GALVESTON BAY WETLAND MITIGATION ASSESSMENT AND LOCAL GOVERNMENT CAPACITY BUILDING

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SUBMITTED BY:
Geotechnology Research Institute | Houston Advanced Research Center (HARC)
4800 Research Forest Drive, The Woodlands, TX 77381
PI: Lisa A. Gonzalez | Phone: (281) 364-6044|Email: lgonzalez@harcresearch.org
Project Team: Erin L. Kinney, PhD and Bradley S. Neish

HARC

Texas Coastal Watershed Program (TCWP)
Texas Agrilife Extension Service/ Texas Sea Grant, Texas A&M University System,
1250 Bay Area Blvd., Suite C, Houston, TX 77058
PI: John S. Jacob, PhD. | Phone: (281) 218-0565 | Email: jjacob@tamu.edu
Project Team: Rebecca M. DaVanon

TEXAS A&M AGRILIFE EXTENSION

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LIST OF ACRONYMS

C-CAP	Coastal Change Analysis Program
CFR	Code of Federal Regulations
CWA	Clean Water Act
DA	Department of the Army
EOT	Extension of Time modification
FOIA	Freedom of Information Act
HARC	Houston Advanced Research Center
HUC	Hydrologic Unit Code
ILF	In Lieu Fee program
LOP	Letter of Permission
MB	Mitigation Bank
MOA	Memorandum of Agreement
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration
NWI	National Wetland Inventory
NWP	Nationwide General Permit
NWPF	National Wetlands Policy Forum
ORM II	Operations and Maintenance Business Information Link Regulatory Module II
PGP	Programmatic General Permit
RGP	Regional General Permit
RIBITS	Regulatory In lieu fee and Bank Information Tracking System
SP	(Individual) Standard Permit
SWANCC	Solid Waste Agency of Northern Cook County
TCWP	Texas Coastal Watershed Program
USACE	US Army Corps of Engineers
USCB	US Census Bureau
USEPA	US Environmental Protection Agency

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EXECUTIVE SUMMARY

The fill or destruction of "jurisdictional" wetlands (i.e., wetlands that are regulated) requires a permit from the US Army Corps of Engineers (USACE), and in many cases the destruction of those wetlands must be offset through a process known as mitigation. Compensatory wetland mitigation requires the replacement of lost wetland values and functions, often through the construction of replacement wetlands, and sometimes through the preservation, enhancement, and restoration of existing wetlands. The USACE permit documents the requirements the permittee must complete to offset the wetland destruction that is a result of their authorized activities.

Wetlands are being lost at an increasing rate in the greater Houston region. In the regional epicenter, Harris County has lost over 30% of the freshwater marshes and swamps that existed in 1992, primarily to development. Loss in some of the surrounding counties is beginning to approach these numbers (Jacob et al 2014; Lester and Gonzalez 2011).

"No Net Loss" is the official policy of the wetland mitigation program administered under Section 404 of the Clean Water Act. The objective of the federal No Net Loss policy is to ensure that wetland area and wetland functions impacted or lost through development are replaced by the creation or restoration of similar wetland habitats and functionality, such that water quality in downstream waters is not degraded. However, without examining the long-term status of permitting, permit compliance, and compensatory mitigation, there is no way of knowing whether the No Net Loss policy is effective, and therefore whether changes in policy implementation might be in order.

Wetland habitats lying outside of the 100-year floodplain are largely unprotected by the federal regulatory system as it is currently implemented in the study area. The term "no net loss" should therefore be clarified to mean "no net loss of jurisdictional wetlands".

Two primary objectives were proposed as a part of this project:

1. Evaluate the completeness of records documenting the USACE wetland mitigation program in the 8-county region surrounding Houston, Texas between 1990 and 2012. Certain wetlands are regulated by the USACE because wetlands play a critical role in maintaining the aquatic integrity of our nation's waters.
2. Develop a regional decision support tool that can provide information to local governments and citizens, allowing them to access information describing potential development impacts to wetlands, floodplains and water quality.

Permit Summary: 1990 -2012

HARC and TCWP acquired 404 wetland permit information for 7,052 permit records from the USACE Galveston District Office for the period 1990 to 2012 in eight counties of the Houston-Galveston Region: Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller. Of the 7,052 permits, 80% were issued in three counties: Harris (2,512 permits or 36%), Galveston (1,853 permits or 26%), and Brazoria (1,247 permits or 18%). We also determined that during this time period 6,262 (89%) wetland permits issued in the 8-county study area were located within the 100-year floodplain, meaning that wetland impacts outside of the floodplain are accounted for in only 11% of permits. Little information describing acreage of wetland impacts and compensatory mitigation was available in the database of 7,052 permit records, there for a more detailed analysis of permit records was required.

Objective 1-The Mitigation Record

HARC and TCWP examined in detail a random sample of 95 permit records, plus an additional 28 semi-randomly-sampled permit records, obtained from the USACE Galveston District Office, for a total of 123 records out of the total database of 7,052 permit records, for a sampling rate of just under 2%. The analysis was strictly an assessment of the mitigation *documentation*. There was no ground-truthing to verify mitigation, and no on-site assessment of the adequacy of the mitigation in terms vegetation establishment, for example. TCWP examine aerial photography where possible.

Of the 123 permits subjected to a rigorous analysis, 56% were out of compliance with the permit conditions at the time of this study. For the 69 permits where compensatory mitigation was required, 57% were out of compliance, and 38% had no record that compensatory mitigation was ever started. In terms of the required wetland mitigation acreage, the ratio of impacted to compensated acreage was no better than 1:1, and evidence suggest it is as low as 1:0.5, far below what would be required for no net loss.

Based solely on the authorized impacts and required mitigation of the permits analyzed, TCWP found 76 acres of open water impacts, 365 acres of wetland impacts, 3,862 cubic yards of open water impacts, and 950 linear feet of open water impacts were authorized for the 123 sampled permits. In response to these impacts, 78 acres of open water mitigation, 1,378 acres of wetland mitigation, 815 linear feet of open water mitigation, 58 mitigation bank credits, and 610 acres of upland or riparian buffer or other wetland benefit were required to be completed by the 123 sampled permits (Table 4).

It should be noted that 13 permits were found to have no work occurring in jurisdictional waters at the time of review. No evidence of impacts or mitigation was found in the administrative record for these permits. These permits account for 9 acres of open water impacts, 0.7 acres of wetland impacts, 0.004 acres of open water mitigation, and 128 acres of wetland mitigation authorized that never occurred on the ground. For this reason, these acreage amounts are removed from calculations of final mitigation ratios (Table 5, 6).

The analysis revealed that 51 (41%) of the 123 permits were out of compliance with the avoidance, minimization, or compensatory aspect of mitigation or the general conditions of the permit. The most common reason for non-compliance was an incomplete record of compensatory monitoring reports or required minimization reports.

Sixty-nine (56%) of all the 123 permits examined by TCWP required on-the-ground compensatory mitigation. Of these 69 permits, 38 (55%) were out of compliance due to an issue with their compensatory mitigation requirements. Of these 38 out-of-compliance permits, there was no evidence of compensatory mitigation in the administrative record of 26 (38%) of those 69 permits. These 26 permits comprised 89 acres of required wetland mitigation where no evidence of compensatory mitigation is on file in the administrative record.

Further review of the other 12 out-of-compliance permits where the administrative record showed some evidence of compensatory mitigation revealed that for 6 of these permits the administrative evidence that mitigation construction/preservation ever occurred was quite weak. These 6 permits with weak evidence of compensatory mitigation accounted for 973 acres of required wetland mitigation where little evidence of compensatory mitigation is on file in the administrative record.

These 32 permits, for which there is a poor or non-existent record of mitigation completion, account for a total of 1,062 acres of required compensatory mitigation. The overall amount of required mitigated acreage that shows evidence of having occurred and been completed based on the administrative records provided is thus only 187.28 acres. Given a total of 364.739 acres of wetland impacts, the wetland impact to mitigation ratio is 1 to 0.5.

Note that two permits account for 88% of the combined acreage for the 32 permits (936 of 1,062 acres). Even factoring out the impacts and mitigation for these two large permits which may skew the data, the 30 permits account for 126 acres of required mitigation out of a total of 313 total required acres (Tables 4a, 4b). When these two permits are removed, the total wetland impacts are reduced to 174 acres, resulting in a wetland impact to mitigation ratio of 1 to 1.1.

The record for mitigation occurring through mitigation banks is significantly better. The purchase of 45.7 credits is documented in the administrative record. There is no evidence of purchase of 12.293 credits that are required for compensatory mitigation.

If the random sample of full permit records is an accurate snapshot of permitting activities in the region, these numbers suggest that the Houston-Galveston Region may not be achieving No Net Loss of critical wetland functions and values. The continued degradation of the region's water bodies as evidenced by 303(d) listed impairments is consistent with these numbers, and does not bode well for the future integrity of these water bodies.

There was no evidence of unprofessional or inexpert conduct on the part of the USACE and its staff who are committed professionals. In fact, this study revealed that the USACE exceeded their own targets for internal audits of the permit records. The USACE Galveston District Office is overburdened by the load they are given for a region this size and needs additional resources.

An assessment of mitigation banks (MBs) and In Lieu Fee programs (ILFs) in the region was also conducted. HARC collected publicly available mitigation bank ledger details from the USACE Regulatory In lieu fee and Bank Information Tracking System (RIBITS). Comparisons between the RIBITS ledger data and the ledgers received directly from the mitigation banks showed that the majority of the RIBITS records that were compared were correct. However, we found only 3 permits where the permitted impacts to wetlands were within the same HUC 8 watershed as the mitigation bank in which credits were purchased. If mitigation bank and in-lieu fee mitigation increases, then more wetlands and the ecosystem services that they provide will likely be lost from their original watersheds and mitigated in different watersheds.

Based on evidence found in reviewed permit administrative records, this study reveals that current compensatory mitigation practices may not be effective at maintaining the aquatic integrity of regional waterways. Importantly, most of the wetland loss we are witnessing now does not even require a permit, much less mitigation, because the federal permitting process considers that the vast majority of freshwater wetlands in this region are not in any way connected to the bayous and creeks that drain this region[1].

Objective 2 – The Houston-Galveston Regional Wetland Impact Screening Tool

Because so few wetland permits account for impacts outside of the 100-year floodplain, local development decisions in the Houston-Galveston region are often made independent of the federal wetland permitting process. Many local governments in the region are concerned about water quality and flood issues and often local permitting processes account for on-site sewage facilities (septic systems) and development in the floodplain. However, there appears to often be a disconnect between the issues of water quality and flooding and the role that wetlands play in providing these important ecosystem services. Therefore, the second objective of the project seeks to build capacity of local governments and citizens in the Houston-Galveston region so that they might participate more directly in the protection of the remaining wetlands in the Lower Galveston Bay watershed through impact avoidance.

[1] Recently completed studies suggest that almost all of the freshwater prairie and forested pothole depressions are connected to waters of the US and should therefore be considered jurisdictional (Wilcox et al,. 2011; Forbes et al., 2012).

HARC designed a regional decision support tool known as the Houston-Galveston "Wetland Impact Screening Tool" to facilitate watershed-based decision making. The target audience is citizens and local government decision makers involved in making local permitting decisions for new development in the region. The mapping application can be accessed at http://maps.harcresearch.org/WetlandTool/.

Potential development project sites in the Houston-Galveston region can be 1) searched by address, 2) drawn in using a computer mouse, or 3) uploaded as a shape file. The tool also calculates acreage of wetlands impacted, location per the 100-year floodplain, associated 303(d) impaired streams, and mitigation bank service areas that overlap with the project. The tool also provides the percent impervious surface coverage within the watershed and notifies the user of potential impacts on surface water quality.

(Left) Photo of a palustrine emergent wetland at Armand Bayou nature Center in Southeast Harris County. Courtesy Andy Sipocz. **(Right)** Photo of development encroaching on palustrine emergent wetlands in Northwest Harris County. Courtesy John Jacob.

INTRODUCTION

The goals of the Galveston Bay Wetland Mitigation Assessment and Local Government Capacity Building project are to (1) examine the long-term status of wetland permit and compensatory mitigation activities in the Lower Galveston Bay Watershed and (2) bridge the gap between local residential and commercial development, land use permitting decisions of local governments, the federal wetland permitting process, and regional habitat conservation goals.

Several studies have documented severe rates of wetland loss across the region in the past 20-30 years (Lester and Gonzalez, 2011; Jacob et al., 2014). Well over 30 percent of forested wetlands and marshes were lost in Harris County, and losses in other counties are proceeding apace; this trend will likely increase as an additional 3 to 4 million people move into the region in the next 30-40 years (see Figure 1). The loss of these wetlands is a concern because wetlands play a central role for maintaining water quality in our bays and bayous and for reducing downstream flooding.

Wetlands are regulated under Section 404 of the Clean Water Act (CWA), and cannot be filled or otherwise destroyed without a permit from the US Army Corps of Engineers (USACE). The loss of regulated (i.e. "jurisdictional") wetlands must be made up or "mitigated", either by creating new wetlands or by preserving and restoring existing wetlands. This study summarizes permit activity over a 22 year time period and examines the documentary record of the compensatory mitigation program, and then proposes a tool to help local governments to make watershed-based decisions and use the mitigation process to benefit their communities.

REGIONAL POPULATION GROWTH

The U.S Census Bureau estimates that as of 2010 more than 4.8 million people in 1.6 million households live in the 5 counties of the Lower Galveston Bay Watershed—representing an increase of more than 800,000 people and 187,000 households since the year 2000. Adjacent Fort Bend and Montgomery counties have more than one million residents and have been identified as two of the fastest-growing counties in the Houston-Galveston region. Based on data from the US Census Bureau (USCB 2010) and projections by the Texas State Data Center (TSDC 2011), population in the 8 counties around Galveston Bay is expected to reach more than 9 million people by the year 2040 (see Figure 1 and Figure 2).

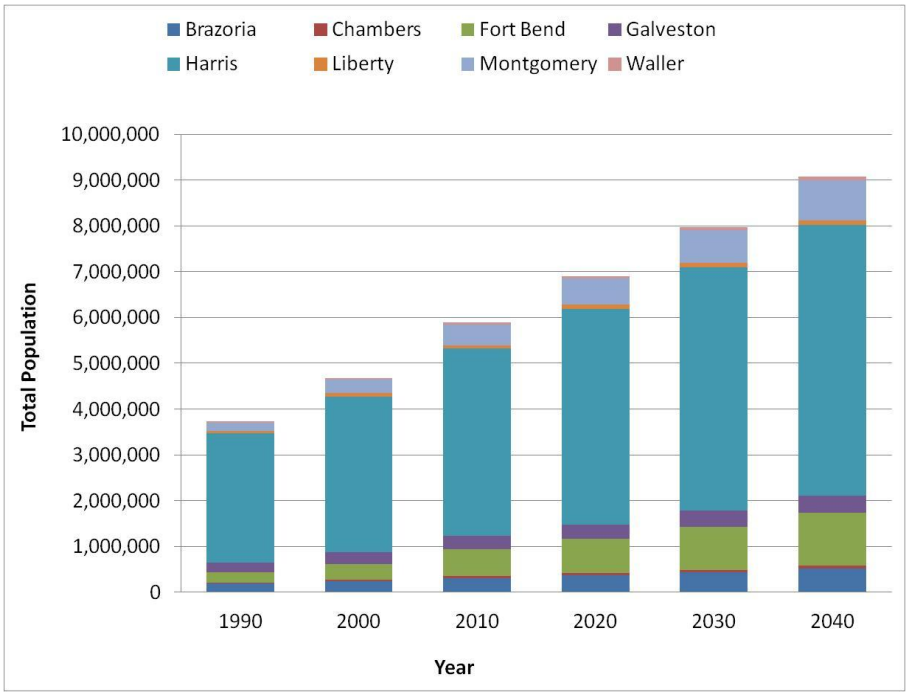


Figure 1. Population in the Houston-Galveston Region, 1990-2040. Data Source: US Census Bureau Population Census (for years 1990-2010); TX State Data Center, Population Projection (for years 2020-2040).

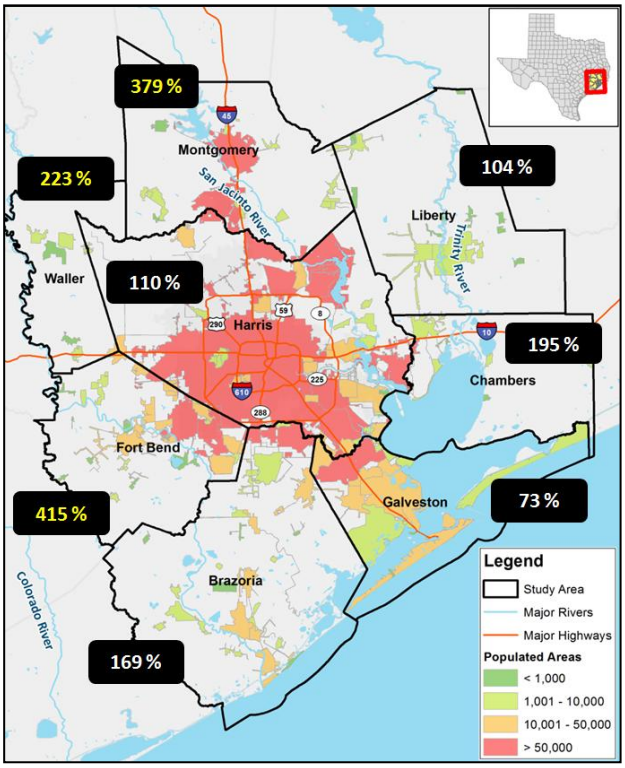


Figure 2. Projected percent change in population 1990 to 2040. Data Source: (USCB 2010; TSDC 2011)

REGIONAL WETLAND TRENDS

According to the 2010 National Oceanic and Atmospheric Administration (NOAA) Coastal Change Analysis Program (C-CAP) dataset, palustrine (freshwater) wetlands (see Figure 3) continue to be lost at a rate that is higher than any other wetland class in the Houston-Galveston region; this trend continues unabated from the 1950s (White et al. 1993, Lester and Gonzalez 2011).

In recent study that compared National Wetland Inventory (NWI) data developed in 1992–93 to current digital aerial photography, Jacob et al. (2014) found that most of the freshwater wetland losses in the region from 1992 to 2010 occurred in rapidly growing Harris, Montgomery, Brazoria, and Fort Bend Counties with greatest loss occurred in Harris County.

The NOAA CCAP (2010) dataset describes large losses of palustrine forested areas with more than 43,000 acres of forested freshwater wetlands being converted to developed lands or other habitat classes since 1996. This is consistent with losses of forested wetlands nationally. According to the *Status and Trends of Wetlands in the Conterminous United States 2004 to 2009* (Dahl 2011), forested wetlands sustained their largest losses, nationally, since the 1974 to 1985 time period. Figure 3 depicts the extent of freshwater palustrine wetlands (emergent, forested and scrub/shrub) in our study area.

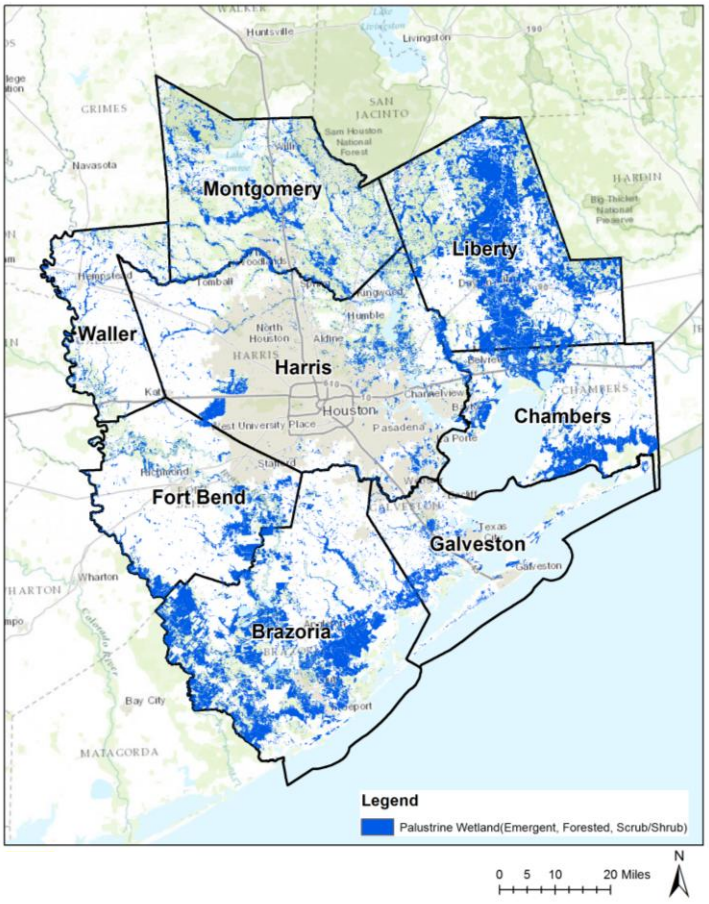


Figure 3. Map depicting freshwater palustrine wetlands in the 8-county study. Data source: NOAA CCAP 2010

Figure 4 depicts heat maps of net wetland losses and gains of estuarine emergent, palustrine forested, palustrine scrub shrub, and palustrine emergent wetland classes as well as all wetland classes combined; losses are depicted in gold and gains in blue. Gains in palustrine scrub shrub and palustrine emergent wetlands (see also Table 2) are largely due to the conversion of palustrine forested wetlands. The change is likely due to land clearing activities throughout the study area that remove the forest vegetation but retain the wetland soil characteristics.

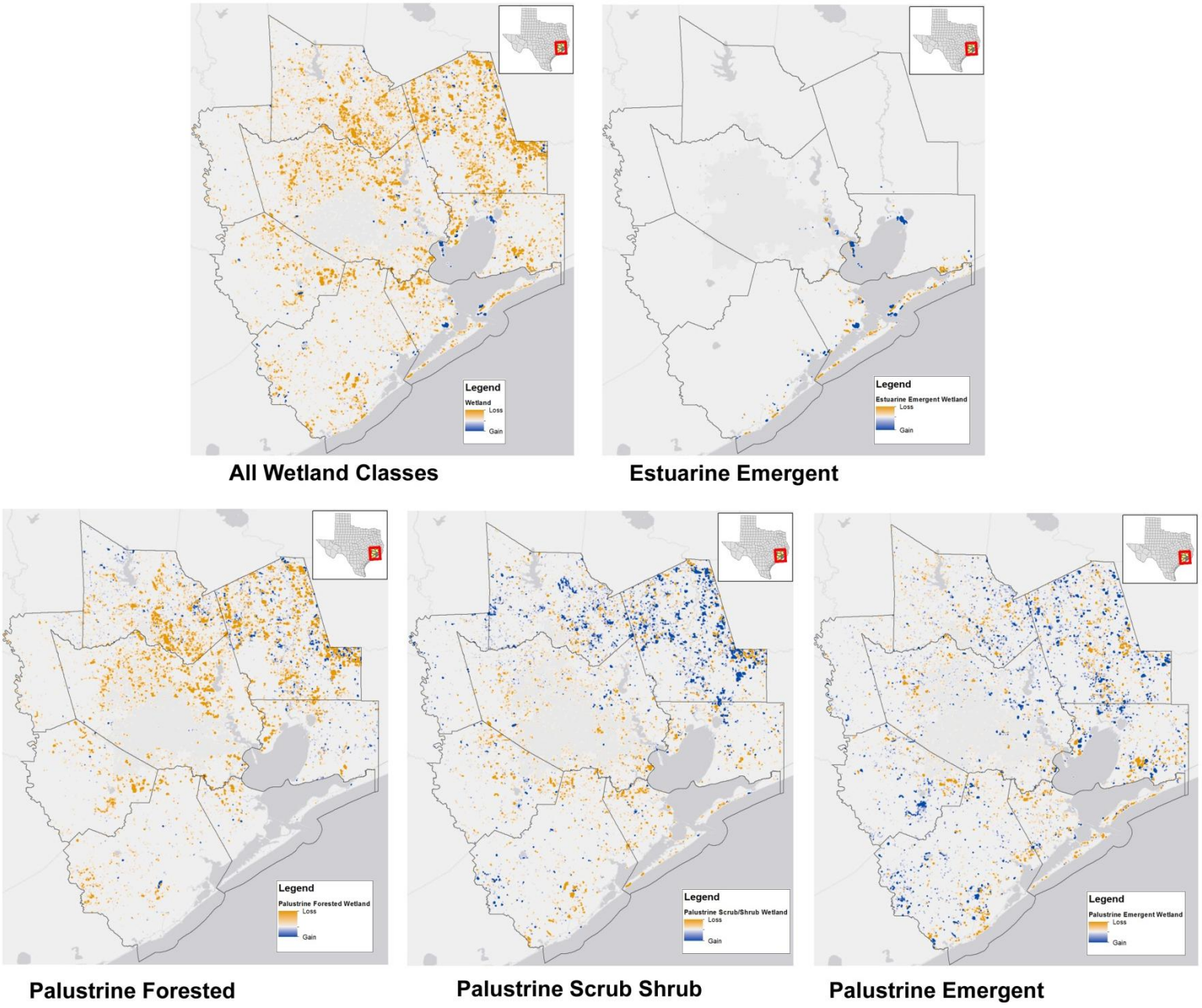


Figure 4. Heat map showing net loss and gain of wetland classes to non-wetland land use land cover classes between 1996 and 2010 in the 8 county study area. Gains are in blue, losses are in gold. Data source: (NOAA 2010).

REGULATION OF WETLANDS AS WATERS OF THE US

The fill and destruction of wetlands that are considered to be connected to navigable waters is regulated through Section 404 of the federal Clean Water Act (33 USC §1344; 40 CFR § 230 through 233). The 404 permitting process is implemented and enforced by the Secretary of the Army, acting through the Chief of Engineers (the US Army Corps of Engineers or USACE), and is overseen by the US Environmental Protection Agency (EPA). In addition to the Regulatory Branch-Evaluation Section of USACE, multiple departments within USACE including but not limited to Archaeology, Real Estate, Programs and Project Management, Operations/Navigation, Engineering, and Public Affairs may be involved in the internal review of any given permit.

While wetland permits are authorized by the USACE, other agencies and organizations are involved in the permit review process as well. These agencies and programs reside within the US Departments of Commerce and Agriculture, and also include the US Fish and Wildlife Service, National Oceanic Atmospheric Administration, and state fish and wildlife agencies. This review of permits is authorized through the consistency review process under federal statutes such as the Fish and Wildlife Coordination Act and the Coastal Zone Management Act. Consistency review is a mechanism through which federal agencies and their and state agency partners coordinate and cooperate to ensure that federal activities authorized under a federal policy are consistent with other federal policies.

Public interest review of federal permits is required by the National Environmental Policy Act (NEPA) of 1969. The purpose of the public interest review is to balance the proposed project and concerns of the public (e.g. individuals and private entities such as nongovernmental organizations and for profits entities). The public interest review comment process is initiated by the USACE for individual standard permits and general permits (e.g. nationwide, regional or programmatic permits).

When impacts to wetlands cannot be avoided through the permitting process, compensatory mitigation is required to replace or offset the loss of wetland function and area. In a Memorandum of Agreement (MOA) signed February 6, 1990 between the USACE and the USEPA (USACE 1990), compensatory mitigation was defined as a sequential process of avoiding, minimizing, and compensating for adverse impacts to the aquatic ecosystem. It improves the planning, implementation and management of compensatory mitigation projects by emphasizing a watershed approach in selecting compensatory mitigation project locations, requiring measurable, enforceable ecological performance standards and regular monitoring for all types of compensation and specifying the components of a complete compensatory mitigation plan. This was the primary definition referenced for compensatory mitigation up until the USEPA document, Compensatory Mitigation for Losses of Aquatic Resources, Final Rule (33 CFR 332) was released April 10, 2008, which reaffirms the earlier definition.

Compensatory mitigation is intended to be achieved through activities that restore, establish, preserve, or enhance wetland habitat and is implemented using the following mechanisms: permittee responsible mitigation, in-lieu fee mitigation, and mitigation banking. Permittee responsible mitigation requires the applicant to mitigate for the loss of wetlands at or near the impact site and generally in the same watershed; the permittee is responsible for mitigation success. In-lieu fee mitigation is achieved by the permittee paying into an in-lieu fee program that funds the creation, restoration or preservation of wetland or other aquatic habitats. In-lieu fee programs are usually managed by public agencies or nonprofit organizations. In mitigation banking, the permittee purchases credits from a mitigation bank - a natural resource area that has previously been created, restored or preserved and set aside to compensate for future development. Mitigation banks are managed by authorized, third-party entities such as public agencies, nonprofit organizations, or for-profit corporations.

The federal "No Net Loss" policy was recommended by the National Wetlands Policy Forum in 1987 (NWPF 1988) and adopted by President George H. W. Bush in 1989. No Net Loss is intended to balance the needs of economic development and ecological conservation. The objective of No Net Loss is to ensure that wetland areas and wetland functions impacted or lost through development are replaced by the creation or restoration of similar wetland habitats, or preservation and enhancement of existing habitats. The success of the federal No Net Loss policy has been argued over the years (Brown and Lant 1999; Bendor 2009; Pittman and Waite 2010) as wetland losses continue (Dahl 2011).

Two US Supreme Court rulings, the Solid Waste Agency of Northern Cook County (SWANCC) versus the Army Corps of Engineers, *531 U.S. 159 (2001)* and Rapanos v. United States, *547 U.S. 715 (2006)*, have altered and led to inconsistencies in the implementation of the 404 permitting process throughout the United States. The SWANCC ruling limited the jurisdiction of the Clean Water Act §404 by removing "isolated wetlands" from the jurisdiction of the Clean Water Act (Christie and Hausmann 2003; van der Valk and Pederson 2003). The Rapanos ruling resulted in a three-way split among the justices with regards to which wetlands are protected under the Clean Water Act. Four Justices under Justice Scalia held that "waters must be continuously flowing and have a continuous surface water connection to navigable waters" (Sponberg 2009). Another four justices held that all wetlands should be regulated, regardless of their permanence. Justice Kennedy, the stand alone justice in this 4-1-4 split decision, sided with Justice Scalia, but sided with the other justices when a "significant nexus", not just a continuous surface water connection, could be demonstrated to waters of the US. In 2007, the USACE and USEPA issued joint guidance to clarify the application of the Rapanos ruling, with Justice Kennedy's opinion essentially emerging as the controlling opinion. The nature of the "significant nexus" is the subject of much debate and analysis, recently collected in "Connectivity of Streams and Wetlands to Downstream Waters: A Review and Synthesis of the Scientific Evidence (External Review Draft)" (USEPA 2013).

