Draft Environmental Assessment

East Carroll Parish Police Jury Drainage System Improvements Lake Providence, LA

HMGP 1603-0300
FEMA-1603-DR-LA
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FEMA

U.S. Department of Homeland Security
Louisiana Transitional Recovery Office
Baton Rouge, Louisiana 70802

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ACHP	Advisory Council on Historic Preservation
APE	Area of Potential Effects
BMP	Best Management Practices
CAA	Clean Air Act
CBRA	Coastal Barrier Resources Act
CBRS	Coastal Barrier Resources System
CUP	Coastal Use Permit
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
CZMP	Coastal Zone Management Program
DFIRM	Digital Flood Insurance Rate Map
DOTD	Louisiana Department of Transportation and Development
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
GOHSEP	Governor's Office of Homeland Security and Emergency Preparedness
HEC-RAS	Hydraulic Engineering Centers Rivers Analysis System (USACE)
HMGP	Hazard Grant Mitigation Program
HH	Hydrologic and Hydraulic Design Report
LDEQ	Louisiana Department of Environmental Quality
LDNR	Louisiana Department of Natural Resources
MOA	Memorandum of Agreement
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
NRCS	Natural Resources Conservation Services
RCBC	Reinforced Concrete Box Culvert
RCRA	Resource Conservation and Recovery Act
RHA	Rivers and Harbors Act
SHPO	State Historic Preservation Office/Officer
SOV	Solicitation of View
SOW	Scope of Work
THPO	Tribal Historic Preservation Office/Officer
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
WSRA	Wild and Scenic Rivers Act

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1.0 INTRODUCTION

1.1 Project Authority

Hurricane Katrina, a Category 4 hurricane with a storm surge above normal high tide levels, moved across the Louisiana, Mississippi and Alabama Gulf Coasts on August 29, 2005. Maximum sustained winds at landfall were estimated at 140 miles per hour. President George W. Bush declared a major disaster for the State of Louisiana due to damages from Hurricane Katrina and signed a disaster declaration (FEMA-1603-DR-LA) on August 29, 2005, authorizing the Department of Homeland Security's Federal Emergency Management Agency (FEMA) to provide federal assistance in designated areas of Louisiana. FEMA is administering this disaster assistance pursuant to the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), PL 93-288, as amended. Section 404 of the Stafford Act authorizes FEMA's Hazard Mitigation Program (HMGP) to provide funds to states and local governments to implement long-term hazard mitigation measures after a major disaster declaration.

This Environmental Assessment (EA) has been prepared in compliance with the National Environmental Policy Act of 1969 (NEPA); the President's Council on Environmental Quality regulations implementing NEPA (40 CFR 1500-1508); and FEMA's regulations implementing NEPA (44 CFR 10.9). The purpose of this EA is to analyze potential environmental impacts associated with drainage improvements in and around the town of Lake Providence in East Carroll Parish, Louisiana. FEMA will use the findings in this EA to determine whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).

1.2 Project Location

East Carroll Parish is located in the northeastern quadrant of Louisiana, bordering Arkansas to the north, and Mississippi to the east (Appendix A, Figure 1). According to the U.S. Census Bureau, it is approximately 442 square miles, including 22 square miles of water. It is bordered to the east by the Mississippi River, to the north by Lake Providence, and to the west by Tensas Bayou (Appendix A, Figure 2). The town of Lake Providence is located in the northeastern section of East Carroll Parish, and is the parish's most populated area; with approximately 3,991 people according to 2010 U.S. Census figures. Three area highways, U.S. Hwy 65 immediately to the north and east, LA Hwy 3181 south of town, and Hwy 134/883 to the west, form an irregular border around the town (Appendix A, Figure 3). Lake Providence is approximately 208 miles from New Orleans, Louisiana; 151 miles from Shreveport, Louisiana; and 162 miles from Baton Rouge, Louisiana. The seven sites for the proposed drainage improvements are located in and around the town of Lake Providence (Appendix A, Figure 3). The proposed drainage improvements would outfall into the L-25A Canal (Appendix A, Figure 4). The Louisiana Department of Transportation and Development (DOTD) has designed a connected project for improvements to the L-25A channel and the channel at the downstream end of Blount Street. The GPS coordinates for the proposed work are listed in the proposed action (Section 3.3).

1.3 Site Description

The town of Lake Providence is primarily a residential area, with agricultural and open spaces located west and south of the town. Based on GAEA's modeling and study of the entire Lake Providence drainage system, GAEA identified numerous culverts throughout the system that are not sufficiently sized to handle the 10-year storm event.

(Site A): Drainage system improvements to the CDBG funded project at the 806 Sparrow Street Apartments would protect fifteen (15) apartments, directly affecting approximately sixty (60) people during above average rainfall events. The complex is located on the eastern side of the town in a naturally low area next to a levee which separates the apartment complex from the Mississippi River. As a result, the complex is also prone to heavy seepage of water. Additionally, the entrance driveways decline as a result of overflows of water that rise quickly and recede slowly during heavy rainfall events. During those events, the apartments would fill with water up to a maximum height of twenty (20) inches. This overflow would cause damage to the tenants' personal property, including clothes, vehicles, furniture, etc.

(Site B): Drainage system improvements to the CDBG funded project on Blount Street between Davis and Hood Streets would be needed to protect approximately 3 homes and reduce flooding and erosion of the roadways. The project area is approximately 0.73 miles from the south side of Lake Providence.

(Site C): Drainage system improvements to the FEMA funded project on Pecan and Burney Streets between 3rd and 4th Streets would reduce the impact of flooding in the immediate site area as well as on the adjacent streets. The project area is approximately 0.34 miles from the south side of Lake Providence. This flooding affects approximately 5 homes, and also causes erosion of the roadways.

(Site D): Drainage system improvements to the FEMA funded project on Millikin Street between Hwy 65 and 1st Street would reduce the impact of flooding in the immediate site area as well as on the adjacent streets. The project area is approximately 0.15 miles from the south side of Lake Providence. This flooding affects approximately 12 homes during above average rainfall events.

(Site E): Drainage system improvements to the FEMA funded project on 1st Street between Millikin and East Streets would protect five (5) homes during above average rainfall events. The project area is approximately 0.21 miles from the south side of Lake Providence.

(Site F): Drainage system improvements to the CDBG funded project on 6th Street between Gould and Hudson Streets would protect three (3) homes during above average rainfall events. The project area is located approximately 0.63 miles from the south side of Lake Providence.

(Site G): Drainage system improvements to the FEMA funded project on Gould Street between Bell and 1st Streets would protect eight (8) homes during above average rainfall events. The project area is located approximately 0.63 miles from the south side of Lake Providence.

Table 1: Flooding Frequency, for all seven (7) project sites (center point: latitude 32.799585, longitude -91.179800)

Date	Storm Frequency	Damages
04/1991	5 years	flooded homes, roads, buildings
10/1995	5 years	flooded homes, roads, buildings
01/1999	2 years	flooded homes, roads, buildings
04/2000	2 years	flooded homes, roads, buildings
04/2003	2 years	flooded homes, roads, buildings
05/2008	5 years	flooded homes, roads, buildings
09/2008	10 years	flooded homes, roads, buildings

GAEA developed HEC-RAS models for the downstream ends of the system, GAEA relied on results from DOTD's HEC-RAS model. GAEA used DOTD's results from modeling Fischer Street, Koresh Street, and the outfall culvert that flows into Lake Providence. The models included all ditches and culverts in the designated project areas and downstream to the final outfall. GAEA also developed two separate hydrologic models: one for the project areas in the northern part of Lake Providence that drain to the lake and one for the areas in the southern and western parts of Lake Providence that drain into the L-25A canal. DOTD designed a project for improvements to the L-25A canal and the channel at the downstream end of Blount Street. GAEA incorporated their design for downstream conditions for four (4) of the areas (Gould Street, 6th Street, Blount Street, and the 806 Sparrow Street Apartments). GAEA included the recommended repairs from the DOTD project to ensure that they would be completed if the DOTD project were not constructed. The DOTD Design Report and Plans are included in Appendix B of this assessment.

2.0 PURPOSE AND NEED

The HMGP provides grants to states and local governments to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the HMGP is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster. The Town of Lake Providence suffers extensive flooding/damage during significant rainfall events. Some portions of the town are located in naturally low lying areas next to a levee which separates citizens and their personal residences from the Mississippi River. As a result, these areas are prone to heavy water seepage and erosion of the roadways. Additionally, residential entrance driveways become impassable as a result of drainage ditches overtopping and homes become flooded and fill with water up to a maximum height of twenty (20) inches. The purpose of the proposed project is to protect the health and safety, and property of the residents of the Town of Lake Providence during heavy rainfall events.

The town of Lake Providence experiences repetitive flooding during 10-year or greater rain events. The Lake Providence Drainage System currently supports storm water drainage for the residents in and around the town of Lake Providence. East Carroll Parish, the applicant, needs to minimize the flooding during and immediately after these storm events. This would result in protection against future damage, loss of life and property from flooding during/after hurricanes, intense rainfall events, and other storm/flooding events.

3.0 ALTERNATIVES CONSIDERED

3.1 Alternative 1: No Action

Implementation of the No Action Alternative would entail no hazard mitigation measures in and around the town of Lake Providence. Consequently, this alternative would not provide any type of protection to residents of the area during peak flow events or other emergency situations. Under this alternative, water damage would likely continue to occur and both insured and uninsured losses would be experienced.

3.2 Alternative 2: Eliminated from Further Consideration

Tensas Bayou Improvements. The original project area included approximately 1,170 acres in and around the town of Lake Providence and approximately 1,115 acres along Tensas Bayou. After initial investigations and discussions with East Carroll Parish officials, GAEA determined that the repairs proposed in the Tensas Bayou Project Area in the original scope of work – upsizing three (3) culverts in Tensas Bayou to the south of Lake Providence, were not going to solve the repetitive flooding problem that was identified on the north side of the lake. Consequently, GAEA did not recommend any repairs in Tensas Bayou. GAEA stated that a more detailed study of the lake hydraulics would need to be completed before investigating the drainage regimes on the north side of the lake and possible causes of flooding there. Therefore, this alternative will not be further discussed in the environmental assessment.

3.3 Alternative 3: Proposed Action

Drainage System Improvements Within and Around the Town of Lake Providence
The preferred alternative at the seven (7) sites discussed below is as follows:

Site A: 806 Sparrow Street Apartments (32.797058, -91.172581) [CDBG Funding]

1. Removing debris from all culverts that are not replaced
2. Re-grading all ditches between culverts and downstream between last culvert and DOTD project limits
3. Replacing three walkway culverts with walkway bridges
4. Upsizing and re-grading a 24" culvert in the Riverside ditch with two 30" culverts
5. Upsizing and re-grading the drain line from the Sparrow Apartments to the Riverside ditch from one 12" pipe to two 18" pipes
6. Re-grading three existing 30" culverts in the Riverside ditch directly downstream from the point where the Sparrow Apartments drain line enters the Riverside ditch
7. Upsizing and re-grading three driveway culverts in the Riverside ditch between the confluence points with the ditch to the north of the Apartments and the outfall ditch from the Apartments

Site B: Gould Boulevard – Between Bell Street and First Street (32.806483, -91.184211)

1. Removing debris from all culverts that are not replaced
2. Re-grading all ditches between culverts
3. Replacing walkway culverts with walkway bridges
4. Upsizing and re-grading the following culverts:
    - Under Railroad along Koresh Street alignment from a 60" culvert to an 84" culvert
    - South of 4th Street from a 30" culvert to a 72" culvert
    - Under Fourth Street from a 24" and 30" culvert to a 72" culvert
    - At 1st and Koresh Streets from two 24" culverts to a 72" culvert
    - On the west side of Koresh Street between 1st and 2nd Streets from a 36" culvert to a 55"x73" pipe arch culvert
    - On the north side of Fischer Street from downstream to upstream:
        - Under Koresh Street from a 24" culvert to a 44" x 72" culvert
        - Three 18" culverts and three 24" culverts to 44" x 72" culverts
        - Five 18" culverts to 40" x 66" culverts
        - Under Gould from a 18" x 29" culvert to a 36" x 58" culvert
    - On the south side of Fischer Street from downstream to upstream:
        - Under Koresh Street from an 18" culvert to a 36" culvert;
        - Two 15" culverts to 36" culverts;
            - 15" culvert to 30" culvert
            - New 30" culvert under Artuard Street
            - Two 24" culverts to 30" culverts
            - New continuous 30" culvert under and between Ransdell and Harding Streets
            - 12" culvert to 30" culvert
            - 15" culvert to 30" culvert
            - New 27" x 43" arch pipe culvert under Gould
        - On the west side of Gould between Fischer and Bell Streets from six 18" to three 27" x 43" arch pipe culverts, two 22" x 36" arch pipe culverts, and a 24" culvert
        - On the east side of Gould Street between Fischer and Bell Streets, from three 18" and a 12" culvert to three 31"x 50" and one 27"x 43" arch pipe culvert
        - On the west side of Gould between Fischer and 1st Streets from two 18" culverts to two 24" culverts and a new 24" culvert under an existing driveway
        - On the east side of Gould between Fischer and 1st Streets from three 18" culverts to three 24" culverts

Site C: 6th Street – Between Gould Boulevard and Hudson Avenue (32.800564, -91.183644) [CDBG Funding]

1. Removing debris from all culverts that are not replaced
2. Re-grading all ditches between culverts
3. Upsizing and re-grading the following culverts:

- Under 7th Street at Gould Blvd from a 36" culvert to a 42" culvert
- On the east side of Gould Blvd between 6th and 7th Streets from an 18" culvert to a 30" culvert
- Under 6th Street at Gould Blvd from a 18" culvert to a 30" culvert
- On the north side of 6th Street from three 18" culverts to a 24" and two 22" x 36" pipe arch culverts
- On the south side of 6th Street from 12" culverts to 18" culverts

Site D: 1st Street (32.805536, -91.179436)

1. Re-grading all ditches between culverts;
2. Upsizing and re-grading the following culverts:
   - The final outfall culvert from north of 1st Street to Lake Providence from a 36" and a 24" pipe to a 54" x 88" arch pipe culvert
   - Under 1st Street in the final outfall ditch from a 36" to a 54" x 88" arch pipe culvert
   - On the north side of 1st Street east of the final outfall from two 18" and two 15" culverts to two 24" and two 18" culverts
   - On the north side of 1st Street west of the final outfall from predominantly 12" - 18" culverts to two 40" x 66" arch pipe culverts and three 36"x58" arch pipe culverts
   - On the south side of 1st Street from 12"-18" culverts to four 18" culverts and four 22" x 36" arch pipe culverts
   - Crossing under Millikin Street on the north side of 1st Street from a 12" culvert to a 31" x 50" arch pipe culvert
4. Replacing three walkway culverts with walkway bridges
5. Cleaning the culvert crossing under Millikin Street on the south side of 1st Street

Site E: Millikin Street (32.807056, -91.180322)

1. Re-grading all ditches between culverts
2. Upsizing and re-grading all culverts on the east side of Millikin Street from predominantly 12" culverts to three 27" x 43" arch pipe culverts, four 22" x 36" arch pipe culverts, two 24" pipes, and one 18" pipe
3. Adding an 18" and a 12" culvert under two driveways, respectively, on the east side of Millikin Street near Lake Street
4. Replacing two walkway culverts with walkway bridges
5. Upsizing and re-grading all culverts on the west side of Millikin Street from predominantly 12" culverts to three 22" x 36" arch pipe culverts and three 18" culverts
6. Adding an 18" and a 12" culvert under two driveways, respectively, on the west side of Millikin Street near Lake Street

Site F: Blount Street (32.797340, -91.180740) [CDBG Funding]

1. Re-grading all ditches between culverts
2. Upsizing and re-grading all culverts on the east side of Millikin Street from predominantly 12" culverts to three 27"x43" arch pipe culverts, four 22"x36" arch pipe

culverts, two 24" pipes, and one 18" pipes

3. Adding an 18" and a 12" culvert under two driveways, respectively, on the east side of Millikin Street near Lake Street
4. Replacing two walkway culverts with walkway bridges
5. Upsizing and re-grading all culverts on the west side of Millikin Street from predominantly 12" culverts to three 22"x 36" arch pipe culverts and three 18" culverts
6. Adding an 18" and a 12" culvert under two driveways, respectively, on the west side of Millikin Street near Lake Street

Site G: Pecan and Burney Streets (32.803189, -91.177922)

1. Removing debris from all culverts that are not replaced
2. Re-grading all ditches between culverts
3. Upsizing and re-grading the following culverts:
   - North of 2nd Street near East Street from 30" culverts to 60" culverts
   - Under 2nd Street at East Street from a 30" culvert to a 60" culvert
   - Under East Street near 2nd Street from a 30" culvert to a 48" culvert
   - Diagonally from East and 2nd Streets to 3rd and Burney Streets from a 30" culvert to a 48" culvert
   - Under the intersection of 3rd and Burney Streets from 12", 30", and 12" culverts to 24", 48", and 24" culverts, respectively
   - On the south side of 3rd Street between Burney and Pecan Streets from 18" culverts to 24" culverts
   - On the east side of Burney Street south of 3rd Street from a 12" culvert to an 18" culvert
   - Inside the block between Burney and Pecan Streets and 3rd and 4th Streets from 30" culverts to 44" x 72" arch pipe culverts
   - On the west side of Pecan Street south of 3rd Street from a 12" culvert to a 24" culvert
   - Under Pecan Street between 3rd and 4th Streets from two 18" culverts to a 44" x 72" arch pipe culvert
   - On the east side of Pecan Street north of 4th Street from a 24" culvert to a 40" x 66" arch pipe culvert
   - Under Pecan Street at 4th Street from an 18” culvert to a 24” culvert

For the proposed action, according to the model extended downstream to the DOTD developed model, the GAEA H&H Drainage Report states that there would be no negative impacts to the system downstream of the improvements.

According to GAEA’s March 2015 design report, the proposed improvements would have positive impacts on any areas upstream of the project area, since they would pass runoff faster. The four downstream ends of GAEA’s model are: (1) the northern portion of the systems that flows into Lake Providence; (2) the southern portion of the system that flows into the three (3) areas modeled by DOTD – south outfall 1 at the ditch south of town, south outfall 2 at the ditches at the intersection of Blount Street and Gould Boulevard (Canal

Blount E and Gould E 2), south outfall 3 at the ditches along Gould and the south side of Fischer where they would flow to the north side of Fischer (Gould W A 1 and Gould W B 1). According to GAEA, the effects of the improvements on water levels in the lake will be negligible due to the size of Lake Providence. The other three modeled outfalls all have a lower water surface elevation with the improvements. DOTD modeled areas farther downstream and found that the improvements lowered water surface elevations for several miles downstream of the town. Furthermore, the areas upstream of the improvements would only be impacted positively, with reduced flooding (See Appendix D).

4.0 AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS

4.1 Impact Summary

FEMA-EHP consulted with resource agencies on June 30, 2015. To date, FEMA-EHP has not received responses/concurrence from all of the resource agencies. However, FEMA-EHP has reviewed the proposed action and determined that there would be no significant impacts to any natural resources, which is documented in the matrix below. This matrix summarizes the results of the environmental review process (Table 2). Potential environmental impacts that were found to be negligible are not evaluated further. Resource areas that have the potential for impacts of minor, moderate, or major intensity are further developed in the subsequent sections. Definitions of impact intensity are described below:

Negligible: The resource area (e.g., geology) would either not be affected, changes would be non-detectable, or if detected, would have effects that would be slight and local. Impacts would be well below regulatory standards, as applicable. Effects to Cultural Resources would either be non-existent, i.e., a building is less than 50 years old and/or no known archeological sites are present on the site, or the project is determined not likely to affect and State Historic Preservation Officer (SHPO)/Tribal Historic Preservation Officer (THPO) concurs. No mitigation is needed.

Minor: Changes to the resource would be measurable, although the changes would be small and localized. Impacts would be within or below regulatory standards, as applicable. Mitigation measures would reduce any potential adverse effects. Effects to Cultural Resources are not likely, i.e., building is at least 50 years old and/or known archeological sites are near the project area, but special conditions/mitigation are sufficient to maintain the "not likely to affect determination."

Moderate: Changes to the resource would be measurable and have both localized and regional scale impacts. Impacts would be within or below regulatory standards, but historical conditions would be altered on a short-term basis. Mitigation measures would be necessary to reduce any potential adverse effects. Effects to Cultural Resources are likely, i.e., building is 50 years old and/or known archeological sites are in the project area. Impacts would have at least local and possibly regional scale impacts.

Major: Changes would be readily measurable and would have substantial consequences on a local and regional level. Impacts would exceed regulatory standards. Mitigation measures to offset the adverse effects would be required to reduce impacts, although long-term changes to the resource would be expected. Effects to Cultural Resources are likely, i.e., building is at

least 50 years old and/or known archeological sites are in the project area. Impacts would have substantial consequences on a local and regional level.

Table 2: Affected Environment and Environmental Consequences Matrix: Alternative 3 (Preferred): Drainage System Improvements Within and Around the Town of Lake Providence

Resource Area	Negligible Impact	Minor Impact	Moderate Impact	Major Impact	Impact Summary	Agency Coordination / Permits	Mitigation
Geology and Soils	X				The Farmland Protection Policy Act (FPPA: Public Law 97-98, §§ 1539-1549; 7 U.S.C. 4201, *et seq*.) was enacted in 1981 and is intended to minimize the impact federal actions may have on the unnecessary and irreversible conversion of farmland to non-agricultural uses. It assures that, to the extent possible, federal programs and policies are administered to be compatible with state and local farmland protection policies and programs. NRCS policy clarifies several activities that are not subject to the rules and regulations of the FPPA, "projects on land already in urban development or used for water storage" – which is applicable here. Per review of the Natural Resources Conservation Services (NRCS) Web Soil Survey, the soil located on the proposed project area is not classified as a prime farmland soil; FPPA is precluded. Potential for short-term localized increase in soil erosion during construction.	Natural Resources Conservation Services (NRCS) Web Soil Survey completed online 06/30/15.	Implement construction Best Management Practices (BMPs); install silt fences/straw bales to reduce sedimentation. Area soils would be covered and/or wetted during construction. If fill is stored on site as part of unit installation or removal, the contractor would be required to appropriately cover it. Construction contractor would be required to obtain a Louisiana Pollutant Discharge Elimination System (LPDES) permit, if applicable, and implement stormwater pollution prevention plan. The LDEQ has stormwater general permits for construction areas equal to or greater than one (1) acre. It is recommended that the LDEQ Water Permit Division be contacted at (225) 219-3181 to determine whether the proposed improvements require one of these permits. All precaution should be observed to control nonpoint source pollution from construction activities. Please take any necessary steps to obtain and/or update all necessary approvals and environmental permits regarding this proposed project. See also Section 6.0 Conditions and Mitigation Measures.

Resource Area	Negligible Impact	Minor Impact	Moderate Impact	Major Impact	Impact Summary	Agency Coordination / Permits	Mitigation
Hydrology and Floodplains (Executive Order 11988)	X				Executive Order (EO) 11988 (Floodplain Management) requires Federal agencies to avoid direct or indirect support or development within the 100-year floodplain whenever there is a practicable alternative. FEMA's regulations for complying with EO 11988 are found at 44 CFR Part 9. This project is located within a zone C, minimally flood prone, per East Carroll Parish Flood Insurance Rate Map (FIRM), 220062 B, dated 11/15/1985, pages 16 and 17, and Lake Providence FIRM 220063 0005A, dated 10/16/1979. See section 4.2	East Carroll Parish FIRM, 220062 B, dated 11/15/1985, pages 16 and 17, and Lake Providence FIRM 220063 0005A, dated 10/16/1979,	The applicant is required to coordinate with the local floodplain administrator regarding floodplain permit(s) prior to the start of any activities New construction must be compliant with current codes and standards. All coordination pertaining to these activities and applicant compliance with any conditions should be documented and copies forwarded to the state and FEMA for inclusion in the permanent project files. As per 44 CFR 9.11 (d) (9), mitigation or minimization standards must be applied, where possible. All coordination pertaining to these activities and applicant compliance with any conditions should be documented and copies forwarded to the state and FEMA for inclusion in the permanent project files. See also Section 6.0 Conditions and Mitigation Measures.

Resource Area	Negligible Impact	Minor Impact	Moderate Impact	Major Impact	Impact Summary	Agency Coordination / Permits	Mitigation
Wetlands (Executive Order 11990)	X				EO 11990, Protection of Wetlands, directs Federal agencies to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the values of wetlands for federally funded projects. FEMA regulations for complying with EO 11990 are found at 44 CFR Part 9, Floodplain Management and Protection of Wetlands. U.S. Fish and Wildlife Service (USFWS) USFWS-mapped wetlands are not present in the proposed project area. No apparent wetlands were observed during the FEMA site visit to the proposed project site. Per correspondence from EPA, a preliminary review revealed that jurisdictional waters of the U.S. may occur on the proposed project site. As of August 4, 2015, no United States Army Corps Engineers (USACE) response was received within the 30 day timeframe; USACE consultation period ended 07/30/15. Prior to initiating any work, the applicant is required to coordinate with the USACE for any 404 permits and/or any applicable authorizations.	USFWS online consultation completed on 06/30/15. EPA response received 07/06/15. (See Appendix E)	Any changes or modifications to the proposed project will require a revised determination. Off-site locations of activities such as borrow, disposals, haul- and detour roads, and work mobilization site developments may be subject to USACE regulatory requirements. The applicant must coordinate with the USACE at the New Orleans District Office to verify which permits, if any are needed. All coordination must be forward to GOHSEP and FEMA for inclusion in the project files. See also Section 6.0 Conditions and Mitigation Measures.

Resource Area	Negligible Impact	Minor Impact	Moderate Impact	Major Impact	Impact Summary	Agency Coordination / Permits	Mitigation
Surface Water and Water Quality	X				USACE regulates the discharge of dredged or fill material into waters of the U.S., including wetlands, pursuant to §§ 401 and 404 of the Clean Water Act (CWA). Section 402 of the CWA, entitled National Pollutant Discharge Elimination System (NPDES), authorizes and sets forth standards for state administered permitting programs regulating the discharge of pollutants into navigable waters within the state's jurisdiction. The USACE also regulates the building of structures in waters of the U.S. pursuant to §§ 9 and 10 of the Rivers and Harbors Act (RHA). Per EPA response, a preliminary review revealed that jurisdictional waters of the U.S. occur on the proposed project site. Potential for short-term localized increase in sedimentation during construction.	A SOV was submitted to resource agencies by FEMA on 06/30/15. Responses received from EPA and LDEQ on 07/06/15 and 07/22/15 respectively. (See Appendix E)	If the project results in a discharge to waters of the state, the contractor is responsible for submitting an LPDES application. If required, the contractor must follow all requirements of the LPDES permit. The project results in a discharge of wastewater to an existing wastewater treatment system; that wastewater treatment system may need to modify its LPDES permit before accepting the additional wastewater. All precautions must be observed to control nonpoint source pollution from construction activities. LDEQ has stormwater general permits for construction areas equal to or greater than one (1) acre. The applicant must contact the LDEQ Water Permits Division at (225) 219-9371 to determine if the proposed project requires a permit. Applicant must coordinate with the USACE of the New Orleans District Office to verify which permits, if any are needed. Implement construction BMPs, install silt fences/straw bales to reduce sedimentation. Area soils must be covered and/or wetted during construction.
Groundwater	X				The Safe Drinking Water Act (SDWA) was originally passed by Congress in 1974 to protect public health by regulating the nation's public drinking water supply. Project as proposed is not expected to affect any groundwater. According to NEPAssist (EPA internet resource), the East Carroll Parish project area overlies a Sole Source Aquifer.		The contractor should observe all precautions to protect the groundwater of the region. BMPs should be implemented to ensure groundwater is protected.

Resource Area	Negligible Impact	Minor Impact	Moderate Impact	Major Impact	Impact Summary	Agency Coordination / Permits	Mitigation
Coastal Resources	X				The Coastal Zone Management Act of 1972 (CZMA, or the Act) encourages the management of coastal zone areas and provides grants to be used in maintaining coastal zone areas. It is intended to ensure that federal activities are consistent with state programs for the protection and, where, possible, enhancement of the nation's coastal zones. The USFWS regulates federal funding in Coastal Barrier Resource System (CBRS) units under the Coastal Barrier Resources Act (CBRA). This Act protects undeveloped coastal barriers and related areas (*i.e.*, Otherwise Protected Areas [OPAs]) by prohibiting or limiting direct or indirect Federal funding of projects that support development in these areas. According to the Louisiana Department of Natural Resources (LDNR), the project site is not located within the Louisiana Coastal Zone The project is not located within the CBRS.		
Threatened and Endangered Species (Endangered Species Act Section 7)	X				The Endangered Species Act (ESA) of 1973 prohibits the taking of listed, threatened, and endangered species unless specifically authorized by permit from the USFWS or the National Marine Fisheries Service. No rare, threatened, or endangered species are present on the site. No impacts to rare, threatened, or endangered species or critical habitats are anticipated for the proposed project. No state or Federal parks, wildlife refuges, or wildlife management areas are known at the site.	USFWS online consultation completed on 06/30/15. (See Appendix E)	Any changes to the scope or location of the proposed project or if the project has not been initiated one year from the date of the solicitation of views (May 15, 2016), the applicant is responsible for coordinating with United States Fish and Wildlife Service. See also Section 6.0 Conditions and Mitigation Measures.

Resource Area	Negligible Impact	Minor Impact	Moderate Impact	Major Impact	Impact Summary	Agency Coordination / Permits	Mitigation
Cultural Resources (National Historic Preservation Act Section 106)		X			A review of this alternative was conducted in accordance with FEMA's 2011 LA HMGP Programmatic Agreement (PA) dated January 31st, 2011. Therefore, FEMA has determined a finding of No Adverse Effect to Historic Properties with conditions (i.e., No Significant Impact to Cultural Resources). Consultation with the affected Tribes was conducted per 36 CFR §800.2(c) (2)(i)(B). FEMA has determined that there are three (3) previously identified cultural resources within the project area. Additionally, there is a high probability of both pre-historic archaeological resources and resources associated with the Trail of Tears within the project APE. While a site visit on May 28, 2015 did not identify any archaeological deposits, given the depth of the potential pre-historic archaeological resources and the high probability of resource or burials associated with the Trail of Tears, FEMA determined that additional work would be necessary. The nature of the undertaking and the potential depth of any prehistoric deposits, makes completing an Archaeological Phase I survey challenging. That being said, there is still the potential to affect archaeological deposits if they are present. In order to avoid adversely affecting any potential resources, FEMA proposes to condition the project with archaeological monitoring during the excavations, preceded by investigative soil cores, no less than 4in. in diameter. The applicant must comply with the National Historic Preservation Act (NHPA) conditions set forth in this EA.	FEMA submitted a finding of No Historic Properties Adversely Affected with Conditions to the Louisiana State Historic Preservation Office and the affected tribes, (Alabama-Coushatta Tribe of Texas [ACTT], Caddo Nation [CN]; Choctaw Nation of Oklahoma [CNO], Coushatta Tribe of Louisiana [CT], Jena Band of Choctaw Indians [JBCI], Mississippi Band of Choctaw Indians [MBCI], Quapaw Tribe of Oklahoma [QTO], Seminole Tribe of Oklahoma [SNO], Seminole Tribe of Florida [STF], and the Tunica-Biloxi Tribe of Louisiana [TBTL]) per FEMA's Programmatic Agreement dated January 31st, 2011. The consultation letter was submitted on July 14, 2015 for a 30-day consultation period, but no responses have been received to date. FEMA anticipates concurrence from all affected tribes. See Appendix D for External Agency Correspondence.	FEMA proposes to condition the project with archaeological monitoring during the excavations, preceded by investigative soil cores, no less than 4 inch in diameter. FEMA will require: A delineating line of soil cores, not less than 4in. in diameter, to be conducted prior to the excavations to inform the monitoring and to identify the potential for human burials. The presence of archaeological monitors that meet the Secretary of Interior standards during all ground disturbing activities exceeding 15cm (6 inches) depth. That fieldwork follow the guidelines provided by the Louisiana Division of Archaeology (http://www.crt.state.la.us/cultural-development/archaeology/section-106/fieldstandards/index); The production of a monitoring report for submission to FEMA that meets Louisiana Division of Archaeology's report standards (http://www.crt.state.la.us/culturaldevelopment/archaeology/section-106/report-standards/index); and The curation of all artifacts generated by the project, in compliance with the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation and the Louisiana Division of Archaeology. If unmarked graves are present, compliance with the Louisiana Unmarked Human Burial Sites Preservation Act (R.S. 8:671 et seq.) is required. See also Section 6.0 Conditions and Mitigation Measures.

Resource Area	Negligible Impact	Minor Impact	Moderate Impact	Major Impact	Impact Summary	Agency Coordination / Permits	Mitigation
Environmental Justice (Executive Order 12898) Socioeconomics	X				EO 12898, entitled "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," was signed on February 11, 1994. The EO directs federal agencies to make achieving environmental justice part of their missions by identifying and addressing, as appropriate, disproportionately high and/or adverse human health, environmental, economic, and social effects of its programs, policies and activities on minority or low-income populations. According to the U.S. Census Bureau, 2009-2013 Five-Year American Community Survey, the town of Lake Providence, zip code 71254, is comprised of 78.4% Black/African American, 21.5% White, and 1.5% Hispanic/Latino. The median family income in 2013 was $22,460, and 51.3% of families earn incomes below the poverty level. The percentage of the population with high school diplomas or higher was 64.9%. The 2010 population recorded was 6,759. The proposed work has no potential to adversely impact any population.	U.S. Census Bureau, American Fact Finder, Data for Lake Providence, Louisiana accessed July 2015	

Resource Area	Negligible Impact	Minor Impact	Moderate Impact	Major Impact	Impact Summary	Agency Coordination / Permits	Mitigation
Resource Recovery and Conservation Act (RCRA)	X				The objectives of the RCRA are to protect human health and the environment from the potential hazards of waste disposal, to conserve energy and natural resources, to reduce the amount of waste generated, and to ensure that wastes are managed in an environmentally sound manner. RCRA regulates the management of solid waste (e.g., garbage), hazardous waste, and underground storage tanks holding petroleum products or certain chemicals. Project involves excavation of soil and existing culvert metal and concrete piping and wingwall. All debris would be disposed of at a permitted landfill.	Response received 07/22/15 from LDEQ.	Regardless of the asbestos content, the applicant is responsible for ensuring that renovation or demolition activities are coordinated with the LDEQ. Demolition activities related to possible Asbestos-Containing Materials (PACM) must be inspected for ACM/PACM where it is safe to do so. Should Asbestos Containing Materials (ACM) be present at the project site, the applicant is also responsible for ensuring proper disposal in accordance with the previously referenced administrative orders. ACM/PACM must be handled in accordance with local, state and federal regulations and disposed of at approved facilities that accept ACM. Demolition activity notification must be sent to the LDEQ before work begins. The applicant is responsible for complying with the Toxic Substances Control Act (TSCA) Section 402(c)(3) requirements as well as to the satisfaction of the governing local, state, and federal agencies to ensure that project activities are managed, administered, and/or handled by certified/accredited technicians, contractors, and providers. The applicant is responsible complying with all local, state, and federal laws and ensuring that project activities are coordinated with the LDEQ for abatement activities. See also Section 6.0 Conditions and Mitigation Measures.

Resource Area	Negligible Impact	Minor Impact	Moderate Impact	Major Impact	Impact Summary	Agency Coordination / Permits	Mitigation
Noise	X				Noise is commonly defined as unwanted or unwelcome sound, and most commonly measured in decibels (dB) on the A-weighted scale, which is the scale most similar to the range of sounds that the human ear can hear. Sound is federally regulated by the Noise Control Act of 1972, which charges the EPA with preparing guidelines for acceptable ambient noise levels. EPA guidelines, and those of many other federal agencies, state that outdoor sound levels in excess of 55 dB day-night average sound level (DNL) are "normally unacceptable" for noise-sensitive land uses including residences, schools, or hospitals. During the construction period there would be a short-term increase in noise levels. During the construction period there will be a short-term increase in noise levels.		Noise levels by receiving land use in residential, public, commercial, and industrial areas should be limited to varying decibel levels during the "daytime" hours of 7 AM to 7PM. Construction activities should be limited to this schedule on weekdays. Mitigation and abatement measures will be required to reduce the noise levels to a range that would be considered acceptable. See also Section 6.0 Conditions and Mitigation Measures.
Traffic and Transportation	X				Traffic volumes along residential thoroughfares within and around town of Lake Providence would increase temporarily during work activities.		Appropriate signage and barriers should be in place prior to construction activities in order to alert pedestrians and motorists of project activities and traffic pattern changes. The contractor should implement traffic control measures, as necessary. See also Section 6.0 Conditions and Mitigation Measures.

Resource Area	Negligible Impact	Minor Impact	Moderate Impact	Major Impact	Impact Summary	Agency Coordination / Permits	Mitigation
Hazardous Materials and Toxic Wastes	X				The management of hazardous materials is regulated under various federal and state environmental and transportation laws and regulations, including the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); the Toxic Substances Control Act of 1976 (TSCA); the Emergency Planning and Community Right-to-Know Act; the Hazardous Materials Transportation Act; and the Louisiana Voluntary Investigation and Remedial Action statute. The purpose of the regulatory requirements set forth under these laws is to ensure the protection of human health and the environment through proper management (identification, use, storage, treatment, transport, and disposal) of these materials. Some of these laws provide for the investigation and cleanup of sites already contaminated by releases of hazardous materials, wastes, or substances. Per NEPAssist database search, there are no Louisiana State Brownfield sites located within 0.5 miles of the site. No Superfund or Toxic Release Inventory sites were listed. No impacts related to hazardous materials and wastes are anticipated within the project area.	Responses received 07/22/15 USEPA. (See Appendix E)	If hazardous materials are unexpectedly encountered in the project area during the proposed construction operations, appropriate measures for the proper assessment, remediation, management and disposal of the contamination would be initiated in accordance with applicable federal, state, and local regulations. The contractor would be required to take appropriate measures to prevent, minimize, and control the spill of hazardous materials in the construction area. See also Section 6.0 Conditions and Mitigation Measures.
Climate Change	X				The proposed drainage improvements within and around the town Lake Providence, in East Carroll Parish, would have a *de minimis* effect on the climate.		

4.2 Hydrology and Floodplains (Executive Order 11988)

Executive Order (E.O.) 11988 (Floodplain Management) requires federal agencies to avoid or minimize development in the floodplain except when there are no practicable alternatives.

The applicant's consultant, GAEA Engineering Consultants, Inc., (CGSE) studied the current hydrology and hydraulics of the existing and proposed conditions. Per Hydrologic and Hydraulics (H&H) study dated May 2013, updated Feb. 2015, the proposed action would not have any upstream or downstream impacts for this area during a 100-year recurrence rainfall type flood, because this limited capacity system is not designed for as large of an event as the 100-year event.

This HMGP funded project is one of three connected drainage improvement projects. The DOTD project, which is the primary downstream element of the projects, would have an upstream limit of Gould Blvd, near Blount St. intersection.

The downstream limit is at LA 3181, approximately 1.4 miles west of junction with Gould Blvd. The DOTD project was initiated in 2013, and has well documented public outreach and solicitation of views. All CDBG/HMGP funded project elements are in zone C, except for a stormwater pipe outfall which flows into the Lake Providence.

East Carroll Parish FIRM, 220062 B, dated 11/15/1985, pages 16 and 17, and Lake Providence FIRM 220063 0005A, dated 10/16/1979, shows the project in zone C, minimally flood prone. The effective FIRM 220062 B, is a letter converted Flood Hazard Boundary Map, in the 11X17 format (pages rather than panels). Zone "A" is a Special Flood Hazard Area (SFHA), Base Food Elevations (BFE) not determined.

Alternative 1 - No Action: The No Action alternative would have no effect on floodplains.

Alternative 3 - Proposed Action: With this alternative, the Lake Providence drainage system would be improved. To comply with Executive Order 11988, Floodplain Management, FEMA is required to follow the procedure outlined in 44 CFR Part 9 to assure that alternatives to the proposed action have been considered. This process, also known as the "Eight Step Planning Process," has been applied to this mitigation project and is described in Appendix C. This action must be coordinated with the local floodplain manager as well as comply with local floodplain ordinances. For the purposes of this study, there are no practical alternatives to the proposed action.

Based on the GAEA H&H results, the systems' improvements would generate about a 1 foot reduction in the 10-year flood elevations, and thereby remove these frequent events, shallow flooding to the approximately 50 residential properties, affecting about 215 people.

4.3 Cultural Resources

The consideration of impacts to historic and cultural resources is mandated under Section

101(b) 4 of NEPA as implemented by 40 CFR Part 1501-1508. Section 106 of the National Historic Preservation Act (NHPA) requires Federal agencies to take into account their effects on historic properties (i.e. historic and cultural resources) and allow the Advisory Council on Historic Preservation an opportunity to comment. FEMA has chosen to address potential impacts to historic properties through Section 106 of NHPA as implemented through 36 CFR Part 800.

FEMA has initiated Section 106 consultation on this project in accordance with the Statewide Secondary Programmatic Agreement (LA HMGP PA) dated December 31, 2011, between the Louisiana State Historic Preservation Officer (SHPO), the Louisiana Governor's Office of Homeland Security and Emergency Preparedness (LA GOHSEP), the Alabama-Coushatta Tribe of Texas, the Chitimacha Tribe of Louisiana, the Choctaw Nation of Oklahoma, the Jena Band of Choctaw Indians, the Mississippi Band of Choctaw Indians, the Seminole Tribe of Florida, and the Advisory Council on Historic Preservation (http://www.fema.gov/pdf/hazard/hurricane/2005katrina/LA_HMGP%20PA.pdf). The PA was created to streamline the Section 106 review process.

The Section 106 process outlined in the LA HMGP PA requires the identification of historic properties that may be affected by the proposed action or alternatives within the project's area of potential effects (APE). Historic properties, defined in Section 101(a)(1)(A) of NHPA, include districts, sites (archaeological and religious/cultural), buildings, structures, and objects that are listed in or determined eligible for listing in the National Register of Historic Places (NRHP). Historic properties are identified by qualified agency representatives in consultation with interested parties. Below is a consideration of various alternatives and their effects on historic properties.

Alternative 1 – No Action:
This alternative does not include any FEMA undertaking; therefore, FEMA has no further responsibilities under Section 106 of NHPA.

Alternative 3 - Proposed Action:
Alternative 3 has the potential to have a minor effect on Cultural Resources. In order to avoid or minimize this potential, FEMA has proposed to condition the project with monitoring (please a detailed list of the proposed conditions below).

The Areas of Potential Effect (APEs) for both standing structures and archaeology is limited to the immediate area of ground disturbing activities and space for laydown. The scope of the project limits the potential effects, as the work occurs almost completely below grade. Given the size and scope of the project, the APE has been divided into 4 different sections, one for each of the segments of the project.

> *Segment 1:* The APE for Segment 1 is 4.96 acres (2 hectares) in total size. The APE runs north to south along Millikin St./Blackburn St. between Lake St/US Hwy 65 and 1st St, the turns east along 1st St. until Howard Ln. The out follow runs north from 1st St, beneath the driveway of 700-1098 Lake St., and then crosses beneath Lake St to flow into Lake Providence. The southern portion connects through an empty lot to Second St. and then turns southeast, cutting diagonally across the block form the corner of 2nd St and West St. to the corner of

3rd St and Burney St. It runs south along Burney St. for half a block. It also runs along 3rd St then turns south down Pecan St to 4th St. A portion of the drainage also cuts through the block between Burney St. and Pecan St.

Segment 2: The APE for Segment 2 is 5.1 acres (2.1 hectares) in total size. It runs north and south along Gould Blvd between Bell St and 1st, running west from Gould Blvd along Fischer St. to Koresh St. before turning south along Koresh St and flowing in to LA DOTD's portion of the work near St. Louis Ave.

Segment 3: The APE for Segment 3 is 5.24 acres (2.12 hectares) in total size. Its runs east/west for one block on 6th St. between Hudson St. and Gould Blvd, before turning south along Gould Blvd, for one and half blocks. From the east the drainage flows east/west along Blount St. before converging at Gould Blvd and flowing into the LA DOTD portion of the undertaking.

Segment 4: The APE for Segment 4 is 14.6 acres (5.9 hectares) in total size. It starts in the Sparrow Apartment Complex in the block bounded by Purdy St, Sparrow St/US Hwy 65, Blount St. and Riverside Dr. then runs south along Riverside before flowing into the L-25 Canal to the south of town. It then flows west until it links up with the LA DOTD's project.

Historic Properties within the APE were identified based on FEMA's review of the NRHP database, the Louisiana Cultural Resources Map, historic map research, and a site visit conducted April 6, 2015 by FEMA Historic Preservation staff. This data was evaluated by FEMA using NRHP eligibility criteria.

The earliest known settlement in the area of the Lake Providence area dates to the Coles Creek Period (800 – 1000 C.E.) as evidenced in the Lake Providence Mound Site (16EC6) located approximately 3.5 miles north of the current town. While it is likely there were additional Native American settlements in the area, none have been documented. The first European development of the area dates to 1803, when the land surrounding Lake Providence and the Mississippi River was first divided into three plantations, owned by James Floyd (the area between Lake Providence and the Mississippi River), William Culfield, and William Collins (each claiming the plantations to the north and south of Floyd's purchase). Carroll Parish was first created in 1832, and the town of Providence was fist surveyed in 1833, created out of the land then owed by John L. Martin and William B. Keene. The town was incorporated in 1848. By 1859, Lake Providence's population was 359. Due to the shifting coursed of the Mississippi River the town had to be relocated to the west, it's currently location, in 1860. During the Civil War no major battles occurred in the town or the surrounding area, but some of the surrounding plantation houses were used by Union Troops and General Ulysses S. Grant oversaw the attempted construction of a canal (known as Grant's Canal) between Lake Providence and the Mississippi River as an alternate transportation route for Union Troops. In 1877 East and West Carroll Parishes were divided, and the town of Lake Providence was made the official seat of East Carroll Parish.

Standing Structures:

There is only one standing structure within the APE: the existing drainage outflow located at Lake St. and Lake Providence. Based on the date impressed in the headwall the existing outflow into Lake Providence, the drainage system for at least the more northern portion of the APE dates to 1957. As it is more than 50 years of age, FEMA completed a determination of eligibility and determined that the drainage system and the outfall are not eligible for the NRHP (Please see attached Determination of Eligibility). The project APEs are not located within a listed or eligible National Register Historic District, nor are they located within the view-shed of a property individually listed in the NRHP.

Archaeology:

FEMA consulted the US Department of Agriculture's interactive SoilWeb to determine the soil types for each of the APEs. There are three primary soils within the APEs:

Commerce 85% of the project area
Newelton 10% of the project area
Sharkey 5% of the project area

Commerce soils, accounting for almost 97% of the *FEMA funded project area*, are the most recent alluvium, and the soils mostly likely to contain historic material. They are characterized as being somewhat poorly drained, but are still the best drained within APE. In general, the soils within the four APEs become wetter within the southern portion of the project area.

FEMA consulted the SHPO's Cultural Resources map and determined that there are 14 previously identified sites, and one past archaeological survey within 1 mile (.6km) of the APEs. The survey, *A Cultural Resources Survey of the Wilson Point to Point Lookout Levee Enlargement And Berms Project, East Carroll Parish, Louisiana* (LDOA # 22-0789), was completed by Heartfield, Price and Greene, Inc. in April of 1981. The survey took place predominately to the east of the current APEs, though portions of Segment 4 are within the survey area. The 1981 survey included 100% pedestrian survey, with shovel tests at 200ft intervals, but the tests were limited to 50x50x50cm in size. The survey identified 13 resources in the project area, 11 of those were structures. The other two sites were historic artifact scatters, either exposed on the surface or within the plow zone. None of the 13 properties were determined eligible.

The remaining site within the project vicinity is 16EC19, the Byerly House site. The Byerly House site is the location of a historic house that has since been relocated to serve as a visitor's center. The community of Lake Providence completed test excavations on the site as part of Archaeology week for the children of Lake Providence. The site was determined to be eligible for its potential to yield information on the upper-middle-class of Lake Providence at the turn of the 20th century.

While not within in the immediate vicinity of the undertaking, there is one (1) additional site that is useful for determining potential effects to historic properties, 16EC6, the Lake Providence Mounds Site. 16EC6, located north of the project area, is a mound site associated with the Coles Creek Period. Originally identified in the 1930s by Fred Kniffen, the Lake Providence Mound site, has been periodically studied ever since. The

most recent excavations were completed by Coastal Environments, Inc (CEI) in the late 1990s for the US Army Corps of Engineers (USACE). As part of their analysis of the site, Weinstein et al. completed a geomorphological analysis of the site and the surrounding land form. The deepest soils in the area date to the Holocene; they have been buried beneath two layers of more recent alluvium associated with the shifting channels of the Mississippi River, including the channel that is now Lake Providence, as well as other abandoned channels. There is almost no discernable difference between these two later layers of alluvium, only being distinguished, at the Lake Providence Mound Site, by an intervening habitation layer starting at approximately 1 to 1.5 meters below surface.

FEMA HP staff reviewed the early East Carroll parish map archives to obtain information about the APE. The area does not appear on most early maps, and on those it does appear, the project location is not shown in any detail. The APE is included on the LaTourrette map of 1848 and the area is still noted as being plantation lands, though by that time it had started being subdivided. The earliest detailed map of the APE is the 1892 Sanborn Fire Insurance Company Map; it shows that town in its current location, but not at its current size or density. While the 1909 map show that the town has been fully platted, it is not until the 1928 Map that any development is shown within the APEs. The town developed first at the intersection of Lake Providence and the Mississippi, and then moved along the lakeshore, before moving west and south to fill in the additional space. It is not until the 1928-1944 maps that the population density increased in all sections of the town.

On May 28, 2015, FEMA Historic Preservation Staff completed a site visit for the undertaking. During that site visit FEMA HP staff visited all of the project locations and complete 1 shovel test and 5 soil cores. Additional tests were planned; however, the Applicant was not able to provide right of way or access information for any of the project areas, so FEMA was not able to complete additional tests. All the tests that were completed were negative for cultural resources, and consistent with the USDA's soil series for the project area. The maximum depth of the Shovel Test was 120cmbs and 50cmbs for the Soil Cores.

FEMA presented the undertaking at its monthly Tribal Calls as part of its standard tribal consultation process. Two of FEMA's tribal partners, the Choctaw Nation of Oklahoma (CNO) and the Mississippi Band of Choctaw Indians (MBCI), raised concerns regarding the project's location. Given the undertaking's location, CNO expressed concern that remains associated with the Removal Routes from the Trail of Tears could be located in the vicinity, and MBCI noted that the area had a high potential for prehistoric sites. FEMA presented the findings from its May 28, 2015 site visit at the June 2, 2015 Tribal Call. At that meeting the MBCI representative questioned whether the tests had been deep enough, and what age the soils encountered were. At the July 7, 2015 Tribal Call FEMA further discussed the results of the background investigations.

Based on that additional research FEMA has determined that the undertaking location is geologically similar to that of the Lake Providence Mound site, and is located between the two of the channels of the Mississippi River, Lake Providence and an unnamed channel to the south. The soils uncovered in FEMA's shovel tests and soil cores were similar to the soils of the most recent alluvium discovered at the mound site, but given

that there is little difference between the most recent soils and the immediately preceding stratum it is difficult to determine the precise age. Using Weinstein et al. as the basis for comparison, none of FEMA's tests were deep enough to encounter prehistoric deposits, presuming they are present. However, the proposed SOW will be deepening the existing channels to depths with the potential to affect deeply buried deposits, like those found at the Lake Providence Mound site.

Additionally, Lake Providence is an area of interest associated with a Trail of Tears Removal Route, which would either predate, or correspond to the official founding of Providence. The town was moved east to its current location in 1860, after the period of Indian Removal. According to the Sanborn Maps, the oldest portions of the town are located to the northeast where Lake Providence and the Mississippi River are closest. This would be the area with the highest probability for remains associated with the removal, and there is no work planned in this area. There is still potential for associated deposits outside of this area, however, specifically in Segment 4.

The town of Lake Providence was established in 1833, officially incorporated in 1848, and moved to its current location in 1860. However, according to the Sanborn Maps of the own, the sections of Lake Providence within the APE for the undertaking were not settled until the early-to-mid 20th century. There is very little potential for eligible historic deposits within the APE.

Based on the aforementioned identification and evaluation, FEMA has determined that there are 3 historic properties as defined in 36 CFR 800.16(l) within the APEs, and that there is the potential for additional historic properties.

The nature of the undertaking and the potential depth of any prehistoric deposits, makes completing an Archaeological Phase I survey challenging. The ROW for this project is very narrow, and the project is constrained to the current widths of the ditches. In order to stay within the APE and reach the depths necessary to uncover potential deposits, the survey would have to be done within the existing ditches. However, at the time of the site visit there was standing water present in 90% of the ditches, and in many yard throughout the project area, and it was relatively early in the rainy season at the time of the visit.

There is still the potential to affect archaeological deposits if they are present. In order to avoid adversely affecting any potential resources, FEMA proposes to condition the project with archaeological monitoring during the excavations, preceded by investigative soil cores, no less than 4in. in diameter. FEMA will require:

- A delineating line of soil cores, not less than 4in. in diameter, to be conducted prior to the excavations to inform the monitoring and to identify the potential for human burials.
- The presence of archaeological monitors that meet the Secretary of Interior standards during all ground disturbing activities exceeding 15cm (6 inches) depth.
- That fieldwork follow the guidelines provided by the Louisiana Division of Archaeology (http://www.crt.state.la.us/cultural-development/archaeology/section-106/field-standards/index);

- The production of a monitoring report for submission to FEMA that meets Louisiana Division of Archaeology's report standards (http://www.crt.state.la.us/cultural-development/archaeology/section-106/report-standards/index); and
- The curation of all artifacts generated by the project, in compliance with the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation and the Louisiana Division of Archaeology.
- If unmarked graves are present, compliance with the Louisiana Unmarked Human Burial Sites Preservation Act (R.S. 8:671 *et seq*.) is required.

5.0 CUMULATIVE IMPACTS

The CEQ's regulations state that cumulative impacts represent the "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions." Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 C.F.R. § 1508.7).

In its comprehensive guidance on cumulative impacts analysis under NEPA, the CEQ notes that: "[t]he range of actions that must be considered includes not only the project proposal, but all connected and similar actions that could contribute to cumulative effects" (CEQ, 1997). The term "similar actions" may be defined as "reasonably foreseeable or proposed agency actions [with] similarities that provide a basis for evaluating the environmental consequences together, such as common timing or geography" (40 C.F.R. § 1508.25[a][3]; see also 40 C.F.R. §§ 1508.25[a][2] and [c]).

Not all potential issues identified during cumulative effects scoping need be included in an EA. Because some effects may be irrelevant or inconsequential to decisions about the proposed action and alternatives, the focus of the cumulative effects analysis should be narrowed to important issues of national, regional, or local significance. To assist agencies in this narrowing process, CEQ lists seven (7) basic questions, including: (1) is the proposed action one of several similar past, present, or future actions in the same geographic area; (2) do other activities (governmental or private) in the region have environmental effects similar to those of the proposed action; (3) have any recent or ongoing NEPA analyses of similar actions or nearby actions identified important adverse or beneficial cumulative effect issues; and, (4) has the impact been historically significant, such that the importance of the resource is defined by past loss, past gain, or investments to restore resources (CEQ, 1997).

It is normally insufficient when analyzing the contribution of a proposed action to cumulative effects to merely analyze effects within the immediate area of the proposed action (CEQ, 1997, pg. 12). Geographic boundaries should be expanded for cumulative effects analysis, and conducted on the scale of human communities, landscapes, watersheds, or airsheds. Temporal frames should be extended to encompass additional effects on the resources, ecosystems, and human communities of concern. A useful concept in determining appropriate geographic boundaries for a cumulative effects analysis is the project impact zone; that is, the area (and resources within that area) that could be affected by the proposed action. The area appropriate for analysis of cumulative

effects will, in most instances, be a larger geographic area occupied by resources outside of the project impact zone.

In accordance with NEPA, and to the extent reasonable and practicable, this EA considered the combined effects of the Proposed Action Alternative, as well as other actions undertaken by FEMA and other public and private entities that also affect environmental resources the proposed action would affect, and that occur within the considered geographic area and temporal frame(s).

Specifically, a range of past, present, and reasonably foreseeable actions undertaken by FEMA within the designated geographic boundary area were reviewed: (1) for similarities such as scope of work, common timing, and geography; (2) to determine environmental effects similar to those of the proposed action, if any; and (3) to identify the potential for cumulative impacts. As part of the cumulative effects analysis, FEMA also reviewed known past, present, and reasonably foreseeable projects of Federal resource agencies and other parties within the designated geographic boundary. These reviews were performed in order to assess past proposed actions, as well as the effects of completed and ongoing actions in order to determine whether the incremental impacts of the current proposed action, when combined with the effects of other past, present, and reasonably foreseeable future projects, are cumulatively considerable or significant.

The proposed project site is centered at latitude 32.799585, longitude -91.179800. FEMA has determined that 3.5 mile radius of the site constitutes appropriate boundary for a cumulative impact analysis of the proposed action and alternatives. The map in Appendix A represents FEMA-funded projects funded subsequent to and including Hurricane Katrina. To date, FEMA has funded seven (7) Public Assistance Category B (Emergency Protective Measures) projects, one (1) Public Assistance Category E (Public Buildings) project; and one (1) HMGP project. In addition, three (3) CDBG, one (1) DOTD, and four (4) FEMA projects within a 3.5 mile radius of the project site are currently being reviewed to receive funding.

From August 2005 continuing to August 2015, within the 71254 geographic area, several Public Assistance and HMGP program funded, and numerous non-FEMA funded, debris removal, protective measures, mitigation, and repair projects have occurred, are occurring, or are reasonably foreseen to occur (developed with enough specificity to provide useful information to a decision maker and the interested public) to buildings, roads and bridges, recreational and educational facilities, public utilities, waterways, and more. All FEMA funded actions are subject to various levels of environmental review as a requirement for the receipt of Federal funding. An applicant's failure to comply with any required environmental permitting or other condition is a serious violation which can result in the loss of Federal assistance, including funding.

FEMA has determined that the incremental effects of the other infrastructure recovery and improvement actions are likely to be similar to the impacts and effects this EA previously described for the present proposed action, in that the effects to socioeconomic resources are expected to be beneficial, and effects to other resources expected to be either non-existent or minimal and temporary. FEMA has further determined that the incremental impact of the present proposed project, when combined with the effects of

other past, present, and reasonably foreseeable future projects, is neither cumulatively considerable nor significant.

