Pearson Eddy Wetland Restoration Project

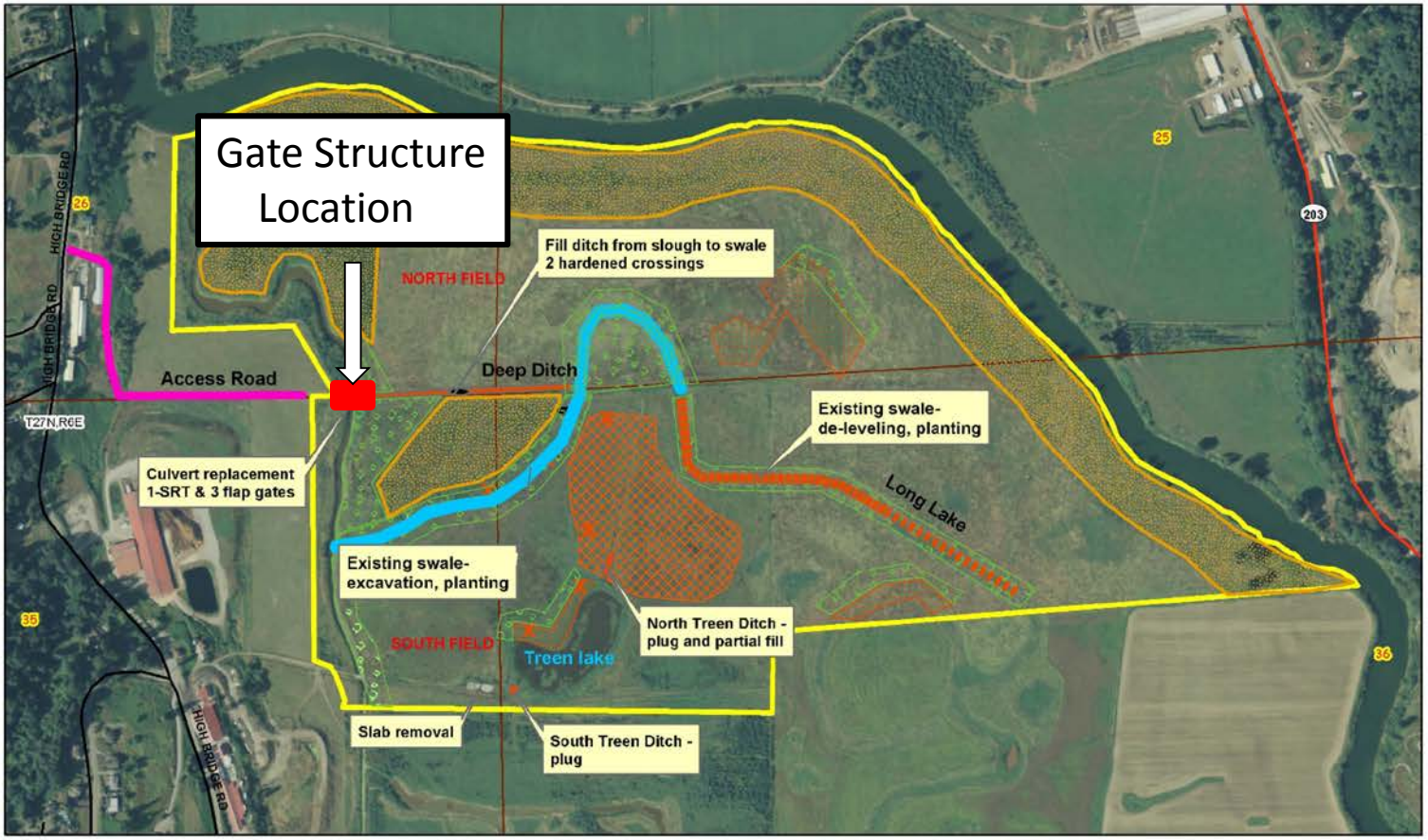
Construction Activities

Presented By: Larry Johnson, P.E., State Conservation Engineer
Kelly Scott, P.E., Design Engineer

Customer(s): FORTERRA NW

Pearson Eddy
WRP Restoration

Field Office: MOUNT VERNON SERVICE CENTER
Agency: USDA-NRCS
Assisted By: KATHY SMITH



Legend

- Townships
- Sections
- Excavation
- Sod removal - site prep
- X Log Structures
- Delevelling
- Tree/shrub planting
- Moist soil management - tilling
- 2007 tree/shrub planting

N

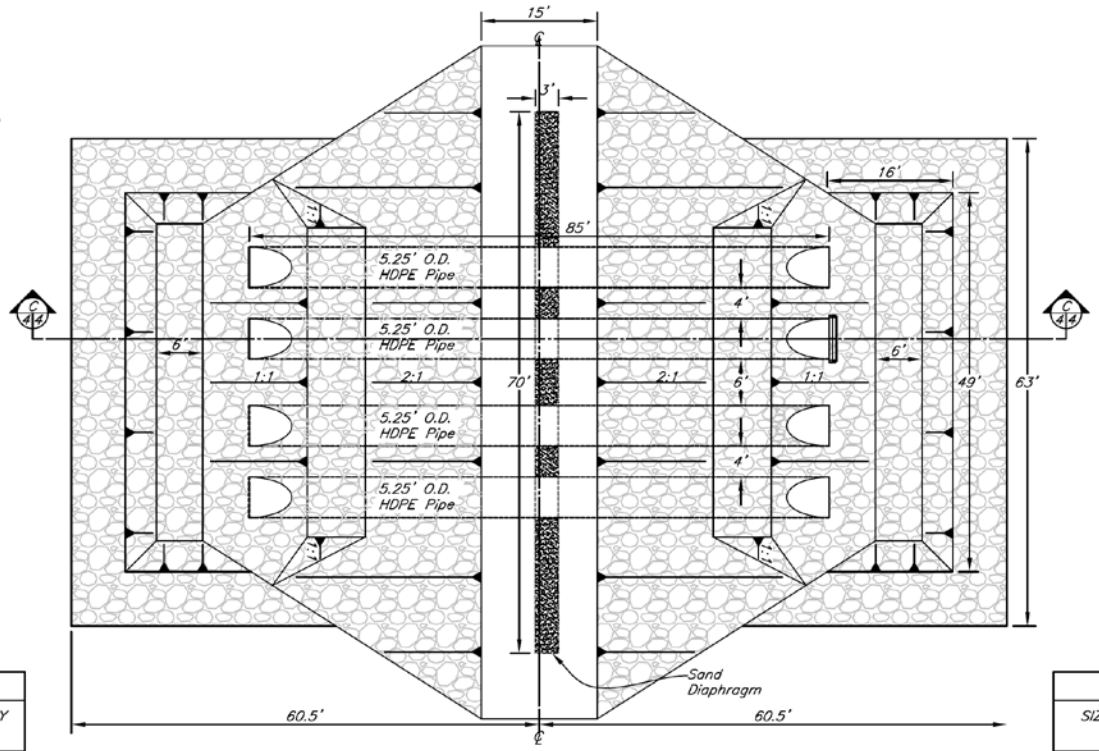
550 0 550 1,100 1,650 2,200 Feet

CONSTRUCTION NOTES:

1. The work area shall be dewatered and fish shall be removed as required in the permits prior to the start of work.
2. The structures shall be installed to all manufacturers specifications.
3. The MTR shall be set to allow passage of water and fish to an elevation of 28' NGVD.
4. All exposed earth areas shall be seeded in accordance to CS-6, Seeding, Sprigging and Mulching.

GENERAL NOTES:

Final road surface elevation will be 1 foot higher than original crossing.



