US Army Corps
Of Engineers
Wilmington District

PUBLIC NOTICE

Issue Date: August 21, 2007
Comment Deadline: September 20, 2007
Corps Action ID #: SAW-2007-00912-065

The Wilmington District, Corps of Engineers (Corps) has received an application from the **Town of Carolina Beach** seeking Department of the Army authorization for the discharge of fill material into 1.452 acres of Section 404 jurisdictional wetlands adjacent to an unnamed tributary to the Cape Fear River and 3,247 linear feet of a man-made tributary to the Cape Fear River, associated with the proposed **Wilmington Beach Street Improvements Project.** The project area is located south of Carolina Sands Drive, north of Alabama Avenue, and includes improvements to portions of Bowfin, Snapper, Swordfish, Bonito, Mackerel, Pinfish, Searay, Spot and Croaker Lanes as well as sections of Tennessee Avenue, North Carolina Avenue, Ocean Boulevard, South Carolina Avenue, and Texas Avenue, in the Town of Carolina Beach, New Hanover County, North Carolina.

Specific plans and location information are described below and shown on the attached plans. This Public Notice and all attached plans are also available on the Wilmington District Web Site at www.saw.usace.army.mil/wetlands

Applicant:
Town of Carolina Beach
Attn: Mr. Timothy W. Owens, Town Manager
1121 North Lake Park Boulevard
Carolina Beach, North Carolina 28428

Agent (if applicable):
Soil & Environmental Consultants, PA
Attn: Mr. Sean Clark
11010 Raven Ridge Road
Raleigh, North Carolina 27614

Authority

The Corps will evaluate this application and decide whether to issue, conditionally issue, or deny the proposed work pursuant to applicable procedures of Section 404 of the Clean Water Act (33 U.S.C. 1344).

Location

The project area is located within the Wilmington Beach area of the Town of Carolina Beach, New Hanover County, North Carolina and is confined to the established right-of-way (ROW) of the following streets: Bowfin Lane, Snapper Lane, Swordfish Lane, Bonito Lane, Mackerel Lane, Pinfish Lane, Searay Lane, Spot Lane, Croaker Lane, Tennessee Avenue, North Carolina Avenue, Ocean Boulevard, South Carolina Avenue, and Texas Avenue. The site contains approximately 1.45 acres of jurisdictional non-riparian wetlands which are adjacent to an unnamed tributary to the Cape Fear River, a Navigable Water of the United States. The project area also contains a linear, man-made tributary to the Cape Fear River. Site coordinates are 34.0194°N, 77.9014°W.

Existing Site Conditions

The Wilmington Beach area is a residential mix of existing single and mulit-family housing and undeveloped residential lots, many platted as early as 1913. With the exception of sections of Spot and Searay Lanes, the roadways identified for improvement within in the project area have a soil or gravel surface. The ROW of Spot Lane, between South Carolina and Texas Avenues, is located almost entirely within an undisturbed non-riparian wetland system. The ROW of Searay Lane between Ocean Boulevard and Texas Avenue is partially located within the same non-riparian wetland system; however, this section has been disturbed and impacted from utility line installation and currently support shrub and herbaceous vegetation.

According to the United States Department of Agriculture Soil Survey of New Hanover County (April 1977), wetlands within the site are classified as Leon sand, a poorly drained soil, and has been classified as a hydric soil for New Hanover County. These wetlands support vegetation which consists of loblolly pine (*Pinus taeda*), sweetbay (*Magnolia virginiana*), water oak (*Quercus nigra*), red chokecherry (*Aronia arbutifolia*), cinnamon fern (*Osmunda cinnamonmea*), and netted chain fern (*Woodwardia areolata*). Upland soils are classified as Lynn Haven fine sand (poorly drained, hydric) and support long-leaf pine (*Pinus palustris*), pond pine (*Pinus serotina*), live oak (*Quercus virginiana*), sweetbay (*Magnolia virginiana*), southern bayberry (*Myrica cerifera*), bracken fern (*Pteridium aquilinum*) and wiregrass (*Aristida stricta*).

Surrounding land use currently consists of scattered undeveloped, wooded residential lots, single family housing, and multi-family duplexes to the north and south. West of the project area is the undeveloped, wooded Military Ocean Terminal Sunny Point (MOTSU) land, owned by the Department of Army. Mainly commercial development exists to the west of the project area, along Lake Park Boulevard.

Applicant's Stated Purpose

The purpose of the project is to provide paved road access to platted residential lots and to address the need and demand for housing in the area.

Project Description

The applicant has proposed to discharge fill material into 1.452 acres of jurisdictional wetlands and 3,247 linear feet of a man-made tributary to construct and/or improve the roadway system of the Wilmington Beach area. Project plans, narrative and supplemental information have been included with this Public Notice.

The applicant has also submitted a mitigation proposal with their application that entails the preservation of approximately 40 acres of tidal marsh in Carolina Beach and payment into the Ecosystem Enhancement Program (EEP) for restoration of non-riparian wetlands within the Cape Fear River watershed at a 1:1 mitigation rate.

Other Required Authorizations

This notice and all applicable application materials are being forwarded to the appropriate State agencies for review. The Corps will generally not make a final permit decision until the North Carolina Division of Water Quality (NCDWQ) issues, denies, or waives State Certification required by Section 401 of the Clean Water Act (PL 92-500). The receipt of the application and this public notice combined with appropriate application fee at the North Carolina Division of Water Quality central office in Raleigh will constitute initial receipt of an application for a 401 Water Quality Certification. A waiver will be deemed to occur if the NCDWQ fails to act on this request for certification within sixty days of the date of the receipt of this notice in the NCDWQ Central Office. Additional information regarding the Clean Water Act certification may be reviewed at the NCDWQ Central Office, 401 Oversight and Express Permits Unit, 2321 Crabtree Boulevard, Suite 250, Raleigh, North Carolina 27604-2260. All persons desiring to make comments regarding the application for certification under Section 401 of the Clean Water Act should do so in writing delivering to the North Carolina Division of Water Quality (NCDWQ), at the above Crabtree Boulevard address , Attention: Ms Cyndi Karoly by September 6, 2007.

Coastal Zone Management

The applicant has not provided to the Corps, a certification statement that his/her proposed activity complies with and will be conducted in a manner that is consistent with the approved North Carolina Coastal Zone Management Program. Pursuant to 33 CFR 325.2(b)(2), the Corps can not issue a permit for the proposed work until the applicant submits such a certification to the Corps and the North Carolina Division of Coastal Management (NCDCM), and the NCDCM notifies the Corps that it concurs with the applicant's consistency certification.

Essential Fish Habitat

This notice initiates the Essential Fish Habitat (EFH) consultation requirements of the Magnuson-Stevens Fishery Conservation and Management Act. The Corps' initial determination is that the proposed project will not adversely impact EFH or associated

fisheries managed by the South Atlantic or Mid Atlantic Fishery Management Councils or the National Marine Fisheries Service.

