Real Estate Plan

INTERM FEASIBILITY REPORT
KANSAS CITYS, MISSOURI AND KANSAS,
FLOOD DAMAGE REDUCTION PROJECT

August 2006

DEPARTMENT OF THE ARMY
Kansas City District, U.S. Army Corps of Engineers
Kansas City, Missouri

REAL ESTATE APPENDIX

KANSAS CITYS MISSOURI AND KANSAS
FLOOD DAMAGE REDUCTION PROJECT

KANSAS CITY, KANSAS AND MISSOURI

REAL ESTATE APPENDIX TO THE INTERM FEASIBILITY STUDY

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REAL ESTATE PLAN

KANSAS CITYS, MISSOURI AND KANSAS
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1. **Purpose of this Real Estate Plan (REP) / Project Identification:** This Real Estate information is provided as an appendix to the Kansas City's Flood Damage Reduction Project authorized by Section 216 of the 1970 Flood Control Act which provides authority to reexamine completed civil works projects and in accordance with ER405-1-12 paragraph 12-16, dated 1 May, 1998. The purpose of this appendix is to include information on any real estate requirements that may be involved for the identified project. Kansas City's Flood Damage Reduction Project is located in Kansas City, Kansas and Kansas City, Missouri. The areas of interest are known as the Argentine Levee Unit, East Bottoms Levee Unit, Fairfax Unit (BPU Flood Wall), Jersey Creek Unit (Sheet Pile Wall), North Kansas City Levee Unit (Harlem) and North Kansas City Levee Unit (National Starch). The Non-Federal Sponsors (NFS) are Kaw Valley Drainage District, North Kansas City Levee District, City of Kansas City Missouri, and Fairfax Drainage District.

2. **Description of Lands, Easements, Rights-of-Way, Relocations, and Disposal Areas LERRD):** Project purposes require acquisition at a minimum of permanent and temporary easements on privately and publicly owned land. There is no fee acquisition expressly for levee right-of-way (r-o-w). Access will be by way of existing levee ramps and public roadways. Estates to be acquired by the NFS(s) are explained below and in **Attachment 2.**

a. Flood Protection Levee / Floodwall Easements. Permanent easement will be taken for the area of interests affected by levee raise (berm placement) and floodwall structures. Time frames will vary for each of the project areas, running from 1 yr. - 2.5 years. No offsite disposal has been identified.

b. Temporary Work Area (Construction) Easements. Temporary easements will be used for borrow, equipment storage, construction vehicles and staging areas. The width of the work area easements will vary but the approximate width is 15-30 feet. Temporary work area easement timeframes will vary for each of the project areas, running from 1 yr. - 2.5 years. No offsite disposal has been identified.

3. **Lands (LER) Owned by the Non-Federal Sponsor:** There are four Non-Federal Sponsors for the Kansas City Levees Project considered under the Interim Feasibility Report.

City of Kansas City, Missouri holds fee ownership over the East Bottoms Levee Unit area of interest for which they are the non-federal sponsor. The ROW designated for the project footprint is sufficient and available for the project.

North Kansas City Levee District holds fee ownership over the North Kansas City Levee Unit area of interest. Part of the right of way is sufficient and available for the project for access and construction work. The sponsor will require additional temporary work area easement and permanent flood protection easement to complete projects.

Kaw Valley Drainage District does not own fee over any of the lands required for the project. They hold permanent flood protect levee easement over the existing project area and will require additional temporary work area easement and permanent flood protection easement to complete the project. Demolition of the KVDD maintenance building (which currently obstructs the recommended Argentine levee raise and pump station work) is to be cost-shared as a construction cost. This demolition is necessary to complete the recommended Federal project. The sponsor must provide all necessary LER to include the area upon which their maintenance building now sits. Therefore, the sponsor should receive LERRD credit for at least the fair market value of the appurtenances it is providing for the project. It is our understanding that the sponsor will rebuild the maintenance building at another site. Although the sponsor will receive a LERRD credit for the value of the building it is giving up, it is not entitled to a "new" replacement building in the Federal construction project. A replacement building could cost more than the appraised fair market value of the current maintenance facility. See 405-1-12, chapter 12 for valuation procedures. Anything built for the sponsor that is above the cost of the fair market value of the current maintenance facility building should be considered a betterment (any betterments are fully paid 100% by sponsor).

Fairfax Drainage District does not own fee over any of the lands required for the project. They hold permanent flood protect levee easement over the existing levee and flood wall project area and will require additional temporary work area easement to complete the project.

4. **Non-Standard Estate:** There will be no non-standard estates proposed for of the project. All estates will conform to those found in Chapter 5 of ER 405-1-2.

5. **Existing Federal Projects:**

ARGENTINE LEVEE UNIT: The Argentine Unit is located in Wyandotte County, Kansas, on the right bank of the Kansas River. The unit begins at the Santa Fe Railroad embankment upstream from the Turner Bridge at a point approximately 1,350 feet east of the mouth of Barber Creek. The beginning portion of the levee unit extends from this point and parallels the Santa Fe Railroad embankment to the Barber Creek mouth. At this point (Kansas River mile 10.1), the levee turns and follows the course of the Kansas River. The levee unit ends on the Kansas River at a point just downstream of the Twelfth Street Bridge (Kansas River mile 4.7). A floodwall containing two stop log gaps cross the train tracks to the south and ties into high ground. Modification and strengthening of works originally constructed by the Kaw Valley Drainage District began in May 1951 and were completed in November 1955 by the Corps of Engineers. More recent improvements, separately authorized as the 1962 Modification, were completed in April 1978. The flood protection facilities consist of levees, stability berms, floodwalls, under seepage control, 2 stop log gaps, 6 pumping plants and 18 drainage structures. The levee is approximately 5.5 miles long. The floodwalls total about 1,350 feet.

The new project area of interest extends the total length of the existing levee unit and is

Identified by levee stationing -01+00 to 289+49. Of the four alternatives analyzed, the NED Plan for Argentine Unit is determined to be 500+3 levee raise. The alternative will encompass a variety of technical fixes to include; stability berms, floodwalls, I-walls, relief wells, buried collector system, stop log gaps modifications, pump station modifications and drainage structures.

LERRD credit has already been claimed for existing right-of-way and the sponsor has the sufficiency to acquire new r-o-w for the proposed project. The minimum estate will be the addition of permanent flood protection easement required for the selected alternative along with temporary work area easements for construction and the borrow area. Acquisition of both will be the responsibility of the NFS. The need for a disposal area has not been identified.

Past and Present Sponsor for this area of interest is Kaw Valley Drainage District and they hold the Flood Protection Levee Easement for this project in perpetuity. Kaw Valley Drainage District has agreements with the railroad if needed to shut down operations at anytime due to flooding. For the proposed alternative, 500+3, some railroad tracks will incur operational interruptions but no relocations. The plan is for the sponsor to work with the RR and minimize down time by doing the work in phases.

EAST BOTTOMS LEVEE UNIT: The East Bottoms Unit is located in Kansas City, Missouri within Jackson County. The unit extends downstream along the right bank of the Missouri River from the Armour-Swift-Burlington (A.S.B.) Bridge, river mile 365.6 (adjusted 1960) to the mouth of the Big Blue River, river mile 357.7 (adjusted 1960). Then the levee turns and heads west upstream along the left bank of the Big Blue River to the Missouri Pacific Railroad embankment. Kansas City, Missouri, passed nine City Council resolutions from 1941 through 1974 to furnish the required sponsorship assurances. The initial construction was completed in September 1950, and the City of Kansas City formally accepted the project on July 30, 1951. The most recent work on the East Bottoms Unit was completed in August 1974. The unit consists of a system of levees, floodwalls, stability berms, retaining walls, under seepage control including 28 relief wells, 3 stop log gaps, 11 pump plants, and 17 drainage structures. The levee portion is about 8.9 miles long. The floodwall portion is approximately 1,750 feet long.