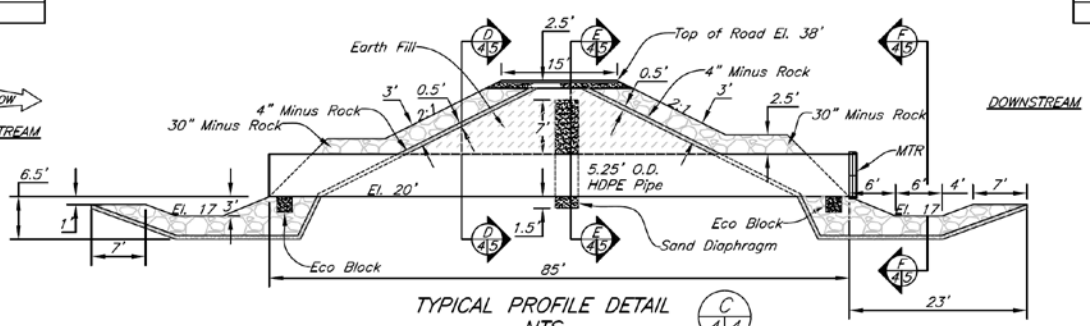
TYPICAL PLAN DETAIL
NTS

GRADATION

4" MINUS ROCK	
SIZE OPENING (Inches)	PASSING BY DRY WEIGHT (%)
4	100
3	50–100
2	15–50
1	0–15
Fines	0–5

GRADATION

30" MINUS ROCK	
SIZE OPENING (Inches)	PASSING BY DRY WEIGHT (%)
30	100
24	50–85
12	30–50
8	15–30
Fines	0–5



TYPICAL PROFILE DETAIL
NTS

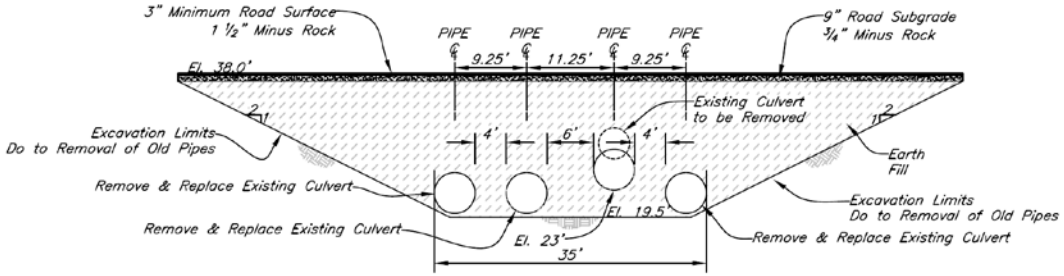
C 4/4

		Date
Designed	IAJ / EJF	Jan 2013
Drawn	WDD	Mar 2013
Checked	KAS	Mar 2014
Approved		Mar 2014

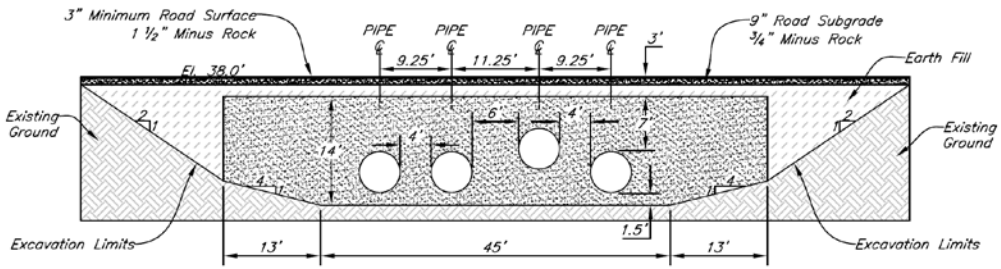
PEARSON EDDY WRP
PIPES PLAN PROFILE & ROCK GRADATION TABLES
Snohomish County, Washington

NRCS
Natural Resources Conservation Service
United States Department of Agriculture

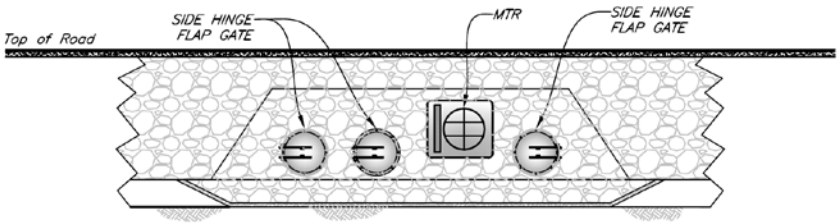
File Name: PEARSON EDDY
Drawing Name: PIPE DETAILS
Sheet 4 of 13



TYPICAL CROSS SECTION DETAIL D 4|5
NTS



TYPICAL CROSS SECTION DETAIL E 4|5
NTS



TYPICAL CROSS SECTION DETAIL F 4|5
NTS

		Date
Designed	IAJ / EAF	Jan 2013
Drawn	WDD	Mar 2013
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Approved		Mar 2014

PEARSON EDDY WRP
SECTION VIEWS
Snohomish County, Washington

NRCS
National Resources Conservation Service
United States Department of Agriculture

File Name
PEARSON EDDY
Drawing Name
SECTION VIEWS

This MTR System controls one tidegate.

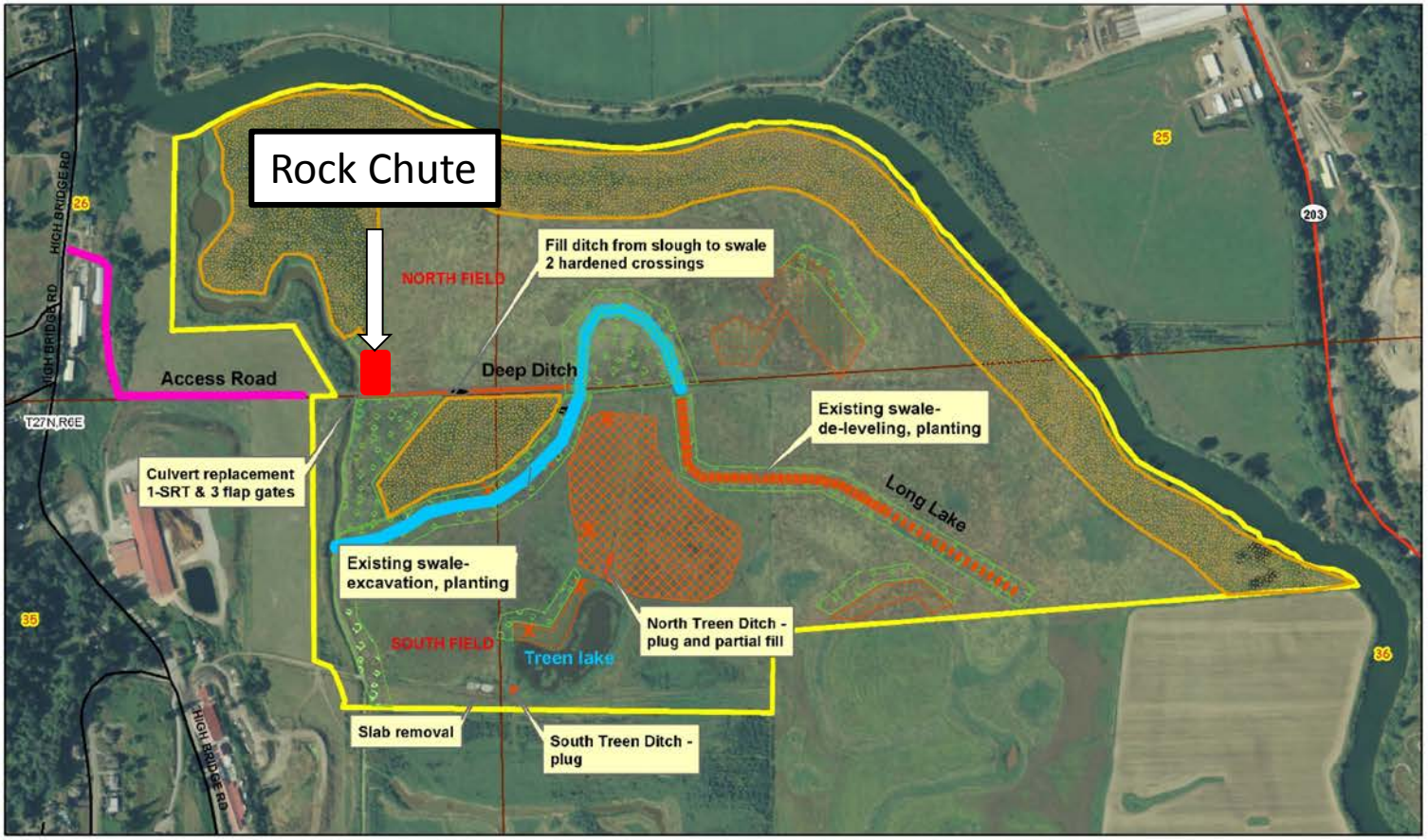
Walkway to MTR unit so that the adjustment handle can be reached to set MTR to the interior water level that the tidegate will close at.

This is an MTR unit controlling a single NSG6ra tidegate.