These infrastructure actions, some of which have already occurred, and many of which will occur concurrent with and/or subsequent to the proposed action, are necessary as a result of the unprecedented devastation caused by heavy rain storm events. In reviewing impacts, socioeconomic resources were identified as having the most potential to experience cumulative effects. Although devastating, the 2005 storms created an opportunity for the applicant to serve residents in the state of Louisiana. Considered in relation to past, present, and reasonably foreseeable future actions, the cumulative impact of the proposed action to the built and natural environment would be minimal, would be beneficial rather than detrimental, and is not expected to contribute to any adverse effects or to otherwise significantly affect the human environment.

6.0 CONDITIONS AND MITIGATION MEASURES

Based upon the studies and consultations undertaken in this Environmental Assessment (EA), several conditions and mitigation measures must be taken by the applicant prior to and during project implementation.

- The applicant is required to coordinate with the local floodplain administrator regarding floodplain permit(s) prior to the start of any activities.

- New construction must be compliant with current codes and standards. All coordination pertaining to these activities and applicant compliance with any conditions should be documented and copies forwarded to the state and FEMA for inclusion in the permanent project files

- As per 44 CFR 9.11 (d) (9), mitigation or minimization standards must be applied, where possible.

- The Applicant is required to obtain and comply with all local, state and federal permits, approvals and requirements prior to initiating work on this project. All coordination pertaining to these activities and Applicant compliance with any conditions should be documented and copies forwarded to the state and FEMA for inclusion in the permanent project files.

- The applicant is responsible for coordinating with and obtaining any required permit(s) from the Louisiana Department of Natural Resources' (LDNR) Coastal Management Division (CMD) prior to initiating work. The applicant shall comply with all conditions of the required permit. All coordination pertaining to these activities and applicant compliance with any conditions should be documented and copies forwarded to the state and FEMA for inclusion in the permanent project files.

- Care must be taken during the construction process through the appropriate use and maintenance of Best Management Practices (BMPs). Applicant must adhere

to all conditions outlined in Clean Water Act Section 401/404 permits associated with the project.

- In order to minimize impacts to waters of the U.S., the contractor is required to implement BMPs that meet the LDEQ permitting specifications for storm water discharge regulated under Section 402 of the CWA. This includes designing the site with specific construction measures to reduce or eliminate run-off impacts.

- The contractor will be responsible for keeping all excavated areas periodically sprayed with water, all equipment maintained in good working order, and all construction vehicles would be limited to 15 mph to minimize pollution/fugitive dust. In addition, during the storm drain line culvert removal and installation process, the contractor will be responsible for keeping the culvert and drainage system areas covered during non-work hours to prevent water and air erosion during rain events or high winds.

- If the project results in a discharge to waters of the state, submittal of a Louisiana Pollutant Discharge Elimination System (LPDES) application may be necessary.

- If the project results in a discharge of wastewater to an existing wastewater treatment system, that wastewater treatment system may need to modify its LPDES permit before accepting the additional wastewater.

- LDEQ has stormwater general permits for construction areas equal to or greater than one acre. It is recommended that the LDEQ Water Permit Division be contacted at (225) 219-3181 to determine whether the proposed improvements require one of these permits.

- All precautions should be observed to control nonpoint source pollution from construction activities.

- Any changes or modifications to the proposed project would require a revised determination. Off-site locations of activities such as borrow, disposals, haul-and detour-roads and work mobilization site developments may be subject to the Department of the Army regulatory requirements and may have an impact to a Department of Army project.

- If any of the proposed work is located in wetlands or other areas subject to the jurisdiction of the U.S. Army Corps of Engineers, USACE should be contacted directly to inquire about the possible necessity for permits. If a Corps permit is required, part of the application process may involve a water quality certification from LDEQ.

- All precautions should be observed to protect the groundwater of the region.

- Please be advised that water softeners generate wastewaters that may require special limitations, depending on local water quality considerations. Therefore, if water system improvements include water softeners, the applicant is advised to

contact the LDEQ Water Permits to determine if special water quality-based limitations will be necessary.

- Applicant is required to coordinate with the local floodplain administrator regarding building permits, clearances, drainage studies, etc. Documentation of all coordination activities with the local floodplain administrator pertaining to this project shall be submitted to the LA GOHSEP and FEMA for inclusion in the permanent project files.

- If any solid or hazardous wastes, or soils and/or groundwater contaminated with hazardous constituents are encountered during the project, notification to LDEQ's Single-Point-of-Contact (SPOC) at (225) 219-3640 is required. Additionally, precautions should be taken to protect workers from these hazardous constituents.

- To remain in compliance with Section 106 of the National Historic Preservation Act, the Applicant (East Carroll Parish) must adhere to conditions outlined below and in the documented responses from SHPO, National Park Service, and the Alabama-Coushatta Tribe of Texas (documents attached).

- FEMA has determined that there are three previously identified cultural resources within the project area. Additionally, there is a high probability of both pre-historic archaeological resources and resources associated with the Trail of Tears within the project APE. While a site visit on May 28, 2015 did not identify any archaeological deposits, given the depth of the potential pre-historic archaeological resources and the high probability of resource or burials associated with the Trail of Tears, FEMA determined that additional work would be necessary.

- The nature of the undertaking and the potential depth of any prehistoric deposits, makes completing an Archaeological Phase I survey challenging. That being said, there is still the potential to affect archaeological deposits if they are present. In order to avoid adversely affecting any potential resources, FEMA proposes to condition the project with archaeological monitoring during the excavations, preceded by investigative soil cores, no less than 4 inches in diameter.

- A review of this alternative was conducted in accordance with FEMA's 2011 LA HMGP Programmatic Agreement (PA) dated January 31st, 2011. Therefore, FEMA has determined a finding of No Adverse Effect to Historic Properties with conditions (i.e., No Significant Impact to Cultural Resources). Consultation with the affected Tribes was conducted per 36 CFR §800.2(c) (2)(i)(B). The applicant must comply with the National Historic Preservation Act (NHPA) conditions set forth in this EA.

FEMA proposes to condition the project with archaeological monitoring during the excavations, preceded by investigative soil cores, no less than 4in. in diameter. FEMA will require:

- A delineating line of soil cores, not less than 4in. in diameter, to be conducted prior to the excavations to inform the monitoring and to identify the potential for human burials.

- The presence of archaeological monitors that meet the Secretary of Interior standards during all ground disturbing activities exceeding 15cm (6 inches) depth.

- That fieldwork follow the guidelines provided by the Louisiana Division of Archaeology (http://www.crt.state.la.us/cultural-development/archaeology/section-106/fieldstandards/index);

- The production of a monitoring report for submission to FEMA that meets Louisiana Division of Archaeology's report standards (http://www.crt.state.la.us/culturaldevelopment/archaeology/section-106/report-standards/index); and
- The curation of all artifacts generated by the project, in compliance with the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation and the Louisiana Division of Archaeology.

If unmarked graves are present, compliance with the Louisiana Unmarked Human Burial Sites Preservation Act (R.S. 8:671 et seq.) is required.

- Tree removal should be by "cut flush and remove" practices only. If stump removal is necessary, the stumps should be ground out in place to a depth not to exceed 12" below surface.

- *Unexpected Discovery and Stop Work:* If archaeological artifacts or features (prehistoric or historic) are discovered during the course of FEMA funded work, the Applicant must ensure that their Contractor stops work in the vicinity of the discovery and takes all reasonable measures to avoid and minimize harm to the discovery. The Applicant shall inform GOHSEP and FEMA of the discovery and FEMA will deploy an archaeologist to the location to conduct a site condition assessment. The Applicant shall not proceed with work until FEMA has completed consultation with the SHPO on the treatment of the discovery.

- *Unmarked Human Burials Discovery*: If human remains are discovered during the course of FEMA funded work, the Applicant and the Applicant's Contractor are responsible for immediately halting work within the vicinity of the human remains finding. The Applicant shall immediately notify GOHSEP, FEMA, the local Police Department, and the local Coroner's Office of the discovery. The local Coroner's Office will assess the nature and age of the human skeletal remains. If the Coroner's Office determines that the human skeletal remains are older than 50 years of age, the Louisiana Division of Archaeology will take jurisdiction over the remains. Within twenty-four (24) hours, FEMA will notify the Louisiana Division of Archaeology (225-342-8170) of the finding.

- Within seventy-two (72) hours, FEMA would take the lead in working with the Louisiana Division of Archaeology and other interested parties, as necessary, to ensure compliance with the Louisiana Unmarked Human Burial Sites Preservation Act (R.S. 8:671 *et seq.*) and other applicable laws. In addition, the Applicant must afford FEMA the opportunity to comply with the "Human Remains Policy" set forth by the Advisory Council on Historic Preservation (ACHP).

- Failure to comply with stop work stipulations associated with archaeological findings or human remains discoveries would jeopardize the Applicant's receipt of FEMA funding.

Failure to comply with these conditions may make part or all of these projects ineligible for FEMA funding.

7.0 PUBLIC INVOLVEMENT

The public was invited to comment on the proposed action. A legal notice was published in the following newspapers: the Banner-Democrat on Thursday, July 23, 2015 and Thursday, July 30, 2015; and in the Monroe News Star on Wednesday, July 22, 2015; Friday, July 24, 2015, and Sunday, July 26, 2015. The draft EA and draft FONSI were available for review at the following locations: 1) East Carroll Parish Library at 109 Sparrow Street, Lake Providence, LA 71254, Monday - Friday, 8:00 a.m. – 5:00 p.m., and Saturday, 8:00 a.m. – 12:00 p.m., and at, 2) City Hall/Clerk of Court at 201 Sparrow Street, Lake Providence, LA 71254, Monday - Friday, 8:00 a.m. – 4:30 p.m. The draft Environmental Assessment was published on FEMA's and the Parish's official websites. There was a fifteen (15) day comment period, beginning on beginning on July 30, 2015 and concluding on August 13, 2015 at 4 p.m. A copy of the Public Notice is attached in Appendix F.

8.0 AGENCY COORDINATION

U.S. Army Corps of Engineers (USACE)
Louisiana Department of Environmental Quality (LDEQ)
Louisiana Department of Natural Resources (LDNR), Coastal Zone Management Program (CZMP)
Louisiana Department of Wildlife and Fisheries (LDWF)
Environmental Protection Agency (EPA)
U.S. Department of Agriculture - Natural Resources Conservation Service
Louisiana State Historic Preservation Officer (SHPO)
U.S. Fish and Wildlife Service (USFWS)

9.0 CONCLUSION

Construction of the proposed project at the proposed location was analyzed based on the studies, consultations, and reviews undertaken as reported in this draft EA. The findings of this EA conclude that the proposed action at the proposed site would result in no significant adverse impacts to geology, groundwater, floodplains, public health and

safety, hazardous materials, socioeconomic resources, environmental justice, or cultural resources are anticipated under the Proposed Action Alternative.

During project construction, short-term impacts to soils, surface water, transportation, air quality, and noise are anticipated and conditions have been incorporated to mitigate and minimize the effects. Project short-term adverse impacts would be mitigated using BMPs, such as silt fences, proper vehicle and equipment maintenance, and appropriate signage. No long-term adverse impacts are anticipated from the proposed project. Therefore, FEMA presently finds the proposed action meets the requirements for a Finding of No Significant Impacts (FONSI) under NEPA and the preparation of an EIS will not be required. If new information is received that indicates there may be significant adverse effects, FEMA would then revise the findings and issue a second public notice, for additional comments. However, if there are no changes, this Draft EA will become the Final EA.

10.0 LIST OF PREPARERS

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11.0 REFERENCES

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APPENDIX A

FIGURES

Figure 1: Location of East Carroll Parish, Louisiana (Wikipedia Image, July 2015**)**

Figure 2: Aerial View of Lake Providence, East Carroll Parish, LA (Google earth, July 2015)

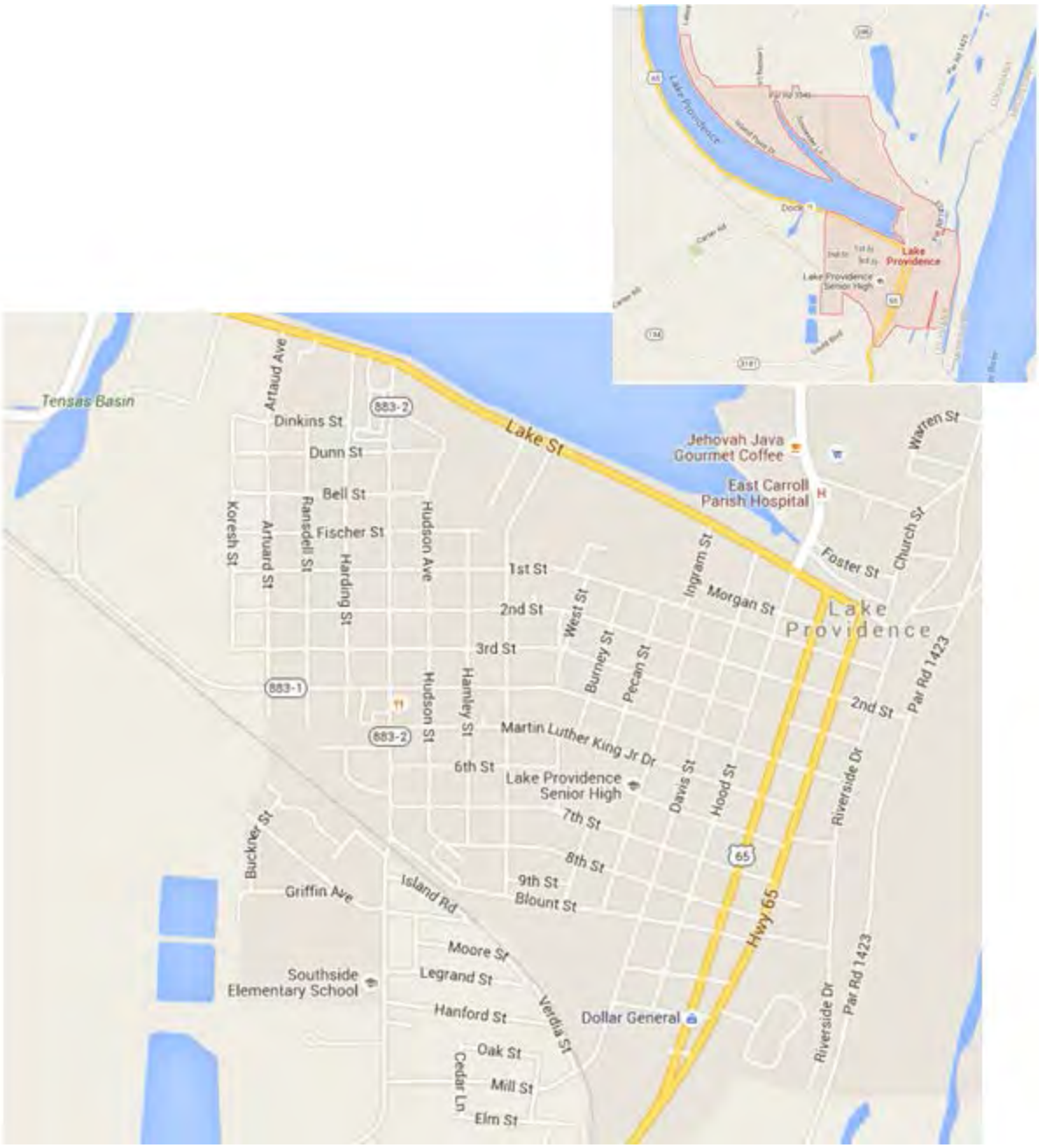

Figure 3: Street Map View of Proposed Project Location and micro-view of the town of Lake Providence, East Carroll Parish, LA (Google Maps, July 2015)

Figure 4: Drainage Improvements, Connection to Lake Providence Outfall

Seven (7) Project Sites ( )
Drainage Improvements ( )
FEMA Project Area ( )
CDBG Project Area ( )
DOTD L-25A Canal project area ( )
DOTD project path to Hwy 3181 ( )

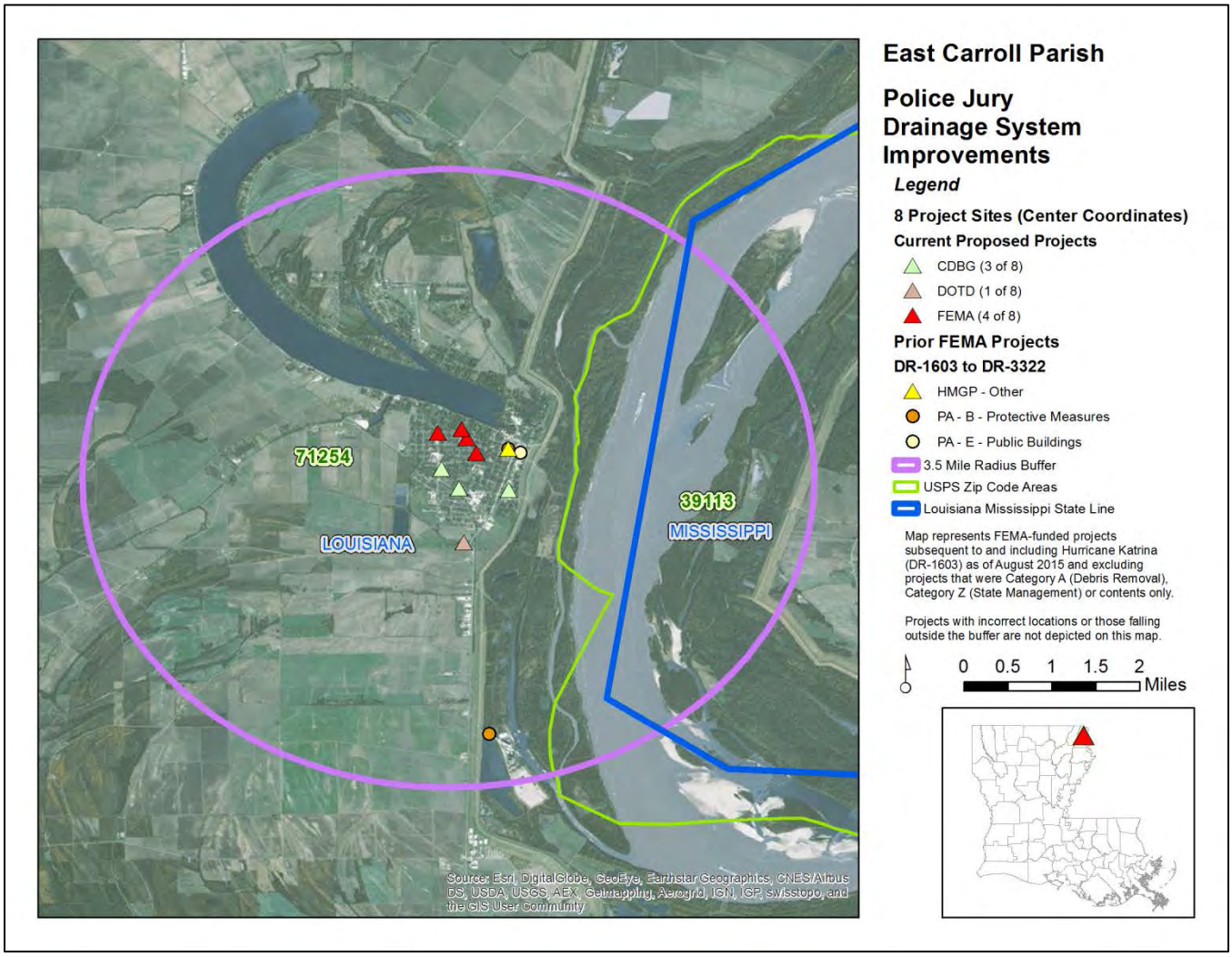

Figure 5: East Carroll Parish Cumulative Impacts Map

APPENDIX B

SITE PLANS FOR PROPOSED DRAINAGE IMPROVEMENTS

EAST CARROLL PARISH POLICE JURY DRAINAGE SYSTEM IMPROVEMENTS

HMGP 1603n-035-0001 FEMA #0300

LAKE PROVIDENCE, LA

VICINITY MAP

PERFORMED BY:

GAEA Engineering Consultants
536 Washington Ave.
New Orleans, LA 70130
o. 504.962.5360 f. 504.962.5362

EAST CARROLL PARISH POLICE JURY DRAINAGE PROJECT

LAKE PROVIDENCE, LA

TITLE SHEET

SHEET 1 of 31

SHEET 2 of 31		EAST CARROLL PARISH POLICE JURY DRAINAGE PROJECT LAKE PROVIDENCE, LA SHEET KEY	GAEA ENGINEERING CONSULTANTS 536 Washington Ave. New Orleans, LA 70130 o. 504.962.5360 f. 504.962.5362

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5	KORNISH STREET (2 OF 3)
6	FISHER STREET (1 OF 3)
7	FISHER STREET (2 OF 3)
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9	GOULD BLVD BETWEEN FISHER AND FIRST STREETS
10	BLOUNT STREET (1 OF 5)
11	BLOUNT STREET (2 OF 5)
12	BLOUNT STREET (3 OF 5)
13	BLOUNT STREET (4 OF 5)
14	BLOUNT STREET (5 OF 5)
15	GOULD BLVD BETWEEN BLOUNT AND SOUTH STREETS
16	SOUTH STREET
17	FINAL OUTFALL
18	SOUTH OUTFALL DITCH (1 OF 6)
19	SOUTH OUTFALL DITCH (2 OF 6)
20	SOUTH OUTFALL DITCH (3 OF 6)
21	SOUTH OUTFALL DITCH (4 OF 6)
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23	RIVERSIDE DRIVE (1 OF 2)
24	RIVERSIDE DRIVE (2 OF 2)
25	606 SPARROW STREET APARTMENTS
26	FIRST STREET
27	MILLION STREET (1 OF 2)
28	MILLION STREET (2 OF 2)
29	OUTFALL BETWEEN SECOND AND FIRST STREETS
30	BURNEY AND REGAN STREETS (1 OF 2)
31	BURNEY AND REGAN STREETS (2 OF 2)

GENERAL NOTES:

1. LOCATIONS OF UNDERGROUND UTILITIES ARE APPROXIMATE. LOCATIONS AND DEPTHS OF UTILITIES IN AND AROUND PROJECT AREAS SHALL BE CONFIRMED BEFORE CONSTRUCTION. CONTRACTOR SHALL CONFIRM LOCATIONS AND DEPTHS OF UTILITIES BEFORE EXCAVATING. ANY INTERFERENCE SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

2. ALL LIMITS ARE FEET UNLESS OTHERWISE INDICATED. ELEVATIONS ARE GIVEN IN FEET WITH REFERENCE TO NAVD 88 DATUM.

3. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS BEFORE COMMENCING WORK. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES BETWEEN THE DRAWINGS AND THE ACTUAL EXISTING CONDITIONS AND DIMENSIONS TO THE ENGINEER.

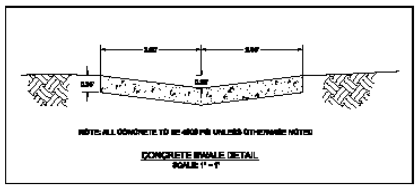
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN, PLACEMENT, MAINTENANCE, ETC. OF ANY AND ALL SHORING, BRACING, TIE RACKS, ETC. NEEDED TO SUPPORT ANY PART OF THE CONSTRUCTION DURING THE ENTIRE CONSTRUCTION PROCESS TO ENSURE THE SAFETY AND INTEGRITY OF THE PROJECT UNTIL THE NECESSARY PERMANENT ELEMENTS ARE IN PLACE.

5. DIMENSIONS - USE WRITTEN DIMENSIONS ONLY. VERIFY ALL DIMENSIONS AT JOB SITE BEFORE COMMENCING WORK AND REPORT ANY DISCREPANCIES. WHERE NO DIMENSIONS ARE PROVIDED OBTAIN CLARIFICATION PRIOR TO PROCEEDING WITH WORK.

6. COMMONS & CONFLICTS - DISCREPANCIES OR CONFLICTS BETWEEN VARIOUS ELEMENTS OF THE CONSTRUCTION DOCUMENTS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER. IF CERTAIN FEATURES ARE NOT FULLY DELINEATED IN THE CONSTRUCTION DOCUMENTS, THEIR CONSTRUCTION SHALL BE OF THE SAME CHARACTER AS FOR SIMILAR CONDITIONS THAT ARE DELINEATED.

7. THE CONTRACTOR SHALL INFORM THE ENGINEER OF RECORD IN WRITING OF ANY DEVIATION FROM THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL NOT BE RELIEVED OF THE RESPONSIBILITY OF SUCH DEVIATION BY THE ENGINEER OF RECORD REVIEW OF SHOP DRAWINGS, PRODUCT DATA, ETC., UNLESS THE CONTRACTOR HAS SPECIFICALLY INFORMED THE ENGINEER OF RECORD OF SUCH DEVIATION AT THE TIME OF SUBMISSION, AND THE ENGINEER OF RECORD HAS GIVEN WRITTEN APPROVAL TO THE SPECIFIC DEVIATION.

ABBREVIATIONS	
A.C.	ASBESTOS CONCRETE (PIPE)
ASPH.	ASPHALT
BLVD.	BOULEVARD
C.B.	CATCH BASIN
C.I.P.	CAST IRON PIPE
CL	CENTERLINE
C.M.A.P.	CORRUGATED METAL ARCH PIPE
C.M.P.	CORRUGATED METAL PIPE
CONC.	CONCRETE
C.P.P.	CORRUGATED PLASTIC PIPE
CY	CUBIC YARDS
D.S.	DOWNSTREAM
DWY	DRIVEWAY
E	EAST
EA	EACH
EL.	ELEVATION
ELEC.	ELECTRICAL
EX.	EXISTING
EXIST.	EXISTING
FFE	FINISHED FLOOR ELEVATION
FL	FLOWLINE
F.M.	FORCE MAIN
INV.	INVERT
LaDOTD	LOUISIANA DEPARTMENT OF TRANSPORTATION
LF	LINEAR FEET
LS.	LUMPSUM/STH
N	NORTH
PROP.	PROPOSED
PSI	POUNDS PER SQUARE INCH
P.V.C.	POLYVINYL CHLORIDE (PIPE)
R.C.	REINFORCED CONCRETE
R.C.A.P.	REINFORCED CONCRETE ARCH PIPE
R.C.B.	REINFORCED CONCRETE BOX CULVERT
R.C.P.	REINFORCED CONCRETE PIPE
RR	RAILROAD
S	SOUTH
SHT.	SHEET
TELE.	TELEPHONE
TYP.	TYPICAL
UNK	UNKNOWN
U.S.	UPSTREAM
V.C.P.	VITRIFIED CLAY PIPE
W	WEST



NOTE: ALL CONCRETE TO BE 4500 PSI UNLESS OTHERWISE NOTED

CONCRETE SWALE DETAIL
SCALE 1" = 1'

GAEA

EAST CARROLL PARISH POLICE JURY DRAINAGE PROJECT

LAKE PROVIDENCE, LA

TABLE OF CONTENTS, GENERAL NOTES, AND DETAILS

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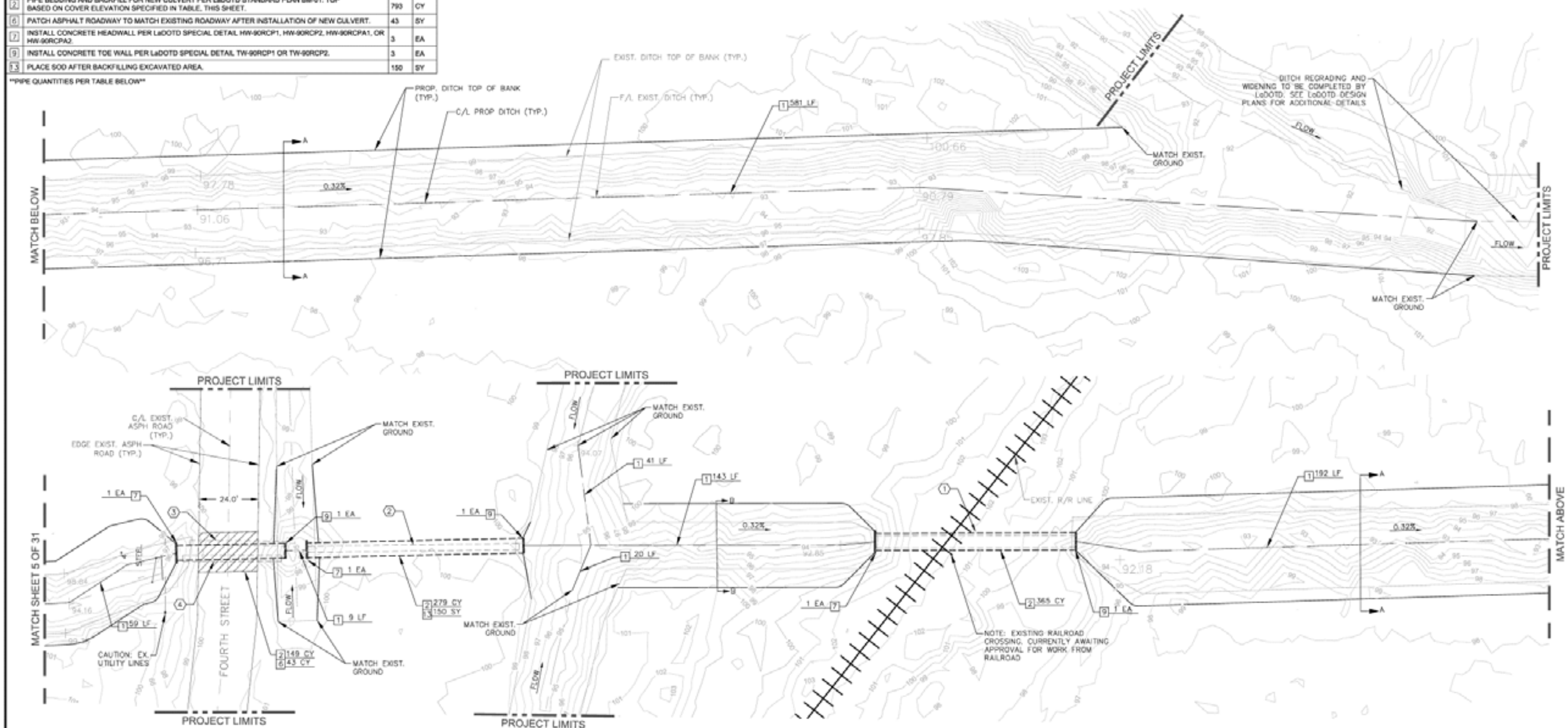
3 of 31

CONSTRUCTION NOTES AND QUANTITIES

NO.	DESCRIPTION	QTY.	UNIT
1	RE-GRADE EXISTING DITCH FROM INVERT OF UPSTREAM CULVERT TO INVERT OF DOWNSTREAM CULVERT WITH A CROSS-SECTION INDICATED ON THIS SHEET.	1045	LF
2	PIPE BEDDING AND BACKFILL FOR NEW CULVERT PER LaDOTD STANDARD PLAN BM-01. TOP BASED ON COVER ELEVATION SPECIFIED IN TABLE, THIS SHEET.	793	CY
6	PATCH ASPHALT ROADWAY TO MATCH EXISTING ROADWAY AFTER INSTALLATION OF NEW CULVERT.	43	SY
7	INSTALL CONCRETE HEADWALL PER LaDOTD SPECIAL DETAIL HW-90RCP1, HW-90RCP2, HW-90RCPA1, OR HW-90RCPA2.	3	EA
9	INSTALL CONCRETE TOE WALL PER LaDOTD SPECIAL DETAIL TW-90RCP1 OR TW-90RCP2.	3	EA
13	PLACE SOD AFTER BACKFILLING EXCAVATED AREA.	150	SY

PIPE QUANTITIES PER TABLE BELOW



GRAPHIC SCALE

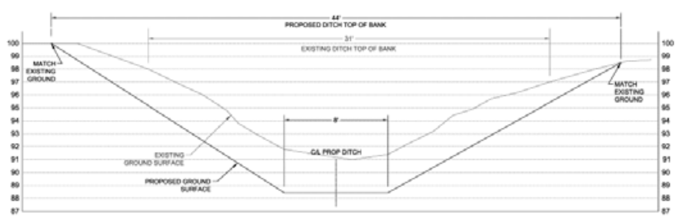
(IN FEET)
1 inch = 20 ft.

DRAINAGE PIPE SCHEDULE										
	EXISTING					PROPOSED				
NO.	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.
1	80.9	60" C.M.P.	92.69	92.2	102.16	80.90	84" R.C.P.	89.97	89.71	102.16
2	85.9	30" R.C.P.	93.26	92.91	100.00	87.40	72" R.C.P.	90.71	90.43	100.00
3	39.4	24" R.C.P.	96.38	95.77	100.67	43.69	72" R.C.P.	90.88	90.78	100.67
4	40.0	30" C.M.P.	93.08	92.67	100.67					

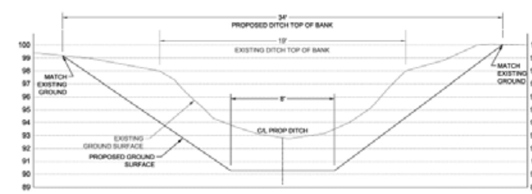
LEGEND:

- DITCH TOP OF BANK
- DITCH FLOWLINE OR ROADWAY CENTERLINE
- CULVERT
- DROP INLET
- CULVERT NUMBER
- EDGE OF ROADWAY/DRIVEWAY/WALKWAY
- EXISTING ELEVATION
- MATCHLINE
- PROJECT LIMITS
- POWER POLE
- PROPOSED FLOW DIRECTION AND DITCH SLOPE

NOTE: SEE SHEET 3 FOR GENERAL NOTES AND ABBREVIATIONS.



SECTION A-A
SCALE: 1" = 4'



SECTION B-B
SCALE: 1" = 4'

GAEA ENGINEERING CONSULTANTS
536 Washington Ave.
New Orleans, LA 70130
o. 504.982.5360 f. 504.982.5362

EAST CARROLL PARISH POLICE JURY DRAINAGE PROJECT

LAKE PROVIDENCE, LA

KORESH STREET (1 of 2)

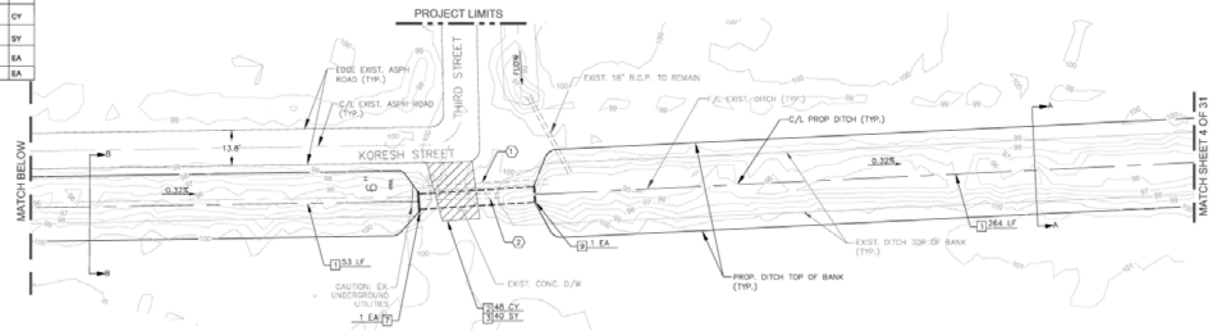
PROJ. MGR.: JMS
DRAWN BY: KJG
CHECKED BY: TLK
DATE: 8/22/2013
SCALE: 1" = 20'

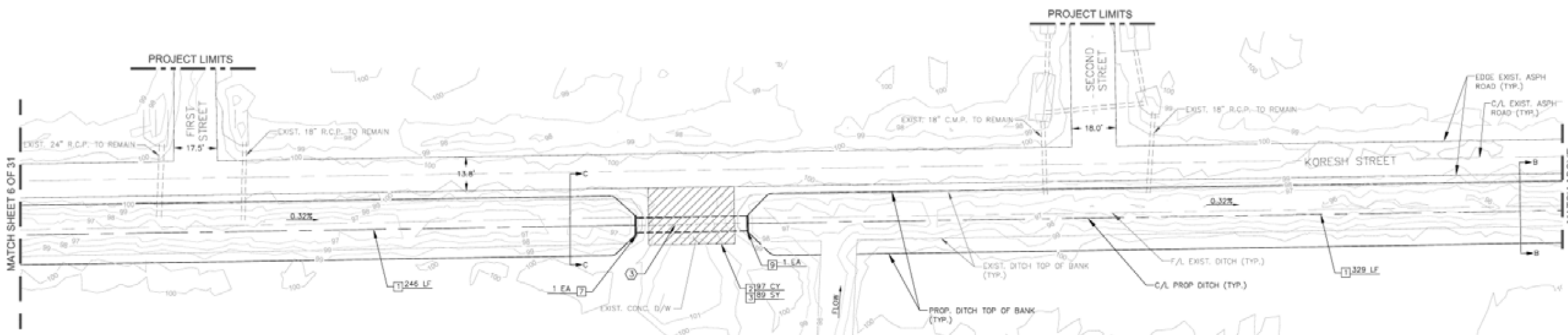
SHEET
4 of 31

CONSTRUCTION NOTES AND QUANTITIES

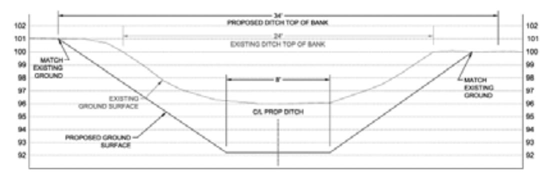
NO.	DESCRIPTION	QTY.	UNIT
1	RE-GRADE EXISTING DITCH FROM INVERT OF UPSTREAM CULVERT TO INVERT OF DOWNSTREAM CULVERT WITH A CROSS-SECTION INDICATED ON THIS SHEET.	892	LF
2	PIPE BEDDING AND BACKFILL FOR NEW CULVERT PER LaDOTD STANDARD PLAN BM-01. TOP BASED ON COVER ELEVATION SPECIFIED IN TABLE, THIS SHEET.	215	CY
3	REPLACE CONCRETE DRIVEWAY AFTER INSTALLATION OF NEW CULVERT, PER LaDOTD STANDARD PLAN DW-02, RURAL DRIVEWAY DETAILS, TYPE "B".	129	SY
7	INSTALL CONCRETE HEADWALL PER LaDOTD SPECIAL DETAIL HW-90RCP1, HW-90RCP2, HW-90RCPA1, OR HW-90RCPA2.	2	EA
9	INSTALL CONCRETE TOE WALL PER LaDOTD SPECIAL DETAIL TW-90RCP1 OR TW-90RCP2.	2	EA

PIPE QUANTITIES PER TABLE BELOW





DRAINAGE PIPE SCHEDULE										
	EXISTING					PROPOSED				
NO.	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.
1	47.0	24" C.M.P.	94.88	95.13	99.89	44.36	72" R.C.P.	92.03	91.89	99.89
2	28.5	24" C.M.P.	94.65	94.75	99.89					
3	41.2	36" R.C.P.	95.08	94.8	100.01	44.71	55"x73" ARCH	93.72	93.58	100.01



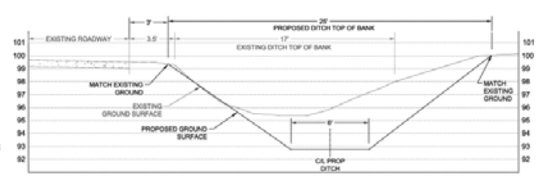
SECTION A-A
SCALE: 1" = 4'

GRAPHIC SCALE
(IN FEET)
1 inch = 20 ft.

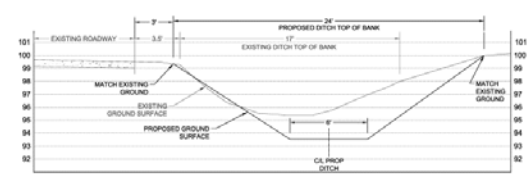
LEGEND:

- DITCH TOP OF BANK
- DITCH FLOWLINE OR ROADWAY CENTERLINE
- CULVERT
- DROP INLET
- CULVERT NUMBER
- EDGE OF ROADWAY/DRIVEWAY/WALKWAY
- EXISTING ELEVATION
- MATCHLINE
- PROJECT LIMITS
- POWER POLE
- 0.XX% PROPOSED FLOW DIRECTION AND DITCH SLOPE

NOTE: SEE SHEET 3 FOR GENERAL NOTES AND DETAILS.



SECTION B-B
SCALE: 1" = 4'



SECTION C-C
SCALE: 1" = 4'

GAEA ENGINEERING CONSULTANTS
538 Washington Ave.
New Orleans, LA 70130
o. 504.962.5360 f. 504.962.5362

EAST CARROLL PARISH POLICE JURY DRAINAGE PROJECT

LAKE PROVIDENCE, LA

KORESH STREET (2 of 2)

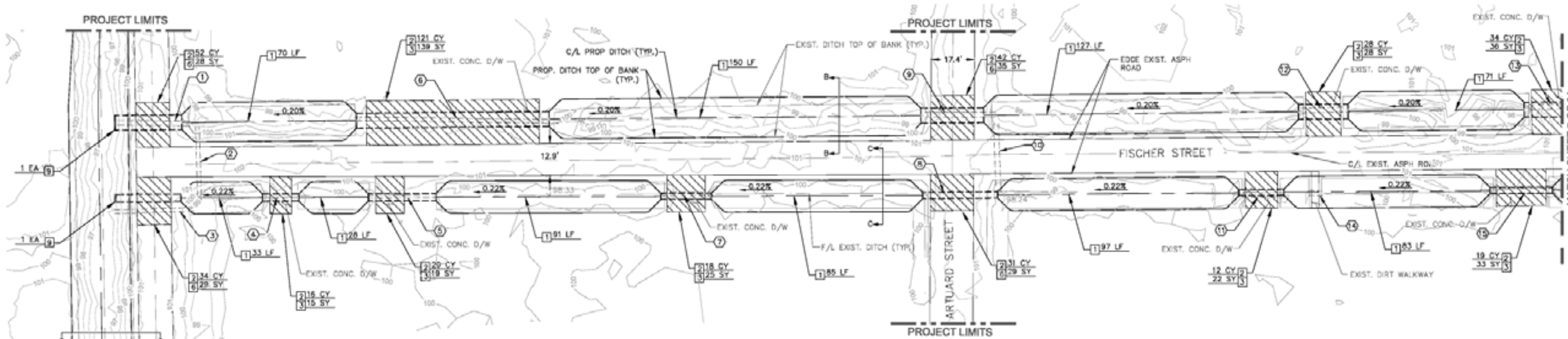
PROJ. MGR.: JMS
DRAWN BY: KJG
CHECKED BY: TLK
DATE: 8/22/2013
SCALE: 1" = 20'

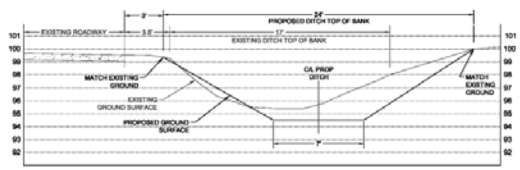
SHEET

CONSTRUCTION NOTES AND QUANTITIES

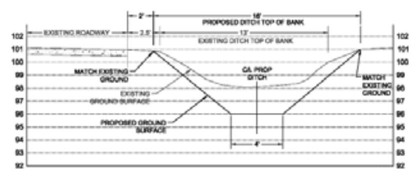
NO.	DESCRIPTION	QTY.	UNIT
1	RE-GRADE EXISTING DITCH FROM INVERT OF UPSTREAM CULVERT TO INVERT OF DOWNSTREAM CULVERT WITH A CROSS-SECTION INDICATED ON THIS SHEET.	1175	LF
2	PIPE BEDDING AND BACKFILL FOR NEW CULVERT PER LaDOTD STANDARD PLAN BM-01. TOP BASED ON COVER ELEVATION SPECIFIED IN TABLE, THIS SHEET.	436	CY
3	REPLACE CONCRETE DRIVEWAY AFTER INSTALLATION OF NEW CULVERT, PER LaDOTD STANDARD PLAN DW-02, RURAL DRIVEWAY DETAILS, TYPE "B".	317	SY
6	PATCH ASPHALT ROADWAY TO MATCH EXISTING ROADWAY AFTER INSTALLATION OF NEW CULVERT.	121	SY
9	INSTALL CONCRETE TOE WALL PER LaDOTD SPECIAL DETAIL TW-90RCP1 OR TW-90RCP2.	2	EA

PIPE QUANTITIES PER TABLE BELOW

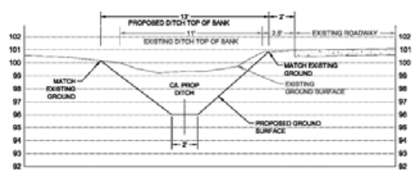




SECTION A-A
SCALE: 1" = 4'



SECTION B-B
SCALE: 1" = 4'



SECTION C-C
SCALE: 1" = 4'

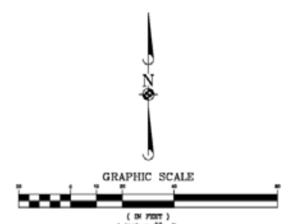
DRAINAGE PIPE SCHEDULE

NO.	EXISTING LENGTH	EXISTING SIZE & TYPE	EXISTING U.S. INV. EL.	EXISTING D.S. INV. EL.	EXISTING COVER EL.	PROPOSED LENGTH	PROPOSED SIZE & TYPE	PROPOSED U.S. INV. EL.	PROPOSED D.S. INV. EL.	PROPOSED COVER EL.
1	29.2	24" R.C.P.	96.97	96.32	100.29	26.8	44"x72" R.C.P.A.	95.58	95.51	101.29
2	30.3	18" R.C.P.	97.98	97.54	100.29	ABANDON PIPE IN PLACE				
3	22.2	18" R.C.P.	97.23	96.95	100.29	20.2	36" R.C.P.	95.43	95.41	101.25
4	13.7	15" R.C.P.	97.4	97.66	100.5	14.7	36" R.C.P.	95.58	95.54	100.5
5	26.7	15" R.C.P.	97.86	97.80	100.36	27.3	36" R.C.P.	95.71	95.64	100.36
6	82.5	18" R.C.P.	96.94	97.18	100.37	72.2	44"x72" R.C.P.A.	95.88	95.71	100.37
7	20.4	15" C.M.P.	98.12	98.[illegible]	100.09	22.5	30" R.C.P.	95.95	95.9	100.09
8	N/A					30.2	30" R.C.P.	96.13	96.15	100.1
9	28.3	24" C.M.P.	97.2	97.[illegible]	100.1	25.9	44"x72" R.C.P.A.	96.23	96.17	100.1
10	25	24" C.M.P.	97.34	97.85	100.25	ABANDON PIPE IN PLACE				
11	16.7	24" C.M.P.	97.1	97.[illegible]	99.77	18.2	30" R.C.P.	96.[illegible]	96.41	99.77
12	19	24" C.M.P.	97.89	97.35	100.24	20	44"x72" R.C.P.A.	96.52	96.47	100.7
13	21.3	24" C.M.P.	97.1	96.96	100.25	23.6	44"x72" R.C.P.A.	96.71	96.66	100.9
14	5.7	24" C.M.P.	98.48	98.25	100.23	REMOVE				
15	25.5	24" C.M.P.	97.67	97.48	100.89	25.2	30" R.C.P.	96.7	96.64	100.39

LEGEND:

- DITCH TOP OF BANK
- DITCH FLOWLINE OR ROADWAY CENTERLINE
- CULVERT
- DROP INLET
- CULVERT NUMBER
- EDGE OF ROADWAY/DRIVEWAY/WALKWAY
- EXISTING ELEVATION
- MATCHLINE
- PROJECT LIMITS
- POWER POLE
- 0.XX% PROPOSED FLOW DIRECTION AND DITCH SLOPE

NOTE: SEE SHEET 3 FOR GENERAL NOTES AND DETAILS.



GAEA ENGINEERING CONSULTANTS
536 Washington Ave.
New Orleans, LA 70130

EAST CARROLL PARISH POLICE JURY DRAINAGE PROJECT

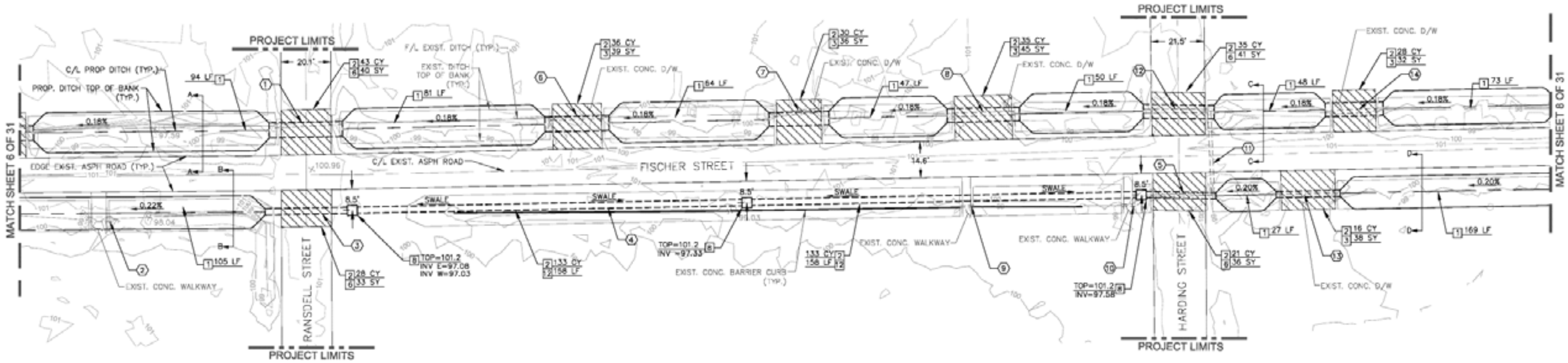
LAKE PROVIDENCE, LA

FISCHER STREET (1 of 2)

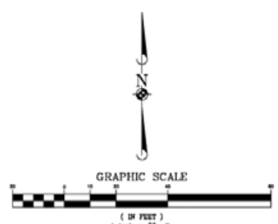
CONSTRUCTION NOTES AND QUANTITIES

NO.	DESCRIPTION	QTY.	UNIT
1	RE-GRADE EXISTING DITCH FROM INVERT OF UPSTREAM CULVERT TO INVERT OF DOWNSTREAM CULVERT WITH A CROSS-SECTION INDICATED ON THIS SHEET.	758	LF
2	PIPE BEDDING AND BACKFILL FOR NEW CULVERT PER LaDOTD STANDARD PLAN BM-01. TOP BASED ON COVER ELEVATION SPECIFIED IN TABLE, THIS SHEET.	536	CY
3	REPLACE CONCRETE DRIVEWAY AFTER INSTALLATION OF NEW CULVERT, PER LaDOTD STANDARD PLAN DW-02, RURAL DRIVEWAY DETAILS, TYPE "B".	186	SY
6	PATCH ASPHALT ROADWAY TO MATCH EXISTING ROADWAY AFTER INSTALLATION OF NEW CULVERT.	150	SY
8	INSTALL CONCRETE CATCH BASIN PER LaDOTD STANDARD PLAN CB-01 OR CB-2, DEPENDING ON PIPE DIAMETER WITH ELEVATIONS AS SHOWN ON PLAN.	3	EA
12	REMOVE EXISTING CONCRETE CURB AND REPLACE WITH CONCRETE SWALE, PER DETAIL ON SHEET 3, WITH A HIGH POINT IN THE CENTER OF THE SPAN GRADED TO DRAIN TO CATCH BASINS.	316	LF

PIPE QUANTITIES PER TABLE BELOW



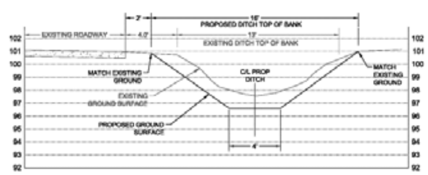
DRAINAGE PIPE SCHEDULE										
	EXISTING					PROPOSED				
NO.	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.
1	26.7	18" C.M.P.	97.2[illegible]	97.08	101.23	23.4	48"×72" R.C.P.A.	96.39	96.8[illegible]	101.20
2	9.8	24" C.M.P.	97.29	97.60	100.53	REMOVE				
3	N/A					35.0	30" R.C.P.	97.63	96.97	101.20
4	N/A					135.0	30" R.C.P.	97.33	97.08	101.00
5	28.0	12" R.C.P.	96.78	97.75	101.04	50.0	30" R.C.P.	97.63	97.58	101.04
6	21.7	18" R.C.P.	97.70	97.73	100.31	25.7	48"×72" R.C.P.A.	97.67	97.03	101.20
7	20.1	18" C.M.P.	97.87	97.75	100.28	24.0	42"×66" R.C.P.A.	97.23	97.19	101.10
8	25.0	18" R.C.P.	97.62	97.57	100.15	29.0	42"×66" R.C.P.A.	97.38	97.33	101.20
9	5.4	8" PLASTIC	96.36	98.58	99.75	136.0	30" R.C.P.	97.58	97.33	101.00
10	5.6	12" R.C.P.	98.08	98.22	99.55	REMOVE EXISTING CULVERT				
11	16.2	15" R.C.P.	97.38	97.34	101.08	ABANDON PIPE IN PLACE				
12	26.8	18" R.C.P.	97.63	97.52	101.16	28.0	42"×66" R.C.P.A.	97.53	97.48	101.40
13	21.6	12" R.C.P.	96.35	97.98	100.08	23.6	30" R.C.P.	97.71	97.69	100.70
14	19.2	18" R.C.P.	98.02	98.05	100.36	23.2	42"×66" R.C.P.A.	97.67	97.64	101.50



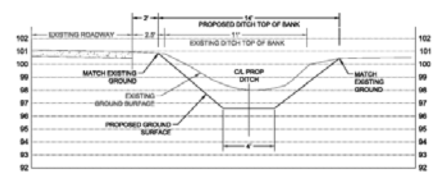
LEGEND:

- DITCH TOP OF BANK
- DITCH FLOWLINE OR ROADWAY CENTERLINE
- CULVERT
- DROP INLET
- CULVERT NUMBER
- EDGE OF ROADWAY/DRIVEWAY/WALKWAY
- EXISTING ELEVATION
- MATCHLINE
- PROJECT LIMITS
- POWER POLE
- 0.XX% PROPOSED FLOW DIRECTION AND DITCH SLOPE

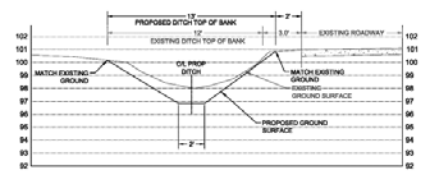
NOTE: SEE SHEET 3 FOR GENERAL NOTES AND DETAILS.