Cultural Resources

The Corps has consulted the latest published version of the National Register of Historic Places and is not aware that any registered properties, or properties listed as being eligible for inclusion therein are located within the project area or will be affected by the proposed work. Presently, unknown archeological, scientific, prehistoric, or historical data may be located within the project area and/or could be affected by the proposed work.

Endangered Species

The Corps has reviewed the project area, examined all information provided by the applicant and consulted the latest North Carolina Natural Heritage Database. Based on available information, the Corps has determined pursuant to the Endangered Species Act of 1973 (ESA), that the proposed project will have no effect on Federally listed endangered or threatened species or their formally designated critical habitat.

Evaluation

The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values (in accordance with Executive Order 11988), land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people. For activities involving the discharge of dredged or fill materials in waters of the United States, the evaluation of the impact of the activity on the public interest will include application of the Environmental Protection Agency's 404(b)(1) guidelines.

Commenting Information

The Corps of Engineers is soliciting comments from the public; Federal, State and local agencies and officials, including any consolidate State Viewpoint or written position of the Governor; Indian Tribes and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on

endangered species, historic properties, water quality, general environmental effects and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment (EA) and/or an Environmental Impact Statement (EIS) pursuant to the National Environmental Policy Act (NEPA). Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider the application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing. Requests for a public hearing shall be granted, unless the District Engineer determines that the issues raised are insubstantial or there is otherwise no valid interest to be served by a hearing.

Written comments pertinent to the proposed work, as outlined above, will be received by the Corps of Engineers, Wilmington District, until 5pm, September 20, 2007. Comments should be submitted to Jennifer S. Frye, Post Office Box 1890, Wilmington, North Carolina, 28402-1890, telephone (910) 251-4923.

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1. PURPOSE AND NEED STATEMENT

The purpose of the proposed Wilmington Beach Street Improvements Project is to provide paved road access to the historically platted lots and to subsequently address the need and demand for housing in the area. The existing streets in the project area are dirt or gravel roads in the existing platted town right of ways. Due to the increasing demand for lots in this area, the catalyst now exists for the construction of the roads and utilities required to access the individually owned adjacent lots, both of which (roads and lots) have been platted as far back as 1913.According to the North Carolina Demographics web site (http://demog.state.nc.us/), New Hanover County's population is expected to increase by approximately 15% during the next decade, from 200,213 to 235,778 citizens. The majority of the County's growth in population and economic status is expected along the coast. There is an expected increased demand for residential housing, including retirement communities, as well as the unique resort community aspect for tourists and vacationers. Given the projected demographic growth of the County and the proximity to the beaches, golf courses and the growing central business district, the demand for quality community living is also increasing.

2. WETLANDS AVOIDANCE AND ALTERNATIVES ANALYSIS

Off-site Alternatives and Avoidance:
As per the New Hanover County web site, the Wilmington Beach Street Improvements project is only one of a few sites on the Atlantic Seaboard in Southeast New Hanover County that can offer the preferred conditions for single-family residential development. Ideally, any single-family residential lots should offer its residents a potable water supply and ready access to major transportation corridors. It has been determined that this is the preferred site location for several justifiable reasons. The reasons include the existing physical location of the site, site topography, economic benefit to the County and Carolina Beach, and accessibility to other areas of the region including key commercial centers, such as Wilmington, NC. In addition, the street infrastructure and lot layouts were platted in 1913. In 2001, due to existing failing septic systems, New Hanover County installed utility lines to service existing and future homes. These historically platted lots will therefore have the necessary services when they are developed. In addition, the property owners adjacent to the proposed Wilmington Beach Street Improvements are not receiving the same town amenities that other tax paying residents are receiving.

On-site Avoidance:
The Town of Carolina Beach is proposing to build the roadway infrastructure as depicted so that current and future adjacent property owners will have paved access to their property. The Wilmington Beach Street Improvements will also allow for access of emergency vehicles to the platted lots. The proposed road installation site plan cannot avoid the proposed wetland impacts due to the inability to move the road alignment onto lots currently owned by multiple individuals.

3. IMPACT MINIMIZATION

A significant challenge for this project is the necessity to avoid and minimize impacts to jurisdictional areas where the roadways have been platted and adjacent lots sold for more than 80 years. In 2006, S&EC was hired to delineate jurisdictional areas within and adjacent to the proposed roads. The proposed right-of-way widths vary dependant on the class of road (e.g. collector, thoroughfare, etc). The Town of Carolina Beach is proposing a minimum width asphalt road of 2-9 foot travel lanes in the project areas to reduce the amount of new impervious area and also reduce the amount of permanent impacts to the wetlands. The wetland impacts proposed are necessary for the appropriate grading of the roadway and associated shoulders. It should be noted that in an effort to minimize impacts, sidewalks have only been proposed in an East/West direction and do not result in any additional wetland impacts.

4. PROPOSED IMPACTS

Attachment 1 (Agent Authorization Forms) and the Individual Permit Application Form are included as procedural documents relative to this application.

4.1 Wetland Impacts

The Project's footprint will permanently impact approximately 1.452 acres of jurisdictional wetlands (see attached Impact maps). The USACE has stated that they will consider the impacts associated with the lot developments as secondary impacts associated with the roads. Please refer to the Impact Table below for an outline of proposed wetland impacts.

Impact Site Number	Type of Impact	Type of Wetland (e.g., forested, marsh, herbaceous, bog, etc.)	Area of Impact (acres) *
1	Road Fill	Estuarine Fringe Loblolly Pine Forest	0.572
2	Road Fill	Estuarine Fringe Loblolly Pine Forest	0.032
3	Road Fill	Estuarine Fringe Loblolly Pine Forest	0.072
4	Road Fill	Estuarine Fringe Loblolly Pine Forest	0.085
5	Road Fill	Estuarine Fringe Loblolly Pine Forest	0.014

6	Road Fill	Estuarine Fringe Loblolly Pine Forest	0.016
7 (Previously Impacted)	Utility Line Easement	Estuarine Fringe Loblolly Pine Forest	0.329
20	Road Fill	Estuarine Fringe Loblolly Pine Forest	0.049
21	Road Fill	Estuarine Fringe Loblolly Pine Forest	0.058
28	Road Fill	Estuarine Fringe Loblolly Pine Forest	0.046
31	Road Fill	Estuarine Fringe Loblolly Pine Forest	0.025
32	Road Fill	Estuarine Fringe Loblolly Pine Forest	0.030
33	Road Fill	Estuarine Fringe Loblolly Pine Forest	0.049
34	Road Fill	Estuarine Fringe Loblolly Pine Forest	0.075
TOTAL	---	---	1.452

* All impacts have been rounded to the nearest 1/100 of an acre

4.2 Ditch Impacts

The Project's footprint will permanently impact approximately 3,247 linear feet (0.4644 acres) of naturalized jurisdictional ditches (see attached Impact maps). Please refer to the Impact Table below for an outline of proposed jurisdictional ditch impacts.

