
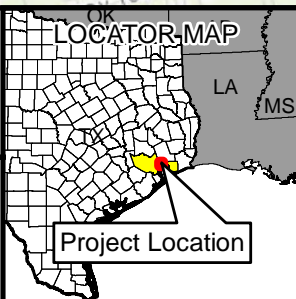


LEGEND

 Environmental Survey Boundary

LOCATOR MAP



0 5,000
Scale In Feet

BASE MAP SOURCE:
ESRI USA Topo Base Map;
USGS 7.5-minute
Topographic Quadrangles:
Maedan, published 1982

UPRR

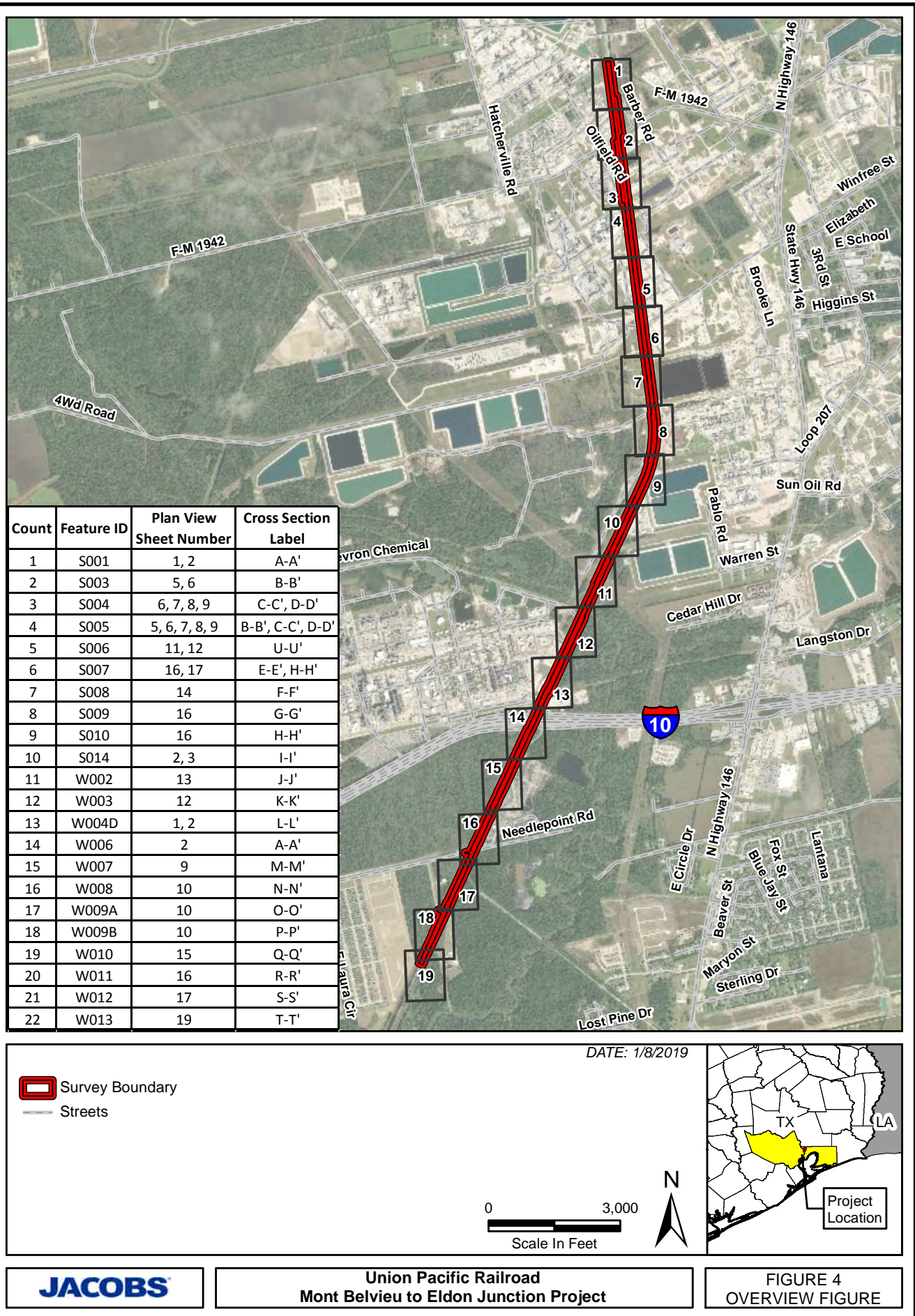
UPRR Mont Belvieu, TX
Chambers and Harris
Counties

**FIGURE 1
PROJECT LOCATION MAP**

PN: 707603

DATE: 1/8/2019

JACOBS



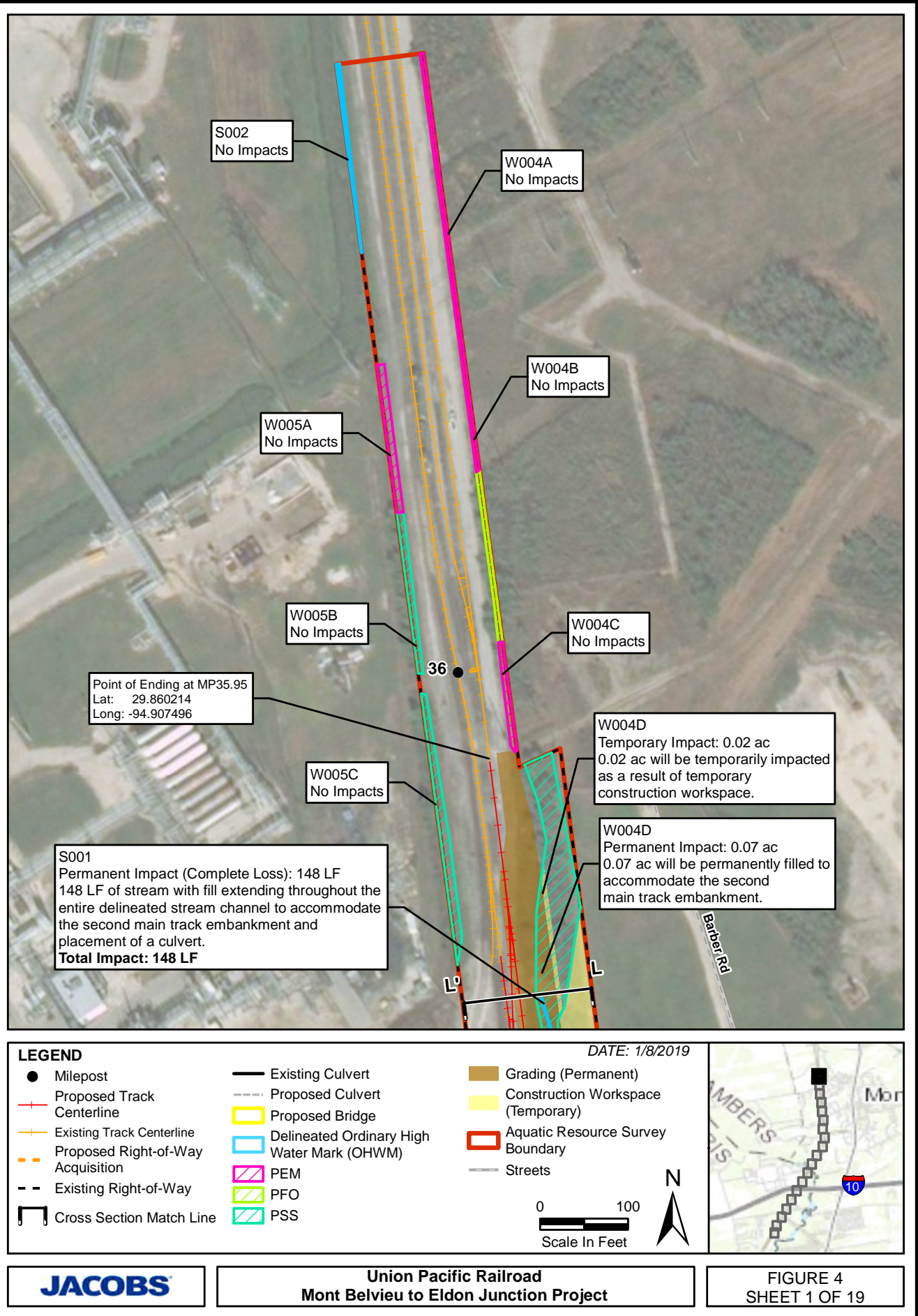
**Union Pacific Railroad
Mont Belvieu to Eldon Junction Second Main Track Project
Wetland and Waterbody Impacts Table
SWG-2018-00791**

Feature ID	Cowardin	Total Area within Survey Boundary (acres)	Total Length within Survey Boundary (LF)	Type of Permanent Impact	Type of Temporary Impact	Permanent Impacts ^a (acres)	Temporary Impacts ^a (acres)	Total Impact ^a (acres)	Permanent Impacts - Complete Loss ^b (LF)	Permanent Impacts - Partial Loss ^b (LF)	Temporary Impacts ^b (LF)	Total Impact ^b (LF)	Latitude	Longitude
W001	PEM	0.05	N/A	No Permanent Impacts	No Temporary Impacts	0	0	0	N/A	N/A	N/A	N/A	29.82158900	-94.914566
W002	PEM	0.2	N/A	Excavation / Fill	No Temporary Impacts	0.20	0	0.20	N/A	N/A	N/A	N/A	29.82393300	-94.913177
W003	PFO	0.11	N/A	Fill	No Temporary Impacts	0.11	0	0.11	N/A	N/A	N/A	N/A	29.82606400	-94.911949
W004A	PEM	0.05	N/A	No Permanent Impacts	No Temporary Impacts	0	0	0	N/A	N/A	N/A	N/A	29.86164129	-94.90756011
W004B	PFO	0.02	N/A	No Permanent Impacts	No Temporary Impacts	0	0	0	N/A	N/A	N/A	N/A	29.86086652	-94.9074791
W004C	PEM	0.02	N/A	No Permanent Impacts	No Temporary Impacts	0	0	0	N/A	N/A	N/A	N/A	29.86037001	-94.90742786
W004D	PSS	0.26	N/A	Excavation / Fill	Temporary Construction Workspace	0.07	0.02	0.09	N/A	N/A	N/A	N/A	29.8596	-94.90726
W005A	PEM	0.03	N/A	No Permanent Impacts	No Temporary Impacts	0	0	0	N/A	N/A	N/A	N/A	29.86118447	-94.9078082
W005C	PSS	0.12	N/A	No Permanent Impacts	No Temporary Impacts	0	0	0	N/A	N/A	N/A	N/A	29.86028024	-94.90770895
W006	PEM	0.02	N/A	Fill	No Temporary Impacts	0.02	0	0.02	N/A	N/A	N/A	N/A	29.85909100	-94.907567
W007	PEM	0.04	N/A	Excavation / Fill	No Temporary Impacts	0.03	0	0.03	N/A	N/A	N/A	N/A	29.83666200	-94.906107
W008	PEM	0.03	N/A	Excavation / Fill	No Temporary Impacts	0.03	0	0.03	N/A	N/A	N/A	N/A	29.83319100	-94.908074
W009A	PSS	0.03	N/A	Excavation / Fill	No Temporary Impacts	0.03	0	0.03	N/A	N/A	N/A	N/A	29.83232705	-94.90858719
W009B	PEM	0.03	N/A	Excavation / Fill	No Temporary Impacts	0.03	0	0.03	N/A	N/A	N/A	N/A	29.83209278	-94.90868454
W010	PFO	0.16	N/A	Excavation / Fill	No Temporary Impacts	0.16	0	0.16	N/A	N/A	N/A	N/A	29.81772800	-94.917055
W011	PEM	0.05	N/A	Fill	No Temporary Impacts	0.05	0	0.05	N/A	N/A	N/A	N/A	29.81338900	-94.91959
W012	PSS	0.06	N/A	Fill	No Temporary Impacts	0.06	0	0.06	N/A	N/A	N/A	N/A	29.81107326	-94.92089995
W013	PFO	0.17	N/A	Fill	No Temporary Impacts	0.15	0	0.15	N/A	N/A	N/A	N/A	29.809207	-94.921986
W014	PFO	0.15	N/A	No Permanent Impacts	No Temporary Impacts	0	0	0	N/A	N/A	N/A	N/A	29.807959	-94.922389
W015A	PFO	0.06	N/A	No Permanent Impacts	No Temporary Impacts	0	0	0	N/A	N/A	N/A	N/A	29.81121936	94.92056023
W015B	PSS	0.1	N/A	No Permanent Impacts	No Temporary Impacts	0	0	0	N/A	N/A	N/A	N/A	29.81194364	94.92015327
W016	PEM	0.06	N/A	No Permanent Impacts	No Temporary Impacts	0	0	0	N/A	N/A	N/A	N/A	29.81305700	-94.91946300
W017	PEM	0.22	N/A	No Permanent Impacts	No Temporary Impacts	0	0	0	N/A	N/A	N/A	N/A	29.85094500	-94.90648500
W018	PEM	0.02	N/A	No Permanent Impacts	No Temporary Impacts	0	0	0	N/A	N/A	N/A	N/A	29.85128700	-94.90652200
W019	PEM	0.09	N/A	No Permanent Impacts	No Temporary Impacts	0	0	0	N/A	N/A	N/A	N/A	29.85601100	-94.90697300
S001	R4SB	N/A	148	Fill	No Temporary Impacts	N/A	N/A	N/A	148	0	0	148	29.85926700	-94.90732400
S002	R2UB	N/A	216	No Permanent Impacts	No Temporary Impacts	N/A	N/A	N/A	0	0	0	0	29.86216400	-94.90793000
S003	R4SB	N/A	1381	Fill	Temporary Construction Workspace	N/A	N/A	N/A	597	0	784	1381	29.84783	-94.90634
S004	R4SB	N/A	2772	Excavation / Fill	Temporary Construction Workspace	N/A	N/A	N/A	1479	176	130	1785	29.8442	-94.90599
S005	R4SB	N/A	4225	Fill	Temporary Construction Workspace	N/A	N/A	N/A	203	0	143	346	29.83792	-94.90542
S006	R1SB	N/A	107	No Permanent Impacts	No Temporary Impacts	N/A	N/A	N/A	0	0	0	0	29.82797100	-94.91091500
S007	R4SB	N/A	738	Fill	No Temporary Impacts	N/A	N/A	N/A	0	738	0	738	29.81234600	-94.92014000
S008	R4SB	N/A	55	Excavation	Temporary Construction Workspace	N/A	N/A	N/A	12	0	7	19	29.82129100	-94.91502500
S009	R4SB	N/A	23	Fill	No Temporary Impacts	N/A	N/A	N/A	23	0	0	23	29.81336100	-94.91952200
S010	R4SB	N/A	70	Fill	No Temporary Impacts	N/A	N/A	N/A	20	0	0	20	29.13146000	-94.91982000
S011	R4SB	N/A	574	No Permanent Impacts	No Temporary Impacts	N/A	N/A	N/A	0	0	0	0	29.80696400	-94.92300100
S012	R4SB	N/A	9	No Permanent Impacts	No Temporary Impacts	N/A	N/A	N/A	0	0	0	0	29.84587600	-94.90586900
S013	R4SB	N/A	859	No Permanent Impacts	No Temporary Impacts	N/A	N/A	N/A	0	0	0	0	29.85285800	-94.90666100
S014	R4SB	N/A	635	Fill	Temporary Construction Workspace	N/A	N/A	N/A	144	183	73	400	29.85653	-94.90706

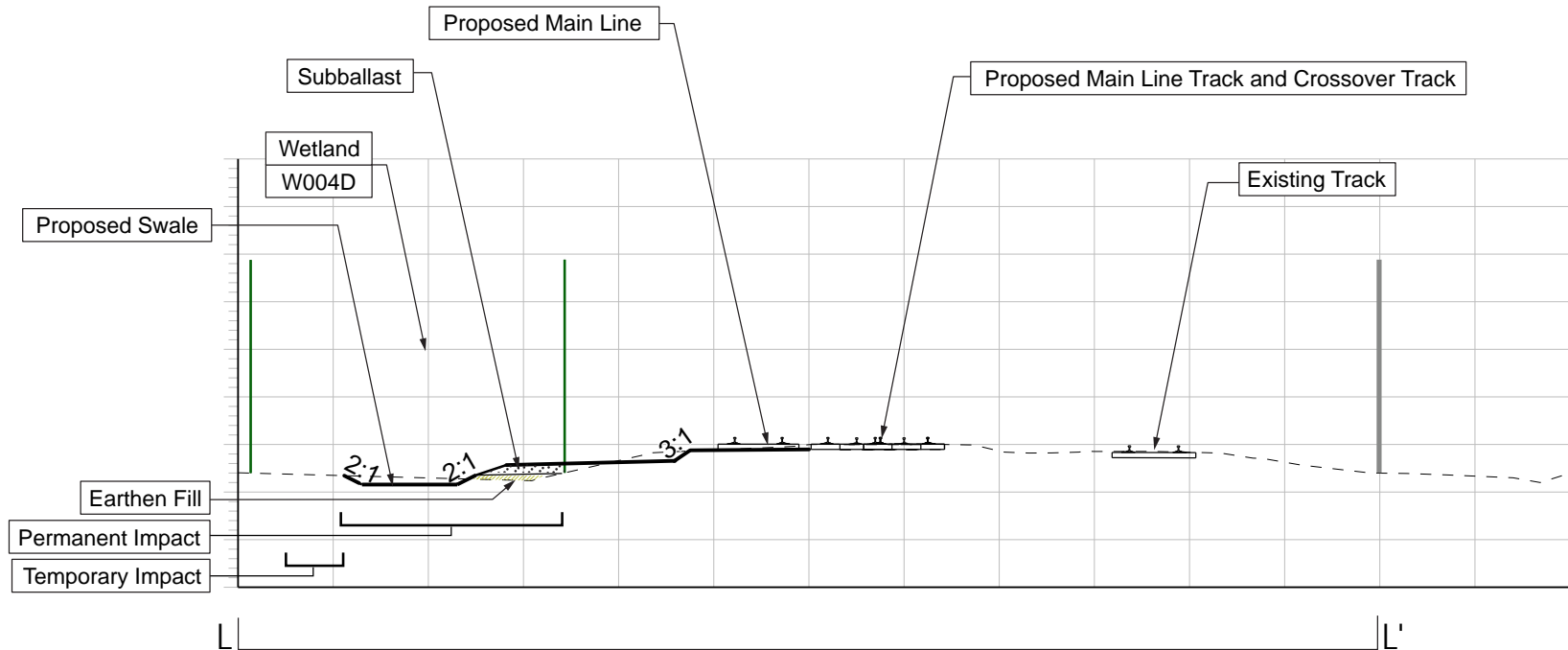
^aAcres rounded to the nearest 0.01 acre . Impacts of less than 0.01 acre have been excluded. Temporary impact areas in forested wetlands are included as permanent impacts due to functional loss.

^bLengths rounded to the nearest linear foot.

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Cross Section View L-L'



W004D Total Fill Quantities

26.8 CY Earthen Fill
47.77 CY Subballast
0 CY Riprap
61 CY Excavation

*Within Cross Section L-L',
W004D will be permanently
impacted to accommodate the
railroad embankment and swale.*

*Within Cross Section L-L',
W004D will be temporarily impacted
to accommodate temporary
construction workspace.*

Legend

- | | |
|--|-----------------------|
| Delineated Stream OHWM | Riprap |
| Delineated PEM Wetland Boundary | Culvert |
| Delineated PFO Wetland Boundary | Earthen Fill |
| Delineated PSS Wetland Boundary | Subballast |
| Existing UPRR ROW | Existing Ground Level |
| Proposed UPRR ROW | Proposed Ground Level |



Applicant:

Union Pacific Railroad

Project:

Milepost 32.20 to 35.95 Mont Belvieu to Eldon Junction Project

Feature:

W004D

Date:

8/1/2018

Figure Title:

Cross Section L-L'

Station:

672+00.00

County:

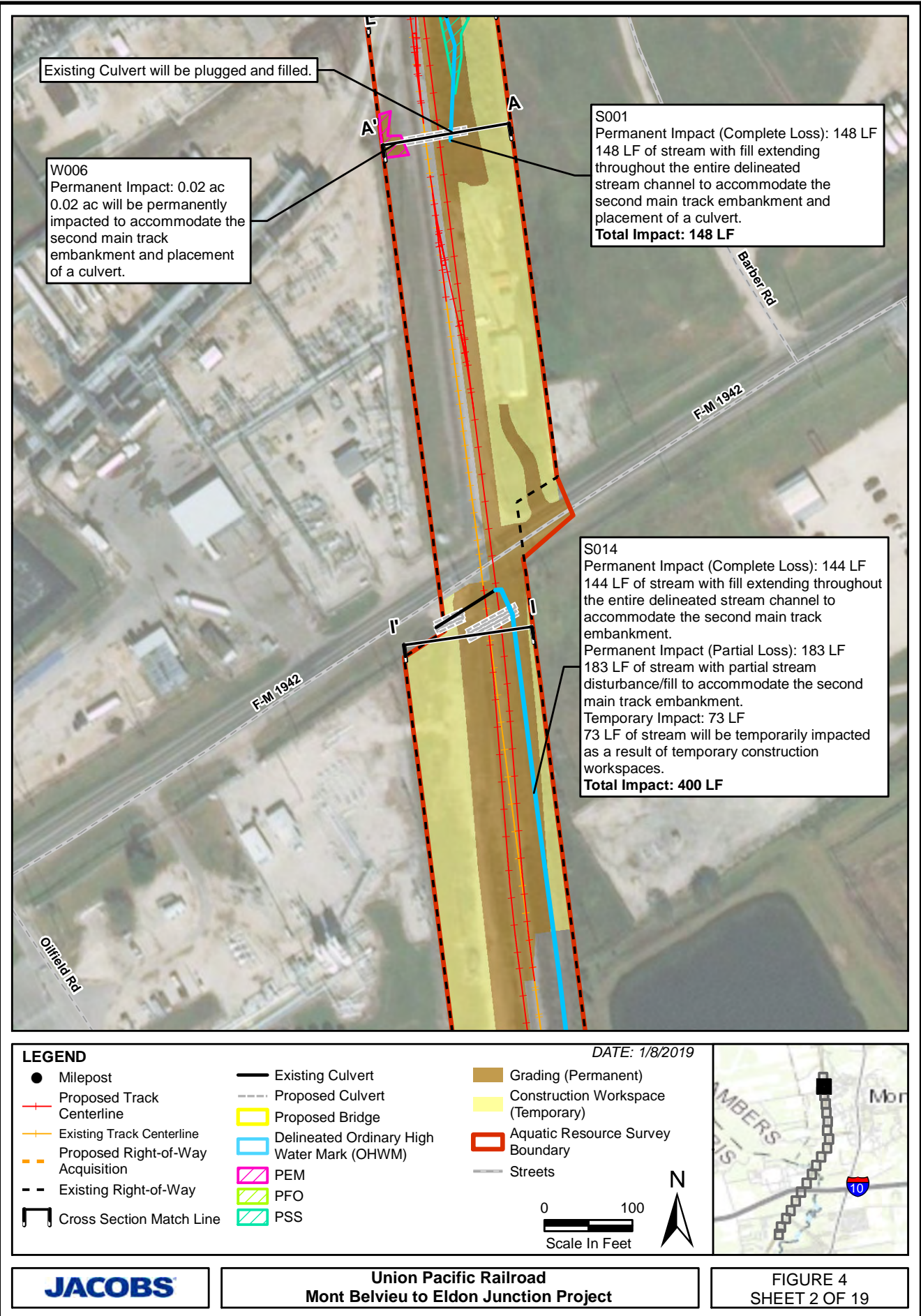
Chambers County, Texas



Notes:

