

**Attachment A  
As of December 4, 2018**

Terracon Consultants, Inc. (Terracon) has prepared the following on behalf of Grace Community Church (applicant) to assist with the preparation of the decision document (Environmental Assessment/Statement of Findings) for the proposed Cathedral Lakes project. The topics addressed below were provided in the Corps request for additional information dated November 23, 2018.

- 1. Avoidance and Minimization:** To avoid and minimize impacts, the applicant used a screening process that chose a site that predominately consisted of uplands with fewer aquatic resources than other available sites. The applicant also incorporated modified design elements from what was originally submitted for review and authorization. The original Cathedral Lakes construction plan involved a complete fill of the observed freshwater ponds and forested wetland area located on the project site. As originally designed, the proposed project would have involved a permanent loss of 40.7 acres of open water habitat and 3.4 acres of freshwater forested wetlands. After receiving the results of the WOUS delineation conducted by Terracon, Grace Community Church altered their development plan. The re-designed project has resulted in the complete avoidance of the high quality forested wetland area. The re-designed project would result in a 15.56-acre aerated lake and the filling of approximately 25.14 acres of open water habitat. Avoiding and minimizing impacts to these onsite aquatic resources would allow retained connectivity between onsite and offsite aquatic resources, which would help avoid fragmentation of aquatic resources habitats in the sub watershed. Grace Community Church also proposed to purchase mitigate credits from Tarkington Bayou Mitigation Bank for the impact to the open water habitat.

**Purpose and Need:** The purpose of the project is to provide a mixed-use development consisting of residential and commercial properties adjacent to the applicant. Regarding the viability of the development site, Houston-Galveston Area Council, anticipates that the household population change between 2015 and 2025 will be 293,000 people which is a 55 percent growth rate. Therefore, there is a local need within the rapidly growing south-central Montgomery County region for residential and commercial facilities in close proximity to the Interstate 45 corridor. Specifically, the development needs to be located in an area with easy access to major thoroughfares.

The Grace Community Church facility was constructed in 2007. Since that time, the Church has experienced continued growth as a congregation. This growth, and anticipated future continued growth, of the congregation requires the need for expanding the Grace Community Church Campus and facilities. The construction of Cathedral Lakes Campus allows for Grace Community Church to utilize adjacent undeveloped land to expand their existing campus and sell development land to help fund the church expansion. Also, this prevents illegal dumping, illegal activities, arson fires, and hunting that has existed at the site prior to Grace Community Church constructing their existing facilities. The Cathedral Lakes Campus serves as a public and private beneficial use area for Montgomery County residents and visitors including mixed-use developments, natural areas, recreational areas, and public waterways while creating a more stable ecosystem by managing an apparent sand mining area in a more sustainable manner. The construction of Cathedral Lakes Campus will further stimulate economic growth for Grace Community Church to assist in the proposed necessary expansion of their campus. Grace Community Church worked with Montgomery County to construct a county road beginning at the IH-45 service road, extending east and north transecting the Grace Community Church property, and connecting to Rayford Road north of the project site. This road relieves traffic congestion at the IH-45/Rayford Road/Sawdust

Road intersection located northwest of the project site. The construction of this road additionally provides an increased opportunity for access to the undeveloped tract of land. The undeveloped tract of land was unsafe for access and use and was not serviceable. The construction of Cathedral Lakes Campus improves the existing conditions of the area and will allow for safe, serviceable access to the area for Montgomery County residents and visitors.

Originally, development of this property was not feasible since much of the land was in the floodway, property values tanked after the 2008 economic crises in the USA, and the sandpits on this property were in horrendous shape and required extensive repair and fill. The situation started to change in 2011 when Exxon announced the new location of their world headquarters right across I-45 from the property. Property values rose significantly with this announcement. Also, our engineering firm, Cobb Fendley, completed an engineering study regarding the flood way and flood plain lines that related to our property. Based on this engineering study, Grace Community Church submitted the Conditional Letter of Map Revision (CLOMR) request on December 22, 2014 after coordination with Harris and Montgomery Counties. FEMA approved the CLOMR (Case 15-06-1071R) on January 14, 2016. In addition, the Exxon headquarters project, in addition to other sites in the area provided free proctored dirt to our development. These actions saved millions of dollars. When Grace first began considering the Cathedral Lakes property for development, they engaged professional expertise. The concept was for the Church to be in the midst of a mixed-use development. Engaged in the ongoing process to define the development has been Knudson LLP, Cobb Fendley, RVI Planning, Sappington Engineering, and John Wilbois Design. The process determined that the site was appropriate for residential, commercial, and office use. The site plan is the result of the iterative design process. Finally, the availability of additional land has enabled the church to adjust the size of the lake to prevent further water damage from the DD6 ditch and make the layout of the development more aesthetic.

**2. Siting Criteria:** The applicant considered the following siting criteria to determine the preferred alternative:

1. Located in the south-central Montgomery County region in close proximity to the Interstate 45 corridor with easy access to major thoroughfares.
2. Located close to the existing church campus. This is important to those who attend the church, since moves disrupt congregations.
3. Able to be easily acquired or purchased by coordinating with a small number of landowners.
4. Sized between 60 and 150 acres to allow for the appropriate amount of development to be practicable.
5. The church will also consider existing buildings with adequate expansion room, if the site is preferable to the current church site, and the current site can be sold.
6. Satisfy the minimum separation requirements to other existing developments of similar nature.
7. Able to easily connect to existing or proposed utility lines (e.g., gas, electric, water, and sewer).

Five alternatives were considered based on the above siting criteria. (Two off site alternatives, two on site alternative, and the no-action alternative.)

**3. Off and On-Site Alternatives:**

- a. Description of Alternatives: Parcels of vacant land located in the south-central Montgomery County Region in close proximity to the Interstate 45 corridor were evaluated for suitability as off-site alternative sites for Cathedral Lakes Project. Existing buildings with adequate

expansion room, if the site is preferable to the current church site, and the current site can be sold. Four alternative site locations were analyzed. Reproductions of the U.S. Fish and Wildlife Service's National Wetlands Inventory (NWI) maps, topographic maps, and aerial photographs were used to evaluate the potential presence and extent of aquatic resources on the properties. The following narrative is the analysis of those sites.

- b. **No Action Alternative:** The no-action alternative would avoid impacts to all aquatic resources within the project area; however, it would not meet the applicant's purpose of providing safety for the preexisting commercial building to the north due to erosion and slope failure. It would not satisfy the existing need for residential and commercial facilities in this region in close proximity to the Interstate 45 corridor. This alternative is not viable since the sand pit walls need to be fixed due to the danger of collapsing. This alternative is not the least environmentally damaging practicable alternative (LEDPA) because it fails to meet the project purpose.

**c. Offsite Alternatives**

In addition to potential offsite alternatives the applicant traversed the area to assess possible sites that potentially available for purchase. These efforts yielded two potential sites: one site measuring approximately 61 acres in size (Offsite Alternative 1); one measuring approximately 6 acres in size with a large building and parking (Offsite Alternative 2).

- i. **Offsite Alternative 1:** The 61 acres site is located east of I-45 close to Highway 242. The 61-acre parcel had good visibility from I-45 which is important for the church community. It was located in the same general community of the current church. However, upon a wetland investigation, 83 percent of the site was suspect jurisdictional wetlands. The cost of wetland mitigation for the site would have not have been economically feasible. The site was small in size than the current campus, with approximately 51 acres of high quality wetland habitat. This alternative is not the LEDPA because it would impact high quality wetlands and fails to meet the project purpose.
- ii. **Offsite Alternative 2:** Offsite Alternative 2 was located at 610 Sawdust Road, Spring, TX 77380. The property consists of 6 acres of land including parking and an old Walmart store/warehouse type building. Grace briefly considered this alternative since the facility was large enough for a buildout to accommodate a very large church. If this alternative was pursued, Grace would have to sell the current church parcel located in the Cathedral Lakes Campus but retain title to the remaining Cathedral Lakes Campus. After an evaluation, it was determined that the parking was inadequate without room for additional expansion. Further, the site was sold shortly after Grace began our evaluation. This alternative is not the LEDPA because it fails to meet the project purpose.

There are no otherwise practicable offsite alternative sites that could "reasonably be obtained, utilized, expanded or managed" in order to fulfill the basic purpose of the proposed activity. The current property proposed for the Cathedral Lakes campus is in a superb location, at the entrance to the Woodlands, one of the fastest growing areas in Texas. Further, the church could not leave this site as it is with decaying sand-pit walls.

#### a. Onsite Alternatives

The Applicant undertook an analysis of onsite alternative designs to determine the optimal design that would fulfill the project's purpose and need while avoiding and minimizing adverse impacts to aquatic resources to the extent practicable. The critical elements that were used to determine the preferred project design are provided below.

- Accommodate the space necessary for the required expansion and adequate parking for the church;
- Provide sufficient access to project facilities and amenities, as well as adjacent and nearby commercial and retail developments; and
- Provide for residential and commercial buildings to achieve purchase and/or rental prices that render the project financially viable and that are appropriate for the surrounding market and commensurate with the level of amenities provided within the project and in the area immediately surrounding the project.

The applicant examined the following onsite design alternatives.

- Onsite Alternative 1:** The applicant considered a full buildout of the proposed project site with infrastructure and components. With a total buildout of the site, no water habitat (15.56-acre aerated lake) would be located on the project site. This alternative is not the LEDPA because it impacts 40.7 acres of open waters.
  - Onsite Alternative 2:** (Applicant's Preferred Alternative): Onsite Alternative 2, the Applicant's Preferred Alternative, would have general development across the proposed project site. Church campus, commercial property, a lake, a community park, multi-family property, and associated parking would be positioned around the lake. When Grace first began considering the Cathedral Lakes property for development, they engaged professional expertise. The concept was for the Church to be in the midst of a mixed-use development. Engaged in the ongoing process to define the development has been Knudson LLP, Cobb Fendley, RVI Planning, Sappington Engineering, and John Wilbois Design. The process determined that the site was appropriate for residential, commercial, and office use. The site plan is the result of the iterative design process. Three roads and a land bridge would be on the project site. This siting alternative would require impacting waters of the United States. In an effort to reduce the amount of impacts to waters of the United States, the applicant has designed this alternative to have smaller commercial properties and fewer parking spaces than Onsite Alternative 1. This alternative would result in a 15.56-acre aerated lake located within the campus and the loss of 25.14 acres of open waters of the United States. This alternative meets all of the required siting criteria and has fewer impacts to waters of the United States than other practicable alternatives (i.e., Offsite Alternative 1 and Onsite Alternative 1). This alternative is the LEDPA.
- iii. **Any Known information on the public interest factors:**

**Subpart B - Compliance with the Guidelines:** In light of the overall public interest, the documents and factors concerning this permit application, as well as the stated views of other interested Federal and non-Federal agencies and the concerned public, relative to the proposed work in

waters of the United States, The Corps concludes that the proposed discharge of fill material complies with the 404(b)(1) Guidelines. The following statements demonstrate this compliance, and further support is provided in the various subpart discussions that follow.

- The discharge associated with Onsite Alternative 2 represents the LEDPA
- The proposed discharge is in open water habitat; however, the applicant clearly demonstrated that practicable alternatives are not available that would be less damaging.
- The proposed activity does not appear to violate applicable state water quality standards or effluent standards prohibited under Section 307 of the Clean Water Act, does not appear to jeopardize the existence of federally listed endangered or threatened species or their habitat, and does not violate requirements of any federally designated marine sanctuary.
- The proposed activity will not cause or contribute to significant degradation of waters of the United States including adverse effects on human health, life stages or organisms dependent on the aquatic ecosystem, ecosystem diversity, productivity and stability, and recreational, aesthetic, and economic value.
- Appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem.

