

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

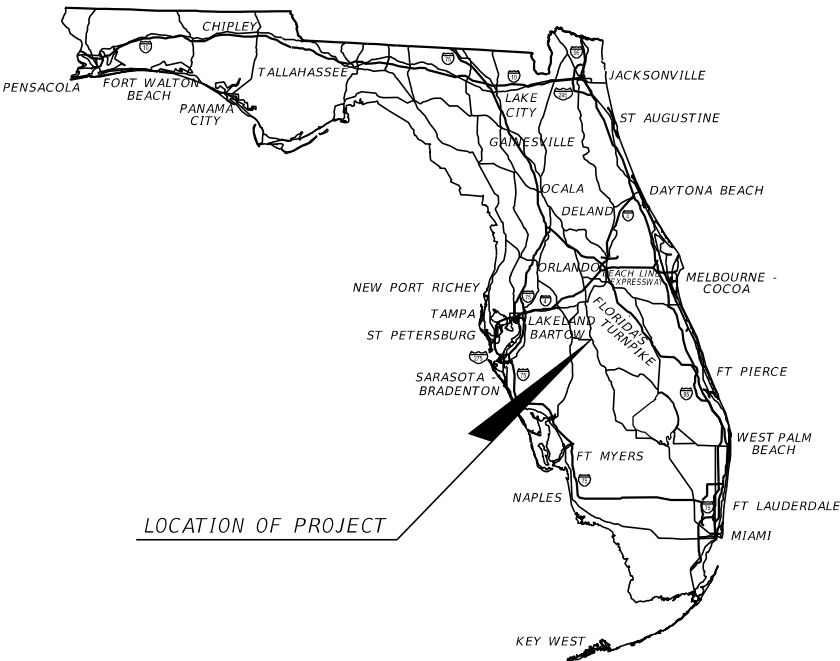
CONTRACT PLANS

FINANCIAL PROJECT ID 437300-1-52-01
FINANCIAL PROJECT ID 437300-2-52-01
POLK COUNTY (16470)
SUNTRAX TEST FACILITY

STRUCTURE PLANS

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BW1-6	REPORT OF CORE BORINGS (2 OF 2)



STRUCTURES PLANS
ENGINEER OF RECORD:

JOAN DE LA ROSA, P.E.
P.E. NO.: 74705
BCC ENGINEERING, INC.
6401 SW 87TH AVE, SUITE 200
MIAMI, FLORIDA 33173
CERTIFICATE OF AUTHORIZATION 7184
VENDOR NO. F650540100001
CONTRACT NO. C-9L54

FDOT PROJECT MANAGER:
PATRICK M. MUENCH, P.E.

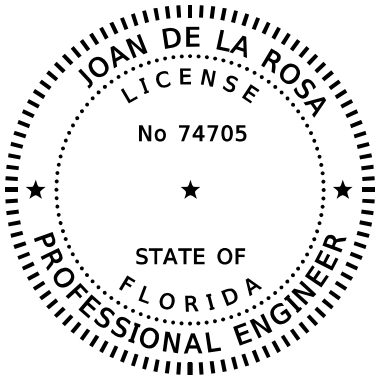
GEC PROJECT MANAGER:
JOSH PEDERSEN, P.E.

REVISIONS:

KEY SHEET REVISIONS	
DATE	DESCRIPTION

CONSTRUCTION CONTRACT NO.	FISCAL YEAR	SHEET NO.
E8Q39	17	B-1

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



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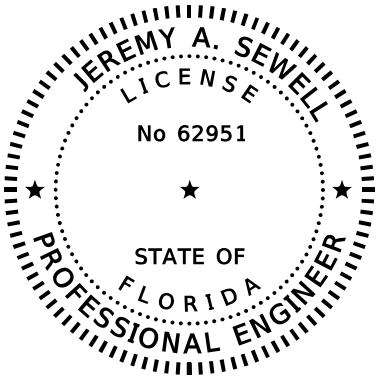
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BCC ENGINEERING, INC
6401 SW 87TH AVENUE, SUITE 200
MIAMI, FL 33173
CERTIFICATE OF AUTHORIZATION: 7184
JOAN DE LA ROSA, P.E. NO. 74705

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE
FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

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BW1-4	MSE WALL DETAILS



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TIERRA, INC.
591 SUSAN B. BRITT COURT
WINTER GARDEN, FLORIDA 34787
CERTIFICATE OF AUTHORIZATION: 6486
JEREMY A. SEWELL, P.E. NO. 62951

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FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

STRUCTURES PLANS

SHEET NO.	SHEET DESCRIPTION
B-2	SIGNATURE SHEET
B1-4	REPORT OF CORE BORINGS
BW1-1	MSE WALL DATA TABLES AND NOTES
BW1-5	REPORT OF CORE BORINGS (1 OF 2)
BW1-6	REPORT OF CORE BORINGS (2 OF 2)

BRIDGE NO. 164510
SUNTRAX TEST FACILITY OVER ENTRANCE ROAD

REVISIONS						JOAN DE LA ROSA, P.E. No. 74705 BCC ENGINEERING, INC. 6401 SW 87th Avenue, Suite 200. Miami, Florida 33173 P: (305) 670-2350 F: (305) 670-2351 Certificate of Authorization No. 7184	DRAWN BY: CLA 06-16 CHECKED BY: JDLR 06-16 DESIGNED BY: FC 06-16 CHECKED BY: JDLR 06-16	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET TITLE: SIGNATURE SHEET		REF. DWG. NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION								
								ROAD NO.	COUNTY	FINANCIAL PROJECT ID	PROJECT NAME: SUNTRAX TEST FACILITY		SHEET NO.
								N/A	POLK	437300-1-52-01			B-2

SUMMARY OF STRUCTURE QUANTITIES - BRIDGE NO. 164510										
SECTION	PAY ITEM NO.	PAY ITEM DESCRIPTION	LOCATION	UNIT	QUANTITY		TOTAL		DESIGN NOTES	CONSTRUCTION REMARKS
					P	F	P	F		
LUMP SUM ITEMS										
EARTHWORK										
FOUNDATION	400- 4- 25	CONCRETE CLASS IV, MASS, SUBSTRUCTURE	FOOTING	CY	497.8		631.7		QUANTITIES INCLUDE BOTH FOUNDATIONS.	
			STEM	CY	133.9					
	415- 1- 5	REINFORCING STEEL - BRIDGE SUBSTRUCTURE		LB	110442		110442		QUANTITIES INCLUDE BOTH FOUNDATIONS.	
CULVERT	407- 1- 52	PRECAST THREE-SIDED CULVERT, > 50' SPAN, > 10' HEIGHT		LF	52.25		52.25			
SUBSTRUCTURE										
APPROACH SLABS										
SUPERSTRUCTURE										
RAILING/ BARRIERS										
MOVABLE BRIDGE/ ARCHITECTURAL										
SPECIAL FEATURES										

SUMMARY OF WALLS										
PAY ITEM NO.	PAY ITEM DESCRIPTION	LOCATION	SIDE	UNIT	QUANTITY		TOTAL		DESIGN NOTES	CONSTRUCTION REMARKS
		STA. TO STA.			P	F	P	F		
548-12	RETAINING WALL SYSTEM, PERMANENT, EXCLUDING BARRIER	100+74.63 to 103+86.04	LT	SF	9002		16062		MSE WALL W1	
		100+82.58 to 103+78.08	RT		7060				MSE WALL W2	
548-12	RETAINING WALL SYSTEM, PERMANENT, GRS WALL SYSTEM	635+05 to 635+52 (@ ENT. RD.)	LT/RT	SF	4466		4466		GRS WALL SYSTEM - TERRACES (WALLS 1A, 1B, 1C & 2A, 2B, 2C)	REFER TO LANDSCAPE COMPONENT PLANS FOR WALL DETAILS

PAY ITEM NOTE (PRECAST THREE-SIDED CULVERT):

PAY ITEM 407-1-52 SHALL INCLUDE THREE-SIDED CULVERT, FURNISHED AND INSTALLED, INCLUDING INCIDENTALS DESCRIBED IN FDOT SPECIFICATIONS SECTION 407-15, EXCEPT FOUNDATION CONCRETE & REINFORCING STEEL WHICH SHALL BE PAID FOR UNDER SEPARATE PAY ITEMS AS SHOWN IN THIS SHEET.

PAY ITEM NOTE (MSE AND GRS WALLS):

PAY ITEM 548-12 SHALL INCLUDE THE CONSTRUCTION OF TWO (2) MSE WALLS AND SIX (6) TERRACE WALLS. PAY ITEM ALSO INCLUDES INCIDENTALS TO TERRACE WALLS INCLUDING BACKFILL GRAVEL, BASE MATERIAL, GEOGRID TEXTILE MATERIAL, PLANTING SOIL (18" DEPTH), FILTER FABRIC (TERRACES), DECORATIVE EGG ROCK, WEED BARRIER FABRIC, ALUMINUM EDGING, AND PINE STRAW MULCH (3" DEPTH).

BRIDGE NO. 164510
SUNTRAX TEST FACILITY OVER ENTRANCE ROAD

REVISIONS						JOAN DE LA ROSA, P.E. No. 74705 BCC ENGINEERING, INC. 6401 SW 87th Avenue, Suite 200. Miami, Florida 33173 P: (305) 670-2350 F: (305) 670-2351 Certificate of Authorization No. 7184	DRAWN BY: CLA 06-16 CHECKED BY: JDLR 06-16 DESIGNED BY: FC 06-16 CHECKED BY: JDLR 06-16	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET TITLE:		REF. DWG. NO.
DATE	BY	DESCRIPTION		DATE	BY			ROAD NO.		COUNTY	FINANCIAL PROJECT ID	PROJECT NAME:	
								N/A		POLK	437300-1-52-01		SHEET NO.
													BQ1-1

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BRIDGE GENERAL NOTES

GENERAL SPECIFICATIONS:
FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (DATED 2016), AS AMENDED BY CONTRACT DOCUMENTS.

- DESIGN SPECIFICATIONS:
1. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS (SEVENTH EDITION) 2014 WITH 2015 INTERIM REVISIONS.
2. STRUCTURES MANUAL, JANUARY 2016.

DESIGN LOADING:
1. THE DESIGN PRESENTED HEREIN IS BASED ON THE SERVICE BRIDGE REACTIONS LISTED BELOW. THE LOADS LISTED ARE UNIFORMLY DISTRIBUTED ALONG THE TOP OF EACH STEM.

DEAD LOAD (ARCH ONLY):	EARTH LOAD (SOIL ABOVE ARCH):	LIVE LOAD:
9.7 KIP/FT (VERTICAL)	48.7 KIP/FT (VERTICAL)	6.6 KIP/FT (VERTICAL)
9.5 KIP/FT (HORIZONTAL)	25.9 KIP/FT (HORIZONTAL)	6.5 KIP/FT (HORIZONTAL)

2. ADDITIONAL DESIGN INFORMATION:
- UNIT WEIGHT OF REINFORCED CONCRETE: 150 PCF
- UNIT WEIGHT OF SOIL: 115 PCF

DESIGN METHOD:
LOAD RESISTANCE FACTORED DESIGN METHOD

- ENVIRONMENT:
1. SUPERSTRUCTURE: SLIGHTLY AGGRESSIVE
2. SUBSTRUCTURE: MODERATELY AGGRESSIVE FOR CONCRETE (SOIL - pH = 5.8)
EXTREMELY AGGRESSIVE FOR STEEL (SOIL - pH = 5.8)

- CONCRETE:
1. CONCRETE SHALL CONFORM TO SECTION 346 OF THE STANDARD SPECIFICATIONS.
2. CONCRETE SHALL BE CLASS IV f'c = 5,500 PSI (CAST-IN-PLACE SUBSTRUCTURE)

- GEOTECHNICAL:
1. FOUNDATION CONSTRUCTION SHALL BE PER THE FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. REFER TO GEOTECHNICAL REPORT PREPARED BY TIERRA, INC. PROVIDED IN THE CONTRACT DOCUMENTS FOR DESIGN AND SOIL INFORMATION.

2. SOIL PROPERTIES: FACTORED BEARING CAPACITY = 10.16 KSF
RESISTANCE FACTOR = 0.45

- CONCRETE COVERS:
1. COVERS: CAST-IN-PLACE SUBSTRUCTURE (CAST AGAINST EARTH) = 4"
CAST-IN-PLACE SUBSTRUCTURE (FORMED SURFACES) = 3"
THREE-SIDED PRECAST BRIDGE CULVERT SEGMENTS = 2"
2. CONCRETE COVER DIMENSIONS SHOWN IN THE PLANS DO NOT INCLUDE PLACEMENT AND FABRICATION TOLERANCES UNLESS SHOWN AS "MINIMUM COVER". SEE SPECIFICATION 415 FOR ALLOWABLE TOLERANCES. ALL DIMENSIONS PERTAINING TO THE LOCATION OF REINFORCING STEEL ARE TO CENTERLINE OF BAR EXCEPT WHERE CLEAR DIMENSION IS NOTED TO FACE OF CONCRETE.

JOINTS IN CONCRETE:
CONSTRUCTION JOINTS WILL BE PERMITTED ONLY AT THE LOCATIONS INDICATED IN THE PLANS. ADDITIONAL CONSTRUCTION JOINTS OR ALTERATIONS TO THOSE SHOWN SHALL REQUIRE APPROVAL OF THE ENGINEER.

CHAMFERS:
ALL EXPOSED EDGES AND CORNERS OF CONCRETE SHALL BE CHAMFERED 3/4" UNLESS OTHERWISE NOTED.

REINFORCING STEEL:
REINFORCING STEEL SHALL BE GRADE 60, IN ACCORDANCE WITH ASTM A615.

ELEVATIONS:
ALL ELEVATIONS ARE IN FEET AND ARE BASED ON NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.

UTILITIES:
1. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES AND UNDERGROUND OBSTRUCTIONS PRIOR TO COMMENCING FOUNDATION CONSTRUCTION.

2. PRECLUDE ENCROACHMENTS INTO UTILITY COMPANY SAFETY CLEARANCE ZONES WITH ALL CONSTRUCTION CRANES AND OTHER EQUIPMENT.

THREE-SIDED PRECAST BRIDGE CULVERT:
A. THIS WORK SHALL CONSIST OF FURNISHING AND CONSTRUCTING A THREE-SIDED PRECAST BRIDGE CULVERT IN ACCORDANCE WITH THE STANDARDS AND IN REASONABLY CLOSE CONFORMITY WITH THE LINES, GRADES, DESIGN AND DIMENSIONS SHOWN ON THE PLANS OR AS ESTABLISHED BY THE ENGINEER. IN SITUATIONS WHERE TWO OR MORE SPECIFICATIONS APPLY TO THIS WORK, THE MOST STRINGENT REQUIREMENTS SHALL GOVERN.

- B. IF THREE-SIDED PRECAST BRIDGE CULVERT CONSISTS OF TWO-PIECE ARCHES, A CAST-IN-PLACE MOMENT CONNECTION THAT IS INTEGRAL TO THE ARCH GEOMETRY SHALL BE USED.

- C. STRUCTURAL ANALYSIS OF THE ARCH SHALL BE PROVIDED USING AN FHWA APPROVED FINITE PROGRAM.

- D. PROPOSED PRECAST BRIDGE CULVERT SUPPLIERS MUST PROVIDE THE DOCUMENTATION LISTED BELOW FOR APPROVAL PRIOR TO BID. PRODUCTS WILL NOT BE EVALUATED AFTER THE BID.

1. PROPOSED SUPPLIERS MUST HAVE AT LEAST 5 YEARS' EXPERIENCE DESIGNING AND FABRICATING THESE TYPES OF STRUCTURES AND A MINIMUM OF 5 SUCCESSFUL BRIDGE PROJECTS, OR SIMILAR CONSTRUCTION, EACH OF WHICH HAS BEEN IN SERVICE AT LEAST 3 YEARS. LIST THE LOCATION, BRIDGE SIZE, OWNER, AND A CONTACT FOR REFERENCE FOR EACH PROJECT.
2. BRIDGE DRAWINGS INCLUDING A PLAN VIEW SHOWING TOTAL BRIDGE LENGTH AND END TREATMENT WALL LENGTH AND ANGLES, UPSTATION AND DOWNSTATION END ELEVATIONS SHOWING PRECAST SPAN, CLEAR SPAN, PRECAST RISE, CLEAR RISE, AND WALL THICKNESS DIMENSIONS OF BRIDGE MEMBERS AND BRIDGE END TREATMENTS.
3. DETAIL SHOWING ELECTRICAL COMPONENTS TO BE EMBEDDED IN PRECAST BRIDGE CULVERT UNITS. REFER TO LIGHTING PLANS FOR DETAILS OF ELECTRICAL COMPONENTS.
4. PRODUCT SPECIFIC REQUIREMENTS FOR PRECAST BRIDGE CULVERT SEGMENT CONNECTION TO FOUNDATION, INCLUDING PRECAST BRIDGE CULVERT SUPPORT WIDTH AND GEOMETRY.
5. DESIGN CALCULATIONS FOR PRECAST CONCRETE ELEMENTS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF FLORIDA. THE PROFESSIONAL ENGINEER SIGNING AND SEALING THE SHOP DRAWINGS AND CALCULATIONS MUST HAVE AT LEAST 5 YEARS' EXPERIENCE DESIGNING SOIL INTERACTIVE STRUCTURES UTILIZING A PUBLIC DOMAIN SOFTWARE. DESIGN CALCULATIONS FOR FOUNDATIONS ARE ALSO REQUIRED IF PROPOSED BRIDGE REACTIONS DIFFER FROM DESIGN LOADS OR IF PROPOSED FOUNDATION DEVIATES FROM FOUNDATION DESIGN SHOWN IN CONTRACT DOCUMENTS.
6. PROPOSED STRUCTURE MUST MAINTAIN THE MINIMUM CLEARANCE DIMENSIONS FOR THE TEST TRACK AS SHOWN ON THE PLANS.

