

FINAL
LOCATION HYDRAULICS REPORT

STATE ROAD 52 PD&E STUDY
FROM I-75 (SR 93) to E. of EMMAUS CEMETERY ROAD

Pasco Work Order Number: C 3623.00
WPI Segment Number: 408827 1

Prepared for:



Pasco County Engineering Services Department

June 2005

In cooperation with the Florida Department of Transportation

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STATE ROAD 52 PD&E STUDY
FROM I-75 (SR 93) to E. of EMMAUS CEMETERY ROAD
IN PASCO COUNTY, FLORIDA**

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Prepared for:

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Prepared by:

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1.0 Project Description

This Location Hydraulic Report has been prepared as part of the Project Development and Environment (PD&E) Study for the proposed widening of State Road 52 (SR 52) from a two-lane rural section to a six-lane urban section. The project will consist of improving SR 52 beginning east of the I-75 interchange ramps, extending 1.9 miles eastward along SR 52 and tying back into the existing road to the east.

The Report has been prepared to determine if any floodplains will be significantly affected by the proposed improvements. It was determined that the proposed roadway improvement will require the modification of three existing cross drain culverts under SR 52. Three existing 36-inch RCP pipes (reinforced concrete pipes) at Station 103+00 need to be extended upstream of the crossing. The existing 24-inch pipe cross drain at Station 144+48.92 and Station 148+73.66 will be extended and/or replaced.

2.0 History of Flooding

The Florida Department of Transportation, Brooksville Maintenance Office for District 7, was contacted regarding historic maintenance or flooding problems associated with the cross drain and adjacent roadway. Two problems were identified with the current roadway. The first is a dip in the road in the area of the entrance to One Pasco Place. The second is a report of flooding at the Cross Bayou Branch (Station 162+60). The first problem at One Pasco Place will be addressed in the roadway design with a revised profile grade. It was concluded that the Cross Bayou Branch flooding was a result of downstream maintenance problems.

The overall tributary to Cross Bayou for this study includes drainage for 15.3 square miles (mi²). Of the 15.3 mi², 14.41 mi² of flows are directed under SR 52. A Pre-Application meeting was held with the South West Florida Water Management District (SWFWMD). It was determined that previous studies within the basin existed. The 100-year flood elevations were set for the basin as a result of other permits issued within the basin. The District further identified that changes within the basin could aggravate historic flooding in relation to Cypress Creek, which is the ultimate outfall for the basin.

3.0 Longitudinal or Transverse Encroachments

Two areas of floodplain encroachment have been identified as well as the requirement for compensation. The first area is associated with the FDOT cross drain at Station 103+00 and the second area is associated with an FDOT bridge crossing at Station 162+60 Cross Bayou. The bridge crossing consists of four 10-foot by 10-foot concrete box culverts and will be addressed in a separate Bridge Hydraulic Report to be submitted with the construction plans.

The effects of longitudinal encroachment will be addressed during the design phase.

There are no transverse encroachments associated with the proposed improvements.

4.0 Avoidance Alternatives

The proposed widening project follows the same general alignment of the existing roadway, and therefore all of the floodplain encroachments will be minimal.

5.0 Emergency Services and Evacuations

As previously indicated, the proposed improvements will address the historic locations of flooding. Widening the road from two to six lanes will provide for better emergency service and evacuations as the roadway level of service will be improved.

6.0 Base Flood Impacts

Flood compensation shall be addressed as part of the proposed project during the design phase. The design will meet all applicable agency standards and guidelines. No significant changes in base flood elevations or limits will occur.

7.0 Regulatory Floodway

The roadway intersects the tributary of the Cross Bayou and is bounded by an abandoned CSX right-of-way along the north, I-75 to the west, Tyndall Road to the south and a geographical ridge to the east towards Dade City. SR 52 provides an east west divide with drainage flows being from south to north making the area dependent upon existing cross drains.

8.0 Natural and Beneficial Floodplain Values

No natural and beneficial floodplain values will be significantly affected as the proposed improvement project follows the same general alignment of the existing roadway.