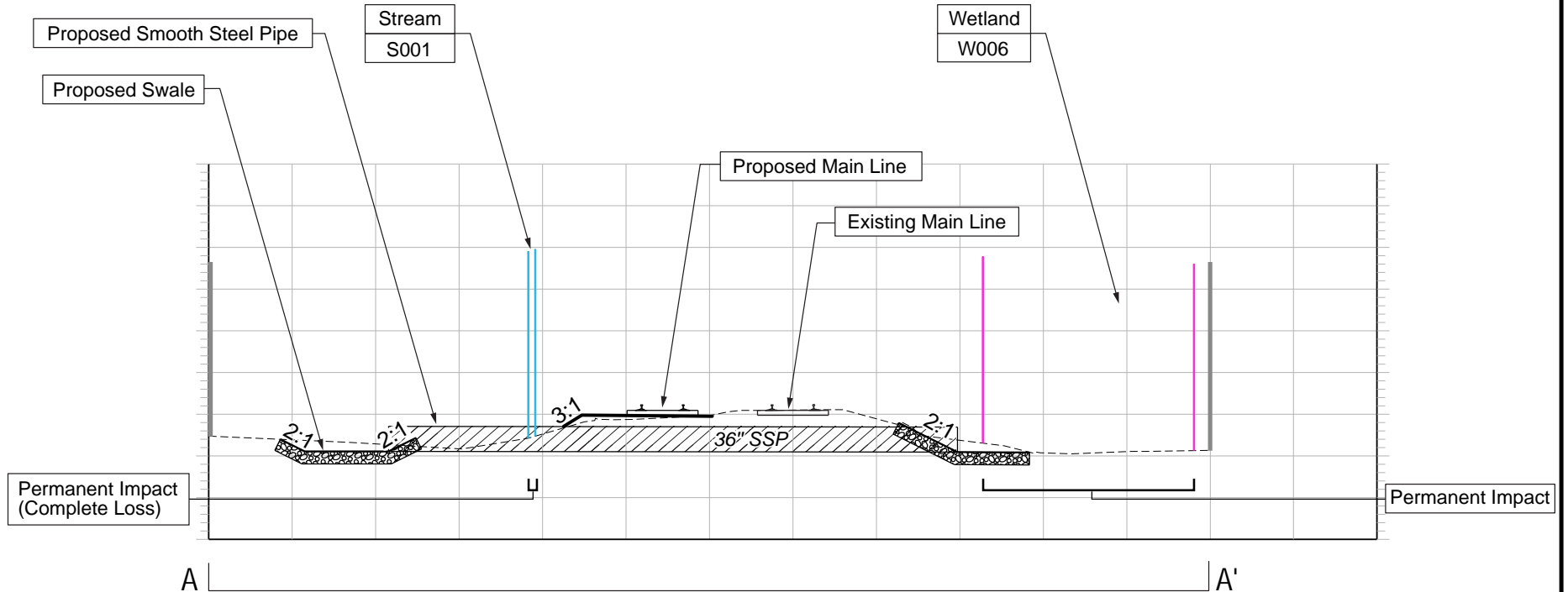
Delineated November 28 through December 1, 2017

Cross sections have been adapted from TranSystems "Existing Mainline Cross Sections," dated 7/11/2018, at the noted station number.



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Cross Section View A-A'



Within Cross Section A-A',
S001 will be permanently
impacted (complete loss) to
accommodate placement of a
36" smooth steel pipe (SSP).

S001 Total Fill Quantities

1.94 CY Earthen Fill
2.22 CY Subballast
0 CY Riprap
0 CY Excavation

W006 Total Fill Quantities

0.02 CY Earthen Fill
0 CY Subballast
12.2 CY Riprap
0.5 CY Excavation

Within Cross Section A-A',
W006 will be permanently
impacted (complete loss) to
accommodate placement of a
36" smooth steel pipe (SSP).

Legend

- | | |
|---------------------------------|-----------------------|
| Delineated Stream OHWM | Riprap |
| Delineated PEM Wetland Boundary | Culvert |
| Delineated PFO Wetland Boundary | Earthen Fill |
| Delineated PSS Wetland Boundary | Subballast |
| Existing UPRR ROW | Existing Ground Level |
| Proposed UPRR ROW | Proposed Ground Level |



Applicant: Union Pacific Railroad
Project.: Milepost 32.20 to 35.95 Mont Belvieu to Eldon Junction Project
Feature: S001
Date: 9/11/2018
Figure Title: Cross Section A-A'
Station: 673+35.39
County: Chambers County, Texas

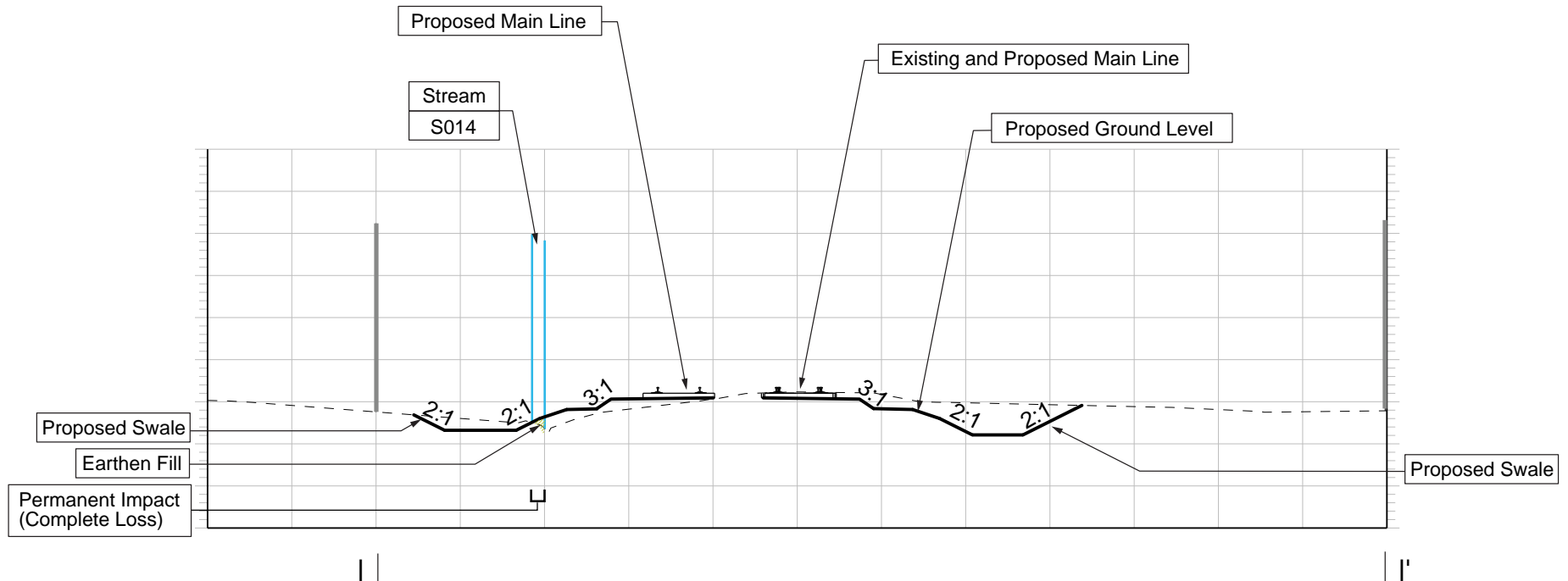


Notes:

Delineated November 28 through December 1, 2017

Cross sections have been adapted from TranSystems "Existing Mainline Cross Sections," dated 7/11/2018, at the noted station number.

Cross Section View I-I'



S014 Total Fill Quantities

7.21 CY Earthen Fill
1.97 CY Subballast
0.16 Riprap
0 CY Excavation

*Within Cross Section I-I',
S014 will be permanently
impacted (complete loss) to
accommodate the railroad
embankment.*

Legend

- | Delineated Stream OWHM
- | Delineated PEM Wetland Boundary
- | Delineated PFO Wetland Boundary
- | Delineated PSS Wetland Boundary
- | Existing UPRR ROW
- | Proposed UPRR ROW
- Riprap
- Culvert
- Earthen Fill
- Subballast
- Existing Ground Level
- Proposed Ground Level



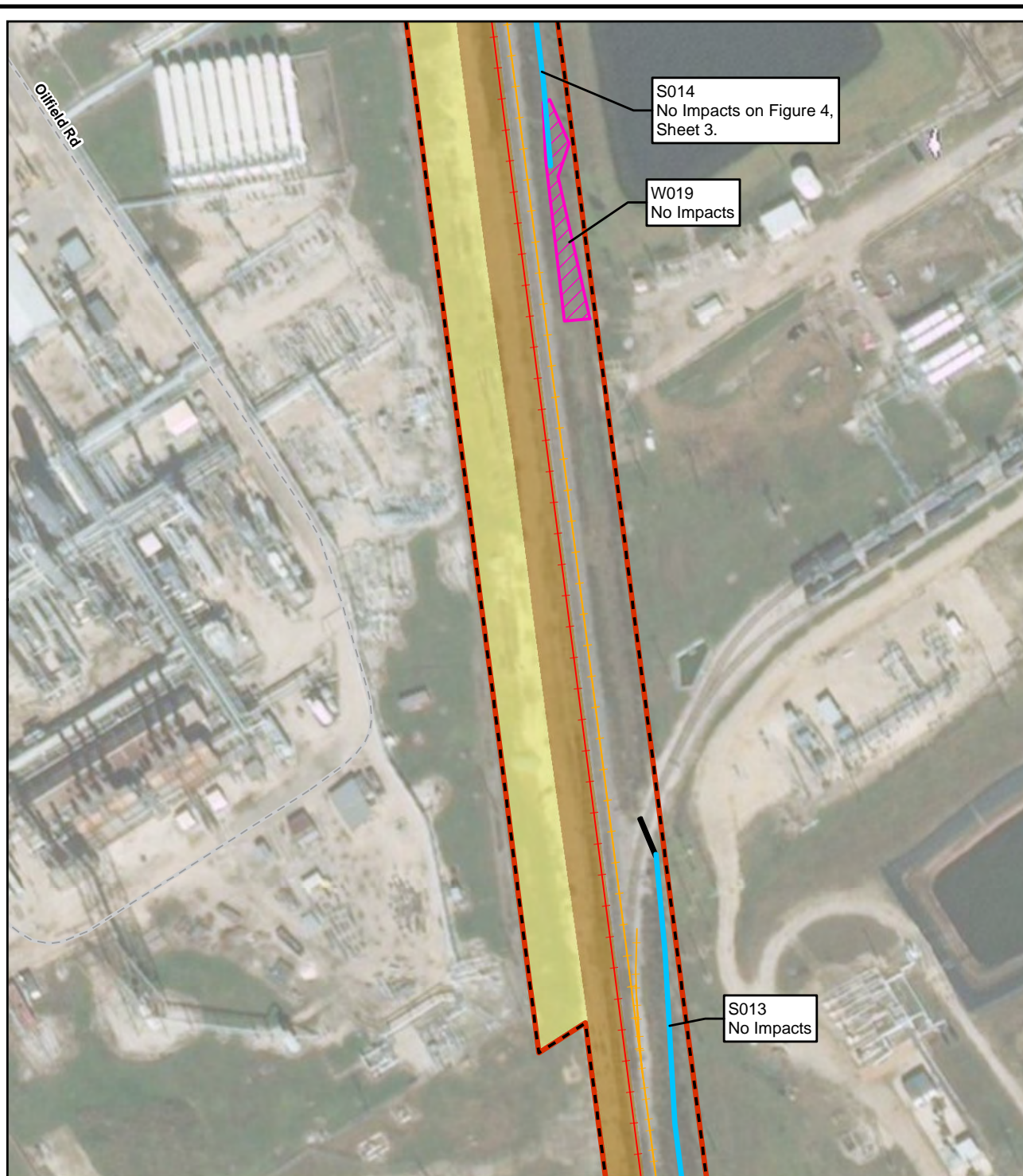
Applicant: Union Pacific Railroad
Project.: Milepost 32.20 to 35.95 Mont Belvieu to Eldon Junction Project
Feature: S014
Date: 8/1/2018
Figure Title: Cross Section I-I'
Station: 679+00.00
County: Chambers County, Texas



Notes:

Delineated November 28 through December 1, 2017

Cross sections have been adapted from TranSystems "Existing Mainline Cross Sections," dated 7/11/2018, at the noted station number.



LEGEND

- Milepost
- Proposed Track Centerline
- Existing Track Centerline
- Proposed Right-of-Way Acquisition
- Existing Right-of-Way
- Cross Section Match Line

- Existing Culvert
- Proposed Culvert
- Proposed Bridge
- Delineated Ordinary High Water Mark (OHWM)
- PEM
- PFO
- PSS

- Grading (Permanent)
- Construction Workspace (Temporary)
- Aquatic Resource Survey Boundary
- Streets

DATE: 1/8/2019

0 100
Scale In Feet



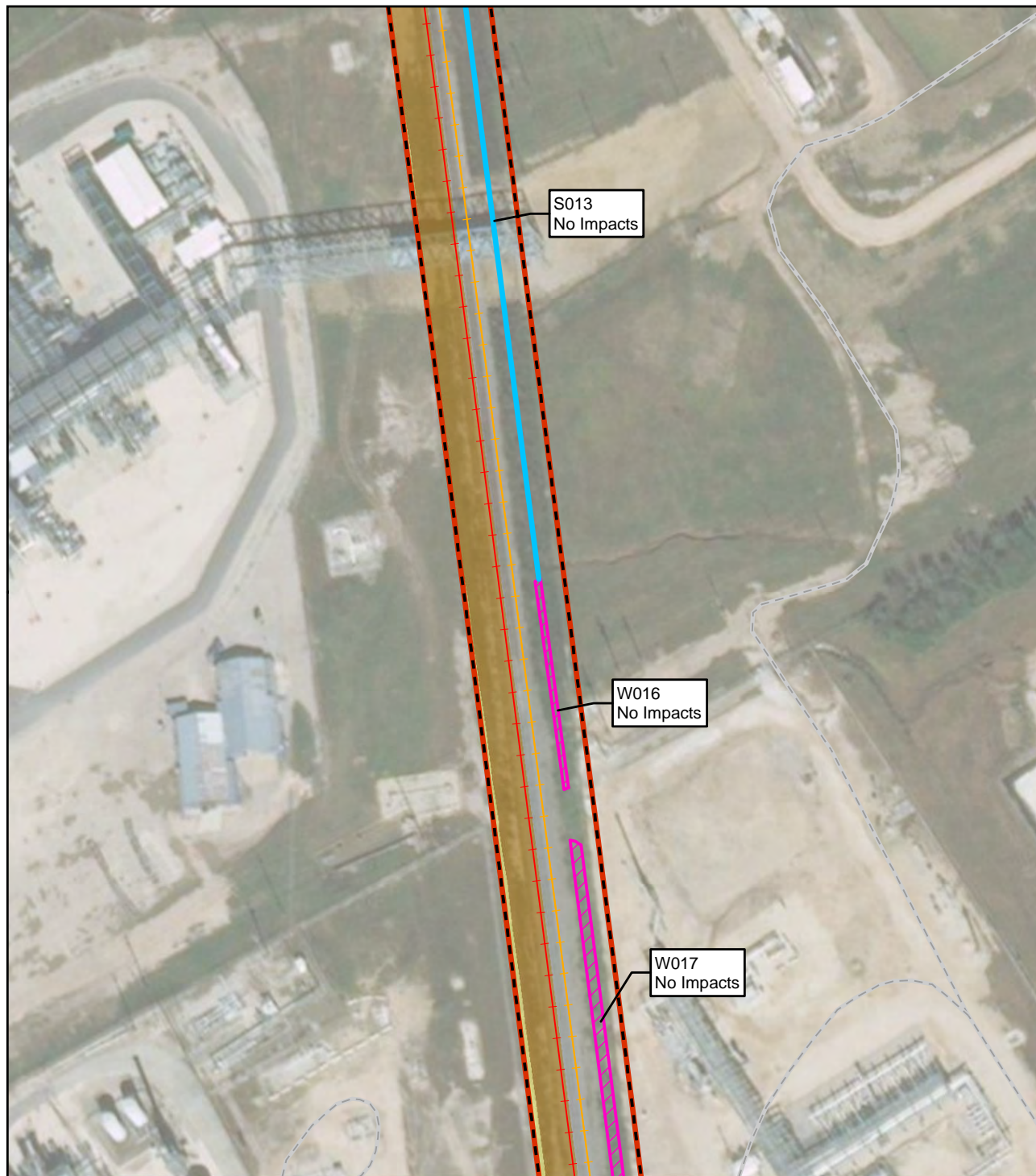
JACOBS

**Union Pacific Railroad
Mont Belvieu to Eldon Junction Project**

**FIGURE 4
SHEET 3 OF 19**

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LEGEND

- Milepost
- Proposed Track Centerline
- Existing Track Centerline
- Proposed Right-of-Way Acquisition
- Existing Right-of-Way
- Cross Section Match Line

- Existing Culvert
- Proposed Culvert
- Proposed Bridge
- Delineated Ordinary High Water Mark (OHWM)
- PEM
- PFO
- PSS

- Grading (Permanent)
- Construction Workspace (Temporary)
- Aquatic Resource Survey Boundary
- Streets