Candidate Disposal Site Delineation: The water depth for the aerated open water feature onsite to be impacted will be approximately 17-27 feet. The open water feature did not appear to display a regular current with velocity or direction. Turbulence or significant stratification are not expected to occur within the open water feature. None of the aquatic resources at the project site to be impacted are wetlands.

**Subpart C - Potential Impacts on Physical and Chemical Characteristics of the Aquatic Ecosystem:**

- Substrate: After completion of the project and based on the onsite avoidance measures, the discharge will not adversely affect bottom-dwelling organisms at the site; water circulation, current patterns, or temperature will not be significantly impacted.
- Suspended particulates/turbidity: The discharge will not result in greatly elevated levels of suspended particulates in the water column for a substantial amount of time; oxygen depletion is not anticipated as the fill material is select fill; the applicant will implement a Storm Water Pollution Prevention Plan for the proposed construction activities which will further protect open water habitat; suspended particulates or turbidity will not be significantly impacted.
- Water: Based on the onsite avoidance measures, the discharge will not adversely affect the water column of the open water since it will still be connected to offsite open water habitat; the water column will not be significantly impacted.
- Current patterns and water circulation: Any currents present in the open water feature will not be significantly impacted and will be connected to offsite open water habitat.
- Normal water fluctuation: The discharge will not significantly impact the nutrient and dissolved oxygen balance of the aquatic ecosystem; aquatic animals will not be or the offsite connected open water habitat.
- Salinity gradients: The salinity gradient will not be significantly impacted as a result of the project; changes to the circulation pattern are not anticipated.

**Subpart D - Potential Impacts on Biological Characteristics of the Aquatic Ecosystem:**

- Threatened and Endangered Species: Analysis of whether there are any known threatened or endangered species, or any designated critical habitat, in the vicinity likely to be affected by the proposed work indicates the absence of any such species or habitat, and that the project will have no effect on federally listed threatened and endangered species or their habitats.
- Fish, crustaceans, mollusks, and other aquatic organisms in the food web: The discharge will fill or remove some of the open water habitat, thereby altering the water column in some areas, but the water column would be avoided in other areas onsite. Based on the onsite avoidance measures, the discharge will not adversely affect the water column of the open water feature as the avoided portion will still be connected to offsite open water habitat; it is anticipated that aquatic organisms present in the open water habitat at the site will be able to continue to exist onsite which is also connected to offsite open water habitat. Habitat elimination and fragmentation would be avoided; the water column will not be significantly impacted.
- Other wildlife: The project will not significantly impact breeding or nesting areas, escape cover, travel corridors, or preferred food sources for resident and transient wildlife species associated with the aquatic environment. Wildlife will be able to disperse to surrounding properties and aquatic resources will be located onsite and adjacent to the site.

**Subpart E - Potential Impacts on Special Aquatic Sites:**

- Sanctuaries and refuges: Sanctuaries and refuges are not located in the project site vicinity. The project will not significantly impact sanctuaries or refuges.
- Wetlands: The project will not significantly impact any wetlands.
- Mud flats: Mud flats are not located on the project site. The project will not significantly impact mud flats.
- Vegetated shallows: Vegetated shallows are not located on the project site. The project will not significantly impact vegetated shallows.
- Coral reefs: Coral reefs are not located on the project site. The project will not significantly impact coral reefs.
- Riffle and pool complexes: Riffle and pool complexes are not located on the project site. The project will not significantly impact riffle and pool complexes.

**Subpart F - Potential Effects on Human Use Characteristics:**

- Municipal and private water supplies: The project will not result in impacts to municipal and private water supplies. The project site is not located within a water conservation area or district. The project will not affect the color, taste, chemical content and suspended particulate concentration in such a way as to reduce the fitness of the water for consumption. The project will not significantly impact water supplies.
- Recreational and commercial fisheries: The project will not result in impacts to recreational and commercial fisheries. The project is not located in an area utilized as a fishery. The project will not significantly impact recreational and commercial fisheries.

- Water-related recreation: The project will convert open water sand pits into a lake that can be used for water-related recreation. The project is not currently located in an area utilized as a recreation area and the aquatic resources onsite do not support recreation activities.
- Aesthetics: The aesthetics of the project area are not significantly valuable with existing urban and suburban development and the impacts. The project impact of converting the sand pits would significantly improve the aesthetics in the area. The aesthetics would not be significantly impacted, individually or cumulatively.
- Parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves: The project will not result in impacts to these resources. The project will not significantly impact these resources and will not modify the aesthetic, educational, historical, recreational and/or scientific qualities for these resources.

#### **Subpart G - Evaluation and Testing:**

- General evaluation of fill material: The proposed fill material is not likely to be a carrier of contaminants because it will be clean select fill. Given this, additional testing is not required because the sources are sufficiently removed from source of pollution to provide reasonable assurance that the proposed discharge material is not a carrier of contaminants.

#### **Subpart H - Actions to Minimize Adverse Effects:**

##### Actions concerning the location of the discharge:

- The applicant has located and confined the discharge to minimize smothering of organisms.
- The applicant selected a disposal site at which the substrate is composed of material similar to that being discharged

##### Actions controlling the material after discharge:

- The applicant will maintain and contain discharged material properly to prevent point and nonpoint sources of pollution.
- The applicant will discharge fill material avoiding periods of unusual high wind or high water flows.

##### Actions affecting the method of dispersion:

- The applicant will orient fill material mound to minimize undesirable obstruction to the water current or circulation pattern and will utilize natural bottom contours to minimize the size of the mound.
- The applicant will manage discharges to confine and minimize the release of suspended particulates to give decreased turbidity and to maintain light penetration for organisms.
- The applicant will set limitations on the amount of material to be discharged per unit of time or volume of receiving water.

##### Actions related to technology:

- The applicant will use appropriate equipment or machinery, including protective devices.

- The applicant will employ appropriate maintenance and operation on equipment or machinery including adequate training, staffing, and working procedures.
- The applicant will employ appropriate machinery and methods of transport of the material for discharge.

Actions affecting plant and animal populations:

- The applicant will avoid changes in water current and circulation patterns which would interfere with the movement of animals.
- The applicant will time discharge to avoid spawning and migration seasons.

Actions affecting human use:

- The applicant has selected disposal sites which are not valuable as natural aquatic areas.
- The applicant has selected a site outside of the vicinity of a public water supply intake.

Other actions:

- The applicant will implement a Storm Water Pollution Prevention Plan during construction activities onsite in order to avoid storm water and sediment runoff into onsite (and offsite) avoided wetlands and open water habitat.

iv. **General Public Interest Review:** Not all of the possible public interest review factors are particularly relevant to the review of this project; however, the factors are addressed below.

a. Conservation:

The project has been designed in a way to minimize impacts to waters of the United States, resulting in 3.4 acre of forested wetlands that will be avoided by the project. An additional 15.56 open-water aerated lake will be constructed, and mitigation credits will be purchased from Tarkington Bayou Mitigation Bank.

b. Economics: The project will provide increased tax revenue and needed residential and commercial space for Montgomery County.

c. Aesthetics: To some members of the public, the destruction of any portion of natural habitat now present in the project area is an affront to their aesthetic values. Development historically brings additional people and traffic. Noise levels in areas previously not affected would increase due to the additional traffic. The project area is not a destination spot for the public, and no intrinsic aesthetic values were identifying during the public comment period. The aesthetics of the project area are not significantly valuable within the existing urban and suburban development, and the impacts on aesthetics from the project would not be significant, individually or cumulatively. This project improves the aesthetics, since it corrects dangerous and aesthetically offensive sand pits.

d. General Environmental Concerns: The project does not pose other general environmental concerns.

e. Wetlands: The proposed project will avoid impacts to 3.4 acres of non-tidal forested wetlands.



- f. Historic Properties: The applicant reviewed available information, including the National Register of Historic Places and the Texas Historic Sites Atlas, to evaluate if the proposed project would likely have an effect on historic properties in the vicinity of the site. A pedestrian survey was complete on the project site and the applicate received concurrence from Texas Historical Commission that the project would not effect cultural / historical properties on the project site.
- g. Fish and Wildlife Values: During the proposed construction activities, there would be temporary minor adverse impacts on wildlife living in the area until the area achieves equilibrium. The site is surrounded by existing roadways, an existing railroad, and undeveloped properties. The vicinity of the proposed project already contains commercial developments, as well as ample other surrounding habitats comprising wooded, open space, and waterbodies where species will be able to disperse. The preferred alternative has been designed to minimize habitat fragmentation and promote aquatic resource connectivity.
- h. Flood Hazards: The project site is located within the 100-year floodplain; however, the project site has received a CLOMR. At completion of the proposed project, the finish grade will be above the 500-year floodplain.
- i. Floodplain Values: The applicate is working with FEMA and has received a CLOMR for the project site. Mitigation has been approved for the project site and the project will not affect other floodplain values.
- j. Land Use: The project will alter the land use through a shift from undeveloped land to residential and commercial properties. This shift is contemplated in land use plans for the local area and is in the public interest because it serves to meet the residential and commercial needs of the rapidly growing area of Montgomery County.
- k. Navigation: The project is being reviewed in pursuant of a Section 404 of the Clean Water Act and is not located within a Section 10 water. The project will have no effect on navigation.
- l. Shore Erosion and Accretion: The project is not located along a shoreline. The project will have no effect on shore erosion and accretion.
- m. Recreation: The project is not located in an area utilized as a recreation area by the public. The project will have no effect on recreation.
- n. Water Supply and Conservation: The project is not located within a water conservation district and will not affect local water supply.
- o. Water Quality: Temporary turbidity may occur during construction operations, resulting in minor impacts to fish and wildlife habitat and other biota. No lasting adverse water quality impacts are foreseeable.
- p. Energy Needs: The project will not provide energy products for consumption by the public. The project will not affect energy needs.
- q. Essential Fish Habitat (EFH): The project area is outside of the coastal zone and no EFH resources are present.

- r. Federal Projects: The project will not adversely impact any Federal Project.
  - s. Safety: Required construction equipment will be kept on uplands within the applicant's property and will be safely labeled and lighted. The project includes residential and commercial development and does not pose a threat to public safety.
  - t. Food and Fiber Production: The project site does not contribute to food and/or fiber production, and therefore, the proposed project will not result in a substantial loss of food production.
  - u. Mineral Needs: The project will not affect mineral needs or contribute to the exploration of minerals.
  - v. Endangered Species: The proposed project will have no effect on federally listed threatened and endangered species because suitable habitats for the federally listed species is not present at the site. The proposed action area is not located within designated critical habitat.
  - w. Consideration of Property Ownership: The applicant currently owns the property. The project does not present property ownership issues.
  - x. Needs and Welfare of the People: Montgomery County is currently experiencing and is expected to continue to experience rapid population growth creating the need for residential and commercial developments. Without commercial and retail amenities and pedestrian walkways, the project's "walkability score" would decrease, meaning the site would not provide safe, convenient opportunities for walking, biking, or otherwise accessing key amenities such as grocery stores, medical offices, retail shops, and restaurants.
  - y. Relative Extent of the Public and Private Need for the Proposed Work: This area of Montgomery County is experiencing substantial growth which is projected to continue for years to come. The project provides suitable housing and commercial business opportunities to accommodate the anticipated growth of the area. The project satisfies a public and private need for more residential and commercial properties.
  - z. Extent and Permanence of the Beneficial and/or Detrimental Effects that the Proposed Work is Likely to Have on the Public and Private Use to Which the Area is Suited: Currently the project area is not being utilized by the public. The project provides beneficial effects to the area by providing suitable housing and commercial business opportunities to accommodate the anticipated growth in the area.
- v. **Consideration of Cumulative Impacts:**
- a. Direct and Indirect Effects of the Proposed Activity: The project would result in direct effects to open waters of the United States. Specifically, the project would result in the filling of 25.14 acres of open water habitat. During construction, temporary increases in turbidity may occur onsite and downgradient. Turbidity impacts will be minimized by onsite Best Management Practices and will subside as the site stabilizes. Upland areas would be impacted as part of the project. The project would result in minor indirect effects including storm water and sediment runoff from the site post-construction; however, these effects will be handled in accordance with applicable storm water management plans and will not result in significant impacts.