Customer(s): FORTERRA NW

Pearson Eddy
WRP Restoration

Field Office: MOUNT VERNON SERVICE CENTER
Agency: USDA-NRCS
Assisted By: KATHY SMITH

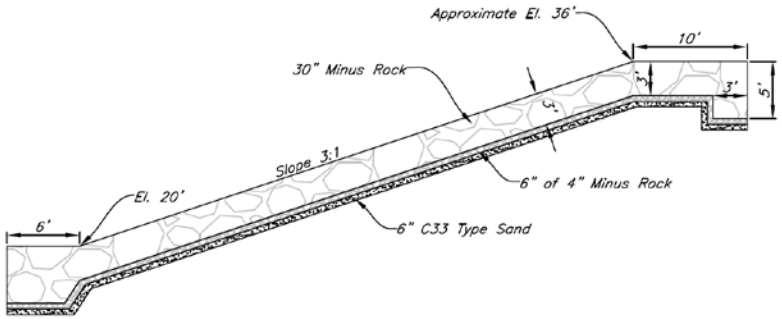


Legend

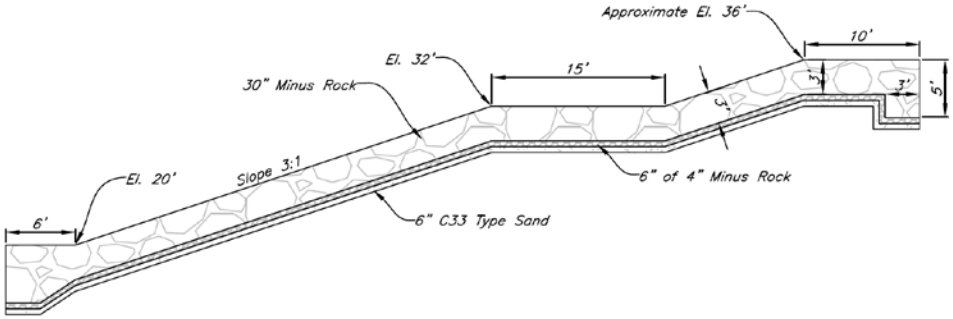
- Townships
- Sections
- Excavation
- Sod removal - site prep
- X Log Structures
- Delevelling
- Tree/shrub planting
- Moist soil management - tilling
- 2007 tree/shrub planting

N

550 0 550 1,100 1,650 2,200 Feet



RIGHT BANK TYPICAL
CROSS SECTION D.S. OF FLOOD GATE
N.T.S.



RIGHT BANK TYPICAL
CROSS SECTION AT FLOOD GATE
N.T.S.

		Date
Designed	LAJ / EAF	Jan 2014
Drawn	WTD	Mar 2014
Checked	KAS	Mar 2014
Approved		Mar 2014

PEARSON EDDY WRP
BANK STABILIZATION
Snohomish County, Washington

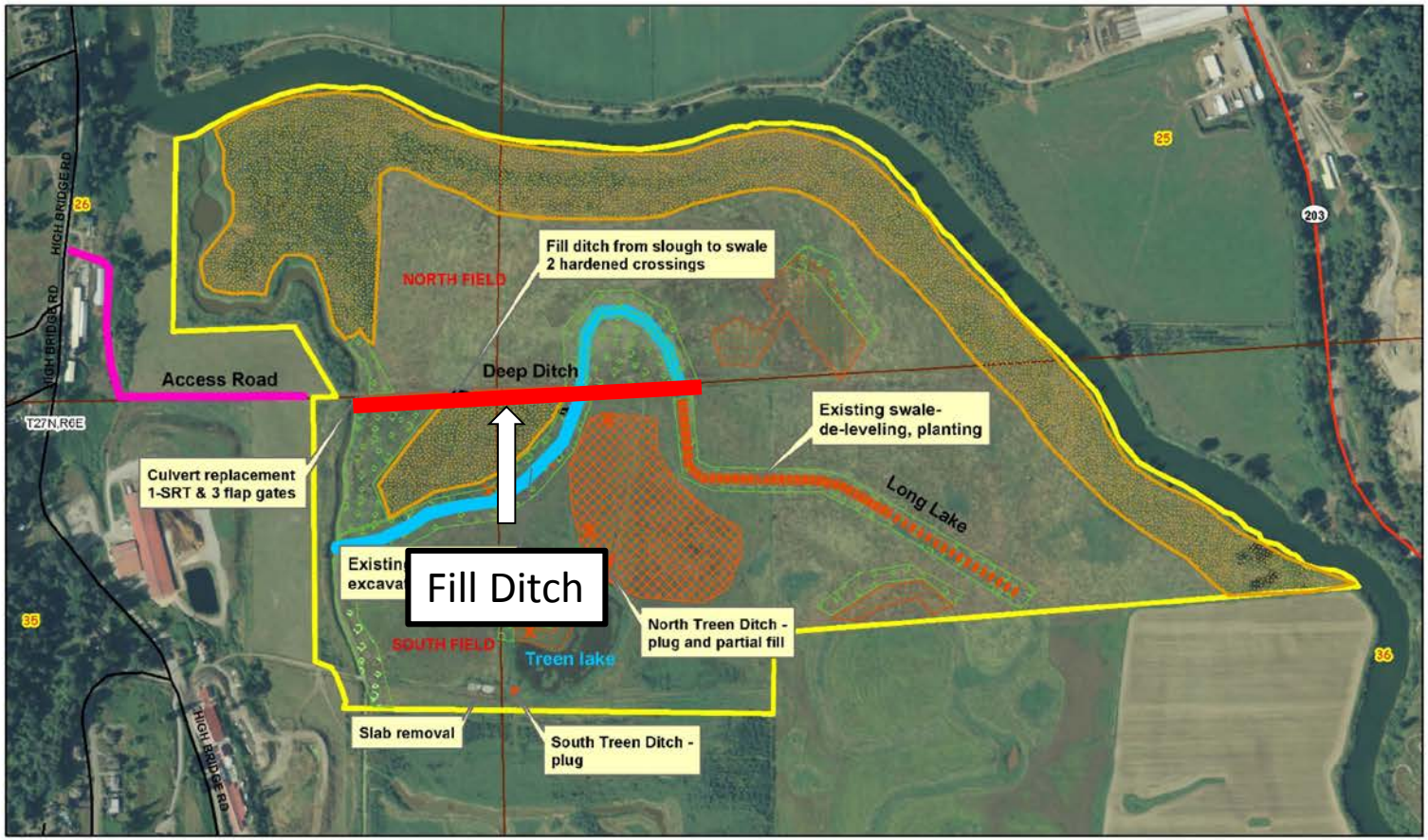
NRCS
National Resources Conservation Service
United States Department of Agriculture

File Name
PEARSON EDDY
Drawing Name
BANK STAB
Sheet 6 of 13

Customer(s): FORTERRA NW

Pearson Eddy
WRP Restoration

Field Office: MOUNT VERNON SERVICE CENTER
Agency: USDA-NRCS
Assisted By: KATHY SMITH



Legend

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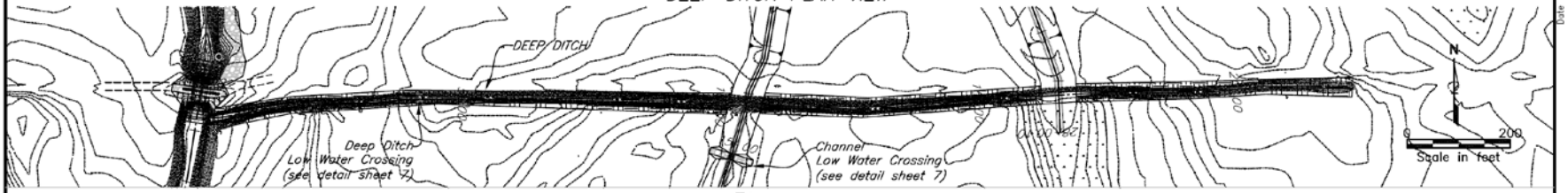
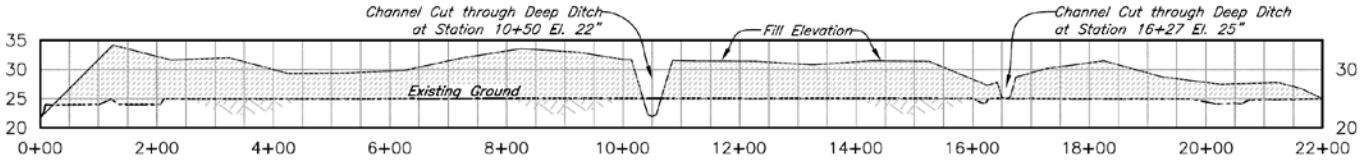
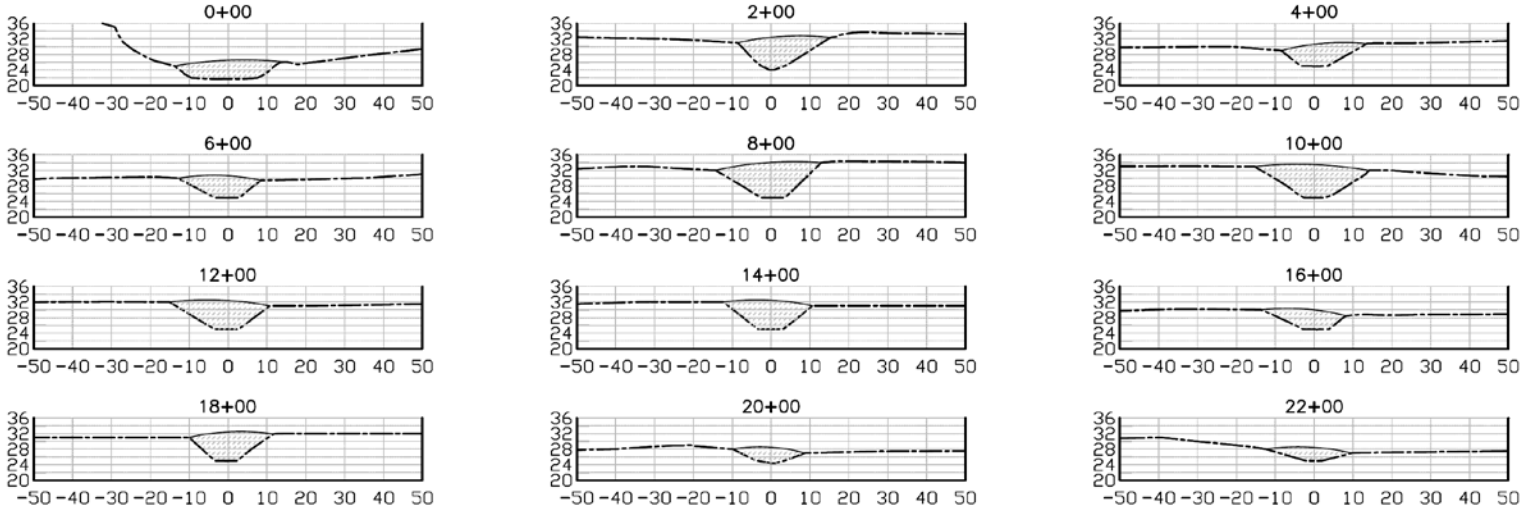
DEEP DITCH PLAN VIEW

