INDIAN RIVER COUNTY
STATE OF FLORIDA
SIGNALIZATION PLANS

F.D.O.T. F.P.N. 431759-2-54-01

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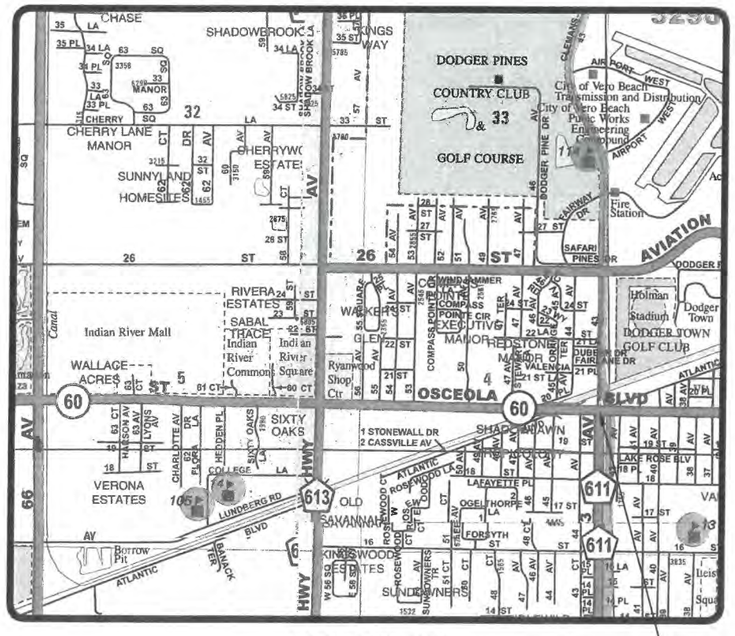
STANDARDS AND SPECIFICATIONS:
ALL MATERIALS AND CONSTRUCTION WITHIN THE F.D.O.T. RIGHT-OF-WAY SHALL CONFORM TO THE FY 2016-17 FLORIDA DEPARTMENT OF TRANSPORTATION DESIGN STANDARDS AND FY 2017 SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND INDIAN RIVER COUNTY TYPICALS FOR THE ANNUAL SIGNAL INSTALLATION CONTRACT.

APPLICABLE DESIGN STANDARDS REVISIONS:
For Design Standards Modifications click on "Design Standards" at the following web site:
http://www.dot.state.fl.us/rddesign/

STATE ROUTE 60
WIDENING MILL & RESURFACE
FROM 44TH AVENUE TO 38TH AVENUE
&
43RD AVENUE
RECONSTRUCTION
FROM 19TH STREET TO 26TH STREET



LOCATION MAP
NOT TO SCALE

PROJECT LOCATION

SEC. 3 & 4, TWP. 33S, RGE. 39E

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

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

PROJECT MANAGER:
WILLIAM JOHNSON, P.E.

ENGINEER'S CERTIFICATION

I HEREBY CERTIFY THAT THE ATTACHED PLANS AND DESIGN ARE IN SUBSTANTIAL 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: DEC 13 2018 PROFESSIONAL ENGINEER #56925

STATE OF PATRICIA L. BARR, P.E.

PATRICIA LEE BARR LICENSE NUMBER 56925 STATE OF FLORIDA PROFESSIONAL ENGINEER

SIMMONS & WHITE
ENGINEERING | PLANNING | CONSULTING | SINCE 1982
Authorization No. 3452
2581 Metrocentre Blvd • Suite 3 • West Palm Beach, Florida 33407 • (561) 478-7848

S.R. 60
& 43RD AVENUE
KEY SHEET

DESIGN	DRAWN	CHECKED	APPROVED	DATE	JOB NO.	DRAWING NO.	SHEET	OF
T.B.	T.M.	A.L.	R.R.		11-064	11064T01	T-1	T-10

Y:\AUTOCAD_FILES\2011\11-064\SIGNALIZATION PLANS\11064T01.dwg 12/13/2018 3:06 PM Connor O'Rourke

TABULATION OF QUANTITIES

PAY ITEM NO.	DESCRIPTION	UNIT	T-4		T-5		T-6		T-7														TOTAL THIS SHEET		GRAND TOTAL		REF. SHEET
			PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	
630-2-11	CONDUIT (F & I) (UNDERGROUND)	LF	339				5318		6400														12057		12057		
630-2-12	CONDUIT (F & 1) (UNDER PAVT.) (DIR. BORE)	LF	456				555		72														1083		1083		
630-2-15	CONDUIT (F & I) (BRIDGE MOUNTED)	LF					760		860														1620		1620		
632-7-1	CABLE (SIGNAL) (F & I)	PI	1																				1		1		
633-1-123	FIBER OPTIC CABLE (F & I) (UNDERGROUND) (96 SINGLE MODE)	LF					3594		3702														7296		7296		
633-3-15	FIBER OPTIC CONNECTION HARDWARE (F & I) (PRETERMINATED PATCH PANEL)	EA	1																				1		1		
635-2-11	PULL & SPLICE BOXES (F & I)	EA	23																				23		23		
635-2-13	PULL & SPLICE BOXES (F & I) (FIBER OPTICS)	EA					15		11														26		26		
639-1-123	ELECTRICAL POWER SERVICE (F & 1) (UNDERGROUND)	AS	1																				1		1		
639-2-1	ELECTRICAL SERVICE WIRE (F & 1)	LF	200																				200		200		
639-3-11	ELECTRICAL SERVICE DISCONNECT (F & 1) (POLE)	EA	1																				1		1		
641-2-12	PRESTRESSED CONC. POLE (F & I) (P-11)	EA	1																				1		1		
641-2-80	CONC. POLE REMOVAL (COMPLETE/DEEP)	EA	4																				4		4		
646-1-11	ALUMINUM SIGNAL POLE (F & 1) (PEDESTAL)	EA	8																				8		8		
649-31-105	MAST ARM ASSEMBLY (F & I) (SINGLE ARM W/O LUM) (78')	EA	1																				1		1		
649-31-109	MAST ARM ASSEMBLY (F & I) (SINGLE ARM W/ LUM) (70.5')	EA	2																				2		2		
649-31-118	MAST ARM ASSEMBLY (F & I) (DOUBLE ARM W/O LUM) (70.5'-60')	EA	1																				1		1		
650-1-24	SIGNAL TRAFFIC (F & I) (3 SECT 1 WAY) (ALUMINUM)	AS			16																		16		16		
650-1-29	SIGNAL TRAFFIC (F & I) (5 SECT 1 WAY) (ALUMINUM)	AS			4																		4		4		
653-1-11	PEDESTRIAN SIGNAL (F & I) (LED, 1 WAY)	AS			8																		8		8		
660-4-11	VEHICLE DETECTION (F & I) (VIDEO) (CABINET EQUIPMENT)	EA	4																				4		4		
660-4-12	VEHICLE DETECTION (F & I) (VIDEO) (ABOVE GROUND EQUIPMENT)	EA	4																				4		4		
665-1-11	PEDESTRIAN DETECTOR (F & I) (STD)	EA	8																				8		8		
670-5-110	TRAFFIC CONTROLLER ASSEMBLY (F & I) (NEMA)	AS	1																				1		1		
670-5-600	CONTROLLER ASSEMBLY REMOVAL	AS	1																				1		1		
682-1-133	CCTV CAMERA (F & I) (NON-PRESSURIZED) (IP, HIGH DEF.)	EA	1																				1		1		
684-1-1	MANAGED FIELD ETHERNET SWITCH (F & I)	EA	1																				1		1		
685-106	SYSTEM AUXILIARIES (UNINTERRUPTIBLE POWER SOURCE)	EA	1																				1		1		
700-5-21	INTERNALLY ILLUMINATED SIGN (F & 1) (NAME) (OH) (12 SF)	EA																									
	SR 60				2																		2		2		
	43RD AV				2																		2		2		
700-3-201	SIGN PANEL (F & I) (OVERHEAD) (12 SF)	EA																									
	R10-16 U-TURN YIELD TO RIGHT TURN				4																		4		4		

DEC 13 2018
Patricia B

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S.R. 60
& 43RD AVENUE

TABULATION OF QUANTITIES

DESIGN	DRAWN	CHECKED	APPROVED	DATE	JOB NO.	DRAWING NO.	SHEET OF
T.B.	T.M.	A.L.	R.R.		11-064	11064T02	T-2 T-10

INDIAN RIVER COUNTY–TRAFFIC SIGNAL GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE FOLLOWING EDITIONS OF THE FOLLOWING: MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD 2009); FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (FY 2017); FLORIDA DEPARTMENT OF TRANSPORTATION DESIGN STANDARDS (FY 2016–2017), ALL SUPPLEMENTS THERETO; NATIONAL ELECTRIC CODE; CURRENT INDIAN RIVER COUNTY TRAFFIC SIGNAL SPECIFICATIONS; AND ANY OR ALL INDIAN RIVER COUNTY TRAFFIC ENGINEERING DIVISION REQUIREMENTS.

2. THE AGENCY RESPONSIBLE FOR MAINTENANCE OF THE TRAFFIC SIGNAL AND RELATED COMMUNICATIONS EQUIPMENT IS INDIAN RIVER COUNTY TRAFFIC ENGINEERING DIVISION (IRCTED) (772) 226–1547. ALL TRAFFIC SIGNAL AND RELATED COMMUNICATIONS EQUIPMENT WHEN USING PAY ITEM SERIES: 632, 634, 635, 660, 670, 684 AND 685 FOR THIS CONTRACT SHALL BE COMPATIBLE WITH IRCTED'S CENTRAL COMPUTER NETWORK SYSTEM. PRIOR TO ANY PURCHASING OF THE ABOVE PRODUCTS, ENSURE THEY HAVE BEEN APPROVED FOR SYSTEM COMPATIBILITY BY THE MAINTAINING AGENCY.

3. IRCTED SHALL BE NOTIFIED AT (772) 226–1547 AT LEAST TWO (2) FULL BUSINESS DAYS PRIOR TO ANY WORK BEING PERFORMED AT A SIGNALIZED LOCATION IN ORDER TO PROPERLY TRANSFER MAINTENANCE RESPONSIBILITIES.

4. THE CONTRACTOR SHALL DELIVER ALL REMOVED TRAFFIC SIGNAL EQUIPMENT, EXCEPT CONCRETE STRAIN POLES, TO IRCTED LOCATED AT 4548 41ST STREET, VERO BEACH, FL 32967 (772) 226–3460. THE COST OF DELIVERY TO IRCTED SHALL BE INCLUDED IN THE REMOVAL OF THE RELATED SIGNAL PAY ITEM. THE CONTRACTOR SHALL CONTACT THE IRCTED SEVEN (7) FULL BUSINESS DAYS PRIOR TO THE DELIVERY OF ANY REMOVED EQUIPMENT. CONTRACTOR IS RESPONSIBLE FOR CONCRETE STRAIN POLE DISPOSAL AT THE CONTRACTOR'S EXPENSE.

5. THE CONTRACTOR SHALL BE ADVISED THAT OTHER PROJECTS MAY BE UNDER CONSTRUCTION CONCURRENTLY WITH THIS PROJECT AND THAT COORDINATION EFFORTS MAY BE NECESSARY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE CONSTRUCTION SCHEDULE AND FOR THE AMOUNT OF COORDINATION REQUIRED. THE COST SHALL BE INCLUDED IN THE BID.

6. LOCATIONS, ELEVATIONS AND DIMENSIONS OF EXISTING FEATURES ARE SHOWN ACCORDING TO THE BEST INFORMATION AVAILABLE AT THE TIME OF THE PREPARATION OF THESE PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATIONS, ELEVATIONS AND OTHER FEATURES AFFECTING HIS/HER WORK PRIOR TO CONSTRUCTION, AND NOTIFY THE ENGINEER IMMEDIATELY AND PRIOR TO ANY FURTHER RELATED WORK ACTIVITY WHEN CONFLICT BETWEEN DRAWINGS AND ACTUAL CONDITIONS ARE DISCOVERED.

7. THE CONTRACTOR SHALL CALL SUNSHINE STATE ONE–CALL AT 1–800–432–4770 FOR LOCATIONS OF UTILITIES WITHIN THE AREA(S) OF CONSTRUCTION FOR THIS PROJECT A MINIMUM OF TWO (2) FULL BUSINESS DAYS PRIOR TO ANY DIGGING OR EXCAVATION ACTIVITIES. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE TO CONTACT ANY UTILITY OWNER(S) THAT MY NOT BE A "SUNSHINE" MEMBER.

EXISTING UTILITIES ARE TO REMAIN IN PLACE UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE LOCATION AND PROTECTION, REPAIR AND/OR REPLACMENT OF ALL UTILITIES THAT MAY BE AFFECTED BY THE CONSTRUCTION OF THIS PROJECT. EXISTING UTILITIES SHALL BE MAINTAINED IN SERVICE DURING CONSTRUCTION UNLESS OTHERWISE APPROVED BY THE UTILITY OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE ANY REQUIRED UTILITY RELOCATIONS.

9. THE CONTRACTOR SHALL NOTIFY ALL INVOLVED UTILITIES TWO (2) FULL BUSINESS DAYS IN ADVANCE, BEFORE SETTING TRAFFIC SIGNAL POLES OR PERFORMING ANY DIGGING OR OTHER EXCAVATION WORK, SO THAT A COMPANY REPRESENTATIVE CAN BE PRESENT. THE LOCATION OF THE UTILITIES SHOWN IN THE PLANS ARE APPROXIMATE ONLY. THE EXACT LOCATION SHALL BE DETERMINED BY THE CONTRACTOR. KNOWN UTILITY COMPANIES INCLUDE:

COMPANY	FACILITIES	CONTACT	TELEPHONE NUMBER
AT&T	TELEPHONE	ROBERT LOWEN	(561) 439–9118
CITY GAS COMPANY OF FLORIDA	GAS	DOROTHY HAMILTON	(321) 638–3412
FLORIDA POWER & LIGHT	ELECTRIC	USIC DISPATCH CENTER	(800) 778–9140
INDIAN RIVER COUNTY PUBLIC WORKS	SIGNALIZATION	JOHN ANKENY	(772) 226–1563
INDIAN RIVER COUNTY UTILITIES	WATER & SEWER	PHIL HARTSFIELD	(772) 538–7539
COMCAST CABLE	CABLE	THOMAS CARROLL	(954) 534–7417
IRC–GIS/IMS SYSTEM	GIS	TERRI DRUM	(561) 567–8000
CITY OF VERO BEACH	UTILITIES	JAMES D BURSICK	(772) 978–4710

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE COMPANY PROVIDING ELECTRICAL POWER TO DETERMINE IF A SERVICE PROCESSING FEE IS REQUIRED. IF REQUIRED, FEE SHALL BE REFLECTED IN THE CONTRACTOR'S BID UNIT PRICE FOR ELECTRICAL POWER SERVICE ASSEMBLY.

11. THE CONTRACTOR SHALL COORDINATE AND FIELD VERIFY LOCATION(S) OF THE ELECTRIC SERVICE POINT PRIOR TO INSTALLING CONDUIT, DISCONNECT SWITCH, AND PULL BOXES.

12. (IF APPLICABLE) IT SHOULD BE NOTED THAT NO TEST BORINGS WERE MADE WHERE CONDUIT RUNS ARE TO BE INSTALLED BY JACKING OR TRENCHING. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO EXAMINE THE JOB SITE CONDITIONS BEFORE SUBMITTING BID PROPOSALS IN ACCORDANCE WITH SECTION 2–4 OF THE FDOT SPECIFICATIONS.

13. THE CONTRACTOR SHALL MAINTAIN TRAFFIC IN ACCORDANCE WITH THE APPLICABLE GUIDELINES SET FORTH IN FDOT DESIGN STANDARD INDEXES 600 THROUGH 660; THE MUTCD; AND SECTION 102 OF THE STANDARD SPECIFICATIONS.

14. THE CONSTACTOR SHALL MAKE ALL VIDEO DETECTORS INSTALLED AS PART OF THE PROJECT FULLY OPERATIONAL IN ACCORDANCE WITH THEIR ASSOCIATED ISOLATED INTERSECTION SIGNAL TIMING CHART PRIOR TO THE ACTIVATION OF THE SIGNAL.

15. THE CONTRACTOR SHALL VERIFY ALL SIGNAL POLE ELEVATIONS AND LOCATIONS INCLUDING POSSIBLE UTILITY CONFLICTS PRIOR TO PROCURMENT. THE CONTRACTOR SHALL VERIFY THAT ALL SIGNAL POLE ELEVATIONS WILL MEET MUTCD, FDOT AND INDIAN RIVER COUNTY REQUIREMENTS FOR LOW POINT OF CLEARANCE. ALL SIGNAL ASSEMBLIES SHALL HAVE A VERTICAL CLEARANCE OF 17.5 FEET MINIMUM AND 19 FEET MAXIMUM FROM THE BOTTOM OF THE ASSEMBLY TO THE ROAD.

16. UNDER NO CIRCUMSTANCES SHALL ENERGIZED CABLE BE PLACED IN THE SAME CONDUIT OR PULL BOX AS VIDEO DETECTION CABLE.

17. ALL FIELD WIRING SHALL BE NEATLY BUNDLED AND CLEARLY IDENTIFIED WITH PERMANENT LEGIBLE, WEATHERPROOF TAGS THAT ARE SECURELY ATTACHED TO EACH CABLE. THE TAGGING SYSTEM PROPOSED SHALL BE SUBMITTED FOR APPROVAL WITH THE OTHER EQUIPMENT SUBMITTALS REQUIRED FOR THIS PROJECT.

18. THE CABINET DOOR SHALL OPEN AWAY FROM THE INTERSECTION UNLESS SPECIFIED OTHERWISE.

19. TRAFFIC SIGNAL ACCEPTANCE TESTING PROCEDURES SHALL BE IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.

20. THERE WILL BE A 90 DAY WARRANTY PERIOD SUBJECT TO THE REQUIREMENTS CONTAINED IN ARTICLE (SECTIONS 611–5 THROUGH 611–7.3) "CONTRACTOR'S WARRANTY PERIOD FOR SIGNAL INSTALLATIONS" AS FOUND IN FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, DATED 2016.

21. THE CONTRACTOR SHALL PROVIDE FOUR COPIES OF MARKED–UP (AS–BUILT) CONSTRUCTION PLANS, AND ONE CAD FILE OF SUCH, COPY OF SHOP DRAWING AND A COPY OF MAST ARM SPECIFICATION AND ANY/ALL APPROVED SHOP DRAWINGS AT THE TIME OF SIGNAL CONDITIONAL ACCEPTANCE INSPECTION BY THE MAINTAINING AGENCY.

22. ALL SUBMITTALS AND SHOP DRAWINGS SHALL BE PROVIDED TO THE ENGINEER FOR REVIEW IN ACCORDANCE WITH SECTION 603 OF THE STANDARD SPECIFICATIONS: PATRICIA BARR TRICIA@SIMMONSANDWHITE.COM

23. THE CONTRACTOR SHALL SUBMIT IN WRITING A REQUEST FOR SIGNAL INSPECTION TO THE MAINTAINING AGENCY. (ALLOW TWO (2) WEEKS FOR SIGNAL INSPECTION).

24. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN FOUR (4) PORTABLE CHANGEABLE (VARIABLE) MESSAGE SIGNS (PCMS) FOR A PERIOD OF TWO WEEKS. THE PCMS WILL BE LOCATED AT AN APPROPRIATE DISTANCE IN ADVANCE OF THE APPROACHES TO THE NEW SIGNALIZED INTERSECTION AS SPECIFIED BY THE MAINTAINING AGENCY'S ENGINEER. THE PCMS WILL BE PROVIDED ONE (1) WEEK PRIOR TO THE SCHEDULED ACTIVATION TO FULL COLOR OPERATION AND SHALL REMAIN IN PLACE FOR ONE (1) WEEK FOLLOWING ACTIVATION. COST OF FURNISHING PCMS TO BE INCLUDED UNDER PAY ITEM NO. 102–1 – MAINTENANCE OF TRAFFIC.

25. IN ACCORDANCE WITH FDOT STANDARDS & SPECIFICATIONS, THE CONTRACTOR SHALL PROVIDE THE ASSOCIATED TRAFFIC SIGNAL MANUFACTURER WARRANTIES FOR THE ASSOCIATED MATERIALS AND/OR EQUIPMENT PRIOR TO THE FINAL ACCEPTANCE OF THE TRAFFIC SIGNAL.

26. PRIOR TO ACTIVATION THE PCMS SIGN SHALL BE:

(PANEL ONE – LINE 1) "TRAFFIC"
(PANEL ONE – LINE 2) "SIGNAL"
(PANEL ONE – LINE 3) "WILL BE"
(PANEL TWO – LINE 1) "ACTIVE"
(PANEL TWO – LINE 2) "ON DAY"
(PANEL TWO – LINE 3) "MONTH XX"

SUBSTITUTION FOR THE WORD "DAY" SHALL BE AS FOLLOWS:
SUNDAY AS "SUN"
MONDAY AS "MON"
TUESDAY AS "TUES"
WEDNESDAY AS "WED"
THURSDAY AS "THUR"
FRIDAY AS "FRI"
SATURDAY AS "SAT"

SUBSTITUTION FOR THE WORD "MONTH" SHALL BE AS FOLLOWS:
JANUARY AS "JAN"
FEBRUARY AS "FEB"
MARCH AS "MAR"
APRIL AS "APR"
MAY AS "MAY"
JUNE AS "JUN"
JULY AS "JUL"
AUGUST AS "AUG"
SEPTEMBER AS "SEP"
OCTOBER AS "OCT"
NOVEMBER AS "NOV"
DECEMBER AS "DEC"

SUBSTITUTION FOR THE WORD "XX" SHALLBE AS FOLLOWS:

THE NUMERICAL DAY OF THE MONTH, FROM ONE (1) TO THIRTY–ONE (31). THE DATES LESS THAN TEN (10) SHALL BE PROCEDED BY A ZERO (0); EXAMPLE: "JAN 03" FOR JANUARY 3RD.

27. AFTER THE TURN–ON, THE PCMS SHALL BE CHANGED TO:
(PANEL ONE – LINE 1) "TRAFFIC"
(PANEL ONE – LINE 2) "SIGNAL"
(PANEL TWO – LINE 1) "NOW"
(PANEL TWO – LINE 2) "ACTIVE"

PANEL TWO, LINE AND LINE 2, SHALL FLASH THREE (3) TIMES BEFORE REVERTING BACK TO PANEL ONE.

PRIOR TO SIGNAL ACTIVATION

PANEL 1

T	R	A	F	F	I	C	
	S	I	G	N	A	L	
W	I	L	L		B	E	

PANEL 2

	A	C	T	I	V	E	
	O	N		D	A	Y	
M	O	N	T	H		X	X

AFTER SIGNAL ACTIVATION

PANEL 1

T	R	A	F	F	I	C	
	S	I	G	N	A	L	

PANEL 2

		N	O	W			
	A	C	T	I	V	E	

28. THE ENGINEER OR CONTRACTOR SHALL SUBMIT IN WRITING A REQUEST FOR SIGNAL ACTIVATION (TURN–ON) TO THE MAINTAINING AGENCY. THE MAINTAINING AGENCY WILL SCHEDULE THE SIGNAL ACTIVATION A MINIMUM OF SEVEN (7) DAYS AFTER NOTIFICATION THAT THE SIGNAL HAS BEEN PLACED FLASHING MODE AND INSPECTIONS BY MAINTAINING AGENCY FORCES HAVE BEEN COMPLETED.

29. THE CONTRACTOR SHALL BE PRESENT AND SHALL CONDUCT THE TURN–ON TO FULL COLOR OPERATION IN THE PRESENCE OF THE MAINTAINING AGENCY'S ENGINEER. NO ACTIVATIONS SHALL BE SCHEDULED ON MONDAYS, FRIDAYS OR WEEKENDS UNLESS OTHERWISE APPROVED BY THE MAINTAINING AGENCY'S ENGINEER. ANY PROPOSED OR NECESSARY SCHEDULE CHANGE DURING THE SEVEN (7) DAYS PRIOR TO SCHEDULED TURN–ON WILL BE AT THE DETERMINATION AND DISCRETION OF THE MAINTAINING AGENCY'S ENGINEER.

30. UPON COMPLETION AND FINAL ACCEPTANCE OF THE PERMANENT TRAFFIC SIGNAL INSTALLATION BY INDIAN RIVER COUNTY, THE SIGNALS AND EQUIPMENT SHALL BE MAINTAINED BY IRCTED.

31. WHEN IRCTED DETERMINES THAT THE NEED FOR A TRAFFIC SIGNAL IS CRITICAL TO THE PUBLIC WELFARE, EARLY TURN–ON OF THE SIGNAL MAY BE REQUIRED BEFORE THE COMPLETION OF THE CONTRACT. IF THIS NEED ARISES, IRCTED MAY ASSUME THE RESPONSIBILITY FOR MAINTENANCE AND LIABILITY, OR NEGOTIATE WITH THE CONTRACTOR FOR MAINTENANCE AND LIABILITY, FOR SUCH A SIGNAL. NEW SIGNALS SHALL NOT BE PLACED ON FULL COLOR OPERATION UNTIL THE DATE OF INSPECTION EXCEPT AS STATED ABOVE. NEW SIGNALS SHALL BE FLASHED NO LESS THAN A WEEK OR MORE THAN TWO WEEKS PRIOR TO THE INSPECTION. SIGNAL HEADS MUST BE BAGGED WITH BURLAP OR TURNED BACK UNTIL THIS TIME.

A. POWER SERVICE
1. POWER SERVICES SHALL FOLLOW THE LATEST STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD INDEX NO. 17736
2. POWER SERVICES ARE TO BE 120/240 VAC WITH TRIPLEX SERVICE DROP WIRE.
3. CITY OF VERO BEACH POWER SUPPLIED INSTALLATIONS MUST HAVE A SPECIAL METER CAN, SUPPLIED FROM THE CITY OF VERO BEACH TRANSMISSISION & DISTRIBUTION.
4. FLORIDA POWER & LIGHT POWER SUPPLIED INSTALLATIONS REQUIRE A METER CAN.
5. MAST ARM POWER SERVICES SHALL BE MOUNTED ON A STUB POLE.
6. CONCRETE STRAIN POLE INSTALLATIONS SHALL HAVE THE POWER SERVICE MOUNTED ON THE STRAIN POLE.

B. TRAFFIC SIGNAL CONTROLLER
1. SHALL BE COMPATIBLE WITH ECONOLITE SYSTEM SOFTWARE.
2. SHALL HAVE INTERNAL TIME–BASED CAPABILITIES
3. SHALL HAVE INTERNAL RAILROAD PREEMPTION WITH IMMEDIATE RETURN TO COORDINATION.
4. SHALL HAVE A REMOVABLE EEPROM WITH DOWNLOAD AND UPLOAD CAPABILITIES.

C. TRAFFIC SIGNAL COMMUNICATIONS INTERCONNECT
NOTE: VARIANCE TO COMMUNICATION INTERCONNECT DUE TO DESIGN CRITERIA WOULD REQUIRE PRIOR APPROVAL FROM INDIAN RIVER COUNTY.
1. TWO 2" CONDUITS SHALL BE INSTALLED WITH ALL INTERCONNECT RUNS.
2. PULL BOXES CONTAINING INTERCONNECT ARE TO BE INSTALLED AT NO MORE THAN 1000 FOOT INTERVALS MARKED "TRAFFIC SIGNAL" (FDOT DESIGN STANDARD 17700).
3. FIBER OPTIC INTERCONNECT RUNS SHALL HAVE A SLACK/SPLICE BOX AT ALL SIGNALIZED INTERSECTIONS MARKED "FIBER OPTICS". SLACK/SPLICE BOXES SHALL CONTAIN A MINIMUM OF 100 FEET OF FIBER OPTIC CABLE SLACK (FDOT DESIGN STANDARD 17700) AND SHALL BE LOCATED AT NO MORE THAN 1/2–MILE INTERVALS.
4. FIBER OPTIC CABLE SHALL BE 96–FIBER SINGLE MODE. A #14 AWG (OR IRC–APPROVED ALTERNATIVE) TRACE WIRE SHALL BE INSTALLED WITH THE FIBER RUN.
5. THE CONNECTION FROM THE SLACK/SPLICE BOX TO THE SIGNAL CABINET (PIG TAIL) SHALL BE A 12–FIBER SINGLE MODE CABLE. FIBER IN THE CABINET SHALL BE TERMINATED IN A FIBER OPTIC TERMINAL PANEL.
6. IN THE CABINET, DATA CONVERSION WILL BE ACCOMPLISHED WITH RUGGEDCOM GIGABIT ETHERNET SWITCH OR IRC–APPROVED EQUIVALENT.

D. TRAFFIC SIGNAL MAST ARM
1. MAST ARMS SHALL FOLLOW THE LATEST STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION STANDARDS INDEX NO. 17743 – 17745.
2. ALL MAST ARM POLES SHALL HAVE HIGH–PRESSURE SODIUM, COBRA HEAD LUMINAIRES, BARRING OBSTRUCTIONS OR DESIGN CRITERIA.
3. MAST ARM POLES ARE TO HAVE A TERMINAL COMPARTMENT IN PLACE OF A HAND HOLE, PER FDOT INDEX NO. 17745.
4. MAST ARM MOUNTING HEIGHT (MEASUREMENT UB INDEX NO. 17743) SHALL BE 19–FEET FOR HORIZONTAL AND 20–FEET FOR VERTICAL MOUNTED SIGNALS, IN THE ABSENCES OF GEOMETRIC ABNORMALTIES.
5. ALL MAST ARMS SHALL BE GALVANIZED STEEL WITH FACTORY FINISHED HUNTER GREEN POWDER COATING IN ACCORDANCE WITH FDOT.
6. MAST ARMS ARE TO HAVE INTERNALLY–ILLUMINATED SINGLE–SIDED STREET NAME SIGNS WITH LOCAL STREET NAMES AND 1" WHITE BORDER. THE STREET NAME SIGNS ARE TO BE MOUNTED WITH FIXED BRACKETS ON THE ARM BETWEEN THE POLE AND THE FIRST TRAFFIC SIGNAL.

E. TRAFFIC SIGNAL HEADS
1. TRAFFIC SIGNALS MOUNTED ON SPAN CABLE ARE TO BE LIGHTWEIGHT, (RED SECTION TO BE ALUMINUM AND ALL OTHER SECTIONS TO BE POLY PLASTIC), 12 INCH INDICATIONS.
2. TRAFFIC SIGNALS MOUNTED ON MAST SUPPORTS ARE TO BE ALL POLYCARBONATE 12–INCH INDICATIONS. THE MOUNTING SHALL BE HORIZONTAL USING PELCO ASTRO BRAC OR IRC–APPROVED EQUIVALENT. SPAN MOUNT SIGNALS ARE TO BE MOUNTED VERTICAL. ALL VEHICLE SIGNAL HEADS ARE TO HAVE RETRO–RELFECTIVE BACK PLATES.
3. TRAFFIC SIGNALS ARE TO BE SUPPLIED WITH ALL LED INDICATIONS, INCLUDING ALL ARROWS AND YELLOWS.
4. TRAFFIC SIGNALS ARE TO BE SUPPLIED WITH TUNNEL VISORS.
5. TRAFFIC SIGNALS AND ASSOCIATED ACCESSORIES, INCLUDING BUT NOT LIMITIED TO BACKPLATES SHALL BE MCCAIN.
6. PEDESTRIAN SIGNALS ARE TO BE COUNT DOWN PEDESTRIAL SIGNALS WITH INTERNATIONAL–STYLE HAND/MAN (SYMBOLS) WITH FULL (NOT OUTLINE) LED INDICATIONS.

F. VIDEO DETECTORS
1. VIDEO DETECTION SYSTEM SHALL BE ECONOLITE LATEST TECHNOLOGY OR IRC–APPROVED EQUIVALENT.

G. VIDEO SURVEILLANCE
1. VIDEO CAMERAS SHALL BE BOSCH PAN, TILT & ZOOM LATEST TECHNOLOGY OR IRC–APPROVED EQUIVALENT.

H. BATTERY BACK–UP
1. BATTERY BACKUP SYSTEM IS TO BE USED ON ALL INSTALLATIONS UNLESS OTHERWISE STATED.
2. BATTERY BACKUP SHALL BE ALPHA FXM 2000 UPS W/SNMP.

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S.R. 60
& 43RD AVENUE

GENERAL NOTES

DESIGN	DRAWN	CHECKED	APPROVED	DATE	JOB NO.	DRAWING NO.	SHEET OF
T.B.	T.M.	A.L.	R.R.		11–064	11064T03	T–3 T–10

INDIAN RIVER COUNTY–TRAFFIC SIGNAL GENERAL NOTES

PAY ITEM NOTES

PAY ITEM NO. 101–1
INCLUDES ALL NECESSARY EQUIPMENT INCLUDING A TWO PERSON BUCKET TRUCK FOR USE BY THE ENGINEER OR COUNTY REPRESENTATIVE DURING INSPECTION OF TRAFFIC SIGNAL.

PAY ITEM NO.102–1
INCLUDES ALL COSTS ASSOCIATED WITH FURNISHING, INSTALLING MAINTAINING AND REMOVAL OF ALL ITEMS OF MAINTENANCE OF TRAFFIC NOT PAID FOR UNDER SEPARATE ITEMS.

PAY ITEM NO. 630–2–11
SHALL BE INSTALLED PER SECTION 630, OF FDOT'S STANDARD SPECIFICATIONS. ALL CONDUITS SHALL ENTER PULL BOXES AS REQUIRED IN FDOT STANDARD INDEX 17721, SHEET 2 OF 2. ALL CONDUIT SHALL BE 2 INCH, SCHEDULE 40 PVC UNLESS SPECIFIED OTHERWISE IN THE PLANS OR SPECIFICATIONS.

PAY ITEM NO. 630–2–12
SHALL CONSIST OF MULTIPLE 2 INCH SCHEDULE 40 PVC SLEEVES PER BORE. SEE SPECIFIC PLAN SHEETS FOR NUMBER REQUIRED FOR THE BORE. ALL DIRECTIONAL BORING SHALL BE DONE IN CONFORMANCE WITH FDOT UTILITY ACCOMMODATIONS MANUAL REQUIREMENTS.

PAY ITEM NO. 632–7–1
SHALL BE INSTALLED PER FDOT STANDARD INDEX 17700 AS APPLICABLE. THREE SPARE CONDUCTORS PER SIGNAL CABLE ARE REQUIRED. SPARES SHALL BE GROUNDED TO THE BUS GROUNDING FACILITY IN THE CONTROLLER CABINET. THE CONTRACTOR SHALL VERIFY COLOR CODES WITH INDIAN RIVER COUNTY TRAFFIC ENGINEERING DIVISION FOR THE SIGNAL CONDUCTORS PRIOR TO ORDERING.

PAY ITEM NO. 635–2–11
SHALL BE INSTALLED IN ACCORDANCE WITH FDOT STANDARD INDEX 17721, AND IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SIZE THE PULL BOXES SUCH THAT THEY WILL ALLOW PLACEMENT OF ALL CABLES INSIDE THE PULL BOXES WHILE MAINTAINING THE REQUIRED MINIMUM BENDING RADII ON THE CABLES AND NOT EXCEEDING THE MAXIMUM BENDING RADII OF THE CABLES. PULL BOX COVERS SHALL BE FDOT APPROVED OF NON–METALLIC CONSTRUCTION WITH RECESSED COVER LOGO "TRAFFIC SIGNAL" OR "FIBER OPTIC" AS APPROPRIATE. PULL BOXES SHALL BE QUAZITE AND PLACED BEHIND CURB AND GUTTER. IF THER IS NO CURB AND GUTTER, THE PULL BOXES SHALL BE PLACED A MINIMUM OF 7 FEET FROM THE EDGE OF PAVEMENT WITH PULL BOXES AND LIDS BEING TRAFFIC BEARING. PULL BOXES SHALL NOT BE PLACED IN PEDESTRIAN RAMPS.

PAY ITEM NO. 639–1–122
SHALL INCLUDE THE COST OF ALL LABOR, MATERIALS, AND PERMITS REQUIRED TO FURNISH AND INSTALL THE ASSEMBLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH ALL AGENCIES REQUIRED FOR APPROVAL OF THE COMPLETED INSTALLATION. FDOT STANDARD INDEX 17736 (AS APPLICABLE) SHALL APPLY.

PAY ITEM NO. 639–2–1
THE CONTRACTOR SHALL BE RESPONSIBLE FOR SIZING THE CONDUCTORS FOR THE POWER SERVICE.

PAY ITEM NO. 639–3X–XXX
A GIVEN MAST ARM/POLE ASSEMBLY LOCATION SHALL BE FIELD VERIFIED AND IDENTIFIED FREE OF CONFLICTS AND/OR OBJECTS BY THE CONTRACTOR PRIOR TO PROCUREMENT OF THE MAST ARM ASSEMBLY.

PAY ITEM NO. 650–1–24 AND 650–1–29
HEADS SHALL HAVE AN ALUMINUM TOP SECTION WITH ALL OTHER SECTIONS POLYCARBONATE, BLACK IN COLOR. TUNNEL VISORS SHALL BE FULL VISORS. SIGNAL DISPLAYS SHALL BE LED. THE CONTRACTOR SHALL CONTACT THE INDIAN RIVER COUNTY TRAFFIC ENGINEERING DIVISION PRIOR TO ORDERING. THIS IS TO ENSURE THAT THEY MEET COUNTY STANDARDS AND ARE CONSISTENT WITH LED UNITS CURRENTLY IN SERVICE WITH THE COUNTY. ALL BACKPLATES SHALL BE ALUMINUM WITH RETRO REFLECTIVE SHEETING.

PAY ITEM NO. 660–4–11 AND 660–4–12
SHALL CONSIST OF 4 VEHICLE DETECTOR ASSEMBLIES (VIDEO TYPE), ECONOLITE VIDEO DETECTION, LATEST TECHNOLOGY. A COMPLETE VIDEO DETECTION INSTALLATION CONSISTENT WITH INDIAN RIVER COUNTY STANDARDS FOR ALL APPROACHES OF THE INTERSECTION IS REQUIRED. THE EQUIPMENT SHALL BE VIDEO DETECTION UNITS CAPABLE OF INTERFACE WITH THE TRAFFIC SIGNAL CONTROLLER UNIT AND SHALL INCLUDE THE COST OF MOUNTING ARMS TO EXTEND CAMERA TO A POSITION OVER THE ROADWAY. THE CONTRACTOR IS REQUIRED TO COORDINATE WITH THE SUPPLIER AND INDIAN RIVER COUNTY TRAFFIC ENGINEERING DIVISION TO ENSURE RELIABLE OPERATION. CAMERA LOCATIONS MAY REQUIRE ADJUSTMENT IN THE FIELD. CONTACT INDIAN RIVER COUNTY TRAFFIC ENGINEERING DIVISION BEFORE ORDERING.

PAY ITEM NO. 670–5–111
THE CONTRACTOR SHALL COORDINATE WITH THE INDIAN RIVER COUNTY TRAFFIC ENGINEERING DIVISION PRIOR TO ORDERING ANY CONTROLLER RELATED EQUIPMENT.

ALL TRAFFIC SIGNAL EQUIPMENT MUST BE CONSISTENT WITH INDIAN RIVER COUNTY TRAFFIC ENGINEERING DIVISION STANDARDS. CONTRACTOR SHALL COORDINATE WITH THE INDIAN RIVER COUNTY TRAFFIC ENGINEERING DIVISION TO CONFIRM THAT EQUIPMENT STANDARDS HAVE NOT CHANGED SINCE THE TIME OF PUBLICATION OF THESE PLANS.

FDOT GENERAL NOTES:

1.) MAINTENANCE OF TRAFFIC M.O.T. FOR THIS PROJECT WILL COMPLY WITH THE FLORIDA DEPARTMENT OF TRANSPORTATION DESIGN STANDARD INDEX (600 SERIES) & THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). SPECIAL ATTENTION WILL BE GIVEN TO FDOT DESIGN STANDARD INDEX #611,612,613 & 660.
2.) PAVEMENT MARKINGS SHALL BE THERMOPLASTIC INSTALLED PER FDOT DESIGN STANDARD INDEX #17346. RAISED PAVEMENT MARKINGS (RPM'S) SHALL CONFORM TO FDOT DESIGN STANDARD INDEX #17352.
3.) IT IS THE PERMITTEE'S RESPONSIBILITY TO OBTAIN FINAL ACCEPTANCE OF PERMITTED WORK (COMPLETED) AND THE RESTORATION OF THE RIGHT–OF–WAY FROM THE DEPARTMENT PRIOR TO USAGE.
4.) PERMITTEE WILL RESTORE THE RIGHT OF WAY AS A MINIMUM, TO ITS ORIGINAL CONDITION OR BETTER IN ACCORDANCE W/ FLORIDA DEPARTMENT OF TRANSPORTATION 'S LATEST STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION OR AS DIRECTED BY THE RESIDENT OPERATIONS ENGINEER.
5.) SIGNS WILL BE INSTALLED IN ACCORDANCE WITH STANDARD INDEX #11860, #17302 & ALL OTHER APPLICABLE INDICES FOR SINGLE & MULTIPLE COLUMN GROUND SIGNS.
6.) RESTRICTED HOURS OF OPERATION WILL BE FROM 9:00AM TO 3:30 PM, (MONDAY–FRIDAY), UNLESS OTHERWISE APPROVED BY THE OPERATIONS ENGINEER, OR DESIGNEE.
7.) PERMITTEE WILL COORDINATE ALL WORK WITH THE PALM BEACH OPERATIONS PERMITS DEPARTMENT USING FAX # 561–370–1236. COORDINATION WILL INCLUDE A PRE–CONSTRUCTION MEETING.
8.) PERMITTEE WILL COORDINATE (PRE–CONSTRUCTION MEETING, INSPECTIONS, FINAL ACCEPTANCE OF WORK, ETC.) ALL PERMITTED WORK WITH DBI, INC, ATTN: MELISSA PERRY @ 561–992–1318, FAX 561–993–9000.
9.) PERMIT IS VALID FOR ONE YEAR FROM DATE OF ISSUE.
10.) PERMITTEE SHALL PROVIDE THE PRODUCER'S CERTIFICATION (DELIVERY TICKET) FOR THE NS CONCRETE–2500 PSI (USED FOR SIDEWALK, CURB & GUTTER, DITCH PAVEMENT & TRAFFIC SEPARATOR) PRIOR TO FINAL ACCEPTANCE BY THE DEPARTMENT. THE DELIVERY TICKET SHALL CERTIFY THE CONCRETE WAS BATCHED, DELIVERED & PLACED IN ACCORDANCE WITH SECTION 347 OF THE DEPARTMENT'S STANDARDS SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION (CURRENT EDITION).
11.) PERMITTEE WILL PROVIDE THE DEPARTMENT WITH CERTIFIED "AS–BUILT" PLANS TO FINAL ACCEPTANCE OF THE PERMITTED WORK.

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DEC 13 2018

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T.B.	T.M.	A.L.	R.R.	

S.R. 60
& 43RD AVENUE

GENERAL NOTES

JOB NO.	DRAWING NO.	SHEET OF
11–064	11064T03	T–3A T–10

(3 RUNS @ 5')15LF | 630-2-11
1 PI | 632-7-1
1 EA | 633-3-15
3 EA | 635-2-11
1 AS | 639-1-123
200 LF | 639-2-1
4 EA | 660-4-11
1 AS | 670-5-110
1 EA | 684-1-1
1 EA | 685-106

PEDESTRIAN SIGNAL POLE LOCATION=
STA. 127+88.26/78.95'LT
(2 RUNS @ 28') 56 LF | 630-2-11
1 EA | 635-2-11
1 EA | 646-1-11
1 EA | 665-1-11

(A) POLE LOCATION=
STA. 127+61.97/89.74'LT.
(3 RUNS @ 5') 15 LF | 630-2-11
3 EA | 635-2-11
1 EA | 649-31-118
1 EA | 660-4-12

PROPOSED ELECTRICAL MONUMENT
W/ ELECTRICAL DISCONNECT
1 EA | 639-3-11
1 EA | 641-2-12

PEDESTRIAN SIGNAL POLE LOCATION=
STA. 127+57.38/98.35'LT
(2 RUNS @ 8') 16 LF | 630-2-11
1 EA | 635-2-11
1 EA | 646-1-11
1 EA | 665-1-11

PEDESTRIAN SIGNAL POLE LOCATION=
STA. 127+78.97/47.32'RT
630-2-11 | 14 LF (2 RUNS @ 7')
635-2-11 | 1 EA
646-1-11 | 1 EA
665-1-11 | 1 EA

PROPOSED CCTV CAMERA ON MAST ARM
(B) POLE LOCATION=
STA. 127+73.51/52.72'RT
630-2-11 | 15 LF (3 RUNS @ 5')
630-2-12 | 143 LF
635-2-11 | 3 EA
649-31-105 | 1 EA
660-4-12 | 1 EA
682-1-133 | 1 EA

PEDESTRIAN SIGNAL POLE LOCATION=
STA. 127+62.89/69.00'RT
630-2-11 | 48 LF (2 RUNS @ 24')
635-2-11 | 1 EA
646-1-11 | 1 EA
665-1-11 | 1 EA

43RD AVENUE

STATE ROAD 60

R/W LINE

EXISTING LUMINAIRE (TYP.)

EXISTING CONTROLLER (TO BE REMOVED)

EXISTING SIGNAL POLES (TO BE REMOVED)

EXISTING POLES (TO BE REMOVED BY OTHERS)

EXISTING SIGNAL POLES (TO BE REMOVED)

OD-2R, OD-2, OD-2, OD-5, OD-5, OD-4R, OD-4, OD-4, OD-4, OD-7, OD-7, OD-7, OD-3, OD-8, OD-8, OD-8, OD-8R, OD-6, OD-6, OD-6R

2641+00, 2642+00, 2643+00, 2644+00, 2645+00, 127+00, 126+00

78', 60', 70.5', 70.5', 70.5'

PEDESTRIAN SIGNAL POLE LOCATION=
STA. 126+17.80/97.21'LT
(2 RUNS @ 12') 24 LF | 630-2-11
1 EA | 635-2-11
1 EA | 646-1-11
1 EA | 665-1-11

PEDESTRIAN SIGNAL POLE LOCATION=
STA. 126+12.81/89.82'LT
(2 RUNS @ 19') 38 LF | 630-2-11
1 EA | 635-2-11
1 EA | 646-1-4
1 EA | 665-1-11

(D) POLE LOCATION=
STA. 125+91.73/81.67'LT.
(SEE NOTE 3)
(3 RUNS @ 5') 15 LF | 630-2-11
170 LF | 630-2-12
3 EA | 635-2-11
1 EA | 649-31-109
1 EA | 660-4-12

(C) POLE LOCATION=
STA. 126+22.65/51.69'RT
(SEE NOTE 3)
630-2-11 | 15 LF (3 RUNS @ 5')
630-2-12 | 143 LF
635-2-11 | 3 EA
649-31-109 | 1 EA
660-4-12 | 1 EA

PEDESTRIAN SIGNAL POLE LOCATION=
STA. 126+13.26/42.93'RT
630-2-11 | 32 LF (2 RUNS @ 16')
635-2-11 | 1 EA
646-1-11 | 1 EA
665-1-11 | 1 EA

PEDESTRIAN SIGNAL POLE LOCATION=
STA. 126+38.25/74.38'RT
630-2-11 | 36 LF (2 RUNS @ 18')
635-2-11 | 1 EA
646-1-11 | 1 EA
665-1-11 | 1 EA

N

20 10 0 20 40
SCALE IN FEET
1"=40'

LEGEND

(C)	SIGN
(A)	MAST ARM
(V2)	VIDEO DETECTOR
3	SIGNAL HEAD
P2	PEDESTRIAN HEAD
OD-2	DETECTION ZONE

REMOVAL ITEMS

641-2-80 | 4 EA
670-5-600 | 1 AS

NOTES:

1.) ALL STATIONS/OFFSETS ARE MEASURED W.R.T. THE BASELINE OF 43RD AVENUE.
2.) REFER TO SIGNING & MARKING PLANS BY ARCADIS FOR PROJECT NO. LNW# WP 1027
3.) REFER TO LIGHTING PLANS BY MAIN STREET ENGINEERING FOR PROJECT NO. LNW# WP 1027.

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DEC 12 2018

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DESIGN	DRAWN	CHECKED	APPROVED	DATE
T.B.	T.M.	A.L.	R.R.	

S.R. 60
& 43RD AVENUE
SIGNALIZATION PLAN

JOB NO.	DRAWING NO.	SHEET	OF
11-064	11064T04	T-4	T-10

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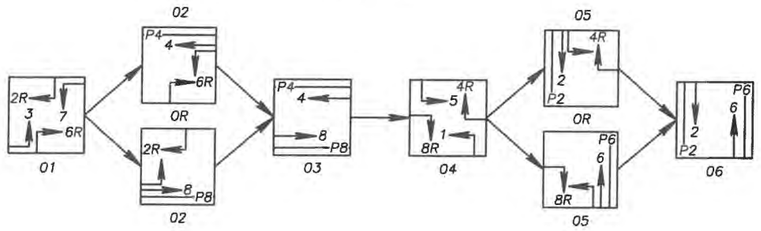
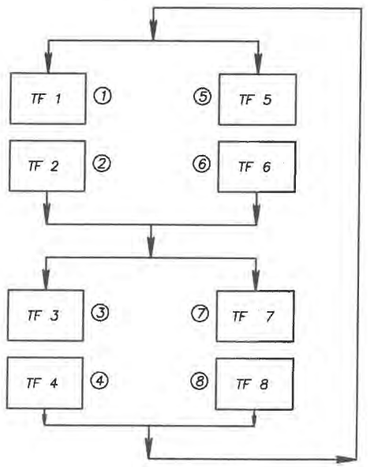
SOP 10



RING DIAGRAM



VIDEO DETECTOR CHART	
DETECTOR NO.	MOVEMENTS
V–1	2, 5
V–2	4, 7
V–3	1, 6
V–4	3, 8

NOTES:

1.) CONTROLLER OPERATIONS:
- SOP 10 IS TO BE USED.
- MAJOR STREET IS S.R. 60 AND MINOR STREET IS 43RD AVENUE.

2.) CONTRACTOR SHALL VERIFY IF OTHER UTILITIES (NOT SHOWN IN PLANS) EXIST WITHIN THE AREA OF CONSTRUCTION. SHOULD THERE BE CONFLICTS, THE CONTRACTOR SHALL INFORM THE ENGINEER AND NOTIFY THE OWNER OF CONFLICTS AND ADJUSTMENTS AS REQUIRED.

3.) CONTROLLER SHALL BE PLACED SO THAT THE TECHNICIAN CAN EASILY SEE THE INTERSECTION WITH THE CABINET DOOR OPEN.

4.) SIGNAL TIMINGS TO BE PROVIDED BY INDIAN RIVER COUNTY TRAFFIC ENGINEERING.

DETAIL OF STREET NAME SIGNS

N.T.S.

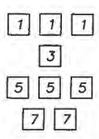
Ⓐ **S.R. 60** — 700–5–21 2 EA

Ⓑ **43rd Av** — 700–5–21 2 EA

REFER TO SHEET T–10 FOR GUIDE SIGN DETAILS

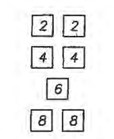
DETAIL OF SIGNAL HEADS

N.T.S.



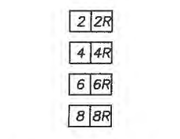
3–SECT., 1–WAY

650–1–14 9 AS



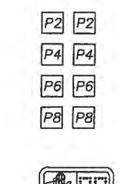
3–SECT., 1–WAY

650–1–14 7 AS



5–SECT., 1–WAY

650–1–18 4 AS



PED. SIGNAL COUNT–DOWN 1–SECT., 1–WAY

653–1–11 8 AS

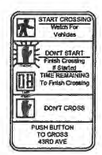
DETAIL OF SIGNS

N.T.S.

Ⓒ

FTP–68B–06

Ⓓ



FTP–68B–06

COST OF SIGNS C & D IS INCLUDED UNDER PAY ITEM NUMBER 665–1–11.

Ⓔ

R10–16

700–3–201 4 EA

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S.R. 60 & 43RD AVENUE

SIGNALIZATION PLAN

DESIGN	DRAWN	CHECKED	APPROVED	DATE	JOB NO.	DRAWING NO.	SHEET OF
T.B.	T.M.	A.L.	R.R.		11–064	11064T05	T–5 T–10

(2 RUNS @ 500') 1000 LF 630-2-11
1 EA 635-2-13
R/W LINE
633-1-123 500 LF
PROPOSED FIBER OPTICS PULL BOX (TYP.)
1 EA 635-2-13
1060 LF 630-2-11
(2 RUNS @ 530')
633-1-123 530 LF
635-2-13
MATCH LINE A-A
N
50 25 0 50 100
SCALE IN FEET
1"=100'
BEGIN PROJECT
STA. 2624+20
STATE ROAD 60
PROPOSED 96 FIBER OPTIC CABLE (SINGLE MODE) IN ONE OF PROPOSED IRC-TRAFFIC 2-2" PVC CONDUIT (TYP.)
(2 RUNS @ 100') 200 LF 630-2-15
100 LF 633-1-123

(2 RUNS @ 50') 100 LF 630-2-11
50 LF 633-1-123
FURNISH & INSTALL CONDUIT & 96 FIBER OPTIC CABLE (SINGLE MODE) TO CONTROLLER
(2 RUNS @ 10') 20 LF 630-2-11
10 LF 633-1-123
MATCH LINE C-C
SEE SHEET T-7
630-2-11 40 LF (2 RUNS @ 20')
633-1-123 20 LF
630-2-11 420 LF (2 RUNS @ 210')
633-1-123 210 LF
MATCH LINE A-A
1 EA 635-2-13
280 LF 633-1-123
1 EA 635-2-13
635-2-13 2 EA
2 EA 635-2-13
630-2-15
560 LF
200 LF 630-2-12
200 LF 633-1-123
630-2-12 140 LF
633-1-123 140 LF
630-2-12 70 LF
633-1-123 70 LF
43RD AVE.
630-2-11 750 LF (2 RUNS @ 375')
633-1-123 375 LF
STATE ROAD 60
1 EA 635-2-13
630-2-11 540 LF (2 RUNS @ 270')
633-1-123 270 LF
42ND AVE.
630-2-11 80 LF (2 RUNS @ 40')
633-1-123 40 LF
MATCH LINE B-B
MATCH LINE D-D
SEE SHEET T-7

630-2-11 180 LF (2 RUNS @ 90')
633-1-123 90 LF
630-2-11 628 LF (2 RUNS @ 314')
633-1-123 314 LF
630-2-11 500 LF (2 RUNS @ 250')
633-1-123 250 LF
635-2-13 2 EA
635-2-13
39TH AVE.
38TH AVE.
MATCH LINE B-B
STATE ROAD 60
1 EA 635-2-13
END PROJECT
STA. 2660+50
41ST AVE.
40TH AVE.
39TH AVE.
630-2-12 80 LF
633-1-123 80 LF
630-2-12 65 LF
633-1-123 65 LF

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S.R. 60
& 43RD AVENUE
INTERCONNECT PLAN

DESIGN	DRAWN	CHECKED	APPROVED	DATE
T.B.	T.M.	A.L.	R.R.	

JOB NO.	DRAWING NO.	SHEET OF
11-064	11064T06	T-6 T-10

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N

50 25 0 50 100

SCALE IN FEET
1"=100'

PROPOSED FIBER OPTICS PULL BOX (TYP.)

18TH ST.

19TH ST.

43RD AVE.

1 EA

PROPOSED 96 FIBER OPTIC CABLE (SINGLE MODE) IN ONE OF PROPOSED IRC-TRAFFIC 2-2" PVC CONDUIT (TYP.)

635-2-13 2 EA

630-2-12 72 LF
633-1-123 72 LF

630-2-11 1160 LF (2 RUNS @ 580')
633-1-123 580 LF

630-2-11 1080 LF (2 RUNS @ 540')
633-1-123 540 LF

635-2-13

(2 RUNS @ 15') 30 LF 630-2-11
15 LF 633-1-123

SEE SHEET T-6
MATCH LINE D-D

MATCH LINE C-C
SEE SHEET T-6

630-2-11 40 LF (2 RUNS @ 20')
633-1-123 20 LF

630-2-15 860 LF (2 RUNS @ 430')
633-1-123 430 LF

21ST PL.

21ST LN.

43RD AVE.

1 EA

1 EA 635-2-13

1 EA 635-2-13

630-2-11 1000 LF (2 RUNS @ 500')
633-1-123 500 LF

630-2-11 870 LF (2 RUNS @ 435')
633-1-123 435 LF

MATCH LINE E-E

MATCH LINE E-E

635-2-13 2 EA

43RD AVE.

26TH ST.

630-2-11 130 LF (2 RUNS @ 65')
633-1-123 65 LF

630-2-11 130 LF (2 RUNS @ 65')
633-1-123 65 LF

630-2-11 920 LF (2 RUNS @ 460')
633-1-123 460 LF

635-2-13 1 EA

1 EA

630-2-11 1040 LF (2 RUNS @ 520')
633-1-123 520 LF

PATRICIA MARIE BARR
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DEC 13 2018

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DESIGN	DRAWN	CHECKED	APPROVED	DATE
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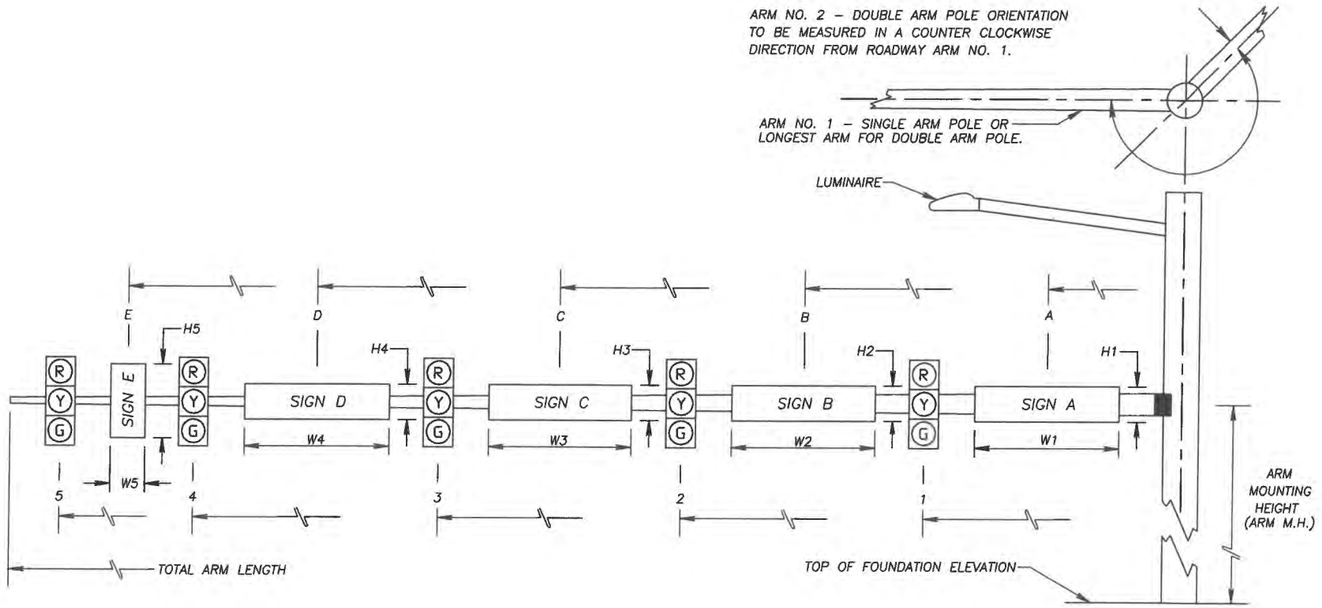
S.R. 60
& 43RD AVENUE

INTERCONNECT PLAN

JOB NO.	DRAWING NO.	SHEET	OF
11-064	11064T07	T-7	T-10

Y:\AUTOCAD_FILES\2011\11-064\SIGNALIZATION PLANS\11064T06-7.dwg 12/13/2018 8:40 AM Connor O'Rourke



ID NO.	SHEET NO.	LOCATION BY STA.	TOP OF FOUNDATION ELEVATION	RDWY ARM NO.	CROWN ELEV.	SIGNAL DATA														TOTAL ARM LENGTH	ARM M.H.	∠ BETWEEN DUAL ARMS 90/270	SIGN DATA															PAINT (A)
						SIGNAL V/H	BACK PLATES Y/N	PED. SIGNAL Y/N	DISTANCE FROM POLE														DISTANCE FROM POLE / HEIGHT AND WIDTH OF SIGN															
									1	*	2	*	3	*	4	*	5	*	6	*				A	H1	W1	B	H2	W2	C	H3	W3	D	H4	W4	E	H5	W5	
A	T–4	127+61.97 89.74'(LT)		1		H	Y	N	15	5	26	3	37	3	54	3	65	3			70.5		90	6	1.5	6	59	2.5	3										HUNTER GREEN
				2		H	Y	N	44.5	3	56	3									60			59	2.5	3												HUNTER GREEN
B	T–4	127+73.51/52.72'(RT)		1		H	Y	Y	34.5	5	48	3	63	3	73	3					78			12	1.5	6												HUNTER GREEN
C	T–4	126+22.65 51.69'(RT)		1		H	Y	Y	24.5	5	36	3	47	3	63	3					70.5			18	1.5	6	68	2.5	3										HUNTER GREEN
D	T–4	125+91.73 81.67'(LT)		1		H	Y	N	21	5	34	3	50	3	58.5	3	58.5	3			70.5			8	1.5	6	53.5	2.5	3										HUNTER GREEN

* DENOTES NUMBER OF SECTIONS IN SIGNAL HEAD ASSEMBLY

(K) POTENTIAL HEAD

\# TOP OF FOUNDATION FLUSH WITH SURROUNDING SIDEWALK

(I) RELATIVE TO CROWN

V VIDEO DETECTION

(A) POWDER COAT OR PAINT TO MEET CURRENT FDOT SPCIFICATIONS

PATRICIA MARIE BARR LICENSE PROFESSIONAL ENGINEER STATE OF FLORIDA

DEC 19 2018

SIMMONS & WHITE
ENGINEERING | PLANNING | CONSULTING | SINCE 1982
Authorization No. 3462
2581 Metrocentre Blvd e Suite 3 e West Palm Beach, Florida 33407 e (561) 478-7846

S.R. 60
& 43RD AVENUE

MAST ARM TABULATION

DESIGN	DRAWN	CHECKED	APPROVED	DATE	JOB NO.	DRAWING NO.	SHEET	OF
T.B.	T.M.	A.L.	R.R.		11–064	11064T08	T–8	T–10

STANDARD MAST ARM ASSEMBLIES DATA TABLE

TABLE DATE 01-01-12

STRUCTURE ID NUMBERS	ASSEMBLY NUMBERS	FIRST ARM			SECOND ARM			UF (deg.)	LL (deg)	POLE				SPECIAL DRILLED SHAFT (4)					
		ARM TYPE	FAA (2) (ft.)	FBA (2) (in.)	ARM TYPE	FAA (2) (ft.)	FBA (2) (in.)			POLE TYPE	UAA (3) (ft.)	UB (in.)	UCA (3) (in.)	DA (ft.)	DB (ft.)	RA	RB	RC	RD
A	D6-D5-S4	D6			D5			90		S4	24	21							
B	D7-S6	D7								S6	24	21		16	5	11	19	10	12
C	D6-S24	D6							45	S24		21		16	5	11	19	10	12
D	D6-S24	D6							0	S24		21		17	5	11	19	10	12

TABLE NOTES:

1.) Assembly Number Legend

Single Arm:
Arm Type - Pole Type = D# - S#
= E# - T#

Double Arm:
First Arm Type - Second Arm Type - Pole Type = D# - D# - S#
= E# - E# - T#

2.) If an entry appears in columns "FAA" and "FBA", a shorter arm is required. This is obtained by removing length from the arm tip. For these cases the mast arm length shall be shortened from "FA" to "FAA" and the tip diameter shall be increased from "FB" to "FBA".

3.) If an entry appears in columns "UAA" and "UCA", a shorter pole is required. This is obtained by removing length from the pole tip. For these cases the pole height shall be shortened from "UA" to "UAA" and the pole tip diameter shall be increased from "UC" to "UCA".

4.) The foundations for Standard Mast Arm Assemblies are pre-designed and are based upon the following conservative soil criteria which covers the great majority of soil types found in Florida. Only complete the "Special Drilled Shaft" data information if site conditions dictate drilled shafts with additional foundation capacity.

Classification = Cohesionless (Fine Sand)
Friction Angle = 30 Degrees (30°)
Unit Weight = 50 lbs. / cu. ft. (assumed saturated)

GENERAL NOTES:

1.) Work this sheet with the Signal Designer's "Mast Arm Tabulation". See "Mast Arm Tabulation" for special instructions that include non-standard Handhole location, paint color, terminal compartment requirement, and pedestrian features.

2.) Work with Index Nos. 17743 and 17745.

PATRICIA MARIE BARR LICENSE No. 56825 STATE OF FLORIDA PROFESSIONAL ENGINEER
DEC 13 2018
Patricia Barr

SIMMONS&WHITE
ENGINEERING | PLANNING | CONSULTING | SINCE 1982
Authorization No. 3452
2581 Metrocentre Blvd • Suite 3 • West Palm Beach, Florida 33407 • (561) 478-7848

DESIGN	DRAWN	CHECKED	APPROVED	DATE
T.B.	T.M.	A.L.	R.R.	

S.R. 60
& 43RD AVENUE

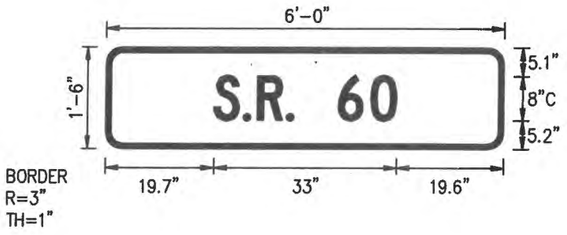
TABLE OF VARIABLES FOR STANDARD MAST ARM ASSEMBLIES INDEX #S-1700

JOB NO.	DRAWING NO.	SHEET	OF
11-064	11064T09	T-9	T-10

SIGN NAME	A	STATION(S)	
QUANTITY	2	1	none
WIDTH	6'-0"	2	
HEIGHT	1'-6"	3	
BORDER WIDTH	0.6"	4	
BORDER RADII	0"	5	
PANEL COLOR	Green		
LEGEND	White		
BORDER	White		

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NUMBER	CLEARANCE EDGE OF LANE	COLUMN SIZE		AVERAGE LENGTH



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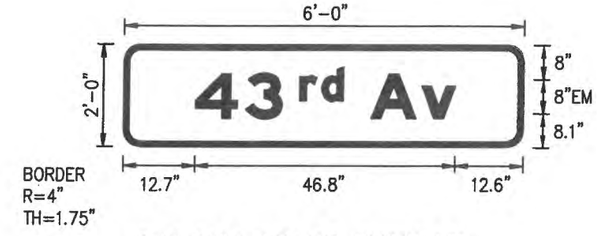
SIGN NAME	B	STATION(S)	
QUANTITY	2	1	none
WIDTH	6'-0"	2	
HEIGHT	2'	3	
BORDER WIDTH	1.75"	4	
BORDER RADII	4"	5	
PANEL COLOR	Green		
LEGEND	White		
BORDER	White		

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NUMBER	CLEARANCE EDGE OF LANE	COLUMN SIZE		AVERAGE LENGTH



PANEL STYLE: GUIDE_EXP_ADVANCE_A.SSI
M.U.T.C.D.: 2009 EDITION

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SIGN NAME		STATION(S)	
QUANTITY		1	
WIDTH		2	
HEIGHT		3	
BORDER WIDTH		4	
BORDER RADII		5	
PANEL COLOR			
LEGEND			
BORDER			

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NUMBER	CLEARANCE EDGE OF LANE	COLUMN SIZE		AVERAGE LENGTH

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SIGN NAME		STATION(S)	
QUANTITY		1	
WIDTH		2	
HEIGHT		3	
BORDER WIDTH		4	
BORDER RADII		5	
PANEL COLOR			
LEGEND			
BORDER			

SYMBOL(S)	ANGLE	X	Y	WID	HT

SIGN NUMBER	CLEARANCE EDGE OF LANE	COLUMN SIZE		AVERAGE LENGTH

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2581 Metrocentre Blvd e Suite 3 e West Palm Beach, Florida 33407 e (561) 478-7848

S.R. 60
& 43RD AVENUE

GUIDE SIGN DETAIL

DESIGN	DRAWN	CHECKED	APPROVED	DATE	JOB NO.	DRAWING NO.	SHEET	OF
T.B.	T.M.	A.L.	R.R.		11-064	11064T10	T-10	T-10

CONTRACT PLANS COMPONENTS:

ROADWAY PLANS
SIGNING AND PAVEMENT MARKING PLANS
SIGNALIZATION PLANS
LIGHTING PLANS
LANDSCAPE AND IRRIGATION PLANS
STRUCTURAL PLANS

INDEX OF SHEETS

THESE PLANS HAVE BEEN PREPARED IN ACCORDANCE WITH AND ARE GOVERNED BY THE FLORIDA DEPARTMENT OF TRANSPORTATION, DESIGN STANDARDS (2017-2018 EDITION) AND SUPPLEMENTS THERETO.

GOVERNING SPECIFICATIONS:
THE FLORIDA DEPARMENT OF TRANSPORTATION, STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION, 2017 EDITION, SUPPLEMENTS THERETO, AND SPECIAL PROVISIONS THERETO IF NOTED IN THE CONTRACT SPECIFICATIONS FOR THIS PROJECT.

MainStreet ENGINEERING
7035B SW 47th Street . Miami, Florida 33155
Tel.: (305) 666-7450 . Fax: (305) 666-2450
FL PE Certificate No.: 00008731

FDOT FPN# 431759-2-54-01

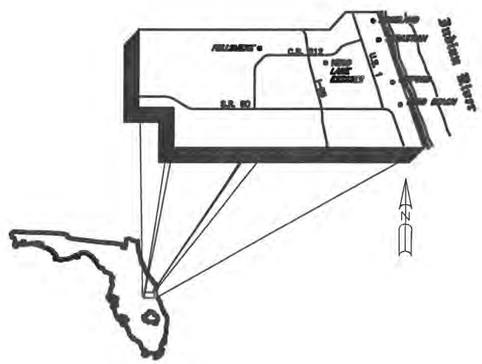
INDIAN RIVER COUNTY
BOARD OF COUNTY COMMISSIONERS

STATE ROUTE 60
WIDENING, MILL & RESURFACE
FROM 44TH AVENUE TO 38TH AVENUE

&

43RD AVENUE
RECONSTRUCTION
FROM 19TH STREET TO 26TH STREET

BEGIN BRIDGE STATION 129+62.455
END BRIDGE STATION 130+94.455



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

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

PROJECT MANAGER:
WILLIAM JOHNSON, P.E.

	SR 60		43RD AVE.	
	MILES	FEET	MILES	FEET
ROADWAY	0.476	2512	0.806	4254
BRIDGES	-	-	0.033	174
NET LENGTH OF PROJECT	0.476	2512	0.839	4428
EXCEPTIONS	-	-	-	-
GROSS LENGTH OF PROJECT	0.476	2512	0.839	4428

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 SUBSTANTIAL 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: 1-4-19 PROFESSIONAL ENGINEER # 32028

WILLIAM E. PINO, P.E.

Department of Public Works
Engineering Division

No.	Revisions	By:	Date:

Scale: N.T.S.
Approved: WP
Drawn: JS
Checked: WP
Date: 12/17/2018

STATE ROUTE 60
&
43RD AVENUE

Sheet: 1
Of: 42
Project No.
LNW# WP1027

LUMINAIRE SCHEDULE

SHALL BE AS SPECIFIED, OR EQUAL. EQUIVALENT FIXTURES SHALL BE SUBMITTED WITH SIGNED AND SEALED PHOTOMETRIC CALCULATIONS FOR ENGINEER'S REVIEW.

Symbol	Label	Catalog Number	Description	Lumens	LLF	Watts
○—○	Ⓐ	SCHREDER #36L177-NW-T2M	LED, 40' MH ON ALUMINUM BREAKAWAY POLE	17700	1.00	155
○—○	Ⓑ	SCHREDER #48L200-NW-T3M	LED, 40' MH ON ALUMINUM BREAKAWAY POLE	20000	1.00	166
○—●	Ⓒ	SCHREDER #36L168-NW-T3M	LED, 40' MH ON TRAFFIC SIGNAL POLE	16800	1.00	144
○—○	Ⓓ	SCHREDER #48L185-NW-T2M	LED, 40' MH ON ALUMINUM BREAKAWAY POLE	18500	1.00	148

CONTRACTOR SHALL VERIFY VOLTAGES PRIOR TO ORDERING FIXTURES

SYMBOLS	DESCRIPTION
—●———●	2" SCHEDULE 40 PVC CONDUIT WITH 2 #4 XLT-RHW CONDUCTORS AND 1 #8 THW GREEN INSULATED STRANDED GROUND CONDUCTOR AS INDICATED IN PLAN DETAIL, UNLESS OTHERWISE INDICATED IN PLANS.
— —OHE— —	OVERHEAD ELECTRIC POWER WIRING INSTALLED BY OTHERS IN EASEMENT DIRECTLY BEHIND SIDEWALK – NOT SHOWN IN EXACT LOCATION ON THESE DRAWINGS IN ORDER TO IMPROVE CLARITY. REFER TO "CITY OF VERO BEACH MUNICIPAL ELECTRIC SYSTEM" DRAWINGS.
⊘	EXISTING FPL WOOD POLE TO REMAIN OR BE REMOVED BY OTHERS SHOWN FOR REFERENCE ONLY
▨	EXISTING FPL CONCRETE POLE SHOWN FOR REFERENCE ONLY
⊘◀	EXISTING FPL TRANSFORMER ON WOOD POLE SHOWN FOR REFERENCE ONLY
▬	DISTRIBUTION POINT – FOR REQUIREMENT SEE INDEX NO. 17504 OF DESIGN STANDARDS
▣	PULL BOX – FOR SPECIFICATIONS SEE SECTION 635 OF STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION PULL BOXES REQUIRED AT: 1. TWO (2) PULL BOXES AT BASE OF SERVICE POLE. 2. ONE AT BASE AT EACH POLE. 3. AS NECESSARY FOR COMPLETION OF THE PROJECT.
○—○	LIGHT FIXTURE AND BRACKET ARM MOUNTED ON BREAKAWAY ALUMINUM POLE MOUNTED ON CONCRETE POLE BASE.
○—●	NEW LIGHT FIXTURE AND BRACKET ARM MOUNTED ON TRAFFIC SIGNAL POLE
CP	CONFLICT POLE – INDICATES NEW POLE & BRACKET ARM ASSEMBLY SHALL BE CONSTRUCTED TO MAINTAIN FPL REQUIRED CLEARANCE (10') FROM POWER WIRING. CRANES SHALL NOT BE USED TO INSTALL CONFLICT POLES. CONFLICT POLE LOCATIONS ARE INDICATED AS A GUIDE. CONTRACTOR SHALL COORDINATE WITH FPL AND VERO BEACH UTILITY REGARDING OVERHEAD WIRING LOCATIONS AND INSTALL CONFLICT POLES ACCORDINGLY.

TABULATION OF MATERIAL QUANTITIES

PAY ITEM NO.	DESCRIPTION	UNIT	SHEET NUMBER L-4 ORIG.	L-4 FINAL	L-5 ORIG.	L-5 FINAL	L-6 ORIG.	L-6 FINAL	L-7 ORIG.	L-7 FINAL	L-8 ORIG.	L-8 FINAL	L-9 ORIG.	L-9 FINAL	L-10 ORIG.	L-10 FINAL	L-11 ORIG.	L-11 FINAL	L-12 ORIG.	L-12 FINAL	L-13 ORIG.	L-13 FINAL	L-14 ORIG.	L-14 FINAL	L-15 ORIG.	L-15 FINAL	GRAND TOTAL ORIG.	GRAND TOTAL FINAL
715-1-12	LIGHTING CONDUCTOR, F & I, INSULATED, NO. 4	LF	924		3485		3465		3472		2964		3452		4835		2373		2478		3719		3882		1706		36765	
715-2-11-1	LIGHTING CONDUIT, F & I, UNDERGROUND, 2" PVC SCH. 40	LF	280		1056		1050		1052		898		1046		1465		719		751		1127		1133		517		11094	
715-4-111	CONFLICT LIGHT POLE COMPLETE W/ CONCRETE BASE, F&I, WIND SPEED 160	LF	1		3		3		6		4		3		3		1		3		3		4		2		38	
715-4-111	STANDARD LIGHT POLE COMPLETE W/ CONCRETE BASE, F&I, WIND SPEED 160	EA	1		3		3		3		1		3		2		3		2		3		4		2		30	
715-5-11	LUMINERE AND BRACKET ARM MOUNTED ON SIGNAL POLE, F&I	EA	–		–		–		2		–		–		–		2		–		–		–		–		4	
715-500-1	POLE CABLE DISTRIBUTION SYSTEM, IP-68 LISTED	EA	2		6		6		11		5		6		5		6		5		6		8		4		70	
715-7-11	LOAD CENTER (INCLUDES ALL COMPONENTS LISTED ON SERVICE POINT DETAILS DRAWING)	EA	–		–		1		–		–		1		–		–		–		1		–		–		3	
715-14-11	PULL BOX (F&I) (ROADSIDE), MOULDED	EA	2		6		6		11		6		6		5		6		5		6		8		4		71	

PAY ITEM NOTES:

ITEM NO. 715-7-11 **INCLUDES ALL** COMPONENTS, EXTERNAL, INTERNAL CONDUIT AND CONDUCTORS FOR THE SERVICE AS INDICATED ON PLANS.

ITEM NO. 715-4-111 INCLUDES LIGHT POLE, LUMINAIRE, FUSE HOLDERS WITH FUSES, ALL NECESSARY MOUNTING HARDWARE AND ALL INTERNAL CONDUIT, CONDUCTORS AND CONNECTIONS COMPLETE PER PLANS.

ITEM NO. 715-1-12 INCLUDES COST OF FURNISHING AND INSTALLING WIRES PER LINEAR FOOT AND ALL MISCELLANEOUS HARDWARE NECESSARY FOR A COMPLETE INSTALLATION AS PER PLANS. INCLUDES AN ADDITIONAL 10% OF TOTAL DISTANCE TO ALLOW FOR SPLICING.

ITEM NO. 715-2-11-1 INCLUDES THE COST OF TRENCHING/BORING CONDUITS PER LINEAR FOOT, MISCELLANEOUS PARTS NECESSARY FOR A COMPLETE INSTALLATION AS PER PLANS, SUCH AS ELBOWS, SWEEPS, CONNECTING HARDWARE, TRENCHING, BACKFILLING AND EXPANSION FITTINGS AND CONNECTIONS PER STANDARD INDEXES. INCLUDES FOUR FEET OF ADDITIONAL CONDUIT FOR EACH SWEEP.

ITEM NO. 715-500-1 PCDS SHALL BE IP-68 LISTED AS WHOLE COMPONENT. REFER TO SPECIFICATION OF PCDS ON SHEET L-21. SUBMIT CERTIFICATION WITH SUBMITTALS.

WILLIAM E. PINO LICENSE NO. No. 32026 STATE OF FLORIDA PROFESSIONAL ENGINEER
1-4-19

DATE:

SYMBOLS, LUMINAIRE SCHEDULE, PAY ITEMS

MainStreet ENGINEERING
70358 SW 47th Street . Miami, Florida 33155
Tel.: (305) 666-7450 . Fax (305) 666-2450
FL PE Certificate No.: 00008731

Revisions	By:	Date:

Department of Public Works
Engineering Division

Scale: NONE
Approved: WP
Drawn: JS
Checked: WP
Date: 12/17/2018
Field Book No:

Project:
ROADWAY LIGHTING PLANS
FOR
SR 60 & 43RD AVENUE

Sheet: L-1
Of: 24
Project No.
LMMP WP1087

43RD AVENUE POLE DATA

POLE NO.	STATION	DIST. OR ARM	LUMINAIRE WATTAGE	LUMINAIRE MOUNTING HEIGHT	POLE SET BACK AND NOTES	FINAL
A1 CP	STA. 110+10	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A2	STA. 112+11	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A3 CP	STA. 112+28	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A4	STA. 113+45	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A5 CP	STA. 114+21	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A6	STA. 115+51	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A7 CP	STA. 116+28	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A8	STA. 117+56	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A9 CP	STA. 118+51	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A10	STA. 119+40	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A11 CP	STA. 120+56	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A12	STA. 120+87	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A13 CP	STA. 122+00	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A14	STA. 123+31	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A15 CP	STA. 124+32	12' ARM	155W LED	40'	BACK OF SIDEWALK	
D1 CP	STA. 129+83	12' ARM	148W LED	40'	BACK OF SIDEWALK	
D2	STA. 130+74	12' ARM	148W LED	40'	BACK OF SIDEWALK	
A16 CP	STA. 132+1	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A17 CP	STA. 132+82	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A18 CP	STA. 134+16	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A19 CP	STA. 135+34	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A20 CP	STA. 136+22	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A21	STA. 136+55	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A22 CP	STA. 138+55	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A23	STA. 136+22	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A24 CP	STA. 140+11	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A25	STA. 141+50	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A26 CP	STA. 142+72	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A27	STA. 143+82	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A28 CP	STA. 144+68	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A29	STA. 146+25	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A30 CP	STA. 147+64	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A31	STA. 149+4	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A32 CP	STA. 150+41	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A33	STA. 151+81	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A34	STA. 153+20	12' ARM	155W LED	40'	BACK OF SIDEWALK	
C3	STA. 153+56	12' ARM	144W LED	40'	SEE DRAWING L-11 FOR POLE LOCATION	
C4	STA. 153+58	12' ARM	144W LED	40'	SEE DRAWING L-11 FOR POLE LOCATION	

STATE ROUTE 60 POLE DATA

POLE NO.	STATION	DIST. OR ARM	LUMINAIRE WATTAGE	LUMINAIRE MOUNTING HEIGHT	POLE SET BACK AND NOTES	FINAL
A35 CP	STA. 2636+49	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A36	STA. 2638+29	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A37 CP	STA. 2638+46	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A38	STA. 2639+83	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A39 CP	STA. 2639+97	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A40	STA. 2645+89	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A41 CP	STA. 2646+22	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A42	STA. 2647+72	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A43 CP	STA. 2647+85	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A44	STA. 2648+78	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A45 CP	STA. 2648+82	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A46	STA. 2651+50	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A47 CP	STA. 2651+59	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A48	STA. 2653+17	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A49 CP	STA. 2653+33	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A50	STA. 2654+94	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A51 CP	STA. 2655+35	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A52	STA. 2656+75	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A53 CP	STA. 2656+94	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A54 CP	STA. 2658+31	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A55	STA. 2658+82	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A56 CP	STA. 2659+81	12' ARM	155W LED	40'	BACK OF SIDEWALK	
A57	STA. 2660+11	12' ARM	155W LED	40'	BACK OF SIDEWALK	

INTERSECTION OF 43RD AVENUE & STATE ROUTE 60 POLE DATA

POLE NO.	STATION	DIST. OR ARM	LUMINAIRE WATTAGE	LUMINAIRE MOUNTING HEIGHT	POLE SET BACK AND NOTES	FINAL
B1	STA. 2641+48	12' ARM	166W LED	40'	BACK OF SIDEWALK	
B2 CP	STA. 2641+71	12' ARM	166W LED	40'	BACK OF SIDEWALK	
B3 CP	STA. 125+46	12' ARM	166W LED	40'	BACK OF SIDEWALK	
B4	STA. 2643+94	12' ARM	166W LED	40'	BACK OF SIDEWALK	
B5 CP	STA. 126+48	12' ARM	166W LED	40'	BACK OF SIDEWALK	
B6	STA. 126+28	12' ARM	166W LED	40'	BACK OF SIDEWALK	
B7 CP	STA. 2644+37	12' ARM	166W LED	40'	BACK OF SIDEWALK	
C1	STA. 125+97 STA. 2642+14	12' ARM	144W LED	40'	SEE DRAWING L-7 FOR POLE LOCATION	
C2	STA. 126+25 STA. 2643+46	12' ARM	144W LED	40'	SEE DRAWING L-7 FOR POLE LOCATION	

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WILLIAM E. DINO LICENSE NO. No. 32026 STATE OF FLORIDA PROFESSIONAL ENGINEER
1-4-19

POLE DATA

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DATE:

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Engineering Division

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Project:
ROADWAY LIGHTING PLANS
FOR
SR 60 & 43RD AVENUE

Sheet: L-2
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GENERAL ELECTRICAL NOTES:

1. CONTRACTOR SHALL FURNISH AND INSTALL THE LIGHTING SYSTEM AS DEPICTED ON ELECTRICAL DRAWINGS AND AS SPECIFIED IN TABULATION OF LIGHTING QUANTITIES AND PAY ITEM NOTES.
2. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL MATERIALS AND LABOR TO INSTALL THE ELECTRICAL SYSTEMS AS INDICATED ON THE DRAWINGS. IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION. ITEMS NOT SHOWN BUT OBVIOUSLY NECESSARY FOR COMPLETION OF THE WORK SHALL BE INCLUDED.
3. THE INSTALLATION SHALL BE IN ACCORDANCE WITH THE LATEST ADOPTED VERSION OF THE NATIONAL ELECTRICAL CODE, NFPA-70, A.A.S.H.T.O., 2018, FBC 2014, DOT UTILITY ACCOMODATION MANUAL, 2017-18, FDOT DESIGN STANDARDS, 2017-18, LATEST ADOPTED VERSION OF NFPA-101, CURRENT LOCAL CODES, AND OTHER APPLICABLE JURISDICTION CODES.
4. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS, INSPECTIONS AND APPROVALS. ALL WORK SHALL BE DONE BY A LICENSED ELECTRICIAN.
5. THE CONTRACTOR SHALL COORDINATE WORK WITH THE ENGINEER AND OWNER.
6. THE CONTRACTOR SHALL DETERMINE THE SERVICE REQUIRED DATE FOR THE POWER COMPANY TRANSFORMER INSTALLATION AT THE PRE-CONSTRUCTION CONFERENCE.
7. GROUNDING SHALL BE INSTALLED TO MEET NEC, ARTICLE 250 REQUIREMENTS. A GROUNDING SYSTEM SHALL NOT EXCEED A 4Ω HOUR DRY RESISTANCE OF 10 OHMS. ADDITIONAL GROUNDING TO MEET THIS REQUIREMENT SHALL BE INSTALLED AT NO EXTRA COST. GROUNDING AND BONDING CONNECTIONS SHALL NOT BE PAINTED.
8. AN EQUIPMENT GROUND WIRE SIZED PER NEC SHALL BE PULLED IN ALL ELECTRICAL CONDUITS, WHETHER OR NOT INDICATED ON PLANS.
9. ALL EQUIPMENT AND MATERIALS SHALL BE NEW AND UNUSED AND U.L. LISTED.
10. UNDERGROUND CONDUITS SHALL BE SCHEDULE 40 P.V.C.
11. ELECTRICAL WARNING TAPE SHALL BE PLACED 12 INCHES DEEP IN TOP OF ALL UNDERGROUND TRENCHINGS.
12. ALL TRENCHES SHALL BE FILLED WITH COMPACTED EXISTING CLEAN BACKFILL (95% ASSHTO T-99) AND COMPACTED UTILIZING COMPACTION MACHINE AT DEPTH OF NOT MORE THAN 6 INCH LAYERS.
13. ALL UNDERGROUND ELECTRICAL CONDUITS SHALL BE A MINIMUM 30 INCH DEEP TO TOP OF THE CONDUITS UNLESS OTHERWISE NOTED.
14. INSTALL PULL BOXES AS NECESSARY TO ACCOMMODATE LONG CABLE PULLS. INSTALL DUCT SEALS AT END OF CONDUITS THAT ENTER PULL BOXES AND JUNCTION BOXES. LEAVE A MINIMUM OF 6 INCH SPACE BETWEEN WIRES AND PULL BOX COVERS.
15. THE DRAWINGS ARE NOT INTENDED TO SHOW THE EXACT LOCATION OF CONDUIT RUNS. TRENCHING SHALL BE COORDINATED WITH THE OTHER TRADES SUCH AS LANDSCAPING AND OTHER UNDERGROUND UTILITIES, SO THAT CONFLICTS ARE AVOIDED PRIOR TO INSTALLATION. ADDITIONALLY, MAINTAIN ENOUGH DISTANCE FROM EXISTING TREES AND LANDSCAPE AREAS TO MINIMIZE DAMAGE TO EXISTING ROOTS.
16. THE CONTRACTOR IS RESPONSIBLE TO TEST ALL SYSTEMS AND SHALL REPAIR OR REPLACE ALL DEFECTIVE WORK TO THE SATISFACTION OF THE ENGINEER AND THE OWNER.
17. A TYPE WRITTEN PANEL SCHEDULE SHALL BE INSTALLED IN THE PANEL BOARD. ALL CIRCUITS SHALL BE IDENTIFIED IN PULL BOXES, PANEL BOARD AND CONTACTORS. IDENTIFICATION SHALL MATCH PANEL BOARD SCHEDULE.
18. THE CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH THE EXISTING CONDITIONS AND COORDINATION OF THE WORK. ANY OMISSIONS OR CONFLICT IN THE WORKING DRAWINGS OR BETWEEN THE DRAWINGS AND EXISTING FIELD CONDITIONS WHICH MAY INTERFERE WITH THE PROPER EXECUTION AND COMPLETION OF THE DESCRIBED WORK SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND THE OWNER PRIOR TO PROCEEDING WITH THE WORK.
19. TWO WEEKS AFTER JOB COMPLETION, THE CONTRACTOR SHALL PERFORM A NIGHT CHECK OF THE LIGHTS AND REPAIR OR REPLACE ANY NON-FUNCTIONING LUMINAIRES AND NOTIFY THE CITY OF ACTIONS TAKEN.
20. CONTRACTOR SHALL TAKE ALL NECESSARY STEPS TO PREVENT OBJECTIONABLE BLOWING OR DRIFTING OF DIRT, SOIL, OR OTHER DEBRIS DURING EXCAVATION AND INSTALLATION OF ELECTRICAL CONDUIT.
21. THE CONTRACTOR SHALL LEAVE THE SITE CLEAN AND ORDERLY AT THE END OF EACH WORKDAY.
22. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR AND PAINTING OF ANY DAMAGED PORTIONS OF POLES AND BRACKET ARMS AT NO COST TO THE OWNER.
23. ALL MATERIALS AND EQUIPMENT SHALL BE STORED AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS UNLESS OTHERWISE NOTED.
24. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS & CATALOG NUMBERS FOR ALL NEW MATERIAL FOR APPROVAL BY THE ELECTRICAL CONSULTANT AND THE OWNER.

24.A. PHOTOMETRIC SHOP DRAWING SUBMITTALS: CONTRACTOR SHALL SUBMIT A POINT BY POINT SIGNED & SEALED BY A FLORIDA P.E. PHOTOMETRIC LAYOUT INDICATING COMPLIANCE WITH CURRENT FDOT STANDARDS AND DESIGN CRITERIA ESTABLISHED BY THE E.O.R.

24.B. WINDLOADING CALCULATIONS: CONTRACTOR SHALL SUBMIT SIGNED & SEALED BY A FLORIDA STRUCTURAL P.E. POLES' WINDLOADING CALCULATIONS IN COMPLIANCE WITH FDOT AND AASHTO'S DESIGN CRITERIA FOR THE SPECIFIC GEOGRAPHIC LOCATION

24.C. POLE CABLE DISTRIBUTION SUBMITTAL. SUBMIT IP-68 CERTIFICATION OF THE PODS AS WHOLE CAPABLE OF OPERATING CONTINOUSLY SUBMERGED UNDER A MINIMUM OF 5 FT OF WATER.

25. EVERY ATTEMPT SHALL BE MADE TO PROTECT ALL EQUIPMENT & MATERIAL FROM ANY DAMAGE DURING TRANSPORTATION, LOADING, UNLOADING AND INSTALLATION AT THE SITE.
26. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOST, STOLEN OR DAMAGED EQUIPMENT OR MATERIAL.
27. ALL EQUIPMENT INSTALLED OUTSIDE OR EXPOSED TO WEATHER SHALL BE NEMA TYPE 4X, UNLESS NOTED OTHERWISE.
28. POLES AND BRACKET ARMS SHALL BE DESIGNED IN ACCORDANCE WITH THE DESIGN CRITERIA AS INDICATED ON THE PLANS.
29. THE LUMINAIRE AND ARM ON "JOINT USE POLES" SHALL BE GROUNDED.
30. ALL GRASS AREAS AFFECTED BY CONSTRUCTION SHALL BE RE-SODED.
31. THE CONTRACTOR SHALL TAKE SPECIAL NOTE OF SOIL CONDITIONS THROUGHOUT THIS PROJECT. ANY SPECIAL SHORING, SHEETING OR OTHER PROCEDURES NECESSARY TO PROTECT ADJACENT PROPERTY, PUBLIC OR PRIVATE, DURING THE EXCAVATION OF SUBSOIL MATERIAL AND EXFILTRATION TRENCH, OR FILLING OF ANY AREA, OR FOR ANY OPERATION DURING CONSTRUCTION, SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
32. THE CONTRACTOR SHALL RESTRICT PERSONNEL, THE USE OF EQUIPMENT, AND THE STORAGE OF MATERIALS TO AREAS WITHIN THE LIMITS OF CONSTRUCTION AND DESIGNATED STAGING AREA.
33. ALL EXCESS MATERIAL, AS DESIGNATED BY THE ENGINEER OR OWNER, SHALL BE DISPOSED OF BY THE CONTRACTOR IN AREAS PROVIDED BY HIM WITHIN 72 HOURS OF BEING DEPOSITED IN THE CONSTRUCTION AREA AND AT THE CONTRACTOR'S EXPENSE.
34. ALL DISPOSAL OF MATERIALS, RUBBISH, AND DEBRIS SHALL BE MADE AT A LEGAL DISPOSAL SITE OR BY OTHER PRIOR APPROVED MANNER. MATERIAL CLEARED FROM THE SITE SHALL NOT BE DEPOSITED ON ADJACENT OR NEARBY PROPERTY.
35. EXISTING ABOVE GROUND FEATURES ARE SHOWN ACCORDING TO THE BEST AVAILABLE DATA AND MAY NOT ACCURATELY REFLECT PRESENT CONDITIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH CURRENT SITE CONDITIONS, AND SHALL REPORT DISCREPANCIES TO THE ENGINEER PRIOR TO STARTING WORK.
36. THE LUMINAIRE MANUFACTURER SHALL PLACE A PERMANENT TAG ON THE LUMINAIRE HOUSING ON WHICH IS IMPRINTED THE FOLLOWING INFORMATION: WATTAGE, POSITION OF LUMINAIRE, IES LIGHT DISTRIBUTION WITH LIGHT SOURCE IN POSITION SPECIFIED, INPUT VOLTAGE AND POWER FACTOR.
37. WHEN DISSIMILAR MATERIAL CONNECTIONS ARE MADE, SUCH AS CONCRETE TO METAL, THE DISSIMILAR MATERIAL SHALL BE SEPARATED BY COATING THE CONTACT SURFACE WITH BITUMASTIC MATERIAL.
38. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROVISION, INSTALLATION, AND MAINTENANCE OF ALL TRAFFIC CONTROL AND SAFETY DEVICES IN ACCORDANCE WITH THE FDOT DESIGN STANDARDS.
39. THE INFORMATION PROVIDED IN THESE DRAWINGS IS SOLELY TO ASSIST THE CONTRACTOR IN ASSESSING THE NATURE AND EXTENT OF CONDITIONS WHICH WILL BE ENCOUNTERED DURING THE COURSE OF WORK. THE CONTRACTORS ARE DIRECTED, PRIOR TO BIDDING, TO CONDUCT WHATEVER INVESTIGATIONS THEY DEEM NECESSARY TO ARRIVE AT THEIR OWN CONCLUSIONS REGARDING THE ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED, AND UPON WHICH BIDS WILL BE BASED.
40. OPERATING INSTRUCTIONS: UPON COMPLETION OF ALL WORK AND OF ALL TESTS, FURNISH THE NECESSARY SKILLED LABOR AND HELPERS FOR OPERATING ALL ELECTRICAL SYSTEMS AND EQUIPMENT IN ORDER TO INSTRUCT AND TRAIN THE OWNER'S REPRESENTATIVE IN THE OPERATION AND MAINTENANCE OF ALL EQUIPMENT FURNISHED.
41. OPERATION AND MAINTENANCE MANUALS: WITHIN 30 DAYS AFTER THE DATE OF SYSTEM ACCEPTANCE, THE CONTRACTOR SHALL PROVIDE TO THE OWNER, OPERATION AND MAINTENANCE MANUALS CONTAINING SUBMITTAL DATA STATING EQUIPMENT RATING, SELECTED OPTIONS AND REQUIRED MAINTENANCE ACTIONS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE. THE CONTRACTOR SHALL ALSO PROVIDE THE NAME AND ADDRESS OF AT LEAST ONE QUALIFIED SERVICE AGENCY.
42. RECORD DRAWINGS: THE CONTRACTOR IS RESPONSIBLE FOR ALL AS-BUILT DRAWINGS, WHICH SHALL BE PROVIDED TO THE OWNER WITHIN 30 DAYS AFTER THE DATE OF SYSTEM ACCEPTANCE. THEY SHALL INCLUDE A POWER RISER DIAGRAM AND ROADWAY PLANS INDICATING AN ACCURATE DEPICTION OF ALL INSTALLED ELECTRICAL EQUIPMENT.
43. BRANCH CIRCUIT VOLTAGE DROP: CONTRACTOR SHALL VERIFY THAT THE VOLTAGE DROP FOR ALL THE BRANCH CIRCUITS DOES NOT EXCEED 3% OF THE HOMERUN CIRCUITS ORIGINAL VOLTAGE AND SHALL INCREASE THE WIRE SIZE AS NECESSARY TO ADJUST FOR VOLTAGE DROP.
44. CONDUIT ROUTING SHALL BE POLE TO POLE, MAINTAINING POLE SETBACK DISTANCE FROM THE EDGE OF PAVEMENT.
45. POLE POSITION AND ROUTING MAY BE ADJUSTED, AS APPROVED BY THE ENGINEER, TO PREVENT CONFLICTS WITH UTILITY AND DRAINAGE STRUCTURES NOT INDICATED ON THE PLANS.
46. CONTRACTOR SHALL INSTALL CONCRETE PAD AROUND THE POLE FOUNDATION AND PULLBOX PER DOT SPECIFICATION INDICATED AND WHERE GRASS EXISTS, DIRT SHALL BE BACKFILLED TO THE EDGE OF THE PAD, COMPACTED TO A FIRM, STABLE CONDITION APPROXIMATELY EQUAL TO THAT OF THE ADJACENT SOIL. THE FILL SHALL CONFORM TO EXISTING GRADE AND BE FULLY SODDED.
47. ALL EXPOSED OR SURFACE MOUNTED CONDUIT SHALL BE FRE COMPOSITE OR RIGID ALUMINUM CONDUIT. THE EXPOSED RUNS OF CONDUIT ON THE BRIDGE, SHALL BE PROVIDED WITH EITHER EXPANSION JOINTS OR LIQUIDTIGHT FLEXIBLE METAL CONDUIT SECTIONS ADEQUATE TO WITHSTAND VIBRATIONS AND THERMAL EXPANSION.
48. ALL CONDUIT THAT WILL REMAIN EMPTY AS SPARES SHALL BE MANDREL TESTED, CLEANED INSIDE AND BOTH ENDS CAPPED. LEAVE CORRSION RESISTANT, PULL/DRAG WIRE AND PLACE DUCT MARKERS, OR PULLBOXES TO MARK THE LOCATION OF THE ENDS OF THE CONDUIT.
49. PULL BOXES SHALL BE LOCATED AT ENDS OF CONDUIT CROSSING ROADWAYS, AND AS NECESSARY FOR THE COMPLETION OF THE PROJECT.
50. THESE PLANS REPRESENT MINIMUM ACCEPTABLE CRITERIA. THE INSPECTION PER THESE DRAWINGS REPRESENT THE MINIMUM BASE ACCEPTANCE.
51. A PULL BOX SHALL BE INSTALLED AT EACH POLE LOCATION. PULL BOXES SHALL BE LOCATED 2' MAXIMUM FROM THE POLE UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER.
52. A HANDHOLE IS REQUIRED IN ALL POLES. HANDHOLE SHALL BE LOCATED OPPOSITE APPROACHING TRAFFIC WITH COVER FASTENED WITH STAINLESS STEEL SCREWS. SCREW THREADS SHALL BE COATED WITH WHITE GREASE. THE HANDHOLE OPENING SHALL BE AT LEAST 20 SQUARE INCHES.
53. THE PROJECT ENGINEER MAY LIMIT THE CONTRACTOR'S OPERATION DURING PEAK PERIODS (8:00AM – 9:00AM) AND (4:00PM – 7:00PM).

