Mail Station 32

ROADWAY DESIGN BULLETIN 06-05

DATE: June 27, 2006

TO: District Design Engineers, Plans Preparation Manual Holders

FROM: David C. O’Hagan, PE, State Roadway Design Engineer

COPIES: Robert Greer, Brian Blanchard, Tim Lattner, William Nickas, Duane Brautigam, Greg Davis, Elwin Broome, Chris Richter, FHWA

SUBJECT: Performance Turf

REQUIREMENTS

The following Plans Preparation Manual Exhibits are updated as shown in the attached to reflect the new specification and pay items for Performance Turf (Turf) and Performance Turf (Sod).

Volume II, Chapter 6, Exhibits TYP-1 thru TYP-16

Volume II, Chapter 7, Exhibit 7-1

Volume II, Chapter 28, Exhibit SWP-2

BACKGROUND

As stated in the BOE April 28, 2006 Cover Letter, a new specification for Performance Turf (Section 570) will be implemented beginning with the January 2007 letting. There will be two pay items under the new specification, 570-1-1 Performance Turf (Turf) and 570-1-2 Performance Turf (Sod). Separate payment for items such as seed, mulch, fertilizer, water, etc., are eliminated. The new specification also eliminates minimum requirements for these various items. Instead, the contractor must provide whatever quantities of seed, mulch, fertilizer, water, etc. that he deems necessary to meet the minimum performance requirements called for in the specification. When the plans call
for Performance Turf (Turf), the contractor will have the option to establish the turf by a variety of methods. These methods include seeding similar to past practice, hydroseeding, bonded fiber matrix, and sod. However, when the plans call for Performance Turf (Sod), the contractor will have no option and will be required to provide sod.

In general, designers should call for Performance Turf (Sod) in areas where historically sod was specified. This would include the area along pavement edges, areas around drainage structures and ditch pavement, and on slopes steeper than 1:3, etc. Sod areas should continue to be tabulated on the Summary of Quantities sheet in accordance with past practice.

Performance Turf (Turf) should be used in areas where historically seeding, or seeding and mulching was specified. Some Districts in recent years have been calling for sod almost exclusively, including areas where historical practice was to specify only seeding or seeding and mulching. Districts are advised to reevaluate this practice in light of the new specification and limit the requirement for sod to those areas where it is the only practical method for erosion control and/or establishing turf.

There will be no separate pay items for the different varieties of sod or turf, such as Saint Augustine or Centipede. When a specific variety is required, it must be identified in the plans. Likewise, the plans must include a note when it is intended that the contractor install grass type(s) to match adjoining private property.

Corresponding changes to Design Standards Index 104, Permanent Erosion Control, Index 105, Shoulder Sodding and Turf on Existing Facilities, and the Index 200 Drainage Series will be included in the January 1, 2007 Design Standards Modifications to be issued in early July 2006.

The new 570 specification and pay items will also be used for temporary sod and turf. The quantities of temporary sod and turf are to be identified in pay item notes in plans as described in PPM Volume II, Chapter 7, Exhibit 7-1 attached. Stormwater Pollution Prevention plans are to be updated to reflect the new terminology as well (see example shown on PPM Volume II, Chapter 28, Exhibit SWP-2 attached). Changes to Specification Section 104, Prevention, Control, and Abatement of Erosion and Water Pollution, to address temporary sod and turf will be included in the January 2007 Workbook.

The FDOT CADD Cell Library typical sections will be updated to include these changes in the FDOT 2004 Maintenance Release 3, scheduled for release August 2006. Until Maintenance Release 3 is issued, designers will need to manually change the typical section sheet cells to use the new terminology.
IMPLEMENTATION

Plans must be updated beginning with the January 2007 letting to reflect the new terminology for turf as shown in the updated PPM exhibits, and include the new pay items for Performance Turf.