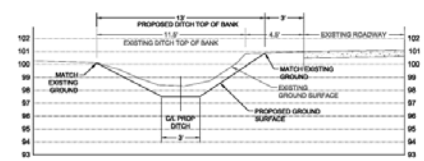
SECTION A-A
SCALE: 1" = 4'



SECTION C-C
SCALE: 1" = 4'



SECTION B-B
SCALE: 1" = 4'



SECTION D-D
SCALE: 1" = 4'

GAEA ENGINEERING CONSULTANTS
536 Washington Ave.
New Orleans, LA 70130
o. 504.962.5360 f. 504.962.5362

EAST CARROLL PARISH POLICE JURY DRAINAGE PROJECT

LAKE PROVIDENCE, LA

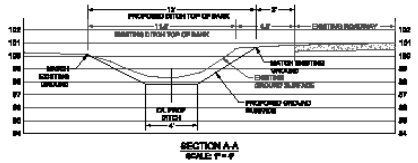
FISCHER STREET (2 of 2)

PROJ. MGR.: JMS
DRAWN BY: KJG
CHECKED BY: TLK
DATE: 8/23/2013
SCALE: 1" = 20'

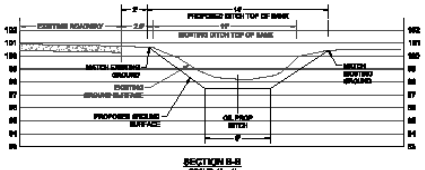
CONSTRUCTION NOTES AND QUANTITIES			
NO.	DESCRIPTION	QTY.	UNIT
1	RE-GRADE EXISTING DITCH FROM INVERT OF UPSTREAM CULVERT TO INVERT OF DOWNSTREAM CULVERT WITH A CROSS-SECTION INDICATED ON THIS SHEET.	952	LF
1a	RE-ESTABLISH GRADE OF EXISTING DITCH.	150	LF
2	PIPE BEDDING AND BACKFILL FOR NEW CULVERT PER LaDOTD STANDARD PLAN BM-01. TOP BASED ON COVER ELEVATION SPECIFIED IN TABLE, THIS SHEET.	70	CY
3	REPLACE CONCRETE DRIVEWAY AFTER INSTALLATION OF NEW CULVERT, PER LaDOTD STANDARD PLAN DW-02, RURAL DRIVEWAY DETAILS, TYPE "B".	106	SY
5	REPLACE GRAVEL DRIVEWAY AFTER INSTALLATION OF NEW CULVERT, PER LaDOTD STANDARD PLAN DW-02, RURAL DRIVEWAY DETAILS, TYPE "B".	34	SY
6	PATCH ASPHALT ROADWAY TO MATCH EXISTING ROADWAY AFTER INSTALLATION OF NEW CULVERT.	62	SY

PIPE QUANTITIES PER TABLE BELOW

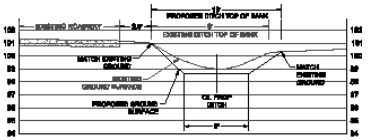
DRAINAGE PIPE SCHEDULE											
	EXISTING					PROPOSED					
NO.	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.
1	13.7	18" R.C.P.	97.76	97.58	100.34	17.6	40"x66" R.C.P.A.	97.81	97.79	101.50
2	30.6	15" R.C.P.	98.48	98.37	100.34	19.8	30" R.C.P.	98.35	98.31	101.30
3			N/A			37.7	17"x43" R.C.P.A.	98.44	98.40	101.10
4	22.2	18" R.C.P.	98.06	98.09	101.17		ABANDON PIPE IN PLACE			
5	34.3	18"x29" C.M.A.P.	98.08	98.10	101.56	37.4	36"x58" R.C.P.A.	98.35	98.30	101.90
6	9.9	18" R.C.P.	98.58	98.25	100.45		REMOVE			
7	7.2	12" R.C.P.	99.18	99.15	100.63		REMOVE			
8	19.4	18" R.C.P.	98.30	98.28	100.45	18.2	27"x43" R.C.P.A.	98.60	98.53	101.30
9	22.7	18" R.C.P.	98.38	98.50	100.78	21.3	31"x50" R.C.P.A.	98.52	98.47	101.30
10	19.8	18" R.C.P.	98.09	98.06	100.84	16.9	27"x43" R.C.P.A.	98.71	98.65	101.40
11	19.8	18" R.C.P.	98.19	98.18	100.84	17.8	31"X50" R.C.P.A.	98.60	98.56	101.60
12	19.6	18" R.C.P.	98.04	98.19	100.85	15.8	27"x43" R.C.P.A.	98.78	98.71	101.50
13	19.6	18" R.C.P.	98.64	98.38	100.91	18.3	22"x36" R.C.P.A.	98.91	98.85	101.20
14	40.5	18" C.P.P.	98.68	98.75	100.80		CLEAR DEBRIS FROM EXISTING CULVERT			
15	20.8	18" R.C.P.	98.71	98.66	100.59		CLEAR DEBRIS FROM EXISTING CULVERT			
16	25.6	18" R.C.P.	99.31	99.04	101.38		CLEAR DEBRIS FROM EXISTING CULVERT			
17	22.0	12" R.C.P.	99.08	98.91	101.35		CLEAR DEBRIS FROM EXISTING CULVERT			



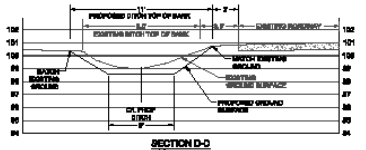
SECTION A-A
SCALE: 1" = 4'



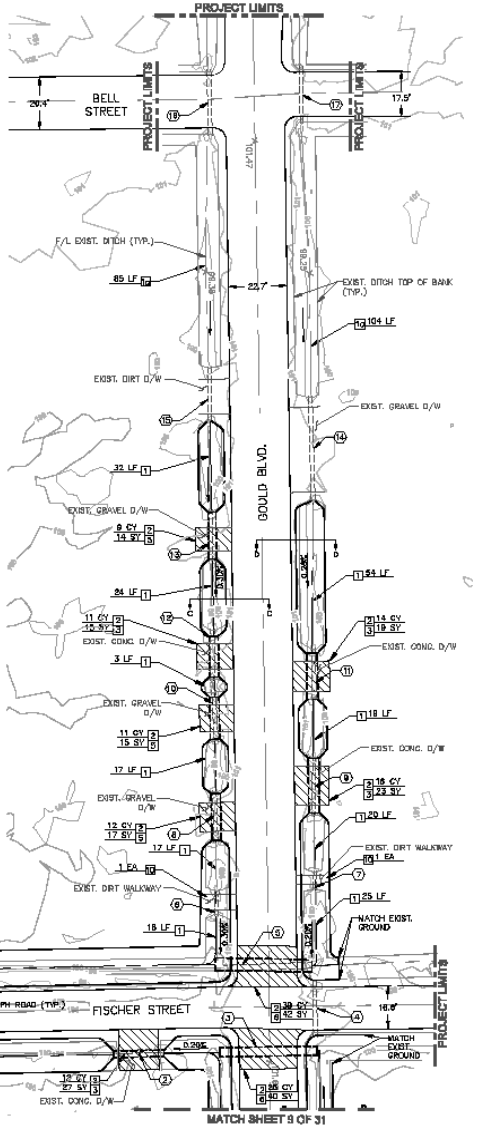
SECTION B-B
SCALE: 1" = 4'

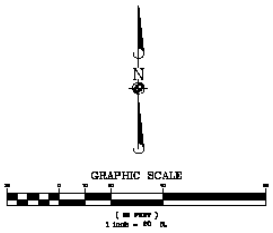


SECTION C-C
SCALE: 1" = 4'



SECTION D-D
SCALE: 1" = 4'





LEGEND:

- DITCH TOP OF BANK
- DITCH FLOWLINE OR ROADWAY CENTERLINE
- CULVERT
- DROP INLET
- CULVERT NUMBER
- EDGE OF ROADWAY/SHOULDER/WALKWAY
- EXISTING ELEVATION
- MATCHLINE
- PROJECT LIMITS
- POWER POLE
- PROPOSED FLOW DIRECTION AND DITCH SLOPE

NOTE: SEE SHEET 3 FOR GENERAL NOTES AND DETAILS.

GAEA

EAST CARROLL PARISH POLICE JURY DRAINAGE PROJECT

LAKE PROVIDENCE, LA

GOULD BLVD BETWEEN BELL AND FISCHER STREETS

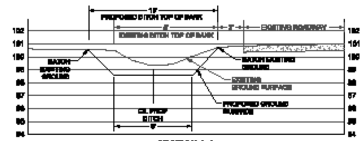
SHEET

8 of 31

CONSTRUCTION NOTES AND QUANTITIES

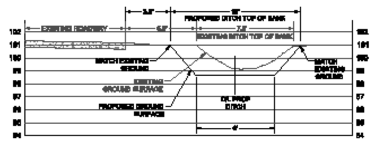
NO.	DESCRIPTION	QTY.	UNIT
1	RE-GRADE EXISTING DITCH FROM INVERT OF UPSTREAM CULVERT TO INVERT OF DOWNSTREAM CULVERT WITH A CROSS-SECTION INDICATED ON THIS SHEET.	447	LF
1a	RE-ESTABLISH GRADE OF EXISTING DITCH.	158	LF
2	PIPE BEDDING AND BACKFILL FOR NEW CULVERT PER LaDOTD STANDARD PLAN. TOP BASED ON COVER ELEVATION SPECIFIED IN TABLE, THIS SHEET.	6	CY
3	REPLACE GRAVEL DRIVEWAY AFTER INSTALLATION OF NEW CULVERT, PER LaDOTD STANDARD PLAN DW-03, RURAL DRIVEWAY DETAILS, TYPE "A".	12	SY

PIPE QUANTITIES PER TABLE BELOW



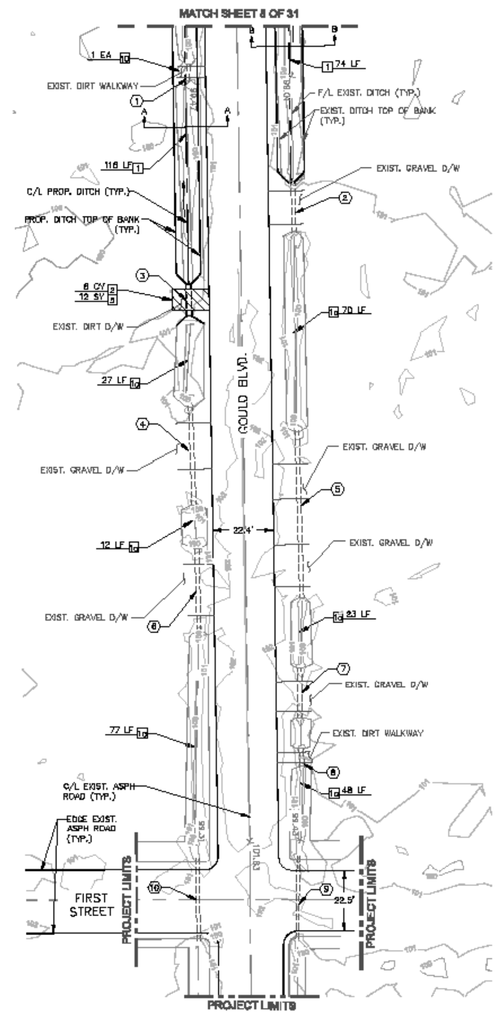
SECTION A-A

SCALE: 1" = 4'

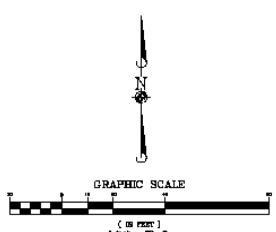


SECTION B-B

SCALE: 1" = 4'



DRAINAGE PIPE SCHEDULE										
	EXISTING					PROPOSED				
NO.	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.
1	6.5	15" R.C.P.	98.89	98.95	100.36	REMOVE				
2	19.0	18" R.C.P.	98.41	98.72	101.28	18.3	24" R.C.P.	98.60	98.57	101.30
3	N/A					11.9	24" R.C.P.	98.66	98.62	101.20
4	37.4	18" R.C.P.	98.83	98.95	101.17	CLEAR DEBRIS FROM EXISTING CULVERT				
5	61.7	18" R.C.P.	98.74	98.78	101.18	CLEAR DEBRIS FROM EXISTING CULVERT				
6	31.5	18" R.C.P.	99.19	99.02	101.36	CLEAR DEBRIS FROM EXISTING CULVERT				
7	18.7	18" R.C.P.	98.84	98.81	101.39	CLEAR DEBRIS FROM EXISTING CULVERT				
8	7.1	18" R.C.P.	98.99	98.84	100.89	CLEAR DEBRIS FROM EXISTING CULVERT				
9	30.4	12" R.C.P.	98.98	98.68	101.93	CLEAR DEBRIS FROM EXISTING CULVERT				
10	30.6	15" C.M.P.	99.22	99.08	101.22	CLEAR DEBRIS FROM EXISTING CULVERT				



LEGEND:

- DITCH TOP OF BANK
- DITCH FLOWLINE OR ROADWAY CENTERLINE
- CULVERT
- DROP INLET
- CULVERT NUMBER
- EDGE OF ROADWAY/DRIVEWAY/WALKWAY
- EXISTING ELEVATION
- MATCHLINE
- PROJECT LIMITS
- POWER POLE
- PROPOSED FLOW DIRECTION AND DITCH SLOPE

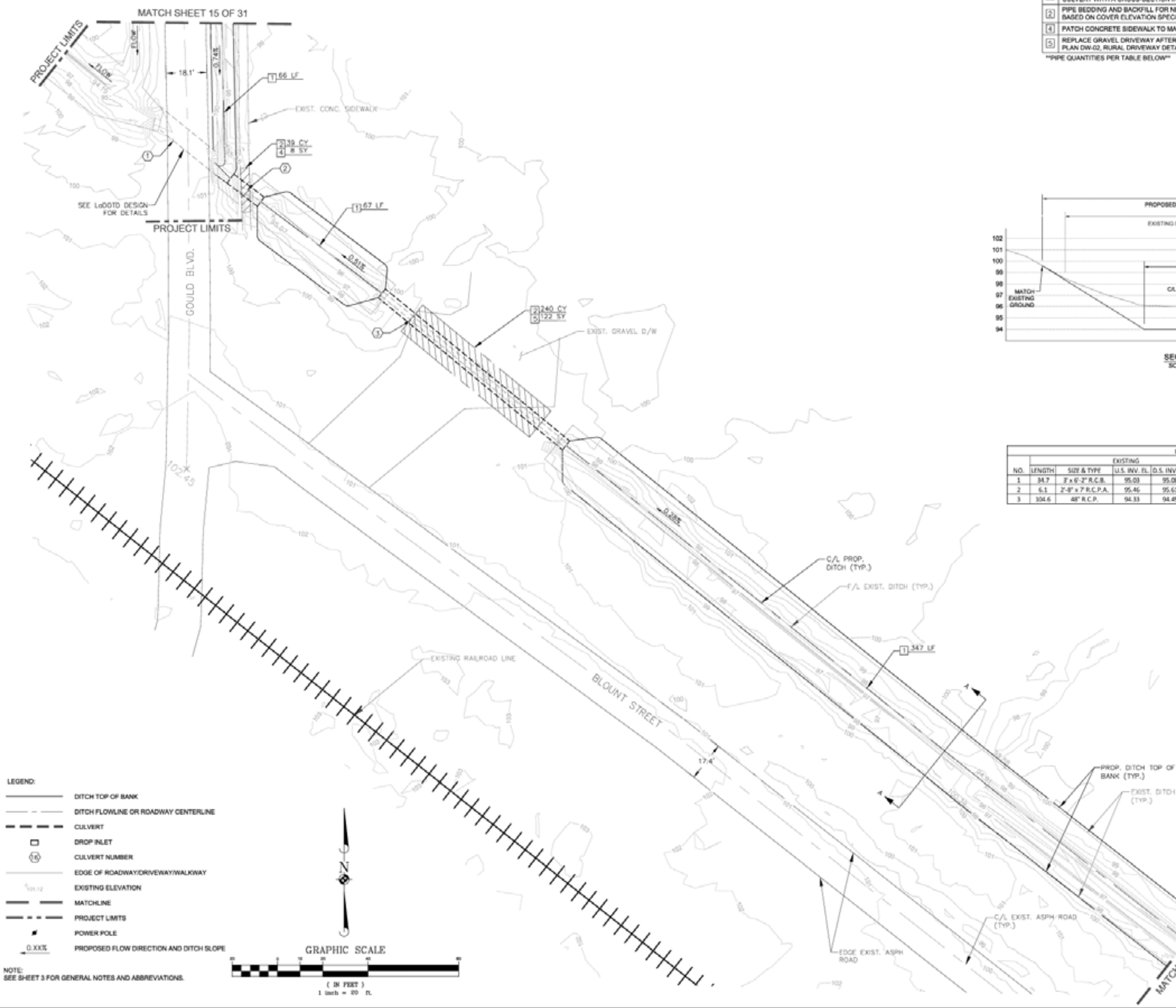
NOTE: SEE SHEET 3 FOR GENERAL NOTES AND DETAILS.

GAEA ENGINEERING CONSULTANTS

EAST CARROLL PARISH POLICE JURY DRAINAGE PROJECT

LAKE PROVIDENCE, LA

GOULD BLVD BETWEEN FISCHER AND FIRST STREETS



LEGEND:

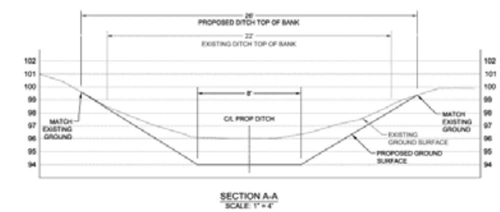
- DITCH TOP OF BANK
- DITCH FLOWLINE OR ROADWAY CENTERLINE
- CULVERT
- DROP INLET
- CULVERT NUMBER
- EDGE OF ROADWAY/DRIVEWAY/WALKWAY
- EXISTING ELEVATION
- MATCHLINE
- PROJECT LIMITS
- POWER POLE
- PROPOSED FLOW DIRECTION AND DITCH SLOPE

NOTE:
SEE SHEET 3 FOR GENERAL NOTES AND ABBREVIATIONS.

CONSTRUCTION NOTES AND QUANTITIES

NO.	DESCRIPTION	QTY.	UNIT
1	RE-GRADE EXISTING DITCH FROM INVERT OF UPSTREAM CULVERT TO INVERT OF DOWNSTREAM CULVERT WITH A CROSS-SECTION INDICATED ON THIS SHEET.	480	LF
2	PIPE BEDDING AND BACKFILL FOR NEW CULVERT PER LaDOTD STANDARD PLAN BM-01. TOP BASED ON COVER ELEVATION SPECIFIED IN TABLE, THIS SHEET.	279	CY
4	PATCH CONCRETE SIDEWALK TO MATCH EXISTING SIDEWALK AFTER INSTALLATION OF NEW CULVERT.	8	SY
5	REPLACE GRAVEL DRIVEWAY AFTER INSTALLATION OF NEW CULVERT, PER LaDOTD STANDARD PLAN DW-02, RURAL DRIVEWAY DETAILS, TYPE "A".	122	SY

PIPE QUANTITIES PER TABLE BELOW



SECTION A-A
SCALE: 1" = 4'

DRAINAGE PIPE SCHEDULE

NO.	EXISTING					PROPOSED				
	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.
1	34.7	3' x 6'-2" R.C.B.	95.03	95.08	100.67	TO BE REPLACED BY LaDOTD WITH 8' x 5' R.C.B.				
2	6.1	2'-8" x 7' R.C.P.A.	95.46	95.61	99.86	16.8	60" R.C.P.	92.32	92.23	100.00
3	104.6	48" R.C.P.	94.33	94.45	100.35	105.4	60" R.C.P.	93.06	92.66	100.35

GAEA ENGINEERING CONSULTANTS

538 Washington Ave.
New Orleans, LA 70130
o. 504.982.3380 f. 504.982.3382

EAST CARROLL PARISH POLICE JURY DRAINAGE PROJECT

LAKE PROVIDENCE, LA

BLOUNT STREET (1 OF 5)

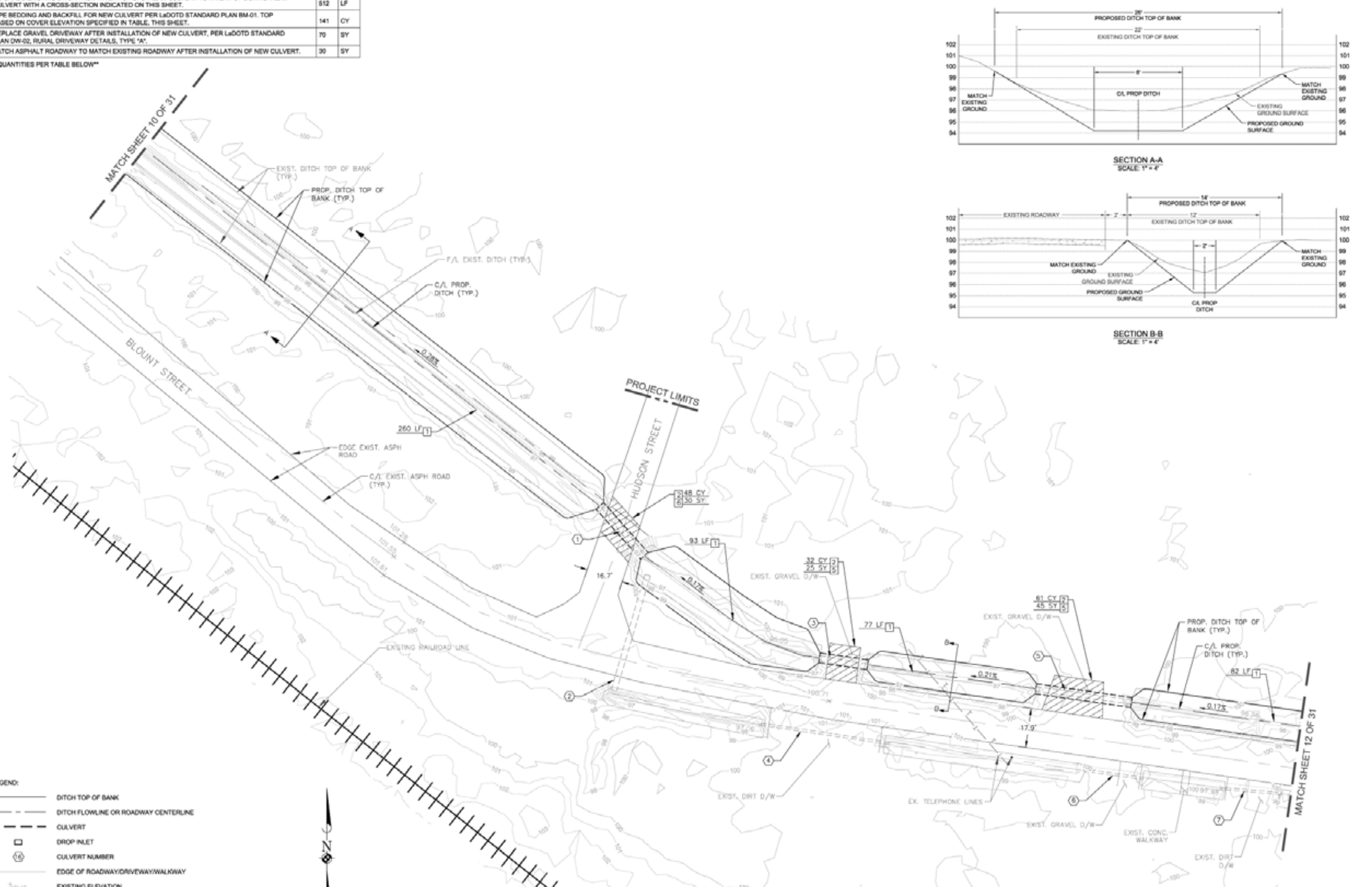
PROJ. MGR.: JMS
DRAWN BY: KJG
CHECKED BY: TLK
DATE: 8/22/2013
SCALE: 1" = 20'

SHEET
10 of 31

CONSTRUCTION NOTES AND QUANTITIES

NO.	DESCRIPTION	QTY.	UNIT
1	RE-GRADE EXISTING DITCH FROM INVERT OF UPSTREAM CULVERT TO INVERT OF DOWNSTREAM CULVERT WITH A CROSS-SECTION INDICATED ON THIS SHEET.	512	LF
2	PIPE BEDDING AND BACKFILL FOR NEW CULVERT PER LaDOTD STANDARD PLAN BM-01. TOP BASED ON COVER ELEVATION SPECIFIED IN TABLE, THIS SHEET.	141	CY
5	REPLACE GRAVEL DRIVEWAY AFTER INSTALLATION OF NEW CULVERT, PER LaDOTD STANDARD PLAN DW-02, RURAL DRIVEWAY DETAILS, TYPE "A".	70	SY
6	PATCH ASPHALT ROADWAY TO MATCH EXISTING ROADWAY AFTER INSTALLATION OF NEW CULVERT.	30	SY

PIPE QUANTITIES PER TABLE BELOW



LEGEND:

- DITCH TOP OF BANK
- DITCH FLOWLINE OR ROADWAY CENTERLINE
- CULVERT
- DROP INLET
- CULVERT NUMBER
- EDGE OF ROADWAY/DRIVEWAY/WALKWAY
- EXISTING ELEVATION
- MATCHLINE
- PROJECT LIMITS
- POWER POLE
- 0.XX% PROPOSED FLOW DIRECTION AND DITCH SLOPE

GRAPHIC SCALE
(IN FEET)
1 inch = 20 ft.

NOTE:
SEE SHEET 3 FOR GENERAL NOTES AND ABBREVIATIONS.

DRAINAGE PIPE SCHEDULE

NO.	EXISTING					PROPOSED				
	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.
1	27.5	36" C.M.P.	94.56	94.48	100.50	50.20	54" R.C.P.	94.84	94.78	100.50
2	54.2	30" C.M.P.	96.77	96.58	100.68	NO WORK PROPOSED				
3	22.4	1'-6" x 2' R.C.B.	95.28	95.60	100.05	22.00	54" R.C.P.	95.05	95.00	100.30
4	58.6	12" R.C.P.	97.45	96.74	100.42	NO WORK PROPOSED				
5	44.2	24" R.C.P.	95.58	95.27	100.23	43.60	54" R.C.P.	95.26	95.21	100.23
6	27.2	12" V.C.P.	97.99	97.97	100.19	NO WORK PROPOSED				
7	25.8	12" R.C.P.	98.00	97.91	99.72	NO WORK PROPOSED				

GAEA ENGINEERING CONSULTANTS
536 Washington Ave.
New Orleans, LA 70130
o. 504.982.5360 f. 504.982.5362

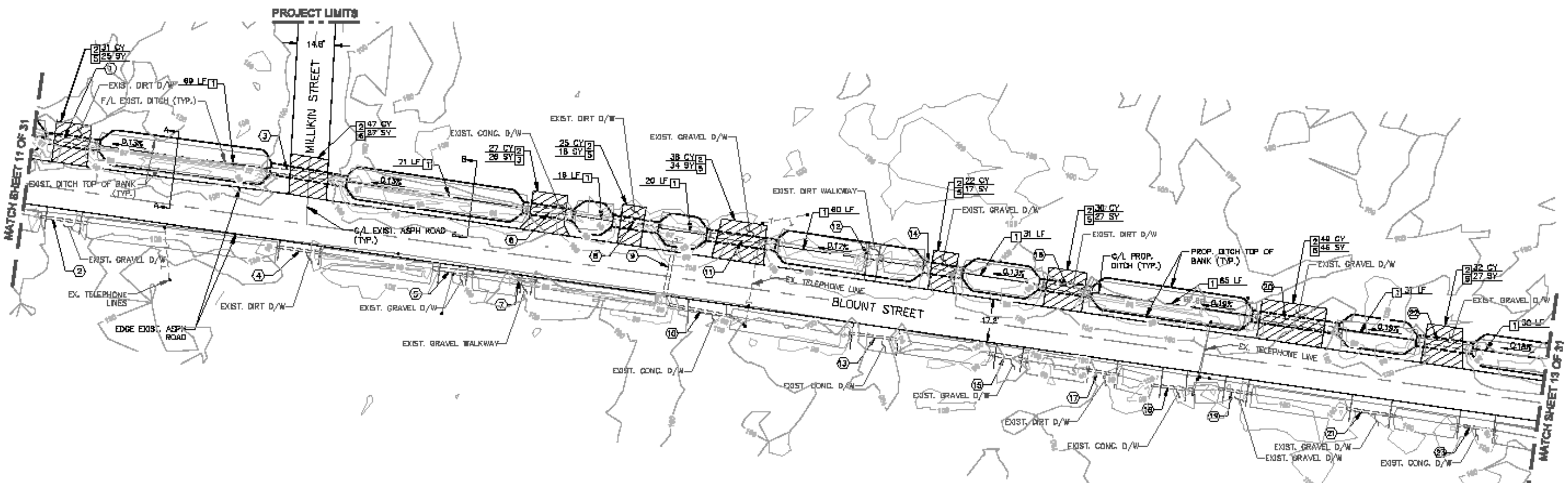
EAST CARROLL PARISH POLICE JURY DRAINAGE PROJECT
LAKE PROVIDENCE, LA
BLOUNT STREET (2 OF 5)

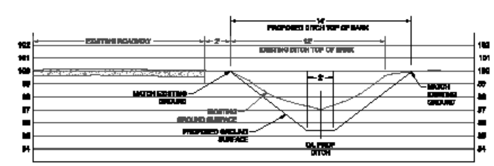
PROJ. MGR.: JMS
DRAWN BY: KJG
CHECKED BY: TLK
DATE: 8/22/2013
SCALE: 1" = 20'

CONSTRUCTION NOTES AND QUANTITIES

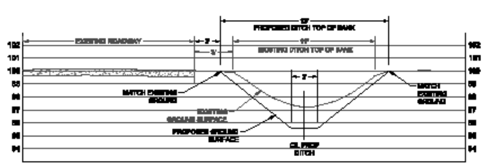
NO.	DESCRIPTION	QTY.	UNIT
1	RE-GRADE EXISTING DITCH FROM INVERT OF UPSTREAM CULVERT TO INVERT OF DOWNSTREAM CULVERT WITH A CROSS-SECTION INDICATED ON THIS SHEET.	383	LF
2	PIPE BEDDING AND BACKFILL FOR NEW CULVERT PER LaDOTD STANDARD PLAN SM-01. TOP BASED ON COVER ELEVATION SPECIFIED IN TABLE, THIS SHEET.	391	CY
3	REPLACE CONCRETE DRIVEWAY AFTER INSTALLATION OF NEW CULVERT, PER LaDOTD STANDARD PLAN DW-03, RURAL DRIVEWAY DETAILS, TYPE "B".	38	SY
5	REPLACE GRAVEL DRIVEWAY AFTER INSTALLATION OF NEW CULVERT, PER LaDOTD STANDARD PLAN DW-03, RURAL DRIVEWAY DETAILS, TYPE "A".	182	SY
6	PATCH ASPHALT ROADWAY TO MATCH EXISTING ROADWAY AFTER INSTALLATION OF NEW CULVERT.	27	SY

PIPE QUANTITIES PER TABLE BELOW





SECTION A-A
SCALE: 1" = 4'



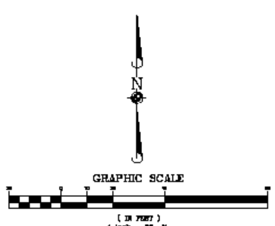
SECTION B-B
SCALE: 1" = 4'

DRAINAGE PIPE SCHEDULE

NO.	EXISTING LENGTH	EXISTING SIZE & TYPE	EXISTING U.S. INV. EL.	EXISTING D.S. INV. EL.	EXISTING COVER EL.	PROPOSED LENGTH	PROPOSED SIZE & TYPE	PROPOSED U.S. INV. EL.	PROPOSED D.S. INV. EL.	PROPOSED COVER EL.
1	21.8	24" R.C.P.	96.05	96.25	99.17	12.00	40"x65" R.C.P.A.	95.39	95.35	100.35
2	18.9	12" R.C.P.	98.29	98.17	99.93	NO WORK PROPOSED				
3	33.8	24" R.C.P.	96.18	96.09	100.16	13.70	40"x65" R.C.P.A.	95.55	95.48	100.48
4	18.1	12" R.C.P.	98.19	98.20	99.92	NO WORK PROPOSED				
5	16.4	18" C.M.P.	98.18	98.31	100.23	NO WORK PROPOSED				
6	20.0	24" C.M.P.	97.08	97.48	99.65	10.00	54" R.C.P.	95.66	95.64	100.50
7	7.5	12" R.C.P.	98.19	98.08	99.76	NO WORK PROPOSED				
8	19.3	24" R.C.P.	96.57	96.58	99.15	18.70	54" R.C.P.	95.70	95.68	100.68
9	22.9	18" R.C.P.	96.36	96.38	100.30	NO WORK PROPOSED				
10	25.5	12" R.C.P.	97.20	96.96	99.90	NO WORK PROPOSED				
11	27.9	24" R.C.P.	96.94	97.32	99.90	17.50	54" R.C.P.	95.73	95.76	100.76
12	7.3	24" R.C.P.	96.34	96.63	99.58	REMOVE				
13	20.7	12" R.C.P.	97.60	97.50	99.74	NO WORK PROPOSED				
14	15.9	24" R.C.P.	97.06	96.46	99.95	16.00	54" R.C.P.	95.85	95.83	100.83
15	15.5	18" R.C.P.	97.88	97.90	99.85	NO WORK PROPOSED				
16	19.0	24" R.C.P.	96.94	96.77	99.70	11.40	54" R.C.P.	95.96	95.89	100.89
17	13.2	12" R.C.P.	98.11	98.11	99.93	NO WORK PROPOSED				
18	17.1	12" R.C.P.	98.02	97.74	100.29	NO WORK PROPOSED				
19	13.4	12" R.C.P.	98.34	98.36	99.71	NO WORK PROPOSED				
20	35.2	24" R.C.P.	96.75	96.18	99.85	15.00	54" R.C.P.	96.14	96.08	101.08
21	19.7	12" PLASTIC	98.60	98.55	99.84	NO WORK PROPOSED				
22	24.2	24" R.C.P.	97.27	97.13	100.07	12.70	54" R.C.P.	96.24	96.20	101.20
23	15.3	12" PLASTIC	98.60	98.55	99.84	NO WORK PROPOSED				

LEGEND:

- DITCH TOP OF BANK
- DITCH FLOWLINE OR ROADWAY CENTERLINE
- CULVERT
- DROP INLET
- CULVERT NUMBER
- EDGE OF ROADWAY/DRIVEWAY/WALKWAY
- EXISTING ELEVATION
- MATCHLINE
- PROJECT LIMITS
- POWER POLE
- PROPOSED FLOW DIRECTION AND DITCH SLOPE



NOTE:
SEE SHEET 4 FOR GENERAL NOTES AND ABBREVIATIONS.

EAST CARROLL PARISH POLICE JURY DRAINAGE PROJECT

LAKE PROVIDENCE, LA

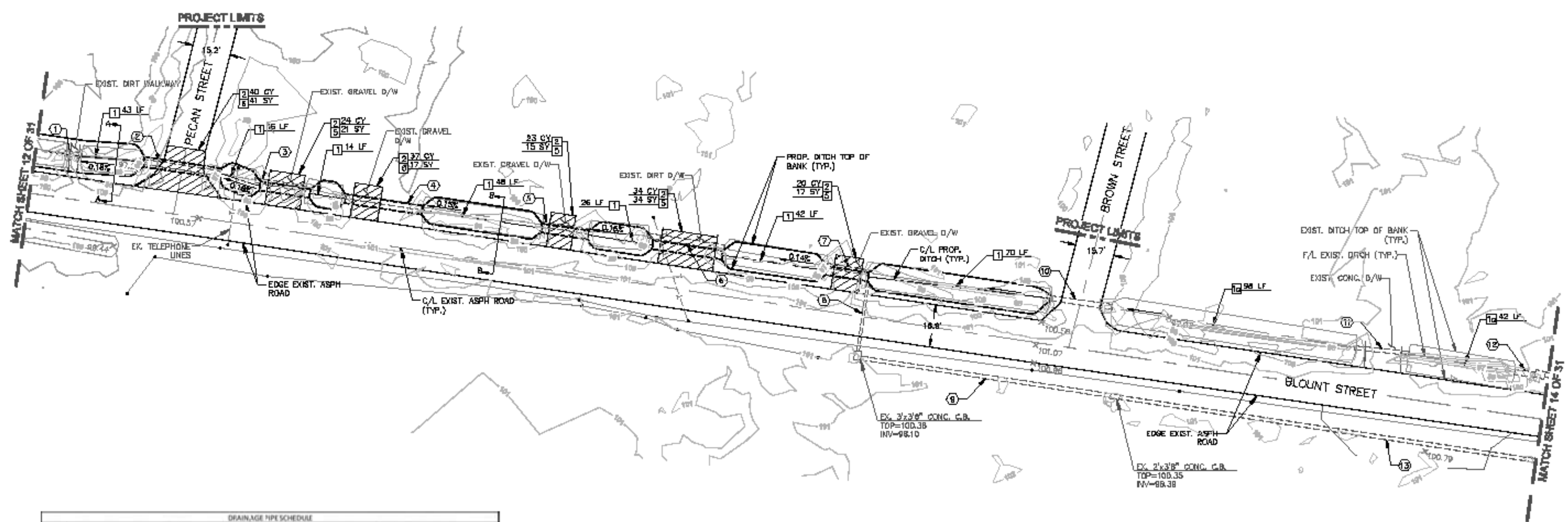
BLOUNT STREET (3 OF 6)

SHEET
12 of 31

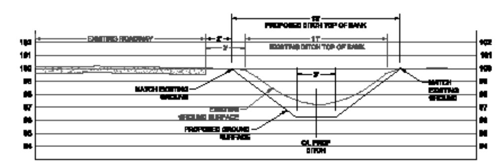
CONSTRUCTION NOTES AND QUANTITIES

NO.	DESCRIPTION	QTY.	UNIT
1	RE-GRADE EXISTING DITCH FROM INVERT OF UPSTREAM CULVERT TO INVERT OF DOWNSTREAM CULVERT WITH A CROSS-SECTION INDICATED ON THIS SHEET.	258	LF
1a	RE-ESTABLISH GRADE OF EXISTING DITCH.	140	LF
2	PIPE BEDDING AND BACKFILL FOR NEW CULVERT PER LaDOTD STANDARD PLAN BM-01. TOP BASED ON COVER ELEVATION SPECIFIED IN TABLE, THIS SHEET.	178	CY
5	REPLACE GRAVEL DRIVEWAY AFTER INSTALLATION OF NEW CULVERT, PER LaDOTD STANDARD PLAN DW-02, RURAL DRIVEWAY DETAILS, TYPE "A".	204	SY
6	PATCH ASPHALT ROADWAY TO MATCH EXISTING ROADWAY AFTER INSTALLATION OF NEW CULVERT.	41	SY

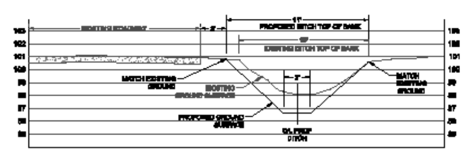
PIPE QUANTITIES PER TABLE BELOW



NO.	EXISTING LENGTH	EXISTING SIZE & TYPE	EXISTING U.S. INV. EL.	EXISTING D.S. INV. EL.	EXISTING COVER EL.	PROPOSED LENGTH	PROPOSED SIZE & TYPE	PROPOSED U.S. INV. EL.	PROPOSED D.S. INV. EL.	PROPOSED COVER EL.
1	6.8	24" R.C.P.	96.86	96.76	99.90	REMOVE				
2	30.8	24" R.C.P.	96.57	95.83	100.28	30.80	48" R.C.P.	96.44	96.37	100.37
3	20.7	24" METAL	96.84	97.10	100.08	20.00	42" R.C.P.	96.50	96.47	100.47
4	32.6	24" R.C.P.	97.78	96.81	100.28	31.00	42" R.C.P.	96.57	96.52	100.52
5	19.0	24" R.C.P.	97.04	96.88	100.40	18.70	42" R.C.P.	96.67	96.64	100.54
6	30.6	24" C.M.P.	97.34	97.06	100.53	27.90	42" R.C.P.	96.75	96.71	100.71
7	16.7	24" C.M.P.	96.90	96.57	100.66	17.00	42" R.C.P.	96.84	96.81	100.81
8	27.9	12" R.C.P.	98.29	97.50	101.25	NO WORK PROPOSED				
9	101.3	18" R.C.P.	98.54	98.29	101.03	NO WORK PROPOSED				
10	24.9	24" R.C.P.	96.64	96.45	100.65	CLEAR DEBRIS FROM EXISTING CULVERT				
11	21.5	18" R.C.P.	98.13	98.02	101.30	CLEAR DEBRIS FROM EXISTING CULVERT				
12	9.2	24" R.C.P.	97.40	97.60	101.40	CLEAR DEBRIS FROM EXISTING CULVERT				
13	313.5	18" METAL	98.34	98.39	100.79	NO WORK PROPOSED				



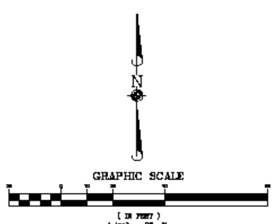
SECTION A-A
SCALE: 1" = 4'



SECTION B-B
SCALE: 1" = 4'

LEGEND:

- DITCH TOP OF BANK
- DITCH FLOWLINE OR ROADWAY CENTERLINE
- CULVERT
- DROP INLET
- CULVERT NUMBER
- EDGE OF ROADWAY/DRIVEWAY/WALKWAY
- EXISTING ELEVATION
- MATCHLINE
- PROJECT LIMITS
- POWER POLE
- PROPOSED FLOW DIRECTION AND DITCH SLOPE



NOTE:
SEE SHEET 3 FOR GENERAL NOTES AND ABBREVIATIONS.

GAEA ENGINEERING CONSULTANTS

EAST CARROLL PARISH POLICE JURY DRAINAGE PROJECT

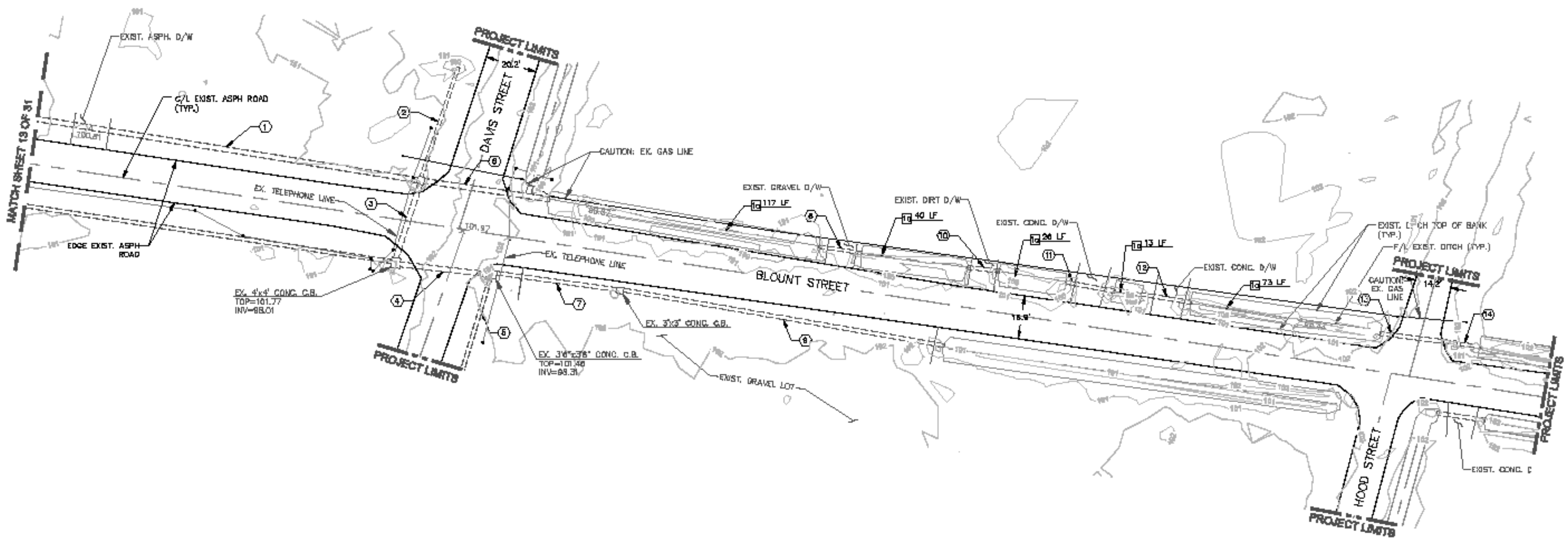
LAKE PROVIDENCE, LA

BLOUNT STREET (4 OF 6)

CONSTRUCTION NOTES AND QUANTITIES

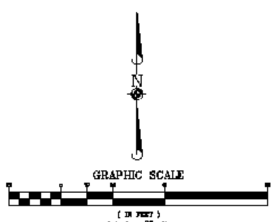
NO.	DESCRIPTION	QTY.	UNIT
1	RE-ESTABLISH GRADE OF EXISTING DITCH.	[illegible]	LF

PIPE QUANTITIES PER TABLE BELOW



LEGEND:

- DITCH TOP OF BANK
- DITCH FLOWLINE OR ROADWAY CENTERLINE
- CULVERT
- DROP INLET
- CULVERT NUMBER
- EDGE OF ROADWAY/DRIVEWAY/WALKWAY
- EXISTING ELEVATION
- MATCHLINE
- PROJECT LIMITS
- POWER POLE
- PROPOSED FLOW DIRECTION AND DITCH SLOPE



NOTES:

1. THE CONNECTION OF THE DITCH ALONG THE WEST SIDE OF DAVIS STREET TO PIPE 13 IS BURIED.
2. SEE SHEET 2 FOR GENERAL NOTES AND ABBREVIATIONS.

DRAINAGE PIPE SCHEDULE

NO.	EXISTING					PROPOSED				
	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.
1	152.6	24" R.C.P.	97.98	97.42	100.81	CLEAR DEBRIS FROM EXISTING CULVERT				
2	45.5	15" R.C.P.	98.55	98.33	100.59	NO WORK PROPOSED				
3	30.7	24" C.M.P.	98.01	97.37	101.97	NO WORK PROPOSED				
4	35.7	24" C.M.P.	98.31	98.27	101.97	NO WORK PROPOSED				
5	114.6	18" METAL	97.86	98.50	102.32	NO WORK PROPOSED				
6	49.8	24" R.C.P.	98.50	98.03	101.93	CLEAR DEBRIS FROM EXISTING CULVERT				
7	48.8	18" METAL	99.18	98.82	101.67	NO WORK PROPOSED				
8	17.0	15" METAL	98.68	98.51	101.19	CLEAR DEBRIS FROM EXISTING CULVERT				
9	127.5	18" METAL	99.41	98.96	102.00	NO WORK PROPOSED				
1C	12.7	18" C.M.P.	98.98	98.89	101.09	CLEAR DEBRIS FROM EXISTING CULVERT				
11	19.5	18" R.C.P.	98.31	98.09	100.96	CLEAR DEBRIS FROM EXISTING CULVERT				
12	19.6	18" R.C.P.	98.79	98.35	101.23	CLEAR DEBRIS FROM EXISTING CULVERT				
13	30.5	18" R.C.P.	99.49	99.58	102.03	CLEAR DEBRIS FROM EXISTING CULVERT				
14	7.5	18" R.C.P.	99.23	99.63	101.46	CLEAR DEBRIS FROM EXISTING CULVERT				

EAST CARROLL PARISH POLICE JURY DRAINAGE PROJECT

LAKE PROVIDENCE, LA

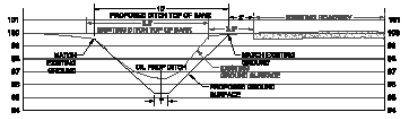
BLOUNT STREET (5 OF 6)

SHEET

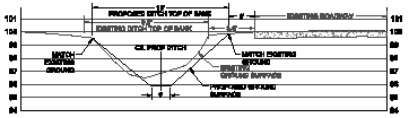
14 of 31

CONSTRUCTION NOTES AND QUANTITIES			
NO.	DESCRIPTION	QTY.	UNIT
1	RE-GRADE EXISTING DITCH FROM INVERT OF UPSTREAM CULVERT TO INVERT OF DOWNSTREAM CULVERT WITH A CROSS-SECTION INDICATED ON THIS SHEET.	276	LF
2	PIPE BEDDING AND BACKFILL FOR NEW CULVERT PER LaDOTD STANDARD PLAN 804-3H. TYP BASED ON COVER ELEVATION SPECIFIED IN TABLE, THIS SHEET.	65	CY
3	REPLACE CONCRETE DRIVEWAY AFTER INSTALLATION OF NEW CULVERT, PER LaDOTD STANDARD PLAN 809-02, RURAL DRIVEWAY DETAILS, TYPE "B".	65	SY
4	PATCH CONCRETE SIDEWALK TO MATCH EXISTING SIDEWALK AFTER INSTALLATION OF NEW CULVERT.	6	SY
5	PATCH ASPHALT ROADWAY TO MATCH EXISTING ROADWAY AFTER INSTALLATION OF NEW CULVERT.	33	SY

PIPE QUANTITIES PER TABLE BELOW



SECTION A-A
SCALE: 1"=5'



SECTION B-B
SCALE: 1"=5'

DRAINAGE PIPE SCHEDULE										
	EXISTING					PROPOSED				
NO.	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.
1	34.60	36" C.M.P.	95.30	95.36	100.11	36.25	42" R.C.P.	95.00	94.69	100.11
2			UNKNOWN			30.14	24" R.C.P.	MATCH EXIST.	95.00	99.52
3	4.30	34" R.C.P.	98.98	96.18	99.14		REMOVE EXISTING CULVERT			
4	40.70	24" R.C.P.	96.53	95.86	99.55		CLEAR DEBRIS FROM EXISTING CULVERT			
5	16.10	18" R.C.P.	96.57	96.56	99.14		CLEAR DEBRIS FROM EXISTING CULVERT			
6	18.90	18" R.C.P.	96.63	96.44	99.40	20.60	30" R.C.P.	96.66	96.52	99.40

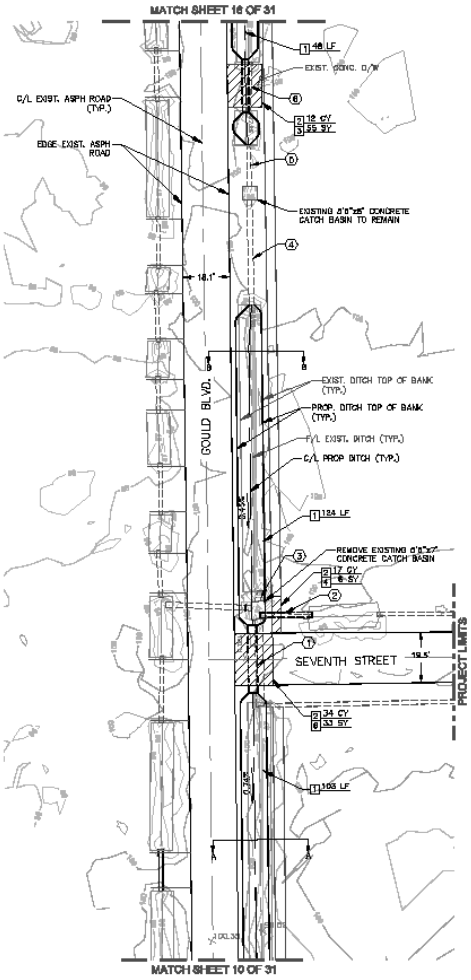
GRAPHIC SCALE

(IN FEET)
1 inch = 20 ft.

LEGEND:

- DITCH TOP OF BANK
- DITCH FLOWLINE OR ROADWAY CENTERLINE
- CULVERT
- DROP INLET
- (18) CULVERT NUMBER
- EDGE OF ROADWAY/DRIVEWAY/WALKWAY
- 100.32 EXISTING ELEVATION
- MATCHLINE
- PROJECT LIMITS
- # POWER POLE
- 0.XX% PROPOSED FLOW DIRECTION AND DITCH SLOPE

NOTE: SEE SHEET 5 FOR GENERAL NOTES AND ABBREVIATIONS.



GAEA

EAST CARROLL PARISH POLICE JURY DRAINAGE PROJECT

LAKE PROVIDENCE, LA

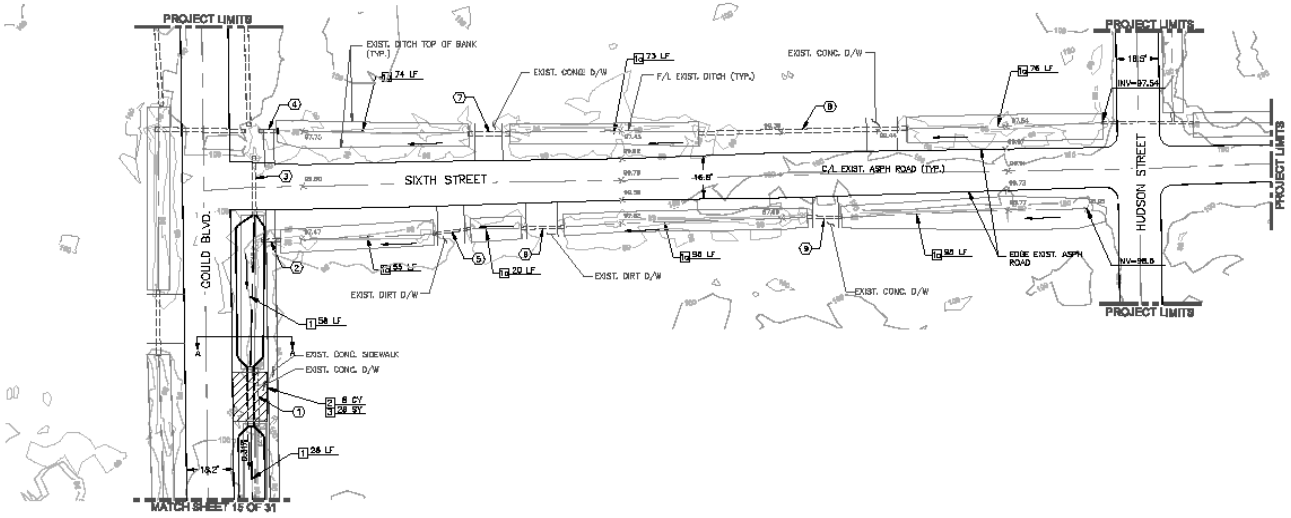
GOULD BLVD BETWEEN BLOUNT AND SIXTH STREETS

SHEET

15 of 31

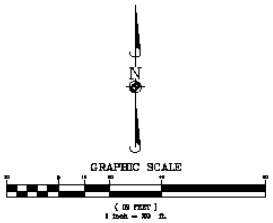
CONSTRUCTION NOTES AND QUANTITIES			
NO.	DESCRIPTION	QTY.	UNIT
1	RE-GRADE EXISTING DITCH FROM INVERT OF UPSTREAM CULVERT TO INVERT OF DOWNSTREAM CULVERT WITH A CROSS-SECTION INDICATED ON THIS SHEET.	85	LF
1a	RE-ESTABLISH GRADE OF EXISTING DITCH	488	LF
2	PIPE BEDDING AND BACKFILL FOR NEW CULVERT PER LaDOTD STANDARD PLAN BM-01. TOP BASED ON COVER ELEVATION ASSIGNED IN TABLE, THIS SHEET.	6	CY
3	REPLACE CONCRETE DRIVEWAY AFTER INSTALLATION OF NEW CULVERT, PER LaDOTD STANDARD PLAN DW-02, RURAL DRIVEWAY DETAILS, TYPE "B".	28	SY

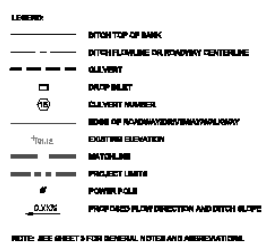
PIPE QUANTITIES PER TABLE BELOW

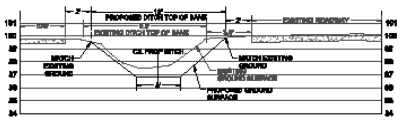


DRAINAGE PIPE SCHEDULE

	EXISTING						PROPOSED				
NO.	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.
1	22.1	24" R.C.P.	97.30	97.35	99.81	23.0	30" R.C.P.	96.85	96.78	99.85
2	7.3	12" R.C.P.	97.36	97.17	99.74	CLEAR DEBRIS FROM EXISTING CULVERT				
3	22.9	18" R.C.P.	96.57	96.36	99.63	CLEAR DEBRIS FROM EXISTING CULVERT				
4	7.2	18" R.C.P.	96.99	96.83	99.59	CLEAR DEBRIS FROM EXISTING CULVERT				
5	14.5	10" PLASTIC	97.83	98.02	99.87	CLEAR DEBRIS FROM EXISTING CULVERT				
6	16.4	12" R.C.P.	97.61	97.56	99.09	CLEAR DEBRIS FROM EXISTING CULVERT				
7	15.9	18" C.M.P.	97.30	97.10	99.52	CLEAR DEBRIS FROM EXISTING CULVERT				
8	80.4	18" C.M.P.	97.66	96.58	99.44	CLEAR DEBRIS FROM EXISTING CULVERT				
9	13.2	12" R.C.P.	97.59	97.42	99.40	CLEAR DEBRIS FROM EXISTING CULVERT				







SECTION A-A
SCALE: 1" = 5'

GAEA

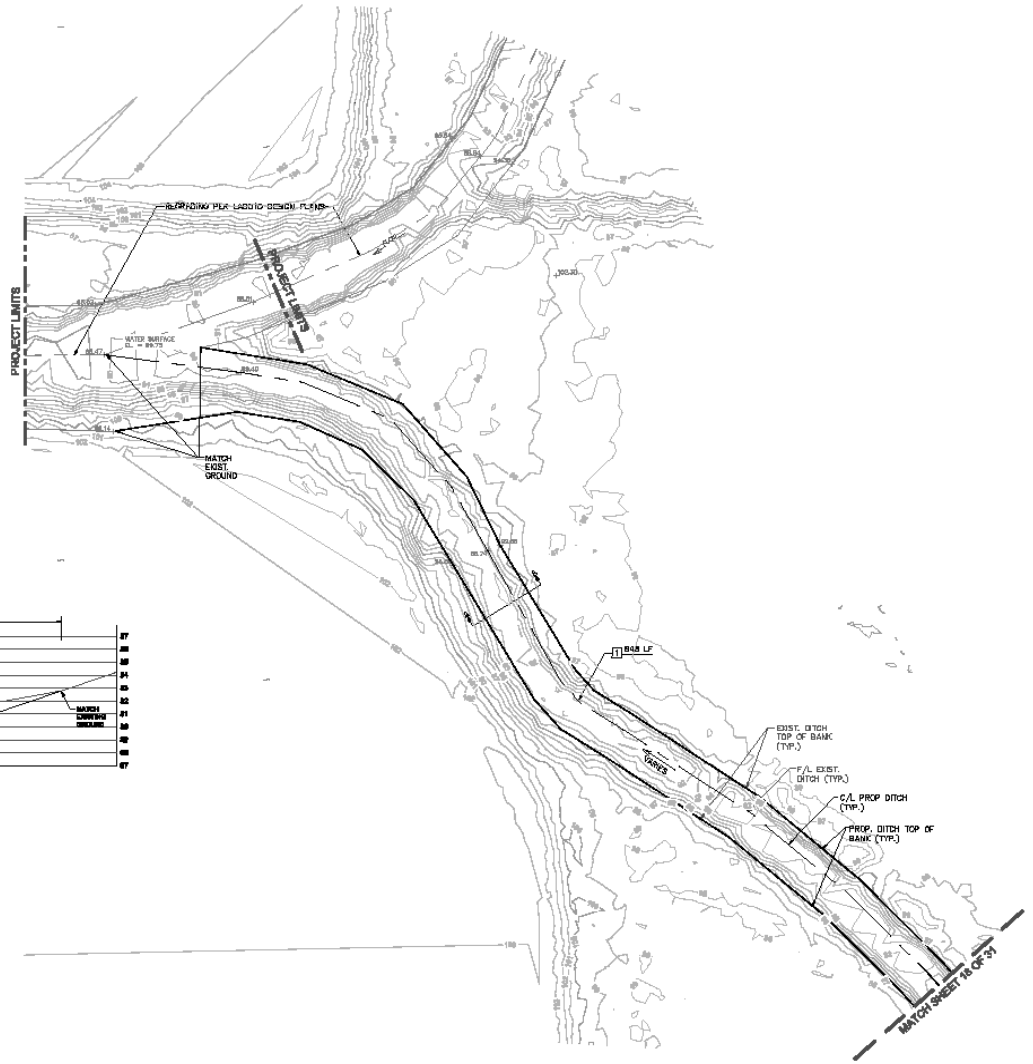
EAST CARROLL PARISH POLICE JURY DRAINAGE PROJECT

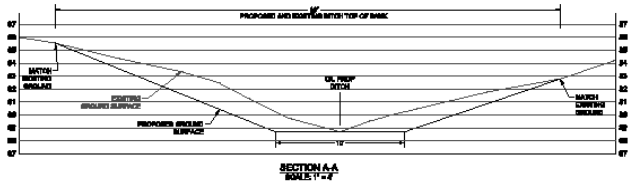
LAKE PROVIDENCE, LA

SIXTH STREET

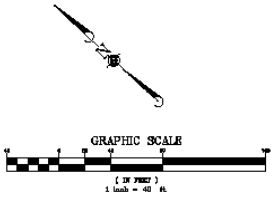
SHEET
16 of 31

CONSTRUCTION NOTES AND QUANTITIES			
NO.	DESCRIPTION	QTY.	UNIT
1	RE-GRADE EXISTING DITCH FROM INVERT OF UPSTREAM CULVERT TO INVERT OF DOWNSTREAM CULVERT WITH A CROSS-SECTION INDICATED ON THIS SHEET.	848	LF





SECTION A-A
SCALE: 1" = 4'



LEGEND:

- DITCH TOP OF BANK
- DITCH FLOWLINE OR ROADWAY CENTERLINE
- CULVERT
- DROP INLET
- CULVERT NUMBER
- EDGE OF ROADWAY/SHOULDER/WALKWAY
- EXISTING ELEVATION
- MATCH LINE
- PROJECT LIMITS
- POWER POLE
- PROPOSED FLOW DIRECTION AND DITCH SLOPE

NOTE: SEE SHEET 3 FOR GENERAL NOTES AND DETAILS.

