CADD Office
presents
NEW GEOTECH TOOLS
of
FDOTConnect 10.09

Bentley Platform History

- Select Series – GEOPAK Borehole Navigator

- Connect 10.07, 10.08 – OpenRoads Designer gINT Civil Tools
- Connect 10.09 – FDOTConnect Geotech Tools

FDOT Connect Geotech Tools

- Replaces SS4/10 Geotech Tools for SPT Data Spreadsheet
- Replaces Imports legacy Borehole and Material files formats
- Plots 2D Boring Location for Plans
- Plots 3D Borings for Cross Section Views
- Creates Report of Borings for sheets

FDOT Connect Geotech Tools

- Replaces SS4/10 Geotech Tools for SPT Data Spreadsheet

GeoTech Data Manager (GDM)

- Imports new format of the following spreadsheets
  - Structures - ReportOfBoringsTemplate.xlxs for SPT Borings
  - Roadway - BoreholeSample.xlsx for Auger Borings
- legacy Borehole and Material files formats
  - Can be manually copied and pasted into new BoreholeSample.xlxs format
- All types of borings can be added manually in the GDM
- The GDM will save out to xml for other tools to use

FDOT Connect Geotech Tools

Place Borehole Tool

In 2D Plan

- Plots 2D Boring Location for Plans

In 3D Model

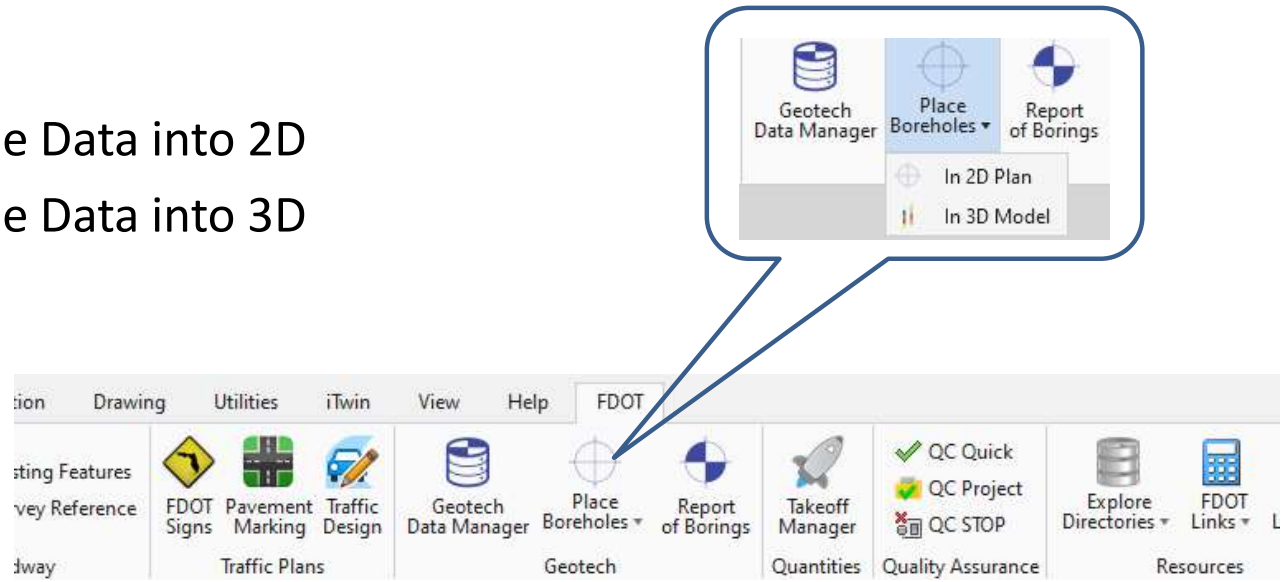
- Plots 3D Borings in a Model for Cross Section Views