FILL/BACKFILL:
REFER TO PRECAST BRIDGE FABRICATION & CONSTRUCTION PLANS FOR ADDITIONAL INFORMATION (UNDER SEPARATE SUBMITTAL).

- APPLIED FINISH COATING:
1. A CLASS 5 FINISH COATING SHALL BE APPLIED TO THE EXPOSED PORTIONS OF THE STRUCTURE. FOR LIMITS OF CLASS 5 APPLIED FINISH COATING, REFER TO THE SURFACE FINISH DETAIL SHEET. EXTEND SURFACE TREATMENT A MINIMUM OF 6" BELOW FINAL GROUND LINE.

2. SUCCESSFUL BIDDER SHALL SUBMIT A RANGE OF NATURAL/NEUTRAL COLOR OPTIONS FOR THE EXPOSED SURFACE COLOR TO THE ARCHITECT FOR APPROVAL. FINAL SELECTION OF COLOR SCHEME SHALL BE BASED ON MANUFACTURER'S UNIQUE PRODUCT DATA SHEETS.

PLAN DIMENSIONS:
ALL DIMENSIONS IN THESE PLANS ARE MEASURED IN FEET EITHER HORIZONTALLY OR VERTICALLY UNLESS OTHERWISE NOTED.

SHOP DRAWINGS:
THE SUCCESSFUL BIDDER SHALL SUBMIT THE FINAL DESIGN AND DETAILS OF THE THREE-SIDED PRECAST BRIDGE CULVERT AS PER FDOT SPECIFICATION 407 AND, IF NEEDED, FOUNDATION FOR REVIEW AS SHOP DRAWINGS. DETAILS AND DESIGN CRITERIA SHOWN ON THE SHOP DRAWINGS SHALL NOT DEVIATE FROM THOSE SHOWN ON THE PROJECT BID DOCUMENTS. THE DESIGN AND FULLY DETAILED PLANS SHALL INCLUDE, BUT NOT LIMITED TO, THE FOLLOWING:

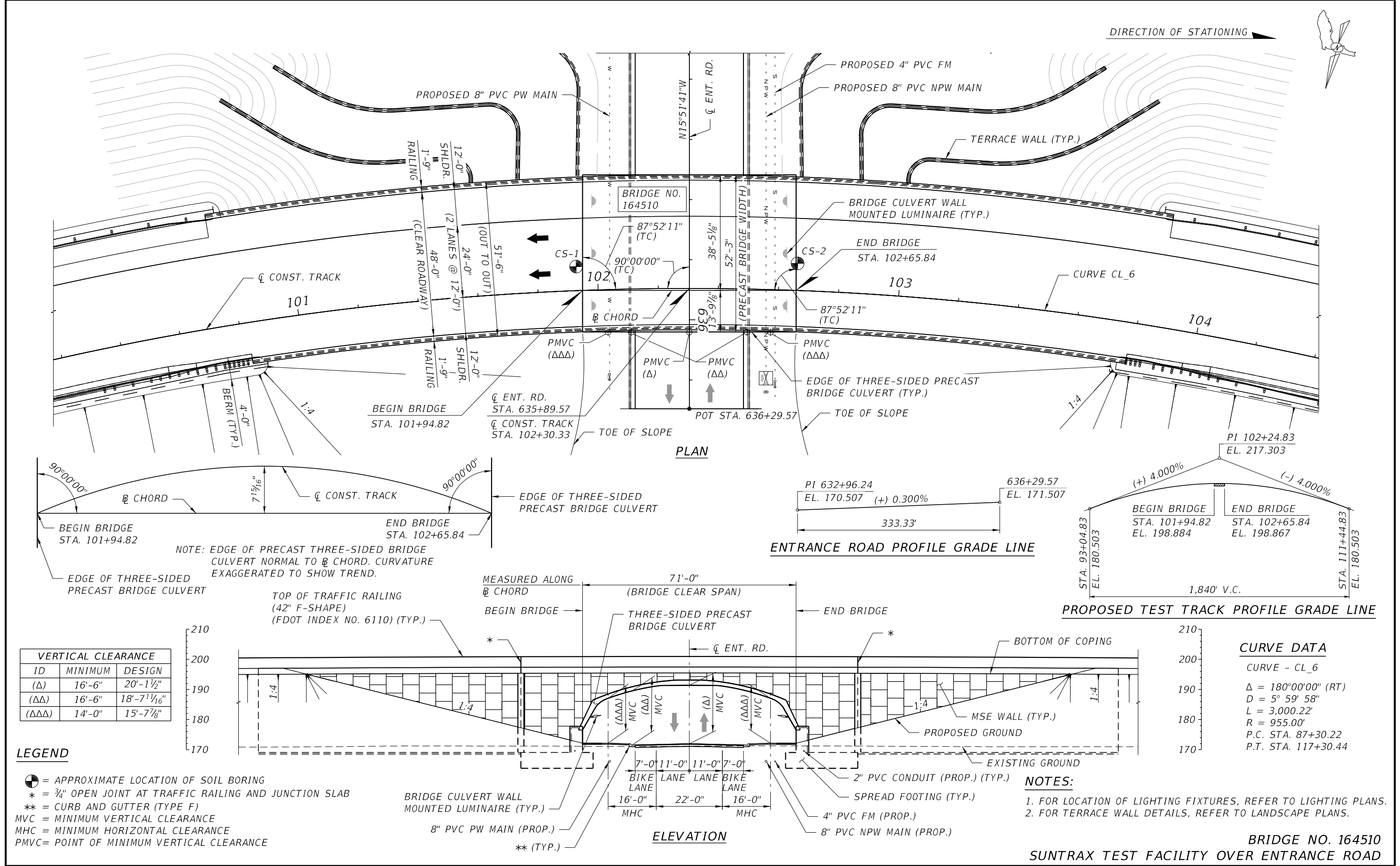
- A. 1. STRUCTURES PLAN, REINFORCEMENT DETAIL ELEVATIONS AND SECTION VIEWS SHOWING DETAILED LAYOUT, JOINTS AND OTHER CONSTRUCTION DETAILS NECESSARY FOR COMPLETE INSTALLATION.
2. FOUNDATION PLANS AND DETAILS IF PROPOSED FOUNDATION DEVIATES FROM DESIGN IN CONTRACT DOCUMENTS.
3. PRECAST BRIDGE CULVERT MANUFACTURE AND INSTALLATION INSTRUCTIONS.

- B. BRIDGE SUPPLIER SHALL PROVIDE A LOAD RATING OF COMPLETED STRUCTURE IN ACCORDANCE WITH THE FDOT BRIDGE LOAD RATING MANUAL. PROVIDE 2 BOUND COPIES OF LOAD RATING CALCULATIONS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF FLORIDA ON 8½"x11" PAPER AND AN ELECTRONIC COPY IN PDF FORMAT. SUBMIT TWO COPIES OF THE LOAD RATING SUMMARY SHEET ON 11"x17" PAPER, AND AN ELECTRONIC COPY IN PDF FORMAT.

BRIDGE NO. 164510
SUNTRAX TEST FACILITY OVER ENTRANCE ROAD

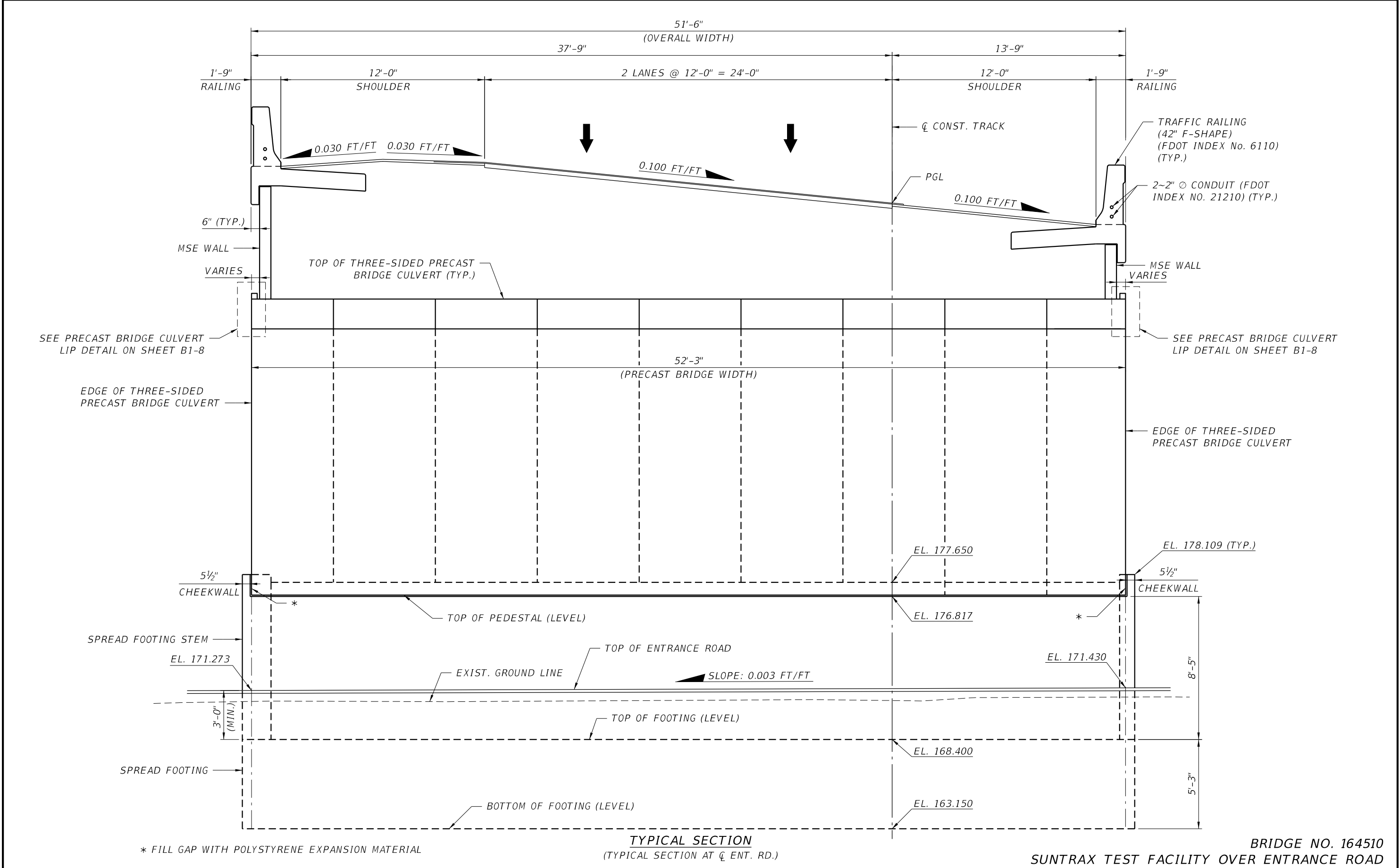
REVISIONS						JOAN DE LA ROSA, P.E. No. 74705 BCC ENGINEERING, INC. 6401 SW 87th Avenue, Suite 200. Miami, Florida 33173 P: (305) 670-2350 F: (305) 670-2351 Certificate of Authorization No. 7184	DRAWN BY: CLA 06-16	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET TITLE: GENERAL NOTES		REF. DWG. NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION		CHECKED BY: JDLR 06-16						REF.
							DESIGNED BY: FC 06-16	ROAD NO.	COUNTY	FINANCIAL PROJECT ID	PROJECT NAME: SUNTRAX TEST FACILITY	SHEET NO.	
							CHECKED BY: JDLR 06-16	N/A	POLK	437300-1-52-01		B1-1	

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DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION		CHECKED BY: JDLR 06-16						PLAN AND ELEVATION		
							DESIGNED BY: FC 06-16			ROAD NO.	COUNTY	FINANCIAL PROJECT ID	PROJECT NAME:	SHEET NO.	
							CHECKED BY: JDLR 06-16			N/A	POLK	437300-1-52-01	SUNTRAX TEST FACILITY		
														B1-2	

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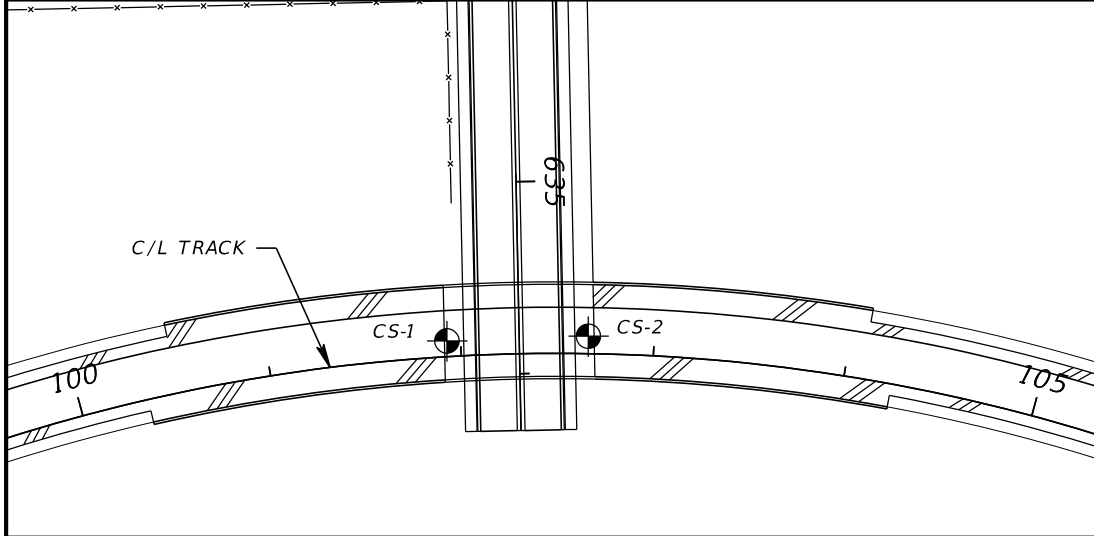
* FILL GAP WITH POLYSTYRENE EXPANSION MATERIAL

TYPICAL SECTION
(TYPICAL SECTION AT $\hat{Q}$ ENT. RD.)