Ditch Impact Number	Type of Impact	Impact Length (LF)	Area of Impact (acres)*
8	Road Fill	222	0.0413
9	Road Fill	87	0.0095
10	Road Fill	108	0.0168
11	Road Fill	4	0.0005
12	Road Fill	9	0.0011
13	Road Fill	15	0.0013
14	Road Fill	88	0.0059
15	Road Fill	200	0.0149

16	Road Fill	140	0.0065
17	Road Fill	241	0.0109
18	Road Fill	225	0.0104
19	Road Fill	206	0.0095
22	Road Fill	207	0.0426
23	Road Fill	253	0.0545
24	Road Fill	291	0.0520
25	Road Fill	257	0.0520
26	Road Fill	63	0.0080
27	Road Fill	111	0.0178
29	Road Fill	336	0.0638
30	Road Fill	184	0.0451
TOTAL	---	3,247	0.4644

5. PUBLIC INTEREST ISSUES

In a document provided by the U.S. Corps of Engineers titled "Wetlands & Corps Wetland Regulations" and dated August 13, 2001, the Corps of Engineers lists 21 specific factors that will be reviewed related to Public Interest. These items are as follows:

Conservation	Safety	Economics
Water Quality	Aesthetics	Fish & Wildlife Values
Wetlands	Historic Properties	Shore Erosion and Accretion
Flood Hazard	Water Supply	Food & Fiber Production
Floodplain Value	Navigation	Environmental Concerns
Land Use	Energy Needs	Property Ownership
Recreation	Mineral Needs	Needs and Welfare of the People

Responses to each of the 21 Public Interest Issues are presented below.

5.1 Conservation:

The Town requested a detailed wetland delineation in order to determine the extents of the potential wetland impacts due to the proposed roadway infrastructure. The proposed roadways, as well as the adjacent lots, were platted beginning in 1913 prior to the inception of the Clean Water Act and any wetland regulations and therefore, there is little to no practical potential to preserve or dedicate any open space within these platted corridors. The Town, however, has made plans to contacted some adjacent property owners whose lots are entirely within wetlands to attempt to purchase those properties however at this point the Town has indicated that none of the property owners contacted have been interested. The Town is however offering as mitigation (preservation) to set aside an approximately 40-acre site made up primarily of salt marsh.

5.2 Water Quality:

The Site is located in the Cape Fear River Basin in DWQ subbasin 03-06-17 and in USGS Hydrologic Unit Code 03030005. The Site is adjacent to the Atlantic Ocean, which is Class SB waters. SB classified waters are Tidal Salt Waters that are protected for primary recreation, which includes swimming on a frequent or organized basis as well as secondary recreation, fishing and aquatic life including propagation and survival and wildlife. Although the site drains to Tidal Salt Waters, the site itself does not contain tidally influenced waters or wetlands. The Northern portion of the project drains to ditches that ultimately drain to Carolina Lake, which is an unclassified water body. According to the DWQ's Cape Fear River Basinwide Water Quality Management Plan (2005), the portion of the Atlantic Ocean from the sub-basin boundary to South Fort Fisher Boulevard, approximately 4.7 coastal miles, is Impaired for Recreation because of *Enterrococcus* bacteria. This impairment is due to the permanent postings of swimming advisories as well as the 18 known stormdrains that periodically discharge onto the beach in this area. Of the five (5) monitoring stations in the vicinity, only one (1) exhibited criteria that exceeded the allowed thresholds. Additionally, the known, past issues of failing septic systems in the area were contributing factors to the impairment of the surrounding water bodies.

Water quality could be impacted by the Project in two ways. First, during construction, sediment could enter the waterways. Secondly, after construction is completed, stormwater runoff may impact the streams and ditches that drain to Carolina Lake or ultimately, the Atlantic Ocean. Measures are being taken to prevent these possibilities. Current sediment and erosion control guidelines will be adhered to. Stormwater treatment will meet the NC Division of Water Quality's standards.

Grading and construction activities associated with the Project may temporarily increase siltation on and immediately "downstream" of the road construction areas. However, due to the sandy soils on site and their high infiltration rate, as well as the lack of a significant grade change, siltation is expected to be minimal. During rainstorms, erosion from a cleared site will be much higher than erosion from a forested site; however, it is important to note that only the roadway corridors will be cleared. Although the adjacent lots will be considered secondary impacts, they are not part of this project and will be

cleared individually based on Approvals granted to each individual landowner. The North Carolina Sedimentation Pollution Control Act of 1973 requires that a plan to control erosion and sedimentation be developed for any activity that disturbs one acre of land or more. This plan must include control measures that will prevent sediment impacts to water quality. Practices must be installed that will control sedimentation from the peak runoff generated by the 10-year storm. One of the best methods to control sediment loading from construction sites is to minimize the time that land is exposed. Data collected by NCSU researchers indicates that mulching and seeding reduce erosion rates by approximately 95 percent. The State law requires that permanent ground cover be established within 15 working days from when grading is completed. The Project will meet or exceed that requirement. For the purposes of the Carolina Beach Street improvements, most of the proposed roadway corridors were partially cleared when the utility lines were installed by the County previously, however, ground cover (herbaceous and shrub) has since been re-established. By following the site and grading plan and implementing and maintaining BMPs to control construction sedimentation for the 10-year storm the impacts to water quality during construction will be minimized and will not be significant.

Within the project boundary (i.e. road corridors) stormwater devices will be finalized so that the discharge at the project's completion will not exceed that of the current conditions. Meetings have been held with DWQ in an effort to finalize plans and DWQ's stormwater approval as well as the approval of Coastal Stormwater will be required in order to have all of the necessary permits and approvals.

The following is an excerpt of what is being proposed by the Town for their stormwater ordinance that will be applied to the individual adjacent lots. This language still has to be approved by the Town's board.