CONTACT

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**TYPICAL SECTION**

**SR 10 (U.S. 90-A)**

STA. 10+00.00 TO STA. 267+34.89

**NEW CONSTRUCTION**

OPTIONAL BASE GROUP B WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC C) (2")
AND FRICITION COURSE FC-12.5 (1/4") (RUBBER)

SHOULDER PAVEMENT

OPTIONAL BASE GROUP I WITH
FRICITION COURSE FC-12.5 (1/4") (RUBBER)

**TRAFFIC DATA**

CURRENT YEAR = 916 AADT = 6800
ESTIMATED OPENING YEAR = 2000 AADT = 7600
ESTIMATED DESIGN YEAR = 2050 AADT = 10500
K = 65, D = 500, T = 2%, 12 HOURS
DESIGN HOUR f = 76
DESIGN SPEED = 45 MPH

TRAFFIC DATA IS REQUIRED TO BE NOTED FOR
CURRENT YEAR, OPENING YEAR AND DESIGN YEAR.
POSTED SPEED (MPH) IS OPTIONAL.

FOR STANDARD TYPICAL SECTION NOTES
REFERR TO EXHIBIT 6-A, THIS CHAPTER.

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**NOTE:**

HEIGHT OF FILL IS THE VERTICAL DISTANCE
FROM THE EDGE OF THE OUTSIDE TRAVEL LANE
TO TOE OF FRONT SLOPE.
TYPICAL SECTION
SR 00 (WILSON STREET)
STA. 98+40.00 TO STA. 202+33.00

NEW CONSTRUCTION
OPTIONAL BASE GROUP 9 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC B) (1/2")
AND FRICITION COURSE FC-12A (1/2") (RUBBER)

TRAFFIC DATA
CURRENT YEAR = 998 AADT = 55800
ESTIMATED OPENING YEAR = 2000 AADT = 20500
ESTIMATED DESIGN YEAR = 2080 AADT = 35000
K = 0.2, C = 552, T = 2X (24 HOUR)
DESIGN SPEED = 45 MPH

TRAFFIC DATA IS REQUIRED TO BE
NOTED FOR CURRENT YEAR, OPENING
YEAR AND DESIGN YEAR.
POSTED SPEED (MPH) IS OPTIONAL.

TURF SSD OR TURF SSD

FOR STANDARD TYPICAL SECTION NOTES
REFER TO EXHIBIT 6-1, THIS CHAPTER.

EXHIBIT TYP-5
Date: 5/11/06
TYPICAL SECTION
SR 00 (JACKSON STREET)
STA. 10+21.00 TO STA. 22+44.00

NEW CONSTRUCTION

CURRENT YEAR = 1998 AADT = 22800
ESTIMATED OPENING YEAR = 2000 AADT = 32800
ESTIMATED DESIGNS YEAR = 2020 AADT = 52600
K = 62 D = 55% T = 24 (24 HOUR)
DESIGN HOUR T = 12
DESIGN SPEED = 40 MPH

TRAFFIC DATA IS REQUIRED TO BE NOTED FOR CURRENT YEAR, OPENING YEAR AND DESIGN YEAR.

OPTIONAL BASE GROUP 9 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC C 12")
AND FRICTION COURSE FC-IE,5 (1/2") (RUBBER)

FOR STANDARD TYPICAL SECTION NOTES REFER TO EXHIBIT 6-4, THIS CHAPTER.

TYPICAL SECTION

EXHIBIT TYP-6
Date 5/11/06

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

TYPICAL SECTION

REVISED

REVISION DESCRIPTION

DATE

NO.

SHEET

TYPICAL SECTION
DESIGNATED BIKE LANE SHALL BE LABELED ON TYPICAL, UNDESIGNATED BIKE LANE SHOULD NOT BE LABELED ON TYPICAL.