While the federal 404 permitting process regulates impacts to wetlands with state agency review and comment, land use and development permitting decisions are largely made at the local level. In the Houston-Galveston region, this study estimates that there are no less than 118 municipal government entities in an 8-county area that includes Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties. Each county and municipal government agency regulates development according to its own set of ordinances and permitting procedures typically based on the need to ensure the safety and welfare of the public. While public safety and human wellbeing issues such as flooding and water quality (e.g. impacts of high bacteria levels on contact recreation activities) are recognized by local governments, it appears that the issues are disconnected from the recognition that wetlands provide important ecosystem services that can alleviate these quality of life concerns.

The federal permitting and compensatory mitigation process is the key way in which wetland function and ecosystem services are maintained under the Clean Water Act in the Houston-Galveston region. However without examining the long-term status of permitting, permit compliance, and compensatory mitigation, there is no way of knowing whether the No Net Loss policy is effective, and therefore whether changes in policy implementation might be in order. Furthermore, the federal wetland permitting process as it is implemented in Texas is disconnected from development ordinances and permitting procedures implemented by local and county governments. The trend of wetland loss in the Lower Galveston Bay Watershed will likely continue unless the entities responsible for regulating local residential and commercial development activity and land use have the interest in and ability to consider wetland habitats as well as wetland permit and compensatory mitigation activities in local permitting decisions.

JURISDICTIONAL AND NON-JURISDICTIONAL WETLANDS

Wetland permits are not required for activities in all wetlands. Rather, permits are only required for activities in "jurisdictional" wetlands. The Clean Water Act identifies jurisdictional wetlands (wetlands under the jurisdiction of the Clean Water Act in which the discharge of dredge or fill materials requires a 404 permit issued by the Corps of Engineers) as those that have an impact on "waters of the United States" (see Figure 5).

The Galveston District of the USACE currently only considers wetlands within the 100-year floodplain or with a distinct "bed and banks" connection, with an "ordinary high water mark", to be waters of the US. Two recently completed studies (Wilcox et al. 2011; Forbes et al. 2012), however, have documented a significant hydrologic connection between the vast majority of coastal pothole depressions in the study area and waters of the US.

Definition of "***waters of the United States":***

1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2) All interstate waters including interstate wetlands;
3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
    a. Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
    b. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
    c. Which are used or could be used for industrial purposes by industries in interstate commerce;
4) All impoundments of waters otherwise defined as waters of the United States under this definition;
5) Tributaries of waters identified in paragraphs (s)(1) through (4) of this section;
6) The territorial sea;
7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (s)(1) through (6) of this section; waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States.

Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

Figure 5. Jurisdictional waters of the United States as identified by the USACE. (40 CFR 230.3 (s))

PROJECT METHODOLOGY

ADVISORY TEAM MEETINGS

The Galveston Bay Wetland Mitigation Assessment and Local Government Capacity Building project convened two stakeholder meetings. The initial stakeholder workshop was held on February 28, 2013 and was attended by representatives of NOAA, the Galveston Bay Estuary Program, Galveston Bay Foundation, Texas Parks and Wildlife Department, the US Army Corps of Engineers, and the US Fish and Wildlife Service. Project goals and objectives were outlined and feedback from stakeholders was used to create the project work plan.

The final stakeholder workshop was held on June 25, 2014 and was attended by representatives of the Galveston Bay Estuary Program, Galveston Bay Foundation, Texas General Land Office, Harris County Flood Control District, SWCA Environmental Consultants, and Texas A&M University at Galveston. Preliminary project findings were reported and feedback from stakeholders was used to conduct final analyses and draft the project final report.

WETLAND PERMIT DATA ACQUISITION

Through a Freedom of Information Act (FOIA) request in March 2013, HARC and TCWP received a database of 19,168 permit actions documented by the USACE. The database was generated by the USCAE's Operations and Maintenance Business Information Link Regulatory Module II (ORM II) geospatial database for all regulatory actions in the 8-county region. The ORM II database is an electronic information system used by the USACE Regulatory Program. ORM II replaces the USACE permit data tracking system previously known as RAMS II and is utilized by all USACE districts in the US.

The USACE ORMS II data spans a time period from May 1990 through December 2012 for the following 8 counties in the Southeast Texas study area: Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller. The database contains 5 permit action types: Letter of Permit (LOP), Nationwide General Permit (NWP), Programmatic General Permit (PGP), Regional General Permit (RGP), and Individual Standard Permit (SP) (see Figure 6).

From the 19,168 permit actions, the permit actions were grouped by unique Department of Army Number (DA Number) and permits that showed evidence of off-shore activity were removed, leaving 7,052 unique permits (identified by DA Number). This ORM II dataset proved to be a rich trove of information, but at a fairly high regional level. Appendix A lists the 66 fields in the database of 7,052 wetland permits. It should be noted that many of the fields contained blanks or unquantifiable information, especially for permits issued prior to 2008.

The ORM II dataset of 7,052 permits was useful for determining number of permits, year, and location of permitted activity. But more specific information that would allow a quantitative assessment of compliance was not available in the ORMII database. For example, information regarding acreage of permitted impacts, acreage (or functional equivalent) of compensatory mitigation, and the actual compliance record was lacking. A more robust permit record was thus required. A fully-documented permit record must be obtained through a Freedom of Information Act (FOIA) request.

STRATIFIED SAMPLING OF FULL PERMIT RECORDS

In order to create a subset of the USACE 404 permit actions and analyze impacts to wetlands and compensatory mitigation of the impacted wetlands, the project focused on Individual Standard Permits (SPs) and Nationwide General Permits (NWPs), as these two categories represented the majority of permits with mitigation according to the ORM II dataset of 7,052 permits. Of the 7,052 permits in the database, 5,021 were NWPs or SPs. That subset of permits was then randomly sampled by developing a Python script in ArcGIS to ensure a representative sample of permits. Furthermore, because of the lack of evidence of mitigation for a majority of permits in the ORM II dataset, it was decided to specifically sample an even number of permits from those with evidence of mitigation and those without in order to see if any patterns arose.

Because of the small number of permits in the ORM II dataset indentified as requiring mitigation (n=172), HARC reviewed permit information that it had gathered previously for its work on the Galveston Bay Status and Trends Project. Datasets included: full permit records obtained by HARC in 2004; USACE Regulatory Analysis and Management System II (RAMS II) data obtained in 2004, 2006 and 2007; as well as permit data obtained from the Galveston Bay Foundation; Texas Parks and Wildlife Department; and the Texas Commission on Environmental Quality. Using the additional data, HARC identified a total of 727 NWPs and SPs that included some documentation of required compensatory mitigation. Thus, the final sample subjected to the random sampling method consisted of 4 groups of 25 permits:

- 25 permits randomly selected from SP's documented as "mitigated" (sampled from 370),
- 25 permits randomly selected from SP's not documented as "mitigated" (sampled from 599),
- 25 permits randomly selected from NWP's documented as "mitigated" (sampled from 357),
- 25 permits randomly selected from NWP's not documented as "mitigated" (sampled from 3,695).

The project team requested 100 fully-documented permit files according to associated DA number via Freedom of Information Act request (FOIA) (see Appendix B). Due to limitations set for the USACE regarding the response time allowed for FOIA requests (20 working days), the project team was advised by Corps personnel to limit requests to 6-10 permits per request. Ninety-five of one hundred requested full permit records were received over a period of months. Five of the requested administrative records were not received.

Of the 95 received permits 51% represented NWPs and 49% represented SPs; 7 of the 8 counties in the study area (all except Waller County) were represented by at least one permit, 89% were inside the 2009 100-year floodplain. Of the 95 full permits received, 51 required some form of compensatory mitigation with 39 being permittee responsible and 9 being mitigation bank or in lieu fee program and 3 requiring combined permittee responsible and mitigation bank mitigation. We assume but cannot know for sure that we received the complete record for each permit request.

In addition to the 95 randomly-sampled fully-documented permits, an additional 28 permits were also collected, for a total of 123 permit records. Ten permits were requested at the outset of the study before the sampling protocol had been fully established, as described above. These permits were requested mainly to assess the kind of data that would be obtained from a full FOIA request of discrete permits, in preparation for formal sampling. One Regional General Permit (RGP) and one Letter of Permission (LOP) were included in the permits received; from these TCWP concluded that inclusion of RGPs and LOPs would not contribute significantly to this project. Another 20 permits were requested to sample specific periods in greater detail. Appendix C shows that compliance statistics did not change markedly by the addition of the additional 28 permits semi-randomly sampled. For this reason, TCWP used the full sample of 123 permits for analysis in figures and tables throughout the study.

Review of the full permit records resulted in the creation of a *dossier* for each permit (see Appendix E and Appendix I). Each permit dossier summarizes information pertinent to the analysis along with contextual information about the circumstances surrounding the permit, including what regulations were in place at the time the permit was created. Information in the dossier included date and type of permit, temporary and permanent impacts to jurisdictional and non-jurisdictional wetlands, type and quantity of any mitigation actions, whether there was documentation of compensation, whether there was visual evidence of construction and/or mitigation activities on historical aerial images available on Google Maps, GIS shape files of impact and mitigation sites (when possible), and any requirements and accompanying documentation of special conditions present in the permit (see Appendix I). Compliance was assumed unless general or special conditions were not met.

COMPLIANCE ANALYSIS

For this project, compliance means that all of the general and special conditions associated with a particular permit were documented as complete, and that all required inspections and reports have been completed, within the timeframe allotted by the permit. Not all permits assessed were expected to have been complete as of the end of the study period (12/31/2012). In the case where mitigation was on going at the end of the study period, compliance was assessed based on what permit requirements were due up until 12/31/2012. Additionally, some permits assessed were expected to have been invalidated by the SWANCC ruling in 2002.

In this case, compliance was assessed based on existing permit requirements until the 01/19/2001 release of the USEPA Guidance Memorandum "Supreme Court Ruling Concerning CWA Jurisdiction over Isolated Waters" No on-the-ground inspections of actual mitigation projects were carried out as part of this project. TCWP did examine Google Earth aerial photography from a variety of dates to determine whether or not the project itself had been started, and whether or not there was any evidence that some form of mitigation work had actually been carried out.

DISCUSSION

SUMMARY OF 404 PERMIT DATA (1990-2012) FROM THE ORM II DATABASE

BY PERMIT TYPE

HARC and TCWP examined the ORM II dataset of 7,052 unique permit numbers to observe general trends and determine the stratified sampling protocol of 100 full permit records. The 7,052 unique permit numbers represent 5 permit types:

- 4,052 Nationwide General Permits (NWPs),
- 1,228 Regional General Permits (RGPs),
- 969 Standard Individual Permits (SPs),
- 789 Letters of Permission (LOPs), and
- 14 Programmatic General Permits (PGPs).

Figure 6 below shows the geographic distribution of the permit types issued by the USACE in the 8-county study area between 1990 and 2012. The most prevalent permit type was the NWP, followed by Regional General Permit, Standard Permit, Letter of Permission, and Programmatic General Permit.

General Permits (nationwide, regional, and programmatic) are not normally developed for an individual applicant, but cover activities the USACE has identified as being substantially similar in nature and causing only minimal individual and cumulative environmental impacts. These permits may cover activities in a limited geographic area (e.g., county or state), a particular region of the county (e.g., group of contiguous states), or the nation. Nationwide Permits (NWPs-a general permit type) are issued by the Chief of Engineers through the Federal Register rulemaking process. The NWPs authorize activities that have minimal individual and cumulative adverse environmental effects. The NWPs are proposed, issued, modified, reissued, and revoked periodically (generally every five years), after an opportunity for public notice and comment.

RGPs and PGPs are similar to NWPs in that they cover activities similar in nature with minimal individual and cumulative impacts. They differ in that they only apply to the region or program they are intended. These permits are tailored to specific geographical purposes and are well suited to meet the needs of the unique system they cover and the population of citizens and businesses utilizing them. Before a RGP or PGP is issued

for a region or program, it is published for public notice and is vetted through the permitting process. An example of an RGP is pier construction on the coast as long as a pier is residential and built to a specified dimension. An example of a PGP is a permit issued to a flood control district for work in urban bayous.

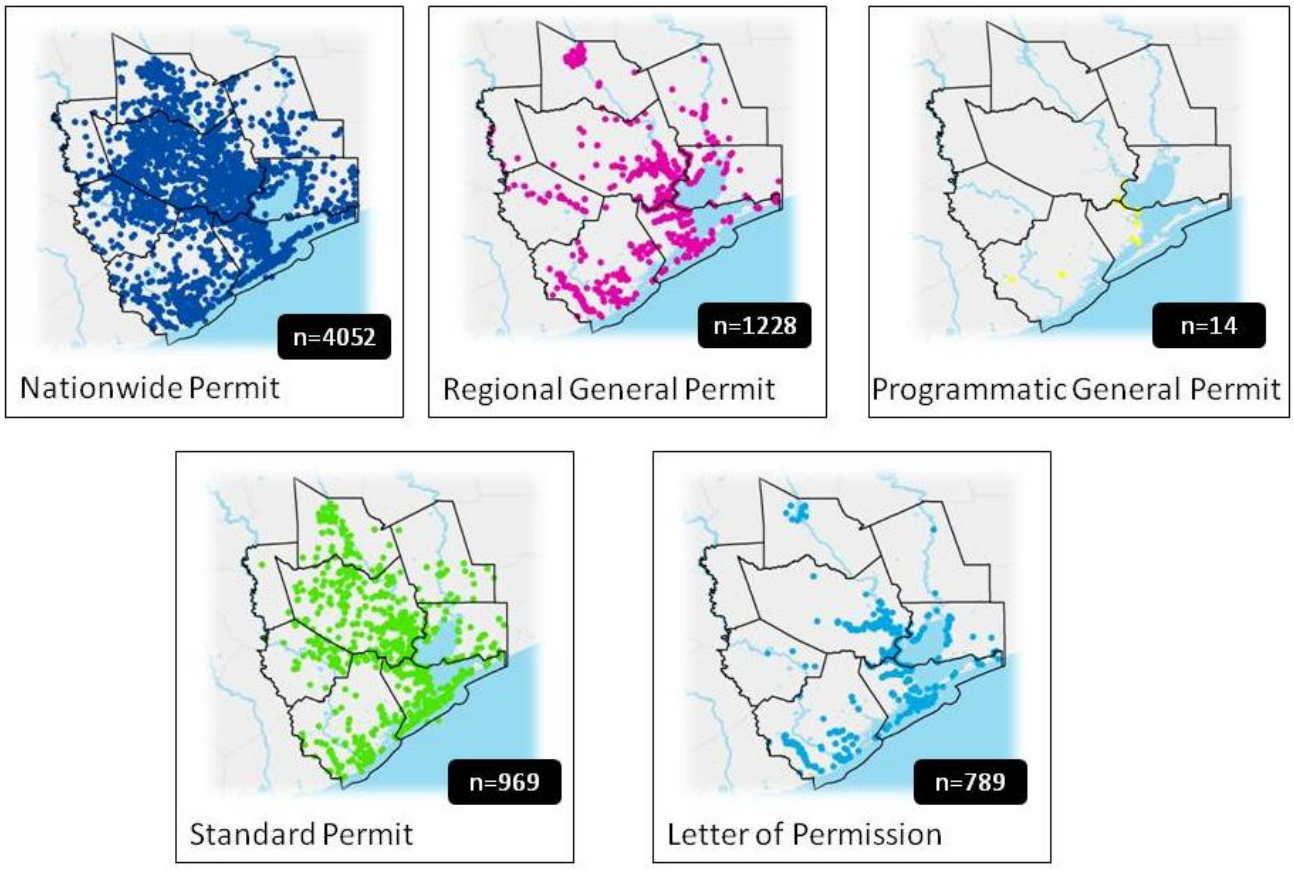


Figure 6. Maps of 404 permits by Type (1990-2012). Data source: USACE ORMII Database

The Individual Standard Permit (SP) is another basic form of authorization. The evaluation process begins with a pre-application coordination meeting with the USACE and other interested parties (usually for larger projects) in order to consider potentially less environmentally damaging alternatives that may be available. Next, an Individual Permit Application form is submitted to the USACE by the applicant or applicant's representative. After receipt of a complete application, the USACE issues joint public notice for Section 404 and Section 401 water quality certification and sets a 15-30 day public notice comment period, followed by an opportunity for a public hearing. The USACE then reviews public comments and evaluates the permit application based on regulations, completes the required documentation and makes a decision to either issue, issue with conditions or deny the request for permit.

Letters of Permission (LOP) may be used where, in the opinion of the District Engineer, the proposed work would be minor, not have significant individual or cumulative impact on environmental values, and should encounter no appreciable opposition.

BY LOCATION (COUNTY, 100-YR FLOODPLAIN)

During the period 1990-2012, nearly 80% of 404 wetland permits were issued in three counties: Harris (36% of permits), Galveston (26% of permits), and Brazoria (18% of permits) (see Figure 7).

The majority of permit actions took place in the 100-year floodplain (Table 1), which is consistent with the policy of the USACE Galveston District office that only regulates wetlands outside of the floodplain that have a distinct bed and banks connection to waters of the US.

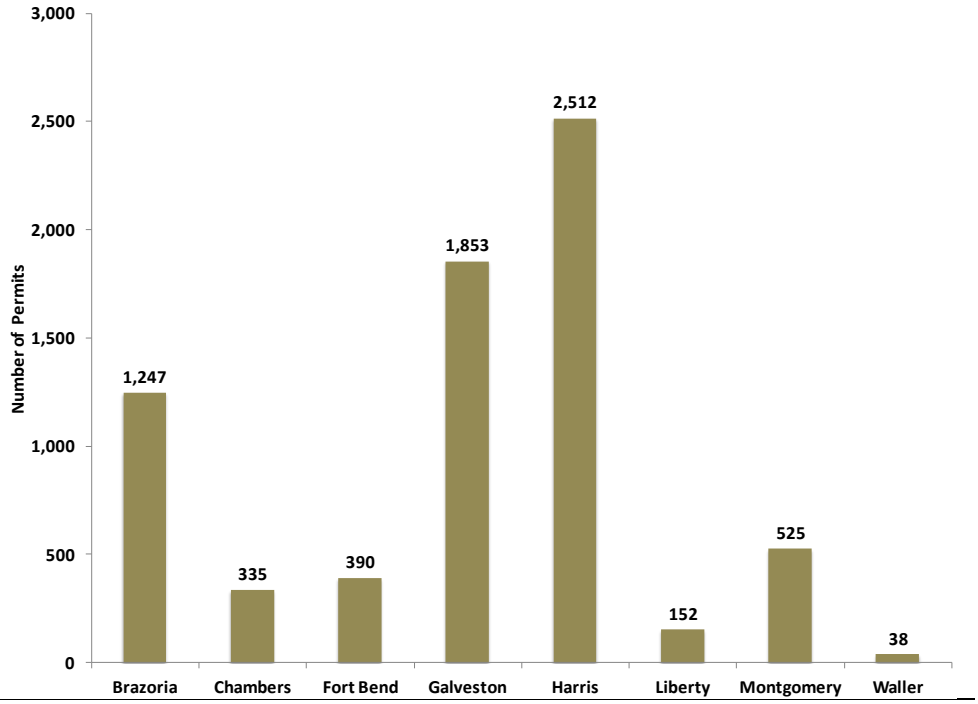


Figure 7. Number of 404 permits by county (1990-2012).

Table 1. Number of 7,052 permits in ORM II data record by time period

100-Year Floodplain Status	Full Inventory (n=7052)	Percent within Category
Inside Floodplain	6,262	89%
Outside Floodplain	790	11%

SUMMARY BY TIME PERIOD

The annual number of permits did not change significantly in response to U. S. Supreme Court decisions SWANCC and Rapanos (Table 2). HARC and TCWP did see a decrease in number of permits in 2008 (Figure 8), around the same time that the USACE and USEPA Joint Guidance was released, but that also corresponded to the "Great Recession" in Texas and the rest of the United States, which greatly reduced residential development beginning in 2007 and continuing through 2011. It must also be noted that the federal ORM information system was updated between 2006 and 2008.

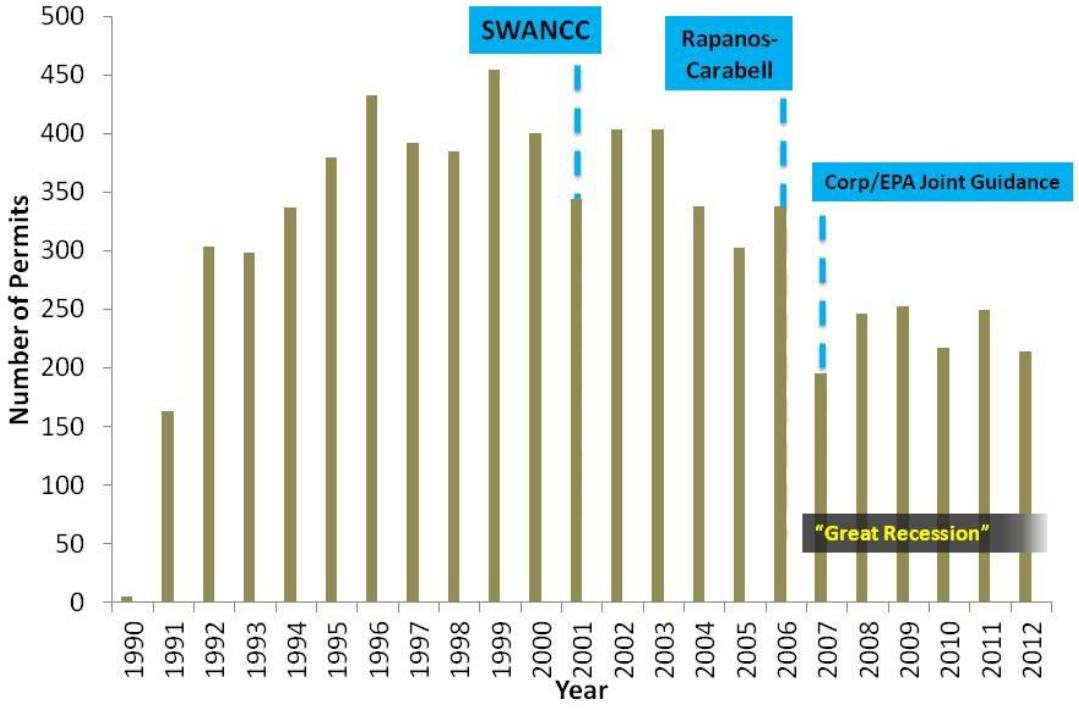


Figure 8. Number of permits by year, compared to the SWANCC and Rapanos Supreme Court rulings and the "Great Recession".

Table 2. Number of 7,052 permits in ORM II data record by time period

Time Period	Full Inventory (n=7052)	Percent within Category
Pre SWANCC	3,559	50%
Post SWANCC	1,944	28%
Post Rapanos	1,549	22%

ORM II Data Quality

The ORM II database is a vast improvement over the previous RAMS and ORM I databases. However, very little data are available in the ORM II database for older permits (prior to 2008). For this reason, a detailed historical analysis of permit compliance and wetland impacts is not possible using the ORM II database.

HARC and TCWP found that much of the descriptive information (permit number, year, county, permittee name, etc.) provided in the ORM II database was incorrect or misleading based on the analysis of full permit records (Appendix A). For instance, all of the full permits that reviewed were listed as having a compliance inspection in the ORM II dataset, but only 12 of 123 full permit records actually contained evidence of compliance inspections by the USACE. Very few permit records provided impact and mitigation information and very little overall compliance information was available based on the data that were provided.

Compensatory Mitigation in ORM II Records

The ORM II records received by the project were insufficient with respect to compensatory mitigation information to draw any conclusions about temporal trends in compensatory mitigation. Of the 7,052 permit records in the ORM II dataset, 172 were documented as requiring compensatory mitigation. The majority of that information was recorded in ORM II dataset for permits issued from 2008 to 2012 (see Figure 9). Available information only detailed whether compensatory mitigation was required. There was little to no quantitative information about mitigation acreage or mitigation bank credit purchases. As a result, the project team could only quantitatively assess compensatory mitigation in the fully-documented permit record that was obtained through the FOIA process.

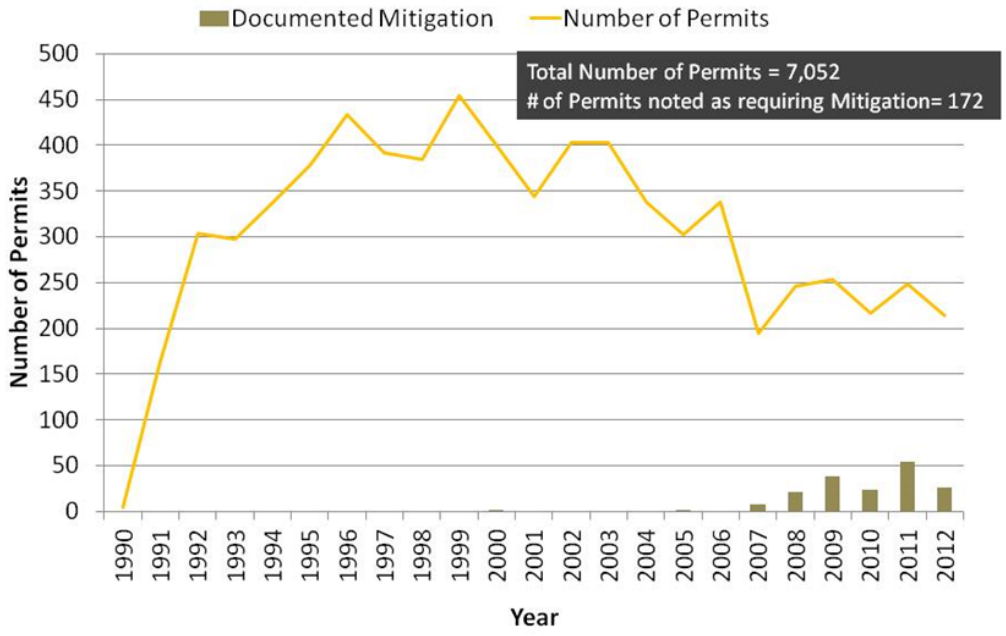


Figure 9. Number of permits (172) documented as requiring mitigation in the ORM II dataset of 7,052 unique permits.

Analysis of the fully-documented permit records suggests that there is no temporal trend in permittee responsible or MB/ILF compensatory mitigation. In the full permit record analysis, permittee responsible compensatory mitigation was more prevalent than mitigation banking across all years.

MITIGATION BANK REVIEW

Guidance from the USEPA and USACE require that compensatory mitigation through mitigation banks or permittee responsible mitigation be located within the same watershed. Mitigation banks and permitted impacts to wetlands were within the same HUC 8 watershed (defined by the USGS as a subbasin, approximately 700 square miles in size) in only 3 permits reviewed. Most of the permittee responsible compensatory mitigation was adjacent to the impact site, but in some cases it was not possible to locate the mitigation site.

MITIGATION BANK SERVICE AREAS

There are 10 mitigation banks and in-lieu fee banks with service areas that fall within the study area and time period. Two were withdrawn during the study: Lake Houston and Rose City. Primary and secondary service areas for the mitigation banks overlap considerably and, in most cases, permits in the study fell within more than one service area (see Figure 10). Additionally, older permits reference use of Trinity River National Wildlife Refuge in-lieu fee program and Spring Creek Greenway in-lieu fee program for compensatory mitigation for which we have no documentation.

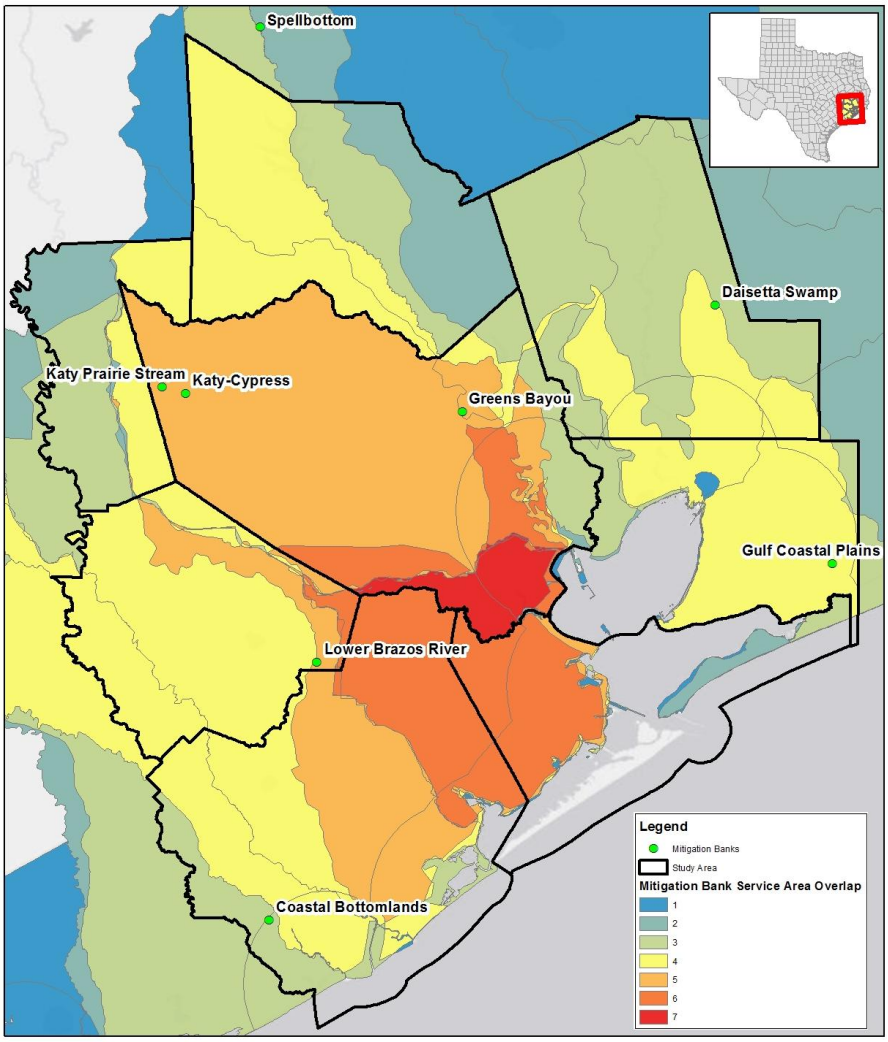


Figure 10. Map depicting location of mitigation banks in the 8-county study area (approved, pending or sold out). Blue map shading denotes existence of one mitigation bank service area, while red shading depicts overlap of seven mitigation bank service areas.