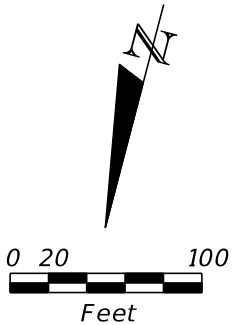
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							CHECKED BY: JDLR 06-16	N/A	POLK	437300-1-52-01	SUNTRAX TEST FACILITY	B1-3	

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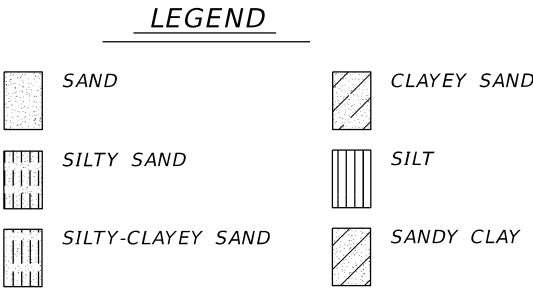


BORING LOCATION PLAN



ENVIRONMENTAL CLASSIFICATION:
SUBSTRUCTURE CONCRETE: MODERATELY AGGRESSIVE
(SOIL-pH = 5.8)
SUBSTRUCTURE STEEL: EXTREMELY AGGRESSIVE
(SOIL-pH = 5.8)
SUPERSTRUCTURE SLIGHTLY AGGRESSIVE

SOIL TEST RESULTS:
RESISTIVITY 35,000 TO 49,000 OHM-CM
CHLORIDES 60 PPM
SULFATES 30 TO 60 PPM
pH 5.8 TO 5.9



SP UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487)
GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW
AND LABORATORY TESTING ON SELECTED SAMPLES
FOR CONFIRMATION OF VISUAL REVIEW.
N NUMBERS TO THE LEFT OF BORINGS INDICATE
SPT VALUE FOR 12 INCHES OF PENETRATION
(UNLESS OTHERWISE NOTED).
50/4 NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION
HA HAND AUGERED TO VERIFY UTILITY CLEARANCE
-200 PERCENT PASSING #200 SIEVE
NMC NATURAL MOISTURE CONTENT (%)
LL LIQUID LIMIT
PI PLASTICITY INDEX

NAVD 88 NORTH AMERICAN VERTICAL DATUM OF 1988

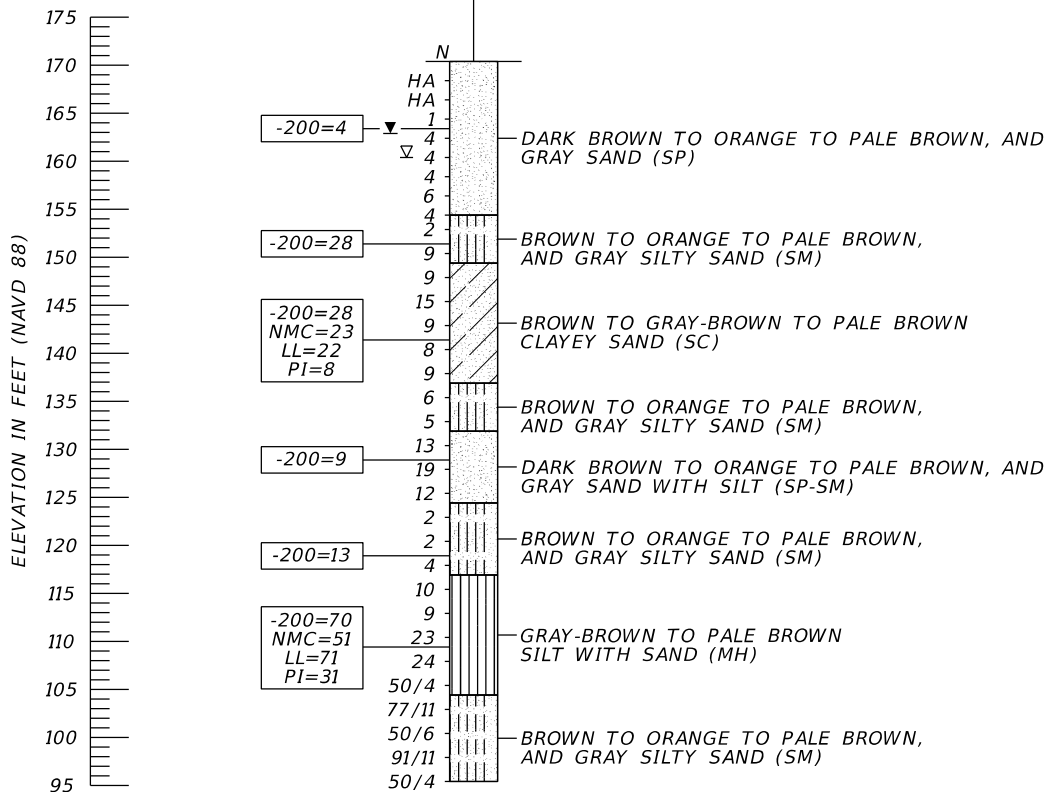
APPROXIMATE SPT BORING LOCATION

GROUNDWATER LEVEL ENCOUNTERED DURING
FIELD EXPLORATIONS

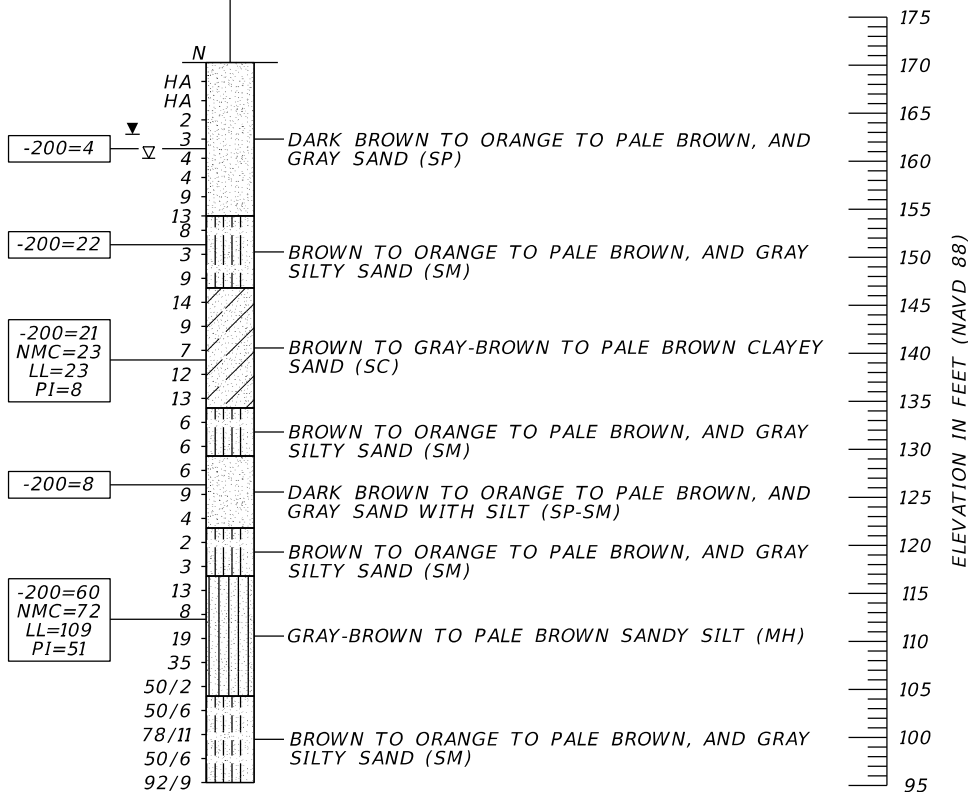
ESTIMATED SEASONAL HIGH GROUNDWATER TABLE

C/L TRACK CENTERLINE OF CONSTRUCTION OF TRACK

NOTES: 1. THE BORING LOCATIONS (STATIONS, OFFSETS, AND
ELEVATIONS) WERE SURVEYED BY THE PROJECT
SURVEYOR.
2. BASED ON A REVIEW OF THE "POTENTIOMETRIC
SURFACE OF THE UPPER FLORIDAN AQUIFER,
WEST-CENTRAL FLORIDA" MAPS PUBLISHED BY
THE USGS, THE POTENTIOMETRIC SURFACE
ELEVATION OF THE UPPER FLORIDAN AQUIFER
IN THE VICINITY OF THE PROJECT SITE RANGES
FROM APPROXIMATELY +120 TO +130 FEET, NGVD
29.



BORING TERMINATED AT
ELEVATION 95.4 FT (NAVD 88)
LATITUDE: N 28.11295
LONGITUDE: W 81.82817

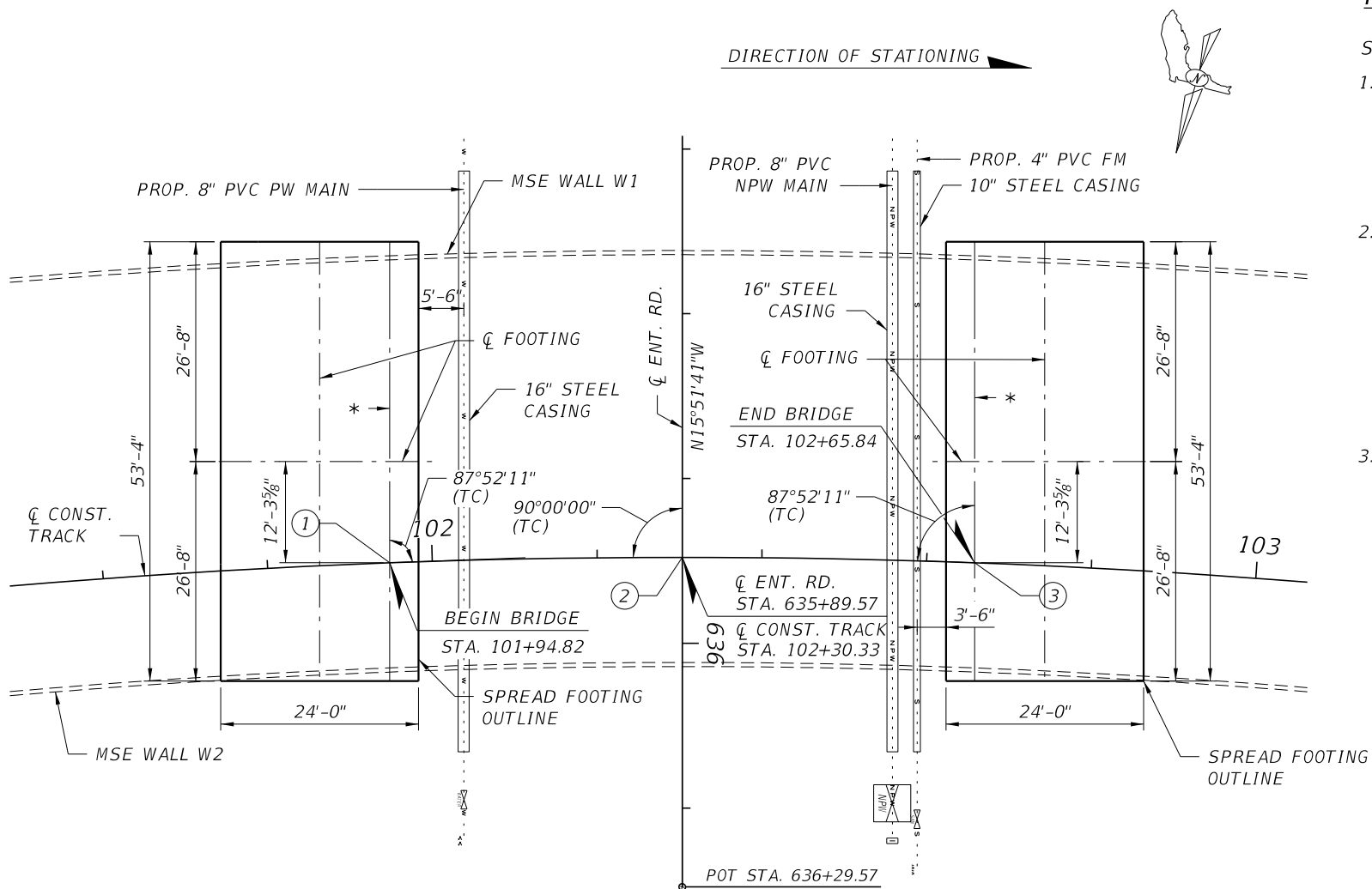


BORING TERMINATED AT
ELEVATION 95.3 FT (NAVD 88)
LATITUDE: N 28.11290
LONGITUDE: W 81.82839

	SAFETY HAMMER	AUTOMATIC HAMMER
GRANULAR MATERIALS- RELATIVE DENSITY	SPT N-VALUE (BLOWS/FT.)	SPT N-VALUE (BLOWS/FT.)
VERY LOOSE	LESS THAN 4	LESS THAN 3
LOOSE	4 to 10	3 to 8
MEDIUM DENSE	10 to 30	8 to 24
DENSE	30 to 50	24 to 40
VERY DENSE	GREATER THAN 50	GREATER THAN 40
SILTS AND CLAYS CONSISTENCY	SPT N-VALUE (BLOWS/FT.)	SPT N-VALUE (BLOWS/FT.)
VERY SOFT	LESS THAN 2	LESS THAN 1
SOFT	2 to 4	1 to 3
FIRM	4 to 8	3 to 6
STIFF	8 to 15	6 to 12
VERY STIFF	15 to 30	12 to 24
HARD	GREATER THAN 30	GREATER THAN 24

BRIDGE NO. 164510

REVISIONS						JEREMY A. SEWELL, P.E. P.E. LICENSE NUMBER 62951 TIERRA, INC. 591 SUSAN B. BRITT COURT WINTER GARDEN, FLORIDA 34787 CERTIFICATE OF AUTHORIZATION NO. 6486	DRAWN BY: MAF CHECKED BY: RJG DESIGNED BY: MAF CHECKED BY: JAS	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET TITLE: REPORT OF CORE BORINGS	REF. DWG. NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION			ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
								N/A	POLK	437300-1-52-01		
											PROJECT NAME: SUNTRAX TEST FACILITY	SHEET NO. B1-4



PLAN
* BEGIN/END BRIDGE LINE

- NOTES:**
- 1. FOR FOUNDATION DETAILS, SEE SHEET B1-6 THRU B1-8.
 - 2. FOR CURVE DATA, SEE SHEET B1-2.

LEGEND

WORKING POINT NUMBER

TABLE A WORKING POINTS		
WORKING POINTS	COORDINATES	
	NORTHING	EASTING
1	1373815.62	711553.58
2	1373805.28	711519.61
3	1373796.22	711485.28

FOUNDATION NOTES:

SPREAD FOOTING NOTES:

- 1. PROOF ROLL BRIDGE FOUNDATION SUBGRADE IN THE PRESENCE OF THE GEOTECHNICAL ENGINEER OF RECORD OR HIS REPRESENTATIVE. PROOF ROLLING SHOULD BE ACCOMPLISHED WITH A SMOOTH DRUM ROLLER WITH A STATIC LOAD OF 10 TONS AND A MINIMUM OF FOUR PASSES IN TWO PERPENDICULAR DIRECTIONS. BEARING SURFACE OF EACH FOOTING SHALL BE INSPECTED IMMEDIATELY BEFORE POURING OF FOUNDATION CONCRETE.
- 2. SITE PREPARATION IN THE SPREAD FOOTING FOUNDATION AREAS SHALL BE IN ACCORDANCE WITH THE FDOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION. ANY AND ALL UNSUITABLE MATERIAL ENCOUNTERED WITHIN THE FOUNDATION FOOTPRINTS SHALL BE ENTIRELY REMOVED AND REPLACED WITH NO. 57 STONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. WHERE THE SITE PREPARATION PROCEDURES CREATE EXCAVATIONS BELOW THE FOUNDATION BEARING LEVELS, THE EXCAVATIONS SHALL BE BROUGHT INTO ACCORDANCE WITH THE REQUIREMENTS AS SPECIFIED BY THE FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.
- 3. IF THE FOOTING BEARING MATERIALS BECOME DISTURBED DURING CONSTRUCTION, THE DISTURBED SOILS SHALL BE EXCAVATED AND REPLACED WITH NO. 57 STONE OR CONCRETE SEAL IN ACCORDANCE WITH THE REQUIREMENTS OF THE FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

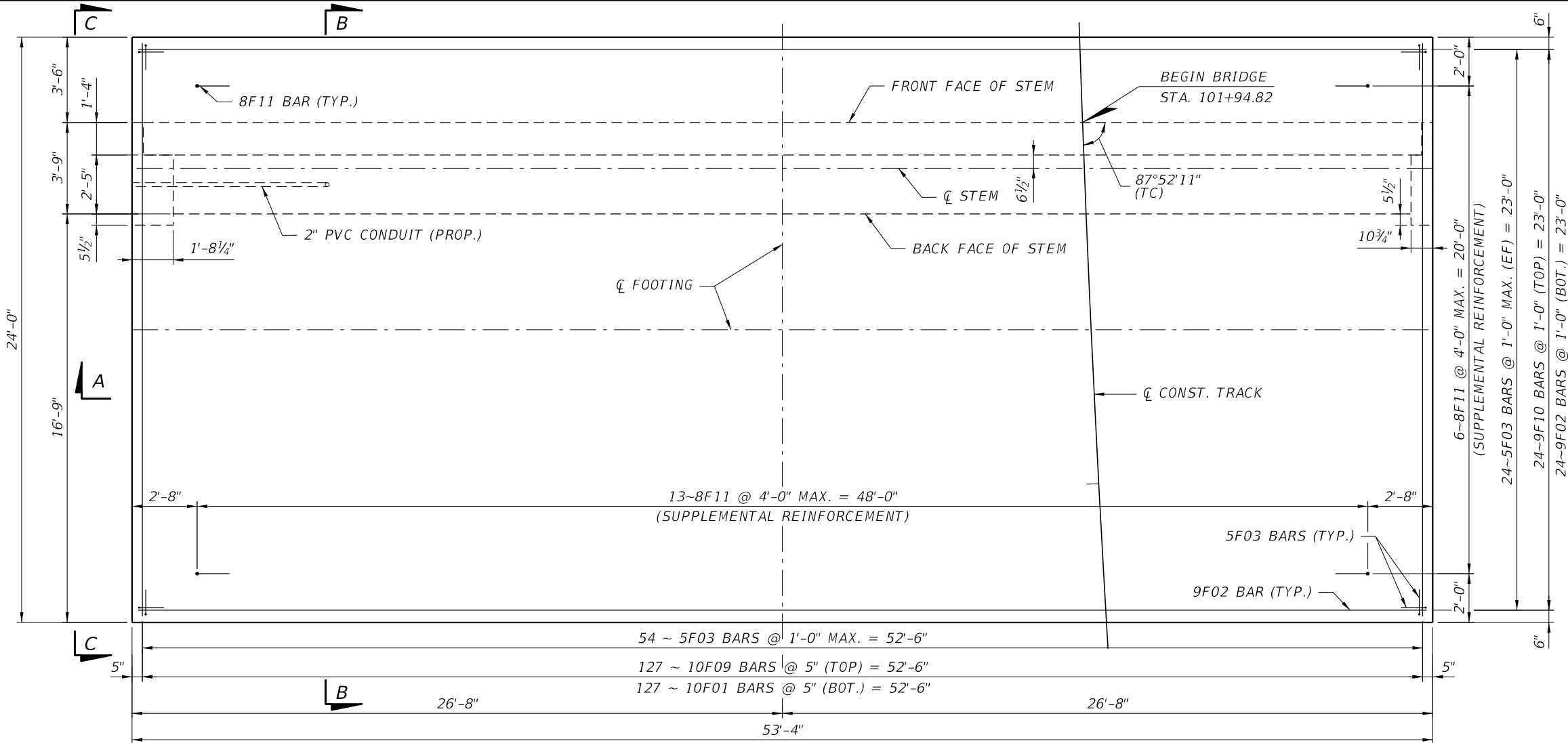
SPREAD FOOTING DATA TABLE										
FOUNDATION LOCATION	FOUNDATION DIMENSIONS			BOTTOM OF FOOTING ELEV. (FT.)	NOMINAL BEARING CAPACITY (KSF.)	FACTORED BEARING CAPACITY (KSF.)	RESISTANCE FACTOR ϕ	FOOTING SETTLEMENT*		
	WIDTH "B" (FT.)	LENGTH "L" (FT.)	DEPTH "H" (FT.)					LONG TERM (IN.)	SHORT TERM (IN.)	DIFFERENTIAL (IN/FT)
BEGIN BRIDGE	24.0	53.33	5.25	163.150	22.58	10.16	0.45	0.5	4.0	0.07
END BRIDGE	24.0	53.33	5.25	163.150	22.58	10.16	0.45	0.5	4.0	0.07

* TOTAL SETTLEMENT IS THE SHORT TERM SETTLEMENT PLUS THE LONG TERM SETTLEMENT.

