



Engineering and Design Services Hartwood Marsh Road – Phase 1

RSQ NUMBER 21-0921



**OM ENGINEERING
SERVICES, INC.**
Civil • Structural • Inspections

Agenda

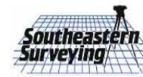
- Introductions
- OME Services Team
- Schedule
- Scope of Project – Understanding & Details
- Project Challenges
- Drainage Challenges
- Traffic & Signalization
- Signing & Pavement Markings
- Quality Control & Assurance
- Why the OME Team?

OME Services Team

Our team brings a track record of collaboration and outstanding performance.

Perhaps more importantly, our team's professionals bring a strong personal interest in assuring the success of this project as residents utilizing Hartwood Marsh Road.

We stand-ready, available, and eager to leverage our qualifications and unique project approach to assist Lake County in the successful design and implementation of this important public safety project.



- Project Management
- Roadway Design
- TTCP
- Drainage Design
- Structures

- Traffic Signalization
- Signing & Pavement Marking

- Geotechnical

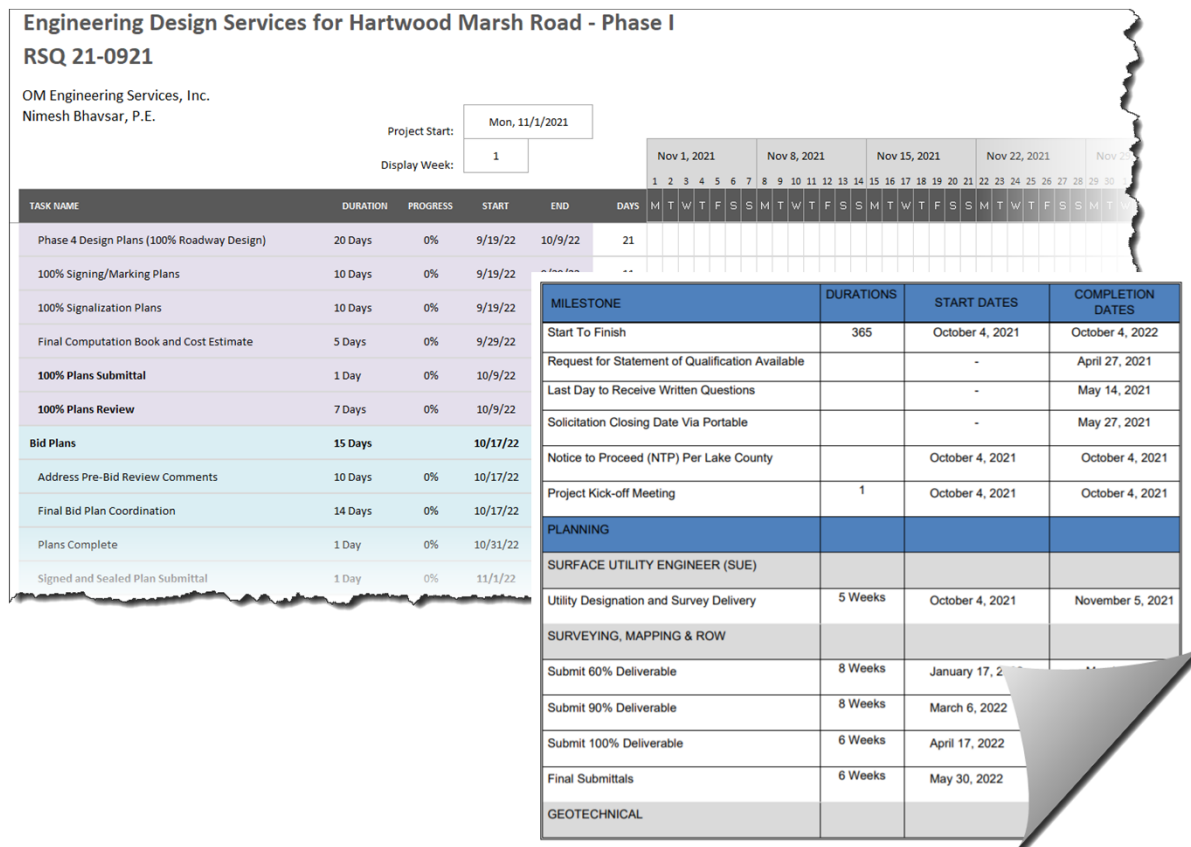
- Control Surveying
- Design & Right of Way Surveying
- Right of Way Mapping
- SUE

- Environmental Analysis
- Environmental Resource Permitting

- Public Involvement

Schedule

- Preliminary 1 year schedule following the Notice to Proceed (NTP)
- Project schedule will note:
 - All primary & vital minor tasks
 - Task duration & relationships
- Submittals at
 - 30%, 60%, 90%, 100% Final



Key Stakeholders

- Hunter's Run (significant new development since 2010)
- Hartwood Landing (Hartwood Residential)
- First Baptist Church of Clermont
- Regency Hill
- Hartwood Pines
- Kings Ridge
- Imagine Schools South Lake
- Clermont Fire Station #2
- Royal Oaks Plaza and Kingsridge Shopping Mall tenants

**Florida Discount
Self Storage**

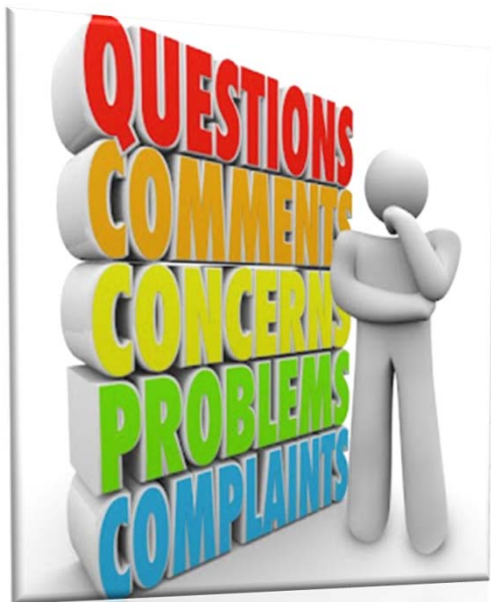
Central Florida's #1 Self Storage Choice!



First Baptist
Clermont
Connections for Life!


Publix

Community Concerns



Community Awareness of Roadway Widening



Right of Way Impacts



Noise Wall Study
Community Impact



Business Access
Changes

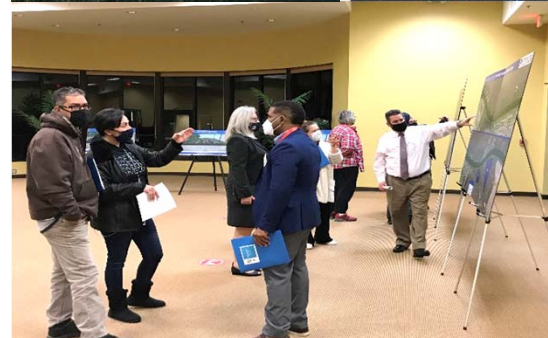
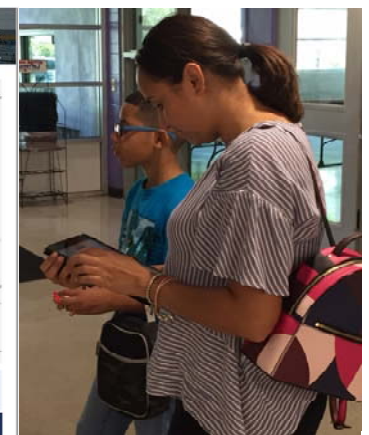


TTCP

Public Involvement Approach

Early and continuous engagement with key agency stakeholders

- Project flyers & newsletters
- Door-to-door engagement of affected businesses
- Hybrid public meeting
 - In-person and Web/Video Conferencing
- Promote online opportunities for participation
- Consider use of Social Media outreach (as appropriate)



Utility Agencies & Owners (UAO's)-

- Utilities Coordination - utilizing the 811 System inquiry for utility permits withing project limits:
- Twelve (12) UAO contacts
- Findings verified by:
 - Conducting field reviews
 - Phone and written contacts
 - Records searches
- Currently known UAOs potentially involved are as follows



Utility Agency	Utility Type
Bright House Networks dba Charter/Spectrum	CATV, Fiber, Telephone
CenturyLink	Fiber, Telephone
CenturyLink fka L3	Fiber
City of Clermont	Fiber
City of Clermont	Water, Sewer
Lake Apopka Natural Gas	Natural Gas
Opticaltel	CATV
Summit Broadband	Fiber, Telephone
Sumter Electric Cooperative	Electric
Utilities Inc. of Florida	Water
Verizon	Communication Lines, Fiber
ZayoGroup fka Lightwave	Fiber

Utility Coordination –Notable Issues

Where existing utilities are attached to overhead electric (OE) power poles, the UAOs must coordinate their adjustments with the power pole adjustments.

If there are contamination sites along the project, they will be identified and shared with the UAOs to avoid adversely impacting their utility relocations.

OSHA rule - 29 CFR Part 1926 for cranes and derricks must be followed where OE safety zone encroachment is a consideration.

Traffic control infrastructure must be accommodated along with the existing utilities.

Within the project limits, there are numerous buried cable and fiber optic networks that must be accommodated along with numerous other types of utility infrastructure.

Scope of Services

- Review of Scope of Services
- Potential resolutions to project challenges

The overall road project limits extend from SR 25 (US 27) east to Regency Hills Drive (Majestic Isle Drive on the plans) for approximately one mile. The typical section will not change between the original and the updated plan set. The typical section of Hartwood Marsh Road will consist of 100-foot width right of way, a four-lane urban typical section with 12-foot lanes, four-foot bike lanes, full and directional median openings and dedicated left and right turn lanes in various locations of the project. The design will also include four-foot sidewalks on both sides. Traffic signals and signing and pavement markings will be required. All proposed sidewalks, shared-used path and curb ramps will need to comply with ADA requirements. Drainage and SJRWMD permit update may be necessary. Surveying including topographic, above and below ground utilities and right of way will be required in select areas. Permitting, utility coordination and coordination with property owners may be required. The consultant shall anticipate updating roadway, drainage, survey, utilities, signals, signing and pavement markings, erosion control, right of way and applicable St. John's Water Management District permits.

