FLORIDA SOUTHEAST CONNECTION PROJECT

RESOURCE REPORT 1

General Project Description

September 2014

FLORIDA SOUTHEAST CONNECTION

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	Filing Requirement	**Location in Environmental Report**
☒	Provide a detailed description and location map of the project facilities (§ 380.12(c)(1)). • Include all pipeline and aboveground facilities. • Include support areas for construction or operation. • Identify facilities to be abandoned.	Section 1.2 Table 1.2-1 Table 1.2-2 Figure 1.2-1
☒	Describe any non-jurisdictional facilities that would be built in association with the project. (§ 380.12(c)(2)). • Include auxiliary facilities (See § 2.55(a)). • Describe the relationship to the jurisdictional facilities. • Include ownership, land requirements, gas consumption, megawatt size, construction status, and an update of the latest status of Federal, state, and local permits/approvals. • Include the length and diameter of any interconnecting pipeline. • Apply the four-factor test to each facility (see § 380.12(c)(2)(ii)).	Section 1.13
☒	Provide current, original United States Geological Survey (USGS) 7.5-minute series topographic maps with mileposts showing the project facilities (§ 380.12(c)(3)). • Maps of equivalent details are acceptable if legible (check with staff). • Show locations of all linear project elements, and label them. • Show locations of all significant aboveground facilities, and label them.	Appendix 1A Appendix 1B
☒	Provide aerial images or photographs or alignment sheets based on these sources with mileposts showing the project facilities. (§ 380.12(c)(3)). • No more than 1-year old • Scale no smaller than 1:6,000	Appendix 1A
☒	Provide plot/site plans of compressor stations showing the location of the nearest noise-sensitive areas (NSA) within 1 mile. (§ 380.12(c)(3,4)). • Scale no smaller than 1:3,600 • Show reference to topographic maps and aerial alignments provided above.	Not Applicable – No Compressor Stations Proposed
☒	Describe construction and restoration methods. (§ 380.12(c)(6)).	Section 1.7
☒	Identify the permits required for construction across surface waters. (§ 380.12(c)(9)). • Include the status of all permits. • For construction in the Federal offshore area be sure to include consultation with the MMS. File with the MMS for rights-of-way grants at the same time or before you file with the FERC.	Section 1.11 Table 1.11-1

RESOURCE REPORT 1—GENERAL PROJECT DESCRIPTION	
Filing Requirement	**Location in Environmental Report**
☒ Provide the names and addresses of all affected landowners as required and certify that all affected landowners will be notified; • Affected landowners are defined in § 157.6(d)(2) • Provide an electronic copy directly to the environmental staff.	Appendix 1D
Additional Information Often Missing and Resulting in Data Requests	
☒ Describe all authorizations required to complete the proposed action and the status of applications for such authorizations	Section 1.11 Table 1.11-1
☒ Provide plot/site plans of all other aboveground facilities that are not completely within the right-of-way.	Appendix 1A
☒ Provide detailed typical construction right-of-way cross-section diagrams showing information such as widths and relative locations of existing rights-of-way, new permanent rights-of-way, and temporary construction rights-of-way. See Resource Report 8 – Land Use, Recreation, and Aesthetics.	Appendix 1A
☒ Summarize the total acreage of land affected by construction and operation of the project.	Section 1.6 Table 1.6-1 Table 8.2-2
☒ If Resource Report 5 - Socioeconomics is not provided, provide the start and end dates of construction, the number of pipeline spreads that would be used, and the workforce per spread.	Section 1.7.4 Resource Report 5 provided
☐ Send two (2) additional copies of topographic maps and aerial images/photographs directly to the environmental staff of the Office of Energy Projects (OEP).	To Be Provided

Responses to FERC Comments on Resource Report 1	
Comment Text	**Comment Response and Location of Information**
FERC Comments Dated 8/11/14	
☒ Include a table that lists all of FSC's specific environmental plans related to the construction and operation of the FSC Project. This table should include FSC's Upland Erosion Control, Revegetation, and Maintenance Plan (Plan); Wetland and Waterbody Construction and Mitigation Procedures (Procedures); Invasive Species Management Plan; Unanticipated Discovery Plan; Spill Prevention and Containment (SPC) Plan; and HDD Plans. This table should include the location of each plan in the final RRs or other application materials, or the schedule for submittal of any plans not included in the RRs. This table should also identify any federal, state, or local agencies that would review and/or approve the plans and the status of agency review/approval.	See Section 1.7.1.1, Standard Construction and Restoration Techniques and Table 1.7-1.
☒ Include the location of all mainline valves, blowdown valves, and pig launcher/receiver facilities and analyze their potential impacts on the environment throughout the final RRs.	See Table 1.2-2, 1.6-1, and 1.6-3 and Section 1.6.3, Aboveground Facilities. Discussion of mainline valves and pig launcher/receiver facilities and potential environmental impacts have been added throughout the final ER.
☒ Include a description of the anticipated type and volume of liquids that would be separated at the Martin Meter Station and how FSC would dispose of these liquids.	See Section 1.5.2.1, Meter Station
☒ Confirm the planned operational right-of-way would not exceed 50 feet wide. If applicable, include a description and identify the locations where the pipeline right-of-way would not be 50 feet wide.	See Section 1.6.1, Pipeline Construction Right-of-way
☒ Include in section 1.6.4 a summary of the number of access roads that are either public or private.	See Section 1.6.4, Contractor Yards
☒ Include a description in section 1.7.1.1 (Clearing and Grading Operations) of how timber and other woody vegetation would be disposed of in wetlands areas.	See Section 1.7.1.1, Standard Construction and Restoration Techniques (Clearing and Grading Operations)
☒ Include a Fire Suppression Plan that identifies and describes measures FSC would implement to extinguish or control any construction-related fires (such as open burning).	See Section 1.7.1.1, Standard Construction and Restoration Techniques (Fire Suppression)

Responses to FERC Comments on Resource Report 1	
Comment Text	**Comment Response and Location of Information**
☒ Section 1.7.1.1 (Trench Excavation) states that the pipeline would be buried to a depth that meets or exceeds the requirements of 49 Code of Federal Regulations (CFR) 192.327 and further states that the pipeline would be installed with a minimum of 30 inches of cover except in unanticipated rocky areas. Clarify the proposed depth of cover in light of 49 CFR 192.327, which requires that natural gas transmission pipelines located in normal soil be installed with a minimum of 36 inches of cover in Class 2, 3, and 4 areas (table 11.2-2 in draft RR11 indicates that the pipeline would cross Class 1, 2, and 3 areas).	See Section 1.7.1.1, Standard Construction and Restoration Techniques (Trench Excavation)
☒ Include a description of the feasibility of reducing the construction right-of-way in forested areas, particularly pine plantation and/or citrus groves.	See Section 1.6.1, Pipeline Construction Right-of-Way
☒ Include written documentation of consultation with the Florida Department of Agriculture and Consumer Services regarding construction in citrus groves and update FSC's Invasive Species Management Plan to include the specific measures FSC would implement to prevent the spread or transport of pathogens and invasive species.	See Section 1.7.1.2, Special Construction Procedures (Agricultural Land), Appendix 1C (Agency Correspondence), and Appendix 1E (Invasive Species Management Plan for the FSC Project).
☒ Confirm in section 1.7.1.2 (Timber Lands) that areas located off the construction right-of-way utilized for timber placement would be within FSC's 300-foot-wide survey corridor. If not, confirm that these locations would be surveyed for wetlands, sensitive species, and cultural and historic properties, and that Section 7 and Section 106 review would be completed for these off-right-of-way areas.	See Section 1.7.1.2, Special Construction Procedures (Timber Lands)
☒ Include in section 1.7.1.2 (Measures to Prevent Pipeline Buoyancy) a general description of concrete coating activities.	See Section 1.7.1.2, Special Construction Procedures (Measures to Prevent Pipeline Buoyancy)
☒ Provide in section 1.7.1.2 a section describing the HDD construction method, where this construction method would be utilized, and the resources that would be avoided by implementing each HDD.	See Section 1.7.1.2, Special Construction Procedures (HDD Crossing Method)
☒ Revise figures 1.7-4 and 1.7-5 to identify the location of the downstream dam.	See Figures 1.7-4 and 1.7-5
☒ Include the locations and land requirements for any corrosion control facilities located outside the proposed operational right-of-way; analyze their potential impacts on the environment throughout the final RRs; and include these facilities in the consultation and permitting review of the FSC Project.	See Section 1.6.3, Aboveground Facilities

Responses to FERC Comments on Resource Report 1	
Comment Text	**Comment Response and Location of Information**
☒ Confirm that vegetation mowing or clearing would not occur between HDD entry and exit points during construction and operation of the Project.	See Section 1.7.1.1, Standard Construction and Restoration Techniques (Clearing and Grading Operations) and Section 1.8.1, Right-of-Way Maintenance
☒ Include in section 1.10.4 the physical locations where the final RRs can be viewed by the public (e.g., local libraries or FSC offices).	See Section 1.10.4, Public and Agency Participation Plan and Ongoing Public Outreach
☒ Include a Landowner Complaint Resolution Plan. Also, identify when and how FSC would communicate this plan to landowners prior to construction	See Section 1.10.5, Complaint Resolution Process
☒ Revise table 1.11-1 to include the dates when permit applications have been or are expected to be submitted and the dates when permits have been or are expected to be issued. Provide similar dates for initiation and completion of referenced agency consultations and reviews. Also, confirm that FSC would provide an updated permit table approximately every 60 days between submittal of the FERC application and issuance of the final Environmental Impact Statement.	See Section 1.11, Permits and Approvals, and Table 1.11-1
☒ Regarding the Invasive Species Management Plan:	See the Invasive Species Management Plan, Appendix 1E
☒ Describe how the list of Category I and II invasive species identified in table 2.0 was developed and how the list is utilized by state and local agencies.	See the Invasive Species Management Plan, Appendix 1E
☒ Regarding wash rack stations:	
☒ Clarify or further define the criteria for utilizing elevated wash rack stations.	See the Invasive Species Management Plan, Appendix 1E
☒ Identify any regulatory requirements or guidelines regarding the disposal of soil and plant materials collected from wash rack stations and describe the disposal procedures that would be implemented.	See the Invasive Species Management Plan, Appendix 1E
☒ Describe the difference between wash rack stations and cleaning rack stations, and the criteria that determines which rack station would be used.	See the Invasive Species Management Plan, Appendix 1E
☒ Describe how equipment would be disinfected when surface waters are used for washing or cleaning.	See the Invasive Species Management Plan, Appendix 1E

Responses to FERC Comments on Resource Report 1	
Comment Text	**Comment Response and Location of Information**
☒ FSC states that the purpose of the FSC Project is to, among other things, meet the natural gas fuel needs for existing and future electric generators. Include in section 1.14.1 any planned or reasonably foreseeable electric generation projects that would likely be served by the FSC Project (e.g., the Okeechobee Facility and other known electric generation projects, local distribution facilities, service pipeline projects) and that could occur within the environmental resource Area of Impacts that were defined in our March 18, 2014 comments on draft RRs 1 and 10. Include the sources of information used to identify these projects (e.g., regional planning commissions, federal register, federal agency websites, public notices). Lastly, identify the proposed construction schedule of these planned projects, as can be reasonably determined.	See Section 1.14.1, Proposed Projects

ACRONYMS AND ABBREVIATIONS

API	American Petroleum Institute
ATWS	Additional temporary workspace
BMP	Best Management Practice
CBS	Citrus Black Spot
CFR	Code of Federal Regulations
CHRP	Citrus Health Response Plan
DEF	Duke Energy Florida
EI	Environmental Inspector
ERs	Environmental Reports
ERP	Environmental Resource Permit
FERC	Federal Energy Regulatory Commission
FERC Plan	Upland Erosion Control, Revegetation, and Maintenance Plan
FERC Procedures	Wetland and Waterbody Construction and Mitigation Procedures
FDACS	Florida Department of Agriculture and Consumer Services
FDEP	Florida Department of Environmental Protection
FDOT	Florida Department of Transportation
FGT	Florida Gas Transmission Company, LLC
FPL	Florida Power & Light Company
FPSC	Florida Public Service Commission
FSC	Florida Southeast Connection, LLC
FWC	Florida Fish and Wildlife Conservation Commission
HDD	Horizontal directional drill
HLB	Huanglongbing (Citrus Greening)
MAOP	Maximum allowable operating pressure
MLV	Mainline Valves
MMcf/d	Million cubic feet per day
NEPA	National Environmental Policy Act
NSA	Noise Sensitive Area
NWI	National Wetlands Inventory
O&M	Operation and Maintenance
RFP	Request for Proposal
Sabal Trail	Sabal Trail Transmission Pipeline Project
SCADA	Supervisory Control and Data Acquisition System
SPC Plan	Spill Prevention and Control Plan
TBD	To be determined
Transco	Transcontinental Gas Pipe Line Company, LLC
U.S.	United States
USACE	U.S. Army Corps of Engineers
USDOT	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

1.0 RESOURCE REPORT 1 - GENERAL PROJECT DESCRIPTION

1.1 INTRODUCTION

Florida Southeast Connection, LLC ("FSC"), a subsidiary of NextEra Energy, Inc., is seeking a Certificate of Public Convenience and Necessity ("Certificate") from the Federal Energy Regulatory Commission ("FERC") pursuant to Section 7(c) of the Natural Gas Act ("NGA") authorizing the construction and operation of an approximately 126.4 mile natural gas pipeline known as the Florida Southeast Connection Project ("FSC Project"). The FSC Project is designed to meet the increased demand for natural gas by the electric generation, distribution, and end use markets in Florida. The FSC Project will also provide additional natural gas supply diversity through a connection to the new Sabal Trail Transmission Pipeline Project ("Sabal Trail") via a new interconnection hub in central Florida ("Central Florida Hub"). The Sabal Trail Project is the subject of a separate, but related, certificate filing to the FERC.

The FSC Project will increase natural gas transportation capacity and availability to southern Florida by adding a new third pipeline in central and southern Florida. Upon the anticipated in-service date of May 2017, the FSC Project will be capable of providing a minimum of 640 million cubic feet per day ("MMcf/d") of natural gas to a delivery point at an existing gas yard at Florida Power & Light Company's ("FPL") Martin Clean Energy Center in Martin County, Florida.

The proposed FSC Project consists of the construction and operation of approximately 77.1 miles of 36-inch diameter pipeline (MP 0.0 to MP 77.1) and 49.3 miles of 30-inch diameter pipeline (MP 77.1 to MP 126.4) and the construction and operation of the Martin Meter Station. The FSC Project pipeline will start in Osceola County, Florida at the interconnection with Sabal Trail within the Central Florida Hub. The pipeline will traverse Polk, Osceola, Okeechobee, St. Lucie, and Martin Counties, and terminate at the Martin Meter Station. In addition, FSC will install a pig launcher and receiver on the 36-inch diameter segment and on the 30-inch diameter segment of the FSC Project. Resource Report 1 provides a complete summary of the FSC Project facilities (Table 1.2-1) and a location map of the FSC Project facilities (Figure 1.2-1).

A complete summary of the FSC Project facilities is provided in Tables 1.2-1 and Table 1.2-2 and a location map of the FSC Project facilities is provided as Figure 1.2-1. This Resource Report identifies the organization of the Environmental Report (Section 1.3), the purpose and need for the proposed FSC Project (Section 1.4), the locations and descriptions of FSC Project facilities (Section 1.5), and the land requirements associated with facility construction and operation (Section 1.6). This Resource Report also discusses the proposed construction procedures (Section 1.7), construction schedule and work force (Section 1.7), operation and maintenance ("O&M") procedures (Section 1.8), potential plans for future expansion or abandonment of the proposed facilities (Section 1.9), agency consultation and landowner notification (Section 1.10), permits and approvals required to construct and operate the FSC Project (Section 1.11), status of field surveys (Section 1.12), proposed non-jurisdictional facilities (Section 1.13), and an assessment of cumulative impacts from other reasonably foreseeable future projects (Section 1.14). A checklist showing the status of the FERC filing requirements for Resource Report 1 is included following the table of contents.

1.2 PROJECT DESCRIPTION

1.2.1 Pipeline Facilities

The FSC Project involves the construction and operation of approximately 77.1 miles of 36-inch diameter pipeline (MP 0.0 to MP 77.1) and 49.3 miles of 30-inch diameter pipeline (MP 77.1 to MP 126.4) and the construction and operation of the Martin Meter Station. The FSC Project starts in Osceola County, Florida at the interconnection with Sabal Trail within the Central Florida Hub

and will traverse Polk, Osceola, Okeechobee, St. Lucie, and Martin Counties, Florida, terminating at the Martin Clean Energy Center in Martin County, Florida. A summary of the FSC Project pipeline and aboveground facilities is provided in Table 1.2-1 and Table 1.2-2. A location map of the FSC Project pipeline facilities is provided as Figure 1.2-1.

1.2.2 Aboveground Facilities

The proposed aboveground facilities of the FSC Project involve the construction and operation of a meter station to be located at the terminus of the FSC Project at the Martin Clean Energy Center (Martin Meter Station), a pig launcher at the start of the FSC Project, a pig receiver/launcher at MP 77.1, where the 36-inch diameter FSC pipeline ends and the 30-inch FSC pipeline begins, and a pig receiver at the end of the FSC Project. Thirteen Main Line Valves ("MLVs") are proposed including one MLV at the start of the pipeline at MP 0.0 and one at the end of the pipeline at the Martin Meter Station. The aboveground facilities for the FSC Project are listed in Table 1.2-2 and their locations shown on Figure 1.2-1.

1.3 ENVIRONMENTAL REPORT ORGANIZATION

This Environmental Report is composed of 12 separate Resource Reports and has been prepared in accordance with FERC Order No. 603, which governs the filing of applications for Certificates of Public Convenience and Necessity authorizing the construction, operation, and abandonment of facilities to provide service under Section 7 of the Natural Gas Act.

The FSC Project's certificate application and accompanying Environmental Reports have been organized into separate volumes, in compliance with FERC's requirements for Public, Privileged & Confidential, and Critical Energy Infrastructure Information classes of information. The contents of each volume are outlined below.

Volume I (Application and Exhibits (except F-1)

Volume II (Exhibit F-1)

- Volume II-A: Environmental Reports
- Volume II-B: Environmental Reports

Volume III: Supporting Drawings and Maps

- Appendix 1A - Alignment Sheets, HDD Site-Specific Plans, Full-size USGS Quadrangles with NWI mapping, Typical Right-of-Way Configurations, and Meter Station Plot Plan

Volume IV: Privileged & Confidential

- Appendix 1D - Landowner List
- Appendix 4B - Cultural Resource Survey Reports

1.4 PROJECT PURPOSE AND NEED

1.4.1 Background

The FSC Project will create a new pipeline system with a planned capacity to initially transport 640 MMcf/d of natural gas. The FSC Project is associated with two other proposed pipeline projects: the Transcontinental Gas Pipe Line Company, LLC ("Transco") Expansion Project (also known as the Hillabee Expansion Project) located in Alabama, and the Sabal Trail Project, which will connect with the expanded Transco facilities in Alabama and extend south to connect with the proposed FSC Project in Florida.

The FSC Project will interconnect to the proposed Sabal Trail project at a point in central Florida south of Orlando. Sabal Trail proposes to lease capacity from Transcontinental Gas Pipe Line Company, LLC ("Transco") and construct approximately 499 miles of mainline pipeline terminating in central Florida. In addition, Sabal Trail will construct new facilities in central Florida that will provide interconnections with Florida Gas Transmission, LLC ("FGT") and Gulfstream Natural Gas System, LLC. These interconnections, as well as the interconnection to FSC, will be known as the Central Florida Hub.

In 2009, as a result of interest expressed by FPL, the Florida Public Service Commission ("FPSC") determined that "increased gas transportation infrastructure is needed to meet future electricity needs, given the uncertainty surrounding both coal-fired and nuclear generation" in the state of Florida (FPSC, 2009). The FPSC then directed FPL to conduct an RFP to meet the long term natural gas needs of FPL. Florida's use of natural gas for electric generation is projected to continue growing for years to come. The Florida Reliability Coordinating Council has reported that natural gas-fired electric generation has grown from less than 40 percent of total electric generation in 2007 to approximately 65 percent in 2012 and is expected to continue near this level for the next ten years. Further, Energy Information Administration data indicates that total natural gas demand in Florida has increased by 24 percent over the past five years and will continue to increase. Yet, unlike many other parts of the country where gas-fired generation is prevalent, e.g., Texas and California, Florida has no natural gas storage, almost no natural gas production and the two existing pipelines that serve the majority of the state are at or nearing their full capacity.

In December of 2012, FPL issued a Request for Proposals ("RFP") for new natural gas transportation service. Specifically, the RFP requested proposals for one pipeline, i.e., the Upstream Pipeline Project, extending from Transco's Station 85 in Alabama to a new interconnection hub in central Florida to create the Central Florida Hub, and a second pipeline, i.e., the Downstream Pipeline Project, from the Central Florida Hub to FPL's Martin Clean Energy Center in Indiantown, Florida. In July of 2013, FPL announced FSC as the winning bidder for the Downstream Pipeline Project (now known as the FSC Project). FSC and FPL entered into a precedent agreement for 400,000 MMcf/d beginning May 1, 2017, increasing to 600,000 MMcf/d on May 1, 2020. The precedent agreement with FPL requires an in-service date of May 1, 2017.

1.4.2 Purpose and Need

The purpose of the FSC Project is to (i) meet the natural gas fuel supply needs of existing and future electric generators by May 2017 and other natural gas users in Florida; (ii) add a new natural gas transmission pipeline to enhance the reliability of the existing pipeline system serving Florida; and (iii) satisfy the anchor shipper's (FPL) RFP requirement to create new pipeline infrastructure to allow for additional generation sites to be directly served with minimal need for additional facilities. The FSC Project may also permit natural gas local distribution companies to expand natural gas service to parts of Florida that currently are not served given the absence of gas infrastructure, thus permitting industrial and commercial customers the benefits of natural gas. In conjunction with the Sabal Trail Project, FSC will allow diversified access to growing natural gas supplies for natural gas users in Florida, increase the overall reliability of the region's natural gas transmission grid, reduce reliance on offshore supply sources and lessen the vulnerability to supply disruptions that can result from severe weather in the Gulf of Mexico.

In addition to providing increased gas deliverability to meet the region's growing natural gas needs, FSC will also benefit the residents and economy of the state of Florida by providing increased competition for gas transportation needs and economic benefits to Florida. Although no expansions are planned at this time, the FSC pipeline will be expandable from the outset merely by adding compression expansions or other modifications, whereas the existing FGT and Gulfstream pipelines can only be expanded through mainline pipeline looping and additional

compression. These features of the FSC Project will positively impact the economics of the state's overall natural gas supply portfolio, benefitting all gas consumers in Florida.

FSC is also projected to provide economic benefits. There will be an average of approximately 350 workers active per day over the expected 420-day construction period and direct wages associated with construction of the FSC Project are anticipated to amount to more than $71 million dollars. In addition to the wages paid for FSC construction workers, wages for jobs created indirectly as the result of FSC Project construction are anticipated to amount to approximately $69 million (Fishkind & Associates, 2014 – see Appendix 5A). Over the 60-year lifetime of the FSC Project, FSC estimates that it will pay $299 million in state, local and county taxes (Fishkind & Associates, 2014 – see Appendix 5A).

Furthermore, the United States Environmental Protection Agency ("USEPA") recently published its Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units ("EGUs"). See 79 Fed. Reg. 34,830 (June 18, 2014). The proposed rule, referred to as the Clean Power Plan, is being promulgated by USEPA pursuant to Section 111(d) of the Clean Air Act ("CAA") and is an important part of President Obama's Climate Action Plan which was unveiled in 2013.

A key step in promulgating requirements under the CAA section 111(d) is determining the ''best system of emission reduction . . . adequately demonstrated'' ("BSER"). In the proposed Clean Power Plan, USEPA identifies the combination of four building blocks as BSER for affected EGUs:

1. improvements in heat rate (i.e., efficiency) at existing coal-fired EGUs;
2. re-dispatch from high-emitting coal and oil/gas steam units to unused existing and under construction natural gas combined-cycle ("NGCC") generating capacity;
3. generation from "at risk" existing and under construction nuclear capacity, and generation associated with existing and projected renewables; and
4. incremental demand-side energy efficiency.

Under the proposed rule, Florida is required to reduce its CO2 emission rate from 1,238 lbs/MWh in 2012 to 740 lbs/MWh in 2030 (approximately a 40% reduction). EPA's modeling analysis shows that Florida can most cost-effectively achieve compliance with this requirement primarily by shutting down most of the coal-fired generation in the state and meeting electric demand by increasing the annual average capacity factor of existing NGCC units to 70%, along with increases in renewable energy capacity and additional end-use energy efficiency programs. The limiting factor to this sustained increase to generation for these units would be the availability of natural gas supply. One of the more significant challenges for the state will be the addition of natural gas infrastructure to achieve the re-dispatch goals included in the rule. Therefore, the FSC pipeline will provide the additional natural gas capacity to allow our anchor shipper, FPL, to meet USEPA's goals in the proposed Clean Power Plan.

1.5 LOCATION AND DESCRIPTION OF FSC PROJECT FACILITIES

1.5.1 Pipeline Facilities

The FSC Project, which is approximately 126.4 miles in length, will be located in Polk, Osceola, Okeechobee, St. Lucie, and Martin Counties in Florida. The FSC Project will interconnect to the new Sabal Trail Project near Intercession City, Florida. Both FSC and Sabal Trail propose in-service dates in May 2017.

The FSC Project will involve the creation of a new greenfield pipeline that will connect with Sabal Trail within the proposed Central Florida Hub to FPL's Martin Clean Energy Center in Martin County. The pipeline route originates in Osceola County near County Road 532 and runs generally south through Polk County for approximately 25 miles, until turning east where it traverses approximately 46 miles through Polk and Osceola Counties before turning southeast for approximately 45 more miles through Okeechobee and St. Lucie Counties. For the last 11 miles, the proposed route runs almost due south from the St. Lucie/Martin County boundary terminating at a point within the existing FPL Martin Clean Energy Center property north of Indiantown in Martin County, Florida. The proposed route falls within the municipal limits of four municipalities: the City of Davenport, the City of Haines City, the City of Lake Wales, and the Town of Dundee. The proposed route will be collocated with existing utility rights-of-way and along existing road rights-of-way where practicable.

1.5.2 Above Ground Facilities

1.5.2.1 Meter Station

A gas metering/regulating station ("Martin Meter Station") is proposed at the pipeline terminus at the FPL Martin Clean Energy Center. This station will include a filter/separator to remove small amounts of entrained liquids and debris from the gas stream. Limited amounts of pipeline condensates would be captured by FSC. At the Martin Meter Station horizontal filter separator equipment will be installed to provide additional condensate removal if needed. A condensate collection tank is provided in the design to capture this condensate and will be disposed of as hazardous waste by an approved FSC Vendor. The Martin Meter Station will also include prefabricated skid-mounted metering runs, prefabricated skid-mounted pressure regulators, a gas chromatograph to measure the gas composition, and building enclosures. Additional process piping, electrical power, and pressure monitoring devices will also be installed. Existing roads associated with FPL's Martin Clean Energy Center will be used to access the meter station during operation of the FSC Project. A meter station plot plan is located in Appendix 1A.

1.5.2.2 Mainline and Block Valves

MLVs will be located along the pipeline with the spacing of the MLVs meeting the requirements of the Pipeline and Hazardous Materials Safety Administration pipeline safety regulations for the pipe class requirements of each segment of the pipeline. A typical MLV is shown in Figure 1.5-1.

1.5.2.3 Launchers and Receivers

An inline pipe inspection device, or pig, launcher will be located at the origination of the pipeline where it will interconnect with the Sabal Trail Project (see Figure 1.5-2 for a depiction of a typical pig launcher and receiver). A pig receiver/launcher will be located at MP 77.1, where the 36-inch diameter FSC pipeline ends and the 30-inch FSC pipeline begins, and a pig receiver will be installed at the Martin Meter Station to be located at the FPL Martin Clean Energy Center.

1.5.3 Contractor Yards

FSC has identified four contractor yards, one staging area, and two storage areas for use during construction. The yards and staging/storage areas are primarily sited within upland open land, upland forest, and commercial/industrial land. The locations of these yards are shown on Figure 1.5-3.

1.6 LAND REQUIREMENTS

The proposed FSC Project will result in the temporary disturbance to existing land use during construction of the proposed facilities and, to a lesser degree, in the future during O&M of the facilities. A summary of land requirements for the FSC Project are provided in Table 1.6-1. Land

requirements for the pipeline facilities are provided in Table 1.6-2 and discussed in Section 1.6.1 and Section 1.6.2. Land requirements for the proposed aboveground facilities (including MLVs and launcher/receiver facilities) are provided in Table 1.6-3 and are discussed in Section 1.6.3. Land requirements for the proposed access roads and contractor yards are provided in Tables 8.2-5 and 1.6-4, respectively, and discussed in Sections 1.6.4 and 1.6.5, respectively.

1.6.1 Pipeline Construction Right-of-Way

The FSC Project will require a minimum 100-foot-wide construction right-of-way. The 100-foot-wide right-of-way includes a 50-foot-wide permanent right-of-way. Depending on the location, the 50-foot-wide right-of-way may be centered within the 100-foot-wide construction right-of-way or it may be off-centered. Typical right-of-way configurations are shown on figures provided in Appendix 1A.

At this time all operational (e.g. permanent) right-of-way will be 50 feet wide, with the exception of FDOT right-of-way. As described below, FDOT does not issue easements within its right-of-way and instead issues a permit to allow non-FDOT features to be located within FDOT right-of-way.

An exception to the 100-foot-wide construction right-of-way width is within wetlands where the right-of-way width is reduced to 75 feet wide. In some locations, additional workspace will be needed outside the nominal 100-foot corridor where conditions require additional workspace such as where the construction right of way is in close proximity to existing residences, roads, railroads, power line structures and wires, topography, soils, wetlands, and waterbodies. FSC proposes to increase its typical workspace configuration to 125 feet in agricultural areas (not including citrus groves) and in HDD pullback areas to allow for full right-of-way topsoil segregation where needed and also a. FSC has considered these factors in combination with the size of the equipment necessary to safely install the proposed pipeline. To accommodate this varying workspace width, a study corridor of 300 feet in width has been employed for biological and cultural resource field surveys, with the study area expanded as needed to evaluate potential visual impacts on historic structures. The cultural resources survey area is described in Resource Report 4 – Cultural Resources and shown on figures provided with this resource report.

FSC assessed the feasibility of reducing the construction right-of-way in forested areas, particularly pine plantation and citrus groves. Open land is the predominant land use, followed by forested land, and then followed by agricultural land. (see Table 8.2-1, Resource Report 8). Reducing the construction right-of-way in these areas would constrain the movement of equipment along a significant portion of the FSC Project alignment. Construction right-of-way widths have been determined based on industry standards for the proposed pipeline diameter (GIE, 1999) and in accordance with the FERC Plan and Procedures. FSC is not proposing to increase the construction right-of-way in citrus groves; but rather only, in areas with rotated cropland.

The proposed route was selected to maximize opportunities for collocation with other existing linear features and as much as practicable to avoid impacting land that is not already encumbered by utility infrastructure, or roads. Approximately 101.9 miles (79%), of the pipeline corridor is collocated within or immediately adjacent to existing rights-of-way consisting of public roadways, utility rights-of-way, and farm roads. The permanent right-of-way will overlap existing utility right-of-ways at varying widths in areas where such overlap is possible. The amount of overlap varies depending on field conditions such as existing facility locations, environmentally sensitive lands, proposed construction, landowner coordination, or other workspace restrictions. Several locations exist where, based on field conditions, the proposed route switches from one side of the linear facility right-of-way to the other. FSC is coordinating with the appropriate linear facility owners to safely cross under or over these existing facilities. Table 8.2-3 in Resource Report 8 – Land Use,

Recreation, and Aesthetics, summarizes existing right-of-way adjacent to the FSC Project pipeline facilities. When feasible the proposed FSC right-of-way is located adjacent to, but not within, the Florida Department of Transportation ("FDOT") right-of-way. FDOT does not issue easements within its right-of-way and instead issues a permit to allow non-FDOT features to be located within FDOT right-of-way. If FDOT chooses to perform work within its right-of-way, any impacted non-FDOT facilities would have to be relocated at the cost of the owner. FSC has been coordinating with FDOT staff throughout the route selection process to minimize potential future conflicts with proposed FDOT construction projects.

To minimize conflicts between the pipeline and possible future expansions by Duke Energy Florida ("DEF") or by highway authorities to their systems, the proposed pipeline right-of-way is planned to be adjacent to these rights-of-way, except for a few locations where conflicts exist that require the pipeline to be located in either the power line right-of-way or highway right-of-way.

1.6.2 Additional Temporary Workspace

In addition to the construction right-of-way, additional temporary workspace ("ATWS") may be required in areas such as the following:

- Adjacent to crossings of roadways, railroads, waterbodies, wetlands, or other utilities;
- Construction constraints that require special construction techniques, such as horizontal directional drilling ("HDD") entry and exit locations;
- HDD pullbacks;
- Areas requiring extra trench depth;
- Certain pipe bends;
- Areas for spoil storage;
- Areas for temporary storage of segregated topsoil;
- Locations with soil stability concerns;
- Truck turnarounds;
- Equipment passing lanes;
- Hydrostatic test water withdrawal and discharge locations; and
- Staging and fabrication areas.

Upon completion of construction, the rights-of-way will typically be limited to the 50-ft-wide permanent right-of-way and designated facility areas.

The areal extent (size) of ATWS will be determined on a site-specific basis. The ATWS area will be restricted to the minimum size necessary to safely construct the pipeline with respect to the existing conditions anticipated at the time of construction. In the case of wetlands and waterbodies, the ATWS will be located in accordance with the setback requirements contained in FSC's *Wetland and Waterbody Construction and Mitigation Procedures* ("Procedures") to the extent practicable and in consultation with other federal and state agencies. Where conditions do not permit a 50-foot setback, FSC is requesting deviations from the Procedures. Table 2.3-3 in Resource Report 2 – Water Use and Quality, identifies the locations where ATWS wetland setback deviations are requested along the FSC pipeline.

1.6.3 Aboveground Facilities

The Martin Meter Station will be located at the pipeline terminus at the FPL Martin Clean Energy Center. Operation of the meter station will require approximately 0.92 acres of previously cleared area. Land requirements for the meter station are identified in Table 1.6-3.

A pig launcher will be located at the origination of the FSC Project where it will interconnect with the Sabal Trail Project at the Central Florida Hub (see Figure 1.5-2 for a depiction of a typical pig launcher and receiver). A pig receiver/launcher facility is proposed at MP 77.1, where the 36-inch diameter FSC pipeline ends and the 30-inch FSC pipeline begins, and a pig receiver will be installed at the Martin Meter Station to be located at the FPL Martin Clean Energy Center. The pig launcher at the origination of the FSC Project will be approximately 0.18 acres and is located within the operation area for the Sabal Trail Reunion Compressor Station site. The receiver/launcher facility at MP 77.1 is located along the permanent right-of-way and will be approximately 0.26 acres. The pig receiver at the terminus of the FSC Project will be located within the operation area for the Martin Meter Station.

MLVs will be located along the pipeline route in accordance with United States Department of Transportation ("USDOT") standards set forth in 49 CFR §192.145. Each MLV site will encompass a fenced-in area of approximately 30 by 64 feet (approximately 0.04 acres). MLVs in areas adjacent to electric transmission line rights-of-way will have the vent located a safe distance from the electric transmission lines. A typical drawing of this MLV and vent orientation is provided in Figure 1.5-1.

Final location and design of corrosion facilities for the FSC Project is currently being determined. Rectifiers will be placed at several locations along the right-of-way and will consist of pole mounted rectifiers. Existing utility poles may be used for mounting or an approximately three-inch diameter pole will be installed. Land requirements are anticipated to be minimal and, therefore, have not been included in impact tables. The number and location of rectifiers is dependent on resistivity soil testing to determine impressed current and reach.

1.6.4 Access Roads

Existing public and private road crossings along the proposed pipeline route will be used, to the extent practicable, as the primary means of accessing the FSC Project right-of-way. FSC will also use existing public and private roads to the extent practicable to access the proposed aboveground facilities. FSC has identified 269 existing roads that are proposed to be used to access the right-of-way for construction of the proposed pipeline. The proposed access roads consist of 216 private roads and 53 public roads.

A summary of proposed access roads associated with the FSC Project is provided in Table 8.2-5 in Resource Report 8. This table provides a detailed listing of each proposed access road, the improvements needed and the reasons why each access road is proposed. Proposed access roads are shown on USGS Quadrangle mapping and FSC Project alignment sheets located in Appendix 1A.

FSC will continue to use 14 of these access roads for the life of the pipeline to access permanent facilities such as MLVs, meters, or inline inspection device launcher/receiver facilities or to access the pipeline right-of-way at other locations where access along the pipeline right-of-way is not practicable after temporary bridges are removed, fencing replaced, or terrain conditions inhibit access (e.g., wetlands, marshes, waterbodies, etc.). These other locations are to allow access to cathodic protection test stations or perform right-of-way maintenance, such as keeping the right-of-way clear, and other requirements. Generally, access roads will be 15 feet wide but could be up to 25 feet wide in certain instances.

1.6.5 Contractor Yards

FSC has identified four contractor yards, one staging area, and two storage areas for use during construction which will encompass approximately 228.12 acres of land. To the extent practicable, these areas will utilize existing industrial sites or other already impacted areas. Land requirements for contractor yards and staging/storage areas are identified in Table 1.6-4.

1.7 CONSTRUCTION PROCEDURES

1.7.1 Pipeline Facilities

1.7.1.1 Standard Construction and Restoration Techniques

FSC will conduct all construction activities in accordance with applicable Federal and state regulations and guidelines, as well as the specific requirements of applicable permits. FSC has adopted the Commission's Plan and Procedures and will construct the FSC Project in accordance with the Plan and Procedures. Table 1.7-1 includes a list of all the specific environmental plans related to the construction and operation of the FSC Project and their location within this Environmental Report. Table 1.7-1 also identifies the federal, state, or local agencies that would review and/or approve the plans and the status of agency review/approval.

Prior to initiating construction-related activities, FSC will secure right-of-way easements, or other required authorizations, from landowners whose properties will be crossed by the proposed pipeline route. Owners, tenants, and lessees of private land and lessees and managers of public lands along the right-of-way will be notified in advance of construction activities that could affect their property, business, or operations.

After necessary property interests have been obtained, the pipeline centerline, construction right-of-way, ATWS, drainage centerlines and elevations, and highway and railroad crossings will be surveyed and staked. Access roads will be clearly marked using temporary signs or flagging, and wetlands and other environmentally sensitive areas, such as water wells and springs, will be marked.

The contractor will contact the State One-Call system to locate, identify, and flag existing underground utilities (e.g., cables, conduits, pipelines) to prevent accidental damage during pipeline construction.

FSC's construction contractor will construct the proposed pipeline along the construction right-of-way using sequential pipeline construction techniques, including survey, staking, and fence crossing; clearing and grading; trenching; pipe stringing, bending, and welding; lowering-in and backfilling; hydrostatic testing; cleanup and restoration; and commissioning. Conventional overland installation of the pipeline is essentially a moving assembly line with a construction spread (construction crew and equipment) proceeding along the construction right-of-way in a continuous operation, as depicted in Figure 1.7-1.

The contractor is expected to construct the proposed pipeline using one or two construction spreads. The majority of the pipeline construction process will be accomplished using conventional open-cut methods, which typically include the steps described in the following paragraphs. The proposed methods for accomplishing pipeline installation across wetlands and waterbodies, as well as other specialized construction procedures, are also described in the following paragraphs describing special construction procedures.

Construction at any single point along the pipeline, from clearing to backfill and finish grading, would typically last approximately two to four months. The construction process would be coordinated to limit the time of active disturbance of an individual area and the time the trench is open to limit the potential for erosion and the loss of normal use.

Clearing and Grading Operations

After completion of the surveys and staking, large obstacles, such as trees, rocks, brush, and logs, will be removed from the right-of-way and ATWS areas. Trees will be removed only when necessary for construction purposes. Timber and other vegetative debris may be chipped into mulch for use as erosion control or otherwise disposed in accordance with applicable local regulations and landowner requirements. This may include burning when allowed by authorities and the landowner. The construction right-of-way and ATWS areas will then be cleared and, where necessary, graded to provide a relatively level surface for trench-excavating equipment and the movement of other construction equipment along the right-of-way. Unless grading is required for safety reasons and within the excavated trench, wetland vegetation will be cut off at ground level, leaving existing root systems intact, and the aboveground vegetation removed from the wetlands for chipping or disposal. No clearing will occur between HDD entry and exit areas, except hand clearing for state permitted water withdrawals only.

Within wetlands, FSC will segregate the top 1 foot of topsoil from the area disturbed by trenching, except in areas where standing water is present or soils are saturated, in accordance with FSC's Procedures. Unless the landowner or land management agency specifically approves otherwise, FSC will also segregate a maximum of 12 inches of topsoil in uplands, to the extent it exists, within residential and agricultural lands, and other areas at the request of the managing agency. The topsoil removal will typically occur over the trench, in storage areas for excavated materials, and areas where cut and fill activities would be conducted (e.g., on side-slopes). Topsoil will be stockpiled along one side of the right-of-way, allowing the other side to be used for access, material transport, and pipe assembly. Where necessary, topsoil will be replaced with appropriate imported material in residential areas.

Where needed for erosion control, best management practices ("BMPs") will be implemented as needed along the construction right-of-way and will be properly maintained throughout construction. BMPs will remain in place until permanent erosion controls are installed or restoration is completed.

Fire Suppression

In the event of an uncontrolled fire, assigned construction personnel on the scene will notify the appropriate federal, state, or local fire control authority. Fire prevention and suppression will be the responsibility of the Construction Spread Superintendents, Construction Foreman, Construction Manager, Field Safety Officers, Environmental Inspectors, and Authorized Officers. These key personnel will initiate and implement all fire control activities during construction until relieved by professional fire suppression crews. If a fire is determined to be too extensive or spreading too rapidly to be contained by equipment and personnel on hand, crewmembers will be instructed to evacuate the site and yield to professional fire suppression crews to control the wildfire.

Precautions to be implemented during construction to reduce the likelihood of an uncontrolled fire include:

- All construction personnel will be instructed as to the fire prevention and suppression procedures to be implemented on the FSC Project;
- Burning schedules will be provided to the appropriate federal, state, or local fire control authority on a weekly basis;
- All equipment assigned to the job will be equipped with one five-pound minimum dry chemical fire extinguisher;

- Vegetation will be cleared within a 20-foot area of any work involving welding, cutting, or drilling of metal components during fire season;
- Each welding crew will be outfitted with a shovel and one 20-pound dry powder fire extinguisher;
- Equipment parking areas and small stationary engine sites shall be cleared of all extraneous flammable materials;
- Gas and oil storage areas shall be cleared of extraneous flammable material and "No Smoking" signs shall be posted throughout the area at all times;
- All used and discarded oil, oil filters, oily rags, or other waste shall be disposed of in approved and marked containers. Containers shall be stored in approved locations and removed from the site by licensed contractors or approved personnel and disposed or recycled at approved facilities; and
- Glass jugs or bottles shall not be used as containers for gasoline or other flammable materials.

Open burning of cleared vegetative debris (trees and shrubs) shall be conducted in accordance with state and local fire codes. FSC will coordinate with the local fire control agencies prior to performing open burning activities, as necessary. All applicable permits and authorizations shall be obtained prior to conducting any open burning activities. No burning of debris, other than vegetative, is proposed to occur.

Trench Excavation

Following completion of grading, the trench centerline will be staked and then excavated using a track-mounted excavator, or similar equipment. Excavated materials will be stockpiled along the right-of-way on the side of the trench away from the construction traffic and pipe assembly areas.

The proposed pipeline will be buried below the ground surface to a depth that will meet or exceed the USDOT standards set forth in 49 CFR §192.327. Except in unanticipated rocky areas, the trench will be excavated to a sufficient depth to allow a minimum of 30 inches of cover in Class 1 areas and 36 inches of cover in Class 2 and 3 areas between the top of the pipe and the final land surface after backfilling. FSC will comply with applicable regulations at railroad crossings and railroad drainages.

Trench breakers (barriers to subsurface water flow placed in the trench) will typically be used to create segments within the open trench to reduce erosion and allow access across the trench. Trench breakers will typically consist of unexcavated trench segments or excavated trenches temporarily filled with sandbags or polyurethane foam placed across the ditch.

Blasting

Though not expected for this project, blasting may be used if necessary in areas where rock substrates occur at depths that interfere with conventional excavation or rock-trenching methods (generally within 5 feet of the ground surface). Blasting would be conducted in accordance with a site-specific blasting plan and in accordance with all other applicable regulations.

The blasting plan will be designed to prevent damage to underground structures (e.g., cables, conduits, and pipelines) and springs, water wells, or other water sources. Blasting mats or soil cover would be used as necessary to prevent the scattering of loose rock. If required, blasting would be conducted during daylight hours and would not begin until occupants of nearby buildings, stores, residences, places of business, and farms have been notified.

Stringing, Bending and Welding

Pipe will typically be transported by truck from the contractor or pipe yards to the right-of-way. Sections of straight steel pipe, generally either 40 or 80 feet long, will be placed in a single, continuous line (termed stringing) within the construction right-of-way. Pipe sections will be protected on the outside with a factory-applied fusion-bonded epoxy coating; the beveled ends of the sections will be uncoated to allow for welding.

Some pipe sections will be bent at the work site to follow the natural grade and direction changes of the right-of-way. Bending will be accomplished using track-mounted hydraulic bending machines. Where multiple, complex, or large-angle bends (generally 15 degrees or higher) are required, induction bends (also known as hot bends) with a bend radius of 5 degrees or greater that are fabricated in a factory will typically be shipped to the work sites pre-bent. The bends can be manufactured to meet the known or expected angle requirements, or they can be manufactured with higher fabrication tolerances that will allow them to be segmented in the field by the contractor to the degree needed at each location.

The pipe joints will typically be aligned, welded together into a long segment, and placed on temporary supports at the edge of the trench. Welders will use multiple passes to complete a full-penetration weld. FSC will only use experienced welders who are qualified according to applicable American Welding Society, American Society of Mechanical Engineers, and American Petroleum Institute ("API") standards. Each weld will be visually inspected and nondestructively tested using radiographic (X-ray) or other approved test methods in accordance with API standards. After welding is completed, a coating crew will coat the area around the weld. The entire coated pipeline will be inspected electronically for faults or voids in the coating and will be visually inspected for faults, scratches, or other defects. If damage to the coating is discovered, the coating will be repaired before the pipe is lowered into the trench.

Lowering-In

Prior to lowering-in the proposed pipeline, the trench will be cleaned of debris and foreign material. The pipe and trench will also be inspected to ensure that the pipe and trench configurations are compatible.

During construction, the open trench may accumulate water either from groundwater seepage or precipitation and will be typically dewatered periodically to allow for proper and safe construction. During trench dewatering, water will typically be pumped from the trench into stable upland areas through a filter bag, straw bales, or equivalent to remove sediment. The rate of flow from the pump will be regulated, and energy dissipation devices will be used as necessary to prevent erosion from runoff and to prevent the flow of heavily silt-laden water directly into adjacent waterbodies. Dewatering will be conducted in accordance with applicable federal, state, and local permitting requirements.

In areas of rock, the bottom of the trench may be padded with sandbags or support pillows to protect the pipe coating. Topsoil will not be used as padding material. Where the previously excavated material contains large rocks or other materials that could damage the pipe or its coating, screened fill, protective coating, or rock shield wraps will typically be placed around the pipe prior to backfilling. The pipeline will then be lowered into the trench by appropriately spaced, sideboom tractors working in unison to avoid buckling of the pipe.

Backfilling

After the proposed pipeline is lowered into the trench and adequately protected, previously excavated materials will be used to backfill the trench using bladed equipment or excavators. Subsoil in all cultivated areas will typically be decompacted after backfilling and prior to replacing

topsoil. If decompaction is necessary after topsoil has been replaced, the contractor will use a tiller (or similar equipment) to loosen compacted areas.

Topsoil previously segregated from the trench material in all agricultural and residential areas will typically be returned as nearly as possible to its original horizon. The right-of-way, ATWS, and other disturbed areas will typically be finish-graded and restored as closely as possible to preconstruction contours and to conform to the adjacent areas except for areas directly over the trench location where some crowning will be allowed (except in wetland areas) to accommodate soil settlement.

Any excess excavated materials or materials deemed unsuitable for backfill will typically be evenly spread over the right-of-way in uplands or disposed in accordance with applicable regulations and landowner requirements.

Hydrostatic Testing

Once installation and backfilling are completed and before the proposed FSC Project begins operation, the pipeline will be hydrostatically pressure tested in accordance with USDOT safety standards 49 CFR §192.1 to verify its integrity and ensure its ability to withstand the maximum allowable operating pressure. The HDD pipe string will be tested after its installation either separately or as part of the hydrostatic test of the entire pipeline. MLV and trap assemblies will be hydrostatically tested separately from the pipeline and then installed into the pipeline after the pipeline has been hydrostatically tested.

Hydrostatic test water will be obtained and discharged in accordance with applicable permit conditions. The construction contractor will test the pipe in segments. Where reasonable, the contractor may transfer the hydrostatic test water to the next segment for reuse.

Hydrostatic test water will be discharged into a straw bale dewatering structure in a well vegetated area and located at least 100-feet from wetlands and waterbodies where practicable. Test water will not be discharged directly into wetlands. No direct discharges to waterbodies are anticipated, and if necessary, will only be conducted upon approval from the applicable regulatory agencies. The discharged water would be directed through an energy dissipation device onto a stable spill pad constructed of material such as straw bales, rock fill, weighted timbers, or woven geotextile fabric within the dewatering structure. Surrounding topography would be reasonably level and stabilized to allow filtered water to continue as sheet flow away from the work area. Discharge rates into the dewatering structure would be monitored to avoid overflow and damage to the structure. All hydrostatic test water will be discharged in accordance with the applicable federal and state approvals.

Restoration and Revegetation

After the proposed pipeline has been successfully tested, the trash, debris, surplus materials, and temporary structures present along the construction right-of-way will be removed and disposed in accordance with applicable federal, state, and local regulations.

As necessary, permanent erosion control measures, such as diversion terraces and slope breakers, would be installed during this phase in accordance with the FSC Project's Plan and Procedures. Disturbed upland areas may be seeded as required by the FSC Project's reclamation plan, and written recommendations for seed mixes, rates, and dates would be obtained from the local soil conservation authority or as requested by the landowner or land management agency, and in accordance with permits.

Disturbed pavement and other road surfaces along access roads will be restored to preconstruction or better conditions, unless otherwise specified by the property owner and

approved by applicable regulatory agencies. Likewise, any private or public property damaged during construction, such as fences, gates, and driveways, will be restored to original or better condition, consistent with individual landowner agreements.

Pipeline markers and/or warning signs will typically be installed along the pipeline centerline at specified intervals to identify the pipeline location, specifying FSC as the operator of the pipeline, and provide telephone numbers for emergencies and inquiries.

1.7.1.2 Special Construction Procedures

Residential Land

Residential structures within 50 feet of construction work areas are identified in detail in Resource Report 8. Special care will be taken in residential areas to minimize neighborhood and traffic disruption and to control noise and dust to the extent practicable.

In general, the following measures will be taken in residential areas:

- Fence the boundary to the construction work area for a distance of 100 feet on either side of the residence to ensure construction equipment, materials and spoil remain in the construction right-of-way;
- Notify local residents two weeks in advance of construction activities;
- Preserve trees and landscaping to the extent practicable;
- Utilize topsoil segregation procedures, as required, in accordance with the FERC Plan;
- Ensure piping is welded and installed as quickly as reasonably possible consistent with prudent pipeline construction practices to minimize construction time affecting a neighborhood;
- Backfill the trench and complete cleanup as soon as the pipe is laid or temporarily steel plate the trench;
- Complete cleanup (including grading) and installation of permanent erosion control measures within 10 days after the trench is backfilled, weather conditions permitting;
- Restore lawns and landscaping immediately following final clean-up, or as specified in landowner agreements, weather conditions permitting; and
- If weather conditions prevent immediate restoration of these areas, maintain and monitor temporary erosion controls until restoration is completed.

Site-specific Residential Construction Plans for each of these residences are included in Appendix 8A of Resource Report 8 – Land use, Recreation, and Aesthetics. These plans show the construction area to be disturbed and safety measures that will be implemented, as described above. Additional details regarding the construction techniques to be used in residential areas are provided in Section 8.3.3 of Resource Report 8 – Land Use, Recreation, and Aesthetics.

Agricultural Land

Cultivated land will be crossed by the FSC Project as detailed in Table 8.2-1. During construction, FSC will perform topsoil segregation in agricultural lands, except citrus lands, as needed, which include permanent or rotated croplands and other areas at the request of resource agencies or landowners. FSC will stockpile topsoil separately from subsoil and will replace these soil horizons in the proper order during backfill and final grading. Erosion control will be used around stockpiled areas as needed to prevent spread of sediments off the work areas during rain events. FSC

proposes to increase its typical workspace configuration to 125 feet in agricultural areas (not including citrus groves) to allow for full right-of-way topsoil segregation where needed. The local agricultural extension agent and/or landowner will be consulted to determine the approximate amount of topsoil that will be stripped and stockpiled separately from the trench spoil.

Construction in Citrus Groves

FSC contacted the Florida Department of Agriculture and Consumer Services ("FDACS") regarding compliance with its Citrus Health Response Program ("CHRP"), which was developed to manage impacts associated with the citrus canker and other citrus diseases. Correspondence from FDACS provided information about Citrus Black Spot ("CBS") quarantine areas, the Federal Order for Citrus Black Spot, Florida Statute rule 5B-63 (Schedule 10 [Offices] and Schedule 11 [Decontamination Methods], a sample Citrus Canker Decontamination Plan, and the Grower's Compliance Agreement (Causey, 2014).

Correspondence with FDACS provided that CHRP is a voluntary program that is initiated by individual grove owners (Causey, 2014). If a CHRP is in place, decontamination occurs when traveling into or out of a grove (or block) and that groves are not entered when wet or when it is raining (Causey, 2014).

FDACS indicated that Citrus Canker is spread throughout the state and decontamination procedures are the same as for CBS with onsite burning being the best way to handle disposal of removed trees (Causey, 2014).

CBS is only detected in three counties in Florida, and Polk County is the only FSC Project area county with a CBS regulated area. Review of the USDA Polk County CBS Quarantine Zone Map (USDA, 2013) located the Polk County Quarantine area approximately 15 miles to the southwest of FSC MP 44.0. As a result, construction and operation of the FSC Project is not anticipated to encounter CBS.

Huanglongbing ("HLB")/Citrus Greening disease is also present throughout the state and primarily in Polk and Osceola County in relation to the FSC Project area. The HLB bacteria is transmitted primarily by insect vectors (*citrus psyllids*), but can also be spread through plant grafting and movement of infected plant material (FDACS, 2014). As a result, there is no decontamination procedure for Citrus Greening.

FSC will coordinate with each grove owner to identify participants in the CHRP and will abide by the decontamination and tree and brush disposal procedures in the landowners CHRP. Additional information on standard CHRP procedures is also included in the Invasive Species Management Plan for the FSC Project located in Appendix 1E. During easement negotiations for areas crossing citrus groves, FSC will negotiate appropriate compensation with affected landowners for the loss of production on both a temporary and permanent basis. Following construction, the landowner may replant the temporary right-of-way and ATWS areas.

Timber Land

At the request of the landowner, trees felled during clearing activities will be placed off of the construction area for the landowner to sell at the time of their choosing. No off right-of-way timber placement has been requested at this time; however, if requested FSC will ensure timber is placed within the 300-foot survey corridor, outside of any sensitive areas, and in accordance with applicable regulations. Moving timber off of the construction area during clearing activities will allow construction and restoration to proceed in accordance with FSC's Plan and Procedures and will avoid any post-restoration disturbance of the right-of-way for timber removal.

High Flow Conditions

During construction, FSC will monitor the weather to determine if heavy precipitation events are forecasted for the construction area(s) where waterbody crossings are planned. Attempts will be made to conduct dry open-cut crossings outside of any forecasted heavy precipitation events. In waterbodies where no discernible flow is observed and no by-pass system is installed, supplies will be on site to construct a by-pass system if precipitation occurs and the stream begins to show a discernible flow. If an unexpected heavy precipitation event occurs during construction at a dry-crossing location, resulting in discernible flow in the waterbody channel, an alternate dry crossing method using the by-pass system will be employed. For proposed crossings where there is a discernible flow, if forecasted precipitation amounts are determined to potentially overwhelm the proposed by-pass system, the crossing will be postponed until the rain event has passed and it has been determined that the by-pass systems can safely flow water volume and velocity of the waterbody.

In the event that extreme weather is forecasted, FSC will remove personnel and construction equipment from work being conducted in streams in anticipation of the storm event to the extent the work cannot be performed safely and be performed in such a way as to meet the states turbidity limits and other environmental regulations. FSC employees will be trained on safety procedures during storm events to understand inherent dangers during these times and measures required to protect the environment such as removing construction equipment from high flow areas and flood zones and ensuring that erosion control and sediment control devices are either secured in place, or removed to avoid displacement during flooding or high flows.

Top Soil Segregation Practices

Topsoil segregation will be performed in agricultural areas as discussed above under “Agricultural Land”. In accordance with FSC’s Procedures, the top 12 inches of soil over the trench line will be segregated in wetlands, except where standing water is present or soils are saturated. Trench spoil will be temporarily piled in a ridge along the pipeline trench. Gaps in the spoil pile will be left at appropriate intervals to provide for natural circulation or drainage of water. Segregated wetland topsoil will be restored to its original location immediately after backfilling is complete.

Measures to Prevent Pipeline Buoyancy

Concrete weights, saddle bags, anchors, or concrete coating will be used on the pipeline to control pipeline buoyancy in saturated or non-cohesive soil conditions. Concrete coating will occur only in a designated concrete coating area. In accordance with FSC’s Procedures, concrete coating activities will not be performed within 100 feet of a wetland or waterbody boundary, storm drains, or ditches, unless the location is an existing industrial site designated for such use. These activities can occur closer only if the Environmental Inspector determines that there is no reasonable alternative, and FSC and its contractors have taken appropriate steps (including secondary containment structures) to prevent spills and provide for prompt cleanup in the event of a spill. There are several methods that may be used to concrete coat the pipe. The forms process is described below, and any process implemented for the FSC Project will be required to meet the same environmental standards.

Prior to concrete coating the corrosion coating shall be inspected, repaired where necessary, and a coating of 100 percent solids two part liquid epoxy non-slip adhesive system applied. The contractor will install split sheet metal forms around the pipe and pour concrete from concrete trucks into the open ends of the forms. The concrete filled forms will be vibrated to assure there are no voids. The concrete will be approximately three inches thick all around the pipe with a thin layer of reinforcing wire mesh held in the center of the annulus between the pipe and the form. After 24 hours, the sheet metal forms will be stripped and the concrete will be allowed to cure for

an additional six days or until compressive strengths have achieved their minimum specified values.

Concrete washouts will occur in designated onsite washout areas intended to prevent concrete from entering wetlands, surface water, groundwater, or stormwater systems. Concrete trucks, pumpers or other concrete coated equipment will be allowed to be washed in these areas. Washouts of concrete trucks will occur in designated washout areas only. Concrete will not be permitted to be washed onto bare earth, or into storm drains, open ditches, streets, or streams. Excess concrete cannot be dumped onsite except for within the designated washout area. Concrete washouts can either be self-installed plastic lined (above or below grade) structures, or prefabricated leak resistant washout containers. Signs will be erected onsite indicating the location of the designated washout area. Designated washout areas should be located in close proximity to the concrete pouring operation but far enough away from other construction activities and traffic to lower the risk of accidental spills.

Prior to concrete pouring work designated washout areas will be inspected for leaks, damage, and capacity. During concrete work the designated washout area should be inspected daily to verify condition, capacity, and overall performance. Designated washout areas should be maintained below 12 inches of the top of the facility and cleaned out once 80 percent full. Once 80 percent capacity has been reached, use of the designated washout area will be discontinued and the hardened concrete removed for disposal or recycling. Once disposal is complete the designated washout area will be inspected for signs of leaks, damage, or reduced capacity. If the designated washout area is deemed intact then it will be re-lined (if a self-installed system) and used as needed. All areas will be restored post-construction in accordance with FSC's Plan.

Timing of Construction Work

FSC will adhere to the timing requirements for crossing streams as outlined in FSC's Procedures (see Appendix 1G). Specifically, minor stream crossings will be completed within 24 hours not including any time for rock breaking measures. Intermediate crossings will be completed within 48 hours not including rock breaking measures and unless site-specific conditions make completion of intermediate crossings within 48 hours infeasible.

Wetland and Waterbody Crossings

Construction across wetlands and waterbodies will be conducted in accordance with all of the measures set forth in FSC's Procedures. Deviations from the Procedures requested by FSC are included in Table 2.3-3 in Resource Report 2 – Water Use and Quality. FSC proposes to cross Lake Kissimmee utilizing the HDD construction method. A typical HDD entry and exit are depicted in Figure 1.7-2. Smaller waterbodies will be crossed with a dry crossing method (i.e., Flume and Dam and Pump) with the final determination made at the time of the crossing depending on the existing flow in the waterbody. In locations where streams are dry at the time of construction and the EI verifies that water is unlikely to flow between initial disturbance and final stabilization of the feature, standard upland construction techniques will be implemented in accordance with the FSC's Plan. Agricultural ditches will be crossed by dry crossing methods. Waterbody crossing methods are depicted in Figures 1.7-3, 1.7-4, and 1.7-5 and are discussed in detail in Resource Report 2, Water Use and Water Quality. Wetlands will be crossed using the Dry Wetland Crossing, Wet "Saturated" Wetland Crossing, or "Wet" Flooded Wetland Crossing methods depicted in Figures 1.7-6, 1.7-7 and 1.7-8, respectively, in compliance with FSC's Procedures.

To minimize potential impacts, waterbodies, streams and rivers will be crossed as quickly and as safely as possible. Adherence to FSC's Procedures will ensure stream flow will be maintained throughout construction. Most stream crossings will be completed using conventional trackhoe type equipment and dry crossing techniques. Proposed waterbody crossing methods for each

waterbody crossed by the proposed pipeline are provided in Resource Report 2 – Water Use and Quality.

HDD Crossing Method

FSC proposes to use HDD in nine locations. The following includes a list of the HDD locations and the resources avoided by use of the HDD construction method.

- MP 12 – This HDD avoids a portion of the Lake Marion Creek Wildlife Management Area parcel owned by SFWMD, avoids waterbodies WB-35A and 35D, and avoids impacts on Johnson Ave (Route 580).
- MP 38 – This HDD avoids Weohyakapka Creek (WB-25) which is associated with the adjacent North Walk-in-Water Creek parcel which functions as a wetland preserve (see Resource Report 8). This HDD also avoids three palustrine forested wetlands ("PFO") and one palustrine emergent wetland ("PEM") (W-181, W-184, W-185, and W-182, respectively).
- MP 54 –This HDD avoids impact on Lake Kissimmee (WB-35A and WB 35D) and six PEM wetlands (W-251B-G).
- MP 59 – This HDD avoids crossing approximately 1,620 feet of PFO wetland (W-290A) associated with Blanket Bay Slough.
- MP 84 – This HDD avoids impact on Boggy Branch (WB-56), and associated waterbody WB-57, and three associated PFO wetlands (W-446, W-447, and W-448).
- MP 99 – This HDD avoids approximately 1,500 feet of a stream/wetland complex associated with Cow Creek consisting of PFO wetlands W-496 A, B, D, E, F, G, and streams WB-63B and 63C.
- MP 106 – This HDD avoids approximately 590 feet of a stream/wetland complex associated with Cypress Creek and consisting of PFO wetlands W-532A and E and stream WB-690B. This HDD also avoids impact on State Route 70 and adjacent roadway drainage WB-70.
- MP 115 – This HDD avoids impact to the C-23 Canal Right-of-Way and CSX Railroad. Impacts on PEM wetlands W-582 and W-585, and Palustrine Scrub-Shrub ("PSS") wetland W583 are also avoided.
- MP 124 – This HDD avoids impact on the WRP easement for the Williamson Ranch parcel owned by SFWMD and Martin County. This HDD also avoids impact on one PEM wetland (W-645), two PFO wetlands (W-646 and 647), SW Warfield Boulevard (Route 710), and the CSX Railroad.

The HDD method involves boring a pilot hole deep beneath the waterbody to the opposite bank and then enlarging the hole with one or more passes of a reamer until the hole is the necessary diameter. A prefabricated pipe segment is then pulled through the hole to complete the crossing. A successful drill generally results in no impact on the waterbody bed or banks of the waterbody being crossed. While the HDD method is a proven technology, there are certain impacts that could occur as a result of the drilling, such as an inadvertent release of drilling fluid, which is a slurry of bentonite clay and water (typically 95 percent water) and is classified as non-toxic to the aquatic environment and is a non-hazardous substance.

FSC will implement preventive measures so that the HDDs are performed in a manner that prevents, to the extent reasonably practicable, an inadvertent release, such as monitoring the

down-hole mud pressures and swabbing the hole to keep the annulus free of cuttings. Should an inadvertent release occur, FSC's contractor will stop the drilling process and secure the area with straw bales, silt fence, sand bags or other means to stop the spread of the inadvertent release. Typically, a pump is installed in the secured area and the bentonite/water mixture is pumped or transported back to the mud rig. The contractor will contain, control, and clean up any release of drilling fluid during the HDD operations. Should the release of drilling fluids occur in a waterbody, the contractor may utilize inert, non-toxic loss circulation materials such as mica, wood fibers, and other types of cellulous-like cotton dust to attempt to plug the fracture by pumping these products down hole through the drill string as part of the drilling fluid mixture. Impacts of drilling mud release into a waterbody generally will be less than those associated with any drilling mud recovery operation and less than potential impacts associated with an open-cut crossing that would otherwise be required. FSC will implement the following to minimize potential impacts of an inadvertent release:

1. Monitor mud pressures down hole to ensure they do not get too high for the materials and depth of cover being penetrated.
2. Conduct frequent visual inspections of the drill path on the surface so that timely detection of a release can be achieved.
3. Stop the mud pumps once an inadvertent release has been detected so that the release does not spread and secure the perimeter with straw bales, silt fence, sand bags, or other means.
4. Notify FSC's environmental monitors once an inadvertent release has been detected to ensure efforts are being undertaken to protect the waterbody and any associated wetlands.

FSC has developed a HDD Contingency Plan for monitoring the HDD program for the Project. This plan is included in Appendix 2A of Resource Report 2. Site-specific crossing plans for each HDD crossing are provided in Appendix 1A, Volume III.

Equipment Bridges across Waterbodies

Where necessary, FSC will install temporary equipment bridges across waterbodies for access along the proposed right-of-way. Equipment bridges will generally be constructed of culverts (or flumes) and clean rock-fill or free-spanning bridges. Placement of clean rock to bridge a wetland or waterbody will be used as necessary and as authorized by the Florida Department of Environmental Protection ("FDEP") and U.S. Army Corps of Engineers ("USACE").

A culvert or flume bridge (as depicted in Figure 1.7-9) involves using flume pipes to convey the flow of water, with the number of flumes needed dependent on the potential flow of water at the time of construction. The flumes will be laid on the streambed, and equipment pads or clean rock, purchased from a commercial source, will be used to cover the flumes up to the level of the stream bank to provide a travel surface for construction equipment.

Each bridge will typically be designed to accommodate the highest stream flow expected to occur and will be maintained to prevent soil from entering the waterbody and to prevent restriction of flow, bank erosion, and stream scour during the period of time that the bridge is in use. After the bridges are removed, disturbed areas will typically be restored to pre-installation conditions. Where an equipment bridge is part of a proposed permanent access road, the bridge will not be removed following the completion of the project.

Foreign Pipelines

Foreign pipeline crossings will be open cut and have a minimum clearance of 12 inches between the proposed pipeline and the foreign pipeline. Minimum clearances will be in compliance with 49 CFR Part 192, as well as in accordance with pipeline crossing agreements with the foreign pipeline operators.

Road and Railroad Crossing Techniques

Open-Cut Method

Pipeline crossings of lightly traveled paved and unimproved rural dirt or gravel roads will typically be accomplished using the open-cut installation method. If open-cut road construction requires extensive construction time, provisions will be made for detours or other measures to permit traffic flow during construction. Figure 1.7-10 illustrates a typical open-cut public road crossing.

Conventional Bore Method

Railway crossings and major roadway crossings require special construction techniques such as boring. These crossings are normally constructed independently by separate construction crews and later tied into the rest of the pipeline. Typically, a jack-and-bore or other appropriate boring technique is used to install the pipeline under these transportation features. This method involves the excavation of pits on either side of the transportation feature and the placement of a bore machine within one of the pits. This device will bore under the road and install the pipeline segment. Once the bore has reached the other pit, the pipeline segment will be tied in with the pipeline installed on the other side. Figure 1.7-11 is a plan view of a typical bored road crossing. With this method, the pipeline would pass under the railroad or roadway with little or no disturbance to traffic along the rail or roadway.

1.7.2 Aboveground Facilities

The aboveground facilities will be constructed in compliance with the same federal regulations and guidelines as the pipeline facilities, and in accordance with the specific requirements of applicable federal and state approvals. The construction and restoration methods and procedures in both FSC's Plan and Procedures will be followed, as applicable, for the aboveground facilities as well. Generally, aboveground facilities are sited to avoid cultural and natural resource impacts to the greatest extent practicable.

1.7.3 Environmental Training and Inspection for Construction

Consistent with FERC guidelines, environmental training will be given to the FSC personnel and to contractor personnel whose activities may impact the environment during pipeline and aboveground facility construction. The level of training will be commensurate with the type of duties of the personnel. All construction personnel from the chief inspector, Environmental Inspector ("EI"), craft inspectors, and contractor job superintendent to loggers, welders, equipment operators, and laborers will be given the appropriate level of environmental training. The training will be given prior to the start of construction and throughout the construction process, as needed. The training program will cover the FSC Project Plan and Procedures, job-specific permit conditions, contaminated sediment and groundwater management, health and safety, company policies, cultural resource procedures, threatened and endangered species restrictions, the Spill Prevention Control Plan, National Pollutant Discharge Elimination System, Stormwater Plan, and any other pertinent information related to the job. In addition to the EIs, all other construction personnel will play an important role in maintaining strict compliance with all permit conditions to protect the environment during construction.

At least one EI will be assigned to each construction spread during active construction or restoration. The EI will have peer status with all other activity inspectors and will report directly to the Resident Engineer/Chief Inspector who has overall authority on the construction spread. The EI will have the authority to stop activities that violate the environmental conditions of the FERC certificate (if applicable), other Federal and state permits, or landowner requirements, and to order corrective action.

1.7.4 Construction Schedule and Work Force

FSC plans to begin construction in 2016 and initiate service in May 2017. The majority of construction of the proposed FSC Project would occur from March 2016 through May 2017 using one or two construction spreads. A single spread would have an estimated peak workforce of 450 and an average workforce of 325. Two construction spreads would have an estimated average workforce of 650 personnel.

Construction at any single point along the proposed FSC Project, from initial surveying and clearing to backfilling and finish grading, would last approximately 2 to 4 months. However, the duration of construction may be longer at the proposed MLV and pig launcher and receiver sites, hydrostatic test tie-in locations, and the Martin Meter Station.

1.8 OPERATION AND MAINTENANCE

FSC will institute a comprehensive operations and maintenance program for the proposed facilities in accordance with the Pipeline and Hazardous Materials Safety Administration's pipeline safety regulations. Pipeline facilities will be clearly marked in accordance with 49 CFR §192.707, Line Markers for Mains and Transmission Lines, at line-of-sight intervals and crossings of roads, railroads, and other key points. The markers will clearly indicate the presence of the pipeline and provide a telephone number and address where a company representative may be reached in the event of an emergency or prior to any excavation in the area of the pipeline by a third party.

FSC's operations and maintenance program includes a comprehensive corrosion control program using state-of-the-art inline inspection tools, leak inspection surveys that include regularly scheduled aerial and ground patrols of the pipeline right-of-way, and participation in the existing Sunshine State One-Call of Florida system. Use of the One-Call of Florida system is required by anyone planning excavation activities to call a single number to alert all utilities, including FSC, and thus prevent unintentional contact with the pipeline. Additionally, FSC representatives will visit any construction site close to the pipeline and mark the location identifying the existence of FSC's underground facilities. They will also remain onsite during any excavation activity within the pipeline right-of-way.

1.8.1 Right-of-Way Maintenance

In addition to the survey, inspection, and repair activities described herein, operation of the pipeline will include maintenance of the right-of-way. The right-of-way will typically be allowed to revegetate after restoration; however, large brush and trees will typically be periodically removed near the pipeline. Vegetation maintenance will not normally be required in agricultural or grazing areas.

Trees or deep-rooted shrubs could damage the pipeline's protective coating, obscure periodic surveillance, or interfere with potential repairs. Such vegetation will typically not be permitted to grow within the permanent right-of-way.

The frequency of the vegetation maintenance will depend upon the vegetation growth rate. Routine vegetation maintenance clearing will typically be performed on a sectionalized basis with higher regrowth areas receiving right-of-way maintenance necessary to adequately patrol the

pipeline consistent with 49 CFR §192.705. However, to facilitate periodic corrosion and leak surveys, a corridor not exceeding 30 feet in width centered on the pipeline will typically be maintained annually in an herbaceous state.

Routine vegetation mowing or clearing of the permanent right-of-way will be reduced at wetland and waterbody locations. At wetland and waterbody crossings, a corridor centered on the pipeline and up to 10 feet wide may be cleared at a frequency necessary to maintain the 10-foot corridor in an herbaceous state. In addition, trees within 15 feet on either side of the pipeline with roots that could compromise the integrity of pipeline coating may be selectively cut and removed from the permanent right-of-way. No routine vegetation mowing or clearing is proposed between HDD entry and exit points during operation of the Project.

1.8.2 Pipeline Surveys and Inspections

As required by 49 CFR §192.615, FSC will include emergency procedures in its operation and maintenance plan to minimize the hazards in a natural gas pipeline emergency.

The operation and maintenance plan would address an operations and maintenance program that includes corrosion control, leak inspection surveys, class study changes, regularly scheduled aerial and/or ground patrols of the pipeline right-of-way, maintenance of the right-of-way, and inspection and testing of valves, cathodic protection, and other appurtenances as specified in 49 CFR Part 192.

A special pipeline inspection device called a smart inline pipe inspection device will be used to establish a baseline of the pipeline's conditions, which will be used to compare against future smart inline pipe inspection device results. USDOT safety standards (49 CFR Part 192) require periodic inspection of the pipeline to determine if sections of the pipe have developed active corrosion cells or have otherwise been damaged since the pipeline was first installed. The most common practice is to run internal smart inline pipe inspection devices in the pipeline approximately every 5 years.

The patrol program will typically include periodic pipeline facilities patrol using aerial, vehicle, or foot surveys. The surveys will be designed to monitor surface conditions on and adjacent to the pipeline right-of-way for evidence of leaks, unauthorized excavation activities, erosion and wash-out areas, areas of sparse vegetation, damage to permanent erosion control devices, exposed pipe, missing markers and signs, new residential developments, and other conditions that might affect the safety or operation of the pipeline. 49 CFR §192.705, Transmission Lines Patrolling, provides specifics for frequency of patrols based on the class location and whether the location is at a road or railroad crossing or not.

Some of the additional operating surveying requirements include (but are not all inclusive):

- 49 CFR §192.706, Transmission Lines: Leak Surveys—Provide a frequency that leak surveys must be completed based on class locations.
- 49 CFR §192.709, 711, 713, 715, 717, and 719—Provide minimal requirements for documenting inspections and completing and testing of repairs to the pipeline.
- 49 CFR §192.745, Valve Maintenance: Transmission Lines—Requires that MLVs needed for emergency shutdown of the pipeline be inspected and partially operated at least once each calendar year but not to exceed 15 months between inspections.
- The cathodic protection system is also inspected periodically in accordance with 49 CFR §192.465 to ensure that it is functioning properly.

In accordance with 49 CFR Part 192, Subpart O, Gas Transmission Pipeline Integrity Management, ongoing surveillance of the pipeline requires periodic hydrostatic tests or, more commonly, running internal inspection tools. Subpart O also provides the requirements for and frequency of inspection methods for corrosion and irregularities in the pipeline. FSC will keep detailed records of inspections and supplement the corrosion protection system as necessary to meet the requirements of 49 CFR Part 192.

For the purpose of emergency response, FSC also maintains a liaison with the appropriate fire, police, and public officials. FSC will develop a written emergency plan to identify the available resources and responsibilities of each organization that may need to respond to a natural gas pipeline emergency and assist in developing coordination responsibilities. The emergency plan will include reporting requirements with telephone numbers, proper reporting procedures, and information to report to federal and state agencies, as well as emergency contact numbers for FSC personnel and contractor personnel that can be used to respond to an emergency.

In addition, FSC will use a supervisory control and data acquisition ("SCADA") system, which continuously monitors gas pressure, temperature, and volume at specific locations along the pipeline. The SCADA system will be continuously monitored from FSC's gas control center in Riviera Beach, Florida. The control center also can remotely operate valves to isolate the pipeline section in the event of an emergency.

The SCADA system provides continuous information to the control center operators and has threshold and alarm values set such that warnings are provided to the operators if critical parameters are exceeded.

1.9 FUTURE PLANS AND ABANDONMENT

At this time, FSC has not identified any specific plans for future expansion or abandonment of the facilities proposed in this filing. If additional demand for natural gas requires future expansion, FSC will seek the appropriate authorizations from the FERC and other Federal and state agencies.

1.10 PUBLIC-LANDOWNER/AGENCY CONSULTATION

1.10.1 Regulatory Agency and Stakeholder Organization Consultations

Extensive outreach has occurred to discuss the FSC Project and inform the public and project stakeholders of available project updates. The organizations that FSC has reached out to since the beginning of 2012 include:

- U.S. Army Corps of Engineers, Jacksonville District
- U.S. Fish & Wildlife Service
- U.S. Environmental Protection Agency
- Florida Acquisition and Restoration Council
- Florida Department of Environmental Protection
- FDEP Division of State Lands
- FDEP Southwest District
- FDEP Southeast District
- FDEP Central District
- Florida Department of Transportation

- Florida Department of Historic Resources
- Florida Fish and Wildlife Conservation Commission
- Florida Forest Service
- Southwest Florida Water Management District
- South Florida Water Management District
- St. Johns River Water Management District
- Osceola County
- Polk County
- Okeechobee County
- St. Lucie County
- Martin County
- Town of Dundee
- Haines City
- City of Lake Wales
- City of Davenport
- East Central Florida Regional Planning Council
- Central Florida Regional Planning Council
- Treasure Coast Regional Planning Council
- Audubon of Florida
- Nature Conservancy
- Trust for Public Lands
- Miccosukee Tribe of Indians of Florida
- Muscogee (Creek) Nation of Oklahoma
- Poarch Band of Creek Indians
- Seminole Nation of Oklahoma
- Seminole Tribe of Florida

1.10.2 Landowner Consultations

In mid-2012, meetings were held with landowners affected by the proposed route, explaining the potential FSC Project and how it may impact their lands. Site visits were conducted with many of the landowners to review field conditions, listen to landowner concerns and identify potential issues. The FSC Project team utilized the information obtained from these landowner meetings and site visits to adjust the route at various locations. In May of 2013, the FSC Project team began seeking survey permission from landowners affected by the proposed pipeline route as well as those within the environmental survey corridor. To date, FSC has contacted landowners along 99% of the route. Environmental survey permission has been secured for 95% of the route from landowners affected by the proposed pipeline route. Environmental survey permission from

the remaining landowners is still being sought. Overall, the proposed pipeline project has been well received by the landowners.

1.10.3 Open Houses

FSC held six open houses in order to provide information about the FSC Project to all interested state and federal agencies, interested stakeholders, as well as the public. The dates and locations for the Open Houses that were held are as follows:

- November 12, 2013, Kenansville, Osceola County, FL;
- November 13, 2013, Lake Eva, Polk County, FL;
- November 14, 2013, Lake Wales, Polk County, FL;
- November 19, 2013, Indiantown, Martin County, FL;
- November 20, 2013, Fort Pierce, St. Lucie County, FL; and
- November 21, 2013, Okeechobee, Okeechobee County, FL.

1.10.4 Public and Agency Participation Plan and Ongoing Public Outreach

FSC has developed a comprehensive Public and Agency Participation Plan included below that outlines a commitment to engage actively with stakeholders throughout the life cycle of the FSC Project and provides the following activities that FSC has identified to ensure successful ongoing communication with stakeholders, including establishing a project website and a single point of contact.

- FSC held open houses (as previously described) in order to provide information about the FSC Project to all interested state and federal agencies, interested stakeholders, as well as the public. Comments received were very limited and have been addressed by FSC.
- FSC provided all required support needed for the Commission to conduct public its scoping meetings on March 18th, 2014 in Lakes Wales, Florida, March 19th, 2014 in Okeechobee, Florida, and March 20th, 2014 in Kissimmee, Florida.
- FSC continues to identify and hold meetings with local associations, affected public groups and other non-governmental organizations concerning the FSC Project.
- FSC continues to meet with state and local government representatives to seek input, provide updates as the FSC Project progresses, and extend an open invitation to all public meetings.
- FSC continues to meet frequently with state and federal agencies for guidance during permitting and with development of the Resource Reports. FSC will respond rapidly to requests for information from permitting agencies and the Commission, and will meet with them in person, if that assists in understanding the request and providing the best possible response.
- FSC has established and periodically updates a publicly available website providing pertinent information about the FSC Project including such items as those listed below. The website has the following address: www.floridasoutheastconnection.com.
    1. FSC Project Overview
    2. FSC Project maps
    3. Landowner Information

4. Regulatory Information
5. Public Meeting Information
6. Construction Information
7. Public Safety Information
8. Frequently asked questions, and
9. Contact information

- In addition to the website, informational brochures were provided at the Open Houses.
- A single point of contact has been established. The contact is:

  Jena Mier
  Florida Southeast Connection
  Environmental Project Manager
  700 Universe Blvd.
  Juno Beach, Florida 33408

  Telephone: 561-691-2209
  e-mail: Jena.Mier@nee.com

FSC will provide copies of Environmental Reports ("ERs") to participating public libraries along the proposed pipeline route so the public will have the opportunity to view the materials and to comment. FSC will provide information on where the final reports can be viewed to these same stakeholders and locations. FSC will deliver copies of the final ERs to the following public libraries in the Project area:

- **Hart Memorial Central Library**
  211 East Dakin Ave
  Kissimmee, FL 34741
- **Haines City Public Library**
  111 North 6th St
  Haines City, FL 33844
- **Lake Wales Public Library**
  290 Cypress Garden Lane
  Lake Wales, FL 33853
- **Kenansville Library**
  1154 S Canoe Creek Rd
  Kenansville, FL 34739
- **Fort Pierce Branch Library**
  101 Melody Lane
  Ft. Pierce, FL 34950
- **Okeechobee Library**
  206 SW 16th St.
  Okeechobee, FL 34974

- **Indiantown Library**
  15200 SW Adams Ave.
  Indiantown, FL 34956

FSC will continue to maintain the 24-Hour Project Hotline and update its FSC Project web site to provide the public with the most recent information, including a FSC Project overview, maps of the proposed facilities, list of frequently asked questions, list of FSC Project contacts, and announcements of public meetings on the FSC Project.

FSC is committed to identifying and resolving stakeholder issues and concerns related to the proposed FSC Project. FSC believes that successful resolution of stakeholder issues is best achieved by involving the appropriate federal, state, and local agencies, other potential stakeholders, and the public at the earliest possible stage of a project and prior to filing its application with the Commission.

1.10.5 Complaint Resolution Process

FSC will work to address and resolve complaints regarding the construction and or operation of the FSC Project in timely manner. FSC has an established protocol to resolve any landowner concerns prior to construction, using the Project 24-Hour hotline. The hotline is a toll-free number that serves as a means for landowners and stakeholders to contact appropriate Project representatives with questions, concerns, and complaints. Affected landowners will be provided with the 24-Hour hotline number by land agents during construction notification. The call response is a three-step process.

Step 1: Gathering Information

A FSC representative will contact and request all necessary information to complete the caller information section of the hotline record, including the caller's name, address, phone number, and Project reference. Additionally, any details offered by the caller regarding the purpose of the call will be entered on the hotline record.

Step 2: Defining the Issues

The FSC representative will work with the caller to help understand and address their concerns. If a representative can resolve the issue, they will record this on the hotline record. Otherwise, the caller will be advised that their concerns have been documented and that they can generally expect a return call within 24 hours from an appropriate FSC representative. The hotline record documenting the concerns will then be directed to the appropriate right-of-way agent.

Step 3: Resolution

If the issues are resolved during Step 2, a representative will complete the process by documenting how a resolution was reached for the hotline record. If a resolution is not reached during Step 2, the hotline record will be forwarded to the appropriate right-of-way agent who will return the call. The delegation of the issue should generally follow this progression until resolution is reached. If a right-of-way agent receives a direct phone call relating to environmental, construction, or off-right-of-way issues from a landowner during pre-construction, construction, or post-construction activities, the agent will request all necessary information to complete the caller information section of the hotline record including the caller's name, address, phone number, and Project reference. The agent will then proceed to Steps 2 and 3 until a resolution is reached.

Additionally, FSC will use its website (as discussed in the Public Participation Plan) to also accept written complaints and will designate an FSC employee to receive complaints via phone or mail and coordinate resolving issues related to the complaint. The FSC employee will talk with the concerned individual about the issue at hand, channel information about the issue to the

appropriate parties at FSC, track progress on resolution of the complaint, and help make sure that further coordination between the appropriate company employee(s) and the outside party takes place as needed.

1.11 PERMITS AND APPROVALS

The construction contractor(s) engaged by FSC will be required to observe and comply with all applicable federal, state and local laws, ordinances, and regulations that apply to the conduct of the work. During the performance of the work, contractors will be required to comply with the Minimum Federal Safety Standards adopted by the USDOT under the Natural Gas Pipeline Safety Act of 1968, as amended, Occupational Safety and Health Administration guidelines, and the Applicants' own internal standards.

Other safety construction codes and regulations may be enacted or adopted by duly constituted government agencies and bodies having jurisdiction over the locations where the work is to be performed. The contractor(s) will be required to observe and abide by all provisions that are applicable.

The construction, operation, and maintenance of the FSC Project will require multiple permits and regulatory approvals from various federal, state, and local agencies, as well as consultations with Native American Tribes and other interested parties. Consultations have been initiated with the USACE, U.S. Environmental Protection Agency ("USEPA"), National Marine Fisheries Service, U.S. Fish and Wildlife Service, and other state and/or federal wildlife management and environmental agencies. Consultations with these and other agencies will continue throughout the FSC Project review and permitting period.

The applicable federal, state, and local permits and approvals, responsible agencies, and the filing status and schedule for these permits and approvals are summarized in Table 1.11-1. FSC will provide an updated Table 1.11-1 approximately every 60 days between submittal of the FERC application and issuance of the final Environmental Impact Statement.

1.12 STATUS OF FIELD SURVEYS

FSC has completed the required field surveys along the pipeline route related to the identification of natural and cultural resources. FSC has continued informal consultations with federal and state resource agencies to update the known locations of federal- or state-listed threatened or endangered species and species of special concern that could potentially be affected by construction or operation of the FSC Project; and with the Florida State Historic Preservation Officer ("SHPO") to update the locations of historic or architectural resources potentially eligible for the National Register of Historic Places ("NRHP"). Biological and cultural resource surveys have been completed for all tracts where landowner permission has been obtained. A summary of the field survey status is presented below.

1.12.1 Biological Surveys

FSC has completed waterbody and wetland, as well as threatened and endangered habitat field surveys within a 300-foot-wide study corridor over the entire route where survey permission has been obtained. Biological resource field surveys are therefore complete along approximately 93.7 percent (118.5 miles) of the proposed route, or 95 percent (1809 acres) of the total Project area. The non-surveyed portion of the study corridor was assessed using a desktop evaluation rather than field survey (see Section 2.4-1 of Resource Report 2 – Water Use and Quality).

FSC has agreed to perform listed species surveys along the route in appropriate habitats, according to currently accepted United States Fish and Wildlife Service ("USFWS") and Florida Fish and Wildlife Conservation Commission ("FWC") survey protocols. Species found will be

reported to those agencies, and additional avoidance or mitigation measures may be employed (see Section 3.5 of Resource Report 3 – Fish, Wildlife, and Vegetation).

1.12.2 Cultural Resource Surveys

The archaeological and historic architectural/industrial properties surveys are complete for over 92% of the mainline route, proposed access roads, and other currently proposed facilities for the FSC Project. Three reports on the cultural resource surveys for the FSC Project have been submitted to the Florida SHPO and an additional report is pending. The archaeological survey resulted in the identification of 32 sites and 18 archaeological occurrences. FSC recommends all 32 sites and 18 occurrences as not eligible for the National Register.

The historic architectural/industrial properties survey identified 25 historic architectural/industrial properties, including 14 previously identified resources and 11 newly identified resources. Three previously recorded resources have previously been determined eligible for the National Register by the Florida SHPO. FSC plans to avoid affecting these resources by using a bore method to place the pipeline under these resources, and construction and maintenance of the pipeline will not impede the setting or integrity of these segments of the railroads. Consequently, no mitigation measures will be needed for these resources.

One previously recorded resource has previously been assessed by the Florida SHPO as lacking sufficient information for National Register eligibility determinations. Since a limited portion of this linear resource is located within the FSC Project APE, there is insufficient information to evaluate the significance of this resource. FSC plans to avoid affecting this resource by using a bore method to place the pipeline under this resource, and construction and maintenance of the pipeline will not impede the setting or integrity of this segment of the roadway. Consequently, no additional research will be needed for this resource. FSC recommends the remaining 21 historic architectural/industrial properties as not eligible for the National Register.

1.12.3 Civil Surveys

One hundred percent of the land based civil surveys have been completed for the pipeline route.

1.12.4 Geotechnical Borings for HDD Feasibility

FSC has completed geotechnical investigations to document existing subsurface conditions and bedrock properties at multiple locations along the proposed pipeline route. FSC plans to conduct one more boring on the south side of the State Route 70 crossing at MP 106.0. Geotechnical information from the completed borings has been analyzed by FSC and has been used to develop the site-specific HDD crossing plans provided in Appendix 1A. Additional information on HDD construction activities is included in Resource Report 2 – Water Use and Quality.

1.13 NON-JURISDICTIONAL FACILITIES

FSC has determined that there are no non-jurisdictional facilities associated with the FSC Project. FSC will interconnect to existing facilities at FPL's Martin Clean Energy Center.

1.14 CUMULATIVE IMPACTS

Cumulative impacts may result when the environmental effects associated with a proposed project are added to temporary (construction-related) or permanent (operations-related) impacts associated with other past, present, or reasonably foreseeable future projects. Although the individual impact of each separate project might not be significant, the additive or synergistic effects of multiple projects could be significant. FSC has identified reasonably foreseeable future projects from a review of their Project alignment sheets and topographic maps; field reconnaissance; internet research of publicly available information; through consultation with local

planning departments and regional planning councils; and through the FERC scoping comment process. Commercial and residential developments included in this cumulative impact analysis are those located within the same municipalities directly affected by construction of the FSC Project and within 0.5 mile of the FSC Project right-of-way. Additionally, Developments of Regional Impact, electric transmission projects, and existing and planned electric generation plants likely to be served by FSC within any HUC 12 affected by the Project were included. A summary list of these projects is provided in Table 1.14-1 and the location of these projects in relation to the FSC Project is depicted in Figure 8.3-1 in Resource Report 8 – Land Use, Recreation, and Aesthetics.

1.14.1 Proposed Projects

Developments identified as of the date of this resource report include 29 developments crossed by the FSC Project, five developments within 0.5-miles of the FSC Project, and three developments outside this radius but within an HUC 12 watershed crossed by the FSC Project. These projects were evaluated for potential cumulative or additive impacts to resources that would be affected by the construction and operation of the Project.

FSC performed a search for existing and planned electric generation plants using available data including the U.S. Energy Information Administration website (EIA, 2014) (existing plants and 10-year site plans for potential future plants), ESRI, Microsoft, Ventyx, Rextag, and FPL information. FSC identified one reasonably foreseeable new electric generation plant within an HUC 12 watershed affected by the FSC Project that is likely to be served by FSC. FPL has purchased a 2,800 acre site in Okeechobee County approximately three miles from MP 80 (“Okeechobee”). In its most recent 10-year site plan, FPL has listed Okeechobee as a Preferred Site and one of the most likely sites for a natural gas-fired combined cycle generation plant. FPL has not yet made a decision on whether to proceed with Okeechobee and therefore a construction schedule cannot be determined at this time. FSC will provide additional information with respect to Okeechobee if additional information becomes publically available. Two other existing gas-fired generation plants are within an HUC 12 affected by the FSC Project. Duke Energy Florida’s Intercession City plant is 0.5 Miles from MP 0.0, and Kissimmee Utility Authority’s Cane Island plant is 1.8 Miles from MP 0.0. FSC is unlikely to serve either plant given that Sabal Trail and existing interstate pipelines are closer to these facilities.

Natural gas local distribution companies serve parts of the areas traversed by FSC and may expand to new areas previously without natural gas service. FSC would be able to serve these local distribution companies through construction of interconnections or laterals; however to date no potential locations for interconnections have been identified and none are reasonably foreseeable.

FSC also searched the Florida Public Service Commission Ten Year Site Plans (FPSC, 2014) and did not identify any planned electric transmission projects within any HUC 12 watersheds affected by the FSC Project.

Geology, Soils and Sediments

The facilities associated with the FSC Project are expected to have a temporary but direct impact on near-surface geology, soils, and sediments. Clearing and grading associated with construction of the FSC Project and the other projects listed in Table 1.14-1 could accelerate the soil erosion process and, without adequate protection, could result in discharge of sediment to adjacent waterbodies and wetlands. Because the direct effects will be localized and limited primarily to the period of construction, cumulative impacts on geology, soils, and sediments will only occur if other projects are constructed at the same time and place as the proposed FSC Project facilities. FSC will implement its Plan to establish a baseline for minimizing the potential for erosion as a result of

water or wind action and to aid in reestablishing vegetation after construction. In addition, disturbance associated with construction activities will be minimized and mitigated through the application of BMPs that will be incorporated in the FSC Project Erosion and Sedimentation Control Plan. Should hazardous materials or contaminated soils and/or sediments be encountered during construction, they will be disposed of at fully licensed and permitted disposal facilities in accordance with applicable state and federal laws and regulations. As a result, the cumulative effect on geological resources, soils, and sediments are expected to be temporary and minor.

Water Resources and Wetlands

Construction of the FSC Project facilities will result in temporary impacts to 256.09 acres of wetlands. A total of 43 surface waterbodies will also be affected by construction of Project pipeline facilities. These include 32 perennial waterbodies, six intermittent waterbodies, one ephemeral waterbody and four ponds. Of these 43 waterbodies, five are minor crossings (less than 10 feet wide), 35 are intermediate crossings (10 to 100 feet wide), and three are major crossings (greater than 100 feet wide).

FSC proposes to cross a total of 11 waterbodies using the HDD method, which will avoid all direct in-stream effects; however, there is a potential for in-stream impacts should an inadvertent release of drilling mud occur during the crossing. FSC has prepared an HDD Contingency Plan for monitoring the HDD program for the Project. This plan describes measures that will be implemented in the event of an inadvertent release of drilling fluid and is included in Appendix 2A of Resource Report 2.

Sediment loading could also occur due to runoff from construction activities near wetlands and waterbodies. These resources could also be affected by a spill of hazardous liquids or the excavation and dispersal of contaminated sediments during trenching. Each proponent for the projects listed in Table 1.14-1 that affects wetlands will be required by the terms and conditions of their respective Section 404 permits to provide compensatory mitigation for unavoidable wetland impacts. In addition, each of the project proponents will minimize these effects by implementing wetland and waterbody construction and mitigation measures, including erosion control measures to comply with applicable federal and state permit requirements.

All of the projects listed in Table 1.14-1 are located within the HUC 12 watersheds crossed by the Project, and some of these projects could potentially result in impacts on wetlands and surface waters. Therefore, there is the potential that cumulative impacts could result if the FSC Project were constructed in addition to other projects; however, the FSC Project will contribute little to the long-term cumulative impacts on wetlands and waterbodies. Impacts on surface waters resulting from FSC Project construction will end shortly after the pipeline is installed and most of the impact on wetlands will also be of short duration.

Construction of the proposed pipeline will result in temporary effects to 152.02 acres of emergent and scrub-shrub wetlands and 104.07 acres of forested wetlands. Approximately 34.47 acres of previously forested wetland will be permanently converted to non-forested cover types and maintained by means of mechanical cutting and mowing as part of pipeline operation. The remaining 69.60 acres of forested wetland will be allowed to revert to a forested state following construction and restoration of the right-of-way. Accordingly, all but 34.47 acres of forested wetland within new permanent pipeline right-of-way will be permitted to return to a pre-construction state. Therefore, the cumulative effect on waterbody and wetlands will be temporary and minor.

Vegetation and Wildlife

When projects are constructed at or near the same time, the combination of construction activities could have a cumulative impact on vegetation and wildlife in the immediate area. Clearing and grading and other construction activities associated with the projects will result in the removal of vegetation, alteration of wildlife habitat, displacement of wildlife, and other secondary effects such as forest fragmentation and establishment of invasive plant species.

As part of each project's permit conditions, mitigation measures should be implemented to minimize the potential for erosion, revegetate disturbed areas, increase the stabilization of site conditions, and control the spread of noxious weeds, and therefore minimize the degree and duration of the cumulative impact on vegetation and wildlife from these projects. The total amounts of vegetation and wildlife that may be affected by these projects are relatively minor given the intensely urbanized environment in the FSC Project area. Because a significant portion the proposed pipeline facilities will be within existing pipeline rights-of-way, public roadways, railways and/or other utility rights-of-way, impacts on vegetation and wildlife associated with the FSC Project will be minimal.

Cultural Resources

Past disturbances to cultural resources in the FSC Project area are typically related to urban development; accidental disturbances; intentional destruction or vandalism; lack of awareness of the historic value; and construction, maintenance, and operations associated with existing infrastructure. Federally regulated projects will include mitigation measures designed to avoid or minimize additional direct impacts on cultural resources. Non-federal actions will need to comply with any identification procedures and mitigation measures required by the state of Florida. FSC has developed Project-specific plans to address unanticipated discoveries of cultural resources and human remains in the event they are discovered during construction in Appendix 4C of Resource Report 4 – Cultural Resources.

Socioeconomics

The FSC Project and the projects listed in Table 1.14-1 above will generate temporary construction jobs. The local supply of construction workers needed for these projects may be derived from workers employed in the area, which would provide a direct economic benefit to those individuals and the communities in which they reside. The non-local laborers could represent an increase in the percent of the total population in the FSC Project area; however, the potentially vacant rental units available in the FSC Project area will offer enough housing for non-local workers (see Resource Report 5). In addition, the FSC Project counties have the necessary infrastructure to provide public services and utilities to support the projects. There will be positive cumulative economic benefits from these projects. Taxes generated from operation of the projects will result in an annual tax revenue increase. Permanent employment will also increase as a result of the operation of many of these projects, with the cumulative benefit of potentially lowering local unemployment rates.

Recreation

The pipeline and MLVs will be buried and above ground facilities are very limited in size (valve actuators), therefore, no cumulative impact on recreational facilities is expected either during the relative short construction time or during operation. The crossing of Lake Kissimmee will take place via HDD to preserve and protect the water quality and fishery resources of the Lake, and other wetland and aquatic resources along the route will be protected through the use of FSC's Procedures during construction. As such no cumulative impacts on recreation are anticipated with any other reasonably foreseeable projects in the area.

Land Use

The FSC Project area includes agricultural, industrial, commercial, recreational, and/or residential developments. The projects listed in Table 1.14-1, as well as the FSC Project, include those that are compatible with these existing land uses. Most land uses along the pipeline will be allowed to revert to pre-construction uses following construction. Some land uses will be restricted or prohibited on the new permanent pipeline right-of-way, such as construction of aboveground structures. Approximately 79 percent of the 126.4 miles of Project pipeline facilities will be within or adjacent to existing rights-of-way, consisting of public and private roadways, farm roads and/or other utility rights-of-way. Given that open land is the predominant land use type affected by the Project, the presence of a new pipeline will only be noticeable where pipe markers are placed adjacent to local roadways and where decals may be placed on paved areas identifying the pipeline location beneath these hard surfaces. Since a relatively small area of land used by the Project will be converted to another land use type and because construction will be short term, the cumulative effect on land use will be temporary and minor.

Visual Impacts

The FSC Project will be entirely buried under the ground except for the very small and low profiles of the Martin Meter Station, pipeline markers, MLVs, and pig launcher/receiver. As such the FSC Project is not expected to have any cumulative visual impacts with any other Projects that might be constructed in the area.

Traffic, Parking, and Transit

There is potential for cumulative traffic, parking and transit impacts if other projects are scheduled to take place at the same time and in the same area as the FSC Project. Several factors would minimize the potential for cumulative traffic impacts, including the total distance of the FSC Project and the tendency for construction workers to frequently share rides and travel to and from work during off-peak hours. Construction will be scheduled for work within roadways and specific crossings so as to avoid commuter traffic and schedules for school buses and local city transit buses to the greatest extent practical. To minimize traffic delays at open-cut road crossings, FSC will establish detours before cutting these roads. If no reasonable detours are feasible, at least one traffic lane of the road will be left open, except for brief periods when road closure will be required to lay the pipeline. Appropriate traffic management and signage will be set up and necessary safety measures will be developed in compliance with applicable permits for work in the public roadway. Traffic safety personnel will be on hand during periods of construction. Provisions will be made for detours or otherwise to permit traffic flow. On-street parking may also be temporarily impacted during construction. Given the FSC Project's short duration of construction activities on any street where road-side parking is permitted, the number of parking spots temporarily removed would be minimal.

Air and Noise

Construction activities have the potential to produce noise levels that may disturb nearby residents. In addition, construction equipment and vehicles emit air pollutants in the immediate vicinity of the construction, and fugitive dust emissions are generated by soil excavation and other construction activities. Dust will be controlled by watering down the construction workspace at regular intervals. The cumulative impact of the FSC Project on air quality and noise will depend on the number of projects undergoing construction at the same time and how close in proximity the construction activities are occurring. Because construction activities for the FSC Project will be temporary along different sections of the pipeline route and would only result in short-term air and noise impacts to nearby residents and businesses, construction activities for the FSC Project

along with the other projects are not expected to result in significant adverse air quality or noise impacts.

Infrastructure and Public Services

The cumulative impact of the FSC Project and other projects on infrastructure and public services could depend on the number of projects under construction at one time and the specific services required for each project. Operation of the FSC Project will not have a major impact on public services since it will not require the construction of new public roads, extensive new sewer or water systems, or result in significant changes in local population levels. During construction of the FSC Project, utilization of an underground boring technology, were applicable, will eliminate potential effects on existing infrastructure and public services.

Conclusion

The majority of cumulative impacts would be temporary and minor when considered in combination with past, present, and reasonably foreseeable activities. Some long-term cumulative impacts would occur on wetland and upland vegetation and associated wildlife habitats. However, these impacts will not be significant and are very small in relation to the associated resource areas around the FSC Project. In conclusion, the proposed FSC Project is unique in comparison to most other projects compared within this analysis and will result in no permanent loss of wetland acreage, a relatively small impact to the forested wetlands (conversion to herbaceous wetlands), and minimal temporary impacts to water quality. These impacts, combined with those that have been permitted or are likely to occur in the foreseeable future, are insignificant and should not impose significant adverse cumulative impacts to water quality or the functions of wetlands and other surface waters within this region.

Some long-term cumulative benefits to the community would be realized from the increased tax revenues. Short-term cumulative benefits would also be realized through jobs and wages and purchases of goods and materials. There is also the potential that the FSC Project would contribute to a cumulative improvement in regional air quality if a portion of the natural gas associated with the FSC Project displaces the use of other more polluting fossil fuels.

1.15 REFERENCES

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TABLES

Table 1.2-1

Proposed Pipeline Facilities for the FSC Project

State/Facility	Pipe Diameter (inches) a/	Milepost Begin b/	Milepost End b/	Length (miles) c/	County
Florida					
Pipeline	36	0.0	5.2	5.2	Osceola
	36	5.2	52.9	47.7	Polk
	36	52.9	77.1	24.2	Osceola
	30	77.1	102.1	25.0	Okeechobee
	30	102.1	114.8	12.7	St. Lucie
	30	114.8	126.4	11.6	Martin
			Project Total	126.4	

a/ All facilities are new and require new land development.
b/ Approximate MP along the Proposed pipeline rounded to the nearest tenth.
c/ Horizontal distance.

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Table 1.2-2

Proposed Aboveground Facilities for the FSC Project

Facility Type/Facility	County, State	Milepost	Scope of Work
Pig Launchers and Receivers			
Launcher	Osceola, FL	0.0	New pig launcher located at the origination of the pipeline where it will interconnect with the Sabal Trail Project.
Receiver / Launcher	Okeechobee, FL	77.1	New pig launcher / receiver located along the pipeline where the pipe diameter changes from 36 to 30-inches in diameter.
Receiver	Martin, FL	126.4	New pig receiver located at the Martin Meter Station.
Main Line Valves			
MLV (Launcher Site)	Osceola, FL	0.0	New MLV
MLV1	Polk, FL	4.3	New MLV
MLV2	Polk, FL	14.8	New MLV
MLV3	Polk, FL	27.2	New MLV
MLV4	Polk, FL	34.0	New MLV
MLV5	Polk, FL	44.0	New MLV
MLV6	Osceola, FL	53.7	New MLV
MLV7	Osceola, FL	70.3	New MLV
MLV8	Okeechobee, FL	87.2	New MLV
MLV9	Okeechobee, FL	94.6	New MLV
MLV10	St. Lucie, FL	110.0	New MLV
MLV11	Martin, FL	118.7	New MLV
MLV (Martin Meter Station Site)	Martin, FL	126.4	New MLV
Meter Station			
Martin Meter Station	Martin, FL	126.4	Meter Station on Martin Clean Energy Center property. The station will include a filter/separator to remove small amounts of entrained liquids and debris from the gas stream, prefabricated skid-mounted metering runs, prefabricated skid-mounted pressure regulators, a gas chromatograph to measure the gas composition, and building enclosures. Additional process piping, electrical power, and pressure monitoring devices will also be installed.

Table 1.6-1

Summary of Land Requirements for the FSC Project

State/Facility Type/Facility	Construction Area a/ (acres)	Operation Area b/ (acres)
Florida		
Pipeline Right-of-Way	743.54	640.68
Temporary Easement	642.02	0.00
Additional Temporary Workspace	167.58	0.00
Launcher Site (MP 0.0) c/	0.00	0.00
Launcher / Receiver (MP 77.1)	0.26	0.26
Receiver Site (MP 126.4) d/	0.00	0.00
Main Line Valves	0.44	0.44
Martin Meter Station	0.92	0.92
Contractor Yards	223.81	0.00
Staging Area	4.31	0.00
Access Roads	116.36	5.30
Project Total	**1,899.24**	**647.60**

a/ Construction acres = all areas affected by construction including permanent right-of-way, TWS, and ATWS.
b/ Operation area = includes only the new permanent right-of-way for pipeline or permanent easement for aboveground facilities.
c/ The pig launcher and MLV at MP 0.0 are located within the boundary of the Sabal Trail Reunion Compressor Station site; therefore, land requirements for the launcher and MLV at MP 0.0 is accounted for in the Sabal Trail draft ER [PF14-1-000].
d/ The pig receiver and MLV at MP 126.4 are located within the boundaries of the Martin Meter Station; therefore, the land requirements for the receiver and MLV at MP 126.4 is included in the land requirements for the Martin Meter Station.

Table 1.6-2

Pipeline Facility Land Requirements for the FSC Project

State/Segment/Facility	Length (miles)/ Number of Sites	Land Affected During Construction (acres) a/		Land Affected During Operation (acres) b/	
		Within Existing Maintained/ Operational Easement	Outside Existing Maintained/ Operational Easement	Within Existing Maintained/ Operational Easement	Outside Existing Maintained/ Operational Easement (New Permanent Impact)
Florida					
Pipeline	126.4	39.69	1,341.34	26.12	615.69
ATWS	797.0	6.55	165.56	0.00	0.00
	Project Total	**46.24**	**1,506.90**	**26.12**	**615.69**

a/ All areas required for construction, including areas that would be identified as operational right-of-way after Project completion.
b/ Acreages are included within the reported acreage for "Land Affected During Construction."

Table 1.6-3

Aboveground Facility Land Requirements for the FSC Project

Facility Type, Facility	Milepost	Approximate Site Dimensions (feet)	Construction Area (acres)	Operation Area (acres)
Meter Station				
Martin Meter Station	126.4	400 x 100	0.92	0.92
Additional Aboveground Facilities a/				
MLV / Launcher Site	0.0	125 x 64	0.00	0.00
MLV #1	4.3	64 x 30	0.04	0.04
MLV #2	14.8	64 x 30	0.04	0.04
MLV #3	27.2	64 x 30	0.04	0.04
MLV #4	34.0	64 x 30	0.04	0.04
MLV #5	44.0	64 x 30	0.04	0.04
MLV #6	53.7	64 x 30	0.04	0.04
MLV #7	70.3	64 x 30	0.04	0.04
Receiver / Launcher Site	77.1	134 x 83	0.26	0.26
MLV #8	87.2	64 x 30	0.04	0.04
MLV #9	94.6	64 x 30	0.04	0.04
MLV #10	110.0	64 x 30	0.04	0.04
MLV #11	118.7	64 x 30	0.04	0.04
MLV / Receiver Site	126.4	Included in Meter station dimensions	0.00	0.00
		Project Total	**1.62**	**1.62**

a/ The pig launcher and MLV at MP 0.0 are located within the boundary of the Sabal Trail Reunion Compressor Station site; therefore, land requirements for the launcher and MLV at MP 0.0 are accounted for in the Sabal Trail draft ER [PF14-1-000]. The pig receiver and MLV at MP 126.4 are located within the boundaries of the Martin Meter Station; therefore, the land requirements for the receiver and MLV at MP 126.4 are included in the land requirements for the Martin Meter Station.

Table 1.6-4

Contractor / Pipe Storage Yard Land Requirements for the FSC Project

State/Facility	Nearest Milepost	Approximate Site Dimensions a/ (feet)	Construction Area (acres)	Operation Area (acres)
Florida				
Contractor Yard	4.4	547 x 1,324	12.76	0.00
Lake Wales Contractor Yard	25.7	383 x 779	7.53	0.00
Contractor Yard	71.9	1,819 x 2,934	112.89	0.00
Yeehaw Junction Staging Area	72.8	542 x 456	4.31	0.00
Pipe Storage Yard	77.1	987 x 1,123	22.01	0.00
Contractor Yard	124.7	3,198 x 579	41.63	0.00
Martin Pipe Storage Yard	126.4	289 x 5,902	26.99	0.00
		Project Total	**228.12**	**0.00**

a/ Sites are irregularly shaped and dimensions are approximate.

Table 1.7-1 Environmental Plans for the FSC Project			
Plan Name	**Location of Plan or Schedule for Submittal**	**Reviewing and/or Approving Agencies**	**Status of Review/Approval**
Invasive Species Management Plan	Resource Report 1, Appendix 1E	FERC	Pending
Florida Southeast Connection Project Upland Erosion Control, Revegetation, and Maintenance Plan (FSC Plan)	Resource Report 1, Appendix 1F	FERC	Pending
Florida Southeast Connection Project Wetland and Waterbody Construction Procedures (FSC Procedures)	Resource Report 1, Appendix 1G	FERC	Pending
HDD Contingency Plan	Resource Report 2, Appendix 2A	FERC	Pending
Unanticipated Discovery Plan	Resource Report 4, Appendix 4C	FERC	Pending
Evaluation Report and Treatment Plan	To be filed, if applicable	FERC SHPO	Pending
Karst Plan	Resource Report 6, Appendix 6B	FERC	Pending
Plan for Recognizing and Reporting Paleontological Resources	Resource Report 6, Appendix 6C	FERC	Pending
Blasting Plan	No blasting is proposed Provided prior to the initiation of blasting, if blasting is necessary	FERC	If applicable
Project-specific Storm Water Pollution Prevention Plan ("SWPPP")	Prior to construction	FDEP	Pending
Spill Control Plan	Resource Report 7, Appendix 7C	FERC FDEP	Pending
Hazardous Materials Discovery Plan	Resource Report 7, Appendix 7D	FERC	Pending
Waste Management Plan	Resource Report 8, Appendix 8B	FERC	Pending
Residential Access and Traffic Mitigation Plan	Resource Report 8, Appendix 8C	FERC	Pending
Site-specific visual impact mitigation plans	To be filed, If necessary	FERC Landowner	Pending
HDD Noise Complaint Resolution Plan	Resource Report 8, Appendix 9B	FERC	Pending
Operation and Maintenance Plan	Prior to Construction	Local Emergency Response Authorities as needed	Pending
Public and Agency Participation Plan	Resource Report 1, Section: 1.10.4	FERC	Pending
Emergency Response Plan	Prior to Construction	Local Emergency Response Authorities	Pending

FLORIDA SOUTHEAST CONNECTION

Table 1.11-1

Major Permits, Approvals, and Consultations for the FSC Project

Agency	Permit/Approval/ Consultation	Contact	Status
FEDERAL			
Federal Energy Regulatory Commission	Section 7(c) of the Natural Gas Act	John Peconom (202) 502-6352 Jessica Harris (202) 502-6805	Filed September 2014, certificate expected November 2015
U.S. Environmental Protection Agency (EPA) Region 4	Oversight of Federal and State delegated permits	Heinz Muller (404) 562-9611 Beth Walls (404) 562-8309	Ongoing during Federal and State regulatory process, clearance anticipated August 2015
U.S. Army Corps of Engineers (USACE) Jacksonville District (JAX)	Dredge and Fill Permit under Section 404 (CWA) and Section 10 (Rivers and Harbors Act) Section 408 Authorization	Mark Evans (904) 232-2028	Submitted March 2014, expected October 2015
U.S. Department of Interior, Fish and Wildlife Service (USFWS) (Florida Field Office)	Section 7 of Endangered Species Act Consultation Migratory Bird Treaty Act Coordination	Ted Martin (772) 469-4232 Annie Dziergowski (904) 731-3089	Initiated Informal Consultation 2013 Ongoing during FERC NEPA process, clearance anticipated August 2015
U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service	Section 7 of Endangered Species Act for Marine Mammals Essential Fish Habitat Consultation	Bob Hoffman (727) 824-5312	Confirmed no EFH or marine species impacted by the Project
STATE (FLORIDA)			
Florida Department of Environmental Protection (FDEP)	Environmental Resource Permit (ERP) Coastal Zone Consistency 401 Water Quality Certification NPDES permit for construction stormwater discharges Trench dewatering and hydrostatic test dewatering NPDES permit (if into surface waters) Turbidity Variance	Lisa Prather (407) 897-2847	Submitted March 2014, expected November 2014
Florida Board of Trustees of the Internal Improvement Trust Fund	Sovereign Submerged Lands Easements Easement over State-owned Uplands	Lisa Prather (407) 897-2847 Scott Woolam (850) 245-2806	SSL Submitted March 2014, expected November 2014 Upland Easement Received September 2014

Table 1.11-1

Major Permits, Approvals, and Consultations for the FSC Project

Agency	Permit/Approval/ Consultation	Contact	Status
Florida Department of State, Division of Historic Resources (SHPO)	NHPA, Section 106 Consultation	Robert Bendus (850) 245-6319	Submitted Reports in March and July 2014, received approval of CRA reports in April and August 2014
Florida Fish and Wildlife Conservation Commission (FWCC)	State listed species consultation. Threatened and Endangered Species relocation/ handling permit	Ben Shepard (407) 858-6170, Ext 226	Initiated Informal Consultation 2013 Anticipate submitting December 2015, expected April 2016
FL Department of Agriculture and Consumer Services	State T&E plant species clearance	TBD	Initiated Informal Consultation 2013
St. Johns River Water Management District	Consumptive Water Use Permit Trench Dewatering Permit Canal/ Lands Crossing Permits and Easements	Hans Tanzler (386) 329-4500	Anticipate Filing December 2015, expected April 2016
Southwest Florida Water Management District	Consumptive Water Use Permit Trench Dewatering Permit Canal/Lands Crossing Permits and Easements	Robert Beltran (352) 796-7211	Anticipate Filing December 2015, expected April 2016
South Florida Water Management District	Consumptive Water Use Permit Trench Dewatering Permit Canal/Lands Crossing Permit	Nicholas Vitani (561) 686-8800	Anticipate Filing December 2015, expected April 2016
Florida Department of Transportation (FDOT)	State road, highway, or interstate crossing permits	TBD	Consulted with FDOT Districts 1, 4 & 5 in June 2014 Prior to Construction December 2015, expected April 2016
LOCAL			
Osceola, Polk, Okeechobee, St. Lucie & Martin Counties	Tree Removal Road Crossings	TBD	Prior to Construction December 2015, expected April 2016
Davenport, Dundee, Lake Wales & Haines City	Tree Removal Road Crossings	TBD	Prior to Construction December 2015, expected April 2016

Table 1.14-1

Projects with Potential Cumulative Impacts on Resources within the General Area of the FSC Project

Project	Location of Project Activity (Approximate Distance and Direction from Milepost, or Distance Crossed)	Description	Anticipated Construction Date/Project Status
Polk County			
Oak Hills Estates (Providence)	Abuts to the west at MP 2.9	Development of Regional Impact Multi-Purpose Development	Approved 5th Restated and Amended development order 2014.
Progress Energy Florida Loughman Substation	Crosses MP 1.35 to 1.42	Non-residential	Approved Site Plan
New Destiny Church	Crosses MP 1.45 to 1.52	Non-residential	Approved Site Plan
Shopping Center	Crosses at MP 1.7	Non-residential	Unknown – Identified through landowner consultation, no existing records or permits on file with Polk County have been located to date.
Tropical Lakes	Crosses MP 2.1 to 2.25	Subdivision Site Review TR	Approved Site Plan
Aviana Two A	Crosses MP 2.3 to 2.5	Subdivision Site Review Plan	Approved Site Plan
Providence N4	Crosses MP 2.3 to 2.51	Subdivision Site Review Plan	Approved Site Plan
N. Davenport MHE #2 Verizon	Crosses MP 2.65 to 2.85	Non-Residential Site Plan	Approved Site Plan
Campbell Crane Company 6713	Crosses MP 3.01 to 3.08	Non-residential	Approved Site Plan
Haines City East Substation 7819	Crosses MP 2.67 to 2.85	Non-Residential Site Plan	Constructed
Lake Marion Development	Crosses MP 13.51 – 13.83 and MP 14.00 – 15.54	Zoning Approval	Re-zoning Approved 2009; no other related developments or approvals.
Watersong AKA Country Creek	Crosses MP 5.35 to 5.72	Subdivision Site Review WA	Approved Site Plan
Sand Hill Fire Rescue Station	Crosses MP 16.39 to 16.42	Non-residential	Approved Site Plan
Estes Groves	Crosses MP 19.89 – 21.12	Low Density Residential and Multi Use Village Center	Master Concept Plan on file

Table 1.14-1

Projects with Potential Cumulative Impacts on Resources within the General Area of the FSC Project

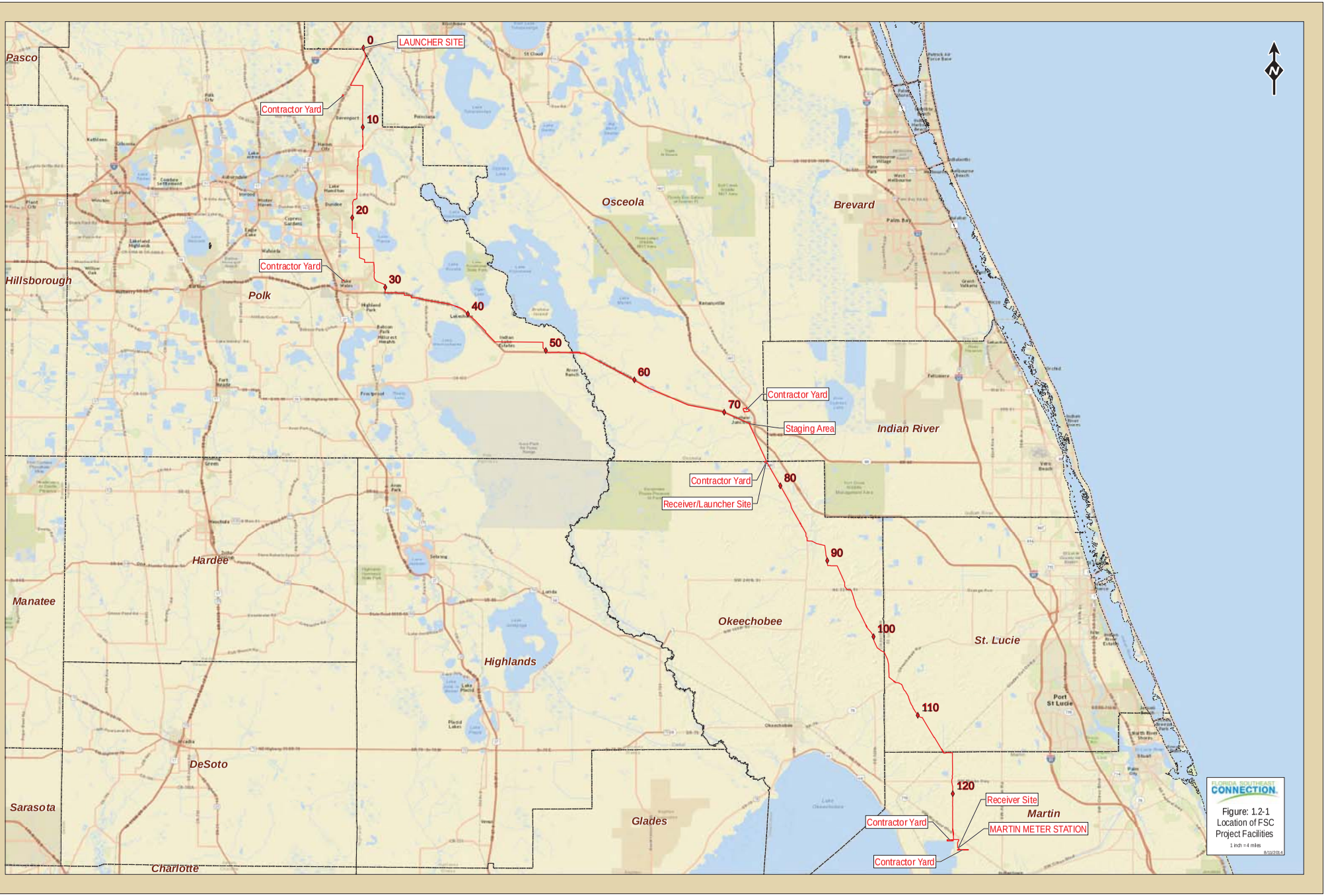
Project	Location of Project Activity (Approximate Distance and Direction from Milepost, or Distance Crossed)	Description	Anticipated Construction Date/Project Status
Multi Use Village Center Future Land Use	0.24 miles west of MP 20.5	Moderate Density Single Family Residential and Multi Use Village Center	Intent to complete build out of the Multi Use Village Center and be compatible with the Estes Groves Development
St. Helena Sand Mine 9713	Crosses MP 23.58 to 23.82	Non-residential	Approved Site Plan
Mountain Lake Corporation	Crosses MP 25 to 25 5	Non-Residential Site Plan	Approved Site Plan
Mountain Lake Corporation	Crosses MP 25.7 to 25.71	Non-Residential Site Plan	Approved Site Plan
Mountain Lake Corporation	Crosses MP 25.8	Non-Residential Site Plan	Approved Site Plan
The Pentecostals of Lake Wales 0804	Crosses MP 30.61	Non-Residential Site Plan	Approved Site Plan
Florida Rock-Diamond Sand Mine	2,038 feet north of MP 30.89	Subdivision Site Review Plan	Approved Site Plan
Monier Lifetile Training Center	Crosses MP 31.4	Non-Residential Site Plan	Approved Site Plan
Lake Wales Facility Rinker 0803	Crosses MP 31.4 to 31.65	Non-Residential Site Plan	Approved Site Plan
Monier Lifetile 0803	Crosses MP 31.41 to 31.62	Non-Residential Site Plan	Approved Site Plan
CEMEX Construction Materials Florida, LLC 0810/0811	Crosses MP 31.62 to 31.88	Non-Residential Site Plan	Approved Site Plan
Citrosuco North America, Inc.	Crosses MP 31.88 to 32.7	Non-Residential Site Plan	Approved Site Plan
Carson Mini-Warehouses 0812	Crosses MP 33.32 to 33.36	Subdivision Site Review TR	Approved Site Plan
Lake Aurora Christian Assembly	Crosses MP 34.2 to 34.39	Non-Residential Site Plan	Approved Site Plan
Jay Bee's Restaurant	Crosses MP 35.28 to 35.39	Non-Residential	Construction Complete
Calvary Baptist Church 0914	Crosses MP 38.89 to 39.1	Non-Residential	Approved Site Plan

Table 1.14-1

Projects with Potential Cumulative Impacts on Resources within the General Area of the FSC Project

Project	Location of Project Activity (Approximate Distance and Direction from Milepost, or Distance Crossed)	Description	Anticipated Construction Date/Project Status
Central Polk Parkway	1,500 feet west of approximate MP 20.0	Florida Department of Transportation Project. The Central Polk Parkway is proposed as a six-lane, new alignment highway in Polk County that will serve as additional north/south routes in the central Polk County regional transportation network.	Project Development and Environmental Study Phase. Not scheduled for construction.
State Route 60 Widening	Crossed / Co-located approximate MP 31.0 - 74.0	Florida Department of Transportation road widening project.	Project Development and Environmental Study Phase. Not scheduled for construction.
Oakwood Subdivision	Crossed, Approximate MP 28.0 / 29.0	Residential Subdivision	Preliminary Plan Approved; No recent activity.
Osceola County			
RIDA/Championsgate Center	3.53 miles west of MP 0.0	Residential and Multi Use Village Center	Approved 5th Amended Site Plan 2009
Industrial Site	65 feet east of MP 72.8	Proposed Industrial Site	Proposed
Okeechobee County			
Okeechobee Plant	3 miles northeast of MP 80.0	Reasonably Foreseeable Electric Generation Plant	Listed as a Preferred Site in FPL's 10-year Site Plan. No anticipated start date.
St. Lucie			
The Reserve	10.43 miles east of MP 115.7	Non-Residential Site Plan	Approved Site Plan 2013

FIGURES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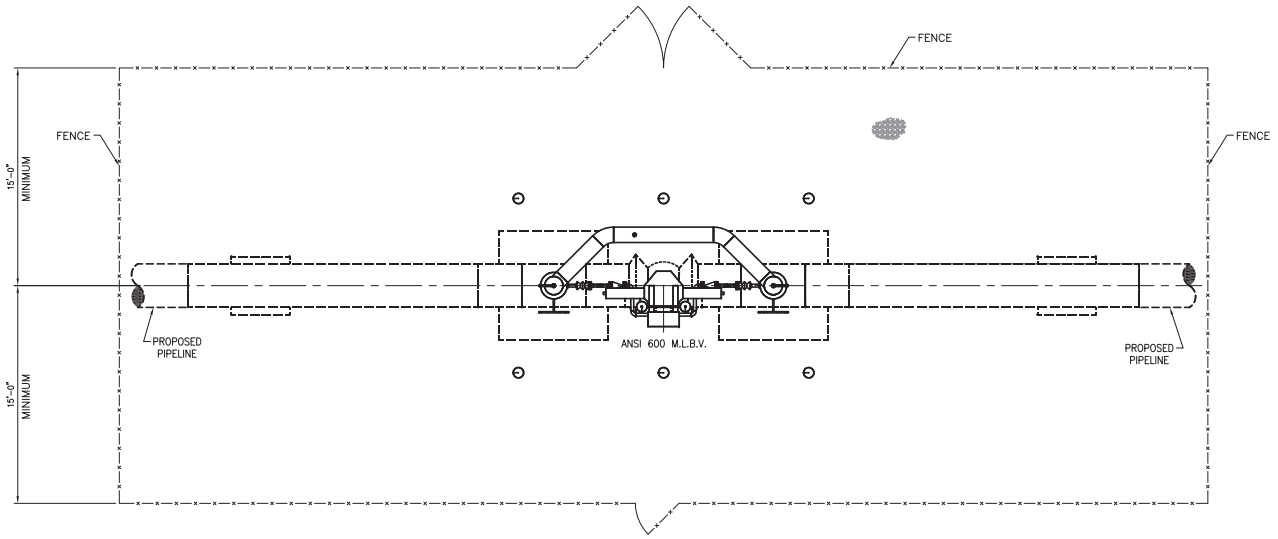
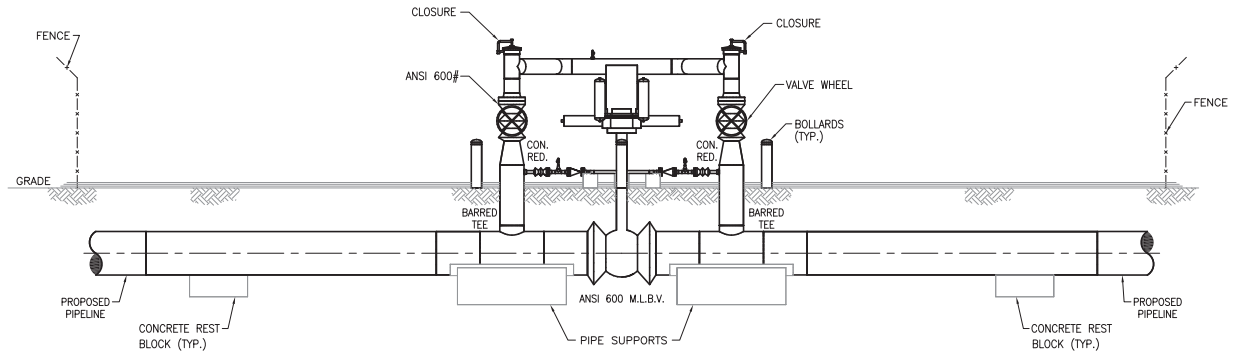
LAUNCHER SITE
Contractor Yard
10
20
Contractor Yard
30
40
50
60
70
Contractor Yard
Staging Area
Contractor Yard
Receiver/Launcher Site
80
90
100
110
120
Receiver Site
MARTIN METER STATION
Contractor Yard
Contractor Yard
Pasco
Hillsborough
Polk
Osceola
Brevard
Indian River
St. Lucie
Martin
Okeechobee
Highlands
Glades
Hardee
Manatee
DeSoto
Sarasota
Charlotte
Port St Lucie
FLORIDA SOUTHEAST CONNECTION
Figure: 1.2-1
Location of FSC Project Facilities
1 inch = 4 miles
8/12/2014

TYPICAL MAINLINE BLOCK VALVE



PLOT PLAN



ELEVATION

MAINLINE BLOCK VALVES

VALVE TAG NO.	MP	CLASS	DF
FSC-1	___.___	_	_._
FSC-2	___.___	_	_._
FSC-3	___.___	_	_._
FSC-4	___.___	_	_._
FSC-5	___.___	_	_._
FSC-6	___.___	_	_._
FSC-7	___.___	_	_._
FSC-8	___.___	_	_._
FSC-9	___.___	_	_._

NOTES:

1. DESIGN FACTOR IS BASED ON CLASS LOCATION.

PERMIT DRAWING
ISSUED FOR USE
07/07/2014

NO.	REVISION – DESCRIPTION	BY	DATE	CHK'D	APP'D
F	PERMIT DRAWING – ISSUED FOR USE	CO	07/07/14	CF	LD
E	INCORPORATED COMMENTS	CO	03/20/14	CF	LD
D	PERMIT DRAWING – ISSUED FOR USE	CO	03/07/14	CF	LD
C	PERMIT DRAWING – NOT FOR CONSTRUCTION	CO	03/07/14	CF	LD
B	ISSUED FOR PRE-FERC FILING REPORT	CO	11/13/13	CF	LD
A	ISSUED FOR REVIEW	CO	11/07/13	CF	LD

DWG. NO. | REFERENCE DRAWING TITLE

DWG. STATUS: PREL'Y | BID | CONSTR. | CADDS

	CHECKED BY	CHECKED DATE	APPROVED BY	APPROVED DATE	BY	DATE
PREL'Y						
BID						
CONSTR.						
CADDS	PLOT DATE:					
	FILE NAME:					

P.I./STA. NO.
ACCOUNT NO.
CONSTRUCTION YEAR

	BY	DATE
DESIGN	CF	11/13
DRAWN	CO	11/13
ASBUILT		

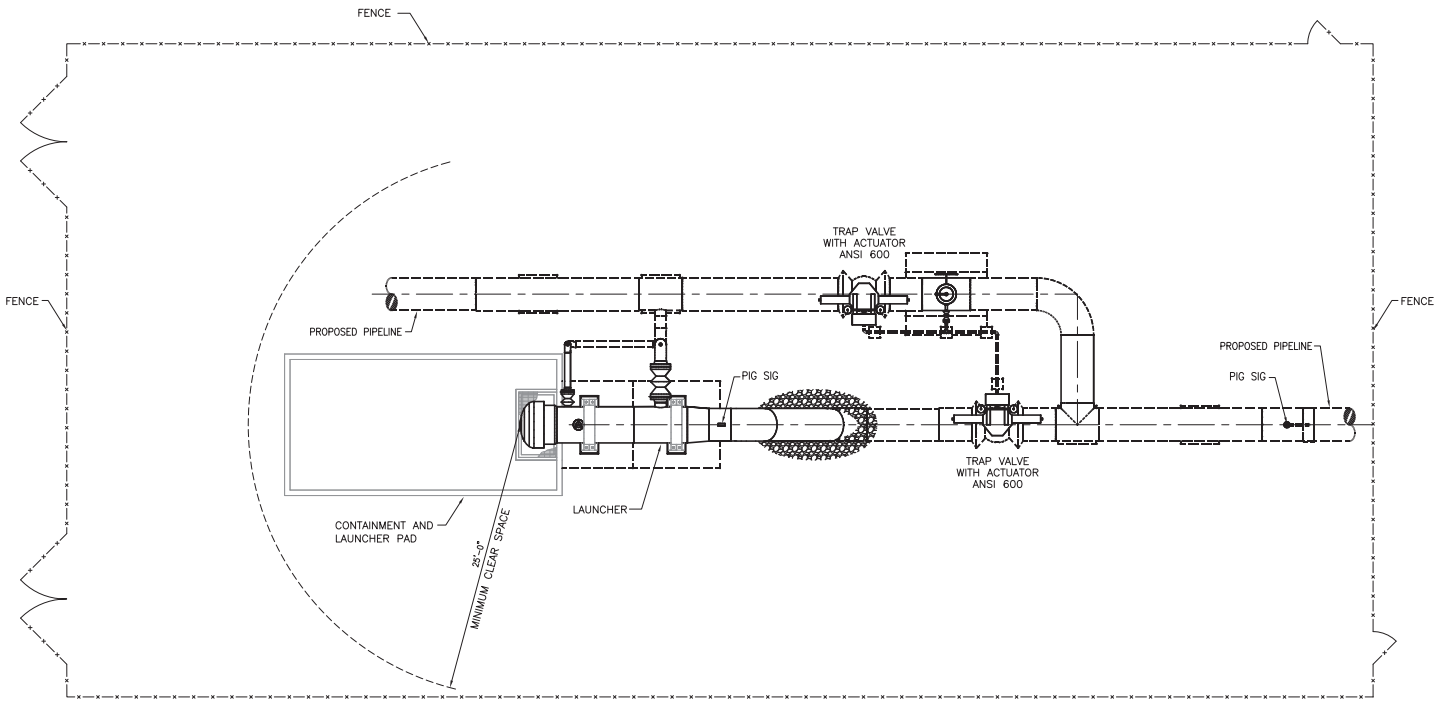
FILE NO.
SCALE: N.T.S.

FLORIDA SOUTHEAST CONNECTION, LLC

FLORIDA SOUTHEAST CONNECTION
PIPELINE PROJECT
MAINLINE BLOCK VALVE
TYPICAL PLOT PLAN
Figure 1.5-1

PROJECT NO. 21040
PREVIOUS DWG. NO.
SHEET 1 OF 1
DWG. NO. 21040-505-GNW-00010 (F)
SHEET 1 OF 1

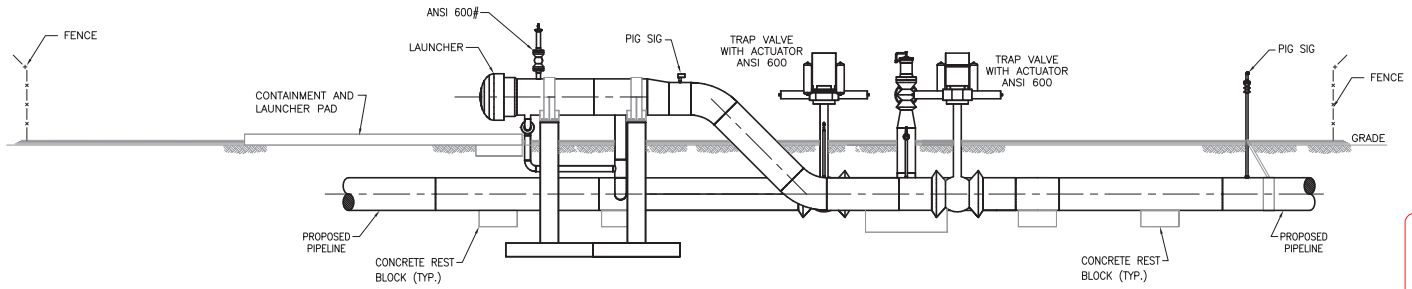
TYPICAL LAUNCHER



NOTES:

1. DESIGN FACTOR IS BASED ON CLASS LOCATION.

PLOT PLAN



ELEVATION

PERMIT DRAWING
ISSUED FOR USE
07/07/2014

DWG. NO.	REFERENCE DRAWING TITLE

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E	INCORPORATED COMMENTS	CO	03/20/14	CF	LD
D	PERMIT DRAWING – ISSUED FOR USE	CO	03/07/14	CF	LD
C	PERMIT DRAWING – NOT FOR CONSTRUCTION	CO	03/07/14	CF	LD
B	ISSUED FOR PRE-FERC FILING REPORT	CO	11/13/13	CF	LD
A	ISSUED FOR REVIEW	CO	11/07/13	CF	LD

DWG. STATUS	CHECKED BY	CHECKED DATE	APPROVED BY	APPROVED DATE	BY	DATE
PREL'Y						
BID						
CONSTR.						
CADDS	PLOT DATE:					
	FILE NAME:					

P.L./STA. NO.
ACCOUNT NO.
CONSTRUCTION YEAR

	BY	DATE
DESIGN	CF	11/13
DRAWN	CO	11/13
ASBUILT		

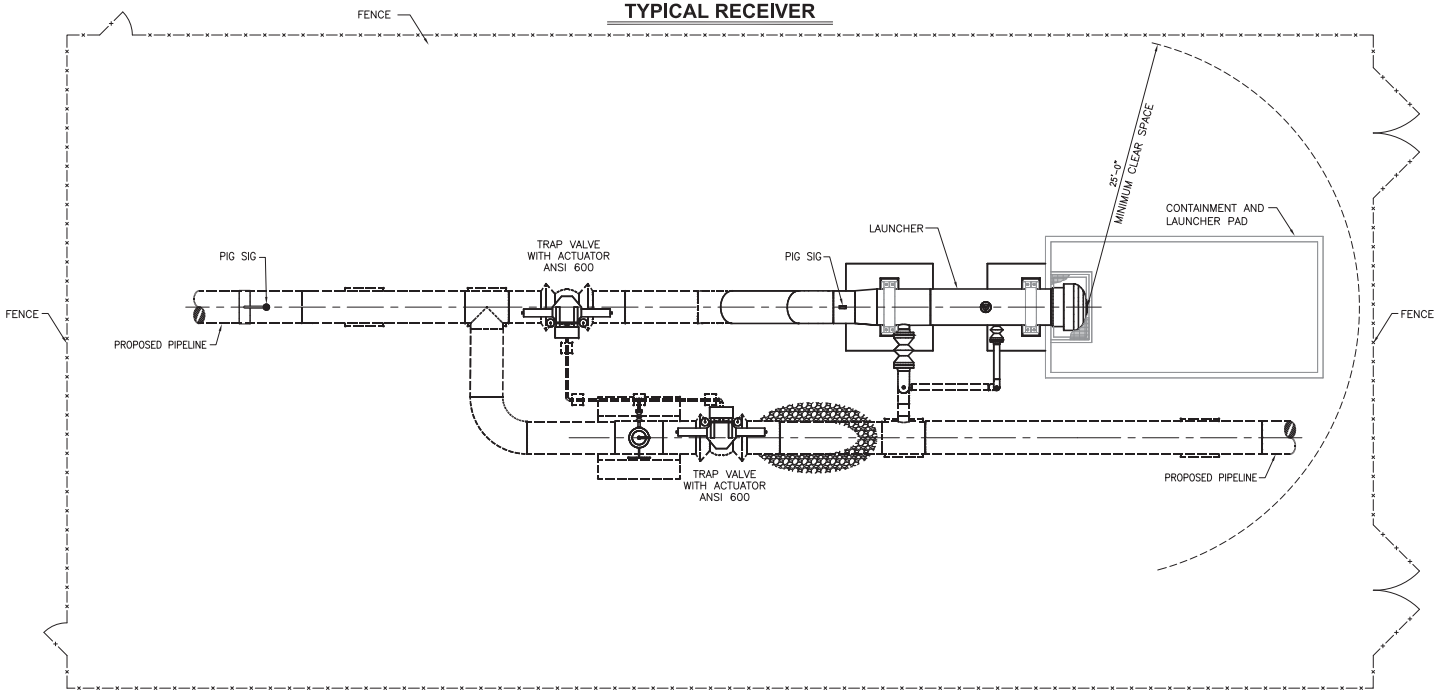
FILE NO.
SCALE: N.T.S.

FLORIDA SOUTHEAST CONNECTION, LLC

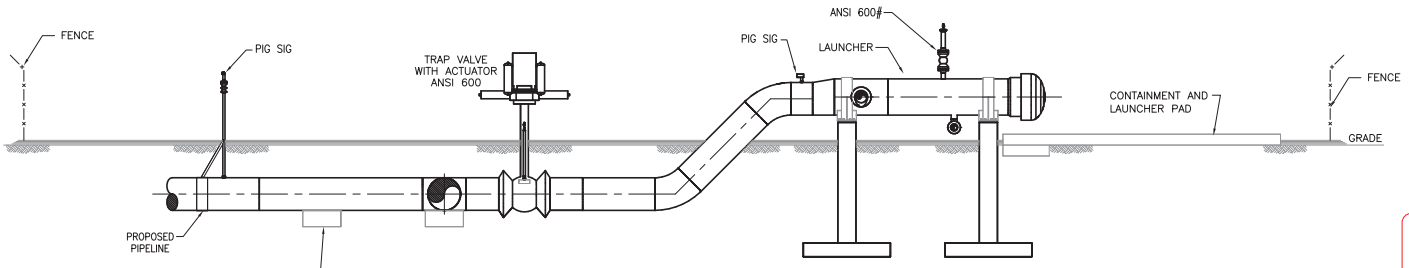
FLORIDA SOUTHEAST CONNECTION
PIPELINE PROJECT
LAUNCHERS
TYPICAL PLOT PLAN
Figure 1.5-2A

PROJECT NO. 21040
PREVIOUS DWG. NO.
SHEET 1 OF 1
DWG. NO. 21040-505-GNW-00020 F
SHEET 1 OF 1

TYPICAL RECEIVER



PLOT PLAN



ELEVATION

NOTES:

1. DESIGN FACTOR IS BASED ON CLASS LOCATION.

PERMIT DRAWING ISSUED FOR USE
07/07/2014

DWG. NO.	REFERENCE DRAWING TITLE

NO.	REVISION – DESCRIPTION	BY	DATE	CHK'D	APP'D
F	PERMIT DRAWING – ISSUED FOR USE	CO	07/07/14	CF	LD
E	INCORPORATED COMMNETS	CO	03/20/14	CF	LD
D	PERMIT DRAWING – ISSUED FOR USE	CO	03/07/14	CF	LD
C	PERMIT DRAWING – NOT FOR CONSTRUCTION	CO	03/07/14	CF	LD
B	ISSUED FOR PRE-FERC FILING REPORT	CO	11/13/13	CF	LD
A	ISSUED FOR REVIEW	CO	11/07/13	CF	LD

DWG. STATUS	CHECKED BY	CHECKED DATE	APPROVED BY	APPROVED DATE	APPROVED BY	APPROVED DATE
PREL'Y						
BID						
CONSTR.						
CADDS	PLOT DATE:					
	FILE NAME:					

P.I./STA. NO.
ACCOUNT NO.
CONSTRUCTION YEAR

	BY	DATE
DESIGN	CF	11/13
DRAWN	CO	11/13
ASBUILT		

FILE NO.
SCALE: N.T.S.

FLORIDA SOUTHEAST CONNECTION, LLC

FLORIDA SOUTHEAST CONNECTION
PIPELINE PROJECT
RECEIVERS
TYPICAL PLOT PLAN
Figure 1.5-2B

PROJECT NO. 21040
PREVIOUS DWG. NO.
SHEET 1 OF 1
DWG. NO. 21040-505-GNW-00030 F
SHEET 1 OF 1

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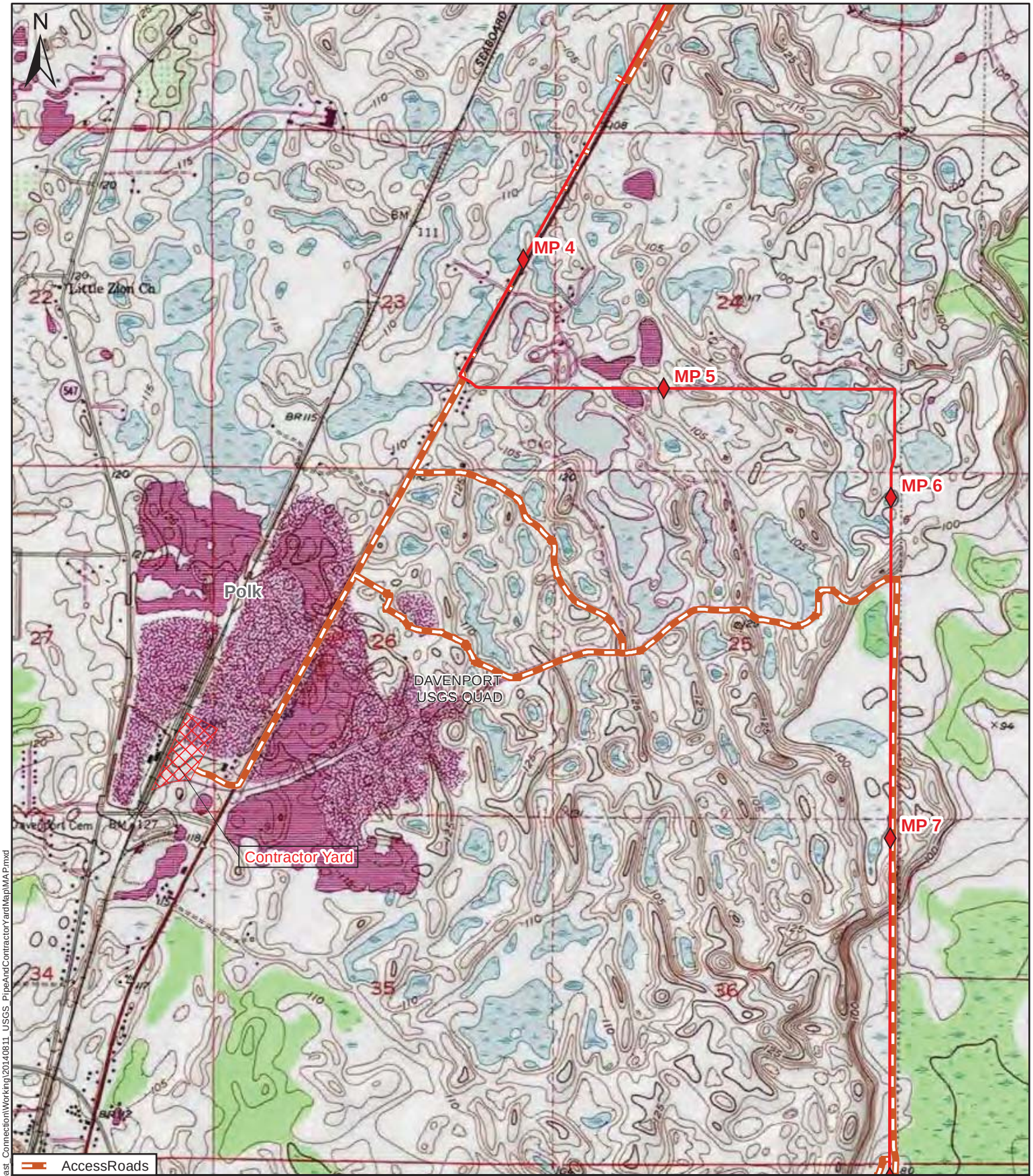

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REVIEWED BY: M.B.	DATE: 08/12/2014	
APPROVED BY: R.G.	DATE: 08/12/2014	
SCALE: 1 ' = 2,000 "	SHEET: 1 OF 5	

0 1,000 2,000 4,000
Feet

A	07/07/2014	ISSUED FOR USE
B	08/12/2014	ISSUED FOR USE

FLORIDA SOUTHEAST CONNECTION

UniversalPegasus INTERNATIONAL
A Subsidiary of Huntington Ingalls Industries

USGS PIPE AND CONTRACTOR YARD MAP

FLORIDA SOUTHEAST CONNECTION LLC
FLORIDA SOUTHEAST CONNECTION
PIPELINE PROJECT
PROPOSED PIPELINE AND FACILITIES
Polk County, Florida

DRAWING NO: 21040-510-GNW-21619 REV. B

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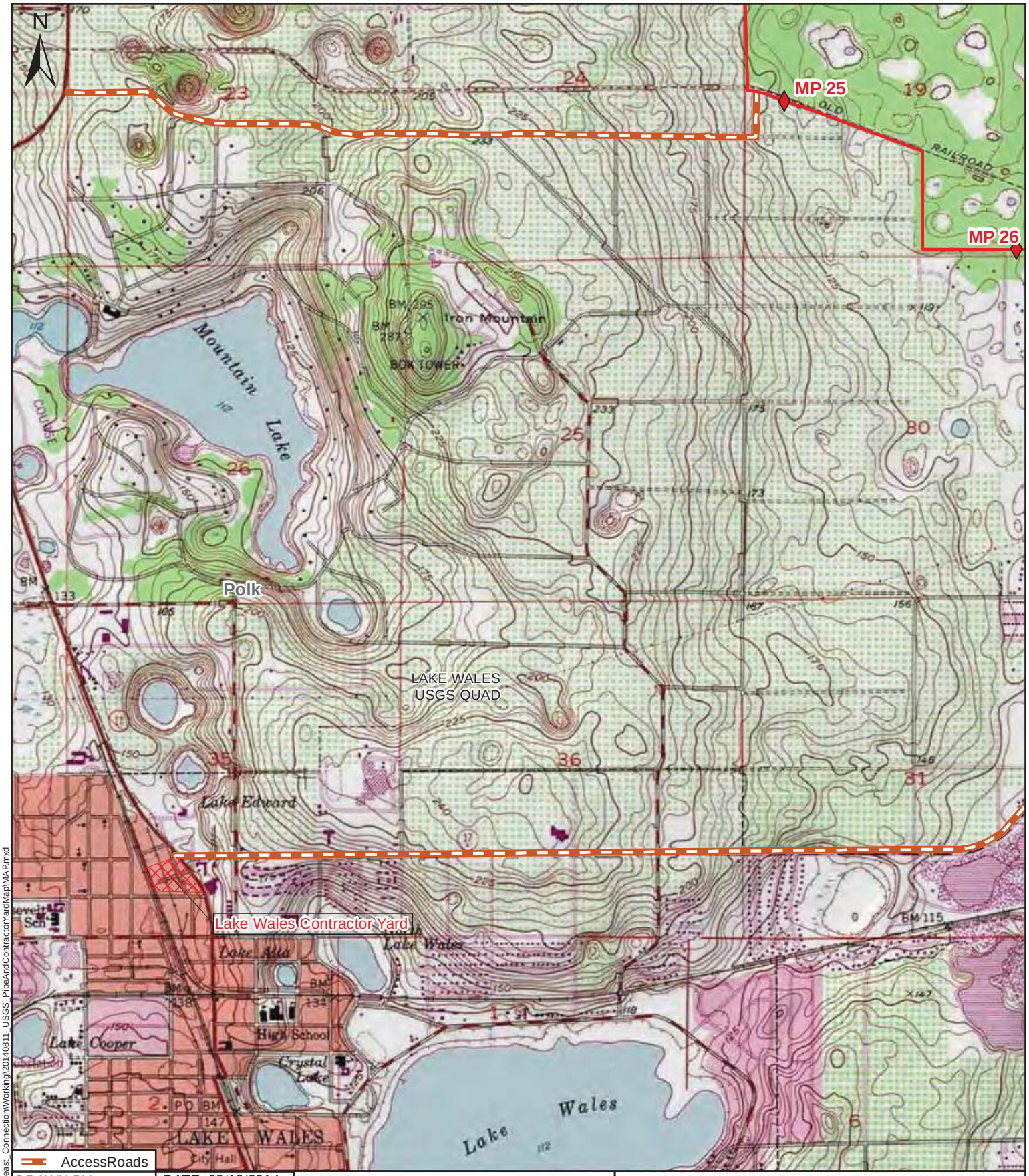
Figure 1.5-3



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REVIEWED BY: M.B.	DATE: 08/12/2014	
APPROVED BY: R.G.	DATE: 08/12/2014	
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0 1,000 2,000 4,000
Feet

A	07/07/2014	ISSUED FOR USE
B	08/12/2014	ISSUED FOR USE

FLORIDA SOUTHEAST CONNECTION

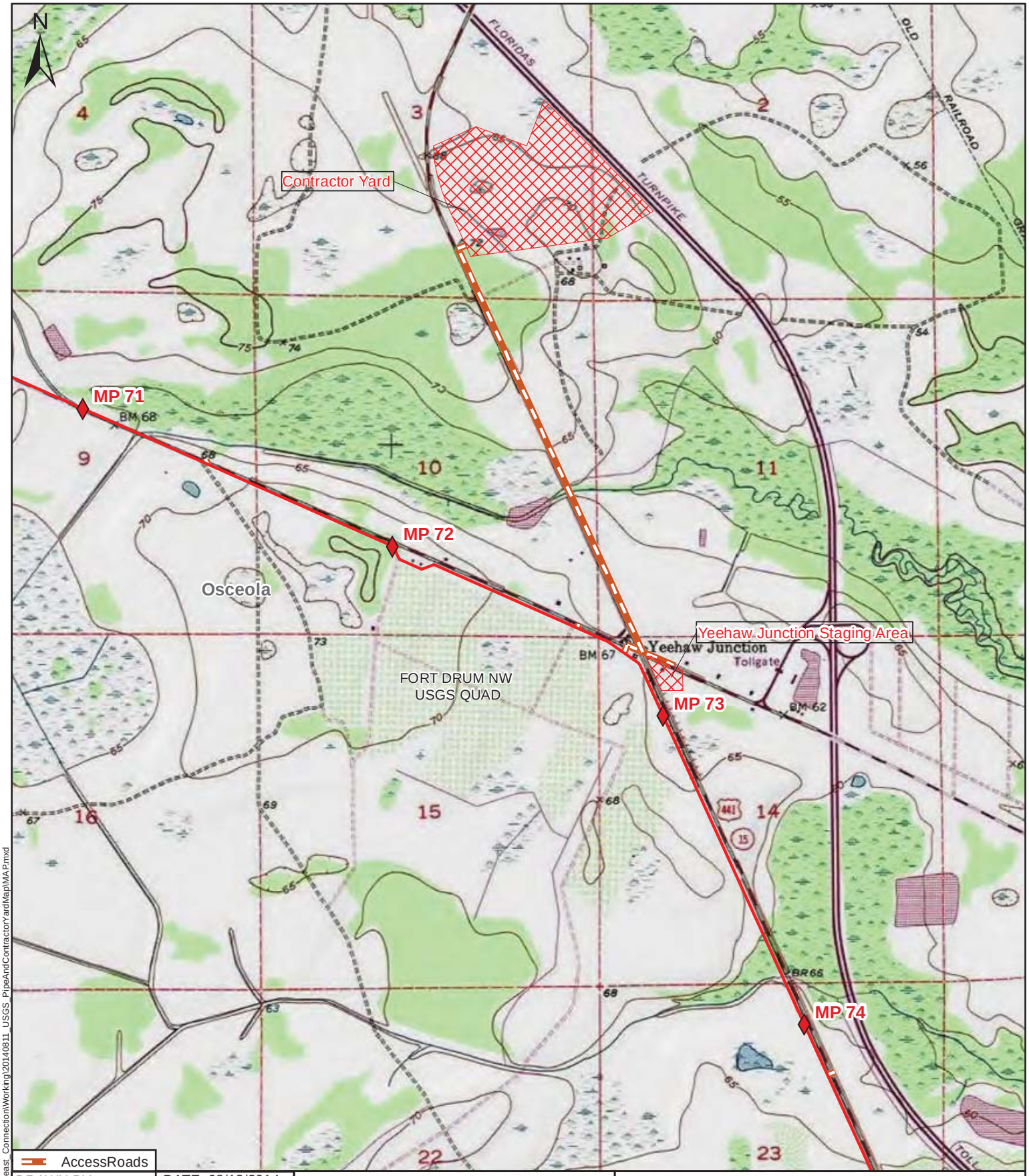
UniversalPegasus INTERNATIONAL
A Subsidiary of Huntington Ingalls Industries

USGS PIPE AND CONTRACTOR YARD MAP

FLORIDA SOUTHEAST CONNECTION LLC
FLORIDA SOUTHEAST CONNECTION
PIPELINE PROJECT
PROPOSED PIPELINE AND FACILITIES
Polk County, Florida

DRAWING NO: 21040-510-GNW-21620 REV. B

Figure 1.5-3



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APPROVED BY: R.G.	DATE: 08/12/2014
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0 1,000 2,000 4,000
Feet

A	07/07/2014	ISSUED FOR USE
B	08/12/2014	ISSUED FOR USE

FLORIDA SOUTHEAST CONNECTION

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USGS PIPE AND CONTRACTOR YARD MAP

FLORIDA SOUTHEAST CONNECTION LLC
FLORIDA SOUTHEAST CONNECTION
PIPELINE PROJECT
PROPOSED PIPELINE AND FACILITIES
Osceola County, Florida

DRAWING NO: 21040-510-GNW-21621 REV. B

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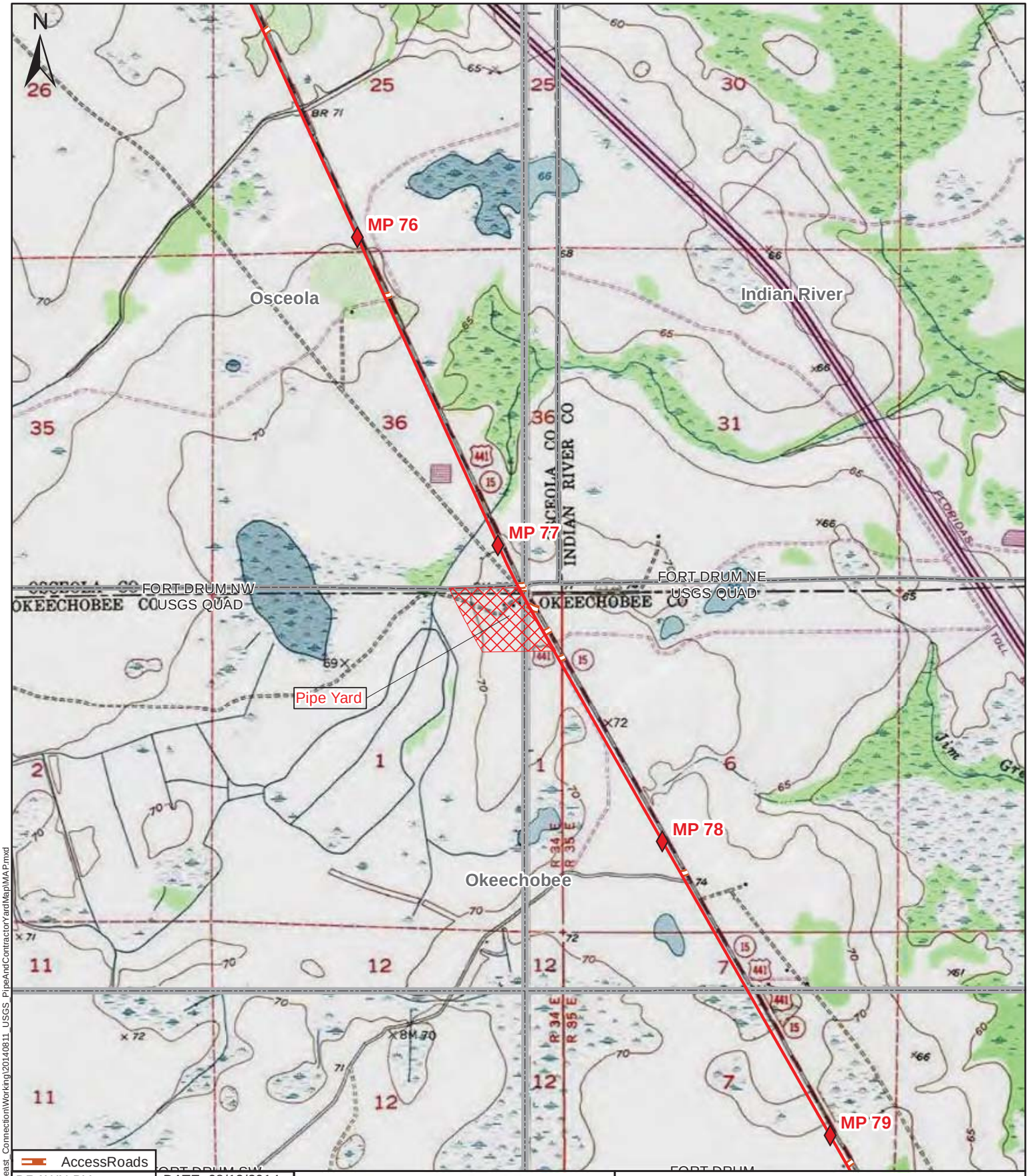

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APPROVED BY: R.G.	DATE: 08/12/2014
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0 1,000 2,000 4,000
Feet

A	07/07/2014	ISSUED FOR USE
B	08/12/2014	ISSUED FOR USE

FLORIDA SOUTHEAST CONNECTION

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USGS PIPE AND CONTRACTOR YARD MAP

FLORIDA SOUTHEAST CONNECTION LLC
FLORIDA SOUTHEAST CONNECTION
PIPELINE PROJECT
PROPOSED PIPELINE AND FACILITIES
Osceola, Indian River & Okeechobee County, Florida

DRAWING NO: 21040-510-GNW-21622 REV. B

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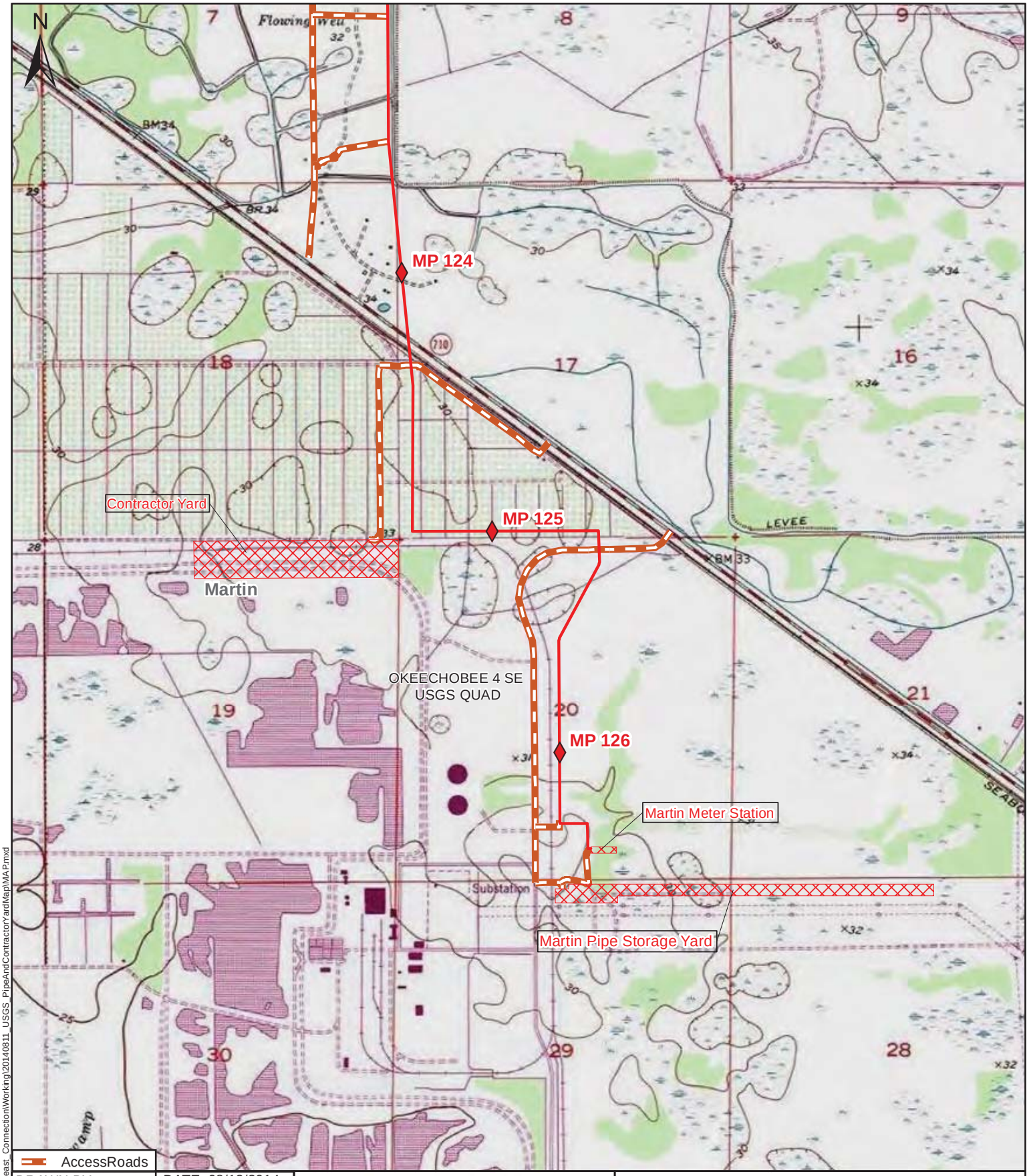

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APPROVED BY: R.G.	DATE: 08/12/2014
SCALE: 1 ' = 2,000 "	SHEET: 5 OF 5

0 1,000 2,000 4,000
Feet

A	07/07/2014	ISSUED FOR USE
B	08/12/2014	ISSUED FOR USE

FLORIDA SOUTHEAST CONNECTION

UniversalPegasus INTERNATIONAL
A Subsidiary of Huntington Ingalls Industries

USGS PIPE AND CONTRACTOR YARD MAP

FLORIDA SOUTHEAST CONNECTION LLC
FLORIDA SOUTHEAST CONNECTION
PIPELINE PROJECT
PROPOSED PIPELINE AND FACILITIES
Martin County, Florida

DRAWING NO: 21040-510-GNW-21623 REV. B

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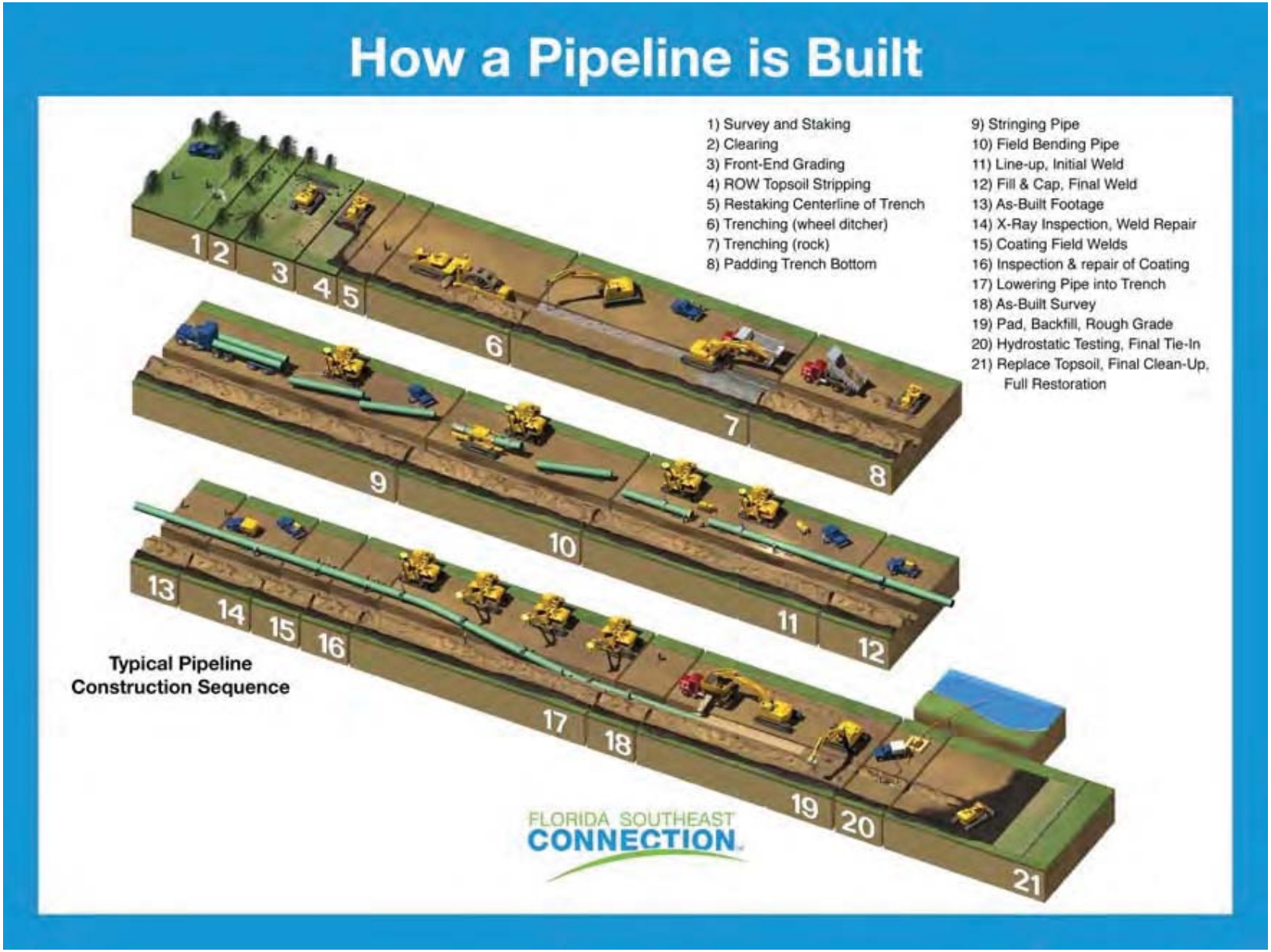
Figure 1.5-3


How a Pipeline is Built
1) Survey and Staking
2) Clearing
3) Front-End Grading
4) ROW Topsoil Stripping
5) Restaking Centerline of Trench
6) Trenching (wheel ditcher)
7) Trenching (rock)
8) Padding Trench Bottom
9) Stringing Pipe
10) Field Bending Pipe
11) Line-up, Initial Weld
12) Fill & Cap, Final Weld
13) As-Built Footage
14) X-Ray Inspection, Weld Repair
15) Coating Field Welds
16) Inspection & repair of Coating
17) Lowering Pipe into Trench
18) As-Built Survey
19) Pad, Backfill, Rough Grade
20) Hydrostatic Testing, Final Tie-In
21) Replace Topsoil, Final Clean-Up, Full Restoration
1
2
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4
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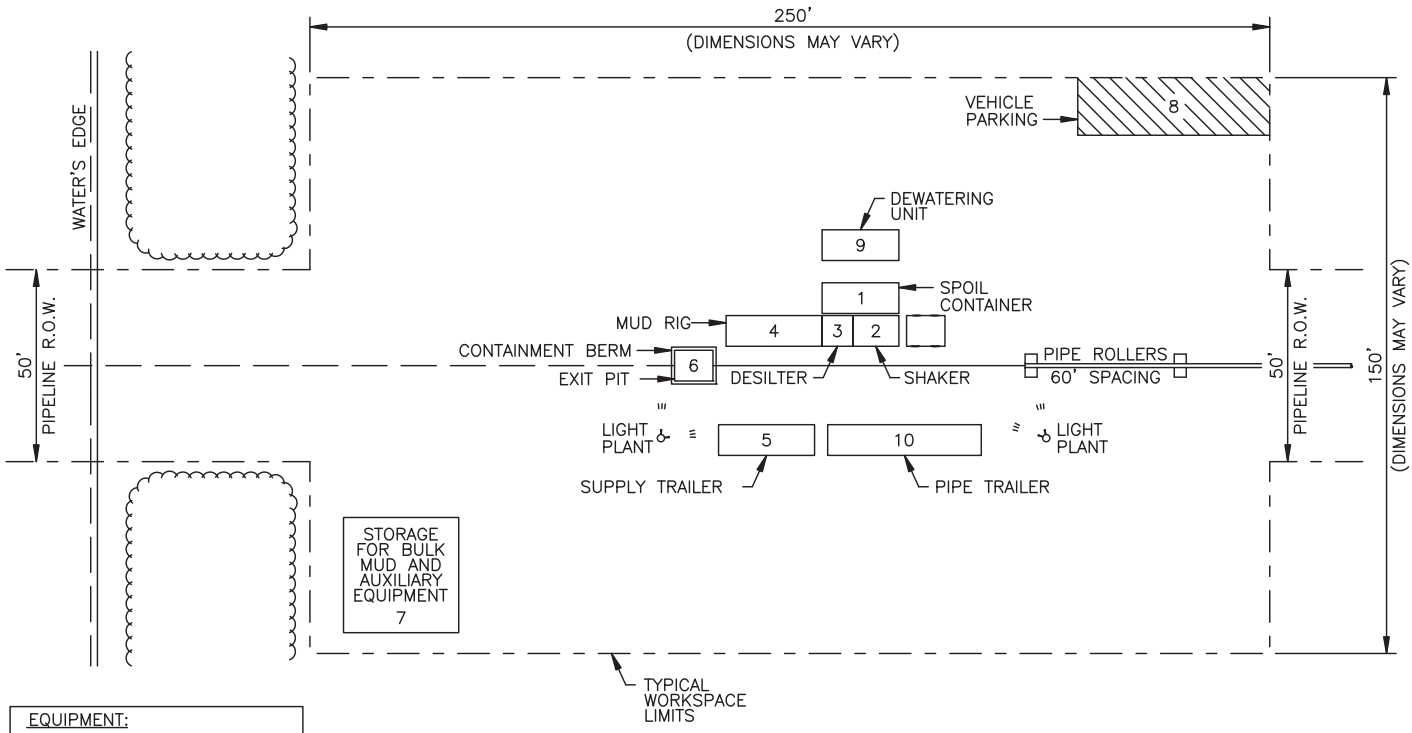
21
Typical Pipeline Construction Sequence
FLORIDA SOUTHEAST CONNECTION

Figure 1.7-1



EQUIPMENT:

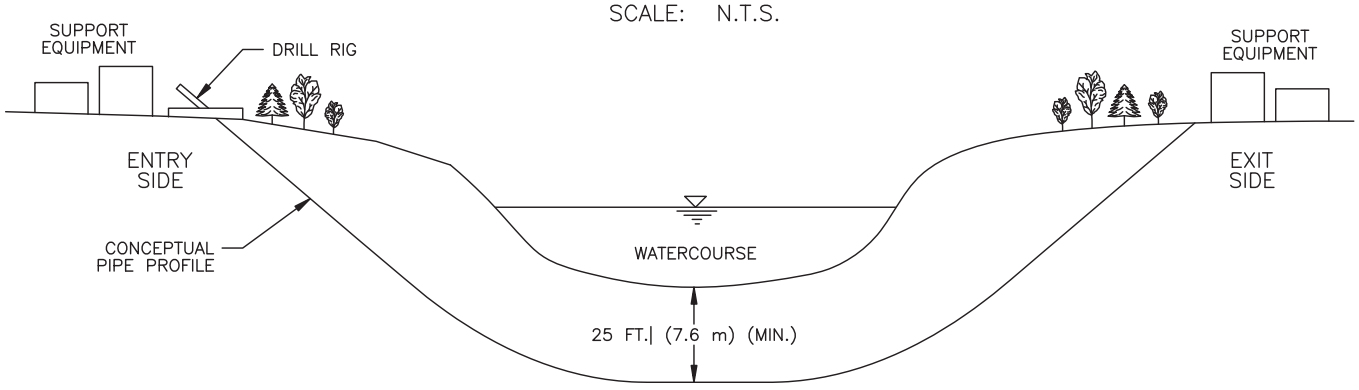
1. SPOIL CONTAINER: 8' x 20'
2. SHAKER: 8' x 12'
3. DESILTER: 8' x 8'
4. MUD RIG: 8' x 25'
5. SUPPLY TRAILER: 8' x 25'
6. EXIT PIT: 8' x 10'
7. STORAGE: 30' x 30'
8. VEHICLE PARKING: 15' x 50'
9. DEWATERING UNIT: 8' x 20'
10. PIPE TRAILER: 8' x 40'

NOTES:

1. EQUIPMENT ORIENTATION MAY VARY DEPENDING ON CONTRACTOR OR SITE CONDITIONS.
2. EQUIPMENT TO BE SUPPORTED ON THE GROUND SURFACE OR TIMBER MATS AS CONDITIONS DICTATE.
3. SILT FENCE, BERMS AND/OR STRAW BALE BARRIER TO BE USED AS REQUIRED TO PREVENT IMPACTS FROM OCCURRING OUTSIDE OF PROJECT LIMITS.
4. ACCESS ROADS WILL BE USED TO OBTAIN WATER FROM SOURCE WHERE PERMITTED.

EXIT SITE PLAN

SCALE: N.T.S.



NOTES:

1. PIPE DEPTHS MAY VARY.

PROFILE

SCALE: N.T.S.

FLORIDA SOUTHEAST CONNECTION PROJECT

UniversalPegasus INTERNATIONAL

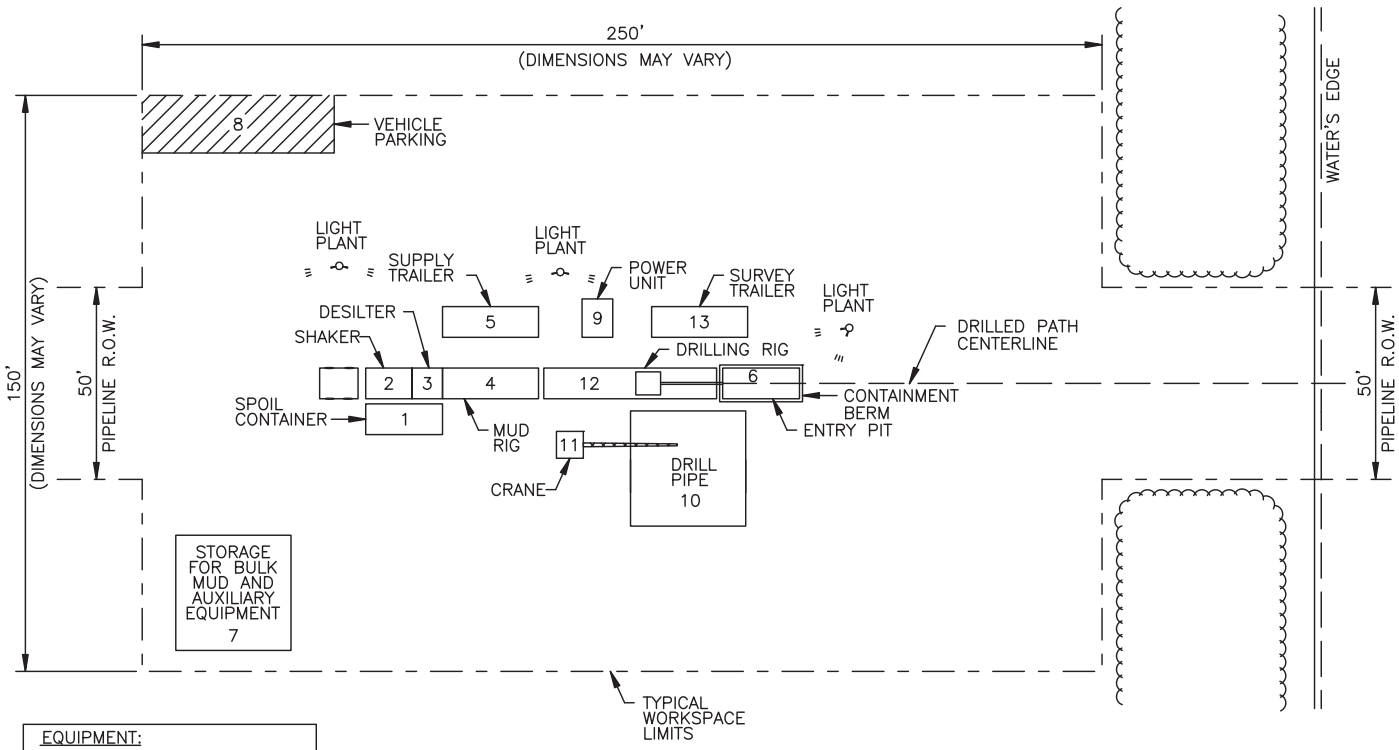
FLORIDA SOUTHEAST CONNECTION

NO.	REVISION	DATE	APPR.
D	ISSUE FOR USE	07/01/14	LD
C	ISSUE FOR FINAL PRE-FERC FILING	12/20/13	LD
B	ISSUED FOR 30% DESIGN	10/25/13	LD
A	ISSUED FOR REVIEW	09/20/13	LD

TYPICAL DIRECTIONAL DRILL EXIT SITE PLAN & PROFILE

Figure 1.7-2A

SCALE	DATE	DRAWN	CHECKED	APPROVED	PROJ. NO.	DRAWING NUMBER	SHEET
N.T.S.	08/08/13	LB	RG	LD	21040	21040-510-TYP-20025	1 OF 1



EQUIPMENT:

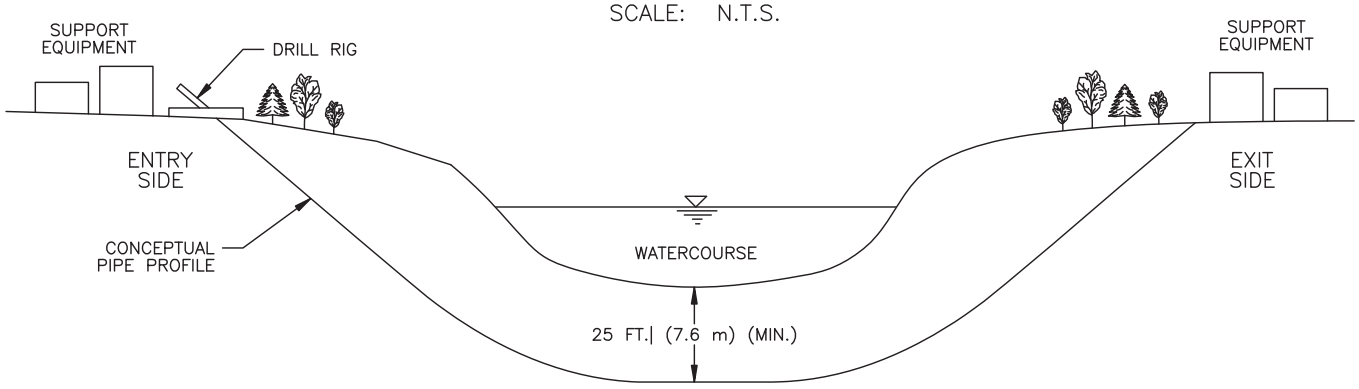
1. SPOIL CONTAINER: 8' x 20'
2. SHAKER: 8' x 12'
3. DESILTER: 8' x 8'
4. MUD RIG: 8' x 25'
5. SUPPLY TRAILER: 8' x 25'
6. ENTRY PIT: 8' x 20'
7. STORAGE: 30' x 30'
8. VEHICLE PARKING: 15' x 50'
9. POWER UNIT: 8' x 10'
10. DRILL PIPE: 30' x 30'
11. CRANE: 8' x 8'
12. DRILLING RIG: 8' x 45'
13. SURVEY TRAILER: 8' x 25'

NOTES:

1. EQUIPMENT ORIENTATION MAY VARY DEPENDING ON CONTRACTOR OR SITE CONDITIONS.
2. EQUIPMENT TO BE SUPPORTED ON THE GROUND SURFACE OR TIMBER MATS AS CONDITIONS DICTATE.
3. SILT FENCE, BERMS AND/OR STRAW BALE BARRIER TO BE USED AS REQUIRED TO PREVENT IMPACTS FROM OCCURRING OUTSIDE OF PROJECT LIMITS.
4. ACCESS ROADS WILL BE USED TO OBTAIN WATER FROM SOURCE WHERE PERMITTED.

ENTRY SITE PLAN

SCALE: N.T.S.



NOTES:

1. PIPE DEPTHS MAY VARY.

PROFILE

SCALE: N.T.S.

FLORIDA SOUTHEAST CONNECTION PROJECT

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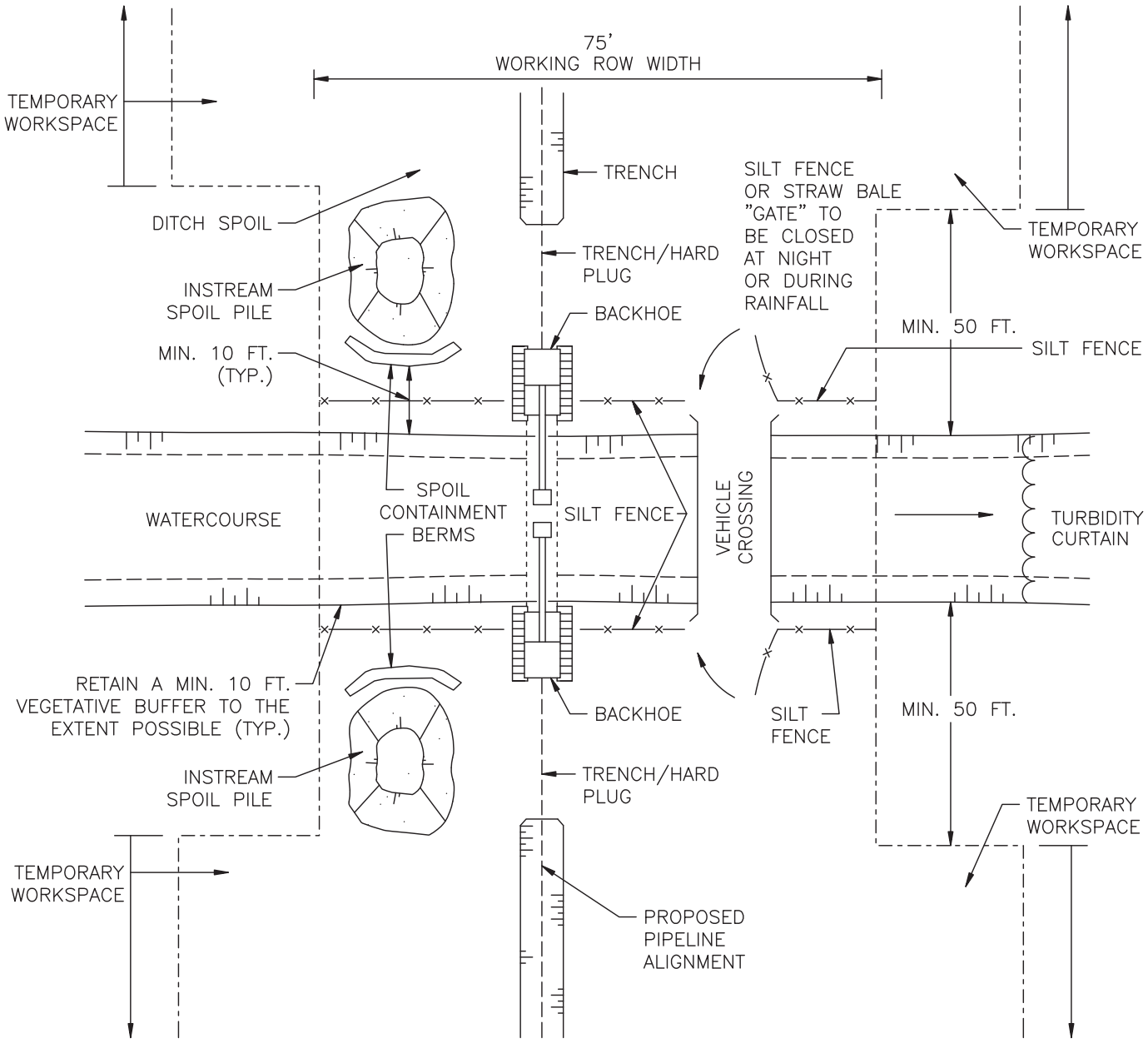
NO.	REVISION	DATE	APPR.
D	ISSUE FOR USE	07/01/14	LD
C	ISSUE FOR FINAL PRE-FERC FILING	12/20/13	LD
B	ISSUED FOR 30% DESIGN	10/25/13	LD
A	ISSUED FOR REVIEW	09/20/13	LD

TYPICAL DIRECTIONAL DRILL ENTRY SITE PLAN & PROFILE

Figure 1.7-2B

SCALE	DATE	DRAWN	CHECKED	APPROVED	PROJ. NO.	DRAWING NUMBER	SHEET
N.T.S.	08/08/13	LB	RG	LD	21040	21040-510-TYP-20024	1 OF 1



PLAN VIEW

SCALE: N.T.S.

SEQUENCE OF ACTIVITIES

STEP 1. CLEAR AND GRADE.

STEP 2. IMPLEMENT THE TEMPORARY EROSION AND SEDIMENT CONTROLS.

STEP 3. FABRICATE PIPE.

STEP 4. EXCAVATE TRENCH AND INSTALL PIPE.

STEP 5. BACKFILL AND RESTORE STREAM BANKS.

STEP 6. IMPLEMENT THE PERMANENT EROSION AND SEDIMENT CONTROLS.

SEE SHEET 2 FOR NOTES.

FLORIDA SOUTHEAST CONNECTION PROJECT

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NO.	REVISION	DATE	APPR.
D	ISSUE FOR USE	07/01/14	LD
C	ISSUE FOR FINAL PRE-FERC FILING	12/20/13	LD
B	ISSUED FOR 30% DESIGN	10/25/13	LD
A	ISSUED FOR REVIEW	09/20/13	LD

TYPICAL
OPEN CUT WET CROSSING

Figure 1.7-3

SCALE	DATE	DRAWN	CHECKED	APPROVED	PROJ. NO.	DRAWING NUMBER	SHEET
N.T.S.	08/08/13	LD	RG	LD	21040	21040-510-TYP-20053	1 OF 2

NOTES:

1– WORK SPACE — MAXIMUM LIMITS ARE DEPICTED. STAGING FOR MAKEUP LOCATED A MINIMUM OF 50 FEET FROM WATERBODY.

2– CLEARING — MARK CLEARING LIMITS AND MINIMIZE CLEARING OF RIPARIAN VEGETATION. WOODY VEGETATION SHALL BE CUT AT GROUND LEVEL AND THE STUMPS/ROOTS LEFT IN PLACE TO THE EXTENT POSSIBLE.

3– TOPSOIL STRIPPING — TOPSOIL SHALL BE STRIPPED FROM ALL WETLAND AREAS OVER THE DITCH LINE AND SPOIL AREAS.

4– SPILL PREVENTION — CONTRACTOR SHALL INSTALL SIGNS 100 FEET MINIMUM FROM EACH STREAM BANK AND WETLAND TO IDENTIFY THE HAZARDOUS MATERIALS EXCLUSION AREA.

5– EROSION & SEDIMENT CONTROL

A. CONTRACTOR SHALL SUPPLY, INSTALL AND MAINTAIN SEDIMENT CONTROL STRUCTURES, AS DEPICTED OR ALONG DOWN GRADIENT SIDES OF WORK AREAS AND STAGING AREAS SUCH THAT NO HEAVILY SILT LADEN WATER ENTERS STREAM OR WETLAND.

B. NO HEAVILY SILT LADEN WATER SHALL BE DISCHARGED DIRECTLY OR INDIRECTLY INTO THE STREAM. ALL EROSION AND SEDIMENT CONTROL STRUCTURE LOCATIONS AS DEPICTED ARE APPROXIMATE AND MAY BE ADJUSTED AS DIRECTED BY THE COMPANY INSPECTOR TO SUIT ACTUAL SITE CONDITIONS. SILT FENCE OR STRAW BALE INSTALLATIONS SHALL INCLUDE REMOVABLE SECTIONS TO FACILITATE ACCESS DURING CONSTRUCTION.

C. SEDIMENT LADEN WATER FROM TRENCH DEWATERING SHALL BE DISCHARGED TO A WELL VEGETATED UPLAND AREA, INTO A STRAW BALE DEWATERING STRUCTURE OR GEOTEXTILE FILTER BAG. SEDIMENT CONTROL STRUCTURES MUST BE IN PLACE AT ALL TIMES ACROSS THE DISTURBED CONSTRUCTION RIGHT OF WAY EXCEPT DURING EXCAVATION /INSTALLATION OF THE CROSSING PIPE.

D. SOFT DITCH PLUGS MUST REMAIN IN PLACE AT CONVENIENT LOCATIONS TO SEPARATE MAINLINE DITCH FROM THE RIVER CROSSING UNTIL THE RIVER CROSSING IS INSTALLED AND BACKFILLED.

E. TRENCH BREAKERS ARE TO BE INSTALLED AT THE SAME SPACING AND IMMEDIATELY UPSLOPE OF PERMANENT SLOPE BREAKERS, OR AS DIRECTED BY THE COMPANY.

6– INSTALLATION — CONTRACTOR SHALL MAINTAIN HARD PLUGS IN THE DITCH AT THE RIVER EDGE UNTIL JUST PRIOR TO PIPE INSTALLATION. CONTRACTOR SHALL EXCAVATE TRENCH AND INSTALL PIPE AS EXPEDIENTLY AS PRACTICAL TO REDUCE THE DURATION OF WORK ACTIVITIES IN THE STREAM BED.

7– SPOIL PLACEMENT — CONTRACTOR SHALL PLACE TRENCH SPOIL ONLY IN CERTIFICATED WORK SPACE AND A MINIMUM OF 10 FEET FROM THE STREAM BANKS TO PREVENT ENTRY OF SPOIL INTO THE STREAM FLOW. SPOIL SHALL BE CONTAINED AS NECESSARY USING EITHER A STRAW BALE BARRIER OR AN EARTH/ROCK BERM.

8– CLEANUP BANK STABLIZATION RESTORATION — CONTRACTOR SHALL RESTORE THE STREAM BED AND BANKS TO APPROXIMATE PRECONSTRUCTION CONTOURS, UNLESS OTHERWISE APPROVED BY THE COMPANY. CONTRACTOR SHALL INSTALL PERMANENT EROSION AND SEDIMENT CONTROL STRUCTURES AS INDICATED. ANY MATERIALS PLACED IN THE STREAM TO FACILITATE CONSTRUCTION SHALL BE REMOVED DURING RESTORATION. BANKS SHALL BE STABILIZED AND TEMPORARY SEDIMENT BARRIERS INSTALLED AS SOON AS POSSIBLE AFTER CROSSING, BUT WITHIN 24 HOURS OF COMPLETING THE CROSSING. MAINTAIN A SILT FENCE OR STRAW BALE BARRIER ALONG THE WATER COURSE AND WETLAND BOUNDARIES UNTIL VEGETATION IS ESTABLISHED IN ADJACENT DISTURBED AREAS.

9– TEMPORARY VEHICLE CROSSING — VEHICLE CROSSING CAN BE CONSTRUCTED USING EITHER A FLUME CROSSING OR A TEMPORARY BRIDGE.

10– REFERENCE — REFER TO WATER BODY AND WETLAND CROSSING PROCEDURES FOR REQUIREMENTS.

REFER TO SHEET 1

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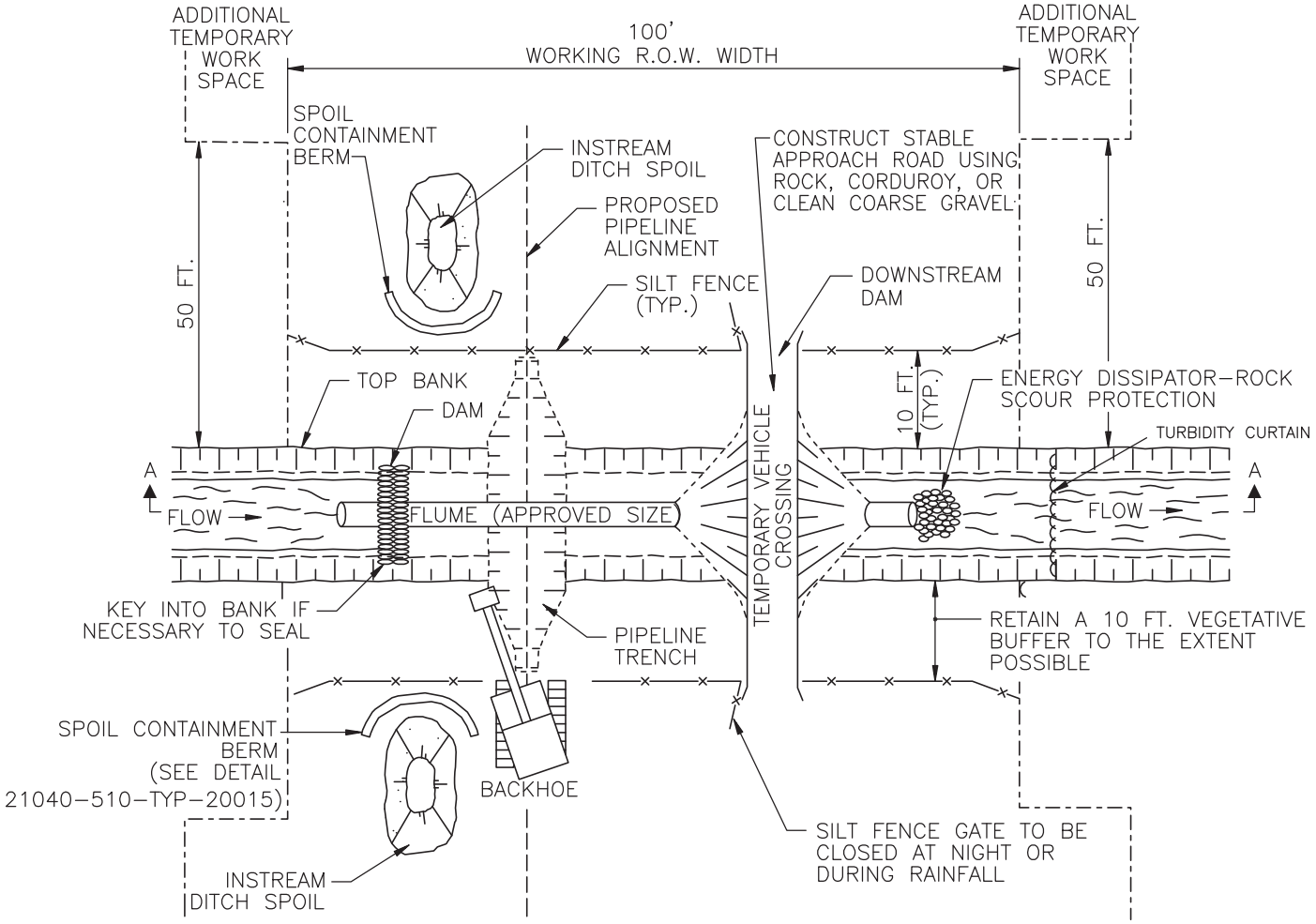
NO.	REVISION	DATE	APPR.
D	ISSUE FOR USE	07/01/14	LD
C	ISSUE FOR FINAL PRE–FERC FILING	12/20/13	LD
B	ISSUED FOR 30% DESIGN	10/25/13	LD
A	ISSUED FOR REVIEW	09/20/13	LD

TYPICAL
OPEN CUT WET CROSSING

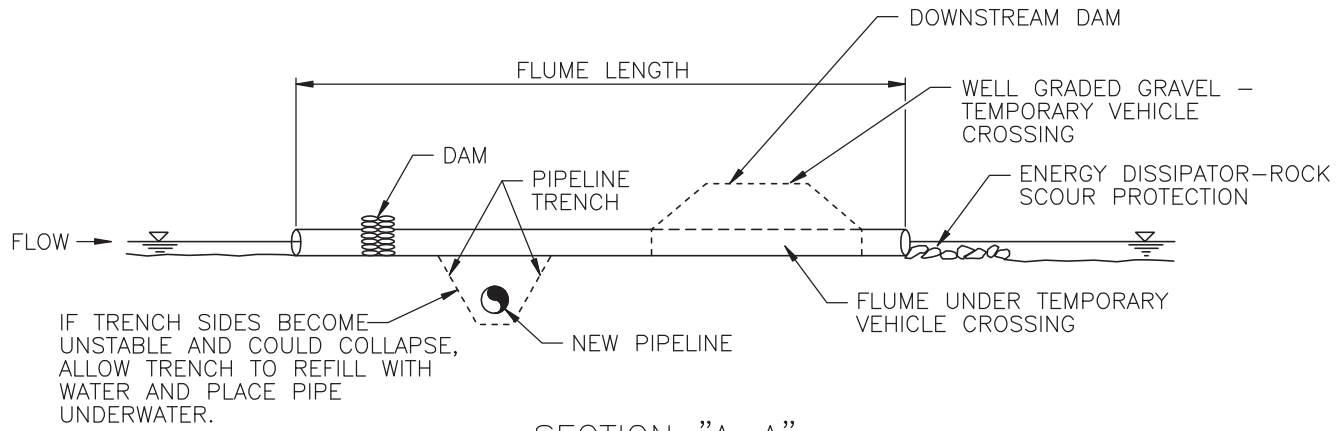
Figure 1.7-3

SCALE	DATE	DRAWN	CHECKED	APPROVED	PROJ. NO.	DRAWING NUMBER	SHEET
N.T.S.	08/08/13	LB	RG	LD	21040	21040–510–TYP–20053	2 OF 2



PLAN VIEW

SCALE: N.T.S.



SECTION "A–A"

SCALE: N.T.S.

SEE SHEET 2 FOR NOTES.

FLORIDA SOUTHEAST CONNECTION PROJECT

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NO.	REVISION	DATE	APPR.
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B	ISSUED FOR 30% DESIGN	10/25/13	LD
A	ISSUED FOR REVIEW	09/20/13	LD

FLORIDA SOUTHEAST CONNECTION

TYPICAL DRY FLUME CROSSING

Figure 1.7-4

SCALE	DATE	DRAWN	CHECKED	APPROVED	PROJ. NO.	DRAWING NUMBER	SHEET
N.T.S.	08/08/13	LB	RG	LD	21040	21040–510–TYP–20057	1 OF 2

DRY FLUME CROSSINGS

THE FOLLOWING IS A SEQUENCE OF CONSTRUCTION AND MITIGATION MEASURES TO BE FOLLOWED AT ALL "DRY FLUME" TYPE CROSSINGS.

SEQUENCE OF ACTIVITIES

STEP 1. CLEAR AND GRADE CERTIFICATED RIGHT-OF-WAY AS NECESSARY.
STEP 2. IMPLEMENT THE TEMPORARY EROSION AND SEDIMENT CONTROLS.
STEP 3. FABRICATE PIPE.
STEP 4. INSTALL DRY STREAM CROSSING MATERIALS.
STEP 5. EXCAVATE TRENCH AND INSTALL PIPE.
STEP 6. BACKFILL AND RESTORE STREAM BANKS.
STEP 7. REMOVE FLUME CROSSING.
STEP 8. IMPLEMENT THE PERMANENT EROSION AND SEDIMENTATION CONTROLS.

NOTES:

1. MARK OUT AND MAINTAIN LIMITS OF AUTHORIZED WORK AREAS WITH FENCING OR FLAGGING TAPE TO AVOID UNNECESSARY DISTURBANCE OF VEGETATION. ENSURE EQUIPMENT OPERATORS WORKING ON THE CROSSING HAVE BEEN BRIEFED ABOUT THIS PLAN AND THE MEASURES NEEDED TO PROTECT WATER QUALITY.

2. ALL NECESSARY EQUIPMENT AND MATERIALS TO BUILD THE FLUME MUST BE ON SITE OR READILY AVAILABLE PRIOR TO COMMENCING IN-WATER WORK.

3. TO THE EXTENT POSSIBLE, MAINTAIN A MINIMUM 10 FT. VEGETATIVE BUFFER STRIP BETWEEN DISTURBED AREAS AND THE WATERCOURSE. INSTALL AND MAINTAIN A SILT FENCE OR STRAW BALE BARRIER UPSLOPE OF THE BUFFER STRIP ON EACH SIDE OF THE WATERCOURSE.

4. CONTRACTOR SHALL SUPPLY, INSTALL AND MAINTAIN SEDIMENT CONTROL STRUCTURES, AS DEPICTED OR ALONG DOWN GRADIENT SIDES OF WORK AREAS AND STAGING AREAS SUCH THAT NO HEAVILY SILT LADEN WATER ENTERS STREAM.
   a. NO HEAVILY SILT LADEN WATER SHALL BE DISCHARGED DIRECTLY OR INDIRECTLY INTO THE STREAM.
   b. EROSION AND SEDIMENT CONTROL STRUCTURE LOCATIONS AS DEPICTED ARE APPROXIMATE AND MAY BE ADJUSTED AS DIRECTED BY THE COMPANY INSPECTOR TO ACTUAL SITE CONDITIONS.
   c. SILT FENCE OR STRAW BALE INSTALLATIONS SHALL INCLUDE REMOVABLE SECTIONS TO FACILITATE ACCESS DURING CONSTRUCTION. UTILIZE STRAW BALE BARRIERS ONLY IN LIEU OF A SILT FENCE WHERE FREQUENT ACCESS IS REQUIRED.
   d. SEDIMENT LADEN WATER FROM TRENCH DEWATERING SHALL BE DISCHARGED TO A WELL VEGETATED UPLAND AREA INTO A STRAW BALE DEWATERING STRUCTURE OR GEOTEXTILE FILTER BAG.
   e. SEDIMENT CONTROL STRUCTURES MUST BE IN PLACE AT ALL TIMES ACROSS THE DISTURBED PORTIONS OF THE RIGHT-OF-WAY EXCEPT DURING EXCAVATION/INSTALLATION OF THE CROSSING PIPE.
   f. SOFT DITCH PLUGS MUST REMAIN IN PLACE AT CONVENIENT LOCATIONS TO SEPARATE MAINLINE DITCH FROM THE RIVER CROSSING UNTIL THE RIVER CROSSING IS INSTALLED AND BACKFILLED.

5. PIPE SHALL BE STRUNG AND WELDED FOR READY INSTALLATION PRIOR TO WATERCOURSE TRENCHING.

6. FLUME CAPACITY DURING DRY CROSSING SHALL BE SUFFICIENT TO ACCOMMODATE 1.5 TIMES THE FLOW MEASURED AT THE TIME OF CONSTRUCTION PROVIDED THAT THE FLUMES WILL BE IN PLACE NOT MORE THAN 96 HOURS AND NO PRECIPITATION IS FORECAST. FLUME CAPACITY FOR VEHICLE ACCESS SHALL BE SUFFICIENT TO PASS THE 2 YEAR DESIGN FLOW OR THE FLOW REASONABLY EXPECTED TO OCCUR DURING THE INSTALLATION. EXCESS FLUMES REQUIRED FOR LONGER TERM ACCESS SHALL BE CAPPED DURING DRY CROSSING PROCEDURES.

7. ENSURE THAT THE DAMS AND VEHICLE-CROSSING ARE LOCATED FAR ENOUGH APART TO ALLOW FOR A WIDE EXCAVATION. FLUMES ARE TO BE SET WITH 10 PERCENT OF THEIR DIAMETER BELOW STREAMBED LEVEL WHERE SOIL CONDITIONS PERMIT (OTHERWISE INSTALLED AT STREAM GRADE AND SLOPE).

8. PLACE IMPERVIOUS DAMS AT EACH END OF THE FLUME, UPSTREAM FIRST, THEN DOWNSTREAM. ACCEPTABLE ALTERNATIVES INCLUDE GRAVEL WITH RIP-RAP PROTECTION, SAND BAGS, STEEL PLATE AND ROCKFILL. DURING INSTALLATION, INSTALL AN IMPERVIOUS MEMBRANE, IF NECESSARY, TO LIMIT LEAKAGE, DAMS MAY NEED KEYING INTO THE BANK AND STREAMBED.

9. EXCAVATE TRENCH THROUGH PLUGS AND UNDER FLUME FROM BOTH SIDES. WORK IS TO BE COMPLETED AS QUICKLY AS POSSIBLE.
   a. LOWER IN PIPE BY PASSING UNDER FLUME AND BACKFILL IMMEDIATELY WITH SPOIL MATERIAL.
   b. IT IS NOT NECESSARY TO DEWATER THE IN-STREAM TRENCH, HOWEVER, DISPLACED WATER SHALL BE PUMPED TO A STABLE UPLAND AREA TO AVOID OVERTOPPING OF DAMS DURING PIPE PLACEMENT.
   c. IF THE SPOIL MATERIAL IS NOT SUITABLE, USE IMPORTED CLEAN GRANULAR MATERIAL.
   d. IF BLASTING IS REQUIRED, USE CONTROLLED BLASTING TECH-NIQUES TO PREVENT DAMAGE TO THE FLOW CONVEYANCE SYSTEM. ALTERNATIVELY, BLASTING MAY BE ACCOMPLISHED PRIOR TO FLUME INSTALLATION BY DRILLING THROUGH THE OVERBURDEN.

10. EXCAVATED MATERIAL MUST NOT BE STOCKPILED WITHIN 10 FT. OF THE WATERCOURSE. THIS MATERIAL MUST BE CONTAINED WITHIN BERM CONTAINMENT, WITH SECONDARY SILT FENCE PROTECTION TO PREVENT SATURATED SOIL FROM FLOWING BACK INTO THE WATERCOURSE.

11. PER AGENCY'S APPROVAL; DEWATERING OF THE ONLAND TRENCH SHOULD OCCUR IN ASTABLE VEGETATED AREA A MINIMUM OF 50 FT. FROM ANY WATERBODY. THE PUMP DISCHARGE SHOULD BE DIRECTED ONTO A STABLE SPILL PAD CONSTRUCTED OF ROCKFILL OR TIMBERS TO PREVENT LOCALIZED EROSION. THE DISCHARGE WATER SHOULD ALSO BE FORCED INTO SHEET FLOW IMMEDIATELY BEYOND THE SPILL PAD BY BY USING STRAW BALES AND THE NATURAL TOPOGRAPHY.

12. FLUMES SHOULD BE REMOVED AS SOON AS POSSIBLE, WHEN NO LONGER REQUIRED FOR PIPE LAYING OR FOR ROAD ACCESS, IN THE FOLLOWING MANNER:
   a. REMOVE THE VEHICLE CROSSING RAMP. BANKS ARE TO BE RESTORED TO A STABLE ANGLE AND PROTECTED WITH EROSION RESISTANT MATERIAL COMPATIBLE WITH THE FLOW CONDITIONS (E.G., EROSION CONTROL BLANKETS, CRIBBING, ROCK RIP-RAP, ETC.) TO THE MAXIMUM EXTENT POSSIBLE BEFORE REMOVING THE DAMS.
   b. REMOVE DOWNSTREAM DAM.
   c. REMOVE UPSTREAM DAM.
   d. REMOVE FLUME.
   e. COMPLETE BANK TRIMMING AND EROSION PROTECTION. IF SANDBAGS ARE USED FOR THE DAMS, PLACE AND REMOVE BY HAND TO AVOID EQUIPMENT BREAKING BAGS.

13. CONTRACTOR SHALL RESTORE THE STREAM BED AND BANKS TO APPROXIMATE PRE-CONSTRUCTION CONTOURS, BUT NOT TO EXCEED 2 HORIZONTAL TO 1 VERTICAL.
   a. CONTRACTOR SHALL INSTALL PERMANENT EROSION AND SEDIMENT CONTROL STRUCTURES AS INDICATED ON A SITE SPECIFIC BASIS. IN THE ABSENCE OF SITE SPECIFIC INFOR-MATION, A FLEXIBLE CHANNEL LINER SUCH AS NAG C125 OR C350 WHICH IS CAPABLE OF WITHSTANDING ANTICIPATED FLOW SHALL BE INSTALLED. ALTERNATIVELY, ROCK RIP-RAP SHALL BE INSTALLED.
   b. ANY MATERIALS PLACED IN THE STREAM TO FACILITATE CONSTRUCTION SHALL BE REMOVED DURING RESTORATION. BANKS SHALL BE STABILIZED AND TEMPORARY SEDIMENT BARRIERS INSTALLED AS SOON AS POSSIBLE AFTER CROSSING, BUT WITHIN 24 HOURS OF COMPLETING THE CROSSING.
   c. MAINTAIN A SILT FENCE OR STRAW BALE BARRIER ALONG THE WATER COURSE UNTIL VEGETATION IS ESTABLISHED IN ADJACENT DISTURBED AREAS.

REFER TO SHEET 1

FLORIDA SOUTHEAST CONNECTION PROJECT

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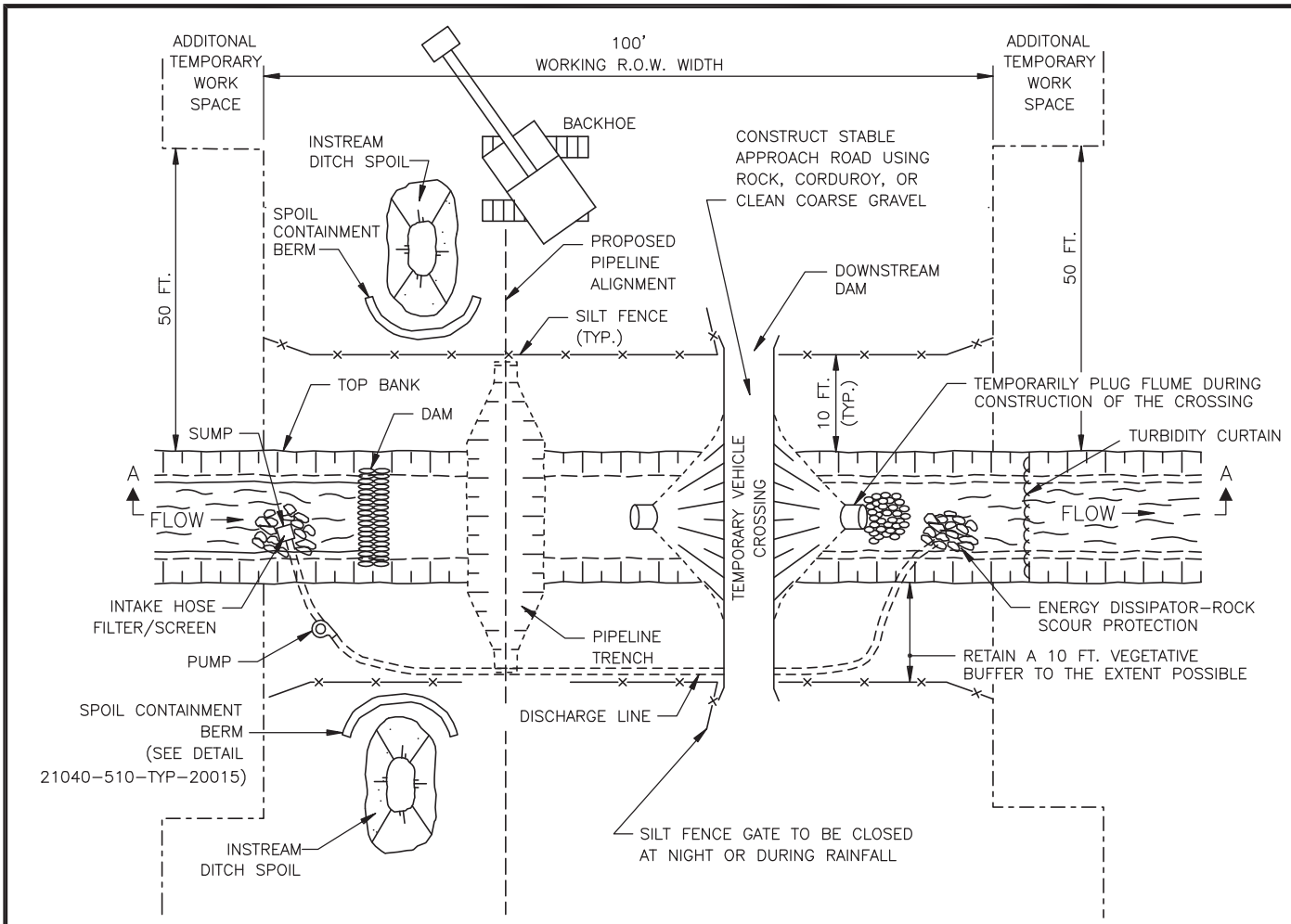
NO.	REVISION	DATE	APPR.
E	ISSUE FOR USE	08/15/14	LD
D	ISSUE FOR USE	07/01/14	LD
C	ISSUE FOR FINAL PRE-FERC FILING	12/20/13	LD
B	ISSUED FOR 30% DESIGN	10/25/13	LD
A	ISSUED FOR REVIEW	09/20/13	LD

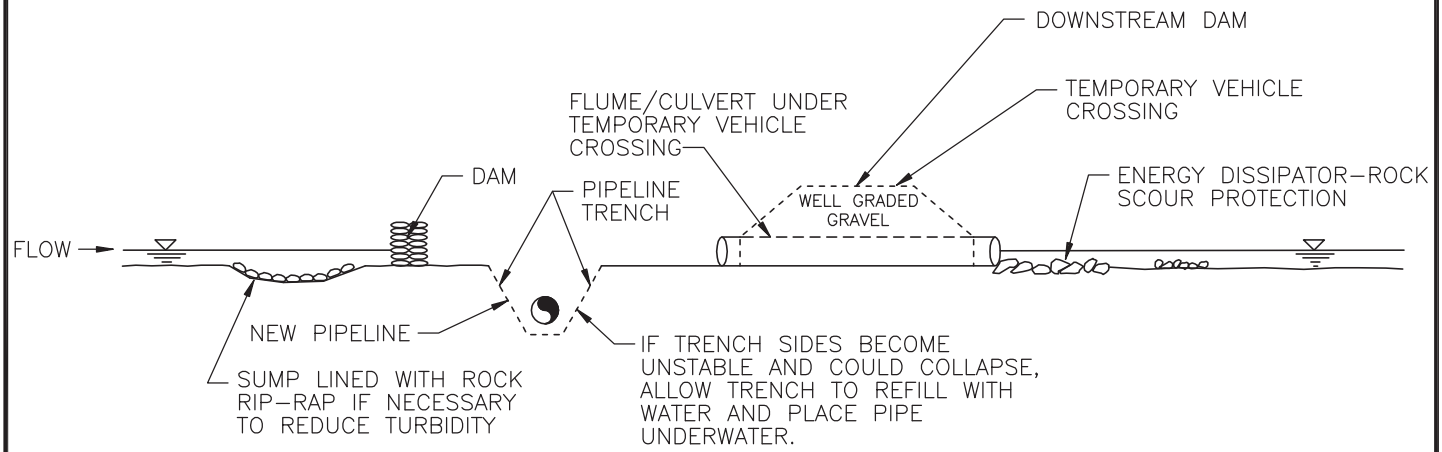
TYPICAL
DRY FLUME CROSSING

Figure 1.7-4

SCALE	DATE	DRAWN	CHECKED	APPROVED	PROJ. NO.	DRAWING NUMBER	SHEET
N.T.S.	08/08/13	LB	RG	LD	21040	21040-510-TYP-20057	2 OF 2



PLAN VIEW
SCALE: N.T.S.



SECTION "A–A"
SCALE: N.T.S.

SEE SHEET 2 FOR NOTES.

FLORIDA SOUTHEAST CONNECTION PROJECT

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NO.	REVISION	DATE	APPR.
E	ISSUE FOR USE	08/15/14	LD
D	ISSUE FOR USE	07/01/14	LD
C	ISSUE FOR FINAL PRE–FERC FILING	12/20/13	LD
B	ISSUED FOR 30% DESIGN	10/25/13	LD
A	ISSUED FOR REVIEW	09/20/13	LD

FLORIDA SOUTHEAST CONNECTION

TYPICAL DAM AND PUMP CROSSING

Figure 1.7-5

SCALE	DATE	DRAWN	CHECKED	APPROVED	PROJ. NO.	DRAWING NUMBER	SHEET
N.T.S.	08/08/13	LB	RG	LD	21040	21040–510–TYP–20055	1 OF 2

DAM AND PUMP CROSSING

THE FOLLOWING IS A SEQUENCE OF CONSTRUCTION AND MITIGATION MEASURES TO BE FOLLOWED AT ALL "DAM AND PUMP" TYPE CROSSINGS.

SEQUENCE OF ACTIVITIES

STEP 1. CLEAR AND GRADE CERTIFICATED RIGHT-OF-WAY AS NECESSARY.
STEP 2. IMPLEMENT THE TEMPORARY EROSION AND SEDIMENT CONTROLS.
STEP 3. FABRICATE PIPE.
STEP 4. INSTALL DRY STREAM CROSSING MATERIALS.
STEP 5. EXCAVATE TRENCH AND INSTALL PIPE.
STEP 6. BACKFILL AND RESTORE STREAM BANKS.
STEP 7. REMOVE DAMS.
STEP 8. IMPLEMENT THE PERMANENT EROSION AND SEDIMENTATION CONTROLS.

MAINTENANCE OF STREAMFLOW

IF THERE IS ANY FLOW IN THE WATERCOURSE, INSTALL PUMPS TO MAINTAIN STREAMFLOW AROUND THE BLOCKED OFF SECTIONS OF CHANNEL. THE PUMP IS TO HAVE 1.5 TO 2 TIMES THE PUMPING CAPACITY OF ANTICIPATED FLOW. A SECOND STANDBY PUMP OF EQUAL CAPACITY IS TO BE READILY AVAILABLE AT ALL TIMES. AN ENERGY DISSIPATOR IS TO BE BUILT TO ACCEPT PUMP DISCHARGE WITHOUT STREAMBED OR STREAMBANK EROSION. IF THE CROSSING IS PROLONGED BEYOND ONE DAY THE OPERATION NEEDS TO BE MONITORED OVERNIGHT.

NOTES:

1. WHERE NECESSARY, OBTAIN PRIOR APPROVAL BEFORE USING THE DAM AND PUMP METHOD.
2. SCHEDULE INSTREAM ACTIVITY FOR LOW FLOW PERIODS AND FOR THE APPROPRIATE TIMING WINDOW.
3. MARK OUT AND MAINTAIN LIMITS OF AUTHORIZED WORK AREAS WITH FENCING OR FLAGGING TAPE TO AVOID UNNECESSARY DISTURBANCE OF VEGETATION. ENSURE EQUIPMENT OPERATORS WORKING ON THE CROSSING HAVE BEEN BRIEFED ABOUT THIS PLAN AND THE MEASURES NEEDED TO PROTECT WATER QUALITY. INSTALL PRE-WORK SEDIMENT CONTROL MEASURES AS SPECIFIED IN THE PLAN. ALL NECESSARY EQUIPMENT AND MATERIALS TO BUILD THE DAMS AND TO PUMP WATER MUST BE ON SITE OR READILY AVAILABLE PRIOR TO COMMENCING IN-WATER CONSTRUCTION. PIPE SHOULD BE STRUNG, WELDED AND COATED AND READY FOR INSTALLATION PRIOR TO WATERCOURSE TRENCHING.
4. CONTRACTOR SHALL SUPPLY, INSTALL AND MAINTAIN SEDIMENT CONTROL STRUCTURES, AS DEPICTED OR ALONG DOWN GRADIENT SIDES OF WORK AREAS AND STAGING AREAS SUCH THAT NO HEAVILY SILT LADEN WATER ENTERS STREAM.
   a. NO HEAVILY SILT LADEN WATER SHALL BE DISCHARGED DIRECTLY OR INDIRECTLY INTO THE STREAM.
   b. EROSION AND SEDIMENT CONTROL STRUCTURE LOCATIONS AS DEPICTED ARE APPROXIMATE AND MAY BE ADJUSTED AS DIRECTED BY THE COMPANY INSPECTOR TO ACTUAL SITE CONDITIONS.
   c. SILT FENCE OR STRAW BALE INSTALLATIONS SHALL INCLUDE REMOVABLE SECTIONS TO FACILITATE ACCESS DURING CONSTRUCTION. UTILIZE STRAW BALE BARRIERS ONLY IN LIEU OF A SILT FENCE WHERE FREQUENT ACCESS IS REQUIRED.
   d. SEDIMENT LADEN WATER FROM TRENCH DEWATERING SHALL BE DISCHARGED TO A WELL VEGETATED UPLAND AREA, INTO A STRAW BALE DEWATERING STRUCTURE OR GEOTEXTILE FILTER BAG.
   e. SEDIMENT CONTROL STRUCTURES MUST BE IN PLACE AT ALL TIMES ACROSS THE DISTURBED PORTIONS OF THE RIGHT-OF-WAY EXCEPT DURING EXCAVATION/INSTALLATION OF THE CROSSING PIPE.
   f. SOFT DITCH PLUGS MUST REMAIN IN PLACE AT CONVENIENT LOCATIONS TO SEPARATE MAINLINE DITCH FROM THE RIVER CROSSING UNTIL THE RIVER CROSSING IS INSTALLED AND BACKFILLED.
5. TO THE EXTENT POSSIBLE, MAINTAIN A MINIMUM 10 FEET VEGETATIVE BUFFER STRIP BETWEEN DISTURBED AREAS AND THE WATERCOURSE. INSTALL AND MAINTAIN A SILT FENCE UPSLOPE OF THE BUFFER STRIP ON EACH SIDE OF THE WATERCOURSE. THE SILT FENCE SHOULD INCORPORATE REMOVABLE "GATES" AS REQUIRED TO ALLOW ACCESS WHILE MAINTAINING EASE OF REPLACEMENT FOR OVERNIGHT OR DURING PERIODS OF RAINFALL.
6. CONSTRUCT A TEMPORARY SUMP UPSTREAM OF THE DAM AND LINE WITH ROCKFILL IF A NATURAL POOL DOES NOT EXIST. INSTALL THE PUMP OR PUMP INTAKE IN THE POOL OR SUMP. DISCHARGE WATER ONTO AN ENERGY DISSIPATOR DOWNSTREAM OF THE WORK AREA.
7. EXCAVATED MATERIAL MUST NOT BE STOCKPILED WITHIN 10 FT. OF THE WATERCOURSE. THIS MATERIAL MUST BE CONTAINED WITHIN BERM CONTAINMENT, WITH SECONDARY SILT FENCE PROTECTION TO PREVENT SATURATED SOIL FROM FLOWING BACK INTO THE WATERCOURSE.
8. CHEMICALS, FUELS, LUBRICATING OILS SHALL NOT BE STORED AND EQUIPMENT REFUELED WITHIN 100 FT. OF THE WATERBODY. PUMPS ARE TO BE REFUELED AS PER THE SPCC PLANS.
9. STAGING AREAS ARE TO BE LOCATED AT LEAST 50 FT. FROM THE WATER'S EDGE (WHERE TOPOGRAPHIC CONDITIONS PERMIT) AND SHALL BE THE MINIMUM SIZE NEEDED.
10. DAMS ARE TO BE MADE OF STEEL PLATE, INFLATABLE PLASTIC DAM, SAND BAGS, COBBLES, WELL GRADED COARSE GRAVEL FILL, OR ROCK FILL. DAMS MAY NEED KEYING INTO THE BANKS AND STREAMBED. ENSURE THAT THE DAM AND VEHICLE CROSSING ARE LOCATED FAR ENOUGH APART TO ALLOW FOR A WIDE EXCAVATION. CAP FLUMES USED UNDER VEHICLE CROSSING DURING DRY CROSSING.
11. AFTER RECEIVING APPROVAL FROM AGENCY; DEWATER AREA BETWEEN DAMS IF POSSIBLE, DEWATERING SHOULD OCCUR IN A STABLE VEGETATIVE AREA A MINIMUM OF 50 FT. FROM ANY WATERBODY. THE PUMP DISCHARGE SHOULD BE DISCHARGED ONTO A STABLE SPILL PAD CONSTRUCTED OF ROCKFILL SANDBAGS, OR TIMBERS TO PREVENT LOCALIZED EROSION. THE DISCHARGE WATER SHOULD ALSO BE FORCED INTO SHEET FLOW IMMEDIATELY BEYOND THE SPILL PAD BY USING STRAW BALES AND THE NATURAL TOPOGRAPHY. IF IT IS NOT POSSIBLE TO DEWATER THE EXCAVATION DUE TO SOILS WITH A HIGH HYDRAULIC CONDUCTIVITY, THE EXCAVATION AND PIPE PLACEMENT IS TO BE CARRIED OUT IN THE STANDING WATER. PUMP ANY DISPLACED WATER AS DESCRIBED ABOVE TO PREVENT OVERTOPPING OF DAMS.
12. EXCAVATE TRENCH THROUGH PLUGS AND STREAMBED FROM BOTH SIDES, RE-POSITIONING DISCHARGE HOSE AS NECESSARY. LOWER THE PIPE IN THE TRENCH AND BACKFILL IMMEDIATELY. DURING THIS OPERATION WORK IS TO BE COMPLETED AS QUICKLY AS POSSIBLE.
13. CONTRACTOR SHALL RESTORE THE STREAM BED AND BANKS TO APPROXIMATE PRE-CONSTRUCTION CONTOURS, BUT NOT TO EXCEED 2 HORIZONTAL TO 1 VERTICAL.
   a. CONTRACTOR SHALL INSTALL PERMANENT EROSION AND SEDIMENT CONTROL STRUCTURES AS INDICATED ON A SITE SPECIFIC BASIS. IN THE ABSENCE OF SITE SPECIFIC INFORMATION, A FLEXIBLE CHANNEL LINER SUCH AS NAG C125 OR C350 WHICH IS CAPABLE OF WITHSTANDING ANTICIPATED FLOW SHALL BE INSTALLED. ALTERNATIVELY, ROCK RIP-RAP SHALL BE INSTALLED.
   b. ANY MATERIALS PLACED IN THE STREAM TO FACILITATE CONSTRUCTION SHALL BE REMOVED DURING RESTORATION. BANKS SHALL BE STABILIZED AND TEMPORARY SEDIMENT BARRIERS INSTALLED AS SOON AS POSSIBLE AFTER CROSSING, BUT WITHIN 24 HOURS OF COMPLETING THE CROSSING.
   c. MAINTAIN A SILT FENCE OR STRAW BALE BARRIER ALONG THE WATER COURSE UNTIL VEGETATION IS ESTABLISHED IN ADJACENT DISTURBED AREAS.
14. WHEN THE STREAMBED HAS BEEN RESTORED, THE CREEK BANKS ARE TO BE CONTOURED TO A STABLE ANGLE AND PROTECTED WITH EROSION RESISTANT MATERIAL COMPATIBLE WITH FLOW VELOCITY BETWEEN DAMS (E.G., EROSION CONTROL BLANKETS, CRIBBING, ROCK RIP-RAP, ETC.). THE DAMS ARE TO BE REMOVED DOWNSTREAM FIRST. KEEP PUMP RUNNING UNTIL NORMAL FLOW IS RESUMED. COMPLETE BANK TRIMMING AND EROSION PROTECTION. IF SANDBAGS ARE USED FOR THE DAMS, PLACE AND REMOVE BY HAND TO AVOID EQUIPMENT BREAKING BAGS.

REFER TO SHEET 1

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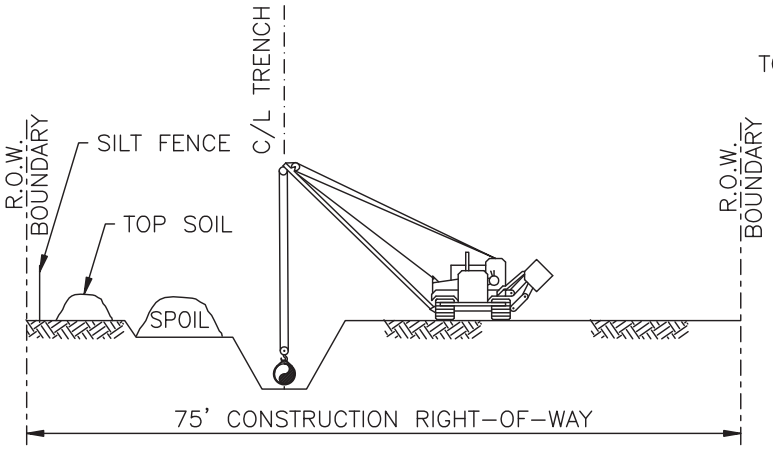
C	ISSUE FOR FINAL PRE-FERC FILING	12/20/13	LD
B	ISSUED FOR 30% DESIGN	10/25/13	LD
A	ISSUED FOR REVIEW	09/20/13	LD

TYPICAL DAM AND PUMP CROSSING

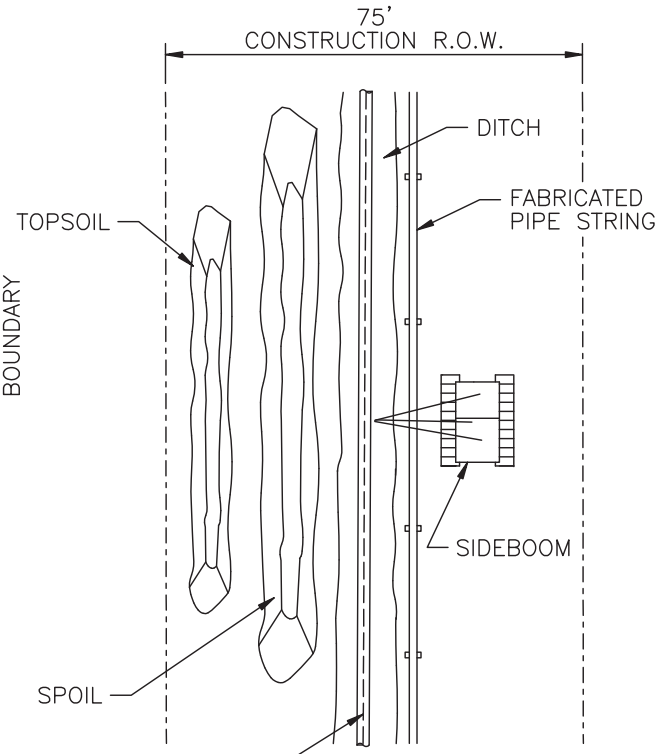
Figure 1.7-5

SCALE	DATE	DRAWN	CHECKED	APPROVED	PROJ. NO.	DRAWING NUMBER	SHEET
N.T.S.	08/08/13	LB	RG	LD	21040	21040-510-TYP-20055	2 OF 2



CROSS SECTION

SCALE: N.T.S.



PLAN VIEW

SCALE: N.T.S.

CONSTRUCTION PROCEDURE NOTES:

1. FLAG WETLAND BOUNDARIES PRIOR TO CLEARING.
2. NO REFUELING OF MOBILE EQUIPMENT IS ALLOWED WITHIN 100 FEET OF WETLAND. PLACE "NO FUELING" SIGN POSTS 100 FEET BACK FROM WETLAND BOUNDARY. REFUEL STATIONARY EQUIPMENT AS PER SPCC PLAN.
3. INSTALL TEMPORARY SLOPE BREAKER UPSLOPE WITHIN 100 FEET OF WETLAND BOUNDARY IF DIRECTED BY THE ENVIRONMENTAL INSPECTOR.
4. CONSTRUCT WHEN DRY, IF POSSIBLE. IF SITE BECOMES WET AT TIME OF TRENCHING, AVOID SOIL COMPACTION BY UTILIZING TIMBER RIP-RAP OR PREFABRICATED EQUIPMENT MATS.
5. AVOID ADJACENT WETLANDS. INSTALL SEDIMENT BARRIERS (STRAW BALES AND/OR SILT FENCE) AT DOWN SLOPE EDGE OF RIGHT-OF-WAY ALONG WETLAND EDGE IF EVIDENT, OTHERWISE INSTALL BARRIER ON BOTH EDGES.
6. RESTRICT ROOT GRUBBING TO ONLY THAT AREA OVER THE DITCHLINE AND DITCH SPOIL AREAS. GRIND STUMPS IF NECESSARY IN OTHER AREAS TO FACILITATE CONSTRUCTION.
7. CONDUCT TRENCH LINE TOPSOIL STRIPPING (IF TOPSOIL IS NOT SATURATED). SALVAGE TOPSOIL TO ACTUAL DEPTH OR A MAXIMUM DEPTH OF 12 INCHES, AS DETERMINED BY THE ENVIRONMENTAL INSPECTOR. SEGREGATED TOPSOIL PILE MAY BE LOCATED ON SPOIL SIDE, AS REQUIRED.
8. TRENCH THROUGH WETLANDS.
9. PIPE SECTION MAY BE FABRICATED WITHIN THE WETLAND AND ADJACENT TO ALIGNMENT, OR IN STAGING AREA OUTSIDE THE WETLAND AND WALKED IN.
10. LOWER-IN PIPE. PRIOR TO BACKFILLING TRENCH, TRENCH PLUG REQUIREMENTS SHALL BE DETERMINED BY THE ENVIRONMENTAL INSPECTOR. BACKFILL TRENCH.
11. RESTORE GRADE TO NEAR PRE-CONSTRUCTION TOPOGRAPHY, REPLACE TOPSOIL AND INSTALL PERMANENT EROSION CONTROL.
12. REMOVE ANY TIMBER MATS OR PREFABRICATED MATS FROM WETLANDS UPON COMPLETION.

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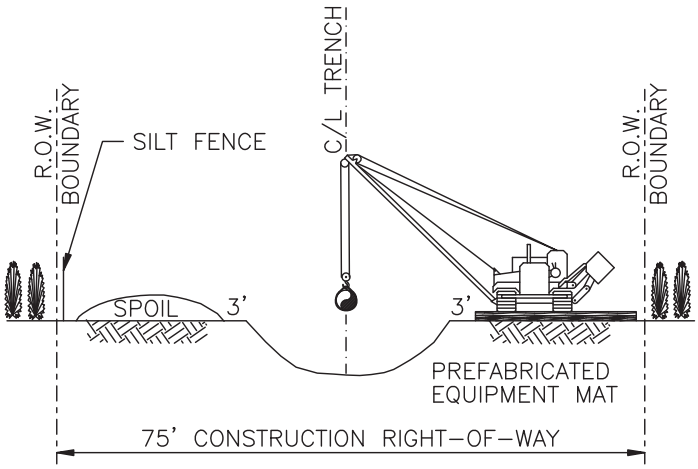
B	ISSUED FOR 30% DESIGN	10/25/13	LD
A	ISSUED FOR REVIEW	09/20/13	LD

TYPE 1 "DRY" WETLAND CROSSING

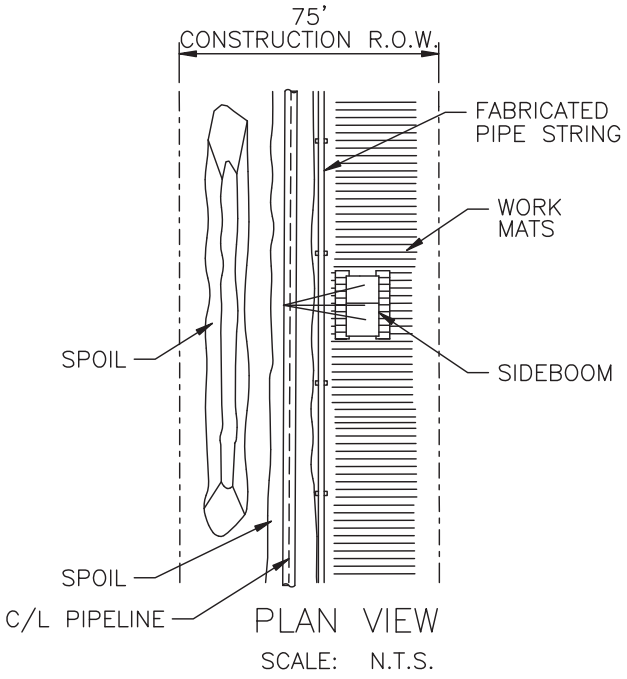
Figure 1.7-6

SCALE	DATE	DRAWN	CHECKED	APPROVED	PROJ. NO.	DRAWING NUMBER	SHEET
N.T.S.	08/14/13	LB	RG	LD	21040	21040-510-TYP-20062	1 OF 1



CROSS SECTION

SCALE: N.T.S.



PLAN VIEW

SCALE: N.T.S.

CONSTRUCTION PROCEDURE NOTES:

1. FLAG WETLAND BOUNDARIES PRIOR TO CLEARING.
2. NO REFUELING OF MOBILE EQUIPMENT IS ALLOWED WITHIN 100 FEET OF WETLAND. PLACE "NO FUELING" SIGN POSTS 100 FEET BACK FROM WETLAND BOUNDARY. REFUEL STATIONARY EQUIPMENT AS PER SPCC PLAN.
3. INSTALL TEMPORARY SLOPE BREAKER UPSLOPE WITHIN 100 FEET OF WETLAND BOUNDARY IF DIRECTED BY THE ENVIRONMENTAL INSPECTOR.
4. MINIMIZE SOIL COMPACTION BY UTILIZING PREFABRICATED EQUIPMENT MATS.
5. AVOID ADJACENT WETLANDS. INSTALL SEDIMENT BARRIERS (STRAW BALES AND/OR SILT FENCE) AT DOWN SLOPE EDGE OF RIGHT-OF-WAY AND ALONG WETLAND EDGE AS REQUIRED.
6. RESTRICT ROOT GRUBBING TO ONLY THAT AREA OVER THE DITCHLINE AND DITCH SPOIL AREAS. GRIND STUMPS IF NECESSARY IN OTHER AREAS TO FACILITATE CONSTRUCTION.
7. TOPSOIL STRIPPING SHALL NOT BE REQUIRED IN SATURATED SOIL CONDITIONS.
8. LEAVE HARD PLUGS AT THE EDGE OF WETLAND UNTIL JUST PRIOR TO TRENCHING.
9. INSTALL TIMBER MATS/RIP-RAP THROUGH ENTIRE WETLAND AREA. EQUIPMENT NECESSARY FOR RIGHT-OF-WAY CLEARING MAY MAKE ONE (1) PASS THROUGH THE WETLAND BEFORE MATS ARE INSTALLED.
10. TRENCH THROUGH WETLANDS.
11. PIPE SECTION MAY BE FABRICATED WITHIN THE WETLAND AND ADJACENT TO ALIGNMENT, OR IN STAGING AREA OUTSIDE THE WETLAND AND WALKED IN.
12. LOWER-IN PIPE, INSTALL TRENCH PLUGS AT WETLAND EDGES IF DIRECTED BY THE ENVIRONMENTAL INSPECTOR AND BACKFILL IMMEDIATELY.
13. REMOVE ANY TIMBER MATS OR PREFABRICATED MATS FROM WETLANDS UPON COMPLETION.
14. RESTORE GRADE TO NEAR PRE-CONSTRUCTION TOPOGRAPHY, REPLACE TOPSOIL AND INSTALL PERMANENT EROSION CONTROL.
15. GENERALLY, SEEDING IN WETLANDS WILL NOT BE NECESSARY SINCE WETLANDS REVEGETATE QUICKLY AND SOD WILL REMAIN INTACT EXCEPT OVER TRENCH. THE CONTRACTOR SHALL SEED ANY WETLANDS THAT MAY REQUIRE SEEDING AS DETERMINED BY THE ENVIRONMENTAL INSPECTOR.

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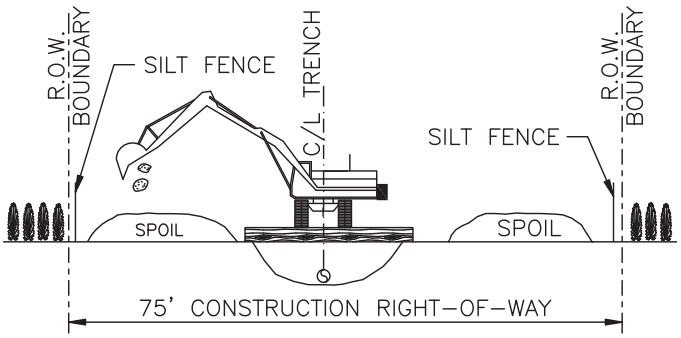
B	ISSUED FOR REVIEW	09/25/13	LD
A	ISSUED FOR REVIEW	08/21/13	LD

TYPE II "WET" SATURATED WETLAND CROSSING

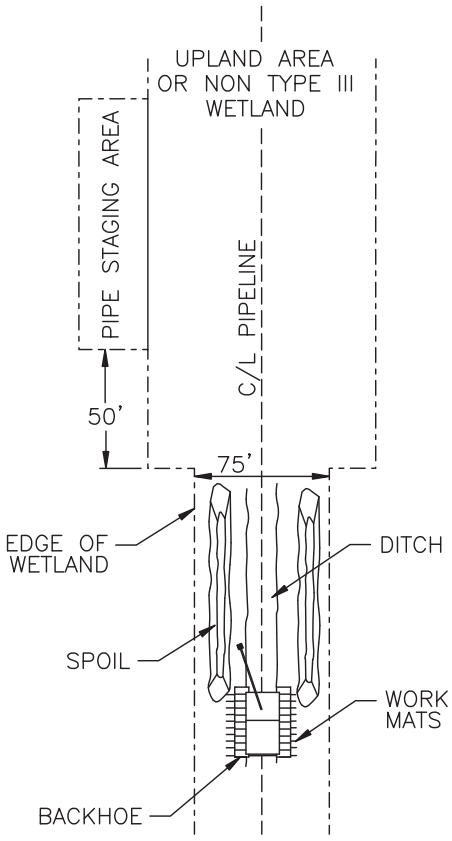
Figure 1.7-7

SCALE	DATE	DRAWN	CHECKED	APPROVED	PROJ. NO.	DRAWING NUMBER	SHEET
N.T.S.	08/21/13	LB	RG	LD	21040	21040-510-TYP-20063	1 OF 1



CROSS SECTION

SCALE: N.T.S.



PLAN VIEW

SCALE: N.T.S.

CONSTRUCTION PROCEDURE NOTES:

1. REDUCE THE CONSTRUCTION RIGHT-OF-WAY TO 75 FEET OR LESS IN TYPE III WETLAND.
2. FLAG WETLAND BOUNDARIES PRIOR TO CLEARING.
3. NO REFUELING OF MOBILE EQUIPMENT IS ALLOWED WITHIN 100 FEET OF WETLAND. PLACE "NO FUELING" SIGN POSTS 100 FEET BACK FROM WETLAND BOUNDARY. REFUEL STATIONARY EQUIPMENT AS PER SPCC PLAN.
4. INSTALL TEMPORARY SLOPE BREAKER UPSLOPE WITHIN 100 FEET OF WETLAND BOUNDARY AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.
5. RESTRICT ROOT GRUBBING TO ONLY THE AREA OVER THE DITCHLINE.
6. TOPSOIL STRIPPING SHALL NOT BE REQUIRED IN SATURATED SOIL CONDITIONS.
7. UTILIZE AMPHIBIOUS EXCAVATORS (PONTOON MOUNTED BACKHOES) OR TRACKED BACKHOES SUPPORTED BY FABRICATED TIMBER MATS OR FLOATS, TO EXCAVATE TRENCH. IF FABRICATED TIMBER MATS ARE USED FOR STABILIZATION, THE BACKHOE SHALL GRADUALLY MOVE ACROSS THE WETLAND BY MOVING THE MAT FROM IMMEDIATELY BEHIND TO IMMEDIATELY IN FRONT OF THE BACKHOE'S PATH.
8. AVOID ADJACENT WETLANDS. INSTALL SEDIMENT BARRIERS (STRAW BALES AND/OR SILT FENCE) AT EDGE OF RIGHT-OF-WAY AND ALONG WETLAND EDGE AS REQUIRED.
9. FABRICATE PIPE IN A STAGING AREA OUTSIDE THE TYPE III WETLAND AS INDICATED ON THE CONSTRUCTION DRAWINGS.
10. LEAVE HARD PLUGS AT THE EDGE OF TYPE III WETLAND UNTIL JUST PRIOR TO PIPE PLACEMENT.
11. FLOAT PIPE IN PLACE, LOWER-IN, INSTALL TRENCH PLUGS AT WETLAND EDGES OR AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR AND BACKFILL IMMEDIATELY.
12. REMOVE ANY MATS OR FILL CONSISTING OF NON-NATIVE MATERIAL FROM WETLANDS UPON COMPLETION.
13. RESTORE GRADE TO NEAR PRE-CONSTRUCTION TOPOGRAPHY AND INSTALL PERMANENT EROSION CONTROL.
14. WETLANDS CROSSED USING PUSH/PULL METHOD TEND TO BE TOO WET FOR EFFECTIVE SEEDING. HOWEVER, IF THE SITE IS DRY ENOUGH AND IF DIRECTED BY THE ENVIRONMENTAL INSPECTOR, THE RIGHT-OF-WAY SHALL BE SEEDED WITH ANNUAL RYE GRASS TO STABILIZE THE AREA UNTIL INDIGENOUS WETLAND SPECIES CAN RE-ESTABLISH THEMSELVES.

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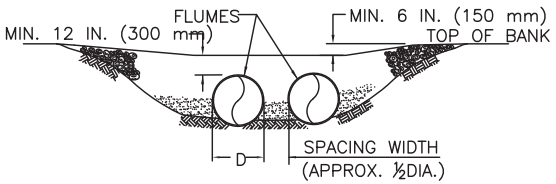
A	ISSUED FOR REVIEW	08/21/13	LD

FLORIDA SOUTHEAST CONNECTION

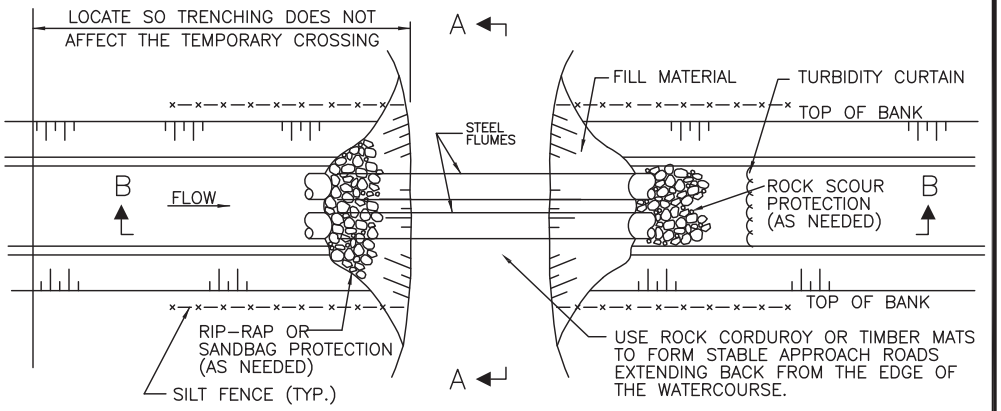
TYPE III "WET" FLOODED WETLAND CROSSING (PUSH / PULL)

Figure 1.7-8

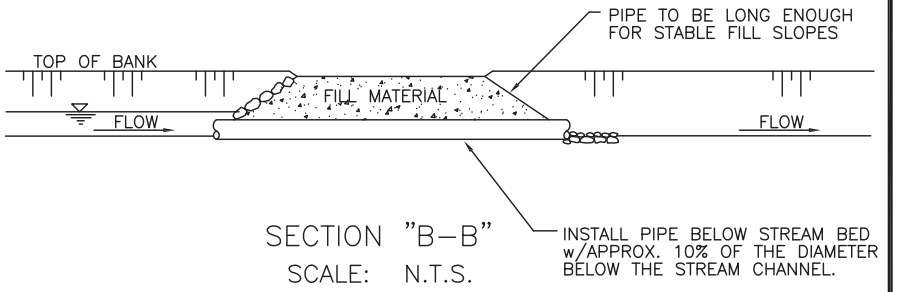
SCALE	DATE	DRAWN	CHECKED	APPROVED	PROJ. NO.	DRAWING NUMBER	SHEET
N.T.S.	08/21/13	LB	RG	LD	21040	21040-510-TYP-20064	1 OF 1



SECTION "A–A"
SCALE: N.T.S.



PLAN VIEW
SCALE: N.T.S.



SECTION "B–B"
SCALE: N.T.S.

THE FOLLOWING IS A SEQUENCE OF CONSTRUCTION AND MITIGATION MEASURES TO BE FOLLOWED AT ALL TEMPORARY FLUME VEHICLE CROSSINGS.

1. A PORTABLE FLEXI–FLOAT, OR TEMPORARY BRIDGE MAY BE SUBSTITUTED FOR THE TEMPORARY FLUME CROSSING.

2. THE LENGTH OF THE FLUME SHALL BE SUFFICIENT TO SPAN THE ENTIRE AREA REQUIRED FOR VEHICULAR ACCESS, EXTENDING 4 FT. BEYOND TOE OF FILL MATERIAL, SO TRENCHING WILL NOT AFFECT THE ROAD CROSSING. A LONGER PIPE IS TO BE USED, IF NEEDED, TO MAINTAIN STABLE SIDE SLOPES. FLUME CAPACITY TO BE BASED ON THE 2–YEAR DESIGN FLOW OR MAXIMUM FLOW ANTICIPATED TO OCCUR DURING INSTALLATION, AS SPECIFIED IN CONSTRUCTION DOCUMENTS.

3. WHERE PRACTICAL, BACKFILL AROUND THE PIPES AT THE ROAD WITH CLEAN, COARSE ROCK FILL MATERIAL. IF SCOUR IS POSSIBLE, RIP–RAP IS TO BE PLACED ON THE STREAM BED DOWN–STREAM OF THE PIPE OUTLET EXTENDING A MINIMUM OF TWO PIPE DIAMETERS. ALTERNATIVELY, TIMBER EQUIPMENT MATS, SAND BAGS OR TIMBER CORDUROY MAY BE USED TO FORM THE TRAVEL SURFACE.

4. TO REDUCE MUD ENTERING THE WATER FROM EQUIPMENT TRACKS, THE APPROACH ROAD LEADING TO THE CULVERT CROSSING MUST BE RAISED AND STABLE SO EQUIPMENT LOADS ARE SUPPORTED A SUFFICIENT DISTANCE BACK FROM THE WATER. IF CUTS ARE NEEDED TO OBTAIN A SATISFACTORY GRADE, THEY ARE TO BE DUG WITH SIDE DITCHES AND STABLE SLOPES. EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE INSTALLED TO LIMIT THE POTENTIAL FOR SEDIMENT TO ENTER THE WATERBED (E.G., CHECK DAMS, SILT FENCE, RIP–RAP, SEED AND MULCH, SEDIMENT TRAPS, ETC.).

5. PERIODICALLY CHECK THE TEMPORARY CROSSING INSTALLATION AND REMOVE ANY BUILD–UP OF SEDIMENT OR DEBRIS ON THE BRIDGE. DISPOSE OF THIS MATERIAL AT LEAST 100 FT. FROM THE WATERCOURSE AND ABOVE THE HIGH WATER LEVEL.

6. CONTRACTOR SHALL RESTORE THE STREAM BED AND BANKS TO APPROXIMATE PRE–CONSTRUCTION CONTOURS. UNLESS OTHERWISE APPROVE BY THE COMPANY.

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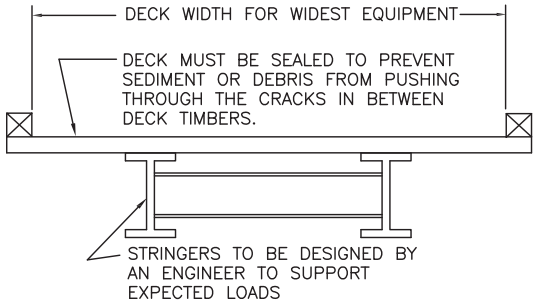
A	ISSUED FOR REVIEW	09/20/13	LD

TYPICAL FLUME EQUIPMENT CROSSING

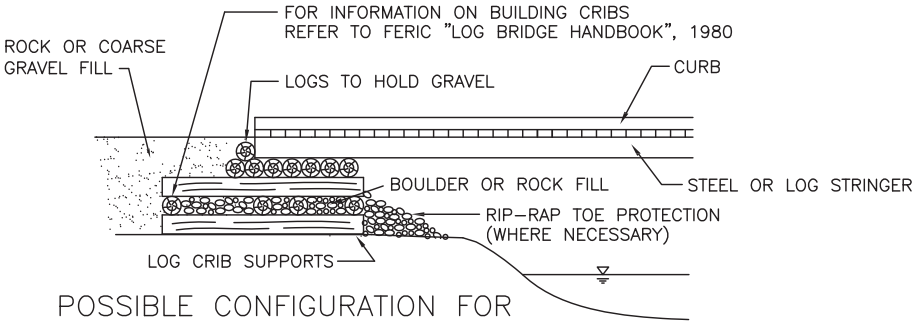
Figure 1.7-9

SCALE	DATE	DRAWN	CHECKED	APPROVED	PROJ. NO.	DRAWING NUMBER	SHEET
N.T.S.	08/08/13	LB	RG	LD	21040	21040–510–TYP–20060	1 OF 1

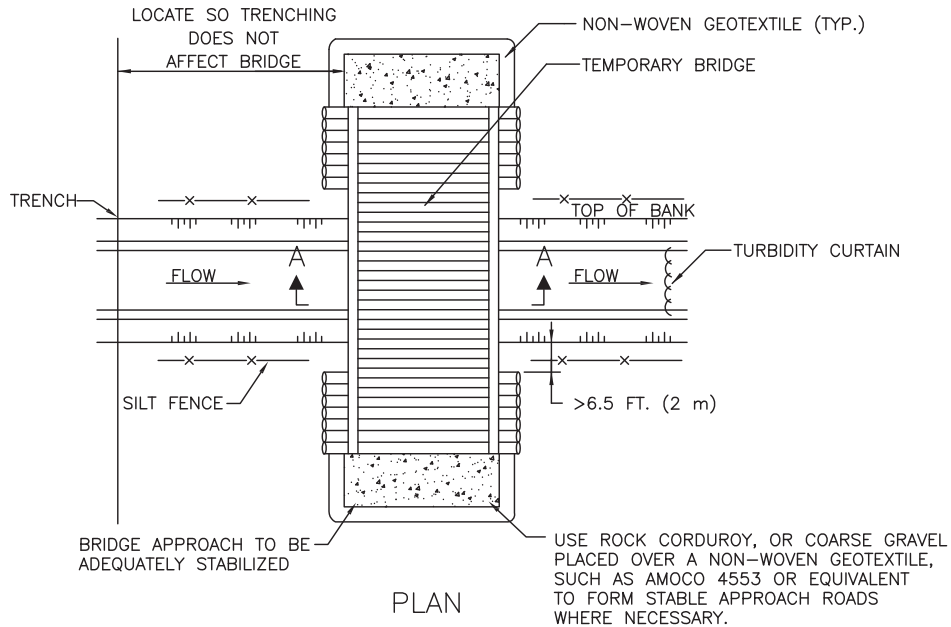


ALL BRIDGES TO HAVE CURBS 6" OR HIGHER TO CONTAIN SEDIMENT OR DEBRIS.

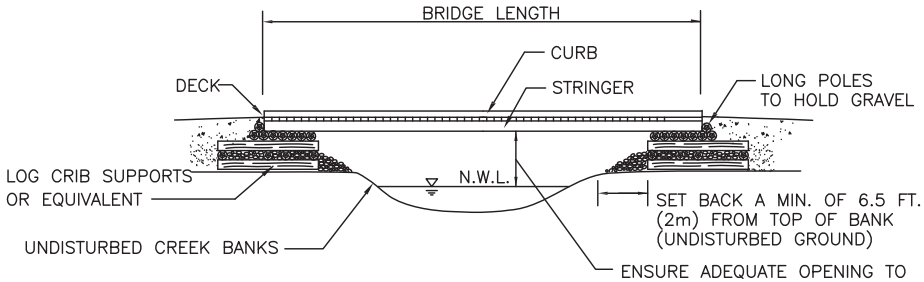
SECTION "A–A"



POSSIBLE CONFIGURATION FOR TEMPORARY CRIB ABUTMENT



PLAN



BRIDGE PROFILE

THE FOLLOWING IS A SEQUENCE OF CONSTRUCTION AND MITIGATION MEASURES TO BE FOLLOWED AT ALL TEMPORARY BRIDGE CROSSINGS.

1. A PRE–FABRICATED BRIDGE OR FLATBED RAILCAR , FLEXI–FLOAT OR FLUMED VEHICLE CROSSING MAY BE SUBSTITUTED FOR THE TEMPORARY BRIDGE.

2. INSTALL THE BRIDGE IN A MANNER THAT WILL MINIMIZE SEDIMENT ENTERING THE WATER. STRINGERS MUST BE DESIGNED TO SUPPORT THE LOADS EXPECTED ON THE BRIDGE. CURBS AT LEAST 6 IN. HIGH MUST BE INSTALLED ALONG THE EDGE OF THE DECK TO CONTAIN SEDIMENT AND DEBRIS ON THE BRIDGE. FASTENERS CONNECTING COMPONENTS MUST BE STRONG ENOUGH TO HOLD THEM IN POSITION DURING THE LIFE OF THE BRIDGE. CRIBS ARE TO BE FILLED WITH ROCK OR COBBLE. RIP–RAP EROSION PROTECTION IS TO BE PLACED AROUND THE CRIBS AND ON ANY FILL SLOPES PROJECTING INTO THE WATER.

3. ROAD APPROACHES LEADING TO THE BRIDGE MUST BE RAISED AND STABLE SO EQUIPMENT LOADS ARE SUPPORTED A SUFFICIENT DISTANCE BACK FROM THE WATER TO REDUCE SEDIMENT AND DEBRIS ENTERING THE STREAM FROM EQUIPMENT TRACKS. DO NOT USE SOIL TO CONSTRUCT OR STABILIZE EQUIPMENT BRIDGES. IF CUTS ARE NEEDED TO OBTAIN A SATISFACTORY GRADE, THEY ARE TO BE DUG WITH SIDE DITCHES AND STABLE SLOPES. EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE INSTALLED TO KEEP SEDIMENT ON LAND (E.G., SILT FENCING, FILTER CLOTH, RIP–RAP, SEED AND MULCH, ETC.).

4. PERIODICALLY CHECK BRIDGE INSTALLATION AND REMOVE ANY BUILD–UP OF SEDIMENT OR DEBRIS ON THE BRIDGE.

5. CONTRACTOR SHALL RESTORE THE STREAM BED AND BANKS TO APPROXIMATE PRE–CONSTRUCTION CONTOURS UNLESS OTHERWISE APPROVED BY THE COMPANY.

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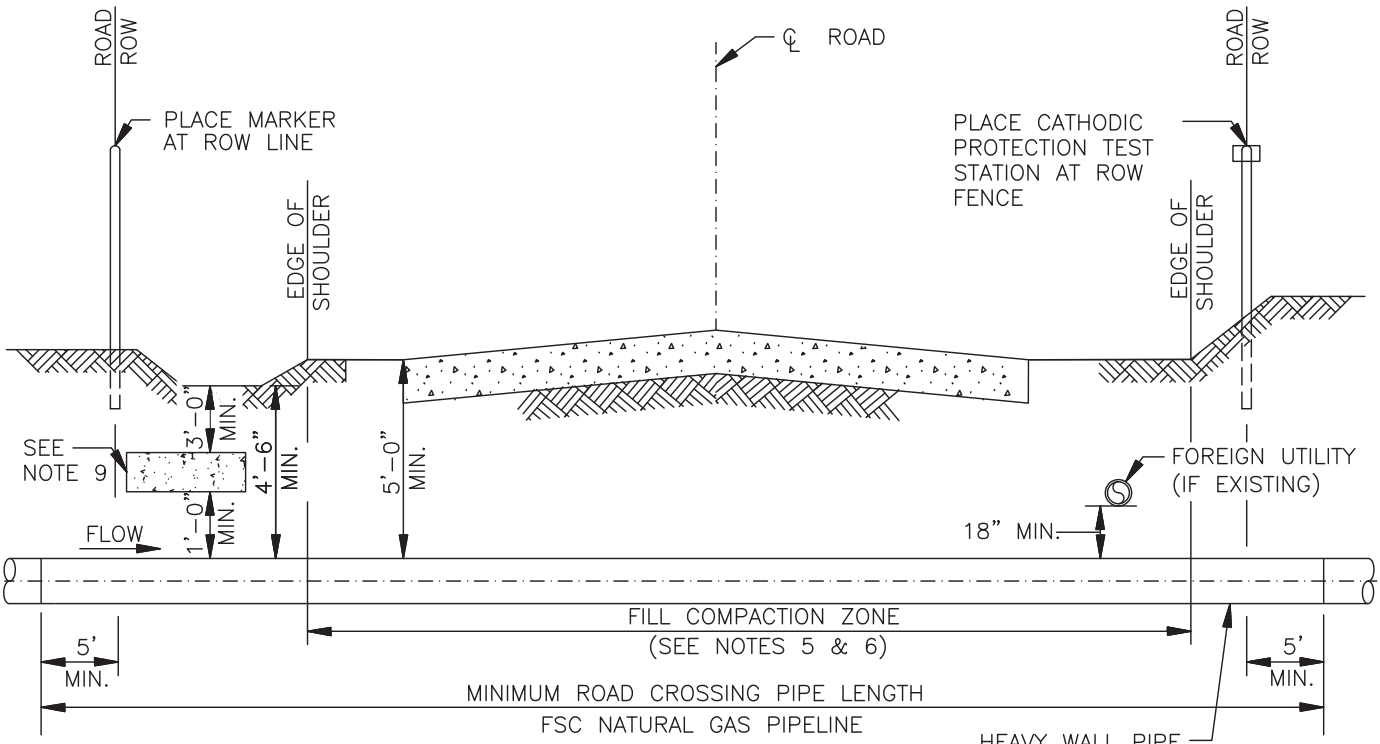
TYPICAL TEMPORARY BRIDGE

Figure 1.7-9

SCALE	DATE	DRAWN	CHECKED	APPROVED	PROJ. NO.	DRAWING NUMBER	SHEET
N.T.S.	08/08/13	LB	RG	LD	21040	21040–510–TYP–20061	1 OF 1



TYPICAL CROSS SECTION
SCALE: N.T.S.

NOTES:

1. CONTRACTOR SHALL INSTALL WELDED STEEL PIPE AS SPECIFIED ON ALIGNMENT SHEETS, BACKFILL AND REPLACE ROAD SURFACE IN ACCORDANCE WITH PERMIT ISSUED BY THE GOVERNMENT BODY HAVING JURISDICTION AND/OR IN ACCORDANCE WITH THE SPECIFICATIONS, WHICHEVER IS THE MOST STRINGENT.
2. THE PIPELINE SHALL CROSS AS NEAR TO RIGHT ANGLE AS POSSIBLE AND ECONOMICALLY PRACTICAL.
3. THE ROAD CROSSING PIPE SHALL EXTEND A MINIMUM OF 5 FEET BEYOND THE RIGHT-OF-WAY LIMITS.
4. THE MINIMUM PIPE WALL THICKNESS AS FOLLOWS; IN CLASS 1 LOCATIONS, USE CLASS 2 PIPE. IN CLASS 2 & 3 LOCATIONS, USE CLASS 3 PIPE. IN CLASS 4 LOCATIONS, USE CLASS 4 PIPE.
5. FOR TYPE 5, THE TRENCH SHALL HAVE THE PIPE BEDDING MATERIAL MINIMUM OF 4 INCHES UNDER THE PIPE UP TO THE CENTERLINE OF THE PIPE. THE PIPE BEDDING MATERIAL SHALL BE COMPACTED AND SHALL BE COMPOSED OF GRANULAR MATERIAL. FROM THE TOP OF THE PADDING MATERIAL TO THE TOP OF PIPE, THE BACKFILL SHALL BE COMPACTED AND COMPOSED OF GRANULAR OR SELECT MATERIAL. THE PADDING MATERIAL AND THE BACKFILL MATERIAL TO THE TOP OF THE PIPE SHALL BE COMPACTED IN 6 INCH MAXIMUM LIFTS TO 95 PERCENT MODIFIED PROCTOR AS DETERMINED BY ASTM D698.
6. AS AN ALTERNATE, AND WHEN APPROVED BY FDOT, A CONTROLLED LOW STRENGTH MATERIAL (CLSM) CAN BE USED TO FILL TRENCH TO GRADE. THE CLSM MIXTURE MUST MEET FDOT'S REQUIREMENTS FOR AN "EXCAVATABLE NON-ACCELERATED DESIGN MIX" WITH A UNIT GHT OF 90 TO 110 LB/CF, AIR CONTENT OF 5-35% AND A COMPRESSIVE STRENGTH OF LESS THAN 100 PSI AT 28 DAYS.
7. ON ASPHALT, CONCRETE OR ASPHALT/CONCRETE ROAD SURFACES, THE ROAD SURFACE MATERIAL SHALL BE SAW CUT COMPLETELY THROUGH THE ROAD SURFACE MATERIAL THICKNESS IN A STRAIGHT LINE AND SHALL EXTEND A MINIMUM OF 1'-0" BEYOND EACH EDGE OF THE OPEN CUT TRENCH.
8. REPLACE SUB-GRADE AND ROAD SURFACE MATERIAL WITH EQUAL OR GREATER THICKNESS AND WITH EQUAL OR GREATER MATERIAL AND SPECIFICATIONS TO PROVIDE A SMOOTH AND CONTINUOUS ROAD SURFACE.
9. INSTALL CONCRETE SLAB IN BARROW DITCH AS DEFINED IN TYPICAL DRAWING 21040-510-TYP-20048 "TYPICAL CONCRETE SLAB FOR ROAD CROSSINGS" WHEN REQUIRED BY ROAD PERMIT.
10. IN ADDITION TO THE MIN. CLEARANCE SPECIFIED, CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING AT LEAST 18" MIN. CLEARANCE BETWEEN ANY FOREIGN LINE OR UTILITIES BEING CROSSED.

FLORIDA SOUTHEAST CONNECTION PROJECT

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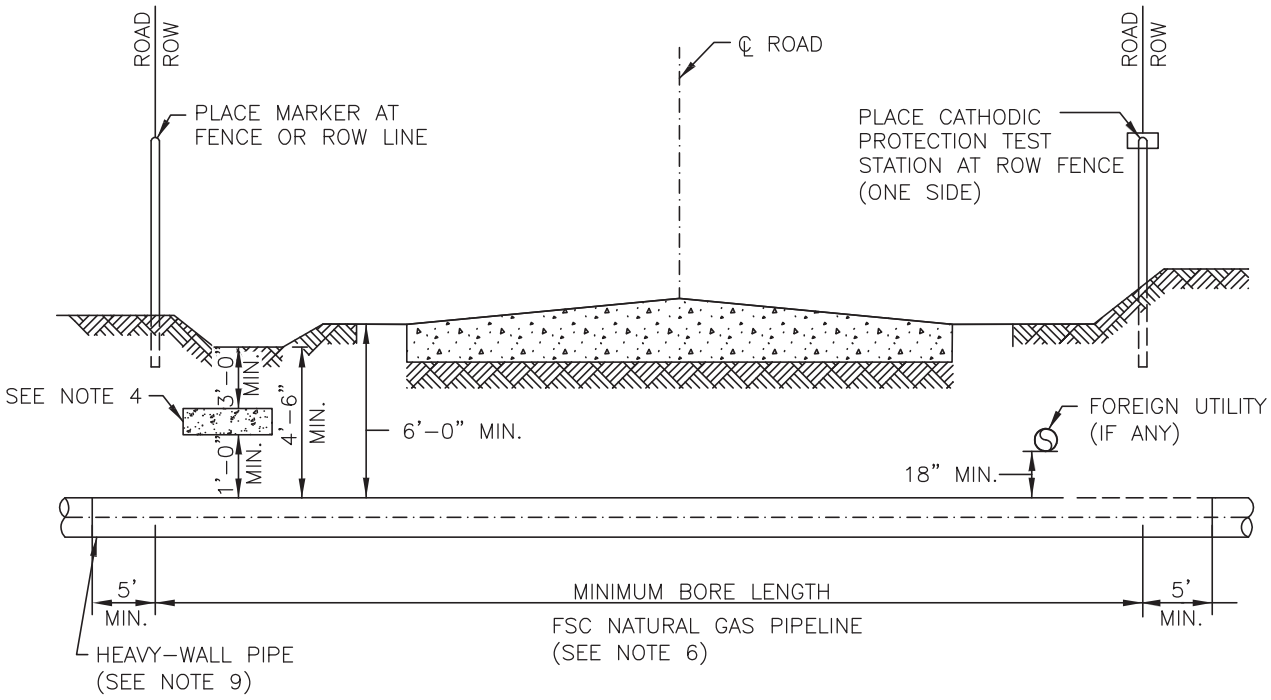
FLORIDA SOUTHEAST CONNECTION

NO.	REVISION	DATE	APPR.
E	ISSUE FOR USE	07/09/14	LD
D	ISSUED FOR FINAL PRE-FERC FILING	12/20/13	LD
C	ISSUED FOR 30% DESIGN	10/25/13	LD
B	ISSUED FOR REVIEW	10/25/13	LD
A	ISSUED FOR REVIEW	09/20/13	LD

TYPICAL OPEN CUT PUBLIC ROAD CROSSING

Figure 1.7-10

SCALE	DATE	DRAWN	CHECKED	APPROVED	PROJ. NO.	DRAWING NUMBER	SHEET
N.T.S.	08/08/13	LB	RG	LD	21040	21040-510-TYP-20028	1 OF 1



TYPICAL CROSS SECTION

SCALE N.T.S

NOTES:

1. WHERE CONFLICTS MAY EXIST, PERMIT SPECIFICATIONS SHALL GOVERN THIS DRAWING.
2. THE MINIMUM BORE LENGTH SHALL BE IN ACCORDANCE WITH THE PERMIT SPECIFICATIONS.
3. HEAVY–WALL PIPE SHALL EXTEND A MINIMUM OF 5 FEET OUTSIDE THE ROW LIMITS ON EITHER SIDE OF THE ROAD.
4. THE ONLY EXCAVATION WITHIN THE LIMITS OF THE ROW SHALL BE TO PLACE CONCRETE SLAB IN BORROW DITCH AS DEFINED IN TYPICAL DRAWING 21040–510–TYP–20048 "TYPICAL CONCRETE SLAB FOR ROAD CROSSING" WHEN REQUIRED BY ROAD PERMIT.
5. MARKERS SHALL BE PLACED AT ROAD ROW LINES.
6. PIPE SHALL BE COATED WITH FUSION BONDED EPOXY (FBE) WITH ABRASIVE RESISTANT OVERCOAT (ARO) TO PROTECT COATING DURING INSTALLATION.
7. IN ADDITION TO THE MINIMUM CLEARANCE SPECIFIED CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING AT LEAST 18" MINIMUM CLEARANCE BETWEEN ANY FOREIGN LINES OR UTILITIES BEING CROSSED.
8. UNLESS APPROVED OTHERWISE, BORE PITS TO BE LOCATED OUTSIDE ROAD ROW.
9. THE MINIMUM PIPE WALL THICKNESS AS FOLLOWS, FOR CLASS 1 LOCATION USE CLASS 2 PIPE, FOR CLASS 2 & 3 USE CLASS 3 PIPE, FOR CLASS 4 USE CLASS 4 PIPE.

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B	ISSUED FOR REVIEW	10/25/13	LD
A	ISSUED FOR REVIEW	09/20/13	LD

FLORIDA SOUTHEAST CONNECTION

STANDARD COUNTY ROAD CROSSING BORED

Figure 1.7-11

SCALE	DATE	DRAWN	CHECKED	APPROVED	PROJ. NO.	DRAWING NUMBER	SHEET
N.T.S.	08/08/13	LB	RG	LD	21040	21040–510–TYP–20029	1 OF 1