ANALYSIS OF MITIGATION BANK RECORDS

The USACE is moving toward increasing the amount of mitigation channeled into mitigation banks as opposed to permittee-responsible mitigation. For this reason, a separate analysis of mitigation bank ledgers was made, independent of the ORM II records.

HARC and TCWP focused the analysis of mitigation banks and in lieu fee programs on those with service areas that fell within the project study area and which were operational during the study time period (1990-2012). HARC collected publicly available mitigation bank ledger details from the USACE Regulatory In lieu fee and Bank Information Tracking System (RIBITS) website[2]. Ledger information was also requested from all mitigation banks in the study area. The project team received full credit ledgers from three of ten mitigation banks: Blue Elbow Swamp, Greens Bayou, and Coastal Bottomlands.

Comparisons between the RIBITS ledger data and the credit ledgers received directly from the mitigation banks showed that the majority of the RIBITS records that were compared were correct. The Blue Elbow Swamp ledger had 3 records (out of 28) that did not appear on the RIBITS ledger while the Coastal Bottomlands had 3 records (out of 56) that did not appear on the RIBITS ledger. Two of the three Coastal Bottomlands purchases were new: one dated in 2011 and another dated September 2013. One record discrepancy (out of 65) was found in the Greens Bayou ledger.

In order to understand how the administrative record of the permit related to the mitigation bank book-keeping, the project team also compared the data obtained directly from the full permits (listed in Appendix B) to the RIBITS and ledger data. HARC found that the ledger data and the administrative record data typically matched. This indicates that the RIBITS database is a reliable source for data on mitigation bank credits utilized by permits.

DETAILED COMPLIANCE ANALYSIS OF THE FULLY-DOCUMENTED PERMIT RECORDS

For this project, compliance means that all of the conditions associated with the permit have been documented as complete, and that all required inspections and reports have been completed, within the timeframe allotted by the permit. No on-the-ground inspections of actual mitigation projects were carried out as part of this project. TCWP did examine Google Earth aerial photography from a variety of dates to determine whether or not the project itself had been started, and whether or not there was any evidence that some form of mitigation work had actually been carried out.

[2] USACE Regulatory In lieu fee and Bank Information Tracking System (RIBITS) website http://geo.usace.army.mil/ribits/index.html

Seventy-one (58%) of the entire sample of 123 sampled permits could be classified as fully compliant with all mitigation requirements. One permit (1%) compliance status could not be determined due to an incomplete administrative record. The remaining 51 (41%) permits were out of compliance (Figure 12). There are a variety of reasons that a permit could be out of compliance, some reasons are more significant than others. In TCWP's examination of the record developed for each permit dossier, assignations of noncompliance were as conservative as possible. TCWP classified permits as in compliance unless evidence was clearly lacking. A fundamental, but untestable, assumption was that the full record for each permit was received when full documentation was requested via a Freedom-of-Information-Act request.

Non-Compliance Categories

TCWP found that non-compliance generally fell into three major categories (Figure 11): missing documentation, time exceedances, and non-adherence to approved plans. More information is detailed below:

1. Missing required documentation

Missing reports most often involved missing monitoring reports documenting the status of compensatory mitigation for the fill or destruction of wetlands as specified in the permit. A missing monitoring report does not necessarily mean that no mitigation occurred; it simply means that documentation of that mitigation is inadequate.

Documentation of notification such as start of construction in jurisdictional waters is an important component of permit mitigation. Work in jurisdictional water triggers a mitigation clock. Often mitigation construction and planting are required to be completed with six months to a year to minimize the temporal impact of wetland loss. Initial planting surveys and subsequent monitoring report deadlines are dependent on knowing when impacts to the authorized impacted waters occur.

Verification of purchase of mitigation bank credits from either the permittee or bank sponsor is crucial to determine if the permittee has purchased credits and thereby offset wetland loss.

Proof of a finalized conservation easement or deed is critical evidence for verifying mitigation when preservation is utilized for compensatory mitigation or avoidance. These documents ensure that the long-term health of the replacement wetland is secure and that the mitigation truly compensates for the original wetland loss. Where avoidance is utilized, this document ensures the avoided wetland is protected from future development.

Documentation related to minimization such as as-built plans or contractor training meeting sign-up sheets are often added onto permit requirements at the time the permit is approved. These documents provide evidence that the permittee has truly minimized impacts to wetlands the maximum extent possible. Pre- and post- construction surveys are often required to document that known temporary impacts are restored to

original site conditions and do not become permanent impacts. Without this documentation, it is impossible to determine if temporary impacts are actually temporary.

Verification of transfer of funds or parcel deed acceptance is related to preservation. Similar to verification of mitigation bank credit purchase, this documentation is important to ensure that a) the funds that will go to an ILF/preservation program have been paid b) that the preservation property has been purchased by the permittee and either transferred to a conservation group or secured via a deed restriction.

2. Work conducted outside the authorized time frame

Work outside permit expiration. A permit, whether NWP or SP, is always given an expiration date by which time authorized work must be accomplished. This ensures that conditions have not changed significantly at the site without a fresh evaluation. NWPs are often given between 1 and 2 years for authorized work to occur. SPs will usually be given 5 years, though dredge maintenance of a water body is often authorized for 10 years. A permittee may request an extension of time modification (EOT) to extend the permit's authorized timeframe. Upon receipt of this request, USACE will evaluate the status of the current work and determine if an EOT is appropriate. If so, an amendment or sometimes a memorandum to the record will appear in the administrative record relating the new expiration date and any new conditions added to the permit if applicable.

3. Non-adherence to approved plans

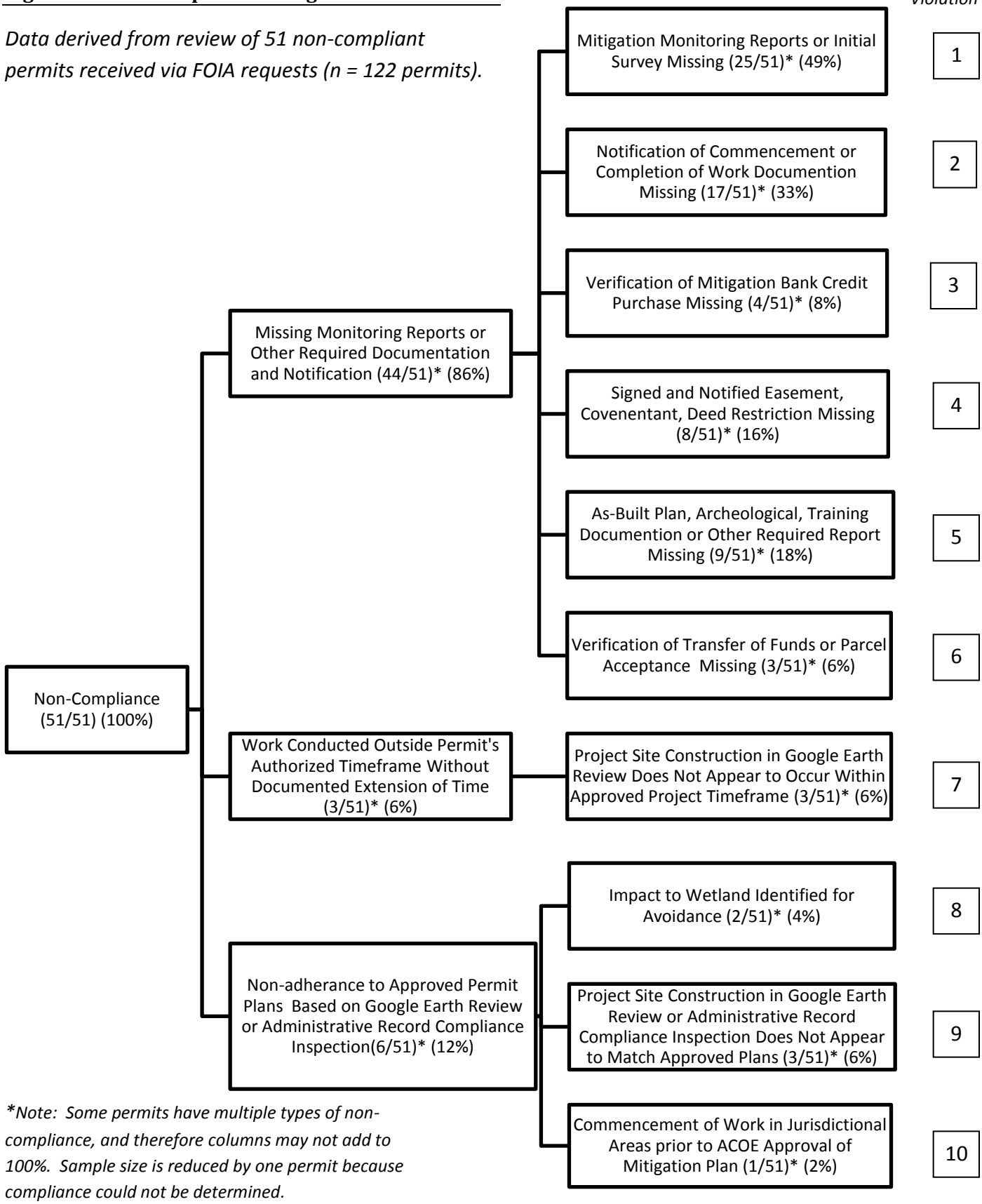
Non-adherence to avoidance. Avoidance of existing wetlands is the first step to mitigation. On-site wetlands that can reasonably be avoided must be avoided. Any wetlands identified as such during the permitting process will usually be clearly identified in approved project plans, and in more recent permits will require a protection instrument to ensure their long-term health. In review of aerial imagery from Google Earth during the permit review process, permit activity has clearly graded or otherwise destroyed a wetland specified to be avoided as a mitigation requirement.

Project site construction appears to deviate from approved plans. Permits in this sub-category have either been listed as divergent from approved plans in the most recent USACE compliance inspection with no follow-up or are clearly divergent from plans based on review of Google Earth imagery.

Work in jurisdictional waters prior to approval of a mitigation plan. This only occurred in one of the sampled permits. Here, the permit was approved, but a condition of the permit was that work could not begin until a mitigation plan was submitted and approved by the USACE. In this case, the mitigation plan is not on file, but review of Google Earth imagery indicates work has occurred in jurisdictional waters.

Figure 11. Non-Compliance Categories

Data derived from review of 51 non-compliant permits received via FOIA requests (n = 122 permits).



**Note: Some permits have multiple types of non-compliance, and therefore columns may not add to 100%. Sample size is reduced by one permit because compliance could not be determined.*

COMPLIANCE IN TERMS OF COMPENSATORY AND OTHER KINDS OF MITIGATION

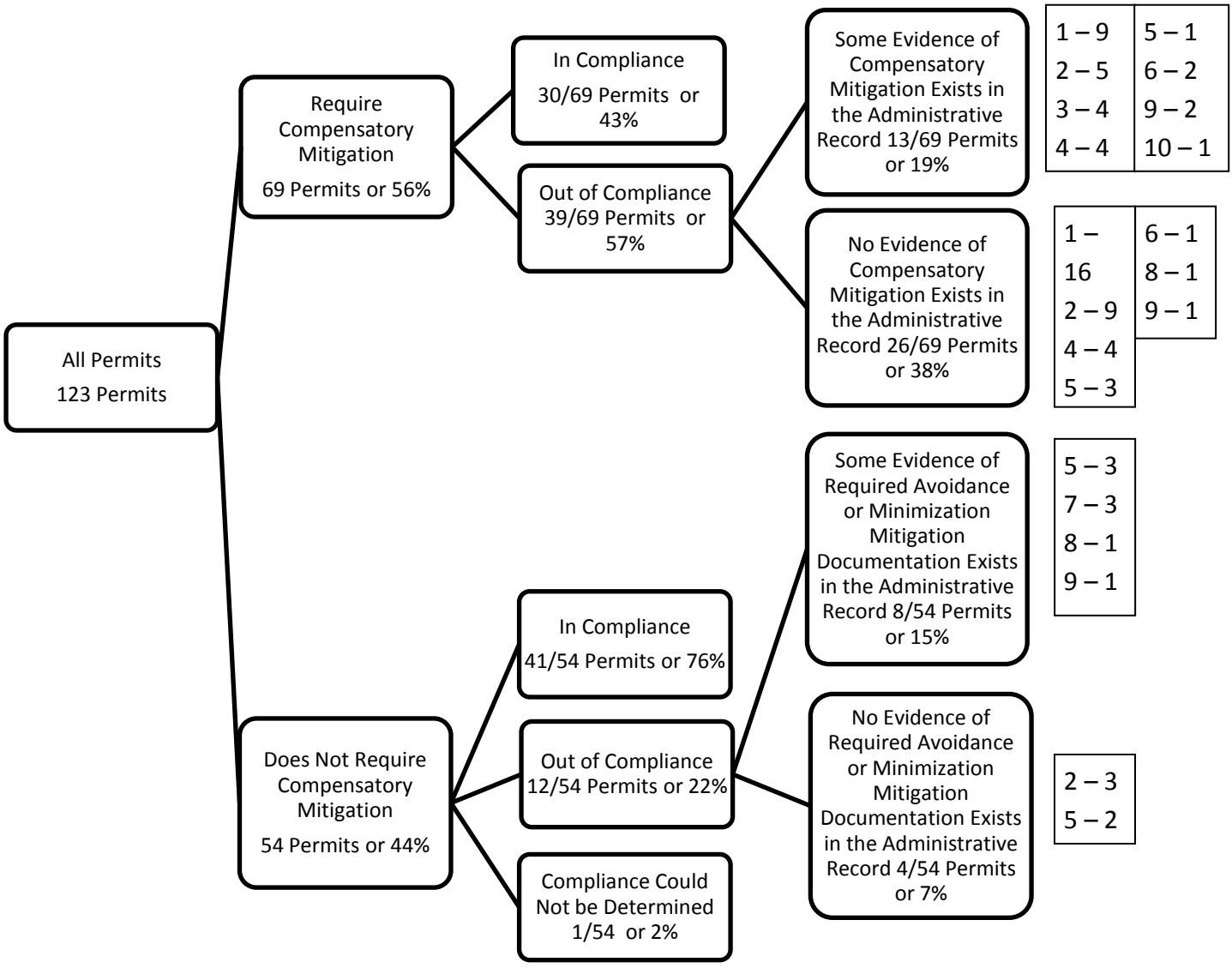
Sixty-nine permits (56%) of all 123 permits analyzed in this project required compensatory mitigation for lost wetlands (Figure 12). "Compensatory mitigation refers to the restoration, establishment, enhancement, or in certain circumstances preservation of wetlands, streams or other aquatic resources for the purpose of offsetting unavoidable adverse impacts" (USEPA Date Unknown).

Compensatory mitigation is perhaps the most important kind of mitigation, given that it mitigates for lost wetlands. Thirty-nine of these sixty-nine permits (57%) requiring compensatory mitigation were out of compliance, and of those 39, 38 permits are out of compliance due to compensatory mitigation requirements. Of these 38, there was *no* evidence at all of any compensatory mitigation in the administrative record for 26 permits. Thus, a full 68% of all noncompliant permits requiring compensatory mitigation have no record of any mitigation actually occurring on the ground.

The lack of any documentation for on-the-ground mitigation doesn't necessarily mean mitigation wasn't carried out, but it does raise questions about how much mitigation may actually have taken place. Without documentation, it is not possible to determine the amount and success of mitigation. Older permits from the study timeframe were less likely to require submission of mitigation monitoring reports, but usually required the monitoring to occur. If submission of the reports was not specifically listed as permit requirements, the permit was assumed to have completed its mitigation. Upon USACE inspection, the permittee would be required to provide evidence of monitoring. More recently issued permits almost always require submission of monitoring reports and a USACE compliance inspection is often seen in the administrative record in response to submission of these reports.

Avoidance and minimization, while not replacing any wetland values and functions, are an important part of the permit "sequencing" process because they preserve existing wetland functions. They are the first and second steps for assessment of mitigation (USEPA 2012). Not every permit requires compensatory mitigation, but all permits require avoidance and minimization. For permits not requiring compensatory mitigation, there is a 76% mitigation compliance rate. This could be due to not avoiding a specified wetland or not providing required minimization documentation or notification. Of those that are out of compliance (21%), 64% show at least some evidence of avoidance and minimization.

Figure 12. Permit Compensatory Compliance. Data derived the 123 full records received via FOIA request.



Violation Code (see Figure 11) – Number of Permits
EX: Violation Code #5 – 1 Permit
EX: Violation Code #9 – 1 Permit

***Percentages are based on full sample of 123 permits. Each level sums to approximately 100%. Totals may not equal 100% because of rounding.*

COMPLIANCE BY PERMIT TYPE AND BY PROJECT AND MITIGATION COMPLETION

Two major categories of permits were analyzed by this project: Nationwide and Standard. Nationwide permits are "general permits" designed to reduce the regulatory burden for activities where the impact to wetlands will be relatively small. The cumulative impact of these activities can be quite large, but the individual project should have a small impact, often less than an acre. Each type of nationwide general permit must be similar in nature and impact and have minimal individual and cumulative adverse effects to water quality. A standard or individual permit, on the other hand, involves larger impacts. Most compensatory mitigation is historically associated with standard permits. However, in recent years, more and more nationwide permit are utilizing compensatory mitigation. The full permit record was evenly split between nationwide and standard permits, 61 and 62 respectively.

TCWP further examined these permits as to the construction status of the project causing the impact: complete or incomplete. The project status of No Work Performed is particularly important because no mitigation is required when no jurisdictional waters are impacted. A permit can be approved, and never started. It is important to carefully consider these authorized impacts and mitigation when determining the current status of mitigation in the region.

TCWP also used the same filter to examine the completeness of the compensatory mitigation. Mitigation can be incomplete and still in compliance when permit requirements have not yet been reached in the mitigation timeline.

Nationwide Permits

Thirty-four percent of all nationwide permits were out of compliance (Figure 13). Where compensatory mitigation was required, 54% were out of compliance (Figure 14). So for example, in Figure 13 there are 4 in-compliance permits where the project construction was still incomplete and 1 of these where the mitigation is also incomplete. This status of this last permit would indicate that the clock is still ticking on the permit, given that as of the end date of this project it is still incompliance.

The most egregious category of non-compliance for the nationwide permits appeared to occur where the project construction status was complete, but the mitigation was incomplete (13 permits or 21% of all NWP permits), suggesting that completion of the mitigation project might be unlikely. In some cases a permit in this category may be out of compliance for a non-compensatory reason, but for the most part, these permits are in violation of compensatory mitigation. For the 28 NWP permits requiring mitigation, 54% or 15 of 28 permits were out of compliance. As before, project construction was complete but mitigation incomplete (13 permits).

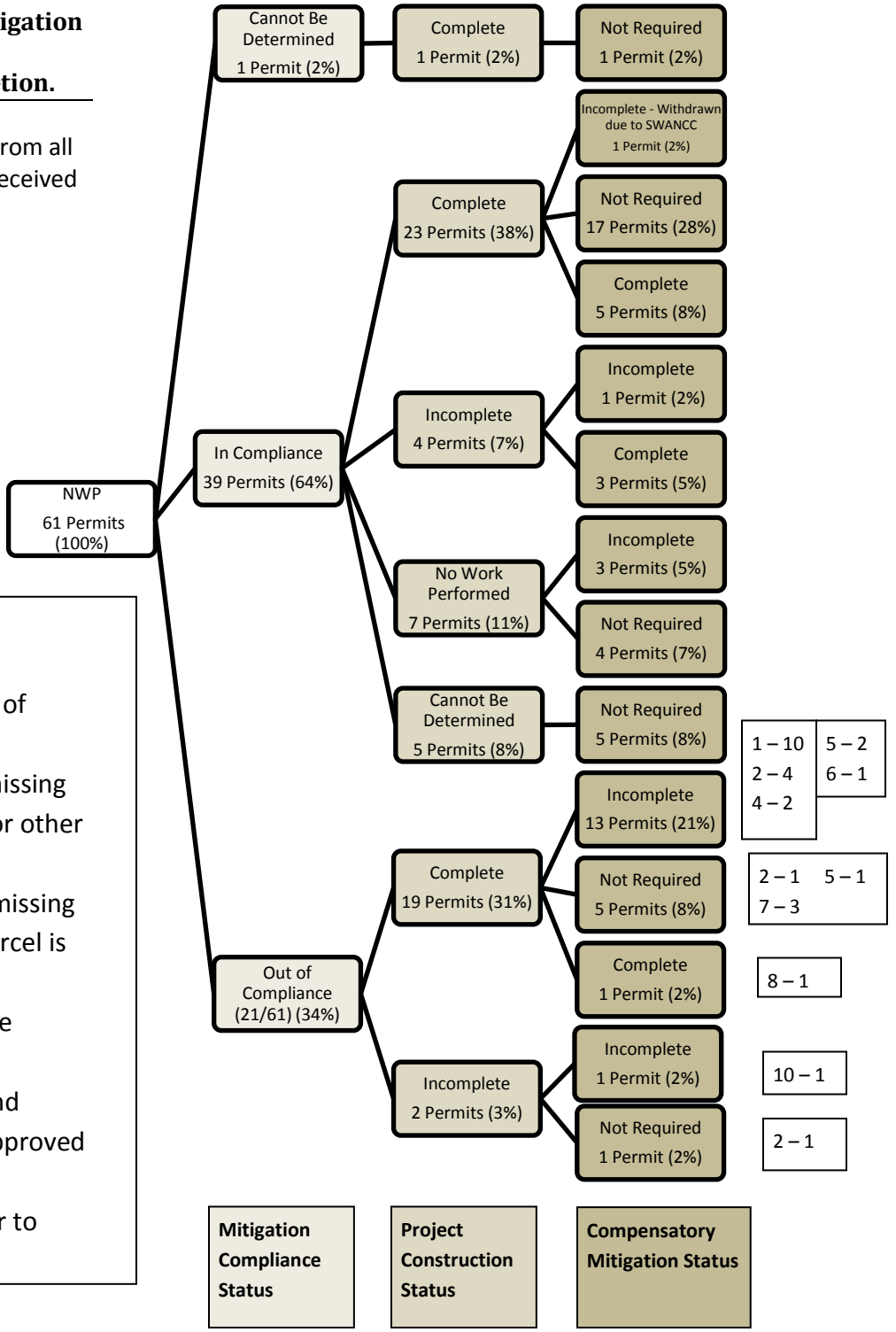
Standard Permits

Forty-eight percent (30/62) of all standard permits were found to be out of compliance (Figure 15). For the 32 permits in compliance, only 17 were documented as fully complete in terms of both the project work and the completion of mitigation. Two permits had a fully documented record of completed mitigation, but the project construction status was incomplete. This indicates the permittee is still working on the authorized activity but has completed mitigation requirements.

Only 41 (66%) of the 62 SP permits required mitigation. The other 21 standard permits are for projects such as piers that do not meet LOP requirements, well pad and access roads with only temporary impacts, or for off shore drilling or pipeline repair with minor impacts. These are often smaller projects that do not meet the qualifications for an NWP or other general permits. Fifty-nine percent (24) of all SP permits requiring mitigation were found to be non-compliant (Figure 16). Construction was complete for most (18/24 or 75%) of these out-of-compliance permits, but all had an incomplete record of mitigation (18/24 or 75%), suggesting little finality to the status of these permits.

Figure 13. Nationwide Permit Mitigation Compliance by Project and Compensatory Mitigation Completion.

All Nationwide Permits Data derived from all 61 NWPs within the 123 full records received via FOIA request.



Code for Permit Violation Field

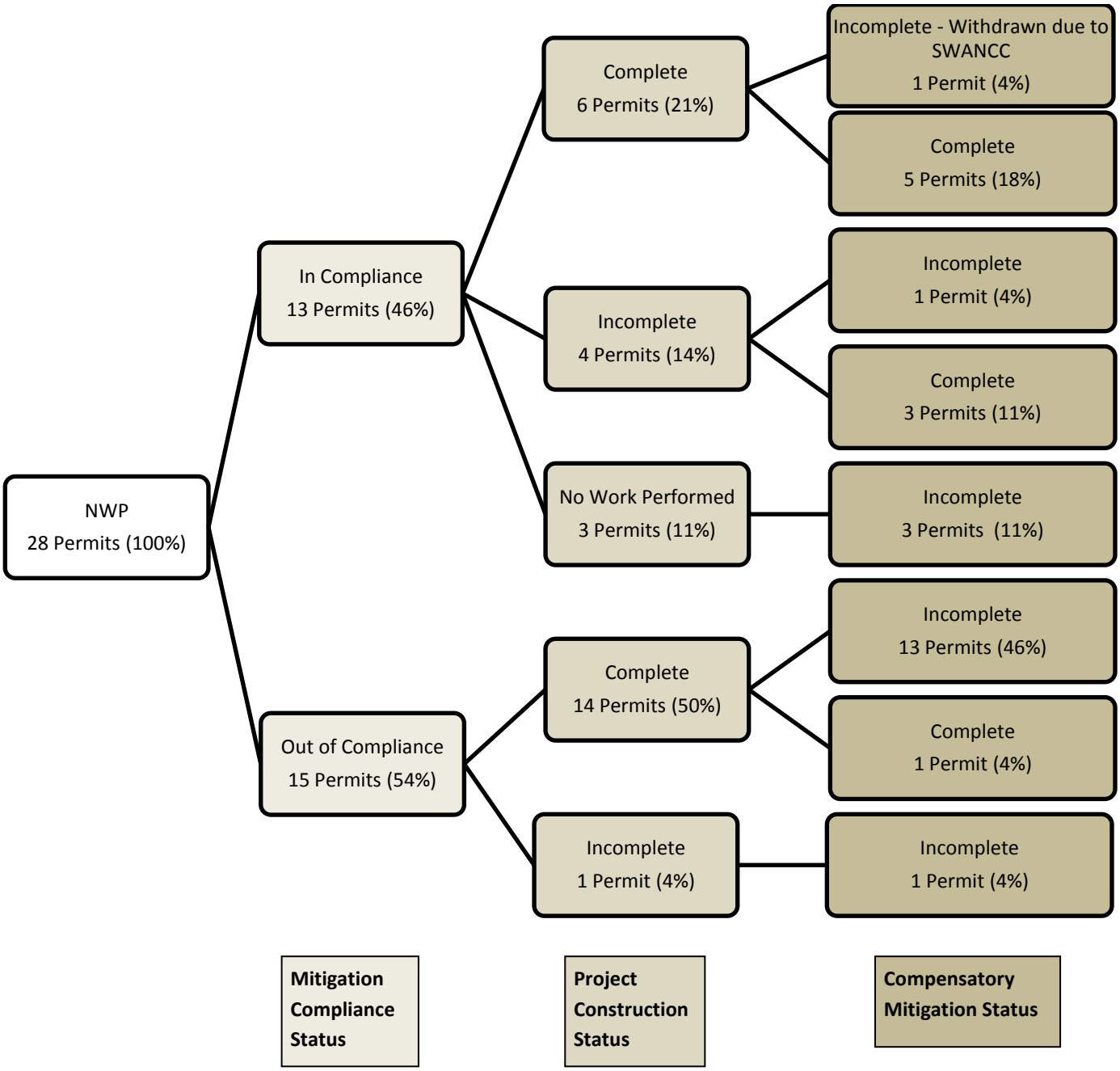
1 = Missing report or initial survey
2 = Notification of start or completion of specified work
3 = Verification of credit purchase is missing
4 = Missing finalized deed restriction or other protective document
5 = Other required documentation is missing
6 = Evidence of transfer or funds of parcel is missing
7 = Work on project performed outside permitted timeframe
8 = Impact to specified avoided wetland
9 = Work does not appear to match approved plans
10 = Work performed in JD water prior to mitigation plan approval

***Percentages are based on full sample of 61 NWP permits. Each level sums to approximately 100%. Totals may not equal 100% because of rounding.*

Violation Code – Number of Permits:
EX: Violation Code #5 – 1 Permit
EX: Violation Code #9 – 1 Permit

Figure 14. Nationwide permit mitigation compliance by project and compensatory mitigation completion where compensatory mitigation was required.

