

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(47)	1999	18	20

GENERAL:

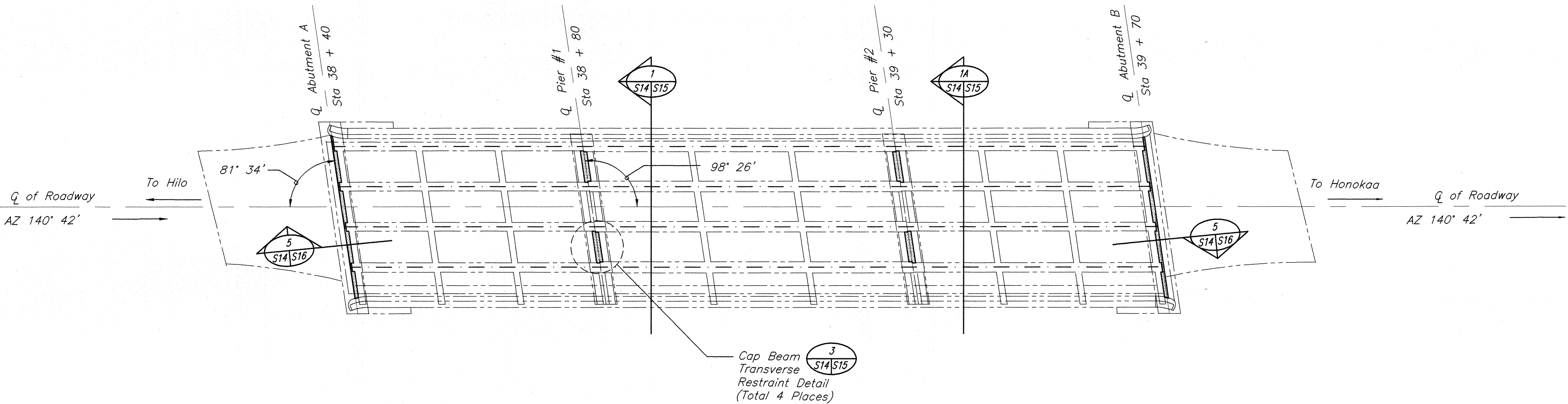
- The Existing Bridge Information Shown In This Drawings Was Obtained From The Original Bridge Drawings And Is Presented For Reference Purposes Only. No Responsibility Is Assumed For The Accuracy Of The Existing Information Presented. It Is The Contractor's Responsibility To Verify Independently All of The As-Built Information.
- The Contractor Shall Visit The Construction Site And Shall Verify All Dimensions And Conditions Prior To Starting Any Work And Shall Be Responsible For Coordination Of All Work And Materials Including Those Furnished By Sub-Contractors. The Hawaii Department Of Transportation (D.O.T.) Representative Shall Be Notified Immediately Of Any Discrepancies Found
- The Contract Structural Drawings And Specifications Represent The Finished Structure. They Do Not Indicate The Method Of Construction. The Contractor Shall Provide All Measures Necessary To Protect The Structure During Construction.
- The Contractor Shall Provide Adequate Shoring For All Existing Adjacent Structures. Shoring For Construction Loads Shall Be Designed By a Hawaii Licensed Structural Engineer Experienced In This Kind Of Work.

BASIS FOR SEISMIC RETROFIT:

- The Proposed Retrofit Work Addresses Two Apparent Weaknesses:
 - The Possibility Of The Superstructure Sliding Transversely Off The Substructure During An Earthquake
 - The Possibility Of The Superstructure Sliding Longitudinally At Abutment.
- The Goal Of The Proposed Retrofit Work Is To Reduce The Risk Of Collapse During An Earthquake And Not The Prevention Of All Structural And Non-Structural Damage.
- The Earthquake Loading Considered Is The ARS Curve For 5% Damping At 0 Feet To 10 Feet By Caltrans With An Expected Maximum Acceleration At Bedrock Of $A = 0.4g$.
- The Design Methodology Is Per The Bridge Memo To Designers By The California Department Of Transportation, December 31, 1995.

