

CITY OF KEY WEST

FLEMING KEY UTILITY BRIDGE OVER
GARRISON BRIGHT PERMANENT REPAIR
(ADJACENT TO BRIDGE NO. 1FL1322)

STRUCTURE PLANS

INDEX OF ROADWAY PLANS

SHEET NO.	SHEET DESCRIPTION
1	KEY SHEET
2	GENERAL NOTES
3	AERIAL MAP AND CONSTRUCTION SEQUENCE NOTES
4	PILE INSTALLATION
5	PLAN VIEW
6 - 7	ELEVATION VIEW
8 - 9	PILE CAP DETAILS

CONSULTANT PROJECT MANAGER:



SERGE MASHTAKOV, P.E.
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GOVERNING STANDARD PLANS:

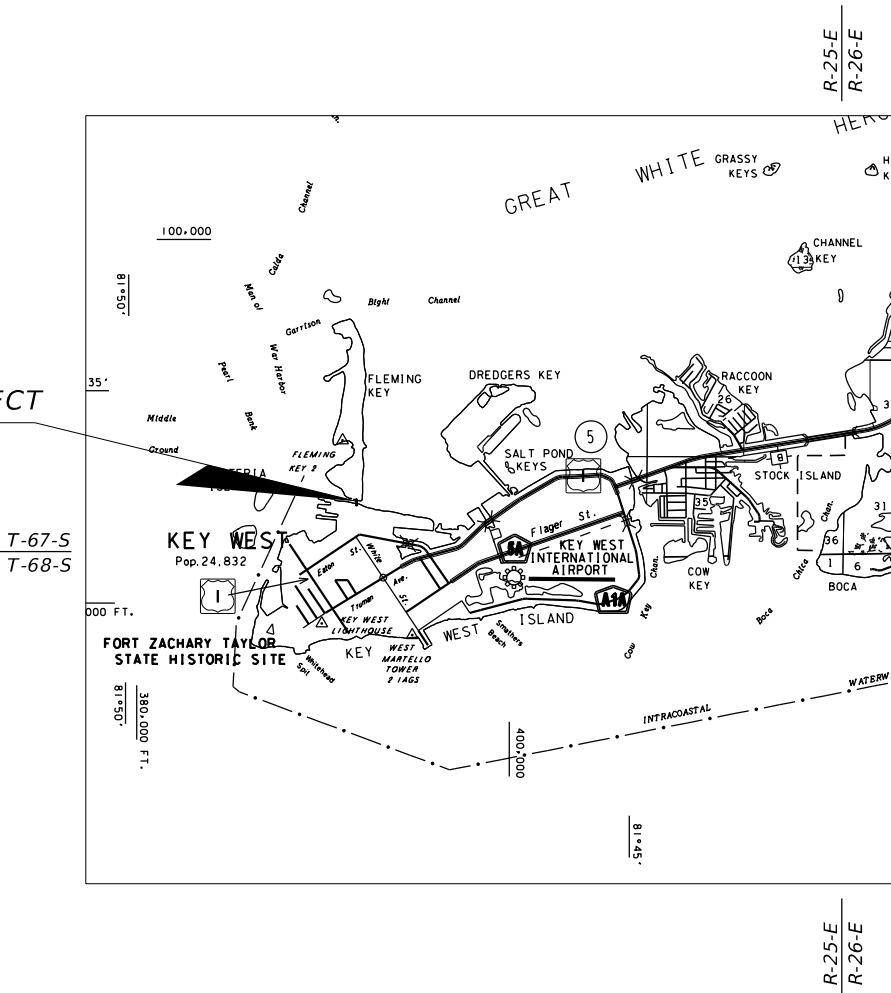
Florida Department of Transportation, FY2019-20 Standard Plans for Road and Bridge Construction and applicable Interim Revisions (IRs).

Standard Plans for Road Construction and associated IRs are available at the following website: <http://www.fdot.gov/design/standardplans>

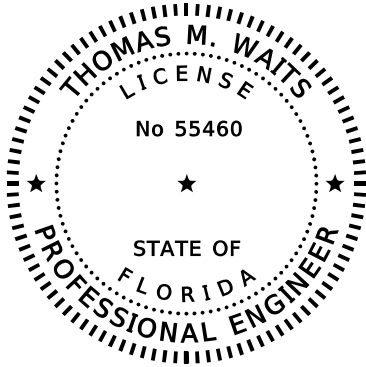
GOVERNING STANDARD SPECIFICATIONS:

Florida Department of Transportation, July 2019 Standard Specifications for Road and Bridge Construction at the following website: <http://www.fdot.gov/programmanagement/Implemented/SpecBooks>

LOCATION OF PROJECT



LOCATION OF PROJECT



THIS ITEM HAS BEEN DIGITALLY
SIGNED AND SEALED BY

ON THE DATE ADJACENT TO THE SEAL

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ROADWAY PLANS
ENGINEER OF RECORD:

THOMAS M. WAITS, P.E.
P.E. NO.: 55460
HIGHSPANS ENGINEERING, INC.
2121 MCGREGOR BLVD.
SUITE 200
FORT MYERS, FL 33901
REGISTRY NO. 27559

CITY OF KEY WEST
PROJECT MANAGER:

JOHN CASTRO

FISCAL YEAR	SHEET NO.
20	1

GENERAL NOTES

- A. DESIGN SPECIFICATIONS
- 1. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) LOAD AND RESISTANCE FACTOR (LRFD) BRIDGE DESIGN SPECIFICATIONS, 8TH EDITION AND ALL SUBSEQUENT INTERIMS.
 - 2. ASCE/SEI 7-16 MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDING AND OTHER STRUCTURES.
 - 3. AMERICAN CONCRETE INSTITUTE (ACI 318-14), AND ALL SUBSEQUENT INTERIMS.

- B. CONSTRUCTION SPECIFICATIONS
- FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (2019) WITH AMENDMENTS AS PROVIDED WITH THESE CONTRACT DOCUMENTS.

C. ENVIRONMENT

BRIDGE	SUPERSTRUCTURE	SUBSTRUCTURE	
		CONCRETE	STEEL
FLEMING KEY UTILITY BRIDGE	EXTREMELY	EXTREMELY	EXTREMELY

- D. DESIGN METHODOLOGY
- LOAD AND RESISTANCE FACTOR DESIGN METHOD USING STRENGTH AND SERVICE.

- E. STRUCTURAL ANALYSIS PROGRAM
- FB-MULTIPIER v5.4, Nov. 2018

- F. DESIGN LOADINGS
- 1. LIVE LOADS: N/A
 - 2. DEAD LOADS:
UTILITY LOAD (32" FILLED FM + MISC. UTILITIES, EACH PIPE): 500 PLF
REINFORCED CONCRETE: 150 PCF
 - 3. WIND LOAD - APPLIED IN ACCORDANCE WITH ASCE/SEI 7-16, RISK CATEGORY 4, Vult: 200 MPH

- G. MATERIALS
- 1. REINFORCING STEEL: ASTM A1035 GRADE 100, CHROMX 9100
 - 2. CONCRETE:

FDOT CONCRETE CLASS	MIN. 28-DAY COMPRESSIVE STRENGTH (PSI)	LOCATION OF CONCRETE IN STRUCTURE
IV	5500	C.I.P.
SEE SPEC 455-38	5000	14" AUGER CAST GROUTED PILE