Report of Borings

- Creates Report of Borings for sheets

FDOTConnect Geotech Tools

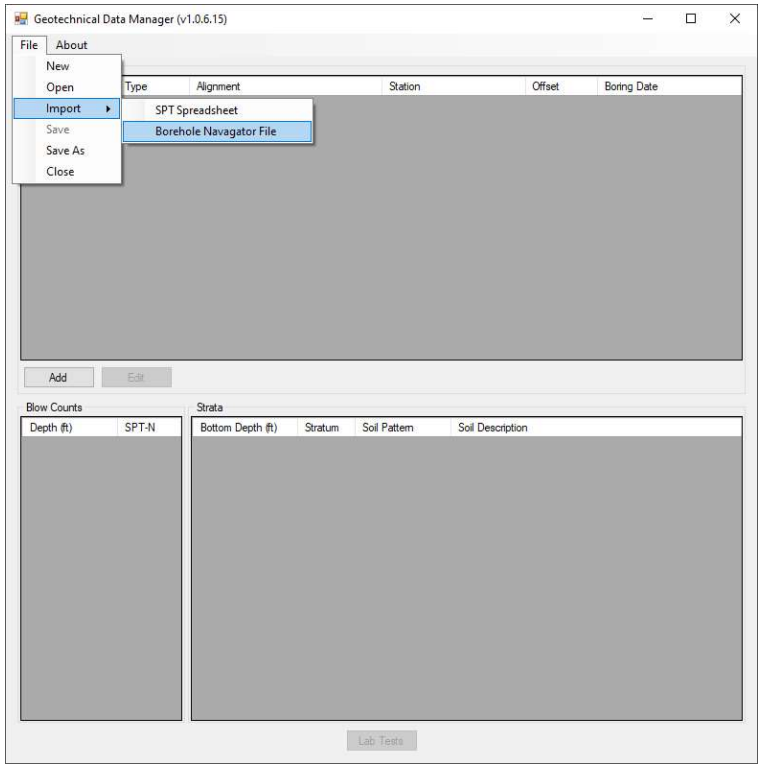
- Geotech Data Manager (GDM)
- Place Boreholes
  - Places the Borehole Data into 2D
  - Places the Borehole Data into 3D
- Report of Borings



FDOTConnect Geotech Data Manager (GDM)

- New
- Open
- Import
- Save/Save As

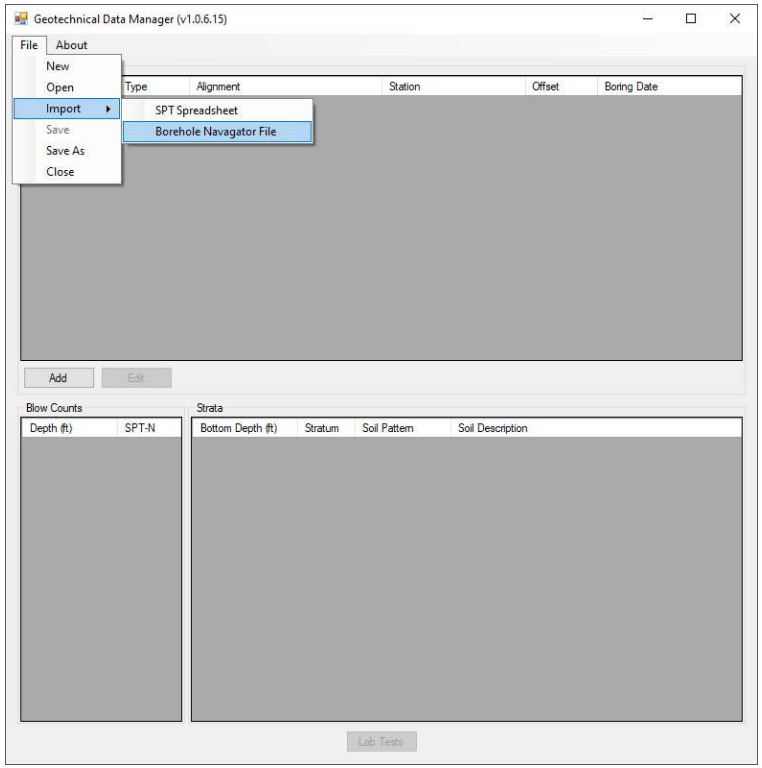
Create xml output file



FDOTConnect Geotech Data Manager

- Import
  - SPT Spreadsheet – “Structures”
    - ReportOfBoringsTemplate.xlxs
  - Borehole Navigator File – “Roadway”
    - BoreholeSample.xlxs

