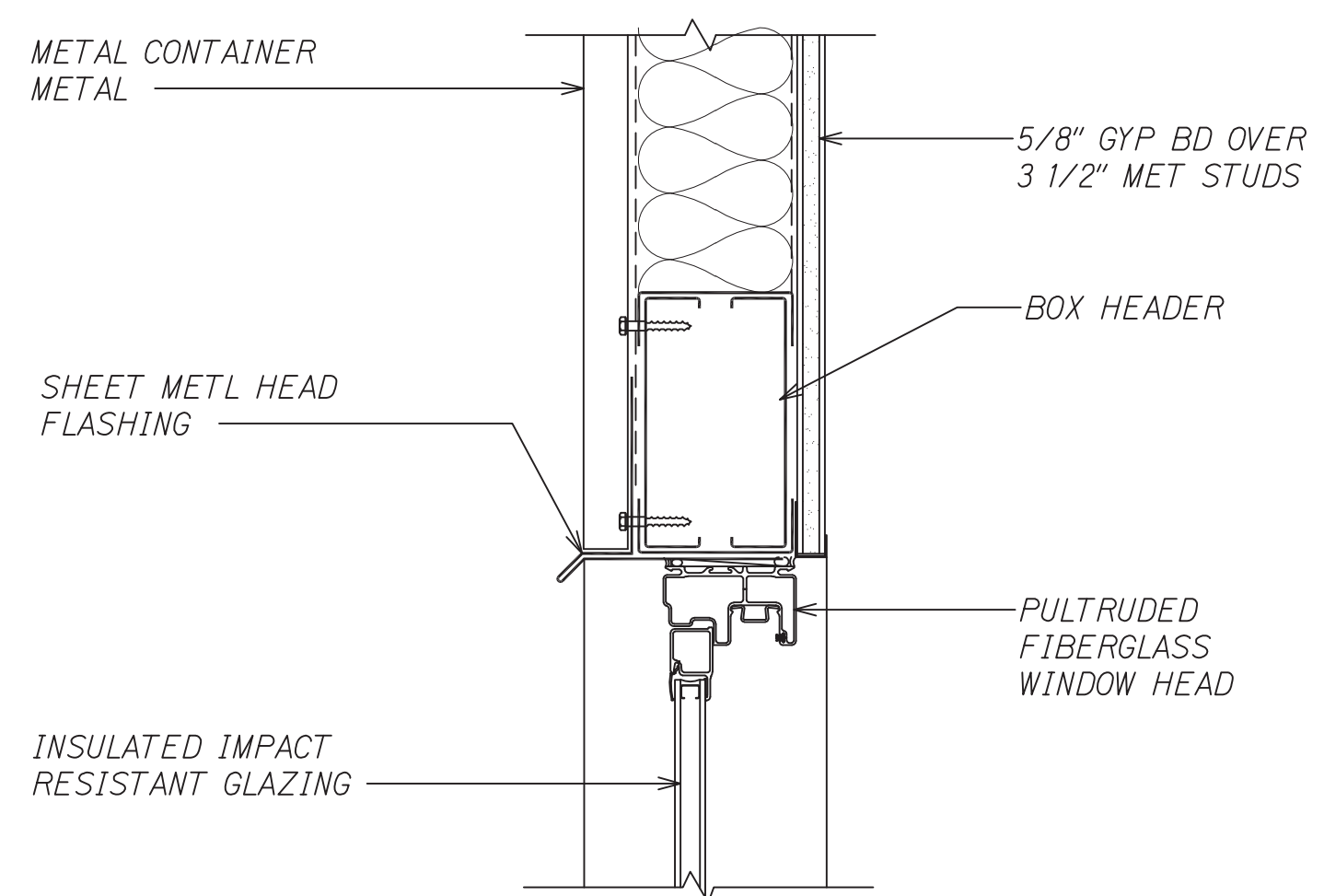
5 THRESHOLD DETAIL
A5.02 | A6.01 Scale: 3" = 1'-0"



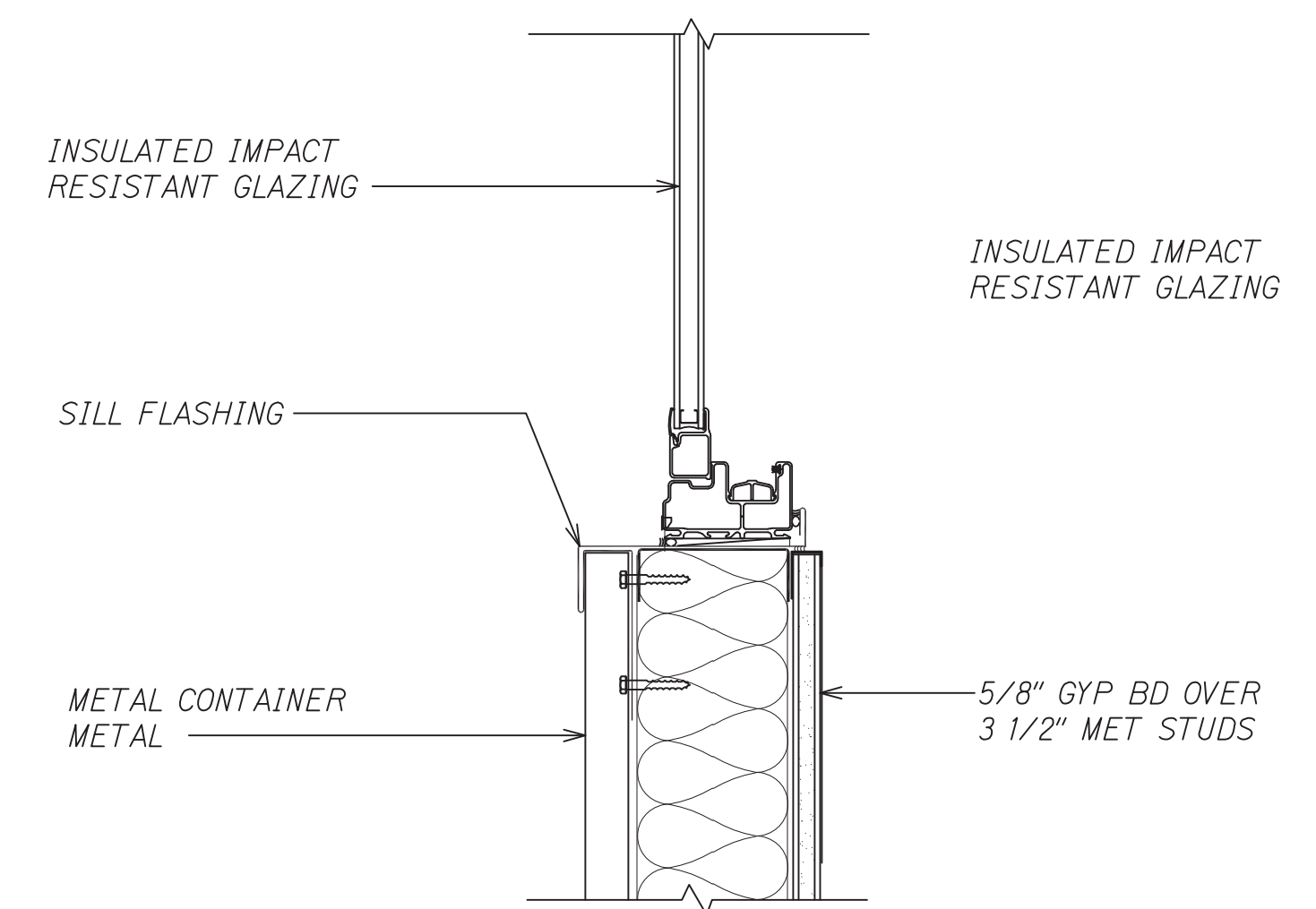
8 MEETING STILE DETAIL
A5.02 | A6.01 Scale: 3" = 1'-0"



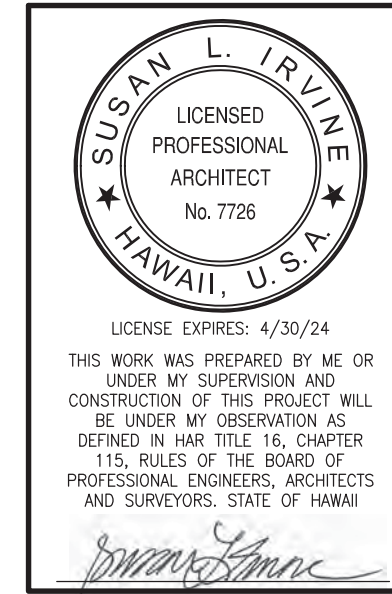
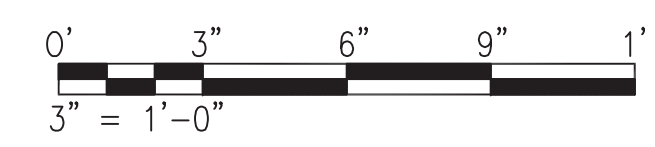
3 THRESHOLD DETAIL
A5.02 | A6.01 Scale: 3" = 1'-0"



6 WINDOW HEAD DETAIL
A5.02 | A6.01 Scale: 3" = 1'-0"



9 WINDOW SILL DETAIL
A5.02 | A6.01 Scale: 3" = 1'-0"



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**LULUKU CONTAINER SHED
ADMINISTRATIVE-STORAGE BUILDING**

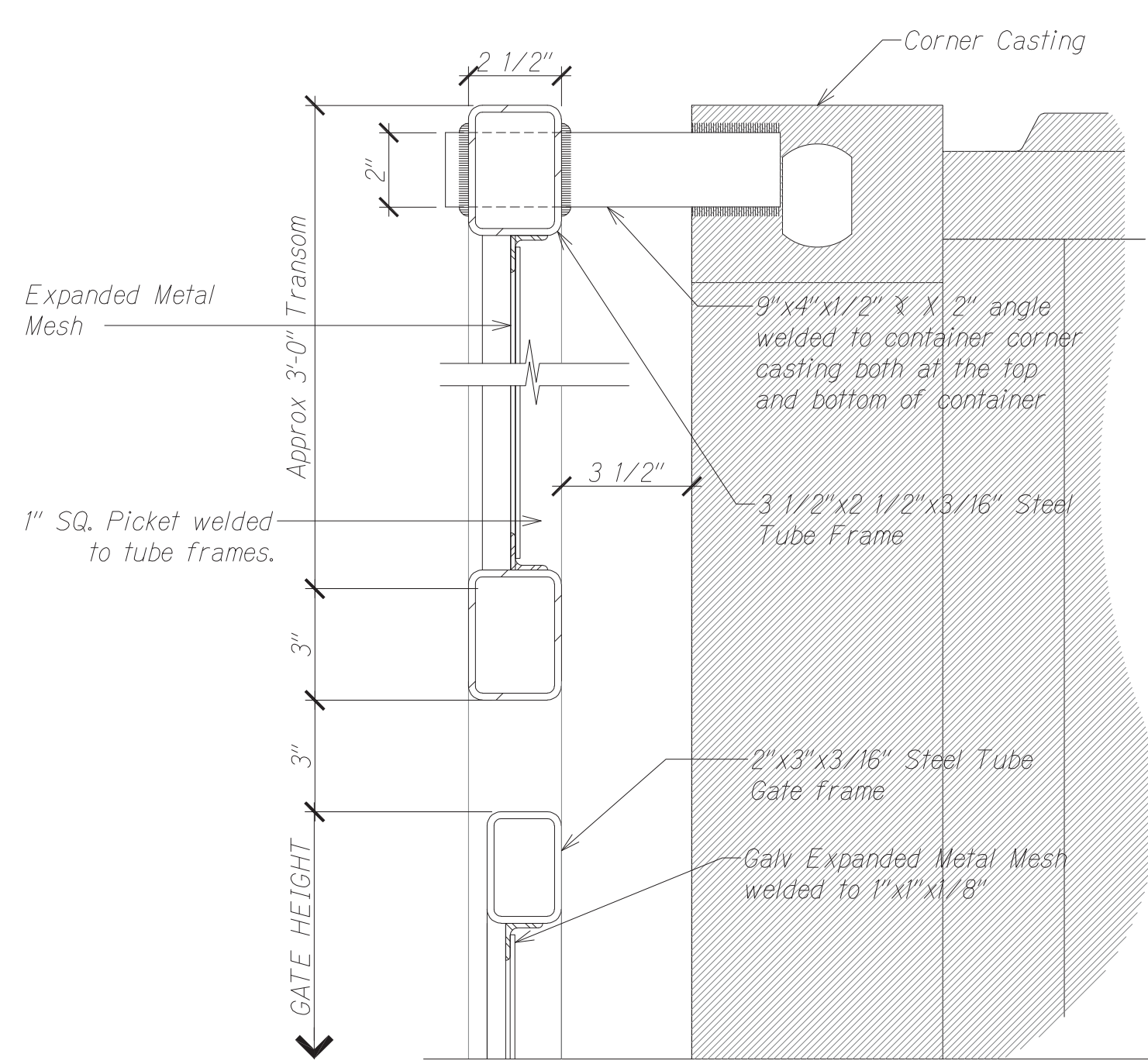
DOOR AND WINDOW DETAILS

HALAWA-LULUKU INTERPRETIVE DEVELOPMENT
LULUKU PROJECT AREA
FEDERAL-AID PROJECT NO. I-H3-1(75)

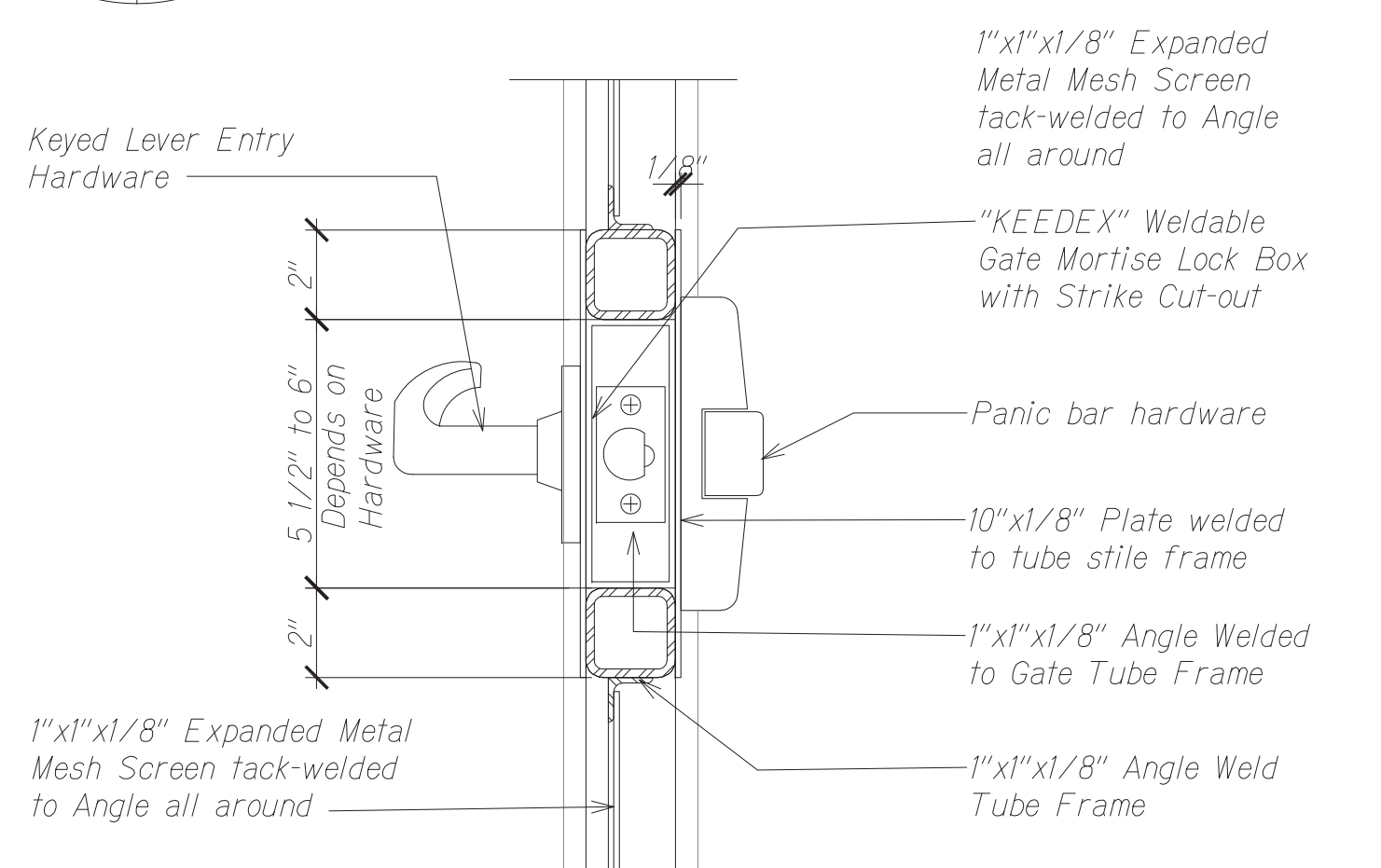
Scale: 3" = 1'-0" Date: JULY 2023

SHEET No. A6.01 OF 37 SHEETS

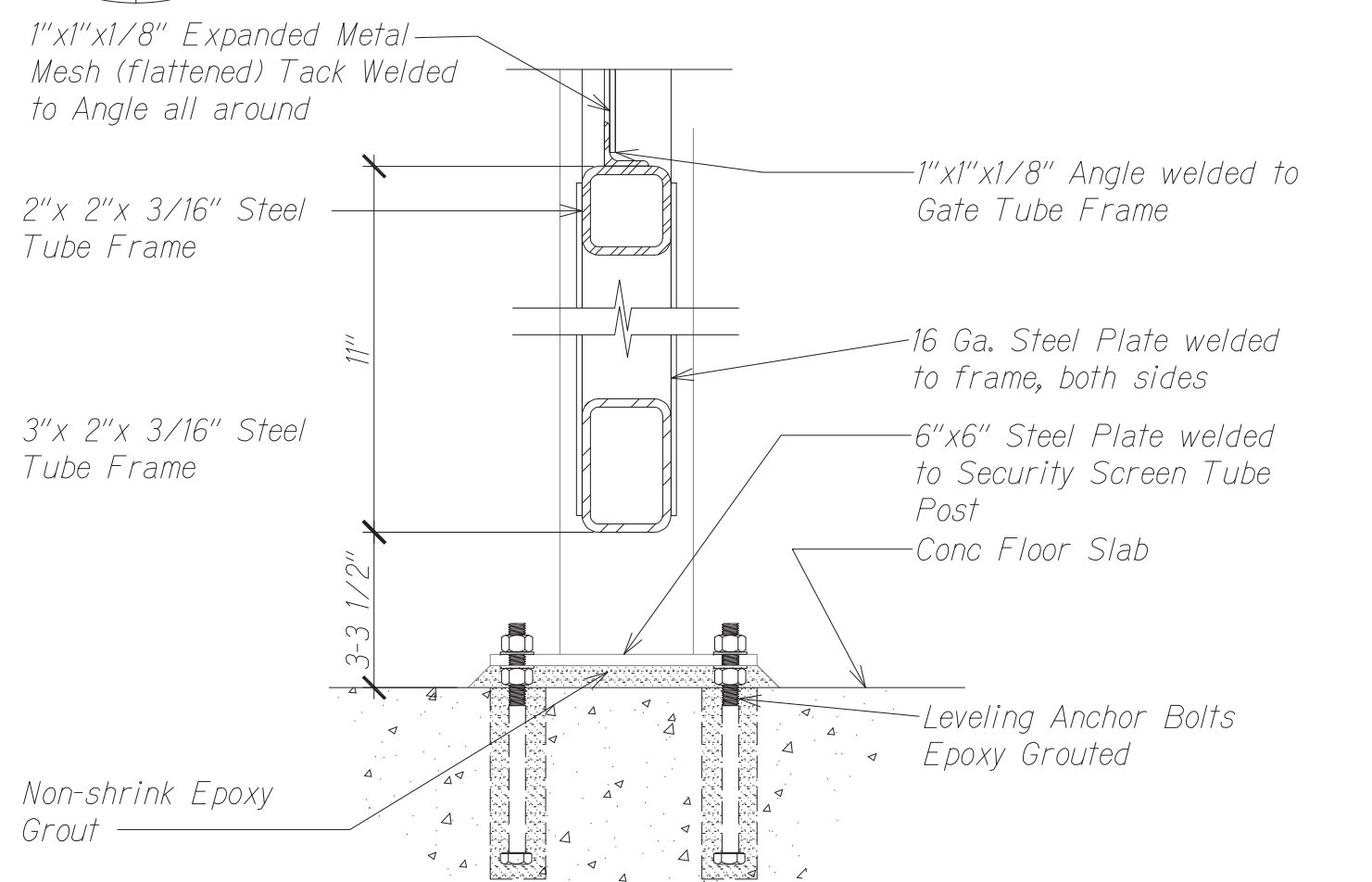
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75)	2024	25	37



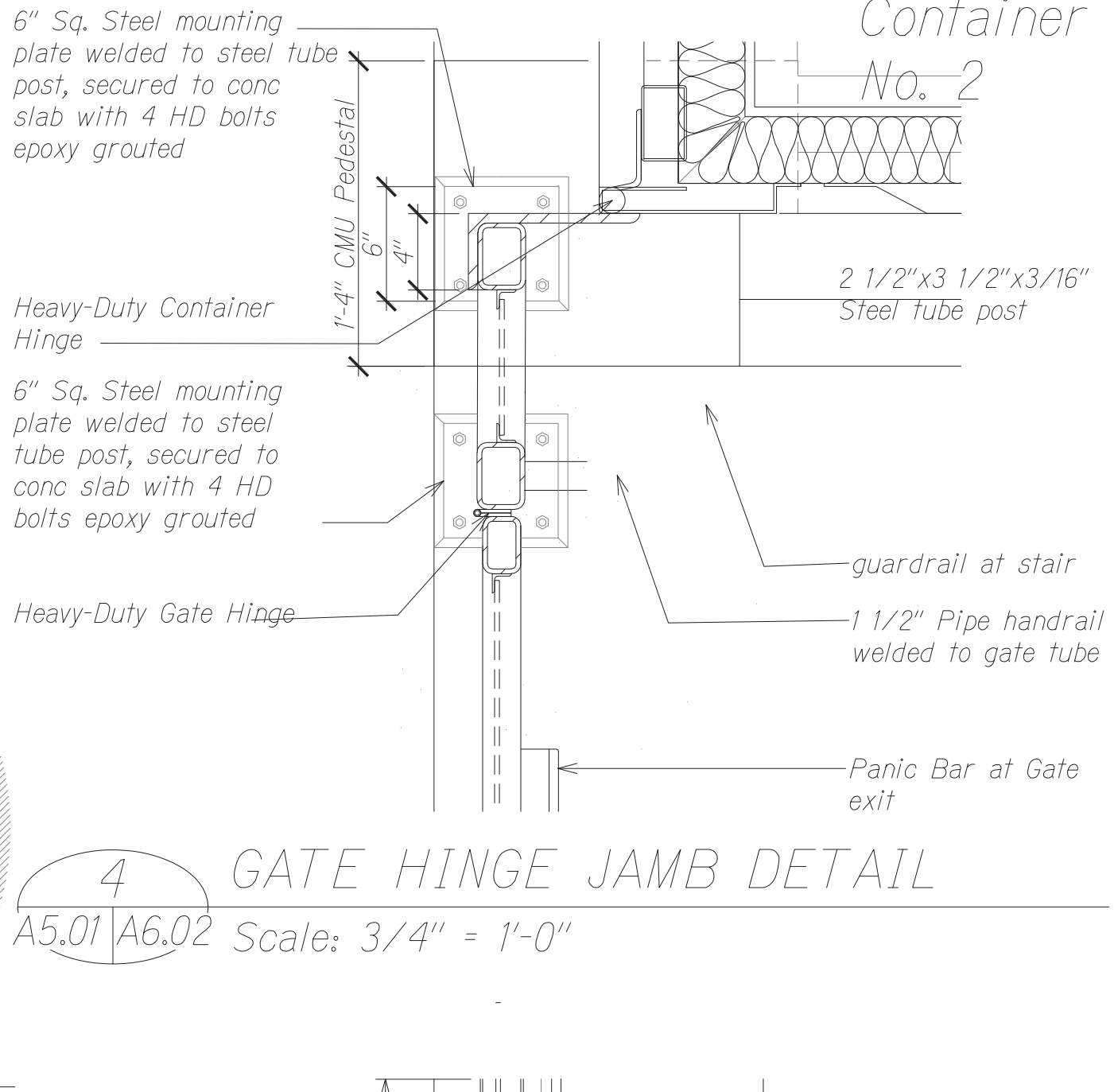
1 GATE HEAD DETAIL
A5.01 | A6.02 Scale: 3" = 1'-0"



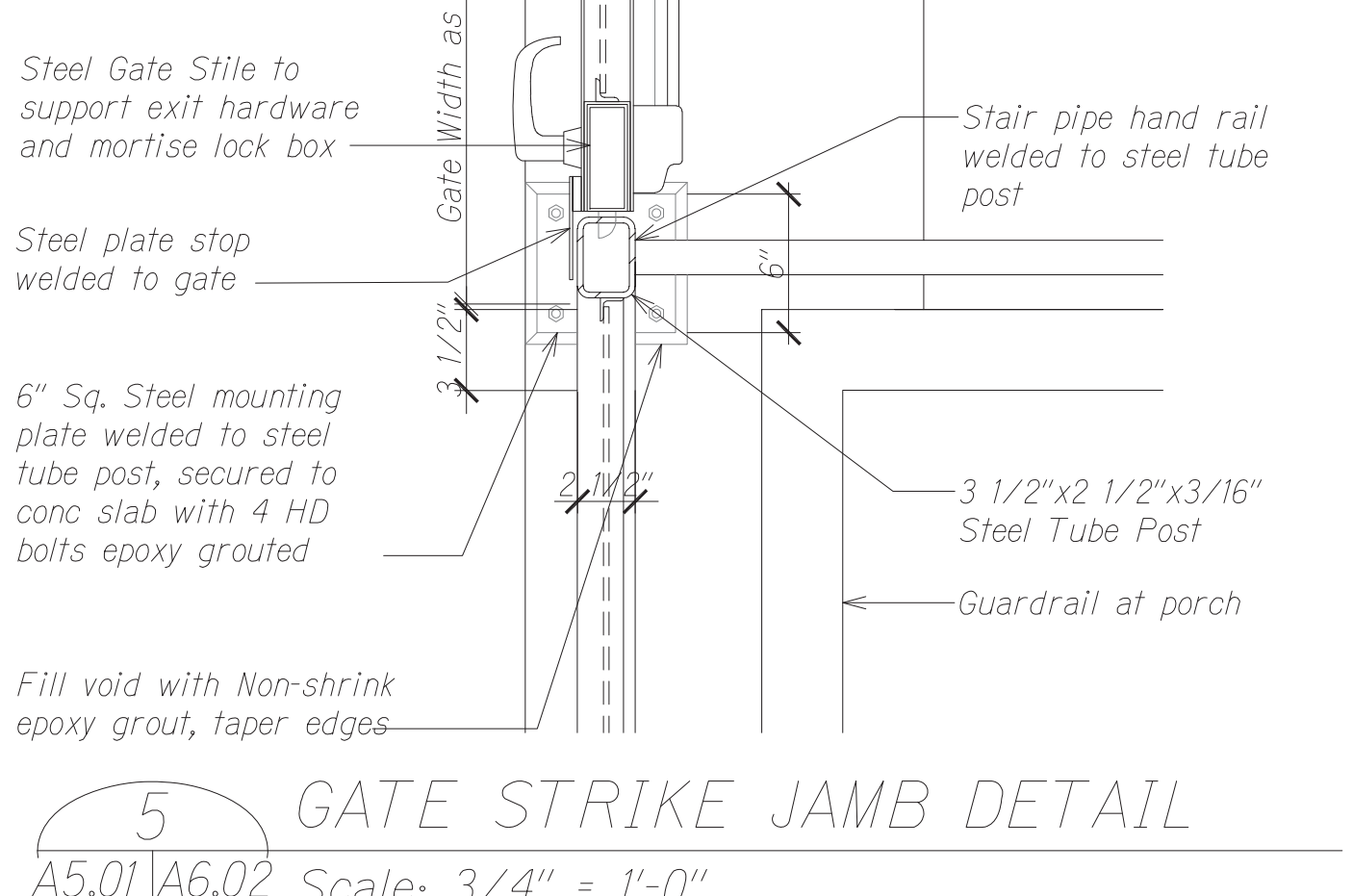
2 GATE STILE DETAIL
A6.02 | A6.02 Scale: 3" = 1'-0"



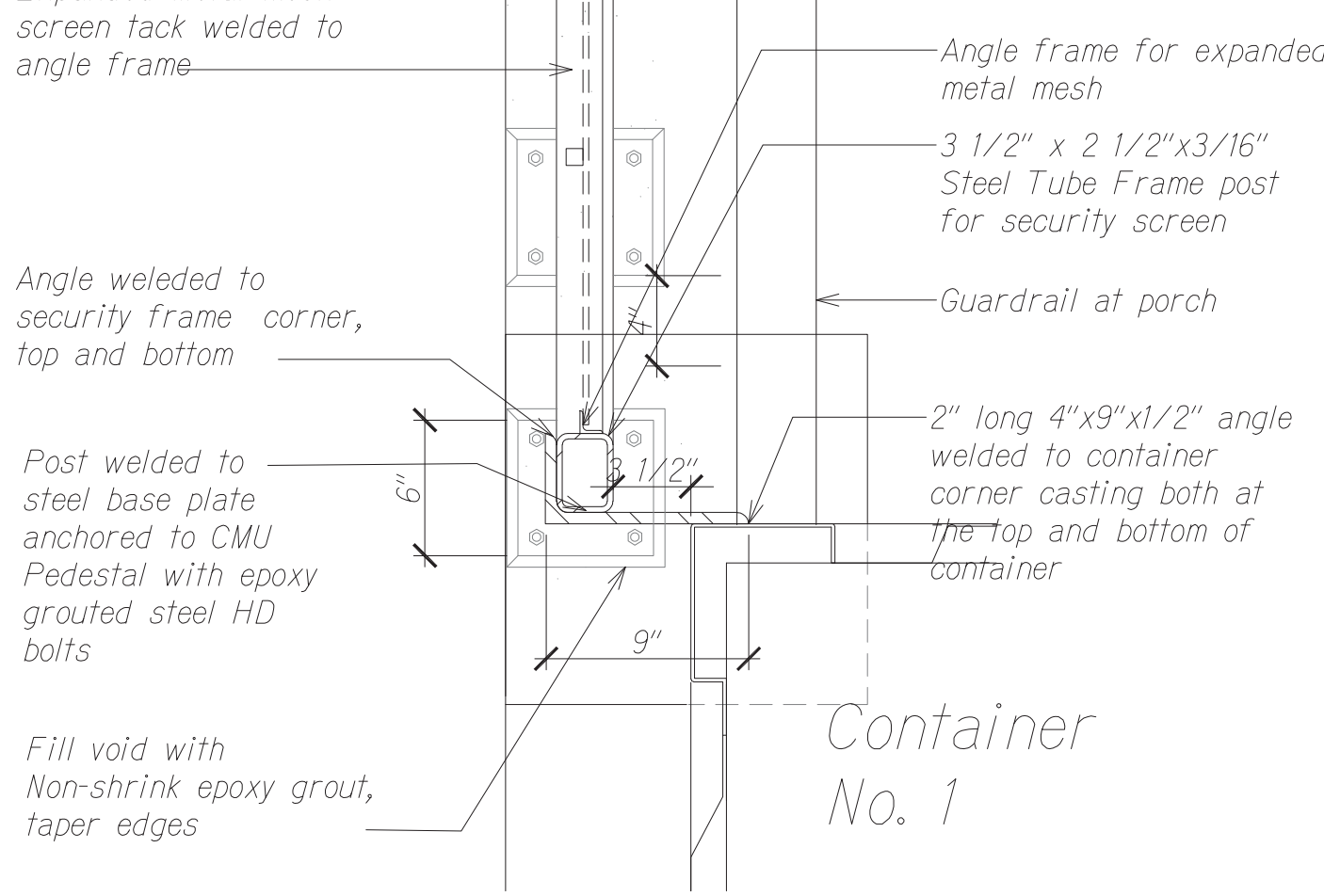
3 GATE SILL DETAIL
A5.01 | A6.02 Scale: 3" = 1'-0"