3. CONCRETE COVER:

CAST-IN-PLACE SUBSTRUCTURE (FORMED SURFACES)	3"
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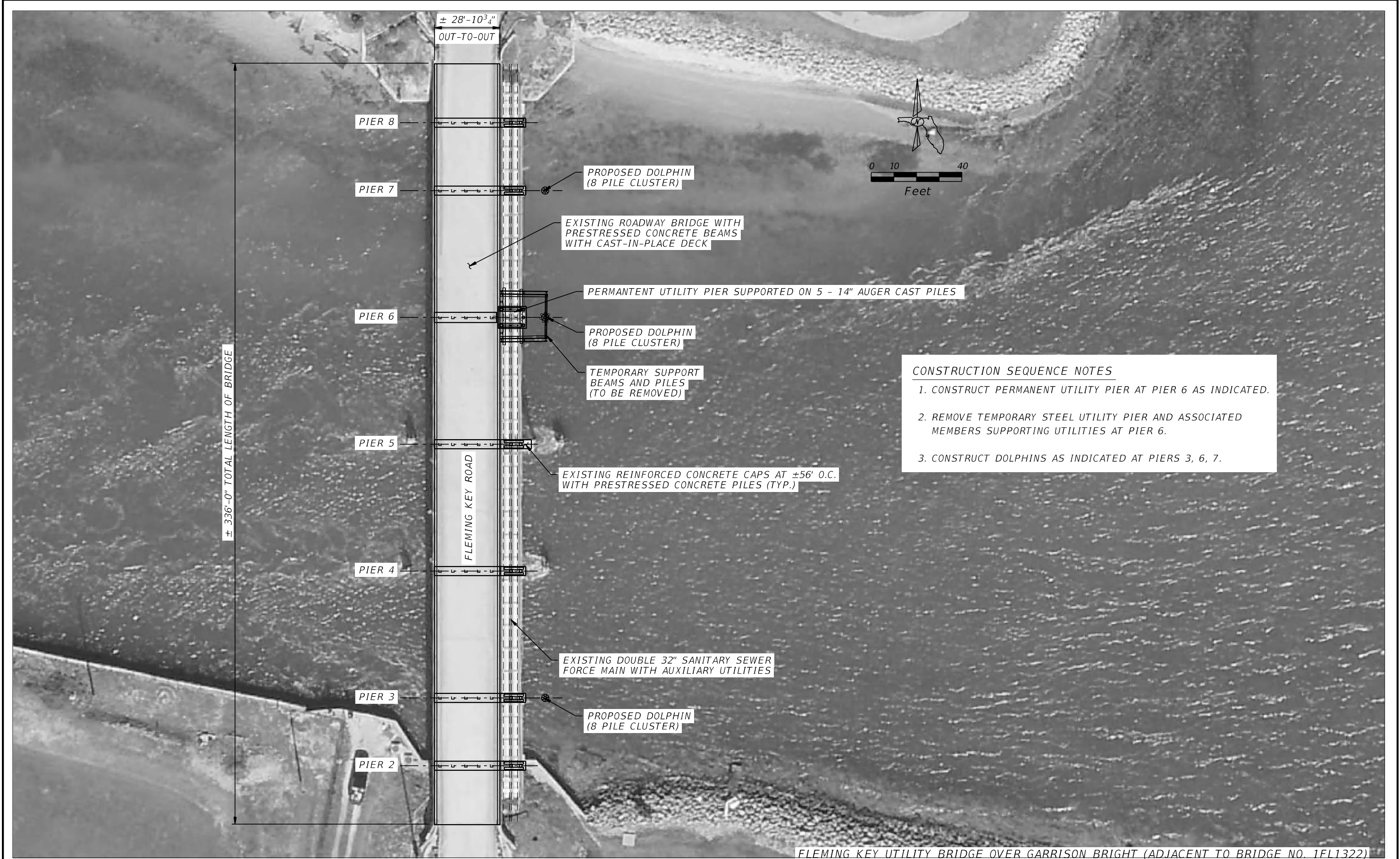
CONCRETE COVER DIMENSIONS SHOWN IN THE PLANS DO NOT INCLUDE PLACEMENT AND FABRICATION TOLERANCES UNLESS SHOWN AS "MINIMUM COVER". SEE SPECIFICATIONS SECTION 415 FOR ALLOWABLE TOLERANCES. ALL DIMENSIONS PERTAINING TO THE LOCATION OF REINFORCING STEEL ARE TO CENTERLINE OF BAR EXCEPT WHERE CLEAR DIMENSION IS NOTED TO FACE OF CONCRETE.

- 4. ACP STEEL PIPE CASING: ASTM A252 GR.3 STEEL PIPE (MIN. THICKNESS 3⁄8")
- 5. HDPE PILE SLEEVE: ECOCOAST HDPE MARINE PILE SLEEVING (MIN. WALL = 0.25") OR APPROVED EQUAL
- 6. STEEL PILE COATING: 16 mil CTE SHERWIN WILLIAMS TARGUARD
- 7. TIMBER PILING: NO. 2 SOUTHERN YELLOW PINE TREATED WITH 0.40# ACQ OR CCA

- H. UTILITIES
- CONTRACTOR IS ALERTED TO THE PRESENCE OF MULTIPLE UTILITIES THAT ARE IN CLOSE PROXIMITY TO PROPOSED PILE LOCATIONS. THE CONTRACTOR IS TO SUBMIT A PLAN TO THE ENGINEER FOR APPROVAL THAT DESCRIBES HOW PROPOSED PILES WILL BE HANDLED DURING INSTALLATION TO CONFIRM THAT AT NO TIME WILL THEY MAKE CONTACT WITH THESE EXISTING UTILITIES.
- I. PLAN DIMENSIONS
- ALL DIMENSIONS IN THESE PLANS ARE MEASURED IN FEET EITHER HORIZONTALLY OR VERTICALLY UNLESS OTHERWISE NOTED.
- J. THE EXISTING ADJACENT HIGHWAY BRIDGE (NO. 1FL1322) IS NOT TO BE USED AT ANY TIME FOR CONSTRUCTION STAGING OR STOCKPILING OF MATERIAL. CONSTRUCTION LOADS ARE NOT PERMITTED ON THIS BRIDGE.
- K. CONSTRUCTION OF AUGER CAST PILES TO FOLLOW FDOT STANDARD SPECIFICATIONS SECTION 455-38 STRUCTURES (OTHER THAN BRIDGE) FOUNDATIONS - AUGER CAST PILES. SUBMIT SHOP DRAWINGS FOR ALL ELEMENTS OF THESE PILES TO THE ENGINEER FOR APPROVAL. ACP STEEL CASING IS TO BE COATED WITH SHERWIN WILLIAMS TARGUARD PRIOR TO INSTALLATION OF HDPE SLEEVE. APPLY IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDED PROCEDURE.

FLEMING KEY UTILITY BRIDGE OVER GARRISON BRIGHT (ADJACENT TO BRIDGE NO. 1FL1322)

REVISIONS			CONSULTANT PROJECT MANAGER: ARTIBUS DESIGN SERGE MASHTAKOV, P.E. 3706 N. ROOSEVELT BLVD, SUITE I-208 KEY WEST, FL 33040 T: (305) 304-3512 E: SERGE@ARTIBUSDESIGN.COM WWW.ARTIBUSDESIGN.COM	THOMAS M. WAITS, P.E. P.E. LICENSE NUMBER 55460 HIGHSPANS ENGINEERING, INC. 2121 MCGREGOR BOULEVARD SUITE 200 FORT MYERS, FL 33901 REGISTRY NO. 27559	DRAWN BY: SDS 10/19 CHECKED BY: TMW 10/19 DESIGNED BY: RMW 10/19 CHECKED BY: TMW 10/19	CITY OF KEY WEST			SHEET TITLE:		REF. DWG. NO.
DATE	BY	DESCRIPTION				ROAD NO.	COUNTY	FINANCIAL PROJECT ID	GENERAL NOTES		
							MONROE		PROJECT NAME: FLEMING KEY UTILITY BRIDGE PERMANENT REPAIR		SHEET NO. 2