9.0 Floodplain Consistency and Development

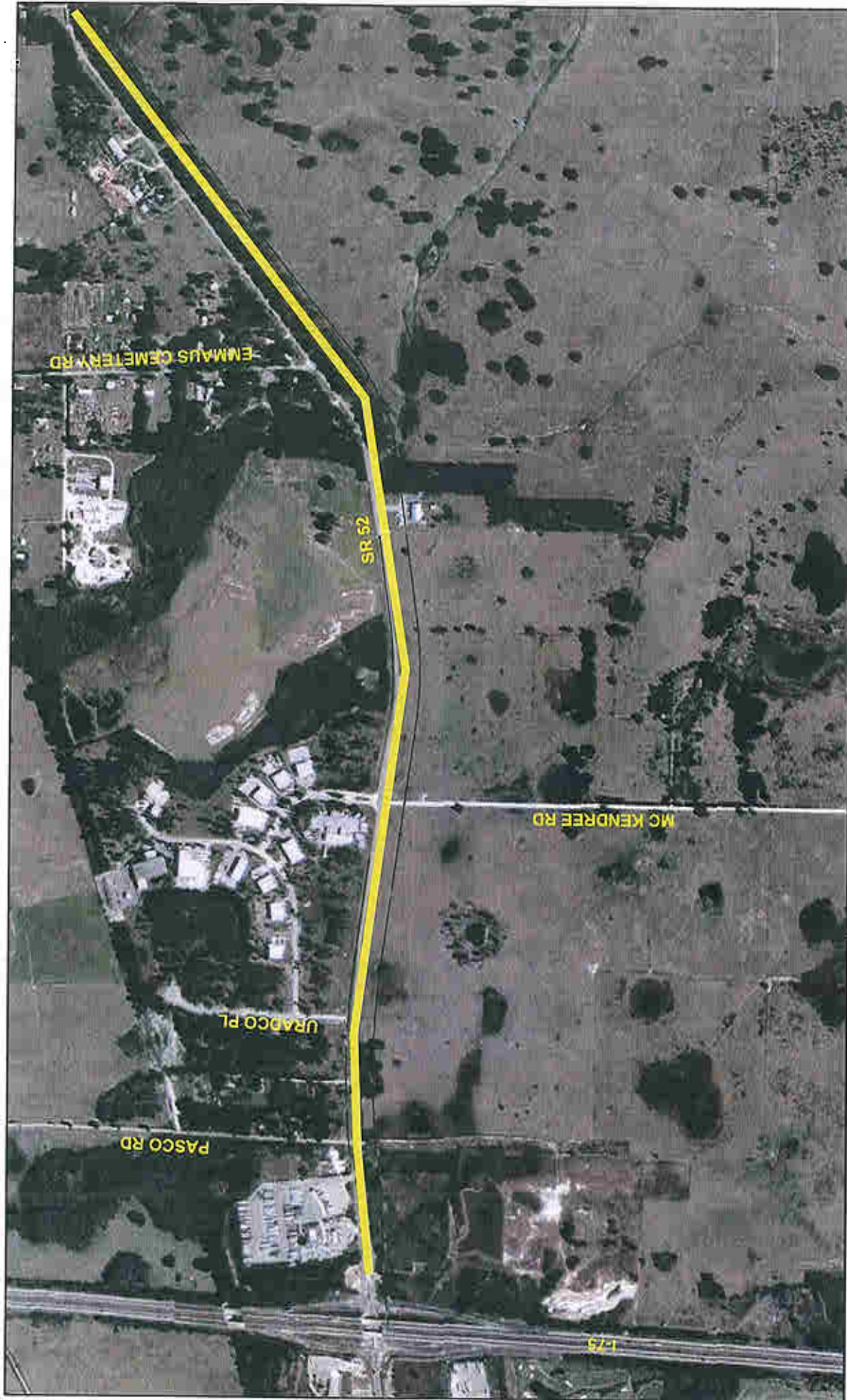
The proposed widening of SR 52 is consistent with the Pasco County Comprehensive Plan. The project will not encourage floodplain development, as all new development will be required to meet the FEMA floodplain, SWFWMD and ACOE regulations.