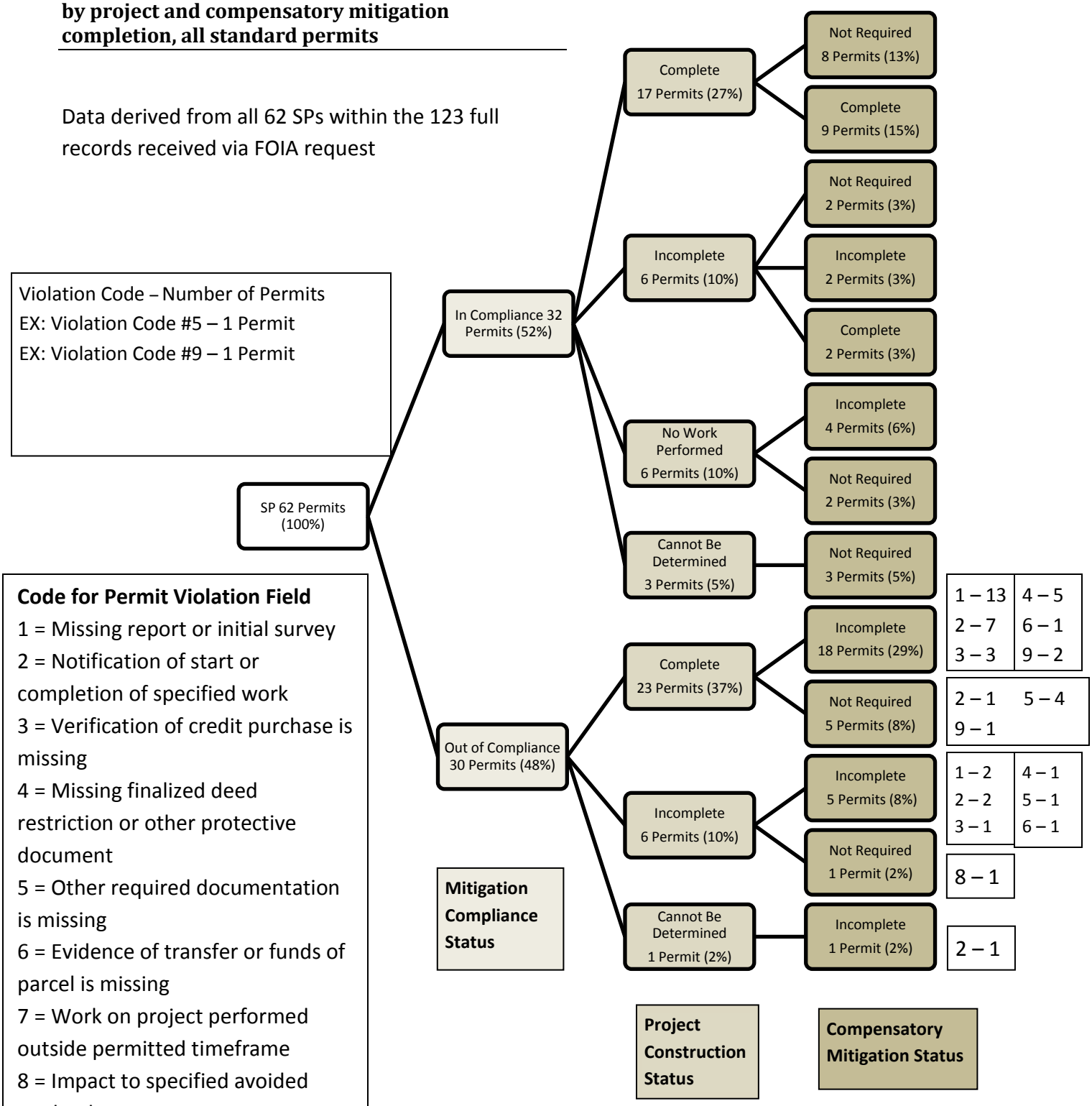
Data derived from all 28 NWPs where compensatory mitigation was required within the 123 full records received via FOIA request



***Percentages are based on full sample of 28 NWP permits with required compensatory mitigation. Each level sums to approximately 100%. Totals may not equal 100% because of rounding.*

Figure 15. Standard permit mitigation compliance by project and compensatory mitigation completion, all standard permits

Data derived from all 62 SPs within the 123 full records received via FOIA request



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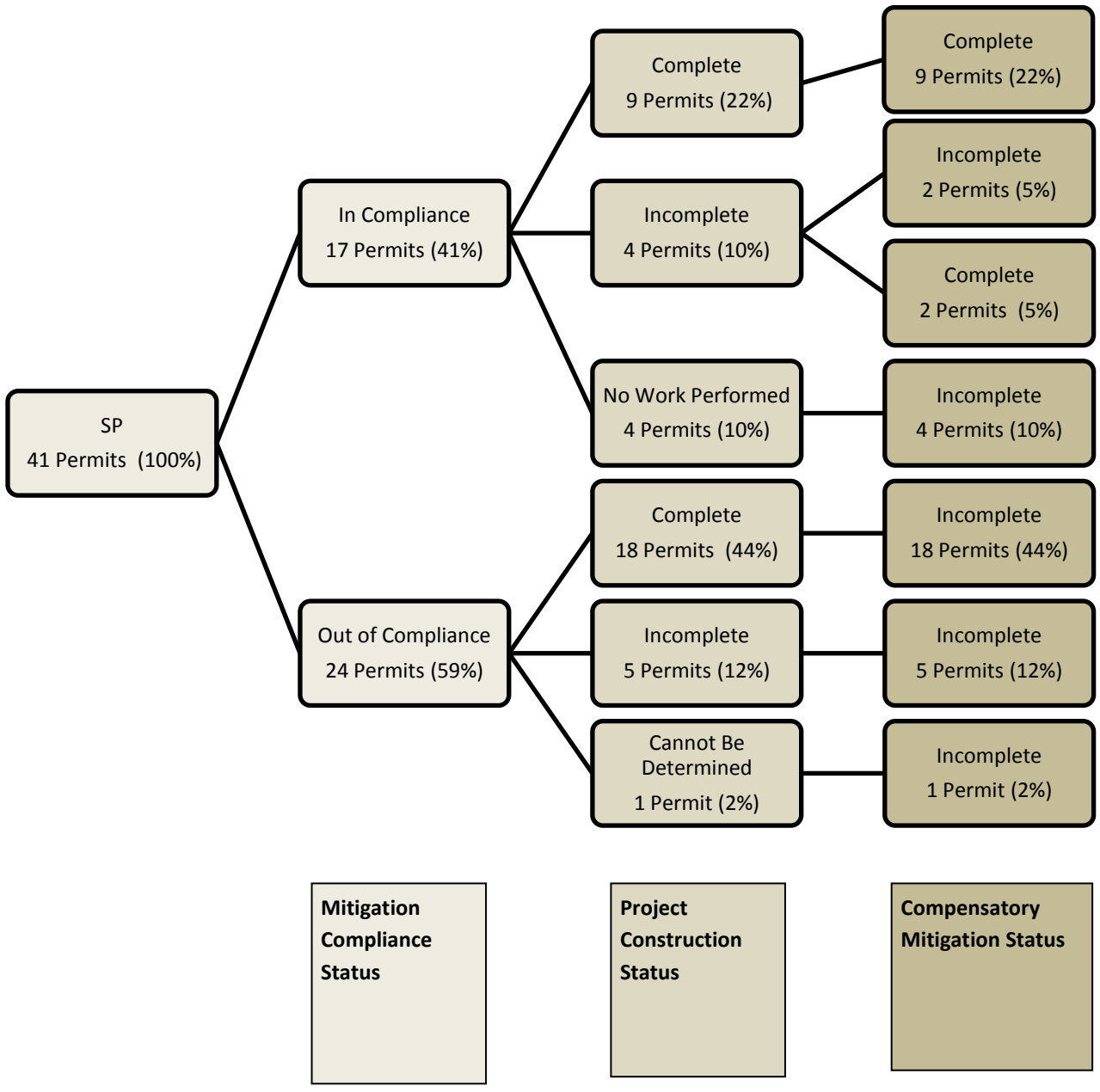
7 = Work on project performed outside permitted timeframe
8 = Impact to specified avoided wetland
9 = Work does not appear to match approved plans
10 = Work performed in JD water prior to mitigation plan approval

***Percentages are based on full sample of 62 SP permits. Each level sums to approximately 100%. Totals may not equal 100% because of rounding.*

Figure 16. Standard permit mitigation compliance by project and compensatory mitigation completion, where Compensatory Mitigation Was Required

Data derived from all 41 SPs where mitigation was required within the 123 full records received via FOIA request.



***Percentages are based on full sample of 41 SP permits with required compensatory mitigation. Each level sums to approximately 100%. Totals may not equal 100% because of rounding.*

COMPLIANCE AND MITIGATION BANKS

Historically, permittee-responsible compensatory mitigation accounted for more mitigation acreage than that held by mitigation banks. Current mitigation-to-impact ratios require more compensatory mitigation acreage than the actual acreage of impacted wetlands. While this buffer sounds promising, this analysis found that mitigation banks rarely exist with within the same subbasin watershed (HUC-8) as the impact. There are 10 approved mitigation banks and an additional 6 pending mitigation banks having service areas that overlap the 8-county Houston Galveston region (Figure 10).

A shift from permittee-responsible compensatory mitigation to mitigation bank and in-lieu fee mitigation appears to be on the horizon. If mitigation banks begin to account for more mitigation acres, then more wetlands will be lost from their original watersheds and mitigated in different watersheds. While some impacted wetlands may be of small size and poor quality, we also found evidence of rare, valuable wetland types being lost.

Apart from the out-of-watershed issues, mitigation banks are often touted to be a superior way to achieve no-net-loss. The accounting is expected to be more controllable since it is defined and regulated by the mitigation bank instrument. TCWP analysis revealed that 4 of the 14 permits (29%) examined where mitigation was channeled into banks, were seriously out-of-compliance—in other words no evidence of mitigation credit purchase was present in the permit record (Table 3). The analysis of compliance is limited to the permit record itself, and does not include an analysis of the mitigation bank record for the specific permits in question.

Within the fully-documented permits, permittee-responsible compensatory mitigation required a total of 898 acres of created wetlands in response to 178 acres of permanent wetland impacts (a 5 to 1 ratio). Permits that involved mitigation banks purchased 11 credits equal to 9 acres of permanent impacts (a 1.2 to 1 ratio). Permits that included both permittee responsible mitigation and mitigation banks added 311 acres of wetland mitigation and 11 credits to 83 acres of permanent wetland impacts (an approximate 4 to 1 ratio). Temporary impacts were difficult to track as there was little information confirming that those impacts were reversed.

Table 3. Compliance with mitigation bank compensatory requirements

	In Compliance with Mitigation Bank Aspect of Compensatory Mitigation*	Out of Compliance with Mitigation Bank Aspect of Compensatory Mitigation
Total Permits (n=14)	10	4
Open Water Acreage Impacts	15.95	0.15
Wetland Acreage Impacts	105.99	9.96
Open Water Linear Feet of Impact	950	0
Mitigation Bank Credits	45.67	12.29
Additional Open Water Mitigation Acreage	0	1.82
Additional Wetland Mitigation Acreage	306.19	4.79
Additional Upland Buffer/Riparian Mitigation Acreage	8.99	2.12

**2/10 permits utilizing a mitigation bank for their compensatory mitigation and in compliance with all mitigation bank aspects of required mitigation are out of compliance with a non-mitigation bank aspect of their required mitigation.*

COMPLIANCE IN TERMS OF ACREAGE

The ultimate measure of success in terms of the no-net-loss program is the equivalence of functions and values mitigated to those of the impacts. Theoretically a 1:1 ratio would suffice, but given the uncertainty of success associated with created wetlands, a significantly higher ratio is usually required. In other words, compensatory mitigation wetland acres should be substantially greater than impact acres.

In terms of what is actually *required* in all the permits, the TCWP analysis does indeed see a higher number of mitigation acres; a 3.7 to 1 ratio in fact. In terms of *compliance*, however, the story is mixed. Table 4 reveals that in terms of wetland impact and mitigation acreage, for 20% of the wetland acreage impacts (69.24 of 365.42 acres, 30 of 123 permits) there is no evidence in the permit records that any of the required mitigation was actually ever carried out.

There is a record of complete mitigation compliance for 71 of 123 permits (58%), accounting for 289.9 acres of required compensatory wetland mitigation. However, 13 of these permits are in compliance because no construction work ever appears to have occurred in jurisdictional waters. In this case, no mitigation was

required. These 13 permits account for 9.1 acres of open water impacts and 0.7 acres of wetland impacts that never occurred, with a requirement for 128.3 acres of wetland mitigation that was never needed. For determination of actual impacts and mitigation on the ground (as compared to authorized impacts and mitigation), the acreage totals were removed for calculations (Table 5 – All Permits where Impact Occurred column). Table 5 shows that by removing these 13 permits, the wetland impact to wetland mitigation ratio is only changed from "1 to 3.8" to "1 to 3.4". In this case, the sample is reduced to 110 permits where impacts actually occurred.

Sixty-nine (56%) of all the 123 permits TCWP examined required on-the-ground compensatory mitigation (Figure 12). Of these 69 permits, 38 (55%) were out of compliance due to an issue with their compensatory mitigation requirements. (One of the permits in Figure 12 is out of compliance for solely non-compensatory mitigation reasons). Of these 38 permits, there was no evidence of compensatory mitigation in the administrative record of 26 (38%) of those 69 permits (Figure 12).

The 30 out-of-compliance permits with no evidence of on-the-ground compensatory mitigation in Table 4 include the 26 permits listed in the above paragraph and an additional 4 permits which did not require compensatory mitigation (but required non compensatory mitigation). The 30 permits represent 89.172 acres (Table 4) of required wetland mitigation that appears never to have been produced based on lack of evidence in the administrative records provided. 89 acres is 7% of the 1249.21 acres required by permits where impacts occurred (n=110) (Table 5).

There are 12 out-of-compliance permits requiring compensatory mitigation that have *some evidence* of mitigation (21 - 9 permits that did not require compensatory mitigation, Table 4 footnote **). Review of the records revealed that 6 of the 12 permits have evidence that on-the-ground mitigation construction of the wetlands was completed. The remaining 6 have weak or little evidence of completed compensatory mitigation based on the administrative evidence. These 6 permits with questionable mitigation documentation account for 972.76 acres (see Appendix K) of the 998.47 acres of required wetland mitigation (Table 4), or 78% of the 1,249.21 acres required by permits where impacts occurred (n=110).
In total, these 32 permits with a record of little or no mitigation (26 with no evidence and 6 with weak evidence) account for a total of 1,061.93 acres of required compensatory mitigation (972.76 + 89.17). Subtracting 1061.93 from 1249.31, the overall amount of required mitigated acreage that shows evidence of having occurred and been completed based on the administrative records provided is only 187.27 acres. Given a total of 364.739 acres of wetland impacts, the wetland impact to mitigation ratio is 1 to 0.5. (Table 5).

It should be noted that 2 permits, (SWG-2007-00909 and SWG-2007-01963) account for 88% of the combined acreage for the 32 permits (936.0 acres/ 1,061.93). Even factoring out the impacts and mitigation for these two large permits which may skew the data, the 30 remaining permits with little or no evidence of mitigation account for 125.93 acres of questionable mitigation (89.17 [Table 4, out of compliance, no evidence] plus

36.76 [972.76-936.0] out of a total of 313.21 total required acres [Tables 5, 6]). When these two permits are removed, the total wetland impacts are reduced to 173.52 acres. This results in a wetland impact to mitigation ratio of 1 to 1.1. (Table 6)

The record for mitigation banks is substantially better. A total of 57.99 mitigation bank credits were required by the reviewed permits. Purchase of 45.7 credits is supported by evidence in the administrative record, leaving 12.29 or 21% of required credits without documentation.

Table 4. Permit requirements by impact and mitigation amount.

	In Compliance	Out of Compliance with Some Evidence of Mitigation*	Out of Compliance with No Evidence of Mitigation	Compliance Could Not Be Determined	All Permits
Total Permits (n=123)	71	21**	30***	1	
Open Water Acreage Impacts	32.26	32.46	11.703	0	76.42
Wetland Acreage Impacts	78.78	217.38	69.24	0.02	365.42
Open Water Cubic Yards of Impacts	3,856	0	6.36	0	3862.36
Open Water Linear Feet of Impact	950	0	0	0	950
Open Water Mitigation Acreage	17.62	17.72	42.32	0	77.66
Wetland Mitigation Acreage	289.90	998.47	89.17	0	1377.54
Open Water Mitigation Linear Feet	815	0	0	0	815
Mitigation Bank Credits	39.28	6.39	12.29	0	57.96
Upland Buffer/Riparian Mitigation/ Other Acreage	32.57	20.42	556.76	0	609.75
Wetland Impact: Wetland Mitigation Ratio	1 : 3.7	1 : 4.6	1 : 1.3	0.02: 0	1 : 3.8

Table 5. Permit impact and documented mitigation acreage.

	All Permits (n=123)	All Permits Where Impacts Occurred (n=110)*	Permits Adjusted for Little or no Evidence of Mitigation (n=110)**
Open Water Acreage Impacts	76.42	67.34	67.32
Wetland Acreage Impacts	365.42	364.74	364.70
Open Water Cubic Yards of Impacts	3862.36	3862.36	3862.36
Open Water Linear Feet of Impact	950	950	950
	Permit Requirements		*Documented* Mitigation
Open Water Mitigation Acreage	77.66	77.66	36.01
Wetland Mitigation Acreage	1377.54	1249.21	187.28
Open Water Mitigation Linear Feet	815	815	815
Mitigation Bank Credits	57.96	57.96	45.67
Upland Buffer/Riparian Mitigation/ Other Acreage	609.75	609.75	50.92
Wetland Impact: Wetland Mitigation Ratio	1 : 3.8	1 : 3.4	1 : 0.5

**Permits where No Work appears to have occurred (13 permits) were removed from sample to create a sample size of 110 permits.*

***Mitigation Acreage Totals for 32 Permits where little or no evidence that mitigation occurred were removed from Open Water Mitigation Acreage, Wetland Mitigation Acreage, Mitigation Bank Credits, and Upland Buffer, etc. Acreage.*

Table 6. Adjusted impact and mitigation acreage with SWG-2007-00909 and SWG-2007-01963 acreage totals removed.

	All Permits (n=121)	All Permits Where Impacts Occurred (n=108)*	Permits Adjusted for Little Evidence of Mitigation (n=108)**
Open Water Acreage Impacts	53.95	44.87	44.87
Wetland Acreage Impacts	174.21	173.52	173.52
Open Water Cubic Yards of Impacts	3862.36	3862.36	3862.36
Open Water Linear Feet of Impact	950	950	950
Open Water Mitigation Acreage	70.65	70.65	22.08
Wetland Mitigation Acreage	441.54	313.21	187.28
Open Water Mitigation Linear Feet	815	815	815
Mitigation Bank Credits	53.37	53.37	41.07
Upland Buffer/Riparian Mitigation/ Other Acreage	609.75	609.75	50.92
Wetland Impact: Wetland Mitigation Ratio	1 : 2.5	1 : 1.8	1 : 1.1

**Permits were No Work Appears to Have Occurred (13 permits) Were Removed from Sample to create a sample size of 108 permits.*

***Mitigation Acreage Totals for 32 Permits where little evidence that mitigation occurred were removed from Open Water Mitigation Acreage, Wetland Mitigation Acreage, Mitigation Bank Credits, and Upland Buffer, etc. Acreage.*

USACE COMPLIANCE INSPECTIONS

The Corps does not inspect the compliance status of every single permit, nor is it required to. The USACE Galveston District sets their own compliance inspection rate targets, which are defined by their nationally defined regulatory performance measures (Appendix D).

The detailed examination of the permit dossiers revealed that the Corps performed compliance inspections on 12 out of the 123 permits, or 9.7%, a rate higher than their internal goal. Of the 12 permits that the Corps inspected, six were out of compliance in the analysis of the administrative records received from the USACE (Appendix J). Most of the out-of-compliance permits were for missing monitoring reports. This does not mean that these permits were out of compliance when the Corps performed their audit. Some of these permits may well have been examined before the permits where finalized.

BRIDGING FEDERAL AND LOCAL REGULATORY SYSTEMS

LOCAL LAND DEVELOPMENT PERMITTING

While the federal 404 permitting process regulates impacts to jurisdictional wetlands, development permitting decisions that affect non-jurisdictional wetlands are largely made at the local level. In the Houston-Galveston region, HARC estimates that there are no less than 118 municipal government entities in an 8-county area that encompasses Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties. Each county and municipal government agency regulates development according to its own set of regulations and permitting procedures.

As seen in Table 7 below, a review of development permitting requirements for the 8 county governments in the study area shows that all 8 county governments recognize the impacts of development on ecosystem services relating to flooding and water quality. All 8 county governments require information describing impacts to the 100-year floodplain and the use of onsite sewage systems (septic systems). However, of the 8 counties, only 4 mention or inquire about impacts to wetlands in planning documentation. Brazoria and Galveston counties remind applicants that propose to impact wetlands that it is their responsibility to obtain approvals from the USACE. In Chambers County, jurisdictional wetlands must be shown on the preliminary plat for the development of new subdivisions. Harris County distributes extended guidance documents describing wetland delineation for county projects as well as wetland considerations relating to stormwater quality.

Table 7.Summary of local development considerations in eight counties of the Houston-Galveston Region.

Building Permit Considerations	Brazoria	Chambers	Fort Bend	Galveston	Harris	Liberty	Montgomery	Waller
Impacts to Wetlands/ 404 Permit	✓	✓		✓	✓			
100-year Floodplain/Flood Mitigation	✓	✓	✓	✓	✓	✓	✓	✓
Septic Systems	✓	✓	✓	✓	✓	✓	✓	✓
Alteration of Natural Waterway			✓					
State Coastal Management Plan				✓				
Stormwater Management					✓		✓	
Low Impact Development					✓			
Parks & Open Space(in subdivisions)		✓						

MAPPING APPLICATION

HARC designed an online-based mapping application to facilitate watershed-based decision making. The target audience was county and municipal planners and other associated local government employees involved in making local permitting decisions for new development in the region. The mapping application can be accessed at http://maps.harcresearch.org/WetlandTool/. Potential development project sites in the Houston-Galveston region can be 1) searched by address, 2) drawn in using a computer mouse, or 3) uploaded as a shape file. The location of the project boundary can be compared to available information describing existing wetlands, stream water quality and impervious surface at the watershed scale (see Figure 17 and Figure 18).

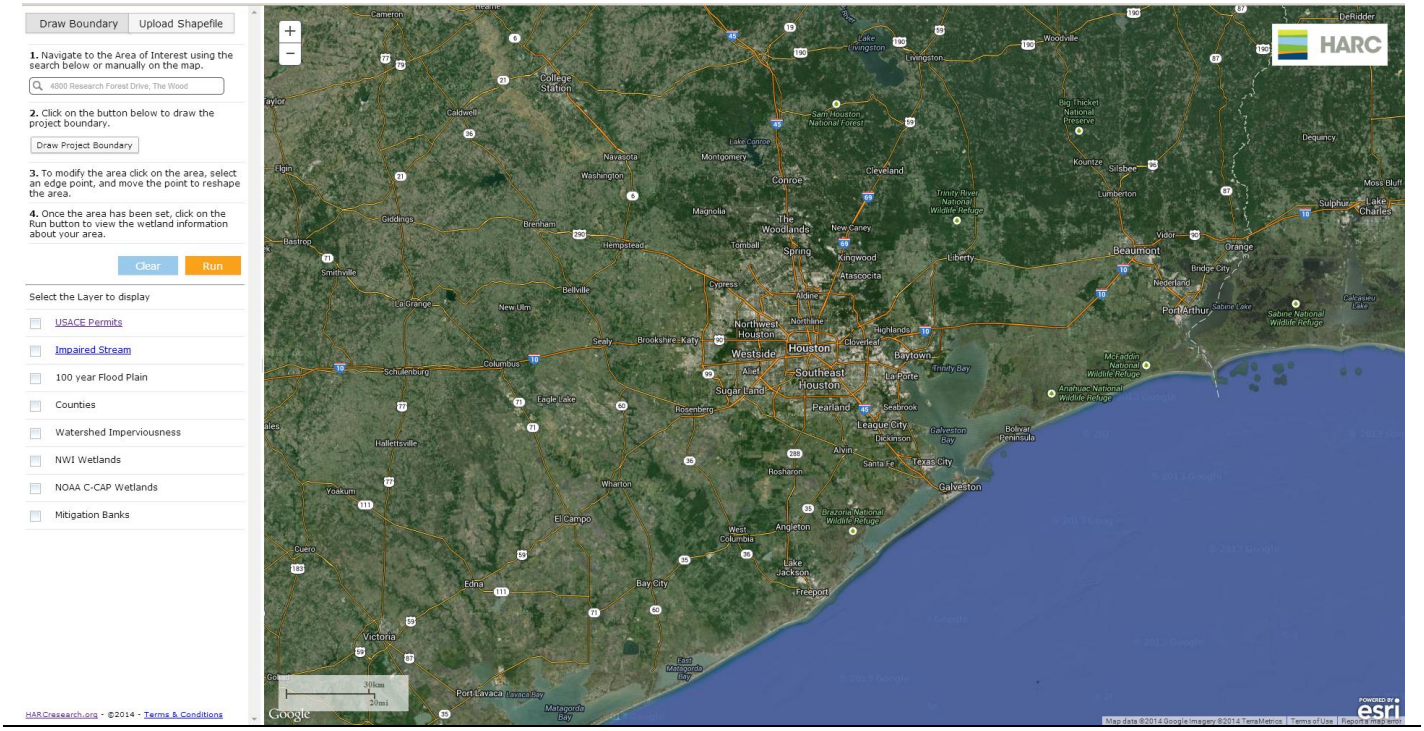


Figure 17. Screenshot of online-based mapping application to facilitate watershed-based decision making.

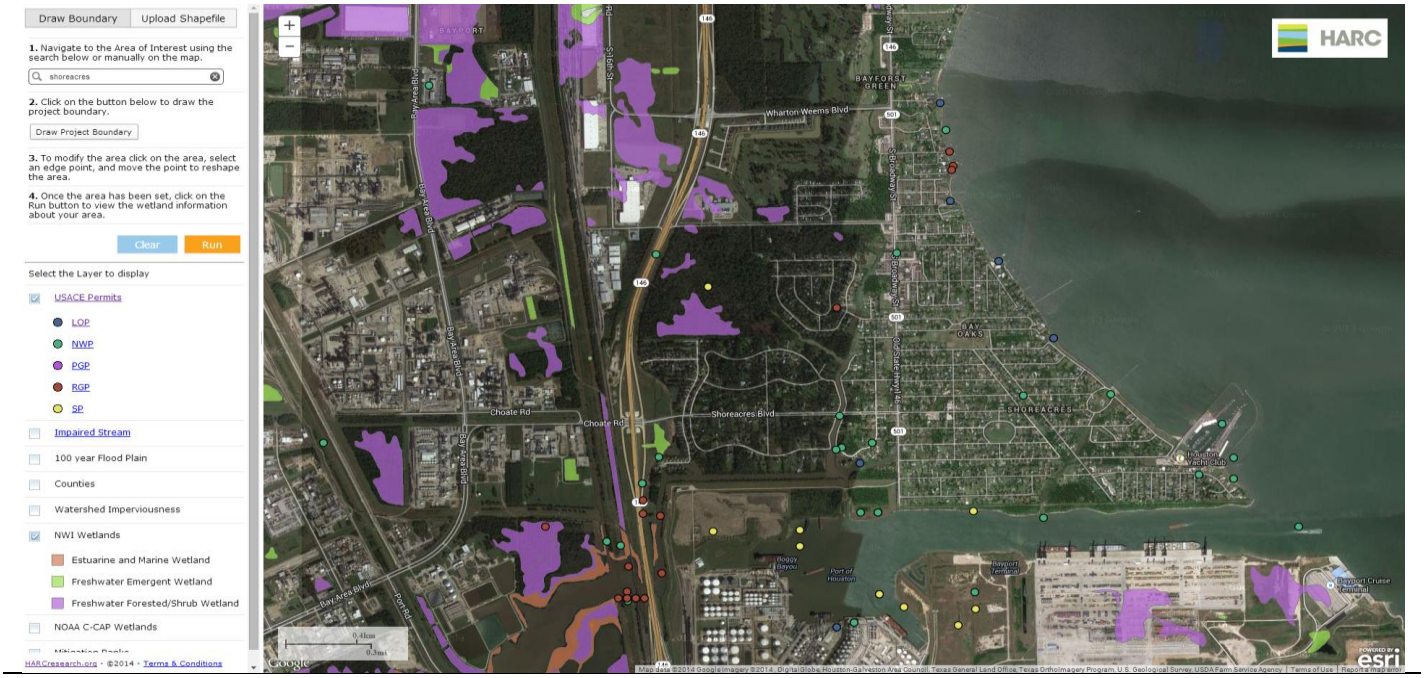


Figure 18. Screenshot of online-based mapping application showing available map layers (USACE permits, impaired streams, 100-year floodplain, watershed imperviousness, NWI wetlands, NOA C-CAP wetlands, and county boundaries).

A pop-up dialog box (Figure 19) alerts users to the estimated acreage of the project and the existence of any 404 wetland permits. The tool also calculates acreage of wetlands impacted based on NOAA C-CAP as well as wetland type per the NWI habitat classification. Location per the 100-year floodplain (2009), associated 303(d) impaired streams, and mitigation bank service areas that overlap with the project. The tool also provides the percent impervious surface coverage within the watershed and notifies the user of potential impacts on surface water quality: <10% - minimally impacted; 10-30% - impacted; 30% imperviousness – degraded (Schueler 1992; Arnold Jr. and Gibbons 1996). The results can be exported as a shapefile and as a .csv file for import into analysis programs such as Excel.

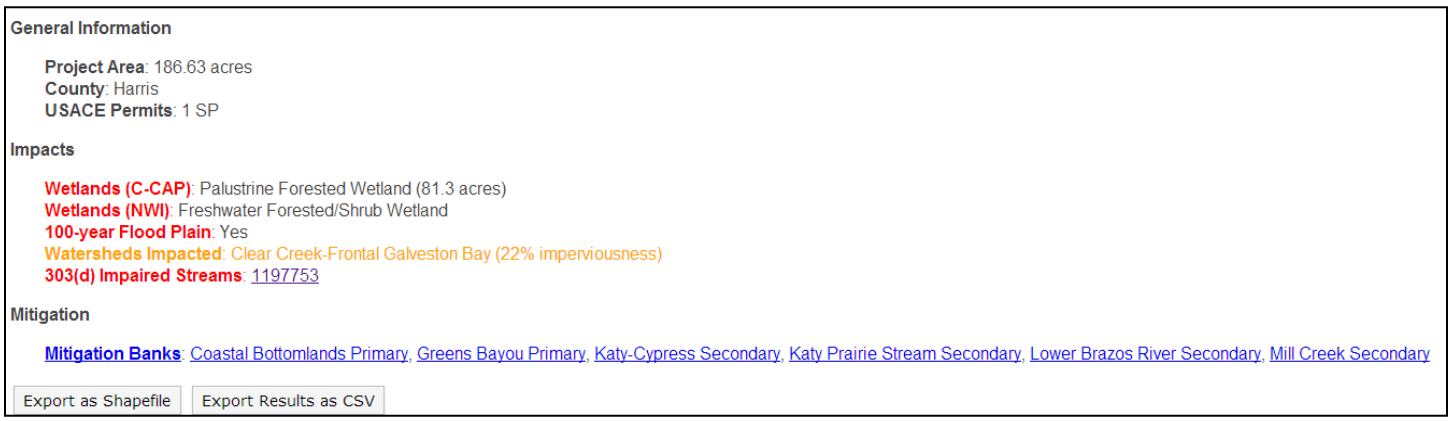


Figure 19. Screenshot watershed-based information calculated for uploaded development project boundary.