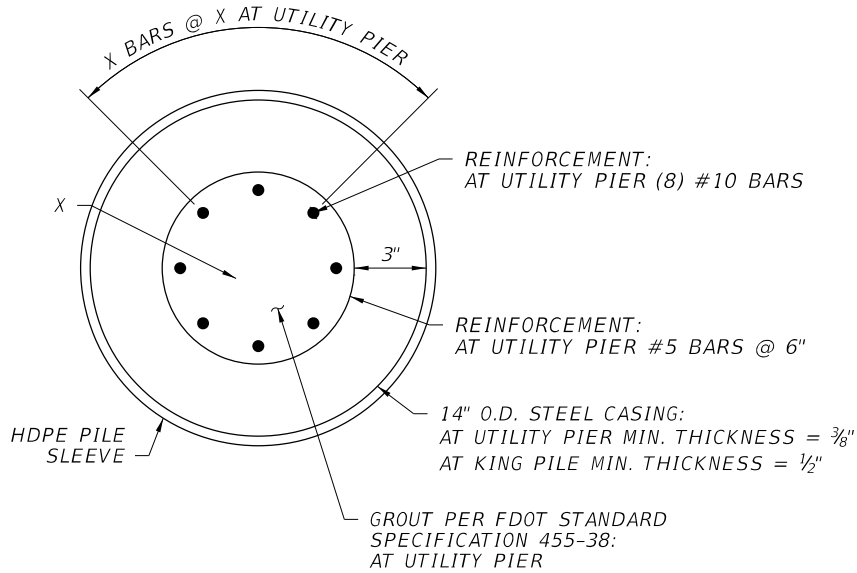
REVISIONS			CONSULTANT PROJECT MANAGER: ARTIBUS DESIGN SERGE MASHTAKOV, P.E. 3706 N. ROOSEVELT BLVD, SUITE I-208 KEY WEST, FL 33040 T: (305) 304-3512 E: SERGE@ARTIBUSDESIGN.COM WWW.ARTIBUSDESIGN.COM	THOMAS M. WAITS, P.E. P.E. LICENSE NUMBER 55460 HIGHSPANS ENGINEERING, INC. 2121 MCGREGOR BOULEVARD SUITE 200 FORT MYERS, FL 33901 REGISTRY NO. 27559	DRAWN BY: SDS 10/19 CHECKED BY: TMW 10/19 DESIGNED BY: RMW 10/19 CHECKED BY: TMW 10/19	CITY OF KEY WEST			SHEET TITLE: AERIAL MAP AND CONSTRUCTION SEQUENCE NOTES	REF. DWG. NO.
DATE	BY	DESCRIPTION				ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
							MONROE		PROJECT NAME: FLEMING KEY UTILITY BRIDGE PERMANENT REPAIR	SHEET NO. 3

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

PILE DATA TABLE								
		INSTALLATION CRITERIA		DESIGN CRITERIA				
PIER NUMBER	PILE NUMBER	PILE SIZE (IN.)	MINIMUM EMBEDMENT LENGTH INTO ROCK, X (FT)	FACTORED DESIGN LOAD (TONS)	FACTORED DESIGN UPLIFT (TONS)	DOWNDRAW (TONS)	TOTAL SCOUR RESISTANCE (TONS)	NET SCOUR RESISTANCE (TONS)
PIER 3 (DOLPHIN)	1	14"	10	TBD	n/a	n/a	n/a	n/a
	2-8	12"	2	TBD	n/a	n/a	n/a	n/a
PIER 6 (UTILITY PIER)	1	14"	20	TBD	25	n/a	n/a	n/a
	2	14"	20	TBD	25	n/a	n/a	n/a
	3	14"	20	TBD	25	n/a	n/a	n/a
	4	14"	20	TBD	25	n/a	n/a	n/a
	5	14"	20	TBD	25	n/a	n/a	n/a
PIER 6 (DOLPHIN)	1	14"	10	TBD	n/a	n/a	n/a	n/a
	2-8	12"	2	TBD	n/a	n/a	n/a	n/a
PIER 7 (DOLPHIN)	1	14"	10	TBD	n/a	n/a	n/a	n/a
	2-8	12"	2	TBD	n/a	n/a	n/a	n/a

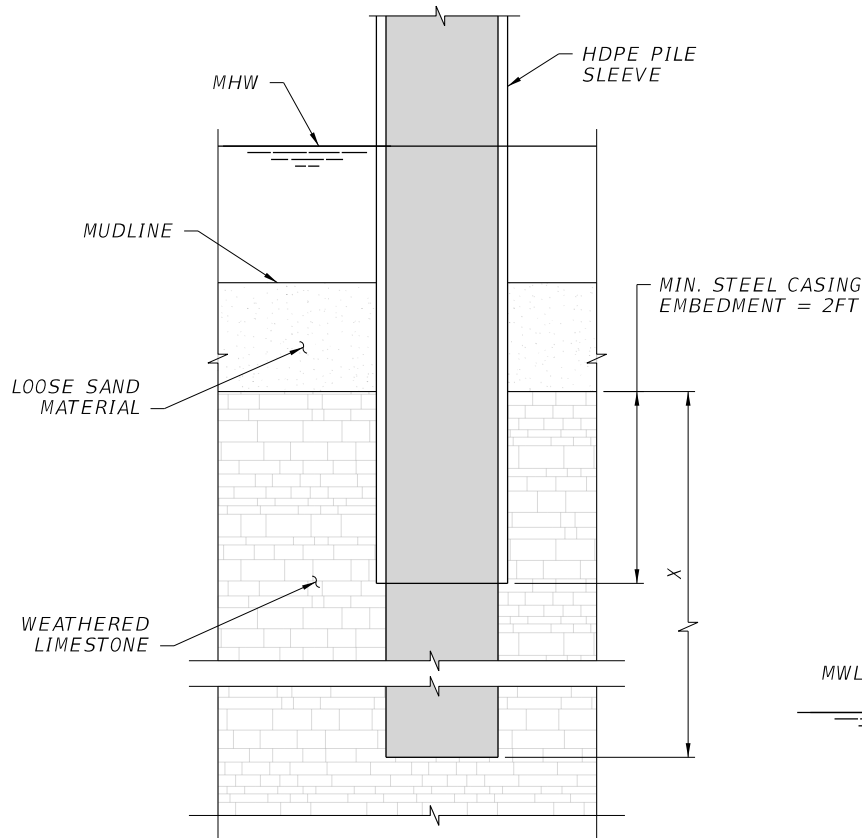
NOTES

1. PILES AT PIER 6 (UTILITY PIER) ARE COMPRISED OF A 14" O.D. STEEL CASED PIPE WITH INTERNAL REINFORCED CONCRETE SECTION AS SHOWN.
2. CONTRACTOR IS TO MONITOR DRILLING OPERATION TO ASCERTAIN THE ELEVATION WHERE ROCK IS ENCOUNTERED AND IS TO SUBMIT DRILLING RECORDS TO THE ENGINEER FOR APPROVAL DEMONSTRATING THAT REQUIRED EMBEDMENT INTO ROCK HAS BEEN ACHIEVED. PILES ARE TO BE AUGERED TO THE MIN ROCK EMBEDMENT DEPTH SHOWN IN THE TABLE WITH REINFORCEMET CAGE EXTENDED THE FULL LENGTH OF THE PILE WITH PROVISION TO ENSURE THAT MIN COVER IS MAINTAINED THROUGHOUT THE FULL LENGTH OF THE PILE.