The new project area of interest within this unit is identified by Station 401+00 to 422+00. The NED Plan is the recommended alternative, new relief wells, for the Blue River confluence site in the E. Bottoms Unit.

LERRD has already been claimed for this right of way and the sponsor has the sufficiency to acquire any r-o-w for the new project. No additional permanent easement is requirement and a one-year temporary work area easement for construction staging will be required. Access is available from top of levee and no borrow or disposal area is required.

Past and Present Sponsor: Kansas City, Missouri and owner of the project land. Bayer Chemical Plant borders the area of interest for some distance. To avoid security and HTRW issues with the plant, the temporary work area easement for construction will have to be pursued some distance from the work area.

FAIRFAX UNIT (BPU FLOOD WALL) AND JERSEY CREEK UNIT (SHEET PILE WALL): The Fairfax-Jersey Creek Unit is located on the left bank of the Kansas River from the Missouri Pacific Railroad Bridge (Kansas River mile 0.3) downstream to the mouth of the

Kansas River. It then extends along the right bank of the Missouri River from river mile 367.5 to mile 373.9 (1960 adjusted mileage). The Fairfax Drainage District and the Kaw Valley Drainage District furnished the required assurances of local cooperation for the unit. Initial construction began in April 1940 and was completed in May 1941. Numerous modifications and improvements were constructed in the late 1940s and early 1950s, with the most recent completed in June 1955. The flood protection facilities consist of levees, floodwalls, under seepage control including 113 relief wells, 6 stop log gaps, 1 sandbag gap, 13 pump plants, and 23 drainage structures. The total length of levees is about 4.9 miles and the floodwalls are approximately 4,050 feet. The Fairfax Drainage District provides operation and maintenance.

FAIRFAX UNIT (BPU FLOOD WALL): The new project area of interest within this unit is identified by Station 287+85 to 302+32. The sponsor past and present is Fairfax Drainage District. The recommended alternative (buttress and pile modifications) for the BPU floodwall site is the NED Plan.

LERRD has already been claimed for this right of way and the sponsor has the sufficiency to acquire needed r-o-w for the new project. The recommended alternative, a modified existing floodwall, will require an extension of the current permanent flood protection easement and temporary work area easement. No disposal and borrow areas are required. Access has been negotiated through the Board of Public Utilities facility. Fairfax Drainage District holds the flood protection easement for this project in perpetuity with the Unified Government of Wyandotte County.

JERSEY CREEK UNIT (SHEET PILE WALL): The new project area of interest within this unit is identified by Station 20+00 to 29+00. The sponsor past and present is Kaw Valley Drainage District although the area of interest is within the Fairfax Levee Unit. The NED Plan is the recommended alternative, open cell sheet pile wall, for the Jersey Creek sheet pile site.

LERRD has already been claimed for this right of way and the sponsor has the sufficiency to acquire any needed r-o-w for the new project. The recommended alternative, will replace the current structure with no additions to the current flood protection easement. No borrow or disposal sites are required. Access is available over established city and levee roads.

NORTH KANSAS CITY LEVEE UNITS (HARLEM) AND (NATIONAL STARCH): The North Kansas City – Lower Unit is located in North Kansas City, Missouri within Clay County. The flood protection works extend downstream along the left bank of the Missouri River from the bluff just north of the Kansas City, Missouri Waterworks intake (Sta. 0+00 to Sta. 70+40). It resumes at the Hannibal Bridge (Sta. 210+40) and continues along the left bank of the Missouri River to the hillside ditch (main drainage ditch at the north end of the protected area) and then along the hillside ditch to just west of Cherry Street (Sta. 469+17). This unit was constructed under the jurisdiction of Kansas City, Missouri. City Council passed resolutions in 1948 and 1950 to provide the required assurances of local cooperation for this unit. Construction began in 1946 and KCMO accepted this unit in October 1947. Several improvements have been made since initial construction, with the most recent work being completed in June 1955. Presently, this unit is owned and sponsored by the North Kansas City Levee District. Past Sponsor: City of Kansas City, Missouri. Current Sponsor: North Kansas City Levee District.

NORTH KANSAS CITY LEVEE UNIT (HARLEM): The new project area of interest within this unit is identified by Station 210+00 to 240+00. The sponsor, past and present, and landowner is North Kansas City Levee District. The NED Plan is the recommended alternative, new buried collector system, for the Harlem site.

LERRD has already been claimed for this right of way and the sponsor has the sufficiency to acquire any needed r-o-w for the new project. The recommended alternative will be placed within the current levee toe therefore no additional permanent easement will be required. A thirty-foot temporary work area easement for construction will be required and has been included in the cost estimate. No borrow or disposal sites are required. Access is over established city and levee roads.

NORTH KANSAS CITY LEVEE UNIT (NATIONAL STARCH): The new project area of interest within this unit is identified by Station 245+00 to 280+00. The past and present sponsor and landowner is North Kansas City Levee District. The NED Plan is the recommended alternative, new relief wells and new pump station, for the National Starch site in the North Kansas City Unit.

LERRD has already been claimed for this right of way and the sponsor has the sufficiency to acquire any needed r-o-w for the new project. The recommended alternative will require additional permanent flood protection easement outside the current levee ROW. A thirty-foot temporary work area easement for construction will be required and has been included in the cost estimate. No borrow or disposal sites are required. Access is over established city and levee roads.

6. **Federally-Owned Lands:** There are no federally owned lands in the proposed project areas.

7. **Applicability of Navigational Servitude:** Navigational servitude is not applicable and will not be exercised for in this project.

8. **Project Area Maps:** Project maps are included as Plates 1-10. Real Estate mapping depicts the project area, borrow site, the tracts required to support the project, utilities to be relocated and known HTRW findings. As construction designs are finalized, real estate mapping will be further defined as needed to identify additional permanent ROW, Temporary ROW and staging areas.

9. **Discussion of Induced Flooding:** The feasibility study requires the analysis of any induced damages due to raises in the water surface profile caused by raises of the studied levee unit.

ARGENTINE LEVEE UNIT: The feasibility study is examining the alternatives of raising the Argentine Unit along the Kansas River. Three alternatives are being examined: a raise to the nominal 0.2% chance flood event (500+0 alternative), a raise to the nominal 0.2% chance flood event plus 3.0-feet (500+3 alternative), and a raise to the nominal 0.2% chance flood event plus 5.0-feet (500+5 alternative). The only method for the Argentine raise to impact downstream levee units on the Kansas River (Armourdale and CID) is if additional flow is

forced downstream due to the raise. This can only occur if the failure of the Argentine Unit in the existing conditions is temporarily reducing downstream flows. The Argentine unit in the existing conditions would be the first Kansas River unit in the Kansas City's Flood Damage Reduction Project reach to overtop due to a Kansas River controlled flood event as defined in the current feasibility study. This means that as the Argentine levee overtops and a subsequent breach is cut through the levee, the flow filling the protected area through the breach is taken from the flood hydrograph on the Kansas River. This flow into the Argentine protected area will reduce the flows seen at Armourdale and CID until the Argentine unit is filled. By raising the Argentine Unit to overtop after the downstream units this "relief valve" will be removed from the Kansas River reach of the Kansas City's Flood Damage Reduction Project. This is the only unit in the study that has a possibility of inducing flooding on other nearby units.