SPECIAL NOTES TO CONTRACTOR

1. THE ELECTRICAL CONTRACTOR SHALL VERIFY ALL UTILITIES BY ELECTRONIC METHODS AND PRE-TRENCHING IN COORDINATION WITH ALL UTILITY COMPANIES PRIOR TO BEGINNING ANY CONSTRUCTION OPERATIONS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT ALL EXISTING UNDERGROUND AND ABOVE GROUND IMPROVEMENTS SUCH AS CONDUITS, GAS MAINS, SANITARY SEWER LINES, TV CABLE, TELEPHONE, LATERALS, WATER MAINS, POLES, PIPES, CABLES AND OTHER STRUCTURES FROM DAMAGE AND SHALL BE RESPONSIBLE TO RESTORE, REPAIR OR REPLACE ANY DAMAGED ITEMS WITHOUT COMPENSATION.
3. HAND-DIGGING IS REQUIRED WHERE THERE MAY BE ANY CONFLICT WITH EXISTING UNDERGROUND UTILITIES.
4. CONTRACTOR SHALL DO A "POT HOLE" TEST BEFORE INSTALLING THE POLES.
5. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT ALL UTILITY COMPANIES FOR LOCATION OF THEIR EXISTING FACILITIES AND TO LOCATE THESE UTILITIES FOR THE EXACT DEPTH. CONTACT "SUNSHINE" AT 811 48 HOURS PRIOR TO DIGGING.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL DAMAGES SUSTAINED OR COST INCURRED BECAUSE OF THE CONTRACTOR'S OPERATION IN THE VICINITY OF EXISTING UTILITIES OR STRUCTURES. THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE UTILITY COMPANIES WHEN THEIR EXISTING FACILITIES CONFLICT WITH THE NEW CONSTRUCTION.
7. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE TO CONTACT/LOCATE OTHER UTILITIES NOT SUBSCREING TO "SUNSHINE".
8. CONTRACTOR SHALL USE CAUTION WHEN WORKING UNDER AND IN THE VICINITY OF OVERHEAD AND UNDERGROUND UTILITIES.

UTILITY AND CITY COORDINATION

1. CONTRACTOR SHALL COORDINATE WITH FPL TO PROVIDE POWER TO METERED SERVICES.
2. CONTRACTOR SHALL COORDINATE WITH FPL TO MAINTAIN THE EXISTING STREET LIGHTING UNTIL THE NEW LIGHTING IS INSTALLED, AND OPERATIONAL.
3. THIS LIGHTING SYSTEM IS WITHIN THE CITY OF VERO BEACH BOUNDARY, AND AS SUCH, SHALL BE OPERATED AND MAINTAINED BY THE CITY.

ELECTRICAL INSTALLATION

1. INSTALL STREET LIGHTING POLES AND FIXTURES AS SHOWN ON ROADWAY PLANS. INSTALLATION SHALL INCLUDE BUT NOT BE LIMITED TO POLES, FIXTURES, LAMPS, BRACKETS, FUSE HOLDERS, FUSES, PULL BOXES, GROUND RODS, TRENCHING, BORING, CONDUIT, WIRING, CONCRETE PADS AND FOUNDATIONS FROM EACH SERVICE AREA, FOR A COMPLETE OPERATING SYSTEM.
2. PROVIDE COMPLETE ELECTRIC SERVICE AS SHOWN ON ELECTRICAL DRAWINGS.

LIGHT POLE INSTALLATION / BORING NOTES:

1. DO NOT SCALE OFF ELECTRICAL DRAWINGS.
2. THE LOCATION OF POLES SHALL FIRST BE FLAGGED BY SURVEYOR. THE CONTRACTOR SHALL THEN WALK DOWN ALL POLE LOCATIONS TO VERIFY THAT THEY DO NOT INTERFERE WITH TREES, DRIVEWAYS, SIDEWALKS, OVERHEAD LINES, AND OTHER UNFORESEEN CONDITIONS, PRIOR TO INSTALLATION OF POLES.
3. THE CONTRACTOR SHALL UTILIZE DIRECTIONAL/BORING UNDER EXISTING ROADWAYS.
4. THE CONTRACTOR SHALL SELECT THE AREA FOR BORING THAT WILL HAVE ADEQUATE SPACE TO SET UP THE DIRECTIONAL BORING EQUIPMENT.

UTILITIES	CONTACT	TELEPHONE NUMBERS
FLORIDA POWER & LIGHT-TRANSMISSION	FPL	(800)-226-3545
CITY OF VERO BEACH UTILITIES	CITY OF VERO	(772)-978-5100
INDIAN RIVER COUNTY	GENERAL INFO.	(772)-226-8000
AT&T	BURIED LINES	(800)-924-9420
GAS	FLORIDA CITY GAS	(800)-993-7548
SUNSHINE ON CALL	SUNSHINE	811

GENERAL ELECTRICAL NOTES, CONTACT NUMBERS

WILLIAM E. PINO LICENSE No. 32026 STATE OF FLORIDA PROFESSIONAL ENGINEER
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Department of Public Works
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ROADWAY LIGHTING PLANS
FOR
SR 60 & 43RD AVENUE

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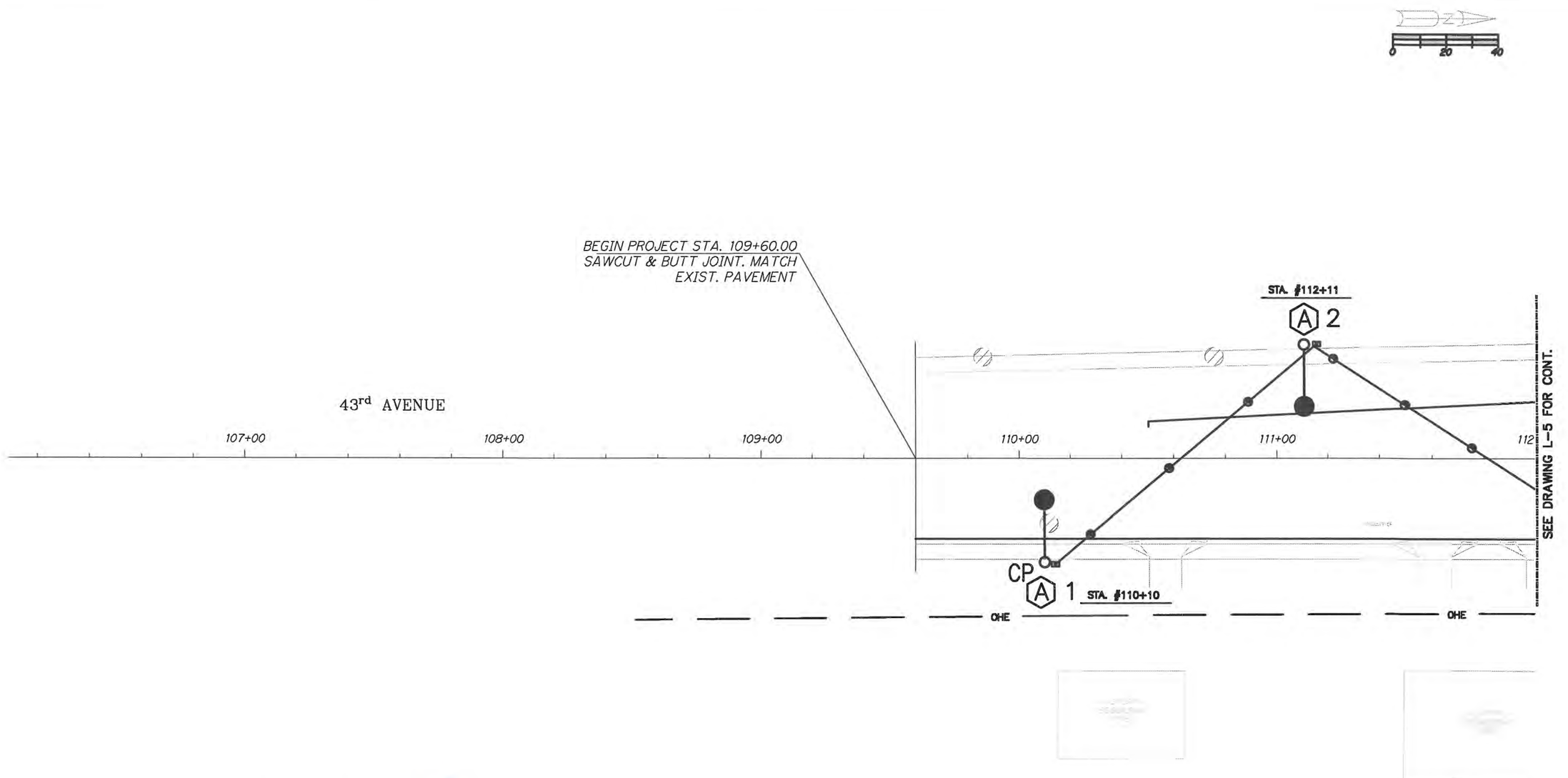
LNWP WP1027



LIGHTING PLAN

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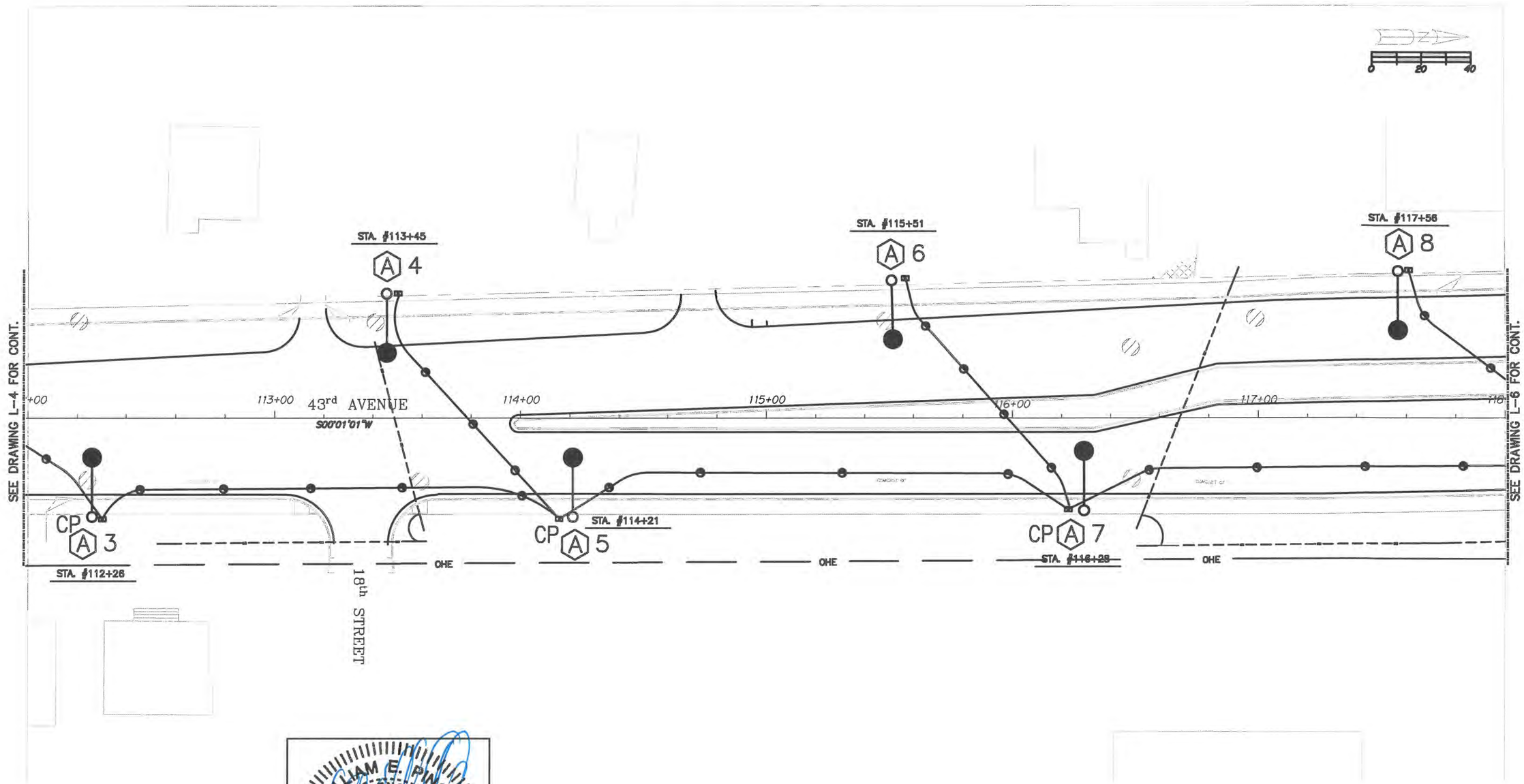

LIGHTING PLAN

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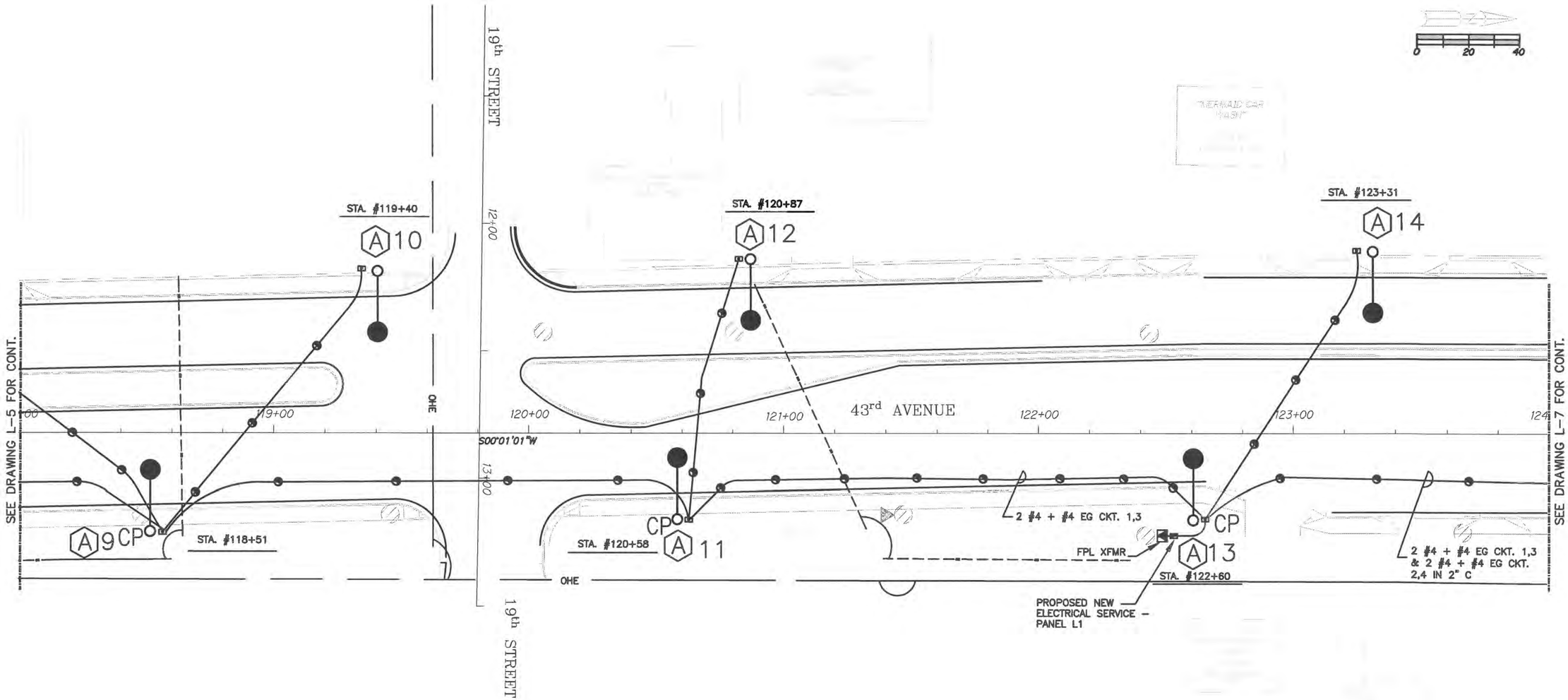

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LNW# WP1027

SEE DRAWING L-12 FOR CONT.

0 20 40

STA. #2641+71

CP

B 2

B 1

STA. #2641+48

SIGNAL POLE (TYP.)

STA. #125+97

STA. #2642+14

C 1

STA. #128+28

B 6

OHE

STATE ROUTE 60

S89°19'17"E

2642+00

43rd AVENUE

125+00

126+00

127+00

128+00

129+00

130

S00°01'01"W

2643+00

SEE DRAWING L-6 FOR CONT.

SEE DRAWING L-8 FOR CONT.

43rd AVENUE

STA. #126+25

STA. #2643+46

CP A 15

STA. #124+32

2 #4 + #4 EG IN
2" C - CKT. 2,4

CP B 3

STA. #125+85

C 2

CP B 5

STA. #128+48

CP D 1

STA. #129+83

3HO

S89°31'04"E

2644+00

B 4

STA. #2643+94

B 7

CP

STA. #2644+37

STATE ROUTE 60

SEE DRAWING L-13 FOR CONT.

LIGHTING PLAN

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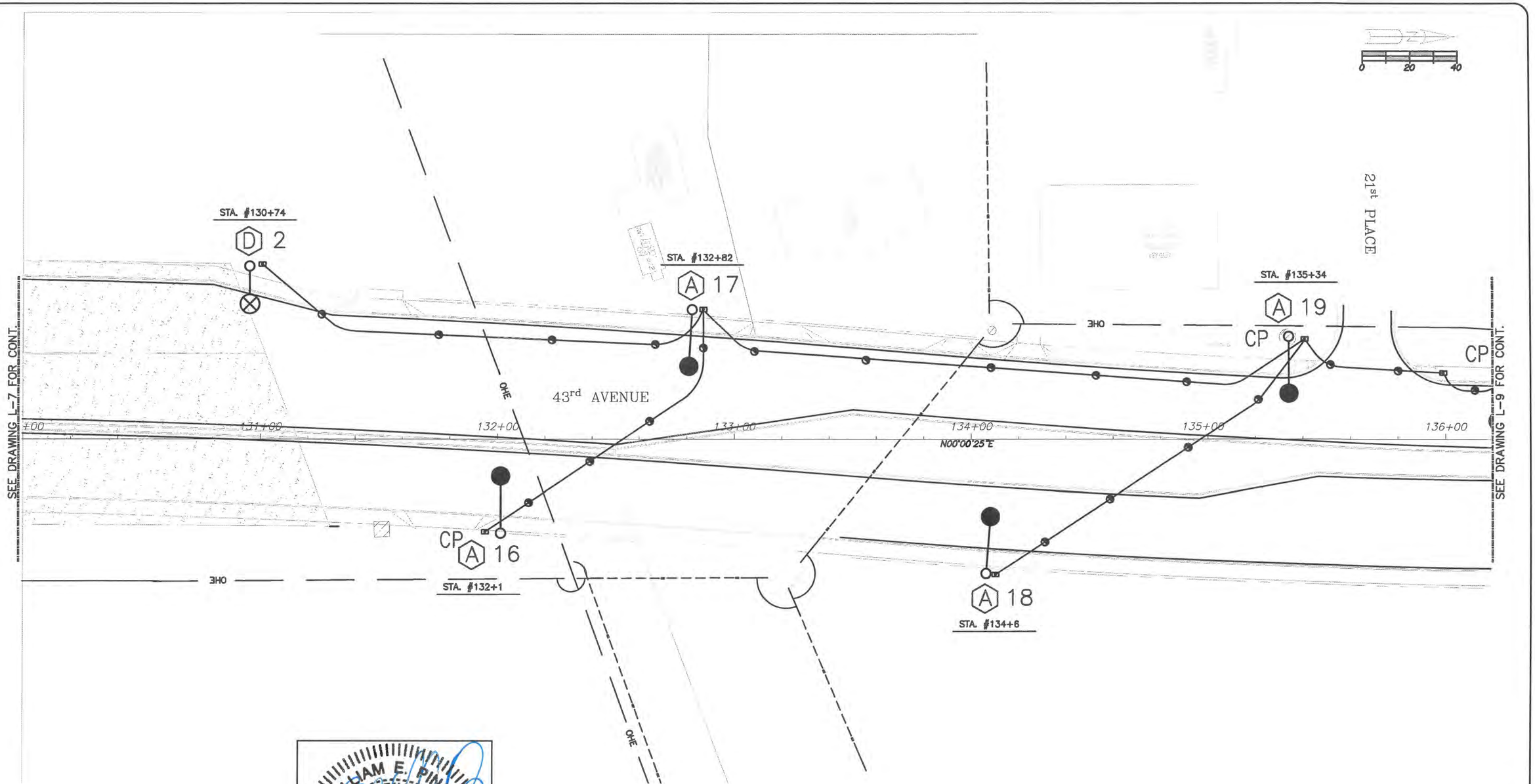

LIGHTING PLAN

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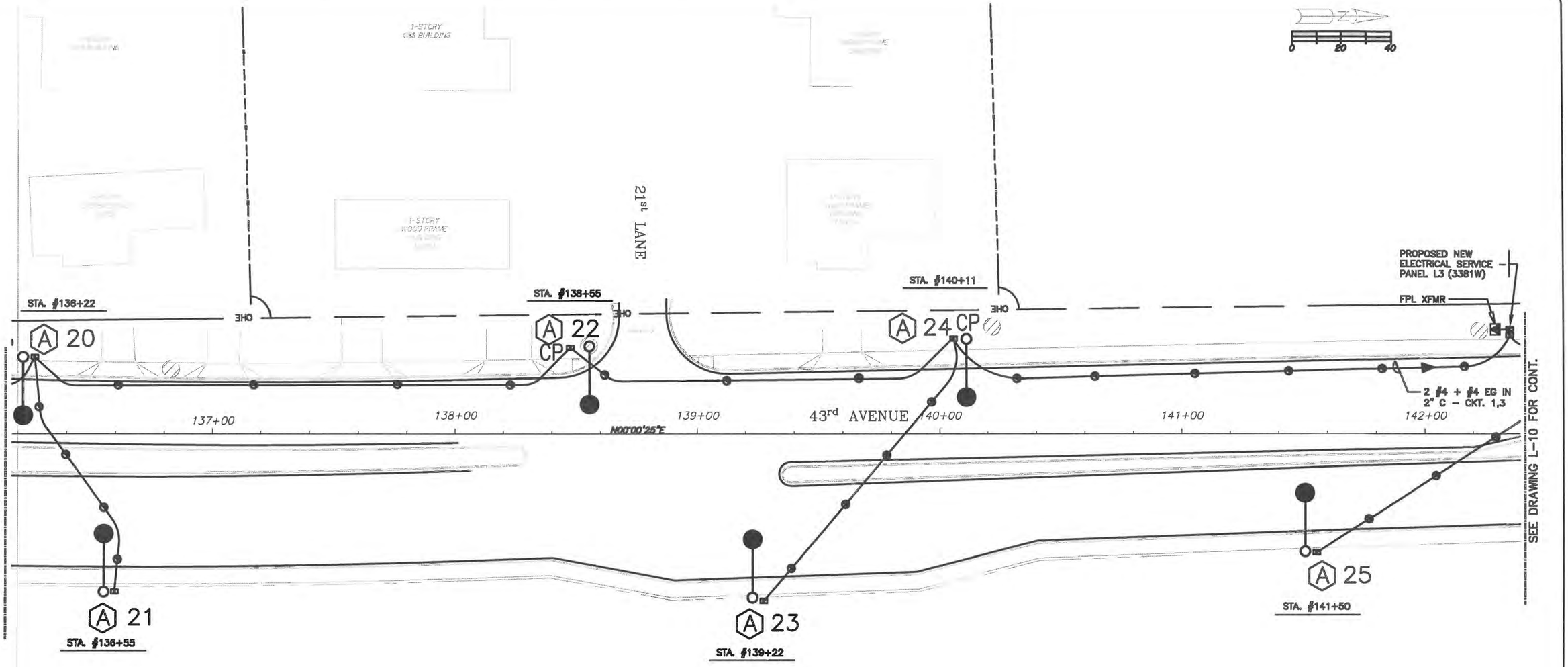

LIGHTING PLAN

MainStreet ENGINEERING
7035B SW 47th Street . Miami, Florida 33155
Tel.: (305) 666-7450 . Fax: (305) 666-2450
FL PE Certificate No.: 00008731

WILLIAM E. PINO
LICENSE
No. 32026
STATE OF FLORIDA
PROFESSIONAL ENGINEER
1-4-19

DATE:

Revisions:	By:	Date:

Department of Public Works
Engineering Division

Scale: 1" = 40'
Approved: WP
Drawn: JS
Checked: WP
Date: 12/17/2018
Field Book No:

Project:
ROADWAY LIGHTING PLANS
FOR
SR 60 & 43RD AVENUE

Sheet: L-9
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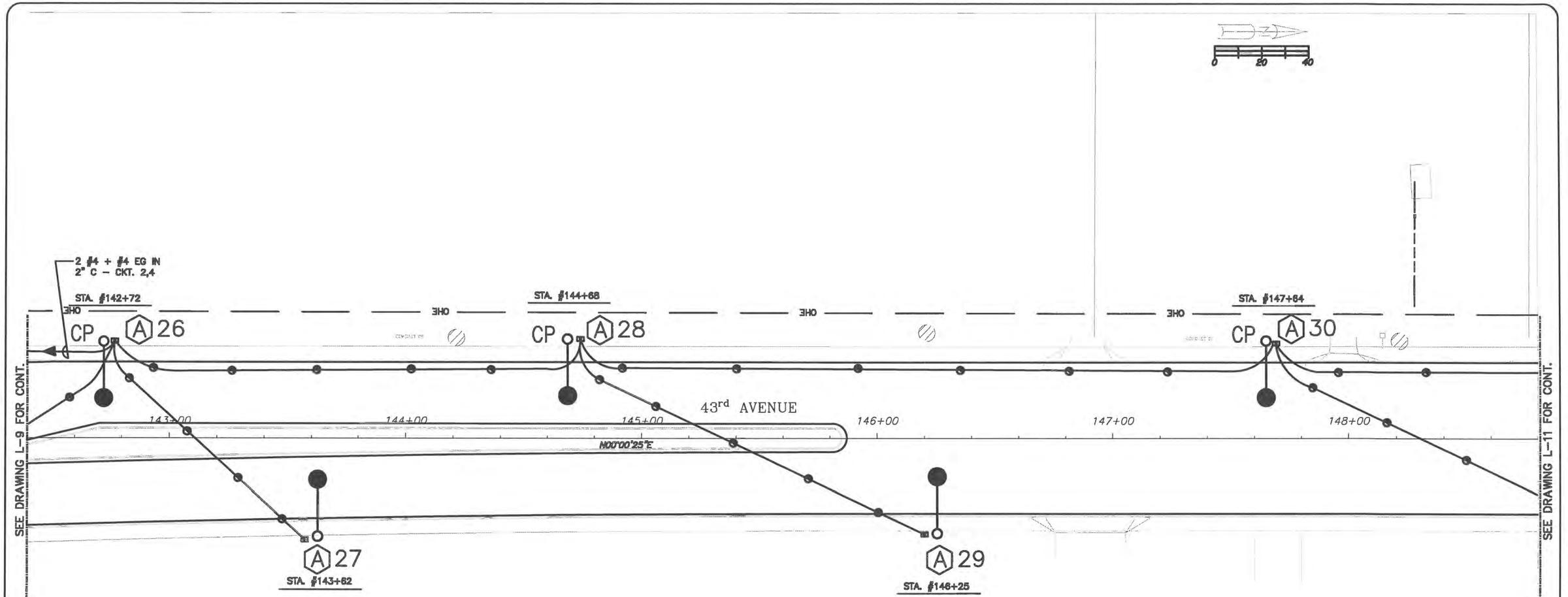
Project No.



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Department of Public Works
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ROADWAY LIGHTING PLANS
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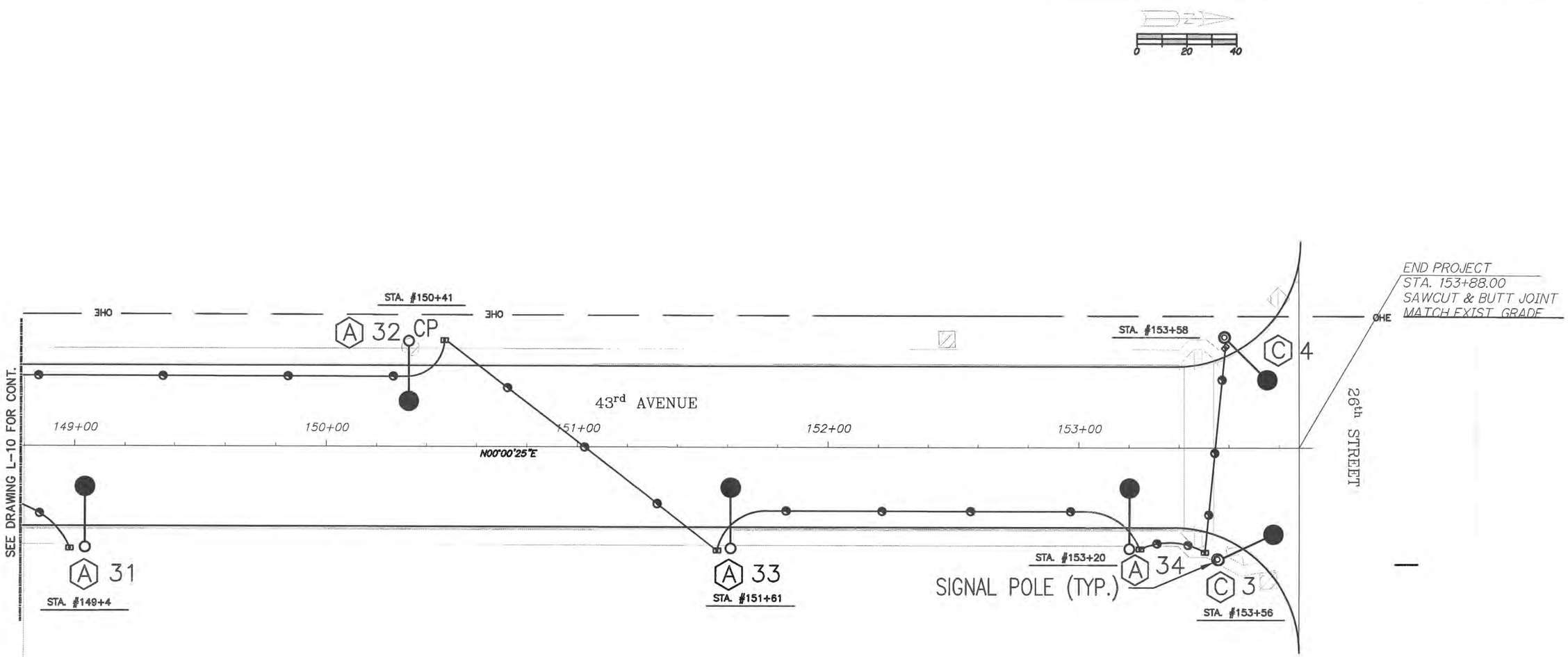
Project No.
LMMP WP1027



LIGHTING PLAN

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ROADWAY LIGHTING PLANS
FOR
SR 60 & 43RD AVENUE

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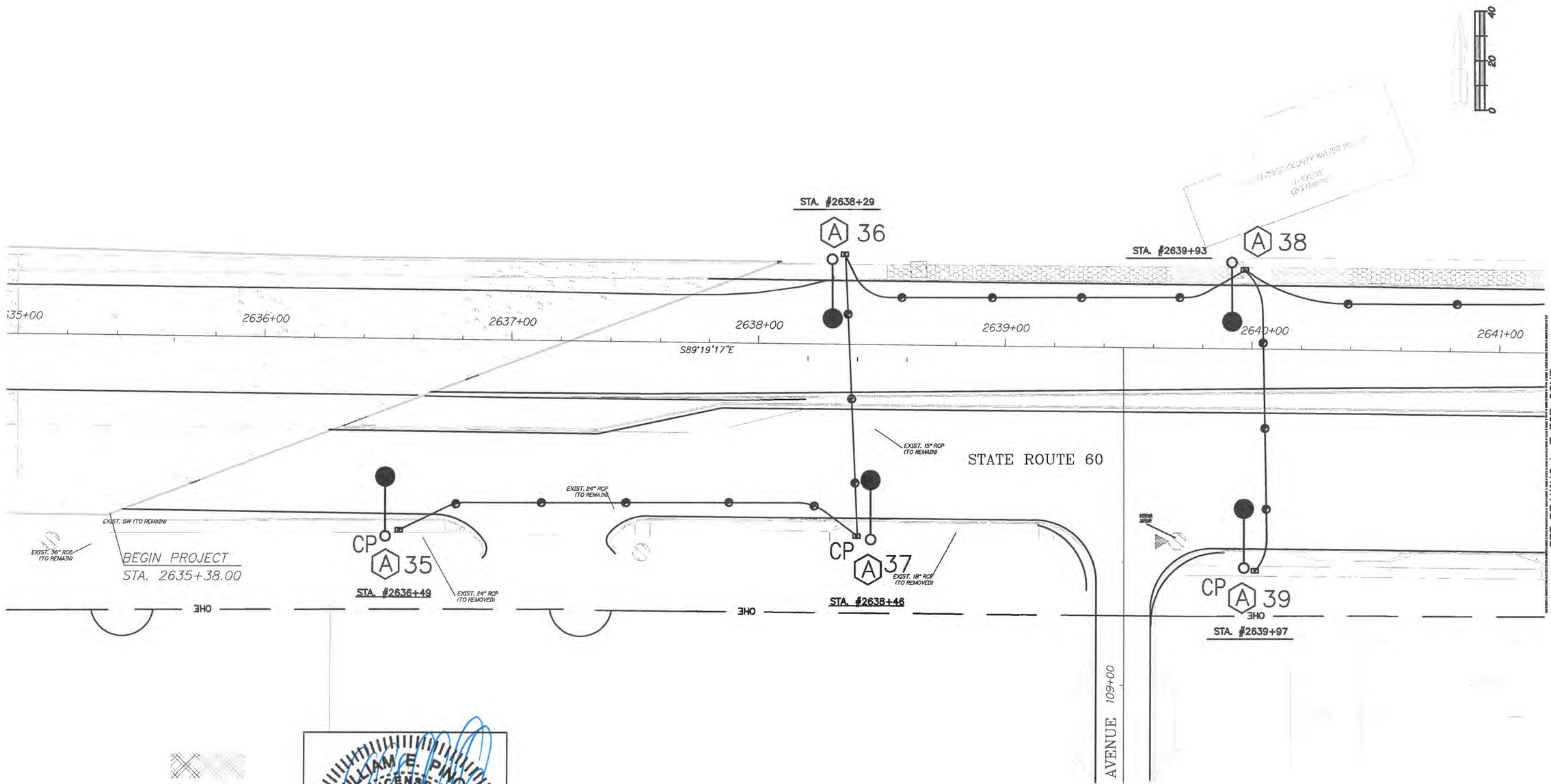
Project No.
LNW# WP1027



LIGHTING PLAN

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ROADWAY LIGHTING PLANS
FOR
SR 60 & 43RD AVENUE

Sheet: L-12
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Project No.
LNW# WP1027

ATLANTIC BLVD

ATLANTIC BLVD

41st AVENUE

0 20 40

SEE DRAWING L-7 FOR CONT.

STA. #2645+69
A 40

STA. #2647+72
A 42

STA. #2649+78
A 44

2645+00 2646+00 2647+00 2648+00 2649+00 2650+00 265

EXIST. 18" RCP (TO REMAIN)

S89°31'04"E

STATE ROUTE 60

EXIST. 54" RCP (TO REMAIN)

EXIST. 54" RCP (TO REMAIN)

EXIST. MH (TO REMAIN & RESET TO GRADE)

EXIST. 54" RCP (TO REMAIN)

EXIST. CB (TO REMAIN)

EXIST. 54" RCP (TO REMAIN)

EXIST. CB (TO REMAIN)

SEE DRAWING L-14 FOR CONT.

CP A 41
STA. #2646+22

CP A 43
STA. #2647+85

CP A 45
STA. #2649+82

16"RCP

16"RCP

OHE

OHE

OHE

EXIST. 15" SD (TO REMAIN)

+ #4 EG CKT. 1,3

FPL XFMR

PROPOSED NEW ELECTRICAL SERVICE - PANEL L2 (3447W)

+ #4 EG CKT. 1,3 #4 + #4 EG CKT. 1 2" C

+ #4 EG CKT. 1,3 #4 + #4 EG CKT. 1 2" C

ENUE

LIGHTING PLAN

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ROADWAY LIGHTING PLANS
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SR 60 & 43RD AVENUE

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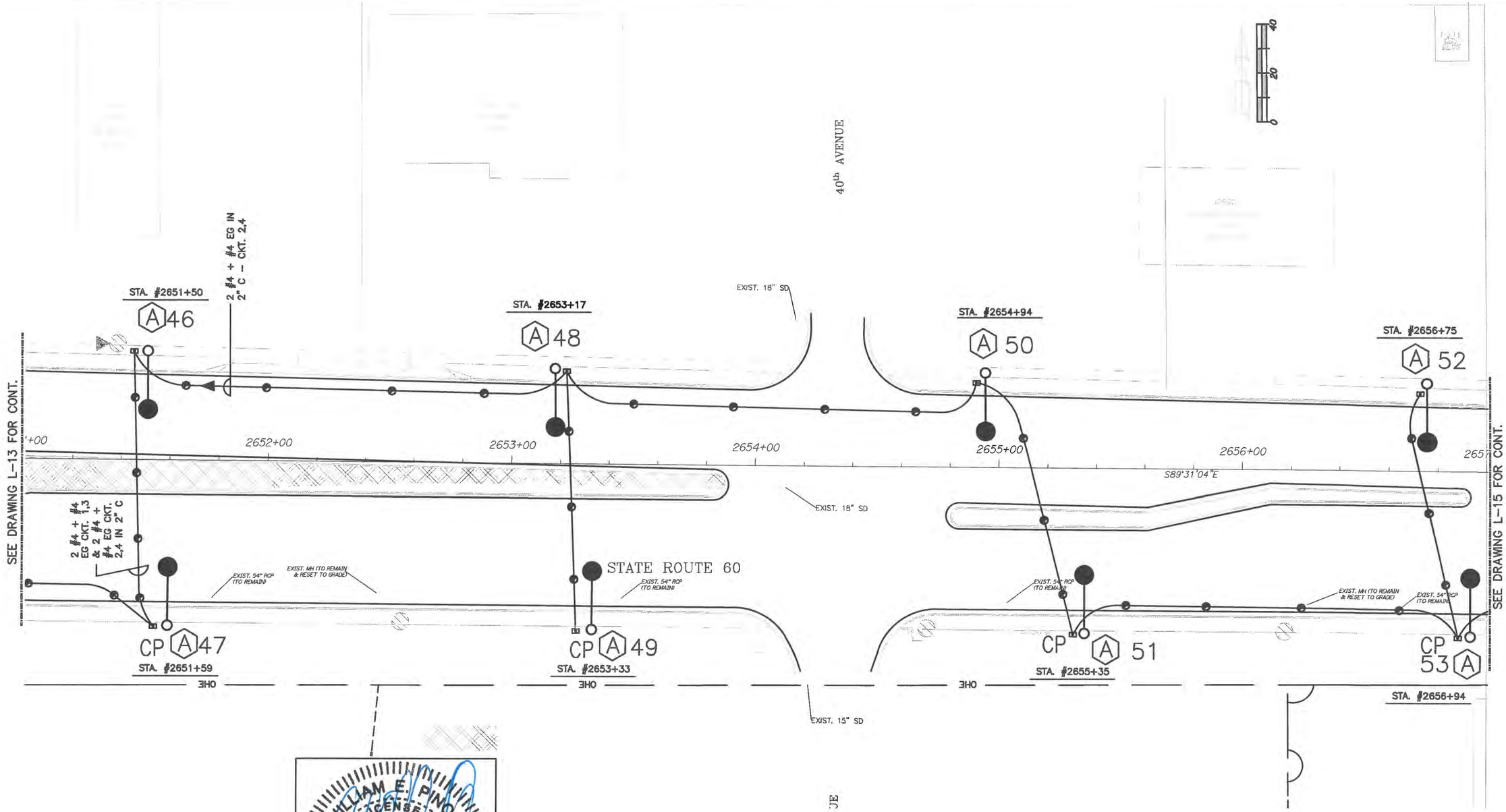

LIGHTING PLAN

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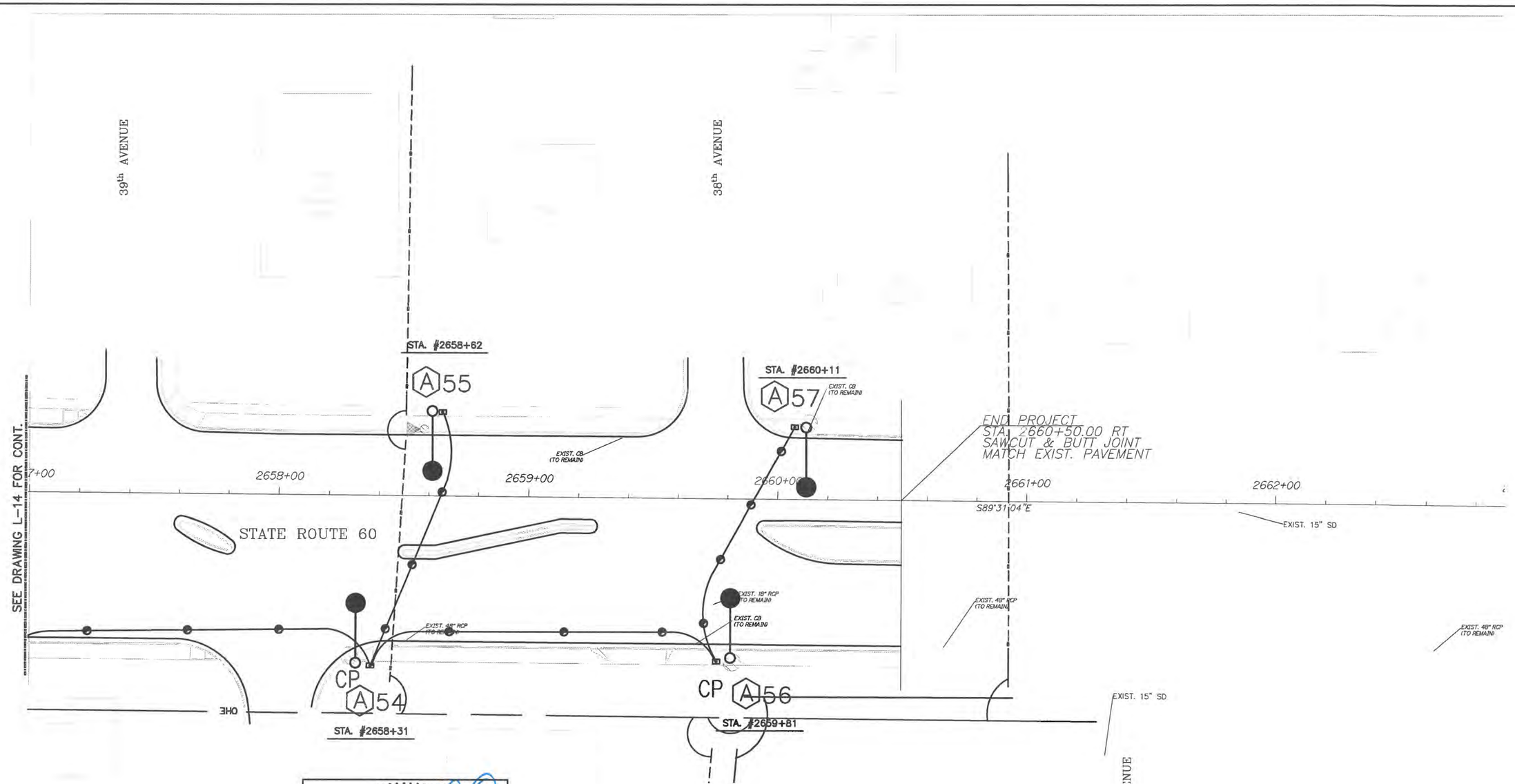

LIGHTING PLAN

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ROADWAY LIGHTING PLANS
FOR
SR 60 & 43RD AVENUE

Sheet: L-15
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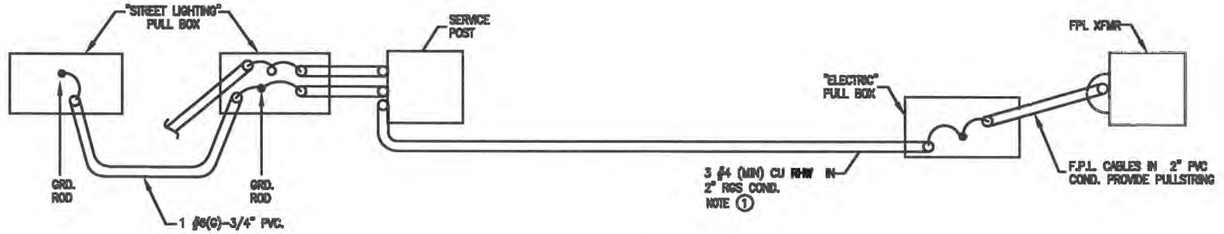
Project No.
LNW# WP1027



N.T.S.

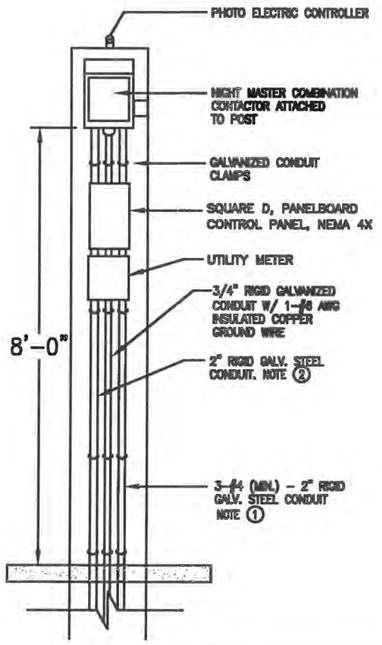
NOTES:

① PROVIDE OVERSIZED NEUTRAL IF REQUIRED BY LOAD.

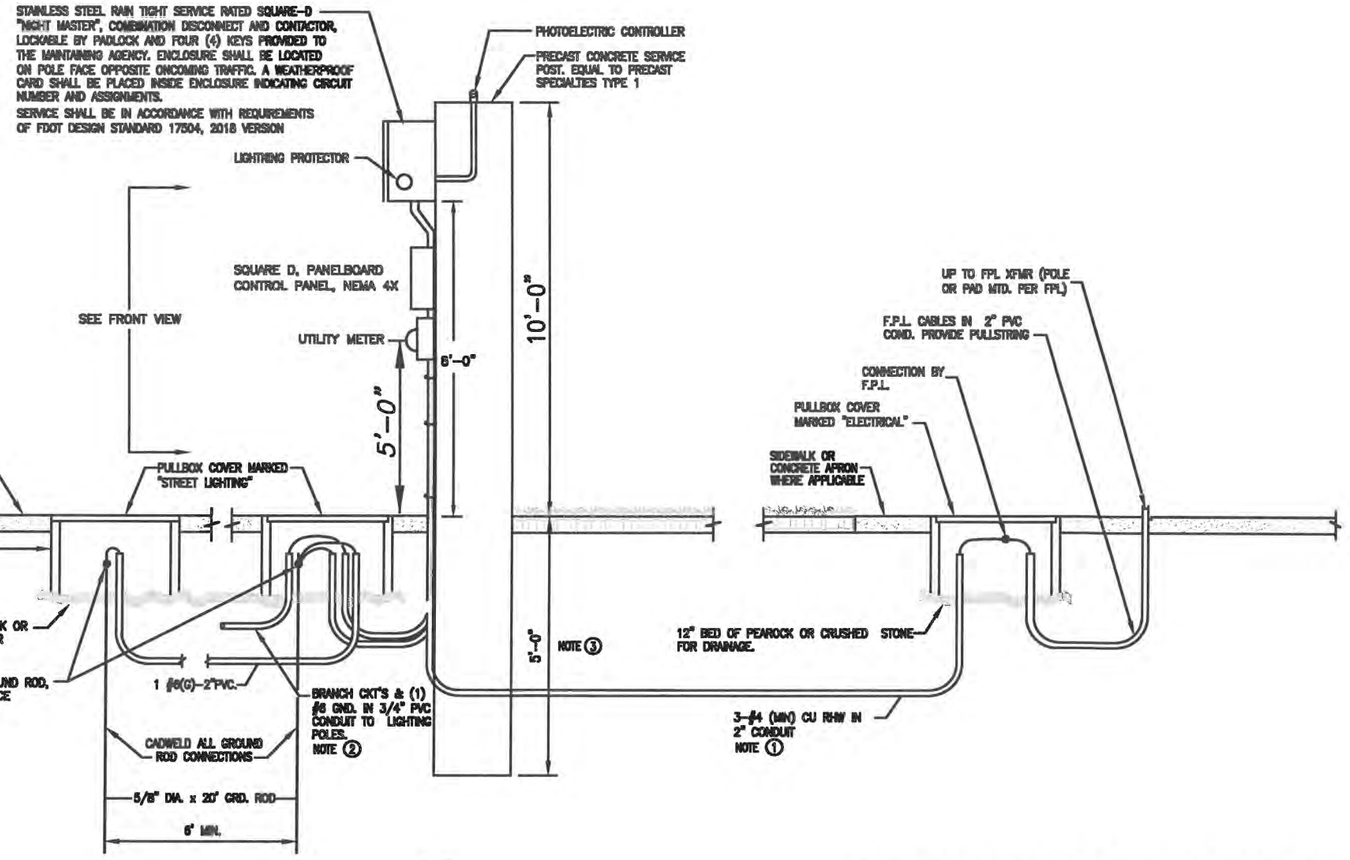
② NUMBER & SIZE OF BRANCH CIRCUITS SHALL BE BASED ON ACTUAL JOB CONDITIONS.

③ MODIFY EMBEDMENT DEPTH AS REQUIRED BY FIELD CONDITIONS.

④ CONTRACTOR SHALL INCLUDE ADDRESS AND AIC RATING OF THE PROPOSED FPL SERVICE IN THE SHOP DRAWING SUBMITTAL FOR ENGINEER REVIEW PER NEC 110.24.



N.T.S.



N.T.S.

N.T.S.

SERVICE POINT DETAILS

811 KNOW WHAT'S BELOW ALWAYS CALL 811 BEFORE YOU DIG
www.callsunshine.com

WILLIAM E. PINO LICENSE No. 32026 STATE OF FLORIDA PROFESSIONAL ENGINEER
1-4-19

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Department of Public Works
Engineering Division

Scale:	NONE
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Project:
ROADWAY LIGHTING PLANS
FOR
SR 60 & 43RD AVENUE

Sheet: L-16
Of: 24
Project No.
LAP# WP1027

CONTRACTOR SHALL INCLUDE ADDRESS AND AIC RATING OF THE PROPOSED FPL SERVICE IN THE SHOP DRAWING SUBMITTAL FOR ENGINEER REVIEW PER NEC 110.24.

STATE ROAD 60 & 43RD AVENUE

VOLTAGE DROP CALCULATION — PANEL L1

43RD AVE. SOUTH

POLE No	Ckt. No	Distance	LAMP WATT	Amp(I)	Voltage(v)	DXI	Wire Size	R	VD	%V
A15	1.3	364	155	0.896990741	240	326.5046296	#4	0.308	0.20	0.08
A13	1.3	137	155	0.896990741	240	122.8877315	#4	0.308	0.08	0.03
A14	1.3	272	155	0.896990741	240	243.9814815	#4	0.308	0.15	0.06
A12	1.3	255	155	0.896990741	240	228.7326389	#4	0.308	0.14	0.06
A11	1.3	140	155	0.896990741	240	125.5787037	#4	0.308	0.08	0.03
A9	1.3	380	155	0.896990741	240	340.8564815	#4	0.308	0.21	0.09
A10	1.3	523	155	0.896990741	240	469.1261574	#4	0.308	0.29	0.12
A8	1.3	534	155	0.896990741	240	478.9930556	#4	0.308	0.30	0.12
A6	1.3	774	155	0.896990741	240	694.2708333	#4	0.308	0.43	0.18
A7	1.3	647	155	0.896990741	240	580.3530093	#4	0.308	0.36	0.15
A4	1.3	1012	155	0.896990741	240	907.7546296	#4	0.308	0.56	0.23
A5	1.3	885	155	0.896990741	240	793.8368056	#4	0.308	0.49	0.20
A3	1.3	1097	155	0.896990741	240	983.9988426	#4	0.308	0.61	0.25
A2	1.3	1255	155	0.896990741	240	1125.72338	#4	0.308	0.69	0.29
A1	1.3	1400	155	0.896990741	240	1255.787037	#4	0.308	0.77	0.32
SUB-TOTAL AMPS			2325.00						Σ(%V)=	2.23

VOLTAGE DROP CALCULATION — PANEL L1

SR 60 WEST

POLE No	Ckt. No	Distance	LAMP WATT	Amp(I)	Voltage(v)	DXI	Wire Size	R	VD	%V
C2	2.4	557	144	0.833333333	240	464.1666667	#4	0.308	0.29	0.12
B3	2.4	514	166	0.960648148	240	493.7731481	#4	0.308	0.30	0.13
C1	2.4	649	144	0.833333333	240	540.8333333	#4	0.308	0.33	0.14
B2	2.4	727	166	0.960648148	240	698.3912037	#4	0.308	0.43	0.18
B1	2.4	865	166	0.960648148	240	830.9606481	#4	0.308	0.51	0.21
B7	2.4	978	166	0.960648148	240	939.5138889	#4	0.308	0.58	0.24
A39	2.4	1033	155	0.896990741	240	926.5914352	#4	0.308	0.57	0.24
A38	2.4	1170	155	0.896990741	240	1049.479167	#4	0.308	0.65	0.27
A36	2.4	1215	155	0.896990741	240	1089.84375	#4	0.308	0.67	0.28
A37	2.4	1341	155	0.896990741	240	1202.864583	#4	0.308	0.74	0.31
A35	2.4	1552	155	0.896990741	240	1392.12963	#4	0.308	0.86	0.36
SUB-TOTAL AMPS			1727.00						Σ(%V)=	1.91

TOTAL AMPS 4052.00

GROUND TEST NOTES

1. [illegible] CAT. NO. 3711, 3731 OR APPROVED EQUAL, CALIBRATED WITHIN THE PAST 180 DAYS. RESISTANCE-TO-GROUND MEASUREMENT OF MORE THAN 5 OHMS SHALL BE CONSIDERED INADEQUATE.
2. TEST FOR CONTINUITY OF GROUNDING CONDUCTOR USING A MEGGER OR EQUAL LOW RESISTANCE/ HIGH CAPACITY OHMMETER, CALIBRATED WITHIN THE PAST 180 DAYS. A NEUTRAL/GROUND LOOP RESISTANCE OF MORE THAN 0.5 OHMS-PER THOUSAND FEET SHALL BE CONSIDERED INADEQUATE.

SR60 & 43RD AVE PANEL L1 SCHEDULE

VOLTAGE: 120/240V, 1PHASE, 3W — MOUNTING: SURFACE — 1=CONTINUOUS LOAD

BUS (AMPS): 125 — ENCLOSURE: NEMA 4X

MAINS: 2P, 60A — BUS TYPE: COPPER

AIC RATING: 22,000 — LOCATION: SERVICE POLE

CKT NO.	CODE	BREAKER TRIP	BREAKER POLE	LOAD DESCRIPTION	LOAD VA	PHASE A	PHASE B	LOAD VA	LOAD DESCRIPTION	BREAKER TRIP	BREAKER POLE	CKT CODE	NO.
1	1	20	2	POLE LIGHTS	1163	2027	---	864	POLE LIGHTS	20	2	1	2
3	1			43RD AVE - SOUTH	1163	---	2027	864	SR 60 WEST	20		1	4
5				PROVISION ONLY		0	---		PROVISION ONLY				6
7				PROVISION ONLY		---	0		PROVISION ONLY				8
9				PROVISION ONLY		0	---		PROVISION ONLY				10
11				PROVISION ONLY		---	0		PROVISION ONLY				12
2			1										
						2027	2027	CONNECTED KVA	4.1				

NOTES:

CONNECTED KVA	4.1
CODE 1 KVA	4.1
	0.0
	0.0
	0.0
	0.0
DEMAND LOAD (KVA)	5.1
DEMAND LOAD (A)	21.1
PHASE BALANCE (%) (2533 / 2534)	100

DATE: 8/28/2018

SERVICE PANEL L1 SCHEDULE, VOLTAGE DROP CALCULATIONS

WILLIAM E. PINO LICENSE No. 32026 STATE OF FLORIDA PROFESSIONAL ENGINEER 1-4-19

DATE:

Revision: | By: | Date:

MainStreet ENGINEERING
7035B SW 47th Street . Miami, Florida 33155
Tel.: (305) 666-7450 . Fax (305) 666-2450
FL PE Certificate No.: 00008731

Department of Public Works — Engineering Division

Scale: NONE
Approved: WP
Drawn: JB
Checked: WP
Date: 12/17/2018
Field Book No:

Project: ROADWAY LIGHTING PLANS FOR SR 60 & 43RD AVENUE

Sheet: L-17 Of: 24

Project No. [illegible]

CONTRACTOR SHALL INCLUDE ADDRESS AND AIC RATING OF THE PROPOSED FPL SERVICE IN THE SHOP DRAWING SUBMITTAL FOR ENGINEER REVIEW PER NEC 110.24.

GROUND TEST NOTES

1. USE CLAMP-ON GROUND TESTER, AEMC CAT. NO. 3711, 3731 OR APPROVED EQUAL, CALIBRATED WITHIN THE PAST 180 DAYS. RESISTANCE-TO-GROUND MEASUREMENT OF MORE THAN 5 OHMS SHALL BE CONSIDERED INADEQUATE.
2. TEST FOR CONTINUITY OF GROUNDING CONDUCTOR USING A MEGGER OR EQUAL LOW RESISTANCE/ HIGH CAPACITY OHMMETER, CALIBRATED WITHIN THE PAST 180 DAYS. A NEUTRAL/GROUND LOOP RESISTANCE OF MORE THAN 0.5 OHMS-PER THOUSAND FEET SHALL BE CONSIDERED INADEQUATE.

STATE ROAD 60 & 43RD AVENUE

VOLTAGE DROP CALCULATION — PANEL L2

SR 60 EAST

POLE No	Ckt. No	Distance	LAMP WATT	Amp(I)	Voltage(v)	D X I	Wire Size	R	VD	%V
A45	1,3	127	155	0.896990741	240	113.9178241	#4	0.308	0.07	0.03
A44	1,3	253	155	0.896990741	240	226.9386574	#4	0.308	0.14	0.06
A47	1,3	334	155	0.896990741	240	299.5949074	#4	0.308	0.18	0.08
A46	1,3	460	155	0.896990741	240	412.6157407	#4	0.308	0.25	0.11
A43	1,3	124	155	0.896990741	240	111.2268519	#4	0.308	0.07	0.03
A42	1,3	251	155	0.896990741	240	225.1446759	#4	0.308	0.14	0.06
A41	1,3	441	155	0.896990741	240	395.5729167	#4	0.308	0.24	0.10
A40	1,3	588	155	0.896990741	240	525.6365741	#4	0.308	0.32	0.13
B7	1,3	640	166	0.960648148	240	614.8148148	#4	0.308	0.38	0.16
B4	1,3	800	166	0.960648148	240	768.5185185	#4	0.308	0.47	0.20
B5	1,3	950	166	0.960648148	240	912.6157407	#4	0.308	0.56	0.23
D1	1,3	1072	148	0.856481481	240	918.1481481	#4	0.308	0.57	0.24
SUB-TOTAL AMPS			1886.00							
									∑(%V)=	1.42

VOLTAGE DROP CALCULATION — PANEL L2

SR 60 EAST

POLE No	Ckt. No	Distance	LAMP WATT	Amp(I)	Voltage(v)	D X I	Wire Size	R	VD	%V
A48	2,4	668	155	0.896990741	240	599.1898148	#4	0.308	0.37	0.15
A49	2,4	785	155	0.896990741	240	704.1377315	#4	0.308	0.43	0.18
A50	2,4	873	155	0.896990741	240	783.0729167	#4	0.308	0.48	0.20
A51	2,4	1004	155	0.896990741	240	900.5787037	#4	0.308	0.55	0.23
A53	2,4	1195	155	0.896990741	240	1071.903935	#4	0.308	0.66	0.28
A52	2,4	1312	155	0.896990741	240	1176.851852	#4	0.308	0.72	0.30
A54	2,4	1377	155	0.896990741	240	1235.15625	#4	0.308	0.76	0.32
A55	2,4	1501	155	0.896990741	240	1346.383102	#4	0.308	0.83	0.35
A56	2,4	1550	155	0.896990741	240	1390.335648	#4	0.308	0.86	0.36
A57	2,4	1668	155	0.896990741	240	1496.180556	#4	0.308	0.92	0.38
SUB-TOTAL AMPS			1550.00						∑(%V)=	2.59
TOTAL AMPS			3436.00							

SR60 & 43RD AVE PANEL L2 SCHEDULE

VOLTAGE: 120/240V. 1PHASE, 3W
BUS (AMPS): 125
MAINS: 2P. 60A
AIC RATING: 22,000
MOUNTING: SURFACE
ENCLOSURE: NEMA 4X
BUS TYPE: COPPER
LOCATION: SERVICE POLE
1=CONTINUOUS LOAD

CKT NO.	CODE	BREAKER TRIP	BREAKER POLE	LOAD DESCRIPTION	LOAD VA	PHASE A	PHASE B	LOAD VA	LOAD DESCRIPTION	BREAKER TRIP	BREAKER POLE	CKT CODE	CKT NO.
1	1	20	2	POLE LIGHTS	949	1724	--	775	POLE LIGHTS	20	2	1	2
3	1			SR 60 - EAST	949	--	1724	775	SR 60 - EAST			1	4
5				PROVISION ONLY		0	--		PROVISION ONLY				6
7				PROVISION ONLY		--	0		PROVISION ONLY				8
9				PROVISION ONLY		0	--		PROVISION ONLY				10
11				PROVISION ONLY		--	0		PROVISION ONLY				12
2			1										
						1724	1724		CONNECTED KVA	3.4			
NOTES:									CODE 1 KVA	3.4			
										0.0			
										0.0			
										0.0			
										0.0			
DATE: 8/28/2018									DEMAND LOAD (KVA)	4.3			
									DEMAND LOAD (A)	18.0			
						2155	2155		PHASE BALANCE (%)	100			

SERVICE PANEL L2 SCHEDULE, VOLTAGE DROP CALCULATIONS

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WILLIAM E. PINO — LICENSE NO. 32026 — STATE OF FLORIDA — PROFESSIONAL ENGINEER
1-4-19

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Department of Public Works
Engineering Division

Scale:	NONE
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Drawn:	JS
Checked:	WP
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Project:
ROADWAY LIGHTING PLANS
FOR
SR 60 & 43RD AVENUE

Sheet: L-18
Of: 24
Project No.
LMAS WP1027

CONTRACTOR SHALL INCLUDE ADDRESS AND AIC RATING OF THE PROPOSED FPL SERVICE IN THE SHOP DRAWING SUBMITTAL FOR ENGINEER REVIEW PER NEC 110.24.

GROUND TEST NOTES

1. USE CLAMP-ON GROUND TESTER, AEMC CAT. NO. 3711, 3731 OR APPROVED EQUAL, CALIBRATED WITHIN THE PAST 180 DAYS. RESISTANCE-TO-GROUND MEASUREMENT OF MORE THAN 5 OHMS SHALL BE CONSIDERED INADEQUATE.
2. TEST FOR CONTINUITY OF GROUNDING CONDUCTOR USING A MEGGER OR EQUAL LOW RESISTANCE/ HIGH CAPACITY OHMMETER, CALIBRATED WITHIN THE PAST 180 DAYS. A NEUTRAL/GROUND LOOP RESISTANCE OF MORE THAN 0.5 OHMS-PER THOUSAND FEET SHALL BE CONSIDERED INADEQUATE.

STATE ROAD 60 & 43RD AVENUE

VOLTAGE DROP CALCULATION — PANEL L3

43RD AVE. NORTH

POLE No	Ckt. No	Distance	LAMP WATT	Amp(I)	Voltage(v)	D X I	Wire Size	R	VD	%V
A24	1 3	261	155	0.896990741	240	234.1145833	#4	0.308	0.14	0.06
A23	1 3	411	155	0.896990741	240	368.6631944	#4	0.308	0.23	0.09
A22	1 3	446	155	0.896990741	240	400.0578704	#4	0.308	0.25	0.10
A20	1 3	700	155	0.896990741	240	627.8935185	#4	0.308	0.39	0.16
A21	1 3	817	155	0.896990741	240	732.8414352	#4	0.308	0.45	0.19
A19	1 3	802	155	0.896990741	240	719.3865741	#4	0.308	0.44	0.18
A18	1 3	816	155	0.896990741	240	731.9444444	#4	0.308	0.45	0.19
A17	1 3	1094	155	0.896990741	240	981.3078704	#4	0.308	0.60	0.25
A16	1 3	1249	155	0.896990741	240	1120.341435	#4	0.308	0.69	0.29
D2	1 3	1317	148	0.856481481	240	1127.986111	#4	0.308	0.69	0.29

SUB-TOTAL AMPS 1543.00

∑(%V)= 1.81

VOLTAGE DROP CALCULATION — PANEL L3

43RD AVE. NORTH

POLE No	Ckt. No	Distance	LAMP WATT	Amp(I)	Voltage(v)	D X I	Wire Size	R	VD	%V
A26	2 4	54	155	0.896990741	240	48.4375	#4	0.308	0.03	0.01
A25	2 4	222	155	0.896990741	240	199.1319444	#4	0.308	0.12	0.05
A27	2 4	184	155	0.896990741	240	165.0462963	#4	0.308	0.10	0.04
A28	2 4	281	155	0.896990741	240	252.0543981	#4	0.308	0.16	0.06
A29	2 4	471	155	0.896990741	240	422.4826389	#4	0.308	0.26	0.11
A30	2 4	613	155	0.896990741	240	549.8553241	#4	0.308	0.34	0.14
A31	2 4	785	155	0.896990741	240	704.1377315	#4	0.308	0.43	0.18
A32	2 4	932	155	0.896990741	240	835.9953704	#4	0.308	0.51	0.21
A33	2 4	1081	155	0.896990741	240	969.6469907	#4	0.308	0.60	0.25
A34	2 4	1280	155	0.896990741	240	1148.148148	#4	0.308	0.71	0.29
C3	2 4	1311	144	0.833333333	240	1092.5	#4	0.308	0.67	0.28
C4	2 4	1401	144	0.833333333	240	1167.5	#4	0.308	0.72	0.30

SUB-TOTAL AMPS 1838.00

∑(%V)= 1.94

TOTAL AMPS 3381.00

SR60 & 43RD AVE PANEL L3 SCHEDULE

VOLTAGE: 120/240V, 1PHASE, 3W
BUS (AMPS): 125
MAINS: 2P, 60A
AIC RATING: 22,000
MOUNTING: SURFACE
ENCLOSURE: NEMA 4X
BUS TYPE: COPPER
LOCATION: SERVICE POLE
1=CONTINUOUS LOAD

CKT NO.	CODE	BREAKER TRIP	BREAKER POLE	LOAD DESCRIPTION	LOAD VA	PHASE A	PHASE B	LOAD VA	LOAD DESCRIPTION	BREAKER TRIP	BREAKER POLE	CODE	CKT NO.
1	1	20	2	POLE LIGHTS	772	1691	---	919	POLE LIGHTS	20	2	1	2
3	1			43RD AVE. NORTH	772	---	1691	919	43RD AVE. NORTH			1	4
5				PROVISION ONLY		0	---		PROVISION ONLY				6
7				PROVISION ONLY		---	0		PROVISION ONLY				8
9				PROVISION ONLY		0	---		PROVISION ONLY				10
11				PROVISION ONLY		---	0		PROVISION ONLY				12
2			1										

PHASE A	PHASE B		
1691	1691	CONNECTED KVA	3.4
		CODE 1 KVA	3.4
			0.0
			0.0
			0.0
			0.0
		DEMAND LOAD (KVA)	4.2
		DEMAND LOAD (A)	17.6
2114	2114	PHASE BALANCE (%)	100

NOTES:

DATE: 8/28/2018

SERVICE PANEL L3 SCHEDULE, VOLTAGE DROP CALCULATIONS

WILLIAM E. PINO
No. 32026
1-4-19

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7035B SW 47th Street . Miami, Florida 33155
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FL PE Certificate No.: 00008731

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Department of Public Works
Engineering Division

Scale: NONE
Approved: WP
Drawn: JS
Checked: WP
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ROADWAY LIGHTING PLANS
FOR
SR 60 & 43RD AVENUE

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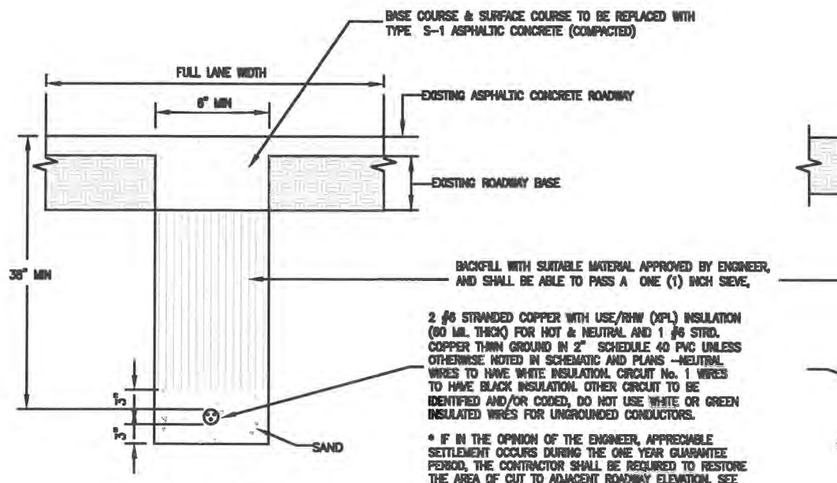
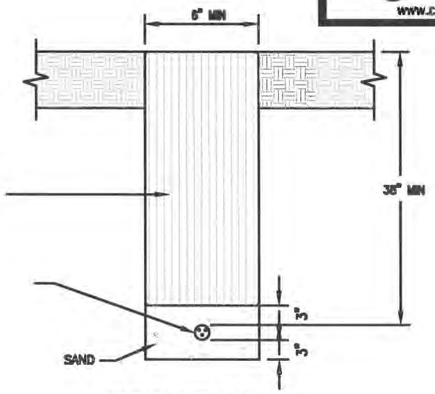
LNWP WP1027

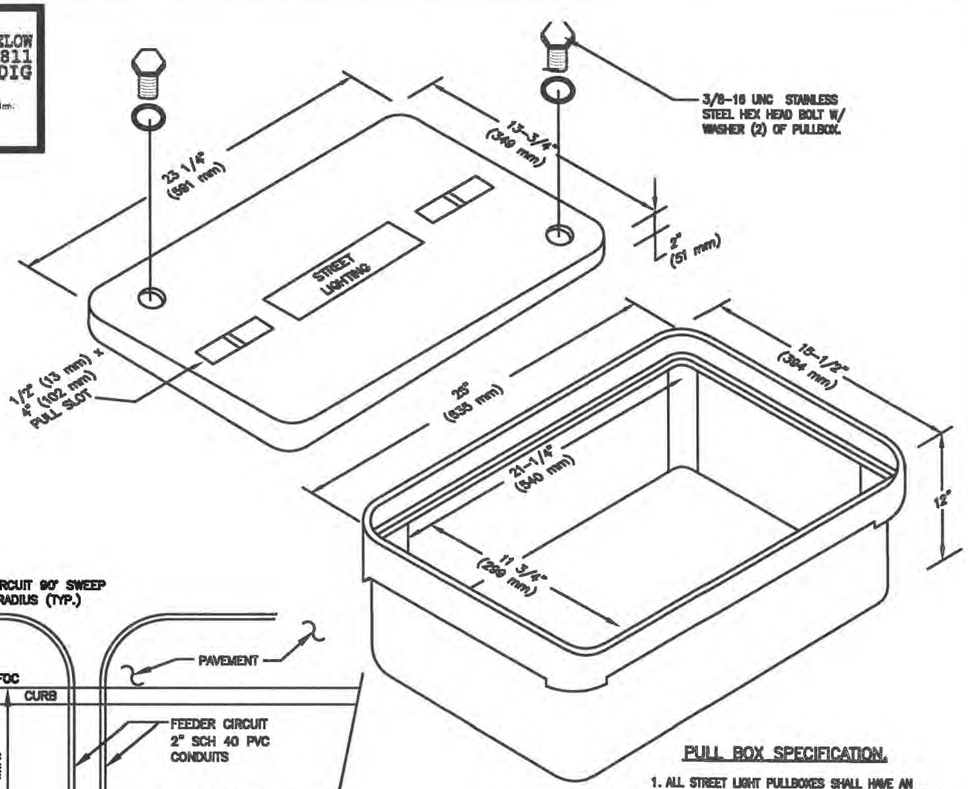


TRENCH DETAIL (ROAD)
N.T.S.

* IF IN THE OPINION OF THE ENGINEER, APPRECIABLE SETTLEMENT OCCURS DURING THE ONE YEAR GUARANTEE PERIOD, THE CONTRACTOR SHALL BE REQUIRED TO RESTORE THE AREA OF CUT TO ADJACENT ROADWAY ELEVATION. SEE "TRAFFIC CONTROL EQUIPMENT SPECIFICATIONS AND STANDARDS FOR THE MTCSMDC".



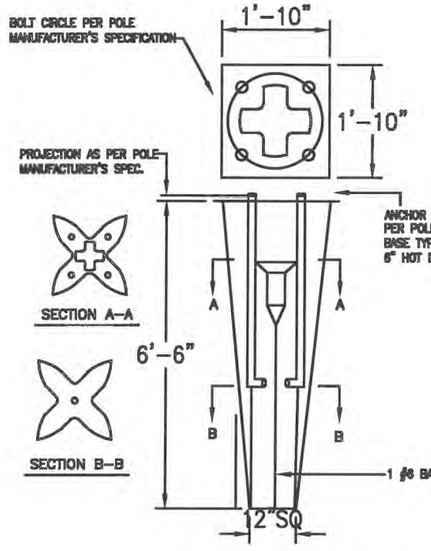
TRENCH DETAIL (SWALE)
N.T.S.



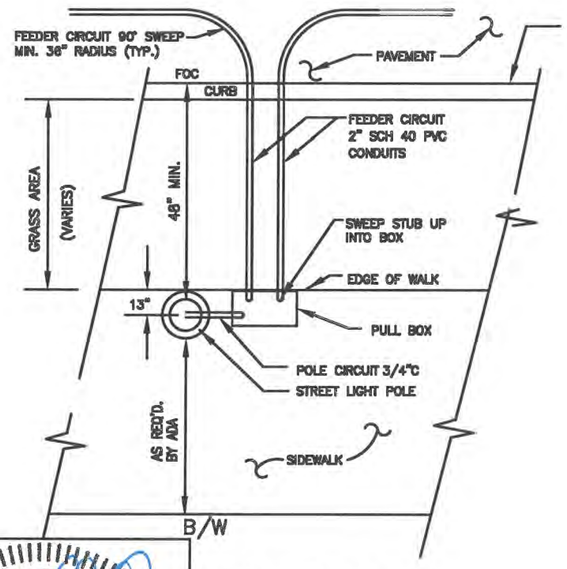
PULL BOX DETAIL
N.T.S.

PULL BOX SPECIFICATION.

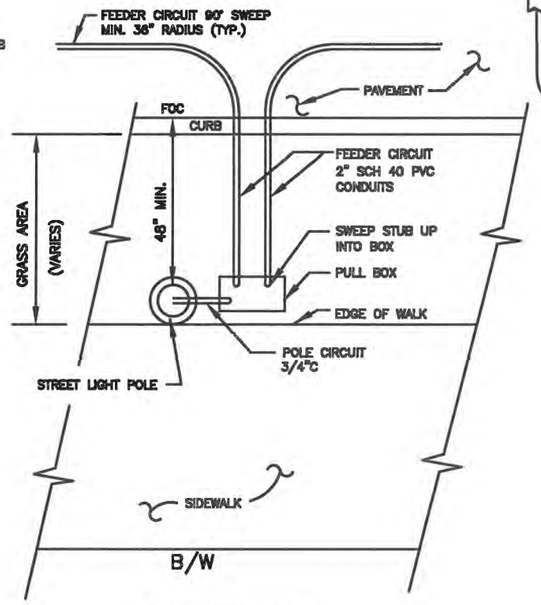
1. ALL STREET LIGHT PULLBOXES SHALL HAVE AN OPEN-BOTTOM, TRAFFIC RATED, QUAZITE POLYMER CONCRETE DESIGN OR PRECAST CONCRETE DESIGN CONSTRUCTED OF CLASS I CONCRETE HAVING A MINIMUM COMPRESSIVE STRENGTH OF 2,500 PSI AT TWENTY-EIGHT (28) DAYS. POLYMER CONCRETE PULLBOX SHALL BE QUAZITE PRODUCT NO. PG1324BA12 OR APPROVED EQUIVALENT. CONCRETE PULLBOX SHALL BE BROOKS 38 SERIES OR APPROVED EQUIVALENT. IN EITHER CASE, BOTH PULLBOXES SHALL BE CONSTRUCTED PER ABOVE SPECIFIED MANUFACTURERS SIZE, MATERIALS AND PERFORMANCE SPECIFICATIONS. THEREFORE, BELOW SPECIFIED PULLBOX COVER SHALL BE FULLY INTER-CHANGEABLE WITH EITHER PULLBOX. ALL PULLBOX COVERS FURNISHED AND INSTALLED SHALL BE POLYMER CONCRETE QUAZITE PRODUCT NO. PG1324HDO OR APPROVED EQUIVALENT. NO OTHER DESIGN, SIZE, MODIFICATION OR MATERIALS SHALL BE ACCEPTABLE. PULLBOX COVERS SHALL BE MARKED "STREET LIGHTING" OR "ELECTRIC.
2. WHERE PULLBOX IS LOCATED OUTSIDE OF SIDEWALK, i.e. SWALE AREA, THE PULLBOX SHALL HAVE A 3" CONCRETE APRON (6" THICK) AROUND IT. COST OF CONCRETE APRON SHALL BE INCLUDED IN PULLBOX INSTALLATION COST.



METAL POLE CONCRETE BASE DETAIL
N.T.S.



POLE WITHIN SIDEWALK
N.T.S.



POLE BEFORE SIDEWALK

TYPICAL STREET LIGHT PLAN DETAIL
N.T.S.

LIGHT POLE DETAILS

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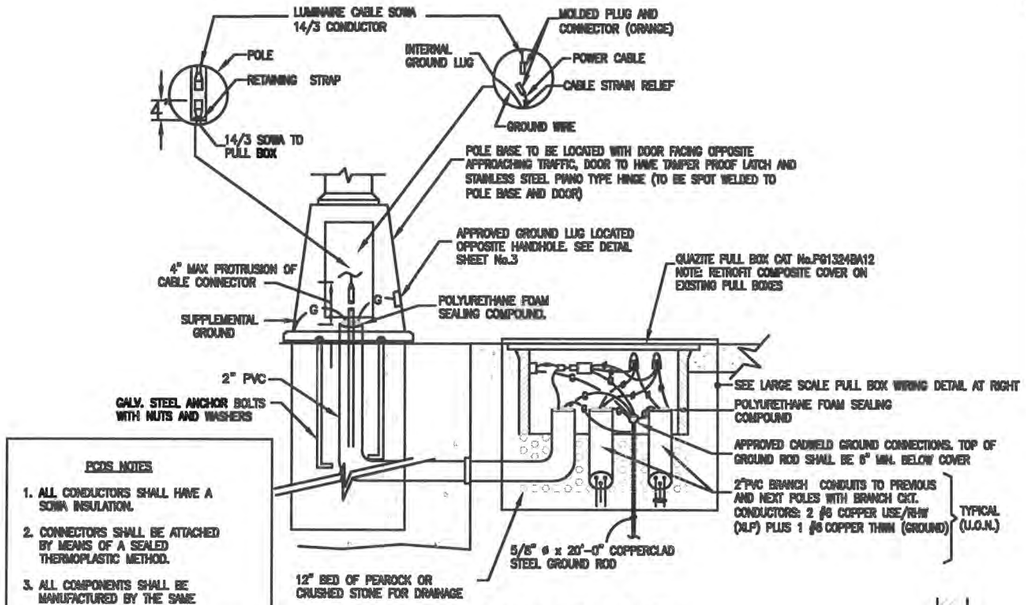
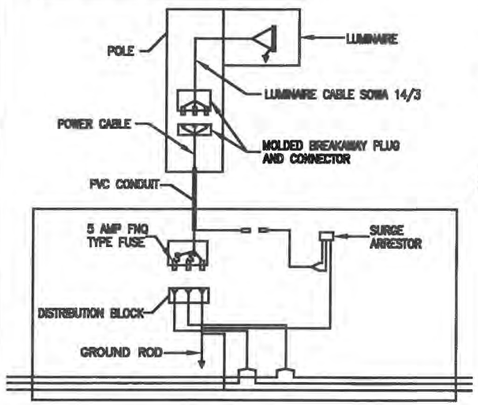


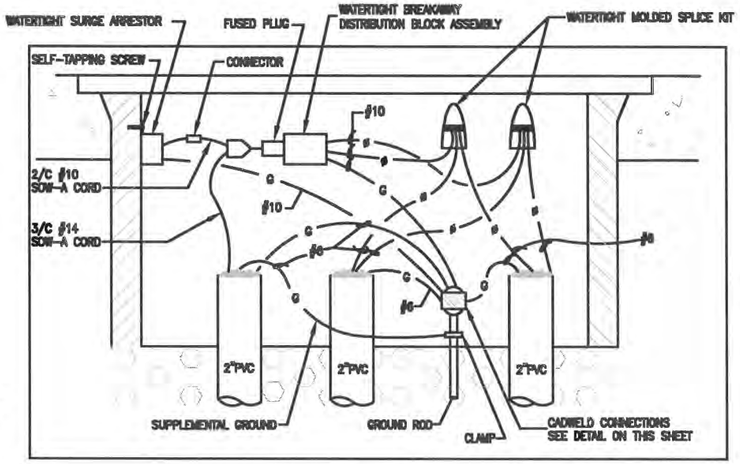
POLE WIRING DETAIL WITH PULL BOX
NTS

PCDS NOTES

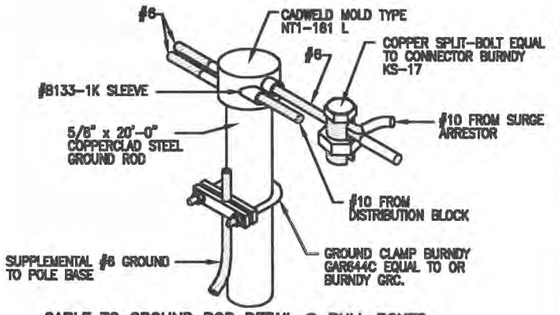
1. ALL CONDUCTORS SHALL HAVE A SOWA INSULATION.
2. CONNECTORS SHALL BE ATTACHED BY MEANS OF A SEALED THERMOPLASTIC METHOD.
3. ALL COMPONENTS SHALL BE MANUFACTURED BY THE SAME MANUFACTURER
4. PULLBOXES ARE SUBJECT TO FLOODING. THE POLE CABLE DISTRIBUTION SYSTEM SHALL BE IP-68 LISTED AS A WHOLE (NOT ONLY COMPONENTS) AND ITS WIRING DIAGRAM SHALL STRICTLY CONFORM TO THE WIRING DIAGRAM SHOWN ON THIS SHEET. PCDS SHALL BE NRTL AS A WHOLE COMPONENT.



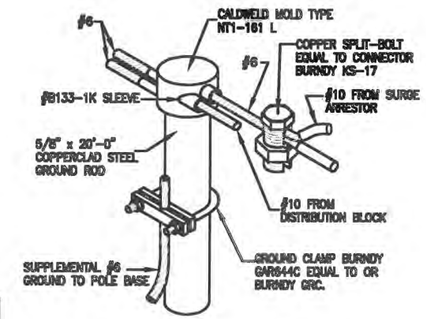
WIRING DIAGRAM
N.T.S.



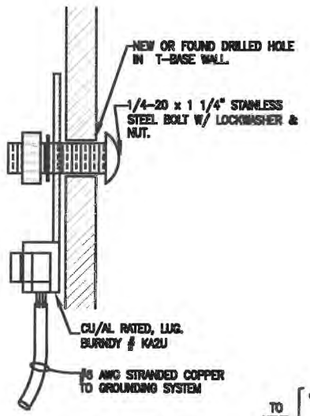
PULL BOX WIRING DETAIL
NTS



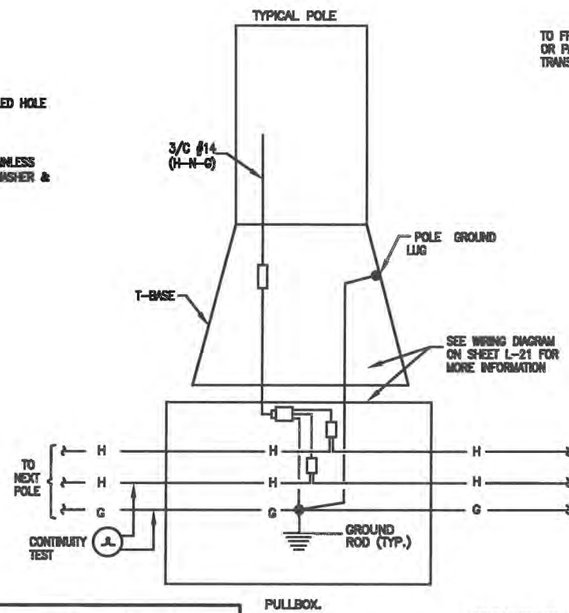
CABLE TO GROUND ROD DETAIL @ PULL BOXES
N.T.S.

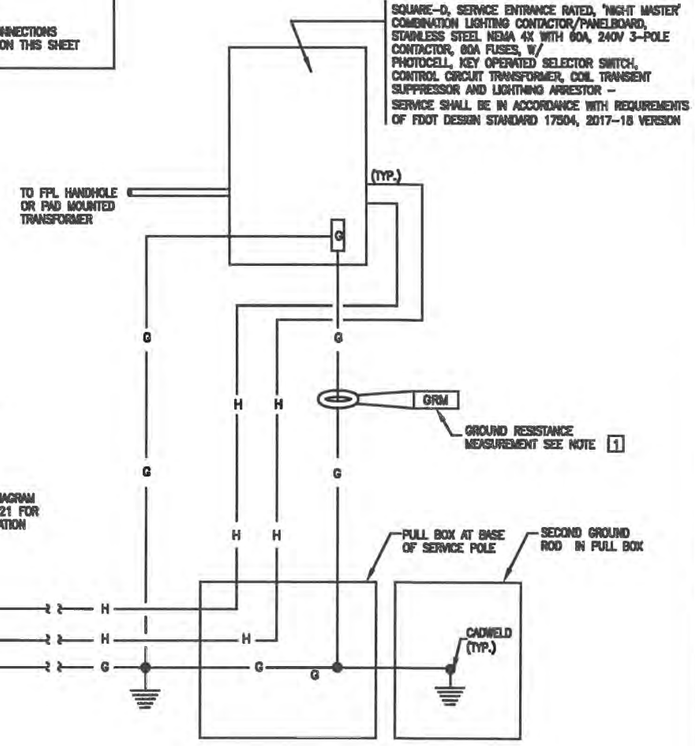


CABLE TO GROUND ROD DETAIL
N.T.S.



GROUND LUG DETAIL
N.T.S.





GROUNDING SYSTEM SCHEMATIC
N.T.S.

STREET LIGHTING WIRING AND GROUNDING SHALL CONFORM TO FDOT FY 2017-18 DESIGN STANDARDS 17515.

LIGHT POLE DETAILS

MainStreet ENGINEERING
70358 SW 47th Street . Miami, Florida 33155
Tel.: (305) 666-7450 . Fax: (305) 666-2450
FL PE Certificate No.: 00008731

WILLIAM E. PINO LICENSE No. 32026 STATE OF FLORIDA PROFESSIONAL ENGINEER
1-4-19

DATE:

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Department of Public Works
Engineering Division

Scale:	NONE
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Project:
ROADWAY LIGHTING PLANS
FOR
SR 60 & 43RD AVENUE

Sheet: L-21
Of: 24
Project No.
LMMP WP1027

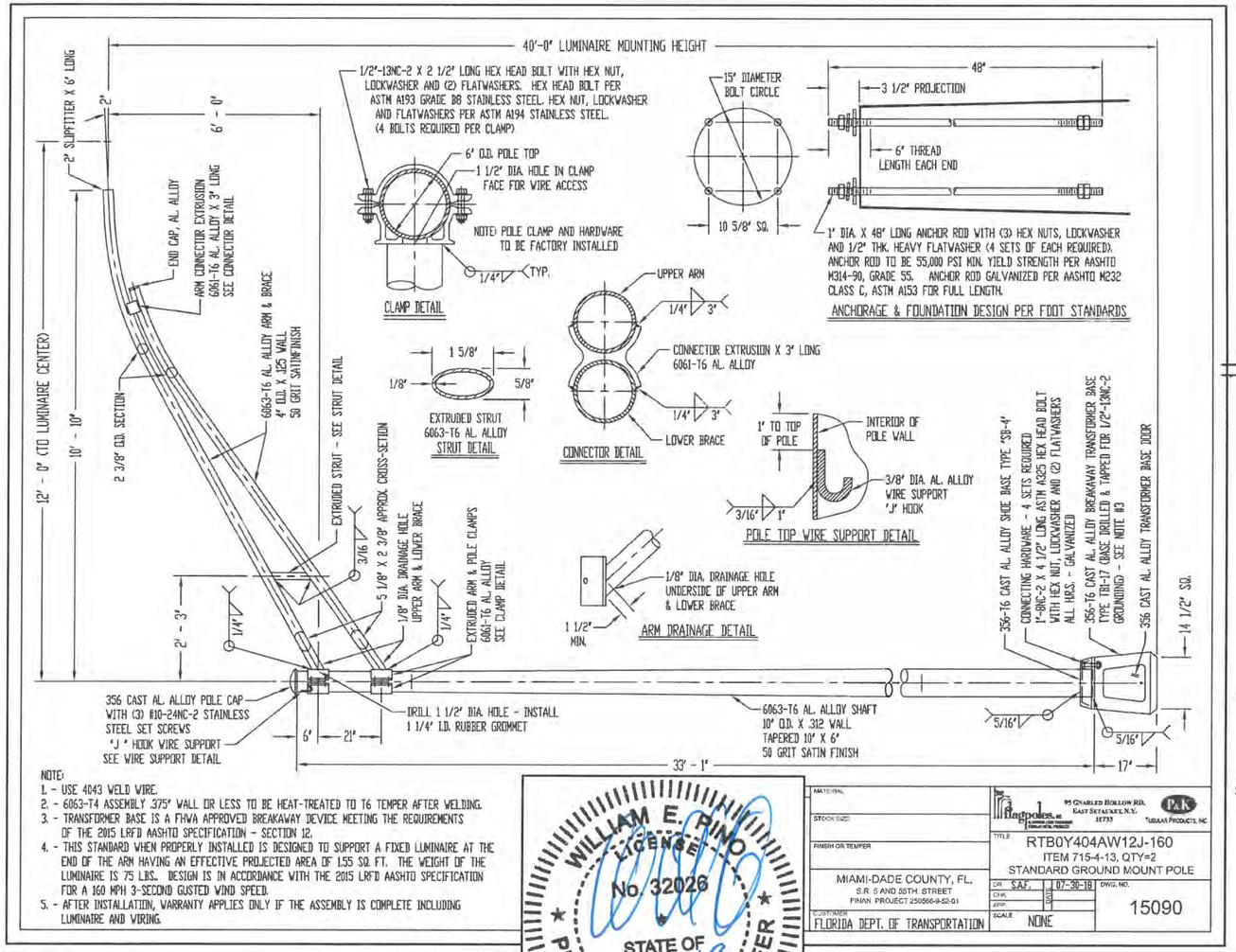
NOTES

1) LUMINAIRE SHALL BE A HEAVY DUTY, OUTDOOR LED LIGHTING SOLUTION WITH DIE-CAST ALUMINUM HOUSING WITH POWDER COAT FINISH. WATTAGE AND VOLTAGE AS INDICATED OR REQUIRED. DESIGNED FOR IES DISTRIBUTION

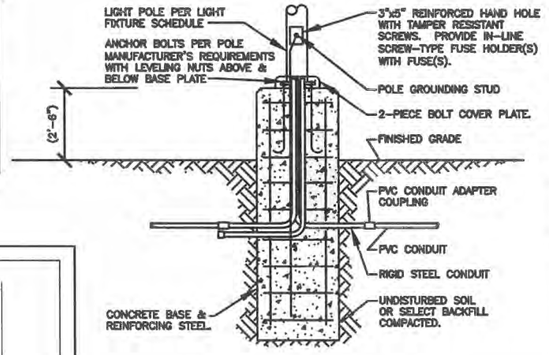
2) POLES AND BRACKET ARMS SHALL BE DESIGNED IN ACCORDANCE WITH LOCAL DESIGN CRITERIA USING THE APPLICABLE EQUATIONS FOUND IN "STANDARD SPECIFICATIONS FOR HIGHWAY SIGNS, LUMINAIRE AND TRAFFIC SIGNALS" PUBLISHED BY A.A.S.H.T.O.
THE CONTRACTOR (SUPPLIER) SHALL SUBMIT EVIDENCE OF COMPLIANCE WITH THE REQUIREMENTS OF THIS SPECIFICATION IN ADDITION TO THE DOT UTILITY ACCOMODATION MANUAL AND FDOT DESIGN STANDARDS, INCLUDED IN THE EQUIPMENT SUBMITTAL DATA. NO POLES ARE TO BE INSTALLED PRIOR TO DEPARTMENT APPROVAL.

3) CONTRACTOR SHALL APPLY WHITE GREASE ON ALL THREADED SCREWS, NUTS AND BOLT SURFACES

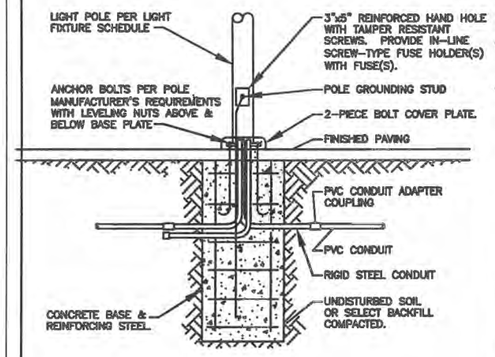
STREET LIGHTING INSTALLATION INCLUDING LIGHT POLES, LIGHT FIXTURES, CONCRETE POLE BASES, WIRING AND GROUNDING SHALL CONFORM TO FDOT FY 2017-18 DESIGN STANDARDS 17515 AND THE LATEST ACCEPTED VERSION OF THE "FLORIDA GREENBOOK".



NOTE:
1. - USE 4043 WELD WIRE.
2. - 6063-T4 ASSEMBLY .375" WALL OR LESS TO BE HEAT-TREATED TO T6 TEMPER AFTER WELDING.
3. - TRANSFORMER BASE IS A FHWA APPROVED BREAKAWAY DEVICE MEETING THE REQUIREMENTS OF THE 2015 LRFD AASHTO SPECIFICATION - SECTION 12.
4. - THIS STANDARD WHEN PROPERLY INSTALLED IS DESIGNED TO SUPPORT A FIXED LUMINAIRE AT THE END OF THE ARM HAVING AN EFFECTIVE PROJECTED AREA OF 1.55 SQ. FT. THE WEIGHT OF THE LUMINAIRE IS 75 LBS.. DESIGN IS IN ACCORDANCE WITH THE 2015 LRFD AASHTO SPECIFICATION FOR A 160 MPH 3-SECOND GUSTED WIND SPEED.
5. - AFTER INSTALLATION, WARRANTY APPLIES ONLY IF THE ASSEMBLY IS COMPLETE INCLUDING LUMINAIRE AND WIRING.



POLE BASE DETAIL - TURF AREAS
NTS

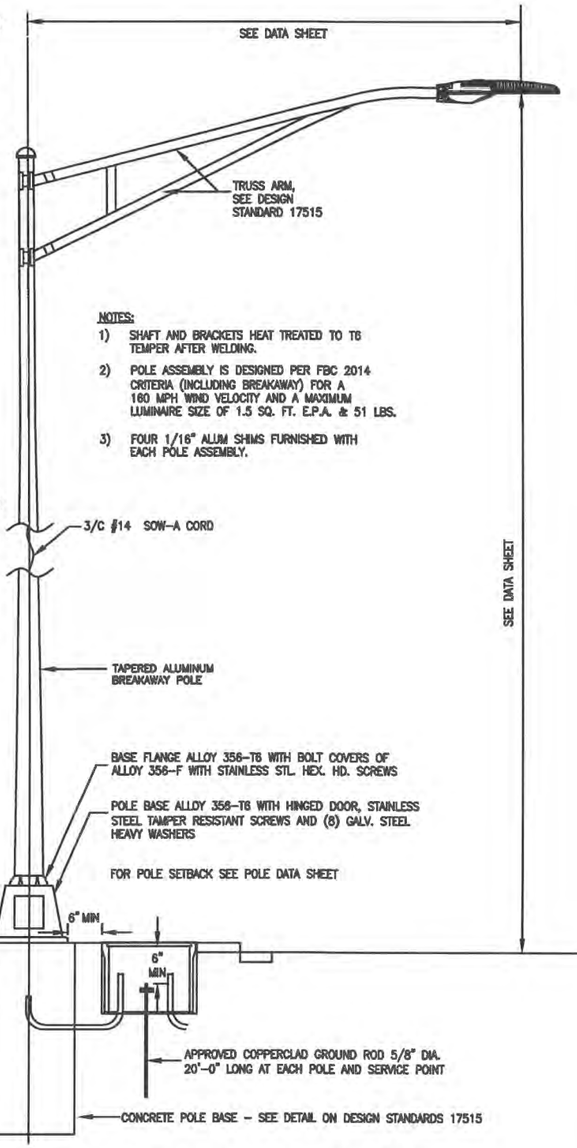


POLE BASE DETAIL - PAVED AREA
NTS

LIGHT POLE NOTES

1. ALL LIGHT POLE INSTALLATIONS SHALL BE SUITABLE FOR WIND RESISTANCE AS PER FLORIDA BUILDING CODE, YEAR 2014 REVISION. THE CONTRACTOR SHALL INCLUDE WITH SHOP DRAWING SUBMITTAL, A POLE WIND LOADING CALCULATION FOR LUMINAIRE, POLE AND EMBEDMENT SEALED BY A FLORIDA REGISTERED STRUCTURAL ENGINEER ILLUSTRATING THAT THE PROPOSED INSTALLATION SHALL MEET THE GIVEN WIND LOADING REQUIREMENTS.
2. ALL POLES SHALL BE LEVELED PLUM, WITHIN 1/2".

811 KNOW WHAT'S BELOW ALWAYS CALL 811 BEFORE YOU DIG
It's Free. It's Easy. It's the Law.
www.callsunshine.com



STANDARD ALUMINUM POLE INSTALLATION DETAIL
N.T.S.