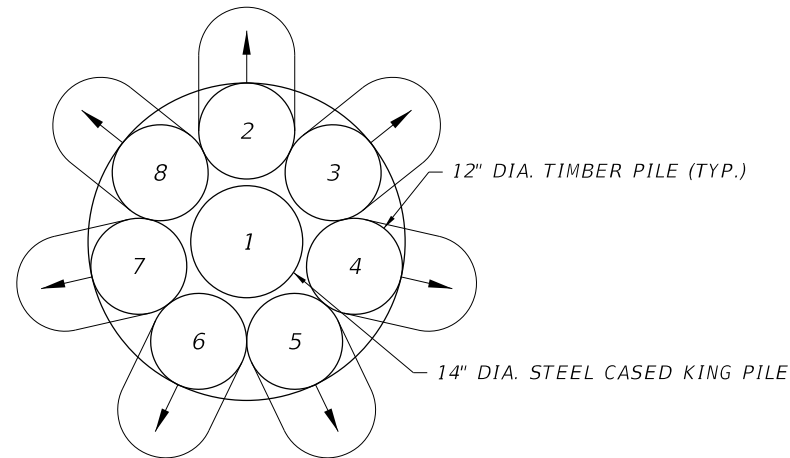


PLAN VIEW AT STEEL CASED PILE

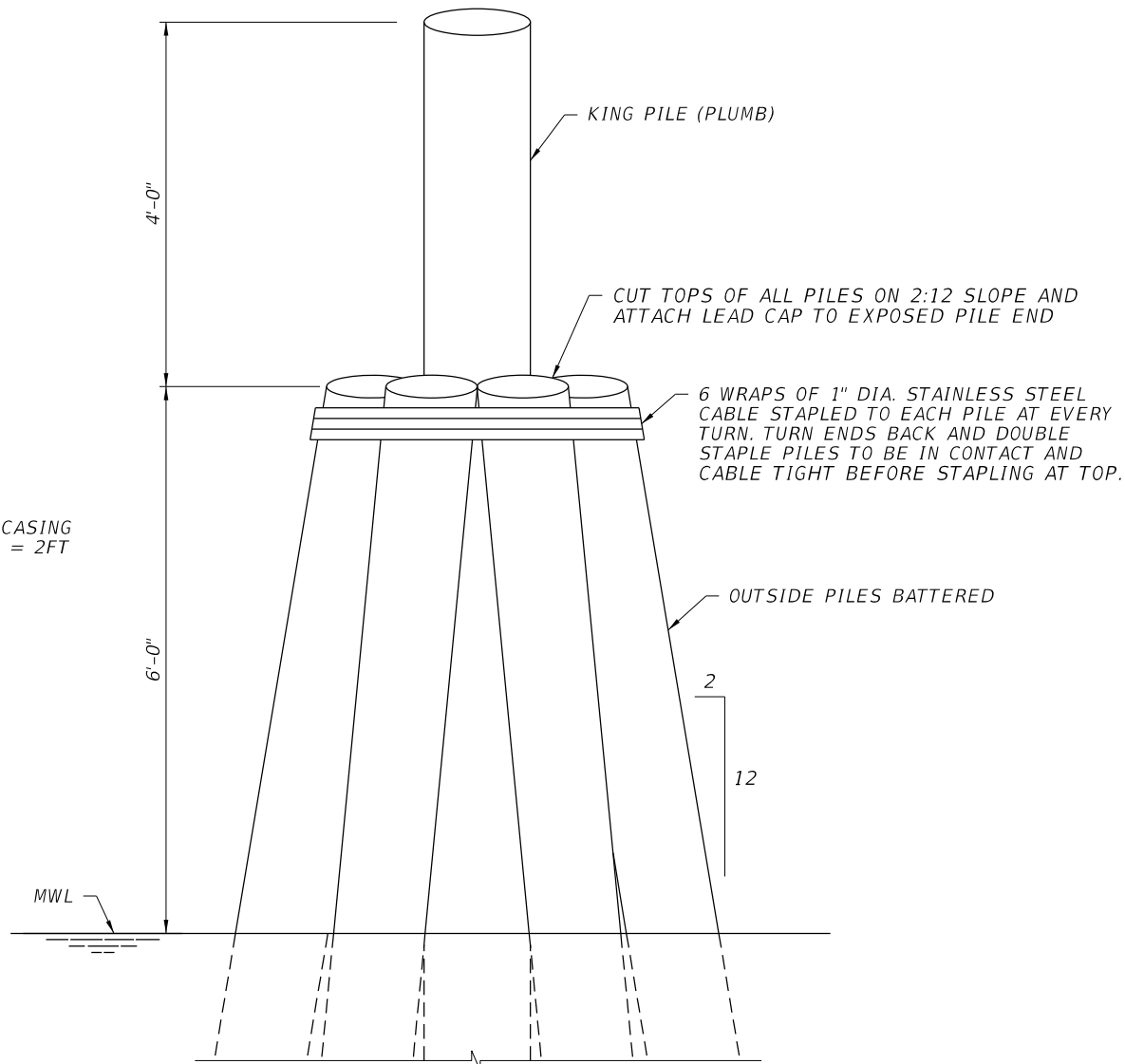
N.T.S.