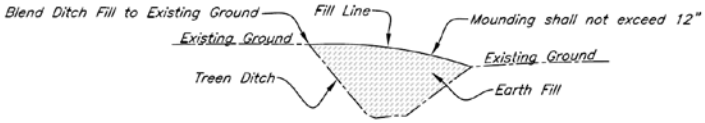


DEEP DITCH FILL PROFILE



DEEP DITCH CROSS SECTIONS





TYPICAL DEEP DITCH EARTH FILL CROSS SECTION

		Date
Designed	LAJ / EAF	Jan 2014
Drawn	WDD	Mar 2014
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Approved		Mar 2014

PEARSON EDDY WRP
DEEP DITCH DETAILS
Snohomish County, Washington

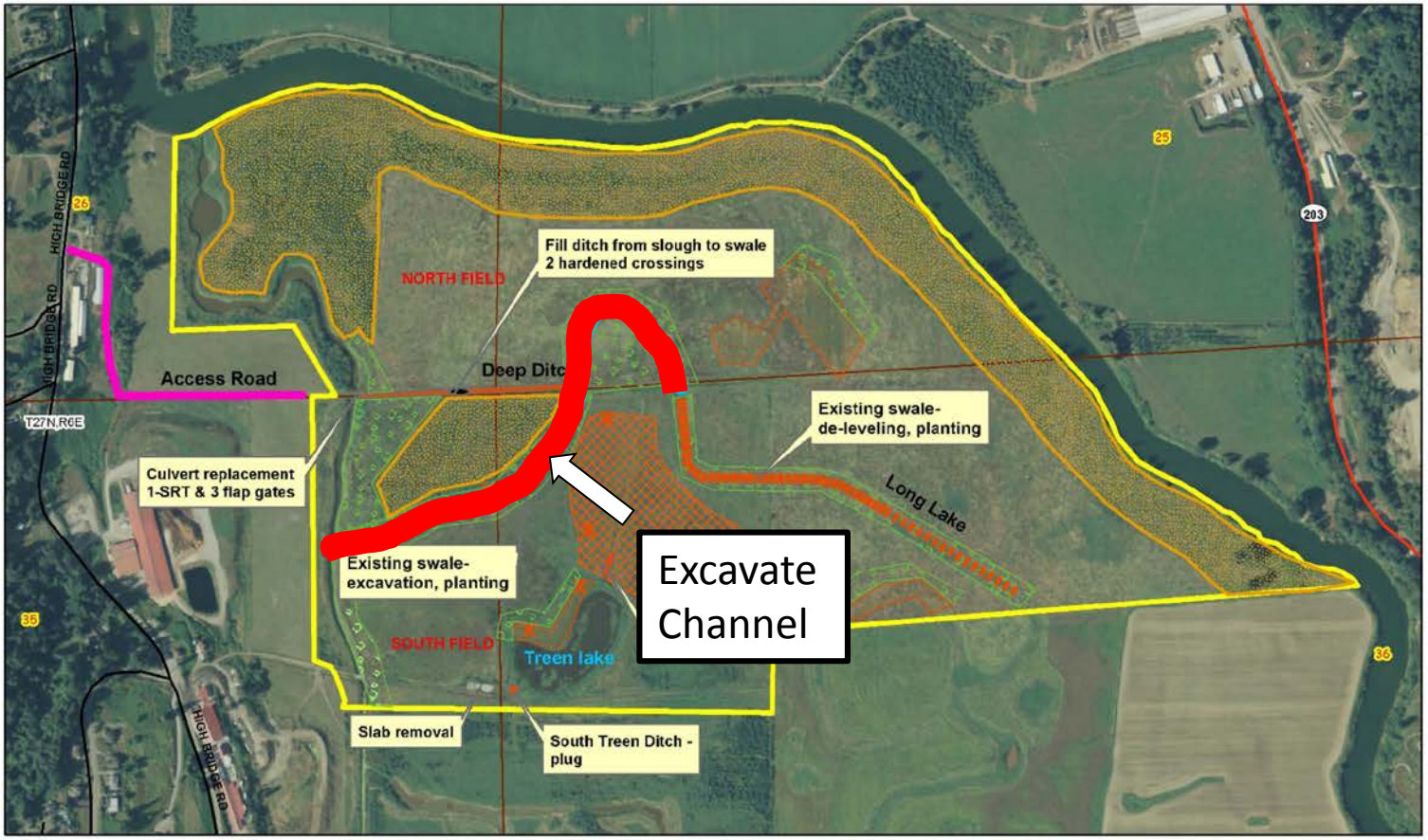
NRCS
Natural Resources Conservation Service
United States Department of Agriculture

File Name
PEARSON EDDY
Drawing Name
DEEP DITCH

Customer(s): FORTERRA NW

Pearson Eddy
WRP Restoration

Field Office: MOUNT VERNON SERVICE CENTER
Agency: USDA-NRCS
Assisted By: KATHY SMITH



Legend

- Townships
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- Excavation
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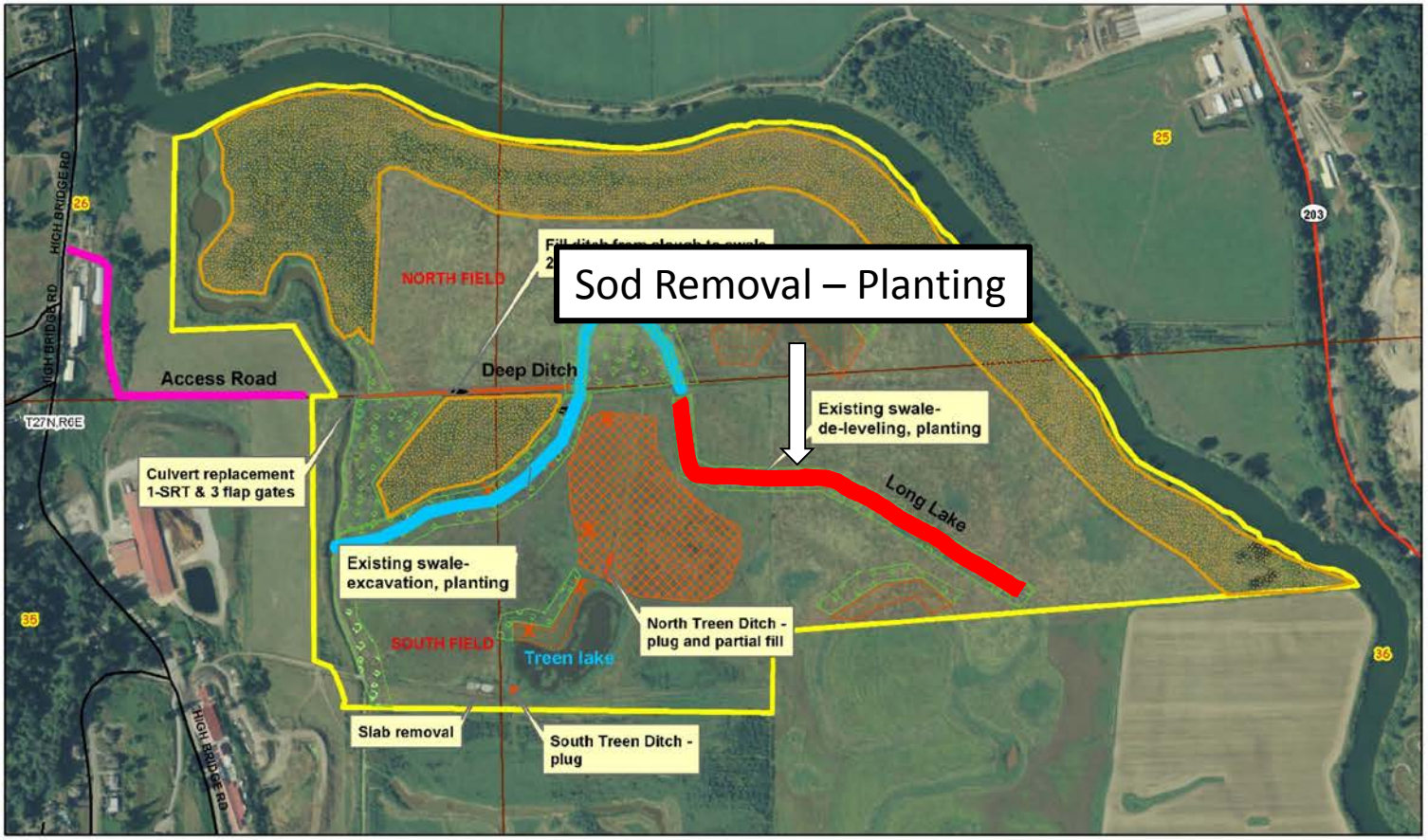
N