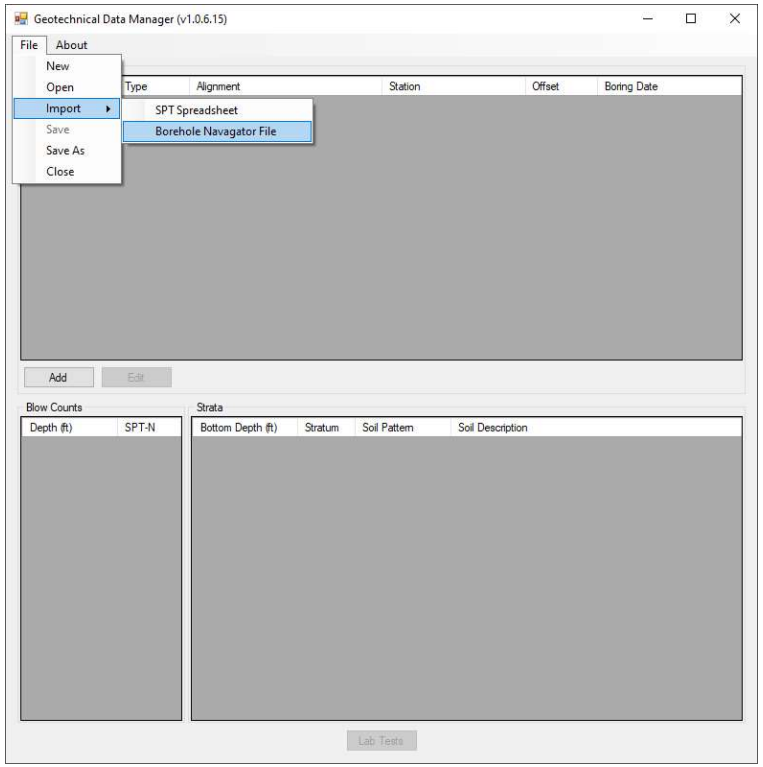
Note: Sample files are delivered in the Project Workset *Geotechnical* Folder