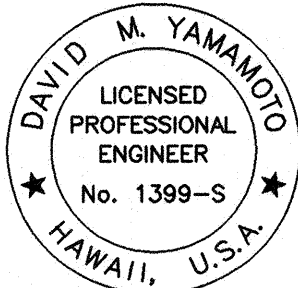
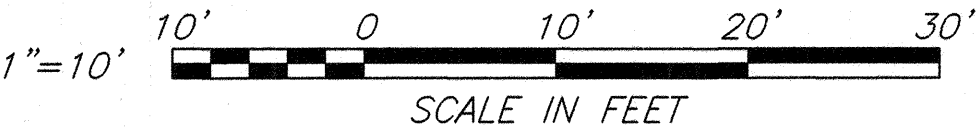
GENERAL NOTES:

- General Specifications: Hawaii Department Of Transportation Standard Specification For Road, Bridge And Public Works Construction, 1994 Together With Special Provisions Prepared For This Contract.
- Design Specifications: AASHTO, Standard Specifications For Highway Bridges, 16th Edition (1996)
- Caltrans Memo To Designers 20-4.
- Seismic Loading:
 - Seismic Performance Category D
 - Acceleration Coefficient 0.40
- Concrete:
 - Existing:
 - All Concrete. (Assumed) $f_c' = 3,300$ psi
 - New:
 - Walls $f_c' = 4,000$ psi
 - Footings $f_c' = 3,000$ psi
- Reinforcing Steel:
 - Existing:
 - All Reinforcing Steel (Assumed) $f_y = 44,000$ psi
 - New:
 - All Bars, Dowels & Stirrups $f_y = 60,000$ psi
- The Contractor Shall Select Locations For And Employ Methods Of Storing Excavated Material So As To Preclude Pollution Of The Stream And Roadway. Upon Completion Of Filling Or Backfilling Work, The Contractor Shall Remove From The Site All Excess Excavated Material.



FRAMING PLAN

SCALE : 1"=10'