- b. Geographic Scope for the Cumulative Effects Assessment: The project is located within the Spring Creek watershed (Hydrologic Unit Code 12030106). This watershed is the appropriate geographic scope for the cumulative effects assessment. Furthermore, Montgomery County should be considered.
- c. Watershed or Other Appropriate Geographic Area and Rationale for Selection: The project is located within the Spring Creek watershed (Hydrologic Unit Code 12030106). This watershed is the appropriate geographic scope for the cumulative effects assessment as it relates to water, vegetation, threatened and endangered species, and wildlife. Montgomery County should be considered as the appropriate geographic scope for socioeconomic and environmental justice considerations. Consideration for soils and geology should be limited to area impacted by construction. The geographic scope for impacts on land use, cultural resources, visual resources, and air and noise impacts from construction are appropriately limited to the distance of 0.25 mile, representing the geographic extent of where those impacts may be felt.
- d. Affected Environment: The affected environment should be assessed within the Spring Creek watershed with respect to water, vegetation, threatened and endangered species, and wildlife. Resources including socioeconomic and environmental justice should be considered within Montgomery County. Soils and geology should be limited to the area impacted by construction. land use, cultural resources, visual resources, air quality, and noise should be considered within a distance of 0.25 mile from the site. Aquatic resources, vegetated areas, suitable habitat for federally listed threatened and endangered species, and a variety of wildlife are within the watershed. The general area in the vicinity of the project location consists of dense urban and suburban areas with many residential and commercial developments with pockets or small areas consisting of other land types and uses. The project site consists predominately of herbaceous uplands and open water habitat. The majority of the site is vegetated although it does not consist of sensitive or otherwise protected or noteworthy vegetative species. The site does not exist within a pristine area and it does not have unique resources associated with it. Existing developments in the vicinity of the site have previously caused habitat fragmentation and loss of aquatic resources. Documented cultural resources of significance are not located on the site or in the site's vicinity. The project would result in a shift in land use from undeveloped vegetated land and abandoned sand pits to residential and commercial developed property, although this is consistent with land use within Montgomery County and in the vicinity of the site.
- e. Environmental Consequences: The impacts of this project would be the loss of 25.14 acres of open water habitat. Combined with the impacts associated with past, current, and reasonably foreseeable projects, such as roadway improvements, drainage relief ponds, residential developments, and commercial developments, impacts are expected to result in minimal impacts to the aquatic ecosystem. Similar developments are proposed and currently under USACE review in the project's vicinity within Montgomery County which would result in impacts to waters of the United States; however, these proposed impacts are not anticipated to result in significant environmental consequences individually or cumulatively.

When considering the overall impacts that will result from this project, in relation to the overall impacts from similar past, present, and reasonably foreseeable future projects, their cumulative impacts are not considered to be significantly adverse. It is likely that similar projects will be

submitted in the future, which will go through a comparable review process. Specific resources are addressed below.

- Water: The project would improve the quality of water at the site. The project will not individually or cumulatively negatively impact water.
- Vegetation: The project would pose minor impacts to vegetation at the site, which will result in some present-day vegetative communities continuing to exist at the site. The project will not individually or cumulatively significantly impact vegetation.
- Threatened and Endangered Species: The project site does not contain suitable habitat for federally listed threatened and endangered species listed in Montgomery County. The project site does not contain designated critical habitat. The project will not individually or cumulatively significantly impact threatened and endangered species.
- Wildlife: The project site would pose minor impacts to wildlife which may utilize the present-day site including habitat conversion. The project will reduce habitat fragmentation and avoidance measures have been implemented to allow for wildlife dispersal. The project will not individually or cumulatively significantly impact wildlife.
- Socioeconomics: The project would not result in a shift in socioeconomics in Montgomery County as it is similar to other surrounding developments. The project will not individually or cumulatively significantly impact socioeconomics.
- Environmental Justice: The project would not result in measurable impacts to minority and low-income communities within Montgomery County. The project is similar to other surrounding development projects needed for the population growth of Montgomery County. The project will not individually or cumulatively significantly impact minority and low-income communities.
- Soils and Geology: Soils will be disturbed at the site for preparation of building pads and grading activities. Some areas will be avoided which will result in keeping the soils as they exist present-day. The project would not measurably affect soils and geologic conditions. The project will not individually or cumulatively significantly impact minority and low-income communities.
- Land Use: The land use at the present-day site is predominately vegetated undeveloped land and abandon sand pits. The project would shift the land use at the site to residential and commercial developments which is consistent with land use patterns in the vicinity of the site. The project will not individually or cumulatively significantly impact land use.
- Cultural Resources: Documented cultural resources are not located at the site or within the vicinity of the site. The project will not individually or cumulatively significantly impact cultural resources.
- Visual Resources and Aesthetics: The aesthetics of the project area are not significantly valuable with existing urban and suburban development. The project will not individually or cumulatively significantly impact visual resources and aesthetics.
- Air Quality: The project would result in a temporary increase in air emissions associated with construction equipment and dust dispersal associated with normal construction activities. These impacts would be temporary and normal conditions would return following completion of the development. The project will not individually or cumulatively significantly impact air quality.
- Noise: The project would result in a temporary increase in noise levels in the vicinity of the project associated with construction equipment and construction activities. Following completion of the development, minor noise level increases may exist based on a

population increase in the area. The project will not individually or cumulatively significantly increase noise levels.

Impacts resulting from the proposed project are minor and will be felt in a portion of the Spring Creek watershed. According to GIS data, approximately 6% forested wetlands and 1% is herbaceous wetlands. Approximately 30% of the area is grassland, cropland, or pastureland. Approximately 14% of the area is a mixture of shrub/scrub, deciduous, and mixed forest land. Approximately 33% of the watershed is mixed developed area and open space areas. Approximately 13% of the watershed is evergreen forest. Approximately 1% of the watershed is open water. The remainder of the watershed contained a mixture of barren land, streams and canals, transportation areas (roads) and industrial properties. In the past 10 years, Montgomery County experienced a 55.14% growth from the last U.S. Census, making the County the 24<sup>th</sup> fastest-growing County in the United States. It is likely that land use now may reflect an increase in residential areas given Montgomery County's population growth rate in the past 10 years. The proposed project is a similar land use when compared to other projects constructed in the watershed. Loss of wetland habitat, water quality impacts, and fragmentation of undeveloped habitat due to development are historical concerns within the watershed.

Overall, the project will result in minimal environmental impacts.

The beneficial effects associated with the utilization of the property would be permanent, and would include enhancement of the County's tax base and the creation of residential and commercial properties to meet the growing demand for residential and commercial properties in the area.

- f. Mitigation to Avoid, Minimize, or Compensate for Cumulative Effects: The applicant has avoided and minimized impacts to waters of the United States to the maximum extent practicable. To compensate for the impacts to waters of the United States, the applicant has agreed to purchase the appropriate number of functional credit units (FCUs) from approved wetland mitigation bank. Specifically, 12.3 FCUs will be purchased from Tarkington Bayou Mitigation Bank to compensate for the impacts to the open water impacts as detailed below. This compensation will ensure the continued enhancement and preservation of wetlands in the region.

Tarkington Bayou Mitigation Bank: 5.2 FCUs of Temporary Storage of Surface Water (Physical) credits, 3.4 FCUs of Maintenance of Plant and Animal Communities (Biological) credits, and 3.7 FCUs of Removal of Sequestration of Elements and Compounds (Chemical) credits. These values are based on the functional assessment and compensate for impacts to 40.7 open waters.

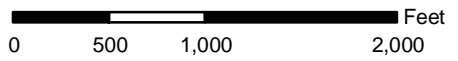
When considering the overall impacts that will result from the proposed activity, in relation to the overall impacts from past, present, and reasonably foreseeable future activities, the incremental contribution of the proposed activity to cumulative impacts in the area are not considered to be significant. Compensatory mitigation will be required to help offset the impacts to eliminate or minimize the proposed activity's incremental contribution to cumulative effects within the geographic area.

Attachment B:

Illustration/Diagram	Page
Project Site: Vicinity Map	15
1960 Topographic Map	16
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2016 Topographic Map	19
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- Grace Community Church Property (±168-Acres)
- 2018 Cathedral Lake - Aerated (±15.56-Acres)
- Basins



DATA SOURCES:  
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**SWG-2013-00680**  
**Grace Community Church**  
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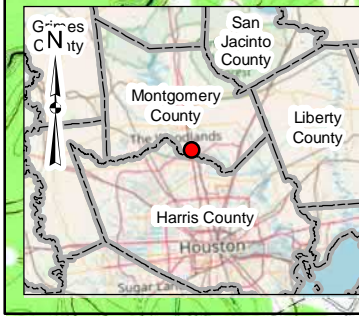
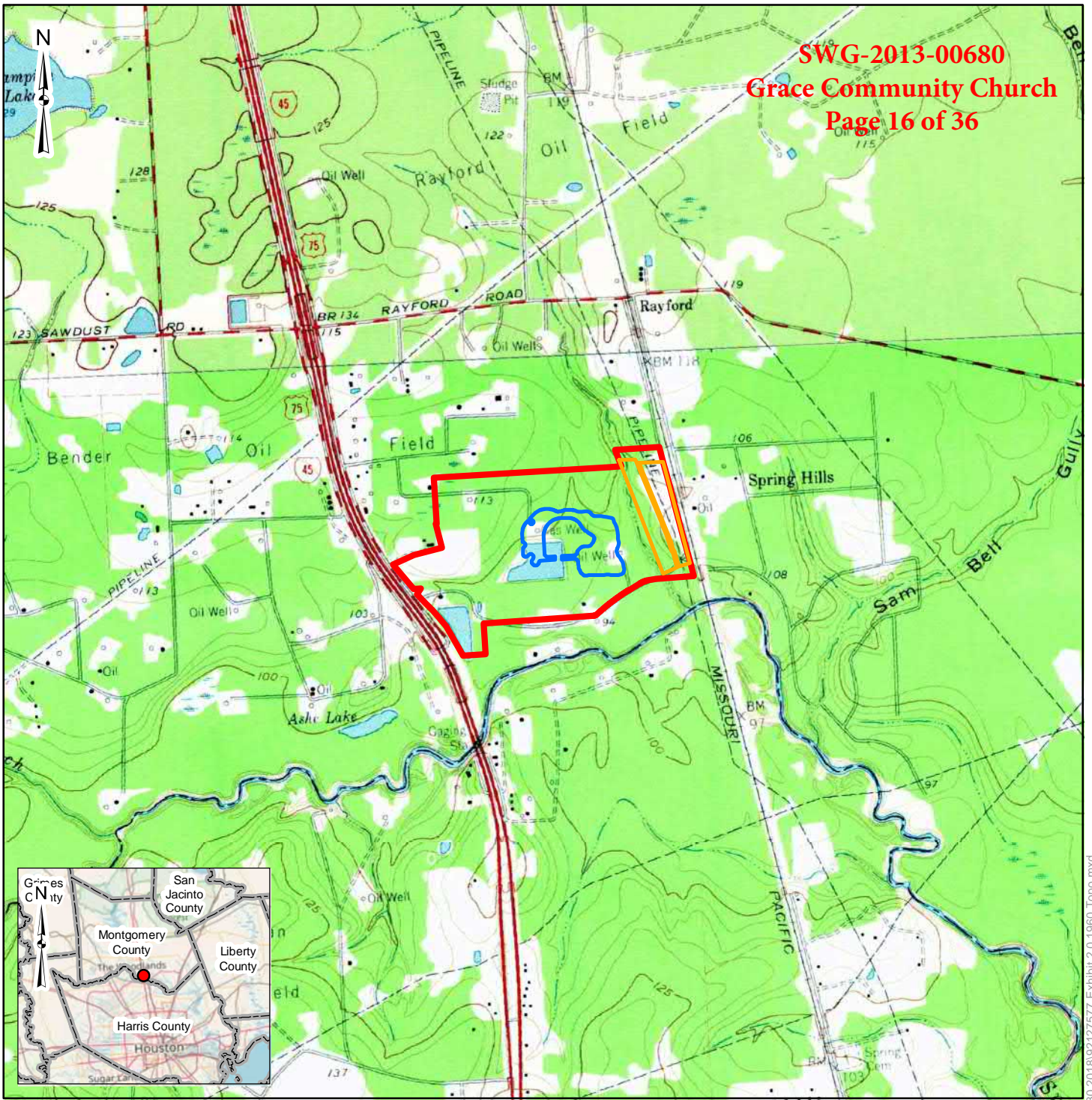
Project No.:	92127577
Date:	Nov 2018
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Reviewed By:	GCH



