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TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER POLLUTION CONTROL
APPLICATION FOR AQUATIC RESOURCE ALTERATION PERMIT (ARAP)
&
STATE §401 WATER QUALITY PERMIT

Section 1: Applicant Information An application submitted by a corporation must be signed by a principal executive officer; from a partnership or proprietorship, by the partner or proprietor respectively; from a municipal, state, federal or other public agency or facility, the application must be signed by either a principal executive officer, ranking elected official or other duly authorized employee.

Name: Matt Ingham		**Title or Position:** Director of Agency		
Company Name: State of Tennessee - Department of General Services				
Mailing Address: 312 Rosa L. Parks Avenue, Suite 2400		**City:** Nashville, TN	**State:** TN	**Zip:** 37243
Phone: (615) 532-7434	**Fax:** (615) 509-4466	**E-mail:** matt.ingham@tn.gov		

Section 2: Alternate contact within your organization (not required)

Name:		**Title or Position:**		
Mailing Address:		**City:**	**State:**	**Zip:**
Phone:	**Fax:**	**E-mail:**		

Section 3: Consultant Information (a consultant is not required)

Name: Jason E. Lowe*		**Title or Position:** Department Manager		
Company Name: SSOE Group				
Mailing Address: 320 Seven Springs Way, Ste. 350		**City:** Brentwood	**State:** TN	**Zip:** 37027
Phone: 615.661.7585	**Fax:** 615.661.7569	**E-mail:** jlowe@ssoe.com		

→ **Place a * next to the individual's name listed above that should be the primary contact during the application process** ←

Section 4: Fee (check appropriate box and submit appropriate fee with application)

Amount of fee:

☐ **$50.00** ☐ **$1,000.00** ☐ **$2,500.00** ☑ **no fee required**

Requests for General Permit coverage require no fee. Requests for Individual Permit alterations on private farms and residences require a $50.00 application fee. Requests for Individual Permit alterations less than 1,000 feet of stream or less than 10 acres of wetland require a $1,000.00 application fee. Requests for alterations over 1,000 feet of stream and greater than 10 acres of wetlands require a $2,500.00 application fee. (Checks payable to Treasurer, State of Tennessee.)

Section 5: Project Details (fill in information and check appropriate boxes)

Project / Site Name: Memphis Regional Megasite

Nearest City, Town or Major Landmark: Stanton and Brownsville, TN	**County:** Haywood

Resource Proposed for Alteration:
☑ **Stream** ☑ **Wetland** ☐ **Reservoir**

Name of Resource: Hatchie River, Sugar Creek Little Muddy Creek, Big Buddy Creek, Turpine Lake

Latitude: (decimal degrees, NAD83): RE: Exhibit drawings

Longitude: (decimal degrees, NAD83): RE: Exhibit drawings

Type of proposed alteration(s):

☐ **Road Crossing**
☑ **Utility Line**
☐ **Intake/Outfall Structure**
☐ **Stream or Wetland Restoration**
☐ **Wetland Fill/Excavation**
☐ **Other:**
☐ **Dredging**
☐ **Launching Ramp**
☐ **Bank Stabilization**
☐ **Maintenance Activities**
☐ **Water Withdrawal**

Brief Project Description (a more detailed description is requested in Section 8):

Project involves the installation of a 15 mile sanitary force main from Stanton to Brownsville TN and an on-site water distribution system. Both utilities include multiple stream and wetland crossings.

Do any other alterations require approval from any other state, federal, or local government agency associated with the project site? If yes, provide brief description and status of approval.

A TN General NPDES Permit for discharge of storm water associated with construction activities will be required - No approval yet.

A Nationwide 12 permit from The Army Corps of Engineers will be required - No approval yet

Section 6: Directions to Project Site

From Interstate 40, take Exit 42, and head north-bound on Stanton Road.

Section 7: Project Schedule (fill in information and check appropriate boxes).

How long will it take to perform the proposed activity?
15 months

Is any portion of the activity complete now? ☐ **Yes** ☑ **No**
If yes, describe the extent of the completed portion below:

N/A

The required information in sections 8 - 12 must be submitted on a separate sheet(s) and submitted in the same numbered format as presented. If you believe that a certain request does not pertain to your project, explain the reason.

Section 8: Project Description

8.1 A narrative description of the scope of the project
8.2 USGS topographic map indicating the exact location of the project (can be photographic copy)
8.3 Photographs of the resource(s) proposed for alteration with location description (photo locations should be noted on map)
8.4 A narrative description of the existing stream and/or wetland characteristics including, but not limited to, dimensions (e.g., depth, length, average width), substrate and riparian vegetation
8.5 A narrative description of the proposed stream and/or wetland characteristics including, but not limited to, dimensions (e.g., depth, length, average width), substrate and riparian vegetation
8.6 In the case of wetlands, include a wetland delineation with delineation forms and site map denoting location of data points

Section 9: Purpose and Justification

9. Describe the purpose for the proposed activity and overall project

Section 10: Alternatives

10. Describe all practicable alternatives considered, including what has been done to avoid or minimize impacts to streams or wetlands. For activities not covered by General Permit, each alternative must include the following: (1) feasibility, (2) environmental consequences and (3) social and economic benefits of each alternative.

Section 11: Mitigation

11.1 A detailed discussion of the proposed mitigation, if required
11.2 If you believe mitigation is not required, state the reason or cite the regulation to support this position
11.3 A detailed discussion of why you believe the mitigation would result in no net loss of resource value
11.4 A detailed description of the proposed monitoring plan for the mitigation site
11.5 A discussion of long term protection measures for the mitigation site

Section 12: Technical Information

12.1 Detailed plans, blueprints, or legible sketches of present site conditions and the proposed activity. Plans must be 8.5 x 11 inches. Additional larger plans may also be submitted to aid in application review. The detailed plans need to include dimensions of the existing and proposed stream or wetland such as depth, length, average width, substrate and riparian vegetation.

12.2 If mitigation is proposed, submit detailed plans, blueprints, or legible sketches of the proposed mitigation

12.3 For both the proposed activity and mitigation, provide a discussion regarding the sequencing of events

12.4 Location and type of erosion prevention and sediment control measures for the proposed alterations

12.5 A discussion on how the proposed activity will be performed (construction methods)

12.6 A copy of all hydrologic or jurisdictional determination documents issued for the water resources on the project site.

Section 13: Certification and Signature:

I certify under penalty of law that this document and all attachments were prepared at my request or under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Printed Name	Official Title	Signature	Date
MATT INGHAM	DIRECTOR, AGENCY DEVELOPMENT	MAI	9.24.13

Section 14: Where do I send my application?

For General Permit coverage, submit the original completed and signed application to the local Environmental Field Office (EFO) for the county of your activity. Addresses of the EFOs are listed below. Mark the application ATTN: Water Pollution Control. Submit all applications for Individual ARAPs to the Natural Resources Section at the following address, and send a copy to the appropriate EFO.

Tennessee Department of Environment and Conservation
Water Pollution Control
Natural Resources Section
7th Floor L&C Annex
401 Church Street
Nashville, TN 37243

Jackson EFO	Nashville EFO	Cookeville EFO	Johnson City EFO
1625 Hollywood Drive 38305 Phone: 731-512-1300 Counties: Benton, Carroll, Chester, Crockett, Decatur, Dyer, Gibson, Hardeman, Hardin, Haywood, Henderson, Henry, Lake, Lauderdale, Madison, McNairy, Obion, Weakley	711 R. S. Gass Boulevard 37243 Phone: 615-687-7000 Counties: Cheatham, Davidson, Dickson, Houston, Humphreys, Montgomery, Robertson, Rutherford, Stewart, Sumner, Trousdale, Williamson, Wilson	1221 South Willow Ave. 38506 Phone: 931-432-4015 Counties: Cannon, Clay, Cumberland, Dekalb, Fentress, Jackson, Macon, Overton, Pickett, Putnam, Smith, Van Buren, Warren, White	2305 Silverdale Road 37601 Phone: 423-854-5400 Counties: Carter, Greene, Hancock, Hawkins, Johnson, Sullivan, Unicoi, Washington
Memphis EFO	**Columbia EFO**	**Chattanooga EFO**	**Knoxville EFO**
8383 Wolf Lake Drive Bartlett, TN 38133 Phone: 901-371-3000 Counties: Fayette, Shelby, Tipton	1421 Hampshire Pike 38401 Phone: 931-380-3371 Counties: Bedford, Coffee, Franklin, Giles, Hickman, Lawrence, Lewis, Lincoln, Marshall, Maury, Moore, Perry, Wayne	540 McCallie Avenue STE 550 State Office Building 37402 Phone: 432-634-5745 Counties: Bledsoe, Bradley, Grundy, Hamilton, Marion, McMinn, Meigs, Polk, Rhea, Sequatchie	3711 Middlebrook Pike 37921 Phone: 865-594-6035 Counties: Anderson, Blount, Campbell, Claiborne, Cocke, Grainger, Hamblen, Jefferson, Knox, Loudon, Monroe, Morgan, Roane, Scott, Sevier, Union

Section 15: Administrative Information (Official Use Only).

Date Received:	File# assigned	Fee paid:	Application administratively complete:	Complete Application date:
		☐ Yes ☐ No ☐ N/A Ck #	☐ Yes ☐ No	

Table of Contents:

Section 8

8.1 Project Scope
This project involves river/creek/wetland crossings. The portion covered under this permit includes sanitary sewer force main and a water main. The sanitary sewer force main consists of installing an 18" diameter HDPE or fusible PVC trunk line from the project site in Stanton to Brownsville. Refer to **Appendix A** for location of the force main routing. There are 20 proposed crossing along this route, and most of the crossings will be horizontally directional drilled, which will have the least amount of environmental impact.

The water main package involves two (2) stream crossings for an on-site 16" diameter DIP water distribution piping system and one (1) stream crossing for a proposed 4" sanitary force main. These stream crossings will be completed using conventional open-cut construction methods. Where the pipe crosses the stream, a section will be diked and pumped to allow for the installation. The bottom of the channel will be open cut for the pipe and then backfilled with gravel and native soil. The top of the existing stream bank will be capped with concrete and rip-rap to prevent erosion problems due to the excavation. Once this section of work has been completed, the dyke will be removed, and the streambed will be returned to the original condition and elevation.

8.2 Topographic Map
Refer to attached **Appendix A**

8.3 Photos
Refer to attached **Appendix C**

8.4 Existing Stream Characteristics
Refer to attached **Appendix B**

8.5 Proposed Stream Characteristics
There are no permanent characteristic changes proposed for the project area.

8.6 Wetlands
Refer to construction plans attached in **Appendix D**

Section 9

9. Purpose of the Project
The main purpose for this project is to establish utility infrastructure for the 4,000 acre site, which will ultimately serve a future auto-manufacturer or other large industrial client. The utility infrastructure includes water, sewer, electric and gas services. This permit only pertains to the water and sanitary sewer scopes of work.

Section 10

10. Alternatives

Alternatives considered for this project pertain to the method utilized for the crossings. For the sanitary force main, there are no viable alternative paths between the Megasite property and the Brownsville wastewater treatment plant that do not involve crossing the Hatchie River and wetlands.

However, the first alternative crossing method considered was to support the force main line above the water level in the river and wetland areas. Due to the extremely large span of the river and wetland areas, multiple piers would be required in order to adequately support the utility. In addition to the expensive cost associated with this type of installation, installing piers leaves a permanent obstruction in the path of the flow of water. Obstructions can lead to debris getting trapped and ultimately affect the flow of water.

Crossing the wetlands via open-cut trenching was also considered. However, this method would result in significant environmental damage and construction time, not to mention the cost of construction would be substantial.

As previously mentioned, the on-site water line is to be installed using traditional open-cut methodologies. There were other alternatives to the open-cut methodologies considered. One method considered was to directional bore the on-site water line beneath the stream bed. This option was not preferred due to the significantly higher cost associated with this methodology and cost-effectiveness due to the relatively small footprints of the streams that would be impacted.

Section 11

11.1 Mitigation

General Mitigation

General mitigation measures will be taken inherently by the construction methods proposed for the crossings.

Any potential problems created by damage to the water line and sanitary force main have been addressed to the maximum extent possible. The conduit for the sanitary force main will be made of stiff high density polyethylene (HDPE) or polyvinyl chloride (PVC) pipe with fusible joints. The fusible joints are an important part to ensure no leakage occurs from the pipe.

Project Detail Mitigation

The first area of mitigation is within the stream bed for the proposed water line. While the flow pattern of the bed will be changed temporarily to allow for installation of the water line, it will be important to return the bed to its original flow pattern. This will be accomplished by ensuring that the contractor provides a concrete cap on the utility trench which matches existing grades.

Furthermore, the stream banks will be stabilized with rip-rap. These measures should provide adequate protection for the water line as well as return the stream bed to its original state.

The second area of mitigation will occur on the stream banks. A number of trees will need to be removed in order to get equipment into the river bed to perform the work. Upon completion of the installation of the water line, any damaged or removed trees will be replanted along the banks to ensure that the original condition is maintained.

By performing these measures, the original condition of both the stream bed and the stream banks should be restored within a few months after the completion of construction. Once the trees take root, there should be no further erosion along the bank within the areas where work was performed.

11.2 If Mitigation is not required
This section is not applicable

11.3 No Net Loss
This section is not applicable

11.4 Proposed Monitoring of Mitigation Site
During the construction the contractor will be responsible for monitoring mitigation.

