

INDIAN RIVER COUNTY BOARD OF COUNTY COMMISSIONERS



PUBLIC WORKS DIRECTOR:
RICHARD B. SZPYRKA, P.E.

COUNTY ENGINEER:
JAMES W. ENNIS, P.E.

53RD STREET BRIDGE AT 66TH AVENUE

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410	CONCRETE BARRIER WALL (CANTILEVERED WALL), (SHEET 4 OF 25)
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20600	GENERAL NOTES AND DETAILS FOR PRESTRESSED CONCRETE PILES
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20910	APPROACH SLABS (RIGID PAVEMENT APPROACHES) (SHEETS 1 - 2)



THESE PLANS HAVE BEEN PREPARED IN ACCORDANCE WITH AND ARE GOVERNED BY THE STATE OF FLORIDA, DEPARTMENT OF TRANSPORTATION, DESIGN STANDARDS. (BOOKLET DATED JANUARY, 2016)

GOVERNING SPECIFICATIONS: THE FLORIDA DEPARTMENT OF TRANSPORTATION, STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, DATED 2016, AND SPECIAL PROVISIONS THERETO IF NOTED IN THE CONTRACT SPECIFICATIONS FOR THIS PROJECT.

ATTENTION IS DIRECTED TO THE FACT THAT THESE PLANS MAY HAVE BEEN ALTERED IN SIZE BY REPRODUCTION. THIS MUST BE CONSIDERED WHEN OBTAINING SCALED DATA.

ENGINEER'S CERTIFICATION: I HEREBY CERTIFY THAT THE ATTACHED PLANS AND DESIGN ARE IN GENERAL COMPLIANCE WITH THE DESIGN STANDARDS AND CRITERIA IN EFFECT ON THIS DATE FOR INDIAN RIVER COUNTY ENGINEERING DEPARTMENT AND THE STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION.

DATE _____ PROFESSIONAL ENGINEER # _____

VERIFY SCALE
1" = 100'
BAR IS ONE INCH ON ORIGINAL DRAWINGS. ADJUST SCALES AS NECESSARY.

NOTE: THE SCALE OF THESE DRAWINGS MAY HAVE CHANGED DUE TO REPRODUCTION.



DATE: Dec 17, 2020 - 9:45am C:\pwworking\legi\cmgiburkhrath\d0399576\COVER SHEET.dwg

2035 Vista Parkway
West Palm Beach, FL 33411
Phone No. 561.687.2220
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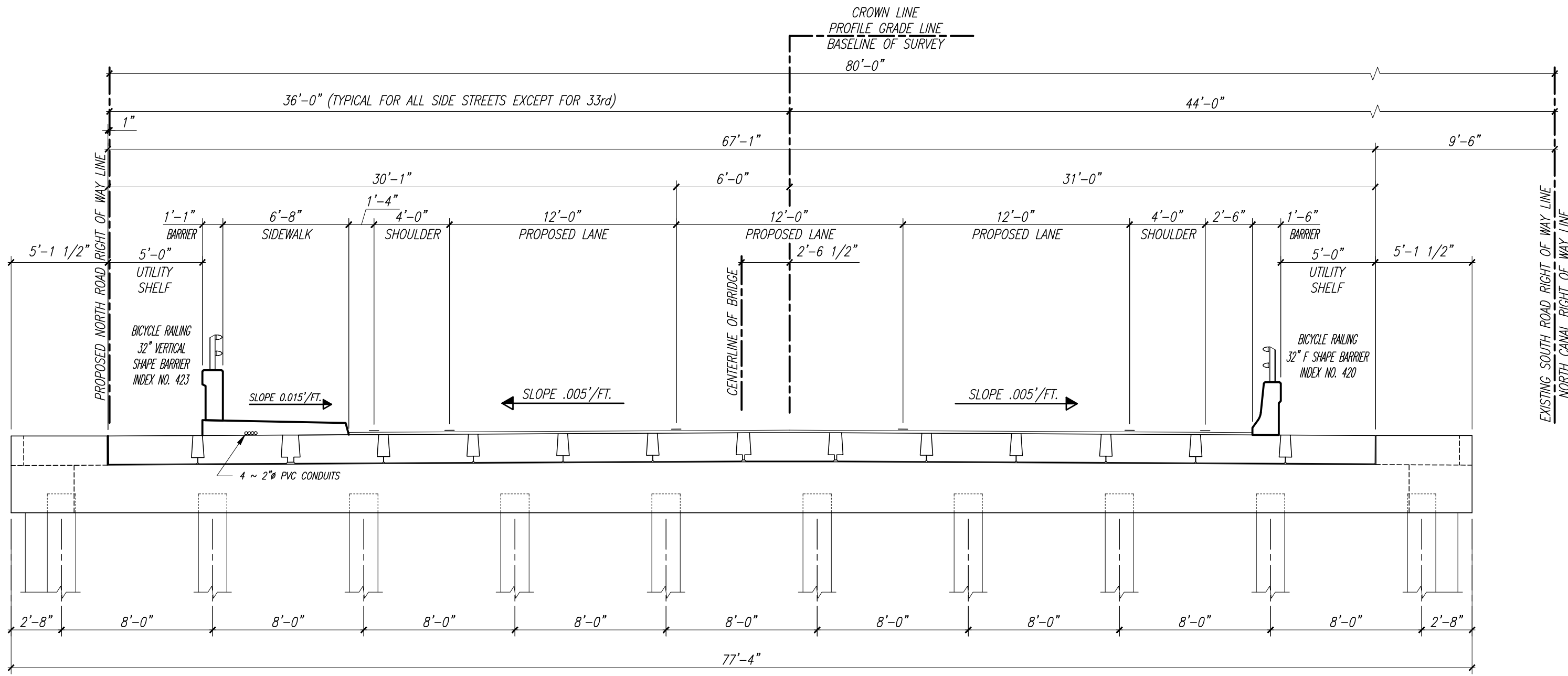
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

Scale: AS NOTED
Approved:
Drawn: C.A.B.
Checked: T.A.D.
Date: DECEMBER 2020
Field Book No:

PROJECT:
PROPOSED BRIDGE MODIFICATIONS FOR:
66th AVENUE - PHASE 1A
IRC 1505
INDIAN RIVER COUNTY, FLORIDA

SEAL
Timothy Alan Deland-71588
FLORIDA P.E. NAME & NUMBER

SHEET
C-1
PROJECT NO.
16162296.00



A PROPOSED BRIDGE CROSS SECTION LOOKING EAST
(53rd STREET) Scale: 3/8" = 1'-0"

VERIFY SCALE

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DATE: Dec. 17, 2020 - 9:45am C:\pwworking\wgi\craig_burkhardt\02096576\PROPOSED CROSS SECTION.dwg

GENERAL NOTES

GENERAL SPECIFICATIONS:

FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION (2015 EDITION).

DESIGN SPECIFICATION:

7TH EDITION OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 2014 WITH CURRENT INTERIMS. 2015 EDITION OF THE F.D.O.T. STRUCTURE DESIGN GUIDELINES WITH CURRENT INTERIMS.

DESIGN LOADING:

LIVE LOAD:	HL-93 WITH DYNAMIC LOAD ALLOWANCE	
DEAD LOAD:	FUTURE WEARING SURFACE REINFORCED CONCRETE NORTH SIDEWALK	0.015 K.S.F. 0.15 K.C.F. 0.872 K/FT
	32" VERTICAL SHAPE BARRIER AND ALUMINUM RAILING	0.395 K/FT
	32" F SHAPE BARRIER AND ALUMINUM RAILING	0.430 K/FT
UTILITY LOAD:	12" O.D.I.P. (X2)	0.10 K.L.F.

CONCRETE:

NOTE: CONCRETE TO BE IN COMPLIANCE WITH F.D.O.T. SPECIFICATIONS 346.

CONCRETE CLASS	MINIMUM 28 DAY COMPRESSIVE STRESS (KSI)	LOCATION OF CONCRETE IN STRUCTURE
CLASS II (BRIDGE DECK)	FC' = 4.5	CAST-IN-PLACE APPROACH SLABS, CAST-IN-PLACE CLOSURE POURS
CLASS V (SPECIAL)	FC' = 6.0	PRESTRESSED PILES, PRESTRESSED SLABS
CLASS II	FC' = 3.4	CAST-IN-PLACE PILE CAPS, SHEET PILES AND BARRIER WALLS BRIDGE SIDEWALKS

CONCRETE:

- PROVIDE 3/4 INCH CHAMFERS ON ALL EXPOSED EDGES AND CORNERS EXCEPT AS OTHERWISE NOTED.
- CONSTRUCTION JOINTS WILL BE PERMITTED ONLY AT THE LOCATIONS INDICATED ON THE PLANS, ADDITIONAL CONSTRUCTION JOINTS OR ALTERATIONS TO THOSE SHOWN SHALL REQUIRE APPROVAL BY THE ENGINEER.

REINFORCEMENT:

- REINFORCEMENT SHALL BE ASTM A-615, GRADE 60. SPIRAL TIES FOR PRESTRESSED CONCRETE PILES SHALL BE MANUFACTURED FROM COLD DRAWN STEEL WIRE MEETING THE REQUIREMENTS OF ASTM A82.
- ALL DIMENSIONS PERTAINING TO LOCATION OF REINFORCING ARE TO CENTERLINE OF BARS EXCEPT WHERE THE CLEAR DIMENSION IS SHOWN TO FACE OF CONCRETE.
- REINFORCEMENT DETAIL DIMENSIONS ARE OUT-TO-OUT OF BARS.

MINIMUM CONCRETE COVER:

CIP SUPERSTRUCTURE = 2 IN. (TYPICAL EXCEPT AS NOTED).

CIP SUBSTRUCTURE/BENT CAP = 4 IN. FOR EXTERNAL SURFACES CAST AGAINST EARTH.
CIP SUBSTRUCTURE/BENT CAP = 3 IN. FOR OTHER EXTERNAL SURFACES.

PRECAST SUBSTRUCTURE/SHEET WALLS.

CONCRETE COVERS SHOWN IN THE PLANS DO NOT INCLUDE PLACEMENT AND FABRICATION TOLERANCES UNLESS SHOWN AS "MINIMUM COVER". SEE F.D.O.T. STANDARD SPECIFICATIONS SECTION 415 FOR ALLOWABLE TOLERANCES.

GENERAL NOTES (CONTINUED)

DESIGN METHOD:

ALL ELEMENTS WERE DESIGNED USING THE LRFD (LOAD AND RESISTANCE FACTOR DESIGN).

PILE LOAD:

SEE SHEET B-8 FOR PILE LOADS.

PILES:

14" SQUARE PRESTRESSED CONCRETE PILES.
18" SQUARE PRESTRESSED CONCRETE PILES.

SURFACE FINISH:

ALL EXPOSED SURFACES OF END BENT WING WALLS, BARRIERS AND SUPERSTRUCTURE FASCIA SHALL RECEIVE A "CLASS 5 APPLIED FINISH COATING". SEE CLASS 5 FINISH DETAIL.

ENVIRONMENT:

SUPERSTRUCTURE: SLIGHTLY AGGRESSIVE
SUBSTRUCTURE: SLIGHTLY AGGRESSIVE
LOCATION: INLAND WATERS

DATUM:

ALL ELEVATIONS SHOWN ARE IN N.G.V.D. 29, UNLESS NOTED OTHERWISE.

PRESTRESSED MEMBERS NOTES

FINISH:

THE TOP OF PRESTRESSED UNITS SHALL BE FINISHED TO A SMOOTH, DENSE SURFACE WITH A STEEL TROWEL, THEN COURSELY BROOMED OR RAKED TO PROVIDE A SURFACE SUITABLE FOR BONDING TO ASPHALT. ALL OTHER SURFACES OF THE UNIT SHALL RECEIVE A "CLASS 3" SURFACE FINISH. THE EDGE OF THE TOP OF THE SURFACE OF THE UNITS SHALL BE FINISHED BY USE OF A SMALL RADIUS TOOL.

CONCRETE STRENGTH:

AT TRANSFER OF THE PRESTRESSING LOAD, THE CYLINDER STRENGTH OF THE CONCRETE SHALL BE 4,500 PSI.
IT SHALL BE 6,000 PSI AT TWENTY-EIGHT (28) DAYS FOR SLAB UNITS.

HANDLING AND STORAGE:

DURING HANDLING AND STORAGE, THE PRESTRESSED UNITS MUST BE PICKED UP AT THE ENDS OF THE UNITS TO PREVENT DAMAGE. THE PRESTRESSED UNITS MUST BE STORED IN AN UP-RIGHT POSITION AT ALL TIMES.

FORMS AND PALLETS:

ALL PRESTRESSED UNITS SHALL BE CAST ON CONCRETE BASED PALLETS AND IN METAL FORMS. KEYWAY FORM MAY BE WOOD.

STRAND EXTENSION:

ALL STRANDS SHALL EXTEND 2-1/2 INCHES BEYOND THE ENDS OF THE PRESTRESSED UNITS.

SHOP DRAWINGS:

THE CONTRACTOR SHALL SUBMIT FIVE (5) SETS OF SHOP DRAWINGS, SHOWING COMPLETE DETAILS OF THE PROPOSED PRESTRESSED UNITS. THE DRAWINGS SHALL INCLUDE REINFORCING STEEL, PRESTRESSING STEEL, PRESTRESSING BED LAYOUT, TENSIONING AND DETENSIONING SCHEDULES, AND ALL COMPUTATIONS REQUIRED TO CONTROL THE WORK. SHOP DRAWINGS ALSO TO BE SUBMITTED IN PDF FORMAT.

BEARING PADS:

NEOPRENE BEARING PADS SHALL BE 1/2 INCH X 6 INCH STRIPS IN ACCORDANCE WITH SECTION 932-2 OF THE SPECIFICATIONS. THE PADS MAY BE CONTINUOUS STRIPS OR MULTIPLE LENGTHS OF 2 FEET AND 0 INCHES MINIMUM LENGTH. THE PADS MAY BE CUT FROM COMMERCIALY AVAILABLE SHEETS.

POST TENSIONING:

POST TENSION CABLES SHALL BE THREE (3) .6 INCH DIAMETER 270K L0 LAX STRANDS. CABLES SHOULD BE IN ACCORDANCE WITH ASTM SPECIFICATION A-416. THE CABLES SHALL BE STRESSED AND ANCHORED AT 132,000 POUNDS PER (3) STRAND POST-TENSION CABLE. THE TRANSVERSE POST-TENSION CABLES SHALL NOT BE TENSIONED UNTIL THE CONCRETE IN THE JOINTS AND KEYWAYS HAS BEEN CURED FOR A MINIMUM OF SEVENTY-TWO (72) HOURS OR HAS ACHIEVED 75% OF DESIGN STRENGTH.

CABLE ANCHORAGES:

THE FABRICATOR SHALL SUBMIT DETAILS OF THE CABLE ANCHORAGE AND ANCHORAGE REINFORCEMENT DETAILS FOR APPROVAL WITH THE SHOP DRAWINGS.

CONSTRUCTION NOTES

EQUIPMENT ON UNITS:

BEFORE HEAVY CONSTRUCTION EQUIPMENT IS PERMITTED ON THE STRUCTURE DURING CONSTRUCTION, SKETCHES SHOWING THE AXLE SPACING AND ANTICIPATED LOADINGS SHALL BE SUBMITTED TO AND APPROVED BY THE ENGINEER.

POST-TENSIONING SEQUENCE:

POST-TENSIONING SHALL BE DONE ACCORDING TO THE NUMBER SEQUENCE SHOWN ON THE PRECAST SLAB LAYOUT SHEET. SEE SHEET B-15.

FILLING CONCRETE JOINTS BETWEEN UNITS:

JOINTS BETWEEN SLAB UNITS SHALL BE POURED A MINIMUM OF SEVENTY-TWO (72) HOURS OR HAVE 75% OF THE DESIGN STRENGTH BEFORE ANY POST-TENSIONING OPERATIONS CAN BEGIN. CARE SHOULD BE TAKEN TO PREVENT INTRUSION OF MIX INTO DUCTS.

GROUTING POST-TENSION DUCTS:

THE POST-TENSIONED STRANDS SHALL BE GROUTED IN ACCORDANCE WITH SECTION 938 OF THE SPECIFICATIONS. THE GROUTED STRANDS SHALL NOT BE DISTURBED, NOR SHALL APPRECIABLE LOADS BE PLACED ON THE SPAN FOR A PERIOD OF SEVENTY-TWO (72) HOURS FOLLOWING GROUTING OPERATIONS.

FILLING ANCHORAGE BLOCKOUTS:

ALL ANCHORAGE BLOCKOUTS SHALL BE FILLED WITH CONCRETE AND FINISHED FLUSH WITH SURFACE OF DECK FACE.

PLACING BARRIER WALLS AND SURFACING:

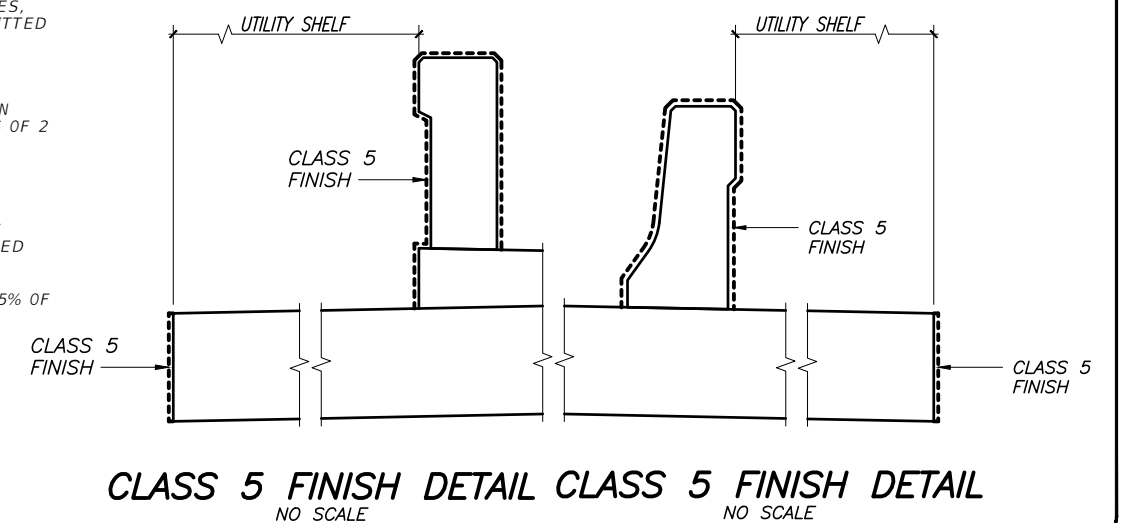
ALL POST-TENSIONING STRANDS SHALL HAVE BEEN GROUTED AND THE MINIMUM SEVENTY-TWO (72) HOURS HAVE PASSED BEFORE THE BARRIER WALLS AND WEARING COURSE CAN BE PLACED.