GAEA

EAST CARROLL PARISH POLICE JURY DRAINAGE PROJECT

LAKE PROVIDENCE, LA

FINAL OUTFALL

SHEET
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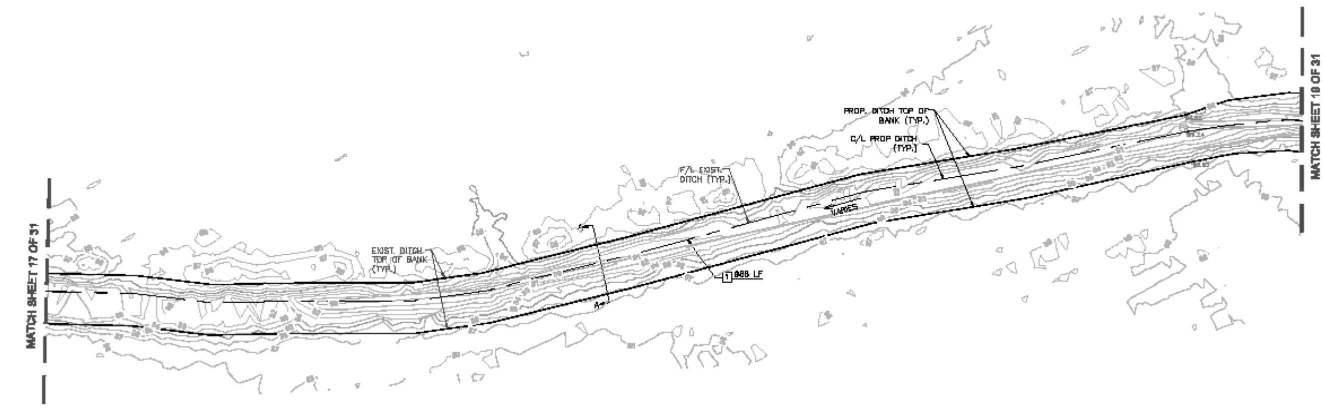
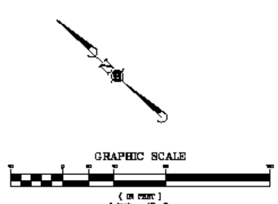
CONSTRUCTION NOTES AND QUANTITIES			
NO.	DESCRIPTION	QTY.	UNIT
1	RE-GRADE EXISTING DITCH FROM INVERT OF UPSTREAM CULVERT TO INVERT OF DOWNSTREAM CULVERT WITH A CROSS-SECTION INDICATED ON THIS SHEET.	[illegible]	LF

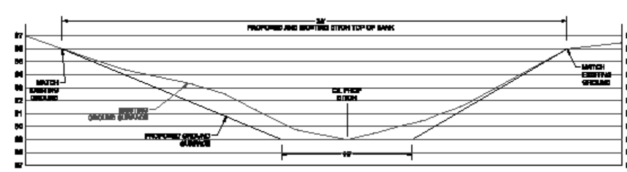




LEGEND:

- DITCH TOP OF BANK
- DITCH FLOWLINE OR ROADWAY CENTERLINE
- CULVERT
- DROP INLET
- CULVERT NUMBER
- EDGE OF ROADWAY/DRIVEWAY/WALKWAY
- EXISTING ELEVATION
- MATCHLINE
- PROJECT LIMITS
- POWER POLE
- PROPOSED FLOW DIRECTION AND DITCH SLOPE

NOTE: SEE SHEET 3 FOR GENERAL NOTES AND DETAILS.



SECTION A-A

EAST CARROLL PARISH POLICE JURY DRAINAGE PROJECT

LAKE PROVIDENCE, LA

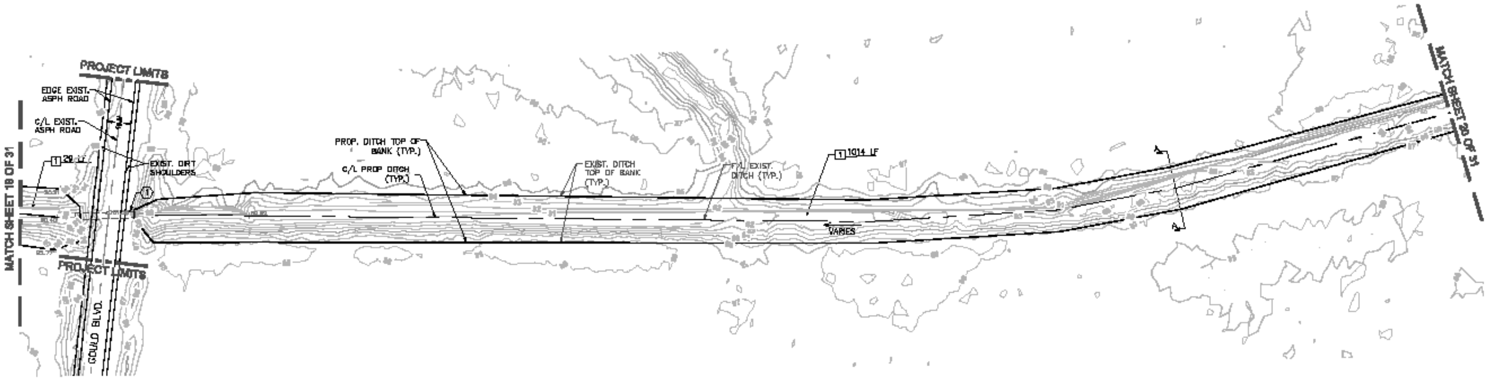
SOUTH OUTFALL DITCH (1 OF 5)

SHEET

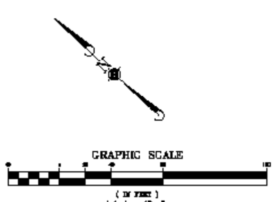
18 of 31

CONSTRUCTION NOTES AND QUANTITIES			
NO.	DESCRIPTION	QTY.	UNIT
1	RE-GRADE EXISTING DITCH FROM INVERT OF UPSTREAM CULVERT TO INVERT OF DOWNSTREAM CULVERT WITH A CROSS-SECTION INDICATED ON THIS SHEET.	1043	LF

PIPE QUANTITIES PER TABLE BELOW



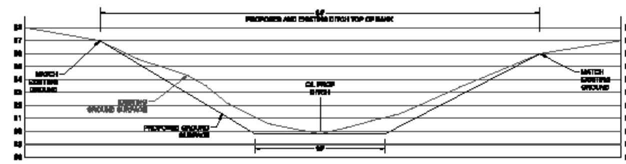
DRAINAGE PIPE SCHEDULE										
	EXISTING					PROPOSED				
NO.	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.
1	46.0	60" R.C.P.	89.19	89.22	97.47	CLEAR DEBRIS FROM EXISTING CULVERT				



LEGEND:

- DITCH TOP OF BANK
- DITCH FLOWLINE OR ROADWAY CENTERLINE
- CULVERT
- DROP INLET
- CULVERT NUMBER
- EDGE OF ROADWAY/DRIVEWAY/WALKWAY
- EXISTING ELEVATION
- MATCHLINE
- PROJECT LIMITS
- POWER POLE
- PROPOSED FLOW DIRECTION AND DITCH SLOPE.

NOTE: SEE SHEET 5 FOR GENERAL NOTES AND DETAILS.



SECTION A-A

EAST CARROLL PARISH POLICE JURY DRAINAGE PROJECT

LAKE PROVIDENCE, LA

SOUTH OUTFALL DITCH (2 OF 5)

SHEET

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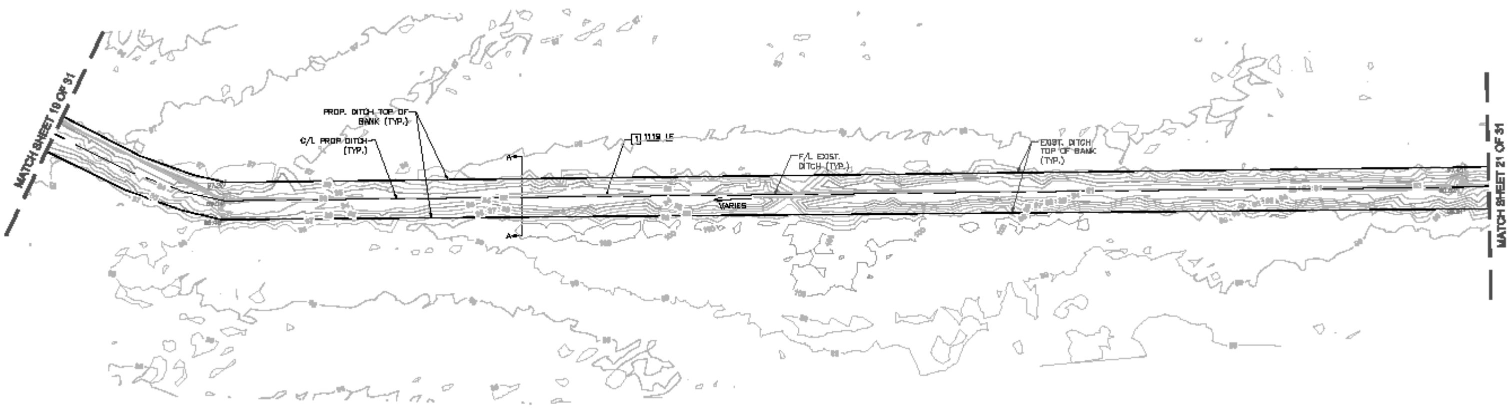
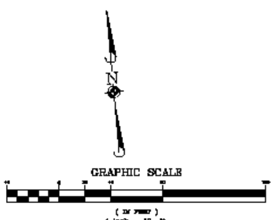
CONSTRUCTION NOTES AND QUANTITIES

NO.	DESCRIPTION	QTY.	UNIT
1	RE-GRADE EXISTING DITCH FROM INVERT OF UPSTREAM CULVERT TO INVERT OF DOWNSTREAM CULVERT WITH A CROSS-SECTION INDICATED ON THIS SHEET.	1119	LF

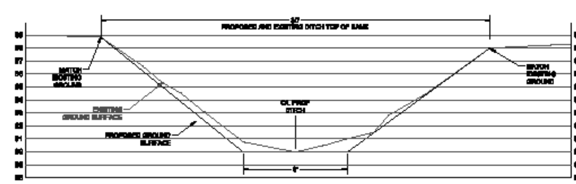




LEGEND:

- DITCH TOP OF BANK
- DITCH FLOWLINE OR ROADWAY CENTERLINE
- CULVERT
- DROP INLET
- CULVERT NUMBER
- EDGE OF ROADWAY/DRIVEWAY/WALKWAY
- EXISTING ELEVATION
- MATCHLINE
- PROJECT LIMITS
- POWER POLE
- 0.XX% PROPOSED FLOW DIRECTION AND DITCH SLOPE

NOTE: SEE SHEET 3 FOR GENERAL NOTES AND DETAILS.



SECTION A-A

EAST CARROLL PARISH POLICE JURY DRAINAGE PROJECT

LAKE PROVIDENCE, LA

SOUTH OUTFALL DITCH (3 OF 5)

GAEA ENGINEERING CONSULTANTS

SHEET

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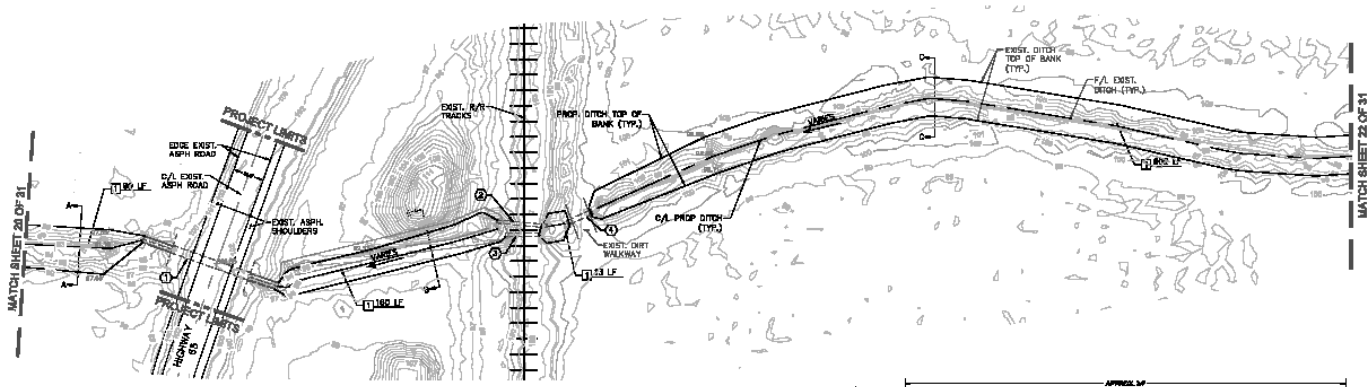
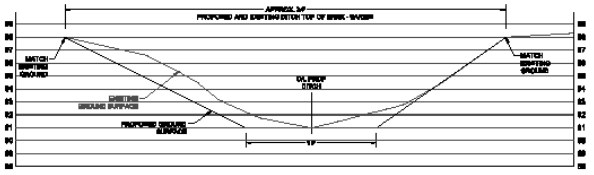
CONSTRUCTION NOTES AND QUANTITIES			
NO.	DESCRIPTION	QTY.	UNIT
1	RE-GRADE EXISTING DITCH FROM INVERT OF UPSTREAM CULVERT TO INVERT OF DOWNSTREAM CULVERT WITH A CROSS-SECTION INDICATED ON THIS SHEET.	466	LF

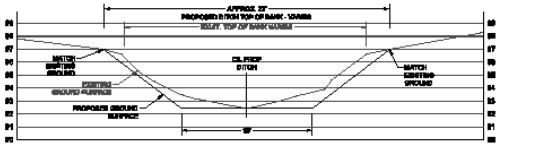
**"PIPE QUANTITIES PER TABLE BELOW"



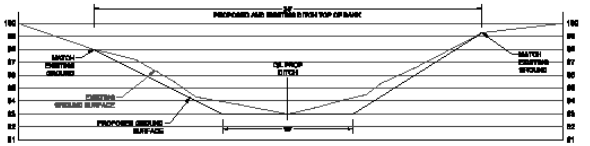
DRAINAGE PIPE SCHEDULE										
	EXISTING					PROPOSED				
NO.	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.
1	64.7	4'x6' R.C. BOX	94.11	93.7	102.38		CLEAR DEBRIS FROM EXISTING CULVERT			
2	38.7	30" R.C.P.	94.72	92.91	102.37		CLEAR DEBRIS FROM EXISTING CULVERT			
3	27.8	2'x3' R.C. BOX	95.52	95.63	102.37		CLEAR DEBRIS FROM EXISTING CULVERT			
4	20.6	42" C.M.P.	94.85	94.82	--		CLEAR DEBRIS FROM EXISTING CULVERT			



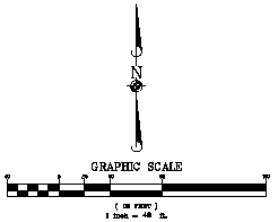
SECTION A-A
SCALE: 1" = 4'



SECTION B-B
SCALE: 1" = 4'



SECTION C-C
SCALE: 1" = 4'



LEGEND:

- DITCH TOP OF BANK
- DITCH FLOWLINE OR ROADWAY CENTERLINE
- CULVERT
- DROP INLET
- CULVERT NUMBER
- EDGE OF ROADWAY/DRIVEWAY/WALKWAY
- EXISTING ELEVATION
- MATCHLINE
- PROJECT LIMITS
- POWER POLE
- PROPOSED FLOW DIRECTION AND DITCH SLOPE

NOTE: SEE SHEET 5 FOR GENERAL NOTES AND DETAILS.

GAEA

EAST CARROLL PARISH POLICE JURY DRAINAGE PROJECT

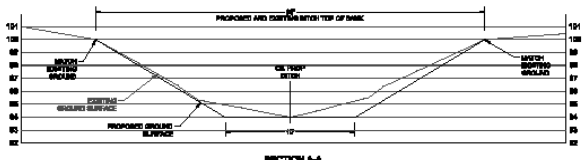
LAKE PROVIDENCE, LA

SOUTH OUTFALL DITCH (4 OF 6)

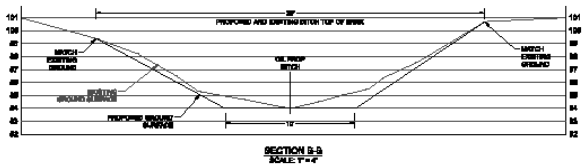
SHEET
21 of 31

CONSTRUCTION NOTES AND QUANTITIES

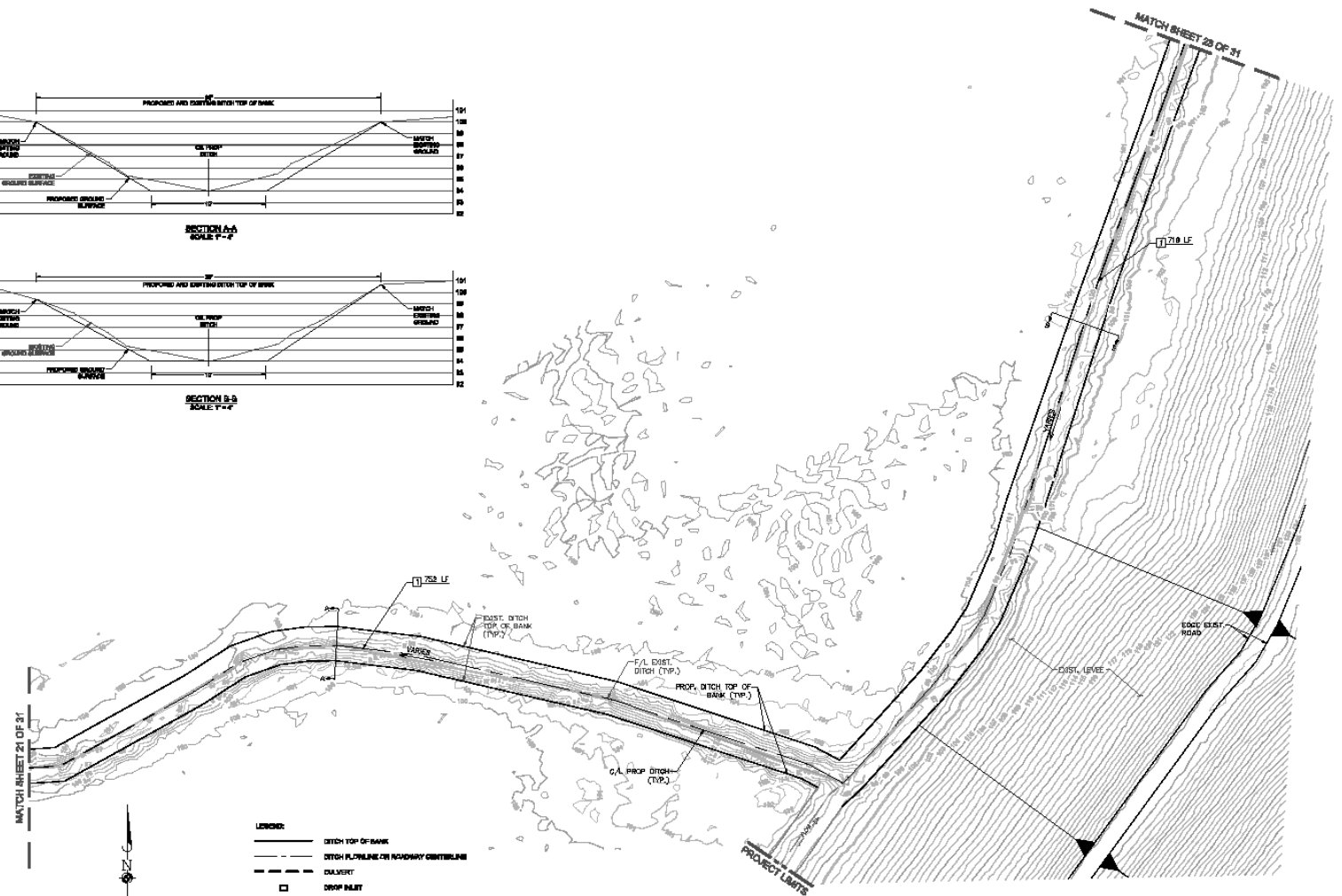
NO.	DESCRIPTION	QTY.	UNIT
1	RE-GRADE EXISTING DITCH FROM INVERT OF UPSTREAM CULVERT TO INVERT OF DOWNSTREAM CULVERT WITH A CROSS-SECTION INDICATED ON THIS SHEET.	1424	LF



SECTION A-A
SCALE 1" = 4'



SECTION B-B
SCALE 1" = 4'



LEGEND:

- DITCH TOP OF BANK
- DITCH FLOWLINE OR ROADWAY CENTERLINE
- CULVERT
- DROP INLET
- (10) CULVERT NUMBER
- EDGE OF ROADWAY/DRIVEWAY/RAILROAD
- 100.12 EXISTING ELEVATION
- MATCHLINE
- PROJECT LIMITS
- POWER POLE
- 0.70% PROPOSED FLOW DIRECTION AND DITCH SLOPE

NOTE: SEE SHEET 3 FOR GENERAL NOTES AND DETAILS.

GAEA

EAST CARROLL PARISH POLICE JURY DRAINAGE PROJECT

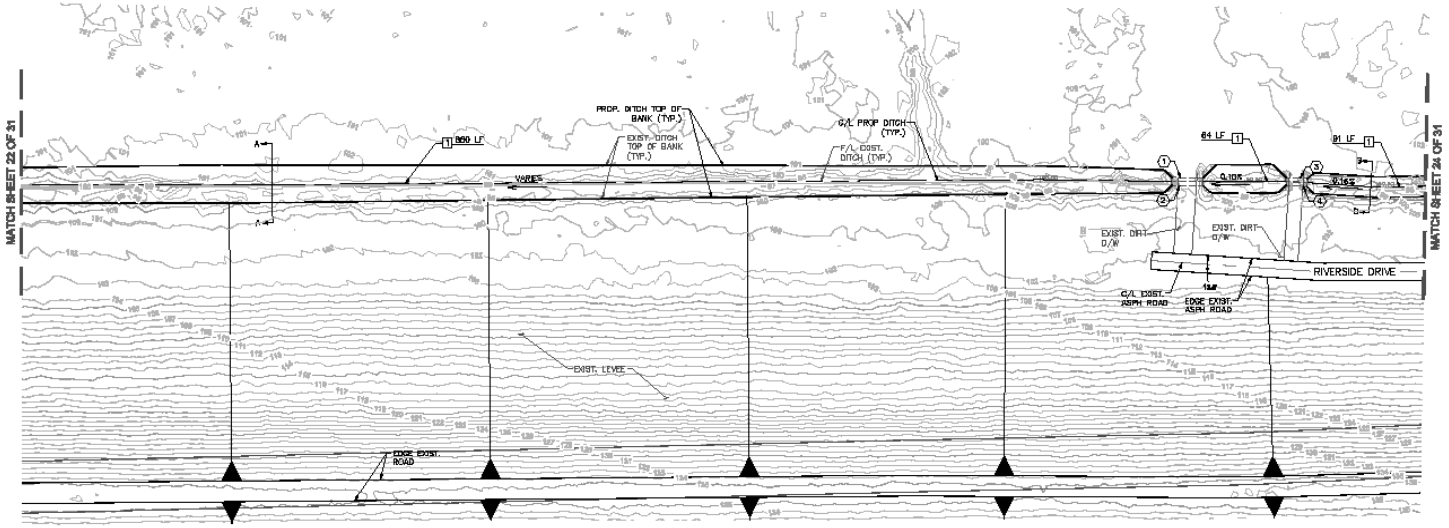
LAKE PROVIDENCE, LA

SOUTH OUTFALL DITCH (6 OF 8)

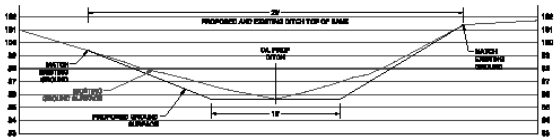
SHEET
22 of 31

CONSTRUCTION NOTES AND QUANTITIES			
NO.	DESCRIPTION	QTY.	UNIT
1	RE-GRADE EXISTING DITCH FROM INVERT OF UPSTREAM CULVERT TO INVERT OF DOWNSTREAM CULVERT WITH A CROSS-SECTION INDICATED ON THIS SHEET.	1949	LF

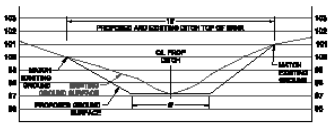
PIPE QUANTITIES PER TABLE BELOW



DRAINAGE PIPE SCHEDULE										
	EXISTING					PROPOSED				
NO.	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.
1	24.5	24"x35" C.M.A.P.	96.86	96.59	100.53		CLEAR DEBRIS FROM EXISTING CULVERT			
2	24.4	24"x35" C.M.A.P.	96.92	96.68	100.53		CLEAR DEBRIS FROM EXISTING CULVERT			
3	16.7	24"x35" C.M.A.P.	96.77	96.65	100.55		CLEAR DEBRIS FROM EXISTING CULVERT			
4	16.5	24"x35" C.M.A.P.	96.99	96.83	100.55		CLEAR DEBRIS FROM EXISTING CULVERT			



SECTION A-A
SCALE 1" = 4'



SECTION B-B
SCALE 1" = 4'

GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft.

LEGEND:
- DITCH TOP OF BANK
- DITCH FLOWLINE OR ROADWAY CENTERLINE
- CULVERT
- DROP INLET
- (16) CULVERT NUMBER
- EDGE OF ROADWAY/DRIVEWAY/RAILWAY
- 100.12 EXISTING ELEVATION
- MATCHLINE
- PROJECT LIMITS
- POWER POLE
- 0.10ft PROPOSED FLOW DIRECTION AND DITCH SLOPE

NOTE: SEE SHEET 5 FOR GENERAL NOTES AND DETAILS.

GAEA

EAST CARROLL PARISH POLICE JURY DRAINAGE PROJECT

LAKE PROVIDENCE, LA

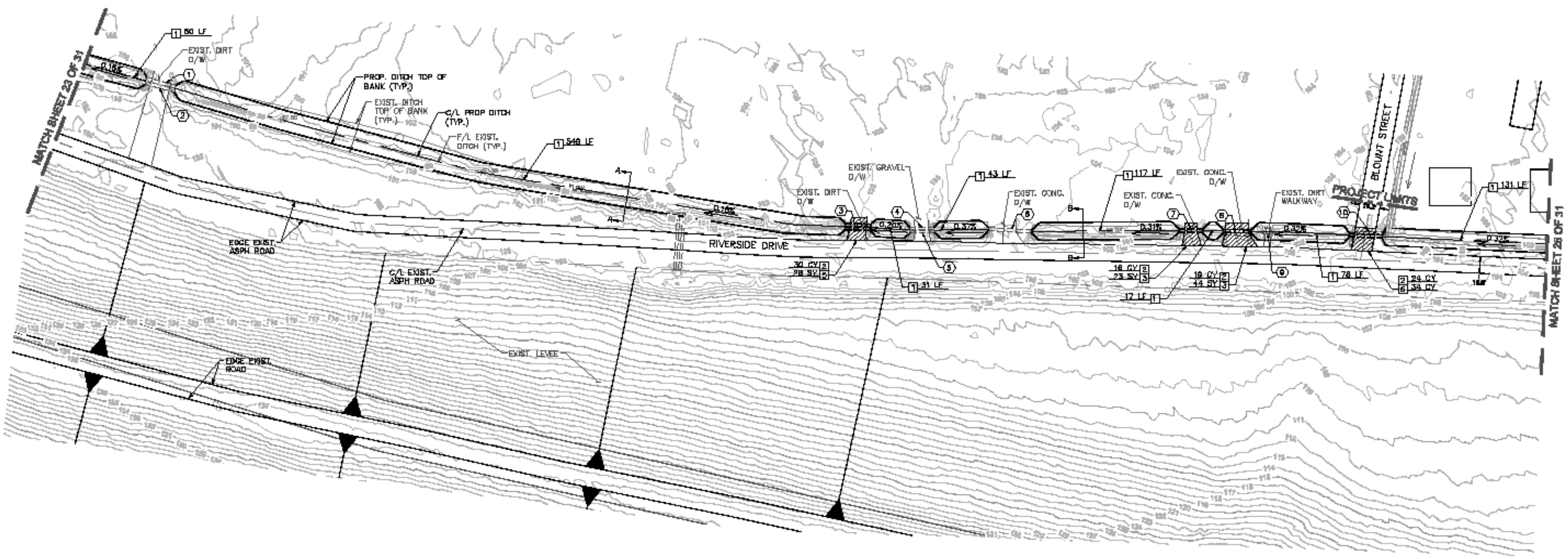
RIVERSIDE DRIVE (1 OF 2)

SHEET
23 of 31

CONSTRUCTION NOTES AND QUANTITIES

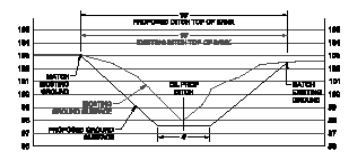
NO.	DESCRIPTION	QTY.	UNIT
1	RE-GRADE EXISTING DITCH FROM INVERT OF UPSTREAM CULVERT TO INVERT OF DOWNSTREAM CULVERT WITH A CROSS-SECTION INDICATED ON THIS SHEET.	1919	LF
2	PIPE BEDDING AND BACKFILL FOR NEW CULVERT PER LaDOTD STANDARD PLAN BAH-01. TOP BASED ON COVER ELEVATION SPECIFIED IN TABLE, THIS SHEET.	89	CY
3	REPLACE CONCRETE DRIVEWAY AFTER INSTALLATION OF NEW CULVERT, PER LaDOTD STANDARD PLAN DW-02, RURAL DRIVEWAY DETAILS, TYPE "B".	67	SY
5	REPLACE GRAVEL DRIVEWAY AFTER INSTALLATION OF NEW CULVERT, PER LaDOTD STANDARD PLAN DW-02, RURAL DRIVEWAY DETAILS, TYPE "A".	29	SY
6	PATCH ASPHALT ROADWAY TO MATCH EXISTING ROADWAY AFTER INSTALLATION OF NEW CULVERT.	34	SY

PIPE QUANTITIES PER TABLE BELOW

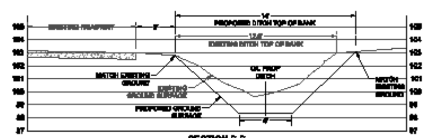


DRAINAGE PIPE SCHEDULE

NO.	EXISTING LENGTH	EXISTING SIZE & TYPE	EXISTING U.S. INV. EL.	EXISTING D.S. INV. EL.	EXISTING COVER EL.	PROPOSED LENGTH	PROPOSED SIZE & TYPE	PROPOSED U.S. INV. EL.	PROPOSED D.S. INV. EL.	PROPOSED COVER EL.
1	24.4	24"x35" C.M.A.P	97.02	96.39	100.76	CLEAR DEBRIS FROM EXISTING CULVERT				
2	24.3	24"x35" C.M.A.P	96.91	97.34	100.76	CLEAR DEBRIS FROM EXISTING CULVERT				
3	20.4	24" R.C.P.	98.45	98.27	102.75	20.4	2-30" R.C.P.	97.90	97.88	102.75
4	19.2	24" R.C.P.	97.92	97.38	103.24	CLEAR DEBRIS FROM EXISTING CULVERT				
5	19.5	24" R.C.P.	98.00	98.18	103.24	CLEAR DEBRIS FROM EXISTING CULVERT				
6	34.8	30" R.C.P.	98.17	98.38	103.38	CLEAR DEBRIS FROM EXISTING CULVERT				
7*	18.7	30" R.C.P.	98.96	98.76	102.77	18.7	30" R.C.P.	98.59	98.53	102.77
8*	22.3	30" R.C.P.	99.00	98.31	102.76	22.3	30" R.C.P.	98.71	98.64	102.76
9	7.2	21" R.C.P.	99.73	99.30	101.78	REMOVE				
10*	26.3	30" R.C.P.	99.25	100.13	103.38	25.3	30" R.C.P.	99.04	98.56	103.38



SECTION A-A
SCALE: 1" = 6'



SECTION B-B
SCALE: 1" = 6'

GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft.

LEGEND:

- DITCH TOP OF BANK
- DITCH FLOWLINE OR ROADWAY CENTERLINE
- CULVERT
- DROP INLET
- CULVERT NUMBER
- EDGE OF ROADWAY/DRIVEWAY/WALKWAY
- EXISTING ELEVATION
- MATCHLINE
- PROJECT LIMITS
- POWER POLE
- 0.XX% PROPOSED FLOW DIRECTION AND DITCH SLOPE

NOTE: SEE SHEET 3 FOR GENERAL NOTES AND DETAILS.

GAEA ENGINEERING CONSULTANTS

EAST CARROLL PARISH POLICE JURY DRAINAGE PROJECT

LAKE PROVIDENCE, LA

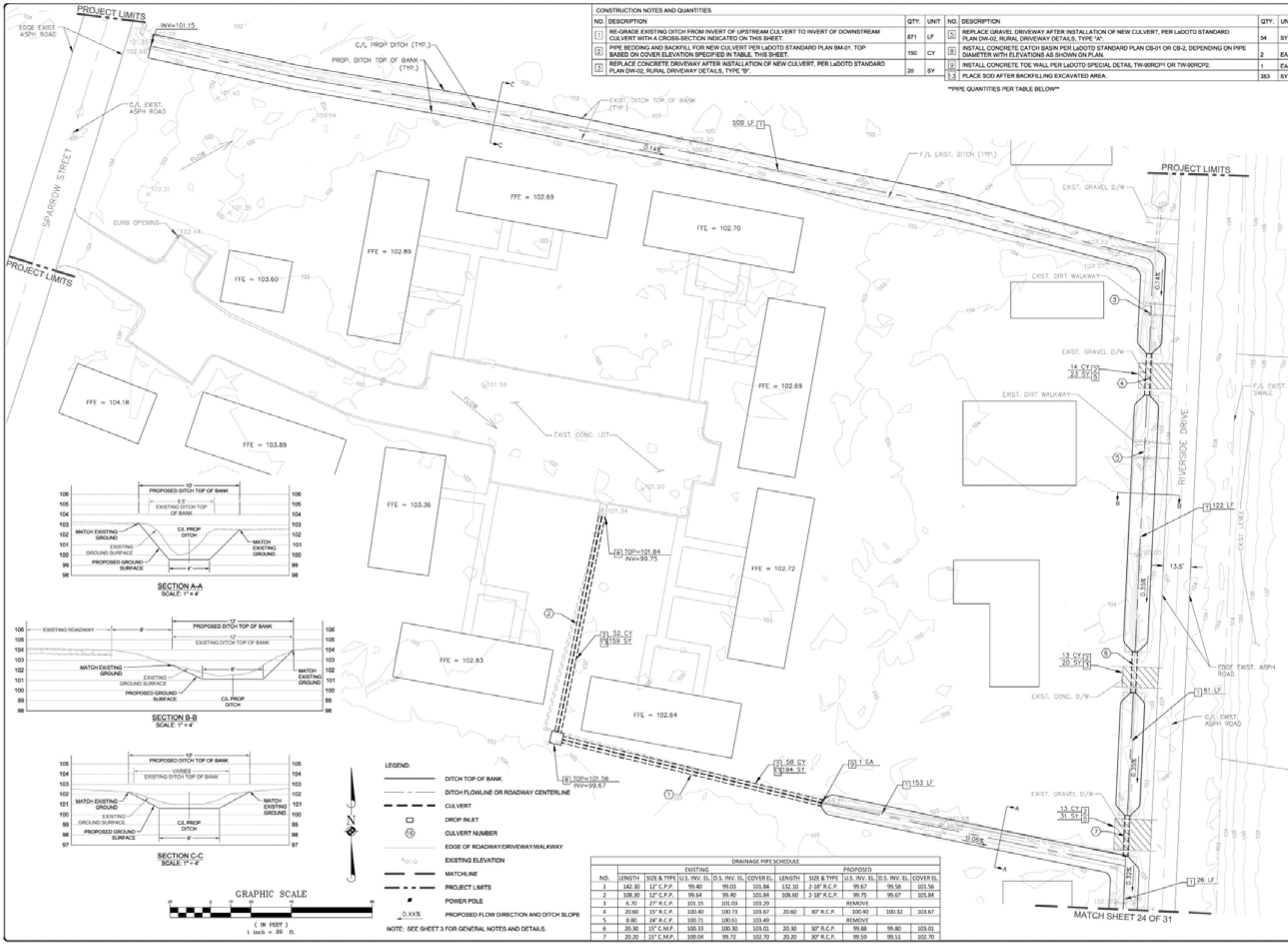
RIVERSIDE DRIVE (2 OF 2)

SHEET

CONSTRUCTION NOTES AND QUANTITIES

NO.	DESCRIPTION	QTY.	UNIT
1	RE-GRADE EXISTING DITCH FROM INVERT OF UPSTREAM CULVERT TO INVERT OF DOWNSTREAM CULVERT WITH A CROSS-SECTION INDICATED ON THIS SHEET.	871	LF
2	PIPE BEDDING AND BACKFILL FOR NEW CULVERT PER LaDOTD STANDARD PLAN BM-01. TOP BASED ON COVER ELEVATION SPECIFIED IN TABLE, THIS SHEET.	150	CY
3	REPLACE CONCRETE DRIVEWAY AFTER INSTALLATION OF NEW CULVERT, PER LaDOTD STANDARD PLAN DW-02, RURAL DRIVEWAY DETAILS, TYPE "B".	20	SY
5	REPLACE GRAVEL DRIVEWAY AFTER INSTALLATION OF NEW CULVERT, PER LaDOTD STANDARD PLAN DW-02, RURAL DRIVEWAY DETAILS, TYPE "A".	54	SY
8	INSTALL CONCRETE CATCH BASIN PER LaDOTD STANDARD PLAN CB-01 OR CB-2, DEPENDING ON PIPE DIAMETER WITH ELEVATIONS AS SHOWN ON PLAN.	2	EA
9	INSTALL CONCRETE TOE WALL PER LaDOTD SPECIAL DETAIL TW-90RCP1 OR TW-90RCP2.	1	EA
13	PLACE SOD AFTER BACKFILLING EXCAVATED AREA.	353	SY

PIPE QUANTITIES PER TABLE BELOW



DRAINAGE PIPE SCHEDULE										
	EXISTING					PROPOSED				
NO.	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.
1	142.30	12" C.P.P.	99.40	99.03	101.84	132.10	2-18" R.C.P.	99.67	99.58	101.56
2	108.30	12" C.P.P.	99.64	99.40	101.84	108.60	2-18" R.C.P.	99.75	99.67	101.84
3	6.70	27" R.C.P.	101.15	101.03	103.29	REMOVE				
4	20.60	15" R.C.P.	100.40	100.73	103.67	20.60	30" R.C.P.	100.40	100.32	103.67
5	8.80	24" R.C.P.	100.71	100.61	103.49	REMOVE				
6	20.30	15" C.M.P.	100.33	100.30	103.01	20.30	30" R.C.P.	99.88	99.80	103.01
7	20.20	15" C.M.P.	100.04	99.72	102.70	20.20	30" R.C.P.	99.59	99.51	102.70

GAEA ENGINEERING CONSULTANTS
538 Washington Ave.
New Orleans, LA 70130
o. 504.982.5360 f. 504.982.5362

EAST CARROLL PARISH POLICE JURY DRAINAGE PROJECT

LAKE PROVIDENCE, LA

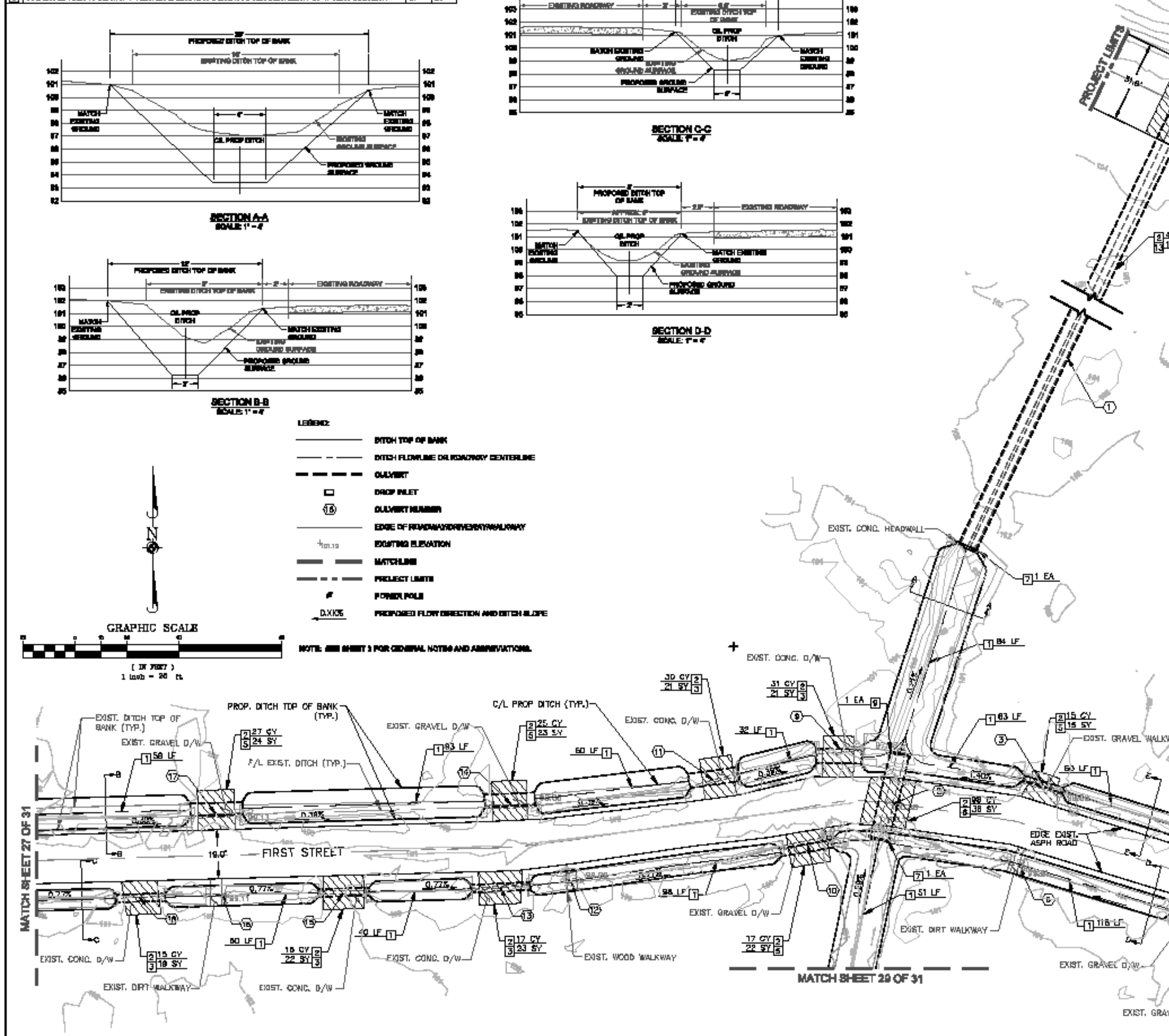
806 SPARROW STREET APARTMENTS

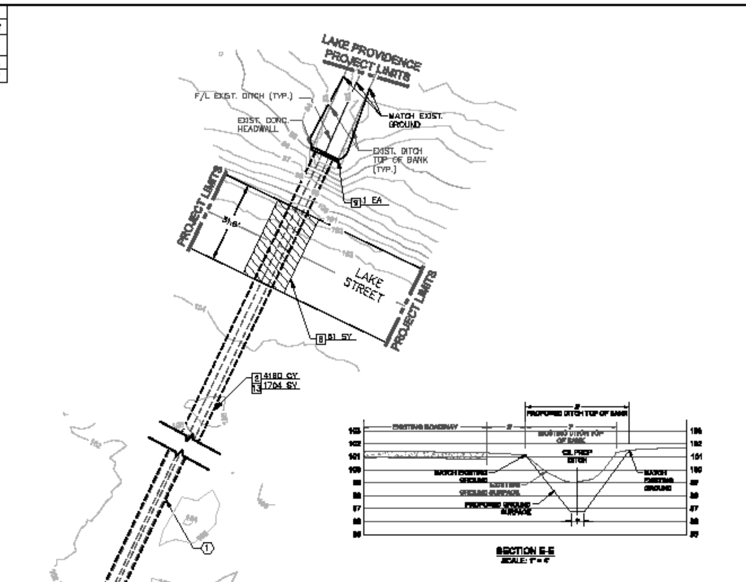
PROJ. MGR.: JMS
DRAWN BY: KJG
CHECKED BY: TLK
DATE: 8/22/2013
SCALE: 1" = 20'

CONSTRUCTION NOTES AND QUANTITIES

NO.	DESCRIPTION	QTY.	UNIT
1	RE-GRADE EXISTING DITCH FROM INVERT OF UPSTREAM CULVERT TO INVERT OF DOWNSTREAM CULVERT WITH A CROSS-SECTION INDICATED ON THIS SHEET.	816	LF
1a	RE-ESTABLISH GRADE OF EXISTING DITCH.	37	LF
2	PIPE BEDDING AND BACKFILL FOR NEW CULVERT PER LaDOTD STANDARD PLAN BM-01. TOP BASED ON COVER ELEVATION SPECIFIED IN TABLE, THIS SHEET.	4442	CY
3	REPLACE CONCRETE DRIVEWAY AFTER INSTALLATION OF NEW CULVERT, PER LaDOTD STANDARD PLAN DW-03, RURAL DRIVEWAY DETAILS, TYPE "B".	106	SY
5	REPLACE GRAVEL DRIVEWAY AFTER INSTALLATION OF NEW CULVERT, PER LaDOTD STANDARD PLAN DW-02, RURAL DRIVEWAY DETAILS, TYPE "A".	84	SY
8	PATCH ASPHALT ROADWAY TO MATCH EXISTING ROADWAY AFTER INSTALLATION OF NEW CULVERT.	87	SY
7	INSTALL CONCRETE HEADWALL PER LaDOTD SPECIAL DETAIL HW-00RCP1, HW-00RCP2, HW-00RCPA1, OR HW-00RCPA2.	2	EA
9	INSTALL CONCRETE TOE WALL PER LaDOTD SPECIAL DETAIL TW-00RCP1 OR TW-00RCP2.	1	EA
13	PLACE SOD AFTER BACKFILLING EXCAVATED AREA.	1704	SY

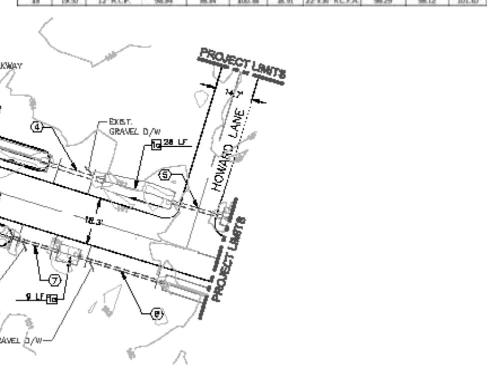
PIPE QUANTITIES PER TABLE BELOW





DRAINAGE PIPE SCHEDULE

NO.	EXISTING LENGTH	EXISTING SIZE & TYPE	EXISTING U.S. INV. EL.	EXISTING D.S. INV. EL.	EXISTING COVER EL.	PROPOSED LENGTH	PROPOSED SIZE & TYPE	PROPOSED U.S. INV. EL.	PROPOSED D.S. INV. EL.	PROPOSED COVER EL.
1	941.10	24" & 36" R.C.P.	96.54	92.08	100.55	941.20	54"x88" R.C.P.A.	93.40	93.00	103.55
2	32.60	36" C.M.P.	96.09	96.04	101.12	33.90	54"x88" R.C.P.A.	93.66	93.58	101.12
3	15.90	18" R.C.P.	98.50	98.29	101.03	15.85	24" R.C.P.	96.24	95.97	101.03
4	22.10	18" R.C.P.	99.10	98.86	101.48	CLEAR DEBRIS FROM EXISTING CULVERT				
5	30.10	15" C.M.P.	100.37	100.09	102.08	CLEAR DEBRIS FROM EXISTING CULVERT				
6	5.20	12" R.C.P.	98.83	98.94	100.22	REMOVE				
7	18.40	12" R.C.P.	99.00	99.10	100.86	CLEAR DEBRIS FROM EXISTING CULVERT				
8	34.30	12" R.C.P.	99.54	99.20	101.53	CLEAR DEBRIS FROM EXISTING CULVERT				
9	18.30	18" R.C.P.	97.68	97.53	100.77	17.42	40"x66" R.C.P.A.	95.15	95.06	100.77
10	18.90	18" R.C.P.	97.66	97.69	99.87	20.20	22"x36" R.C.P.A.	96.24	96.07	99.87
11	19.00	12" R.C.P.	98.56	98.36	100.19	19.51	40"x66" R.C.P.A.	95.36	95.27	100.19
12	4.00	18" R.C.P.	98.32	98.25	N/A	REMOVE				
13	21.80	8" PLASTIC	98.52	98.60	99.78	22.78	22"x36" R.C.P.A.	97.14	96.96	99.78
14	19.30	15" R.C.P.	98.18	97.94	100.07	19.36	36"x58" R.C.P.A.	95.67	95.59	100.07
15	18.10	12" R.C.P.	98.96	98.61	100.95	19.55	22"x36" R.C.P.A.	97.64	97.47	100.95
16	7.60	12" R.C.P.	98.70	98.89	100.33	REMOVE				
17	18.90	15" R.C.P.	98.54	98.56	100.72	20.22	36"x58" R.C.P.A.	96.14	96.04	100.72
18	19.50	12" R.C.P.	98.94	98.84	100.88	18.91	22"x36" R.C.P.A.	98.29	98.12	101.63



EAST CARROLL PARISH POLICE JURY DRAINAGE PROJECT

LAKE PROVIDENCE, LA

FIRST STREET

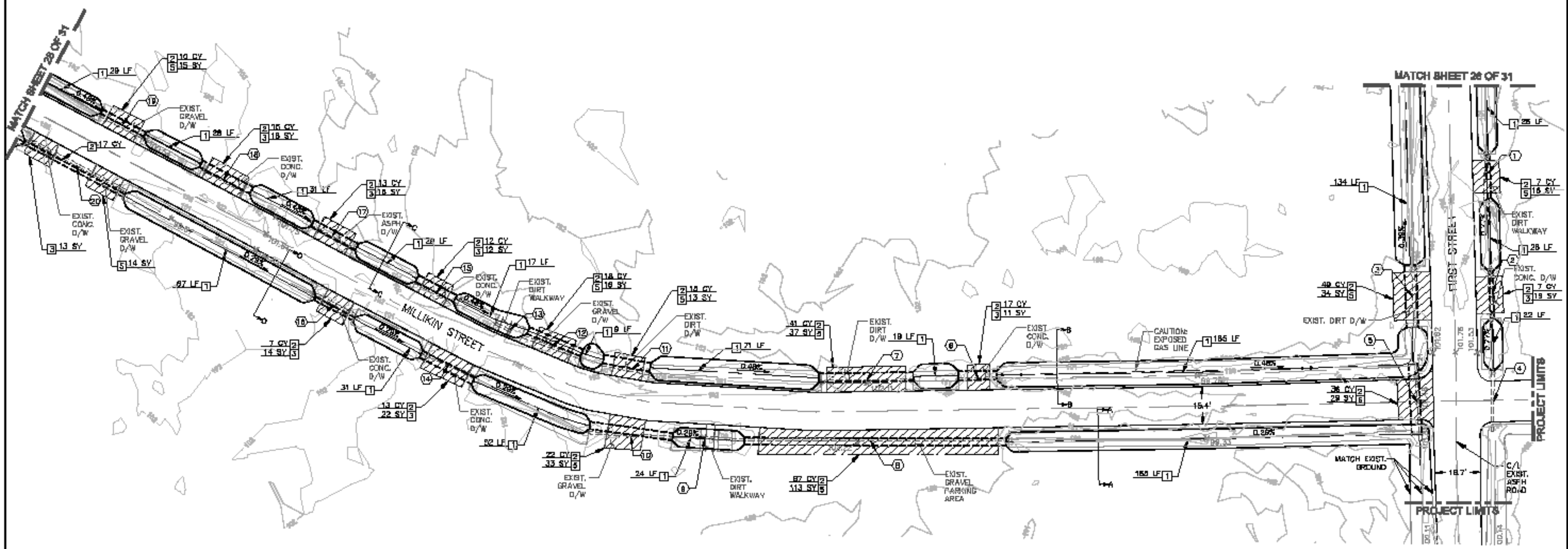
SHEET

26 of 31

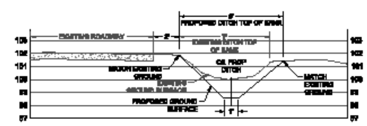
CONSTRUCTION NOTES AND QUANTITIES

NO.	DESCRIPTION	QTY.	UNIT
1	RE-GRADE EXISTING DITCH FROM INVERT OF UPSTREAM CULVERT TO INVERT OF DOWNSTREAM CULVERT WITH A CROSS-SECTION INDICATED ON THIS SHEET.	[illegible]	LF
2	PIPE BEDDING AND BACKFILL FOR NEW CULVERT PER LaDOTD STANDARD PLAN SM-01. TOP BASED ON COVER ELEVATION SPECIFIED IN TABLE, THIS SHEET.	[illegible]	CY
3	REPLACE CONCRETE DRIVEWAY AFTER INSTALLATION OF NEW CULVERT, PER LaDOTD STANDARD PLAN DW-02, RURAL DRIVEWAY DETAILS, TYPE "B".	[illegible]	SY
5	REPLACE GRAVEL DRIVEWAY AFTER INSTALLATION OF NEW CULVERT, PER LaDOTD STANDARD PLAN DW-02, RURAL DRIVEWAY DETAILS, TYPE "D".	251	SY
6	PATCH ASPHALT ROADWAY TO MATCH EXISTING ROADWAY AFTER INSTALLATION OF NEW CULVERT.	27	SY

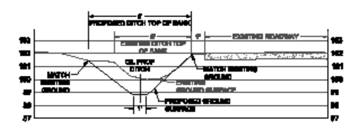
PIPE QUANTITIES PER TABLE BELOW



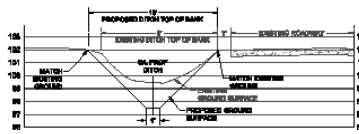
DRAINAGE PIPE SCHEDULE										
	EXISTING					PROPOSED				
NO.	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.
1	19.60	15" R.C.P.	99.09	98.75	101.13	18.13	18" R.C.P.	98.92	98.75	108.13
2	20.40	18" C.M.P.	99.47	98.91	101.47	19.17	18" R.C.P.	99.33	99.14	108.47
3	24.90	15" R.C.P.	99.17	99.09	101.15	25.59	36"x58" R.C.P.A.	96.76	96.66	108.20
4	24.80	12" R.C.P.	99.87	99.51	101.29	CLEAR DEBRIS FROM EXISTING CULVERT				
5	31.40	12" R.C.P.	99.17	98.82	101.45	28.31	31"x50" R.C.P.A.	98.00	96.81	108.46
6	15.79	15" R.C.P.	99.45	99.44	102.08	15.59	27"x43" R.C.P.A.	97.67	97.58	108.03
7	37.79	15" R.C.P.	99.84	99.61	102.11	38.53	27"x43" R.C.P.A.	97.94	97.75	108.11
8	113.30	12" R.C.P.	100.13	100.07	102.22	107.29	22"x36" R.C.P.A.	98.98	98.59	108.22
9	7.30	12" R.C.P.	99.48	99.57	101.41	REMOVE				
10	34.50	12" R.C.P.	99.77	98.57	102.00	34.26	22"x36" R.C.P.A.	99.18	99.06	108.00
11	19.40	12" R.C.P.	99.70	99.71	101.51	19.44	27"x43" R.C.P.A.	98.36	98.25	108.51
12	25.80	12" R.C.P.	99.86	99.46	101.81	23.80	22"x36" R.C.P.A.	98.53	98.39	108.81
13	7.20	12" R.C.P.	99.91	100.06	101.46	REMOVE				
14	24.00	12" R.C.P.	99.46	99.98	101.85	23.34	22"x36" R.C.P.A.	99.43	99.34	108.85
15	19.40	12" R.C.P.	99.90	100.12	101.78	17.59	22"x36" R.C.P.A.	98.78	98.67	108.78
16	19.40	12" R.C.P.	99.74	99.91	101.91	18.35	18" R.C.P.	99.59	99.52	108.91
17	20.00	12" R.C.P.	99.97	100.09	101.80	20.59	22"x36" R.C.P.A.	99.00	98.90	108.80
18	19.20	12" R.C.P.	100.31	100.45	102.02	23.27	22"x36" R.C.P.A.	99.24	99.13	109.02
19	19.50	12" R.C.P.	100.28	100.36	102.00	20.18	24" R.C.P.	99.46	99.36	108.00
20	44.90	12" R.C.P.	99.92	100.11	102.02	46.34	18" R.C.P.	100.02	99.86	108.02



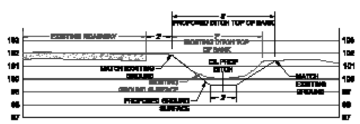
SECTION A-A
SCALE: 1" = 4'



SECTION C-C
SCALE: 1" = 4'



SECTION B-B
SCALE: 1" = 4'



SECTION D-D
SCALE: 1" = 4'

LEGEND:

- DITCH TOP OF BANK
- DITCH FLOWLINE OR ROADWAY CENTERLINE
- CULVERT
- DROP INLET
- CULVERT NUMBER
- EDGE OF ROADWAY/DRIVEWAY/WALKWAY
- EXISTING ELEVATION
- MATCHLINE
- PROJECT LIMITS
- POWER POLE
- PROPOSED FLOW DIRECTION AND DITCH SLOPE

GRAPHIC SCALE
(IN FEET)
1 inch = 20 ft.