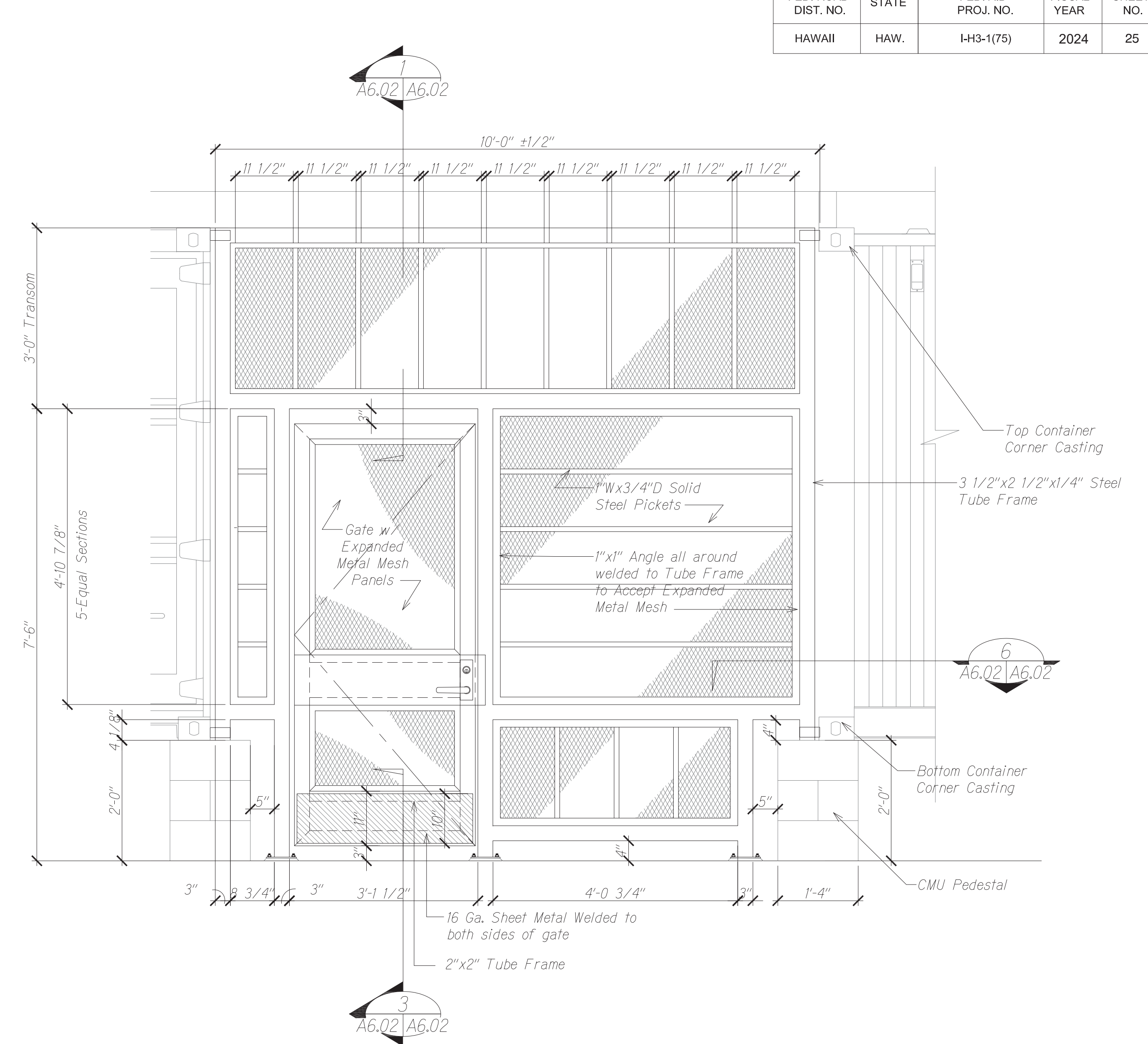
4 GATE HINGE JAMB DETAIL
A5.01 | A6.02 Scale: 3/4" = 1'-0"



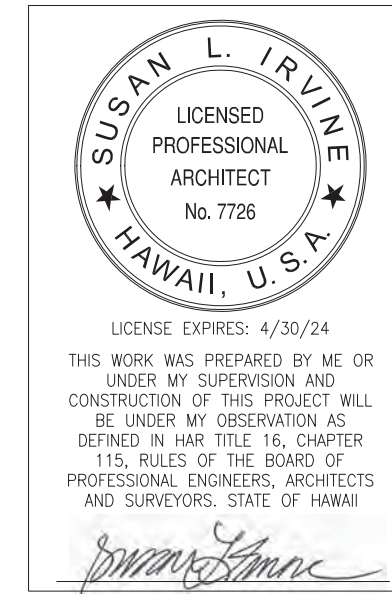
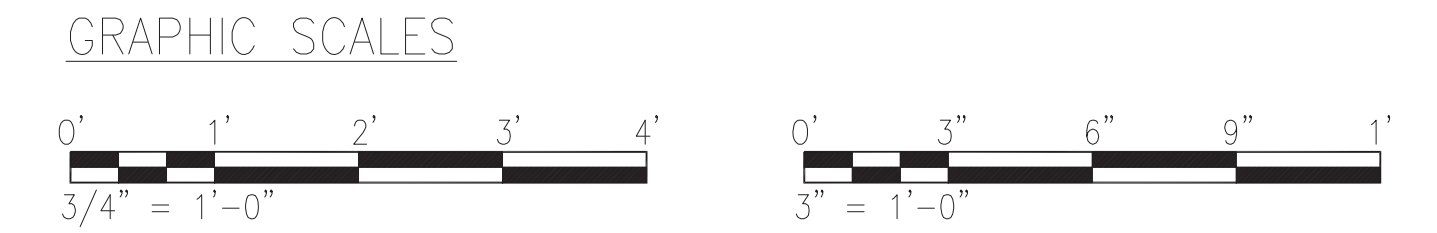
5 GATE STRIKE JAMB DETAIL
A5.01 | A6.02 Scale: 3/4" = 1'-0"



6 GATE POST DETAIL
A6.02 | A6.02 Scale: 3/4" = 1'-0"

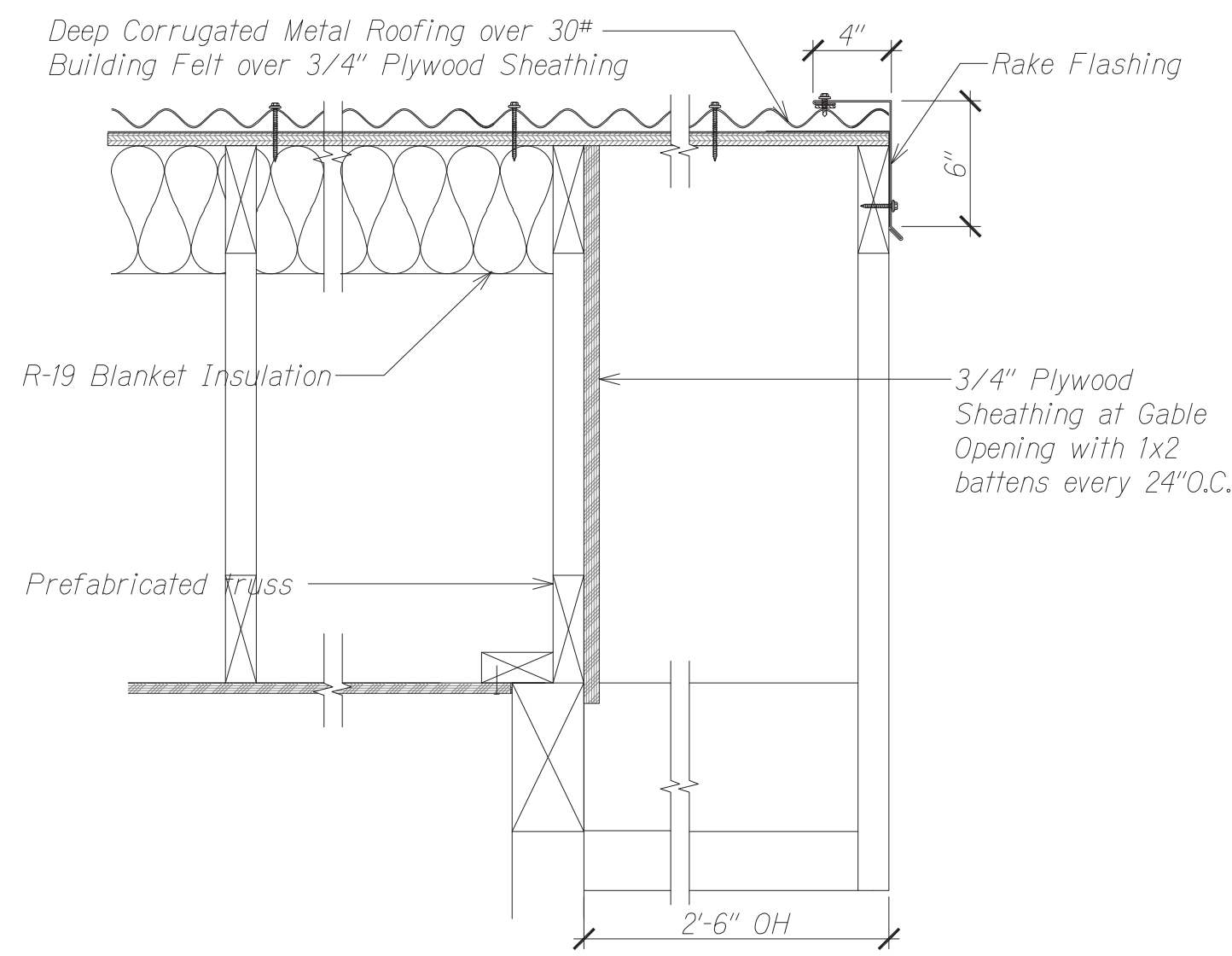


7 SECURITY GATE DETAIL
A4.01 | A6.02 Scale: 3/4" = 1'-0"

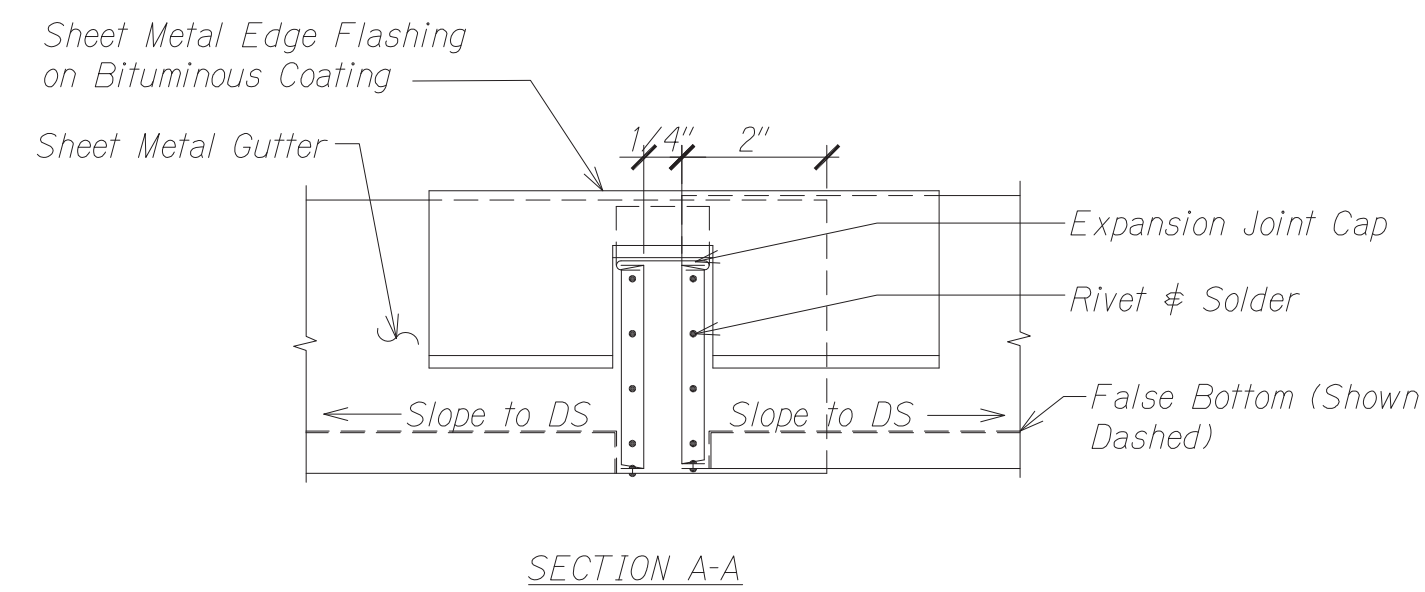
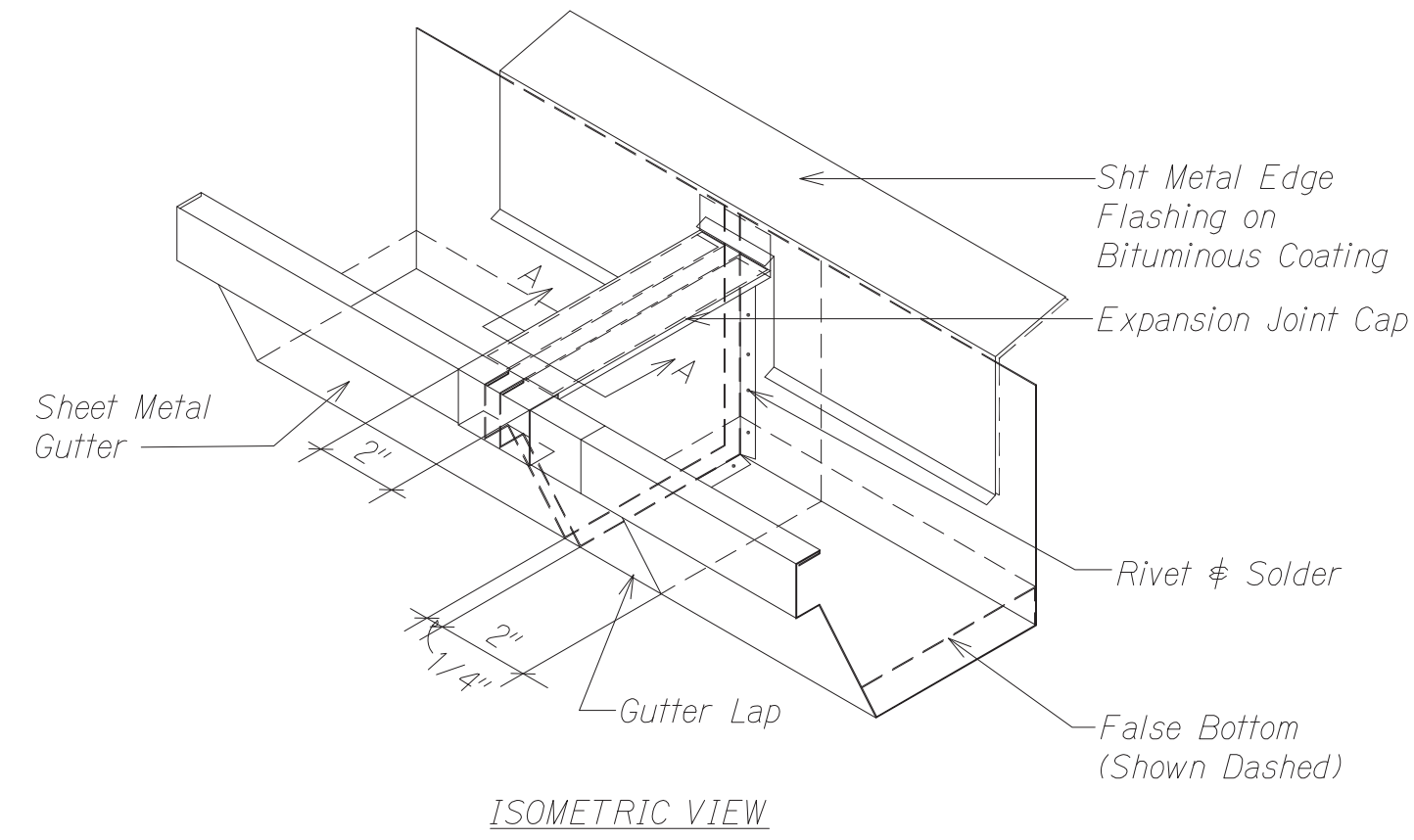


STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
LULUKU CONTAINER SHED
ADMINISTRATIVE STORAGE BUILDING
SECURITY SCREEN AND GATE DETAILS
HALAWA-LULUKU INTERPRETIVE DEVELOPMENT
LULUKU PROJECT AREA
FEDERAL AID PROJECT NO. I-H3-1(75)
Scale: As Noted Date: JULY 2023
SHEET No. A6.02 OF 37 SHEETS

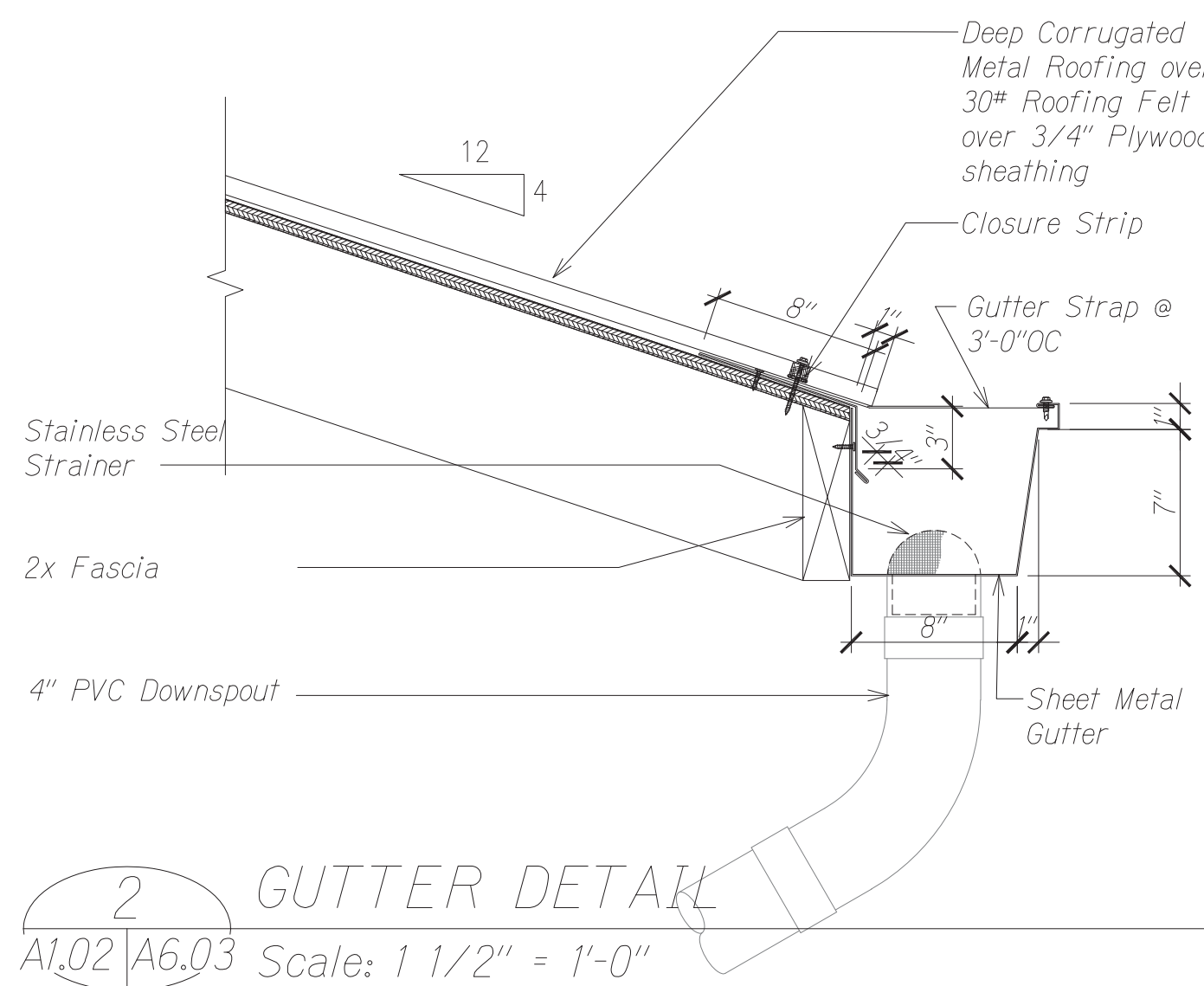
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HAWAII	HAW.	I-H3-1(75)	2024	26	37



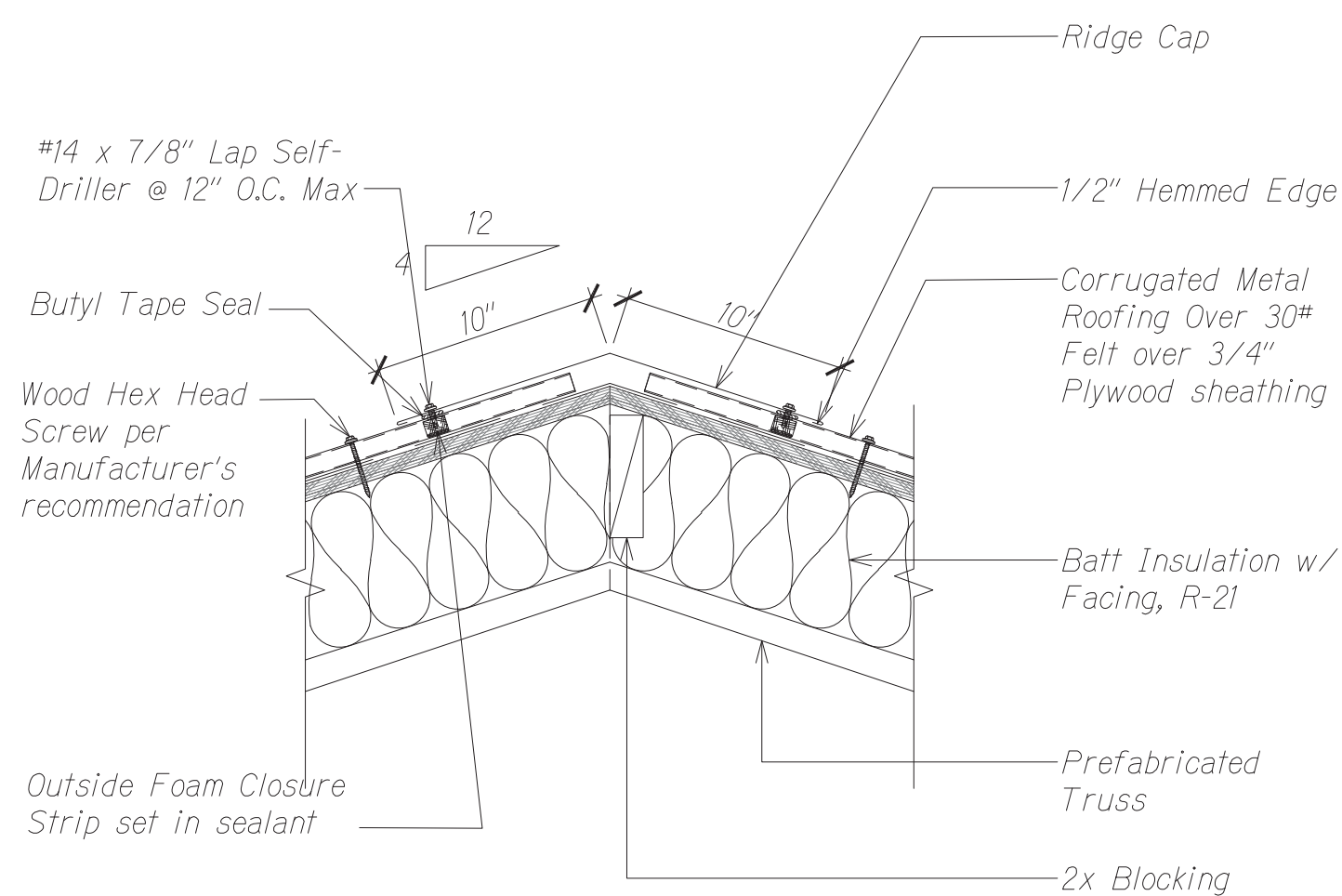
1 RAKE DETAIL
A1.02 | A6.03 Scale: 1 1/2" = 1'-0"



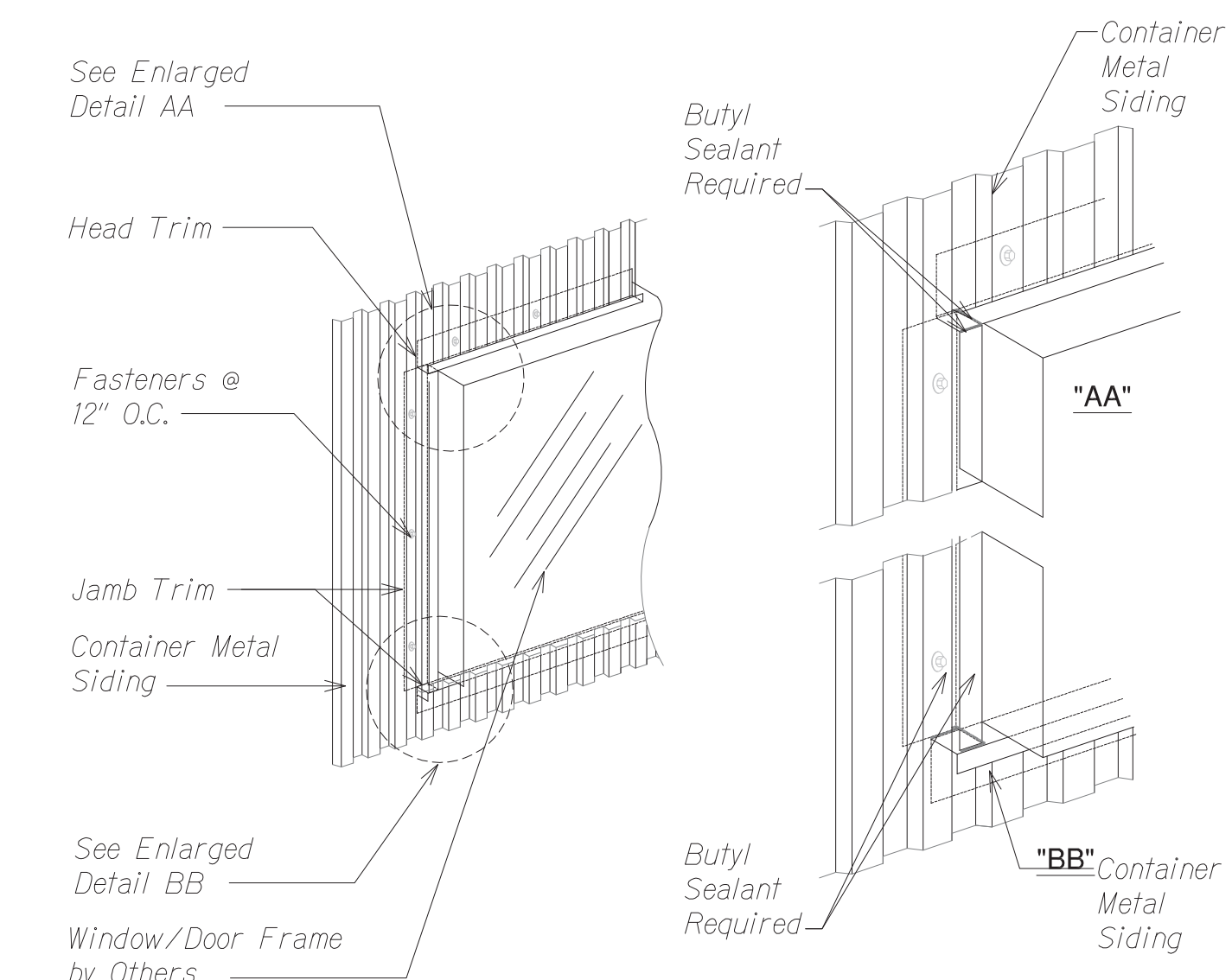
4 GUTTER EXPANSION JOINT DET
A1.02 | A6.03 Scale: NTS



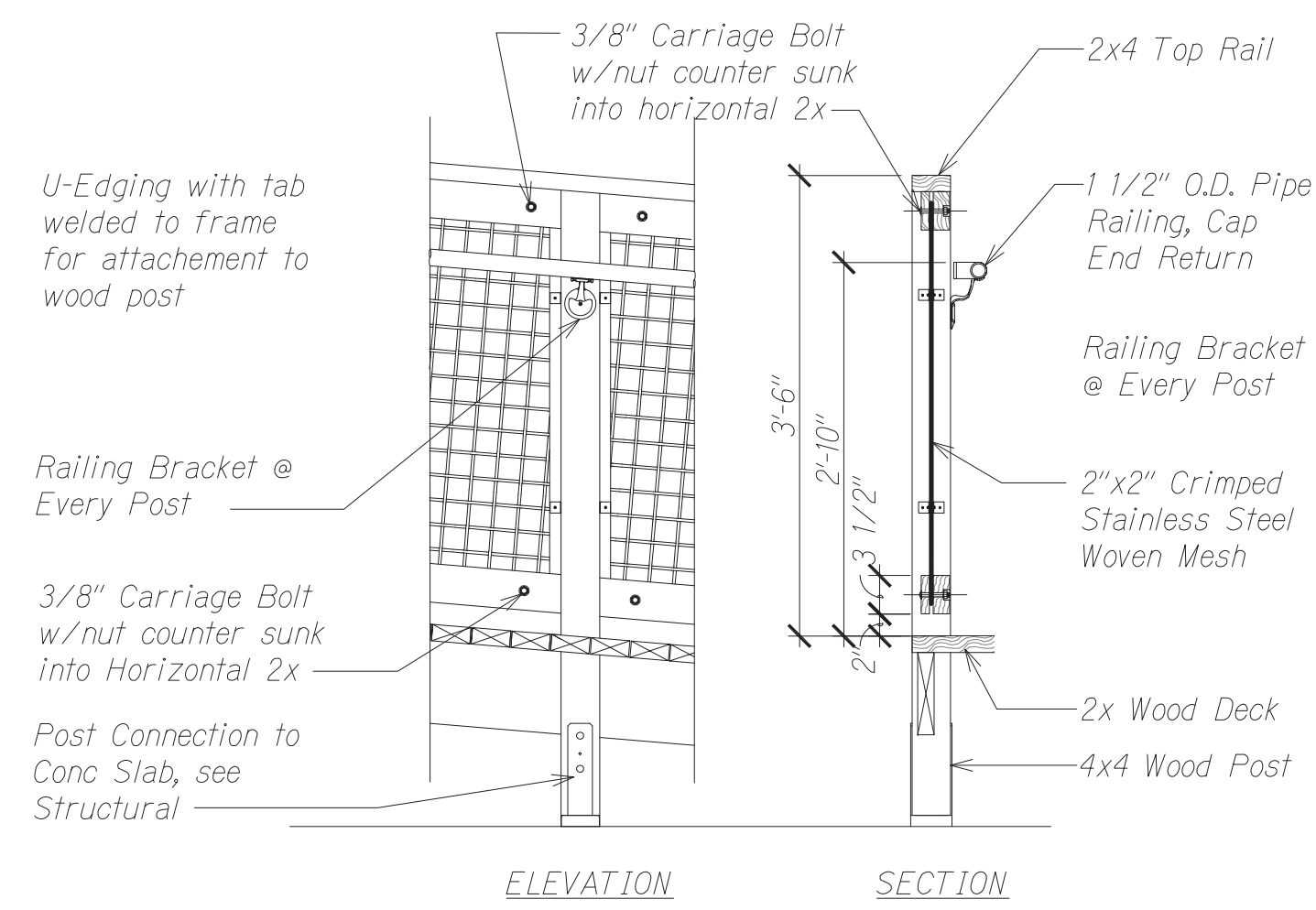
2 GUTTER DETAIL
A1.02 | A6.03 Scale: 1 1/2" = 1'-0"