HARC's analysis of local permitting processes for 8 county governments resulted in a determination that only 4 counties in the region give some consideration of development impacts to wetlands. Additionally, much of the local land use permitting happens at the municipal level in incorporated areas. There are no less than 118 municipalities in the 8-county region, each with different technological capabilities and regulatory requirements. The gap that exists between the federal permitting process and local land use decisions must be closed if the region's wetlands are to be protected. Municipality and county governments may actually be better situated, if given the right tools, to make decisions about the protection of wetland ecosystem services on a watershed level. The mapping tool developed for this project was a preliminary step in that direction.

CONCLUSIONS

The objective of the federal No Net Loss policy is to ensure that wetland functions and values impacted or lost through development are replaced by the creation or restoration of similar wetland habitats and functionality. We are losing wetlands at an ever increasing rate in the greater Houston area. This study suggests that the net outcome of the federal wetland mitigation program in this area may in fact be a significant *net loss* of wetland functions.

Of the 7,052 unique 404 wetland permits issued between 1990 and 2012, 89% were located within the 100-year floodplain. Wetlands lying outside of the 100-year floodplain, where the vast majority of development in this region occurs, are largely unprotected by the federal regulatory system as administered in this region. The term "no net loss" should therefore be clarified to mean "no net loss of jurisdictional wetlands".

Recent research has documented that most of the wetlands in the study area outside of the 100-yr floodplain do have a pronounced significant hydrologic nexus to traditional navigable waters or waters of the US. Two independent studies (Wilcox et al. 2011; Forbes et al. 2012) documented an amazingly consistent value of 10-20% of the inflow to coastal palustrine wetlands flowing out of these wetlands into waters of the United States, purified of nitrogen and other pollutants.

The ORM II record management system currently utilized by the USACE represents a dramatic improvement over previous information systems such as RAMS and ORM I. However, there are very significant issues in terms of public transparency still. Quantifiable information describing the areal extent of wetland impacts and corresponding compensatory mitigation is lacking, especially for permits issued prior to the year 2008. That information is held within the full permit record. The process to obtain full permit records is time consuming (the project team was able to obtain 6-10 permit records approximately every 2 weeks), and expensive (costs to this project for 100 permits were approximately $3,000 or $30 per permit). The time and cost required to obtain information held in the full permit record represents a barrier to those public and private entities seeking to investigate this issue. Once the information is obtained, analysis requires great attention to detail and knowledge of the very complex regulatory system. Much of the information examined by this project could be made available to the public on the internet. At the very least, all new permit documentation should be fully accessible to the public.

It is important to note that this study did not evaluate the quality of wetland mitigation in the study area. This was strictly a study of the "accounting" of the mitigation. The fact that so few wetland mitigation projects are subject to compliance inspections does cast some doubt on the long term sustainability of many, if not most, of the wetland mitigation projects in the study area. We do know that there have been important successes with several mitigation projects, but it is not clear that the greater Houston region is getting anything close to No Net Loss, especially in terms of wetland function.

Of the 123 permits subjected to a rigorous analysis, 56% were out of compliance with the permit conditions at the time of this study. For the 69 permits where compensatory mitigation was required, 57% were out of compliance, and 38% had no record that compensatory mitigation was ever started. In terms of the required wetland mitigation acreage, the ratio of impacted to compensated acreage was no better than 1:1, and evidence suggest it is as low as 1:0.5, far below what would be required for no net loss.

The current regulatory trend is to shift most compensatory wetland mitigation to mitigation banks, which theoretically should do a better job keeping track of mitigation. This analysis revealed that 4 of 14 permits (28%) that directed compensatory mitigation into mitigation banks were out of compliance, about half the rate of compliance for the entire permit record examined. A total of 58.0 mitigation bank credits were required by the reviewed permits. Purchase of 45.7 credits is supported by evidence in the administrative record, leaving 12.29 or 21% of required credits without documentation. The record for mitigation banks is thus substantially better that for the permit population as a whole, but it is still far from no net loss. In addition, most of the mitigation bank mitigation occurs in more rural counties and in watersheds other than where the impact occurred due to very large size of mitigation bank service areas in the region.

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Appendix A. Fields in the Combined Permit Data Record

Database Field Name
OBJECTID_1
OBJECTID
ACTION_FOL
Cnt_ACTION
OldPermitN
DA_NUMBER
YEAR
Latitude
Longitude
Mit_FOIA
FOIA
HARCMerged
Corps2007
Pollock
RAMS2006
GBF2001
GBF_WPR
TPWD
TCEQ
DAY
MONTH
Pre_SWANCC
TYPE
PERMIT_DES
County
TCWP_Notes
Mit_nonFOI
timeperiod
USGS_QD_ID
nwi
In_100YR
ccap
date
In_Lieu_Fee *
Mitigation_Bank *
Permittee_Responsible__off_site_ *
Permittee_Responsible__on_site_ *
total_mit_type *

Database Field Name
Conversion_of_waters_type__forested_wetland_to_emergent_wetland_ *
Discharge_of_dredged_material *
Discharge_of_fill_material *
Dredging__Section_10_ *
Ecological_restoration *
Excavation_associated_with_the_discharge_of_dredged_or_fill_mate *
Historical_Undertermined *
Other__directional_boring__aerial_or_submarine_crossings_ *
Removal *
Structure__non_fill_ *
Work__non_fill__Section_10_ *
total_impacts *
Bank_ILF *
Enhancement *
Establishment *
Preservation *
Re_establishment *
Rehabilitation *
total_prm_type *
Sum_of_MIT_REQ_ACRES *
Sum_of_MIT_REQ_LINEAR_FT *
Sum_of_CREDITS_REQUIRED *
Sum_of_AUTH_FILL_ACRES *
Sum_of_AUTH_DRG_REMVL_VOL_CUFT *
Sum_of_AUTH_LINEAR_FT *
Sum_of_AUTH_DRG_REMVL_ACRES *
Sum_of_AUTH_REMVL_ACRES *
Sum_of_AUTH_DRG_FILL_ACRES *
Sum_of_AUTH_STRUC_ACRES *

** Majority of records represented blanks or unquantifiable information in permits prior to 2008.*

Appendix B. Full Permits Requested from USACE via FOIA

Permit	Part of 100 Random	USACE FOIA	Date Requested	Date Received
ORM II Data		13-0157	3/24/2013	3/28/2013
SWG-1993-01629		13-0207	5/29/2013	6/17/2013
SWG-1993-01967		13-0207	5/29/2013	6/17/2013
SWG-1996-01291		13-0207	5/29/2013	6/17/2013
SWG-1996-02935		13-0207	5/29/2013	6/17/2013
SWG-2002-02968		13-0207	5/29/2013	6/17/2013
SWG-2003-00483		13-0207	5/29/2013	6/17/2013
SWG-2003-02731		13-0207	5/29/2013	6/17/2013
SWG-2005-00977		13-0207	5/29/2013	6/17/2013
SWG-2006-02014-RN		13-0207	5/29/2013	6/17/2013
SWG-2012-00177		13-0207	5/29/2013	6/17/2013
SWG-2003-02555		13-0272	8/21/2013	9/16/2013
SWG-2006-00320		13-0272	8/21/2013	Missing
SWG-2008-00210-RS		13-0272	8/21/2013	9/16/2013
SWG-2008-00530		13-0272	8/21/2013	9/16/2013
SWG-2008-01178		13-0272	8/21/2013	9/16/2013
SWG-2009-00247		13-0272	8/21/2013	9/16/2013
SWG-2009-00988		13-0272	8/21/2013	9/16/2013
SWG-2009-01124		13-0272	8/21/2013	9/16/2013
SWG-2010-01129		13-0272	8/21/2013	9/16/2013
SWG-2011-00595		13-0272	8/21/2013	9/16/2013
SWG-2011-00673		13-0272	8/21/2013	9/16/2013
SWG-1996-00865	x	13-0300	9/18/2013	1/10/2014
SWG-1999-02460	x	13-0300	9/18/2013	10/16/2013
SWG-2007-00063	x	13-0300	9/18/2013	10/16/2013
SWG-2007-00909-RN	x	13-0300	9/18/2013	10/16/2013
SWG-2007-01963	x	13-0300	9/18/2013	10/16/2013
SWG-2008-00089	x	13-0300	9/18/2013	10/16/2013 1/10/2014
SWG-2008-00158	x	13-0300	9/18/2013	10/16/2013
SWG-2008-01289	x	13-0300	9/18/2013	Missing
SWG-2009-00253	x	13-0300	9/18/2013	10/16/2013
SWG-1995-00699	x	14-0013	10/21/2013	11/21/2013
SWG-2011-00068	x	13-0300	9/18/2013	1/10/2014

Permit	Part of 100 Random	USACE FOIA	Date Requested	Date Received
ORM II Reports: FY2012 4th Qtr		14-0010	10/1/2013	10/23/2013
SWG-1998-00993	x	14-0013	10/21/2013	11/21/2013
SWG-1998-01606	x	14-0013	10/21/2013	11/21/2013
SWG-2002-00852	x	14-0013	10/21/2013	11/21/2013
SWG-2008-01007	x	14-0013	10/21/2013	11/21/2013
SWG-2009-00463	x	14-0013	10/21/2013	11/21/2013
SWG-2009-00671	x	14-0013	10/21/2013	11/21/2013
SWG-2011-00489	x	14-0013	10/21/2013	Missing
SWG-2011-00637	x	14-0013	10/21/2013	11/21/2013
SWG-2012-00051	x	14-0013	10/21/2013	11/21/2013
SWG-2004-02500		14-0024	11/4/2013	12/2/2013
SWG-2006-01851		14-0024	11/4/2013	12/2/2013
SWG-2007-00688	x	14-0024	11/4/2013	12/2/2013
SWG-2008-00254-RS		14-0024	11/4/2013	12/2/2013
SWG-2008-01144	x	14-0024	11/4/2013	12/2/2013
SWG-2008-01165		14-0024	11/4/2013	12/2/2013
SWG-2009-00233		14-0024	11/4/2013	12/2/2013
SWG-2009-00842		14-0024	11/4/2013	12/2/2013
SWG-2009-01007		14-0024	11/4/2013	12/2/2013
SWG-2010-00225	x	14-0024	11/4/2013	12/2/2013
SWG-2010-00402		14-0024	11/4/2013	12/2/2013
SWG-2010-00754		14-0024	11/4/2013	12/2/2013
SWG-2010-00852		14-0024	11/4/2013	12/2/2013
SWG-2011-00734	x	14-0024	11/4/2013	12/2/2013
SWG-2011-01109	x	14-0024	11/4/2013	12/2/2013
SWG-1992-02681	x	14-0031	11/12/2013	12/17/2013
SWG-1993-00525	x	14-0031	11/12/2013	12/17/2013
SWG-1995-00220	x	14-0031	11/12/2013	12/17/2013
SWG-1996-01289	x	14-0031	11/12/2013	12/17/2013
SWG-1997-00133	x	14-0031	11/12/2013	12/17/2013
SWG-2000-02072	x	14-0031	11/12/2013	12/17/2013
SWG-2002-01444	x	14-0031	11/12/2013	12/17/2013
SWG-2006-00410	x	14-0031	11/12/2013	12/17/2013
SWG-2002-01833	x	14-0031	11/12/2013	12/17/2013

Permit	Part of 100 Random	USACE FOIA	Date Requested	Date Received
SWG-2007-00187	x	14-0031	11/12/2013	12/17/2013
SWG-1995-01403	x	14-0055	12/12/2013	1/16/2014
SWG-1995-01867	x	14-0055	12/12/2013	1/16/2014
SWG-1996-00848	x	14-0055	12/12/2013	Missing
SWG-1997-01349	x	14-0055	12/12/2013	1/16/2014
SWG-2003-02733	x	14-0055	12/12/2013	1/16/2014
SWG-2006-00218	x	14-0055	12/12/2013	1/16/2014
SWG-1991-00105	x	14-0063	1/2/2014	1/17/2014
SWG-1992-00084	x	14-0063	1/2/2014	1/17/2014
SWG-1993-01776	x	14-0063	1/2/2014	1/17/2014
SWG-1997-01979	x	14-0063	1/2/2014	1/17/2014
SWG-2005-01005	x	14-0063	1/2/2014	1/17/2014
SWG-2006-01760	x	14-0063	1/2/2014	1/17/2014
ORM II Report: FY2013 4th Qtr PM3 Eligibility Report		No FOIA Request Made	No FOIA Request Made	1/22/2014
ORM II Reports: FY2008-2011 4th Qtr			1/16/2014	1/27/2014
SWG-1995-02126	x	14-0074	1/16/2014	1/31/2012
SWG-1998-00263	x	14-0074	1/16/2014	1/31/2012
SWG-1998-01289	x	14-0074	1/16/2014	1/31/2012
SWG-1998-01560	x	14-0074	1/16/2014	1/31/2012
SWG-2003-01596	x	14-0074	1/16/2014	1/31/2012
SWG-2004-01527	x	14-0074	1/16/2014	1/31/2012
SWG-1991-00653	x	14-0081	1/23/2014	2/14/2014
SWG-1993-00229	x	14-0081	1/23/2014	2/10/2014
SWG-1998-00957	x	14-0081	1/23/2014	2/14/2014
SWG-1998-01491	x	14-0081	1/23/2014	2/10/2014
SWG-2000-00347	x	14-0081	1/23/2014	2/10/2014
SWG-2004-02330	x	14-0081	1/23/2014	Partial Missing
SWG-0-19244	x	14-0116	2/20/2014	3/13/2014
SWG-1992-01179	x	14-0116	2/20/2014	3/13/2014
SWG-1993-00861	x	14-0116	2/20/2014	3/13/2014
SWG-1997-01110	x	14-0116	2/20/2014	3/13/2014
SWG-2001-00995	x	14-0116	2/20/2014	3/13/2014
SWG-2001-02004	x	14-0116	2/20/2014	3/13/2014

Permit	Part of 100 Random	USACE FOIA	Date Requested	Date Received
SWG-1995-00770	x	14-0131	3/4/2014	4/1/2014
SWG-1995-01894	x	14-0131	3/4/2014	4/1/2014
SWG-1999-01665	x	14-0131	3/4/2014	4/1/2014
SWG-2002-01683	x	14-0131	3/4/2014	4/1/2014
SWG-2002-01985	x	14-0131	3/4/2014	4/1/2014
SWG-2006-00149	x	14-0131	3/4/2014	4/1/2014
SWG-1991-00628	x	14-0149	4/1/2014	4/16/2014
SWG-1993-00201	x	14-0149	4/1/2014	4/16/2014
SWG-1996-02224	x	14-0149	4/1/2014	4/16/2014
SWG-2001-00618	x	14-0149	4/1/2014	4/16/2014
SWG-2003-02341	x	14-0149	4/1/2014	4/16/2014
SWG-2007-00158	x	14-0149	4/1/2014	4/16/2014
SWG-1995-00424	x	14-0163	4/16/2014	5/8/2014
SWG-1999-01190	x	14-0163	4/16/2014	5/8/2014
SWG-2002-01358	x	14-0163	4/16/2014	5/8/2014
SWG-2002-01769	x	14-0163	4/16/2014	5/8/2014
SWG-2002-02778	x	14-0163	4/16/2014	Missing
SWG-2005-02256	x	14-0163	4/16/2014	5/8/2014
SWG-1995-00546	x	14-0178	5/5/2014	5/20/2014
SWG-1995-01666	x	14-0178	5/5/2014	5/20/2014
SWG-1996-00967	x	14-0178	5/5/2014	5/20/2014
SWG-1997-01118	x	14-0178	5/5/2014	5/20/2014
SWG-1999-00473	x	14-0178	5/5/2014	5/20/2014
SWG-2004-02353	x	14-0178	5/5/2014	5/20/2014
SWG-1992-02684	x	14-0195	5/14/2014	5/23/2014
SWG-1994-00169	x	14-0195	5/14/2014	5/23/2014
SWG-1995-00070	x	14-0195	5/14/2014	5/23/2014
SWG-1995-00406	x	14-0195	5/14/2014	5/23/2014
SWG-1995-01370	x	14-0195	5/14/2014	5/23/2014
SWG-1998-01358	x	14-0195	5/14/2014	5/23/2014
SWG-1998-01995	x	14-0195	5/14/2014	5/23/2014
SWG-1999-01313	x	14-0195	5/14/2014	Missing
SWG-2001-01086	x	14-0195	5/14/2014	5/23/2014
SWG-2004-00790	x	14-0195	5/14/2014	5/23/2014
SWG-2005-02367	x	14-0195	5/14/2014	5/23/2014

Appendix C. Percent Compliance for NWPs and SPs Requested and Received from USACE via FOIA

1990-2012	Random Sample Pool*	Full Permits not Included in Random Sample Pool**	All Requested Permits
Total Number of Permits	95	28	123
Percent NWP Compliance	60%	77%	64%
Percent NWP with Mitigation Compliance	41%	67%	46%
Percent SP Compliance	53%	47%	52%
Percent SP with Mitigation Compliance	40%	42%	40%

2008-2012	Random Sample Pool*	Full Permits not Included in Random Sample Pool**	All Requested Permits
Total Number of Permits	17	22	39
Percent NWP Compliance	89%	81%	85%
Percent NWP with Mitigation Compliance	75%	80%	78%
Percent SP Compliance	25%	64%	47%
Percent SP with Mitigation Compliance	25%	63%	44%

**Random sample pool of 95 permits selected via stratified random sample.*

***3 methods for selection of the additional 28 permits not included in the random sample pool:*

1. 10 permits were requested for initial assessment of a full permit administrative record at the beginning of the project study. Permits were selected to review a range of types of permits, age of permits, and locations of permits. No permit details were reviewed other than age, location, and type prior to selecting the permits (FOIA 13-0207). This set of permits was requested in order to gain an

understanding of what an administrative record was comprised of and how it differed between type of permit and age of permit (8/28). Two permits were not included in these numbers because they were RGP and LOP.

2. 11 permits were requested and 10 permits were received: 1 SP and 1 NWP for each year between 2008 and 2012 plus 1 that showed evidence of mitigation in the Non-ORM II records but not in the ORM II record (FOIA 13-0272). This set of permits was requested to review a larger sample of ORM II era permits, especially in regard to their mitigation documentation (10/28).
3. 15 permits were requested: 5 from the random sample pool; the other 10 were selected randomly for 1 SP and 1 NWP for each year 2008 thru 2012 (FOIA 14-0024). This set of permits was requested in order to sample a higher proportion of permits from 2008 and newer (10/28).

Appendix D. USACE Performance Measure Descriptions

Regulatory Program National Performance Measures	FY2013 Targets
1. **Individual Permit Compliance.** The Corps shall complete an initial compliance inspection on XX% of the total number of all individual permits (including LOPs) issued during the preceding FY where authorized work is underway.	10%
2. General Permit Compliance. The Corps shall complete an initial compliance inspection on XX% of the total number of all General Permits (including NWP) issued during the preceding FY where authorized work is underway.	5%
3. Mitigation Site Compliance. The Corps shall complete field compliance inspections of XX% of active mitigation sites each fiscal year. Active mitigation sites are those sites authorized through the permit process and are being monitored as part of the permit process, but have not met final approval under the permit special conditions (success criteria).	5%
4. **Mitigation Bank/In Lieu-Fee Compliance.** The Corps shall complete compliance inspections/audits on XX% of active mitigation banks and in lieu fee programs annually.	20%
5. **Resolution of Non-compliance Issues.** The Corps will reach resolution on XX% of all pending non-compliance with permit conditions and/or mitigation requirements that are unresolved at the end of the previous fiscal year and have been received during the current fiscal year.	20%
6. **Resolution of Enforcement Actions.** The Corps shall reach resolution on XX% of all pending enforcement actions (i.e., unauthorized activities) that are unresolved at the end of the previous fiscal year and have been received during the current fiscal year.	20%
7. **General Permit Decisions.** The Corps shall reach permit decisions on XX% of all General Permit applications within 60 days.	75%
8. Individual Permits. The Corps shall reach permit decisions on XX% of all Standard Permits and Letters of Permission (LOPs) within 120 days. This standard shall not include Individual Permits with Formal Endangered Species Act (ESA) Consultations.	50%

Appendix E. Analysis Documentation for Full Permit Records

Documentation Created by Rebecca DaVanon, Texas Coastal Watershed Program, 08/01/2014

Dossier creation uses many of the documents listed in this section. There are some additional requirements:

1. Creation of a JPEG image of the permit project site and mitigation site
    a. C-CAP data
    b. NWI data
    c. 2012 NAIP satellite imagery
    d. In the event of a widespread project such as a pipeline, a project location map will be created
2. Creation of a simplified table of the ORM FOIA record for comparison with the full permit
3. Extraction of important documents from the administrative record
    a. The final permit from the source PDF
    b. The statement of findings from the source PDF
    c. Any subsequent documents in the permit file post issuance of the final permit

The final Dossier will include the following:

1. Permit impact/mitigation summary report
2. Permit summary form
3. Permit completion summary
4. Simplified ORM II FOIA record
5. Satellite imagery of the project site and any mitigation sites
6. Overlay imagery of the project site and any mitigation sites
    a. NWI data
    b. C-CAP data
7. The permit's statement of findings
8. The final permit/ letter of verification authorizing the permit, including any permitted plans
9. Any subsequent documentation available in the administrative record for the permit
    a. Land easements will be included here as will USACE compliance inspection reports, permit modifications, mitigation plan permittee responsible monitoring, and reporting submissions

Reviewing a Received Permit Administrative Record and Creating a Permit Dossier

1. Review all documents provided in the permit administrative record. It is important to understand both the historical and legal context of permitted activity
    a. NWP Permit Conditions at the time the permit was being issued instead of current NWP permit conditions
    b. After-the-fact permit procedures versus typical permit procedures
    c. Public and Resource agency comments during Public Notice
    d. Impact of natural disasters such as Hurricane Ike
    e. Impact of CWA Supreme Court Cases such as SWANCC and Rapanos
    f. Permit Modification Request/ Extension of Time (EOT) requests
    g. Mitigation Sites that do not meet performance measures may require re-planting or other modifications to the original plan that would alter the original timelines for compliance

h. Army Corps of Engineers (USACE) Regulatory Guidance Letters (RGL) and other types of published guidelines used to guide permit authorization work flow

Each permit issued, denied, or modified is evaluated under its own unique circumstances. There is no rigorous SOP or checklist for how the 404 permit process proceeds. It is important to understand the full evaluation process for each permit before an assessment of compliance can be made.

2. Creation of Permit Administrative Record Summary Form
    a. This form is the basics of the administrative record. After the administrative record has been fully reviewed it should be simple to fill this sheet out. In the event of modifications, multiple dates and data may be recorded in each section
        i. Permit DA Number: SWG-XXXX-XXXXX.
            1. ORM II DA number in Permits post 2007
            2. RAMS Action ID in Permits pre-2007
        ii. Permit RAMS ID: Permit ID used in RAMS record management system
        iii. Associated DA/RAMS IDs: any permit that is associated with the subject permit
            1. Modifications
            2. Subdivided Permits
            3. Determinations/Investigations
            4. Withdrawn Permits
        iv. Permit Type: Standard Permit (SP) or Nationwide Permit (NWP)
            1. SP or ATF-SP
            2. NWP #: description of NWP (ex: NWP 14: Transportation Project) or ATF-NWP#: description
        v. Permit Applicant: entity applying for CWA 404/Section 10 permit
        vi. Original Permit Application Date: for standard permits only: date USACE receives the permit application
        vii. Pre-Construction Notification (PCN) or Pre-Discharge Notification (PDN) Date: for nationwide permits only:
            1. Received: date USACE receives the PCN
            2. Complete: date USACE recognized the PCN as complete
        viii. Completed Permit Application Date: for standard permits only: date USACE recognizes the permit application as completed
        ix. Public Notice Date: date the public notice is issued
            1. Usually only for standard permits
            2. NWPs tend to only receive an internal review by USACE and/or inter-agency coordination with resource agencies
        x. Comments Received From: Resource Agency? (Check box) Citizens/NPO (Check box): Documentation of comments from public notice
        xi. Final Permit Date:
            1. Standard Permit: the date the USACE official signs the final permit
            2. Nationwide Permit: the date of the verification letter
        xii. Project Description: Description of the permitted activity. Usually complied from review of the public notice, final permit, and statement of findings (SOF), though may come from anywhere in the administrative record

xiii. Background Information: notes on historical context of the permit. May be withdrawn permits, timeline of the permit, information on modification, or other pertinent information on the permit
xiv. Identified Impacts Description: detailed description of the known permit impacts. Impacts may be jurisdictional or non-jurisdictional but should specify which. Impacts may be broken down into sub-categories such as open water impacts, wetland impacts, herbaceous wetland impacts, tidal vs palustrine impacts, etc…
xv. Mitigation Required: Yes (Check box) No (Check box): Was compensatory mitigation required by the permit?
xvi. Type of Mitigation Required:
    1. Mitigation Bank/In-Lieu Fee Program (Check Box): was a mitigation bank or ILF Program utilized for compensatory mitigation?
        a. Verification of Credits Submitted (Check Box): Was there evidence of submission of verification of credit purchase by the permittee in the administrative record?
        b. Description: information on the mitigation: name of mitigation bank, type of credit assessment method used, number of credits required
    2. On Site Mitigation (Check Box): permittee responsible mitigation (PRM) performed on site. Occasionally, off site PRM is utilized. In this case, a second check box is added for recognizing off site PRM
        a. Deed Restriction: did the PRM site required deed restriction, a conservation easement, etc…?
        b. Description: information on mitigation requirements. Acreage, mitigation plan, and other general information on the mitigation of the permit
    3. Monitoring of Mitigation:
        a. Monitoring Reports (check box): was there evidence of submission of monitoring reports on file in the permit administrative record?
        b. Compliance Inspection(s) (check box): was there evidence of a compliance inspection form on file in the permit administrative record?
        c. Description: what sort of monitoring was required for the permit, timeline for submission of reports, deed, etc…?
xvii. Notes: any notes on the permit that did not fit into any of the above listed sections

3. Creation of Permit Impact and Mitigation Detail Sheet
    a. Impact: This section of the sheet will list in as much detail as possible the impacts associated with the permit activity. Where the information is available, jurisdictional impacts should be subdivided into:
        i. Open water versus wetland impacts
            1. Further subdivided into fill versus excavation impacts
            2. Further subdivided into type of open water and wetland impacts
        ii. If information on non-jurisdictional impacts is available, it should be listed as well in this section

b. Mitigation: this section of the sheet will list all mitigation including avoidance and minimization in as much detail as is available. Where information is available, then mitigation should be subdivided into:
    i. Avoidance: details on avoided acreage
    ii. Minimization: details on measures taken to minimize impacts (ex: use of boards in wetland to minimize soil disturbance)
    iii. Compensatory: details on Compensatory Mitigation Required. Where the information is available, mitigation should be subdivided into:
        1. Mitigation bank/ ILF credits
        2. Preservation acres
        3. Creation acres
        4. Enhancement acres
        5. Each type listed above should be subdivided into
            a. Open water vs wetland
            b. Type of open water and type of wetland
c. In the event there are modifications to acreages, each version of the permit should be documented for the information in 3a and 3b. For example, if a modification that reduces or increases impacted or mitigated acres is approved by USACE, both the original and modified impacts and mitigation should be recorded. If the modification is an EOT and no change occurred, simply record the modified permit ID and note EOT and no change in impact or mitigation
d. If any assumptions on wetland type were made, then they should be recorded here
e. If any conversions of units were made, then they should be recorded here (i.e. square feet to acres, etc…). This would include notes on if volume amounts where length and width had to be researched in project plans in order to calculate acreage.

4. Creation of the ORM II Record PDF for the Dossier
    a. This PDF is created from an Excel document. The original ORM II record in into original formatting is not conducive to display on a single page. It contains 52 data columns. The formatting of the ORM II record is re-organized into a separate Excel document and exported into a PDF for the dossier
        i. All column names are recorded and are re-arranged based on subject
            1. The yellow section basic information about the permit
                a. Action Folder ID, Action ID, District, DA Number, Action, Action Type, PNN, Project Name, Project Manager, Date Issued, Closure Method, Permit Authority, Worktype, County, State, HUC, Proj Latitude, Proj Longitude, Applicant, Compliance Inspection, At Least 1 in Compliance, At Least 1 Out of Compliance, and UnAuth Act
                b. Multiple Actions may be listed if available in the ORM record
            2. The red section is information about the permit impacts
                a. Action ID, Impact ID, Waters Name, Waterway, Waters Type, Cowardian Name, Waters Area, Waters Linear, Waters Latitude, Waters Longitude, Impact Duration, Impact Type, Resource Type, Auth Fill Acres, Auth Linear

Ft, Auth Remvl Acres, Auth Struc Linear Ft, Auth Struc Acres, Auth Drg Fill Acres, Auth Drg Remvl Acres, Auth Drg Remvl Vol CUFT

b. Multiple Impacts may be listed if available in the ORM record

3. The green section is information about the permit mitigation
    a. Action ID, Mitigation ID, Mitigation Type, Permittee Responsible Type, Mit Req Acres, Mit Req Linear Ft, Credits Required
    b. Multiple Mitigation ID's may be listed if available in the ORM record

ii. If multiple versions of a permit are available in the ORM II RMS under separate DA numbers or separate issued dates, then the ORM II record will be separated by a solid black bar. Permits will be arranged in chronological order

iii. The original format of the ORM II record will be copied and pasted onto the top of the sheet above the permit template. The data from the original ORM II record will then be copied into the appropriate field into the template. *No typing should occur*

iv. Once the formatting template is filled out, the original ORM II record pasted above the template can be deleted

v. The Excel document will be exported to a PDF after the formatting is completed.