NOTE: SEE SHEET 5 FOR GENERAL NOTES AND ABBREVIATIONS.

GAEA ENGINEERING CONSULTANTS

EAST CARROLL PARISH POLICE JURY DRAINAGE PROJECT

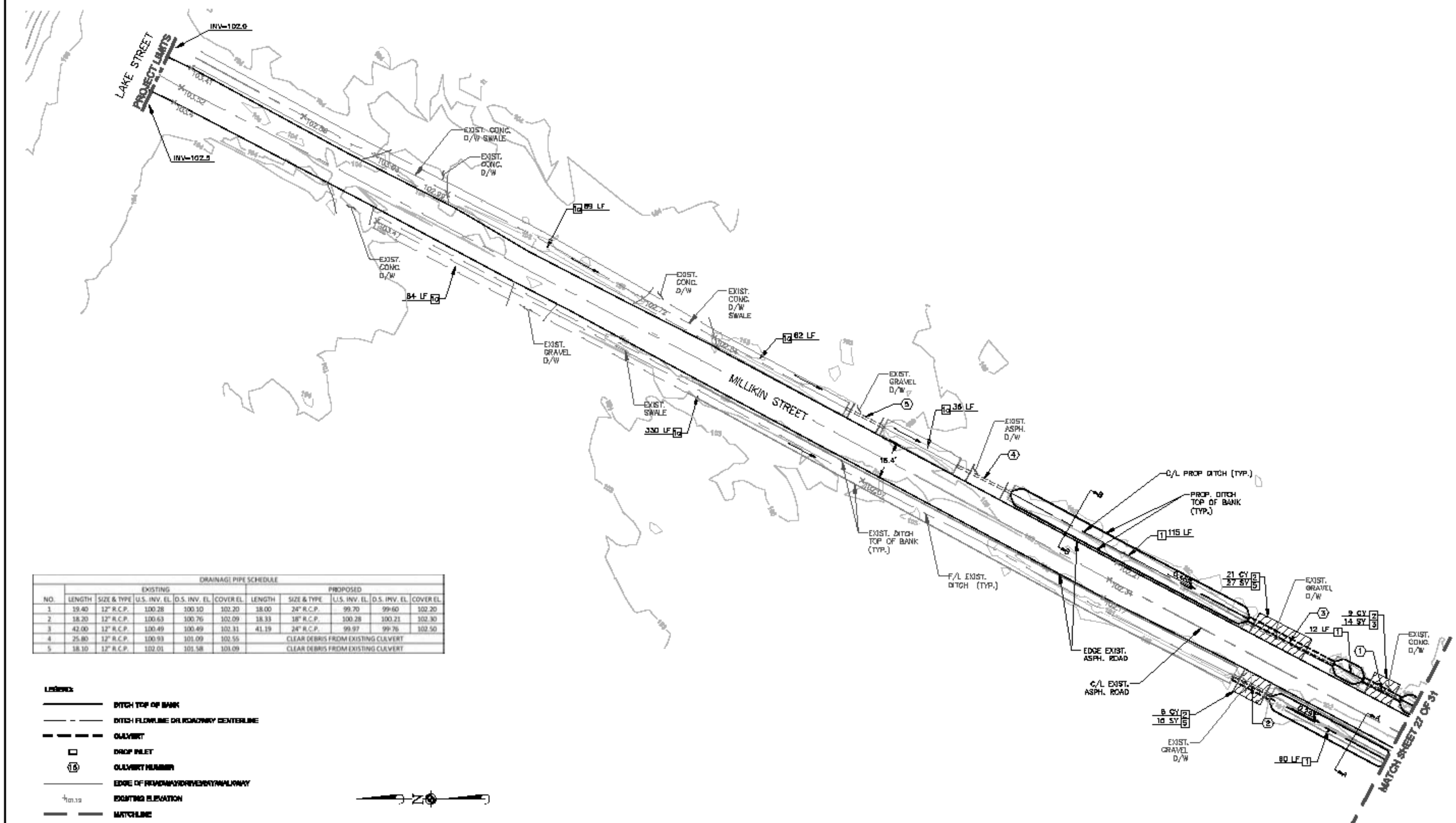
LAKE PROVIDENCE, LA

MILLIKIN STREET (1 OF 2)

CONSTRUCTION NOTES AND QUANTITIES

NO.	DESCRIPTION	QTY.	UNIT
1	RE-GRADE EXISTING DITCH FROM INVERT OF UPSTREAM CULVERT TO INVERT OF DOWNSTREAM CULVERT WITH A CROSS-SECTION INDICATED ON THIS SHEET.	157	LF
1a	RE-ESTABLISH GRADE OF EXISTING DITCH.	661	LF
2	PIPE BEDDING AND BACKFILL FOR NEW CULVERT PER LaDOTD STANDARD PLAN BM-01. TOP BASED ON COVER ELEVATION SPECIFIED IN TABLE, THIS SHEET.	10	CY
3	REPLACE CONCRETE DRIVEWAY AFTER INSTALLATION OF NEW CULVERT, PER LaDOTD STANDARD PLAN DW-02, RURAL DRIVEWAY DETAILS, TYPE "B".	14	SY
5	REPLACE GRAVEL DRIVEWAY AFTER INSTALLATION OF NEW CULVERT, PER LaDOTD STANDARD PLAN DW-02, RURAL DRIVEWAY DETAILS, TYPE "A".	42	SY

PIPE QUANTITIES PER TABLE BELOW



DRAINAGE PIPE SCHEDULE										
	EXISTING					PROPOSED				
NO.	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.
1	19.40	12" R.C.P.	100.28	100.10	102.20	18.00	24" R.C.P.	99.70	99.60	102.20
2	18.20	12" R.C.P.	100.63	100.76	102.09	18.33	18" R.C.P.	100.28	100.21	102.30
3	42.00	12" R.C.P.	100.49	100.49	102.31	41.19	24" R.C.P.	99.97	99.76	102.50
4	25.80	12" R.C.P.	100.93	101.09	102.55	CLEAR DEBRIS FROM EXISTING CULVERT				
5	18.10	12" R.C.P.	102.01	101.58	103.09	CLEAR DEBRIS FROM EXISTING CULVERT				

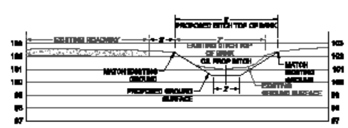
LEGEND:

- DITCH TOP OF BANK
- DITCH FLOWLINE OR ROADWAY CENTERLINE
- CULVERT
- DROP INLET
- CULVERT NUMBER
- EDGE OF ROADWAY/DRIVEWAY/WALKWAY
- EXISTING ELEVATION
- MATCHLINE
- PROJECT LIMITS
- POWER POLE
- PROPOSED FLOW DIRECTION AND DITCH SLOPE

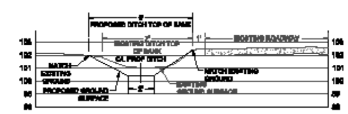
GRAPHIC SCALE

(IN FEET)
1 inch = 60 ft.

NOTE: SEE SHEET 5 FOR GENERAL NOTES AND ABBREVIATIONS.



SECTION A-A
SCALE: 1" = 4'



SECTION B-B
SCALE: 1" = 4'

GAEA ENGINEERING CONSULTANTS

EAST CARROLL PARISH POLICE JURY DRAINAGE PROJECT

LAKE PROVIDENCE, LA

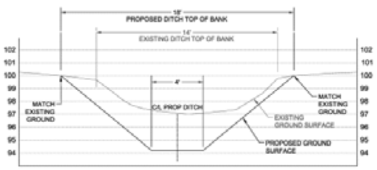
MILLIKIN STREET (2 OF 2)

SHEET
28 of 31

CONSTRUCTION NOTES AND QUANTITIES

NO.	DESCRIPTION	QTY.	UNIT
1	RE-GRADE EXISTING DITCH FROM INVERT OF UPSTREAM CULVERT TO INVERT OF DOWNSTREAM CULVERT WITH A CROSS-SECTION INDICATED ON THIS SHEET.	184	LF
2	PIPE BEDDING AND BACKFILL FOR NEW CULVERT PER LaDOTD STANDARD PLAN BM-01. TOP BASED ON COVER ELEVATION SPECIFIED IN TABLE, THIS SHEET.	639	CY
6	PATCH ASPHALT ROADWAY TO MATCH EXISTING ROADWAY AFTER INSTALLATION OF NEW CULVERT.	31	SY
8	INSTALL CONCRETE CATCH BASIN PER LaDOTD STANDARD PLAN CB-01 OR CB-2, DEPENDING ON PIPE DIAMETER WITH ELEVATIONS AS SHOWN ON PLAN.	1	EA
9	INSTALL CONCRETE TOE WALL PER LaDOTD SPECIAL DETAIL TW-90RCP1 OR TW-90RCP2.	1	EA
11	INSTALL REINFORCED CONCRETE DRAIN MANHOLE WITH SLOTTED GRATE PER LaDOTD STANDARD PLAN MH-06 WITH TYPE "K1" COVER WITH ELEVATION AS SHOWN ON PLAN.	2	EA
13	PLACE SOD AFTER BACKFILLING EXCAVATED AREA.	428	SY

PIPE QUANTITIES PER TABLE BELOW



SECTION A-A
SCALE: 1" = 4'

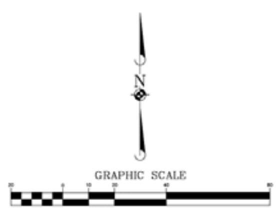
DRAINAGE PIPE SCHEDULE

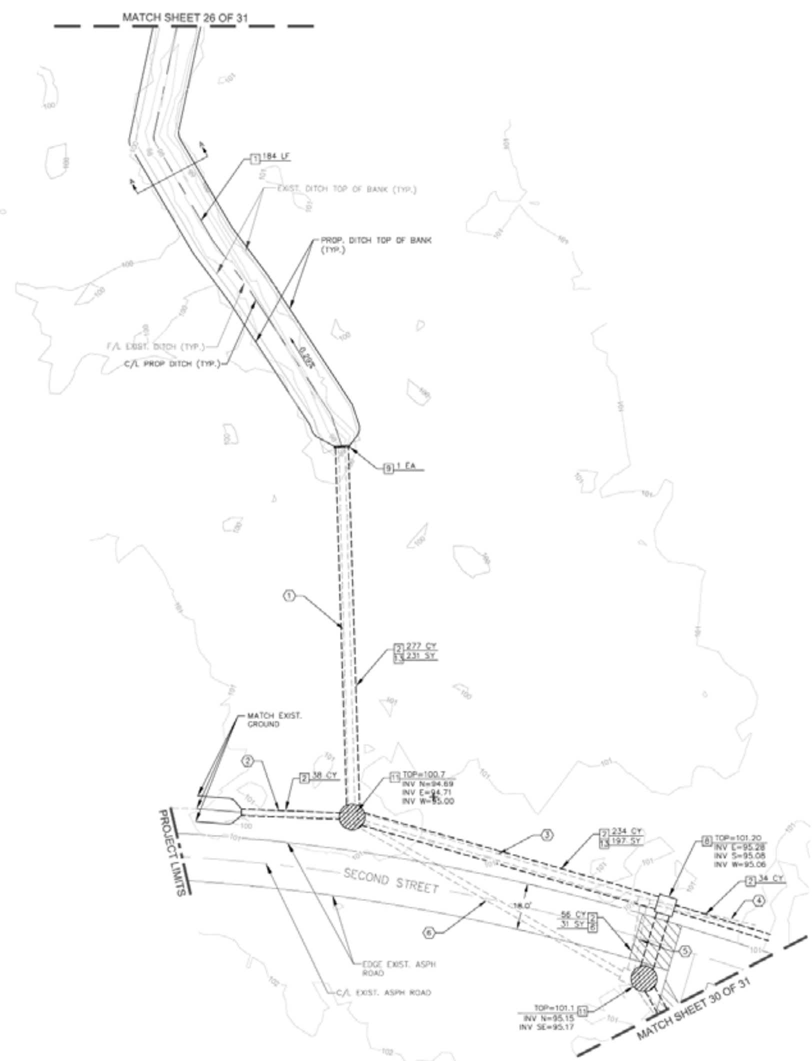
NO.	EXISTING					PROPOSED				
	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.
1	141.10	24" R.C.P.	96.70	97.06	101.05	142.98	60" R.C.P.	94.69	94.27	101.05
2	42.77	24" R.C.P.	UNKNOWN	96.60	100.10	42.77	30" R.C.P.	96.20	95.00	100.10
3	113.30	24" R.C.P.	96.65	97.07	101.08	125.96	60" R.C.P.	95.06	94.71	101.08
4	41.87	18" R.C.P.	UNKNOWN	96.65	100.31	38.37	30" R.C.P.	96.60	95.28	100.31
5	25.30	30" R.C.P.	97.01	96.65	101.51	29.58	60" R.C.P.	95.15	95.08	101.51
6	118.30	30" R.C.P.	97.57	97.26	101.51	ABANDON EXISTING PIPE IN PLACE				

LEGEND:

- DITCH TOP OF BANK
- DITCH FLOWLINE OR ROADWAY CENTERLINE
- CULVERT
- DROP INLET
- CULVERT NUMBER
- EDGE OF ROADWAY/DRIVEWAY/WALKWAY
- EXISTING ELEVATION
- MATCHLINE
- PROJECT LIMITS
- POWER POLE
- PROPOSED FLOW DIRECTION AND DITCH SLOPE

NOTE: SEE SHEET 3 FOR GENERAL NOTES AND ABBREVIATIONS.





EAST CARROLL PARISH POLICE JURY DRAINAGE PROJECT

LAKE PROVIDENCE, LA

OUTFALL BETWEEN SECOND AND FIRST STREETS

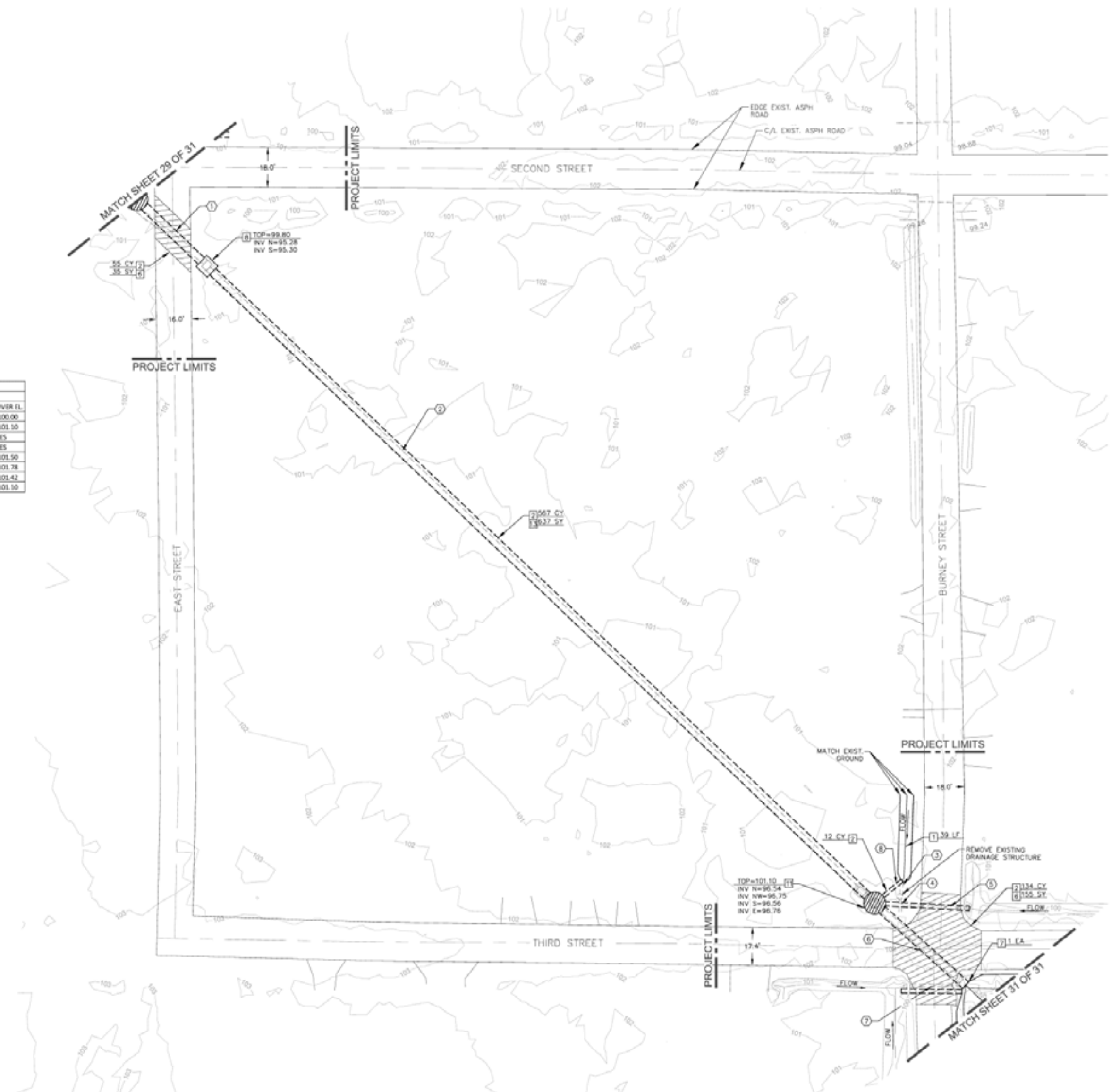
GAEA ENGINEERING CONSULTANTS
538 Washington Ave.
New Orleans, LA 70130

SCALE: 1" = 20'

CONSTRUCTION NOTES AND QUANTITIES

NO.	DESCRIPTION	QTY.	UNIT
1	RE-GRADE EXISTING DITCH FROM INVERT OF UPSTREAM CULVERT TO INVERT OF DOWNSTREAM CULVERT WITH A CROSS-SECTION INDICATED ON THIS SHEET.	39	LF
2	PIPE BEDDING AND BACKFILL FOR NEW CULVERT PER LaDOTD STANDARD PLAN BM-01. TOP BASED ON COVER ELEVATION SPECIFIED IN TABLE, THIS SHEET.	768	CY
6	PATCH ASPHALT ROADWAY TO MATCH EXISTING ROADWAY AFTER INSTALLATION OF NEW CULVERT.	190	SY
7	INSTALL CONCRETE HEADWALL PER LaDOTD SPECIAL DETAIL HW-90RCP1, HW-90RCP2, HW-90RCPA1, OR HW-90RCPA2.	1	EA
8	INSTALL CONCRETE CATCH BASIN PER LaDOTD STANDARD PLAN CB-01 OR CB-2, DEPENDING ON PIPE DIAMETER WITH ELEVATIONS AS SHOWN ON PLAN.	1	EA
11	INSTALL REINFORCED CONCRETE DRAIN MANHOLE WITH SLOTTED GRATE PER LaDOTD STANDARD PLAN MH-06 WITH TYPE "K1" COVER WITH ELEVATION AS SHOWN ON PLAN.	1	EA
13	PLACE SOD AFTER BACKFILLING EXCAVATED AREA.	637	SY

PIPE QUANTITIES PER TABLE BELOW



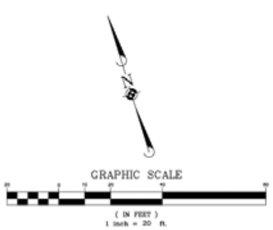
DRAINAGE PIPE SCHEDULE

NO.	EXISTING					PROPOSED				
	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.
1	41.50	30" R.C.P.	96.53	96.63	101.24	43.92	48" R.C.P.	95.28	95.17	100.00
2	405.80	30" R.C.P.	96.85	96.49	101.00	428.85	48" R.C.P.	96.54	95.30	101.10
3	UNK	15" C.M.P.	UNK	98.81	100.02	REMOVE EXISTING PIPE AND ASSOCIATED STRUCTURES				
4	UNK	15" C.M.P.	99.01	UNK	100.31	REMOVE EXISTING PIPE AND ASSOCIATED STRUCTURES				
5	30.80	12" R.C.P.	98.38	UNK	101.50	43.04	24" R.C.P.	98.20	96.76	101.50
6	53.70	30" R.C.P.	97.88	97.39	101.78	55.43	48" R.C.P.	96.70	96.56	101.78
7	23.90	12" R.C.P.	98.67	98.30	101.42	27.50	24" R.C.P.	98.50	96.72	101.42
8	NEW PIPE					16.00	18" R.C.P.	98.50	96.75	101.10

LEGEND:

- DITCH TOP OF BANK
- DITCH FLOWLINE OR ROADWAY CENTERLINE
- CULVERT
- DROP INLET
- CULVERT NUMBER
- EDGE OF ROADWAY/DRIVEWAY/WALKWAY
- 101.12 EXISTING ELEVATION
- MATCHLINE
- PROJECT LIMITS
- POWER POLE
- 0.XX% PROPOSED FLOW DIRECTION AND DITCH SLOPE

NOTE: SEE SHEET 3 FOR GENERAL NOTES AND ABBREVIATIONS.



GAEA ENGINEERING CONSULTANTS
536 Washington Ave.
New Orleans, LA 70130
o. 504.982.5380 f. 504.982.5382

EAST CARROLL PARISH POLICE JURY DRAINAGE PROJECT

LAKE PROVIDENCE, LA

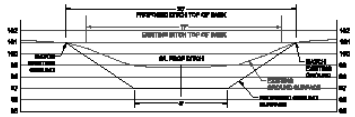
BURNEY AND PECAN STREETS (1 of 2)

PROJ. MGR.: JMS
DRAWN BY: KJG
CHECKED BY: TLK
DATE: 8/22/2013
SCALE: 1" = 20'

SHEET

CONSTRUCTION NOTES AND QUANTITIES			
NO.	DESCRIPTION	QTY.	UNIT
1	RE-GRADE EXISTING DITCH FROM INVERT OF UPSTREAM CULVERT TO INVERT OF DOWNSTREAM CULVERT WITH A CROSS-SECTION INDICATED ON THIS SHEET.	256	LF
2	RE-ESTABLISH GRADE OF EXISTING DITCH.	613	LF
3	PIPE BEDDING AND BACKFILL FOR NEW CULVERT PER LaDOTD STANDARD PLAN BM-01. TOP BASED ON COVER ELEVATION SPECIFIED IN TABLE, THIS SHEET.	324	CY
4	PATCH ASPHALT ROADWAY TO MATCH EXISTING ROADWAY AFTER INSTALLATION OF NEW CULVERT.	66	SY
5	INSTALL CONCRETE HEADWALL PER LaDOTD SPECIAL DETAIL HW-SERIES1, HW-SERIES2, HW-SERIES4, OR HW-SERIES5.	1	EA
6	INSTALL CONCRETE TIE WALL PER LaDOTD SPECIAL DETAIL TW-SERIES1 OR TW-SERIES2.	1	EA
11	INSTALL REINFORCED CONCRETE DRAIN MANHOLE WITH SLOTTED GRATE PER LaDOTD STANDARD PLAN M1.1-05 WITH TYPE "B1" COVER WITH ELEVATION AS SHOWN ON PLAN.	2	EA
13	PLACE SOD AFTER BACKFILLING EXCAVATED AREA.	343	SY

**"PIPE QUANTITIES PER TABLE BELOW"

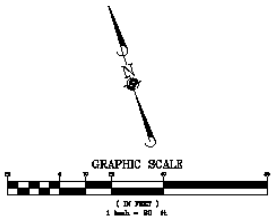


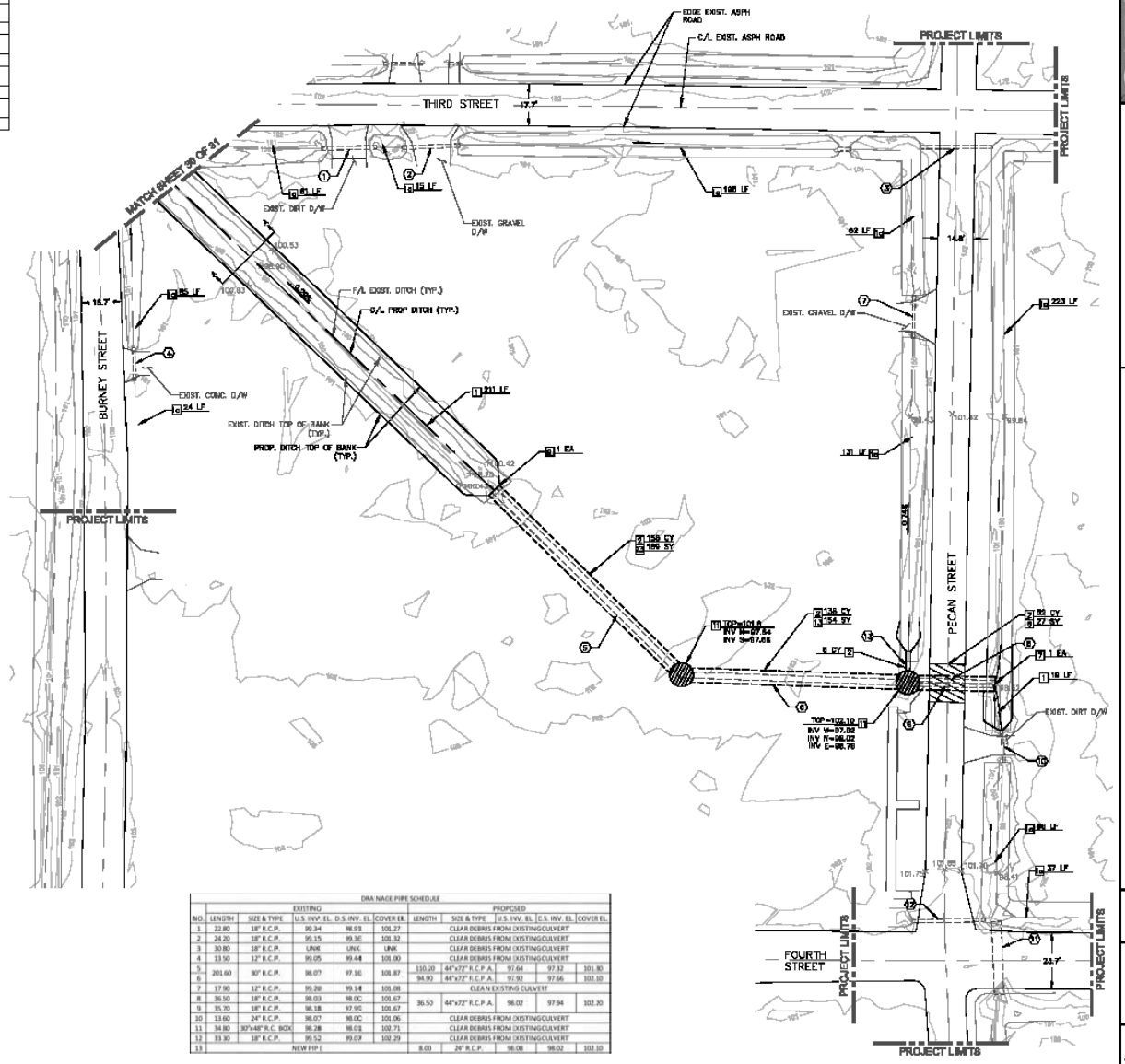
SECTION A-A
SCALE 1" = 2'

LEGEND:

- DITCH TOP OF BANK
- DITCH FLOWLINE OR ROADWAY CENTERLINE
- CULVERT
- DROP INLET
- (1B) CULVERT NUMBER
- EDGE OF ROADWAY/PAVEMENT/ASPHALT/GRAVEL
- 100.00 EXISTING ELEVATION
- MATCHLINE
- PROJECT LIMITS
- PP POWER POLE
- 0.XX% PROPOSED FLOW DIRECTION AND DITCH SLOPE

NOTE: SEE SHEET 3 FOR GENERAL NOTES AND ABBREVIATIONS.





DRAINAGE PIPE SCHEDULE

	EXISTING						PROPOSED				
NO.	LENGTH	SIZE & TYPE	U.S. INV. EL.	D.S. INV. EL.	COVER EL.	LENGTH	SIZE & TYPE	U.S. INV. EL.	C.S. INV. EL.	COVER EL.
1	22.80	18" R.C.P.	99.34	98.93	101.27		CLEAR DEBRIS FROM EXISTING CULVERT			
2	24.20	18" R.C.P.	99.15	99.10	101.32		CLEAR DEBRIS FROM EXISTING CULVERT			
3	30.80	18" R.C.P.	UNK	UNK	UNK		CLEAR DEBRIS FROM EXISTING CULVERT			
4	13.50	12" R.C.P.	99.05	99.48	101.00		CLEAR DEBRIS FROM EXISTING CULVERT			
5	201.60	30" R.C.P.	98.07	97.16	101.87	110.20	44"x72" R.C.P.A.	97.64	97.32	101.80
6						94.90	44"x72" R.C.P.A.	97.92	97.66	102.10
7	17.90	12" R.C.P.	99.28	99.18	101.08		CLEAN EXISTING CULVERT			
8	36.50	18" R.C.P.	98.03	98.0C	101.67					
9	35.70	18" R.C.P.	98.18	97.95	101.67	36.53	44"x72" R.C.P.A.	98.02	97.94	102.20
10	13.60	24" R.C.P.	98.07	98.0C	101.06		CLEAR DEBRIS FROM EXISTING CULVERT			
11	34.80	30"x48" R.C. BOX	98.28	98.03	102.71		CLEAR DEBRIS FROM EXISTING CULVERT			
12	33.30	18" R.C.P.	99.52	99.07	102.29		CLEAR DEBRIS FROM EXISTING CULVERT			
13		NEW PIPE				8.00	24" R.C.P.	98.08	98.02	102.10

GAEA

EAST CARROLL PARISH POLICE JURY DRAINAGE PROJECT

LAKE PROVIDENCE, LA

BURNEY AND PECAN STREETS (2 of 2)

SHEET
31 of 31

APPENDIX C

HYDROLOGIC & HYDRAULICS

DESIGN REPORT

EXCERPTED SUPPORTING DOCUMENTATION FROM HYDROLOGIC AND HYDRAULIC REPORT PREPARED BY GAEA ENGINEERING CONSULTANTS, DATED MAY 2013, REVISED MARCH 2015

For a full version of this report, the general public can send a request to FEMA-NOLA@dhs.gov, tel: 504-427-8000, fax: 225-346-5848 or by mail to: DEPARTMENT OF HOMELAND SECURITY-FEMA, ATTN: EHP-East Carroll Parish Drainage, 1500 MAIN STREET, BATON ROUGE, LOUISIANA 70802.

East Carroll Parish Police Jury
Drainage System Improvements

Design Report

HMGP 1603n-035-0001 FEMA #0300

Prepared for:

East Carroll Parish Police Jury

400 First Street

Lake Providence, LA 71254

Prepared by:

GAEA ENGINEERING CONSULTANTS

536 Washington Avenue

New Orleans, Louisiana 70130

May 2013

Revised March 2015

Table of Contents

Appendices

1.0 Introduction

The purpose of this project, East Carroll Parish Police Jury Drainage System Improvements (HMGP 1603n-035-0001 FEMA #0300), is to improve the flow of storm water to reduce repetitive flooding during the 10-year, 24-hour storm event at eight (8) sites in Lake Providence in East Carroll Parish in northeastern Louisiana. See Figure 1 for a vicinity map of the project area and Figure 2 for the site locations within Lake Providence. To accomplish the project goals, Gaea Consultants performed a hydrologic and hydraulic analysis of much of the town of Lake Providence using HEC-HMS and HEC-RAS software and volumetric analysis of LIDAR and survey data. Gaea used the programs to model existing conditions and proposed improvements in the designated project areas. The models also included areas downstream of the designated project areas to accurately model the system to determine if downstream improvements would be necessary to ensure that flood conditions in the project areas would improve.

Figure 1: Vicinity Map

The original project area includes approximately 1,170 acres in and around the Town of Lake Providence and approximately 1,115 acres along Tensas Bayou. The Town of Lake Providence is primarily residential area, while the Tensas Bayou area is predominantly agricultural and open spaces. After initial investigations and discussions with East Carroll Parish officials, Gaea determined that the repairs proposed in the Tensas Bayou Project Area in the original scope of work, namely upsizing three culverts in Tensas Bayou to the south of Lake Providence, were not going to solve the repetitive flooding problem that was identified on the north side of the lake. Therefore, we do not recommend any repairs in Tensas Bayou at this time. A more detailed study of the lake hydraulics should be completed in order to investigate drainage regimes on the north side of the lake and possible causes of flooding there.

Gaea developed two separate hydrologic models: one for the project areas in the northern part of Lake Providence that drain to the lake and one for the areas in the southern and western parts of Lake Providence that drain into the channel identified as L-25A. Based on the FEMA grant, the design storm for the models is the 10-year, 24-hour storm. For the project area, the 10-year, 24-hour storm is equivalent to 6.5 inches, according to the Louisiana Department of Transportation and Development (LaDOTD) *Hydraulics Manual* (2011).

During the design process, LaDOTD notified Gaea that it had designed a project for improvements to the L-25A channel and the channel at the downstream end of Blount Street. We incorporated their design for downstream conditions for four (4) of the areas identified in the subject project, namely Gould Street, Sixth Street, Blount Street, and the 806 Sparrow Apartments. Figure 2 shows the areas covered by the LaDOTD HEC models and design. Phase I of the LaDOTD project was approved in March 2013. The recommended repairs from the LaDOTD project are included in the repairs recommended in this report to ensure that they would be completed if the LaDOTD project were not constructed. The LaDOTD Design Report and Plans are included in **Appendix C** of this report.

Figure 2: Project Locations and LaDOTD Project Area

2.0 HEC-HMS Model

Gaea Consultants developed HEC-HMS models to accurately analyze the runoff from the design storm.

2.1 Basin Models

Gaea developed two separate models based on final outfall location. To determine the amount of flow through each existing drainage structure, each model included a distinct sub-basin, a portion of a larger drainage area delineated by topographic features, for each structure within or downstream of the designated project areas. Flows from areas upstream of the project locations were included in the analysis as one upstream sub-basin. Sub-basin areas reflected drainage patterns established from

survey data obtained from LaDOTD (NAVD 88 datum), additional survey data (NAVD 88 datum) gathered by Denmon Engineering for this study, and LIDAR elevation data (NGVD 29 datum) obtained from atlas.lsu.edu. To ensure the elevations were on the same vertical datum, the LIDAR data was shifted to NAVD 88 by the following equation: 0 ft NGVD 29 = -0.18 ft NAVD88 (http://www.ngs.noaa.gov/cgi-bin/VERTCON/vert_con.prl).

The North Basin, which includes the Millikin Street, First Street, and Burney/Pecan Streets project areas, drains into Lake Providence through a double culvert that passes from First Street near Howard Lane under Lake Drive and into the lake. This model is comprised of 99 hydrologic elements: 50 sub-basins and 49 junctions, with the final junction at the upstream end of the outfall culvert.

The Southwest Basin, which includes the Gould Street, Sixth Street, Blount Street, and 806 Sparrow Apartments project areas, drains to the canal that passes between the oxidation ponds southwest of the Town of Lake Providence. This model is comprised of 296 hydrologic elements: 149 sub-basins and 147 junctions, with the final junction at the confluence of the drainage canals southwest of the town.

2.1.1 Loss Method

The loss method selected for this modeling effort was the SCS Curve Number (TR-55). This method required values for the Initial Abstraction in inches, the Curve Number, and the Percent of Imperviousness of the modeled area.

The major factors that determine the Curve Number are the hydrologic soil group, cover type, treatment, hydrologic condition, and antecedent runoff condition. Table 2-2 from the TR-55 manual *Urban Hydrology for Small Watersheds* (USDA 1986) provides Curve Numbers assuming average antecedent runoff conditions. The curve numbers for each sub-basin, determined based on Table 2-2, appear in **Appendix A**, Tables A-1 and A-2.

Gaea determined Curve Numbers and the Percent of Imperviousness of each of the sub-basins based on ground cover as noted in the field and as shown on aerial photographs including the 2004 Digital Ortho Quarter Quadrangle (DOQQ) photographs of the Lake Providence USGS quadrangle available at atlas.lsu.edu, Google Earth images, and 2010 NAIP images as shown on the GIS tool for the Louisiana Department of Natural Resources' SONRIS system (www.sonris.com).

The hydrologic soil group and hydrologic condition were determined using the 2009 NRCS *Soil Surveys* for East Carroll Parish, Louisiana available at websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx. Extracts from those surveys used for this modeling are presented in **Appendix A**. Based on the information found in **Appendix A**, the hydrologic soil group throughout most of town is "C", with some pockets of "D" south and east of town and some pockets of "B" along the lake. NRCS describes group "C" soils as having "low infiltration rates," while group "B" soils "have moderate infiltration rates" and group "D" soils "have very low infiltration rates" (USDA, 1986).

Using Table 2-2 along with the appropriate hydrologic soil group and land use, Gaea assigned curve numbers to each sub-basin. The land use in the area is predominantly residential (CN 80-83) with significant agricultural areas (CN 74-85) and some light industrial areas (CN 91).

Gaea calculated Initial Abstraction values using the equations below for S and I_a (USDA 1986).

$$S = \frac{1000}{CN} - 10 = \frac{1000}{88.2} - 10 = 1.33\ in \qquad I_a = 0.2S$$

Tables A-1 and A-2 in **Appendix A** show the curve numbers, initial abstraction values, and impervious percentages used in the model.

2.1.2 Transform Method

The transform method selected for this modeling effort was the SCS Unit Hydrograph. This method required a value for the lag time in each basin in minutes. According to the *HEC-HMS User's Manual* (USACE 2010), the lag time for the SCS Unit Hydrograph is 60% of the time of concentration for the basin. The time of concentration is defined as the sum of the travel times for sheet flow, shallow concentrated flow, and open channel flow.

Travel time for sheet flow is defined as:

$$T_t = \frac{0.007\ (nL)^{0.8}}{\sqrt{P_x}\ S^{0.4}}$$

where: T_t is the travel time in hours

n is Manning's roughness coefficient

L is the flow length, maximum 300 ft

P is the x-year, 24-hour rainfall in inches

x is the storm event year

S is the slope along the total flow length.

Travel time for shallow concentrated flow is defined as:

$$T_t = \frac{L}{3600 * V}$$

where: T_t is the travel time in hours

L is the flow length

V is the average velocity in ft/sec

The Manning's roughness coefficient selected for the sheet flow areas was 0.20.

Gaea calculated the rainfall for the design storm based on LaDOTD's *Hydraulics Manual* (2011) and found that the 10-year, 24-hour rainfall for the project area was 6.5 inches.

Gaea determined elevations and slope information for the existing system from LIDAR data from LSU's Atlas website, survey data from LaDOTD, and additional survey data obtained for this study.

The TR-55 manual (USDA 1986) recommends using the following equations when determining the average velocity for shallow concentrated flow:

$$v_{unpaved,\ ft/sec} = 16.1345\sqrt{S_{decimal}}$$

$$v_{paved,\ ft/sec} = 20.3282\sqrt{S_{decimal}}$$

These equations are based on the solution of Manning's equation with n = 0.05 and r = 0.4, which is somewhat similar to the conditions of this area, though no other velocity data is available to confirm these values.

Tables A-3 and A-4 in **Appendix A** list the calculated time of concentration and lag time for each sub-basin.

2.1.3 Baseflow Method

After reviewing the information contained in **Appendix A**, Gaea did not utilize a baseflow method in this modeling effort.

2.1.4 Loss/Gain Method

After reviewing the information contained in **Appendix A**, Gaea did not utilize a loss/gain method in this modeling effort.

2.2 Meteorologic Model

The Meteorologic Model is comprised of three elements, namely precipitation, evapotranspiration, and snowmelt, which are used to establish the boundary conditions that act on the watershed during a simulation.

2.2.1 Precipitation Method

The precipitation method used for this model was the SCS Storm. As previously described, Gaea used the LaDOTD *Hydraulics Manual* (2011) to calculate the rainfall for the design storm. For the project area, the rainfall for the 10-year, 24-hour storm is 6.5 inches.

2.2.2 Evapotranspiration Method

The evapotranspiration method used for this model was the monthly average method. Monthly average pan evaporation data is available from the Louisiana Office of State Climatology. Pan evaporation data does not take into account water losses due to transpiration, however, using this data provides a more accurate representation of the project site conditions compared with using no evapotranspiration method in the Meteorological Model. The most recent *Louisiana Monthly Climate Review* produced for an entire calendar year was for 2002 (http://www.losc.lsu.edu/cgi-bin/newsmonthly.py). Although monthly summary data tables current to September 2012 are also available, those summaries do not contain pan evaporation data. The 2002 monthly reports list pan evaporation data from five locations throughout the state. Gaea selected the USDA Calhoun Station for this modeling effort because of its

proximity and similarity to the study area. Gaea used the mean value in inches for the evapotranspiration method. Table 1 shows the values included in the model. Gaea used a Pan Coefficient of 1.0 because the state climate office previously processed the published mean value from the total monthly pan evaporation value also published in the *Louisiana Monthly Climate Review* (2002).

Table 1: January – December 2002 Monthly Mean Pan Evaporation Values, USDA Calhoun Station (Louisiana Monthly Climate Review 2002)

Month	Mean Pan Evaporation (inches)
January	2.0
February	3.1
March	4.8
April	5.7
May	6.7
June	7.4
July	7.8
August	7.3
September	5.7
October	4.4
November	2.8
December	2.0

2.2.3 Snowmelt Method

Based on average low temperatures in the region, snowmelt is not a factor in the hydrology of this area. Therefore, the model runs do not include a snowmelt method.

Appendix B includes a schematic of the HEC-HMS models with the sub-basin and junction identification numbers. Tables B-1 and B-2 in **Appendix B** give the peak discharge results for each of the sub-basins and the resulting flows at each junction for the 10-year, 24-hour storm event.

3.0 HEC-RAS Model

Gaea developed HEC-RAS models to accurately simulate the existing conditions and with-project conditions for conveying storm water through the drainage system. Gaea developed two HEC-RAS models for each of the six project areas (First and Millikin were combined as one model): one to model existing conditions during the design storm and one to determine the repairs/upgrades that would improve the performance of the system during the design storm.

We used data from the LaDOTD HEC-RAS models for existing and proposed conditions for the downstream boundary conditions, or maximum water surface elevations during the 10-year, 24-hour storm, for the Blount Street, Gould Street, Sixth Street, and 806 Sparrow Apartments models. This resulted in a total of twelve (12) HEC-RAS models.

3.1 Existing Conditions

3.1.1 Geometric Data

The overall system schematics began at the upstream end of each of the designated project areas and ended at the final outfall points as described in Section 2.1. For the downstream ends of the system, Gaea relied on results from DOTD's HEC-RAS model. Specifically, Gaea used DOTD's results from modeling Fischer Street, Koresh Street, and the outfall culvert that flows into Lake Providence. The models included all ditches and culverts in the designated project areas and downstream to the final outfall. Survey data from LaDOTD and additional survey data obtained for this study provided the size, material, conditions, and invert elevations of these culverts. Manning's n coefficients for the culverts were based on generally accepted values for each material. The contraction coefficient was 0.1 and the expansion coefficient was 0.3.

The surveys also included cross-section data for each channel. Gaea input this data into the model with cross-sections at each end of every culvert and intermittently between culverts. Gaea interpolated additional cross-sections as needed to adequately describe the system. We calculated Manning's n coefficients for each of the earthen channels based on channel conditions, vegetation, and obstructions (Chow 1959). Manning's n values ranged from 0.035 to 0.08.

When we incorporated the LaDOTD data, we truncated the geometric data schematics so that the downstream end of each geometry file corresponded with the closest point in the LaDOTD model.

Appendix D presents schematics of the existing conditions models for each of the project areas.

3.1.2 Flow Data

The output from HEC-HMS provided the flow data for the HEC-RAS models. The HEC-RAS models included a flow change upstream of each culvert. Each of these flow changes corresponded to a junction in HEC-HMS, and the hydrograph of each junction was linked to a flow change location in HEC-RAS. The hydrograph data included flow values at one minute intervals from 3:30 AM to 11:59 PM for the North Basin and from 3:30 AM to 11:00 PM for the Southwest Basin (the times at which there were significant flows from the 24-hour design storm).

3.1.3 Model Results

Appendix D shows the resulting cross-sections using the flows resulting from the HEC-HMS model and the existing system conditions for each of the project areas. It also includes this information in the form of water surface profiles. **Appendix E** shows the extents of flooding in each of the project areas during the 10-year, 24-hour storm event with the system in the existing condition.

3.2 Proposed System

The purpose of the proposed repairs to the drainage system is to reduce the risk of flooding in homes in the project areas during the 10-year, 24-hour storm event. In order to recommend repairs and upgrades to the system that would be the most economical and have the greatest impact on the performance of the system, Gaea made various changes to the models to reflect these upgrades, as explained in detail in Section 3.2.1.

3.2.1 Geometric Data

Gaea made various changes to the existing geometric data to show the proposed changes to the system. The changes for each project area are detailed below.

3.2.1.1 806 Sparrow Apartments

This area includes the apartment complex at 806 Sparrow. Proposed changes for this area include:

1. Removing debris from all culverts that are not replaced;
2. Re-grading all ditches between culverts and downstream between last culvert and DOTD project limits;
3. Replacing three walkway culverts with walkway bridges;
4. Upsizing and re-grading a 24” culvert in the Riverside ditch with 2-30” culverts;
5. Upsizing and re-grading the drain line from the Sparrow Apartments to the Riverside ditch from one 12” pipe to two 18” pipes;
6. Re-grading three existing 30” culverts in the Riverside ditch directly downstream from the point where the Sparrow Apartments drain line enters the Riverside ditch;
7. Upsizing and re-grading three driveway culverts in the Riverside ditch between the confluence points with the ditch to the north of the Apartments and the outfall ditch from the Apartments.

Because of financial constraints, the walkway bridges in item 3 are not included in the construction drawings.

3.2.1.2 Gould Boulevard – Between Bell Street and First Street

Proposed changes for this area include:

1. Removing debris from all culverts that are not replaced;
2. Re -grading all ditches between culverts;
3. Replacing walkway culverts with walkway bridges;
4. Upsizing and re-grading the following culverts:
    - Under Railroad along Koresh Street alignment from a 60” culvert to an 84” culvert;
    - South of Fourth Street from a 30” culvert to a 72” culvert;
    - Under Fourth Street from a 24” and 30” culvert to a 72” culvert;
    - At First and Koresh Streets from two 24” culverts to a 72” culvert;
    - On the west side of Koresh Street between First and Second Streets from a 36” culvert to a 55”x73” pipe arch culvert;
    - On the north side of Fischer Street from downstream to upstream:
        - Under Koresh Street from a 24” culvert to a 44”x72” culvert;
        - Three 18” culverts and three 24” culverts to 44”x72” culverts;
        - Five 18” culverts to 40”x66” culverts;
        - Under Gould from a 18”x29” culvert to a 36”x58” culvert;
    - On the south side of Fischer Street from downstream to upstream:
        - Under Koresh Street from an 18” culvert to a 36” culvert;
        - Two 15” culverts to 36” culverts;

- 15” culvert to 30” culvert;
- New 30” culvert under Artuard Street;
- Two 24” culverts to 30” culverts;
- New continuous 30” culvert under and between Ransdell and Harding Streets;
- 12” culvert to 30” culvert;
- 15” culvert to 30” culvert;
- New 27”x43” arch pipe culvert under Gould;

o On the west side of Gould between Fischer and Bell Streets from six 18” to three 27”x43” arch pipe culverts, two 22”x36” arch pipe culverts, and a 24” culvert;
o On the east side of Gould Street between Fischer and Bell Streets, from three 18” and a 12” culvert to three 31”x50” and one 27”x43” arch pipe culvert;
o On the west side of Gould between Fischer and First Streets from two 18” culverts to two 24” culverts and a new 24” culvert under an existing driveway;
o On the east side of Gould between Fischer and First Streets from three 18” culverts to three 24” culverts.

Because of financial constraints, the walkway bridges in item 3, four of the culvert replacements on Gould Blvd. between Fischer and Bell Streets, and four of the culvert replacements on Gould Blvd. between Fischer and First Streets are not included in the plans.

3.2.1.3 6th Street – Between Gould Street and Hudson Street

Proposed changes for this area include:

1. Removing debris from all culverts that are not replaced;
2. Re-grading all ditches between culverts;
3. Upsizing and re-grading the following culverts:
   o Under 7th Street at Gould Blvd from a 36” culvert to a 42” culvert;
   o On the east side of Gould Blvd between 6th and 7th Streets from an 18” culvert to a 30” culvert;
   o Under 6th Street at Gould Blvd from a 18” culvert to a 30” culvert;
   o On the north side of 6th Street from three 18” culverts to a 24” and two 22”x36” pipe arch culverts;
   o On the south side of 6th Street from 12” culverts to 18” culverts.

Because of financial constraints, the culvert replacements under 6th Street at Gould Blvd. and along 6th Street are not included in the plans.

3.2.1.4 1st Street

Proposed changes for this area include:

1. Re-grading all ditches between culverts;
2. Upsizing and re-grading the following culverts:
   o The final outfall culvert from north of 1st Street to Lake Providence from a 36” and a 24” pipe to a 54”x88” arch pipe culvert;

- Under 1st Street in the final outfall ditch from a 36” to a 54”x88” arch pipe culvert;
- On the north side of 1st Street east of the final outfall from two 18” and two 15” culverts to two 24” and two 18” culverts;
- On the north side of 1st Street west of the final outfall from predominantly 12”-18” culverts to two 40”x66” arch pipe culverts and three 36”x58” arch pipe culverts;
- On the south side of 1st Street from 12”-18” culverts to four 18” culverts and four 22”x36” arch pipe culverts;
- Crossing under Millikin Street on the north side of 1st Street from a 12” culvert to a 31”x50” arch pipe culvert.

4. Replacing three walkway culverts with walkway bridges;
5. Cleaning the culvert crossing under Millikin Street on the south side of 1st Street;

Because of financial constraints, three of the culvert replacements on the north side of First Street, two culvert replacements on the south side of First Street, and the walkway bridges discussed in item 4 are not included in the drawings.

3.2.1.5 Millikin Street

Proposed changes for this area include:

1. Re-grading all ditches between culverts;
2. Upsizing and re-grading all culverts on the east side of Millikin Street from predominantly 12” culverts to three 27”x43” arch pipe culverts, four 22”x36” arch pipe culverts, two 24” pipes, and one 18” pipes;
3. Adding an 18” and a 12” culvert under two driveways, respectively, on the east side of Millikin Street near Lake Street;
4. Replacing two walkway culverts with walkway bridges;
5. Upsizing and re-grading all culverts on the west side of Millikin Street from predominantly 12” culverts to three 22”x36” arch pipe culverts and three 18” culverts;
6. Adding an 18” and a 12” culvert under two driveways, respectively, on the west side of Millikin Street near Lake Street.

Because of financial constraints, item 3, the walkway bridges in item 4, and item 6 are not included in the drawings.

3.2.1.6 Blount Street

Proposed changes for this area include:

1. Removing debris from all culverts that are not replaced;
2. Re-grading all ditches between culverts;
3. Upsizing and re-grading the following culverts:
   - On the north side of Blount Street from predominantly 24” culverts to culverts ranging in size from 42” to 60”;
   - Under Davis Street on the north side of Blount Street from a 24” culvert to a 42” culvert;
   - Under Hood Street on the north side of Blount Street from an 18” culvert to a 24” culvert.

Because of financial constraints, any culvert replacements east of Brown Street are not included in the drawings.

3.2.1.7 Burney/Pecan Streets

Proposed changes for this area include:

1. Removing debris from all culverts that are not replaced;
2. Re-grading all ditches between culverts;
3. Upsizing and re-grading the following culverts:
   - North of Second Street near East Street from 30" culverts to 60" culverts;
   - Under Second Street at East Street from a 30" culvert to a 60" culvert;
   - Under East Street near Second Street from a 30" culvert to a 48" culvert;
   - Diagonally from East and Second Streets to Third and Burney Streets from a 30" culvert to a 48" culvert;
   - Under the intersection of Third and Burney Street from 12", 30", and 12" culverts to 24", 48", and 24" culverts, respectively;
   - On the south side of Third Street between Burney and Pecan Streets from 18" culverts to 24" culverts;
   - On the east side of Burney Street south of Third Street from a 12" culvert to an 18" culvert;
   - Inside the block between Burney and Pecan Streets and Third and Fourth Street from 30" culverts to 44"x72" arch pipe culverts;
   - On the west side of Pecan Street south of Third Street from a 12" culvert to a 24" culvert;
   - Under Pecan Street between Third and Fourth Streets from 2-18" culverts to a 44"x72" arch pipe culvert;
   - On the east side of Pecan Street north of Fourth Street from a 24" culvert to a 40"x66" arch pipe culvert;
   - Under Pecan Street at Fourth Street from an 18" culvert to a 24" culvert.

Because of financial constraints, the culvert replacements on the south side of Third Street, on the east side of Burney Street, on the west and east sides of Pecan Street, and under Pecan Street were not included in the drawings.

3.2.2 Flow Data

For the proposed system HEC-RAS model, Gaea did not change the flows into the model from the existing conditions model, but we did change the downstream boundary condition to reflect downstream repairs to the system proposed by LaDOTD in their project. In the models that drain toward the southern outfall, we used the maximum water surface elevation from the LaDOTD model at the point where the two models meet as a stage-elevation boundary condition.

3.2.3 Model Results

Appendix F shows the resulting cross-sections using the flows resulting from the HEC-HMS model and the proposed system conditions for each of the project areas. It also includes this information in the

form of water surface profiles. **Appendix G** shows the extents of flooding in each of the project areas during the 10-year, 24-hour storm event with the system in the proposed condition.

Comparing the modeling results from the proposed conditions in Appendices F and G to those for existing conditions in Appendices D and E shows the significant decrease in the extent of flooding after implementation of the proposed improvements. Since the proposed improvements will pass runoff faster, they will have only positive impacts on any areas upstream of the project area. There are four downstream ends of our model. One is where the northern portion of the system flows into Lake Providence. The other three are where the southern portions flow into areas modeled by DOTD: the ditch south of the town of Lake Providence (south outfall 1), the ditches at the intersection of Blount Street and Gould Boulevard (Canal BLOUNT E and Gould E 2), and the ditches along Gould and the south side of Fischer where they flow to the north side of Fischer (Gould W A 1 and Gould W B 1). Lake Providence is so large that the effects of the improvements on water levels in the lake will be negligible. The other three modeled outfalls all have a lower water surface elevation with the improvements. DOTD modeled areas farther downstream and found that the improvements lowered water surface elevations for several miles downstream of the town.

The design plans that accompany this report detail the proposed changes included in these models.

4.0 Model Validation

Historical data useful for validating the HEC-HMS and HEC-RAS models was limited. In 1979, FEMA determined that Lake Providence's Special Flood Area was small enough, with little prospect of future expansion, that a detailed study was not necessary. Therefore, a detailed Flood Insurance Study does not exist for the project area (Jimenez 1979).

In November of 2008, the East Carroll Parish Office of Homeland Security and Emergency Preparedness conducted a survey of residents whose homes had flooded in the previous two decades. They asked respondents to give the depth of flooding in their homes for specific events. Rainfall data for some of these events is available from Louisiana Office of State Climatology. **Appendix A** includes some of the responses from the residents.

Gaea traveled to Lake Providence in late August 2012 to observe the drainage system performance during rainfall produced by Hurricane Isaac. Gaea found that much of the system had no appreciable flow. Stormwater collected in ditches and low areas in yards and remained there. On August 31, 2012, the Community Collaborative Rain, Hail, & Snow Network (CoCoRaHS) reported a rainfall of 3.25 inches at their gage near the intersection of Lake Dr. and N Hood St. (http://www.cocorahs.org/ViewData/StationPrecipSummary.aspx, station number LA-EC-1). Gaea used this rainfall depth to determine runoff values with HEC-HMS and to check the model results in comparison with similar storm events.

5.0 References

Chow, Ven Te. *Open-Channel Hydraulics*. McGraw-Hill, Inc.: New York. 1959.

Jimenez, Gloria M. *Letter to Hon. L.B. Jackson (Mayor of Lake Providence).* September 12, 1979.

Louisiana Department of Transportation and Development. *Hydraulics Manual*. Baton Rouge: 2011.

Louisiana Office of State Climatology. "Louisiana Monthly Climate Review." Department of Geology and Anthropology, Louisiana State University: Baton Rouge. 2002.

Monthly Climate Summaries Indexed by Month & Year. Louisiana Office of State Climatology. July 2012. < http://www.losc.lsu.edu/cgi-bin/newsmonthly.py>. Accessed 13 Aug 2012.

USACE. *HEC-HMS User's Manual*. U.S. Army Corps of Engineers: Davis. 2010.

USDA. *Urban Hydrology for Small Watersheds*. Technical Report 55. U.S. Department of Agriculture: Washington, D.C. 1986.

EXCERPTED SUPPORTING DOCUMENTATION FROM APPENDICES OF HYDROLOGIC AND HYDRAULIC REPORT DATED MAY 2013, REVISED MARCH 2015

Appendix A provided technical background on the hydrologic parameters, including two figures and six tables and estimated design discharges.

Appendix B provided technical information, including figures and ten tables of point discharges in the three outfalls – Northern outfall, Gould Area outfall and Southern Channel outfall.

Appendix C provided a copy of the March 2013 LaDOTD Design Report and Plan.

Appendices D, E and F provided technical information, including HEC-RAS models and results for existing and proposed conditions, with over 190 pages of schematics, as well as existing conditions flood maps.

Appendix G provided proposed condition flood maps.

Pertinent selected figures, tables and pages from 231 pages of report appendices which FEMA determined to be of interest to the general public follow.

GAEA ENGINEERING CONSULTANTS	HEC-HMS Schematic	Northern Outfall

GAEA ENGINEERING CONSULTANTS

HEC-HMS Schematic

Southern Outfall – Gould Area

GAEA	HEC-HMS Schematic	Southern Outfall – South Portion

Application for Project Funding

submitted to the

Statewide Flood Control Program

for

Lake Providence Flood Protection

by

EAST CARROLL PARISH POLICE JURY
FOR THE TOWN OF LAKE PROVIDENCE

March 19, 2013

Supplemental Application

Prepared by the Louisiana Department of Transportation and Development
East Carroll Parish

DESIGN REPORT – PHASE I

This phase of the project consists of ditch widening/cleaning of the L-25-A canal from station 272+21 (LA 3181) to station 407+21 (Railroad). The cross drains under the railroad will be removed and replaced with 2 – 7'x7' reinforced concrete boxes at a lower grade which will accommodate a larger peak flow and also lower the tail water throughout the system. The existing 72" CMP immediately upstream of the existing railroad cross drain will also be removed and replaced with 2 – 7'x7' reinforced concrete boxes. The ditch widening/cleaning will continue to Charles Jones Blvd.; the existing 5'x3' reinforced concrete box under Charles Jones Blvd. will be removed and replaced with an 8'x5' reinforced concrete box at a lower grade which will accommodate a larger peak flow and also lower the tail water throughout the rest of the system. The estimated cost of phase I of the project is $ 1,627,946.00. (See next page for the included cost estimate and a breakdown of the items.)