550 0 550 1,100 1,650 2,200 Feet

Customer(s): FORTERRA NW

Pearson Eddy
WRP Restoration

Field Office: MOUNT VERNON SERVICE CENTER
Agency: USDA-NRCS
Assisted By: KATHY SMITH



Legend

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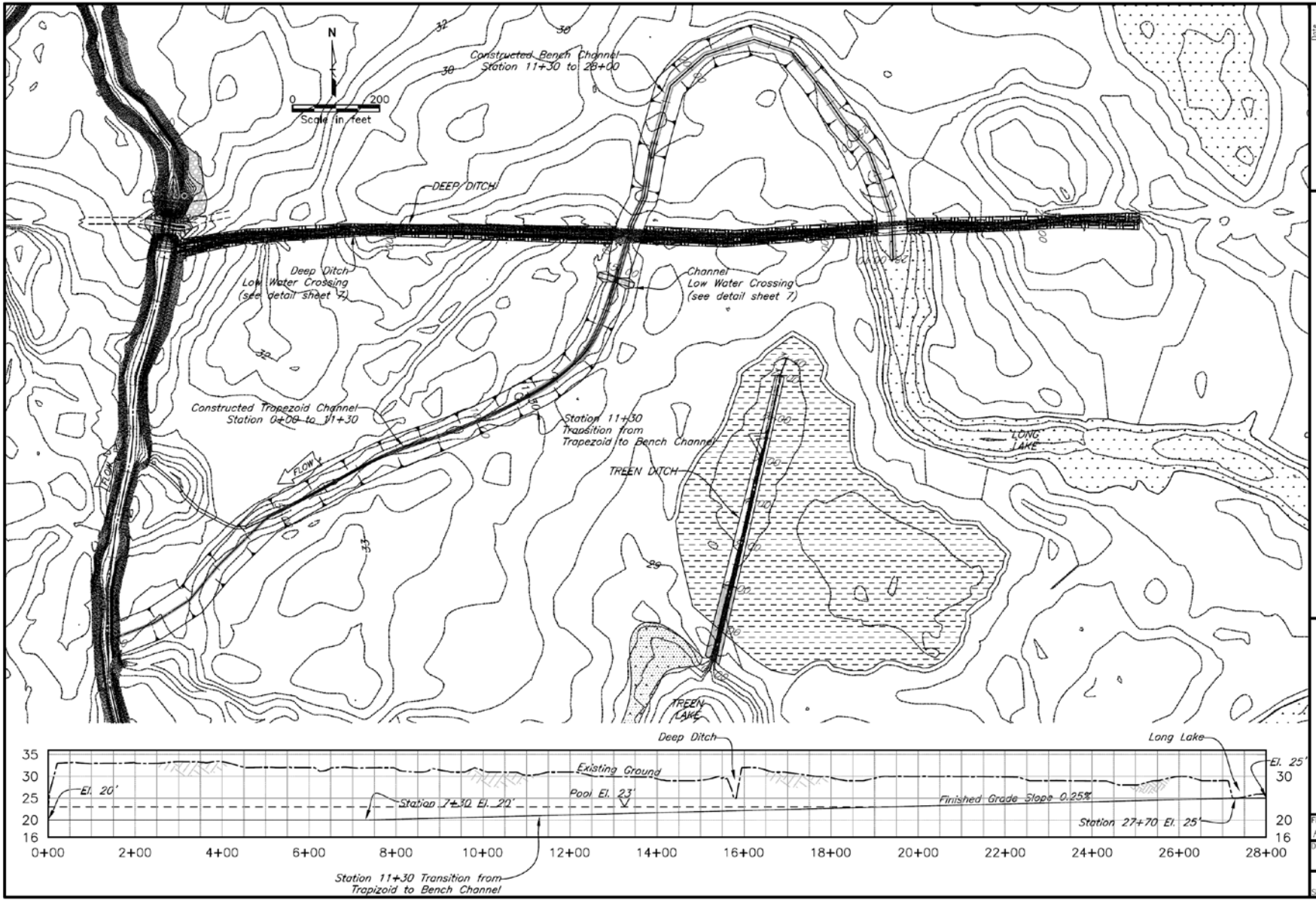
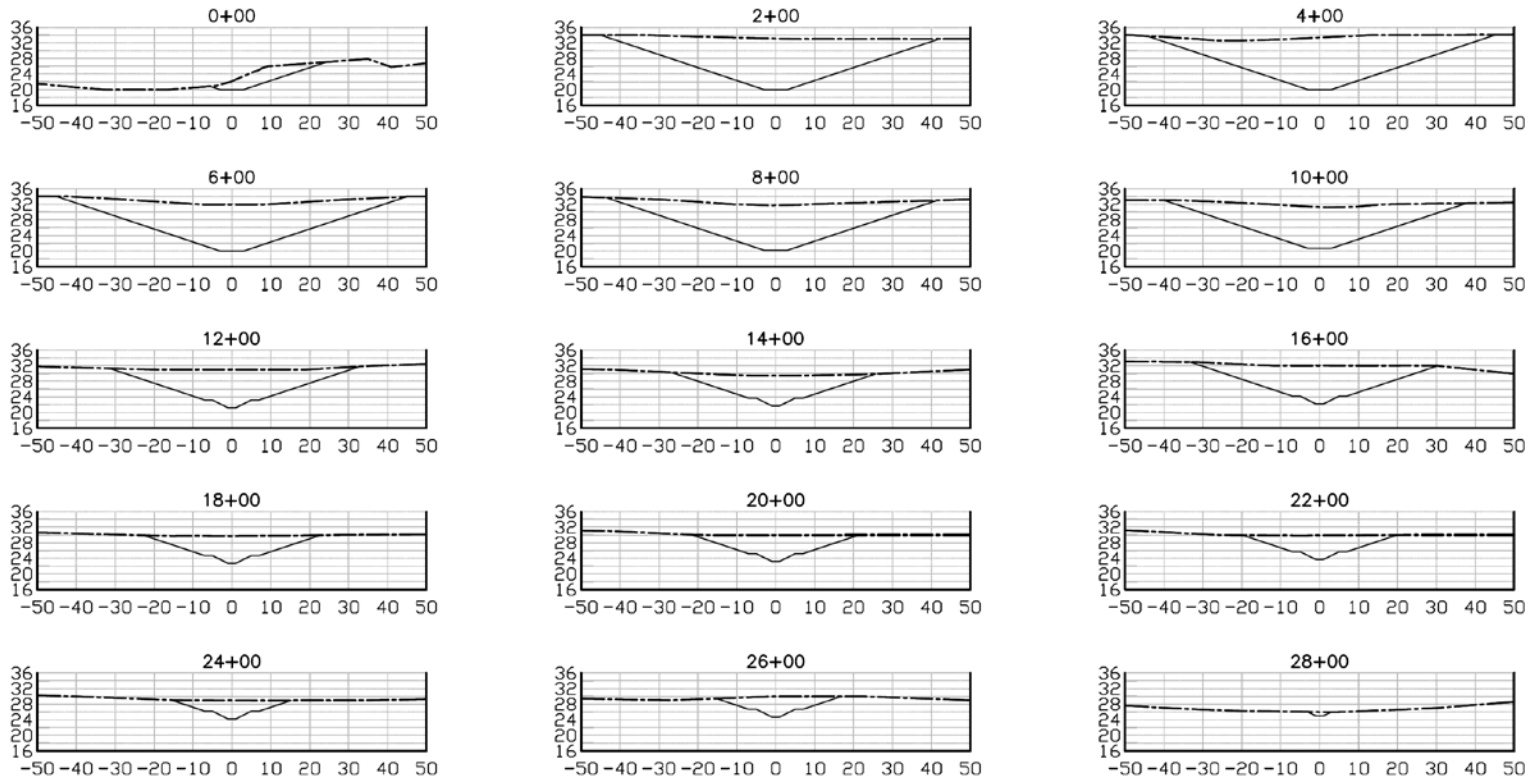
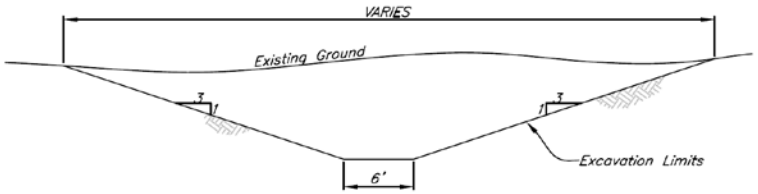
550 0 550 1,100 1,650 2,200 Feet