LIGHT POLE DETAILS

WILLIAM E. PINO LICENSE No. 32026 STATE OF FLORIDA PROFESSIONAL ENGINEER
1-4-19

flagpoles.us — 95 CRABLE HOLLOW RD. EAST SETAUKET, N.Y. 11733 — P&K "URBAN PRODUCTS, INC"
MATERIAL:
STOCK SIZE:
FINISH OR TEMPER:
TITLE: RTB0Y404AW12J-160
ITEM 715-4-13, QTY=2
STANDARD GROUND MOUNT POLE
DR: SAF. 07-30-18 DWG. NO. 15090
CHK.
APP.
SCALE: NONE
CUSTOMER: FLORIDA DEPT. OF TRANSPORTATION
MIAMI-DADE COUNTY, FL.
S.R. 5 AND 35TH STREET
FINAL PROJECT 250566-9-52-01

MainStreet ENGINEERING
70358 SW 47th Street . Miami, Florida 33155
Tel.: (305) 666-7450 . Fax: (305) 666-2450
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	By:	Date:

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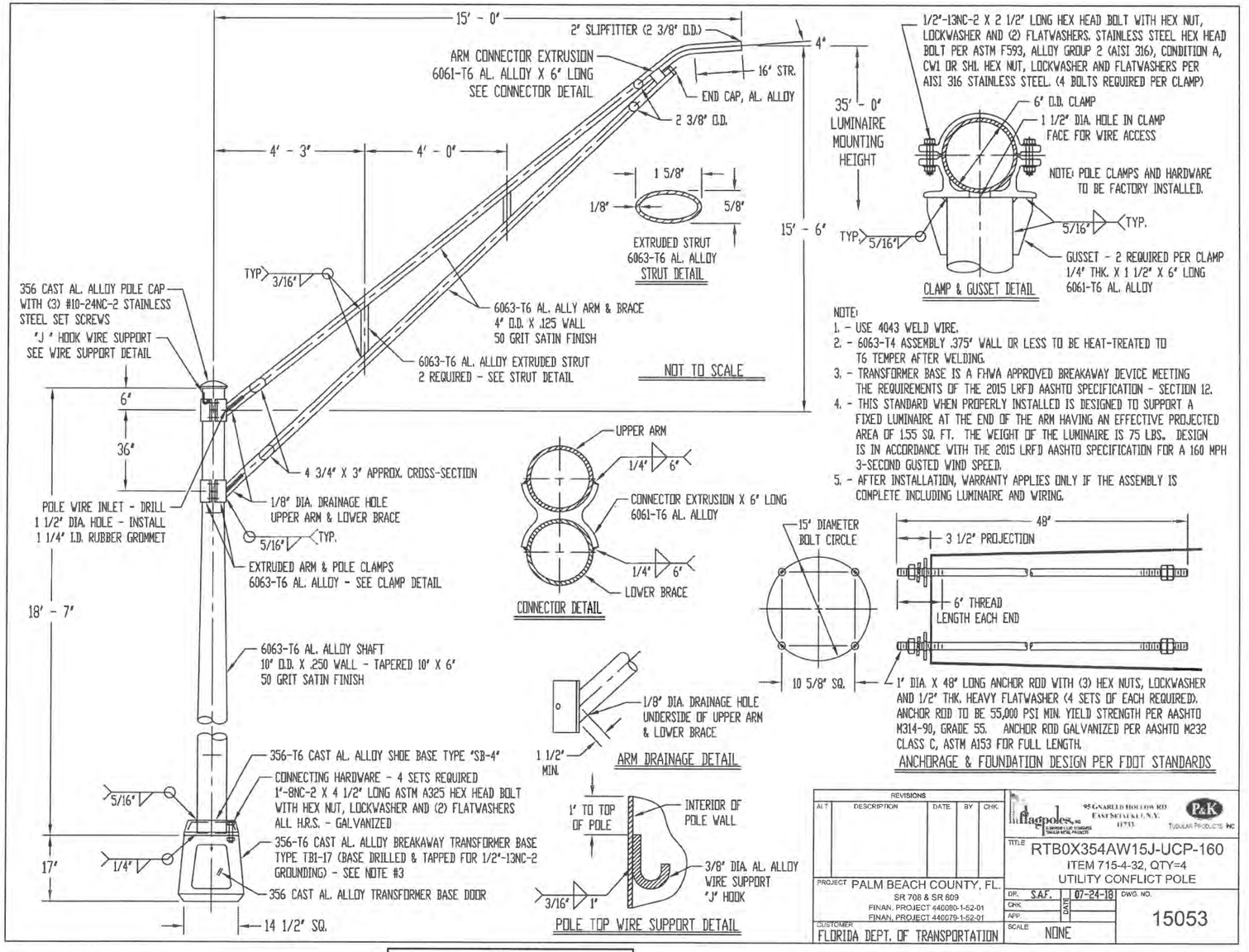


NOTE:
1. - USE 4043 WELD WIRE.
2. - 6063-T4 ASSEMBLY .375" WALL OR LESS TO BE HEAT-TREATED TO T6 TEMPER AFTER WELDING.
3. - TRANSFORMER BASE IS A FHWA APPROVED BREAKAWAY DEVICE MEETING THE REQUIREMENTS OF THE 2015 LRFD AASHTO SPECIFICATION - SECTION 12.
4. - THIS STANDARD WHEN PROPERLY INSTALLED IS DESIGNED TO SUPPORT A FIXED LUMINAIRE AT THE END OF THE ARM HAVING AN EFFECTIVE PROJECTED AREA OF 1.55 SQ. FT. THE WEIGHT OF THE LUMINAIRE IS 75 LBS. DESIGN IS IN ACCORDANCE WITH THE 2015 LRFD AASHTO SPECIFICATION FOR A 160 MPH 3-SECOND GUSTED WIND SPEED.
5. - AFTER INSTALLATION, WARRANTY APPLIES ONLY IF THE ASSEMBLY IS COMPLETE INCLUDING LUMINAIRE AND WIRING.

REVISIONS				
ALT	DESCRIPTION	DATE	BY	CHK

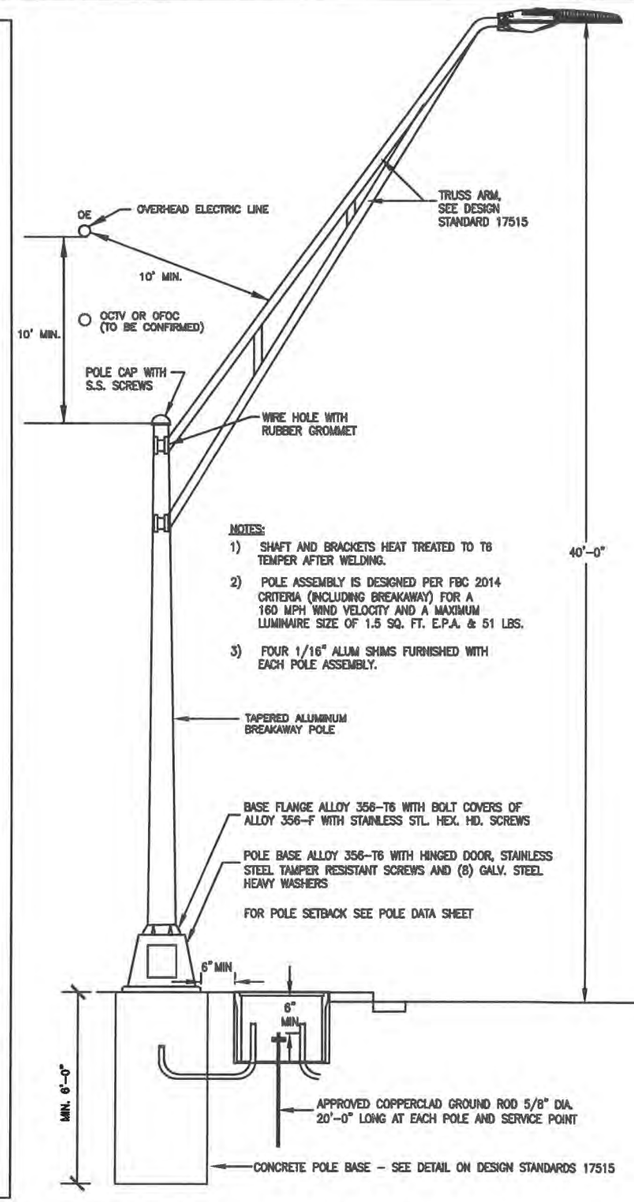
Flagpoles, Inc. — 95 Guard Hill Road, East Setauket, N.Y. 11733 — P&K Tubular Products Inc

TITLE: RTB0X354AW15J-UCP-160
ITEM 715-4-32, QTY=4
UTILITY CONFLICT POLE

PROJECT: PALM BEACH COUNTY, FL.
SR 708 & SR 609
FINAN. PROJECT 440080-1-52-01
FINAN. PROJECT 440079-1-52-01

CUSTOMER: FLORIDA DEPT. OF TRANSPORTATION

DR:	S.A.F.	DATE: 07-24-18	DWG. NO.
CHK:			15053
APP:			
SCALE:	NONE		



UTILITY CONFLICT ALUMINUM POLE
N.T.S.

CONTRACTOR SHALL COORDINATE WITH FPL AND VERO BEACH UTILITY REGARDING LOCATION OF OVERHEAD POWER LINES AND INSTALL CONFLICT POLES ACCORDINGLY. DO NOT USE CRANES TO INSTALL CONFLICT POLES.

LIGHT POLE DETAILS

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WILLIAM E. PINO — LICENSE — No. 32026 — STATE OF FLORIDA — PROFESSIONAL ENGINEER
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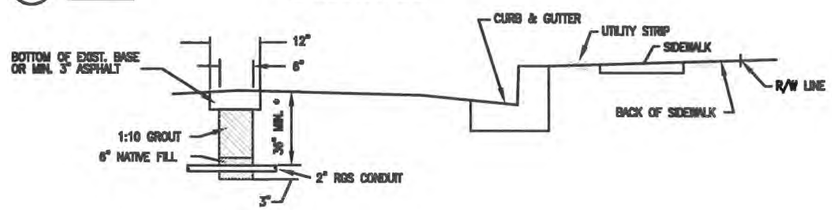
1 OPTION

CONDUIT BURIED WHEN CROSSING ROAD

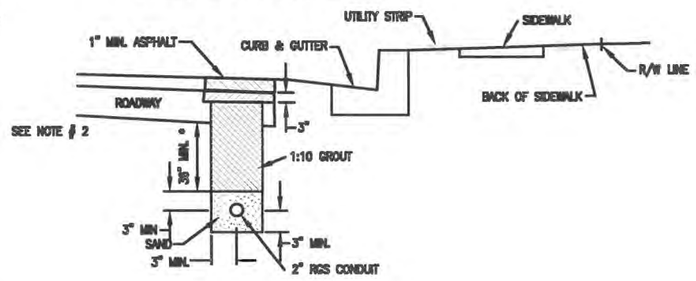


NOTE:
TRENCH NOT TO BE OPENED MORE THAN 250' AT A TIME

* MAY BE ADJUSTED IN FIELD DUE TO FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

2 OPTION

CONDUIT BURIAL IN ROADWAY

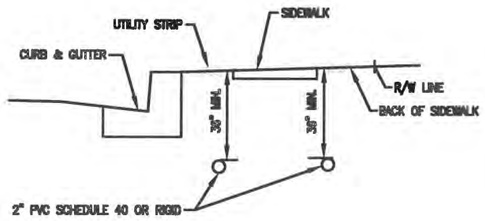


NOTE:
1. TRENCH NOT TO BE OPENED MORE THAN 250' AT A TIME.
2. THIS AREA SHALL BE BACKFILLED WITH TYPE S-1 ASPHALTIC CONCRETE TO WITHIN 1 INCH OF FINISHED GRADE.

* MAY BE ADJUSTED IN FIELD DUE TO FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

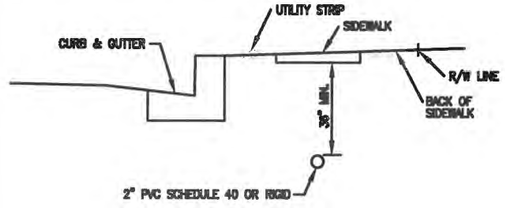
3 OPTION

CONDUIT IN UTILITY AND BACK OF SIDEWALK



4 OPTION

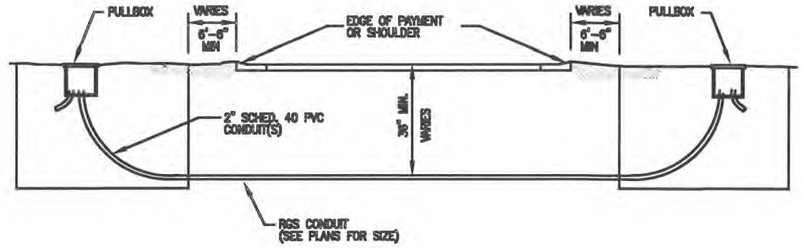
CONDUIT UNDER SIDEWALK



NOTE:
IN PLACING CONDUIT UNDER SIDEWALK REPLACEMENT OF ENTIRE SIDEWALK SECTION SHALL BE NECESSARY.

5 OPTION

CONDUIT DIRECTIONAL BORE



NOTES:
1. DIRECTIONAL BORING OPERATIONS SHALL BE DONE IN ACCORDANCE WITH THE F.D.O.T. UTILITY ACCOMODATION MANUAL.

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CONDUIT INSTALLATION DETAILS

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Project:
ROADWAY LIGHTING PLANS
FOR
SR 60 & 43RD AVENUE

Sheet: L-24
Of: 24
Project No.

A

SCHREDER 376381-36L177-NW-T2M
RTECH (Ambient temperature: 25deg C (77deg F) -
lumen tolerance: +- 7% - power tolerance: +- 5% test report no. 376381
lamp(s): 36 Cree XPL HD
candela file 'SMART2-US-36L177-NW-T2M-SV-GY.ies'
1 lamp(s) per luminaire, photometry is absolute
Light Loss Factor = 1.000, watts per luminaire = 155
Outreach (from mounting axis to photometric center)= 144 in
mounting height= 40 ft
number locations= 58, number luminaires= 57
kw all locations= 9.0

B

SCHREDER 376371 - 48L200-NW-T3M-SV-GY
RTECH (Ambient temperature: 25deg C (77deg F) -
lumen tolerance: +- 7% - power tolerance: +- 5% test report no. 376371
lamp(s): 48 Cree XPL HD
candela file 'SMART3-US-48L200-NW-T3M-SV-GY.ies'
1 lamp(s) per luminaire, photometry is absolute
Light Loss Factor = 1.000, watts per luminaire = 166
Outreach (from mounting axis to photometric center)= 144 in
mounting height= 40 ft
number locations= 7, number luminaires= 7
kw all locations= 1.2

C

SCHREDER 376371-36L168-NW-T3M-SV-GY
RTECH (Ambient temperature: 25deg C (77deg F) -
lumen tolerance: +- 7% - power tolerance: +- 5% test report no. 376371
lamp(s): 36 Cree XPL HD
candela file 'SMART2-US-36L168-NW-T3M-SV-GY.ies'
1 lamp(s) per luminaire, photometry is absolute
Light Loss Factor = 1.000, watts per luminaire = 144
Outreach (from mounting axis to photometric center)= 144 in
mounting height= 40 ft
number locations= 3, number luminaires= 3
kw all locations= 0.4

D

SCHREDER 376381-48L185-NW-T2M-SV-GY
RTECH (Ambient temperature: 25deg C (77deg F) -
lumen tolerance: +- 7% - power tolerance: +- 5% test report no. 376381
lamp(s): 48 Cree XPL HD
candela file 'SMART3-US-48L185-NW-T2M-SV-GY.ies'
1 lamp(s) per luminaire, photometry is absolute
Light Loss Factor = 1.000, watts per luminaire = 148
Outreach (from mounting axis to photometric center)= 144 in
tilt angle= 10 deg
mounting height= 40 ft
number locations= 2,
kw all locations= 0.3
number luminaires= 2

43rd AVE
5655 points at z=0, sp 5ft by 10ft

	A
Average	1.5
Maximum	3.9
Minimum	0.4
Avg:Min	3.84
Max:Min	9.75
Coef Var	0.45
UnifGrad	1.70

Ratio (Max veiling luminance / Avg road luminance) = 0.28

SR 60
4204 points at z=0, sp 10ft by 5ft

	A
Average	1.6
Maximum	3.2
Minimum	0.4
Avg:Min	4.00
Max:Min	8.00
Coef Var	0.38
UnifGrad	1.57

Ratio (Max veiling luminance / Avg road luminance) = 0.28

INTERSECTION SR60 & 43rd AVE
1151 points at z=0, sp 2.5ft by 2.5ft

	A
Average	1.6
Maximum	3.6
Minimum	0.4
Avg:Min	3.99
Max:Min	9.00
Coef Var	0.35
UnifGrad	0.00

Ratio (Max veiling luminance / Avg road luminance) = 0.27

SIDEWALK - SR60
904 points at z=0, sp 7ft by 3.5ft
HORIZONTAL FOOTCANDLES

Average	1.0
Maximum	2.0
Minimum	0.3
Avg:Min	3.39
Max:Min	6.67
Coef Var	0.49
UnifGrad	1.67

SIDEWALK - INETRSECTION
126 points at z=0, sp 5ft by 5ft
HORIZONTAL FOOTCANDLES

Average	1.0
Maximum	2.0
Minimum	0.3
Avg:Min	3.19
Max:Min	6.67
Coef Var	0.50
UnifGrad	1.60

SIDEWALK - 43rd AVE
1990 points at z=0, sp 3.5ft by 7ft
HORIZONTAL FOOTCANDLES

Average	0.8
Maximum	2.6
Minimum	0.1
Avg:Min	8.07
Max:Min	26.00
Coef Var	0.72
UnifGrad	2.00

CROSSWALK # 1
47 points
VERTICAL FOOTCANDLES,
observer facing East

Average	1.6
Maximum	2.1
Minimum	1.0
Avg:Min	1.56
Max:Min	2.10
Coef Var	0.17

CROSSWALK # 2
40 points
VERTICAL FOOTCANDLES,
observer facing West

Average	1.8
Maximum	2.2
Minimum	1.4
Avg:Min	1.30
Max:Min	1.57
Coef Var	0.11

CROSSWALK # 3
38 points
VERTICAL FOOTCANDLES,
observer facing North

Average	1.6
Maximum	2.3
Minimum	0.8
Avg:Min	1.94
Max:Min	2.88
Coef Var	0.31

CROSSWALK # 4
37 points
VERTICAL FOOTCANDLES,
observer facing South

Average	1.9
Maximum	2.2
Minimum	1.5
Avg:Min	1.28
Max:Min	1.47
Coef Var	0.08

CROSSWALK # 5 - NORTH B
19 points
VERTICAL FOOTCANDLES,
observer facing North

Average	1.7
Maximum	1.9
Minimum	1.5
Avg:Min	1.14
Max:Min	1.27
Coef Var	0.09

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2018-0810

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1-4-19

CONTRACTOR SHALL VERIFY VOLTAGES PRIOR TO ORDERING FIXTURES

LUMINAIRE DESCRIPTIONS, PHOTOMETRIC STATISTICS

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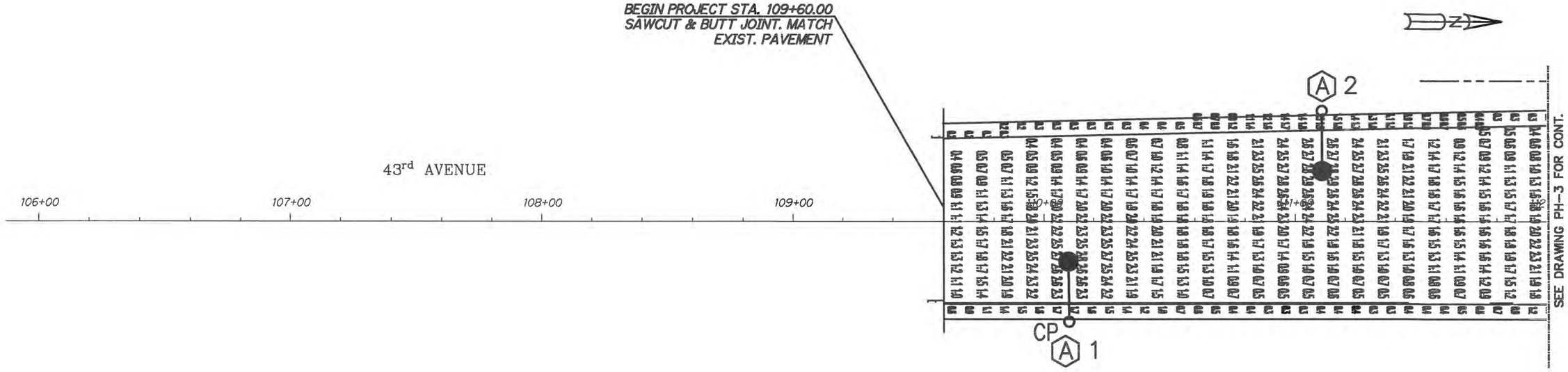
Project:
ROADWAY LIGHTING
PHOTOMETRIC PLANS

Sheet: PH-1
Of: 18
Project No.
LNW# WP1027



ROADWAY PHOTOMETRIC PLAN

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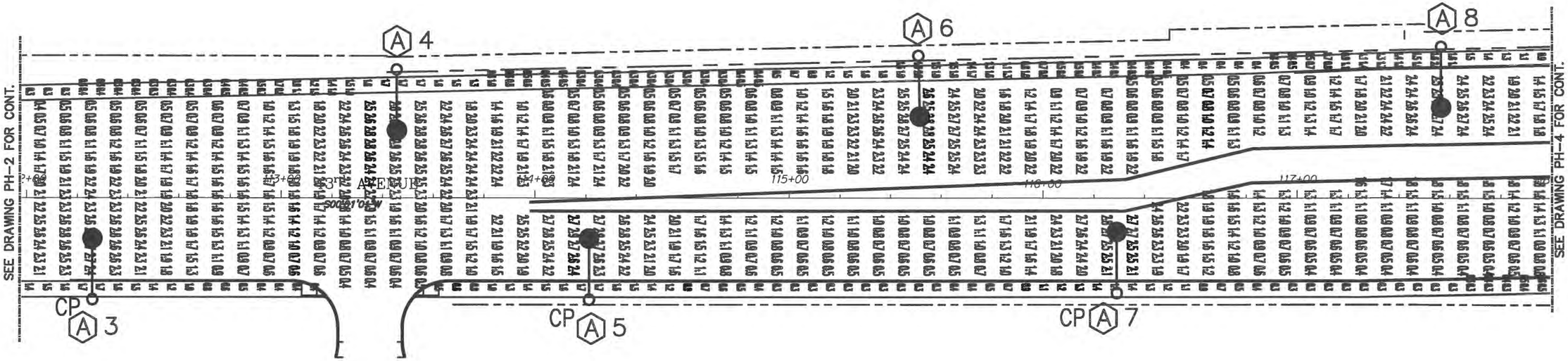

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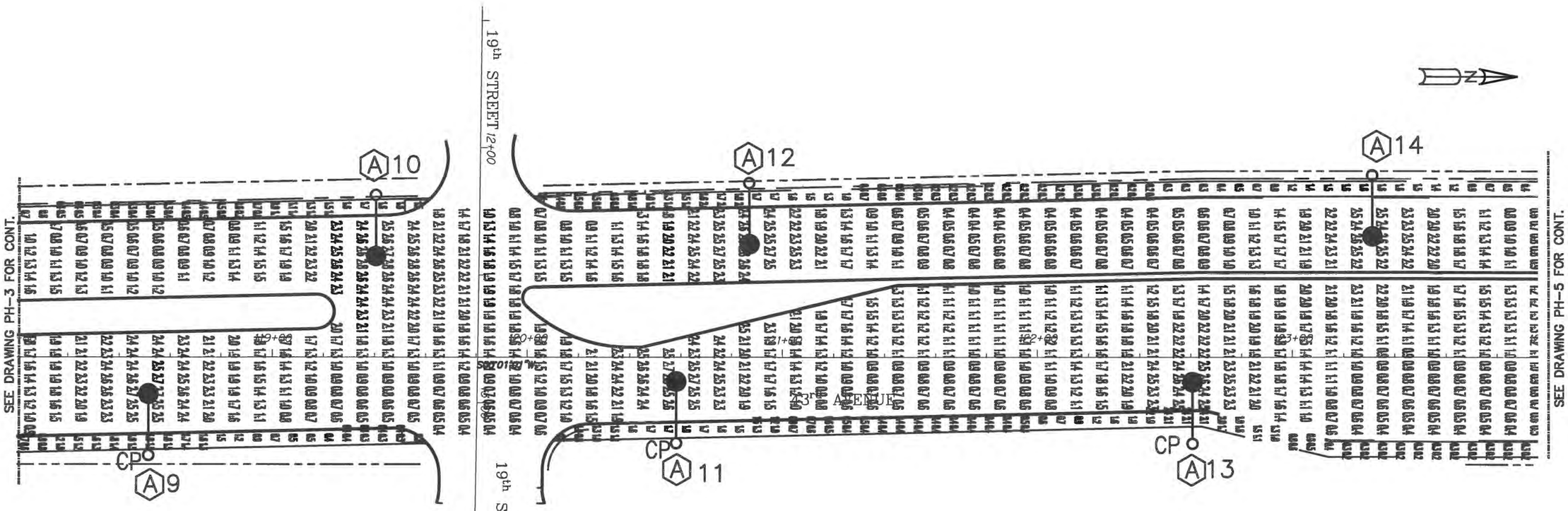

ROADWAY PHOTOMETRIC PLAN

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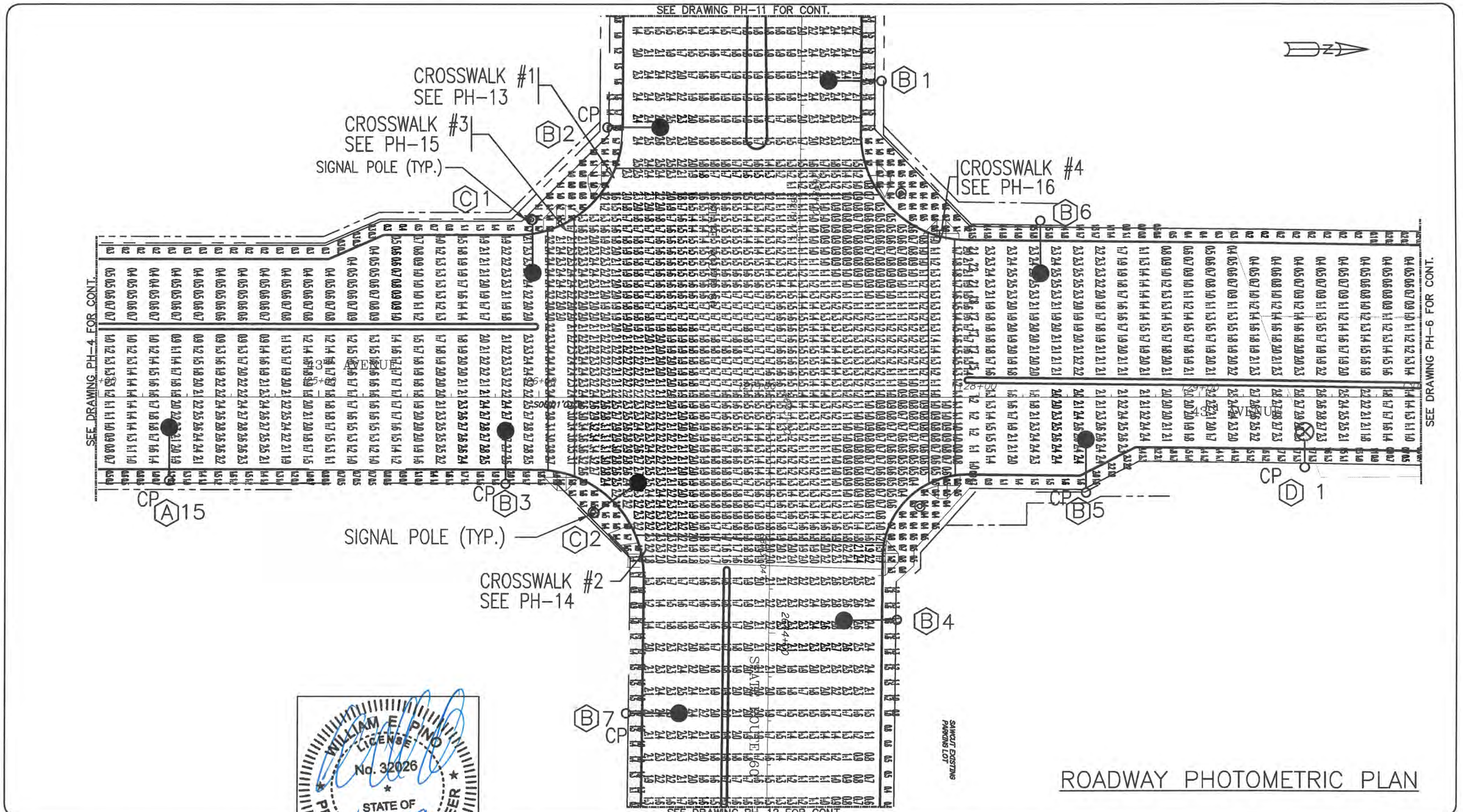

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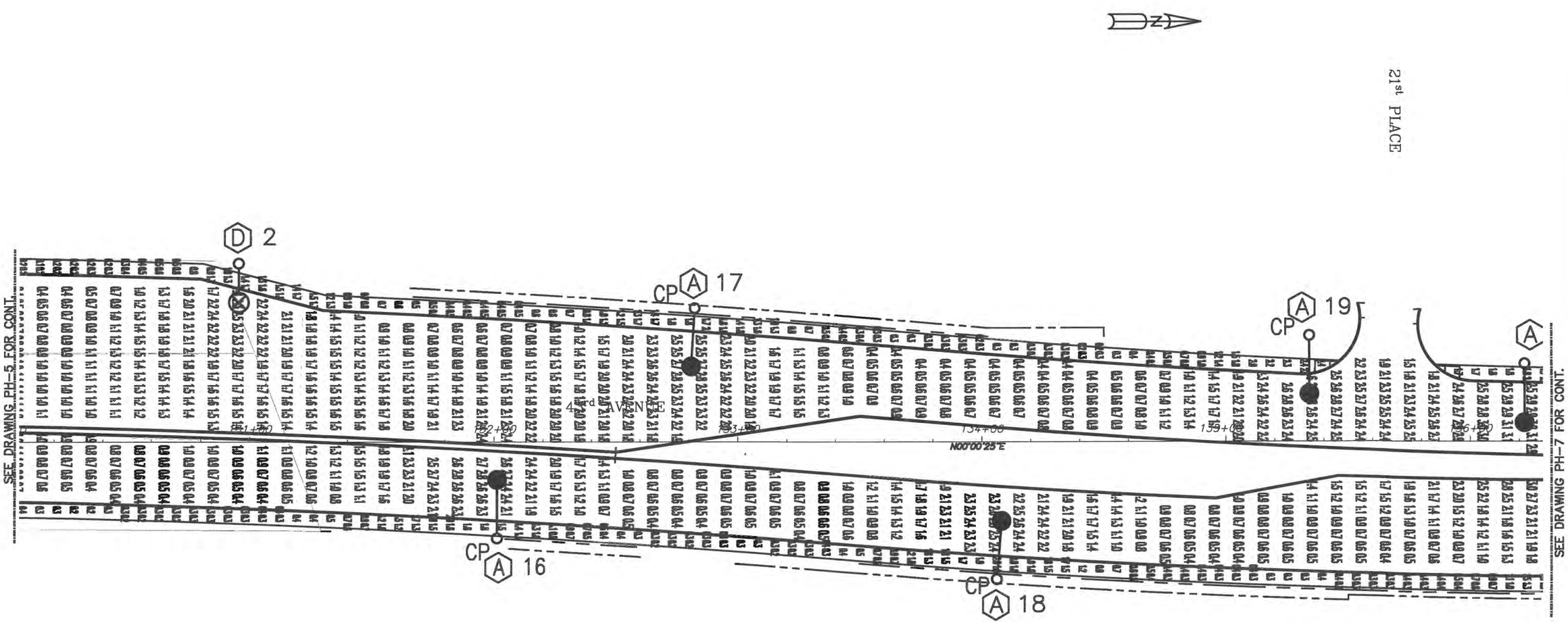

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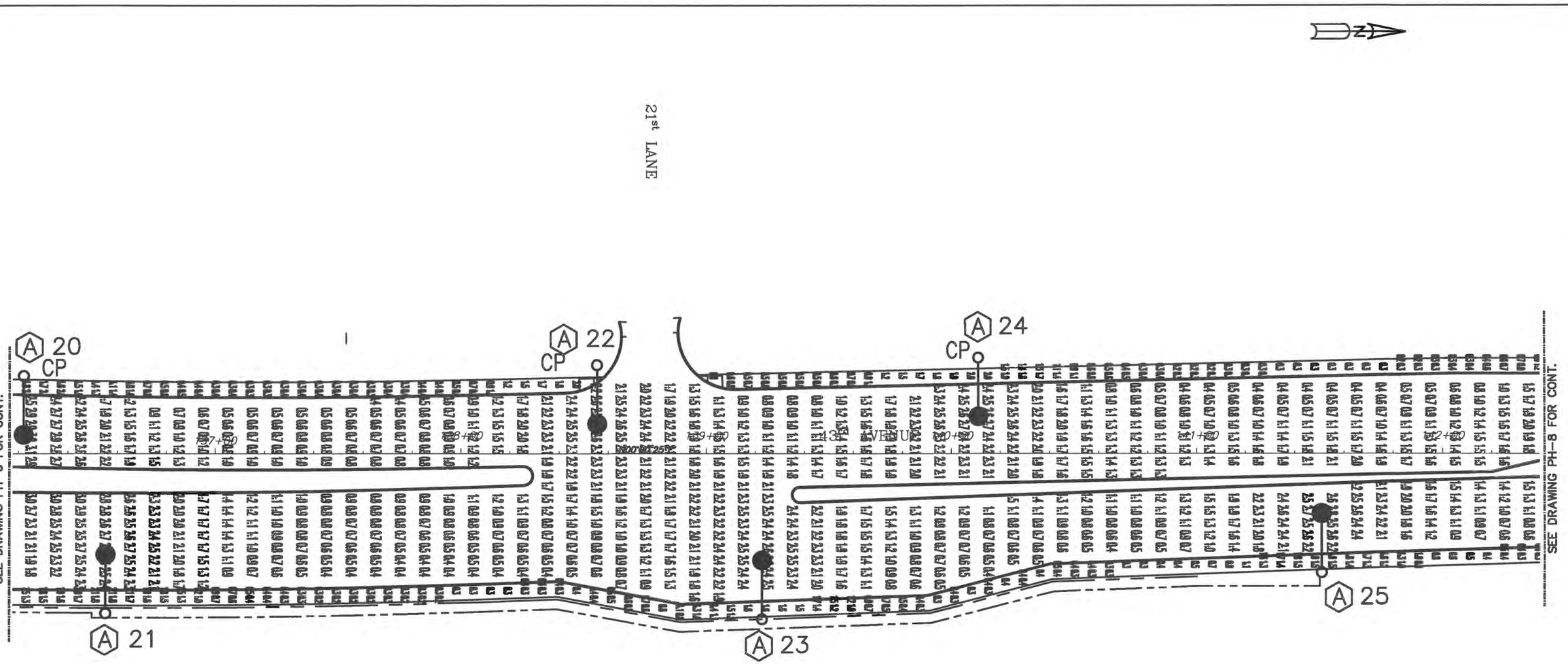
L8899 WP1027



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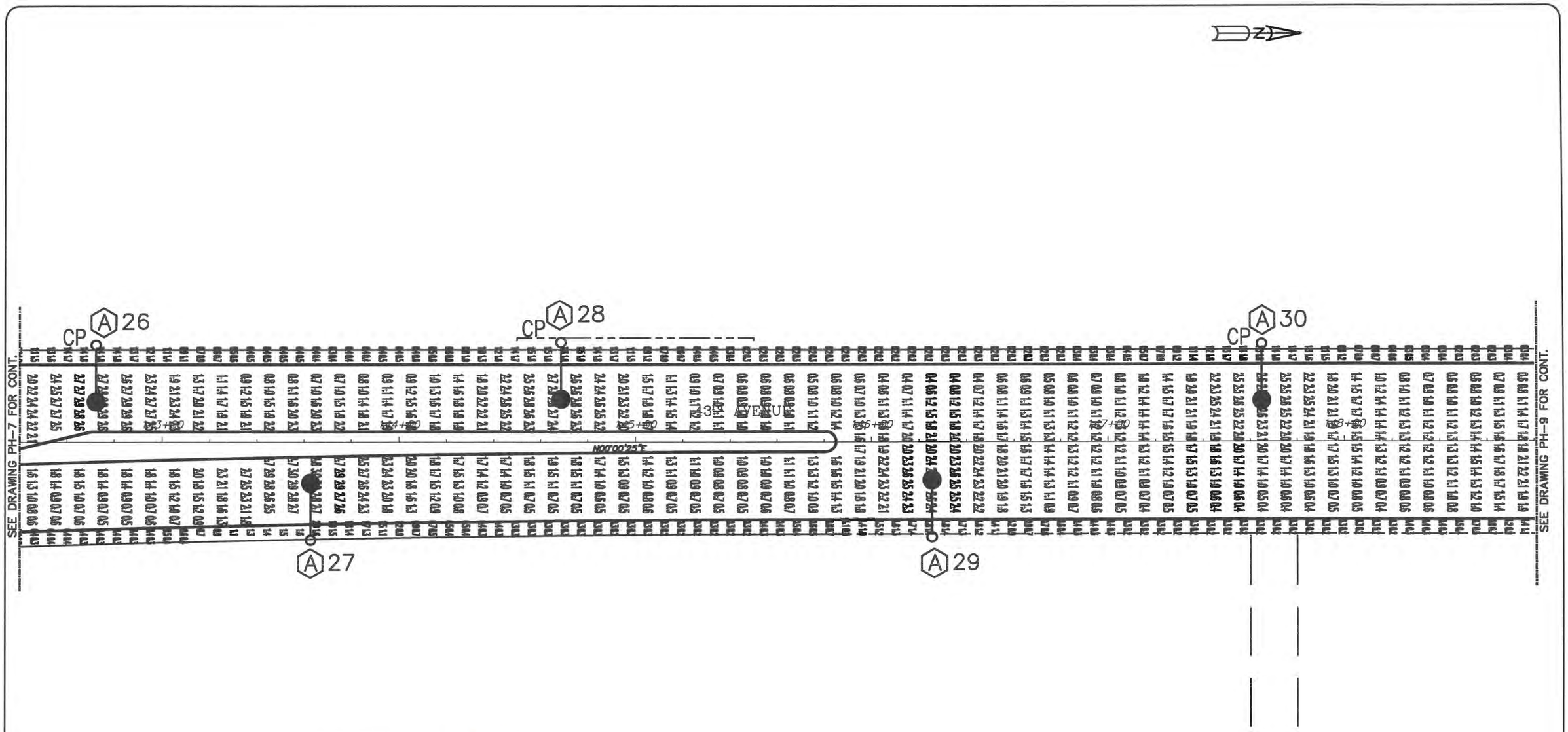

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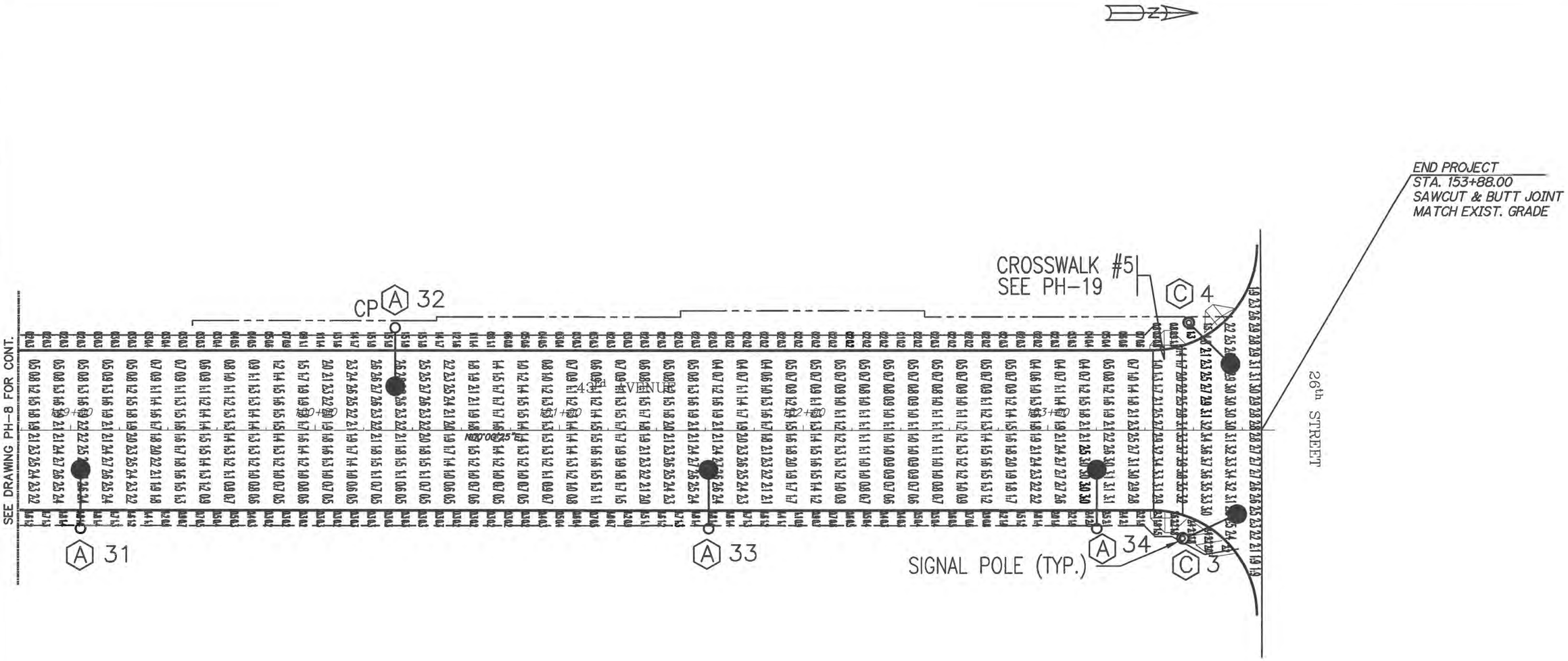

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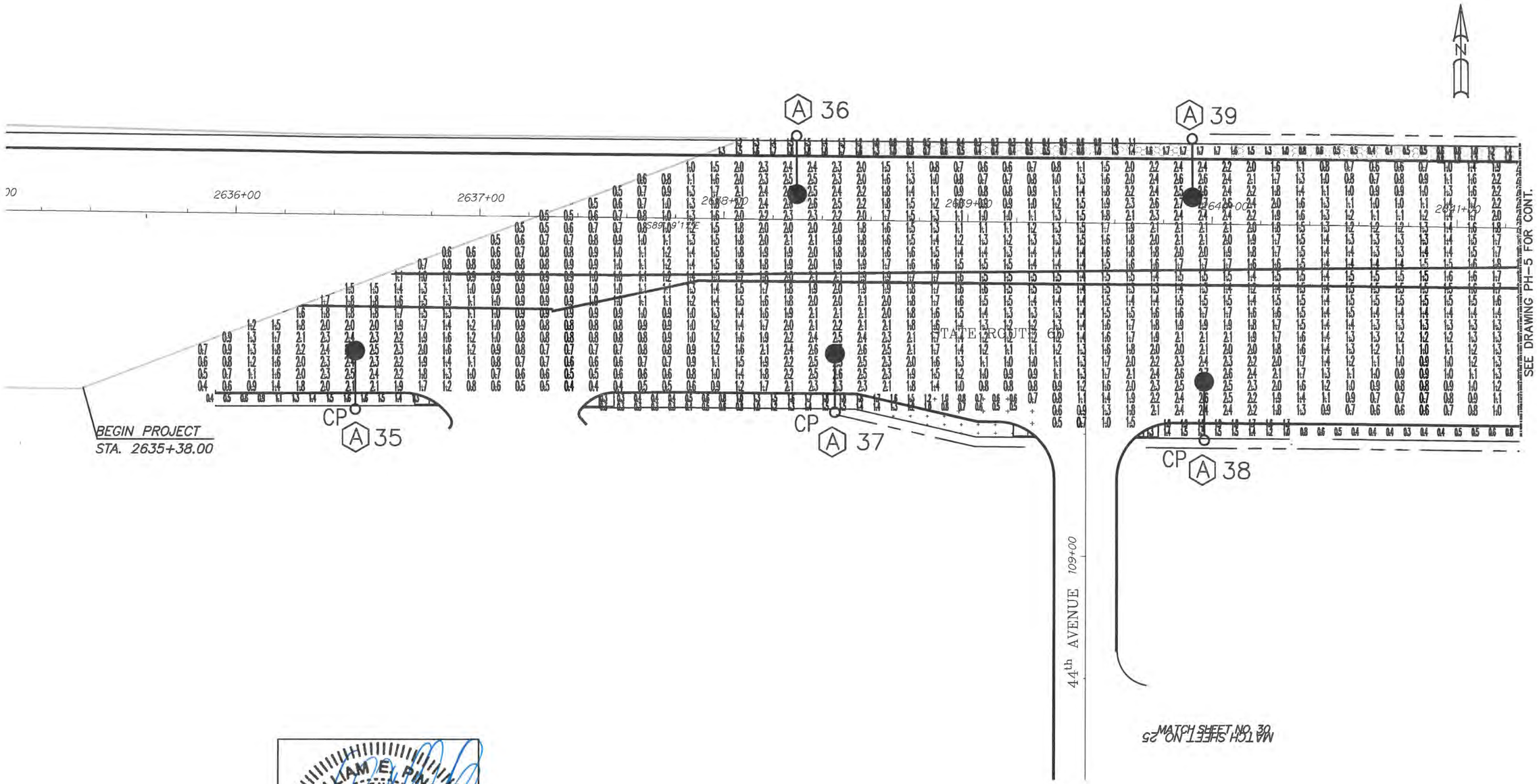

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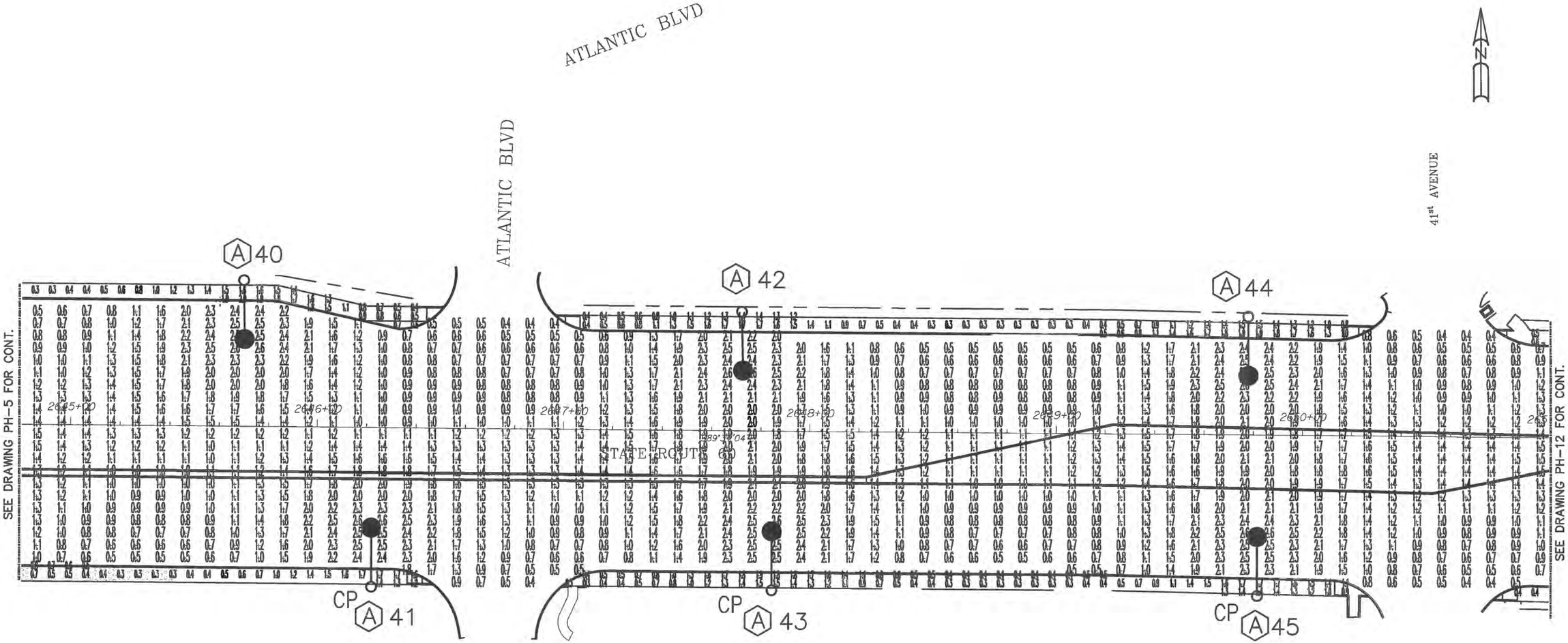

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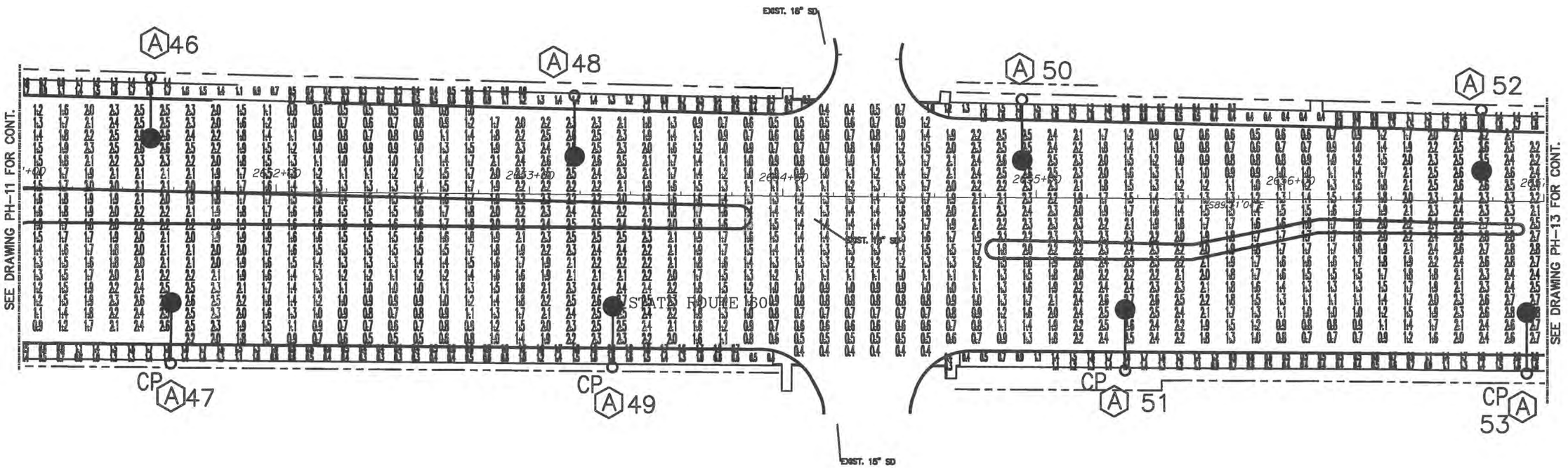

ROADWAY PHOTOMETRIC PLAN

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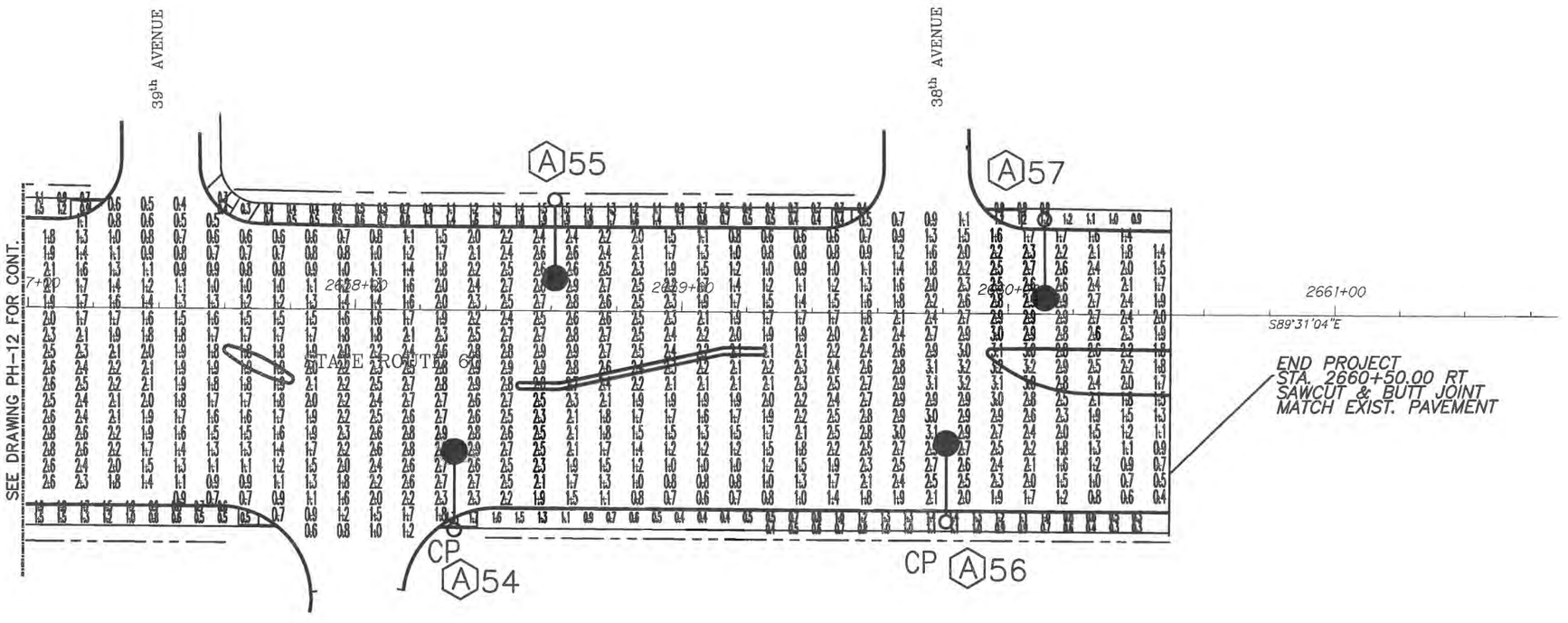
LMMP WP1027



ROADWAY PHOTOMETRIC PLAN

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Project:
ROADWAY LIGHTING
PHOTOMETRIC PLANS

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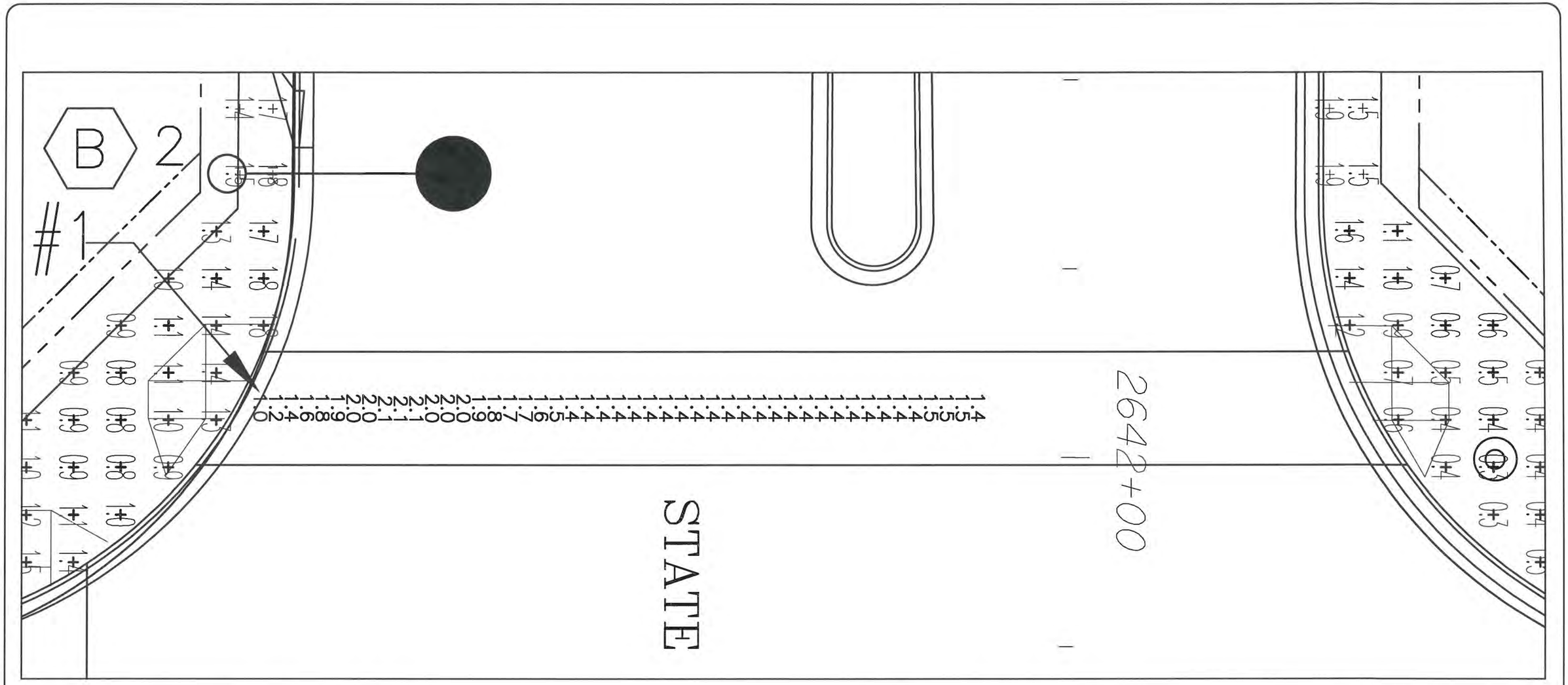
Project No.
LNW# WP1027



CROSSWALK VERTICAL
PHOTOMETRIC PLAN

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PHOTOMETRIC PLANS

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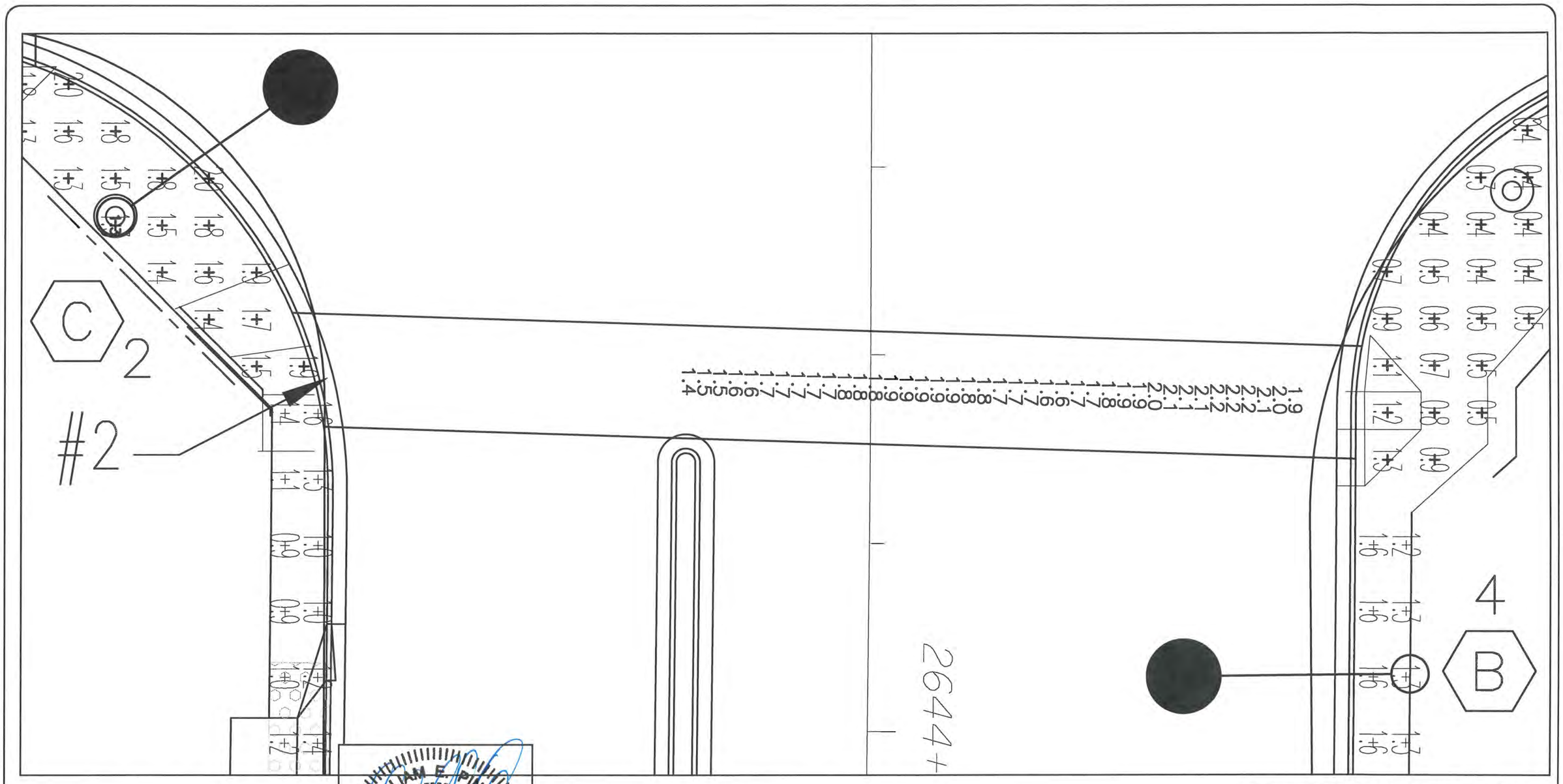
LMMP WP1027



CROSSWALK VERTICAL
PHOTOMETRIC PLAN

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Project:
ROADWAY LIGHTING
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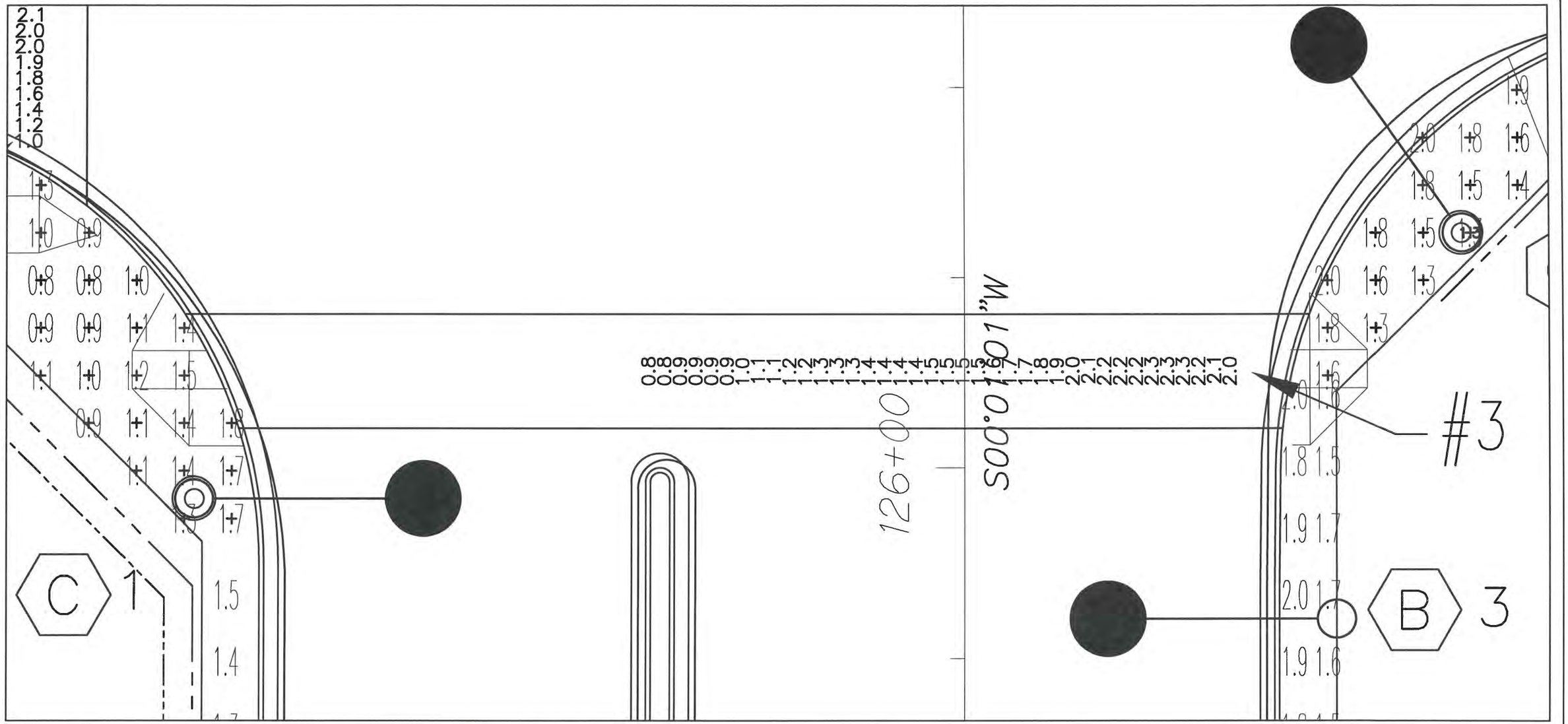
LMM WP1027



CROSSWALK VERTICAL PHOTOMETRIC PLAN

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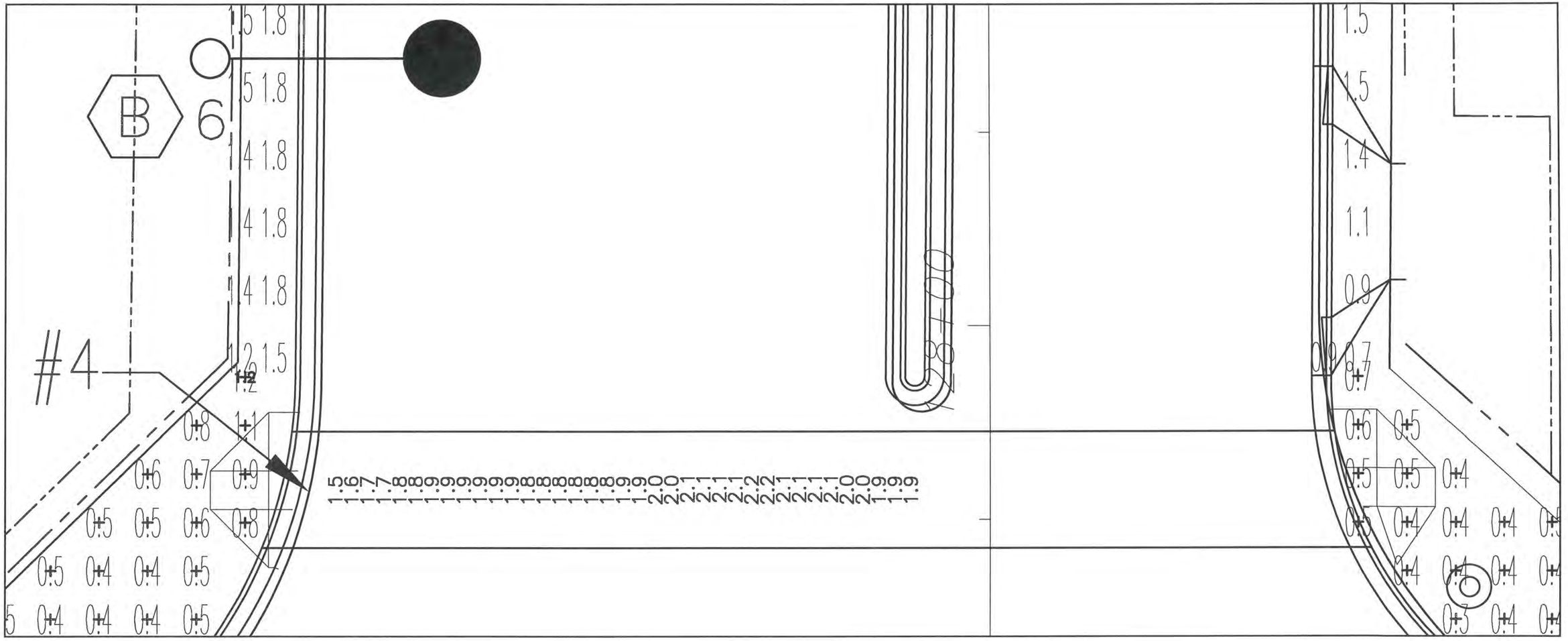

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No. 32026
STATE OF FLORIDA
PROFESSIONAL ENGINEER
8-4-19

DATE: _____

CROSSWALK VERTICAL PHOTOMETRIC PLAN

MainStreet ENGINEERING
70358 SW 47th Street . Miami, Florida 33155
Tel.: (305) 668-7450 . Fax: (305) 668-2450
FL PE Certificate No.: 00008731

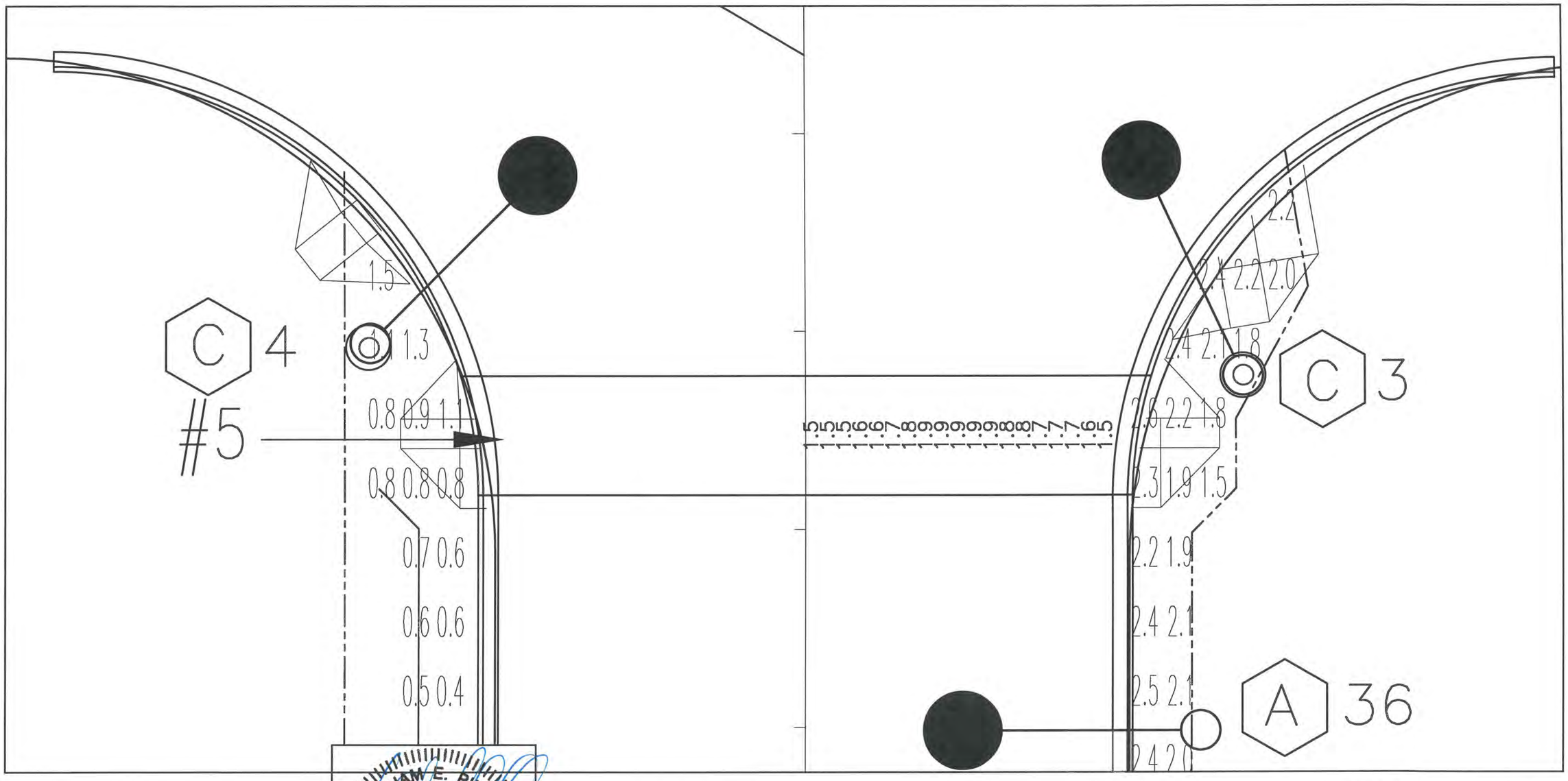
Revision:	By:	Date:

Department of Public Works
Engineering Division

Scale: 1" = 10'
Approved: WP
Drawn: JS
Checked: WP
Date: 12/17/2018
Field Book No:

Project:
ROADWAY LIGHTING
PHOTOMETRIC PLANS

Sheet: PH-17
Of: 18
Project No.
LMW# WP1027



CROSSWALK VERTICAL PHOTOMETRIC PLAN

WILLIAM E. PINO
LICENSE
No. 32026
STATE OF FLORIDA
PROFESSIONAL ENGINEER

DATE:

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ROADWAY LIGHTING
PHOTOMETRIC PLANS

Sheet: PH-18
Of: 18
Project No.
LMM# WP1027

FDOT FPN# 431759-2-54-01

INDIAN RIVER COUNTY
BOARD OF COUNTY COMMISSIONERS

KEY

DT-1	Demolition and Transplant SR 60 Sheets C,D
DT-2	Demolition and Transplant SR 60 Sheets E,F
DT-3	Demolition and Transplant 43rd Ave. Sheets A,B,C
DT-4	Demolition and Transplant 43rd Ave. Sheets D, E, F
DT-5	Demolition and Transplant 43rd Ave. Sheets G,H,I
DT-6	Demolition and Transplant 43rd Ave. Sheets J,K,L and Tree Protection Detail
DT-7	Demolition and Transplant- Intersection and Existing Tree Schedule
LH-1	Hardscape Layout Plan SR 60 Sheets C,D
LH-2	Hardscape Layout Plan SR 60 Sheets E,F
LH-3	Hardscape Layout Plan 43rd Ave. Sheets A,B,C
LH-4	Hardscape Layout Plan 43rd Ave. Sheets D, E, F
LH-5	Hardscape Layout Plan 43rd Ave. Sheets G,H,I
LH-6	Hardscape Layout Plan 43rd Ave. Sheets J,K,L
LH-7	Hardscape Layout Plan - Intersection and Hardscape Details
LP-1	Landscape Plan SR 60 Sheets C,D
LP-2	Landscape Plan SR 60 Sheets E,F
LP-3	Landscape Plan 43rd Ave. Sheets A,B,C
LP-4	Landscape Plan 43rd Ave. Sheets D, E, F
LP-5	Landscape Plan 43rd Ave. Sheets G,H,I
LP-6	Landscape Plan 43rd Ave. Sheets J,K,L
LP-7	Landscape Plan Intersection and Plant Schedule
LP-8	Planting Details
IR-1	Irrigation Plan SR 60 Sheets C,D
IR-2	Irrigation Plan SR 60 Sheets E,F
IR-3	Irrigation Plan 43rd Ave. Sheets A,B,C
IR-4	Irrigation Plan 43rd Ave. Sheets D, E, F
IR-5	Irrigation Plan 43rd Ave. Sheets G,H,I
IR-6	Irrigation Plan 43rd Ave. Sheets J,K,L
IR-7	Irrigation Plan Intersection
IR-8	Irrigation Details

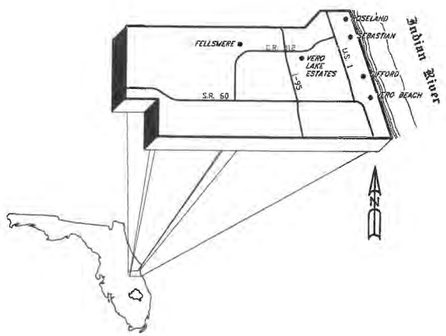
INDIAN RIVER COUNTY FLORIDA

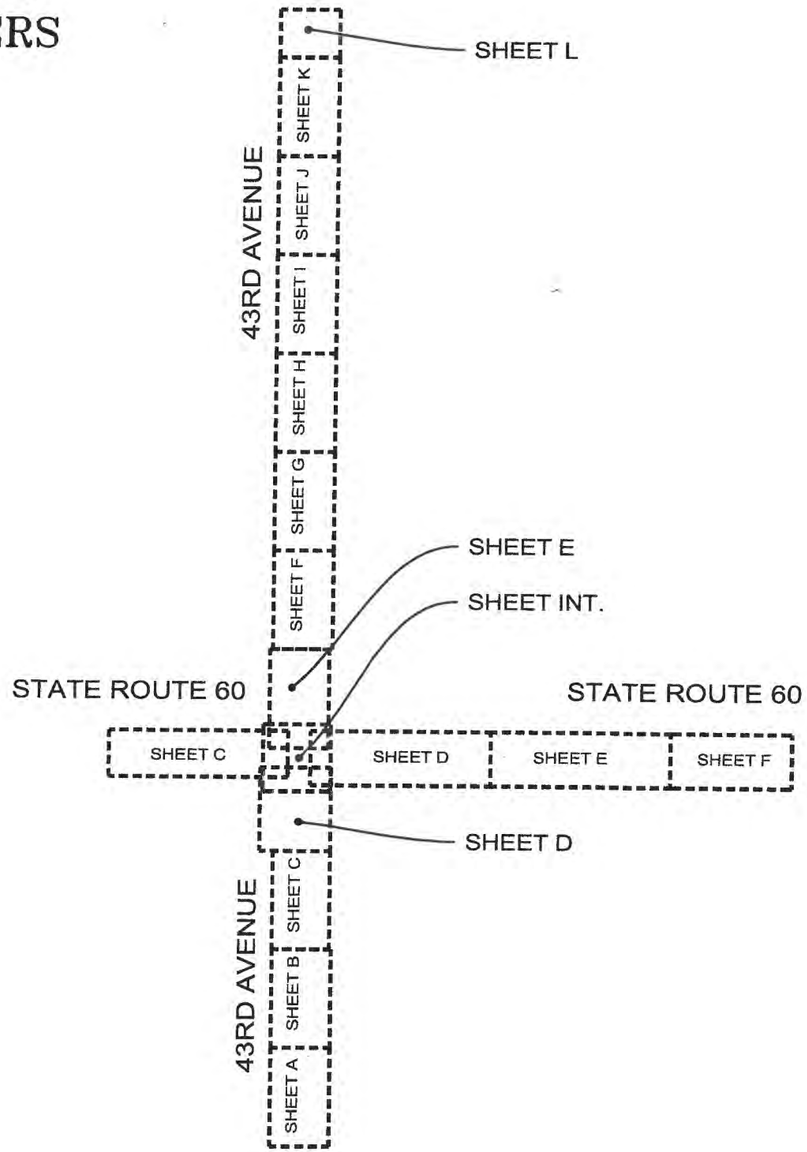
STATE ROUTE 60
WIDENING, MILL & RESURFACE
FROM 44TH AVENUE TO 38TH AVENUE

&

43RD AVENUE
RECONSTRUCTION
FROM 19TH STREET TO 26TH STREET

BEGIN BRIDGE STATION 129+62.455
END BRIDGE STATION 130+94.455





SCOPE INCLUDES PLANT REMOVAL AND TRANSPLANTING HARDSCAPE ELEMENTS PLANTING AND IRRIGATION

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

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

PROJECT MANAGER:
WILLIAM JOHNSON, P.E.

ARCADIS
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LA 0000907
LCC 000213
STUDIO Sprout

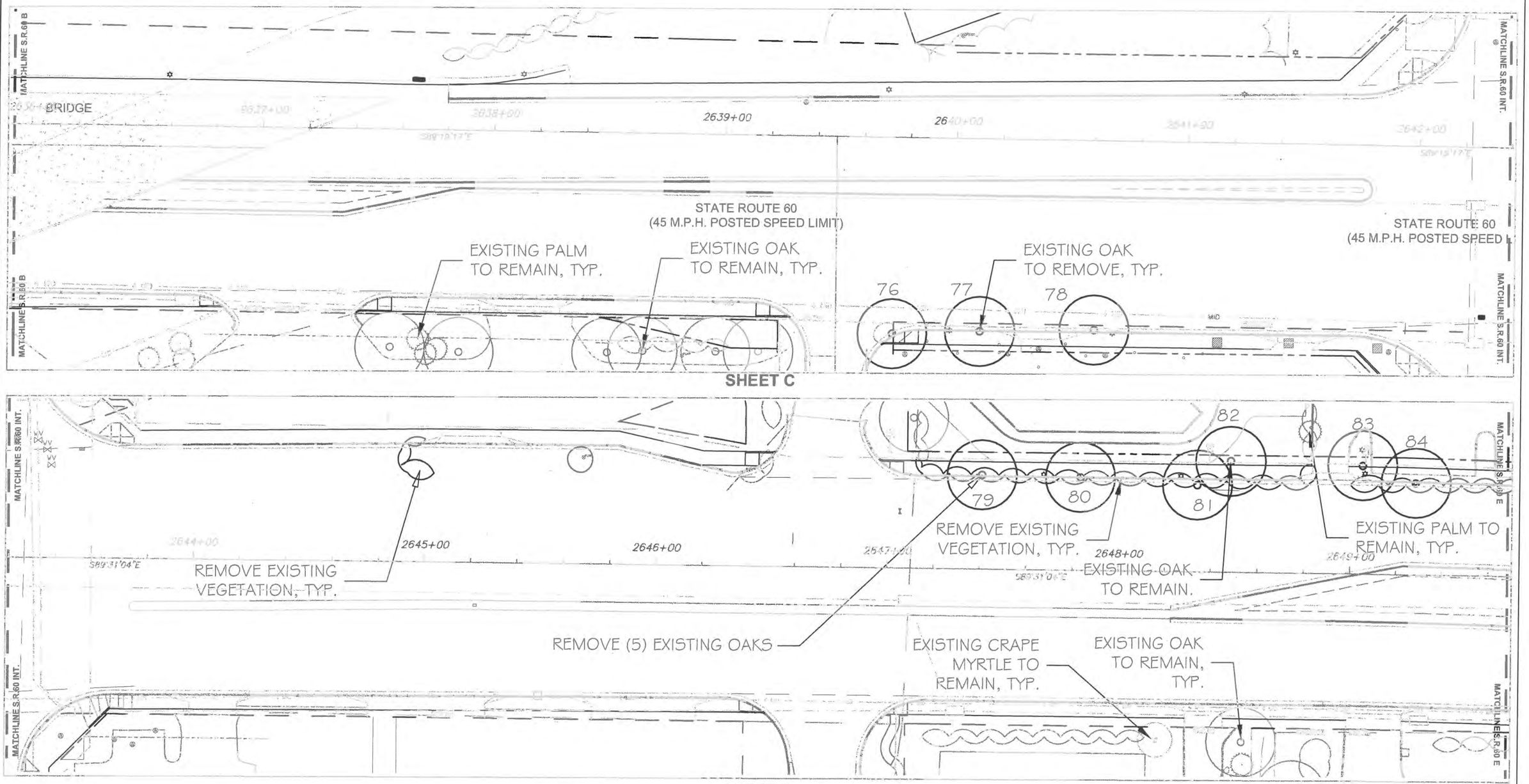
No:	Revision:	By:	Date:
01	Revisions	CRF	03.02.18
02	Revisions	CRF	12.13.18

Department of Public Works
Engineering Division

Scale: 1"=40'-0"
Approved: CRF
Drawn: JLD
Checked: CRF
Date: 11/11/17
Field Book No:

Project: 100% KEY SHEET
FOR
STATE ROUTE 60
&
43RD AVENUE

Sheet: KEY SHEET
Of:
FDOT FIN: 431759-2-54-01
Project No.
IRC# 0512
LNW# WP1027



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DEMOLITION & TRANSPLANT PLAN
FOR
STATE ROUTE 60
&
43RD AVENUE

Sheet: DT-1
Of: DT-7
FDOT FIN: 431759-2-54-01
Project No.
IRC# 0512
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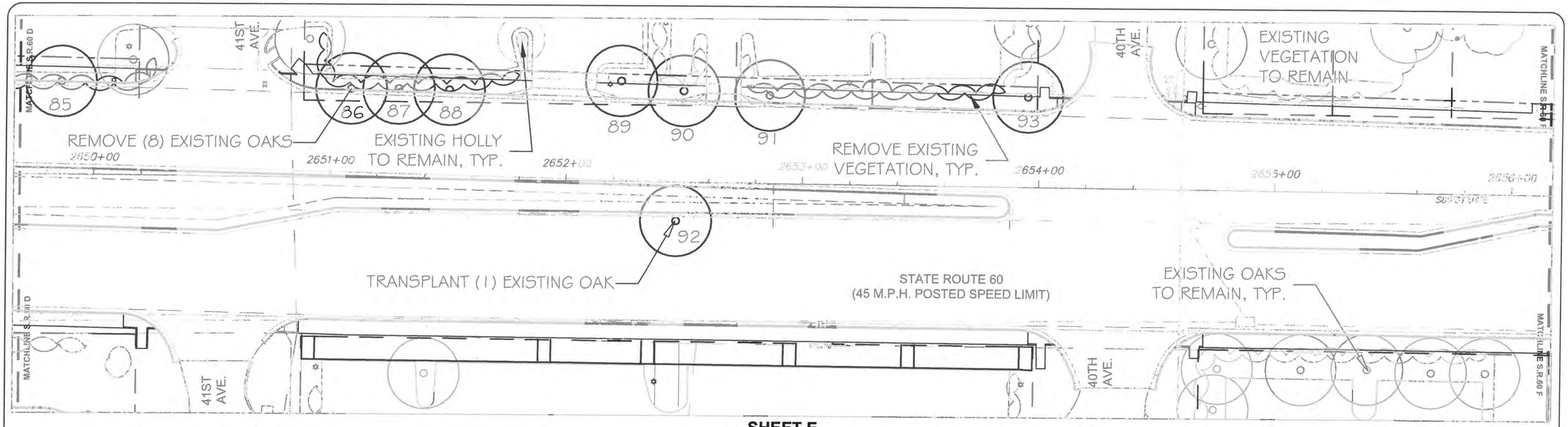
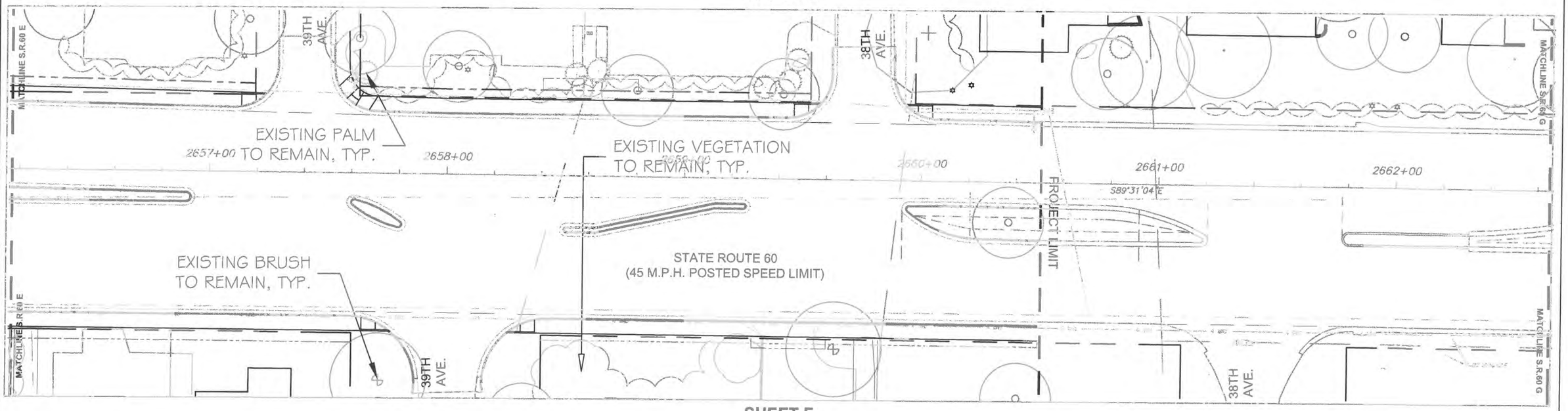


SHEET E



SHEET F

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FOR
STATE ROUTE 60
&
43RD AVENUE

Sheet: DT-2
Of: DT-7
FDOT FIN: 431759-2-54-01
Project No.
IRC# 0512
LNW# WP1027

MATCHLINE 43RD B

MATCHLINE 43RD B

EXISTING PALM TO REMAIN, TYP.

EXISTING MAPLE TO REMAIN, TYP.

REMOVE (1) EXISTING SABAL PALM

REMOVE EXISTING VEGETATION

EXISTING VEGETATION TO REMAIN, TYP.

115+00

43RD AVENUE
(35 M.P.H. POSTED SPEED LIMIT
45 M.P.H. DESIGN SPEED)

114+00

EXISTING OAK TO REMAIN, TYP.

19TH ST.

PROJECT LIMIT

SHEET A

MATCHLINE 43RD C

MATCHLINE 43RD C

19TH ST.

134+00

REMOVE EXISTING VEGETATION

EXISTING VEGETATION TO REMAIN, TYP.

EXISTING OAK TO REMAIN TYP.

43RD AVENUE
(35 M.P.H. POSTED SPEED LIMIT
45 M.P.H. DESIGN SPEED)

REMOVE EXISTING SABAL PALM

MATCHLINE 43RD A

MATCHLINE 43RD A

SHEET B

MATCHLINE 43RD D

MATCHLINE 43RD D

REMOVE TRANSPLANT (4) EXISTING SABAL PALMS.

EXISTING HOLLY TO REMAIN, TYP.

121+00

EXISTING SABAL PALMS, TYP.

REMOVE (6) EXISTING OAKS

REMOVE EXISTING BOTTLE BRUSH

EXISTING VEGETATION TO REMAIN

MATCHLINE 43RD B

MATCHLINE 43RD B

SHEET C

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FOR
STATE ROUTE 60
&
43RD AVENUE

Sheet: DT-3

Of: DT-7
FDOT FIN: 431759-2-54-01
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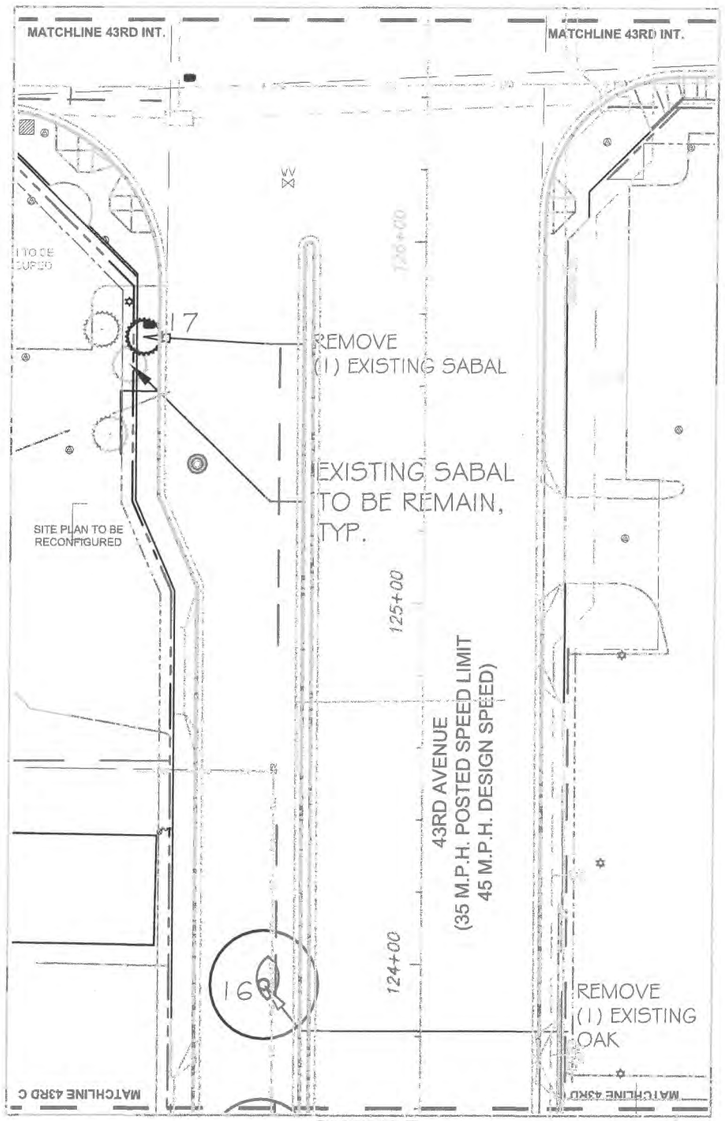
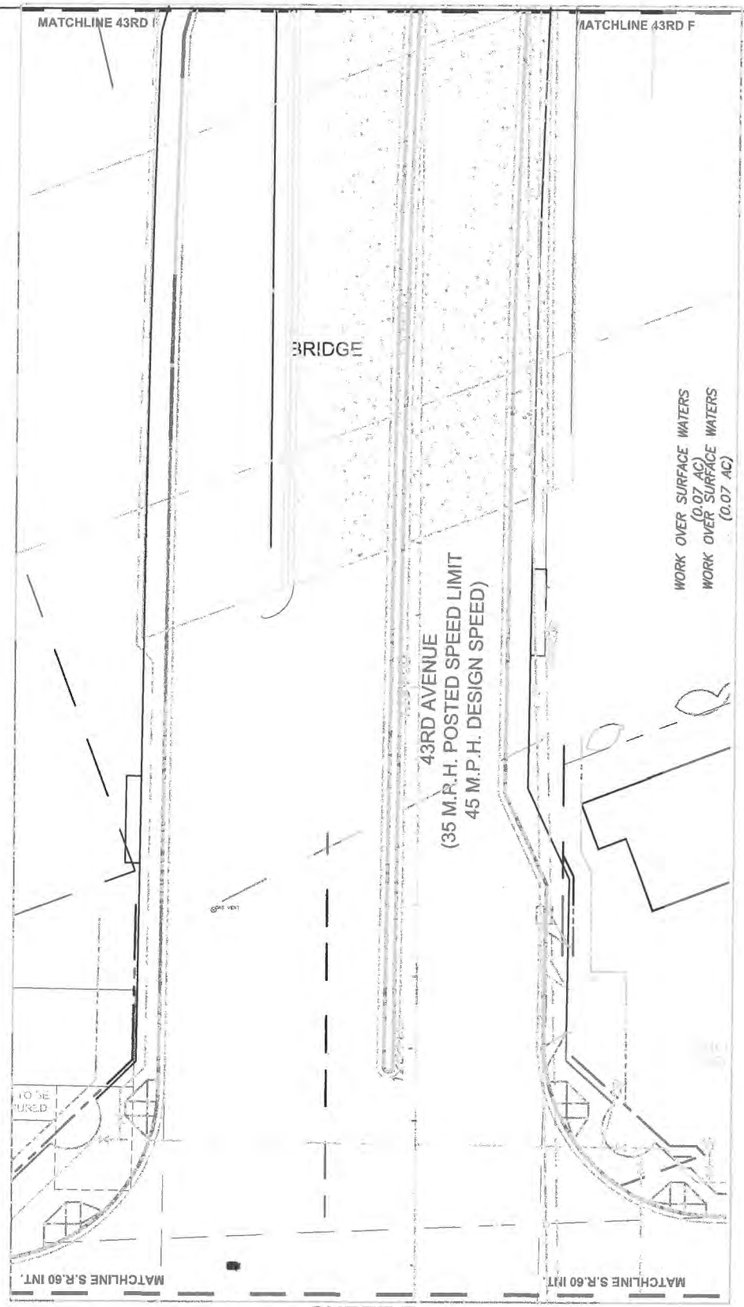


SHEET D



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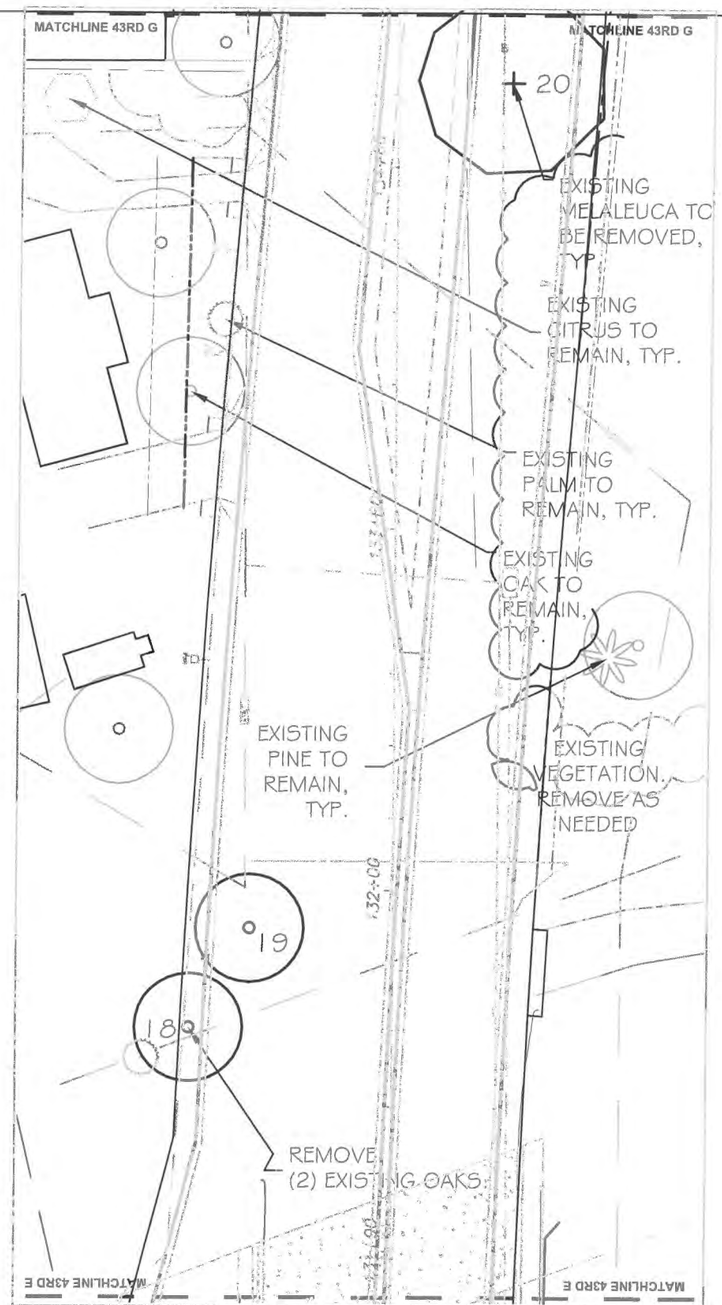

SHEET F

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FOR
STATE ROUTE 60
&
43RD AVENUE

Sheet: DT-4
Of: DT-7
FDOT FIN: 431759-2-54-01
Project No.
IRC# 0512
LNW# WP1027

MATCHLINE 43RD H

MATCHLINE 43RD H

REMOVE (1) EXISTING PINE.

137+00

30

EXISTING PALM TO REMAIN, TYP.

136+00

29
28
27
26
25
24
23
22
21

EXISTING OAK TO REMAIN, TYP.

EXISITING SHRUBS TO REMAIN, TYP.

135+00

REMOVE (9) MELALEUCA TREES.

MATCHLINE 43RD F

MATCHLINE 43RD I

EXISITING SHRUBS TO REMAIN, TYP.

REMOVE (2) EXISTING OAKS.

REMOVE (1) EXISTING PINE.

EXISTING PALM TO REMAIN, TYP.

EXISTING OAK TO REMAIN, TYP.

MATCHLINE 43RD G

MATCHLINE 43RD I

44
43
42
41
41+00
4
40
39
40+00
38
37
36
35
34
33
32
31
139+00
REMOVE (11) MELALEUCAS

MATCHLINE 43RD G

MATCHLINE 43RD J

MATCHLINE 43RD J

145+00

144+20

54
53
52
51
50
49
48
47

REMOVE (8) MELALEUCAS

143+00

EXISTING PINE TO REMAIN, TYP.

REMOVE (1) EXISTING OAK

46
45
142+00

MATCHLINE 43RD H

MATCHLINE 43RD H

SHEET G

SHEET H

SHEET I

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FOR
STATE ROUTE 60
&
43RD AVENUE

Sheet: DT-5
Of: DT-7
FDOT FIN: 431759-2-54-01
Project No.
IRC# 0512
LNW# WP1027

MATCHLINE 43RD K

MATCHLINE 43RD K

148+00

146+00

EXISTING PALM TO REMAIN, TYP.

EXISTING OAK TO REMAIN, TYP.

REMOVE (1) EXISTING OAK

EXISTING PINE TO REMAIN, TYP.

EXISTING VEGETATION TO REMAIN TYP.

REMOVE (14) MELALEUCA

MATCHLINE 43RD I

MATCHLINE 43RD I

68 67 66 65 64 63 62 61 75 60 59 58 57 56 55

SHEET J

MATCHLINE 43RD L

MATCHLINE 43RD L

EXISTING VEGETATION TO REMAIN, TYP.

43RD AVENUE
(35 M.P.H. POSTED SPEED LIMIT
45 M.P.H. DESIGN SPEED)

150+00

149+00

74 73 72 71 70 69

REMOVE (6) MELALEUCA

MATCHLINE 43RD J

MATCHLINE 43RD J

SHEET K

MINIMUM 6' FROM FACE OF TRUNK OR 2/3 THE AREA OF THE DRIPLINE, WHICHEVER IS GREATER

TREE INSTALLED AS PER TREE PLANTING DETAIL, SHEET LD-1

1"x4" RAILS

2"x4" POSTS

TREE PROTECTION DETAIL (NOT TO SCALE)

26TH ST.
PROJECT LIMIT

153+00

EXISTING VEGETATION TO REMAIN, TYP.

EXISTING OAK TO REMAIN, TYP.

MATCHLINE 43RD K

MATCHLINE 43RD K

SHEET L

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FOR
STATE ROUTE 60
&
43RD AVENUE

Sheet: DT-6
Of: DT-7
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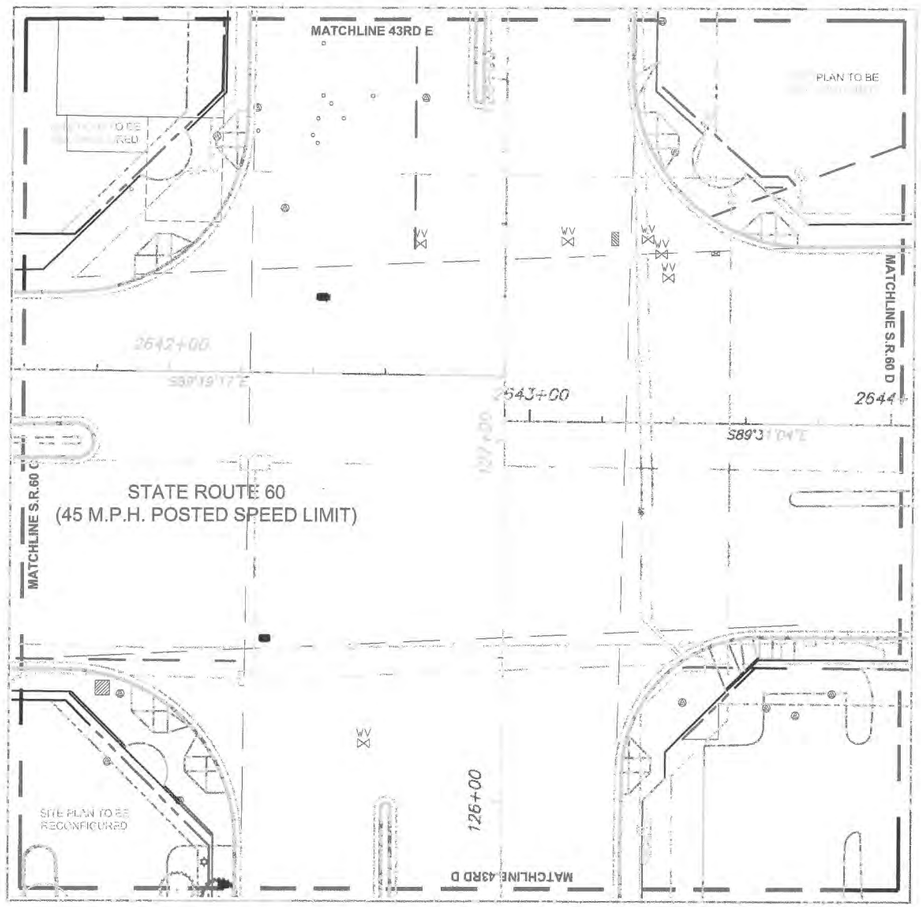
NO REMOVALS THIS SHEET



SHEET INT.