The question of whether or not this "extra flooding" on property protected by the Armourdale and CID levees constitutes a taking, was posed to the RE Attorney. The opinion stated, "because the chances of this "extra flooding" occurring are minimal and because the acts of the Government do not constitute an actual invasion and dispossession of the use and occupancy of the property in question, the answer is that this is **not** a taking and therefore no additional real estate is required to pursue this raise of the Argentine levee."

EAST BOTTOMS LEVEE UNIT: As the preferred project alternative, a pressure relief well system, is a technical fix not a structural raise, there will be no cause for induced flooding upstream or downstream of the project.

FAIRFAX UNIT (BPU FLOOD WALL): As the preferred project alternative, replacements and enhanced flood wall, is not a structural raise, there will be no cause for induced flooding upstream or downstream of the project.

JERSEY CREEK UNIT (SHEET PILE WALL): As the preferred project alternative, Sheet pile wall, is not a structural raise, there will be no cause for induced flooding upstream or downstream of the project.

NORTH KANSAS CITY LEVEE UNIT (HARLEM): As the preferred project alternative, a buried collector system, is not a structural raise, there will be no cause for induced flooding upstream or downstream of the project.

NORTH KANSAS CITY LEVEE UNIT (NATIONAL STARCH): As the preferred project alternative, a pressure relief wells system, is not a structural raise, there will be no cause for induced flooding upstream or downstream of the project.

10. **Baseline Cost Estimate for Real Estate:** For summary of total real estate costs see table below. Temporary work area easements and permanent easements will be required and are included in cost estimate along with incidental costs for NFS and in-house Federal administrative costs. When there was an absence of specific information relating to suspect contaminated areas, for this costs estimate, it was prudent to value the land as clean. Known areas of contamination will be avoided to the fullest extent possible. The non-federal sponsor will be responsible for all clean up of environmental contamination and are aware of this fact specifically in the Argentine

Levee Unit, which has the most potential for unknown findings. Also see Paragraph 17 of this REP for more HTRW detail.

Table Summary of Estimated Real Estate Costs for Kansas City's Flood Damage Reduction Project. Costs are estimated in the thousands (1000).

	Argentine	Fairfax	Jersey Creek	East Bottoms	NKC, National Starch	NKC, Harlem		TOTAL
Land Values	$ 844	$ 230	$ -	$ -	$ 48	$ 19		$ 1,141
PL 91-646	$ 646	$ -	$ -	$ -	$ -	$ -		$ 646
Utilities	$ -	$ -	$ -	$ -	$ 41	$ -		$ 41
Contingency	$ 230	$ 52	$ -	$ -	$ 16	$ 3		$ 301
NON Federal Incidental Costs	$ 129	$ 7	$ -	$ 7	$ 10	$ 50		$ 203
Contingency	$ 19	$ 1	$ -	$ 1	$ 2	$ 7		$ 30
Govt. In-house Labor	$ 36	$ 7	$ -	$ 2	$ 6	$ 6		$ 57
Contingency	$ 5	$ 1	$ -	$ -	$ 1	$ 1		$ 8
PED Labor	$ 12	$ 9	$ -	$ 10	$ 9	$ 9		$ 49
TOTAL	$ 1,919	$ 307	$ -	$ 20	$ 133	$ 95		$ 2,474

11. **Anticipated Relocation Assistance:** All Sponsors have been provided information on P.L. 91-646 and are aware of obligation to ensure compliance.

ARGENTINE LEVEE UNIT: There are three alternatives proposed for the Argentine Levee Unit. They are 500 + 0, 500 + 3 and 500 + 5. The 500 nominal raise would not require relocation assistance. The preferred alternative (500 + 3) identifies approximately six (6) structures for possible relocation, totaling approximately 9500 sq ft. of space that could require relocation assistance. All structures identified are out buildings or secondary business structures along the toe of the levee. Additional acreage is not included in this report for relocations of buildings as a high possibility exists for working around the buildings in the PED phase so as to minimize need for removal or relocation. No residential housing will be affected.

EAST BOTTOMS LEVEE UNIT: For the preferred project there will be no relocation assistance required.

FAIRFAX UNIT (BPU FLOOD WALL): For the preferred project there will be no relocation assistance required.

JERSEY CREEK UNIT (SHEET PILE WALL): For the preferred project there will be no relocation assistance required.

NORTH KANSAS CITY LEVEE UNIT (HARLEM): For the preferred project there will be no relocation assistance required.

NORTH KANSAS CITY LEVEE UNIT (NATIONAL STARCH): For the preferred project there will be no relocation assistance required.

12. **Present or Anticipated Mineral Activity:** There is no present or anticipated mineral activity in the vicinity of the proposed areas of interest that will affect construction, operation or maintenance of the project.

13. **Assessment of Sponsor's Acquisition Capabilities:** As detailed in paragraph 1 of this REP, there are four sponsors for the Kansas City's Flood Damage Reduction Project. The Corps has worked with the sponsors to complete the Assessment of Non-Federal Sponsor's Real Estate Acquisition Capabilities. All NFS have the legal authority to acquire and hold title to real property and condemnation authority. None of the sponsors will require USACE assistance with acquiring real estate. Financial capability is addressed in the main report.

14. **Enactment of Zoning Ordinances:** There will be no zoning ordinances enacted to facilitate acquisition of land for the project areas.

15. **Schedule of Land Acquisition**: A time frame for land acquisition has been outlined for each area of interest ranging from 6 months to 2 years. Length of Acquisition time is based on required LERRD of each sponsor. The PDT will develop a detailed acquisition schedules for the non-federal sponsors during PED.

16. **Description of Facility / Utility Relocations:** A Preliminary Attorney's Opinion of Compensability has been prepared and used for the purpose of completing the study and that a final opinions and final relocation determinations will later occur as required by paragraph 12-22 of Engineering Regulation 405-1-12. Any conclusion or categorization contained in this report that an item is a utility or facility relocation to be performed is at the cost of the non-federal sponsor as part of LERRD responsibilities and is preliminary only. The Government will make a final determination of the relocations necessary for the construction, operation or maintenances of the project after further analysis and completion and approval of Final Attorney's Opinions of Compensability for each of the impacted utilities and facilities.

ARGENTINE LEVEE UNIT: The location, size, impact to the utility, ownership of the utility and proposed relocation have been identified and are discussed in the narrative of Appendix A, Chapter 11.3.1, Volume II of the Engineering Report, along with utility uplift areas. Costs for these utilities have been addressed in the total project costs.

All utility lines identified for relocation will be relocated up and over the levee (modified in place) or stabilized underground as needed due to the levee raise. The preliminary attorneys opinion outlines which utility owner(s) have a compensable interest and will received LERRD

Credit for relocation and have been coordinated with the cost estimator and included in the project costs.

Under the NED Plan, two privately owned pump station discharge lines that currently run up and over the levee would be affected by the levee raise. Both lines will need to be elevated further to accommodate the raise. It has been determined that the increase in elevation of the discharge lines will not affect the pumping capacity to the extent that extensive cost increases will be incurred by the private pump station owners. It was also determined that the owners of the pump stations own no real estate interests over the lands on which the pump discharge lines are located and therefore are not entitled to just compensation. Furthermore because these are not public facilities, there is no duty to provide a substitute facility.

Kansas Gas Service (KGS) has three gas lines that must be relocated at this time in order to complete the Kansas City's, Missouri and Kansas Flood Damage Reduction Project. After repeated inquiries to KGS, all that has been provided regarding these pipelines are letters from Kaw Valley Drainage District granting "permission…for installation" for some of the lines in question. Kaw Valley Drainage District, by these letters, did not convey a real estate interest. See City of Wichita v. Kansas Gas and Electric Co., 204 Kan. 546 (1970). Therefore, KGS will need to pay for any relocation costs of its lines unless it can show it has a real property interest (such as an easement) in the area the lines are placed.

Because there has not been specifically authorized legislation regarding the relocation of these Kansas Gas Service gas lines, Kansas Gas Service must have a "compensable interest" to be entitled to provision of a substitute facility in exchange for the facility to be acquired by the Government. A compensable interest is a real property interest recognized under the law of the State where the property to be acquired is located. Since a permit is not considered a compensable interest in most states, the owner of a utility located pursuant to a permit on land belonging to another would probably not have a compensable interest. See Norfolk Redevelopment and Housing Authority v. Chesapeake and Potomac Telephone Company of Virginia, 464 U.S. 30, 104 S.Ct. 304, 78 L.Ed.2d 29 (1983).

No railroads facilities will require relocation due to redesign and alternative selection. Temporary shutdown of some railroad sections may be required in a flooding situation or during short periods of construction. Coordination with the railroad yards will be the responsibility of the NFS along with any cost associated.

The bridges identified on Argentine Levee, Exhibit A-9.1, will require no ramp or embankment changes.

EAST BOTTOMS LEVEE UNIT: For the preferred project there has been no utility or facility relocations identified.

FAIRFAX UNIT (BPU FLOOD WALL): For the preferred project one private electrical line belonging to the Board of Public Utilities (BPU) has been identified for LERRD credit.

JERSEY CREEK UNIT (SHEET PILE WALL): For the preferred project there has been no utility or facility relocations identified.

NORTH KANSAS CITY LEVEE UNIT (HARLEM): For the preferred project there has been no utility or facility relocations identified.

NORTH KANSAS CITY LEVEE UNIT (NATIONAL STARCH): For the preferred project 5 private waterlines have been identified for LERRD credit.

17. <u>Impact from Acquisition from Known Contamination:</u> The National Environmental Policy Act (NEPA) of 1970 mandates that an Environmental Impact Statement (EIS) be prepared for federally funded projects that may be impacted. Completion and acceptance of the final EIS will bring this project into compliance with the NEPA. An HTRW assessment was conducted by the Kansas City District and discusses all study sites. Short summaries of each site are below and see HTRW Appendix for complete details. Areas of contamination will be avoided to the extent possible. If an area cannot be avoided, the non-federal sponsor will be responsible for cleanup. No lands will be acquired until environmental clearances are received.

ARGENTINE LEVEE UNIT: The Argentine levee is heavily industrialized and RCRA sites are present. A review of the both the Reconnaissance Report database search and the Follow-up investigation showed that five facilities are undergoing clean up. These include Ashland Chemical, Harcros Chemical, Sinclair Oil, Fairbanks Morse Pump Corporation, and BNSF Railroad. All of these facilities have groundwater contamination, which has migrated in some cases under the levee towards the Kansas River. Harcros has the potential for soil contamination near levee toe. Based on the construction alternatives for the levee, most contamination has been avoided. One exception is Argentine pump station work near the BNSF Railroad Diesel Shop Facility. All known underground storage tanks listed in the State of Kansas Leaky Underground Storage Tank database have been removed and are considered closed. An auto salvage yard is located near the project footprint, which will have the potential for soil contamination.

FAIRFAX UNIT (BPU FLOODWALL): The HTRW assessment for the Fairfax BPU showed no contamination present in the project area. The power plant has experienced a number of spills on site from the turbine units and other mechanical failures, but these have occurred well away from the floodwall. There are three Williams's petroleum lines on the riverward side of the floodwall that should not impact work.

JERSEY CREEK UNIT (SHEET PILE WALL): This HTRW assessment for the Jersey Creek Sheet Pile Wall area finds that contamination is not anticipated for the project area.

NORTH KANSAS CITY (HARLEM): The HTRW assessment finds there is little potential for contamination to be present in the levee right of way.

NORTH KANSAS CITY (NATIONAL STARCH): The HTRW assessment finds that contamination is not anticipated for this project area. The facility is listed as a RCRA large quantity generator and has an NPDES permit for discharging water to the Missouri River.

EAST BOTTOMS LEVEE UNIT: While HTRW concerns exist for this levee unit; there are no immediate contamination issues present for the project area. The Bayer Facility is adjacent to the levee on the Missouri River and Blue River sides. There are groundwater plumes that extend in various directions and in many cases toward the Missouri River levee. There is no evidence of any plumes present on the property near the Blue River levee side and none are anticipated based on the predominate flow of groundwater toward the Missouri River. No soil contamination is expected within the levee right of way.

18. **Attitude of Landowners:** The Kansas City's Flood Damage Reduction Project is in the feasibility phase so limited contact with the landowners has been initiated to this point. The PDT and sponsors will initiate increased public input during the latter stages of Feasibility, and during Planning, Engineering and Design (PED) Phase.

19. **Risk Notification:** As project alternatives are clearly selected, the non federal sponsors will be issued risk letters explaining the risk of acquiring lands prior to execution of the PCA. The Non-Federal Sponsors, Kansas City, Missouri, Kaw Valley Drainage District, Fairfax Drainage District and North Kansas City Levee District have had many years of experience dealing with the Corps of Engineers on flood damage reduction projects. The staff and contractors hired by the sponsors are veterans of these projects and are aware of the real estate complexities and pitfalls that can occur in real estate acquisition. The Argentine Unit, Kaw Valley Drainage District, will by far have the most risk, but have been through the flood control improvement process previously and understand the process.

20. **Other Relevant Real Estate Issues / Remarks:**

Wetland mitigation acreage of approximately .21 acres has been identified along the Argentine Levee Unit and will be mitigated on existing Kaw Valley Drainage District property. No acquisition is necessary.

Cultural Resources, District Archeologists have researched and preformed field surveys of the areas of interest. Coordination with the Missouri State Historic Preservation Office (SHPO) is ongoing. It has been determined that the project will result in no known adverse effects on historic properties, but appropriate measures will be taken to avoid, minimize or mitigate any effects.

Rights-of-Entry for chemical exploration on the Argentine Levee Unit from private landowners was denied due to the possible liability to the landowners if contamination is found. The sponsor will acquire rights-of-entry during PED. Any contamination found will be addressed for responsibility and clean up at that time.

Unidentified public utilities could be an issue as most of the areas of interest are heavily developed and have been for close to one hundred years. PDT members are working closely with sponsors to identify possible problem areas and avoid or address any utilities in question.

Access to and from and across the levee is by way of city streets leading to gravel access roads maintained by the levee districts. Access is also being worked with landowners adjacent to the project areas of interest such as with the Board of Public Utilities (BPU) on the Fairfax Levee Unit and with National Starch Company on the North Kansas City Levee Unit.

The Final Rule amending 49 CFR Part 24, Uniform Relocation Assistance and Real Property Acquisition Policies Act, discusses the use of waiver valuations for property less than $10,000. This lowers the sponsor appraisal costs and the Corps review costs. For easements valued less than $10,000 the non-federal sponsor will be advised on the use of waiver valuations.