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

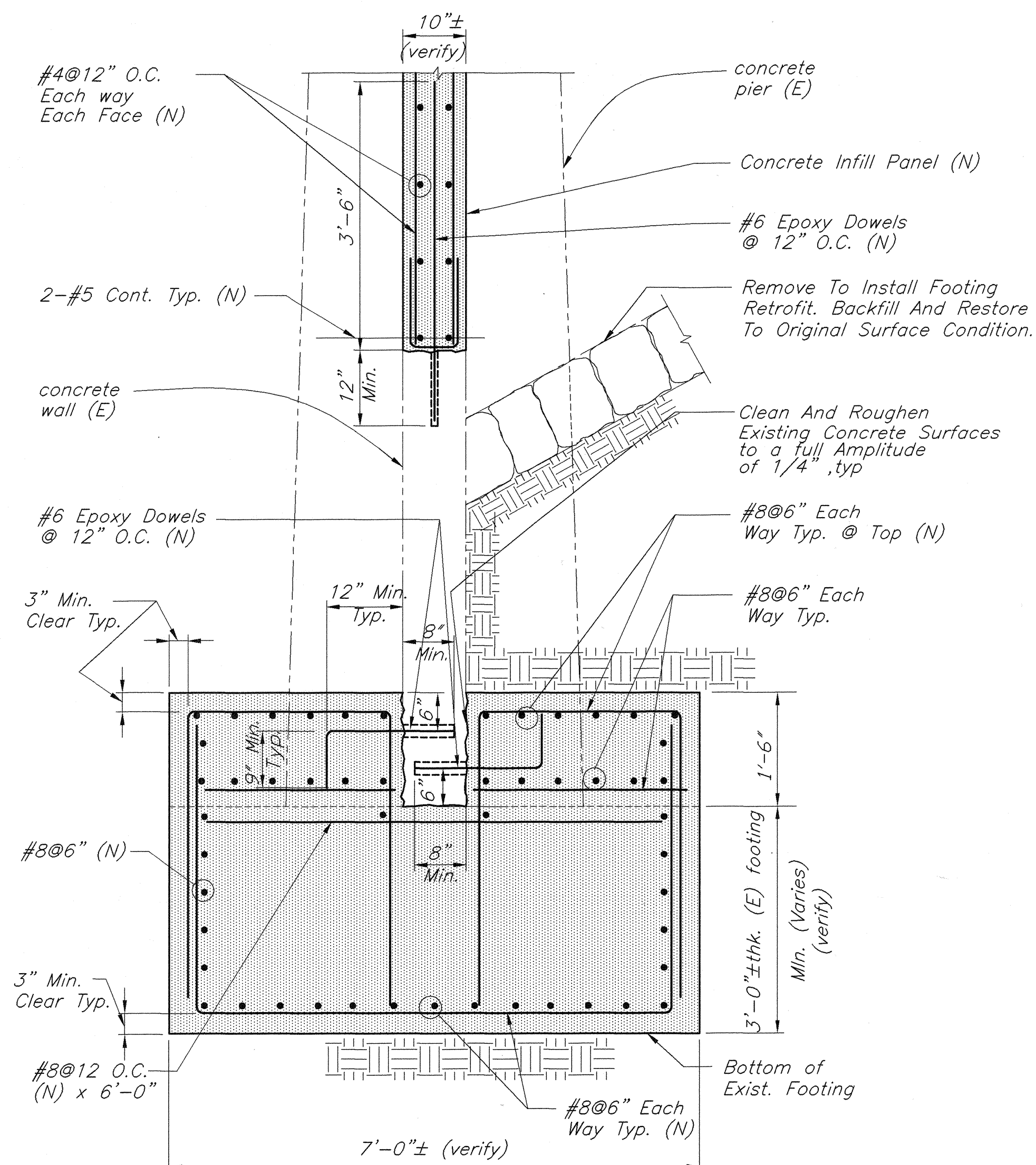
KAALAU BRIDGE-FRAMING PLAN

HAWAII BELT ROAD, SEISMIC RETROFIT OF VARIOUS BRIDGES,
WEST OF NINOLE
FEDERAL AID PROJECT NO. BR-019-2(47)
SCALE: AS NOTED
DATE: November 1998