PILE EMBEDMENT REQUIREMENT AT PILES



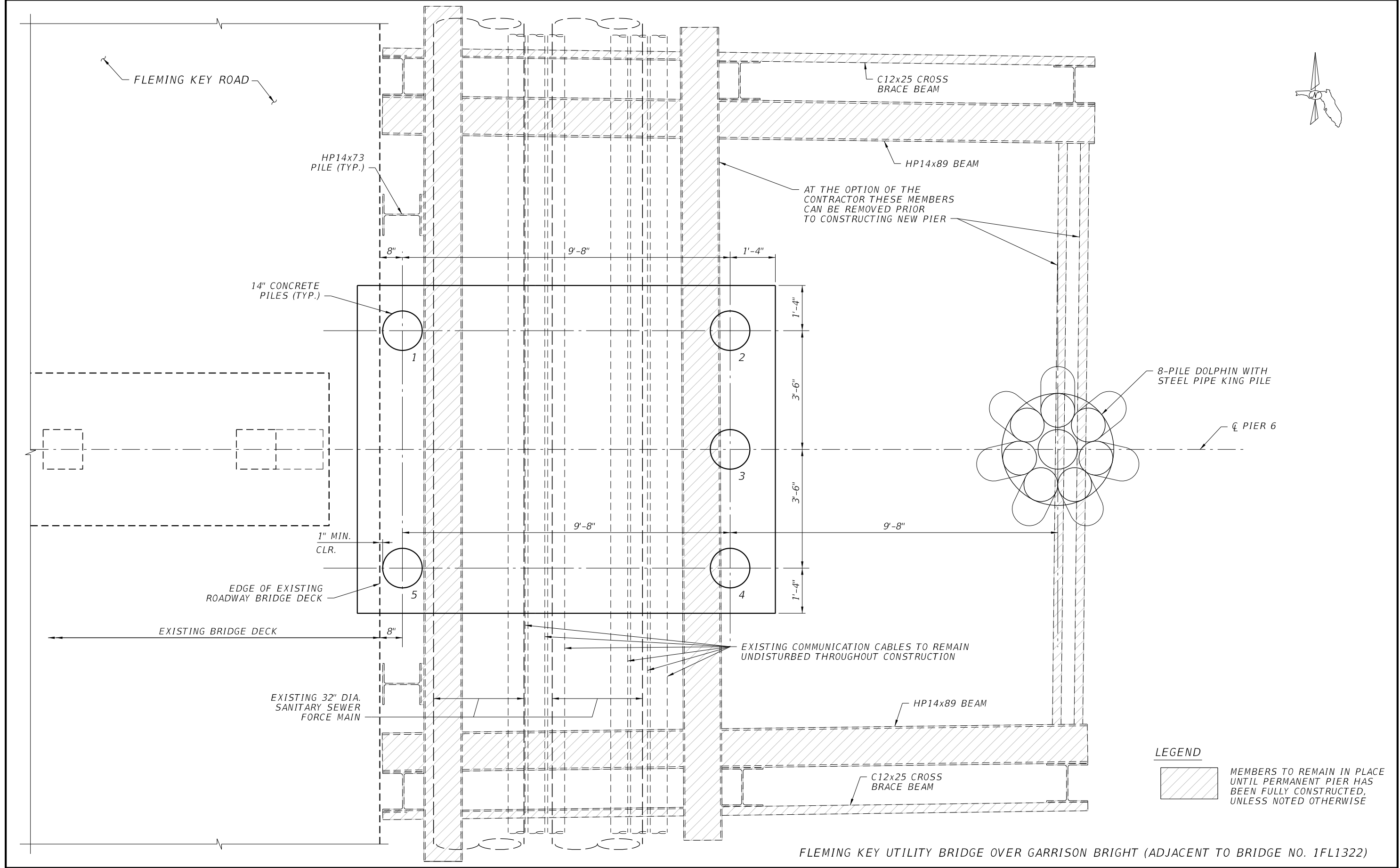
PLAN VIEW AT DOLPHIN



ELEVATION VIEW AT DOLPHIN

FLEMING KEY UTILITY BRIDGE OVER GARRISON BRIGHT (ADJACENT TO BRIDGE NO. 1FL1322)

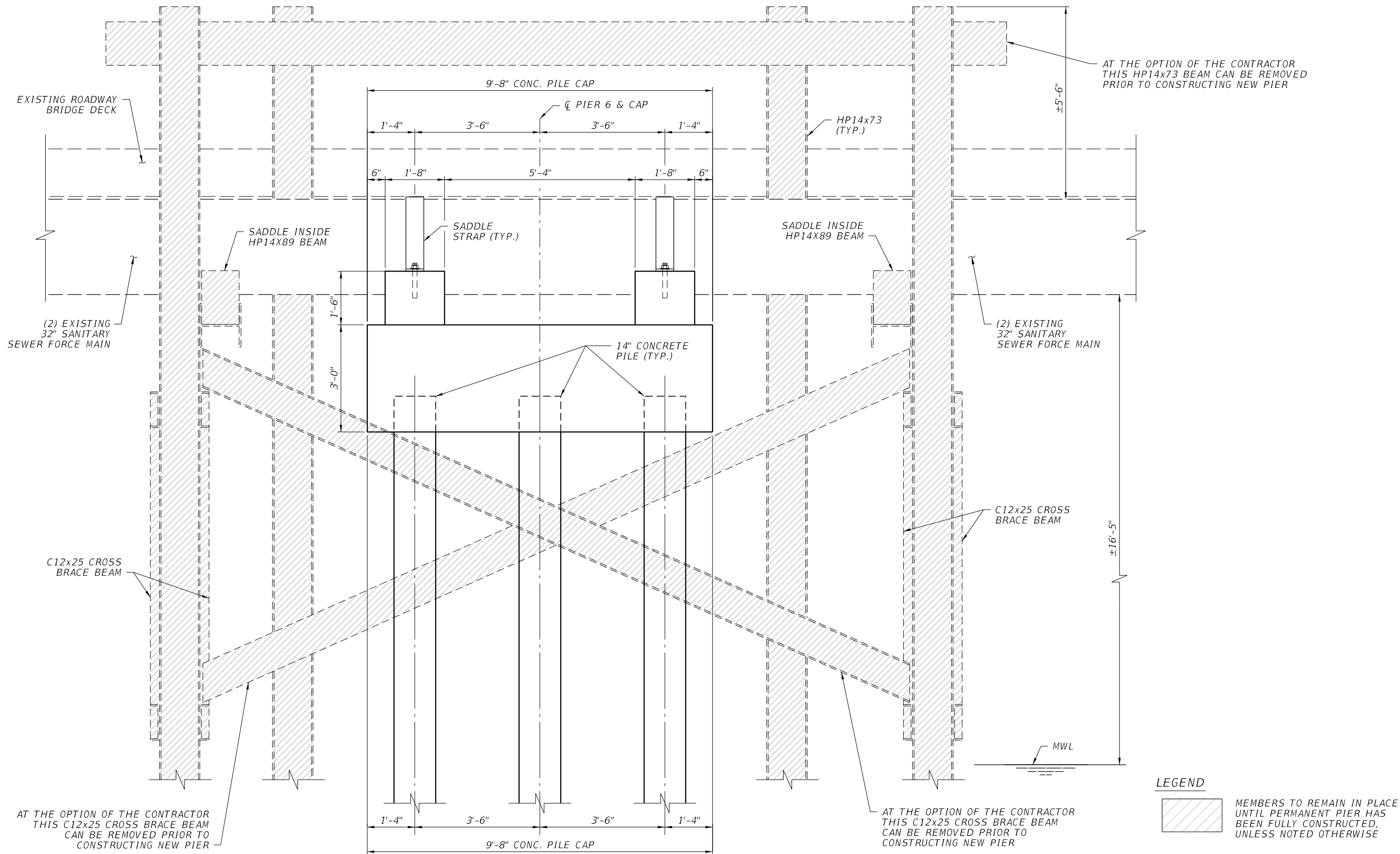
REVISIONS			CONSULTANT PROJECT MANAGER: ARTIBUS DESIGN SERGE MASHTAKOV, P.E. 3706 N. ROOSEVELT BLVD, SUITE I-208 KEY WEST, FL 33040 T: (305) 304-3512 E: SERGE@ARTIBUSDESIGN.COM WWW.ARTIBUSDESIGN.COM	THOMAS M. WAITS, P.E. P.E. LICENSE NUMBER 55460 HIGHSPANS ENGINEERING, INC. 2121 MCGREGOR BOULEVARD SUITE 200 FORT MYERS, FL 33901 REGISTRY NO. 27559	DRAWN BY: SDS 10/19 CHECKED BY: TMW 10/19 DESIGNED BY: RMW 10/19 CHECKED BY: TMW 10/19	CITY OF KEY WEST			SHEET TITLE: PILE INSTALLATION	REF. DWG. NO.
DATE	BY	DESCRIPTION				ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
							MONROE		PROJECT NAME: FLEMING KEY UTILITY BRIDGE PERMANENT REPAIR	SHEET NO. 4



FLEMING KEY UTILITY BRIDGE OVER GARRISON BRIGHT (ADJACENT TO BRIDGE NO. 1FL1322)

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DATE	BY	DESCRIPTION				ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
							MONROE		PROJECT NAME: FLEMING KEY UTILITY BRIDGE PERMANENT REPAIR	SHEET NO. 5