Section 16-197. Required On-site Management of Stormwater

(a) All existing vacant lots, redevelopment of existing lots or substantial improvement greater than 50% of the certified appraised value or tax value to existing structures in the Wilmington Beach Area shall manage the post development run-off from a ten-year frequency storm, so that the on-site and off-site effects of development are the same or better than the pre-development state. For the purposes of this ordinance, Wilmington Beach is considered the area east of Lake Park Blvd. to the Sunnypoint Buffer and all land from the Kure Beach Town limits to the Carolina Sands Subdivision.
(b) All existing vacant lots, redevelopment of existing lots or substantial improvement to existing structures on any dirt, gravel or soil road in the Town of Carolina Beach shall manage the post development run-off from a ten-year frequency storm, so that the on-site and off-site effects of development are the same or better than the pre-development state.
(c) The on-site management of stormwater shall apply to all parcels as defined in (a) and (b) of this Section. In the event that a North Carolina registered licensed professional engineer determines that the on-site management of stormwater is impractical due to soil conditions or other environmental site constraints, the Town may allow for a combination

of on-site treatment and payment in lieu of treatment as allowed by this ordinance.
(d) The on-site management of stormwater shall comply with the requirements of the North Carolina Department of Environment and Natural Resources Best Management Practices Manual.

5.3 Wetlands:

As stated earlier, with exception of Spot Lane (see Inset Map 1), most of the proposed roadway corridors have either been partially cleared and partially filled, such as Searay Lane (see Inset Map 2) during the previous utility line were installation by the County or the roads have been partially installed since originally being platted and are currently narrow dirt or gavel roads, such as portions of Snapper Lane. Areas previously cleared within utility line corridors have revegitated and are currently covered with herbaceous and shrub growth.

In 2001 in response to chronic issues with failing septic systems and septic water intercepting surface waters, New Hanover County installed utility lines. The County unfortunately did so without obtaining the proper 401 and 404 permits for jurisdictional areas. The project was then turned over to the Town and the violation was discovered. S&EC was asked to delineate wetlands and apply for after-the-fact permits for the area north of Ocean Boulevard. The USACE provided approval of the delineation and issued permits that designated four distinct categories that included: 1) Permanent Impacts (i.e. roads totaling 0.333 acre), 2) Utility Easements to be maintained outside of the roads (totaling 0.319 acre), 3) Disturbed wetlands left to revegetate naturally (totaling 0.063 acre), and 4) Disturbed wetlands to be replanted. Although the roads have not all been paved they have been installed. The utility lines were already in place and are regularly maintained as specified. The areas that required natural regeneration of vegetation have been allowed to do so, with exception to areas that within individual lots that the USACE approved for disturbance and fill. Areas that were to be replanted were allowed to naturally revegetate however there is no record indicating in planting of native species within theses areas (total area of 15,541.8 ft^2 or 0.357 acres). The second category of 0.319 acre of maintained areas are now within the areas requesting permanent fill. Action ID #200101075 corresponds with the 404-permit issued in 2001 for the above-described activities.

Utility lines south of Ocean Boulevard were not reviewed and permitted in 2001 but were apparently installed at the same time as those permitted north of Ocean Boulevard. The area depicted along the Searay Lane corridor contains an estimated area of 14,335 ft^2 (0.329 acre) of fill placed over the installed utility line. This fill is within the proposed road fill area and the resulting impacts are being tallied with the proposed road fill. If the proposed Searay Lane is permitted as requested within this area, the previously un-permitted utility impacts will be accounted for within the road impacts and mitigation will be incorporated within the proposed road mitigation amount. If, however, this section of Searay Lane is not permitted, an after-the-fact permit is requested for 14,335 ft^2 (0.329 acre) of permanent fill due to utility impacts is requested.

Action ID #200101075 previously permitted a total of 14,515.8 ft^2 (0.333 acre) of permanent fill impacts and 13,890 ft^2 (0.319 acre) of "temporary" impacts that would be regularly maintained. Again, the 0.319 acre of maintained area is now within the area requesting permanent fill. It is worth noting that the area previously permitted for road fill on Pinfish Lane (currently not within the project boundaries) was later permitted and filled under a separate adjacent project. Impacts associated with the Pinfish Lane fill were 2533.5 ft^2 (0.058 acre). Because this area was part of a separate project that also required mitigation, this area should be subtracted from the overall impact, which makes the overall previously permitted permanent impacts ***total 0.275 acre*** for the Wilmington Beach Street Improvements Project.

In late 2005 S&EC was asked to delineate areas north and south of Ocean Boulevard. The USACE has been to the site and has approved the delineation within the road corridors. Sewer impacts were permitted for everything north of Ocean Boulevard including a permanent maintenance easement (10-feet wide) on Snapper Lane. .

As previously stated, based on the proposed site plan, there are 14 proposed wetland impact areas, one previously impacted wetland area, and 20 proposed jurisdictional ditch impact areas resulting from the proposed installation of roads. Ms. Jennifer Frye requested "onsite" mitigation or mitigation within the immediate vicinity of the site. The Town currently owns +/- 40 acres of land that is predominantly tidal marsh (Figure 4) in the vicinity of the proposed project (Figure 5), which we are proposing to use as mitigation to offset the unavoidable wetland impacts. This salt marsh site will be considered preservation mitigation and we believe is functionally of much higher quality. The jurisdictional boundaries of this area have not yet been delineated but can be once we receive verification that this is an acceptable means of mitigation. The Tidal Marsh preservation site is proposed to completely offset the impacts associated with the proposed roadway project. Because the project's cumulative impacts are greater than 1 acre, the Division of Water Quality will be requesting restoration and therefore, payment to the NC-EEP in-lieu fee fund is proposed (see attached EEP acceptance letter). Due to the preservation site being offered as mitigation we propose a payment to EEP for a 1:1 mitigation rate.

5.4 Flood Hazard:

The Carolina Beach Street Improvements Project is located completely outside of any 100-year Floodplain.

5.5 Floodplain Value:

The Carolina Beach Street Improvements Project is located outside the 100-year floodplain, and therefore there are no impacts proposed to the floodplain. Impact areas are limited to the fill required for the proposed road crossings. The crossings will be designed so as not to dam stormwater after a significant flood event, as well as not add any additional stormwater above current conditions to Carolina Lake.

5.6 Land Use:

Land use in the surrounding area consists of residential homes, and hotels as well as a large, Federally owned forested tract to the west of the proposed roadway improvement area. The adjacent residential areas are primarily single-family homes or duplexes. The areas immediately adjacent to the majority of the proposed roads do not currently contain any development and are primarily made up of individually owned lots that have remained undeveloped since the early part of the 1900's and since the original recordation of the plats.

5.7 Recreation:

Within the project boundaries of the proposed roads or within the immediate vicinity, there are no designated scenic or recreational areas. To the east of the road improvement area is Kure Beach, which is a small, family-oriented community. It offers scenic views of the Cape Fear River, the Atlantic Ocean, and Zeke's Island estuarine complex. Also nearby are the remains of Fort Fisher, the last major stronghold of the Confederacy and the largest earthen fortress of its kind in the South. Approximately 15 miles north of the proposed roadway improvements is the City of Wilmington. To the west of the proposed roadway improvements is Carolina Beach State Park, which was established in 1969 to preserve the unique environment along the intercostals waterway. The 761-acre park is located on a triangle of land known as Pleasure Island, which lies between the Atlantic Ocean and the Cape Fear River. The Town does not own any adjacent land so there are no parks proposed. There will, however, be east/west oriented sidewalks installed for pedestrian passage towards the beach. It is our opinion that this project will not have any significant direct impacts on state natural areas.