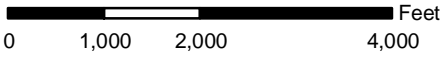
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<b>Vicinity Map</b>
Grace Community Church The Woodlands, Montgomery County, Texas

<b>Exhibit</b>
<b>1.0</b>



- Grace Community Church Property (±168-Acres)
- 2018 Cathedral Lake - Aerated (±15.56-Acres)
- Basins



DATA SOURCES:  
 © OpenStreetMap (and) contributors, CC-BY-SA, 1960 Spring, Texas and 1961 Tamina, Texas 7.5 Minute USGS Quadrangle Maps

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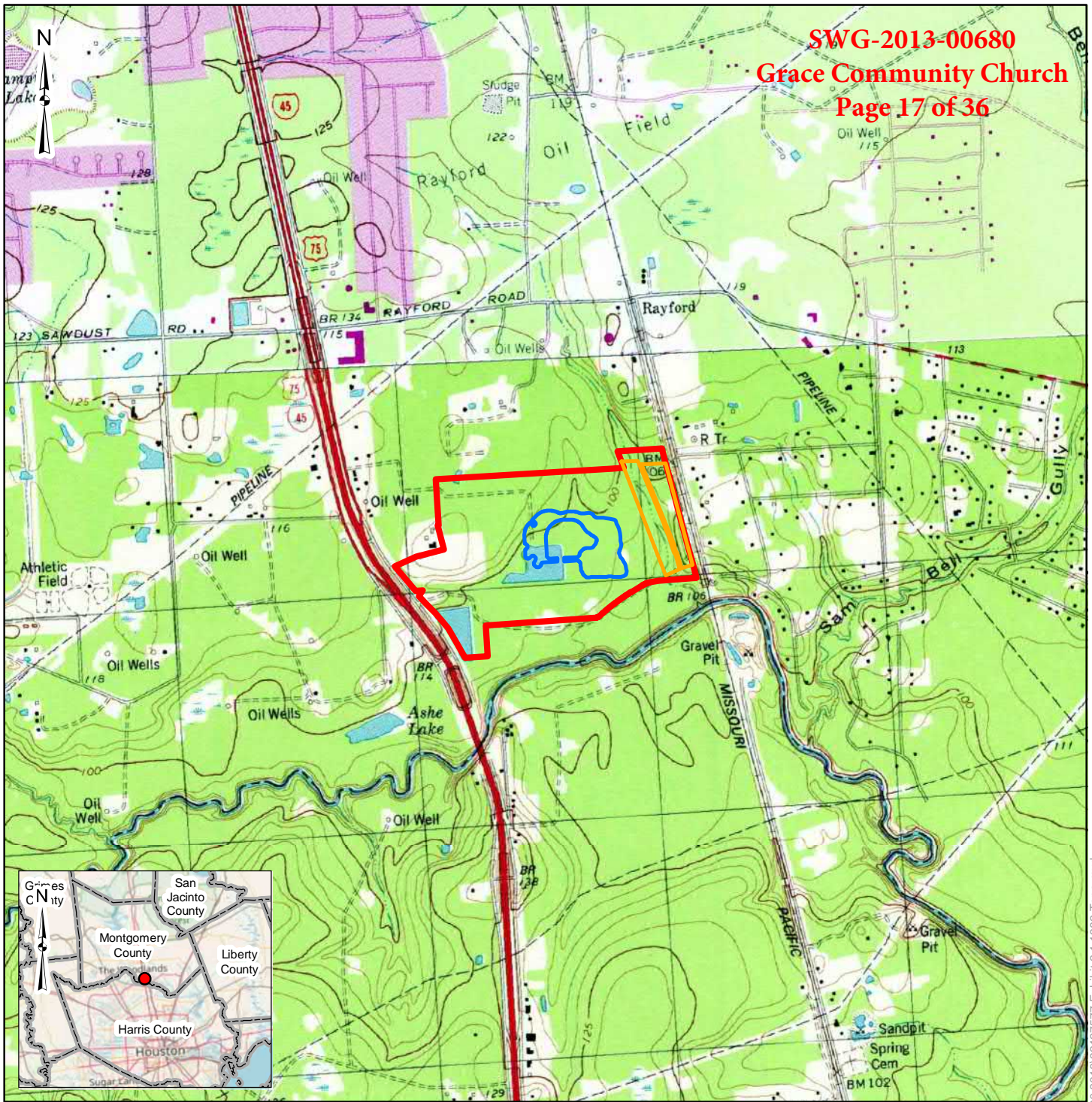


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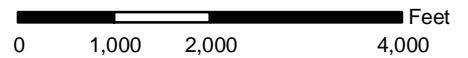
<b>1960 Topographic Map</b>
Grace Community Church The Woodlands, Montgomery County, Texas

<b>Exhibit</b>
<b>2.0</b>





- Grace Community Church Property (±168-Acres)
- 2018 Cathedral Lake - Aerated (±15.56-Acres)
- Basins



DATA SOURCES:  
 © OpenStreetMap (and) contributors, CC-BY-SA, 1982 Spring, Texas and 1961 Tamina (Photorevised 1979), Texas 7.5 Minute USGS Quadrangle Maps

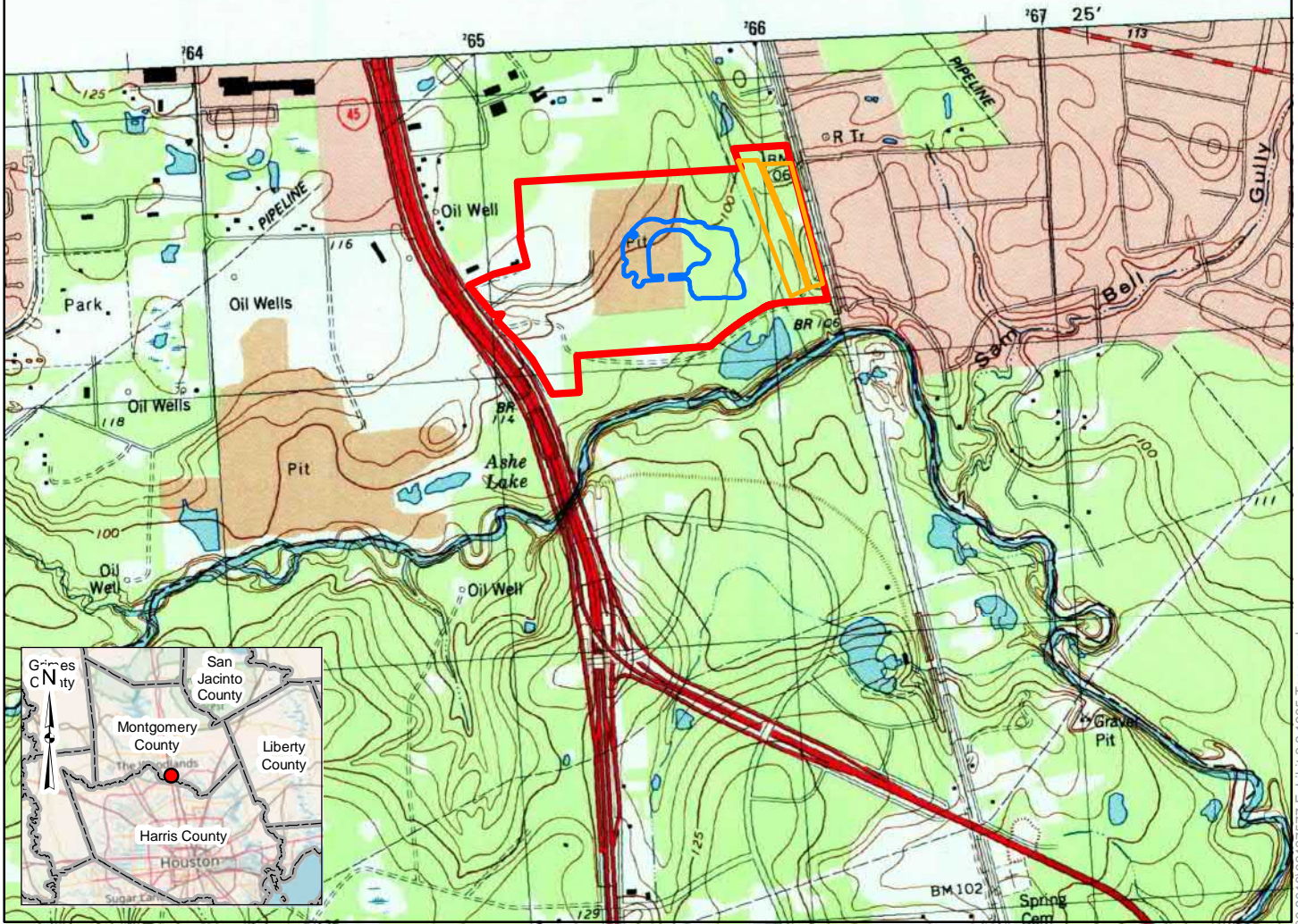
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Reviewed By:	GCH



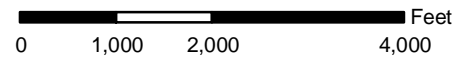
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<b>1982 Topographic Map</b>
Grace Community Church The Woodlands, Montgomery County, Texas

<b>Exhibit</b>
<b>2.1</b>



- Grace Community Church Property (±168-Acres)
- 2018 Cathedral Lake - Aerated (±15.56-Acres)
- Basins