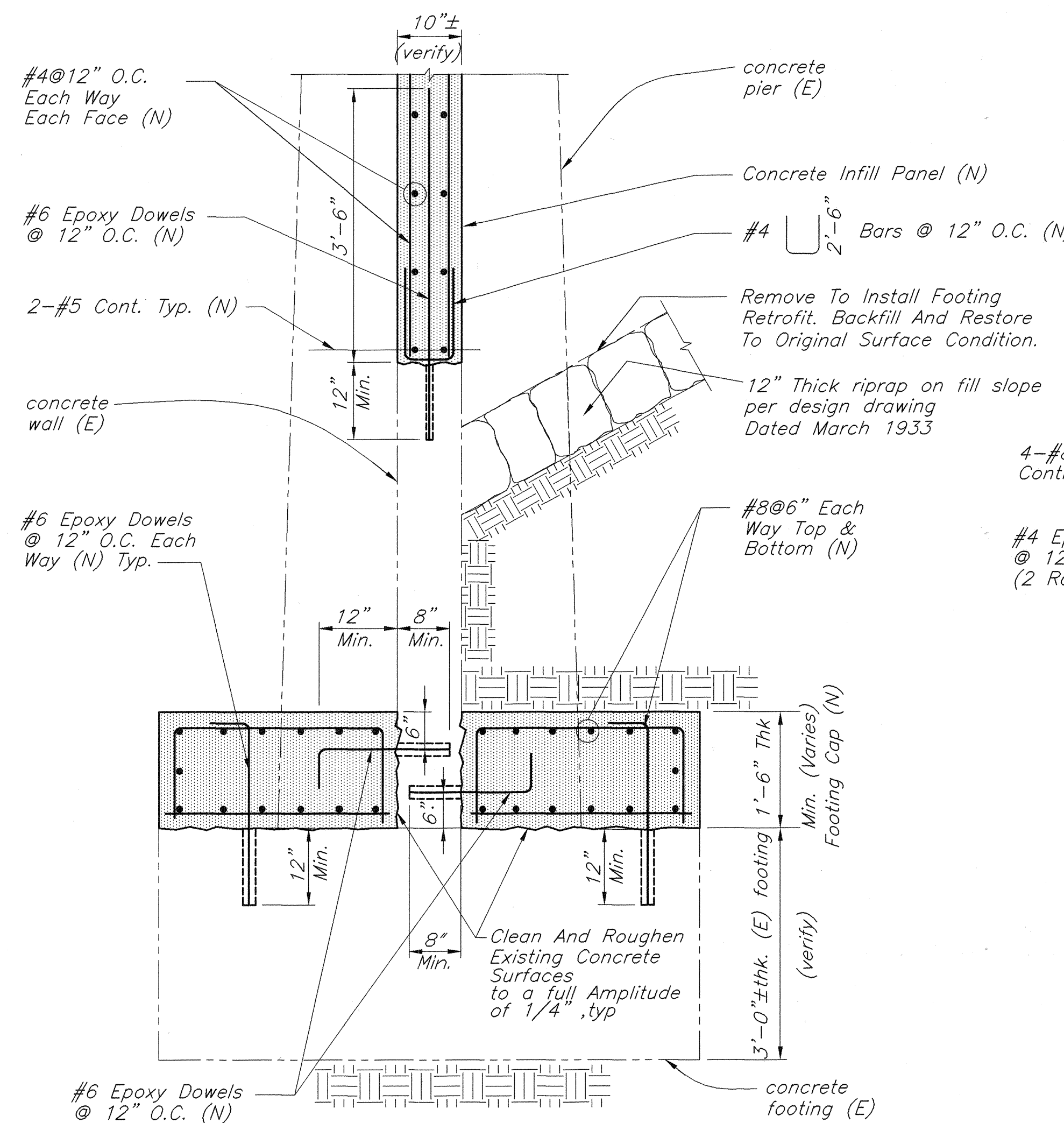
SHEET No. 18 OF 18 SHEETS

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
NO.	