5.8 Safety:

Proposed roads will conform to standards agreed upon by the NC Department of Transportation (NC DOT) for this type of low speed/low traffic scenario. The speed limits will remain at 25 mph with 4 way stop signs at a majority of the intersections.

5.9 Aesthetics:

N/A

5.10 Historic Properties:

The State Historic Preservation Office (SHPO) in Raleigh, North Carolina maintains records and locations of buildings, structures, and objects that are listed by local governments as historic landmarks or that are listed or eligible for listing on the National Register of Historic Places. In April 2007 S&EC personnel searched the files at SHPO for historical structures in the property boundary. The records check at the (SHPO) revealed that there is one structure within a 3-mile radius that appears on the National Registry (NR), Determination of Eligibility (DOE), Study List (SL), or Locally Designated (LD) lists.

North Carolina Office of State Archaeology (OSA) records archaeological sites and excavations. The record check was preformed in April 2007. Several archaeological sites within a 3-mile radius of the surrounding area have been excavated. However, there are no documented archaeological sites or artifacts within the project area.

5.11 Water Supply:

Although the proposed road project does not require water, the adjacent lots will. The Town of Carolina Beach owns and operates the public water supply and sanitary sewer systems that currently exists throughout the project area. This existing water and sanitary sewer systems have the capacity to serve the project area.

5.12 Navigation:

No navigable waters are found on this site.

5.13 Energy Needs:

This public interest issue is not applicable to this application as the proposed road project will not require the direct use of energy. Adjacent lots, if developed, will require energy. Streetlights exist in some areas of the project. Streetlights will be installed in the project areas where none currently exist. Current energy supply in the area will meet the potential demand.

5.14 Mineral Needs:

This public interest issue is not applicable to this application as the proposed road project will not affect the need for minerals in the area nor will it produce any.

5.15 Economics:

A Fiscal Impact Analysis has not been completed on this project. Any development that occurs on adjacent lots will be residential.

5.16 Fish & Wildlife Values:

Cooley's Meadowrue (*Thalictrum cooleyi*), a federally endangered species is not documented on this site. Cooley's Meadowrue occurs on circumneutral soils in grass-sedge bogs and wet pine savannahs and savannah like areas. It may also grow along fire plow lines, in roadside ditches, woodland clearings, and power line rights-of-way, or in other areas of regular disturbance such as fire or mowing to maintain its open habitat. Plants often found growing with Cooley's meadowrue include tulip poplar growing with bald cypress (*Taxodium distichum*) and/or Atlantic white cedar (*Chamaecyparis thyoides*). Although many of the corridors have been disturbed recently (ongoing maintenance and the initial clearing) no individuals of Cooley's meadowrue were

observed during the wetland delineation and it is unlikely that the species exists within the project boundaries.

Rough-Leaved Loosestrife (*Lysimachia asperulaefolia*), a federally endangered species is not documented on this site. Rough Leaved Loosestrife generally occurs in the ecotones or edges between longleaf pine uplands and pond pine pocosins (areas of dense shrub and vine growth usually on a wet, peaty, poorly drained soil) (Barry 1980), on moist to seasonally saturated sands and on shallow organic soils overlaying sand. Rough-leaved loosestrife has also been found on deep peat in the low shrub community of large Carolina bays (shallow, elliptical, poorly drained depressions of unknown origin) (Matthews et al., 1980). The grass-shrub ecotone, where rough-leaved loosestrife is found, is fire-maintained, as are the adjacent plant communities (longleaf pine - scrub oak, savanna, flatwoods, and pocosin). Suppression of naturally-occurring fire in these ecotones results in shrubs increasing in density and height and expanding to eliminate the open edges required by this plant. Although many of the corridors have been disturbed recently (ongoing maintenance and the initial clearing) no individuals of Rough-Leaved Loosestrife were observed during the wetland delineation and it is unlikely that the species exists within the project boundaries.

The Red-cockaded Woodpecker (RCW) (*Picoides borealis*) (NC-E; US-E), is a habitat specialist, requiring mature growth of pine forest with a grassland component underneath. For nesting/roosting habitat, open stands of pine containing trees 60 years old and older are needed. Red-cockaded woodpeckers need live, large older pines in which to excavate their nest cavities. Longleaf pines (*Pinus palustris*) are most commonly used, but other species of southern pine are also acceptable. Dense stands (stands that are primarily hardwoods, or that have a dense hardwood understory) are avoided. Foraging habitat is provided in pine and pine hardwood stands 30 years old or older with foraging preference for pine trees 10 inches or larger in diameter. In good, moderately stocked, pine habitat, sufficient foraging substrate can be provided on 80 to 125 acres. The Red-cockaded woodpecker has a current documentation in New Hanover County. However due to very dense understory, only marginal suitable habitat (at best) occurs within the project area.

Eastern Wood Rat (*Neotoma floridana floridana*) (NC-T) has gray-brown or rusty brown fur on the back with darker hairs down the center of the back, a white belly and whitish paws. The white extends to the underside of the jaw. The well-furred tail is nearly as long as the body. It has short hairs and is bi-colored (dark on top and light underneath). Woodrats have long whiskers and large, unfurred ears. North Carolina ranks coastal populations of eastern woodrats as critically imperiled and mountain populations as rare or uncommon. Woodrats range along the coast from Pender County in southeastern North Carolina (Webster et al. 1985), southward along the entire coastal plain and into the sandhills of South Carolina. The habitat for this woodrat includes wooded areas, ravines, floodplain forest; swamps and osage orange and other hedges in some areas in southern U.S. The coastal subspecies has been found in a wide variety of habitats, including lowland deciduous forests from Florida northward to southeastern North Carolina, generally inside or near edges of forests, primarily deciduous forest. Other habitats include low, wet areas, ranging from marshes (Svihla and Svihla 1933) to swamps and

swamp hammocks (Bangs 1898, Harper 1927, Chamberlain 1928, Hamilton 1953). Due to the wide variety of habitats, it is possible for the woodrat to exist on site however no individuals were observed during the wetland delineation fieldwork.

Other Federally listed species in New Hanover County, NC:
Seabeach Amaranth (*Amaranthus pumilus*), No habitat.
American alligator, No habitat.
Green Sea Turtle (*Chelonia mydas)*, No habitat.
Loggerhead Sea Turtle *Caretta caretta,* No habitat.
Piping Plover (*Charadrius melodus*), No habitat.
Shortnosed Sturgeon (*Acipenser brevirostrum*), No habitat.
West Indian Manatee (*Trichechus manatus*), No habitat.