FDOTConnect Geotech Data Manager

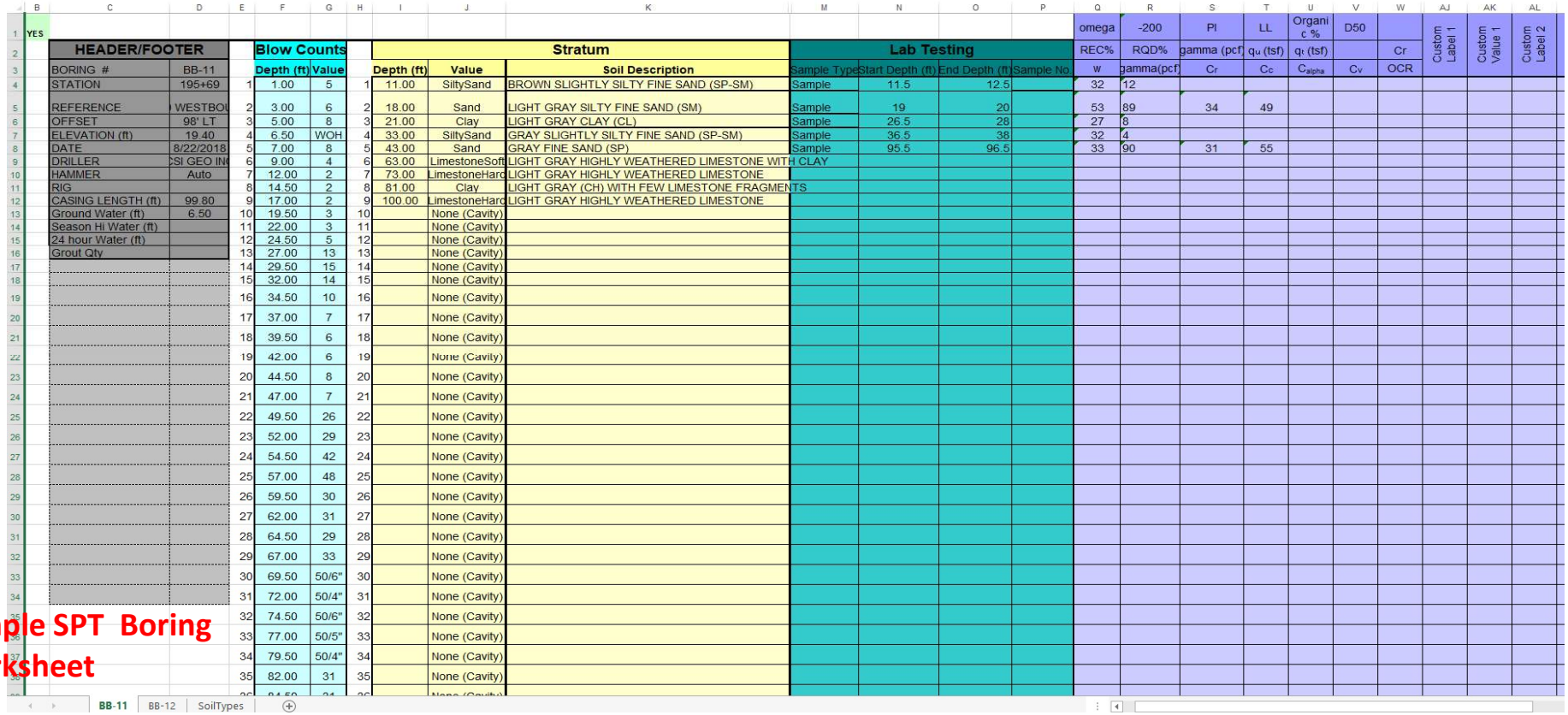
- Import
  - Legacy SPT
  - Legacy BHR-MTL

Note: Sample files are delivered in the Project Workset *Geotechnical* Folder



Florida Department of Transportation

ReportOfBoringsTemplate.xlxs



	HEADER/FOOTER		Blow Counts		Stratum			Lab Testing				omega	-200	PI	LL	Organic %	D50		Custom Label 1	Custom Value 1	Custom Label 2
YES												REC%	RQD%	gamma (pcf)	q_u (tsf)	q_t (tsf)		Cr			
	BORING #	BB-11	Depth (ft)	Value	Depth (ft)	Value	Soil Description	Sample Type	Start Depth (ft)	End Depth (ft)	Sample No.	w	gamma(pcf)	Cr	Cc	C_{alpha}	Cv	OCR			
	STATION	195+69	1.00	5	11.00	SiltySand	BROWN SLIGHTLY SILTY FINE SAND (SP-SM)	Sample	11.5	12.5		32	12								
	REFERENCE	WESTBOU	3.00	6	18.00	Sand	LIGHT GRAY SILTY FINE SAND (SM)	Sample	19	20		53	89	34	49						
	OFFSET	98' LT	5.00	8	21.00	Clay	LIGHT GRAY CLAY (CL)	Sample	26.5	28		27	8								
	ELEVATION (ft)	19.40	6.50	WOH	33.00	SiltySand	GRAY SLIGHTLY SILTY FINE SAND (SP-SM)	Sample	36.5	38		32	4								
	DATE	8/22/2018	7.00	8	43.00	Sand	GRAY FINE SAND (SP)	Sample	95.5	96.5		33	90	31	55						
	DRILLER	CSI GEO IN	9.00	4	63.00	LimestoneSoft	LIGHT GRAY HIGHLY WEATHERED LIMESTONE WITH CLAY														
	HAMMER	Auto	12.00	2	73.00	LimestoneHard	LIGHT GRAY HIGHLY WEATHERED LIMESTONE														