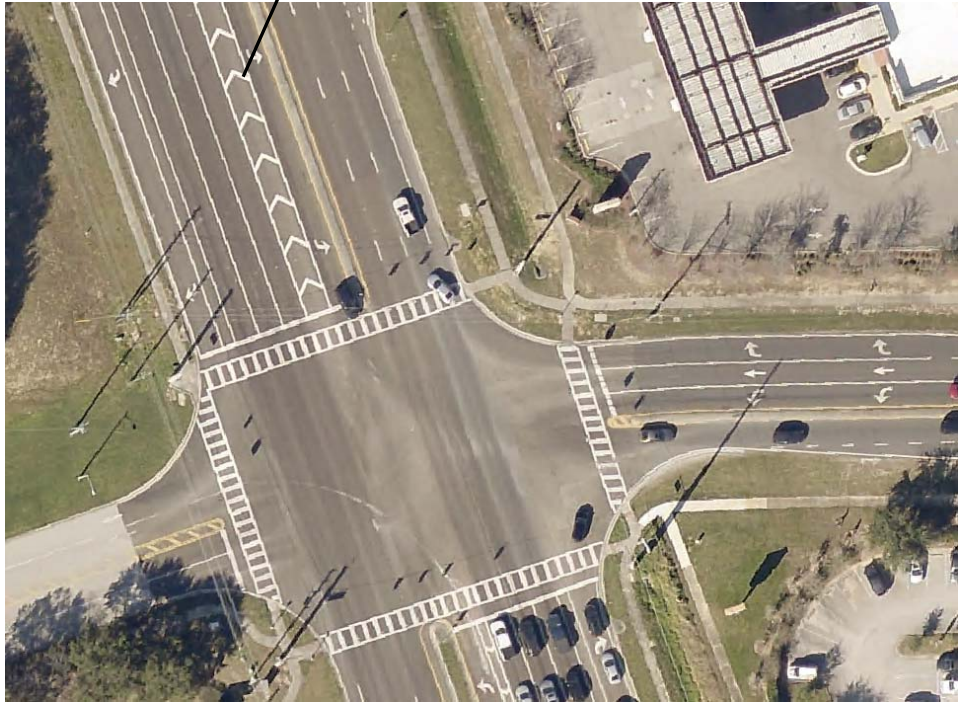
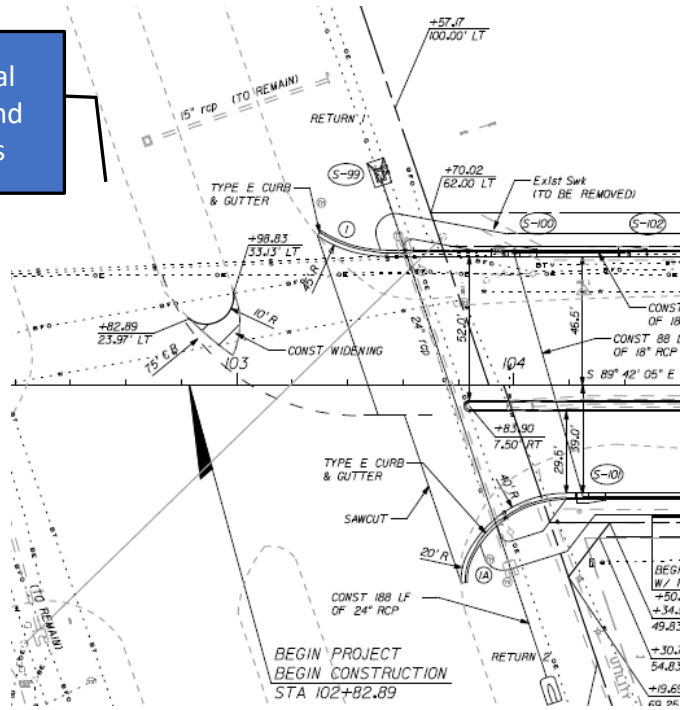
Summary of plans updates:

- Update for 6-lane SR 25 (US27)
- Reduce westbound Hartwood Marsh Road at SR 25 from dual right turns, to a single right turn.
- Add an island at existing Publix entrance to create right-in/right-out condition.
- Update limits of gravity wall near Danbury Mill Blvd.
- Update limits of 10' wall along Sutherland at Kings Ridge.
- Update limits of easement and right of way at Hartwood Residential.
- Create median opening for westbound left turn into Hartwood Residential.
- Update survey at South Hancock Road for current conditions.
- Update signals at Hartwood Marsh Road and South Hancock Road.
- Update for First Baptist Church of Clermont Driveway.
- Increase eastbound left turn length for South Lake Charter Elementary.
- Update for crosswalk at South Lake Charter Elementary.
- Update for turn lanes for Hunters Run.

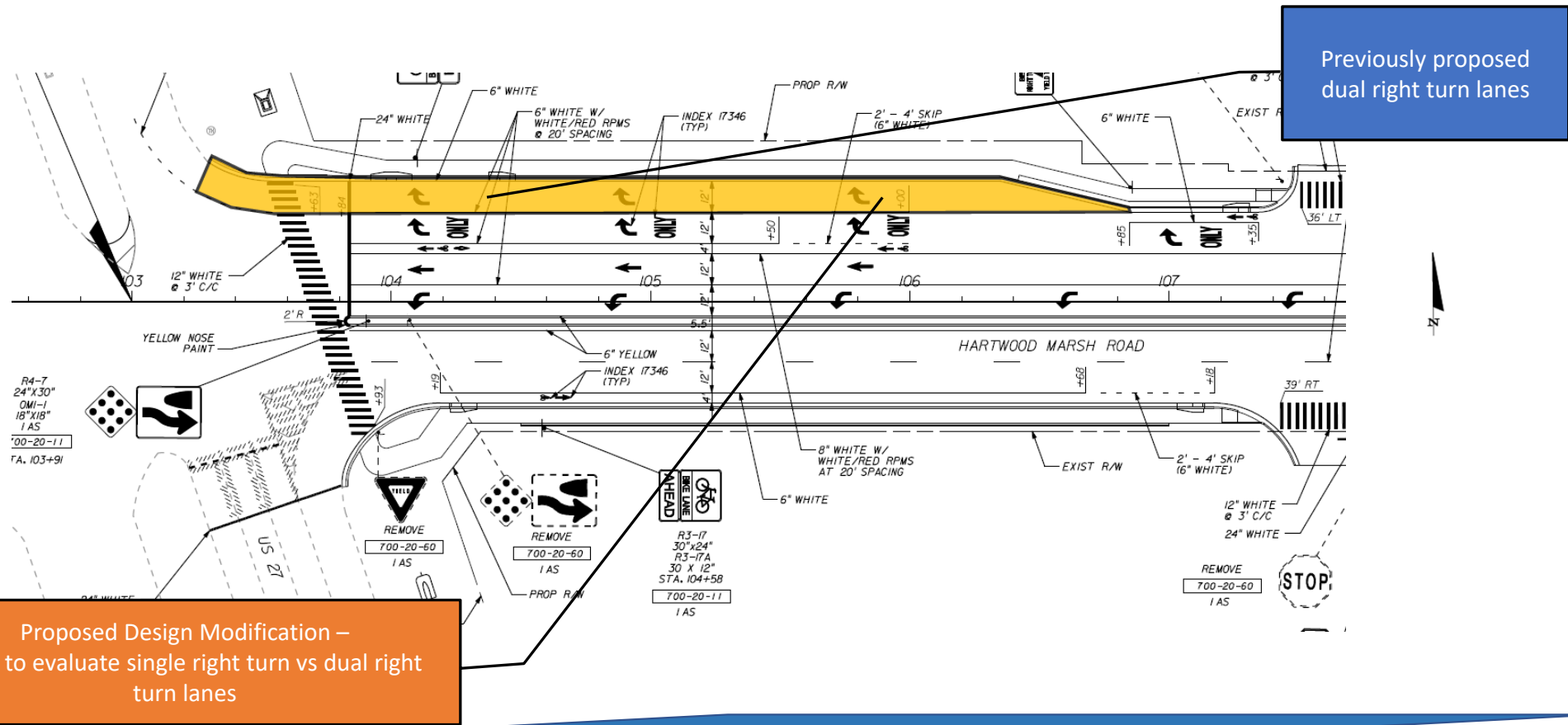
Update for 6-lane SR 25 (US27) Intersection US-27 and Hartwood Marsh

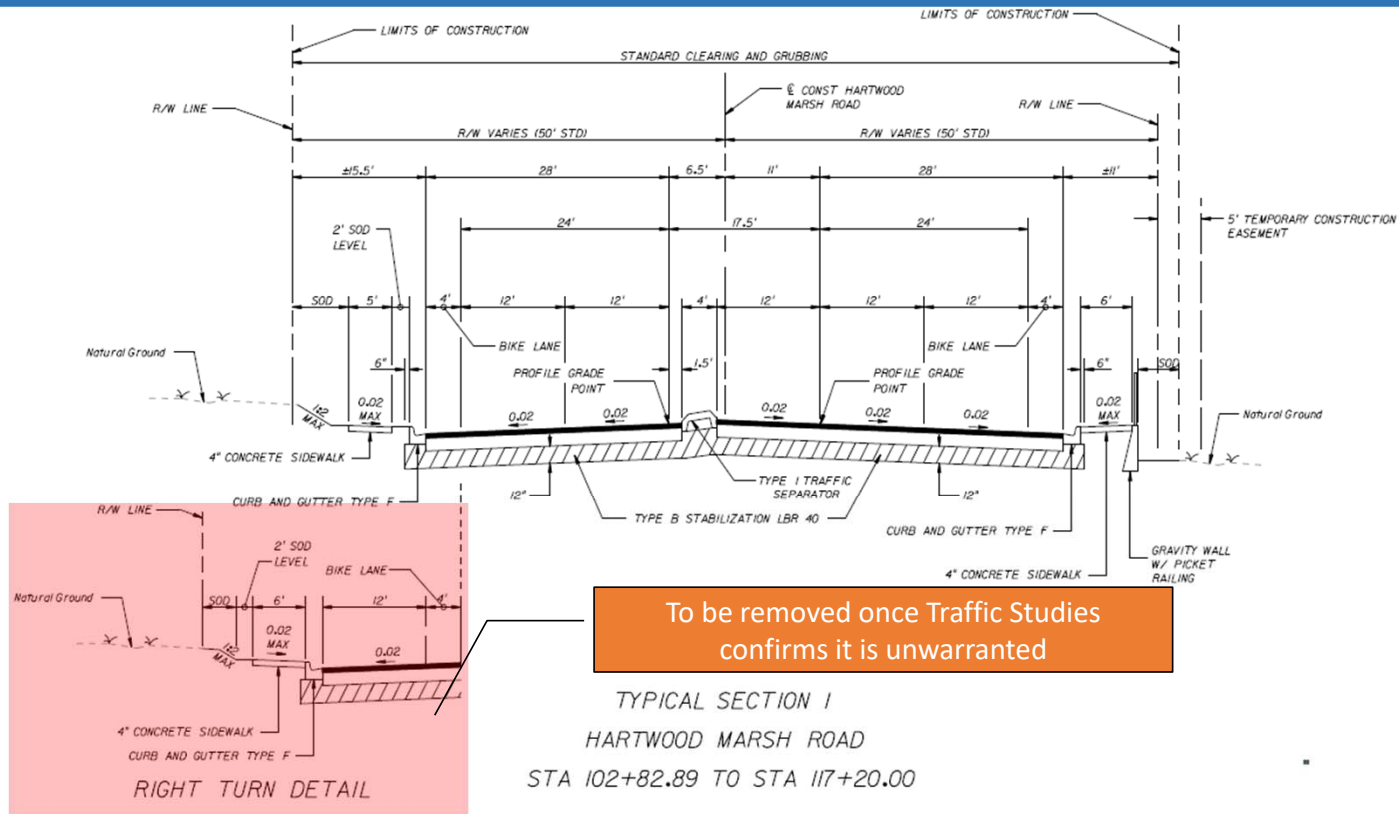
Proposed Design Modification –
Striping will be modified to a left turn lane

Include dual
South Bound
turn lanes



Hartwood Marsh West Bound



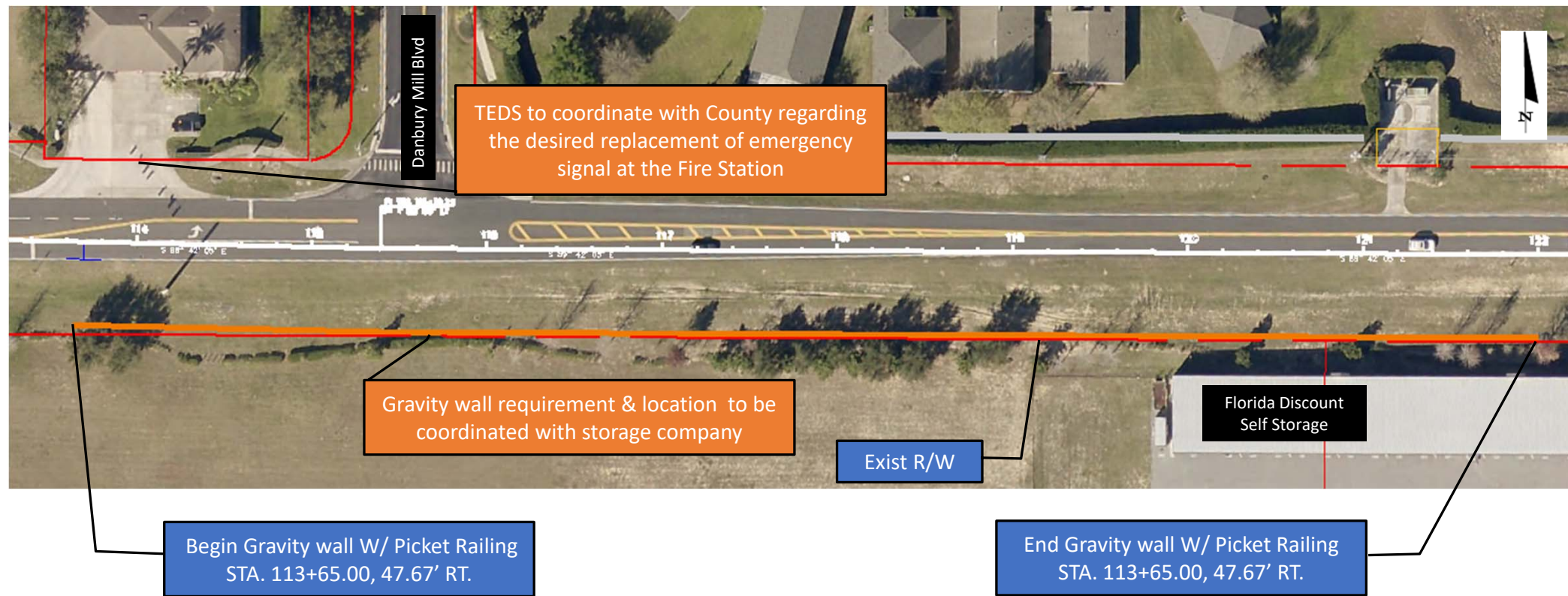


TRAFFIC DATA

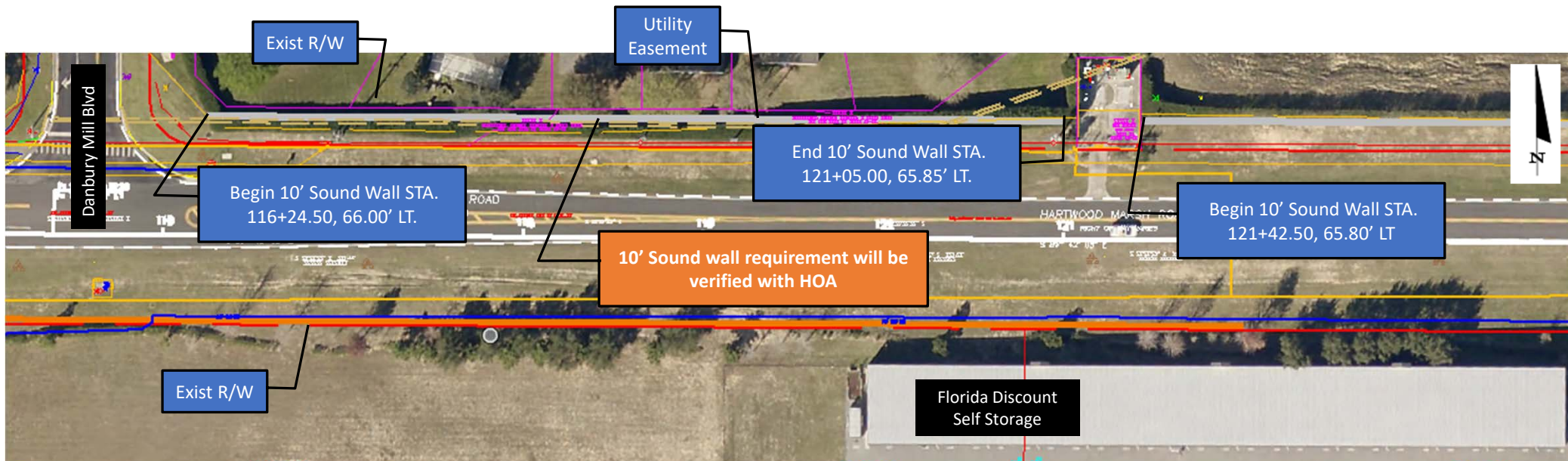
CURRENT YEAR = 2007 AADT = 11,400
 ESTIMATED OPENING YEAR = 2009 AADT = 18,900
 ESTIMATED DESIGN YEAR = 2029 AADT = 45,500
 K = 11.4% D = 77.3% T = 15.6% (24 HOUR)
 DESIGN HOUR T = 7.8X
 DESIGN SPEED = 45 MPH
 POSTED SPEED = 40 MPH

RECONSTRUCTION & US 27 WIDENING
 OPTIONAL BASE GROUP 10 WITH
 TYPE SP STRUCTURAL COURSE (TRAFFIC D)(1 1/2")
 TYPE SP STRUCTURAL COURSE (TRAFFIC D)(1 1/2")(PG 76-22)
 AND FRICTION COURSE FC-12.5 (1 1/2")(TRAFFIC D)(PG 76-22)

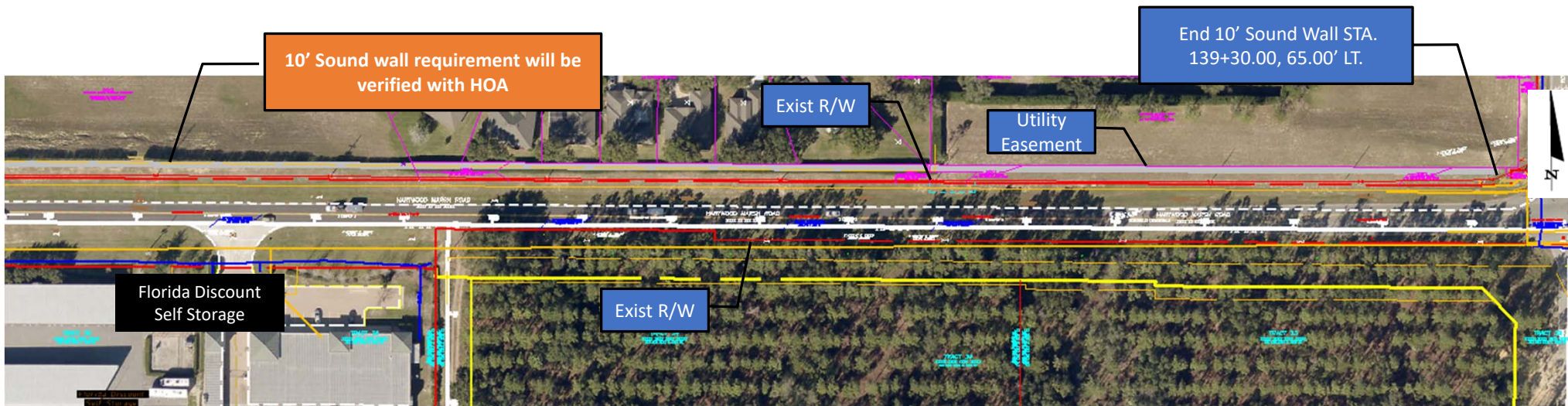
Gravity Wall Near Danbury Mill Blvd Updates