DATE: 1/8/2019

0 100
Scale In Feet

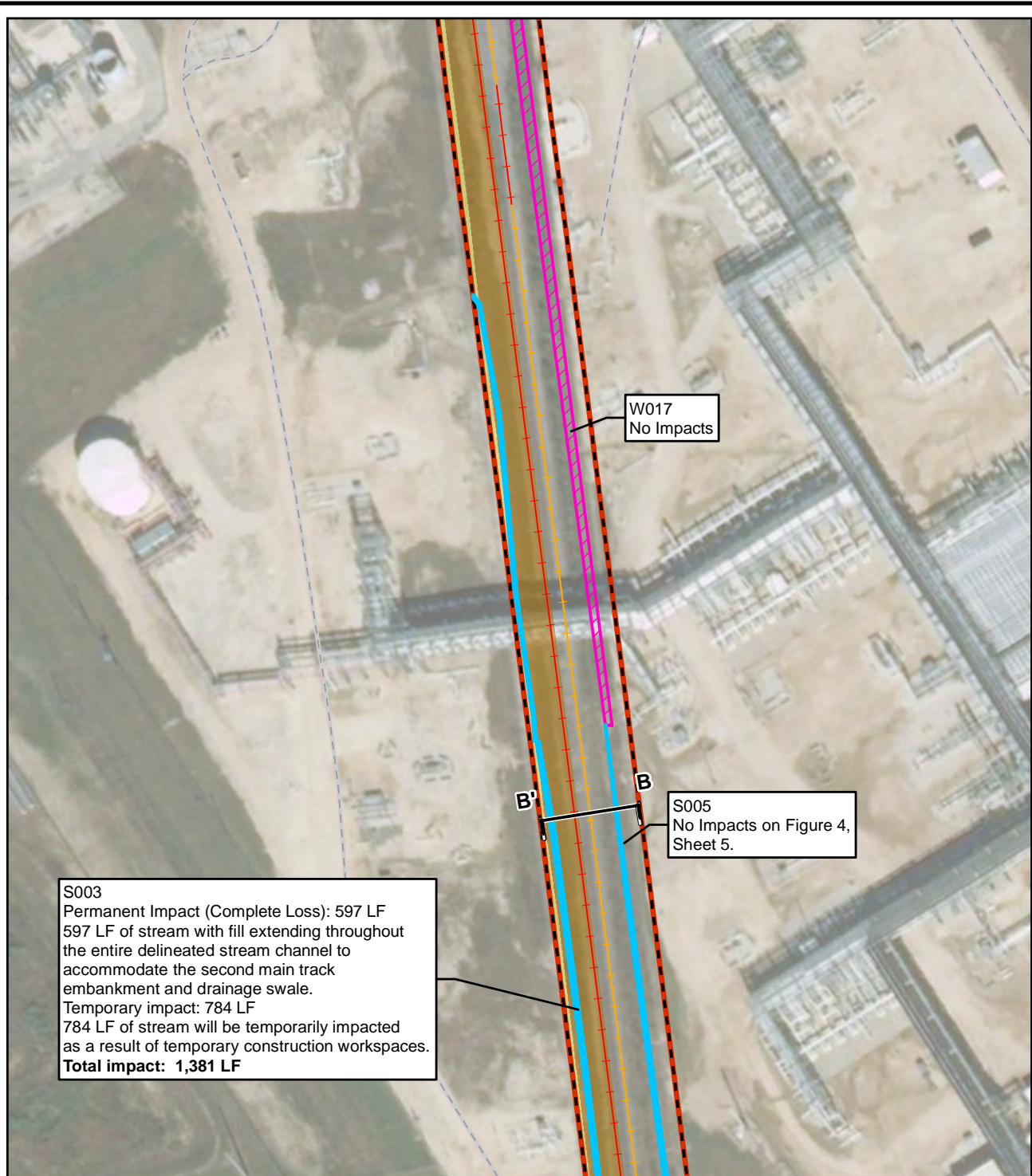


JACOBS

**Union Pacific Railroad
Mont Belvieu to Eldon Junction Project**

**FIGURE 4
SHEET 4 OF 19**

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LEGEND

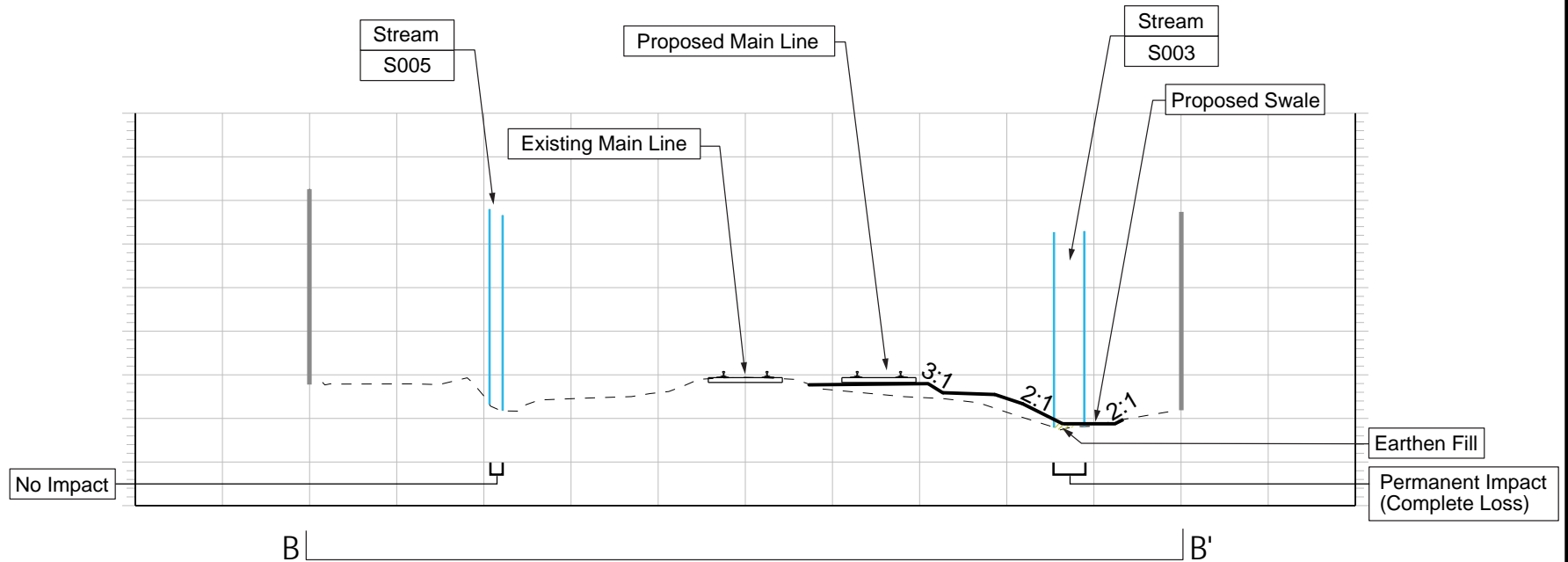
- | | | |
|-------------------------------------|--|--------------------------------------|
| ● Milepost | — Existing Culvert | ■ Grading (Permanent) |
| — Proposed Track Centerline | - - - Proposed Culvert | ■ Construction Workspace (Temporary) |
| — Existing Track Centerline | □ Proposed Bridge | □ Aquatic Resource Survey Boundary |
| — Proposed Right-of-Way Acquisition | □ Delineated Ordinary High Water Mark (OHWM) | — Streets |
| — Existing Right-of-Way | □ PEM | |
| □ Cross Section Match Line | □ PFO | |
| | □ PSS | |

DATE: 1/8/2019

0 100
Scale In Feet



Cross Section View B-B'



Within Cross Section B-B',
S005 will not be impacted.

S005 Total Fill Quantities

21.6 CY Earthen Fill
0 CY Subballast
10.17 CY Riprap
0 CY Excavation

S003 Total Fill Quantities

52.24 CY Earthen Fill
0 CY Subballast
0 CY Riprap
0 CY Excavation

Within Cross Section B-B',
S003 will be permanently
impacted (complete loss) to
accommodate the railroad
embankment.

Legend

- | | |
|---------------------------------|-----------------------|
| Delineated Stream OHWM | Riprap |
| Delineated PEM Wetland Boundary | Culvert |
| Delineated PFO Wetland Boundary | Earthen Fill |
| Delineated PSS Wetland Boundary | Subballast |
| Existing UPRR ROW | Existing Ground Level |
| Proposed UPRR ROW | Proposed Ground Level |



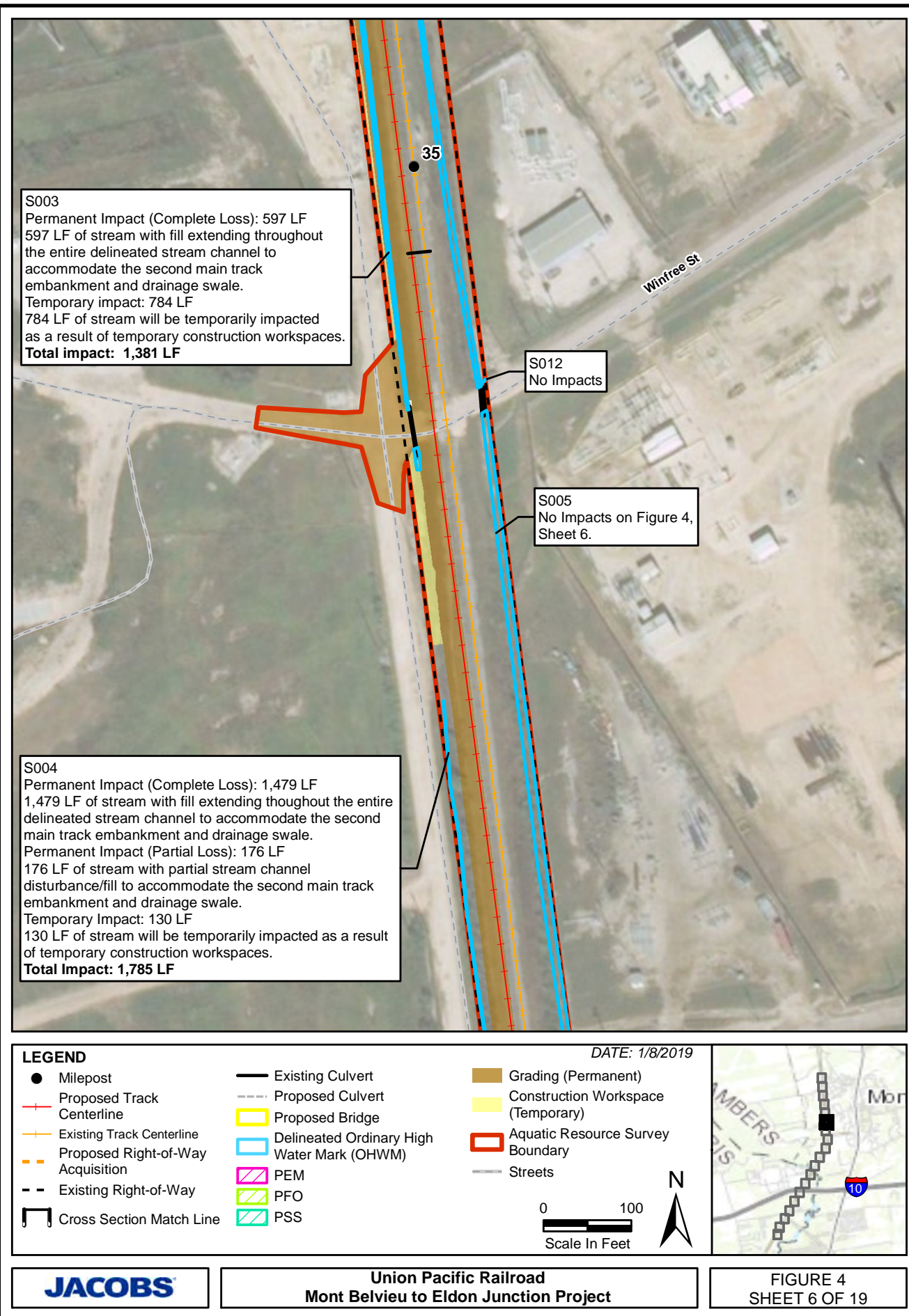
Applicant: Union Pacific Railroad
Project.: Milepost 32.20 to 35.95 Mont Belvieu to Eldon Junction Project
Feature: S003
Date: 8/1/2018
Figure Title: Cross Section B-B'
Station: 714+00.00
County: Chambers County, Texas



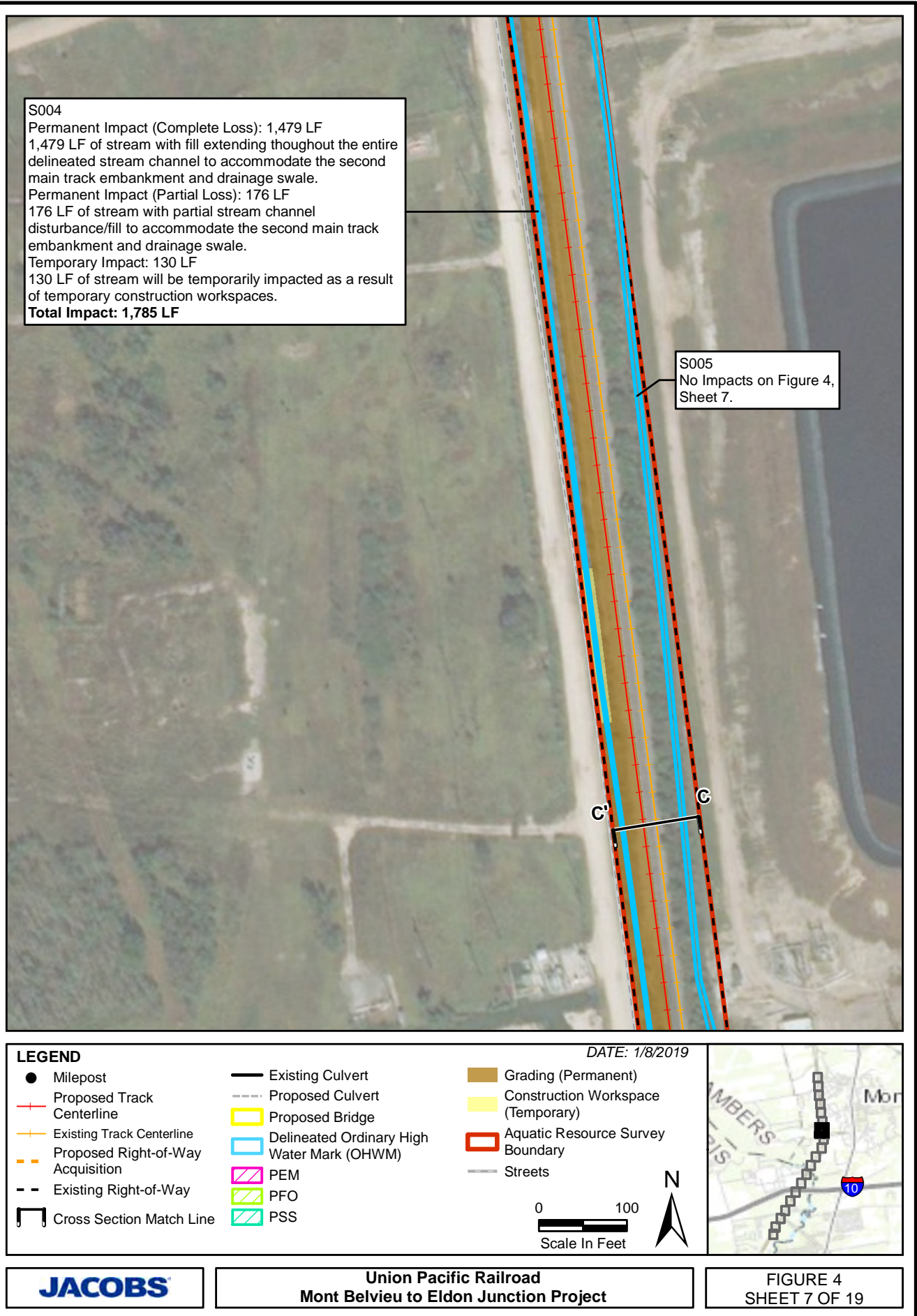
Notes:

Delineated November 28 through December 1, 2017

Cross sections have been adapted from TranSystems "Existing Mainline Cross Sections," dated 7/11/2018, at the noted station number.

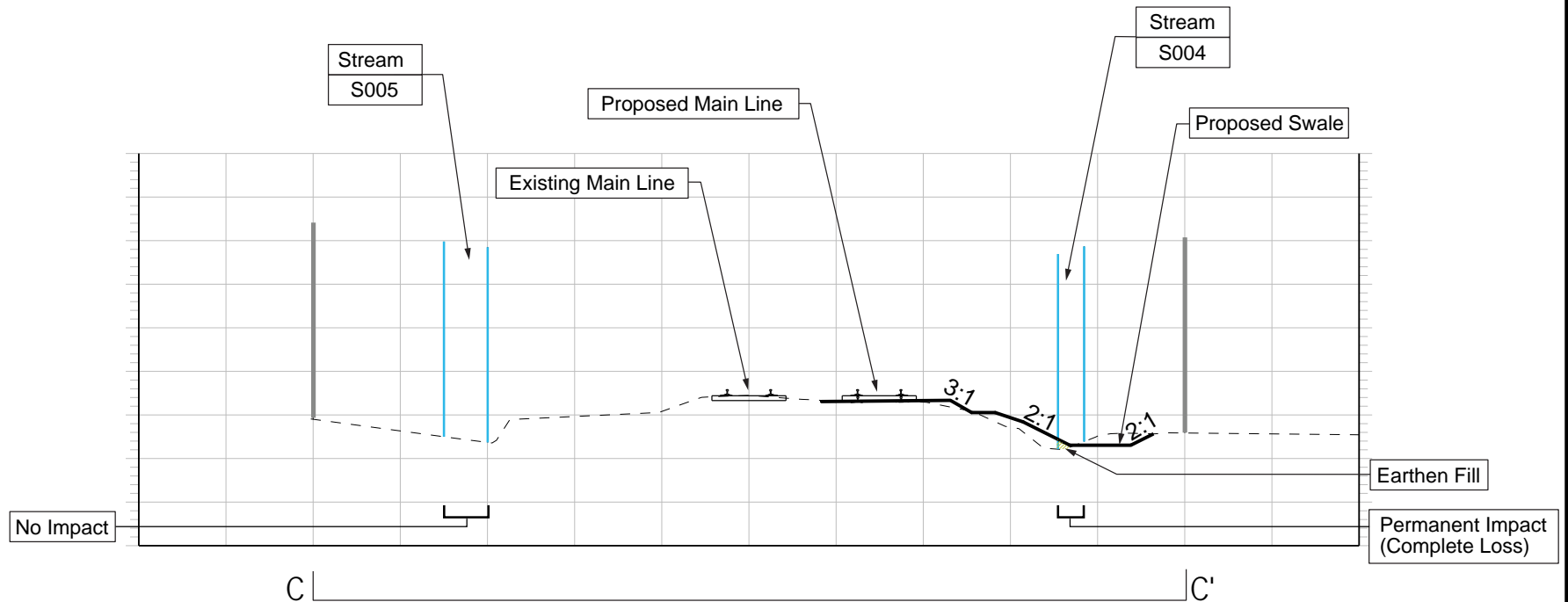


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Cross Section View C-C'



Within Cross Section C-C',
S005 will not be impacted.

S005 Total Fill Quantities
216 CY Earthen Fill
0 CY Subballast
10.17 CY Riprap
0 CY Excavation

S004 Total Fill Quantities
622.29 CY Earthen Fill
5.03 CY Subballast
16.96 CY Riprap
86 CY Excavation

Within Cross Section C-C',
S004 will be permanently
impacted (complete loss) to
accommodate the railroad
embankment.

Legend

- | Delineated Stream OHWM
- | Delineated PEM Wetland Boundary
- | Delineated PFO Wetland Boundary
- | Delineated PSS Wetland Boundary
- | Existing UPRR ROW
- | Proposed UPRR ROW
- Riprap
- Culvert
- Earthen Fill
- Subballast
- Existing Ground Level
- Proposed Ground Level

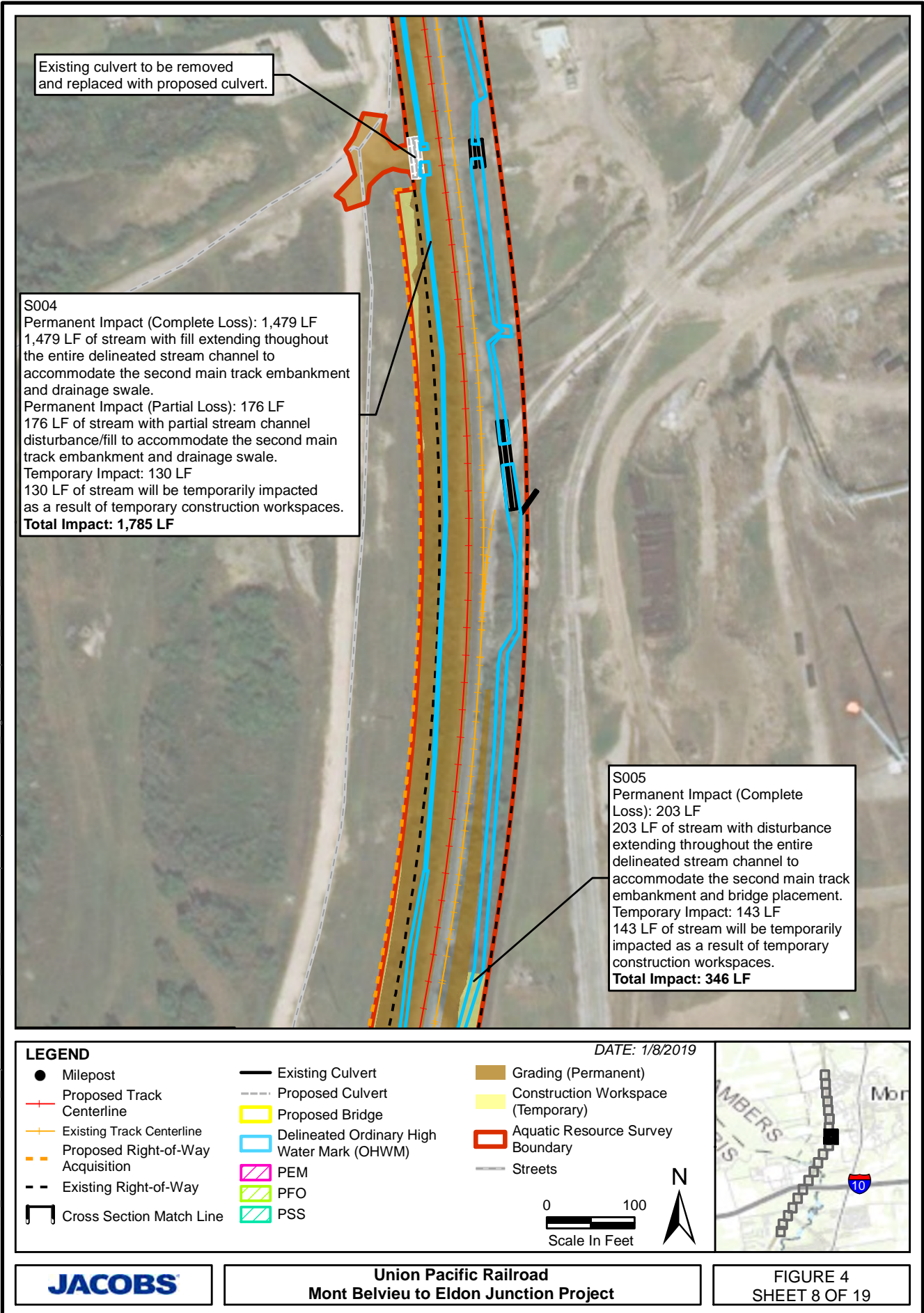


Applicant: Union Pacific Railroad
Project.: Milepost 32.20 to 35.95 Mont Belvieu to Eldon Junction Project
Feature: S004
Date: 8/1/2018
Figure Title: Cross Section C-C'
Station: 738+00.00
County: Chambers County, Texas



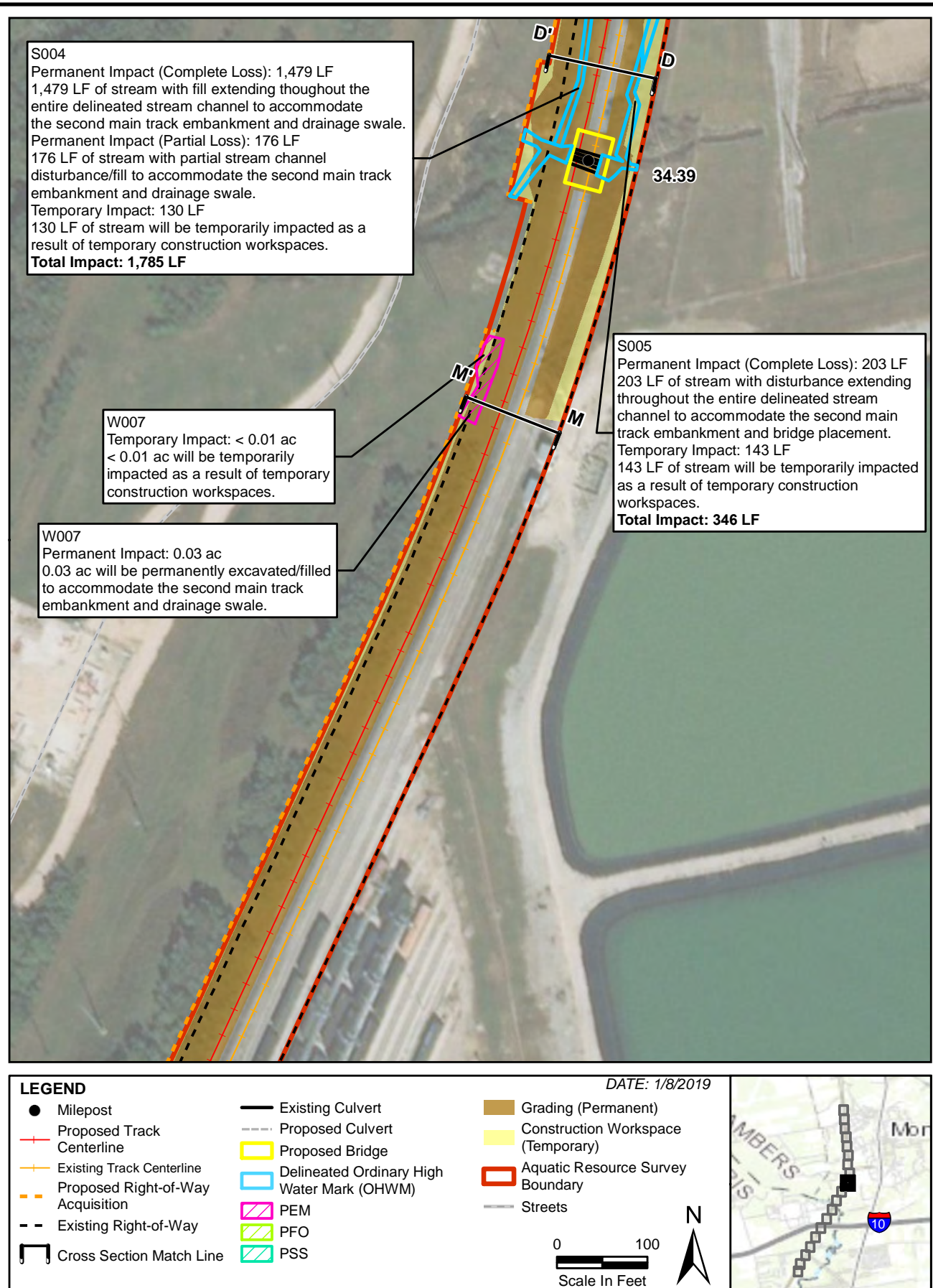
Notes:
Delineated November 28 through December 1, 2017

Cross sections have been adapted from TranSystems "Existing Mainline Cross Sections," dated 7/11/2018, at the noted station number.

