PONDEROSA RANCH
OF POINTE COUPEE MITIGATION BANK
USACE PERMIT
MVN-2011-03213
POST CONSTRUCTION
AS-BUILT REPORT

FEBRUARY 28, 2014

DELTA LAND SERVICES

PRESENTED BY:

DELTA LAND SERVICES, LLC

1090 CINCLARE DRIVE | PORT ALLEN, LA 70767 | OFFICE (225)343-3900 | FAX (225)343-3200

WWW.DELTALAND-SERVICES.COM

TABLE OF CONTENTS

I. Project Overview 1

II. Site Preparation and Hydrology Restoration 1

III. Plant Community Restoration 1

IV. Baseline Monitoring Establishment and Results 2

A. Continuous Plot Monitoring Results 3

B. Row-Transect Monitoring Results 3

C. Hydrology Restoration Monitoring Results 3

V. Conclusions 4

LIST OF TABLES

Table 1. Complete Inventory of Species Quantity, Ponderosa Ranch of Pointe Coupee Mitigation Bank (MVN-2011-03213).

Table 2. Permanent Monitoring Plot Locations, Ponderosa Ranch of Pointe Coupee Mitigation Bank (MVN-2011-03213).

Table 3. Transect Termini Locations, Ponderosa Ranch of Pointe Coupee Mitigation Bank (MVN-2011-03213).

Table 4. Permanent Monitoring Plots Selected for the Installation of Groundwater Monitoring Wells, Ponderosa Ranch of Pointe Coupee Mitigation Bank (MVN-2011-03213).

Table 5. Total Stems by Permanent Monitoring Plot, Ponderosa Ranch of Point Coupee Mitigation Bank (MVN-2011-03213), January 20-22, 2014.

Table 6. Bottomland Hardwood Permanent Monitoring Plot Summary Statistics by Species, Ponderosa Ranch of Pointe Coupee Mitigation Bank (MVN-2011-03213), January 20-22, 2014.

Table 7. Baldcypress Swamp Permanent Monitoring Plot Summary Statistics by Species, Ponderosa Ranch of Pointe Coupee Mitigation Bank (MVN-2011-03213), January 20-22, 2014.

Table 8. Bottomland Hardwood Row Tally by Species, Mast Type, and Planted Percentage, Ponderosa Ranch of Pointe Coupee Mitigation Bank (MVN-2011-03213), January 20-22, 2014.

Table 9. Baldcypress Swamp Row Tally by Species, Mast Type, and Planted Percentage, Ponderosa Ranch of Pointe Coupee Mitigation Bank (MVN-2011-03213), January 20-22, 2014.

LIST OF FIGURES

Figure 1. Vicinity Map

Figure 2. Monitoring Plots and Rows

Figure 3. Hydrology Restoration Plan View

Figures 4-15. Cross-sections A through P Typical Swale Restoration

I. Project Overview

This report documents the construction effort and post-construction conditions of the Ponderosa Ranch of Pointe Coupee Mitigation Bank (PRPCMB) (Figure 1). The Mitigation Banking Instrument (MBI) and associated Mitigation Work Plan (MWP) were approved by the US Army Corps of Engineers, New Orleans District (CEMVN) on October 11, 2013. Delta Land Services, LLC (DLS) is the Sponsor and is responsible for construction, establishment, monitoring, and long-term management of the PRPCMB.

II. Site Preparation and Hydrology Restoration

All livestock were removed as well as interior fence in late August to early September 2013. The site was prepared for afforestation[1] by means of a brown and burn[2] treatment, disking and subsoiling (ripping). The brown and burn treatment was implemented in mid-September 2013 to control and suppress the pasture grasses with particular emphasis on Bermudagrass (*Cynodon dactylon*)[3]. Surface disking and ripping were implemented in October 2013. The soil surface was disked three times and subsoiled once (ripped) to a depth of approximately 18 inches. Subsoiling was performed with farm implements equipped with a global position system (GPS) to ensure that the subsoiled rows were parallel and spaced at nine-foot intervals.

Surface hydrology was permitted under a Nationwide Permit 27 issued to DLS on September 24, 2013. Hydrology restoration began on October 1, 2013 and was completed by January 31, 2013. To restore surface hydrology, drainage ditches were backfilled and naturally swaled in accordance with Section VI of the MWP. Approximately 41,313 linear feet of drainage ditch/laterals were degraded to resemble natural swales to facilitate surface water retention and soil saturation. Approximately 17,214 cubic yards of *in situ* earthen material was utilized as fill material (i.e., remnant ditch spoil). In conjunction with the hydrology restoration work, Chinese tallow (*Triadica sebifera*) and black willow (*Salix nigra*) trees were mechanically removed from 11.3 acres and black willow was thinned by 50 percent on approximately 2.1 acres per Section VI of the MWP. The mechanized clearing was conducted in October 2013.

III. Plant Community Restoration

BLH and Swamp restoration was conducted in accordance with Section VI of the MWP. Approximately 165,000 bare-rooted 1-0[4] seedlings were purchased from the Louisiana Department of Agriculture and Forestry (LDAF) and ArborGen Inc commercial nurseries. The

---

[1] The SAF (2011) defines afforestation as "*the establishment of a forest or stand in an area where the preceding vegetation or land use was not forest whereas reforestation is the re-establishment of forest cover either naturally (by natural seeding, coppice, or root suckers) or artificially (by direct seeding or planting) —note reforestation usually maintains the same forest type and is done promptly after the previous stand or forest was removed — synonym regeneration*".

[2] A brown and burn treatment consists of an herbicidal application to bring about the senescence of live vegetation to facilitate a controlled burn in order to clean the site.

[3] The aforementioned and all subsequent plant scientific nomenclature is from USDA, NRCS. 2013. The PLANTS Database (http://plants.usda.gov, 22 February 2013). National Plant Data Team, Greensboro, NC 27401-4901 USA.

[4] A 1-0 seedling is a one year old seedling which has never been transplanted (i.e., only one lifting of the seedling has occurred and roots are only exposed between the initial lifting and planting)

seedlings were lifted, separated into single species, packaged by species, and delivered to a DLS facility in Port Allen, Louisiana. Upon delivery, DLS personnel sorted, consolidated, re-packaged, and stored the seedlings. This process involved mixing the seedlings into aggregate planting mixes of appropriate hard and soft mast species composition as listed in Table 5 of Section VI of the MWP. After sorting and mixing, seedling roots were treated with a hydrogel-water mixture to ensure root moisture retention, repackaged and stored in a refrigerated tractor-trailer, which was maintained at a temperature of approximately 38º F. Once the refrigerated tractor-trailers were fully loaded they were transported to the planting site. In addition to the bare-rooted seedlings, approximately 2,690 Root Production Method® (RPM) seedlings were purchased from Forrest Keeling Nursery and planted in Swamp areas that were below 23 feet NAVD. The RPM trees were delivered from the nursery directly to the site in three-to five-trade gallon containers and were planted during the week of November 11, 2013 to November 15, 2013. The RPM stems were delivered with predator/herbivory guards installed on the stem to prevent girdling from rodents or fraying by white-tailed deer (*Odocoileus virginianus*). The bare-root seedlings were planted from January 13, 2014 through January 20, 2014. The complete inventory of species quantity appears in Table 1.

IV. Baseline Monitoring Establishment and Results

From January 20, 2014 through January 22, 2014, permanent, continuous monitoring stations (plots) and row-transects (rows) were established and sampled per the requirements of Section IX.A.1 of the MWP. Seventeen (17) 1/20th-acre plots (14 in BLH and 3 in Swamp) and 13 rows were systematically, randomly established (Tables 2 and 3; Figure 2). To establish the plots without sampling bias, the PRPCMB was systematically divided into twenty two (22) 20-acre blocks and each 20-acre block was subdivided into four (4) 5-acre quadrants. The five-acre quadrants were listed in sequential order and each quadrant was assigned a random number via a random number generator in Microsoft Excel®. The 5-acre quadrant from each 20-acre block with the lowest random number was selected for plot establishment in which each plot was centrally located and permanently marked with PVC poles. Ground level photographs were taken in the four cardinal directions at each plot. To establish the rows, 13 planted rows were selected in a systematic-random fashion. The rows were sequentially numbered from north to south, a random number was assigned to each row; and the termini of each row permanently marked with PVC poles. The rows total 36,660.8 linear feet which is an estimated 3 percent sample of the total rows planted. The average row length of each row is 2,820.1 feet.

Baseline plot and row data were collected by DLS field biologists. Seedlings in the plots were uniquely numbered utilizing metal tags; flagged, and identified by species, mast type, ground line stem diameter, height, and geospatially referenced with a Trimble® differential global positioning system (DGPS). Orange pin flags were used to denote hard mast species and yellow pin flags were used to denote soft mast species. Row seedlings were identified by species, mast type, and geospatially referenced with a DGPS.

To compare pre and post construction grades where hydrology work was completed, field crews collected vertical data utilizing a level, rod, and a Trimble® real-time kinematic global positioning system (RTK-GPS). Groundwater wells equipped with Onset's HOBO® U20 Water Level Loggers were installed in four monitoring plots for the purpose of recording free water

saturation in the soil profile per Section VIII.A.1 of the MWP (Table 4). At each selected monitoring plot, one monitoring well and one piezometer were installed according to the Wetlands Regulatory Assistance Program (WRAP) technical standards[5]. To differentiate between episaturation and endosaturation, monitoring wells were shallowly installed to a depth of 12 inches below the surface. Piezometers were installed to detect free water at depths between 48 and 96 inches below the surface. HOBO® U20 Water Level Loggers were programmed to record water level every two hours. A HOBO® Micro Weather Station was installed on-site to record ambient temperature, atmospheric barometric pressure, rainfall, and soil temperature at a depth of 12 inches below the soil surface. Sensors on the weather station were programmed to record every two hours. These instruments were programed to collect data beginning on January 31, 2014.

A. Continuous Plot Monitoring Results

A total of 408 stems were counted in the 17 plots. The data revealed density ranges from 28 to 30 stems per 1/20-acre plot which represents a range of 560 to 600 stems per acre. Fourteen (14) plots were established within the Bottomland Hardwood (BLH) habitat and 3 plots were established within the Baldcypress Swamp (Swamp) habitat (Table 5).

Data collected from the 14 BLH plots revealed a species richness of 21. Plot seedling density was 29 stems per 1/20-acre plot which represents 580 stems per acre. The hard mast species constituted 62.7 percent and the soft mast species constituted 37.3 percent. Over all species, the average stem height was 21.4 inches and the average ground level diameter was 0.5 inches. Average aboveground biomass was 7.5 cubic inches (Table 6).

Data collected from the 3 Swamp plots revealed a species richness of nine. Plot seedling density was 29 stems per 1/20-acre plot which represents 580 stems per acre. The hard mast species constituted 7.0 percent and the soft mast species constituted 93.0 percent. Over all species, the average stem height was 28.2 inches and the average ground level diameter was 0.6 inches. Average aboveground biomass was 20.4 cubic inches (Table 7).

B. Row-Transect Monitoring Results

A total of 4,211 stems were counted within the 13 rows. The average spacing between planted stems was 8.7 feet. BLH habitat comprised 32,955 feet of transects with 3,797 stems at an average spacing of 8.7 feet. Swamp habitat comprised 3,705 linear feet of transects with 415 stems at an average spacing of 8.9 feet. Data collected from the 13 rows indicted a species richness of 23 in the BLH habitat a species richness of 8 in the Swamp habitat. Mast composition was 56.5 percent hard mast and 43.5 percent soft mast in BLH habitat and 8.9 percent hard mast and 91.1 percent soft mast in Swamp habitat (Tables 8 and 9).

C. Hydrology Restoration Monitoring Results

The pre and post grade drawings based on the RTK-GPS survey appear in Figures 3 through 15.

[5] "Installing Monitoring Wells/ Piezometers in Wetlands" US Army Corps of Engineers Environmental Research and Development Center Wetlands Regulatory Assistance Program publication ERDC TN-WRAP-00-02, July 2000

V. Conclusions

All construction has been completed per the requirements of Section VI of the MWP. Baseline plot monitoring revealed the planting effort averaged from 560 to 600 stems per acre which exceeds the minimum required density of 538 stems per acre. The rows are nine-feet apart and transect sampling revealed a stem spacing within the rows of 8.7 linear feet which results in an estimated 556 stems per acre[6]. The hard mast composition was 62.7 percent based on the plot estimates and 56.5 percent based on transect sampling. These percentages fall within the specified hard mast range of 40 to 70 percent per the MWP. All drains have been back-filled and swaled in order to retain water and establish adequate wetland hydrology. Initial, interim, and long-term vegetation and hydrology success will be monitored and documented during future monitoring events as described in the MBI.

[6] The stems per acre is the result of 43,560 square feet per acre divided by the product of row spacing multiplied by the spacing between stems (i.e. 43,560÷[9*8.7]=556.3)

LIST OF TABLES

Table 1. Complete Inventory of Species Quantity, Ponderosa Ranch of Pointe Coupee Mitigation Bank (MVN-2011-03213).
Table 2. Permanent Monitoring Plot Locations, Ponderosa Ranch of Pointe Coupee Mitigation Bank (MVN-2011-03213).
Table 3. Transect Termini Locations, Ponderosa Ranch of Pointe Coupee Mitigation Bank (MVN-2011-03213).
Table 4. Permanent Monitoring Plots Selected for the Installation of Groundwater Monitoring Wells, Ponderosa Ranch of Pointe Coupee Mitigation Bank (MVN-2011-03213).
Table 5. Total Stems by Permanent Monitoring Plot, Ponderosa Ranch of Point Coupee Mitigation Bank (MVN-2011-03213), January 20-22, 2014.
Table 6. Bottomland Hardwood Permanent Monitoring Plot Summary Statistics by Species, Ponderosa Ranch of Pointe Coupee Mitigation Bank (MVN-2011-03213), January 20-22, 2014.
Table 7. Baldcypress Swamp Permanent Monitoring Plot Summary Statistics by Species, Ponderosa Ranch of Pointe Coupee Mitigation Bank (MVN-2011-03213), January 20-22, 2014.
Table 8. Bottomland Hardwood Row Tally by Species, Mast Type, and Planted Percentage, Ponderosa Ranch of Pointe Coupee Mitigation Bank (MVN-2011-03213), January 20-22, 2014.
Table 9. Baldcypress Swamp Row Tally by Species, Mast Type, and Planted Percentage, Ponderosa Ranch of Pointe Coupee Mitigation Bank (MVN-2011-03213), January 20-22, 2014.

Table 1. Complete Inventory of Species Quantity, Ponderosa Ranch of Pointe Coupee Mitigation Bank (MVN-2011-03213).		
Hard Mast Species	**Quantity[1]**	**Percentage**
Quercus texana	14,075	8.40%
Quercus laurifolia	13,440	8.01%
Quercus phellos	13,440	8.01%
Quercus pagoda	11,000	6.56%
Quercus michauxii	10,820	6.45%
Quercus nigra	8,836	5.27%
Quercus lyrata	3,993	2.38%
Carya aquatica	2,620	1.56%
Carya illinonensis	2,204	1.31%
Quercus shumardii	180	0.11%
Quercus virginiana	20	0.01%
Hard Mast Subtotal	***80,628***	***48.09%***
Soft Mast Species	**Quantity**	**Percentage**
Taxodium distichum	27,905	16.64%
Fraxinus pennsylvanica	8,792	5.24%
Celtis laevigata	8,656	5.16%
Ulmus americana	6,552	3.91%
Diospyros virginiana	6,492	3.87%
Platanus occidentalis	6,492	3.87%
Liquidambar styraciflua	5,490	3.27%
Morus rubra	4,388	2.62%
Crataegus opaca	3,382	2.02%
Nyssa biflora	2,960	1.76%
Cephalanthus occidentalis	2,855	1.70%
Acer rubrum drummondii	2,790	1.66%
Populus deltoides	200	0.12%
Nyssa aquatica	108	0.06%
Soft Mast Subtotal	***87,062***	***51.91%***
Grand Total	**167,690**	**100.00%**

[1]Quantity includes 165,000 bare-root seedlings and 2,690 Root Production Method® seedlings.

Table 2. Permanent Monitoring Plot Locations, Ponderosa Ranch of Pointe Coupee Mitigation Bank (MVN-2011-03213).		
Monitoring Plot	**Longitude**	**Latitude**
Plot 1	-91.41127458	30.6450644
Plot 2	-91.40832332	30.64374906
Plot 3	-91.40490537	30.6416163
Plot 4	-91.39875156	30.63972565
Plot 5	-91.39676156	30.64001485
Plot 6	-91.39665025	30.64201864
Plot 7	-91.40024032	30.64264718
Plot 8	-91.39988965	30.64313568
Plot 9	-91.40143877	30.64307941
Plot 10	-91.40737083	30.64456789
Plot 11	-91.40713501	30.64712594
Plot 12	-91.40423504	30.64725183
Plot 13	-91.40294002	30.6457744
Plot 14	-91.40224768	30.64675116
Plot 15	-91.40169273	30.64918004
Plot 16	-91.39835862	30.64684088
Plot 17	-91.39716976	30.64489479

Table 3. Transect Termini Locations, Ponderosa Ranch of Pointe Coupee Mitigation Bank (MVN-2011-03213).		
Monitoring Plot	**Longitude**	**Latitude**
Row 1	-91.40253669	30.65049214
Row 1	-91.39765699	30.64685594
Row 2	-91.40303105	30.65024481
Row 2	-91.39605546	30.64504206
Row 3	-91.40506308	30.64917682
Row 3	-91.39822775	30.64408028
Row 4	-91.40520922	30.64863338
Row 4	-91.39496219	30.64099693
Row 5	-91.40640621	30.64847828
Row 5	-91.39573492	30.64052577
Row 6	-91.40750579	30.64784721
Row 6	-91.39794327	30.64072626
Row 7	-91.40781102	30.64768669
Row 7	-91.39849857	30.64075455
Row 8	-91.40844319	30.64731962
Row 8	-91.40020355	30.64119647
Row 9	-91.40952188	30.64683091
Row 9	-91.40346955	30.64205662
Row 10	-91.41099119	30.64598982
Row 10	-91.40446509	30.64083128
Row 11	-91.41200075	30.64543511
Row 11	-91.40649487	30.64108913
Row 12	-91.40005834	30.6392455
Row 12	-91.39592639	30.63850213
Row 13	-91.39888506	30.64012413
Row 13	-91.39563293	30.63953925

Table 4. Permanent Monitoring Plots Selected for the Installation of Groundwater Monitoring Wells, Ponderosa Ranch of Pointe Coupee Mitigation Bank (MVN-2011-03213).		
Monitoring Plot	**Longitude**	**Latitude**
2	-91.40832332	30.64374906
5	-91.39676156	30.64001485
7	-91.40024032	30.64264718
15	-91.40169273	30.64918004

Table 5. Total Stems by Permanent Monitoring Plot, Ponderosa Ranch of Pointe Coupee Mitigation Bank (MVN-2011-03213), January 20-22, 2014..									
Plot Number	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Habitat Type[1]	BLH	BLH	BLH	BLH	BLH	BLH	BLH	SWP	BLH
Stems Per Plot	28	28	29	30	29	30	29	29	29
Estimated Stems Per Acre[2]	*560*	*560*	*580*	*600*	*580*	*600*	*580*	*580*	*580*
Plot Number	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	
Habitat Type[1]	BLH	BLH	SWP	BLH	BLH	BLH	SWP	BLH	
Stems Per Plot	30	29	29	29	30	29	28	29	
Estimated Stems Per Acre[2]	*600*	*580*	*580*	*580*	*600*	*580*	*560*	*580*	
Average Stems Per Plot	*29*								
Average Stems Per Acre	*580*								

[1]BLH = Bottomland Hardwood Habitat, SWP = Baldcypress Swamp Habitat
[2]Stems per plot multiplied by 20 provides estimated stems per acre

Table 6. Bottomland Hardwood Permanent Monitoring Plot Summary Statistics By Species, Ponderosa Ranch of Pointe Coupee Mitigation Bank (MVN-2011-03213), January 20-22, 2014.

Species	Mast Type	Stem Tally Over All Plots (N=14)	Planting Percentage Over All Plots	Average Height (inches)	Average Ground Level Diameter (inches)	Average Aboveground Biomass (cubic inches) [1]
Acer rubrum drummondii	Soft	12	2.9%	15.8	0.5	9.5
Celtis laevigata	Soft	31	7.6%	23.3	0.5	8.5
Crataegus opaca	Soft	2	0.5%	18.5	0.3	2.7
Diospyros virginiana	Soft	12	2.9%	18.0	0.6	8.5
Fraxinus pennsylvanica	Soft	14	3.4%	24.5	0.5	9.8
Liquidambar styraciflua	Soft	20	4.9%	24.4	0.6	15.6
Morus rubra	Soft	19	4.7%	27.7	0.6	16.9
Platanus occidentalis	Soft	7	1.7%	21.4	0.4	5.5
Taxodium distichum	Soft	12	2.9%	32.8	0.6	18.6
Ulmus americana	Soft	14	3.4%	27.0	0.4	7.4
Unknown soft mast	Soft	9	2.2%	22.9	0.3	3.1
Carya sp.	Hard	10	2.5%	11.1	0.5	4.2
Quercus laurifolia	Hard	12	2.9%	21.6	0.3	3.2
Quercus lyrata	Hard	4	1.0%	22.0	0.2	1.9
Quercus michauxii	Hard	15	3.7%	19.5	0.6	9.2
Quercus nigra	Hard	33	8.1%	22.1	0.4	4.9
Quercus pagoda	Hard	30	7.4%	19.6	0.4	5.5
Quercus phellos	Hard	18	4.4%	20.1	0.4	5.0
Quercus sp.	Hard	101	24.8%	19.2	0.5	6.2
Quercus texana	Hard	26	6.4%	19.3	0.5	6.8
Quercus virginiana	Hard	7	1.7%	18.0	0.4	4.3
Total		**408**	**100.0%**			
Average		**29**		**21.4**	**0.5**	**7.5**
Percent Hard Mast			**62.7%**			
Percent Soft Mast			**37.3%**			

[1]The above ground biomass is calculated as a Smalian's cubic volume measurement based on afrustum of neiloid conical shape $(((3.14 \times GLD)^2 \div 4) \div 2) \times H$

Table 7. Baldcypress Swamp Permanent Monitoring Plot Summary Statistics by Species, Ponderosa Ranch of Pointe Coupee Mitigation Bank (MVN-2011-03213), January 20-22, 2014.

Species	Mast Type	Stem Tally Over All Plots (N=3)	Planting Percentage Over All Plots	Average Height (inches)[1]	Average Ground Level Diameter (inches)[2]	Average Aboveground Biomass (cubic inches)[3]
Acer rubrum drummondii	Soft	3	3.5%	16.3	0.3	2.4
Crataegus opaca	Soft	8	9.3%	18.3	0.4	4.5
Fraxinus pennsylvanica	Soft	3	3.5%	27.3	0.4	4.4
Liquidambar styraciflua	Soft	2	2.3%	24.0	0.5	30.8
Taxodium distichum	Soft	59	68.6%	31.8	0.7	27.2
Unknown soft mast	Soft	5	5.8%	21.8	0.3	2.8
Carya sp.	Hard	1	1.2%	14.0	0.3	1.7
Quercus sp.	Hard	4	4.7%	21.5	0.4	4.5
Quercus texana	Hard	1	1.2%	15.0	0.4	2.3
Total		**86**	**100.0%**			
Average		**29**		**28.2**	**0.6**	**20.4**
Percent Hard Mast			**7.0%**			
Percent Soft Mast			**93.0%**			

[1] The overall average height represents measurement is from all seedlings tallied. The average height of RPM seedlings was 53.6 inches. The average height of BRS seedlings was 25.9 inches.
[2] The overall ground level diameter (gld) measurement is from all seedlings tallied. The average gld of RPM seedlings was 1.1 inches. The average gld of BRS seedlings was 0.57 inches.
[3] The above ground biomass is calculated as a Smalian's cubic volume measurement based on afrustum of neiloid conical shape (((3.14 x GLD)2 ÷4) ÷ 2) x H The overall average aboveground biomass represents all seedlings tallied. The average aboveground biomass of RPM seedlings was 85.1 cubic inches. The average biomass of BRS seedlings was 10.4 cubic inches.

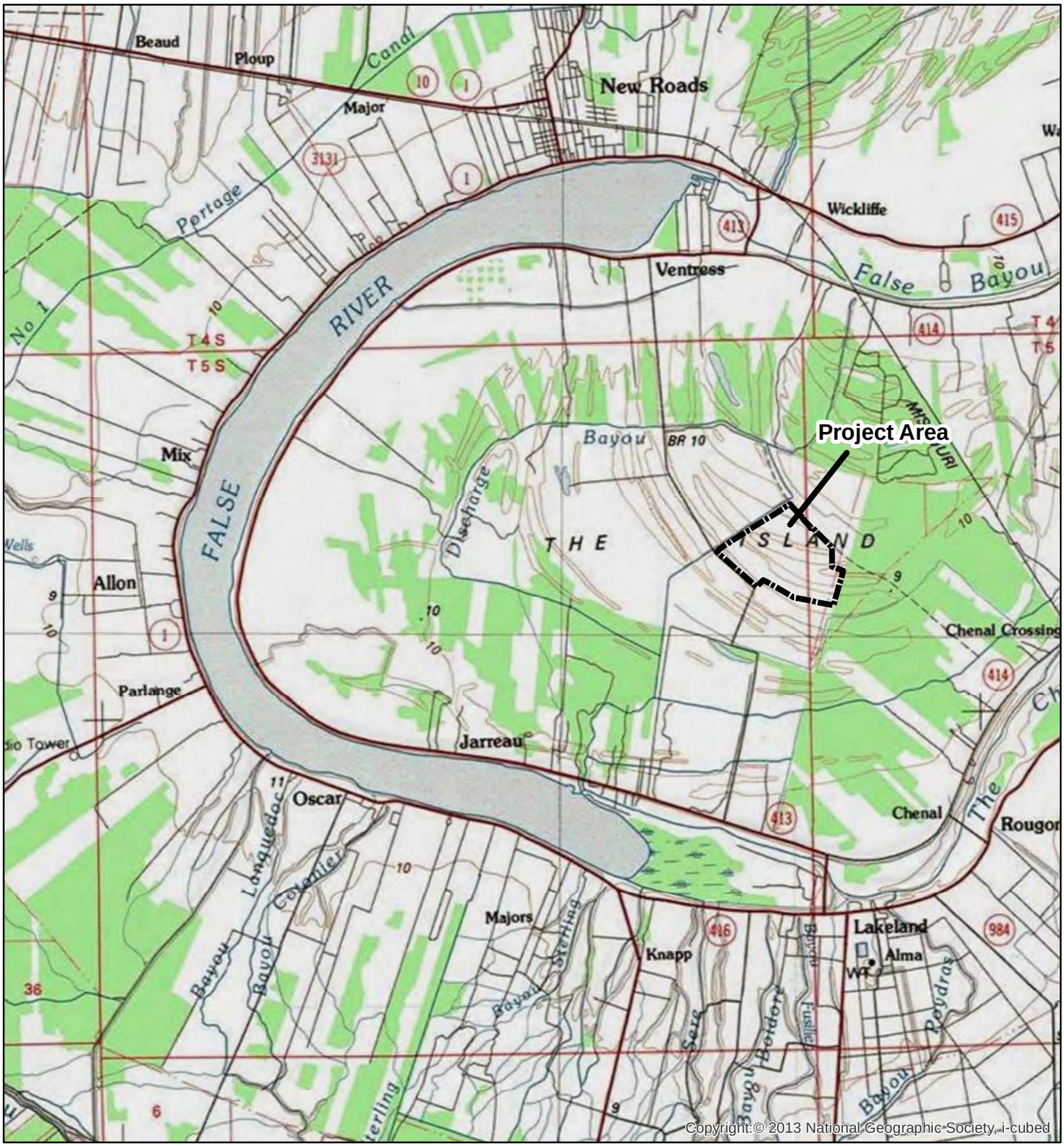
Table 8. Bottomland Hardwood Row Tally by Species, Mast Type, and Planted Percentage, Ponderosa Ranch of Pointe Coupee Mitigation Bank (MVN-2011-03213), January 20-22, 2014.

Species	Mast Type	Tally	Planted Percentage
Acer rubrum drummondii	Soft	47	1.2%
Celtis laevigata	Soft	259	6.8%
Cephalanthus occidentalis	Soft	2	0.1%
Crataegus opaca	Soft	60	1.6%
Diospyros virginiana	Soft	35	0.9%
Fraxinus pennsylvanica	Soft	188	5.0%
Liquidambar styraciflua	Soft	129	3.4%
Morus rubra	Soft	39	1.0%
Nyssa biflora	Soft	5	0.1%
Platanus occidentalis	Soft	67	1.8%
Populus deltoides	Soft	5	0.1%
Taxodium distichum	Soft	294	7.7%
Ulmus americana	Soft	57	1.5%
Unknown soft mast	Soft	465	12.2%
Carya illinoinensis	Hard	5	0.1%
Carya sp.	Hard	175	4.6%
Quercus laurifolia	Hard	55	1.4%
Quercus lyrata	Hard	13	0.3%
Quercus michauxii	Hard	46	1.2%
Quercus nigra	Hard	290	7.6%
Quercus pagoda	Hard	56	1.5%
Quercus phellos	Hard	186	4.9%
Quercus shumardii	Hard	1	0.0%
Quercus sp.	Hard	1204	31.7%
Quercus texana	Hard	107	2.8%
Quercus virginiana	Hard	6	0.2%
Total		**3796**	**100.0%**
Percent Hard Mast			**43.5%**
Percent Soft Mast			**56.5%**

Table 9. Baldcypress Swamp Row Tally by Species, Mast Type, and Planted Percentage, Ponderosa Ranch of Pointe Coupee Mitigation Bank, January 20-22, 2014 (MVN-2011-03213).			
Species	**Mast Type**	**Tally**	**Planted Percentage**
Acer rubrum drummondii	Soft	16	3.9%
Cephalanthus occidentalis	Soft	3	0.7%
Crataegus opaca	Soft	51	12.3%
Fraxinus pennsylvanica	Soft	33	8.0%
Liquidambar styraciflua	Soft	2	0.5%
Morus rubra	Soft	2	0.5%
Platanus occidentalis	Soft	1	0.2%
Taxodium distichum	Soft	237	57.1%
Unknown soft mast	Soft	33	8.0%
Carya sp.	Hard	2	0.5%
Quercus phellos	Hard	2	0.5%
Quercus sp.	Hard	33	8.0%
Total		**415**	**100.0%**
Percent Hard Mast			**8.9%**
Percent Soft Mast			**91.1%**

LIST OF FIGURES

Figure 1. Vicinity Map
Figure 2. Monitoring Plots and Rows
Figure 3. Hydrology Restoration Plan View
Figures 4 through 15. Cross-sections A through P Typical Swale Restoration



Legend

Project Area (323.8 Acres)

N

6,000 3,000 0 6,000

Feet

PONDEROSA RANCH OF POINTE COUPEE
MITIGATION BANK MVN-2011-03213
AS-BUILT REPORT

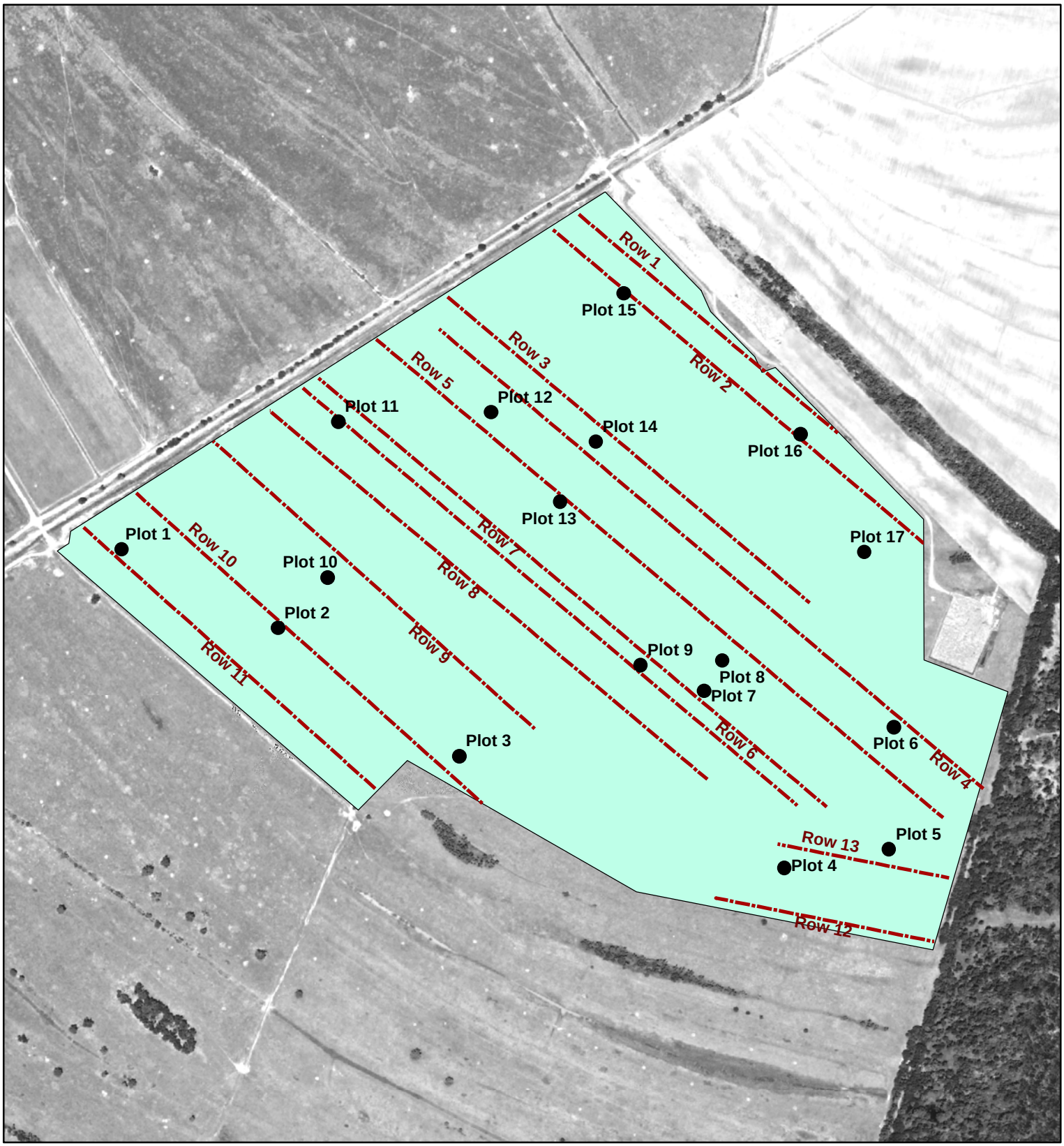
VICINITY MAP

Pointe Coupee Parish, LA

Created :	TSC/ArcView10
Approved :	KMW
Date :	2/3/2014
Map # :	F1_Vicinity.mxd

DELTA LAND SERVICES

FIGURE 1



Legend

Project Area (323.8 Acres)

800 400 0 800

Feet

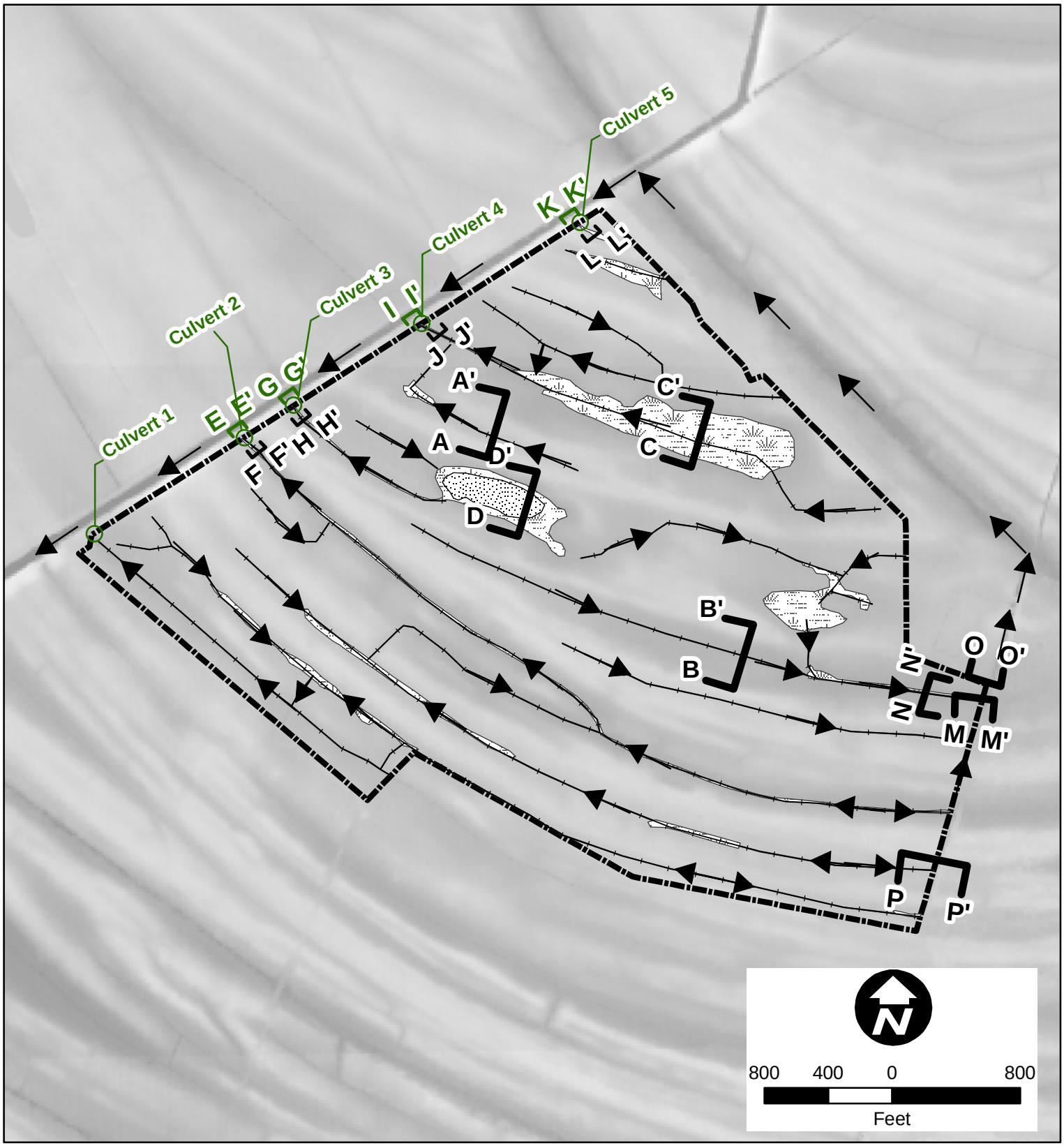
PONDEROSA RANCH OF POINTE COUPEE
MITIGATION BANK MVN-2011-03213
AS-BUILT REPORT

MONITORING PLOTS & ROWS

Pointe Coupee Parish, LA

Created :	TSC/ArcView10
Approved :	KMW
Date :	2/3/2014
Map # :	F2_Monitoring.mxd

FIGURE 2



Legend

- Project Area (323.8 Acres)
- Wetland Area
- Other Waters
- Anthropogenic Drains & Ditches to be Filled
- Pre-Restoration Surface Water Flow

Notes:
1) Cross-Section E to E' is typical of Culverts 1 and 2.
2) All culverts are to be removed and backfilled.

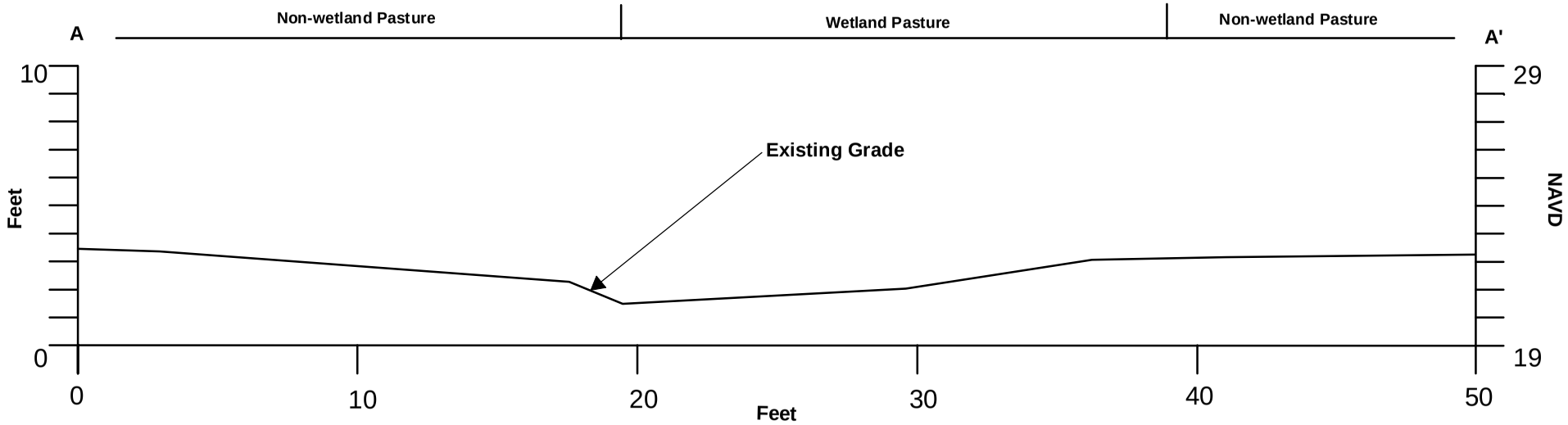
PONDEROSA RANCH OF POINTE COUPEE
MITIGATION BANK MVN-2011-03213
AS-BUILT REPORT

PRE AND POST RESTORATION PLAN VIEW

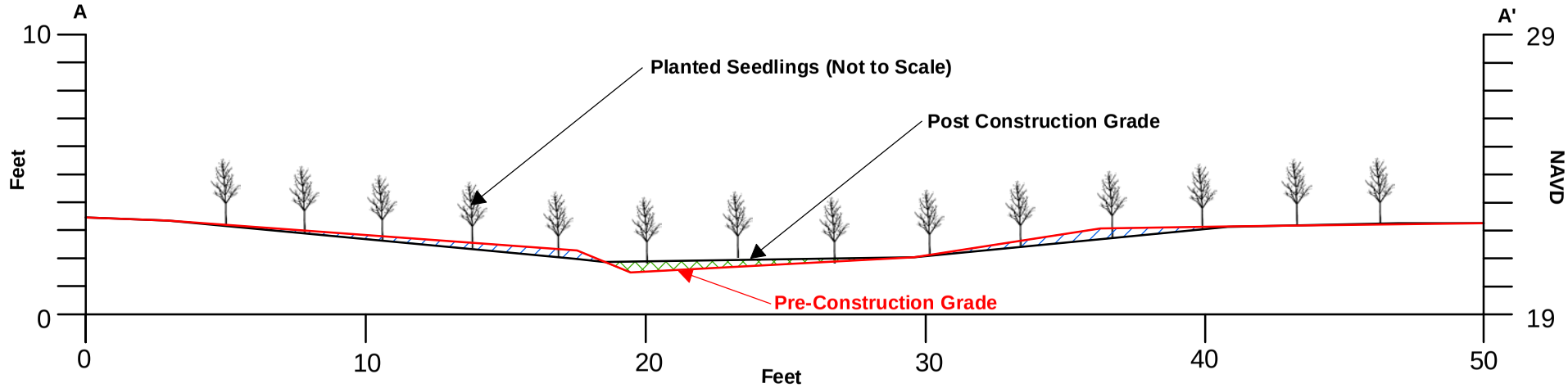
Pointe Coupee Parish, LA

Created : TSC/ArcView	
Approved : KMW	
Date : 5/6/2013	
Map No. : F3_PlanView	

FIGURE 3



Pre-Construction Cross-Section A



Post Construction Cross-Section A

Excavated Material

Earthen Fill

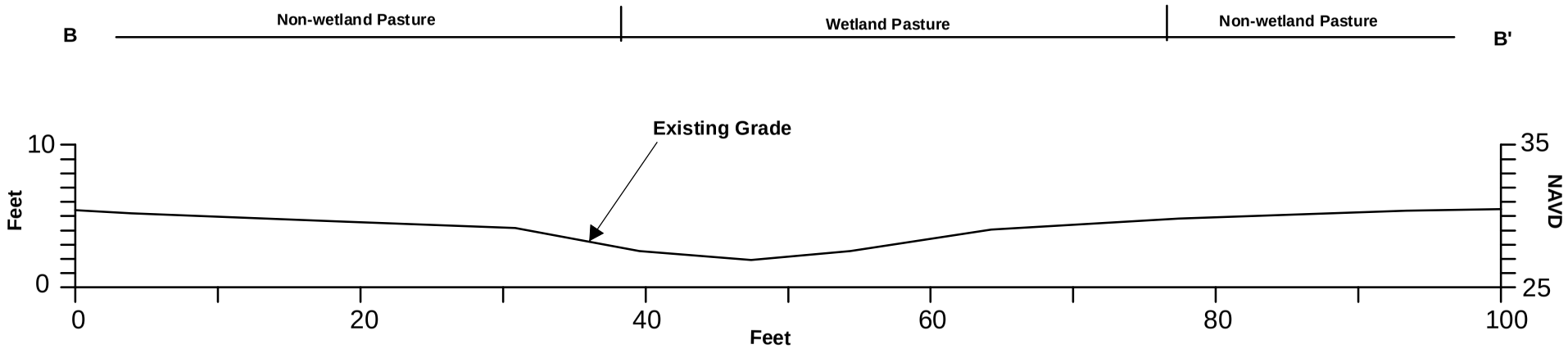
PONDEROSA RANCH OF POINTE COUPEE
MITIGATION BANK MVN-2011-03213
AS-BUILT REPORT

CROSS-SECTION A

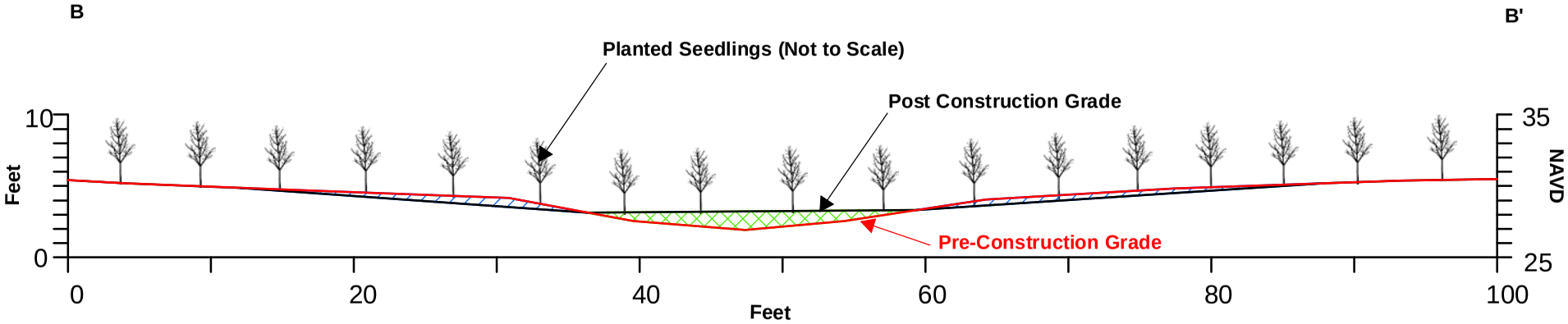
Pointe Coupee Parish, LA

Created : TSC/ArcView	
Approved : DEB	
Date : 5/1/2013	
Map No. : F12_XsecA.mxd	

FIGURE 4



Pre-Construction Cross-Section B



Post Construction Cross-Section B

Excavated Material

Earthen Fill

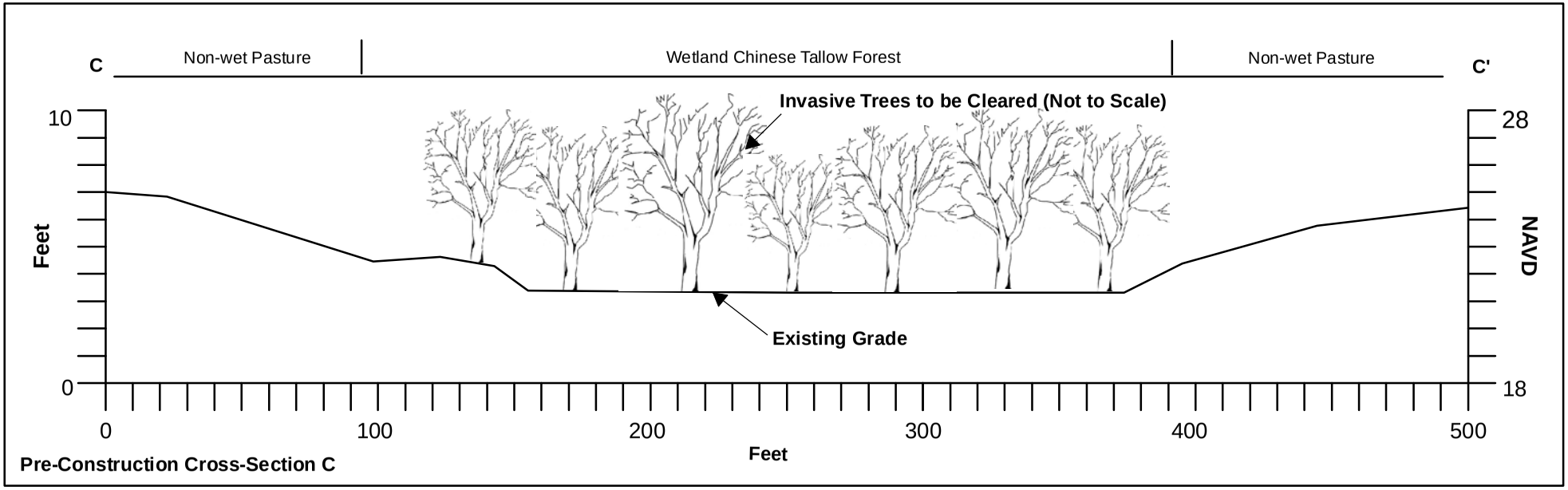
PONDEROSA RANCH OF POINTE COUPEE
MITIGATION BANK MVN-2011-03213
AS-BUILT REPORT

CROSS-SECTION B

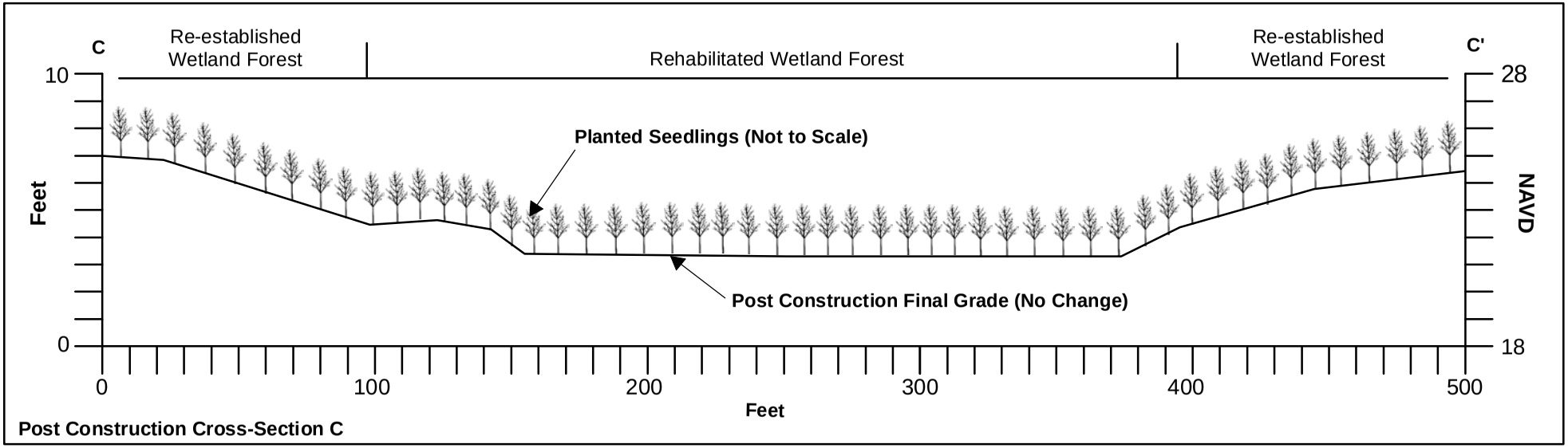
Pointe Coupee Parish, LA

Created : TSC/ArcView	
Approved : DEB	
Date : 2/3/2014	
Map No. : F5_XsecB.mxd	

FIGURE 5



Pre-Construction Cross-Section C



Post Construction Cross-Section C

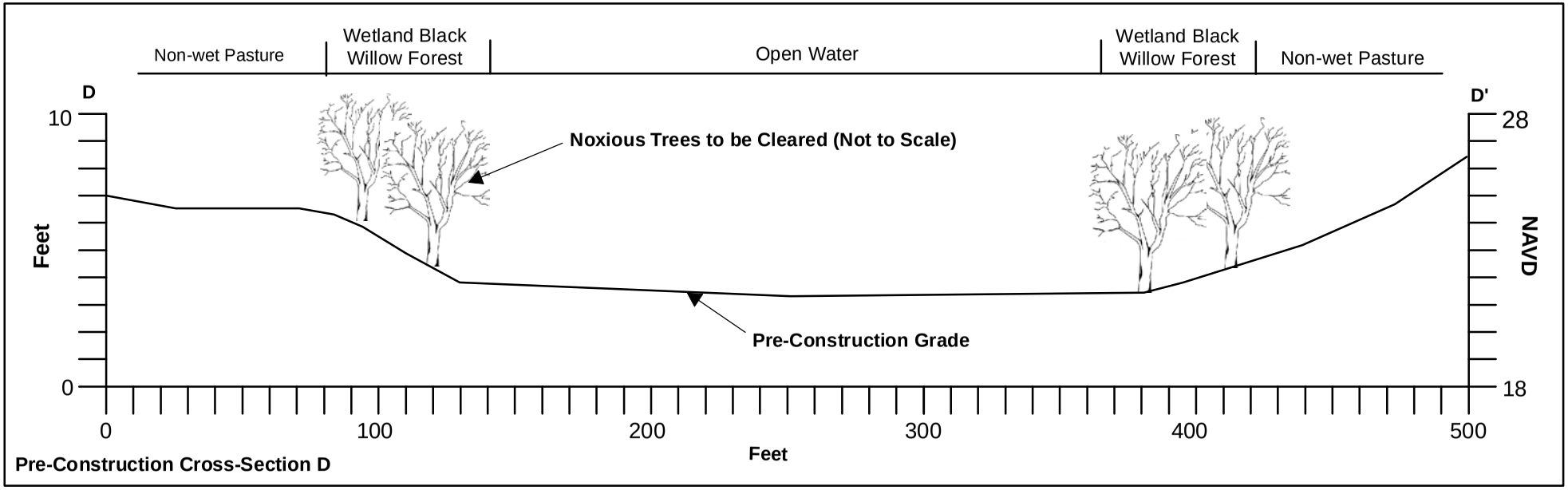
PONDEROSA RANCH OF POINTE COUPEE
MITIGATION BANK MVN-2011-03213
AS-BUILT REPORT

CROSS-SECTION C

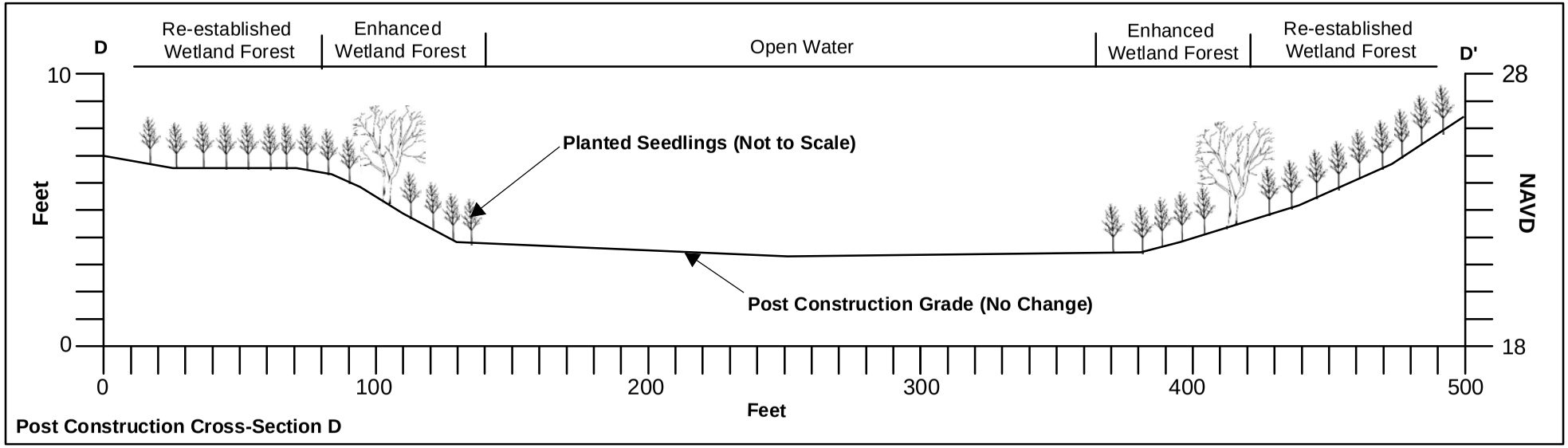
Pointe Coupee Parish, LA

Created : TSC/ArcView	
Approved : KMW	
Date : 2/3/2014	
Map No. : F6_XsecC.mxd	

FIGURE 6



Pre-Construction Cross-Section D



Post Construction Cross-Section D

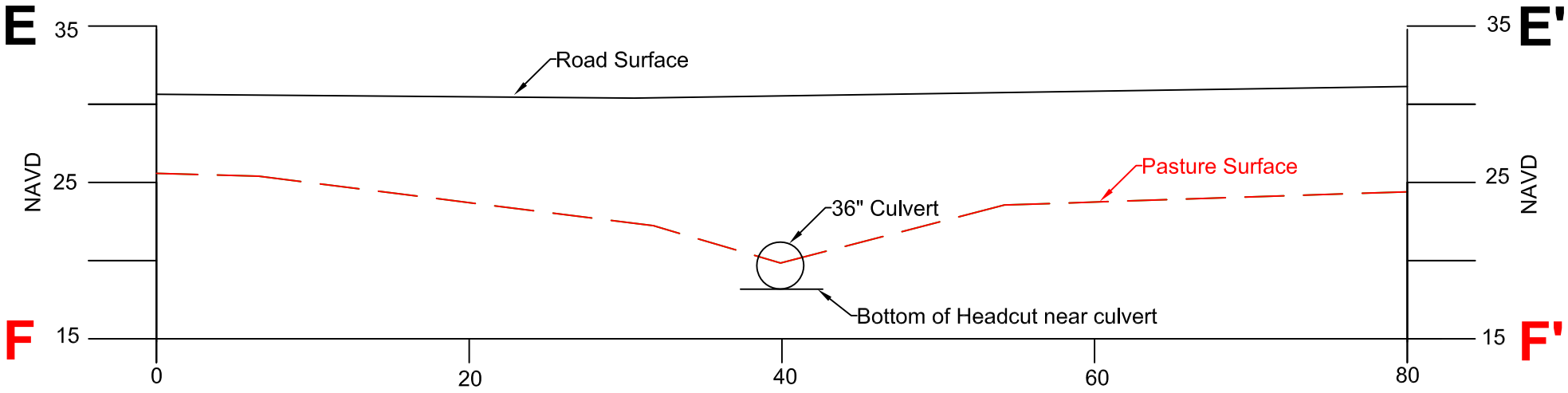
PONDEROSA RANCH OF POINTE COUPEE
MITIGATION BANK MVN-2011-03213
AS-BUILT REPORT

CROSS-SECTION D

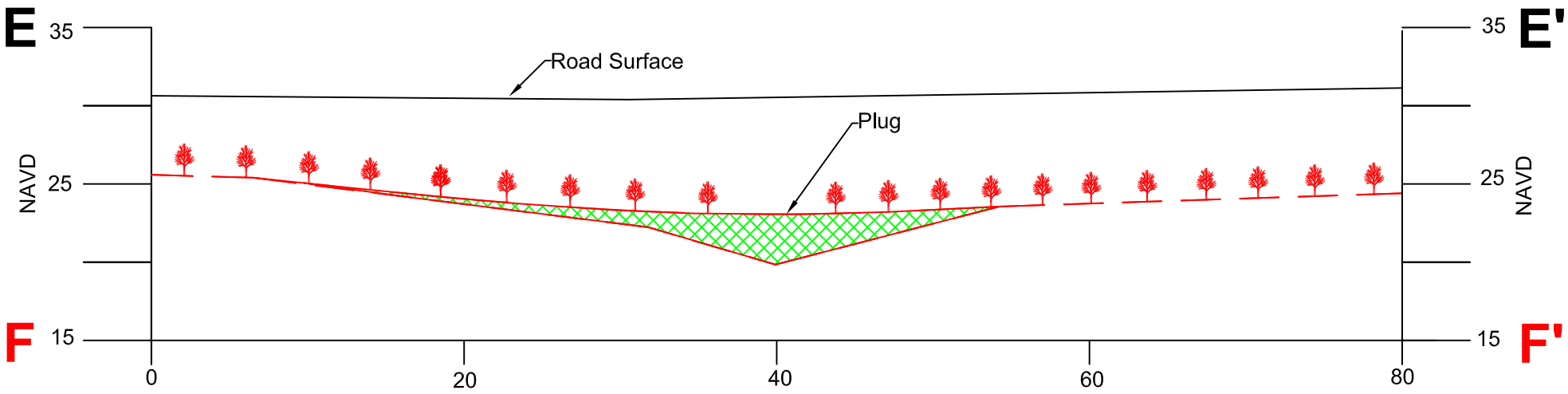
Pointe Coupee Parish, LA

Created : TSC/ArcView	
Approved : KWM	
Date : 2/3/2014	
Map No. : F7_XsecD.mxd	

FIGURE 7



Pre-Construction: Cross-Section E-F



Post Costruction: Cross-Section E-F

Legend

Earthen Fill

Note: Culvert removed and backfilled with same material.

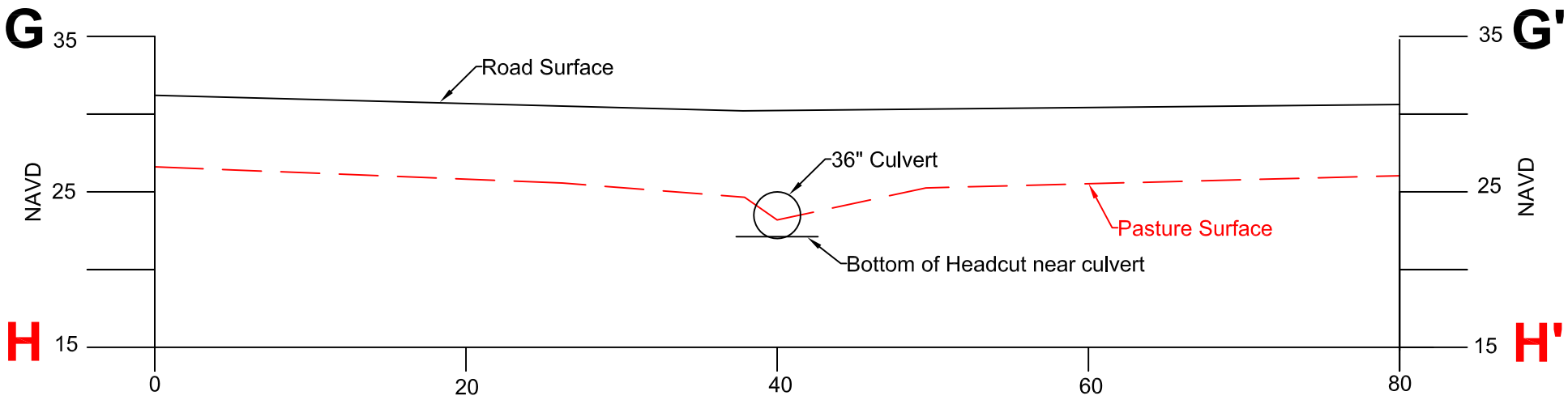
PONDEROSA RANCH OF POINTE COUPEE
MITIGATION BANK MVN-2011-03213
AS-BUILT REPORT

CROSS SECTION E-F

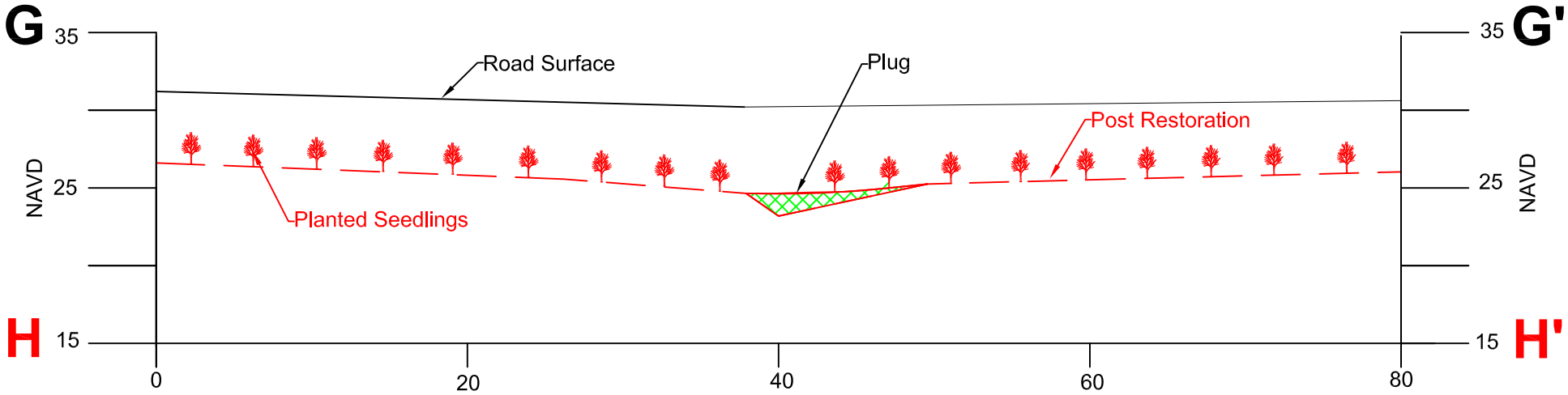
POINTE COUPEE PARISH, LA

Created:	TSC/AutoCAD
Approved:	KMW
Date:	2/3/2014
Dwg. No.:	F8_XsectionEF.dwg

FIGURE 8



Pre-Construction: Cross-Section G-H



Post Construction: Cross-Section G-H

Legend

Earthen Fill

Note: Culvert removed and backfilled with same material.

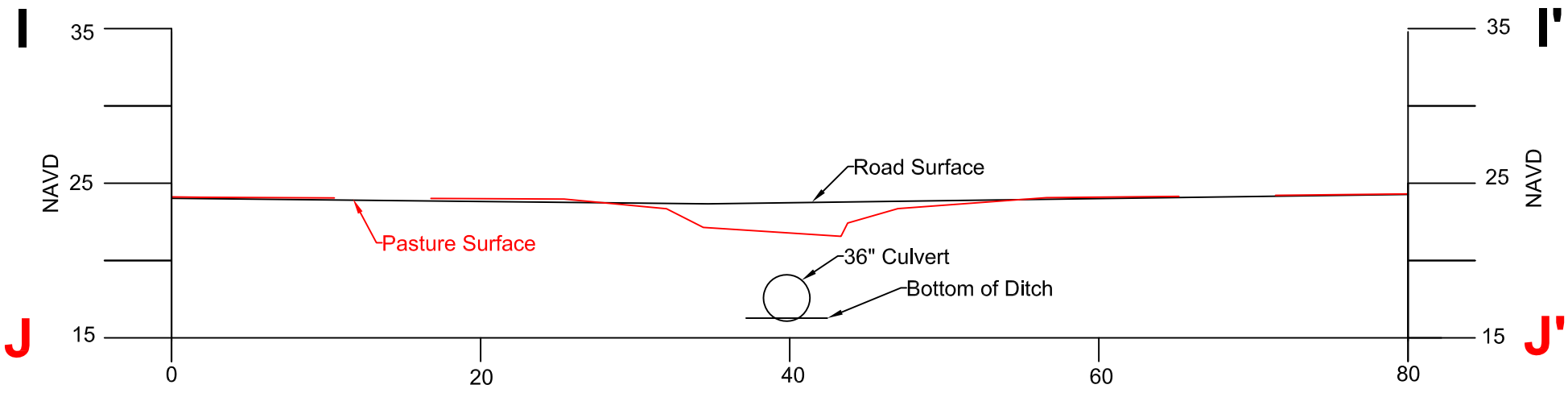
PONDEROSA RANCH OF POINTE COUPEE
MITIGATION BANK MVN-2011-03213
AS-BUILT REPORT

CROSS SECTION G-H

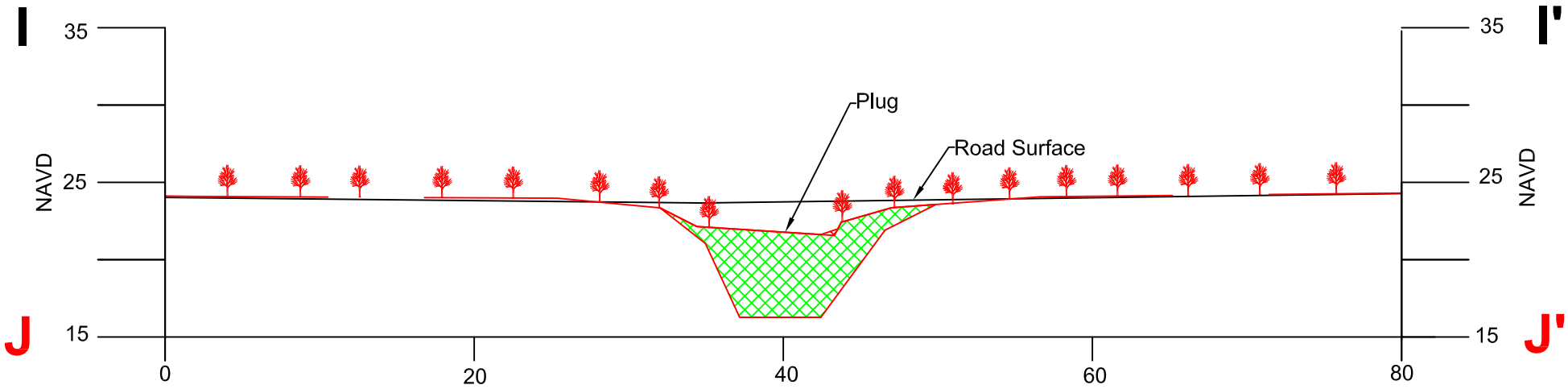
POINTE COUPEE PARISH, LA

Created:	TSC/AutoCAD
Approved:	KMW
Date:	2/3/2014
Dwg. No.:	F9_XsectionG-H.dwg

FIGURE 9



Pre-Construction Cross-Section I-J



Post Construction Cross-Section I-J

Legend

Earthen Fill

Note: Culvert removed and backfilled with same material.

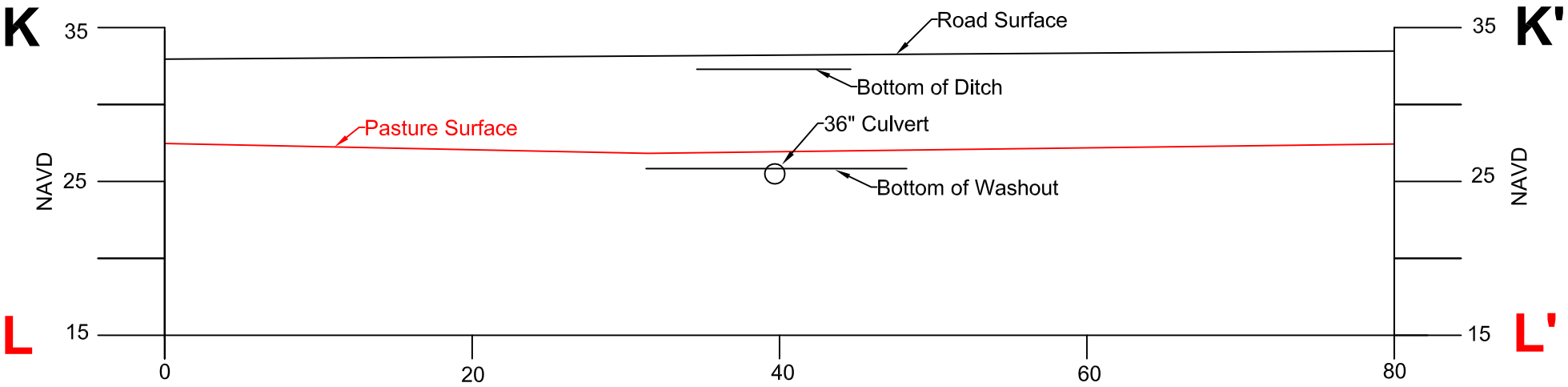
PONDEROSA RANCH OF POINTE COUPEE
MITIGATION BANK MVN-2011-03213
AS-BUILT REPORT

CROSS SECTIONS I-J

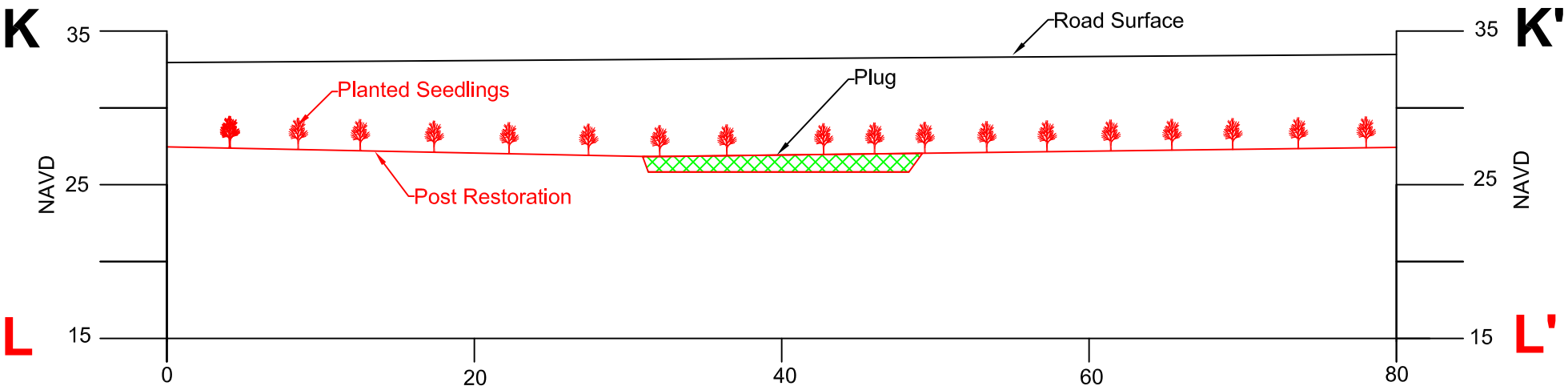
POINTE COUPEE PARISH, LA

Created:	TSC/AutoCAD
Approved:	DEB
Date:	2/3/2014
Dwg. No.:	F18_XsectionIJ.dwg

FIGURE 10



Pre-Construction Cross-Section K-L



Post Construction Cross-Section K-L

Legend

Earthen Fill

Note: Culvert removed and backfilled with same material.

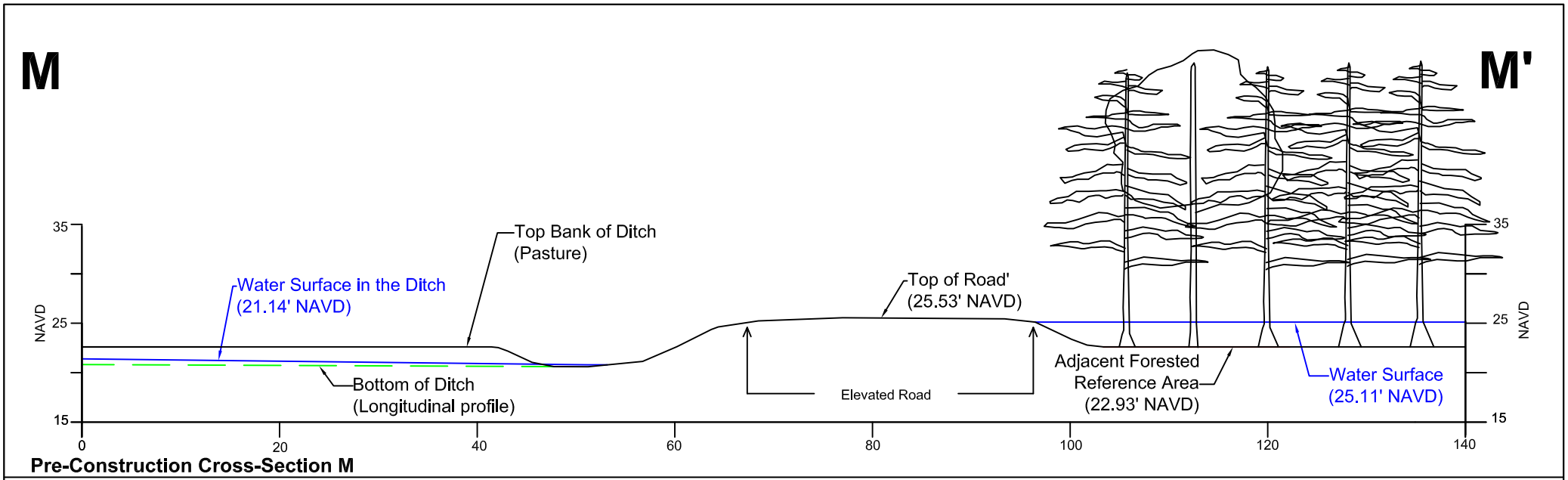
PONDEROSA RANCH OF POINTE COUPEE
MITIGATION BANK MVN-2011-03213
AS-BUILT REPORT

CROSS SECTIONS K-L

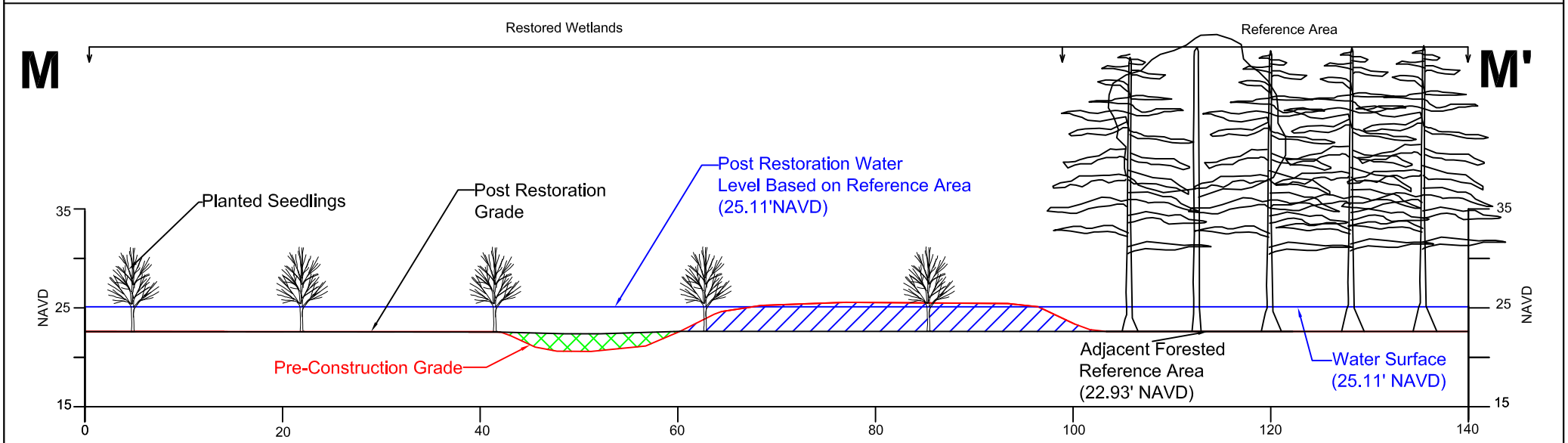
POINTE COUPEE PARISH, LA

Created:	TSC/AutoCAD
Approved:	DEB
Date:	2/3/2014
Dwg. No.:	F11_XsectionKL.dwg

FIGURE 11



Pre-Construction Cross-Section M



Post Construction Cross-Section M

Earthen Fill

Excavated Material

Note: Surface water level within the Reference Area is 2.21 feet higher than water in the ditch (Pre-Construction) on the west side of the road. The Bottom of Ditch (longitudinal profile) was filled to the grade of the existing pasture after construction and therefore is not depicted on the Post Construction Cross-Section.

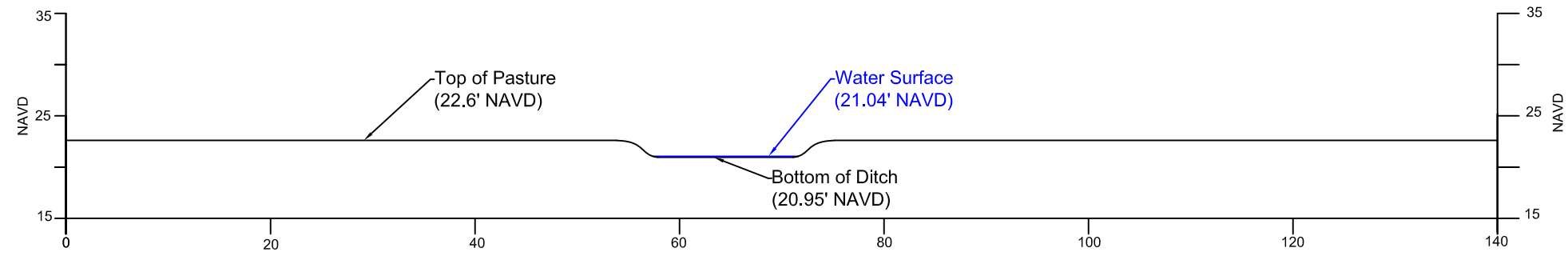
PONDEROSA RANCH OF POINTE COUPEE
MITIGATION BANK MVN-2011-03213
AS-BUILT REPORT

CROSS-SECTION M

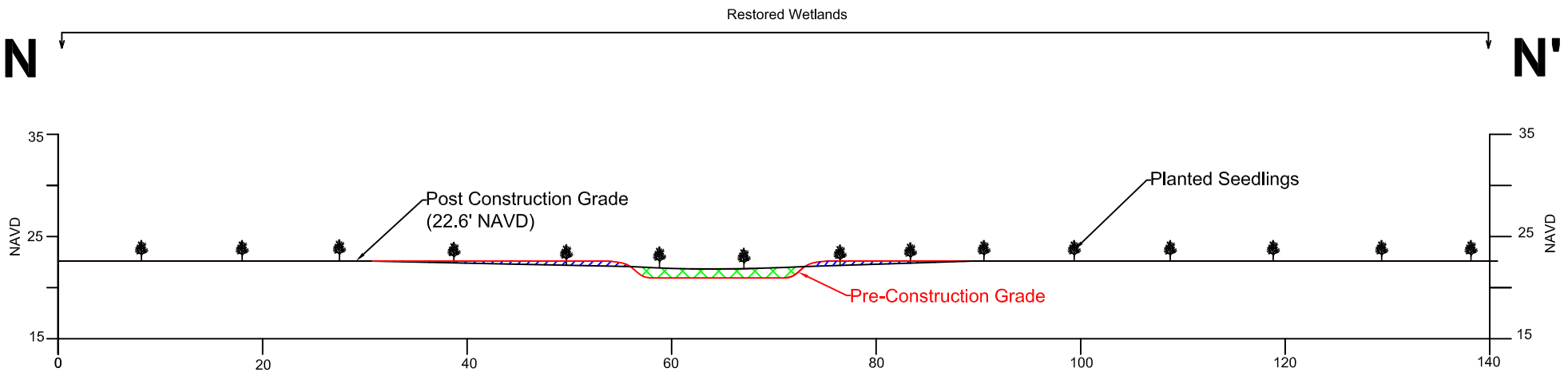
POINTE COUPEE PARISH, LA

Created:	TSC/AutoCAD
Approved:	DEB
Date:	2/28/2014
Dwg. No.:	F12_XsectionM.dwg

FIGURE 12



Pre-Construction Cross-Section N



Post Construction Cross-Section N

Earthen Fill

Excavated Material

PONDEROSA RANCH OF POINTE COUPEE
MITIGATION BANK MVN-2011-03213
AS-BUILT REPORT

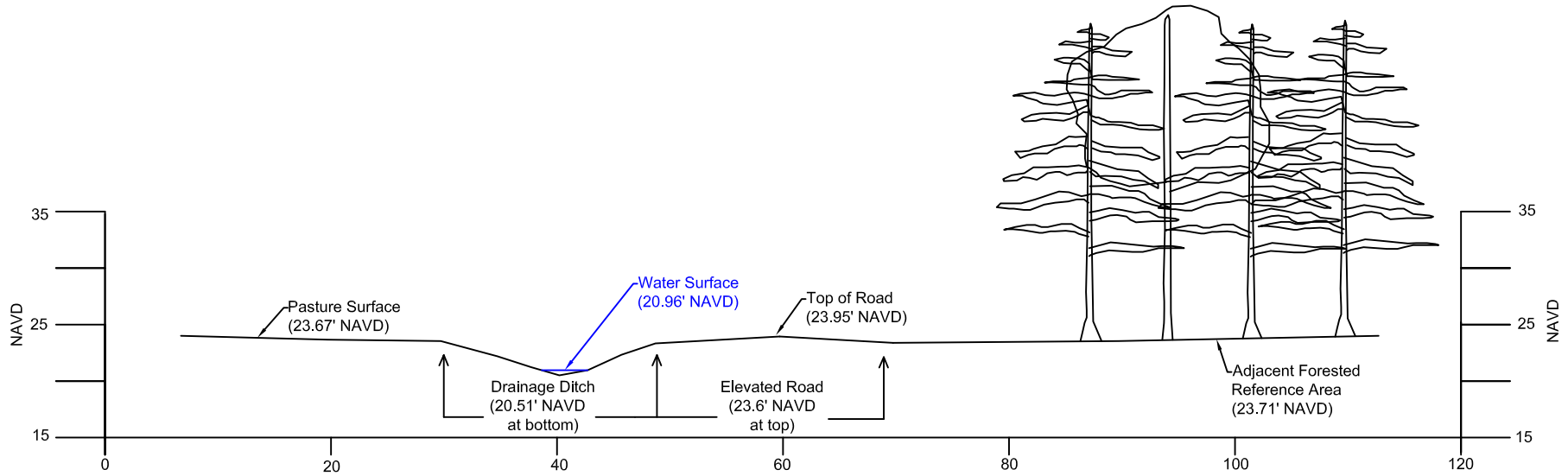
CROSS-SECTION N

POINTE COUPEE PARISH, LA

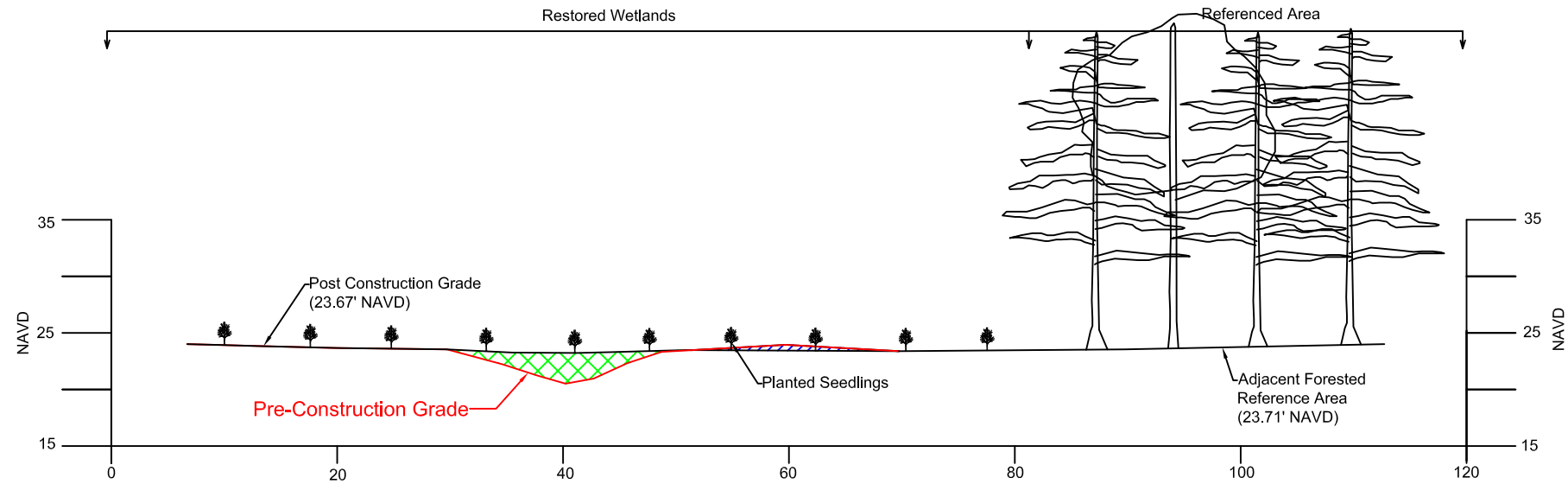
Created:	TSC/AutoCAD
Approved:	DEB
Date:	5/1/2013
Dwg. No.:	F13_XsectionN.dwg

DELTA LAND SERVICES

FIGURE 13



Pre-Construction Cross-Section O



Post Construction Cross-Section O

Earthen Fill

Excavated Material

PONDEROSA RANCH OF POINTE COUPEE
MITIGATION BANK MVN-2011-03213
AS-BUILT REPORT

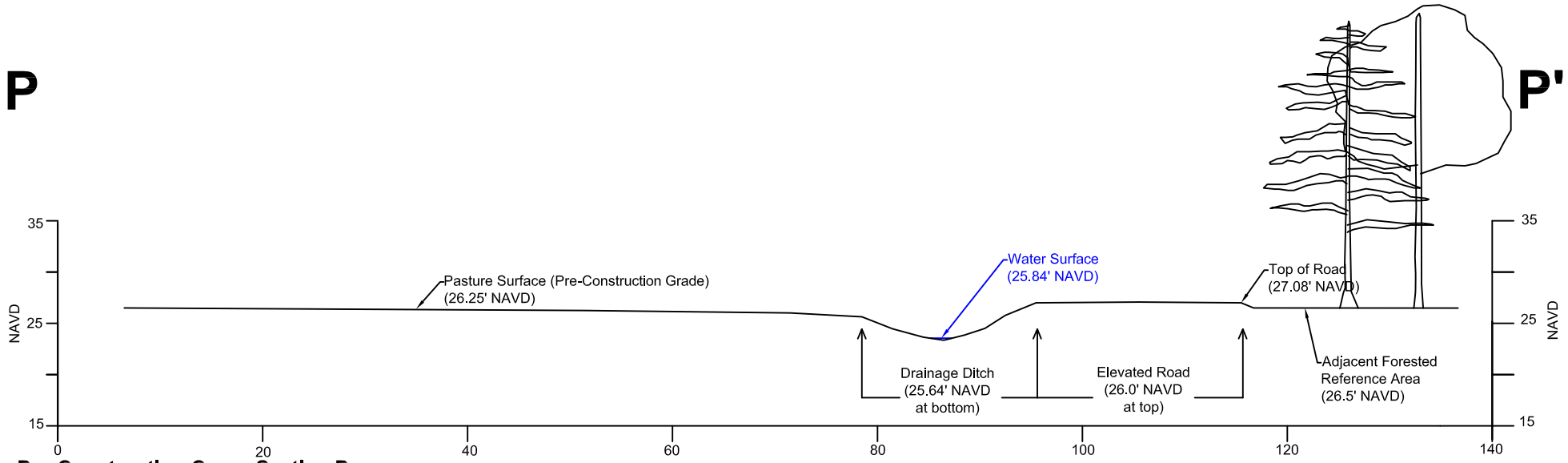
CROSS SECTION O

POINTE COUPEE PARISH, LA

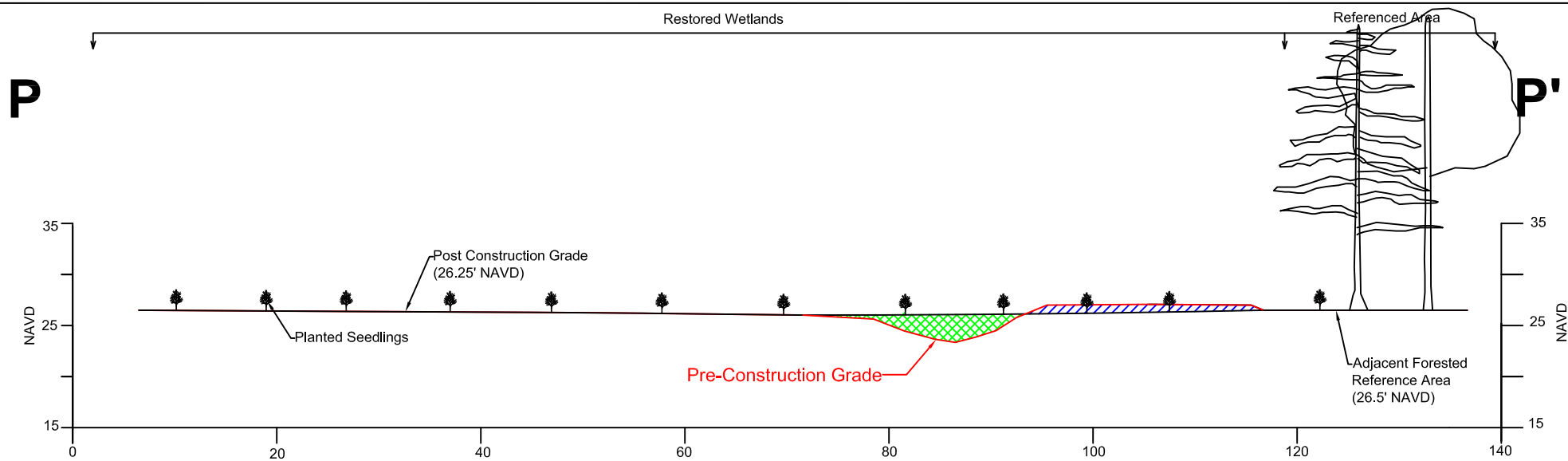
Created:	TSC/AutoCAD
Approved:	DEB
Date:	5/1/2013
Dwg. No.:	F22_XsectionO.dwg

DELTA LAND SERVICES

FIGURE 14



Pre-Construction Cross-Section P



Post ConstructionCross-Section P

Earthen Fill

Excavated Material

PONDEROSA RANCH OF POINTE COUPEE
MITIGATION BANK MVN-2011-03213
AS-BUILT REPORT

CROSS SECTION P

POINTE COUPEE PARISH, LA

Created:	TSC/AutoCAD
Approved:	DEB
Date:	5/1/2013
Dwg. No.:	F15_XsectionP.dwg

DELTA LAND SERVICES

FIGURE 15