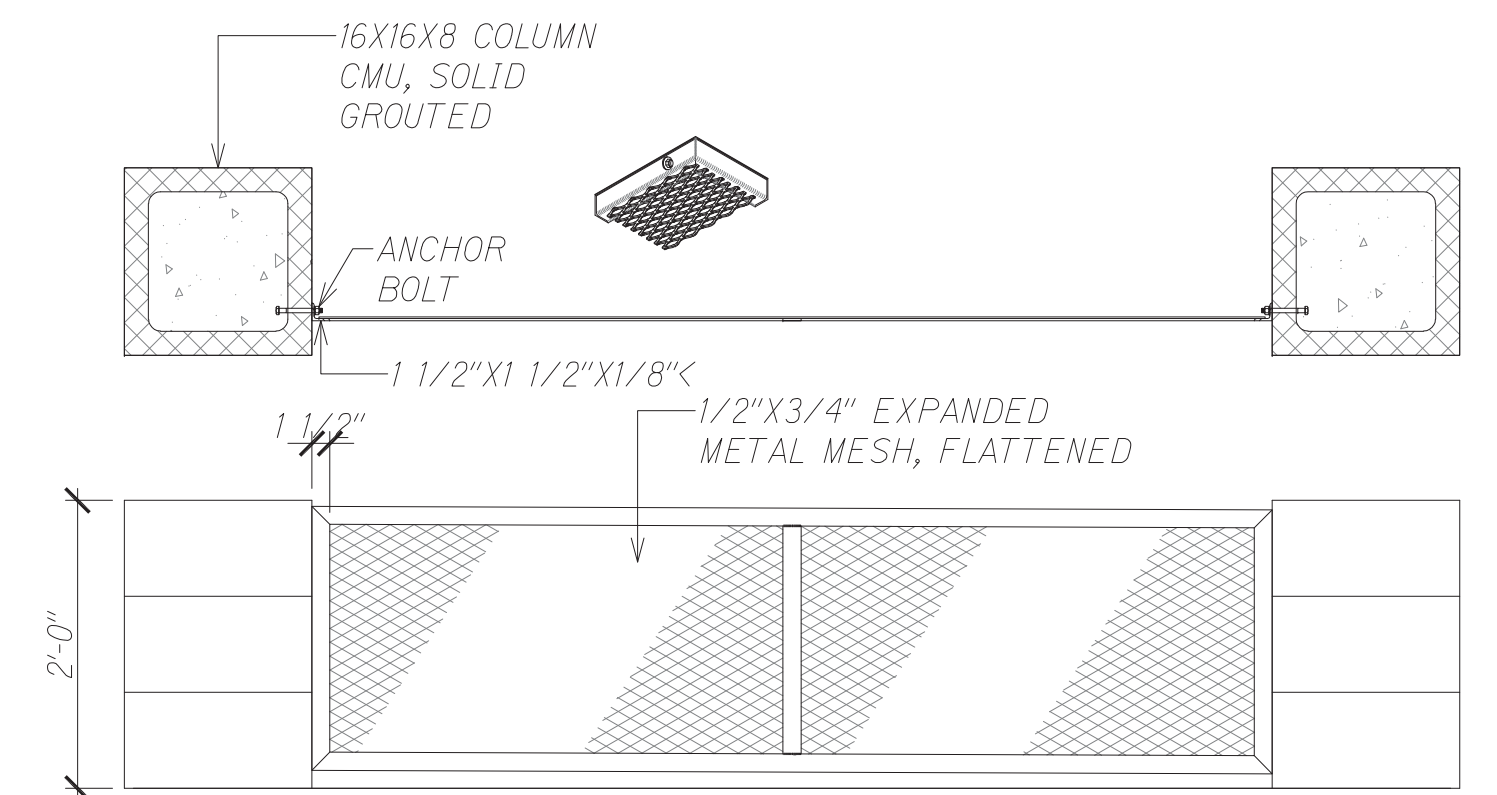
3 RIDGE DETAIL
A1.02 | A6.03 Scale: 1 1/2" = 1'-0"



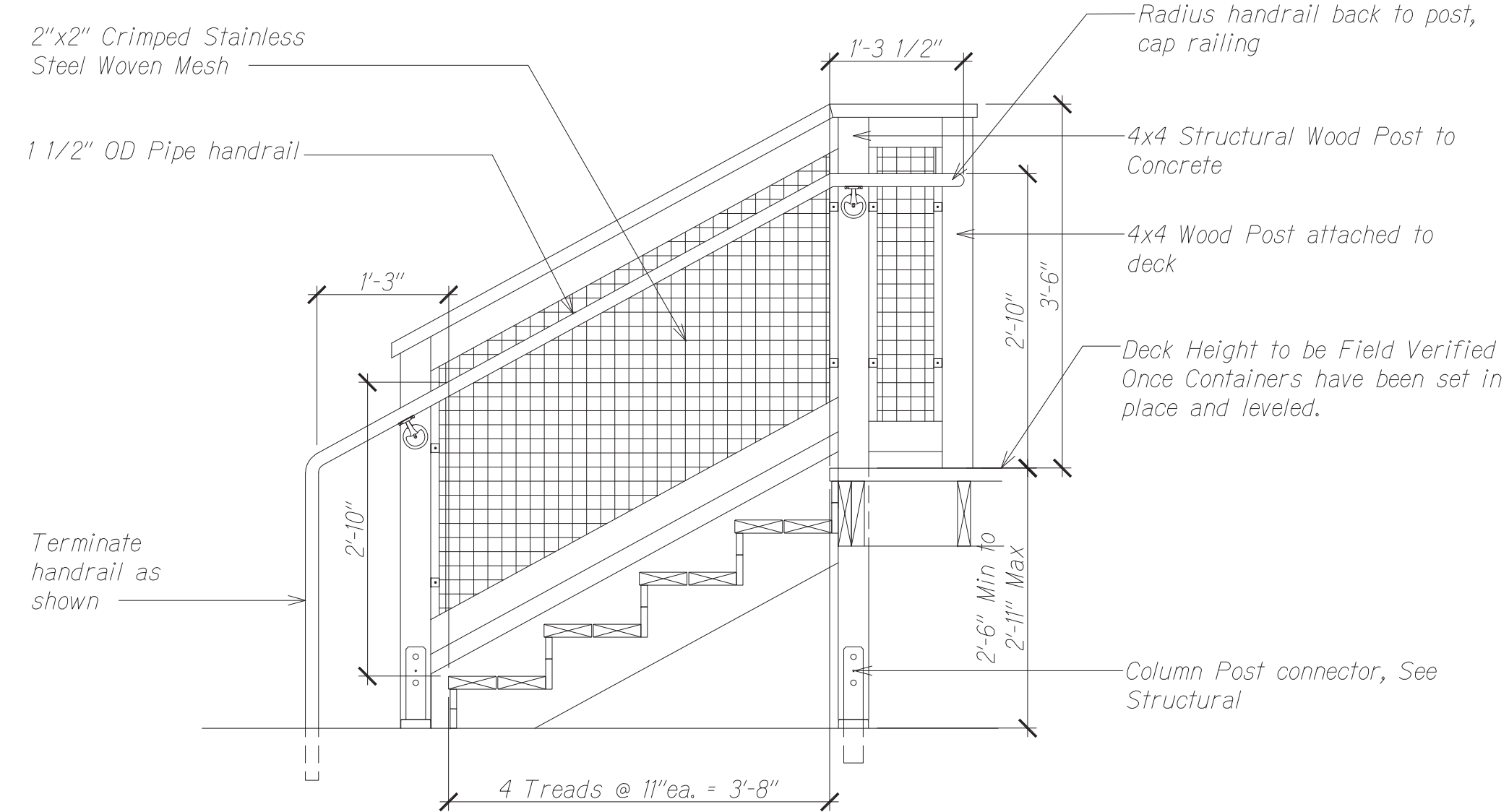
5 WINDOW/DOOR OPN'G FLSH'G DET
A6.01 | A6.03 Scale: NTS



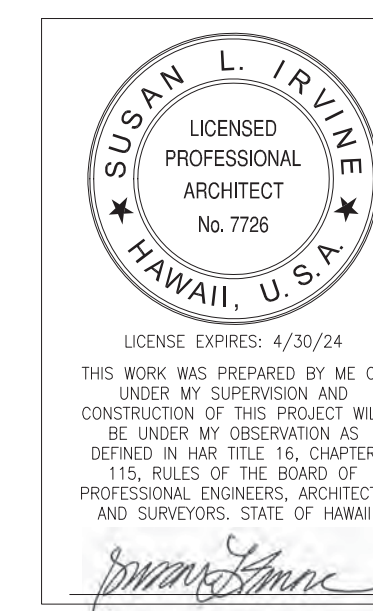
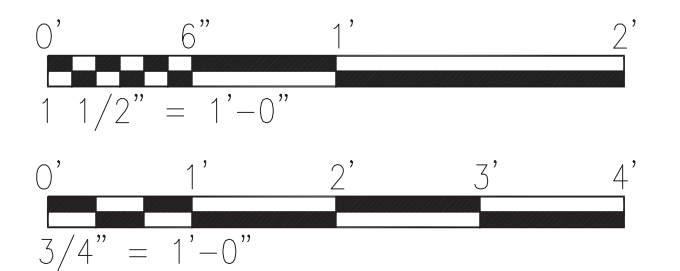
6 RAMP RAILING DETAIL
A3.01 | A6.03 Scale: 3/4" = 1'-0"



8 CRAWL SPACE SCREEN DETAIL
A2.01 | A6.03 Scale: 3/4" = 1'-0"

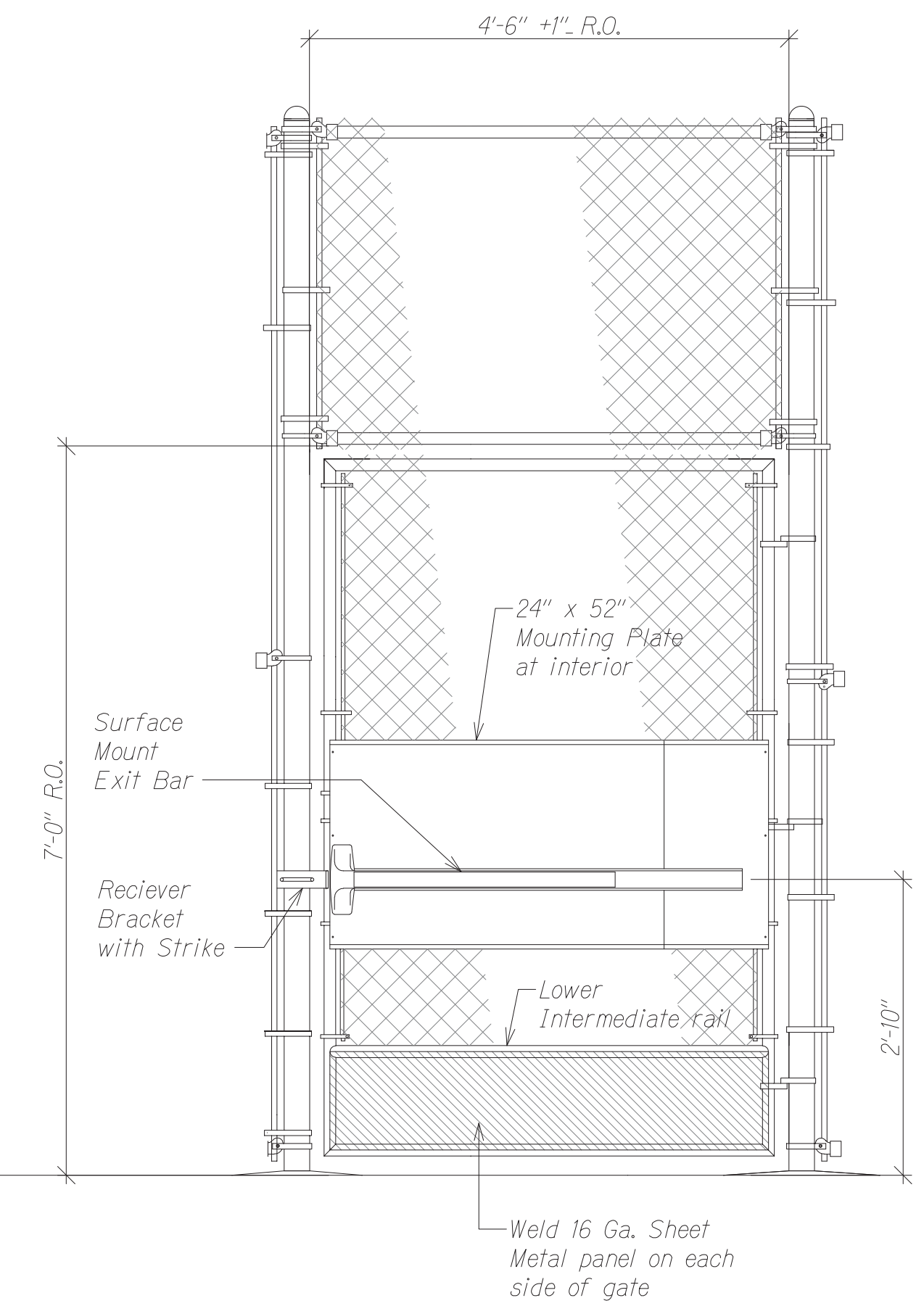
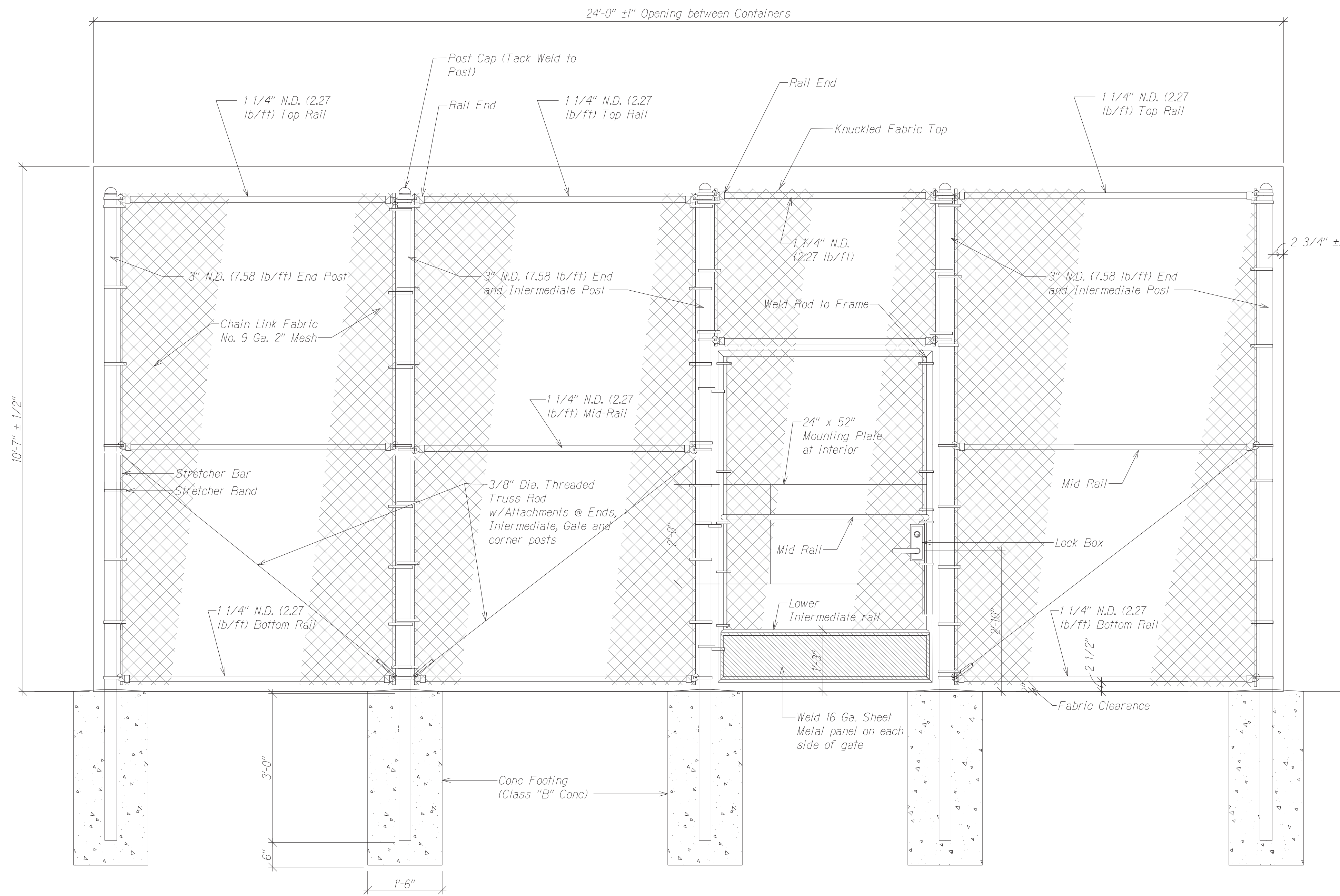


7 STAIR AND RAILING DETAIL
A3.01 | A6.03 Scale: 3/4" = 1'-0"



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
LULUKU CONTAINER SHED
ADMINISTRATIVE-STORAGE BUILDING
ROOF DETAILS, MISC DETAILS
HALAWA-LULUKU INTERPRETIVE DEVELOPMENT
LULUKU PROJECT AREA
FEDERAL-AID PROJECT NO. I-H3-1(75)
Scale: As-Noted Date: JULY 2023
SHEET No. A6.03 OF 37 SHEETS

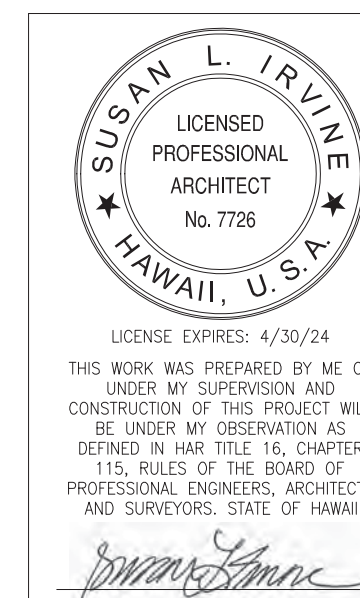
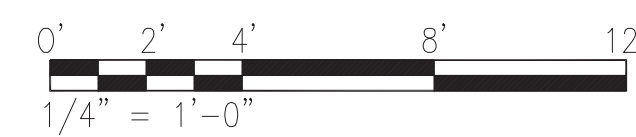
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75)	2024	27	37



2 CHAINLINK ENCLOSURE WITH GATE DETAIL
A2.03 | A6.04 Scale: 3/4" = 1'-0"

1 CHAINLINK INTERIOR GATE DET
A2.03 | A6.04 Scale: 3/4" = 1'-0"

GRAPHIC SCALE



STATE OF HAWAII
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HIGHWAYS DIVISION

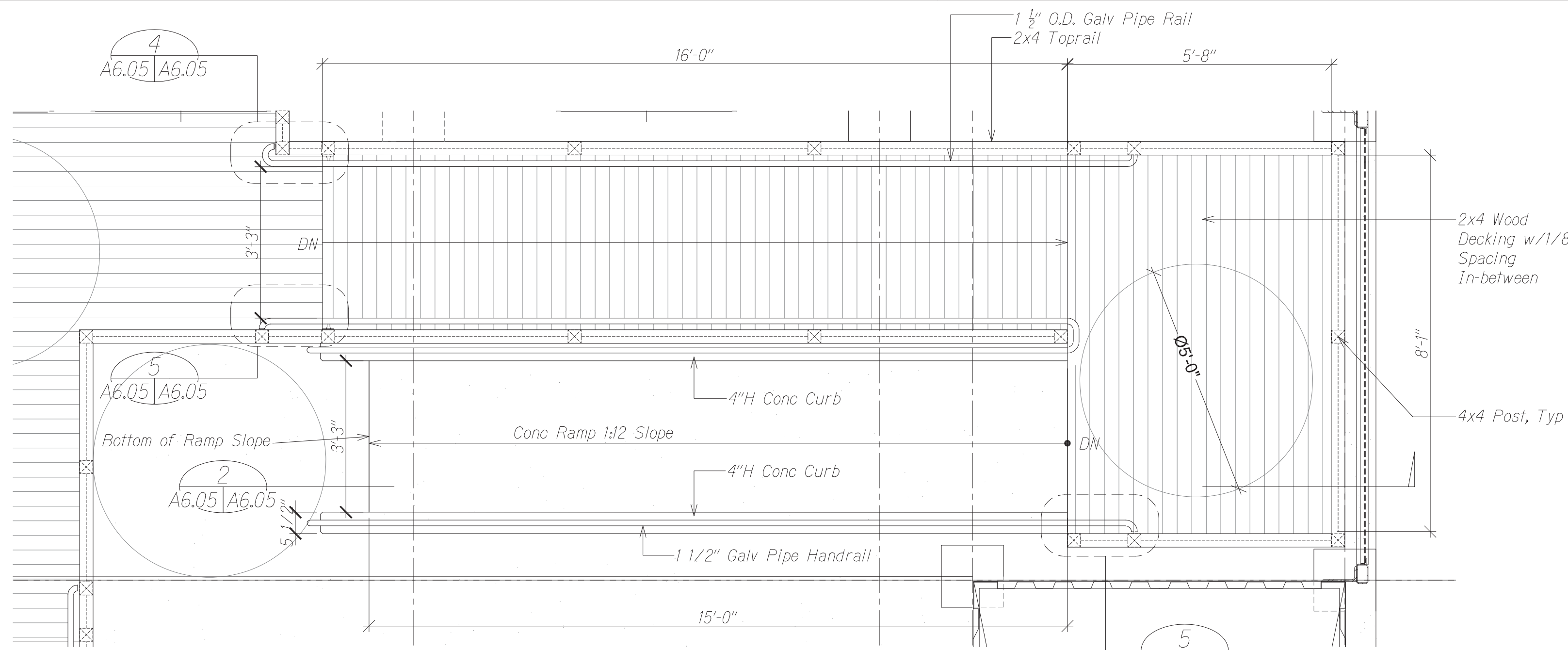
CHAINLINK DETAILS

HALAWA-LULUKU INTERPRETIVE DEVELOPMENT
LULUKU PROJECT AREA
FEDERAL-AID PROJECT NO. I-H3-1(75)

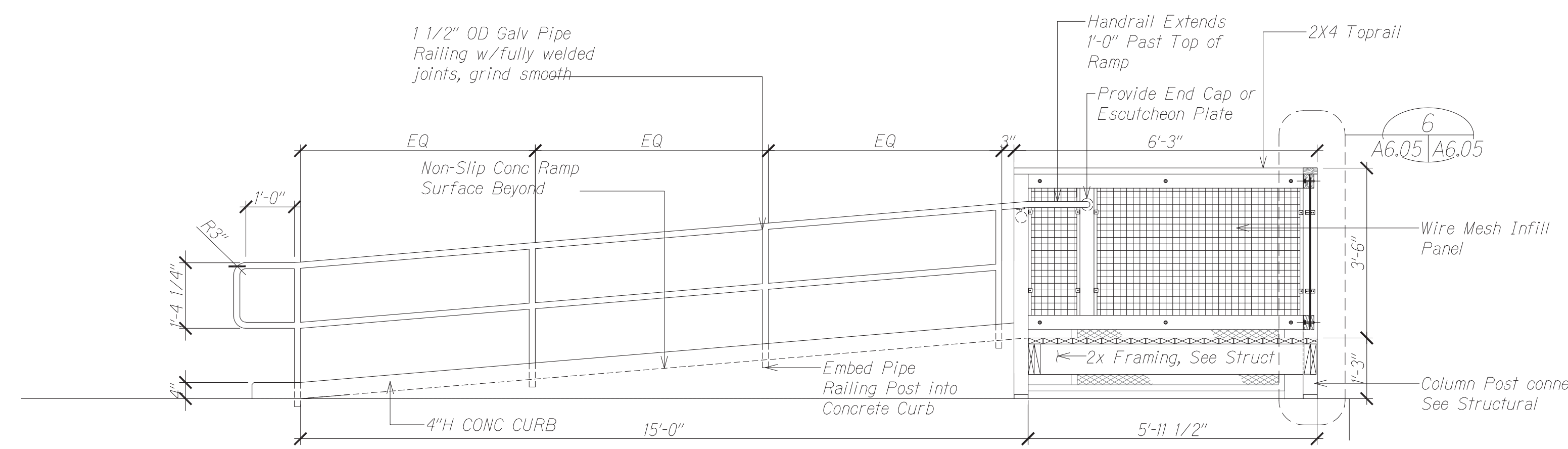
Scale: Date: JULY 2023

SHEET No. A6.04 OF 37 SHEETS

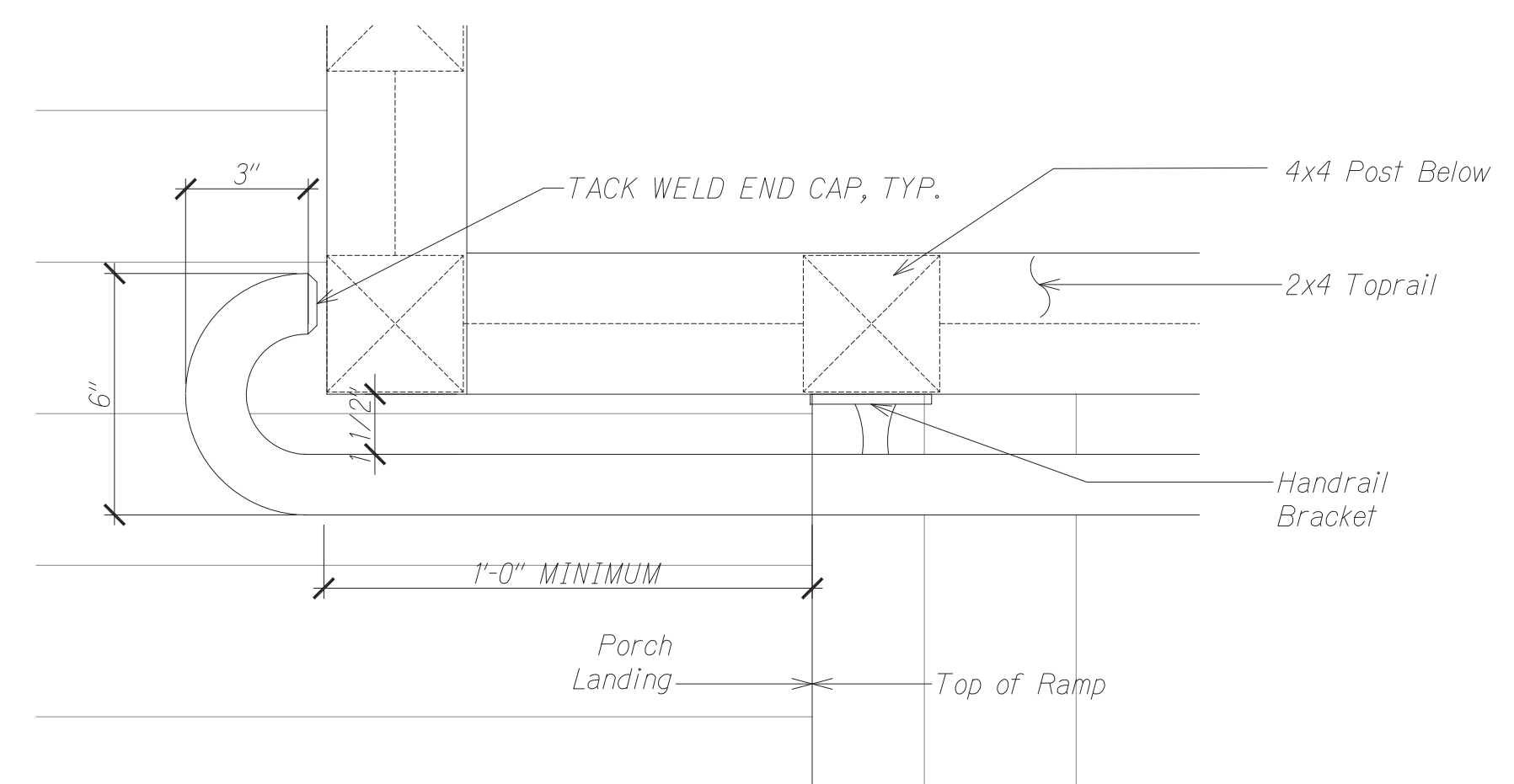
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HAWAII	HAW.	I-H3-1(75)	2024	28	37



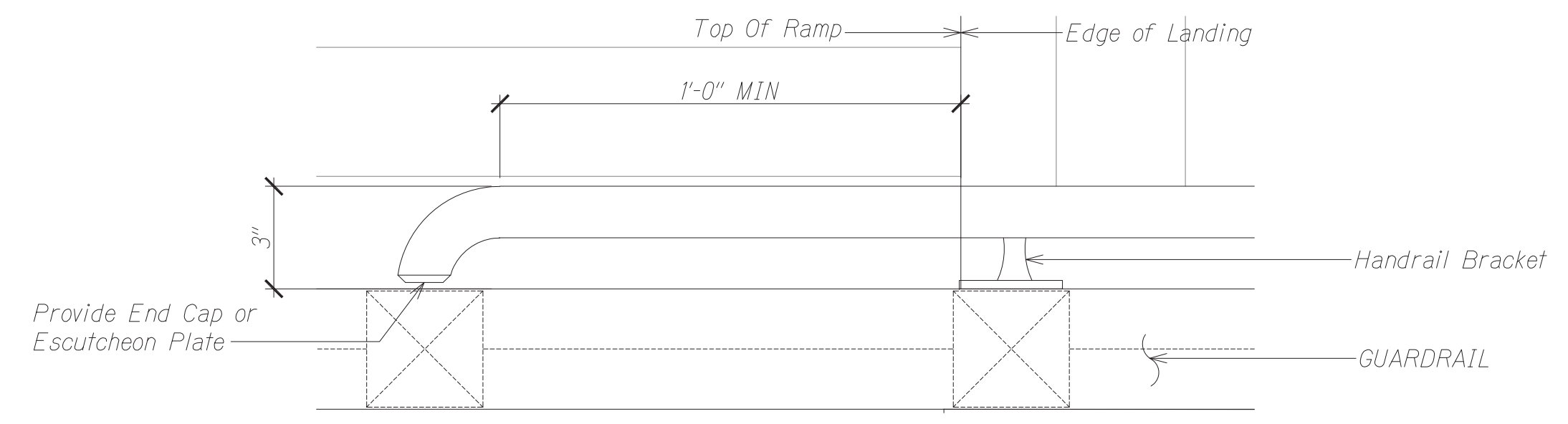
1 RAMP PLAN
A1.01 | A6.05 Scale: 1/2" = 1'-0"



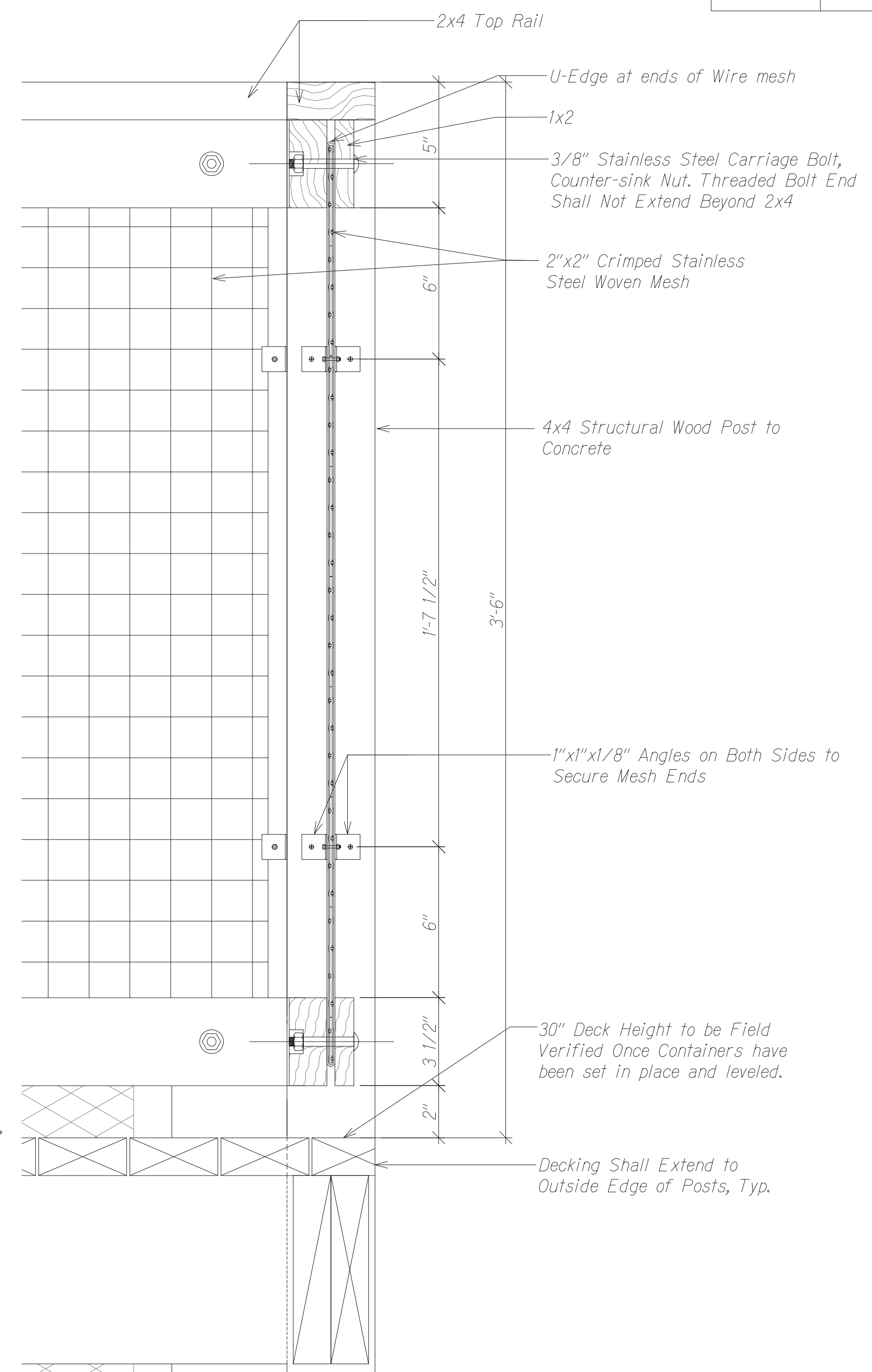
2 CONC RAMP SECTION
A6.05 | A6.05 Scale: 1/2" = 1'-0"