VIBRATION MONITORING:

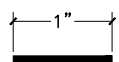
THE SETTLEMENT OF STRUCTURES AND VIBRATION LEVELS SHALL BE MONITORED IN ACCORDANCE WITH F.D.O.T. SPECIFICATIONS 455-1.1. A PRE-CONSTRUCTION VIDEO RECORDING OF ALL STRUCTURES WITHIN THE DISTANCES SPECIFIED IN THE SPECIFICATIONS SHALL BE MADE.

MISCELLANEOUS NOTES

- FLOATING TURBIDITY BARRIER WITH FINE MESH SHALL BE USED IN ACCORDANCE WITH F.D.O.T. STANDARD SPECIFICATIONS, SECTION 104.
- ALL DIMENSIONS IN THESE PLANS ARE MEASURED IN FEET EITHER HORIZONTALLY OR VERTICALLY. U.O.N.



VERIFY SCALE



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ENGINEERING DIVISION

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Checked: T.A.D.
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PROJECT:
PROPOSED BRIDGE MODIFICATIONS FOR:
66th AVENUE - PHASE 1A
IRC 1505
INDIAN RIVER COUNTY, FLORIDA

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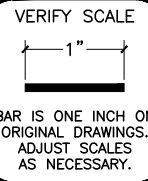
SHEET
B-2
PROJECT NO.
16162296.00

SUMMARY OF QUANTITIES

ITEM NO.	ITEM	NO. REQUIRED	UNIT	QUANTITY	AS BUILT
	BRIDGE				
110-3	DEMOLITION AND REMOVAL OF EXISTING BRIDGE		L. S.	1	
	(SUPERSTRUCTURE)				
12450-88-18	PRESTRESSED PRECAST DECK UNITS				
	18" x 4'-3" x 36'-0"	12	L. F.	432'-0"	
	18" x 4'-6" x 36'-0"	2	L. F.	72'-0"	
400-2-4	CLASS II CONCRETE FOR CLOSURE POURS BETWEEN DECK UNITS		Cu. Yds.	15.0	
415-1-4	REINFORCING STEEL		Lbs.	990	
521-5-1	CONCRETE TRAFFIC RAILING BARRIER - (32" F SHAPE)		L. F.	37'-0"	
521-5-4	CONCRETE TRAFFIC RAILING BARRIER (32" VERTICAL SHAPE)		L. F.	37'-0"	
521-72-3	SHOULDER CONCRETE BARRIER WALL (INDEX 410 - CANTILEVERED WALL)		L. F.	100'-0"	
460-70-2	ALUMINUM BICYCLE BULLET BARRIER RAILING		L.F.	74'-0"	
	(SUBSTRUCTURE)				
400-2-5	CLASS II CONCRETE FOR PILES CAPS		Cu. Yds.	76.0	
415-1-5	REINFORCING STEEL		Lbs.	12,300	
	PRESTRESSED PILES (ABUTMENT)				
455-133-2	18" SQUARE x 70'-0" MINIMUM (TEST PILE - ABUTMENT)	2 EACH	L. F.	140'-0"	
455-34-2	18" SQUARE x 55'-0" MINIMUM (ABUTMENT)	19 EACH	L. F.	1,045'-0"	
455-34-2	14" SQUARE x 50'-0" MINIMUM (WING BENT)	12 EACH	L. F.	600'-0"	
455-137	PILE DYNAMIC LOAD TESTING	1 EACH	L. S.	1	
455-14-5	8" x 8'-0" x 12'-0" Sheet Wall	26 EACH	L. F.	312'-0"	
	(SIDEWALKS)				
400-2-4	CLASS II CONCRETE		Cu. Yds.	8	
415-1-4	REINFORCING STEEL		Lbs.	343	
	(APPROACH SLABS)		Each	2	
400-2-10	CLASS II CONCRETE		Cu. Yds.	124	
415-1-9	REINFORCING STEEL		Lbs.	19,570	
715-2117	2"ø PVC CONDUIT		L. F.	152'-0"	
339-1	MISCELLANEOUS ASPHALT		TN	2	
530-3-3	(ROCK RUBBLE) (CANAL EXCAVATION AS REQUIRED SHALL BE INCLUDED IN THE COST OF THE ROCK RUBBLE)		TN	1,232	

Contractor shall verify all dimensions and quantities prior to construction and fabrication. Discrepancies shall be brought to the attention of the Engineer before construction.

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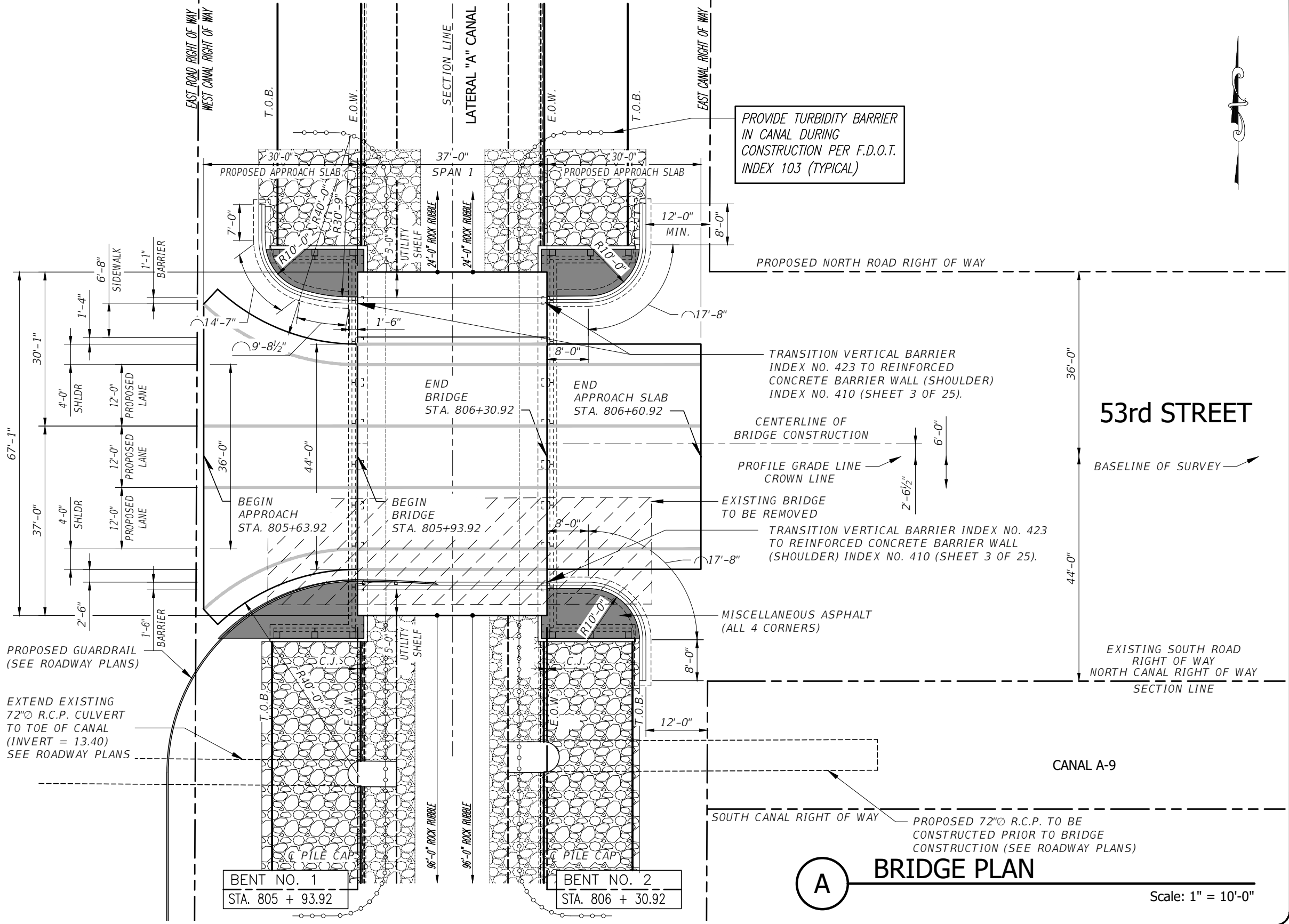
PROJECT:
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IRC 1505
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SHEET
B-3
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DATE: Dec. 17, 2020 - 9:44am C:\pwworking\wgi\craig.burkhardt\020965761\PROPOSED BRIDGE PLAN.dwg



PROVIDE TURBIDITY BARRIER IN CANAL DURING CONSTRUCTION PER F.D.O.T. INDEX 103 (TYPICAL)

TRANSITION VERTICAL BARRIER INDEX NO. 423 TO REINFORCED CONCRETE BARRIER WALL (SHOULDER) INDEX NO. 410 (SHEET 3 OF 25).

CENTERLINE OF BRIDGE CONSTRUCTION
PROFILE GRADE LINE
CROWN LINE

EXISTING BRIDGE TO BE REMOVED

TRANSITION VERTICAL BARRIER INDEX NO. 423 TO REINFORCED CONCRETE BARRIER WALL (SHOULDER) INDEX NO. 410 (SHEET 3 OF 25).

MISCELLANEOUS ASPHALT (ALL 4 CORNERS)

53rd STREET

BASELINE OF SURVEY

EXISTING SOUTH ROAD RIGHT OF WAY
NORTH CANAL RIGHT OF WAY
SECTION LINE

CANAL A-9

PROPOSED 72" R.C.P. TO BE CONSTRUCTED PRIOR TO BRIDGE CONSTRUCTION (SEE ROADWAY PLANS)

BRIDGE PLAN

Scale: 1" = 10'-0"

VERIFY SCALE
1" = 10'-0"
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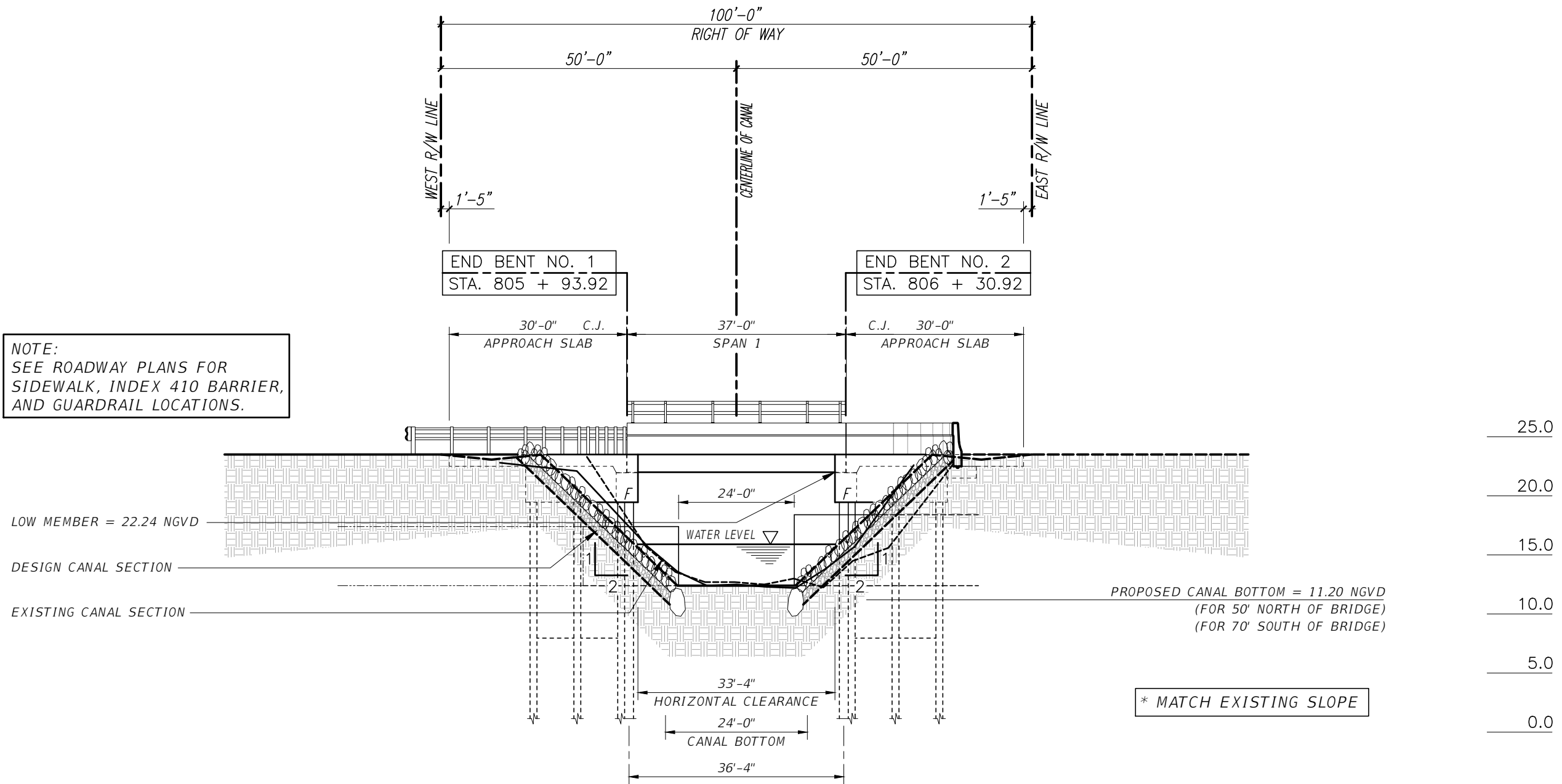
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NOTE:
SEE ROADWAY PLANS FOR
SIDEWALK, INDEX 410 BARRIER,
AND GUARDRAIL LOCATIONS.



VERIFY SCALE
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100 YEAR FLOOD ELEVATION = 20.9 NGVD
ALLOWABLE LOW MEMBER ELEVATION = 22.0 NGVD
PROVIDE SILT BARRIER IN CANAL DURING CONSTRUCTION

A BRIDGE ELEVATION
Scale: 1" = 10'-0" (HORIZONTAL) 1" = 5'-0" (VERTICAL)

DATE: Dec. 17, 2020 - 9:44am C:\pwworking\wgi\craig.burkhardt\02096576\PROPOSED BRIDGE ELEVATION.dwg

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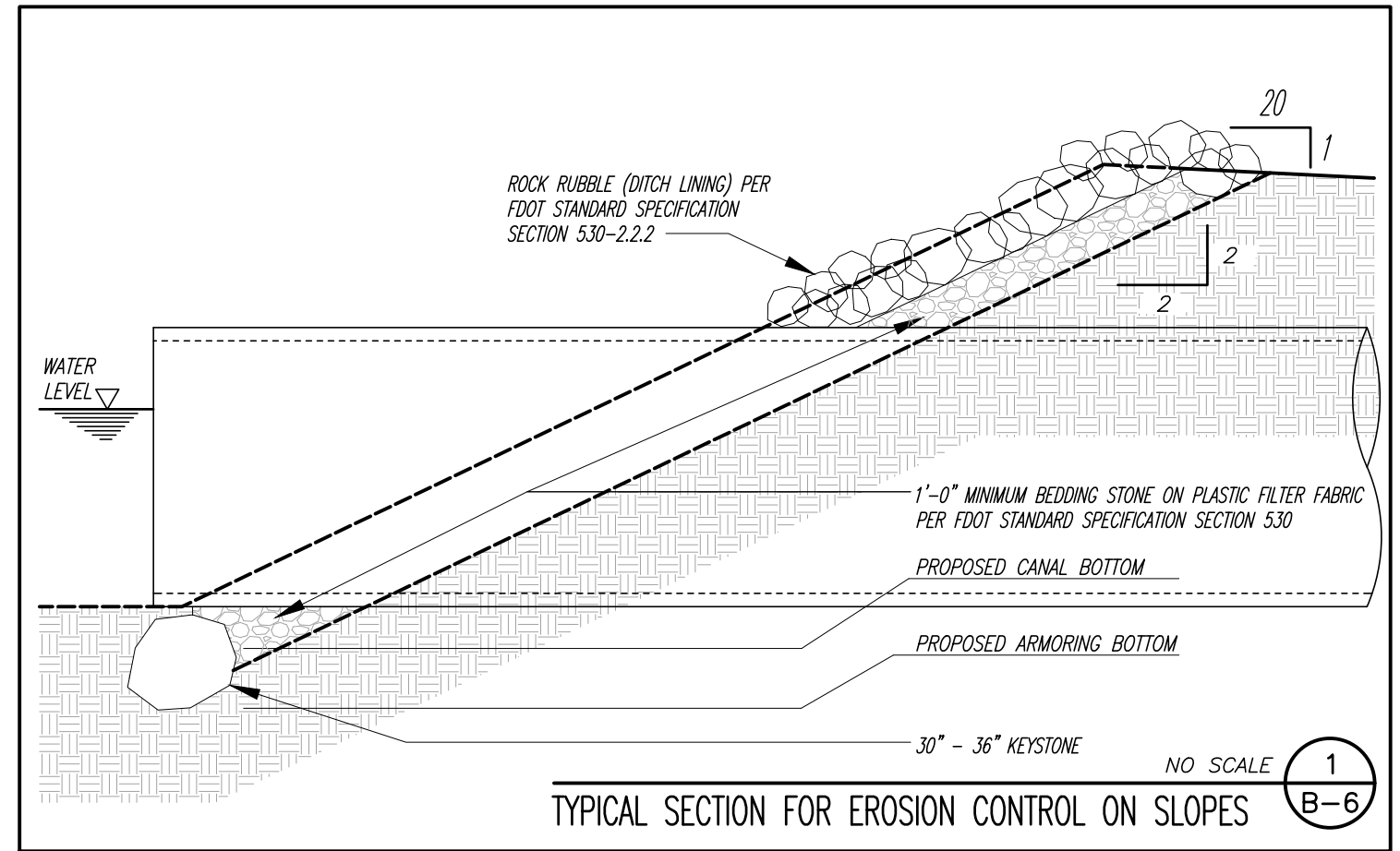
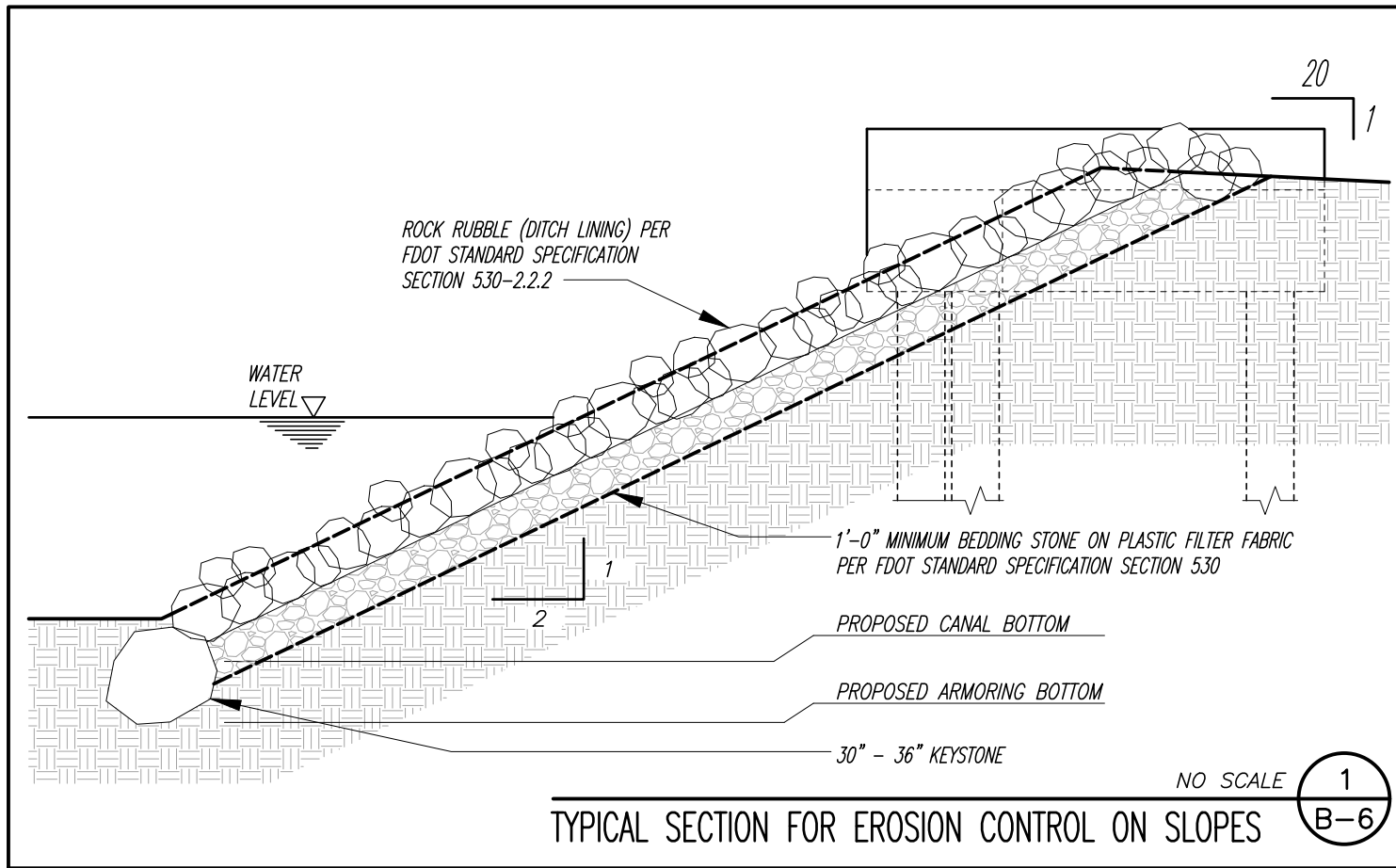
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1"