DATA SOURCES:  
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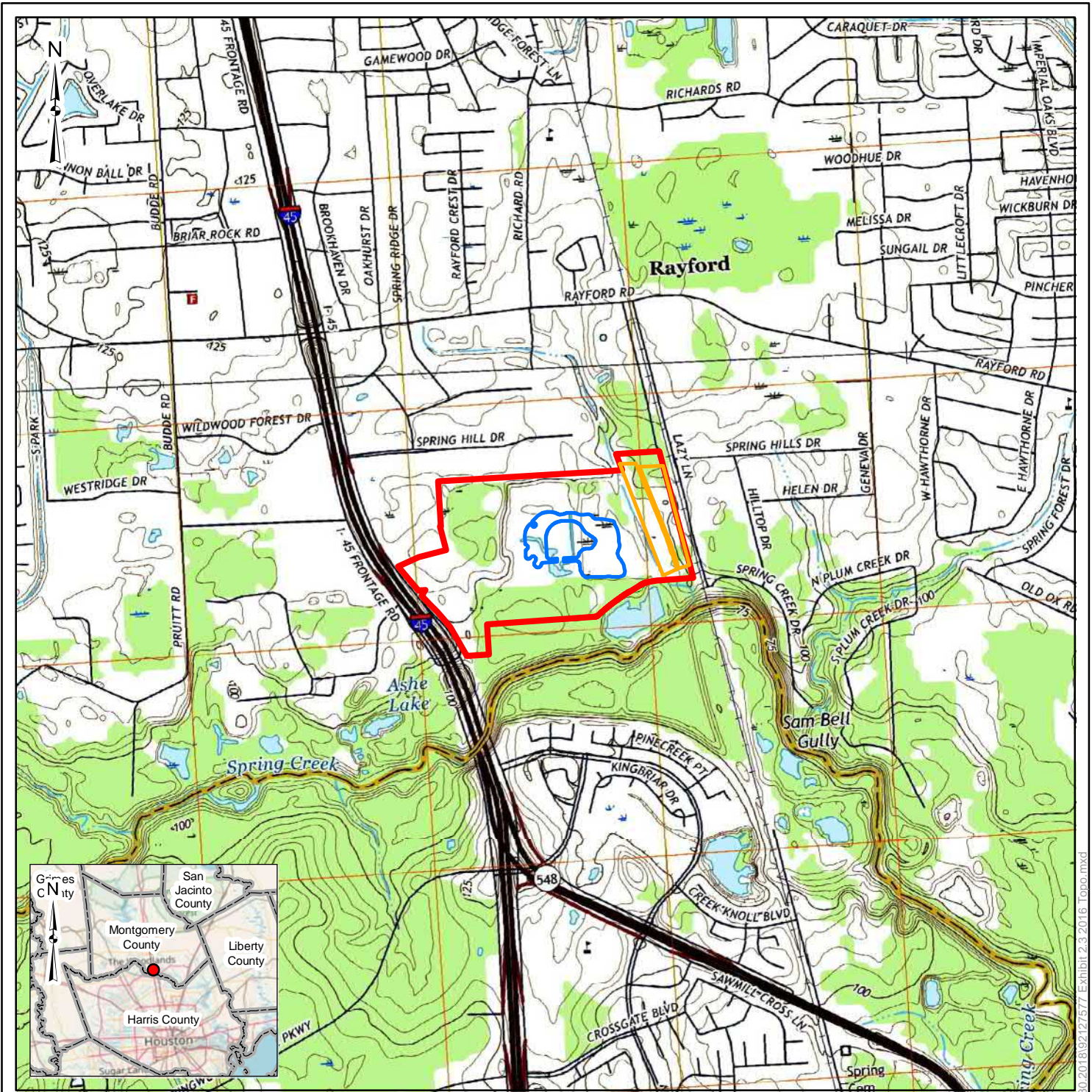
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Date:	Nov 2018
Drawn By:	REW
Reviewed By:	GCH



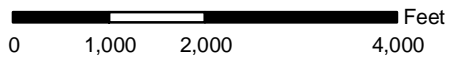
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<b>1995 Topographic Map</b>
Grace Community Church The Woodlands, Montgomery County, Texas

<b>Exhibit</b>
<b>2.2</b>



- Grace Community Church Property (±168-Acres)
- 2018 Cathedral Lake - Aerated (±15.56-Acres)
- Basins



DATA SOURCES:  
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**Grace Community Church**  
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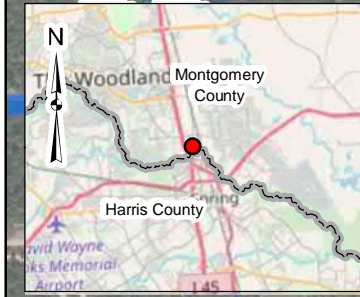
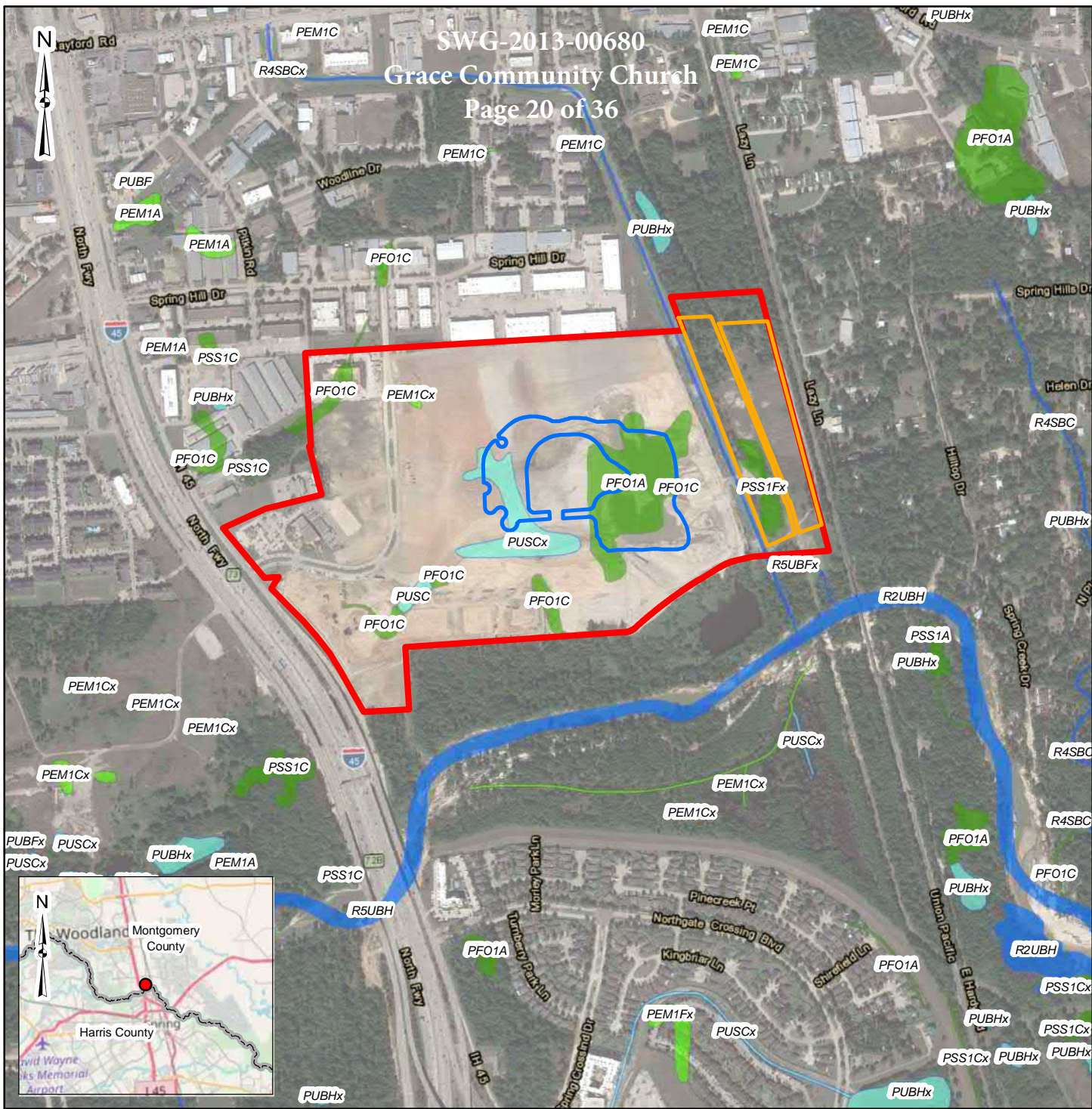
Project No.:	92127577
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Drawn By:	REW
Reviewed By:	GCH

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<b>2016 Topographic Map</b>
Grace Community Church The Woodlands, Montgomery County, Texas

<b>Exhibit</b>
<b>2.3</b>

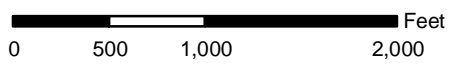
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- ▭ Grace Community Church Property (±168-Acres)
- ▭ 2018 Cathedral Lake - Aerated (±15.56-Acres)
- ▭ Basins

- USFWS NWI Features**
- ✕ Freshwater Emergent Wetland
  - ✕ Freshwater Forested/Shrub Wetland
  - ✕ Freshwater Pond

✕ Riverine



DATA SOURCES:  
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 September 21, 2017 USFWS NWI Digital Vector Data

Project No.:	92127577
Date:	Nov 2018
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Reviewed By:	GCH

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National Wetland Inventory Map

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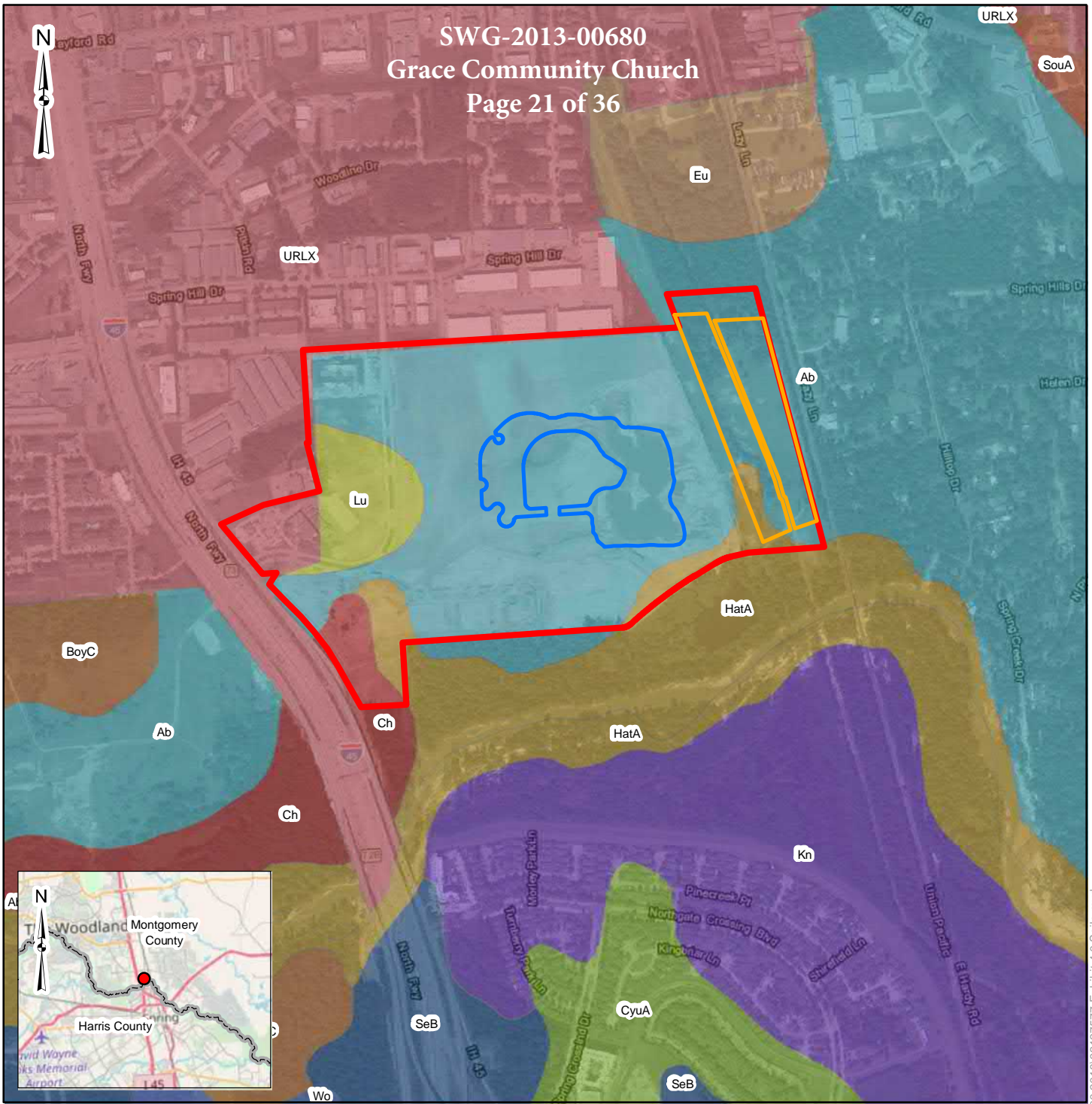
Grace Community Church  
 The Woodlands, Montgomery County, Texas

