Trimble Access - Stakeout EFT Waterway Alignment

Overview: Stakeout the alignment of a waterway that was designed in the NRCS Engineering Field Tools (EFT) v3.4.1.2 software.

- The waterway surface is exported from EFT.
- Iowa NRCS uses survey units of *International Foot* but EFT v3.4.1.2 labels the units as *US Survey Foot* so the surface file must be updated before importing into Trimble Access.
- Determine the details of any Control Points that you will need. They can be linked from the original survey or a coordinate text file of control points can be uploaded to the Trimble unit.
- The waterway profile cut sheet can be printed to provide profile grade breaks for manual input.
- The alignment is staked from the Roading component of Trimble Access.

Exporting WW Information from NRCS EFT

In NRCS Engineering Field Tools:
Export Surfaces
1. *File…Export… Surfaces…*
2. Input a unique filename {e.g. *Smith WW*} and click Save. Click Ok.

Print Cut-Sheet Report at grade breaks only.
3. *File… Print Reports…*
4. Uncheck all reports and checkmark *Waterway Reports*
5. Select all of the waterway reaches needed. Click Next
6. Checkmark *Cut-Sheet Report* and input a *Sample Interval* of **10000**. Click Finish
7. Click Ok.
8. Click Open to view the pdf report.
9. Print the report to obtain the Station and Design Elevation of the WW profile.

					Offset 1		Offset 2		Offset 3				
Station (ft)	Design Bottom Elevatio Elevatio (ft)	Centerli Existing Elevatio (ft)	Centerli Cut + or Fill - (ft)	Grade	Distanc (ft)	Elevatio (ft)	Distanc (ft)	Elevatio (ft)	Distanc (ft)	Elevatio (ft)	Design Depth X (ft)	Design Top Width (ft)	Seeding Width (ft)
25.0	87.30	89.78	2.48	1.27%	0.0	87.3	0.0	87.3	0.0	87.3	2.14	45.55	65.6
350.0	91.43	93.98	2.55	0.88%	0.0	91.4	0.0	91.4	0.0	91.4	2.21	47.16	67.2
750.0	94.97	97.48	2.51		0.0	95.0	0.0	95.0	0.0	95.0	2.09	44.11	64.1

Using Microsoft Excel:
Prepare Exported Surface file so that International Foot is correctly used as units.
10. Open the *Update EFT Surface Export units.xlsm* spreadsheet.
11. Follow the spreadsheet instructions to open the EFT exported surface. {e.g. *Smith WW*}
12. Save the converted surface file. {e.g. Smith WW IFoot.xml} Close the spreadsheet.

Use the **Trimble Access Upload** steps to transfer the converted Surface file to the controller.
    Note: Place the .xml file in the same folder that your .job file will be in.

Setting up Job for Stakeout of WW CL only

Link Uploaded text file to Job

On TSC3/2 controller

13. Power on TSC3 and press the **Trimble** button to launch Trimble Access.
14. *Roads…Jobs… New Job….*
15. Input a job name for this waterway stakeout survey.
16. Select the template for either GPS or Total station.
17. Click *Linked Files...*
18. Select the file or job with your control points. E.g. ***Smith Control.txt***.
19. Click Accept.
20. Click Accept.

Define Waterway Alignment with Elevations

21. Click *Define...*
22. Select the EFT surface file with your waterway. E.g. ***Smith WW IFoot.xml***.
23. Click *Edit…Edit...*
24. Highlight **Horizontal Alignment**… Click *Edit...*
25. To review the highlighted starting point coordinates Click *Edit*
26. Press *Next* to see more horizontal positions or Press *ESC*
27. Press *ESC* to stop reviewing the horizontal elements
28. Highlight **Vertical Alignment**… Click *Edit...*
29. Click *New...*
30. Input the Station and the Elevation for the starting point of the waterway.
31. Click *Store...*
32. For the rest of the reaches
    a. Click *New...*
    b. *Entry Method =* **VPI**, Click *Ok*
    c. *Element =* **Point**, Input the Station & Elevation
    d. Click *Store*
    e. Repeat
33. Click *Accept* when all grade break points have been entered.
34. Templates can be created if more than the CL elevation is wanted.
35. Click *Store...*
36. Input a name for the road E.g. ***Smith WW1***. Click *Ok*
37. Press *ESC* to return to the Roads menu

Stakeout the Waterway CL

Set up Instrument
38. Set up total station or GPS for surveying as normal.
39. In Trimble Access <u>click</u> *Roads...*

Open the Job (From Roads Program)
40. <u>Click</u> on *Jobs... Open Job*
41. <u>Highlight</u> the waterway job
42. <u>Click</u> Select .

Backsight for Orientation of Survey (From Roads Program)
43. <u>Click</u> on *Survey...*
      a. <u>For total station click</u> *VX & S Series...*
      b. <u>For GPS click</u> *IaRTN...*
44. Continue with normal setup of survey.

Stakeout Waterway in Roads
45. <u>Click</u> *Survey...Survey Roads...*
46. <u>Highlight</u> the Road from the list. E.g. **Smith WW1.rxl.** Click *Next*
47. <u>Pulldown</u> *Stake* = **Station & offset**.
48. <u>Right Arrow Click</u> on the *Station* to select stationing that you are wanting to stake from the **List** option.
49. Screen 2 of 2 shows the planned elevation. The station interval can also be changed.
50. <u>Click</u> Start and Move the target to the correct staking location
51. Once Target is at acceptable location <u>click</u> accept .
52. <u>Input</u> As-staked Name E.g {*SO1004* } for StakeOut and a Code (e.g. CL WW).
53. <u>Click</u> Enter
54. <u>Click</u> Store
55. <u>Select</u> next station or offset from list and repeat.
56. When done with Stakeout <u>Press</u> ESC .

Quit out of Survey
57. Switch to General Survey to take a topo shot on a known benchmark or turning point as a final check.
58. When survey is completed, Escape to main menu, & <u>click</u> *Survey... End Survey*
59. Click Yes to Powerdown Instrument. Click Ok & Disconnect the power.
60. Click Exit . Click Yes to Power Off.