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SEAL

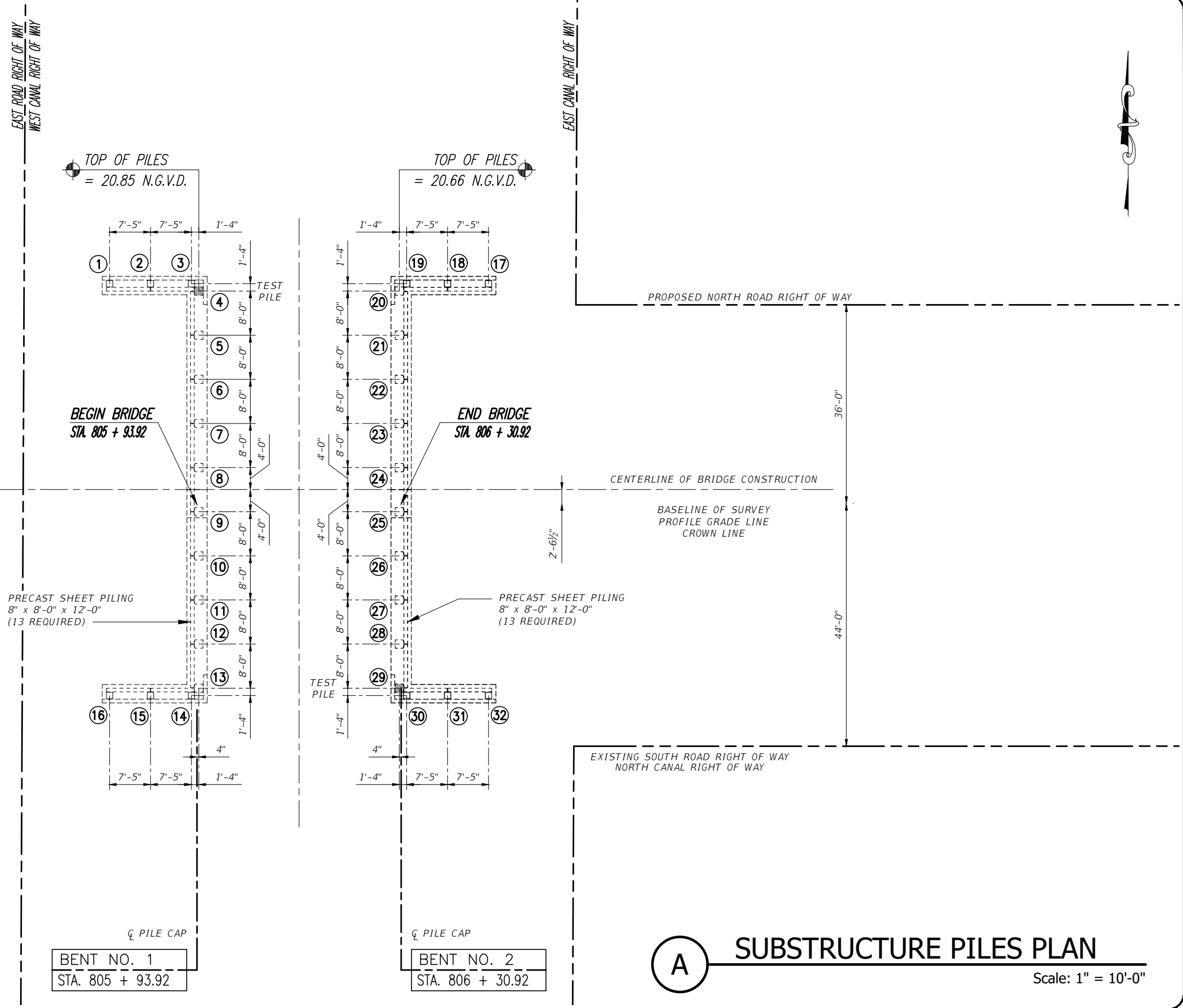
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☉ PILE CAP

BENT NO. 1
STA. 805 + 93.92

☉ PILE CAP

BENT NO. 2
STA. 806 + 30.92

A SUBSTRUCTURE PILES PLAN
Scale: 1" = 10'-0"

DATE: Dec. 17, 2020 - 9:44am C:\pwworking\wgi\craig.burkhardt\02090576\PROPOSED SUBSTRUCTURE PILES PLAN.dwg

WGI

2035 Vista Parkway
West Palm Beach, FL 33411
Phone No. 561.687.2220
Fax No. 561.687.1110
Registry No. 33574

NO.	REVISION	DATE	BY

INDIAN RIVER COUNTY
FLORIDA

DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

Scale: AS NOTED
Approved:
Drawn: C.A.B.
Checked: T.A.D.
Date: DECEMBER 2020
Field Book No:

PROJECT:
**PROPOSED BRIDGE MODIFICATIONS FOR:
66th AVENUE - PHASE 1A
IRC 1505
INDIAN RIVER COUNTY, FLORIDA**

SEAL

Timothy Alan Deland-71588

FLORIDA P.E. NAME & NUMBER

SHEET

B-7

PROJECT NO.
16162296.00

53rd Street – Pile Data Table

Installation Criteria								Design Criteria						
Bent/Pier	Pile Size (in.)	Nominal Bearing Capacity (tons)	Tension Capacity (tons)	Minimum Tip Elevation (ft., N.G.V.D.)	Test Pile Length (ft.)	Required Jet Elevation (ft., N.G.V.D.)	Required Preform Elevation (ft., N.G.V.D.)	Factored Design Load (tons)	Down Drag (tons)	Total Scour Resistance (tons)	Net Scour Resistance (tons)	Long Term Scour Elevation (ft.)	100 Year Scour Elevation (ft.)	Ø
Abutments														
Pile 4	18	151	N/A	(-) 3.80	65	N/A	N/A	98	0	N/A	N/A	N/A	N/A	0.65
Pile 5 – 13	18	151	N/A	(-) 3.80		N/A	N/A	98	0	N/A	N/A	N/A	N/A	0.65
Pile 20 – 28	18	151	N/A	(-) 3.80		N/A	N/A	98	0	N/A	N/A	N/A	N/A	0.65
Pile 29	18	151	N/A	(-) 3.80	65	N/A	N/A	98	0	N/A	N/A	N/A	N/A	0.65
Pile 1 – 3 & 14 – 16	14	31	N/A	(-) 3.80		N/A	N/A	20	0	N/A	N/A	N/A	N/A	0.65
Pile 17 – 19 & 30 – 32	14	31	N/A	(-) 3.80		N/A	N/A	20	0	N/A	N/A	N/A	N/A	0.65

PILE DATA – ABUTMENTS

PILE ④ TEST PILE 65'-0" LONG MINIMUM.

USE TEST PILE TO DETERMINE FINAL PILE LENGTHS.

PRECAST PRESTRESSED CONCRETE PILING LOADING SHALL BE AS FOLLOWS:

PILES ① – ③ & ⑭ – ⑯

14" SQUARE PILES WITH 50'-0" LONG MINIMUM.

PILES ⑰ – ⑲ & ⑳ – ㉓

14" SQUARE PILES WITH 50'-0" LONG MINIMUM.

PILES ⑤ – ⑬

18" SQUARE PILES WITH 50'-0" LONG MINIMUM.

PILES ⑳ – ㉔

18" SQUARE PILES WITH 50'-0" LONG MINIMUM.

PILE ㉔ TEST PILE 65'-0" LONG MINIMUM.

USE TEST PILE TO DETERMINE FINAL PILE LENGTHS.

PILE INSTALLATION NOTES:

Contractor to verify location of all utilities prior to any pile driving.

Minimum Tip Elevations required for lateral stability.

NOTES:

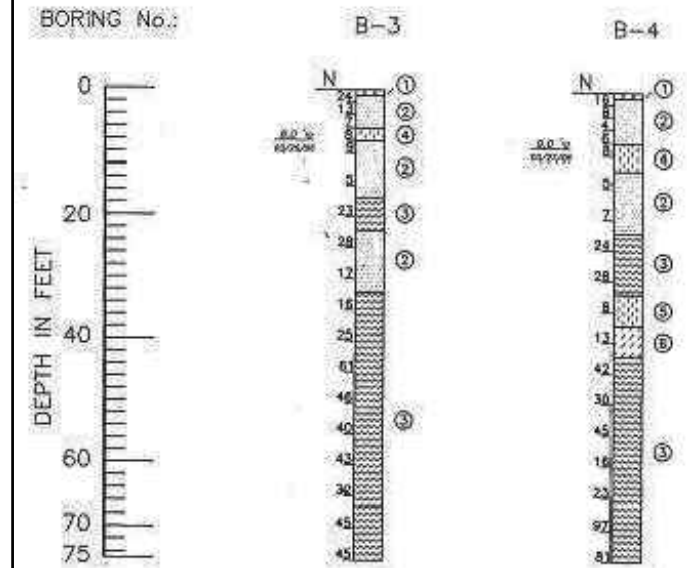
Nominal Bearing Capacity (NBC) = (Factored Design Load + Net Scour Resistance + Down Drag) / φ

Test piles are to be monitored dynamically with the Pile Driving Analyzer (PDA).

Service Load: 64 Tons

Soil Borings

SEE REPORT DATED 11/30/2005.
PREPARED BY TIERRA
FILE NO. 6611-05-417-2



LEGEND

- ① TOPSOIL (PT)
- ② GRAY TO BROWN SAND (SP)
- ③ BROWN SAND WITH SHELL FRAGMENTS (SP)
- ④ BROWN SILTY SAND (SM)
- ⑤ BROWN SILTY SAND WITH SHELL FRAGMENTS (SM)
- ⑥ BROWN CLAYEY SAND (SC)

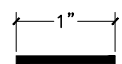
Groundwater Depth in feet, with date of reading.

Borings were drilled on October and November of 2005 using a Mobil B-50 drilling rig.

(SP) Unified Soil Classification System Group Symbol (ASTM D 2486)

N Number of blows of a 140 lb. hammer freely falling a distance of 30 inches, required to drive a 2-inch diameter sampler a distance of 12 inches. (ASTM D 1586)

VERIFY SCALE



NOTE: THE SCALE OF THESE DRAWINGS MAY HAVE CHANGED DUE TO REPRODUCTION.

BAR IS ONE INCH ON ORIGINAL DRAWINGS. ADJUST SCALES AS NECESSARY.



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West Palm Beach, FL 33411
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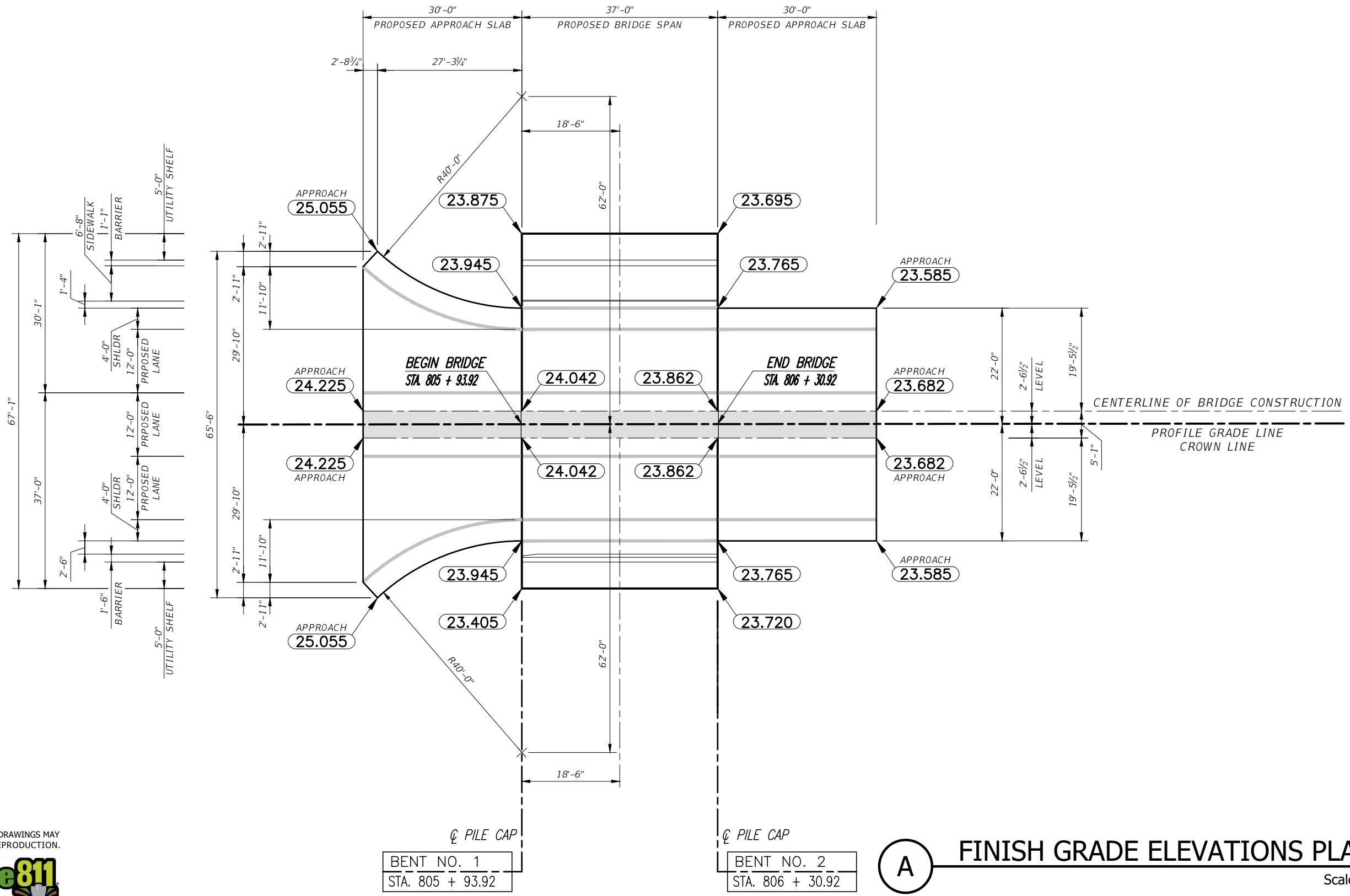
DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

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PROJECT:
PROPOSED BRIDGE MODIFICATIONS FOR:
66th AVENUE – PHASE 1A
IRC 1505
INDIAN RIVER COUNTY, FLORIDA

SEAL
Timothy Alan Deland-71588
FLORIDA P.E. NAME & NUMBER

SHEET
B-8
PROJECT NO.
16162296.00



☉ PILE CAP
 BENT NO. 1
 STA. 805 + 93.92

☉ PILE CAP
 BENT NO. 2
 STA. 806 + 30.92

A FINISH GRADE ELEVATIONS PLAN
 Scale: 1" = 10'-0"