10.0 Floodplain/FIRM

The project corridor is located in Federal Emergency Management Agency (FEMA) Flood Zone "X" as indicated on FEMA FIRM # 1202300275D. It is located outside of special floodway hazard affecting other areas of Pasco County. The existing FEMA flood plain designation Zone X indicates 1 percent chance of 1-foot or less of flooding with no associated base flood determination. A map depicting the FEMA flood zones is attached.

11.0 Risk Assessment

Replacement drainage structures for this project are limited to hydraulically equivalent structures. The limitations to the hydraulic equivalency being proposed are basically due to restrictions imposed by the geometrics of design, existing development, cost feasibility, or practicability. The proposed drainage structures will be hydraulically equivalent to or greater than the existing structure, and backwater surface elevations are not expected to increase based upon preliminary investigations. As a result, the project will not affect existing flood heights or floodplain limits as floodplain compensation is proposed. This project as proposed will not result in any new or increased adverse environmental impacts. There will be no significant change in the potential for interruption or termination of emergency service or emergency evacuation routes.



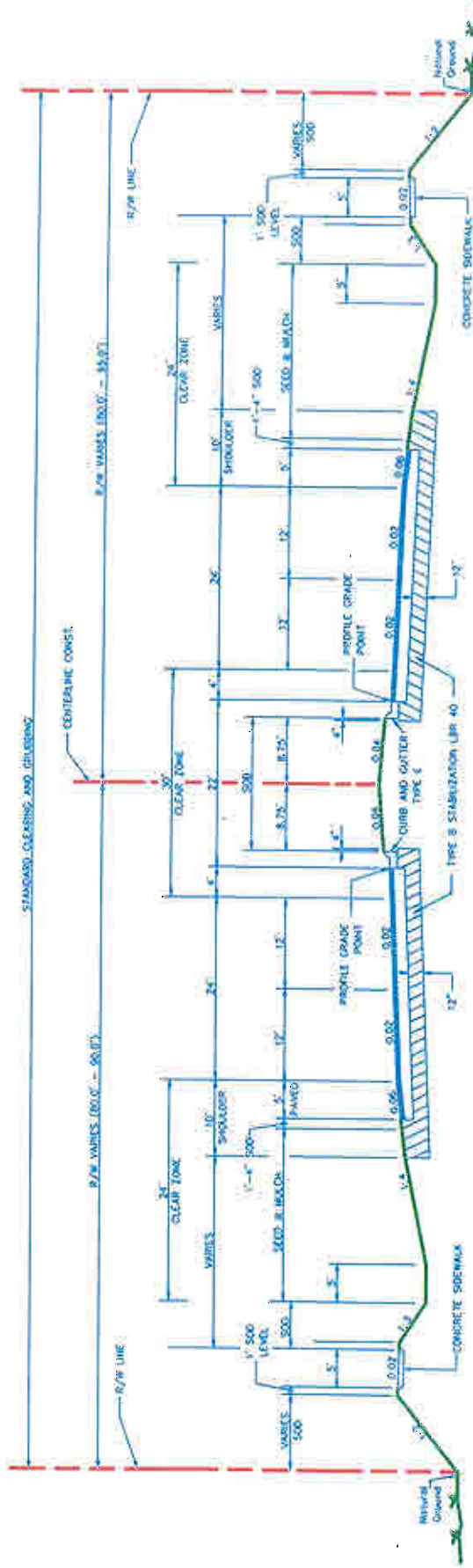
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NOT TO SCALE



FIGURE 1
PROJECT LOCATION MAP



TYPICAL SECTION

SR 52

DESIGN SPEED = 50 MPH

STA. 110+00.28 TO STA. 190+48.86

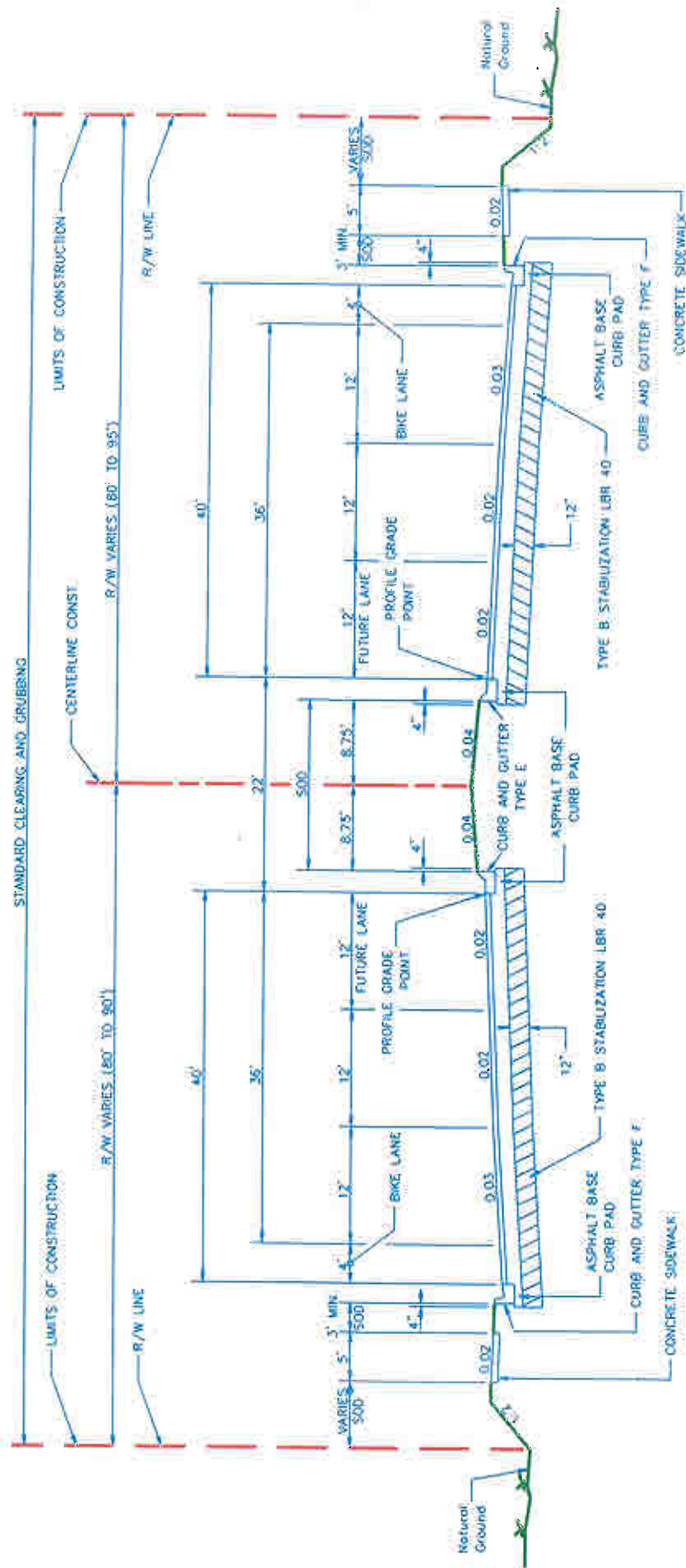
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INTERIM TYPICAL
SECTION
NTS



FIGURE 9-1
PROPOSED 4 LANE
TYPICAL CROSS SECTION



ULTIMATE TYPICAL SECTION
 SR 52
 DESIGN SPEED = 45 MPH
 STA 190+00.28 TO STA 190+48.86



FIGURE 9-2
 PROPOSED 6 LANE
 TYPICAL CROSS SECTION

ULTIMATE
 TYPICAL SECTION
 NTS

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x



A



FIGURE 9-2
FEMA - FLOOD ZONE
SOURCE: FIRM
PANEL NO.: 1202300275D



STATE ROAD 52 DRAINAGE BASIN MAP