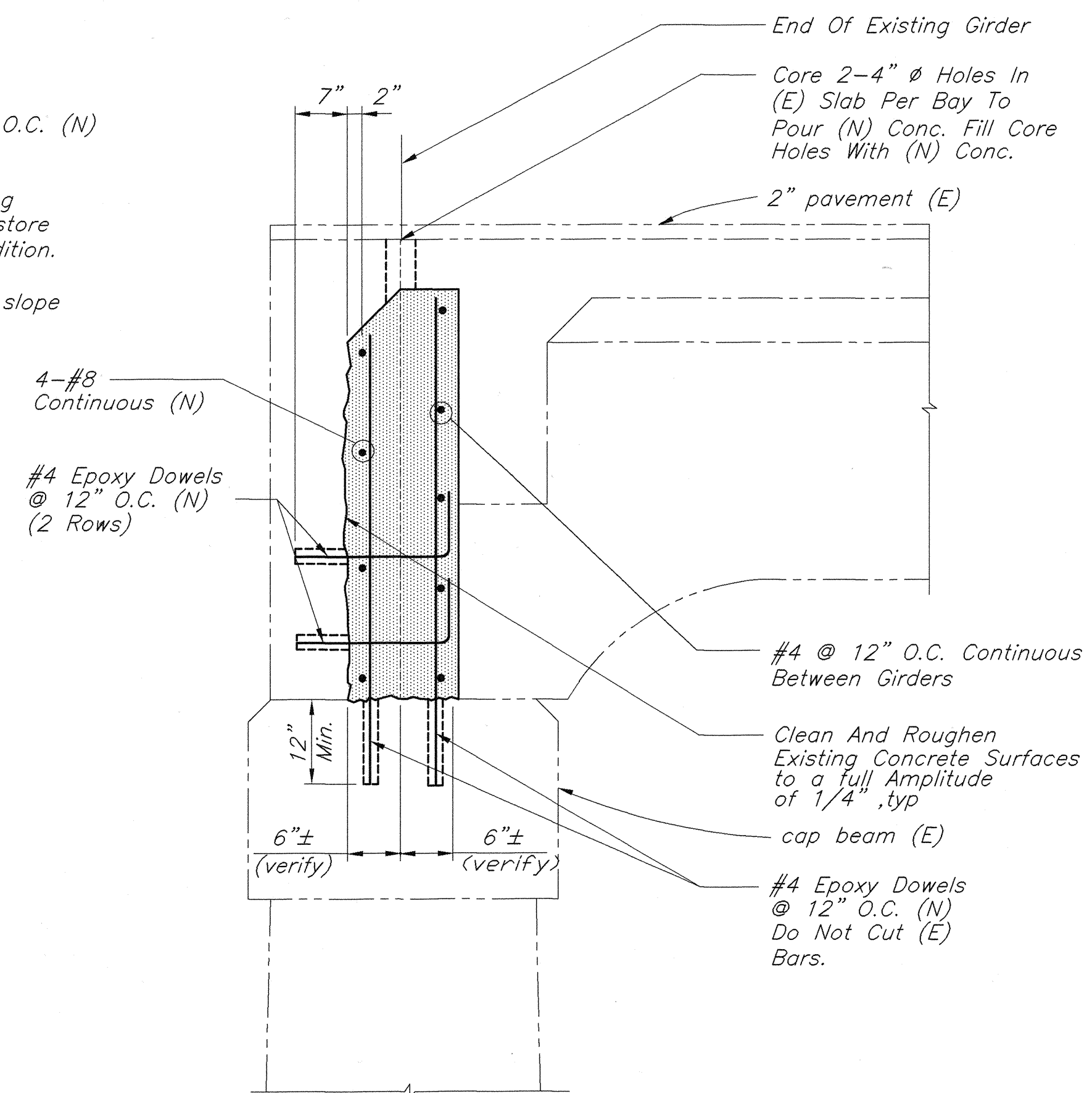
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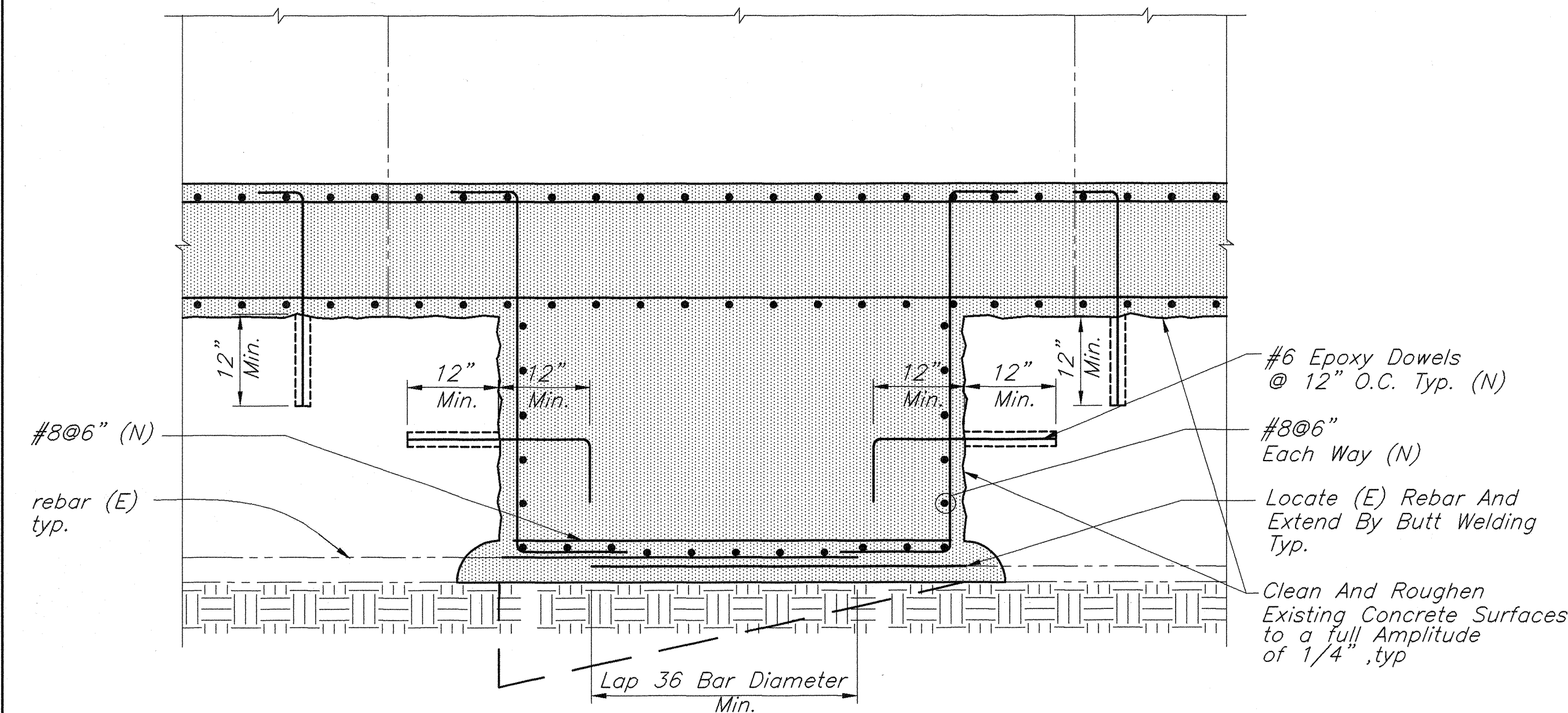
FOOTING STRENGTHENING SECTION 1
SCALE : 3/4"=1'-0"