VERIFY SCALE

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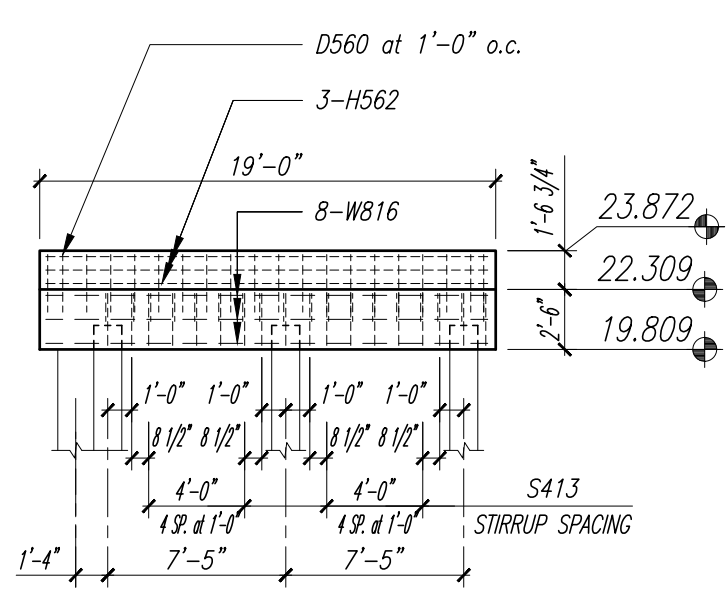
PROJECT:
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 66th AVENUE - PHASE 1A
 IRC 1505
 INDIAN RIVER COUNTY, FLORIDA

SEAL
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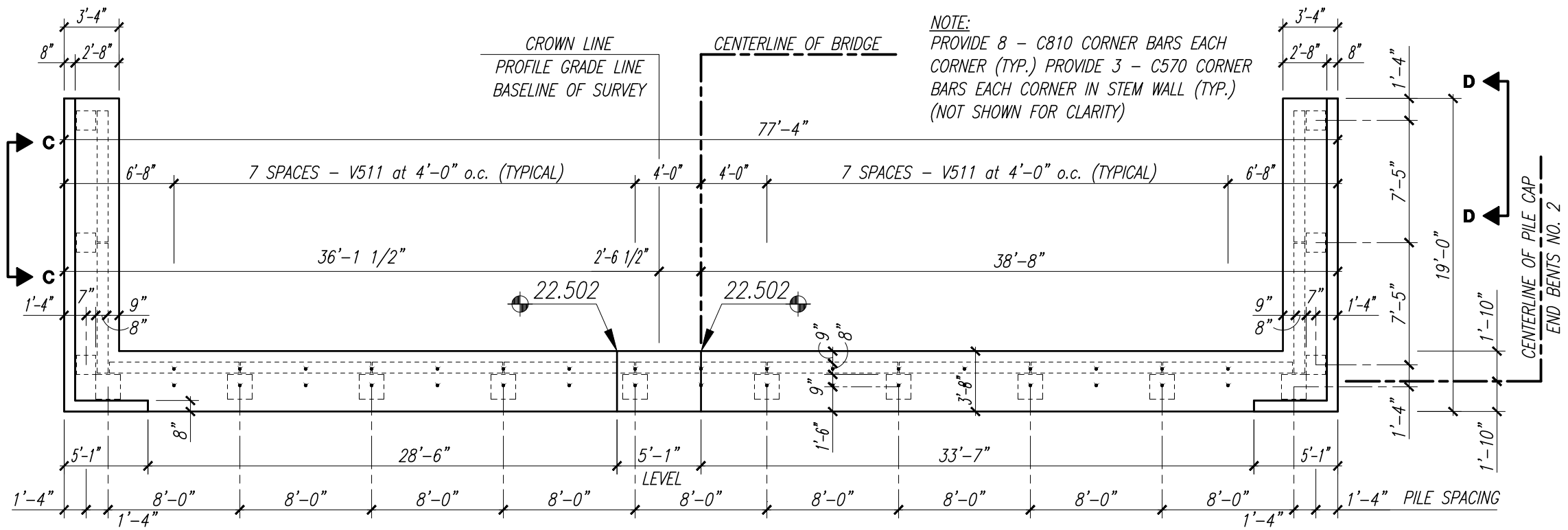
SHEET
 B-9
 PROJECT NO.
 16162296.00

DATE: Dec. 17, 2020 - 9:44am C:\pwworking\wgi\craig.burkhardt\d03995761\FINISH GRADE ELEVATIONS PLAN.dwg

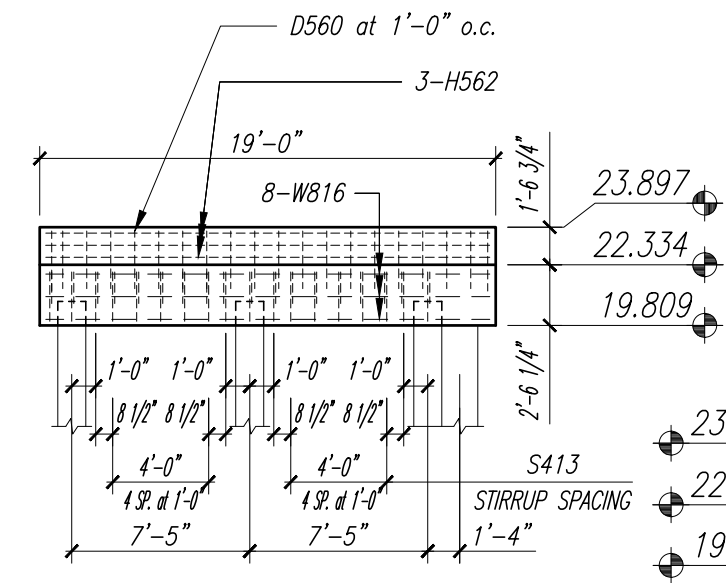
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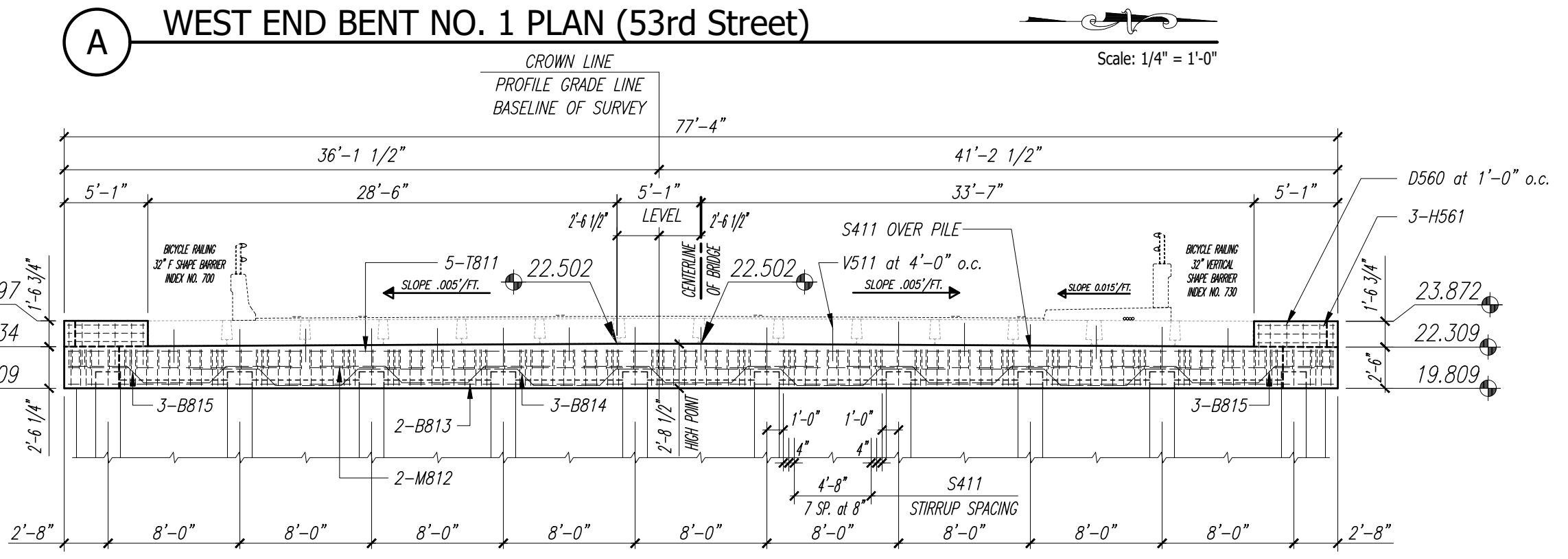
D ELEVATION D - D
Scale: 1/4" = 1'-0"



A WEST END BENT NO. 1 PLAN (53rd Street)
Scale: 1/4" = 1'-0"



C ELEVATION C - C
Scale: 1/4" = 1'-0"



B WEST END BENT NO. 1 ELEVATION (53rd Street)
Scale: 1/4" = 1'-0"

NOTE:
PROVIDE 8 - C810 CORNER BARS EACH CORNER (TYP.) PROVIDE 3 - C570 CORNER BARS EACH CORNER IN STEM WALL (TYP.) (NOT SHOWN FOR CLARITY)

VERIFY SCALE
1" = 1'-0"
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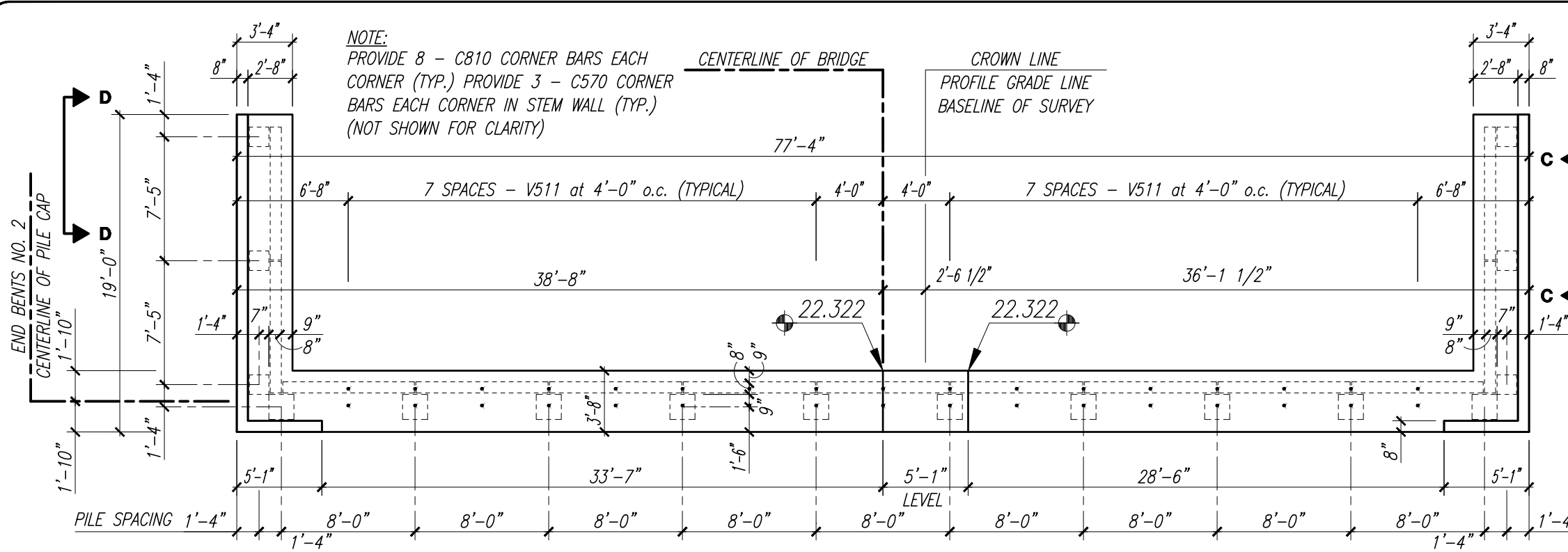
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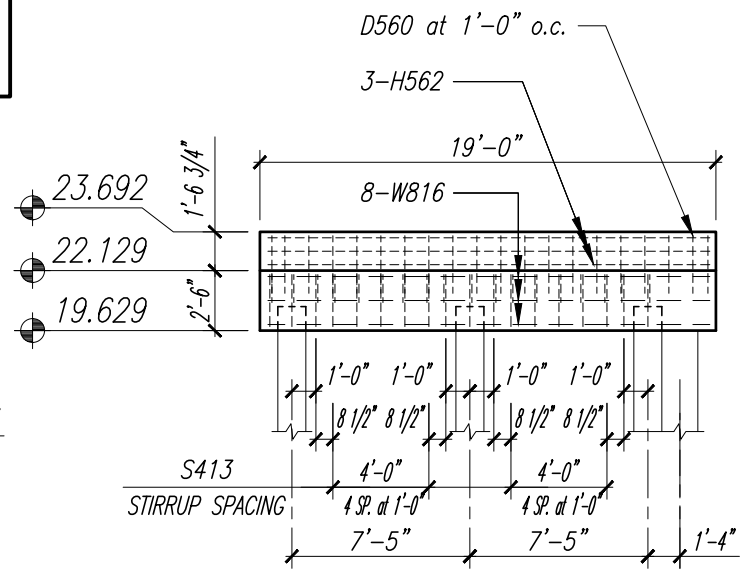
SHEET
B-10
PROJECT NO.
16162296.00

DATE: Dec. 17, 2020 - 9:44am C:\pwworking\wgi\craig.burkhardt\d03965761\END BENT PLANS AND ELEVATIONS.dwg



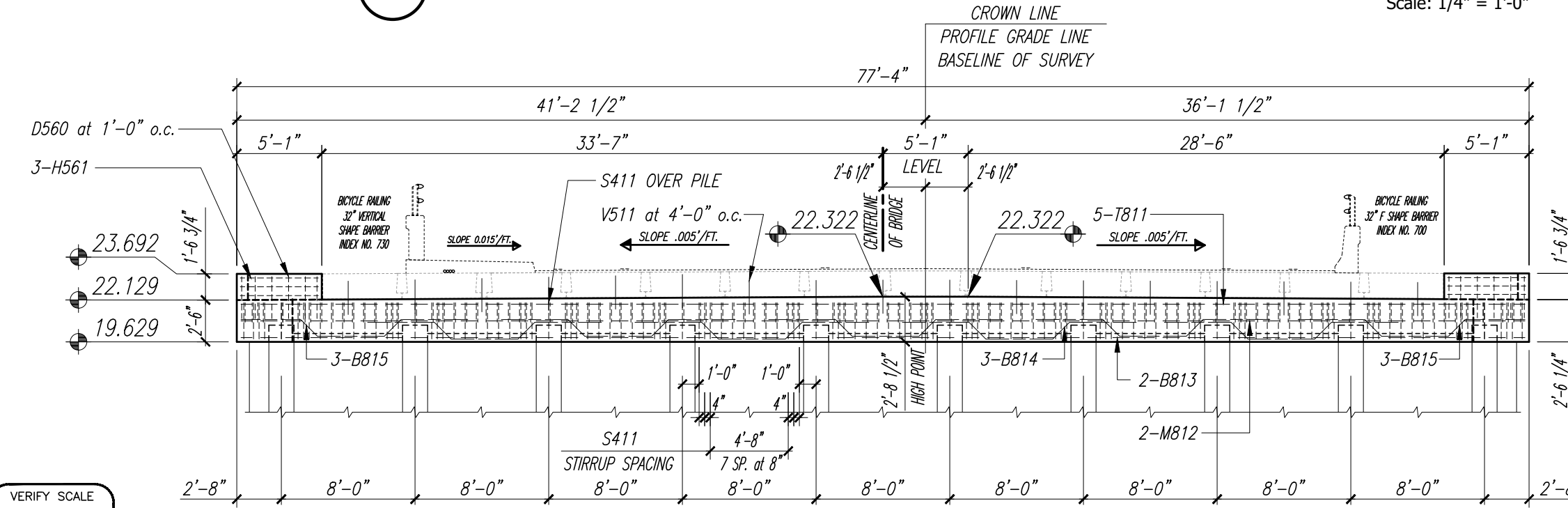
A EAST END BENT NO. 2 PLAN (53rd Street)

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



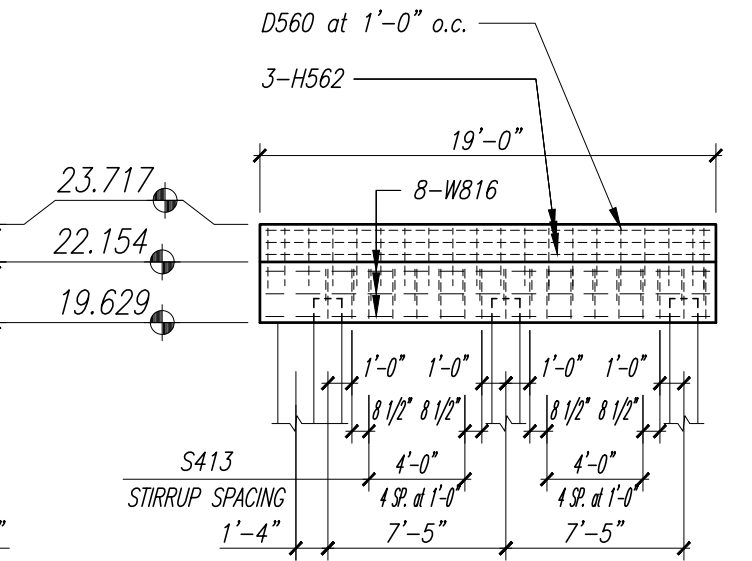
D ELEVATION D - D

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



B EAST END BENT NO. 2 ELEVATION (53rd Street)

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



C ELEVATION C - C

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

VERIFY SCALE

1" = 1'-0"