11.5 Long Term Protection Measures
This section is not applicable

Section 12

12.1 Detailed Plans
Refer to attached drawings in **Appendix D**

12.2 Mitigation Plans
Refer to attached drawings in **Appendix D**

12.3 Construction Sequencing
Refer to attached drawings in **Appendix D**

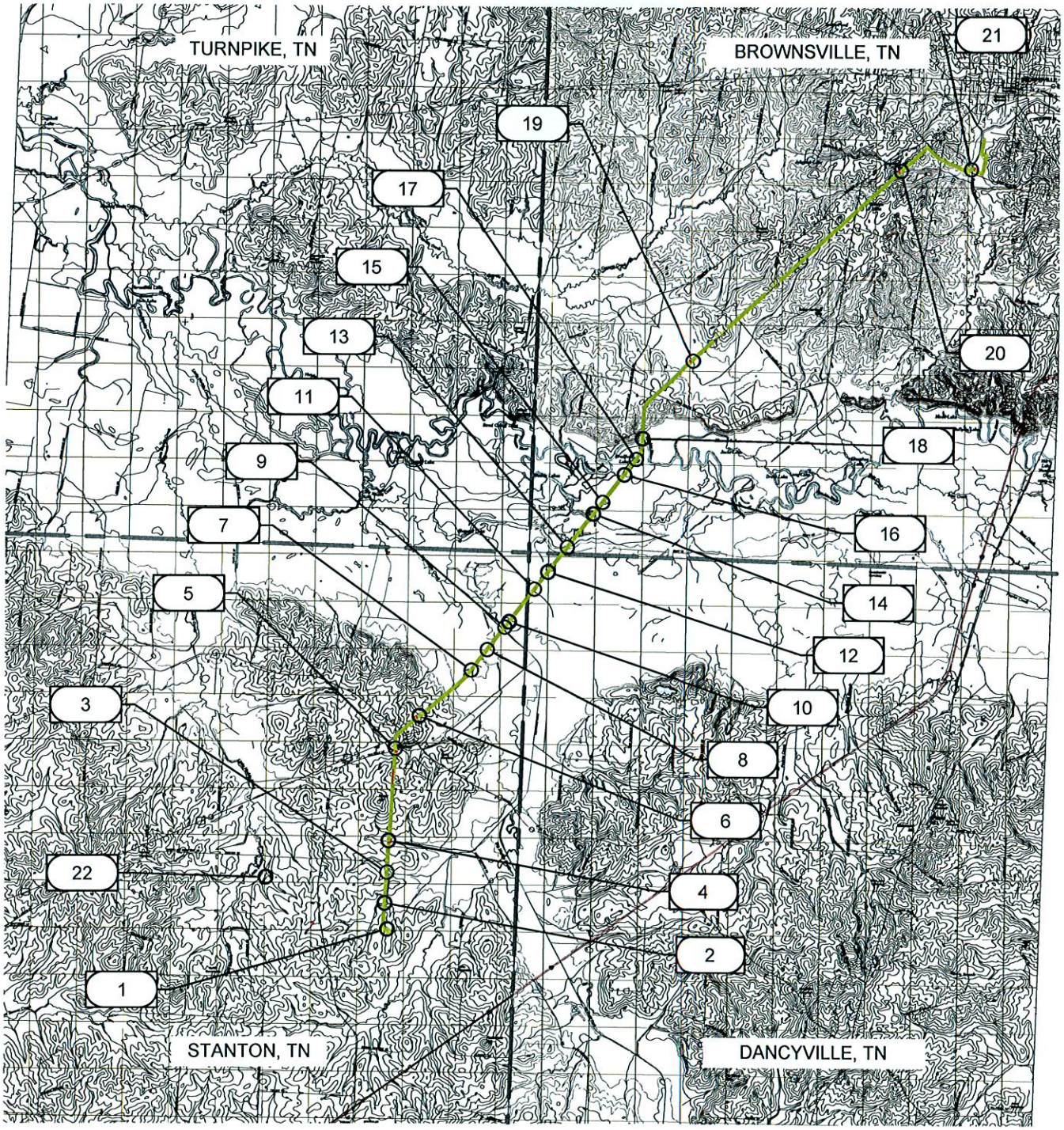
12.4 Erosion Prevention and Sediment Control
Refer to attached drawings in **Appendix D**

12.5 Construction Methods
Refer to attached drawings in **Appendix D**

12.6 Hydrologic and Jurisdictional Determination
Not available

Appendix A: USGS Topographic Map

SSOE	PROJECT NO: 012-02080-00 PROJECT MANAGER: J. LOWE DESIGNED: K. CRUMLEY CHECKED: M. TOWLES © COPYRIGHT SSOE, Inc. 2011	DRAWING TITLE: OVERALL SITE PLAN AQUATIC RESOURCE ALTERATION PERMIT	PROJECT TITLE: ARAP DRAWING NO: OVERALL SITE



NORTH

USGS QUADRANGLE LOCATION

TURNPIKE	BROWNSVILLE
STANTON	DANCYVILLE

ADJOINING 7.5' QUADRANGLES

0' 10,000' 20,000' 30,000'

GRAPHIC SCALE : 1" = 10,000'

DATE: Sep 17, 201_ _pm USER: 41409
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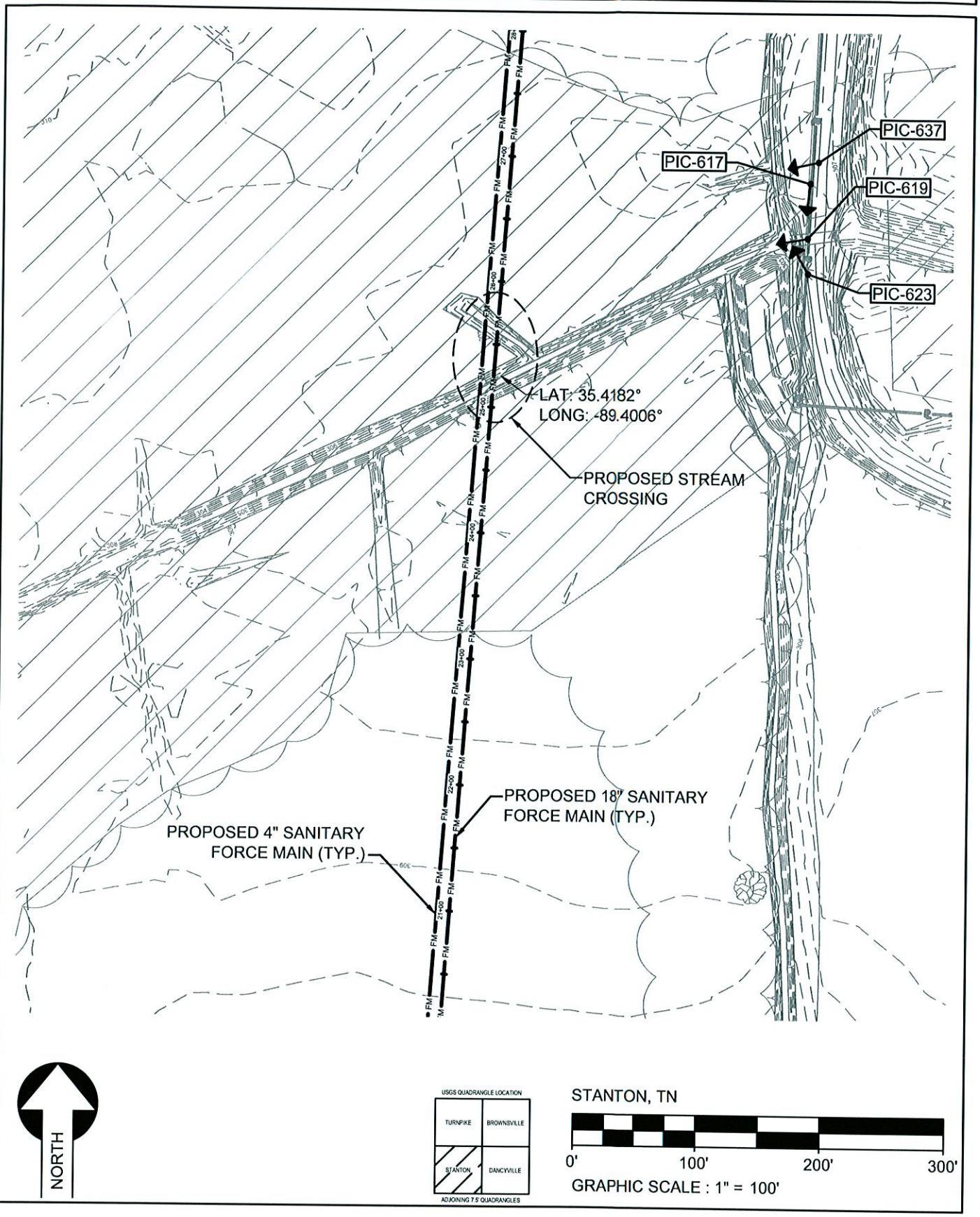
Appendix B: Exhibit Drawings

SSOE	PROJECT NO: 012-02080-00 PROJECT MANAGER: J. LOWE DESIGNED: K. CRUMLEY CHECKED: M. TOWLES © COPYRIGHT SSOE, Inc. 2011	DRAWING TITLE: CROSSING NO. 1 AQUATIC RESOURCE ALTERATION PERMIT	PROJECT TITLE: MEMPHIS REGIONAL MEGASITE DRAWING NO: EXHIBIT NO. 1



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SSOE

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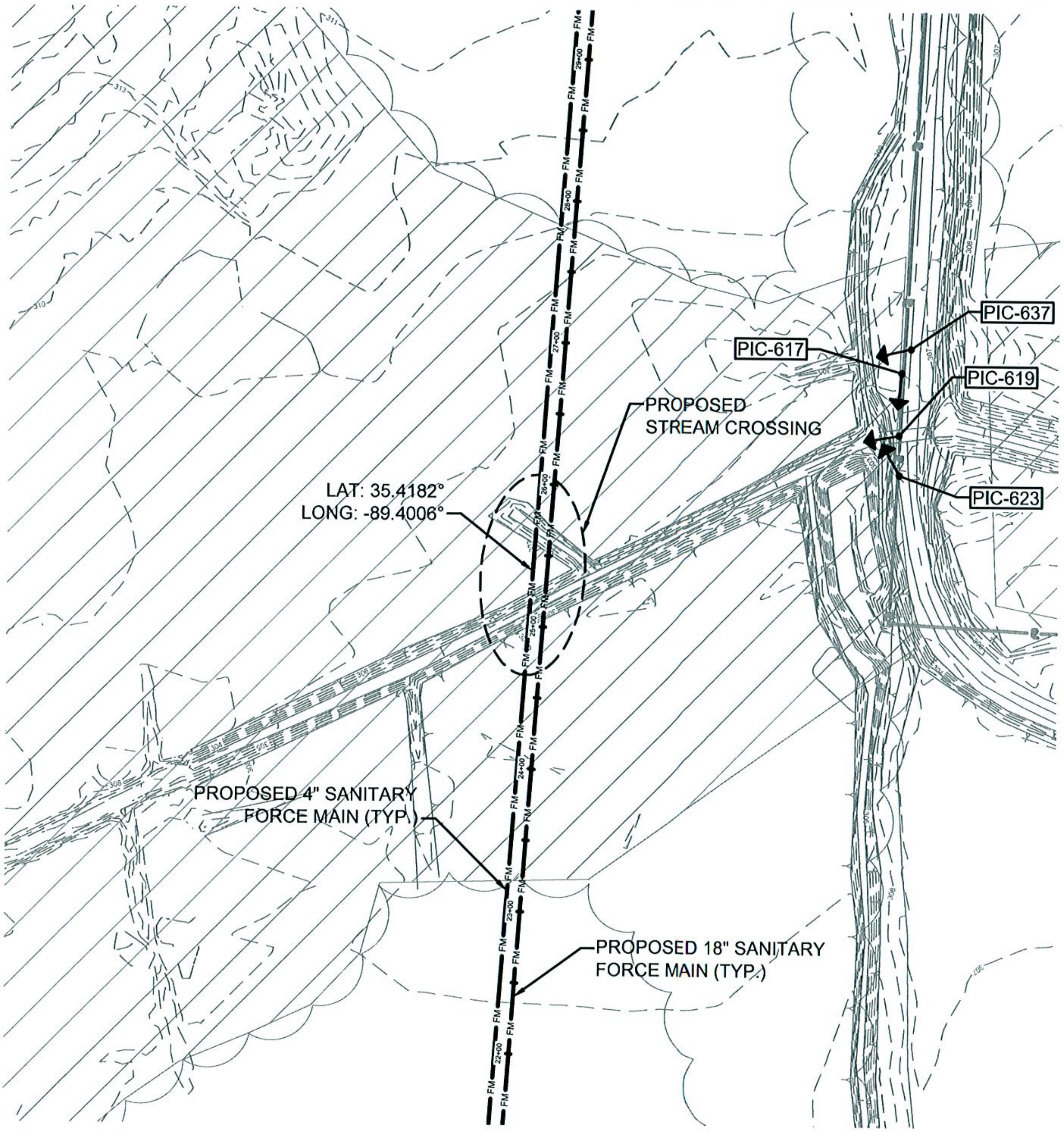
PROJECT MANAGER:	J. LOWE		DRAWING NO: EXHIBIT NO. 2
DESIGNED:	K. CRUMLEY		
CHECKED:	M. TOWLES		
COPYRIGHT	SSOE, Inc. 2011		



NORTH

USGS QUADRANGLE LOCATION

TURNPIKE	BROWNSVILLE
STANTON	DANCYVILLE

ADJOINING 7.5' QUADRANGLES

STANTON, TN

0' 100' 200' 300'

GRAPHIC SCALE : 1" = 100'