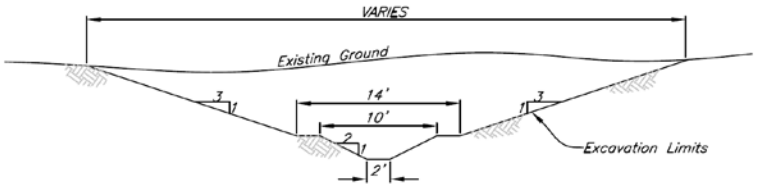

N
0
200
Scale in feet
Constructed Bench Channel
Station 11+30 to 28+00
DEEP DITCH
Deep Ditch
Low Water Crossing
(see detail sheet 7)
Channel
Low Water Crossing
(see detail sheet 7)
Constructed Trapezoid Channel
Station 0+00 to 11+30
Station 11+30
Transition from
Trapezoid to Bench Channel
FLOW
TREEN DITCH
LONG LAKE
TREEN LAKE
Deep Ditch
Long Lake
Existing Ground
El. 20'
Pool El. 23'
Station 7+30 El. 20'
Finished Grade Slope 0.25%
Station 27+70 El. 25'
El. 25'
35
30
25
20
16
0+00
2+00
4+00
6+00
8+00
10+00
12+00
14+00
16+00
18+00
20+00
22+00
24+00
26+00
28+00
Station 11+30 Transition from
Trapizoid to Bench Channel
Date
Designed IAJ / EAF Jan 2014
Drawn WDD Mar 2014
Checked KAS Mar 2014
Approved Mar 2014
PEARSON EDDY WRP
CHANNEL PLAN PROFILE
Snohomish County, Washington
NRCS
National Resources Conservation Service
United States Department of Agriculture
File Name
PEARSON EDDY
Drawing Name
DE-LEVELING
Sheet 8 of 13



CHANNEL CROSS – SECTIONS



TRAPEZOID CHANNEL
STATION 0+00 TO 11+30



BENCH CHANNEL
STATION 11+30 TO 28+00

Construction Note:
All slopes/surfaces shall have a rough finish

TYPICAL CHANNEL CROSS SECTION VIEWS

		Date
Designed	LAJ / EAF	Jan 2014
Drawn	WDD	Mar 2014
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PEARSON EDDY WRP
CHANNEL CROSS SECTIONS
Snohomish County, Washington

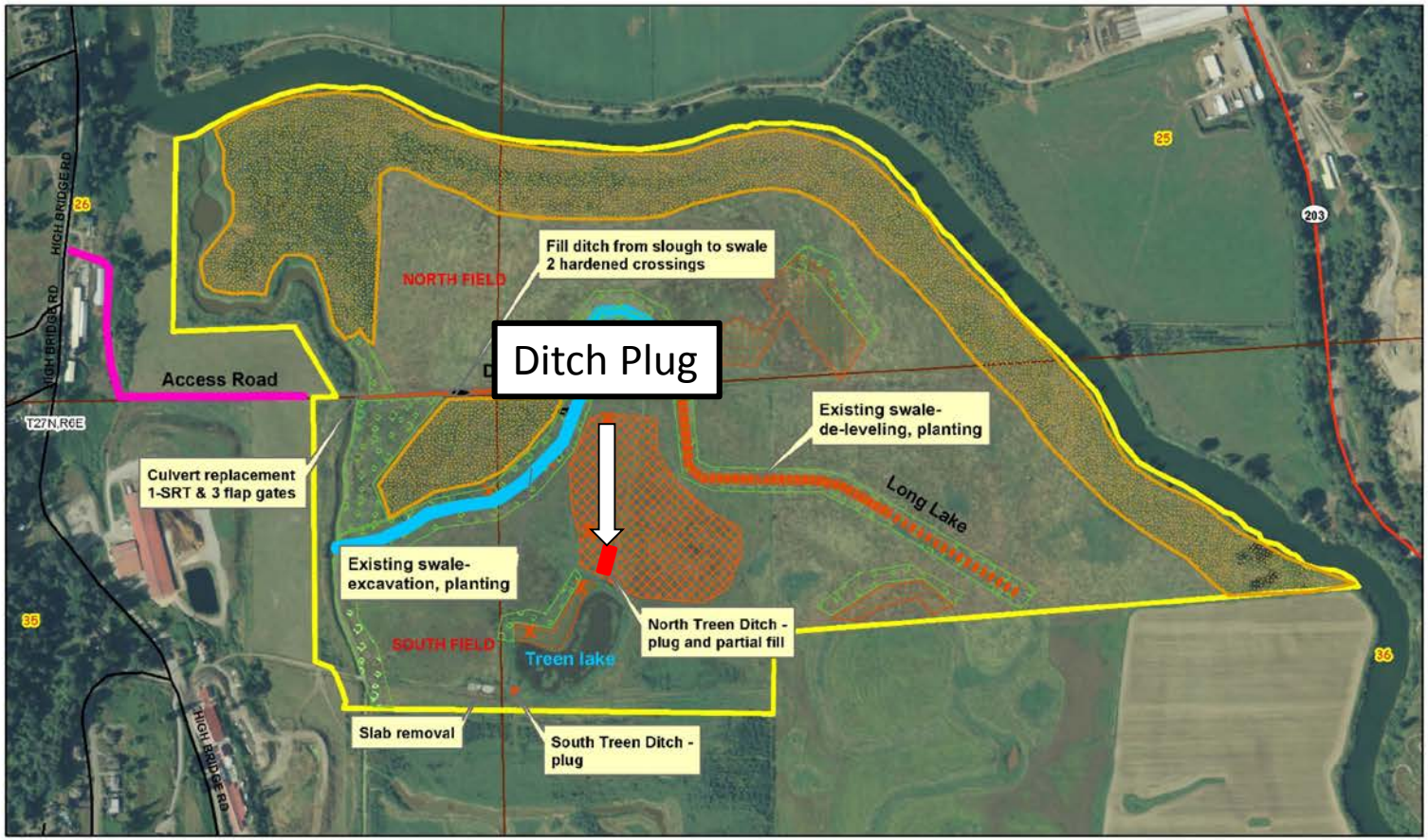
NRCS
Natural Resources Conservation Service
United States Department of Agriculture

File Name
PEARSON EDDY
Drawing Name
CHANNEL DETAIL

Customer(s): FORTERRA NW

Pearson Eddy
WRP Restoration

Field Office: MOUNT VERNON SERVICE CENTER
Agency: USDA-NRCS
Assisted By: KATHY SMITH



Legend

- Townships
- Sections
- Excavation
- Sod removal - site prep
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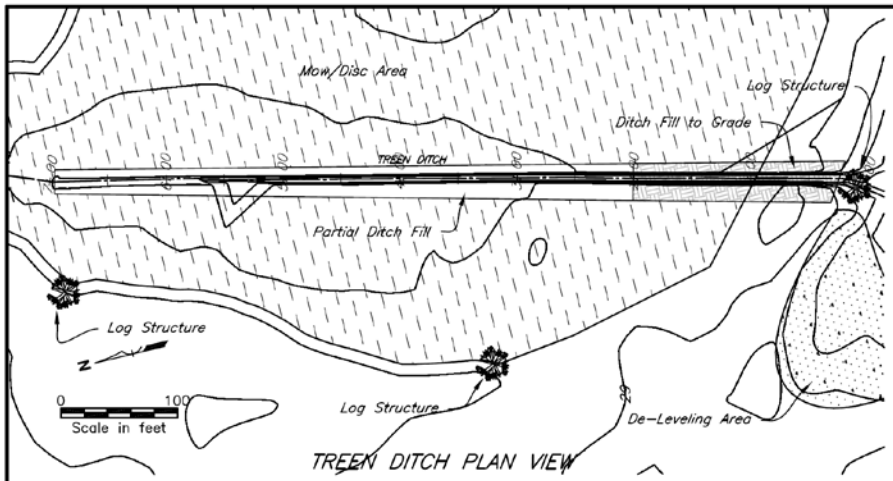
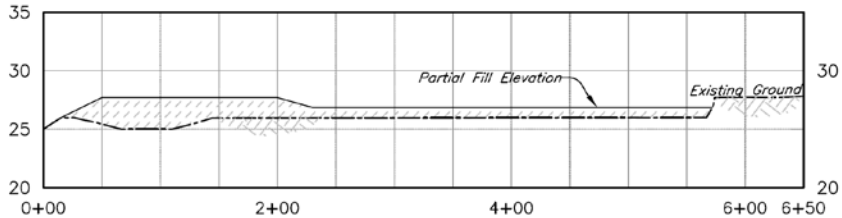
- Delevelling
- Tree/shrub planting
- Moist soil management - tilling
- 2007 tree/shrub planting