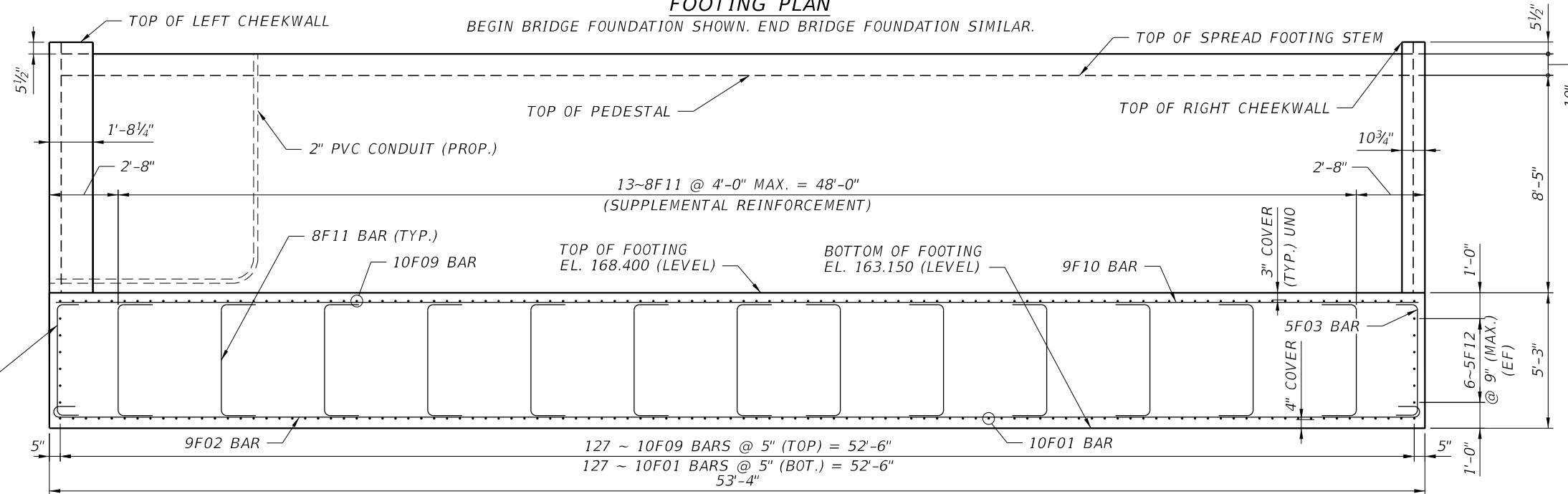
BRIDGE NO. 164510
SUNTRAX TEST FACILITY OVER ENTRANCE ROAD

REVISIONS						JOAN DE LA ROSA, P.E. No. 74705 BCC ENGINEERING, INC. 6401 SW 87th Avenue, Suite 200. Miami, Florida 33173 P: (305) 670-2350 F: (305) 670-2351 Certificate of Authorization No. 7184	DRAWN BY: CLA 06-16	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET TITLE: FOUNDATION LAYOUT		REF. DWG. NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION								
							CHECKED BY: JDLR 06-16	ROAD NO.	COUNTY	FINANCIAL PROJECT ID	PROJECT NAME: SUNTRAX TEST FACILITY		SHEET NO.
							DESIGNED BY: FC 06-16	N/A	POLK	437300-1-52-01			
						CHECKED BY: JDLR 06-16							

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

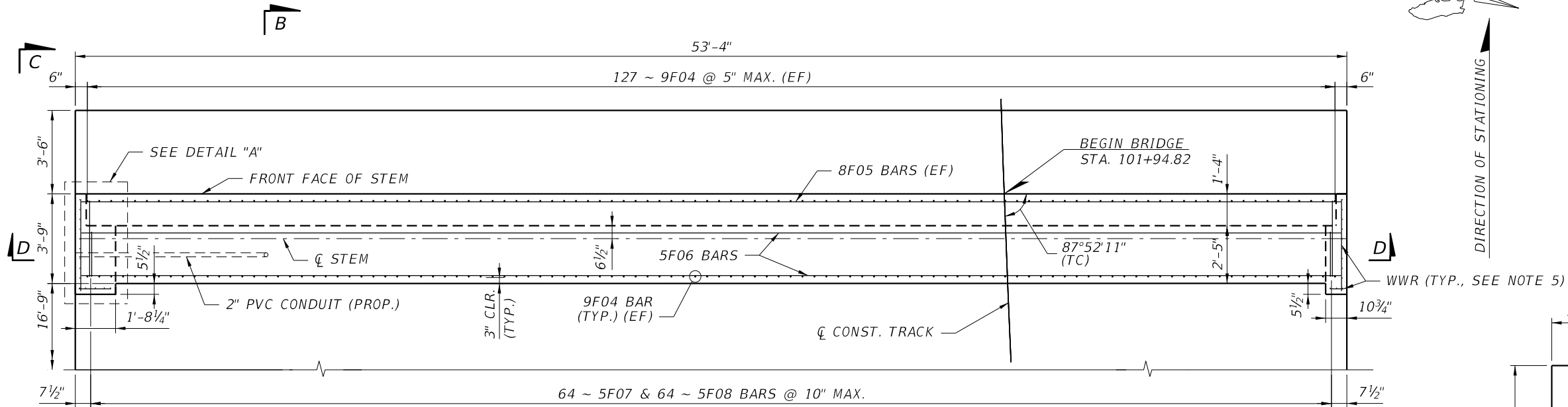


- NOTES:**
1. FOR SECTION B-B & VIEW C-C, SEE SHEET B1-8.
 2. FOR STEM REINFORCEMENT, SEE SHEET B1-7.
 3. FOR REINFORCING BAR LIST, SEE SHEET B1-10.
 4. FOOTING IS MASS CONCRETE.
 5. SEE LIGHTING PLANS FOR ADDITIONAL CONDUIT DETAILS.

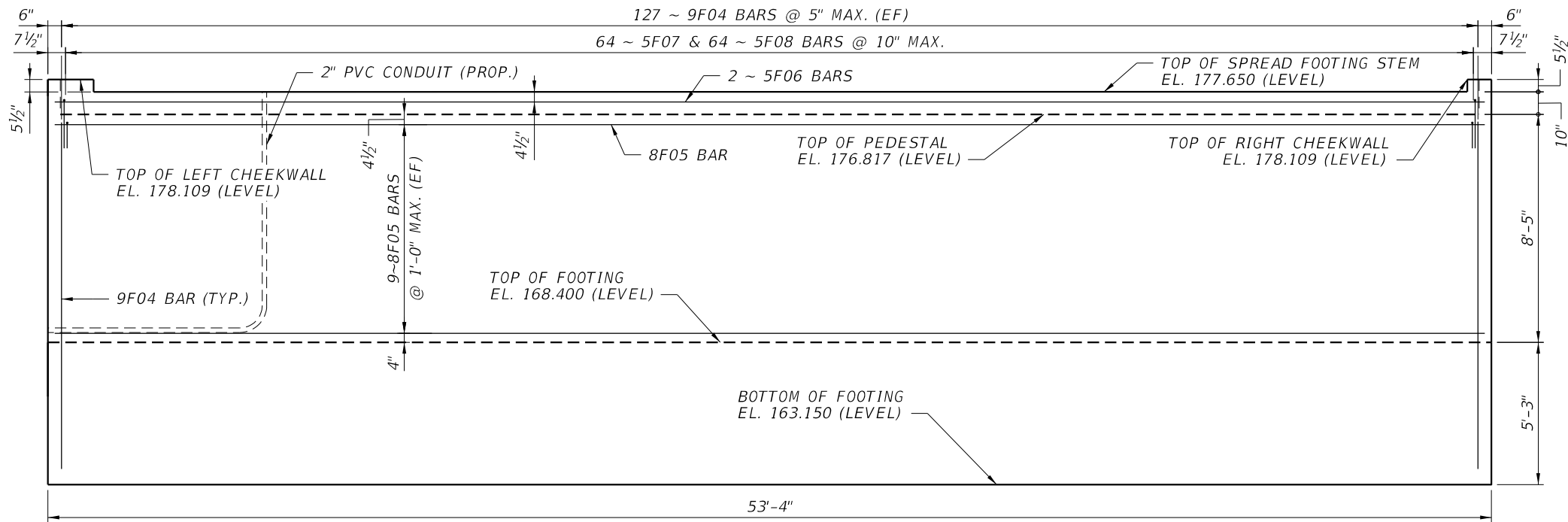


BRIDGE NO. 164510
SUNTRAX TEST FACILITY OVER ENTRANCE ROAD

REVISIONS						JOAN DE LA ROSA, P.E. No. 74705 BCC ENGINEERING, INC. 6401 SW 87th Avenue, Suite 200. Miami, Florida 33173 P: (305) 670-2350 F: (305) 670-2351 Certificate of Authorization No. 7184	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET TITLE:		REF. DWG. NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION					FOUNDATION DETAILS (1 OF 3)		
							ROAD NO.	COUNTY	FINANCIAL PROJECT ID	PROJECT NAME:		SHEET NO.
							N/A	POLK	437300-1-52-01	SUNTRAX TEST FACILITY		B1-6



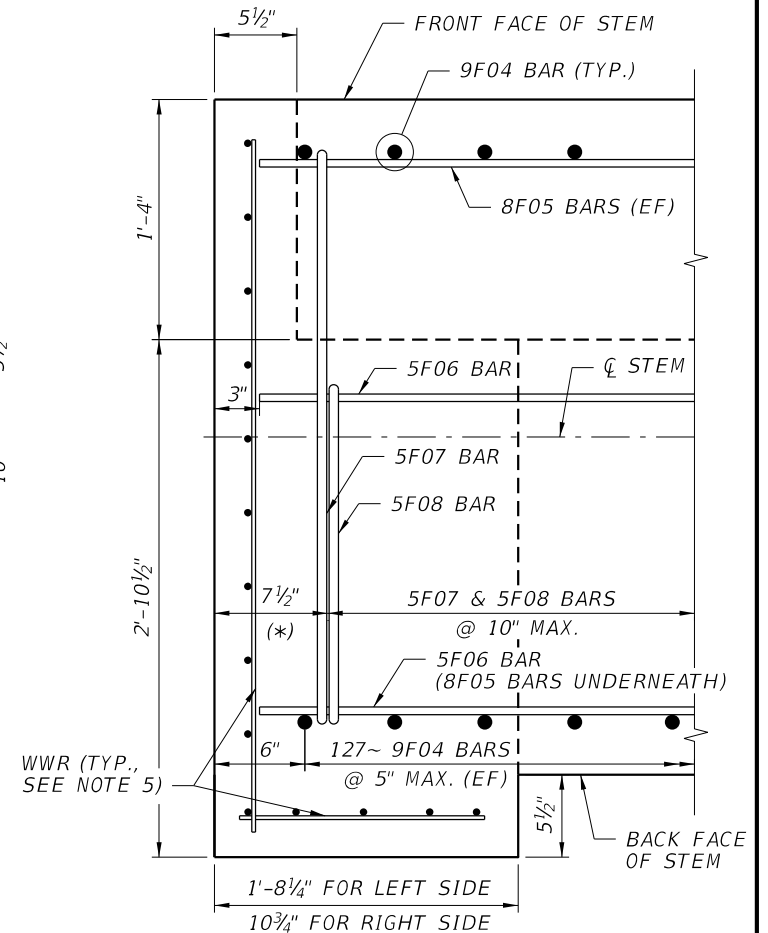
STEM PLAN VIEW
ONLY STEM REINFORCEMENT SHOWN FOR CLARITY
(BEGIN BRIDGE FOUNDATION SHOWN, END BRIDGE FOUNDATION SIMILAR)



SECTION D-D
(ELEVATIONS SHOWN AT BEGIN BRIDGE)

NOTES:

1. FOR FOOTING REINFORCEMENT, SEE SHEET B1-6.
2. FOR SECTION B-B & VIEW C-C, SEE SHEET B1-8.
3. FOR REINFORCING BAR LIST, SEE SHEET B1-10.
4. FOR MSE WALL DETAILS, SEE WALL PLANS.
5. WELDED WIRE REINFORCEMENT (WWR) 4X4 W4.0 X W4.0 (MIN. 2'-6" WIDE).
6. STEM IS MASS CONCRETE.
7. SEE LIGHTING PLANS FOR ADDITIONAL CONDUIT DETAILS.