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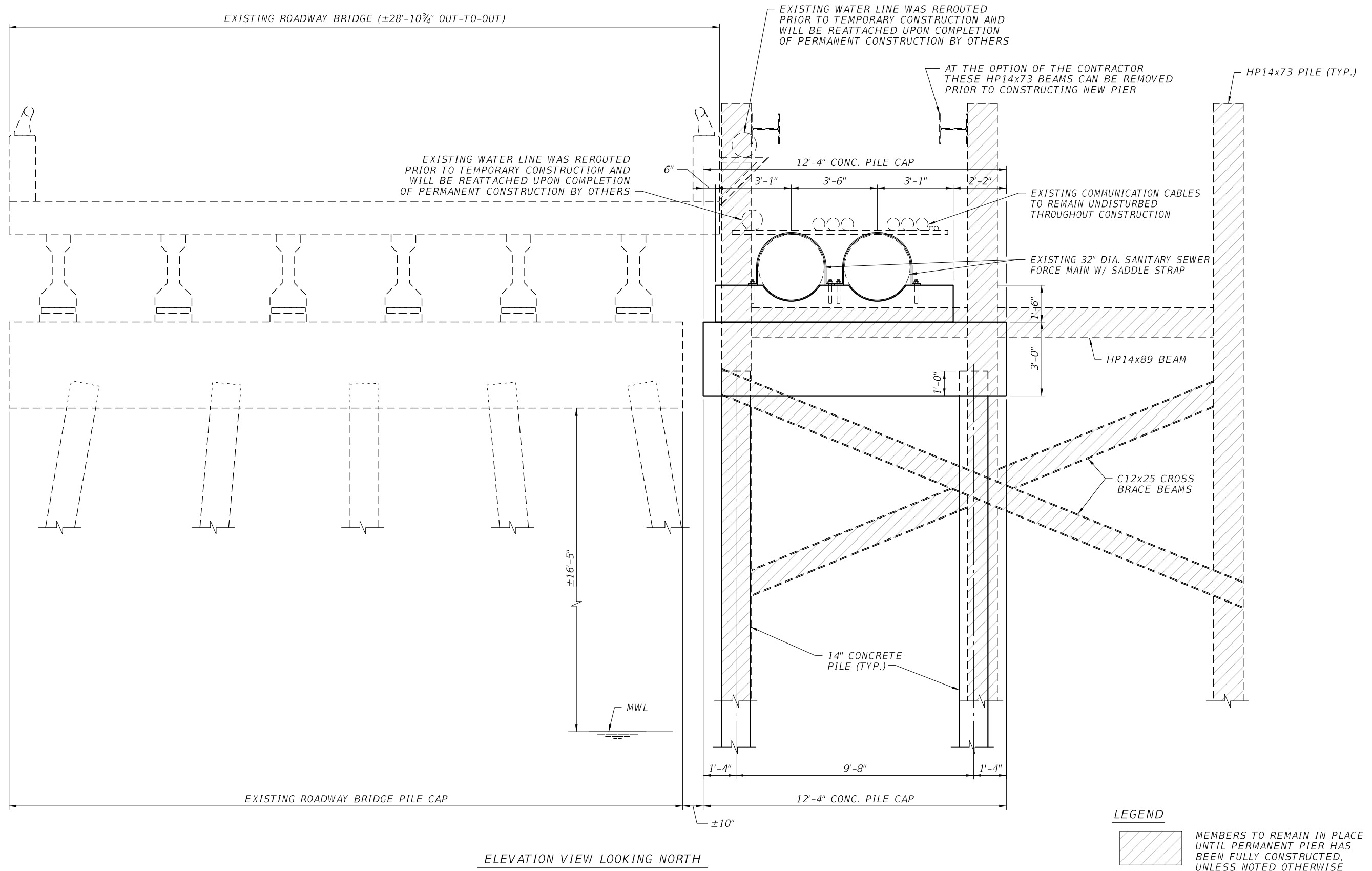


ELEVATION VIEW LOOKING WEST

FLEMING KEY UTILITY BRIDGE OVER GARRISON BRIGHT (ADJACENT TO BRIDGE NO. 1FL1322)

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DATE	BY	DESCRIPTION				ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
							MONROE			SHEET NO. 6

