

Florida Department of Transportation
Technical Special Provisions
for

PRECAST PRESTRESSED POST-TENSIONED CONCRETE PAVEMENT

FPID 422024-2-52-01

The official record of this package is the electronic file signed and sealed under Rule 61G 15-23.003, F.A.C.

Prepared by: Hussam Fallaha, PE
Florida Department of Transportation
Structures Design Office
605 Suwannee Street MS-33
Tallahassee, FL32399-0450
May 25, 2010

T 1-1 DESCRIPTION

Construct the precast prestressed concrete pavement as shown in the plans according to the applicable sections of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction 2010, and this technical special provision.

Fabricate, store, transport and install precast/prestressed concrete pavement, pretensioned transversely and post tensioned longitudinally. Supply and pour the keyways gout. Supply, install all the post tensioning systems; and apply the post tensioning. Grout all the post-tensioning systems. Supply and install expansion joints.

The term "panel" shall refer to individual precast concrete panels, including interior Panels or end panels. The term "slab unit" shall refer to a post-tensioned section of precast panels between the expansion joints.

T 2-1 PANEL FABRICATION

Fabricate the panels according to the plans, section 450 and this technical special provision. Form the end panels and interior panels with shear keys and block-out as shown in the plans and to the tolerances shown in Table 1.

Place smooth Glass Fiber Reinforced Polymer (GFRP) dowels at the expansion joints ends of the end panels as shown in the plans. Place pockets in the ends of the adjacent panels to receive these dowels. Ensure that these dowels are placed parallel to the surface of the panel and normal the expansion joint to facilitate the slab movement without damage.

Install the post-tensioning system ducts, anchorages and block-outs according to the approved shop drawings.

Prior to fabrication, submit shop drawings to the engineer for approval showing the end panels and the interior panels. Show the post-tensioning system ducts and anchorages and the dowels at the expansion joints on the shop drawings.

Prior to shipping, blast the panels' key ways and block-outs surfaces to insure that the keyways and the block-out surfaces are clean and free of all laitance and form release oils.

T 2-1.1 Forms

Use metal side and bottom forms sufficiently rigid to produce panels that meet the tolerance requirements shown in Table 1. Wood forms are NOT permitted.

T 2-1.2 Storage

Panel deformation during storage may prevent the ducts from matching during installation. Therefore, Store Panels in such a way that deformations do not exceed the acceptable tolerances.

T 2-1.3 Tolerance

TABLE 1: TOLERANCES FOR PRECAST PANELS	
Length (parallel to the roadway centerline)	+/- 1/8"
Width (normal to the roadway centerline)	+/- 1/4"
Nominal Thickness	+/- 1/8"
Squareness (difference in measurement from corner to corner cross top surface, measured diagonally)	+/- 1/4"
Horizontal Alignment (upon release of stress)–Deviation from straightness of mating edge of panels	+/- 1/8"
Vertical Alignment–Camber (upon release of stress)	+/- 1/8"
Deviation of ends (horizontal skew)	+/- 1/8"
Deviation of ends (vertical batter)	+/- 1/8"
Keyway Dimensional Tolerance	+/- 1/16"
Position of Strands	+/- 1/8" Vertical +/- 1/4" Horizontal
Position of post-tensioning ducts at mating edges	+/- 1/8" Vertical +/- 1/8" Horizontal
Straightness of post-tensioning ducts	+/- 1/4" Vertical +/- 1/4" Horizontal
Vertical Dowel Alignment (parallel to bottom of panel)	+/- 1/8"
Horizontal Dowel Alignment (normal to expansion joint)	+/- 1/8"
Dowel Location (deviation from shop drawings)	+/- 1/4" Vertical +/- 1/4" Horizontal
Dowel Embedment (in either side of expansion joint)	+/- 1/4"
Position of lifting anchors	+/- 3"
Position of non-prestressed reinforcement, including tie-bars (unless tolerance otherwise provided in plans)	+/- 1/4"
Straightness of expansion joints	+/- 1/4"
Initial width of expansion joints	+/- 1/8"
Dimensions of blockouts/pockets	+/- 1/8"

Fabricate the precast panel to meet the required tolerance listed in table 1.

T 3-1 POST-TENSIONING SYSTEMS.

The contractor may use post-tensioning systems that are approved by the State Structures Design Office and that are shown on the State Structures Design Office's Approved Post Tensioning System List website. Alternatively, the contractor may submit to the Engineer a unique post-tensioning system specific for this project. The submittal must meet the material and performance requirement of Subarticle 462-2 of the Standard Specifications.

T 4-1 PREPARATION OF BASE FINAL LAYER

Prior to placing the precast panels on the asphaltic base, clear the surface of debris that may prevent the panels from fully resting on the base or that may cause local stress points. Also, ensure that the surface of the final layer of the base is smooth, even and meets the requirement of Subarticle 330-12.4.5.4. Any areas of the base surface not conforming to this smoothness requirement must be corrected at the Contractor's expense; pay adjustments shall not be permitted.

T 5-1 FRICTION REDUCING MEMBRANE

Place a single layer friction reducing membrane over the prepared base, beneath the precast panels, as shown on the plans. Use a minimum 6 mil thick polyethylene new and clean sheeting as the friction reducing membrane. Prevent folds and creases in the sheeting beneath the panels and prevent the material from becoming pinched in the joint between the panels. Ensure that surface of the prepared base is free from loose debris which may puncture the sheeting. Repair any tears or punctures in the sheeting to the satisfaction of the Engineer prior to placement of the precast panels over the sheeting.

T 6-1 PANEL INSTALLATION ON-SITE

The Contractor shall allow at least 2 site visits by large groups of up to 50 people for the purposes of reviewing on-site installation procedures and processes. The Contractor shall also co-ordinate with representatives of the Federal Highway Administration (FHWA) for the purposes of documenting construction processes and procedures.

T 6-1.1 Equipment

Installing, lifting and transporting equipment shall not damage the prepared base material prior to or during panel installation. Any damage to the prepared base material will be repaired at the Contractor's expense to the satisfaction of the Engineer.

T 6-1.2 Placement

Install panels one at a time without damaging the polyethylene membrane or the base. Align panels in the longitudinal direction (parallel to the roadway centerline) using a pre-surveyed roadway centerline and check the alignment of the ducts between panels using a reference mark on the top surface of the panels at adjoining edges directly above a given post-tensioning duct.

T 6-1.3 Placement Tolerances

Align adjacent panels to meet the following tolerances:

Post-tensioning ducts must match with +/-1/4 inches.

Longitudinal +/- 1/8 inches (Deviation of centerline of panel from centerline of roadway).

Transverse +/- 1/8 inches (The width of the shear key should not vary more than 1/8 inches).

T 7-1 TRANSVERSE JOINTS BETWEEN PANELS

After setting the panels and coupling of post-tension ducts, fill the transverse keyway using Non-shrink grout meeting the requirements of Section 934. Prior to placing the Non-shrink grout ensure that the concrete surfaces of the keyway are clean and free of debris, soil, laitance or form release agents.

T 8-1 EXPANSION JOINTS

Construct Expansion Joints according to Section 458. The expansion joints shown in the plans are considered bridge deck joints "Poured Joints with Backer Rod Systems". Submit shop drawing to the Engineer for approval showing the expansion joint material and construction

T 9-1 DOWELS

Place smooth Glass Fiber Reinforced Polymer (GFRP) dowels at the expansion joints as shown in the plans. Insure that these dowels are placed parallel to the surface of the panel and normal the expansion joint to facilitate the slab movement without damage. Use dowel expansion caps that provide a minimum of 1.25 inches of free movement of the dowel end within the expansion cap. Use polystyrene or other approved material in the joint to form the edge of the slab around the dowels.

T 10-1 GROUTING TRANSVERSE JOINTS AND POCKETS

Grout all transverse joints and block-outs for post-tensioning anchorages and for dowels using non-shrink grout that meet the requirement of section 934 of the Standard Specifications and the strength requirement shown in the plans.

T 11-1 UNDERSLAB GROUTING

If the base is not sufficiently smooth and even or if there are voids under the slab, the Engineer may require the contractor to grout under the slabs. If underslab grouting is required, do the underslab grouting after the post-tensioning operation is complete, using non-shrink grout meeting the requirement of Section 934, and the grouting pressure shall not exceed 5 psi.

T 12-1 FINISHING

Use burlap drag or broom to produce uniform gritty texture on the top surface of the panels. Grind the concrete slabs in accordance with section 352 of the Standard Specifications.

T 13-1 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Prestressed pavement shall be measured in square yards of pavement surface area, and payment shall be made at the contract unit price per square yard for prestressed pavement, complete in place and accepted. This price and payment shall be full compensation for all material, labor and equipment necessary to fabricate, deliver, and install the precast pavement slabs as shown in the plans.

Installation of polyethylene friction reducing membrane, grouting of transverse shear keys and block-outs, installation and stressing of post-tensioning steel, installation of Glass Fiber Reinforced Polymer (GFRP) dowels at the expansion joints are also included. Materials include all reinforcing steel, pre-tensioning steel, embedded ducts, hardware, inserts and other materials. Final pay area will be plan quantity, as detailed on the plans, subject to the provisions of Subarticle 9-3.2.

Item number 450-5 Prestressed Pavement ---- per square yards.

Measurement and payment for grinding the slabs shall be according to Section 352 of the Standard Specifications.

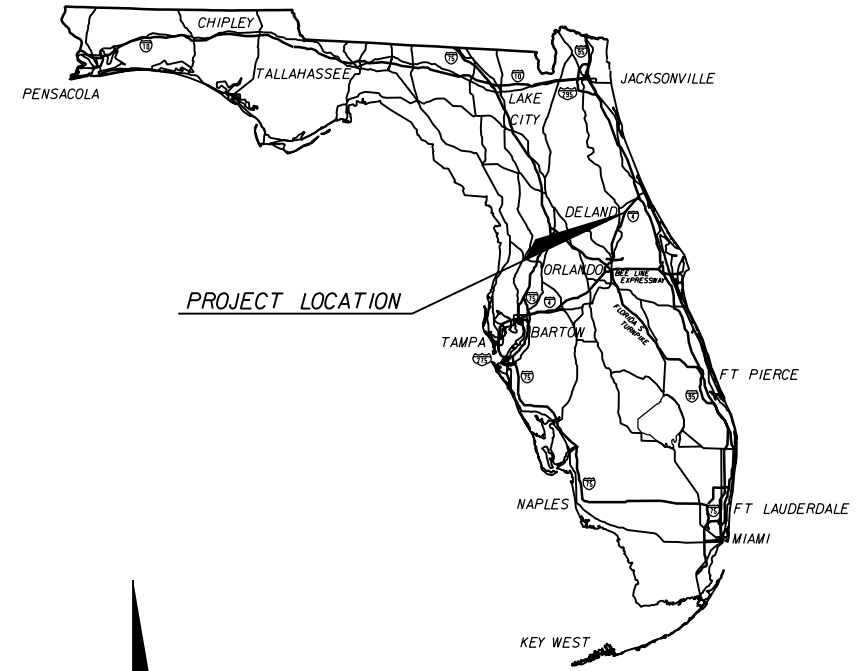
COMPONENTS OF CONTRACT PLANS SET

- ROADWAY PLANS
- SIGNING AND PAVEMENT MARKING PLANS
- SIGNALIZATION PLANS

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

CONTRACT PLANS

FINANCIAL PROJECT ID 422024-2-52-01
(FEDERAL FUNDS)
VOLUSIA COUNTY (79060)
STATE ROAD NO. 600



A DETAILED INDEX APPEARS ON THE KEY SHEET OF EACH COMPONENT

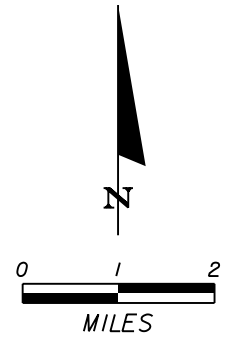
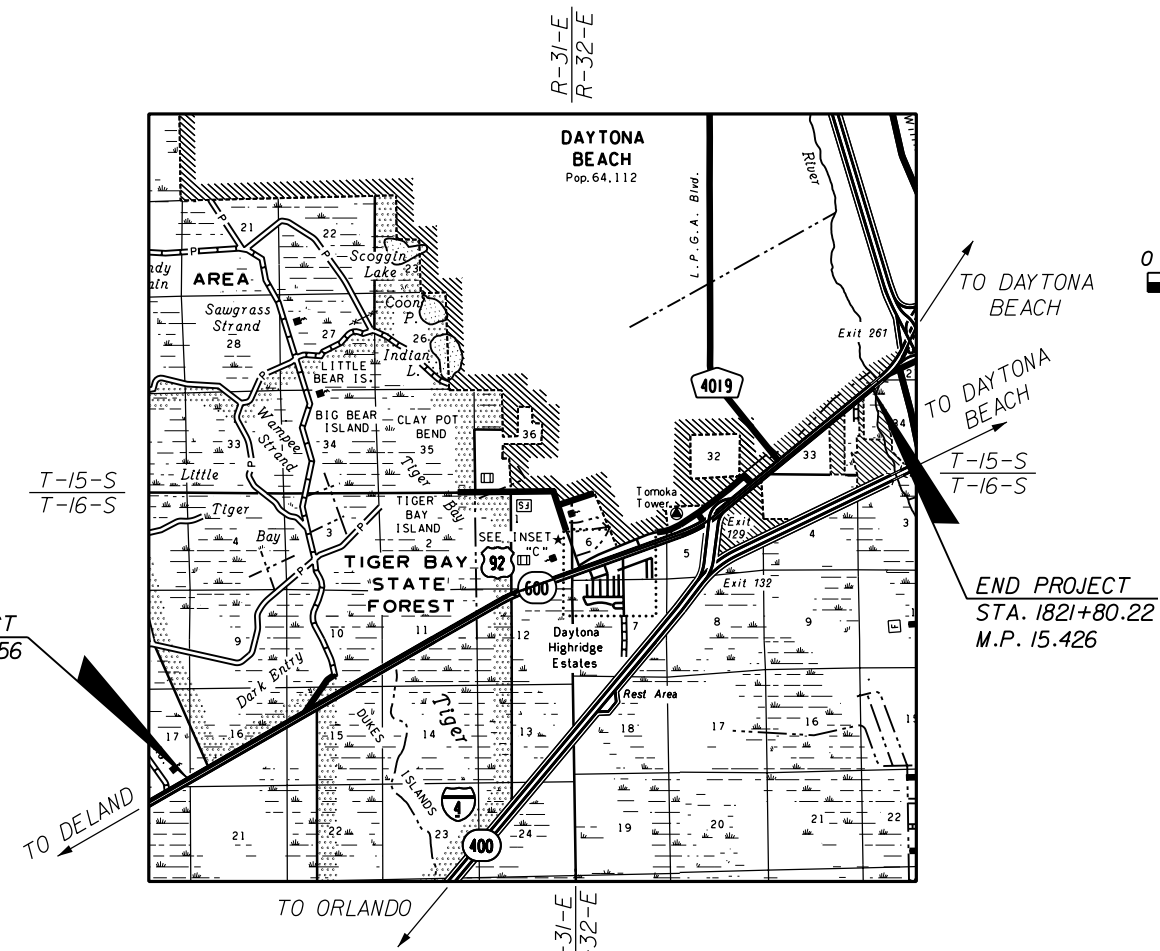
INDEX OF ROADWAY PLANS

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GOVERNING STANDARDS AND SPECIFICATIONS:
FLORIDA DEPARTMENT OF TRANSPORTATION,
DESIGN STANDARDS DATED 2010,
AND STANDARD SPECIFICATIONS FOR ROAD AND
BRIDGE CONSTRUCTION DATED 2010,
AS AMENDED BY CONTRACT DOCUMENTS.

APPLICABLE DESIGN STANDARDS MODIFICATIONS: 07-01-10
For Design Standards Modifications click on
"Design Standards" at the following web site:
<http://www.dot.state.fl.us/rddesign/>

- REVISIONS:
- F.P.I.D. NO. 422024-2-52-01
ROADWAY SHEETS: 2, 3 & 11 (09/17/10)
 - F.P.I.D. NO. 422024-2-52-01
ROADWAY SHEETS: 2 & 3 (11/02/10)
 - F.P.I.D. NO. 422024-2-52-01
ROADWAY SHEET: 41 (11/22/10)



ROADWAY SHOP DRAWINGS
TO BE SUBMITTED TO:

BRIAN J. FLYNN, P.E.
AVCON, INC.
5555 MICHIGAN STREET, SUITE 200
ORLANDO, FLORIDA 32822-2779
PHONE: (407) 599-1122
FAX: (407) 599-1133
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PLANS PREPARED BY:
AVCON
5555 MICHIGAN STREET, SUITE 200
ORLANDO, FLORIDA 32822-2779
PHONE: (407) 599-1122
FAX: (407) 599-1133
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CERTIFICATE OF AUTHORIZATION NO. 5057
VENDOR NO. 592890463-001
CONTRACT NO. C-8R55

NOTE: THIS PROJECT TO BE LET TO WITH
FINANCIAL PROJECT NO. 422024-1-52-01 & 423864-1-52-01

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

BEGIN PROJECT
STA. 1387+47.56
M.P. 7.200

END PROJECT
STA. 1821+80.22
M.P. 15.426

PROJECT LENGTH IS BASED ON $\frac{1}{2}$ OF CONSTRUCTION

LENGTH OF PROJECT		
	LINEAR FEET	MILES
ROADWAY	43252.22	8.192
BRIDGES	180.44	0.034
NET LENGTH OF PROJECT	43432.66	8.226
EXCEPTIONS	0	0
GROSS LENGTH OF PROJECT	43,432.66	8.226

KEY SHEET REVISIONS		
DATE	BY	DESCRIPTION

ROADWAY PLANS
ENGINEER OF RECORD: BRIAN J. FLYNN, P.E.

P.E. NO.: 48071

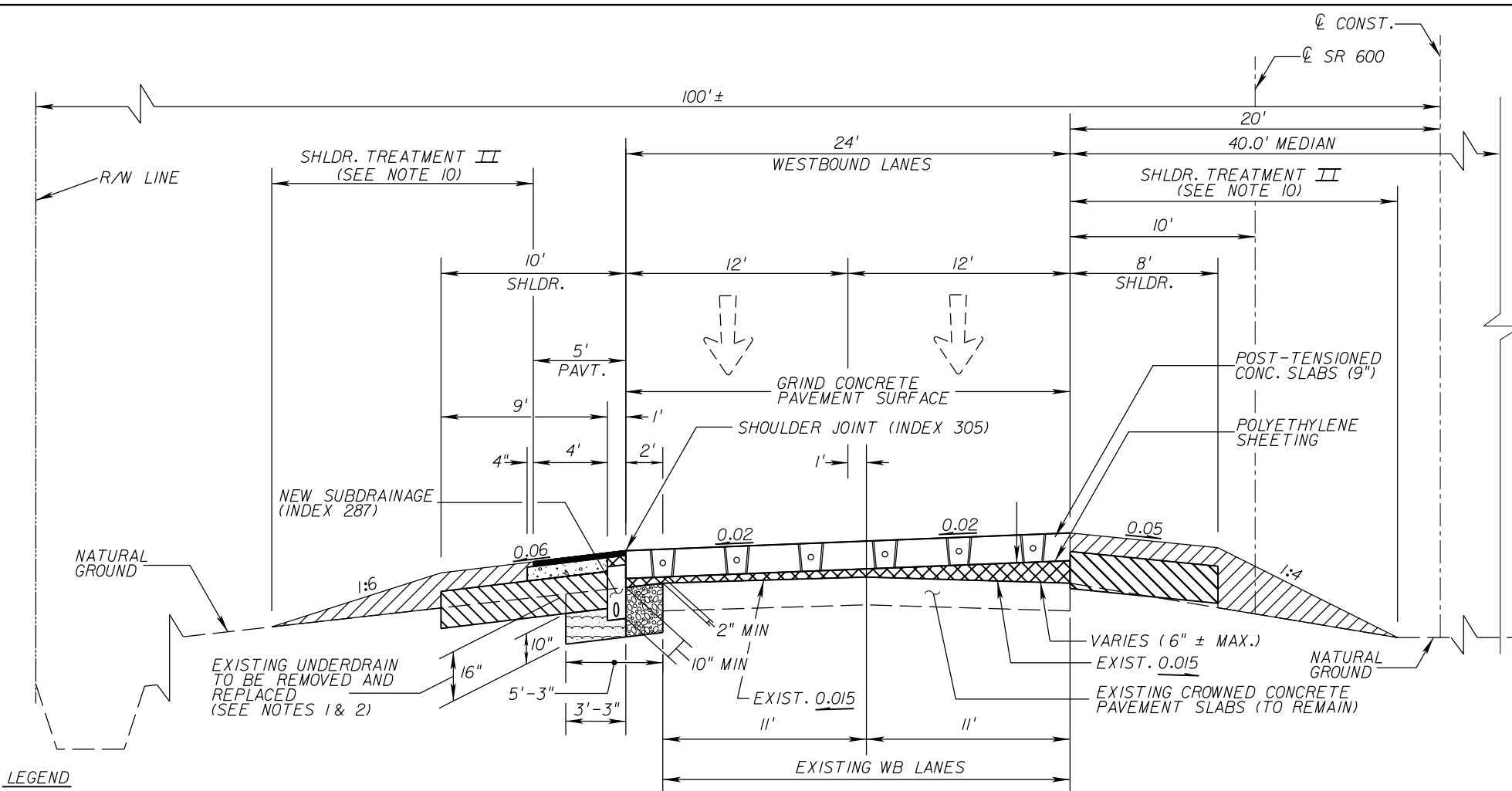
FISCAL YEAR	SHEET NO.
11	1

FDOT PROJECT MANAGER: DENNIS R. ZORNAN, E.I.

NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 61G5-23.003, F.A.C.

NOTES:

- EXISTING OUTSIDE PAVED SHOULDER AND UNDERLYING DRAINAGE LAYERS (ASPHALT, FILTER FABRIC, PERMEABLE BASE AND GRAVEL BEDDING MATERIALS), SHALL BE COMPLETELY REMOVED AND REPLACED WITH A NEW DRAINCRETE SUBDRAINAGE SYSTEM AS PER INDEX 287 (PAGE 3, ASPHALT BASE SUBDRAINAGE DETAIL) AND REQUIRED BACKFILL MATERIALS AS SHOWN IN THE PLANS.
- ALL WORK FOR THE REMOVAL AND DISPOSAL OF THE EXISTING SHOULDER AND EXISTING UNDERLYING DRAINAGE LAYERS AND FOR FURNISHING AND INSTALLING THE COMPLETE DRAINCRETE SUBDRAINAGE SYSTEM SHALL BE PAID FOR UNDER THE CONTRACT UNIT PRICE FOR PAY ITEM NUMBER 446-1-1, EDGEDRAIN DRAINCRETE.
- SUBDRAIN SYSTEM IS TO BE BUILT IN SEGMENTS BETWEEN BOLSTERS AND BOLSTER TO END JOINT LOCATIONS. OUTFALL PIPES SHALL BE BUILT AND CONNECTED TO PERFORATED SUBDRAIN PIPE AT THE MIDDLE OF EACH SEGMENT. ALL SUBDRAIN SEGMENT ENDINGS SHALL BE CAPPED AND WRAPPED WITH FILTER FABRIC AT END JOINT LOCATIONS (TEST SITE BEGINNING AND END) AND AT EACH SIDE FACE OF EACH BOLSTER (SEE PAGE 14 FOR ADDITIONAL BOLSTER DETAILS).
- OUTFALL PIPES SHALL BE DAYLIGHTED AT APPROXIMATELY 22 FT FROM PERFORATED PIPE LOCATION AND PIPE APRON ENDS MAY BE FIELD ADJUSTED AS NEEDED TO AVOID ANY IMPACT TO ANY EXISTING DITCH AREAS OR WETLANDS.
- FURNISHING AND INSTALLING CONCRETE-ASPHALT SHOULDER JOINT (INDEX 305) SHALL BE PAID FOR UNDER THE CONTRACT UNIT PRICE FOR PAY ITEM NUMBER 350-72, CLEANING AND RESEALING JOINTS IN CONCRETE PAVEMENT.
- A VARIABLE SP-9.5 OVERBUILD LAYER SHALL BE APPLIED OVER EXISTING CONCRETE PAVEMENT SLABS SUCH THAT THE TOP EDGE ELEVATIONS OF THE NEW PRE-STRESSED SLABS MATCHES THE TOP EDGE ELEVATIONS OF THE NEW CAST IN PLACE CONCRETE PAVEMENT AT BEGINNING AND END STATIONS OF THE TEST SITE. SEE CROSS SECTION SHEETS FOR OVERBUILD THICKNESS DETAILS THROUGHOUT THE TEST SECTION (VARIES FROM 2" MIN. TO 6"±).
- PRIOR TO THE INSTALLATION OF THE PRESTRESSED POST-TENSIONED PAVEMENT SYSTEM, THE SP 9.5 TRAFFIC LEVEL B OVERBUILD LAYER SHALL MEET OR EXCEED ALL SURFACE FINISH REQUIREMENTS OF A "FINAL TYPE SP STRUCTURAL LAYER" AS REQUIRED BY SPECIFICATION SECTION 330-12.
- ALL ITEMS REQUIRED TO FURNISH AND INSTALL THE PRESTRESSED POST-TENSIONED CONCRETE PAVEMENT SYSTEM SHALL BE INCLUDED IN PAY ITEM NUMBER 450-5, PRESTRESSED PAVEMENT.
- GRIND CONCRETE PAVEMENT SURFACE FOLLOWING COMPLETION OF PAVEMENT RECONSTRUCTION.
- PAYMENT FOR FURNISHING AND INSTALLING SHOULDER TREATMENT II, OPTION 2 AND ANY NECESSARY FILL TO TIE DOWN SIDE SLOPES TO EXISTING GROUND ELEVATION, SHALL BE PAID FOR UNDER PAY ITEM NUMBERS:
 A) 570-1-2, PERFORMANCE TURF, SOD
 B) 162-1-11, PREPARED SOIL LAYER (FINISH SOIL LAYER, 6" THICK)
 C) 120-6, EMBANKMENT



**TYPICAL SECTION AND SUBDRAIN DETAILS
 SR 600 PRECAST PAVEMENT TEST SECTION
 STA. 1504+75.16 TO STA. 1512+67.86 (WESTBOUND)**

PRECAST PRE-STRESSED POST-TENSIONED SLAB CONSTRUCTION
 EXISTING 9" THICK CONCRETE SLABS TO REMAIN IN PLACE UNDISTURBED
 SP-9.5, TRAFFIC LEVEL B (THICKNESS VARIES)
 FRICTION REDUCING MEMBRANE (POLYETHYLENE SHEETING)
 PRECAST PRE-STRESSED POST-TENSIONED PAVEMENT (9" THICK)

SHOULDER CONSTRUCTION
 TYPE B STABILIZATION, LBR 40 (12")
 OPTIONAL BASE GROUP I
 SUBDRAIN ASPHALT CAP SP-9.5 (3")
 FRICTION COURSE FC-9.5 (TRAFFIC C) (1.5")

LEGEND

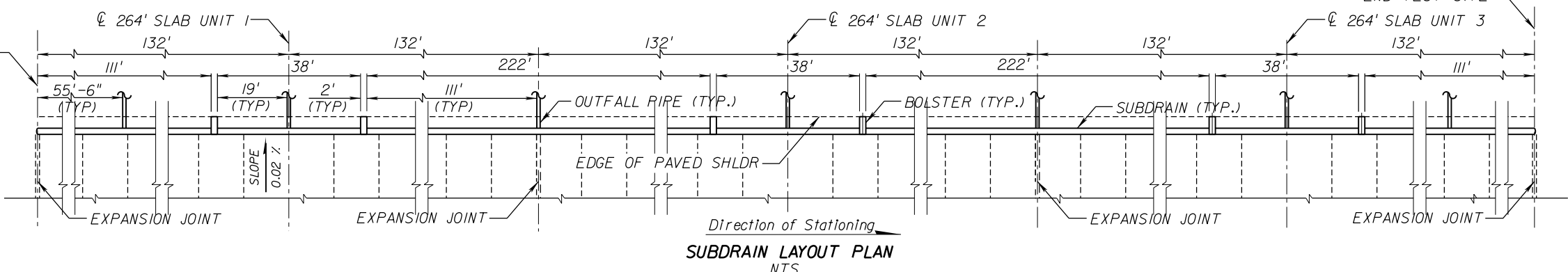
	TREATMENT II, SHOULDER OPTION 2 (INDEX 105)
	OPTIONAL BASE GROUP I
	TYPE B STABILIZATION, LBR 40 (12")
	SP-9.5, TRAFFIC LEVEL B (SEE NOTES 6 & 7)
	OPTIONAL BASE GROUP 13, B-12.5 (ONLY)
	SPECIAL SELECT A-3 EMBANKMENT MATERIAL
	FC-9.5 TRAFFIC LEVEL C (1.5")

SUBDRAIN QUANTITIES

EDGEDRAIN	781 LF
OUTFALL PIPE (4")	154 LF

TRAFFIC DATA

CURRENT YEAR	= 2009 AADT = 17,000
ESTIMATED OPENING YEAR	= 2011 AADT = 17,700
ESTIMATED DESIGN YEAR	= 2031 AADT = 21,200
K	= 9.70% D = 59.10% T = 6.18% (24 HOUR)
DESIGN SPEED	= 70 MPH



REVISIONS				DISTRICT FIVE - DESIGN		STATE OF FLORIDA			TEST SITE		SHEET NO. 11
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DEPARTMENT OF TRANSPORTATION			TYPICAL SECTION		
09/17/10	MB	△ REVISED NOTE 9				ROAD NO.	COUNTY	FINANCIAL PROJECT ID	(SR 600 WESTBOUND)		
						SR 600	VOLUSIA	422024-2-52-01			

NOTICE: THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE SIGNED AND SEALED UNDER RULE 61G5-23.003, F.A.C.

TEST SITE GENERAL NOTES:

DESIGN SPECIFICATIONS:

American Association of State Highway and Transportation Officials (AASHTO)
LRFD Bridge Design Specifications (2007 and applicable interims).
Florida Department of Transportation Structures Manual, January 2010.

DESIGN LOADING:

20 kip single axle load (ESAL)
Design Life: 30 years
ESAL applications: 2.8 million
Concrete Tensile Strength: 700 psi
Concrete Modulus of Elasticity: 3800 ksi

CONCRETE:

CLASS	MINIMUM 28 DAY COMPRESSIVE STRENGTH (ksi)	LOCATION
Class IV	F'c = 5.5	Precast Pavement Slabs
Class I	F'c = 3.0	Bolsters
Non-shrink grout	F'c = 5.5	Keyways, Anchorage & Dowel Blockouts *

* In accordance with Specification 934.

REINFORCING STEEL:

Reinforcing steel shall be ASTM A615, Grade 60.
All dimensions pertaining to the location of reinforcing steel are to the centerline of bar except where the clear dimension is shown to face of concrete. Reinforcing detail dimensions are out to out of bars.

PLAN DIMENSIONS:

All dimensions in these plans are measured either horizontally or vertically unless noted otherwise.

CONCRETE COVER:

Precast Pavement Slabs: 2 1/4" except as noted.

ENVIRONMENT:

Moderately Aggressive.

CONCRETE FINISH:

Use burlap drag or broom to produce a uniform gritty texture on the top surface of the panels. Grind the concrete slabs in accordance with Section 352.

PRESTRESSING STEEL:

STRAND: ASTM A-416, Grade 270, Low Relaxation
Modulus of Elasticity: 28500 ksi
Longitudinal Post-Tensioned Tendons:
Strand Diameter: 0.6"
Maximum Jacking Stress: 200 ksi (74% Ultimate) (43.4 kip per strand)
Maximum Stress In Tendon After Anchor Set: 200 ksi (74% Ultimate)
Maximum Stress At Anchor: 189 ksi (70% Ultimate)
Anchor Set: 0.375"
Friction Coefficient: 0.0 (Straight Tendon)
Wobble Coefficient: 0.0002
Transverse Pretensioned Strand:
Strand Diameter: 0.5"
Maximum Jacking Stress: 203 ksi (75% Ultimate) - Transverse Pretensioned Strand (31.0 kip per strand)

TENDON DUCT:

Duct will either be, round corrugated plastic with an inside diameter of 1.89" or flat corrugated plastic with nominal dimensions of 1" x 3".

POST-TENSIONING GROUT:

In accordance with Specification 938.

GLASS FIBER REINFORCED POLYMER DOWEL BARS (GFRP):

Bars shall have a smooth surface.
Shear in Bending - Minimum of 21.5 k (ASTM D4475).

HEAT SHRINK WRAP:

Furnish heat shrink wrap in accordance with Specification 462-4.2.6.3.

POLYETHYLENE SHEETING:

Minimum Thickness: 6 mils.

LIFTING INSERTS:

Provide corrosion protection for embedded lifting devices on surfaces remaining exposed under final conditions.

Use Stainless Steel, Type 304 or 316 devices:

Position metal lifting devices a minimum of 1/2" below the concrete surface and backfill the block-out with an epoxy mortar meeting the requirements of Section 926 of the Standard Specifications for a minimum of 2" beyond the perimeter of the metal device, as measured parallel to the exposed concrete surface. If block-out is less than 2" beyond the perimeter of the metal device, extend the epoxy mortar beyond the block-out along the concrete surface.

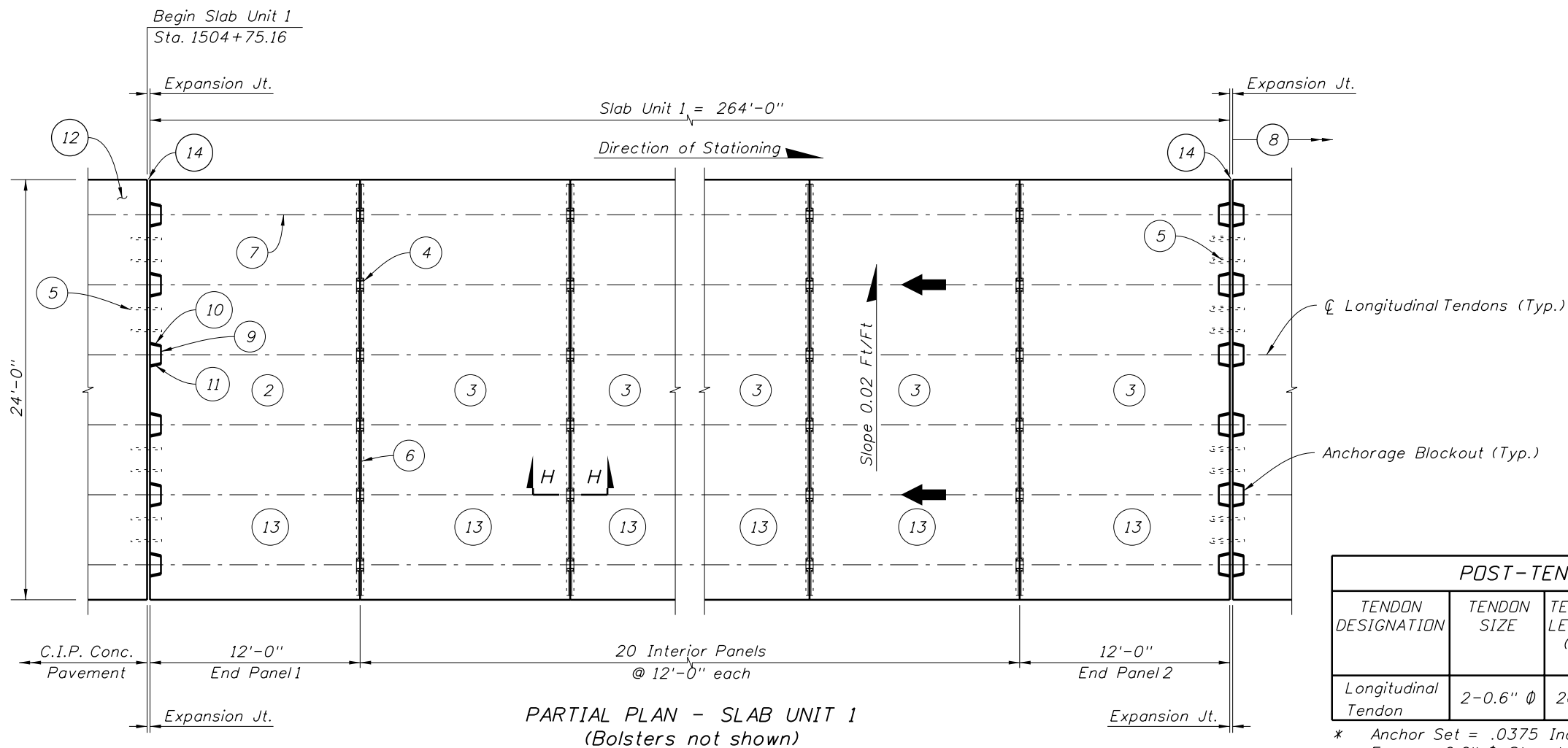
BID ITEM NOTES:

Payment for the prestressed pavement includes all material, labor and equipment required to fabricate, deliver and install the slab units. This includes the post-tensioning system and the glass fiber dowel bars.

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Prestressed Pavement	SY	2114
Post Tensioning *	LB	7100
Bridge Deck Expansion Joint	LF	96
Class I Concrete *	CY	6.1
Reinforcing Steel (Bolsters) *	LB	232
Non-Shrink Grout *	CY	9.6
Grinding Concrete Pavement	SY	2114

* For information only.

REVISIONS						STRUCTURES DESIGN OFFICE CENTRAL OFFICE 605 Suwannee Street, MS 33 Tallahassee, Florida 32399-0450 HUSSAM Z. FALLAHA, P.E. PE NO. 68674	DRAWN BY: JMB 03-10 CHECKED BY: GEH 03-10 DESIGNED BY: GEH 03-10 CHECKED BY:	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET TITLE: TEST SITE GENERAL NOTES	REF. DWG. NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION			ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
							SR 600	VOLUSIA	422024-2-52-01	SR 600 WESTBOUND	12	



POST-TENSIONING STRESSING AND TENDON DATA						
TENDON DESIGNATION	TENDON SIZE	TENDON LENGTH (FT)	JACKING FORCE PER STRAND (KIPS) **	ELONGATION BEFORE ANCHOR SET (IN) *	LIVE END FORCE AFTER ANCHOR SET (KIPS)	DEAD END FORCE AFTER ANCHOR SET (KIPS)
Longitudinal Tendon	2-0.6" Ø	264.0	43.4	21.7	40.8	41.1

* Anchor Set = .0375 Inches.
 ** For one 0.6" Ø Strand - monostrand stressing.

CONSTRUCTION SEQUENCE:

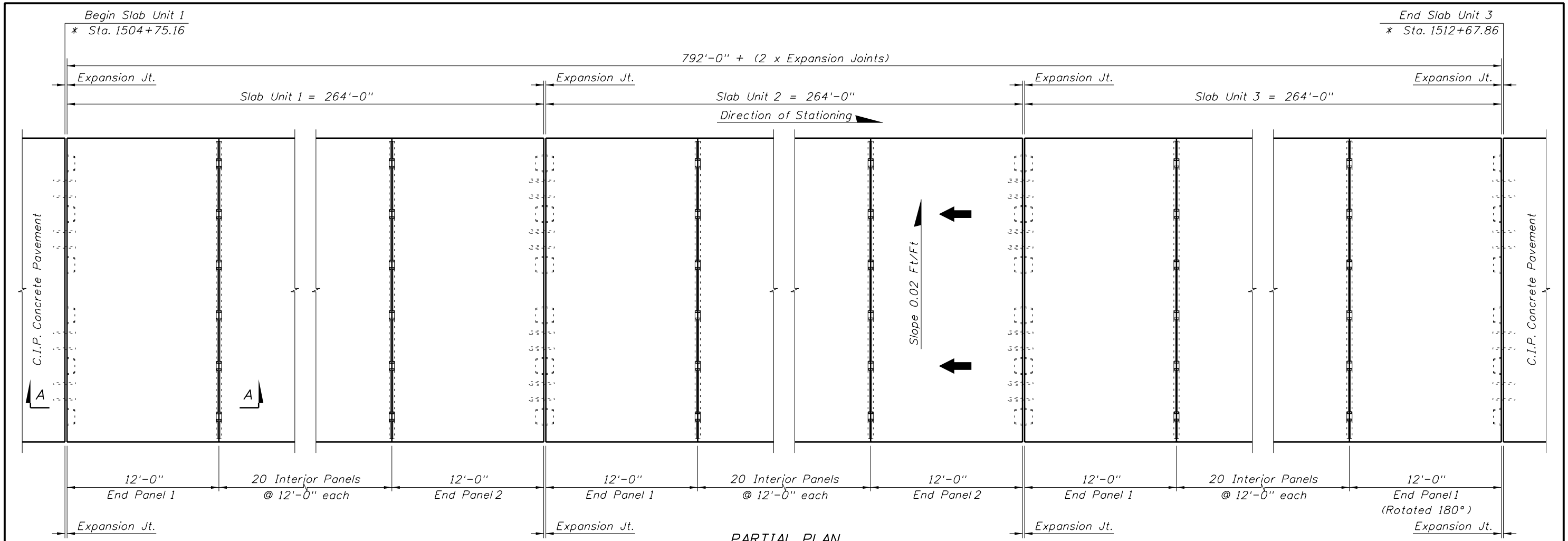
1. After the SP-9.5 layer has been placed to the tolerances required in Section 352, place a single layer of the polyethylene sheeting, full width (24') and length (264') of slab unit, making sure that the sheeting does not have any folds and is laying flat.
2. Place the first end panel at the proper station and ensure no longitudinal movement occurs while abutting additional panels.
3. Place the remaining 21 panels of the slab unit. During placement of each panel ensure that the panels are bearing against each other at the bottom of the shear key and the adjoining surfaces at the joint are within an 1/8" difference in elevation.
4. Place heat shrink wrap around the longitudinal post-tension duct at the keyway locations as per manufactures recommendations.
5. Place dowelbar expansion caps on the glass fiber reinforced polymer (GFRP) dowels to the dimension shown on the plans. Protect dowel bar, caps & sleeves to be cast into future pavement from damage until just prior to Step 12.
6. Grout the keyways with non-shrink grout as specified on the plans.
7. Thread strand thru duct, place anchorages and wedges, then stress the longitudinal post-tensioning strand to the required force shown on the plans. Stress the inner two most tendons first, then stress the remaining tendons in an alternating fashion working toward the outside of the slab. (Double end stressing is not required). Do not post-tension until the Transverse Joints grout attains minimum strength of 2.5 ksi.

8. Repeat the above procedures for the remaining two Slab Units.
9. Place and seal anchorage grout caps on Longitudinal Post-Tensioning. Grout Longitudinal Tendons in accordance with Specification 462.
10. Bend the reinforcement bars into place horizontally in the longitudinal anchorage blockouts.
11. Grout the anchorage blockouts and dowel recesses with non-shrink grout as specified in the plans. Form the blockouts and recesses flush with the face of slab.
12. Pour "C.I.P. Concrete Pavement" up to Begin and End Stations.
13. Grind the concrete slabs.
14. Place the silicone expansion joints as per manufactures recommendations.
15. Cast slab bolsters on low side of each Precast Slab Unit.

NOTE:
 For Section H-H & Bolster locations see Sheet No. 18.

REVISIONS						STRUCTURES DESIGN OFFICE CENTRAL OFFICE 605 Suwannee Street, MS 33 Tallahassee, Florida 32399-0450 HUSSAM Z. FALLAHA, P.E. PE NO. 68674	DRAWN BY: JMB 12-09 CHECKED BY: GEH 12-09 DESIGNED BY: GEH 12-09 CHECKED BY: HZF 12-09	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET TITLE: TEST SITE CONSTRUCTION SEQUENCE	REF. DWG. NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION			ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
							SR 600	VOLUSIA	422024-2-52-01	SR 600 WESTBOUND	13	

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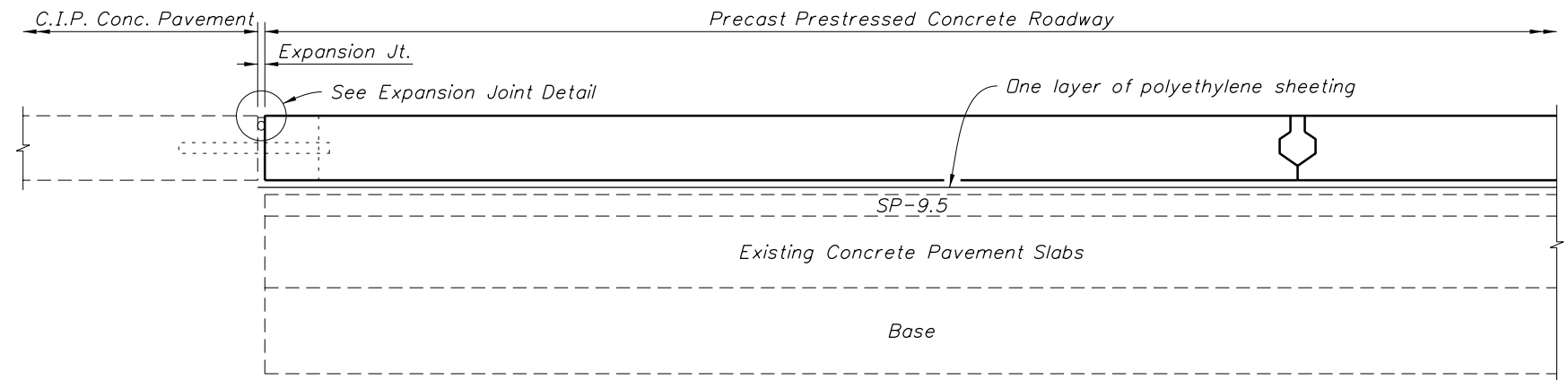
PARTIAL PLAN
(Bolsters not shown)

NOTE:
For Bolster locations see Sheet No. 18.

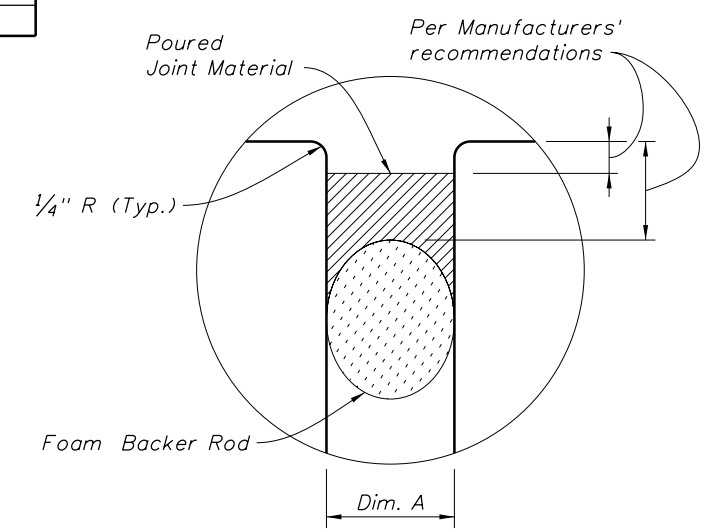
* Begin & End Stations assume 2" Expansion Joint and not to exceed 3". End Station may vary depending on actual Expansion Joint size.

POURED EXPANSION JOINT DATA TABLE				
LOCATION	DIM. "A" @ 70° F	TEMPERATURE MOVEMENT	CREEP & SHRINKAGE MOVEMENT	DIM. "A" ADJUSTMENT PER 10° F
Interior Joints	1.46"	0.60"	0.84"	0.18"
End Joints **	0.73"	0.30"	0.84"	0.09"

** Dimension "A" for End Joints accounts for movement of the precast concrete pavement only. Additional clearance may be required depending on the roadway movement (thermal and shrinkage) at each end of the precast slab units.



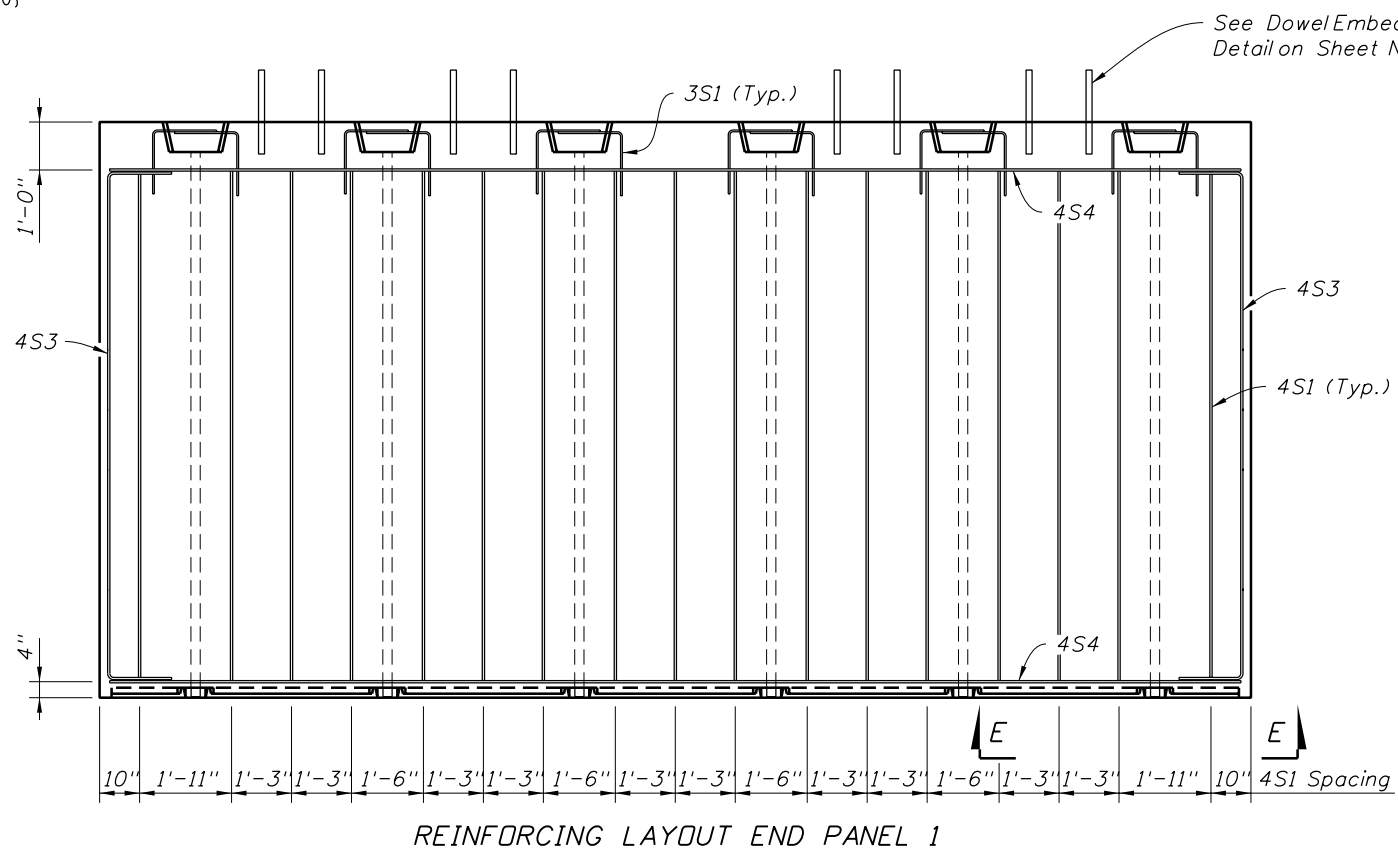
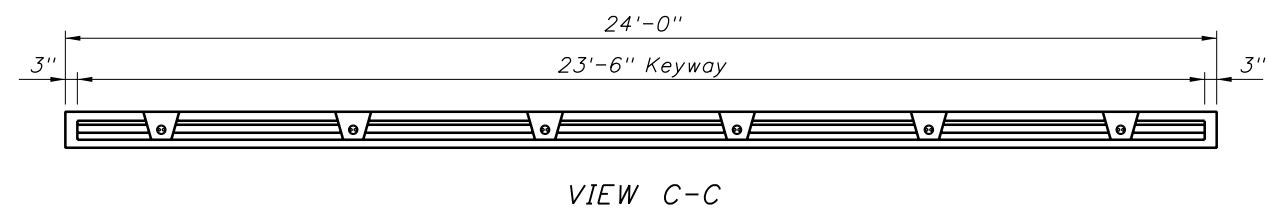
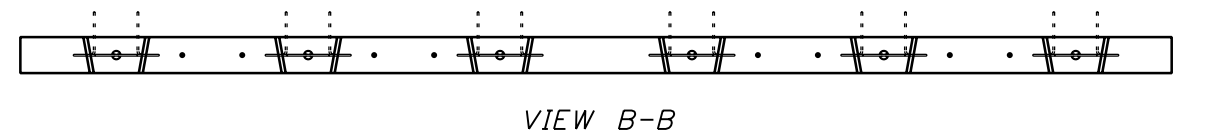
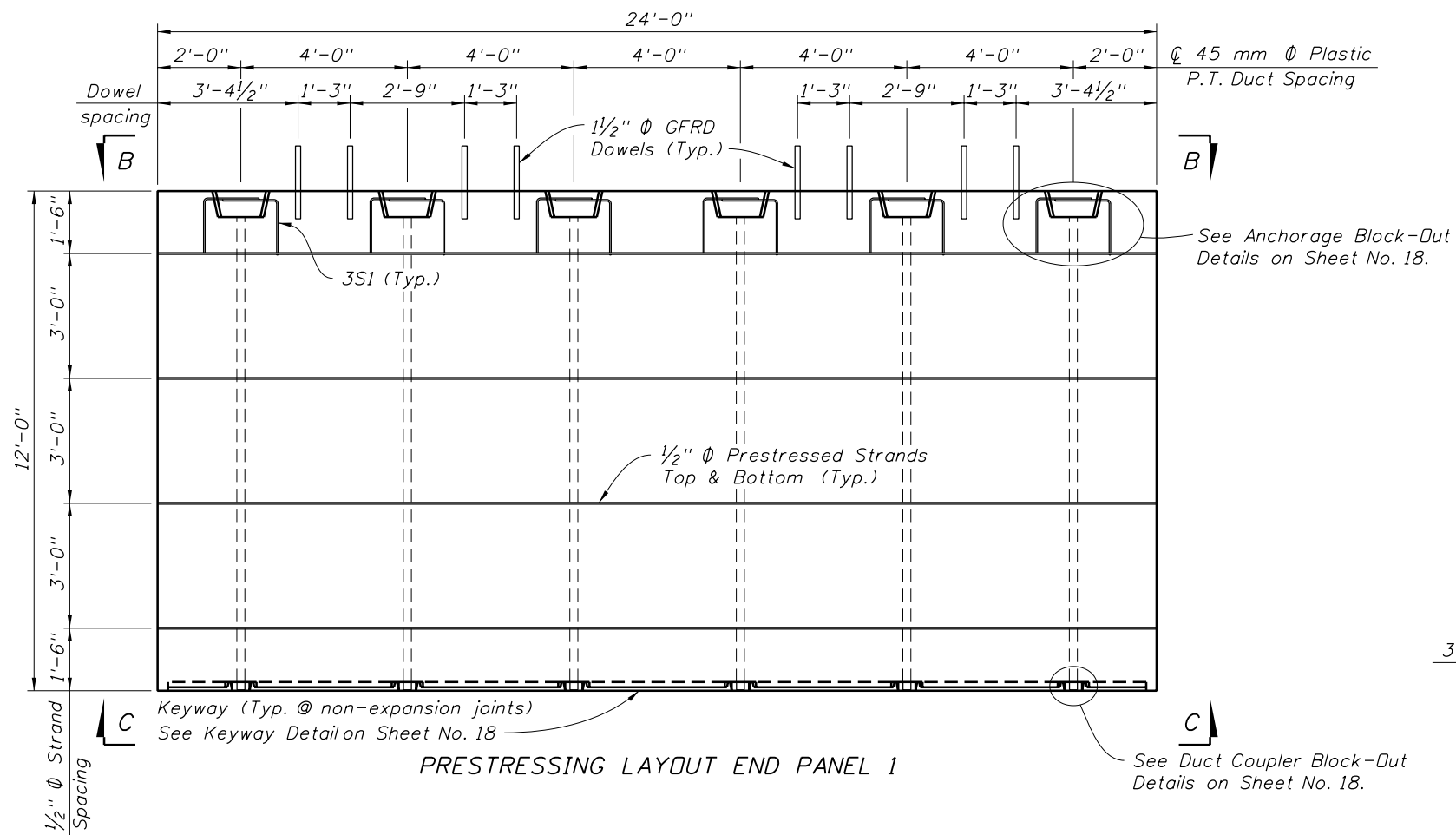
SECTION A-A



EXPANSION JOINT DETAIL
(See Design Index No. 21110)

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DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION			ROAD NO.	COUNTY	FINANCIAL PROJECT ID		
							SR 600	VOLUSIA	422024-2-52-01	SR 600 WESTBOUND	14	

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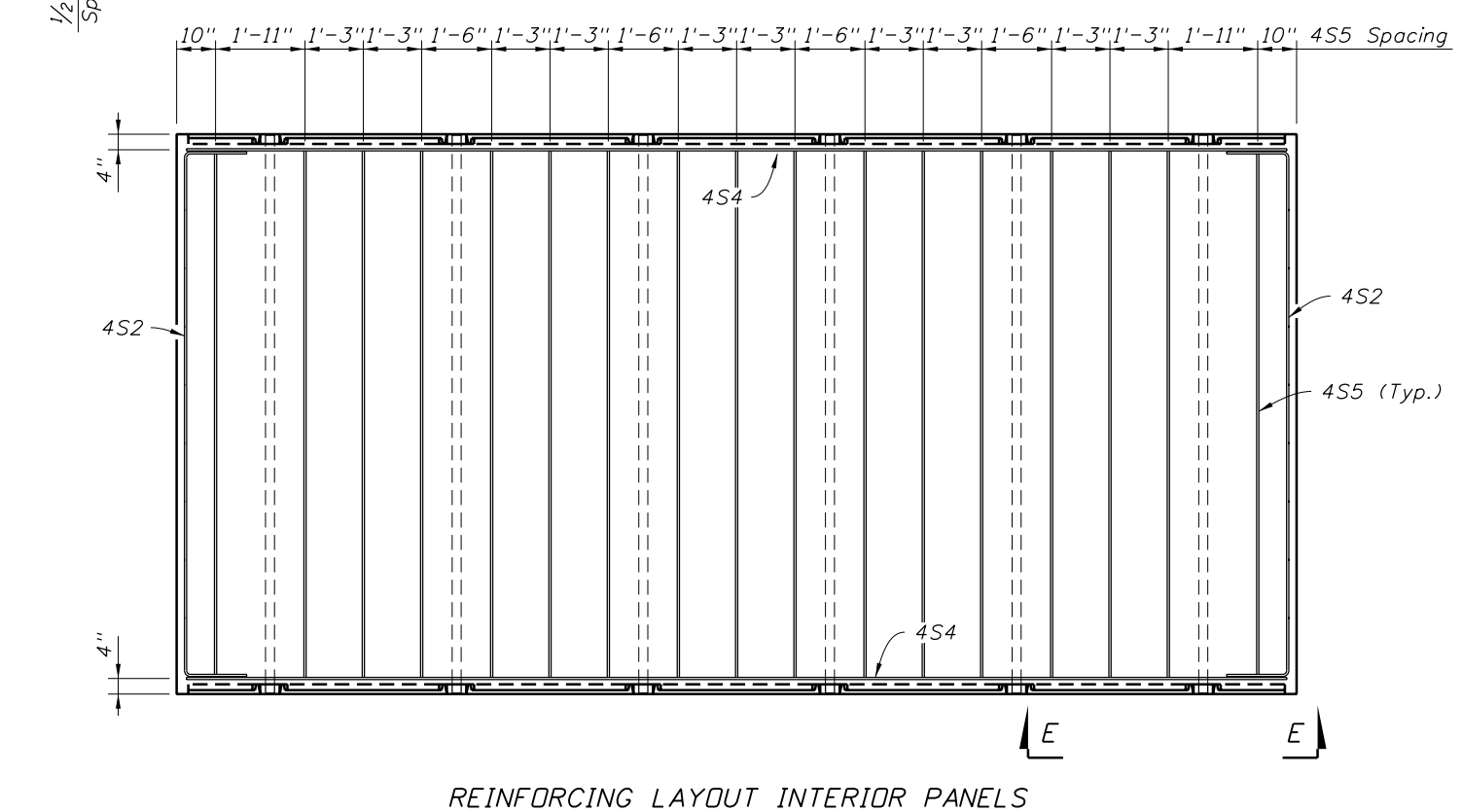
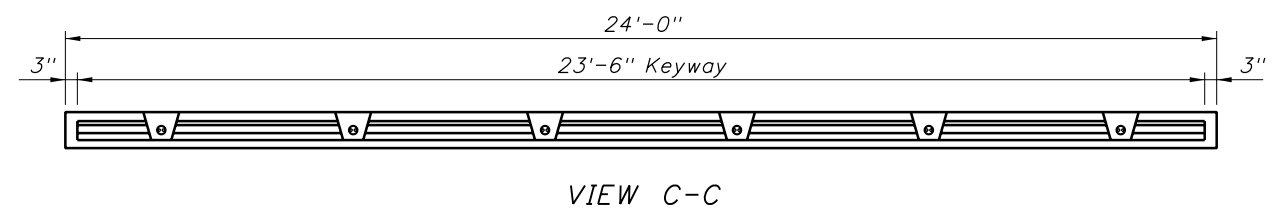
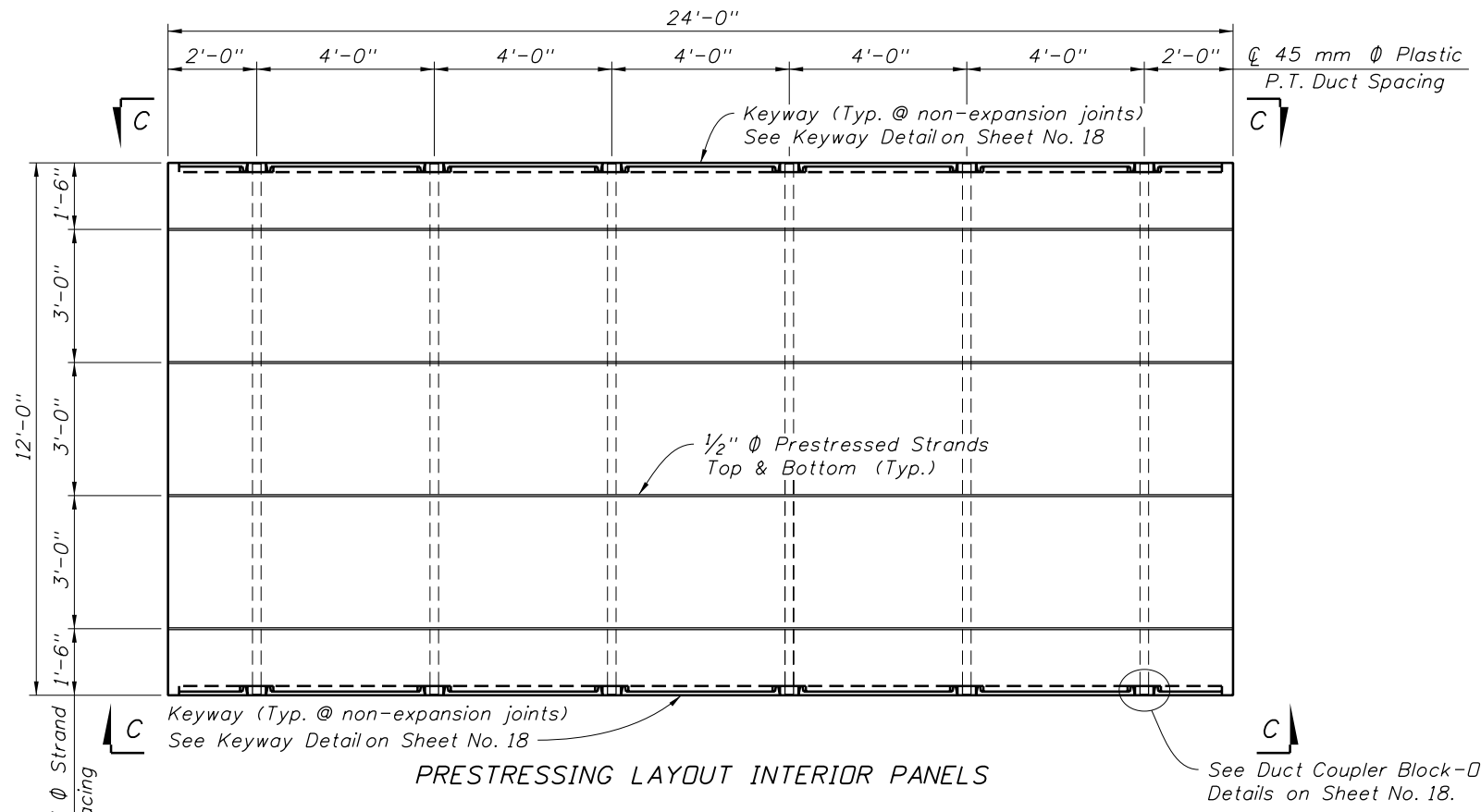


NOTES:

1. For View E-E see Sheet No. 18.
2. Stress the transverse strand to 31 kips each.
3. Cut/burn the 0.5" ϕ strands 1/4" below the concrete surface and apply a generous amount of Epoxy to seal the strand from exposure.

REVISIONS						STRUCTURES DESIGN OFFICE CENTRAL OFFICE 605 Suwannee Street, MS 33 Tallahassee, Florida 32399-0450 HUSSAM Z. FALLAHA, P.E. PE NO. 68674	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET TITLE: END PANEL 1		REF. DWG. NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION		ROAD NO.	COUNTY	FINANCIAL PROJECT ID	PROJECT NAME: SR 600 WESTBOUND		SHEET NO. 15
						SR 600	VOLUSIA	422024-2-52-01				

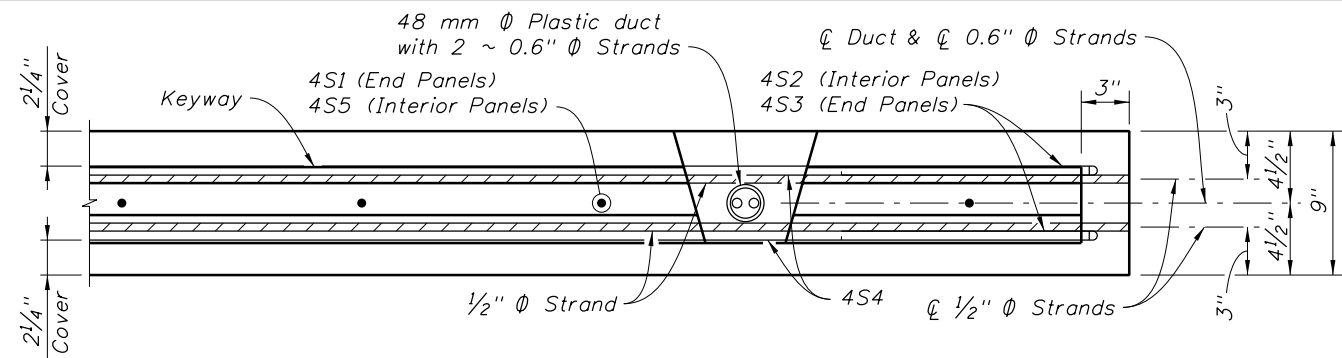
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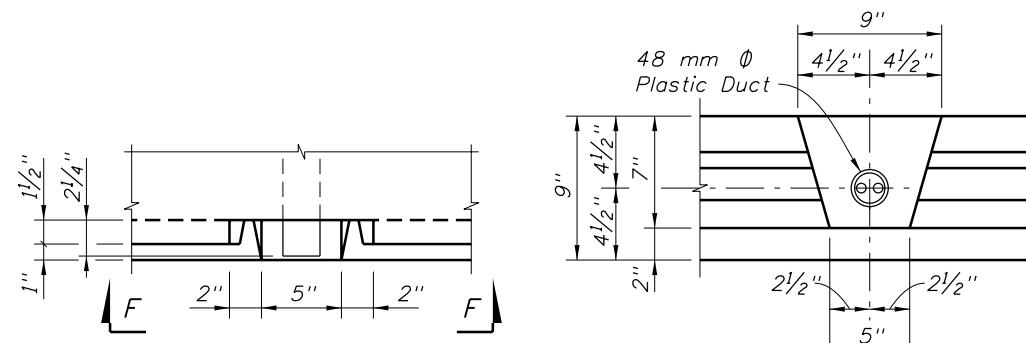
- NOTES:
1. For View E-E see Sheet No. 18.
 2. Stress the transverse strand to 31 kips each.
 3. Cut/burn the 0.5" Ø strands 1/4" below the concrete surface and apply a generous amount of Epoxy to seal the strand from exposure.

REVISIONS						STRUCTURES DESIGN OFFICE CENTRAL OFFICE 605 Suwannee Street, MS 33 Tallahassee, Florida 32399-0450 HUSSAM Z. FALLAHA, P.E. PE NO. 68674	DRAWN BY: JMB 12-09 CHECKED BY: GEH 12-09 DESIGNED BY: GEH 12-09 CHECKED BY: HZF 12-09	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			SHEET TITLE: INTERIOR PANELS		REF. DWG. NO.
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION			ROAD NO.	COUNTY	FINANCIAL PROJECT ID	PROJECT NAME:	SHEET NO.	
						SR 600	VOLUSIA	422024-2-52-01		SR 600 WESTBOUND	17		

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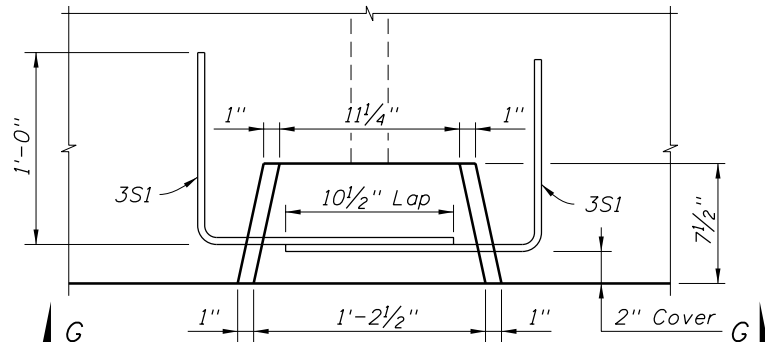
VIEW E-E



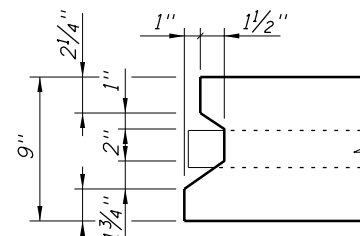
PLAN VIEW

VIEW F-F

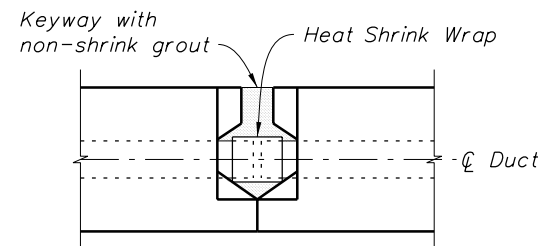
DUCT COUPLER BLOCK-OUT DETAILS



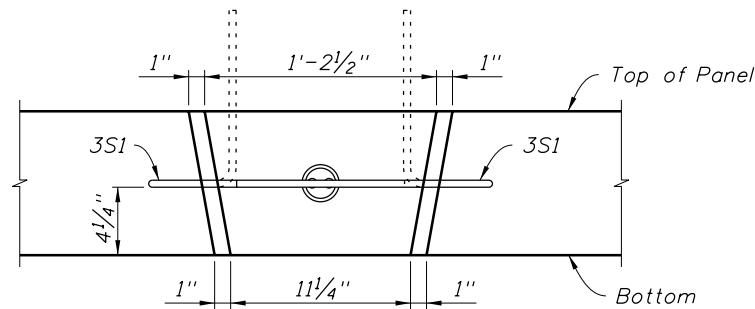
PLAN VIEW



KEYWAY DETAIL

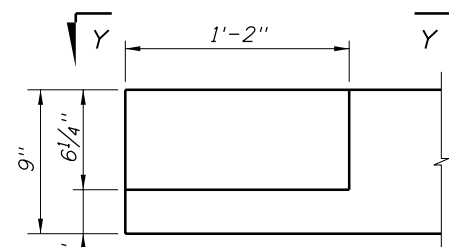


SECTION H-H

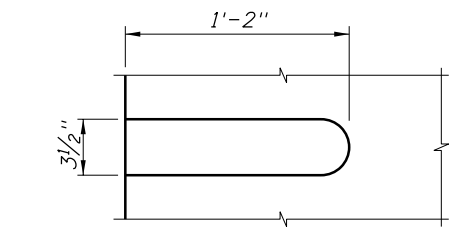


VIEW G-G

ANCHORAGE BLOCK-OUT DETAILS

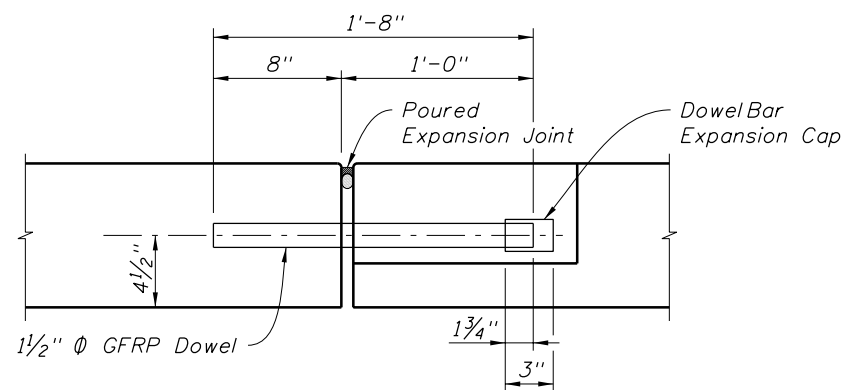


SECTION X-X

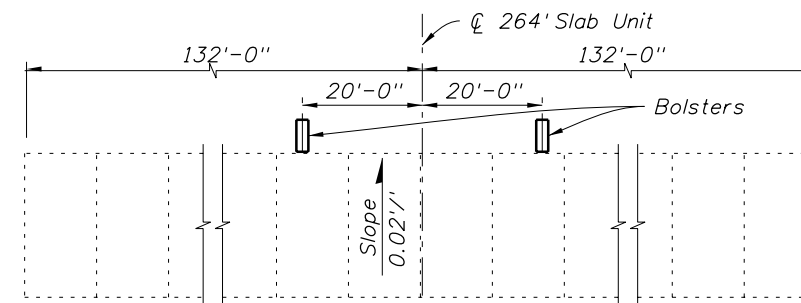


VIEW Y-Y

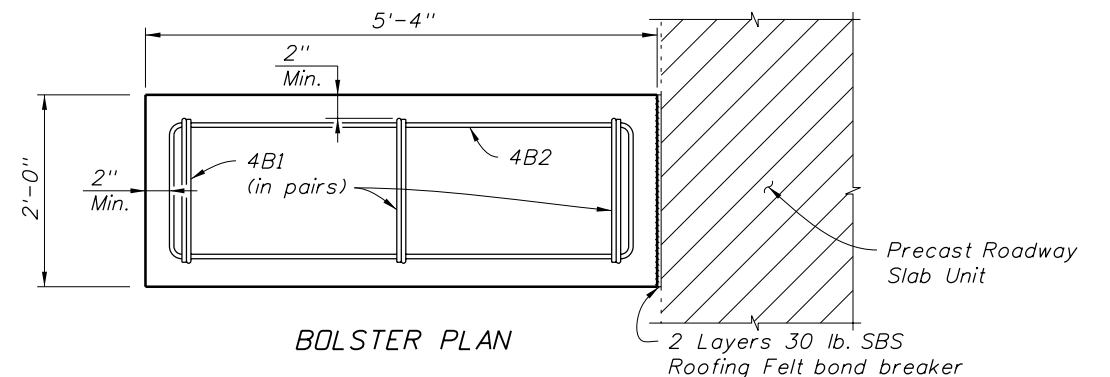
DOWEL POCKET DETAILS



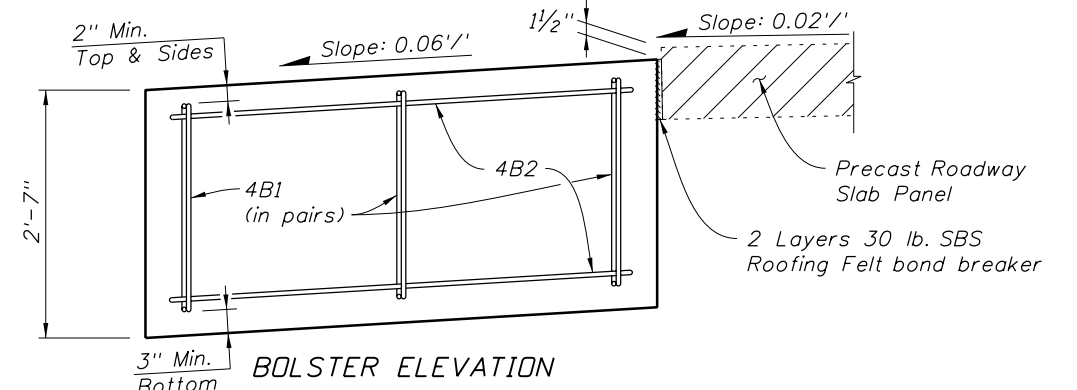
DOWEL EMBEDMENT DETAIL



SLAB BOLSTER LAYOUT PLAN



BOLSTER PLAN



BOLSTER ELEVATION

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STRUCTURES DESIGN OFFICE
CENTRAL OFFICE
 605 Suwannee Street, MS 33
 Tallahassee, Florida 32399-0450
 HUSSAM Z. FALLAHA, P.E.
 PE NO. 68674

DRAWN BY:
JMB 12-09
 CHECKED BY:
GEH 12-09
 DESIGNED BY:
GEH 12-09
 CHECKED BY:
HZF 12-09

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR 600	VOLUSIA	422024-2-52-01

SHEET TITLE:
PANEL DETAILS

PROJECT NAME:
SR 600 WESTBOUND

REF. DWG. NO.

SHEET NO.
18

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MARK	LENGTH	NO	TYP	STY	B	C	D	E	F	H	J	K	N	Ø										
SIZE	DES	FT	IN	BARS	BAR	A	G	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	NO	ANG
LOCATION INTERIOR PANEL												NO. REQUIRED = 60												
4	S2	13-11		4	11			11-3	1-4	1-4														
4	S4	23-7		4	1			23-7																
4	S5	11-4		17	1			11-4																
LOCATION END PANEL 1												NO. REQUIRED = 4												
3	S1	2-4		12	10			1-4	1-0															
4	S1	10-8		17	1			10-8																
4	S3	13-3		4	11			10-7	1-4	1-4														
4	S4	23-7		4	1			23-7																
LOCATION END PANEL 2												NO. REQUIRED = 2												
3	S1	2-4		12	10			1-4	1-0															
4	S1	10-8		17	1			10-8																
4	S3	13-3		4	11			10-7	1-4	1-4														
4	S4	23-7		4	1			23-7																
LOCATION BOLSTER												NO. REQUIRED = 6												
4	B1	5-2		6	11			2-2	1-6	1-6														
4	B2	13-3		2	4	4	4	4-10	1-5															

END OF LIST

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

STRUCTURES DESIGN OFFICE
CENTRAL OFFICE
 605 Suwannee Street, MS 33
 Tallahassee, Florida 32399-0450
 HUSSAM Z. FALLAHA, P.E.
 PE NO. 68674

DRAWN BY: JMB 01-10
 CHECKED BY: GEH 01-10
 DESIGNED BY: GEH 01-10
 CHECKED BY: SR 600

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO. VOLUSIA COUNTY FINANCIAL PROJECT ID
 SR 600 VOLUSIA 422024-2-52-01

SHEET TITLE: REINFORCING BAR LIST

PROJECT NAME: SR 600 WESTBOUND

REF. DWG. NO. SHEET NO. 19

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