EXISTING 2-LANE (2-WAY)
ARTERIAL/COLLECTOR MILLING AND RESURFACING NO CROSS SLOPE CORRECTION REQUIRED UNDERSIZED RURAL
(WITH DESIGNATED OR UNDESIGNATED BIKE LANE EXISTING)
WITH PROJECTED 20 YR.
AADT OF 1500 OR GREATER

TRAFFIC DATA
STA. 10+53.00 TO STA. 130+77.00
CURRENT YEAR = 1998 AADT = 9670
ESTIMATED OPENING YEAR = 2000 AADT = 1500
ESTIMATED DESIGN YEAR = 2020 AADT = 22000
K = 10%, D = 60%, T = 7% (24 HOURS)
DESIGN HOURS T = 3%
DESIGN SPEED = 55 MPH

STA. 206+82.28 TO 368+41.21
CURRENT YEAR = 1998 AADT = 6835
ESTIMATED OPENING YEAR = 2000 AADT = 8600
ESTIMATED DESIGN YEAR = 2020 AADT = 22000
K = 10%, D = 65%, T = 7% (24 HOURS)
DESIGN HOURS T = 3%
DESIGN SPEED = 55 MPH

TYPICAL SECTION
SR 00
STA. 10+53.00 TO STA. 130+77.00
STA. 206+82.28 TO STA. 368+41.21

MILLING
MILL EXISTING ASPHALT PAVEMENT (2' AVG. DEPTH)

RESURFACING
TYPE SP STRUCTURAL COURSE (TRAFFIC B) (2')
AND FRICTION COURSE FC-5.5 (1') (RUBBER)

SHOULDER PAVEMENT RESURFACING
FRICTION COURSE FC-5.5 (1') (RUBBER)

TRAFFIC DATA IS REQUIRED TO BE NOTED FOR CURRENT YEAR, OPENING YEAR AND DESIGN YEAR.
EXISTING
P-LANE 2-WAY
ARterial/Collector
WIdening
Milling and Resurfacing
Undivided
Rural
Const. 5'-Shoulder
Pavement of bike lane
with projects 20 YR.
AADT of 1500 or Greater
Design speed: Greater
than 50 MPH

DESIGNATED BIKE LAKES SHALL BE LABELED
ON TYPICAL, UNDESIGNATED BIKE LAKES
SHOULD NOT BE LABELED ON TYPICAL.

"" THE AREA DISTURBED BY CONSTRUCTION VARIES.

TRAFFIC DATA
STA. 20+25.00 TO STA. 48+16.56
CURRENT YEAR = 1998 AADT = 1800
ESTIMATED OPENING YEAR = 2020 AADT = 1900
ESTIMATED DESIGN YEAR = 2020 AADT = 2000
K = 0.2 G = 5.0 T = 50 (24 HOUR)
DESIGN SPEED = 55 MPH

STA. 57+82.78 TO STA. 93+41.21
CURRENT YEAR = 1998 AADT = 6035
ESTIMATED OPENING YEAR = 2020 AADT = 8000
ESTIMATED DESIGN YEAR = 2020 AADT = 9000
K = 0.2 G = 65% T = 75 (24 HOUR)
DESIGN SPEED = 55 MPH

TRAFFIC DATA IS REQUIRED TO BE NOTED FOR
CURRENT YEAR, OPENING YEAR AND DESIGN YEAR.

TYPICAL SECTION
SR 000
STA. 20+25.00 TO STA. 48+16.56
STA. 57+82.78 TO STA. 93+41.21
MILLING
MILL EXISTING ASPHALT PAVEMENT (2" AVG. DEPTH)
RESURFACING
TYPE SP STRUCTURAL COURSE (TRAFFIC CI 1½")
AND FRICITION COURSE FC-12.5 1½" (RUBBER)
WIDENING
OPTIONAL BASE GROUP I WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC CI 1½")
AND FRICITION COURSE FC-12.5 1½" (RUBBER)

NOTE
HEIGHT OF FILL IS THE VERTICAL DISTANCE
FROM THE EDGE OF THE OUTSIDE TRAVEL LANE
TO TOE OF FRONT SLOPE.

FOR STANDARD TYPICAL SECTION NOTES
REFER TO EXHIBIT 6-1, THIS CHAPTER.

* SEE SHEET 2 OF 2 FOR WIDENING
AND SHOULDER PAVEMENT DETAIL.