43RD AVENUE EXISTING TREE SCHEDULE*

NO.	D.B.H.	BOTANICAL NAME	COMMON NAME	ACTION	EXISTING LOCATION	NOTES
1	12"	SABAL PALMETTO	SABAL PALM	REMOVE	DT-3; SHEET A	
2	10"	SABAL PALMETTO	SABAL PALM	REMOVE	DT-3; SHEET B	
3	14"	SABAL PALMETTO	SABAL PALM	REMOVE	DT-3; SHEET B	
4	22"	SABAL PALMETTO	SABAL PALM	REMOVE	DT-3; SHEET B	
5	8"	QUERCUS VIRGINIANA	LIVE OAK	REMOVE	DT-3; SHEET C	
6	18"	QUERCUS VIRGINIANA	LIVE OAK	REMOVE	DT-3; SHEET C	
7	4"	QUERCUS VIRGINIANA	LIVE OAK	REMOVE	DT-3; SHEET C	
8	4"	UNKNOWN	BRUSH	REMOVE	DT-3; SHEET C	
9	10"	SABAL PALMETTO	SABAL PALM	REMOVE	DT-3; SHEET C	
10	4"	QUERCUS VIRGINIANA	LIVE OAK	REMOVE	DT-3; SHEET C	
11	4"	QUERCUS VIRGINIANA	LIVE OAK	REMOVE	DT-3; SHEET C	
12	12"	SABAL PALMETTO	SABAL PALM	REMOVE	DT-3; SHEET C	
13	12"	SABAL PALMETTO	SABAL PALM	REMOVE	DT-3; SHEET C	
14	18"	SABAL PALMETTO	SABAL PALM	REMOVE	DT-3; SHEET C	
15	8"	QUERCUS VIRGINIANA	LIVE OAK	REMOVE	DT-3; SHEET C	
16	6"	QUERCUS VIRGINIANA	LIVE OAK	REMOVE	DT-4; SHEET D	
17	22"	SABAL PALMETTO	SABAL PALM	REMOVE	DT-4; SHEET D	
18	18"	QUERCUS VIRGINIANA	LIVE OAK	REMOVE	DT-4; SHEET F	
19	32"	QUERCUS VIRGINIANA	LIVE OAK	REMOVE	DT-4; SHEET F	
20	24"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-4; SHEET F	INVASIVE EXOCTIC
21	24"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-5; SHEET G	INVASIVE EXOCTIC
22	24"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-5; SHEET G	INVASIVE EXOCTIC
23	24"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-5; SHEET G	INVASIVE EXOCTIC
24	24"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-5; SHEET G	INVASIVE EXOCTIC
25	24"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-5; SHEET G	INVASIVE EXOCTIC
26	24"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-5; SHEET G	INVASIVE EXOCTIC
27	24"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-5; SHEET G	INVASIVE EXOCTIC
28	24"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-5; SHEET G	INVASIVE EXOCTIC
29	24"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-5; SHEET G	INVASIVE EXOCTIC
30	30"	PINUS ELLIOTTII	SLASH PINE	REMOVE	DT-5; SHEET G	
31	24"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-5; SHEET H	INVASIVE EXOCTIC
32	24"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-5; SHEET H	INVASIVE EXOCTIC
33	16"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-5; SHEET H	INVASIVE EXOCTIC
34	30"	QUERCUS VIRGINIANA	LIVE OAK	REMOVE	DT-5; SHEET H	
35	24"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-5; SHEET H	INVASIVE EXOCTIC
36	30"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-5; SHEET H	INVASIVE EXOCTIC
37	30"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-5; SHEET H	INVASIVE EXOCTIC
38	16"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-5; SHEET H	INVASIVE EXOCTIC
39	24"	PINUS ELLIOTTII	SLASH PINE	REMOVE	DT-5; SHEET H	
40	28"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-5; SHEET H	INVASIVE EXOCTIC
41	32"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-5; SHEET H	INVASIVE EXOCTIC
42	32"	QUERCUS VIRGINIANA	LIVE OAK	REMOVE	DT-5; SHEET H	
43	22"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-5; SHEET H	INVASIVE EXOCTIC
44	38"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-5; SHEET H	INVASIVE EXOCTIC
45	26"	QUERCUS VIRGINIANA	LIVE OAK	REMOVE	DT-5; SHEET I	
46	28"	QUERCUS VIRGINIANA	LIVE OAK	REMOVE	DT-5; SHEET I	
47	26"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-5; SHEET I	INVASIVE EXOCTIC
48	18"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-5; SHEET I	INVASIVE EXOCTIC
49	24"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-5; SHEET I	INVASIVE EXOCTIC
50	30"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-5; SHEET I	INVASIVE EXOCTIC
51	30"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-5; SHEET I	INVASIVE EXOCTIC
52	30"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-5; SHEET I	INVASIVE EXOCTIC
53	30"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-5; SHEET I	INVASIVE EXOCTIC
54		MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-5; SHEET I	INVASIVE EXOCTIC
55	24"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-6; SHEET J	INVASIVE EXOCTIC
56	36"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-6; SHEET J	INVASIVE EXOCTIC
57	36"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-6; SHEET J	INVASIVE EXOCTIC
58	36"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-6; SHEET J	INVASIVE EXOCTIC
59	36"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-6; SHEET J	INVASIVE EXOCTIC
60	32"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-6; SHEET J	INVASIVE EXOCTIC
61	28"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-6; SHEET J	INVASIVE EXOCTIC
62	24"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-6; SHEET J	INVASIVE EXOCTIC
63	24"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-6; SHEET J	INVASIVE EXOCTIC
64	24"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-6; SHEET J	INVASIVE EXOCTIC
65	36"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-6; SHEET J	INVASIVE EXOCTIC
66	36"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-6; SHEET J	INVASIVE EXOCTIC
67	36"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-6; SHEET J	INVASIVE EXOCTIC
68	36"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-6; SHEET J	INVASIVE EXOCTIC
69	36"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-6; SHEET K	INVASIVE EXOCTIC
70	36"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-6; SHEET K	INVASIVE EXOCTIC
71	36"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-6; SHEET K	INVASIVE EXOCTIC
72	36"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-6; SHEET K	INVASIVE EXOCTIC
73	36"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-6; SHEET K	INVASIVE EXOCTIC
74	36"	MELALEUCA QUINQUENERVIA	MELALEUCA	REMOVE	DT-6; SHEET K	INVASIVE EXOCTIC
75	24"	QUERCUS VIRGINIANA	LIVE OAK	REMOVE	DT-6; SHEET J	

STATE ROAD 60 EXISTING TREE SCHEDULE*

PAY ITEM #	NO.	D.B.H.	BOTANICAL NAME	COMMON NAME	ACTION	EXISTING LOCATION	NEW LOCATION	NOTES
	76		QUERCUS VIRGINIANA	LIVE OAK	REMOVE	DT-1; SHEET C		
	77		QUERCUS VIRGINIANA	LIVE OAK	REMOVE	DT-1; SHEET C		
	78		QUERCUS VIRGINIANA	LIVE OAK	REMOVE	DT-1; SHEET C		
	79	6"	QUERCUS VIRGINIANA	LIVE OAK	REMOVE	DT-1; SHEET D		
	80	8"	QUERCUS VIRGINIANA	LIVE OAK	REMOVE	DT-1; SHEET D		
	81	8"	QUERCUS VIRGINIANA	LIVE OAK	REMOVE	DT-1; SHEET D		
	82	12"	QUERCUS VIRGINIANA	LIVE OAK	REMOVE	DT-1; SHEET D	N/A	
	83	16"	QUERCUS VIRGINIANA	LIVE OAK	REMOVE	DT-1; SHEET D		
	84	18"	QUERCUS VIRGINIANA	LIVE OAK	REMOVE	DT-1; SHEET D		
	85	18"	QUERCUS VIRGINIANA	LIVE OAK	REMOVE	DT-2; SHEET E		
	86	3"	QUERCUS VIRGINIANA	LIVE OAK	REMOVE	DT-2; SHEET E		SMALL NEW
	87	3"	QUERCUS VIRGINIANA	LIVE OAK	REMOVE	DT-2; SHEET E		SMALL NEW
	88	3"	QUERCUS VIRGINIANA	LIVE OAK	REMOVE	DT-2; SHEET E		SMALL NEW
	89	2"	QUERCUS VIRGINIANA	LIVE OAK	REMOVE	DT-2; SHEET E		SMALL NEW
	90	36"	QUERCUS VIRGINIANA	LIVE OAK	REMOVE	DT-2; SHEET E		HUGE, V CROCH
	91	24"	QUERCUS VIRGINIANA	LIVE OAK	REMOVE	DT-2; SHEET E		HUGE, V CROCH
580-24	92	18"	QUERCUS VIRGINIANA	LIVE OAK	TRANSPLANT	DT-2; SHEET E		
	93	24"	QUERCUS VIRGINIANA	LIVE OAK	REMOVE	DT-2; SHEET E		BIG (VINES)

* NOTE: ONLY EXISTING TREES TO BE REMOVED/TRANSPLANTED WERE LISTED ON THE EXISTING TREE SCHEDULES. SEE PLANS FOR EXISITNG TREES TO REMAIN.

CONTRACTOR SHALL REVIEW TREES TO BE REMOVED WITH ADJACENT PROPERTY OWNER IN ADEQUATE TIME TO DETERMINE IF ADJACENT PROPERTY OWNER WOULD LIKE TO MOVE TREE INDICATED TO BE REMOVED ELSEWHERE ON THEIR PROPERTY AT THEIR EXPENSE.

AT TIME OF BID, CONTRACTORS SHALL COORDINATE WITH CITY ON LOCATION OF TRANSPLANTED TREE TO CHARLES PARK OFF 24TH AVE AND 15TH STREET.

SEE SPECIFICATIONS FOR TRANSPLANT INFORMATION.

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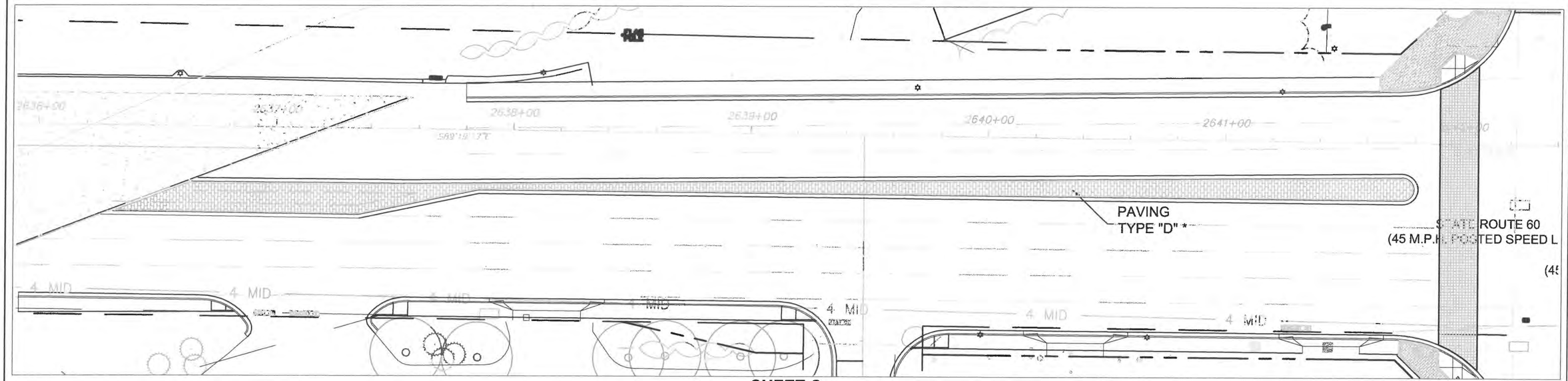
Department of Public Works
Engineering Division

Scale: 1"=40'-0"
Approved: CRF
Drawn: JLD
Checked: CRF
Date: 11/11/17
Field Book No:

Project: 100% DEMOLITION & TRANSPLANT PLAN
FOR
STATE ROUTE 60
&
43RD AVENUE

Sheet: DT-7
Of: DT-7
FDOT FIN: 431759-2-54-01
Project No.
IRC# 0512
LNW# WP1027



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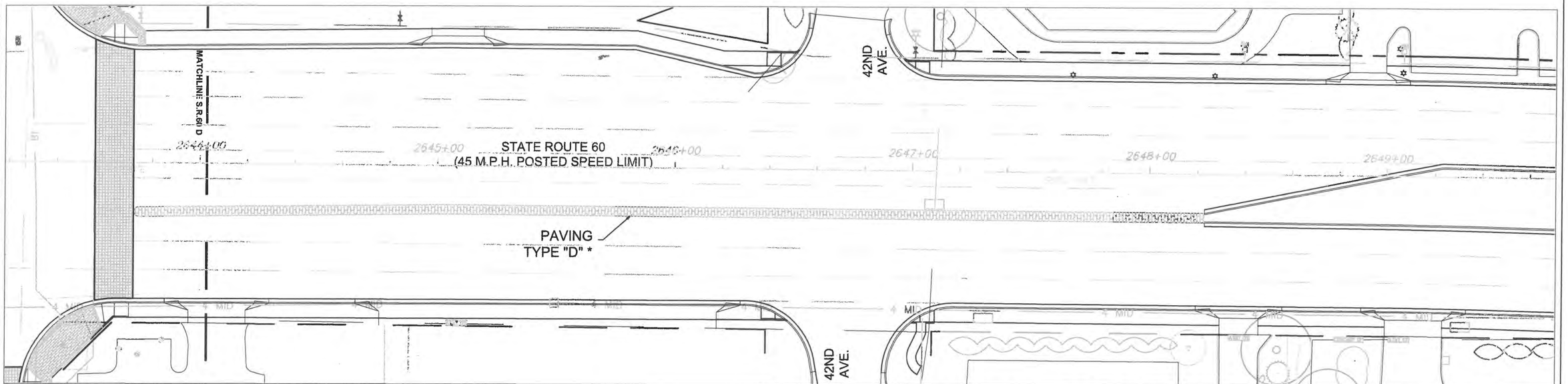

SHEET D

*SEE SHEET LH-7 FOR PAVING MATERIALS SCHEDULE

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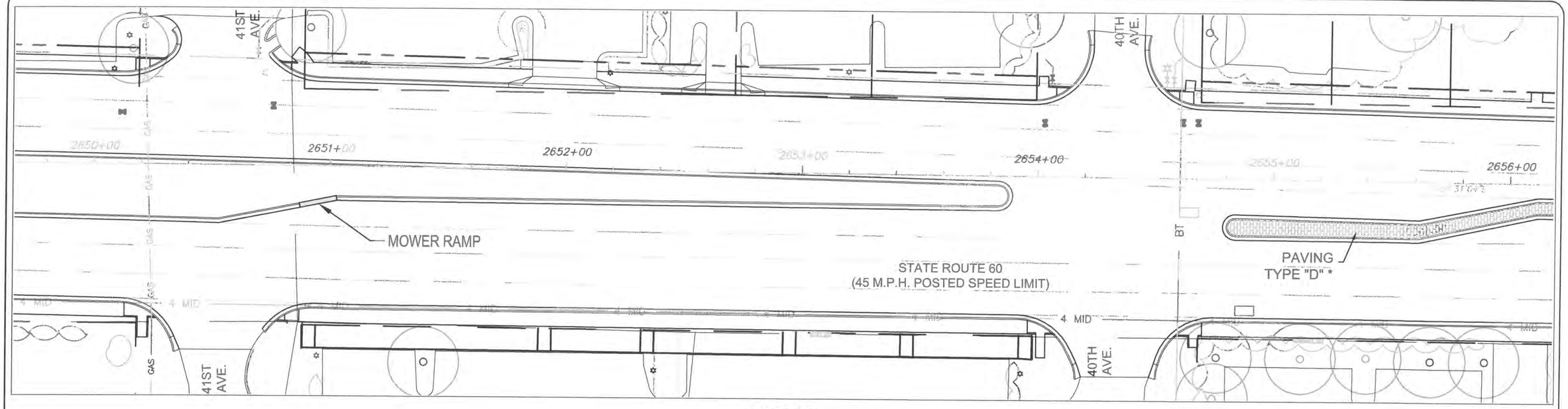
Project: 100%
HARDSCAPE LAYOUT PLAN
FOR
STATE ROUTE 60
&
43RD AVENUE

Sheet: LH-1
Of: LH-7
FDOT FIN: 431759-2-54-01
Project No.
IRC# 0512
LNW# WP1027



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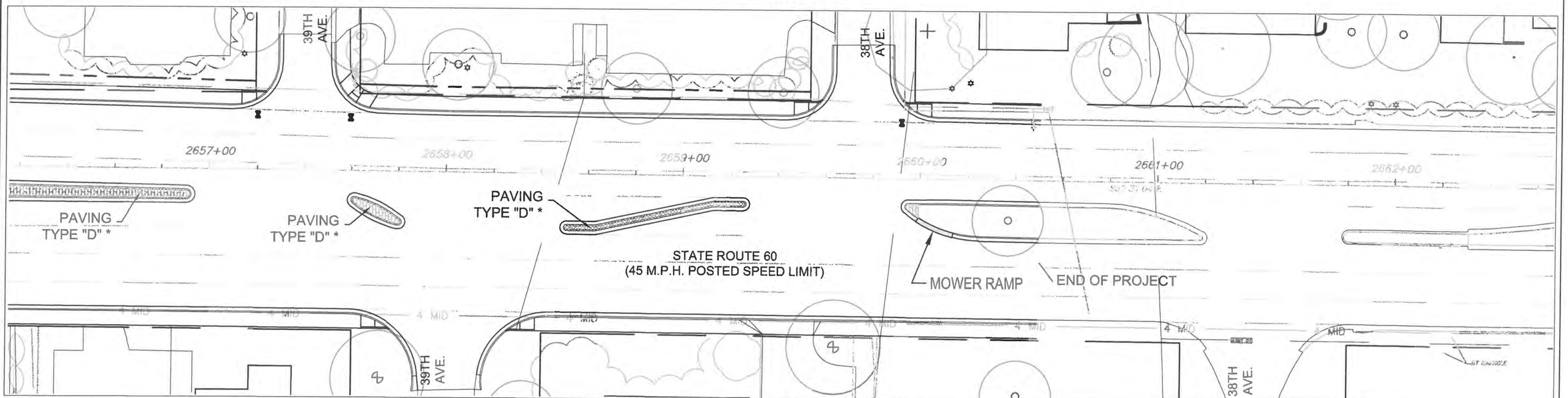

SHEET F

*SEE SHEET LH-7 FOR PAVING MATERIALS SCHEDULE

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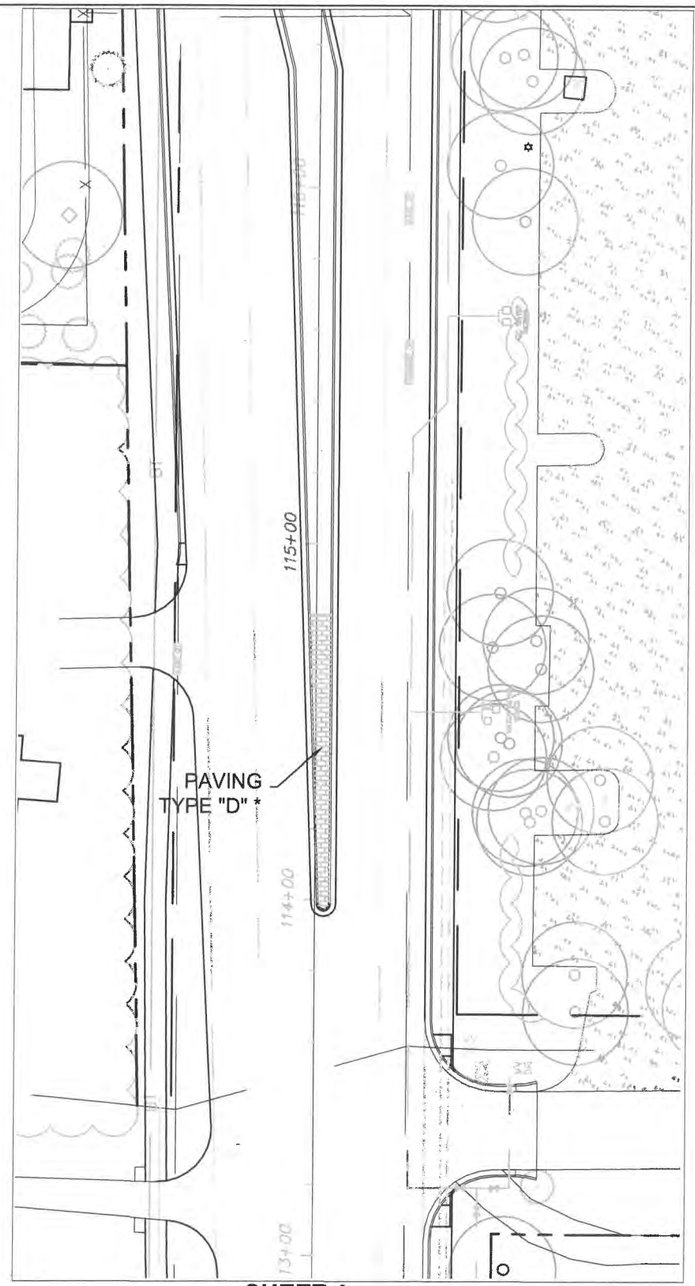
HARDSCAPE LAYOUT PLAN
FOR
STATE ROUTE 60
&
43RD AVENUE

Sheet: LH-2
Of: LH-7
FDOT FIN: 431759-2-54-01
Project No.
IRC# 0512
LNW# WP1027



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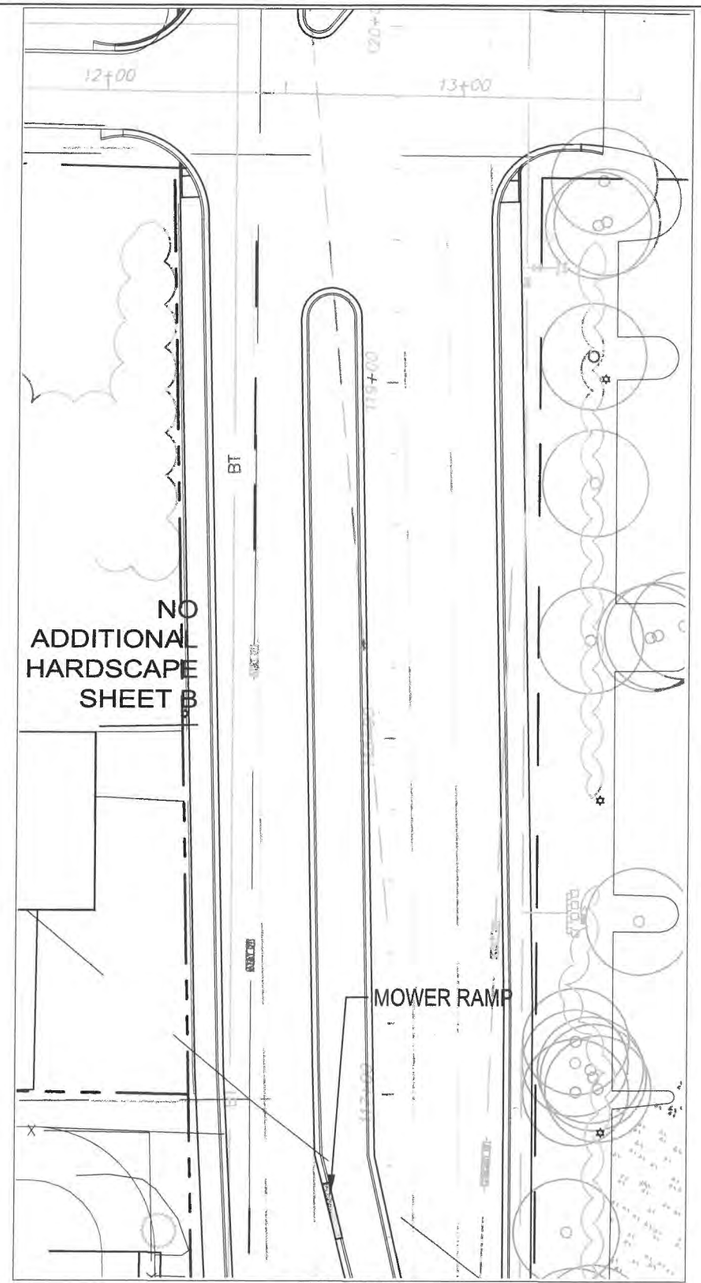

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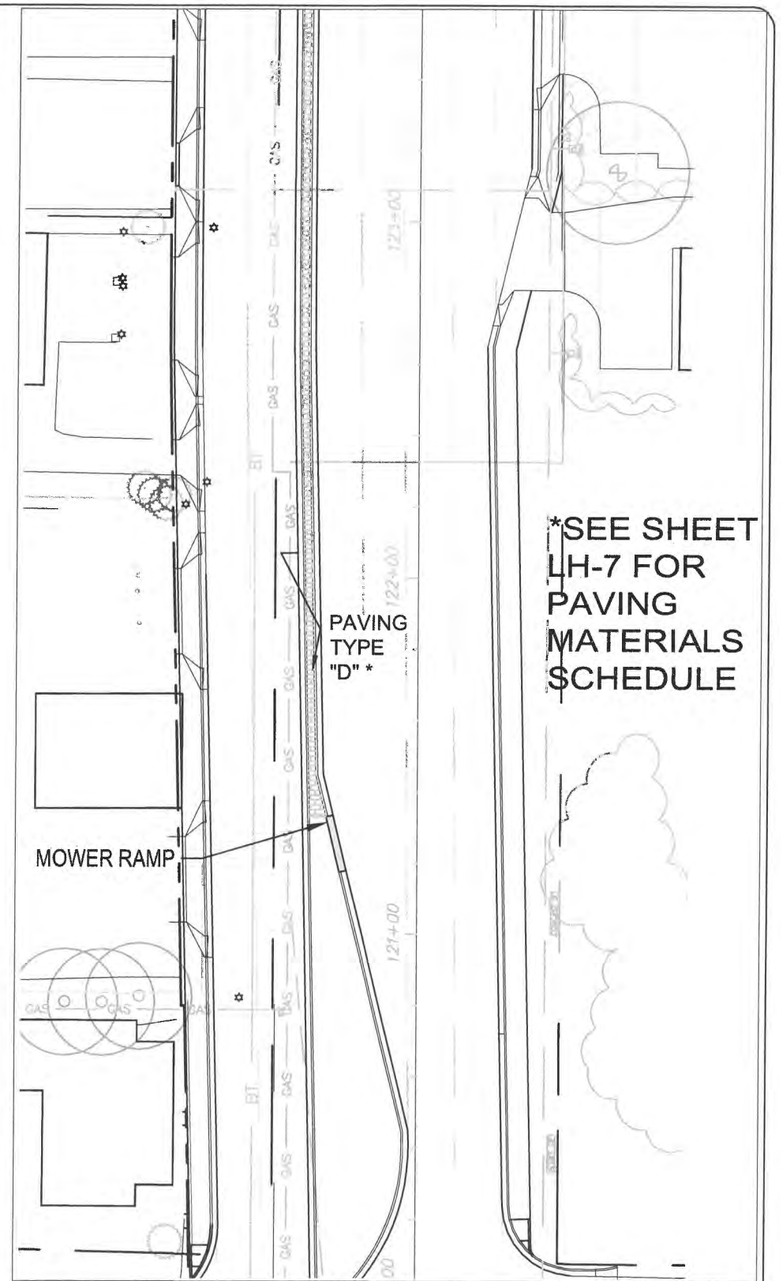

SHEET C

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INDIAN RIVER COUNTY FLORIDA

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Engineering Division

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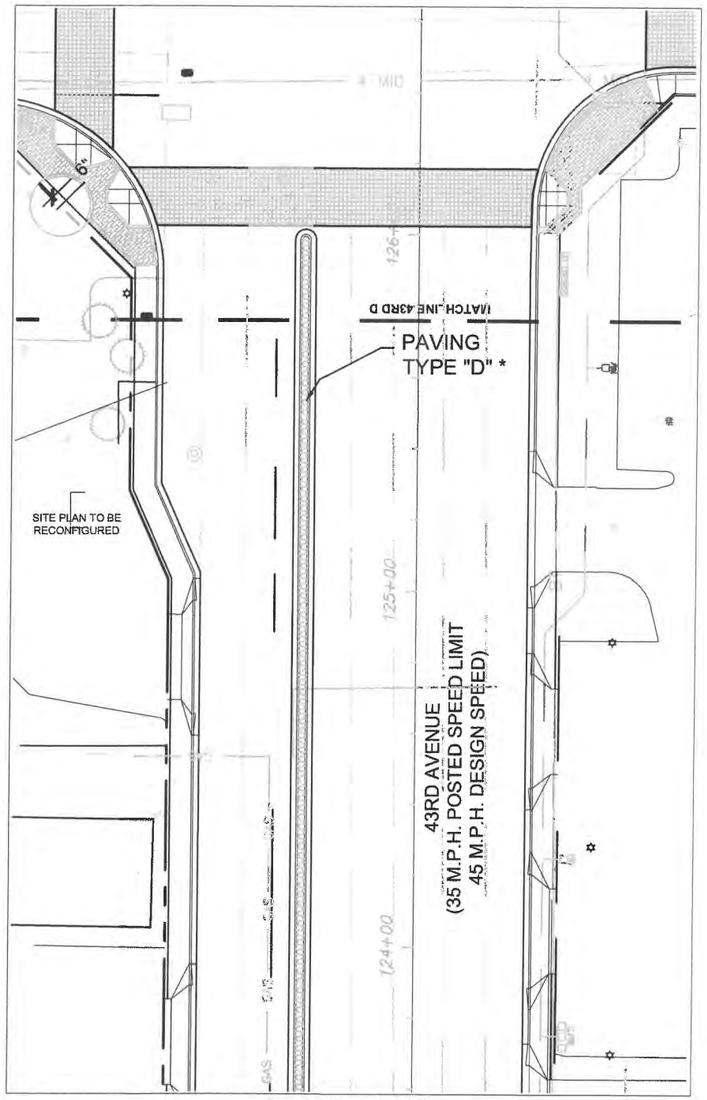
HARDSCAPE LAYOUT PLAN
FOR
STATE ROUTE 60
&
43RD AVENUE

Sheet: LH-3
Of: LH-7
FDOT FIN: 431759-2-54-01
Project No.
IRC# 0512
LNW# WP1027

*SEE SHEET LH-7 FOR PAVING MATERIALS SCHEDULE



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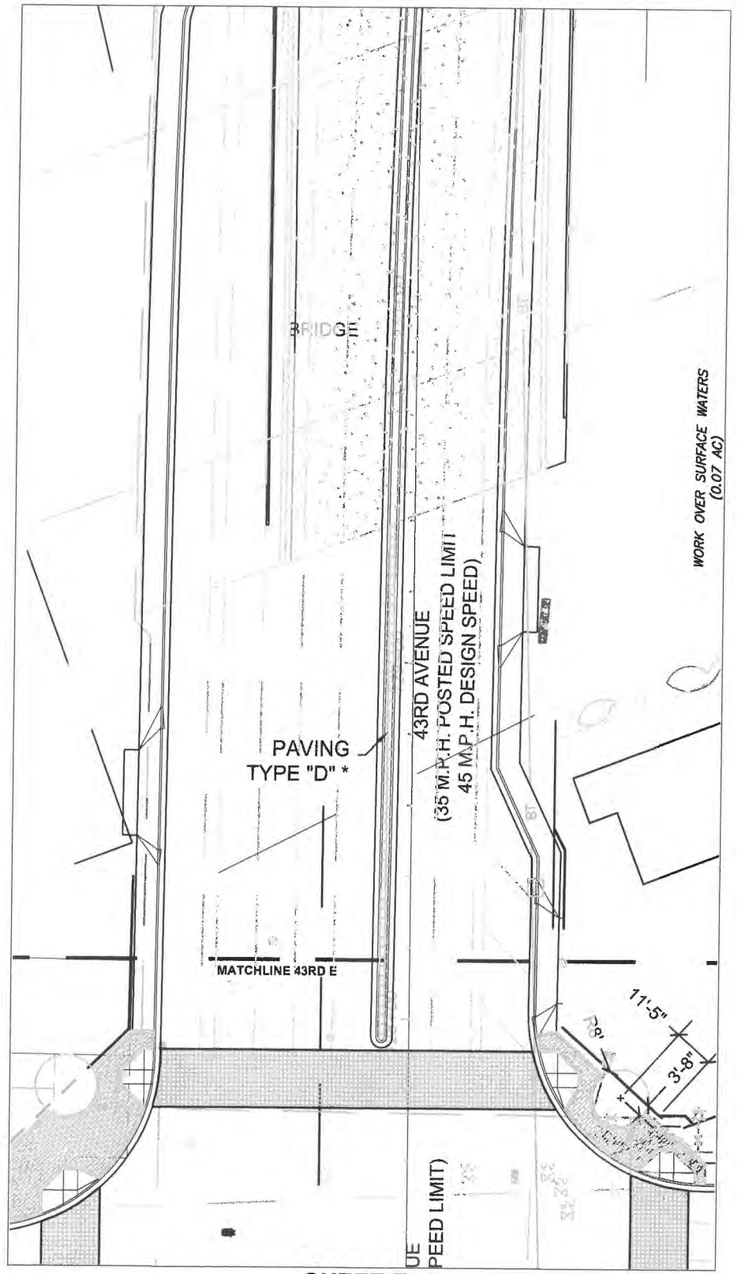

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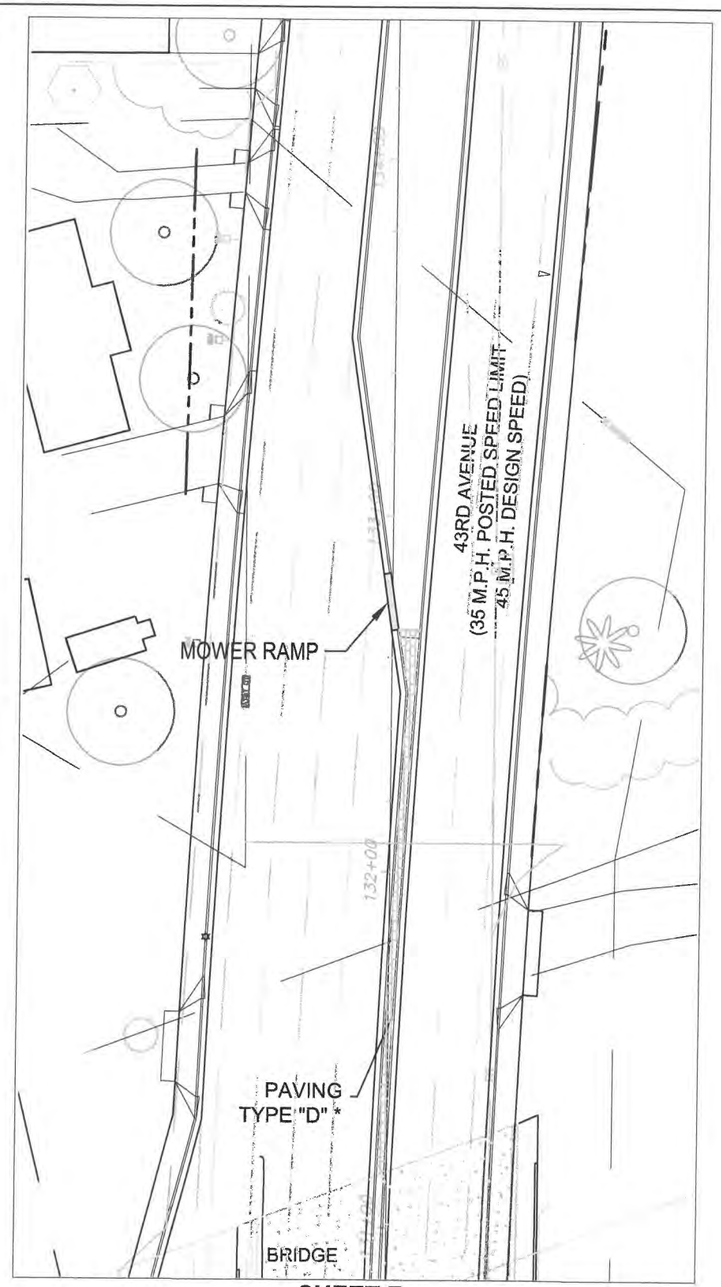

SHEET F

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FOR
STATE ROUTE 60
&
43RD AVENUE

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NO ADDITIONAL HARDSCAPE SHEET G

MOWER RAMP

*SEE SHEET LH-7 FOR PAVING MATERIALS SCHEDULE

PAVING TYPE "D" *

MOWER RAMP

PAVING TYPE "D

SHEET G

SHEET H

SHEET I

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HARDSCAPE LAYOUT PLAN
FOR
STATE ROUTE 60
&
43RD AVENUE

Sheet: LH-5
Of: LH-7
FDOT FIN: 431759-2-54-01
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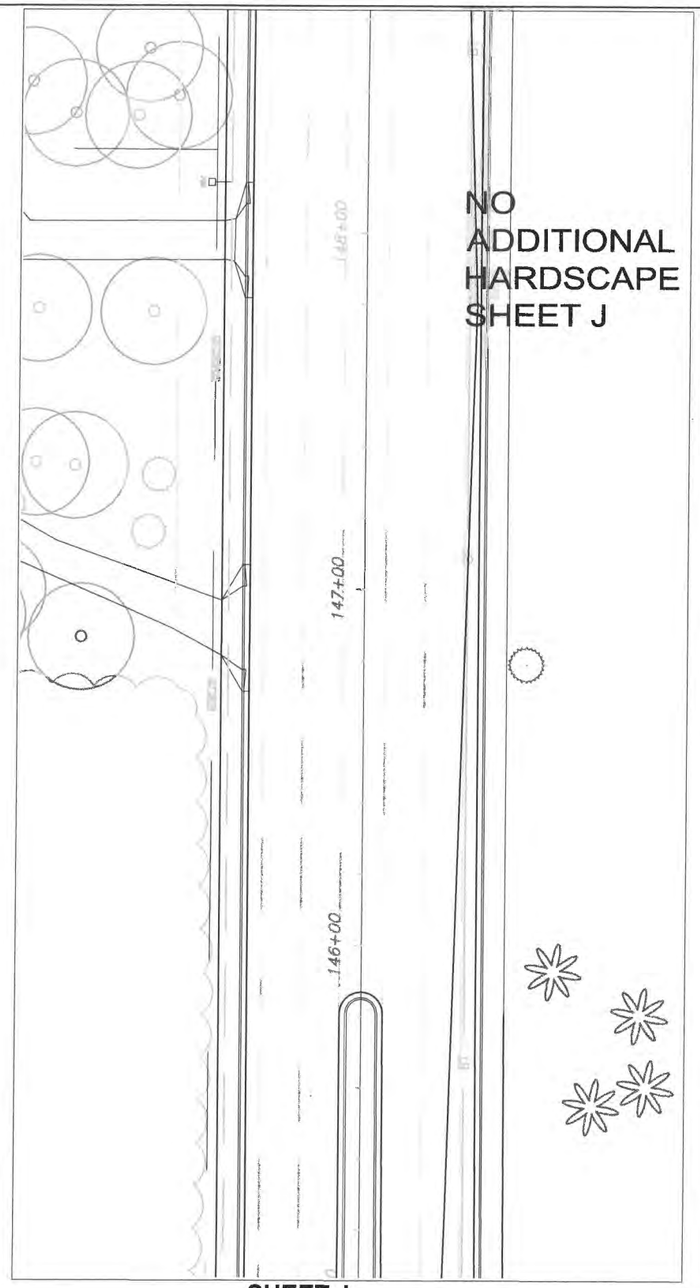
NO
ADDITIONAL
HARDSCAPE
SHEET J



SHEET J

NO
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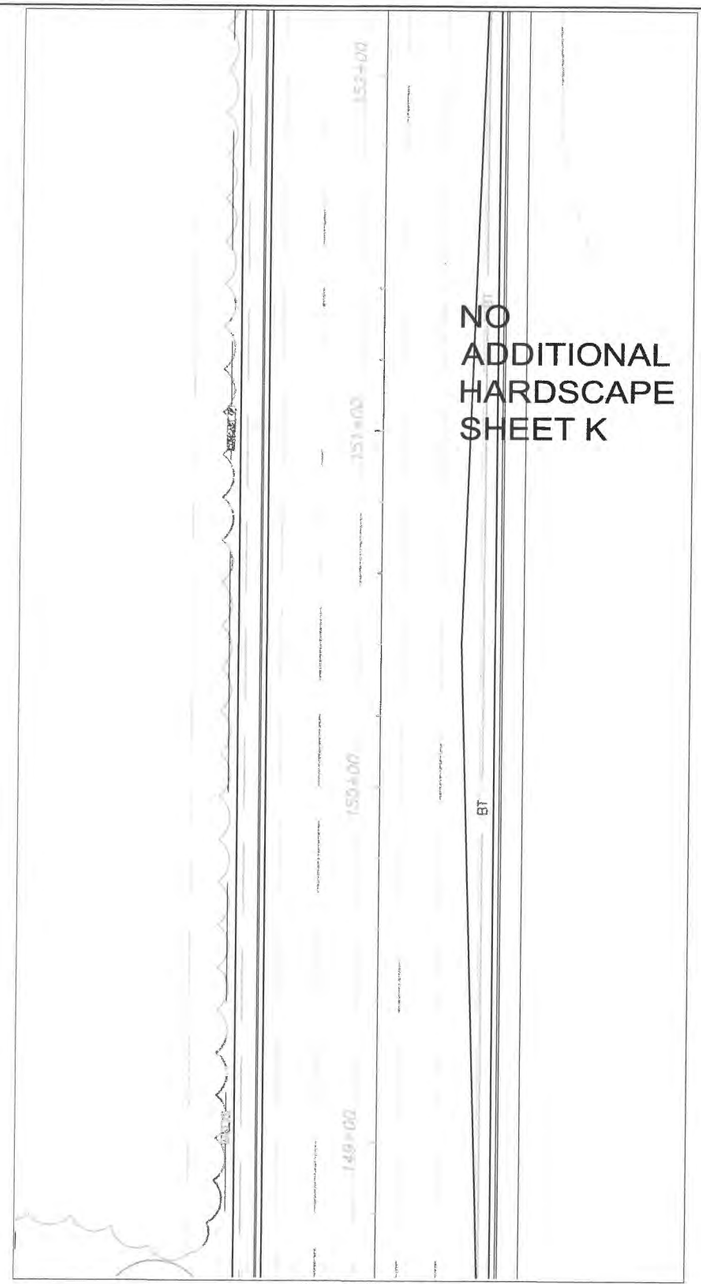
HARDSCAPE
SHEET K



SHEET K

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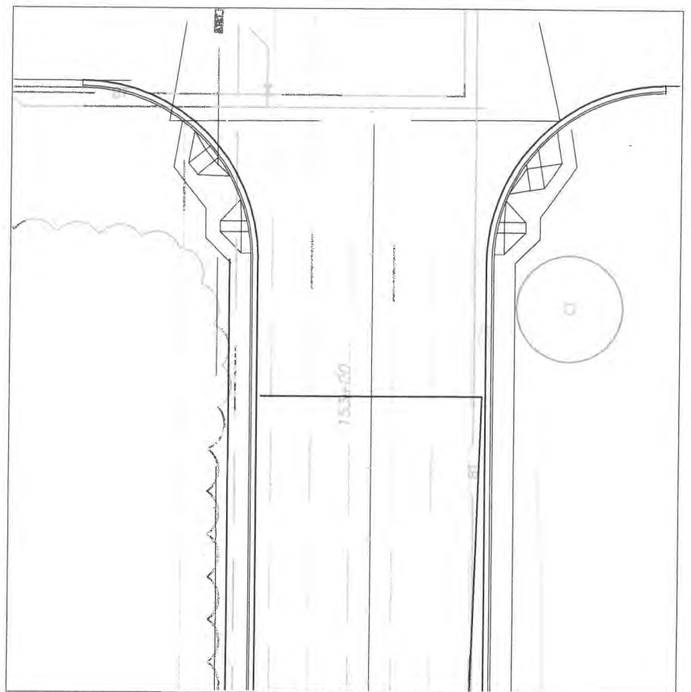
SHEET L



SHEET L

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HARDSCAPE LAYOUT PLAN

FOR
STATE ROUTE 60
&
43RD AVENUE

Sheet: LH-6
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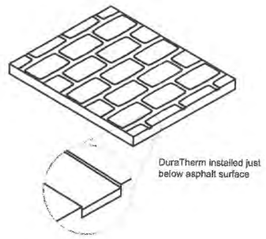
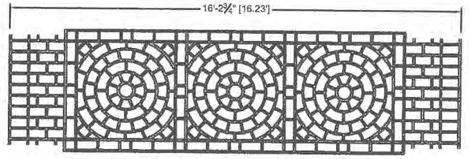
PAY ITEM	KEY	QTY	MANUFACTURER	TYPE	COLOR	PATTERN
526-1-2	A	290 SY	BELGARD	HOLLAND 4" X 8" 80 MM	RED, CHESNUT, CHARCOAL	45 DEGREE HERRINGBONE
523-1	C	800 SY	DURATHERM	INTEGRATED PAVING CONCEPTS	CINNAMON	WAGON WHEEL
520-70	D	SEE ENGINEER'S DWG	SCOFIELD SYSTEMS	COLOR TREATED STAMPED CONCRETE	SCOFIELD A-26 BRICK RED	RUNNING BOND BRICK PERPENDICULAR TO ROAD
520-2-13	E	632 LF		HEADER CURB - DETAIL BELOW		

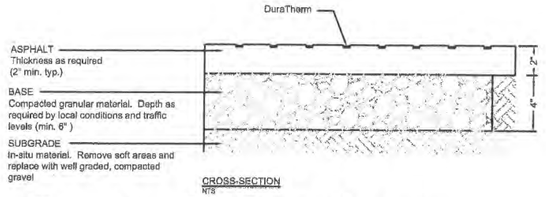
632 LINEAR FT OF HEADER CURB SEE DETAIL BELOW





Paving C Duratherm

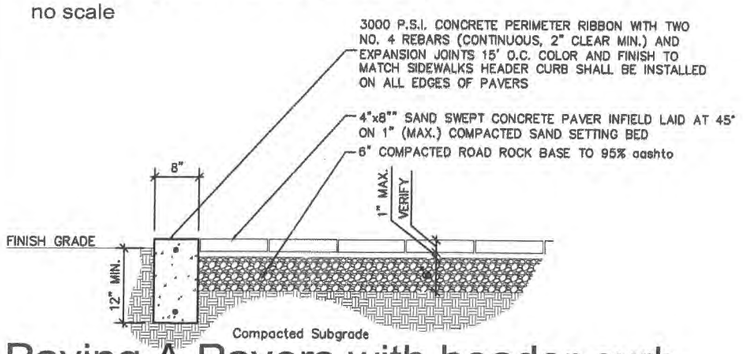
no scale



NOTE:
These are typical details only - actual pavement layer thickness should be properly designed by a qualified professional

Paving C Duratherm

no scale

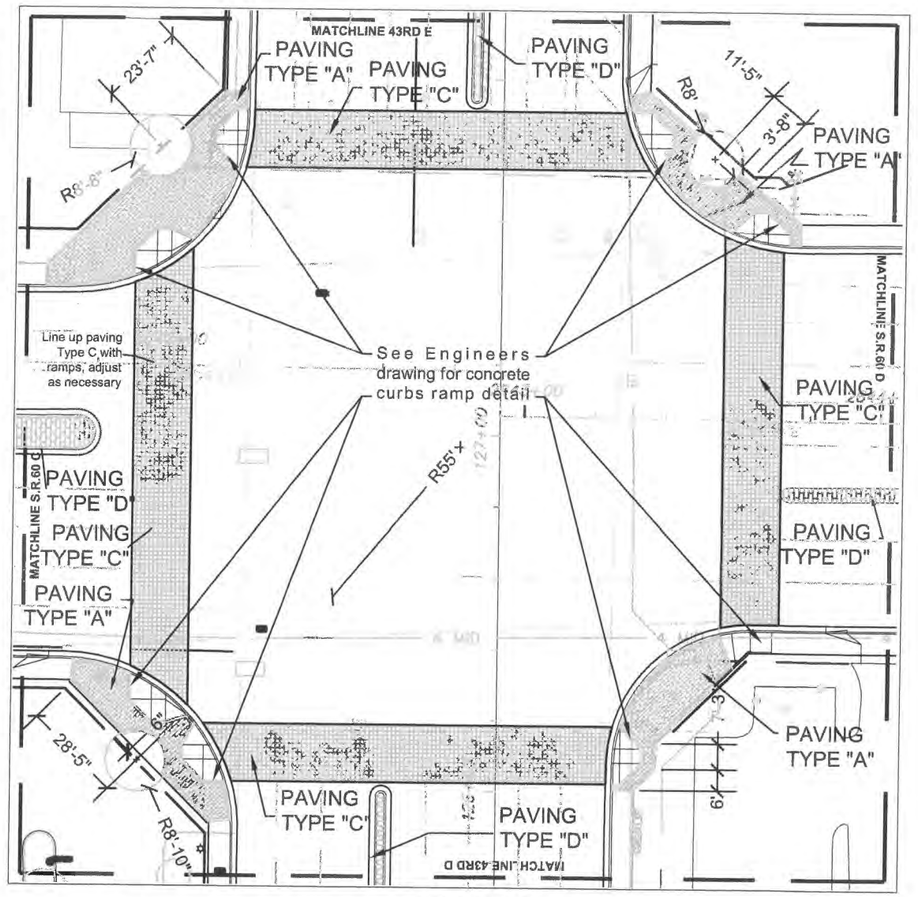


Paving A Pavers with header curb

no scale

NOTES

See engineer's drawings for overall sidewalk and stamped concrete dimensions.
Unless otherwise specified, radii are on ROW line
See engineer's specifications for stamped concrete.



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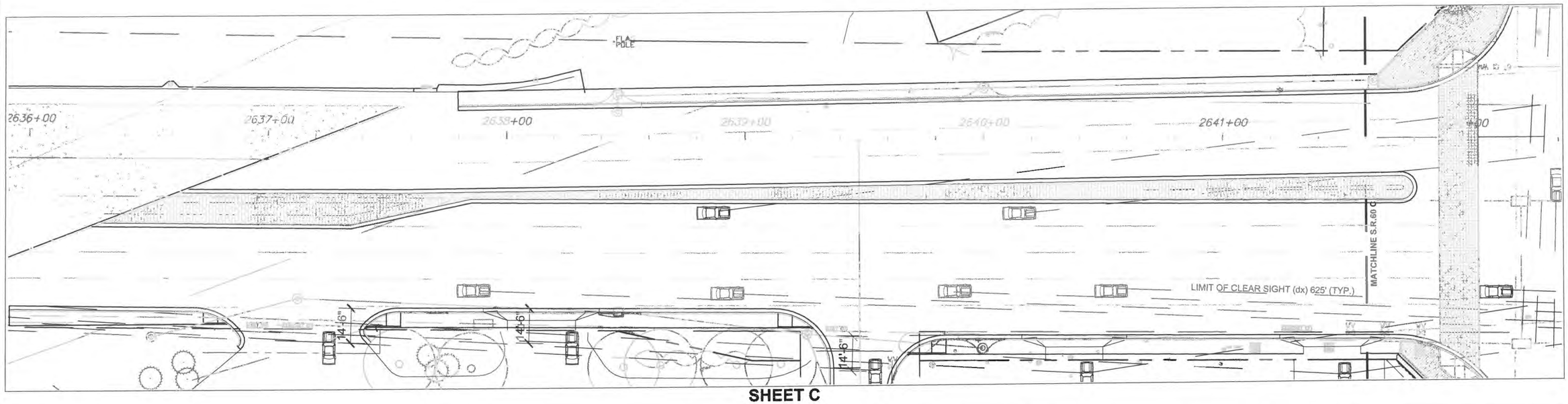
HARDSCAPE LAYOUT PLAN
FOR
STATE ROUTE 60
&
43RD AVENUE

Sheet: LH-7
Of: LH-7
FDOT FIN: 431759-2-54-01
Project No. IRC# 0512 LNW# WP1027



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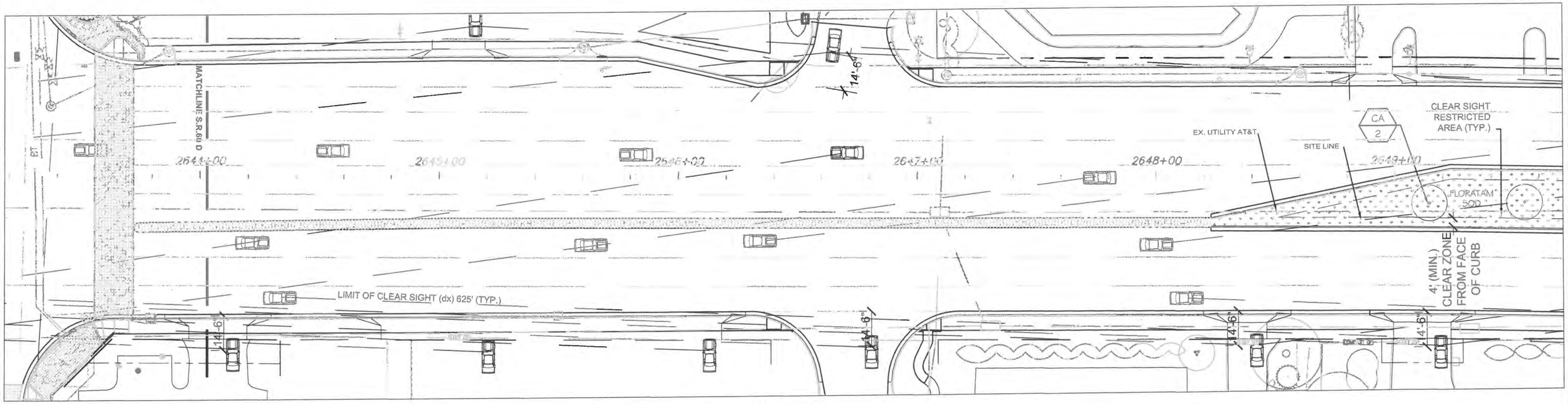

SHEET D

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FOR
STATE ROUTE 60
&
43RD AVENUE

Sheet: LP-1

Of: LP-8

FDOT FIN: 431759-2-54-01

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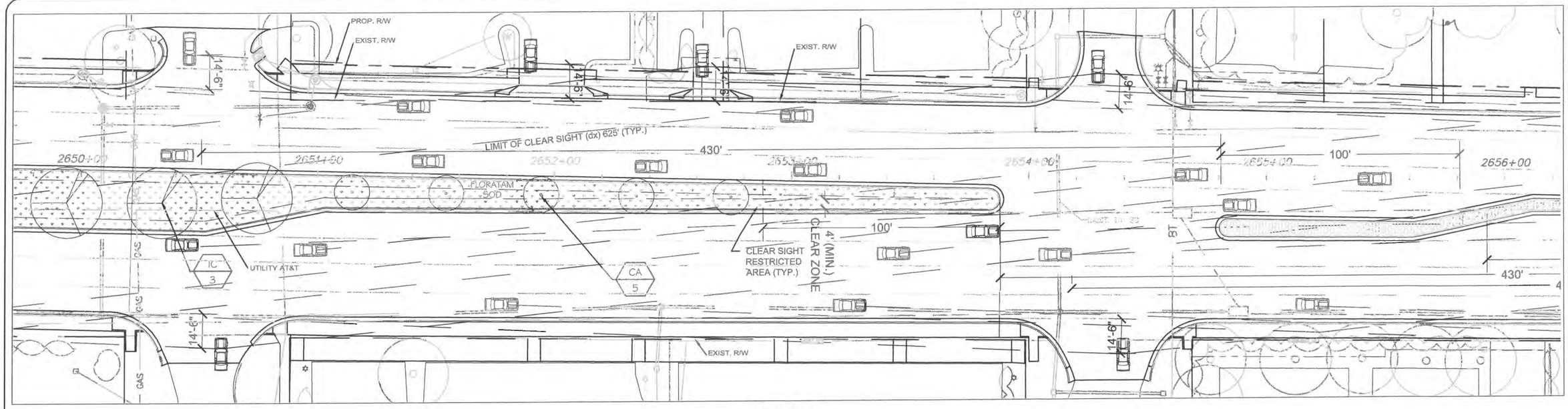
IRC# 0512
LNW# WP1027



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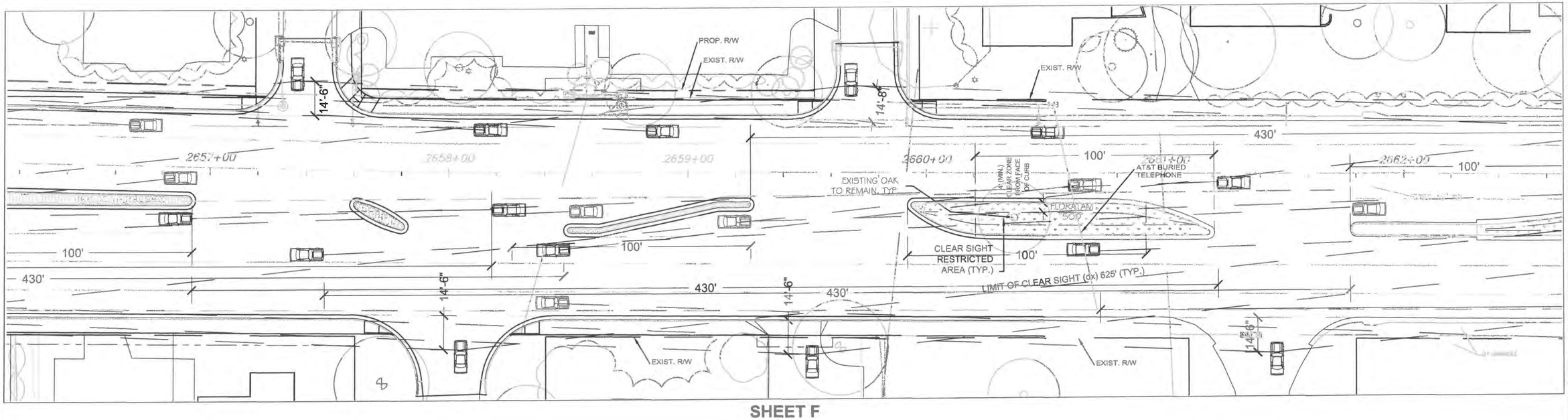

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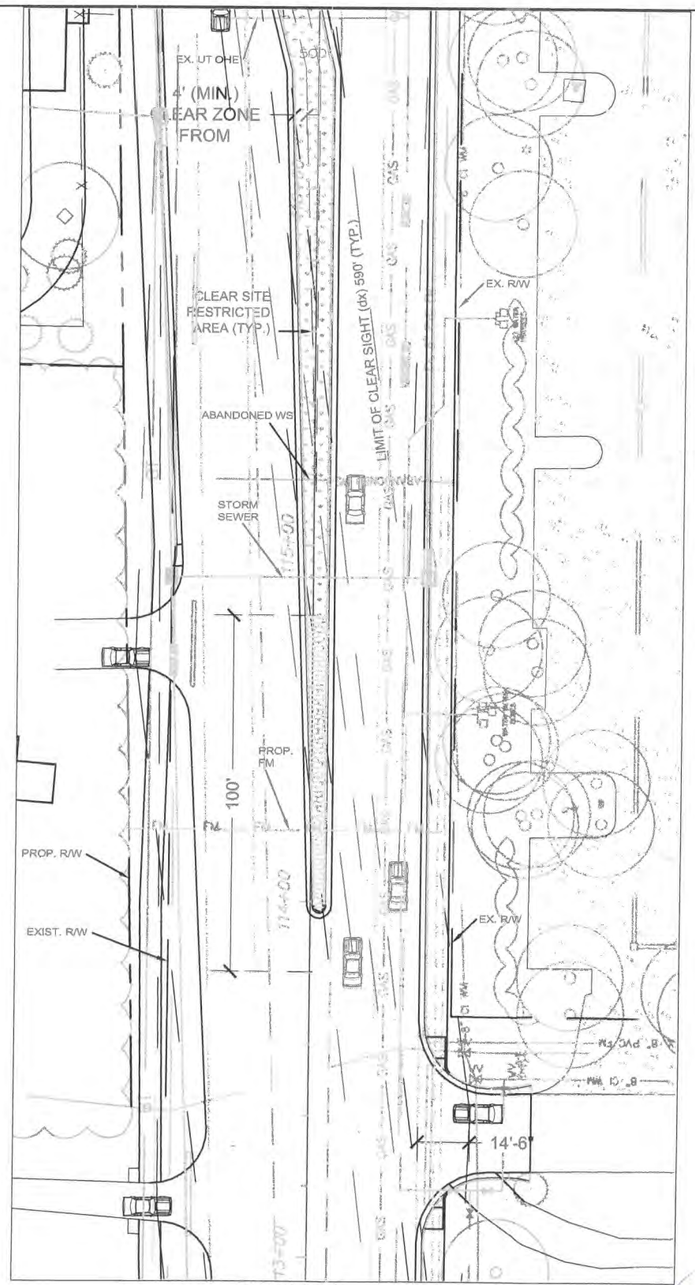
Project: 100% LANDSCAPE PLAN FOR STATE ROUTE 60 & 43RD AVENUE

Sheet: LP-2
Of: LP-8
FDOT FIN: 431759-2-54-01
Project No. IRC# 0512 LNW# WP1027



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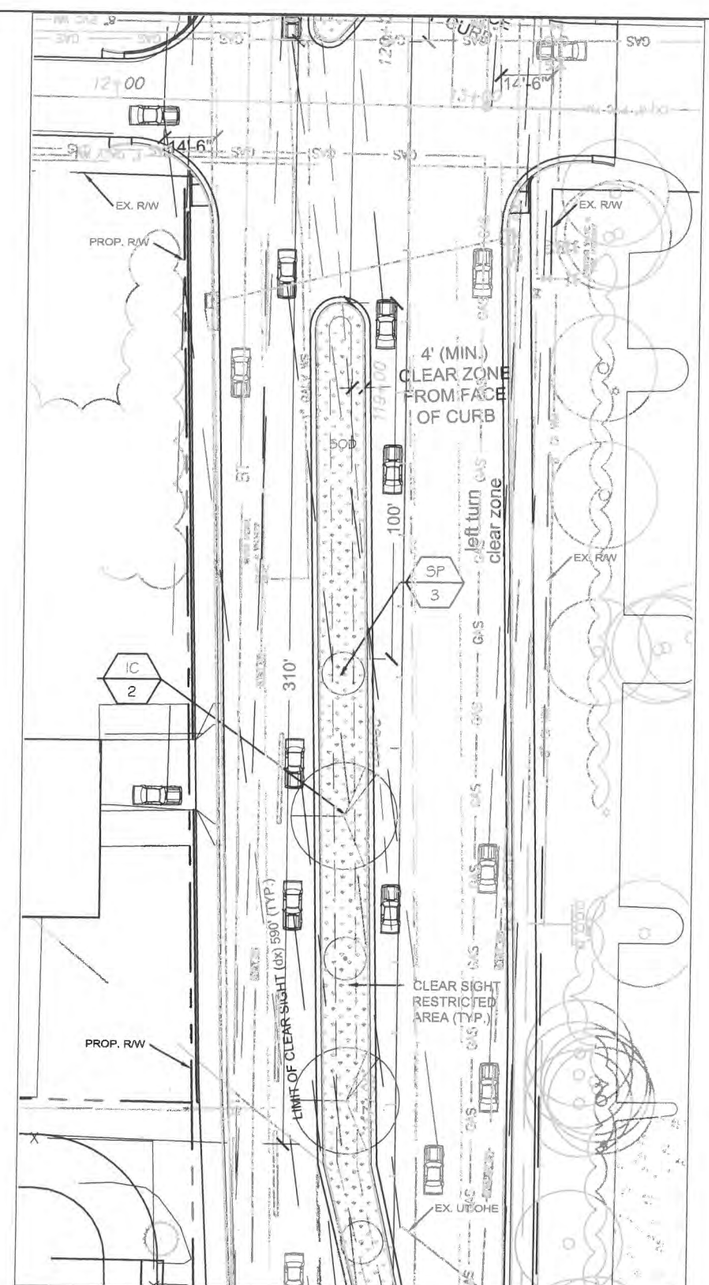

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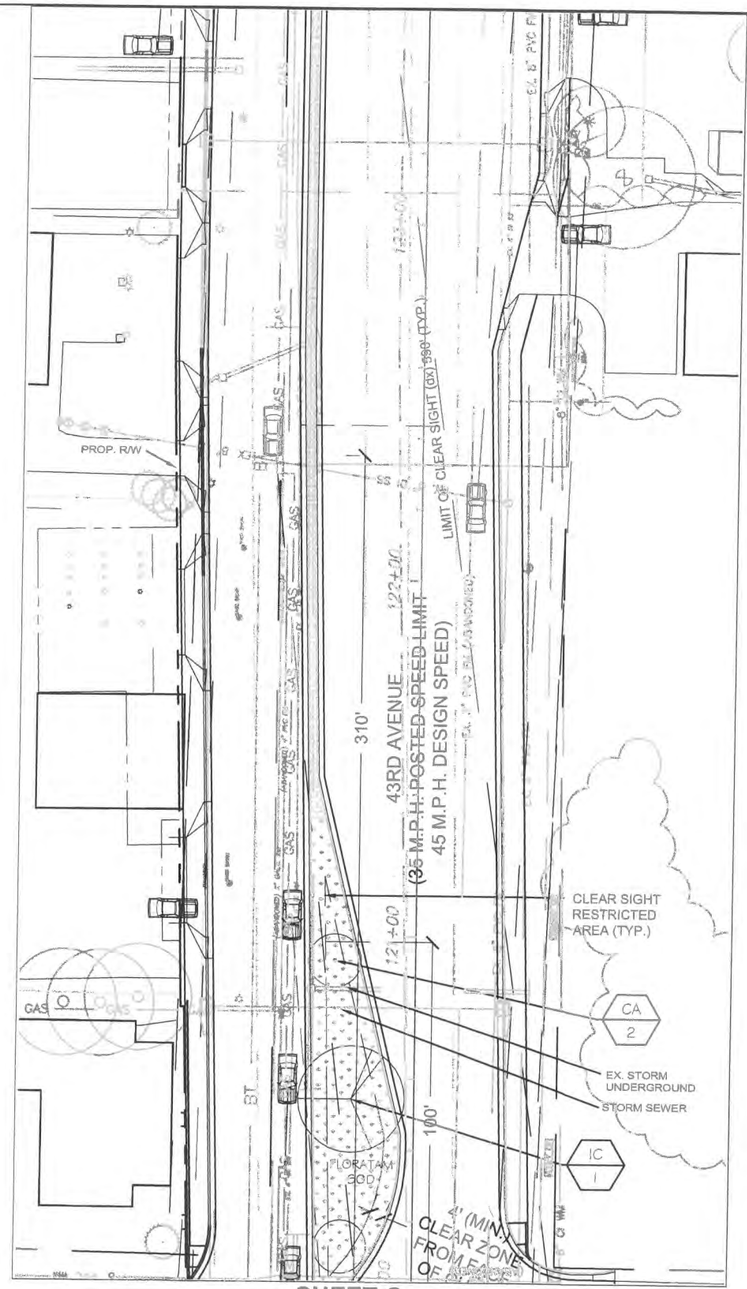

SHEET C

ARCADIS
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www.arcadis-us.com
CB310 / LC26000269
EB7917 / LB7062

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www.studio-sprout.com
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02	Revisions	CRF	12.13.18

Department of Public Works
Engineering Division

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Date: 11/11/17
Field Book No:

Project: 100% LANDSCAPE PLAN
FOR
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&
43RD AVENUE

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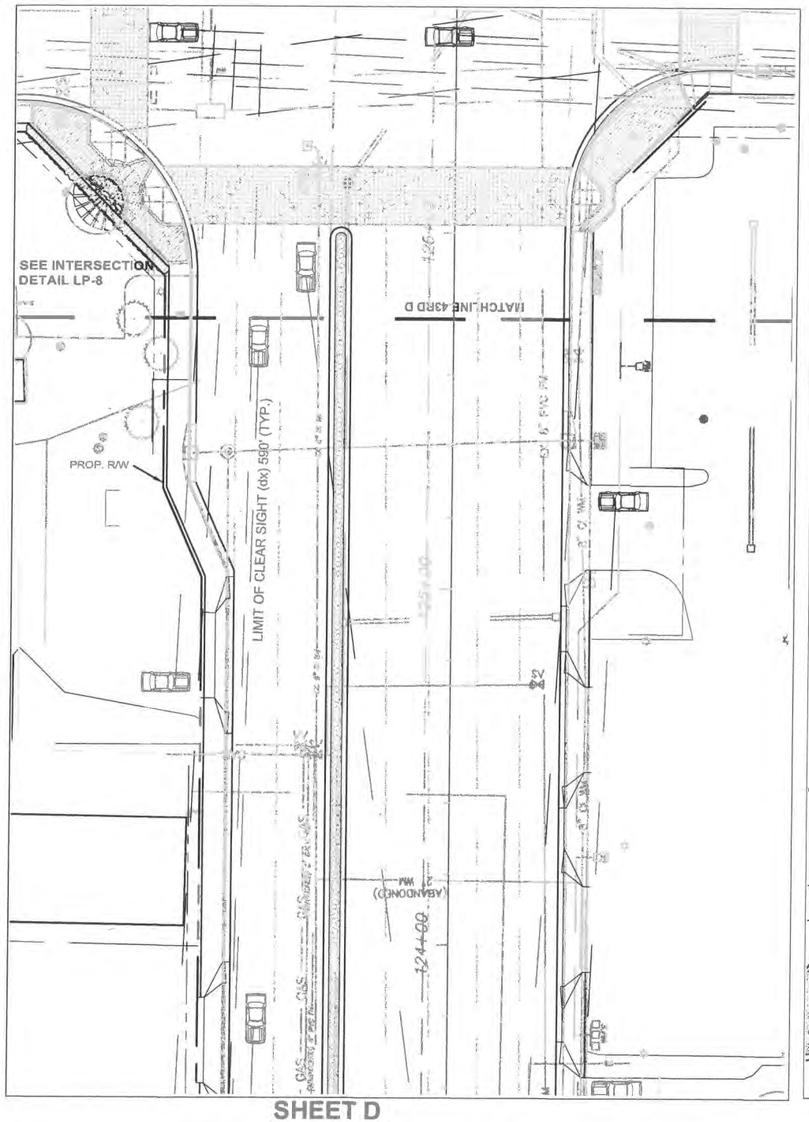

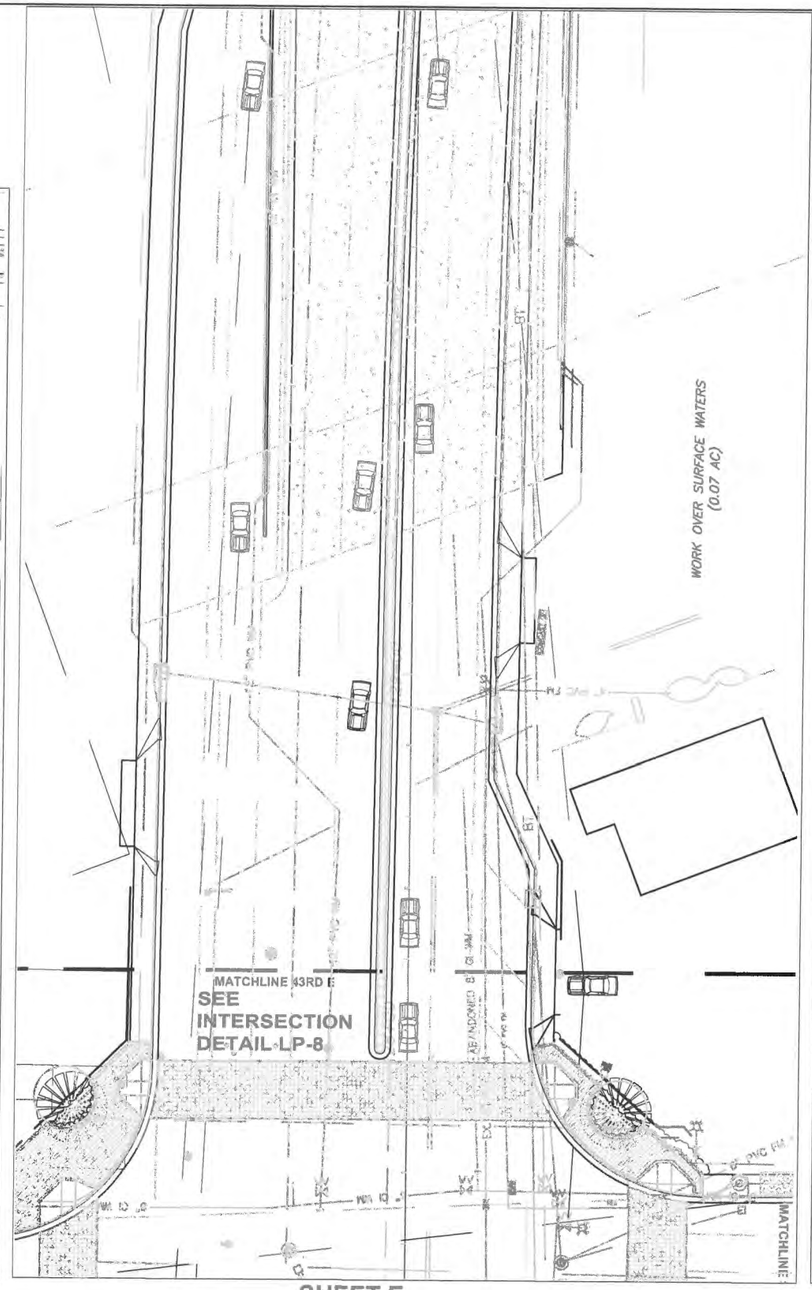

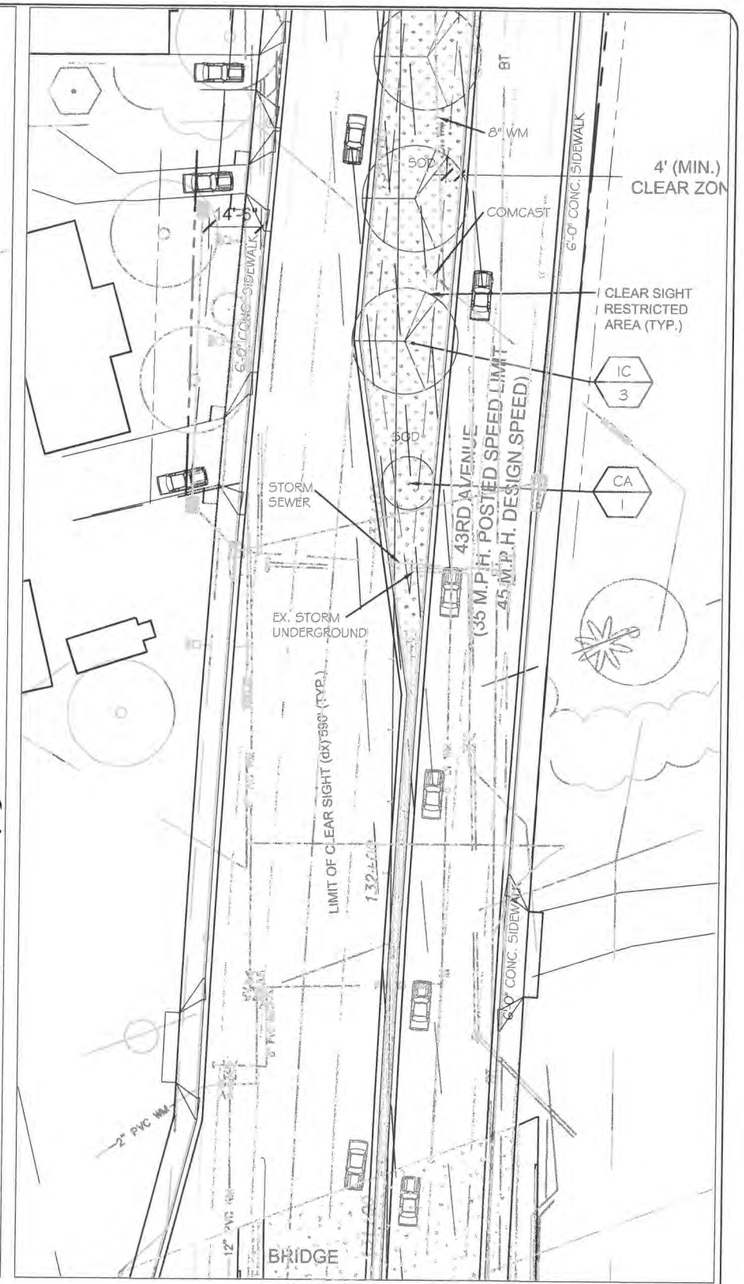

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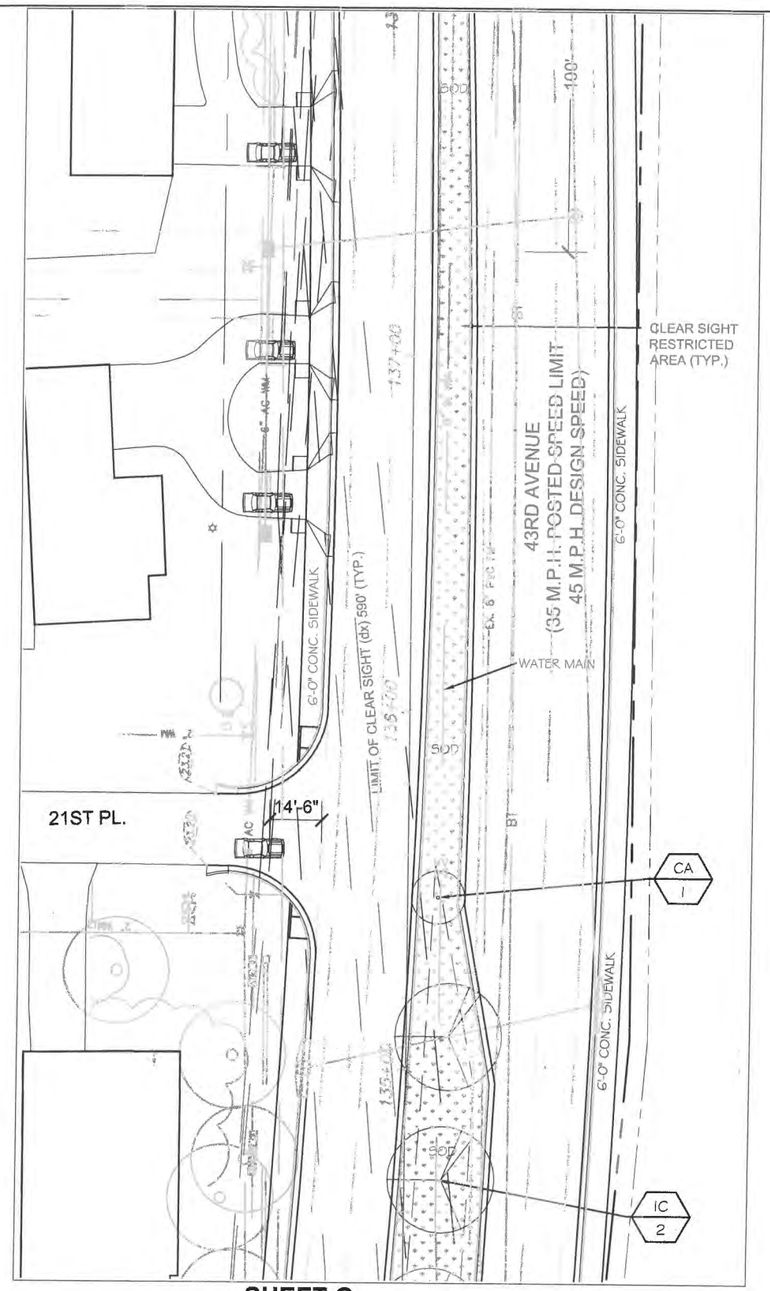

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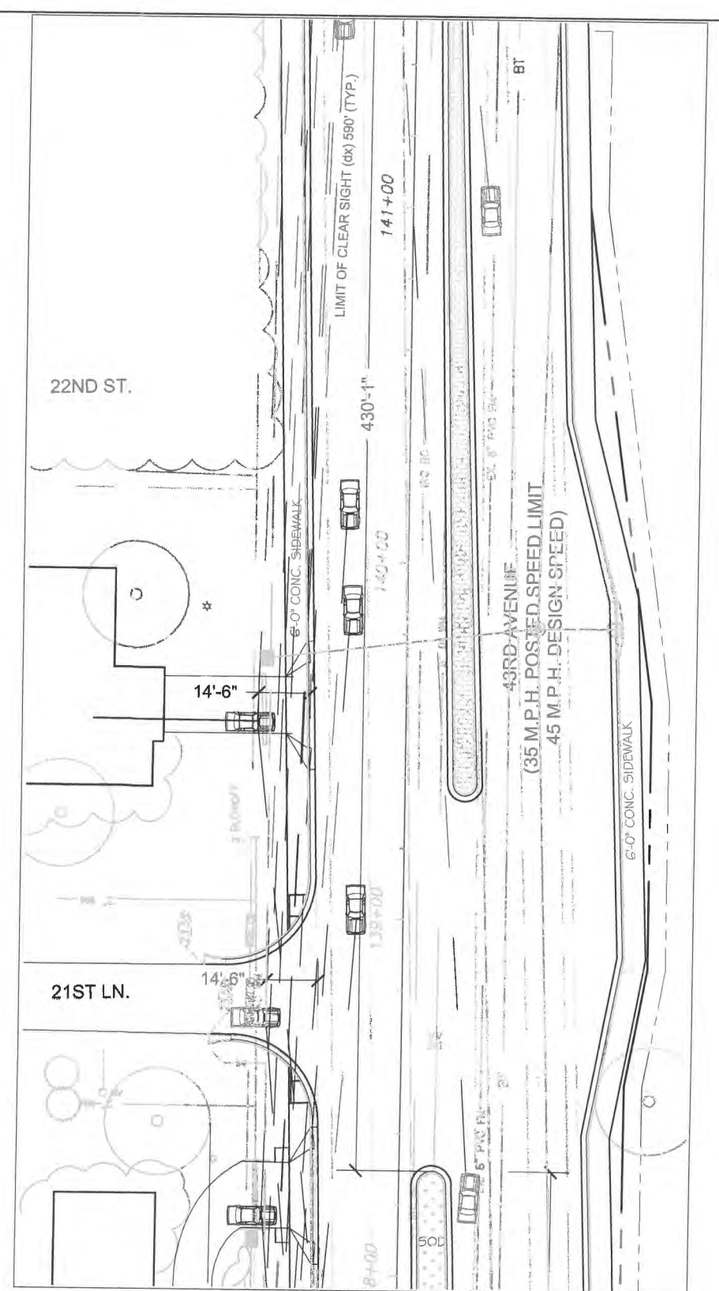

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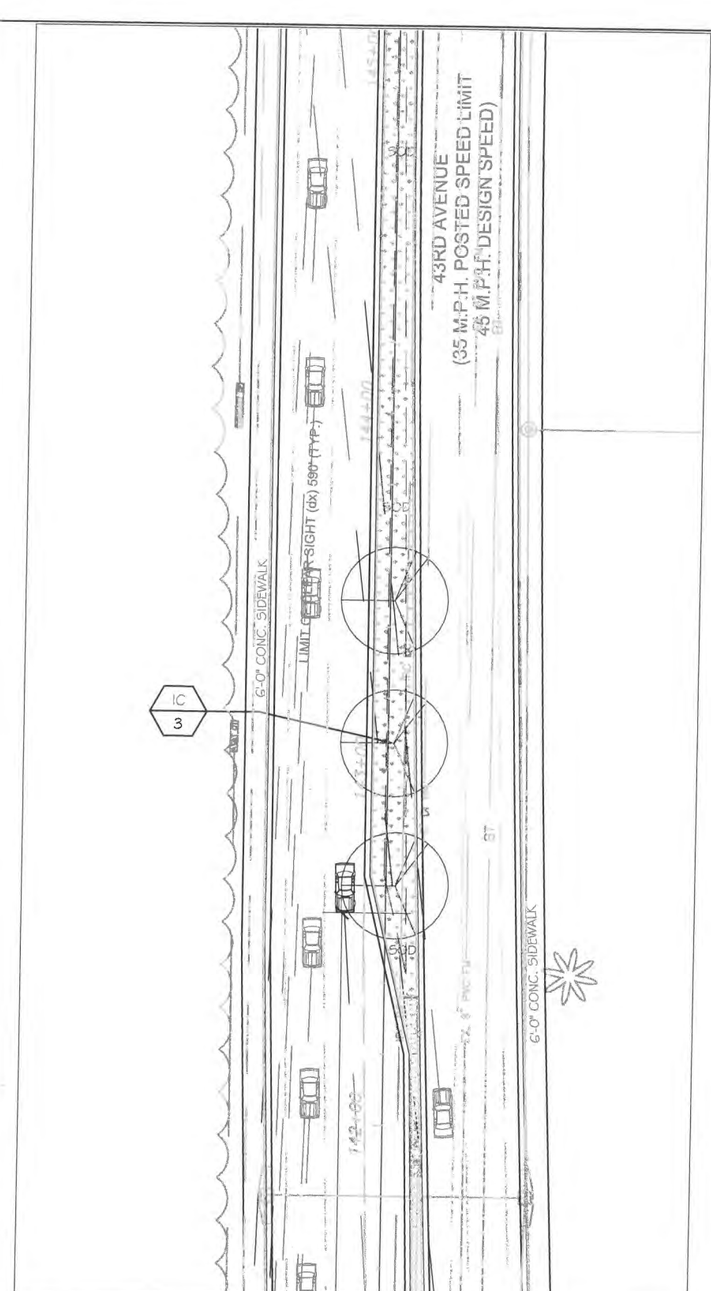

SHEET I

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INDIAN RIVER COUNTY, FLORIDA

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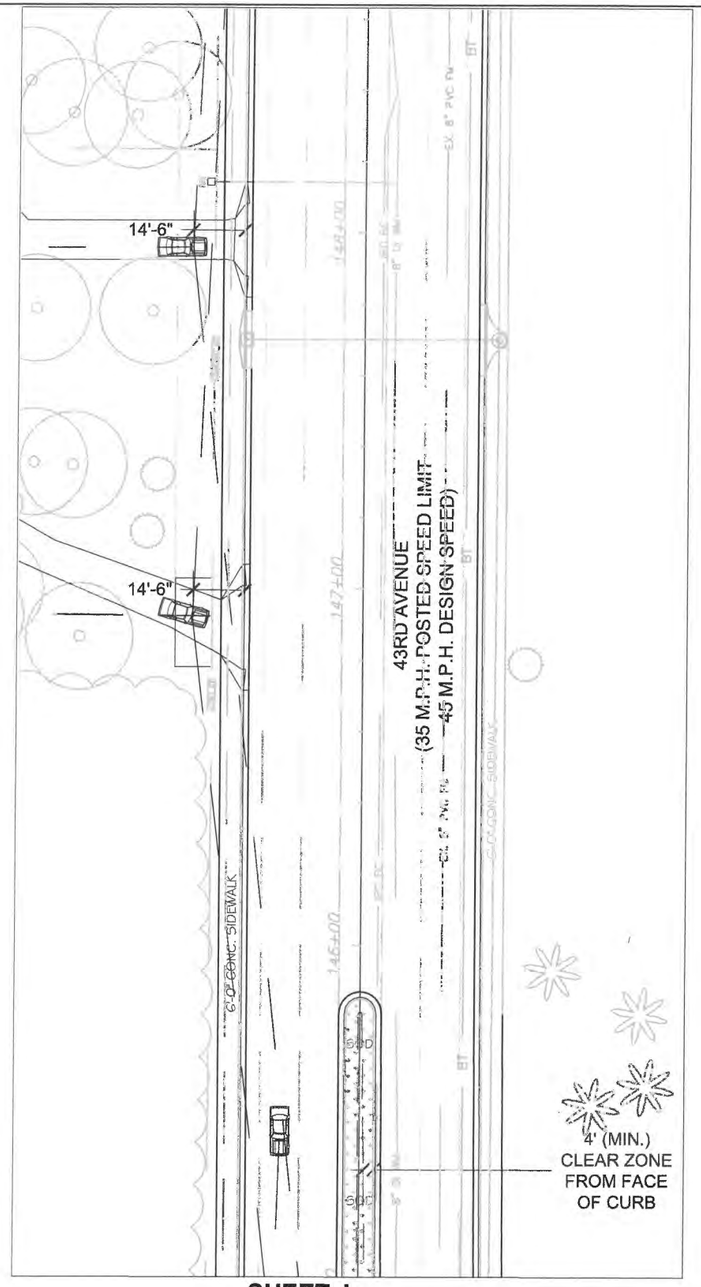

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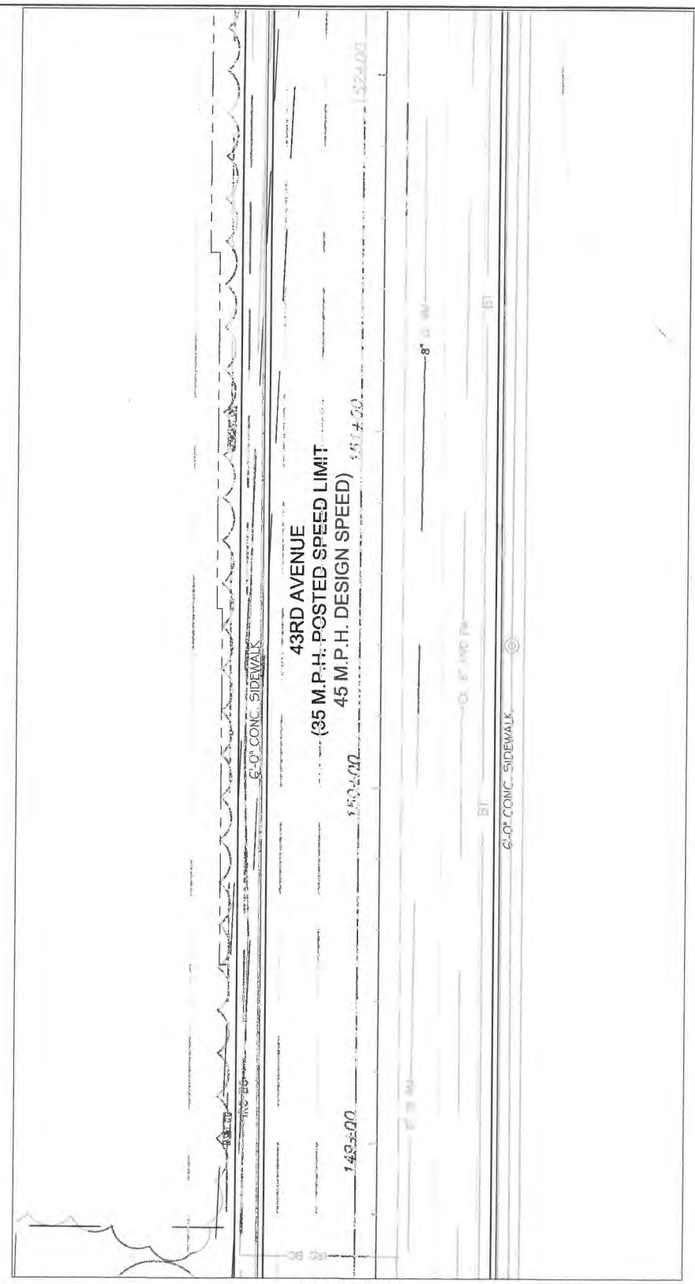

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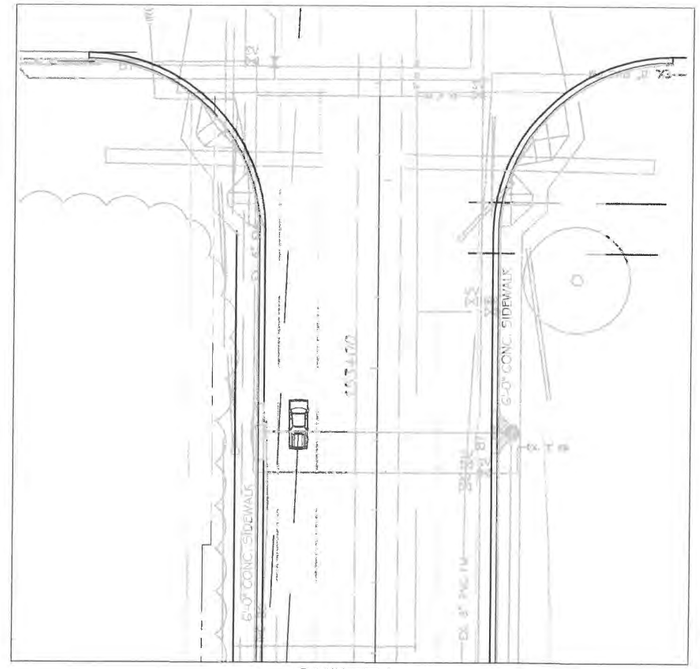

SHEET L

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OVERALL PLANT SCHEDULE FOR STATE ROUTE 60 & 43RD AVENUE

Item	SYM	QTY	BOTANICAL	COMMON	SIZE	SPACING
		TREES				
580 5-5532	CA	9	GORDONIA IASIANTHUS	LOBLOLLY BAY	8-10' X 4-5' 2.75" CAL	AS SHOWN
580 5-572	IC	14	LIGUSTRUM JAPONICUM	JAPANESE PRIVET	8-10' OA MULTISTEM	AS SHOWN
580 4-235	PS	3	PHOENIX SYLVESTRIS	SYLVESTER DATE PALM	16' CT	AS SHOWN
580 4-345	SP	5	SABAL PALMETTO	SABAL PALM	16-20' CT	AS SHOWN
		SHRUBS				
580 - 7-177	DIT	48	ILEX VOMITORIA 'Schillings'	DWARF YAUPON HOLLY	#7 FULL	24" OC
580 - 7-337	VOD	59	MYRCIANTHES FRAGRANS	SIMPSON'S STOPPER	#7	24" O.C.
E575 1		5,450	PASPALUM NOTATUM	BAHIA SOD	SQUARE YARDS - VERIFY QTY	
E575 1 4		3,400	STENOTAPHRUM SECUNDATUM	ST. AUGUSTINE SOD	SQUARE YARDS - VERIFY QTY	
		145	ROOT BARRIER	24" DEEPROOT	LINEAR FEET	
		16	FLORIMULCH	VERIFY QUANTITY	CUBIC YARDS	

NOTES

Items 580 5-5532, 580 5-572, 580 4-235, 580 4-345, 580 7-177, 580 7-337 shall include price of Florimulch per specifications in price of each plant (approximately 16 yards, verify quantity).
Separate payment will not be made for mulch

Item 589 4-235, Phoenix Sylvestris shall include price of 145 linear feet of 24" Deeproot root barrier.
Separate payment will not be made for root barrier.

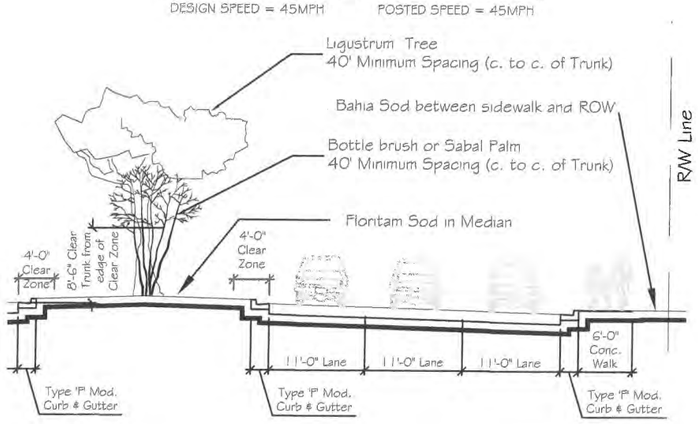
Medians shall receive floritam sod.

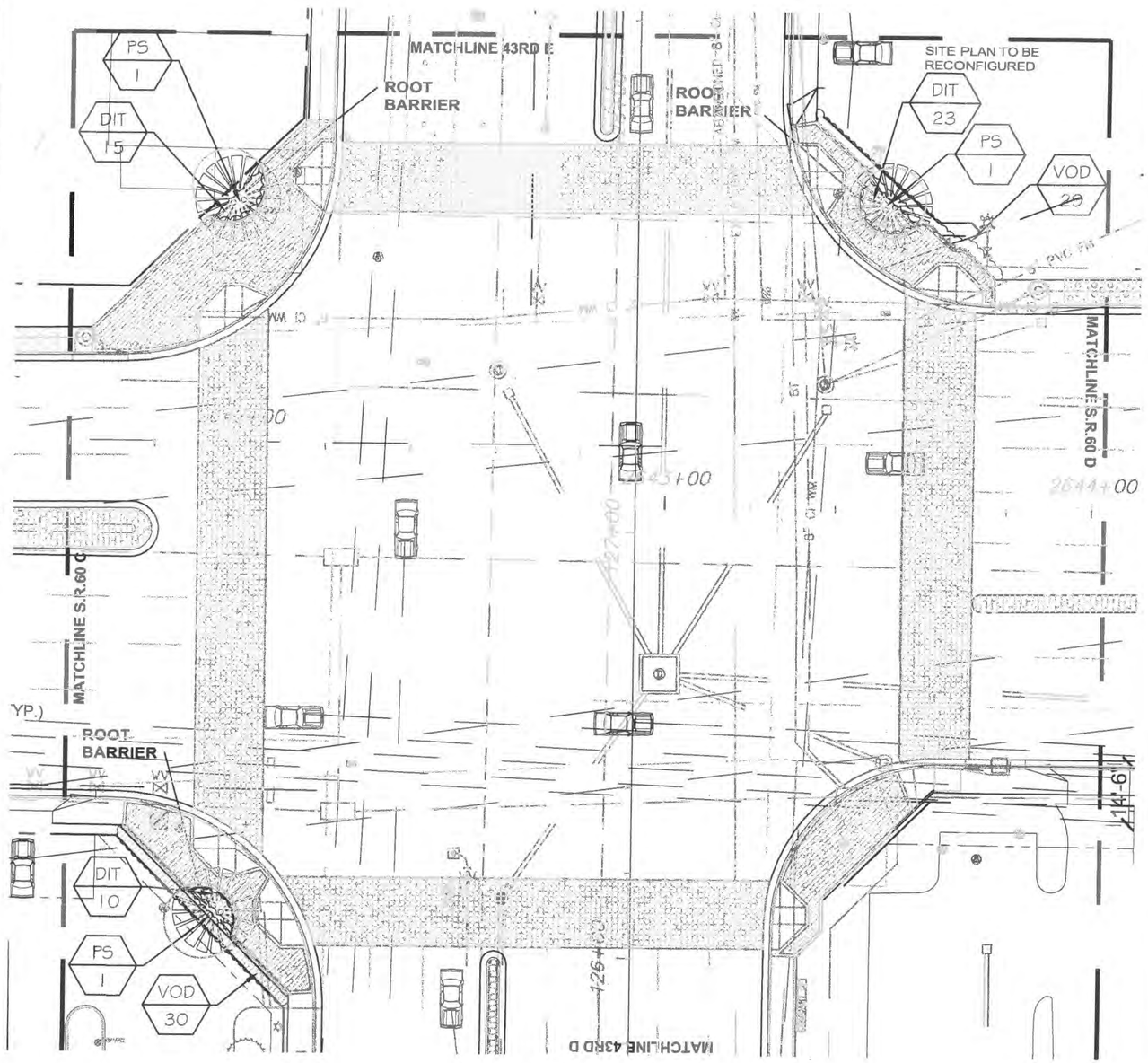
Use bahia sod between row and sidewalk in disturbed areas. Quantity reflects ROW area only. Contractor shall repair all disturbed areas,
including temporary construction easements. It is the responsibility of the Contractor to determine how much sod will be required to repair temporary easeents.

Verify all Utility locations. Do not plant trees closer than 10' from Utility unless root barrier is installed. No trees shall be planted closer than 7.5' from utility. If a proposed tree location is closer than 7.5' to a utility contact Landscape Architect so that adjustment can be made.

Typical Restricted Section B
SR 60 & 43rd Ave (not to scale)

DESIGN SPEED = 45MPH POSTED SPEED = 45MPH





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JOB CONDITIONS:

Any building construction material or foreign material shall be removed from planting areas and replaced with acceptable top soil.