	RIG		14.50	2	81.00	Clay	LIGHT GRAY (CH) WITH FEW LIMESTONE FRAGMENTS														
	CASING LENGTH (ft)	99.80	17.00	2	100.00	LimestoneHard	LIGHT GRAY HIGHLY WEATHERED LIMESTONE														
	Ground Water (ft)	6.50	19.50	3		None (Cavity)															
	Season Hi Water (ft)		22.00	3		None (Cavity)															
	24 hour Water (ft)		24.50	5		None (Cavity)															
	Grout Qty		27.00	13		None (Cavity)															
			29.50	15		None (Cavity)															
			32.00	14		None (Cavity)															
			34.50	10		None (Cavity)															
			37.00	7		None (Cavity)															
			39.50	6		None (Cavity)															
			42.00	6		None (Cavity)															
			44.50	8		None (Cavity)															
			47.00	7		None (Cavity)															
			49.50	26		None (Cavity)															
			52.00	29		None (Cavity)															
			54.50	42		None (Cavity)															
			57.00	48		None (Cavity)															
			59.50	30		None (Cavity)															
			62.00	31		None (Cavity)															
			64.50	29		None (Cavity)															
			67.00	33		None (Cavity)															
			69.50	50/6"		None (Cavity)															
			72.00	50/4"		None (Cavity)															
			74.50	50/6"		None (Cavity)															
			77.00	50/5"		None (Cavity)															
			79.50	50/4"		None (Cavity)															
			82.00	31		None (Cavity)															