Exhibit

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3.0

SWG-2013-00680  
 Grace Community Church  
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- |   |  |   |   |
|---|--|---|---|
| Grace Community Church Property (±168-Acres)      | Ch - Alaga fine sand   | Lu - Briley loamy fine sand                             |   |
| 2018 Cathedral Lake - Aerated (±15.56-Acres)      | CyuA - Cyfair-Urban land complex, 0 to 1 percent slopes                      | SeB - Segno fine sandy loam, 1 to 3 percent slopes      |   |
| Basins  | Eu - Kenney loamy fine sand, 0 to 2 percent slopes                           | SouA - Sorter-Urban land complex, 0 to 1 percent slopes | DATA SOURCES:<br>© OpenStreetMap (and) contributors, CC-BY-SA<br>Esri, HERE, Garmin, © OpenStreetMap contributors, October 28, 2017 Aerial Photograph Courtesy of Google Earth, September 14 and 16, 2018 USDA NRCS SSURGO database for Montgomery and Harris Counties, Texas |
| <b>USDA NRCS Soils</b>                            | HatA - Hatliff-Pluck-Kian complex, 0 to 1 percent slopes, frequently flooded | URLX - Urban land                                       |   |
| Ab - Landman fine sand                            | Kn - Kenney loamy fine sand, 0 to 2 percent slopes                           | Wo - Wockley fine sandy loam, 0 to 1 percent slopes     |   |
| BoyC - Boy loamy fine sand, 1 to 5 percent slopes |  |   |   |

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Date:	Nov 2018
Drawn By:	REW
Reviewed By:	GCH



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**Montgomery County Soils Map**

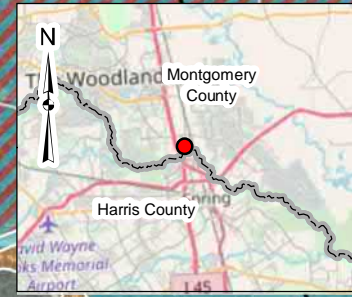
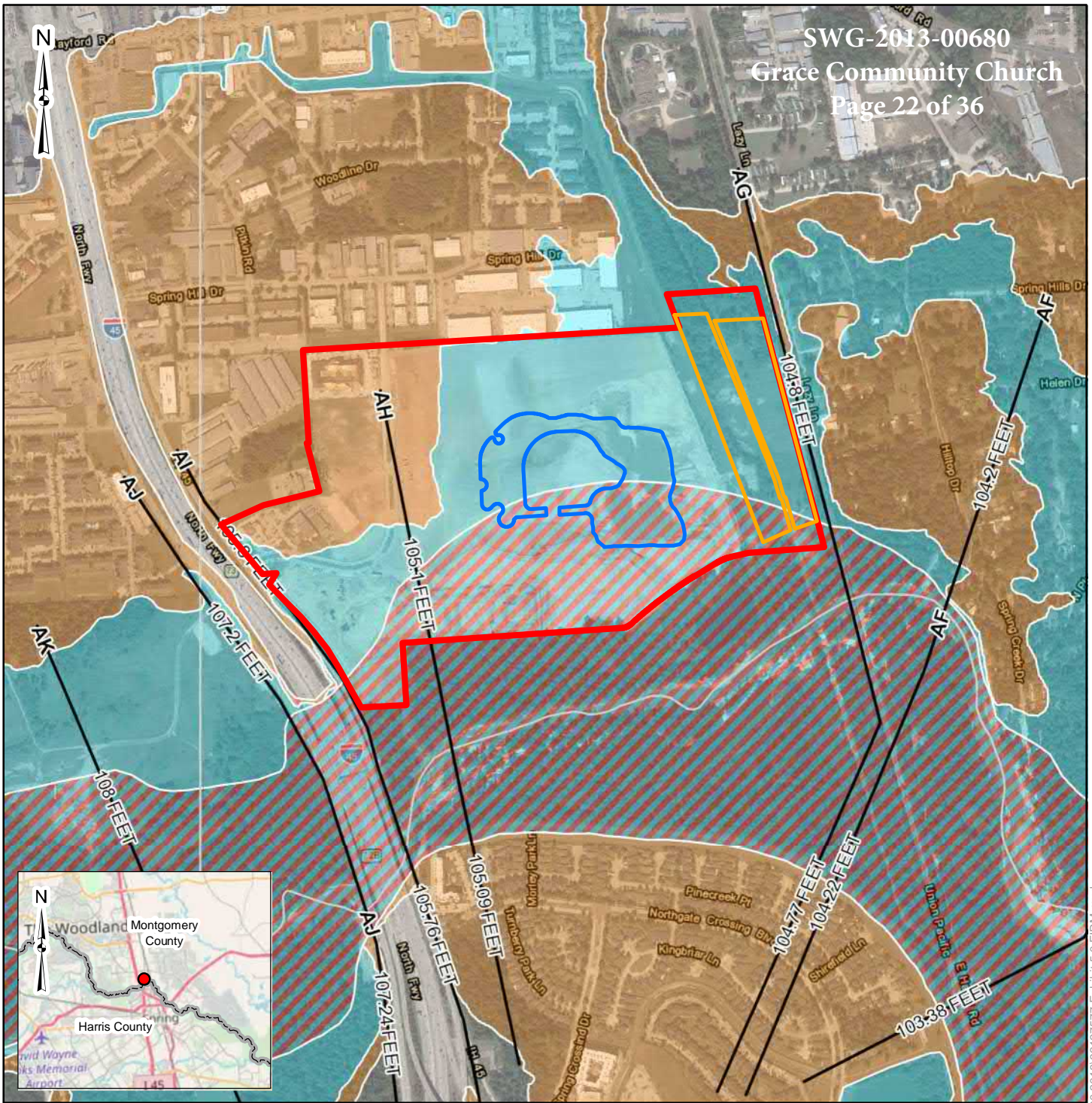
---

Grace Community Church  
 The Woodlands, Montgomery County, Texas

**Exhibit**

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**4.0**



- Grace Community Church Property (±168-Acres)
- 2018 Cathedral Lake - Aerated (±15.56-Acres)
- Basins
- Flood Hazard Zones**
- 1% Annual Chance Flood Hazard
- Regulatory Floodway
- Special Floodway
- Area of Undetermined Flood Hazard
- 0.2% Annual Chance Flood Hazard
- Future Conditions 1% Annual Chance Flood Hazard
- Area with Reduced Risk Due to Levee

0 500 1,000 2,000 Feet

DATA SOURCES:  
 © OpenStreetMap (and) contributors, CC-BY-SA  
 Esri, HERE, Garmin, © OpenStreetMap contributors, October 28, 2017 Aerial Photograph Courtesy of Google Earth, Federal Emergency Management Agency Flood Insurance Rate Map Panels 48339C0540H, 48339C0545G, 48339C0680G, and 48339C0685G Effective August 18, 2014

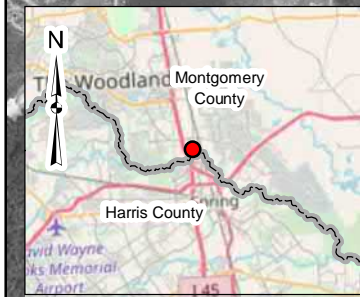
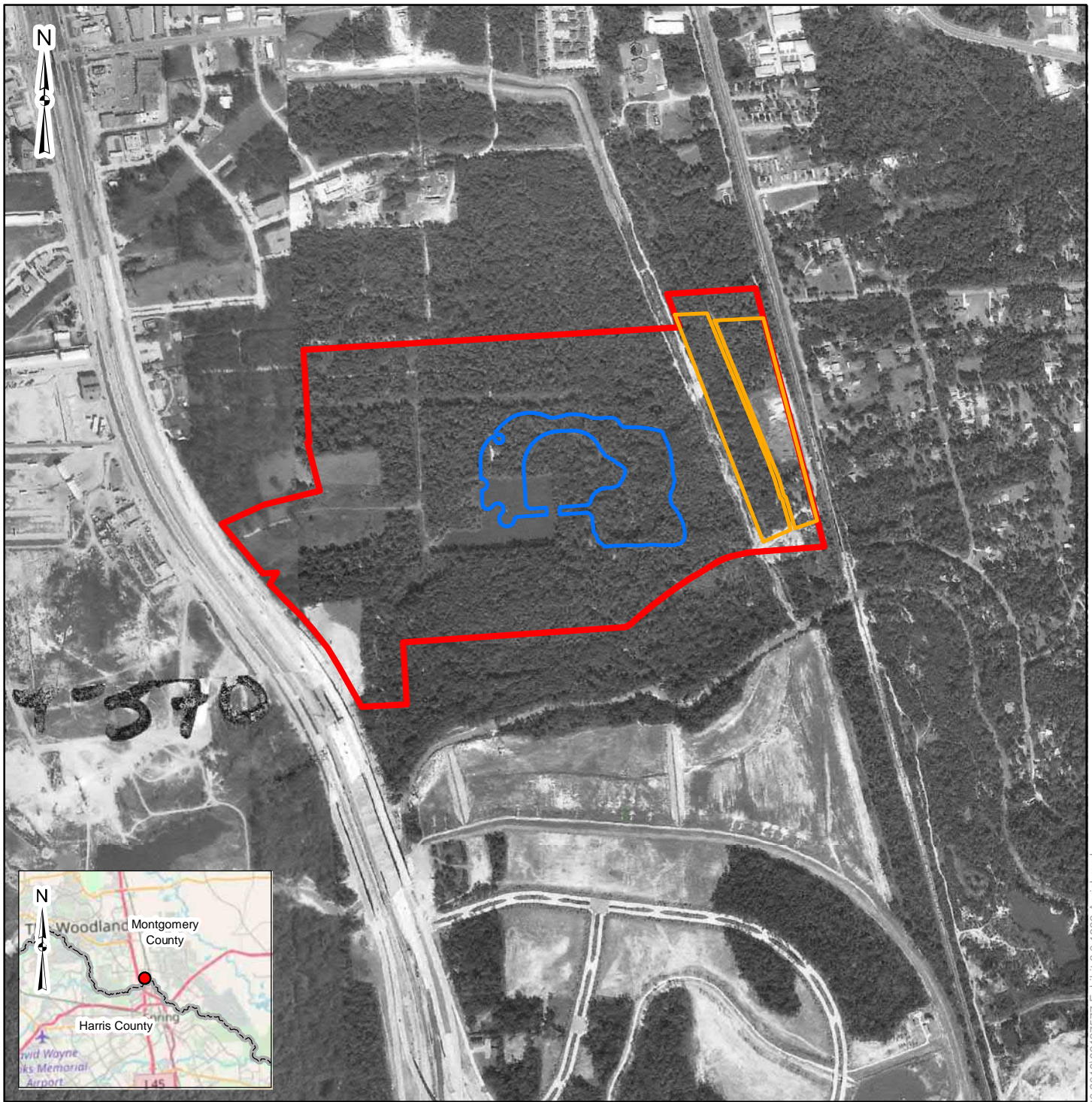
Project No.:	92127577
Date:	Nov 2018
Drawn By:	REW
Reviewed By:	GCH



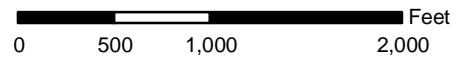
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<b>Flood Insurance Rate Map</b>
Grace Community Church The Woodlands, Montgomery County, Texas

<b>Exhibit</b>
<b>5.0</b>



- Grace Community Church Property (±168-Acres)
- 2018 Cathedral Lake - Aerated (±15.56-Acres)
- Basins



DATA SOURCES:  
 © OpenStreetMap (and) contributors, CC-BY-SA, 1988 Aerial Photograph Courtesy of Google Earth

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**Grace Community Church**  
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Project No.:	92127577
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Reviewed By:	GCH

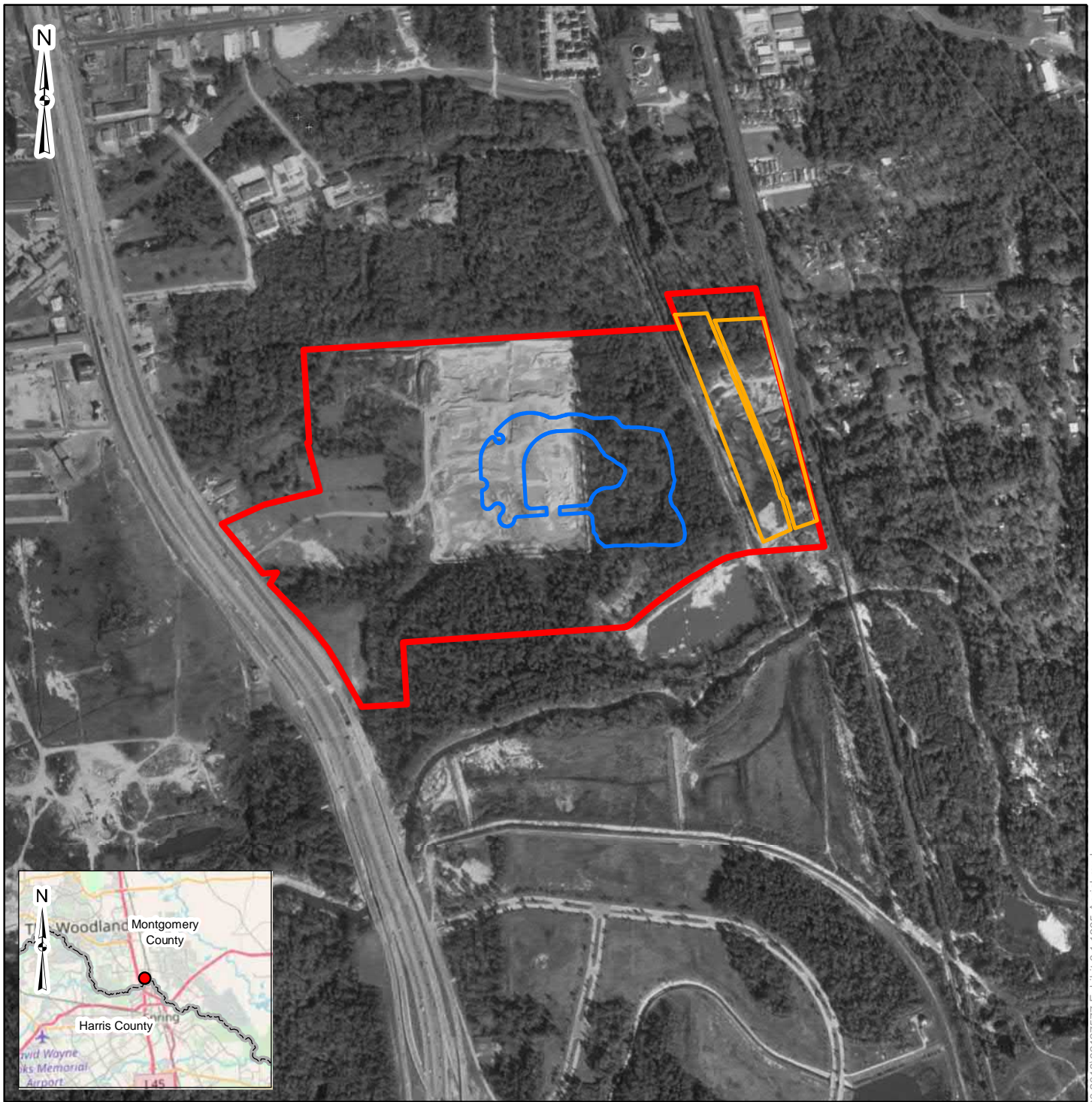
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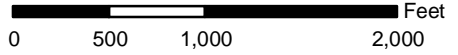
PH. (713) 690-8989      terracon.com

<b>1988 Aerial Photograph</b>
Grace Community Church The Woodlands, Montgomery County, Texas

<b>Exhibit</b>
<b>6.0</b>



- Grace Community Church Property (±168-Acres)
- 2018 Cathedral Lake - Aerated (±15.56-Acres)
- Basins



DATA SOURCES:  
 © OpenStreetMap (and) contributors, CC-BY-SA, January 22,  
 1995 Aerial Photograph Courtesy of Google Earth

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**Grace Community Church**  
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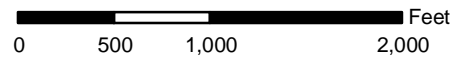
<b>1995 Aerial Photograph</b>
Grace Community Church The Woodlands, Montgomery County, Texas

<b>Exhibit</b>
<b>6.1</b>





- Grace Community Church Property (±168-Acres)
- 2018 Cathedral Lake - Aerated (±15.56-Acres)
- Basins



DATA SOURCES:  
 © OpenStreetMap (and) contributors, CC-BY-SA, January 14, 2006 Aerial Photograph Courtesy of Google Earth

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**Grace Community Church**  
**Page 25 of 36**

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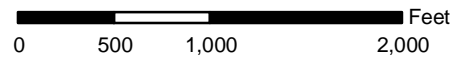
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<b>2006 Aerial Photograph</b>
Grace Community Church The Woodlands, Montgomery County, Texas

<b>Exhibit</b>
<b>6.2</b>



- Grace Community Church Property (±168-Acres)
- 2018 Cathedral Lake - Aerated (±15.56-Acres)
- Basins



DATA SOURCES:  
 © OpenStreetMap (and) contributors, CC-BY-SA, January 8,  
 2010 Aerial Photograph Courtesy of Google Earth

**SWG-2013-00680**  
**Grace Community Church**  
**Page 26 of 36**

Project No.:	92127577
Date:	Nov 2018
Drawn By:	REW
Reviewed By:	GCH

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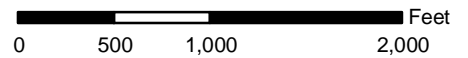
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<b>2010 Aerial Photograph</b>
Grace Community Church The Woodlands, Montgomery County, Texas

<b>Exhibit</b>
6.3



- Grace Community Church Property (±168-Acres)
- 2018 Cathedral Lake - Aerated (±15.56-Acres)
- Basins



DATA SOURCES:  
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**Grace Community Church**  
**Page 27 of 36**

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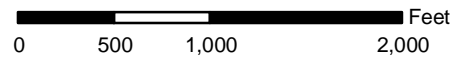
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<b>2012 Aerial Photograph</b>
Grace Community Church The Woodlands, Montgomery County, Texas

<b>Exhibit</b>
6.4



- Grace Community Church Property (±168-Acres)
- 2018 Cathedral Lake - Aerated (±15.56-Acres)
- Basins



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**Grace Community Church**  
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Project No.:	92127577
Date:	Nov 2018
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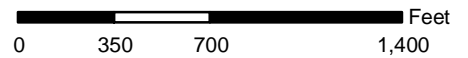
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<b>2017 Aerial Photograph</b>
Grace Community Church The Woodlands, Montgomery County, Texas

<b>Exhibit</b>
6.5



- Grace Community Church Property (±168-Acres)
- 2014 Proposed Mitigation (±34.94-Acres)
- 2018 Cathedral Lake - Aerated (±15.56-Acres)
- Basins



DATA SOURCES:  
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**Grace Community Church**  
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Project No.:	92127577
Date:	Nov 2018
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<b>2014 Mitigation Versus 2018 Proposed Activities</b>
Grace Community Church The Woodlands, Montgomery County, Texas

<b>Exhibit</b>
<b>7.0</b>

**iHGM Worksheet - Grace Community Church - Cathedral Lakes - 40.70 Open Waters**

**WAA 1: Pre-Construction Scores**

Variable	Subindex
Vdur	0.10
Vfreq	0.25
Vtopo	0.10
Vwood	0.10
Vmid	0.10
Vherb	0.10
Vdetritus	0.10
Vredox	0.10
Vsorpt	0.10
Vconnect	0.25

**Temporary Storage & Dentention of Storage Water**

pre 0.1257  
post 0.0000

**Maintain Plant & Animal Communities**

pre 0.1500  
post 0.0667

**Removal & Sequestrian of Elements & Compounds**

pre 0.1300  
post 0.0400

**WAA 1: Post Construction Scores**

Variable	Subindex
Vdur	0.10
Vfreq	0.00
Vtopo	0.10
Vwood	0.00
Vmid	0.00
Vherb	0.10
Vdetritus	0.10
Vredox	0.00
Vsorpt	0.00
Vconnect	0.10

**FCU: FCI x wetland acres per WAA:** acres= 40.70

WAA#	Pre-project FCUs	Post Project FCUs
Temp Storage of Water	5.12	0.00
Maintain Plant & Animal	6.11	2.71
Removal of Elements	5.29	1.63

**Potential Functional Capacity Impacts or Improvements**

Temp Storage of Water	-5.12
Maintain Plant & Animal	-3.39
Removal of Elements	-3.66

Functional Capacity Units to be purchased from Tarkington Mitigation Bank:

Temp Storage of Water 5.2\*  
Maintain Plant & Animal 3.4\*  
Removal of Elements 3.7\*

\*FCU are rounded up based on the Mitigation Banking Instrument

A total of 12.3 FCU will be purchased from Tarkington Bayou Mitigation Bank



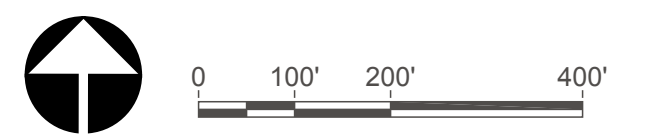
LEGEND	
	LAKE OUTFALL (PRIVATE)
	LAKE OUTFALL (PUBLIC)
	MANHOLE
	OUTFALL STRUCTURE/ SYSTEM "A"
	OUTFALL PIPE SYSTEM 60" RCP
	OUTFALL PIPE SYSTEM 72" RCP
	OUTFALL PIPE SYSTEM PARALLEL 3'x8' BOX CULVERT & 30" PVC

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**CATHEDRAL LAKES • MASTER PLAN**  
 📍 Montgomery County, TX  
 📅 December 3, 2018  
 # 164570  
 👤 Grace International

**SWG-2013-00680**  
**Grace Community Church**  
**Page 31 of 36**



Information furnished regarding this property is from sources deemed reliable. RVI has not made an independent investigation of these sources and no warranty is made as to their accuracy or completeness. This plan is conceptual, subject to change, and does not represent any regulatory approval.