ARGENTINE

Kansas Citys, Missouri and Kansas Flood Damage Reduction Project

Feasibility Study

14 APR 06

Recommended Plan Footprint Mapping

Nom500yr + 3 ft.

Argentine Unit 0+00 to 65+00

NOTES:

1. Utility easements are not shown.
2. Levee raise shown stopping at levee centerline for clarity. Raise actually involves entire levee crown width.

Utility Uplift Concern Area
45+00 to 85+00

Turner Station Pump Plant - no replacement
5'x8'(2) RCB deloading w/ floodwall
Relief Wells (7)

Landside levee raise &
Stability berm
29+70 to 61+00

Buried collector
34+00 to 40+00

Remove & replace
Stoplog

Grout
Existing pipe
13+75

I-wall
-2+00 to 28+30

Turner Bridge

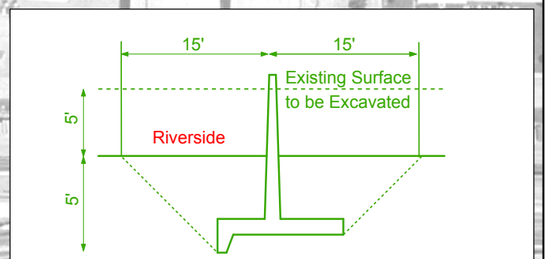
Kansas River

Barber

Creek

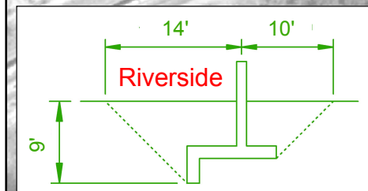
9.2 9.3 9.4 9.5 9.6

65+00 60+00 55+00 50+00 45+00 40+00 35+00 30+00 25+00 20+00 15+00 10+00 5+00 0+00



Floodwall Excavation Footprint
Turner Station, Santa Fe Yard, and
Strong Ave. Pump Plants
(New deloading method)

Excavation dimensions are approximate. May vary depending on new floodwall configuration and site constraints.



Stop Log Excavation Footprint
Upper End
29+02

Excavation dimensions are approximate. May vary depending on new floodwall configuration and site constraints.

Key

- Existing Right of Way
- Temporary Easement Requirement
- 373.6 River Mile Markers
- Utility uplift concern areas within 300' of levee centerline
- Utility Crossings

Existing Levee Features

- P Pump Plant

Existing Levee/Floodwall

- Floodwall
- Levee

Potentially Affected Areas

- Floodwall raise
- Buried collector
- Levee raise
- Soils replacement, Filter blanket
- I-walls

N

Photography Date: 2001

0 100 200 400 Feet

Nominal 500 year plus 3 feet

Station Range Feet	Type of Levee Raise
-2+00 to 28+30	Construct I-wall on levee
28+30 to 29+70	Remove & replace stoplog
29+70 to 61+00	Landside levee raise with berm
59+50 to 61+30	Deloading, floodwall (Turner P. Plant)
61+00 to 118+00	Construct I-wall on levee
118+00 to 245+00	Landside levee raise with berm
245+00 to 251+65	Construct I-wall on levee
251+65 to 253+92	Replace floodwall with levee
257+46 to 259+26	Deloading, floodwall (Santa Fe P. Plant)
253+92 to 276+70	Construct I-wall with rockfill toe
272+51 to 274+31	Deloading, floodwall (Strong Ave. P. Plant)
276+70 to 289+09	Remove & replace floodwall
287+91 to 289+00	Remove & replace stoplog gap
289+09 to 289+40	Construct I-wall on levee

Projection: UTM Zone 15, Feet
Datum: NAD 83

Created by: U.S. Army Corps of Engineers
Kansas City District, GDS Team

Users should refer corrections, additions, and comments for improving this product to:

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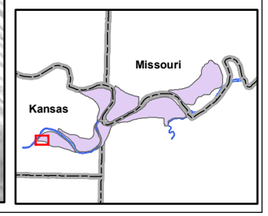

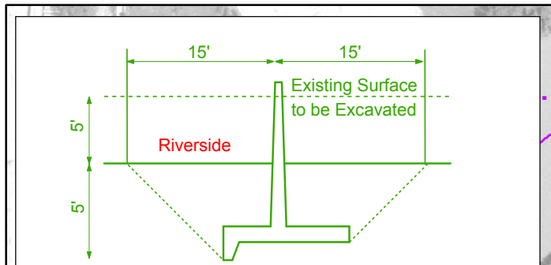

Floodwall Excavation Footprint
Turner Station, Santa Fe Yard, and
Strong Ave. Pump Plants

(New deloading method)

Excavation dimensions are approximate. May vary depending on new floodwall configuration and site constraints.

Kansas Citys, Missouri and Kansas Flood Damage Reduction Project

Feasibility Study

14 APR 06

Recommended Plan Footprint Mapping

Nom500yr + 3 ft.

Argentine Unit
60+00 to 125+00

NOTES:

1. Utility easements are not shown.
2. Levee raise shown stopping at levee centerline for clarity. Raise actually involves entire levee crown width.

Key

- Existing Right of Way
- Temporary Easement Requirement
- 373.6 River Mile Markers
- Utility uplift concern areas within 300' of levee centerline
- Utility Crossings

Existing Levee Features

- P Pump Plant

Existing Levee/Floodwall

- Floodwall
- Levee

Potentially Affected Areas

- Floodwall raise
- Buried collector
- Levee raise
- Soils replacement, Filter blanket
- I-walls

N

Photography Date: 2001

0 100 200 400 Feet

Projection: UTM Zone 15, Feet
Datum: NAD 83

Created by: U.S. Army Corps of Engineers
Kansas City District, GDS Team

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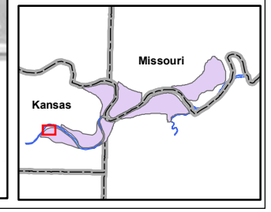

Kansas River

8.9

9.0

9.1

.6

65+00

70+00

75+00

80+00

85+00

90+00

95+00

100+00

105+00

110+00

115+00

120+00

125-

Harcros Plant

Landside levee raise & Stability Berms 118+00 to 245+00

I-wall 61+00 to 118+00

Utility Uplift Concern Area 110+00 to 140+00

Utility Uplift Concern Area 45+00 to 85+00

P

Turner Station Pump Plant - no replacement
5'x8'(2) RCB deloading w/ floodwall
Relief Wells (7)

ARGENTINE

Nominal 500 year plus 3 feet	
Station Range Feet	Type of Levee Raise
-2+00 to 28+30	Construct I-wall on levee
28+30 to 29+70	Remove & replace stoplog
29+70 to 61+00	Landside levee raise with berm
59+50 to 61+30	Deloading, floodwall (Turner P. Plant)
61+00 to 118+00	Construct I-wall on levee
118+00 to 245+00	Landside levee raise with berm
245+00 to 251+65	Construct I-wall on levee
251+65 to 253+92	Replace floodwall with levee
257+46 to 259+26	Deloading, floodwall (Santa Fe P. Plant)
253+92 to 276+70	Construct I-wall with rockfill toe
272+51 to 274+31	Deloading, floodwall (Strong Ave. P. Plant)
276+70 to 289+09	Remove & replace floodwall
287+91 to 289+00	Remove & replace stoplog gap
289+09 to 289+40	Construct I-wall on levee

Kansas Citys, Missouri and Kansas Flood Damage Reduction Project

Feasibility Study

14 APR 06

Recommended Plan Footprint Mapping

Nom500yr + 3 ft.