5. Digitizing Permit Plans in ArcGIS 10.1
    a. No shapefiles or other GIS compatible datasets were provided as part of the permit administrative record
    b. In order to review data in ArcGIS 10.1, approved project plans had to be georeferenced (or aligned) to a map coordinate system. Georeferencing the project plans allows them to be viewed, queried, and analyzed with other GIS data. The images are aligned by defining its location using map coordinates to known control points. The process is similar to rubber sheeting
        i. Coordinate System Used: NAD_1983_UTM_Zone_15N
        ii. NAIP 2012 imagery at the county level is used to Georeference images
        iii. Root Mean Square (RMS) Error – There is always a degree of error when Georeferencing an image to a control point. The error is the difference between where the image point was placed as opposed to the actual location of the specified control point. The total error for each control point is computed by taking the RMS sum of all residual error to compute the RMS error. This value describes how consistent the transformation is between the different control points. The larger the RMS Error, the less precisely the georeferenced image aligned to real world points
        iv. Approved project plans vary in detail provided and in spatial accuracy of the data
            1. Some permits' approved plans do not provide enough detail to georeference the plans
            2. Some permits' approved plans are so small that the imagery used to georeference the plans is not defined enough to add control points. In such cases, the bounding coordinates of the project polygon would need to be provided in order to georeference the permit plans. This detail is often not provided in older permit plans. This situation usually requires interpreting the plans using review of Google Earth aerial imagery and project dimension specified in the plans

3. Some permits' approved plans are at such a small scale that the digitized plans often produce a larger RMS error
4. County parcel data is useful in georeferencing some project plans where parcel boundaries are displayed

c. After project plans are digitized, polygons can be created to represent the permit
   i. Polygon Fields:
      1. Type: Boundary, Impact, Impact – NJD, Mitigation
      2. Descrip: description of the polygon based on permit records
      3. Acres: calculated in NAD_1983_UTM_Zone_15N via field calculator
      4. Permit: DA Number of permit
      5. Version: version of permit applicable to polygon
      6. Phase: project phase if applicable
   ii. As much detail should be included as possible. Data should be digitized at the largest scale that is accurate and functional with the image
   iii. Review of Google Earth imagery and adjustment of polygon alignment may be required where project plans are hand-drawn or otherwise not spatially accurate, or are not to scale or are purposefully broken to display long linear features

6. Creating JPEG images of the permit overlaying 2012 NAIP imagery, 2012 NWI polygons, and 2006 C-CAP rasters
   a. Using the polygons created, a snapshot of the permit area should be captured
      i. Overlaying the 2012 NAIP data
      ii. Overlaying the 2012 NWI data
      iii. Overlaying the 2006 C-CAP data
   b. JPEG images will be imported into Microsoft Word documents and appropriate features will be labeled
   c. In areas where the project location and mitigation site are far apart, it may be appropriate to create a project locator map to display the scale of the project
      i. When this is the case, it is appropriate to create a National Hydrography Dataset HUC 6 and HUC 10 water body map to so how the distance from the project site and the mitigation site relate to their watersheds
   d. When the mitigation site is not adjacent to the project site, a second set of these images may be created for the mitigation area.
   e.
7. Review of GIS data in Google Earth
   a. Google Earth maintains a library of historic imagery and makes it available on the web tool. By using the time slider tool in Google Earth, changes over time may be viewed at the project site. This review quality is limited by the years of available imagery data. However, it is a valuable tool for both locating historic project locations as well as understanding how project activity and mitigation has progressed over time
   b. A review of Google Earth historic data should be completed for each permit. This review will be summarized in the Completion Summary of the Dossier and may be critical to determining permit compliance status
   c. The polygon data created in ArcGIS can be imported directly in to Google Earth via a KML or directly into Google Earth Pro via a shapefile. This can make review of a complex project site

easier and field check the quality of the georeferenced data. Adjustment of the GIS data may be appropriate based on review of Google Earth data

i. It should be noted that not all Google Earth imagery is perfectly georeferenced. Imagery will shift around a given location in Google Earth slightly, so make sure adjustments are made after viewing multiple years of Google Earth imagery

d. Snapshots of Google Earth – for older permits or any permit where Google Earth is used to determine compliance, snapshots of the area should be taken. This can be imported into a before-and-after type document into Microsoft Word. Appropriate labels can be added to help explain what is changing in the historic images over time.

8. Extraction of Relevant Documents from the Administrative Record to a PDF
    a. Statement of Findings (SOF) – The USACE explanation of the permit application process and why the final decision on issuing or not issuing the permit is made. It addresses all relevant legal matters and discusses details of the permit that are often not included in the final permit. It is a critical document for understanding a permit decision. A SOF is always issued for standard permits and usually for determinations and investigations. A nationwide permit and regional general permit are usually issued a SOF at the time the general permit is re-issued. For this reason, a SOF is not usually included with an NWP
    b. Final Permit (FP) – this may be a NWP verification letter that follows a pre-construction notification (PCN) or a full Department of Army Permit that follows the standard permit application process
    c. Subsequent Documents after the FP
        i. Modifications: If a large modification exists, not all documents need to be included. If a modification is large enough, it will usually go back out for internal review (IR) or public notice (PN). In these cases, a new SOF and FP amendment are usually issued. For larger modifications, this secondary SOF and FP may be saved. For smaller modifications, a memo or note is usually just added to the administrative record. In this case, all this documentation can be saved and grouped as a PDF
        ii. Construction Notifications, Verifications of Credits, Monitoring Reports, Compliance Inspections, Mitigation Completion Certificates
            1. All of these documents are critical to determining permit compliance. Every single document and email involving one of these documents should be included in a PDF and associated with the dossier.

9. Other Research and Documentation
    a. Any other documents used to determine compliance or describe the permit history should be saved. These must be included in the dossier as evidence. Such documents may include:
        i. Railroad Commission of Texas (RRC) drilling forms (W-1 forms) or GIS maps
        ii. County Central Appraisal District (CAD) maps
        iii. County Parcel Data
        iv. Newspaper articles from reputable publishers like Galveston County *The Daily News* or the *Houston Chronicle*
        v. Business Journal Articles
        vi. National Bridge Inventory Records

vii. Other imagery (Lambert DQQ)
viii. Texas Register Publications

10. Completion Summary
    a. This document is used to explain all conclusions drawn about the permit based on the administrative record of the permit, Google Earth imagery review, and other relevant research. Its components include:
        i. Paragraph summarizing the permit including the permit number, type of permit, issued date, expiration date and permit location
        ii. Paragraph on any relevant background if applicable
        iii. Paragraph summarizing impacts and mitigation (or why there is no mitigation)
        iv. If NWP, paragraph detailing the particular NWP regulations for the permit (make sure they are appropriate historically: do not use 2012 NWP rules for a 1995 NWP permit)
        v. Paragraph detailing permit conditions and requirements for compliance. If there are no special conditions, then there will be the permit expiration date and adherence to approved project plans. If there are other special conditions, then list them all verbatim
        vi. Paragraph discussing any existing subsequent data and specifically listing the date and type of document that is the latest available document in the administrative record
        vii. Paragraph summarizing what was seen in Google Earth review
        viii. Paragraph discussing permit conclusions:
            1. Is the authorized project construction complete, incomplete, or was no work ever completed? Why was this conclusion made?
            2. Is the permit in compliance or out of compliance? Why was this conclusion made? What condition listed in 10(a)(v) was violated if it is out of compliance?
            3. Is the project mitigation complete, incomplete, or not required? To be complete, the mitigation construction must be completed, and all monitoring required by the permit must be on file. If a mitigation compliance certificate is on file, then the mitigation is complete. If it is not, then the mitigation is still considered complete if all documents are on file. For mitigation banks, verification of credit purchase on file results in a complete mitigation status (as long as that was the only requirement). A mitigation bank has its own DA permit and maintains responsibility of monitoring and caring for the wetlands after credits are purchased
            4. For NWP 26 permits: SWANCC likely invalidated many isolated wetland permits after 01/09/2001. Technically, USACE must sign-off on this before mitigation requirements are waived. However, the benefit of the doubt is given to the permittee when the permit is in compliance up to 01/09/2001 and then evidence of mitigation trails off. It is assumed USACE write off is just missing from the administrative record. However, if a permit is missing reports prior to SWANCC ruling and was out of compliance with monitoring prior to 01/09/2001, then the permit will still be marked out of compliance at the time of the SWANCC ruling
            5. When there is a question that cannot be proved by direct evidence, the benefit of doubt is always given to USACE with the permittee being in compliance and following all permit conditions

11. Cover Page Creation
    a. Data should be entered into the Cover Page Excel Table:
        i. DA Number = Permit Number
        ii. # of Actions = Number of unique Action ID's
        iii. Type of Action(s) = SP, RPG, LOP, PGP, NWP (and what type of NWP).
            1. For NWP: include a short description of the NWP in the right box
        iv. Date Originally Issued = date the original permit was signed by USACE
        v. Date of Most Current Modification = for the most up to date modification, EOT, etc. the date USACE signed off on it. If there is no modification, then repeat the original permit issued date
        vi. Temporary Wetland Impacts: any temporary impacts to wetlands associated with the permit. If there are multiple units, then create a second row for this. Units belong in the box to the right
        vii. Permanent Wetland Impacts: any permanent impacts to wetlands associated with the permit. If there are multiple units, then create a second row. Units belong in the box to the right
        viii. Temporary Other Impacts: any temporary impacts to jurisdictional waters other than wetlands associated with the permit. If there are multiple units, then create a second row for this. No impacts to non-jurisdictional areas belong on the cover page
        ix. Permanent Other Impacts: any permanent impacts to jurisdictional waters other than wetlands associated with the permit. If there are multiple units, then create a second row for this. No impacts to non-jurisdictional areas belong on the cover page
        x. Compensatory Wetland Mitigation: any type of compensatory mitigation required associated with wetlands. If Mitigation has multiple types (onsite vs offsite, creation vs preservation) create new rows to document this.
            1. Notes are fine in the right box along with units (i.e. Acres preservation onsite)
        xi. Compensatory Other Mitigation: any type of compensatory mitigation required other than related to wetlands. This could be open water creation, preservation of upland buffer, etc… If mitigation has multiple types (preservation of upland buffer and creation of a detention pond) create new rows to document this.
        xii. Type of Mitigation: Permittee Responsible Mitigation (PRM), Mitigation Bank (MB), In Lieu Fee Program (ILF)
            1. In the right box, include the name of the program if applicable
        xiii. USACE Compliance Inspection? – Yes or No: is there a compliance inspection report in the administrative record? Must be the specific form not just an email mentioning a site visit
            1. If yes, note the conclusion of the inspection and the date of the inspection in the right box
        xiv. Permit appears to be in compliance with mitigation permit requirements based on the administrative record? : this is simply the conclusion noted in the completion summary: in compliance or out of compliance
            1. In the right box, note the condition violated if this is out of compliance

xv. Work appears to be completed based on the administrative record or latest Google Earth Imagery? :this is simply the conclusion noted in the completion summary: complete, incomplete, unknown, or no work
xvi. Mitigation is successful and finished based on the administrative record?: this is simple the conclusion noted in the completion summary: Yes, No, or Not Required
    1. If No, in the right box, note what aspect of mitigation is lacking to merit incompletion status

b. Export the Document to a PDF

12. Put the Dossier Together
    a. Proper Order
        i. Cover Page
        ii. Impact Summary
        iii. Permit Summary
        iv. ORM Record
        v. Project Locator Map if applicable
        vi. Completion Summary
        vii. Watershed Map (if applicable)
        viii. Any document referenced outside Google Earth or the administrative record if applicable
        ix. The Project visualized in Google Earth before-and-after screen captures (if applicable)
        x. Satellite overlay
        xi. NWI overlay
        xii. C-CAP overlay
        xiii. Mitigation satellite, NWI, and C-CAP overlays if necessary
        xiv. SOF
        xv. FP
        xvi. Any subsequent documentation in chronological order

Appendix F. 404 Wetland Permits & CCAP and NWI Datasets

Summary of 7,052 permits by time period, location relative to 100-year floodplain, and county.

Category	Full Inventory (n=7052)	% Within Category
C-CAP Land Cover Class		
Palustrine aquatic bed	27	0
Palustrine emergent wetland	235	3
Palustrine forested wetland	531	8
Palustrine scrub/shrub wetland	122	2
Pasture/hay	353	5
Scrub/shrub	152	2
Unconsolidated shore	358	5
Water	1,223	17
Bare land	64	1
Cultivated	91	1
Deciduous forest	213	3
Developed open space	610	9
Estuarine aquatic bed	14	0
Estuarine emergent wetland	462	7
Estuarine scrub/shrub wetland	2	0
Evergreen forest	153	2
Grassland	298	4
High intensity developed	318	5
Low intensity developed	962	14
Medium intensity developed	746	11
Mixed forest	102	1
None	16	0
NWI Habitat Class		
Estuarine and marine deepwater	1395	20
Estuarine and marine wetland	202	3
Freshwater emergent wetland	210	3
Freshwater forested shrub wetland	181	3
Freshwater pond	71	1
Lake	171	2
None	4,577	65
Riverine	245	3

Appendix G. Entire Administrative Records Requested Via FOIA

By Sample Use, Permit Type, Compliance Status, and Type of Violation (if applicable)

***Code key is at the end of the table**

DA Number	Sample Use	Permit Type	Compliance Status	Project Construction Status	Compensatory Mitigation Status	Compensatory Mitigation Required?	ACOE Compliance Inspection?	Violation Code
SWG-0-19244	R	S	O	C	I	Y	N	1
SWG-1991-00105	R	N	I	N	X	N	N	
SWG-1991-00628	R	S	I	U	X	N	N	
SWG-1991-00653	R	N	O	C	X	N	N	7
SWG-1992-00084	R	N	I	C	X	N	N	
SWG-1992-01179	R	S	O	C	X	N	N	9
SWG-1992-02681	R	N	O	C	I	Y	N	1
SWG-1992-02684	R	N	O	C	I	Y	N	1
SWG-1993-00201	R	S	I	C	X	N	N	
SWG-1993-00229	R	S	I	N	X	N	N	
SWG-1993-00525	R	S	I	C	C	Y	Y	
SWG-1993-00861	R	S	I	C	X	N	N	
SWG-1993-01629	I	N	I	C	X	N	N	
SWG-1993-01776	R	N	I	U	X	N	N	
SWG-1993-01967	I	S	I	I	C	Y	N	
SWG-1994-00169	R	N	I	C	C	Y	N	
SWG-1995-00070	R	N	O	C	I	Y	N	1
SWG-1995-00220	R	S	I	N	I	Y	N	
SWG-1995-00406	R	N	I	C	C	Y	N	
SWG-1995-00424	R	S	I	C	C	Y	N	
SWG-1995-00546	R	N	I	I	C	Y	N	
SWG-1995-00699	R	N	I	C	X	N	N	

DA Number	Sample Use	Permit Type	Compliance Status	Project Construction Status	Compensatory Mitigation Status	Compensatory Mitigation Required?	ACOE Compliance Inspection?	Violation Code
SWG-1995-00770	R	S	I	C	X	N	N	
SWG-1995-01370	R	N	O	C	I	Y	Y	1
SWG-1995-01403	R	N	I	C	X	N	N	
SWG-1995-01666	R	N	O	C	I	Y	N	1
SWG-1995-01867	R	N	I	C	X	N	N	
SWG-1995-01894	R	S	I	U	X	N	N	
SWG-1995-02126	R	S	O	C	I	Y	N	1
SWG-1996-00848	R	*N	--	--	--	--	--	--
SWG-1996-00865	R	S	I	C	C	Y	Y	
SWG-1996-00967	R	N	O	C	I	Y	N	1
SWG-1996-01289	R	S	I	N	I	Y	N	
SWG-1996-01291	I	S	O	C	I	Y	Y	1,2,9
SWG-1996-02224	R	S	O	I	I	Y	N	1
SWG-1996-02935	I	S	O	C	I	Y	Y	1,2,9
SWG-1997-00133	R	N	I	C	X	N	N	
SWG-1997-01110	R	S	O	C	X	N	N	2,5
SWG-1997-01118	R	N	O	C	I	Y	N	1
SWG-1997-01349	R	N	I	C	X	N	N	
SWG-1997-01979	R	N	O	C	X	N	N	7
SWG-1998-00263	R	S	I	C	C	Y	Y	
SWG-1998-00957	R	S	I	C	X	N	N	
SWG-1998-00993	R	N	I	C	X	N	N	
SWG-1998-01289	R	S	O	C	I	Y	N	1
SWG-1998-01358	R	N	O	C	I	Y	Y	1
SWG-1998-01491	R	S	I	U	X	N	N	
SWG-1998-01560	R	N	I	C	I	Y	N	
SWG-1998-01606	R	N	I	C	X	N	N	
SWG-1998-01995	R	N	O	C	I	Y	N	1,2,5

DA Number	Sample Use	Permit Type	Compliance Status	Project Construction Status	Compensatory Mitigation Status	Compensatory Mitigation Required?	ACOE Compliance Inspection?	Violation Code
SWG-1999-00473	R	N	O	C	C	Y	N	8
SWG-1999-01190	R	S	I	C	C	Y	N	
SWG-1999-01313	R	*N	--	--	--	--	--	--
SWG-1999-01665	R	S	I	C	X	N	N	
SWG-1999-02460	R	S	O	C	I	Y	N	1
SWG-2000-00347	R	S	O	C	X	N	N	5
SWG-2000-02072	R	N	O	C	I	Y	N	2,5
SWG-2001-00618	R	S	O	U	I	Y	N	2
SWG-2001-00995	R	S	I	I	X	N	N	
SWG-2001-01086	R	N	I	C	C	Y	N	
SWG-2001-02004	R	S	O	I	X	N	Y	8
SWG-2002-00852	R	N	I	C	X	N	N	
SWG-2002-01358	R	S	O	C	I	Y	N	3
SWG-2002-01444	R	S	O	I	I	Y	N	1,5
SWG-2002-01683	R	S	O	C	I	Y	N	2,4,6
SWG-2002-01769	R	S	O	C	I	Y	N	1,2
SWG-2002-01833	R	S	I	C	C	Y	N	
SWG-2002-01985	R	S	I	C	X	N	N	
SWG-2002-02778	R	*S	--	--	--	--	--	--
SWG-2002-02968	I	R	I	C	X	N	N	
SWG-2003-00483	I	L	I	C	X	N	N	
SWG-2003-01596	R	N	O	C	X	N	N	2
SWG-2003-02341	R	S	I	C	C	Y	N	
SWG-2003-02555	I	S	O	C	I	Y	N	4
SWG-2003-02731	I	S	O	C	I	Y	N	1,2,4
SWG-2003-02733	R	N	I	C	X	N	N	
SWG-2004-00790	R	N	O	C	I	Y	N	4,6

DA Number	Sample Use	Permit Type	Compliance Status	Project Construction Status	Compensatory Mitigation Status	Compensatory Mitigation Required?	ACOE Compliance Inspection?	Violation Code
SWG-2004-01527	R	S	O	C	C	Y	N	5
SWG-2004-02330	R	N	CBD	C	X	N	N	
SWG-2004-02353	R	N	O	I	X	N	N	2
SWG-2004-02500	I	S	I	I	C	Y	N	
SWG-2005-00977	I	N	O	C	I	Y	Y	1,2,4
SWG-2005-01005	R	N	I	U	X	N	N	
SWG-2005-02256	R	S	O	C	I	Y	N	1
SWG-2005-02367	R	N	I	N	I	Y	N	
SWG-2006-00149	R	S	I	C	C	Y	N	
SWG-2006-00218	R	N	I	C	X	N	N	
SWG-2006-00320	I	*S	--	--	--	--	--	--
SWG-2006-00410	R	S	I	I	X	N	N	
SWG-2006-01760	R	N	I	C	X	N	N	
SWG-2006-01851	I	S	I	N	X	N	Y	
SWG-2006-02014-RN	I	S	O	C	I	Y	N	1,4
SWG-2007-00063	R	S	O	C	I	Y	N	1,2
SWG-2007-00158	R	S	I	C	X	N	N	
SWG-2007-00187	R	N	O	C	X	N	N	7
SWG-2007-00688	R	S	O	I	I	Y	N	2,4,6
SWG-2007-00909-RN	R	S	O	I	I	Y	N	2
SWG-2007-01963	R	S	O	C	I	Y	Y	1,2,4,5
SWG-2008-00089	R	S	I	N	I	Y	N	
SWG-2008-00158	R	S	O	C	I	Y	N	3
SWG-2008-00210-RS	I	N	I	C	C	Y	N	
SWG-2008-00254-RS	I	N	I	C	X	N	N	
SWG-2008-00530	I	S	I	N	I	Y	N	
SWG-2008-01007	R	N	I	N	X	N	N	

DA Number	Sample Use	Permit Type	Compliance Status	Project Construction Status	Compensatory Mitigation Status	Compensatory Mitigation Required?	ACOE Compliance Inspection?	Violation Code
SWG-2008-01144	R	N	I	I	C	Y	N	
SWG-2008-01165	I	N	I	N	X	N	N	
SWG-2008-01178	I	S	O	C	I	Y	N	1
SWG-2008-01289	R	*S	--	--	--	--	--	--
SWG-2009-00233	I	S	O	C	X	N	N	5
SWG-2009-00247	I	N	I	C	C	Y	Y	
SWG-2009-00253	R	N	I	N	I	Y	N	
SWG-2009-00463	R	N	I	C	X	N	N	
SWG-2009-00671	R	N	I	C	X	N	N	
SWG-2009-00842	I	S	I	C	X	N	N	
SWG-2009-00988	I	S	O	I	I	Y	N	3
SWG-2009-01007	I	S	I	C	C	Y	N	
SWG-2009-01124	I	N	O	C	I	Y	N	2
SWG-2010-00225	R	S	I	I	I	Y	N	
SWG-2010-00402	I	N	O	C	X	N	N	5
SWG-2010-00754	I	N	I	U	X	N	N	
SWG-2010-00852	I	N	I	U	X	N	N	
SWG-2010-01129	I	S	I	I	I	Y	N	
SWG-2011-00068	R	S	O	C	I	Y	N	3
SWG-2011-00489	R	*N	--	--	--	--	--	--
SWG-2011-00595	I	N	I	N	I	Y	N	
SWG-2011-00637	R	N	I	C	X	N	N	
SWG-2011-00673	I	N	I	I	C	Y	N	
SWG-2011-00734	R	N	I	I	I	Y	N	
SWG-2011-01109	R	N	O	I	I	Y	N	10
SWG-2012-00051	R	N	I	N	X	N	N	
SWG-2012-00177	I	N	I	U	X	N	N	

Sample Use

R - Stratifed Random Sample

I - Initial Assessment

Permit Type

N - Nationwide Permit

S - Standard Permit

*N - Missing Nationwide Permit

*S - Missing Standard Permit

L - Letter of Permission

R - Regional General Permit

Compliance Status

I - In Compliance

O - Out of Compliance

CBD - Could Not Be Determined

Project Construction Status

C - Activity Appears Complete

I - Activity Appears Incomplete

N - No Work Appears to Have Occurred

U - Status of Activity Could Not Be Determined

Compensatory Mitigation Status

C - Compensatory Mitigation Appears to be Complete

I - Compensatory Mitigation Does Not Appear to Be Complete

X - Compensatory Mitigation Was Not Required

Compensatory Mitigation Required?

Y - Compensatory Mitigation Was Required

N - Compensatory Mitigation Was Not Required

ACOE Compliance Inspection?

Y - ACOE Compliance Inspection Form is On File in the Administrative Record

N - ACOE Compliance Inspection Form is Not On File in the Administrative Record

Code for Permit Violation Field

1 = Missing report or initial survey

2 = Notification of start or completion of specified work

3 = Verification of credit purchase is missing

4 = Missing finalized deed restriction or other protective document

5 = Other required documentation is missing

6 = Evidence of transfer or funds of parcel is missing

7 = Work on project performed outside permitted timeframe

8 = Impact to specified avoided wetland

9 = Work does not appear to match approved plans

10 = Work performed in JD water prior to mitigation plan approval

Appendix H. Summary Permit Reference Guide

Permits Utilizing an Approved or Pending Mitigation Bank:

- SWG-1993-01967
- SWG-1999-00473
- SWG-2002-01358
- SWG-2002-01833
- SWG-2003-02341
- SWG-2004-02500
- SWG-2005-02256
- SWG-2006-00149
- SWG-2007-00909-RN
- SWG-2008-00158
- SWG-2009-00253
- SWG-2009-00988
- SWG-2009-01007
- SWG-2011-00673

Permits Requested via FOIA that were not Received:

- SWG-1996-00848
- SWG-1999-01313
- SWG-2002-02778
- SWG-2006-00320
- SWG-2008-01289
- SWG-2011-00489

Permits Utilizing Withdrawn, Suspended or Unrecognized In Lieu Fee Program or Mitigation Bank:

- SWG-2004-00790 (Trinity River NWR ILF)
- SWG-2007-00688 (Spring Creek Greenway ILF)
- SWG-2008-01144 (Spring Creek Greenway ILF)
- SWG-2009-00247 (Rose City Marsh MB)

Permits with a Compliance Inspection:

- SWG-1993-00525
- SWG-1995-01370
- SWG-1996-00865
- SWG-1996-01291
- SWG-1996-02935
- SWG-1998-00263
- SWG-1998-01358
- SWG-2001-02004
- SWG-2005-00977
- SWG-2006-01851
- SWG-2007-01963
- SWG-2009-00247

Appendix I. Dossier Example

An administrative record for a permit contains all documentation gathered during the permits review process and all documents and correspondences occurring subsequent to final permit issuance. These administrative records are usually between 100 and 400 pages, but can extend upward of thousands of pages of data. The dossier was created to condense the critical documentation necessary for review of compliance into a summary document. The example below if from and actual permit (an NWP with no compensatory mitigation required). See Appendix C for more information for dossier contents.

_____

DA Number	SWG-1991-00105	
# of Actions	1	
	NWP 26	Isolated Waters and Headwaters
Date Originally Issued	11/8/1991	
Date of Most Current Modification		
Temporary Wetland Impacts		
Permanent Wetland Impacts		
Temporary Other Impacts		
Permanent Other Impacts	8.5	Acres
Compensatory Mitigation Amount		
Type of Mitigation		
USACE Compliance Inspection?	No	
Appears to be in Compliance with mitigation permit requirements based on the administrative record?	In Compliance	
Work appears to be completed based on the administrative record or latest Google Earth Imagery?	No Work	
Mitigation is successful and finished based on the administrative record?	Not Required	

Example: SWG-1991-00105

Impacts: Discharge of 246,840 cubic yards of clean USEPA approved fill into 8.5 acres of isolated open waters of the US

Mitigation: No compensatory mitigation required

Permit Summary Form

Permit DA Number: SWG-1991-00105

Permit RAMS ID: SWG-91-26-014

Associated DA/RAMS IDs: D-3816; SWG-1991-00104 (Harris County Site mentioned in PCN)

Permit Type: NWP 26: Isolated Headwaters and Wetlands

Permit Applicant: Mr. Juan DeAnda

Original Permit Application Date: N/A

Pre-Construction Notification Date: Received: 07/15/1991 Completed: 09/27/1991

Completed Permit Application Date: N/A

Public Notice Date: N/A

Comments Received From: Resource Agency? ☐ **Citizens/NPO** ☐

Final Permit Date: 11/08/1991

Project Description: 29.578575, -95.393600: The applicant proposes to fill approximately 8.5 acres of isolated waters of the US within a borrow pit. The borrow pit was created during the construction of SH 288 from 1989-1990 and is approximately 8.5 acres in size. The borrow pit has vegetation along the fringe of the north and west sides and gradually deepens from the north to the south. This fringe does not meet all three requirements for wetland classification. The south end averages 12' in depth. Approximately 246,840 cubic yards of fill will be needed to fill the borrow pit. The fill will be clean material approved by the EPA. No jurisdictional wetlands were found at the borrow pit. The project site is located at 11222 McHard Road, Brazoria County, Texas.

Background Information: Some confusion over the permit expiration date occurred in 11/1992. Permittee requested an EOT in 02/1993 but this request was denied on 03/12/1993 on the ground that the permit did not expire until 11/08/1993. The application was returned back to the applicant.

Identified Impacts Description: Discharge of 246,840 cubic yards of clean EPA approved fill into 8.5 acres of isolated open waters of the US

Mitigation Required: Yes ☐ **No** ☒

Type of Mitigation Required:

Mitigation Bank/In-Lieu Fee Program ☐ **Verification of Credits Submitted** ☐

Description: N/A

On Site Mitigation ☐ **Deed Restriction:** ☐

Description: N/A

Monitoring of Mitigation: Monitoring Reports ☐ **Compliance Inspection(s)** ☐

Description: N/A

ORMII Record

ACTION_FOLDER_ID	ACTION_ID	DISTRICT	DA_NUMBER	ACTION	ACTION_TYPE	PIN	PROJECT_NAME	PROJECT_MANAGER	DATE_ISSUED	CLOSURE_METHOD	PERMIT_AUTHORITY	WORKTYPE	COUNTY	STATE	HUC	PROJ_LATITUDE	PROJ_LONGITUDE	APPLICANT	PROJECT_DESCRIPTION	COMPLIANCE_INSPECTION	ATLEAST1_IN COMPLIANCE	ATLEAST1_OUT OF_COMPLIANCE	UNAUTH ACT
3791291	6134134	SWG	SWG-1991-00105	Action	NWP		Permit Number: SWG912601 4_DEANDA,JUANF		08-NOV-91	Verified Without Special Conditions			Brazoria	TX	12040204	29.58035	-95.39296	Juan DeAnda	The proposed activity involves the filling of approximately 8.5 acres of water of the United States consisting of a borrow pit (PE). The pit was excavated for the construction of Highway 228.	Y	Y	N	Y

ACTION_ID	IMPACT_ID	WATERS_NAME	WATERWAY	WATERS_TYPE	COWARDIN_NAME	WATERS_AREA	WATERS_LINEAR	WATERS_LATITUDE	WATERS_LONGITUDE	IMPACT_DURATION	IMPACT_TYPE	RESOURCE_TYPE	AUTH_FILL_ACRES	AUTH_LINEAR_FT	AUTH_REMVL_ACRES	AUTH_STRUC_LINEAR_FT	AUTH_STRUC_ACRES	AUTH_DRD_FILL_ACRES	AUTH_DRD_REMVL_ACRES	AUTH_DRD_REMVL_VOL_CUYT	
6134134	995171	Site 1 WETLANDS SWG-1991-105	ISOLATED		UNSPECIFIED			29.58035	-95.39296	Permanent	Historical Undetermined	Other	0	0							

ACTION_ID	MITIGATION_ID	MITIGATION_TYPE	PERMITTEE_RESPONSIBLE_TYPE	MIT_REQ_ACRES	MIT_REQ_LINEAR_FT	CREDITS_REQUIRED
none						

SWG-1991-00105 Completion Summary

SWG-1991-00105 (RAMS ID SWG-91-26-014) is authorization under Nationwide Permit 26 (Isolated Waters and Headwaters) for 8.5 acres of fill in isolated open water of the US in Brazoria County, Texas. Authorization under NWP 26 was verified 11/08/1991 and expired 11/08/1993. The original jurisdictional determination RAMS ID is D-3816.