No Threatened and Endangered species surveys have been completed for this site. Stated observations were made during fieldwork associated with the wetland delineation.

Common Species
Brown pelicans thrive in this coastal environment. Warblers, finches, and woodpeckers fill the woods. In summer, painted buntings, yellowthroats and prairie warblers can be seen in the forest while ospreys populate channels and flats outside the project area. Besides providing habitat for resident land birds during the winter and summer, the project area is located along an important migration corridor and attracts many birds during their migrations.

The small ponds in proximity to the site are home to various frog species, including the rare gopher frog. Carolina anoles, five-lined skinks and six-lined racerunners are also found. White-tailed deer and raccoons are abundant, and gray squirrels, cottontails and other animals common to the southern coastal plain may be seen along with an occasional opossum or gray fox.

5.17 Shore Erosion & Accretion:

This public interest issue is not applicable to this project as the proposed road project will not affect shore erosion or accretion.

5.18 Food & Fiber Production:

This public interest issue is not applicable to this application as the proposed road project will not be producing any food or fiber and has not been in agriculture in the last ± 80 years.

5.19 Environmental Concerns:

Noise
This region of the county is predominantly a residential, beach-side community and the majority of the noise producing activities in the area are directly related to local residents and tourists. For example, the noise generated on site is primarily the result of the

operation of automobiles, boats, ferries, jet-skis, etc. Other current sources of noise are construction related (e.g. power tools, etc.). Expected project related, temporary sources of noise include the heavy equipment associated with the roadway improvement efforts performed by the Town or its associated sub-contractors. Currently, noise levels are low on-site. Noise levels are expected to increase during the normal working hours due to construction of the roadways. Construction is normally limited to daylight hours when loud noises are more tolerable. Every reasonable effort will be made to minimize construction noise. Immediately following completion of the project, noise levels will be similar to other residential communities within the area and what is experienced on site now.

Prevention of Contamination

The only potential toxic substances that may presently impact the proposed roadway improvement area are the fertilizers, herbicides or pesticides that may be used on the surrounding residential properties. During construction, there is the potential for accidental spills of fuels such as gasoline or diesel from the mechanical equipment. All re-fueling will occur in designated upland areas, as far as feasible from surface waters. Spills that may occur will be contained immediately by certified personnel and disposed of appropriately. Any appropriate requirements (including the Material Safety Data Sheet) will be followed for storage and disposal of any substance that can be considered toxic. After the installation of the proposed roads, automobiles and other mechanized equipment will be the major potential sources of toxic substances in the project area. During normal use, automobiles may leak oil, grease and other engine related fluids. Any runoff associated with the roadway project will be treated in the proposed vegetated or grassed swales adjacent to the roadway infrastructure prior to discharging to any surface waters. Overall, the impacts from toxic substances should be extremely minimal and are anticipated to be absent altogether. There are mitigative measures in place to treat the stormwater that runs off. Therefore, it is our opinion that no significant impacts from toxic substances will occur.

5.20 Property Ownership:

The proposed roadway corridors are owned by the Town. Many separate owners individually own the adjacent lots. Please see attached parcel data and maps within the Block 24 information for the adjacent owner information.

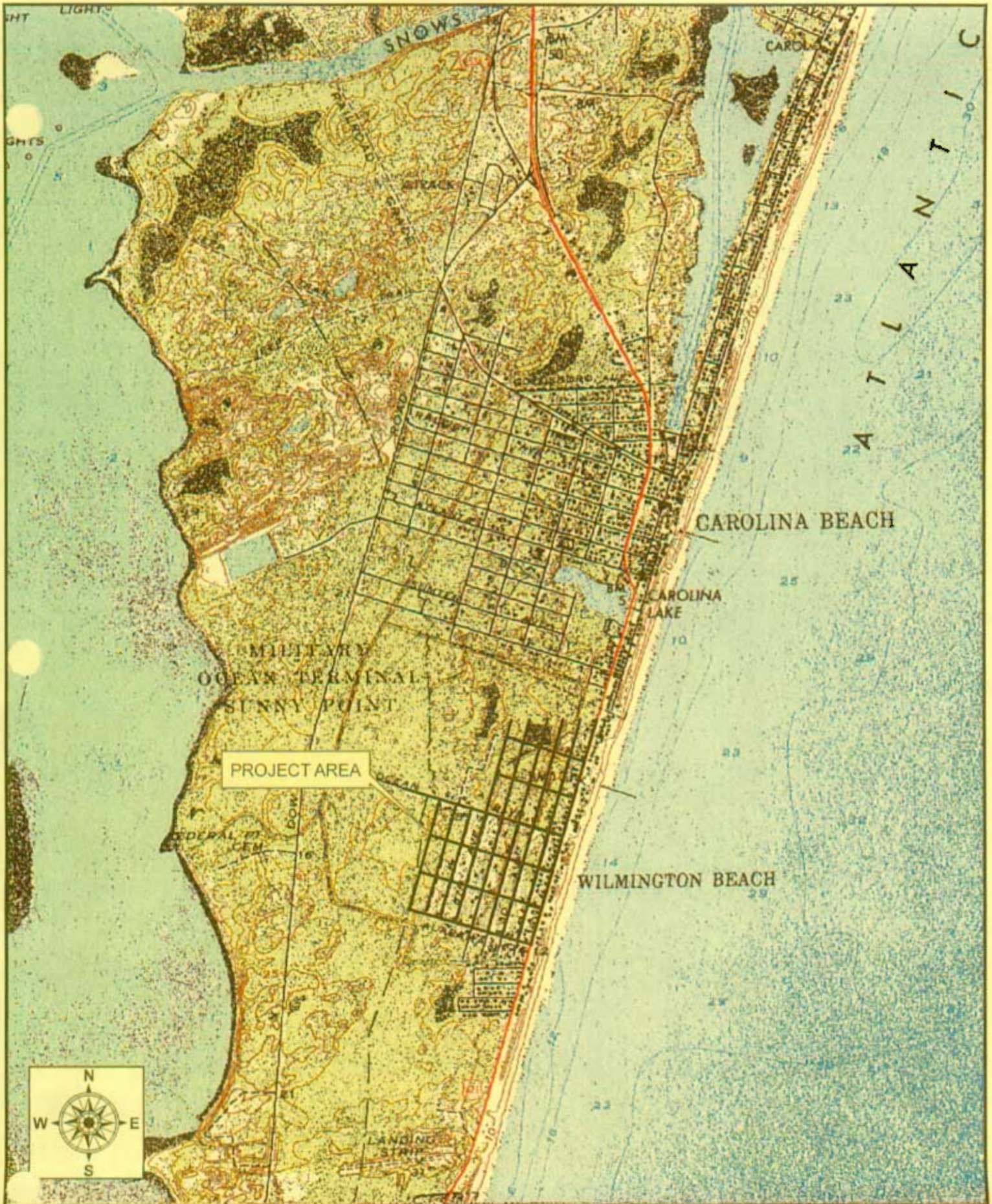
5.21 Needs and Welfare of the People:

The proposed roadway improvements will provide access to the adjacent, single family lots that were platted and sold more than 80 years ago. Access to these platted lots will address the need for additional housing in the area. The proposed roadway improvements will also provide accessibility for police, fire and other emergency services. The proposed sidewalks that are incorporated into the roadway improvements will address safety concerns for local residents and pedestrians that wish to access and utilize the nearby public beaches as well as the Federally and State owned Recreational Areas The proposed Sediment and Erosion Control BMPs and the use of vegetated grassed swales

will ensure that the proposed project does not negatively affect the surrounding communities or areas downstream.