Argentine Unit
120+00 to 180+00

Nominal 500 year plus 3 feet	
Station Range Feet	Type of Levee Raise
-2+00 to 28+30	Construct I-wall on levee
28+30 to 29+70	Remove & replace stoplog
29+70 to 61+00	Landside levee raise with berm
59+50 to 61+30	Deloading, floodwall (Turner P. Plant)
61+00 to 118+00	Construct I-wall on levee
118+00 to 245+00	Landside levee raise with berm
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251+65 to 253+92	Replace floodwall with levee
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272+51 to 274+31	Deloading, floodwall (Strong Ave. P. Plant)
276+70 to 289+09	Remove & replace floodwall
287+91 to 289+00	Remove & replace stoplog gap
289+09 to 289+40	Construct I-wall on levee

NOTES:

1. **Utility easements are not shown.**
2. **Levee raise shown stopping at levee centerline for clarity. Raise actually involves entire levee crown width.**

Key

- Existing Right of Way
- Temporary Easement Requirement
- 373.6 River Mile Markers
- Utility uplift concern areas within 300' of levee centerline
- Utility Crossings

Existing Levee Features

- P Pump Plant

Existing Levee/Floodwall

- Floodwall
- Levee

Potentially Affected Areas

- Floodwall raise
- Buried collector
- Levee raise
- Soils replacement, Filter blanket
- I-walls

N

Photography Date: 2001

0 100 200 400 Feet

Projection: UTM Zone 15, Feet
Datum: NAD 83

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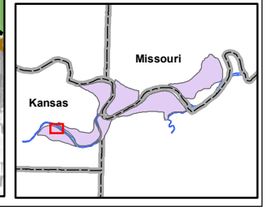

Kansas River

I-635 Bridge

7.5 7.4 7.3 7.2 7.1 7.0 6.9 6.8 6.7

120+00 125+00 130+00 135+00 140+00 145+00 150+00 155+00 160+00 165+00 170+00 175+00 180+00

P P

Landside levee raise & Stability Berms 118+00 to 245+00

Utility Uplift Concern Area 110+00 to 140+00

Con Agra (Privately owned pump plant)

Bulk Mail (Privately owned pump plant)

Underseepage Berm 161+00 to 170+00

Utility Uplift Concern Area 168+00 to 180+00

Buried collector 179+50 to 183+00

ARGENTINE

Kansas Citys, Missouri and Kansas Flood Damage Reduction Project

Feasibility Study

14 APR 06

Recommended Plan Footprint Mapping

Nom500yr + 3 ft.

Argentine Unit
180+00 to 240+00

Nominal 500 year plus 3 feet	
Station Range Feet	Type of Levee Raise
-2+00 to 28+30	Construct I-wall on levee
28+30 to 29+70	Remove & replace stoplog
29+70 to 61+00	Landside levee raise with berm
59+50 to 61+30	Deloading, floodwall (Turner P. Plant)
61+00 to 118+00	Construct I-wall on levee
118+00 to 245+00	Landside levee raise with berm
245+00 to 251+65	Construct I-wall on levee
251+65 to 253+92	Replace floodwall with levee
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253+92 to 276+70	Construct I-wall with rockfill toe
272+51 to 274+31	Deloading, floodwall (Strong Ave. P. Plant)
276+70 to 289+09	Remove & replace floodwall
287+91 to 289+00	Remove & replace stoplog gap
289+09 to 289+40	Construct I-wall on levee

NOTES:

1. **Utility easements are not shown.**
2. **Levee raise shown stopping at levee centerline for clarity. Raise actually involves entire levee crown width.**

Key

- Existing Right of Way
- Temporary Easement Requirement
- 373.6 River Mile Markers
- Utility uplift concern areas within 300' of levee centerline
- Utility Crossings

Existing Levee Features

- P Pump Plant

Existing Levee/Floodwall

- Floodwall
- Levee

Potentially Affected Areas

- Floodwall raise
- Buried collector
- Levee raise
- Soils replacement, Filter blanket
- I-walls

N

Photography Date: 2001

0 100 200 400 Feet

Projection: UTM Zone 15, Feet
Datum: NAD 83

Created by: U.S. Army Corps of Engineers
Kansas City District, GDS Team

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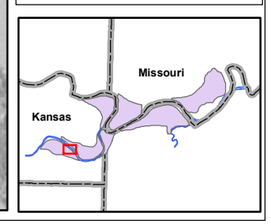


180+00
185+00
190+00
195+00
200+00
205+00
210+00
215+00
220+00
225+00
230+00
235+00
240+00

6.4
6.3
6.2
6.1
6.0
5.9
5.8
5.7
5.6

Buried collector
179+50 to 183+00

Landside levee raise &
Stability berm
118 to 245+00

Filter blanket
202+00 to 207+00

Grout existing pipe
210+73

West Kansas Ave. Bridge

Kansas River

Fairbanks Plant

Sinclair Plant

ARGENTINE

ARGENTINE

Landside levee raise & Stability berm
118 to 245+00

Filter blanket
244+00 to 246+00

I-wall
245+00 to 251+65

Replace floodwall with levee
251+65 to 253+92

Remove and replace Argentine Pump Plant
9.5'x9' RCB

Santa Fe Yards Pump Plant
4'x5' RCB deloading with floodwall

I-wall with
Rock fill toe
253+92 to 276+70

Utility Uplift Concern Area
248+00 to 275+00

Strengthen Strong Ave. Pump Plant
7'x7' RCB Strengthen box and
Deloading with floodwall

Remove & replace floodwall
276+70 to 289+09

Buried collector
278+00 to 289+09

Remove & replace
Stoplog

I-wall
289+09 to 289+40

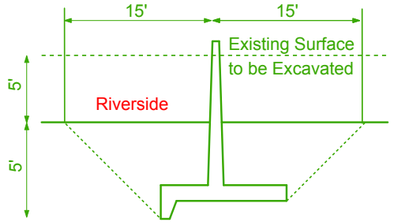
240+00
245+00
250+00
255+00
260+00
265+00
270+00
275+00
280+00
285+00

P
P
P

5.3
5.2
5.1
5.0
4.9
4.8
4.7
4.6

Kansas River
18th St. Bridge
Santa Fe Depot

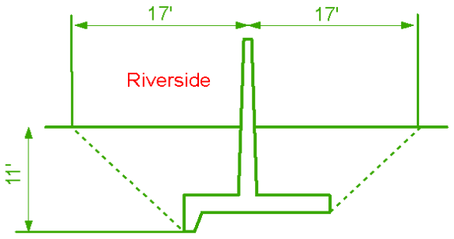
Nominal 500 year plus 3 feet	
Station Range Feet	Type of Levee Raise
-2+00 to 28+30	Construct I-wall on levee
28+30 to 29+70	Remove & replace stoplog
29+70 to 61+00	Landside levee raise with berm
59+50 to 61+30	Deloading, floodwall (Turner P. Plant)
61+00 to 118+00	Construct I-wall on levee
118+00 to 245+00	Landside levee raise with berm
245+00 to 251+65	Construct I-wall on levee
251+65 to 253+92	Replace floodwall with levee
257+46 to 259+26	Deloading, floodwall (Santa Fe P. Plant)
253+92 to 276+70	Construct I-wall with rockfill toe
272+51 to 274+31	Deloading, floodwall (Strong Ave. P. Plant)
276+70 to 289+09	Remove & replace floodwall
287+91 to 289+00	Remove & replace stoplog gap
289+09 to 289+40	Construct I-wall on levee



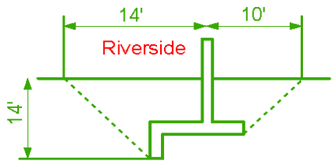
Floodwall Excavation Footprint
Turner Station, Santa Fe Yard, and
Strong Ave. Pump Plants
(New deloading method)

Excavation dimensions are approximate. May vary depending on new floodwall configuration and site constraints.