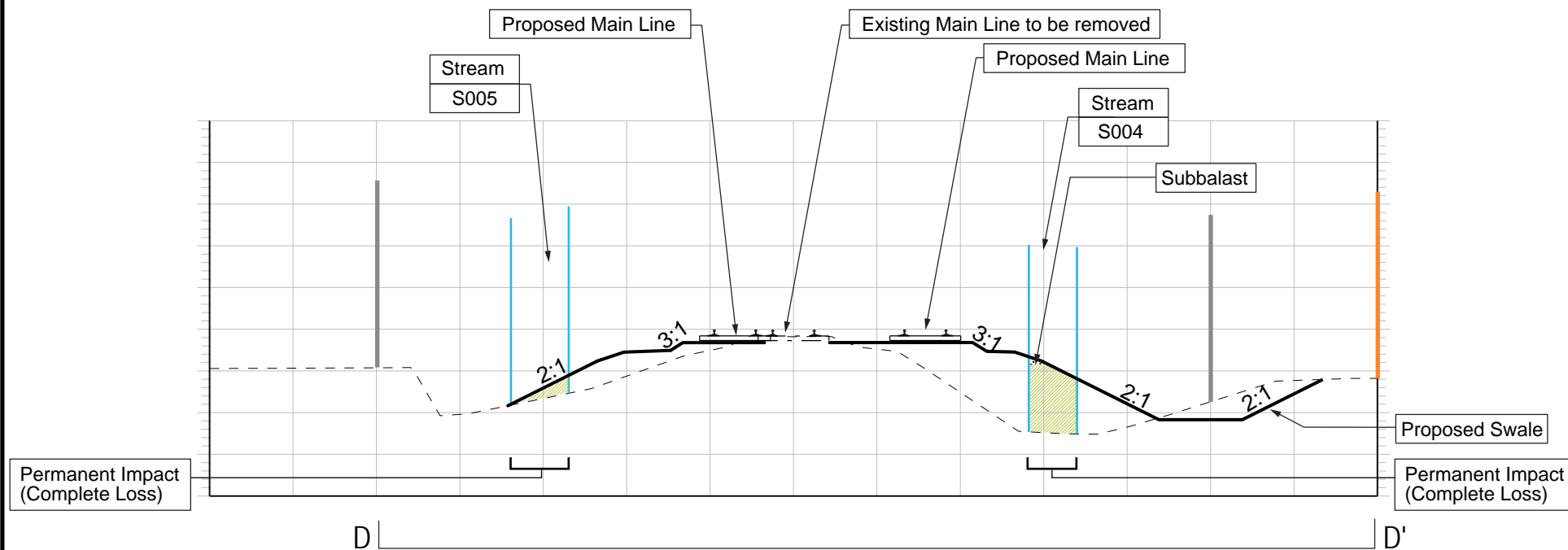


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Cross Section View D-D'



Within Cross Section D-D', S005 will be permanently impacted (complete loss) to accommodate the railroad embankment.

S005 Total Fill Quantities

21.6 CY Earthen Fill
0 CY Subballast
10.17 CY Riprap
0 CY Excavation

S004 Total Fill Quantities

622.29 CY Earthen Fill
5.03 CY Subballast
16.96 CY Riprap
86 CY Excavation

Within Cross Section D-D', S004 will be permanently impacted (complete loss) to accommodate the railroad embankment.

Legend

- | | |
|--|-----------------------|
| Delineated Stream OHWM | Riprap |
| Delineated PEM Wetland Boundary | Culvert |
| Delineated PFO Wetland Boundary | Earthen Fill |
| Delineated PSS Wetland Boundary | Subballast |
| Existing UPRR ROW | Existing Ground Level |
| Proposed UPRR ROW | Proposed Ground Level |



SCALE IN FEET

Applicant: Union Pacific Railroad
Project.: Milepost 32.20 to 35.95 Mont Belvieu to Eldon Junction Project
Feature: S005
Date: 8/1/2018
Figure Title: Cross Section D-D'
Station: 752+00.00
County: Chambers County, Texas

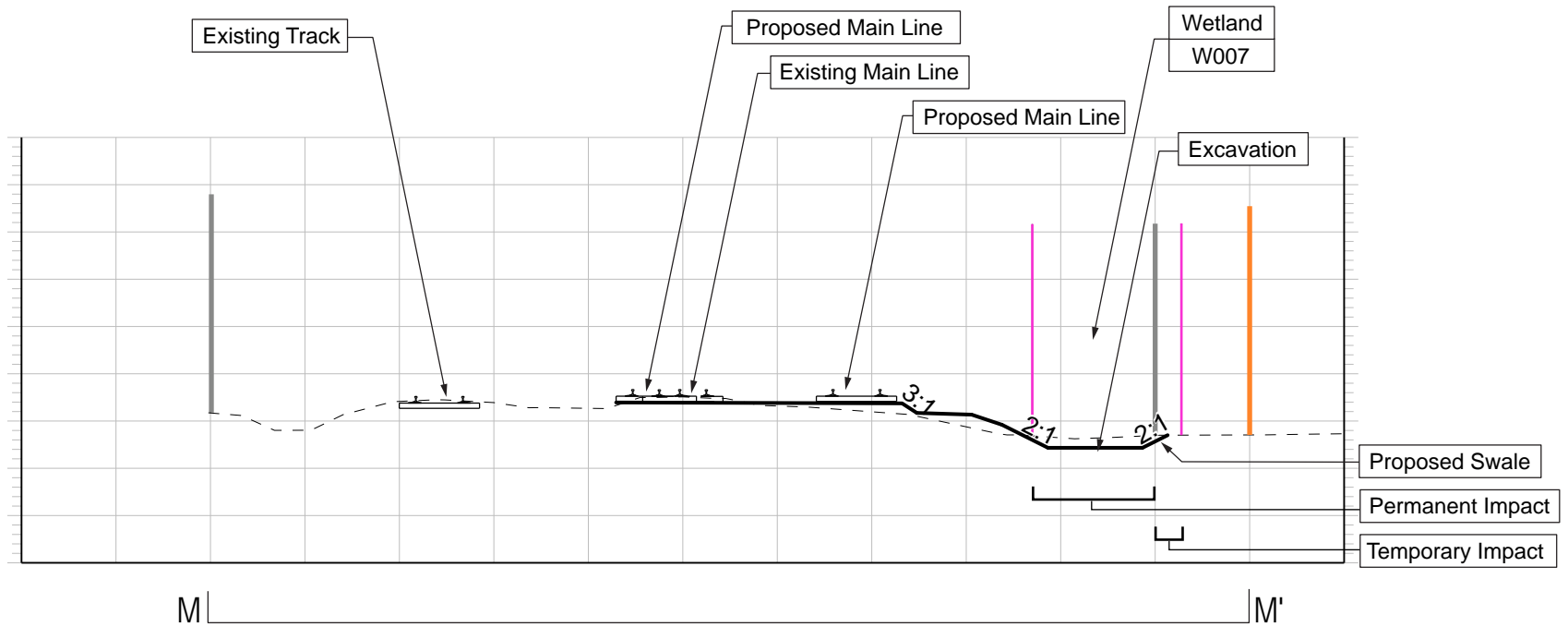


Notes:

Delineated November 28 through December 1, 2017

Cross sections have been adapted from TranSystems "Existing Mainline Cross Sections," dated 7/11/2018, at the noted station number.

Cross Section View M-M'



Within Cross Section M-M',
W007 will be temporarily impacted
to accommodate temporary
construction workspace.

Within Cross Section M-M',
W007 will be permanently impacted
to accommodate the railroad
embankment and drainage swale.

W007 Total Fill Quantities
0.02 CY Earthen Fill
0 Subballast
0 CY Riprap
51 CY Excavation

Legend

- | | |
|---------------------------------|-----------------------|
| Delineated Stream OHWM | Riprap |
| Delineated PEM Wetland Boundary | Culvert |
| Delineated PFO Wetland Boundary | Earthen Fill |
| Delineated PSS Wetland Boundary | Subballast |
| Existing UPRR ROW | Existing Ground Level |
| Proposed UPRR ROW | Proposed Ground Level |



Applicant: Union Pacific Railroad
Project.: Milepost 32.20 to 35.95 Mont Belvieu to Eldon Junction Project
Feature: W007
Date: 8/1/2018
Figure Title: Cross Section M-M'
Station: 756+00.00
County: Chambers County, Texas

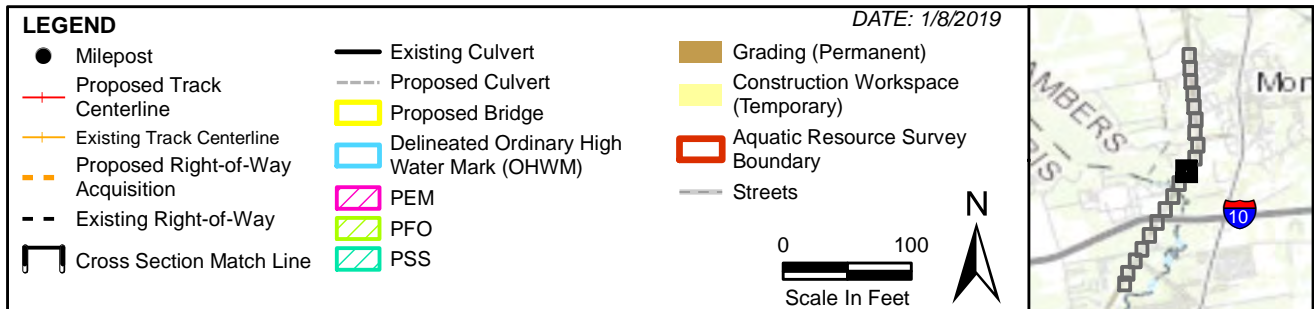
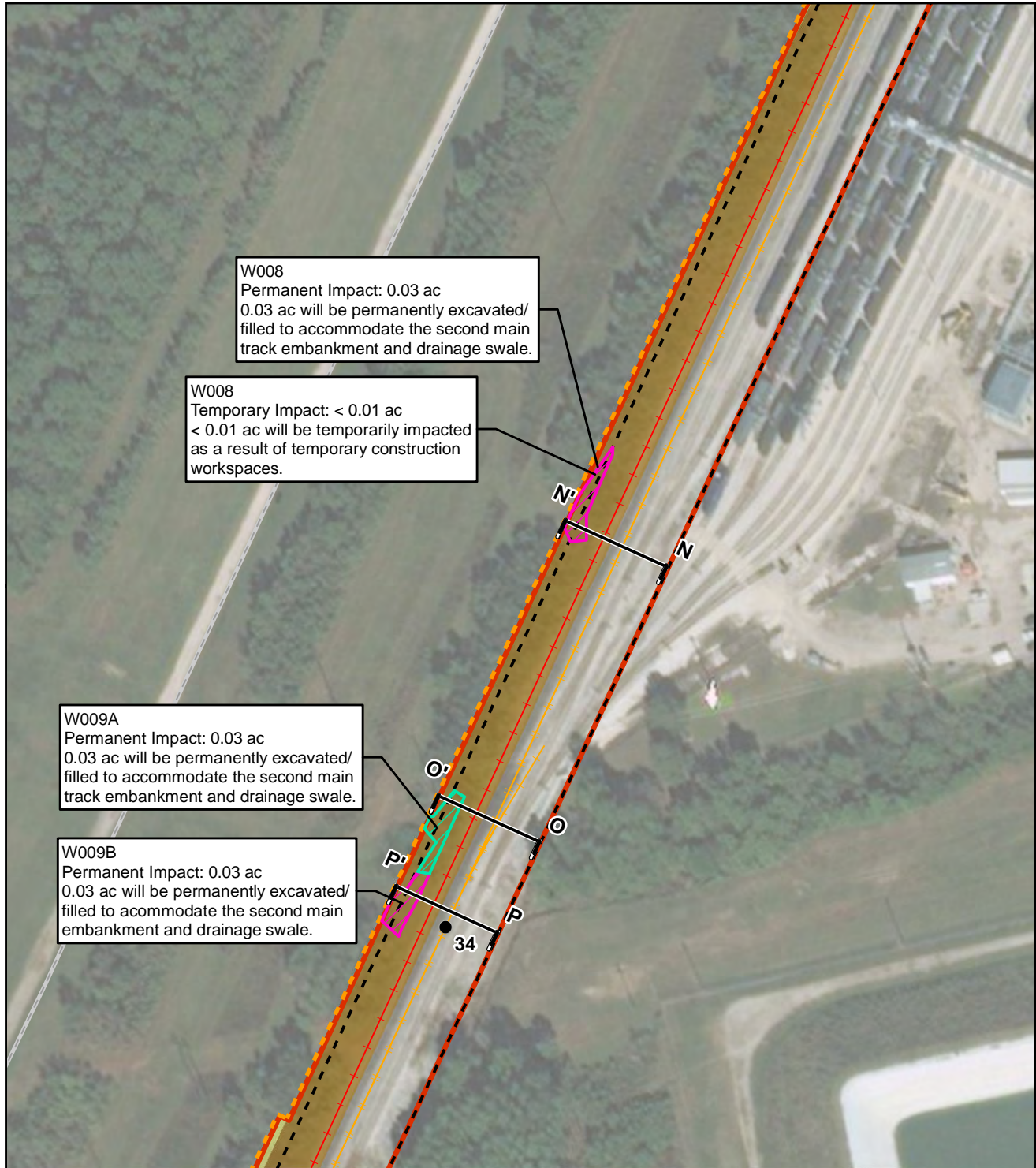


Notes:

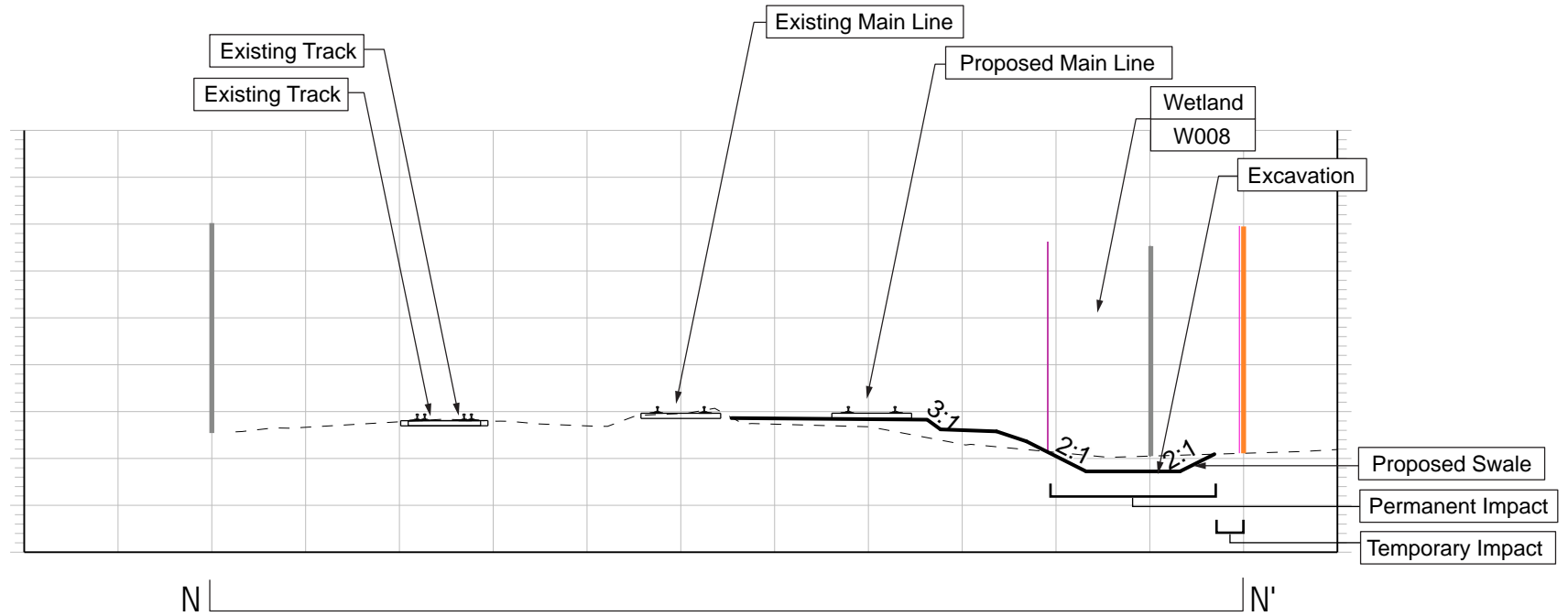
Delineated November 28 through December 1, 2017

Cross sections have been adapted from TranSystems "Existing Mainline Cross Sections," dated 7/11/2018, at the noted station number.

brooksides\GIS_SHARE\ENBG00_Proj\UUPRR\UPRR_Mont_Belview\Maps\Report\MontBelview_Figure 4 Impacts_P B&W_CrossSection3.mxd



Cross Section View N-N'



*Within Cross Section N-N',
W008 will be temporarily impacted
to accommodate temporary
construction workspace.*

*Within Cross Section N-N',
W008 will be permanently impacted
to accommodate the railroad
embankment and drainage swale.*

W008 Total Fill Quantities

1.14 CY Earthen Fill
0.58 CY Subballast
0 CY Riprap
73 CY Excavation

Legend

- | | |
|---------------------------------|-----------------------|
| Delineated Stream OHWM | Riprap |
| Delineated PEM Wetland Boundary | Culvert |
| Delineated PFO Wetland Boundary | Earthen Fill |
| Delineated PSS Wetland Boundary | Subballast |
| Existing UPRR ROW | Existing Ground Level |
| Proposed UPRR ROW | Proposed Ground Level |



Applicant: Union Pacific Railroad
Project.: Milepost 32.20 to 35.95 Mont Belvieu to Eldon Junction Project
Feature: W008
Date: 8/1/2018
Figure Title: Cross Section N-N'
Station: 770+00.00
County: Chambers County, Texas

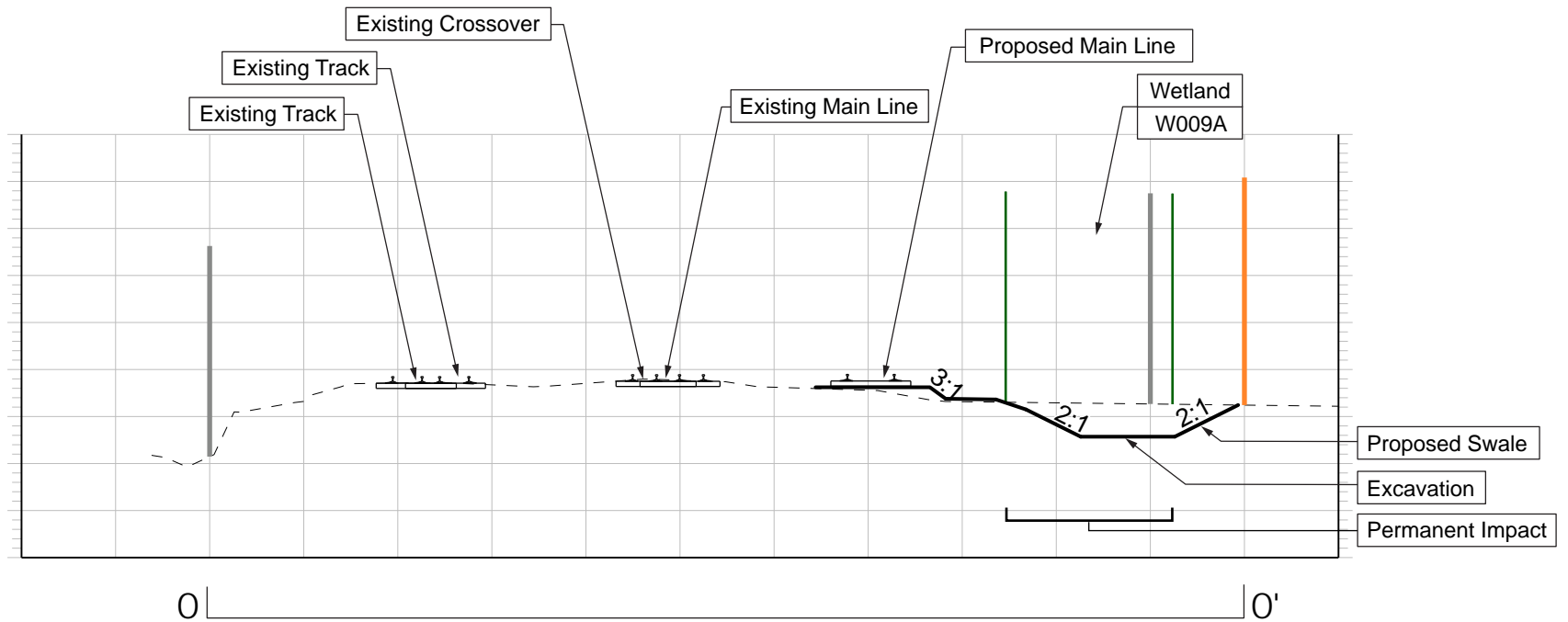


Notes:

Delineated November 28 through December 1, 2017

Cross sections have been adapted from TranSystems "Existing Mainline Cross Sections," dated 7/11/2018, at the noted station number.