N

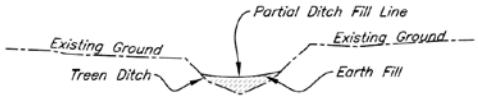
550 0 550 1,100 1,650 2,200 Feet



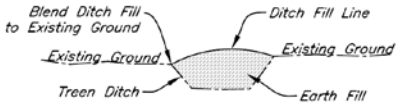
TREEN DITCH PLAN VIEW



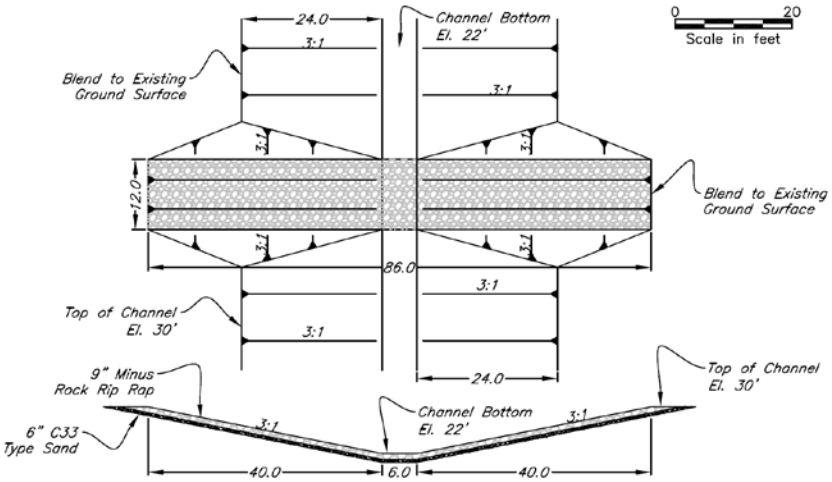
TREEN DITCH PROFILE



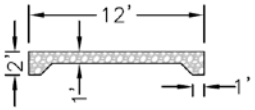
TREEN DITCH PARTIAL FILL – TYPICAL CROSS SECTION
STATIONS 0+00 TO 5+50
NTS



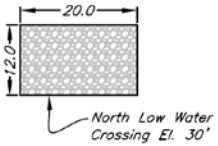
TREEN DITCH FILL TYPICAL CROSS SECTION
STATION 5+50 TO 6+70
NTS

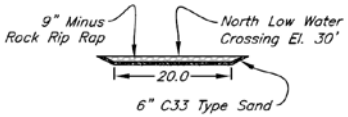


CHANNEL LOW WATER CROSSING DETAIL
NTS



Typical Low Water Crossing
Cross Section
NTS





DEEP DITCH LOW WATER CROSSING DETAIL
NTS

GRADATION

LOW WATER CROSSING RIP RAP		
	RANGE	
D100	5.5"	9"
D75	5"	7"
D50	4"	6"
D30	3.5"	5"

		Date
Designed	LAJ / EAF	Jan 2014
Drawn	WRD	Mar 2014
Checked	KAS	Mar 2014
Approved		Mar 2014

PEARSON EDDY WRP
TREEN DITCH & LOW WATER CROSSING DETAILS
Snohomish County, Washington

NRCS
Natural Resources Conservation Service
United States Department of Agriculture

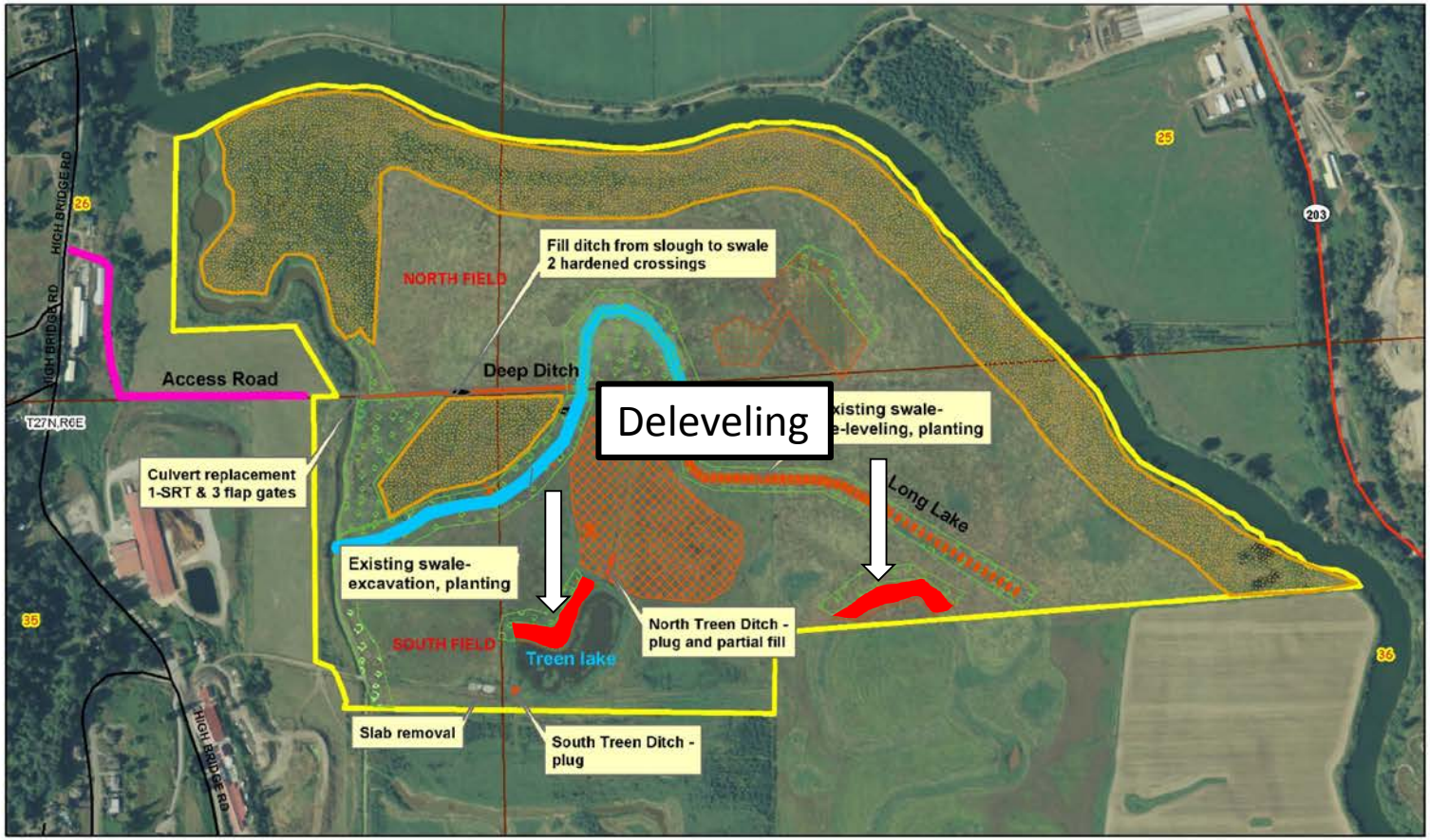
File Name
PEARSON EDDY
Drawing Name
TREEN DITCH

Sheet 7 of 13

Customer(s): FORTERRA NW

Pearson Eddy
WRP Restoration

Field Office: MOUNT VERNON SERVICE CENTER
Agency: USDA-NRCS
Assisted By: KATHY SMITH