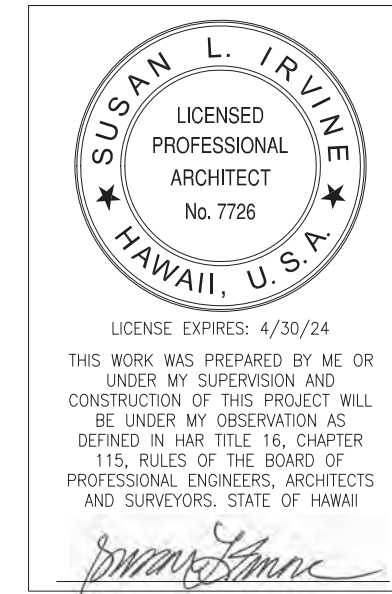
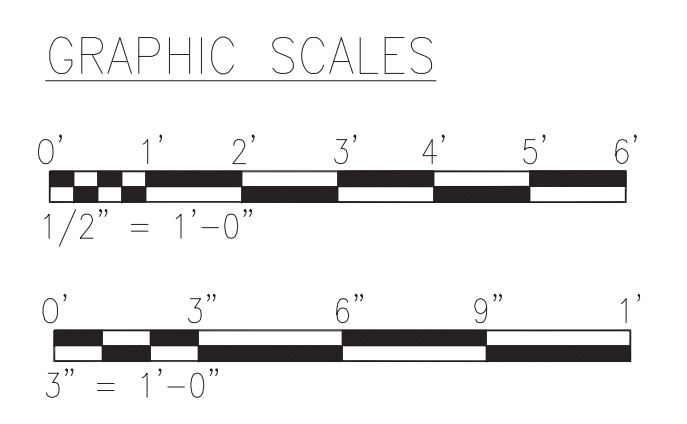
4 HANDRAIL RETURN DETAIL DETAIL
A6.05 | A6.05 Scale: 3" = 1'-0"



5 HANDRAIL RETURN DETAIL DETAIL
A6.05 | A6.05 Scale: 3" = 1'-0"



6 WIRE MESH RAILING DETAIL
A1.01 | A6.05 Scale: 3" = 1'-0"



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LULUKU CONTAINER SHED
ADMINISTRATIVE STORAGE BUILDING
RAMP AND RAILING DETAILS
HALAWA-LULUKU INTERPRETIVE DEVELOPMENT
LULUKU PROJECT AREA
FEDERAL-AID PROJECT NO. I-H3-1(75)
Scale: As Noted Date: JULY 2023
SHEET No. A6.05 OF 37 SHEETS

GENERAL:

- A. WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE BUILDING CODE AS STATED BELOW. HOWEVER, WHERE REFERENCE IS MADE TO PERFORMANCE CONFORMING TO OTHER STANDARDS THE MORE STRINGENT SHALL APPLY.
 - 1. STATE OF HAWAII: AMENDED IBC, 2018
- B. THE CONTRACTOR SHALL COMPARE ALL THE CONTRACT DOCUMENTS WITH EACH OTHER AND REPORT IN WRITING TO THE CONTRACTING OFFICER ALL INCONSISTENCIES AND OMISSIONS.
- C. THE CONTRACTOR SHALL TAKE FIELD MEASUREMENTS AND VERIFY FIELD CONDITIONS AND SHALL COMPARE SUCH FIELD MEASUREMENTS AND CONDITIONS WITH THE DRAWINGS BEFORE COMMENCING WORK. REPORT IN WRITING TO THE CONTRACTING OFFICER ALL INCONSISTENCIES AND OMISSIONS.
- D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE WORK OF ALL TRADES.
- E. THE CONTRACTOR SHALL BE RESPONSIBLE FOR METHODS OF CONSTRUCTION, WORKMANSHIP AND JOB SAFETY. THE CONTRACTOR SHALL PROVIDE TEMPORARY SHORING AND BRACING AS REQUIRED FOR STABILITY OF STRUCTURAL MEMBERS AND SYSTEMS.
- F. CONSTRUCTION LOADING SHALL NOT EXCEED DESIGN LIVE LOAD UNLESS SPECIAL SHORING IS PROVIDED. ALLOWABLE LOADS SHALL BE REDUCED IN AREAS WHERE THE STRUCTURE HAS NOT ATTAINED FULL DESIGN STRENGTH.
- G. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF THE ADJACENT PROPERTIES, STRUCTURES, STREETS AND UTILITIES DURING THE CONSTRUCTION PERIOD.
- H. DETAILS NOTED AS TYPICAL ON THE STRUCTURAL DRAWINGS SHALL APPLY IN ALL CONDITIONS UNLESS SPECIFICALLY SHOWN OR NOTED.

DEMOLITION, REMOVAL AND RELOCATION WORK:

- A. THE CONSTRUCTION DRAWINGS INDICATE THE GENERAL EXTENT OF REQUIRED DEMOLITION AND REMOVAL WORK. SEE ARCHITECTURAL, PLUMBING AND ELECTRICAL DRAWINGS FOR DEMOLITION DRAWINGS.
- B. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS (PRIOR TO BID) TO DETERMINE THE EXTENT OF ALL REQUIRED DEMOLITION WORK. THE REMOVAL OR DEMOLITION OF MATERIALS, ACCESSORIES, FIXTURES, ETC., SHALL BE COMPLETE AND INCLUDE ALL RELATED ITEMS TO THE EXTENT THAT FUTURE CONSTRUCTION CAN BE PERFORMED AND COMPLETED WITHOUT ADDITIONAL COST TO THE STATE.
- C. ALL NECESSARY PRECAUTIONS SHALL BE TAKEN TO INSURE AGAINST DAMAGE TO EXISTING ITEMS AND FEATURES REMAINING IN PLACE.
- D. THE CONTRACTOR SHALL REMOVE EXISTING ITEMS AS DEEMED NECESSARY SO THAT FUTURE WORK CAN BE PERFORMED AND ALSO, SO THAT ANY EXISTING ITEM IS NOT DAMAGED WHEN FUTURE WORK IS PERFORMED. THE CONTRACTOR SHALL ALSO INSTALL ANY OR ALL OF THE ITEMS, PATCH AND RESTORE SURROUNDING SURFACES AS REQUIRED AS PART OF THE WORK ACCEPTABLE TO THE CONTRACTING OFFICER.
- E. LOCATION OF UNDERGROUND UTILITIES AND PIPES SHOWN ON THE PLANS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATIONS OF THE EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR ANY DAMAGES TO THEM. ANY PORTION OF THE EXISTING UTILITIES THAT MUST BE REMOVED OR OTHERWISE DISTURBED TO ACCOMPLISH THIS WORK CALLED FOR ON THE PLANS SHALL BE RECONSTRUCTED, REPLACED OR RESTORED TO THE ORIGINAL CONDITION AT THE CONTRACTOR'S OWN EXPENSE.

DESIGN CRITERIA:

- A. FLOOR LIVE LOAD
 - 1. STAIRS AND EXITS: 100 PSF
 - a. ALL OTHER: 100 PSF
 - 2. STORAGE
 - a. LIGHT: 125 PSF
 - b. HEAVY: 250 PSF
 - 3. WALKWAYS AND ELEVATED PLATFORMS (OTHER THAN EXITWAYS): 60 PSF
- B. ROOF LIVE LOAD (REDUCIBLE): 20 PSF
- C. WIND DESIGN DATA
 - 1. BASIC WIND SPEED (3-SECOND GUST, ULTIMATE): 130 MPH
 - 2. EFFECTIVE NOMINAL DESIGN WIND SPEED (3-SECOND GUST, VEFF-ASD):
 - 3. RISK CATEGORY: II
 - 4. EXPOSURE CATEGORY: B
 - 5. BUILDING ENCLOSURE CLASSIFICATION: PARTIALLY ENCLOSED
 - 6. INTERNAL PRESSURE COEFFICIENT: +0.55
 - 7. COMPONENTS AND CLADDING DESIGN WIND PRESSURE: VARIES
- D. EARTHQUAKE DESIGN DATA:
 - 1. RISK CATEGORY: II
 - 2. IMPORTANCE FACTOR: 1.0
 - 3. MAPPED SPECTRAL RESPONSE ACCELERATIONS
 - a. SHORT PERIOD: 0.59g
 - b. 1-SEC PERIOD: 0.17g
 - 4. SITE CLASS: D
 - 5. SPECTRAL RESPONSE COEFFICIENTS
 - a. SHORT PERIOD: 0.52g
 - b. 1-SEC PERIOD: 0.24g
 - 6. DESIGN CATEGORY: C
 - 7. BASIC SEISMIC-FORCE-RESISTING SYSTEM: CMU CANTILEVER COLUMNS
 - 8. DESIGN BASE SHEAR (ULTIMATE): $V = W \times C_s$ KIPS
 - 9. SEISMIC RESPONSE COEFFICIENT: $C_s = 0.26$
 - 10. RESPONSE MODIFICATION FACTOR: $R = 1\frac{1}{2}$
 - 11. ANALYSIS PROCEDURE: [EQUIVALENT LATERAL FORCE PROCEDURE]
- E. SOILS
 - 1. SITE CLASS: D
 - 2. ALLOWABLE BEARING CAPACITY: 2500 PSF
 - 3. COEFFICIENT OF FRICTION: 0.4
- F. CODES
 - 1. IBC 2018
 - 2. ASCE 7-16
 - 3. ACI 318-14
 - 4. TMS 402/602-16

SPECIAL INSPECTIONS:

- A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT SPECIAL INSPECTION OF PORTIONS OF THE WORK AS REQUIRED BY THE BUILDING CODE IS MADE AT THE APPROPRIATE TIME. THE CONTRACTOR SHALL SUBMIT STATEMENT OF RESPONSIBILITY TO THE CONTRACTING OFFICER AND BUILDING DEPARTMENT PRIOR TO THE COMMENCEMENT OF WORK. THE CONTRACTOR SHALL GIVE TIMELY NOTICE OF WHEN AND WHERE INSPECTIONS ARE TO BE MADE AND PROVIDE ACCESS FOR THE INSPECTOR. FREQUENCY OF INSPECTION IS DEFINED IN THE IBC, SECTION 1705 TABLES, AS AMENDED BY THE STATE. THE CONTRACTOR SHALL CORRECT DEFECTIVE WORK AT NO ADDITIONAL COST TO THE STATE AND PAY FOR RE-INSPECTION AS REQUIRED.
- B. SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS DONE IN CONFORMANCE WITH APPROVED CONSTRUCTION DOCUMENTS. THE INSPECTOR SHALL SUBMIT A FINAL SIGNED REPORT TO THE CONTRACTING OFFICER AND LICENSED ARCHITECT OR ENGINEER WHO IN TURN SHALL SUBMIT A WRITTEN STATEMENT TO THE CITY CERTIFYING RECEIPT OF THE FINAL INSPECTION LETTER AND DOCUMENTING THAT THERE ARE NO KNOWN UNRESOLVED CODE REQUIREMENTS.
- C. THE FOLLOWING TYPE OF WORK LISTED IN THE IBC, SECTION 1705, AS AMENDED BY THE STATE, REQUIRES SPECIAL INSPECTION:
 - 1. INSPECTION OF FABRICATOR/SHOP UNLESS WORK IS DONE BY A REGISTERED AND APPROVED FABRICATOR SHOP.
 - a. STRUCTURAL STEEL
 - b. PRE-ENGINEERED TRUSSES
 - 2. STEEL CONSTRUCTION
 - a. WELDING
 - 3. CONCRETE CONSTRUCTION
 - a. EXCEPTIONS: INSPECTIONS NOT REQUIRED FOR CONCRETE POURS FOR
 - i. CONCRETE FOOTINGS SUPPORTING BUILDINGS THREE STORIES OR LESS IN HEIGHT THAT ARE FULL SUPPORTED ON EARTH OR ROCK (DESIGNED $f_c=2,500$ PSI), INSPECTION OF REINFORCING IS REQUIRED
 - ii. NON STRUCTURAL SLABS SUPPORT DIRECTLY ON GROUND.
 - b. PLACEMENT OF REINFORCING STEEL
 - c. REINFORCING STEEL WELDING.
 - d. BOLTS TO BE INSTALLED IN CONCRETE PRIOR TO AND DURING PLACEMENT OF CONCRETE.
 - e. PLACEMENT OF CONCRETE AND SHOTCRETE
 - f. INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.
 - g. POST INSTALLED CONCRETE BOLTS.
 - 4. MASONRY CONSTRUCTION
 - a. PLACEMENT OF REINFORCING STEEL
 - b. MORTAR AND MORTAR JOINTS
 - c. PLACEMENT OF GROUT
 - 5. SOILS
 - a. FOUNDATION BEARING MATERIAL
 - b. FILL GREATER THAN ONE FOOT
 - 6. FIRE PROTECTION SYSTEMS
 - 7. COMPLETE LOAD PATH AND UPLIFT TIES.
 - 8. TERMITE PROTECTION
 - 9. WIND RESISTANCE
 - 10. SEISMIC RESISTANCE

FOUNDATION:

- A. FOUNDATION DESIGN IS BASED ON THE FOLLOWING GEOTECHNICAL INVESTIGATION REPORT.
 - 1. OHA HILD LULUKU GEOTECH REPORT (BY: PSC CONSULTANTS LLC DATE: JULY 16,2019)
- B. CONTRACTOR SHALL PROVIDE FOR DE-WATERING OF EXCAVATION FROM SURFACE WATER, GROUND WATER OR SEEPAGE.
- C. EXCAVATIONS FOR ANY PURPOSE SHALL NOT REMOVE LATERAL SUPPORT FROM ANY FOOTING OR FOUNDATION WITHOUT FIRST UNDERPINNING OR PROTECTING THE FOOTING OR FOUNDATION AGAINST SETTLEMENT OR LATERAL TRANSLATION.
- D. FOOTINGS SHALL BEAR ON UNDISTURBED IN-SITU FIRM SOILS. BOTTOM OF FOOTINGS SHALL BE COMPACTED TO PROVIDE A RELATIVELY FIRM AND SMOOTH BEARING SURFACE PRIOR TO PLACEMENT OF REINFORCING STEEL AND CONCRETE. IF SOFT AND/OR LOOSE MATERIALS ARE ENCOUNTERED AT THE BOTTOM OF FOOTING EXCAVATIONS, THEY SHALL BE OVER-EXCAVATED TO EXPOSE THE UNDERLYING FIRM MATERIALS. THE OVER-EXCAVATION SHALL BE BACKFILLED WITH SELECT GRANULAR MATERIAL COMPACTED TO A MINIMUM OF 90% RELATIVE COMPACTION OR THE FOOTING BOTTOM MAY BE EXTENDED DOWN TO THE UNDERLYING COMPETENT MATERIAL.
- E. UNLESS NOTED OTHERWISE, THE MINIMUM DEPTH OF FOOTINGS BELOW THE UNDISTURBED GROUND SURFACE SHALL BE 24 INCHES.
- F. EXCAVATIONS FOR FOUNDATIONS SHALL BE MONITORED AND APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF CONCRETE AND REINFORCING STEEL TO CONFIRM FOUNDATION BEARING CONDITIONS AND REQUIRED EMBEDMENT DEPTHS. GEOTECHNICAL ENGINEER SHALL SUBMIT LETTER OF COMPLIANCE TO THE CONTRACTING OFFICER.
- G. CONTRACTOR SHALL BRACE OR PROTECT ALL WALLS BELOW GRADE FROM LATERAL LOADS UNTIL ATTACHING FLOORS ARE COMPLETELY IN PLACE AND HAVE ATTAINED THEIR FULL DESIGN STRENGTH.
- H. UNLESS NOTED OTHERWISE, WALLS OR PORTIONS THEREOF THAT RETAIN EARTH, AND ENCLOSE INTERIOR SPACES AND FLOORS BELOW GRADE SHALL BE WATERPROOFED AND DAMPPROOFED.

CONCRETE:

- A. CONCRETE CONSTRUCTION SHALL CONFORM TO AMERICAN CONCRETE INSTITUTE ACI 318-14
- B. CONCRETE SHALL BE REGULAR WEIGHT HARD ROCK CONCRETE AND SHALL HAVE THE FOLLOWING MINIMUM 28 DAY COMPRESSIVE STRENGTHS:
 - 1. FOOTINGS: 3,000 PSI
 - 2. SLAB-ON-GRADE: 3,000 PSI
- C. CONCRETE DELIVERY TICKETS SHALL RECORD ALL FREE WATER IN THE MIX: AT BATCHING BY PLANT, FOR CONSISTENCY BY DRIVER, AND ANY ADDITIONAL REQUEST BY CONTRACTOR IF PERMITTED BY THE MIX DESIGN.
- D. WATER USED IN MIXING CONCRETE SHALL BE CLEAN AND FREE FROM INJURIOUS AMOUNTS OF OILS, ACIDS, ALKALIS, SALTS, ORGANIC MATERIALS OR OTHER SUBSTANCES THAT ARE DELETERIOUS TO CONCRETE OR STEEL REINFORCEMENT.
- E. FREQUENCY OF CONDUCTING STRENGTH TESTS SHALL BE AS FOLLOWS:
 - 1. SAMPLES FOR STRENGTH OF EACH CLASS OF CONCRETE PLACED EACH DAY SHALL BE TAKEN NOT LESS THAN ONCE A DAY, NOR LESS THAN ONCE FOR EACH 150 CUBIC YARDS OF CONCRETE, NOR LESS THAN ONCE FOR EACH 5,000 SQUARE FEET OF SURFACE AREA FOR SLABS OR WALLS.
 - 2. IF THE TOTAL VOLUME OF CONCRETE IS SUCH THAT THE FREQUENCY OF TESTING WOULD PROVIDE LESS THAN FIVE STRENGTH TESTS FOR A GIVEN CLASS OF CONCRETE, TESTS SHALL BE MADE FROM AT LEAST FIVE RANDOMLY SELECTED BATCHES OR FROM EACH BATCH IF FEWER THAN FIVE BATCHES ARE USED.
- F. ALL INSERTS, ANCHOR BOLTS, PLATES, AND OTHER ITEMS TO BE CAST IN THE CONCRETE SHALL BE HOT-DIPPED GALVANIZED ACCORDING TO ASTM A153 UNLESS OTHERWISE NOTED.
- G. REINFORCING BARS, ANCHOR BOLTS, INSERTS, AND OTHER ITEMS TO BE CAST IN THE CONCRETE SHALL BE SECURED IN POSITION PRIOR TO PLACEMENT OF CONCRETE.
- H. CONDUITS, PIPES, AND SLEEVES PASSING THROUGH A SLAB OR FOOTING AND NOT CONFORMING TO TYPICAL DETAILS SHALL BE LOCATED AND SUBMITTED TO THE CONTRACTING OFFICER FOR APPROVAL.
- I. THE CONTRACTOR SHALL LOCATE CONSTRUCTION JOINTS SO AS NOT TO IMPAIR THE STRENGTH OF THE STRUCTURE AND TO MINIMIZE SHRINKAGE STRESSES. SUBMIT LOCATION OF CONSTRUCTION JOINTS TO THE CONTRACTING OFFICER FOR APPROVAL, UNLESS OTHERWISE NOTED.
- J. SEE ARCHITECTURAL DRAWINGS FOR CHAMFERS, EDGE RADII, DRIPS, REGLETS, FINISHES AND OTHER NON-STRUCTURAL ITEMS NOT SHOWN OR SPECIFIED ON THE STRUCTURAL DRAWINGS.
- K. NON-SHRINK GROUT SHALL BE A PREMIXED NON-METALLIC FORMULA, CAPABLE OF DEVELOPING A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI IN 1 DAY AND 5,000 PSI IN 28 DAYS.
- L. CONSTRUCTION JOINTS IN FLOOR SHALL BE LOCATED WITHIN THE MIDDLE THIRD OF SPANS OF SLABS, BEAMS AND GIRDERS. JOINTS IN GIRDERS SHALL BE OFFSET A MINIMUM DISTANCE OF TWO TIMES THE WIDTH OF AN INTERSECTING BEAM.
- M. LEAVE FORMWORK FOR BEAM SOFFITS, JOISTS, SLABS, AND OTHER STRUCTURAL ELEMENTS THAT SUPPORT WEIGHT OF CONCRETE IN PLACE UNTIL CONCRETE HAS ACHIEVED ITS 28 DAY DESIGN COMPRESSIVE STRENGTH.
- N. MEASURE FLOOR AND SLAB FLATNESS AND LEVELNESS ACCORDING TO ASTM E1155 WITHIN 24 HOURS OF FINISHING
- O. VAPOR RETARDER UNDER THE SLAB-ON-GRADE SHALL BE 10-MIL STEGO WRAP OR APPROVED EQUAL.

REINFORCING STEEL:

- A. REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60.
- B. WELDED REINFORCING STEEL SHALL BE LOW-ALLOY DEFORMED BARS CONFORMING TO ASTM A706.
- C. WELDED WIRE REINFORCEMENT SHALL BE GALVANIZED CONFORMING TO ASTM A185.
- D. CLEAR CONCRETE COVER FOR REINFORCING BARS SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED:
 - 1. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3"
 - 2. CONCRETE FORMED AND EXPOSED TO EARTH OR WEATHER:
 - a. NO. 6 THROUGH NO. 18 BAR: 2"
 - b. NO. 5 BAR, W31 OR D31 WIRE, AND SMALLER: 1.5"
- E. CLEAR DISTANCE BETWEEN THE SURFACE OF A BAR AND ANY SURFACE OF A MASONRY UNIT SHALL BE NOT LESS THAN 1/2 INCH, UNLESS OTHERWISE NOTED.
- F. REINFORCING STEEL SHALL BE SPLICED WHERE INDICATED ON PLANS. PROVIDE LAP SPLICE LENGTH PER TYPICAL DETAILS AND SCHEDULE, UNLESS OTHERWISE NOTED.
- G. MECHANICAL SPLICE CONNECTORS SHALL DEVELOP IN TENSION 125 PERCENT OF THE SPECIFIED MINIMUM YIELD STRENGTH OF REINFORCING BARS.
- H. STANDARD HOOKS ON REINFORCING BARS USED SHALL COMPLY WITH ACI 318, SECTION 25.3.1.
- I. MINIMUM REINFORCEMENT BEND DIAMETERS SHALL COMPLY WITH ACI 318, SECTION 25.3.2.

MASONRY:

- A. CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C90 FOR LOAD-BEARING CONCRETE MASONRY UNITS NORMAL WEIGHT WITH A UNIT COMPRESSIVE STRENGTH OF 3000 PSI.
- B. SECOND-HAND MASONRY UNITS SHALL NOT BE REUSED UNLESS THEY CONFORM TO THE REQUIREMENTS OF NEW UNITS. THE UNITS SHALL BE OF WHOLE, SOUND MATERIALS AND FREE FROM CRACKS AND OTHER DEFECTS THAT WILL INTERFERE WITH PROPER LAYING AND USE. OLD MORTAR SHALL BE CLEANED FROM THE UNIT BEFORE REUSE.
- C. MORTAR FOR USE IN MASONRY CONSTRUCTION SHALL CONFORM TO ASTM C 270 WITH A MINIMUM COMPRESSIVE STRENGTH OF 2500 PSI. UNUSED MORTAR SHALL BE DISCARDED WITHIN 2 1/2 HOURS AFTER INITIAL MIXING. MORTAR FOR MASONRY BELOW GRADE OR IN CONTACT WITH EARTH SHALL BE TYPE S AND TYPE S FOR REINFORCED MASONRY.
- D. GROUT SHALL CONFORM TO ASTM C476 WITH A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS.
- E. ALL CELLS AND BOND COURSES WITH REINFORCEMENT AND INSERTS SHALL BE SOLID GROUTED. CLEANOUTS SHALL BE PROVIDED FOR ALL GROUT POURS OVER 5'-4" IN HEIGHT.
- F. WHEN GROUTING IS STOPPED FOR ONE HOUR OR LONGER, HORIZONTAL CONSTRUCTION JOINTS SHALL BE FORMED BY STOPPING THE GROUT POUR 1 1/2 INCHES BELOW THE TOP OF THE UPPERMOST UNIT.
- G. THE CONTRACTOR SHALL LOCATE CONSTRUCTION JOINTS SO AS NOT TO IMPAIR THE STRENGTH OF THE STRUCTURE AND TO MINIMIZE SHRINKAGE STRESSES. SUBMIT LOCATION OF CONSTRUCTION JOINTS TO THE CONTRACTING OFFICER FOR APPROVAL, UNLESS OTHERWISE NOTED. MAXIMUM SPACING BETWEEN CONSTRUCTION JOINTS SHALL NOT EXCEED THE LESSER OF LENGTH TO HEIGHT RATIO OF 1.5 OR 25 FEET

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75)	2024	29	37

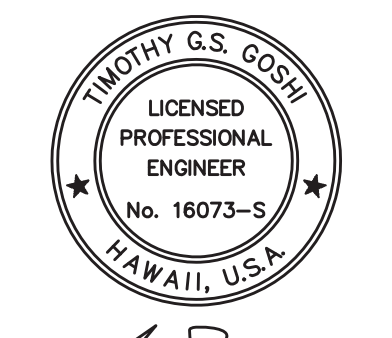
- H. SEE ARCHITECTURAL DRAWINGS FOR LAYING PATTERN, HEIGHT OF UNITS, SURFACE TEXTURE, AND JOINT TYPE.
- I. OPEN-ENDED BLOCKS MAY BE SUBSTITUTED FOR STANDARD CONCRETE MASONRY UNITS.

DIMENSION LUMBER:

- A. WOOD USED FOR SUPPORTING LOADS SHALL BE IDENTIFIED BY THE GRADE MARK OF A LUMBER GRADING OR INSPECTION AGENCY THAT HAS BEEN APPROVED BY AN ACCREDITATION BODY THAT COMPLIES WITH AMERICAN SOFTWOOD LUMBER STANDARD DOC PS 20 OR EQUIVALENT.
- B. UNLESS NOTED OTHERWISE, WOOD USED FOR SUPPORTING LOADS SHALL HAVE THE FOLLOWING GRADES OR BETTER:
 - 1. 2x JOISTS AND RAFTERS: GRADE NO. 1
 - 2. 4x BEAMS AND LEDGERS: GRADE NO. 1
- C. 4x POSTS: SELECT STRUCTURAL
- D. WOOD SUPPORTING PERMANENT STRUCTURES SHALL BE PRESERVATIVE TREATED AND CONFORM TO THE REQUIREMENTS OF THE APPLICABLE AWP STANDARD FOR THE SPECIES, PRODUCT, PRESERVATIVE, AND END USE. PRESERVATIVE SHALL CONFORM TO AWP A C2.
- E. WOOD REQUIRED TO BE PRESERVATIVE TREATED SHALL BEAR THE QUALITY MARK OF AN INSPECTION AGENCY.
- F. WOOD SHALL BE AT A MOISTURE CONTENT OF 19 PERCENT OR LESS BEFORE BEING COVERED WITH INSULATION, INTERIOR WALL FINISH, FLOOR COVERINGS OR OTHER MATERIALS.
- G. THE NUMBER AND SIZE OF NAILS CONNECTING WOOD MEMBERS SHALL NOT BE LESS THAN THAT SET FORTH IN IBC 2018 TABLE 2304.10.1. NAILS SHALL BE GALVANIZED COMMON NAILS.
- H. METAL FRAMING ANCHORS SHALL BE SIMPSON STRONG TIE GALVANIZED OR APPROVED EQUAL. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
- I. PLACE A LAYER OF 30# ROOFING FELT BETWEEN ALL WOOD MEMBERS AND CONCRETE MASONRY SURFACES.

STRUCTURAL STEEL:

- A. FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION MANUAL OF STEEL CONSTRUCTION, FIFTEENTH EDITION.
- B. STRUCTURAL STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE NOTED.
- C. CHANNELS, ANGLES SHALL CONFORM TO ASTM A36.
- D. PLATES AND BAR SHALL CONFORM TO ASTM A36.
- E. STEEL PIPES SHALL CONFORM TO ASTM A53, TYPE E OR S, GRADE B.
- F. STEEL TUBES SHALL CONFORM TO ASTM A500, GRADE B.
- G. BOLTS SHALL CONFORM TO ASTM A307, GRADE A UNLESS OTHERWISE NOTED.
- H. HIGH-STRENGTH BOLTS SHALL CONFORM TO ASTM F3125, GRADE A325, TYPE N. INSTALLATION SHALL BE ASSURED BY ANY OF THE FOLLOWING METHODS.
 - 1. TURN OF NUT METHOD
 - 2. DIRECT TENSION INDICATOR
 - 3. CALIBRATED WRENCH
 - 4. ALTERNATIVE DESIGN BOLT
- I. WELDS AND WELDING PROCEDURES SHALL CONFORM TO THE STRUCTURAL WELDING CODE AWS D1.1 OF THE AMERICAN WELDING SOCIETY.
- J. WELDING SHALL BE PERFORMED BY WELDERS PREQUALIFIED FOR WELDING PROCEDURES TO BE USED.
- K. WELDING ELECTRODES SHALL BE E70XX.
- L. ALL STEEL SHALL BE PRIME PAINTED IN THE SHOP.
- M. EXPOSED STEEL SHALL BE HOT-DIPPED GALVANIZED ACCORDING TO ASTM A123.
- N. ALL ANCHOR BOLTS, PLATES, AND OTHER ITEMS TO BE CAST IN CONCRETE SHALL BE HOT-DIPPED GALVANIZED ACCORDING TO ASTM A153 UNLESS OTHERWISE NOTED.



