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FLORIDA GEOLOGICAL SURVEY
Guy H. Means, *State Geologist and Director*

OPEN-FILE REPORT 113

Text to accompany geologic map of the USGS Fort Myers 30 x 60 minute quadrangle, southwestern Florida

By

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ABSTRACT

The accompanying 1:100,000 scale geologic map (Open-File Map Series 116, Plate 1) depicts the areal distribution of surficial geologic units for the U.S. Geological Survey (USGS) Fort Myers 30 x 60 minute quadrangle. The map was constructed using a combination of field mapping (at 1:24,000 scale), compilation of data from existing maps (various scales), borehole core and cuttings analyses and descriptions, and analyses of various Geographic Information System (GIS) data sources. The resulting data were compiled in ESRI® ArcGIS® ArcPro™ 3.2.1 software for publication as part of the Florida Geological Survey Open-File Map Series. Mapped geologic units range in age from Pliocene to Holocene. Important resources in the mapped area include potable groundwater, sand, fossil shells, and limestone.

The geologic map and accompanying plates produced for this area not only provide a greater understanding of the interaction between the geologic units and ecosystems but have utility as a land management tool for economic development, mineral and energy production, and environmental protection for Florida. Examples include designing new construction projects, siting new water supply wells, wastewater treatment plants, energy production facilities, waste management and storage facilities, locating sources of mineable resources, and protecting surface and groundwater quality.

Keywords: Florida, geologic map, Hawthorn Group, Arcadia Formation, Peace River Formation, Tamiami Formation, Tertiary/Quaternary undifferentiated shelly sediments, geomorphology, hydrogeology, Floridan aquifer system, Charlotte County, Glades County, Hendry County, Lee County, Alva, Cape Coral, Fort Myers, Moore Haven

INTRODUCTION

Florida Geological Survey (FGS) Open-File Report (OFR) 113 accompanies Open-File Map Series (OFMS) 116, which is comprised of two plates. Plate 1 depicts the near-surface geology of the USGS Fort Myers 30 x 60 minute quadrangle. Plate 2 depicts six geologic cross sections, a stratigraphic correlation chart, and an index geologic map with cross-section lines for the study area.

The study area is in southeastern Florida (Figure 1) and covers portions of Charlotte, Glades, Hendry, and Lee counties. It includes the communities of Alva, Cape Coral, Cypress Lakes, Denaud, Fort Myers, Lehigh Acres, North Fort Myers, La Belle, Moore Haven, and Port La Belle. The quadrangle is bounded to the north by the USGS Arcadia 30 x 60 minute quadrangle (Green et al., 1998; Green et al., 1999), to the south by the USGS Naples 30 x 60 quadrangle (Green et al., 2024a; Green et al., 2024b), to the west by the USGS Charlotte Harbor 30 x 60 minute quadrangle, and to the east by the USGS West Palm Beach 30 x 60 minute quadrangle (Green et al., 2023a; Green et al., 2023b).

One objective of this report is to provide basic geologic information for the accompanying OFMS 116. Information provided in this report and on the plates from OFMS 116 is intended for a diverse audience of professionals in geology, hydrology, engineering, environmental and urban planning, and laypersons, all of whom have varying levels of geologic knowledge. The maps can help users identify and interpret geologic features which impact activities related to groundwater quality and quantity, as well as aid in locating mineral resources, land-use planning, and construction project design. Applied uses of the maps and data in this report include: 1) identifying potential new mineral resources, 2) characterizing zones of geologic hazards, 3) characterizing potential aquifer recharge, discharge, and confinement, 4) surface water, groundwater, and fate and transport modeling, 5) aiding water-management decisions on groundwater usage, 6) providing information on aquifer vulnerability to potential pollution, 7) characterizing ecosystems, and 8) recreational activities.

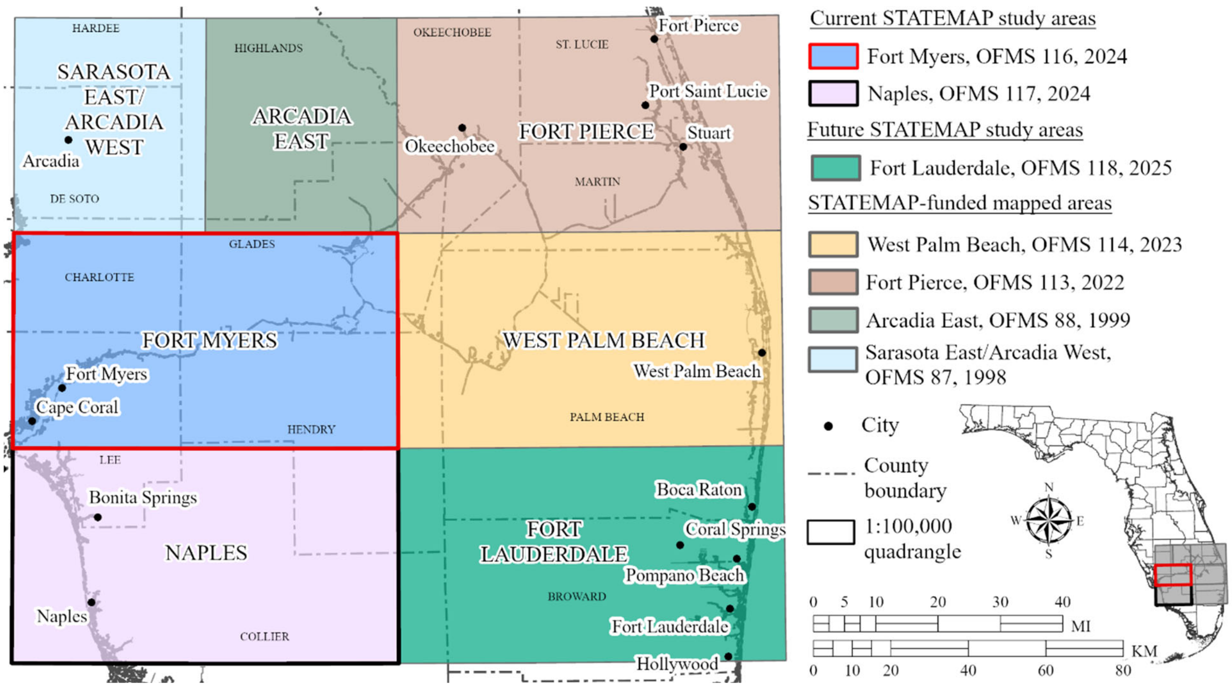

Figure 1. Nearby areas mapped under the FGS STATEMAP Program.

Methods

Mapping efforts consisted of 1) reviewing and compiling existing geologic literature and data, 2) mapping geologic units in the field at 1:24,000 scale using standard techniques, 3) analyzing existing borehole core and cuttings samples from the FGS Sample Collections Facility, 4) drilling new cores, 5) collecting and describing outcrop samples, 6) compiling the available data in order model the surface and overburden thickness for selected units, and 7) preparing a geologic map and geologic cross-sections of the area. Fieldwork, performed during the fall of 2022 through the summer of 2024, consisted of sampling and describing outcrops, as well as samples from beach and pit exposures.

One hundred and thirty two new geologic samples were added to the FGS surface-sample archives (M-Series) and 20 cores (335.9 feet [102.4 meters] total) were drilled. Numerous additional outcrops were also examined during this project. In addition to the new M-series samples collected, 69 historical M-series samples were examined. All data, including formation picks from over 240 FGS boreholes from the study area were compiled and analyzed. Figure 2 shows the locations of FGS cores and cuttings used for geologic models. Figure 3 shows FGS M-Series samples and outcrops in the study area. Figure 4 shows borehole locations for consultant data used for models. Appendix A lists wells utilized within the quadrangle. Appendix B lists consultant boreholes utilized within the quadrangle. The map and accompanying plates were developed in ESRI® ArcGIS® ArcPro™ 3.2.1 software for publication as part of OFMS 116.

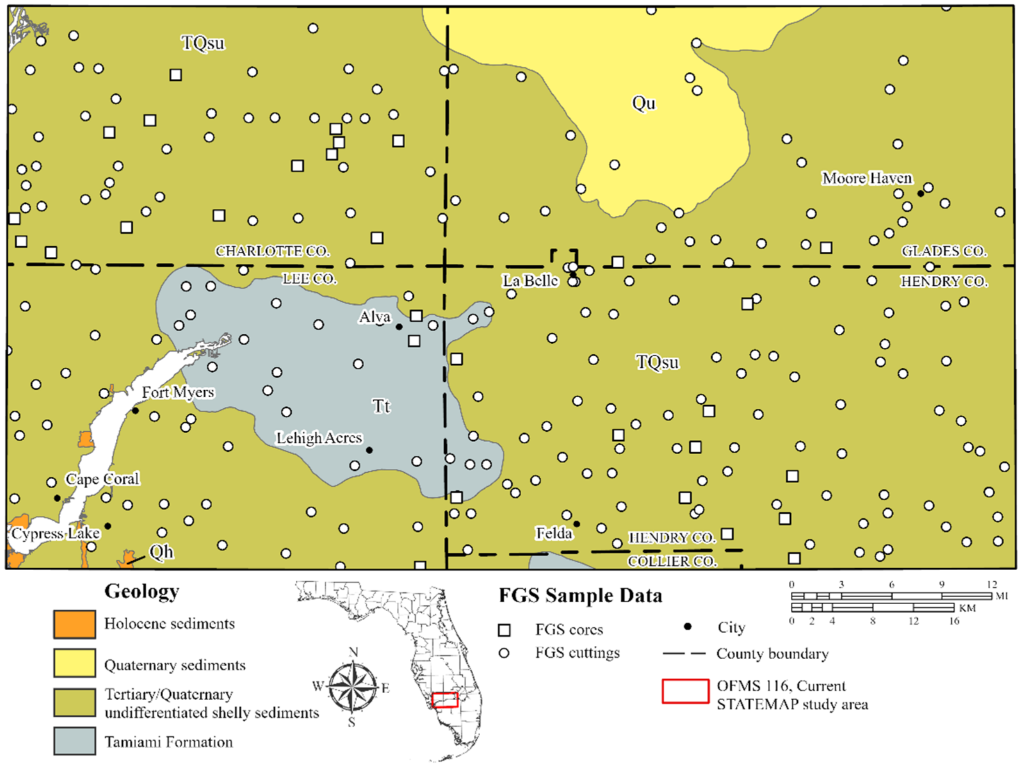

Figure 2. FGS cores and cuttings samples used for models.

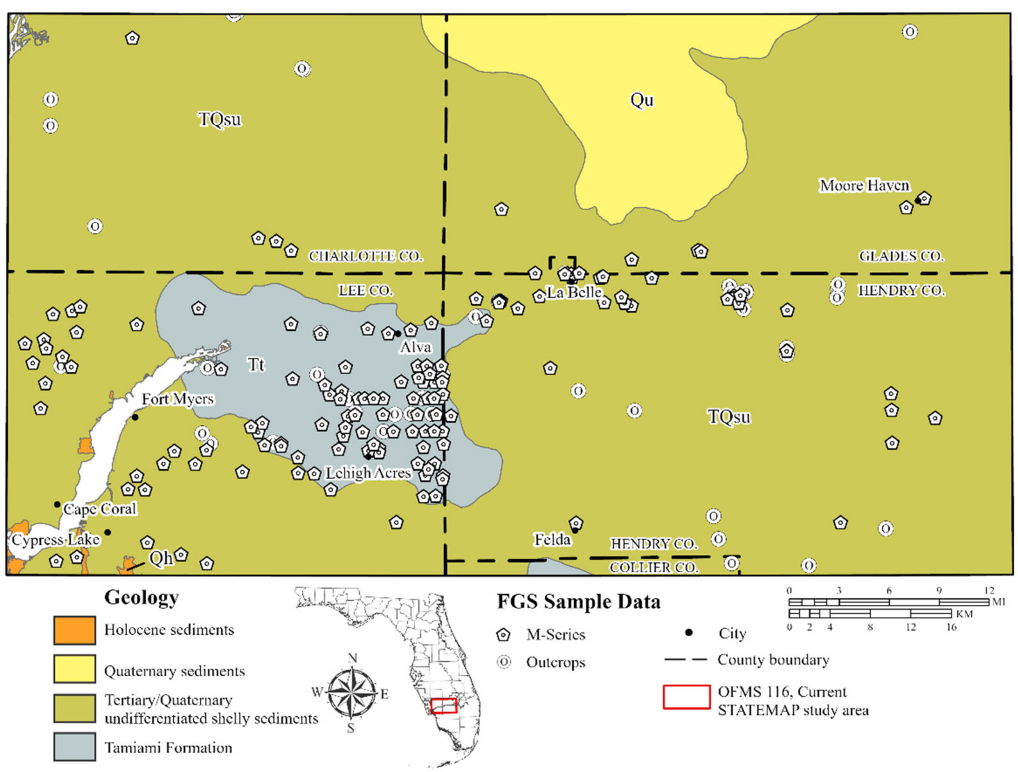

Figure 3. FGS M-Series and outcrops in study area.

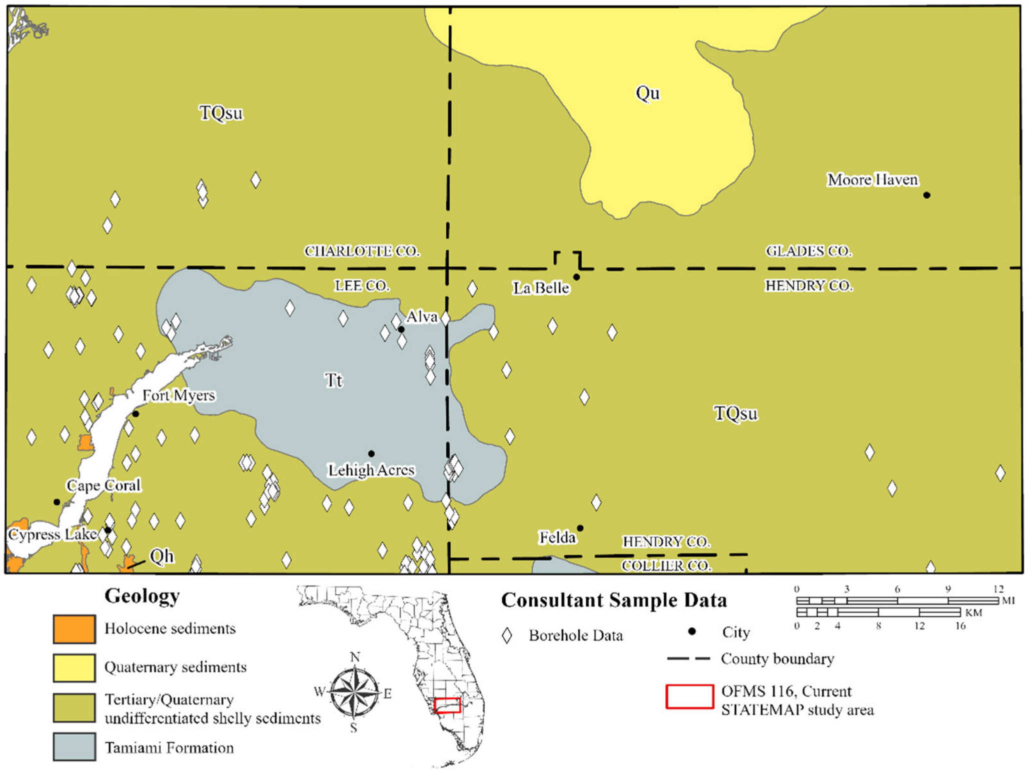

Figure 4. Borehole locations of consultant data used for models.

Six USGS tiles from the 3D Elevation Program (3DEP; U.S. Geological Survey, 2022) were mosaicked together in ArcPro 3.2.1 to create the digital elevation model for this study area. All elevation values are in meters and are referenced to the North American Vertical Datum of 1988 (NAVD 88). These data have a horizontal resolution of 1/3 arc-second (approximately 10 meters), and a vertical resolution of one meter.

Top-of-unit rasters were created for several geologic units within the study area using the borehole and outcrop geologic unit picks completed during this study. To produce interpolated top-of-unit rasters, the borehole depth for each unit top was first converted from depths below land surface into elevations referenced to mean sea-level. This conversion was performed by taking the elevation value of the borehole location from the digital elevation model raster and subtracting the depth below land surface value, resulting in the mean sea-level elevation for the top-of-unit for each borehole location.

The mean sea-level elevation data for each geologic top-of-unit was used to create a Natural Neighbor (NN) interpolation of the top-of-unit surface. The NN method of interpolation is a simple and exact interpolation method that relies on Voronoi tessellation (a partitioning of a plane into regions based on distances to points) to select a local subset of points and determine a weighted influence at every raster grid cell. This method produces a surface that passes through every data point in the input data set and thus does not attempt to account for errors or outliers. The NN method is particularly useful for visualizing the 'raw' data for problematic areas and extreme outliers prior to building and optimizing the final model.

After examining the initial models created for geologic units, it was evident that some of the predictive errors in the first model were directly attributable to either low data density, local outliers in the borehole data, or both. Outliers are a common occurrence in Florida geologic data for a variety of reasons, both human and natural, including: 1) the contact between units can be difficult to distinguish at times, and therefore some degree of uncertainty may exist in locating contacts, 2) many of the borehole samples are based on cuttings taken at intervals of 10 feet (3.1 meters), which introduces uncertainty in the elevation of the contacts even when the contact is clearly evident and 3) dissolution in carbonate units can produce significantly different unit elevations in boreholes that are a short distance apart.

In cases where the accuracy metrics of the modeled surfaces indicated large amounts of error due to outliers, an iterative modeling process was used to reduce the average standard error of the interpolated surface and the least-accurate boreholes were removed from the dataset via cross-validation to improve predictive accuracy. After the removal of outlier data points (generally fewer than ten boreholes per unit), a new interpolated raster was generated.

Figure 5 is a boxplot used to illustrate the distribution and range of elevation values, relative to mean sea level (MSL), for each geologic unit investigated within the study area. The crossbar within the box represents the median elevation value for each geologic unit. The upper and lower borders of each box correspond to the 25th and 75th percentiles, or the first and third quartiles, respectively; this area is also called the interquartile range and represents the middle 50% of the values in each group. The whiskers that extend from each boxplot reach no further than 150% of the interquartile range. Data that fall beyond the whiskers are considered outlier points and are represented by a dot.

Once the top-of-unit models were completed, they were subtracted from the digital elevation model to produce a raster showing overburden depth between each unit and land surface. The overburden rasters were then used to assist in drawing the final surficial geologic map for the study area.

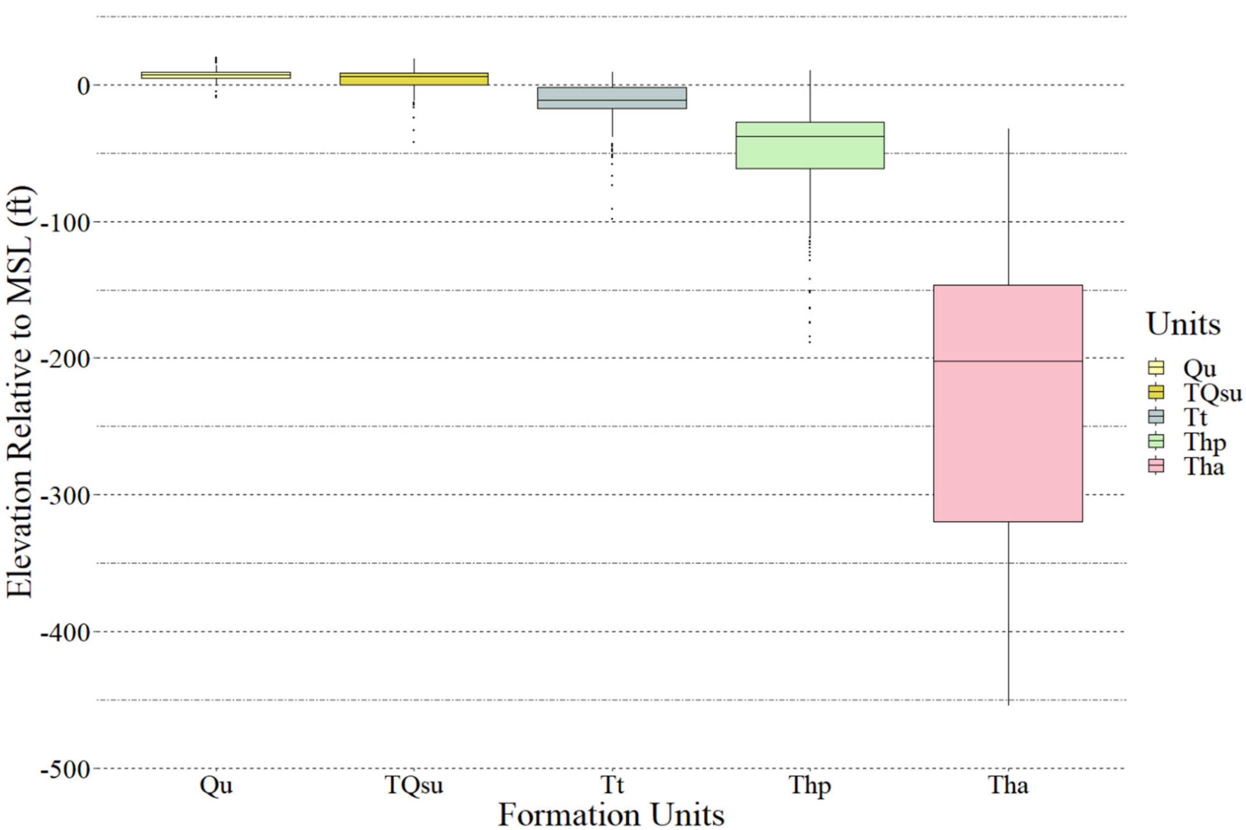

Figure 5. Boxplot of top of lithostratigraphic unit elevation ranges.

Much of the study area is blanketed by a veneer of Quaternary undifferentiated sediments. For this reason, and in keeping with geologic mapping practices developed by Scott et al. (2001), the authors have adopted the procedure of mapping the first named geologic unit within 20 feet (6.1 meters) of the surface. If Quaternary undifferentiated sediments (Qu) have a thickness greater than 20 feet (6.1 meters), they appear as the mapped unit. If these undifferentiated sediments are less than 20 feet (6.1 meters) thick, the underlying lithostratigraphic unit appears on the map. The geologic map (OFMS 116, Plate 1) and the geologic cross-sections (OFMS 116, Plate 2) may appear to disagree slightly when depicting the upper unit due to this convention. This is because geologic cross-section contacts are based on straight-line projection between boreholes, which may lead to apparent unit thicknesses between boreholes not supported by field evidence or other nearby boreholes.

Public access in portions of the mapped area was hindered by the presence of numerous wetlands, mines, farms, ranches, and privately-owned land. Fieldwork access was typically limited to public roads, state-owned lands, and county-owned lands. As such, large sections of the mapped area were inaccessible. In these areas, the authors had to rely on existing core, cuttings, outcrop, and M-Series sample data.

Previous Work

The current study builds on previous geologic investigations in and around the present map area. Preliminary county geologic maps for Charlotte (Scott and Missimer, 1993), Collier (Duncan, 1993), Glades (Campbell, 1993), Hendry (Scott, 1993a), and Lee (Missimer and Scott, 1993) counties were previously published at a 1:126,720 scale by the FGS. However, each of these geologic maps were constructed in an average timeframe of two weeks utilizing selected in-house geologic data with little-to-no field work. A statewide geologic map (Scott et al., 2001), published by the FGS, provided a framework for the current, more detailed mapping. Although these maps provided a starting point for the detailed geologic mapping undertaken for this project, significant refinement of prior geologic maps was possible because of this additional field work and data.

Scott (1988) published detailed descriptions, structure contour maps, and isopach maps for units of the Hawthorn Group. This study also benefited from the work performed during geologic mapping of the Sarasota, Arcadia (Green et al., 1997; Green et al., 1998; Green et al., 1999), West Palm Beach (Green et al., 2023a; Green et al., 2023b), and Naples (Green, et al, 2024a; Green et al., 2024b) 30 x 60 minute quadrangles. Some of the field relationships and stratigraphic problems were worked out during those projects.

Dr. Thomas Missimer, a consulting geologist with over five decades of experience in the region, generously provided data from several hundred consulting reports that were generated during his career. Data from over 140 additional boreholes from reports in Lee, Collier, Hendry, and Charlotte counties were compiled and analyzed by the authors in order to refine our geologic models and understanding of the regional geology for this project (Figure 4).

GEOLOGIC SUMMARY

The near-surface geology of the USGS 30 x 60 minute Fort Myers quadrangle is composed of a complex mixture of Tertiary to Quaternary carbonate and siliciclastic sediments. A combination of factors, including fluvio-deltaic deposition, marine deposition and erosion of sediments as a result of eustatic changes in sea level, dissolution of underlying carbonates (karstification), and structural features have influenced the geology of the study area.

The oldest unit to crop out in the Fort Myers quadrangle is the Tertiary Tamiami Formation. The unit can be seen in numerous pits and quarries throughout the map area (OFMS 116, Plate 1). The Tamiami Formation overlies the Peace River Formation throughout the mapped area (OFMS 116, Plate 2). The oldest unit investigated for geologic cross-sections is the Oligocene-Miocene Arcadia Formation (Hawthorn Group; OFMS 116, Plate 2). Detailed descriptions of the lithology of all units investigated in the study area begin on page 13 of this publication.

The Fort Myers quadrangle encompasses portions of the Caloosahatchee, Charlotte Harbor, Everglades-West coast, Fisheating Creek, Florida Southeast Coast, Peace River, and Okeechobee hydrologic basins (Figure 6). There are no known springs within the study area.

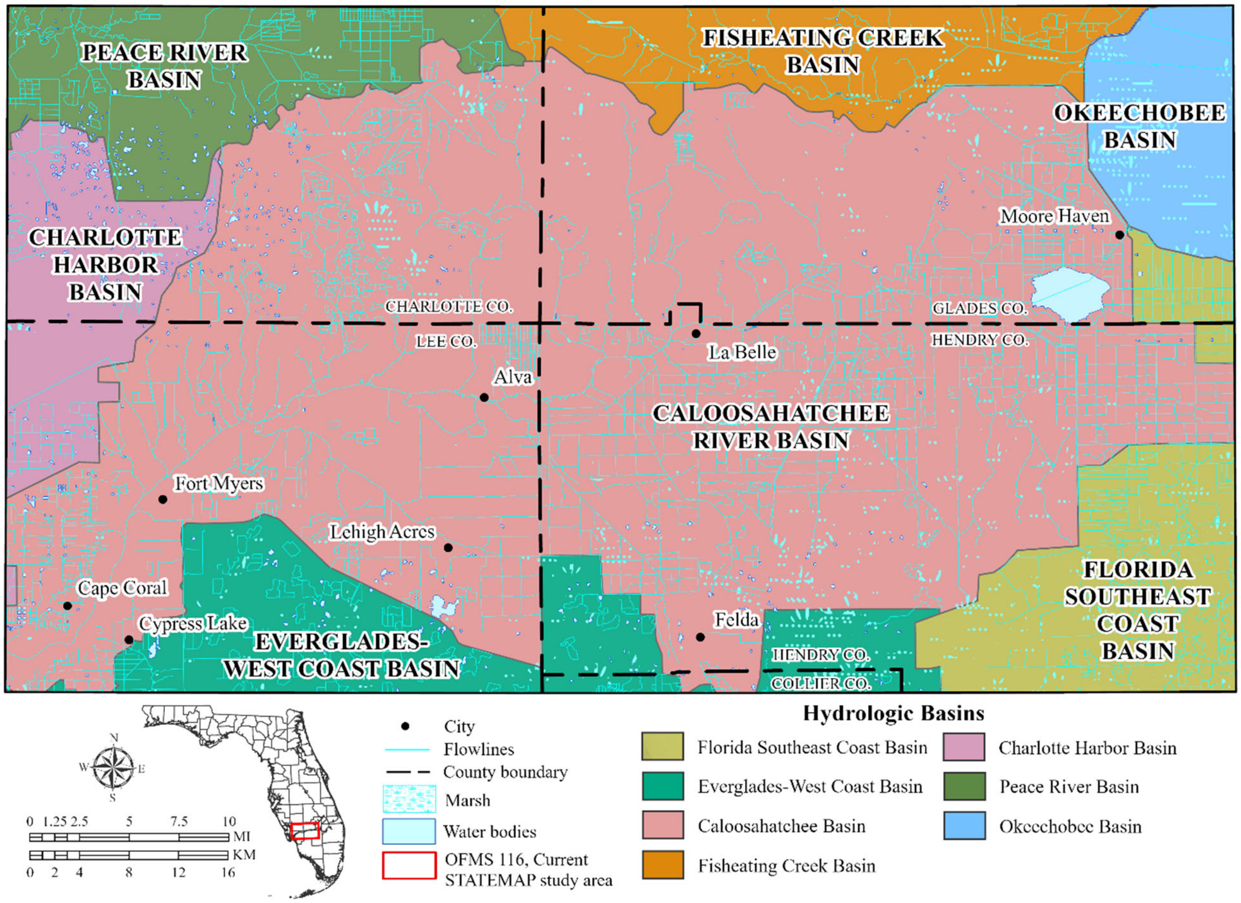

Figure 6. Location of selected river basins and other water bodies (modified from Hydrologic Unit Codes: Basins, 1993).

Structure

The South Florida Basin (Applin and Applin, 1965; Winston, 1971) is a stratigraphic basin which contributed to the thickening and deepening towards the south of Mesozoic and early Cenozoic lithostratigraphic units in the southern Florida Peninsula. The basin encompasses most of the southern Florida Peninsula and is an area where the stratigraphic units generally dip gently to the south and southeast.

The Okeechobee Basin (Riggs, 1979), which includes most of southern Florida (Figure 7), is an area where mid-Cenozoic and younger stratigraphic units gently dip south and southeast. As can be seen in the geologic cross sections (OFMS 116, Plate 2), the South Florida and Okeechobee basins have had minimal influence on the late Cenozoic units in the mapped area.

Several seismic studies have been performed in the area (Missimer and Gardner, 1976; Warzeski et al., 1996; Cunningham et al., 2001), indicating that channels are developed in the sediments of the Arcadia Formation (Hawthorn Group) which have influenced deposition in the region. Missimer and Gardner (1976) identified folds in the "Hawthorn Formation" (the Arcadia Formation of Scott [1988]) and numerous large-scale angular beds in the "green clay unit of the Tamiami Formation" (later renamed the Peace River Formation by Scott [1988]), which dip eastwards. Missimer and Gardner (1976) also identified numerous deeply cut paleochannels in the Caloosahatchee River. They did not note any faults in the strata. Cunningham, et al. (2001) indicated that the folding discussed by Missimer and Gardner (1976) were likely created by karstic collapse.

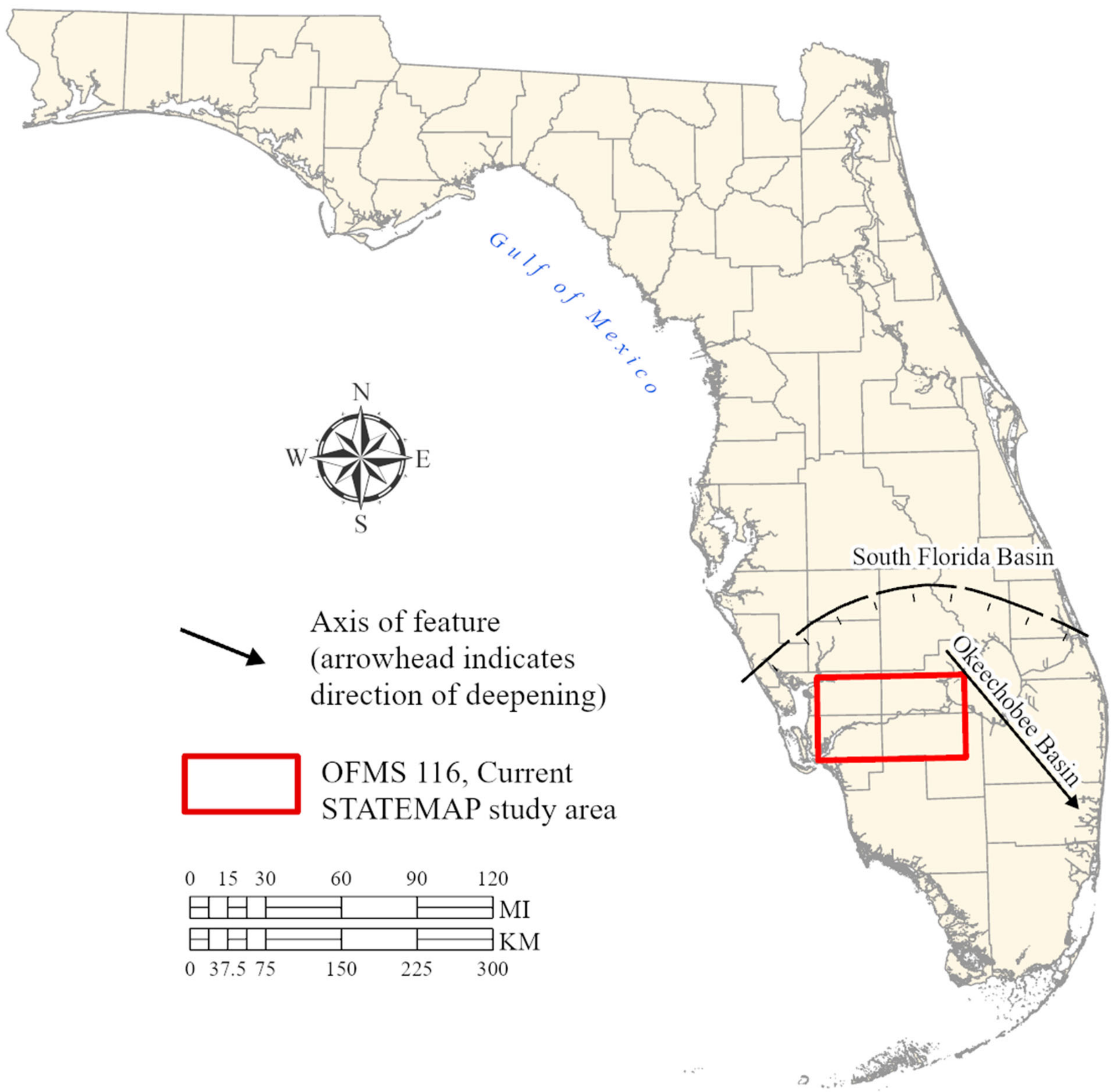

Figure 7. Principal subsurface structures of the Florida Peninsula (modified from Scott, 1988).

Geomorphology

The Florida Geological Survey recently published the Florida Geomorphology Atlas (Williams et al., 2022). The atlas synthesized over a century of geomorphic writings and maps about Florida, along with the addition of new data and interpretations of the geomorphology. These include specific regional discussions of landforms and relationships to the underlying geology and the coastal, fluvial, and karst processes that have affected the evolution of landforms. *The Geomorphology of the Florida Peninsula* (White, 1970), in addition to work by former FGS colleague, Thomas M. Scott, was central to the new statewide map. Recent data and technology, including the addition of significant LiDAR coverages and new possibilities for digital geomorphological mapping that employ spatiotemporal and geocomputational approaches to data analysis, allowed the FGS to revise nomenclature and refine geomorphic district and province boundaries. In the following section, all geomorphic unit names and most discussions are from Williams et al., 2022.

The new atlas shows the geomorphology by regional units (districts; Figure 8) and sub-regional to local units (provinces; Figure 9). Districts are defined by regional groupings to form map polygons that have landforms which are distinct from adjacent districts. Defining the more localized provinces and their landforms is important for the characterization of the regions within districts. A brief discussion of districts and provinces within the Fort Myers quadrangle is listed below. For more information and detail, the reader can refer to Williams et al., 2022.

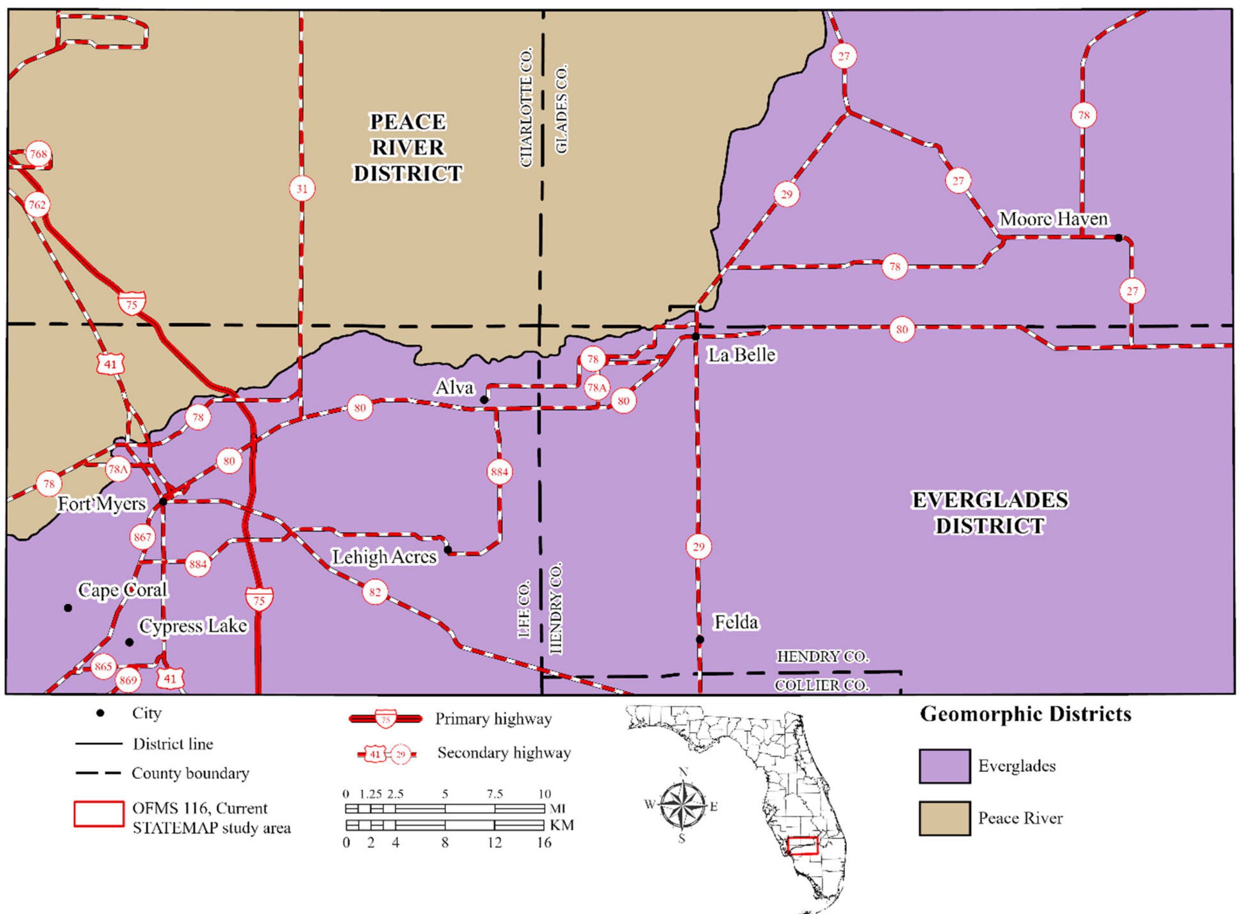

Figure 8. Geomorphic districts within the Fort Myers quadrangle.

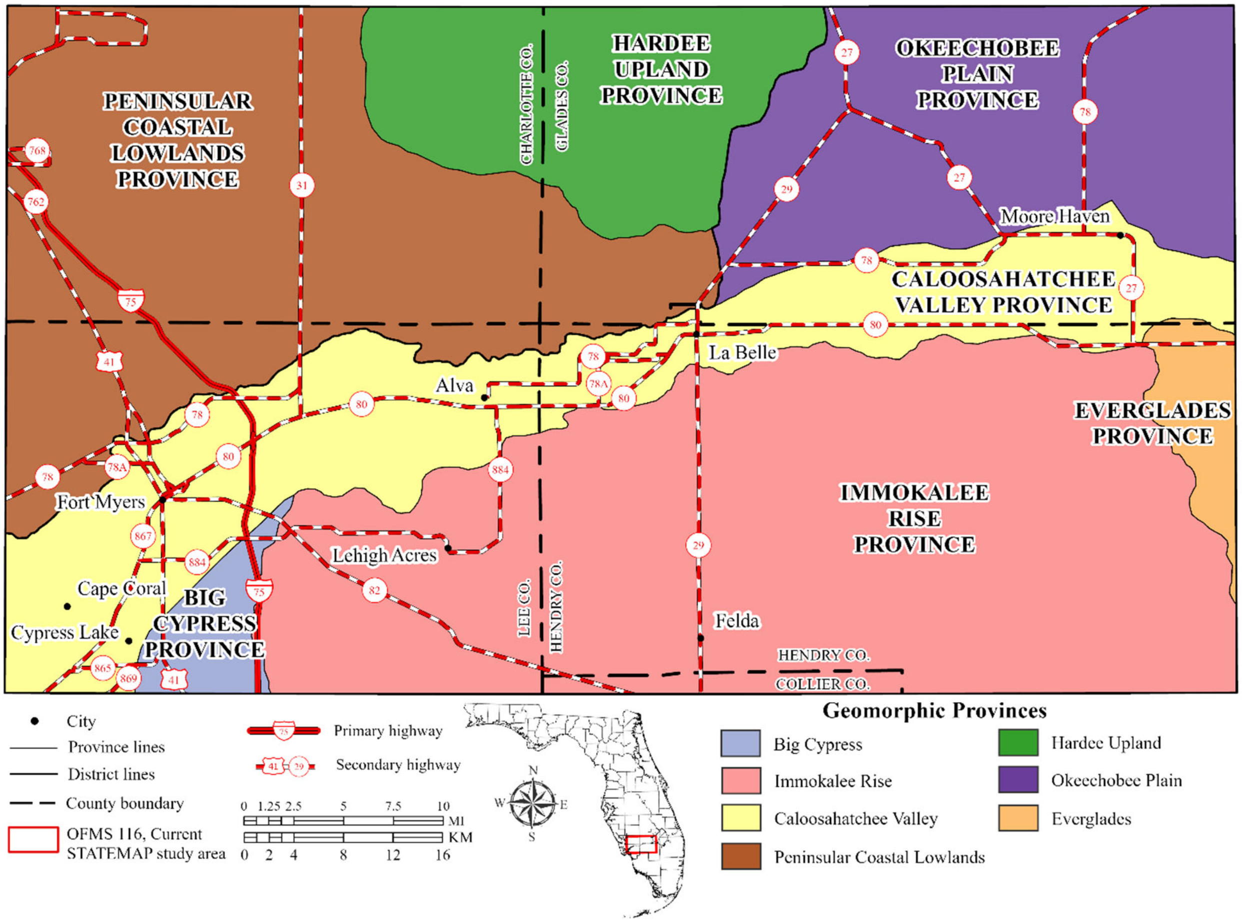

Figure 9. Geomorphic provinces within the Fort Myers quadrangle.

Peace River District

The Peace River District covers much of west-central peninsular Florida. The district is characterized by numerous rivers and streams that occur because of low permeability Oligocene-Pliocene Hawthorn Group sediments that underlie most of the district and the limited occurrence of collapse sinkholes (Williams et al., 2022). The landscape of the Peace River District is relatively flat with limited relief. The district gently slopes from highest elevations in the northeastern part of the quadrangle toward the Gulf of Mexico coast. Relatively impermeable, siliciclastic sediments of the Hawthorn Group limit recharge and allow the development of numerous rivers and streams. Drainage patterns in the district are predominantly dendritic. Dissolution of shell in the Tertiary/Quaternary shelly sediments is responsible for the karst features in the southern part of the district. The southern boundary of the Peace River District with the Everglades District is placed at a low divide separating drainage to the Gulf of Mexico from drainage to the Caloosahatchee River. Within the mapped area, the district is subdivided into two provinces: the Hardee Upland and the Peninsular Coastal Lowlands (Figure 9). Elevations of the district within the study area range from sea level in the estuaries of the Peace River and Shell Creek, near the northwestern corner of the study area, to approximately 75 feet (22.9 meters) MSL.

Hardee Upland Province

The Hardee Upland Province extends from southeastern Hillsborough and southwestern Polk counties, southward to northeastern Charlotte and northwestern Glades counties. The province encompasses all of Hardee County and parts of Manatee, Sarasota, DeSoto, and Highlands counties. The Hardee Upland is an inland, broad plain sloping to the south and west toward the Peninsular Coastal Lowlands Province which is along the Gulf of Mexico coast (Williams et al., 2022). The central part of the Hardee Upland is relatively flat. Because of the limited recharge through the underlying, low-permeability Hawthorn Group sediments, rivers and streams characterize the province. Most of the drainage patterns are dendritic. Although there are isolated wetlands in the Hardee Upland, most of the region is well drained by streams. River corridors can be swampy.

Within the study area, there are a series of less distinct changes of elevation from the Hardee Upland to the Peninsular Coastal Lowlands, which is of coastal origin but heavily modified by fluvial erosion. Dissolution of shell in the Tertiary/Quaternary undifferentiated shelly sediments is responsible for the development of cover-subsidence sinkholes in the central and southern part of the province. Elevations of the southern Hardee Upland in the study area (Figure 9) range from 30 feet (9.1 meters) MSL to 75 feet (22.9 meters) MSL.

Peninsular Coastal Lowlands Province

The Peninsular Coastal Lowlands Province forms the western part of the Peace River District. The province occurs from the Anclote Keys of Pinellas and Pasco counties to Sanibel Island and northern Lee County. It extends eastward to include western Hillsborough, western Manatee, most of Sarasota and Charlotte, southwestern DeSoto and Glades counties, and northwesternmost Hendry County. The Peninsular Coastal Lowlands is a relatively flat area in west-central peninsular Florida that includes barrier islands on the Gulf of Mexico coast and low-elevation regions inland from the coastline (Williams et al., 2022). Many coastal bays and large estuaries, such as Tampa Bay and Charlotte Harbor, occur within the province. The province is a narrow marine platform formed by coastal processes. Regions adjacent to the coast exhibit evidence of planation and lowered land-surface elevations due to coastal marine erosion during higher sea level stands. The greatest variability in elevation in the province is in the river valleys, which drain to the west and south. Drainage patterns are mostly dendritic, but occasionally are swale-dominated and subparallel, following subtle beach ridge-and-swale topography. Much of the region is well drained but becomes swampier and more poorly drained as the land surface approaches sea level. Karst features in most of the Peninsular Coastal Lowlands Province are limited to shallow cover-subsidence sinkholes that form on Tertiary/Quaternary shelly sediments, which are widespread within the province. The abundance of these sinkholes increases to the south, becoming especially abundant in southern Sarasota and northern Charlotte counties. Elevations in the southeastern part of the Peninsular Coastal Lowlands in the study area (Figure 9) range from sea level in the estuaries of the Peace River and Shell Creek to 50 feet (15.2 meters) MSL.

Everglades District

The Everglades District includes the southern part of peninsular Florida. All the provinces within the Everglades District are related to a vast and complex drainage system that begins with the Kissimmee River and its tributaries in the Barrier Island Sequence District to the north of the mapped area (Williams et al., 2022). Many areas are characterized by wetlands, but others include Quaternary carbonate islands and coastal ridges. The dominant flow of water through the northwestern part of the Everglades District in the study area is more complicated than the central and eastern parts of the district. Drainage in much of the district is by way of sloughs, sheet flow in wetlands, and poorly defined stream systems.

In the study area, this drainage can be to the north toward the Caloosahatchee River, west toward the Gulf of Mexico, and south and east toward Florida Bay. All the provinces within the district have relatively flat landscapes, and elevation changes of inches or a few feet often mark the differences between provinces. With few exceptions, pre-development drainage was as sheet flow and through sloughs (wetlands).

The Everglades District is subdivided within the mapped area into five provinces: Big Cypress, Caloosahatchee Valley, Everglades, Immokalee Rise, and Okeechobee Plain (Figure 9). The Everglades District has little topographic relief. Elevations within the district gradually decrease from north to south, but locally decrease in every direction coming off the Immokalee Rise Province. Elevations of the district within the mapped area range from sea level to 50 feet (15.2 meters) MSL, the latter including the highest elevations noted in the Everglades District.

Big Cypress Province

The Big Cypress Province is primarily located within Collier County and includes areas of southern Lee and Hendry counties, and small areas of Broward, Miami-Dade, and Monroe counties. The Big Cypress Province includes the Big Cypress Swamp, Corkscrew Swamp, and the other ridge and slough regions from the Gulf of Mexico coast north of Naples east to the marshlands of the Everglades Province. The Big Cypress Province includes an important and complex ecosystem that is dominated by shallow sloughs (locally known as strands) separated by low ridges. In the Big Cypress Province, the water table is near land surface and drainage becomes less well organized. Many cypress sloughs (strands) and the intervening ridges in the study area drain southwest toward the Gulf of Mexico. East of the study area, many drain south and southeast toward the Everglades. The highest elevations in the Big Cypress Province are in the north, and the land surface slopes gently to the south, east, and west. The boundary between the Big Cypress and Caloosahatchee Valley provinces to the northwest approximates the drainage divide between the Caloosahatchee River and Six Mile Slough. Big Cypress Province in the study area includes the northern extension in the Six Mile Slough between the Caloosahatchee Valley and Immokalee Rise provinces (Figure 9). Elevations of the Big Cypress Province in the study area vary from sea level in the estuary of Six Mile Slough to 25 feet (7.6 meters) MSL.

Caloosahatchee Valley Province

The Caloosahatchee Valley Province is located in central Lee, northern Hendry, and southern Glades counties. The province consists of the pre-development Caloosahatchee River valley, and the low valley between Lake Okeechobee and the Caloosahatchee River (Williams et al., 2022). Historically, excess water entering the northern Everglades from the Kissimmee River, Fisheating Creek, other smaller drainages, and Lake Okeechobee overflowed westward into the low valley of wetlands and lakes, including Lake Hicpochee and Lake Flirt. Most of these lakes were drained by 20th Century construction of the Caloosahatchee Canal which permanently connected Lake Okeechobee to the Caloosahatchee River for flood control and navigation. Where development has not occurred, there are many swampy regions along streams. The significant number of drainage canals associated with development suggests that much of the land surface was historically poorly drained. The Caloosahatchee Valley Province occurs in the central to southwestern part of the study area (Figure 9). Elevations of the province within the study area range from sea level at the Gulf of Mexico to 25 feet (7.6 meters) MSL.

Everglades Province

The Everglades Province extends from the southern shore of Lake Okeechobee through Palm Beach, Broward, and Miami-Dade counties and parts of Glades, Martin, Hendry, Monroe, and Collier counties. The province constitutes the largest subtropical wetland in the United States. The Everglades Province is a broad plain, sloping gently from north to south in southern peninsular Florida (Williams et al., 2022). For the most part, the province was covered by sawgrass marsh with scattered tree islands that transition to mangroves to the south and pine flatwoods to the east and west. Today, parts of this drainage system have been interrupted by canals, agricultural areas, and other land uses, including the Everglades Agricultural Area in the north. Within the study area (Figure 9), is the northwesternmost part of the Everglades Province. Drainage is to the south and east into the region of sawgrass marsh to the east of the study area. Elevations in the Everglades Province within the study area range from about ten feet (3.1 meters) to approximately 20 feet (6.1 meters) MSL.

Immokalee Rise Province

The Immokalee Rise Province is located within much of Hendry, north-central Collier, and eastern Lee counties. The province is a region of slightly higher elevation compared to its neighboring provinces (Williams et al., 2022). Accordingly, the drainage off the Immokalee Rise can be north to the Caloosahatchee River, west and south to the Gulf of Mexico, and east into the Everglades. It is relatively flat but has abundant closed topographic depressions. It has swampy drainage with more-or-less linear marshes and cypress sloughs that discharge to adjacent provinces. Landforms that were created by the marine inundations are indistinct, but present, on the land surface. Immokalee Rise occurs in the south-central to southeastern part of the study area (Figure 9). Elevations of the province within the study area range from 15 feet (4.6 meters) to 40 feet (12.2 meters) MSL.

Okeechobee Plain Province

The Okeechobee Plain Province is the northernmost province of the Everglades District and encompasses parts of Highlands, Okeechobee, Glades, and Martin counties and small areas of St. Lucie and Hendry counties. This province includes Lake Okeechobee and the low-elevation plains and wetlands surrounding the northern half of the lake (Williams et al., 2022). The Okeechobee Plain is a broad, relatively flat marine terrace that has been modified by fluvial processes and wetland development. The boundary with the Caloosahatchee Valley Province within the study area follows a minor slope break into the historic lake and wetland valley region between Lake Okeechobee and the Caloosahatchee River that would flood and overflow into the Caloosahatchee River during high water. The area is now cut by the Caloosahatchee Canal. The land surface of the Okeechobee Plain has low relief, with elevations within the study area ranging from approximately 15 feet (4.6 meters) to 40 feet (12.2 meters) with isolated elevations as high as 50 feet (15.2 meters) MSL, the latter along the boundary with the Hardee Upland Province (Figure 9).

LITHOSTRATIGRAPHIC UNITS

Tertiary System

Oligocene-Pliocene Series

Hawthorn Group

The upper Oligocene to lower Pliocene Hawthorn Group (Th) within the mapped area is composed of sediments from the Arcadia and Peace River formations. The Peace River Formation unconformably overlies the Arcadia Formation and is unconformably overlain by the Tertiary Tamiami Formation, throughout the mapped area (OFMS 116, Plate 2). The top of the Hawthorn Group ranges from approximately 80 feet (24.4 meters) below MSL in W-17077, to 425 feet (129.5 meters) below MSL in W-5438 (Appendix A). Only a few boreholes in this study were investigated to the bottom of the Hawthorn Group, therefore we did not calculate the total thickness of the unit. Scott (1988) indicated that the thickness of the Hawthorn Group ranges from approximately 600 feet (182.9 meters) to 900 feet (274.3 meters) in the mapped area.

The Hawthorn Group forms part of the intermediate aquifer system/intermediate confining unit (IAS/ICU) in the study area (Southeastern Geological Society Ad Hoc Committee on Florida Hydrostratigraphic Unit Definition, 1986).

Arcadia Formation

The upper Oligocene to middle Miocene (Covington, 1993; Brewster-Wingard et al., 1997) Arcadia Formation (Tha) is a poorly to moderately indurated, yellowish gray to white carbonate with variable amounts of quartz sand and phosphate, interbedded with siliciclastic-dominant sediments. Phosphate content can be highly variable, ranging up to 25 percent, but is more commonly in the 10 percent range (Scott, 1988). Although limestone is present, dolostone is most common, ranging in grain size from microcrystalline to medium, with the coarser material often having a sucrosic texture. Minor clay and chert beds (some composed of silicified clay) also occur (Scott, 1988). Porosity types include intergranular and moldic.

According to Scott (1988), the Arcadia Formation ranges from approximately 100 feet (30.5 meters) below MSL in the northwestern part of the quadrangle to approximately 400 feet (121.9 meters) below MSL in the eastern portion of the quadrangle. The unit ranges from approximately 300 feet (91.4 meters) thick to approximately 550 feet (167.6 meters) thick in the Fort Myers quadrangle (Scott, 1988). The Arcadia Formation forms part of the intermediate aquifer system/intermediate confining unit (IAS/ICU) in the study area (Southeastern Geological Society Ad Hoc Committee on Florida Hydrostratigraphic Unit Definition, 1986).

Peace River Formation

The middle Miocene to lower Pliocene (Scott, 1988; Covington, 1993) Peace River Formation (Thp) is comprised of unconsolidated to poorly indurated yellowish gray to olive-gray, interbedded quartz sands, clays, and carbonates. Siliciclastics are the predominant component of the unit (Scott, 1988). Phosphatic sand and gravel are most common in the uppermost beds, although they are generally interspersed throughout the unit. The Peace River Formation contains a diverse fossil assemblage of marine and terrestrial fauna. Porosity types in the formation are generally intergranular.

In the mapped area, the upper Peace River Formation is primarily composed of siliciclastic sediments, while the lower portion of the unit is more carbonate rich (Cunningham et al., 2001). The sediments assigned herein to the upper part of the Peace River Formation are uncharacteristically coarse for the unit as was defined by Scott (1988). This is particularly noticeable in the eastern portion of the quadrangle. These sediments may contain quartz gravel, discoid quartz pebbles, coarse quartz sand, phosphate sand and gravel, silt, and clay. They may also contain feldspars, rock clasts, and mica (Missimer and Maliva, 2017). Guertin et al., (1995) suggested that these sediments were deposited during a sea-level lowstand. Proposed mechanisms for deposition of these sediments include longshore marine transport (Alt, 1974; Winker and Howard, 1977; Kane, 1984), or transport within a fluvial system (Bishop, 1956; Klein et al., 1964; Peacock, 1983) and redistribution within a nearshore marine environment (Peck et al., 1979; Ginsburg et al., 1989; Missimer and Maliva, 2006). Missimer and Maliva (2017) provide more discussion on the character of these sediments.

While these sediments are placed in the Peace River Formation in this study area, there is a possibility that they are younger than the typical Peace River Formation and that they may belong to the distal (northern) end of the Long Key Formation. Further work, which is beyond the scope of this study, would be needed to answer this question and clearly define the upper and lower boundaries, ages, and stratigraphic relationships of the Peace River and Long Key formations. High-resolution reflection profiles collected along the Caloosahatchee River (Cunningham et al., 2001) and in the Florida Keys (Warzeski et al., 1996) show the stratigraphic framework in the upper Peace River Formation and channels in the southern peninsula of Florida, where these sediments appear to have been discharged onto the Portales Terrace (Long Key Formation).

In areas where the carbonate component of the Peace River Formation is high, or the siliciclastic component of the Arcadia Formation is high, identifying the contact between these formations can be difficult. In such cases, the contact of the Peace River Formation with the Arcadia Formation is best estimated based on the occurrence of sedimentary structures such as bored hardgrounds, and where the overall lithologic sequence becomes more carbonate-dominant (Scott, 1988). In most of the study area, the contact is readily recognized at the first occurrence of a green dolosilt/sand.

The Peace River Formation ranges from approximately 80 feet (24.4 meters) below MSL in W-17077, to 425 feet (129.5 meters) below MSL in W-5438. Thicknesses range from approximately 50 feet (15.2 meters) in W-17078, to 350 feet (106.7 meters) in W-9002 (Appendix A).

The Peace River Formation sediments comprise a low-permeability confining- to semi-confining facies within the IAS/ICU within the study area (Southeastern Geological Society Ad Hoc Committee on Florida Hydrostratigraphic Unit Definition, 1986).

Tertiary/Quaternary Systems

Pliocene Series

Tamiami Formation

The "Tamiami limestone" was named by Mansfield (1939) for a series of sandy limestone outcrops that were exposed during the digging of shallow ditches to form the roadbed of the Tamiami Trail (U.S. 41) in Collier and Monroe counties. The unit was formally renamed, revised, redescribed, and redefined as the Tamiami Formation by Parker and Cooke (1944). Since then, additional work on the Tamiami Formation has been done (Hunter and Wise, 1980; Meeder, 1987; Missimer, 1984; Missimer, 1992).

The Pliocene Tamiami Formation consists of a complex mixture of limestone, fossil shell beds, quartz sand, and clay (Missimer, 1992). The top of the Tamiami Formation can be lithologically variable, ranging from limestone, sandstone, quartz sand, marl, shell, or clay (Missimer, 1992).

The Tamiami Formation is generally composed of three members (Pinecrest Sand, Ochopee Limestone, and Buckingham Limestone), and several localized facies in the mapped area. Many of these facies are thin (in some cases less than 5 feet [1.5 meters] thick) and highly variable across short distances. The reader is referred to Missimer (1992) for more discussion of the lithology and stratigraphic relationship of these complex units and informal facies.

The Pinecrest Sand Member, originally defined as the "Pinecrest Sand" (Olsson, 1964), is the uppermost member of the Tamiami Formation. It varies from shelly sand to sandy limestone, to marl with shell and sand, to marl. It generally consists of white to gray highly fossiliferous limestones with moldic porosity due to secondary dissolution of shell material. The Pinecrest Sand Member is present in relatively small, isolated areas which are commonly separated by long distances (Missimer, 1992).

The Ochopee Limestone Member, named for the limestone which is present along U.S. 41 (Tamiami Trail) near the town of Ochopee (Hunter, 1968; Missimer, 1992), is a significant facies of the Tamiami Formation. The unit is typically a medium-hard to soft, light gray to white, sandy limestone with abundant mollusk molds, pectens, oysters, barnacles, and echinoids (Mansfield, 1939). It occurs beneath most of Collier and parts of Lee and Hendry counties in the mapped area (Missimer, 1992).

The Buckingham Limestone Member of the Tamiami Formation, named by Mansfield (1939) and defined as a member of the Tamiami Formation by Hunter (1968), is a highly variable unit consisting of lime mud, quartz sand, shell, limestone fragments, and phosphate. Much of the sediments in the Buckingham Limestone Member are reworked from the underlying Peace River Formation (Missimer, 1992). The Buckingham Limestone Member, which lies unconformably beneath the Ochopee Limestone where present, is the lowermost member of the Tamiami Formation.

Because these units are highly variable in thickness and lithologically change over short distances, they are difficult to delineate on geological maps, especially when using cuttings. Therefore, this report, accompanying maps, and cross-sections (OFMS 116, Plates 1 and 2), simply depict the Tamiami Formation.

The Tamiami Formation unconformably overlies the Peace River Formation (Hawthorn Group) throughout the mapped area. The base of the Tamiami Formation in most of the mapped area occurs at the top of the first major green dolosilt/sand unit, which is the top of the Peace River Formation (Missimer, 1992). In southern Lee County, there is a green dolosilt unit within the Tamiami Formation, and in this area the top of the Peace River Formation occurs in a gray quartz sand unit (Missimer, 1992). The Tamiami Formation occurs at or near the land surface in parts of the mapped area (OFMS 116, Plates 1 and 2). In places where it is not exposed, it is overlain by Tertiary/Quaternary undifferentiated shelly sediments (TQsu) or undifferentiated Quaternary sediments (Qu).

The top of the Tamiami Formation ranges from approximately 10 Feet (3.1 meters) above MSL in W-17858, to approximately 55 feet (16.8 meters) below MSL in W-10156. The thickness of the Tamiami Formation in the mapped area varies from approximately 10 feet (3.1 meters) in W-9196 to 150 feet (45.7 meters) in W-10138 (Appendix A).

Pliocene/Pleistocene Series

Tertiary/Quaternary undifferentiated shelly sediments

The Tertiary/Quaternary undifferentiated shelly sediments (TQsu) disconformably overlie the Tamiami Formation throughout the map area. There are problems in mapping these sediments as separate units because their historical definitions are biostratigraphic, not lithostratigraphic (Scott and Allmon, 1990; Scott and Wingard, 1995). Scott (1993b) informally applied the name Okeechobee formation to these sediments in an effort to provide a lithostratigraphic framework for them. Since the Okeechobee formation was never formalized, and because to do so is beyond the scope of this project, we are following the convention of Scott et al., (2001) and referring to this unit as Tertiary/Quaternary undifferentiated shelly sediments (TQsu).

The Tertiary/Quaternary undifferentiated shelly sediments may include Caloosahatchee, Bermont, and Fort Thompson faunas (Scott, 1993b). Virtually all of the individual lithologies are fossiliferous, containing some of the most macrofossiliferous sediments in the Atlantic Coastal Plain.

Tertiary/Quaternary undifferentiated shelly sediments typically consist of fine-to-medium quartz sand and marine mollusk shell beds with variable amounts of micrite, silt, clay, and calcite cement. The unit occasionally contains lenses and thin beds of fresh-water mollusks. Colors range from light gray to light-olive gray to light orange and white. Fossil mollusk shells, which may vary from whole to fragments, are often highly weathered and abraded and regularly become the dominant lithology. Porosity is generally intergranular and moldic. Other accessory minerals may include calcite, aragonite, mica, heavy minerals, pyrite, and minor phosphate sand and gravel. In the study area, the TQsu sediments occur in the form of both unconsolidated sand with varying percentages of shell fragments and calcite-cemented sand and shell fragments, with occasional lithified carbonate beds.

The Tertiary/Quaternary undifferentiated shelly sediments are overlain by undifferentiated Quaternary sediments in parts of the mapped area (OFMS 116, Plate 2). The TQsu sediments are exposed in several quarries within the study area. Tertiary/Quaternary undifferentiated shelly sediments disconformably overlie the Tamiami Formation throughout much of the Fort Myers quadrangle. It is very thin to absent in the west-central part of the quadrangle (see OFMS 116, Plate 1). There were some isolated instances noted in the field where TQsu sediments were present in limited outcrops in the area mapped as Tamiami Formation in this quadrangle, but they were too small to map at this scale.

The Tertiary/Quaternary undifferentiated shelly sediments present in the study area are generally less than 20 feet (6.1 meters) above MSL, with most of the unit being less than ten feet (3.0 meters) above MSL (OFMS 116, Plate 2, cross-sections). The elevation of the TQsu sediments is highest in the northern and central portion of the mapped area and lowest along the eastern portion of the quadrangle. The top of the TQsu sediments ranges from approximately 20 feet (6.1 meters) above MSL in W-17035, to 35 feet (10.7 meters) below MSL in W-9008. The thickness of the TQsu sediment ranges from less than a foot (0.3 meters) in W-6782 to approximately 170 feet (51.8 meters) in W-10152 (Appendix A).

Permeable strata within the Tertiary/Quaternary undifferentiated shelly sediments form part of the surficial aquifer system (SAS; Southeastern Geological Society Ad Hoc Committee on Florida Hydrostratigraphic Unit Definition, 1986).

Pleistocene/Holocene Series

Quaternary undifferentiated sediments

Quaternary undifferentiated sediments (Qu) include siliciclastic sediments, organics, and freshwater carbonates. While not a formally recognized lithostratigraphic unit, following the convention of Scott et al. (2001), the Quaternary undifferentiated sediments are mapped as a discrete unit where these sediments exceed 20 feet thick above recognized lithostratigraphic units.

The Quaternary undifferentiated sediments in the mapped area may be highly variable in thickness. Quaternary undifferentiated sediments in the study area lie unconformably on Tertiary/Quaternary undifferentiated shelly sediments (OFMS 116, Plate 2).

Quaternary undifferentiated sediments generally consist of white-to-gray to orange-to-brown, fine- to coarse-grained, clean-to-clayey (usually) unfossiliferous quartz sand, sandy clays and clays, with variable admixtures of organics. Minor shell fragments are sometimes present in Quaternary undifferentiated sediments near the coast. The Quaternary undifferentiated sediments form part of the SAS (Southeastern Geological Society Ad Hoc Committee on Florida Hydrostratigraphic Unit Definition, 1986).

Holocene sediments

Sediments mapped as Holocene (Qh) may include quartz sands, marls, organics, and minor carbonate sands and mud. They occur along the western portion of the mapped area along the mouth of the Caloosahatchee River and are associated with mangroves and marshes along the coast (OFMS 116; Plate 1). These sediments are considered part of the SAS (Southeastern Geological Society Ad Hoc Committee on Florida Hydrostratigraphic Unit Definition, 1986).

HYDROGEOLOGY

Hydrostratigraphic units within the map area, in ascending order, consist of the FAS, the IAS/ICU, and the SAS (Southeastern Geological Society Ad Hoc Committee on Florida Hydrostratigraphic Unit Definition, 1986). A correlation chart of the hydrostratigraphic units, and their relationship to lithostratigraphic units, can be seen on OFMS 116, Plate 2, Figure 2. The sands, silts, clays, and carbonates of the Hawthorn Group comprise the IAS/ICU. The SAS is comprised of Holocene sediments, Quaternary undifferentiated sediments, Tertiary/Quaternary undifferentiated shelly sediments, and the Tamiami Formation.

DERIVATIVE PRODUCTS

Several derivative products can be developed from data gathered in the process of completing this project. During the mapping efforts, data from over 380 boreholes were analyzed and used (Appendices A and B). Formation picks made on these cores and cutting samples will allow creation of structure contour and isopach maps for the top of several units in the area, as well as future 3-D models. Additional derivative products anticipated to come from this mapping effort include aquifer vulnerability assessment maps, karst susceptibility and risk maps, and aquifer and confining unit maps. Data derived from prior STATEMAP products have often been used to augment other Florida Geological Survey and Florida Aquifer Vulnerability Assessment (FAVA) projects in the state (Arthur et al., 2007; Baker et al., 2007; Kromhout et al., 2017). These geologic maps will also be compiled and published as part of the Statewide Surficial Geologic Map in the next decade.

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APPENDIX A: FLORIDA GEOLOGICAL SURVEY BOREHOLES UTILIZED FOR STUDY

This table lists FGS boreholes within the boundaries of the USGS Fort Myers 30 x 60 minute quadrangle utilized for the project. Due to graphical constraints, not all boreholes will appear on Plate 1 of OFMS 116. The first 36 boreholes in the table were utilized for geologic cross-sections and appear on Plates 1 and 2 of OFMS 116.

Map ID	Well Label	Data Source	Sample Type	Latitude	Longitude	24k Quad	Elevation (ft.)	Total Depth (ft.)
1	W-8091	FGS	Cuttings	26.94435	-81.90989	CLEVELAND	24	250
2	W-9010	FGS	Cuttings	26.81645	-81.3331	GOODNO	16	1165
3	W-9014	FGS	Cuttings	26.72833	-81.42583	SEARS	21	900
4	W-9016	FGS	Cuttings	26.54833	-81.44472	FELDA	34	1020
5	W-9017	FGS	Cuttings	26.54972	-81.53944	ALVA SE	30	1150
6	W-9195	FGS	Cuttings	26.82028	-81.98194	GILCHRIST	23	1380
7	W-9196	FGS	Cuttings	26.88361	-81.96917	CLEVELAND	22	1434
8	W-9204	FGS	Cuttings	26.94285	-81.97776	CLEVELAND	20	1290
9	W-9208	FGS	Cuttings	26.94278	-81.56611	TELEGRAPH SWAMP NE	62	900
10	W-9308	FGS	Cuttings	26.7175	-81.69083	OLGA	8	1250
11	W-9325	FGS	Cuttings	26.72083	-81.63	OLGA	8	1050
12	W-9327	FGS	Cuttings	26.56333	-81.90111	FORT MYERS SW	7	1360
13	W-9328	FGS	Cuttings	26.55778	-81.80167	FORT MYERS SE	23	1290
14	W-9340	FGS	Cuttings	26.59222	-81.65472	ALVA SW	27	1500
15	W-9467	FGS	Cuttings	26.53806	-81.59222	ALVA SE	30	1228
16	W-9675	FGS	Cuttings	26.7225	-81.5375	ALVA	16	360
17	W-10056	FGS	Cuttings	26.53639	-81.66556	ALVA SW	28	1124
18	W-10062	FGS	Cuttings	26.6825	-81.65139	OLGA	16	1140
19	W-10065	FGS	Cuttings	26.55111	-81.69778	ALVA SW	26	1350
20	W-10086	FGS	Cuttings	26.73917	-81.33806	FELDA NE	22	950
21	W-10087	FGS	Cuttings	26.74028	-81.25639	FELDA NE	20	1060
22	W-10090	FGS	Cuttings	26.77215	-81.65948	TELEGRAPH SWAMP	23	1090
23	W-10093	FGS	Cuttings	26.85722	-81.66639	TELEGRAPH SWAMP	34	955
24	W-10095	FGS	Cuttings	26.9417	-81.75689	BERMONT	37	1180
25	W-10124	FGS	Cuttings	26.61833	-81.98694	FORT MYERS SW	9	1240
26	W-10127	FGS	Cuttings	26.73306	-81.98194	FORT MYERS NW	16	1290
27	W-10150	FGS	Cuttings	26.54028	-81.15083	GRAHAM MARSH	29	987
28	W-10204	FGS	Cuttings	26.54944	-81.31778	FELDA SE	27	880
29	W-11907	FGS	Continuous Core	26.93895	-81.83314	BERMONT	38	621
30	W-12844	FGS	Cuttings	26.93645	-81.32202	PALMDALE	28	565
31	W-16059	FGS	Cuttings	26.63694	-81.34389	FELDA NE	27	502
32	W-17035	FGS	Cuttings	26.9375	-81.48972	LA BELLE NW	62	560
33	W-17068	FGS	Cuttings	26.94454	-81.66111	TELEGRAPH SWAMP NW	62	1265
34	W-17667	FGS	Cuttings	26.56222	-81.99167	FORT MYERS SW	7	600
35	W-17919	FGS	Cuttings	26.99694	-81.36028	PALMDALE	59	675
36	W-19334	FGS	Cuttings	26.72583	-81.81778	FORT MYERS	16	700
37	W-646	FGS	Cuttings	26.63972	-81.7225	OLGA	22	90
38	W-760	FGS	Cuttings	26.73698	-81.05035	HOG CYPRESS	19	130
39	W-780	FGS	Cuttings	26.69961	-81.12889	GRASSY MARSH	21	50
40	W-781	FGS	Cuttings	26.54956	-81.12664	GRAHAM MARSH	29	50
41	W-810	FGS	Cuttings	26.90807	-81.99591	CLEVELAND	21	705
42	W-847	FGS	Cuttings	26.63556	-81.85333	FORT MYERS	16	106
43	W-1475	FGS	Cuttings	26.96861	-81.96722	CLEVELAND	7	135
44	W-3097	FGS	Cuttings	26.75556	-81.43611	LA BELLE	14	170
45	W-3132	FGS	Cuttings	26.80361	-81.35056	GOODNO	13	642
46	W-4570	FGS	Cuttings	26.65889	-81.74111	OLGA	16	121
47	W-5082	FGS	Cuttings	26.75563	-81.43873	LA BELLE	13	40
48	W-5401	FGS	Cuttings	26.62611	-81.8225	FORT MYERS	17	30
49	W-5406	FGS	Cuttings	26.82444	-81.06889	MOORE HAVEN	14	1000
50	W-5408	FGS	Cuttings	26.88204	-81.22571	LAKEPORT	25	1005
51	W-5409	FGS	Cuttings	26.95139	-81.10972	FISHEATING BAY	14	1025
52	W-5438	FGS	Cuttings	26.99962	-81.06684	FISHEATING BAY	16	1020
53	W-5597	FGS	Cuttings	26.63336	-81.81714	FORT MYERS	18	30
54	W-6735	FGS	Cuttings	26.71683	-81.57726	ALVA	8	48

Map ID	Well Label	Data Source	Sample Type	Latitude	Longitude	24k Quad	Elevation (ft.)	Total Depth (ft.)
55	W-6737	FGS	Cuttings	26.72888	-81.52162	ALVA	3	50
56	W-6740	FGS	Cuttings	26.76804	-81.44333	LA BELLE	13	54
57	W-6741	FGS	Cuttings	26.76536	-81.42218	LA BELLE	6	50
58	W-6760	FGS	Cuttings	26.74472	-81.49944	SEARS	1	18
59	W-6780	FGS	Cuttings	26.79113	-81.32233	GOODNO	1	45
60	W-6782	FGS	Cuttings	26.79269	-81.29642	GOODNO	10	30
61	W-6794	FGS	Cuttings	26.78829	-81.2071	LAKE HICPOCHEE	13	30
62	W-6802	FGS	Cuttings	26.79167	-81.13946	LAKE HICPOCHEE	11	35
63	W-6804	FGS	Cuttings	26.79806	-81.12444	MOORE HAVEN	9	35
64	W-6807	FGS	Cuttings	26.80808	-81.11102	MOORE HAVEN	9	35
65	W-8086	FGS	Cuttings	26.8575	-81.97139	GILCHRIST	29	240
66	W-8087	FGS	Cuttings	26.82194	-81.96583	GILCHRIST	23	350
67	W-8090	FGS	Cuttings	26.9175	-81.8925	CLEVELAND	30	295
68	W-8092	FGS	Cuttings	26.84306	-81.89861	GILCHRIST	25	225
69	W-8093	FGS	Cuttings	26.83285	-81.90258	GILCHRIST	25	245
70	W-8095	FGS	Cuttings	26.88361	-81.79972	BERMONT	36	255
71	W-8096	FGS	Cuttings	26.9048	-81.7975	BERMONT	39	315
72	W-8099	FGS	Cuttings	26.90083	-81.76056	BERMONT	38	405
73	W-8285	FGS	Cuttings	26.72667	-81.39806	SEARS	23	30
74	W-8327	FGS	Cuttings	26.81645	-81.01424	MOORE HAVEN	11	41
75	W-8495	FGS	Cuttings	26.55687	-81.87971	FORT MYERS SW	8	235
76	W-8528	FGS	Cuttings	26.77007	-81.93147	GILCHRIST	22	195
77	W-8532	FGS	Cuttings	26.85784	-81.89008	GILCHRIST	29	264
78	W-8674	FGS	Cuttings	26.7055	-81.45905	SEARS	24	40
79	W-8675	FGS	Cuttings	26.76885	-81.4382	LA BELLE	1	40
80	W-8815	FGS	Cuttings	26.98056	-81.69667	TELEGRAPH SWAMP NW	52	536
81	W-9002	FGS	Cuttings	26.87722	-81.11556	FISHEATING BAY	13	900
82	W-9003	FGS	Cuttings	26.85944	-81.39694	LA BELLE	42	785
83	W-9006	FGS	Cuttings	26.81572	-81.2017	LAKE HICPOCHEE	15	942
84	W-9008	FGS	Cuttings	26.86111	-81.21111	LAKE HICPOCHEE	21	880
85	W-9011	FGS	Cuttings	26.8332	-81.11499	MOORE HAVEN	12	1067
86	W-9013	FGS	Cuttings	26.77216	-81.28362	GOODNO	16	1107
87	W-9018	FGS	Cuttings	26.57917	-81.47556	FELDA	33	1115
88	W-9197	FGS	Cuttings	26.85446	-81.98571	GILCHRIST	24	1403
89	W-9198	FGS	Cuttings	26.87306	-81.84194	TUCKERS CORNER	35	1313
90	W-9309	FGS	Cuttings	26.51972	-81.91556	FORT MYERS SW	6	1360
91	W-9310	FGS	Cuttings	26.52139	-81.78583	FORT MYERS SE	21	1126
92	W-9313	FGS	Cuttings	26.54306	-81.81917	FORT MYERS SE	19	1205
93	W-9326	FGS	Cuttings	26.675	-81.73194	OLGA	11	1430
94	W-9329	FGS	Cuttings	26.5325	-81.84556	FORT MYERS SE	10	1281
95	W-9330	FGS	Cuttings	26.67972	-81.79611	FORT MYERS	17	1130
96	W-9331	FGS	Cuttings	26.55778	-81.84361	FORT MYERS SE	16	1240
97	W-9332	FGS	Cuttings	26.60917	-81.78028	FORT MYERS SE	20	1445
98	W-9334	FGS	Cuttings	26.66361	-81.97083	FORT MYERS NW	14	1270
99	W-9335	FGS	Cuttings	26.56583	-81.13028	GRAHAM MARSH	25	1040
100	W-9336	FGS	Cuttings	26.51722	-81.12667	GRAHAM MARSH	26	1008
101	W-9337	FGS	Cuttings	26.68389	-81.13333	GRASSY MARSH	23	1020
102	W-9341	FGS	Cuttings	26.7275	-81.125	GRASSY MARSH	21	1496
103	W-9358	FGS	Cuttings	26.5111	-81.13452	GRAHAM MARSH	28	950
104	W-9359	FGS	Cuttings	26.83801	-81.43037	LA BELLE	53	920
105	W-9361	FGS	Cuttings	26.64972	-81.43389	SEARS	27	1310
106	W-9581	FGS	Cuttings	26.52306	-81.39472	FELDA	35	300
107	W-9587	FGS	Cuttings	26.58556	-81.39972	FELDA	29	3400
108	W-9588	FGS	Cuttings	26.53667	-81.41028	FELDA	32	370
109	W-9589	FGS	Cuttings	26.64306	-81.40083	SEARS	28	400
110	W-9601	FGS	Cuttings	26.57583	-81.50361	ALVA SE	30	390
111	W-9604	FGS	Cuttings	26.59611	-81.59333	ALVA SE	26	290
112	W-9664	FGS	Cuttings	26.51472	-81.15472	GRAHAM MARSH	29	400
113	W-9824	FGS	Cuttings	26.70417	-81.76472	FORT MYERS	2	250
114	W-9831	FGS	Cuttings	26.58528	-81.42444	FELDA	27	1070
115	W-9832	FGS	Cuttings	26.60722	-81.39222	FELDA	30	1160
116	W-9833	FGS	Cuttings	26.55583	-81.39056	FELDA	27	770
117	W-9835	FGS	Cuttings	26.59972	-81.44889	FELDA	29	1050
118	W-9836	FGS	Cuttings	26.62722	-81.46444	SEARS	28	980

Map ID	Well Label	Data Source	Sample Type	Latitude	Longitude	24k Quad	Elevation (ft.)	Total Depth (ft.)
119	W-9837	FGS	Cuttings	26.62889	-81.37611	SEARS	28	1090
120	W-9906	FGS	Cuttings	26.73639	-81.73278	OLGA	9	10720
121	W-9913	FGS	Cuttings	26.76556	-81.76528	TUCKERS CORNER	23	1209
122	W-9929	FGS	Cuttings	26.81254	-81.50678	TELEGRAPH SWAMP SE	36	1125
123	W-9938	FGS	Cuttings	26.75111	-81.82222	TUCKERS CORNER	22	1020
124	W-9939	FGS	Cuttings	26.70389	-81.85139	FORT MYERS	8	1219
125	W-9960	FGS	Cuttings	26.75556	-81.19861	LAKE HICPOCHEE	18	920
126	W-9970	FGS	Cuttings	26.75611	-81.14167	LAKE HICPOCHEE	19	1320
127	W-9974	FGS	Cuttings	26.68444	-81.06806	HOG CYPRESS	21	1000
128	W-9976	FGS	Cuttings	26.73333	-81.06854	HOG CYPRESS	19	1060
129	W-10055	FGS	Cuttings	26.5025	-81.66889	ALVA SW	23	1030
130	W-10072	FGS	Cuttings	26.59333	-81.52417	ALVA SE	26	1040
131	W-10073	FGS	Cuttings	26.56806	-81.49556	FELDA	33	1160
132	W-10081	FGS	Cuttings	26.68833	-81.29611	FELDA NE	26	1100
133	W-10082	FGS	Cuttings	26.65111	-81.31139	FELDA NE	27	990
134	W-10083	FGS	Cuttings	26.68639	-81.41806	SEARS	26	960
135	W-10085	FGS	Cuttings	26.68917	-81.23944	GRASSY MARSH	25	990
136	W-10089	FGS	Cuttings	26.81194	-81.71111	TELEGRAPH SWAMP	29	1238
137	W-10092	FGS	Cuttings	26.85333	-81.58	TELEGRAPH SWAMP SE	38	960
138	W-10096	FGS	Cuttings	26.80954	-81.75619	TUCKERS CORNER	29	1010
139	W-10100	FGS	Cuttings	26.81658	-81.65909	TELEGRAPH SWAMP	28	1060
140	W-10101	FGS	Cuttings	26.81194	-81.56778	TELEGRAPH SWAMP SE	32	1020
141	W-10107	FGS	Cuttings	26.90409	-81.61654	TELEGRAPH SWAMP NE	56	750
142	W-10111	FGS	Cuttings	26.92644	-81.63299	TELEGRAPH SWAMP NW	59	850
143	W-10115	FGS	Cuttings	26.7075	-81.9125	FORT MYERS NW	15	1200
144	W-10119	FGS	Cuttings	26.75139	-81.79778	TUCKERS CORNER	22	1080
145	W-10120	FGS	Cuttings	26.57667	-81.95528	FORT MYERS SW	6	1200
146	W-10126	FGS	Cuttings	26.76611	-81.91222	GILCHRIST	21	1280
147	W-10129	FGS	Cuttings	26.8175	-81.86224	TUCKERS CORNER	25	1170
148	W-10130	FGS	Cuttings	26.65583	-81.90333	FORT MYERS NW	7	1110
149	W-10132	FGS	Cuttings	26.6075	-81.33528	FELDA SE	28	1080
150	W-10133	FGS	Cuttings	26.60809	-81.27835	FELDA SE	30	1060
151	W-10136	FGS	Cuttings	26.52361	-81.04861	DEVILS GARDEN SLOUGH	24	850
152	W-10137	FGS	Cuttings	26.56806	-81.02639	DEVILS GARDEN SLOUGH	22	350
153	W-10138	FGS	Cuttings	26.56778	-81.02611	DEVILS GARDEN SLOUGH	19	870
154	W-10139	FGS	Cuttings	26.6025	-81.17194	GRAHAM MARSH	26	980
155	W-10141	FGS	Cuttings	26.52194	-81.20389	GRAHAM MARSH	29	950
156	W-10142	FGS	Cuttings	26.5575	-81.23667	GRAHAM MARSH	28	1060
157	W-10143	FGS	Cuttings	26.55306	-81.31361	FELDA SE	27	970
158	W-10146	FGS	Cuttings	26.55611	-81.08583	DEVILS GARDEN SLOUGH	25	860
159	W-10147	FGS	Cuttings	26.60417	-81.035	DEVILS GARDEN SLOUGH	21	890
160	W-10149	FGS	Cuttings	26.52417	-81.0175	DEVILS GARDEN SLOUGH	23	820
161	W-10151	FGS	Cuttings	26.57861	-81.31028	FELDA SE	29	920
162	W-10152	FGS	Cuttings	26.59028	-81.01083	DEVILS GARDEN SLOUGH	20	820
163	W-10154	FGS	Cuttings	26.56539	-81.18719	GRAHAM MARSH	28	360
164	W-10156	FGS	Cuttings	26.63119	-81.05367	HOG CYPRESS	21	870
165	W-10157	FGS	Cuttings	26.71222	-81.17417	GRASSY MARSH	18	720
166	W-10165	FGS	Cuttings	26.6375	-81.25472	FELDA NE	27	1190
167	W-10166	FGS	Cuttings	26.60917	-81.21306	GRAHAM MARSH	28	1010
168	W-10167	FGS	Cuttings	26.64611	-81.17306	GRASSY MARSH	26	1060
169	W-10169	FGS	Cuttings	26.67083	-81.21861	GRASSY MARSH	25	1130
170	W-10171	FGS	Cuttings	26.64056	-81.07528	HOG CYPRESS	22	900
171	W-10192	FGS	Cuttings	26.54583	-81.01778	DEVILS GARDEN SLOUGH	22	820
172	W-10203	FGS	Cuttings	26.67389	-81.27139	FELDA NE	26	1030
173	W-10214	FGS	Cuttings	26.61861	-81.53722	ALVA SE	28	1020
174	W-10232	FGS	Cuttings	26.82806	-81.9225	GILCHRIST	26	1460
175	W-10444	FGS	Cuttings	26.5175	-81.54278	ALVA SE	30	11650

Map ID	Well Label	Data Source	Sample Type	Latitude	Longitude	24k Quad	Elevation (ft.)	Total Depth (ft.)
176	W-10687	FGS	Cuttings	26.67389	-81.94139	FORT MYERS NW	16	225
177	W-10751	FGS	Continuous Core	26.86861	-81.67778	TELEGRAPH SWAMP	37	84
178	W-10752	FGS	Continuous Core	26.87917	-81.67083	TELEGRAPH SWAMP NW	40	77
179	W-10753	FGS	Continuous Core	26.89111	-81.67389	TELEGRAPH SWAMP NW	46	74
180	W-10754	FGS	Cuttings	26.90074	-81.66278	TELEGRAPH SWAMP NW	55	66
181	W-10755	FGS	Cuttings	26.90056	-81.64503	TELEGRAPH SWAMP NW	58	67
182	W-10756	FGS	Cuttings	26.90111	-81.73444	TELEGRAPH SWAMP NW	35	76
183	W-10757	FGS	Cuttings	26.90083	-81.695	TELEGRAPH SWAMP NW	46	62
184	W-10761	FGS	Continuous Core	26.85837	-81.71192	TELEGRAPH SWAMP	27	450
185	W-11881	FGS	Cuttings	26.75611	-81.3825	LA BELLE	18	55
186	W-13081	FGS	Cuttings	26.7759	-81.36146	GOODNO	16	75
187	W-13097	FGS	Cuttings	26.78923	-81.25118	GOODNO	9	75
188	W-14010	FGS	Cuttings	26.51417	-81.72278	ALVA SW	25	185
189	W-14480	FGS	Cuttings	26.71647	-81.82925	FORT MYERS	11	198
190	W-15289	FGS	Cuttings	26.84039	-81.98146	GILCHRIST	24	1500
191	W-15532	FGS	Cuttings	26.65361	-81.5325	ALVA	24	380
192	W-15533	FGS	Cuttings	26.81833	-81.46583	LA BELLE	37	460
193	W-15556	FGS	Continuous Core	26.70294	-81.596	ALVA	12	462
194	W-15787	FGS	Cuttings	26.59861	-81.56028	ALVA SE	26	250
195	W-15788	FGS	Cuttings	26.59333	-81.54056	ALVA SE	27	250
196	W-15797	FGS	Cuttings	26.54972	-81.55611	ALVA SE	28	163
197	W-16029	FGS	Cuttings	26.58694	-81.28528	FELDA SE	29	500
198	W-16030	FGS	Cuttings	26.53722	-81.06889	DEVILS GARDEN SLOUGH	25	350
199	W-16077	FGS	Cuttings	26.69056	-81.25778	FELDA NE	25	502
200	W-16148	FGS	Continuous Core	26.72528	-81.59389	ALVA	15	83
201	W-16544	FGS	Cuttings	26.92528	-81.31472	PALMDALE	42	48
202	W-16566	FGS	Cuttings	26.94444	-81.55694	TELEGRAPH SWAMP NE	64	38
203	W-16567	FGS	Cuttings	26.88556	-81.44056	LA BELLE NW	57	34
204	W-16581	FGS	Cuttings	26.92583	-81.12333	FISHEATING BAY	31	43
205	W-16582	FGS	Cuttings	26.76806	-81.08417	MOORE HAVEN	15	28
206	W-16589	FGS	Cuttings	26.82778	-81.555	TELEGRAPH SWAMP SE	34	28
207	W-16637	FGS	Cuttings	26.60778	-81.04667	DEVILS GARDEN SLOUGH	24	38
208	W-16840	FGS	Cuttings	26.94528	-81.92944	CLEVELAND	21	38
209	W-16841	FGS	Cuttings	26.83056	-81.84861	TUCKERS CORNER	28	28
210	W-16944	FGS	Cuttings	26.96739	-81.31541	PALMDALE	41	1390
211	W-17078	FGS	Cuttings	26.90222	-81.92278	CLEVELAND	26	1160
212	W-17091	FGS	Cuttings	26.82167	-81.10639	MOORE HAVEN	14	1100
213	W-17416	FGS	Cuttings	26.74284	-81.60147	ALVA	16	1200
214	W-17420	FGS	Cuttings	26.63556	-81.99167	FORT MYERS NW	10	650
215	W-17810	FGS	Continuous Core	26.53139	-81.28583	FELDA SE	29	221
216	W-17858	FGS	Cuttings	26.56556	-81.55278	ALVA SE	30	265
217	W-17872	FGS	Cuttings	26.62778	-81.95972	FORT MYERS NW	8	610
218	W-17878	FGS	Cuttings	26.67333	-81.11111	HOG CYPRESS	23	217
219	W-18070	FGS	Continuous Core	26.77278	-81.39389	LA BELLE	16	201
220	W-18072	FGS	Continuous Core	26.73556	-81.26528	FELDA NE	21	27
221	W-18075	FGS	Continuous Core	26.78539	-81.18708	LAKE HICPOCHEE	12	431
222	W-18088	FGS	Continuous Core	26.50222	-81.59	ALVA SE	28	45
223	W-18253	FGS	Cuttings	26.83853	-81.08539	MOORE HAVEN	14	2030
224	W-18381	FGS	Cuttings	26.97361	-81.93472	CLEVELAND	19	340
225	W-18464	FGS	Continuous Core	26.68694	-81.55389	ALVA	22	1390
226	W-18842	FGS	Cuttings	26.69377	-81.9996	FORT MYERS NW	13	1487

Map ID	Well Label	Data Source	Sample Type	Latitude	Longitude	24k Quad	Elevation (ft.)	Total Depth (ft.)
227	W-18925	FGS	Cuttings	26.61667	-81.48667	FELDA	28	180
228	W-19686	FGS	Continuous Core	26.56389	-81.55392	ALVA SE	28	150
229	W-20083	FGS	Continuous Core	26.78081	-81.95657	GILCHRIST	19	6
230	W-20084	FGS	Continuous Core	26.79046	-81.98613	GILCHRIST	19	10
231	W-20085	FGS	Continuous Core	26.88765	-81.89909	CLEVELAND	28	24
232	W-20102	FGS	Continuous Core	26.80333	-81.88164	GILCHRIST	27	10
233	W-20103	FGS	Continuous Core	26.89843	-81.85871	BERMONT	35	24
234	W-20104	FGS	Continuous Core	26.81083	-81.99305	GILCHRIST	20	16
235	W-20105	FGS	Continuous Core	26.79446	-81.63283	TELEGRAPH SWAMP	26	6
236	W-20106	FGS	Continuous Core	26.79439	-81.63284	TELEGRAPH SWAMP	26	16
237	W-20107	FGS	Continuous Core	26.60855	-81.3172	FELDA SE	29	12
238	W-20108	FGS	Continuous Core	26.64048	-81.30376	FELDA NE	28	12
239	W-20111	FGS	Continuous Core	26.50956	-81.21936	GRAHAM MARSH	29	24
240	W-20112	FGS	Continuous Core	26.88056	-81.6118	TELEGRAPH SWAMP NE	51	24
241	W-20114	FGS	Continuous Core	26.81414	-81.78983	TUCKERS CORNER	29	12
242	W-20131	FGS	Continuous Core	26.56361	-81.32744	FELDA SE	28	31
243	W-20132	FGS	Continuous Core	26.58253	-81.22111	GRAHAM MARSH	29	16
244	W-20133	FGS	Continuous Core	26.54481	-81.22861	GRAHAM MARSH	30	23
245	W-20134	FGS	Continuous Core	26.61925	-81.39342	FELDA	29	11

APPENDIX B: CONSULTANT BOREHOLES UTILIZED FOR STUDY

This table lists data from reports provided by Dr. Thomas M. Missimer within the boundaries of the USGS Fort Myers 30 x 60 minute quadrangle utilized for the project. Due to graphical constraints, not all boreholes will appear on Plate 1 of OFMS 116.

Well Number	Report Number	Data Source	Latitude	Longitude	24K Quad	Elevation (ft.)	Total Depth (ft.)
CH-000089	251-85	Tom Missimer	26.80637	-81.90068	GILCHRIST	23	35
CH-000090	251-85	Tom Missimer	26.82969	-81.89313	GILCHRIST	25	40
CH-000156	370-87	Tom Missimer	26.84695	-81.75460	TUCKERS CORNER	31	160
CH-000159	379-87	Tom Missimer	26.84029	-81.80830	TUCKERS CORNER	30	30
CH-000161	379-87	Tom Missimer	26.82914	-81.80638	TUCKERS CORNER	28	30
CH-000162	379-87	Tom Missimer	26.83611	-81.80683	TUCKERS CORNER	29	33
HE-000529	254-84	Tom Missimer	26.56290	-81.41897	FELDA	30	410
HE-000555	254-84	Tom Missimer	26.65579	-81.43057	SEARS	27	440
HE-000557	254-84	Tom Missimer	26.71336	-81.51996	ALVA	13	340
HE-000559	254-84	Tom Missimer	26.67965	-81.50719	ALVA	24	340
HE-000570	254-84	Tom Missimer	26.62114	-81.50394	ALVA SE	27	200
HE-000616	254-84	Tom Missimer	26.71284	-81.40329	SEARS	25	323
HE-000621	254-84	Tom Missimer	26.71854	-81.46192	SEARS	18	350
HM-000005	120-82	Tom Missimer	26.75155	-81.54090	TELEGRAPH SWAMP SE	17	200
HM-000157	256-85	Tom Missimer	26.58819	-81.55870	ALVA SE	27	168
HM-000158	256-85	Tom Missimer	26.58843	-81.56269	ALVA SE	26	163
HM-000159	256-85	Tom Missimer	26.59426	-81.56075	ALVA SE	26	155
HM-000160	256-85	Tom Missimer	26.58917	-81.56455	ALVA SE	26	53
HM-000161	256-85	Tom Missimer	26.59433	-81.56356	ALVA SE	26	149
HM-000177	256-85	Tom Missimer	26.59715	-81.56056	ALVA SE	25	142
HM-000178	256-85	Tom Missimer	26.59765	-81.55927	ALVA SE	26	120
HM-000179	256-85	Tom Missimer	26.59837	-81.55802	ALVA SE	25	160
HM-000180	256-85	Tom Missimer	26.55249	-81.56098	ALVA SE	29	180
HM-000181	256-85	Tom Missimer	26.55042	-81.55844	ALVA SE	29	230
HM-000182	256-85	Tom Missimer	26.54628	-81.56075	ALVA SE	30	200
HM-000183	256-85	Tom Missimer	26.55042	-81.55844	ALVA SE	29	350
HM-000191	256-85	Tom Missimer	26.59294	-81.55468	ALVA SE	25	165
HM-000192	256-85	Tom Missimer	26.55388	-81.56352	ALVA SE	29	200
HM-000219	256-85	Tom Missimer	26.55426	-81.55719	ALVA SE	30	163
HM-000220	256-85	Tom Missimer	26.55266	-81.55817	ALVA SE	34	209
HM-000281	310-86	Tom Missimer	26.57497	-81.12792	GRAHAM MARSH	25	1045
HM-000291	311-87	Tom Missimer	26.50379	-81.09032	DEVILS GARDEN SLOUGH	24	120
HM-000885	310-86	Tom Missimer	26.60671	-81.14999	GRAHAM MARSH	27	300
HM-000900	310-86	Tom Missimer	26.58796	-81.02152	DEVILS GARDEN SLOUGH	19	285
LM-000360	1119-91	Tom Missimer	26.63190	-81.91912	FORT MYERS NW	3	133
LM-000449	1037-91	Tom Missimer	26.59748	-81.88077	FORT MYERS SW	14	240
LM-000484	006-76	Tom Missimer	26.65001	-81.91082	FORT MYERS NW	5	175
LM-000485	005-76	Tom Missimer	26.63797	-81.92213	FORT MYERS NW	6	180
LM-000514	006-76	Tom Missimer	26.65195	-81.90890	FORT MYERS NW	5	210
LM-000566	254-84	Tom Missimer	26.69678	-81.95831	FORT MYERS NW	15	195
LM-000567	254-84	Tom Missimer	26.69992	-81.92721	FORT MYERS NW	13	280
LM-000568	254-84	Tom Missimer	26.71080	-81.88947	FORT MYERS NW	16	210
LM-000569	254-84	Tom Missimer	26.69604	-81.86761	FORT MYERS	12	163
LM-000571	254-84	Tom Missimer	26.71441	-81.80438	FORT MYERS	5	185
LM-000572	254-84	Tom Missimer	26.73824	-81.77636	FORT MYERS	19	390
LM-000573	254-84	Tom Missimer	26.73363	-81.71371	OLGA	24	265
LM-000574	254-84	Tom Missimer	26.72503	-81.66820	OLGA	7	480
LM-000575	254-84	Tom Missimer	26.72215	-81.61594	ALVA	17	305
LM-000576	254-84	Tom Missimer	26.72503	-81.56739	ALVA	16	515
LM-000580	254-84	Tom Missimer	26.61976	-81.97468	FORT MYERS SW	9	280
LM-000582	254-84	Tom Missimer	26.62215	-81.94200	FORT MYERS SW	8	300
LM-000583	254-84	Tom Missimer	26.62810	-81.87912	FORT MYERS NW	13	200
LM-000584	314-87	Tom Missimer	26.62214	-81.81407	FORT MYERS SE	15	225
LM-000585	314-87	Tom Missimer	26.61491	-81.76475	FORT MYERS SE	21	225

Well Number	Report Number	Data Source	Latitude	Longitude	24K Quad	Elevation (ft.)	Total Depth (ft.)
LM-000595	254-84	Tom Missimer	26.54590	-81.89752	FORT MYERS SW	7	195
LM-000597	302-86	Tom Missimer	26.54662	-81.87579	FORT MYERS SW	8	270
LM-000598	254-84	Tom Missimer	26.54591	-81.85386	FORT MYERS SE	18	210
LM-000600	254-84	Tom Missimer	26.54659	-81.82807	FORT MYERS SE	20	260
LM-000601	254-84	Tom Missimer	26.54841	-81.75844	FORT MYERS SE	25	243
LM-000602	254-84	Tom Missimer	26.56205	-81.68390	ALVA SW	28	360
LM-000603	003-76	Tom Missimer	26.55854	-81.66223	ALVA SW	28	238
LM-000604	003-76	Tom Missimer	26.56260	-81.60414	ALVA SE	29	303
LM-000605	254-84	Tom Missimer	26.56447	-81.56672	ALVA SE	29	323
LM-000617	254-84	Tom Missimer	26.52080	-81.62923	ALVA SW	29	540
LM-000822	419-88	Tom Missimer	26.76006	-81.92215	GILCHRIST	20	210
LM-000977	419-88	Tom Missimer	26.74519	-81.93588	FORT MYERS NW	16	225
LM-000978	18-78	Tom Missimer	26.74125	-81.93250	FORT MYERS NW	17	180
LM-000979	18-78	Tom Missimer	26.74497	-81.92805	FORT MYERS NW	19	160
LM-000980	18-78	Tom Missimer	26.74383	-81.93265	FORT MYERS NW	18	173
LM-000981	18-78	Tom Missimer	26.74374	-81.93303	FORT MYERS NW	18	159
LM-001244	23-78	Tom Missimer	26.50039	-81.92652	FORT MYERS SW	-1	16
LM-001246	23-78	Tom Missimer	26.50142	-81.92687	FORT MYERS SW	2	16
LM-001247	23-78	Tom Missimer	26.50166	-81.92734	FORT MYERS SW	3	16
LM-001249	23-78	Tom Missimer	26.50119	-81.93091	FORT MYERS SW	5	16
LM-001251	23-78	Tom Missimer	26.50156	-81.93043	FORT MYERS SW	1	16
LM-001253	23-78	Tom Missimer	26.50102	-81.93126	FORT MYERS SW	4	16
LM-001254	23-78	Tom Missimer	26.50054	-81.93088	FORT MYERS SW	3	16
LM-001440	254-84	Tom Missimer	26.55033	-81.91920	FORT MYERS SW	11	750
LM-001463	42-80	Tom Missimer	26.71205	-81.83813	FORT MYERS	12	200
LM-001488	42-80	Tom Missimer	26.71160	-81.83771	FORT MYERS	11	200
LM-001490	42-80	Tom Missimer	26.71699	-81.84252	FORT MYERS	11	100
LM-001491	42-80	Tom Missimer	26.72215	-81.83286	FORT MYERS	15	120
LM-001730	949-91	Tom Missimer	26.52091	-81.89924	FORT MYERS SW	6	220
LM-001958	141-82	Tom Missimer	26.59769	-81.75928	FORT MYERS SE	23	15
LM-001959	141-82	Tom Missimer	26.59764	-81.76606	FORT MYERS SE	26	36
LM-001960	141-82	Tom Missimer	26.59791	-81.76294	FORT MYERS SE	26	14
LM-001985	352-87	Tom Missimer	26.50001	-81.81580	FORT MYERS SE	16	20
LM-002058	279-86	Tom Missimer	26.58890	-81.74280	ALVA SW	26	255
LM-002061	279-86	Tom Missimer	26.55913	-81.74530	ALVA SW	28	240
LM-002069	136-83	Tom Missimer	26.74253	-81.91606	FORT MYERS NW	20	97
LM-002078	279-86	Tom Missimer	26.58155	-81.73668	ALVA SW	22	20
LM-002111	136-83	Tom Missimer	26.74291	-81.91625	FORT MYERS NW	20	100
LM-002175	419-88	Tom Missimer	26.74601	-81.93323	FORT MYERS NW	19	158
LM-002182	93-83	Tom Missimer	26.69429	-81.58276	ALVA	17	100
LM-002184	93-83	Tom Missimer	26.68608	-81.58263	ALVA	19	80
LM-002186	93-83	Tom Missimer	26.68399	-81.58239	ALVA	19	55
LM-002188	93-83	Tom Missimer	26.67377	-81.58216	ALVA	20	80
LM-002204	93-83	Tom Missimer	26.69020	-81.58283	ALVA	19	20
LM-002205	93-83	Tom Missimer	26.68744	-81.58269	ALVA	19	30
LM-002471	1022-91	Tom Missimer	26.70506	-81.61021	ALVA	9	114
LM-002544	345-87	Tom Missimer	26.71220	-81.62700	OLGA	12	126
LM-002576	279-86	Tom Missimer	26.56556	-81.74547	ALVA SW	28	43
LM-002577	279-86	Tom Missimer	26.57789	-81.74066	ALVA SW	26	35
LM-002578	279-86	Tom Missimer	26.57233	-81.74139	ALVA SW	24	46
LM-002579	279-86	Tom Missimer	26.57438	-81.73474	ALVA SW	26	38
LM-002581	279-86	Tom Missimer	26.57093	-81.73487	ALVA SW	27	26
LM-002587	302-86	Tom Missimer	26.53227	-81.89509	FORT MYERS SW	6	20
LM-002589	302-86	Tom Missimer	26.54327	-81.89703	FORT MYERS SW	1	20
LM-002590	302-86	Tom Missimer	26.53380	-81.90453	FORT MYERS SW	3	20
LM-002591	302-86	Tom Missimer	26.53683	-81.91148	FORT MYERS SW	3	20
LM-002770	359-87	Tom Missimer	26.73413	-81.72066	OLGA	10	15
LM-002838	351-87	Tom Missimer	26.50261	-81.81353	FORT MYERS SE	18	15
LM-002839	351-87	Tom Missimer	26.50430	-81.81172	FORT MYERS SE	18	25
LM-002840	351-87	Tom Missimer	26.50948	-81.81199	FORT MYERS SE	20	12
LM-002841	351-87	Tom Missimer	26.50623	-81.81283	FORT MYERS SE	19	10
LM-002920	363-87	Tom Missimer	26.57143	-81.73625	ALVA SW	25	28
LM-002921	363-87	Tom Missimer	26.57289	-81.73729	ALVA SW	31	30

Well Number	Report Number	Data Source	Latitude	Longitude	24K Quad	Elevation (ft.)	Total Depth (ft.)
LM-002922	363-87	Tom Missimer	26.57362	-81.73822	ALVA SW	26	33
LM-002923	363-87	Tom Missimer	26.57548	-81.73967	ALVA SW	26	32
LM-003503	1439-92	Tom Missimer	26.52153	-81.58452	ALVA SE	28	180
LM-003557	898-91	Tom Missimer	26.52339	-81.88110	FORT MYERS SW	10	55
LM-003640	1067-91	Tom Missimer	26.52086	-81.59216	ALVA SE	29	60
LM-003641	1067-91	Tom Missimer	26.51790	-81.59525	ALVA SE	29	46
LM-003642	1067-91	Tom Missimer	26.51685	-81.58704	ALVA SE	28	46
LM-003643	1067-91	Tom Missimer	26.50871	-81.58285	ALVA SE	29	52
LM-003644	1067-91	Tom Missimer	26.50854	-81.60332	ALVA SE	27	50
LM-003645	1067-91	Tom Missimer	26.50410	-81.58179	ALVA SE	28	62
LM-003646	1067-91	Tom Missimer	26.50102	-81.58955	ALVA SE	27	64
LM-003648	1067-91	Tom Missimer	26.50537	-81.60774	ALVA SE	27	18
LM-003671	1023-91	Tom Missimer	26.76856	-81.93562	GILCHRIST	21	28
LM-003673	1023-91	Tom Missimer	26.75413	-81.97522	GILCHRIST	18	28
LM-003790	1439-92	Tom Missimer	26.50938	-81.60631	ALVA SE	27	183
LM-003794	1439-92	Tom Missimer	26.50597	-81.58904	ALVA SE	28	164
LM-003795	1439-92	Tom Missimer	26.51289	-81.58227	ALVA SE	28	142
LM-003796	1439-92	Tom Missimer	26.50587	-81.59979	ALVA SE	29	163
LM-003797	1439-92	Tom Missimer	26.50039	-81.60775	ALVA SE	27	203
LM-003858	1439-92	Tom Missimer	26.52555	-81.59545	ALVA SE	27	140
LM-003861	1439-92	Tom Missimer	26.50120	-81.58044	ALVA SE	28	140
LM-003870	1588-93	Tom Missimer	26.51200	-81.72366	ALVA SW	28	200
LM-103791	1037-91	Tom Missimer	26.60532	-81.87220	FORT MYERS SE	14	30
LM-111991	1119-91	Tom Missimer	26.65350	-81.92283	FORT MYERS NW	11	13
LM-147192	1471-92	Tom Missimer	26.55611	-81.87228	FORT MYERS SE	10	15
LM-147792	1477-92	Tom Missimer	26.61980	-81.84679	FORT MYERS SE	17	25

APPENDIX C: M-SERIES SAMPLES UTILIZED FOR STUDY

This table lists data from FGS M-Series samples within the boundaries of the USGS Fort Myers 30 x 60 minute quadrangle utilized for the project. NOTE: Symbols are present on Plate 1 of OFMS 116 but are not labeled in order to keep the plate from becoming too crowded with labels.

M-Number	Sample Type	Formation	Data Source	24k Quad	Latitude	Longitude	Elevation (Feet)
M-9559	M-Series	TQsu	FGS	Hog Cypress	26.640023	-81.076626	20
M-9560	M-Series	TQsu	FGS	Felda NE	26.749267	-81.276573	13
M-9561	M-Series	TQsu	FGS	Felda NE	26.747353	-81.276980	15
M-9562	M-Series	TQsu	FGS	Felda NE	26.742877	-81.271794	15
M-9563	M-Series	TQsu	FGS	Felda NE	26.746404	-81.282918	16
M-9564	M-Series	TQsu	FGS	Felda NE	26.749841	-81.270075	14
M-9565	M-Series	TQsu	FGS	Fort Myers SE	26.599475	-81.812520	18
M-9567	M-Series	TQsu	FGS	Fort Myers SE	26.612020	-81.801357	16
M-9568	M-Series	TQsu	FGS	Fort Myers	26.789796	-81.717455	26
M-9569	M-Series	TQsu	FGS	Fort Myers	26.789796	-81.717455	24
M-9570	M-Series	TQsu	FGS	Telegraph Swamp	26.798060	-81.732370	27
M-9571	M-Series	TQsu	FGS	Tuckers Corner	26.800851	-81.750034	27
M-9572	M-Series	Tt	FGS	Alva	26.628913	-81.596566	23
M-9573	M-Series	Tt	FGS	Alva	26.628995	-81.583674	11
M-9574	M-Series	Tt	FGS	Alva	26.629094	-81.566533	11
M-9575	M-Series	Tt	FGS	Alva	26.644011	-81.572684	19
M-9576	M-Series	TQsu	FGS	Alva	26.643885	-81.591584	20
M-9577	M-Series	Tt	FGS	Alva	26.643885	-81.591584	18
M-9578	M-Series	TQsu	FGS	Alva	26.658338	-81.595560	20
M-9579	M-Series	Tt	FGS	Alva	26.658338	-81.595560	18
M-9580	M-Series	Tt	FGS	Alva	26.658271	-81.581048	21
M-9581	M-Series	Tt	FGS	Alva	26.658406	-81.569434	12
M-9582	M-Series	Tt	FGS	Alva	26.672811	-81.567103	13
M-9583	M-Series	Tt	FGS	Alva	26.672741	-81.574466	15
M-9584	M-Series	Tt	FGS	Alva	26.672831	-81.585981	12
M-9585	M-Series	Tt	FGS	Alva	26.676671	-81.590366	12
M-9587	M-Series	TQsu	FGS	Fort Myers	26.738233	-81.809570	7
M-9588	M-Series	Tt	FGS	Fort Myers	26.684090	-81.787113	9
M-9589	M-Series	Tt	FGS	Fort Myers	26.627990	-81.750080	16
M-9590	M-Series	Tt	FGS	Olga	26.636163	-81.745886	18
M-9591	M-Series	Tt	FGS	Alva SW	26.617865	-81.727166	21
M-9592	M-Series	Tt	FGS	Alva SW	26.615694	-81.727134	22
M-9593	M-Series	Tt	FGS	Alva SW	26.616509	-81.743564	18
M-9594	M-Series	Tt	FGS	Alva SW	26.591119	-81.694189	27
M-9595	M-Series	Tt	FGS	Alva SW	26.605630	-81.710443	25
M-9596	M-Series	TQsu	FGS	Alva SW	26.591676	-81.710157	27

M-Number	Sample Type	Formation	Data Source	24k Quad	Latitude	Longitude	Elevation (Feet)
M-9597	M-Series	Tt	FGS	Alva SW	26.611701	-81.640170	18
M-9598	M-Series	Tt	FGS	Alva SW	26.617186	-81.635085	22
M-9599	M-Series	TQsu	FGS	Sears	26.685239	-81.459475	23
M-9600	M-Series	Tt	FGS	Alva	26.672984	-81.607839	16
M-9601	M-Series	Tt	FGS	Olga	26.658074	-81.625898	19
M-9602	M-Series	TQsu	FGS	Olga	26.643809	-81.625885	21
M-9603	M-Series	TQsu	FGS	Olga	26.628189	-81.646107	18
M-9604	M-Series	Tt	FGS	Olga	26.657876	-81.650000	14
M-9605	M-Series	Tt	FGS	Olga	26.658046	-81.644202	12
M-9606	M-Series	TQsu	FGS	Olga	26.658154	-81.635106	15
M-9607	M-Series	Tt	FGS	Olga	26.642325	-81.660626	18
M-9608	M-Series	Tt	FGS	Olga	26.686070	-81.663224	12
M-9609	M-Series	Tt	FGS	Olga	26.661625	-81.679018	13
M-9610	M-Series	TQsu	FGS	Olga	26.634915	-81.686592	14
M-9611	M-Series	Tt	FGS	Olga	26.632408	-81.663257	16
M-9612	M-Series	Tt	FGS	Alva SW	26.624778	-81.665267	19
M-9613	M-Series	Tt	FGS	Alva SW	26.612985	-81.669839	23
M-9614	M-Series	Tt	FGS	Alva SW	26.576987	-81.677746	26
M-9615	M-Series	TQsu	FGS	Cleveland	26.978737	-81.876263	19
M-9616	M-Series	TQsu and Tt	FGS	Alva SW	26.613726	-81.629850	19
M-9617	M-Series	TQsu	FGS	Alva SW	26.610190	-81.629900	21
M-9618	M-Series	Tt	FGS	Alva SE	26.614658	-81.585665	19
M-9619	M-Series	Tt	FGS	Alva SE	26.617593	-81.565586	22
M-9620	M-Series	Tt	FGS	Alva	26.642692	-81.558298	21
M-9621	M-Series	Tt	FGS	Alva	26.662004	-81.566244	21
M-9622	M-Series	Tt	FGS	Alva	26.658232	-81.575029	20
M-9623	M-Series	Tt	FGS	Alva	26.629031	-81.574852	17
M-9624	M-Series	Tt	FGS	Alva SE	26.600140	-81.574423	23
M-9625	M-Series	Tt	FGS	Alva SE	26.589328	-81.566190	24
M-9626	M-Series	Tt	FGS	Alva SE	26.586321	-81.566577	23
M-9627	M-Series	Tt	FGS	Alva SE	26.571332	-81.573513	20
M-9628	M-Series	Tt	FGS	Alva SE	26.570833	-81.585525	25
M-9629	M-Series	Tt	FGS	Alva SE	26.589898	-81.583691	24
M-9630	M-Series	Tt	FGS	Alva SE	26.595211	-81.580709	25
M-9631	M-Series	Tt	FGS	Alva SE	26.600154	-81.591237	20
M-9632	M-Series	TQsu	FGS	Alva SE	26.547894	-81.612532	20
M-9638	M-Series	TQsu	FGS	Fort Myers SE	26.518865	-81.826466	12
M-9639	M-Series	TQsu	FGS	Fort Myers SE	26.529507	-81.859849	4
M-9640	M-Series	TQsu	FGS	Fort Myers SW	26.516391	-81.929811	4
M-9641	M-Series	TQsu	FGS	Fort Myers SW	26.512790	-81.950396	3

M-Number	Sample Type	Formation	Data Source	24k Quad	Latitude	Longitude	Elevation (Feet)
M-9642	M-Series	TQsu	FGS	Fort Myers NW	26.706480	-81.982212	5
M-9643	M-Series	TQsu	FGS	Fort Myers NW	26.710014	-81.963482	13
M-9644	M-Series	TQsu	FGS	Fort Myers NW	26.702142	-81.961113	16
M-9645	M-Series	TQsu	FGS	Fort Myers NW	26.689057	-81.974373	10
M-9646	M-Series	TQsu	FGS	Fort Myers NW	26.671063	-81.961780	4
M-9647	M-Series	TQsu	FGS	Fort Myers NW	26.732617	-81.954444	14
M-9648	M-Series	TQsu	FGS	Fort Myers NW	26.735709	-81.935440	5
M-9649	M-Series	TQsu	FGS	Fort Myers NW	26.739354	-81.927405	9
M-9650	M-Series	TQsu	FGS	Fort Myers NW	26.716647	-81.930834	16
M-9651	M-Series	TQsu	FGS	Fort Myers NW	26.694681	-81.944924	13
M-9652	M-Series	TQsu	FGS	Fort Myers NW	26.685765	-81.936095	12
M-9653	M-Series	TQsu	FGS	Fort Myers NW	26.648678	-81.966404	11
M-9654	M-Series	TQsu	FGS	Fort Myers	26.723622	-81.871032	11
M-9732	M-Series	TQsu	FGS	Fort Myers SE	26.592680	-81.765620	20
M-9733	M-Series	Tt	FGS	Olga	26.670160	-81.683745	16
M-9734	M-Series	Tt	FGS	Olga	26.664588	-81.667043	14
M-9735	M-Series	Tt	FGS	Olga	26.657650	-81.668345	14
M-9736	M-Series	Tt	FGS	Olga	26.643497	-81.653727	15
M-9737	M-Series	Tt	FGS	Alva	26.687402	-81.567833	15
M-9738	M-Series	Tt	FGS	Alva	26.676777	-81.566413	19
M-9739	M-Series	Tt	FGS	Alva	26.628739	-81.615578	17
M-9741	M-Series	TQsu	FGS	Fort Myers SE	26.510915	-81.800675	13
M-9742	M-Series	TQsu	FGS	Fort Myers	26.632745	-81.757059	19
M-9743	M-Series	TQsu	FGS	Cleveland	26.900087	-81.957477	24
M-9744	M-Series	TQsu	FGS	Fort Myers SE	26.610973	-81.833299	16
M-9745	M-Series	Tt	FGS	Olga	26.715623	-81.687997	7
M-9746	M-Series	Tt	FGS	Alva	26.730672	-81.533551	13
M-9747	M-Series	TQsu	FGS	Alva	26.746963	-81.533206	13
M-9748	M-Series	TQsu	FGS	Telegraph Swamp SE	26.826770	-81.508063	39
M-9749	M-Series	TQsu	FGS	Goodno	26.765361	-81.358467	14
M-9750	M-Series	TQsu	FGS	Sears	26.740811	-81.378591	13
M-9751	M-Series	TQsu	FGS	Sears	26.743165	-81.385403	16
M-9752	M-Series	TQsu	FGS	Sears	26.748403	-81.388599	15
M-9753	M-Series	TQsu	FGS	Grassy Marsh	26.736640	-81.223385	15
M-9754	M-Series	TQsu	FGS	Grassy Marsh	26.700012	-81.224111	18
M-9755	M-Series	TQsu	FGS	Fort Myers SE	26.599765	-81.844064	14
M-9756	M-Series	Tt	FGS	Alva	26.725460	-81.577920	8
M-9757	M-Series	TQsu	FGS	Moore Haven	26.827614	-81.104584	8
M-9758	M-Series	TQsu	FGS	Hog Cypress	26.661981	-81.120518	19
M-9759	M-Series	TQsu	FGS	Hog Cypress	26.647208	-81.119948	18

M-Number	Sample Type	Formation	Data Source	24k Quad	Latitude	Longitude	Elevation (Feet)
M-9760	M-Series	TQsu	FGS	Devils Garden Slough	26.617935	-81.119567	22
M-9761	M-Series	TQsu	FGS	Sears	26.743679	-81.405703	13
M-9762	M-Series	Tt	FGS	Alva	26.687097	-81.591298	17
M-9763	M-Series	Tt	FGS	Alva	26.687156	-81.582254	16
M-9764	M-Series	Tt	FGS	Alva	26.680004	-81.579302	19
M-9770	M-Series	TQsu	FGS	Fort Myers SE	26.576567	-81.862377	9
M-9771	M-Series	TQsu	FGS	Fort Myers SW	26.577032	-81.879260	2
M-9772	M-Series	TQsu	FGS	Fort Myers SE	26.588702	-81.870552	10
M-9775	M-Series	TQsu	FGS	Bermont	26.999555	-81.775337	36
M-9777	M-Series	TQsu	FGS	Sears	26.646932	-81.375594	23
M-9778	M-Series	TQsu	FGS	Sears	26.664549	-81.431434	24
M-9790	M-Series	TQsu	FGS	Felda SE	26.552859	-81.297227	28
M-9791	M-Series	TQsu	FGS	Felda SE	26.510874	-81.279231	22
M-9792	M-Series	TQsu	FGS	Felda SE	26.532440	-81.292289	27
M-9794	M-Series	TQsu	FGS	Telegraph Swamp NW	26.950780	-81.705619	52
M-9795	M-Series	TQsu	FGS	Telegraph Swamp NW	26.951554	-81.707132	40
M-0033	Historical M-Series	TQsu	FGS	La Belle	26.766111	-81.409167	1
M-0047	Historical M-Series	TQsu	FGS	La Belle	26.766111	-81.437778	13
M-0133	Historical M-Series	TQsu	FGS	La Belle	26.781944	-81.378333	10
M-0309	Historical M-Series	TQsu	FGS	Sears	26.749167	-81.470000	1
M-0317	Historical M-Series	TQsu	FGS	Moore Haven	26.835833	-81.086667	13
M-0323	Historical M-Series	TQsu	FGS	Felda	26.547222	-81.433889	35
M-0328	Historical M-Series	TQsu	FGS	Goodno	26.790000	-81.312222	12
M-0408	Historical M-Series	Tt	FGS	Olga	26.724444	-81.717500	0
M-0409	Historical M-Series	Tt	FGS	Alva	26.716111	-81.620556	1
M-0444	Historical M-Series	TQsu	FGS	Olga	26.675556	-81.715833	14
M-0558	Historical M-Series	TQsu	FGS	Olga	26.720278	-81.641111	1
M-0837	Historical M-Series	TQsu	FGS	Alva	26.719167	-81.598333	11
M-0838	Historical M-Series	TQsu	FGS	Alva	26.719167	-81.598333	11
M-0841	Historical M-Series	TQsu	FGS	La Belle	26.769722	-81.474444	21
M-0842	Historical M-Series	TQsu	FGS	La Belle	26.769722	-81.474444	21
M-1218	Historical M-Series	TQsu	FGS	Sears	26.738333	-81.491667	9
M-2139	Historical M-Series	TQsu	FGS	La Belle	26.769444	-81.442778	1
M-2179	Historical M-Series	TQsu	FGS	Alva	26.745000	-81.508611	1
M-2180	Historical M-Series	Tqsu	FGS	La Belle	26.765556	-81.409722	12

M-Number	Sample Type	Formation	Data Source	24k Quad	Latitude	Longitude	Elevation (Feet)
M-2181	Historical M-Series	TQsu	FGS	La Belle	26.765556	-81.409722	12
M-2182	Historical M-Series	TQsu	FGS	La Belle	26.765556	-81.409722	12
M-2183	Historical M-Series	TQsu	FGS	La Belle	26.765556	-81.409722	12
M-2184	Historical M-Series	TQsu	FGS	La Belle	26.765556	-81.409722	12
M-2185	Historical M-Series	TQsu	FGS	La Belle	26.765556	-81.409722	12
M-2186	Historical M-Series	Tqsu	FGS	La Belle	26.765556	-81.409722	12
M-2187	Historical M-Series	Tqsu	FGS	La Belle	26.765556	-81.409722	12
M-3000	Historical M-Series	TQsu	FGS	Graham Marsh	26.547222	-81.171111	28
M-3003	Historical M-Series	Tt	FGS	Alva	26.727222	-81.522778	1
M-3004	Historical M-Series	TQsu	FGS	La Belle	26.766667	-81.406944	1
M-3005	Historical M-Series	TQsu	FGS	La Belle	26.766667	-81.406944	1
M-3006	Historical M-Series	TQsu	FGS	La Belle	26.766667	-81.406944	1
M-3010	Historical M-Series	MISSING	FGS	La Belle	26.768889	-81.438611	3
M-3197	Historical M-Series	TQsu	FGS	La Belle	26.768889	-81.445000	1
M-3198	Historical M-Series	TQsu	FGS	La Belle	26.768889	-81.445000	1
M-3199	Historical M-Series	TQsu	FGS	La Belle	26.768889	-81.445000	1
M-3200	Historical M-Series	TQsu	FGS	La Belle	26.768889	-81.445000	1
M-3201	Historical M-Series	TQsu	FGS	La Belle	26.768889	-81.445000	1
M-3202	Historical M-Series	TQsu	FGS	La Belle	26.768889	-81.445000	1
M-3203	Historical M-Series	TQsu	FGS	La Belle	26.768889	-81.445000	1
M-3204	Historical M-Series	TQsu	FGS	La Belle	26.768889	-81.445000	1
M-3205	Historical M-Series	TQsu	FGS	Alva	26.745000	-81.510556	1
M-3206	Historical M-Series	TQsu	FGS	Alva	26.745000	-81.510556	1
M-3207	Historical M-Series	TQsu	FGS	Alva	26.745000	-81.510556	1
M-3208	Historical M-Series	Qu	FGS	Alva	26.745000	-81.510556	1
M-3209	Historical M-Series	Qu	FGS	Alva	26.745000	-81.510556	1
M-3276	Historical M-Series	Tt	FGS	La Belle	26.769722	-81.430556	17
M-3277	Historical M-Series	Tt	FGS	La Belle	26.769722	-81.430556	17
M-3278	Historical M-Series	Tt	FGS	La Belle	26.769722	-81.430556	17
M-3279	Historical M-Series	Tt	FGS	La Belle	26.769722	-81.430556	17
M-3280	Historical M-Series	Tt	FGS	La Belle	26.769722	-81.430556	17
M-3281	Historical M-Series	Tt	FGS	La Belle	26.769722	-81.430556	17
M-3282	Historical M-Series	Tt	FGS	La Belle	26.769722	-81.430556	17

M-Number	Sample Type	Formation	Data Source	24k Quad	Latitude	Longitude	Elevation (Feet)
M-3283	Historical M-Series	TQsu	FGS	Goodno	26.788889	-81.309167	1
M-3284	Historical M-Series	TQsu	FGS	Goodno	26.788889	-81.309167	1
M-3285	Historical M-Series	TQsu	FGS	Goodno	26.788889	-81.309167	1
M-3286	Historical M-Series	TQsu	FGS	Goodno	26.788889	-81.309167	1
M-3969	Historical M-Series	TQsu	FGS	Alva	26.743611	-81.510556	12
M-3970	Historical M-Series	TQsu	FGS	Alva	26.743611	-81.510556	12
M-3971	Historical M-Series	TQsu	FGS	Alva	26.743611	-81.510556	12
M-3972	Historical M-Series	TQsu	FGS	Alva	26.743611	-81.510556	12
M-3973	Historical M-Series	Qu	FGS	Alva	26.743611	-81.510556	12
M-5193A	Historical M-Series	Qu	FGS	La Belle	26.768889	-81.445000	1
M-5193B	Historical M-Series	Qu	FGS	La Belle	26.768889	-81.445000	1
M-5193C	Historical M-Series	TQsu	FGS	La Belle	26.768889	-81.445000	1
M-5193D	Historical M-Series	TQsu	FGS	La Belle	26.768889	-81.445000	1
M-5193E	Historical M-Series	Qu	FGS	La Belle	26.768889	-81.445000	1
M-5193F	Historical M-Series	TQsu	FGS	La Belle	26.768889	-81.445000	1
M-5193G	Historical M-Series	TQsu	FGS	La Belle	26.768889	-81.445000	1
M-5193H	Historical M-Series	Tt	FGS	La Belle	26.768889	-81.445000	1