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Sunshine811

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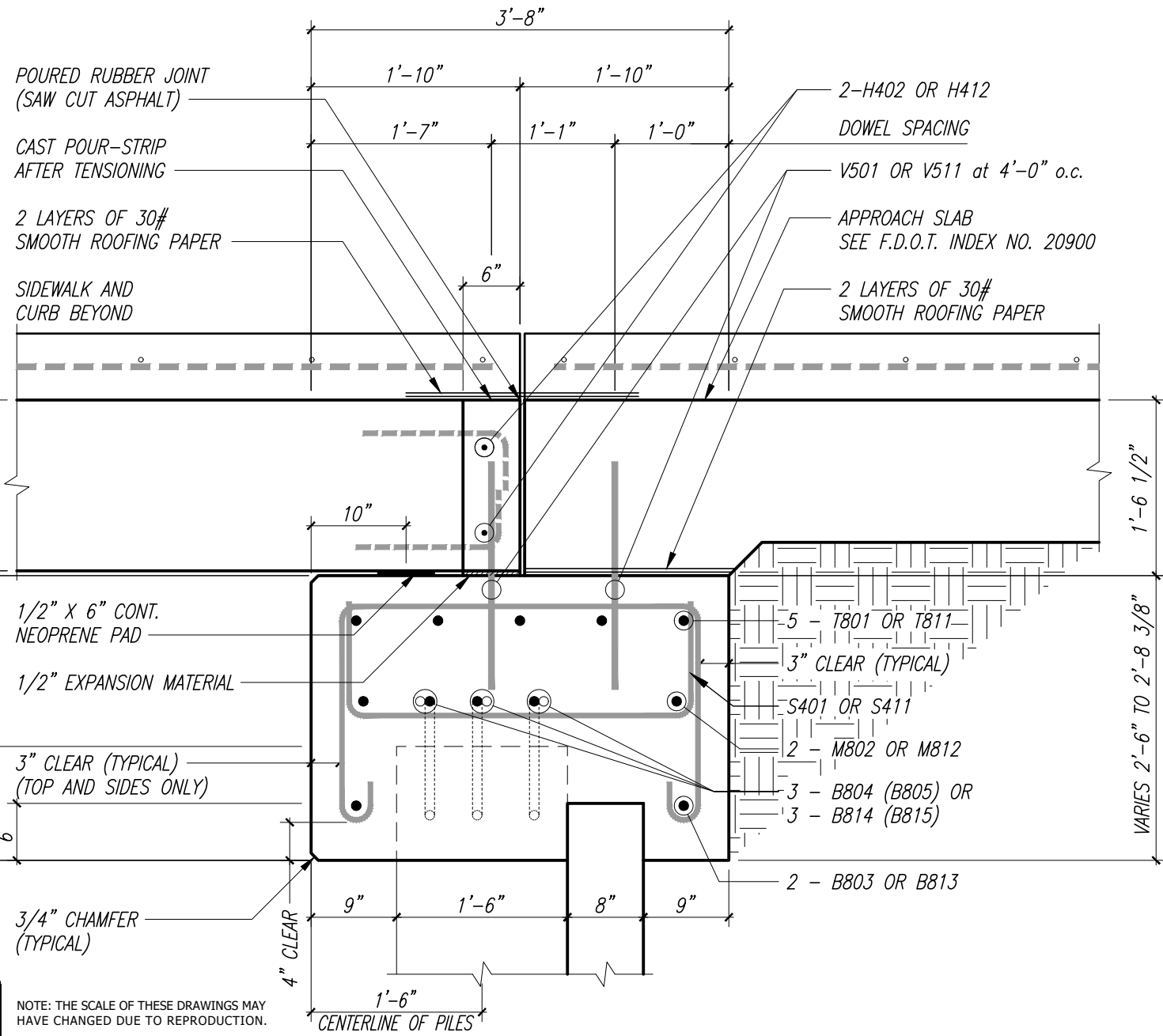
PROJECT:
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 IRC 1505
 INDIAN RIVER COUNTY, FLORIDA

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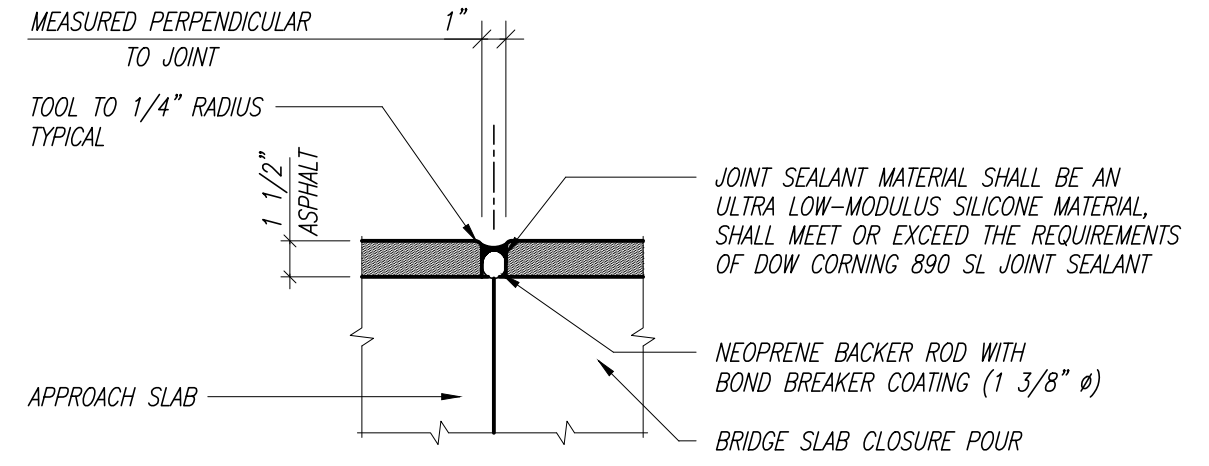
SHEET
 B-11
 PROJECT NO.
 16162296.00

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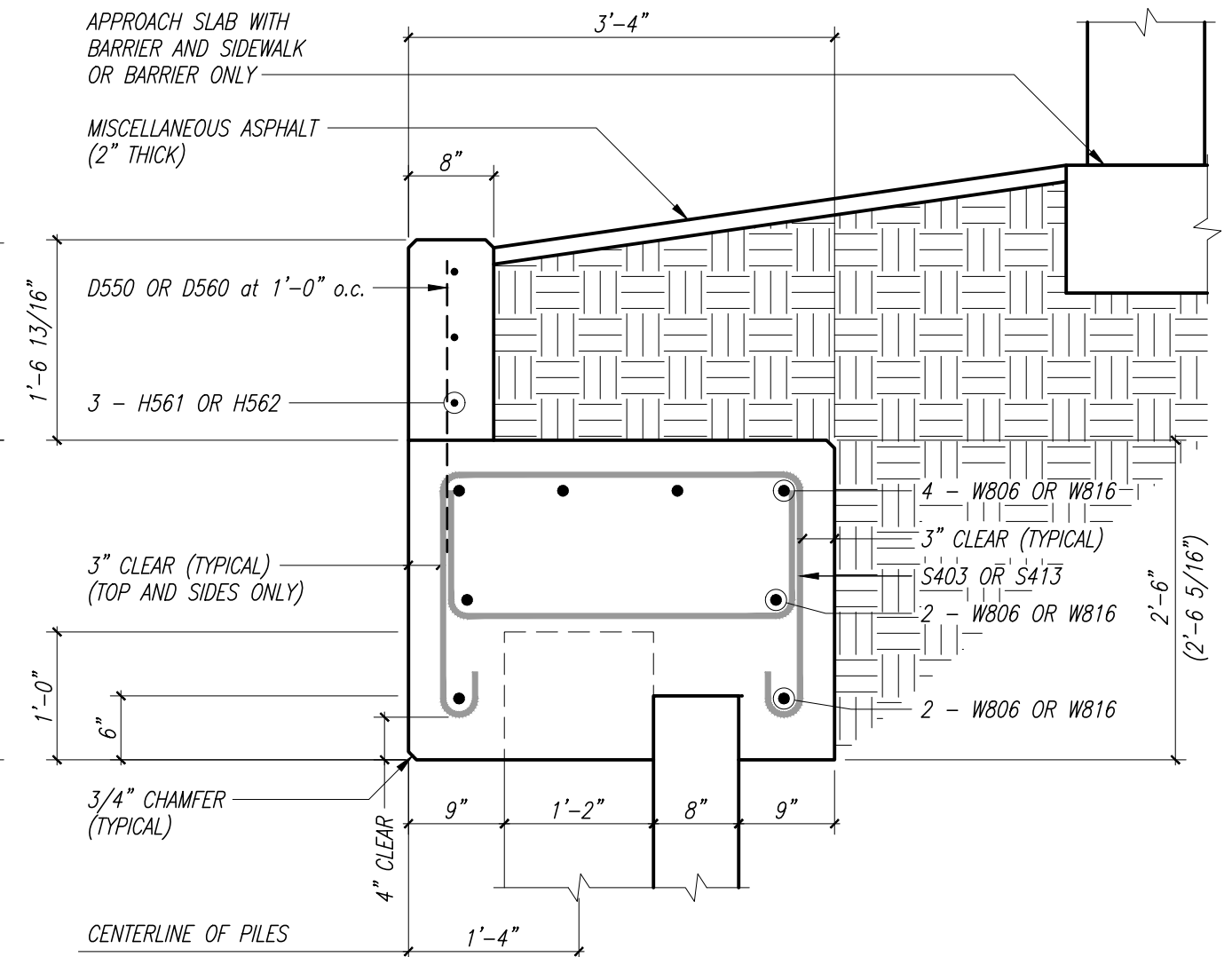
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END BENT DETAIL A



JOINT AT END BENT DETAIL



WING BENT DETAIL B

VERIFY SCALE

1" = 1"

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PROPOSED BRIDGE MODIFICATIONS FOR:

66th AVENUE - PHASE 1A

IRC 1505

INDIAN RIVER COUNTY, FLORIDA

SEAL

Timothy Alan Deland-71588

FLORIDA P.E. NAME & NUMBER

SHEET

B-12

PROJECT NO.

16162296.00

Estimated End Bent Quantities

Item	Unit	Quantity
Class IV Concrete (Pile Cap) (West)	Cu. Yds.	38.0
Reinforcing Steel (Pile Cap) (West)	lbs.	6065

Bill of Reinforcing Steel

Mark	Size	Number Required	Length + Lap	Total Length	Bending	Weight (lbs.)
C810	#8	16		8'-0"	Bar C800	341.8
T811	#8	5	76'-10" + 6'-6"	83'-4"	Straight	1112.5
M812	#8	2	76'-10" + 4'-6"	81'-4"	Straight	434.3
B813	#8	2	76'-10" + 4'-6"	81'-4"	Straight	434.3
B814	#8	21		14'-10"	Bar B804	831.7
B815	#8	6		14'-5"	Bar B805	231.0
S411	#4	126		13'-4"	Bar S401	1122.2
H412	#4	2	66'-7" + 2'-0"	68'-7"	Straight	91.6
W816	#8	16		18'-6"	Straight	790.3
S413	#4	38		12'-8"	Bar S403	321.5
V511	#5	34		2'-3"	Straight	79.8
D560	#5	40		2'-6"	Straight	104.3
H561	#5	6		4'-7"	Straight	28.7
H562	#5	6		18'-6"	Straight	115.8
C570	#5	6		4'-0"	Bar C560	25.0

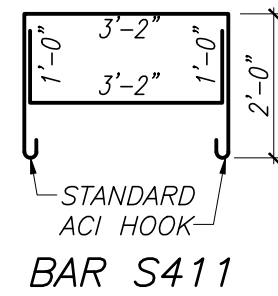
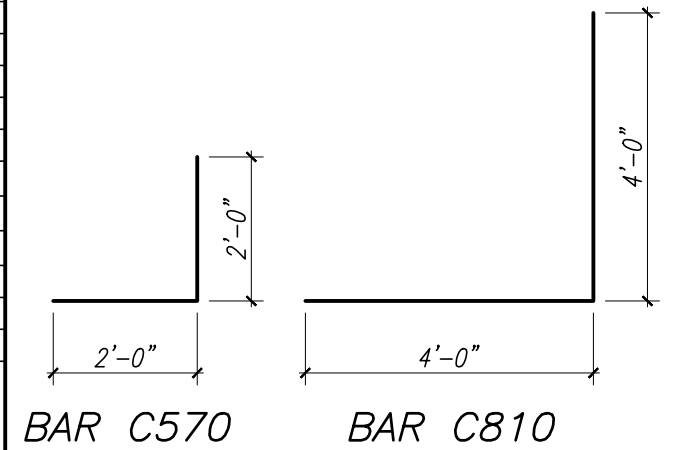
Bill of Reinforcing Steel and Estimated Quantities are for one pile cap only.

Required Bar Lap Splices

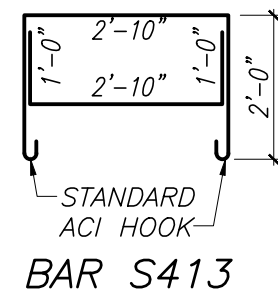
Mark	Size	Splice Length
T	#4	29"
T	#5	36"
T	#6	44"
T	#8	78"
M	#8	54"
B	#6	36"
B	#8	54"
W (Top)	#8	54"
W (Middle)	#8	54"
W (Bottom)	#8	54"
H	#4	24"
H	#5	36"

Note:
Splice continuous bars thus:
Top bars at mid-span between the piles
Bottom bars at the piles

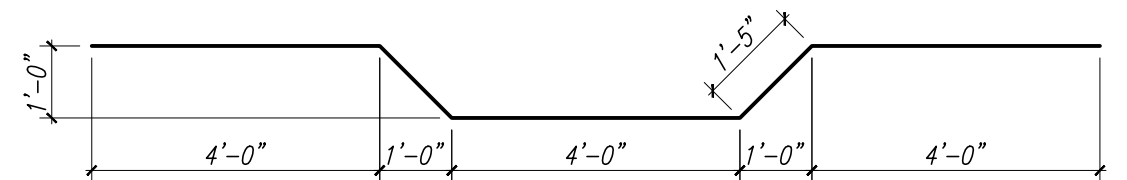
BENDING DIAGRAM



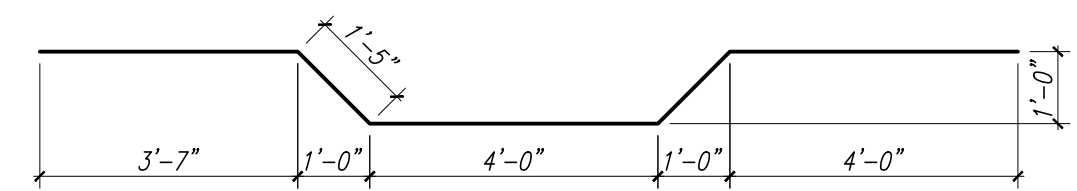
BAR S411



BAR S413



BARS B814



BARS B815

VERIFY SCALE
1" = 1'

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66th AVENUE - PHASE 1A
IRC 1505
INDIAN RIVER COUNTY, FLORIDA

SEAL
Timothy Alan Deland-71588
FLORIDA P.E. NAME & NUMBER

SHEET
B-13
PROJECT NO.
16162296.00

DATE: Dec. 17, 2020 - 9:44am C:\pwworking\wgi\craig.burkhardt\d03995761END BENT QUANTITIES AND REINFORCING SCHEDULES.dwg

Estimated End Bent Quantities

Item	Unit	Quantity
Class IV Concrete (Pile Cap) (East)	Cu. Yds.	38.0
Reinforcing Steel (Pile Cap) (East)	lbs.	6065

Bill of Reinforcing Steel

Mark	Size	Number Required	Length + Lap	Total Length	Bending	Weight (lbs.)
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C570	#5	6		4'-0"	Bar C560	25.0

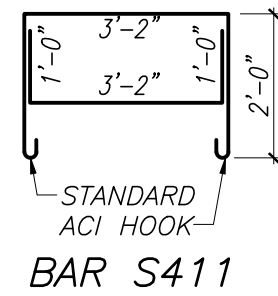
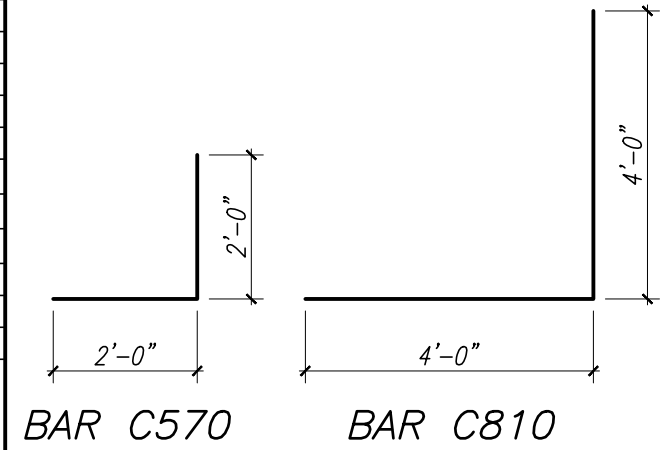
Bill of Reinforcing Steel and Estimated Quantities are for one pile cap only.