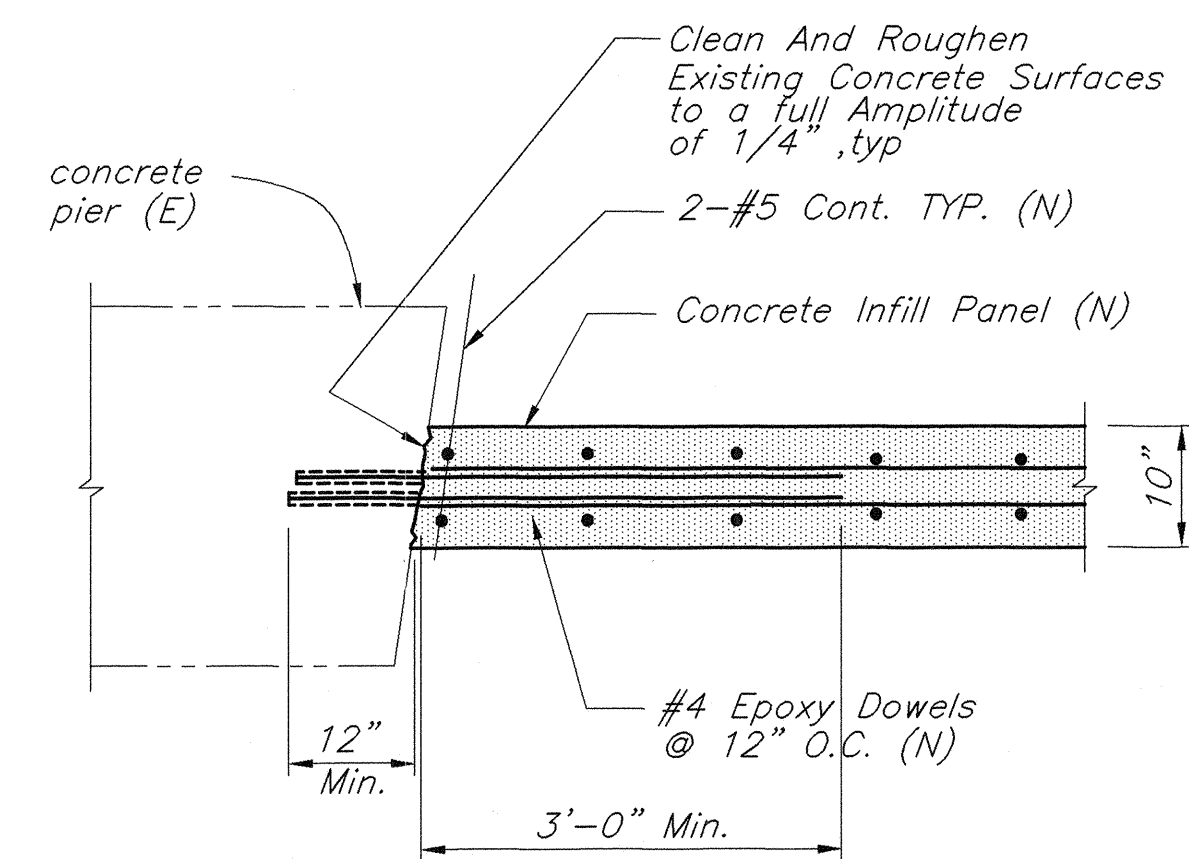
FOOTING STRENGTHENING SECTION 2
SCALE : 3/4"=1'-0"



SUPERSTRUCTURE RETROFIT AT ABUTMENT
SCALE : 3/4"=1'-0"

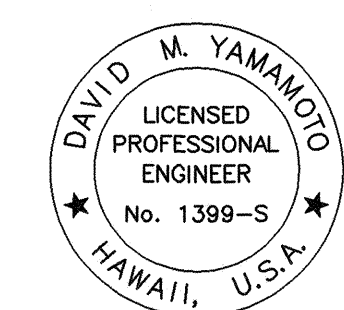


FOOTING STRENGTHENING ELEVATION 3
SCALE : 3/4"=1'-0"



(N) CONC. INFILL PANEL TO (E) PIER SECTION 4
SCALE : 3/4"=1'-0"

SURVEY PLOTTED BY	DATE
DESIGNED BY	
NOTED BY	
CHECKED BY	
NO.	



(N) = New
(E) = Existing

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

KAALAU BRIDGE - RETROFIT DETAILS

HAWAII BELT ROAD, SEISMIC RETROFIT OF VARIOUS BRIDGES,
WEST OF NINOLE
FEDERAL AID PROJECT NO. BR-019-2(47)
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SHEET No. S16 OF 16 SHEETS