Under the 1987 Nationwide Permit reissuance regulations, NWP 26 could be used to authorize discharges of dredged or fill material into the waters listed in paragraphs (a) (i) and (ii) of this section except those which cause the loss or substantial adverse modification of 10 acres or more of such waters, including wetlands. For discharges which cause the loss or substantial adverse modification of 1 to 10 acres of such waters including wetlands, notification to the district engineer (DE) is required in accordance with section 330.7 of this section. (i) non-tidal rivers, streams, and their lakes and impoundments, including adjacent wetlands, that are located above headwaters (ii) other non-tidal waters of the US, including adjacent wetlands, that are not part of a surface tributary system to interstate waters or navigable waters of the US (i.e. isolated waters).

As we know today, there is no longer a NWP 26. A little background on its history: Concerns on the cumulative impact of NWP 26 use had been increasing as far back as the 1984 reissuance. NWP 26 was reissued 12/13/1996 for a period of two years. At this time, ACOE announced it would be replacing NWP 26 with activity-specific NWPs. In December 1996 reissuance, NWP 26 was changed to limit discharges in isolated waters to no losses greater than 3 acres of waters of the US or 500 linear feet of stream bed. After the draft 6 new NWP's were published by ACOE in 07/01/1998, the wealth of public comments received caused the period for review to be extended. The NWP 26 expiration date was extended to 04/14/2000. It was further extended to 06/05/2002. Any PCN's submitted to ACOE prior to 03/09/2000 would be evaluated under NWP 26. Any PCN's submitted afterward would be evaluated under the new NWP categories. Any NWP 26 submitted under 1 acre would be authorized under NWP 26 until 06/05/2000 and would have until 06/05/2001 to complete construction. Ultimately, on 06/05/2000, NWP 26 expired and was not reissued. In its place, NWP 39 (residential, commercial, institutional developments), NWP 40 (agricultural activities), NWP 41 (reshaping existing drainage ditches), NWP 42 (recreational facilities), NWP 43 (stormwater management facilities), and NWP 44 (mining activities) were created. Changes to NWP 3 (maintenance), NWP 7 (outfall structures), NWP 12 (utility line activities), NWP 14 (linear transportation crossings), and NWP 27 (stream and wetland restoration activities) occurred to allow for their use for old NWP 26 activities. Most new NWP permits limited impacts to ½ acre and require notification of impacts greater than 1/10 acre.

Additionally, the Supreme Court ruling of Solid Waste Agency of Northern Cook County v. the U.S. Army Corps of Engineers (SWANCC) must be considered when considering completion of SWG-1991-00105. In a nutshell, SWANCC's ruling was that ACOE had exceeded its authority in asserting CWA jurisdiction over isolated, intrastate, non-navigable waters based on their use as habitat for migratory birds. All impacts under SWG-1991-00105 were isolated wetlands according to the accepted delineation. Many of these impacts may not have been considered jurisdictional after the 01/09/2001 SWANCC ruling.

Returning back to SWG-1991-00105: SWG-1991-00105 proposed 8.5 acres of impacts to isolated open waters of the US. This is under the 10 acre threshold for NWP 26. As the impact was over 1 acre, a PCN was required to be submitted. This PCN was received on 07/15/1991 and was considered complete by ACOE on 09/27/1991. No mitigation is proposed by the applicant for the impacts. The DE determines that because no wetlands were impacted and because the impacts occur to waters that are not valuable fish and wildlife habitat, the proposed project will have minimal impacts to the aquatic environment. No mitigation is required by ACOE in in the NWP 26 verification letter. **Evidence in SWG-1991-00105's administrative records seems to indicate all NWP 26 requirements were met by the permittee.**

Review of Google Earth imagery dated 12/31/1989 displays the project site during the excavation process. The next available imagery dated 01/22/1995 displays the project site borrow pit. The borrow pit if full of water and abuts to McHard Road right-of-way. No fill is evident in this image. In this imagery, the approximate distance between the edge of the right-of-way and the edge of the water is 25'. No changes are seen at the site in the 12/31/2001 imagery. Imagery dated 01/25/2004 reveals grading has begun for Business Center Dr. All trees have been cleared from the edge of the borrow pit on the east side nearest the grading. Some clearing along the southern edge of McHard Road in its right-of-way is evident. A school is under construction off Kirby Dr SE of the borrow pit. No other changes are observed at the project site.

Google Earth imagery dated 06/27/2005 shows completion of the construction of Business Center Dr. Vegetation appears to have recolonized along the northern and eastern edges of the project site. A park-like development has been construction south of the borrow pit with a circular walking path. The northern edge of the walking path abuts the southern edge of the borrow pit. Imagery dated 01/14/2006 indicates low water levels in the borrow pit. Vegetation within the borrow pit can be seen along the northern and eastern edge. In Google Earth imagery dated 01/08/2008, water levels seem to have recovered. A vegetated fringe can be seen around most of the borrow edge. A second school has been constructed west of the borrow pit. A vacant parcel (1/2 wooded) separates the 2nd school and the borrow pit. The park-like development to the south of the borrow pit has been removed. The area where it previously existed as well as the area to the west of it has been graded. A school running track has been constructed on the western portion of this graded site. This track is likely part of the school complex just to the west-southwest of the borrow pit. A road has been developed connecting Business Center Dr and the school complex. This road runs east-west just 40' south of the borrow pit. In the 03/31/2008 imagery, all trees on the property to the west of the borrow pit have been cleared. There is an approximate 30' buffer between the cleared parcel to the west and the borrow pit waters. There is an approximate 20' buffer between the graded area to the south and the borrow pit waters. Imagery dated 01/08/2010 reveals low water levels in the borrow pit. A thickening vegetated fringe can be seen developing on the west and north edges of the borrow pit. No further development has occurred at the site. The parcel to the west of the borrow pit has been maintained via mowing. In the most up-to-date Google Earth imagery dated 10/31/2013, water levels are lower than observed in 2010. Review of imagery between 2008 and 2013 reveals that the water level never returned to the level seen in 2008 and has been diminishing. Where the water level has decreased, vegetation has colonized, especially at the NW corner of the borrow pit. Approximately 0.8 acres of open water of the original borrow pit

normal size.

appears to have dried up since 2008. Today, the pit is likely experiencing pressures from surrounding development and diminishing water levels.

Based on review of Google Earth imagery, it appears that the permittee never discharged fill in the borrow pit. The pit still exists today and is under new ownership. Permit work authorization expired 11/08/1993 and Google Earth imagery from 1995 reveals no fill in jurisdictional waters. By the time the SWANCC ruling removed ACOE jurisdiction of isolated waters in 2001, the permit was expired and no work had ever occurred in jurisdictional waters. For this reason, authorized work construction status for SWG-1991-00105 will be marked "No Work". As no impacts occurred in jurisdictional waters and the permit required no mitigation, SWG-1991-00105 permit compliance status will be marked "In Compliance" and the mitigation completion status will be marked "Not Required".

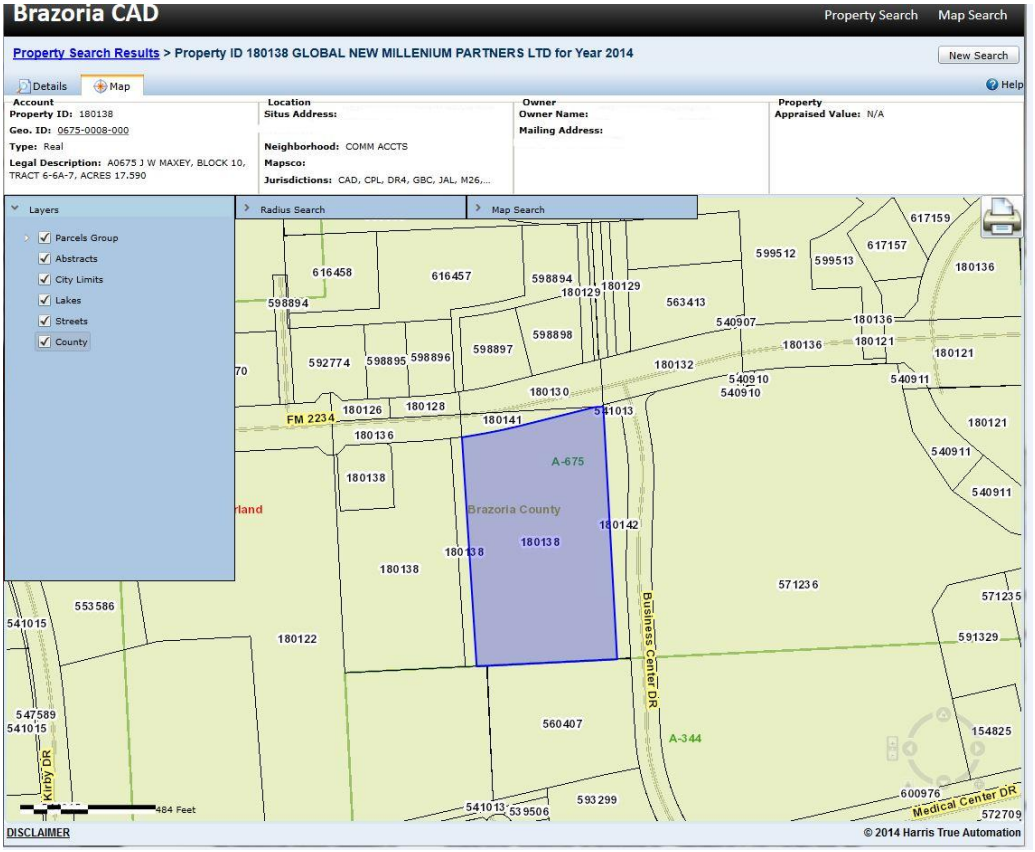
The last document on file for SWG-1991-00105 is the letter dated 03/12/1993 from ACOE verifying the permit expiration date and notifying the permittee a new application is not required.

SWG-1991-00105 and Surrounding Area in 1995

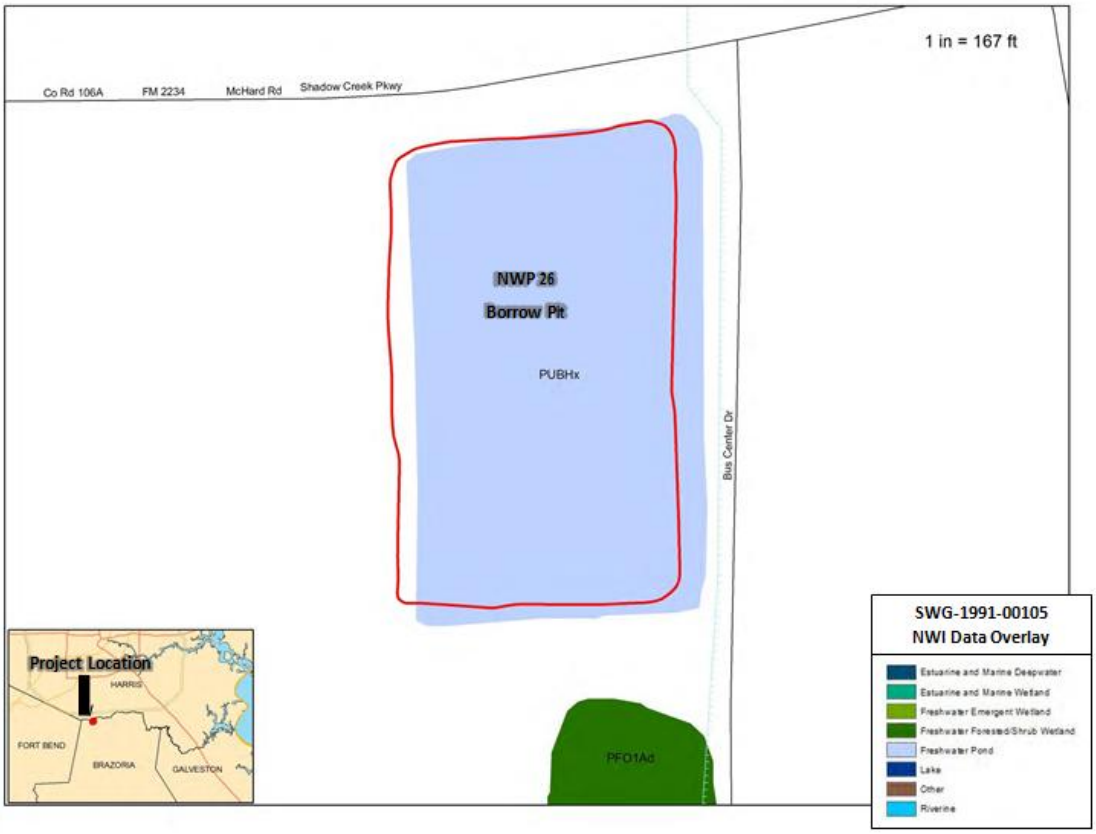
SWG-1991-00105
January 1995
Google Earth Snapshot
Brazoria County

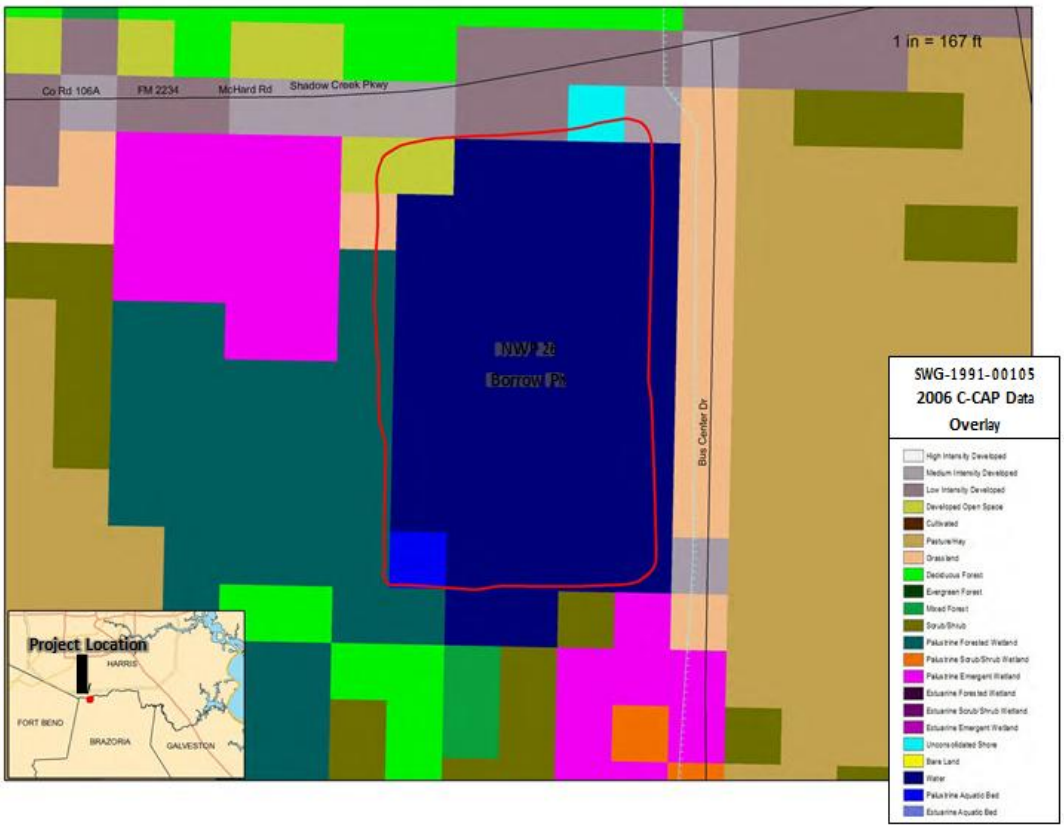
SWG-1991-00105 and Surrounding Area in 2013

SWG-1991-00105
October 2013
Google Earth Snapshot
Brazoria County


Brazoria CAD
Property Search
Map Search
Property Search Results > Property ID 180138 GLOBAL NEW MILLENIUM PARTNERS LTD for Year 2014
New Search
Details
Map
Help
Account
Property ID: 180138
Geo. ID: 0675-0008-000
Type: Real
Legal Description: A0675 J W MAXEY, BLOCK 10, TRACT 6-6A-7, ACRES 17.590
Location
Situs Address:
Neighborhood: COMM ACCTS
Mapsco:
Jurisdictions: CAD, CPL, DR4, GBC, JAL, M26,...
Owner
Owner Name:
Mailing Address:
Property
Appraised Value: N/A
Layers
Parcels Group
Abstracts
City Limits
Lakes
Streets
County
Radius Search
Map Search
FM 2234
A-675
Brazoria County
A-344
Business Center DR
Kirby DR
Medical Center DR
DISCLAIMER
© 2014 Harris True Automation


1 in = 167 ft
Co Rd 106A
FM 2234
McHard Rd
Shadow Creek Pkwy
NWP 26
Borrow Pit
Bus Center Dr
Project Location
HARRIS
FORT BEND
BRAZORIA
GALVESTON
SWG-1991-00105
2012 USDA – FSA National Agriculture Imagery Program Ortho Imagery of Brazoria County


1 in = 167 ft
Co Rd 106A
FM 2234
McHard Rd
Shadow Creek Pkwy
NWP 26
Borrow Pit
PUBHx
Bus Center Dr
PFO1Ad
Project Location
HARRIS
FORT BEND
BRAZORIA
GALVESTON
SWG-1991-00105
NWI Data Overlay
Estuarine and Marine Deepwater
Estuarine and Marine Wetland
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
Lake
Other
Riverine


1 in = 167 ft
Co Rd 106A
FM 2234
McHard Rd
Shadow Creek Pkwy
NWP 26
Borrow Pit
Bus Center Dr
Project Location
HARRIS
FORT BEND
BRAZORIA
GALVESTON
SWG-1991-00105
2006 C-CAP Data
Overlay

RECORD OF DECISION

APPLICANT: [redacted]

LOCATION: Brazoria County, Texas

PERMIT NUMBER: SWG-91-26-014

1. PROJECT DESCRIPTION: The applicant proposes to fill 8.5 acres of isolated waters of the United States, within an abandoned borrow pit. The borrow pit was created during the construction of State Highway 288 in 1989 or 1990. The pit has some vegetation along its edge and has an average depth of 12 feet. Approximately 246,840 cubic yards of fill consisting of concrete, dirt, stone, and brick will be used. The purpose of the project is to create land for future resale.

2. ENVIRONMENTAL SETTING: The project area is on a 10-acre tract of land located in uplands. The dominant plant species in the area surrounding the pit are jointed flat sedge (Cyperus articulatus), golden rod (Solidago rugosa), Chinese tallow (Sapium sebiferum), baccharis (Baccharis halimifolia), beak rush (Rhynchospora sp.) and berry bush (Rubus sp.). Soil types sampled in the project area do not exhibit hydric characteristics and are not listed on the Hydric Soils of the United States. Positive evidence of hydrology adjacent to the pit was absent. There were no oxidized rhizospheres present, there was a lack of water scour marks, and no ponded water was present in the area surrounding the pit.

3. APPLICATION: The application was received 15 July 1991 and was found to be incomplete. Additional information was requested by telecon on 16 July 1991. An on-site visit to determine jurisdiction was conducted on 24 July 1991. Additional information needed for the determination was requested at this meeting. On 27 September 1991 the requested information was received. On 30 September 1991 the pit was determined to be a water of the United States.

4. AGENCY COMMENTS: Notification concerning the proposed action was sent by electronic mail and certified mail to the regional and local offices of the Federal and State resource agencies on 30 September 1991.

a. Environmental Protection Agency (EPA): EPA offered a verbal no objection to the project.

b. National Marine Fisheries Service (NMFS): The project area is one which possesses no resources for which NMFS is responsible and, therefore, it offered no comment.

c. United States Fish and Wildlife Service (USFWS): USFWS offered no objection to the project.

d. Texas Parks and Wildlife Department (TPWD): TPWD offered no objection to the project.

5. DISTRICT RECOMMENDATION: Although the project will fill 8.5 acres of waters of the United States, it will not impact wetlands or waters with valuable fish and wildlife habitat. Therefore, the District Commander recommended that the project be authorized under nationwide permit number 26.

6. DECISION: The project does not impact wetlands or valuable fish and wildlife habitat. Based on the above considerations, agency comments and an evaluation of the factors enumerated in 40 CFR 230, the proposed project would have minimal impacts to the aquatic environment. I therefore recommend that the work be authorized under nationwide permit number 26 (33 CFR 330.5(a)(26)) for minor work in isolated waters of the United States.

Recommended by: [signature] 11 Oct 91
BARRY G. ROUGHT, P.E. Date
Director, Directorate of
Construction-Operations

Reviewed by: [signature] 10-11-91
BURTON P. ROLFE Date
Acting Division Counsel

Approved by: [signature] 11 Oct 91
STANLEY G. GENEGA Date
Brigadier General, U. S. Army
Commanding

DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1229
GALVESTON, TEXAS 77553-1229

REPLY TO ATTENTION OF: Regulatory Branch

NOV 08 1991

SUBJECT: SWG-26-014; [redacted] Brazoria County, Texas

[redacted]

This is in response to your July 15, 1991 application to fill approximately 8.5 acres of isolated wetlands. The project site is located at 11222 McHard Road, Brazoria County, Texas.

Your letter resulted in the initiation of the pre-discharge notification procedure specified for Nationwide Permit 26. You were notified by telephone on October 18, 1991 that the Division Engineer has determined that the work is authorized under Nationwide 26 provided the enclosed conditions are met.

This verification will be valid until the nationwide permit is modified, reissued or revoked. All the nationwide permits are scheduled to be modified, reissued or revoked prior to January 13, 1992. It is incumbent upon you to remain informed of changes to the nationwide permits. We will issue a public notice announcing the changes when they occur. Furthermore, if you commence or are under contract to commence this activity before the date the nationwide permit is modified or revoked, you will have 12 months from the date of the modification or revocation to complete the activity under the present terms and conditions of this nationwide permit.

[redacted]/pt/3446
CESWG-CO-RE

-2-

If you have any questions concerning this matter, please contact Ms. Mona G. Coleman at the above letterhead address or by telephone at 409/766-3938.

Sincerely,

for BSH
NANNINGA
CESWG-CO-RE

CESWG-CO-RE

John C. Batey
Acting Chief, Regulatory Branch

BATEY/MGC
CESWG-CO-R

Enclosure

Copies Furnished:

EPA, Dallas, TX
USFWS, Houston, TX
HSWG-AO-F

[redacted]

Nationwide Permit Conditions

Conditions, Limitations, and Restrictions

1. General. A prospective permittee must satisfy all terms and conditions of a nationwide permit for a valid authorization to occur. It is important to remember that the nationwide permits only authorize activities from the perspective of the Corps regulatory authorities and that other Federal, State, and local permits, approvals, or authorizations may also be required.

2. Further Information.

(a) District Engineers have authority to determine if an activity complies with the terms and conditions of a nationwide permit.

(b) Nationwide permits do not obviate the need to obtain other Federal, State, or local permits, approvals, or authorizations required by law.

(c) Nationwide permits do not grant any property rights or exclusive privileges.

(d) Nationwide permits do not authorize any injury to the property or rights of others.

(e) Nationwide permits do not authorize interference with any existing or proposed Federal project.

General Conditions: The following general conditions must be followed in order for any authorization by a nationwide permit to be valid:

1. Navigation. No activity may cause more than a minimal adverse effect on navigation.

2. Proper maintenance. Any structure or fill authorized shall be properly maintained, including maintenance to ensure public safety.

3. Erosion and siltation controls. Appropriate erosion and siltation controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills must be permanently stabilized at the earliest practicable date.

4. Aquatic life movements. No activity may substantially disrupt the movement of those species of aquatic life indigenous to the waterbody, including those species which normally migrate through the area, unless the activity's primary purpose is to impound water.

5. Equipment. Heavy equipment working in wetlands must be placed on mats or other measures must be taken to minimize soil disturbance.

6. Regional and case-by-case conditions. The activity must comply with any regional conditions which may have been added by the Division Engineer and any case specific conditions added by the Corps.

7. Wild and Scenic Rivers. No activity may occur in a component of the National Wild and Scenic Rivers System; or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status. Information on Wild and Scenic Rivers may be obtained from the National Park Service and the U.S. Forest Service.

8. Tribal rights. No activity or its operation may impair reserved tribal rights, including, but not limited to reserved water rights and treaty fishing and hunting rights.

9. Water quality certification. In certain states, an individual state water quality certification must be obtained or waived.

10. Coastal zone management. In certain states, an individual state coastal zone management consistency concurrence must be obtained or waived.

11. Endangered Species. No activity is authorized under any nationwide permit which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation as identified under the Federal Endangered Species Act, or which is likely to destroy or adversely modify the critical habitat of such species. Nonfederal permittees shall notify the District Engineer if any listed species or critical habitat might be affected or is in the vicinity of the project and shall not begin work on the activity until notified by the District Engineer that the requirements of the Endangered Species Act have been satisfied and that the activity is authorized. Information on the location of threatened and endangered species and their critical habitat can be obtained from the U.S. Fish and Wildlife Service and National Marine Fisheries Service.

12. Historic Properties. No activity which may affect Historic properties listed, or eligible for listing, in the National Register of Historic Places is authorized, until the District Engineer has complied with the provisions of 33 CFR 325, appendix C. The prospective permittee must notify the District Engineer if the authorized activity may affect any historic properties listed, determined to be eligible, or which the prospective permittee has reason to believe may be eligible for listing on the National Register of Historic Places and shall not begin the activity until notified by the District Engineer that the requirements of the National Historic Preservation Act have been satisfied and that the activity is authorized.

Section 404 Only Conditions

In addition to the General Conditions, the following conditions apply only to activities that involve the discharge of dredged or fill material and must be followed in order for authorization by the nationwide permits to be valid:

1. Water supply intakes. No discharge of dredged or fill material may occur in the proximity of a public water supply intake except where the discharge is for repair of the public water supply intake structures or adjacent bank stabilization.

2. Shellfish production. No discharge of dredged or fill material may occur in areas of concentrated shellfish production, unless the discharge is directly related to a shellfish harvesting activity authorized by Nationwide Permit 4.

3. Suitable material. No discharge of dredged or fill material may consist of unsuitable material (e.g. trash, debris, car bodies, etc.) and material discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

4. Mitigation. Discharges of dredged or fill material into waters of the United States must be minimized or avoided to the maximum extent practicable at the project site (i.e. on-site) unless the District Engineer has approved a compensation mitigation plan for the specific regulated activity.

5. Spawning areas. Discharges in spawning areas during spawning seasons must be avoided to the maximum extent practicable.

6. Obstruction of high flows. To the maximum extent practicable, discharges must not permanently restrict or impede the passage of normal or expected high flows or cause the relocation of the water (unless the primary purpose of the fill is to impound waters).

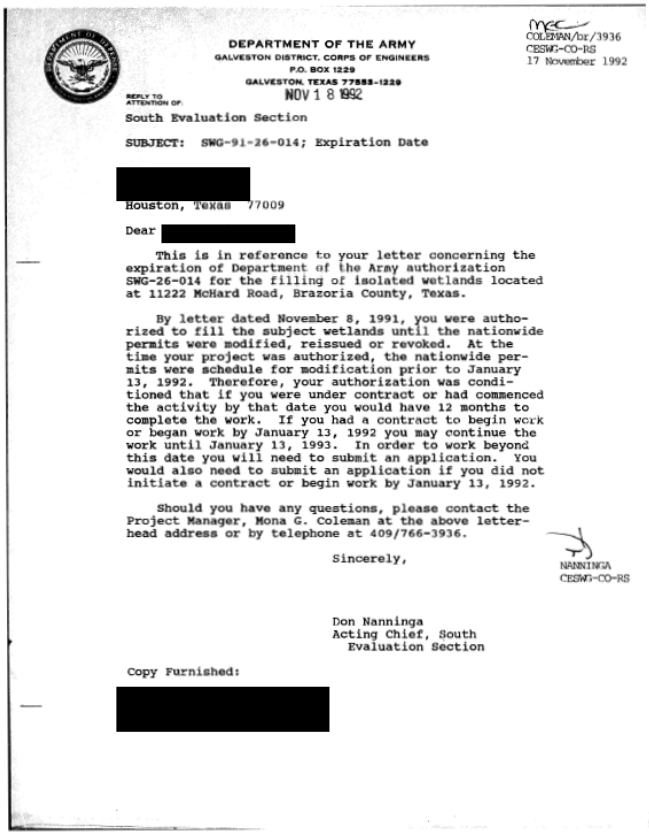
7. Adverse impacts from impoundment. If the discharge creates an impoundment of water, adverse impacts on the aquatic system caused by the accelerated passage of water and/or the restriction of its flow shall be minimized to the maximum extent practicable.

8. Waterfowl breeding areas. Discharges into breeding areas for migratory waterfowl must be avoided to the maximum extent practicable.

9. Removal of temporary fills. Any temporary fills must be removed in their entirety and the affected areas returned to their preexisting elevation.

Limitations:

If the nationwide permit is reissued without modification, this verification remains valid; however, if the nationwide permit is modified, the verification remains valid provided your activity complies with the modified permit. If you have commenced construction and the permit expires, is suspended or revoked, or is modified such that your activity does not comply, you will have 12 months from the date of the modification or revocation to complete the activity. A completed activity continues to be authorized. It is incumbent upon you to remain informed of changes to the nationwide permits.



DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1229
GALVESTON, TEXAS 77553-1229

REPLY TO ATTENTION OF:
NOV 18 1992

COLEMAN/br/3936
CESWG-CO-RS
17 November 1992

South Evaluation Section

SUBJECT: SWG-91-26-014; Expiration Date

[redacted]
Houston, Texas 77009

Dear [redacted]

This is in reference to your letter concerning the expiration of Department of the Army authorization SWG-26-014 for the filling of isolated wetlands located at 11222 McHard Road, Brazoria County, Texas.