Care shall be taken not to disturb or damage any underground construction or utilities. Any damage to these facilities during the planting operations will be repaired at the expense of the Landscape Contractor in a manner approved by the Owner. Where underground obstructions will not permit the planting materials in accordance with the plans, new locations shall be approved by the Landscape Architect.

Landscape work shall be coordinated with the landscape irrigation work. Landscape Contractor shall ensure that no plantings will interfere with the proper coverage. Landscape Contractor shall point out situations where minor adjustments or relocation or addition of sprinklers heads may be most beneficial for the landscape work as a whole.

PLANT MATERIAL:

Plant species and size shall conform to those indicated on the drawings. Nomenclature shall conform to STANDARDIZED PLANT NAMES, LATEST EDITION. All plant material shall be in accordance with GRADES AND STANDARDS FOR NURSERY PLANTS, latest edition published by the Florida Department Agriculture and Consumer Services. All plants not otherwise specified as Florida Fancy, or Specimen, shall be Florida Grade Number 1 or better as determined by the Florida Grade Plant Industry. Specimen means an exceptionally heavy, symmetrical, tightly-knit plant, so trained or favored in its development that its appearance is unquestionable and outstandingly superior in form, number of branches, compactness and symmetry. All plants shall be sound, healthy, vigorous, well branched and free of disease and insect eggs and larvae and shall have adequate root systems. Trees and shrubs for planting rows shall be uniform in size and shape. All materials shall be subject to approval by the Landscape Architect. Where any requirements are omitted from the Plant List, the plants furnished shall be normal for the variety.

All container grown material shall be healthy, vigorous, well-rooted plants and established in the container. The plants shall have tops which are good quality and are in a healthy growing condition. An established container grown plant shall be transplanted into a container and grown in that container long enough for the new fibrous roots to have developed enough to hold the root mass together when removed from the container. Root bound plants will not be accepted.

Water for planting shall be available at the site and will be provided by the Owner. Site water shall be verified by Contractor prior to submission of bids.

The use of natural material is strongly encouraged for balled and burlapped plants. All synthetic material shall be completely removed from root ball PRIOR to planting.

At time of bid, Contractor shall submit a written schedule of all sources for coconut palms as well as seed sources for coconuts. Coconuts shall be certified Malayan Green with a certified seed source from Jamaica.

TREES:

The most critical factor for selecting a healthy Florida Number 1 tree is the structure. This consists of one central main trunk and leader. Branches are considered competing if they are 2/3 the diameter of the leader or greater. Competing branches may be acceptable if they occur above 50% of the overall height of the tree. Caliper of tree should meet specifications. Leader (center trunk) may have slight (<15 degree) bow (Tabebula caraiba excluded), but must be intact with apical (leading) bid.

Branches should be spread evenly (staggered, alternating) through the tree branches spaced no closer than 4".

Canopy should be full to specifications with little or no openings or holes. A thinning canopy will be taken into consideration with field dug plant material.

Trees should have no open wounds or damage, flush cuts, chlorosis, shorter or taller than specified height, girdling roots, undersize loose root ball, crossing branches, smaller than normal leaves.

All trees shall be installed slightly above grade (1 to 2") and securely staked in such a manner as not to damage the tree. Mulched with 3-4" inches quality mulch, stem will be free of mulch within the first 4". Root ball tying ropes removed from trunk and top of root ball.

MULTIPLE TRUNK TREES:

Trees having no distinct leader. Trunks on these trees should not be touching and free of damage and similar in size. Canopy should be full and uniform.

MATERIALS LIST:

Landscape Contractor shall be responsible for verifying all quantities for material shown on drawings prior to submitting a bid. Planting plan shall take precedence over the plant list. Final quantity of sod and mulch shall be verified.

SUBSTITUTIONS:

No substitutions shall be made without the approval from the Landscape Architect and/or the Owner. Intended substitutions shall be indicated on the bid.

MEASUREMENTS:

Canopy Trees- Height shall be measured from the ground to the average height of canopy. Spread shall be measured to the end of branching equally around the crown from the center of the trunk. Caliper (d.b.h.) will be measured 4'-6" above grade.

Overall height (O.A.) shall be measured from the ground to the tip of the unopened bud.

IRRIGATION:

100% irrigation coverage shall be provided.

GUARANTEE:

All new plant materials shall be guaranteed for one year from the time of acceptance and shall be alive and in satisfactory growth for each specific kind of plant at the end of the guarantee period. The Landscape Contractor shall not be responsible for damage caused by vandalism, violent wind storms or other acts of God beyond control. Replacement shall occur within two weeks of rejection and guaranteed six months from date of installation. Landscape Contractor shall repair damage to other plants or lawns during plant replacements at no additional cost.

MULCH:

Mulch shall not contain sticks 1/4" in diameter or stones. Trees shall be mulched within 24 hours with 3" of mulch covering entire root ball.

SOD:

All sod shall be installed in such a manner that there is an even surface, staggered pattern. Sod will be green in color and in good health. NO overlap, gaps, damage, insects, disease and less than 10% chlorosis will be permitted. All gaps will be filled with clean native soil.

STAKING:

Landscape Contractor to suggest alternate means of staking for approval with Landscape Architect if staking methods shown are not feasible due to site conditions.

FERTILIZER:

Manufacturer's Specification: Submit manufacturer's specification sheet(s) for approval of product. Submit tags from bags of fertilizer used on site to the Architect. Submit copies of the manufacturer's specifications or analysis of all fertilizer for approval.

New Trees, Transplanted Trees, Palms, Shrubs and Ground Cover (Container): Unless otherwise specified on the plans, fertilize with Agriform planting tablets, 20-10-5 formula, 21 gram or equal per manufacturer's recommendation.

Fertilizer for Existing Trees to be Transplanted: Shall be a water soluble fertilizer having a 20-20-20 analysis such as "Peters' Professional" or equal.

Composition and Quality: All fertilizer shall be uniform in composition and dry. Granular fertilizer shall be free flowing and delivered in unopened bags. Tablet fertilizer shall be delivered in unopened containers or boxes. All bags, containers or boxes shall be fully labeled with the manufacturer's analysis.

All shall comply with the State of Florida fertilizer laws.

CLEANUP:

Landscape Contractor shall at all times keep job site clean and free from accumulation of waste material, debris and rubbish.

INSPECTION:

Upon written request from the Contractor, Owner and/or Landscape Architect shall perform inspection to determine completion of Contract.

ACCEPTANCE:

Following inspection, Contractor will be notified, in writing, by Owner and/or Landscape Architect of acceptance of completion with regards to plant material and workmanship according to Contract.

GENERAL NOTES

1 All dimensions 6" and less are exaggerated for illustrative purposes only.

2 Plant containers shall be removed prior to planning. If plants are not container grown, remove a minimum of the top 1/3 of burlap, fabric, or wire mesh. Never lift or handle the tree by the trunk.

3. The uppermost root on all trees shall be covered by less than 1" of soil. Use hand tools to carefully remove all excess soil. The top of root ball shall be set 1-2' above finish grade and set plumb to the horizon. If planting pit is too deep remove the tree and firmly pack additional soil in the bottom of the planting pit to raise the rootball. After positioning the tree in the planting pit, slice through rootballs with 3 and 4 vertical slices (top to bottom) equally distributed around the tree.

4. Backfill shall be loosened existing soil. Remove rocks, sticks or other deleterious material greater than 1" in any direction prior to backfilling. Water and tamp to remove air pockets. If existing soils contain excessive sand, clay or other material not conducive to proper plant growth, contact Engineer prior to planting.

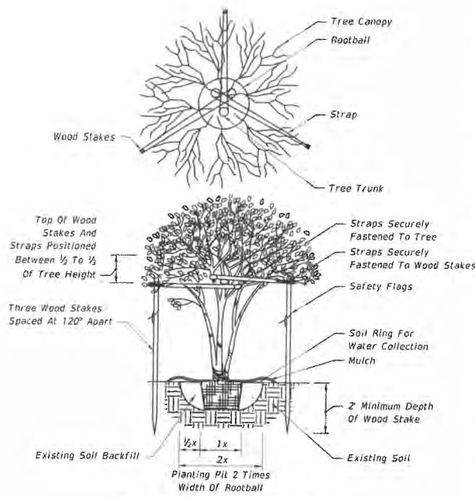
5. Soil rings shall be constructed of existing soil at the outer edge of the planting pit, with a height of 3" and gently sloping sides. Do not pile soil on top of rootball

6. Mulch shall be 3" deep layer placed to the edge of the trunk flare, around the base of shrub, or solidly around groundcover. Never pile mulch against the tree trunk.

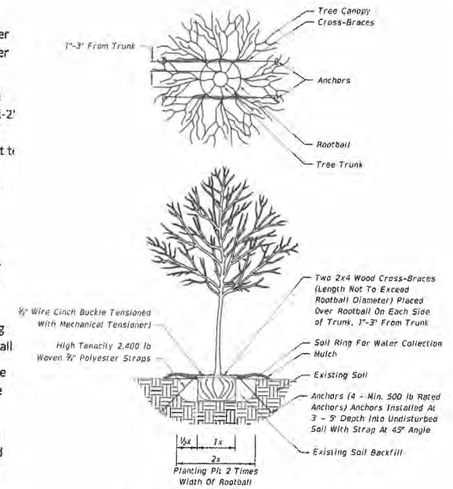
7. Straps shall be minimum 1" wide nylon or polypropylene. All wood stakes or anchors shall be located beyond the edge of soil ring and located below finished grade, unless otherwise specified.

8. Sabal palms may be hurricane cut. All other palms must have fronds tied with biodegradable twine. Palm trunks shall have no burn marks, scars, or sanding.

9. All dimensions provided for wood materials are nominal.



MULTI-TRUNK TREE PLANTING



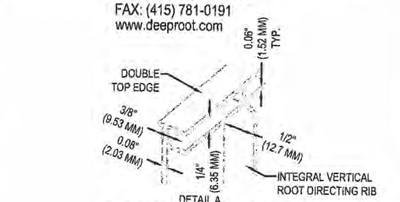
1" - 3½" CALIPER TREE PLANTING WITH UNDERGROUND BRACING

deeproot

DEEPROOT GREEN INFRASTRUCTURE, LLC
530 WASHINGTON STREET
SAN FRANCISCO, CA 94111
TOLL FREE: 1-800-ILV-ROOT (458-7668)
PHONE: (415) 781-9700
FAX: (415) 781-0191
www.deeproot.com

MATERIALS:

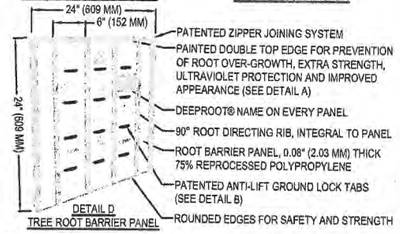
-THE CONTRACTOR SHALL FURNISH AND INSTALL TREE ROOT BARRIER AS SPECIFIED. THE TREE ROOT BARRIER SHALL BE EITHER PRODUCT #UB 12-2 AS MANUFACTURED BY DEEPROOT® GREEN INFRASTRUCTURE.
-ROOT BARRIER SHALL BE RECYCLABLE, BLACK, INJECTION MOLDED PANELS WITH 0.8" (2.03 MM) WALL THICKNESS IN MODULES 24" (609 MM) LONG AND 24" (609 MM) DEEP.
-ROOT BARRIER SHALL BE COMPRISED OF 24" (609 MM) PANELS. EACH PANEL SHALL HAVE NO LESS THAN FOUR (4) MOLDED INTEGRAL VERTICAL ROOT DIRECTING RIBS OF A MINIMUM 0.075" (1.9 MM) THICKNESS, PROTRUDING 1/2" (12.7 MM) AT 90° FROM INTERIOR OF THE BARRIER PANEL, SPACED 6" (152.4 MM) APART. (SEE DETAILS A AND D)
-ROOT BARRIER SHALL HAVE A DOUBLE TAP EDGE CONSISTING OF TWO PARALLEL, INTEGRAL, HORIZONTAL RIBS AT THE TOP OF THE PANEL AT 0.06" (1.52 MM) THICKNESS, 3/8" (9.53 MM) WIDE AND 1/4" (6.35 MM) APART WITH THE LOWER RIB ATTACHED TO THE VERTICAL ROOT DIRECTING RIBS (SEE DETAIL A).
-ROOT BARRIER SHALL HAVE A MINIMUM OF TWELVE (12) ANTI-LIFT GROUND LOCK TABS CONSISTING OF INTEGRAL HORIZONTAL RIDGES OF MINIMUM 0.075" (1.9 MM) THICKNESS IN THE SHAPE OF A SEGMENT OF AN OBLONG, THE 2" (50.8 MM) CHORD OF THE SEGMENT JOINING THE PANEL WALL AND THE SEGMENT, PROTRUDING 3/8" (9.53 MM) FROM THE PANEL. THE GROUND LOCKS ON EACH PANEL SHALL BE ABOUT EQUALLY SPACED BETWEEN EACH OF THE VERTICAL ROOT DIRECTING RIBS (SEE DETAILS B AND D)
-ROOT BARRIER SHALL HAVE AN INTEGRATED ZIPPER JOINING SYSTEM FOR ASSEMBLY BY SLIDING ONE PANEL INTO ANOTHER (SEE DETAIL C).



DETAIL A
DOUBLE TOP EDGE AND VERTICAL ROOT DIRECTING RIB

DETAIL B
ANTI-LIFT GROUND LOCK TAB

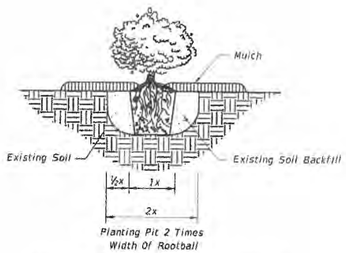
DETAIL C
ZIPPER JOINING SYSTEM



DETAIL D
TREE ROOT BARRIER PANEL

NOTES:
1. US PATENT NO.: 5,305,548 AND 5,528,857 AND OTHER PATENTS PENDING.
2. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
3. DO NOT SCALE DRAWING.
4. THIS DRAWING IS INTENDED FOR USE BY ARCHITECTS, ENGINEERS, CONTRACTORS, CONSULTANTS AND DESIGN PROFESSIONALS FOR PLANNING PURPOSES ONLY. THIS DRAWING MAY NOT BE USED FOR CONSTRUCTION.
5. ALL INFORMATION CONTAINED HEREIN WAS CURRENT AT THE TIME OF DEVELOPMENT BUT MUST BE REVIEWED AND APPROVED BY THE PRODUCT MANUFACTURER TO BE CONSIDERED ACCURATE.
6. CONTRACTOR'S NOTE: FOR PRODUCT AND COMPANY INFORMATION VISIT www.CADdetails.com/info AND ENTER REFERENCE NUMBER 095-011.

ROOT BARRIER DETAIL



GROUND COVER/SHRUB PLANTING

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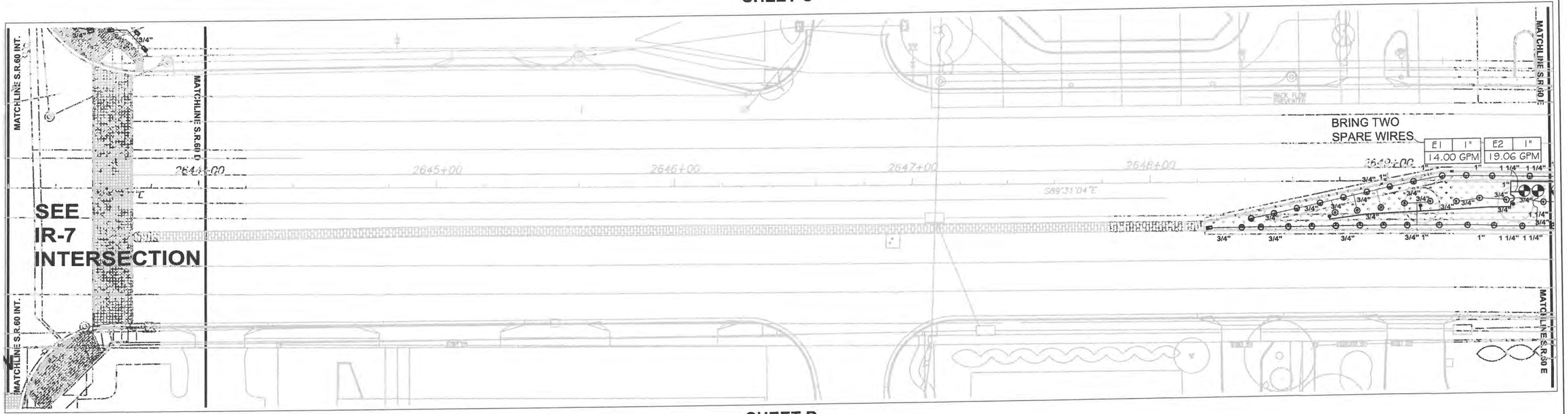
Project: 100% LANDSCAPE DETAILS FOR STATE ROUTE 60 & 43RD AVENUE

Sheet: LP-8
Of: LP-8
FDOT FIN: 431759-2-54-01
Project No.
IRC# 0512
LNW# WP1027

SHEET C



SHEET D

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01	Revisions	CRF	03.02.18
02	Revisions	CRF	12.13.18

Department of Public Works
Engineering Division

Scale:	1"=40'-0"
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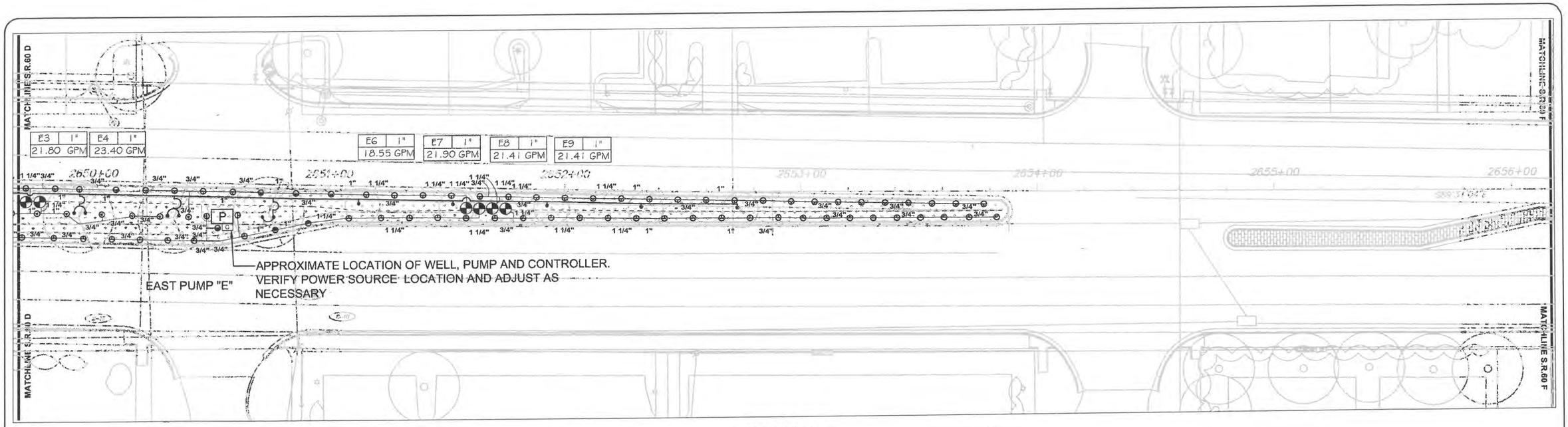
Drawn:	JLD
Checked:	CRF
Date:	11/11/17
Field Book No:	

Project: 100%
IRRIGATION PLAN
FOR
STATE ROUTE 60
&
43RD AVENUE

Sheet: IR-1
Of: IR-8
FDOT FIN: 431759-2-54-01
Project No.
IRC# 0512
LNW# WP1027



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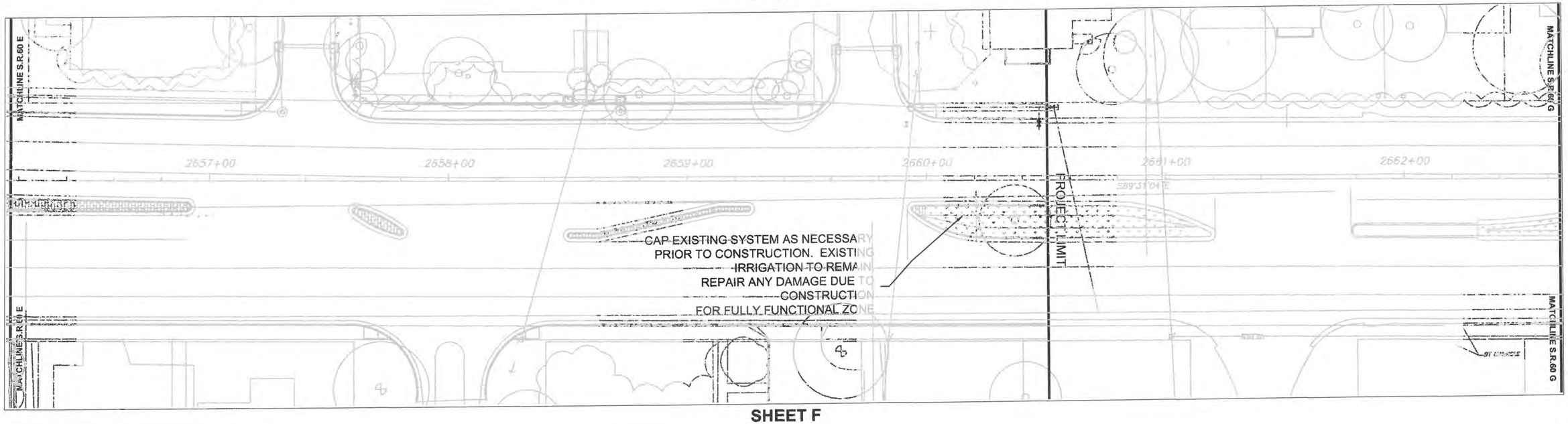

SHEET F

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Department of Public Works
Engineering Division
IRON RIVER COUNTY FLORIDA

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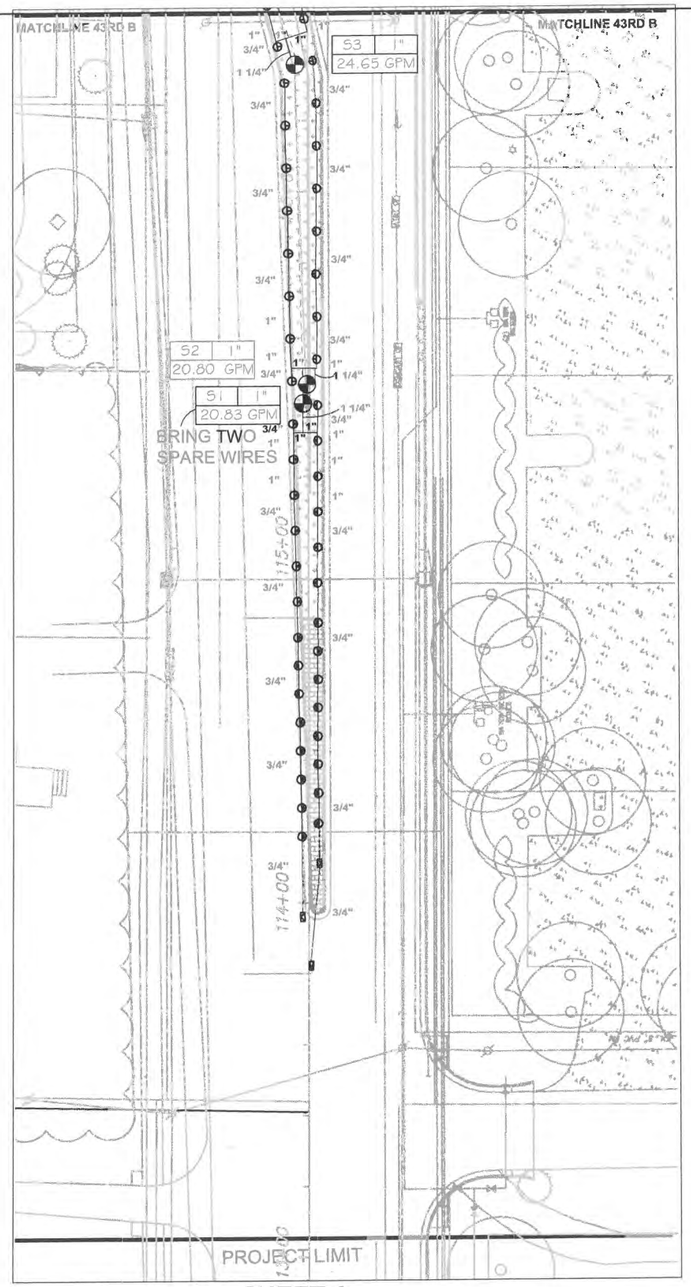
Project: 100% IRRIGATION PLAN FOR STATE ROUTE 60 & 43RD AVENUE

Sheet: IR-2
Of: IR-8
FDOT FIN: 431759-2-54-01
Project No. IRC# 0512 LNW# WP1027



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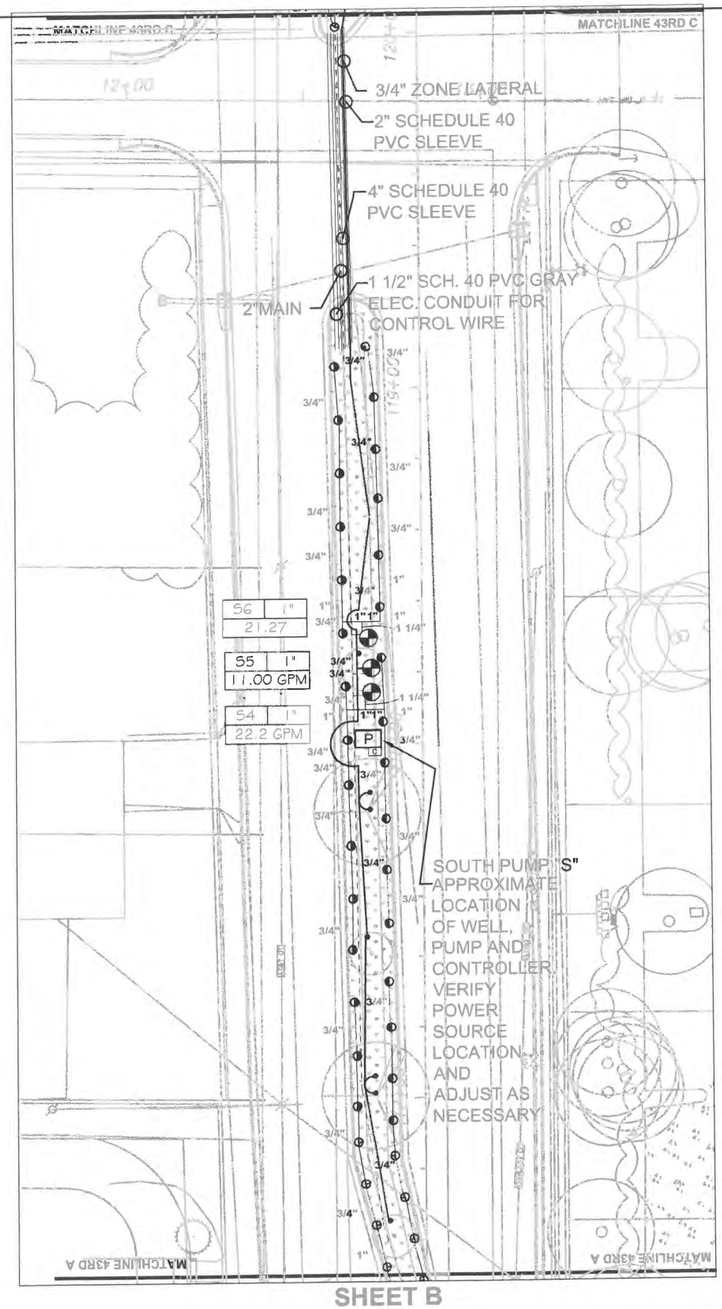

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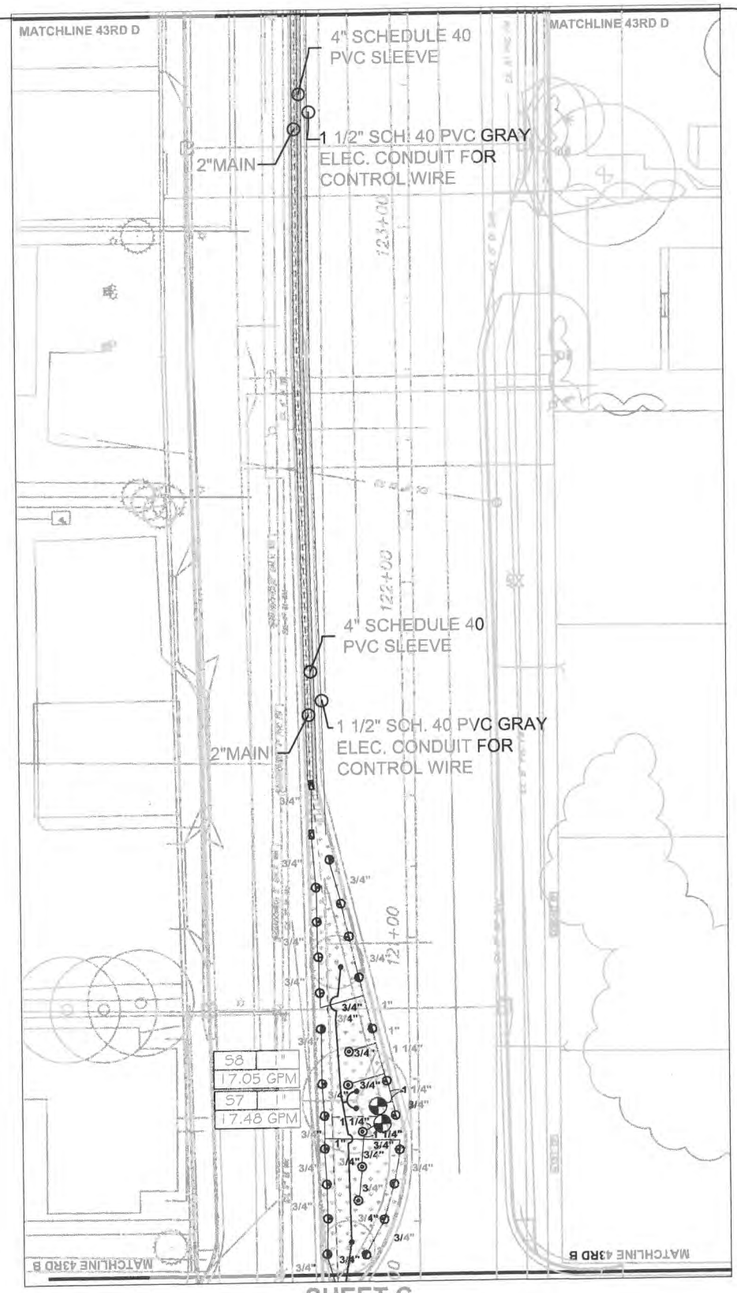

SHEET C

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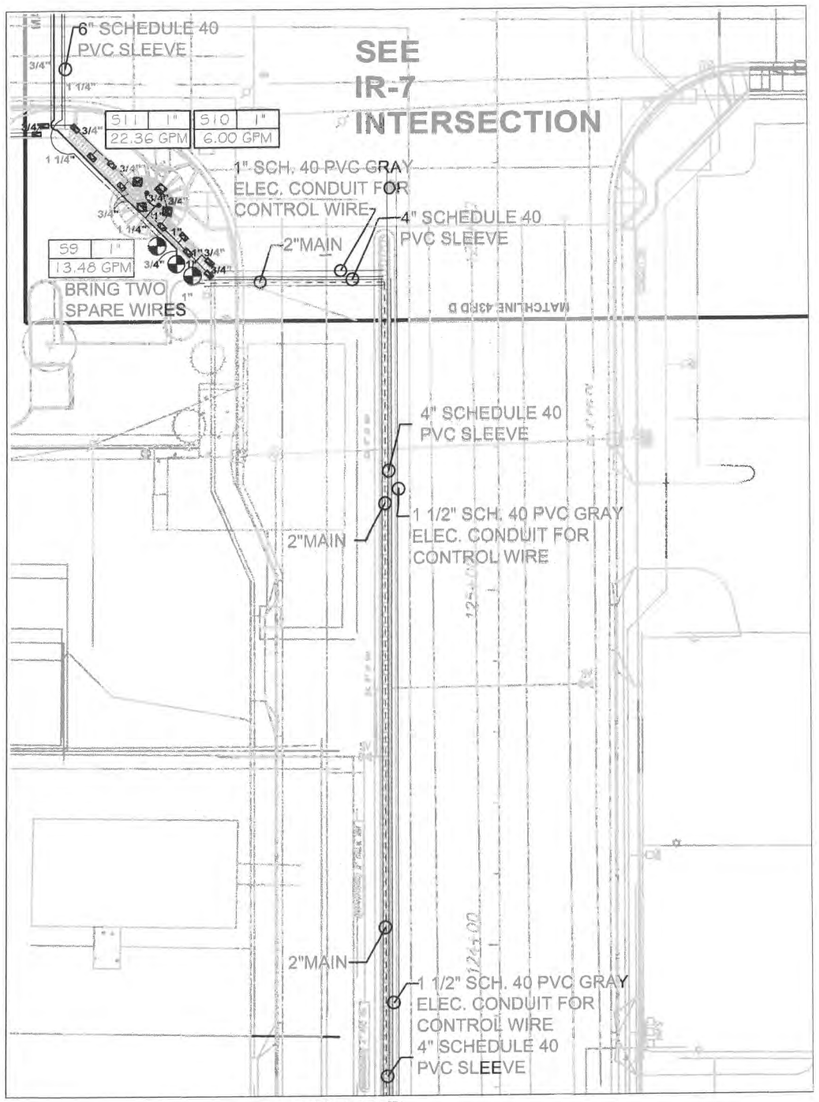
IRRIGATION PLAN
FOR
STATE ROUTE 60
&
43RD AVENUE

Sheet: IR-3
Of: IR-8
FDOT FIN: 431759-2-54-01
Project No.
IRC# 0512
LNW# WP1027



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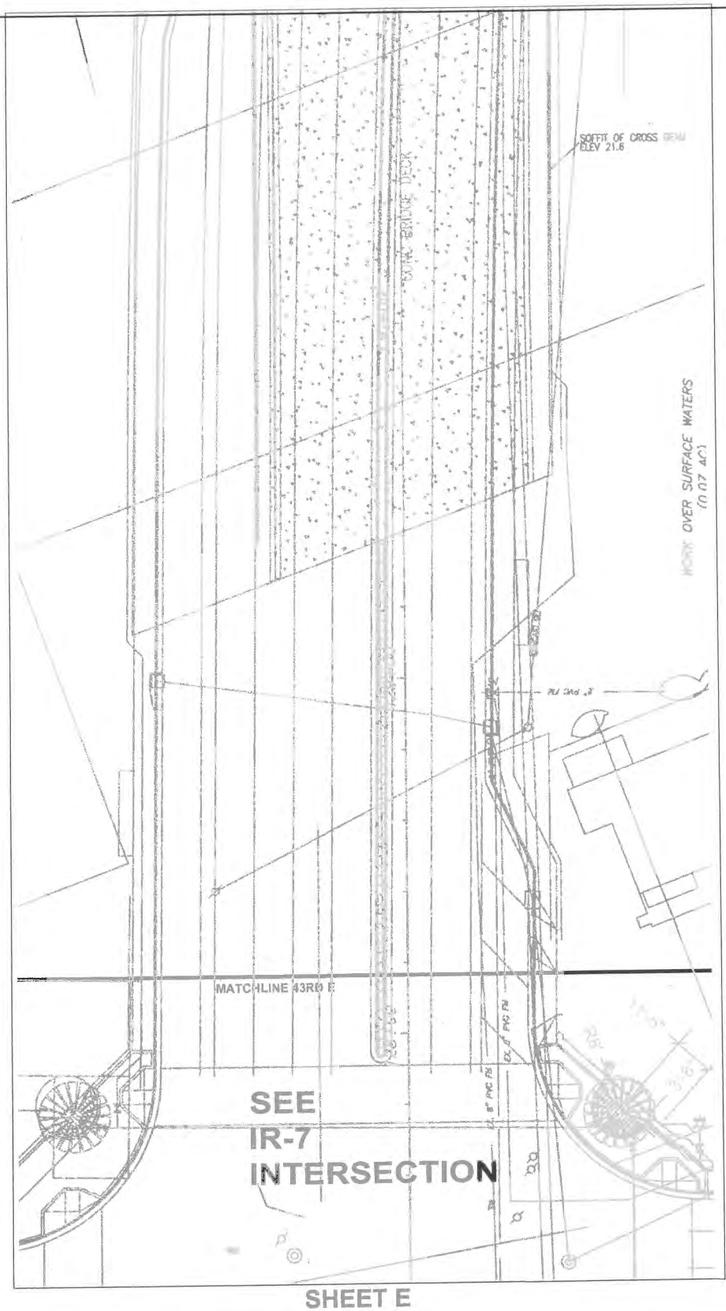

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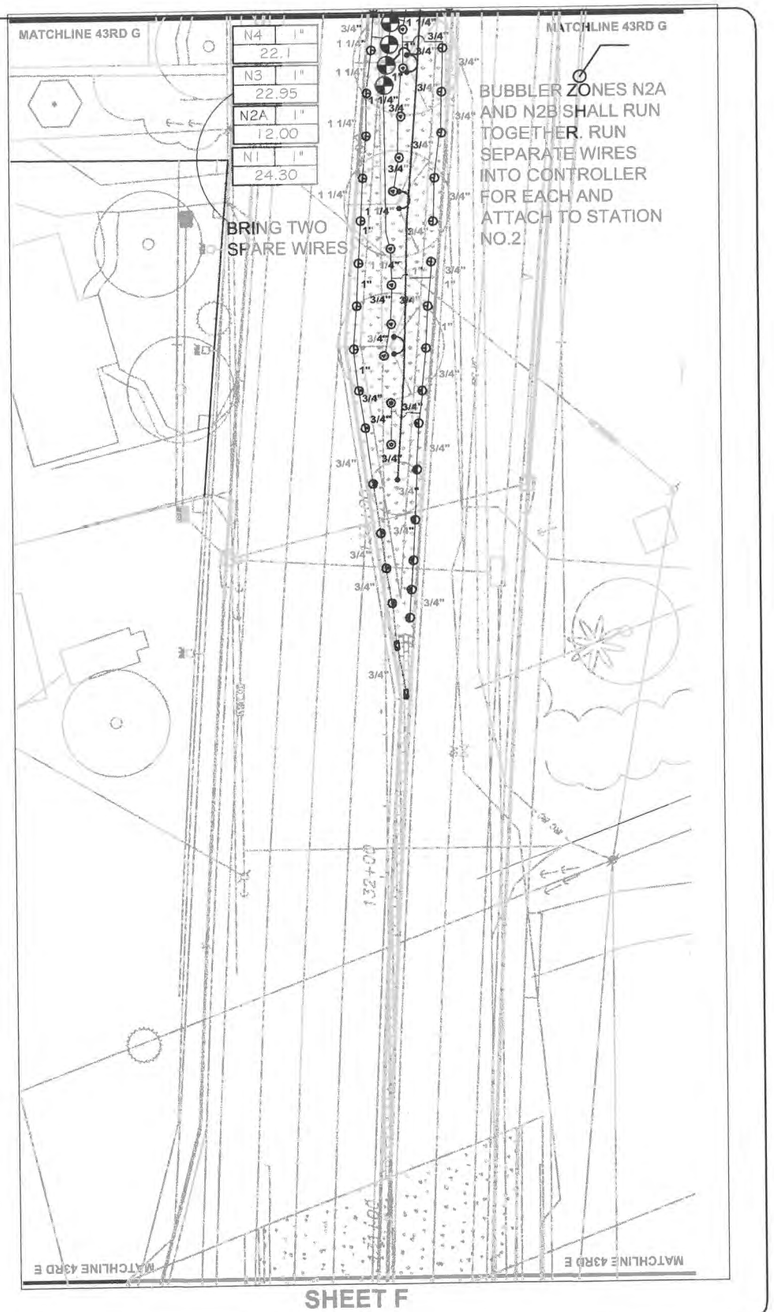

SHEET F

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IRRIGATION PLAN
FOR
STATE ROUTE 60
&
43RD AVENUE

Sheet: IR-4
Of: IR-8
FDOT FIN: 431759-2-54-01
Project No.
IRG# 0512
LNW# WP1027

MATCHLINE 43RD H

MATCHLINE 43RD H

MATCHLINE 43RD I

MATCHLINE 43RD I

MATCHLINE 43RD J

MATCHLINE 43RD J

4" SCHEDULE 40 PVC SLEEVE

2"MAIN

1 1/2" SCH. 40 PVC GRAY ELEC. CONDUIT FOR CONTROL WIRE

N7 | 1" | 22.91

N6 | 1" | 22.12

N5 | 1" | 23.00

N10 | 1" | 24.29

BRING TWO SPARE WIRES

N9 | 1" | 18.17

N8 | 1" | 21.56

N2B | 1" | 6.00

BUBBELER ZONES N2A AND N2B SHALL RUN TOGETHER. RUN SEPARATE WIRES INTO CONTROLLER FOR EACH AND ATTACH TO STATION NO.2

APPROXIMATE LOCATION OF WELL, PUMP AND CONTROLLER. VERIFY POWER SOURCE LOCATION AND ADJUST AS NECESSARY

NORTH PUMP "N"

P

4" SCHEDULE 40 PVC SLEEVE

2"MAIN

1 1/2" SCH. 40 PVC GRAY ELEC. CONDUIT FOR CONTROL WIRE

4" SCHEDULE 40 PVC SLEEVE

2"MAIN

1 1/2" SCH. 40 PVC GRAY ELEC. CONDUIT FOR CONTROL WIRE

MATCHLINE 43RD F

MATCHLINE 43RD F

MATCHLINE 43RD G

MATCHLINE 43RD G

MATCHLINE 43RD H

MATCHLINE 43RD H

SHEET G

SHEET H

SHEET I

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IRRIGATION PLAN
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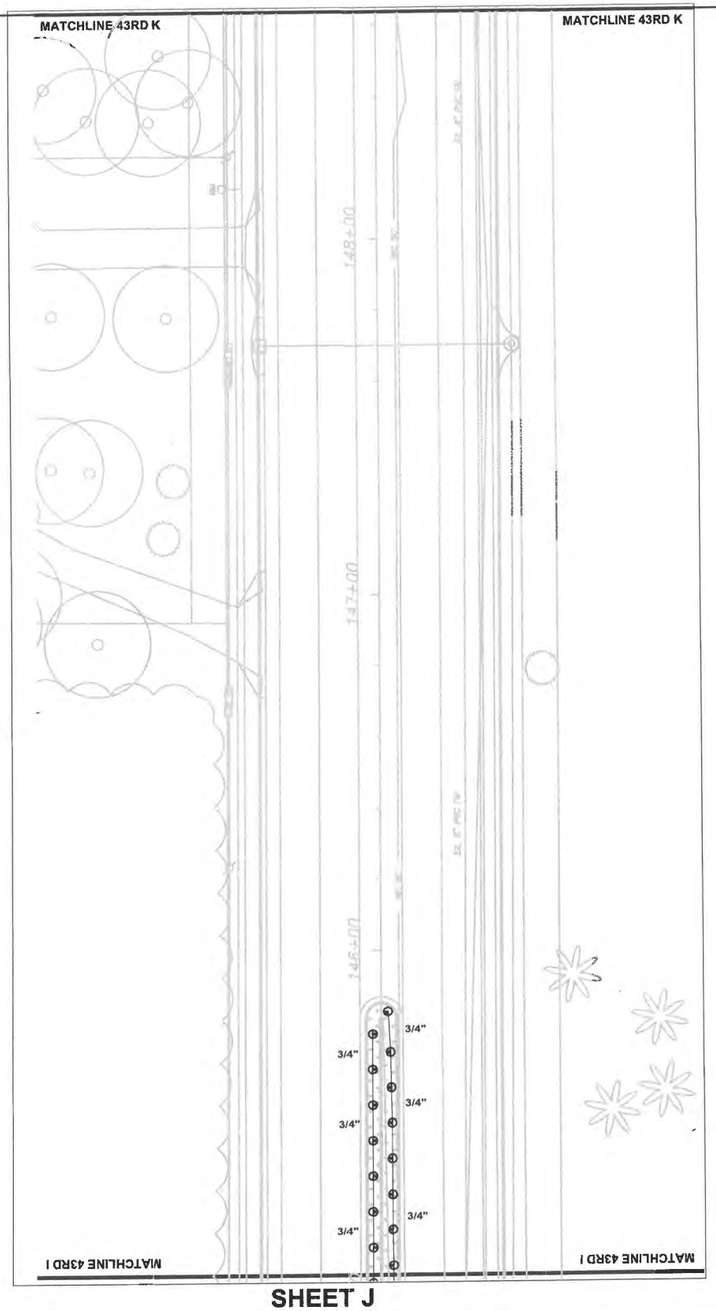
&
43RD AVENUE

Sheet: IR-5
Of: IR-8
FDOT FIN: 431759-2-54-01
Project No.
IRC# 0512
LNW# WP1027

MATCHLINE 43RD K

MATCHLINE 43RD K



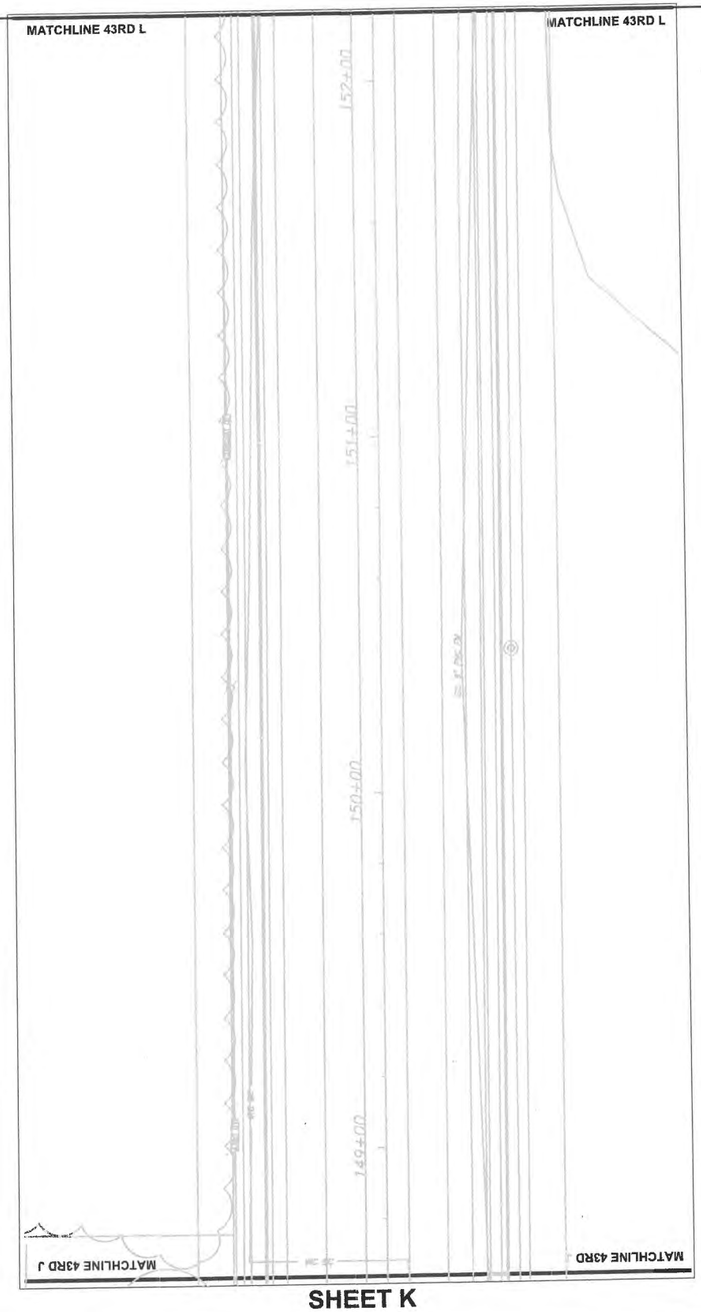
MATCHLINE 43RD I

MATCHLINE 43RD I

SHEET J

MATCHLINE 43RD L

MATCHLINE 43RD L

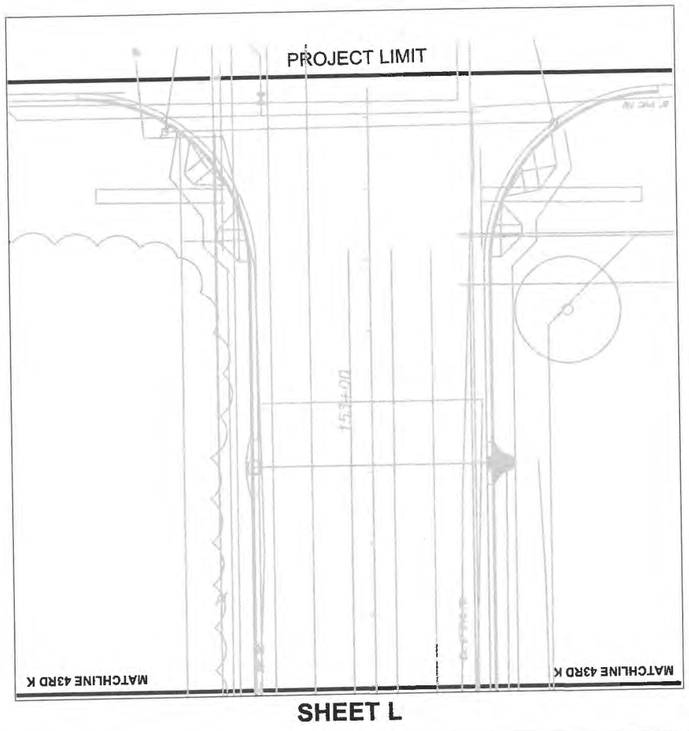


MATCHLINE 43RD J

MATCHLINE 43RD

SHEET K

PROJECT LIMIT



MATCHLINE 43RD K

MATCHLINE 43RD K

SHEET L

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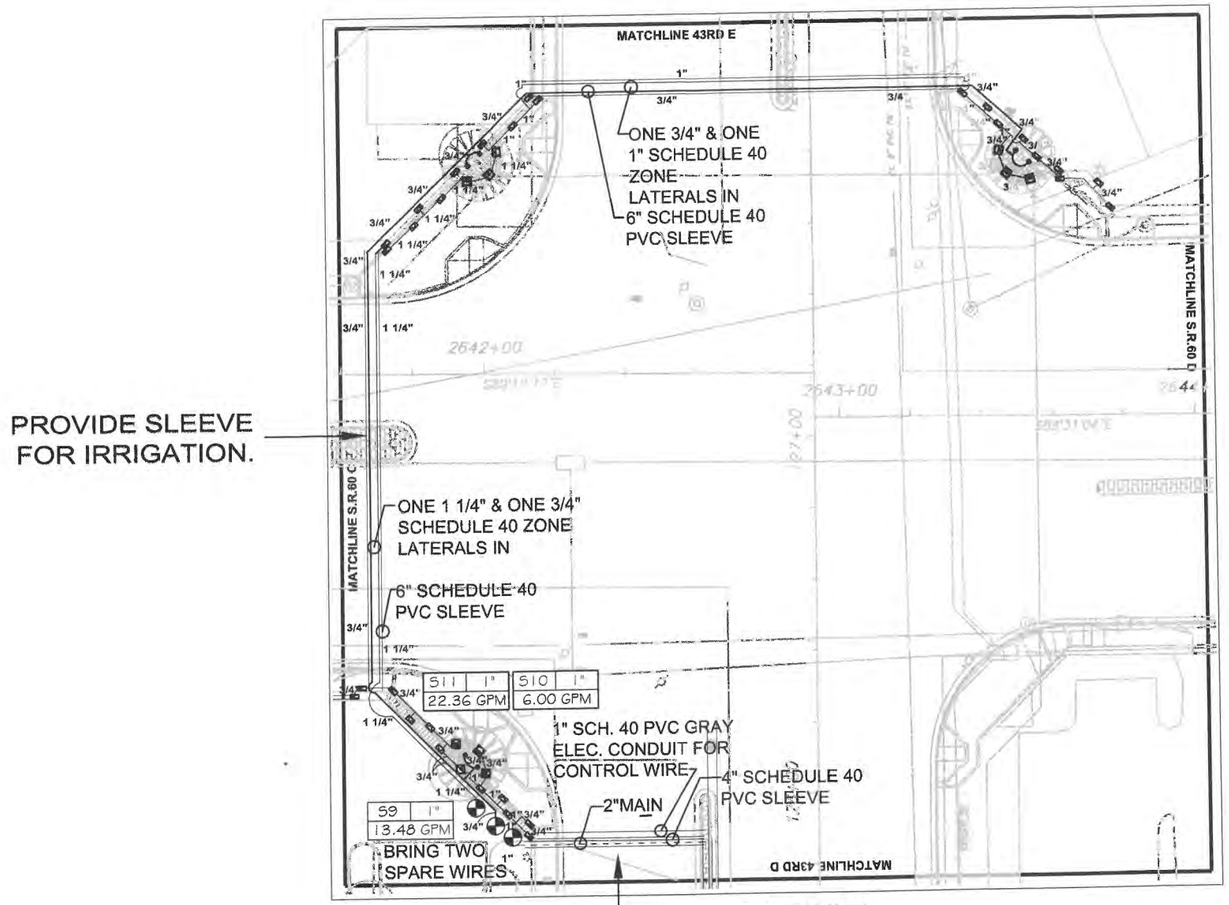
IRRIGATION PLAN
FOR
STATE ROUTE 60
&
43RD AVENUE

Sheet: IR-6

Of: IR-8
FDOT FIN:
431759-2-54-01

Project No.
IRC# 0512
LNW# WP1027



PROVIDE SLEEVE FOR IRRIGATION.

PROVIDE SLEEVES FOR IRRIGATION.

SHEET INT.

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IRRIGATION PLAN
FOR
STATE ROUTE 60
&
43RD AVENUE

Sheet: IR-7

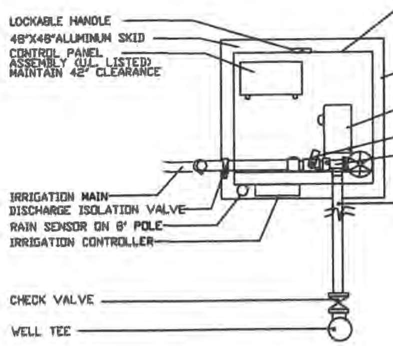
Of: IR-8
FDOT FIN: 431759-2-54-01
Project No. IRC# 0512 LNW# WP1027

NOTE: SUCTION PIPE SHALL BE SCHED 40 GALVANIZED STEEL WITH GALVANIZED ROLL GROOVE FITTINGS FROM THE PUMP TO THE WELL TEE. CHECK VALVES 3" AND LARGER SHALL BE SWING TYPE, 2" AND SMALLER SHALL BE POPPET STYLE

PROVIDE MINIMUM OF 4' CLEARANCE ON ALL SIDES OF PUMP SYSTEM

* OPTIONAL FEATURES ARE INCLUDED IF MARKED WITH AN "X"

___ PRESSURE CONTROL VALVE
X IRRIGATION CONTROLLER RAIN BIRD ESP-LX MODULAR 12 STATIONS, WITH RAIN SENSOR
___ PRESSURE TANK FOR PRESSURE DEMAND SYSTEMS



PLAN VIEW NTS

PUMP PERFORMANCE
25 GPM @ 120 TDH

HOOVER PUMPING MODEL: HCF-2CS-230/3-E-12.W
Pompano Beach, Florida, Tel: 954-971-7350

FILE PN11475.DWG 09/10

INDIAN RIVER COUNTY SR60 & 43RD
MEDIANS EAST, NORTH & SOUTH
CENTRIFUGAL PUMP SYSTEM DETAIL
FIBERGLASS ENCLOSED SINGLE WELL SUCTION
CLOCK START

ALTERNATE BID: QTY. THREE: CENTRIFUGAL PUMP STATIONS AND 2" WELLS

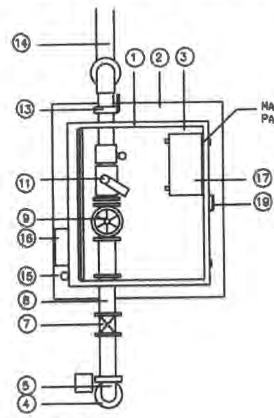
NOTE: DISCHARGE PIPES & HEADER TO IRRIGATION MAIN SHALL BE SCHED 40 GALVANIZED STEEL PIPE WITH GALV. ROLL GROOVE FITTINGS. PUMP DROP PIPE SHALL BE HDPE HEAT FUSED. SET PUMP 60' ON 2" PIPE. INSTALL MOTOR CABLE SPLICE BETWEEN MOTOR AND CONTROL PANEL IN NEMA 4X JUNCTION BOX ADJACENT TO WELL IN ACCORDANCE WITH ELECTRICAL CODES.

WELL DRILLER SHALL NOTIFY THE PUMP SYSTEM MANUFACTURER IN WRITING WITHIN 24 HOURS OF DEVELOPING THE WELL IF THE WELL PUMPING LEVEL IS GREATER THAN 30' BELOW FINISHED GRADE AFTER 8 HOURS OF CONTINUOUS PUMPING AT 125% OF THE DESIGN FLOW BELOW.

NOTE: PROVIDE MINIMUM OF 4' CLEARANCE ON ALL SIDES OF PUMP SYSTEM

* OPTIONAL FEATURES ARE INCLUDED IF MARKED WITH AN "X"

X PRESSURE CONTROL VALVE
X IRRIGATION CONTROLLER RAIN BIRD ESP-LX MODULAR 12 STATIONS, WITH RAIN SENSOR
___ PRESSURE TANK FOR PRESSURE DEMAND SYSTEMS



1 4' X 4' FIBERGLASS REINFORCED ENCLOSURE FOREST GREEN GELCOAT FINISH
2 REINFORCED CONCRETE PAD (4" THICK)
3 4' X 4' ALUMINUM SKID
4 WELL SEAL
5 WELL, JUNCTION BOX & DISCHARGE PIPE
6 SUBMERSIBLE PUMP MOTOR ASSEMBLY 3 HP (NOT SHOWN)
7 CHECK VALVE
8 GALV. STEEL DISCHARGE
9 CONTROL VALVE
10 N/A
11 FLOW SWITCH
12 N/A
13 DISCHARGE ISOLATION VALVE
14 IRRIGATION MAIN
15 RAIN SENSOR MOUNTED ON ENCLOSURE
16 IRRIGATION CONTROLLER
17 CONTROL PANEL ASSEMBLY UL LISTED MAINTAIN 42" CLEARANCE
18 N/A
19 LOCKABLE HANDLE

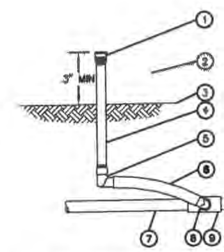
PLAN VIEW NTS

PUMP PERFORMANCE
25 GPM @ 158 TDH

HOOVER PUMPING MODEL: HSF-3CS-230/3-A,E-12,W FILE PN11476.DWG 09/10
Pompano Beach, Florida, Tel: 954-971-7350

INDIAN RIVER COUNTY SR60 & 43RD
MEDIANS EAST, NORTH & SOUTH
SUBMERSIBLE PUMP SYSTEM DETAIL
FIBERGLASS ENCLOSED SINGLE WELL SUCTION
CLOCK START

BASE BID: QTY. THREE: SUBMERSIBLE PUMP STATIONS AND 4" WELLS



1. 1.0 GPM PRESSURE COMPENSATING BUBBLER: RAIN BIRD 1404
2. TREE OR PALM MATERIAL
3. FINISH GRADE/TOP OF MULCH
4. UV RADIATION RESISTANT 1/2-INCH PVC SCH 80 NIPPLE (LENGTH AS REQUIRED)
5. 1/2-INCH FEMALE NPT x 0.490-INCH BARB ELBOW: RAIN BIRD MODEL SBFE-050
6. SWING PIPE, 12-INCH LENGTH: RAIN BIRD MODEL SP-100
7. PVC LATERAL PIPE
8. 1/2-INCH MALE NPT x .490-INCH BARB ELBOW: RAIN BIRD MODEL SBE-050
9. SCH 40 TEE OR ELL

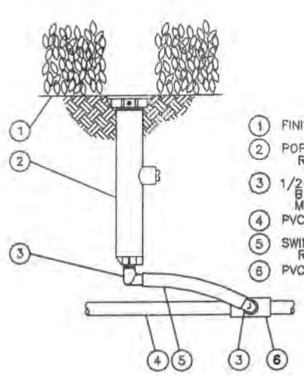
RAINBIRD PRESSURE COMPENSATING FLOOD BUBBLER

NOT TO SCALE

PAY ITEM #05090 1 IRRIGATION SYSTEM

HEAD SCHEDULE

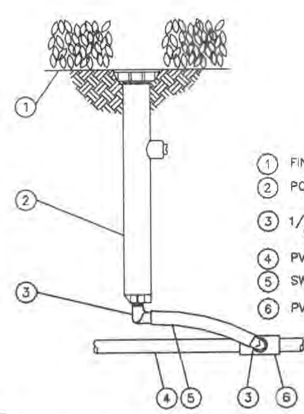
SYM	QTY	MODEL	NOZZLE	THEORETICAL (GPM)
		RAINBIRD 1806-8F 6" POP UP	8'-0" FULL CIRCLE	1.05
		RAINBIRD 1806-8H 6" POP UP	8'-0" HALF CIRCLE	0.52
		RAINBIRD 1806-8T 6" POP UP	8'-0" ONE-THIRD CIRCLE	0.35
		RAINBIRD 1806-8Q 6" POP UP	8'-0" QUARTER CIRCLE	0.26
		RAINBIRD 1806-10F 6" POP UP	10'-0" FULL CIRCLE	1.58
		RAINBIRD 1806-10H 6" POP UP	10'-0" HALF CIRCLE	0.79
		RAINBIRD 1806-10T 6" POP UP	10'-0" ONE-THIRD CIRCLE	0.53
		RAINBIRD 1806-10Q 6" PO UP	10'-0" QUARTER CIRCLE	0.39
		RAINBIRD 1806-12F 6" POP UP	12'-0" FULL CIRCLE	2.60
		RAINBIRD 1806-12TQ 6" POP UP	12'-0" THREE-QUARTER CIRCLE	1.95
		RAINBIRD 1806-12H 6" POP UP	12'-0" HALF CIRCLE	1.30
		RAINBIRD 1806-12T 6" POP UP	12'-0" ONE-THIRD CIRCLE	0.87
		RAINBIRD 1806-12Q 6" POP UP	12'-0" QUARTER CIRCLE	0.65
		RAINBIRD 1806-15F 6" POP UP	15'-0" FULL CIRCLE	3.70
		RAINBIRD 1806-15TQ 6" POP UP	15'-0" THREE-QUARTER CIRCLE	2.78
		RAINBIRD 1806-15H 6" POP UP	15'-0" HALF CIRCLE	1.85
		RAINBIRD 1806-15T 6" POP UP	15'-0" ONE-THIRD CIRCLE	1.23
		RAINBIRD 1806-15Q 6" POP UP	15'-0" QUARTER CIRCLE	0.92
		RAINBIRD 1806-15SST 6" POP UP	15'-0" SST	1.21
		RAINBIRD 1806-9SST 6" POP UP	9'-0" SST	1.73
		RAINBIRD 1806-15EST 6" POP UP	15'-0" EST	0.61
		RAINBIRD 1812-8H 12" POP UP	8'0" HALF CIRCLE	.52
		RAINBIRD 1812-10H 12" POP UP	10'0" HALF CIRCLE	0.7900
•		RAIN BIRD 1404 BUBBLER	PRESSURE COMPENSATING	1.0000



1. FINISH GRADE/TOP OF MULCH
2. POP-UP SPRAY SPRINKLER: RAIN BIRD 1812 W/MPR NOZZLES
3. 1/2-INCH MALE NPT x .490 INCH BARB ELBOW: RAIN BIRD MODEL SBE-050
4. PVC LATERAL PIPE
5. SWING PIPE, MIN. 18-INCH LENGTH: RAIN BIRD MODEL SP-100
6. PVC SCH 40 TEE OR ELL

RAINBIRD 1806 SERIES 6" POP-UP SPRAY HEAD

NOT TO SCALE

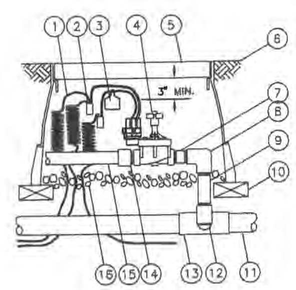


1. FINISH GRADE/TOP OF MULCH
2. POP-UP SPRAY SPRINKLER: RAIN BIRD 1812 W/MPR NOZZLES
3. 1/2-INCH MALE NPT x .490 INCH BARB ELBOW: RAIN BIRD MODEL SBE-050
4. PVC LATERAL PIPE
5. SWING PIPE, MIN. 18-INCH LENGTH: RAIN BIRD MODEL SP-100
6. PVC SCH 40 TEE OR ELL

NOTE:
WITHIN THE PLANT MATERIAL THE HEAD BODY TOP MAY BE ABOVE GRADE MAX. 5" AND/OR USE MAX. TWO RAINBIRD 1800-EXT EXTENTONS AS NEEDED TO RISE ABOVE PLANT MATERIAL

RAINBIRD 1812 SERIES 12" POP-UP SPRAY HEAD

NOT TO SCALE



1. 30-INCH LINEAR LENGTH OF WIRE, COILED
2. WATERPROOF CONNECTION RAIN BIRD SPLICE-1 (1 OF 2)
3. ID TAG: RAIN BIRD VID SERIES
4. REMOTE CONTROL VALVE: 1" RAIN BIRD PESB
5. VALVE BOX WITH COVER: AMETEK/ARMOR 12" X 16" RECTANGULAR
6. FINISH GRADE/TOP OF MULCH
7. PVC SCH 80 NIPPLE (CLOSE)
8. PVC SCH 40 ELL
9. PVC SCH 80 NIPPLE (LENGTH AS REQUIRED)
10. BRICK (1 OF 4)
11. PVC MAINLINE PIPE
12. SCH 80 NIPPLE (2-INCH LENGTH, HIDDEN) AND SCH 40 ELL
13. PVC SCH 40 TEE OR ELL
14. PVC SCH 40 MALE ADAPTER
15. PVC LATERAL PIPE
16. 3.0-INCH MINIMUM DEPTH OF 3/4-INCH WASHED GRAVEL

RAINBIRD PESB ELECTRIC REMOTE CONTROL ZONE VALVE

NOT TO SCALE

IRRIGATION NOTES

THE CONTRACTOR SHALL MAKE ALL ADJUSTMENTS TO THE PROPOSED IRRIGATION SYSTEM TO ENSURE 100% COVERAGE.

THE CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT OF ANY MAJOR DISCREPANCIES IMMEDIATELY.

THE CONTRACTOR SHALL PROVIDE FULL SIZE "AS BUILT" DRAWINGS AND A REDUCED SIZE COPY WITH COLOR CODED ZONES SHOWING EACH ZONE AND IT'S LIMITS, IN A WATERPROOF CLEAR SHEET PROTECTOR TO BE STORED IN CONTROLLER ENCLOSURE.

ALL SPRAY HEADS SHALL BE RAINBIRD 1800 SERIES (OR APPROVED EQUAL,) AND MUST BE INSTALLED WITH THE RECOMMENDED RAINBIRD FILTER/SCREENS INSERTED BELOW NOZZLES.

ALL ROTOR HEADS SHALL BE THE RAINBIRD 5000 SERIES (OR APPROVED EQUAL,) AND MUST BE INSTALLED WITH THE MANUFACTURER'S NOZZLES TO PROVIDE 100% COVERAGE.

ALL BUBBLER HEADS ARE TO BE RAINBIRD PRESSURE COMPENSATING FLOOD BUBBLERS MODEL NO. 1404 (OR APPROVED EQUAL.)

WHEN LOCATING ONE VALVE BOX NEXT TO ANOTHER, THERE SHALL BE A MIN. OF 24" SEPARATION FOR SOD TO GROW BETWEEN. VALVE BOXES SHALL BE ARRANGED IN A NEAT, ORDERLY STRAIGHT FASHION.

MAIN LINE PIPES ARE TO BE SCHEDULE 40 SOLVENT WELD WITH SCHEDULE 80 SOLVENT WELD PVC FITTINGS. SEE SPECS SECTION 02810 FOR BURIAL DEPTH DETAILS.

ZONE LATERAL PIPES ARE TO BE SCHEDULE 40 SOLVENT WELD PVC PIPE PER CODE AND SHALL NOT EXCEED A VELOCITY 5 F.P.S. SEE SPECS SECTION 02810 FOR BURIAL DEPTH DETAILS.

THE CONTROLLERS ARE TO BE THE RAINBIRD ESP-LX MODULAR MOUNTED ON THE PUMP STATION ENCLOSURE. PROVIDE ALTERNATE BID/QUOTE FOR "RAINBIRD ET MANAGEMENT" CARTRIDGE INSTALLATION AND SETUP.

ALL CONTROL WIRING SHALL BE A (MIN.) AWG SIZE 14 WIRE, AND ALL GROUND WIRES SHALL BE A (MIN.) AWG SIZE 12 WIRE. SEPARATE WIRING SHALL BE PROVIDED TO EACH VALVE AND LABELED AS STATED ABOVE (SEE SPECS SECTION 02810 FOR SPARE DETAILS.)

THE PUMP STATION IS TO INCLUDE A 3 HP SUBMERSIBLE PUMP W/ ENCLOSURE BY HOOVER PUMP SYSTEMS. A CONCRETE PAD, ALUMINUM SKID, CONTROL PANEL, CONTROLLER, RAIN SENSOR AND ALL OTHER EQUIPMENT PER THE DETAILS SHALL BE INSTALLED CONNECTED TO A 4" SCREENED WELL TO APPROXIMATELY 100' WITH A MIN. OF 20' OF SCREEN.

PROVICE ALTERNATE BID/QUOTE FOR THE 2 HP CENTRIFUGAL HOOVER PUMPING SYSTEMS PUMP STATION CONNECTED TO A 2" WELL TO APPROXIMATELY 100' WITH A MIN. OF 20' OF SCREEN.

PROVIDE LIGHTNING RODS PER MANUFACTURER'S RECOMMENDATIONS.

ALL WORK WITHIN THE SCOPE OF THESE PLANS SHALL BE IN ACCORDANCE WITH ALL GOVERNING LAWS, CODES, AND AGENCIES. (ROY-FISHER ASSOCIATES, INC. IS NOT RESPONSIBLE FOR ACQUISITION OF WATER USE PERMITTING OR ANY OTHER PERMITTING REQUIREMENTS REGARDING THE INSTALLATION OF THIS SYSTEM.)

THESE DRAWINGS ARE NOT COMPLETE UNLESS ACCOMPANIED BY WRITTEN SPECIFICATIONS SECTION NO. 02810 "UNDERGROUND IRRIGATION SYSTEM" AND SECTION 02731 "IRRIGATION WELL."

IRRIGATION LEGEND

2" SCHEDULE 40 SPLVENT WELD PVC MAIN WITH SCHEDULE 80 SOLVENT WELD PVC FITTINGS

SCHDULE 40 SOLVENT WELD SPRAY ZONE LATERALS WITH SCHEDULE 40 SOLVENT WELD FITTINGS

SCHEDULE 40 SOLVENT WELD BUBBLER ZONE LATERALS WITH SCHEDULE 40 SOLVENT WELD FITTINGS

SCHEDULE 40 SOLVENT WELD PVC SLEEVES

1" RAINBIRD PESB 24V ELECTRIC REMOTE CONTROL VALVE INSTALLED PER THE DETAILS

N4 | 1" | 27.94GPM — PUMP / STATION NUMBER, ZONE VALVE SIZE, ZONE DEMAND

P / C — QTY. THREE PRE-FAB HOOVER PUMPING MODEL HSF-3CS-230/3-A,E-12,W 3 H.P.SUBMERSIBLE PUMP STATION BY HOOVER PUMPING SYSTEMS, INC. WITH CONCRETE PADS, ALUMINUM SKIDS, FIBERGLASS ENCLOSURES AND ALL OTHER EQUIPMENT PER THE DETAIL INCLUDING RAINBIRD ESP-LX MODULAR IRRIGATION CONTROLLERS AND RAIN SENSORS TO CODE.

PROVIDE ALTERNATE BID: TO PROVIDE, INSTALL, AND SETUP RAINBIRD "ET MANAGER" CARTRIDGES FOR EACH CONTROLLER TO CONVERT THEM TO SMART/ET WEATHER BASED CONTROLLERS.

DETERMINE, COORDINATE AND PROVIDE ELECTRICAL POWER SERVICES FOR EACH PUMP STATION WITH ALL NECESSARY ROAD CROSSINGS, SLEEVES, METER CANS, DISCONNECTS AND ALL NECESSARY EQUIPMENT TO CODE PERFORMED BY A LICENSED ELECTRICAL CONTRACTOR. VERIFY VOLTAGE AND PHASE. IF THREE PHASE POWER IS NOT AVAILABLE USE SINGLE PHASE PUMP MOTORS.

GB310 / LC26000269
ARCADIS
ARCADIS G&M, INC.
2081 Vista Parkway
West Palm Beach, Florida 33411
Tel: (561) 697-7000 Fax: (561) 697-7191
www.arcadis-us.com
EB7917 / LB7062

(561) 747-3462
www.studio-sprout.com
LA 0000907
LCC 000213
studio Sprout

No:	Revision:	By:	Date:
01	Revisions	CRF	03.02.18
02	Revisions	CRF	12.13.18

INDIAN RIVER COUNTY FLORIDA

Department of Public Works
Engineering Division

Scale: 1"=40'-0"
Approved: CRF
Drawn: JLD
Checked: CRF
Date: 11/11/17
Field Book No:

Project: 100%
IRRIGATION LEGEND & DETAILS
FOR
STATE ROUTE 60
&
43RD AVENUE

Sheet: IR-8
Of: IR-8
FDOT FIN: 431759-2-54-01
Project No. IRC# 0512
LNW# WP1027

INDIAN RIVER COUNTY
BOARD OF COUNTY COMMISSIONERS

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

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

PROJECT MANAGER:
WILLIAM JOHNSON, P.E.

STATE ROUTE 60
WIDENING, MILL & RESURFACE
FROM 44TH AVENUE TO 38TH AVENUE
&
43RD AVENUE
RECONSTRUCTION
FROM 19TH STREET TO 26TH STREET

VICINITY MAP

LOCATION MAP

INDEX OF SHEETS

ROADWAY PLANS

BRIDGE PLANS

F.D.O.T. INDEX NO.

423	TRAFFIC RAILING BARRIER - (32" VERTICAL SHAPE) INDEX NO. 423 (SHEETS 1 - 3)
822	ALUMINUM PEDESTRIAN/BICYCLE BULLET RAILING DETAILS INDEX NO. 822 (SHEETS 1 - 2)
20120	AASHTO TYPE II BEAM - INDEX NO. 20120 (SHEETS 1 - 4)
20510	COMPOSITE ELASTOMERIC BEARING PADS - PRESTRESSED FLORIDA I AND AASHTO TYPE II BEAM INDEX NO. 20510 (SHEET 1)
20511	BEARING PLATES (TYPE I) - PRESTRESSED FLORIDA I AND AASHTO TYPE II BEAM INDEX NO. 20511 (SHEET 1 - 2)
20600	NOTES AND DETAILS FOR SQUARE PRESTRESSED CONCRETE PILES - INDEX NO. 20600
20601	SQUARE PRESTRESSED CONCRETE PILE SPLICES - INDEX NO. 20601
20618	18" SQUARE PRESTRESSED CONCRETE PILE - INDEX NO. 20618
D20930	APPROACH SLABS (20 FT.) (RIGID PAVEMENT APPROACHES INDEX NO. D20930 (DRAWING 1 OF 2)
D20930	APPROACH SLABS (20 FT.) (RIGID PAVEMENT APPROACHES INDEX NO. D20930 (DRAWING 2 OF 2)

FDOT FPN# 431759-2-54-01

THESE PLANS HAVE BEEN PREPARED IN ACCORDANCE WITH AND ARE GOVERNED BY THE STATE OF FLORIDA, DEPARTMENT OF TRANSPORTATION, DESIGN STANDARDS. (BOOKLET DATED JANUARY, 2004)

GOVERNING SPECIFICATIONS:
THE FLORIDA DEPARTMENT OF TRANSPORTATION, STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, DATED 2004, AND SPECIAL PROVISIONS THERETO IF IN 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 1/2/2019 PROFESSIONAL ENGINEER

BRIAN C. RHEAULT LICENSE NO. 38797 STATE OF FLORIDA PROFESSIONAL ENGINEER

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

BRIDGE DESIGN ASSOCIATES, INC.
1402 Royal Palm Beach Blvd, Bldg. 200, Royal Palm Beach, FL 33411
Tel. (561) 686-3660 Fax (561) 791-1995
CONSULTING ENGINEERS
FLORIDA E.B. NO. 4952

NO.	REVISION	DATE	BY

Department of Public Works
Engineering Division

Scale: AS NOTED
Approved:
Drawn: C.A.B.
Checked: B.C.R.
Date: 07/15/15
Field Book No:

PROJECT:
Proposed Concrete Bridge for:
43rd Avenue over Main Relief Canal
Indian River County, Florida

SEAL
Brian C. Rheault # 38797
FLORIDA P.E. NAME & NUMBER

SHEET
B-1
PROJECT NO.
05-609B

DATE: Jan 02, 2019 - 4:54pm S:\2005-jobs\05-609b 43rd avenue at main relief canal\07 structural dwgs\CADD\B1-COVER.dwg

SUMMARY OF QUANTITIES

ITEM NO.	ITEM	NO. REQUIRED	UNIT	QUANTITY	AS BUILT
	BRIDGE				
101-1	MOBILIZTION		L.S.	1	
	(BRIDGE)				
01-013	DEMOLITION & REMOVAL OF EXISTING BARRIERS, RAILINGS, SLAB, AND 4 WING WALLS AS REQUIRED AND DEBRIS PILES AND GUARDRAILS		L.S.	1	
	(SUPERSTRUCTURE)				
450-1-2	PRESTRESSED BEAMS TYPE II (43'-2 3/4" LONG)	18	L.F.	778'-1 1/2"	
400-2-4	CLASS II CONCRETE FOR BRIDGE DECK AND DIAPHRAGMS		C.Y.	144.0	
415-1-4	REINFORCING STEEL FOR BRIDGE DECK AND DIAPHRAGMS		LBS.	44,548	
400-148-10	CONCRETE TRAFFIC RAILING BARRIER (32" VERTICAL SHAPE)		L.F.	348'-8"	
460-70-2	ALUMINUM PEDESTRIAN BARRIER RAILING		L.F.	348'-8"	
440-7	BRIDGE FLOOR GROOVING		S.Y.	523.0	
400-147	COMPOSITE NEOPRENE PADS		C.F.	1.64	
	(SUBSTRUCTURE)				
400-2-4	CLASS II CONCRETE FOR PILES CAPS, PEDESTALS, AND SEISMIC BLOCKS		C.Y.	60	
415-1-5	REINFORCING STEEL FOR PILES CAPS, PEDESTALS, AND SEISMIC BLOCKS		LBS.	16,156	
455-3-2	PRESTRESSED PILES				
	18" SQUARE x 65'-0" MINIMUM (TEST PILE)	2 EACH	L.F.	130'-0"	
	18" SQUARE x 50'-0" MINIMUM (END BENTS)	11 EACH	L.F.	550'-0"	
	18" SQUARE x 50'-0" MINIMUM (WING BENTS)	2 EACH	L.F.	100'-0"	
	18" SQUARE x 50'-0" MINIMUM (INTERMEDIATE BENTS INCLUDING DEBRIS PILES)	13 EACH	L.F.	620'-0"	
455-137	PDA TESTING		EACH	2	
	(SIDEWALKS AND MEDIAN)				
400-2-4	CLASS II CONCRETE		C.Y.	98.0	
415-1-4	REINFORCING STEEL		LBS.	2,824	
	(APPROACH SLAB EXTENSIONS)				
400-2-10	CLASS II CONCRETE FOR APPROACH SLABS		C.Y.	62	
415-1-9	REINFORCING STEEL FOR APPROACH SLABS		LBS.	12,170	
530-4-6	(REVETMENT MAT) (CANAL EXCAVATION AS REQUIRED SHALL BE INCLUDED) INCLUDING REMOVAL OF EXISTING TO PLACE NEW END BENTS		S.F.	2,934	
715-2117	4" PVC CONDUIT		L.F.	1,400	

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

J:\5-jobs\05-609b 43rd avenue at main relief canal\07 structural dwgs\CADD\B2-SUMMARY.dwg

DATE: Jan 18, 2019 - 9:33am

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

BRIDGE DESIGN ASSOCIATES, INC.
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Tel. (561) 686-3660 Fax (561) 791-1995
CONSULTING ENGINEERS
FLORIDA E.B. NO. 4952

NO.	REVISION	DATE	BY

INDIAN RIVER COUNTY FLORIDA

Department of Public Works
Engineering Division

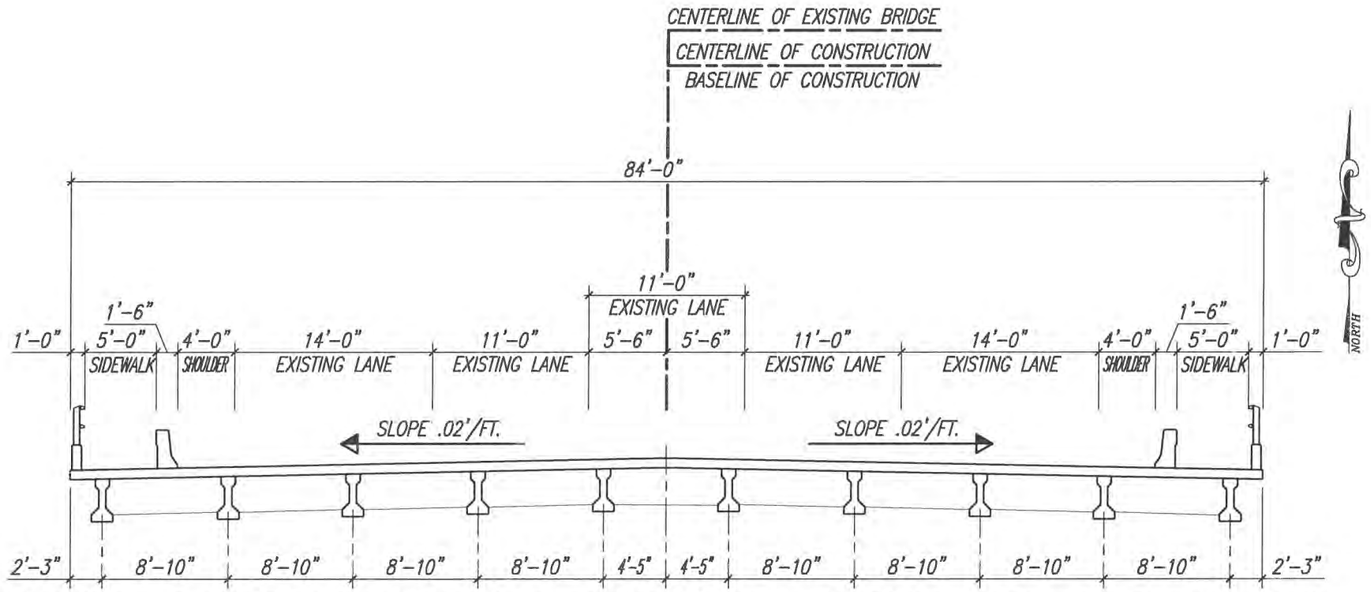
Scale: AS NOTED
Approved:
Drawn: C.A.B.
Checked: B.C.R.
Date: 07/15/15
Field Book No:

PROJECT:
Proposed Concrete Bridge for:
43rd Avenue over Main Relief Canal
Indian River County, Florida

SEALED
No 38797
STATE OF FLORIDA
Brian C. Rheault - 38797
FLORIDA P.E. NAME & NUMBER

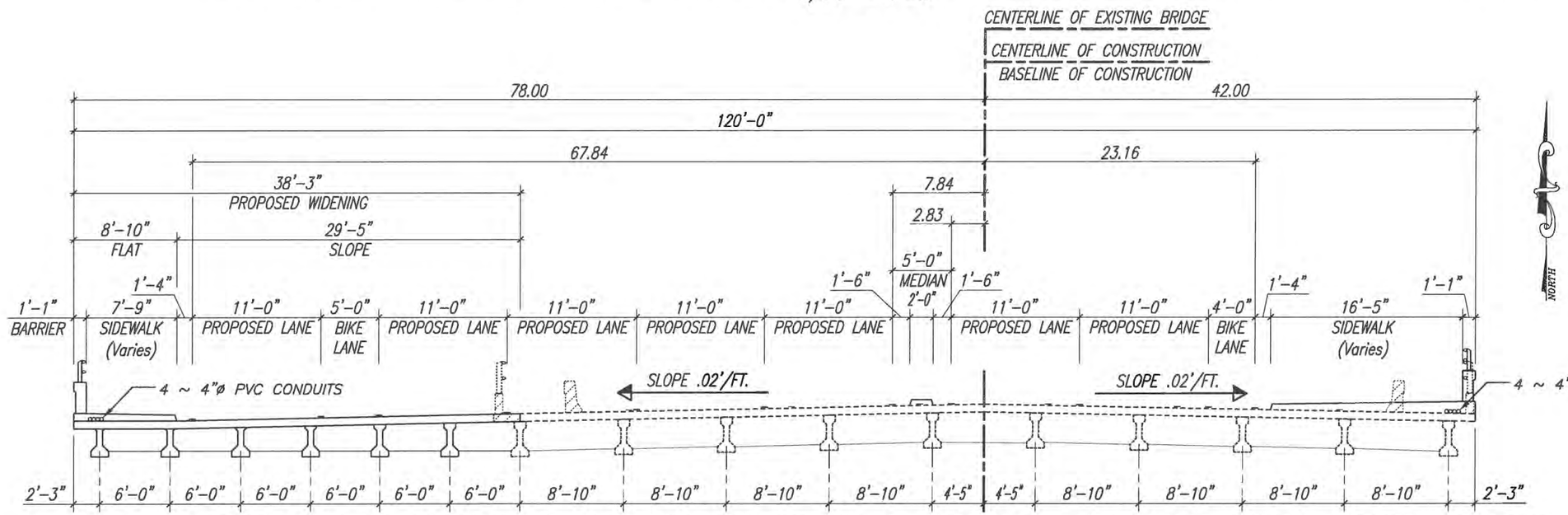
BRIAN CLARENCE RHEAULT LICENSE NUMBER 38797 STATE OF FLORIDA PROFESSIONAL ENGINEER

SHEET
B-2
PROJECT NO.
05-609B



EXISTING BRIDGE CROSS SECTION @ BEGIN BRIDGE STA. 129+62.455

3/16" = 1'-0"



PROPOSED BRIDGE CROSS SECTION @ BEGIN BRIDGE STA. 129+62.455

3/16" = 1'-0"

DATE: Jan 02, 2019 - 4:54pm S:\2005-jobs\05-609b 43rd avenue at main relief canal\07 structural dwgs\CADD\B3a-PROPSECT.dwg

VERIFY SCALE

1"

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BRIDGE DESIGN ASSOCIATES, INC.
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CONSULTING ENGINEERS
FLORIDA E.B. NO. 4952

NO.	REVISION	DATE	BY

INDIAN RIVER COUNTY FLORIDA

Department of Public Works
Engineering Division

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PROJECT:
Proposed Concrete Bridge for:
43rd Avenue over Main Relief Canal
Indian River County, Florida

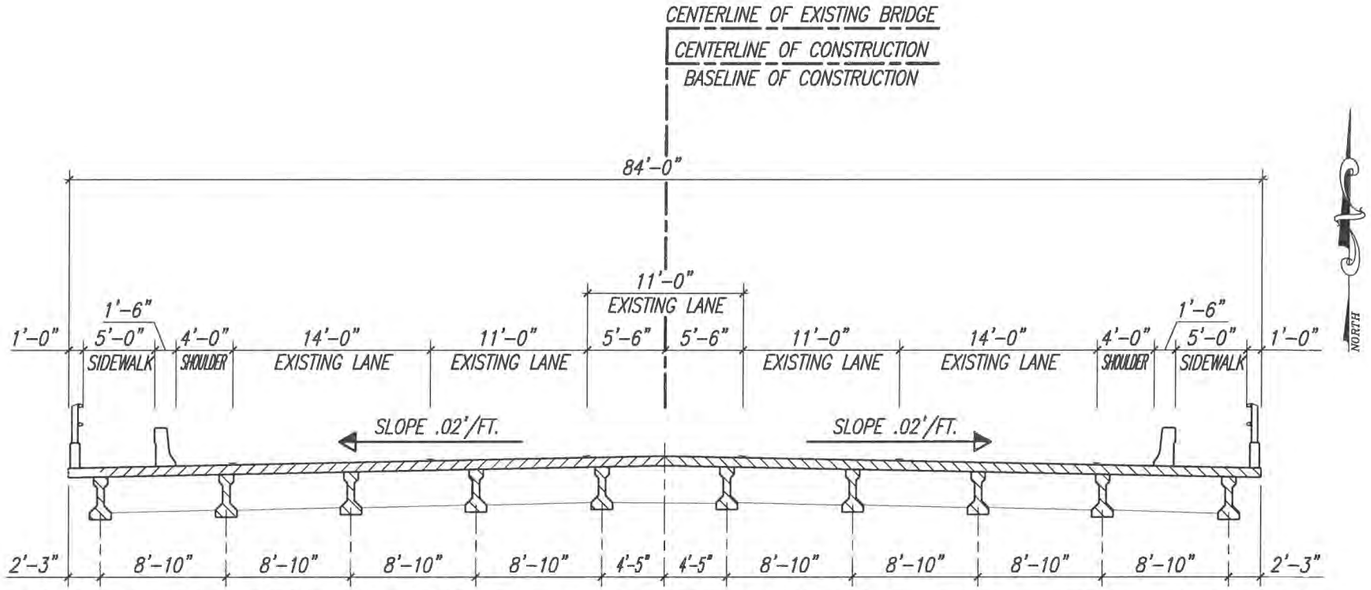
BRIAN CLARENCE RHEAULT LICENSE No 38797 STATE OF FLORIDA PROFESSIONAL ENGINEER

SEAL

Brian C. Rheault - 38797
FLORIDA P.E. NAME & NUMBER

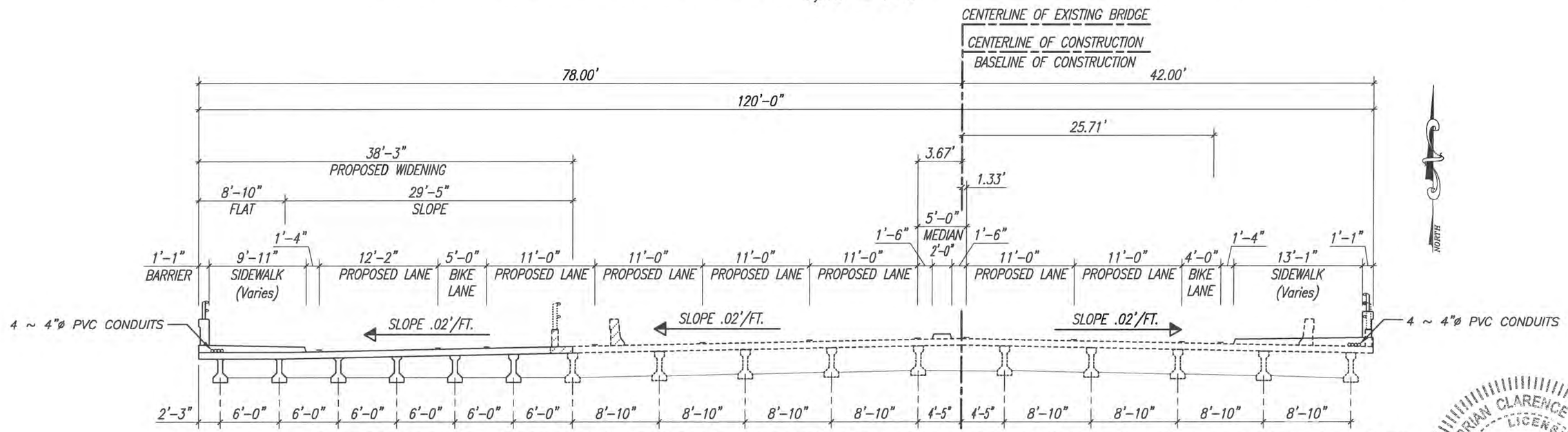
SHEET
B-3a

PROJECT NO.
05-609B



EXISTING BRIDGE CROSS SECTION @ END BRIDGE STA. 130+94.455

3/16" = 1'-0"



PROPOSED BRIDGE CROSS SECTION @ END BRIDGE STA. 130+94.455

3/16" = 1'-0"

DATE: Jan 02, 2019 – 4:54pm S:\2005-jobs\05-609b 43rd avenue at main relief canal\07 structural dwgs\CADD\B3b-PROPSECT.dwg

VERIFY SCALE

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FLORIDA E.B. NO. 4952

NO.	REVISION	DATE	BY

INDIAN RIVER COUNTY, FLORIDA

Department of Public Works
Engineering Division

Scale:	AS NOTED
Approved:	
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Checked:	B.C.R.
Date:	07/15/15
Field Book No:	

PROJECT:

Proposed Concrete Bridge for:

43rd Avenue over Main Relief Canal

Indian River County, Florida

BRIAN CLARENCE RHEAULT LICENSE No 38797 STATE OF FLORIDA

SEAL

Brian C. Rheault – 38797

FLORIDA P.E. NAME & NUMBER

SHEET NO.

B-3b

PROJECT NO.

05-609B

GENERAL NOTES

GENERAL SPECIFICATIONS:

Florida Department of Transportation Standard Specification for Road and Bridge Construction (2015 Edition) and Supplements thereto.

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 Manual with current interims.
F.D.O.T. Plans and Preparation Manual January 2015.

DESIGN LOADING:

Live Load:
HL-93 with Dynamic Load Allowance
Dead Load:

32" F Shape Traffic Railing	420 p.l.f.
Reinforced Concrete	150 p.c.f.
Lightweight Reinforced Concrete	110 p.c.f.
Future Wearing Surface	15 p.s.f.
Median	150 p.l.f.
Sidewalk	900 p.l.f. (WEST) 1220 p.l.f. (EAST)
Stay in Place Metal Forms	20 p.s.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 (Lightweight)	fc' = 3.4	Sidewalks and Median
Class II	fc' = 3.4	Traffic Barriers
Class IV	fc' = 5.5	Cast-in-place Pile Caps and Sheet Piles and Diaphragms
Class II (Bridge Deck)	fc' = 4.5	Cast-in-place Bridge Deck and Approach Slabs
Class IV	fc' = 5.5	Prestressed Concrete Beams
Class V (Special)	fc' = 6.0	Prestressed Concrete Piles

CONCRETE:

1. Provide 3/4 inch chamfers on all exposed edges and corners except as otherwise noted.
2. Construction joints will be permitted only at the locations indicated on the plans, additional construction joints or alterations to those shown will require approval by the engineer.

REINFORCEMENT:

1. 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.
2. All dimensions pertaining to location of reinforcing are to centerline of bars except where the clear dimension is shown to face of concrete.
3. 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.

CIP Substructure/Sheet Walls, Precast Facade = 3 in.

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 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-9 for Pile Loads.

PILES:

18 inch square Prestressed Concrete Piles.

SURFACE FINISH:

All exposed surfaces of end bent wing walls and barriers shall receive a "Class 5 applied finish coating".

ENVIRONMENT:

Location:	Inland
Superstructure:	Slightly Aggressive
Substructure:	Moderately Aggressive, controlling criteria: Water Ressistivity = 2,000 (ohm-cm

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 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 4000 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.

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.

MISCELLANEOUS NOTES

1. Floating Turbidity Barrier with fine mesh shall be used in accordance with F.D.O.T. Standard Specifications, Section 104.

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.

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.

STAY IN PLACE METAL FORMS:

Design includes allowance for 20 lb./ft . over the projected plan area of the metal forms for the unit weight of metal forms and concrete required to fill the forms flutes.

SCREEDING DECK SLABS:

The riding surface of the bridge deck shall be screeded to finish grade elevations which already include allowance for permanent camber.

DESIGN SPEED:

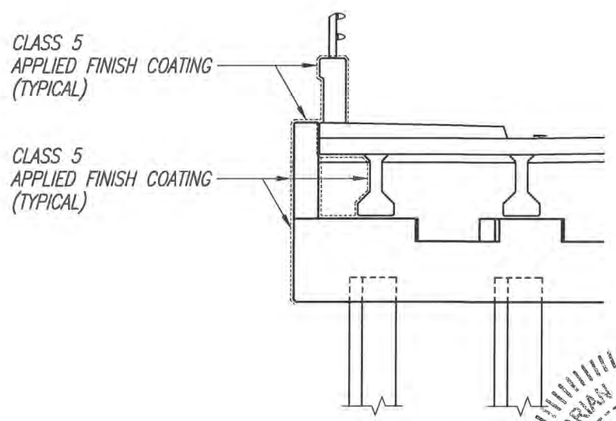
See Roadway Plans.

UTILITIES:

The underground utilities shown in the bridge plans are at approximate locations. For additional information refer to Roadway Plans. All involved utilities shall be verified by the contractor prior to starting work. The Contractor shall notify all involved utility companies prior to excavation, pile driving, or construction and shall be responsible for making its own determination to avoid damage. Any required relocation of existing utilities shall be done by others. Contractor shall assure that active utilities are properly maintained during construction.

MAINTENANCE OF TRAFFIC:

For Maintenance of Traffic, See Roadway Plans..



END BENTS

SURFACE FINISH DETAILS

BRIAN CLARENCE RHEAULT LICENSE No 38797 STATE OF FLORIDA PROFESSIONAL ENGINEER

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

BRIDGE DESIGN ASSOCIATES, INC.
1402 Royal Palm Beach Blvd, Bldg. 200, Royal Palm Beach, FL 33411
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CONSULTING ENGINEERS
FLORIDA C.A. NO. 4952

NO.	REVISION	DATE	BY

Department of Public Works
Engineering Division

Scale: AS NOTED
Approved:
Drawn: C.A.B.
Checked: B.C.R.
Date: 07/15/15
Field Book No:

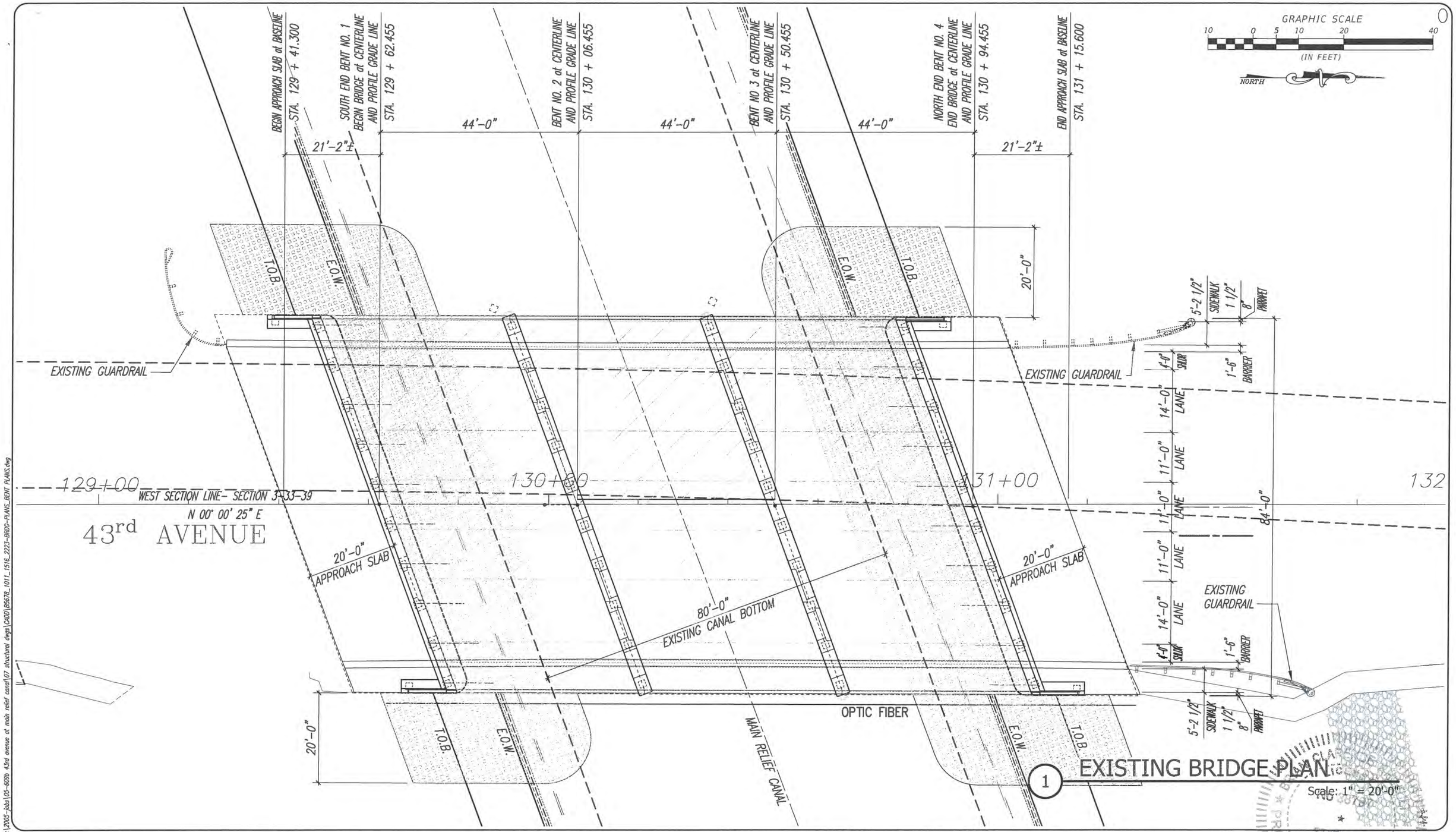
PROJECT:
Proposed Concrete Bridge for:
43rd Avenue over Main Relief Canal
Indian River County, Florida

SEAL
Brian C. Rheault - 38797
FLORIDA P.E. NAME & NUMBER

SHEET
B-4

PROJECT NO.
05-609B

DATE: Jan 02, 2019 - 4:54pm S:\2005-jobs\05-609b 43rd avenue at main relief canal\07 structural dwgs\CADD\B4-NOTES.dwg



1 EXISTING BRIDGE PLAN

Scale: 1" = 20'-0"

DATE: Jan 02, 2019 - 4:35pm S:\2005-Jobs\05-609b 43rd avenue at main relief canal\07 structural dwgs\CADD\B5678_101_1516_2223-BRDG-PLANS_BENT PLANS.dwg

VERIFY SCALE
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BRIDGE DESIGN ASSOCIATES, INC.
1402 Royal Palm Beach Blvd, Bldg. 200, Royal Palm Beach, FL 33411
Tel. (561) 686-3660 Fax (561) 791-1995
CONSULTING ENGINEERS
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Indian River County, Florida

SEAL
Brian C. Rheault - 38797
FLORIDA P.E. NAME & NUMBER

SHEET
B-5

PROJECT NO.
05-609B

STABILIZED AREAS (TYP.)

46'-2"

E.O.W.

STA. 129 + 41.300
BEGIN APPROACH SLAB at BASELINE

STA. 129 + 62.455
SOUTH END BENT NO. 1
BEGIN BRIDGE at CENTERLINE AND PROFILE GRADE LINE

BENT NO. 2 at CENTERLINE AND PROFILE GRADE LINE
STA. 130 + 06.455

38'-9 3/4"

BENT NO 3 at CENTERLINE AND PROFILE GRADE LINE
STA. 130 + 50.455

NORTH END BENT NO. 4
END BRIDGE at CENTERLINE AND PROFILE GRADE LINE
STA. 130 + 94.455

END APPROACH SLAB at BASELINE
STA. 131 + 15.600

20'-0"
1'-1" BARRIER
1'-4"
7'-9" SIDEWALK
11'-0" LANE
5'-0" BIKE LANE
11'-0" LANE
11'-0" LANE
11'-0" LANE
5'-0" MEDIAN
11'-0" LANE
11'-0" LANE
4'-0" BIKE LANE
1'-4"
16'-5" SIDEWALK
1'-1" BARRIER

21'-2"±
44'-0"
44'-0"
42'-2 1/2"
44'-0"
21'-2"±
20'-0"
38'-4"
38'-3"

EXISTING DEBRIS PILES TO BE REMOVED

PROPOSED WIDENING

2" PVC WM

EX. 12" PVC WM

EXISTING GUARDRAIL TO BE REMOVED

EXISTING BARRIER, PARAPET AND RAILING TO BE REMOVED

EXISTING GUARDRAIL TO BE REMOVED

20°24'40"

150'-0"

120'-0"

110°24'40"
69°35'20"
69°35'20"
41'-3"
69°35'20"
41'-3"

129+00
130+00
131+00
132

WEST SECTION LINE
SECTION 3-33-39
N 00° 00' 25" E

20'-0" APPROACH SLAB

41'-3"
80'-0"
EXISTING CANAL BOTTOM
41'-3"

20'-0" APPROACH SLAB

150'-0"

VARIES ~9'-11"
VARIES 12'-2"
VARIES 13'-1"

NORTH R/W LINE

2" PVC WM

EX. 8" C.I. WM

CENTERLINE OF EXISTING BRIDGE

BASELINE OF SURVEY

EXISTING GUARDRAIL TO BE REMOVED

COMCAST OF

UG CABLE TV

SOUTH R/W LINE

5' U.E.

2" PVC FM

20'-0" EXISTING REVETMENT

EXISTING BARRIER, PARAPET AND RAILING TO BE REMOVED

MAIN RELIEF CANAL

OPTIC FIBER

T.O.B.

E.O.W.

T.O.B.

E.O.W.

1 PROPOSED BRIDGE PLAN
Scale: 1" = 20'-0"

GRAPHIC SCALE
10 0 5 10 20 40
(IN FEET)
NORTH

DATE: Jan 02, 2019 - 4:55pm S:\2005-jobs\05-609b 43rd avenue at main relief canal\07 structural dwgs\CADD\B567B_1011_1516_2223-BRDG-PLANS_BENT PLANS.dwg

VERIFY SCALE
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1402 Royal Palm Beach Blvd, Bldg 100, Royal Palm Beach, FL 33411
Tel. (561) 686-3660 Fax (561) 791-1995
CONSULTING ENGINEERS
FLORIDA E.B. NO. 4952

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Department of Public Works
Engineering Division

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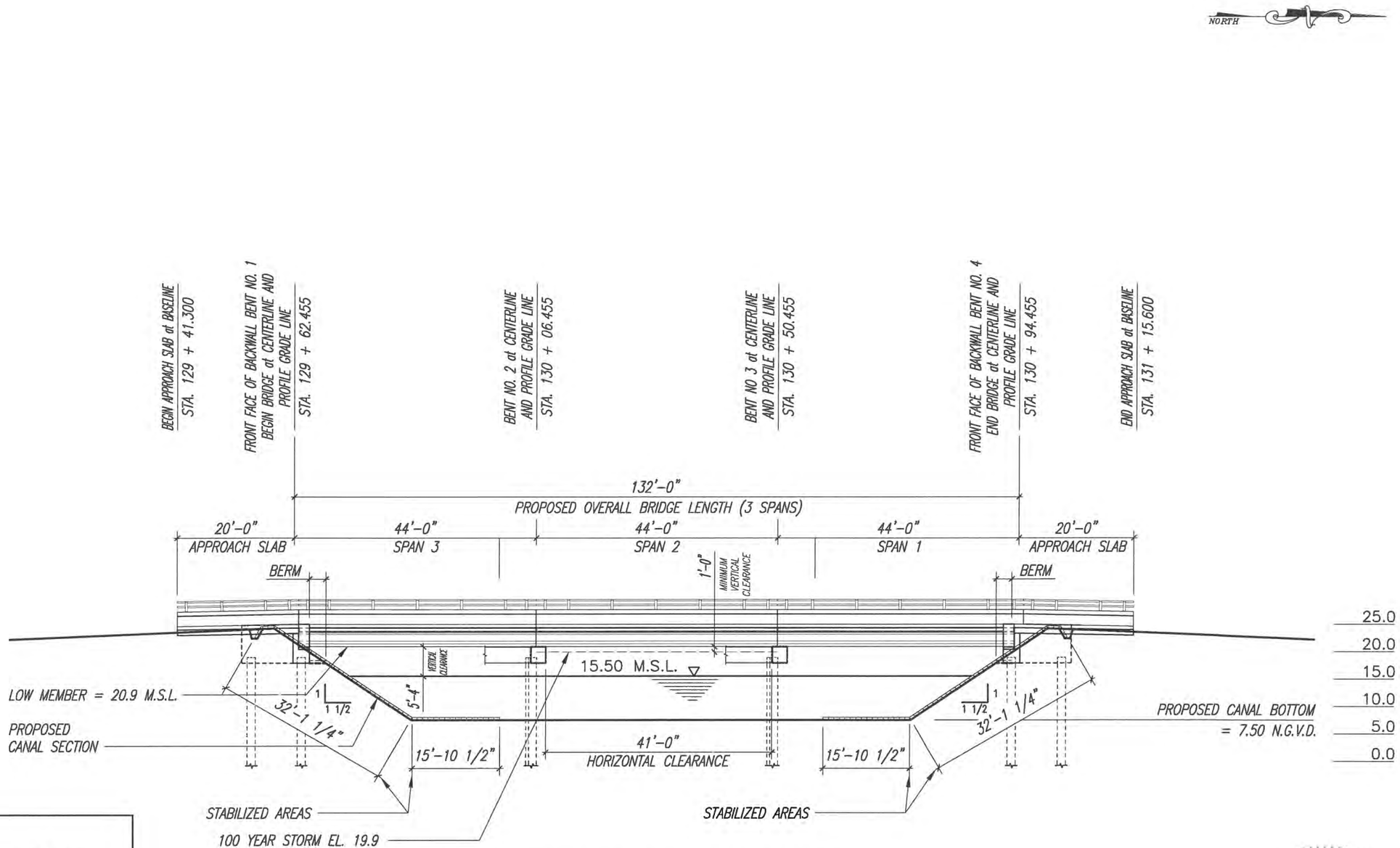
Date: 07/15/15
Field Book No:

PROJECT:
Proposed Concrete Bridge for:
43rd Avenue over Main Relief Canal
Indian River County, Florida

SEAL
Brian C. Rheault - 38797
FLORIDA P.E. NAME & NUMBER

SHEET
B-6
PROJECT NO.
05-609B



NOTES:

1. ALLOWABLE LOW MEMBER ELEVATION = 20.9 M.S.L.
2. 100 YEAR FLOW ELEVATION = 19.9 M.S.L.
3. PROVIDE SILT BARRIER IN CANAL DURING CONSTRUCTION.

1
B-7

PROPOSED WEST BRIDGE ELEVATION

Scale: 1" = 10'-0"

VERIFY SCALE
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Indian River County, Florida

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B 1/2/2019
Brian C. Rheault - 38797
FLORIDA P.E. NAME & NUMBER

SHEET
B-7
PROJECT NO.
05-609B

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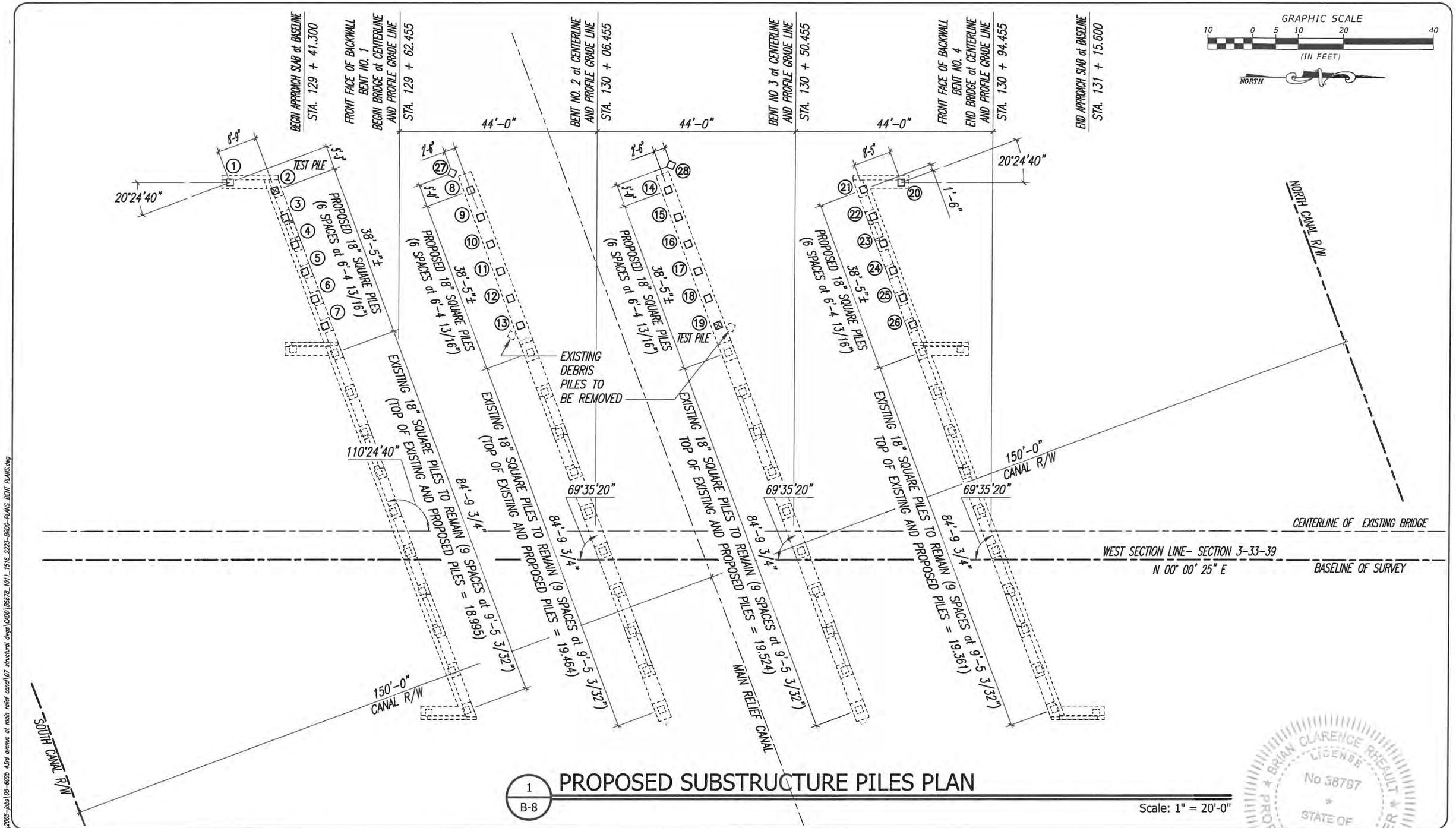

1 B-8

PROPOSED SUBSTRUCTURE PILES PLAN

Scale: 1" = 20'-0"

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Indian River County, Florida

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FLORIDA P.E. NAME & NUMBER

SHEET NO.
B-8

PROJECT NO.
05-609B

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 2	18	134	N/A	(–)12.5	65	N/A	N/A	87	0	N/A	N/A	N/A	N/A	0.65
Piles 1 & 20	18	134	N/A	(–)12.5		N/A	N/A	87	0	N/A	N/A	N/A	N/A	0.65
Piles 3 – 7 & 21 – 26	18	134	N/A	(–)12.5		N/A	N/A	87	0	N/A	N/A	N/A	N/A	0.65
INTERMEDIATE BENTS														
Pile 19	18	186	N/A	(–)12.5	65	N/A	N/A	121	0	N/A	N/A	N/A	N/A	0.65
Piles 8 – 18	18	186	N/A	(–)12.5		N/A	N/A	121	0	N/A	N/A	N/A	N/A	0.65
DEBRIS PILES														
27 – 28	18		N/A			N/A	N/A		0	N/A	N/A	N/A	N/A	0.65

PILE DATA – ABUTMENTS

PILE (2) TEST PILE WITH 87 TON CAPACITY (65'–0" LONG MINIMUM)
USE TEST PILE TO DETERMINE FINAL PILE LENGTHS.

PRECAST PRESTRESSED CONCRETE PILING
LOADING SHALL BE AS FOLLOWS:

PILES (1) AND (20)
18" SQUARE PILES WITH 87 TON CAPACITY (50'–0" LONG MINIMUM)

PILES (3) – (7) AND (21) – (26)
18" SQUARE PILES WITH 87 TON CAPACITY (50'–0" LONG MINIMUM)

PILE DATA – INTERMEDIATE BENTS

PILE (19) TEST PILE WITH 121 TON CAPACITY (65'–0" LONG MINIMUM)
USE TEST PILE TO DETERMINE FINAL PILE LENGTHS.

PRECAST PRESTRESSED CONCRETE PILING
LOADING SHALL BE AS FOLLOWS:

PILES (8) – (18)
18" SQUARE PILES WITH 121 TON CAPACITY (50'–0" LONG MINIMUM)

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) / ø

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

Piles in end bent #1 and #2 shall be wrapped with with 2 layers of visqueen from existing grade to bottom of the proposed pile cap.

End Bent
Estimated Service Load = 57 Tons.

Interior Bent
Estimated Service Load = 81 Tons.

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Indian River County, Florida

SEAL
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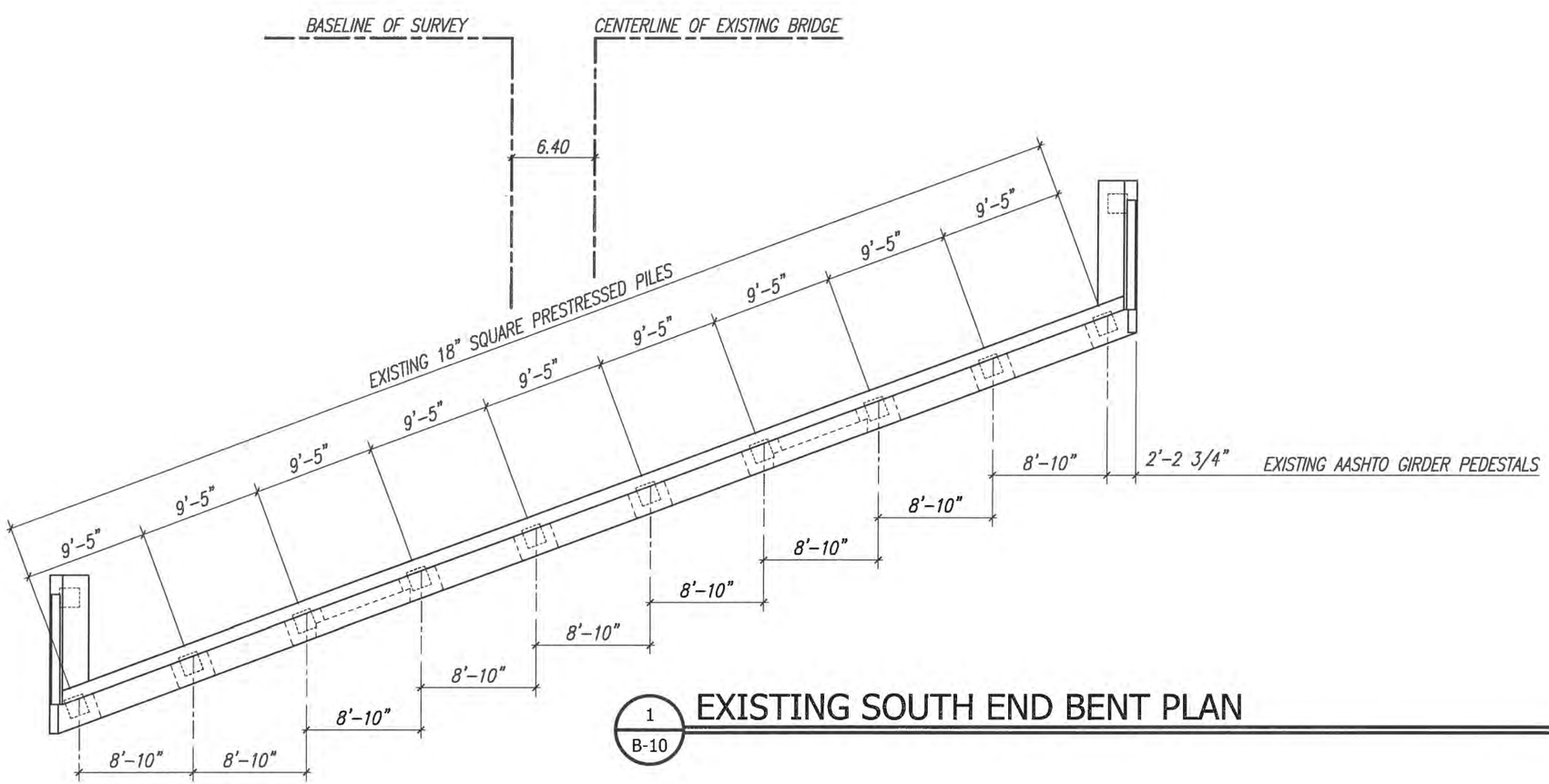
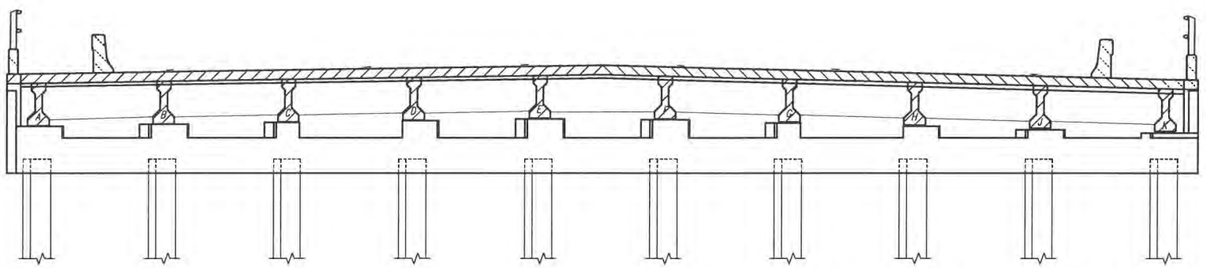
FLORIDA P.E. NAME & NUMBER

SHEET
B–9
PROJECT NO.
05–609B



1 B-10 **EXISTING SOUTH END BENT PLAN**

Scale: 3/16" = 1'-0"



2 B-10 **EXISTING SOUTH END BENT ELEVATION**

Scale: 3/16" = 1'-0"

NORTH

DATE: Jan 02, 2019 - 4:56pm S:\2005-jobs\05-609b 43rd avenue at main relief canal\07 structural dwgs\CAD\B5678_1011_1516_2223-BRDC-PLANS_BENT PLANS.dwg

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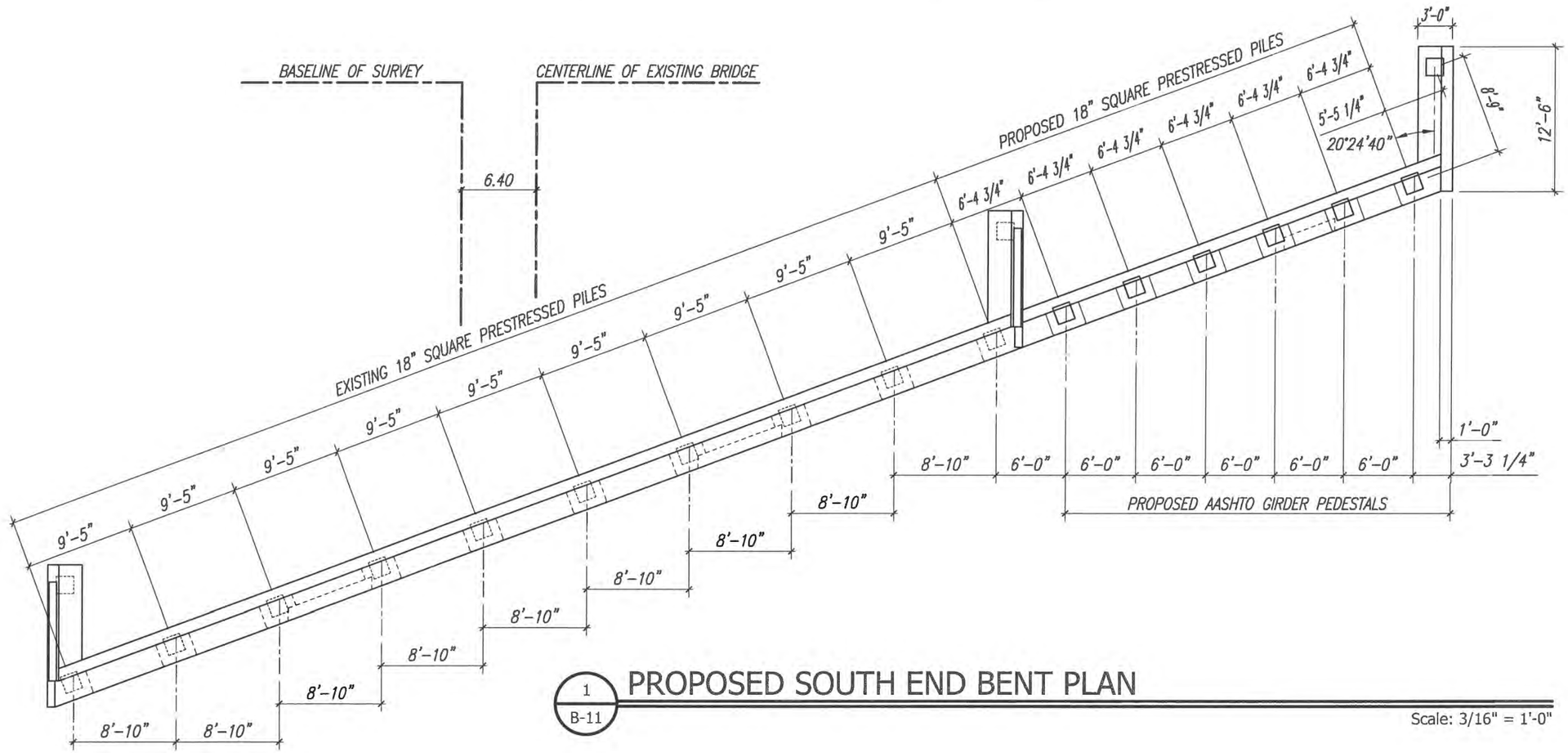
FLORIDA P.E. NAME & NUMBER

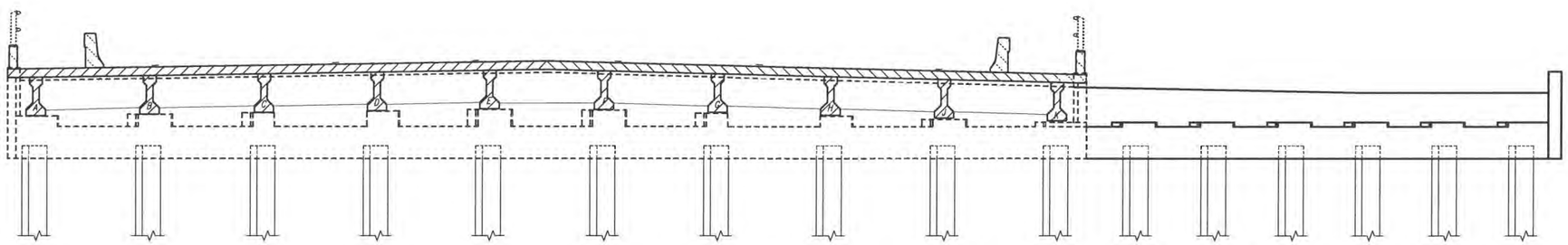
SHEET
B-10

PROJECT NO.
05-609B



1 B-11 PROPOSED SOUTH END BENT PLAN

Scale: 3/16" = 1'-0"



2 B-11 PROPOSED SOUTH END BENT ELEVATION

Scale: 3/16" = 1'-0"

NORTH

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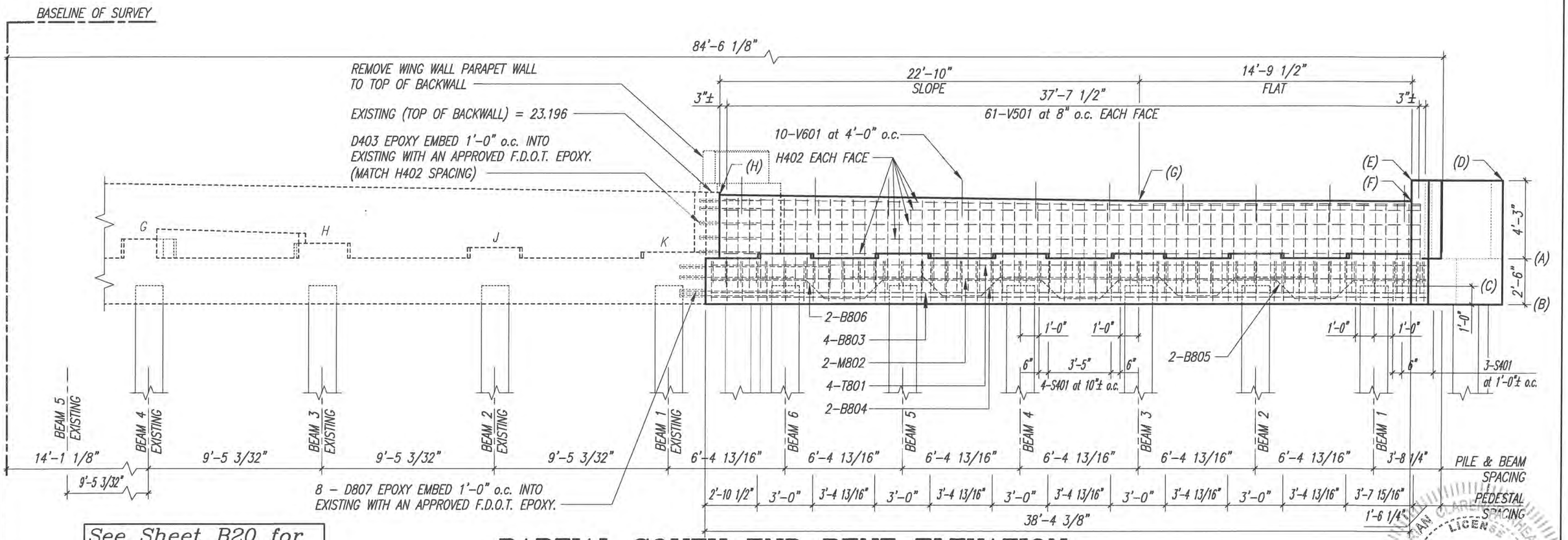
Brian C. Rheault - 38797
FLORIDA P.E. NAME & NUMBER

SHEET
B-11
PROJECT NO.
05-609B

Elevation Table

Bents	Elevations (ft.)							
	A	B	C	D	E	F	G	H
South End Bent No. 1	20.05	17.55	18.55	24.43	24.43	22.60	22.60	23.07



See Sheet B20 for Pedestal Details.

PARTIAL SOUTH END BENT ELEVATION

3/8" = 1'-0"

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VERIFY SCALE
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SHEET
B19

PROJECT NO.
05-609B

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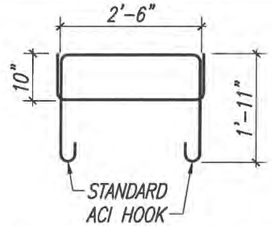
Estimated South End Bent Quantities

Item	Unit	Quantity (Average)
Class II Concrete (Pile Cap)	Cu. Yds.	18.0
Reinforcing Steel (Pile Cap)	lbs.	3,582

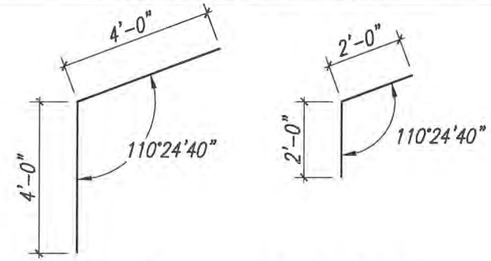
Bill of Reinforcing Steel

Mark	Size	Number Required	Length + Lap	Total Length	Bending	Weight (lbs.)
C800s	8	8		8'–0"	Bar C800	170.9
T801	8	4		38'–10"	Straight	414.7
M802	8	2		38'–10"	Straight	207.4
B803	8	4		38'–10"	Straight	414.7
B804	8	6		13'–0"	Bar B804	208.3
B805	8	2		13'–1"	Bar B805	69.9
B806	8	2		14'–2"	Bar B806	75.7
D807	8	8		6'–1"	Straight	129.9
S401	4	49		11'–6"	Bar S401	376.4
H402	4	10		38'–10"	Straight	259.4
D403	4	10		3'–3"	Straight	21.7
V501	5	102		5'–0"	Straight	531.9
V601	6	10		2'–0"	Straight	30.0
C400s	4	10		4'–0"	Bar C400s	26.7
W808	8	10		12'–0"	Straight	320.4
S404	4	14		11'–6"	Bar S404	107.5
V502	5	38		5'–3"	Straight	133.3
H405	4	10		12'–6"	Straight	83.5

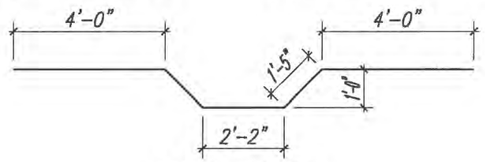
Bending Diagram



BAR S401 S404



BAR C800s BAR C400s



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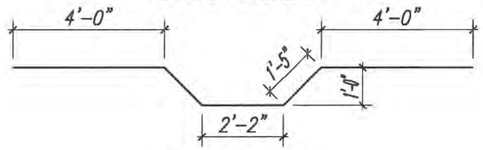

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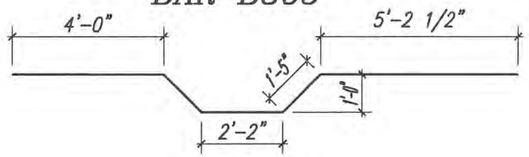
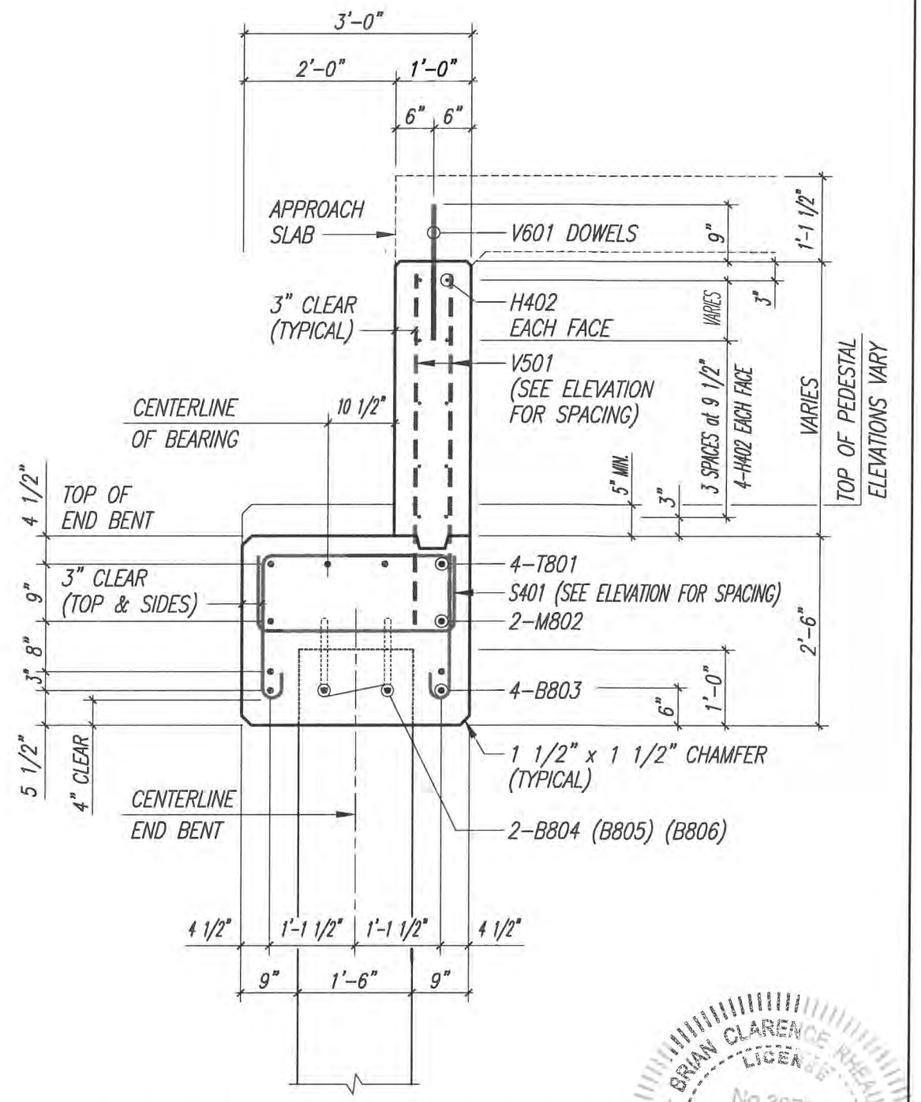


BAR B806

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



SOUTH END BENT NO. 1 SECTION A – A

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Indian River County, Florida

SEAL
Brian C. Rheault – 38797
FLORIDA P.E. NAME & NUMBER

SHEET
B-13
PROJECT NO.
05-609B

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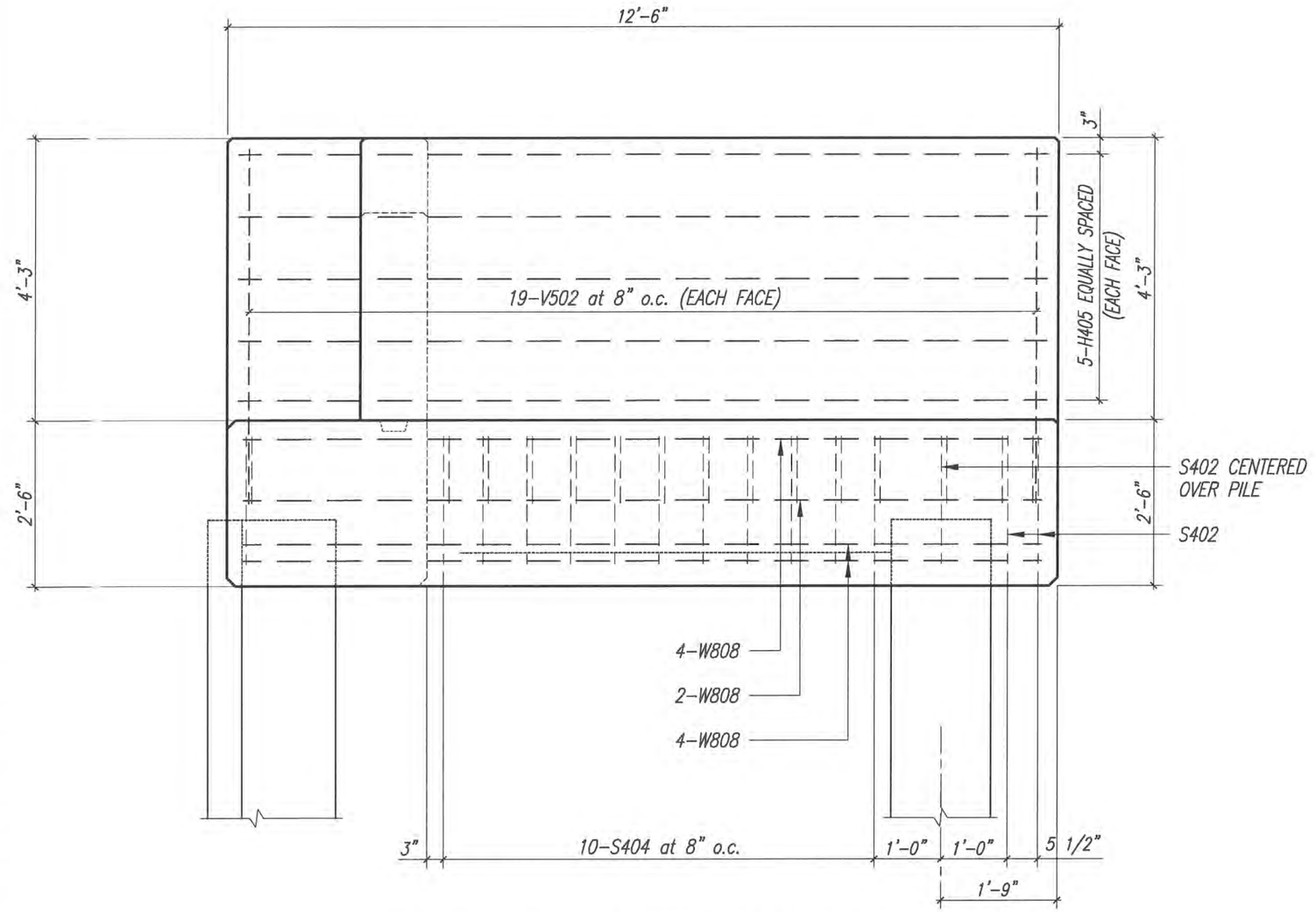
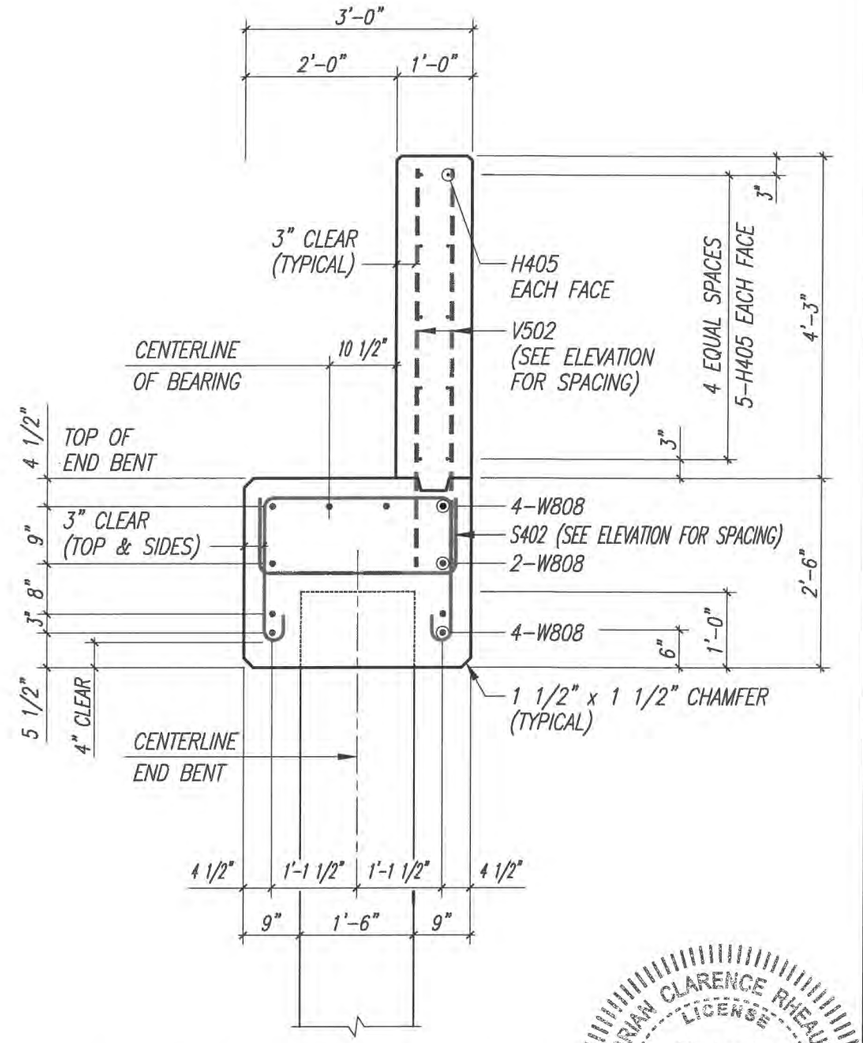


PROPOSED SOUTH WING WALL
ELEVATION C – C



PROPOSED SOUTH WING WALL
SECTION D – D

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SHEET
B-14
PROJECT NO.
05-609B

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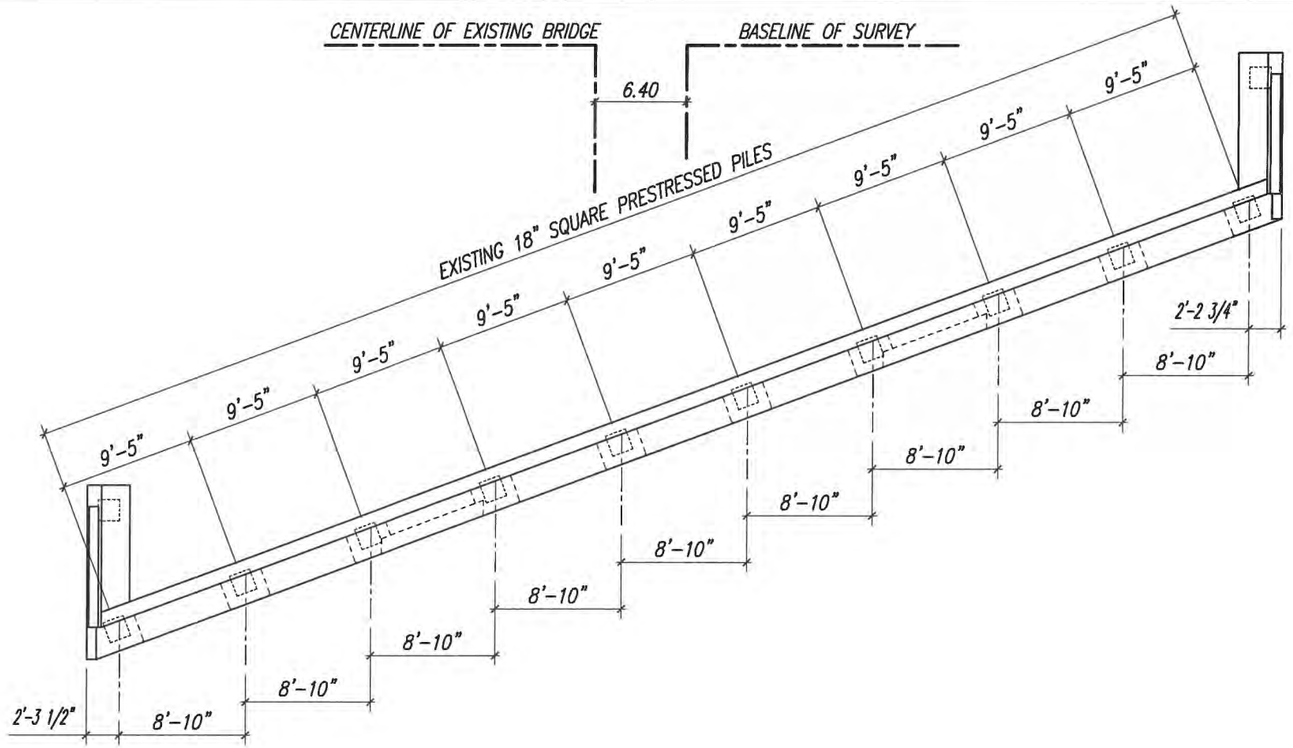
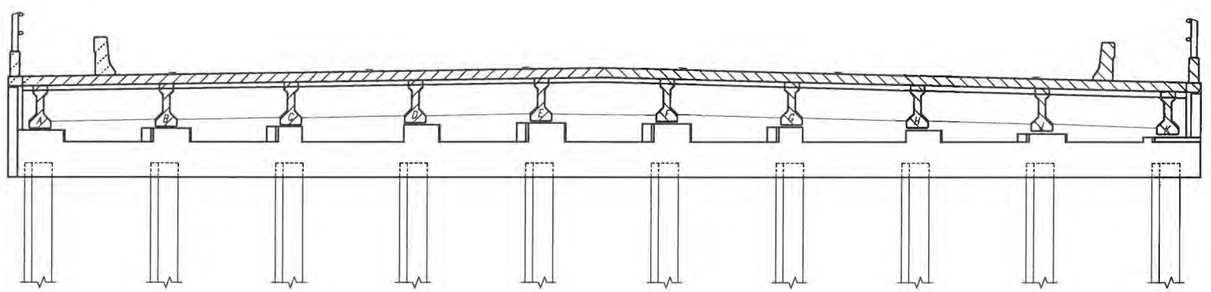


1 / B-15 EXISTING NORTH END BENT PLAN

Scale: 3/16" = 1'-0"



2 / B-15 EXISTING NORTH END BENT ELEVATION

Scale: 3/16" = 1'-0"

DATE: Jan 02, 2019 - 4:57pm S:\2005-jobs\05-609b 43rd avenue at main relief canal\07 structural dwgs\CADD\65678_1011_1516_2223-BRDG-PLANS_BENT PLANS.dwg

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Field Book No:

PROJECT:
Proposed Concrete Bridge for:
43rd Avenue over Main Relief Canal
Indian River County, Florida

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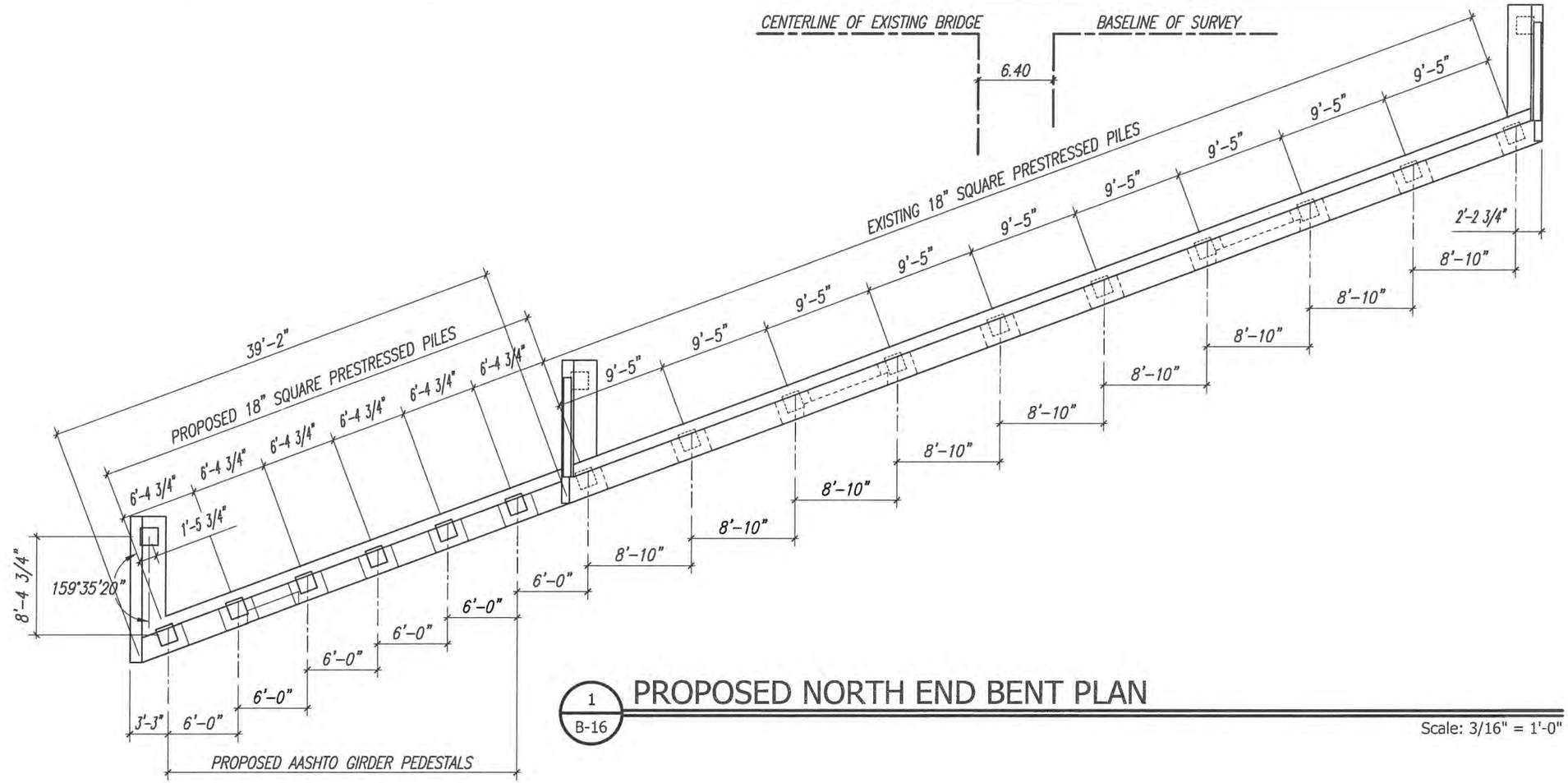
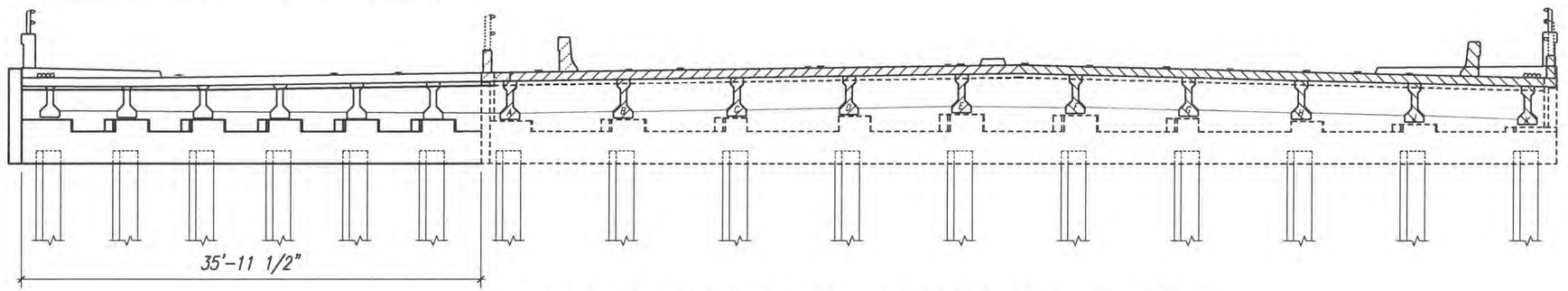
FLORIDA P.E. NAME & NUMBER

SHEET
B-15
PROJECT NO.
05-609B



1 B-16 PROPOSED NORTH END BENT PLAN

Scale: 3/16" = 1'-0"



2 B-16 PROPOSED NORTH END BENT ELEVATION

Scale: 3/16" = 1'-0"

NORTH

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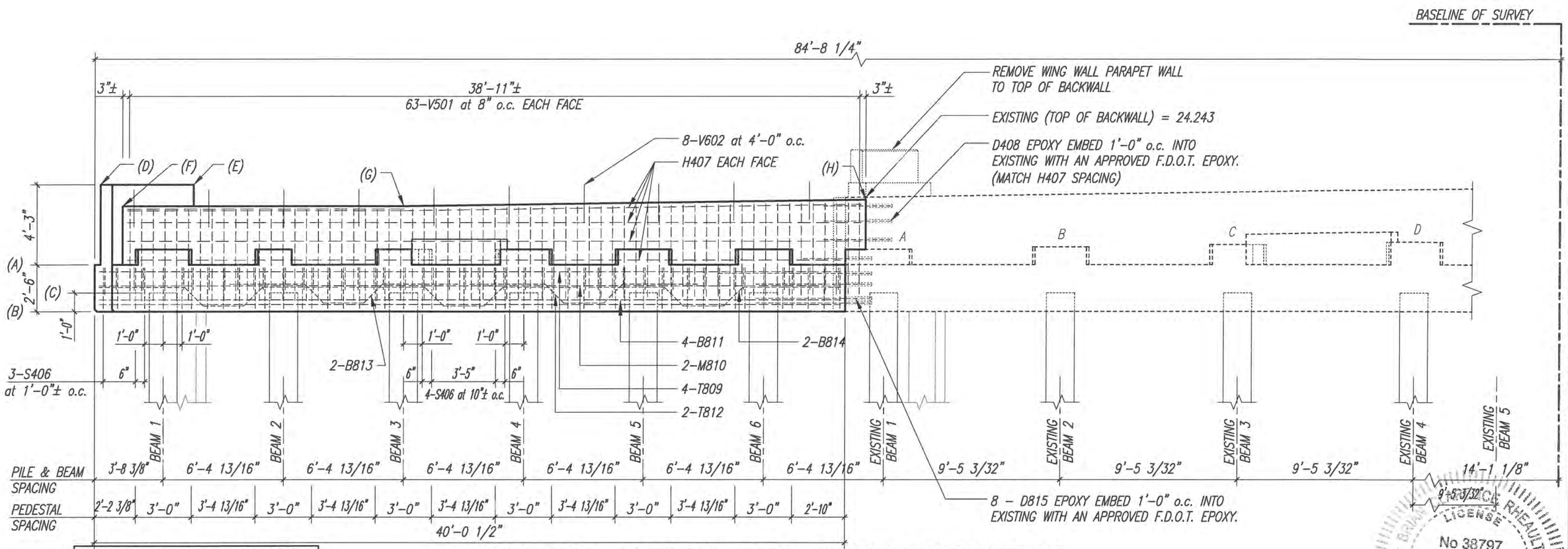
SHEET
B-16
PROJECT NO.
05-609B

Elevation Table

Bents	Elevations (ft.)							
	A	B	C	D	E	F	G	H
North End Bent No. 4	20.86	18.36	19.36	25.45	25.45	23.68	23.68	24.12



See Sheet B20 for Pedestal Details.

PARTIAL NORTH END BENT ELEVATION

3/8" = 1'-0"

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Date: 07/15/15
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SHEET B-17

PROJECT NO. 05-609B

DATE: Jan 02, 2019 - 4:59pm S:\2005-Jobs\05-609b 43rd avenue at main relief canal\07 structural dwgs\CADD\B1217-PARTIAL_NO-SO ENDBENTS_REINF.dwg

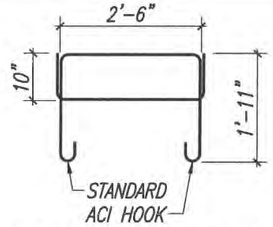
Estimated North End Bent Quantities

Item	Unit	Quantity (Average)
Class II Concrete (Pile Cap)	Cu. Yds.	18.0
Reinforcing Steel (Pile Cap)	lbs.	3,676

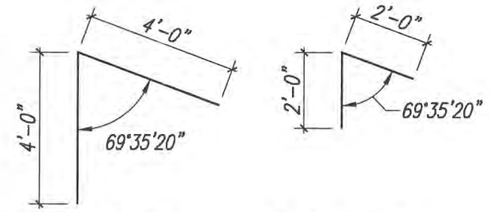
Bill of Reinforcing Steel

Mark	Size	Number Required	Length + Lap	Total Length	Bending	Weight (lbs.)
C800n	8	8		8'–0"	Bar C800	170.9
T809	8	4		39'–7"	Straight	422.8
M810	8	2		39'–7"	Straight	211.4
B811	8	4		39'–7"	Straight	422.8
B812	8	6		13'–0"	Bar C812	208.3
B813	8	2		13'–0"	Bar C813	69.4
B814	8	2		14'–2"	Bar C814	75.7
B815	8	8		6'–1"	Straight	129.9
S406	4	49		11'–6"	Bar S406	376.4
H407	4	10		31'–8"	Straight	211.5
D408	4	10		3'–3"	Straight	21.7
V503	5	126		5'–0"	Straight	657.1
V602	6	10		2'–0"	Straight	30.0
C400n	4	10		4'–0"	Bar C400n	26.7
W816	8	10		12'–0"	Straight	320.4
S409	4	14		11'–6"	Bar S409	107.5
V504	5	38		5'–3"	Straight	133.3
H410	4	10		12'–0"	Straight	80.2

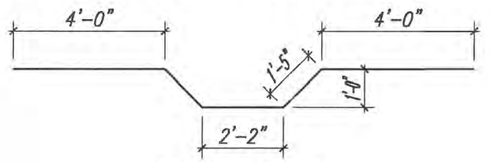
Bending Diagram



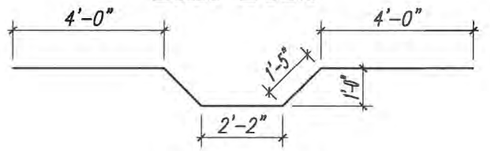
BAR S406 S409



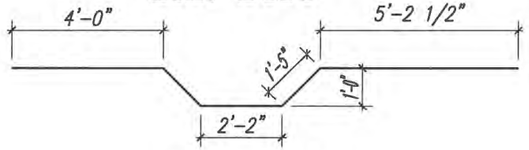
BAR C800n BAR C400n



BAR B812

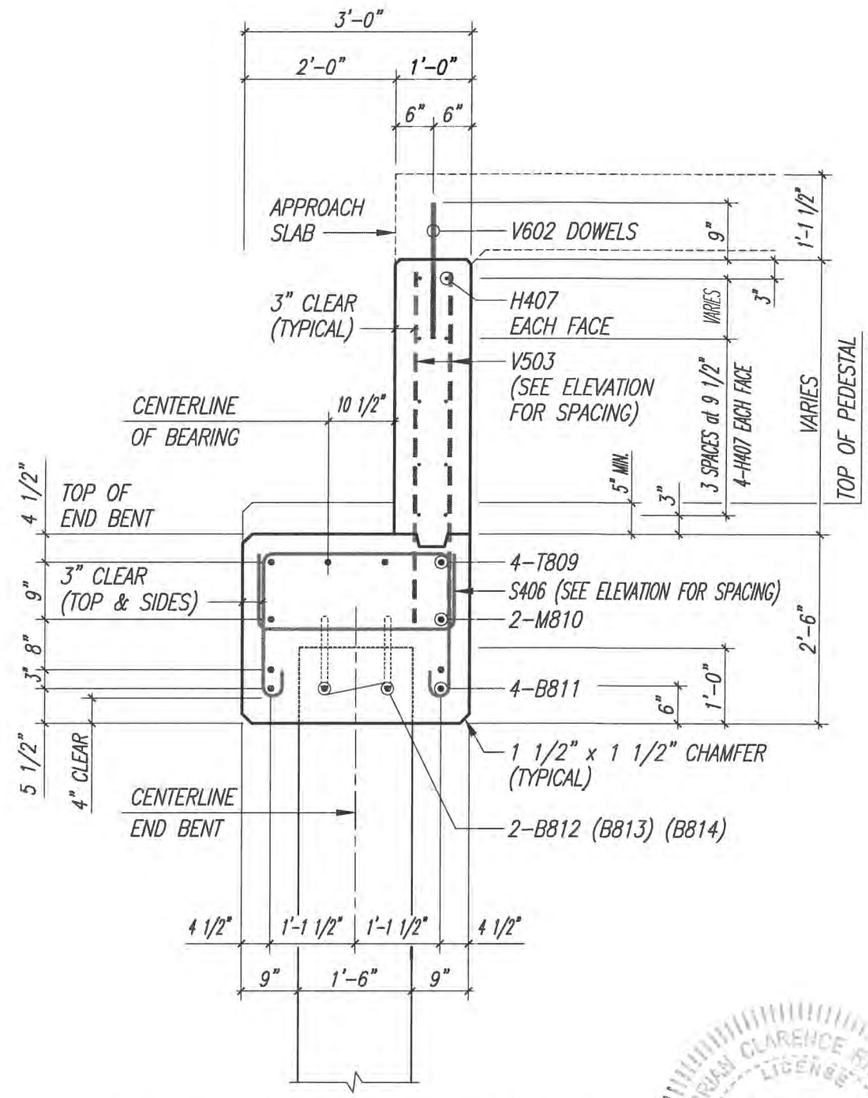


BAR B813



BAR B814

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



NORTH END BENT NO. 4 SECTION A – A

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FLORIDA E.B. NO. 4952

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INDIAN RIVER COUNTY FLORIDA

Department of Public Works
Engineering Division

Scale: AS NOTED
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Date: 07/15/15
Field Book No:

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Proposed Concrete Bridge for:
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Indian River County, Florida

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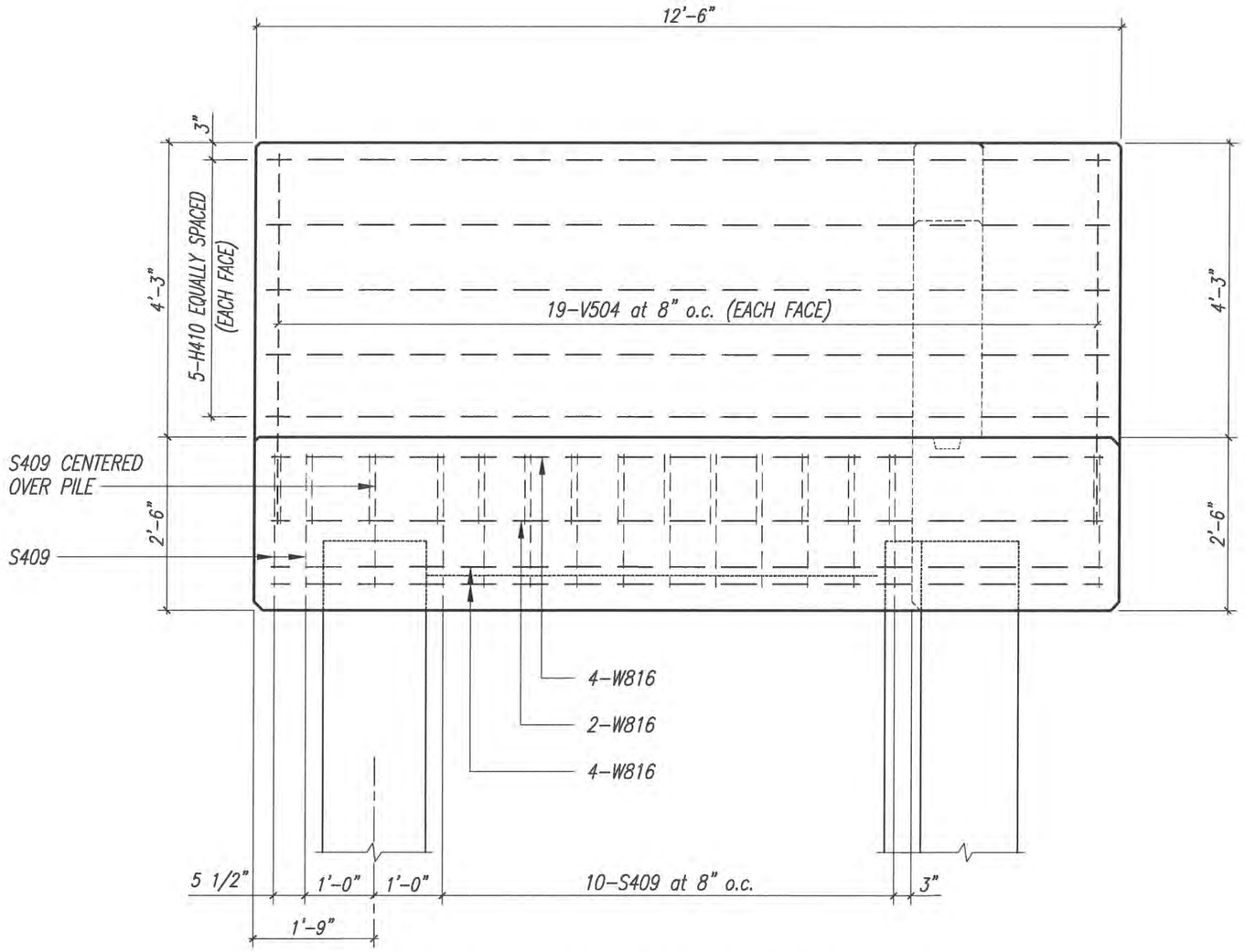
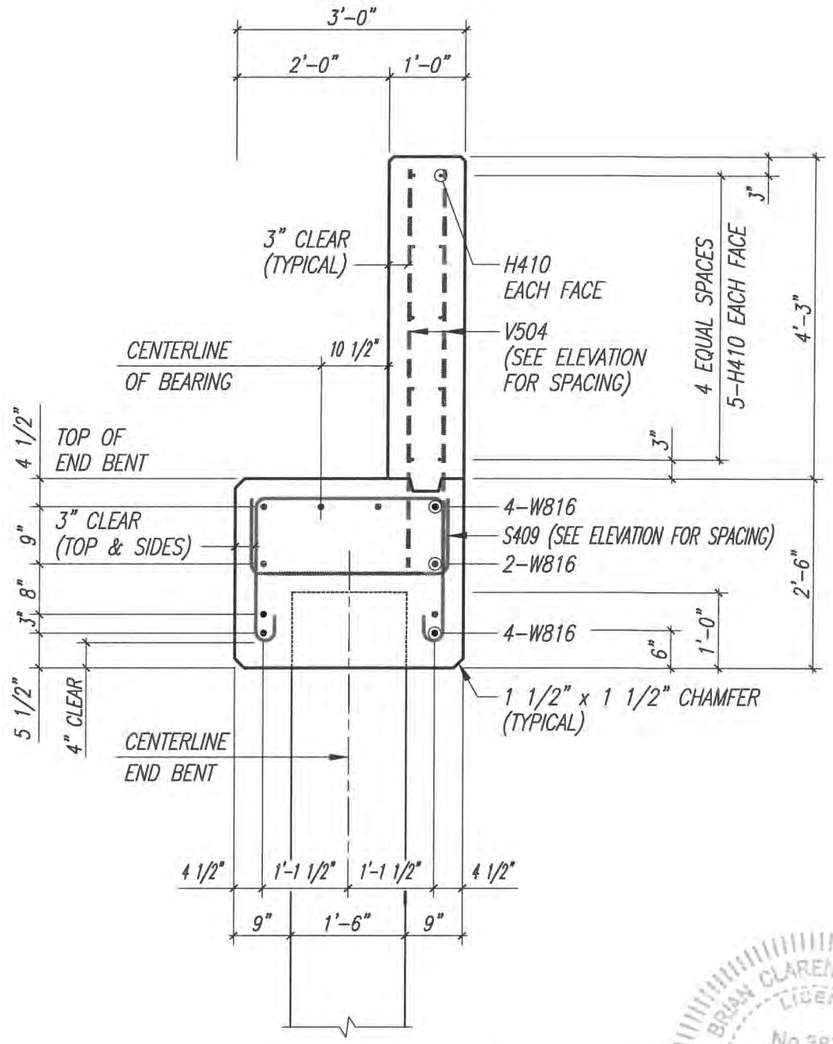
1/2/2019
Brian C. Rheault – 38797
FLORIDA P.E. NAME & NUMBER

SHEET NO. B-18

PROJECT NO. 05-609B



PROPOSED NORTH WING WALL ELEVATION C – C



PROPOSED NORTH WING WALL SECTION D – D

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43rd Avenue over Main Relief Canal
Indian River County, Florida

SEAL
Brian C. Rheault – 38797
FLORIDA P.E. NAME & NUMBER

SHEET
B-19
PROJECT NO.
05-609B

End Bent

Pedestal Elevations Table

Location		Elevations (ft)			
		End Bent No. 1		End Bent No. 4	
		Elevation	Case	Elevation	Case
BEAM 1	A	20.38	1	21.41	1
	B	20.38		21.41	
BEAM 2	A	20.38	1	21.41	1
	B	20.38		21.41	
BEAM 3	A	20.38	1	21.41	1
	B	20.38		21.41	
BEAM 4	A	20.38	1	21.41	1
	B	20.38		21.41	
BEAM 5	A	20.38	1	21.41	1
	B	20.38		21.41	
BEAM 6	A	20.38	1	21.41	1
	B	20.38		21.41	

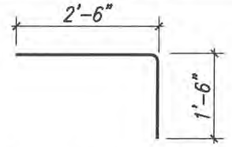
Estimated Pedestal Quantities

Item	Unit	Quantity
Class II Concrete (Pedestals – 6 Required)	Cu. Yds.	0.10
Reinforcing Steel (Pedestals – 6 Required)	lbs.	228

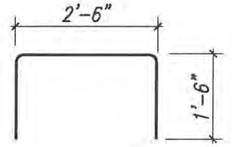
Bill of Reinforcing Steel

Mark	Size	Number Required			Length + Lap	Total Length	Bending	Weight (lbs.)
P411	4	36				4'–0"	Bar P411	96.2
P412	4	36				5'–6"	Bar P412	132.3

Bending Diagram

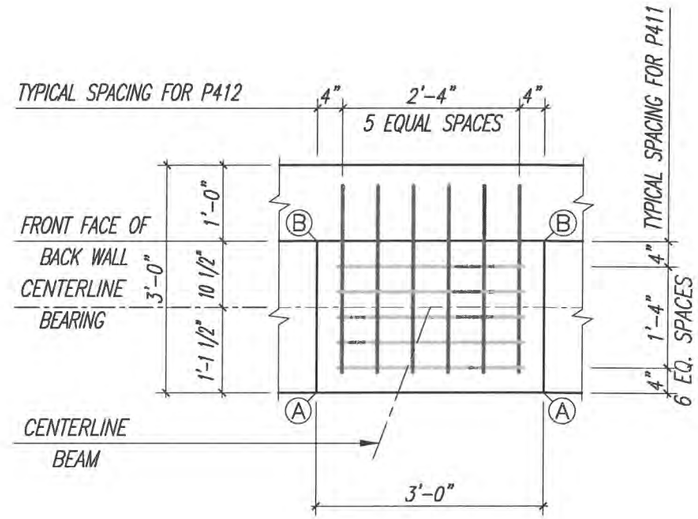


BARS P411

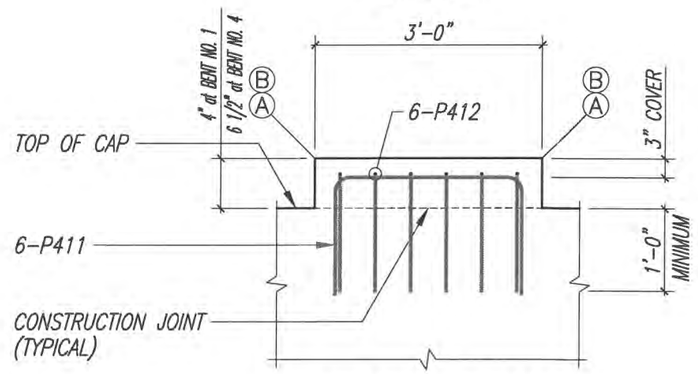


BARS P412

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



PLAN



ELEVATION

P411 & P412 at BEAMS 1 and 2 and 3 and 4 and 5

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CASE I

PEDESTAL DETAILS END BENTS 1 AND

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Indian River County, Florida

SEAL
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Brian C. Rheault – 38797
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SHEET
B–20
PROJECT NO.
05–609B

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End Bent

Estimated Seismic Block Quantities

Item	Unit	Quantity
Class II Concrete (Seismic Blocks) (2 Required)	Cu. Yds.	0.5
Reinforcing Steel (Seismic Blocks) (2 Required)	lbs.	28.2

Bill of Reinforcing Steel

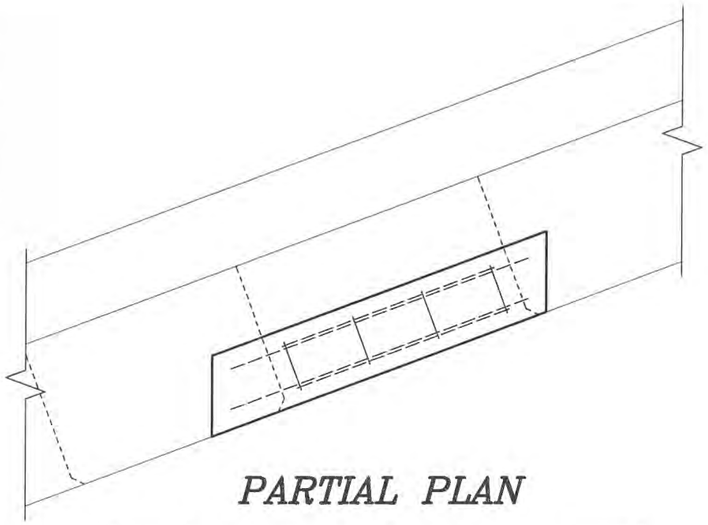
Mark	Size	Number Required			Length + Lap	Total Length	Bending	Weight (lbs.)
V450	4	2				2'-11"	V450	3.9
V451	4	2				4'-2"	V451	5.6
V550	5	4				4'-6"	Straight	18.8

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"

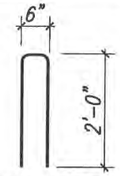
Note:
Splice continuous bars thus:
Top bars at mid-span between the piles
Bottom bars at the piles

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

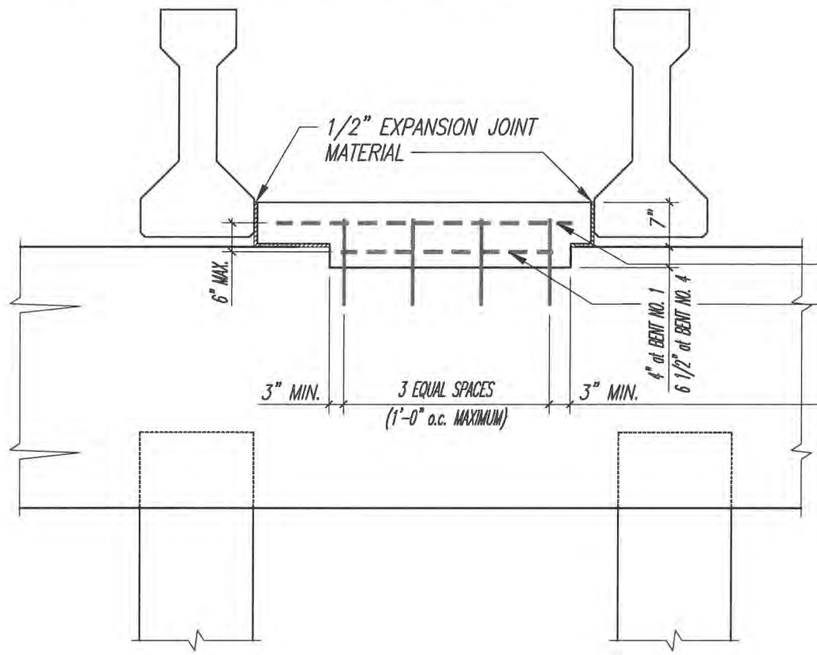


PARTIAL PLAN

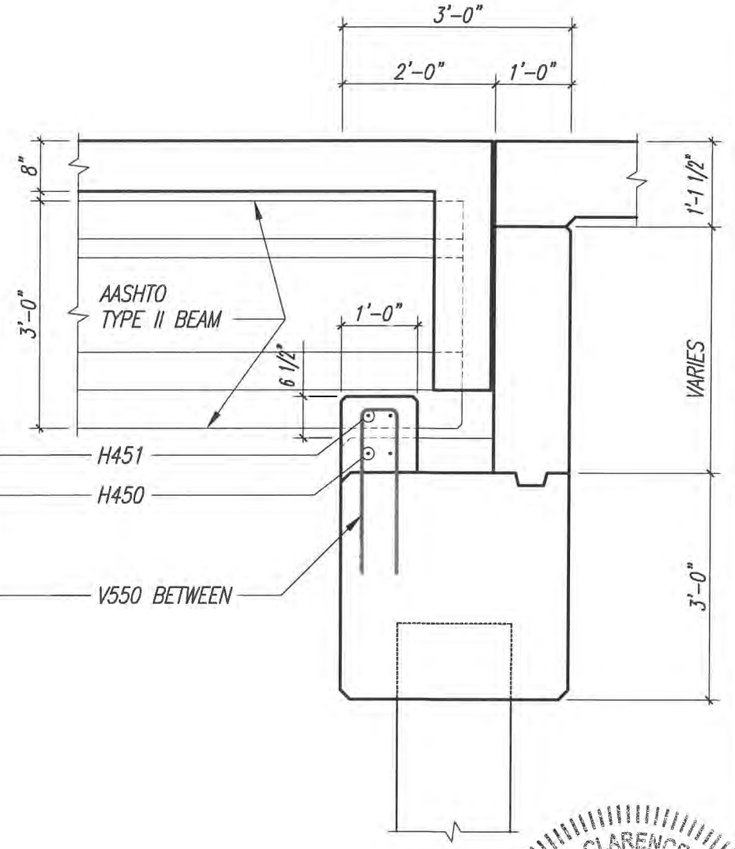
Bending Diagram



BARS V550



TYPICAL END BENT ELEVATION
SEISMIC BLOCKS BETWEEN BEAMS 2 & 3



TYPICAL END BENT SECTION
SEISMIC BLOCKS BETWEEN BEAMS 2 & 3

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SHEET
B-21

PROJECT NO.
05-609B

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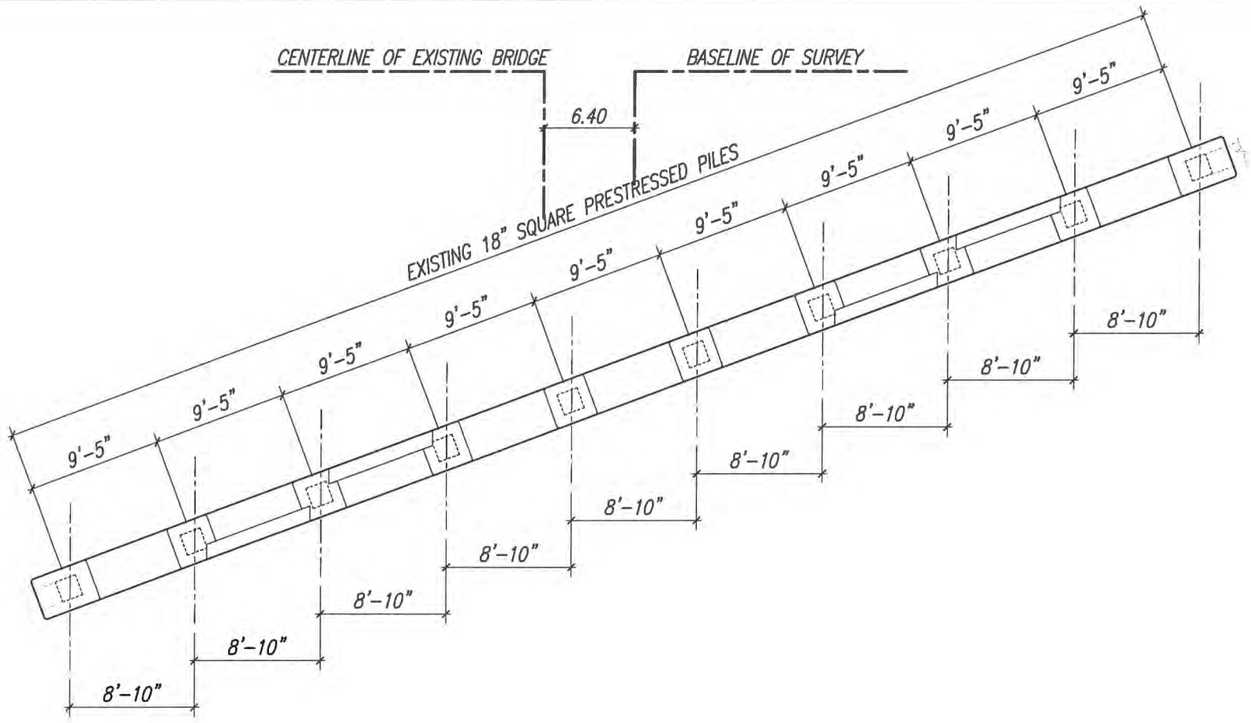
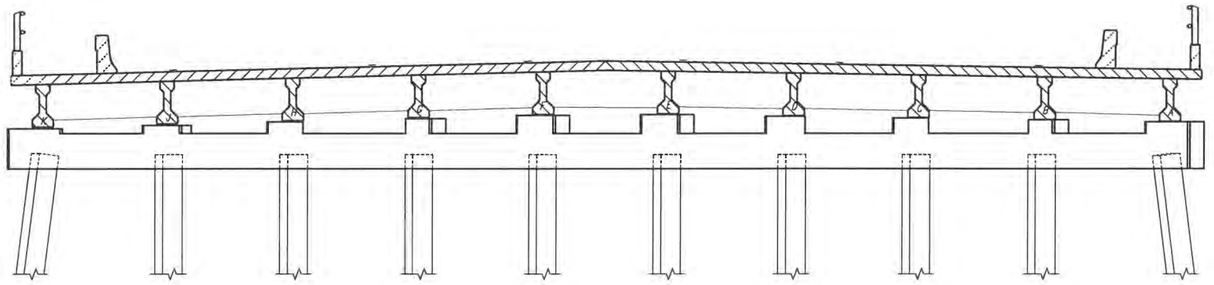


1 B-22

EXISTIING TYPICAL INTERMEDIATE BENT PLAN

Scale: 3/16" = 1'-0"



2 B-22

EXISTING TYPICAL INTERMEDIATE BENT ELEVATION

Scale: 3/16" = 1'-0"

NORTH

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SHEET
B-22
PROJECT NO.
05-609B

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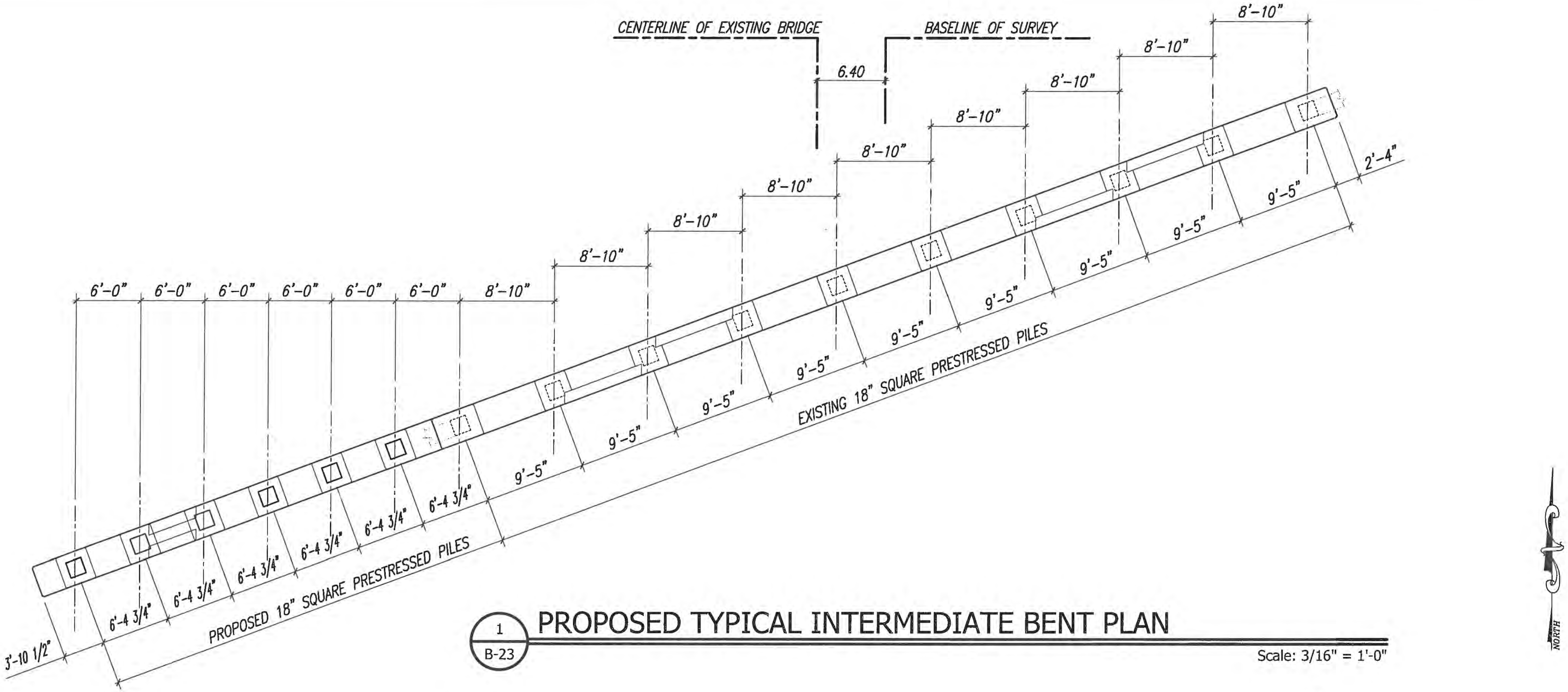
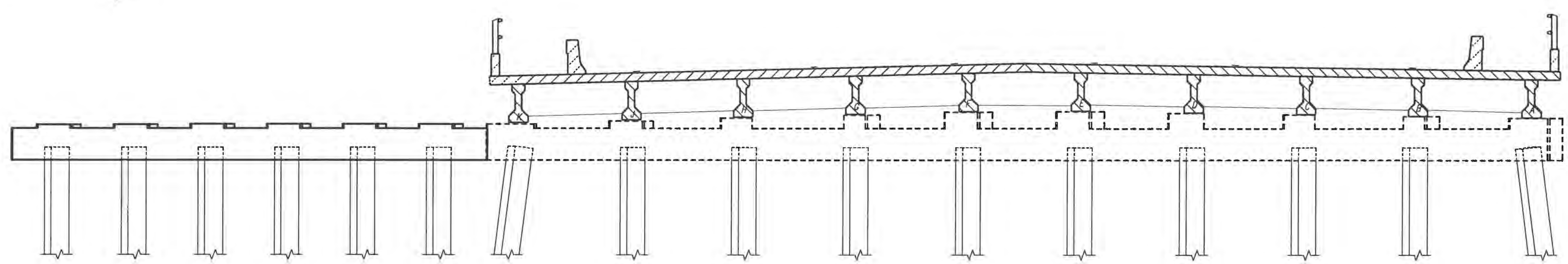


1 / B-23 PROPOSED TYPICAL INTERMEDIATE BENT PLAN

Scale: 3/16" = 1'-0"



2 / B-23 PROPOSED TYPICAL INTERMEDIATE BENT ELEVATION

Scale: 3/16" = 1'-0"

DATE: Jan 02, 2019 – 4:58pm S:\2005-jobs\05-609b 43rd avenue at main relief canal\07 structural dwgs\CADD\E5678_1011_1516_2223-BRDG-PLANS_BENT PLANS.dwg

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Indian River County, Florida

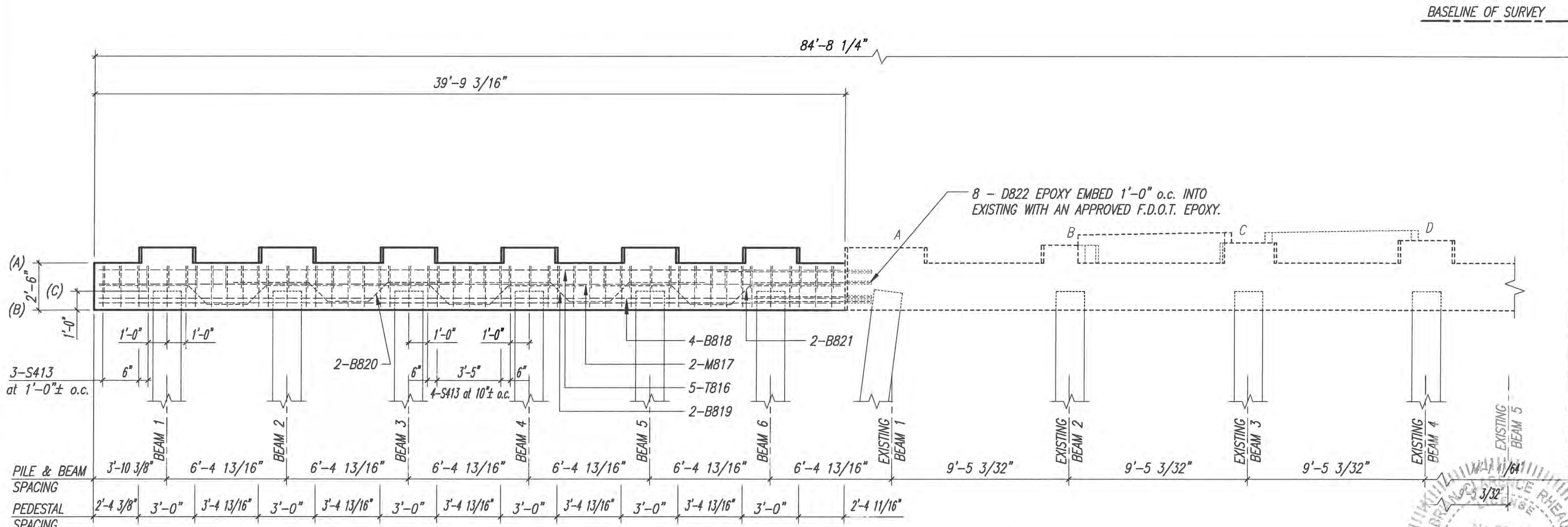
SEAL
Brian C. Rheault – 38797
FLORIDA P.E. NAME & NUMBER
1/2/2019

BRIAN CLARENCE RHEAULT LICENSE No 38797 STATE OF FLORIDA PROFESSIONAL ENGINEER

SHEET
B-23
PROJECT NO.
05-609B

Elevation Table

Bents	Elevations (ft.)		
	A	B	C
Intermediate Bent No. 2	20.96	18.46	'19.46
Intermediate Bent No. 3	21.02	18.52	19.52



See Sheet B26 for Pedestal Details.

PARTIAL INTERMEDIATE BENT ELEVATION

3/8" = 1'-0"

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

BRIDGE DESIGN ASSOCIATES, INC.
CONSULTING ENGINEERS
FLORIDA E.B. NO. 4952

NO.	REVISION	DATE	BY

INDIAN RIVER COUNTY FLORIDA

Department of Public Works
Engineering Division

Scale: AS NOTED
Approved:
Drawn: C.A.B.
Checked: B.C.R.
Date: 07/15/15
Field Book No:

PROJECT:
Proposed Concrete Bridge for:
43rd Avenue over Main Relief Canal
Indian River County, Florida

SEAL
Brian C. Rheault – 38797
FLORIDA P.E. NAME & NUMBER
No 38797 STATE OF FLORIDA PROFESSIONAL ENGINEER

SHEET B-24
PROJECT NO. 05-609B

DATE: Jan 02, 2019 – 4:59pm

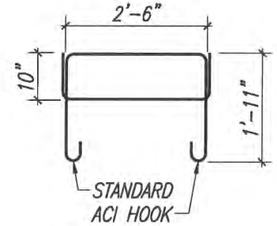
Estimated Intermediate Bent Quantities

Item	Unit	Quantity (Average)
Class II Concrete (Pile Cap)	Cu. Yds.	12
Reinforcing Steel (Pile Cap)	lbs.	1,790

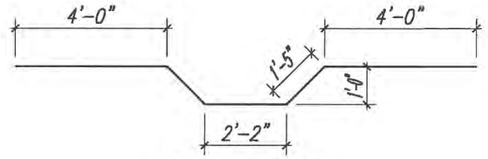
Bill of Reinforcing Steel

Mark	Size	Number Required			Length + Lap	Total Length	Bending	Weight (lbs.)
T816	8	4				39'-5"	Straight	421.0
M817	8	2				39'-5"	Straight	210.5
B818	8	4				39'-5"	Straight	421.0
B819	8	4				13'-0"	Straight	138.8
B820	8	4				13'-9"	Straight	146.9
B821	8	2				14'-2 1/2"	Straight	75.9
S413	4	49				11'-6"	Bar S413	376.4

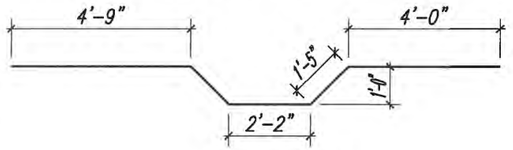
Bending Diagram



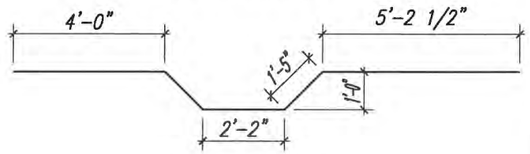
BAR S413



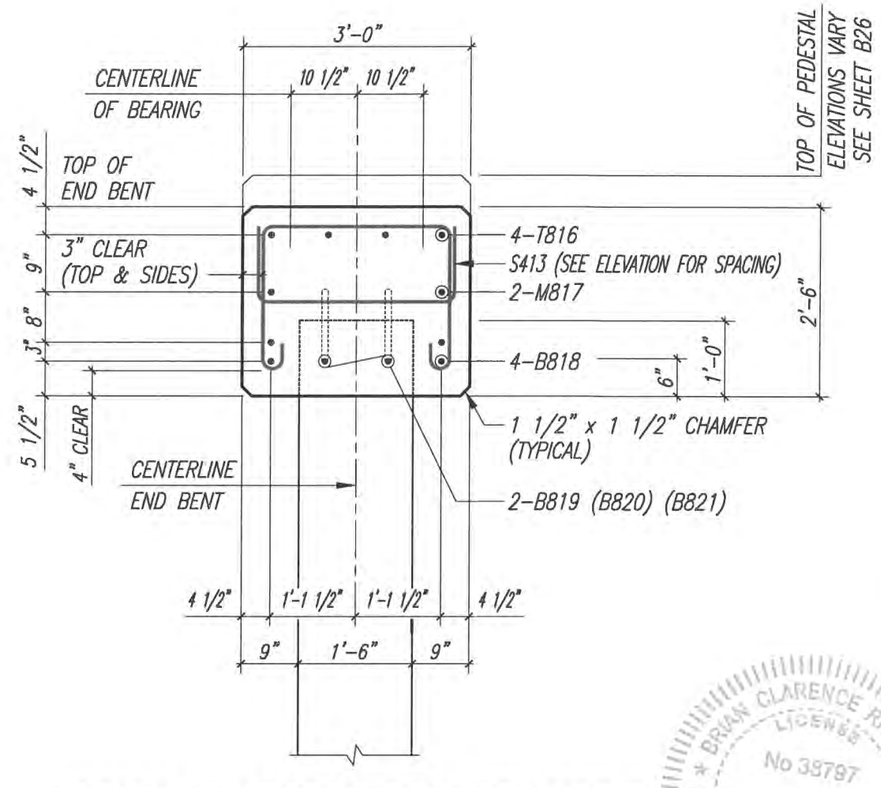
BAR B819



BAR B820



BAR B821



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

TYPICAL INTERMEDIATE BENT SECTION A – A

BRIAN CLARENCE RHEAULT LICENSE No 38797 STATE OF FLORIDA PROFESSIONAL ENGINEER

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Tel. (561) 686-3650 Fax (561) 791-1995
CONSULTING ENGINEERS
FLORIDA E.B. NO. 4952

NO.	REVISION	DATE	BY

INDIAN RIVER COUNTY, FLORIDA

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43rd Avenue over Main Relief Canal
Indian River County, Florida

SEAL
12/2/2015
Brian C. Rheault – 38797
FLORIDA P.E. NAME & NUMBER

SHEET
B-25
PROJECT NO.
05-609B

Intermediate Bent
Pedestal Elevations Table

Location		Elevations (ft) Intermediate Bent No. 2			intermediate Bent No. 3	
		Elevation	Case		Elevation	Case
BEAM 1	A	21.05	1		21.39	1
	B	21.05			21.39	
BEAM 2	A	21.05	1		21.39	1
	B	21.05			21.39	
BEAM 3	A	21.05	1		21.39	1
	B	21.05			21.39	
BEAM 4	A	21.05	1		21.39	1
	B	21.05			21.39	
BEAM 5	A	21.05	1		21.39	1
	B	21.05			21.39	

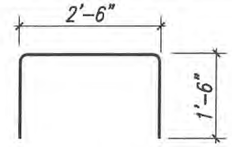
Estimated Pedestal Quantities

Item	Unit	Quantity
Class II Concrete (Pedestals) (12 Required)	Cu. Yds.	0.5
Reinforcing Steel (Pedestals) (12 Required)	lbs.	309

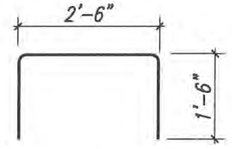
Bill of Reinforcing Steel

Mark	Size	Number Required			Length + Lap	Total Length	Bending	Weight (lbs.)
P414	4	48				5'-6"	Bar P414	176.4
P415	4	36				5'-6"	Bar P415	132.3

Bending Diagram

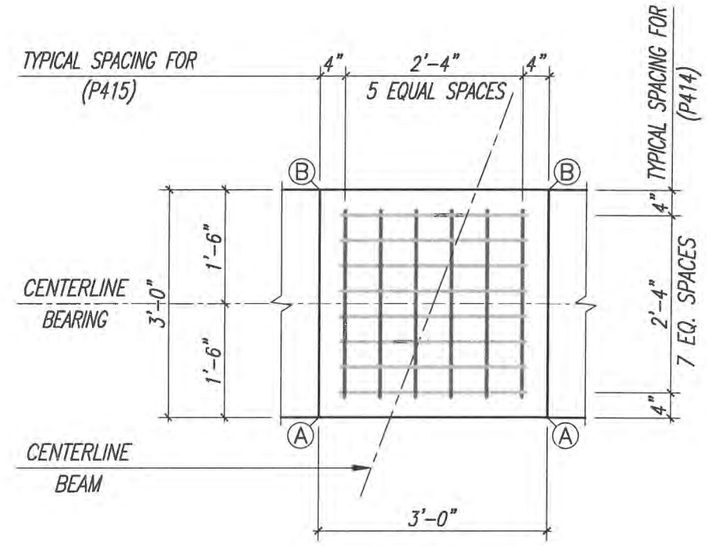


BARS P414

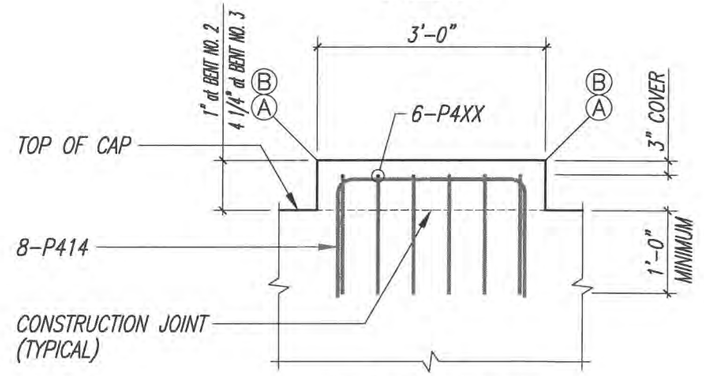


BARS P415

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



PLAN



ELEVATION

P414 & P415 at BEAMS 1 and 2 and 3 and 4 and 5 and 6

CASE I

PEDESTAL DETAILS INTERMEDIATE BENTS 2 AND 3

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Proposed Concrete Bridge for:
43rd Avenue over Main Relief Canal
Indian River County, Florida

SEAL
Brian C. Rheault – 38797
FLORIDA P.E. NAME & NUMBER

SHEET NO.
B-26
PROJECT NO.
05-609B

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Intermediate Bent
Estimated Seismic Block Quantities

Item	Unit	Quantity
Class II Concrete (Seismic Blocks) (4 Required)	Cu. Yds.	0.5
Reinforcing Steel (Seismic Blocks) (4 Required)	lbs.	22.7

Bill of Reinforcing Steel

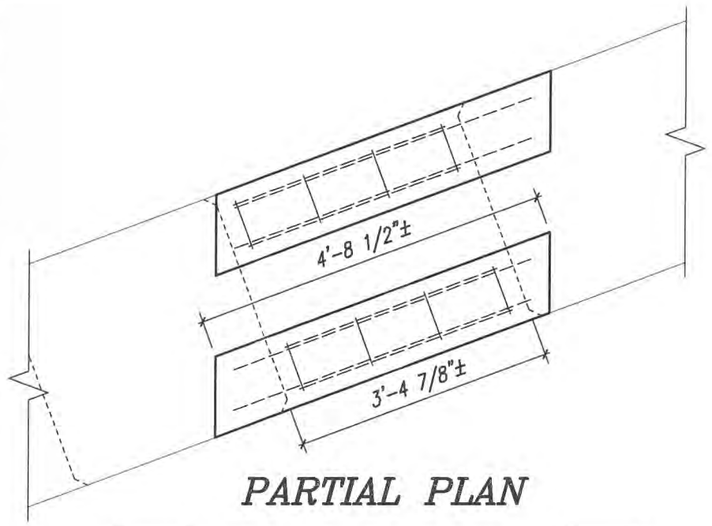
Mark	Size	Number Required			Length + Lap	Total Length	Bending	Weight (lbs.)
BENT NO. 2 and 3								
H452	4	2				4'-2"	Straight	5.6
H453	4	2				2'-11"	Straight	3.9
V551	5	4				3'-2"	Bars V551	13.2

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"

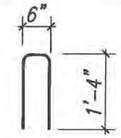
Note:
Splice continuous bars thus:
Top bars at mid-span between the piles
Bottom bars at the piles

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

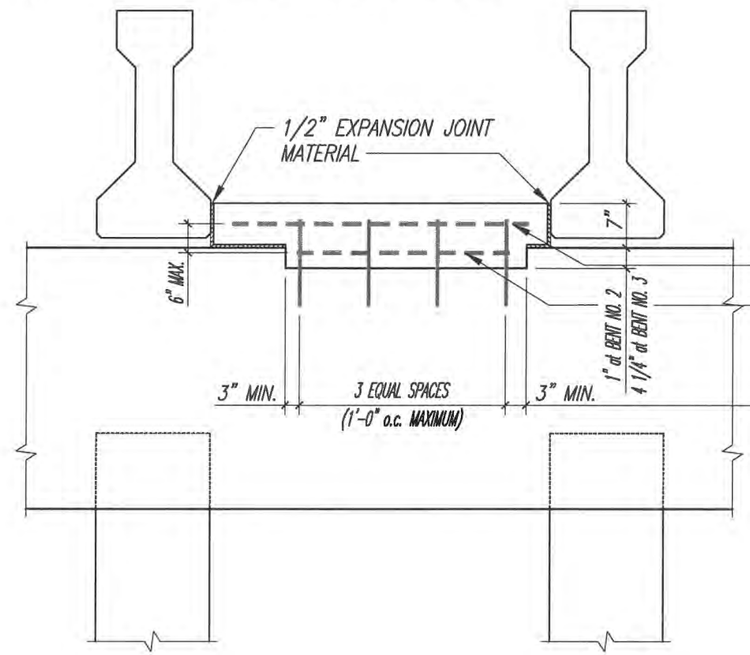


PARTIAL PLAN

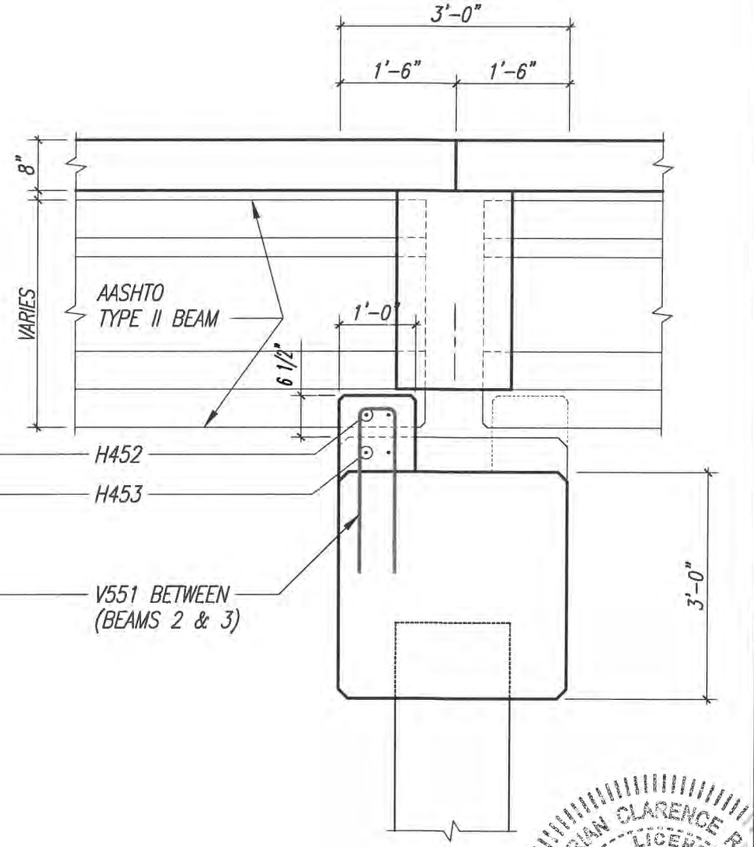
Bending Diagram



BARS V551



TYPICAL INTERMEDIATE BENT ELEVATION
SEISMIC BLOCKS BETWEEN BEAMS 2 & 3



TYPICAL INTERMEDIATE BENT SECTION
SEISMIC BLOCKS BETWEEN BEAMS 2 & 3

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FLORIDA E.B. NO. 4952

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INDIAN RIVER COUNTY FLORIDA

Department of Public Works
Engineering Division

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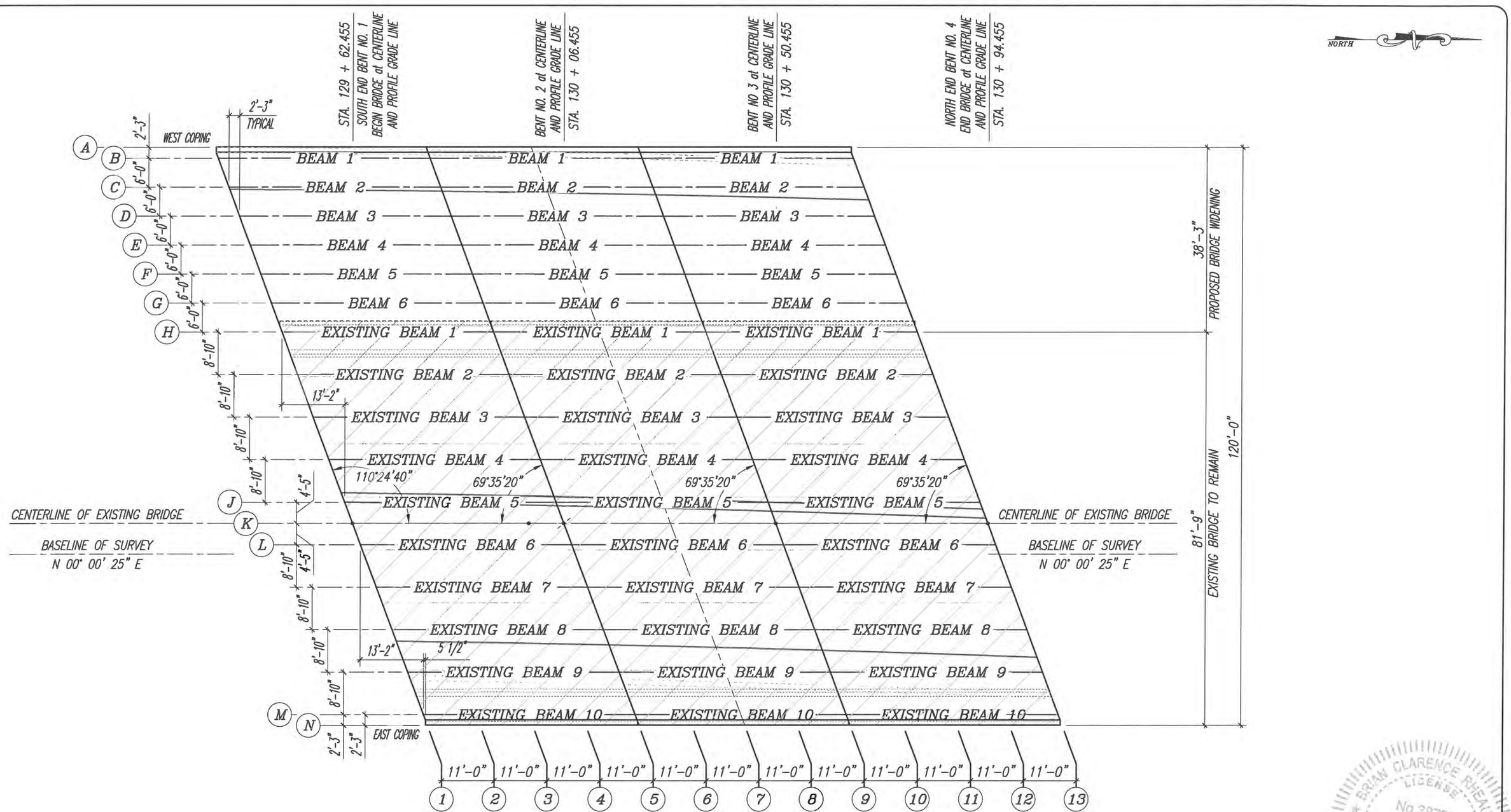
Indian River County, Florida

SEAL
1/2/2019
Brian C. Rheault - 38797
FLORIDA P.E. NAME & NUMBER

SHEET
B-27
PROJECT NO.
05-609B



PROPOSED FINISH GRADE PLAN AND BEAM PLACEMENT PLAN

3/16" = 1'-0"

DATE: Jan 02, 2019 - 4:59pm S:\2005-jobs\05-609b 43rd avenue at main relief canal\07 structural dwgs\CAD\B28331-FINGRD PL-SECT_BEAM PLACEMENT.dwg

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Brian C. Rheault - 38797
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B-28
PROJECT NO.
05-609B

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Beam Construction Control Schedule

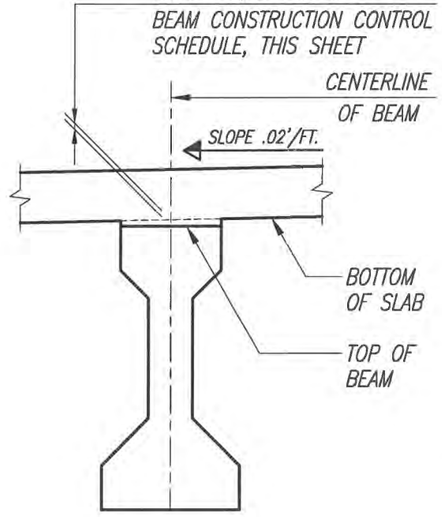
Location	Beam ID.	Camber X (in.)	Dead Load Deflection During Cast Y (in.)	Build-Up at Ends (in.)	Build-Up at Midspan (in.)
Exterior	1	1.224	0.834	0	0.390
Interior	2	1.224	0.937	0	0.287
Interior	3	1.248	0.760	0	0.488
Interior	4	1.210	0.461	0	0.749
Interior	5	1.234	0.537	0	0.697
Interior	6	1.234	0.537	0	0.697

SCREED NOTES:

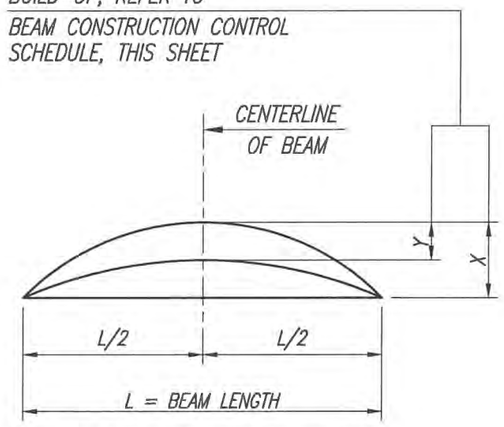
1. Slab shall be screeded to grade with no allowance for permanent camber. Slabs shall be screeded parallel to End Bents and Piers between bulkheads in longitudinal progression of the cast unit unless otherwise directed by the Engineer.
2. For dead load deflection during pour, see Beam Construction Control Schedule this sheet.
3. Design based on no inset of beam in slab. 1" maximum inset allowable for construction tolerances when beam camber greater than anticipated.

NOTE:

All build-up dimensions refer to centerline of beam in longitudinal direction. Refer to the Beam Construction Control Schedule on this sheet for build-up dimensions at midspan and at end of beams. Camber is calculated based on an age of beam concrete of 120 days.

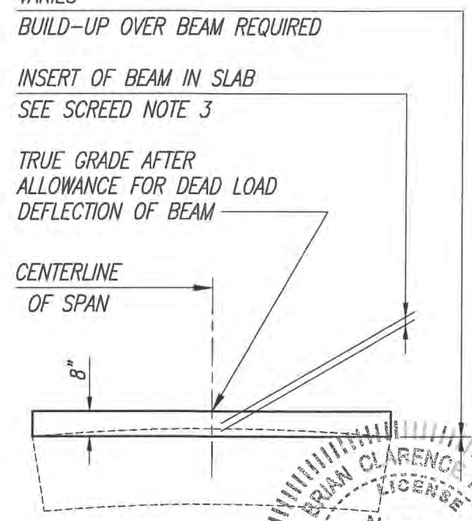


BUILD-UP OVER BEAM
SECTION B - B



X - Expected camber due to prestress and dead load of beam.
Y - Expected deflection of the beam due to cast of concrete deck and haunch.

BUILD-UP OVER BEAMS



BUILD-UP AT ENDS OF BEAMS
RELATION OF BEAM AND SLAB

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1/2/2019
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FLORIDA P.E. NAME & NUMBER

SHEET
B-29
PROJECT NO.
05-609B

TABLE OF BEAM VARIABLES

Location		Concrete Properties			Stnd. Ptrn. Type	End Elev. Cond.	Plan View Case		Brg. Plate Mark ***		End of Beam & Bearing Dimensions **						Beam Dimensions *		Reinforcing Steel													
Span No.	Beam No.	Class	Strengths (psi)								Angle ∅		Dim P	Dim J	Dim K1	Dim K2			3D1		3D2			No. of Spaces Bars 4K				Spacing Bars 4K *			
			28 Day	Release			End 1	End 2	End 1	End 2	End 1	End 2					Dim L	Dim R	B	Length	B	Length	No.	S1	S2	S3	S4	V1	V2	V3	V4
1,2,3	1	IV	5,500	4,500	1	2	2	2	B	B	69° 35' 20"	69° 35' 20"		10"	5 1/2"		43'-4"	1/2"													
1,2,3	2	IV	5,500	4,500	1	2	2	2	B	B	69° 35' 20"	69° 35' 20"		10"	5 1/2"		43'-4"	1/2"													
1,2,3	3	IV	5,500	4,500	2	2	2	2	B	B	69° 35' 20"	69° 35' 20"		10"	5 1/2"		43'-4"	1/2"													
1,2,3	4	IV	5,500	4,500	3	2	2	2	B	B	69° 35' 20"	69° 35' 20"		10"	5 1/2"		43'-4"	1/2"													
1,2,3	5	IV	5,500	4,500	4	2	2	2	B	B	69° 35' 20"	69° 35' 20"		10"	5 1/2"		43'-4"	1/2"													
1,2,3	6	IV	5,500	4,500	5	2	2	2	B	B	69° 35' 20"	69° 35' 20"		10"	5 1/2"		43'-4"	1/2"													

STRAND DEBONDING LEGEND

- • – Fully bonded strands.
- ◬ – Reduce pull 22.7 k/strand.
- ⊡ – Reduce pull 24.8 k/strand.

NOTE: On beams with skewed ends the debonded length shall be measured along the debonded strand.

NOTE: Work this sheet with the following drawings:
Index No. 20110 – Typical Beam Details and Notes
Index No. 20120– Standard Details

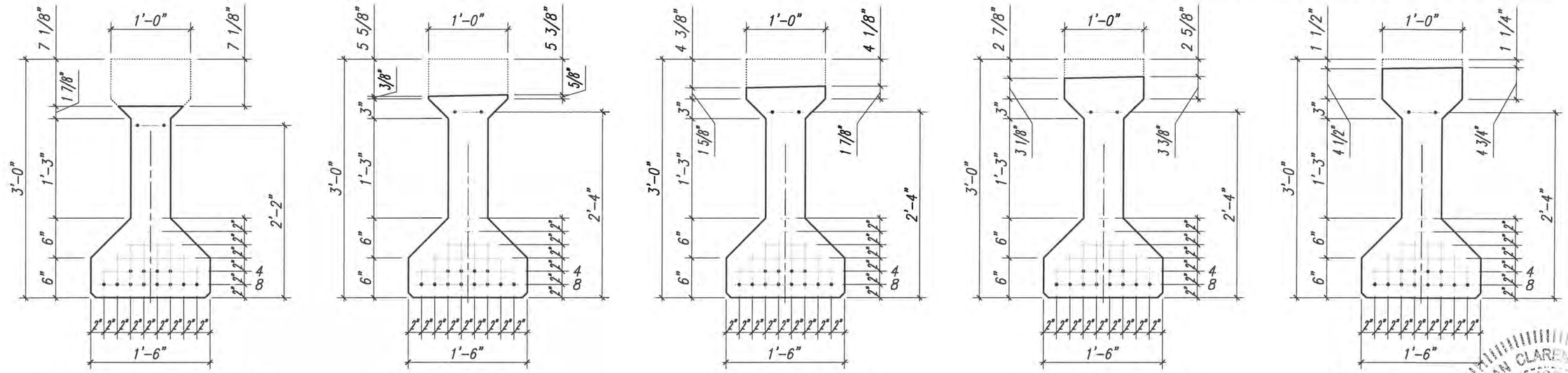
DIMENSION NOTES

* All longitudinal beam dimensions shown on this sheet with a single asterisk (*) are measured along the top of beam at the centerline of beam.

** End of beam bearing dimensions "J" and "K" are measured along the bottom of the beam.

BEARING PLATES

*** Mark indicates tapered bearing plate and insert plate required. See Index No. S–510 for details.



TYPE ① 14 STRANDS (x2) TYPE ② 14 STRANDS TYPE ③ 14 STRANDS TYPE ④ 14 STRANDS TYPE ⑤ 14 STRANDS

STRAND DESCRIPTION: Use 0.5" Diameter, Grade 270 ksi, Lo–Lax Strands stressed at 31.0 kips each. Area per strand equals 0.153 sq. in.

STRAND PATTERNS

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

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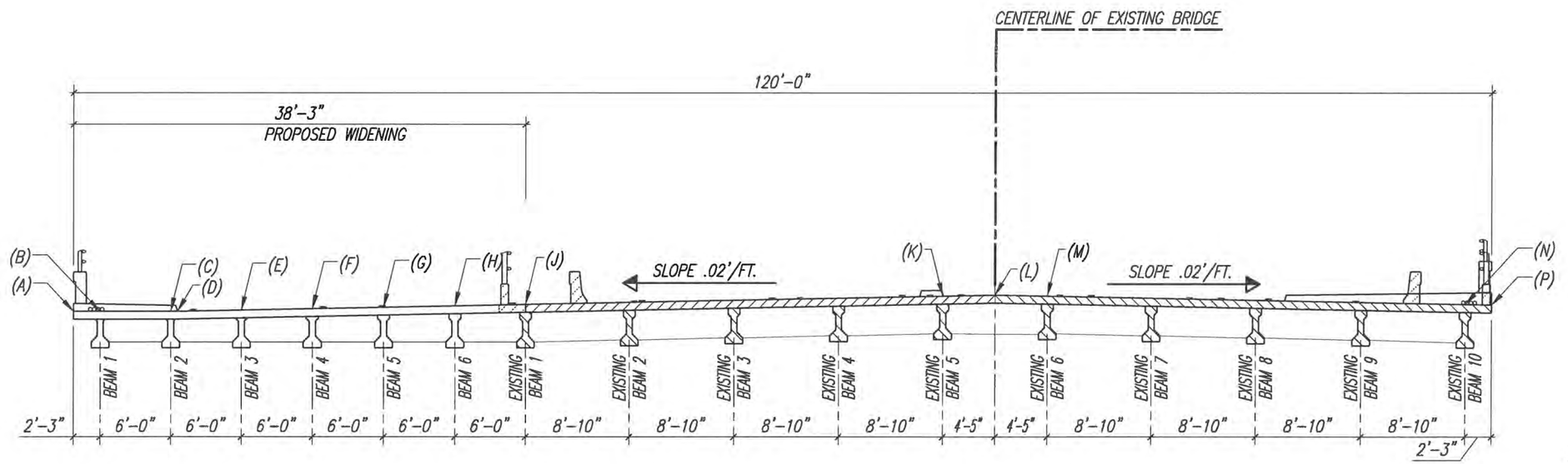
Finish Grade Elevations

	Points	Begin Bridge Bent No. 1	Span			Bent No. 2	Span			Bent No. 3	Span			End Bridge Bent No. 4
		1	2	3	4	5	6	7	8	9	10	11	12	13
A	WEST COPING	23.66	23.86	24.03	24.19	24.33	24.45	24.54	24.62	24.67	24.71	24.72	24.71	24.69
B	℄ BEAM 1	23.66	23.86	24.03	24.19	24.33	24.45	24.54	24.62	24.67	24.71	24.72	24.71	24.69
C	℄ BEAM 2	23.66	23.86	24.03	24.19	24.33	24.45	24.54	24.62	24.67	24.71	24.72	24.71	24.69
D	GUTTER	23.66	23.86	24.03	24.19	24.33	24.45	24.54	24.62	24.67	24.71	24.72	24.71	24.69
E	℄ BEAM 3	23.78	23.98	24.15	24.31	24.45	24.57	24.66	24.74	24.79	24.83	24.84	24.83	24.81
F	℄ BEAM 4	23.90	24.10	24.27	24.43	24.57	24.69	24.78	24.86	24.91	24.95	24.96	24.95	24.93
G	℄ BEAM 5	24.02	24.22	24.39	24.55	24.69	24.81	24.90	24.98	25.03	25.07	25.08	25.07	25.05
H	℄ BEAM 6	24.14	24.34	24.51	24.67	24.81	24.93	25.02	25.10	25.15	25.19	25.20	25.19	25.17
J	℄ EXISTING BEAM 1	24.257	24.456	24.634	24.791	24.928	25.045	25.141	25.216	25.271	25.306	25.319	25.313	25.285
K	℄ EXISTING BEAM 5	25.199	25.373	25.527	25.660	25.772	25.864	25.935	25.986	25.016	26.026	26.015	25.984	25.932
L	PROFILE GRADE LINE	25.314	25.486	25.636	25.766	25.875	25.964	26.033	26.080	26.108	26.114	26.100	26.066	26.011
M	℄ EXISTING BEAM 6	25.253	25.421	25.568	25.695	25.802	25.887	25.953	25.997	26.022	26.025	26.008	25.971	25.913
N	℄ EXISTING BEAM 10	24.745	24.888	25.011	25.113	25.195	25.256	25.297	25.317	25.317	25.296	25.254	25.192	25.110
P	EAST COPING	24.711	24.853	24.975	25.075	25.155	25.215	25.254	25.273	25.271	25.248	25.205	25.142	25.058

NOTE:
CONTRACTOR TO VERIFY EXISTING BRIDGE ELEVATIONS AND MATCH PROPOSED BRIDGE WITH EXISTING BRIDGE.



BRIDGE ELEVATIONS CROSS SECTION

3/16" = 1'-0"

BRIAN CLARENCE RHEAULT LICENSE No 38797 STATE OF FLORIDA PROFESSIONAL ENGINEER

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

BRIDGE DESIGN ASSOCIATES, INC.
1402 Royal Palm Beach Blvd, Bldg. 200, Royal Palm Beach, FL 33411
Tel. (561) 686-3660 Fax (561) 791-1995
CONSULTING ENGINEERS
FLORIDA E.B. NO. 4952

NO.	REVISION	DATE	BY

Department of Public Works
Engineering Division

Scale: AS NOTED
Approved:
Drawn: C.A.B.
Checked: B.C.R.
Date: 07/15/15
Field Book No:

PROJECT:
Proposed Concrete Bridge for:
43rd Avenue over Main Relief Canal
Indian River County, Florida

SEAL
Brian C. Rheault – 38797
FLORIDA P.E. NAME & NUMBER

SHEET
B-31
PROJECT NO.
05-609B

DATE: Jan 02, 2019 – 4:59pm S:\2005-jobs\05-609b 43rd avenue at main relief canal\07 structural dwgs\CADD\22831-FINGRD PL-SECT_BEAM PLACEMENT.dwg

STA. 129 + 62.455
SOUTH END BENT NO. 1
BEGIN BRIDGE at CENTERLINE
AND PROFILE GRADE LINE

39-BARS H507 TOP at 1'-0" o.c.
ALTERNATE WITH H509 BARS
(ALTERNATE WITH TOP BARS
OVER INTERMEDIATE BENT

BENT NO. 2 at CENTERLINE
AND PROFILE GRADE LINE
STA. 130 + 06.455

77-BARS H508 TOP at 6" o.c.
ALTERNATE LAPS
69-BARS H509 SPREAD AS SHOWN
ON TYPICAL SECTION BOTTOM
ALTERNATE LAPS

39-BARS H507 TOP at 1'-0" o.c.
ALTERNATE WITH H509 BARS
(ALTERNATE WITH TOP BARS
OVER INTERMEDIATE BENT

BENT NO 3 at CENTERLINE
AND PROFILE GRADE LINE
STA. 130 + 50.455

NORTH END BENT NO. 4
END BRIDGE at CENTERLINE
AND PROFILE GRADE LINE
STA. 130 + 94.455

H510 BETWEEN BARS
H505 AND H506

4"

43-BARS H505 at 4 o.c.
TOP AND BOTTOM

3'-0"

230-BARS H506 at 6 o.c. (TOP AND BOTTOM)
H510 BETWEEN BARS H505 AND H506

9"
END DIAPHAGM

4 3/8"

(1/2" at END BENT)

TO FRONT FACE
OF BACK WALL

2-H603 at 3 1/4" o.c. (TOP)
OVER DIAPGRAGM

10'-0"

8"

3"

11"

43'-2 3/4"
(TYPE II AASHTO GIRDERS)

BEAM 1
BEAM 2
BEAM 3
BEAM 4
BEAM 5
BEAM 6
EXISTING
BEAM 1

2'-3"
6'-0"
38'-3"
PROPOSED BRIDGE WIDENING
46'-1"
(DIMENSION TO BASELINE SURVEY)
EXISTING BRIDGE TO REMAIN
81'-8 3/4"

BEGIN BRIDGE
STA. 129 + 62.455

BENT NO 2
STA. 130 + 06.455

BENT NO 3
STA. 130 + 50.455

BEGIN BRIDGE
STA. 130 + 94.455

CENTERLINE OF EXISTING BRIDGE

PARTIAL SLAB REINFORCING PLAN

DATE: Jan 02, 2019 - 4:59pm S:\2005-Jobs\05-609b 43rd avenue at main relief canal\07 structural dwgs\CADD\B36-PARTIAL SLAB REINF.dwg

VERIFY SCALE
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FLORIDA E.B. NO. 4952

NO.	REVISION	DATE	BY

INDIAN RIVER COUNTY FLORIDA

Department of Public Works
Engineering Division

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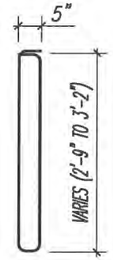
PROJECT:
Proposed Concrete Bridge for:
43rd Avenue over Main Relief Canal
Indian River County, Florida

SEAL
1/2/2019
Brian C. Rheault - 38797
FLORIDA P.E. NAME & NUMBER

SHEET
B-32
PROJECT NO.
05-609B

Bending Diagram



BARS S417

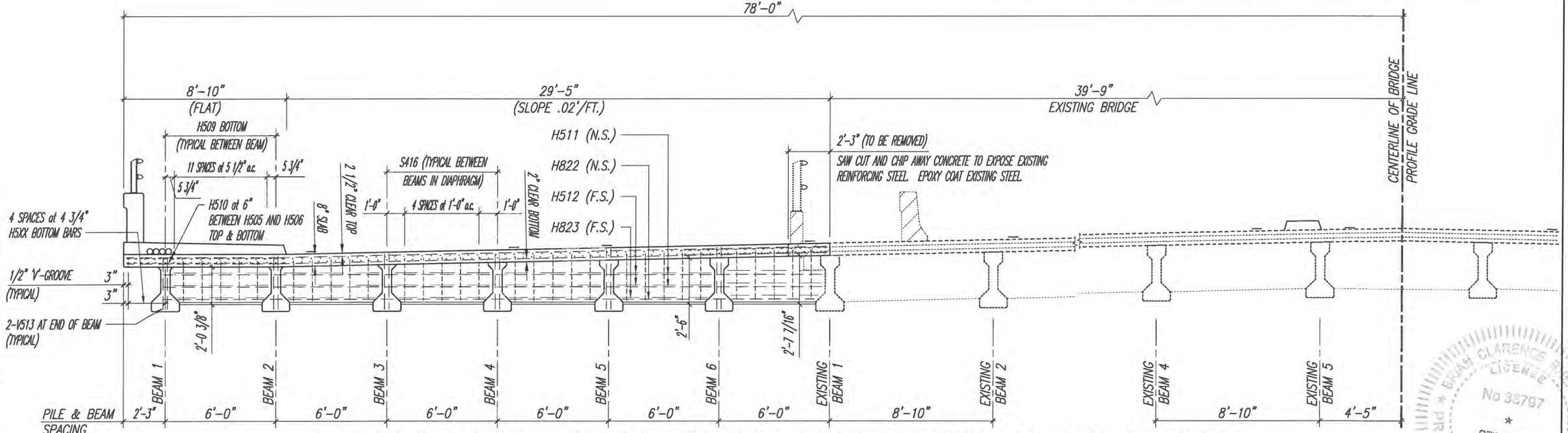
Estimated Slab and Diaphragm Quantities

Item		Unit	Quantity
Class II Concrete (Slab–Total)		Cu. Yds.	106.5
Reinforcing Steel (Slab–Total)		lbs.	44,154
Class II Concrete (Diaphragm)	(6 Required)	Cu. Yds.	10.5
Reinforcing Steel (Diaphragm)	(6 Required)	lbs.	394

Bill of Reinforcing Steel and Estimated Quantities are for one diaphragm only and total for slab.

Bill of Reinforcing Steel

Mark	Size	Number Required			Length + Lap	Total Length	Bending	Weight (lbs.)
Slab								
H505	5	150			VARIES 32'-6 TO 0'-6"	16'–6"	Straight (Average)	2581.4
H506	5	434				32'–0"	Straight	14485.2
H507	5	64				20'–0"	Straight	1335.0
H508	5	66			132'–0" + 9'–0"	141'–0"	Straight - 3 Laps	9706.2
H509	5	66			132'–0" + 9'–0"	141'–0"	Straight - 3 Laps	9706.2
H510	5	630				9'–0"	Straight	5913.8
H603	6	12				34'–1"	Straight	426.6
Diaphragm								
S416	4	25			VARIES 6'-9" TO 7'-8 1/2"	7'–2 3/4"	Bar S416 (Average)	120.7
H511	5	2				29'–9"	Straight	62.1
H512	5	10				5'–2"	Straight	53.9
H513	5	5			VARIES 2'-9" TO 3'-2"	2'–11 1/2"	Straight (Average)	15.4
H822	8	1				29'–5"	Straight	78.5
H823	8	5				4'–9"	Straight	63.4



PARTIAL SLAB AND DIAPHRAGM REINFORCING CROSS SECTION

3/8" = 1'–0"

BRIDGE CLARENCE RHEAULT LICENSE No 38797 STATE OF FLORIDA PROFESSIONAL ENGINEER

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

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FLORIDA E.B. NO. 4952

NO.	REVISION	DATE	BY

INDIAN RIVER COUNTY FLORIDA

Department of Public Works
Engineering Division

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Proposed Concrete Bridge for:
43rd Avenue over Main Relief Canal
Indian River County, Florida

SEAL
Brian C. Rheault – 38797
FLORIDA P.E. NAME & NUMBER

SHEET
B–33
PROJECT NO.
05–609B

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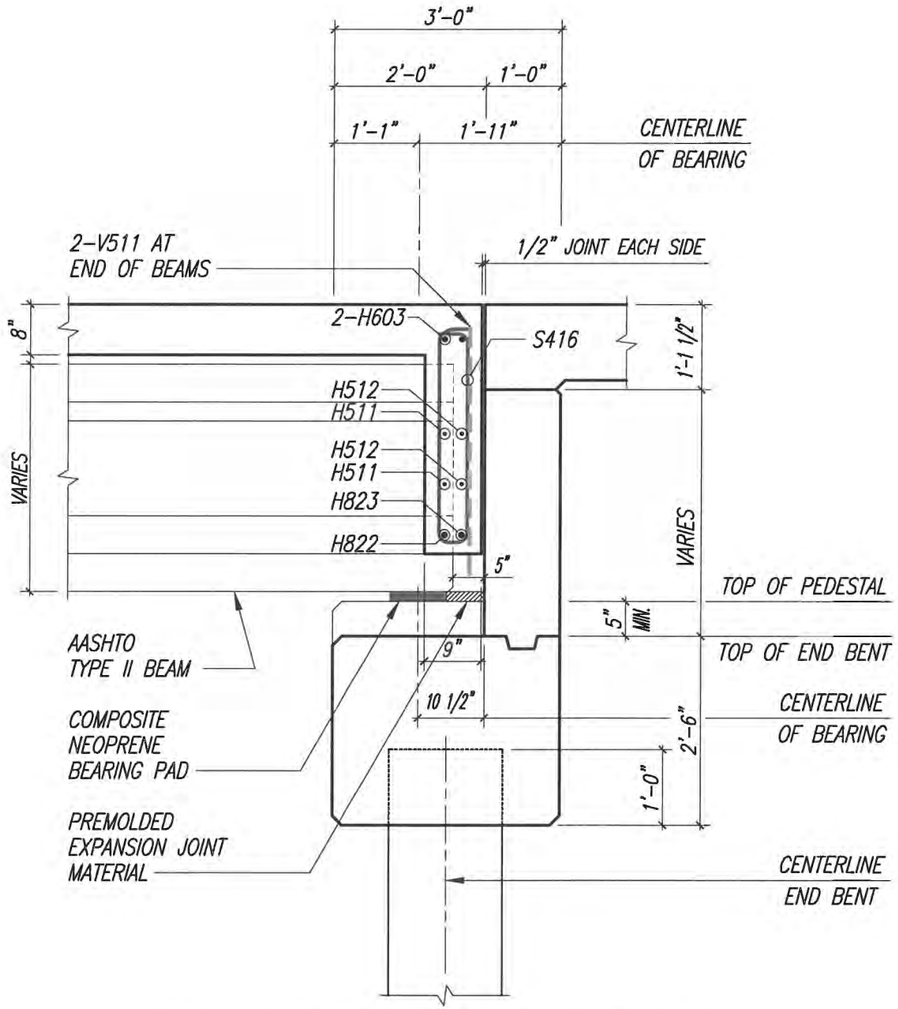
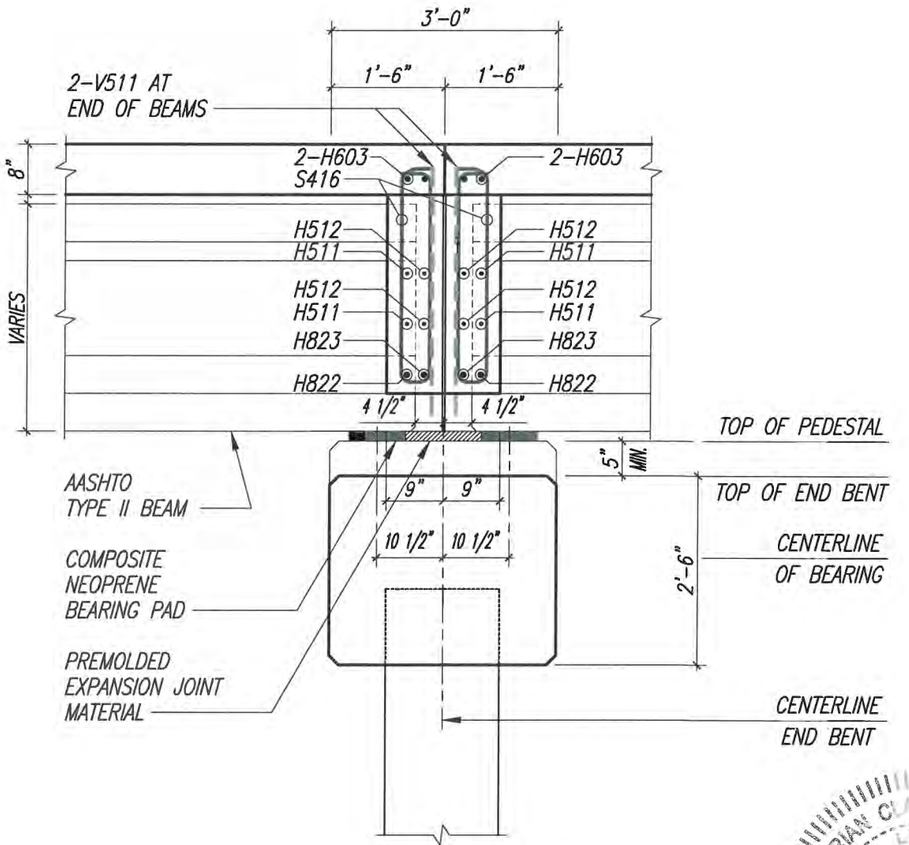


END DIAPHRAGM (END BENTS)
SECTION A – A



END DIAPHRAGM (INTERMEDIATE BENTS)
SECTION B – B

BRIAN CLARENCE RHEAULT LICENSE No 38797 STATE OF FLORIDA PROFESSIONAL ENGINEER

DATE: Jan 02, 2019 – 4:59pm S:\2005-jobs\05-609b 43rd avenue at main relief canal\07 structural dngs\CADD\B34-DIAPHRAGM DETAILS.dwg

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FLORIDA E. B. NO. 4952

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Engineering Division

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Date: 07/15/15
Field Book No:

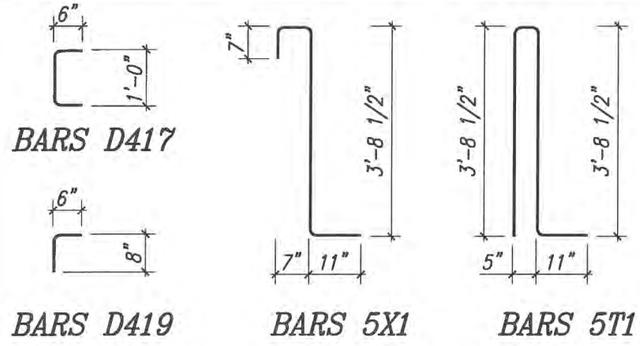
PROJECT:
Proposed Concrete Bridge for:
43rd Avenue over Main Relief Canal
Indian River County, Florida

SEAL
Brian C. Rheault – 38797
FLORIDA P.E. NAME & NUMBER

SHEET
B-34

PROJECT NO.
05-609B

Bending Diagram



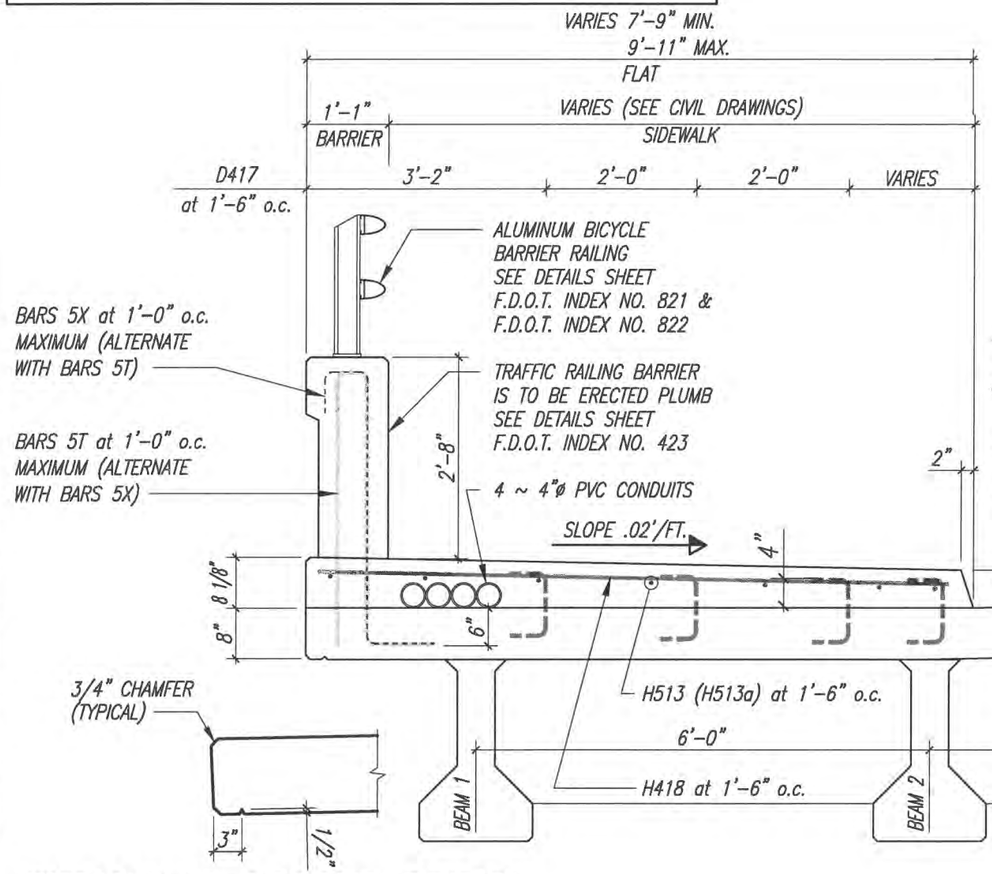
Sidewalk Quantities

Item	Unit	Quantity
Class II Lightweight Concrete (Sidewalks/Medians-Total)	Cu. Yds.	65.0
Reinforcing Steel (Sidewalks/Median-Total)	lbs.	2,827
32" Vertical Concrete Traffic Barrier	L. F.	350'-0"
Class II Concrete (Approach Slabs)	Cu. Yds.	60.0
Reinforcing Steel (Approach Slabs)	lbs.	20,227

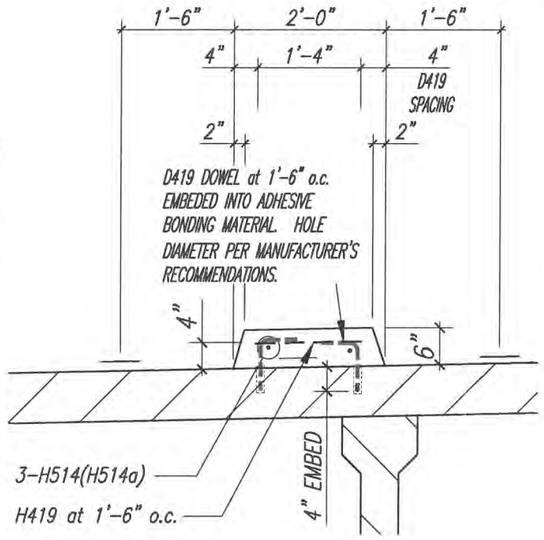
Bill of Reinforcing Steel

Mark	Size	Number Required			Length + Lap	Total Length	Bending	Weight (lbs.)
Sidewalk								
D417	4	480				2'-0"	Bar D420	641.3
H418	4	88			Varies	9'-5"	Straight	553.5
H513	5	7				130'-6	Straight	952.8
Median								
D419	4	240				1'-2"	Bar D419	187.0
H514	5	6				43'-6"	Straight	272.2
H514a	5	4				20'-8"	Straight	86.2
H420	4	120				1'-8"	Straight	133.6
32" Vertical Barrier								
5T1	5	172				8'-9 1/2"	Bar 5T1	1577.2
5X1	5	172				5'-9 1/2"	Bar 5X1	1039.0
5T2	5	172				8'-9 1/2"	Bar 5T2	1577.2
5X2	5	172				5'-9 1/2"	Bar 5X2	1039.0
Approach Slabs (Total)								
A421	4	66				20'-10"	Straight	918.5
A422	4	74				34'-11"	Straight	1726.0
A701	7	126				20'-10"	Straight	5365.5
A702	7	148				40'-4 5/8"	Straight	12217.1

Bill of Reinforcing Steel and Estimated Quantities are total for sidewalks.



SIDEWALK DETAIL



MEDIAN DETAIL

TYPICAL V-GROOVE DETAIL

REINFORCING STEEL NOT SHOWN FOR CLARITY

VERIFY SCALE
1"
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FLORIDA E.B. NO. 4952

NO.	REVISION	DATE	BY

Department of Public Works
Engineering Division

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Drawn: C.A.B.
Checked: B.C.R.
Date: 07/15/15
Field Book No:

PROJECT:
Proposed Concrete Bridge for:
43rd Avenue over Main Relief Canal
Indian River County, Florida

SEAL
Brian C. Rheault - 38797
FLORIDA P.E. NAME & NUMBER

SHEET
B-35
PROJECT NO.
05-609B

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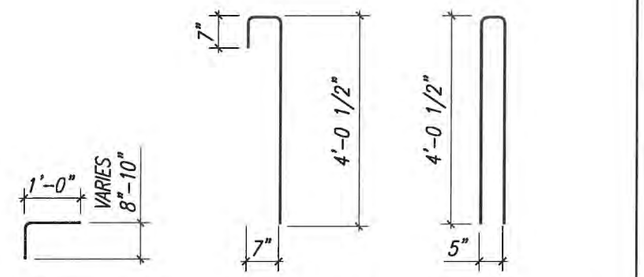
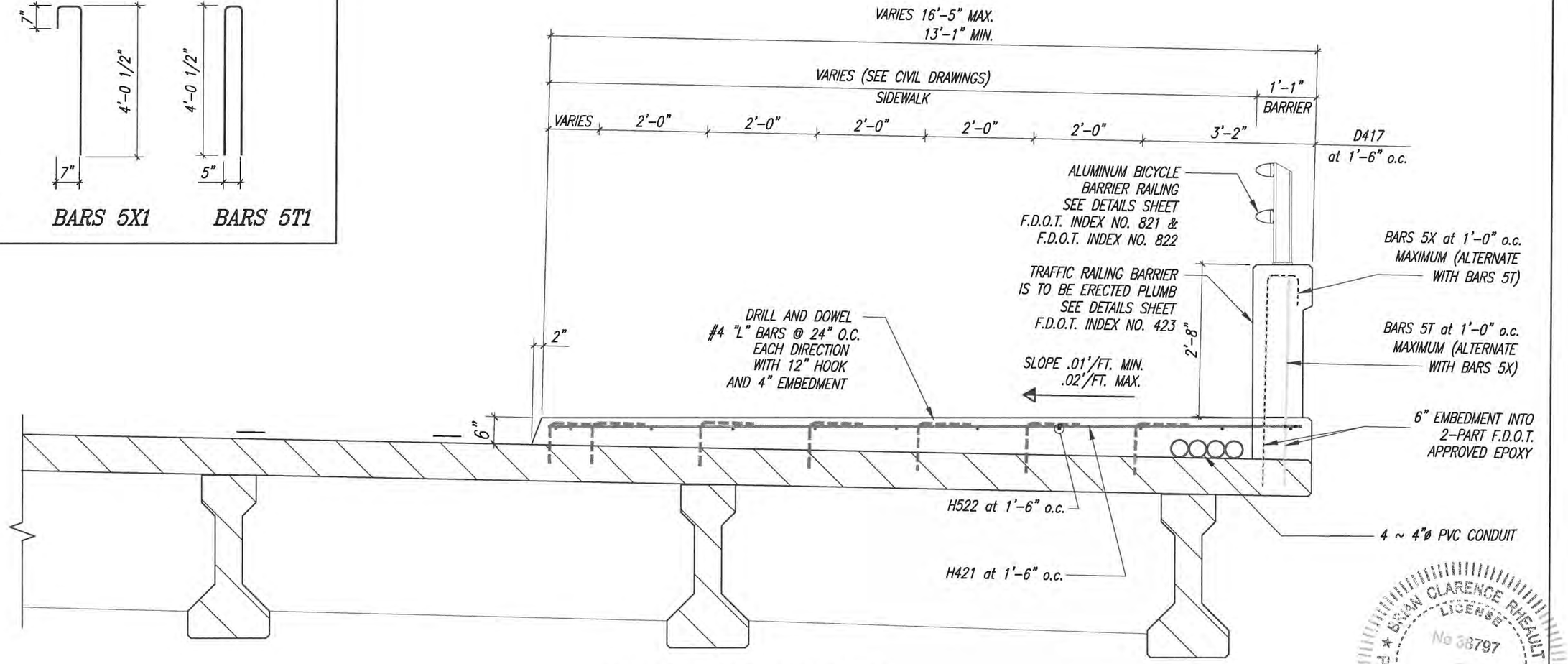
Bill of Reinforcing Steel

Mark	Size	Number Required			Length + Lap	Total Length	Bending	Weight (lbs.)
Sidewalk								
D420	4	530				2'-0"	Bar D420	708.1
H421	4	88			Varies	16'-0"	Straight	940.5
H522	5	12			43'-6"	130'-6"	Straight	1633.3

Bending Diagram



BARS D420 BARS 5X1 BARS 5T1



SIDEWALK DETAIL

BRIAN CLARENCE RHEAULT
LICENSE
No 38797
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

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

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Field Book No:

PROJECT:
Proposed Concrete Bridge for:
43rd Avenue over Main Relief Canal
Indian River County, Florida

SEAL
11/2/2015
Brian C. Rheault - 38797
FLORIDA P.E. NAME & NUMBER

SHEET
B-36
PROJECT NO.
05-609B

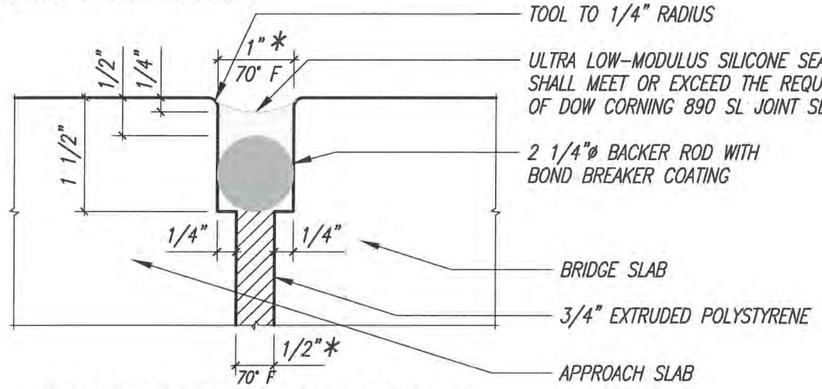
DATE: Jan 02, 2019 - 5:00pm S:\2005-jobs\05-609b 43rd avenue at main relief canal\07 structural dwgs\CADD\B36-SIDEWALK DETAIL.dwg

* NOTE:

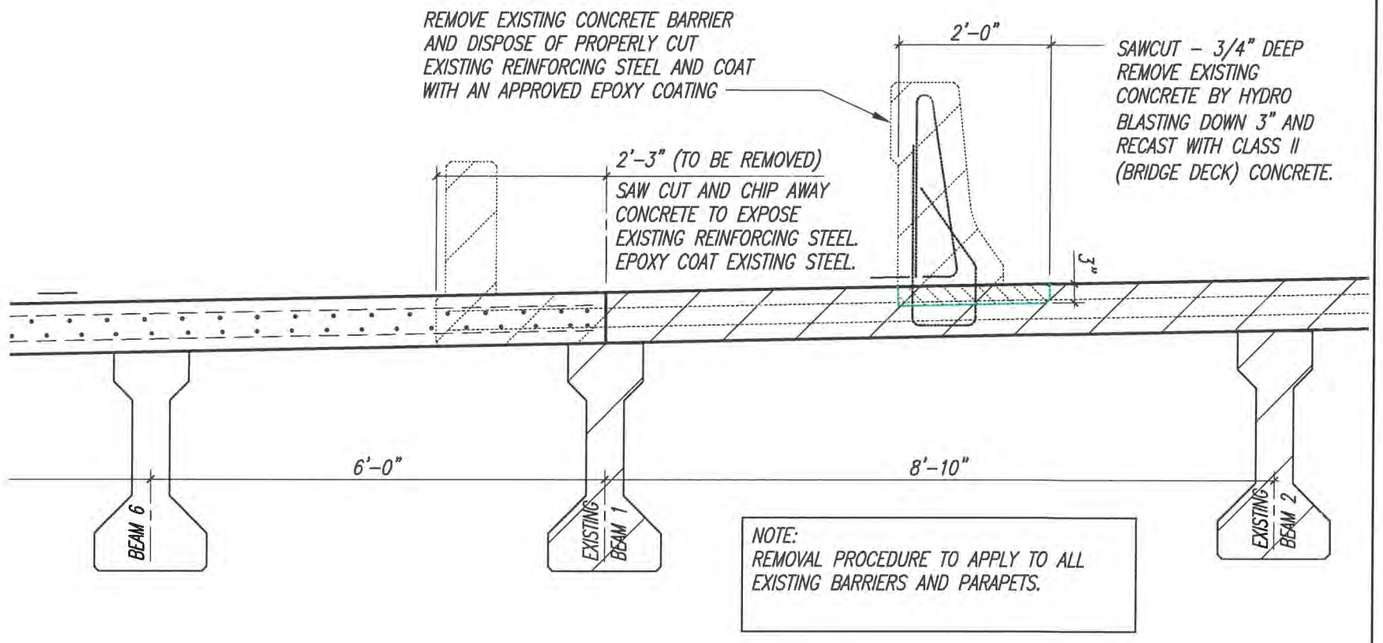
For temperatures other than 70°F adjust opening "E" inches per degree difference between 70° add the temperature at the time the Joint is constructed. For temperatures above 70°F diminish the opening and for temperatures below 70° increase opening.

NOTE:

The cost of expansion joint, including sealant, shall be included in the conract price for Superstructure Concrete. Installation shall be in accordance with the manufacturer's recommendations.

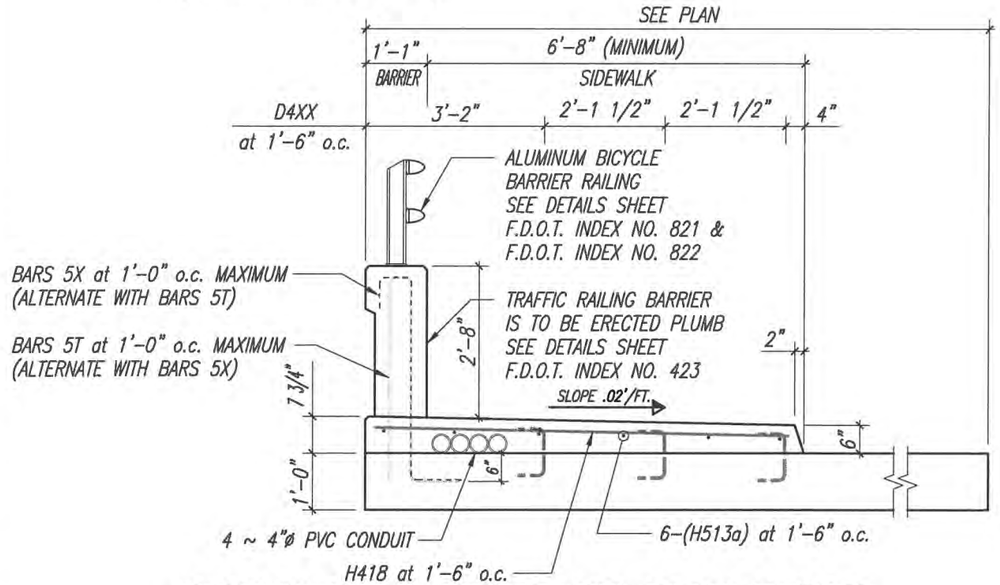


EXPANSION JOINT DETAIL
(AT END BENTS ONLY)

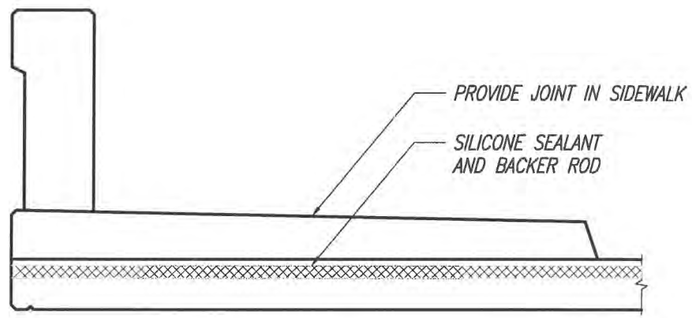


NOTE:
REMOVAL PROCEDURE TO APPLY TO ALL EXISTING BARRIERS AND PARAPETS.

TYPICAL SECTION AT PROPOSED TO EXISTING SLAB



SIDEWALK at APPROACH SLAB DETAIL



TYPICAL SECTION AT JOINT

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INDIAN RIVER COUNTY FLORIDA

Department of Public Works
Engineering Division

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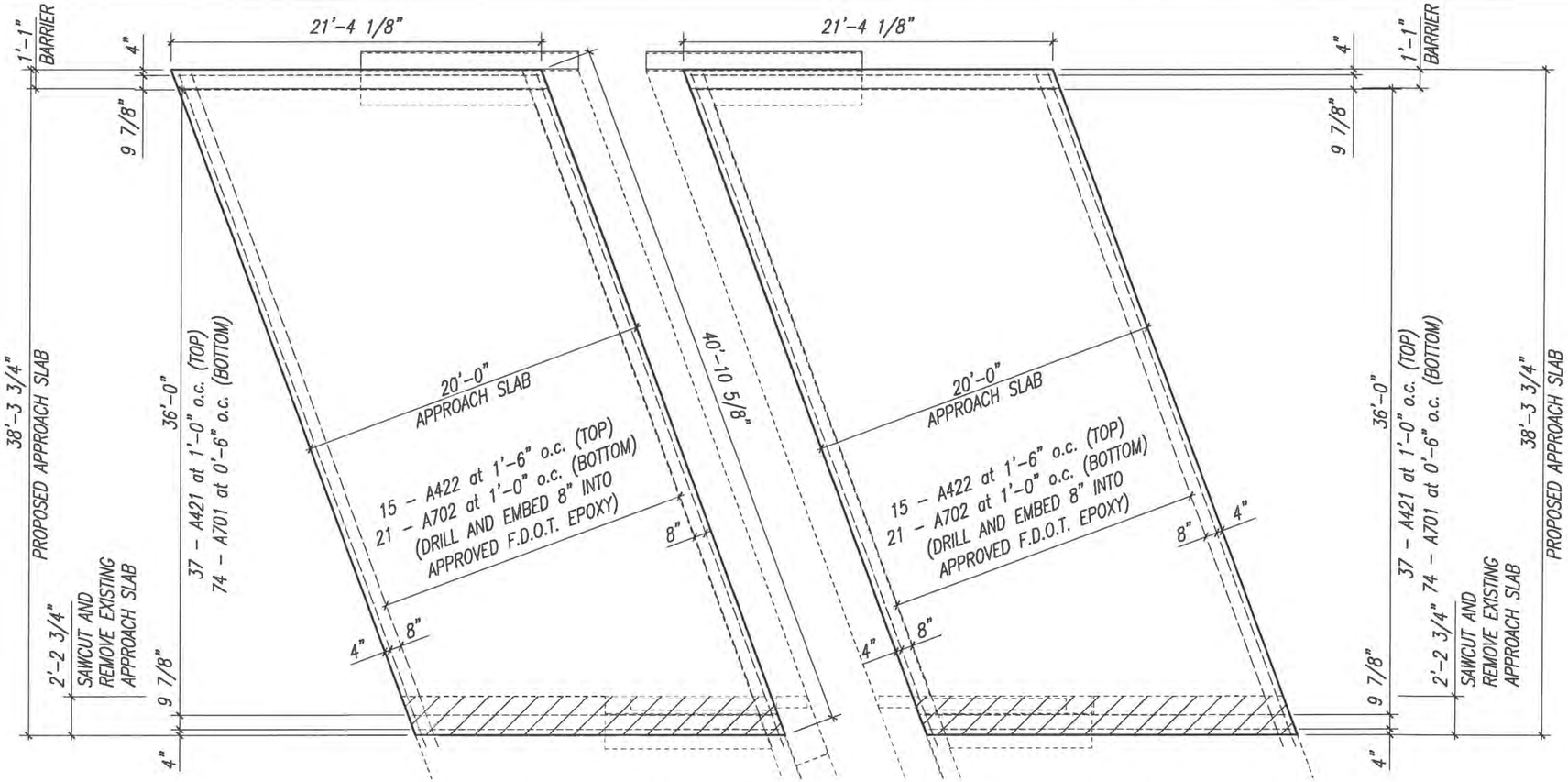
Indian River County, Florida

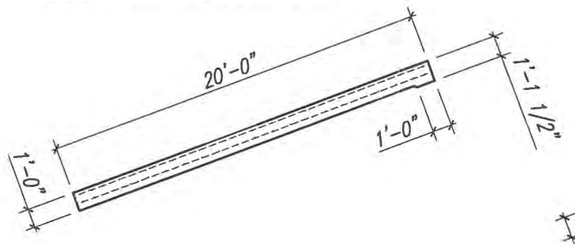
SEAL
1/2/2019
Brian C. Rheault - 38797
FLORIDA P.E. NAME & NUMBER

SHEET
B-37

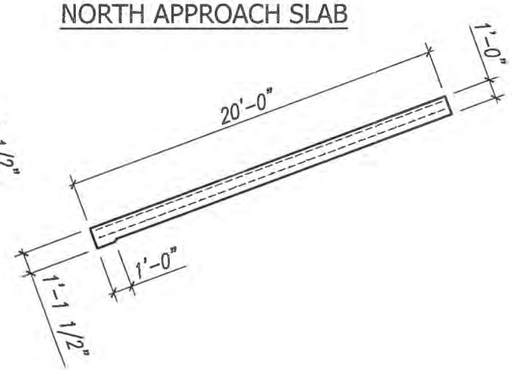
PROJECT NO.
05-609B



SOUTH APPROACH SLAB



NORTH APPROACH SLAB



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DATE: Jan 02, 2019 - 5:03pm S:\2005-jobs\05-609b 43rd avenue at main relief canal\07 structural dwgs\2400\837-APPROACH SLAB DETAILS.dwg

VERIFY SCALE
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Indian River County, Florida

SEAL
1/2/2019
Brian C. Rheault - 38797
FLORIDA P.E. NAME & NUMBER

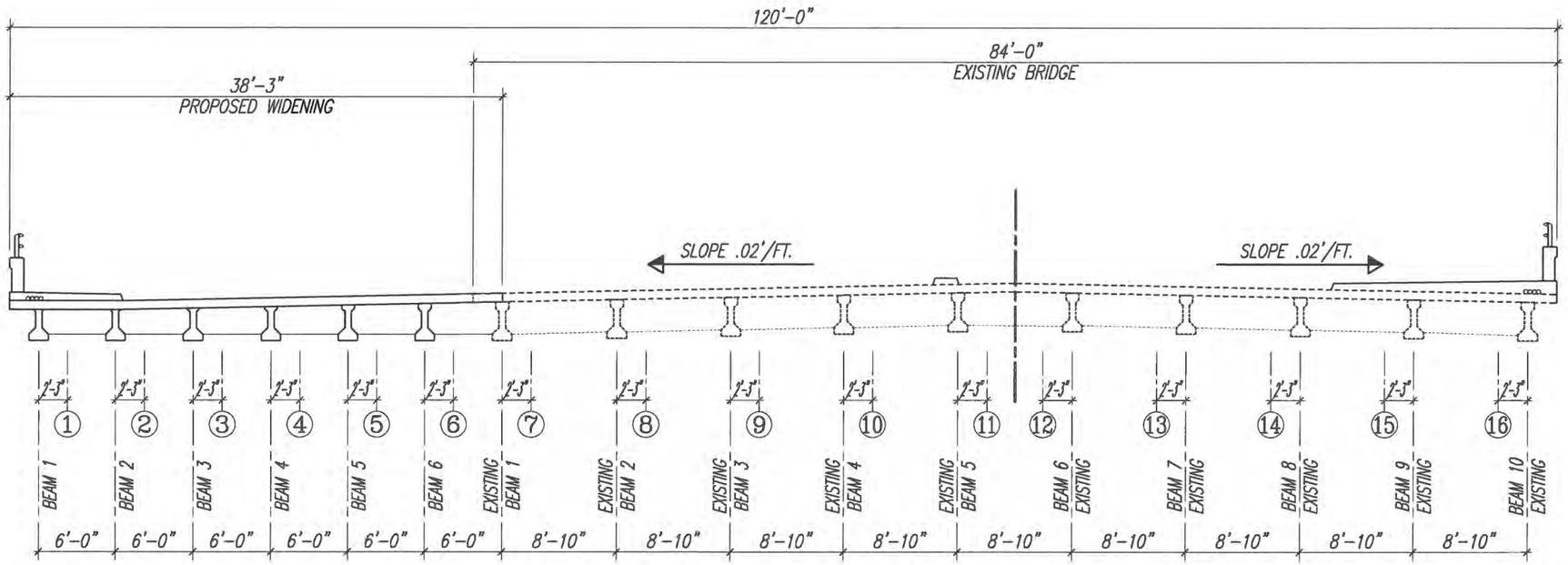
SHEET
B-38
PROJECT NO.
05-609B

JACKING NOTES:

1. To replace any one bearing pad at any bent, all girders at that bent must be jacked simultaneously. Jacking operation shall continue until pads are freed, but in no case shall the clear space between the bearing pad and concrete surface exceed 3/16".
2. One Jack with a distribution plate may be used in lieu of two Jacks at an intermediate bent. Particular attention shall be given to keeping concrete bearing stresses within the limiting values as given by AASHTO, Section 8.16.7.
3. Jacks loads shown are based on dead load.
4. Jacks shall be equipped with a locking ring which will prevent movement in case hydraulic pressure is lost. Jacks shall be locked off prior to removal of any bearing pads.
5. Jacking Details are shown for reference only and shall be used when replacing bearing in the future Jack Systems are not to be included in this contract.

Jacking Requirements

Jacking Load Location	1	2	3	4	5	6		7	8	9	10	11	12	13	14	15
End Bent No. 1 Loads (Tons)	24.86	18.50	14.40	14.70	14.90	19.60		27.20	19.20	19.20	19.20	19.20	19.20	19.20	19.20	19.20
Intermediate Bent No. 2 Loads (Tons)	49.70	37.00	28.80	29.30	29.80	39.10		52.40	38.50	38.50	38.50	38.50	38.50	38.50	38.50	38.50
Intermediate Bent No. 3 Loads (Tons)	49.70	37.00	28.80	29.30	29.80	39.10		52.40	38.50	38.50	38.50	38.50	38.50	38.50	38.50	38.50
End Bent No. 4 Loads (Tons)	24.86	18.50	14.40	14.70	14.90	19.60		27.20	19.20	19.20	19.20	19.20	19.20	19.20	19.20	19.20



JACKING LOCATIONS

3/16" = 1'-0"

JACKING FOR INFORMATION ONLY NOT IN CONTRACT

BRIAN CLARENCE RHEAULT LICENSE No 38797 STATE OF FLORIDA PROFESSIONAL ENGINEER

DATE: Jan 02, 2019 - 5:00pm S:\2005-jobs\05-609b 43rd avenue at main relief canal\07 structural dwgs\CADD\B39-JACKING DETAILS.dwg

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CONSULTING ENGINEERS
FLORIDA E.B. NO. 4952

NO.	REVISION	DATE	BY

INDIAN RIVER COUNTY FLORIDA

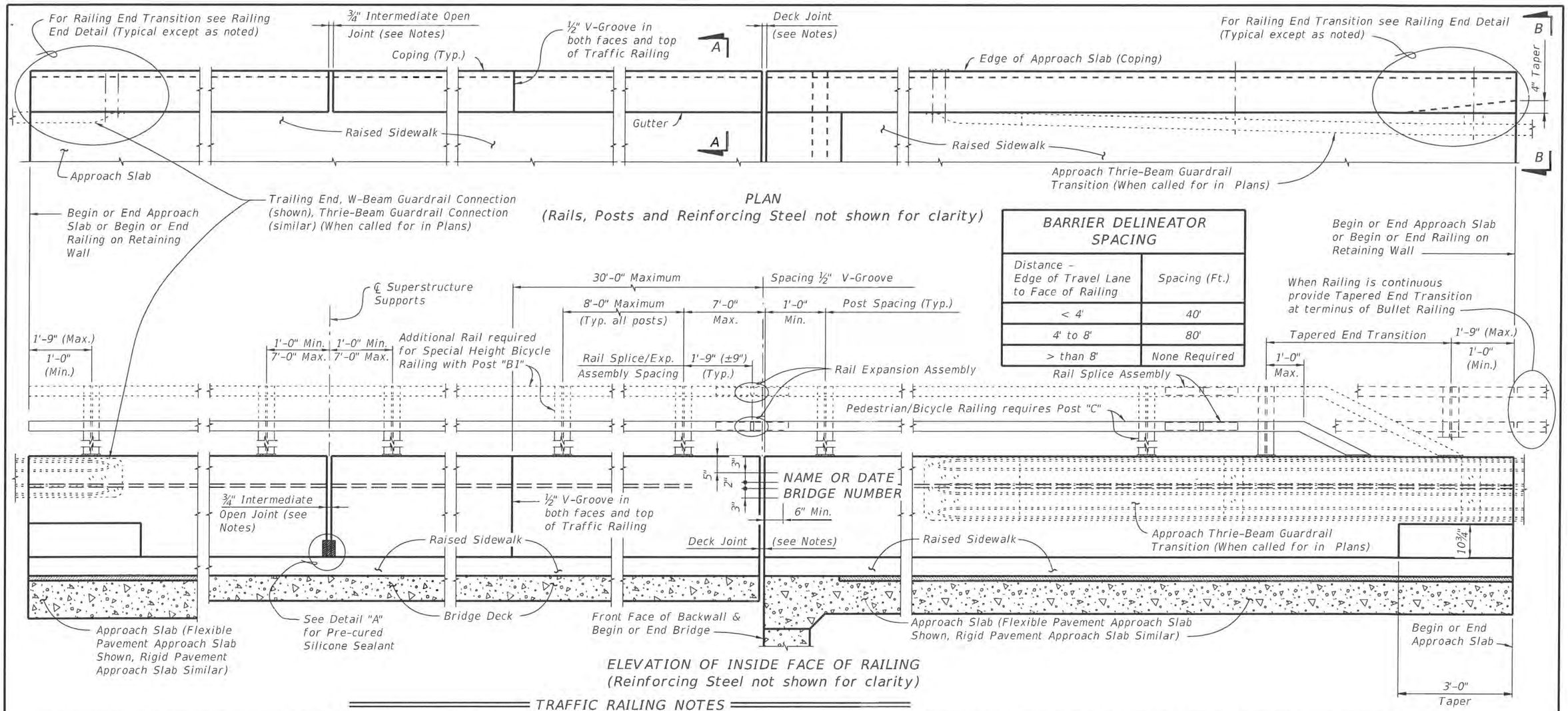
Department of Public Works
Engineering Division

Scale: AS NOTED
Approved:
Drawn: C.A.B.
Checked: B.C.R.
Date: 07/15/15
Field Book No:

PROJECT:
Proposed Concrete Bridge for:
43rd Avenue over Main Relief Canal
Indian River County, Florida

SEAL
Brian C. Rheault - 38797
FLORIDA P.E. NAME & NUMBER

SHEET
B-39
PROJECT NO.
05-609B



BARRIER DELINEATOR SPACING	
Distance – Edge of Travel Lane to Face of Railing	Spacing (Ft.)
< 4'	40'
4' to 8'	80'
> than 8'	None Required

ELEVATION OF INSIDE FACE OF RAILING
(Reinforcing Steel not shown for clarity)

TRAFFIC RAILING NOTES

This railing has been structurally evaluated to be equivalent or greater in strength to other safety shape railings which have been crash tested to NCHRP Report 350 TL-4 Criteria.

CONCRETE AND REINFORCING STEEL : See Structures Plans, General Notes.

GUARDRAIL : For Guardrail connection details, see Index 400.

PEDESTRIAN/BICYCLE RAILING AND SPECIAL HEIGHT BICYCLE RAILING DETAILS : See Index 822 for Post, Rail and Rail Splice/Expansion Assembly fabrication and installation Details and Notes.

V-GROOVES : Construct ½" V-Grooves plumb. Space V-Grooves equally between ¾" Open Joints and/or Deck Joints and at V-Groove locations on Retaining Wall footings.

BARRIER DELINEATORS: Barrier Delineators shall meet Specification Section 993. Install Barrier Delineators on top of the Traffic Railing 2" from the face on the traffic side at the spacing shown in the table above. Barrier Delineator color (white or yellow) shall match the color of the near edgeline. The cost of the Barrier Delineators shall be included in the Contract Unit Price for the Traffic Railing.

RAILINGS ON RETAINING WALLS : If the Traffic Railing is to be provided on a retaining wall, the railing section will be the same as shown on Sheet 2. All other details such as the guardrail transition attachment, the maximum spacing of the ¾" open joints and ½" V-Groove shall apply.

NAME, DATE, AND BRIDGE NUMBER : The Name and Bridge Number shall be placed on the Traffic Railing so as to be seen on the driver's right side when approaching the bridge. The Date shall be placed on the driver's left side when approaching the bridge. The Name shall be as shown in the General Notes of the Structures Plans. The Date shall be the year the bridge is completed. For a widening when the existing railing is removed, use both the existing date and the year of the widening. Black plastic letters and figures 3" in height may be used, as approved by the Engineer, in lieu of the letters and figures formed by ⅜" V-Grooves. V-Grooves shall be formed by preformed letters and figures.

OPEN JOINTS : See Structures Plans, Superstructure, Approach Slab Sheets and Retaining Walls for actual dimensions and joint orientation. Provide open Traffic Railing Joints at Deck Expansion Joint locations matching the dimensions of the Deck Joint. For treatment of Railings on skewed bridges see Index 420.

Provide ¾" Intermediate Open Joints at :

(1) – Superstructure supports where slab is continuous.

(2) – Ends of approach slabs when adjacent to retaining walls and at expansion joints on retaining wall junction slabs.

CROSS REFERENCE:
For Section A-A and View B-B, see Sheet 2.
For Detail "A" see Sheet 3.

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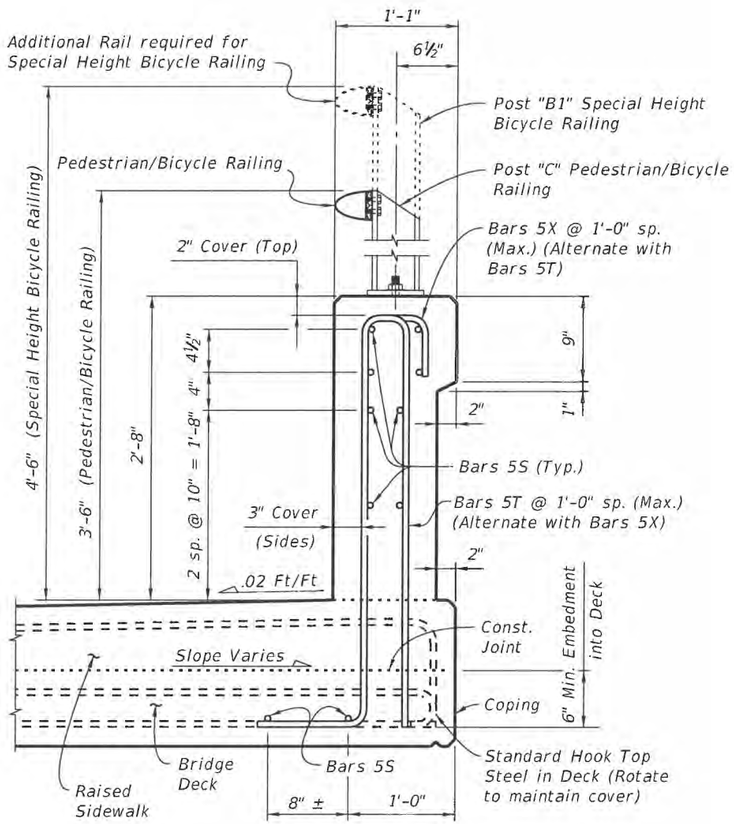
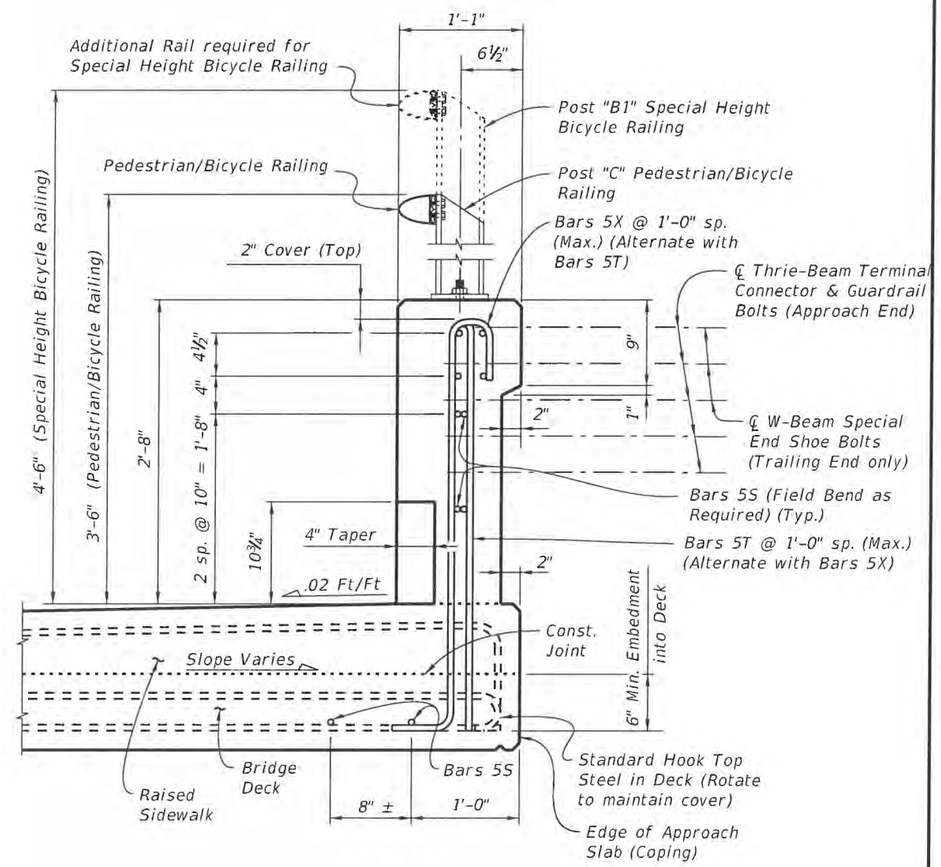
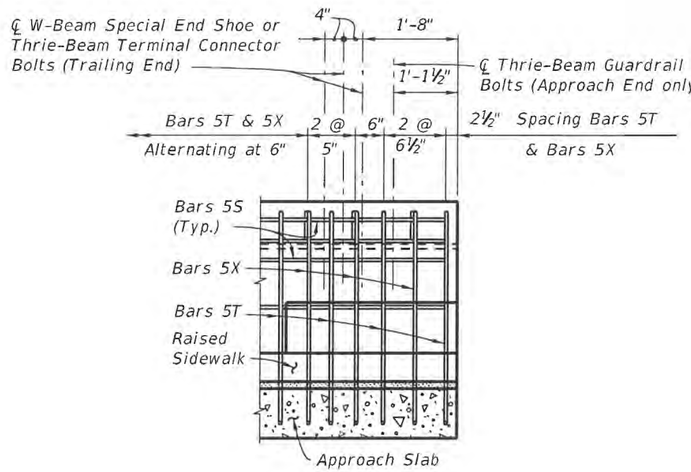
LAST REVISION	REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
07/01/14			FDOT 2015 DESIGN STANDARDS	TRAFFIC RAILING - (32" VERTICAL SHAPE)	423	1 of 3



SECTION A-A
TYPICAL SECTION THRU TRAFFIC RAILING
SECTION THRU BRIDGE DECK SHOWN



VIEW B-B
APPROACH SLAB END VIEW
OF TRAFFIC RAILING



RAILING END DETAIL

NOTES:
Omit Railing End Taper and Guardrail if Concrete Barrier Wall is used beyond the Approach Slab. See Structures Plans, Plan and Elevation Sheet and Roadway Plans. If Railing End Taper is omitted, extend Typical Section to the end of the Approach Slab. Begin placing Railing Bars 5T and 5X on Approach Slab at the railing end and proceed toward Begin or End Bridge to ensure placement of guardrail bolt holes. If required, adjustments to the bar spacing for Bars 5T and 5X shall be made immediately adjacent to Begin or End Bridge. Shift and rotate Bars 5T and 5X on Approach Slab in end taper section as required to maintain cover.

CROSS REFERENCE:
For location of Section A-A and View B-B see Sheet 1.

NOTE: For Post "B1", Post "C" and Rail Details, see Index No. 822.

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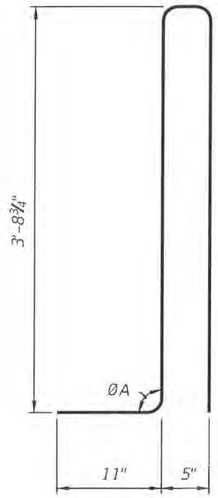
LAST REVISION	REVISION	DESCRIPTION:	FDOT 2015 DESIGN STANDARDS	TRAFFIC RAILING - (32" VERTICAL SHAPE)	INDEX NO.	SHEET NO.
07/01/14					423	2 of 3

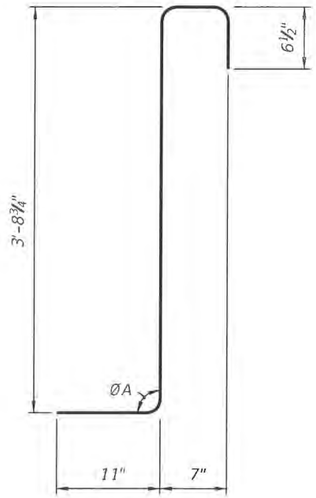
CONVENTIONAL REINFORCING STEEL BENDING DIAGRAMS

BILL OF REINFORCING STEEL		
MARK	SIZE	LENGTH
S	5	As Reqd.
T	5	9'-0"
X	5	5'-10"

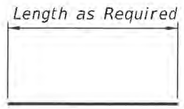
ROADWAY CROSS-SLOPE	ØA	
	LOW GUTTER	HIGH GUTTER
0% to 2%	90°	90°
2% to 6%	87°	93°
6% to 10%	84°	96°



STIRRUP BAR 5T



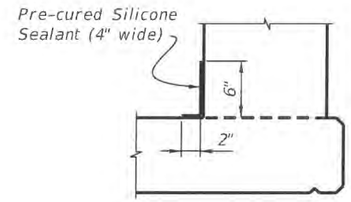
STIRRUP BAR 5X



BAR 5S

REINFORCING STEEL NOTES:

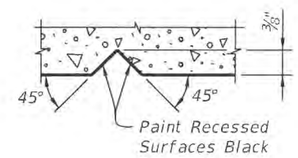
1. All bar dimensions in the bending diagrams are out to out.
2. The 3'-8¾" vertical dimensions shown for Bars 5T and 5X are based on a bridge deck with a 6" thick x 6' wide raised sidewalk at low side of deck, 2% deck cross slope and a counter 2% raised sidewalk cross slope. If the raised sidewalk thickness, width or cross slopes vary from the above amounts, adjust these vertical dimensions accordingly to achieve a 6" minimum embedment into the bridge deck.
3. The reinforcement for the railing on a Retaining Wall shall be the same as detailed with ØA = 90°.
4. All reinforcing steel at the open joints shall have a 2" minimum cover.
5. Bars 5S may be continuous or spliced at the construction joints. Bar splices for Bars 5S shall be a minimum of 2'-2".
6. The Contractor may utilize Welded Wire Reinforcement (WWR) when approved by the Engineer. WWR must consist of Deformed wire meeting the requirements of Specification Section 931.



DETAIL "A" - SECTION
AT INTERMEDIATE OPEN JOINT

INTERMEDIATE JOINT SEAL NOTES:

1. At Intermediate Open Joints, seal the lower 6" portion of the open joint with Pre-cured Silicone Sealant in accordance with Specification Section 932.
2. Apply sealant prior to any Class V finish coating and remove all curing compound and loose material from the surface prior to application of bonding agent.
3. The cost of the Pre-cured Silicone Sealant shall be included in the Contract Unit Price for the Traffic Railing.



SECTION THRU RECESSED "V" GROOVE
TO FORM INSCRIBED LETTERS AND FIGURES

ESTIMATED TRAFFIC RAILING QUANTITIES		
ITEM	UNIT	QUANTITY
Concrete	CY/LF	0.095
Reinforcing Steel	LB/LF	25.90

(The above quantities are based on a 6" thick x 6' wide raised sidewalk at low side of deck, 2% deck cross slope and counter 2% sidewalk cross slope.)

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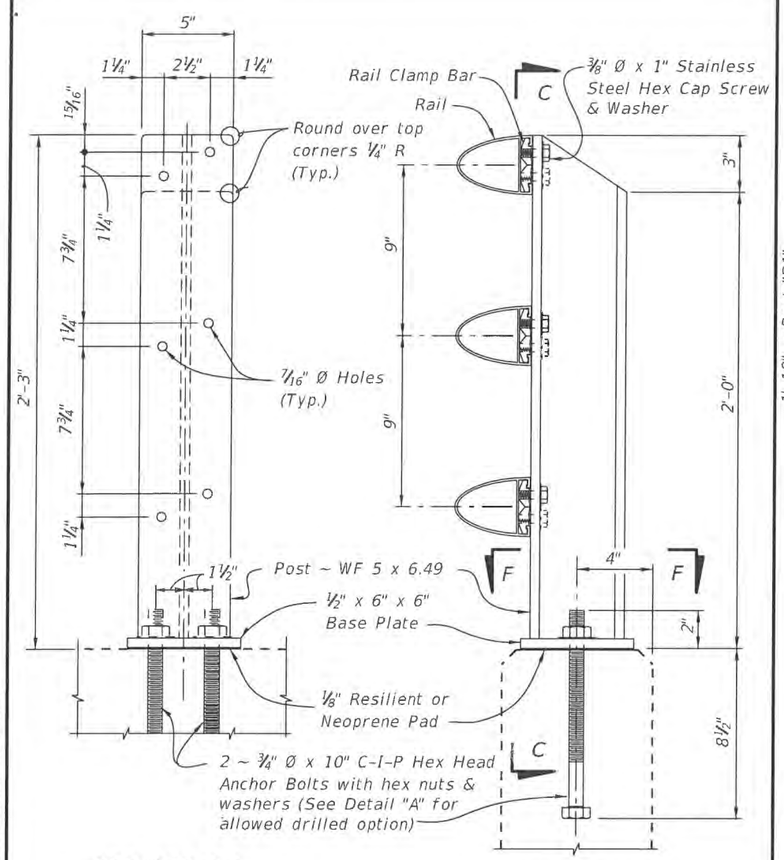
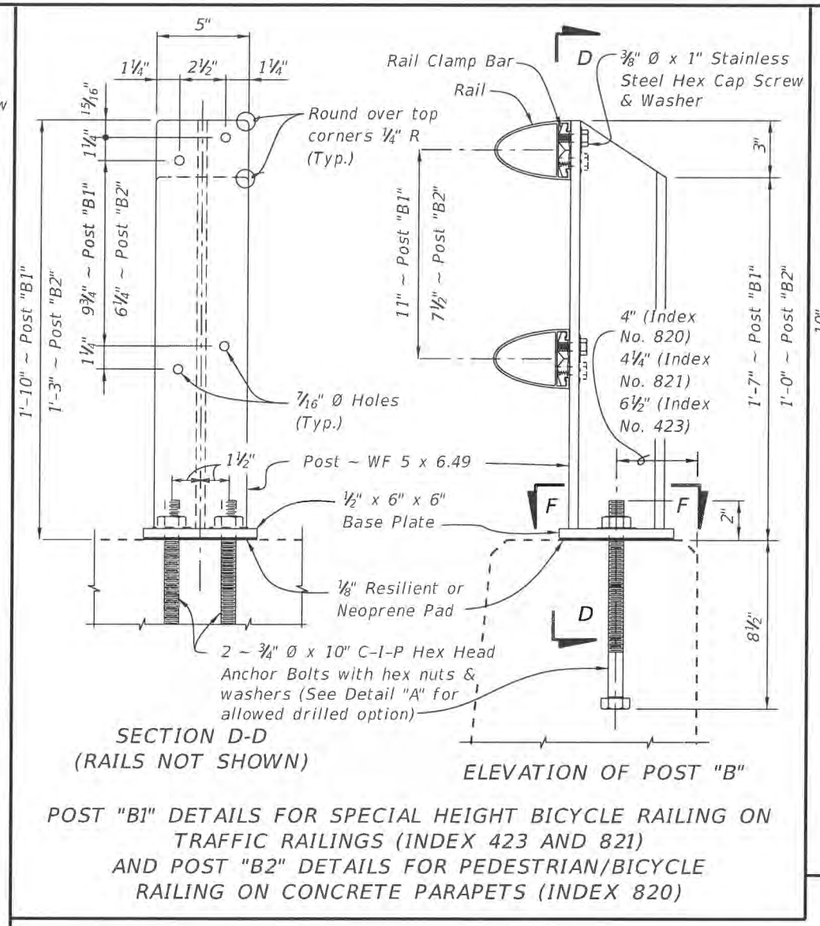


SECTION C-C
(RAILS NOT SHOWN)

ELEVATION OF POST "A"

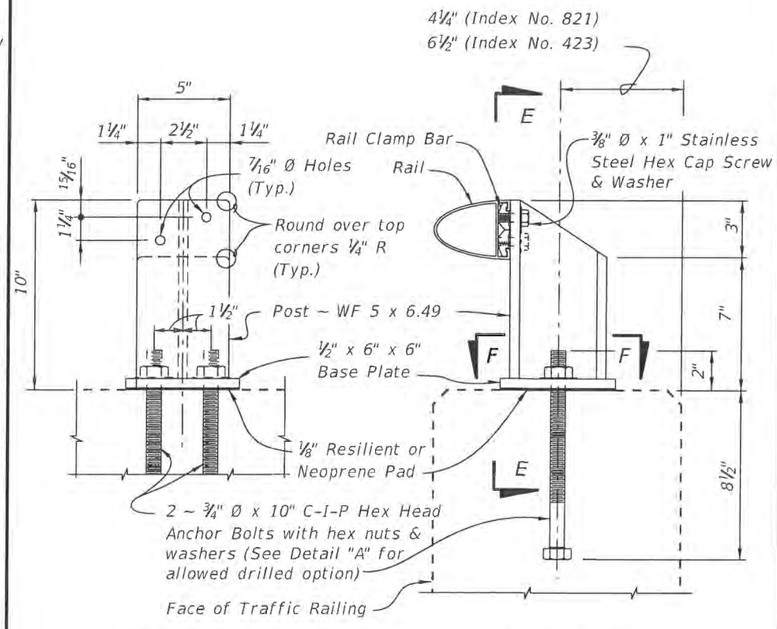
POST "A" DETAILS FOR SPECIAL HEIGHT BICYCLE RAILING ON CONCRETE PARAPET (INDEX 820)



SECTION D-D
(RAILS NOT SHOWN)

ELEVATION OF POST "B"

POST "B1" DETAILS FOR SPECIAL HEIGHT BICYCLE RAILING ON TRAFFIC RAILINGS (INDEX 423 AND 821)
AND POST "B2" DETAILS FOR PEDESTRIAN/BICYCLE RAILING ON CONCRETE PARAPETS (INDEX 820)

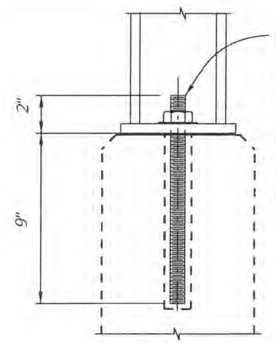


SECTION E-E
(RAIL NOT SHOWN)

ELEVATION OF POST "C"

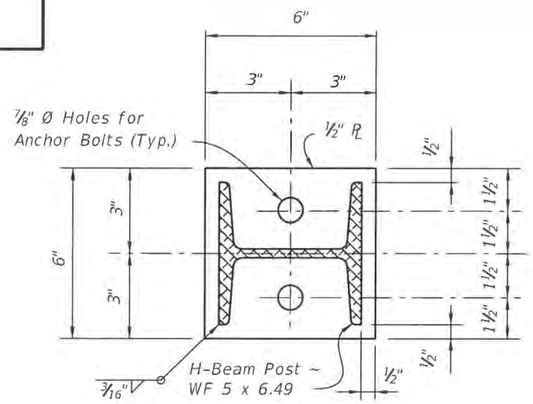
POST "C" DETAILS FOR PEDESTRIAN/BICYCLE RAILING ON TRAFFIC RAILINGS (INDEX 423 AND 821)

NOTE: After nuts have been tightened, the bolt threads shall be deformed to prevent removal of nuts. Tack welding of nuts to anchor bolts, to prevent theft, is permitted. Coat deformed or tack welded threads with a galvanizing compound in accordance with Section 562 of the Specifications.

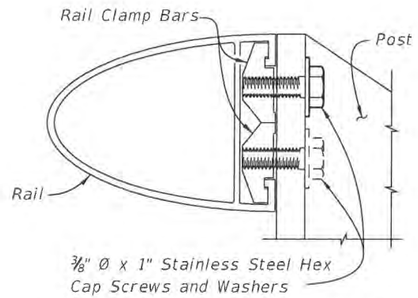


2 ~ ¾" Ø x 11" Anchor Bolts threaded full length with hex nuts and washers set in drilled holes (diameter per manufacturer's recommendation) with an Adhesive Bonding System in accordance with Sections 416 and 937 of the Specifications. Expansion Anchors are not permitted. Cutting of reinforcing steel is permitted for drilled hole installation.

DETAIL "A"
ALTERNATE ANCHOR BOLT
(Concrete Parapet Shown, Traffic Railings Similar)



SECTION F-F
BASE PLATE DETAIL



RAIL TO POST CONNECTION DETAIL

CROSS REFERENCES:

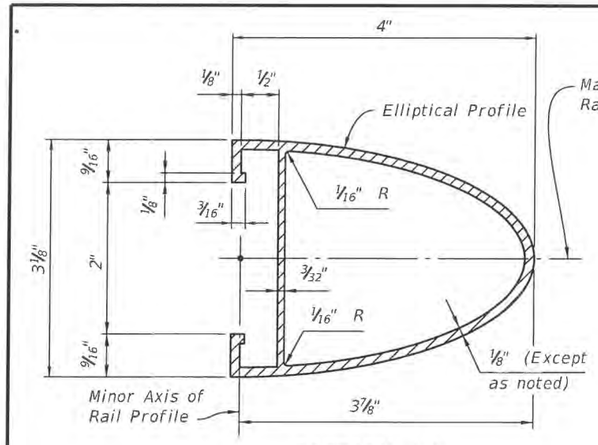
For Post "A" and Post "B2" spacing see Index 820.

For Post "B1" & Post "C" spacing see Index 423 or 821.

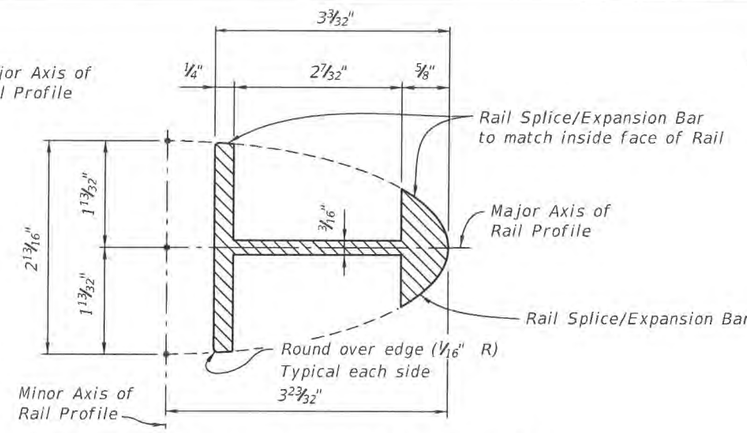
For Rail Details see Sheet 2.

For Railing Notes and Tapered End Transition Details see Sheet 3.

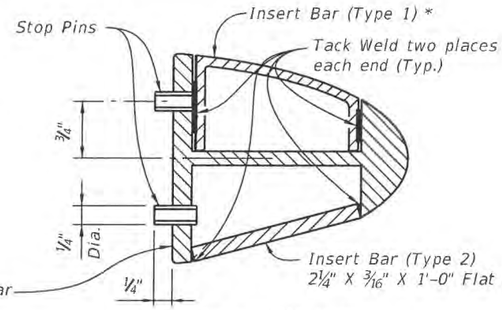
LAST REVISION	REVISION	DESCRIPTION:				
01/01/12			FDOT 2015 DESIGN STANDARDS	BRIDGE ALUMINUM PEDESTRIAN/BICYCLE BULLET RAILING DETAILS	INDEX NO. 822	SHEET NO. 1 of 3



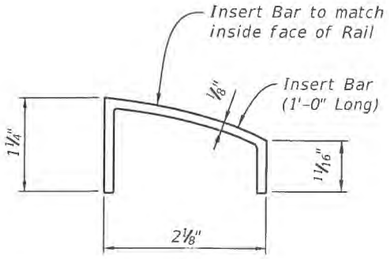
SECTION A-A
TYPICAL SECTION THRU RAIL



SECTION B-B - RAIL SPLICE/EXPANSION BAR
(Rail not shown for clarity)

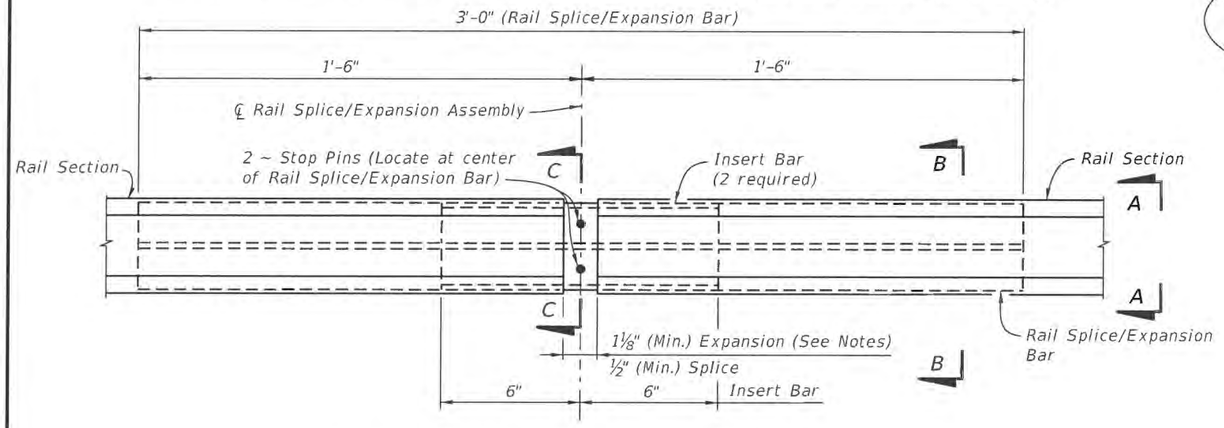


SECTION C-C
RAIL SPICE/EXPANSION
BAR ASSEMBLY

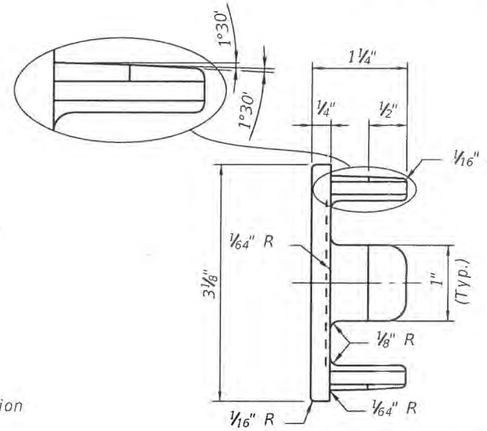


INSERT BAR DETAIL (TYPE 1)

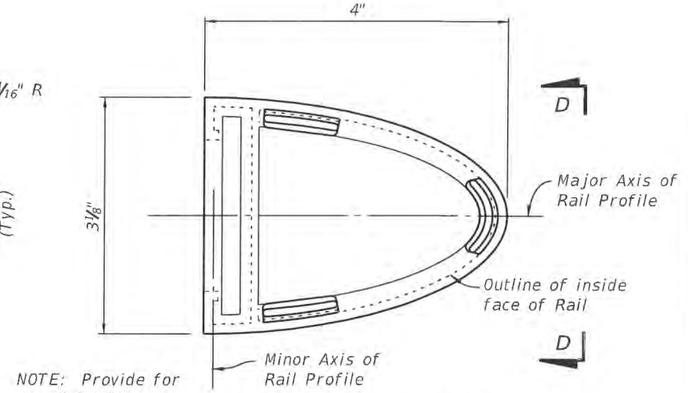
* Use of either Type 1 or Type 2 Insert Bars is at the option of the Contractor.