6. MITIGATION

As mentioned previously, wetland mitigation will be required for the proposed impacts due to the roadway improvements. Mitigation for the proposed impacts of ??? acre will be required. As stated above, the Town currently owns +/- 40 acres of land that is predominantly tidal marsh (Figure 4) in the vicinity of the proposed project (Figure 5), which we are proposing to use as mitigation to offset the unavoidable wetland impacts. This salt marsh site will be considered preservation mitigation and we believe is functionally of much higher quality. The jurisdictional boundaries of this area have not yet been delineated but can be once we receive verification that this is an acceptable means of mitigation. The Tidal Marsh preservation site is proposed to completely offset the impacts associated with the proposed roadway project. Because the project's cumulative impacts are greater than 1 acre, the Division of Water Quality will be requesting restoration and therefore, payment to the NC-EEP in-lieu fee fund is proposed (see attached EEP acceptance letter). Due to the preservation site being offered as mitigation we propose a payment to EEP for a 1:1 mitigation rate. The NCEEP has preliminarily agreed to accept payment for and provide any additional required wetland mitigation, for up to 4 acres (see Figure 6).



Project No. 6253.W3	Scale: 1" = 2000'
Project Mgr. SC	Drawn By: MM
Date: 06/15/07	

FIG. 1 - USGS TOPOGRAPHIC MAP
TOWN OF CAROLINA BEACH
NEW HANOVER COUNTY, NC

SOURCE:
CAROLINA BEACH
USGS QUADRANGLE
DATED:1999

S&EC

11010 Raven Ridge Rd.
Raleigh, NC 27614
919-846-5900

PROPOSED FILL AREAS

APPROX. LOCATIONS OF S&EC IDENTIFIED WETLANDS THAT WERE NOT FIELD LOCATED BY A SURVEYOR

PROJECT AREA

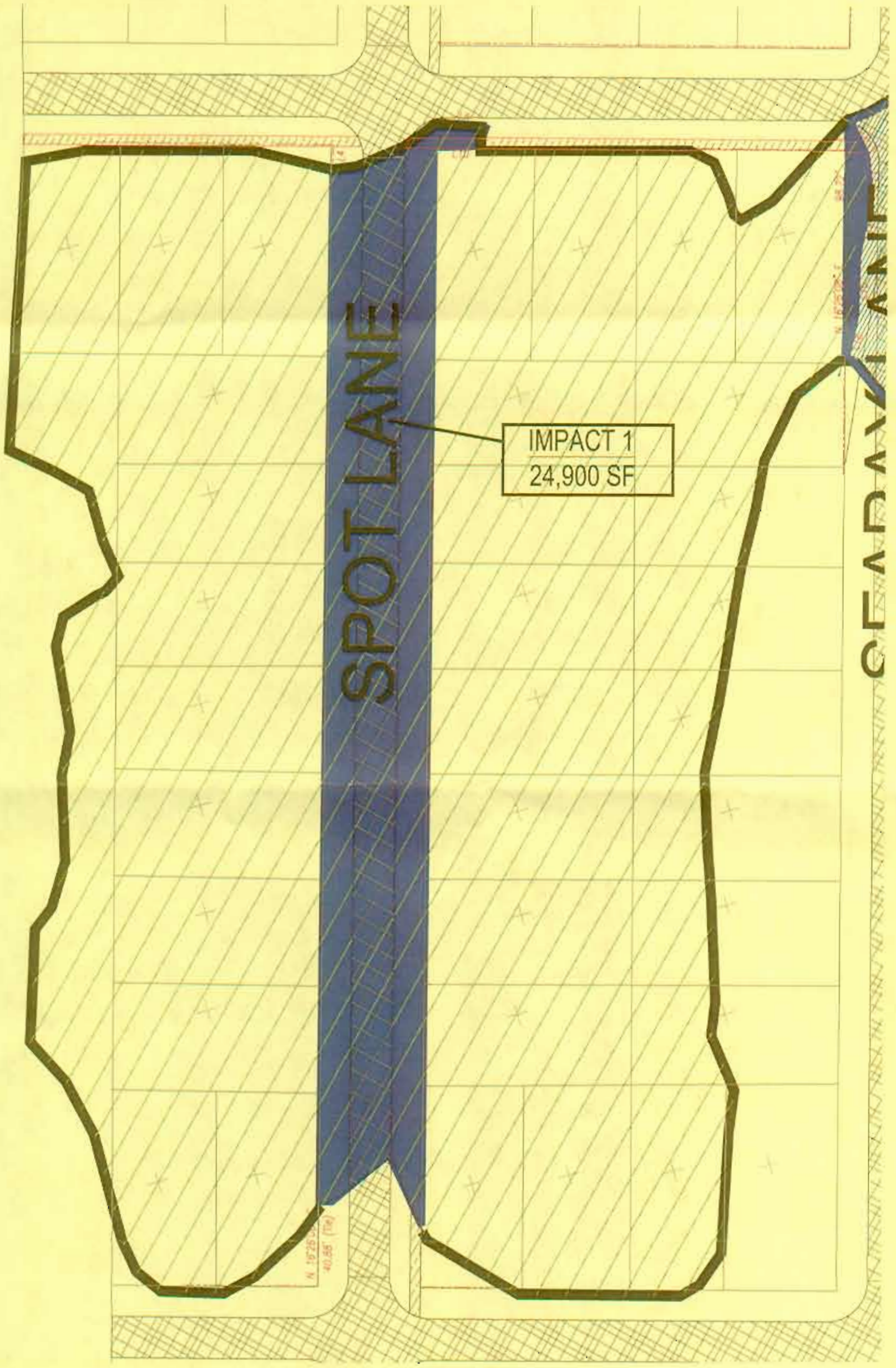
PREVIOUSLY (2001) IDENTIFIED DISTURBED WETLANDS

GRAPHIC SCALE
1" = 350'

350 0 350 700

Project No. 6253.W3	Scale: 1" = 350'	OVERALL IMPACT MAP TOWN OF CAROLINA BEACH NEW HANOVER COUNTY, NC	OVERALL MAP	S&EC 11010 Raven Ridge Rd. Raleigh, NC 27614 919-846-5900
Project Mgr. SC	Drawn By: MM			
Date: 06/14/07				

GRAPHIC SCALE
1" = 50'
50 0 50 100



PROPOSED FILL AREAS

APPROX. LOCATIONS OF S&EC IDENTIFIED WETLANDS THAT WERE NOT FIELD LOCATED BY A SURVEYOR

PROJECT AREA

PREVOUSLY (2001) IDENTIFIED DISTURBED WETLANDS

WETLAND IMPACT: 24,900 SF (0.57 AC.)