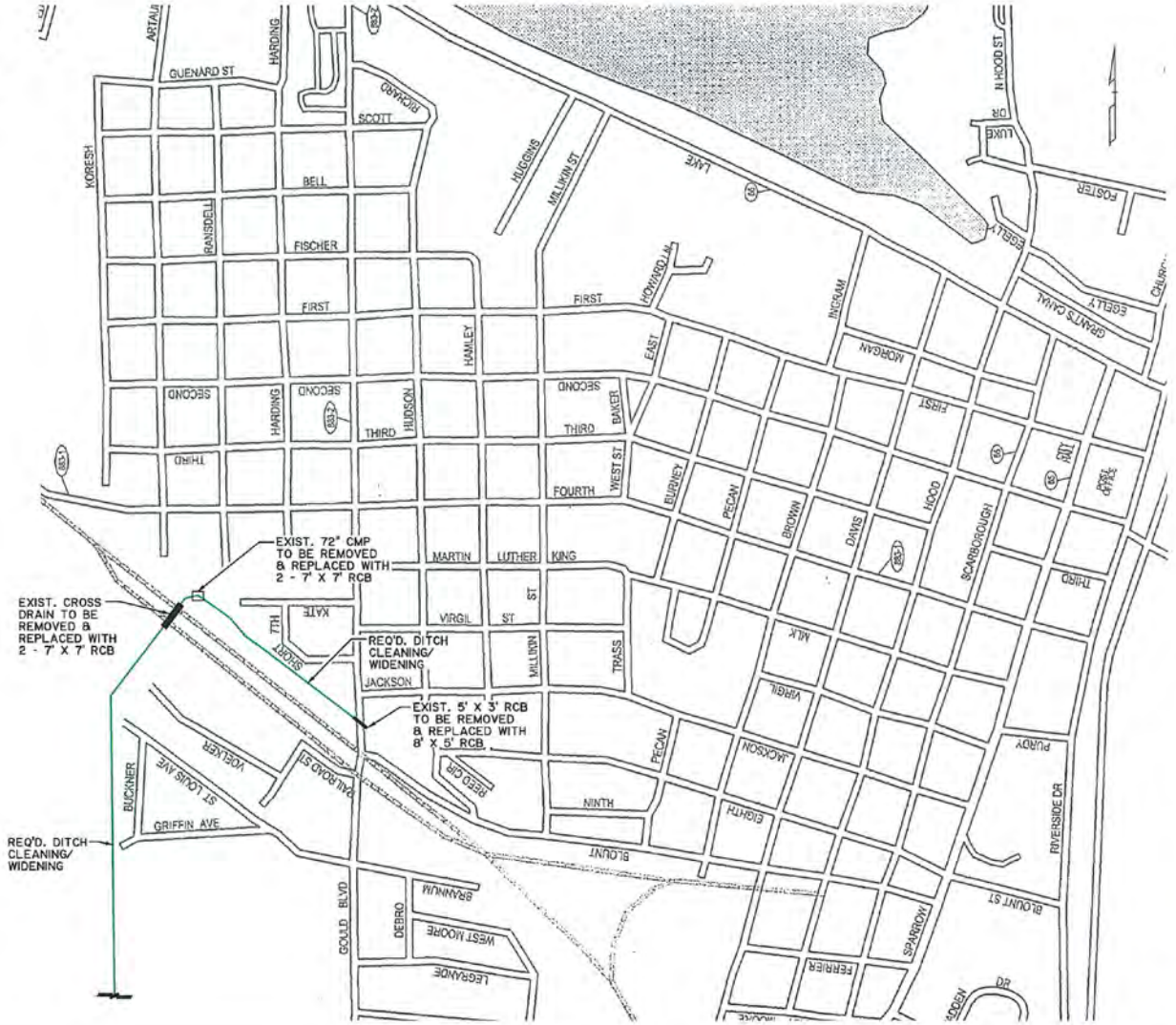
LAKE PROVIDENCE FLOOD PROTECTION
DETAILED COST ESTIMATE
PHASE I ESTIMATE - 3/19/2013

ITEM NO.	ITEM DESCRIPTION	UNIT	QTY	UNIT COST	COST
201-01-00100	CLEARING AND GRUBBING	LUMP SUM	LUMP SUM	$40,000.00	$ 40,000
202-01-00100	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	LUMP SUM	LUMP SUM	$30,000.00	$ 30,000
203-02-00100	DRAINAGE EXCAVATION	CU. YD.	136,166	$ 6.00	$ 816,996
204-06-00100	TEMPORARY SILT FENCING	L.F.	27,000	$ 1.50	$ 40,500
510-01-00300	PAVEMENT PATCHING	SQ. YD.	122	$ 200.00	$ 24,400
713-01-00100	TEMPORARY SIGNS AND BARRICADES	LUMP SUM	LUMP SUM	$58,000.00	$ 58,000
716-01-00200	MULCH (VEGETATIVE)	TON	186	$ 700.00	$ 130,200
717-01-00100	SEEDING	POUND	5,580	$ 10.00	$ 55,800
718-01-00100	FERTILIZER	POUND	93,000	$ 0.75	$ 69,750
727-01-00100	MOBILIZATION	LUMP SUM	LUMP	$88,000.00	$ 88,000
740-01-00100	CONSTRUCTION LAYOUT	LUMP SUM	LUMP	$30,000.00	$ 30,000
805-12-02060	REINFORCED CONCRETE BOX CULVERTS (8' x 5')	LIN. FT.	48	$ 650.00	$ 31,200
805-12-04000	REINFORCED CONCRETE BOX CULVERTS (7' x 7')	LIN. FT.	224	$ 650.00	$ 145,600
S-001	CONCRETE BOX CULVERT HEADWALL	LUMP SUM	LUMP	LUMP	$ 67,500
	CONSTRUCTION COSTS				**$ 1,627,946**

\\305170MS001\05Design\design\District 05 Design\E Carroll Parish\750-18-0008 Lake Providence - Statewide Flood Control\Project Folder\[illegible]

LIMITS OF CONSTRUCTION

OPEN DITCH



SHEET NUMBER 2

PARISH 750-18-0008

FEDERAL PROJECT

STATE PROJECT EAST CARROLL

DESIGNED CHECKED

DRAWN CHECKED

DATE SHEET

STATEWIDE FLOOD CONTROL
LAKE PROVIDENCE
LIMITS OF CONSTRUCTION - PHASE I

DISTRICT 05 DESIGN

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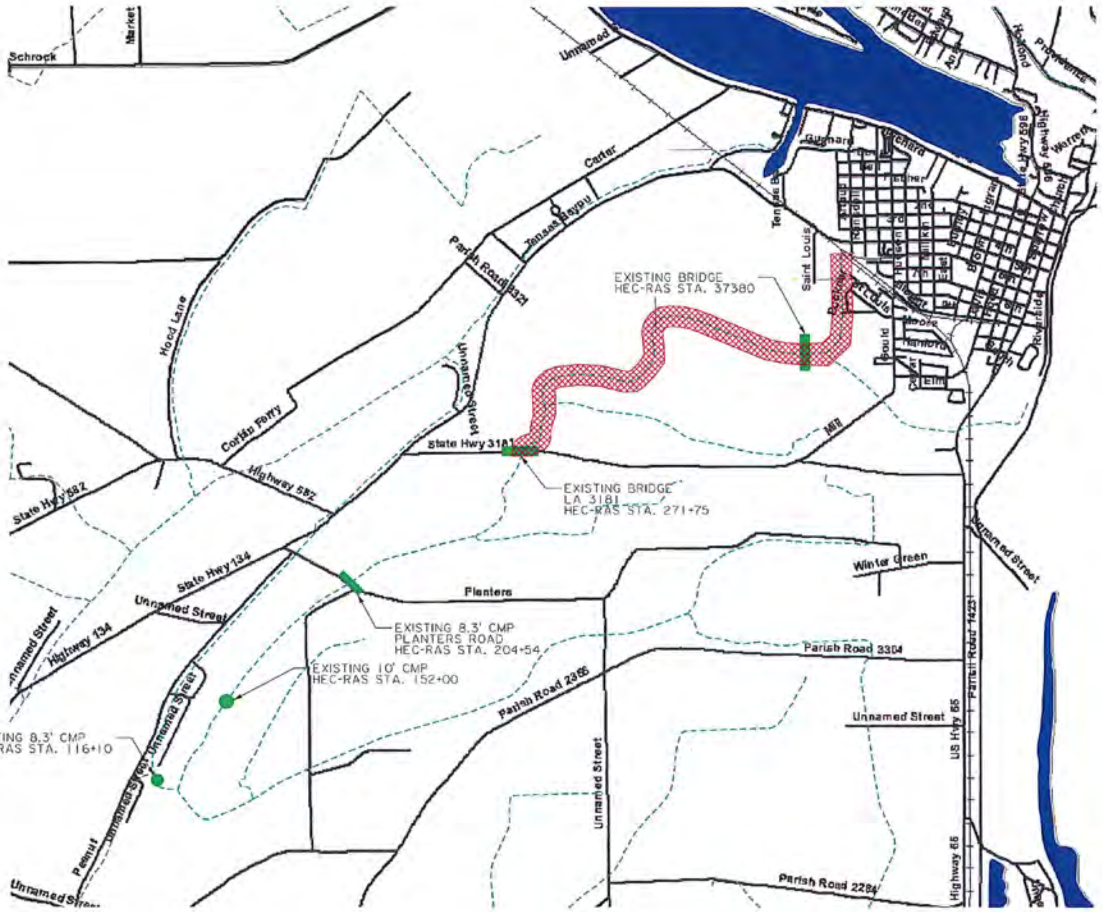


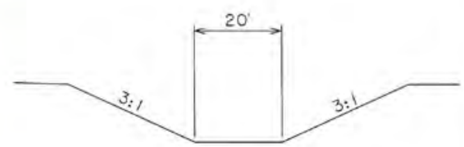
EXISTING BRIDGE
HEC-RAS STA. 37380

EXISTING BRIDGE
LA 3181
HEC-RAS STA. 271+75

EXISTING 8.3' CMP
PLANTERS ROAD
HEC-RAS STA. 204+54

EXISTING 10' CMP
HEC-RAS STA. 152+00

EXISTING 8.3' CMP
HEC-RAS STA. 116+10



DITCH CLEANING TYPICAL
APPLIES STA. 407+21 TO STA. 272+21
(HEC-RAS REACH L-25A)

DITCH CLEANING

EXISTING DITCHES

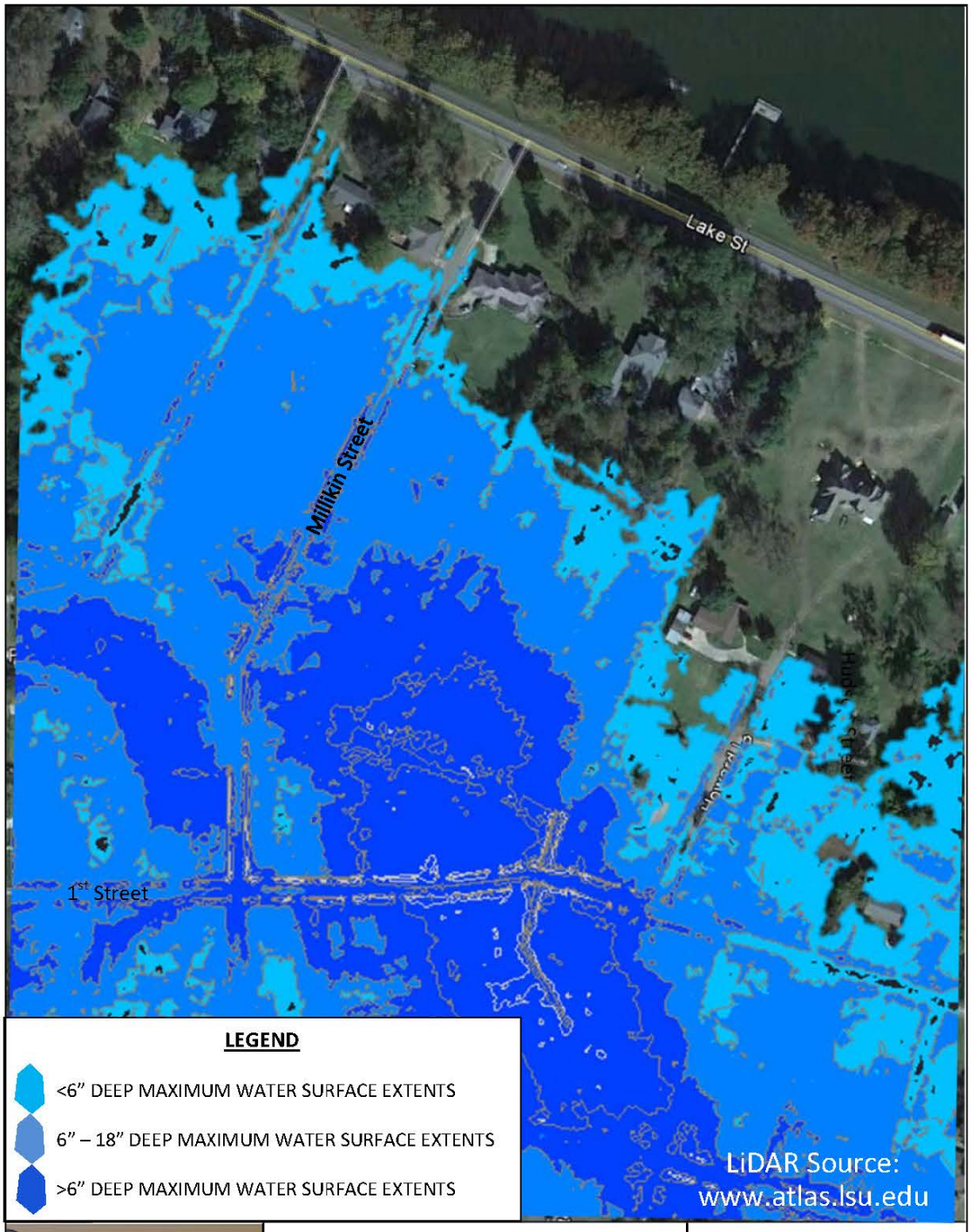
SHEET NUMBER 24

PARISH 750-18-0008
EAST CARROLL

STATEWIDE FLOOD CONTROL
LAKE PROVIDENCE
CHANNEL L-25A

DISTRICT 05 DESIGN

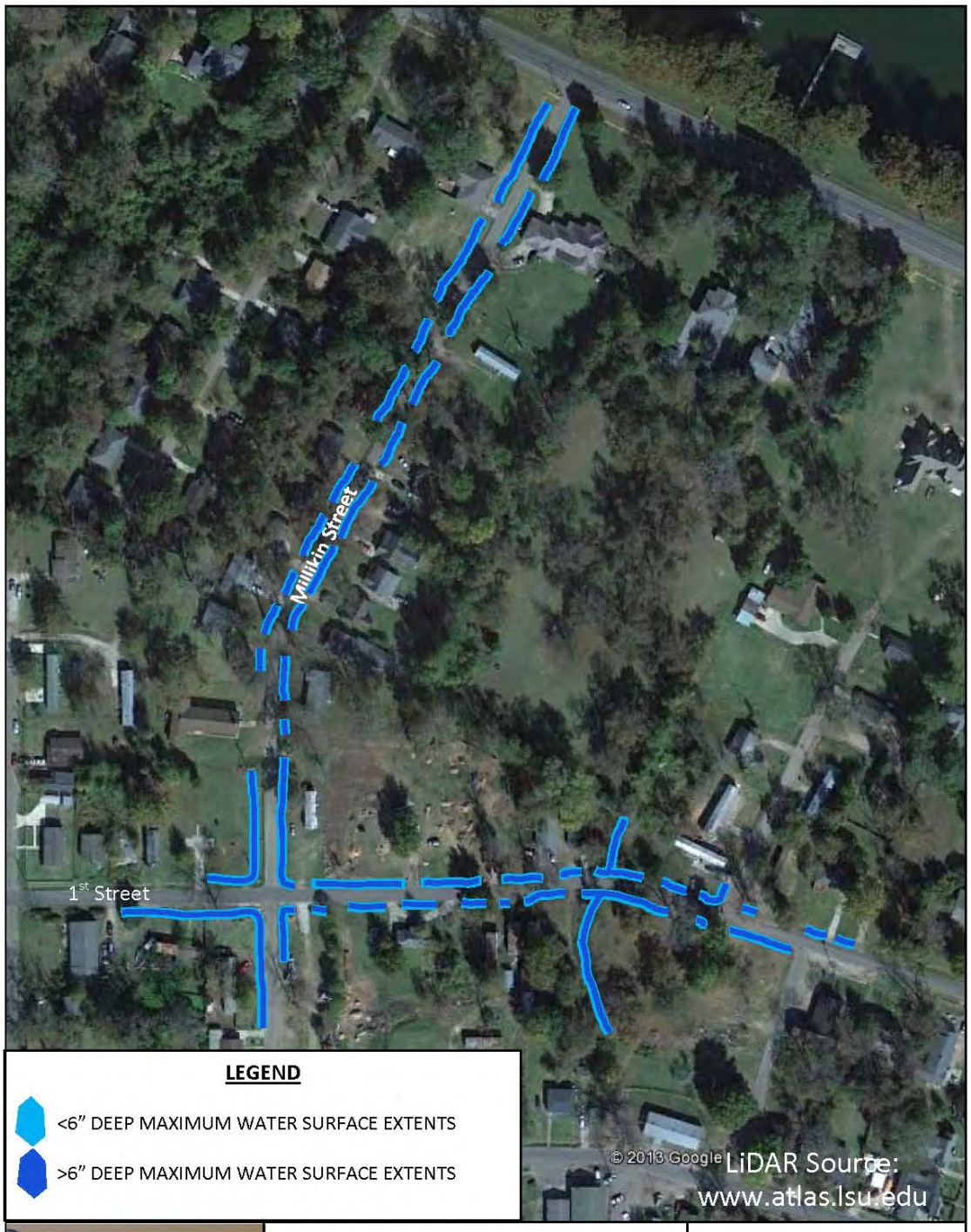
Existing Conditions Flood Maps
(Excerpted from Appendix E of Hydrologic and Hydraulic Report Dated May 2013, Revised March 2015)



GAEA ENGINEERING CONSULTANTS

10-year, 24-hour Existing Conditions Flood Map

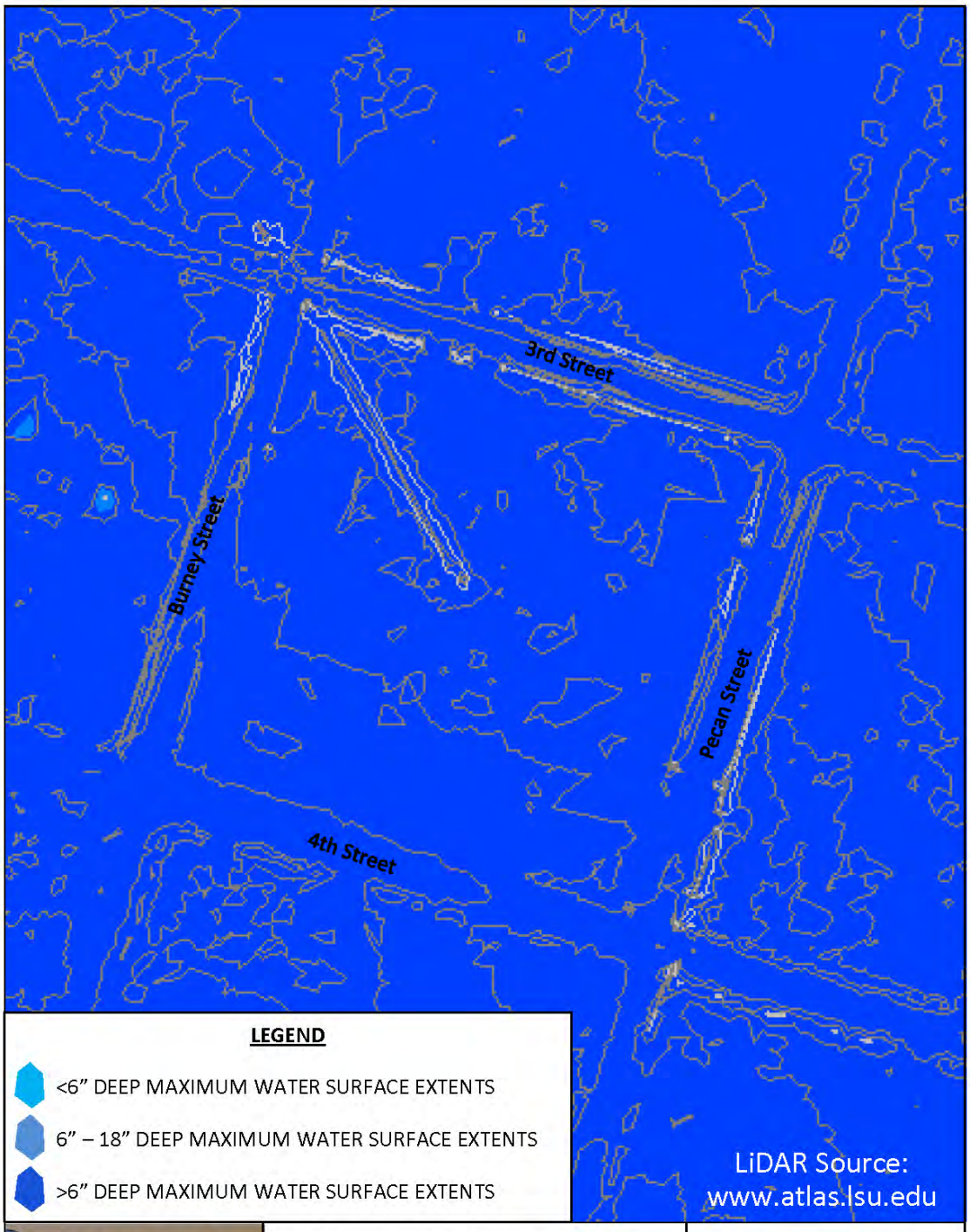
1st Street and Millikin Street



GAEA ENGINEERING CONSULTANTS

10-year, 24-hour Proposed Conditions Flood Map

1st Street and Millikin Street



GAEA ENGINEERING CONSULTANTS

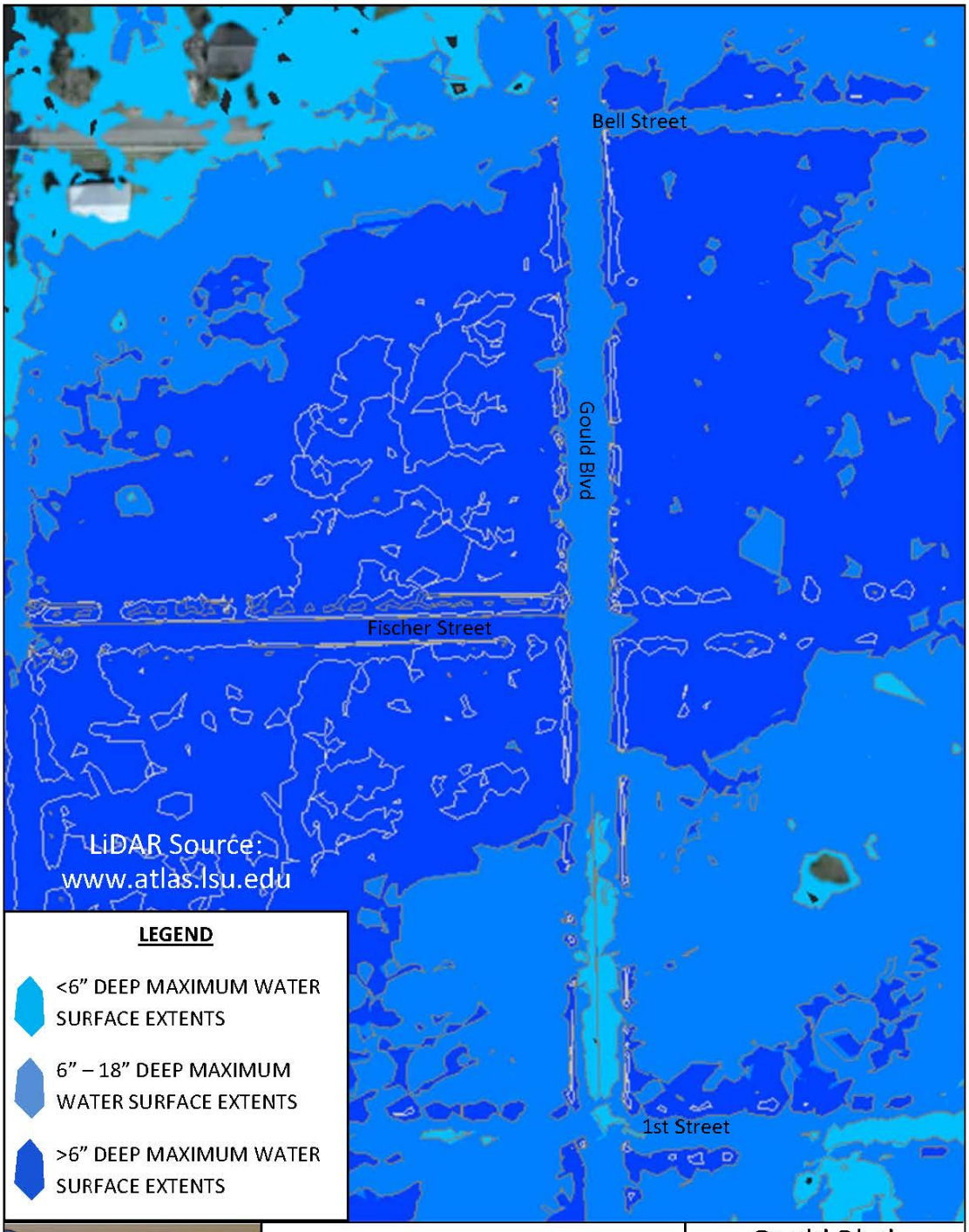
10-year, 24-hour Existing Conditions Flood Map

Pecan/Burney Streets

GAEA ENGINEERING CONSULTANTS

10-year, 24-hour Proposed Conditions Flood Map

Pecan/Burney Streets



GAEA ENGINEERING CONSULTANTS

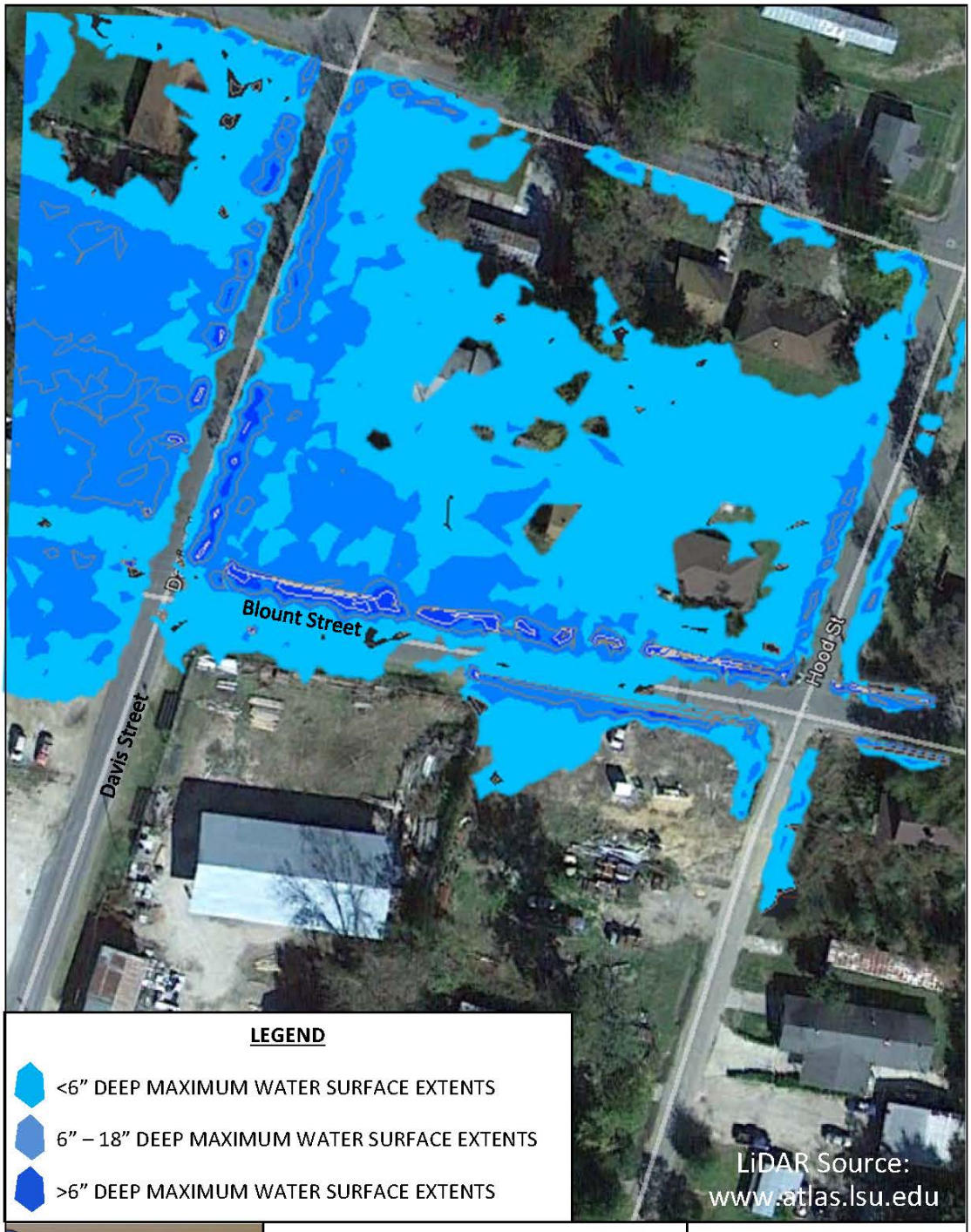
10-year, 24-hour Existing Conditions Flood Map

Gould Blvd between Bell and 1st Street

GAEA ENGINEERING CONSULTANTS

10-year, 24-hour Proposed Conditions Flood Map

Gould Blvd between Bell and 1st Street



GAEA ENGINEERING CONSULTANTS

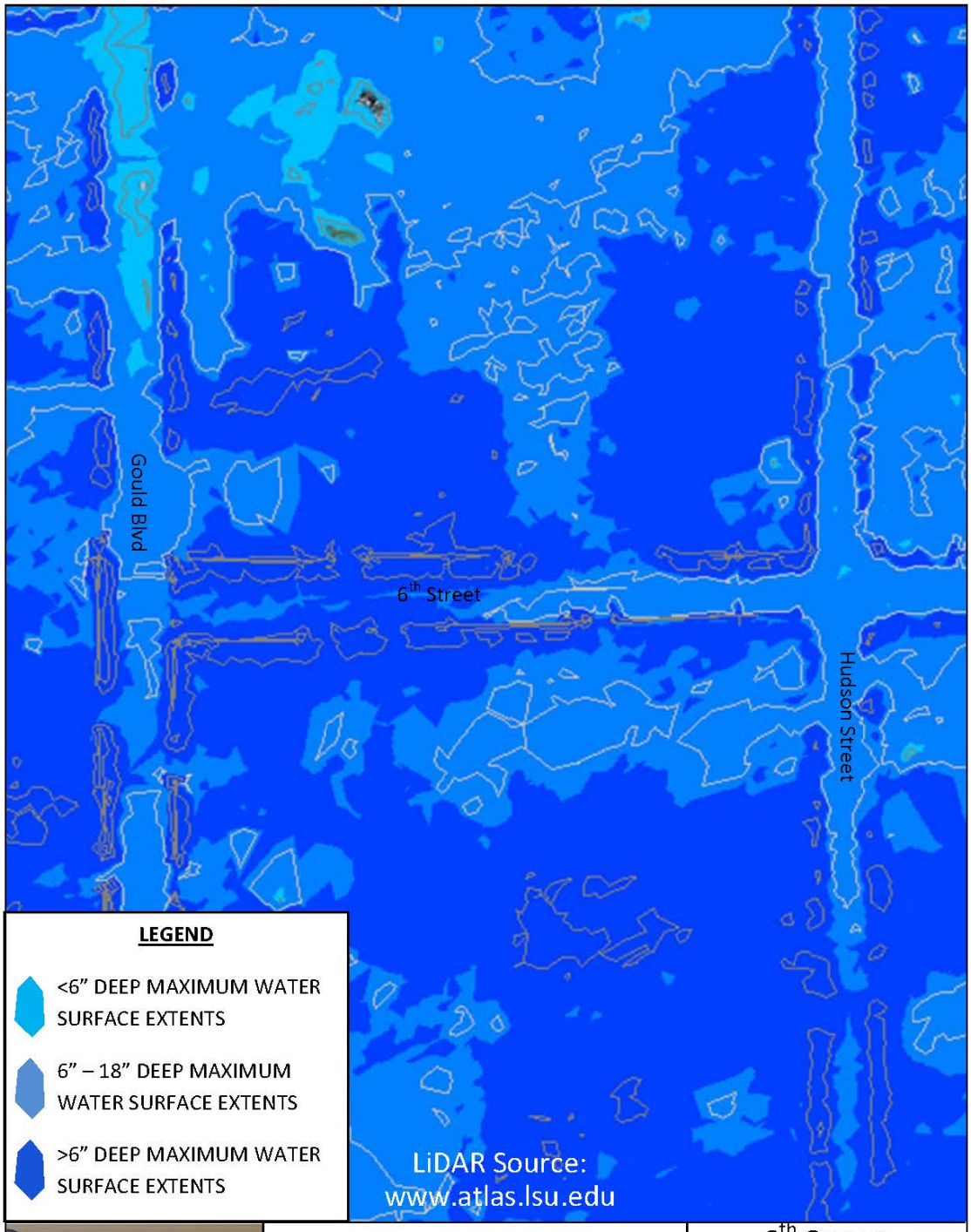
10-year, 24-hour Existing Conditions Flood Map

Blount Street

GAEA ENGINEERING CONSULTANTS

10-year, 24-hour Proposed Conditions Flood Map

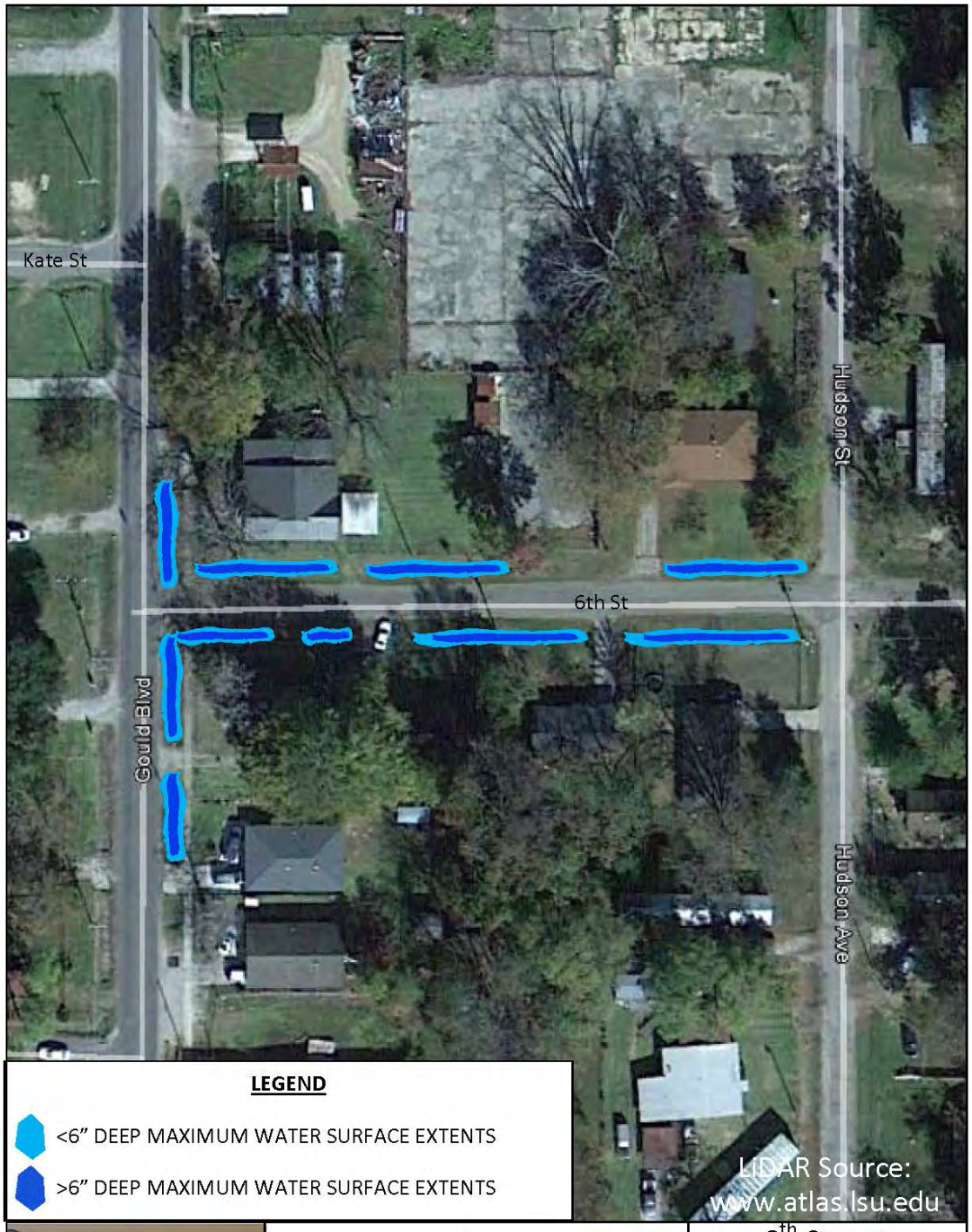
Blount Street between Davis and Hood Streets



GAEA ENGINEERING CONSULTANTS

10-year, 24-hour Existing Conditions Flood Map

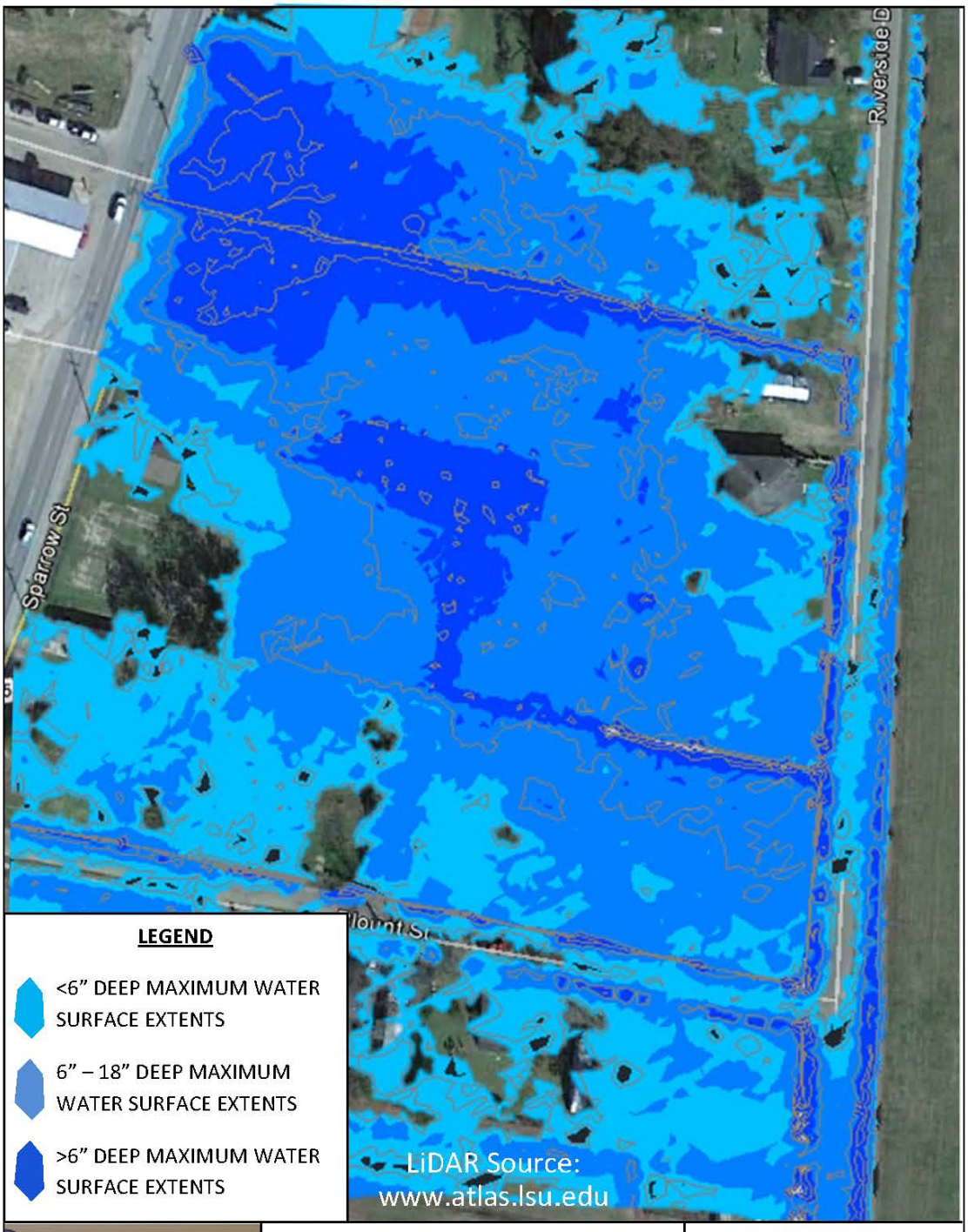
6th Street between Gould and Hudson



GAEA ENGINEERING CONSULTANTS

10-year, 24-hour Proposed Conditions Flood Map

6th Street between Gould and Hudson



GAEA ENGINEERING CONSULTANTS

10-year, 24-hour Existing Conditions Flood Map

806 Sparrow Apartments

GAEA ENGINEERING CONSULTANTS

10-year, 24-hour Proposed Conditions Flood Map

806 Sparrow Apartments

In conjunction with project number HMGP 1603n-035-0001 FEMA #0300,Gaea Consultants developed a model of the existing storm water drainage system in the areas identified in the application for the project. The model extended downstream of these areas to the point where it met with a model developed by Louisiana Department of Transportation and Development. We used this model to recommend repairs to the system. Based on the model, the proposed work will produce no negative impacts to the system downstream of the improvements and the areas upstream of the improvements will only be impacted in a positive way: with reduced flooding.

Thank you,

Jennifer Snape, PE

536 Washington Avenue New Orleans, LA 70130
504-962-5360 Fax: 504-962-5362
gaeaconsultants.com

APPENDIX D

AGENCY CORRESPONDENCE

U.S. Department of Homeland Security
Federal Emergency Management Agency
FEMA-1603/1607 -DR-LA
FEMA Louisiana Recovery Office
Environmental/Historic Preservation
1500 Main Street
Baton Rouge, LA 70802

July 14, 2015

The proposed undertaking will have no adverse effect on historic properties. This effect determination could change should new information come to our attention.

Phil Boggan 8-12-15
Phil Boggan Date
Deputy State Historic Preservation Officer

Pam Breaux
State Historic Preservation Officer
Department of Culture, Recreation & Tourism
P.O. Box 44247
Baton Rouge LA 70804

RE: Section 106 Review Consultation, Hurricane Katrina, FEMA-1603-DR-LA
Applicant: East Carroll Parish Police Jury
Undertaking: East Carroll Police Jury Drainage Project, Lake Providence, East Carroll Parish, LA (32.803753, -91.173285, location of East Carroll Police Jury Building); HMA-1603-0300
Determination: No Adverse Effect to Historic Properties with Conditions

Dear Ms. Breaux:

The Federal Emergency Management Agency (FEMA) will be providing funds authorized under the Robert T. Stafford Disaster Relief and Emergency Assistance Act, P.L. 93-288, as amended, in response to the following major Disaster Declarations:

FEMA-1603-DR-LA, dated August 29, 2005, as amended.

FEMA, through its Hazard Mitigation Assistance Program, proposes to fund the East Carroll Police Jury Drainage Project (Undertaking) as requested by the East Carroll Parish Police Jury (Applicant). FEMA is initiating Section 106 review for the above referenced properties in accordance with the Louisiana State-Specific Programmatic Agreement among FEMA, the Louisiana Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP), the Louisiana State Historic Preservation Officer of the Department of Culture Recreation and Tourism (SHPO), the Alabama-Coushatta Tribe of Texas (ACTT), the Chitimacha Tribe of Louisiana (CTL), the Choctaw Nation of Oklahoma (CNO), the Jena Band of Choctaw Indians (JBCI), the Mississippi Band of Choctaw Indians (MBCI), the Seminole Tribe of Florida (STF), and the Advisory Council on Historic Preservation (ACHP) regarding FEMA's Hazard Mitigation Grant Program (2011 LA HMGP PA) dated January 31st, 2011 and providing the State Historic Preservation Office with the opportunity to consult on the proposed Undertaking. Documentation in this letter is consistent with the requirements in 36 CFR §800.11(e).

Description of the Undertaking
The town of Lake Providence in East Carroll Parish experiences regular and repeated flooding during heavy rain events. In some parts of town, two to three feet of flooding occurs during these events. Even during more frequent moderate rain fall events the existing drainage system is inadequate and standing water builds up in yards and roadways. The proposed undertaking will improve the drainage by reconfiguring the system in four sections of Lake Providence: two segments will be funded by FEMA, and two will be funded by the office of Community

Development's Community Development Block Grants (CDBG) (Figure 1-6). In addition, a fifth segment of work will be completed by the Louisiana Department of Transportation and Development, and portions of the current undertaking will flow into the LA DOTD project area. The DOTD consulted on this project on October 22, 2014 and the SHPO concurred on October 30, 2014 (attached). FEMA is not consulting on the LA DOTD portion of the project. Full details of the project can be found in the attached project plans, but in brief the undertaking will include:

Segment 1: FEMA Funded (Figure 3)
Segment 1 is located in a residential area, and, of the four segments is located closest to the lake. The ditches in this area are predominately open, with the culverts running beneath roadways and driveways. Trees line both sides of the streets. Wherever possible, trees will be left in place. All work will be restricted to the existing right of way (ROW). During the site visit only one tree was identified as being with the ROW of the project. The Scope of Work (SOW) for this area is to improve drainage in the direction of the lake. Currently drainage is graded away from the lake along some segments while others have fallen into disrepair. The SOW is to improve the open ditches along portions of Blackburn/Milikin St, 1st St., 2nd St., Burney St, and Pecan St, and improving culverts, and enlarging the existing outfall into Lake Providence. The deepest work associated with this area is 3ft, while the shallowest is 0.5ft; however, the majority of the work is in the 1-2ft range. The existing drainage outfall into Lake Providence consists of two pipes, one 24" and the other 36", located immediately adjacent beneath a single head wall. The proposed project will increase the capacity of the outfall, combining these two pipes into a single arch culvert measuring 55" by 88".

Segment 2: FEMA Funded (Figure 4)
Segment 2 is also predominately residential, and is located at the western edge of town. The portion of the project that runs south along Koresh St has residential properties to the east and farmland to the west. The agricultural fields run right up to the end of the ditch, and the ditches are very overgrown in this area. SOW for this area is to improve drainage to the south of town by improving the open ditches along portions of Gould Blvd; Fischer St, and Koresh St, and improving culverts. Currently drainage is graded insufficiently and others have fallen into disrepair. The ditches are deeper in this segment, already 2 to 3ft deep, only a moderate increase in depth is proposed: an additional 1 to 1.5 ft. There are no full grown trees within this segment and all work will be restricted to the existing right of way. Culverts will be replaced where the ditch runs beneath the roads and driveways. This work flows into the LA DOTD's project area.

Segment 3: CDBG Funded (Figure 5)
Segment 3 is located in a mixed use area, with both residential and industrial buildings. General Scope of work for this area is similar to that of Segment 1 and Segment 2 and consists of improvements to the drainage to the south of town by improving the open ditches along portions of 6th St., Gould Blvd, and Blount St. Work is less deep then Segment 1 approximately 0.5ft to 2ft deep, and improving culverts. There are no trees within the area. All work will be restricted to the ROW. This work flows into the LA DOTD's project area.

Segment 4: CDBG Funded (Figure 6)

The general SOW for this area is similar to that of Segment 2, and is also designed to improve drainage to the south of town. This segment is different from the others; the initial area is located within the Sparrow Apartments, a HUD housing development. The Sparrow Apartments were constructed as slab-on-grade; the drainage is entirely insufficient for the development. Drainage in this area will be deepened an additional 2ft. Open ditching continues along River Rd, before flowing into an improved natural drainage, the L-25A Canal, this segment will be cleaned and very moderately deepened 0.5 to 1ft. There are trees within the area but they are relatively young, and all work will be restricted to the ROW. This work flows into the LA DOTD's project area.

Area of Potential Effects (APE)

This letter serves as consultation for the APE in accordance with Stipulation VII.B of the 2011 HMGP PA. The APEs for both standing structures and archaeology is limited to the immediate area of ground disturbing activities and space for laydown (Figures 2). The scope of the project limits the potential effects, as the work occurs almost completely below grade. Given the size and scope of the project, the APE has been divided into 4 different sections, one for each of the segments.

Segment 1: The APE for Segment 1 (Figure 3) is 4.96 acres (2 hectares) in total size. The APE runs north to south along Millikin St./Blackburn St. between Lake St/US Hwy 65 and 1st St, the turns east along 1st St. until Howard Ln. The out follow runs north from 1st St, beneath the driveway of 700-1098 Lake St., and then crosses beneath Lake St to flow into Lake Providence. The southern portion connects through an empty lot to Second St. and then turns southeast, cutting diagonally across the block form the corner of 2nd St and West St. to the corner of 3rd St and Burney St. It runs south along Burney St. for half a block. It also runs along 3rd St then turns south down Pecan St to 4th St. A portion of the drainage also cuts through the block between Burney St. and Pecan St.

Segment 2: The APE for Segment 2 (Figure 4) is 5.1 acres (2.1 hectares) in total size. It runs north and south along Gould Blvd between Bell St and 1st, running west from Gould Blvd along Fischer St. to Koresh St. before turning south along Koresh St and flowing in to LA DOTD's portion of the work near St. Louis Ave.

Segment 3: The APE for Segment 3 (Figure 5) is 5.24 acres (2.12 hectares) in total size. Its runs east/west for one block on 6th St. between Hudson St. and Gould Blvd, before turning south along Gould Blvd, for one and half blocks. From the east the drainage flows east/west along Blount St. before converging at Gould Blvd and flowing into the LA DOTD portion of the undertaking.

Segment 4: The APE for Segment 4 (Figure 6) is 14.6 acres (5.9 hectares) in total size. It starts in the Sparrow Apartment Complex in the block bounded by Purdy St, Sparrow St/US Hwy 65, Blount St. and Riverside Dr. then runs south along Riverside before flowing into the L-25 Canal to the south of town. It then flows west until it links up with the LA DOTD's project.

Identification and Evaluation

Historic Properties within the APE were identified based on FEMA's review of the National Register of Historic Places (NRHP) database, the Louisiana Cultural Resources Map, historic map research, and a site visit conducted April 6, 2015 by FEMA Historic Preservation staff. This data was evaluated by FEMA using the National Register (NRHP) eligibility criteria.

The earliest known settlement in the area of the Lake Providence area dates to the Coles Creek Period (800 – 1000 C.E.) as evidenced in the Lake Providence Mound Site (16EC6) located approximately 3.5 miles north of the current town. While it is likely there were additional Native American settlements in the area, none have been documented. The first European development of the area dates to 1803, when the land surrounding Lake Providence and the Mississippi River was first divided into three plantations, owned by James Floyd (the area between Lake Providence and the Mississippi River), William Culfield, and William Collins (each claiming the plantations to the north and south of Floyd's purchase). Carroll Parish was first created in 1832, and the town of Providence was fist surveyed in 1833, created out of the land then owed by John L. Martin and William B. Keene. The town was incorporated in 1848. By 1859, Lake Providence's population was 359. Due to the shifting coursed of the Mississippi River the town had to be relocated to the west, it's currently location, in 1860.

During the Civil War no major battles occurred in the town or the surrounding area, but some of the surrounding plantation houses were used by Union Troops and General Ulysses S. Grant oversaw the attempted construction of a canal (known as Grant's Canal) between Lake Providence and the Mississippi River as an alternate transportation route for Union Troops. In 1877 East and West Carroll Parishes were divided, and the town of Lake Providence was made the official seat of East Carroll Parish.

Standing Structures:

There is only one standing structure within the APE: the existing drainage outflow located at Lake St. and Lake Providence. Based on the date impressed in the headwall the existing outflow into Lake Providence, the drainage system for at least the more northern portion of the APE dates to 1957 (Figure 7). As it is more than 50 years of age, FEMA completed a determination of eligibility and determined that the drainage system and the outfall are not eligible for the NRHP (Please see attached Determination of Eligibility). The project APEs are not located within a listed or eligible National Register Historic District, nor are they located within the view-shed of a property individually listed in the NRHP.

Archaeology:

FEMA consulted the US Department of Agriculture's interactive SoilWeb to determine the soil types for each of the APEs (Figure 8). The findings are summarized in Table 1 (Primary soil type(s) in bold). There are three primary soils within the APEs:

Commerce 85% of the project area
Newelton 10% of the project area
Sharkey 5% of the project area

Commerce soils, accounting for almost 97% of the *FEMA funded project area*, are the most recent alluvium, and the soils mostly likely to contain historic material. They are characterized as being somewhat poorly drained, but are still the best drained within APE. In general, the soils within the four APEs become wetter within the southern portion of the project area.

Table 1: Summary of Soil Types

Location	Soil Type	Drainage
Segment 1	**Commerce**/Bruin/Sharkey/Tensas/Newellton	Natural Levees/backswamps
Segment 2	**Commerce/**Newellton	Natural Levees
Segment 3	**Commerce**/Bruin/Sharkey/Tensas/Newellton	Natural Levees/backswamps
Segment 4	**Commerce**/Bruin/**Sharkey**/Tensas/**Newellton**	Natural Levees/backswamps

FEMA consulted the SHPO's Cultural Resources map and determined that there are 14 previously identified sites (Table 2), and one past archaeological survey within 1 mile (.6km) of the APEs. The survey, *A Cultural Resources Survey of the Wilson Point to Point Lookout Levee Enlargement And Berms Project, East Carroll Parish, Louisiana* (LDOA # 22-0789), was completed by Heartfield, Price and Greene, Inc. in April of 1981. The survey took place predominately to the east of the current APEs, though portions of Segment 4 are within the survey area. The 1981 survey included 100% pedestrian survey, with shovel tests at 200ft intervals, but the tests were limited to 50x50x50cm in size. The survey identified 13 resources in the project area, 11 of those were structures. The other two sites were historic artifact scatters, either exposed on the surface or within the plow zone. None of the 13 properties were determined eligible.

Table 2: Known Archaeological Sites within 1 mile/.06 kilometers

Site #	Name/Description	NRHP Eligiblity
16EC19	Byerly House site	Eligible
16EC79	Woodframe house on brick piers	Not Eligible
16EC80	Woodframe Bar/café	Not Eligible
16EC81	Woodframe house on brick piers	Not Eligible
16EC83	Woodframe on concrete slab	Not Eligible
16EC96	Historic Artifact Scatter	Not Eligible
16EC100	House site (15-7)	Not Eligible
16EC109	Red Front Bar	Not Eligible
16EC112	Shotgun House	Not Eligible
16EC113	711 Riverside Dr	Not Eligible
16EC114	715 Riverside Dr	Not Eligible
16EC115	Square Clapboard House	Not Eligible
16EC116	"L" Shaped House	Not Eligible
16EC117	Historic Scatter (exposed in plow zone)	Not Eligible

The remaining site within the project vicinity is 16EC19, the Byerly House site. The Byerly House site is the location of a historic house that has since been relocated to serve as a visitor's center. The community of Lake Providence completed test excavations on the site as part of Archaeology

week for the children of Lake Providence. The site was determined to be eligible for its potential to yield information on the upper-middle-class of Lake Providence at the turn of the 20th century.

While not within in the immediate vicinity of the undertaking, there is one additional site that is useful for determining potential effects to historic properties,16EC6, the Lake Providence Mounds Site. 16EC6, located 3.5 miles north of the project area, is a mound site associated with the Coles Creek Period. Originally identified in the 1930s by Fred Kniffen, the Lake Providence Mound site, has been periodically studied ever since. The most recent excavations were completed by Coastal Environments, Inc (CEI) in the late 1990s for the US Army Corps of Engineers (USACE). As part of their analysis of the site, Weinstein et al. completed a geomorphological analysis of the site and the surrounding land form. The deepest soils in the area date to the Holocene; they have been buried beneath two layers of more recent alluvium associated with the shifting channels of the Mississippi River, including the channel that is now Lake Providence, as well as other abandoned channels. There is almost no discernable difference between these two later layers of alluvium, only being distinguished, at the Lake Providence Mound Site, by an intervening habitation layer starting at approximately 1 to 1.5 meters below surface.

FEMA HP staff reviewed the early East Carroll parish map archives to obtain information about the APE. The area does not appear on most early maps, and on those it does appear, the project location is not shown in any detail. The APE is included on the LaTourrette map of 1848 and the area is still noted as being plantation lands, though by that time it had started being subdivided. The earliest detailed map of the APE is the 1892 Sanborn Fire Insurance Company Map; it shows that town in its current location, but not at its current size or density. While the 1909 map show that the town has been fully platted, it is not until the 1928 Map that any development is shown within the APEs (Figure 9). The town developed first at the intersection of Lake Providence and the Mississippi, and then moved along the lakeshore, before moving west and south to fill in the additional space. It is not until the 1928-1944 maps that the population density increased in all sections of the town.