Legend

- Townships
- Sections
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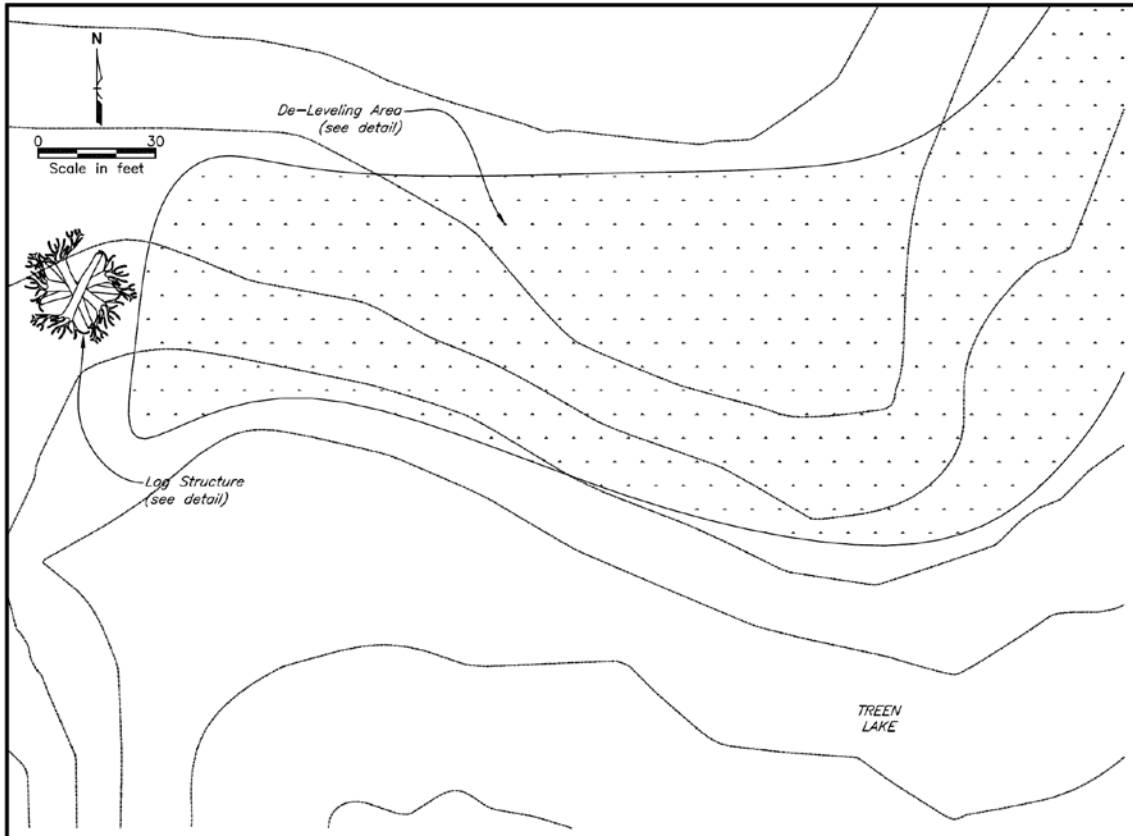
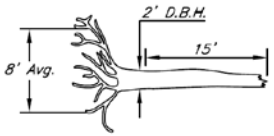
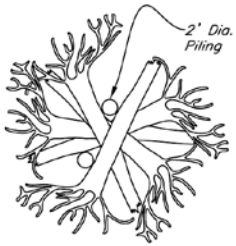
N

550 0 550 1,100 1,650 2,200 Feet

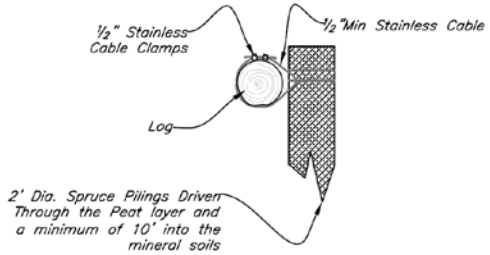




TYPICAL LOG DETAIL



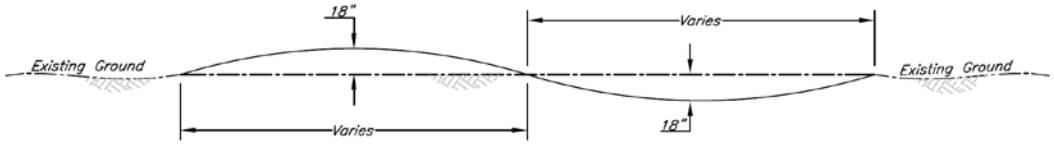
TYPICAL LOG STRUCTURE DETAIL



ANCHOR DETAIL

CONSTRUCTION NOTE:

Mounds shall be compacted with construction equipment in such a way that they are discontinuous and do not interfere with site drainage.



TYPICAL DE-LEVELING DETAIL
NTS

CONSTRUCTION NOTES:

1. The log structures shall consist of a minimum of 5 logs with root wads, and 2 pilings (see typical detail)
2. All logs in the structure shall be cabled together and anchored to all pilings to distribute the load evenly and ensure logs do not move off site or move around within the site.
3. Pilings shall be a minimum of 2' diameter and shall be driven 10' into the mineral soil.
4. The structure design (number and diameter of pilings) may be modified based on the material delivered to the site. Once available materials are stockpiled on the site, NRCS shall review them and adjust the design accordingly. Any design modifications shall be approved and signed by the NRCS prior to installation of log structures.
5. Logs shall be placed in a manner to promote interlocking while maintaining a minimal structure height

		Date
Designed	LAJ / EAF	Jan 2014
Drawn	WWD	Mar 2014
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Approved		Mar 2014

PEARSON EDDY WRP
DE-LEVELING & LOG STRUCTURE DETAIL
Snohomish County, Washington

NRCS
Natural Resources Conservation Service
United States Department of Agriculture

File Name
PEARSON EDDY
Drawing Name
DE-LEVELING

Sheet 11 of 13

Customer(s): FORTERRA NW

Pearson Eddy
WRP Restoration

Field Office: MOUNT VERNON SERVICE CENTER
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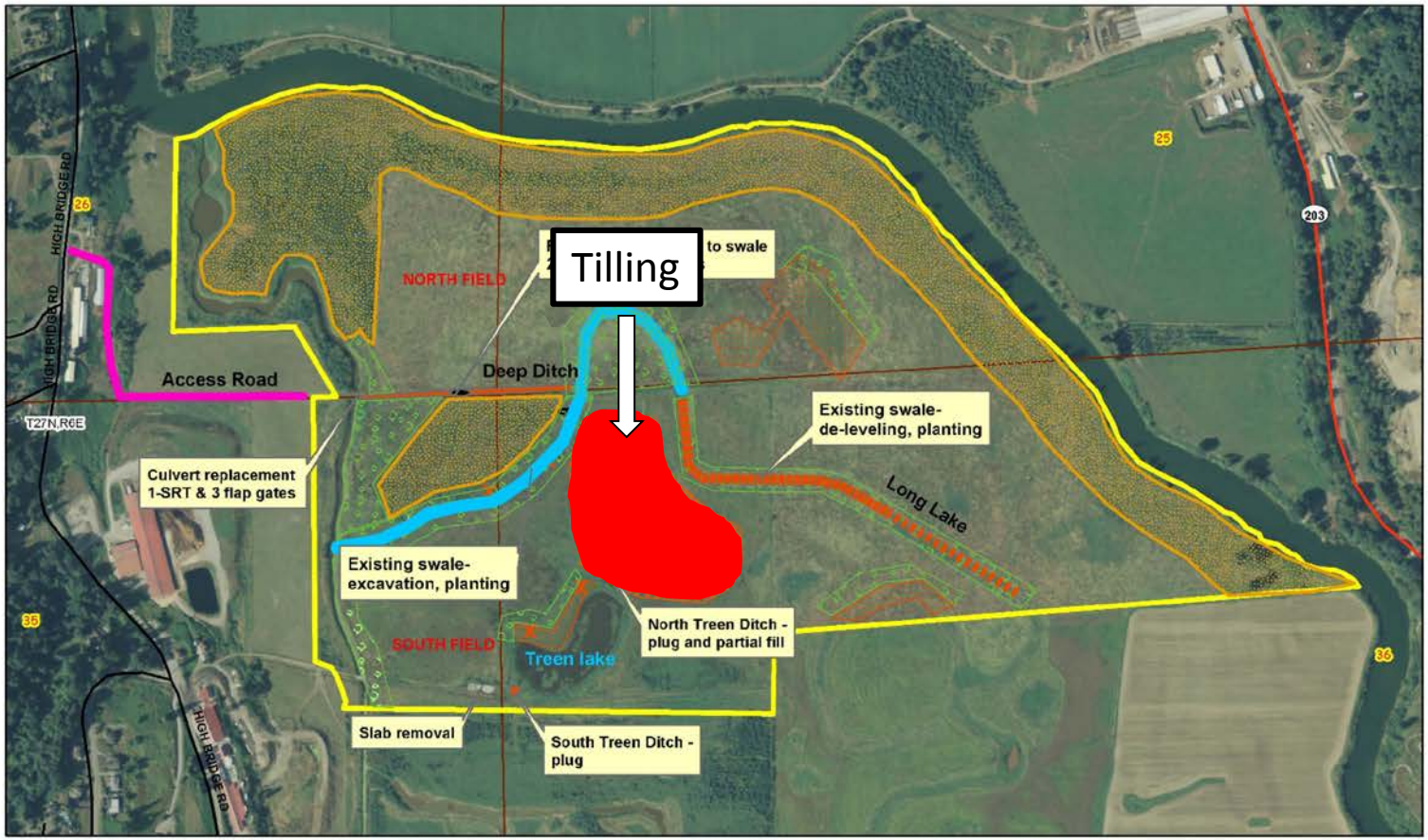

Legend

- Townships
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550 0 550 1,100 1,650 2,200 Feet

Thank You