By letter dated November 8, 1991, you were authorized to fill the subject wetlands until the nationwide permits were modified, reissued or revoked. At the time your project was authorized, the nationwide permits were schedule for modification prior to January 13, 1992. Therefore, your authorization was conditioned that if you were under contract or had commenced the activity by that date you would have 12 months to complete the work. If you had a contract to begin work or began work by January 13, 1992 you may continue the work until January 13, 1993. In order to work beyond this date you will need to submit an application. You would also need to submit an application if you did not initiate a contract or begin work by January 13, 1992.

Should you have any questions, please contact the Project Manager, Mona G. Coleman at the above letterhead address or by telephone at 409/766-3936.

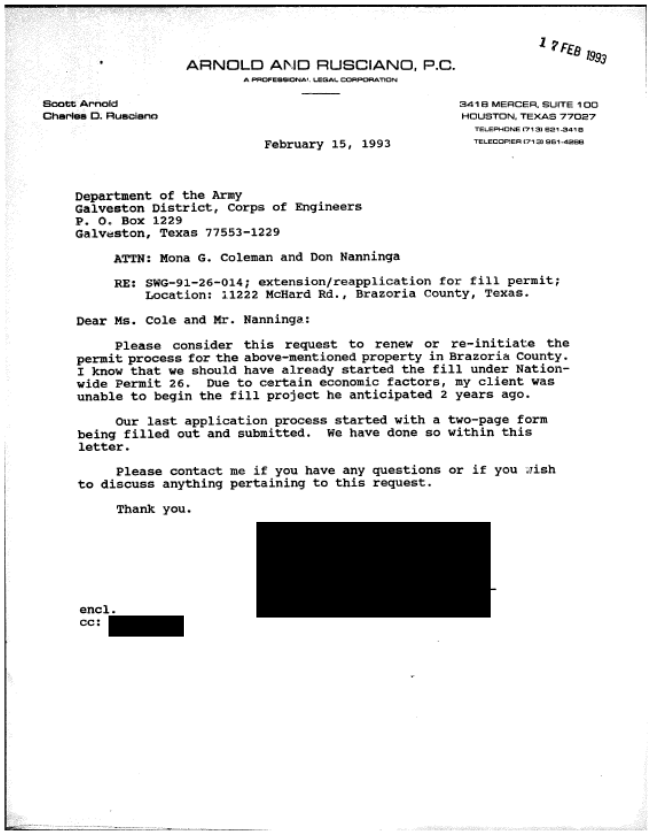
Sincerely,

NANNINGA
CESWG-CO-RS

Don Nanninga
Acting Chief, South
Evaluation Section

Copy Furnished:

[redacted]



17 FEB 1993

ARNOLD AND RUSCIANO, P.C.
A PROFESSIONAL LEGAL CORPORATION

Scott Arnold
Charles D. Rusciano

3418 MERCER, SUITE 100
HOUSTON, TEXAS 77027
TELEPHONE (713) 621-3418
TELECOPIER (713) 961-4888

February 15, 1993

Department of the Army
Galveston District, Corps of Engineers
P. O. Box 1229
Galveston, Texas 77553-1229

ATTN: Mona G. Coleman and Don Nanninga

RE: SWG-91-26-014; extension/reapplication for fill permit;
Location: 11222 McHard Rd., Brazoria County, Texas.

Dear Ms. Cole and Mr. Nanninga:

Please consider this request to renew or re-initiate the permit process for the above-mentioned property in Brazoria County. I know that we should have already started the fill under Nationwide Permit 26. Due to certain economic factors, my client was unable to begin the fill project he anticipated 2 years ago.

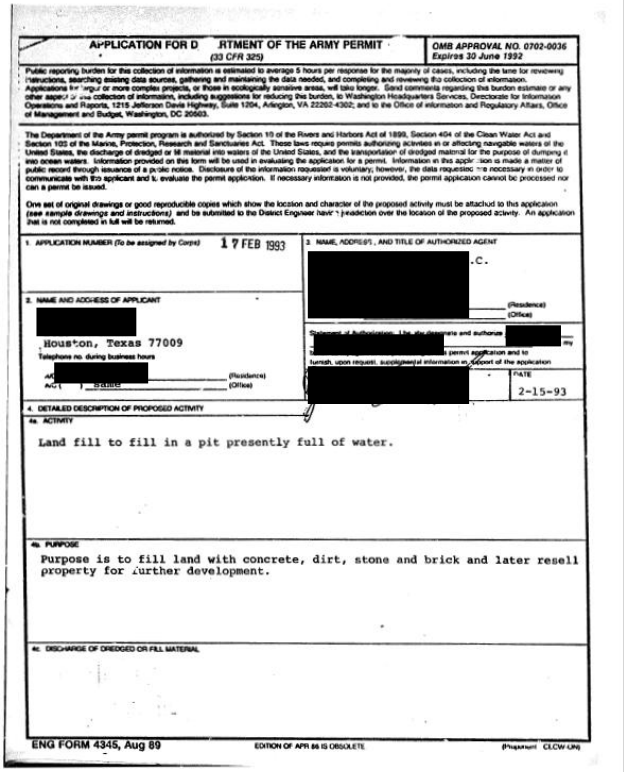
Our last application process started with a two-page form being filled out and submitted. We have done so within this letter.

Please contact me if you have any questions or if you wish to discuss anything pertaining to this request.

Thank you.

[redacted]

encl.
cc: [redacted]



APPLICATION FOR D RTMENT OF THE ARMY PERMIT
(33 CFR 325)

OMB APPROVAL NO. 0702-0036
Expires 30 June 1992

Public reporting burden for this collection of information is estimated to average 5 hours per response for the majority of cases, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Applications for regional or more complex projects, or those in ecologically sensitive areas, will take longer. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

The Department of the Army permit program is authorized by Section 10 of the Rivers and Harbors Act of 1899, Section 404 of the Clean Water Act and Section 103 of the Marine, Protection, Research and Sanctuaries Act. These laws require permits authorizing activities in or affecting navigable waters of the United States, the discharge of dredged or fill material into waters of the United States, and the transportation of dredged material for the purpose of dumping it into ocean waters. Information provided on this form will be used in evaluating the application for a permit. Information in this application is made a matter of public record through issuance of a public notice. Disclosure of the information requested is voluntary; however, the data requested are necessary in order to communicate with the applicant and to evaluate the permit application. If necessary information is not provided, the permit application cannot be processed nor can a permit be issued.

One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

1. APPLICATION NUMBER (To be assigned by Corps) 17 FEB 1993

3. NAME, ADDRESS, AND TITLE OF AUTHORIZED AGENT
[redacted] .C.
(Residence)
(Office)

2. NAME AND ADDRESS OF APPLICANT
[redacted]
Houston, Texas 77009
Telephone no. during business hours
[redacted] (Residence)
(Office)

Statement of Authorization: I hereby designate and authorize [redacted] to act in my behalf as my agent in the processing of this permit application and to furnish, upon request, supplemental information in support of the application.

[redacted] DATE 2-15-93

4. DETAILED DESCRIPTION OF PROPOSED ACTIVITY

4a. ACTIVITY

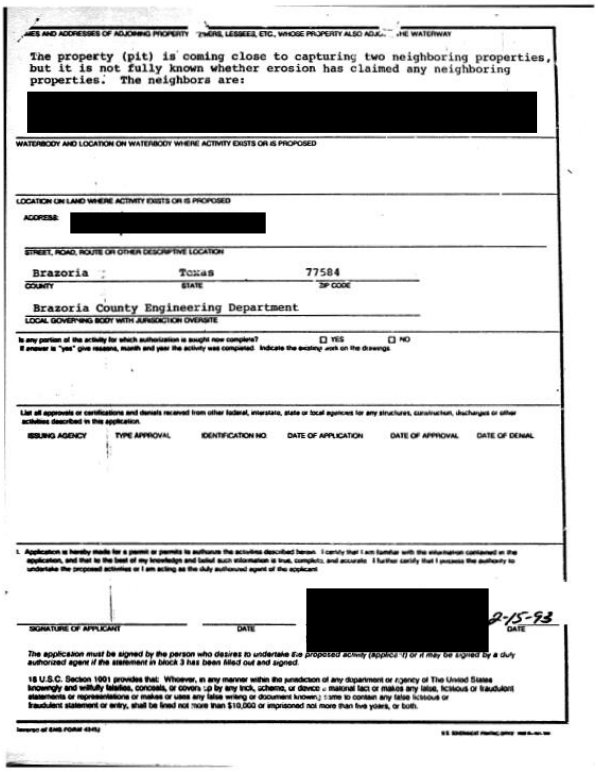
Land fill to fill in a pit presently full of water.

4b. PURPOSE

Purpose is to fill land with concrete, dirt, stone and brick and later resell property for further development.

4c. DISCHARGE OF DREDGED OR FILL MATERIAL

ENG FORM 4345, Aug 89 EDITION OF APR 86 IS OBSOLETE (Proponent: CECW-OR)



ES AND ADDRESSES OF ADJOINING PROPERTY OWNERS, LESSEES, ETC., WHOSE PROPERTY ALSO ADJOINS THE WATERWAY

The property (pit) is coming close to capturing two neighboring properties, but it is not fully known whether erosion has claimed any neighboring properties. The neighbors are:

[redacted]

WATERBODY AND LOCATION ON WATERBODY WHERE ACTIVITY EXISTS OR IS PROPOSED

LOCATION ON LAND WHERE ACTIVITY EXISTS OR IS PROPOSED

ADDRESS: [redacted]

STREET, ROAD, ROUTE OR OTHER DESCRIPTIVE LOCATION

Brazoria Texas 77584
COUNTY STATE ZIP CODE

Brazoria County Engineering Department
LOCAL GOVERNING BODY WITH JURISDICTION OVERSITE

Is any portion of the activity for which authorization is sought now complete? ☐ YES ☐ NO
If answer is "yes" give reasons, month and year the activity was completed. Indicate the existing work on the drawings.

List all approvals or certifications and denials received from other federal, interstate, state or local agencies for any structures, construction, discharges or other activities described in this application.

ISSUING AGENCY	TYPE APPROVAL	IDENTIFICATION NO.	DATE OF APPLICATION	DATE OF APPROVAL	DATE OF DENIAL

I. Application is hereby made for a permit or permits to authorize the activities described herein. I certify that I am familiar with the information contained in the application, and that to the best of my knowledge and belief such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities or I am acting as the duly authorized agent of the applicant.

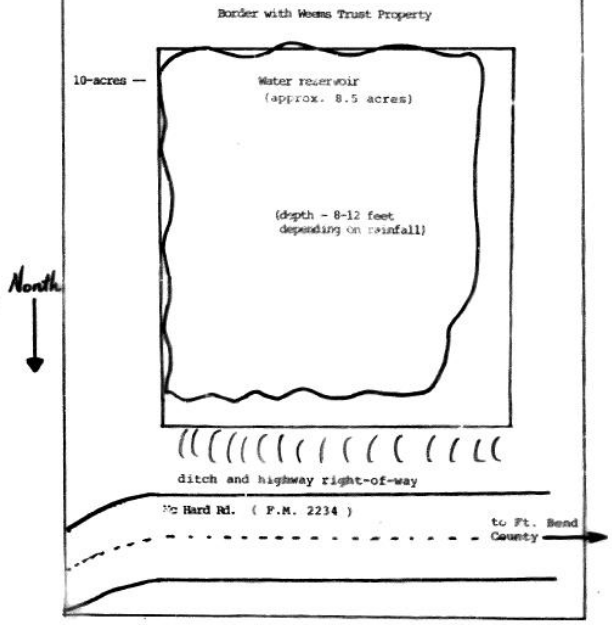
SIGNATURE OF APPLICANT DATE [redacted] 2-15-93 DATE

The application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 3 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of The United States knowingly and willfully falsifies, conceals, or covers up by any trick, scheme, or device a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false fictitious or fraudulent statement or entry, shall be fined not more than $10,000 or imprisoned not more than five years, or both.

Key Map 613

FILL PLAN: (1) start on South and East borders to keep erosion in check. (2) fill from South to North to drive water reservoir contents towards the ditch on South side of McHard Rd.
All fill material will be clean and meet EPA standards.



Misc
COLEMAN/br/3936
CESWG-CO-RS

DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1229
GALVESTON, TEXAS 77553-1229

REPLY TO ATTENTION OF:

MAR 12 1993

South Evaluation Section

SUBJECT: SWG-91-26-014; Extension of Time

[redacted]

Dear [redacted]

This is in response to your permit application submitted on your behalf by Mr. Charles D. Rusciano requesting an extension of time for the subject authorization.

In review of our authorization letter dated November 8, 1991, we have determined that your authorization is valid until November 8, 1993. Therefore, you do not need an extension of time to perform this work and we are returning your application. However, if you do not begin the work prior to the expiration date you will need to apply for an extension of time. Additionally, if you commence the work prior to November 8, 1993, but do not complete the work by that date, you will have one year from November 8, 1993, to complete the work.

If you need any information or assistance, please contact the Project Manager, Mona G. Coleman, at the letterhead address or by telephone at 409/766-3936.

Sincerely,

NANNINGA
CESWG-CO-RS

Don Nanninga,
Acting Chief, South
Evaluation Section

Enclosure

Copy Furnished:

[redacted]

Appendix J. Permits with USACE Compliance Inspections: Comparison with Project Review of Compliance

DA Number	Permit Issued Date	Most Current Modification	Permit Expiration	USACE Compliance Inspection Dates and Status	Study Compliance Determination
SWG-1993-00525	9/10/1993	10/4/2001	12/31/2002	11/8/1994 (In Compliance); 9/29/2004 (In Compliance)	In Compliance, Construction Complete, Mitigation Complete
SWG-1995-01370	10/31/1995	10/31/1995	10/31/1997	7/27/2000 (Unknown - Blank status; Blank Recommendations)	In Compliance, Construction Complete, Mitigation Complete
SWG-1996-00865	1/16/1997	1/13/1999	12/31/2000	9/20/2000 (In Compliance); 10/4/2002 (In Compliance)	In Compliance, Construction Complete, Mitigation Complete
SWG-1996-01291	4/15/1997	2/4/2004	12/31/2009	9/6/2005 (Out of Compliance)	Out of Compliance, Construction Complete, Mitigation Incomplete
SWG-1996-02935	5/21/2007	3/15/2010	12/31/2012	8/25/2008 (Out of Compliance)	Out of Compliance, Construction Complete, Mitigation Incomplete
SWG-1998-00263	9/21/1998	9/21/1998	12/31/2001	6/20/2003 (In Compliance)	In Compliance, Construction Complete, Mitigation Complete
SWG-1998-01358	8/6/1998	11/8/1999	1/5/2000	9/21/2000 (In Compliance); 9,29/2000 (In Compliance); 6/20/2003 (In Compliance); 08/04/2005 (In Compliance)	Out of Compliance, Construction Complete, Mitigation Incomplete
SWG-2001-02004	5/23/2002	5/23/2002	12/31/2007	7/22/2003 (Active Permit - Activity Incomplete)	Out of Compliance, Construction Complete, No Mitigation Required
SWG-2005-00977	9/19/2005	9/15/2009	9/19/2007	9/10/2008 (In Compliance with SC 2 & 3 but not with required submission of deed restriction); 10/7/2008 (In Compliance); 10/7/2008 (In Compliance); 10/7/2008 (In Compliance)	Out of Compliance, Construction Complete, Mitigation Incomplete

SWG-2006-01851	3/19/2009	3/19/2009	12/31/2014	3/22/2011 (Active Permit - No Action)	In Compliance, No Work Had Occurred, No Mitigation Required
SWG-2007-01963	3/27/2009	10/1/2009	12/31/2014	10/30/2009 (In Compliance)	Out of Compliance, Construction Complete, Mitigation Incomplete
SWG-2009-00247	4/29/2009	4/29/2009	4/29/2011	9/29/2010 (Unknown - mentioned but not on file); 6/25/2012 (Out of Compliance but No Action Taken)	In Compliance, Construction Complete, Mitigation Complete
				USACE Non-Compliance	Study Non-Compliance

Appendix K. Out-of-Compliance Permits Requiring Compensatory Mitigation* with Little or No Evidence of Completion **Note: Code key is from Appendix G*

Permit	Some Evidence of Mit.	Open Water Impacts	Wetland Impacts	Mitigation Creation/ Re-estab.	Mitigation Enhancmnt/ Restoration	Mitigation Preserv.	Open Water Impacts (Acres)	Wetland Impacts (Acres)	Open Water Mitigated Acres	Wetland Mitigated Acres	Mitigated Upland Buffer Etc.	Other Units of Mit.	Little Evidence of Comp. Mit.
SWG-1992-02681	O	NONE	1.563 ACRES ISOLATED DEPRESSION WET MEADOW	BETWEEN 0.001 AND 1.84 ACRES WETLAND CREATION - BREAKDOWN UNKNOWN	NONE	BETWEEN 0.001 AND 1.84 ACRES UPLAND BUFFER PRESERVATION - BREAKDOWN UNKNOWN	0	1.563	0	0.92	0.92		
SWG-1992-02684	O	1 ACRE ISOLATED POND	NONE	BETWEEN 0.001 AND 1.18 ACRES OF WETLAND CREATION - BREAKDOWN UNKNOWN	NONE	BETWEEN 0.001 AND 1.18 ACRES OF UPLAND BUFFER PRESERVATION - BREAKDOWN UNKNOWN	1	0	0	0.59	0.59		
SWG-1996-00967	O	NONE	9.7 ACRES OF ISOLATED PF01A WETLANDS	4.7 ACRES OF NEW WETLAND	4.92 ACRES OF EXISTING WETLAND; 6.452 ACRES OF UPLAND BUFFER	NONE	0	9.7	0	9.62	6.452		

SWG-1996-01291	O	NONE	6.5 ACRES HERBACEOUS WETLANDS IN THE FP OF THE SAN JACINTO RIVER	7 ACRES OF CREATION OF CONTIGIOUS WETLANDS	4.1 ACRES OF ENHANCEMENT VIA PLANTING	NONE	0	6.5	0	11.1	0		x
SWG-1998-01358	O	NONE	1.4 ACRES OF ISOLATED DEPRESSION WETLAND	1.4 ACRES OF DEPRESSION WETLAND CREATION OFFSITE	1.4 ACRES OF UPLAND ENHANCEMENT VIA PRAIRIE GRASS PLANTING	NONE	0	1.4	0	1.4	1.4		
SWG-2002-01444	O	2.57 ACRES OF OPEN WATER, TEMPORARY - 0.0138 ACRES OF SHALLOW AQUATIC HABITAT (OYSTER BED RELOCATION)	0.0287 ACRES OF SALTWATER MARSH	0.6688 ACRES OF SHALLOW AQUATIC HABITAT; 0.8521 ACRES OF SALTWATER MARSH WETLAND	NONE	NONE	2.57	0.0287	0.6688	0.8521	0		
SWG-2002-01683	O	NONE	1.15 ACRES OF ADJACENT FORESTED WETLAND	NONE	NONE	7.9 ACRES OF LAND ON AND OFF SITE CONTAINING 2.9 ACRES FORESTED WETLAND AND A SEASONAL STREAM AND HIGH QUALITY UPLAND	0	1.15	0	7.9	0		x

SWG-2003-02555	O	NONE	0.14 ACRES OF FRINGE WETLAND ALONG CEDAR LAKE CREEK	NONE	NONE	8.76 ACRES OF TIDAL MARSH AND TIDAL FRINGE WETLAND; 6.24 ACRES OF OW; 2.07 ACRES OF UPLAND BUFFER	0	0.14	6.24	8.76	2.07		x
SWG-2005-00977	O	NONE	0.073 ACRES HIGH MARSH WETLANDS BELOW OHWM OF CHOCOLATE BAYOU	0.13 ACRES OF HIGH MARSH WETLANDS OFFSITE AT ALLIGATOR POINT	NONE	NONE	0	0.073	0	0.13	0		
SWG-2007-00909	O	15.46 ACRES OF TIDAL OPEN WATER	42.16 ACRES OF PALUSTRINE FORESTED, 13.51 ACRES OF PALUSTRINE SCRUB-SHRUB, 11.70 ACRES OF PALUSTRINE EMERGENT, 6.05 ACRES OF PALUSTRINE OPEN WATER (WET4)	4.59 FCU (QPS = 0.759) FROM GREENS BAYOU WETLAND MITIGATION BANK FOR THE WET4 PALUSTRINE OPEN WATER	294 ACRES OF WETLAND FOREST ENHANCEMENT AT SHELDON LAKE STATE PARK	NONE	15.46	73.42	0	294	0	4.59 FCU	x, mb evidence is on file, prm not

SWG-2007-01963	O	7.01 ACRES OF OPEN WATER (OYSTER REEF) (TEXAS IMPACTS ONLY)	117.7967 ACRES OF IMPACTS (TEXAS ONLY), TEMPORARY - 605.5098 ACRES (TEXAS ONLY)	7.01 ACRES OF SHALLOW OPEN WATER HABITAT (OYSTER REEF)	NONE	642 ACRES PRESERVATION: 7:1 RATIO FOR FORESTED WETLANDS, 3:1 RATIO FOR SCRUB SHRUB WETLANDS.	7.01	117.7967	7.01	642	0		x
SWG-2008-01178	O	NONE	2.78 ACRES BRACKISH WETLANDS	NONE	9 ACRES OF MARSH WILL BE RESTORED VIA REMOVAL OF ABANDONED SERVICE ROAD AND WELLPAD IN MARSH	NONE	0	2.78	0	9	0		x
Some Evidence Questionable totals (Column U is x)							**22.47**	**201.7867**	**13.25**	**972.76**	**2.07**		
Some Evidence Questionable totals excluding SWG-2007-00909 and SWG-2007-01963							**0**	**10.57**	**6.24**	**36.76**	**2.07**		

(continued on next page)

Permit	No Evidence of Mit.	Open Water Impacts	Wetland Impacts	Mitigation Creation/ Re-estab.	Mitigation Enhancmnt/ Restoration	Mitigation Preserv.	Open Water Impacts (Acres)	Wetland Impacts (Acres)	Open Water Mitigated Acres	Wetland Mitigated Acres	Mitigated Upland Buffer Etc.	Other Units of Mit.	No Evidence of Comp. Mit.
SWG-0-19244	ON	NONE	0.6 ACRES LOW QUALITY TIDAL	0.6 ACRES HIGH QUALITY TIDAL	NONE	NONE	0	0.6	0	0.6	0		x
SWG-1995-00070	ON	NONE	1.56 ACRES MEDIUM QUALITY DEPRESSION WETLAND	1.6 ACRES OF FRESHWATER MARSH	NONE	NONE	0	1.56	0	1.6	0		x
SWG-1995-01370	ON	NONE	1.65 ACRES OF ISOLATED WETLAND; TEMPORARY - 1 ACRE OF ISOLATED WETLAND	BETWEEN 0.001 AND 5.4 ACRES OF WETLAND WILL BE CREATED - BREAKDOWN UNKNOWN	BETWEEN 0.001 AND 5.4 ACRES OF NATIVE PRAIRIE VEGETATION WILL BE PLANTED; TALLOW WILL BE REMOVED FROM 5.4 ACRES AT THE MITIGATION SITE AND BUFFER ZONE	A 100' BUFFER OF UPLAND WILL BE PRESERVED AROUND THE 5.4 ACRE SITE	0	1.65	0	5.4	10		x
SWG-1995-01666	ON	NONE	4.4 ACRES LOW QUALITY ISOLATED WETLANDS	6.4 ACRES OF PALUSTRINE PERSISTENT EMERGENT ISOLATED WETLANDS	NONE	3.6 ACRES OF PRAIRIE BUFFER	0	4.4	0	6.4	3.6		x

SWG-1995-02126	ON	0.165 ACRES OPEN WATER TIDAL	NONE	0.0713 ACRES SPARTINA MARSH	NONE	NONE	0.165	0	0	0.0713	0		x
SWG-1996-02224	ON	1.928 ACRES OF OPEN WATER	7.603 ACRES OF SALTMARSH WETLAND, ADJACENT FRESHWATER WETLAND, AND ISOLATED DEPRESSION WETLAND	10.28 ACRES OF WETLAND CREATION; 33 ACRES OF OPEN WATER CREATION	NONE	NONE	1.928	7.603	33	10.28	0		x
SWG-1996-02935	ON	6.2 ACRES	0.39 ACRES	1.16 ACRES	NONE	NONE	6.2	0.39	0	1.16	0		x
SWG-1997-01118	ON	0.1 ACRES OF OPEN WATER OLD RESERVE PITS WHICH HOLD WATER	0.5 ACRES OF ISOLATED DEPRESSIONAL WETLAND	CREATION OF 1.2 ACRES OF MOTTLED DUCK HABITAT VIA FRESHWATER IMPOUNDMENT	NONE	NONE	0.1	0.5	0	1.2	0		x
SWG-1998-01289	ON	NONE	0.73 ACRES SALT MARSH WETLAND	1.49 ACRES OF SALT MARSH WETLAND	0.9 ACRES OF SALT MARSH WETLAND PLANTED WITH SALT CEDAR, WATER OAK, & LIVE OAK	NONE	0	0.73	0	2.39	0		x

SWG-1998-01995	ON	NONE	2.68 ACRES OF NON-TIDAL ISOLATED DEPRESSION WETLAND	2.68 ACRES OF DEPRESSION WETLAND CREATION	SEE PRESERVATION	2.68 ACRES OF UPLAND BUFFER ENHANCEMENT AND PRESERVATION	0	2.68	0	2.68	2.68		x
SWG-1999-02460	ON	NONE	0.39 ACRES MARSH; TEMPORARY - 0.535 ACRES OF MARSH	NONE	1.4 ACRES OF MARSH RESTORATION BENEFITING 72.5 ACRES OF SURROUNDING MARSH VIA RESTORATION OF PRECIPITATION SHEET FLOW	NONE	0	0.39	0	1.4	0		x
SWG-2000-02072	ON	NONE	0.0153 ACRES FRINGE WETLAND	NONE	0.014 ACRES OF CLEANUP OF AN UNNAMED DRAINGAE DITCH	NONE	0	0.0153	0.014	0	0		x
SWG-2001-00618	ON	NONE	2.6 ACRES OF HIGH MARSH NON-TIDAL WETLAND	NONE	500 ACRES OF WATER MANAGEMENT ENHANCEMENT; 15.5 ACRES OF FRESHWATER MARSH RESTORATION	NONE	0	2.6	0	15.5	500		x

SWG-2002-01358	ON	0.15 ACRES OF OPEN WATERS	0.42 ACRES OF PALUSTRINE EMERGENT WETLAND	6 ACRE CREDITS (WETLAND HABITAT ASSESSMENT PROCEDURE METHOD) AT COASTAL BOTTOMLANDS MITIGATION BANK	NONE	NONE	0.15	0.42	0	0	0	6 Acre Credits	x
SWG-2002-01769	ON	NONE	0.117 ACRES OF LOW QUALITY SHALLOW HERBACEOUS WETLAND	CREATION OF 0.36 ACRES OF IN-KIND WETLAND ADJACENT TO AVOIDED WETLAND	NONE	0.84 ACRES OF ADDITIONAL WETLAND AND 0.4335 ACRES OF UPLAND BUFFER PRESERVATION ONSITE	0	0.117	0	1.2	0.4335		x
SWG-2003-02731	ON	1.5 ACRES OF FILL AND EXCAVATION BELOW OHWM STEWART CREEK; TEMPORARY - 28.4 ACRES OF RIPARIAN HABITAT CLEARED ALONG CREEK. WILL BE REPLANTED AND EROSION MONITORED	NONE	NONE	NONE	8.3 ACRES (1442.5 LINEAR FT X 250 FT) OF OFFSITE PRESERAVTION OF CONFLUENCE OF POSSUM HAW BRANCH AND STEWARTS CREEK IN AVENUE M PARK.	1.5	0	0.5	0	7.78		x

SWG-2004-00790	ON	NONE	27.31 ACRES OF FORESTED AND HERBACEOUS WETLAND	NONE	NONE	25 ACRES OF LAND IN TRINITY RIVER NWR VIA IN-LIEU FEE	0	27.31	0	12.5	12.5	ILF	x
SWG-2005-02256	ON	NONE	6.7 ACRES OF WETLANDS ADJACENT TO CLEAR CREEK	CREATION OF 1.82 ACRES OF OPEN WATER, 4.79 ACRES OF HERBACEOUS WETLAND SHELF, AND 2.12 ACRES OF TRANSITIONAL RIPARIAN HABITAT; 4.79 ACRES (MODIFIED WET II METHOD) AT KATY CYPRESS WETLAND MITIGATION BANK	NONE	NONE	0	6.7	1.82	4.79	2.12	4.79 Acre Credits	x
SWG-2006-02014-RN	ON	0.6436 ACRES TO EPHEMERAL TRIBUTARIES OF SPRING CREEK	0.0338 ACRES OF ADJACENT WETLANDS; TEMPORARY - 0.1926 ACRES OF WETLANDS RESTORED TO PRE-CONSTRUCTION CONTOURS	4.97 ACRES OF OPEN WATER; 0.7207 ACRES OF EMERGENT FRINGE WETLAND	NONE	ALL CREATED AREAS AND RESTORED AREAS WERE PRESERVED VIA DEED RESTRICTION (7.7 ACRES)	0.6436	0.0338	4.97	2.7207	0		x

SWG-2007-00063	ON	1.01 ACRES OPEN WATER	0.05 ACRES FRINGE WETLAND	2.02 ACRES OF OPEN WATER HABITAT, 0.2 ACRES OF EMERGENT WETLAND HABITAT	NONE	NONE	1.01	0.05	2.02	0.2	0		x
SWG-2007-00688	ON	NONE	7.48 ACRES OF FORESTED WETLANDS TEMPORARY - 0.238 ACRES OF FORESTED WETLANDS	NONE	CREATION OF A DENTENTION POND AND IMPROVEMENT OF ROADSIDE DITCHES ALLEVIATE FLOODING ISSUES IN AREA OF PROJECT ACTIVITY	0.53 ACRES OF ONSITE WETLAND, 6.57 ACRES OF OFFSITE WETLAND, 12.94 ACRES OF UPLAND BUFFER (0.95 ACRES OF WHICH IS RIPARIAN CORRIDOR). OFFSITE IS SPRING CREEK GREENWAY ILF	0	7.48	0	7.1	12.94		x