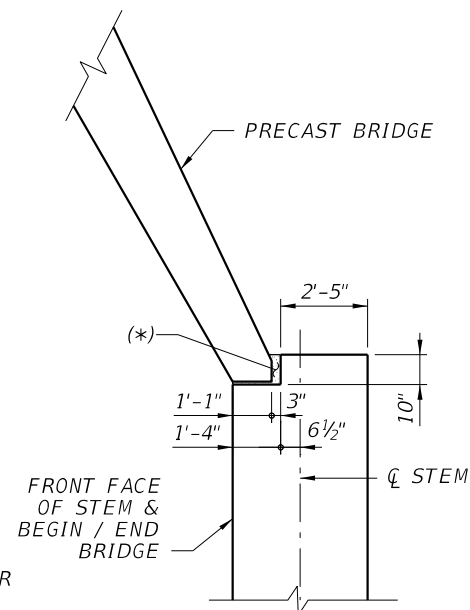
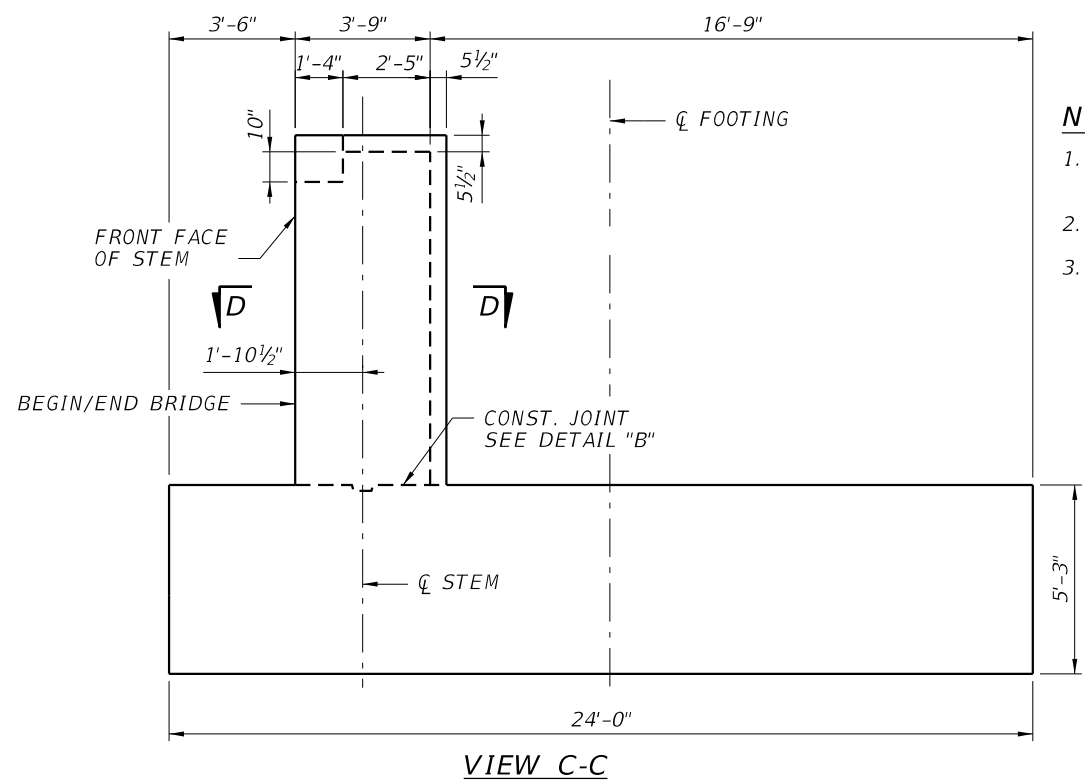
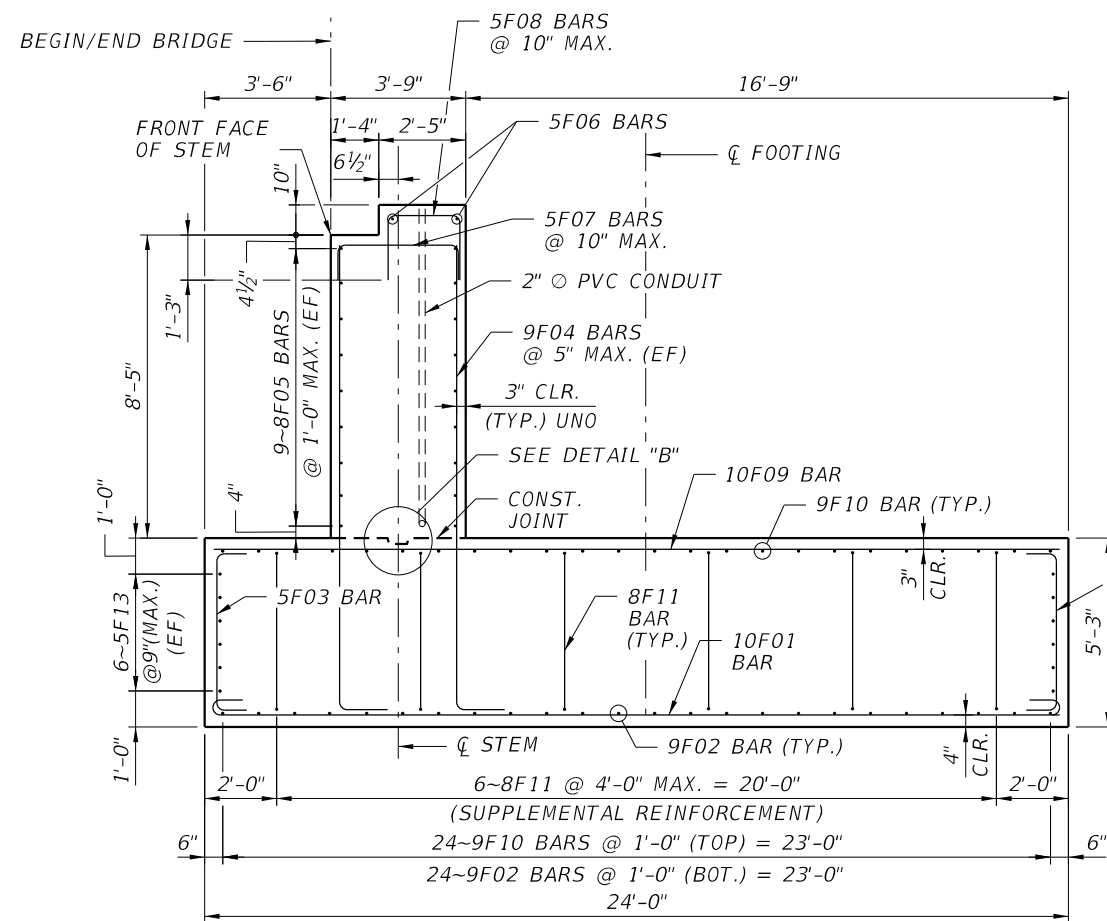


DETAIL A

LEFT SIDE OF STEM SHOWN.
RIGHT SIDE SIMILAR.

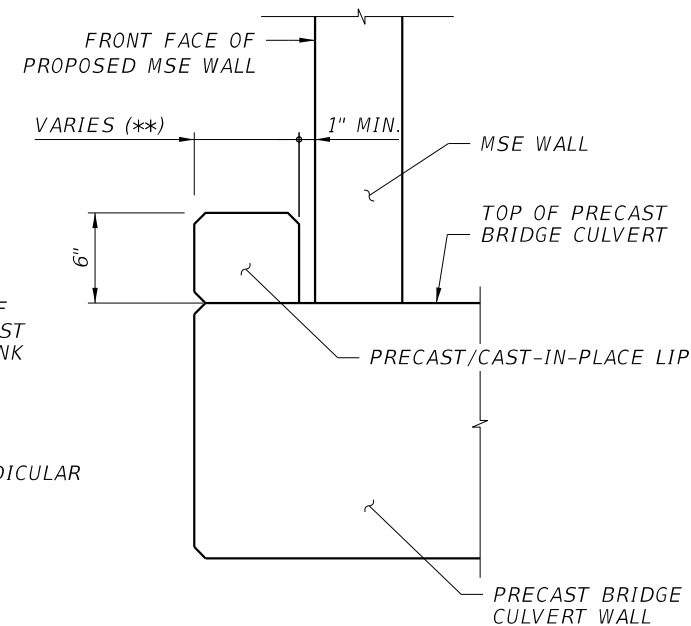
BRIDGE NO. 164510
SUNTRAX TEST FACILITY OVER ENTRANCE ROAD

REVISIONS						JOAN DE LA ROSA, P.E. No. 74705 BCC ENGINEERING, INC. 6401 SW 87th Avenue, Suite 200. Miami, Florida 33173 P: (305) 670-2350 F: (305) 670-2351 Certificate of Authorization No. 7184	DRAWN BY: CLA 06-16 CHECKED BY: JDLR 06-16 DESIGNED BY: FC 06-16 CHECKED BY: JDLR 06-16	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET TITLE: FOUNDATION DETAILS (2 OF 3)		REF. DWG. NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION								
						ROAD NO. N/A	COUNTY POLK	FINANCIAL PROJECT ID 437300-1-52-01	PROJECT NAME: SUNTRAX TEST FACILITY				SHEET NO. B1-7



(*) FILL ENTIRE SUPPORT INCLUDING
NOMINAL 1" VOID BETWEEN TOP OF
PEDESTAL AND BOTTOM OF PRECAST
BRIDGE SUPPORT WITH NON-SHRINK
GROUT (SEE FDOT SPEC. NO. 934.)

(**) LEFT: VARIES (5¼" TO 1'-1⅜")
RIGHT: VARIES (5¼" TO 1'-1¾")
(DIMENSIONS MEASURED PERPENDICULAR
TO FRONT FACE OF WALL)



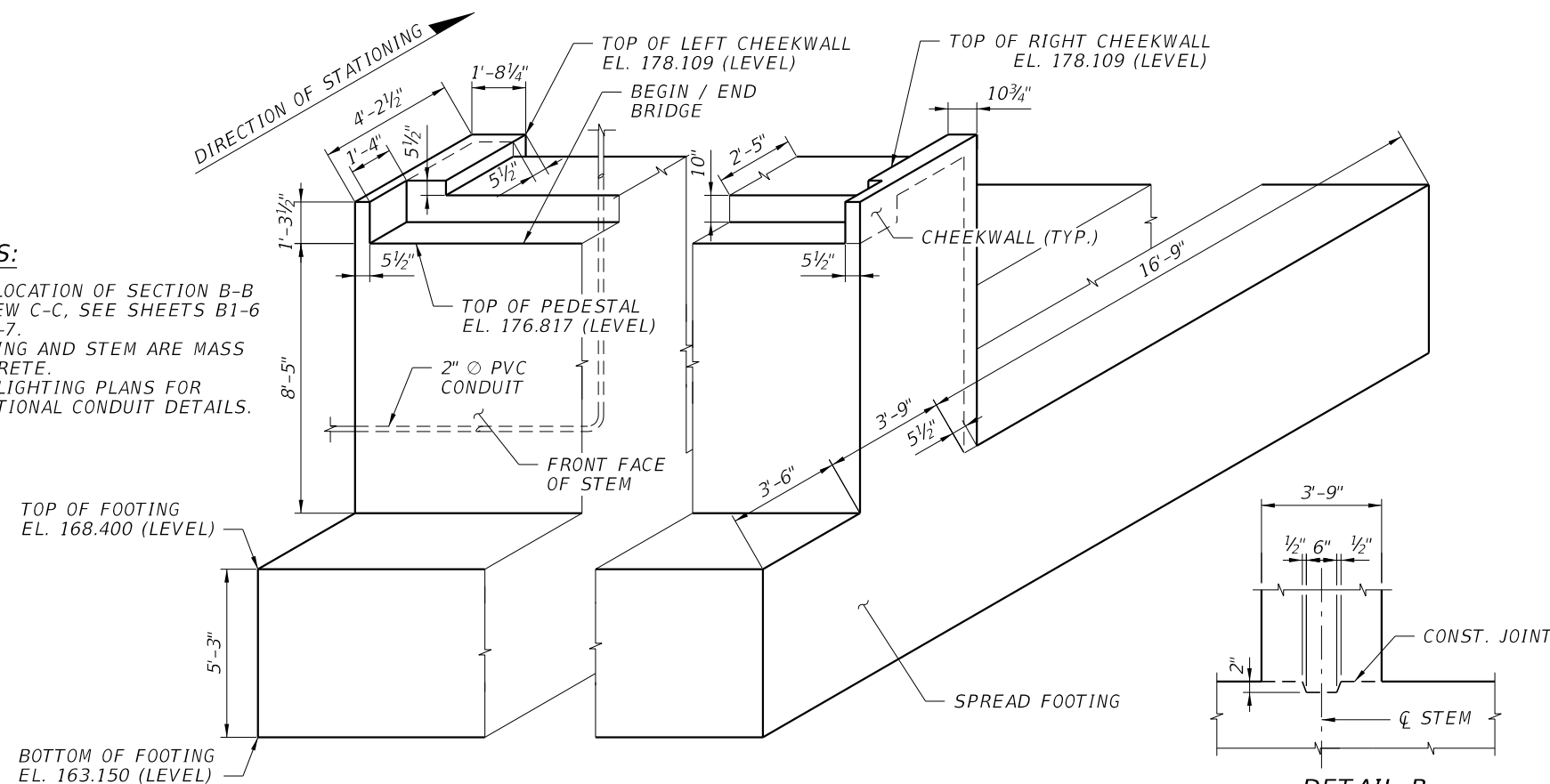
PRECAST BRIDGE CULVERT LIP DETAIL
 PRECAST OR CAST-IN-PLACE LIP.
 CONTRACTOR TO COORDINATE WITH PRECAST BRIDGE
 MANUFACTURER TO PROVIDE REINFORCEMENT AS NEEDED.

5 PRECAST SEGMENT SUPPORT DETAIL

NOTE: CONTRACTOR SHALL COORDINATE WITH SELECTED PRECAST BRIDGE CULVERT MANUFACTURER AND PROVIDE NEW DESIGN FOR THE PRECAST SEGMENT CONNECTION TO THE FOUNDATION STEM IF THE CONNECTION SHOWN IN THE CONTRACT DOCUMENTS DIFFERS FROM THE CONNECTION SELECTED BY THE PRECAST MANUFACTURER.

NOTES:

1. FOR LOCATION OF SECTION B-B & VIEW C-C, SEE SHEETS B1-6 & B1-7.
2. FOOTING AND STEM ARE MASS CONCRETE.
3. SEE LIGHTING PLANS FOR ADDITIONAL CONDUIT DETAILS.



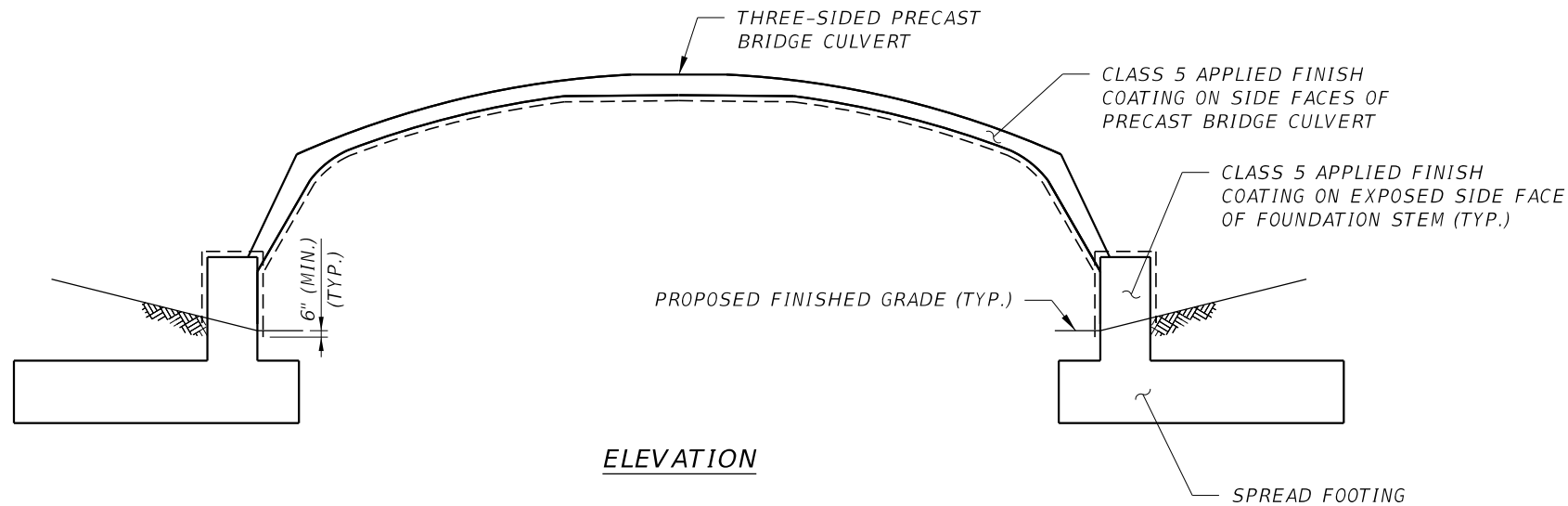
ISOMETRIC VIEW OF FOUNDATION

END BRIDGE FOUNDATION SHOWN. BEGIN BRIDGE FOUNDATION SIMILAR.

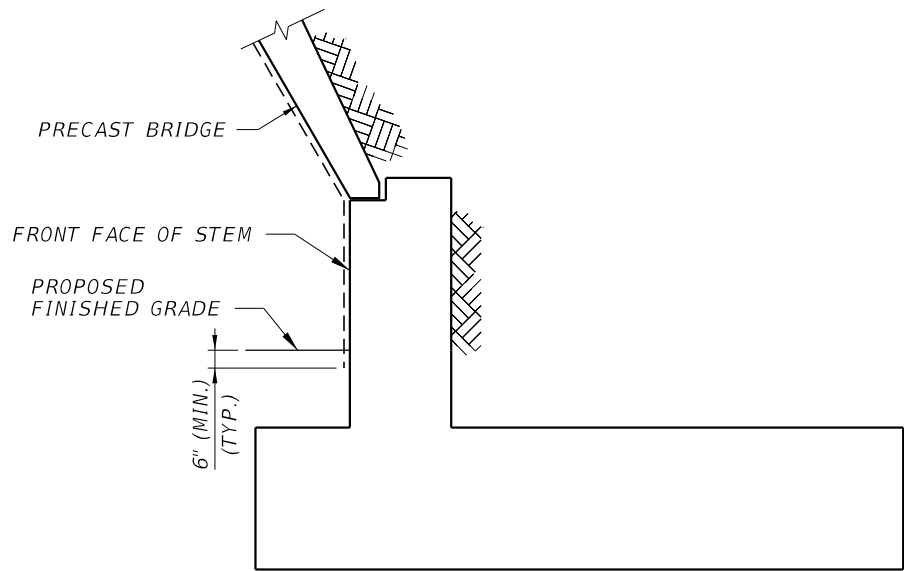
DETAIL B

BRIDGE NO. 164510
SUNTRAX TEST FACILITY OVER ENTRANCE ROAD

REVISIONS						JOAN DE LA ROSA, P.E. No. 74705 BCC ENGINEERING, INC. 6401 SW 87th Avenue, Suite 200. Miami, Florida 33173 P: (305) 670-2350 F: (305) 670-2351 Certificate of Authorization No. 7184	DRAWN BY: CLA 06-16 CHECKED BY: JDLR 06-16 DESIGNED BY: FC 06-16 CHECKED BY: JDLR 06-16	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET TITLE:		REF. DWG. NO.	
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION						FOUNDATION DETAILS (3 OF 3)			
								ROAD NO.	COUNTY	FINANCIAL PROJECT ID	PROJECT NAME:			SHEET NO.
								N/A	POLK	437300-1-52-01	SUNTRAX TEST FACILITY			



ELEVATION



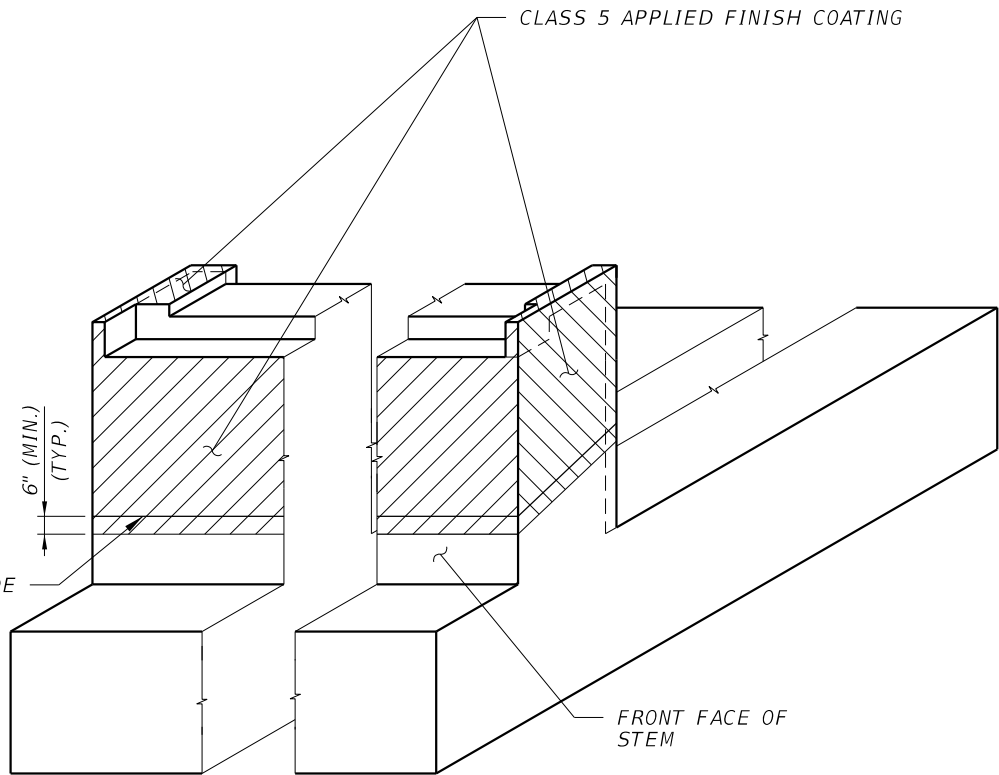
SECTION A-A

SURFACE COLOR NOTE:

COLOR SCHEME FOR CONCRETE FINISHES ON ALL EXPOSED SURFACES OF THE BRIDGE CULVERT, FOUNDATION, MSE WALLS, AND TRAFFIC RAILING SHALL CONSIST OF NATURAL/NEUTRAL COLORS AND WILL BE SELECTED BY THE ARCHITECT BASED ON THE MANUFACTURER'S PRODUCT DATA SHEETS.

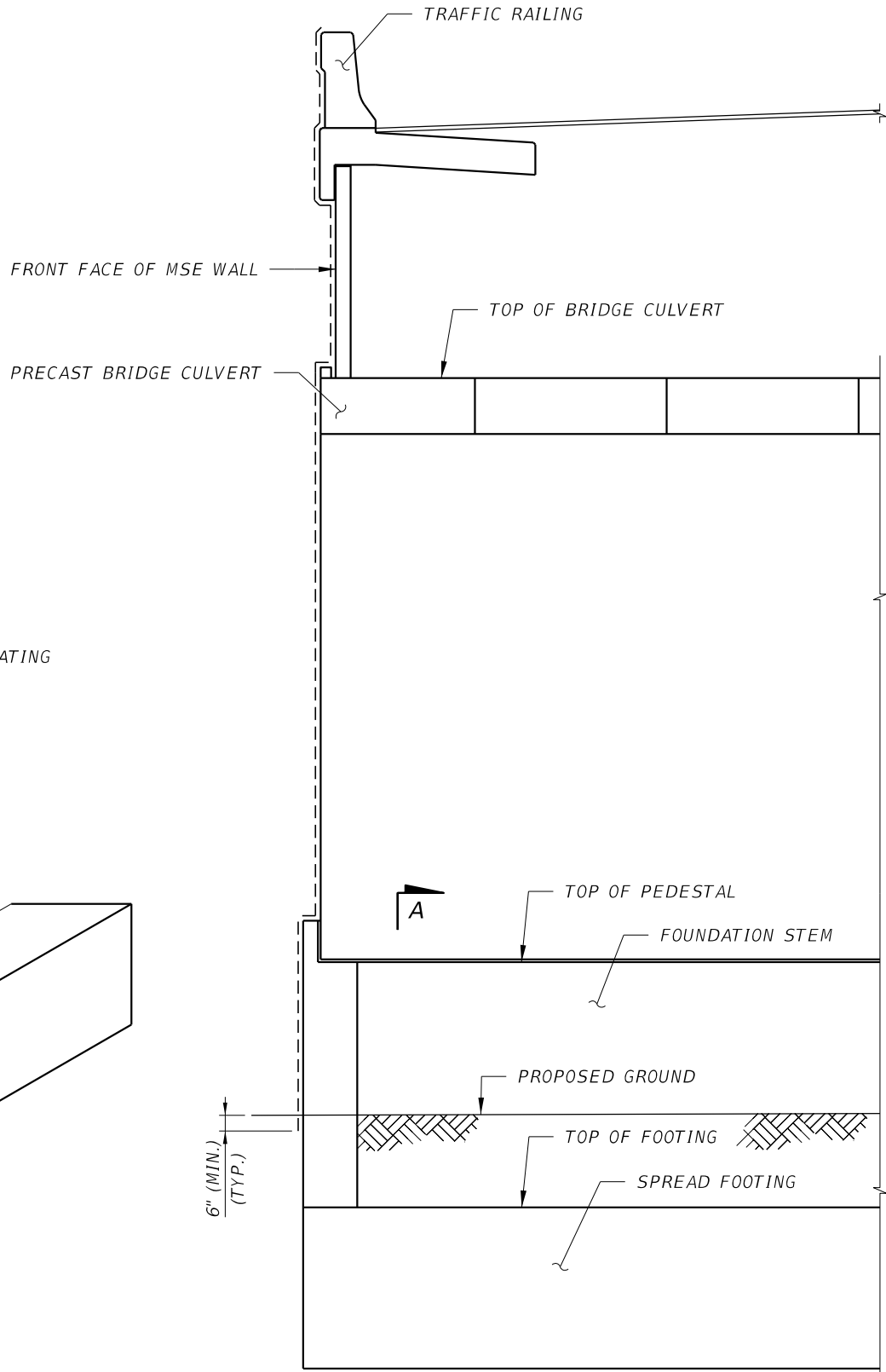
LEGEND:

--- CLASS 5 APPLIED FINISH COATING



ISOMETRIC VIEW OF FOUNDATION

END BRIDGE FOUNDATION SHOWN. BEGIN BRIDGE FOUNDATION SIMILAR.



PARTIAL TYPICAL SECTION
(TYPICAL SECTION AT $\frac{1}{4}$ ENT. RD.)

BRIDGE NO. 164510
SUNTRAX TEST FACILITY OVER ENTRANCE ROAD

REVISIONS						JOAN DE LA ROSA, P.E. No. 74705 BCC ENGINEERING, INC. 6401 SW 87th Avenue, Suite 200. Miami, Florida 33173 P: (305) 670-2350 F: (305) 670-2351 Certificate of Authorization No. 7184	DRAWN BY: JP 06-16 CHECKED BY: JDLR 06-16 DESIGNED BY: FC 06-16 CHECKED BY: JDLR 06-16	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET TITLE:		REF. DWG. NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION						SURFACE FINISH DETAILS		
								ROAD NO.	COUNTY	FINANCIAL PROJECT ID	PROJECT NAME:		SHEET NO.
								N/A	POLK	437300-1-52-01	SUNTRAX TEST FACILITY		B1-9

PERMANENT MSE RETAINING WALL SYSTEM DATA TABLES

GEOTECHNICAL INFORMATION									
WALL NO. 1	REINFORCED SOIL & RANDOM BACKFILL	EMBANKMENT	VERY LOOSE TO LOOSE SAND WITH SILT TO SILTY SAND	LOOSE TO MEDIUM DENSE CLAYEY SAND	LOOSE SILTY SAND	MEDIUM DENSE SAND WITH SILT	VERY LOOSE TO LOOSE SILTY SAND	STIFF TO VERY STIFF SILT WITH SAND	VERY DENSE SILTY SAND
DEPTH BELOW EXISTING GROUND LINE (FT.)	—	—	0' - 21'	21' - 33'	33' - 38'	38' - 46'	46' - 53'	53' - 66'	66'- 75'
EFFECTIVE UNIT WEIGHT (PCF)	105	105	37.6	42.6	42.6	47.6	37.6	47.6	62.6
COHESION (PSF)	0	0	0	1,000	0	0	0	2,000	0
INTERNAL FRICTION ANGLE	30°	30°	28°	29°	29°	30°	28°	0°	34°
WALL NO. 2	REINFORCED SOIL & RANDOM BACKFILL	EMBANKMENT	VERY LOOSE TO LOOSE SAND WITH SILT	LOOSE TO MEDIUM DENSE SAND WITH SILT TO SILTY SAND	LOOSE TO MEDIUM DENSE CLAYEY SAND	LOOSE SAND WITH SILT TO SILTY SAND	VERY LOOSE SILTY SAND	STIFF TO HARD SANDY SILT	VERY DENSE SILTY SAND
DEPTH BELOW EXISTING GROUND LINE (FT.)	—	—	0' - 12'	12' - 23'	23' - 36'	36' - 48'	48' - 53'	53' - 63'	63' - 75'
EFFECTIVE UNIT WEIGHT (PCF)	105	105	37.6	42.6	47.6	42.6	37.6	62.6	62.6
COHESION (PSF)	0	0	0	0	1,100	0	0	2,000	0
INTERNAL FRICTION ANGLE	30°	30°	28°	29°	30°	29°	28°	0°	34°

NOTE: IF THE UNIT WEIGHT AND/OR INTERNAL FRICTION ANGLE OF THE FILL PROPOSED BY THE CONTRACTOR DIFFERS FROM THAT SHOWN ABOVE, THE PROJECT ENGINEER WILL CONTACT BOTH THE DISTRICT GEOTECHNICAL ENGINEER AND THE WALL DESIGNER FOR A POSSIBLE REDESIGN.

RETAINING WALL VARIABLES					TABLE DATE 7-01-13
WALL NO.	WALL SETTLEMENT				DESIGN HIGH WATER ELEVATION (FT.)
	LONG TERM SETTLEMENT (IN.)	SHORT TERM SETTLEMENT (IN.)	DIFFERENTIAL SETTLEMENT		
			LONGITUDINAL (%) (FT./100FT.)	TRANSVERSE (IN.)	
1	1.0	5.0	0.15	N/A	—
2	1.0	5.0	0.15	N/A	—

- NOTE: 1. DESIGN WALLS FOR THE SETTLEMENTS NOTED IN THE TABLE.
2. LONG TERM SETTLEMENT IS MEASURED FROM THE END OF WALL FILL PLACEMENT.
3. TRANSVERSE DIFFERENTIAL SETTLEMENT IS MEASURED FROM THE FACE OF WALL TO THE END OF THE SOIL REINFORCEMENT.

SOIL REINFORCEMENT LENGTHS FOR EXTERNAL STABILITY																
WALL NO. 1	WALL HEIGHT (FT.)	<=8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
	REINFORCEMENT LENGTH (FT.)	8	8	9	11	12	13	15	17	18	20	22	23	25	27	28
	FACTORED BEARING RESISTANCE (PSF)	3,701	3,397	3,446	3,872	3,933	3,996	4,419	4,832	4,905	5,315	5,720	5,799	6,202	6,602	6,685
WALL NO. 2	WALL HEIGHT (FT.)	<=8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
	REINFORCEMENT LENGTH (FT.)	8	8	9	11	12	13	15	17	18	20	22	23	25	27	28
	FACTORED BEARING RESISTANCE (PSF)	3,701	3,397	3,446	3,872	3,933	3,996	4,419	4,832	4,905	5,315	5,720	5,799	6,202	6,602	6,685

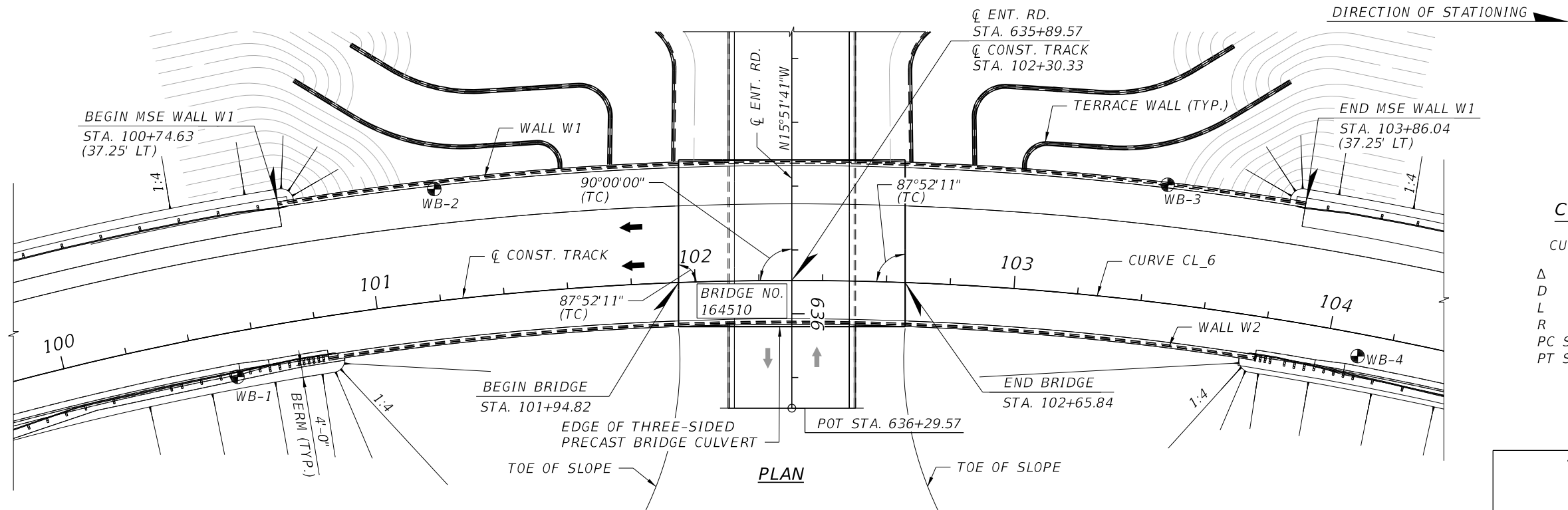
- NOTES: 1. THE REINFORCEMENT STRAP LENGTHS SHOWN ABOVE ARE THE MINIMUM LENGTHS REQUIRED FOR EXTERNAL STABILITY. THE REINFORCEMENT LENGTHS USED IN THE CONSTRUCTION OF THE RETAINING WALLS WILL BE THE LONGER OF THAT REQUIRED FOR EXTERNAL OR INTERNAL STABILITY (DETERMINED BY PROPRIETARY WALL COMPANIES).
2. THE FACTORED BEARING RESISTANCES SHOWN ABOVE ARE THE CRITICAL (LOWEST) VALUES FROM ALL THE LOAD CASES ANALYZED USING LRFD METHODOLOGY.
3. WALL HEIGHT FOR THE WALLS IS DEFINED AS HEIGHT OF WALL FROM TOP OF LEVELING PAD/TOP OF FOOTING TO TOP OF COPING OR GUTTER GRADE. UNDER THE BRIDGE THE WALL HEIGHT IS MEASURED FROM TOP OF THREE-SIDED PRECAST BRIDGE CULVERT TO GUTTER GRADE.

NOTES:

1. CONCRETE FACING PANEL SURFACES TREATMENT WILL BE DETERMINED BASED ON THE MANUFACTURER'S PRODUCT DATA SHEETS DURING THE SHOP DRAWINGS REVIEW PHASE.
2. APPLICABLE FDOT WALL TYPES FOR EACH WALL LOCATION ARE LISTED BELOW. SEE THE APPROVED PRODUCTS LIST FOR APPROVED WALL SYSTEMS AND DESIGN STANDARDS INDEX NO. 6020 FOR ALLOWABLE WALL TYPE SUBSTITUTIONS.
WALL NO. 1 - FDOT WALL TYPE 2A
WALL NO. 2 - FDOT WALL TYPE 2A
3. CONCRETE FOR COPING AND/OR JUNCTION SLAB SHALL BE CLASS IV (F'C = 5,500 PSI) WITHOUT SILICA FUME, METAKAOLIN OR ULTRAFINE FLY ASH.
4. SEE DESIGN STANDARDS INDEX. NO. 6020 FOR GENERAL NOTES AND DETAILS.

BRIDGE NO. 164510
SUNTRAX TEST FACILITY OVER ENTRANCE ROAD

REVISIONS						JEREMY A. SEWELL, P.E. P.E. LICENSE NUMBER 62951 TIERRA, INC. 591 SUSAN B. BRITT COURT WINTER GARDEN, FLORIDA 34787 CERTIFICATE OF AUTHORIZATION NO. 6486	DRAWN BY: CLA 06-16	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET TITLE:		REF. DWG. NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION		CHECKED BY: JDLR 06-16				MSE WALL DATA TABLES AND NOTES		
							DESIGNED BY: FC 06-16	ROAD NO.	COUNTY	FINANCIAL PROJECT ID	PROJECT NAME:	SHEET NO.	
							CHECKED BY: JDLR 06-16	N/A	POLK	437300-1-52-01		SUNTRAX TEST FACILITY	BW1 - 1



CURVE DATA

CURVE DATA CL_6

Δ	= 180°00'00" (RT)
D	= 5°59'58"
L	= 3,000.22
R	= 955.00
PC STA.	= 87+30.22
PT STA.	= 117+30.44

TABLE OF GROUND ELEVATIONS
MSE WALL W1

STATION	EXISTING GROUND	PROPOSED GROUND
100+74.63	170.234	200.751
101+00.00	170.497	196.480
101+25.00	170.439	189.986
101+50.00	170.544	183.492
101+75.00	170.691	176.999
101+76.41	170.673	176.634
101+94.87	170.539	171.837
102+12.60	170.710	-
102+30.33	170.539	-
102+48.06	170.517	-
102+65.79	170.503	171.837
102+84.26	170.543	176.634
103+00.00	170.470	180.723
103+25.00	170.555	187.217
103+50.00	170.602	193.710
103+75.00	170.452	200.204
103+86.04	170.463	200.676

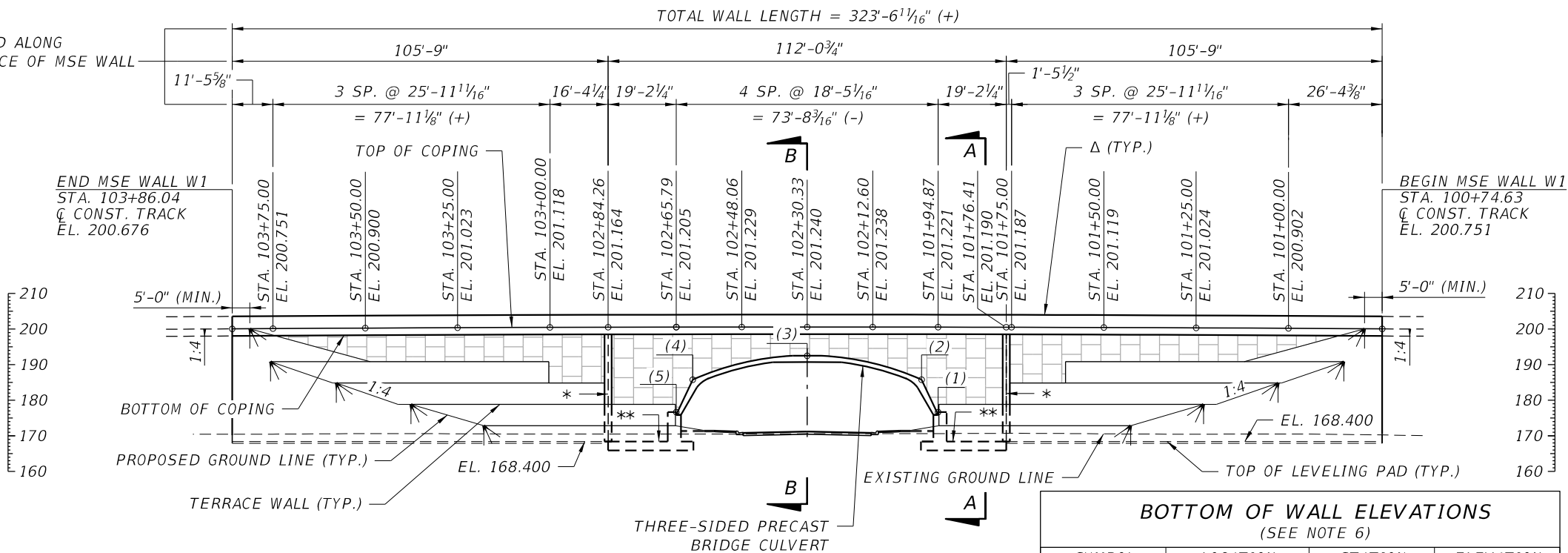
LEGEND:

- = APPROXIMATE LOCATION OF SOIL BORING
- * = WALL SLIP JOINT
- ** = TOP OF SPREAD FOOTING (SEE NOTE 5)
- Δ = TOP OF TRAFFIC RAILING 42" F-SHAPE (FDOT INDEX NO. 6110)

NOTES:

1. FOR MSE WALL GENERAL NOTES, REFER TO SHEET BW1-1.
2. FOR SECTIONS A-A AND B-B, REFER TO SHEET BW1-4.
3. STATIONS, OFFSETS AND DIMENSIONS ARE MEASURED TO THE FRONT FACE OF MSE WALL.
4. REFER TO ROADWAY PLANS FOR DRAINAGE DETAILS.
5. TOP OF SPREAD FOOTING TO BE TOP OF LEVELING PAD FOR MSE WALL.
6. BOTTOM OF WALL ELEVATIONS TO BE COORDINATED BETWEEN CONTRACTOR AND PRECAST MANUFACTURER ONCE FINAL THREE-SIDED PRECAST BRIDGE CULVERT MANUFACTURER/SYSTEM HAS BEEN SELECTED.
7. REFER TO LANDSCAPE PLANS FOR TERRACE WALL DETAILS.

ELEVATION - WALL W1

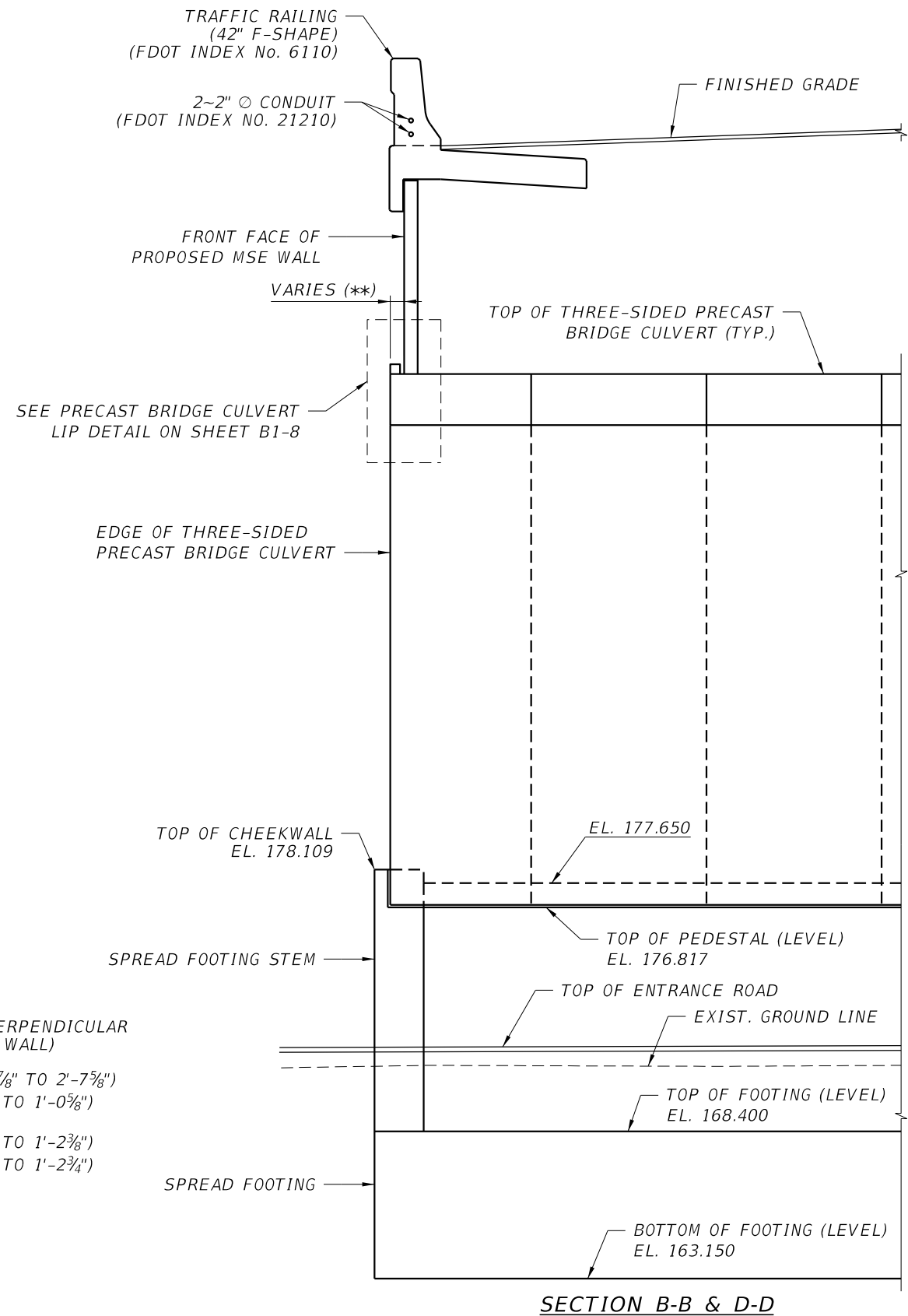
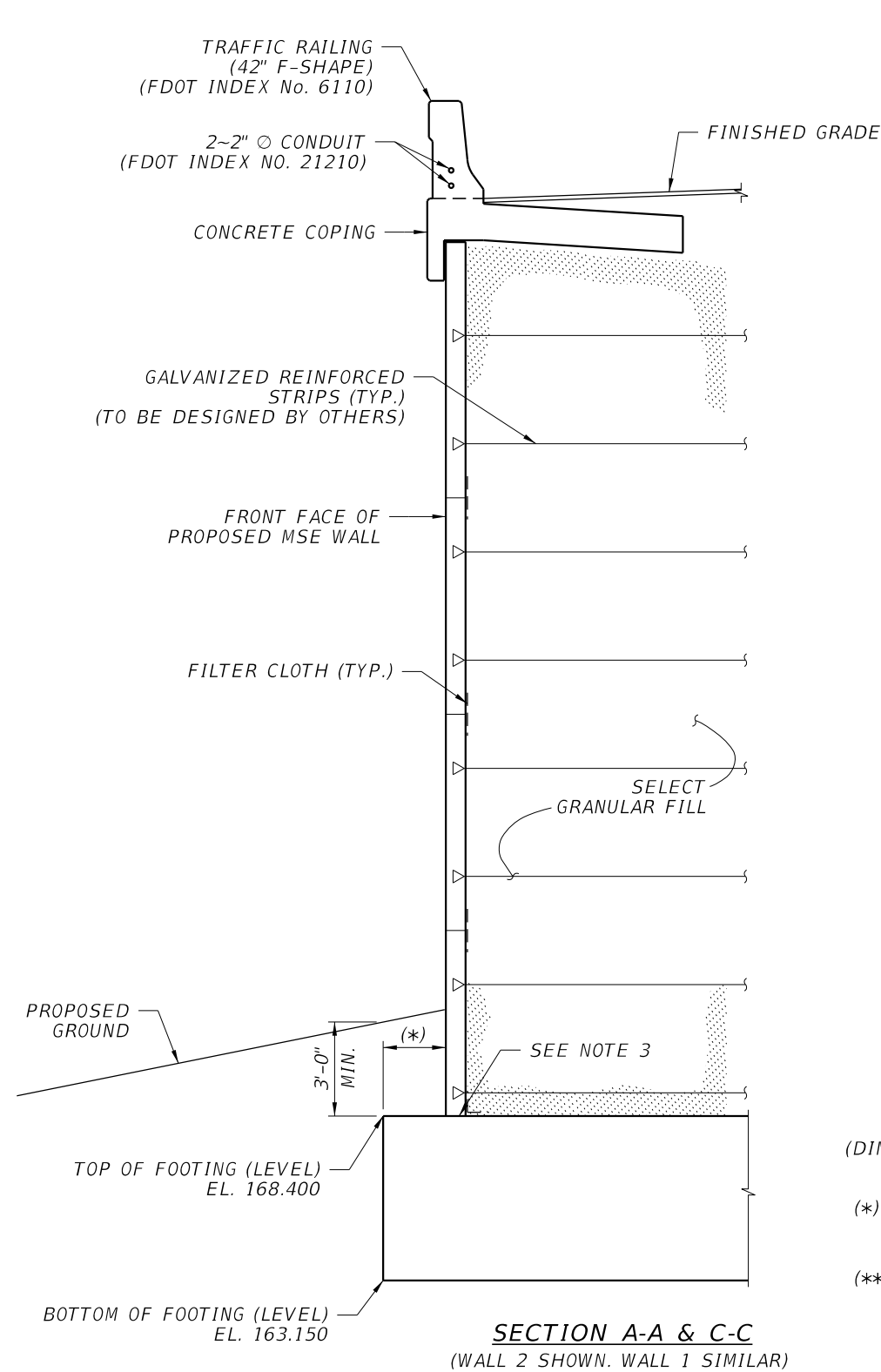


BOTTOM OF WALL ELEVATIONS
(SEE NOTE 6)

SYMBOL	LOCATION	STATION	ELEVATION
(1)	TOP OF STEM	101+94.87	177.650
(2)	INT. POINT	101+99.35	186.667
(3)	TOP OF PRECAST BRIDGE CULVERT	102+30.33	193.487
(4)	INT. POINT	102+61.32	186.667
(5)	TOP OF STEM	102+65.79	177.650

BRIDGE NO. 164510
SUNTRAX TEST FACILITY OVER ENTRANCE ROAD

REVISIONS						JOAN DE LA ROSA, P.E. No. 74705 BCC ENGINEERING, INC. 6401 SW 87th Avenue, Suite 200. Miami, Florida 33173 P: (305) 670-2350 F: (305) 670-2351 Certificate of Authorization No. 7184	DRAWN BY: CLA 06-16 CHECKED BY: JDLR 06-16 DESIGNED BY: FC 06-16 CHECKED BY: JDLR 06-16	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET TITLE: MSE WALL W1 PLAN AND ELEVATION	REF. DWG. NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION			ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
								N/A	POLK	437300-1-52-01	SUNTRAX TEST FACILITY	BW1-2

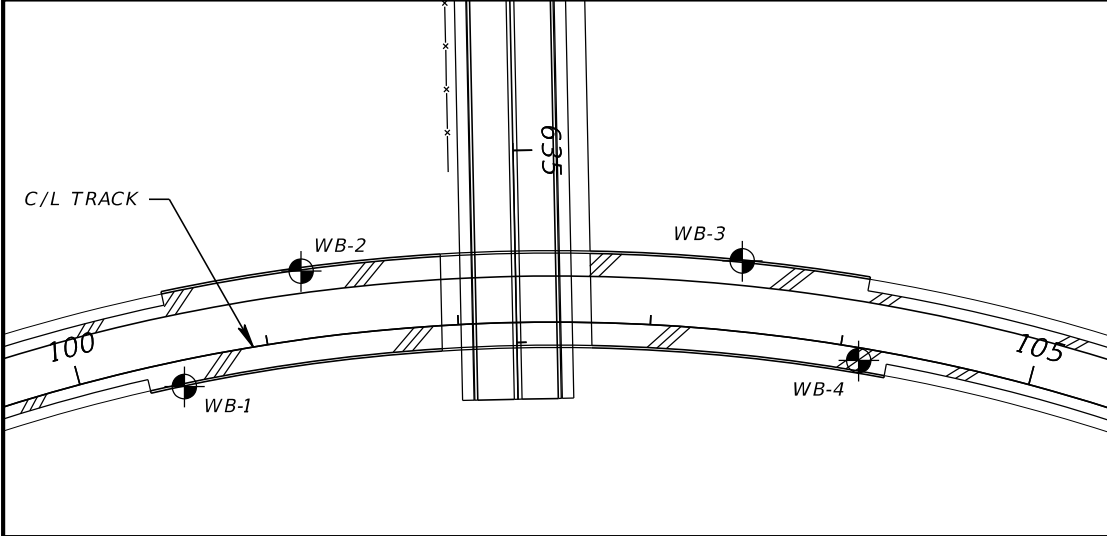


NOTES:

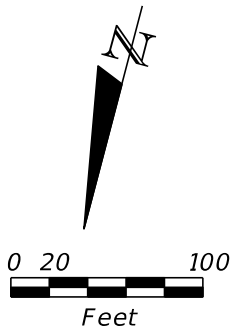
1. FOR SECTION LOCATIONS A-A AND B-B, REFER TO SHEET BW1-1.
2. FOR SECTION LOCATIONS C-C AND D-D, REFER TO SHEET BW1-2.
3. TOP OF SPREAD FOOTING TO BE TOP OF LEVELING PAD FOR MSE WALL.

BRIDGE NO. 164510
SUNTRAX TEST FACILITY OVER ENTRANCE ROAD

REVISIONS						JOAN DE LA ROSA, P.E. No. 74705 BCC ENGINEERING, INC. 6401 SW 87th Avenue, Suite 200. Miami, Florida 33173 P: (305) 670-2350 F: (305) 670-2351 Certificate of Authorization No. 7184	DRAWN BY: CLA 06-16 CHECKED BY: JDLR 06-16 DESIGNED BY: FC 06-16 CHECKED BY: JDLR 06-16	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET TITLE: MSE WALL DETAILS		REF. DWG. NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION						PROJECT NAME: SUNTRAX TEST FACILITY		SHEET NO.
								ROAD NO.	COUNTY	FINANCIAL PROJECT ID			
								N/A	POLK	437300-1-52-01			BW1-4



BORING LOCATION PLAN



ENVIRONMENTAL CLASSIFICATION:
SUBSTRUCTURE CONCRETE: MODERATELY AGGRESSIVE (SOIL-pH = 5.8)
SUBSTRUCTURE STEEL: EXTREMELY AGGRESSIVE (SOIL-pH = 5.8)
SUPERSTRUCTURE SLIGHTLY AGGRESSIVE

SOIL TEST RESULTS:
RESISTIVITY 35,000 TO 49,000 OHM-CM
CHLORIDES 60 PPM
SULFATES 30 TO 60 PPM
pH 5.8 TO 5.9

LEGEND

	SAND		CLAYEY SAND
	SILTY SAND		SILT
	SILTY-CLAYEY SAND		SANDY CLAY

SP UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487) GROUP SYMBOL AS DETERMINED BY VISUAL REVIEW AND LABORATORY TESTING ON SELECTED SAMPLES FOR CONFIRMATION OF VISUAL REVIEW.

N NUMBERS TO THE LEFT OF BORINGS INDICATE SPT VALUE FOR 12 INCHES OF PENETRATION (UNLESS OTHERWISE NOTED).

50/4 NUMBER OF BLOWS FOR 4 INCHES OF PENETRATION

HA HAND AUGERED TO VERIFY UTILITY CLEARANCE

-200 PERCENT PASSING #200 SIEVE
NMC NATURAL MOISTURE CONTENT (%)
LL LIQUID LIMIT
PI PLASTICITY INDEX

NAVD 88 NORTH AMERICAN VERTICAL DATUM OF 1988

APPROXIMATE SPT BORING LOCATION

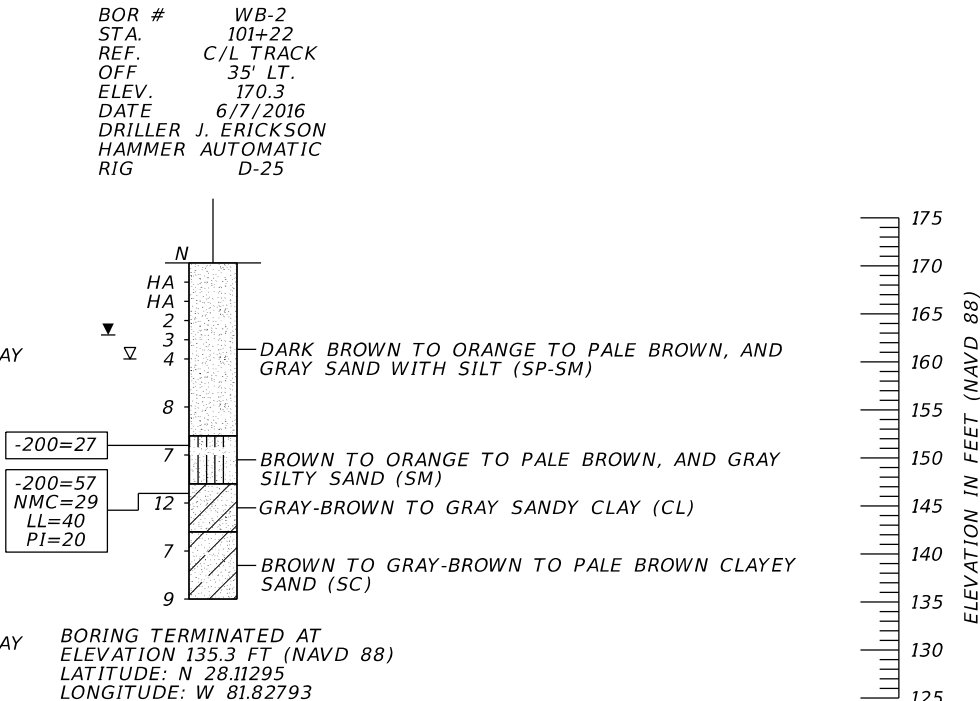
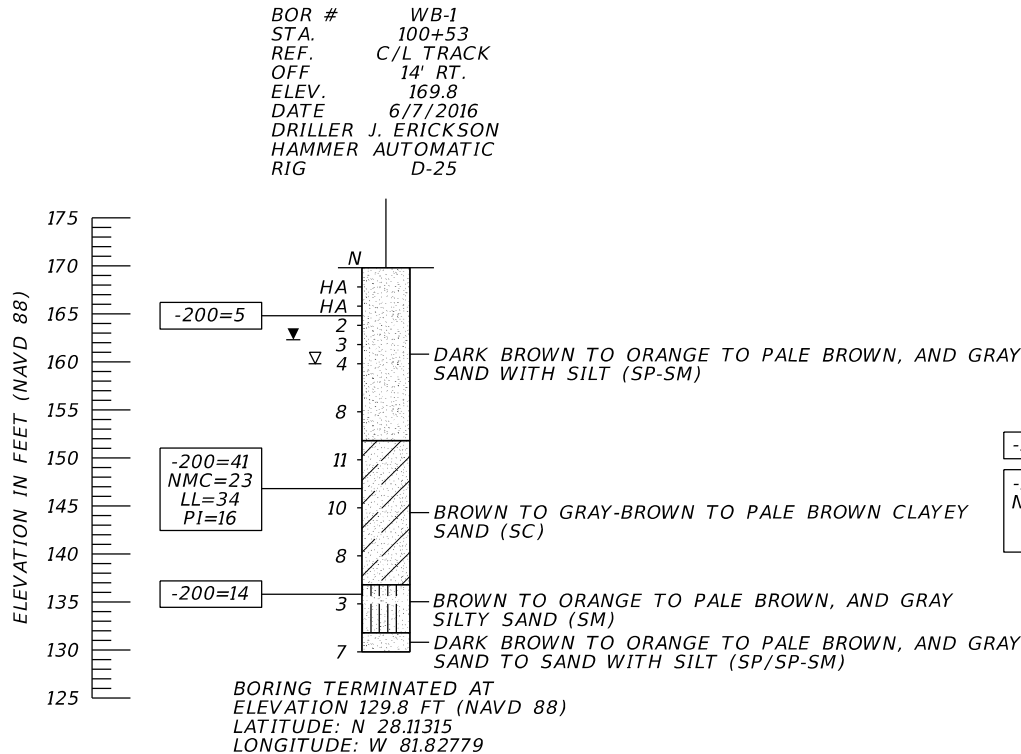
GROUNDWATER LEVEL ENCOUNTERED DURING FIELD EXPLORATIONS

ESTIMATED SEASONAL HIGH GROUNDWATER TABLE

C/L TRACK CENTERLINE OF CONSTRUCTION OF TRACK

NOTES: 1. THE BORING LOCATIONS (STATIONS, OFFSETS, AND ELEVATIONS) WERE SURVEYED BY THE PROJECT SURVEYOR.

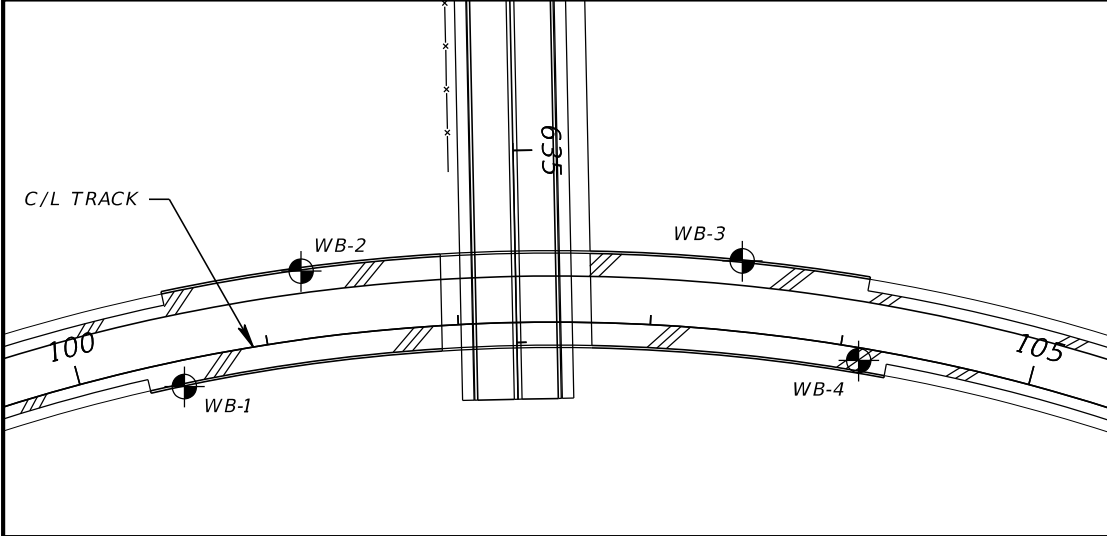
2. BASED ON A REVIEW OF THE "POTENTIOMETRIC SURFACE OF THE UPPER FLORIDAN AQUIFER, WEST-CENTRAL FLORIDA" MAPS PUBLISHED BY THE USGS, THE POTENTIOMETRIC SURFACE ELEVATION OF THE UPPER FLORIDAN AQUIFER IN THE VICINITY OF THE PROJECT SITE RANGES FROM APPROXIMATELY +120 TO +130 FEET, NGVD 29.



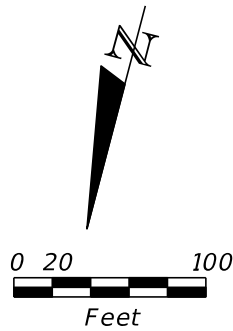
	SAFETY HAMMER	AUTOMATIC HAMMER
GRANULAR MATERIALS- RELATIVE DENSITY	SPT N-VALUE (BLOWS/FT.)	SPT N-VALUE (BLOWS/FT.)
VERY LOOSE	LESS THAN 4	LESS THAN 3
LOOSE	4 to 10	3 to 8
MEDIUM DENSE	10 to 30	8 to 24
DENSE	30 to 50	24 to 40
VERY DENSE	GREATER THAN 50	GREATER THAN 40
SILTS AND CLAYS CONSISTENCY	SPT N-VALUE (BLOWS/FT.)	SPT N-VALUE (BLOWS/FT.)
VERY SOFT	LESS THAN 2	LESS THAN 1
SOFT	2 to 4	1 to 3
FIRM	4 to 8	3 to 6
STIFF	8 to 15	6 to 12
VERY STIFF	15 to 30	12 to 24
HARD	GREATER THAN 30	GREATER THAN 24

MSE WALLS

REVISIONS						JEREMY A. SEWELL, P.E. P.E. LICENSE NUMBER 62951 TIERRA, INC. 591 SUSAN B. BRITT COURT WINTER GARDEN, FLORIDA 34787 CERTIFICATE OF AUTHORIZATION NO. 6486	DRAWN BY: MAF	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET TITLE: REPORT OF CORE BORINGS (1 OF 2)		REF. DWG. NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION		CHECKED BY: RJG						
							DESIGNED BY: MAF	ROAD NO.	COUNTY	FINANCIAL PROJECT ID	PROJECT NAME:	SHEET NO.	
							CHECKED BY: JAS	N / A	POLK	437300-1-52-01	SUNTRAX TEST FACILITY	BW1 - 5	



BORING LOCATION PLAN



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(SOIL-pH = 5.8)
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LEGEND

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-200 PERCENT PASSING #200 SIEVE
NMC NATURAL MOISTURE CONTENT (%)
LL LIQUID LIMIT
PI PLASTICITY INDEX

NAVD 88 NORTH AMERICAN VERTICAL DATUM OF 1988

APPROXIMATE SPT BORING LOCATION

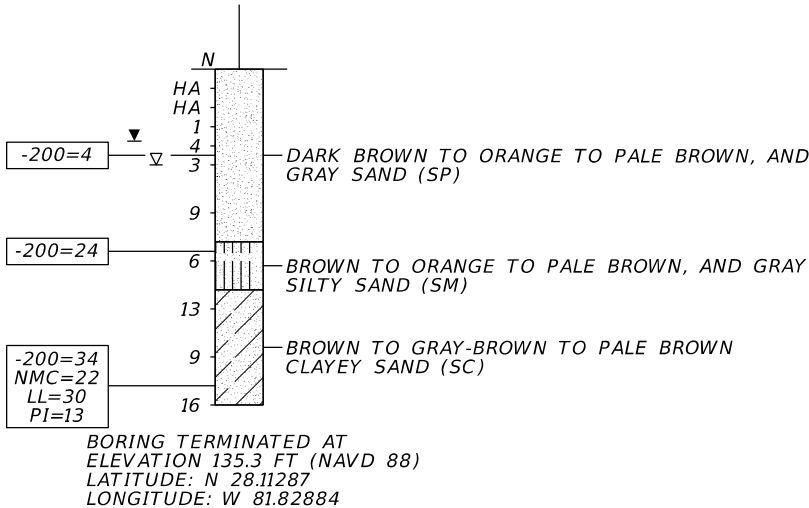
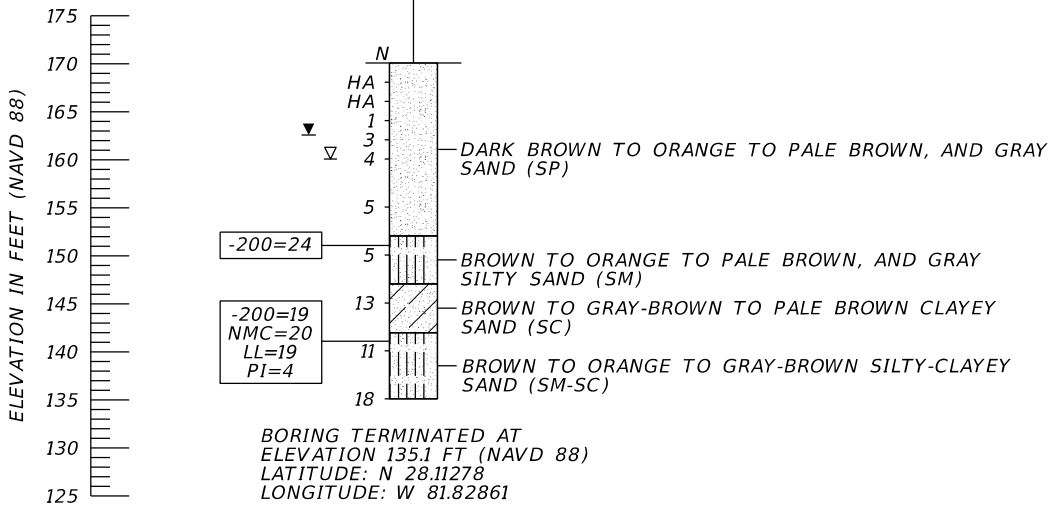
GROUNDWATER LEVEL ENCOUNTERED DURING
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C/L TRACK CENTERLINE OF CONSTRUCTION OF TRACK

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SURFACE OF THE UPPER FLORIDAN AQUIFER,
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THE USGS, THE POTENTIOMETRIC SURFACE
ELEVATION OF THE UPPER FLORIDAN AQUIFER
IN THE VICINITY OF THE PROJECT SITE RANGES
FROM APPROXIMATELY +120 TO +130 FEET, NGVD
29.



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MSE WALLS

REVISIONS						JEREMY A. SEWELL, P.E. P.E. LICENSE NUMBER 62951 TIERRA, INC. 591 SUSAN B. BRITT COURT WINTER GARDEN, FLORIDA 34787 CERTIFICATE OF AUTHORIZATION NO. 6486	DRAWN BY: MAF	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET TITLE: REPORT OF CORE BORINGS (2 OF 2)		REF. DWG. NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION		CHECKED BY: RJG						
							DESIGNED BY: MAF	ROAD NO.	COUNTY	FINANCIAL PROJECT ID	PROJECT NAME:	SHEET NO.	
							CHECKED BY: JAS	N/A	POLK	437300-1-52-01	SUNTRAX TEST FACILITY	BW1 - 6	