Argentine Unit
(Existing Structures)



Floodwall Excavation Footprint
Sta. 276+70 to 287+87



Stop Log Excavation Footprint
Sta. 287+87 to 289+09

Excavation dimensions are approximate. May vary depending on new floodwall configuration and site constraints.

Kansas Citys, Missouri and Kansas Flood Damage Reduction Project

Feasibility Study

14 APR 06

Recommended Plan Footprint Mapping

Nom500yr + 3 ft.

Argentine Unit
240+00 to 289+00 (termination)

NOTES:

1. Utility easements are not shown.
2. Levee raise shown stopping at levee centerline for clarity. Raise actually involves entire levee crown width.

Key

- Existing Right of Way
- Temporary Easement Requirement
- 373.6 River Mile Markers
- Utility uplift concern areas within 300' of levee centerline
- Utility Crossings

Existing Levee Features

- P Pump Plant

Existing Levee/Floodwall

- Floodwall
- Levee

Potentially Affected Areas

- Floodwall raise
- Buried collector
- Levee raise
- Soils replacement, Filter blanket
- I-walls

N

Photography Date: 2001

0 100 200 400 Feet

Projection: UTM Zone 15, Feet
Datum: NAD 83

Created by: U.S. Army Corps of Engineers
Kansas City District, GDS Team

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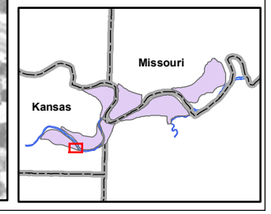

DRAFT
WORKING DOCUMENT

400 100 0 400 800
SCALE IN FEET

PLAN
NORTH

LEGEND

KANSAS CITY'S
MISSOURI AND KANSAS
FLOOD DAMAGE
REDUTION PROJECT

FEASIBILITY STUDY

BORROW AREA
APPROXIMATELY
440 ACRES

OWNERSHIP IS
WATER DISTRICT #1 OF
JOHNSON COUNTY, KANSAS

East Bottoms

Locate relief wells within the existing right of way (Between center of levee and fence). Not proposing to cross into private property limits. Relief well solution

355+00
360+00
365+00
370+00
375+00
380+00
385+00
390+00
395+00
400+00
405+00
410+00
415+00
420+00
425+00
430+00
435+00

357.9
MO. River

Hawthorne Pump Plant

P

Start of Work Area

End of Work Area

Header collection system routed from relief wells to Hawthorne Pump Plant ditch.

Existing Buried Collector System

Blue River

Kansas Citys, Missouri and Kansas Flood Damage Reduction Project

Feasibility Study

14 APR 06

Recommended Plan Footprint Mapping

Missouri and Blue Rivers' Confluence Area

NOTE: Utility easements are not shown.

Key

- Existing Right of Way
- Temporary Easement Requirement
- 373.6 River Mile Markers

Existing Levee Features

- P Pump Plant

Existing Levee/Floodwall

- Floodwall
- Levee

Potentially Affected Areas

- Relief Wells Points

N

Photography Date: 2001

0 100 200 400 Feet

Projection: UTM Zone 15, Feet
Datum: NAD 83

Created by: U.S. Army Corps of Engineers
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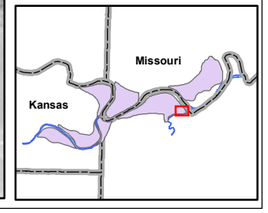


Missouri River

373.8 373.7 373.6 373.5 373.4 373.3

305+00 300+00 295+00 290+00 285+00 280+00

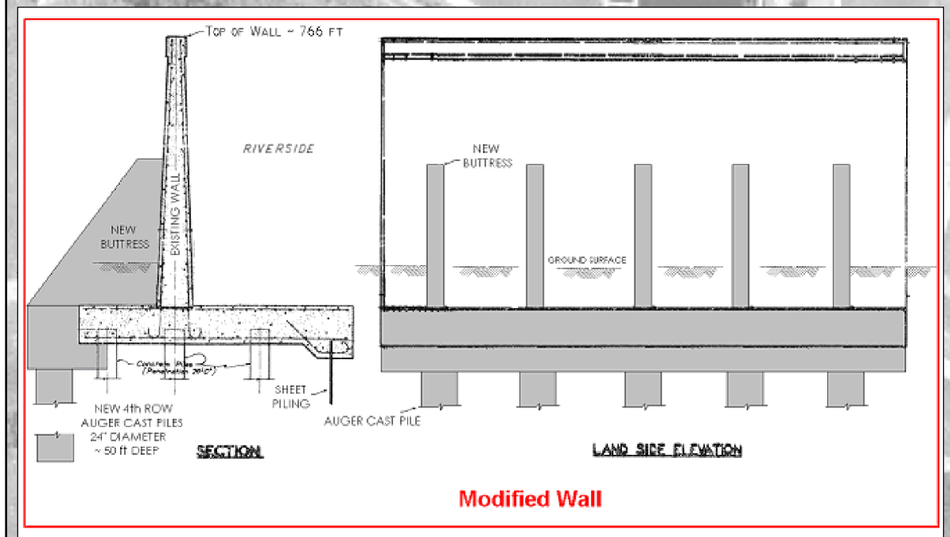
P

Old Kansas City, Kansas Waterworks
Abandoned pump house
(Basement to be filled)

End of Floodwall

Start of Floodwall

Modify Existing Floodwall



Modified Wall

Fairfax
Jersey Creek

Kansas Citys, Missouri and Kansas Flood Damage Reduction Project

Feasibility Study

14 APR 06

Recommended Plan Footprint Mapping

Fairfax BPU Area

NOTE: Utility easements are not shown.

Key

- Existing Right of Way
- Temporary Easement Requirement
- 373.6 River Mile Markers

Existing Levee Features

- P Pump Plant

Existing Levee/Floodwall

- Floodwall
- Levee

Potentially Affected Areas

- Modify Existing Floodwall

N

Photography Date: 2001

0 50 100 200 Feet

Projection: UTM Zone 15, Feet
Datum: NAD 83

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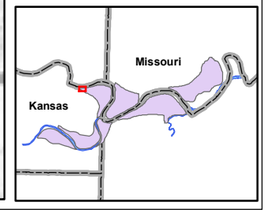

Fairfax
Jersey Creek

35+00

30+00

25+00

20+00

15+00

10+00

P

STA 29+98
End Sheetpile

Jersey Creek Outfall

All Work within Existing Right of Way

Wharf Area

STA 23+30
End Wharf

STA 17+70
Start Wharf

STA 15+70
Begin Sheetpile

Driven Sheetpile
Wall System

Missouri River

367.9

367.8

367.7

367.6

Sheetpile and Wharf Improvements between STA 17+70 to STA 23+30 to be performed by others. Not included within Federal Cost Shared Project.