DATE: Sep 16, 201_ _pm USER: 15204
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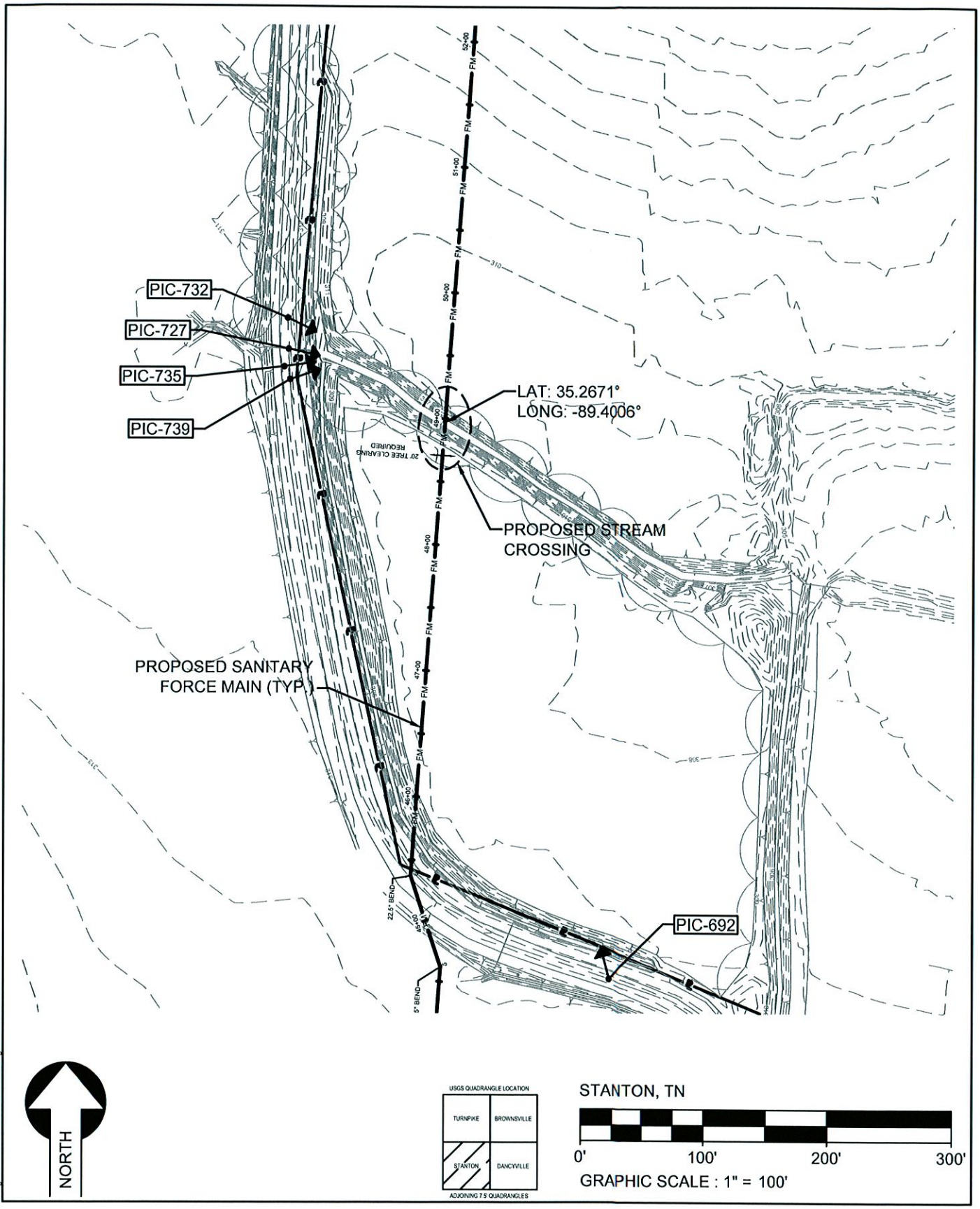
SSOE	PROJECT NO: 012-02080-00 PROJECT MANAGER: J. LOWE DESIGNED: K. CRUMLEY CHECKED: M. TOWLES COPYRIGHT SSOE, Inc. 2011	DRAWING TITLE: CROSSING NO. 3 AQUATIC RESOURCE ALTERATION PERMIT	PROJECT TITLE: MEMPHIS REGIONAL MEGASITE DRAWING NO: EXHIBIT NO. 3



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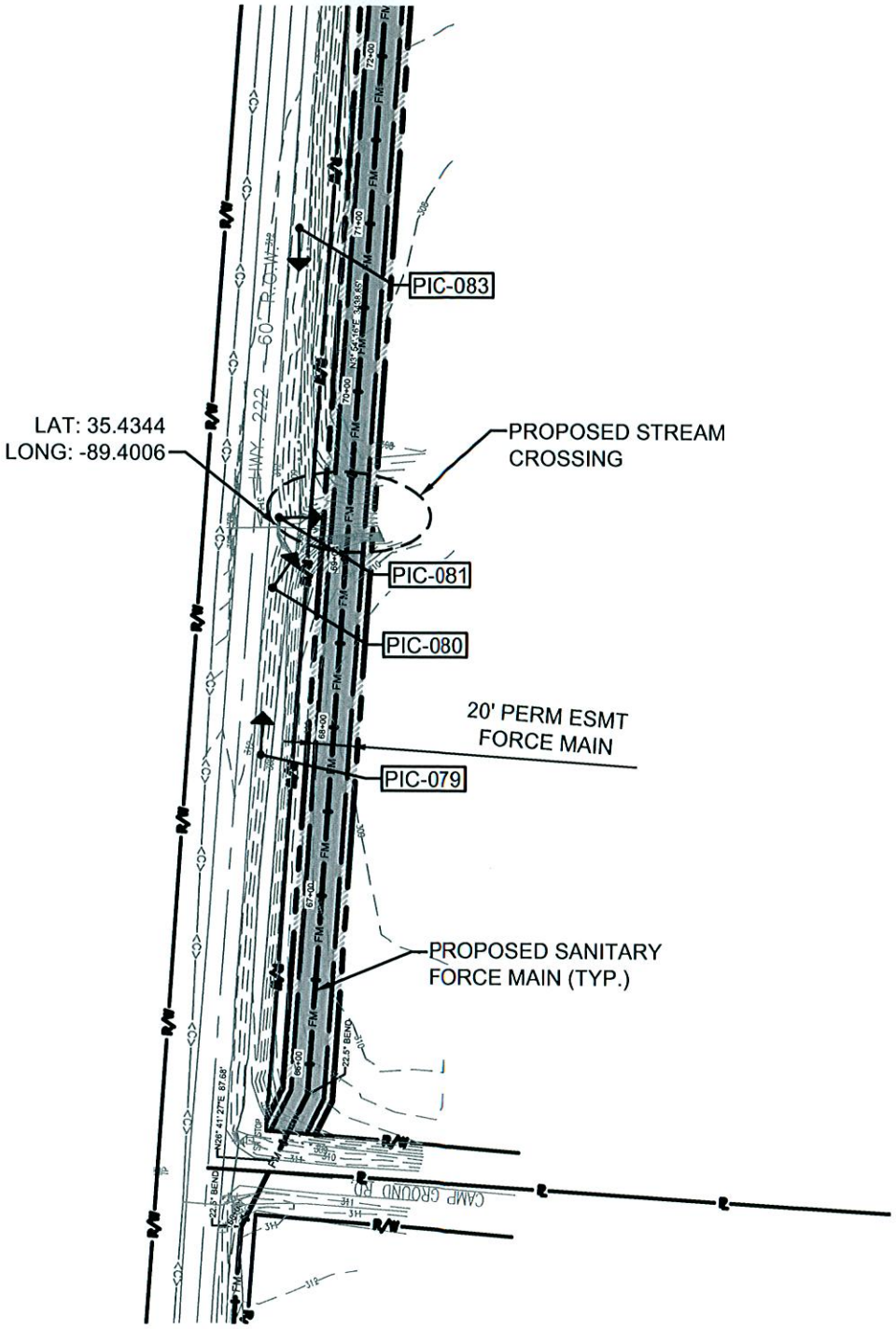

NORTH

USGS QUADRANGLE LOCATION

ADJOINING 7.5' QUADRANGLES

STANTON, TN

0' 100' 200' 300'

GRAPHIC SCALE : 1" = 100'

DATE: Sep 16, 201[illegible] 3pm USER: 15204
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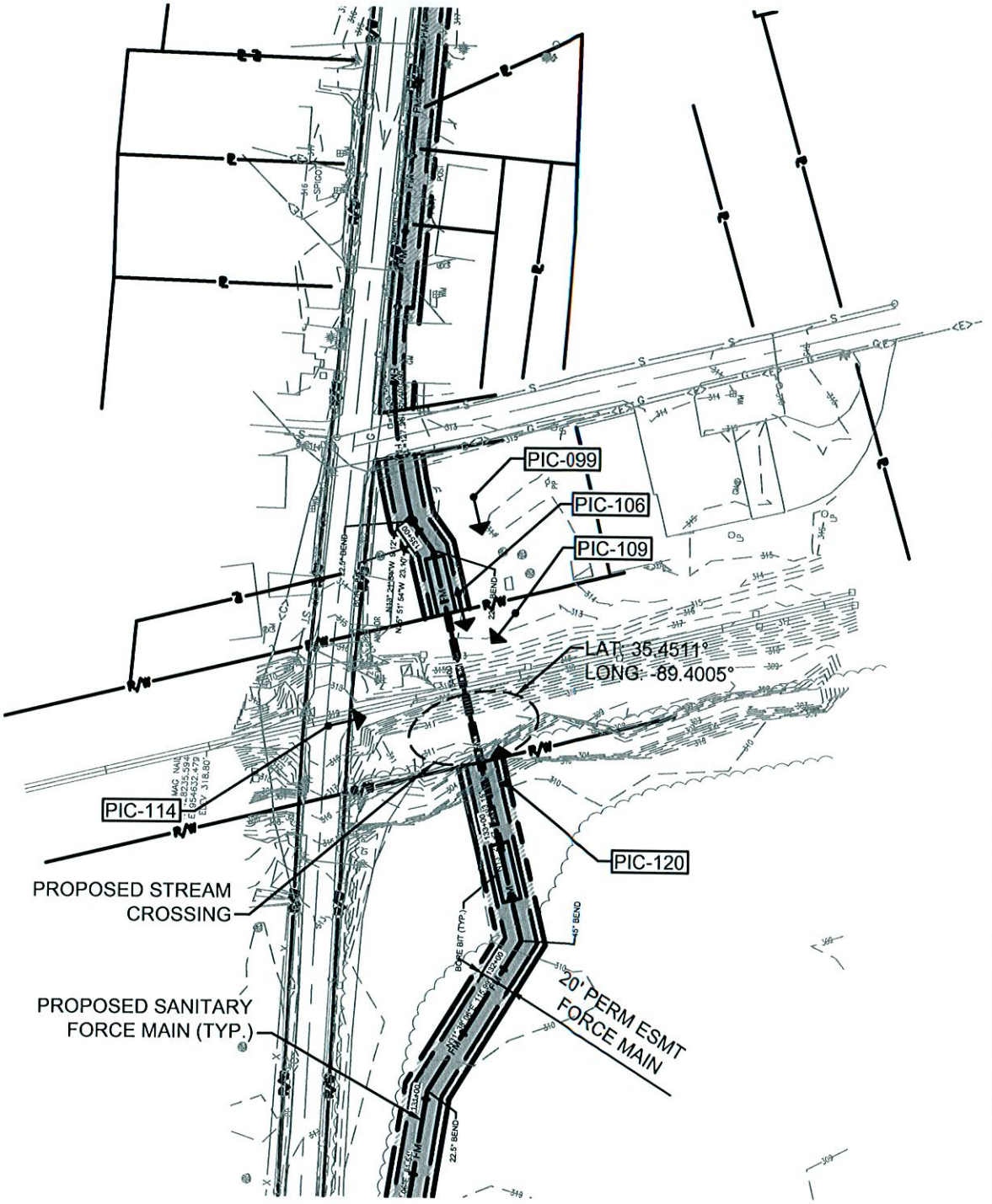

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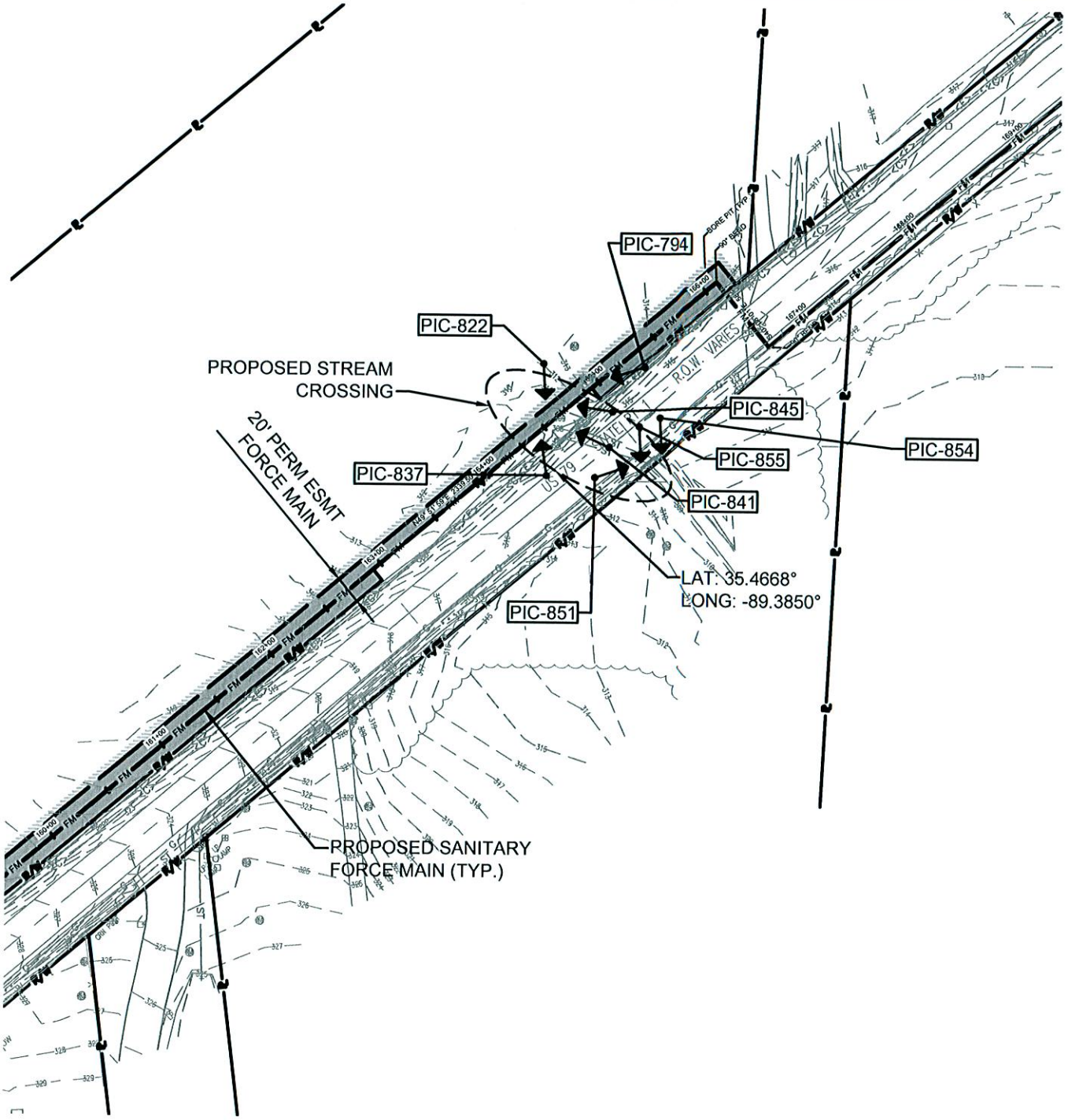

NORTH

USGS QUADRANGLE LOCATION

TURNPIKE	BROWNSVILLE
STANTON	DANCYVILLE

ADJOINING 7.5' QUADRANGLES

STANTON, TN

0' 100' 200' 300'

GRAPHIC SCALE : 1" = 100'

DATE: Sep 17, 201... 7am USER: 15204
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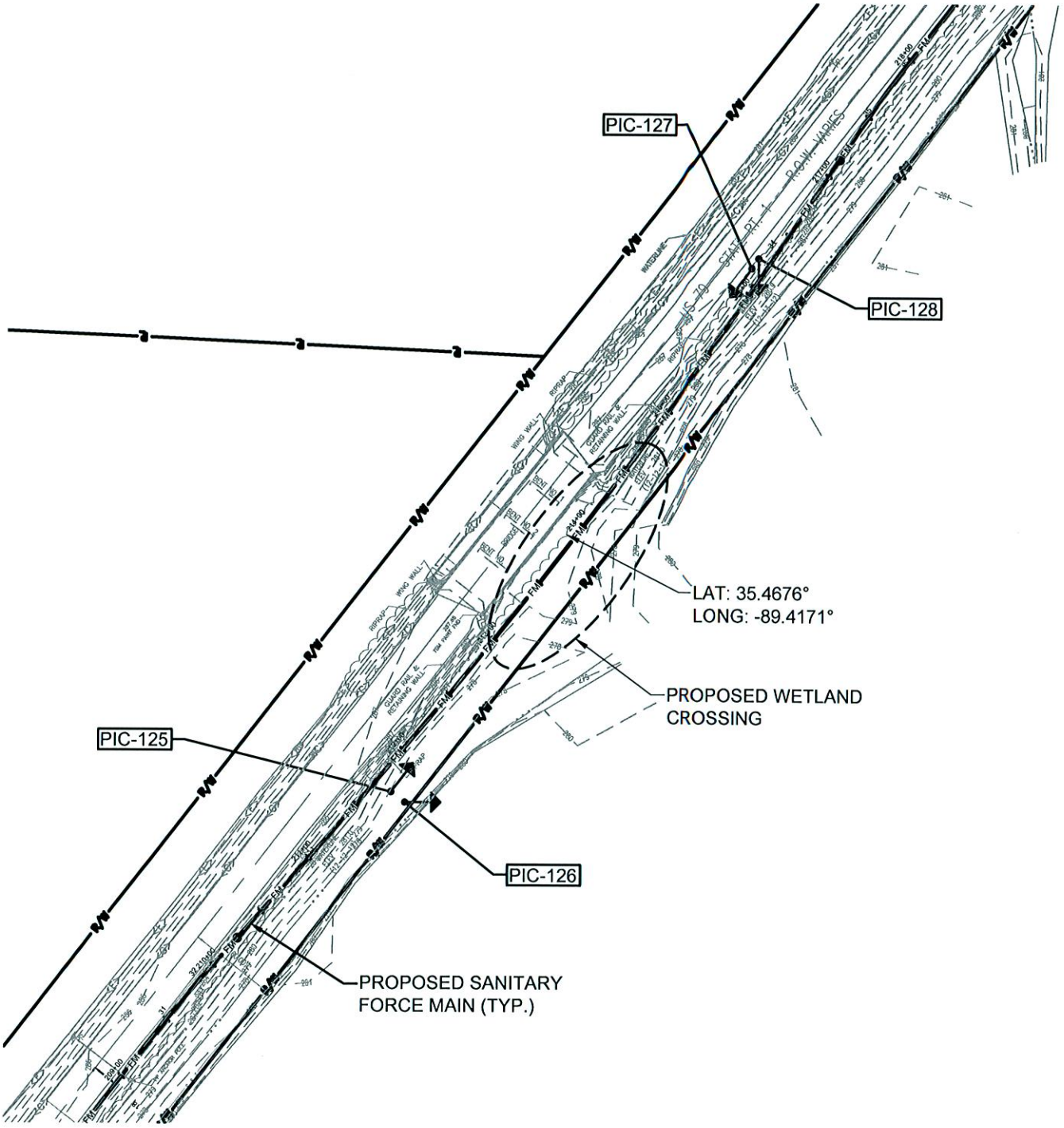
SSOE	PROJECT NO: 012-02080-00 PROJECT MANAGER: J. LOWE DESIGNED: K. CRUMLEY CHECKED: M. TOWLES © COPYRIGHT SSOE, Inc. 2011	DRAWING TITLE: CROSSING NO. 7 AQUATIC RESOURCE ALTERATION PERMIT	PROJECT TITLE: MEMPHIS REGIONAL MEGASITE DRAWING NO: EXHIBIT NO. 7



NORTH

USGS QUADRANGLE LOCATION

TURNPIKE	BROWNSVILLE
STANTON	DANCYVILLE

ADJOINING 7.5' QUADRANGLES

STANTON, TN

0' 100' 200' 300'

GRAPHIC SCALE : 1" = 100'

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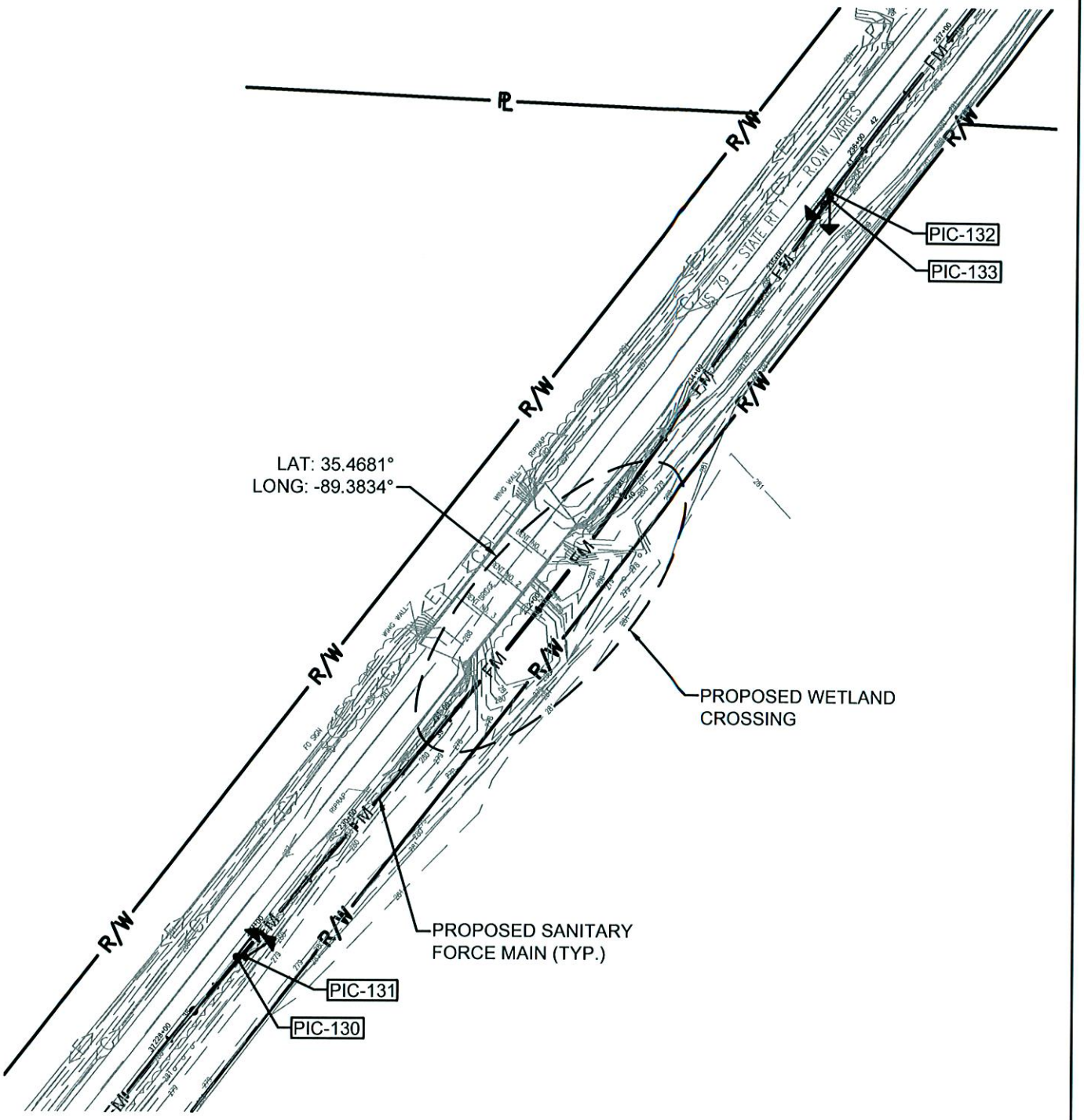

NORTH

USGS QUADRANGLE LOCATION

TURNPIKE	BROWNSVILLE
STANTON	DANCYVILLE

ADJOINING 7.5' QUADRANGLES

STANTON, TN

0' 100' 200' 300'

GRAPHIC SCALE : 1" = 100'

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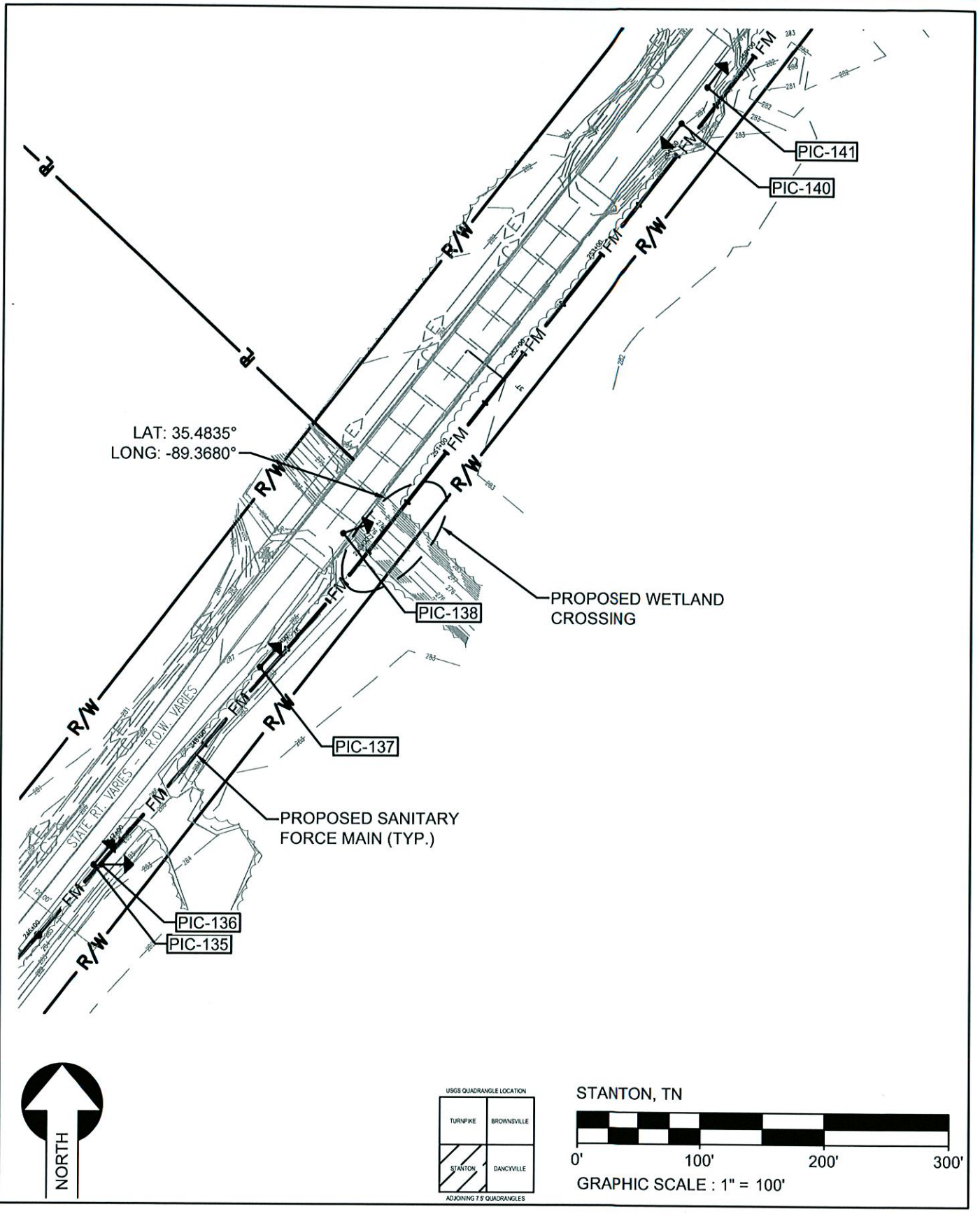

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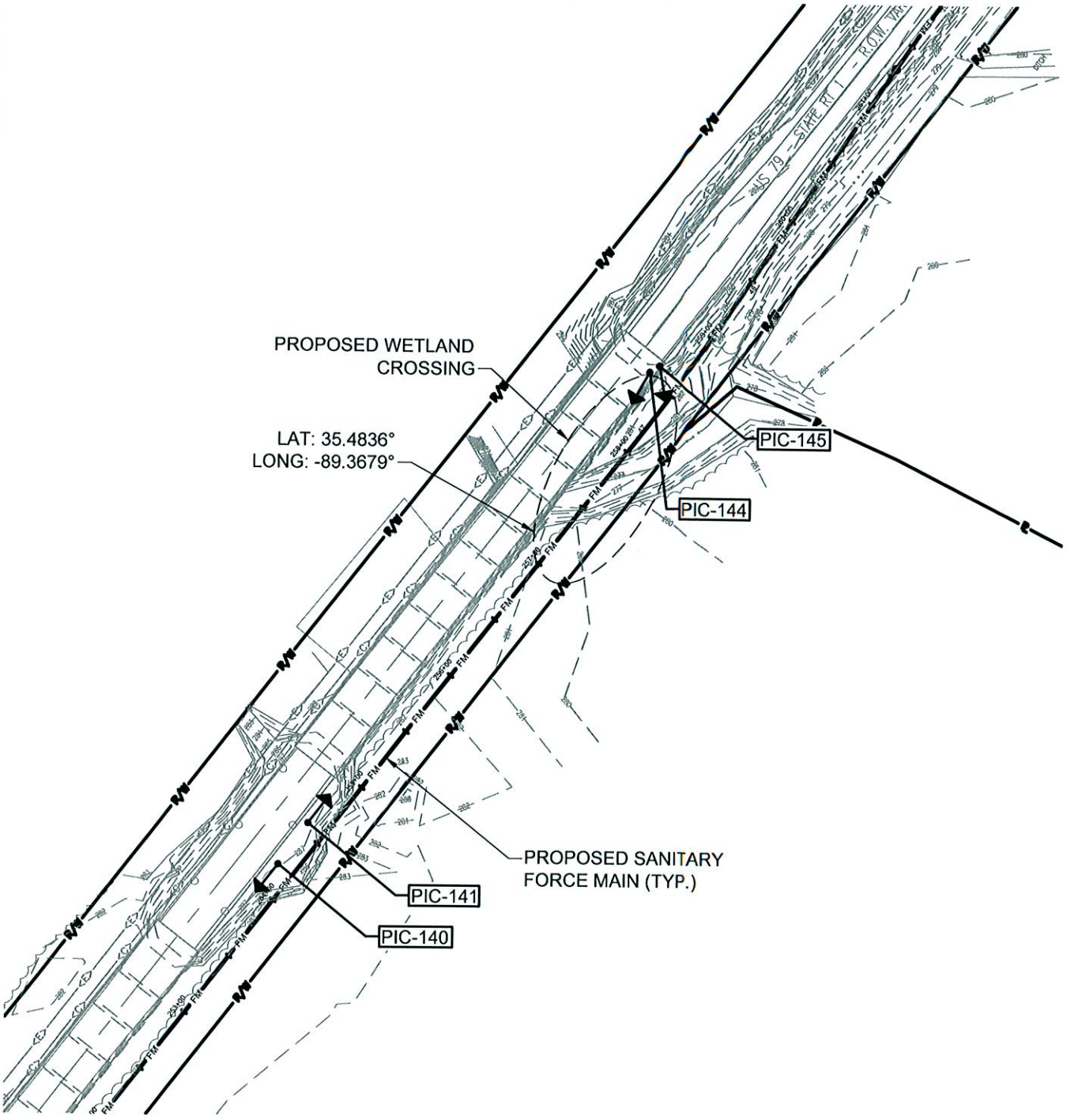

NORTH

USGS QUADRANGLE LOCATION

TURNPIKE	BROWNSVILLE
STANTON	DANCYVILLE

ADJOINING 7.5 QUADRANGLES

BROWNSVILLE, TN

0' 100' 200' 300'

GRAPHIC SCALE : 1" = 100'

DATE: Sep 16, 2015 - 6pm USER: 15204
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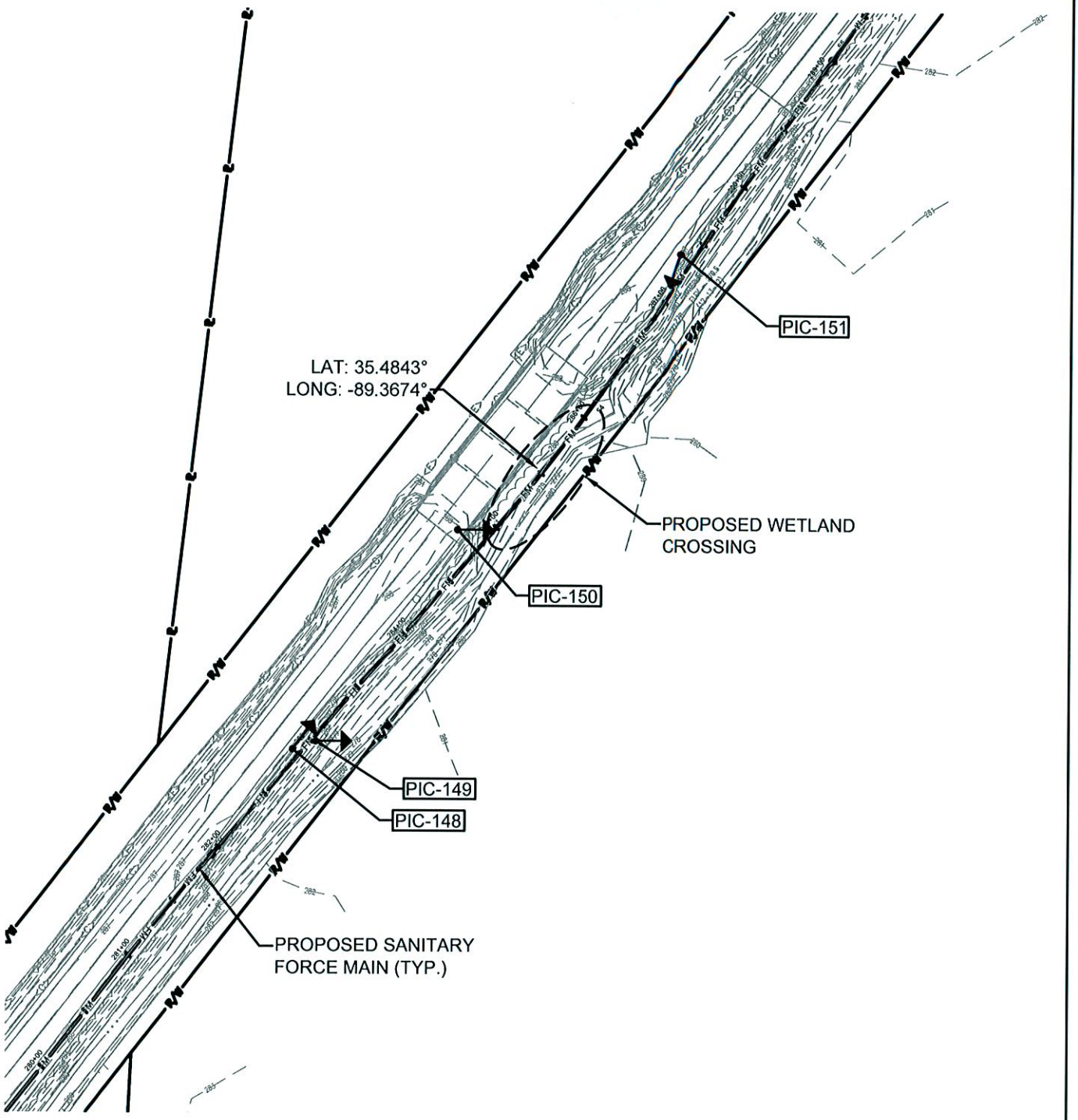
SSOE	PROJECT NO: 012-02080-00 PROJECT MANAGER: J. LOWE DESIGNED: K. CRUMLEY CHECKED: M. TOWLES COPYRIGHT SSOE, Inc. 2011	DRAWING TITLE: CROSSING NO. 11 AQUATIC RESOURCE ALTERATION PERMIT	PROJECT TITLE: MEMPHIS REGIONAL MEGASITE DRAWING NO: EXHIBIT NO. 11



NORTH

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TURNPIKE	BROWNSVILLE
STANTON	DANCYVILLE

ADJOINING 7.5 QUADRANGLES

DANCYVILLE, TN

0' 100' 200' 300'

GRAPHIC SCALE : 1" = 100'

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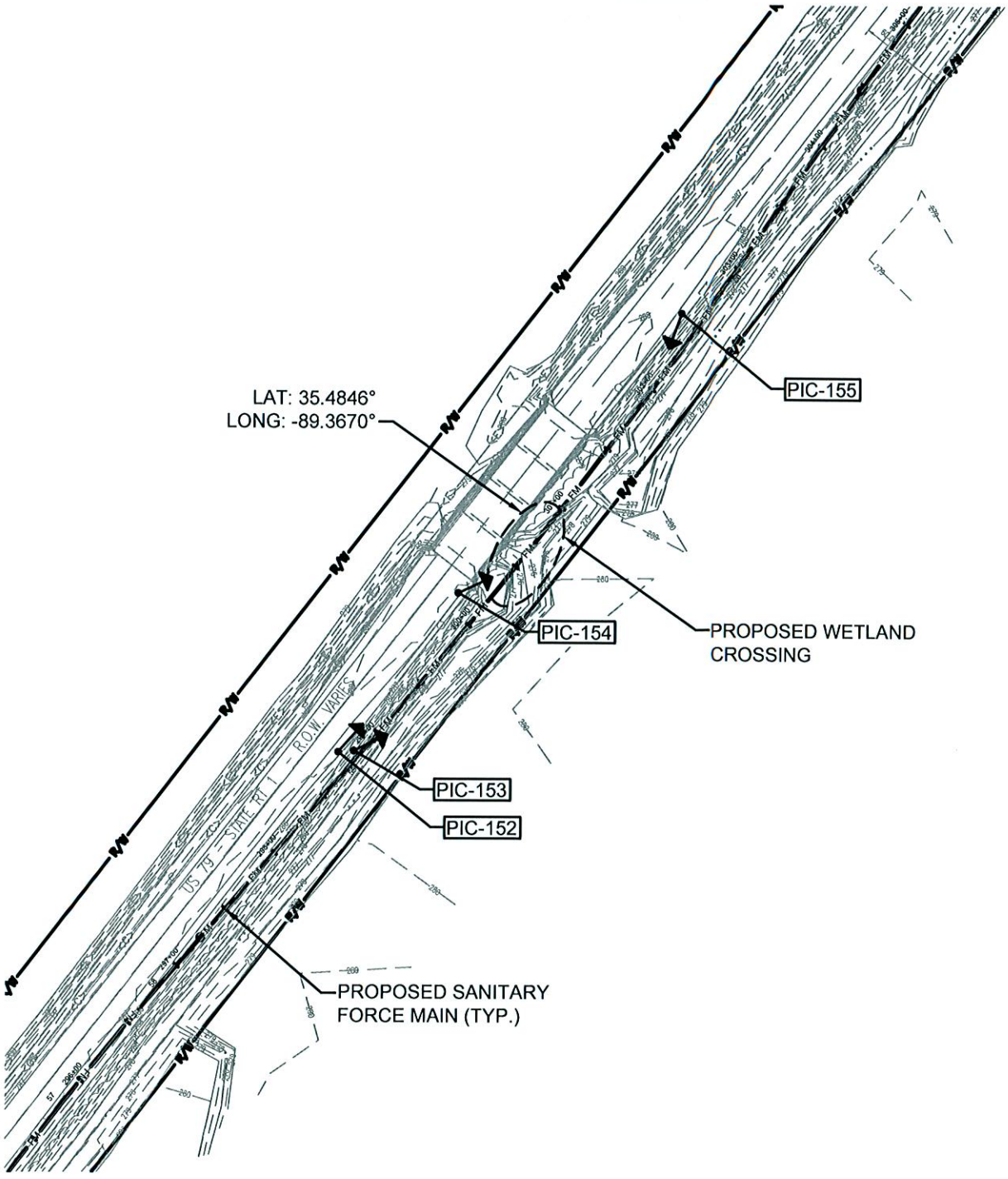

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ADJOINING 7.5' QUADRANGLES

DANCYVILLE, TN

0' 100' 200' 300'

GRAPHIC SCALE : 1" = 100'

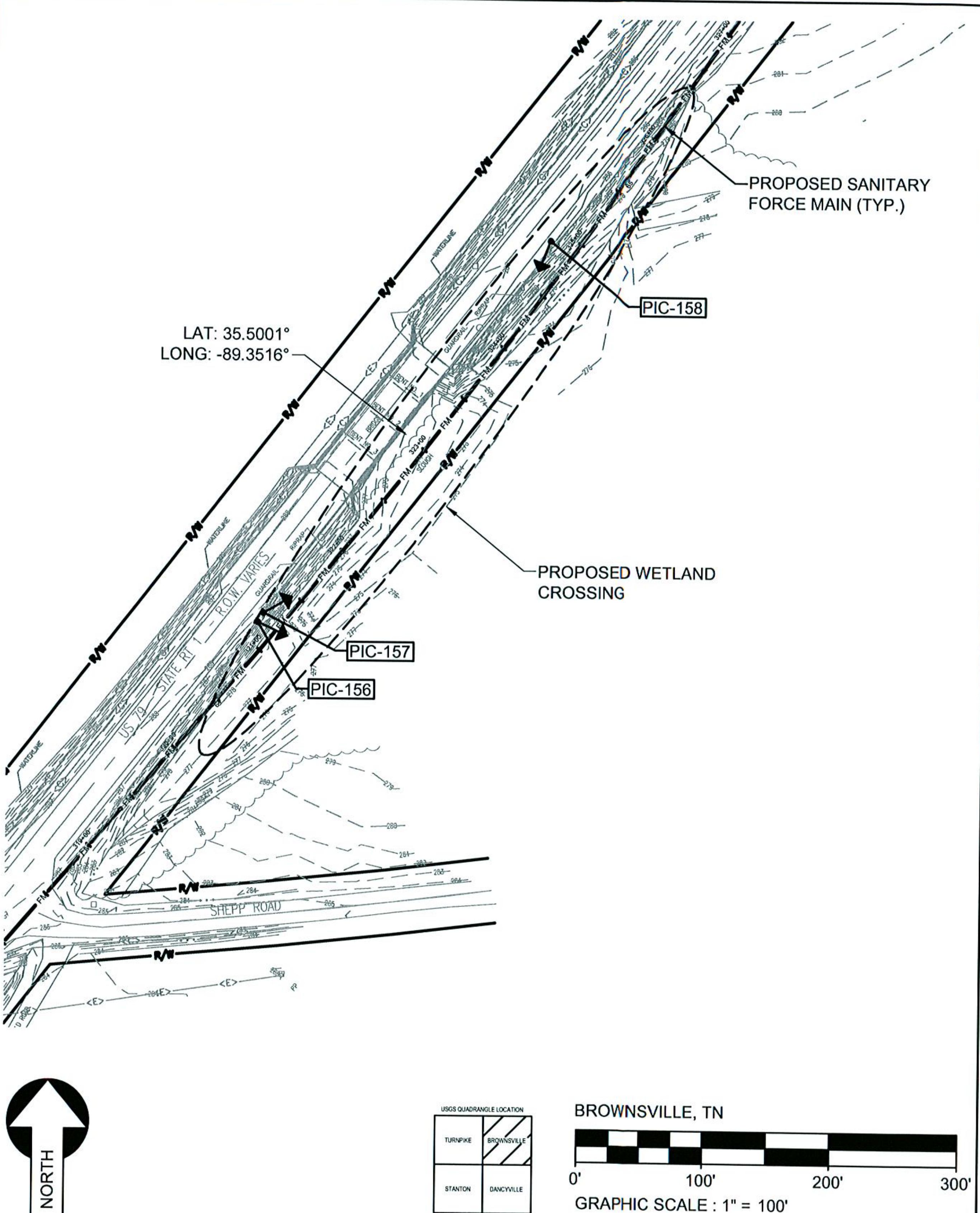
DATE: Sep 16, 201... 3pm USER: 15204
C:\dgn\d0385707\ARAP Exhibit 12.dwg

ssoe		
PROJECT NO:	012-02080-00	
PROJECT MANAGER:	J. LOWE	
DESIGNED:	K. CRUMLEY	
CHECKED:	M. TOWLES	
© COPYRIGHT	SSOE, Inc. 2011	

DRAWING TITLE:
CROSSING NO. 13
AQUATIC RESOURCE
ALTERATION PERMIT

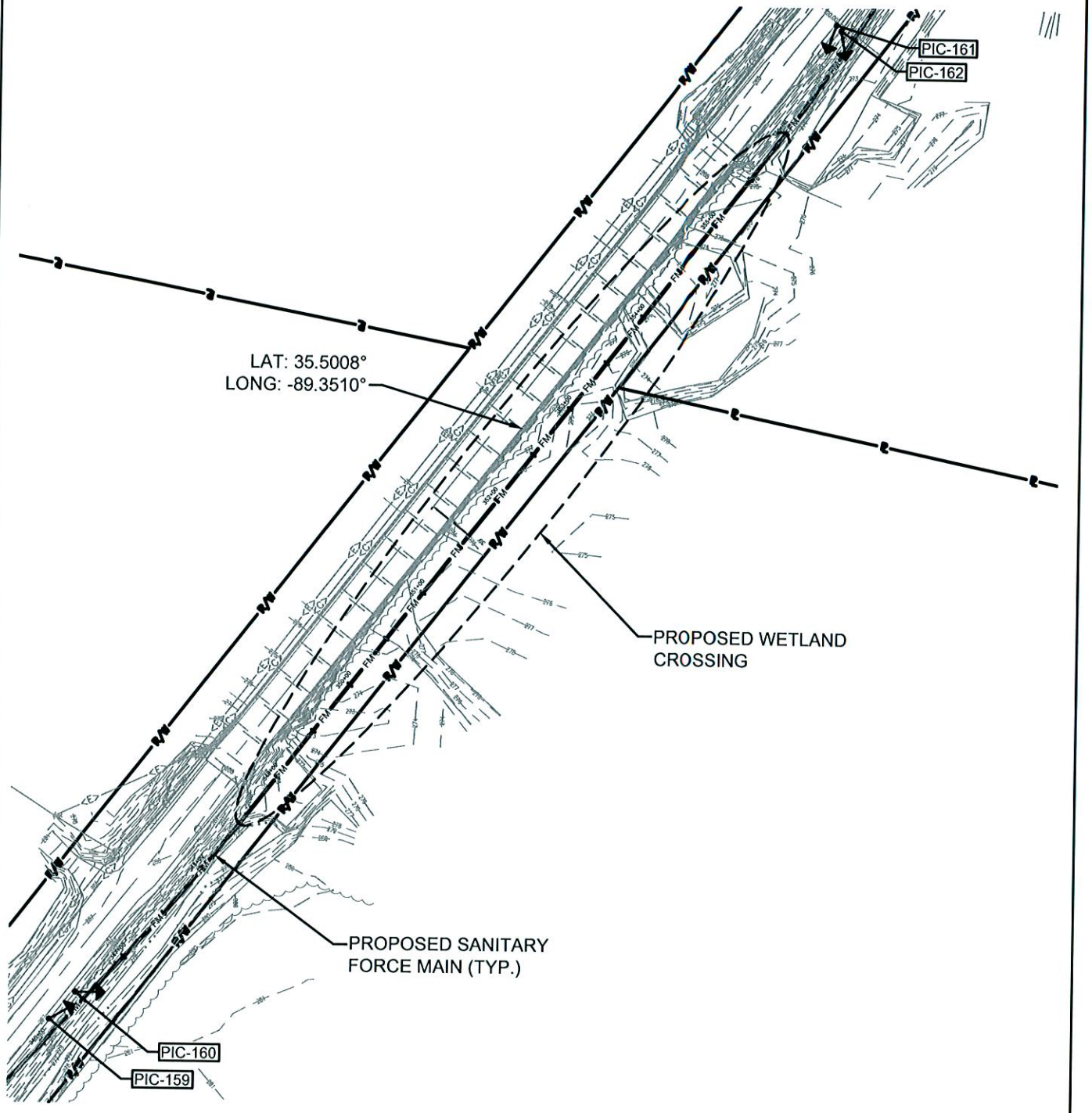
PROJECT TITLE:
MEMPHIS REGIONAL MEGASITE

DRAWING NO:
EXHIBIT NO. 13



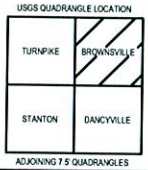
DATE: Sep 16, 201_ _pm USER: 15204
C:\dgn\d0385707\ARAP Exhibit 13.dwg

SSOE	PROJECT NO: 012-02080-00 PROJECT MANAGER: J. LOWE DESIGNED: K. CRUMLEY CHECKED: M. TOWLES © COPYRIGHT SSOE, Inc. 2011	DRAWING TITLE: CROSSING NO. 14 AQUATIC RESOURCE ALTERATION PERMIT	PROJECT TITLE: MEMPHIS REGIONAL MEGASITE DRAWING NO: EXHIBIT NO. 14



NORTH

USGS QUADRANGLE LOCATION



ADJOINING 7.5' QUADRANGLES

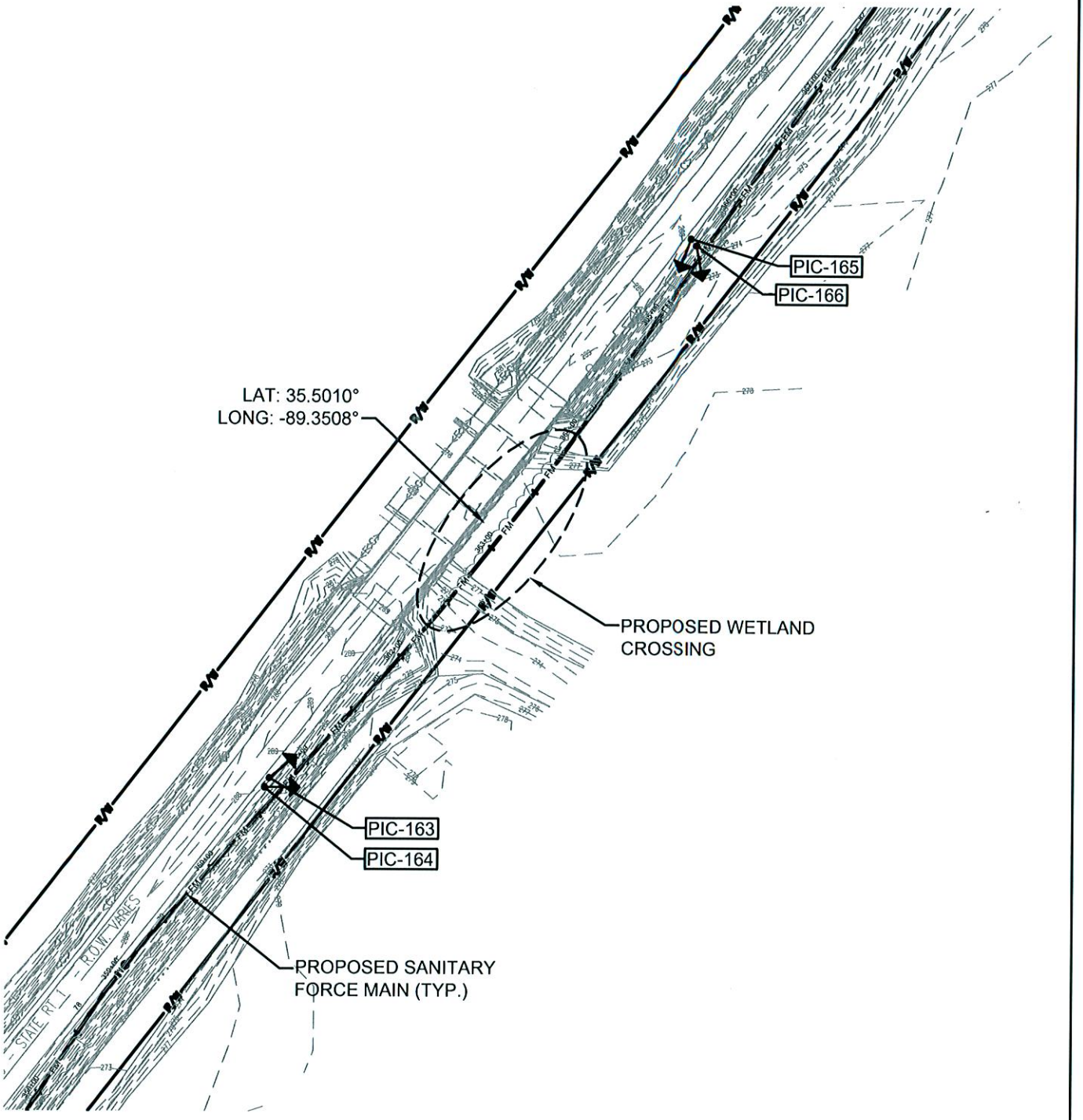
BROWNSVILLE, TN

0' 120' 240' 360'

GRAPHIC SCALE : 1" = 120'

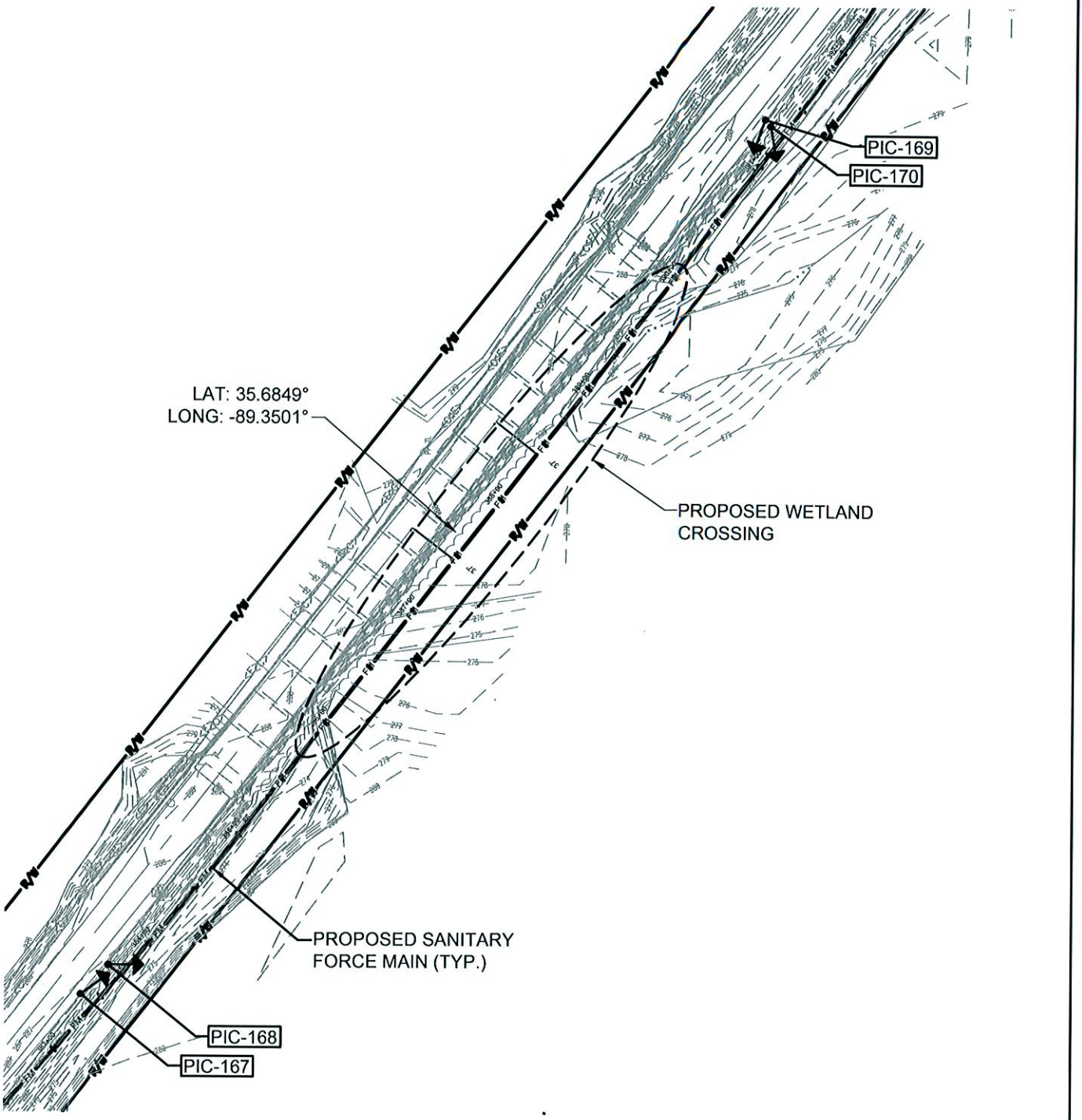
DATE: Sep 16, 20..., ...pm USER: 15204
C:\dgn\d0385707\ARAP Exhibit 14.dwg

SSOE	PROJECT NO: 012-02080-00 PROJECT MANAGER: J. LOWE DESIGNED: K. CRUMLEY CHECKED: M. TOWLES COPYRIGHT SSOE, Inc. 2011	DRAWING TITLE: CROSSING NO. 15 AQUATIC RESOURCE ALTERATION PERMIT	PROJECT TITLE: MEMPHIS REGIONAL MEGASITE DRAWING NO: EXHIBIT NO. 15



DATE: Sep 16, 2013 - 2:\oprn USER: 15204
C:\dgn\d0385707\ARAP Exhibit 15.dwg

SSOE	PROJECT NO: 012-02080-00 PROJECT MANAGER: J. LOWE DESIGNED: K. CRUMLEY CHECKED: M. TOWLES COPYRIGHT SSOE, Inc. 2011	DRAWING TITLE: CROSSING NO. 16 AQUATIC RESOURCE ALTERATION PERMIT	PROJECT TITLE: MEMPHIS REGIONAL MEGASITE DRAWING NO: EXHIBIT NO. 16



NORTH

USGS QUADRANGLE LOCATION

TURNPIKE	BROWNSVILLE
STANTON	DANCYVILLE

ADJOINING 7.5' QUADRANGLES

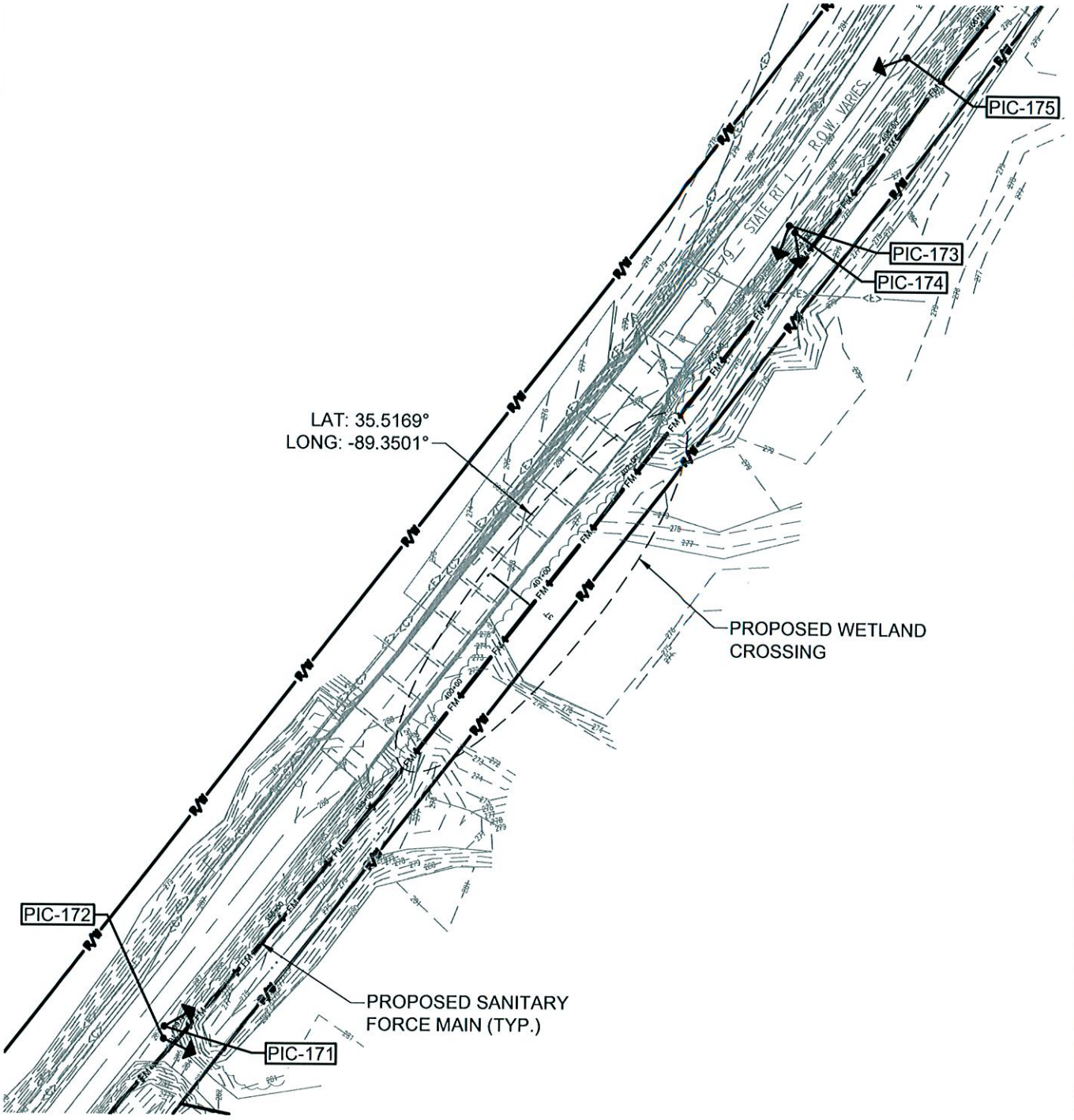
BROWNSVILLE, TN

0' 100' 200' 300'

GRAPHIC SCALE : 1" = 100'

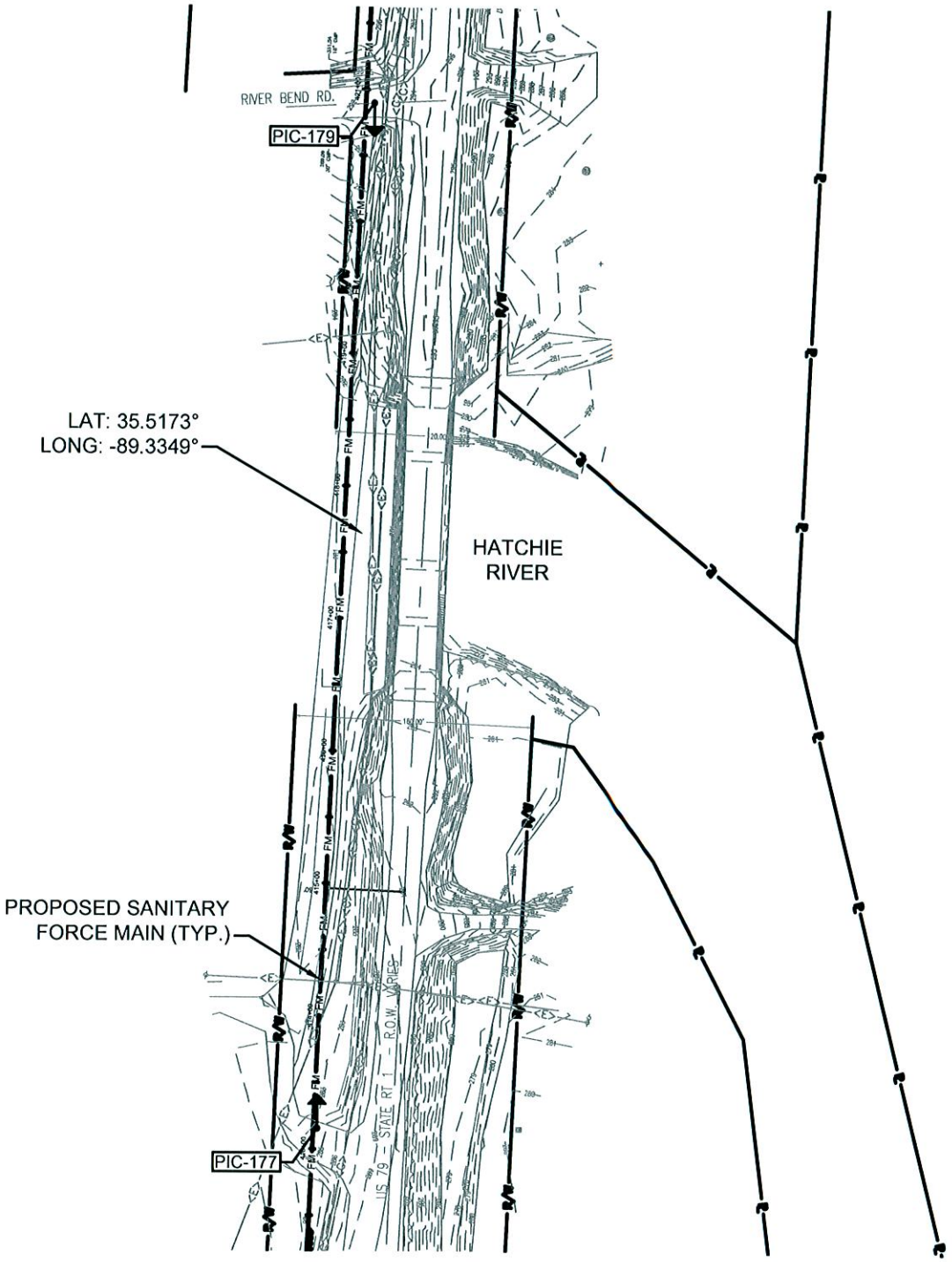
DATE: Sep 16, 2013 - 2:04pm USER: 15204
C:\dgn\d0385707\ARAP Exhibit 16.dwg

SSOE	PROJECT NO: 012-02080-00 PROJECT MANAGER: J. LOWE DESIGNED: K. CRUMLEY CHECKED: M. TOWLES © COPYRIGHT SSOE, Inc. 2011	DRAWING TITLE: CROSSING NO. 17 AQUATIC RESOURCE ALTERATION PERMIT	PROJECT TITLE: MEMPHIS REGIONAL MEGASITE DRAWING NO: EXHIBIT NO. 17



DATE: Sep 16, 2013 - 2:01pm USER: 15204
C:\dgn\d038570\7\ARAP Exhibit 17.dwg

SSOE	PROJECT NO: 012-02080-00 PROJECT MANAGER: J. LOWE DESIGNED: K. CRUMLEY CHECKED: M. TOWLES © COPYRIGHT SSOE, Inc. 2011	DRAWING TITLE: CROSSING NO. 18 AQUATIC RESOURCE ALTERATION PERMIT	PROJECT TITLE: MEMPHIS REGIONAL MEGASITE DRAWING NO: EXHIBIT NO. 18



NORTH

USGS QUADRANGLE LOCATION

TURNPIKE	BROWNSVILLE
STANTON	DANCYVILLE

ADJOINING 7.5' QUADRANGLES

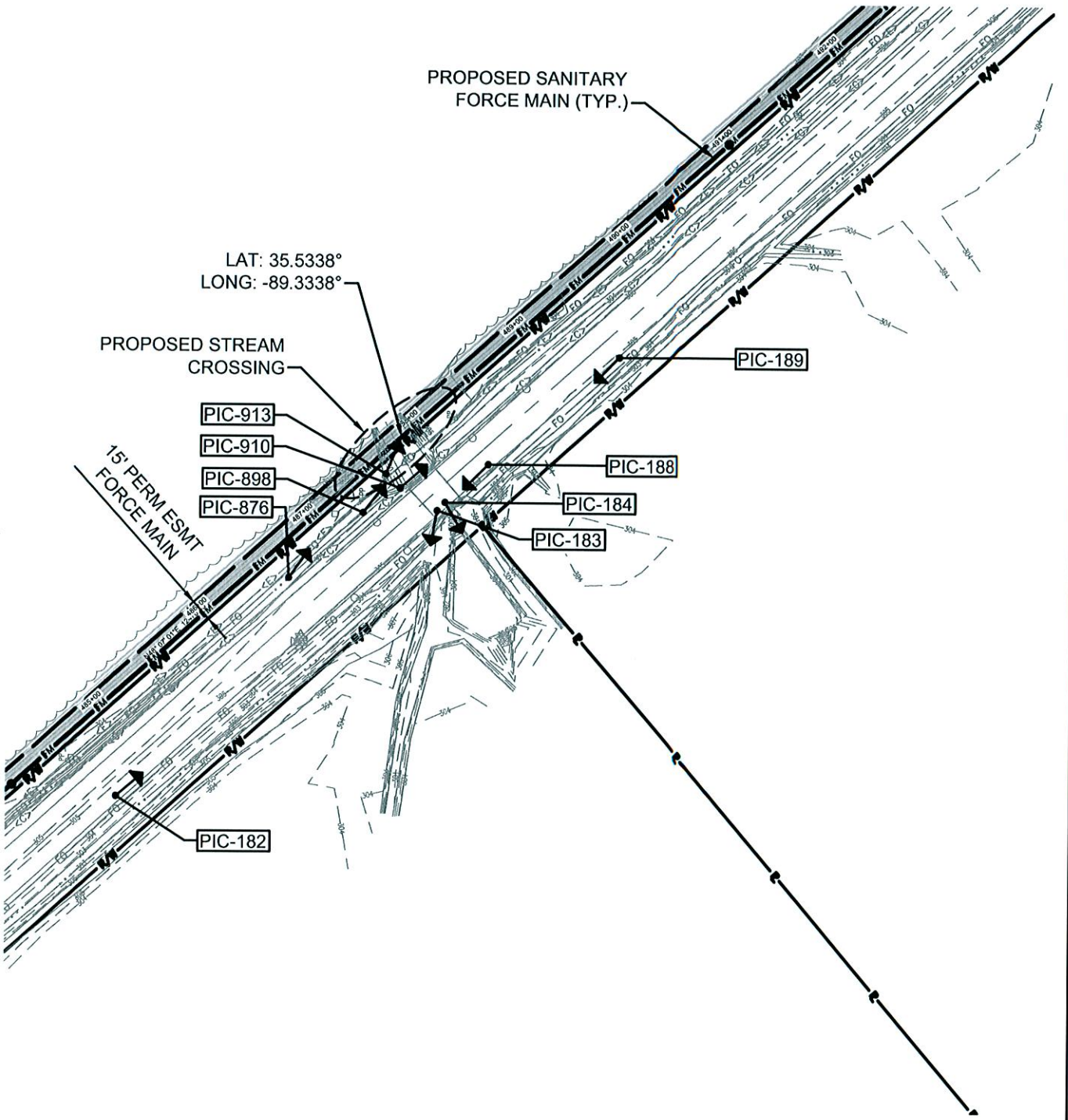
BROWNSVILLE, TN

0' 120' 240' 360'

GRAPHIC SCALE : 1" = 120'

DATE: Sep 16, 2013 - 1:39pm USER: 15204
C:\dgn\d0385707\ARAP Exhibit 18.dwg

SSOE	PROJECT NO: 012-02080-00 PROJECT MANAGER: J. LOWE DESIGNED: K. CRUMLEY CHECKED: M. TOWLES © COPYRIGHT SSOE, Inc. 2011	DRAWING TITLE: CROSSING NO. 19 AQUATIC RESOURCE ALTERATION PERMIT	PROJECT TITLE: MEMPHIS REGIONAL MEGASITE DRAWING NO: EXHIBIT NO. 19



NORTH

USGS QUADRANGLE LOCATION

TURNPIKE	BROWNSVILLE
STANTON	DANCYVILLE

ADJOINING 7.5' QUADRANGLES

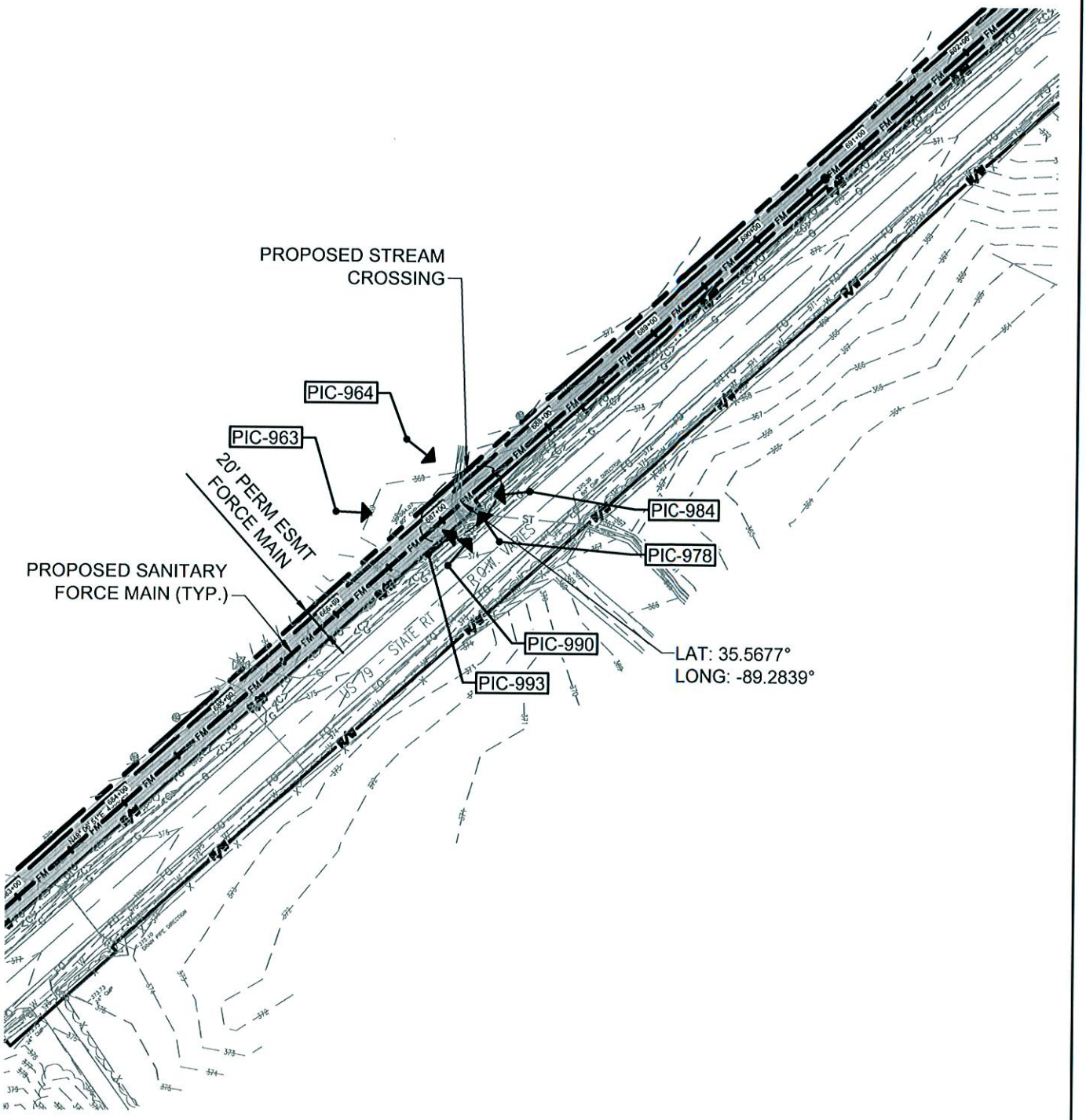
BROWNSVILLE, TN

0' 100' 200' 300'

GRAPHIC SCALE : 1" = 100'

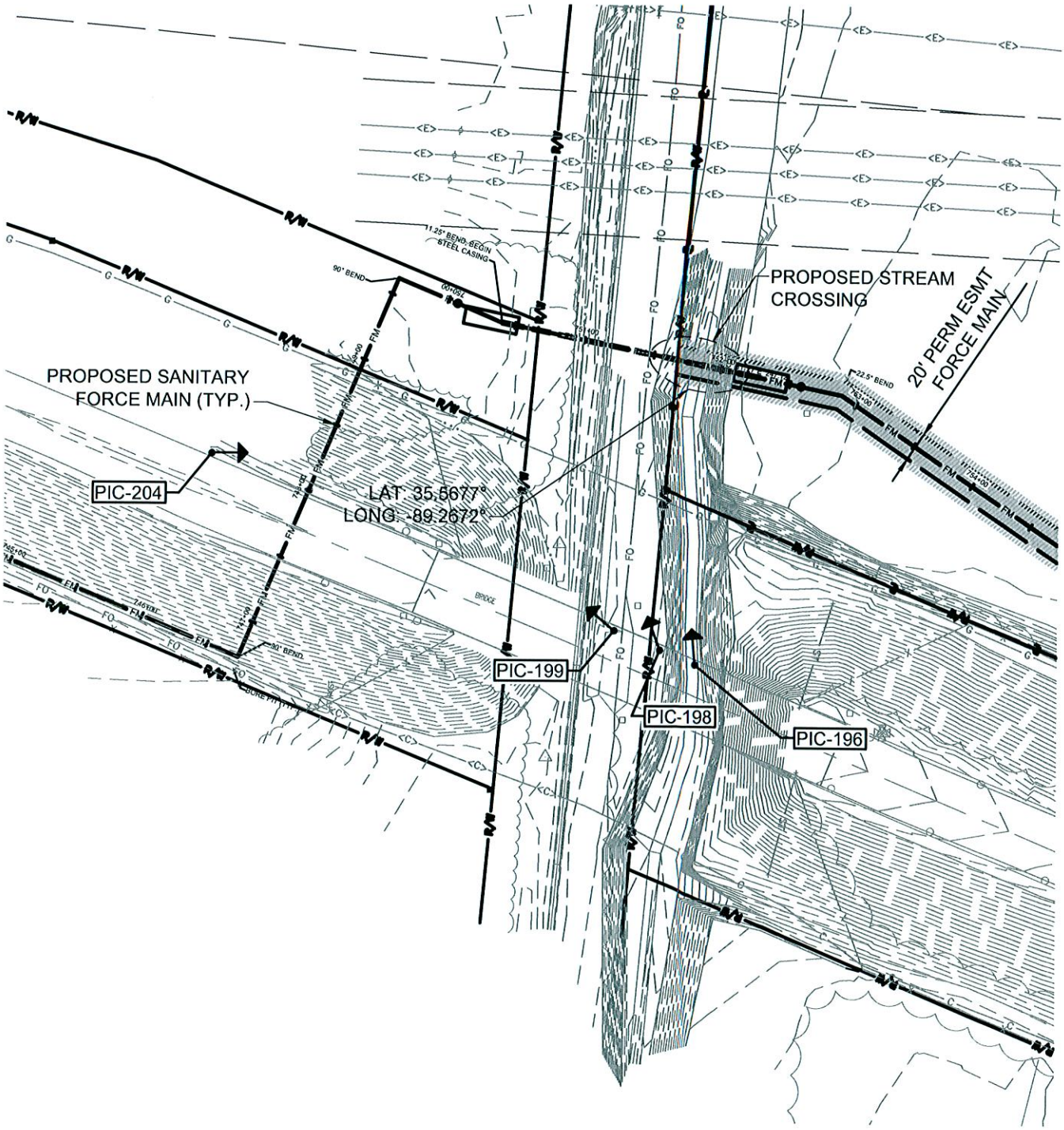
DATE: Sep 17, 2013 - 10:42am USER: 15204
C:\dgn\d0385707\ARAP Exhibit 19.dwg

SSOE	PROJECT NO: 012-02080-00 PROJECT MANAGER: J. LOWE DESIGNED: K. CRUMLEY CHECKED: M. TOWLES © COPYRIGHT SSOE, Inc. 2011	DRAWING TITLE: CROSSING NO. 20 AQUATIC RESOURCE ALTERATION PERMIT	PROJECT TITLE: MEMPHIS REGIONAL MEGASITE DRAWING NO: EXHIBIT NO. 20



DATE: Sep 17, 2013 - 10:36am USER: 15204
C:\dgn\d0385707\ARAP Exhibit 20.dwg

SSOE	PROJECT NO: 012-02080-00 PROJECT MANAGER: J. LOWE DESIGNED: K. CRUMLEY CHECKED: M. TOWLES COPYRIGHT SSOE, Inc. 2011	DRAWING TITLE: CROSSING NO. 21 AQUATIC RESOURCE ALTERATION PERMIT	PROJECT TITLE: MEMPHIS REGIONAL MEGASITE DRAWING NO: EXHIBIT NO. 21



NORTH

USGS QUADRANGLE LOCATION

TURNPIKE	BROWNSVILLE
STANTON	DANCYVILLE

ADJOINING 7.5' QUADRANGLES

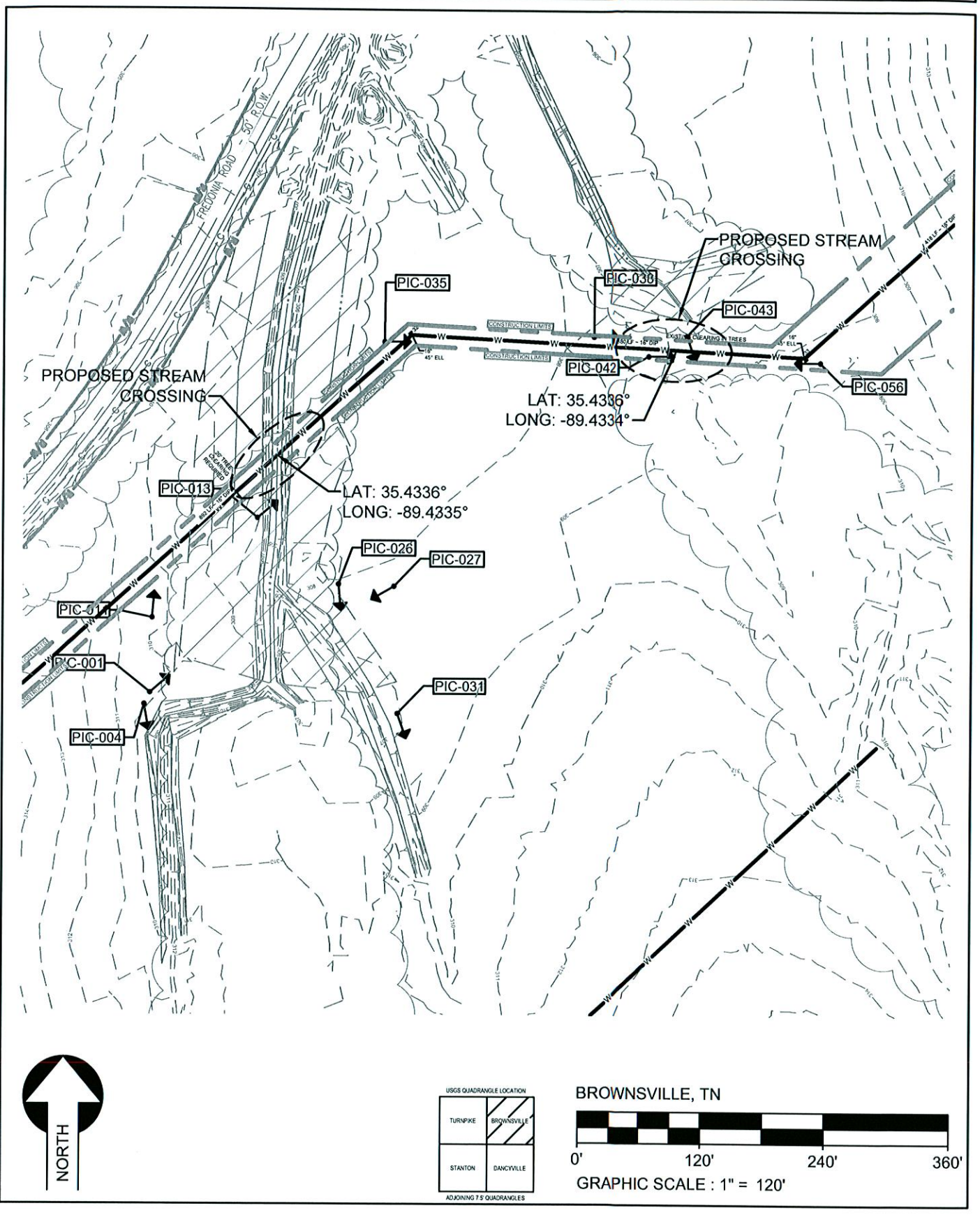
BROWNSVILLE, TN

0' 100' 200' 300'

GRAPHIC SCALE : 1" = 100'

DATE: Sep 16, 2013 - 1:42pm USER: 15204
C:\dgn\d0385707\ARAP Exhibit 21.dwg

SSOE	PROJECT NO: 012-02080-00 PROJECT MANAGER: J. LOWE DESIGNED: K. CRUMLEY CHECKED: M. TOWLES © COPYRIGHT SSOE, Inc. 2011	DRAWING TITLE: CROSSING NO. 22 AQUATIC RESOURCE ALTERATION PERMIT	PROJECT TITLE: MEMPHIS REGIONAL MEGASITE DRAWING NO: EXHIBIT NO. 22



USGS QUADRANGLE LOCATION

ADJOINING 7.5' QUADRANGLES

BROWNSVILLE, TN

0' 120' 240' 360'

GRAPHIC SCALE : 1" = 120'

DATE: Sep 16, 2013 - 1:35pm USER: 15204
C:\dgn\d0385707\ARAP Exhibit 22.dwg