RAIL SPLICE/EXPANSION ASSEMBLY DETAIL



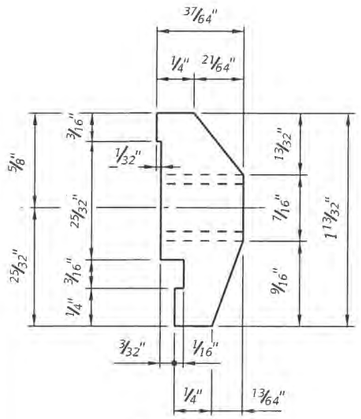
VIEW D-D



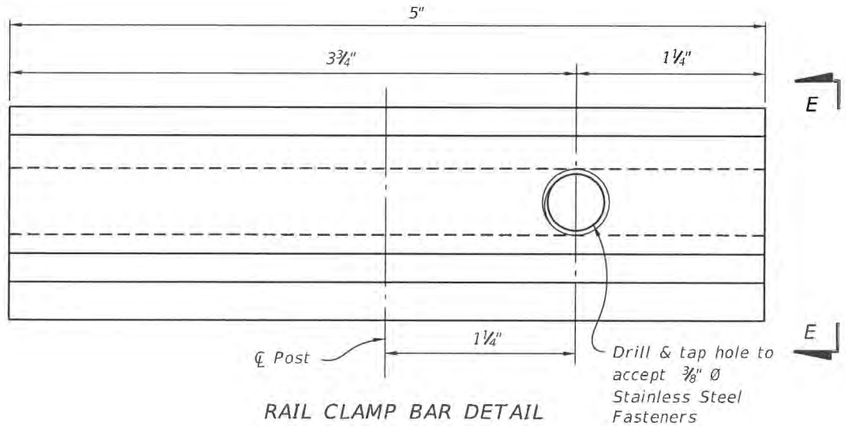
NOTE: Provide for drive fit.

RAIL END CAP DETAIL

CROSS REFERENCE:
For Notes and Tapered End Transition Details, See Sheet 3.



VIEW E-E



RAIL CLAMP BAR DETAIL

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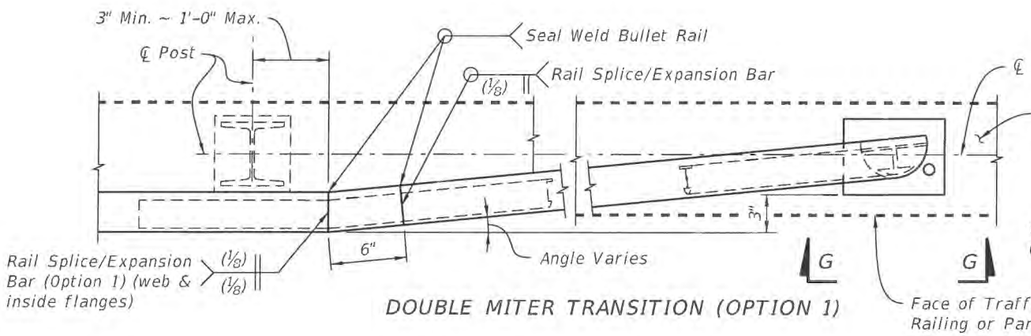
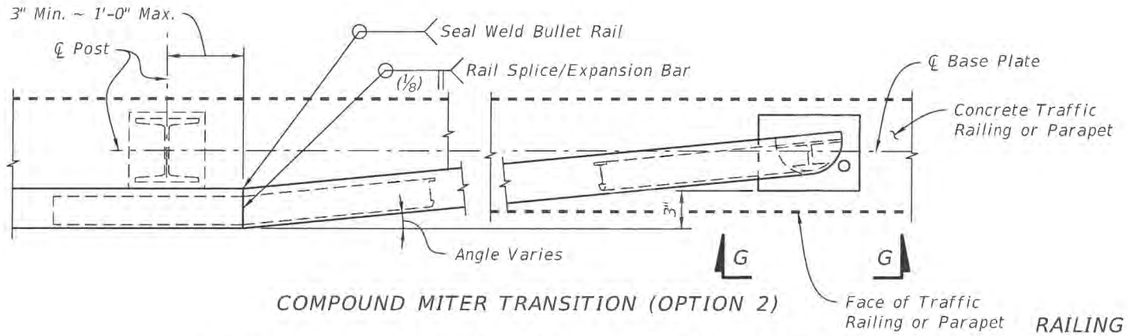
LAST REVISION	REVISION	DESCRIPTION:			
07/01/14			FDOT 2015 DESIGN STANDARDS	BRIDGE ALUMINUM PEDESTRIAN/BICYCLE BULLET RAILING DETAILS	INDEX NO. 822 / SHEET NO. 2 of 3

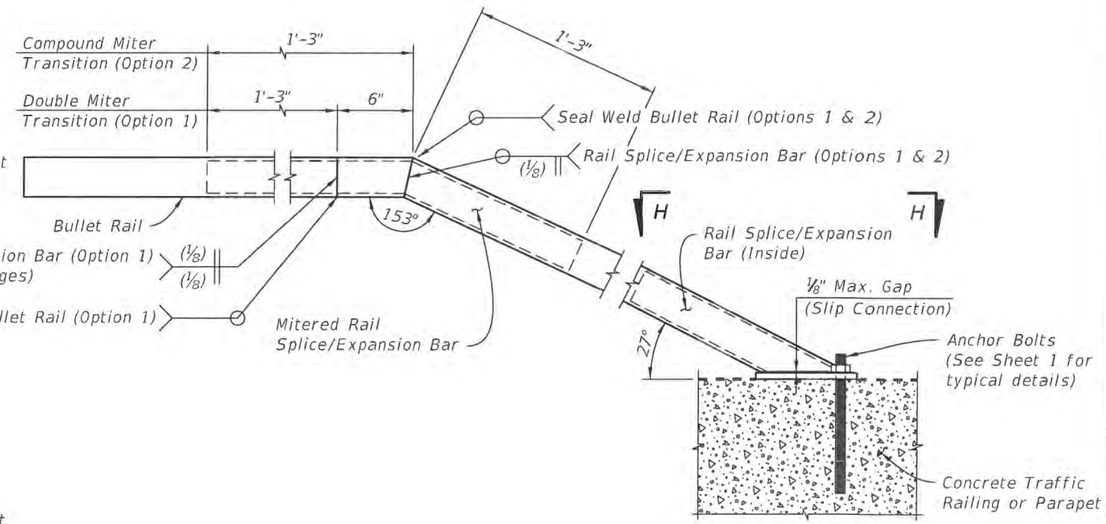


DOUBLE MITER TRANSITION (OPTION 1)

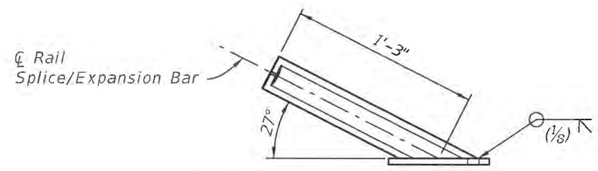


COMPOUND MITER TRANSITION (OPTION 2)

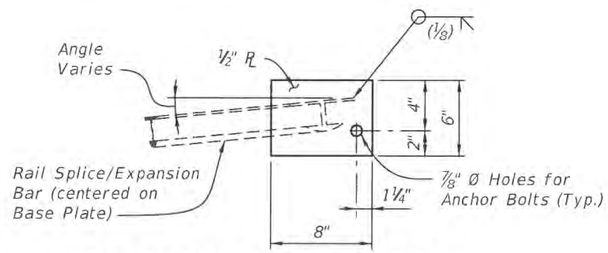
PARTIAL PLAN OF TAPERED END TRANSITIONS
(Single Rail Shown, Double or Triple Rail Similar)



ELEVATION OF TAPERED END TRANSITION
(Single Rail Shown, Double or Triple Rail Similar)



VIEW G-G TRANSITION BASE PLATE
(Bullet Rail not shown for Clarity)



VIEW H-H TRANSITION BASE PLATE
(Bullet Rail not shown for Clarity)

RAILING NOTES:

PAYMENT: Payment for the railing includes Rails, Posts, Rail Splice/Expansion Assemblies, Rail Clamp Bars, Rail End Caps, Anchor Bolts, Nuts, Resilient Pads, Screws and Washers and all incidental materials and labor required to complete the installation.

POST ASSEMBLY: Fabricated wrought aluminum; Post – ASTM B221, alloy 6061-T6, or alloy 6351-T5; Base Plate – ASTM B209, alloy 6061-T6.

WELDING: Welding of aluminum components shall be in accordance with ANSI and AWS D1.2 "Structures Welding Code – Aluminum".

RAIL AND RAIL SPLICE/EXPANSION ASSEMBLIES: Aluminum; ASTM B221, alloy 6061-T6, or alloy 6351-T5. Stop Pins shall be press-fit Aluminum or Stainless Steel pins or tubes, unless otherwise approved by the Engineer.

RAIL CLAMP BAR: Aluminum; ASTM B221, alloy 6061-T6, or alloy 6351-T5.

STAINLESS STEEL FASTENERS: ⅜" Ø Hex Cap Screws and Washers shall be ASTM F-593, alloy group 2 (316).

ANCHOR BOLTS: Anchor bolts shall be in accordance with ASTM A36 or ASTM F1554, Grade 36. Anchor Bolts, Nuts, and Washers shall be hot dip galvanized in accordance with Specification Section 962.

RAIL END CAP: ASTM B26 sand cast aluminum alloy 356.0-F.

RAIL INSTALLATION: Set Rail Posts normal to Profile Grade longitudinally and vertical transversely. Post spacings that land on barrier or parapet obstacles such as armor expansion plates etc. shall be adjusted to clear obstacles by 9" without exceeding maximum post spacing. Post shall be uniformly spaced with reasonable consistency. Set Posts on ⅛" thick resilient or neoprene pads in accordance with Specification Section 932. The pad dimension shall be the same as the post base plate. Provide rail expansion assembly in panels between posts on either side of Bridge Expansion Joints. Rail expansion assembly is similar to the rail splice assembly with increased space at assembly to allow for movement equal to 1.5 times the bridge joint opening or 1" greater than the expected joint movement. Take care to ensure rails are set with the proper openings. Remove any burrs or sharp edges on rails and posts to prevent injury.

RAIL SPLICE ASSEMBLIES: Rails shall be continuous over a minimum of 3 posts, except that lengths less than 12' need only be continuous over 2 posts. Space splices at 40'-0" maximum on centers. Splice all rails in any railing section about the same center line.

RESILIENT AND NEOPRENE PADS: Resilient and Neoprene Pads shall be in accordance with the Specifications except that testing of the finished pads is not required. Neoprene pads shall be durometer hardness 60 or 70.

SHOP DRAWINGS: Submit typical details for straight alignments and complete details for end terminations or curved alignments with radii < 40', including post and rail splice/expansion assembly locations of the proposed railing for the Engineer's approval prior to fabrication.

CROSS REFERENCE:
For Post Details see Sheet 1.
For Rail Details see Sheet 2.

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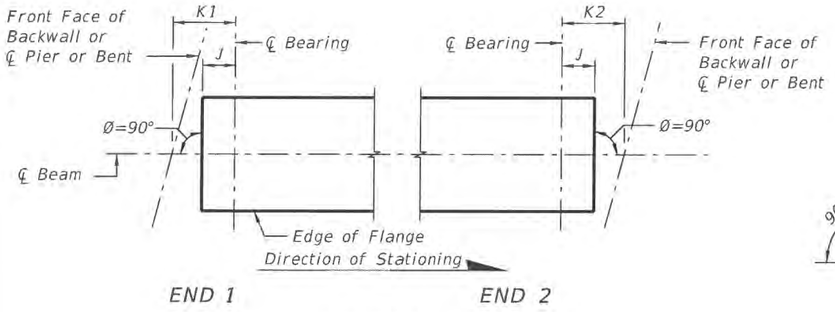
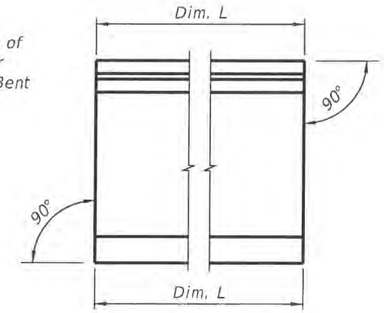
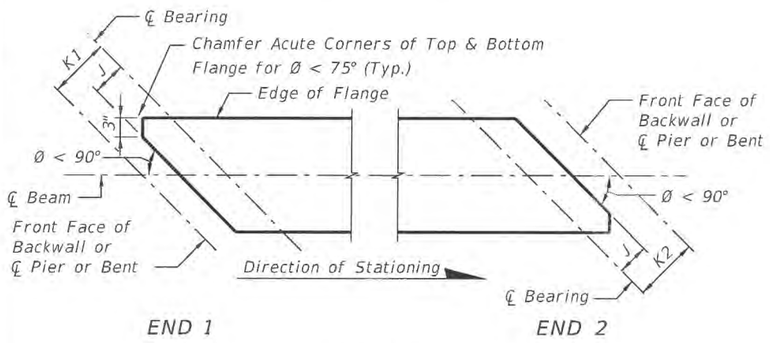
LAST REVISION	REVISION	DESCRIPTION:	FDOT 2015 DESIGN STANDARDS	BRIDGE ALUMINUM PEDESTRIAN/BICYCLE BULLET RAILING DETAILS	INDEX NO.	SHEET NO.
07/01/14					822	3 of 3



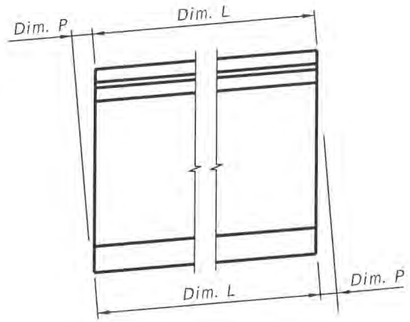
CASE 1
(Standard Orientation for New Construction)



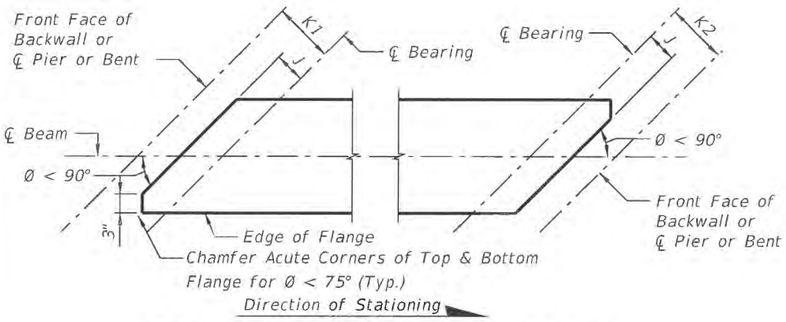
CONDITION 1
(Dim P = 0.0)



CASE 2
(Special Orientation for Widenings)

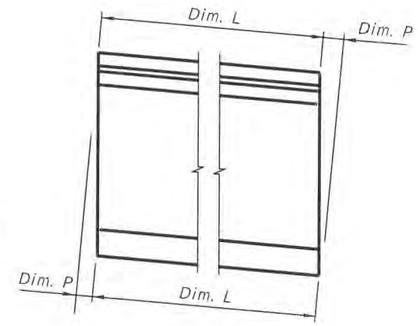


CONDITION 2



CASE 3
(Special Orientation for Widenings)

SCHEMATIC PLAN VIEWS AT BEAM ENDS



CONDITION 3

SCHEMATIC END ELEVATIONS OF BEAMS
(Showing Vertical Bevel of Beam End)

BEAM NOTES

1. All bar dimensions are out-to-out.
2. Place one (1) Bar 4K, or 5Z at each location as detailed alternating the direction of the ends for each bar (see "ELEVATION AT END OF BEAM", Sheet 3).
3. Strands N shall be ASTM A416, Grade 270, seven-wire strands ⅜" Ø or larger, stressed to 10,000 lbs. each.
4. For beams with ends not to be encased in permanent concrete diaphragms, after detensioning cut wedge to recess Prestressing Strands at the end of the beam without damaging the surrounding concrete. See "STRAND CUTTING AND PROTECTING DETAIL" on Sheet 2.
5. For beams with ends not to be encased in permanent concrete diaphragms, protect end of recessed strands in accordance with Specification Section 450.
6. Unless otherwise noted, the minimum concrete cover for reinforcing steel shall be 2".
7. At the Contractor's option, welded deformed wire reinforcement may be used in lieu of Bars 3D, 4K, and 5Z as shown on Sheet 4. Welded deformed wire reinforcement shall meet requirements of Specification Section 931.
8. Safety Line Anchorage Devices or sleeves are required and permitted in the top flange only to accomodate fall protection systems used during construction. See shop drawings for details and spacing of any required embedments.
9. For beams with skewed end conditions, the end reinforcement, defined as Bars 3D1, 3D2, 4K, 4Y and 5Z placed within the limits of Bars 3D in "ELEVATION AT END OF BEAM", shall be placed parallel to the skewed end of the beam. Bars 3D and 4K, located beyond the limits of Bars 3D shall be placed perpendicular to the longitudinal axis of the beam. For placement locations, see "SKEWED BEAM END DETAILS". Adjust the dimensions of Bars 3D1 and 3D2, as shown on the "BENDING DIAGRAM" for skewed end conditions.
10. Placement of Bars 3D1 correspond to END 1, and Bars 3C2, correspond to END 2. END 1 and END 2 are shown on the beam "ELEVATION".
11. For Beams with vertically beveled end conditions, place first row of Bars 3D1, 3D2, 4K, 4Y and 5Z parallel to the end of the beam. Progressively rotate remaining bars within the limits of Bars 5Z until vertical by adjusting the spacing at the top of beam up to a maximum of 1". For welded deformed wire reinforcement, cut top cross wire and rotate bars as required or reduce end cover at top of the beam to minimum 1".
12. For beams with skewed end conditions, welded deformed wire reinforcement shall not be used for end confinement reinforcement (Bars 3D1 and 3D2).
13. Bars 4K and 5Z shall be placed and tied to the fully bonded strands in the bottom or center row (see "STRAND PATTERN" on the Table of Beam Variables in Structures Plans). For welded deformed wire reinforcement, supplemental transverse bars are permitted to support Pieces K & S under the cross wires on the bottom row of strands or Strands N.
14. At the Contractor's option, Bars 3D1, 3D2 and 3D3 may be fabricated as a two-piece bar with a 1'-0" minimum lap splice of the bottom legs.
15. For referenced Dimensions, Angles and Case Numbers, see the Table of Beam Variables in Structures Plans.

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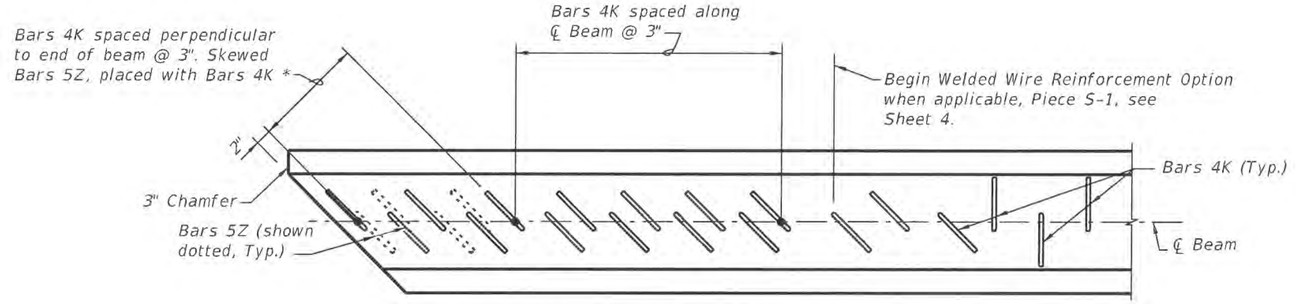
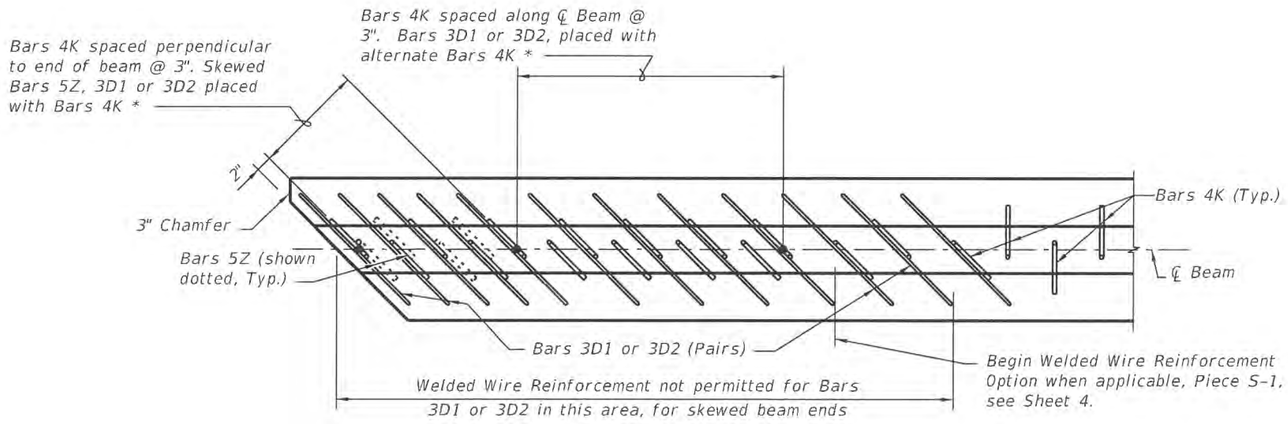
DETAILS AND NOTES

LAST REVISION	REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
07/01/14			FDOT 2015 DESIGN STANDARDS	AASHTO TYPE II BEAM	20120	1 of 4



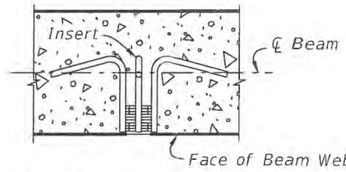
PARTIAL PLAN VIEW (SHOWING TOP FLANGE)
(End 1 Shown, End 2 Similar)
(Bars 5A, 4Y & Strands N not shown for clarity)

* For number of Bars, spacing and placement details see Sheet 3. See Sheet 3 for Conventional Reinforcement, Sheet 4 for Welded Wire Reinforcement.



PARTIAL SECTION THRU WEB (SHOWING BOTTOM FLANGE)
(End 1 Shown, End 2 Similar)
(Bars 4Y & Strands not shown for clarity)

SKEWED BEAM END DETAILS FOR WIDENING EXISTING BRIDGES

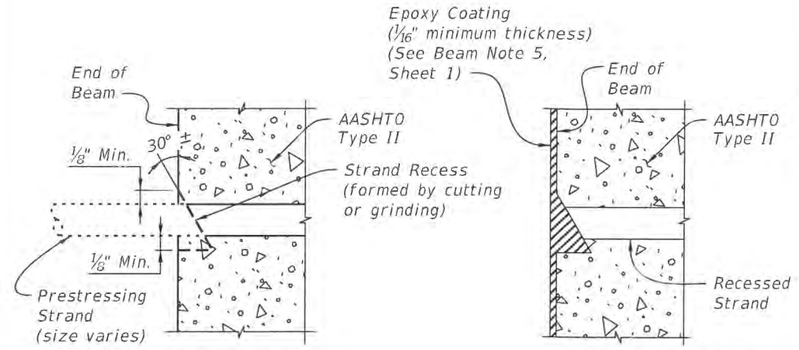


PLAN SECTION THRU BEAM WEB AT INSERT FOR DIAPHRAGM REINFORCING
(When Intermediate Diaphragms are Required by Design)

INSERT NOTES

1. Provide 1" Ø, zinc-electroplated, ferrule wing nut or coil inserts, UNC threads, 1/0 minimum gage wire, not more than 4" in depth with a minimum ultimate tensile strength of 11,400 lbs. in 4,000 psi concrete.
2. If inserts are needed on both sides (faces) of beam webs, an assembly as long as the thickness of the beam web, consisting of two (2) ferrule or coil inserts attached by two (2) or more struts may be utilized. The connecting struts shall have a minimum ultimate tensile strength of 11,400 lbs.
3. Inserts for diaphragm reinforcing are required at each end of each intermediate diaphragm shown on the Beam Framing Plan and may be required at the end of the beams when end diaphragms are shown. See Superstructure and Beam Framing Plans for longitudinal location of inserts for each face of beam.

INSERT DETAIL



TYPICAL SECTION SHOWING CUT STRAND RECESS LIMITS

TYPICAL SECTION AFTER PROTECTING

STRAND CUTTING AND PROTECTING DETAIL

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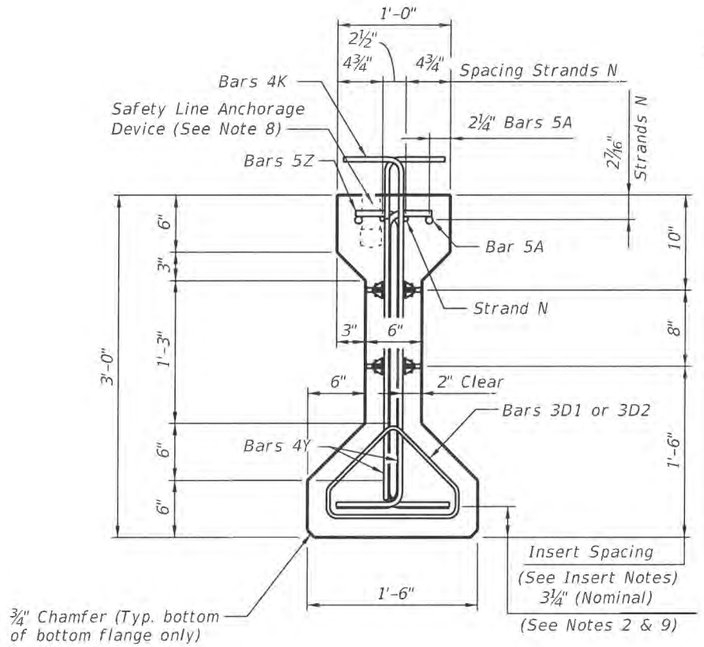
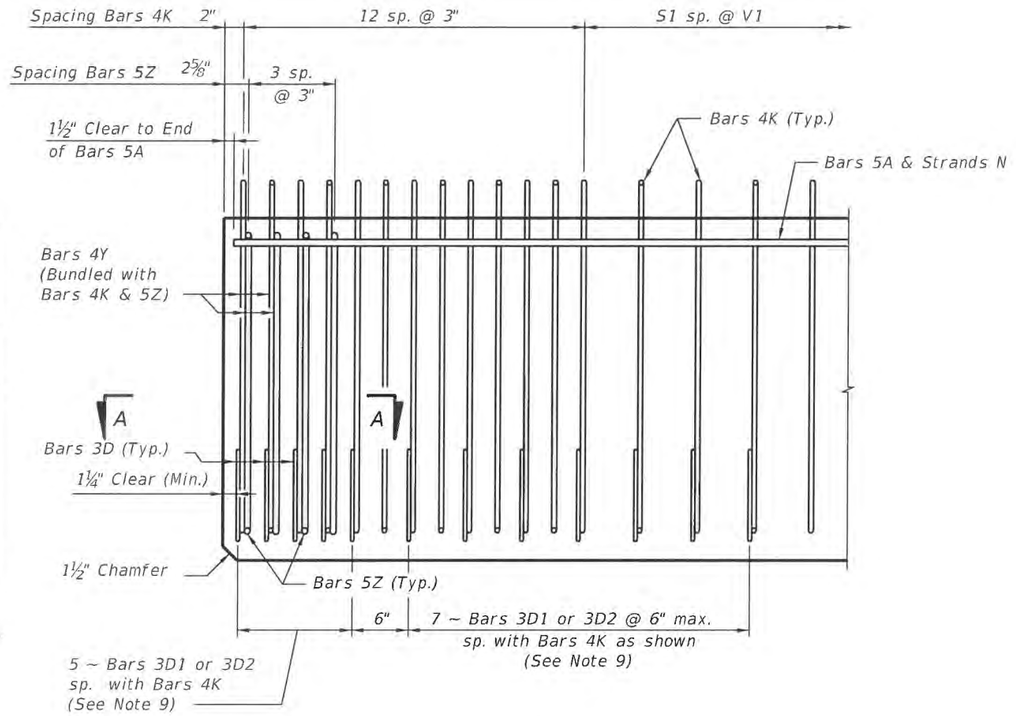
DETAILS AND NOTES

LAST REVISION 07/01/14	REVISION DESCRIPTION:	FDOT 2015 DESIGN STANDARDS	AASHTO TYPE II BEAM	INDEX NO. 20120	SHEET NO. 2 of 4



END VIEW

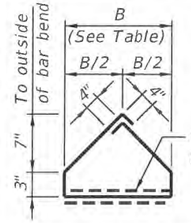


ELEVATION AT END OF BEAM
(Flanges Not Shown For Clarity)

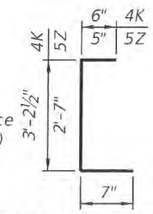
BILL OF REINFORCING STEEL FOR ONE BEAM ONLY

MARK	NOTE NUMBERS	SIZE	NUMBER REQUIRED	LENGTH (NOTE 1)
A	—	5	4	12'-0"
D1	9, 11 & 14	3	12	See Table
D2	9, 11 & 14	3	12	See Table
K	2, 9, 11 & 13	4	See Table	4'-4"
N	3 & 5	⅜" Ø Strand	2	DIM L+5"
Y	9 & 11	4	8	2'-6"
Z	2, 9, 11 & 13	5	8	3'-7"

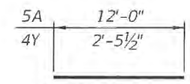
BENDING DIAGRAMS (See Note 1)



BARS 3D1 & 3D2



BARS 4K & 5Z



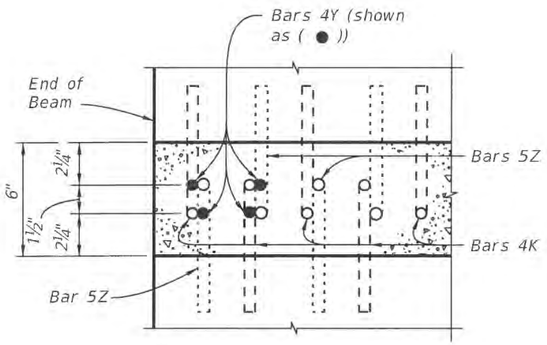
BARS 5A & 4Y

NOTES:

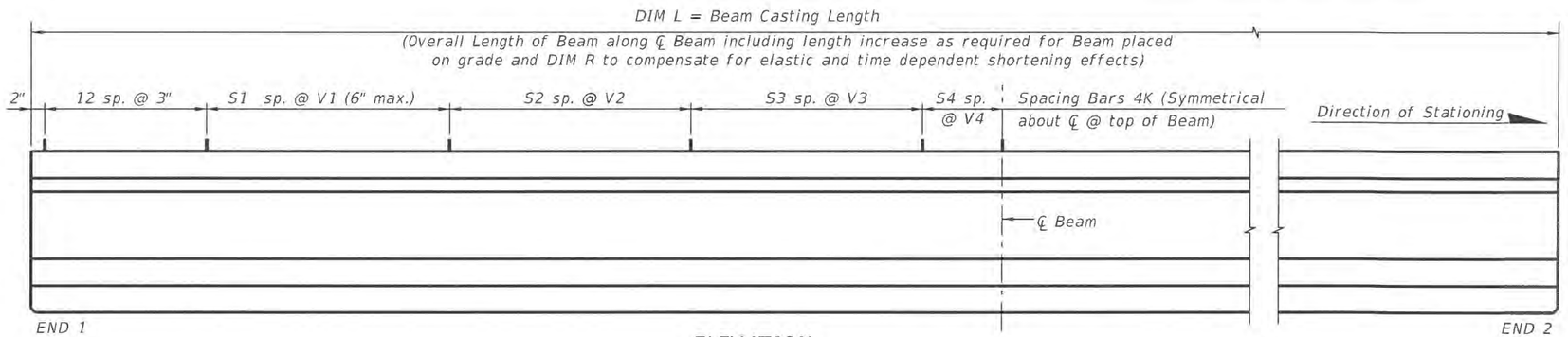
Work this Index with the AASHTO Type II Beam – Table of Beam Variables in Structures Plans.

For referenced notes, see Sheet 1.

For Dimensions L, R, V1 thru V4 and number of spaces S1 thru S4, see AASHTO Type II Beam – Table of Beam Variables.



SECTION A-A
(Showing Bars 4K, 4Y & 5Z Only)



ELEVATION

STANDARD DETAILS

LAST REVISION	REVISION	DESCRIPTION:				
07/01/13			FDOT 2015 DESIGN STANDARDS	AASHTO TYPE II BEAM	INDEX NO. 20120	SHEET NO. 3 of 4

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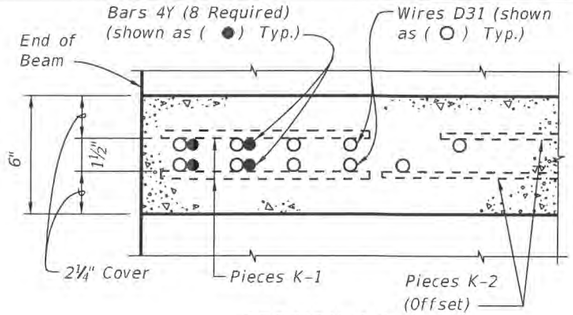
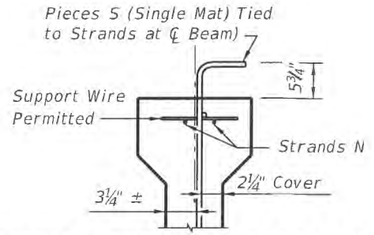
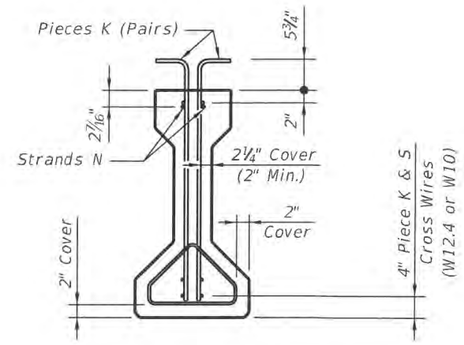
ALTERNATE REINFORCING STEEL (WELDED WIRE REINFORCEMENT) DETAILS



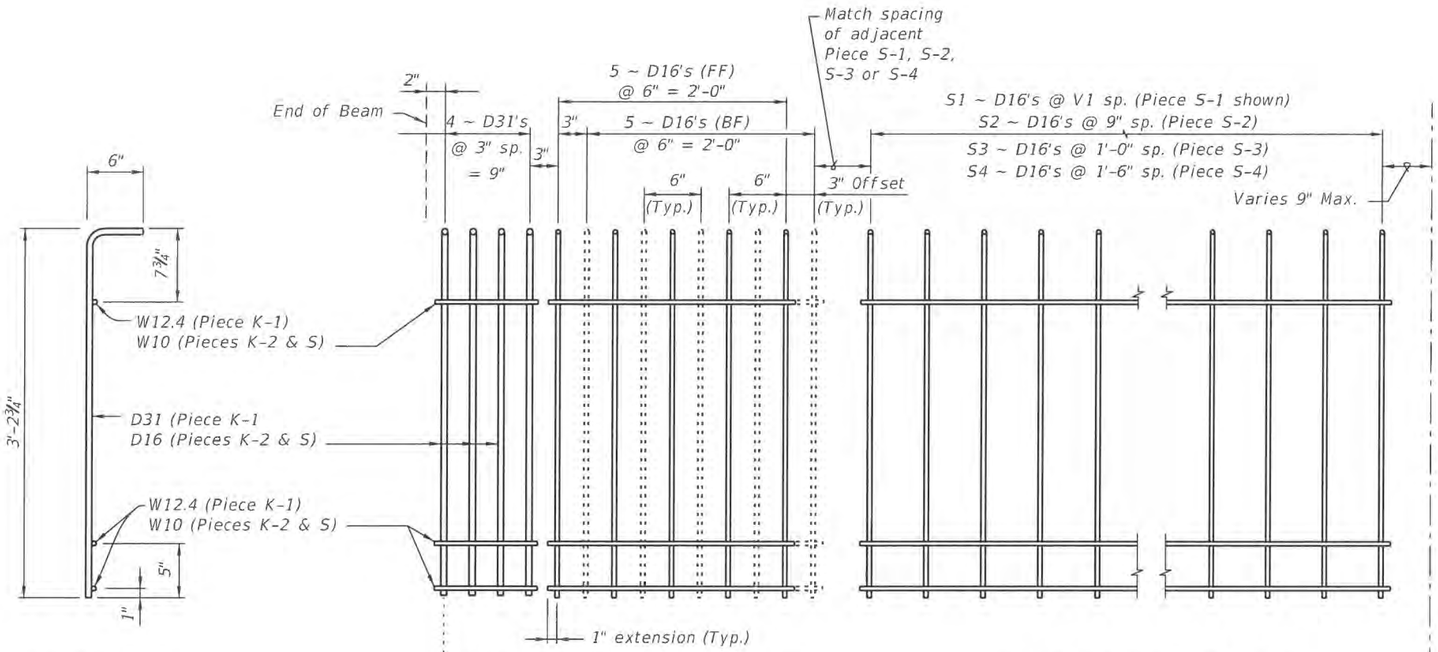
SECTION A-A
FOR WELDED WIRE REINFORCEMENT



PARTIAL SECTION AT CENTER BEAM



PARTIAL BEAM END VIEW
(Conventional Reinforcing Bars A, Y and
Bottom Strands not Shown for Clarity)

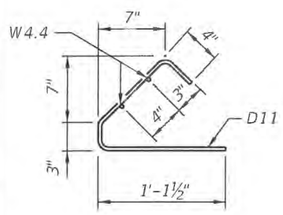


PIECES K & S
END VIEW

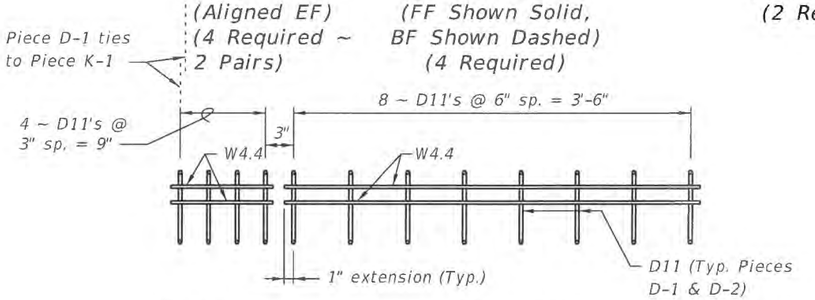
PIECE K-1
(Aligned EF)
(4 Required ~
2 Pairs)

PIECE K-2
(FF Shown Solid,
BF Shown Dashed)
(4 Required)

PIECE S-1, S-2, S-3 or S-4
(2 Required Each Piece)



PIECES D
END VIEW



PIECE D-1
(4 Required ~ 2 Pairs)

PIECE D-2
(4 Required ~ 2 Pairs)

℄ Beam (WWR
Symmetrical)

LEGEND:
EF = Each Face
FF = Front Face
BF = Back Face

NOTES:
a. See Sheet 3 for placement details & Table of Beam Variables in Structures Plans for variables S1, S2, S3, S4 & V1.
b. Place Conventional Reinforcement Bars 5A as shown on Sheet 3. Place additional Bars 4Y as shown in Section A-A for Welded Wire Reinforcement. Bars 5Z will not be used with the WWR Option.
c. Pieces may be fabricated in multiple length sections.
d. For beams with skewed end conditions, Pieces D-1 & D-2 shall not be used; Conventional Reinforcement Bars D1 & D2 shall be used. See Sheet 2 Skew Details and Sheet 1 Note 9 for placement details. Shift Pieces K & Bars 4Y to accommodate skewed end conditions and align with Bars D.

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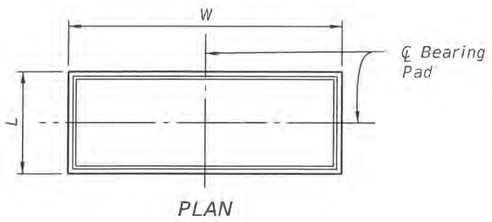
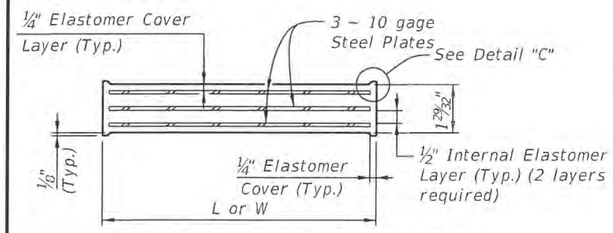
STANDARD DETAILS

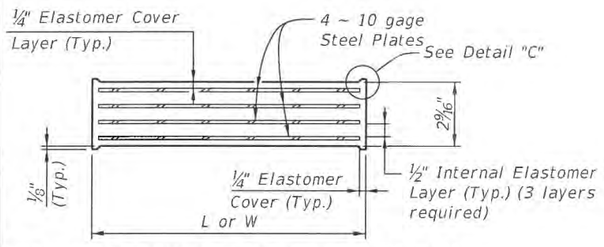
LAST REVISION	REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
07/01/13			FDOT 2015 DESIGN STANDARDS	AASHTO TYPE II BEAM	20120	4 of 4



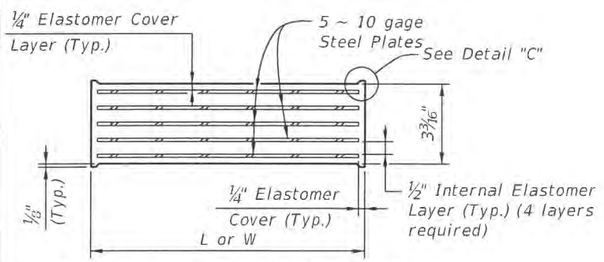
PLAN



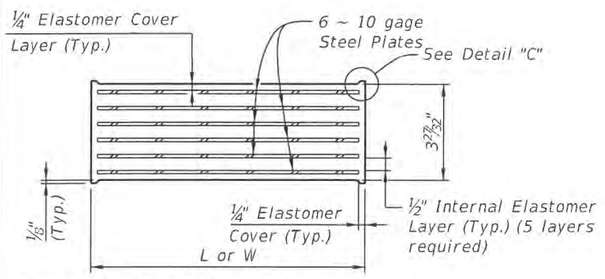
TYPICAL SECTION TYPE D, E & AA PAD



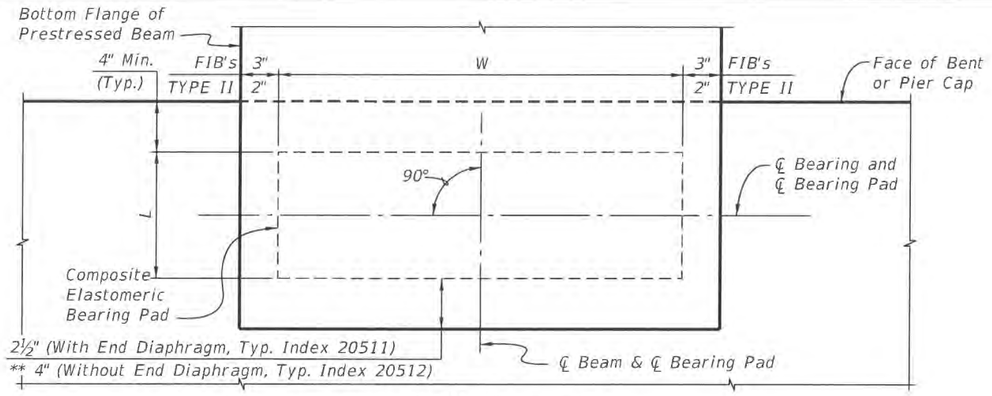
TYPICAL SECTION TYPE F, G & AB PAD



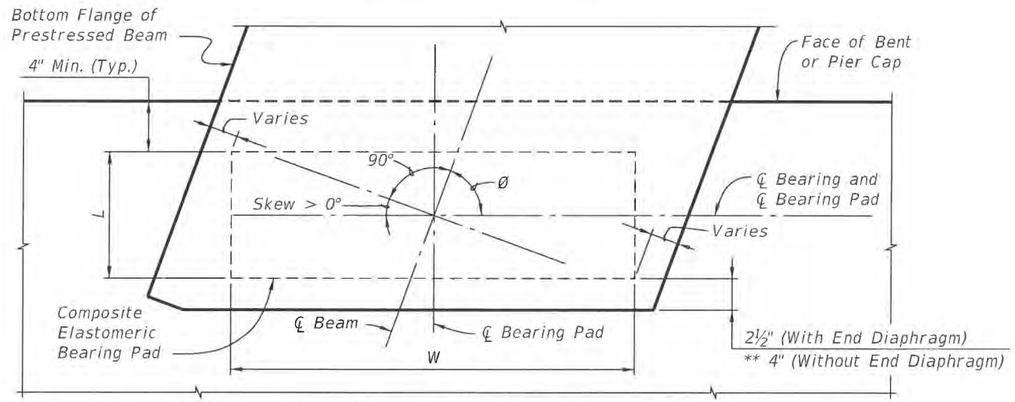
TYPICAL SECTION TYPE H PAD



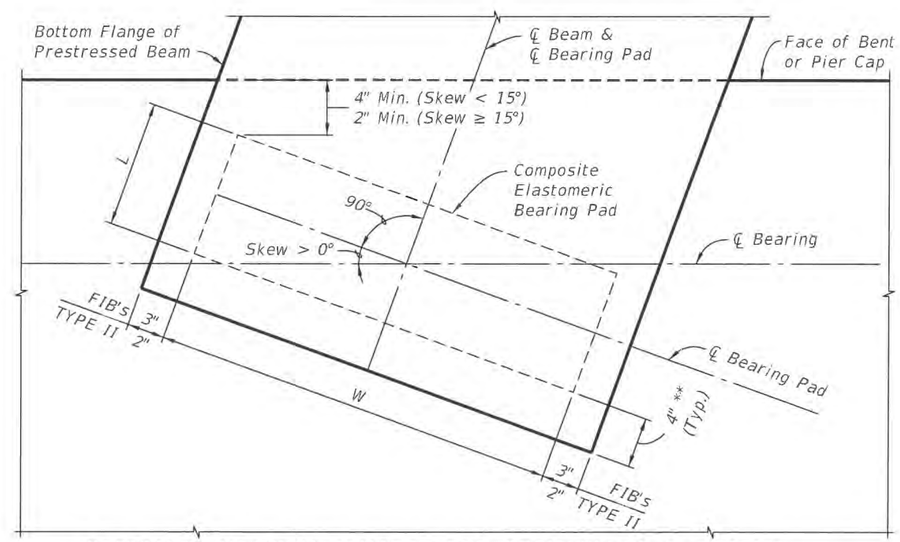
TYPICAL SECTION TYPE J & K PAD



PARTIAL PLAN (Skew = 0°)



PARTIAL PLAN (Skew > 0°) (Use Index 20511)

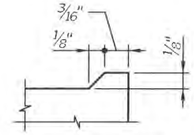


PARTIAL PLAN WITH SQUARED END BEAM (Use Index 20512) (Skew > 0°)

PAD TYPE (See Note 1)	BEAM TYPE	BEARING PAD DIMENSIONS L	BEARING PAD DIMENSIONS W	*BEVELED BEARING PLATE DIMENSIONS C	*BEVELED BEARING PLATE DIMENSIONS D
D (G=110psi)	FLORIDA I-BEAM	8"	2'-8"	1'-0"	3'-0"
E (G=110psi)		10"	2'-8"	1'-0"	3'-0"
F (G=110psi)		10"	2'-8"	1'-0"	3'-0"
G (G=150psi)		10"	2'-8"	1'-0"	3'-0"
H (G=150psi)		10"	2'-8"	1'-0"	3'-0"
J (G=150psi)		10"	2'-8"	1'-0"	3'-0"
K (G=150psi)		1'-0"	2'-8"	1'-1½"	3'-0"
AA (G=110psi)	AASHTO TYPE II	10"	1'-2"	1'-0"	1'-4"
AB (G=150psi)		10"	1'-2"	1'-0"	1'-4"

* Work this sheet with the appropriate type Bearing Plate Detail (See Bearing Plate Data Table) and BEARING PAD DATA TABLE in the Structures Plans. See TABLE OF BEAM VARIABLES and BEARING PLATE DATA TABLE in the Structures Plans for locations where beveled bearing plates are required.

** Offset to End of Beam is reduced to 2" for Type K Pad.



DETAIL "C"

BEARING PAD NOTES:

1. Neoprene in Type D, E, F & AA bearing pads shall have a shear modulus (G) of 110 psi. Neoprene in Type G, H, J, K & AB bearing pads shall have a shear modulus (G) of 150 psi.
2. Steel Plates in bearing pads shall conform to ASTM A1011 Grade 36, Type 1.
3. See Bearing Pad Data Table in Structures Plans for quantities of Type D, E, F, G, H, J, K, AA and/or AB Bearing Pads.

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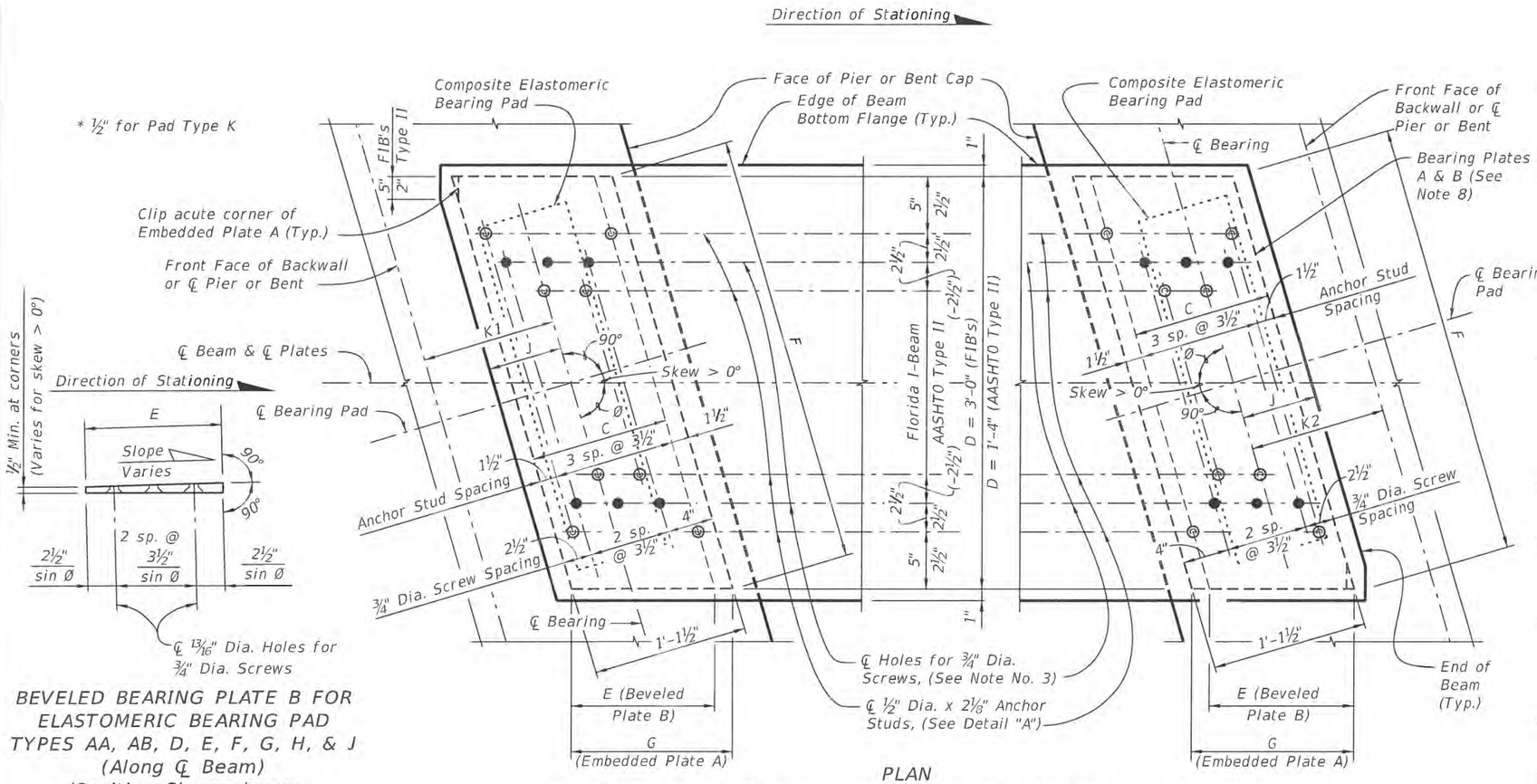
LAST REVISION	REVISION	DESCRIPTION:				
07/01/14			FDOT 2015 DESIGN STANDARDS	COMPOSITE ELASTOMERIC BEARING PADS - PRESTRESSED FLORIDA-I & AASHTO TYPE II BEAM	INDEX NO. 20510	SHEET NO. 1 of 1



NOTES:

1. Work this sheet with Index No. 20510 – Composite Elastomeric Bearing Pads, and the 'BEARING PLATE DATA TABLE' in the Structures Plans.
2. Embedded Bearing Plates A are required for all Florida-I beams. Beveled Bearing Plates B with Embedded Bearing Plates A are required for beams as scheduled in the 'BEARING PLATE DATA TABLE' in the Structures Plans.
3. Bearing plate material shall conform to ASTM A36 or ASTM A709 (Grade 36 or 50). Headed Concrete Anchor Studs shall conform to Specification Section 502. Hot-dip galvanize Bearing Plates A & B after fabrication except that Galvanized Caps may be welded in place after hot-dip galvanizing. Drill Bearing Plates A and B as an assembled unit, thread Bearing Plate A only. Holes are not required in Plate A when Plate B is not required. Drill and thread holes perpendicular to Embedded Plate A and prior to plates being galvanized (ASTM A 123).
4. Provide Electroplated, Flat Head Cap Screws in accordance with ASTM F 835. Electroplating shall be ASTM B633, SC 2, Type 1. Provide screws long enough to maintain a ¾" minimum embedment into Embedded Bearing Plate A and Galvanized Cap. Provide steel Galvanized Caps with ½" Min. to 1½" Max. height and nominal 1" inside diameter.
5. Include the cost of Bearing Plates in the pay item for Prestressed Beams.
6. For Pad Type and Dimensions C, D, E, F and G, see the 'BEARING PLATE DATA TABLE' in the Structures Plans. For Dimensions J, K1 and K2, see 'TABLE OF BEAM VARIABLES' in the Structures Plans.
7. All details and dimensions shown are along ℄ Beam, except for dimensions to ¾" Dia. Screws and ½" Dia. x 2⅛" Anchor Studs, which are along ℄ Screws or ℄ Anchor Studs. Positive Slope shown, Negative Slope similar.
8. When Skew = 0°, F = D = 3'-0" (Florida-I Beams) or 1'-4" (AASHTO Type II Beams) E = C, and G = 1'-1½".
9. Slope is determined along ℄ Beam at ℄ Bearing. See 'BEARING PLATE DATA TABLE' in the Structures Plans for Slope and Angle Ø.

CROSS REFERENCE:
See Sheet 2 for Detail "A".

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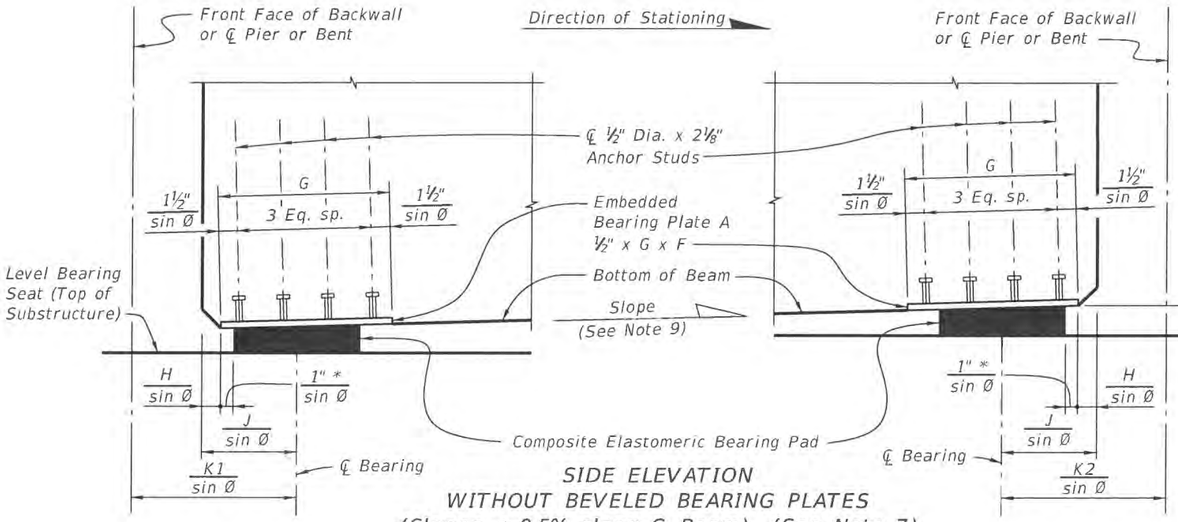
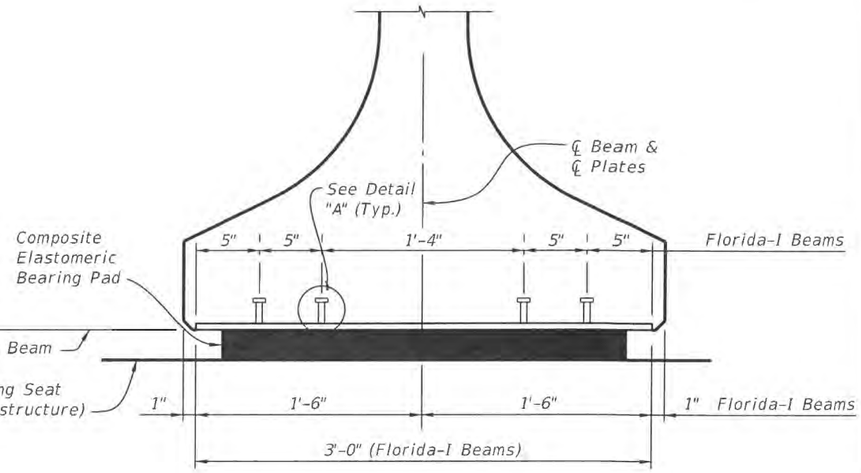
LAST REVISION	REVISION	DESCRIPTION:			
07/01/14			2015 DESIGN STANDARDS	BEARING PLATES (TYPE 1) - PRESTRESSED FLORIDA-I AND AASHTO TYPE II BEAMS	INDEX NO. 20511 / SHEET NO. 1 of 2

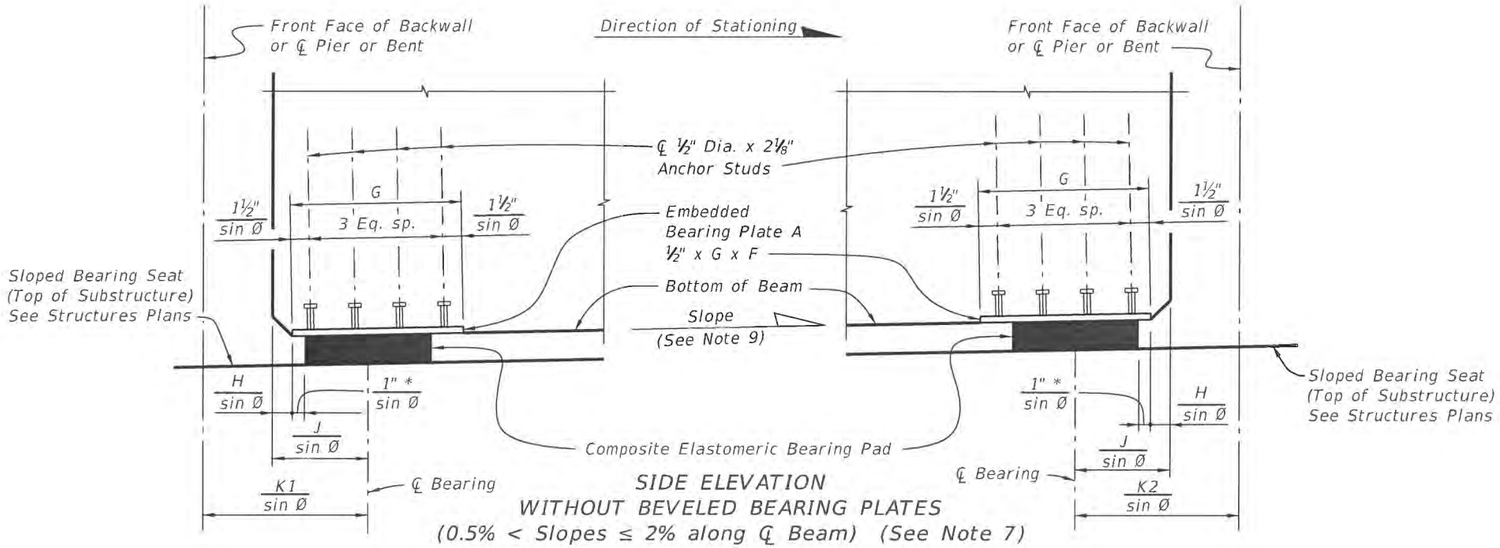


SIDE ELEVATION
WITHOUT BEVELED BEARING PLATES
(Slopes ≤ 0.5% along ℄ Beam) (See Note 7)

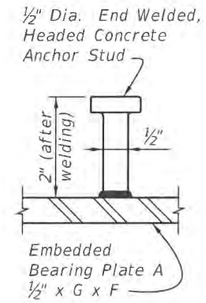


END ELEVATION
WITHOUT BEVELED BEARING PLATE

* ½" Pad Type K



SIDE ELEVATION
WITHOUT BEVELED BEARING PLATES
(0.5% < Slopes ≤ 2% along ℄ Beam) (See Note 7)

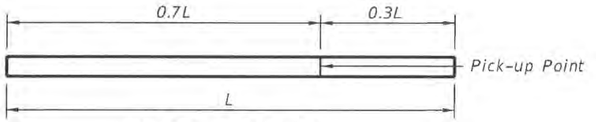


DETAIL "A"

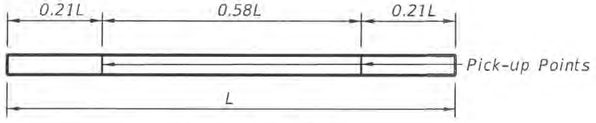
CROSS REFERENCE:
See Sheet 1 for dimension H and Notes.

6/25/2014 7:42:53 AM

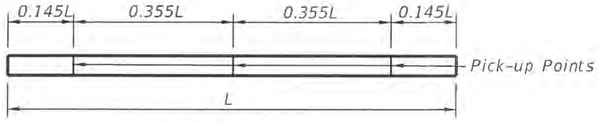
LAST REVISION	REVISION	DESCRIPTION:	FDOT 2015 DESIGN STANDARDS	BEARING PLATES (TYPE 1) - PRESTRESSED FLORIDA-I AND AASHTO TYPE II BEAMS	INDEX NO.	SHEET NO.
07/01/14					20511	2 of 2



1-POINT PICK-UP

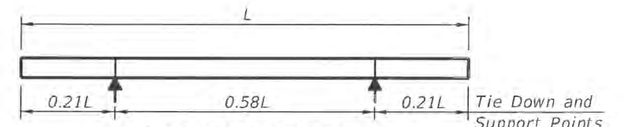


2-POINT PICK-UP

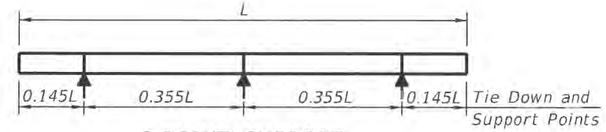


3-POINT PICK-UP

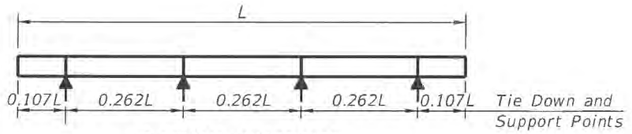
PILE PICK-UP DETAILS



2-POINT SUPPORT



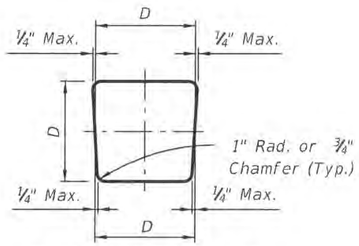
3-POINT SUPPORT



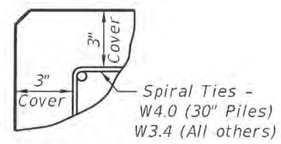
4-POINT SUPPORT

STORAGE AND TRANSPORTATION SUPPORT DETAILS

TABLE OF MAXIMUM PILE PICK-UP AND SUPPORT LENGTHS								
	D = Square Pile Size (inches)						Required Storage and Transportation Detail	Pick-Up Detail
	12	14	18	20	24	30		
Maximum Pile Length (Feet)	48	52	59	62	68	87	2, 3, or 4 point	1 Point
	69	75	85	89	98	124	2, 3, or 4 point	2 Point
	99	107	121	128	140	178	3 or 4 point	3 Point



TYPICAL PILE SHAPE FOR MOLD FORMS



DETAIL SHOWING TYPICAL COVER

PRESTRESSED CONCRETE PILE NOTES:

DESIGN SPECIFICATIONS:
Florida Department of Transportation (FDOT) "Structures Design Guidelines", current edition.

American Association of State Highway and Transportation Officials (AASHTO) "LRFD Bridge Design Specifications", current edition.

SPIRAL TIES:
Each wrap of spirals shall be tied to at least two corner strands. One turn required for spiral splices.

CONCRETE CLASS:
Concrete for all piles shall be Class V (Special) except designated High Moment Capacity Piles (Index 20631) shall be Class VI.

Concrete for the High Capacity Collar Splice shall be Class V (Special).

See "GENERAL NOTES" in Structures Plans for any specific locations where the use of Silica Fume is required.

CONCRETE STRENGTH:
The pile cylinder strength shall be 6,000 psi minimum at 28 days and 4,000 psi minimum at time of transfer of the Prestressing Force. The cylinder strength for designated High Moment Capacity Piles (Index 20631) shall be 8,500 psi minimum at 28 days and 6,500 psi minimum at time of transfer of the Prestressing Force.

SPLICE BONDING MATERIAL:
The material to fill dowel holes and form the joint between pile sections shall be a Type B Epoxy Compound in accordance with Specification Section 926 and shall be contained on the Approved Products List (APL). Use Epoxy Bonding Compound or Epoxy Mortar as recommended by the Manufacturer. For Epoxy Mortar only use sand or other filler material supplied by the manufacturer and in the proportions recommended.

PICK-UP POINTS:
Piles shall be marked at the pick-up points to indicate proper points for attaching handling lines.

REINFORCING STEEL:
All reinforcing steel shall meet the requirements of Specification Section 450.

PRESTRESSING STEEL:
Prestressing steel shall be seven-wire strand, Grade 270, Low-Relaxation Strand (LRS).

CORROSION PROTECTION OF EXPOSED STRANDS:
For all pile ends exposed to the environment and not embedded under final conditions, protect strands in accordance with Specification Section 450.

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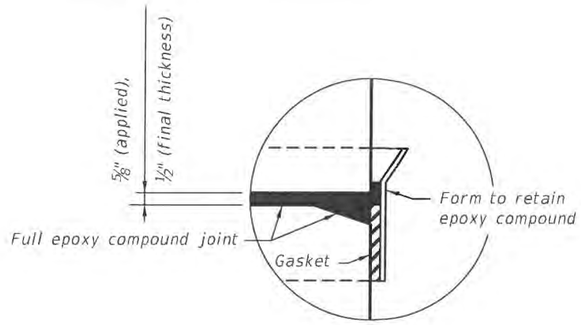
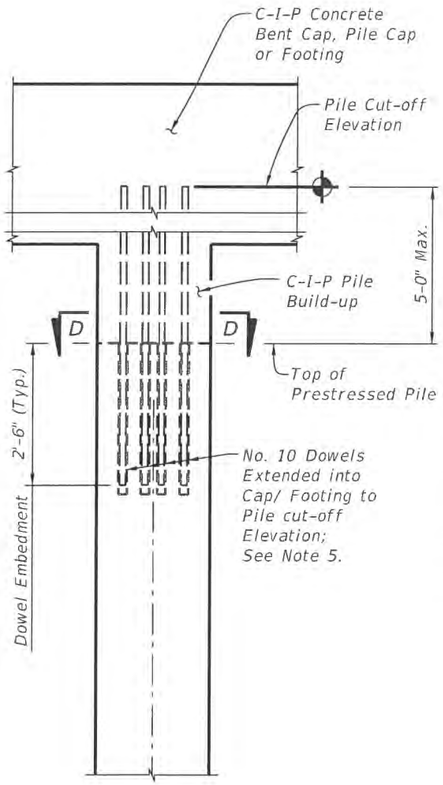
LAST REVISION	REVISION	DESCRIPTION:	FDOT 2015 DESIGN STANDARDS	NOTES AND DETAILS FOR SQUARE PRESTRESSED CONCRETE PILES	INDEX NO.	SHEET NO.
01/01/14					20600	1 of 1

NOTES:

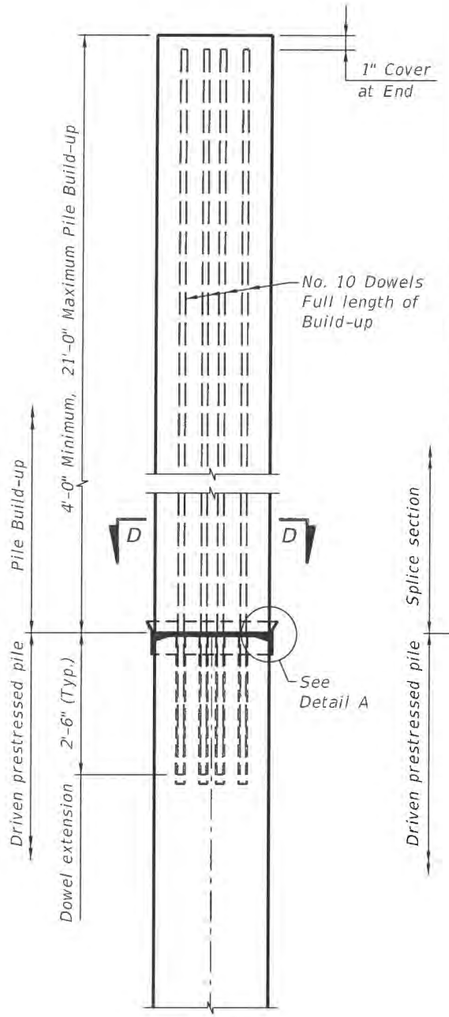
1. For Sections D-D, E-E, & F-F see Index Nos. 20612, 20614, 20618, 20620, 20624 or 20630 for applicable concrete pile size and Pile Splice Reinforcement Details.
2. Prestressing strands, spiral ties and/or reinforcement are not shown for clarity.
3. In cases where pile splices are desired due to length limitations in shipping and/or handling, the "Drivable Preplanned Prestressed Precast Splice Detail" shall be used. Mechanical Pile Splices contained on the Approved Products List (APL) may also be used.
4. When preformed dowel holes are utilized, the 1" spiral tie pitch shall be continued to 4'-0" below the head of the pile, See Index Nos. 20618, 20620 & 20624. Preformed holes shall utilize either removable preforming material or stay-in-place corrugated galvanized steel ducts. Stay-in-place ducts shall be fabricated from galvanized sheet steel meeting the requirements of ASTM A653, Coating Designation G90, 26 gauge. Ducts shall be 2" diameter with a minimum corrugation (rib) height of 0.12 in. Ducts shall be fabricated with either welded or interlocked seams. Galvanizing of welded seams will not be required.
5. For tension piles where top of Prestressed Pile is less than 3 feet below Pile Cut-off Elevation, extend No. 10 Dowels into cap beyond Pile Cut-off Elevation to achieve development as approved by the Engineer.



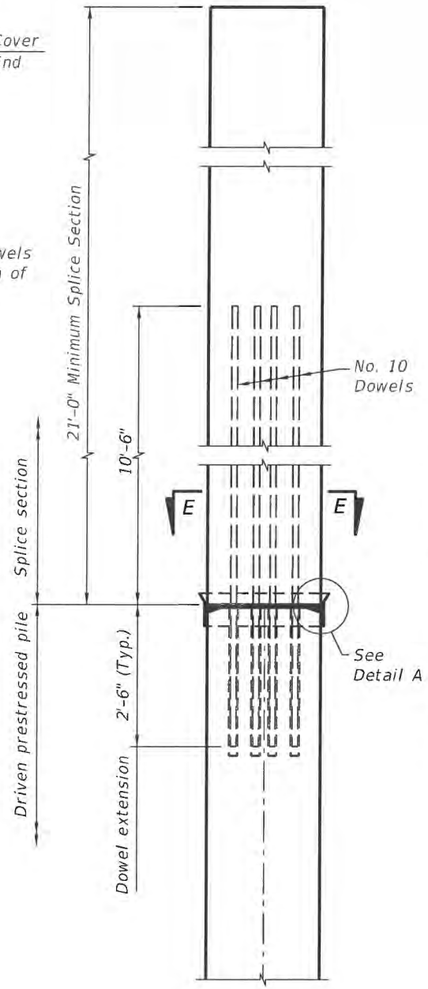
DETAIL A



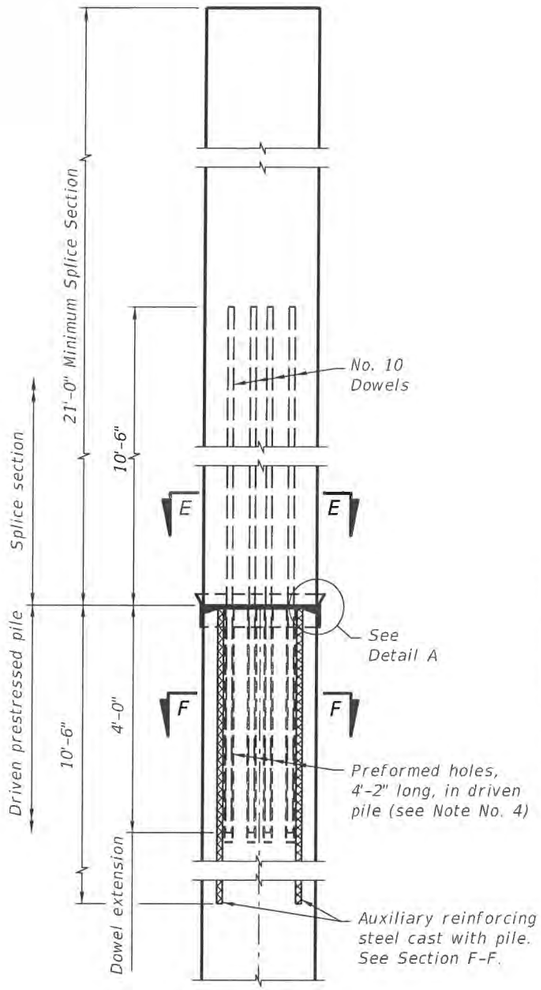
UNFORESEEN REINFORCED C-I-P PILE BUILD-UP DETAIL



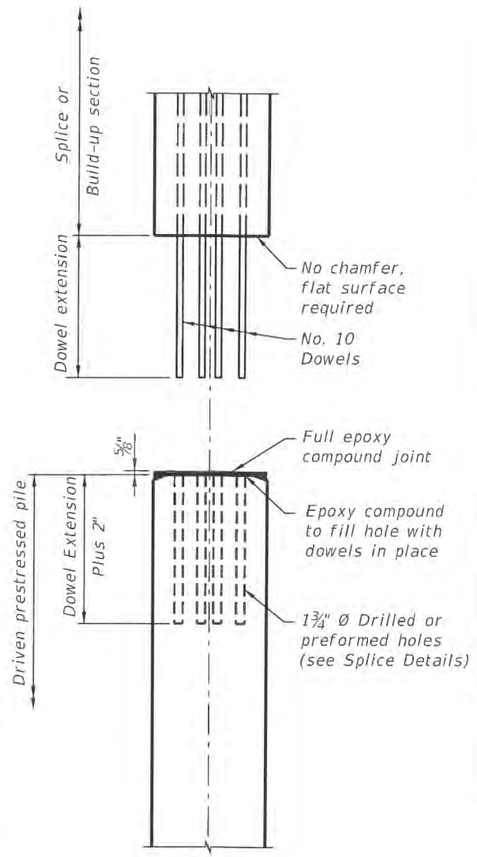
NONDRIVABLE UNFORESEEN REINFORCED PRECAST PILE BUILD-UP DETAIL



DRIVABLE UNFORESEEN PRESTRESSED PRECAST PILE SPLICE DETAIL



DRIVABLE PREPLANNED PRESTRESSED PRECAST PILE SPLICE DETAIL



TYPICAL SPLICE BEFORE BONDING

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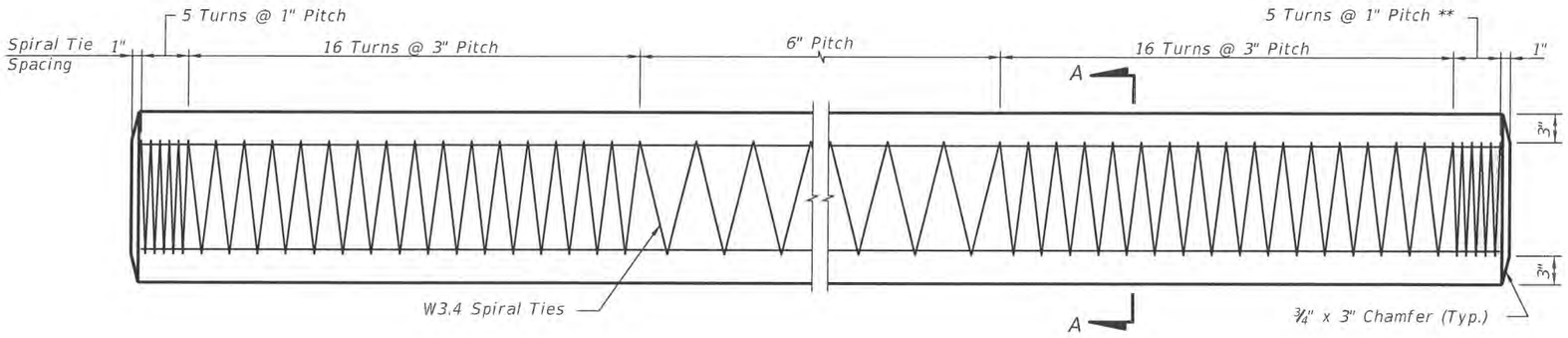
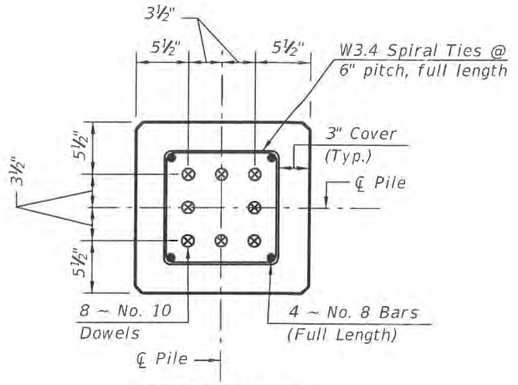
LAST REVISION	REVISION	DESCRIPTION:			
07/01/14			FDOT 2015 DESIGN STANDARDS	SQUARE PRESTRESSED CONCRETE PILE SPLICES	INDEX NO. 20601 / SHEET NO. 1 of 1



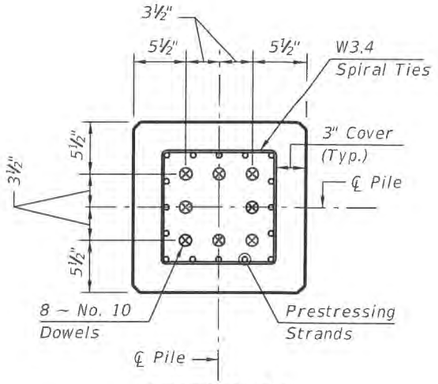
ELEVATION

** See Note No. 4 on Index No. 20601



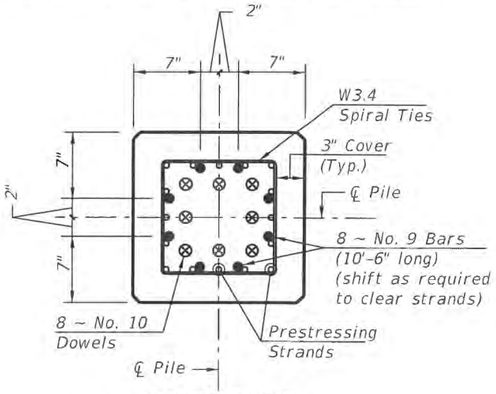
SECTION D-D

(See Nondrivable Unforeseen Reinforced Precast Splice Detail)



SECTION E-E

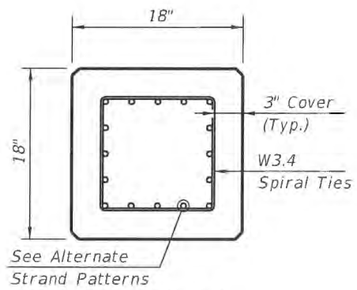
(See Drivable Prestressed Precast Splice Detail)



SECTION F-F

(See Drivable Preplanned Splice Detail)

PILE SPLICE REINFORCEMENT DETAILS



SECTION A-A

ALTERNATE STRAND PATTERNS

12 ~ 0.6" Ø, Grade 270 LRS, at 35 kips
12 ~ ½" Ø (Special), Grade 270 LRS, at 34 kips
16 ~ ½" Ø, Grade 270 LRS, at 26 kips
20 ~ 7/16" Ø, Grade 270 LRS, at 21 kips
24 ~ ⅜" Ø, Grade 270 LRS, at 17 kips

NOTES:
1. Work this Index with Index No. 20600 – Notes and Details for Square Prestressed Concrete Piles and Index No. 20601 – Square Prestressed Concrete Pile Splices.
2. Any of the given Alternate Strand Patterns may be utilized. The strands shall be located as follows:
   Place one strand at each corner and place the remaining strands equally spaced between the corner strands.
   The total strand pattern shall be concentric with the nominal concrete section of the pile.

LAST REVISION	REVISION	DESCRIPTION:			INDEX NO.	SHEET NO.
01/01/12			FDOT 2015 DESIGN STANDARDS	18" SQUARE PRESTRESSED CONCRETE PILE	20618	1 of 1

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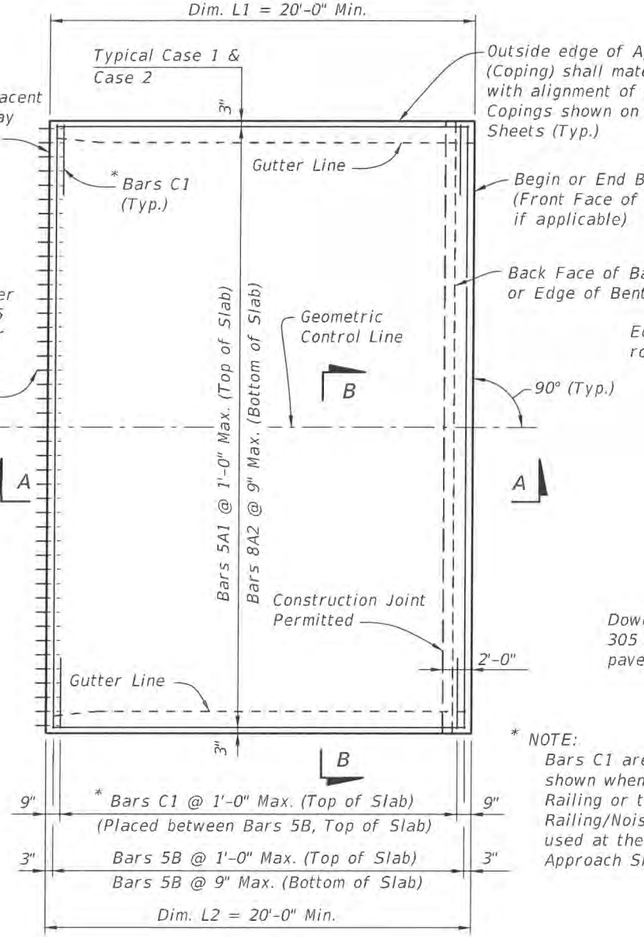
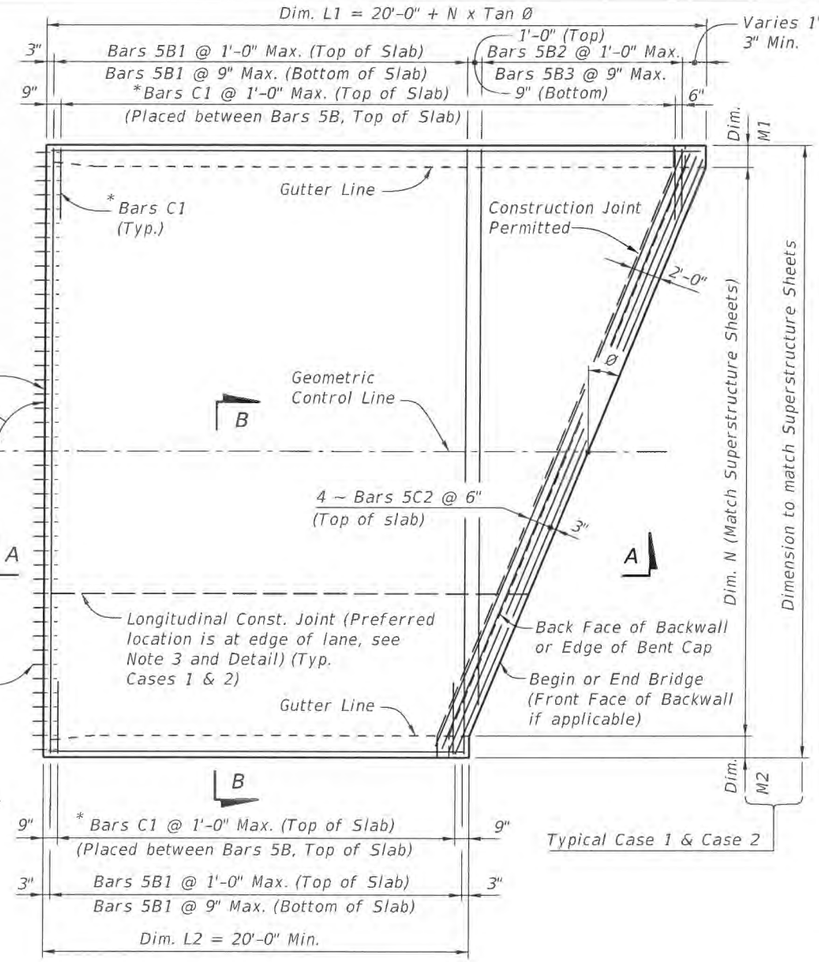
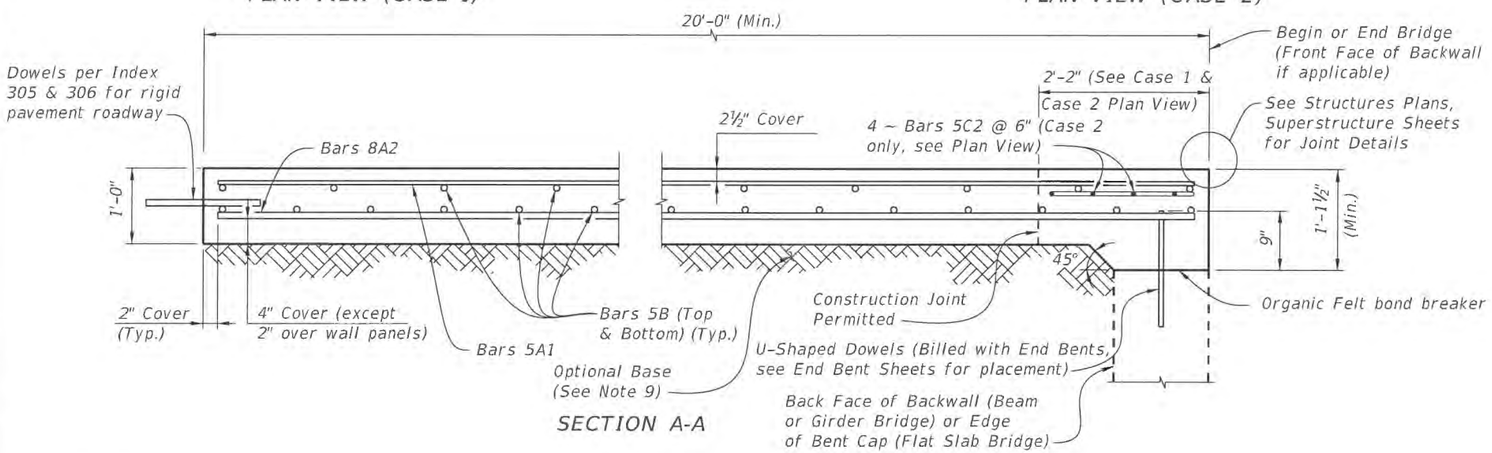


PLAN VIEW (CASE 1)

* NOTE:
Bars C1 are required as shown when either a Traffic Railing or the Traffic Railing/Noise Wall are used at the edge of the Approach Slab.



PLAN VIEW (CASE 2)



SECTION A-A

GENERAL NOTES

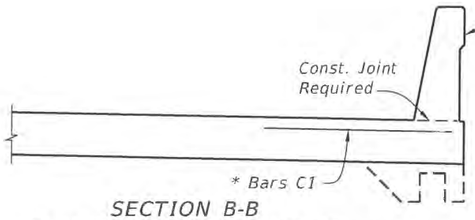
1. SURFACE TREATMENT: Apply a Class 4 Floor Finish (Grooved) to the riding surface from begin or end approach slab joint to begin or end bridge. See Bid Item Notes. Apply a broomed finish to sidewalk areas.
2. CONDUIT: If required, see Structures Plans for Conduit details.
3. When a longitudinal construction joint is necessary or allowed by the Engineer, the transverse steel shall be extended as shown in the Longitudinal Construction Joint Detail.
4. The plan view for CASE 1 applies when the skew angle (Ø) = 0°. Relevant details also apply to CASE 2.
5. The plan view for CASE 2 applies where the skew angle (Ø) is > 0°. The slab shown represents a skew to the right for an approach slab at begin bridge; approach slab at the end of bridge or a left skew shall be treated similarly. The shown reinforcement shall be utilized, and Dowels provided in accordance with Index 305 and 306.
6. Deformed WWR must meet the requirements of Specification Section 931.
7. PROFILOGRAPH: If profilograph requirements apply, planing may be required. The permitted construction joint shown in Section A-A will facilitate the placement of the expansion joint.
8. Approach slabs shown in Plan View Cases 1 and 2 represent a typical approach slab with edge barriers and no sidewalks. Provide railings, parapets, traffic separators and sidewalks as detailed on the additional approach slab sheets.
9. PAYMENT: Deformed WWR for the edge of Approach Slabs on retaining walls is not included in the estimated quantity for reinforcing steel and is considered incidental to the work. See Roadway Plans for Optional Base details and quantities.

CROSS REFERENCES:

For Section B-B, Longitudinal Construction Joint Detail and Approach Slab Details see Sheet 2.

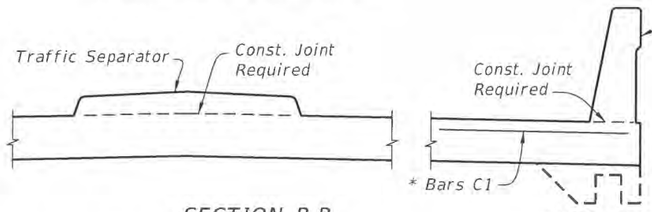
$TIME$
$DATE$

LAST REVISION	REVISION	DESCRIPTION:	DEVELOPMENTAL DESIGN STANDARDS	APPROACH SLABS (20 FT.) (RIGID PAVEMENT APPROACHES)	INDEX NO.	SHEET NO.
10/01/16			FDOT		D20930	1 of 2



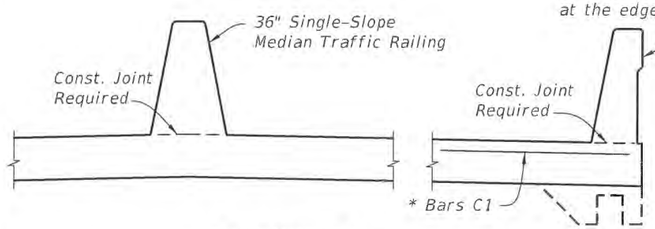
NOTE:
Geometry of Traffic Railings, Pedestrian/Bicycle Railings, Traffic Separators and Sidewalks to match those on adjoining bridge.

SECTION B-B
STANDARD APPROACH SLAB

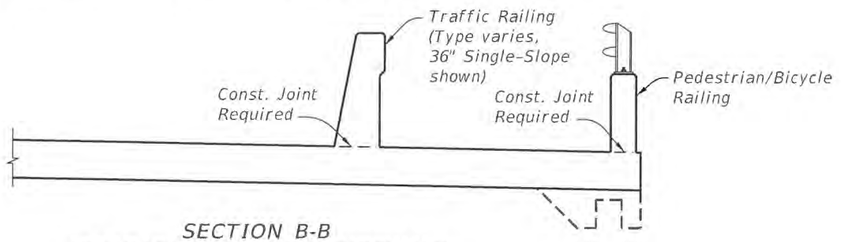


SECTION B-B
APPROACH SLAB WITH TRAFFIC SEPARATOR

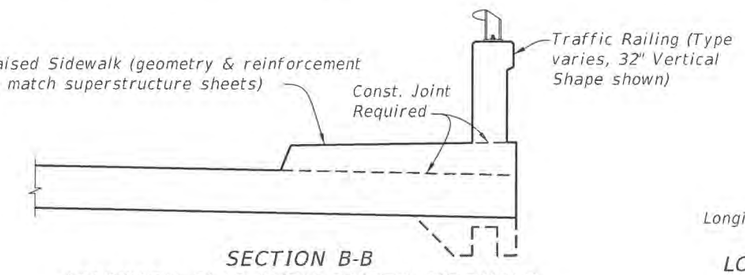
*NOTE: Bars C1 are required as shown when the 36" or 42" Single-Slope Traffic Railing, or the Traffic Railing/Noise Wall, are used at the edge of the Approach Slab.



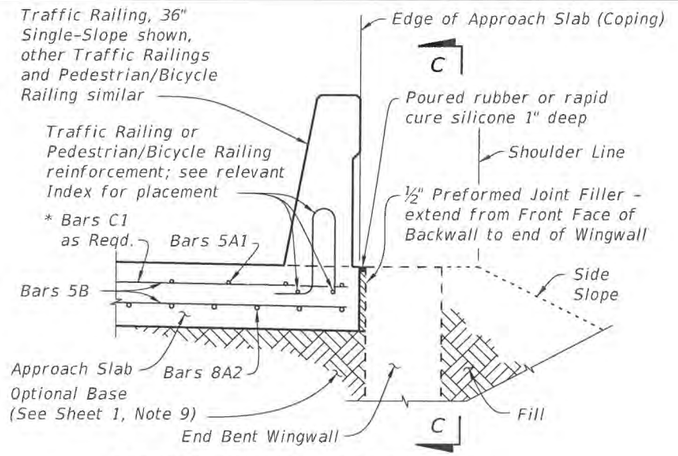
SECTION B-B
APPROACH SLAB WITH MEDIAN TRAFFIC RAILING



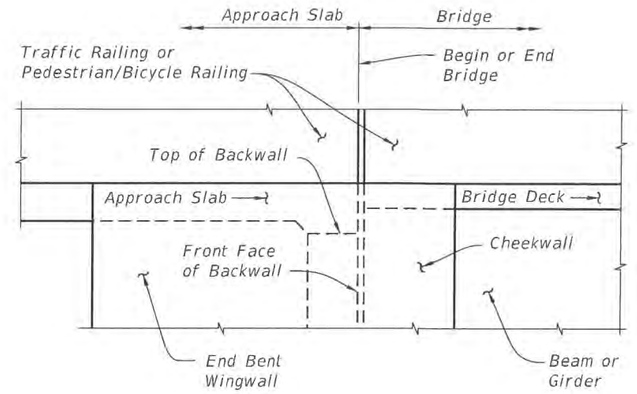
SECTION B-B
APPROACH SLAB WITH SIDEWALK



SECTION B-B
APPROACH SLAB WITH RAISED SIDEWALK

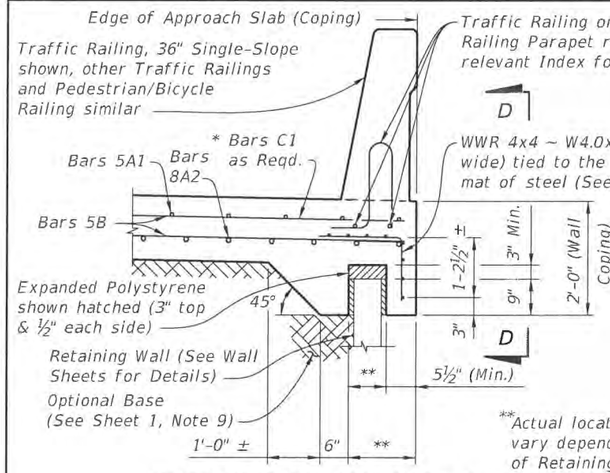


SECTION THRU APPROACH SLAB
AND END BENT WINGWALL

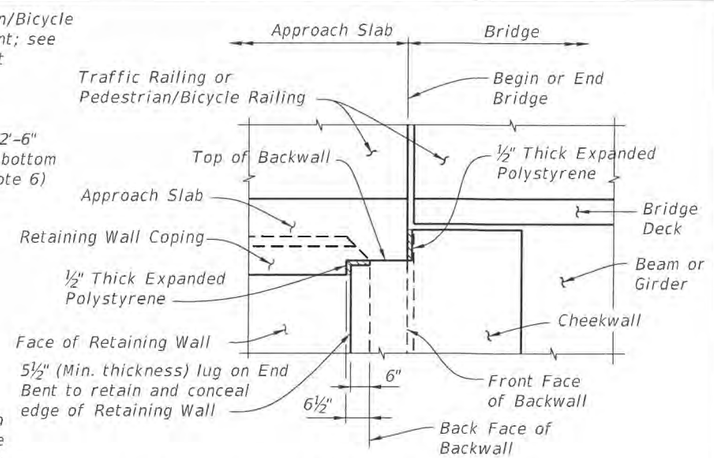


VIEW C-C AT BEGIN OR END BRIDGE (BEAM BRIDGE SHOWN, FLAT SLAB BRIDGE SIMILAR)

APPROACH SLAB WITH WINGWALL DETAILS

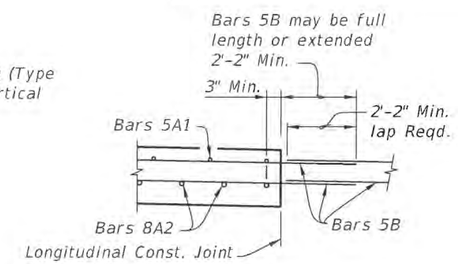


SECTION THRU APPROACH SLAB
AND RETAINING WALL

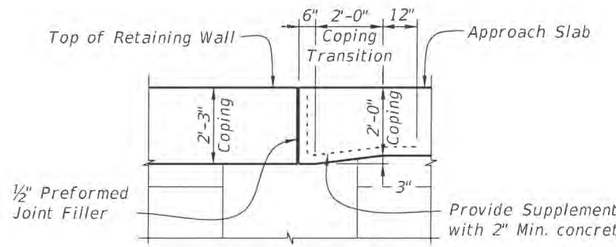


VIEW D-D AT BEGIN OR END BRIDGE (BEAM BRIDGE SHOWN, FLAT SLAB BRIDGE SIMILAR)

APPROACH SLAB WITH RETAINING WALL DETAILS



LONGITUDINAL CONSTRUCTION
JOINT DETAIL



COPING TRANSITION DETAIL FOR
RETAINING WALLS WITH 2'-3" COPING HEIGHT
(Railing Not Shown For Clarity)

CROSS REFERENCES:

For location of Section B-B and Longitudinal Construction Joint see Sheet 1.

$TIME$
$DATE$

LAST REVISION	REVISION	DESCRIPTION:			
10/01/16			DEVELOPMENTAL DESIGN STANDARDS	APPROACH SLABS (20 FT.) (RIGID PAVEMENT APPROACHES)	INDEX NO. D20930 / SHEET NO. 2 of 2