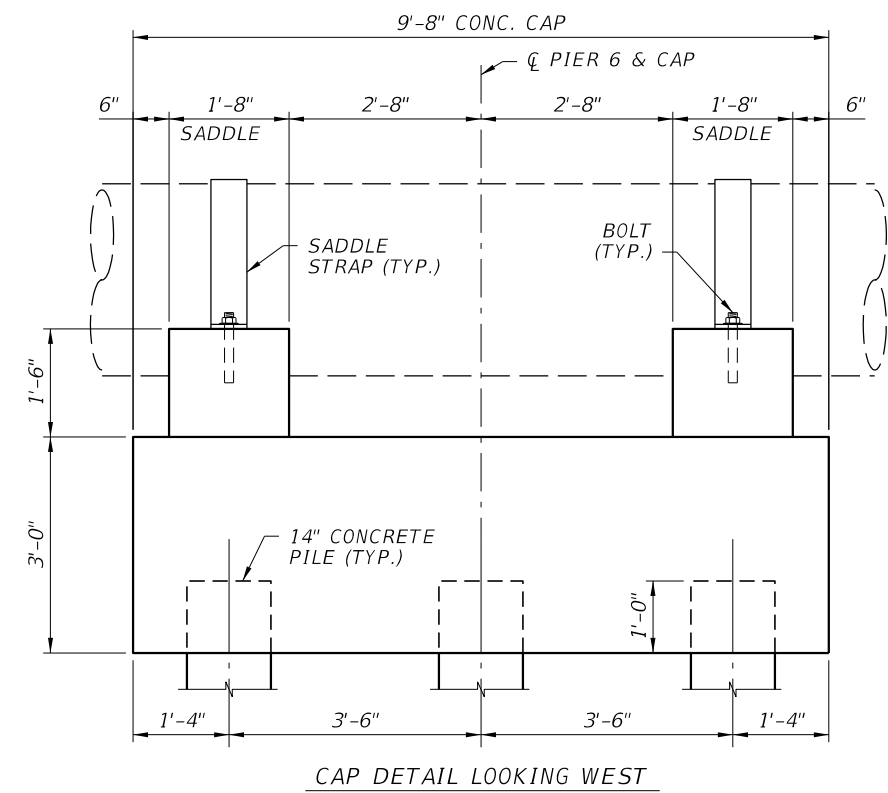
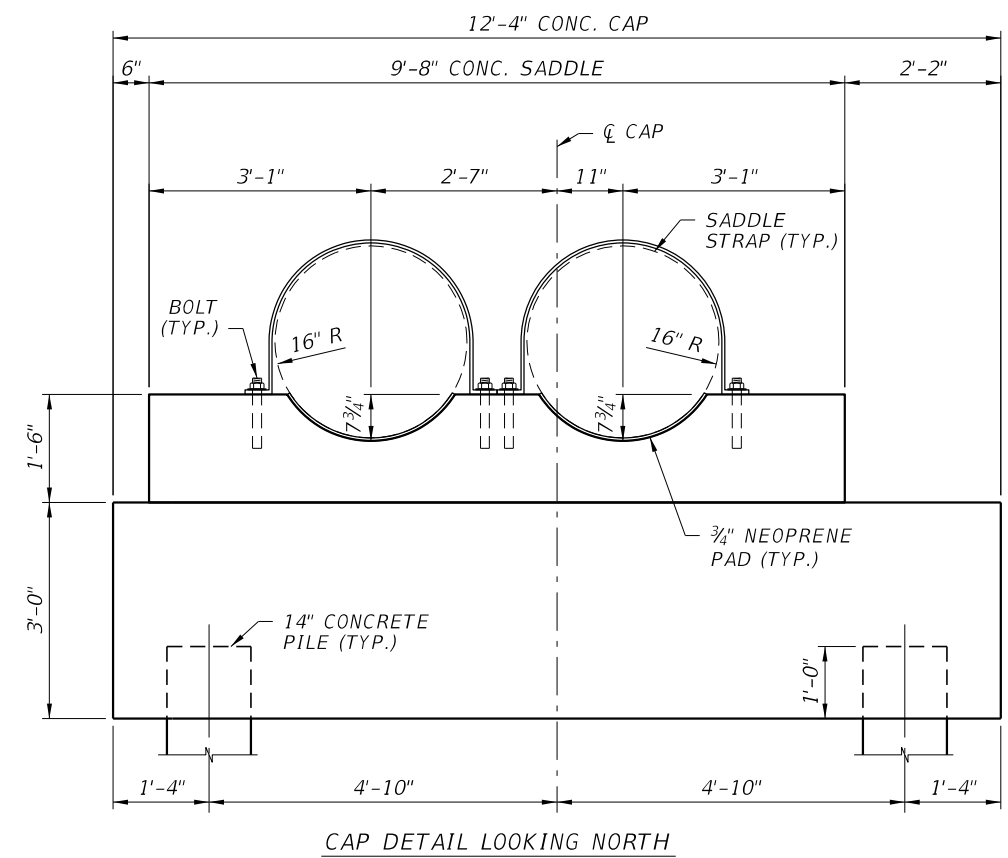
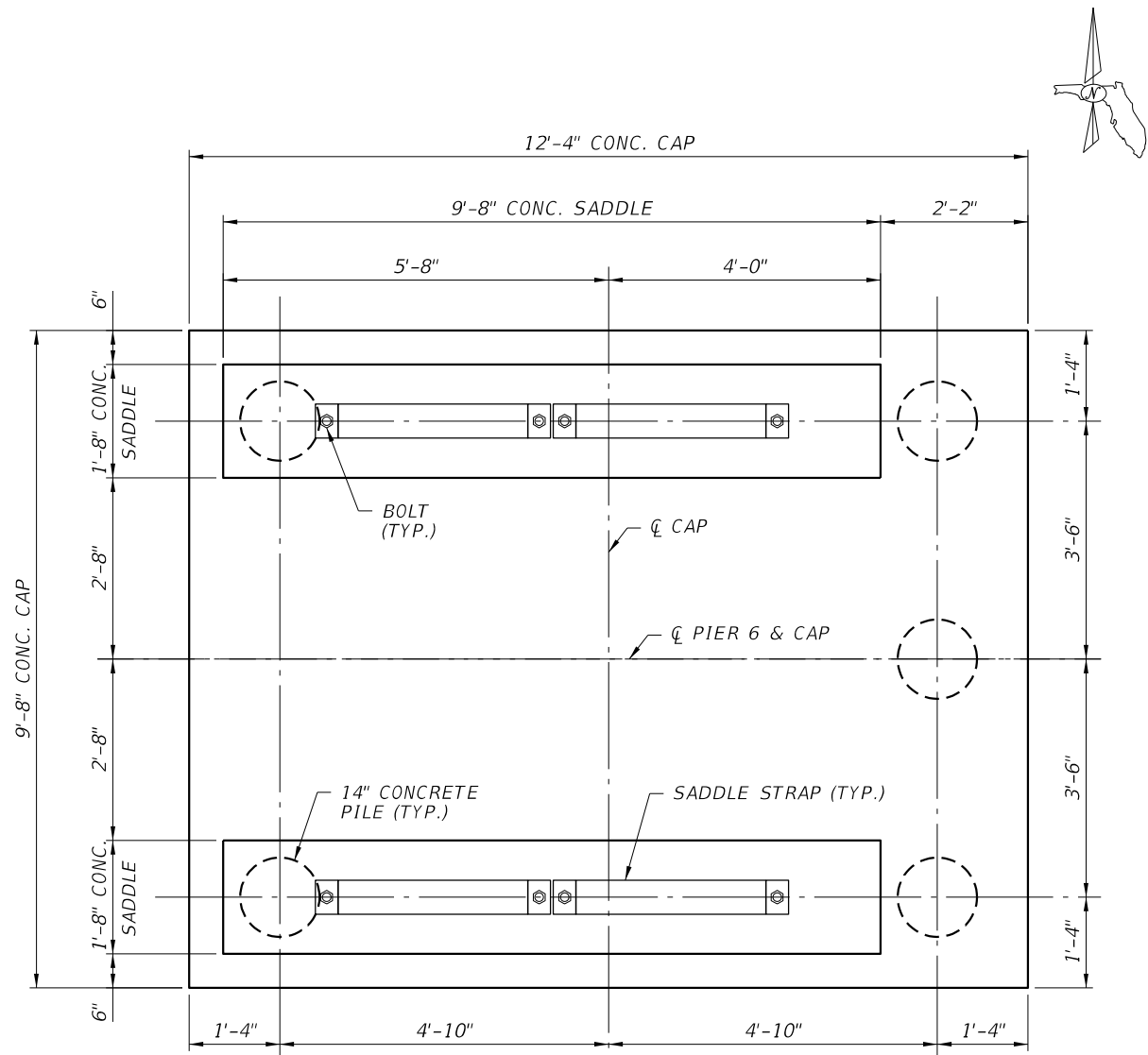
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FLEMING KEY UTILITY BRIDGE OVER GARRISON BRIGHT (ADJACENT TO BRIDGE NO. 1FL1322)