On May 28, 2015, FEMA Historic Preservation Staff completed a site visit for the undertaking (See attached Site Visit Memo). During that site visit FEMA HP staff visited all of the project locations and complete 1 shovel test and 5 soil cores. Additional tests were planned; however, the Applicant was not able to provide right of way or access information for any of the project areas, so FEMA was not able to complete additional tests. All the tests were completed were negative for cultural resources, and consistent with the USDA's soil series for the project area. The maximum depth of the Shovel Test was 120cmbs and 50cmbs for the Soil Cores.

FEMA presented the undertaking at its monthly Tribal Calls as part of its standard tribal consultation process. Two of FEMA's tribal partners, the Choctaw Nation of Oklahoma (CNO) and the Mississippi Band of Choctaw Indians (MBCI), raised concerns regarding the project's location. Given the undertaking's location, CNO expressed concern that remains associated with the Removal Routes from the Trail of Tears could be located in the vicinity, and MBCI noted that the area had a high potential for prehistoric sites. FEMA presented the findings from its May 28, 2015 site visit at the June 2, 2015 Tribal Call. At that meeting the MBCI representative questioned whether the tests had been deep enough, and what age the soils encountered were. At the July 7, 2015 Tribal Call FEMA further discussed the results of the background investigations.

Based on that additional research FEMA has determined that the undertaking location is geologically similar to that of the Lake Providence Mound site, and is located between the two of the channels of the Mississippi River, Lake Providence and an unnamed channel to the south (Figure 10). The soils uncovered in FEMA's shovel tests and soil cores were similar to the soils of the most recent alluvium discovered at the mound site, but given that there is little difference between the most recent soils and the immediately preceding stratum it is difficult to determine the precise age. Using Weinstein et al. as the basis for comparison, none of FEMA's tests were deep enough to encounter prehistoric deposits, presuming they are present. However, the proposed SOW will be deepening the existing channels to depths with the potential to affect deeply buried deposits, like those found at the Lake Providence Mound site.

Additionally, Lake Providence is an area of interest associated with a Trail of Tears Removal Route, which would either predate, or correspond to the official founding of Providence. The town was moved east to its current location in 1860, after the period of Indian Removal. According to the Sanborn Maps, the oldest portions of the town are located to the northeast where Lake Providence and the Mississippi River are closest. This would be the area with the highest probability for remains associated with the removal, and there is no work planned in this area. There is still potential for associated deposits outside of this area, however, specifically in Segment 4.

The town of Lake Providence was established in 1833, officially incorporated in 1848, and moved to its current location in 1860. However, according to the Sanborn Maps of the own, the sections of Lake Providence within the APE for the undertaking were not settled until the early-to-mid 20th century. There is very little potential for eligible historic deposits within the APE.

Copies or Summaries of Views by Consulting Parties and the Public
FEMA is forwarding this letter and the attached documentation to the Lake Providence Historical Society for their review and comments as required by 36 CFR §800.4(d)(1), and we request that these potential consulting parties provide comments within the 15 days provided by the 2011 HMGP PA.

Assessment of Effects
Based on the aforementioned identification and evaluation, FEMA has determined that there are 3 historic properties as defined in 36 CFR 800.16(l) within the APEs, and that there is the potential for additional historic properties.

The nature of the undertaking and the potential depth of any prehistoric deposits, makes completing an Archaeological Phase I survey challenging. The ROW for this project is very narrow, and the project is constrained to the current widths of the ditches. In order to stay within the APE and reach the depths necessary to uncover potential deposits, the survey would have to be done within the existing ditches. However, at the time of the site visit there was standing water present in 90% of the ditches, and in many yard throughout the project area, and it was relatively early in the rainy season at the time of the visit.

That being said, there is still the potential to affect archaeological deposits if they are present. In order to avoid adversely affecting any potential resources, FEMA proposes to condition the project

with archaeological monitoring during the excavations, preceded by investigative soil cores, no less than 4in. in diameter. FEMA will require:

- A delineating line of soil cores, not less than 4in. in diameter, to be conducted prior to the excavations to inform the monitoring and to identify the potential for human burials.
- The presence of archaeological monitors that meet the Secretary of Interior standards during all ground disturbing activities exceeding 15cm (6 inches) depth.
- That fieldwork follow the guidelines provided by the Louisiana Division of Archaeology (http://www.crt.state.la.us /cultural-development /archaeology/section-106/field-standards/index);
- The production of a monitoring report for submission to FEMA that meets Louisiana Division of Archaeology's report standards (http://www.crt.state.la.us /cultural-development/archaeology/section-106/report-standards /index); and
- The curation of all artifacts generated by the project, in compliance with the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation and the Louisiana Division of Archaeology.
- Ifunmarked graves are present, compliance with the Louisiana Unmarked Human Burial Sites Preservation Act (R.S. 8:671 *et seq.)* is required.

Therefore, FEMA has determined a finding of **No Adverse Effect to Historic Properties with conditions** for this Undertaking and is submitting this Undertaking to you for your review and comment. FEMA requests your comments within 15 days.

We look forward to your concurrence with this determination. Should you have any questions or need additional information regarding this Undertaking, please contact me at (504) 247-7771 or jerame.cramer @fema.dhs.gov, or Kathryn Wollan, Lead Historic Preservation Specialist at (504) 289-1941 or kathryn.wollan@fema.dhs.gov Jason Emery, Lead Historic Preservation Specialist at (504) 570-7292 or jason.emery@fema.dhs.gov.

Sincerely,

JERAME J CRAMER

Digitally signed by JERAME J CRAMER
DN: c=US, o=U.S. Government, ou=Department of Homeland Security, ou=FEMA, ou=People, cn=JERAME J CRAMER, 0.9.2342.19200300.100.1.1=0972893910,FEMA
Date: 2015.07.13 17:09:04 -05'00'

Environmental Liaison Officer
FEMA-DR-1603-LA, FEMA-DR-1607-LA

CC: File
Division of Archaeology Reviewer
Division of Historic Preservation Reviewer
State Historic Preservation Office

Enclosures

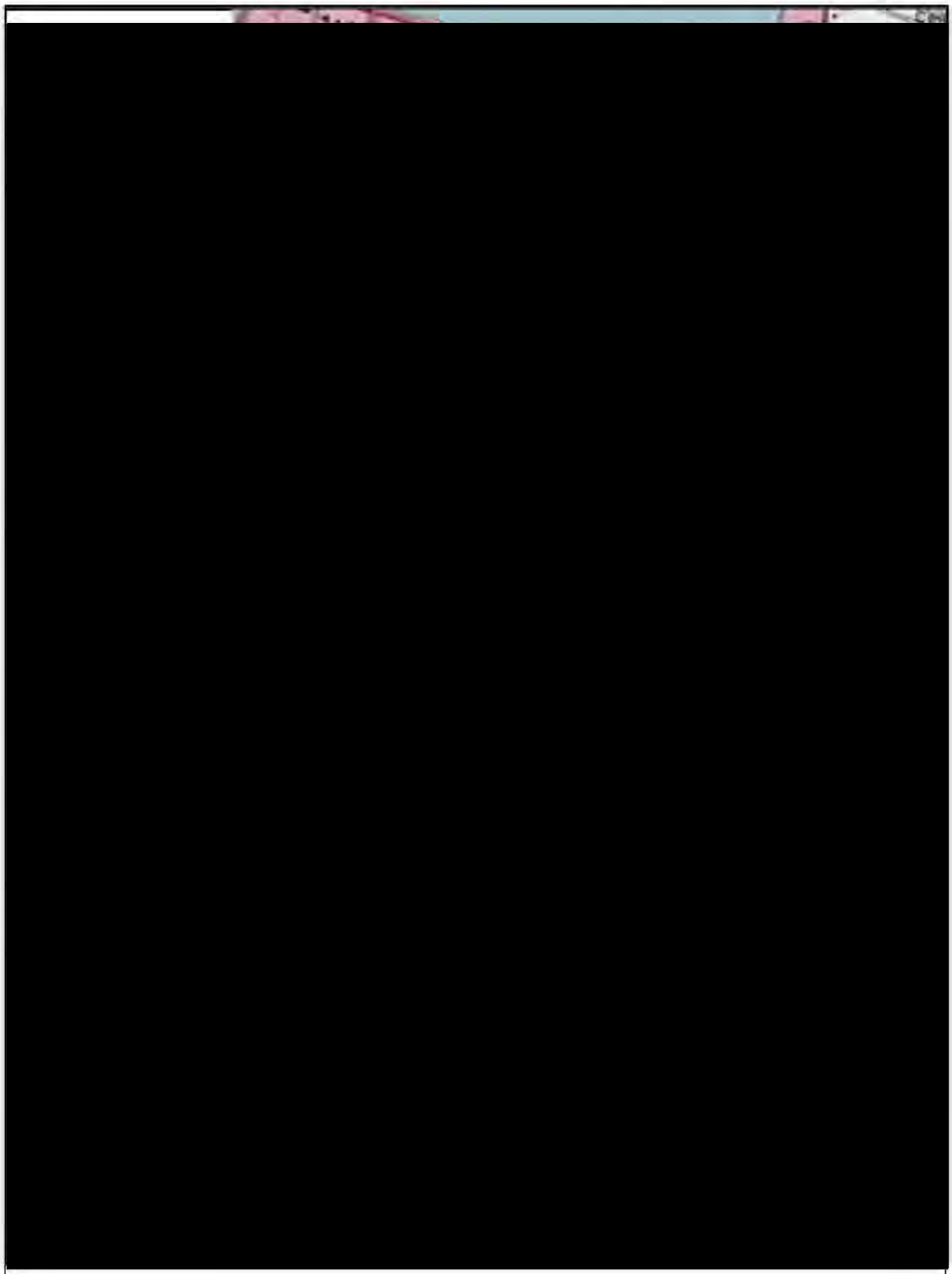


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Figure 1: Overview of Project Location

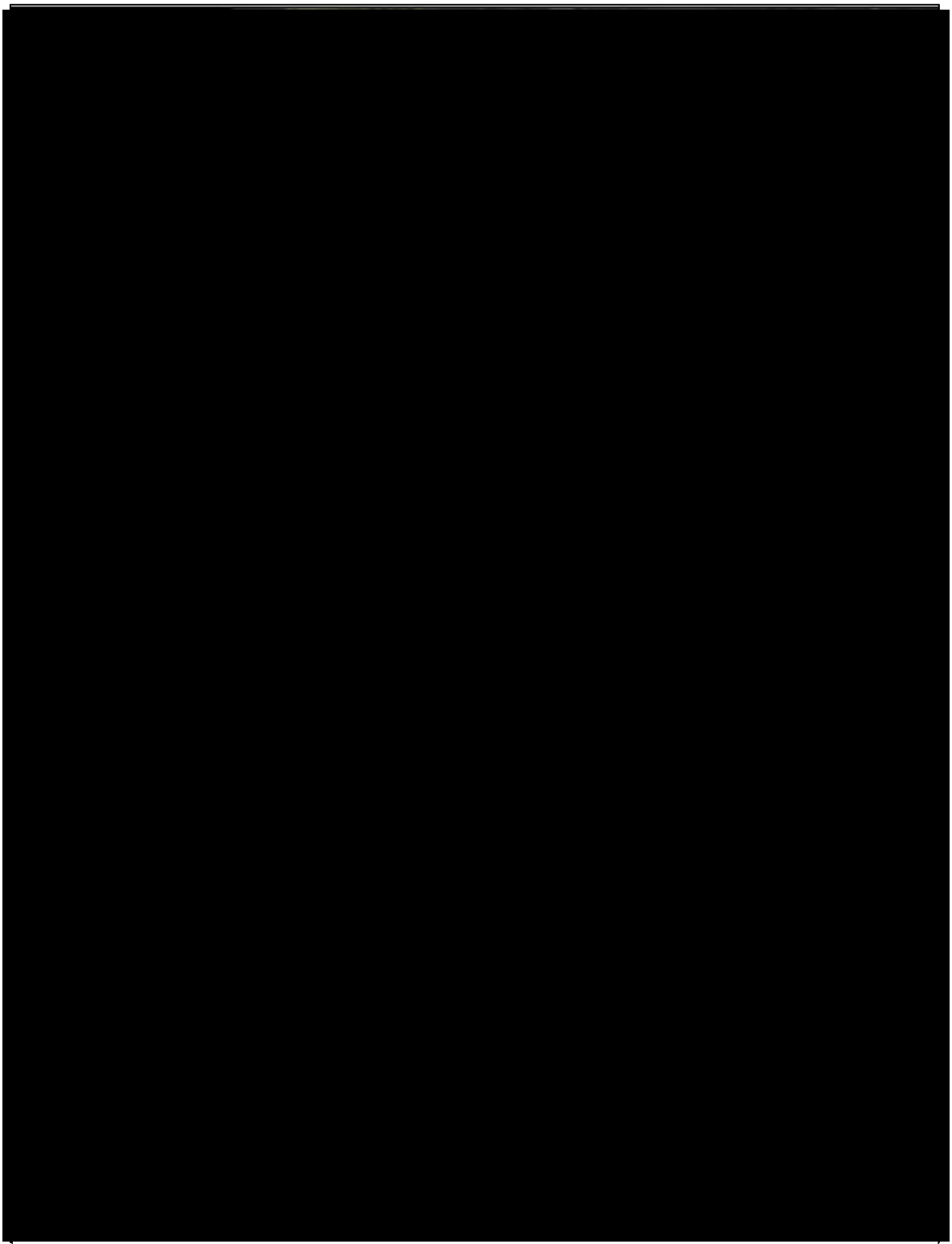

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Figure 2: APE for Undertaking

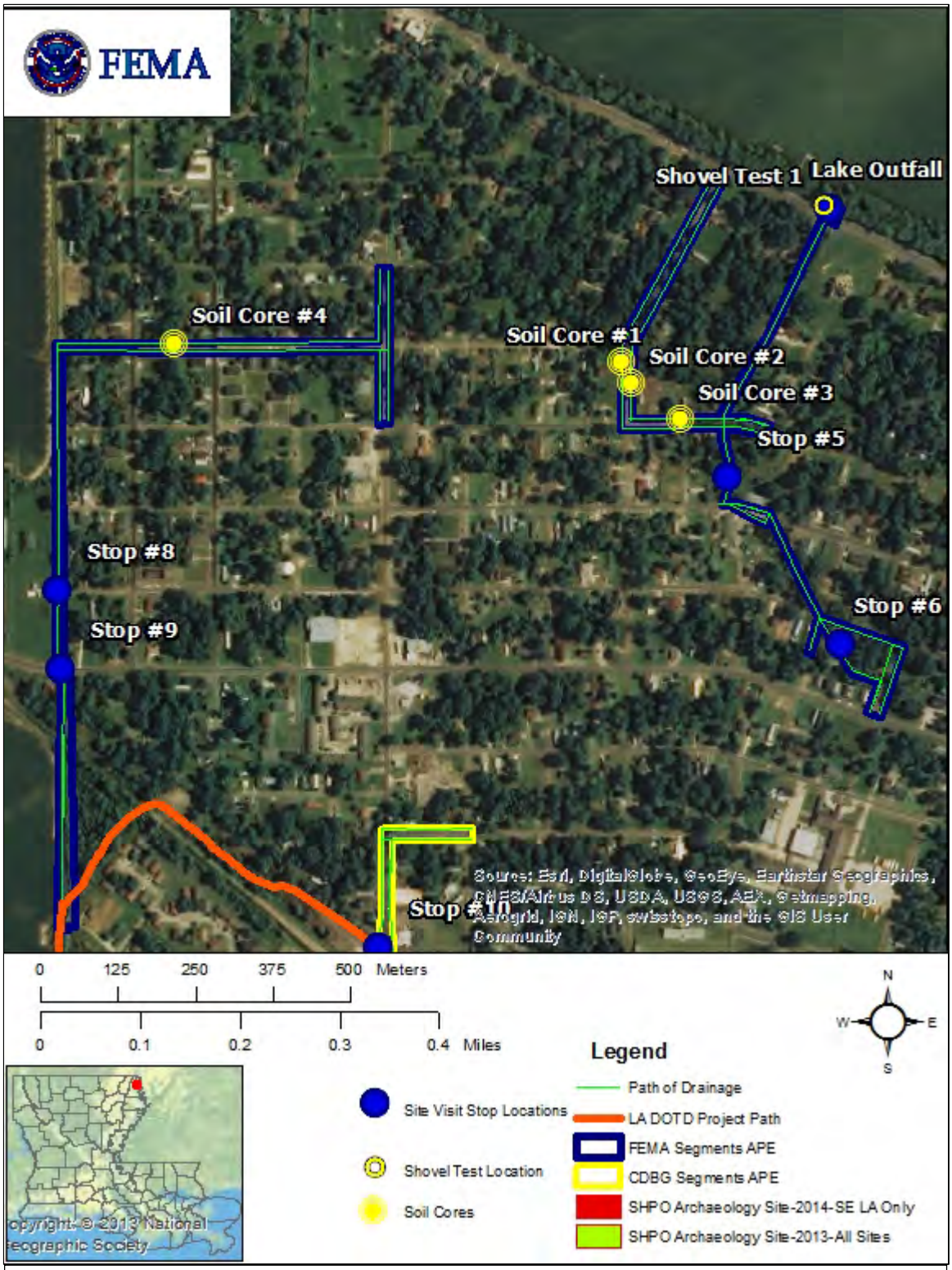

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Figure 3: Overview of Segment 1

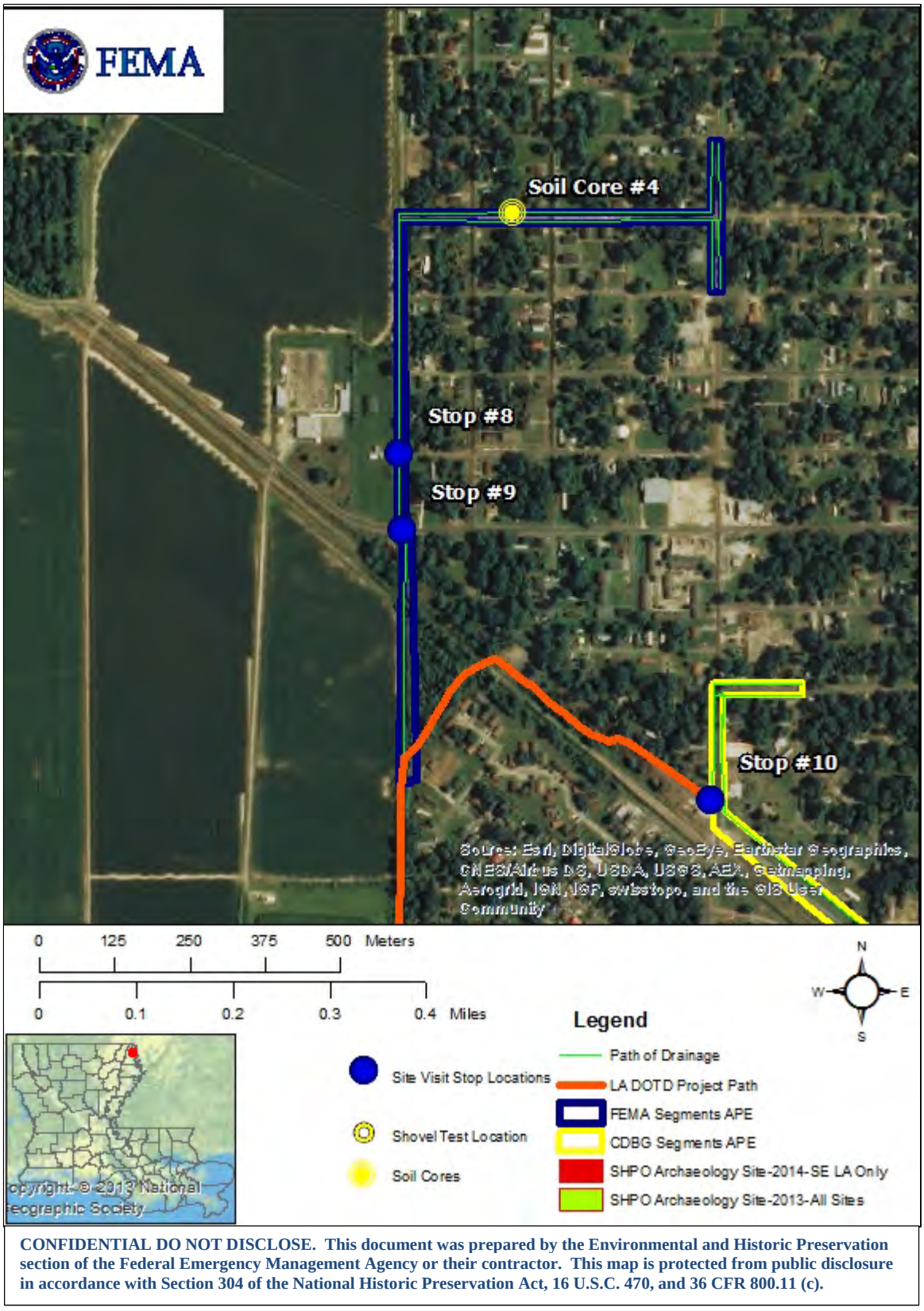

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Figure 4: Overview of Segment 2

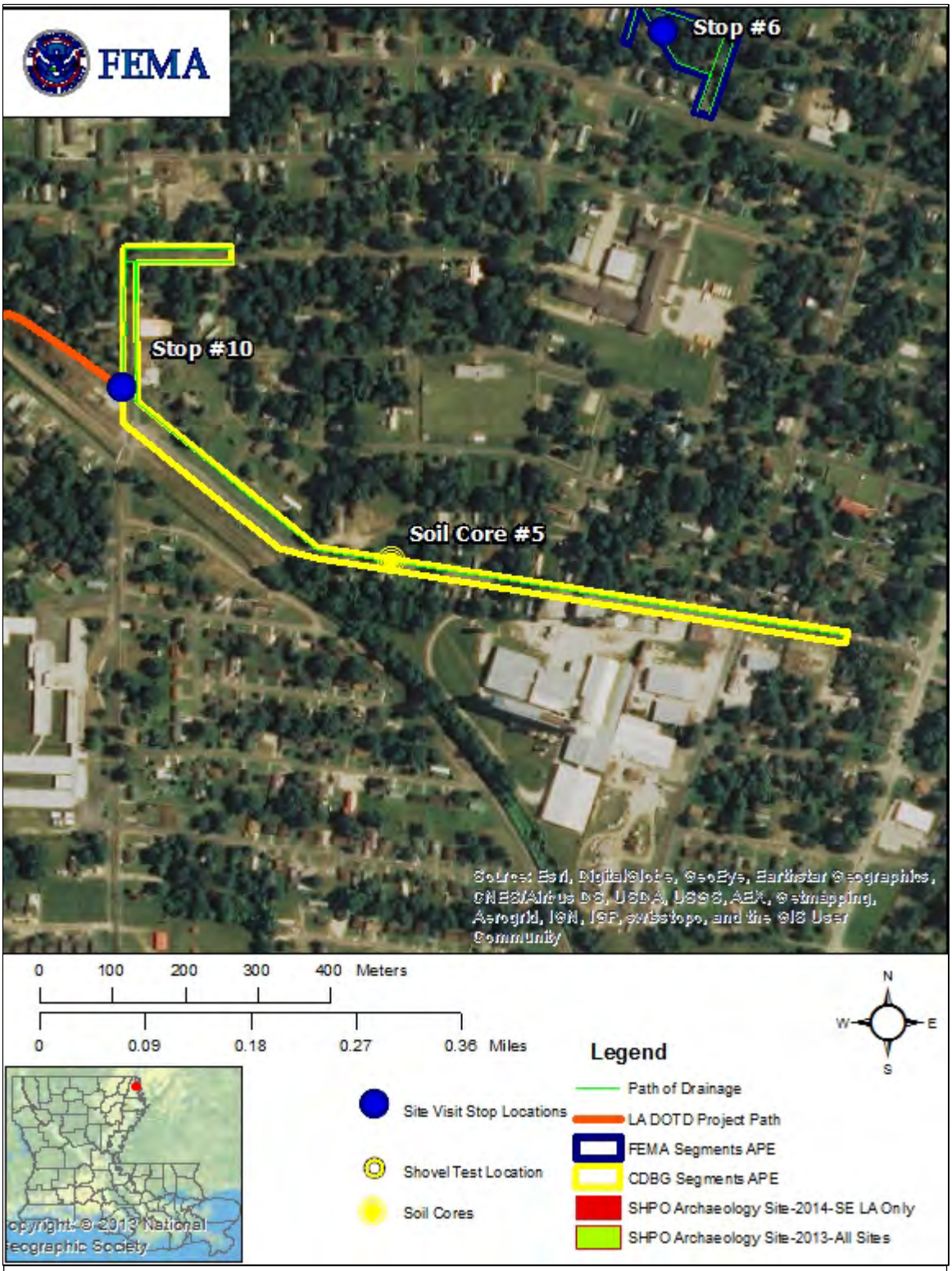

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Figure 5: Overview of Segment 3

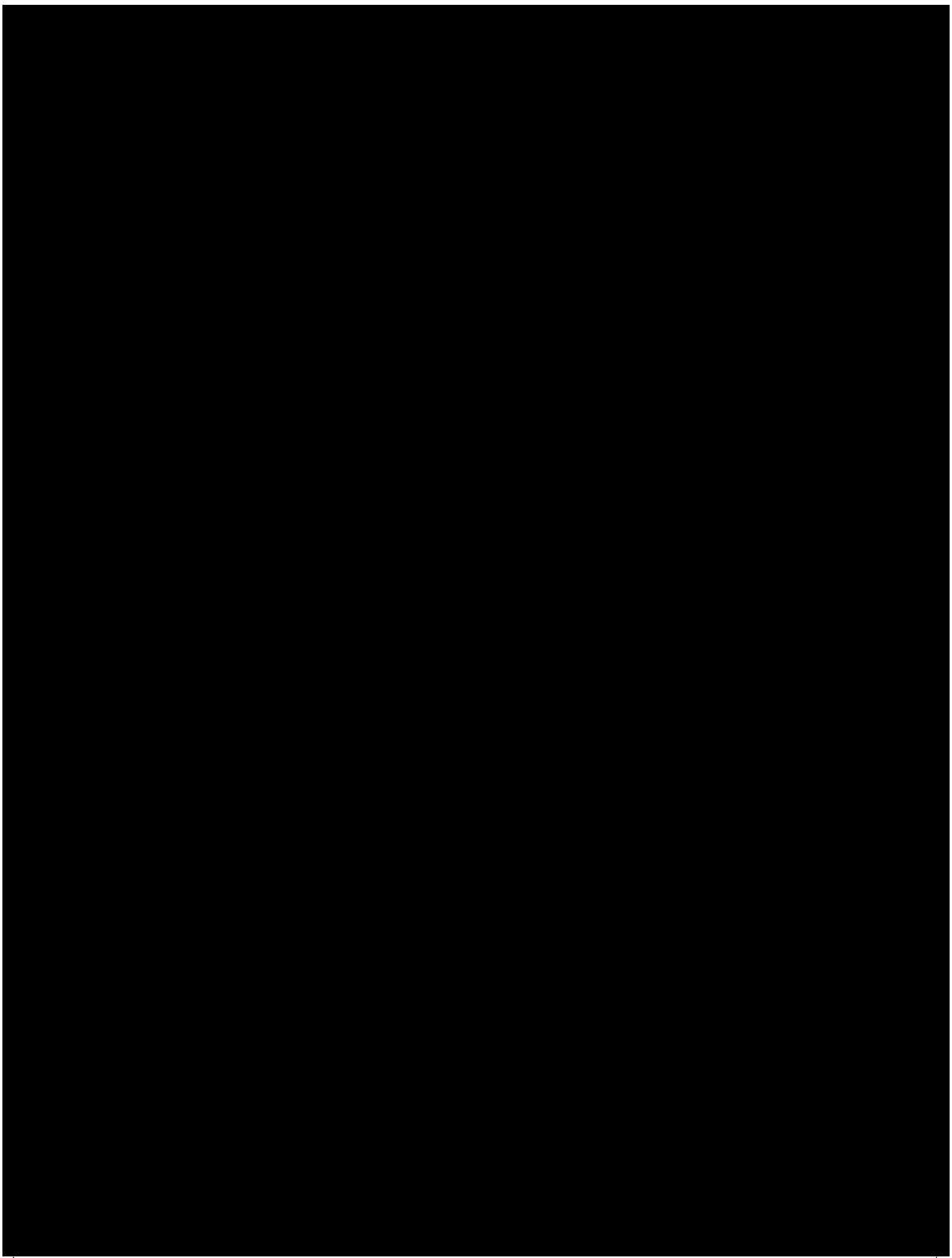

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Figure 6: Overview of Segment 4

Figure 7: Existing Headwall at Lake Providence Outfall

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Figure 8: Soil Map for the Project Area

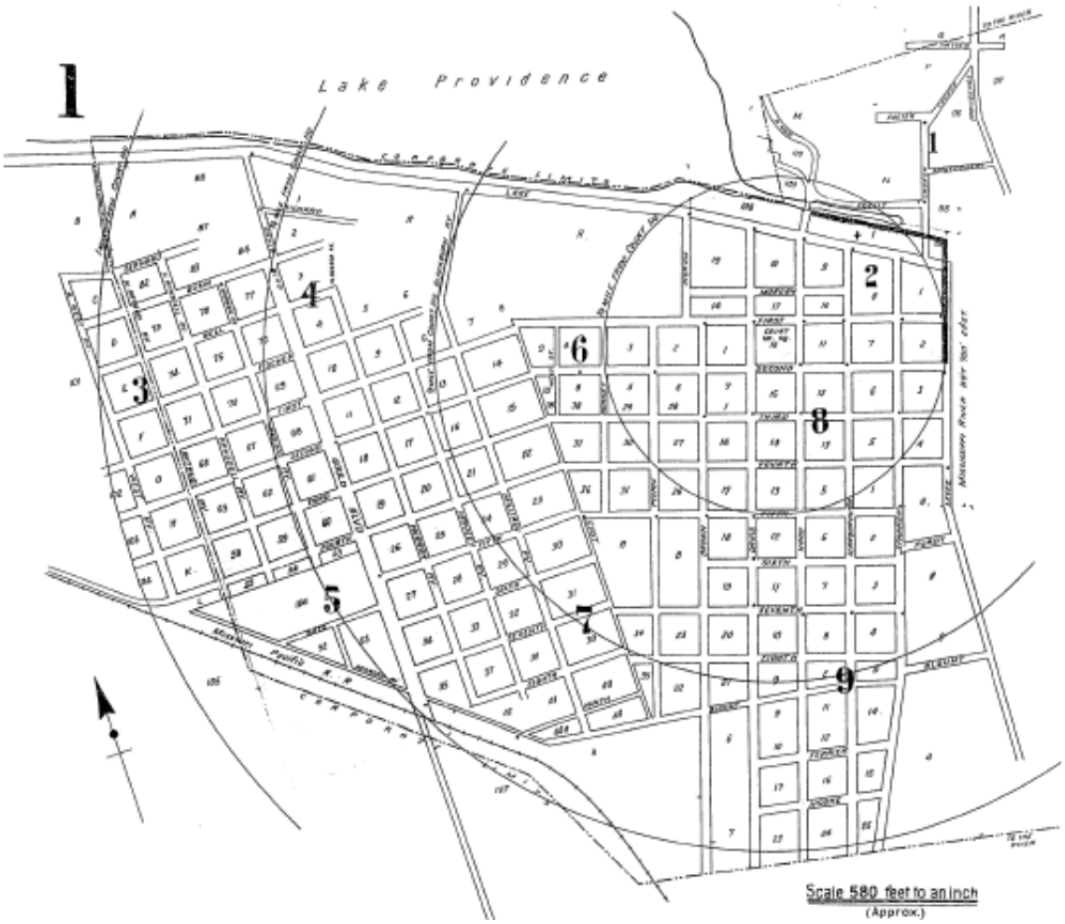
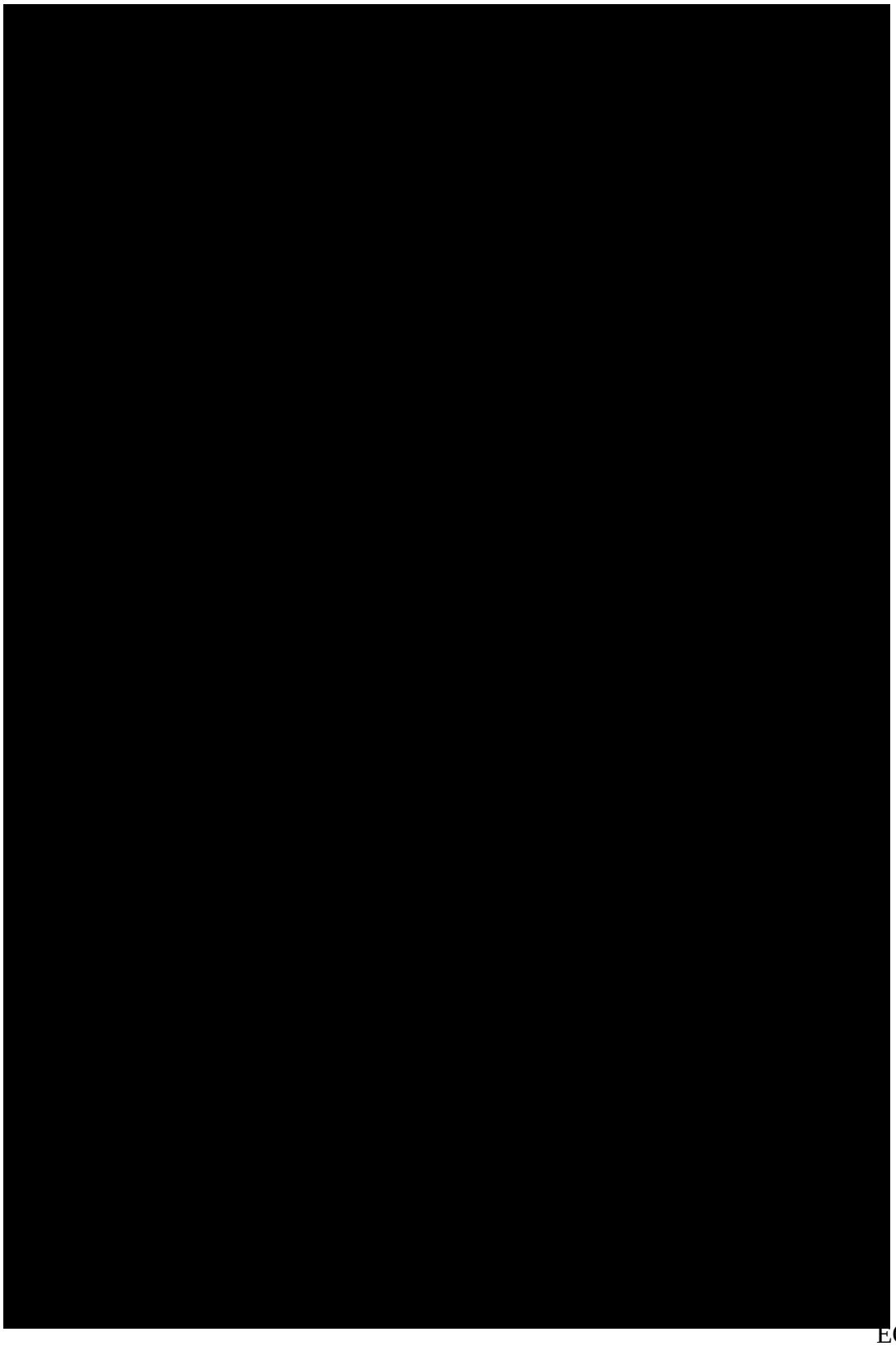


Figure 9: Sanborn Fire Insurance Map 1928



EC6, Lake Providence Mounds Site location to the North.

June 30, 2015

U.S. Department of Homeland Security
Federal Emergency Management Agency
FEMA-DR 1603/1607 LA
Louisiana Recovery Office
1500 Main St., Baton Rouge, LA 70802

FEMA

MEMORANDUM TO: See Distribution

SUBJECT: Scoping Notification/Solicitation of Views
East Carroll Parish Police Jury, Hazard Mitigation Project 1603-0300, Drainage Improvements
FEMA-1603-DR-LA

To Whom It May Concern:

The Department of Homeland Security's Federal Emergency Management Agency (FEMA) is mandated by the U.S. Congress to administer Federal disaster assistance pursuant to the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), PL 93-288, as amended. The Stafford Act authorizes FEMA's Hazard Mitigation Program to provide funds to states and local governments to implement long-term hazard mitigation measures after a major disaster declaration. FEMA is considering providing Hazard Mitigation Grant Program funding for the attached project in relation to Hurricanes Katrina and Rita (FEMA-1603/1607-DR-LA). The attached scope of work and drawings correspond to a proposed hazard mitigation project for which FEMA funding has been requested.

On August 29, 2005 the intense tidal surge and high winds from Hurricane Katrina caused extensive flood damage to East Carroll Parish, incapacitating outdated drainage systems. As a result of flooding and subsequent damage in the surrounding areas, the East Carroll Parish Police Jury has applied for hazard mitigation funding for drainage improvements in and around the town of Lake Providence, LA. The parish intends to mitigate the risk of flooding in homes in the project area during the 10-year, 24-hour storm.

To ensure compliance with the National Environmental Policy Act (NEPA), Executive Orders (EOs), and other applicable Federal regulations, FEMA-EHP will be preparing an Environmental Assessment (EA). To assist us in preparation of the EA, we request that your office review the attached documents for a determination as to the requirements of any formal consultations, regulatory permits, determinations, or authorizations.

The applicant's agent previously submitted a Request for Determination on October 22, 2014 for the CDBG funded drainage improvements (OCD/DRU Project No. 18PARA3402, PAE Job No. 10064). It is included in the attachments for your reference.

Please respond within thirty (30) calendar days of the date of this scoping notification. If our office receives no comments at the close of this period, we will assume that your agency does not object to the project as proposed.

Comments may be emailed to bianca.kinglondon@fema.dhs.gov or mailed to the attention of Bianca King London, Environmental Department, at the address above.

For questions regarding this matter, please contact Bianca King London, Environmental Protection Specialist at (225)202-5463.

Sincerely,

Tiffany Spann-Winfield,
Deputy Environmental Liaison Officer, FEMA LRO
FEMA 1603/1607-DR-LA

Distribution: LDEQ, LDWF, USEPA, USACE

Attachments: Aerials of Proposed Project Areas
Scopes of Work for seven (7) sites
CDBG Consultation Letters

Thank you,

Bianca King London
Environmental Protection Specialist
DHS – FEMA LA Recovery Office
1500 Main Street
Baton Rouge, LA 70802
225.202.5463 BB

From: Linda (Brown) Hardy
To: King London, Bianca
Cc: Yasoob Zia
Subject: DEQ SOV 150702/0920 East Carroll Parish Police Jury Drainage Improvements
Date: Wednesday, July 22, 2015 10:36:20

July 22, 2015

Tiffany Spann-Winfield,
Deputy Environmental Liaison Officer, FEMA LRO
1500 Main St
Baton Rouge, LA 70802
bianca.kinglondon@fema.dhs.gov

RE: 150702/0920 East Carroll Parish Police Jury Drainage Improvements
FEMA Funding
East Carroll Parish

Dear Ms. Spann-Winfield:

The Department of Environmental Quality (LDEQ), Business and Community Outreach Division has received your request for comments on the above referenced project.

After reviewing your request, the Department has no objections based on the information provided in your submittal. However, for your information, the following general comments have been included. Please be advised that if you should encounter a problem during the implementation of this project, you should immediately notify LDEQ's Single-Point-of-contact (SPOC) at (225) 219-3640.

- Please take any necessary steps to obtain and/or update all necessary approvals and environmental permits regarding this proposed project.
- If your project results in a discharge to waters of the state, submittal of a Louisiana Pollutant Discharge Elimination System (LPDES) application may be necessary.
- If the project results in a discharge of wastewater to an existing wastewater treatment system, that wastewater treatment system may need to modify its LPDES permit before accepting the additional wastewater.
- All precautions should be observed to control nonpoint source pollution from construction activities. LDEQ has stormwater general permits for construction areas equal to or greater than one acre. It is recommended that you contact the LDEQ Water Permits Division at (225) 219-9371 to determine if your proposed project requires a permit.
- If your project will include a sanitary wastewater treatment facility, a Sewage Sludge and Biosolids Use or Disposal Permit is required. An application or Notice of Intent will be required if the sludge management practice includes preparing biosolids for land application or preparing sewage sludge to be hauled to a landfill. Additional information may be obtained on the LDEQ website at http://www.deq.louisiana.gov/portal/tabid/2296/Default.aspx or by contacting the LDEQ Water Permits Division at (225) 219- 9371.
- If any of the proposed work is located in wetlands or other areas subject to the jurisdiction of the U.S. Army Corps of Engineers, you should contact the Corps directly regarding permitting issues. If a Corps permit is required, part of the application process may involve a water quality certification from LDEQ.
- All precautions should be observed to protect the groundwater of the region.
- Please be advised that water softeners generate wastewaters that may require special limitations

depending on local water quality considerations. Therefore if your water system improvements include water softeners, you are advised to contact the LDEQ Water Permits to determine if special water quality-based limitations will be necessary.

- Any renovation or remodeling must comply with LAC 33:III.Chapter 28, Lead-Based Paint Activities; LAC 33:III.Chapter 27, Asbestos-Containing Materials in Schools and State Buildings (includes all training and accreditation); and LAC 33:III.5151, Emission Standard for Asbestos for any renovations or demolitions.
- If any solid or hazardous wastes, or soils and/or groundwater contaminated with hazardous constituents are encountered during the project, notification to LDEQ's Single-Point-of-Contact (SPOC) at (225) 219-3640 is required. Additionally, precautions should be taken to protect workers from these hazardous constituents.

Currently, East Carroll Parish is classified as attainment with the National Ambient Air Quality Standards and has no general conformity determination obligations.

Please send all future requests to my attention. If you have any questions, please feel free to contact me at (225) 219-3954 or by email at linda.hardy@la.gov.

Sincerely,

Linda M. Hardy
Technical Assistant to the Deputy Secretary
Louisiana Department of Environmental Quality
Office of the Secretary
P.O. Box 4301
Baton Rouge, LA 70821-4301
Ph: (225) 219-3954
Fax: (225) 219-3971
Email: linda.hardy@la.gov

From:	Gutierrez, Raul
To:	King London, Bianca
Cc:	Pitts, Melanie; Holmes, Leschina; Spann, Tiffany
Subject:	RE: Request for Solicitation of View (SOV) for East Carroll Parish Police Jury, Hazard Mitigation Project 1603-0300, Drainage Improvements
Date:	Monday, July 06, 2015 17:07:09
Attachments:	image001.png

The U.S. Environmental Protection Agency (EPA) has completed your request for a review of the solicitation of views concerning the East Carroll Parish Police Jury Hazard Mitigation Project in Lake Providence, Louisiana. The comments that follow are being provided relative to the EPA's *404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material (40 CFR Part 230)* and *Executive Order 11990.*

Our preliminary review revealed that jurisdictional waters of the U.S. may occur on the proposed site. At this time, the EPA recommends coordination with the U.S. Army Corps of Engineers at the Vicksburg District Office to verify if jurisdictional waters of the U.S. occur on site, and which permits, if any, are needed. Thanks for the opportunity to review the proposed project. If you have any questions or would like to discuss the issue further, please do not hesitate to contact me.

Raul Gutierrez, Ph.D.
Wetlands Section (6WQ-EM)
US EPA Region 6
(504) 862-2371

Office:
US Army Corps of Engineers
New Orleans District
CEMVN-OD-SC
Post Office Box 60267
New Orleans, Louisiana 70160-0267

From: King London, Bianca [mailto:bianca.kinglondon@fema.dhs.gov]
Sent: Tuesday, June 30, 2015 10:58 AM
To: Linda.Hardy@la.gov; cmichon@wlf.la.gov; Lennox, Ursula; Gutierrez, Raul; Amy.E.Powell@usace.army.mil
Cc: Pitts, Melanie; Holmes, Leschina; Spann, Tiffany
Subject: Request for Solicitation of View (SOV) for East Carroll Parish Police Jury, Hazard Mitigation Project 1603-0300, Drainage Improvements

June 30, 2015 U.S. Department of Homeland Security

Federal Emergency Management Agency

FEMA-DR 1603/1607 LA

Louisiana Recovery Office

1500 Main St., Baton Rouge, LA 70802

BOBBY JINDAL
GOVERNOR

State of Louisiana
DEPARTMENT OF WILDLIFE AND FISHERIES
OFFICE OF WILDLIFE

ROBERT J. BARHAM
SECRETARY
JIMMY L. ANTHONY
ASSISTANT SECRETARY

Date	July 24, 2015
Name	Bianca King London
Company	FEMA
Street Address	1500 Main Street
City, State, Zip	Baton Rouge, LA70802
Project	East Carroll Parish Police Jury Drainage Improvements FEMA-1603-DR-LA
Project ID	
Invoice Number	15072404

Personnel of the Coastal & Nongame Resources Division have reviewed the preliminary data for the captioned project. After careful review of our database, no impacts to rare, threatened, or endangered species or critical habitats within Louisiana's boundary are anticipated for the proposed project. No state or federal parks, wildlife refuges, scenic streams, or wildlife management areas are known at the specified site within Louisiana's boundaries.

The Louisiana Natural Heritage Program (LNHP) has compiled data on rare, endangered, or otherwise significant plant and animal species, plant communities, and other natural features throughout the state of Louisiana. Heritage reports summarize the existing information known at the time of the request regarding the location in question. The quantity and quality of data collected by the LNHP are dependent on the research and observations of many individuals. In most cases, this information is not the result of comprehensive or site-specific field surveys; many natural areas in Louisiana have not been surveyed. This report does not address the occurrence of wetlands at the site in question. Heritage reports should not be considered final statements on the biological elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments. LNHP requires that this office be acknowledged in all reports as the source of all data provided here. If at any time Heritage tracked species are encountered within the project area, please contact the LNHP Data Manager at 225-765-2643. If you have any questions, or need additional information, please call 225-765-2357.

Sincerely,

for Graham Michel

Amity Bass, Coordinator
Natural Heritage Program

DEPARTMENT OF THE ARMY

VICKSBURG DISTRICT, CORPS OF ENGINEERS
4155 CLAY STREET
VICKSBURG, MISSISSIPPI 39183-3435

REPLY TO
ATTENTION OF:

November 5, 2014

Operations Division

SUBJECT: Request for Additional Information – East Carroll Parish Police Jury, HMGP/CDBG Drainage Improvement Project, East Carroll Parish, Louisiana

Mr. Thomas C. David, Jr.
Pan American Engineers, LLC
1717 Jackson Street
Alexandria, Louisiana 71309-0089

Dear Mr. David:

I refer to your letter requesting a jurisdictional determination for the proposed water system improvements located in East Carroll Parish, Louisiana.

It appears to be jurisdictional waters of the United States, including wetlands, located within the service area. However, due to the limited site specific information provided in your request, Department of the Army regulatory requirements could not be determined for the project at this time. Site specific information should include detailed maps showing the exact location (project boundary) of the proposed work sites. Once we receive this additional information, a determination of permit requirements will be made for the project. Please refer to identification number MVK-2014-1003 when submitting the information.

If you have any questions concerning this matter, please contact Mr. Jim Cole, of this office, telephone (601) 631-5289, fax (601) 631-5459 or email address: jim.l.cole@usace.army.mil.

Sincerely,

Charles R. Allred, Jr.
Chief, Enforcement Section
Regulatory Branch

Carson Schexnaider

From: Linda (Brown) Hardy <Linda.Hardy@la.gov>
Sent: Monday, February 02, 2015 3:54 PM
To: Carson Schexnaider
Subject: FW: DEQ SOV 141201/1585 East Carroll Parish Police Jury Drainage

---

From: Linda (Brown) Hardy
Sent: Monday, December 22, 2014 1:52 PM
To: 'thomas@paealex.com'
Cc: Yasoob Zia
Subject: DEQ SOV 141201/1585 East Carroll Parish Police Jury Drainage

December 22, 2014

Thomas C. David, Jr.
Pan Am Engineers - Alexandria, Inc.
P.O. Box 89
Alexandria, LA 71309-0089
thomas@paealex.com

RE:141201/1585 East Carroll Parish Police Jury Drainage
Improvements Project NO. 18PARA3402
CDBG & DOTD Flood Plain Management Program Funding
East Carroll Parish

Dear Mr. David:

The Department of Environmental Quality (LDEQ), Business and Community Outreach Division has received your request for comments on the above referenced project.

After reviewing your request, the Department has no objections based on the information provided in your submittal. However, for your information, the following general comments have been included. Please be advised that if you should encounter a problem during the implementation of this project, you should immediately notify LDEQ's Single-Point-of-contact (SPOC) at (225) 219-3640.

- Please take any necessary steps to obtain and/or update all necessary approvals and environmental permits regarding this proposed project.
- If your project results in a discharge to waters of the state, submittal of a Louisiana Pollutant Discharge Elimination System (LPDES) application may be necessary.
- If the project results in a discharge of wastewater to an existing wastewater treatment system, that wastewater treatment system may need to modify its LPDES permit before accepting the additional wastewater.
- All precautions should be observed to control nonpoint source pollution from construction activities. LDEQ has stormwater general permits for construction areas equal to or greater than one acre. It is recommended that you contact the LDEQ Water Permits Division at (225) 219-9371 to determine if your proposed project requires a permit.
- If your project will include a sanitary wastewater treatment facility, a Sewage Sludge and Biosolids Use or Disposal Permit application or Notice of Intent must be submitted no later than January 1, 2014. Additional information may be obtained on the LDEQ website at http://www.deq.louisiana.gov/portal/tabid/2296/Default.aspx or by contacting the LDEQ Water Permits Division at (225) 219- 9371.

- If any of the proposed work is located in wetlands or other areas subject to the jurisdiction of the U.S. Army Corps of Engineers, you should contact the Corps directly regarding permitting issues. If a Corps permit is required, part of the application process may involve a water quality certification from LDEQ.
- All precautions should be observed to protect the groundwater of the region.
- Please be advised that water softeners generate wastewaters that may require special limitations depending on local water quality considerations. Therefore if your water system improvements include water softeners, you are advised to contact the LDEQ Water Permits to determine if special water quality-based limitations will be necessary.
- Any renovation or remodeling must comply with LAC 33:III.Chapter 28, Lead-Based Paint Activities; LAC 33:III.Chapter 27, Asbestos-Containing Materials in Schools and State Buildings (includes all training and accreditation); and LAC 33:III.5151, Emission Standard for Asbestos for any renovations or demolitions.
- If any solid or hazardous wastes, or soils and/or groundwater contaminated with hazardous constituents are encountered during the project, notification to LDEQ's Single-Point-of-Contact (SPOC) at (225) 219-3640 is required. Additionally, precautions should be taken to protect workers from these hazardous constituents.

Currently, East Carroll Parish is classified as attainment with the National Ambient Air Quality Standards and has no general conformity determination obligations.

Please send all future requests to my attention. If you have any questions, please feel free to contact me at (225) 219-3954 or by email at linda.hardy@la.gov.

Sincerely,

Linda M. Hardy
Technical Assistant to the Deputy Secretary
Louisiana Department of Environmental Quality
Office of the Secretary
P.O. Box 4301
Baton Rouge, LA 70821-4301
Ph: (225) 219-3954
Fax: (225) 219-3971
Email: linda.hardy@la.gov

BOBBY JINDAL
GOVERNOR

State of Louisiana
DEPARTMENT OF WILDLIFE AND FISHERIES
OFFICE OF WILDLIFE

ROBERT J. BARHAM
SECRETARY
JIMMY L. ANTHONY
ASSISTANT SECRETARY

Date	October 31, 2014
Name	Marcus Guillory
Company	Pan American Engineers
Street Address	P.O. Box 89
City, State, Zip	Alexandria, La 71309
Project	East Carroll Parish Police Jury HMGP/CDBG Drainage Improvements OCD/DRU Project No. 18PARA3402 PAE Job No. 10064
Project ID	
Invoice Number	14103106

Personnel of the Coastal & Nongame Resources Division have reviewed the preliminary data for the captioned project. After careful review of our database, no impacts to rare, threatened, or endangered species or critical habitats are anticipated for the proposed project. No state or federal parks, wildlife refuges, scenic streams, or wildlife management areas are known at the specified site within Louisiana's boundaries.

The Louisiana Natural Heritage Program (LNHP) has compiled data on rare, endangered, or otherwise significant plant and animal species, plant communities, and other natural features throughout the state of Louisiana. Heritage reports summarize the existing information known at the time of the request regarding the location in question. The quantity and quality of data collected by the LNHP are dependent on the research and observations of many individuals. In most cases, this information is not the result of comprehensive or site-specific field surveys; many natural areas in Louisiana have not been surveyed. This report does not address the occurrence of wetlands at the site in question. Heritage reports should not be considered final statements on the biological elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments. LNHP requires that this office be acknowledged in all reports as the source of all data provided here. If at any time Heritage tracked species are encountered within the project area, please contact the LNHP Data Manager at 225-765-2643. If you have any questions, or need additional information, please call 225-765-2357.

Sincerely,

for Coreen Michel

Amity Bass, Coordinator
Natural Heritage Program

USDA

United States Department of Agriculture

October 30, 2014

Mr. Marcus Guillory
Pan American Engineers, LLC
P.O. Box 89
Alexandria, Louisiana 71309

RE: East Carroll Parish Police Jury
Town of Lake Providence – Drainage Improvements
PAE Job No. 10064

Dear Mr. Guillory:

I have reviewed the above referenced project for potential requirements of the Farmland Protection Policy Act (FPPA) and potential impact to Natural Resources Conservation Service projects in the immediate vicinity.

Projects are subject to FPPA requirements if they may irreversibly convert farmland (directly or indirectly) to nonagricultural use and are completed by a federal agency or with assistance from a federal agency. For the purpose of FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance. Farmland subject to FPPA requirements can be forest land, pastureland, cropland, or other land, but not water or urban built-up land.

The project map and narrative submitted with your request indicates that the proposed construction areas are within urban areas and therefore are exempt from the rules and regulations of the Farmland Protection Policy Act (FPPA)—Subtitle I of Title XV, Section 1539-1549. Furthermore, we do not predict impacts to NRCS work in the vicinity.

For specific information about the soils found in the project area, please visit our Web Soil Survey at the following location: http://websoilsurvey.nrcs.usda.gov/

Please direct all future correspondence to me at the address shown above.

Respectfully,

W. [illegible] ACTING FOR

Kevin D. Norton
State Conservationist

Natural Resources Conservation Service
State Office
3737 Government Street
Alexandria, Louisiana 71302
Voice: (318) 473-7751 Fax: (318) 473-7682
An Equal Opportunity Provider and Employer

PAN AMERICAN
ENGINEERS
ALEXANDRIA - INC.
Consulting Professional
Engineers and Land Surveyors

October 22, 2014

Department of Culture, Recreation and Tourism
P.O. Box 44247
Baton Rouge, LA 70804-4247

Attention: Ms. Pam Breaux,
Deputy State Historic Preservation Officer

No known historic properties will be affected by this undertaking. This effect determination could change should new information come to our attention.

Pam Breaux 10-30-14
Pam Breaux Date
State Historic Preservation Officer

Re: East Carroll Parish Police Jury
HMGP/CDBG Drainage Improvements
OCD/DRU Project No. 18PARA3402
PAE Job No. 10064

Dear Ms. Breaux:

This letter is to inform you that East Carroll Parish Police Jury is proposing drainage improvements that will include clearing, de-snagging, culvert cleaning, culvert replacement/upsizing, and channel excavation throughout various drainageways within and near the Town of Lake Providence. All improvements will be funded through the Office of Community Development- Disaster Recovery Community Development Block Grant and the Louisiana Governor's Office of Homeland Security and Emergency Preparedness Hazard Mitigation Grant.

- Project Locations: Improvements will take place within and near the Town of Lake Providence, Louisiana corporate limits.
- Proposed Work: Improvements will consist of clearing, de-snagging, culvert cleaning, culvert replacement/upsizing, and channel excavation within various drainageways. The project also includes roadway, driveway, and sidewalk repairs.
- Proposed Start Date: May 2015 is the anticipated start of construction for the improvements.
- Site Map: Please see attached Project Map for proposed project location.
- Funding Agency: Louisiana Office of Community Development Disaster Recovery Unit and the Governor's Office of Homeland Security and Emergency Preparedness are the funding agencies for this project.

RECEIVED
OCT 27 2014
ARCHAEOLOGY

(Continued)

October 22, 2014

Re: East Carroll Parish Police Jury
HMGP/CDBG Drainage Improvements
OCD/DRU Project No. 18PARA3402
PAE Job No. 10064

No new water wells, storage tanks, process or sanitary water discharges, waste management or air emission sources are proposed as part of this project.

In accordance with 24 CFR Part 58, Environmental Review Procedure, the East Carroll Parish Police Jury is requesting comments from your agency relative to any impact the above described project and work may have on:

1. **Archaeological or Historic Sites or Properties Listed in the National Register or Historic Places or Other Significant Cultural Resources**
2. **Cultural Facilities**

Please review this information and forward your comments to East Carroll Parish Police Jury c/o Pan American Engineers, Attention: Marcus Guillory, P.O. Box 89, Alexandria, Louisiana 71309. If you have any questions or require additional information, please do not hesitate to contact our office for assistance.

Yours very truly,

PAN AMERICAN ENGINEERS, LLC

Thomas C. David, Jr.

TCDJr/sjk
Enclosure

cc: East Carrol Parish Police Jury
Attention: Joseph Jackson, President
(w/Enclosures)

Town of Lake Providence
Attention: Robert Amacker, Jr., Mayor
(w/Enclosures)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS TX 75202-2733

November 14, 2014

Mr. Thomas C. David, Jr.
PAN AMERICAN ENGINEERS
ALEXANDRIA – INC.
P.O. Box 89
Alexandria, LA 71309

Dear Mr. David:

We have received your October 22, 2014, letter requesting our evaluation of the potential environmental impacts that might result from the following project:

Drainage Improvements
Within & Near the Town
OCD/DRU Project No. 18PARA3402
PAE Job No. 10064
East Carroll Parish
Lake Providence, Louisiana

In administering the sole source aquifer (SSA) program under Section 1424 of the Safe Drinking Water Act our Office performs evaluations of projects with federal financial assistance which are located over a designated sole source aquifer.

Based on the information provided, we have concluded that the project does not lie within the boundaries of a designated SSA and is thus not eligible for review under the SSA program.

If you did not include a project description, project location, the parish and the federal funding agency if available, please do so in future SSA correspondence.