Required Bar Lap Splices

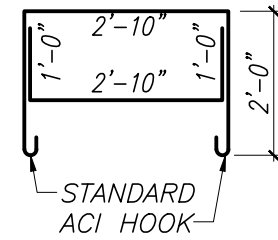
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Bottom bars at the piles

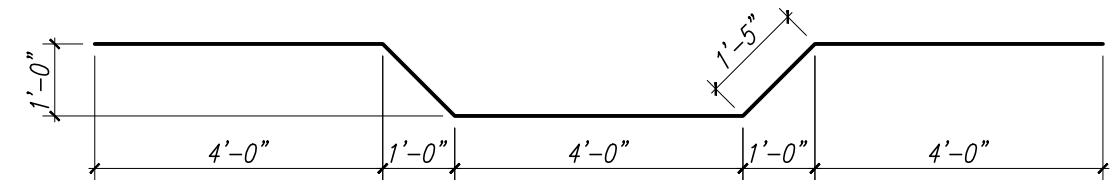
BENDING DIAGRAM



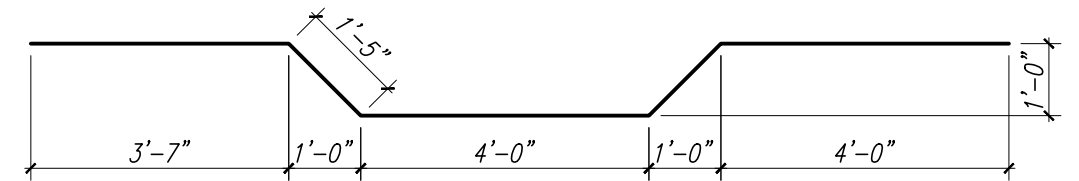
BAR S411



BAR S413

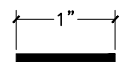


BARS B814



BARS B815

VERIFY SCALE



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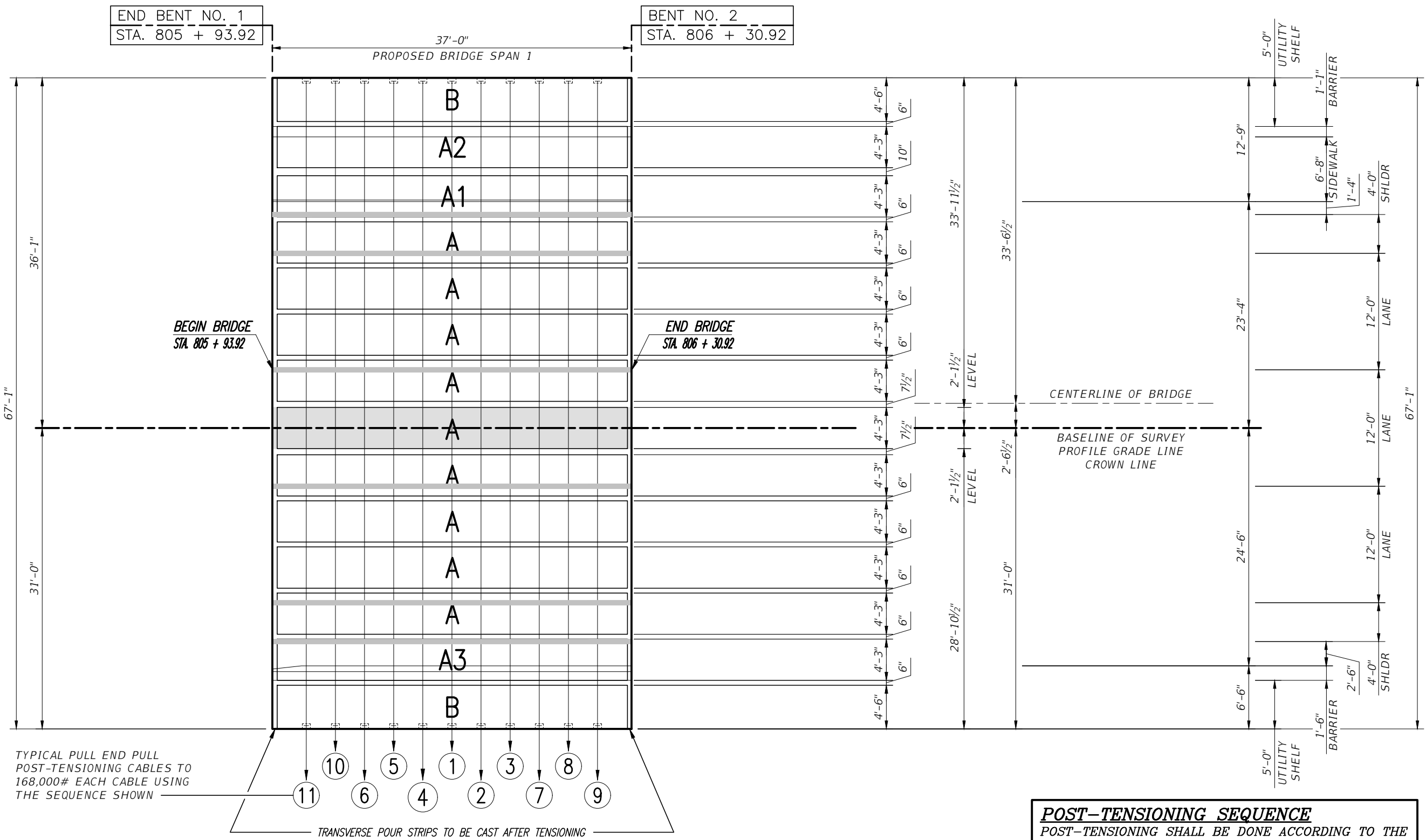
Scale: AS NOTED
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Drawn: C.A.B.
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IRC 1505
INDIAN RIVER COUNTY, FLORIDA

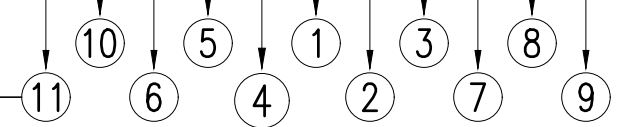
SEAL
Timothy Alan Deland-71588
FLORIDA P.E. NAME & NUMBER

SHEET
B-14
PROJECT NO.
16162296.00

DATE: Dec. 17, 2020 - 9:44am C:\pwworking\legi\cmgiburkharth\d03995761END BENT QUANTITIES AND REINFORCING SCHEDULES.dwg



TYPICAL PULL END PULL POST-TENSIONING CABLES TO 168,000# EACH CABLE USING THE SEQUENCE SHOWN



POST-TENSIONING SEQUENCE
 POST-TENSIONING SHALL BE DONE ACCORDING TO THE NUMBER SEQUENCE ON THE SUPER-STRUCTURE. CONCRETE IN CLOSURE POURS SHALL HAVE A MINIMUM CYLINDER STRENGTH OF 3000 psi BEFORE TENSIONING.

A PRECAST SLAB LAYOUT PLAN
 Scale: 3/16" = 1'-0"

VERIFY SCALE
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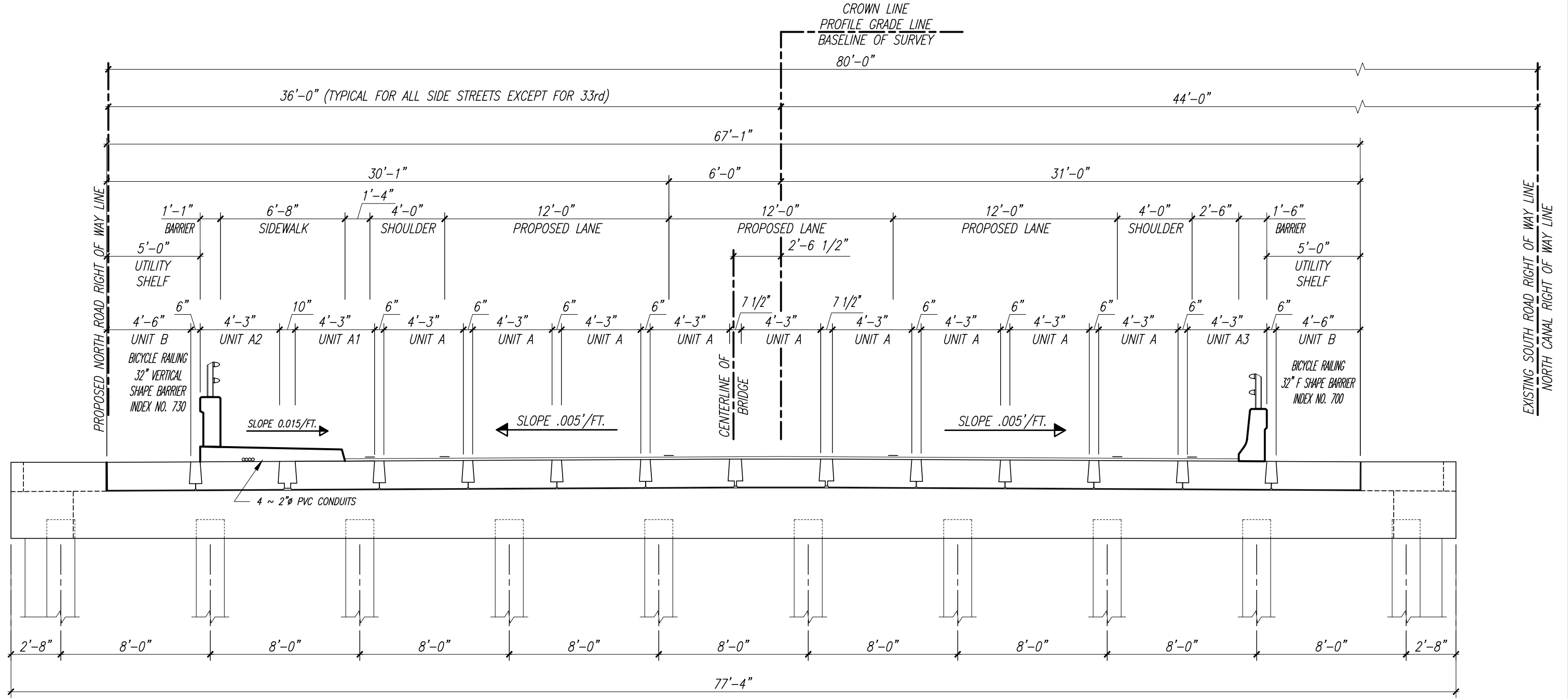
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 Approved:
 Drawn: C.A.B.
 Checked: T.A.D.
 Date: DECEMBER 2020
 Field Book No:

PROJECT:
 PROPOSED BRIDGE MODIFICATIONS FOR:
 66th AVENUE - PHASE 1A
 IRC 1505
 INDIAN RIVER COUNTY, FLORIDA

SEAL
 Timothy Alan Deland-71588
 FLORIDA P.E. NAME & NUMBER

SHEET
 B-15
 PROJECT NO.
 16162296.00

DATE: Dec. 17, 2020 - 9:44am C:\pwworking\wgi\craig.burkhardt\d02095761\PRECAST_SLAB_LAYOUT_PLAN.dwg



A

TYPICAL BRIDGE CROSS SECTION LOOKING EAST

Scale: 3/8" = 1'-0"

VERIFY SCALE

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Fax No. 561.687.1110
Registry No. 33574

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INDIAN RIVER COUNTY
FLORIDA

DEPARTMENT OF PUBLIC WORKS
ENGINEERING DIVISION

Scale: AS NOTED
Approved:
Drawn: C.A.B.
Checked: T.A.D.
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**PROPOSED BRIDGE MODIFICATIONS FOR:
66th AVENUE - PHASE 1A
IRC 1505
INDIAN RIVER COUNTY, FLORIDA**

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SHEET
B-16
PROJECT NO.
16162296.00

DATE: Dec 17, 2020 - 9:45am C:\pwworking\wgi\craig.burkhardt\020905761 TYPICAL BRIDGE CROSS SECTION.dwg

ESTIMATED QUANTITIES

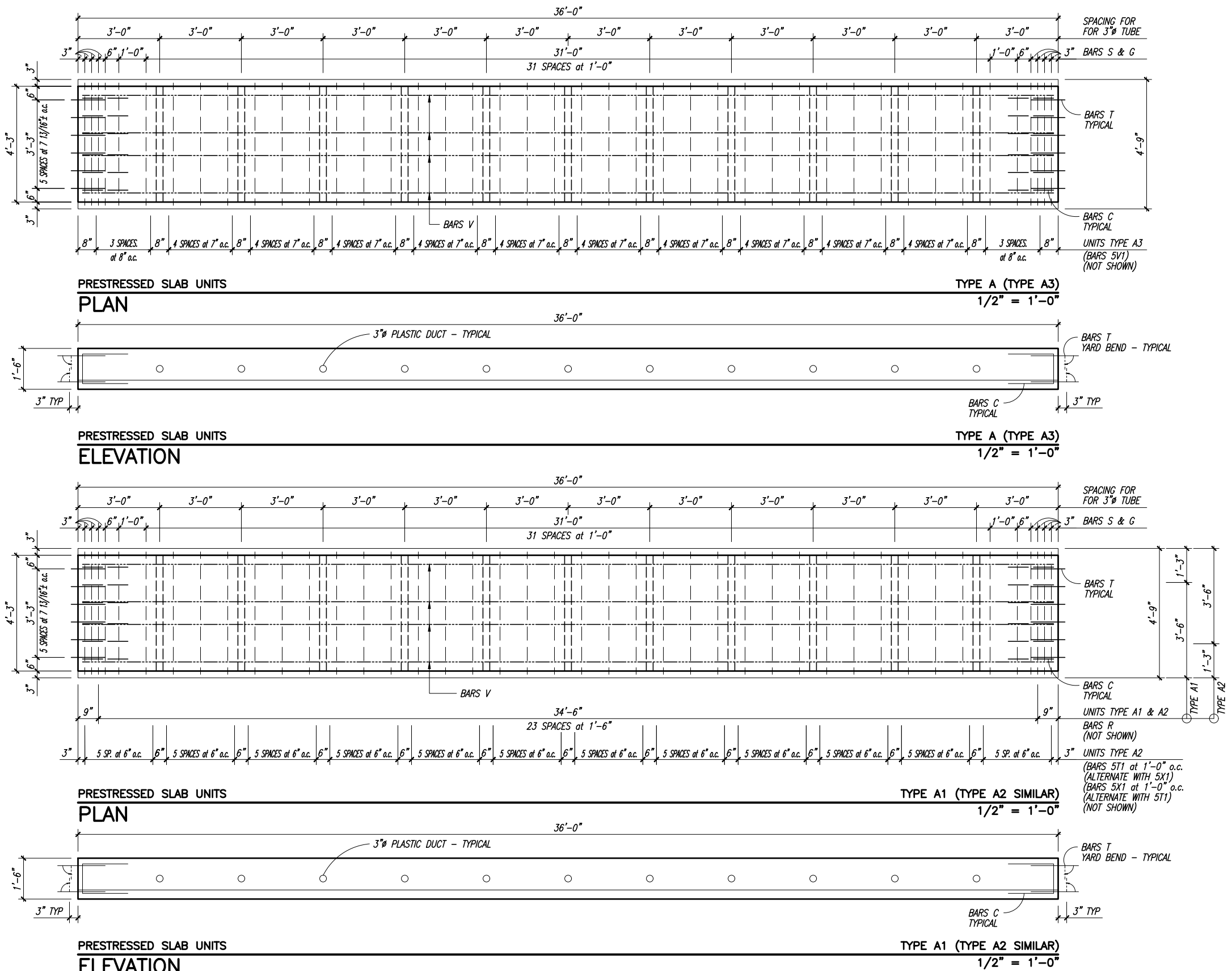
ITEM	UNIT	QUANTITY
TYPE A SLAB UNITS (9 REQUIRED)	L.F.	324'-0"
TYPE A1 SLAB UNITS (1 REQUIRED)	L.F.	36'-0"
TYPE A2 SLAB UNITS (1 REQUIRED)	L.F.	36'-0"
TYPE A3 SLAB UNITS (1 REQUIRED)	L.F.	36'-0"

BILL OF REINFORCING STEEL

MARK	SIZE	NUMBER REQUIRED					LENGTH	BENDING
		TYPE						
		A	A1	A2	A3			
C	4	12	12	12	12	4'-4 1/2"	SEE DIAG.	
G	4	42	42	42	42	4'-3"	STRAIGHT	
R	4		24	24		2'-9 3/4"	SEE DIAG.	
S	4	42	42	42	42	15'-2"	SEE DIAG.	
T	4	24	24	24	24	1'-9"	SEE DIAG.	
V	5	4	4	4	4	35'-6"	STRAIGHT	
5T1	5			36		9'-4"	SEE DIAG.	
5X1	5			36		5'-7"	SEE DIAG.	
5V1	5				58	7'-6"	SEE DIAG.	

SEE SHEET B5-20 & B5-21 FOR BENDING DIAGRAM

ESTIMATED QUANTITIES AND BILL OF REINFORCING STEEL ARE FOR ONE BRIDGE ONLY



**

VERIFY SCALE

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SHEET
B-17
PROJECT NO.
16162296.00

DATE: Dec 17, 2020 - 9:45am C:\pwworking\legi\craig.burkhardt\d0396576\PROJECT\SLAB PLANS AND ELEVATIONS.dwg

ESTIMATED QUANTITIES

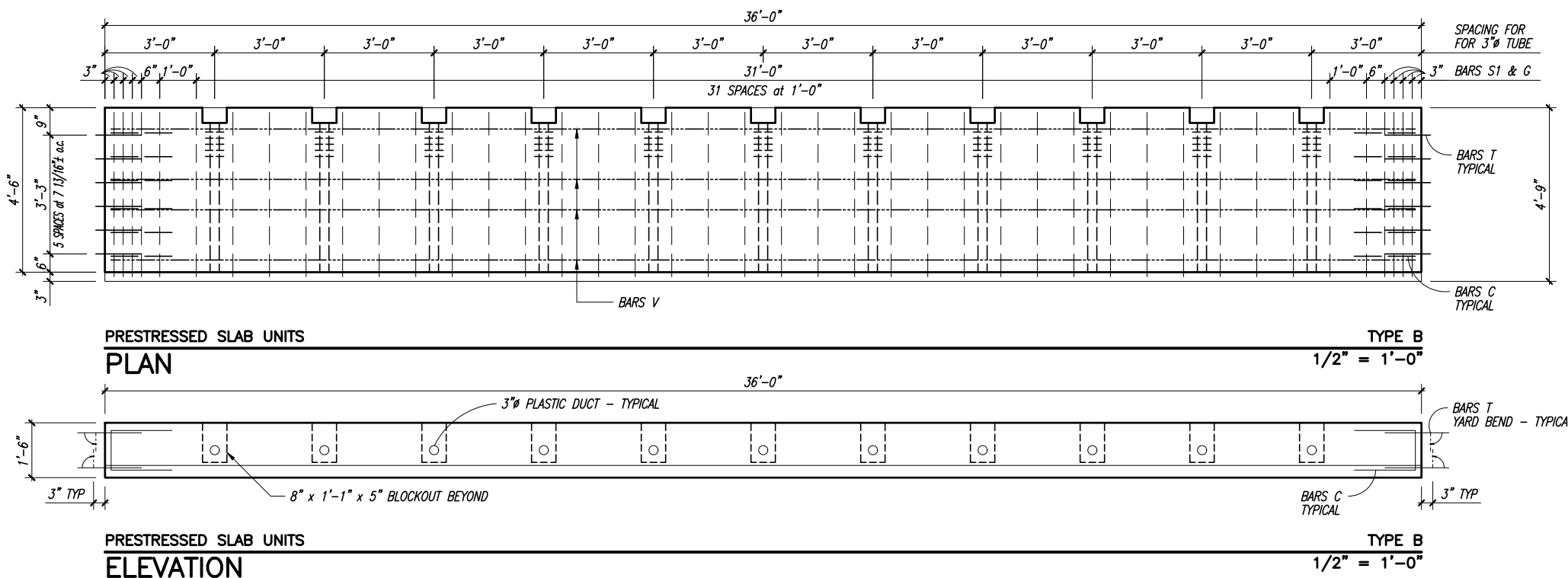
ITEM	UNIT	QUANTITY
TYPE B SLAB UNITS (2 REQUIRED)	L.F.	72'-0"

BILL OF REINFORCING STEEL

MARK	SIZE	NUMBER REQUIRED	LENGTH	BENDING
TYPE				
		B		
C	4	12	4'-4 1/2"	SEE DIAG.
G	4	42	4'-3"	STRAIGHT
S1	4	42	16'-2"	SEE DIAG.
T	4	24	1'-9"	SEE DIAG.
V	5	4	35'-6"	STRAIGHT
D	3	55	2'-0"	STRAIGHT

SEE SHEET B5-20 & B5-21 FOR BENDING DIAGRAM

ESTIMATED QUANTITIES AND BILL OF REINFORCING STEEL ARE FOR ONE BRIDGE ONLY



DATE: Dec. 17, 2020 - 9:45am C:\pwworking\wgi\craig.burkhardt\d02096576\PRECAST SLAB PLANS AND ELEVATIONS.dwg