Project No.: 6253.W3	Scale: 1" = 50'
Project Mgr.: SC	Drawn By: MM
Date: 06/14/01	

IMPACT MAP
TOWN OF CAROLINA BEACH
NEW HANOVER COUNTY, NC

INSET MAP 1

S&EC
11010 Raven Ridge Rd.
Raleigh, NC 27614
919-846-5900

GRAPHIC SCALE
1" = 50'
50 0 50 100

IMPACT 2
1410 SF

IMPACT 7
PREVIOUSLY
IMPACTED
14,335 SF

IMPACT 3
3134 SF

IMPACT 6
681 SF

IMPACT 4
3681 SF

IMPACT 5
612 SF

SPOT LANE

SEARAY LANE

PINFISH LANE

PROPOSED FILL AREAS

APPROX. LOCATIONS OF S&EC IDENTIFIED WETLANDS THAT WERE NOT FIELD LOCATED BY A SURVEYOR

PROJECT AREA

PREVIOUSLY (2001) IDENTIFIED DISTURBED WETLANDS

PROPOSED WETLAND IMPACTS: 9,518 SF (0.22 AC.)
PREVIOUS WETLAND IMPACTS: 14,355 SF (0.33 AC.)

Project No. 6253.W3	Scale: 1" = 50'	IMPACT MAP TOWN OF CAROLINA BEACH NEW HANOVER COUNTY, NC	INSET MAP 2	S&EC 11010 Raven Ridge Rd. Raleigh, NC 27614 919-846-5900
Project Mgr. SC	Drawn By: MM			
Date: 06/14/07				

GRAPHIC SCALE
1" = 120'
120 0 120 240

OCEAN BOULEVARD

SOUTH CAROLINA AVE.

PINFISH LANE

MACKEREL LANE

BONITO LANE

SWORDFISH LANE

SNAPPER LANE

TEXAS AVENUE

DITCH

IMPACT 8
1798 SF / 222 LF

IMPACT 9
412 SF / 87 LF

IMPACT 10
733 SF / 108 LF

IMPACT 11
21 SF / 4 LF

IMPACT 12
46 SF / 9 LF

IMPACT 13
58 SF / 15 LF

IMPACT 14
256 SF / 88 LF

IMPACT 15
647 SF / 200 LF

IMPACT 16
281 SF / 140 LF

IMPACT 17
476 SF / 241 LF

IMPACT 18
451 SF / 225 LF

IMPACT 19
415 SF / 206 LF

PROPOSED FILL AREAS

APPROX. LOCATIONS OF S&EC IDENTIFIED WETLANDS THAT WERE NOT FIELD LOCATED BY A SURVEYOR

PROJECT AREA

PREVIOUSLY (2001) IDENTIFIED DISTURBED WETLANDS

DITCH IMPACTS-TEXAS AVENUE:
1989 SF (0.05 AC) / 872 LF
DITCH IMPACTS-SNAPPER LANE
(SOUTH OF OCEAN BLVD):
3605 SF (0.08 AC) / 673 LF

Project No. 6253.W3	Scale: 1" = 50'
Project Mgr. SC	Drawn By: MM
Date: 06/14/07	

IMPACT MAP
TOWN OF CAROLINA BEACH
NEW HANOVER COUNTY, NC

INSET MAP 3

S&EC
11010 Raven Ridge Rd.
Raleigh, NC 27614
919-846-5900

GRAPHIC SCALE
1" = 120'
120 0 120 240

IMPACT 33
2145 SF

IMPACT 34
3263 SF

IMPACT 20
2116 SF

IMPACT 21
2523 SF

IMPACT 22
1855 SF / 207 LF

IMPACT 31
1093 SF

IMPACT 32
1314 SF

IMPACT 23
2375 SF / 253 LF

IMPACT 28
2019 SF

IMPACT 24
2270 SF / 291 LF

IMPACT 30
1966 SF / 184 LF

IMPACT 29
2777 SF / 336 LF

IMPACT 25
2266 SF / 257 LF

IMPACT 26
348 SF / 63 LF

IMPACT 27
777 SF / 111 LF

DITCH

DITCH

DITCH

TENNESSEE AVE.

NORTH CAROLINA AVENUE

OCEAN BOULEVARD

MACKERAL LANE

PINFISH LANE

BONITO LANE

SWORDFISH LANE

SNAPPER LANE

BOWFIN LANE

TIDEWATER

PROPOSED FILL AREAS

APPROX. LOCATIONS OF S&EC IDENTIFIED WETLANDS THAT WERE NOT FIELD LOCATED BY A SURVEYOR

PROJECT AREA

PREVIOUSLY (2001) IDENTIFIED DISTURBED WETLANDS

DITCH IMPACTS-MACKERAL LANE:
4743 SF. (0.11 AC) / 520 LF
DITCH IMPACTS-SNAPPER LANE (NORTH OF OCEAN BLVD):
9891 SF (0.23 AC) / 1182 LF
WETLAND IMPACTS-14473 SF (0.33 AC)

Project No. 6253.W3	Scale: 1" = 50'
Project Mgr. SC	Drawn By: MM
Date: 06/14/07	

IMPACT MAP
TOWN OF CAROLINA BEACH
NEW HANOVER COUNTY, NC

INSET MAP 4

S&EC
11010 Raven Ridge Rd.
Raleigh, NC 27614
919-846-5900

Project No. 6253.W3	Scale: 1" = 200'
Project Mgr. SC	Drawn By: MM
Date: 07/20/07	

CAROLINA BEACH AERIAL MAP
MITIGATION SITE
CAROLINA BEACH, NC

S&EC
11010 Raven Ridge Rd.
Raleigh, NC 27614
919-846-5900

Project No. 6253.W3	Scale: 1" = 1500'
Project Mgr. SC	Drawn By: MM
Date: 07/20/07	

CAROLINA BEACH AERIAL MAP
MITIGATION SITE
CAROLINA BEACH, NC

S&EC

11010 Raven Ridge Rd.
Raleigh, NC 27614
919-846-5900