If you have any questions on this letter or the SSA program please contact me at (214) 665-7133.

Sincerely yours,

Michael Bechdol, Coordinator
Sole Source Aquifer Program
Ground Water/UIC Section

cc: Jesse Means, LDEQ

PAN AMERICAN
ENGINEERS
ALEXANDRIA - INC.
Consulting Professional
Engineers and Land Surveyors

October 22, 2014

U.S. Fish and Wildlife Service
646 Cajun Dome Blvd., Suite #400
Lafayette, Louisiana 70506

Attention: Ms. Debbie Fuller, Acting Supervisor

Re: East Carroll Parish Police Jury
HMGP/CDBG Drainage Improvements
OCD/DRU Project No. 18PARA3402
PAE Job No. 10064

Dear Ms. Fuller:

This letter is to inform you that East Carroll Parish Police Jury is proposing drainage improvements that will include clearing, de-snagging, culvert cleaning, culvert replacement/upsizing, and channel excavation throughout various drainageways within and near the Town of Lake Providence. All improvements will be funded through the Office of Community Development- Disaster Recovery Community Development Block Grant and the Louisiana Governor's Office of Homeland Security and Emergency Preparedness Hazard Mitigation Grant.

- Project Locations: Improvements will take place within and near the Town of Lake Providence, Louisiana corporate limits.
- Proposed Work: Improvements will consist of clearing, de-snagging, culvert cleaning, culvert replacement/upsizing, and channel excavation within various drainageways. The project also includes roadway, driveway, and sidewalk repairs.
- Proposed Start Date: May 2015 is the anticipated start of construction for the improvements.
- Site Map: Please see attached Project Map for proposed project location.
- Funding Agency: Louisiana Office of Community Development Disaster Recovery Unit and the Governor's Office of Homeland Security and Emergency Preparedness are the funding agencies for this project.

(Continued)

1717 Jackson Street • P.O. Box 89 • Alexandria, LA 71309-0089
318-473-2100 • FAX: 318-473-2275 • www.paealex.com

October 22, 2014

Re: East Carroll Parish Police Jury
HMGP/CDBG Drainage Improvements
OCD/DRU Project No. 18PARA3402
PAE Job No. 10064

No new water wells, storage tanks, process or sanitary water discharges, waste management or air emission sources are proposed as part of this project.

In accordance with 24 CFR Part 58, Environmental Review Procedure, the East Carroll Parish Police Jury is requesting comments from your agency relative to any impact the above described project and work may have on:

1. **Threatened and Endangered Species or Sensitive Habitats**

Please review this information and forward your comments to East Carroll Parish Police Jury c/o Pan American Engineers, Attention: Marcus Guillory, P.O. Box 89, Alexandria, Louisiana 71309. If you have any questions or require additional information, please do not hesitate to contact our office for assistance.

Yours very truly,

PAN AMERICAN ENGINEERS, LLC

Thomas C. David, Jr.

TCDJr/sjk
Enclosure

cc: East Carrol Parish Police Jury
Attention: Joseph Jackson, President
(w/Enclosures)

Town of Lake Providence
Attention: Robert Amacker, Jr., Mayor
(w/Enclosures)

Project Location

East Carroll Parish Police Jury
Project Map
East Carroll Parish Police Jury CDBG/HMGP Drainage System Improvements

Louisiana Ecological Services Office

ESA Technical Assistance Form

General Information

Name: Pan American Engineers, LLC

Point of Contact: Marcus Guillory

Address: 1717 Jackson Street

City: Alexandria **State:** Louisiana **Zip Code:** 71301

Phone Number 1: (318) 473-2100 **Phone Number 2:** _____

Email Address: marcus@paealex.com

Proposed Project Information

Project Reference ID: 3867

Project Latitude: 32.800989 **Project Longitude:** -91.180001

Project Parish(es): East Carroll

Project Description: East Carroll Parish Police Jury is proposing drainage improvements that will include clearing, de-snagging, culvert cleaning, culvert replacement/upsizing, and channel excavation throughout various drainageways within and near the Town of Lake Providence. All improvements will be funded through the Office of Community Development- Disaster Recovery Community Development Block Grant and the Louisiana Governor's Office of Homeland Security and Emergency Preparedness Hazard Mitigation Grant.

Based on the information provided, the proposed project is not an activity that would affect a federally listed threatened or endangered species; nor is there proposed or designated critical habitat present within this Parish.

Therefore, a "no effect" conclusion is appropriate. No further ESA coordination with the Service is necessary for the proposed action, unless there are changes in the scope or location of the proposed project or the project has not been initiated one year from the date of this letter.

If the proposed project has not been initiated within one year, follow-up coordination via this website should be accomplished prior to making expenditures because our threatened and endangered species information is updated annually. If the scope or location of the proposed project is changed, coordination via this website should occur as soon as such changes are made.

This finding completes project review by the Service for effects to Federal trust resources under our jurisdiction and currently protected by the ESA.

Please keep a copy of this pre-development coordination for your records. Do not send it to the Lafayette ES Office.

If you have additional questions, please contact Louisiana ES Office Biological Science Technician at 337/291-3100 for further assistance.

Louisiana Ecological Services Office

ESA Technical Assistance Form

Project Type: HUD Funded and/or Urban Development

Does the project propose to construct new buildings, streets, sidewalks or other urban/suburban infrastructure in an area that has been previously undisturbed? **No**

Does the project propose to obtain, remodel, refurbish, or rehabilitate existing structures in such a way that does not significantly alter the present capacity or use, and does not alter surrounding land areas that were previously undisturbed? **Yes**

APPENDIX E

PUBLIC NOTICE AND FONSI

PUBLIC NOTICE
FEMA NOTICE OF AVAILABILITY
DRAFT ENVIRONMENTAL ASSESSMENT
DRAFT FINDING OF NO SIGNIFICANT IMPACT
MITIGATION PROPOSAL FOR
EAST CARROLL PARISH POLICE JURY DRAINAGE PROJECT
DRAINAGE SYSTEM IMPROVEMENTS AT VARIOUS LOCATIONS
LAKE PROVIDENCE, LOUISIANA

Interested parties are hereby notified that the Federal Emergency Management Agency (FEMA) has prepared a draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) in compliance with the National Environmental Policy Act (NEPA). The purpose of the EA is to assess the effects on the human and natural environment for hazard mitigation and improvements to the drainage system located along seven (7) separate locations within and around the town of Lake Providence, LA - a proposed action for which FEMA is considering providing funding assistance.

The insufficient drainage is due to obstructions, insufficient grading, and undersized and/or clogged culverts. Property owners and residents with homes situated downstream and along the banks of Lake Providence have experienced repeated flood losses of contents and damage to external structures from lake overflows after large amounts of rainfall. After prolonged rainfall, water levels of the lake rise on both sides causing flooding in the immediate and surrounding areas. Since the Tensas Basin controls the flow of the lake water, the parish believes that inadequate water flow causes the lake to rise and flood the areas surrounding the lake. In addition, flow restrictions within the L-25A Canal, which serves as a drainage outfall for parts of the town, could be eliminated to convey water out of town expeditiously. Through these connected projects with additional funding provided by the Community Development Block Grant (CDBG) and the Louisiana Department of Transportation and Development (LDOTD), the East Carroll Parish Police Jury proposes improvements to the overall capacity of the existing drainage system. The Jury and its agents have determined that drainage system improvements could be accomplished via culvert replacement and upsizing, clearing, de-snagging, and channel excavation throughout drainage ways identified as problematic within and around the town of Lake Providence. The improvements proposed in the seven (7) Flood Zone C (unshaded) areas are needed to provide up to a 6.5 inch level of protection for a 10-year, 24-hour storm event.

At 806 Sparrow Street Apartments (Public Housing), the capacity of the open ditch and culverts would be increased to protect 15 apartments and 60 people. At the intersection of Pecan and Burney Streets, between Fourth and Third, the capacity of the open ditch and culverts would be increased to protect approximately five (5) homes and twenty-five (25) people. At Blount Street, between Davis and Hood, the capacity of the open ditch and culverts would be increased to protect approximately three (3) homes and fifteen (15) people. At Gould Street, between First and Bell, the capacity of the open ditch and culverts would be increased to protect approximately eight (8) homes and thirty-two (32) people. At First Street, between Millikin and East, the capacity of the open ditch and culverts would be increased to protect approximately five (5) homes and 30 people. At Millikin Street (formerly known as Blackburn), between Hwy 65 N and First, the capacity of the open ditch and culverts would be increased to protect approximately twelve (12) homes and forty-eight (48) people. At Sixth Street, between Gould and Hudson, the capacity of the open ditch and culverts would be increased to protect approximately three (3) homes and 6 people. The proposed project will require re-grading, widening and deepening of open ditches; the cleaning and repair of existing drainage; the removal and replacement of existing culverts; the installation of headwalls, toe walls, and manholes; the repair of roads; the replacement of walkway culverts with walkway bridges; and the replacement of some driveways along the drainage system improvement routes.

The purpose of the draft EA is to analyze the potential environmental impacts associated with the preferred action and alternatives. The draft EA evaluates a No Action Alternative; the Preferred Action Alternative, which is to improve the drainage system by re-grading, culvert upsizing, widening and deepening of ditches at the seven locations mentioned above; and an Alternative Action, which is the installation of a pump station at the existing drainage influent and pipe to the nearest adequate drainage basin. This alternative was dismissed from further consideration due to excessive cost.

The draft FONSI is FEMA's finding that the preferred action will not have a significant effect on the human and natural environment.

The draft EA and draft FONSI are available for review at the following locations: 1) East Carroll Parish Library at 109 Sparrow Street, Lake Providence, LA 71254, Monday - Friday, 8:00 a.m. – 5:00 p.m., and Saturday, 8:00 a.m. – 12:00 p.m. Tel: (318)559-2615 2) City Hall/Clerk of Court at 201 Sparrow Street, Lake Providence, LA 71254, Monday - Friday, 8:00 a.m. – 4:30 p.m., Tel: (318)559-2042. This public notice will run in the Banner-Democrat on Thursday, July 23, 2015 and Thursday, July 30, 2015, Tel: (318) 559-2750 and in the Monroe News Star on Wednesday, July 22, 2015, Friday, July 24, 2015, and Sunday, July 26, 2015, Tel: (318)322-5161. The documents can also be downloaded from FEMA's website at http://www.fema.gov/resource-document-library. There will be a fifteen (15) day comment period, beginning on July 30, 2015 and concluding on August 13, 2015 at 4 p.m. Comments may be mailed to: DEPARTMENT OF HOMELAND SECURITY-FEMA EHP-East Carroll Parish Drainage, 1500 MAIN STREET, BATON ROUGE, LOUISIANA 70802. Comments may be emailed to: FEMA-NOMA@dhs.gov or faxed to 225-346-5848. Verbal comments will be accepted or recorded at 504-427-8000. If no substantive comments are received, the draft EA and associated FONSI will become final.

U.S. Department of Homeland Security
Louisiana Recovery Office
1500 Main Street
Baton Rouge, Louisiana 70802

Draft FINDING OF NO SIGNIFICANT IMPACT
for the
EAST CARROLL PARISH DRAINAGE IMPROVEMENT PROJECT
LAKE PROVIDENCE, LOUISIANA
HAZARD MITIGATION GRANT PROGRAM
PROJECT NUMBER 1603-0300
FEMA-1603-DR-LA

BACKGROUND

East Carroll Parish is located in the northeastern quadrant of Louisiana, bordering Arkansas to the north, and Mississippi to the east. The East Carroll Parish Drainage Improvement project is located in the town of Lake Providence, in the northeastern portion of the parish. The town of Lake Providence experiences regular and repeated flooding during heavy rain events. In some parts of town, two to three feet of flooding occurs during these events. During more frequent moderate rainfall events, the existing drainage system is inadequate and standing water builds up in yards and roadways. Some portions of the town are located in naturally low lying areas next to a levee which separates citizens and their personal residences from the Mississippi River. For these reasons, the East Carroll Parish Police Jury (Applicant) has requested Federal funding through FEMA's 404 Hazard Mitigation Grant Program to install new drain lines and box culverts that would adequately convey storm water flows and protect the area against the 10 year storm. The proposed mitigation project would improve the drainage by reconfiguring the system in four key areas of the town: two areas would be funded by FEMA and two would be funded by the Office of Community Development's (OCD) Community Development Block Grant (CDBG) Program. In addition, a fourth, connected project area is in progress by the Louisiana Department of Transportation and Development (DOTD). Portions of the four key areas funded by FEMA and CDBG would flow into the L-25A canal DOTD project area.

In accordance with 44 CFR Part 10, FEMA regulations to implement the National Environmental Policy Act (NEPA), an Environmental Assessment (EA) was prepared. The purpose of the EA was to analyze the potential environmental impacts associated with the drainage improvements and to determine whether to prepare an Environmental Impact Statement (EIS) or Finding of No Significant Impact (FONSI). The need for the proposed action is to protect the people and property within the project watershed area by replacing substandard drain lines and box culverts with drain lines and box culverts of current codes and standards; thereby, reducing the risk of future damage from flooding. If left unprotected, future storm events have the potential to repeatedly damage homes and property in this area. The alternatives considered include 1) No Action; 2) Tensas Bayou Improvements, upsizing three (3) culverts along Tensas Bayou Road; and 3) Drainage System Improvements within and around the town of Lake Providence (Proposed Action). Alternative 2 was eliminated from further consideration by the applicant's engineers since it would not solve the repetitive flooding identified on the north side of Lake Providence. Alternative 3 was chosen to include re-grading ditches between culverts and the upsizing of culverts with outfalls in the north at Lake Providence and in the south at the L-25A

DOTD project area. The Hydrology and Hydraulics Drainage study states that there would be no negative impacts to the system downstream of the improvements and only positive impacts to the system located upstream of the improvements.

FINDINGS

FEMA has evaluated the proposed project for significant adverse impacts to geology, soils, water resources (surface water, groundwater, and wetlands), floodplains, coastal resources, air quality, biological resources (vegetation, fish and wildlife, Federally-listed threatened or endangered species and critical habitats), cultural resources, socioeconomics (including minority and low income populations), safety, noise, and hazardous materials. The results of these evaluations as well as consultations and input from other federal and state agencies are presented in the EA.

CONDITIONS

The following conditions must be met as part of the implementation of the project. Failure to comply with these conditions may jeopardize federal funds:

- A delineating line of soil cores, not less than 4in. in diameter, to be conducted prior to the excavations to inform the monitoring and to identify the potential for human burials.

- The presence of archaeological monitors that meet the Secretary of Interior standards during all ground disturbing activities exceeding 15cm (6 inches) depth.

- That fieldwork follow the guidelines provided by the Louisiana Division of Archaeology (http://www.crt.state.la.us/cultural-development/archaeology/section-106/field-standards/index);

- The production of a monitoring report for submission to FEMA that meets Louisiana Division of Archaeology's report standards (http://www.crt.state.la.us/cultural-development/archaeology/section-106/report-standards/index); and
- The curation of all artifacts generated by the project, in compliance with the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation and the Louisiana Division of Archaeology.

- If unmarked graves are present, compliance with the Louisiana Unmarked Human Burial Sites Preservation Act (R.S. 8:671 *et seq*.) is required.

- If the project results in a discharge to waters of the state, submittal of a Louisiana Pollutant Discharge Elimination System (LPDES) application may be necessary.

- If the project results in a discharge of wastewater to an existing wastewater treatment system, that wastewater treatment system may need to modify its LPDES permit before accepting the additional wastewater.

- LDEQ has stormwater general permits for construction areas equal to or greater than one acre. It is recommended that the LDEQ Water Permit Division be contacted at (225) 219-3181 to determine whether the proposed improvements require one of these permits. The contractor is required to implement BMPs that meet the LDEQ permitting specifications for storm water discharge regulated under Section 402 of the CWA.

- Any changes or modifications to the proposed project would require a revised USACE determination. Off-site locations of activities such as borrow disposals, and work mobilization site developments may be subject to the Department of the Army regulatory requirements and may have an impact to a Department of Army project.

- All precautions should be observed to protect the groundwater of the region.

- If any solid or hazardous wastes, or soils and/or groundwater contaminated with hazardous constituents are encountered during the project, notification to LDEQ's Single-Point-of-Contact (SPOC) at (225) 219-3640 is required. Additionally, precautions should be taken to protect workers from these hazardous constituents.

- Construction traffic should be closely monitored and controlled as appropriate. All construction activities would be conducted in a safe manner in accordance with Occupational Safety and Health Act (OSHA) requirements. To alert motorists and pedestrians of project activities, appropriate signage and barriers should be used during construction.

- The applicant must follow all applicable local, state, and federal laws, regulations and requirements and obtain and comply with all required permits and approvals prior to initiating work.

CONCLUSIONS

Based upon the incorporated EA, and in accordance with Presidential Executive Orders 12898 (Environmental Justice), 11988 (Floodplain Management), and 11990 (Wetland Protection), FEMA has determined that the proposed action implemented with the conditions and mitigation measures outlined above and in the EA will not have any significant adverse effects on the quality of the natural and human environment. As a result of this FONSI, an Environmental Impact Statement will not be prepared (44 CFR Part 10.8) and the proposed action alternative as described in the EA may proceed.

APPROVALS

_____

Kevin Jaynes Date
Regional Environmental Officer
Region VI

_____

Thomas “Mike” Womack Date
Director of the Louisiana Recovery Office
FEMA 1603-1607-DR-LA

APPENDIX F

CDBG ENVIRONMENTAL REVIEW RECORD

EXCERPTED SUPPORTING DOCUMENTATION FROM GUSTAV/IKE CDBG – DR ENVIRONMENTAL REVIEW RECORD FOR EAST CARROLL PARISH DOTD DRAINAGE IMPROVEMENTS, DATED FEBRUARY 10, 2015

For a full version of this report, the general public can send a request to FEMA-NOLA@dhs.gov, tel: 504-427-8000, fax: 225-346-5848 or by mail to: DEPARTMENT OF HOMELAND SECURITY-FEMA, ATTN: EHP-East Carroll Parish Drainage, 1500 MAIN STREET, BATON ROUGE, LOUISIANA 70802.

Project Identification

During Hurricane Gustav/Ike, the Town of Lake Providence experienced severe flooding due to slow conveyance of storm water. Flooding is an ongoing problem and causes damage to resident properties. The proposed drainage improvements will increase flow and protect the area against future flooding caused by storm events and disasters. The proposed improvements are designed to eliminate flow restrictions within L-25A Canal.

Target Area:

The Town of Lake Providence suffered significant flooding as a result of Hurricanes Gustav/Ike. The project has an estimated cost of $1,695,151. By carrying out the improvements located along and within the L-25A canal, the flooding within the Town of Lake providence will be relieved by conveying water out of Town quicker. The general location of the project is shown on the "Project Map" included in the appendix.

Project Description:

The East Carroll Parish Police Jury DOTD Drainage System Improvements project is designed to improve the flow of storm water and reduce repetitive flooding within the Town of Lake Providence, Louisiana. The proposed improvements are located along and within L-25A Canal, which serves as a drainage outfall for parts of the Town of Lake Providence. The project begins at the railroad tracks located at the southwest corner of Town and extends to the existing bridge along LA Hwy 3181. In its current condition, L-25A Canal experience less than adequate conveyance of storm water during large rain events such as those associated with Hurricanes Gustav and Ike. The insufficient drainage is due to obstructions, insufficient grading, undersized and/or clogged culverts, etc. The insufficient drainage of L-25A Canal results in storm water backup causing flooding in areas of the Town of Lake Providence.

STATUTORY CHECKLIST

24 CFR §58.5 STATUTES, EXECUTIVE ORDERS & REGULATIONS

Grant Recipient: East Carroll Parish Police Jury **Project Name**: DOTD Drainage System Improvements

Project Description (Include all actions which are either geographically or functionally related):

This activity includes:

- Improvements include clearing, de-snagging, removal of structures and obstructions, channel excavation and widening, and removal and replacement of culverts along and within L-25A Canal.

Location:

- ***L-25A Canal***: along the canal from the railroad tracks located at approximately Latitude 32°48'07.79" N and Longitude 91°11'17.08" W to an existing bridge located along Hwy 3181 at approximately Latitude 32°47'14.9" N and Longitude 91°13'00.8" W.

Compliance Factors: Statutes, Executive Orders, and Regulations listed at 24 CFR §58.5	**N/A**	**Consultation Review, Permits Required**	**Consistency Determination**	**Condition, Mitigation**	**Compliance Documentation**
Historic Preservation [36 CFR Part 800]	A				Pam Breaux, the Deputy State Historic Preservation Officer, stated that there are no known historic properties that would be affected by this undertaking.
Floodplain Management [24 CFR 55, Executive Order 11988]		B			Based on the LSU Ag Center Preliminary Flood map, the project is within a 100-year floodplain and there may be "impacts" to the 100-year floodplain on this project. The Eight Step Process was administered for the DOTD Drainage System Improvements Project.
Wetland Protection [Executive Order 11990]		B			Based upon the information provided to the United States Army Core of Engineers, there are jurisdictional areas within the project boundary subject to regulation pursuant to Section 404 of the Clean Water Act. Any work involving the discharge of dredged or fill material within the limits of the jurisdictional area will require a Department of the Army Section 404 permit prior to beginning work.
Coastal Zone Management Act [Sections 307(c), (d)]	A				Effective October 1, 2012, the Office of Coastal Management has determined that any and all federal financial assistance is consistent with the Louisiana Coastal Resources Program. Coordination with OCM on the matter of financial assistance for this or any future project is not necessary.
Safe Drinking Water Act (42 USC 201, 300(f) & 21 U.S.C. 349)	A				Michael Bechdol, Coordinator Sole Source Aquifer Program Ground Water/UIC Section, concluded that the project does not lie within the boundaries of a designated sole source aquifer.
Sole Source Aquifers [40 CFR 149]	A				Michael Bechdol, Coordinator Sole Source Aquifer Program Ground Water/UIC Section, concluded that the project does not lie within the boundaries of a designated sole source aquifer.
Endangered Species Act [50 CFR 402]	A				The United States Office of Fish and Wildlife Service's online self-assessment tool determined that the proposed project is not an activity that would affect a federally listed threatened or endangered species; nor are there proposed or designated critical habitats present within the parish. Therefore, a "no effect" conclusion is appropriate.
Wild and Scenic Rivers Act [Sections 7(b), and (c)]	A				Project is not located near a Federal Wild and Scenic River (Saline Bayou, located in North-Central Louisiana is the only Federal Wild and Scenic River in the state)
Clean Air Act [Sections 176(c), (d), and 40 CFR 6, 51, 93]	A				Linda Brown Hardy with LDEQ states that East Carroll Parish is currently classified as an attainment parish with the National Ambient Air Quality Standards and has no general conformity determination obligations.

Compliance Factors: Statutes, Executive Orders, and Regulations listed at 24 CFR §58.5	**N/A**	Consultation Review, Permits Required	Consistency Determination	Condition, Mitigation	**Compliance Documentation**
Farmland Protection Policy Act [7 CFR 658]	A				Kevin D. Norton, the State Conservationist, stated that the proposed construction area is within the existing canal right-of-way and therefore exempt from the rules and regulations of the Farmland Protection Act (FPPA) and does not predict impacts to the NRCS work in the vicinity.
Environmental Justice [Executive Order 12898]	A				Per local response dated December 16, 2014 from Elisha Lucas (Parish Secretary-Treasurer), the project will have no impact on demographic characteristics or the community's access to services.
HUD ENVIRONMENTAL STANDARDS					
Noise Abatement and Control [24 CFR 51B]	A				Per Local Response dated December 18, 2014 answered by Ryan McMillan (LDOTD Project Engineer), there are "No Impacts" concerning the effects of local ambient noise on or from the proposed project.
Explosive and Flammable Operations [24 CFR 51C]	A				Per Local Response dated December 18, 2014 answered by Ryan McMillan (LDOTD Project Engineer), the proposed project will not involve any above ground explosives, flammable fuels or chemical containers and is not located near or will require mitigating measure for flammable or explosive material.
Toxic Chemicals and Radioactive Materials [24 CFR 58.5(i)]	A				Per Local Response dated December 18, 2014 answered by Ryan McMillan (LDOTD Project Engineer), there are "No Impacts" on the community with respect to hazardous materials, contamination, toxic chemicals, gasses or radioactive substances.
Airport Clear Zones and Accident Potential Zones [24 CFR 1D]	A				As the project is not within 3000 feet of a civil airport or 15,000 feet of a military airfield, any Airport Clear Zones and Accident Potential Zones should be unaffected.
Solid Waste Disposal	A				Per local response dated December 22, 2014 answered by Ryan McMillan (LDOTD Project Engineer), there will be no impact to the means of disposal for project location solid waste and project will not present an increase in future solid waste to effect or strain existing transport and disposal infrastructure.

PREPARER SIGNATURE: Carson A Schexnaider DATE: 1/21/15

PREPARER NAME: Carson J. Schexnaider

RESPONSIBLE ENTITY AGENCY

OFFICIAL SIGNATURE: _____

NAME, TITLE: Joseph Jackson, President

DATE: 1/21/15

ERR Document VI

12/04 HUD Region

Environmental Assessment Checklist

Project Name and Identification No.:
DOTD Drainage Improvements (18PARA3401)

Impact Categories	IMPACT ANTICIPATED			REQUIRES MITIGATION OR MODIFICATION	NOTE CONDITIONS AND/OR SOURCE DOCUMENTATION THAT SUPPORTS FINDING REFERENCE NOTES
	NONE	MINOR	MAJOR		
Land Development					
Conformance with Comprehensive Plans and Zoning	X				Per Local Response dated December 18, 2014 answered by Ryan McMillan (LDOTD Project Engineer), there will be no impacts to conformance with local comprehensive plans and zoning.
Compatibility and Urban Impact	X				Per Local Response dated December 18, 2014 answered by Ryan McMillan (LDOTD Project Engineer), there will be no impacts to the projects compatibility with the local community and overall society of the urban environment.
Slope	X				Per Local Response dated December 18, 2014 answered by Ryan McMillan (LDOTD Project Engineer), there will be no impacts from or to the project with respect to slope of the local topography.
Erosion	X				Per Local Response dated December 18, 2014 answered by Ryan McMillan (LDOTD Project Engineer), there will be no impacts on existing erosion conditions.
Soil Suitability	X				Per Local Response dated December 18, 2014 answered by Ryan McMillan (LDOTD Project Engineer), there will be no impacts from the suitability of area soil on the geotechnical stability of the construction foundation.
Hazards and Nuisances Including Site Safety	X				Per Local Response dated December 18, 2014 answered by Ryan McMillan (LDOTD Project Engineer), there will be no impacts from the project producing any additional hazards or nuisances to the community
Energy Consumption	X				Per Local Response dated December 18, 2014 answered by Ryan McMillan (LDOTD Project Engineer), there will be no impacts of significance to the current energy consumption of the community.
Noise					
Effects of Ambient Noise on Project and Contribution to Community Noise Levels	X				Per Local Response dated December 18, 2014 answered by Ryan McMillan (LDOTD Project Engineer), there will be no impacts or effects for the project to or from local ambient noise.
Air Quality					
Effects of Ambient Air Quality on Project and Contribution to Community Pollution Levels	X				Linda Brown Hardy with LDEQ states that East Carroll Parish is currently classified as an attainment parish with the National Ambient Air Quality Standards and has no general conformity determination obligations.
Environmental Design, Historic Values and Urban Impact					
Visual Quality Coherence, Diversity, Compatible Use and Scale	X				Per Local Response dated December 18, 2014 answered by Ryan McMillan (LDOTD Project Engineer), there will be no impacts from activities that will negatively affect the aesthetics of its natural and man-made surroundings.
Historic, Cultural and Archaeological Resources	X				Pam Breaux, the Deputy State Historic Preservation Officer, stated that there are no known historic properties that would be affected by this undertaking.
Socioeconomic					
Demographic Character Changes	X				Per local response dated December 16, 2014 from Elisha Lucas (East Carroll Parish Secretary-Treasurer), the project will have no impact that will lead to a demographic character change of the local community.

Environmental Assessment

Impact Categories		IMPACT ANTICIPATED			REQUIRES MITIGATION OR MODIFICATION	NOTE CONDITIONS AND/OR SOURCE DOCUMENTATION THAT SUPPORTS FINDING REFERENCE NOTES
		NONE	MINOR	MAJOR		
Displacement		X				Per local response dated December 16, 2014 from Elisha Lucas (Parish Secretary-Treasurer), the project will have no impacts from the project leading to displacement of residents and/or local governments.
Employment and Income Patterns		X				Per local response dated December 16, 2014 from Elisha Lucas (Parish Secretary-Treasurer), the project will have no impacts on local employment and income patterns.
Community Facilities and Services.						
Educational Facilities		X				Per local response dated December 19, 2014 from Voleria Millikin (School Board Superintendent), the project will cause no impact to local educational facilities.
Commercial Facilities		X				Per local response dated December 16, 2014 from Elisha Lucas (Parish Secretary-Treasurer), the project will have no impact from the project to local commercial business facilities.
Health Care		X				Per local response dated December 16, 2014 from Elisha Lucas (Parish Secretary-Treasurer), the project will have no impact to local healthcare services and facilities.
Social Services		X				Per local response dated December 16, 2014 from Elisha Lucas (Parish Secretary-Treasurer), the project will have no impact to local social services.
Solid Waste		X				Per local response dated December 22, 2014 answered by Ryan McMillan (LDOTD Project Engineer), there will be no impact to the means of disposal for project location solid waste and project will not present an increase in future solid waste to effect or strain existing transport and disposal infrastructure.
Waste Water		X				Per local response dated December 22, 2014 answered by Ryan McMillan (LDOTD Project Engineer), there will be no impact from the project to significantly increase waste water discharged upon local water handling and treating infrastructure.
Storm Water		X				Per local response dated December 22, 2014 answered by Ryan McMillan (LDOTD Project Engineer), there will be no impact from the project resulting in a significant increase of storm water running off into surrounding property and water handling infrastructure.
Water Supply		X				Per local response dated December 22, 2014 answered by Ryan McMillan (LDOTD Project Engineer), there will be no impact from the project upon demand of water supply for the community.
Public Safety	Police	X				Per response dated December 18, 2014 from Wydette Williams, East Carroll Parish Sheriff Department Sheriff, there will be no anticipated impact from the project or additional demand to the local police department.
	Fire		X			Per response dated December 18, 2014 from Wydette Williams, East Carroll Parish Sheriff Department Sheriff, there will be a minor anticipated impact to the local fire department.
	Emergency Medical	X				Per response dated December 18, 2014 from Wydette Williams, East Carroll Parish Sheriff Department Sheriff, there will be no impact from the project or additional demand on the local emergency medical system of personnel and facilities.
Open Space and Recreation	Open Space	X				Per local response dated December 22, 2014 answered by Ryan McMillan (LDOTD Project Engineer), there will be no impact from the project on encroachment of existing open space around the site used by the members of the community.
	Recreation	X				Per local response dated December 22, 2014 answered by Ryan McMillan (LDOTD Project Engineer), there will be no impact from the project that could hinder local recreational activities.
	Cultural Facilities	X				Per local response dated December 22, 2014 answered by Ryan McMillan (LDOTD Project Engineer), there will be no impact upon local cultural facilities.
Transportation			X			Per local response dated December 22, 2014 answered by Ryan McMillan (LDOTD Project Engineer), there will be a minor impact to local transportation systems due to road and railway closure to replace drainage structures

Environmental Assessment

Impact Categories	IMPACT ANTICIPATED			REQUIRES MITIGATION OR MODIFICATION	NOTE CONDITIONS AND/OR SOURCE DOCUMENTATION THAT SUPPORTS FINDING REFERENCE NOTES
	NONE	MINOR	MAJOR		
Natural Features					
Water Resources	X				Per local response dated December 22, 2014 answered by Ryan McMillan (LDOTD Project Engineer), there will be no impact upon the local water supply.
Surface Water	X				Per local response dated December 22, 2014 answered by Ryan McMillan (LDOTD Project Engineer), there will be no impact upon local surface water and the volumes within the community's ponds, lakes and rivers.
Floodplains	X				Based on the LSU Ag Center Preliminary Flood map, the project is within a 100-year floodplain and there may be "impacts" to the 100-year floodplain on this project. The Eight Step Process was administered for the Paris-wide Drainage Project.
Wetlands		X			Based upon the information provided to the United States Army Core of Engineers, there are jurisdictional areas within the project boundary subject to regulation pursuant to Section 404 of the Clean Water Act. Any work involving the discharge of dredged or fill material within the limits of the jurisdictional area will require a Department of the Army Section 404 permit prior to beginning work.
Coastal Zone	X				According to the Coastal Zone Boundary Map originated from the Coastal Zone Act, Louisiana Legislation Act 361, Revised, this project does not lie within a Coastal Area.
Unique Natural Features and Agricultural Lands	X				Kevin D. Norton, the State Conservationist, stated that the proposed construction area is within the existing canal right-of-way and therefore exempt from the rules and regulations of the Farmland Protection Act (FPPA) and does not predict impacts to the NRCS work in the vicinity.
Vegetation and Wildlife	X				The United States Office of Fish and Wildlife Service's online self-assessment tool determined that the proposed project is not an activity that would affect a federally listed threatened or endangered species; nor are there proposed or designated critical habitats present within the parish. Therefore, a "no effect" conclusion is appropriate.

Summary of Findings and Conclusions:
The Environmental Assessment indicates that the proposed activities for this project will have no significant adverse impact on the quality of the human environment. The following environmental conditions were investigated: floodplain location, wetlands, coastal management zones, historical preservation, threatened and endangered species, noise, airport clear zones, prime farmlands, aquifer protection, wild and scenic rivers, toxic chemicals and radiation, explosives and flammables. Local agency project review identified no significant impact issues.

During Hurricane Gustav/Ike, the Town of Lake Providence experienced severe flooding due to slow conveyance of storm water. Flooding is an ongoing problem and causes damage to resident properties. The proposed drainage improvements will increase flow and protect the area against future flooding caused by storm events and disasters. The proposed improvements are designed to eliminate flow restrictions within L-25A Canal.

Summary of Environmental Conditions:
Contact has been made between numerous local, state and federal agencies and it has been determined that there are no environmental conditions of significance to this project's location and activities.

Alternatives:
Determine and describe possible alternatives to the proposed project, including the alternative of not implementing the project. The feasibility of each alternative and the reasons why each should be adopted or rejected should be discussed sufficiently to indicate that an adequate consideration of each alternative has occurred.

Alternative 1: Not construct the project/Status Quo
An alternative that could be considered is to not construct the project. In not constructing this project, the Parish would not be enhancing the flood reduction that the Town of Lake Providence needs in case of future storms. During Gustav/Ike the Town experienced a large amount of flooding that affected large portions of the Town. The completion of this project will enhance the quality of life for the citizens of the Town and provide the Town with adequate drainage to continually serve its citizens.

Alternative 2: Locate the project outside of the floodplain or wetland
Another alternative is to locate the project outside of the floodplain. There are no other site locations that provide the flood control needed in the Town. The proposed location of the project was selected by Parish Leaders and Engineers. For what is proposed to be constructed, there is no other feasible location.

Comparative Analysis:
The L-25A Canal is an existing canal that does not adequately mitigate flooding within the Town of Lake Providence in its current state. The proposed project will greatly enhance the canal's mitigation abilities and enhance the quality of life of the citizens in the Town. In addition, the current canal is already in compliance with current environmental standards and regulations.

Additional Studies Performed (Attach Study or Summary)
All responses from local, state, and federal agencies stated that no adverse impact was anticipated by implemention of the project; therefore no additoinal studies are required.

Mitigation Measures Needed:
All responses from local, state, and federal agencies stated that no adverse impact was anticipated by implemention of the project; therefore no mitigation measures are needed.

Environmental Assessment

1. Is project in compliance with applicable laws and regulations? ☒Yes ☐No

2. Is an EIS required? ☐Yes ☒No

3. Finding of No Significant Impact (FONSI) can be made. Project will not significantly affect the quality of the human environment. ☒Yes ☐No

Prepared By: Carson J. Schexnaider

Title: Grant Administrator

Date: 12/22/14

Reviewed By:
Title:
Date:

East Carroll Parish Police Jury
"DOTD Drainage System Improvements"
FLOODPLAIN & WETLAND
8-STEP PROCESS

Step 1: This action is located in a 100-year floodplain according to the East Carrol Flood Insurance Rate Map (FIRM). The canal is located within an A Zone (An area inundated by 100-year flooding, for which BFEs have not been determined). The proposed project includes clearing, de-snagging, removal of structures and obstructions, channel excavation and widening, and removal and replacement of culverts within L-25A Canal.

Step 2: A public notice describing the project was published in the "The Banner-Democrat" on December 22, 2014. The public notice targeted local residents, including those in the floodplain. A copy of the published notification was kept in the project's environmental review records and attached to this document. The required 15 calendar days were allowed for public comment. The notice included the name, proposed location and description of the activity, and the Parish's contact for information as well as the location and hours of the office at which a full description of the proposed action could be viewed.

Step 3: An alternative that could be considered is to not construct the project. In not constructing this project, the Parish would not be enhancing the flood reduction that the Town of Lake Providence needs in case of future storms. During Gustav/Ike the Town experienced a large amount of flooding that affected large portions of the Town. The completion of this project will enhance the quality of life for the citizens of the Town and provide the Town with adequate drainage to continually serve its citizens.

Another alternative is to locate the project outside of the floodplain. There are no other site locations that provide the flood control needed in the Town. The proposed location of the project was selected by Parish Leaders and Engineers. For what is proposed to be constructed, there is no other feasible location.

Step 4: The project area is already developed. Therefore, the improvements made to the drainage system outside the Town would not likely bring in new developments to the area.

In addition to concerns for life and property, the Town considered the natural values of the floodplain. The natural values of the floodplain include water, biological, and societal resources. Because the proposed project involves improvements to the identified drainageways to increase flow, correct bank failures, reduce frequent maintenance effort, and lower the flood or water surface elevations in the areas where work is to be performed, the project may have an effect on the floodplain, water resources, or societal resources. The department of Wildlife and Fisheries has determined that the proposed project will not have an adverse impact on plant and animal life. The project will also not have an effect on agricultural lands.

Step 5: The proposed project will have no adverse impacts on the natural values of the floodplain; a positive impact is anticipated.

Step 6: Although the drainage improvements are located within the floodplain, the proposed project will have no adverse impact on the floodplain.

The project will act as a positive impact to the environment and action must be taken to correct the deficiencies of the drainage system.

Step 7: It is the determination of the Parish that there is no practicable alternative for locating the project in the flood zone. This is due to: 1) the need to provide adequate drainage that is efficient and reliable enough to withstand the damage of future storms as well as provide aid in recovery efforts; 2) the need to construct an economically feasible project; and 3) the ability to mitigate and minimize impacts on human health, public property, and floodplain values.

On December 22, 2014 the Notice of Proposed Activity was published in the local newspaper with a fifteen (15) day comment period allowed. No concerns were expressed by the public at this time.

Step 8: The project will be implemented. The Town will take an active role in monitoring the construction process to ensure that no unnecessary impacts occur nor unnecessary risks are taken.

Established 1887

John E. Bearden
Publisher

Banner-Democrat

"The Pulse of East Carroll Parish"

313 Lake Street
Lake Providence, Louisiana 71254
Phone: 318-559-2750 • Fax: 318-559-2750

Notice

This is to certify that the attached notice has appeared in this newspaper on the following dates: December 25 2014;

_____ 20____; _____ 20____;

_____ 20____; _____ 20____.

Judy Whitaker
Representative of the Banner-Democrat

Public notice

EARLY NOTICE AND PUBLIC REVIEW OF A PROPOSED ACTIVITY IN A 100-YEAR FLOODPLAIN & WETLAND

East Carroll Parish Police Jury
DOTD Drainage Improvements
Hurricanes Gustav/Ike
Community Development Block Grant-Disaster Recovery Program

To: All Interested Federal, State, and Local Agencies, Groups and Individuals

Issue Date: December 22, 2014

This is to give notice that the East Carroll Parish Police Jury has conducted an evaluation as required by Executive Order 11988 and 11990, in accordance with HUD regulations at 24 CFR 55.20 Subpart C Procedures for Making Determinations on Floodplain and Wetland Management, to determine the potential affect that its activity in the floodplain/wetland will have on the human environment for the following project. The East Carroll Parish Police Jury will be committing Disaster funds, under the FY 2008 Consolidated Security Disaster Assistance and Continuing Appropriation Act, 2009 (PL 110-329), in accordance with the "Notice of Funding Availability" published in the Federal Register on February 13, 2009, to undertake a project known as the "DOTD Drainage System Improvements". During Hurricane Gustav/Ike, the Town of Lake Providence experienced severe flooding due to slow conveyance of stormwater. Flooding is an ongoing problem and causes damage to resident properties within the Town. The proposed drainage improvements will increase flow and protect the area against future flooding caused by storm events and disasters. The proposed improvements are designed to eliminate flow restrictions within L-25A Canal. The project begins at the railroads tracks located at the southwest corner of the Town and extends to the existing bridge along LA Hwy 3181.

There are three primary purposes for this notice. First, people who may be affected by activities in floodplains/wetlands and those who have an interest in the protection of the natural environment should be given an opportunity to express their concerns and provide information about these areas. Second, an adequate public notice program can be an important public educational tool. The dissemination of information about floodplains/wetlands can facilitate and enhance Federal efforts to reduce the risks associated with the occupancy and modification of these special areas. Third, as a matter of fairness, when the Federal government determines it will participate in actions taking place in floodplains/wetlands, it must inform those who may be put at greater or continued risk.

Written comments must be received by the East Carroll Parish Police Jury at the following address on or before January 6, 2015: East Carroll Parish Police Jury, 400 First Street, Lake Providence, LA 71254 and (318) 559-2256, Attention: Elisha Lucas, Parish Administrator, during the hours of 8:30 AM to 4:30 PM Monday through Friday. Comments may also be submitted via email at ecpj400@att.net.

Established 1887

John E. Bearden
Publisher

Banner-Democrat

"The Pulse of East Carroll Parish"

313 Lake Street
Lake Providence, Louisiana 71254
Phone: 318-559-2750 • Fax: 318-559-2750

Notice

This is to certify that the attached notice has appeared in this newspaper on the following dates: January 22 2015;

_____ 20____; _____ 20____;

_____ 20____; _____ 20____.

Judy Whitaker
Representative of the Banner-Democrat

Grant notice

COMBINED NOTICE OF FINDING OF NO SIGNIFICANT IMPACT AND INTENT TO REQUEST FOR RELEASE OF GRANT FUNDS
East Carroll Parish Police Jury
400 First Street
Lake Providence, La 71254
318-559-2256

Notice Issued: Thursday, January 22, 2015

REQUEST FOR RELEASE OF FUNDS: On or about February 10, 2015 the East Carroll Parish Police Jury will submit a request to the Office of Community Development (OCD) for the release of federal funds approved under the Consolidated Security Disaster Assistance a d continuing Appropriations Act (Public Law 110-329), in accordance with the "Notice of Funding Availability" published in the Federal Register on February 13, 2009, for the purpose of a project known as the "DOTD Drainage Improvements." During Hurricane Gustav/Ike, the Town of Lake Providence experienced severe flooding due to slow conveyance of storm water. Flooding is an ongoing problem and causes damage to resident properties. The proposed drainage improvements will increase flow and protect the area against future flooding caused by storm events and disasters. The proposed improvements are designed to eliminate flow restrictions within L- 25A Canal. The project begins at the railroads tracks located at the southwest corner of the town and extends to the existing bridge along LA Hwy 3181.

FINDING OF NO SIGNIFICANT IMPACT: East Carroll Parish Police Jury has determined that the project will have no significant impact on the human environment. Therefore, an Environmental Impact Statement under the National Environmental Policy Act of 1969 (NEPA) is not required. An Environmental Review Record (ERR) that documents the environmental determination for this project is on file at the East Carroll Parish Police Jury, 400 First Street, Lake Providence, LA 71254 and may be examined or copied 8:30 a.m. to 4:30 p.m., Monday through Friday.

PUBLIC COMMENTS: Any individual, group, or agency disagreeing with this determination, or wishing to comment on the project may submit written comments to the East Carroll Parish Police Jury. All comments received by February 6, 2015 will be considered by this office prior to authorizing subinission of a request for release of funds. Commenters should specify which part of this Notice they are addressing.

RELEASE OF FUNDS: The East Carroll Parish Police Jury certifies to OCD that Joseph Jackson, in his capacity as Police Jury President, consents to accept the jurisdiction of the Federal Courts if an action is brought to enforce responsibilities in relation to the environmental review process and that these responsibilities have been satisfied. OCD's approval of the certification satisfies its responsibilities under the National Environmental Policy Act and related laws and authorities, and allows the Parish of East Carroll to use HUD Program Funds.

OBJECTIONS TO RELEASE OF FUNDS: OCD will accept objections to its release of funds and the Parish of East Carroll certification for a period of fifteen days following the anticipated submission date or its actual receipt of the request (whichever is later) only if they are on one of the following bases: (a) the certification was not executed by the Certifying Officer of East Carroll Parish approved by OCD; (b) East Carroll Parish has omitted a step or failed to make a decision or finding required by HUD regulations at 24 CFR Part 58; (c) the grant recipient or other participants in the project have committed funds or incurred costs not authorized by 24 CFR Part 58 before approval of a release of funds by OCD; or (d) another Federal agency acting pursuant to 40 CFR part 1504 has submitted a written finding that the project is unsatisfactory from the standpoint of environmental quality. Objections must be prepared and submitted in accordance with the required procedures (24 CFR part 58, sec. 58.76) and shall be addressed to:

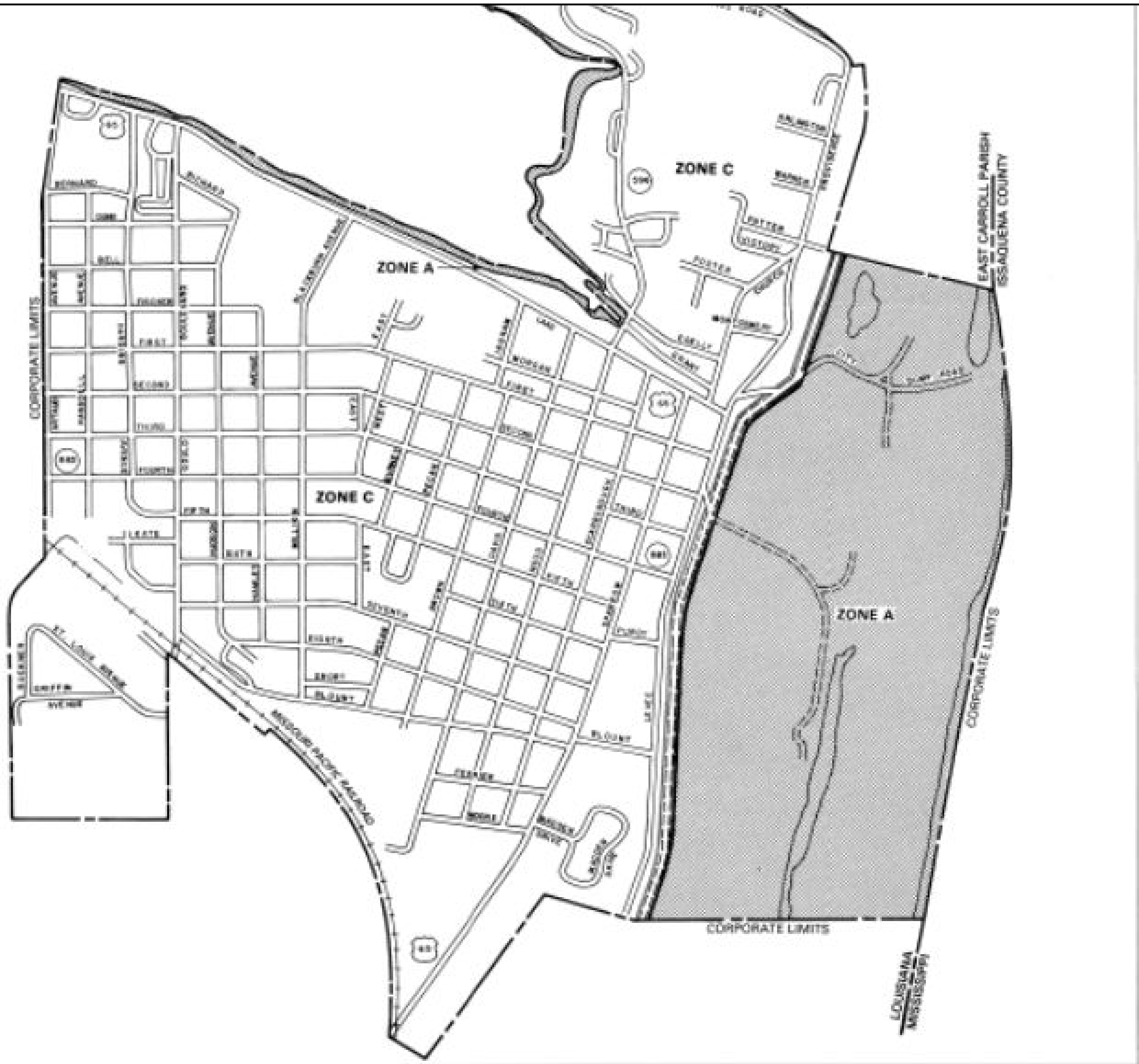
Patrick Forbes
Executive Director
Office of Community Development
617 Third Street, 6th Floor
Baton Rouge, LA 70802

Potential objectors should contact OCD to verify the actual last day of the objection period.

/s/ Joseph Jackson
Joseph Jackson, President
East Carroll Parish Police Jury President

APPENDIX G

FLOOD INSURANCE RATE MAPS



Refer to the FLOOD INSURANCE RATE MAP EFFECTIVE date shown on this map to determine when actual rates apply to structures in the zones where elevations or depths have been established.

To determine if flood insurance is available in this community, contact your insurance agent, or call the National Flood Insurance Program, at (800) 638-6620, or (800) 424-8872.

APPROXIMATE SCALE

800 0 800

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

TOWN OF LAKE PROVIDENCE, LOUISIANA

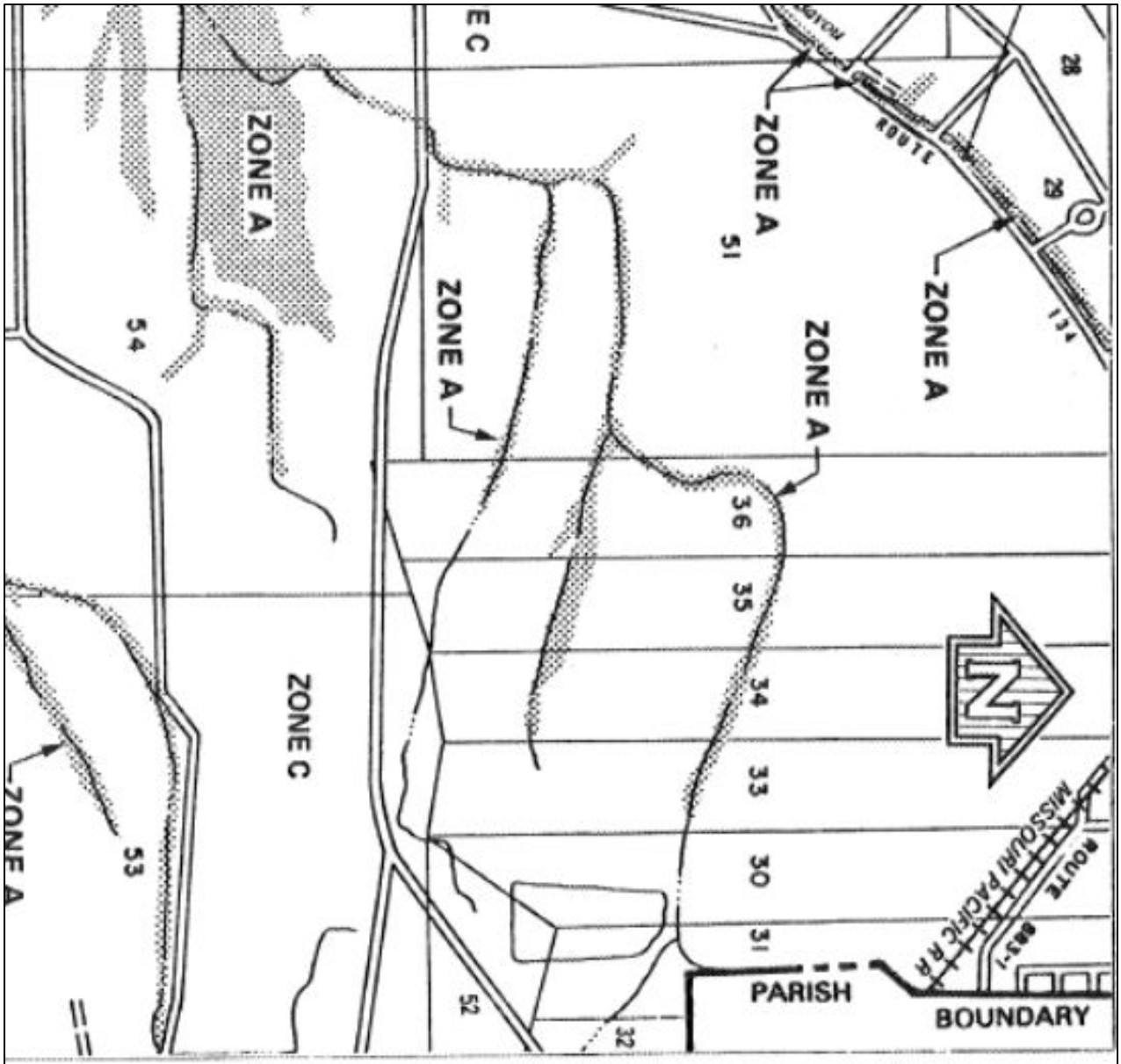
EAST CARROLL PARISH

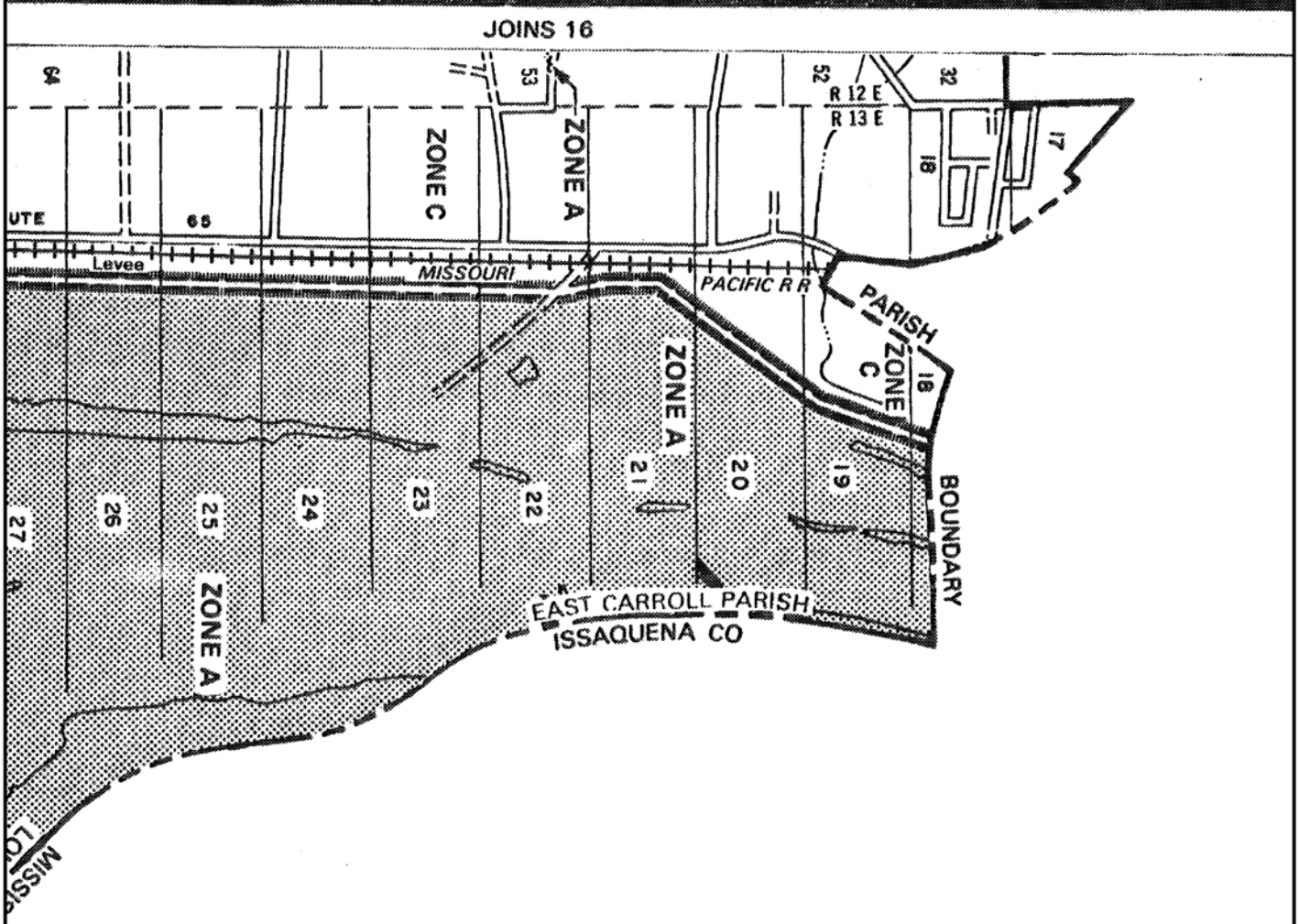
ONLY PANEL PRINTED

COMMUNITY-PANEL NUMBER
220063 0005 A

EFFECTIVE DATE:
OCTOBER 16, 1979

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
FEDERAL INSURANCE ADMINISTRATION


ZONE A
ZONE A
ZONE A
ZONE A
ZONE A
ZONE C
ZONE A
ROUTE
ROUTE
MISSOURI PACIFIC R R
PARISH
BOUNDARY
JOINS 17
APPROXIMATE SCALE
2000 0 2000 4000 6000 FEET
FLOOD INSURANCE RATE MAP
COMMUNITY NUMBER 220062
EFFECTIVE DATE
NOVEMBER 15, 1



2000 0 2000 4000 6000 FEET

FLOOD INSURANCE RATE MAP

EFFECTIVE DATE

federal emergency management agency

EAST CARROLL PARISH, LA

(UNINCORPORTED AREA)

NOVEMBER 15, 1985

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov