

**Lee County Board Of County Commissioners
Agenda Item Summary**

Blue Sheet No. 20041545

1. REQUESTED MOTION:

ACTION REQUESTED: Request BOCC adopt Alignment #4 in the Alignment Analysis Report for Bonita Beach Road Widening from Old US 41 to Imperial Street, and authorize DOT to proceed with design of 6 lane section for this segment.

WHY ACTION IS NECESSARY: Florida case law dictates that alignment decisions should be made by the Board of County Commissioners after due consideration of the availability of alternative routes, costs, environmental factors, long-range area planning and safety considerations. These factors have been addressed and are documented in the report that is attached.

WHAT ACTION ACCOMPLISHES: Establishes roadway alignment with a record of factors considered in selection process. Also allows DOT to continue with the design process.

2. DEPARTMENTAL CATEGORY:
COMMISSION DISTRICT # 3

A9A

3. MEETING DATE:

12-07-2004

4. AGENDA:

- CONSENT
- ADMINISTRATIVE
- APPEALS
- PUBLIC
- WALK ON
- TIME REQUIRED:

5. REQUIREMENT/PURPOSE:
(Specify)

- STATUTE
- ORDINANCE
- ADMIN.
- CODE
- OTHER

6. REQUESTOR OF INFORMATION:

- A. COMMISSIONER _____
 - B. DEPARTMENT Transportation
 - C. DIVISION _____
- BY: Scott M. Gilbertson

BACKGROUND: The Bonita Beach Road Phase 2 Alignment Study (CIP #4044) evaluated the alignment of Bonita Beach Road from the newly widened portion near Lime Street to the east side of the Old 41 intersection. Attached is a copy of the alignment analysis and recommendations (the concept plans of the four alignments are available for review at the Department of Transportation).

Florida case law has provided that a condemning authority should give due consideration to certain relevant factors in determining a roadway alignment, including but not limited to: (1) the availability of alternative routes; (2) costs; (3) environmental factors; (4) long-range area planning; and (5) safety considerations. Four alignments were evaluated for the corridor utilizing as much of the existing typical section as feasible. Due to the extent of residential and commercial development and the desire to minimize impacts for the corridor, the degree of variation between the alternatives is subtle, yet distinct. The construction costs, drainage costs, environmental factors and safety considerations were comparable for each of the four alignments.

The recommended centerline alignment description and sketch are attached.

8. MANAGEMENT RECOMMENDATIONS:

9. RECOMMENDED APPROVAL:

A Department Director	B Purchasing or Contracts	C Human Resources	D Other	E County Attorney	F Budget Services				G County Manager
<i>Amelia... Date: 11-18</i>	NA	NA		<i>...</i>	OA <i>RK 11/19</i>	COM <i>...</i>	Risk <i>...</i>	GC <i>...</i>	<i>...</i> 11-18-04

10. COMMISSION ACTION:

- APPROVED
- DENIED
- DEFERRED
- OTHER

Rec. by CoAtty
Date: 11/18/04
Time: 2:24
Forwarded To:
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RECEIVED BY
COUNTY ADMIN:
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2:25 pm
COUNTY ADMIN
FORWARDED TO:
...



September 15, 2004
October 20, 2004 (Revised)
November 5, 2004 (Revised)

Ms. Nicole Maxey, P.E.
Lee County Department of Transportation
1500 Monroe Street
Fort Myers, Florida 33901

Re: Bonita Beach Road Phase 2
Alignment Analysis for R/W Impacts
PHA No. 20320.200

Dear Ms. Maxey:

Pitman Hartenstein and Associates, Inc. (PH&A) has performed alignment analyses for Bonita Beach Road from the east side of the Old U.S. 41 intersection to the newly widened portion near the Lime Street intersection. Currently this Bonita Beach Road corridor has become a widely used roadway for the motoring public. The Lee County Metropolitan Planning Organization (MPO) 2020 plan notes that the corridor from US41 to Imperial Street will be in need of a six lane typical section and is also financially feasible to do so. With the widening of this corridor from four to six lanes the safety will be enhanced by reducing the congestion and the roadway will be designed to the current safety standards and criteria.

We have analyzed four alternate routes for the corridor utilizing as much of the existing typical section as feasible. Due to the extent of residential and commercial development and the desire to minimize impacts for the corridor, the degree of variation between the alternatives is subtle, yet distinct. In the following paragraphs this memo will discuss the typical sections, the four alignment alternatives, R/W impacts and costs, drainage and provide an alignment recommendation.

TYPICAL SECTION

The typical section developed for the analysis utilized a 45 mph design speed and consists of matching the existing lane structure and widths at the Old U.S. 41 intersection as well as the newly widened section of Bonita Beach Road near Lime Street. The section was also developed to minimize the impacts to the adjacent property yet still provide a functional road system. For each alignment the typical section parameters remained relatively similar therefore only one section will be discussed in this memo. It is as follows:

- 11' Travel Lane Widths
- 4' Unmarked Bike Lanes (each direction)
- Type F Curb and Gutter for Outside Curbs and Type E or F for median curbing
- 6' Concrete Sidewalk located adjacent to the curb (each direction)
- Median Width Varies from a 3' Concrete Traffic Separator to approximately 18' Grassed Median
- 12' Right-of-Way Border Width from Edge of Pavement to R/W Per PPM 2004, Volume I, Table 2.5.

Note that the Right-of-Way width requirements vary as the width of the median is varied to minimize impacts along the four alignments. For clarification, a typical section plan sheet has been provided. See the attachments.

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ALIGNMENT OPTIONS

The scope of the project consists of widening the Bonita Beach Road from the existing four lane section to six lanes within the limits noted above. The following are the alternatives analyzed:

Alignment 1

- *Utilizing the existing lanes on Bonita Beach Road and widening to the North and South. The widening will occur to the outside of the existing lanes.*

Alignment 2

- *Utilizing the existing lanes on Bonita Beach Road and widening to the South. The widening will occur into the median for the westbound traffic and to the outside for the eastbound traffic.*

Alignment 3

- *Utilizing the existing lanes on Bonita Beach Road and widening to the North. The widening was the opposite of Alignment 2 with the exception from Old U.S. 41 to Racetrack Road where the widening resembles Alignment 2. This was done to facilitate the westbound lanes alignment with the existing pavement at Old U.S. 41.*

Alignment 4

- *This alignment starts by widening on the south side at Old U.S. 41 as did Alignments 2 & 3. The alignment then transitions to the north at Racetrack Road to not impact parcels 204 & 206. It then transitions back to the south to miss parcel 112 and then widens to the south.*

Even though four different alternatives were analyzed for the corridor, the alignments for the alternatives are similar at various locations to minimize impacts. See the attached plan sheets for each of the alignment options.

ALIGNMENT OPTIONS DISCUSSION

The alignment alternatives were analyzed for the impacts to the specific types of parcels adjacent to the existing right-of-way. The types of R/W impacts analyzed are areas such as commercial, residential and flood plain encroachments which have been summarized and shown in the attached table. All of the parcels along the corridor have been identified and specified a number starting at the west end and moving east. Parcels on the north side begin at parcel number 100 and the south parcels begin at parcel 200. The impacts for each individual parcel, per alignment, are shown in the table by acreage. This is a relative comparison between options to determine which option has the least amount of impacts based on the criteria being considered. Once the final plans are developed, the actual impacts will be determined. Environmental impacts (Wetlands, Other Surface Waters, Wildlife, etc.) were not considered to be critical factors in the analysis due to these environmental areas being similarly affected by each alignment option. These impacts are anticipated to occur only at the existing cross drains, outfall locations and Oak Creek for each option. Minimal, if any, wildlife impacts are expected.

After consultation with County Lands, there are six major parcels identified that would be preferred to remain un-impacted which are 100-102, 204, 206 and 112. Each of Alignments 1-3 remained relatively straight in geometry but impacted one, if not more, of these parcels. Alignment 4 has a curvilinear alignment but does not impact any of these major parcels. All of the curves in Alignment 4 meet the FDOT geometry criteria.

DRAINAGE

The project will maintain the existing drainage characteristics utilizing the open conveyances and piping networks, where possible. The drainage systems will need to be further analyzed during the design phase to determine the additional features necessary to ensure that the requirements of the SFWMD and LCDOT are met. Stormwater treatment and attenuation will be necessary for the additional impervious areas

associated with this Bonita Beach Road widening project. It is anticipated that the existing control structures and water management facilities will be utilized and modified as necessary. The existing drainage basins will remain and will not be altered. The existing roadway basin lines (west to east) are from Station 364+50 – 379+00, 379+00 – 385+00, 385+00 – 393+00, 393+00 – 397+00 and 397+00 – 406+00. These stations are depicted on the attached concept plans. Note that the basin stations are approximate and not exact. Preliminary pond sizing calculations were conducted based upon the additional impervious areas within these basin limits and will be discussed below. Note that a 15' maintenance berm and 50% contingency have also been added to the Pond acreage calculations for a conservative approach. See the attachments for the pond sizing calculations.

The future Lowe's parcels near the corner of Old U.S. 41 and Bonita Beach Road have accounted for the treatment and attenuation (per correspondence between Lowe's, PH&A and LCDOT) in their stormwater management facility for the respective roadway basin (364+50 – 379+00). Lowe's is also responsible for the permitting of this section. The pond acreage PH&A has calculated necessary for this basin if Lowe's does not treat the runoff is 0.72 ac.

Existing Outfall I, located at station 382+00, is located in an easement which runs perpendicular from the roadway to Oak Creek. This easement has a linear dry detention area and weir structure within it. This detention area appears to be able to be lengthened and widened per an initial site inspection. It is unknown at this time if this detention area will be capable of providing the required treatment for the additional impervious area associated with the project. The pond acreage PH&A has calculated necessary for this basin is 0.38 ac.

Existing Outfall J, located at station 392+00, is located in the roadway R/W in a linear detention area parallel to the roadway. It does not appear that this area will be able to treat additional roadway runoff. Therefore a pond site/additional R/W will be necessary for this basin. The pond acreage PH&A has calculated necessary for this basin is 0.42 ac.

Existing Outfall K, located at station 397+00 (Oak Creek) is located in the roadway R/W in a linear detention area. There is no storage or treatment in this basin west of Oak Creek. It is anticipated that the SFWMD will require a storage and treatment area for this basin, therefore additional R/W for a detention area will be necessary. The pond acreage PH&A has calculated necessary for east of Oak Creek is 0.27 ac. On the east side of Oak Creek, there is an existing linear detention area, parallel to the roadway that extends beyond the project limits. It does not appear that the area within the project limits will be able to treat additional roadway runoff. Therefore a pond site/additional R/W will be necessary for this basin. The pond acreage PH&A has calculated necessary for east of Oak Creek is 0.48 ac.

Preliminary Summary of Required Pond Sizes, per Basin

BASIN	POND SIZE REQ'D	ADDITIONAL R/W REQUIRED?
364+50 – 379+00 (Old U.S. 41 to Racetrack Road)	0.72 ac.	No additional R/W req'd
379+00 – 385+00	0.38 ac.	Additional R/W may be req'd (<0.38 ac)
385+00 – 393+00	0.42 ac.	Additional R/W req'd (0.42 ac)
393+00 – 397+00 (East of Oak Creek)	0.27 ac.	Additional R/W req'd (0.27 ac)
397+00 – 406+00 (West of Oak Creek to Project Limits)	0.48 ac.	Additional R/W req'd (0.48 ac)

RIGHT-OF-WAY COST COMPARISON

The summary of impacts table attached was provided to Lee County with the acreages of the affected parcels as mentioned above. Utilizing PH&A's data, County Lands provided the Lee County DOT and PH&A with a preliminary R/W cost estimate via email on August 10, 2004. The email is located in the attachments for your convenience. The following table displays the preliminary R/W costs for each alignment alternate the County Lands email.

Alignment 1	\$3,600,000.00
Alignment 2	\$2,600,000.00
Alignment 3	\$3,500,000.00
Alignment 4	\$2,500,000.00

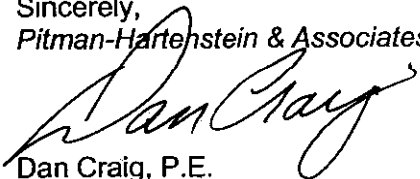
Note that these costs are for comparison purposes only and are made without the benefit of final plans or R/W maps. Also note that Alignment 4 does not impact Parcel 204 which County Lands expressed concern over. These figures do not include the drainage needs as this would be approximately the same for each alignment. This is also why construction costs were not used in the alignment comparison.

RECOMMENDATION

In conclusion to the analysis, PH&A recommends that Alignment 4 should be chosen and pursued for the widening of Bonita Beach Road from the east side of the Old U.S. 41 intersection to the newly widened portion near the Lime Street intersection. The drainage, environmental and contamination areas effect each of the alignments comparably. Note that the drainage information was provided at this time to advise of potential future R/W needs that will be refined in the design stage. Thus, the remaining criteria utilized for our recommendation was based on the severity of R/W impacts. Alignment 4 is the only alignment that does not impact any of the major parcels identified by County Lands as being significant, and most of the parcels that are affected are vacant (per email), therefore it is the optimal alignment of the four analyzed.

Please advise if you should require any additional information concerning this analysis. Also please advise when we can proceed developing the plans for the recommended alignment.

Sincerely,
Pitman-Hartenstein & Associates, Inc.



Dan Craig, P.E.
Project Manager

Enclosure

CENTERLINE PROPOSED BONITA BEACH ROAD
SECTIONS 1 & 2, TOWNSHIP 48 SOUTH, RANGE 25 EAST
LEE COUNTY, FLORIDA

LEGAL DESCRIPTION:

PROPOSED CENTERLINE OF BONITA BEACH ROAD LYING WITHIN IN SECTIONS 1 AND 2, TOWNSHIP 48 SOUTH, RANGE 25 EAST, LEE COUNTY, FLORIDA BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTH 1/4 CORNER OF SAID SECTION 2; THENCE S 68° 20' 13" W, A DISTANCE OF 146.77 FEET TO THE POINT OF BEGINNING; THENCE N 89° 33' 16" E, A DISTANCE OF 1,428.33 FEET TO A POINT OF CURVATURE; THENCE ALONG THE ARC OF SAID CURVE TO THE LEFT HAVING A RADIUS OF 4,000.00 FEET, A CENTRAL ANGLE OF 05° 46' 17", A CHORD BEARING OF N 86° 40' 08" E AND CHORD DISTANCE OF 402.74 FEET, AN ARC DISTANCE OF 402.91 FEET TO THE END OF SAID CURVE AND TO A POINT OF REVERSE CURVATURE; THENCE ALONG THE ARC OF SAID CURVE TO THE RIGHT HAVING A RADIUS OF 6,000.00 FEET, A CENTRAL ANGLE OF 05° 46' 17", A CHORD BEARING OF N 86° 40' 08" E AND CHORD DISTANCE OF 604.11 FEET, AN ARC DISTANCE OF 604.37 FEET TO THE END OF SAID CURVE; THENCE N 89° 33' 16" E, A DISTANCE OF 96.05 FEET TO A POINT OF CURVATURE; THENCE ALONG THE ARC OF SAID CURVE TO THE RIGHT HAVING A RADIUS OF 6,000.00 FEET, A CENTRAL ANGLE OF 03° 35' 54", A CHORD BEARING OF S 88° 38' 47" E AND CHORD DISTANCE OF 376.76 FEET, AN ARC DISTANCE OF 376.82 FEET TO THE END OF SAID CURVE AND TO A POINT OF REVERSE CURVATURE; THENCE ALONG THE ARC OF SAID CURVE TO THE LEFT HAVING A RADIUS OF 8,000.00 FEET, A CENTRAL ANGLE OF 03° 43' 22", A CHORD BEARING OF S 88° 42' 31" E AND CHORD DISTANCE OF 519.70 FEET, AN ARC DISTANCE OF 519.79 FEET TO THE END OF SAID CURVE; THENCE N 89° 25' 48" E, A DISTANCE OF 387.05 FEET; THENCE S 89° 37' 38" E, A DISTANCE OF 422.12 FEET TO THE POINT OF TERMINUS, SAID POINT LYING S 87° 35' 12" W, 1,192.25 FEET WEST OF THE NORTH 1/4 CORNER OF SAID SECTION 1.

NOTE:
BEARINGS ARE BASED UPON THE NORTH LINE OF SECTION 2 HAVING A BEARING OF N 89° 33' 16" E.

NOT VALID WITHOUT THE SIGNATURE AND THE ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER.

PREPARED BY:
AIM ENGINEERING & SURVEYING, INC.

[Signature] 11/9/04
DATE

BOB L. POTTER, P.S.M.
PROFESSIONAL SURVEYOR AND MAPPER
FLORIDA CERTIFICATE NO. 5688

AIM ENGINEERING & SURVEYING, INC.



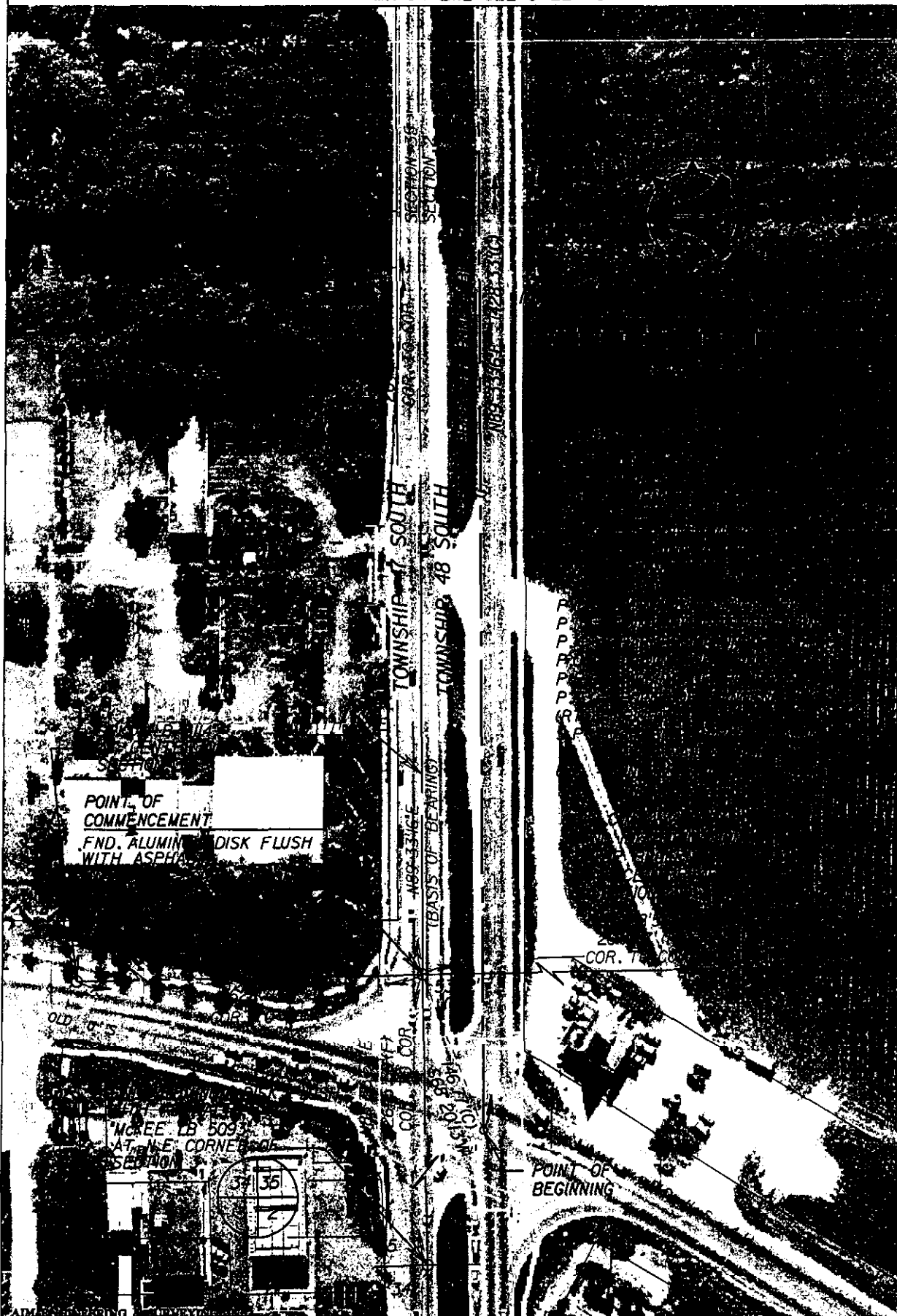
5300 LEE BLVD.
P.O. BOX 1235
LEHIGH ACRES
FLORIDA 33970
239/332-4569
FX:239/332-8734

THIS IS NOT A SURVEY SHEET 1 OF 5

PROJECT NUMBER: 04-8574	DESCRIPTION: SKETCH OF DESCRIPTION CENTERLINE PROPOSED BONITA BEACH ROAD
DRAWN BY: LWC	CLIENT: LEE COUNTY DEPARTMENT OF TRANSPORTATION
DATE:	SEC-TWP-RGE FILE: COUNTY:

CENTERLINE PROPOSED BONITA BEACH ROAD
SECTION 2, TOWNSHIP 48 SOUTH, RANGE 25 EAST
LEE COUNTY, FLORIDA

MATCH LINE SEE SHEET 3



POINT OF COMMENCEMENT
FND. ALUMINUM DISK FLUSH
WITH ASPHALT

McREE LB 5093
AT N.E. CORNER
SECTION 36

POINT OF BEGINNING



5300 LEE BLVD.
P.O. BOX 1235
LEHIGH ACRES
FLORIDA 33970
239/332-4569
FX:239/332-8734

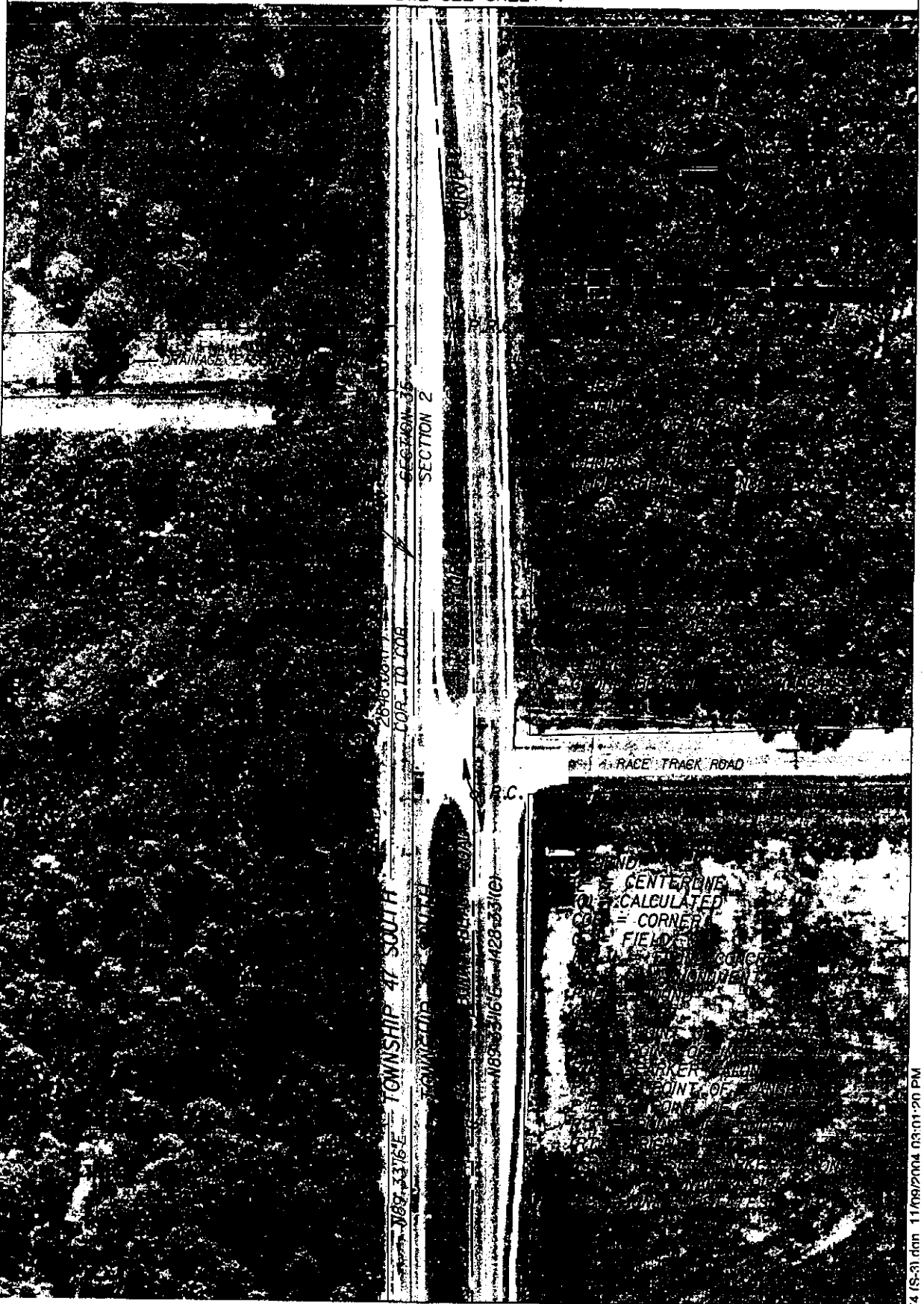
THIS IS NOT A SURVEY SHEET 2 OF 5

PROJECT NUMBER: 04-8574	DESCRIPTION: SKETCH OF DESCRIPTION CENTERLINE PROPOSED BONITA BEACH ROAD
DRAWN BY: LWC	CLIENT: LEE COUNTY DEPARTMENT OF TRANSPORTATION
DATE:	SFC-TWP-RGF

SFC 8 SKETCHES 7/10/01 14:00:00 00:00:00 00:00:00

CENTERLINE PROPOSED BONITA BEACH ROAD
SECTION 2, TOWNSHIP 48 SOUTH, RANGE 25 EAST
LEE COUNTY, FLORIDA

MATCH LINE SEE SHEET 4



MATCH LINE SEE SHEET 2

THIS IS NOT A SURVEY

SHEET 3 OF 5

AIM ENGINEERING & SURVEYING, INC.

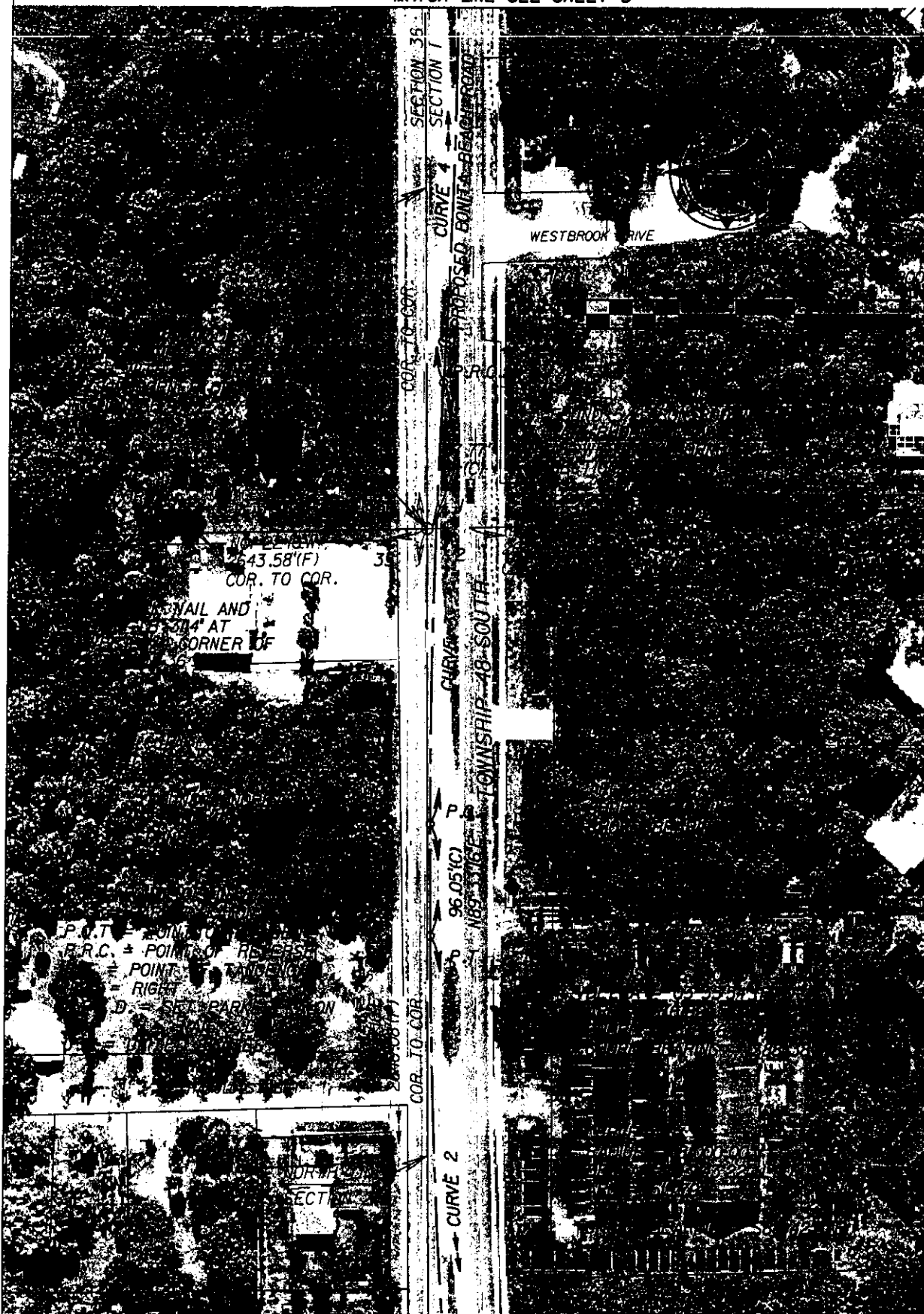


5300 LEE BLVD.
P.O. BOX 1235
LEHIGH ACRES
FLORIDA 33970
239/332-4569
FX239/332-8734

PROJECT NUMBER: 04-8574	DESCRIPTION: SKETCH OF DESCRIPTION CENTERLINE PROPOSED BONITA BEACH ROAD
DRAWN BY: LWC	CLIENT: LEE COUNTY DEPARTMENT OF TRANSPORTATION
DATE:	


CENTERLINE PROPOSED BONITA BEACH ROAD
 SECTIONS 1 & 2, TOWNSHIP 48 SOUTH, RANGE 25 EAST
 LEE COUNTY, FLORIDA

MATCH LINE SEE SHEET 5



MATCH LINE SEE SHEET 3

AIM ENGINEERING & SURVEYING, INC.
 5300 LEE BLVD.
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 FLORIDA 33970
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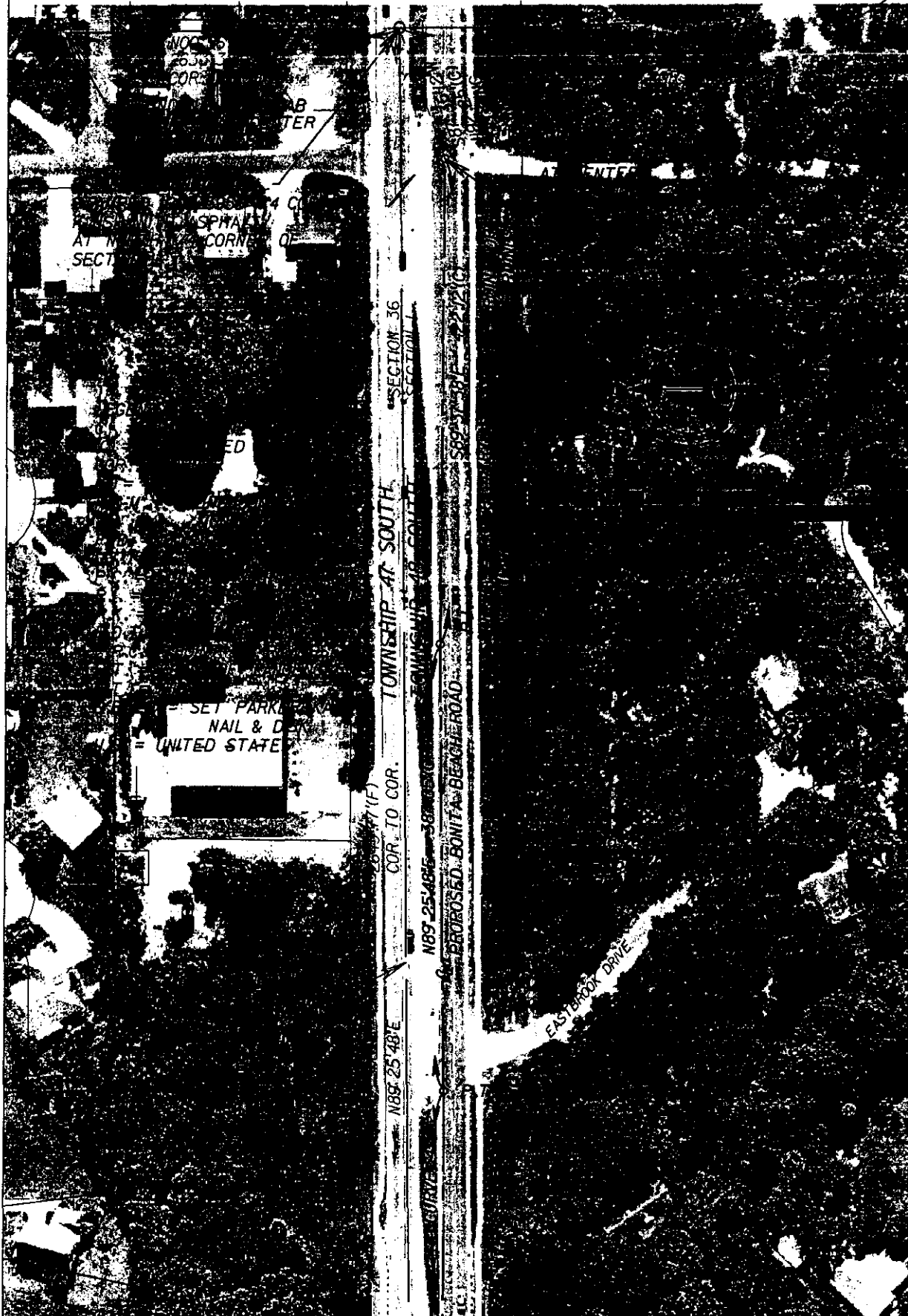


THIS IS NOT A SURVEY SHEET 4 OF 5

PROJECT NUMBER: 04-8574	DESCRIPTION: SKETCH OF DESCRIPTION CENTERLINE PROPOSED BONITA BEACH ROAD
DRAWN BY: LWC	CLIENT: LEE COUNTY DEPARTMENT OF TRANSPORTATION
DATE:	SEP-TWO-NINE

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CENTERLINE PROPOSED BONITA BEACH ROAD
SECTION 1, TOWNSHIP 48 SOUTH, RANGE 25 EAST
LEE COUNTY, FLORIDA



MATCH LINE SEE SHEET 4

AIM ENGINEERING & SURVEYING, INC.
5300 LEE BLVD.
P.O. BOX 1235
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THIS IS NOT A SURVEY SHEET 5 OF 5

PROJECT NUMBER: 04-8574	DESCRIPTION: SKETCH OF DESCRIPTION CENTERLINE PROPOSED BONITA BEACH ROAD
DRAWN BY: LWC	CLIENT: LEE COUNTY DEPARTMENT OF TRANSPORTATION
DATE:	SEP-2004

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