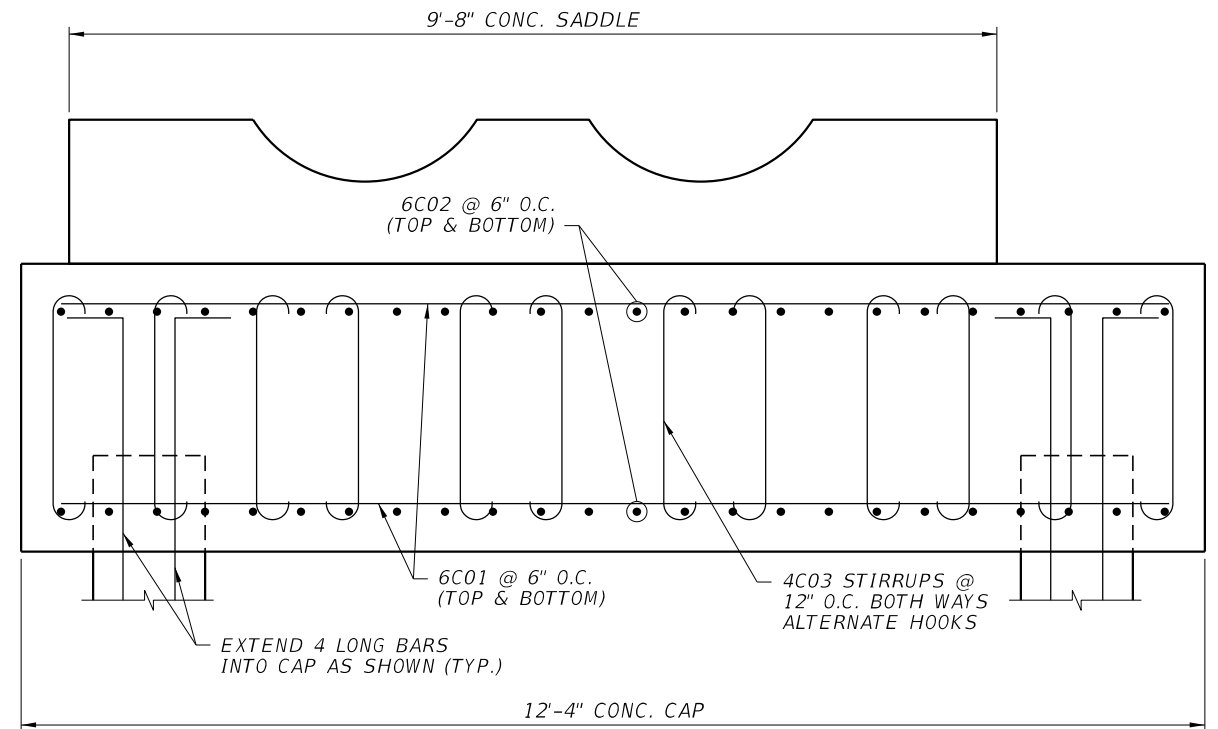
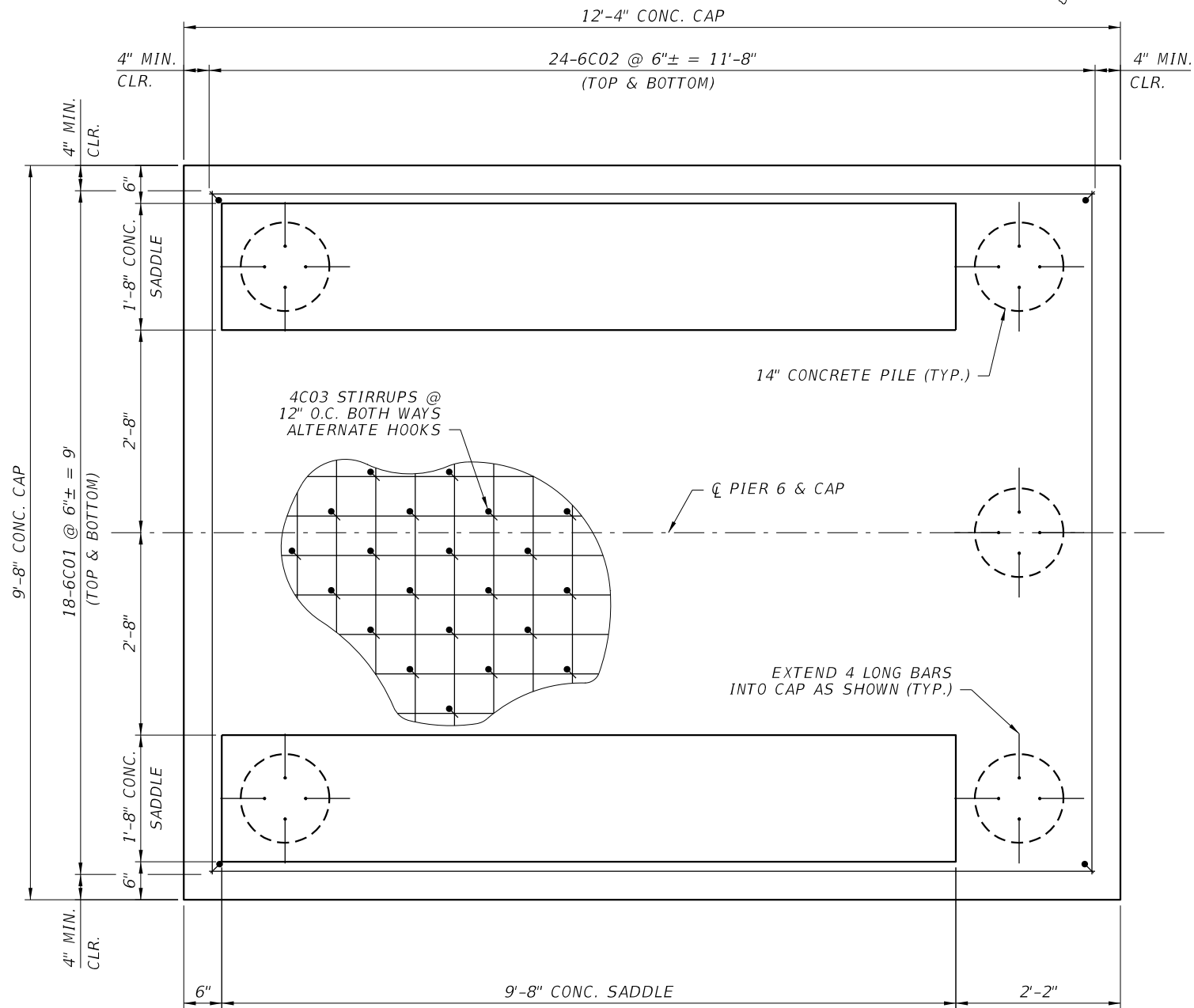
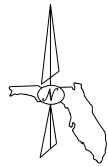
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DATE	BY	DESCRIPTION				ROAD NO.	COUNTY	FINANCIAL PROJECT ID		SHEET NO.
							MONROE			7

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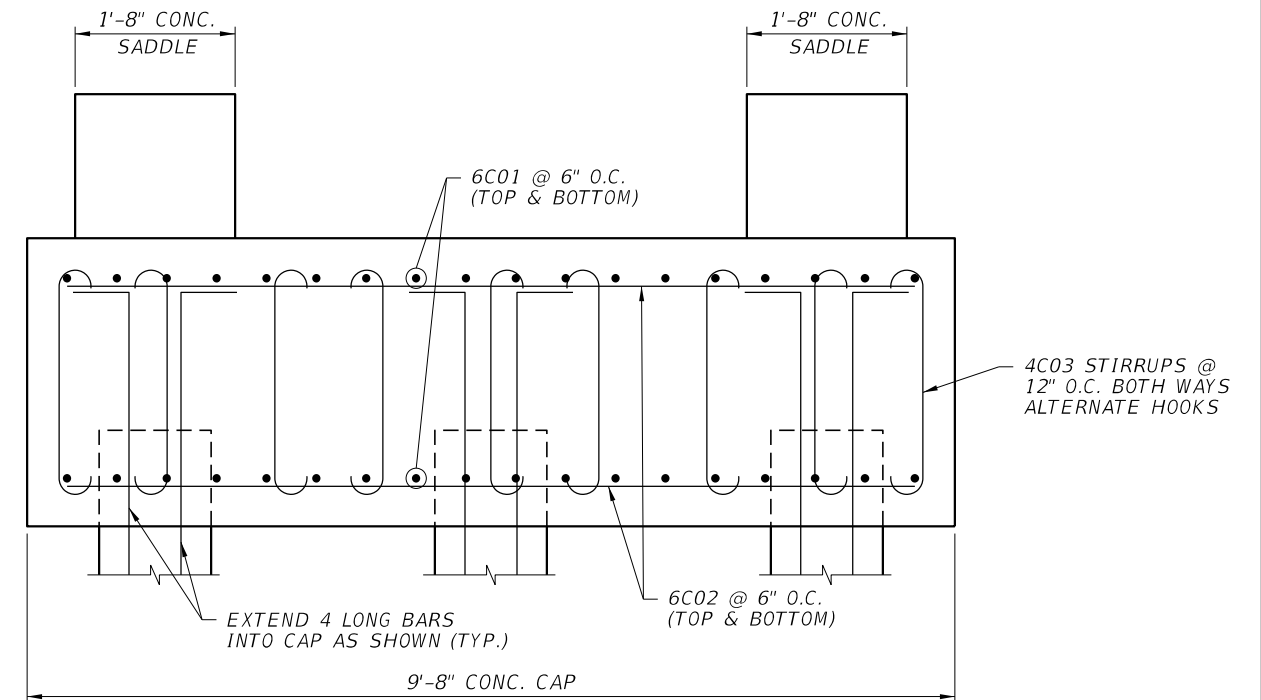


FLEMING KEY UTILITY BRIDGE OVER GARRISON BRIGHT (ADJACENT TO BRIDGE NO. 1FL1322)

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DATE	BY	DESCRIPTION				ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
							MONROE		FLEMING KEY UTILITY BRIDGE PERMANENT REPAIR	SHEET NO. 8



CAP DETAIL
LOOKING NORTH



CAP DETAIL
LOOKING WEST

FLEMING KEY UTILITY BRIDGE OVER GARRISON BRIGHT (ADJACENT TO BRIDGE NO. 1FL1322)

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DATE	BY	DESCRIPTION				ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
							MONROE		PROJECT NAME: FLEMING KEY UTILITY BRIDGE PERMANENT REPAIR	SHEET NO. 9