Kansas Citys, Missouri and Kansas Flood Damage Reduction Project

Feasibility Study

14 APR 06

Recommended Plan Footprint Mapping

Fairfax/Jersey Creek Sheetpile Wall Area

NOTE: Utility easements are not shown.

Key

- Existing Right of Way
- Temporary Easement Requirement
- 373.6 River Mile Markers

Existing Levee Features

- P Pump Plant

Existing Levee/Floodwall

- Floodwall
- Levee

Potentially Affected Areas

Driven Sheetpile

- Above ground
- Below ground

Driven Sheetpile, Wharf Area

- Above ground
- Below ground

N

Photography Date: 2001

0 50 100 200 Feet

Projection: UTM Zone 15, Feet
Datum: NAD 83

Created by: U.S. Army Corps of Engineers
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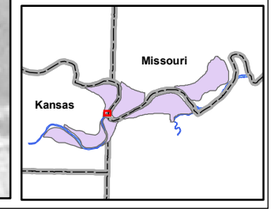

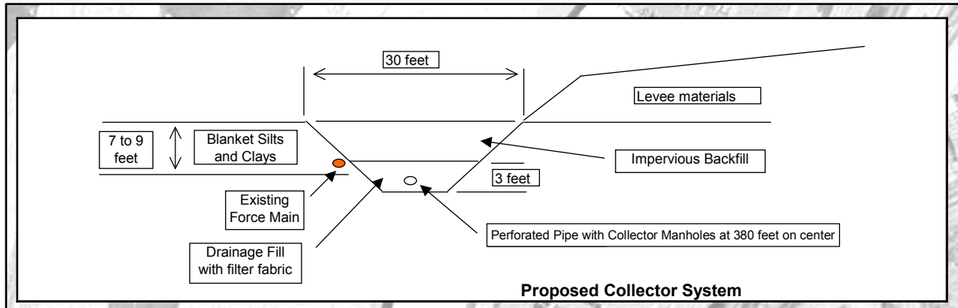

Proposed Collector System

North Kansas City

Existing Harlem Sanitary Pump Station

Existing 8" Force Main 4 ft deep

End of work Area

245+0

240+00

235+00

230+00

225+00

220+00

215+00

210+00

205+00

200+00

New pumping vaults along buried collector alignment not shown.

Start of Work Area

Existing 8" Force Main 4 ft deep

Broadway Bridge

Hannibal Bridge

A.S.B. Bridge

Heart of America Bridge

Missouri River

365.6

365.7

365.8

365.9

366.0

Kansas Citys, Missouri and Kansas Flood Damage Reduction Project

Feasibility Study

14 APR 06

Recommended Plan Footprint Mapping

Harlem Area

NOTE: Utility easements are not shown.

Key

- Existing Right of Way
- Temporary Easement Requirement
- 373.6 River Mile Markers

Existing Levee Features

- P Pump Plant

Existing Levee/Floodwall

- Floodwall
- Levee

Potentially Affected Areas

- Buried collector
- Existing Power Poles

N

Photography Date: 2001

0 75 150 300 Feet

Projection: UTM Zone 15, Feet
Datum: NAD 83

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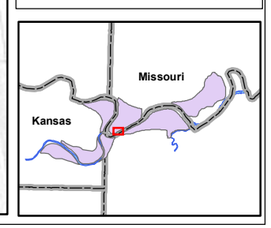
United States Army Corps of Engineers, Kansas City District,
601 East 12th, Room 812, Kansas City, Missouri, 64106



North Kansas City

Proposed Relief Well and Collector System - Flows to Pump Station

End of Work Area

280 ft offset from C/L of levee

Proposed Pump Station

Start of Work Area

290+00

285+00

280+00

275+00

270+00

265+00

260+00

255+00

250+00

245+00

P

Paseo Bridge

Missouri River

364.7

364.8

364.9

365.0

Kansas Citys, Missouri and Kansas Flood Damage Reduction Project

Feasibility Study

14 APR 06

Recommended Plan Footprint Mapping

National Starch Area

NOTE: Utility easements are not shown.

Key

- Existing Right of Way
- Temporary Easement Requirement
- 373.6 River Mile Markers

Existing Levee Features

- P Pump Plant

Existing Levee/Floodwall

- Floodwall
- Levee

Potentially Affected Areas

- Relief Wells Points

N

Photography Date: 2001

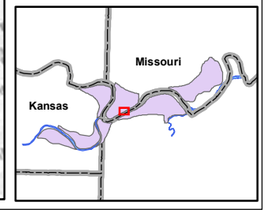
0 75 150 300 Feet

Projection: UTM Zone 15, Feet
Datum: NAD 83

Created by: U.S. Army Corps of Engineers
Kansas City District, GDS Team

Users should refer corrections, additions, and comments for improving this product to:

GDS Coordinator,
United States Army Corps of Engineers, Kansas City District,
601 East 12th, Room 812, Kansas City, Missouri, 64106



LERRD Descriptions
Kansas City's Levee Flood Reduction Project
Interim Feasibility Report

Summary of physical features and LERRD requirements.

Argentine Unit - 500+3 Levee Raise (NED Plan)

Station Range	Physical Features	LERRD Requirement	Ownership	Acres/Notes
-2+00 to 28+30	I-wall	Temp Work Area Easement	Private	.30 acre
28+30 to 29+70	Stop Log Gap	Temp Work Area Easement	Railroad	.10 acre
29+70 to 61+00	Landside Raise w/Berm	Flood Protection Levee Easement	Private	3.6 0 Perm Easement
		& Temp. Work Area Easement	Private	1.2 0 Temp Easement
61+00 to 118+00	I-wall	No LERRD, Within ROW	N/A	N/A
118+00 to 245+00	Landside Raise w/Berm	Flood Protection Levee Easement	Private	10.00 Perm Easement
		& Temp Work Area Easement	Private	5.90 Temp Easement
245+00 to 251+65	I-wall	No LERRD, Within ROW	N/A	N/A
251+65 to 253+92	Raise Floodwall	No LERRD, Within ROW	N/A	N/A
253+92 to 276+70	I-wall on Modified Levee	Temp Work Area Easement	RR	.30 acre
276+70 to 289+09	Remove and Raise Floodwall & Gap	Temp Work Area Easement	RR	.30 acre
289+09 to 289+40	I-wall	Temp Work Area Easement	RR	.30 acre

East Bottoms Unit – Relief Wells

Station Range	Physical Feature	LERRD Requirement	Ownership	Acres/Notes
400+00 to 422+00	Relief Wells	No LERRD, Within ROW	Sponsor	N/A

Jersey Creek Unit - Sheet pile Wall

Station Range	Physical Feature	LERRD Requirement	Ownership	Acres/Notes

Attachment 2

22+00 to 30+00	Sheet Pile Wall	No LERRD, Within ROW	Sponsor	N/A

North Kansas City (Harlem) – Buried Collector

Station Range	Physical Feature	LERRD Requirement	Ownership	Acres/Notes
212+00 to 239+00	Buried Collector	Temp Work Area Easement	Private	2.5 acres

North Kansas City (National Starch) - Relief Wells

Station Range	Physical Feature	LERRD Requirement	Ownership	Acres/Notes
260+00 to 275+00	Relief Wells	Flood Protection Levee Easement & Temp Work Area Easement	Private	.43 Perm Easement 1.06 Temp Easement

Fairfax Unit (BPU) - Floodwall

Station Range	Physical Feature	LERRD Requirement	Ownership	Acres/Notes
287+00 to 302+00	Modified Flood Wall	Temp Work Area Easement	Local Government	2.0 acres