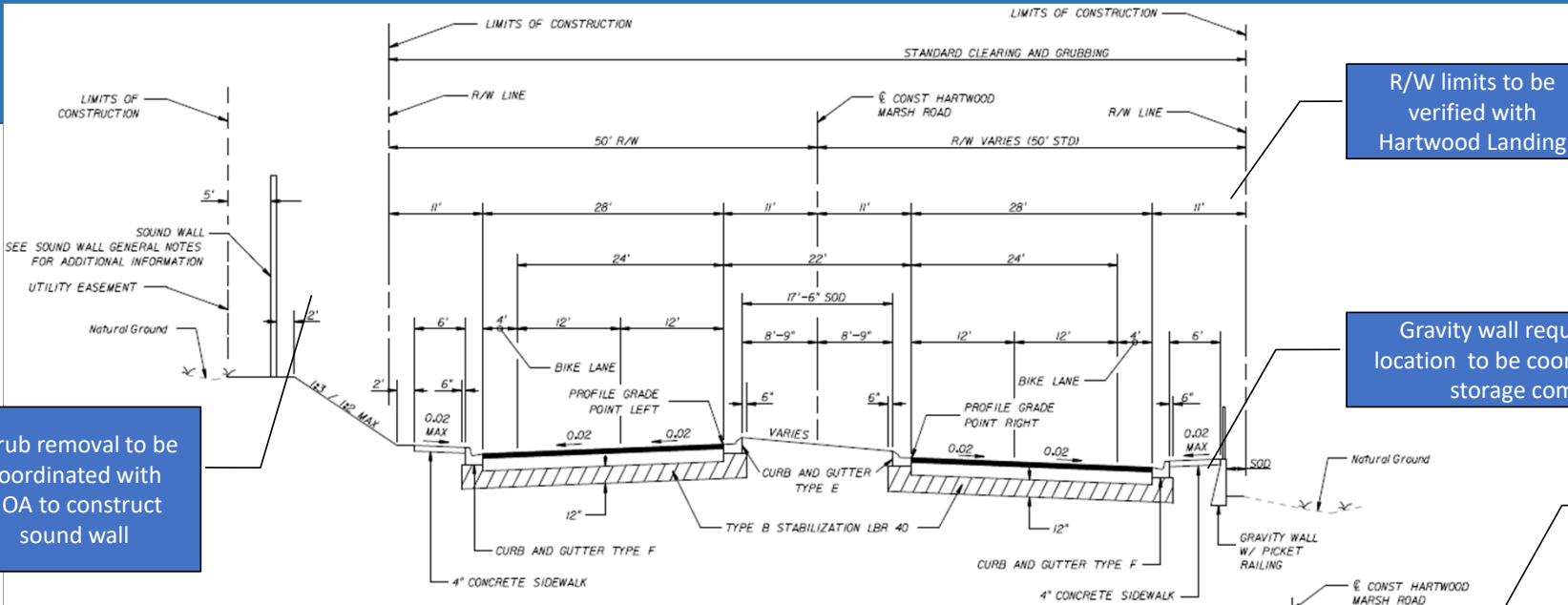


10' Sound Wall along Kings Ridge, Beginning Limit



10' Sound Wall along Kings Ridge, Ending Limit





R/W limits to be verified with Hartwood Landing

Gravity wall requirement & location to be coordinated with storage company

Left turn lane to be added for Hartwood Landing Residential

Shrub removal to be coordinated with HOA to construct sound wall

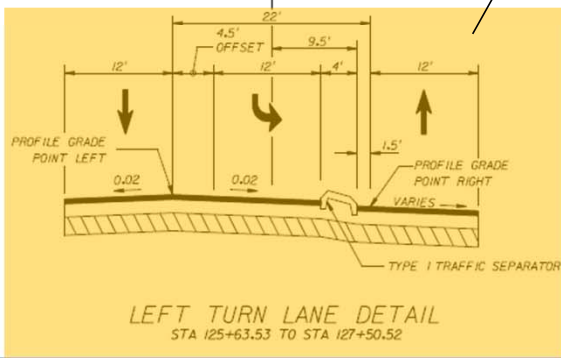
TYPICAL SECTION 2
HARTWOOD MARSH ROAD
STA 117+20.00 TO STA 132+42.50

TRAFFIC DATA

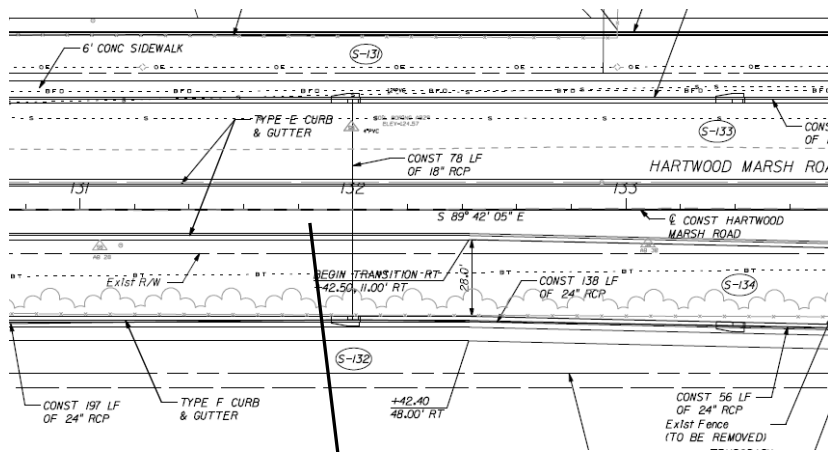
CURRENT YEAR	= 2007 AADT = 11,400	
ESTIMATED OPENING YEAR	= 2009 AADT = 18,900	
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K = 11%	D = 77.3%	T = 15.6% (24 HOUR)
DESIGN HOUR T	= 7.8%	
DESIGN SPEED	= 45 MPH	
POSTED SPEED	= 40 MPH	

RECONSTRUCTION

OPTIONAL BASE GROUP 10 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC D)(1 1/2")
TYPE SP STRUCTURAL COURSE (TRAFFIC D)(1 1/2") (PG 76-22)
AND FRICTION COURSE FC-12.5 (1 1/2") (TRAFFIC D) (PG 76-22)



Left Turn Lane For Hartwood Landing



Add Left Turn Lane For Hartwood Landing at STA. 132+00.00



Proposed Design Modification – Left Turn Lane For Hartwood Landing (TEDS to coordinate with County for turn lane queue length)

Hartwood Landing

Proposed Design Modification – TEDS to evaluate the need for and length of EB right turn lane into Hartwood Landing

Hartwood Marsh Rd & South Hancock Rd Intersection

Update Signals at Intersection

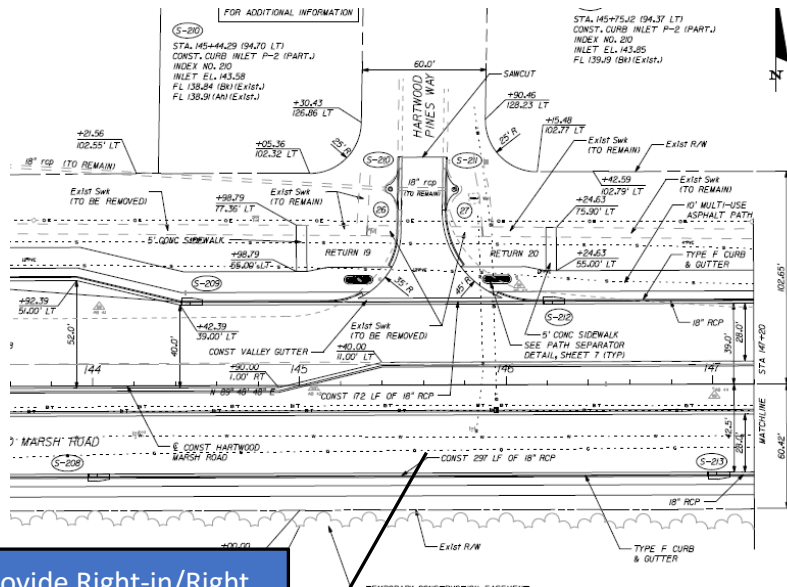
Update Survey for Existing Condition of Turn Lanes

Proposed Design Modification – TEDS to update signals at intersection

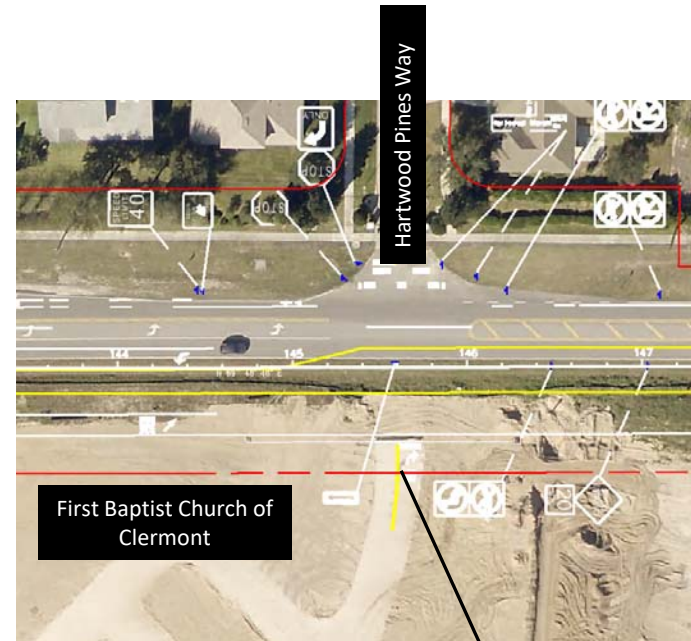
Proposed Design Modification – Southeastern Surveying to update survey for existing condition of turn lanes



New Right-in/Right-Out For First Baptist Church



Provide Right-in/Right out for First Baptist Church of Clermont

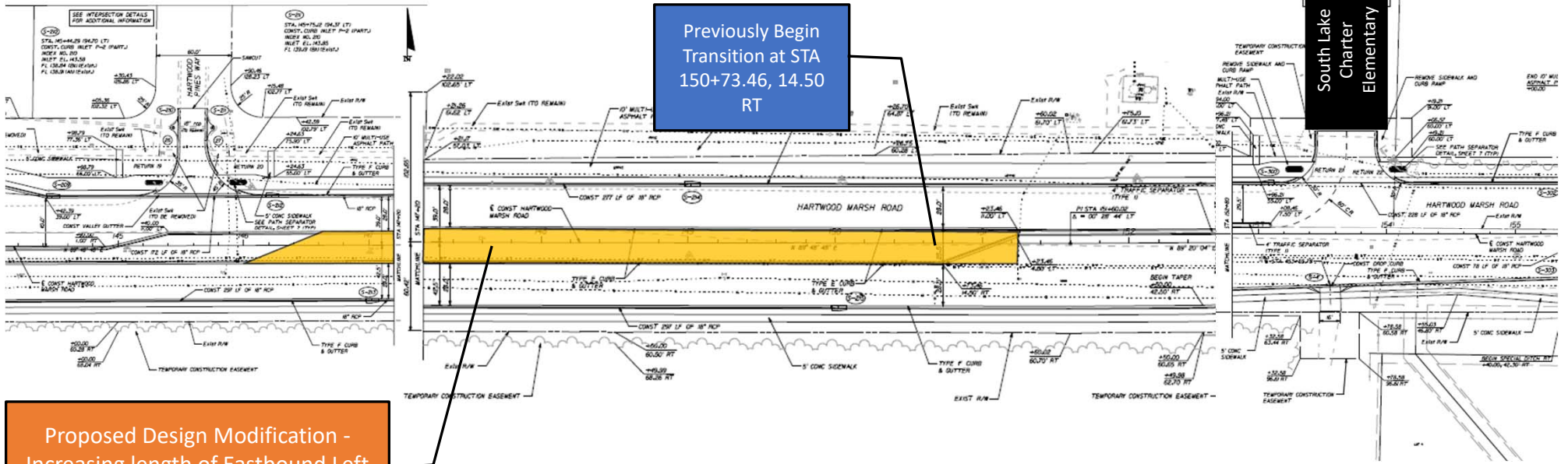


First Baptist Church of Clermont

Hartwood Pines Way

Proposed Design Modification – Right-in/Right Out for First Baptist Church of Clermont

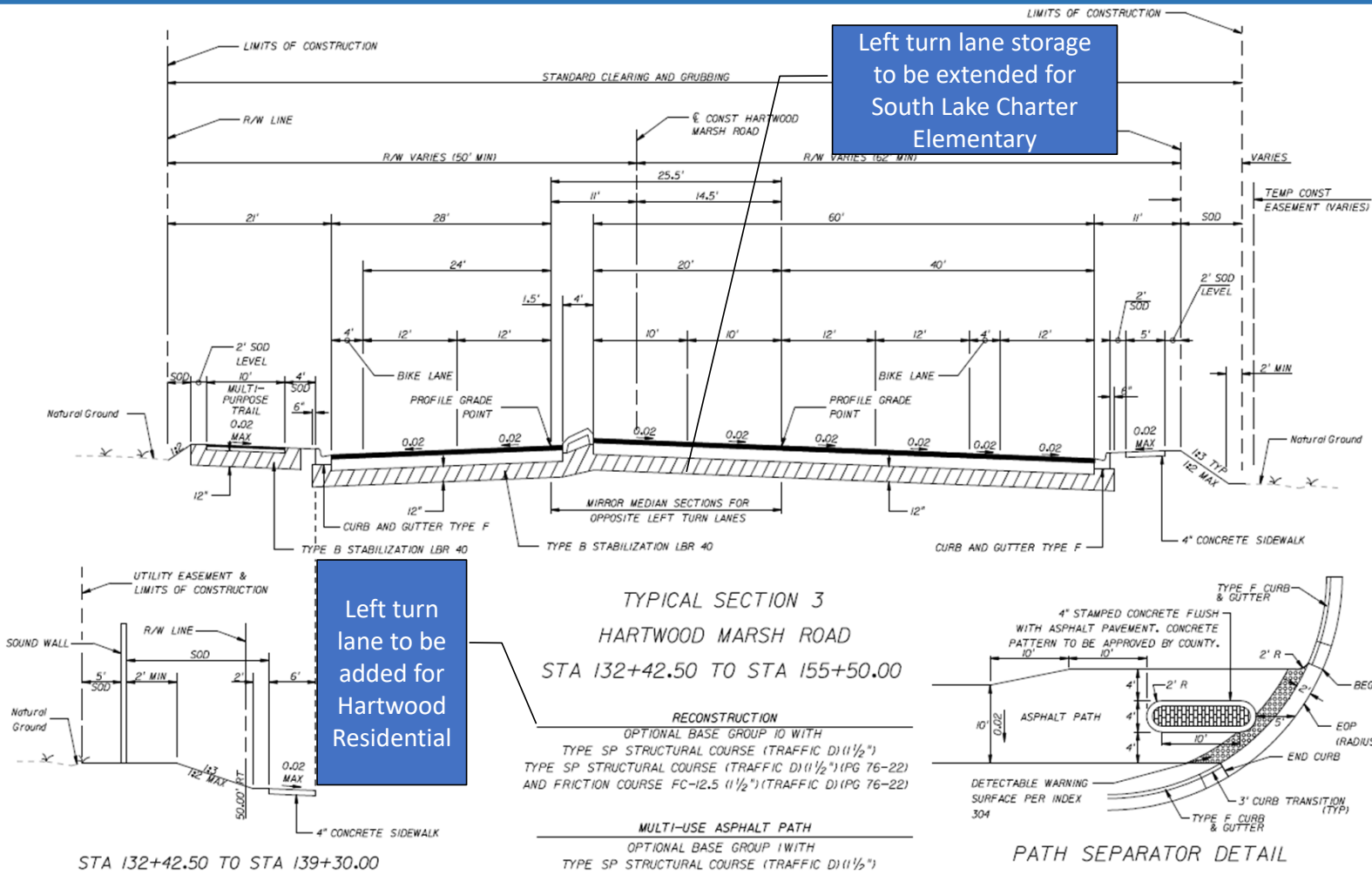
Increase Eastbound Left Turn Lane For South Lake Charter Elementary

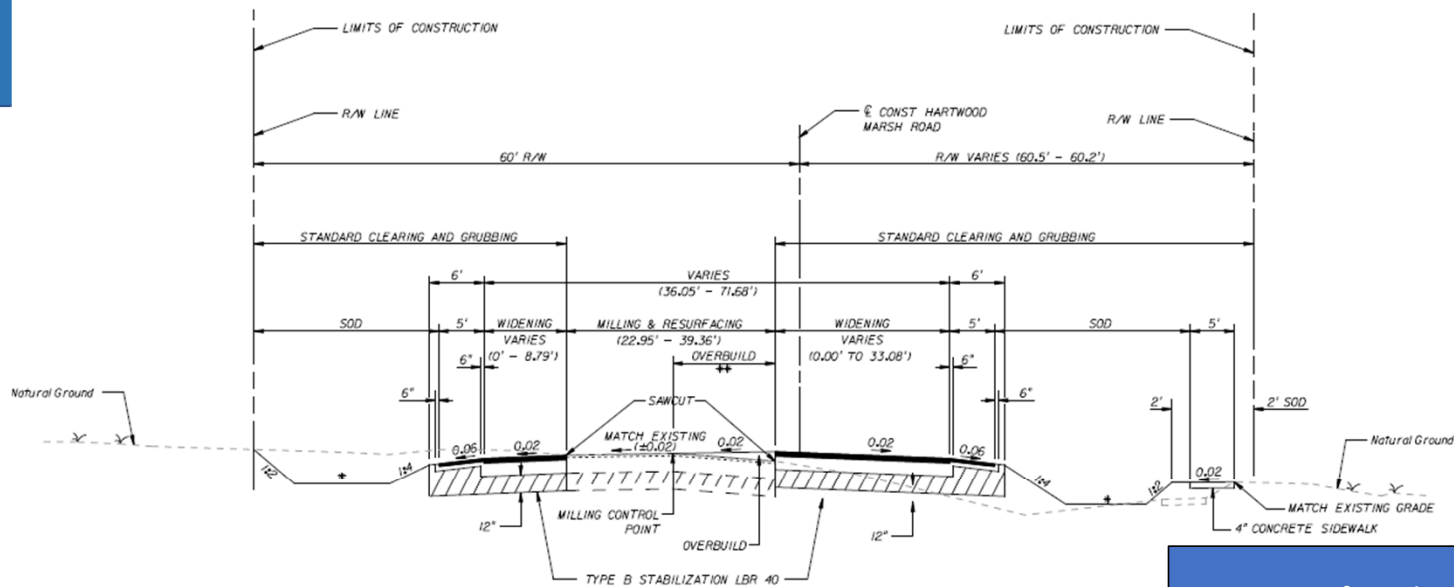


Proposed Design Modification - Increasing length of Eastbound Left Turn Lane. Increased Length

Previously Begin Transition at STA 150+73.46, 14.50 RT

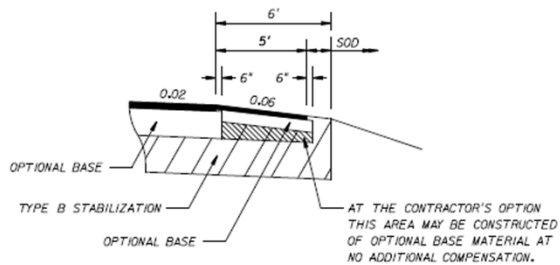
South Lake Charter Elementary





From East of South Lake Elementary Charter to West of now Regency Hills Dr

TYPICAL SECTION 4
HARTWOOD MARSH ROAD
STA 155+50.00 TO STA 162+21.77



SHOULDER PAVEMENT DETAIL

MILLING
MILL EXISTING ASPHALT PAVEMENT (1 1/2" AVG. DEPTH)

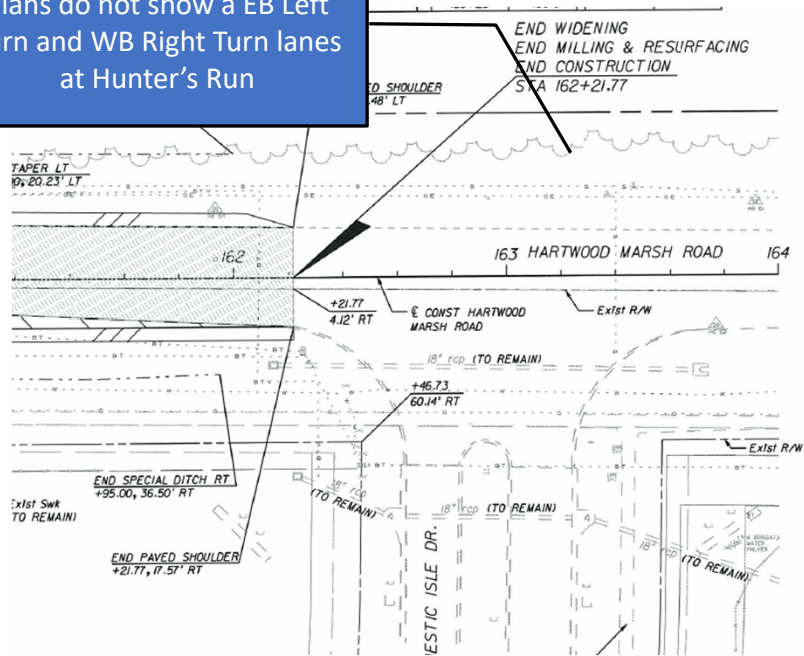
RESURFACING
OVERBUILD TYPE SP STRUCTURAL COURSE (TRAFFIC D) (3" AVG) AND FRICTION COURSE FC-12.5 (1 1/2") (TRAFFIC D) (PG 76-22)

WIDENING
OPTIONAL BASE GROUP 10 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1 1/2")
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1 1/2") (PG 76-22)
AND FRICTION COURSE FC-12.5 (1 1/2") (TRAFFIC D) (PG 76-22)

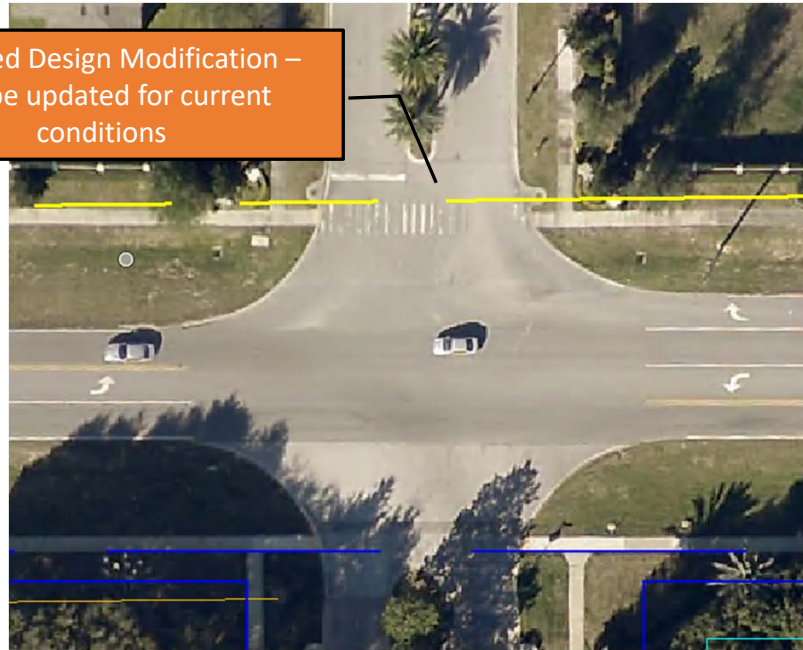
SHOULDER PAVEMENT
OPTIONAL BASE GROUP 1 WITH
TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1 1/2") (PG 76-22)
AND FRICTION COURSE FC-12.5 (1 1/2") (TRAFFIC D) (PG 76-22)

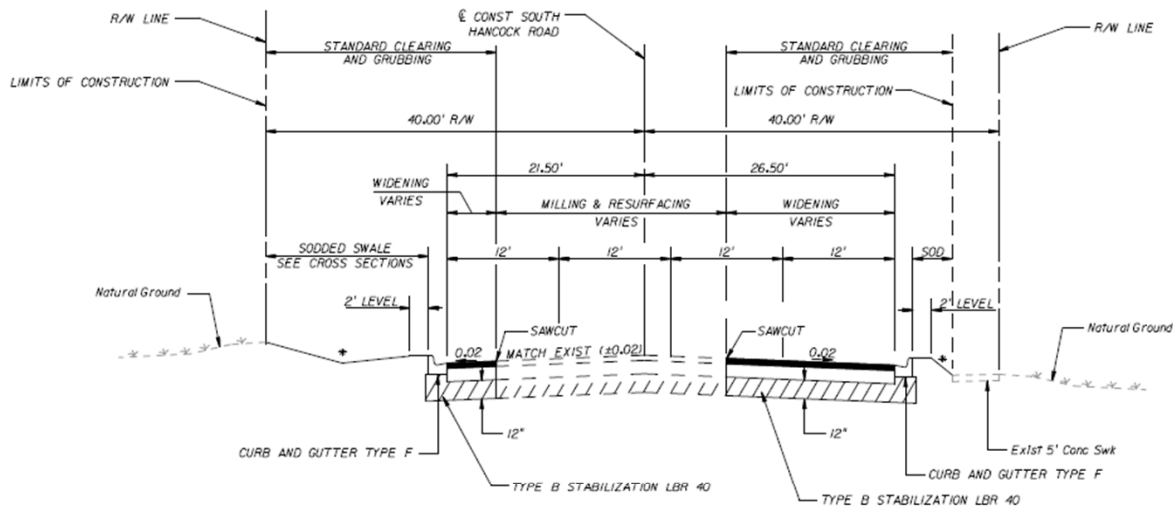
Update Turn Lanes for Hunters Run

Plans do not show a EB Left Turn and WB Right Turn lanes at Hunter's Run



Proposed Design Modification – Will be updated for current conditions





TYPICAL SECTION 5
SOUTH HANCOCK ROAD

STA 474+00.00 TO STA 482+57.78

* SEE CROSS SECTIONS FOR SLOPE INFORMATION

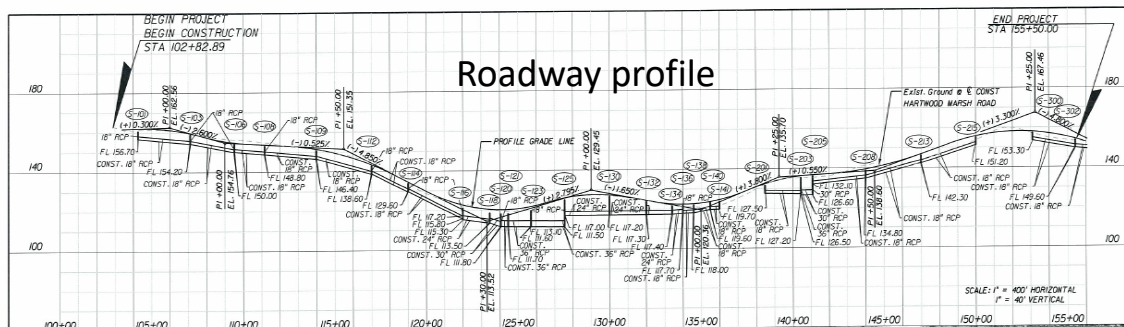
- MILLING**
- MILL EXISTING ASPHALT PAVEMENT (1 1/2" AVG. DEPTH)
- RESURFACING**
- FRICION COURSE FC-12.5 (1 1/2") (TRAFFIC D) (PG 76-22)
- WIDENING**
- OPTIONAL BASE GROUP 10 WITH
- TYPE SP STRUCTURAL COURSE (TRAFFIC D) (1 1/2") (PG 76-22)
- AND FRICION COURSE FC-12.5 (1 1/2") (TRAFFIC D) (PG 76-22)

Hartwood Marsh Road to just South of
Hartwood Pines Way

Geotechnical

- Seasonal High Groundwater Table (SHGWT)
 - Pre-development Seasonal High Groundwater Levels are anticipated to be encountered at depths of greater than 6 feet below the natural ground surface. Base clearance to SHGWT is not anticipated to be a concern.
- Soil Suitability
 - Based on review of existing borings within the project area, review of USDA Soil Survey data and past experience within the project area the soils are expected to consist of well draining sandy soils (A-3/A-2-4).
 - Organic soils and/or shallow plastic (clay) soils are not anticipated to be a concern for the proposed improvements.
- Geotechnical Exploration
 - A geotechnical exploration program for the project will be completed in accordance with the FDOT Soils and Foundation Handbook, as required, to supplement existing information.

Existing Drainage Condition Of Hartwood Marsh Road

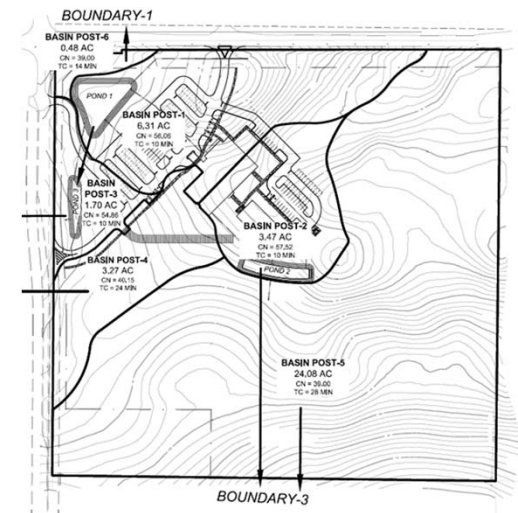
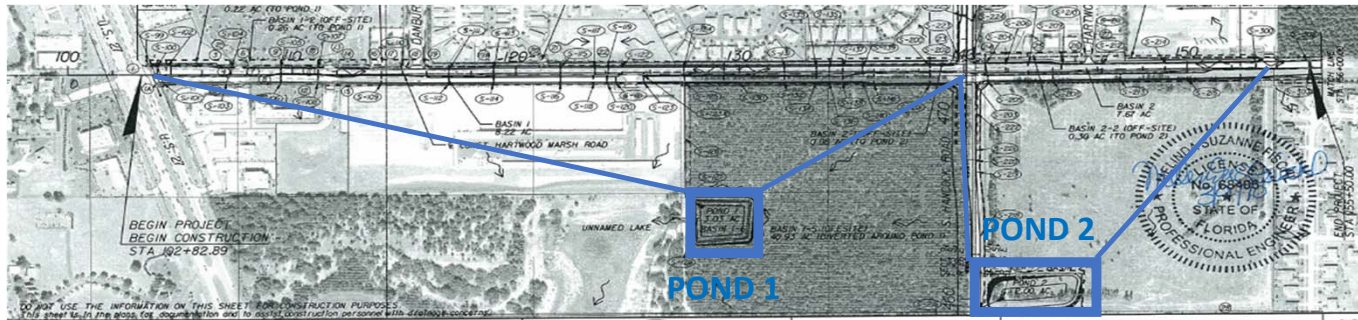


- BASIN 1A: from US 27 to east of the Self-storage Unit (solid red color), a total of 2300 ft long, drains southeast to the Unnamed Lake.
- BASIN 1B: from east of the Self-storage Unit to Hancock Road (dash red color), drains to the Hartwood Marsh Residential ponds.
- BASIN 2: from Hancock Road to the Image South Lake Charter School (green color), drains to ponds in the First Baptist Church of Clement.
- BASIN 3: from the Image South Lake Charter School to the Regency Hills Drive (blue color), propose to drain easterly to the treatment facility proposed in Hartwood Marsh Road phase 2.

Development And Proposal History

1. Hartwood Marsh Road Phase 1 (Permit # 114354-1, -3, 2010)
Two dry ponds were proposed to treat stormwater from Hartwood Marsh Road. Stormwater from US 27 to Hancock Road goes to POND 1, stormwater from Hancock Road to the Image South Lake Charter School goes to POND 2.

2. First Baptist Church of Clement (Permit #: 157210-1, 2019)
Only 15.22 acre of the total 39.3 acre property is developed in phase 1. Stormwater from the development area is treated by three interconnected ponds located on the northwest of the property. The rest 24.08 acre is still vacant. The proposed POND 2 location is still available.

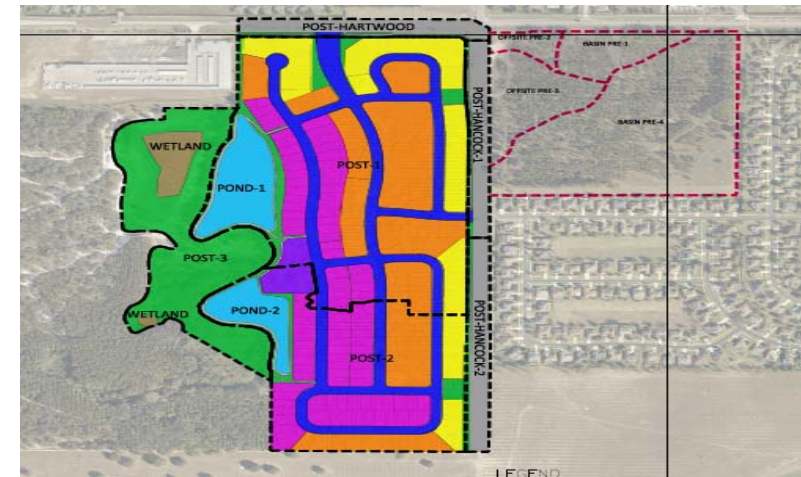


Development and Proposal History (cont.)

3. Hartwood Marsh Residential (Permit #: 158467-1, 2020)

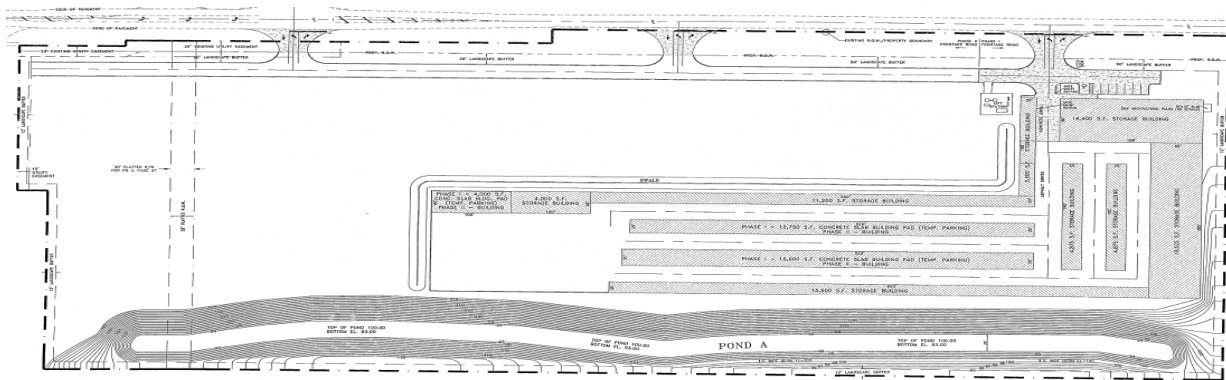
The development includes the construction of a 321-lot, single-family residential subdivision with associated Hartwood Marsh Roadway Safety Improvements to the adjacent Hartwood Marsh Road and the Extension of Hancock Road South. Stormwater from the development site enters into two dry ponds located near the Unnamed Lake.

The project takes care of the stormwater from Hartwood Marsh Road Widening from east of the Self-storage Unit to the intersection with the Hancock Road (about 1300 ft long) and the future development of Extension Hancock Road South.



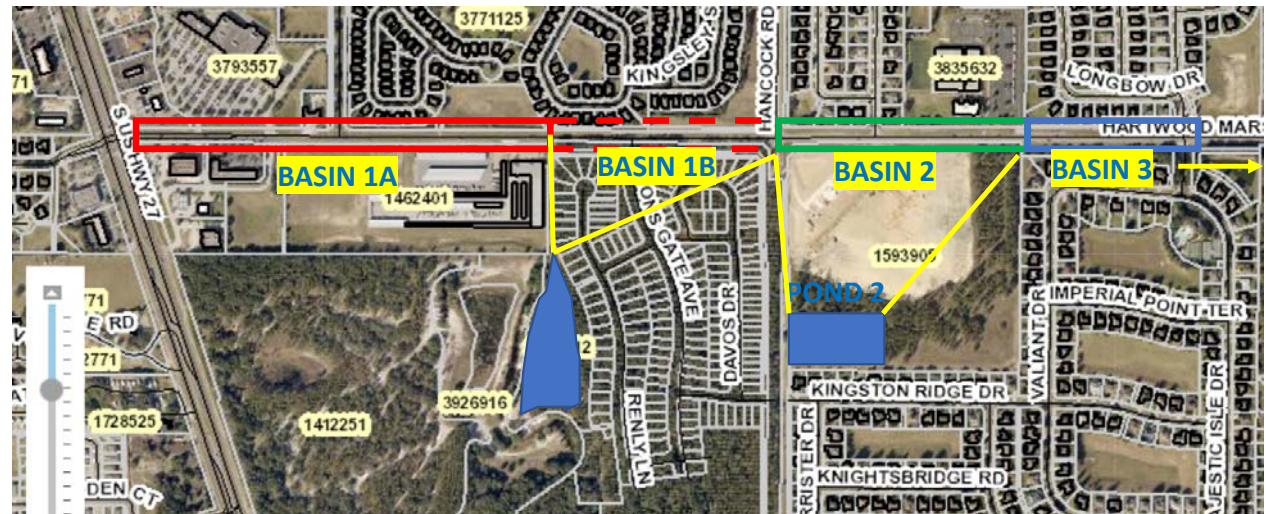
4. Hartwood Marsh Storage (Permit # 101071 – 1, 2010)

Of the total 21.26 acres property, Phase 1 developed 13.89 acres includes the self-storage buildings, access roadway, parking areas, sidewalks, and stormwater management system, a dry pond of 1.05 acres



Proposal Drainage Condition For Hartwood Marsh Road

- **BASIN 1A:** from US 27 to the east side of the Self-storage Unit, a total of 2300 ft long, needs a treatment facility (pond or swale).
- **BASIN 1B:** from the east side of the Self-storage Unit to Hancock Road, drains to the Hartwood Marsh Residential ponds.
- **BASIN 2:** from Hancock Road to the Image South Lake Charter School, propose to build a Joint use POND 2 in the First Baptist Church of Clement.
- **BASIN 3:** from the Image South Lake Charter School to the Regency Hills Drive, propose to drain easterly to the treatment facility proposed in Hartwood Marsh Road phase 2.



Proposal Stormwater Treatment For Basin 1a

- **Alternative 1: Median or Roadside Swales.** (in Permit # 114354-1 from STA 117+20.00 to STA 132+42.50, there are a 17.5' wide sod in median, which can be converted into a median swale)
- **Alternative 2: Building a new dry Pond.** Purchasing approximately 1.2 acres land in south of the Self-storage Unit, west of the Unnamed Lake from the property owner, Hartwood Marsh Property LLC in Orlando.
- **Alternative 3: Combination of Alternatives 1 & 2,** using swale and a small pond.
- **Alternative 4: Joint use the pond in the Self-storage Unit.** The Self-storage Unit has a large shallow pond, which can be deepened about 1 ft (according to the groundwater level). Deeping the pond and making it bigger to treat stormwater from the road surface and the Self-storage Unit together.



Environmental Resource Permitting

Wetlands

- No wetland or surface water impacts anticipated
- ERP #114354-1 and #114354-3 expired in 2013
- Modify the existing environmental resource permit with the plan updates through the SJRWMD
- Federal permitting is not anticipated – no wetland or surface water impacts
- Updated field reviews will be conducted to document if site conditions have changed since previous permit issuance

Protected Species

- Eagles
 - No known nests in the project area, closest nest over one mile SW of project
- Sand Skinks
 - Field review for appropriate habitat; conduct informal consultation with USFWS
- Gopher Tortoise
 - Conduct survey to determine presence and apply for relocation permit if needed
- Eastern Indigo Snake
 - Follow USFWS' Effect Determination Key - anticipate a "Not Likely to Adversely Affect"

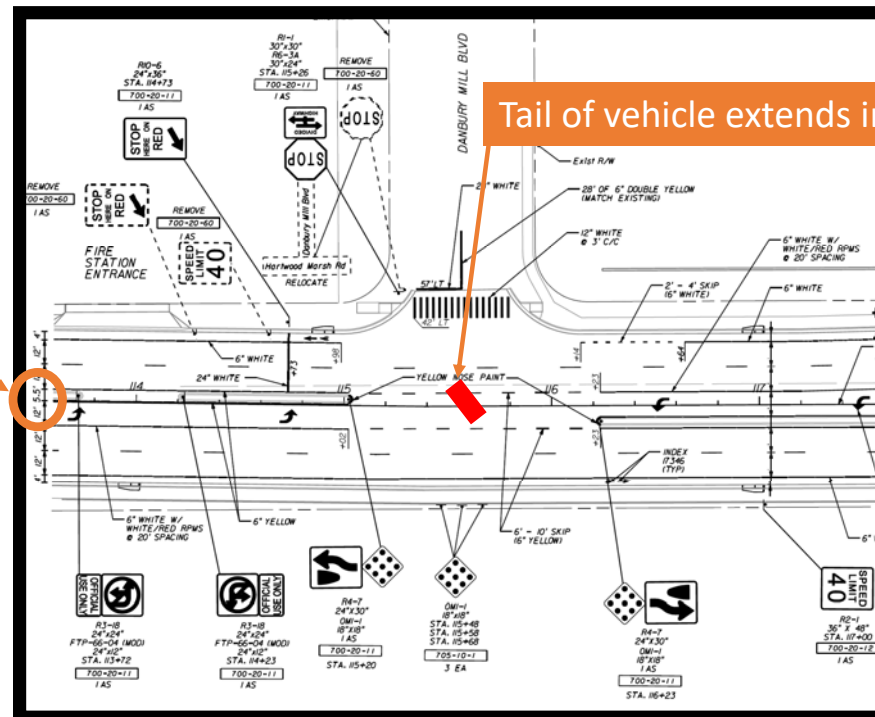
Access management

- Access
 - Median openings
 - U-turn considerations
- Turn-Lane Needs
 - Warranted
 - Length (deceleration and queues)
- Publix Eastern Driveway
 - 400 feet from Danbury Mill
 - 8 angle crashes since 2017
 - Consider directional opening
 - Exiting Publix motorists can use Danbury Mill
 - Exiting CVS/Royal Oaks Plaza can use US 27
- Danbury Mill Boulevard
 - Understand plans on south side
 - Reduce lane widths and increase median opening for two-stage lefts
 - Potential EB-to-WB U-turn considerations (depends on Publix east driveway)

Danbury Mill Blvd

17.5' too narrow for left-turn staging

- Reduce lanes to 11' to get wider median

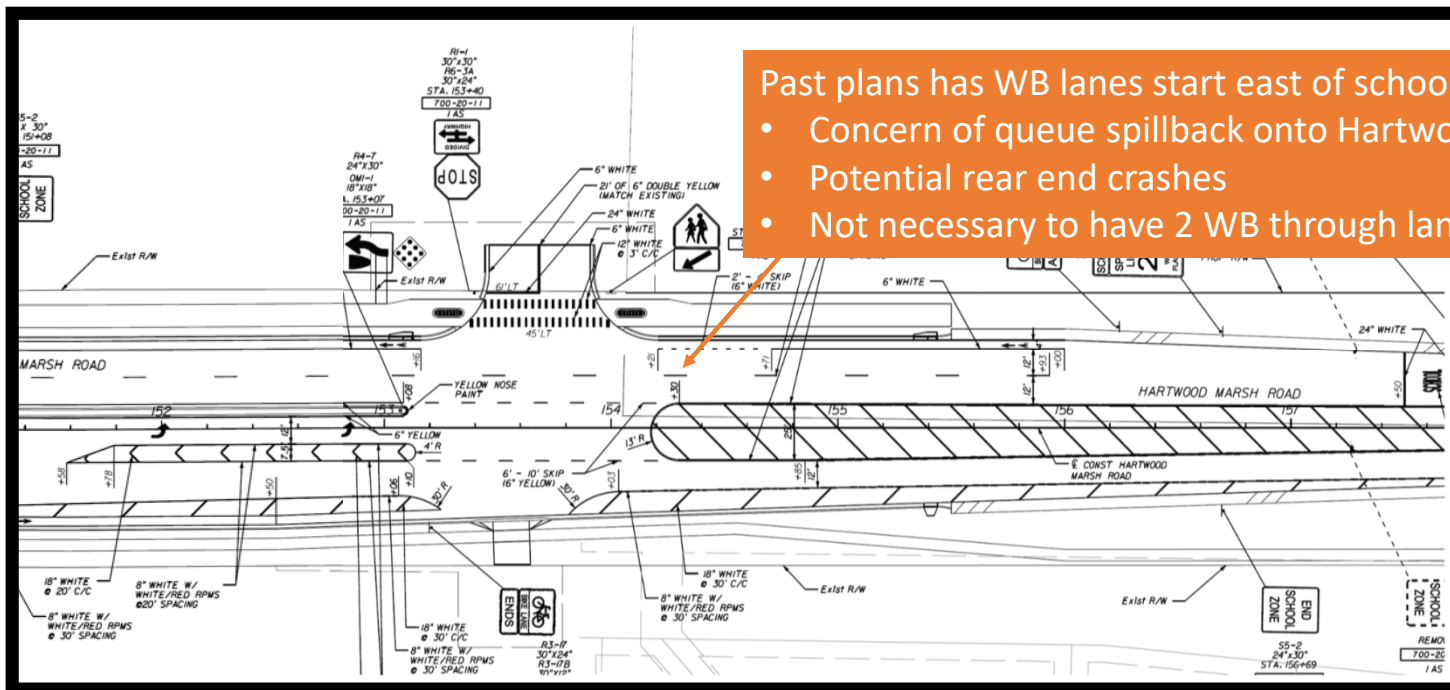


Tail of vehicle extends into WB lane

Access Management

- Hancock Road
 - Dual eastbound left-turn lanes necessary?
- Hartwood Residential
 - Add westbound left-turn lane (in scope)
 - Add eastbound right-turn lane?
 - Full Versus Directional
- First Baptist Church of Clermont
 - Add eastbound right-turn lane
- South Lake Charter Elementary School
 - Provide westbound right-turn lane instead of 2nd through lane (for queue spillback)
 - Ultimate 4 Lane considerations (ROW Constraints)
- Hunters Run/Regency Hills
 - Gated entries – Queue spillback considerations
 - Provide EB/WB left-turn and right-turn lanes

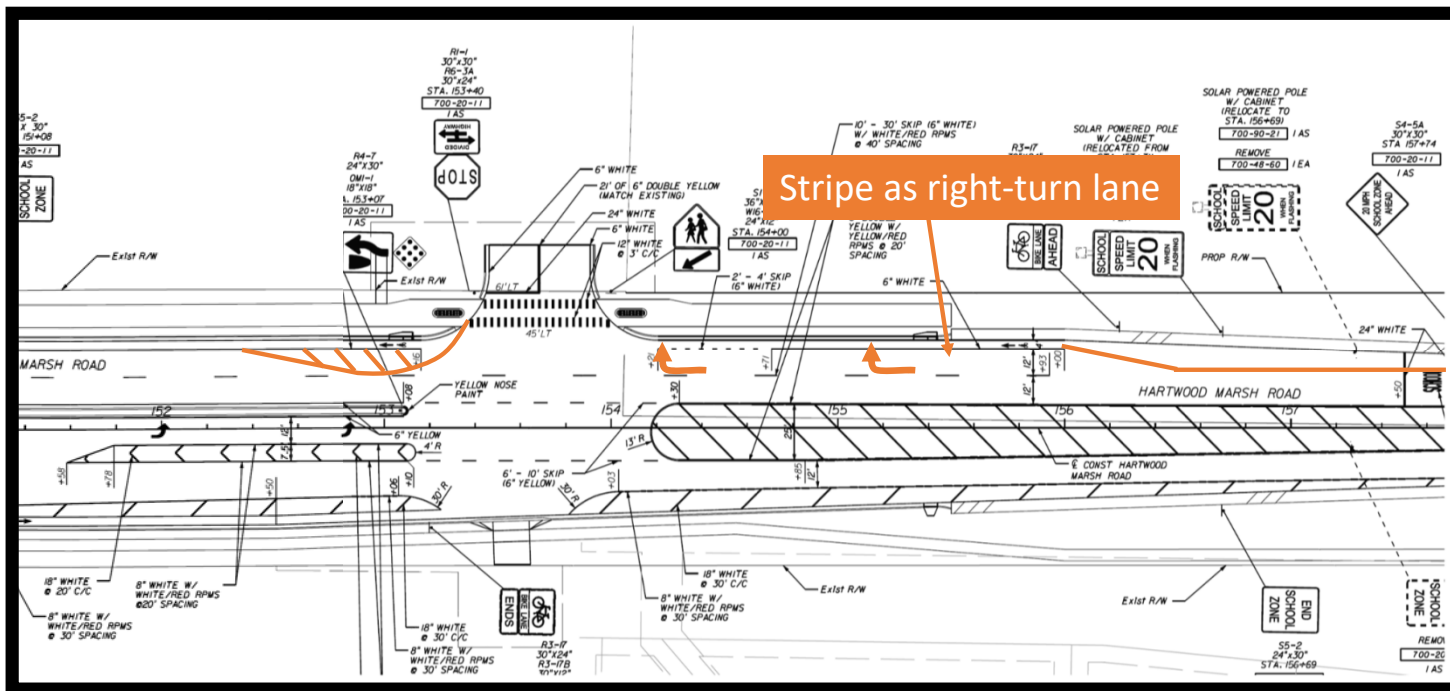
South Lake Charter Elementary School



Past plans has WB lanes start east of school

- Concern of queue spillback onto Hartwood Marsh
- Potential rear end crashes
- Not necessary to have 2 WB through lanes east of school

South Lake Charter Elementary School



Signals

US 27

- Likely able to maintain existing signal poles
- Westbound approach signal heads just need shifting (no added heads)
- Provide 2nd SB left signal head (did existing plans account for loading?)
- Modify pedestrian signals in the SE and NE quadrants

Hancock Road

- Replace existing diagonal span with new box span
- Use 4-section heads and video detection
- Accommodate future signal heads for Hancock extension
- Provide pedestrian signals

Fire Station No. 2

- Replace impacted signal
- Provide median opening

Traffic Design

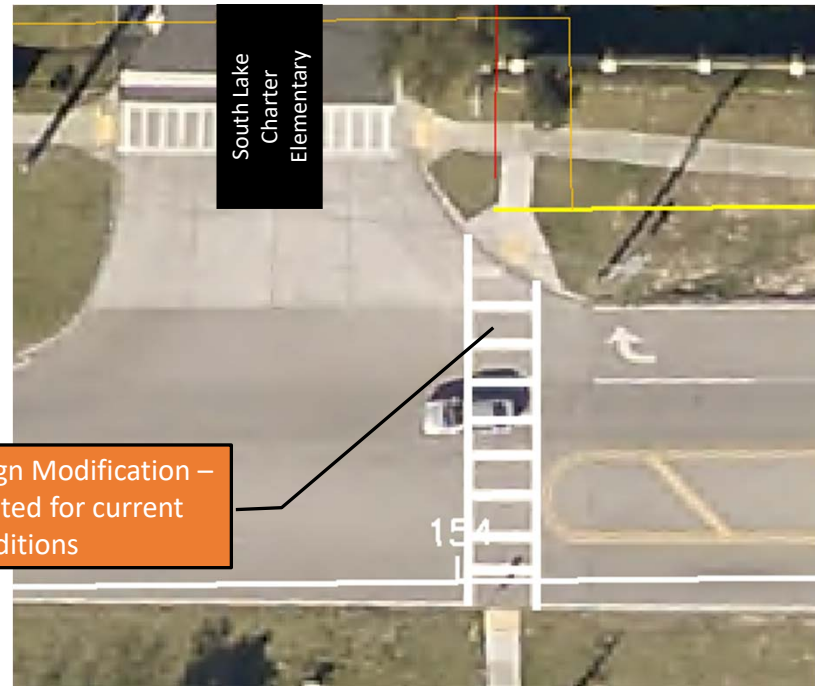
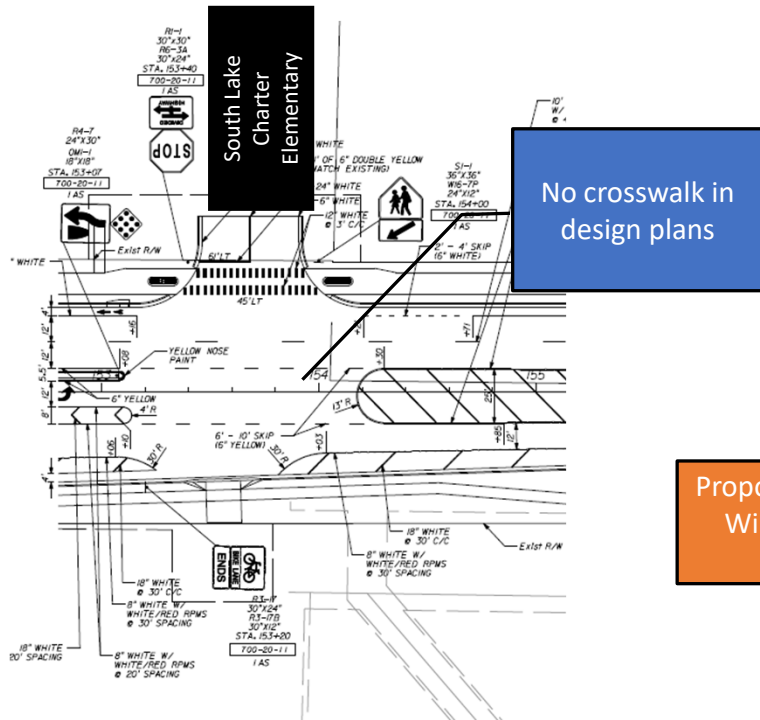
Lighting

- US 27 retrofit lighting needed per FDM 231
- Lighting typically desired at signalized crosswalks (Hancock Road)
- Enhanced lighting should be provided at midblock crosswalks

Signing and Pavement Markings

- Replace school zone signing in accordance with FDOT's Speed Zoning manual (August 2018)
- Midblock crosswalk
 - Signing
 - Raised refuge island
 - Supplemental Devices?
- Merge area considerations

Update For Crosswalk at South Lake Charter Elementary



QA/QC

- “Quality is Our Responsibility”
- The OME Team will follow internal QA/QC procedures
- QA/QC Personnel assigned for all major work groups
- Sub-consultants required to adhere to OME team QA/QC process
- Key Project
 - Corridor Knowledge
 - Value Engineering
- Working with Lake County to meet their requirements



The OM Engineering Services Team

Our critical partners to ensure we offer Lake County comprehensive services