MEDICAL RESORT  
AT THE WOODLANDS  
3.73 ACRES

CHURCH & COMMUNITY  
PARKING  
+/- 4.5 ACRES

CHURCH  
+/- 10.7 ACRES

NORTH  
SIDE LEXUS  
21.00+/- ACRES

OFFICE

COMMERCIAL

COMMERCIAL

COMMERCIAL

COMMERCIAL

COMMERCIAL

COMMERCIAL / OFFICE

COMMERCIAL

COMMERCIAL

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COMMERCIAL

COMMERCIAL

EXCAVATION BASINS  
+/- 20.7 AC.

DOCK

LAKE  
+/- 15.56 AC.

30' LANDSCAPE/  
RECREATION STRIP  
(SEE TYPICAL  
CROSS-SECTION)

PARKING  
+/- 2.5 ACRES

PARKING  
+/- 1.8 ACRES

PARKING  
GARAGE

PARKING  
GARAGE

PARKING

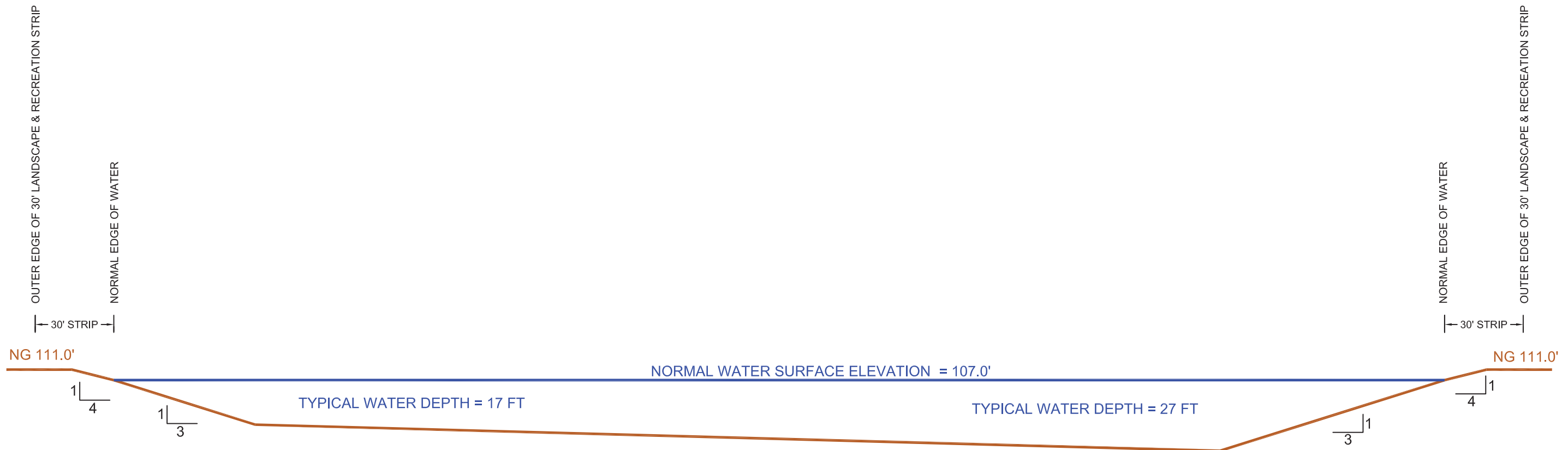
PARKING

ENERGY CAPITAL  
+/- 1.0 ACRES

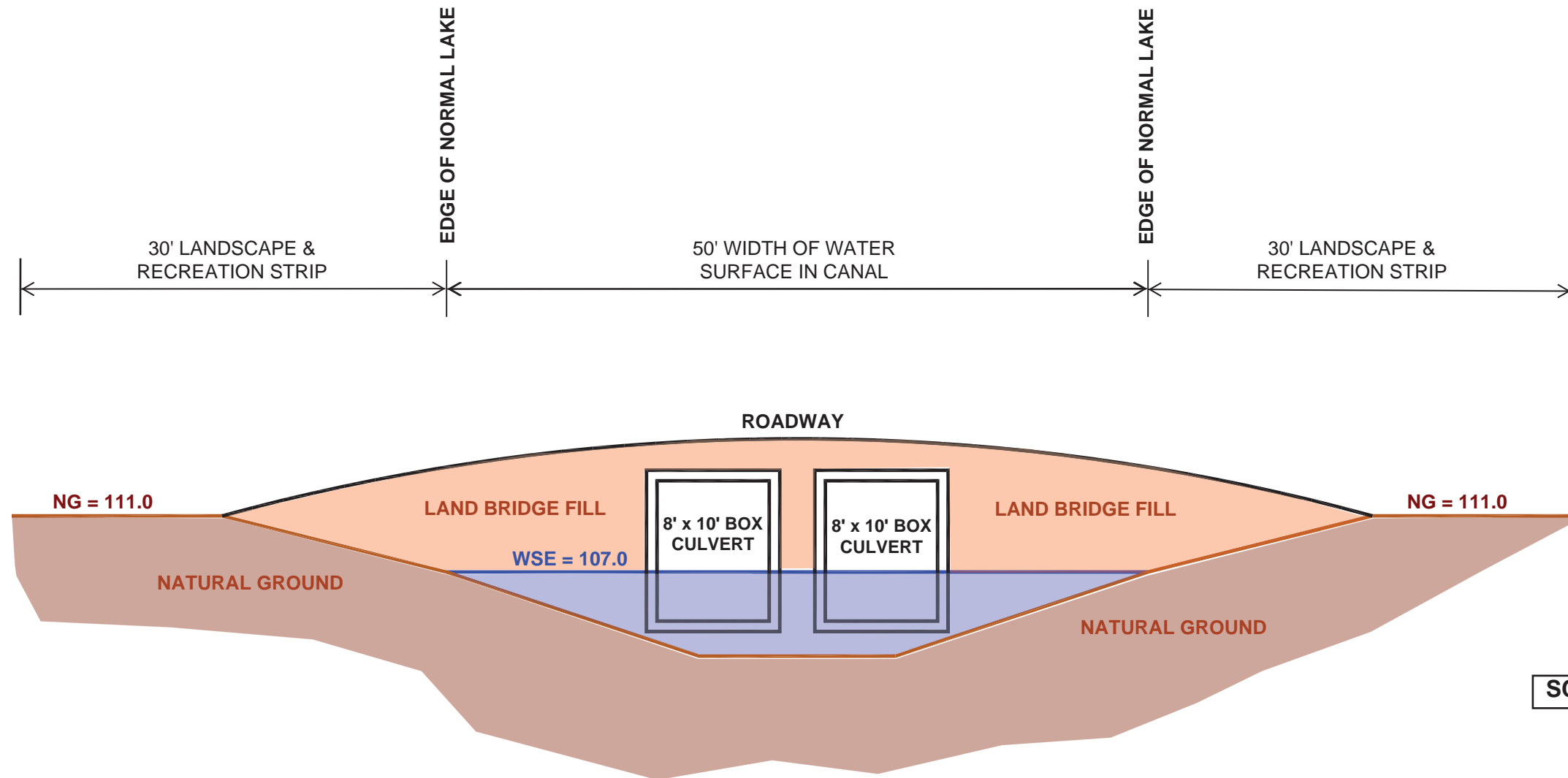
INTERSTATE 45



**CATHEDRAL LAKES MULTI-USE DEVELOPMENT**  
**EXHIBIT OF TYPICAL CROSS SECTION OF CATHEDRAL LAKE**  
(ORIENTATION IS LOOKING EASTWARD)



SCALE: 1" = 40'



**CATHEDRAL LAKES MIXED-USE DEVELOPMENT  
EXHIBIT OF TYPICAL CROSS SECTION OF  
LAND BRIDGE WITH CULVERT CROSSING  
(ORIENTATION LOOKING EASTWARD)**



Lantana Dwarf Oleander Bi-color Ixora Dwarf Bottlebrush Iris Variegated Ginger Bird of Paradise Drift Red Roses Foxtail Fern

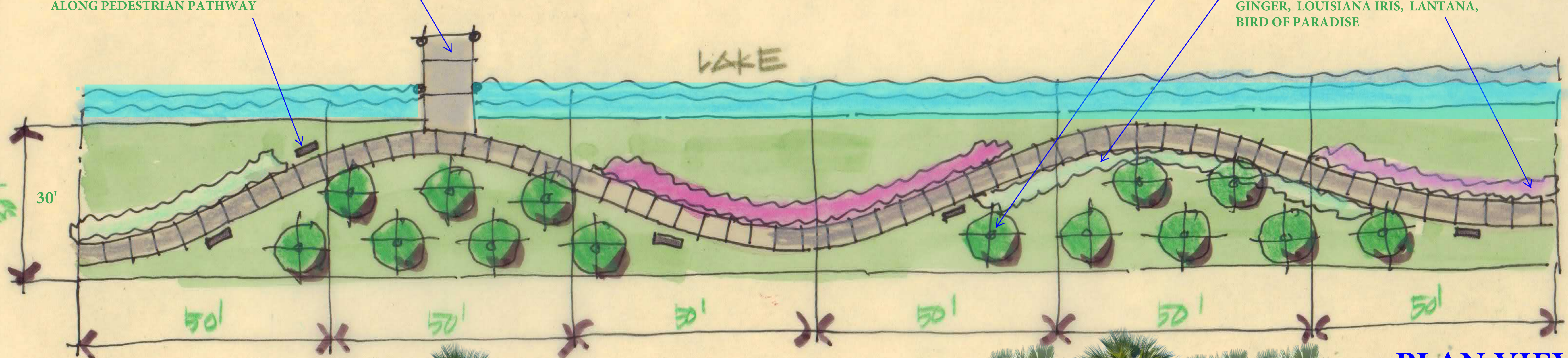
PROPOSED PALM TREE CLUSTERS MIXED IN WITH OTHER TREE TYPES (See Tree List) ALONG 30' LANDSCAPE RECREATIONAL STRIP

TROPICAL PLANTINGS POCKETS ALONG PEDESTRIAN WALKWAY;

I.E. OLEANDER, IXORA, VARIEGATED GINGER, LOUISIANA IRIS, LANTANA, BIRD OF PARADISE

SEATBENCHES LOCATED ALONG PEDESTRIAN PATHWAY

PILE DRIVEN PIER @ LAKE



PLAN VIEW



PROPOSED PALM TREE CLUSTERS MIXED IN WITH OTHER TREE TYPES (See Tree List) ALONG 30' LANDSCAPE RECREATIONAL STRIP

VIEW CORRIDORS ALONG 30' WIDE LANDSCAPE RECREATIONAL STRIP

REFER TO SHRUB PHOTOS FOR UNDERPLANTING SELECTIONS

NORMAL WATER SURFACE ELEVATION

LANDSCAPE RECREATIONAL STRIP

SECTIONAL VIEW

CATHEDRAL LAKES  
LANDSCAPE RECREATIONAL STRIP



BALD CYPRESS



MEXICAN SYCAMORE



WATER OAK



CEDAR ELM



RED MAPLE



WASHINGTONIA PALM



AMERICAN HOLLY



CREPE MYRTLE



TEXAS REDBUD



SHUMARD OAK



YAUPON HOLLY



RIVERBIRCH

## CATHEDRAL LAKE LANDSCAPE RECREATIONAL STRIP TREE TYPES (Primary and Understory Trees )