VERIFY SCALE

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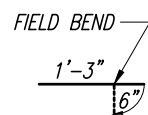
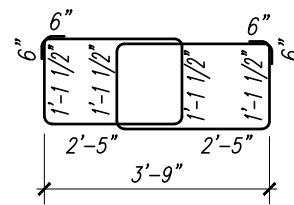
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INDIAN RIVER COUNTY, FLORIDA

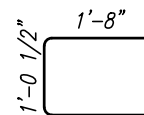
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SHEET
B-18
PROJECT NO.
16162296.00

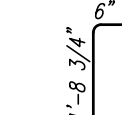
BENDING DIAGRAM



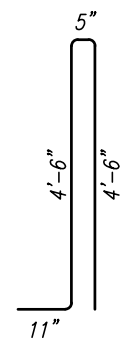
BARS T



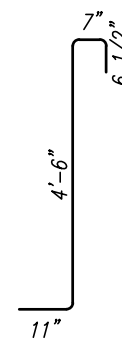
BARS C



BARS R



BARS 5T1

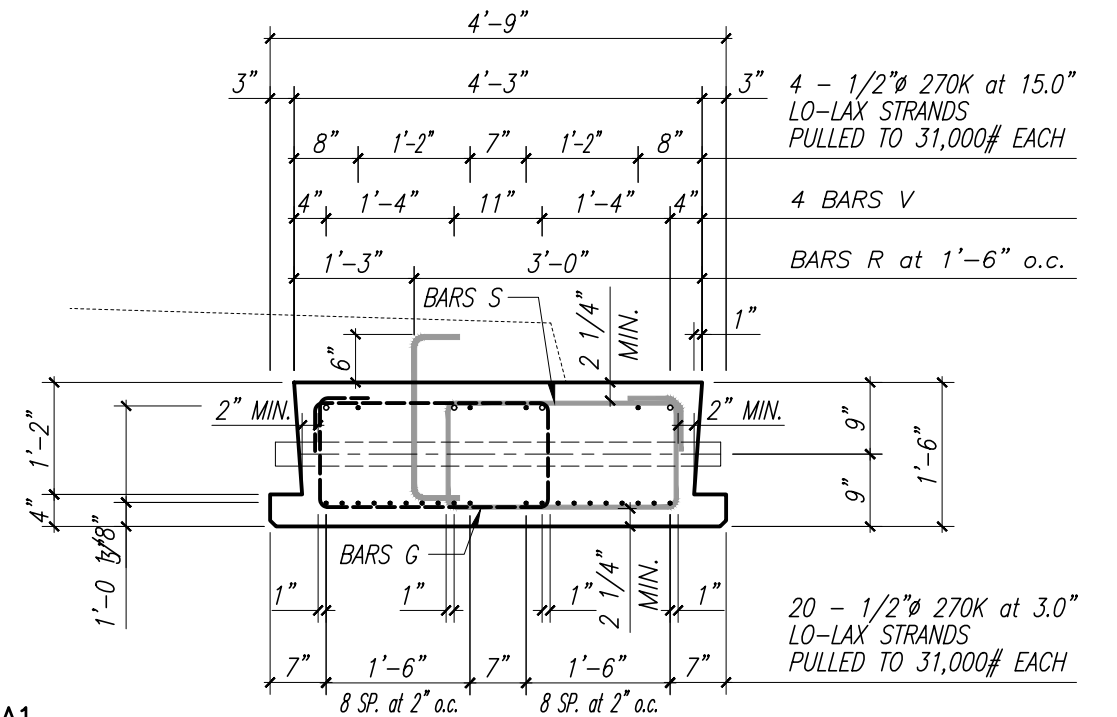


BARS 5X1

SEE SHEET INDEX NO. 730 FOR ADDITIONAL INFORMATION.

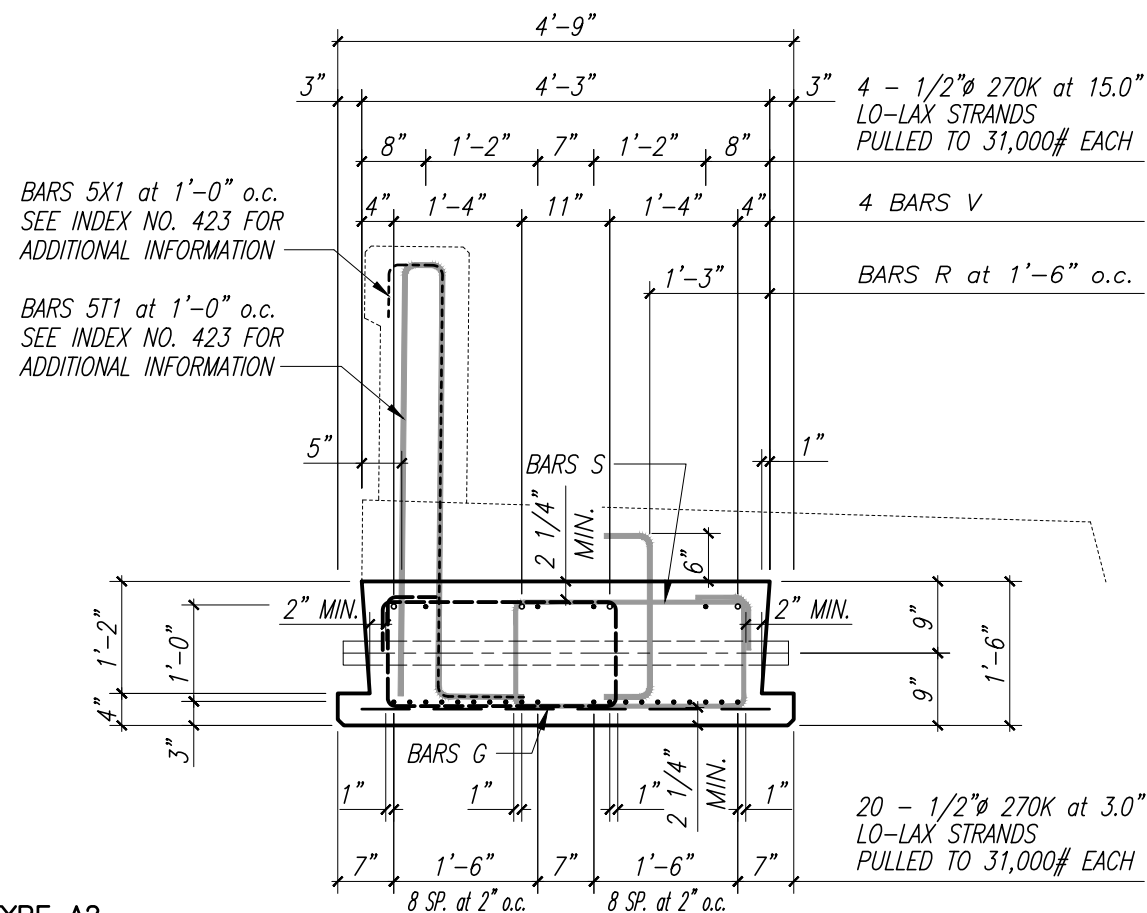
BARS S
** NUMBER REQUIRED SHOWN REPRESENTS PAIRS OF BARS

* MEASUREMENTS ARE FROM OUT TO OUT OF REINFORCING STEEL. *



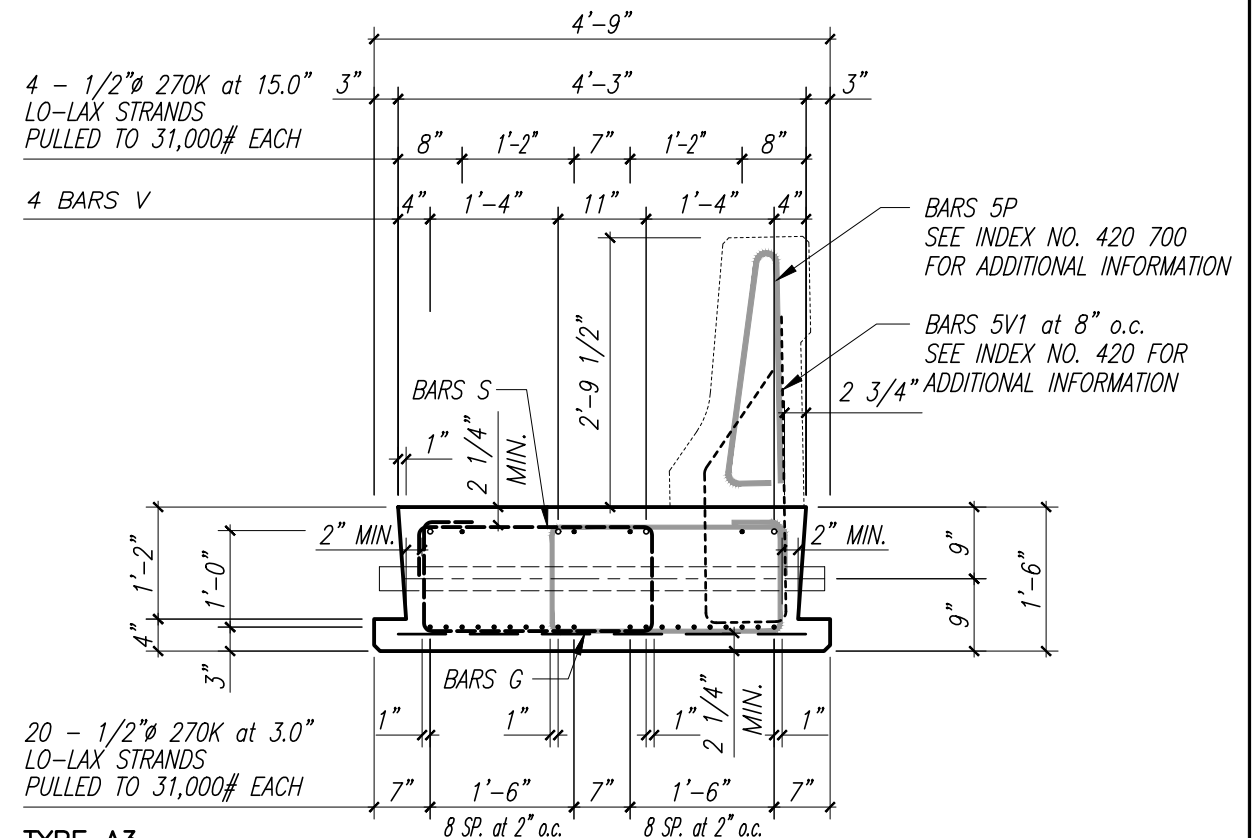
TYPE A1

TYPICAL SECTION



TYPE A2

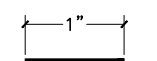
TYPICAL SECTION



TYPE A3

TYPICAL SECTION

VERIFY SCALE



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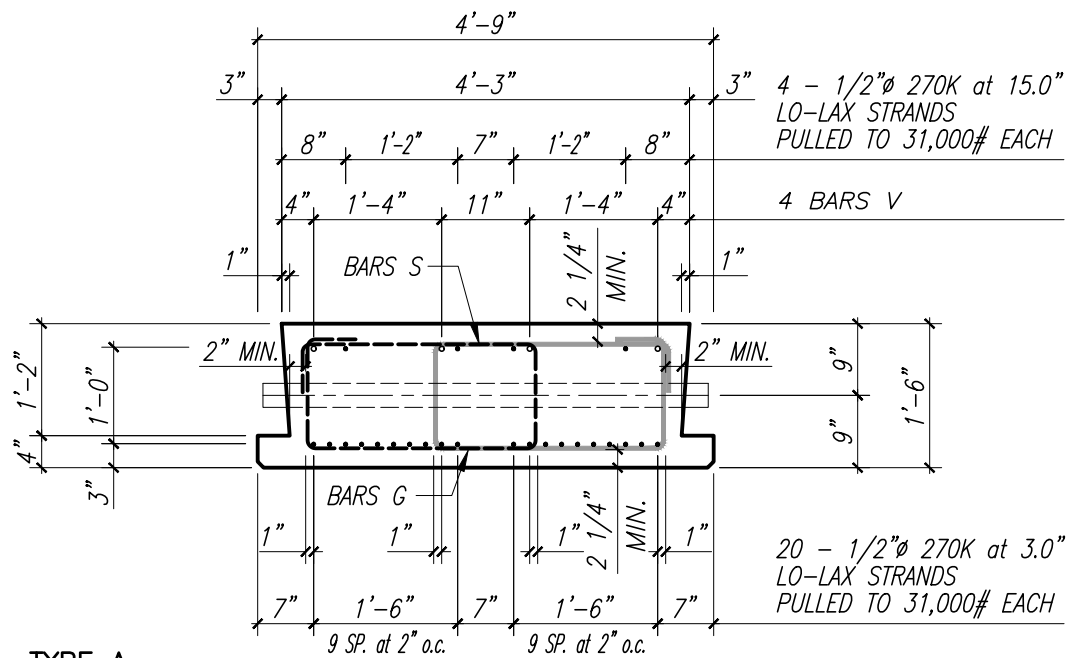
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IRC 1505
INDIAN RIVER COUNTY, FLORIDA

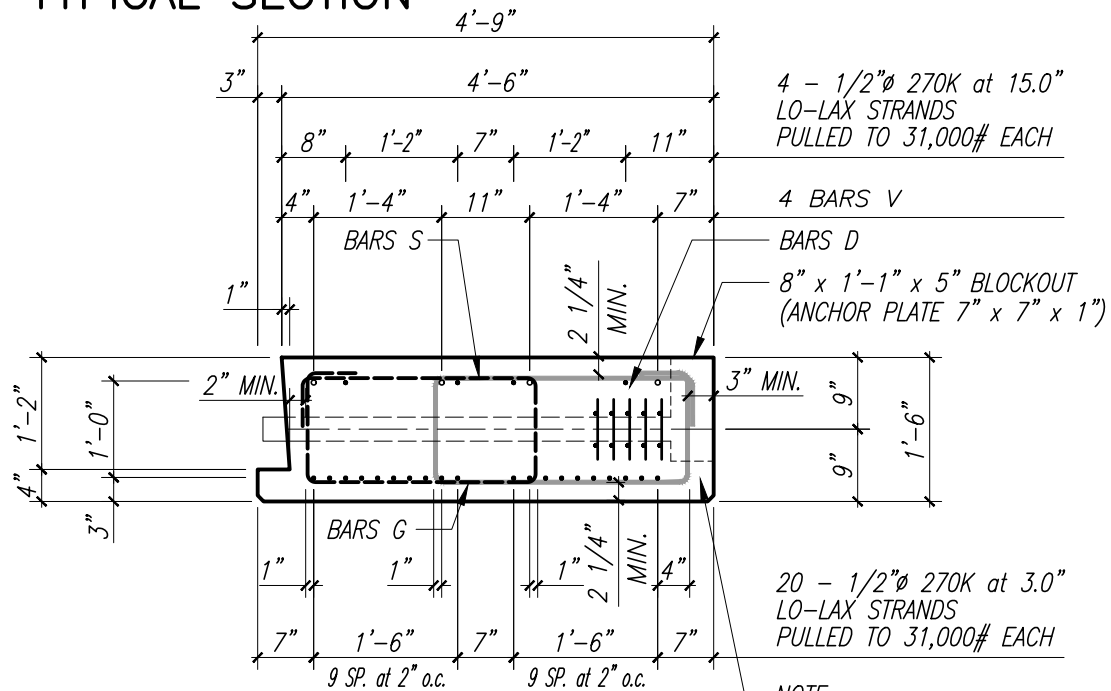
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B-19
PROJECT NO.
16162296.00

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TYPE A
TYPICAL SECTION



TYPE B
TYPICAL SECTION

VERIFY SCALE

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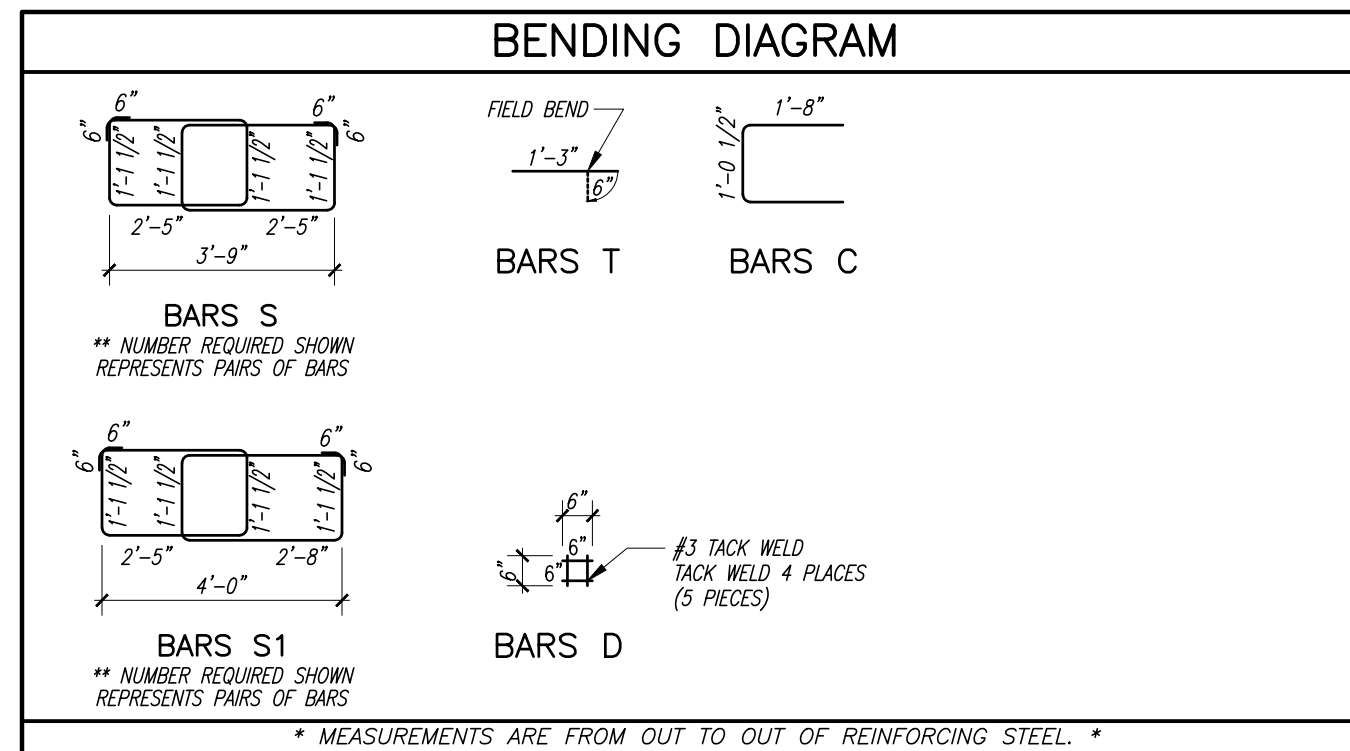
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ENGINEERING DIVISION

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PROJECT NO.
16162296.00



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PAYMENT

The contract unit price for precast concrete sheet piling shall include reinforcing steel and S.R. cables. All corner piling shall be paid for at the contract unit price for concrete sheet piling.