EXPIRATION DATE OF THE LICENSE 4/30/2024
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GENERAL NOTES

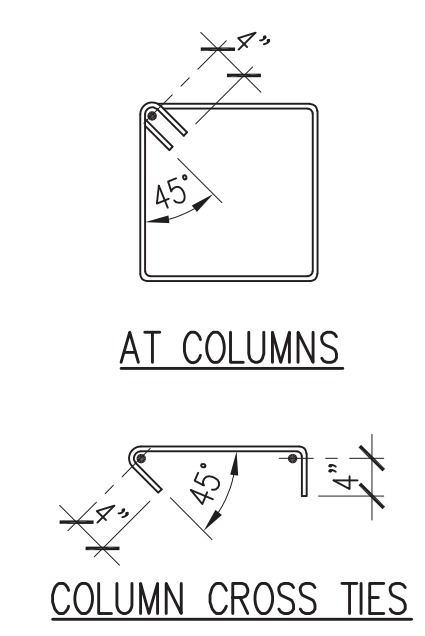
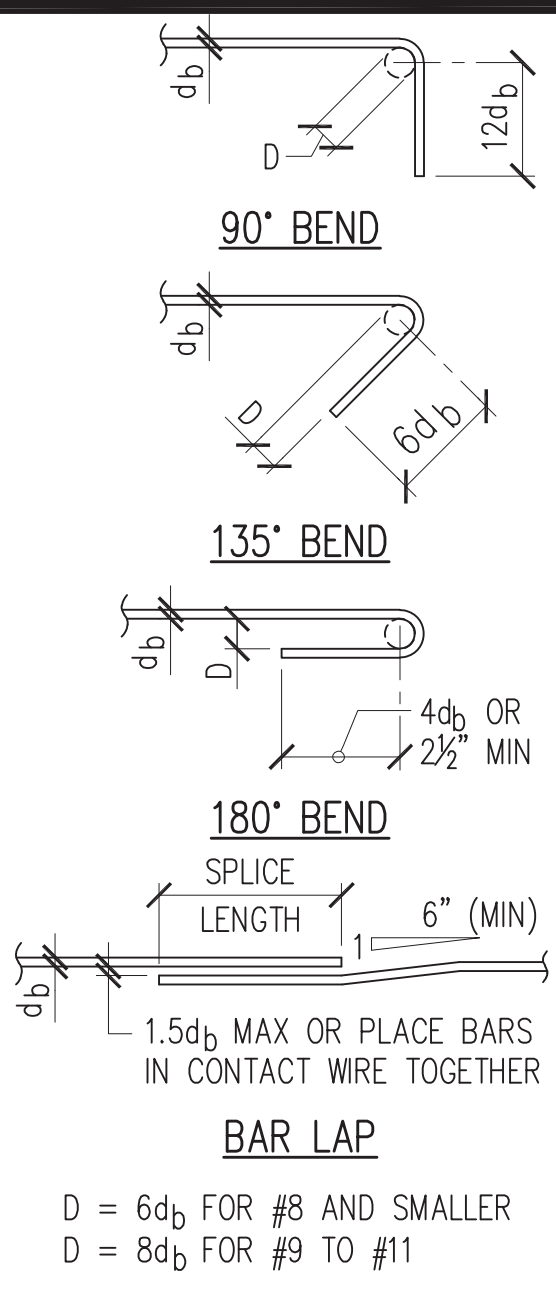
*HALAWA-LULUKU INTERPRETIVE DEVELOPMENT
LULUKU PROJECT AREA
FEDERAL-AID PROJECT NO. I-H3-1(75)*

Scale: _____ Date: JULY 2023

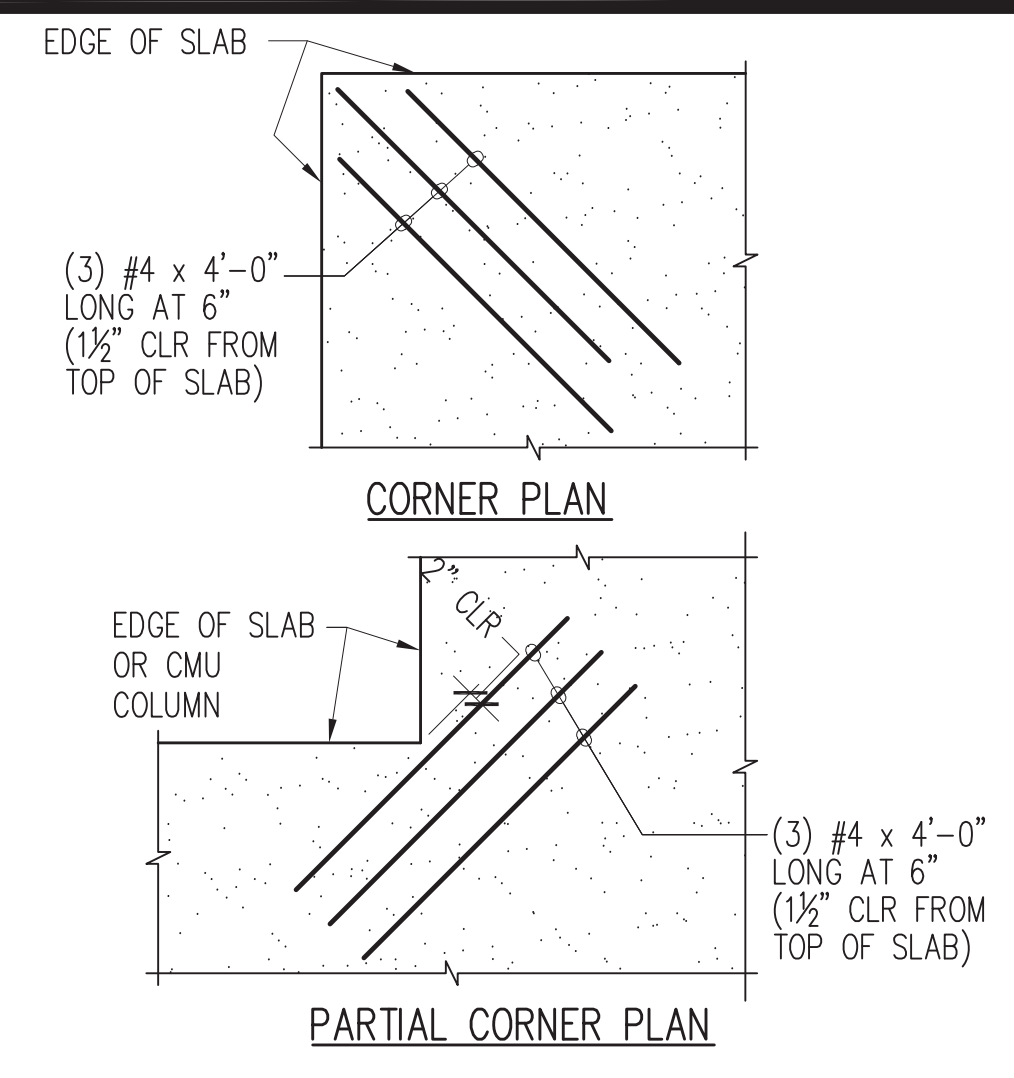
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75)	2024	30	37

BAR SIZE	CONCRETE STRENGTH = 3,000 PSI				
	LAP SPLICE		DEVELOPMENT		
	TOP BARS	OTHER BARS	STRAIGHT TOP BARS	STRAIGHT OTHER BARS	WITH STANDARD HOOK
#3	28"	22"	22"	18"	6"
#4	38"	30"	30"	22"	8"
#5	48"	36"	36"	28"	10"
#6	56"	44"	44"	34"	12"
#7	82"	64"	64"	48"	14"
#8	94"	72"	72"	56"	16"
#9	106"	82"	82"	62"	19"
#10	118"	92"	92"	70"	22"
#11	132"	102"	102"	78"	24"

NOTES:
 1. IF CONCRETE COVER IS NOT GREATER THAN THE DIAMETER OF THE BAR OR THE CENTER-TO-CENTER SPACING IS NOT GREATER THAN 3 BAR DIAMETERS THEN VALUES SHALL BE INCREASED BY 50%.
 2. "TOP BARS" ARE HORIZONTAL BARS WITH 12" OR MORE OF CONCRETE CAST BELOW.



NOTE:
 1. THESE DETAILS SHALL APPLY TO #3, #4, AND #5 BARS - GRADE 40 AND GRADE 60.
 2. ALL BARS SHALL BE BENT COLD.



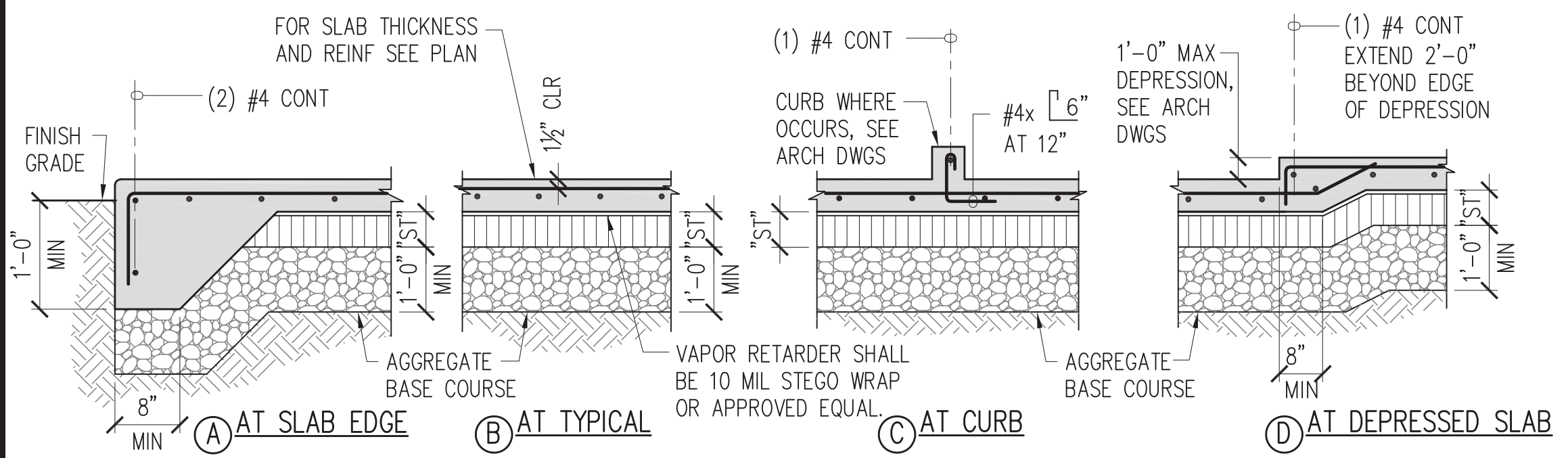
CMU DEVELOPMENT LENGTH AND LAP SPLICE LENGTH SCHEDULE	
BAR SIZE	Ld, CMU
#3	24"
#4	34"
#5	45"
#6	54"
#7	63"
#8	72"

1
 S002 NOT TO SCALE
TYPICAL REBAR SPLICE AND DEVELOPMENT LENGTH SCHEDULE

2
 S002 NOT TO SCALE
TYPICAL TIE AND STIRRUPS DETAIL

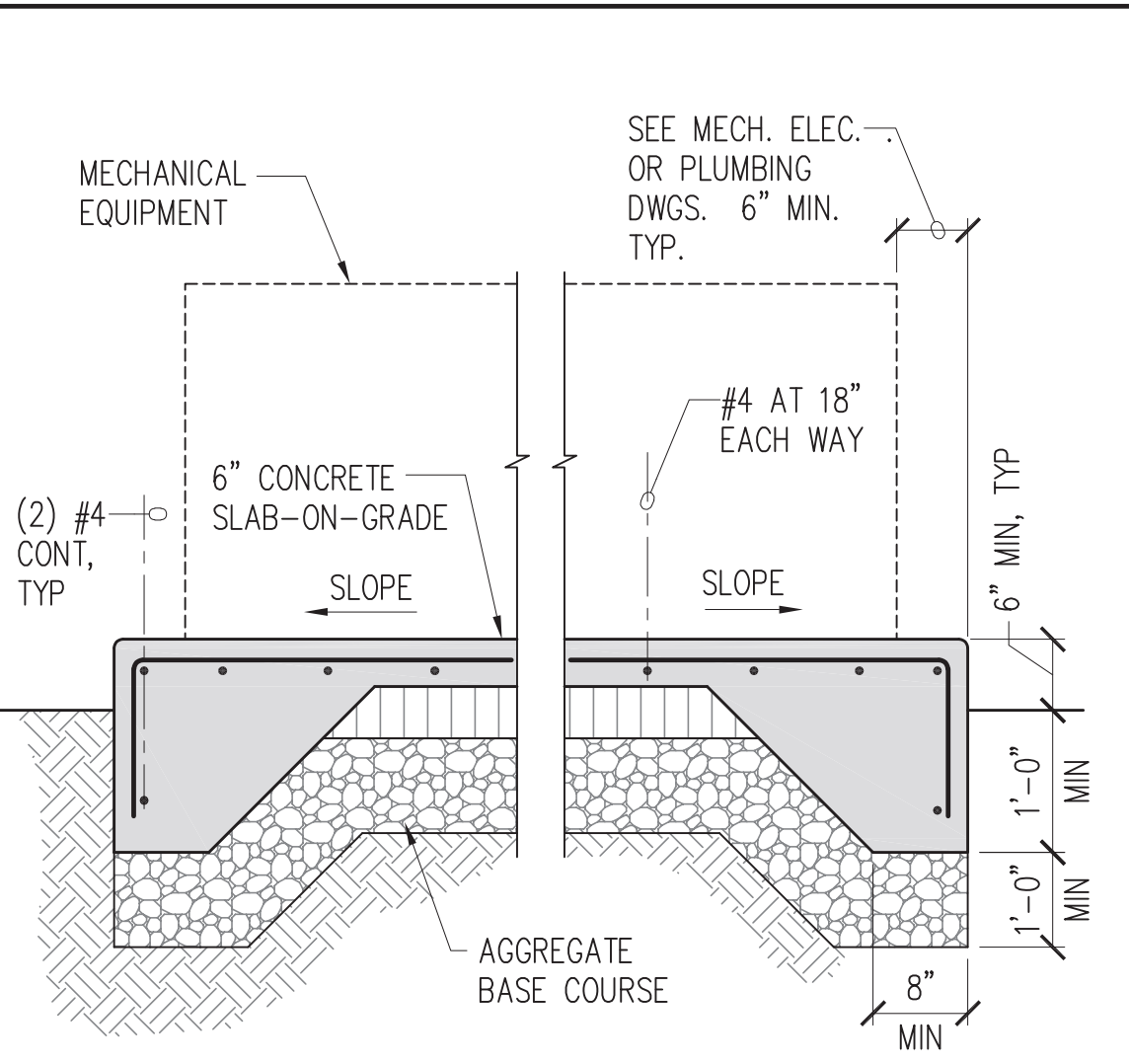
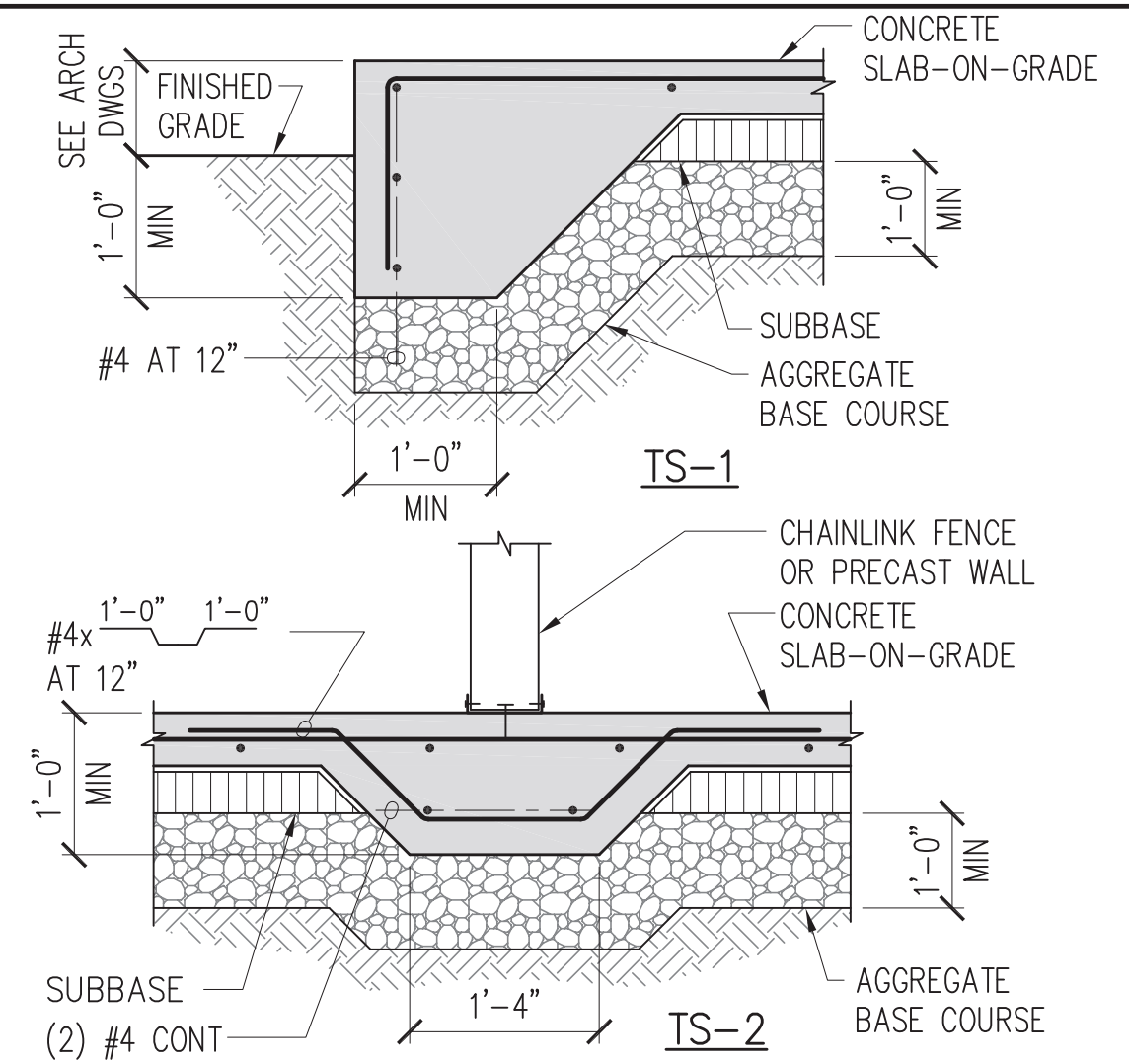
3
 S002 NOT TO SCALE
TYPICAL SLAB CORNER REINFORCING DETAIL

4
 S002 NOT TO SCALE
TYPICAL REBAR CMU DEVELOPMENT LENGTH

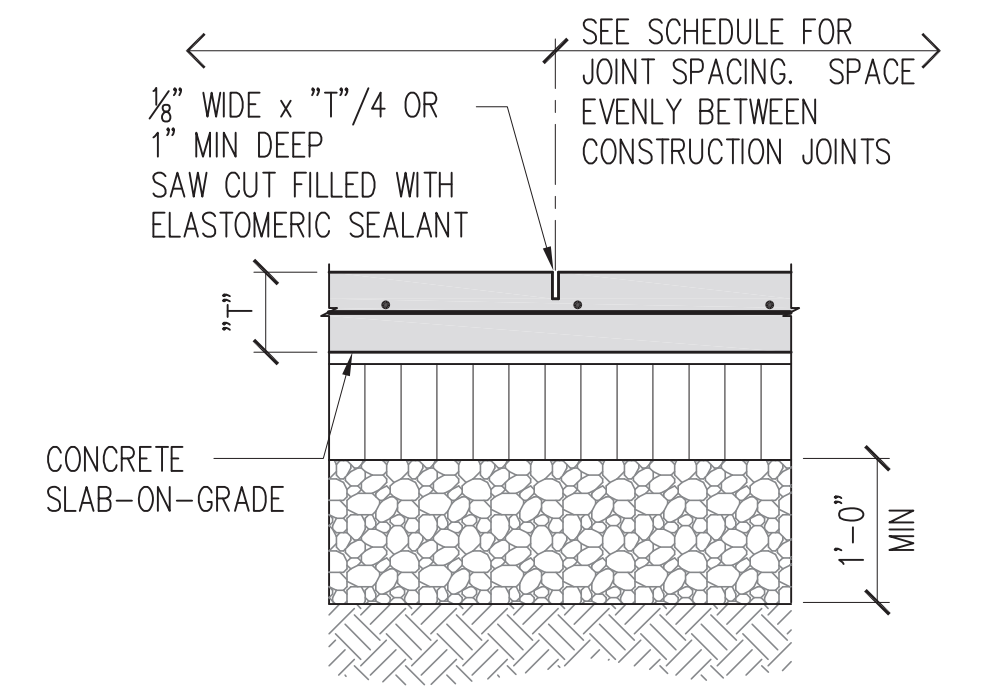


SUBGRADE SCHEDULE				
MARK	"ST"	MATERIAL	VAPOR RETARDER	REMARKS
SB-1	4"	3B FINE	YES	TYPICAL UNLESS NOTED OTHERWISE
SB-2	4"	3B FINE	NO	AT LANAIS AND WALKWAYS

SLAB ON GRADE NOTES:
 1. THICKNESS OF SLAB-ON-GRADE SHOWN IS MINIMUM AND SHALL BE MAINTAINED AT ALL SLOPED AND DEPRESSED AREAS.
 2. FOR FLOOR ELEVATIONS, DEPRESSED SLABS LOCATIONS, SLOPES TO DRAIN, AND EQUIPMENT PAD AND CURB LOCATIONS SEE ARCHITECTURAL, ELECTRICAL AND MECHANICAL DRAWINGS.



NOTES:
 1. SAW CUTTING SHALL OCCUR AS SOON AS CONCRETE SURFACE IS FIRM ENOUGH TO NOT BE TORN BY CUTTING BLADE AND BEFORE SHRINKAGE CRACKING OCCURS, BUT NO LATER THAN 12 HOURS AFTER CONCRETE HAS BEEN POURED.
 2. UNLESS NOTED OTHERWISE SUBMIT JOINTING PLANS FOR REVIEW.



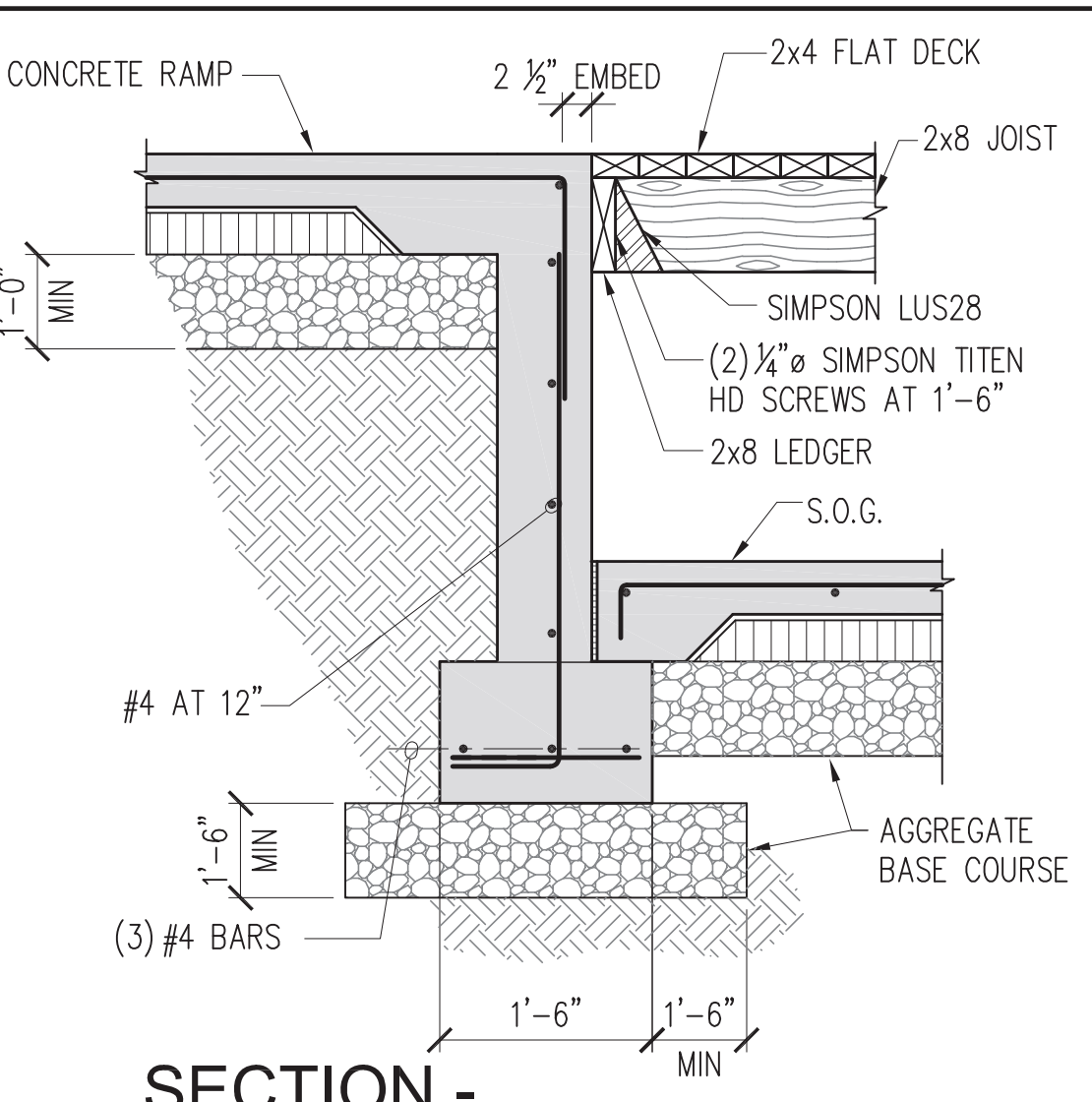
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 S002 NOT TO SCALE
TYPICAL SLAB-ON-GRADE DETAILS

6
 S002 NOT TO SCALE
TYPICAL THICKENED SLAB EDGE SCHEDULE

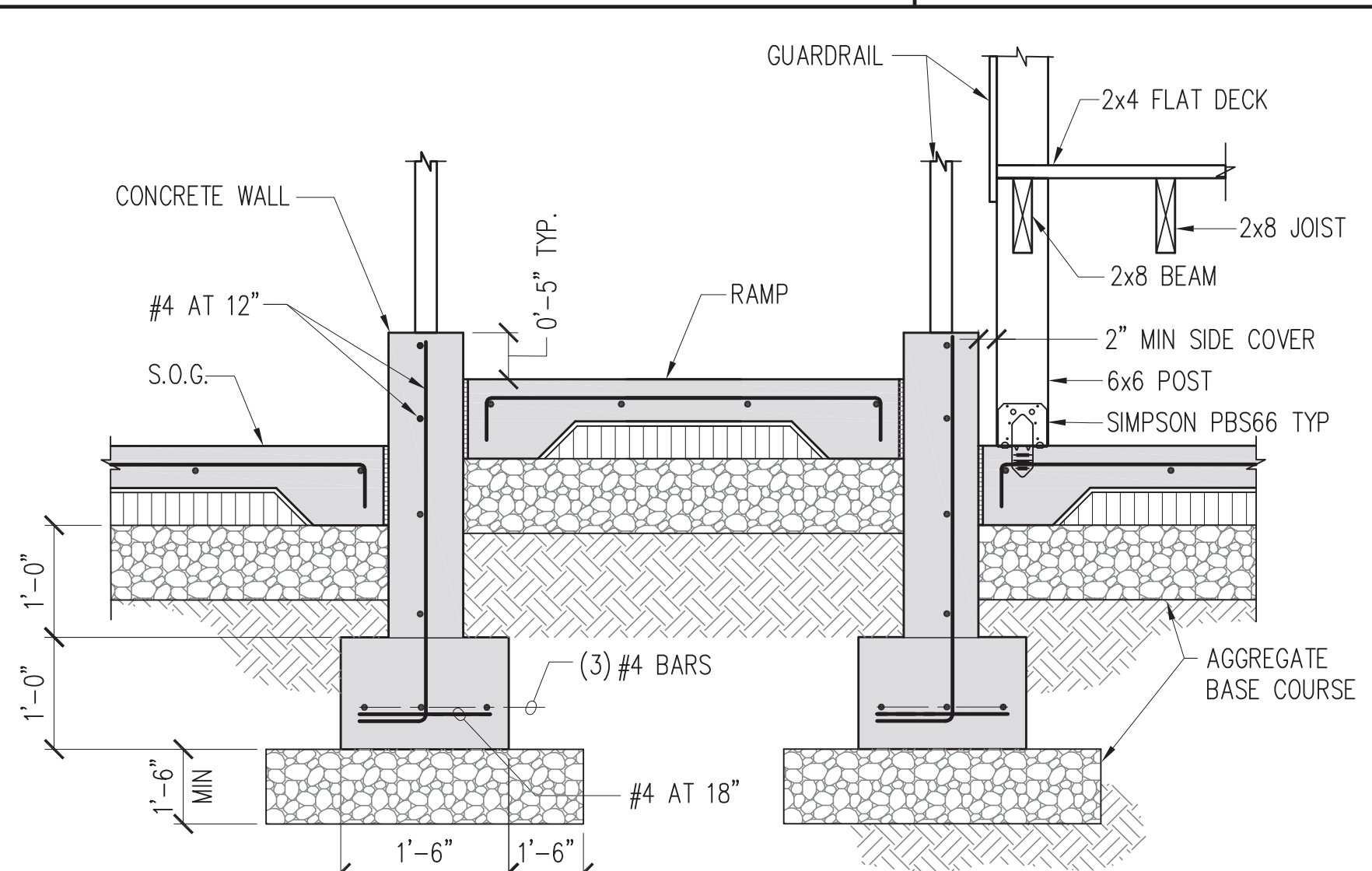
7
 S002 NOT TO SCALE
PRE-CAST RESTROOM PAD

SJ	
JOINT SPACING SCHEDULE	
SLAB-ON-GRADE THICKNESS	MAXIMUM SPACING IN BOTH DIRECTIONS
≥ 4"	10'-0"
≥ 5"	12'-0"
≥ 6"	15'-0"

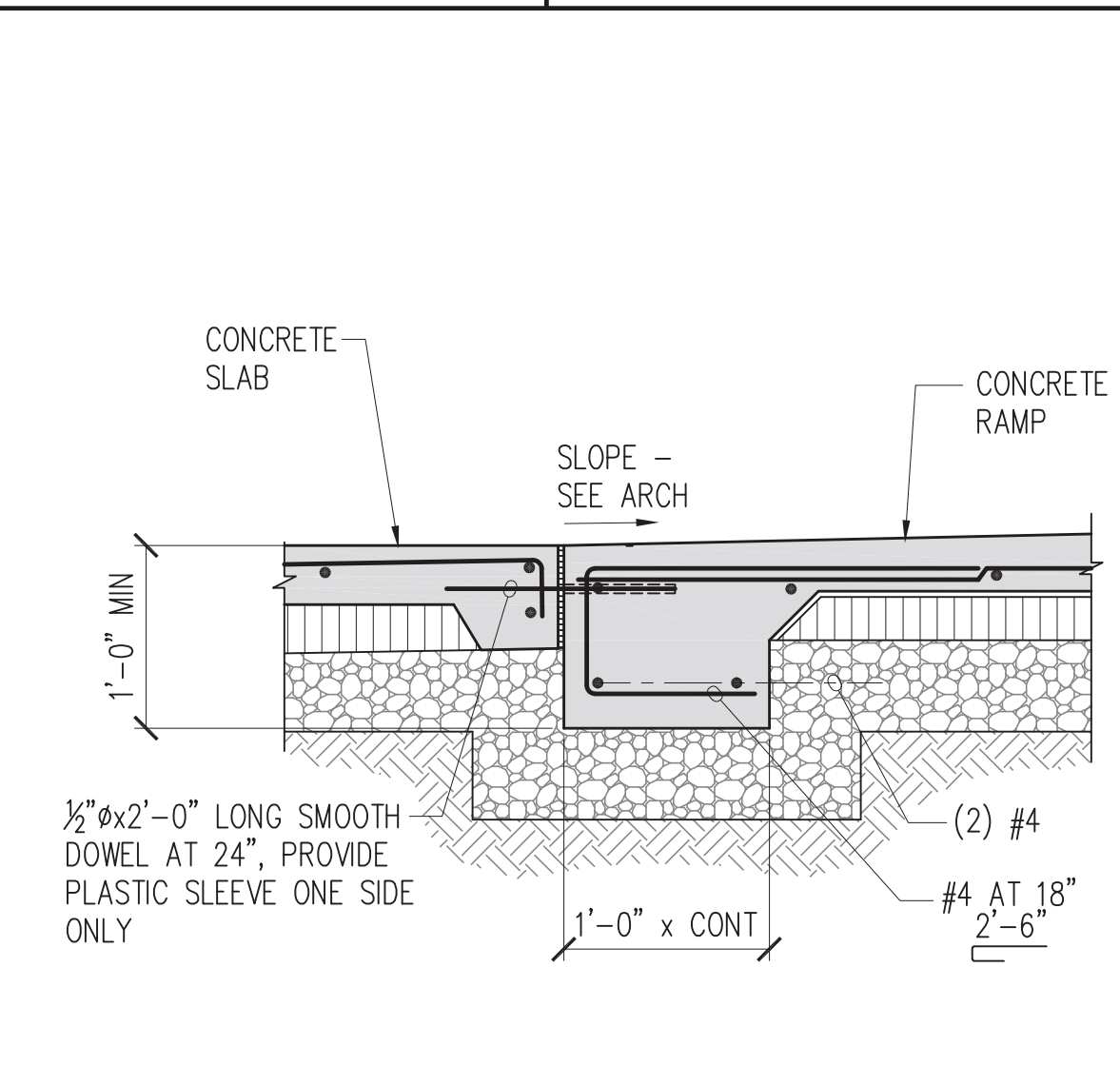
8
 S002 NOT TO SCALE
TYPICAL SLAB-ON-GRADE SAWCUT JOINT SCHEDULE



9
 S002 SCALE: 3/4" = 1'-0"
SECTION - LEDGER AT RAMP



10
 S002 SCALE: 3/4" = 1'-0"
SECTION - RAMP

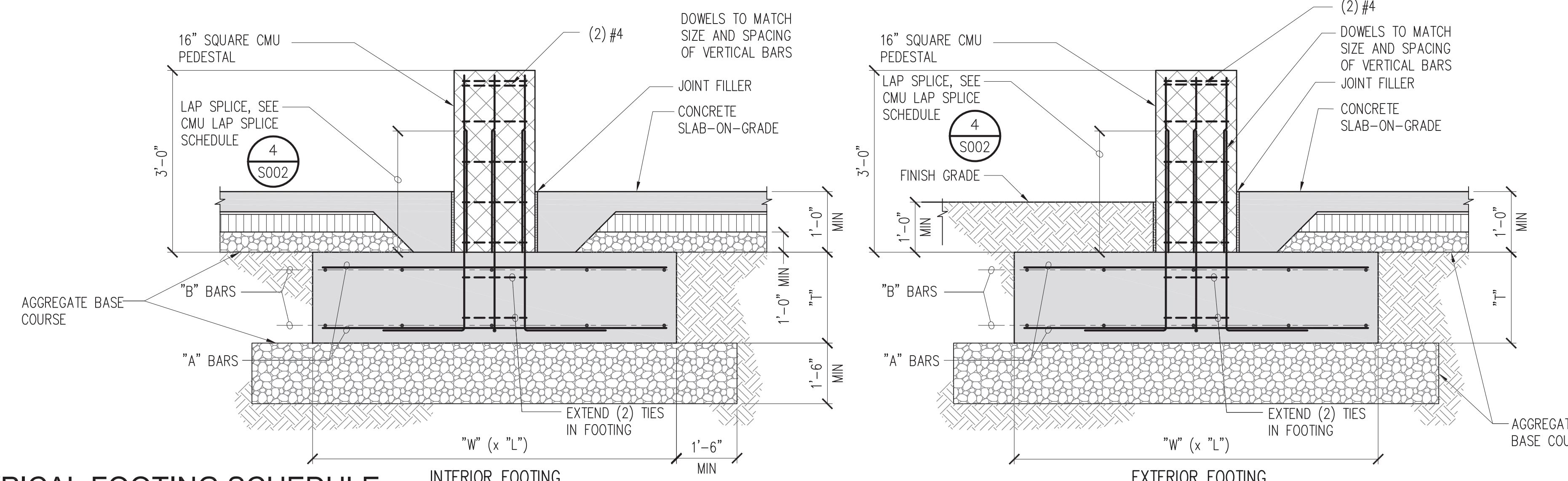


11
 S002 NOT TO SCALE
SECTION - SLAB TO RAMP

TIMOTHY G.S. GOSHI
 LICENSED PROFESSIONAL ENGINEER
 No. 16073-S
 HAWAII, U.S.A.
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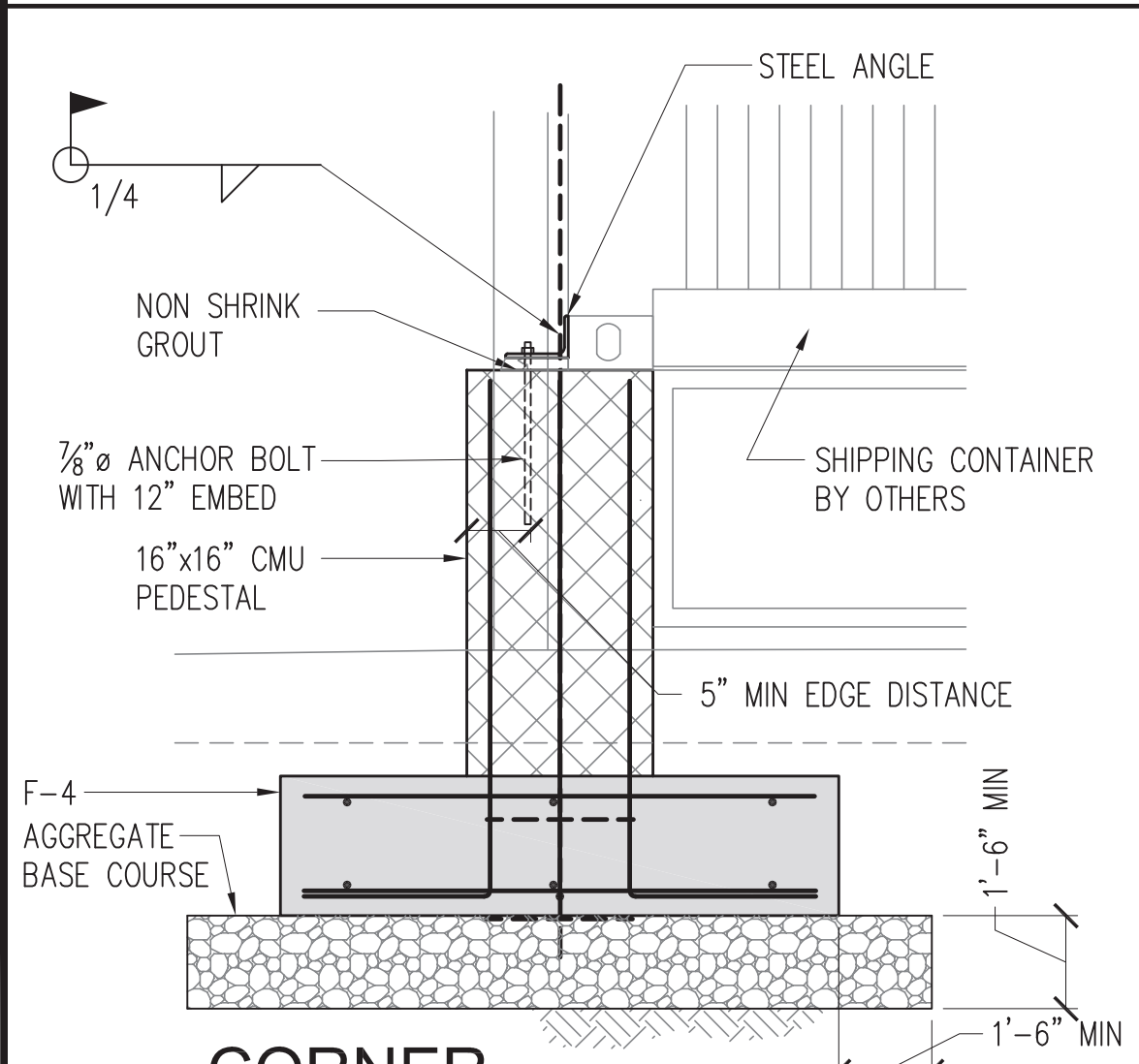
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
TYPICAL DETAILS
 HALAWA-LULUKU INTERPRETIVE DEVELOPMENT
 LULUKU PROJECT AREA
 FEDERAL-AID PROJECT NO. I-H3-1(75)
 Scale: _____ Date: JULY 2023

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75)	2024	31	37

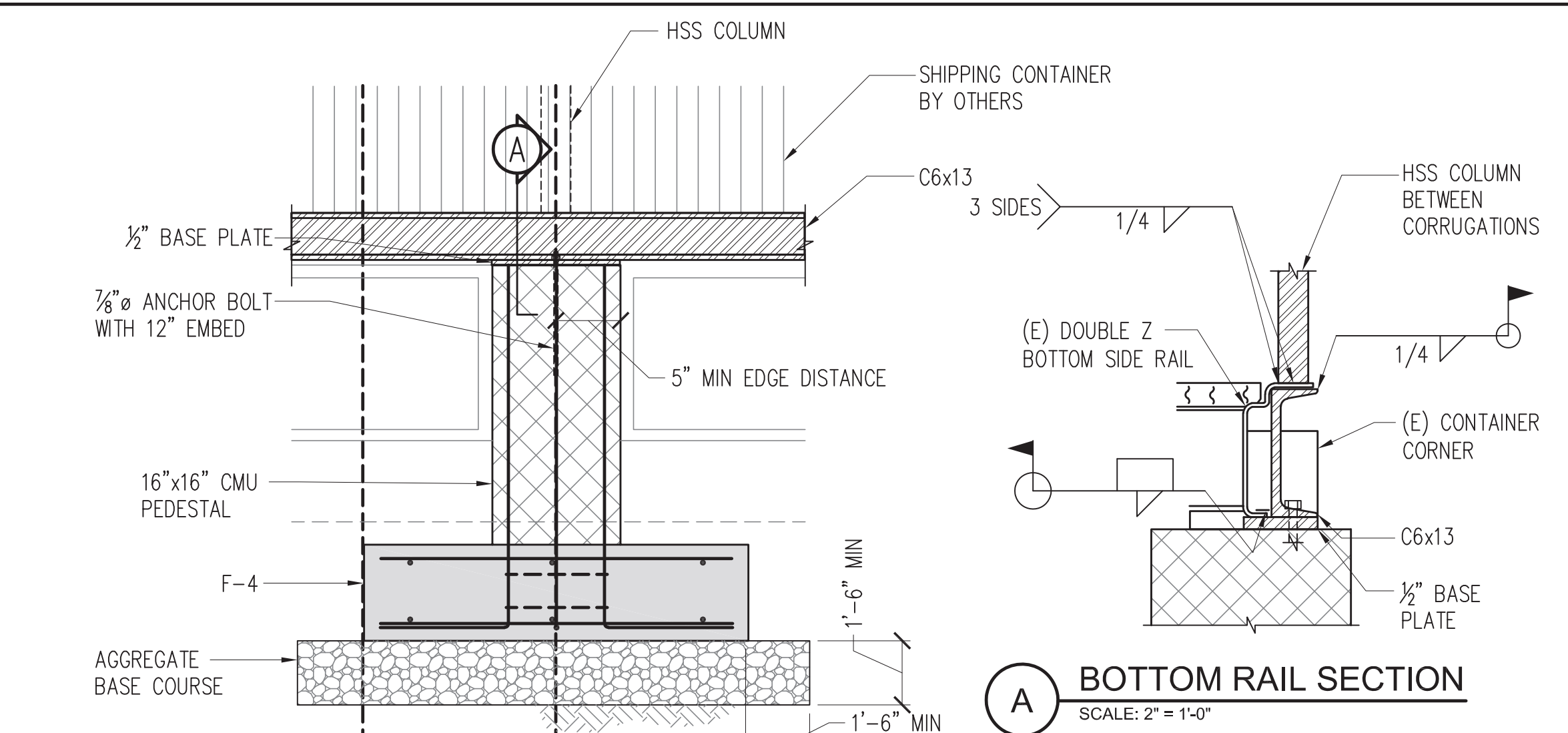


FOOTING SCHEDULE								
MARK	WALL FOOTING SIZE			"A" BARS		"B" BARS		REMARKS
	"W"	"L"	"T"	TOP BARS	BOTTOM BARS	TOP BARS	BOTTOM BARS	
F-4	4'-0"	4'-0"	1'-0"	(4) #5	(4) #5	(4) #5	(4) #5	

1 **TYPICAL FOOTING SCHEDULE**
S101 NOT TO SCALE



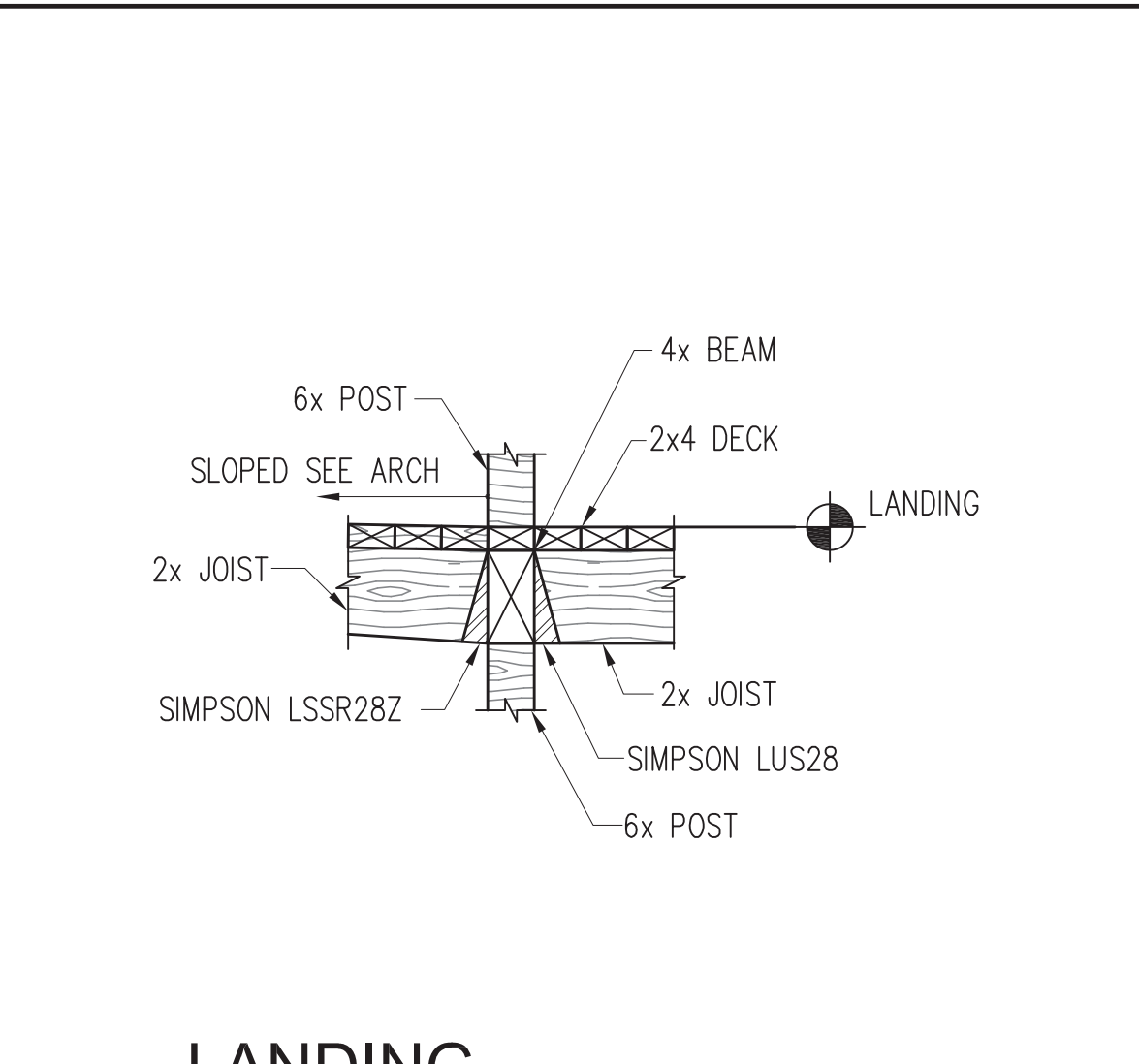
2 **CORNER PEDESTAL CONNECTION**
S101 SCALE: 3/4" = 1'-0"



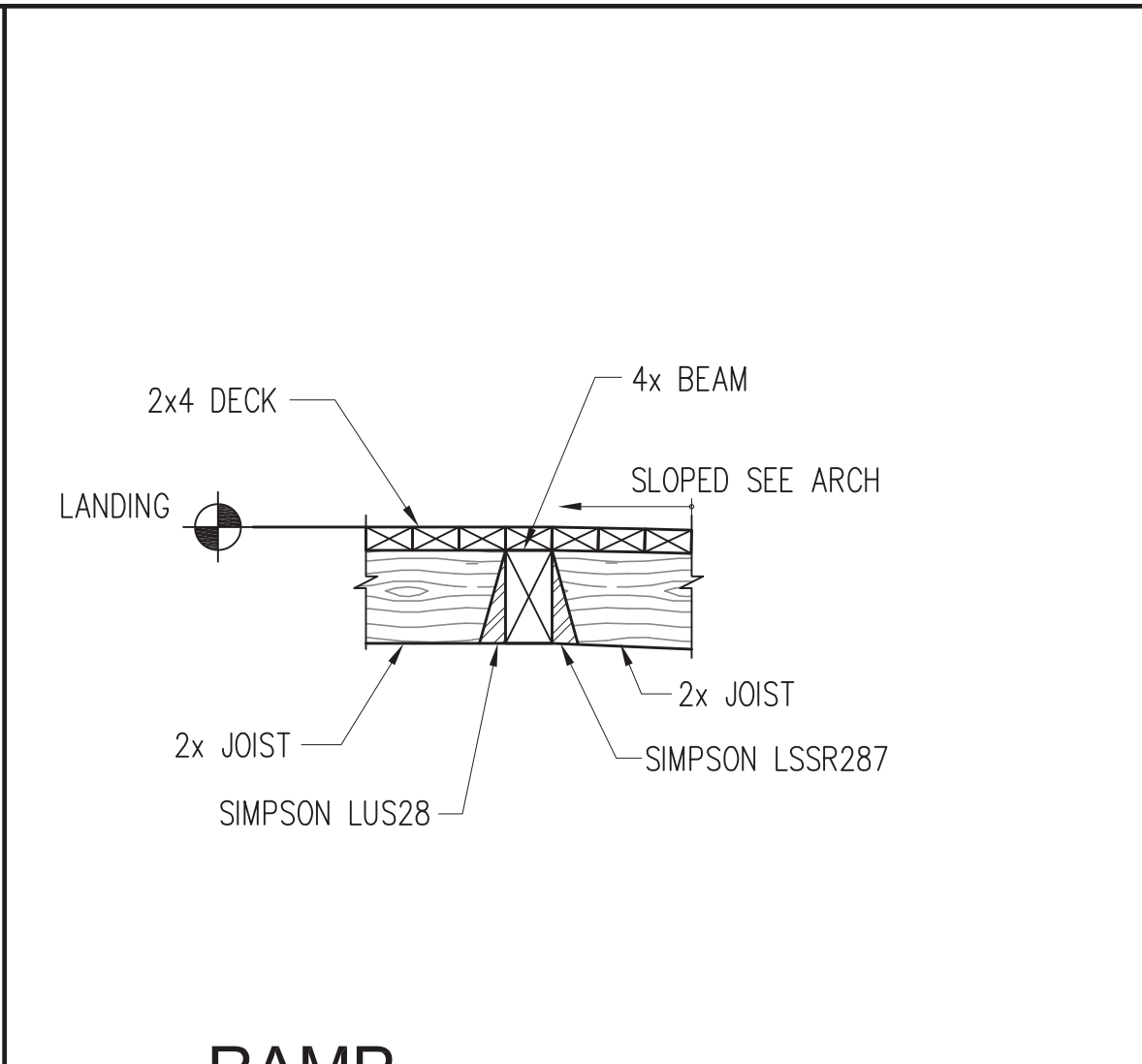
3 **TYPICAL PEDESTAL CONNECTION**
S101 SCALE: 3/4" = 1'-0"

4 **BOTTOM RAIL SECTION**
SCALE: 2" = 1'-0"

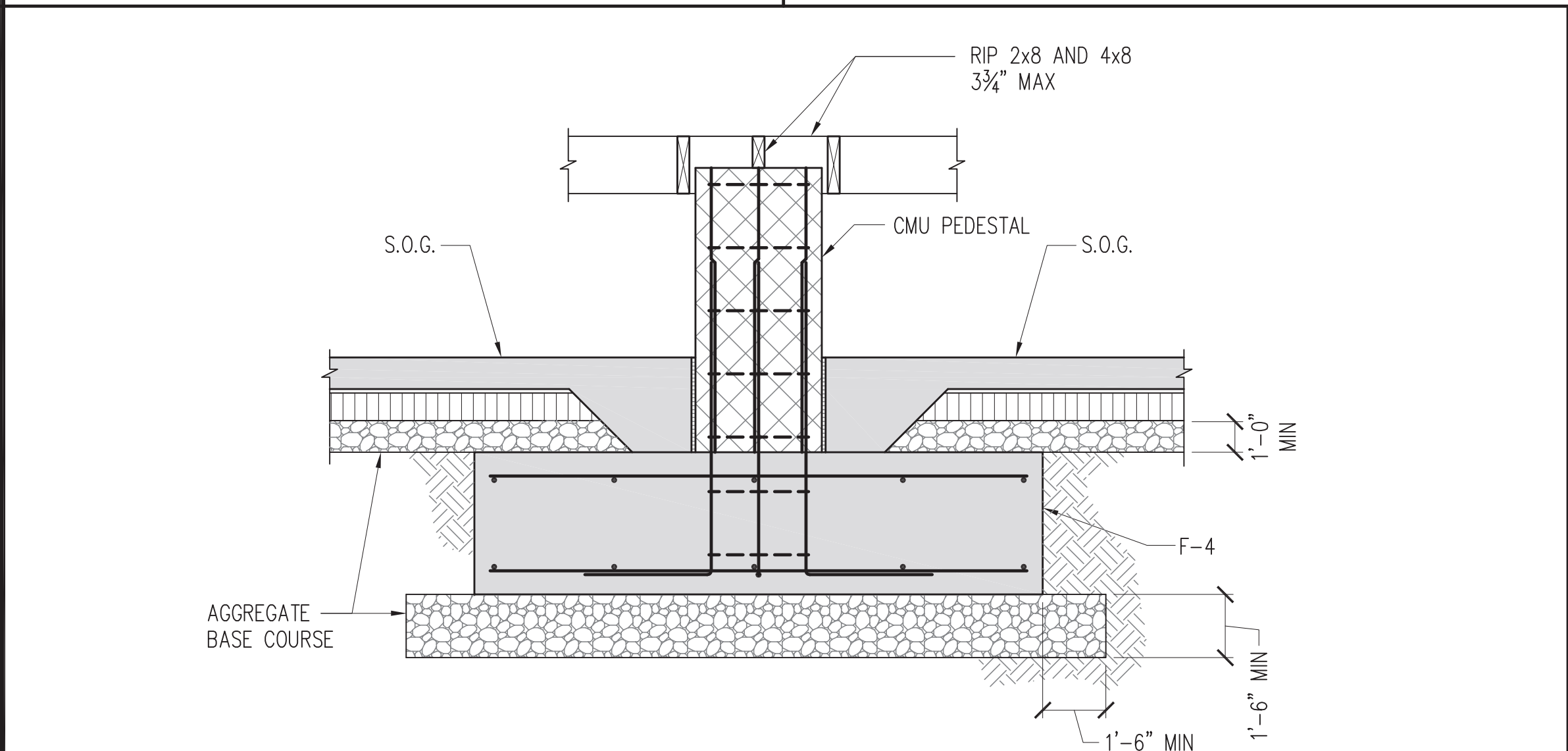
NOTE: SEE DETAIL 5/S501 FOR ADDITIONAL HSS COLUMN CONNECTION INFORMATION.



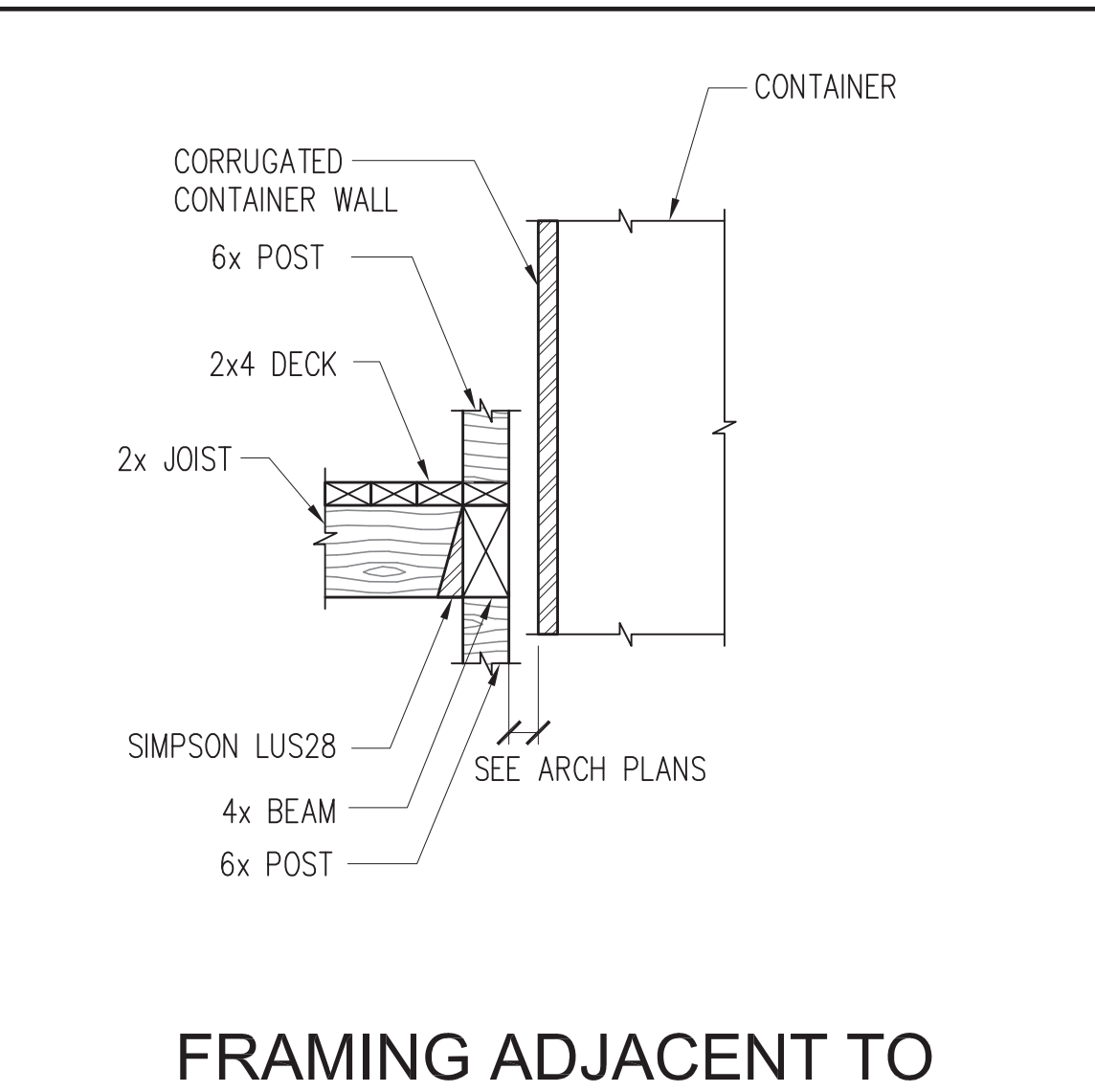
4 **LANDING TO RAMP SECTION**
S101 SCALE: 1 1/2" = 1'-0"



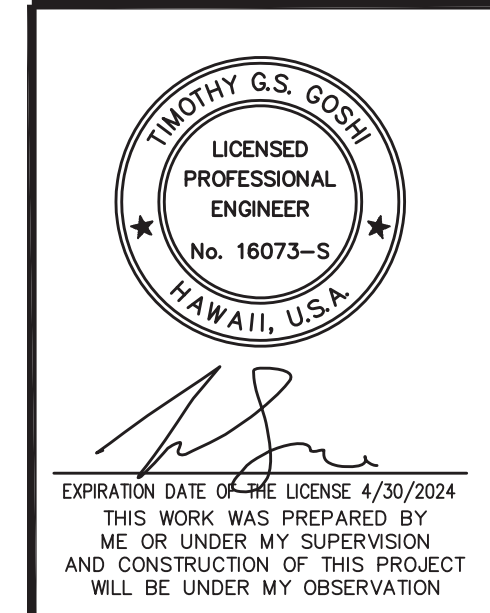
5 **RAMP TO LANDING SECTION**
S101 SCALE: 1 1/2" = 1'-0"



6 **PORCH FRAMING TO PEDESTAL DETAIL**
S101 SCALE: 3/4" = 1'-0"



7 **FRAMING ADJACENT TO CONTAINER SECTION**
S101 SCALE: 1 1/2" = 1'-0"



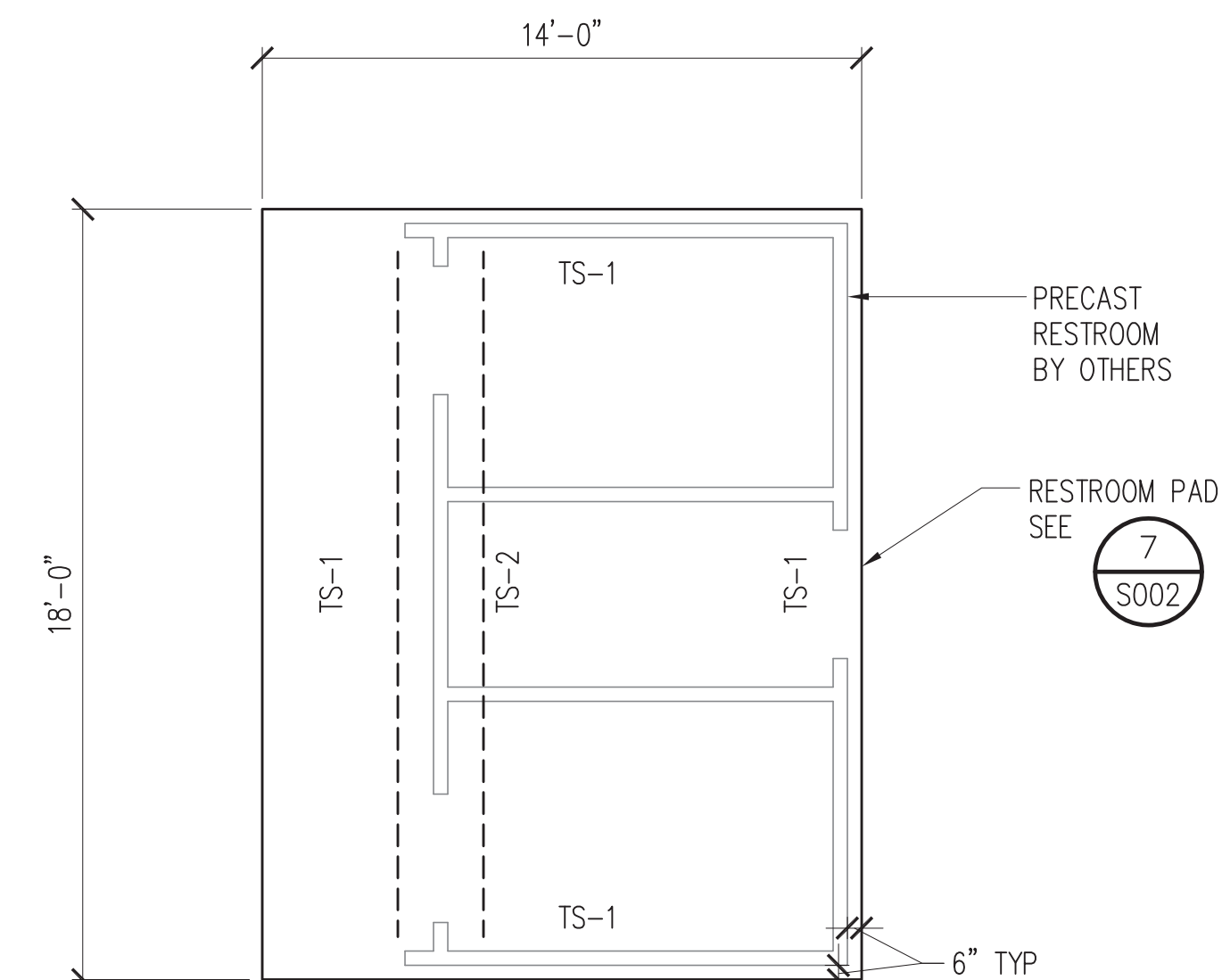
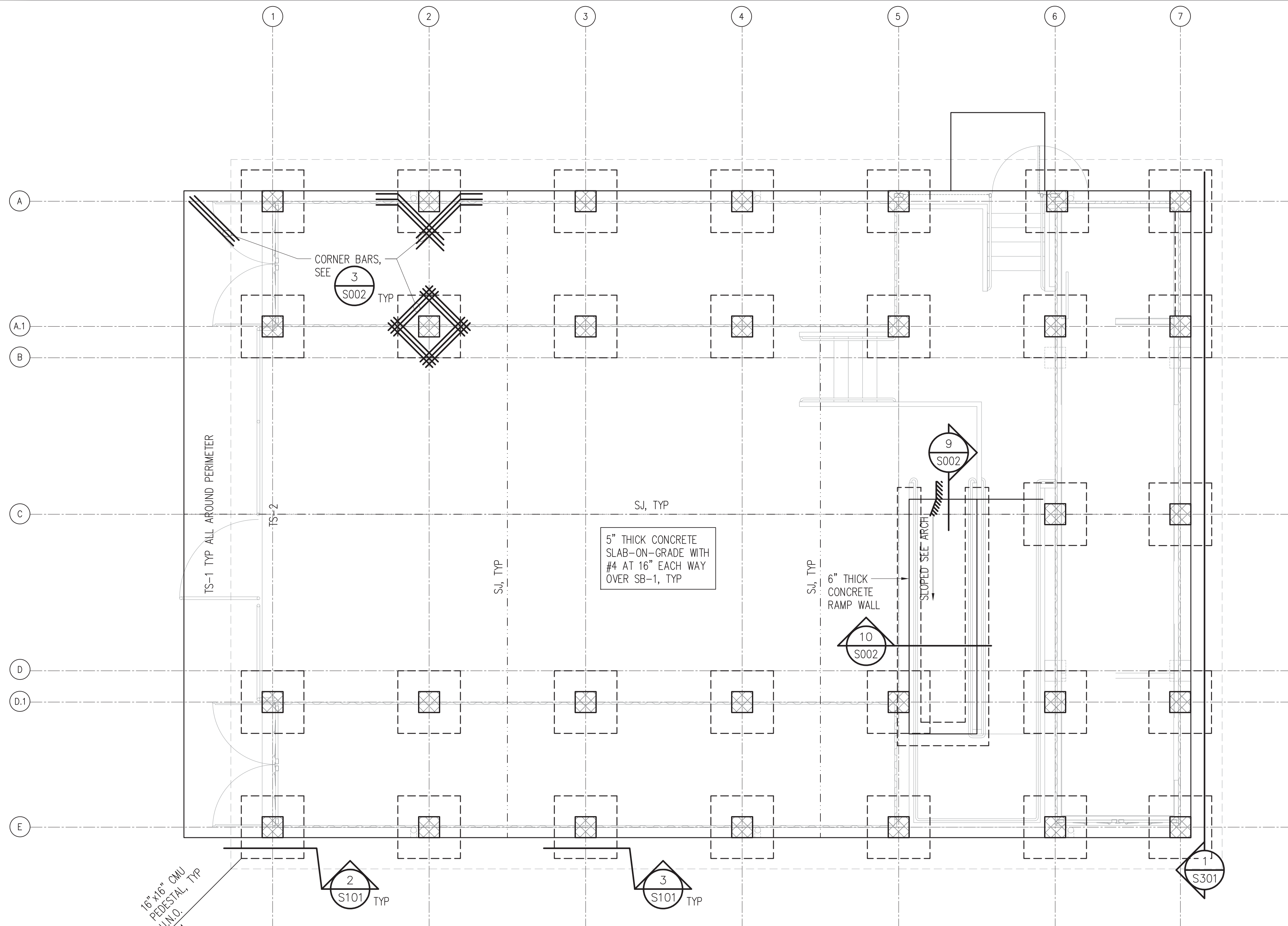
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**TYPICAL FOUNDATION
DETAILS**

HALAWA-LULUKU INTERPRETIVE DEVELOPMENT
LULUKU PROJECT AREA
FEDERAL-AID PROJECT NO. I-H3-1(75)

Scale: _____ Date: JULY 2023

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75)	2024	32	37



LEGEND

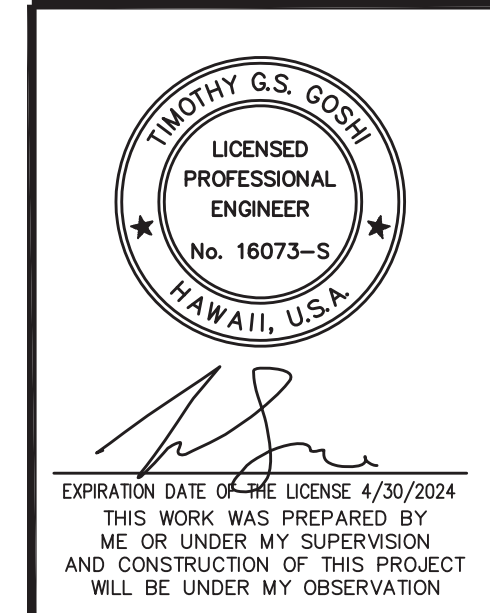
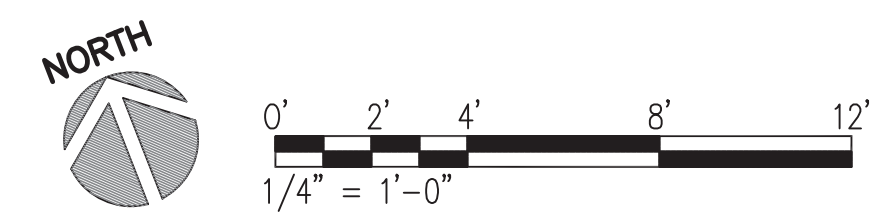
F-1	INDICATES FOOTING TYPE, SEE 1/S101
WF-1	INDICATES WALL FOOTING TYPE, SEE 11/S002
SB-1	INDICATES SUBBASE TYPE, SEE 5/S002
SJ	INDICATES SAWCUT JOINT, SEE 8/S002
TS-1	INDICATES THICKENED SLAB TYPE, SEE 6/S002
	INDICATES CHANGE IN ELEVATION
	INDICATES CMU PEDESTAL

- FOUNDATION NOTES:**
- REFERENCE ELEVATION 0.00 = FINISH FLOOR ELEVATION 00.00'.
 - TOP OF FOOTINGS SHALL BE 1'-0" BELOW THE LOWER OF THE REFERENCE ELEVATION OR THE LOWEST ADJACENT FINISHED GRADE, U.N.O. (UNLESS NOTED OTHERWISE).
 - FOR DIMENSIONS NOT SHOWN, SEE THE ARCHITECTURAL DRAWINGS.
 - FOR WATERPROOFING REQUIREMENTS AND DETAILS, SEE ARCHITECTURAL DRAWINGS.

- SLAB ON GRADE NOTES:**
- THICKNESS OF SLAB-ON-GRADE SHOWN ARE MINIMUM AND SHALL BE MAINTAINED AT ALL SLOPED AND DEPRESSED AREAS.
 - FOR FLOOR ELEVATIONS, DEPRESSED SLAB LOCATIONS, SLOPES TO DRAIN AND EQUIPMENT PAD AND CURB LOCATIONS, SEE ARCHITECTURAL, ELECTRICAL AND MECHANICAL DRAWINGS.
 - SLABS SHALL BE POURED WITH A MINIMUM TWENTY ONE (21) DAYS LAPSED TIME BETWEEN ADJACENT POURS.
 - FOR EXTERIOR CONCRETE SLAB-ON-GRADE, SEE ARCHITECTURAL AND CIVIL DRAWINGS.

- REFERENCE DRAWINGS**
- GENERAL NOTES, SEE S001
 - TYPICAL SLAB-ON-GRADE DETAILS, SEE S002
 - TYPICAL FOUNDATION DETAILS, SEE S002 AND S101
 - TYPICAL FOOTING DETAILS AND SCHEDULE, SEE S101
 - STRUCTURAL ELEVATIONS, SEE S301
 - TYPICAL CMU PEDESTAL DETAILS, SEE S101

1 FOUNDATION PLAN
S201 SCALE: 1/4" = 1'-0"



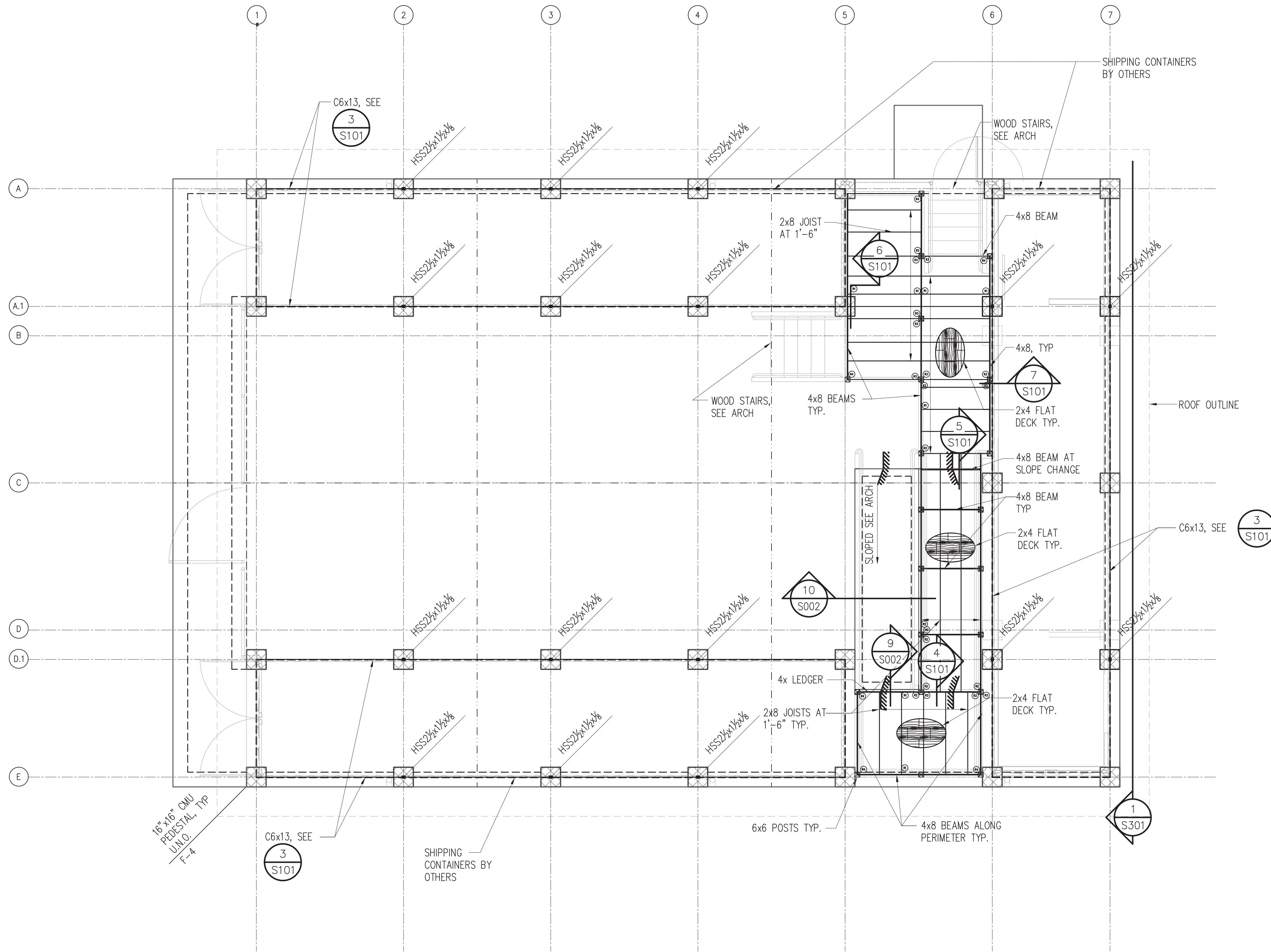
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

FOUNDATION PLAN

HALAWA-LULUKU INTERPRETIVE DEVELOPMENT
LULUKU PROJECT AREA
FEDERAL-AID PROJECT NO. I-H3-1(75)

Scale: _____ Date: JULY 2023

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75)	2024	33	37



1 FLOOR FRAMING PLAN
 S202 SCALE: 1/4" = 1'-0"

LEGEND	
	INDICATES CHANGE IN ELEVATION
	INDICATES CMU PEDESTAL
	INDICATES NON-BEARING WALLS

REFERENCE DRAWINGS	
GENERAL NOTES, SEE	S001
STRUCTURAL ELEVATIONS, SEE	S301
TYPICAL CMU PEDESTAL DETAILS, SEE	S501
TYPICAL STUD WALL AND WOOD FRAMING DETAILS, SEE	S501
WOOD FRAMING CONNECTOR SCHEDULE, SEE	3/S501



EXPIRATION DATE OF THE LICENSE 4/30/2024
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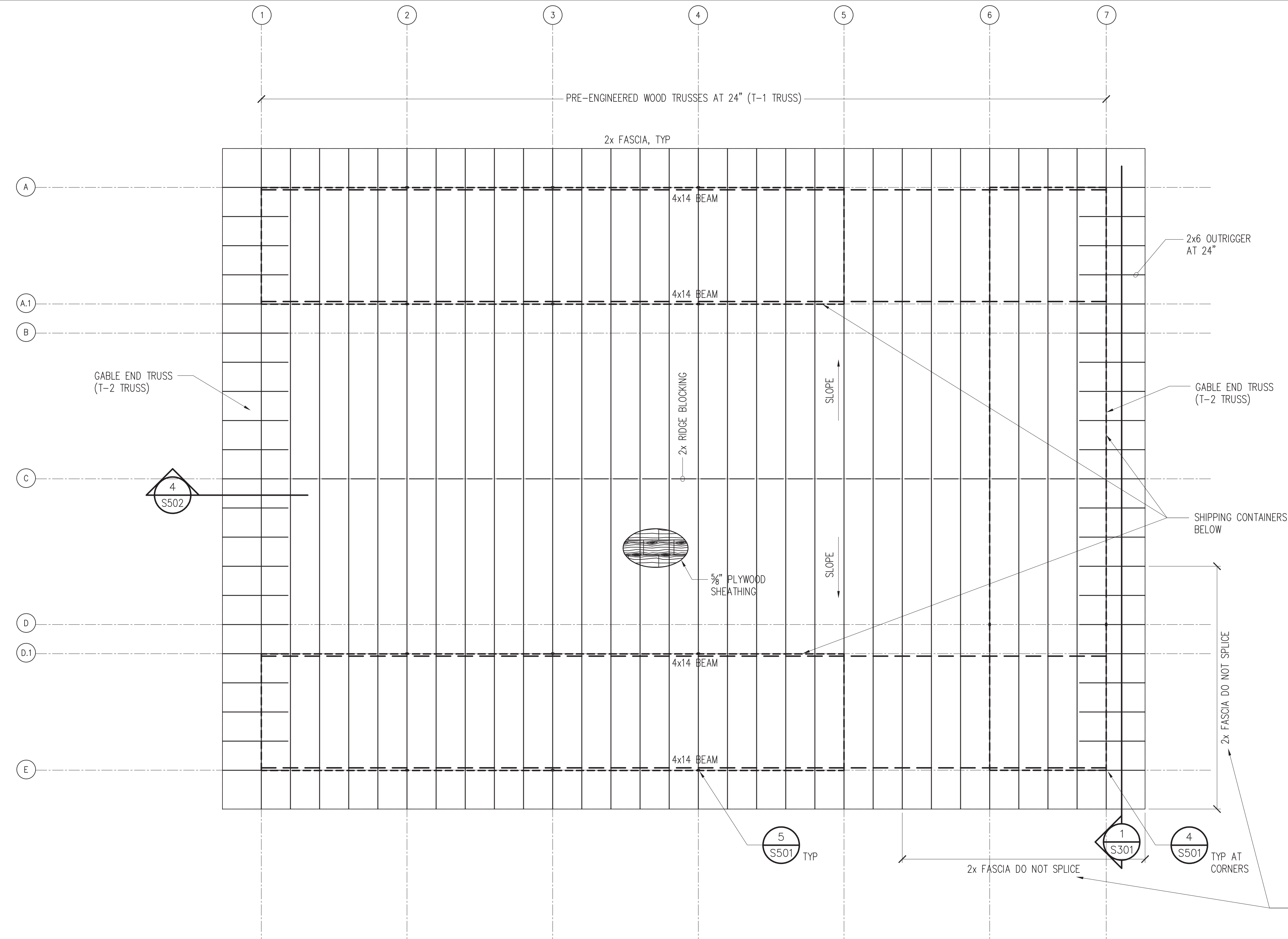
STATE OF HAWAII
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FLOOR FRAMING PLAN

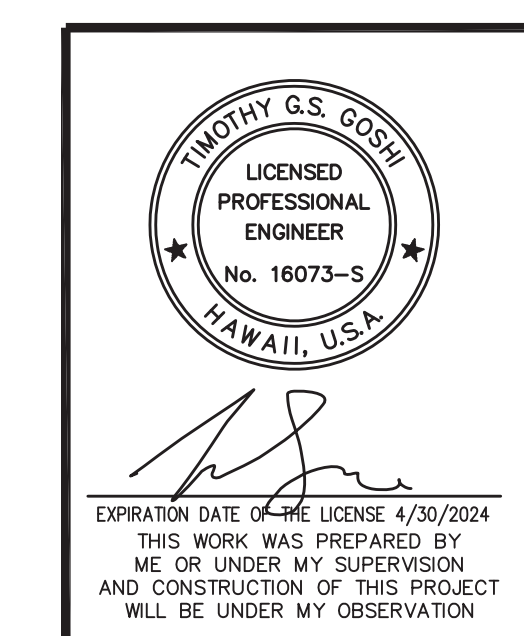
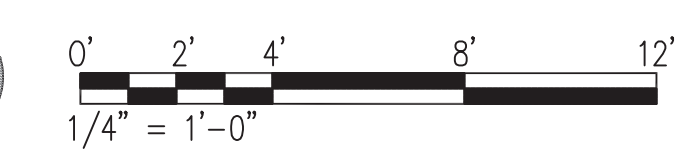
 HALAWA-LULUKU INTERPRETIVE DEVELOPMENT
 LULUKU PROJECT AREA
 FEDERAL-AID PROJECT NO. I-H3-1(75)
 Scale: _____ Date: JULY 2023
 SHEET No. **S202** OF **37** SHEETS

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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75)	2024	34	37



REFERENCE DRAWINGS
 TYPICAL ROOF TRUSS NOTES, TYPICAL DETAILS AND ELEVATIONS, SEE S502



STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

ROOF FRAMING PLAN

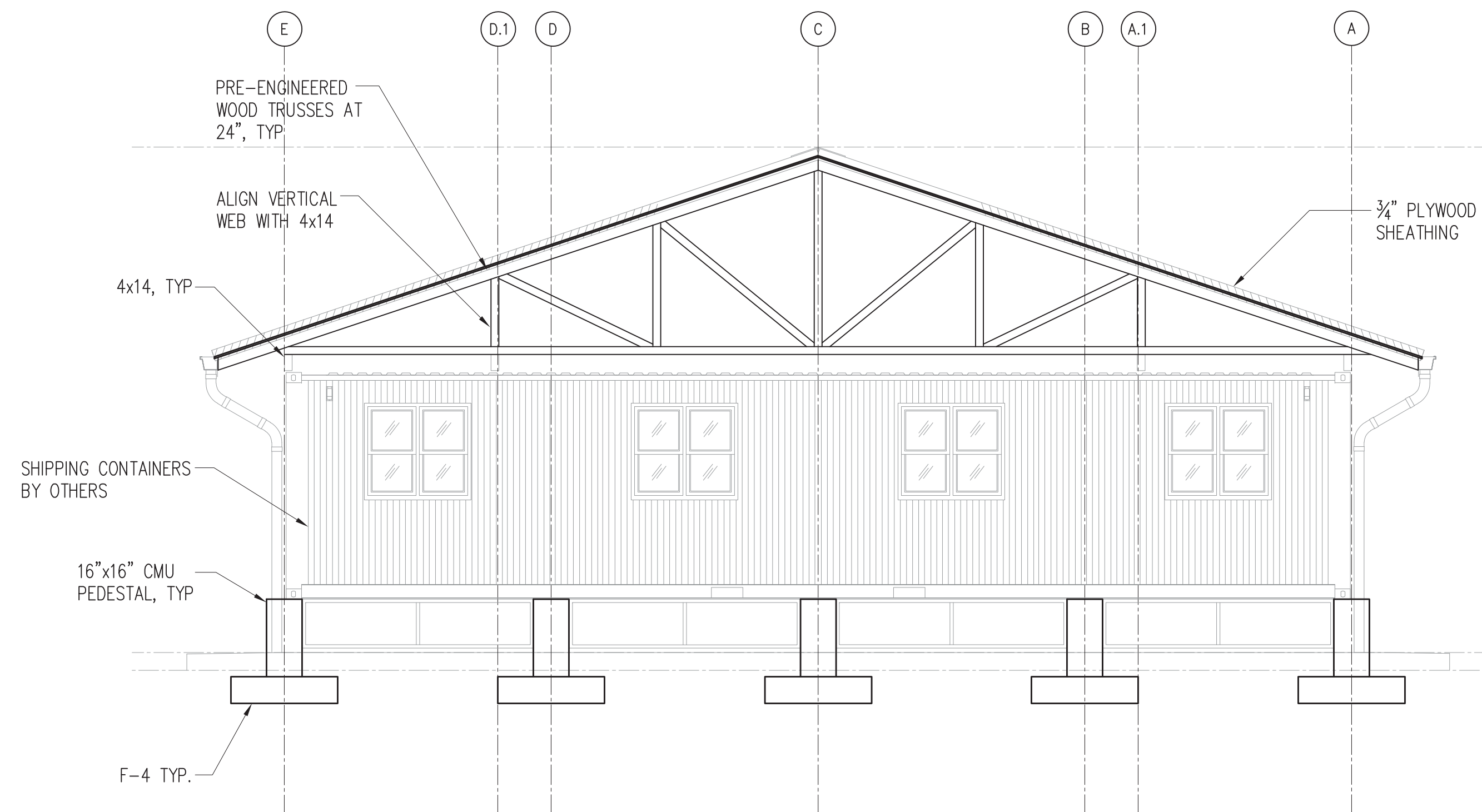
HALAWA-LULUKU INTERPRETIVE DEVELOPMENT
 LULUKU PROJECT AREA
 FEDERAL-AID PROJECT NO. I-H3-1(75)

Scale: _____ Date: JULY 2023

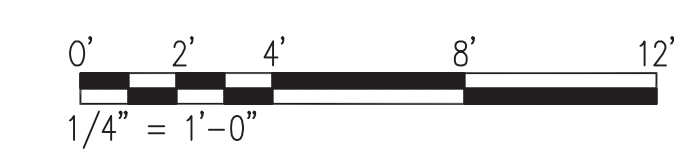
1 ROOF FRAMING PLAN
 S203 SCALE: 1/4" = 1'-0"

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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75)	2024	35	37



1 BUILDING SECTION
 S301 SCALE: 1/4" = 1'-0"



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STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

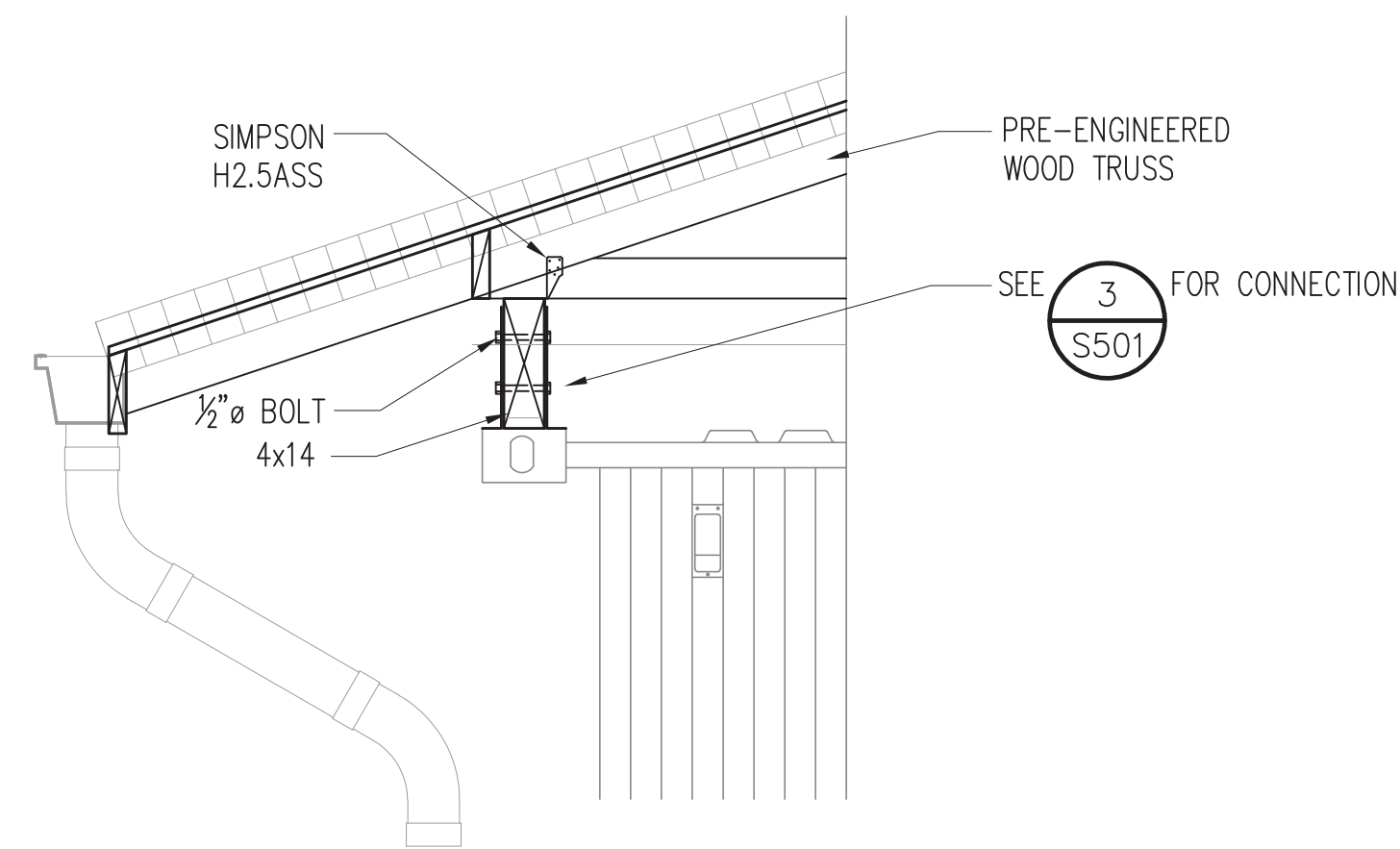
BUILDING SECTIONS

HALAWA-LULUKU INTERPRETIVE DEVELOPMENT
 LULUKU PROJECT AREA
 FEDERAL-AID PROJECT NO. I-H3-1(75)

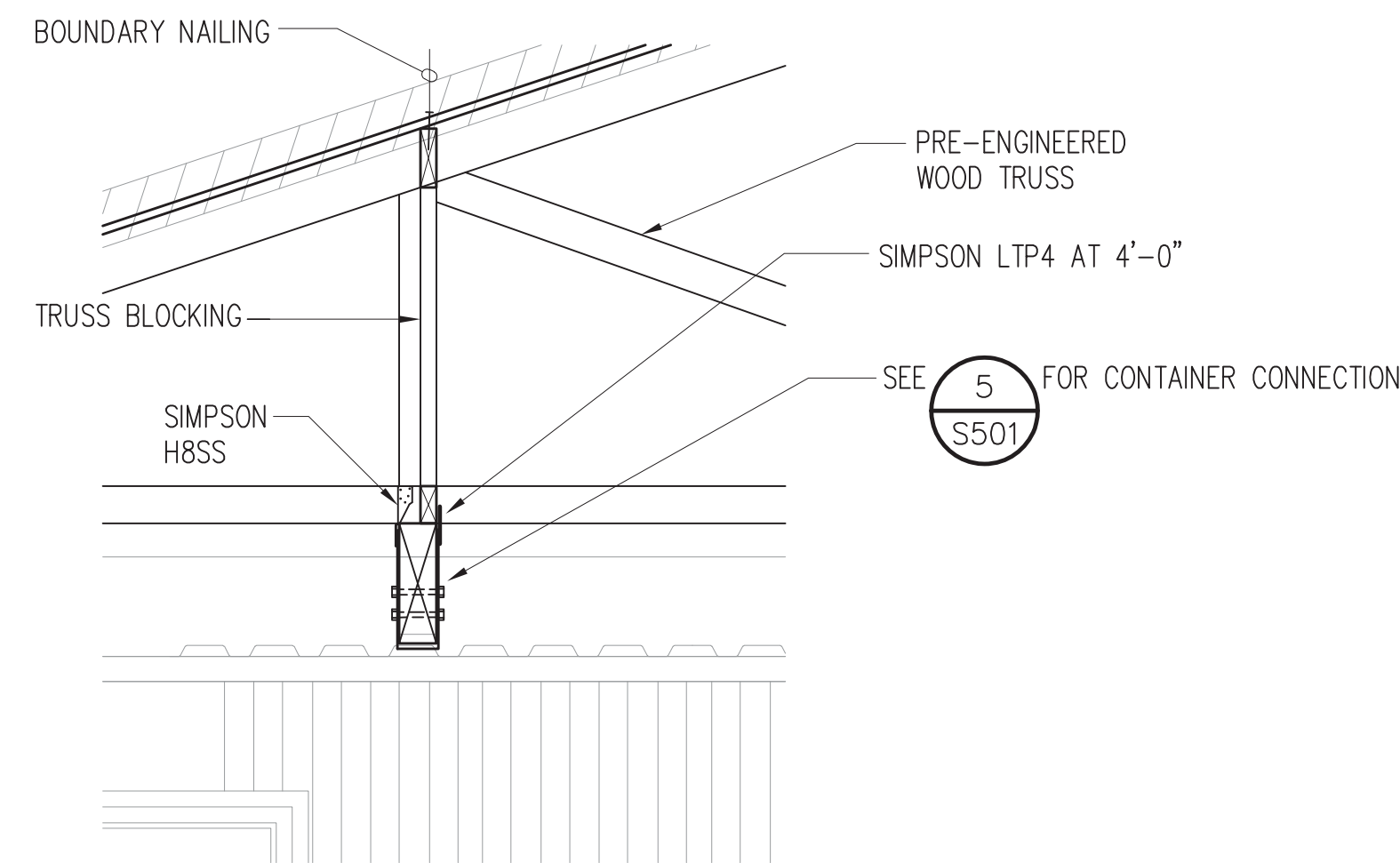
Scale: _____ Date: JULY 2023

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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75)	2024	36	37



1 EXTERIOR ROOF BEAM CONNECTION
S501 SCALE: 3/4" = 1'-0"



2 INTERIOR ROOF BEAM CONNECTION
S501 SCALE: 3/4" = 1'-0"

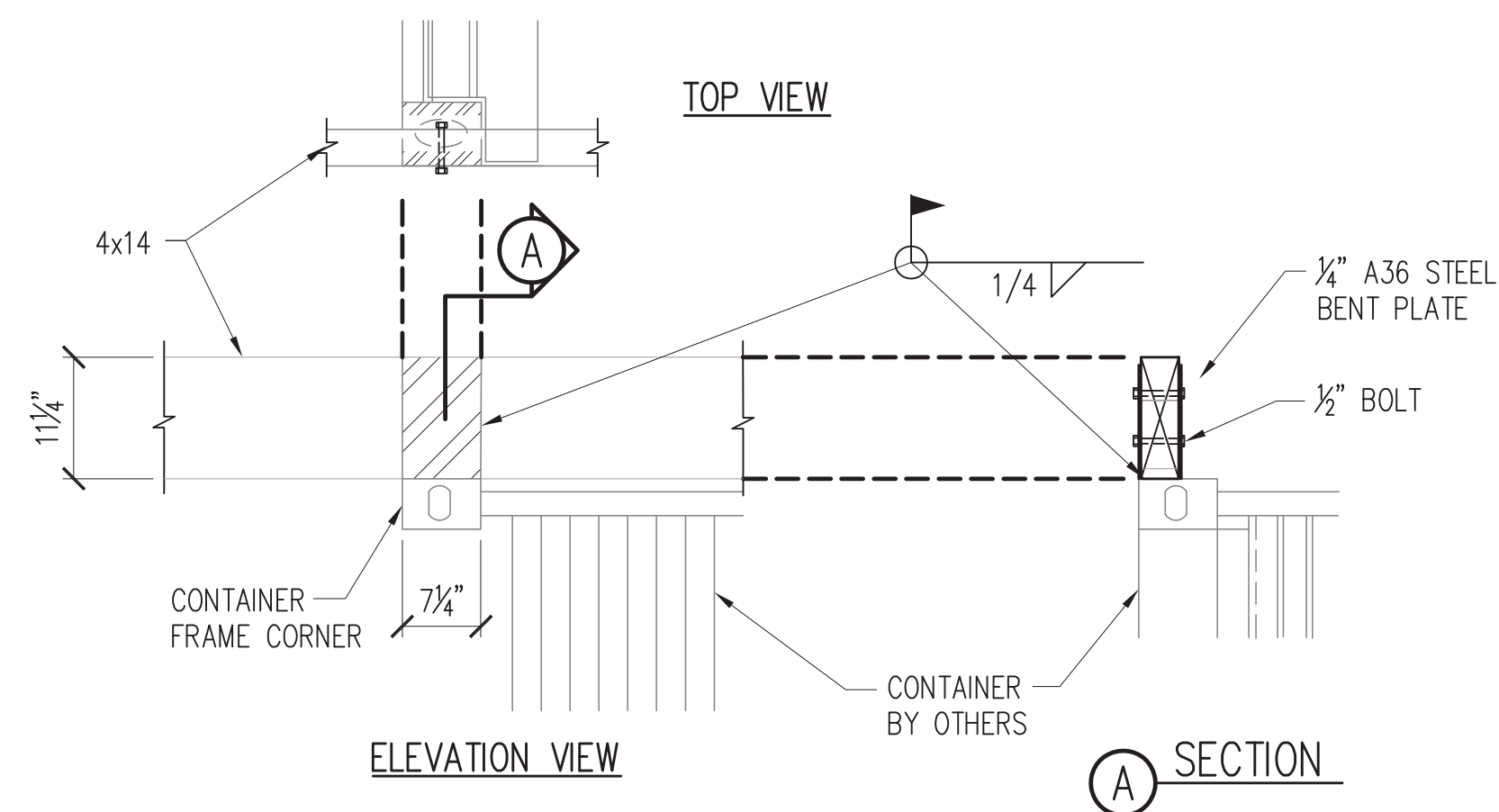
MARK	CONNECTION	CONNECTOR
R1	2x8 JOIST TO BEAM	SIMPSON LSCZ OR SIMPSON LSSR28Z
R2	2x8 JOIST TO POST	SIMPSON LUC26Z USE 0.148"x1 1/2" NAILS IN POST
R3	4x8 BEAM TO POST	SIMPSON HU48
R4	4x8 BEAMS TO CORNER POST	SIMPSON HU48

CONNECTION	CONNECTOR
FLAT 2x4 TO JOIST/BEAM	(2) SIMPSON DWP WOOD SS SCREW #10x4 TYPE 305 SS

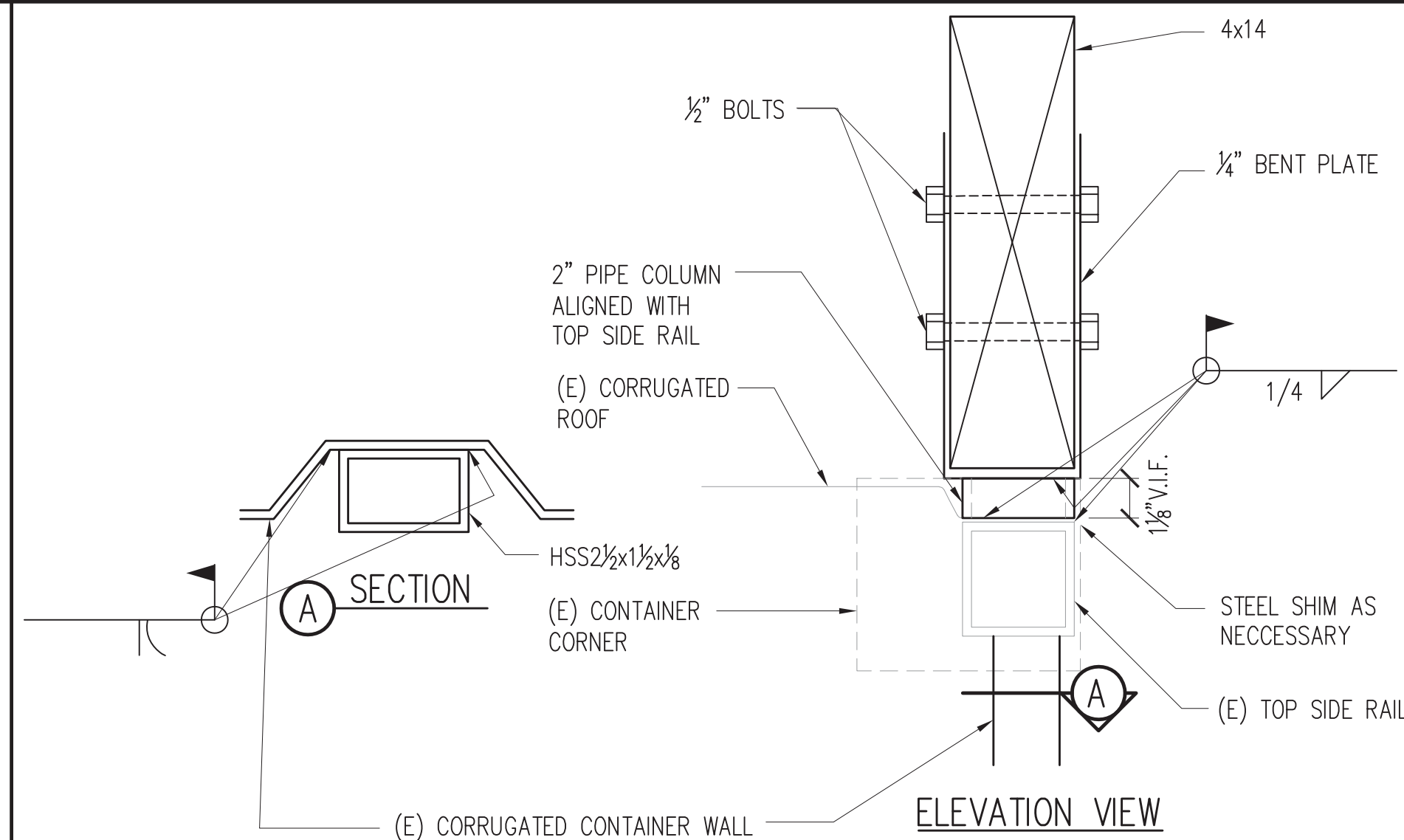
NOTE:
SCREW SCHEDULE IS FOR EDGE AND INTERMEDIATE SUPPORTS

NOTE:
1. FOR HU48 USE 0.148x1 1/2" NAILS IN POST TO AVOID OVERLAPPING WHEN NECESSARY

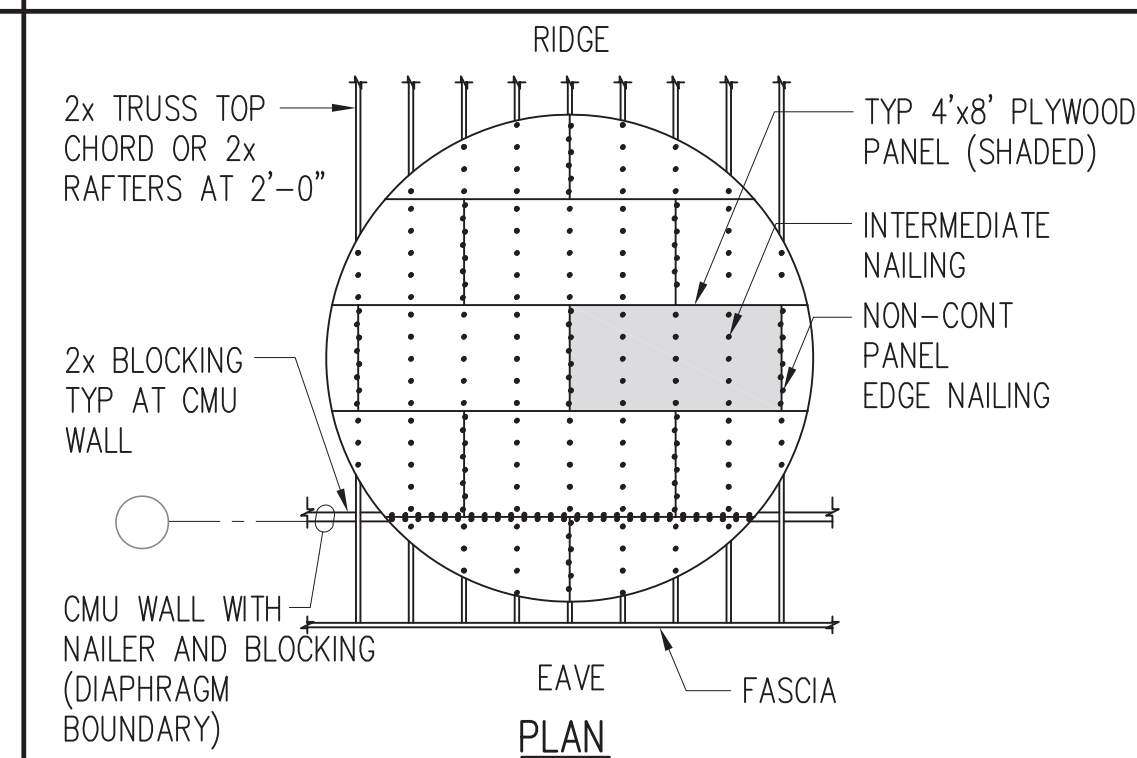
3 CONNECTOR SCHEDULE
S501 NOT TO SCALE



4 CONTAINER TO ROOF BEAM CORNER CONNECTION
S501 SCALE: 3/4" = 1'-0"



5 CONTAINER TO ROOF BEAM CONNECTION
S501 SCALE: 3" = 1'-0"



SCHEDULE	PLYWOOD SHEATHING THICKNESS	DIAPHRAGM BOUNDARY NAILING	CONTINUOUS PANEL EDGES	NON-CONT PANEL EDGES	INTERMEDIATE NAILING	REMARKS
	5/8"	8d AT 6"	N/A	8d AT 6"	8d AT 12"	SIMPSON PSCL AT 24" ALONG CONT EDGE

6 PLYWOOD ROOF SHEATHING NAILING SCHEDULE
S501 NOT TO SCALE

EXPIRATION DATE OF THE LICENSE 4/30/2024
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**TYPICAL WOOD FRAMING
DETAILS**

HALAWA-LULUKU INTERPRETIVE DEVELOPMENT
LULUKU PROJECT AREA
FEDERAL-AID PROJECT NO. I-H3-1(75)

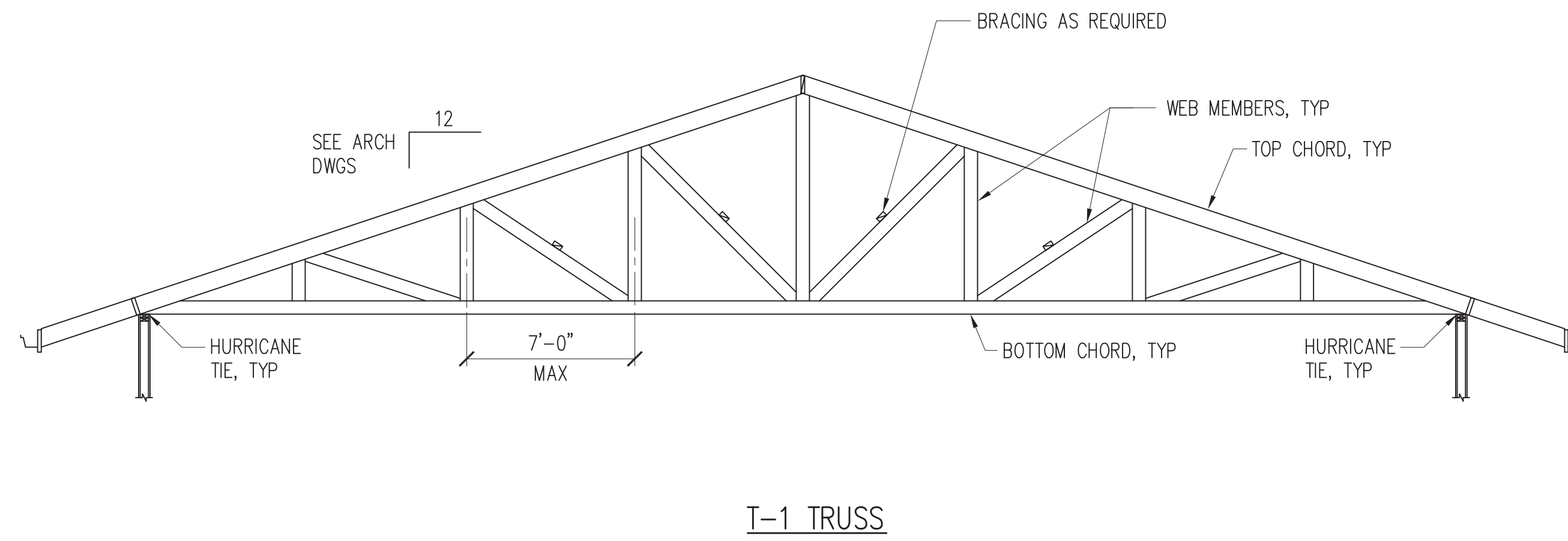
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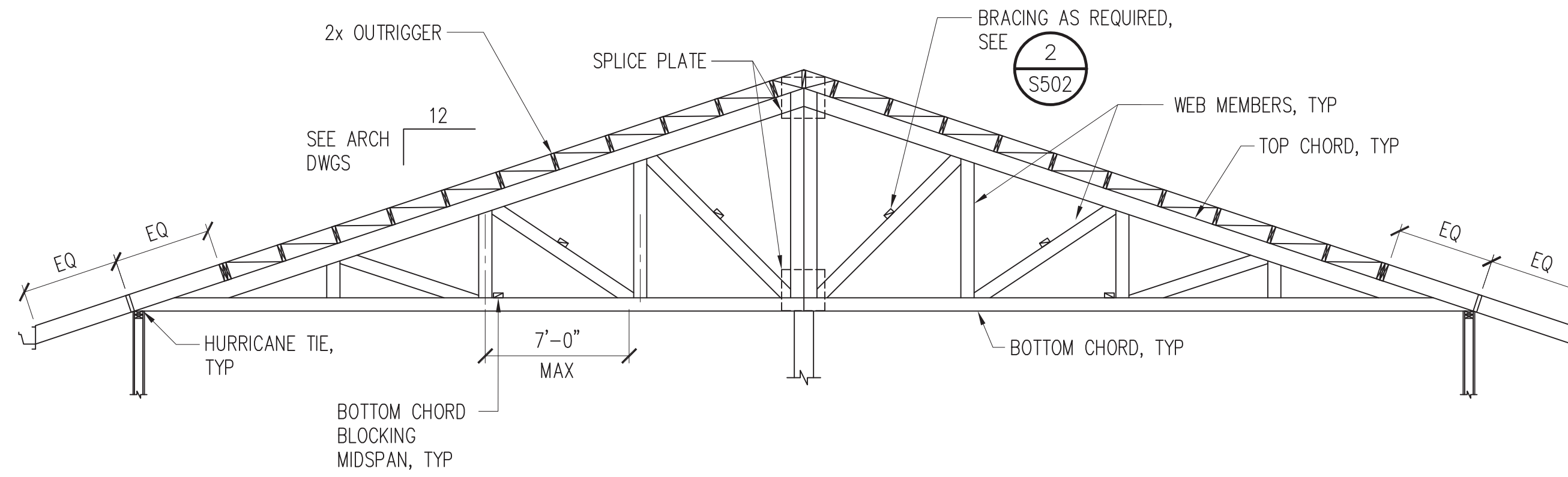
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75)	2024	37	37

METAL-PLATE CONNECTED WOOD ROOF TRUSSES:

- A. ALL WORK SHALL COMPLY WITH THE IBC AND THE FOLLOWING STANDARDS:
- ANSI/TPI 1 "NATIONAL DESIGN STANDARD FOR METAL-PLATE CONNECTED WOOD TRUSS CONSTRUCTION."
 - TPI HIB "COMMENTARY AND RECOMMENDATIONS FOR HANDLING, INSTALLING AND BRACING METAL PLATE CONNECTED WOOD TRUSSES."
 - TPI DSB "RECOMMENDED DESIGN SPECIFICATION FOR TEMPORARY BRACING OF METAL PLATE CONNECTED WOOD TRUSSES."
- B. PREFABRICATED WOOD TRUSSES SHALL BE FACTORY FABRICATED WITH TERMITES AND ROT TREATED DOUGLAS FIR, GRADE AS REQUIRED TO MEET STRESS REQUIREMENTS.
- C. CONNECTOR PLATES SHALL BE PRIME COMMERCIAL QUALITY GALVANIZED STEEL SHEETS NO LESS THAN 20 GAGE THICKNESS AND G60 COATING.
- D. THE FABRICATOR SHALL HAVE A MINIMUM OF 3 YEARS SUCCESSFUL EXPERIENCE IN THE FABRICATION OF PREFABRICATED WOOD TRUSSES, SIMILAR TO THE TRUSSES REQUIRED FOR THIS PROJECT. THE FABRICATOR SHALL HAVE SUFFICIENT PRODUCTION CAPACITY TO PRODUCE, TRANSPORT AND DELIVER THE REQUIRED TRUSSES WITHOUT CAUSING DELAY IN THE WORK.
- E. STRUCTURAL CALCULATIONS AND SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL, PRIOR TO FABRICATION. SHOP DRAWINGS SHALL INCLUDE LAYOUT OF TRUSSES, TRUSS CONFIGURATION, MEMBER SIZES, CONNECTION DETAILS, FABRICATION DETAILS AND BRACING REQUIREMENTS. STRUCTURAL CALCULATIONS SHALL BE CERTIFIED BY A STRUCTURAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF HAWAII.
- F. CONTRACTOR AND TRUSS MANUFACTURER SHALL VERIFY ALL TRUSS DIMENSIONS.
- G. SEE ARCHITECTURAL DRAWINGS FOR SLOPES OF TOP AND BOTTOM CHORDS.
- H. TRUSS MANUFACTURER TO COORDINATE LOCATION OF MECHANICAL EQUIPMENT WITH MECHANICAL DRAWINGS.
- I. STRUCTURAL CALCULATIONS AND SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL, PRIOR TO FABRICATION. SHOP DRAWINGS SHALL INCLUDE LAYOUT OF TRUSSES, TRUSS CONFIGURATION, MEMBER SIZES, CONNECTION DETAILS, FABRICATION DETAILS AND BRACING REQUIREMENTS. STRUCTURAL CALCULATIONS SHALL BE CERTIFIED BY A STRUCTURAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF HAWAII.
- J. CONTRACTOR AND TRUSS MANUFACTURER SHALL VERIFY ALL TRUSS DIMENSIONS.
- K. SEE ARCHITECTURAL DRAWINGS FOR SLOPES OF TOP AND BOTTOM CHORDS.
- L. TRUSS MANUFACTURER TO PROVIDE BOTTOM CHORD BLOCKOUT FOR MECHANICAL EQUIPMENT, COORDINATE LOCATION OF EQUIPMENT WITH MECHANICAL DRAWINGS.
- M. COORDINATE LOCATIONS OF BLOCKOUTS FOR ARCHITECTURAL OPENINGS.
- N. WEB CONFIGURATIONS SHOWN ON ELEVATIONS ARE SCHEMATIC. TRUSS MANUFACTURER SHALL DETERMINE ACTUAL WEB CONFIGURATION.
- O. DOUBLE TRUSSES SHALL BE NAILED TO EACH OTHER WITH 16d COMMON NAILS AT 10" OC MIN ALONG ALL TRUSS MEMBERS.
- P. DESIGN SHALL BE BASED ON THE FOLLOWING CRITERIA:
- ROOF DEAD LOAD (NOT INCLUDING SELF WEIGHT OF TRUSSES)
 - FOR GRAVITY ONLY DESIGN = 12 PSF
 - FOR DESIGN WITH WIND UPLIFT = 7 PSF
 - ROOF LIVE LOAD TOP CHORD = 20 PSF
 - BOTTOM CHORD LIVE LOAD = 10 PSF
 - WIND LOADS = INWARD 24 PSF
 - WIND LOADS = OUTWARD 42 PSF
 - WIND LOADS ON OVERHANG = OUTWARD 58 PSF
 - TOP CHORD AND BOTTOM CHORD LIVE LOAD NEED NOT ACT CONCURRENTLY.
 - VERTICAL DEFLECTION UNDER TOTAL LOAD SHALL BE LIMITED TO 1/240 OF SPAN.
 - VERTICAL DEFLECTION UNDER LIVE LOAD SHALL BE LIMITED TO 1/360 OF SPAN.
- P. MINIMUM TRUSS MEMBER SIZES ARE AS FOLLOWS:
- TOP CHORD = 2x6
 - BOTTOM CHORD = 2x4
 - WEB MEMBERS = 2x4

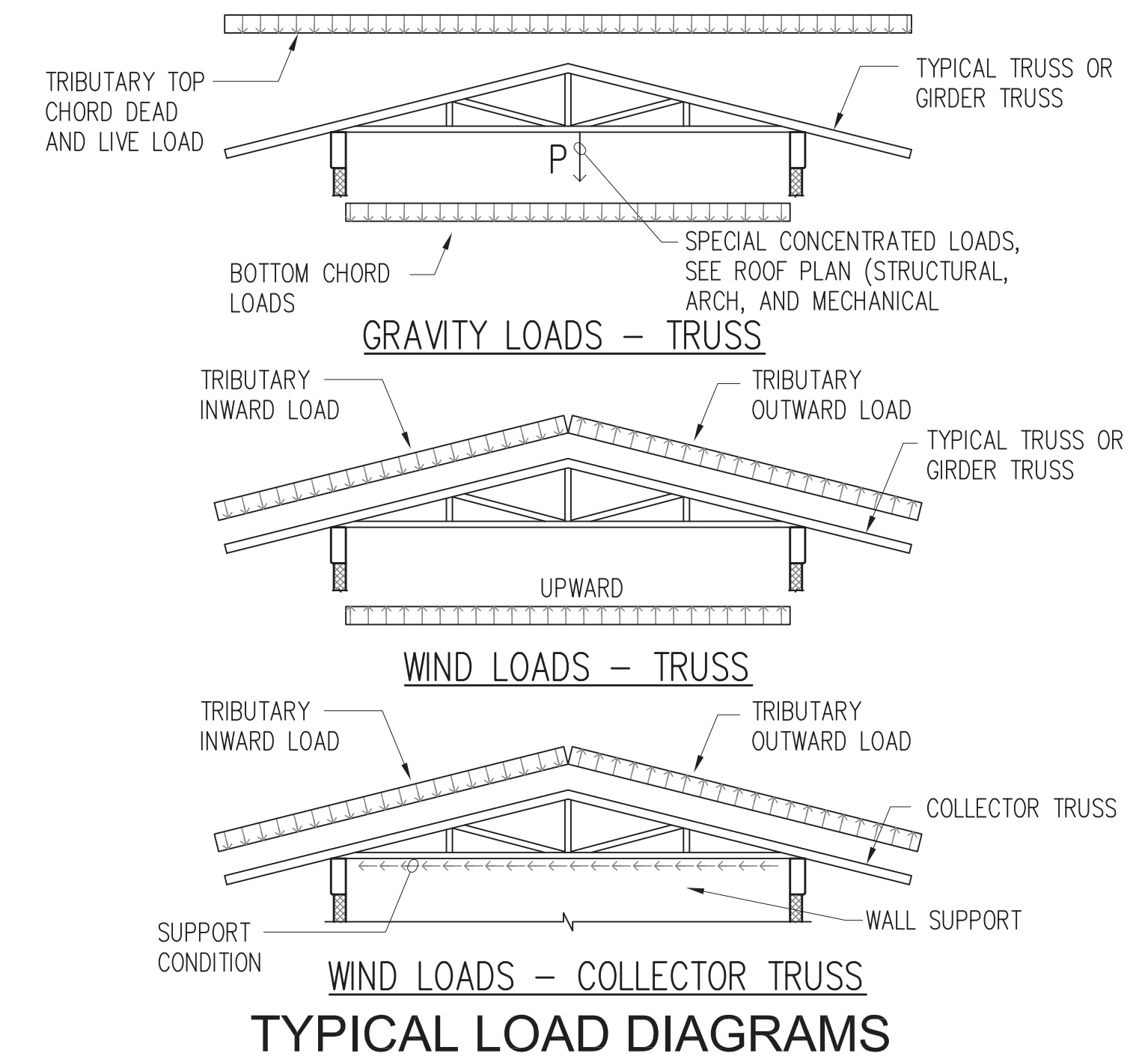


T-1 TRUSS

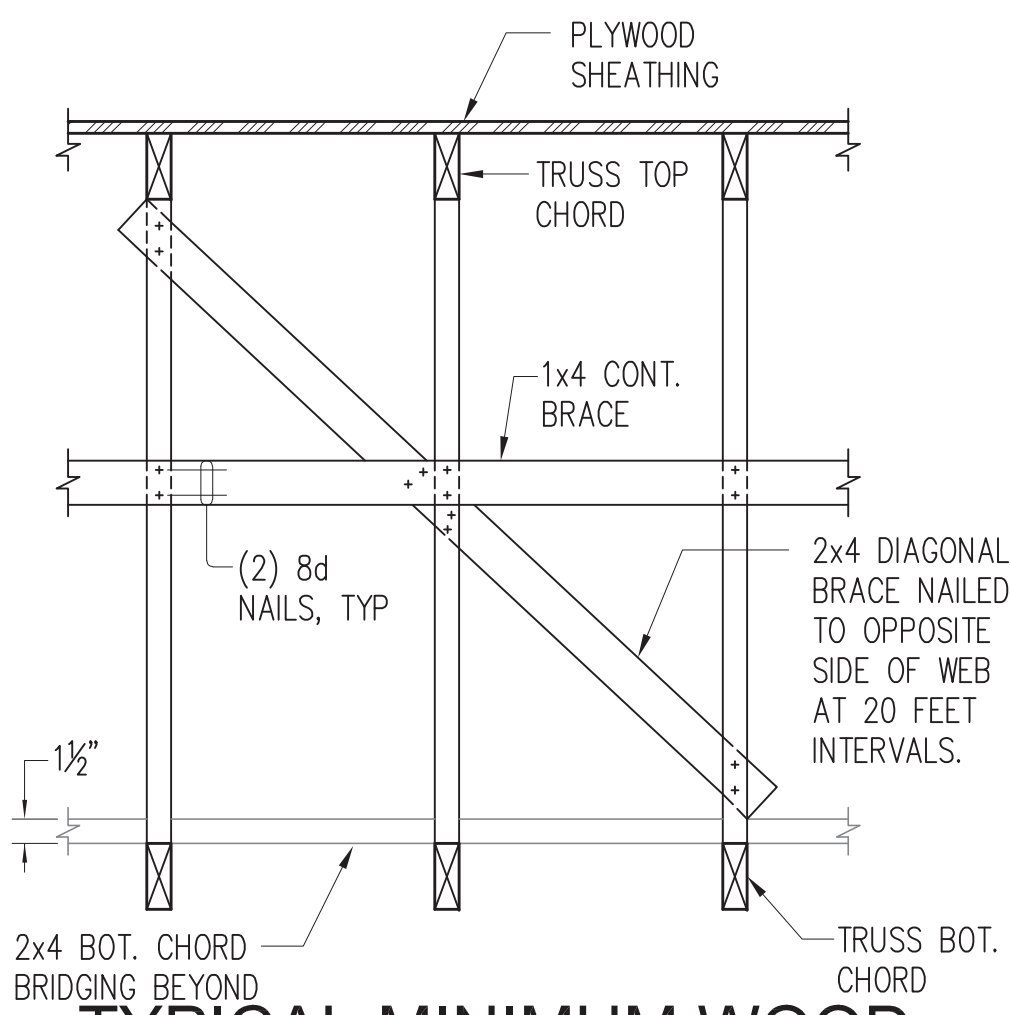


T-2 (GABLE END CONDITION)

1 ROOF TRUSS ELEVATIONS
S502 NOT TO SCALE

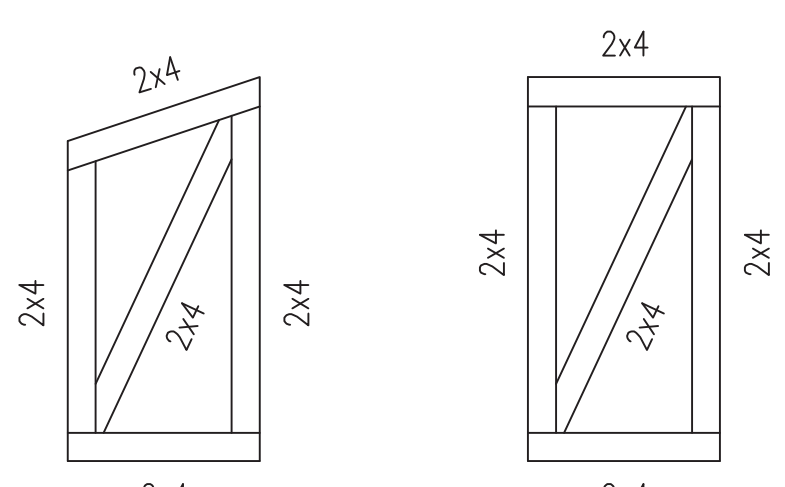


TYPICAL LOAD DIAGRAMS



TYPICAL MINIMUM WOOD TRUSS WEB BRACE DET

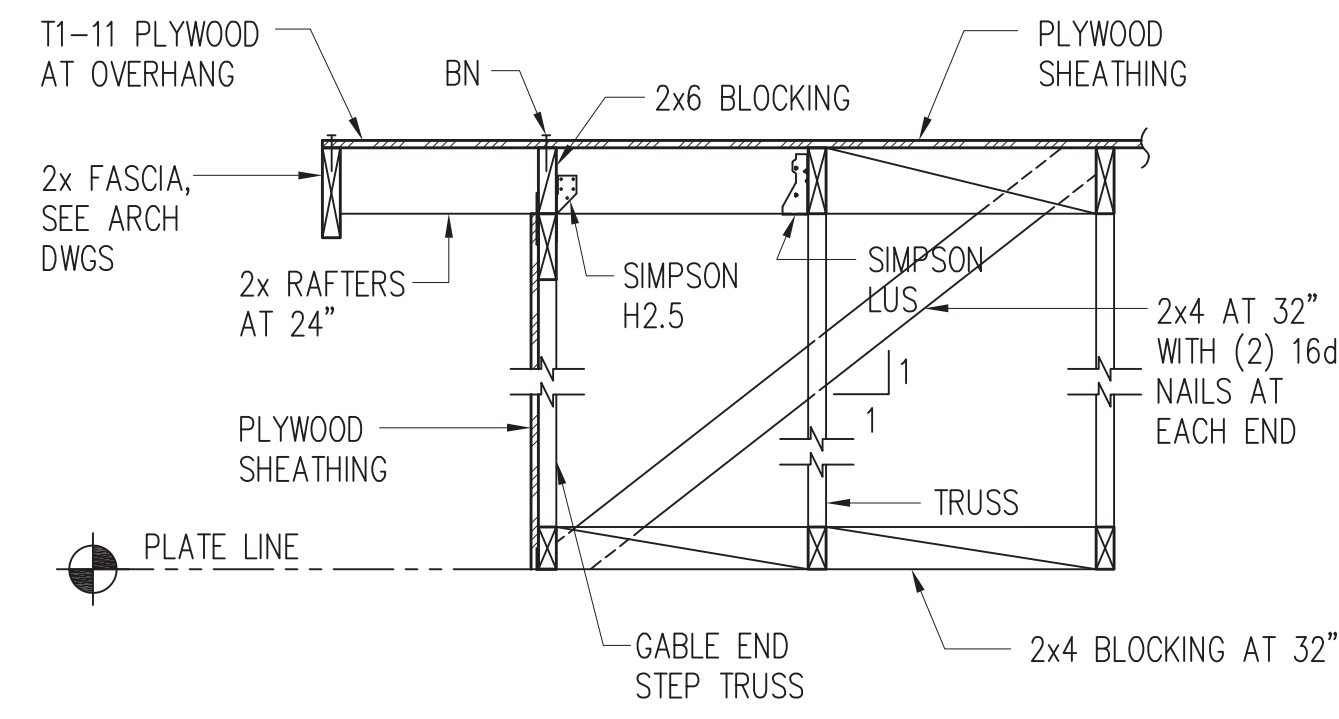
2 S502 NOT TO SCALE



ELEVATION ELEVATION

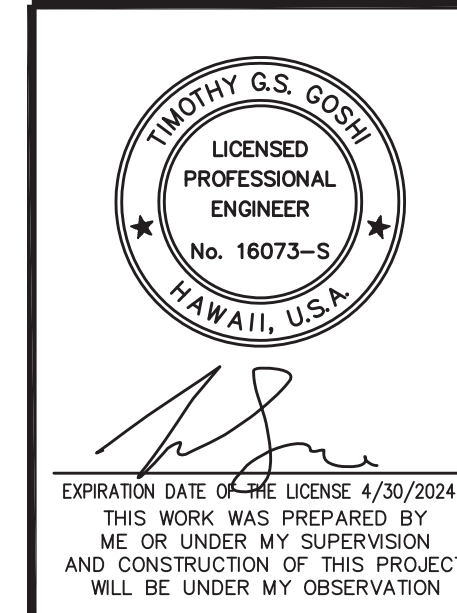
TYPICAL TRUSS BLOCKING

3 S502 NOT TO SCALE



SECTION AT GABLE END WALL

4 S502 NOT TO SCALE



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**TYPICAL TRUSS FRAMING
DETAILS**

HALAWA-LULUKU INTERPRETIVE DEVELOPMENT
LULUKU PROJECT AREA
FEDERAL-AID PROJECT NO. I-H3-1(75)

Scale: _____ Date: JULY 2023