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Landing Park Modifications
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KNOXVILLE SOUTH WATERFRONT DEVELOPMENT SUTTREE LANDING PARK MODIFICATIONS

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

Knoxville, Tennessee

Prepared by:
TENNESSEE VALLEY AUTHORITY
Knoxville

October 2014

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Purpose and Need for Action

The Tennessee Valley Authority (TVA) has received an application from the City of Knoxville (City) for approval by TVA under Section 26a of the TVA Act for modifications to a portion of the Knoxville South Waterfront Public Improvements project, approved by TVA and U.S. Department of Army, Corps of Engineers (USACE) in 2012. Modifications are proposed to the project's Middle Section (previously identified as projects 9 and 10), an area to be named Suttree Landing Park (previously named River Plain Park and Lincoln Landing). The project area is approximately 13 acres in size and is located along the river waterfront just east of downtown Knoxville, between Tennessee River Miles (TRM) 648.0 left bank (L) and 648.5L, on Fort Loudoun Reservoir (see Figure 1).

The Suttree Landing Park is a proposed public park providing river access and recreation facilities, including walking paths, an event lawn, a play area, picnic tables, river overlooks, a viewing terrace, a ramp, and a dock. The City requests approval for changing the elevation of the walking path, increasing the deposition of fill along the shoreline and within the floodplain, altering the bank stabilization design, modifying parking areas, adding the viewing terrace, dock and concrete kayak launching ramp, and installing a landscape irrigation system. To consider these modifications, TVA is supplementing the 2010 environmental assessment (EA) completed by USACE and adopted by TVA that analyzed the potential environmental impacts of the City's public improvement project.

TVA holds flowage easement rights over land associated with these developments that allow TVA to flood property to elevation 822 feet above mean sea level (msl). The 100-year floodplain elevation at this location is also 822 feet above msl. Under Section 26a of the TVA Act, TVA requires that no dam, appurtenant work, or other obstructions affecting navigation, flood control, public lands, or reservations be constructed and thereafter operated or maintained across, along, or in the Tennessee River or any tributaries, unless plans for such construction, operation, and maintenance have been submitted to and approved by TVA. TVA's review and approval of projects under Section 26a ensure that the activities do not have a negative impact to the waterways in the project area and to TVA's management of Tennessee River system as a whole. Along regulated rivers and TVA reservoirs, jurisdiction is applied to the limits of the 500-year floodplain or to the upper limits of TVA's flowage rights, whichever is higher. Therefore, TVA has jurisdiction over the area of the proposed project and must consider whether to approve or deny the City's requested modifications. TVA's interest in this project also arises from its commitment to support sustainable economic growth and to provide for public infrastructure needs within the Tennessee Valley. These decisions would serve the public's interest and improve the area's economic base and is therefore consistent with TVA's policies and goals for regional economic development.

The Knoxville South Waterfront Development project is an effort to enhance and develop several areas of South Knoxville along the southern bank of the Tennessee River. The overall plan for the project includes a riverwalk along the shoreline;

several parks and water access points; public improvements for streets, sidewalks, bikeways, parking and private development that would add new housing units, retail and office space, and entertainment opportunities over 20 years. The City's objectives for the Suttree Landing Park portion of the waterfront development plan include providing a community park and recreation facilities. In addition, the project would improve and develop a former industrial site that has been identified by the State of Tennessee as a Brownfield site. The plan would also improve the project area's storm water management system with improved run-off and water quality.



Figure 1. Suttree Landing Park Location

Proposed Action

The City of Knoxville proposes the following modifications to the previously issued permit:

- Elevation changes to the River Walk previously permitted by TVA
- An increase in the net fill of materials from 770 cubic yard of material filled riverward of the existing normal pool elevation to approximately 1,720 cubic yards filled riverward.
- Additional fill of approximately 3,520 cubic yards of material to be placed between the existing normal pool and the 100-year flood elevation; previously, no fill had been proposed in this area.
- The addition of a floating dock structure (20 feet by 40 feet with a 45-foot gangplank and a total landward extension of 85 feet).

- The addition of landscape irrigation system with intake.
- Modifications to the layout of parking areas and approaches.

See Attachment 1 for the design plans of proposed park which incorporate these modifications.

Background

In 2006, the City of Knoxville adopted a revitalization plan to improve the south Knoxville waterfront area over a 20-year period. The City's South Knoxville Waterfront Development Department proposes a series of public improvement projects. Phase 1 of the development plan involves construction of several land and water features along the Tennessee River in three areas: a lower section in the vicinity of Gay and Henley Streets, the middle section known as Suttree Landing Park, and the upper section known as Baker Creek Landing.

As part of its comprehensive development process, the City submitted a joint permit application in July 2008 to TVA and USACE for approval pursuant to their respective authorities. In response, and as noted above, the USACE prepared an EA to evaluate the potential environmental impacts for the City's proposed actions. The USACE was the lead federal agency in completion of the EA; TVA served as a cooperating agency. In 2010, TVA adopted the EA and signed a Finding of No Significant Impacts (FONSI). See:

http://www.tva.com/environment/reports/s_knox_waterfront/index.htm

TVA issued the City of Knoxville a Section 26a permit for the waterfront development project in 2012. The permit was reissued by TVA on July 22, 2013, wherein TVA approved a minor change in the mitigation requirements for addressing impacts to wetlands in the middle section of the project. Specifically, TVA modified the terms of the 2010 FONSI document to require that the City purchases 0.28 credits from the Lick Creek Mitigation Bank to compensate for impacts to 0.14 acres of wetland at the 2:1 ratio. The original mitigation measure identified in the 2010 FONSI called for the City to create a new wetland area at a 3.45:1 ratio. In its 2013 permit renewal, TVA also brought forward approval of all project actions.

The USACE authorized the City's activities by issuing permit (LRN-2008-00886) on July 23, 2011.

Relevant Permits and Approvals

As previously noted, TVA must approve the City's proposed project modifications under Section 26a of the TVA Act and the USACE must provide approval under Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act.

Accordingly, on January 29, 2014, the USACE and TVA issued a joint Public Notice requesting comment on the City's application. Only the U.S. Fish and Wildlife Service (FWS) responded to the notice. In their March 1, 2014 email, the FWS stated that their database does not indicate any currently federally listed species in the vicinity of the project that would be impacted by the project, and that there would not be adverse effects to any federally listed threatened or endangered species. Therefore, the FWS does not object to the project.

TVA is also the lead agency for consultation under Section 106 of the National Historic Preservation Act (NHPA) for this project. As described in greater detail below, TVA and USACE archaeologists reviewed the project in 2008 and entered into a programmatic agreement (PA) in 2010 with the Tennessee State Historic Preservation Officer (SHPO) pursuant to 36 CFR Part 800. Supplemental analysis relating to cultural resources is provided below. Federally recognized Indian tribes were also contacted, pursuant to 36 CFR Part 800.3(f)(2), regarding properties in the area that may be of religious and cultural significance to them and eligible for the National Register of Historic Places.

The USACE reviewed the City's application request for modifications and on September 16, 2014, modified the existing permit (LRN-2008-00886) to reflect the proposed modifications, thus meeting the obligations under Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act.

Because the development of the Suttree Landing Park would disturb an area greater than one acre, the City must obtain a National Pollutant Discharge Elimination System (NPDES) Construction Storm Water Permit from the State of Tennessee, Department of Environment and Conservation, under Section 401 of the Clean Water Act. A Water Quality Certification for the bank stabilization was issued by the State of Tennessee, Department of Environment and Conservation pursuant to Section 401 (a)(1) on August 21, 2014.

Alternatives

Preliminary internal scoping by TVA has determined that from the standpoint of the National Environmental Policy Act (NEPA), there are two alternatives: the No Action Alternative and the proposed action.

No Action Alternative

Under this alternative, the City's requested modifications to the Suttree Landing Park proposal would not be approved and TVA would not issue new permits. Because TVA has already reviewed and issued a permit to the City for its original proposal, the No Action Alternative in this case includes the eventual development of the park under the terms of the current permits, as adequately analyzed in the 2010 EA.

Proposed Action Alternative

Under this alternative, TVA would review and approve the City's development of Suttree Landing Park as modified. This alternative is preferred by TVA and includes:

- Construction of approximately 1,900 linear feet of riverfront walkway with elevation varying from 822 feet to 824.4 feet (the original design called for a 1,920 foot riverfront walkway at 822 feet elevation), resulting in approximately 3,520 cubic yards of material to be placed between the existing normal pool at 813 feet msl and the 100-year flood elevation.
- Construction of a series of landforms and lawn areas and installation of approximately 2,146 linear feet of riprap along the shoreline, requiring approximately 1,720 cubic yards of materials filled riverward (the original, previously approved design called for 770 cubic yard of material filled riverward of the existing normal pool elevation).
- Modifications to previously permitted facilities located at Lincoln Landing, including the addition of a floating dock structure that will extend 65 feet into the river, handicap ramps down to a gangway, and a 24-foot wide concrete boat launch for kayaks.
- The addition of a landscape irrigation system for the entire 3.5 acre park, with intake from a 12-inch pipe with a box-screen to be located at least 3 feet below the winter pool elevation. The irrigation system would utilize a 3- to 5-horsepower pump in a vault located approximately 10 feet behind the top of the riverbank, and would be controlled using sensors to reduce watering. The system controller would irrigate the park's stormwater detention area (approximately 0.2 acres) only when the soil is dry; the park's native grasses (1.7 acres) and festival lawn (1 acre) only during establishment, after major events, and as needed during dry conditions.
- Modifications to parking areas and approaches, including the addition of a small cul de sac on the west end of park and a reconfigured parking area at the east end of the park.

Relevant Environmental Issues

The EA completed in 2010 analyzed the following environmental issues: soils, drainage, water use and quality, floodplains, shoreline erosion, biological resources (including wetlands, vegetation, aquatic and wildlife habitat, and threatened and endangered species), recreation, aesthetics, safety, transportation, air quality, noise, cultural resources, and economics. No significant impacts to these resources were identified in the EA and, therefore, TVA and USACE found that the City's development project was not a major federal action that would significantly affect the environment.

Upon receipt of the City's most recent application (submitted October 22, 2013, and resubmitted August 28, 2014), TVA reviewed the proposed modifications and the analysis in the 2010 EA to determine whether the EA adequately addresses environmental impacts of the Suttree Landing Park project as modified. TVA has determined that the 2010 EA, incorporated herein by reference, should be supplemented to provide additional analysis of potential impacts on:

- Cultural resources
- Floodplains
- River navigation

These issues are reviewed in this Supplemental EA because the impacts of the proposed modifications to Suttree Landing Park differ from those described in the 2010 EA. Specifically, the Supplemental EA will analyze how the park design addresses a known archaeological site, how the increased amounts of fill material may impact the floodplain along the Tennessee River, and whether the additional dock structure may impact navigation of the river.

TVA found that the EA adequately addresses the potential impacts of the modifications to other environmental concerns. Therefore, the scope of the analysis in the Supplemental EA is limited to these three resource issues. The scope of the analysis is also limited to the Suttree Landing Park area of the City's south waterfront development. The Supplemental EA also provides information on the ongoing coordination efforts.

Site Description

As noted above, the project area is approximately 13 acres in size and is a former industrial site along the Tennessee River. The brownfield site once included a number of buildings that have been demolished and removed. However, large concrete foundations of these remain where the buildings once stood. In addition, several gravel and paved driveways and parking lots remain at the site, and scattered across the area are light poles, fencing, piles of rocks, and gates. Most of the project area is overgrown with brush, grass, and small trees. The project location includes portions of 701 Langford Avenue, 901 Langford Avenue, 939 Langford Avenue, 1015 Phillips Avenue, 1100 Phillips Avenue, 1101 Phillips Avenue, and 1200 Island Home Avenue.

Cultural Resources - Affected Environment and Impact Analysis

The cultural resources at the Suttree Landing Park area (previously referred to as River Plains Park and Lincoln Street Landing) was addressed in the previous NEPA review and was included in the Programmatic Agreement established with the Tennessee State Historic Preservation Officer (SHPO) that was executed on

October 14, 2010 (*Programmatic Agreement among the Tennessee Valley Authority, the United States Army Corps of Engineers, the Tennessee State Historic Preservation Officer, and the City of Knoxville regarding the Knoxville South Waterfront Redevelopment Pursuant to 36 CFR Part 800*). The archaeological Area of Potential Effect (APE) for this project was determined to be the entire Suttree Landing Park project site.

Previous investigations have been conducted within the proposed park:

- Between January 26 and 29, 2009, the Archaeological Research Laboratory (ARL) at the University of Tennessee-Knoxville (UTK) conducted a Phase I archaeological survey of Areas 1 and 2, portions of property tracts at 701 and 901 Langford Avenue, in Knoxville, Knox County, Tennessee (report by Jessica Vavrsek entitled *Phase I Archaeological Survey for River Plain Park and Lincoln Street Landing, Areas 1 and 2, Knoxville*).
- Between May 5 and 11, 2009, the ARL and UTK conducted a Phase I archaeological survey of Area 3, including portions of property tracts at 939 Langford Avenue, and 1101 and 1015 Phillips Avenue (report titled *Addendum to Phase I Archaeological Survey for River Plains Park and Lincoln Street Landing, Knoxville, Knox County, Tennessee*). One archaeological site (40KN316) was identified during these investigations. Site 40N316 is a Late Archaic to Early Woodland prehistoric site and contains a historic component dating to the twentieth century. Portions of site 40KN316 are located beneath concrete slabs that served as the foundation of a modern industrial facility.
- Between January 19 and 24, 2011, ARL and UTK conducted a Phase II archaeological evaluation of site 40KN316 (report by Howard J. Cyr, entitled *Phase II Archaeological Evaluation River Plain Park and Lincoln Landing (Areas 1,2 and 3) Knoxville, Knox County, Tennessee*). By letter dated August 24, 2012 the Tennessee SHPO concurred with these findings that 40KN316 is eligible for the National Register of Historic Places (NRHP) and may be adversely affected by the proposed project. TVA has required a 20-foot buffer be placed around the site boundary to ensure that the archaeological site is not disturbed during development. No construction activities or ground disturbance will be permitted within this boundary.

Under its revised project plan, the City would not disturb site 40KN316 during construction activities. Approximately 2.5 feet of fill would be installed over the concrete slab that is currently covering site 40KN316 in order to protect the site's archaeological feature. This fill would be necessary to facilitate vegetation growth in the lawn area for the proposed park and establish the elevation of the riverfront walkway. In consultation with the SHPO, TVA finds that with the commitment of no ground disturbance and the subsequent placement of fill over the existing concrete slab, the proposed undertaking would not adversely affect 40KN316. In June 2014,

pursuant to 36 CFR Part 800.3(f)(2), TVA contacted federally recognized Indian tribes regarding properties within the proposed project’s APE that may be of religious and cultural significance to them and eligible for the National Register of Historic Places.

During the review of the revised plans, TVA archaeology staff recognized that the location of the proposed parking lot in the northeast side portion of Suttree Landing Park had failed to be investigated during the Phase I survey and determined that the area needed to be investigated. TVA found that the Area of Potential Effect (APE) is the 110-foot by 140-foot footprint of the proposed parking lot, which under the proposal would be excavated less than 1 foot deep.

Prior to conducting field work, TVA reviewed historic maps included in the Phase I River Plains Park investigation (Poe 1864 and Pill 1895a). Nothing was noted in this area on the 1864 map. However, a house occupied by “J. Simpson” was located near this area on the 1895 map. The 1901 30-minute quadrangle map and the 1927 planimetric map were reviewed and nothing was depicted at this location.

TVA archaeology staff conducted a reconnaissance survey of the proposed parking area on April 24, 2014. The APE is vacant of any buildings and is currently being bush hogged on a regular basis. TVA conducted three shovel tests at shovel test pits (STP) within the APE (see Table 1). The recovered brick was machine made and the glass dates to the mid to late twentieth century. TVA has determined that the materials identified in STP 2 and 3 are from a layer of fill and not an intact

Table 1. Proposed Parking Lot Cultural Resource Survey Results.

STP	Centimeters Below Surface	Soil Type	Color: Munsell 10 Yellow Red (YR)	Material Recovered
1	0-9	Loam	Brown (10YR 4/3)	-
	9-15	Sandy fill	Brown (10YR 4/3)	-
	15-70	Sandy silt	Dark yellowish brown (10YR 4/4)	-
2	0-10	Loam	Brown (10YR 4/3)	-
	10-40	Sandy clay fill	Dark brown (10YR 3/3)	Brick, glass, charcoal, pieces of metal
3	0-8	Loam	Brown (10YR 4/3)	-
	8-39	Sandy clay fill	Dark brown (10YR 3/3)	Brick, glass, piece of slag

historic feature. After discussion with site file curator from the Tennessee Historical Commission it was decided that no official site number would be given. TVA will send GIS files of the boundary of these materials to the Tennessee Historical

Commission for their records. Based on the reconnaissance survey, it is TVA's determination that the proposed parking lot would not affect any historic properties that are eligible for listing or listed on the National Register of Historic Places.

Floodplains - Affected Environment and Impact Analysis

As previously described, the area affected by the proposed modifications extends from Tennessee River mile 648.0 to 648.4 on Fort Loudoun Reservoir in Knoxville. The 100-year floodplain on Fort Loudoun Reservoir is the area that would be inundated by the 100-year flood. The 100-year flood elevations for the Tennessee River vary from elevation 821.7 feet above mean sea level (msl) at Tennessee River Mile (TRM) 648.0 to elevation 822.0 feet msl at TRM 648.4 (see Figure 3 below).

The Flood Risk Profile (FRP) elevations for the Tennessee River vary from elevation 827.7 feet msl at TRM 648.0 to elevation 828.2 feet msl at TRM 648.4. All elevations are National Geodetic Vertical Datum of 1929. As indicated in Figure 3, the FRP elevations at this location are equal to the 500-year flood elevations and are used to control flood damageable development for TVA projects and on TVA Lands. The City of Knoxville participates in the National Flood Insurance Program, and any development must be consistent with these regulations. The floodway adopted by the City of Knoxville is that portion of the Tennessee River channel and floodplain that must remain open and unobstructed to allow passage of floodwaters in order to prevent increases in upstream flood elevations.

As a federal agency, TVA is subject to the requirements of Executive Order (EO) 11988, Floodplain Management. The objective of EO 11988 is "...to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative" (United States Water Resources Council, 1978). The EO is not intended to prohibit floodplain development in all cases, but rather to create a consistent government policy against such development under most circumstances. The EO requires that agencies avoid the 100 year floodplain unless there is no practicable alternative.

The proposed action alternative project involves the construction of a road and parking lot, land-based riverwalk with benches and light poles, picnic tables, grass-lined ramp, festival lawn, placement of fill, shoreline stabilization, floating dock, observation platform, concrete steps for water access, and kayak ramp. The floating dock, kayak and grass-lined ramps, concrete steps and platform, shoreline stabilization, and a portion of the fill would be located within the 100-year floodplain. Due to the proposed fill, the proposed benches, light poles, picnic tables, riverwalk, and festival lawn would be located outside of the 100-year floodplain. The riverwalk and festival lawn would be raised to an elevation higher than that which was proposed in the 2010 EA. The road and parking lot would be located outside of the 100-year floodplain.

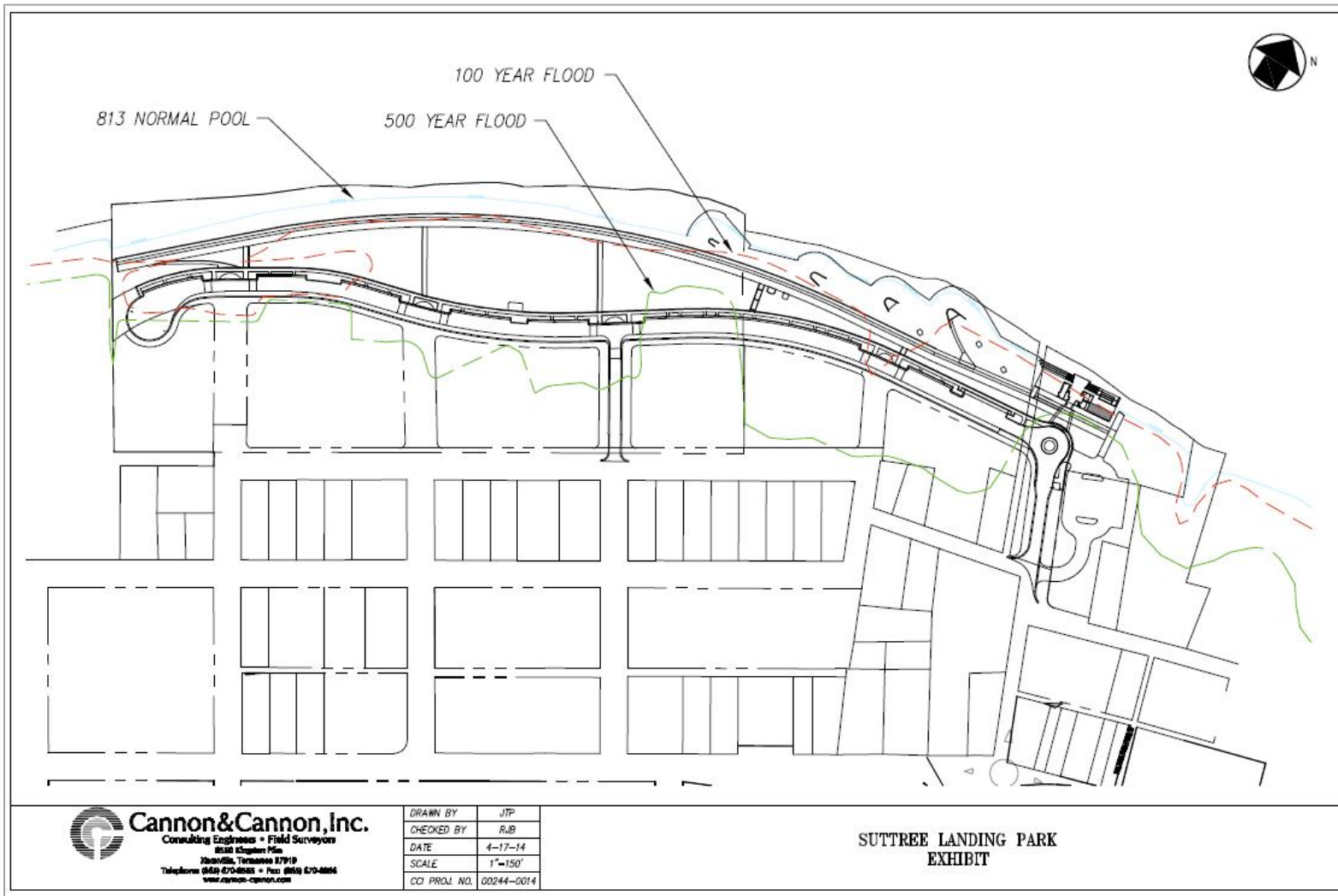


Figure 2. Elevations of 100- and 500-Year Floodplains.

The proposed fill in the 100-year floodplain would be associated with the protection of an archeological feature and the subsequent raising and grading of the riverwalk and festival lawn of Suttree Landing Park. The proposed fill would not be considered a repetitive action in the 100-year floodplain. The archeological feature is covered and protected by an existing 30-inch thick concrete slab; however, an additional 24 to 36 inches of fill would be needed on top of the concrete slab in order to support landscaping and lighting. The City evaluated alternative sites and provided documentation to support a determination of “no practicable alternative” to the proposed fill.

The proposed concrete steps, kayak and grass-lined ramps, a portion of the observation platform, shoreline stabilization, and a portion of the fill would also be located within the published floodway on the Tennessee River. An Engineering “No Rise” Certification for Floodway Encroachment was completed for the project, as modified, on July 25, 2014. The Knoxville Department of Engineering approved the certification on July 25, 2014. Therefore, the project would be consistent with local floodplain regulations.

Consistent with EO 11988, a floating dock, kayak and grass-lined ramps, concrete steps, and shoreline stabilization are considered to be repetitive actions in the 100-year floodplain. The observation platform would not be considered a repetitive action in the 100-year floodplain. The City evaluated alternative sites and provided documentation to support a determination of “no practicable alternative” to the proposed observation platform.

The project would result in the loss of about 0.5 acre-foot of flood control storage and 0.3 acre-foot of power storage. TVA has determined that the amount of displaced flood control storage would be minimized while achieving the project objective. Therefore, the project would comply with the TVA Flood Control Storage Loss Guideline.

To ensure that the proposed development would not adversely impact floodplains and flood risk, TVA would include the following conditions in the final 26a approval:

1. For purposes of shoreline bank stabilization, all portions would be constructed or placed, on average, no more than two feet from the existing shoreline at normal summer pool, elevation 813.
2. All floating facilities would be anchored securely to prevent them from floating free during major floods.
3. TVA would retain the right to flood the area and would not be liable for damages resulting from flooding.
4. Best management practices would be used during construction activities.

Based upon implementation of the above conditions, the proposed Suttree Landing Park would have no significant impact on floodplains.

Navigation – Affected Environment and Impact Analysis

As described in the 2010 EA, the proposed Suttree Landing Park location lies on the Fort Loudoun Reservoir portion of the Tennessee River about 40 miles upstream from the reservoir dam. At the park location (between TRM 648L and 648.5L), the reservoir is characteristic of a river. There are no barge terminals located in the immediate vicinity of the location. As noted in the 2010 EA, there are approximately seven active barge terminals along the Knoxville urban area waterfront that extend from TRM 646.0 to TRM 652.0 and beyond, up to Mile 1.0 of the French Broad River. The closest barge terminal is located at the Marathon Asphalt Plant, approximately ½ mile downstream of the project area. TVA and USACE concluded in the 2010 EA that the City's original proposal did not include any activities that would extend into the navigation channel.

During the review of the City's original plan, TVA and USACE identified a number of navigation restrictions that would apply to the City's original development proposal between TRM 647.3 and 649.2, which were conditions of TVA and USACE's approvals of the City's proposal. According to the restrictions, any water-use facilities between TRM 648.3 and TRM 648.44 should not exceed 70 feet into the river from the normal summer pool elevation of 813 feet.

The City's recent application modifies the original park design by including a floating dock and gangplank extending a total of 65 feet into the Tennessee River at TRM 648.4. The dock would extend from the landing and pavilion facility and will measure 20 feet by 40 feet with a 45-foot gangplank. Therefore, the proposed dock (at TRM 648.4) would not extend into the navigation channel and would comply with restrictions outlined in the 2010 EA.

Agencies and Others Consulted

As noted above, TVA consulted with the State of Tennessee SHPO and, pursuant to 36 CFR Part 800.3(f)(2), contacted federally recognized Indian tribes regarding properties within the proposed project's APE that may be of religious and cultural significance to them and eligible for the National Register of Historic Places. No tribe raised concern or provided comments to TVA regarding the proposal.

Also noted above, on March 1, 2014, FWS notified TVA and USACE and stated that the FWS does not object to the project because their database does not indicate any currently federally listed species in the vicinity of the project that would be impacted by the project and that the proposal would not adversely affect any federally listed threatened or endangered species.

Mitigation and Permit Conditions

TVA would apply the same mitigation measures as those identified during the 2010 EA (Chapter 5.4) and the wetland mitigation requirement as modified in July 2013. In addition, TVA would require that the City adhere to routine permit conditions, including the use of construction-related best management practices, and a number of special measures to reduce the potential for adverse environmental effects. As noted above, TVA has identified the following conditions pertaining to cultural resources, floodplains, and navigation:

- To ensure that cultural resources would not be adversely affected, identification and evaluation of historic properties shall proceed in accordance with the executed PA; all administrative costs to implement the PA will be the responsibility of the permittee.
- To ensure that the proposed development would not adversely impact floodplains and flood risk, TVA would include the conditions identified above in the final 26a approval.
- Based on TVA's review of the 2010 EA, navigation restrictions apply to the length of the proposed floating dock and gangway into the river from the normal pool elevation of 813 feet msl. Water use facilities will not exceed the 70 foot limit at the proposed location.

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References

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Attachments

Attachment 1: Joint Application Form, submitted by the City of Knoxville August 28, 2014, including Revised Description of Proposed Activity and Project Description and Site Plans.

Attachment 2: Figure of General Project Design of Suttree Park Landing.

Attachment 3: Location of Shovel Test Plots, Suttree Landing Park Parking Lot – Knoxville South Waterfront (TRM 648.4L), Knox County, Tennessee, April 24, 2014.

Attachment 1: Joint Application Form, submitted by the City of Knoxville August 28, 2014, including Revised Description of Proposed Activity and Project Description and Site Plans

REVISED DESCRIPTION OF PROPOSED ACTIVITY REPERMITTING OF MIDDLE SECTION OF PORTION OF TVA Permit #234611

Suttree Landing Park was formerly permitted as River Plain Park and Lincoln Street Landing (Projects 9 and 10 in TVA Permit #234611, reissued July 24, 2013). **Under this TVA application, only Projects 9 and 10 are being revised.** Since the permit application was originally submitted, changes have been made to these two projects. Sheets 24-29 of 53 and Sheets 39-42 of 53 of the original application are to be replaced with the attached revised sheets. In addition, Sheets 28A thru 28D have been added to supplement Sheet 28, providing additional details on the proposed Lincoln Landing amenities. A summary of some of the plan modifications is provided below. You are also advised to review the attached sheets illustrating the proposed Suttree Landing Park and Lincoln Street Landing projects as they are to be constructed.

The modifications include the construction of approximately 1,900 linear feet of riverfront walkway that varies in elevation from 822 to 824.4 feet (originally, 1,920 linear feet of riverwalk at elevation 822 was permitted). One of the reasons for the adjustment to the riverwalk elevation, and the corresponding increase in fill volume, involves protection of the archaeological feature (40KN316) previously identified on the site. Under this revised plan, fill will be placed over the feature, including the area currently covered by a concrete slab. The concrete slab will not be removed during construction of the park. Under the proposed development plan, archaeological feature 40KN316 will not be disturbed during the site grading activities, and therefore no additional efforts are anticipated regarding this feature.

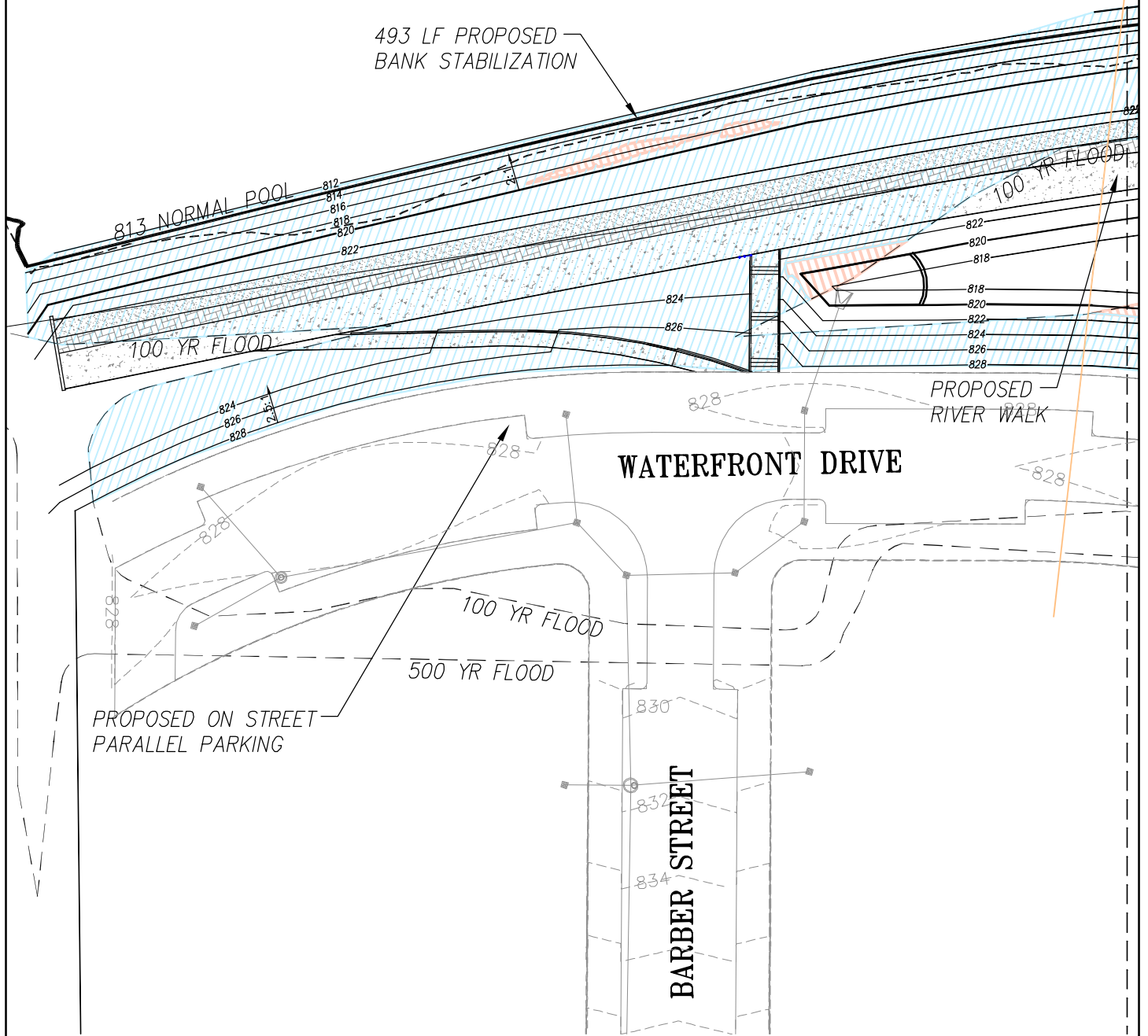
A net fill of approximately 1,720 cubic yards (CY) of material will be filled riverward of the existing normal pool elevation. In addition a net fill of approximately 3,520 CY of material will be filled between the existing normal pool elevation and the 100-year flood elevation. (Previously, the permit authorized a net fill of approximately 770 CY of material riverward of the existing normal pool elevation and a total net cut of 308 CY of material to be removed between the existing normal pool elevation and the proposed right-of-way.)

The Lincoln Landing amenities (Sheet 28 of 53) now include large steps similar to Calhoun's, a viewing patio and handicap ramps down to a gangway and a floating dock. Cross sections of the steps and ramp are included as Sheets 28C and 28D, respectively. The locations of each of these two representative section details are illustrated on Sheet 28A. To the east a structured boat launch for taking kayaks in and out will be constructed. The floating dock will measure 20 feet by 40 feet, with a 45-foot gangplank. Thus the dock will extend 65 feet into the water, including 45 feet of gangplank and 20 feet of dock depth. A cross section of the dock structure is also attached (Sheet 28A).

In addition, a landscape irrigation system for Suttree Park will be installed, utilizing a 3hp-5hp centrifugal pump in a subterranean vault, drawing from a 4-foot diameter wet-well to be located approximately 10 feet behind the top of the riverbank. The intake for the wet-well will be a 12-inch diameter pipe with a box-screen to be located at least 36 inches below winter pool. Although the City has not made a decision about which areas to irrigate, for permitting purposes,

the following information assumes that the entire park landscape (3.5 acres) would be irrigated. In this case, the flow rate would be 50-60 gallons/minute. Conceptually, the system would not run on a conventional schedule. It would utilize a "smart" controller and moisture sensors to reduce the watering schedule by 30% on average. The system would be designed and the controller would be adjusted to irrigate the stormwater detention area (0.2 acres) only when the soil is dry, irrigate the native grasses/wildflowers (1.7 acres) only during establishment and as needed during re-establishment in the springtime, and irrigate the festival lawn (1.0 acres) only after major events, during extreme droughts and during re-establishment each fall.

FT LOUDOUN LAKE TENNESSEE RIVER



LEGEND

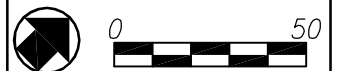
- EXISTING NORMAL POOL
- PROPOSED NORMAL POOL
- - - - - 100 YR FLOOD
- - - - - 500 YR FLOOD
- PROPOSED CUT AREA
- PROPOSED FILL AREA

KNOXVILLE SOUTH WATERFRONT PUBLIC IMPROVEMENTS

TVA SECTION 26A/ USACE SECTION 404 JOINT
PERMIT APPLICATION
APPLICATION BY: CITY OF KNOXVILLE
PURPOSE: REDEVELOPMENT OF FORT
LOUDOUN LAKE SOUTH WATERFRONT

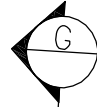
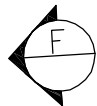
SITE PLAN AREA 6

DATUM: NAVD 88
SCALE: 1" = 50'



SHEET 24 OF 53
REVISED 09/05/13

FT LOUDOUN LAKE TENNESSEE RIVER



368 LF PROPOSED
BANK STABILIZATION

813 NORMAL POOL

100 YR FLOOD

PROPOSED
RIVER WALK

PROPOSED WATER
QUALITY FEATURE

PROPOSED
FESTIVAL LAWN

WATERFRONT DRIVE

PROPOSED ON STREET
PARALLEL PARKING

CLAUDE STREET

500 YR FLOOD

LEGEND

- EXISTING NORMAL POOL
- PROPOSED NORMAL POOL
- - - - - 100 YR FLOOD
- - - - - 500 YR FLOOD
- PROPOSED CUT AREA
- PROPOSED FILL AREA

KNOXVILLE SOUTH WATERFRONT PUBLIC IMPROVEMENTS

TVA SECTION 26A/ USACE SECTION 404 JOINT
PERMIT APPLICATION
APPLICATION BY: CITY OF KNOXVILLE

PURPOSE: REDEVELOPMENT OF FORT
LOUDOUN LAKE SOUTH WATERFRONT

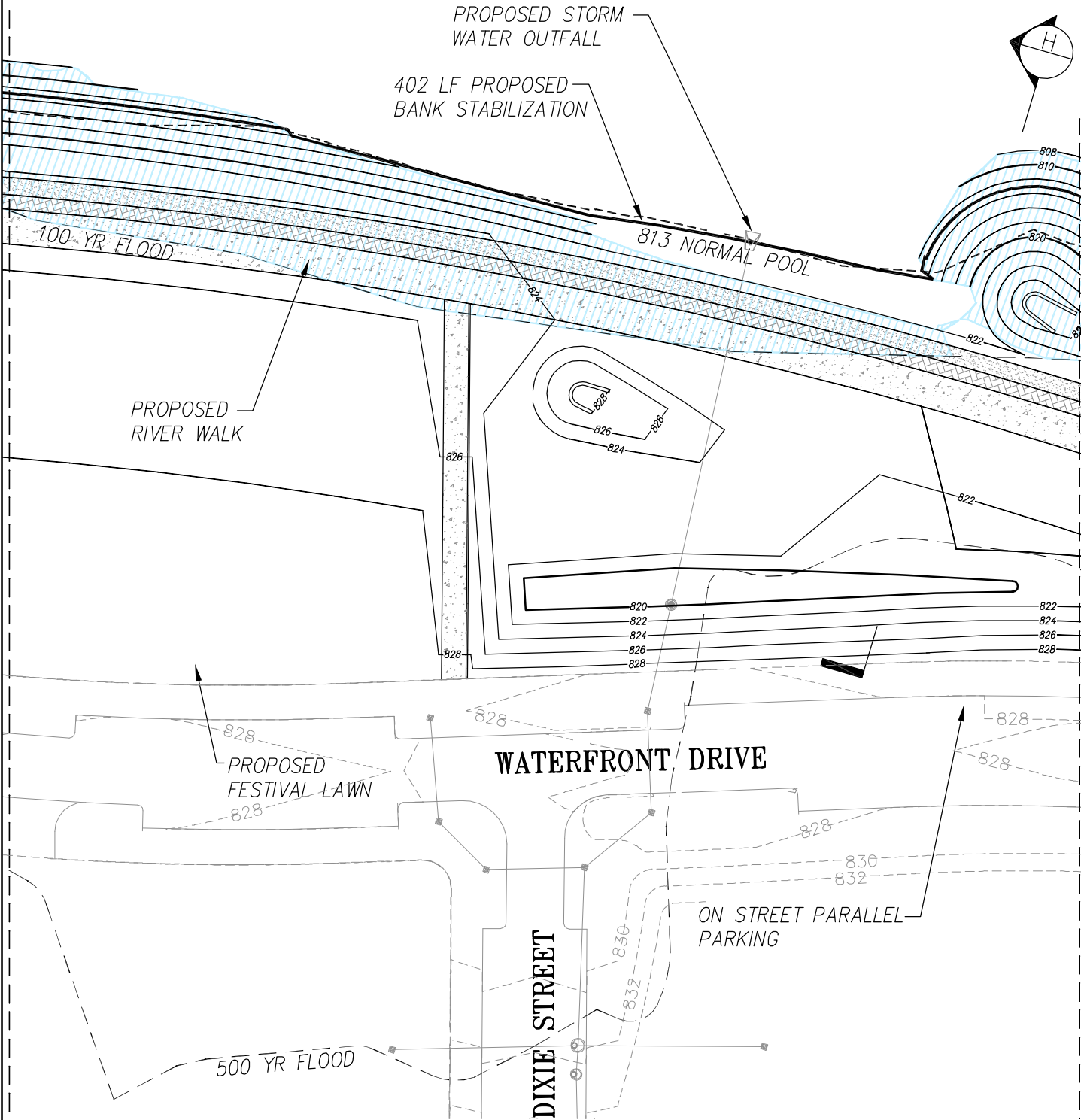
SITE PLAN AREA 7



DATUM: NAVD 88
SCALE: 1" = 50'



SHEET 25 OF 53
REVISED 09/05/13

FT LOUDOUN LAKE TENNESSEE RIVER



LEGEND	
-----	EXISTING NORMAL POOL
————	PROPOSED NORMAL POOL
-----	100 YR FLOOD
-----	500 YR FLOOD
	PROPOSED CUT AREA
	PROPOSED FILL AREA



KNOXVILLE SOUTH WATERFRONT
PUBLIC IMPROVEMENTS

TVA SECTION 26A/ USACE SECTION 404 JOINT
PERMIT APPLICATION
APPLICATION BY: CITY OF KNOXVILLE

PURPOSE: REDEVELOPMENT OF FORT
LOUDOUN LAKE SOUTH WATERFRONT

SITE PLAN
AREA 8

DATUM: NAVD 88
SCALE: 1" = 50'

SHEET 26 OF 53
REVISED 09/05/13

FT LOUDOUN LAKE TENNESSEE RIVER

PROPOSED FILL 7280 CY BETWEEN 807
ELEV & 100YR FLOOD
(TOTAL SHEETS 24-29)

PROPOSED CUT 2040 CY BETWEEN 807
ELEV & 100YR FLOOD
(TOTAL SHEETS 24-29)

PROPOSED CUT 60 CY BETWEEN
807 & 813 ELEV
(TOTAL SHEETS 24-29)

PROPOSED FILL 1780 CY BETWEEN
807 & 813 ELEV
(TOTAL SHEETS 24-29)

PROPOSED STORM
WATER OUTFALL

423 LF PROPOSED
BANK STABILIZATION

813 NORMAL POOL

100 YR FLOOD

WATERFRONT DRIVE



500 YR FLOOD

PROPOSED
RIVER WALK

E STREET
100 YR FLOOD

PROPOSED ON STREET
PARALLEL PARKING

LEGEND

- EXISTING NORMAL POOL
- PROPOSED NORMAL POOL
- 100 YR FLOOD
- 500 YR FLOOD
-  PROPOSED CUT AREA
-  PROPOSED FILL AREA

KNOXVILLE SOUTH WATERFRONT PUBLIC IMPROVEMENTS

TVA SECTION 26A/ USACE SECTION 404 JOINT
PERMIT APPLICATION
APPLICATION BY: CITY OF KNOXVILLE

PURPOSE: REDEVELOPMENT OF FORT
LOUDOUN LAKE SOUTH WATERFRONT

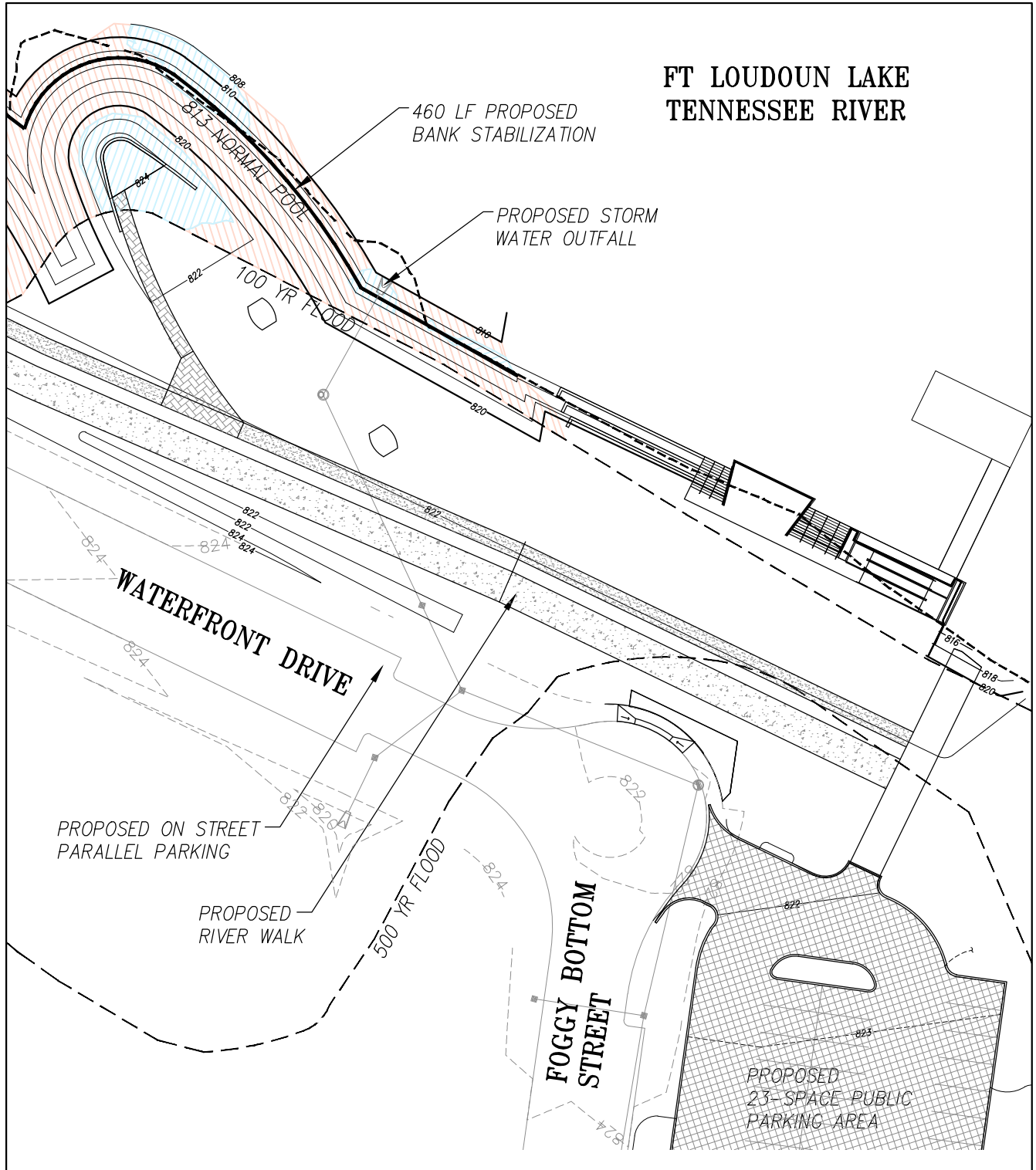
SITE PLAN AREA 9

DATUM: NAVD 88
SCALE: 1" = 50'



SHEET 27 OF 53
REVISED 09/05/13

FT LOUDOUN LAKE TENNESSEE RIVER



LEGEND	
	EXISTING NORMAL POOL
	PROPOSED NORMAL POOL
	100 YR FLOOD
	500 YR FLOOD
	PROPOSED CUT AREA
	PROPOSED FILL AREA

**KNOXVILLE SOUTH WATERFRONT
PUBLIC IMPROVEMENTS**

TVA SECTION 26A/ USACE SECTION 404 JOINT
PERMIT APPLICATION
APPLICATION BY: CITY OF KNOXVILLE

PURPOSE: REDEVELOPMENT OF FORT
LOUDON LAKE SOUTH WATERFRONT

**SITE PLAN
AREA 10**

DATUM: NAVD 88
SCALE: 1" = 50'

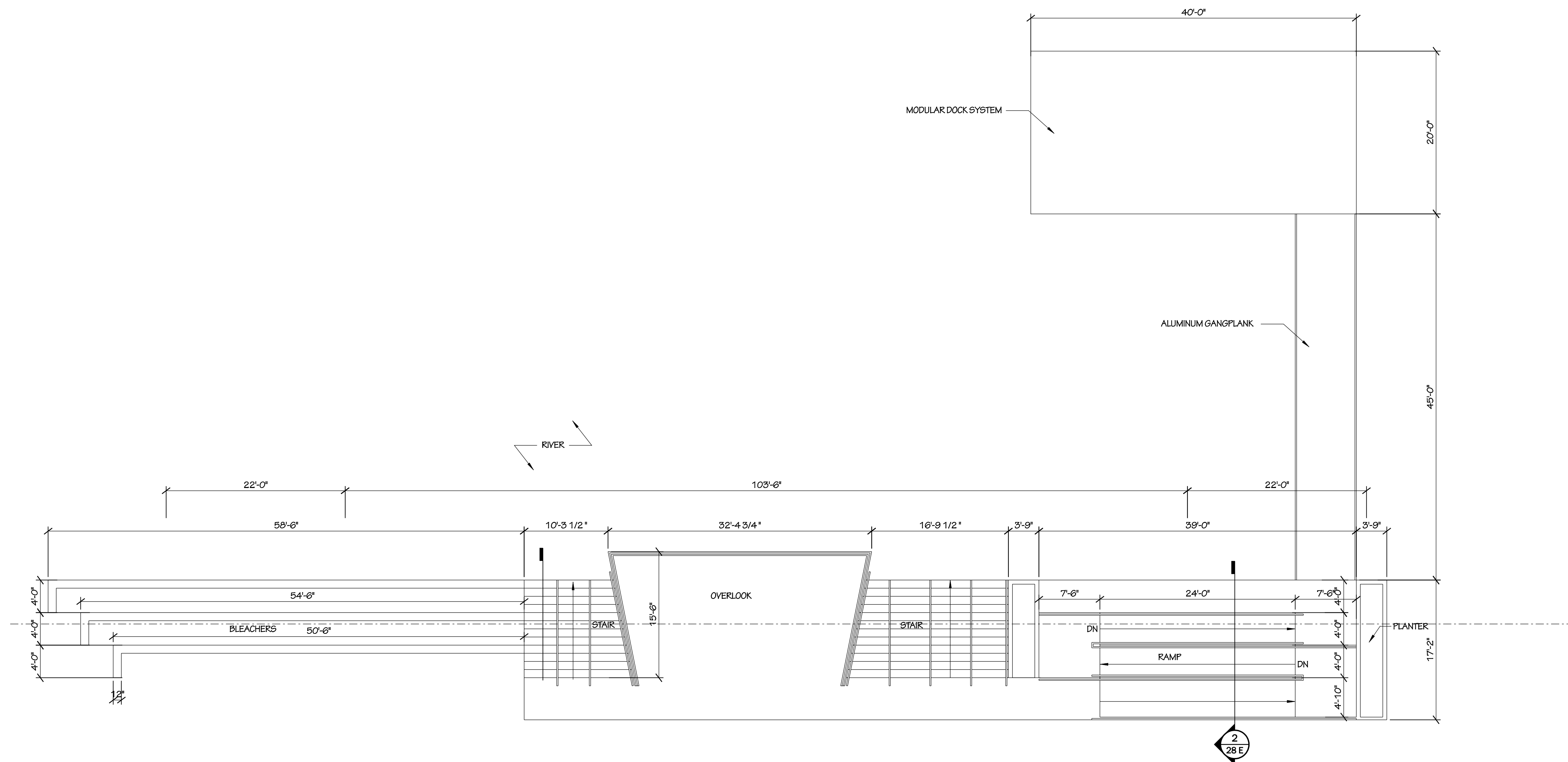
SHEET 28 OF 53
REVISED 09/03/14



**STUDIO
FOUR
DESIGN** inc.

Architecture & Interiors
Planning - Graphics - Consulting

four14 Clinch Ave. Knoxville, TN 37902
t 865 523-5001 f 865 523-5003
studiofourdesign.com



User: russell
File: 12054_No Building a2.1 28A.dgn

Date: 9/3/2014
Time: 2:21:31 PM

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Project Name:
Lincoln Landing at Suttree Park

Project Number: 12054

Date: September 03, 2014

Drawn By:

Checked By: M. Keller

Drawing Issued for:

- Schematic Design
- Design Development
- Construction

Revisions:

No.	Date	Description

Sheet Title:

Sheet No.:

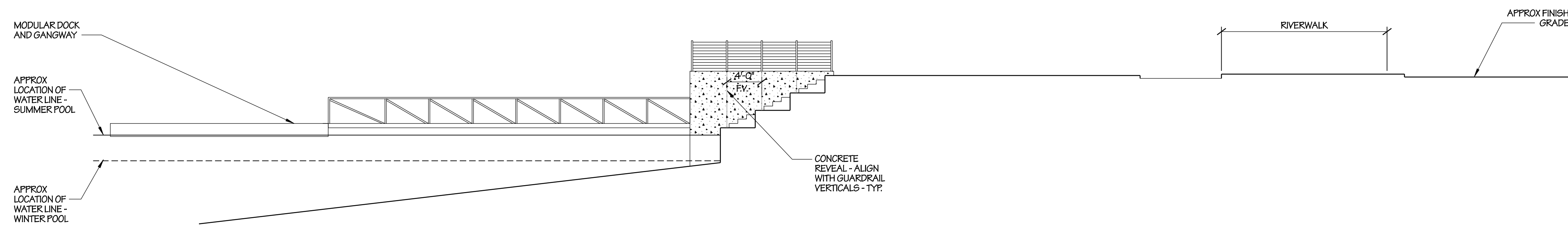
28A



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FOUR
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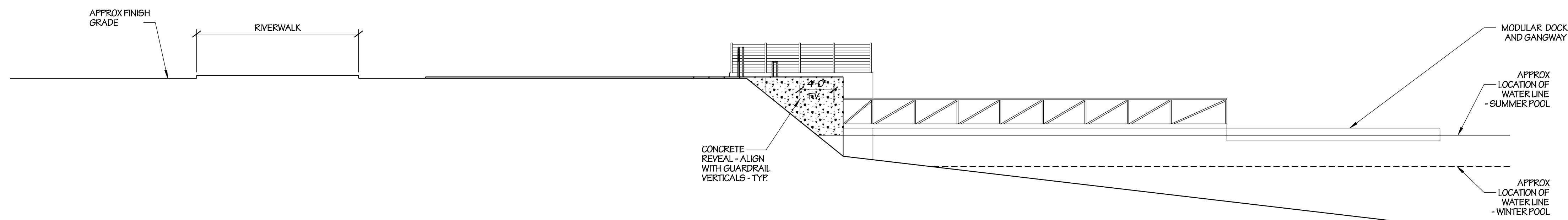
Architecture & Interiors
Planning - Graphics - Consulting

four14 Clinch Ave. Knoxville, TN 37902
t 865 523-5001 f 865 523-5003
studiofourdesign.com



2 West Elevation

1/8" = 1'-0"



1 East Elevation

1/8" = 1'-0"

Ubert.russell
File: 12054_no building a-4.2.dgn

Date: 9/3/2014
Time: 2:28:38 PM

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Project Name:
Lincoln Landing at Suttree Park

Project Number: 12054
Date: September 03, 2014
Drawn By:
Checked By: M.Keller

Drawing Issued for:
 Schematic Design
 Design Development
 Construction

No.	Date	Description

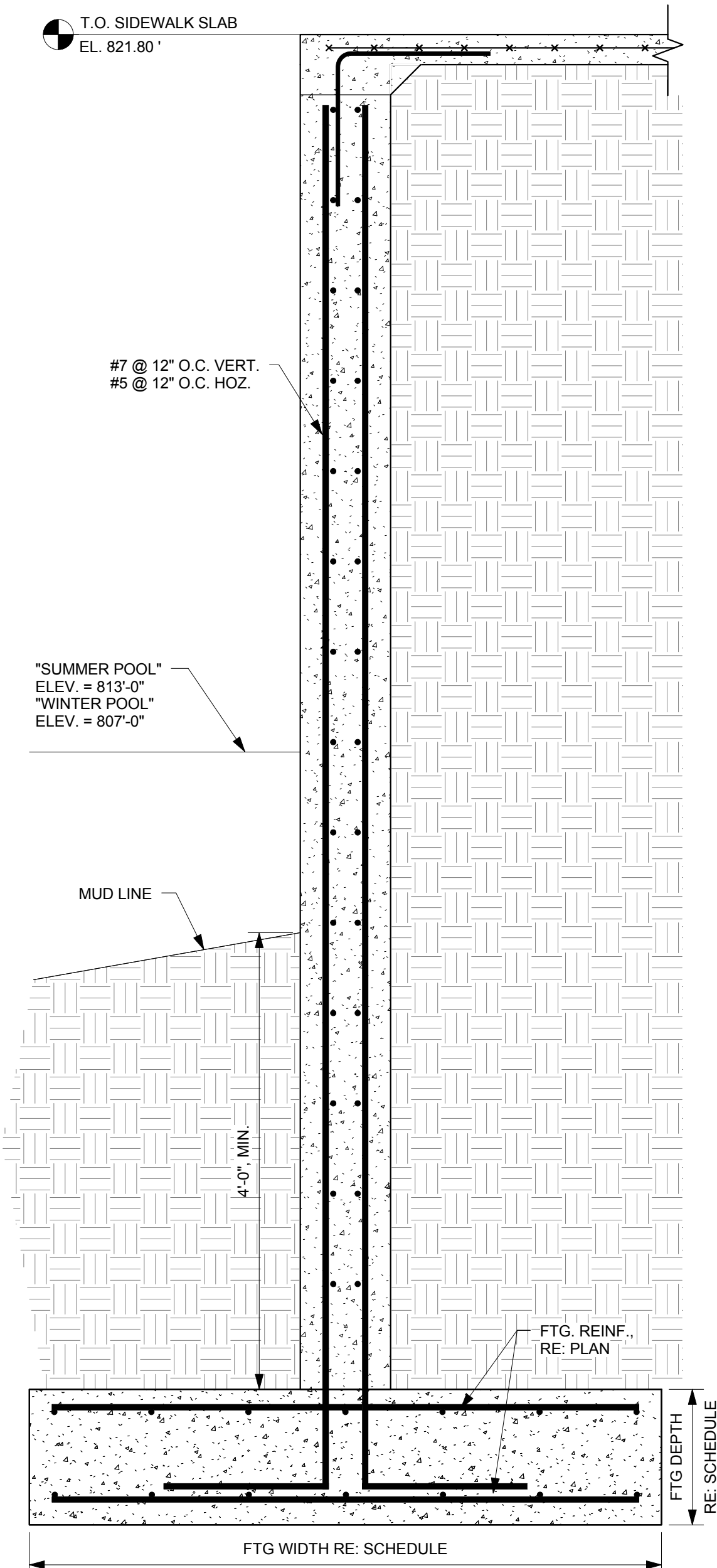
Sheet Title:
Building Elevations

Sheet No.:
28B

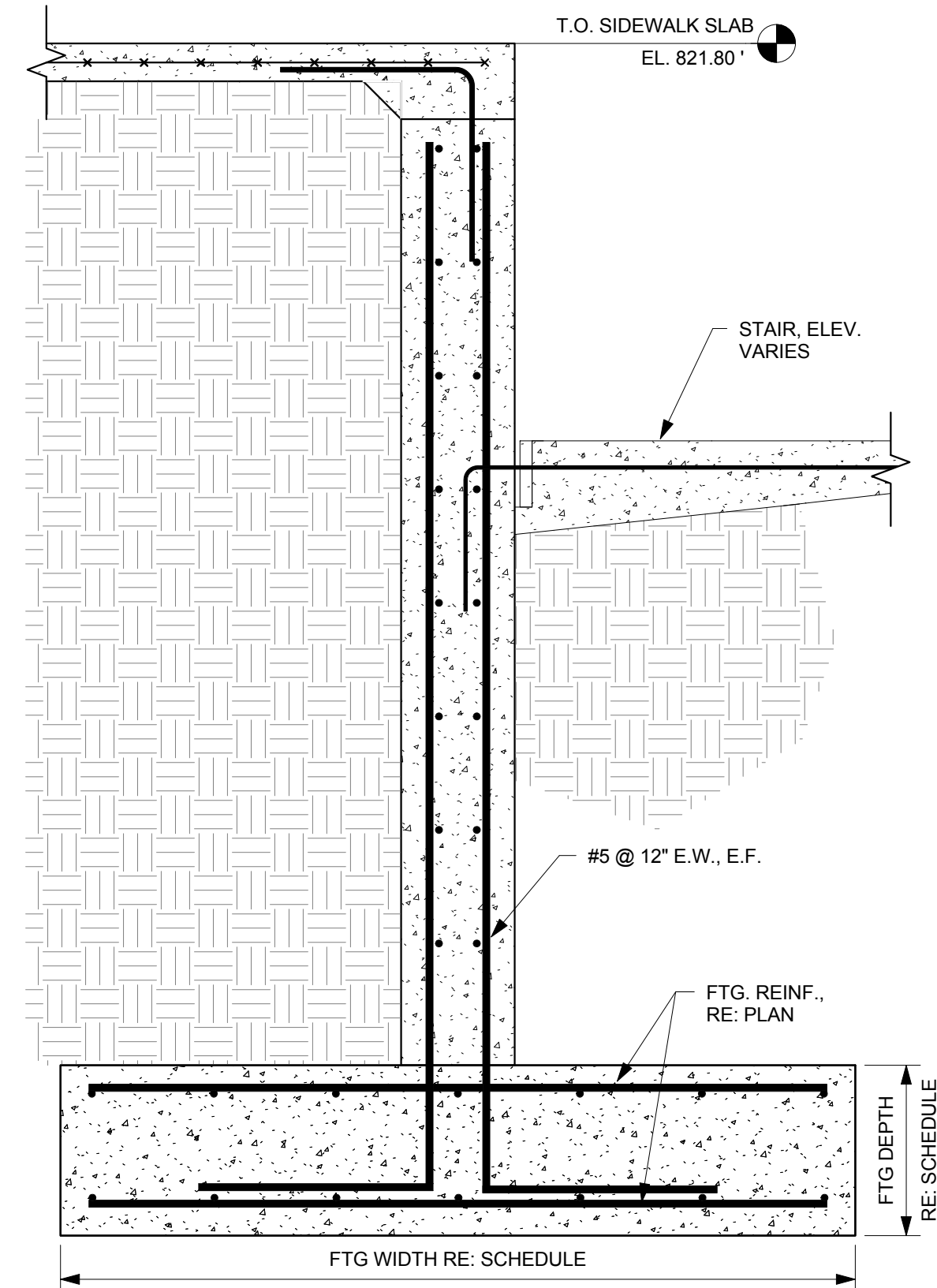


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DESIGN** inc.

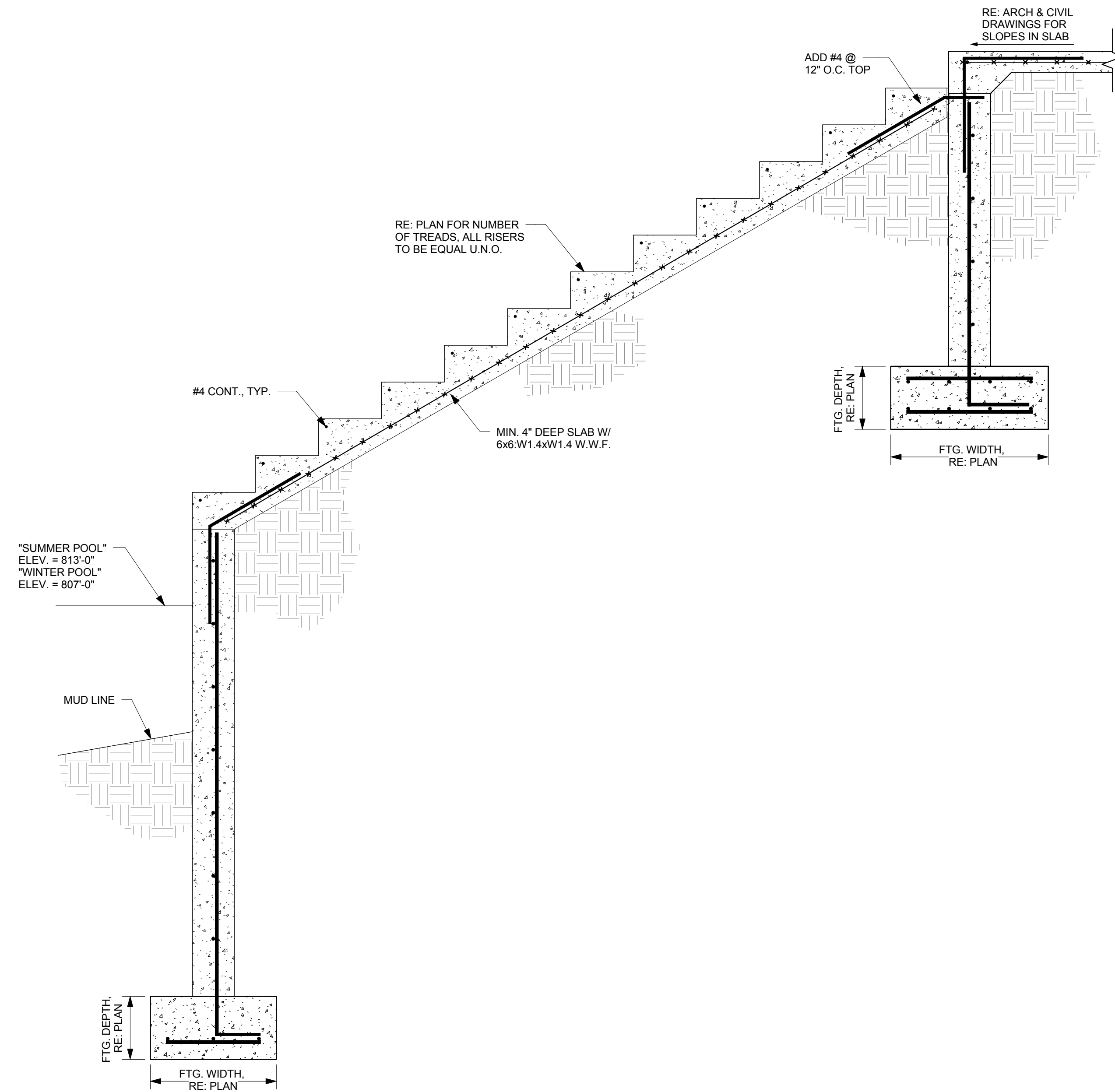
Architecture & Interiors
Planning Graphics Consulting
four14 Clinch Ave. Knoxville, TN 37902
t 865 523-5001 f 865 523-5003
studiofourdesign.com



1
28C
3/4" = 1'-0"



2
28C
3/4" = 1'-0"



3
28C
3/4" = 1'-0"

Project Name:
Lincoln Landing

Project Number: 13202
Date: October 16, 2013
Drawn By: RAH
Checked By: CES

Drawing Issued for:
Tenant/Landlord Approval
Pricing/Permitting
● 75% Construction Documents

Revisions:
No. Date: Description

Sheet Title:
SECTIONS & DETAILS

Sheet No:
28C

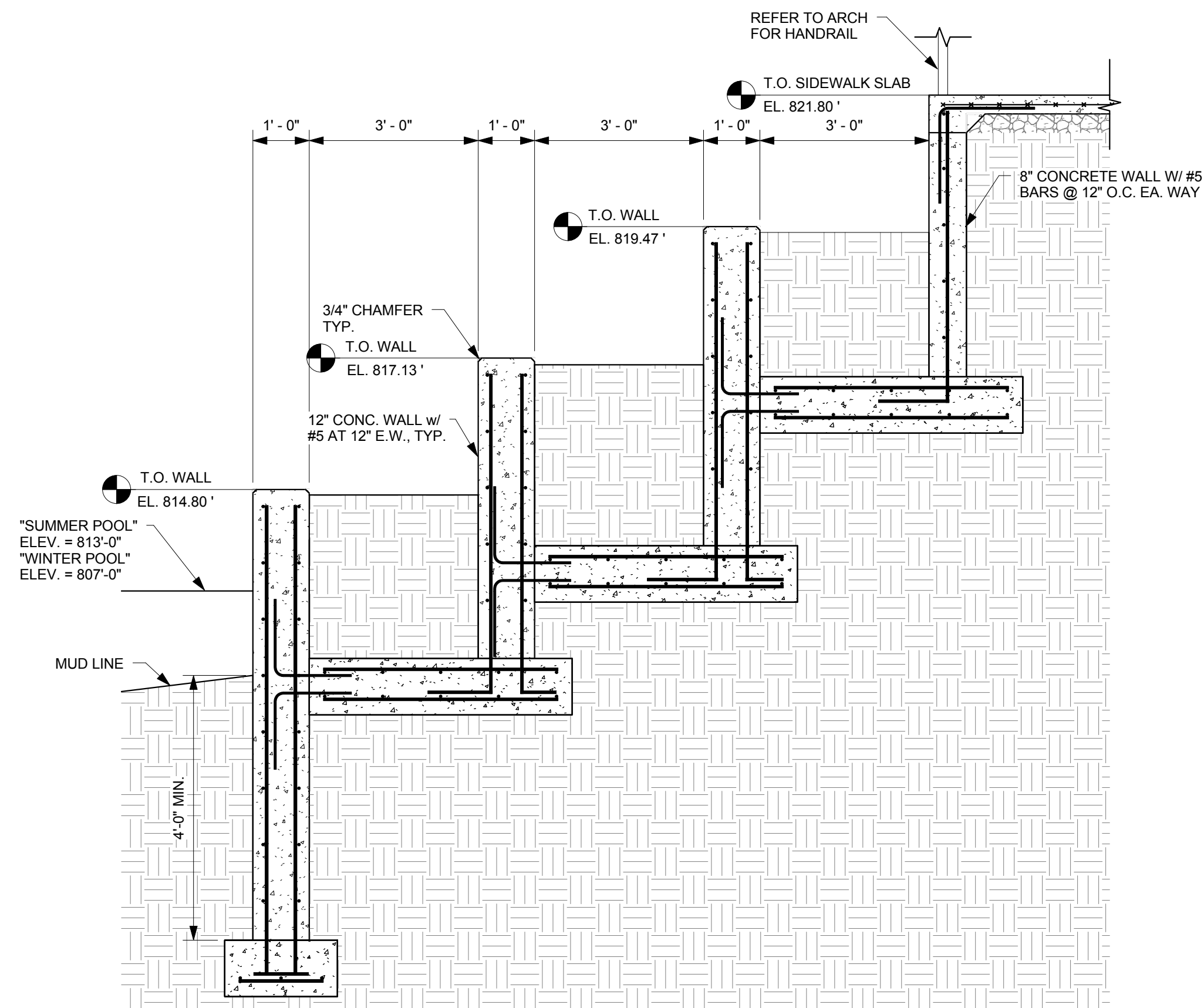


PROJECT NO: 2009125
Chad Stewart & Associates, Inc.
2607 Kingston Pike, Suite 2 Knoxville, TN 37919
Phone 865-529-9920 Fax 865-529-9921
Lakeland, TN CSAstructures.com Knoxville, TN

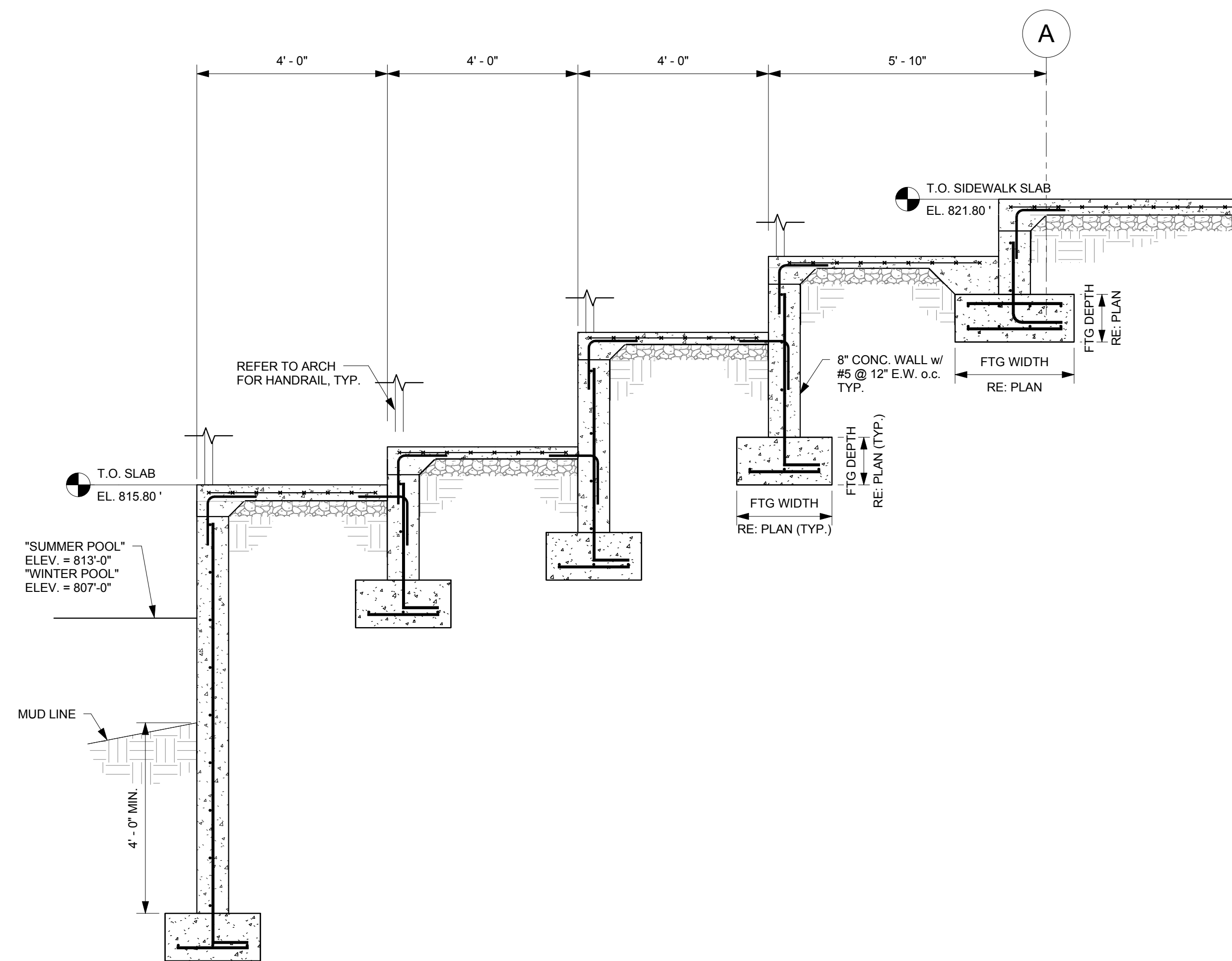


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FOUR
DESIGN** inc.

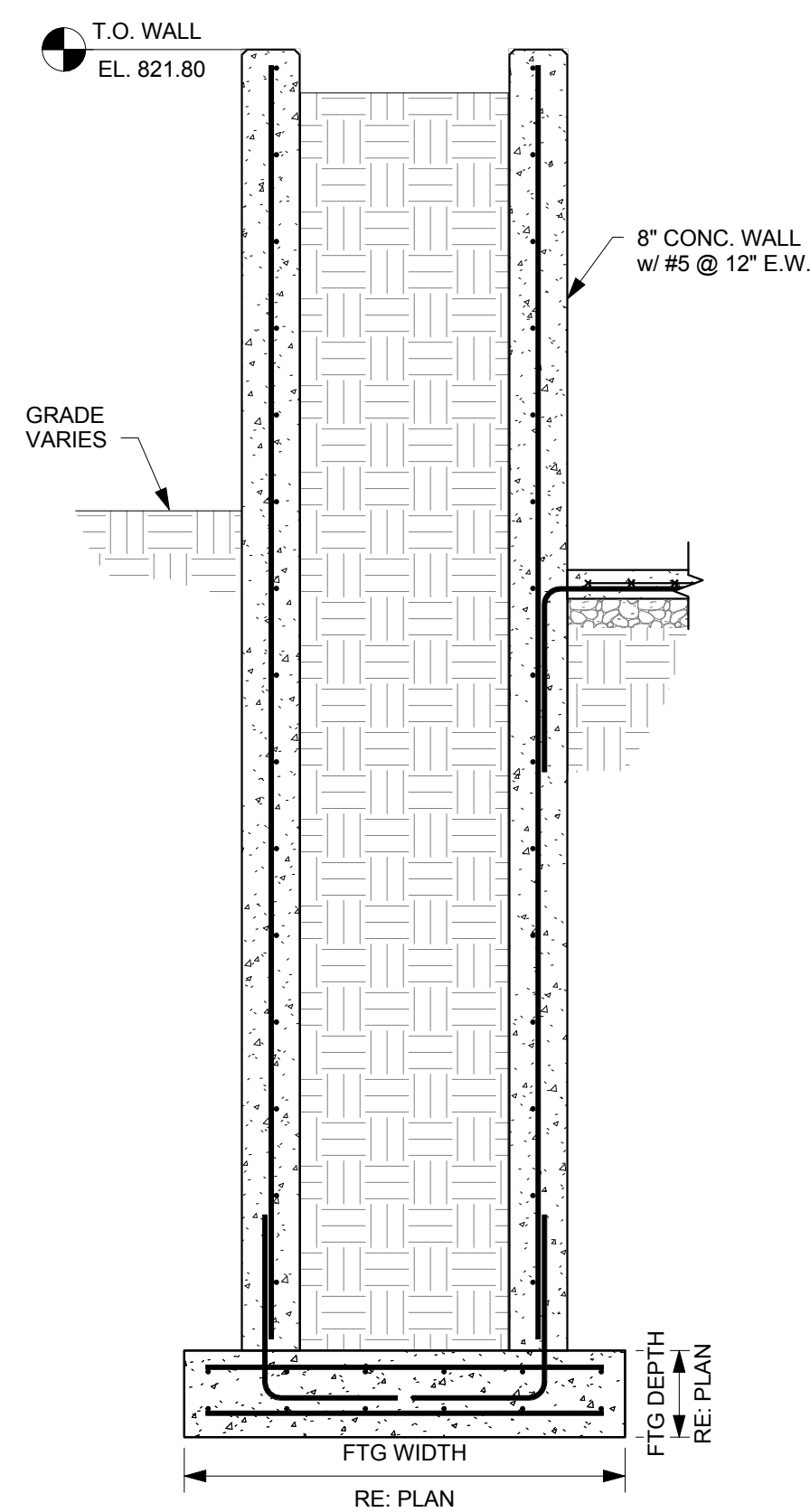
Architecture & Interiors
Planning Graphics Consulting
four14 Clinch Ave. Knoxville, TN 37902
t 865 523-5001 f 865 523-5003
studiofourdesign.com



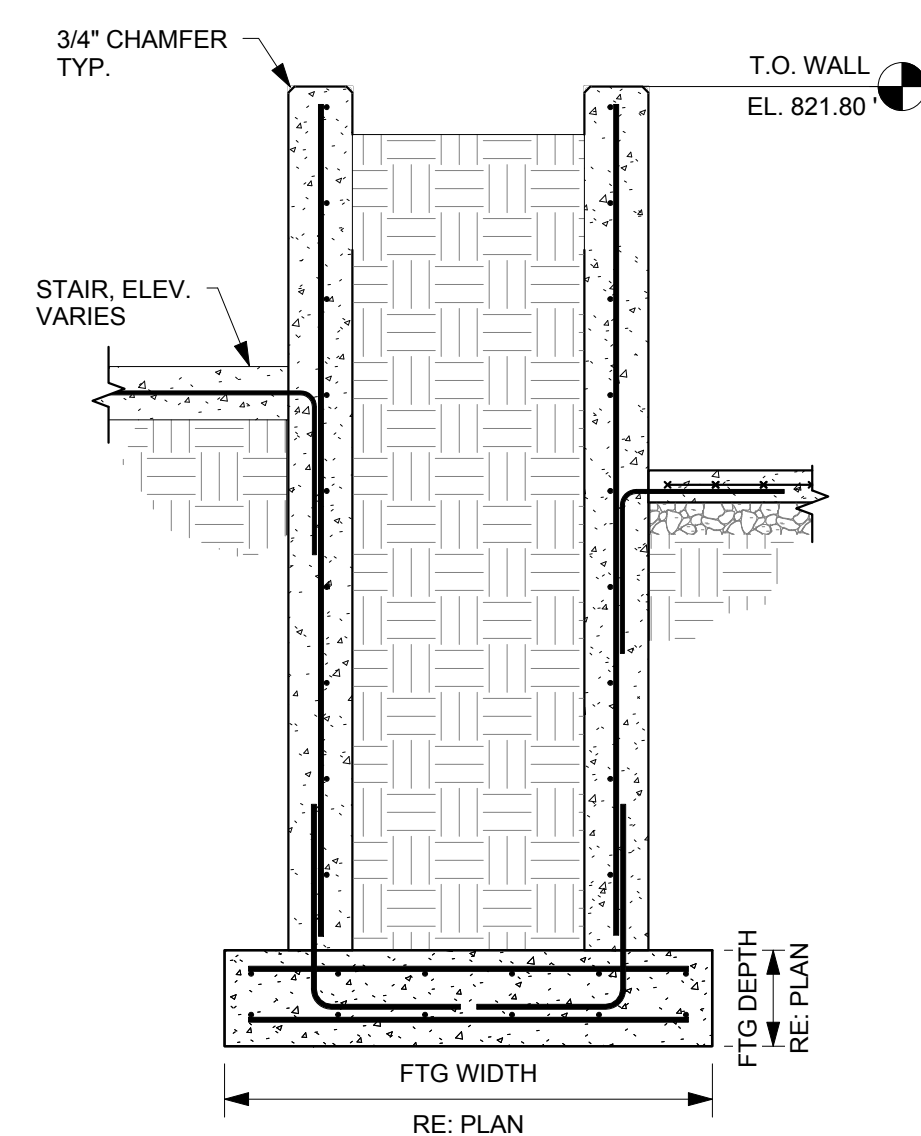
1 FND SECTION
28D 1/2" = 1'-0"



2 FND SECTION
28D 1/2" = 1'-0"



3 FND SECTION
28D 1/2" = 1'-0"



4 FND SECTION
28D 1/2" = 1'-0"



PROJECT NO. 2009125
Chad Stewart & Associates, Inc.
2607 Kingston Pk, Suite 2 Knoxville, TN 37919
Phone 865-529-9920 Fax 865-529-9921
Lakeland, TN CSAsStructures.com Knoxville, TN

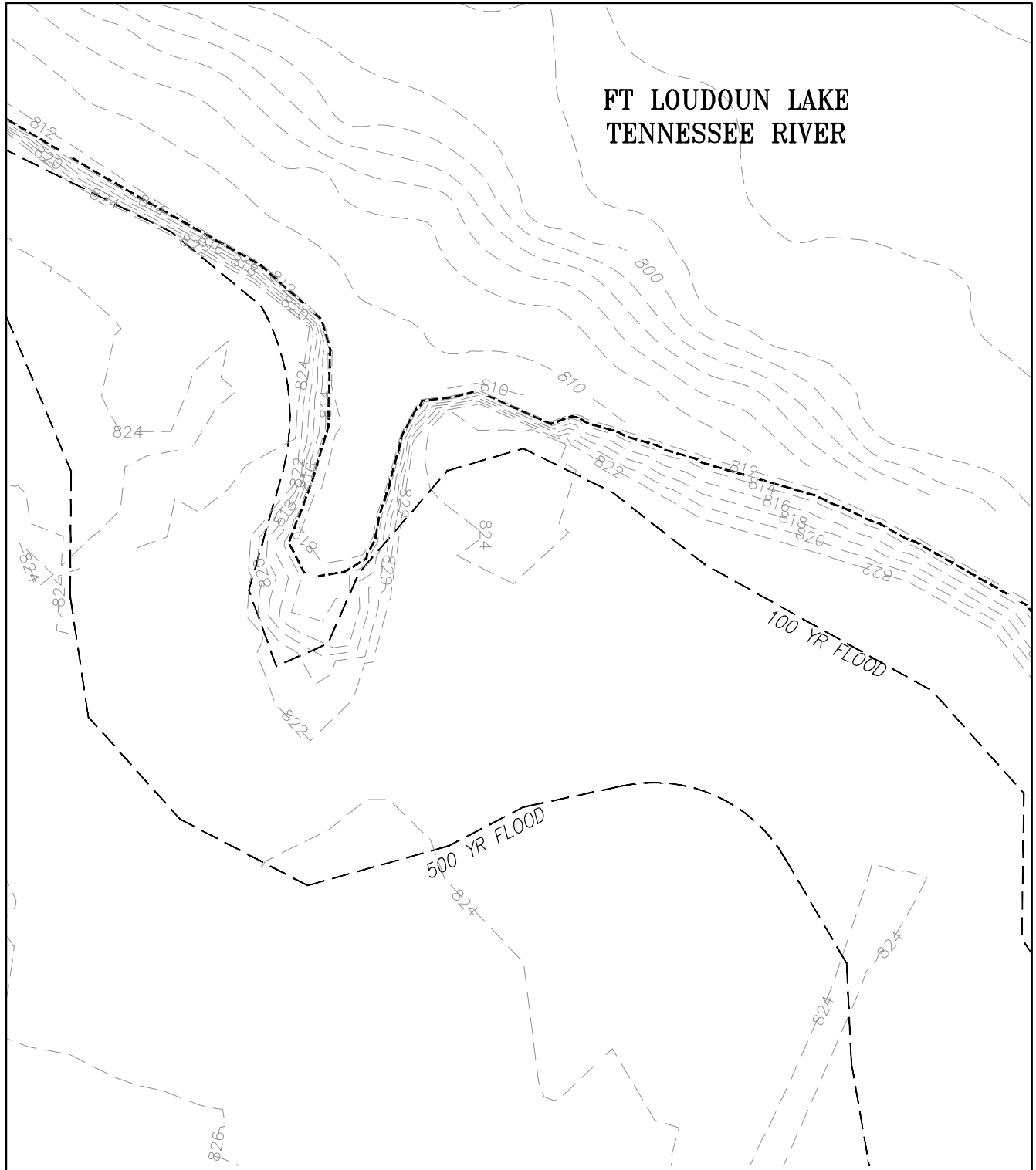
Project Name:
Lincoln Landing

Project Number: 13202
Date: October 16, 2013
Drawn By: RAH
Checked By: CES
Drawing Issued for:
Tenant/Landlord Approval
Pricing/Permitting
● 75% Construction Documents
Revisions:
No. Date: Description

Sheet Title:
SECTIONS & DETAILS

Sheet No:
28D

**FT LOUDOUN LAKE
TENNESSEE RIVER**



LEGEND

- EXISTING NORMAL POOL
- - - - - 100 YR FLOOD
- - - - - 500 YR FLOOD

**KNOXVILLE SOUTH WATERFRONT
PUBLIC IMPROVEMENTS**

TVA SECTION 26A/ USACE SECTION 404 JOINT
PERMIT APPLICATION
APPLICATION BY: CITY OF KNOXVILLE

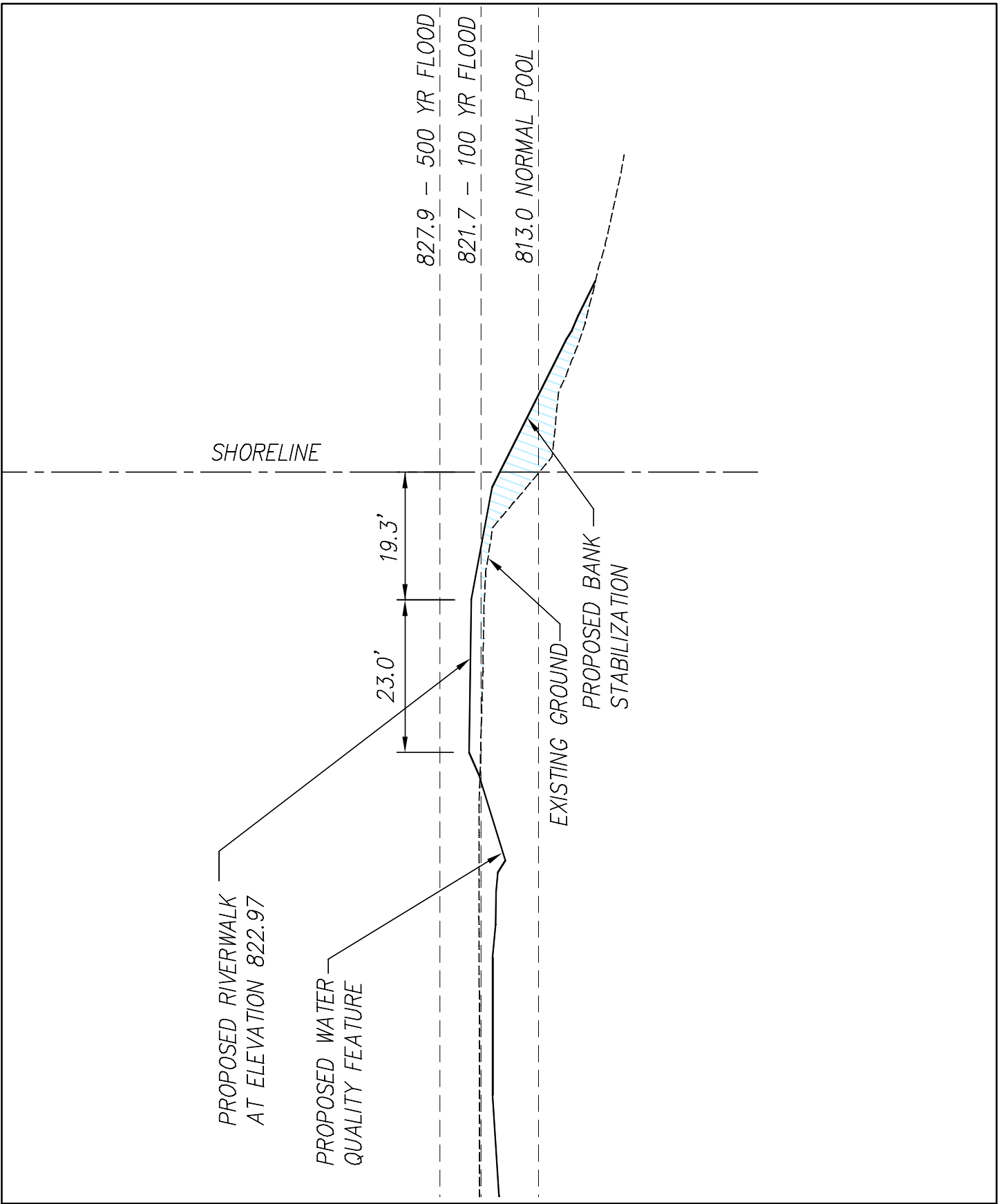
PURPOSE: REDEVELOPMENT OF FORT
LOUDOUN LAKE SOUTH WATERFRONT

**SITE PLAN
AREA 11**

DATUM: NAVD 88
SCALE: 1" = 50'



SHEET 29 OF 53
REVISED 09/03/14



LEGEND



PROPOSED CUT AREA



PROPOSED FILL AREA

KNOXVILLE SOUTH WATERFRONT
PUBLIC IMPROVEMENTS

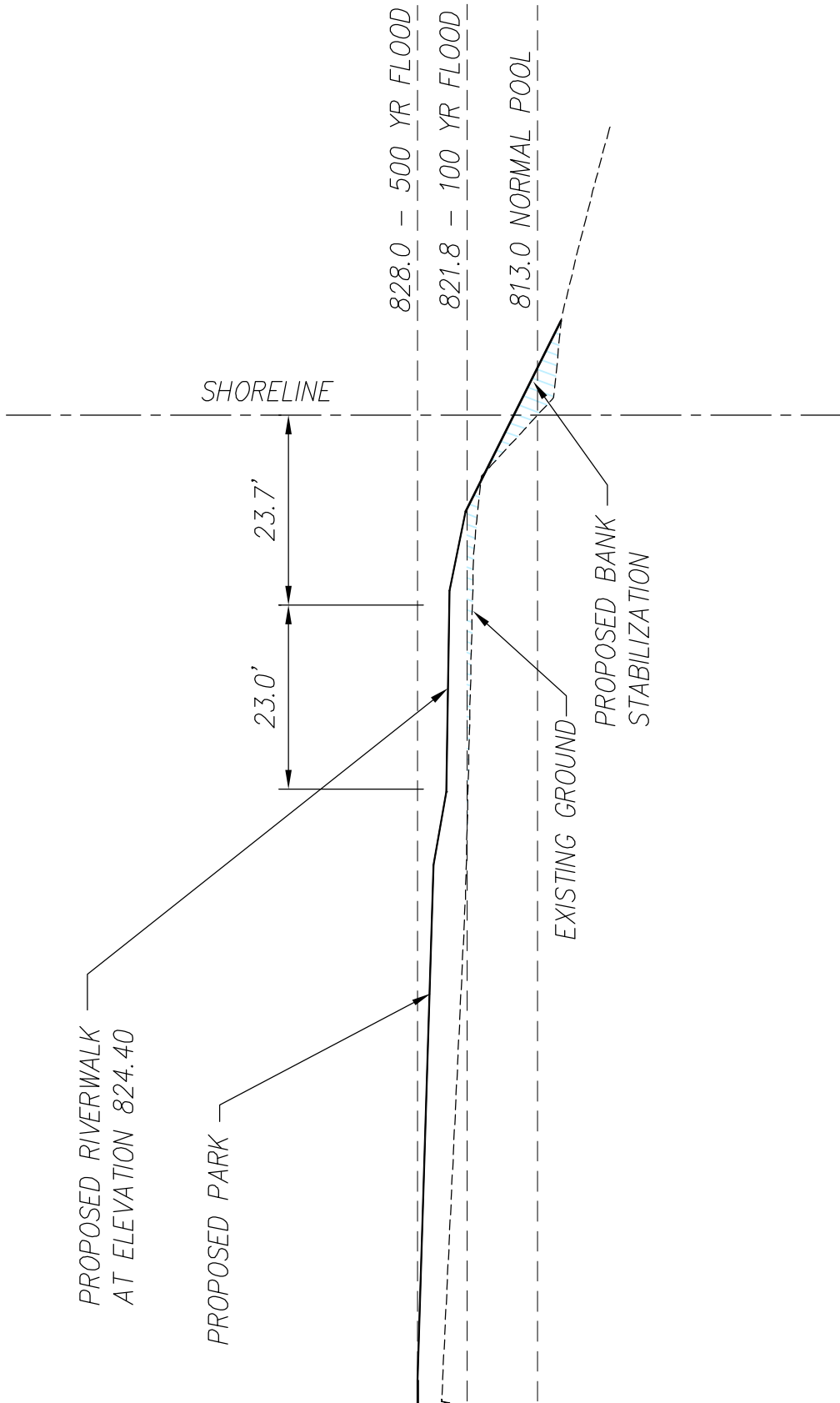
TVA SECTION 26A/ USACE SECTION 404 JOINT
PERMIT APPLICATION
APPLICATION BY: CITY OF KNOXVILLE

PURPOSE: REDEVELOPMENT OF FORT
LOUDON LAKE SOUTH WATERFRONT

SECTION F



SHEET 39 OF 53
REVISED 09/05/13



LEGEND



PROPOSED CUT AREA



PROPOSED FILL AREA

KNOXVILLE SOUTH WATERFRONT
PUBLIC IMPROVEMENTS

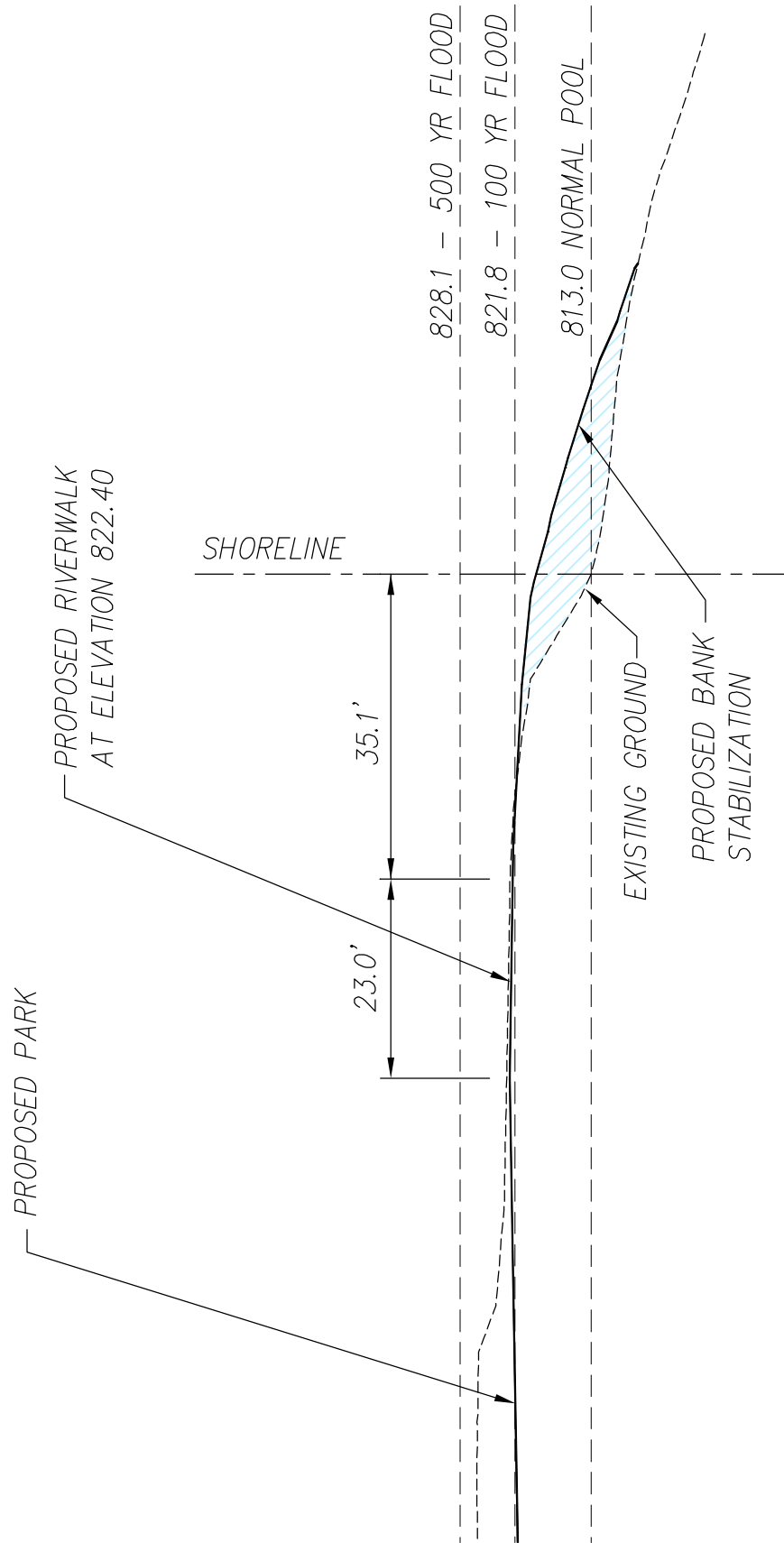
TVA SECTION 26A/ USACE SECTION 404 JOINT
PERMIT APPLICATION
APPLICATION BY: CITY OF KNOXVILLE

PURPOSE: REDEVELOPMENT OF FORT
LOUDON LAKE SOUTH WATERFRONT

SECTION G



SHEET 40 OF 53
REVISED 09/05/13



LEGEND



PROPOSED CUT AREA



PROPOSED FILL AREA

KNOXVILLE SOUTH WATERFRONT
PUBLIC IMPROVEMENTS

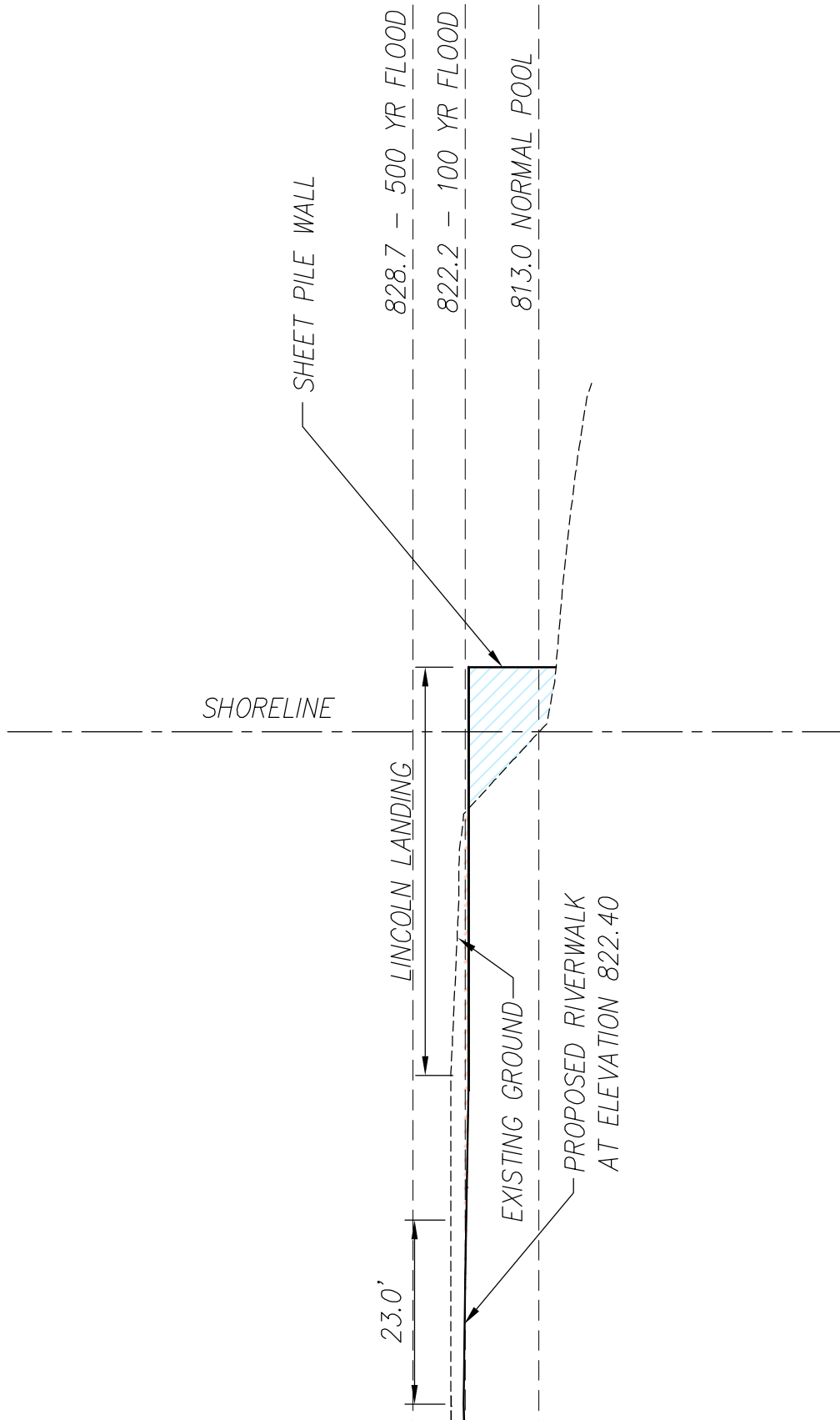
TVA SECTION 26A/ USACE SECTION 404 JOINT
PERMIT APPLICATION
APPLICATION BY: CITY OF KNOXVILLE

PURPOSE: REDEVELOPMENT OF FORT
LOUDON LAKE SOUTH WATERFRONT

SECTION H



SHEET 41 OF 53
REVISED 09/05/13



LEGEND



PROPOSED CUT AREA



PROPOSED FILL AREA

KNOXVILLE SOUTH WATERFRONT
PUBLIC IMPROVEMENTS

TVA SECTION 26A/ USACE SECTION 404 JOINT
PERMIT APPLICATION
APPLICATION BY: CITY OF KNOXVILLE

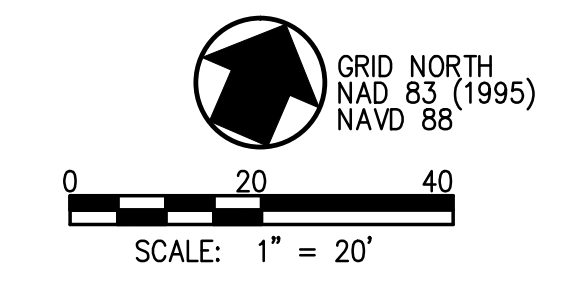
PURPOSE: REDEVELOPMENT OF FORT
LOUDON LAKE SOUTH WATERFRONT

SECTION I

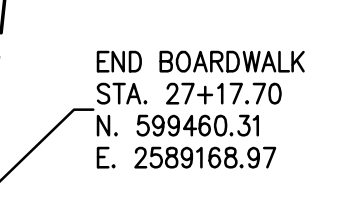
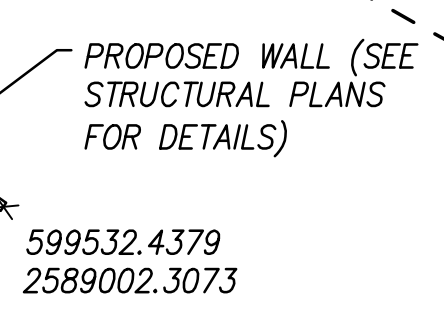
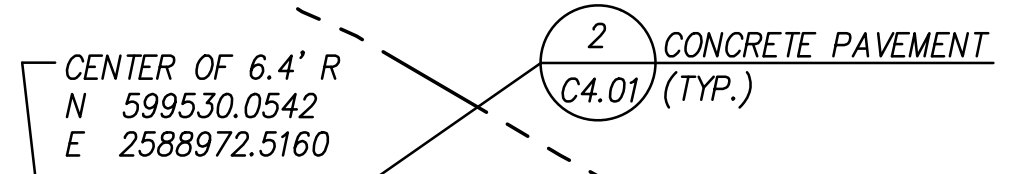
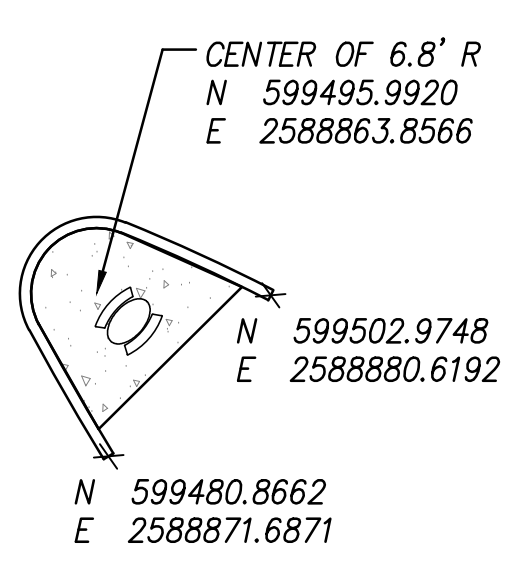


SHEET 42 OF 53
REVISED 09/05/13

FT LOUDOUN LAKE
TENNESSEE RIVER



NOTES:
1. REFER TO SHEET C1.02 FOR GENERAL NOTES.



MATCH LINE STA. 23+35.00 (SEE SHEET C1.02)

CONCRETE SIDEWALK & STA. 24+76.34

PROPOSED WALL (SEE STRUCTURAL PLANS FOR DETAILS)

PROPOSED STAMPED CONCRETE AND ADA RAMP SEE LANDSCAPE PLANS FOR DETAILS

PROPOSED PICNIC TABLES (TYP.) (SEE LANDSCAPE PLANS FOR DETAILS)

STA. 26+05.93, 11' LT

CONCRETE SIDEWALK & STA. 26+27.72

LIMITS OF CONSTRUCTION STA. 0+25.07

WATERFRONT DRIVE

RIVERWALK C1.01 (TYP.)

TO BE REMOVED TO BE REMOVED TO CHERRY

PROPOSED GRASS RAMP

DRIVEWAY RAMP C4.01

LIGHT DUTY ASPHALT C4.01 (TYP.)

KNOXVILLE'S COMMUNITY DEVELOPMENT CORPORATION

H.L. & NANCY DUNLAP

HERCHELL & NANCY DUNLAP

H.L. & NANCY DUNLAP

HERCHELL & NANCY DUNLAP

THOMAS D. & REGINA L. BROWNING

FOGGY BOTTOM STREET

JOHN D WILLIS ET AL

PHILLIPS AVENUE

GEORGIA FRANKLIN

LEGEND

	CONCRETE SIDEWALK
	GRAVEL RUNNING TRAIL
	PROPOSED STAMPED CONCRETE
	DETAIL REFERENCE (DETAIL NO./SHEET NO.)
	EXIST. PROPERTY
	EXIST. R.O.W.
	PROPOSED CENTERLINE
	COORDINATE POINT

REVISIONS	DATE

Cannon & Cannon, Inc.
Consulting Engineers • Field Surveyors
8550 Kingston Pike
Knoxville, Tennessee 37919
Telephone: (865) 670-8555 • Fax: (865) 670-8866
www.cannon-cannon.com

CLIENT:
THE CITY OF KNOXVILLE
400 MAIN SUITE 655
KNOXVILLE, TENNESSEE 37902
TEL. NO. (865) 215-2807

PROJECT:
**SUTTREE LANDING PARK
PHASE 1B
KNOXVILLE, TENNESSEE**

PROPOSED LAYOUT PLAN

PRELIMINARY FOR REVIEW ONLY	CGI PROJECT NO.	00244-00014
	DRAWING DATE	SEPTEMBER 8, 2014
	P.I.C.	RJB C.R.
	DRAWN	-
C1.03		





**ENGINEERING "NO-RISE" CERTIFICATION
 FOR FLOODWAY ENCROACHMENT**

This is to certify that I am a duly qualified engineer licensed to practice in the State of Tennessee. It is further to certify that the attached technical data supports the fact that the Proposed Suttree Landing Park as described in the attached documentation will result in no rise in the Base Flood Elevations (500-year flood) and 100-year floodway elevations and floodway widths on the Tennessee River at published sections in the Flood Insurance Study for Knox County, Tennessee, and Incorporated Areas (470387, 475433, and 475434), dated August 5, 2013; and will result in no rise in the Base Flood Elevations (500-year flood) and 100-year floodway elevations and floodway widths at unpublished cross-sections in the vicinity of the proposed development.

Signature 

Phone Number: (865)-970-0003

EMAIL: bwood@smeinc.com

Representing: City of Knoxville, Tennessee

Address: S&ME, Inc.
 1413 Topside Road
 Louisville, TN 37777



Date: July 25, 2014

FOR COMMUNITY USE ONLY:		
Community Approval		
<input checked="" type="checkbox"/> Approved <input type="checkbox"/> Disapproved		
<i>Charissa Oglesby, P.E.</i>	<i>Charissa Oglesby</i>	<i>SE III</i>
Community Official's Name	Community Official's Signature	Title

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Attachment 2: General Project Design of Suttree Park Landing



Note: Two features at the northeast corner of Suttree Landing Park that are depicted in this figure differ from the City's proposal: no pavilion is planned at the river access/dock area and the alignment of the northeast parking lot is now proposed to be placed in a north-south alignment at the location. See Figure 3 or site drawings in Attachment 1.

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Attachment 3: Location of Shovel Test Plots (STP), Proposed Suttree Landing Park Parking Lot Knoxville South Waterfront (April 24, 2014)