EXHIBIT TYP-B
Date 5/1/06
SHEET 1 OF 2

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

TYPICAL SECTION
DESIGNATED BIKE LANE SHALL BE LABELED ON TYPICAL. UNDESIGNATED BIKE LANE SHOULDN'T BE LABELED ON TYPICAL.

THE NEED FOR STABILIZATION IN THE SHOULDER AREA ON FRR PROJECTS IS SITE SPECIFIC AND NOT ALWAYS REQUIRED. THE USE OF STABILIZING IN NARROW TRENCH WIDENING STRIPS IS NOT RECOMMENDED GENERALLY. SEE THE FLEXIBLE PAVEMENT DESIGN MANUAL FOR FURTHER CRITERIA.

NOTE:
ACTUAL WIDTH OF BASE WIDENING MAY VARY DUE TO ACTUAL PAVEMENT WIDTH. CONTRACTOR MAY ELECT TO PLACE UNIFORM BASE WIDENING AT NO ADDITIONAL COST.

WIDENING & SHOULDER PAVEMENT DETAIL

WIDENING

OPTIONAL BASE GROUP II WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC C) (3"
FRICION COURSE FC-125 (1/2"
(RUBBER)

SHOULDER PAVEMENT

OPTIONAL BASE GROUP I WITH
FRICION COURSE FC-125 (1/2"
(RUBBER)

FOR STANDARD TYPICAL SECTION NOTES REFER TO EXHIBIT 6-1, THIS CHAPTER

EXHIBIT TYP-Ba
Date: 5/11/06
When cross slope correction is necessary, special milling and levelling details must be provided to supplement typical section notes. The need for and location of profile grade points will depend on site specific conditions.

**Example of cross slope correction by milling.**

For standard typical section notes refer to Exhibit 6-4, this chapter.

**Exhibit Typ-9A**

Date 5/11/06

STA. 204+34.58 TO STA. 288+95.66

**Resurfacing Detail**

**Milling Detail**

<table>
<thead>
<tr>
<th>DATE</th>
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<th>DESCRIPTION</th>
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<th>DESCRIPTION</th>
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**Typical Section Details**

State of Florida
Department of Transportation

<table>
<thead>
<tr>
<th>HIGHWAY</th>
<th>COUNTY</th>
<th>FINANCIAL PROJECT #</th>
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MILLING DETAIL

OVERBUILD AND RESURFACING DETAIL

STATION 36+53.67 TO 527+82.00

EXHIBIT TYP-99
Date 5/10/06

SHEET 3 OF 3
TYPICAL SECTION
RAMP "B"
STA. 415+67.28 TO STA. 421+23.68
(SINGLE LANE RAMP)

NEW CONSTRUCTION

OPTIONAL BASE GROUP 9 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (2½") (PG 76-22) AND
FRICITION COURSE FC-5 (3") (PG 76-22)

SHOULDER PAVEMENT

OPTIONAL BASE GROUP 1 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (3") (PG 76-22) AND
FRICITION COURSE FC-5 (3") (PG 76-22)

SHOULDER PAVEMENT & SHOULDER GUTTER DETAIL
FOR SINGLE LANE RAMP

EXHIBIT TYP-II
Date 5/11/06

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

RAMP TYPICAL SECTION
TYPICAL SECTION
RAMP "C"
STA. 623+28.64 TO STA. 629+13.78
(TWO LANE RAMP)

NEW CONSTRUCTION

OPTIONAL BASE GROUP 9 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (2") (PG 76-22) AND
FRICTION COURSE FC-5 (1/4") (PG 76-22)

LEFT SHOULDER PAVEMENT

OPTIONAL BASE GROUP 1 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (2") (PG 76-22) AND
FRICTION COURSE FC-5 (1/4") (PG 76-22)

RIGHT SHOULDER PAVEMENT

OPTIONAL BASE GROUP 1 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC B) (2") AND
FRICTION COURSE FC-5 (1/4") (PG 76-22)

SHOULDER PAVEMENT & SHOULDER GUTTER DETAIL
MAINLINE AND MULTILANE RAMPS

NOTES:
HEIGHT OF FILL IS THE VERTICAL DISTANCE FROM THE EDGE OF THE OUTSIDE TRAVEL LANE TO TOE OF FRONT SLOPE.

FOR STANDARD TYPICAL SECTION NOTES REFER TO EXHIBIT 6-4 THIS CHAPTER

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION
RAMP TYPICAL SECTION

EXHIBIT TYP-12
Date 5/1/06
DESIGNED BIKE LANE SHALL BE LABELED ON TYPICAL. UNDESIGNED BIKE LANES SHOULD NOT BE LABELED ON TYPICAL.

4-LANE ARTERIAL
NEW CONSTRUCTION DIVIDED
SUBURBAN WITH DESIGNATED OR
UNDESIGNATED BIKE LANE
DESIGN SPEED 55 MPH OR LESS

STANDARD CLEARING & GRUBBING

CONCRETE SIDEWALK
8' OR TO SUIT
PROPERTY OWNER
NOT FLATTER THAN 4%

LEVEL

DRAIN

NATURAL GROUND

SUBURBAN TYPICAL SECTION
SR 00 (CODY ROAD)
STA. 100+40.00 TO STA. 225+50.00

NEW CONSTRUCTION

OPTIONAL BASE GROUP 9 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC C) (9/16")
AND FRICTION COURSE FC-5 (1/8") (RUBBER)

SHOULDER PAVEMENT

OPTIONAL BASE GROUP 1 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC C) (9/16")
AND FRICTION COURSE FC-5 (1/8") (RUBBER)

TURF SLOPES 4% OR FLATTER
5% SLOPES STEEPER THAN 1%

TRAFFIC DATA IS REQUIRED TO BE
REMARKED FOR CURRENT YEAR, OPENING
YEAR AND DESIGN YEAR.

POSTED SPEED (MPH) IS OPTIONAL.

FOR STANDARD TYPICAL SECTION NOTES,
REFER TO EXHIBIT 6-4, THIS CHAPTER.

REVISED

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

SUBURBAN TYPICAL SECTION

DATE 5/11/06
Exhibit 7-1  Standard Notes for Summary of Quantities Sheet
Sheet 2 of 2

9.  538- 1-  This is to include replacement of _____ panels, _____ regular posts and _____ special posts which have been determined to be non-salvageable. Additional posts and panels determined to be non-salvageable during resetting shall be paid for under 538-5 of the Specifications.

10. Temporary Turf: When required by the project design, these items shall be included in the cost of the Performance Turf items. A pay item note should show the approximate quantities. For example:

   570- 1- 1 Includes approximately _____ SY Turf for temporary erosion control.
   570- 1- 2 Includes approximately _____ SY Sod for temporary erosion control.

11.  639- 2- 1 Payment shall be based on the linear feet of a single conductor.

12. The following pay item note should be shown in the Roadway Plans:

    710- The totals shown on the Summary of Roadway Pay Items are for painted pavement markings used for Maintenance of Traffic.
2.0 CONTROLS

2.0.1 Erosion And Sediment Controls

In the Section 104 Erosion Control Plan, the contractor shall describe the
proposed stabilization and structural practices based on the contractor’s
proposed Traffic Control Plan. The following recommended guidelines are
based on the Traffic Control Plan (TCP) outlined in the construction plans.
Where following the Traffic Control Plan (TCP) outlined in these construction
plans, the contractor may choose to accept the following guidelines or modify
them in the Section 104 Erosion Control Plan, subject to approval of the
Engineer. As work progresses, the contractor shall modify the plan to adapt
to seasonal variation, changes in construction activities, and the need for
better practices.

For each construction phase, install perimeter controls after clearing and
grubbing necessary for installation of controls before beginning other
work for the construction phase. Remove perimeter controls only after all
upstream areas are stabilized.

Phase I of Traffic Control Plans

Roadway, Station 50+00 to 52+50 Right
Immediately after constructing the temporary pavement, stabilize the entire
area between the temporary pavement and the right of way line using temporary
seed.

Outlet of Pond 1:

Construct the outlet pipe from S-100 towards the pond. The contractor shall
have enough seed available at all times during the pipe construction to
substantially plug runoff. In the trench from entering the pipe, construct
pipe to the pond and construct the outlet structure of the pond.

Pond 1 Construction

Clear and grub the pond site. Initially excavate the pond site enough to
construct B-51 10x10x0.5 as detailed in the TCP. Then excavate the pond
site to approximate proposed dimensions. Turf all disturbed areas of the pond
site above elevation S.D. Final grading will be done at the end of Phase two
of the TCP.

Roadway, Station 50+00 to 52+70 Left

Construct the storm sewer from the pond to the roadway and then in the
upstream direction along the left side of the project. During the subbase
excavation, and construction of the roadway underdrains, storm sewer, and
walls, use S-19 as the primary lift for conveyance to the subbase
underdrains. Install federal and State standards for construction of the
storm sewer and walls. Use S-19 as the primary lift for conveyance to the
pond. Stages construct the pond detail as depicted in the TCP.

Roadway, Station 50+00 to 50+40 Left

During the subbase excavation, and construction of the underdrains, storm
sewer, and walls, use S-10 as the primary lift for conveyance to the
underdrains. Stages the lift detail as depicted in the TCP.

Phase II of the Traffic Control Plans

Roadway, Station 50+40 to 52+50 Right

During the subbase excavation, and construction of the roadway underdrains,
and storm sewer, use S-12 as the primary lift for conveyance to Pond 4.
Stages construct and protect the lift in a manner similar to S-19. In Phase I
of the TCP.

Roadway, Station 50+40 to 50+40 Right

During the subbase excavation, and construction of the underdrains, storm
sewer, and walls, use S-10 as the primary lift for conveyance to the Laura
Lee pond. Stages construct and protect the lift in a manner similar to S-10.
In Phase I of the TCP.

Pond 1 Construction

After entire basin is permanently stabilized, construct underdrains in the
pond bottom.

2.0.2 Stabilization Practices

In the Section 104 Erosion Control Plan, the contractor shall describe the
stabilization practices proposed to control erosion. The contractor shall
initiate all stabilization measures as soon as practical, but in no case more
than 7 days, in portion of the site where construction activities are
expected to be temporarily or permanently ceased. The stabilization practices shall
be listed at the following, unless otherwise approved by the Engineer.

Temporary
- Silt fence in accordance with Design Standard 300 and Specification Section
in.
- Synthetic Silt fence in accordance with Design Standard 300 and Specification
Section IIA.
- Sandbags to control erosion and trap silt.
- Inlet protection in accordance with Design Standard 300 and special details
shown in the TCP.
- Sediment Basin. The permanent stormwater ponds will be temporarily modified according to the details in the TCP.
- Permeation
- Stormwater pond.
- Soil.

2.0.3 Stormwater Management

Several storm sewer systems will be constructed to convey runoff to three (3)
stormwater retention / detention ponds. The facilities have been permitted by the Florida Department of Environmental Protection (FDEP) and the City of
Kerrison and compatible with applicable design standards.

THE PARAGRAPH ABOVE REFERS TO A 1 DAY LIMIT BEFORE INITIATING STABILIZATION.
THE DEP通用 PERMIT SPECIFIES 7 DAYS, BUT STRIKER REQUIREMENTS FROM
OTHER PERMITTING AGENCIES WILL OFTEN APPLY AND SHOULD BE NOTED. FOR EXAMPLE,
ST. JOHN'S RIVER WATER MANAGEMENT DISTRICT HAS A 1 DAY LIMIT IN 105-4E F.A.C.

Temporary
- Artificial fillings in accordance with Specification Section IIA.
- Turf and sod in accordance with Specification Section IIA.

Permeation
- Asphalt or concrete surface.

Soil
- Sod in accordance with Specification Section IIA.

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EXHIBIT SWP-2
DATE: 5/11/06