Cross Section View O-O'



Within Cross Section O-O',
W009A will be permanently impacted
to accommodate the railroad
embankment and drainage swale.

W009A Total Fill Quantities

0 CY Earthen Fill
2.86 CY Subballast
0 CY Riprap
90 CY Excavation

Legend

- | | |
|---------------------------------|-----------------------|
| Delineated Stream OHWM | Riprap |
| Delineated PEM Wetland Boundary | Culvert |
| Delineated PFO Wetland Boundary | Earthen Fill |
| Delineated PSS Wetland Boundary | Subballast |
| Existing UPRR ROW | Existing Ground Level |
| Proposed UPRR ROW | Proposed Ground Level |



Applicant: Union Pacific Railroad
Project.: Milepost 32.20 to 35.95 Mont Belvieu to Eldon Junction Project
Feature: W009A
Date: 8/1/2018
Figure Title: Cross Section O-O'
Station: 773+00.00
County: Chambers County, Texas

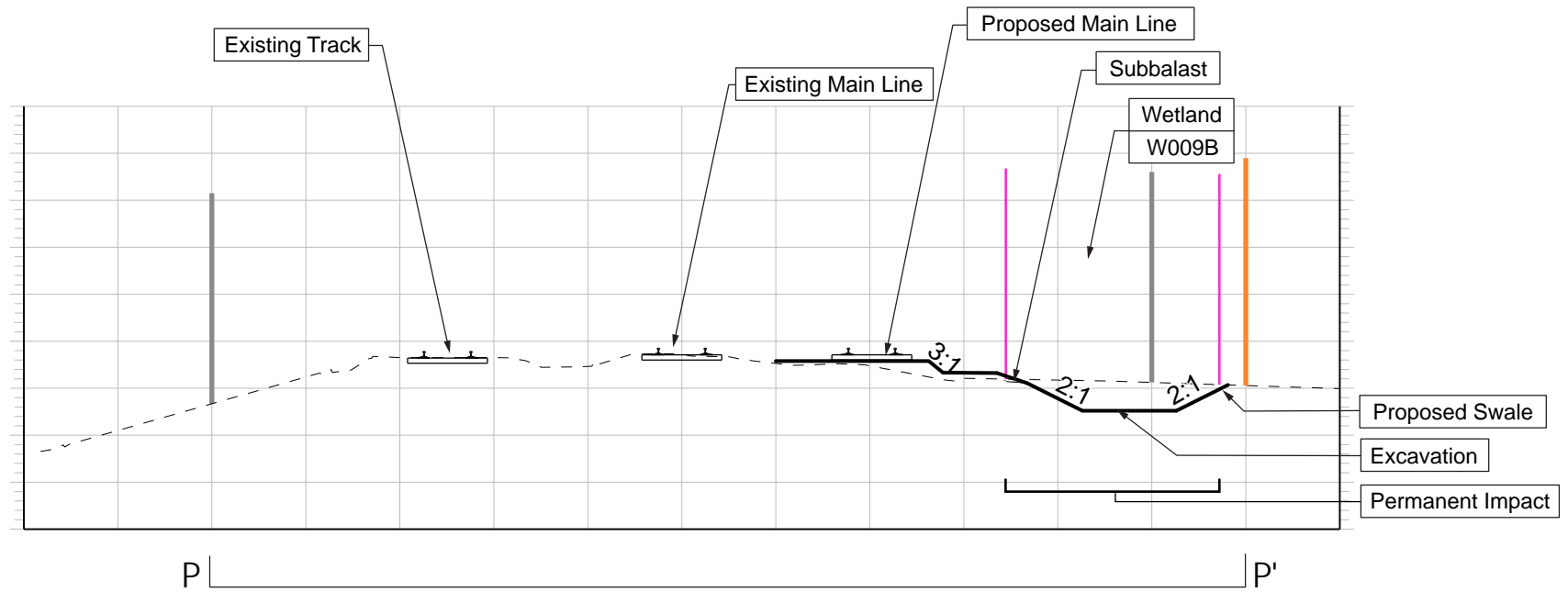


Notes:

Delineated November 28 through December 1, 2017

Cross sections have been adapted from TranSystems "Existing Mainline Cross Sections," dated 7/11/2018, at the noted station number.

Cross Section View P-P'



Within Cross Section P-P',
W009B will be permanently impacted
to accommodate the railroad
embankment and drainage swale.

W009B Total Fill Quantities

0.001 CY Earthen Fill
2.16 CY Subballast
0 CY Riprap
120 CY Excavation

Legend

- | | |
|---------------------------------|-----------------------|
| Delineated Stream OHWM | Riprap |
| Delineated PEM Wetland Boundary | Culvert |
| Delineated PFO Wetland Boundary | Earthen Fill |
| Delineated PSS Wetland Boundary | Subballast |
| Existing UPRR ROW | Existing Ground Level |
| Proposed UPRR ROW | Proposed Ground Level |



Applicant: Union Pacific Railroad
Project.: Milepost 32.20 to 35.95 Mont Belvieu to Eldon Junction Project
Feature: W009B
Date: 8/1/2018
Figure Title: Cross Section P-P'
Station: 774+00.00
County: Chambers County, Texas

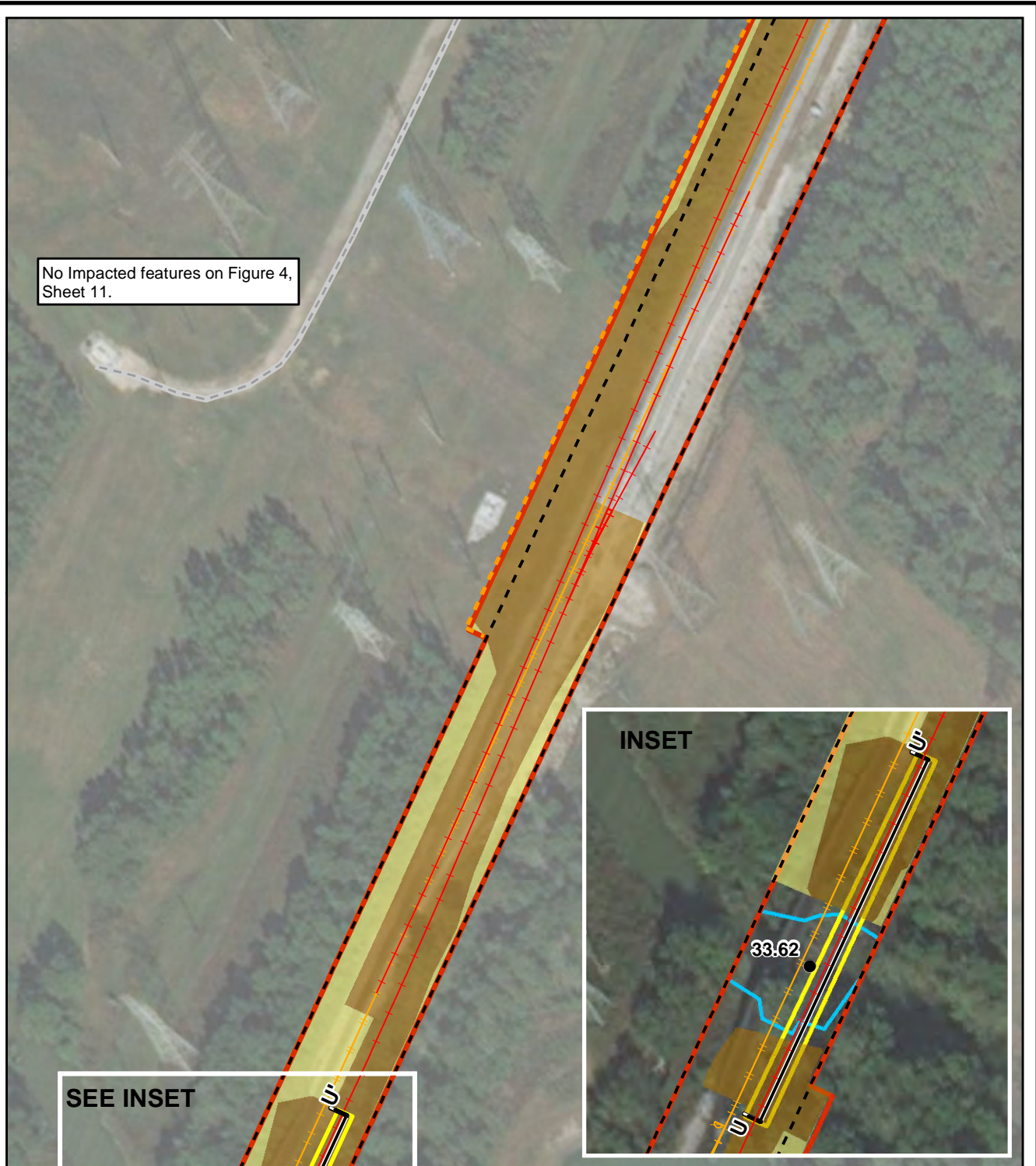


Notes:

Delineated November 28 through December 1, 2017

Cross sections have been adapted from TranSystems "Existing Mainline Cross Sections," dated 7/11/2018, at the noted station number.

brooksides\GIS_SHARE\ENBG00_Proj\UUPRR\UPRR_Mont_Belview\Maps\Report\MontBelview_Figure 4 Impacts_P B&W_CrossSection3_INSET.mxd



LEGEND

- Milepost
- Proposed Track Centerline
- Existing Track Centerline
- Proposed Right-of-Way Acquisition
- Existing Right-of-Way
- Cross Section Match Line

- Existing Culvert
- Proposed Culvert
- Proposed Bridge
- Delineated Ordinary High Water Mark (OHWM)
- PEM
- PFO
- PSS

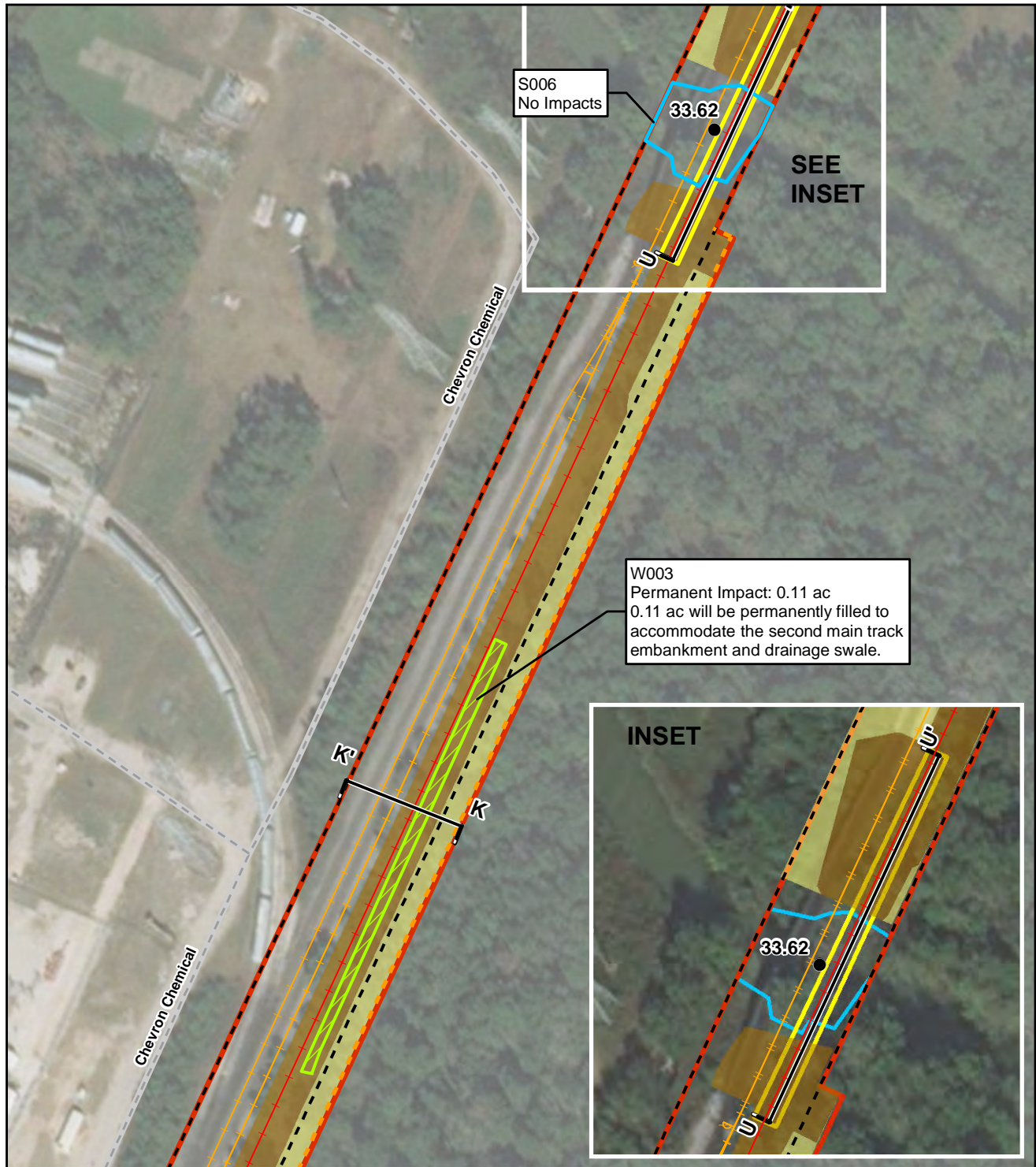
- Grading (Permanent)
- Construction Workspace (Temporary)
- Aquatic Resource Survey Boundary
- Streets

DATE: 1/9/2019

0 100
Scale In Feet



brooksides\GIS_SHARE\ENBG\00_Proj\UUPRR\UPRR_Mont_Belview\Maps\Report\MontBelview_Figure 4 Impacts_P B&W_CrossSection3_INSET.mxd



LEGEND

- Milepost
- Proposed Track Centerline
- Existing Track Centerline
- Proposed Right-of-Way Acquisition
- Existing Right-of-Way
- Cross Section Match Line

- Existing Culvert
- Proposed Culvert
- Proposed Bridge
- Delineated Ordinary High Water Mark (OHWM)
- PEM
- PFO
- PSS

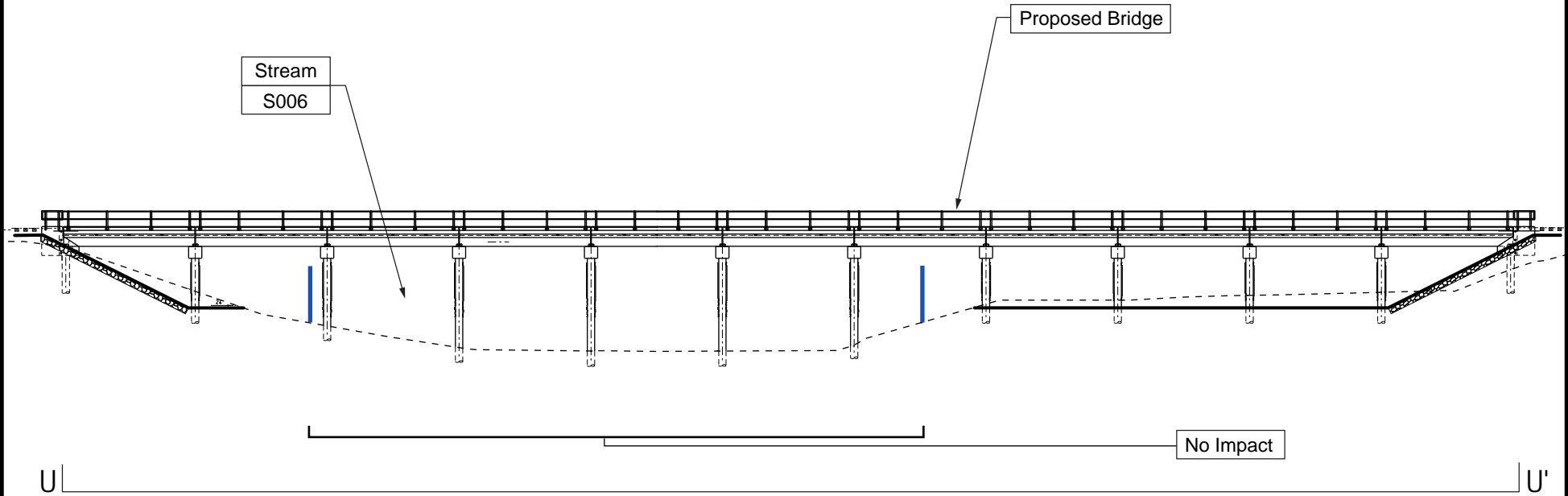
- Grading (Permanent)
- Construction Workspace (Temporary)
- Aquatic Resource Survey Boundary
- Streets

DATE: 1/9/2019

0 100
Scale In Feet



Cross Section View U-U'



Within Cross Section U-U'
S006 will not be impacted.

S006 Total Fill Quantities

0 CY Earthen Fill
0 CY Subballast
0 CY Riprap
0 CY Excavation

Legend

- | | | | |
|--|---------------------------------|--|-----------------------|
| | Delineated Stream OHWM | | Riprap |
| | Delineated PEM Wetland Boundary | | Culvert |
| | Delineated PFO Wetland Boundary | | Earthen Fill |
| | Delineated PSS Wetland Boundary | | Subballast |
| | Existing UPRR ROW | | Existing Ground Level |
| | Proposed UPRR ROW | | Proposed Ground Level |
| | Delineated High Tide Line (HTL) | | |



Applicant: Union Pacific Railroad
Project.: Milepost 32.20 to 35.95 Mont Belvieu to Eldon Junction Project
Feature: S006
Date: 9/11/2018
Figure Title: Cross Section U-U'
Station: N/A
County: Chambers County, Texas

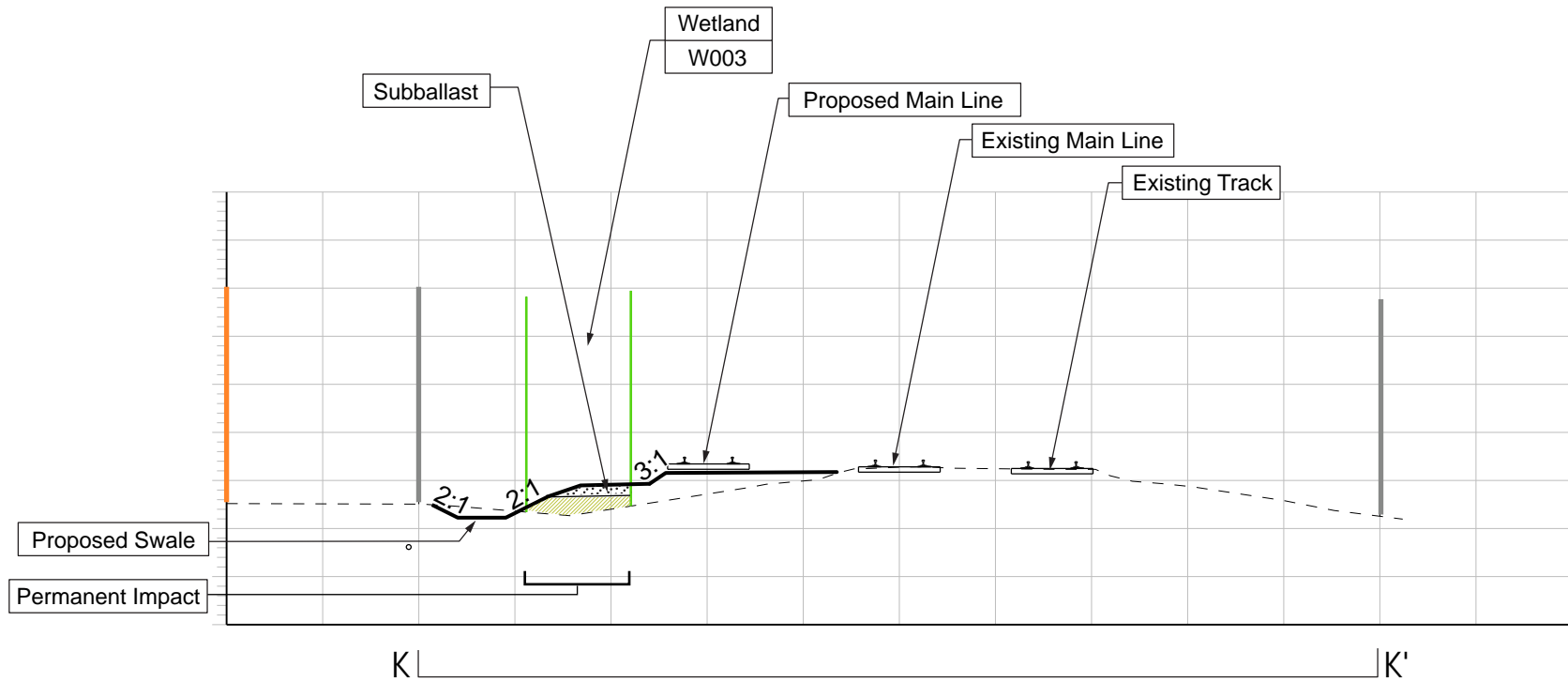


Notes:

Delineated November 28 through December 1, 2017

Cross section has been adapted from TranSystems "Bridge 33.62 100% Design", dated 4/10/2018.

Cross Section View K-K'



W003 Total Fill Quantities

318.33 CY Earthen Fill
120.65 CY Subballast
0 CY Riprap
0 CY Excavation

*Within Cross Section K-K',
W003 will be permanently
impacted to accommodate the
railroad embankment.*

Legend

- | | |
|---------------------------------|-----------------------|
| Delineated Stream OHWM | Riprap |
| Delineated PEM Wetland Boundary | Culvert |
| Delineated PFO Wetland Boundary | Earthen Fill |
| Delineated PSS Wetland Boundary | Subballast |
| Existing UPRR ROW | Existing Ground Level |
| Proposed UPRR ROW | Proposed Ground Level |



Applicant: Union Pacific Railroad
Project.: Milepost 32.20 to 35.95 Mont Belvieu to Eldon Junction Project
Feature: W003
Date: 8/1/2018
Figure Title: Cross Section K-K'
Station: 798+00.00
County: Chambers County, Texas

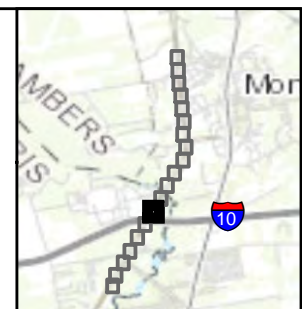
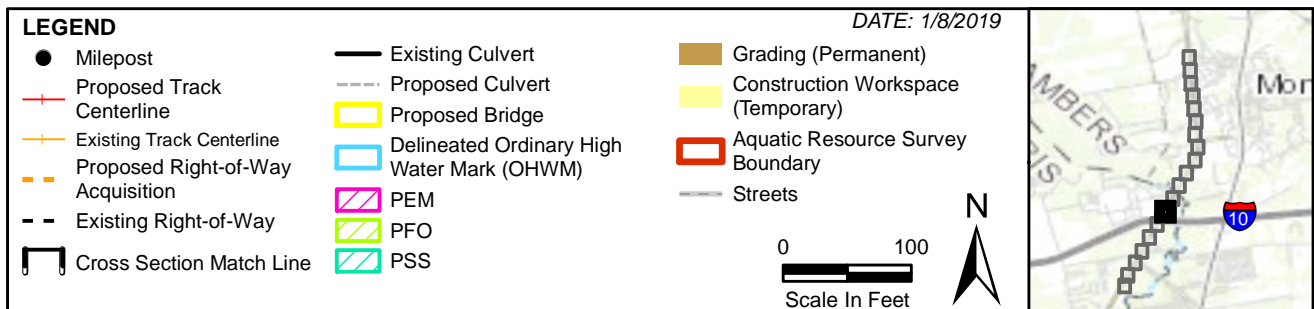
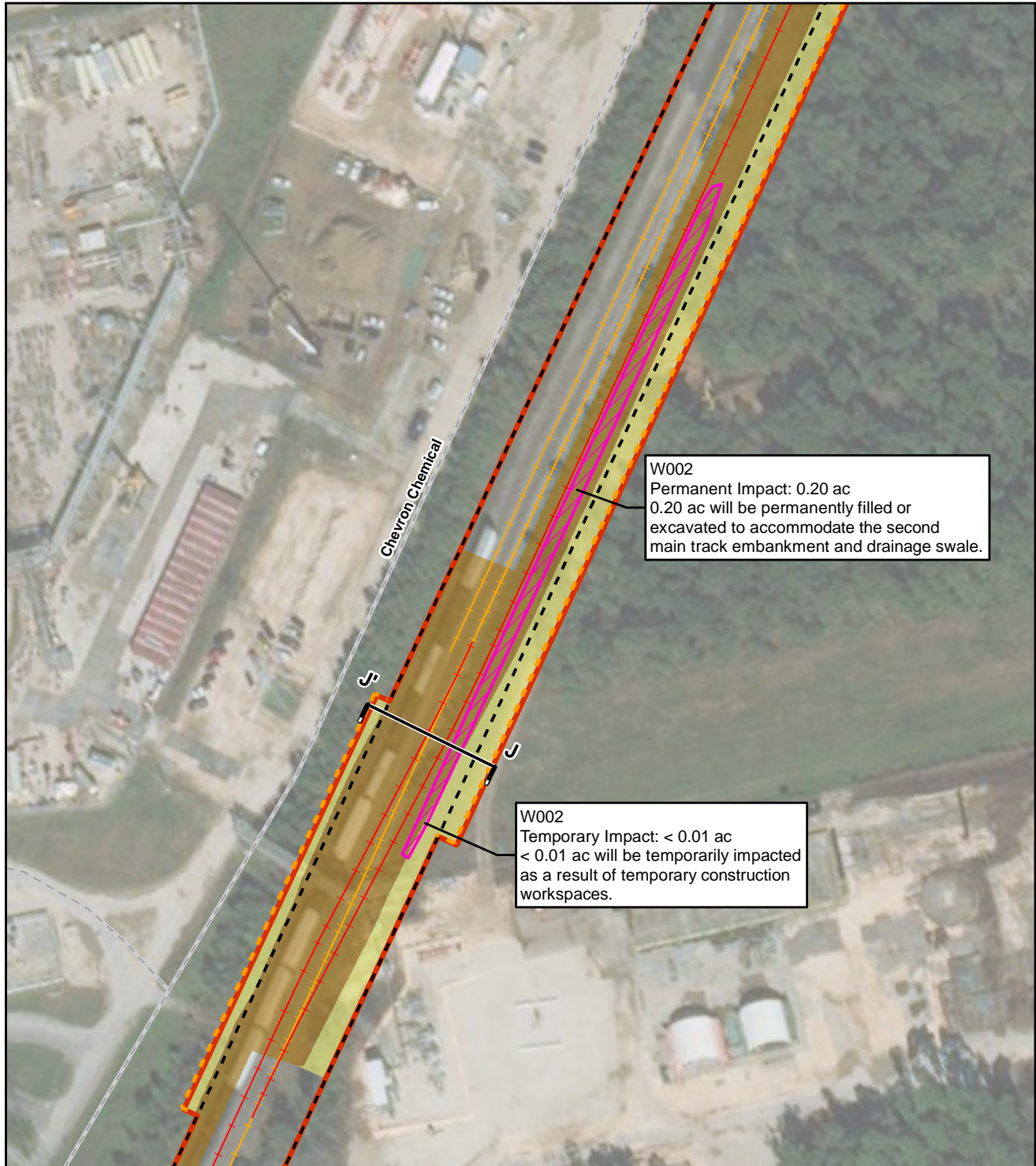


Notes:

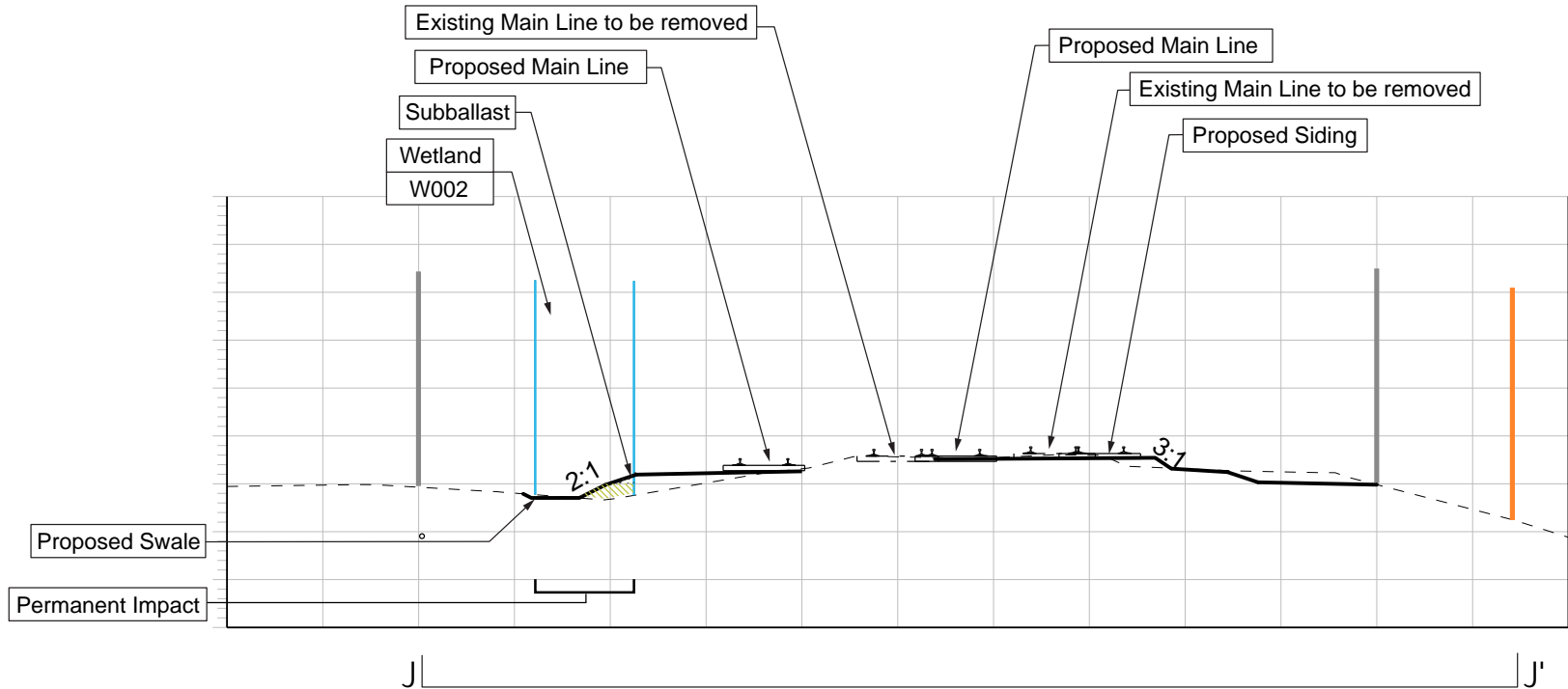
Delineated November 28 through December 1, 2017

Cross sections have been adapted from TranSystems "Existing Mainline Cross Sections," dated 7/11/2018, at the noted station number.

brooksides\GIS_SHARE\ENBG\00_Proj\UUPRR\UPRR_Mont_Belview\Maps\Report\MontBelview_Figure 4 Impacts_P B&W_CrossSection3.mxd



Cross Section View J-J'



W002 Total Fill Quantities
 178.2 CY Earthen Fill
 190.86 CY Subballast
 0 Riprap
 27 CY Excavation

*Within Cross Section J-J',
 W002 will be permanently
 impacted to accommodate the
 railroad embankment.*

Legend

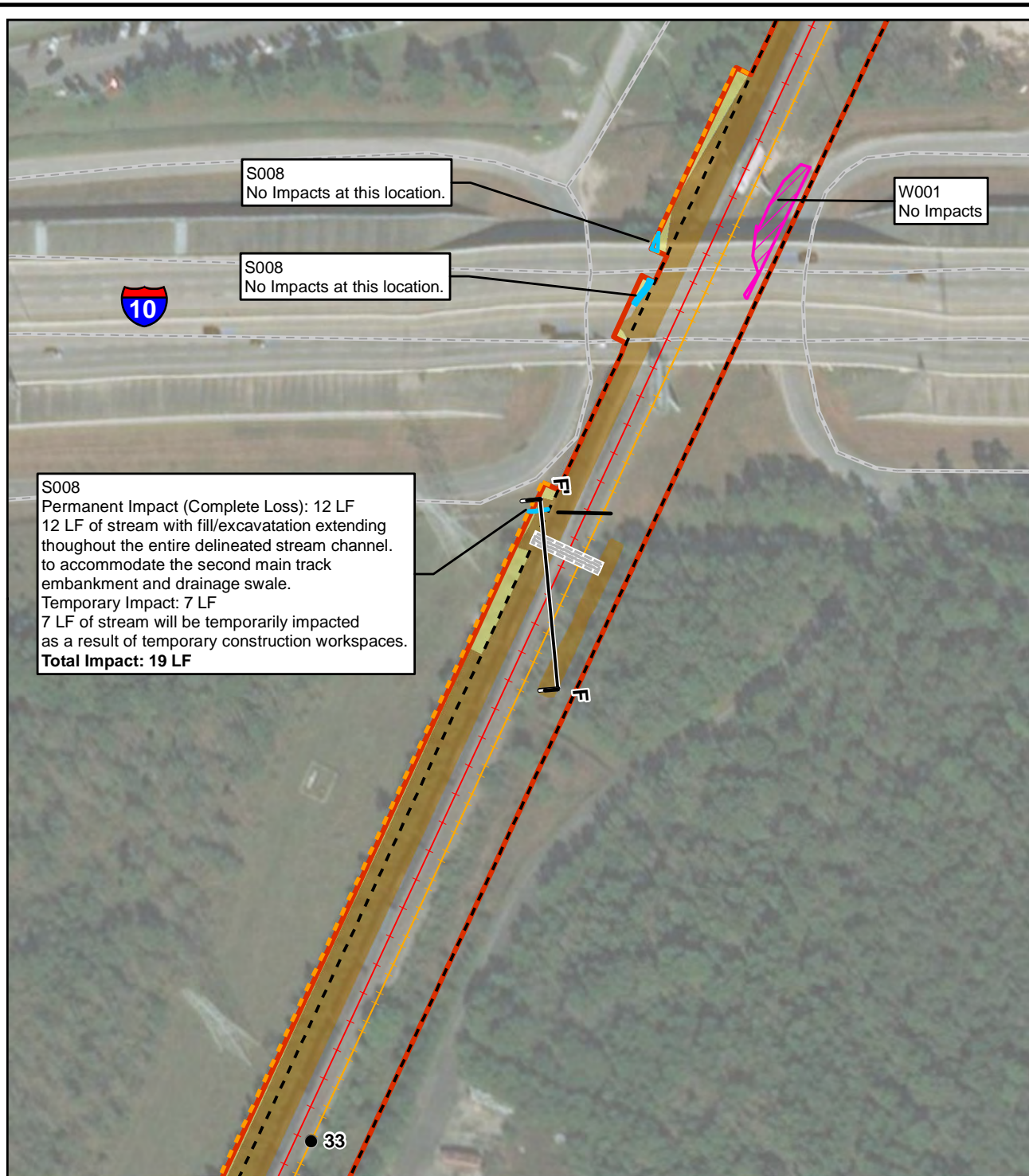
- | | |
|---------------------------------|-----------------------|
| Delineated Stream OHWM | Riprap |
| Delineated PEM Wetland Boundary | Culvert |
| Delineated PFO Wetland Boundary | Earthen Fill |
| Delineated PSS Wetland Boundary | Subballast |
| Existing UPRR ROW | Existing Ground Level |
| Proposed UPRR ROW | Proposed Ground Level |



Applicant: Union Pacific Railroad
 Project.: Milepost 32.20 to 35.95 Mont Belvieu to Eldon Junction Project
 Feature: W002
 Date: 8/1/2018
 Figure Title: Cross Section J-J'
 Station: 810+00.00
 County: Chambers County, Texas



Notes:
 Delineated November 28 through December 1, 2017
 Cross sections have been adapted from TranSystems "Existing Mainline Cross Sections," dated 7/11/2018, at the noted station number.



LEGEND

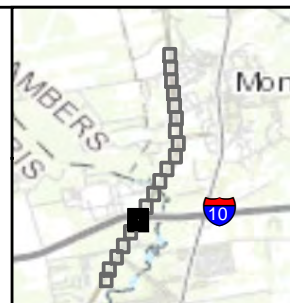
- Milepost
- Proposed Track Centerline
- Existing Track Centerline
- Proposed Right-of-Way Acquisition
- Existing Right-of-Way
- Cross Section Match Line

- Existing Culvert
- Proposed Culvert
- Proposed Bridge
- Delineated Ordinary High Water Mark (OHWM)
- PEM
- PFO
- PSS

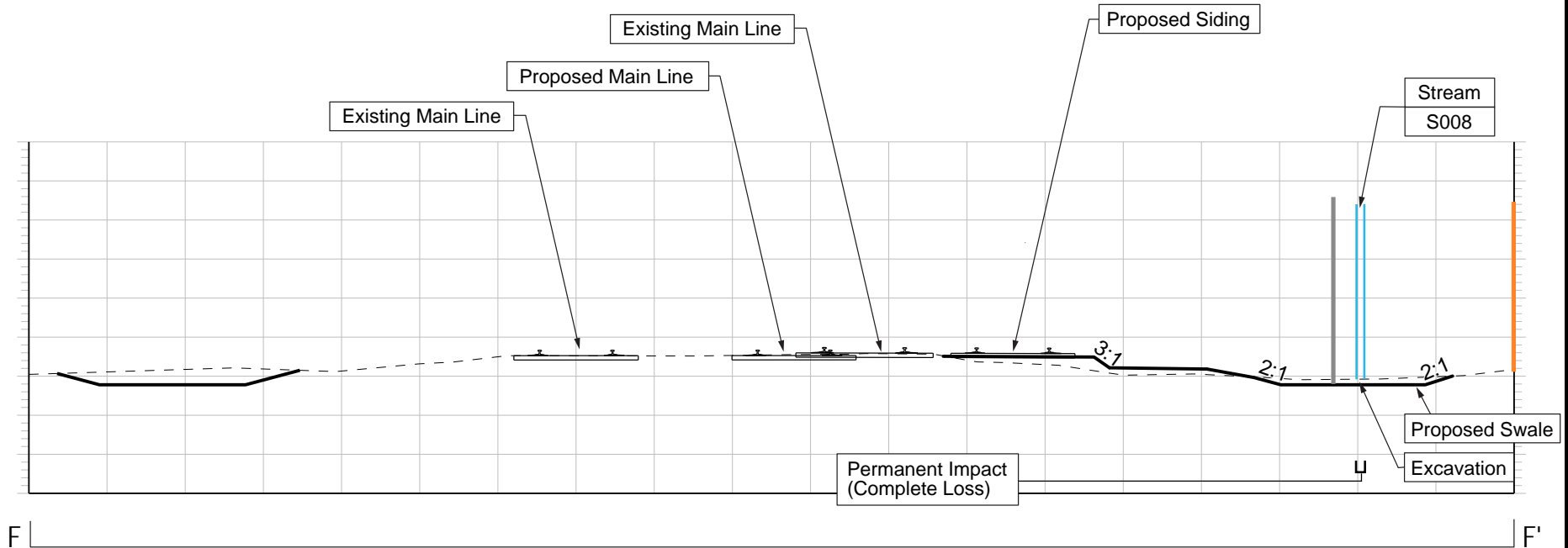
- Grading (Permanent)
- Construction Workspace (Temporary)
- Aquatic Resource Survey Boundary
- Streets

0 100
Scale In Feet

DATE: 1/8/2019



Cross Section View F-F'



Within Cross Section F-F',
S008 will be permanently impacted
(complete loss) to accommodate
the drainage swale.

S008 Total Fill Quantities
0 CY Earthen Fill
0 CY Subballast
0 CY Riprap
1 CY Excavation

Legend

- | | |
|---------------------------------|-----------------------|
| Delineated Stream OHWM | Riprap |
| Delineated PEM Wetland Boundary | Culvert |
| Delineated PFO Wetland Boundary | Earthen Fill |
| Delineated PSS Wetland Boundary | Subballast |
| Existing UPRR ROW | Existing Ground Level |
| Proposed UPRR ROW | Proposed Ground Level |



Applicant: Union Pacific Railroad
Project.: Milepost 32.20 to 35.95 Mont Belvieu to Eldon Junction Project
Feature: S008
Date: 8/1/2018
Figure Title: Cross Section F-F'
Station: 821+26.42
County: Chambers County, Texas



Notes:
Delineated November 28 through December 1, 2017

Cross sections have been adapted from TranSystems "Existing Mainline Cross Sections," dated 7/11/2018, at the noted station number.



LEGEND

- Milepost
- Proposed Track Centerline
- Existing Track Centerline
- Proposed Right-of-Way Acquisition
- Existing Right-of-Way
- Cross Section Match Line

- Existing Culvert
- Proposed Culvert
- Proposed Bridge
- Delineated Ordinary High Water Mark (OHWM)
- PEM
- PFO
- PSS

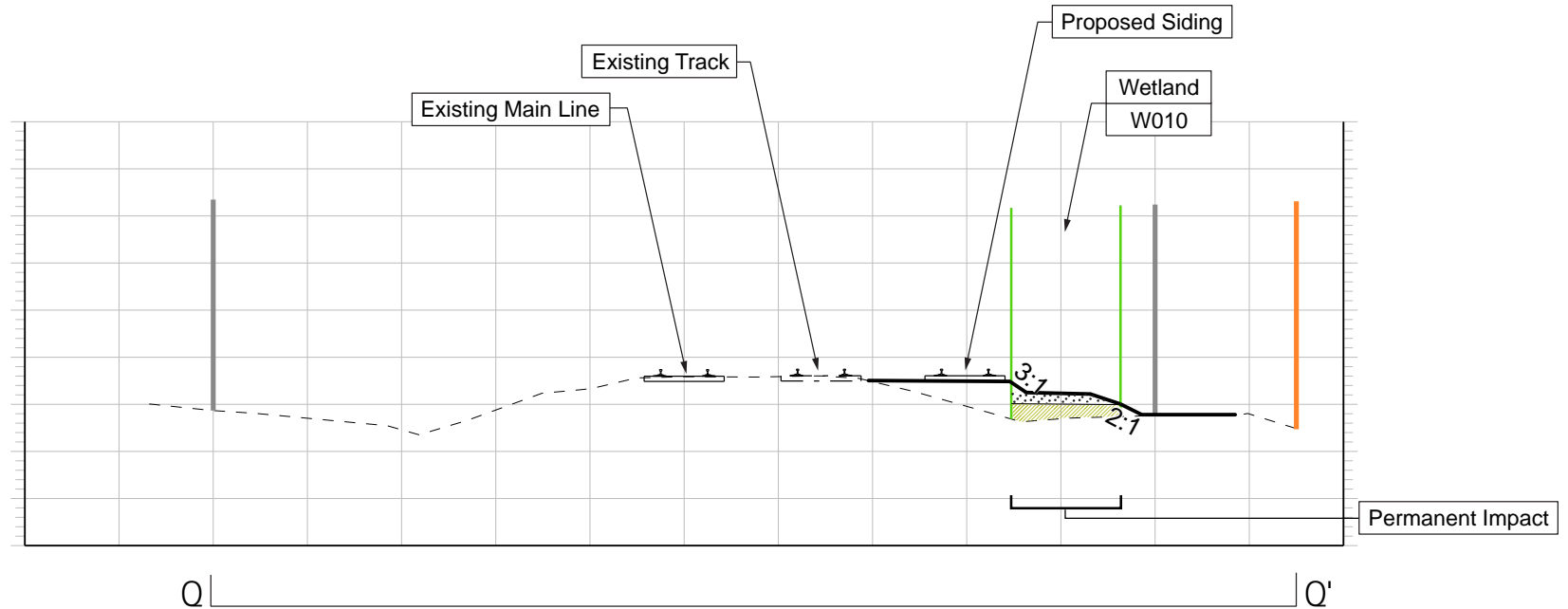
- Grading (Permanent)
- Construction Workspace (Temporary)
- Aquatic Resource Survey Boundary
- Streets

DATE: 1/8/2019

0 100
Scale In Feet



Cross Section View Q-Q'



Within Cross Section Q-Q',
W010 will be permanently
impacted to accommodate the
railroad embankment.

W010 Total Fill Quantities

489.61 CY Earthen Fill
242.36 CY Subballast
0 CY Riprap
0 CY Excavation

Legend

- | | |
|---------------------------------|-----------------------|
| Delineated Stream OHWM | Riprap |
| Delineated PEM Wetland Boundary | Culvert |
| Delineated PFO Wetland Boundary | Earthen Fill |
| Delineated PSS Wetland Boundary | Subballast |
| Existing UPRR ROW | Existing Ground Level |
| Proposed UPRR ROW | Proposed Ground Level |



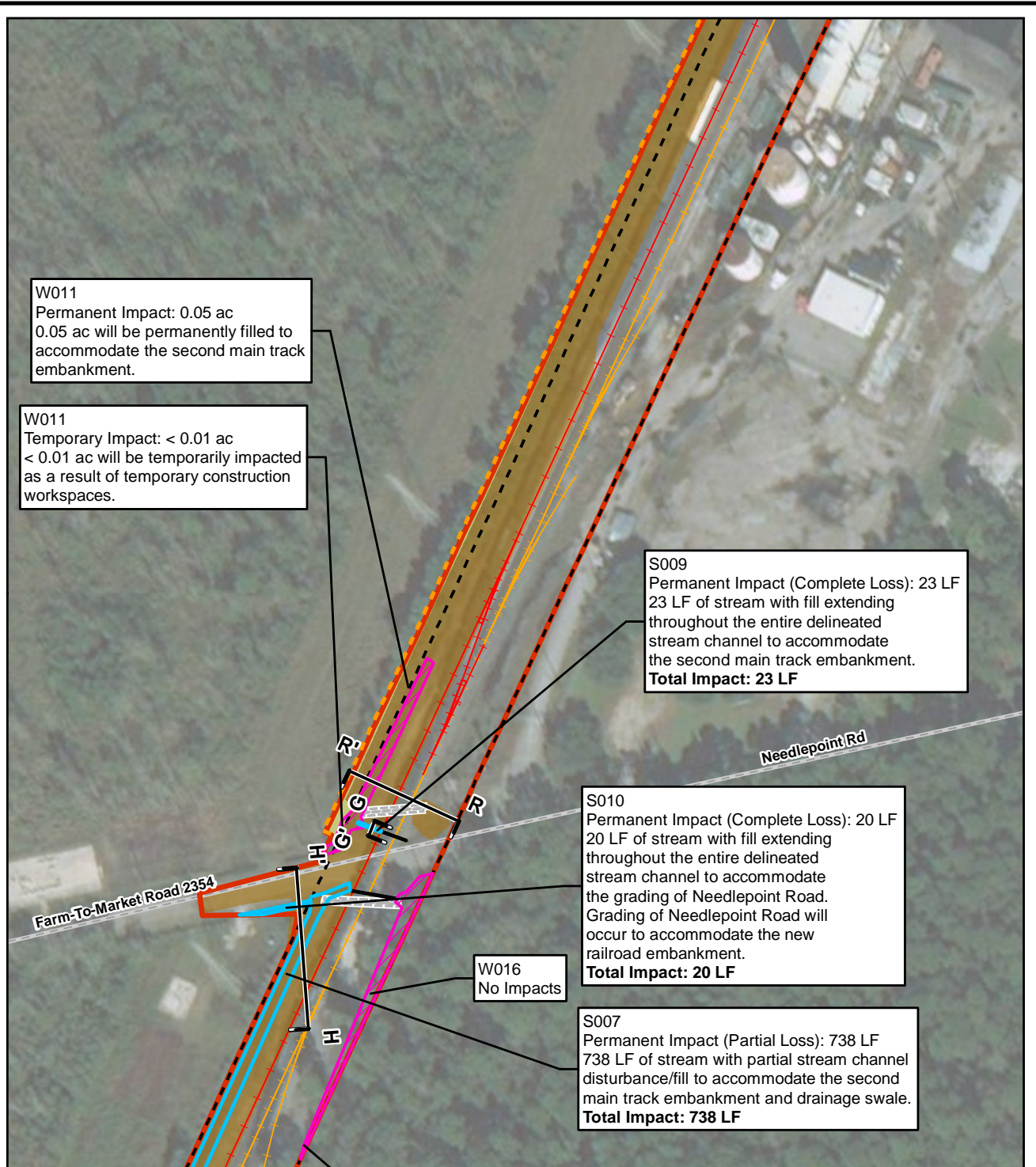
Applicant: Union Pacific Railroad
Project.: Milepost 32.20 to 35.95 Mont Belvieu to Eldon Junction Project
Feature: W010
Date: 8/1/2018
Figure Title: Cross Section Q-Q'
Station: 833+00.00
County: Harris County, Texas



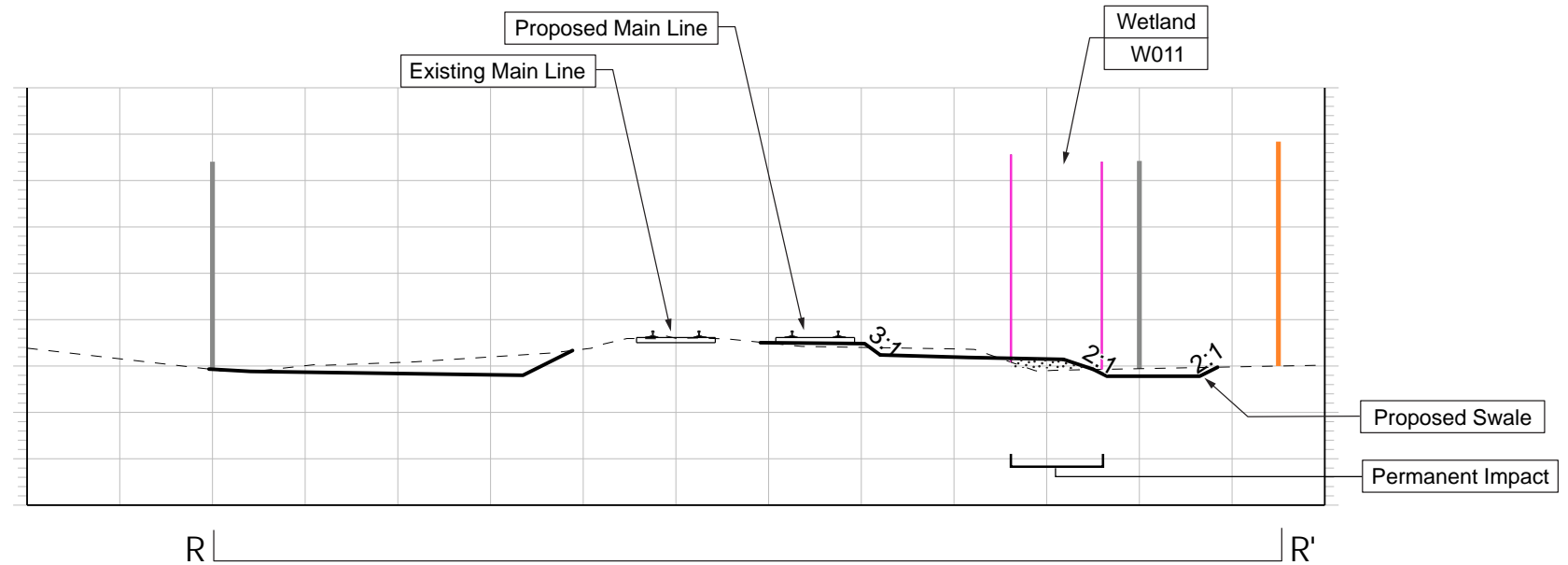
Notes:

Delineated November 28 through December 1, 2017

Cross sections have been adapted from TranSystems "Existing Mainline Cross Sections," dated 7/11/2018, at the noted station number.



Cross Section View R-R'



Within Cross Section R-R',
W011 will be permanently
impacted to accommodate the
railroad embankment.

W011 Total Fill Quantities
3.77 CY Earthen Fill
57.5 CY Subballast
12.62 CY Riprap
0 CY Excavation

Legend

- | | | | |
|--|---------------------------------|--|-----------------------|
| | Delineated Stream OHWM | | Riprap |
| | Delineated PEM Wetland Boundary | | Culvert |
| | Delineated PFO Wetland Boundary | | Earthen Fill |
| | Delineated PSS Wetland Boundary | | Subballast |
| | Existing UPRR ROW | | Existing Ground Level |
| | Proposed UPRR ROW | | Proposed Ground Level |

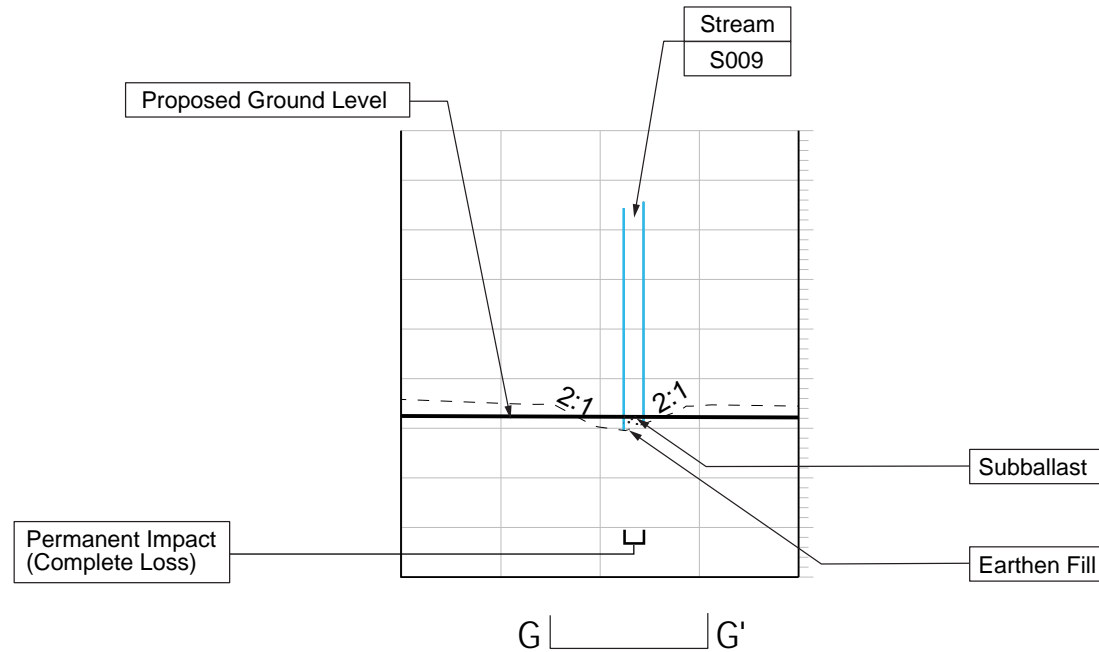


Applicant: Union Pacific Railroad
Project.: Milepost 32.20 to 35.95 Mont Belvieu to Eldon Junction Project
Feature: W011
Date: 8/1/2018
Figure Title: Cross Section R-R'
Station: 850+00.00
County: Harris County, Texas



Notes:
Delineated November 28 through December 1, 2017
Cross sections have been adapted from TranSystems "Existing Mainline Cross Sections," dated 7/11/2018, at the noted station number.

Cross Section View G-G'



S009 Total Fill Quantities

0.33 CY Earthen Fill
1.44 CY Subballast
0 CY Riprap
0 CY Excavation

*Within Cross Section G-G',
S009 will be permanently impacted
(complete loss) to accommodate
the railroad embankment.*

Legend

- | | |
|---------------------------------|-----------------------|
| Delineated Stream OHWM | Riprap |
| Delineated PEM Wetland Boundary | Culvert |
| Delineated PFO Wetland Boundary | Earthen Fill |
| Delineated PSS Wetland Boundary | Subballast |
| Existing UPRR ROW | Existing Ground Level |
| Proposed UPRR ROW | Proposed Ground Level |



Applicant: Union Pacific Railroad
Project.: Milepost 32.20 to 35.95 Mont Belvieu to Eldon Junction Project
Feature: S009
Date: 8/1/2018
Figure Title: Cross Section G-G'
Station: 10+07.48
County: Chambers County, Texas

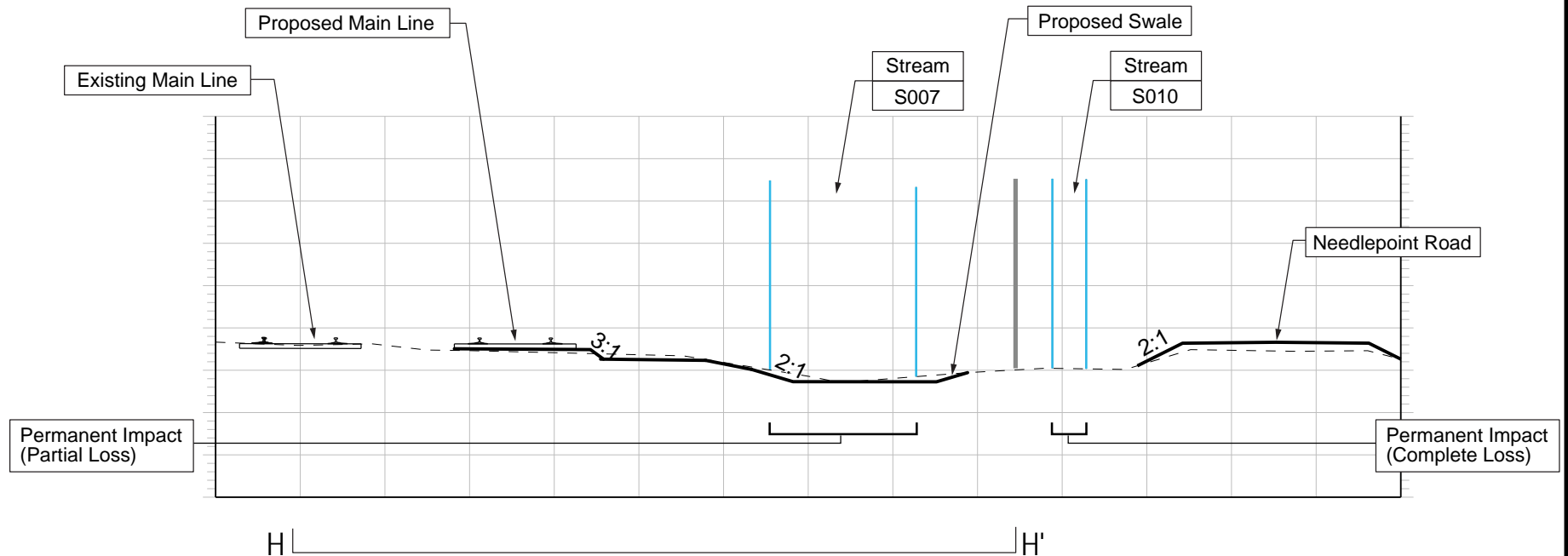


Notes:

Delineated November 28 through December 1, 2017

Cross sections have been adapted from TranSystems "Existing Mainline Cross Sections," dated 7/11/2018, at the noted station number.

Cross Section View H-H'



Within Cross Section H-H', S007 will be permanently impacted (partial loss) to accommodate the railroad embankment.

S007 Total Fill Quantities
 73.1 CY Earthen Fill
 0.21 CY Subballast
 0 CY Riprap
 1 CY Excavation

S010 Total Fill Quantities
 0 CY Earthen Fill
 0 CY Subballast
 0.14 CY Riprap
 0 CY Excavation

Within Cross Section H-H', S010 will be permanently impacted (complete loss) to accommodate the grading of Needlepoint Road.

Legend

- | | |
|---------------------------------|-----------------------|
| Delineated Stream OHWM | Riprap |
| Delineated PEM Wetland Boundary | Culvert |
| Delineated PFO Wetland Boundary | Earthen Fill |
| Delineated PSS Wetland Boundary | Subballast |
| Existing UPRR ROW | Existing Ground Level |
| Proposed UPRR ROW | Proposed Ground Level |



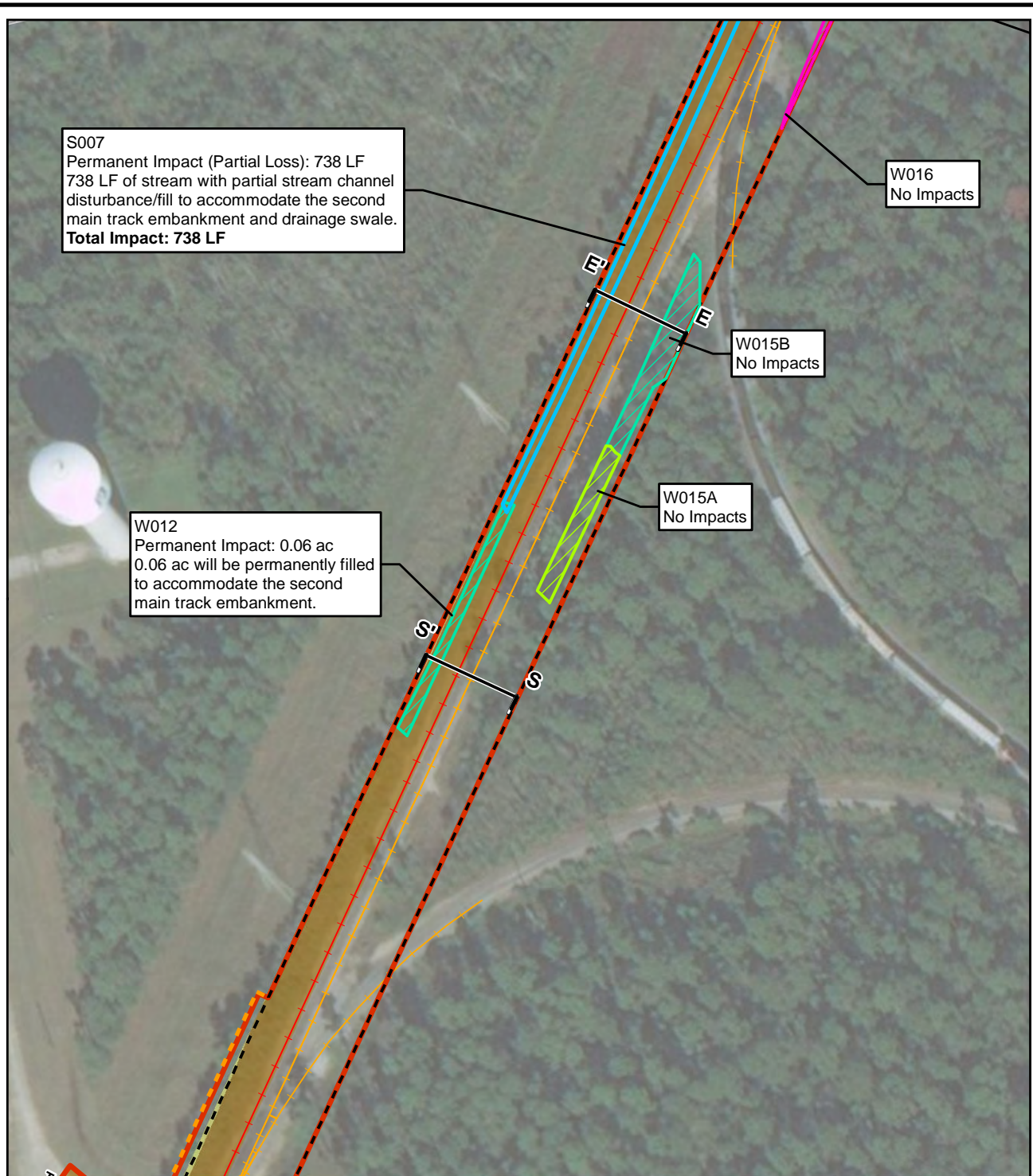
Applicant: Union Pacific Railroad
 Project.: Milepost 32.20 to 35.95 Mont Belvieu to Eldon Junction Project
 Feature: S010
 Date: 8/1/2018
 Figure Title: Cross Section H-H'
 Station: 852+13.75
 County: Chambers County, Texas



Notes:

Delineated November 28 through December 1, 2017

Cross sections have been adapted from TranSystems "Existing Mainline Cross Sections," dated 7/11/2018, at the noted station number.



LEGEND

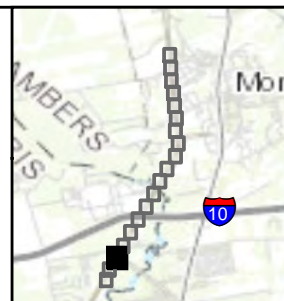
- Milepost
- Proposed Track Centerline
- Existing Track Centerline
- Proposed Right-of-Way Acquisition
- Existing Right-of-Way
- Cross Section Match Line

- Existing Culvert
- Proposed Culvert
- Proposed Bridge
- Delineated Ordinary High Water Mark (OHWM)
- PEM
- PFO
- PSS

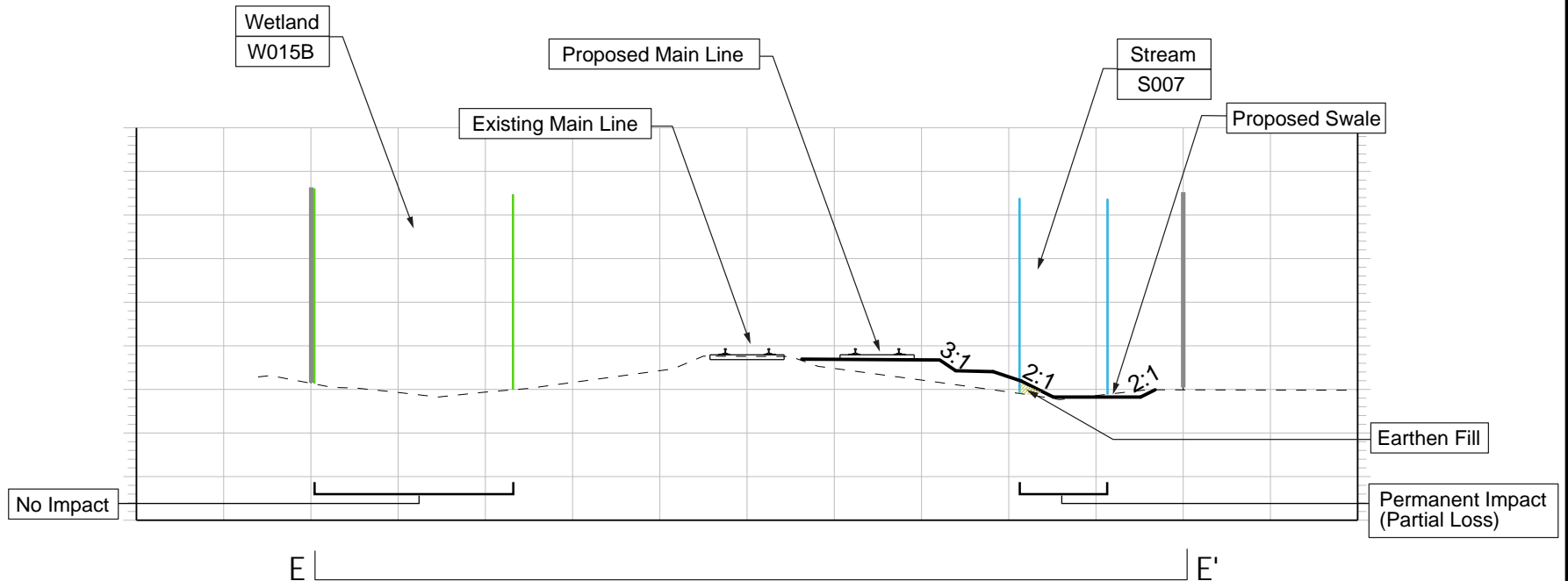
- Grading (Permanent)
- Construction Workspace (Temporary)
- Aquatic Resource Survey Boundary
- Streets

DATE: 1/8/2019

0 100
Scale In Feet



Cross Section View E-E'



Within Cross Section E-E',
W015B will not be impacted.

W015B Total Fill Quantities

0 CY Earthen Fill
0 CY Subballast
0 CY Riprap
0 CY Excavation

S007 Total Fill Quantities

73.1 CY Earthen Fill
0.21 CY Subballast
0 CY Riprap
1 CY Excavation

Within Cross Section E-E',
S005 will be permanently
impacted (partial loss) to
accommodate the railroad
embankment.

Legend

- | | |
|---------------------------------|-----------------------|
| Delineated Stream OHWM | Riprap |
| Delineated PEM Wetland Boundary | Culvert |
| Delineated PFO Wetland Boundary | Earthen Fill |
| Delineated PSS Wetland Boundary | Subballast |
| Existing UPRR ROW | Existing Ground Level |
| Proposed UPRR ROW | Proposed Ground Level |



Applicant: Union Pacific Railroad
Project.: Milepost 32.20 to 35.95 Mont Belvieu to Eldon Junction Project
Feature: S007
Date: 8/1/2018
Figure Title: Cross Section E-E'
Station: 856+00.00
County: Chambers County, Texas

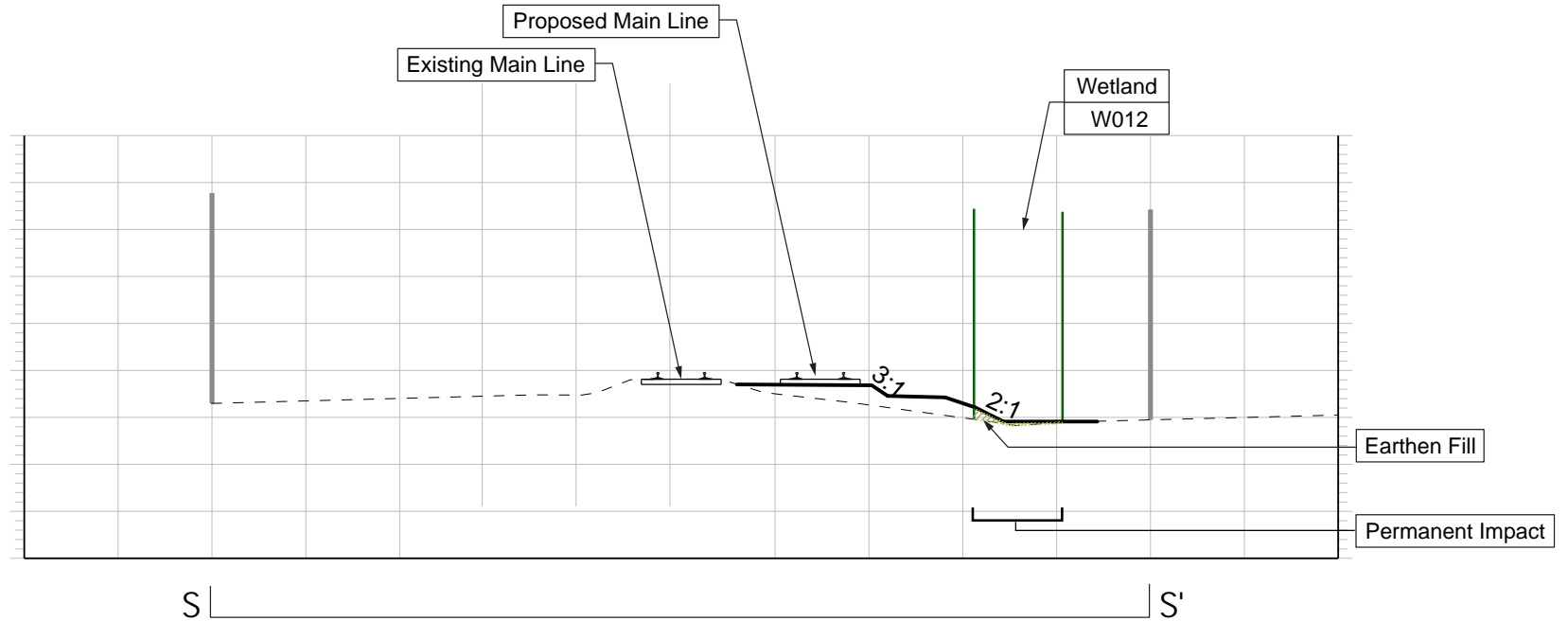


Notes:

Delineated November 28 through December 1, 2017

Cross sections have been adapted from TranSystems "Existing Mainline Cross Sections," dated 7/11/2018, at the noted station number.

Cross Section View S-S'



Within Cross Section S-S',
W012 will be permanently
impacted to accommodate the
railroad embankment.

W012 Fill Quantities:
46.34 CY Earthen Fill
0 CY Subballast
0 CY Riprap
0 CY Excavation

Legend

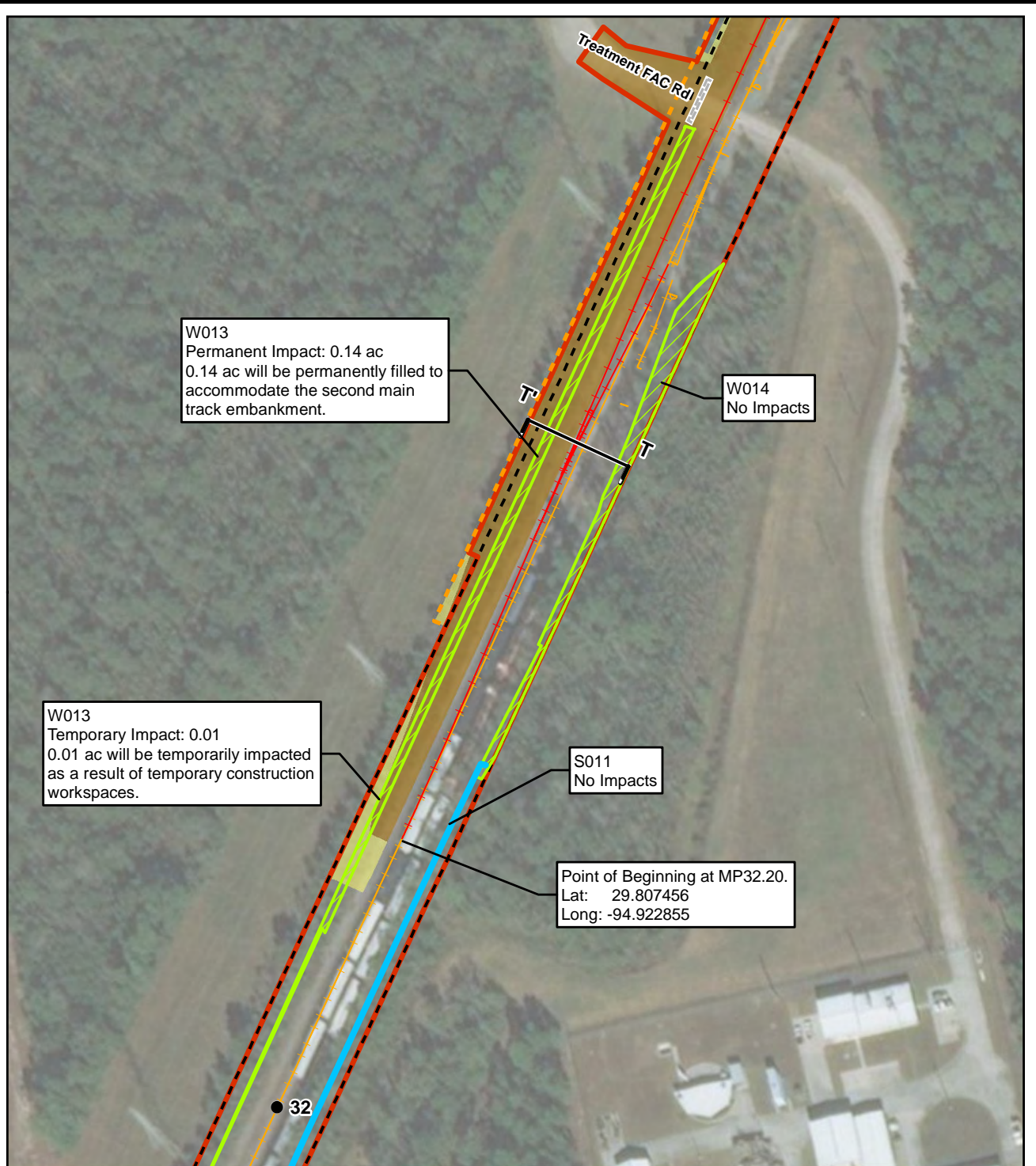
- | | |
|---------------------------------|-----------------------|
| Delineated Stream OHWM | Riprap |
| Delineated PEM Wetland Boundary | Culvert |
| Delineated PFO Wetland Boundary | Earthen Fill |
| Delineated PSS Wetland Boundary | Subballast |
| Existing UPRR ROW | Existing Ground Level |
| Proposed UPRR ROW | Proposed Ground Level |



Applicant:	Union Pacific Railroad
Project:	Milepost 32.20 to 35.95 Mont Belvieu to Eldon Junction Project
Feature:	W012
Date:	8/1/2018
Figure Title:	Cross Section S-S'
Station:	860+00.00
County:	Harris County, Texas



Notes:
Delineated November 28 through December 1, 2017
Cross sections have been adapted from TranSystems "Existing Mainline Cross Sections," dated 7/11/2018, at the noted station number.

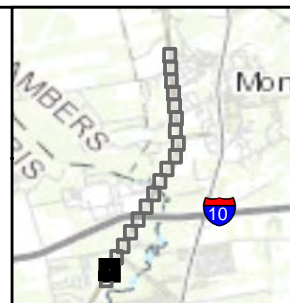


LEGEND

- | | | |
|---|--|--------------------------------------|
| ● Milepost | — Existing Culvert | ■ Grading (Permanent) |
| — Proposed Track Centerline | - - - Proposed Culvert | ■ Construction Workspace (Temporary) |
| — Existing Track Centerline | □ Proposed Bridge | □ Aquatic Resource Survey Boundary |
| - - - Proposed Right-of-Way Acquisition | □ Delineated Ordinary High Water Mark (OHWM) | — Streets |
| - - - Existing Right-of-Way | □ PEM | |
| □ Cross Section Match Line | □ PFO | |
| | □ PSS | |

DATE: 1/8/2019

0 100
Scale In Feet

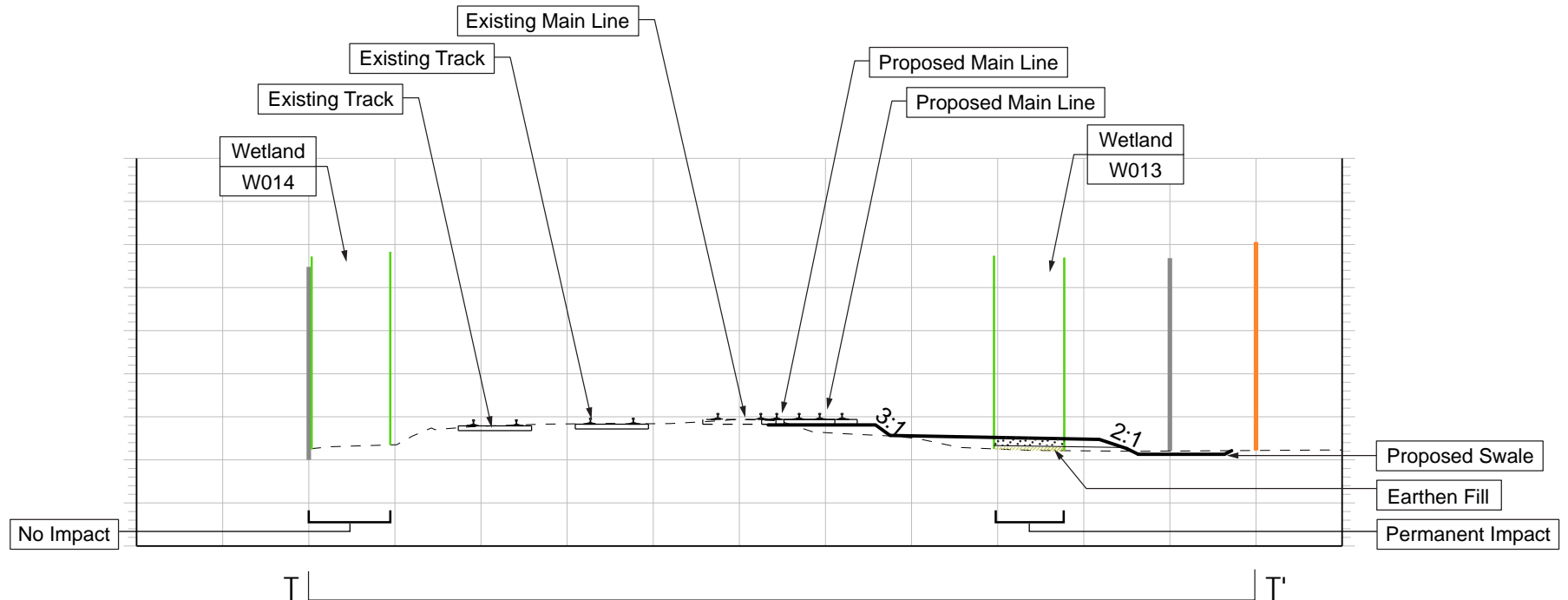


JACOBS

Union Pacific Railroad
Mont Belvieu to Eldon Junction Project

FIGURE 4
SHEET 18 OF 19

Cross Section View T-T'



Within Cross Section T-T',
W014 will not be impacted.

W014 Total Fill Quantities

0 CY Earthen Fill
0 CY Subballast
0 CY Riprap
0 CY Excavation

Within Cross Section T-T',
W013 will be permanently
impacted to accommodate the
railroad embankment.

W013 Total Fill Quantities

72.23 CY Earthen Fill
153.1 CY Subballast
0 CY Riprap
0 CY Excavation

Legend

- | | |
|---------------------------------|-----------------------|
| Delineated Stream OHWM | Riprap |
| Delineated PEM Wetland Boundary | Culvert |
| Delineated PFO Wetland Boundary | Earthen Fill |
| Delineated PSS Wetland Boundary | Subballast |
| Existing UPRR ROW | Existing Ground Level |
| Proposed UPRR ROW | Proposed Ground Level |

15 0 15 30
SCALE IN FEET

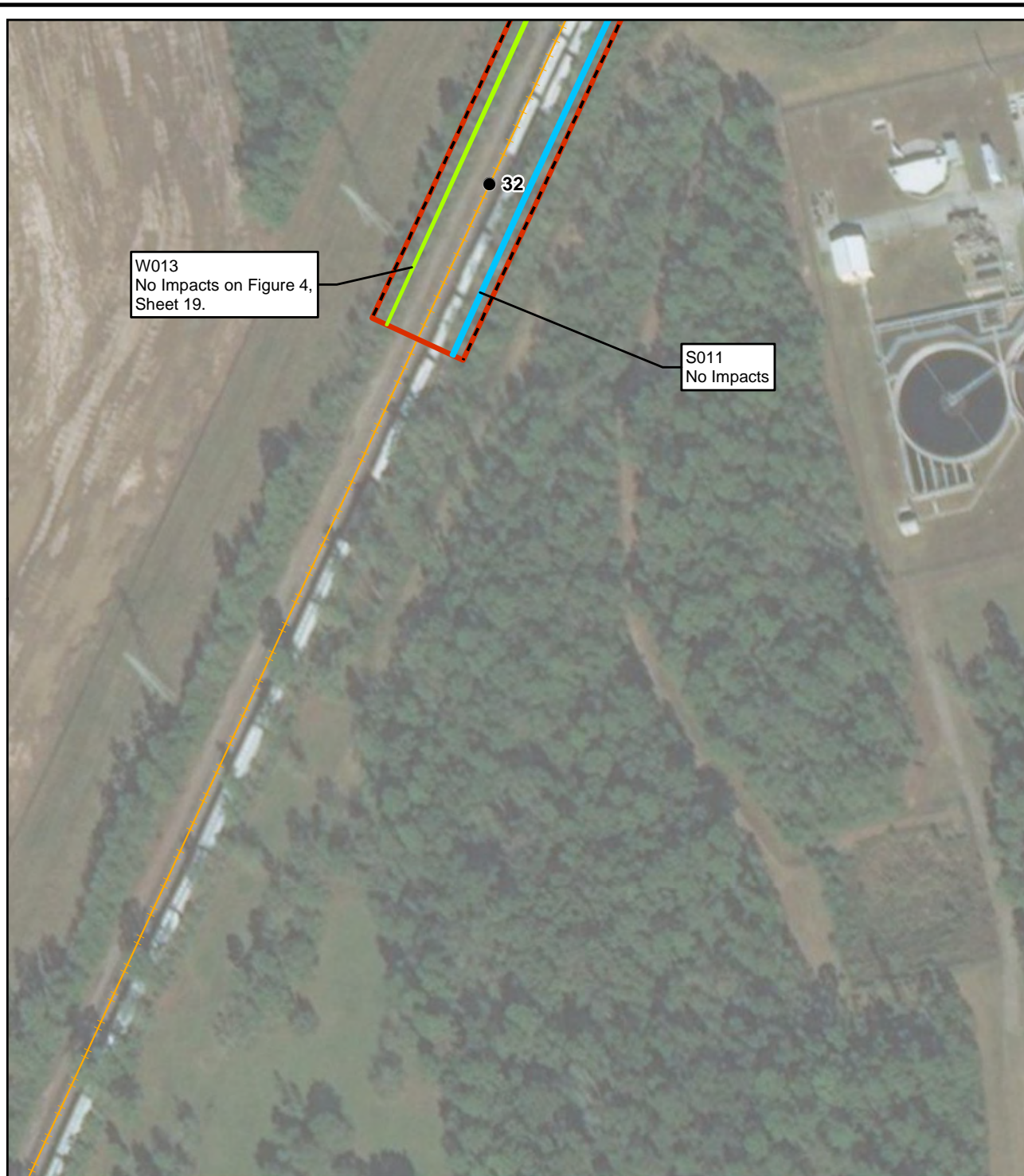
Applicant: Union Pacific Railroad
Project.: Milepost 32.20 to 35.95 Mont Belvieu to Eldon Junction Project
Feature: W013
Date: 8/1/2018
Figure Title: Cross Section T-T'
Station: 870+00.00
County: Harris County, Texas



Notes:

Delineated November 28 through December 1, 2017

Cross sections have been adapted from TranSystems "Existing Mainline Cross Sections," dated 7/11/2018, at the noted station number.



LEGEND

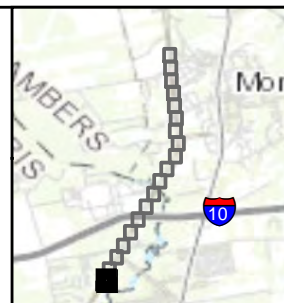
- Milepost
- Proposed Track Centerline
- Existing Track Centerline
- Proposed Right-of-Way Acquisition
- Existing Right-of-Way
- Cross Section Match Line

- Existing Culvert
- Proposed Culvert
- Proposed Bridge
- Delineated Ordinary High Water Mark (OHWM)
- PEM
- PFO
- PSS

- Grading (Permanent)
- Construction Workspace (Temporary)
- Aquatic Resource Survey Boundary
- Streets

DATE: 1/8/2019

0 100
Scale In Feet



JACOBS

**Union Pacific Railroad
Mont Belvieu to Eldon Junction Project**

**FIGURE 4
SHEET 19 OF 19**

\\brooksides\files\GIS_SHARE\ENBG\00_Proj\UUPRR\UUPRR_Mont_Belview\Maps\Report\MontBelview_Figure 4 Impacts_P_B&W_CrossSection3.mxd