CONCRETE

Class II Concrete ($f'c = 3,400$ p.s.i.)

PICKUP BARS

At the option of the contractor, 2-7/16" strands may be substituted for No. 6 pickup bar. Strands shall be embedded in pile a minimum of two (2) feet.

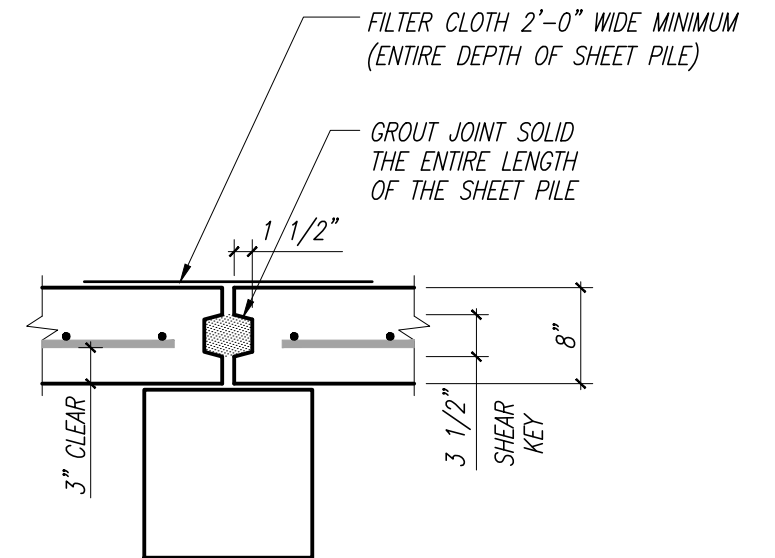
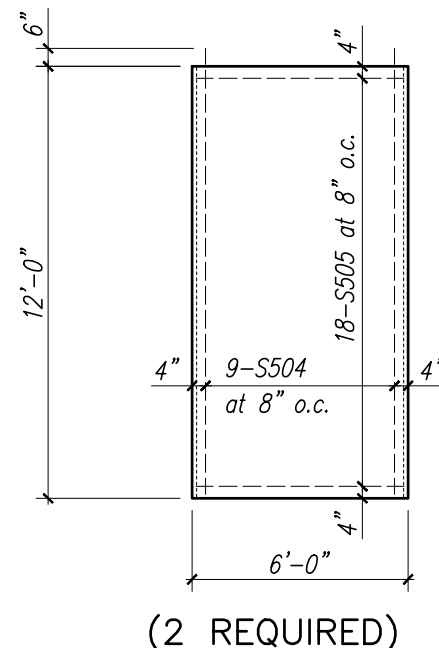
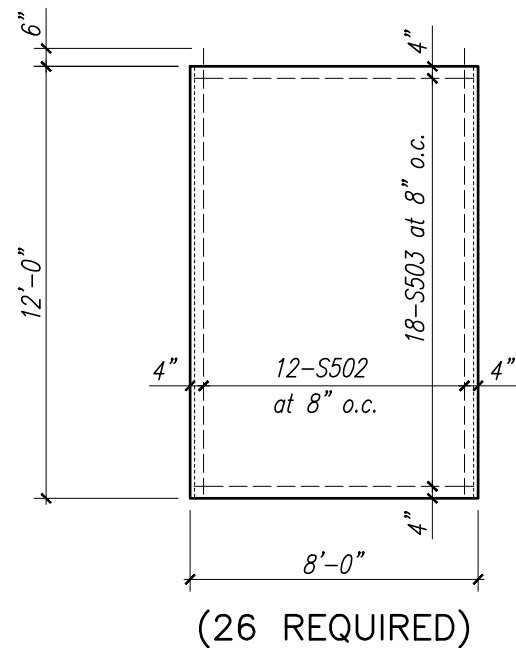
REINFORCING STEEL

Reinforcing steel shall be Grade 60.

PLASTIC FILTER FABRIC

A plastic filter fabric (see Florida Department of Transportation Standard Specifications for Road and Bridge Construction) shall be placed between fill and precast sheet piles for the entire depth of the sheet pile and extend into the cap. Cost of all labor and materials required for installing plastic filter fabric shall be included in the contract unit price for sheet piling.

Estimated Quantities					
Item	Required	Unit	Quantity		
8" x 8'-0" x 12'-0" Sheet Wall	26	L. F.	312'-0"		
8" x 6'-0" x 12'-0" Sheet Wall	2	L. F.	24'-0"		
Bill of Reinforcing Steel					
Mark	Size	Number Required	Total Length	Bending	Weight (lbs.)
SHEET WALLS (TOTAL)					
S502	5	312	12'-2"	Straight	3959
S503	5	468	7'-4"	Straight	3580
S504	5	18	12'-2"	Straight	228
S505	5	36	5'-4"	Straight	200



8" SHEET WALL DETAIL

SHEET WALL JOINT DETAIL

DATE: Dec. 17, 2020 - 9:45am C:\pwworking\legi\craig.burkhardt\d03995761\SHEET WALL AND MISCELLANEOUS DETAILS.dwg

VERIFY SCALE

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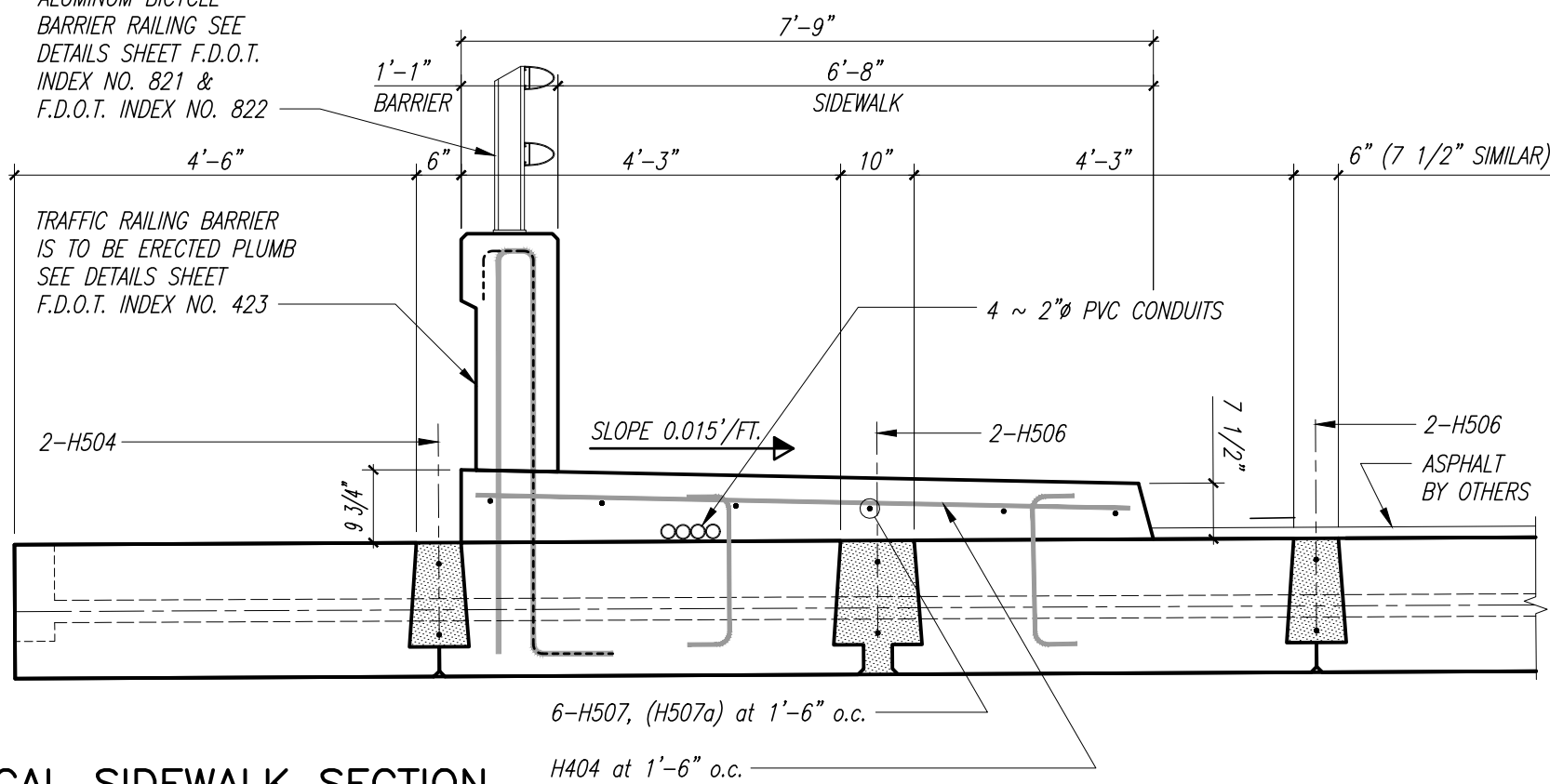
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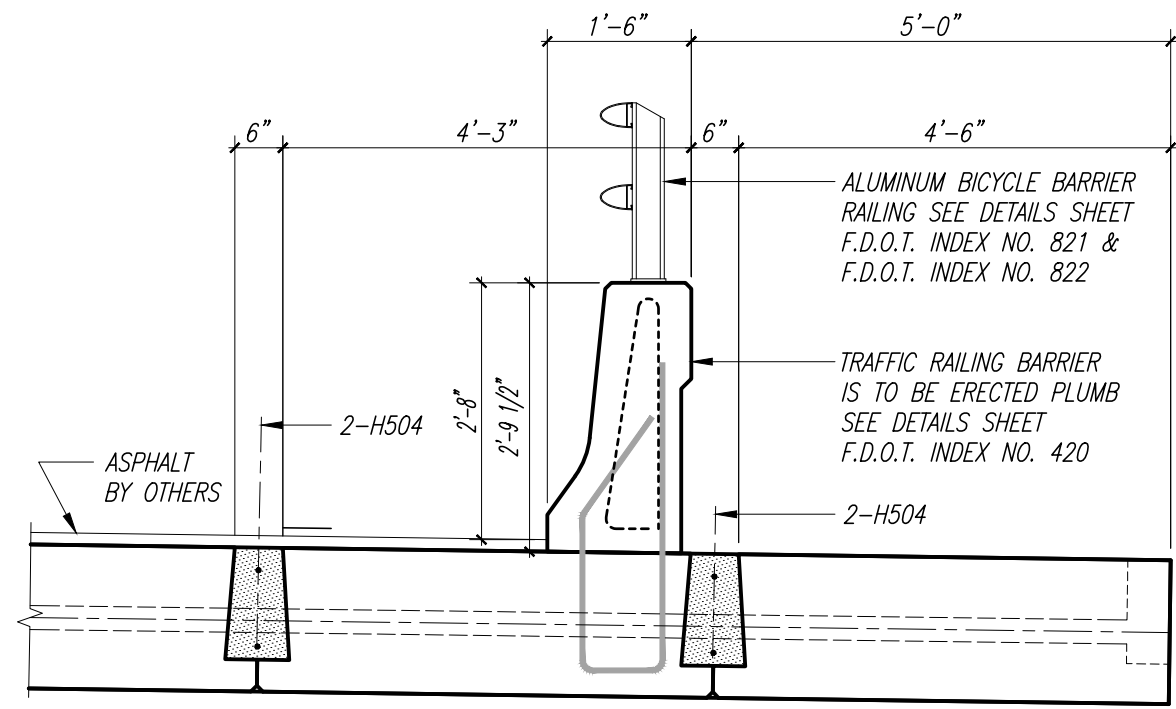
ALUMINUM BICYCLE
BARRIER RAILING SEE
DETAILS SHEET F.D.O.T.
INDEX NO. 821 &
F.D.O.T. INDEX NO. 822

TRAFFIC RAILING BARRIER
IS TO BE ERECTED PLUMB
SEE DETAILS SHEET
F.D.O.T. INDEX NO. 423



TYPICAL SIDEWALK SECTION

1" = 1'-0"



TYPICAL TRAFFIC RAILING BARRIER SECTION

1" = 1'-0"

Estimated End Bent Quantities

Item	Required	Unit	Quantity
Class II Concrete (Closure Pours)		Cu. Yds.	15.0
Reinforcing Steel (Closure Pours)		lbs.	990
Class II Concrete (Sidewalks)		Cu. Yds.	8.0
Reinforcing Steel (Sidewalks)		lbs.	343

Bill of Reinforcing Steel

Mark	Size	Number Required	Total Length	Bending	Weight (lbs.)
CLOSURE POURS (TOTAL)					
H506	5	26	36'-6"	Straight	989.8
SIDEWALKS (TOTAL)					
H404	4	24	7'-2"	Straight	114.9
H507	5	6	36'-6"	Straight	228.4

VERIFY SCALE
1" = 1'-0"
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B-22
PROJECT NO.
16162296.00

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Load Rating Summary Details for Prestressed Concrete Bridges (Flat Slab and Deck/Girder)

Table Date 07-19-13

Table 2 - LRFR using Part A³

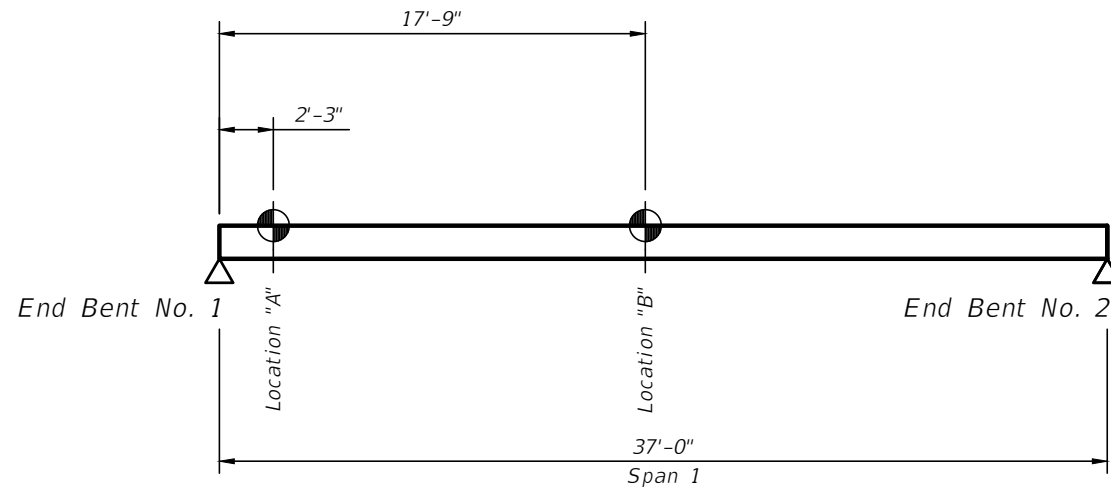
Level	Limit State	Vehicle	Weight (tons)	Load Factors			Moment (Strength) or Stress (Service)					Shear (Strength)					Comments:
				LL	DC	DW	Distribution Factor (DF)	Rating Factor	Tons	Location	Dimension	Distribution Factor (DF)	Rating Factor	Tons	Location	Dimension	
Design Load Rating	Strength I (Inv)	HL-93		1.75	1.25	1.50	0.46	1.19		0.5L	17.75	0.60	4.13		Transfer	2.25	Moment (M) Controlled by 5 Shear (V) Controlled by 5
	Strength I (Op)	HL-93		1.35	1.25	1.50	0.46	1.54		0.5L	17.75	0.60	5.49		Transfer	2.25	
	Service III (Inv)	HL-93		0.80	1.00	1.00	0.46	1.04		0.5L	17.75						
	Service III (Op)	HL-93		0.80	1.00	1.00	0.46	1.40		0.5L	17.75						
Legal Load Rating	Strength I	SU4	35.00	1.35	1.25	1.50	0.46	1.60	56.03	0.5L	17.75	0.60	5.93	207.53	Transfer	2.25	(M) - Slab 5; (V) - Slab 5
	Strength I	C5	40.00	1.35	1.25	1.50	0.46	2.05	81.96	0.5L	17.75	0.60	7.29	291.59	Transfer	2.25	(M) - Slab 5; (V) - Slab 5
	Strength I	ST5	40.00	1.35	1.25	1.50	0.46	2.15	86.07	0.5L	17.75	0.60	7.77	310.83	Transfer	2.25	(M) - Slab 5; (V) - Slab 5
	Service III	SU4	35.00	0.80	1.00	1.00	0.46	1.46	50.95	0.5L	17.75						Moment (M) Controlled by 5
	Service III	C5	40.00	0.80	1.00	1.00	0.46	1.86	74.54	0.5L	17.75						
	Service III	ST5	40.00	0.80	1.00	1.00	0.46	1.96	78.28	0.5L	17.75						
Permit Load Rating	Strength II	FL120	60.00	1.60	1.25	1.50	0.46	1.02	60.95	0.4L	14.15	0.60	2.36	141.44	0.7L	24.95	Moment (M) Controlled by 5 Shear (V) Controlled by 5
	Service I	FL120	60.00	1.00	1.00	1.00	0.46	1.41	84.52	0.5L	17.75					Moment (M) Controlled by 5	

Abbreviations:
Inv - Inventory
Op - Operating

General Notes:
1. This table is based on the requirements established in the January 2011 "Structures Manual".

Table 2 Notes:
1. Permit capacity is determined by using the permit vehicle in all lanes.
2. If the Design Operating Load Rating is greater than 1.4, Load Rating using Legal Vehicles SU4, C5, and ST5 is not required.
3. Service III Design Inventory tensile stress limits = $6\sqrt{f'_c}$, Service III Design Operating, Legal, and Permit tensile stress limits = $7.5\sqrt{f'_c}$.
4. Has the AASHTO LRFD Specifications Article 5.8.3.5 longitudinal reinforcement been satisfied? Yes No

Controlling Load Rating			
Limit State	Vehicle	Weight (Tons)	Rating Factor
Service III (Inv)	HL-93	-	



RATING LOCATIONS

VERIFY SCALE
1" = 1"
NOTE: THE SCALE OF THESE DRAWINGS MAY HAVE CHANGED DUE TO REPRODUCTION.
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