BB-11 | BB-12 | SoilTypes

Sample SPT Boring Worksheet

BoreholeSample.xlxs
BoreHoles Tab

Columns Headers must not be changed from the sample

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	BoreholeId	Alignment	Station	Offset	Easting	Northing	Latitude	Longitude	Elevation	WaterElevationType	ZeroHourWaterDepth	ZeroHourWaterDate	TwentyFourWaterDepth	TwentyFourWaterDate	SeasonHiWaterDepth	SeasonHiWaterDate
2	TL-180	CL1	180+00	45			30°15'53.791254"	-82°55'03.670552"		DOC	GNE	06/30/2020			4	
3	TL-181L	CL1	181+00	-18			30°15'53.795854"	-82°55'02.322786"		DOC	GNE	06/30/2020			7	
4	TL-181R	CL1	181+00	49			30°15'53.233333"	-82°55'02.727506"		DOC	GNE	06/30/2020				
5	TL-182L	CL1	182+00	-18			30°15'52.717387"	-82°55'01.754254"		DOC	GNE	06/30/2020				
6	TL-182R	CL1	182+00	48			30°15'53.271505"	-82°55'01.355575"		DOC	GNE	06/30/2020				
7	TL-183L	CL1	183+00	-18			30°15'52.176244"	-82°55'00.799131"		DOC	GNE	06/30/2020				
8	TL-183R	CL1	183+00	50			30°15'52.747165"	-82°55'00.388367"		DOC	GNE	06/30/2020			7	
9	TL-184L	CL1	184+00	-18			30°15'51.643502"	-82°54'59.837968"		DOC	GNE	06/30/2020				
10	TL-184R	CL1	184+00	51			30°15'52.222812"	-82°54'59.421162"		DOC	GNE	06/30/2020				
11	TL-185	CL1	185+00	-18			30°15'51.698458"	-82°54'58.453971"		DOC	GNE	06/30/2020			9	
12	TL-186	CL1	186+00	-18			30°15'51.174102"	-82°54'57.486772"		DOC	GNE	06/30/2020				
13	TL-187	CL1	187+00	-18			30°15'50.649753"	-82°54'56.519575"		DOC	GNE	06/30/2020				
14	TL-188	CL1	188+00	-18			30°15'50.125393"	-82°54'55.552381"		DOC	GNE	06/30/2020			10	
15	TL-189	CL1	189+00	-18			30°15'49.60103"	-82°54'54.58519"		DOC	GNE	06/30/2020				
16	TL-190	CL1	190+00	-20			30°15'49.093458"	-82°54'53.605919"		DOC	GNE	06/30/2020				
17	TL-191	CL1	191+00	-23			30°15'48.594286"	-82°54'52.620619"		DOC	GNE	06/30/2020			10	
18	TL-192	CL1	192+00	-19			30°15'48.036332"	-82°54'51.677593"		DOC	GNE	06/30/2020				
19	TL-350	CL1	350+00	19			30°14'37.985521"	-82°52'12.086379"		DOC	4	06/29/2020			3	
20	TL-351	CL1	351+00	31			30°14'37.538144"	-82°52'11.060211"		DOC	5	06/29/2020			4	
21	TL-352	CL1	352+00	31			30°14'37.202511"	-82°52'09.987646"		DOC	4.5	06/29/2020			3	
22	TL-353	CL1	353+00	30			30°14'36.876193"	-82°52'08.911224"		DOC	4	06/29/2020			3	
23	TL-472	CL1	472+00	-40			30°13'55.961301"	-82°50'01.743506"		DOC	GNE	06/29/2020				
24	TL-473	CL1	473+00	-37			30°13'55.372944"	-82°50'00.816637"		DOC	GNE	06/29/2020			7	
25	TL-474	CL1	474+00	-35			30°13'54.778936"	-82°49'59.895543"		DOC	GNE	06/29/2020				
26	TL-475	CL1	475+00	-40			30°13'54.226638"	-82°49'58.938864"		DOC	GNE	06/29/2020				
27	TL-519	CL1	519+00	37			30°13'21.753152"	-82°49'25.513793"		DOC	GNE	06/29/2020				
28	TL-520	CL1	520+00	37			30°13'21.008277	-82°49'24.7631		DOC	GNE	06/29/2021				
29	TL-521	CL1	521+00	36			30°13'20.269914"	-82°49'24.003819"		DOC	GNE	06/29/2020			8	
30	TL-522	CL1	522+00	36			30°13'19.525026"	-82°49'23.253132"		DOC	GNE	06/29/2020				
31	TL-523	CL1	523+00	-40			30°13'19.275601"	-82°49'21.850567"		DOC	GNE	06/29/2020				
32	TL-524	CL1	524+00	-37			30°13'18.51115"	-82°49'21.125617"		DOC	GNE	06/29/2020			7	
33	TL-525	CL1	525+00	-40			30°13'17.785817"	-82°49'20.349199"		DOC	GNE	06/29/2020				
34	TL-526	CL1	526+00	-40			30°13'17.040934"	-82°49'19.598525"		DOC	GNE	06/29/2020				
35																
36																
37																
38																
39																
40																
41																
42																
43																
44																

Boreholes | Materials

Sample Roadway Boring Location Worksheet

Column Headers Definitions

- **BoreholeID** – This is used to Identify the name of individual borehole
- **Alignment** – The alignment that the borehole will be referenced from
- **Station** – the station that the borehole is at on an Alignment
- **Offset** – the distance (Lt. or Rt.) away from the Alignment
- **Easting** – X coordinate where the borehole is placed
- **Northing** – Y coordinate where the borehole is placed
- **Latitude –** the angular distance of a place north or south of the earth's equator, usually expressed in degrees and minutes.
- **Longitude –** the angular distance of a place east or west of the meridian at Greenwich, England, or west of the standard meridian of a celestial object, usually expressed in degrees and minutes.
- **Elevation –** Is the elevation at the existing ground
- **WaterElevationType – The other**This defines the Depth of Cover (DOC) or Strata which will specify a specific elevation.
- **ZeroHourWaterDepth –** Groundwater elevation encountered @ first exposure.
- **ZeroHourWaterDate –** Date of Zero Hour Water
- **TwentyFourHourWaterDepth –** Groundwater Elevation encountered after 24 Hour.
- **TwentyFourHourDate –** Date when 24 Hour water
- **SeasonalHiWaterDepth –** The Depth of the Seasonal High Water
- **SeasonalHiWaterDate –** Date of High Water

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- **BoreholeID** – This is used to Identify the name of individual borehole
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- **TwentyFourHourWaterDepth –** Groundwater Elevation encountered after 24 Hour.
- **TwentyFourHourDate –** Date when 24 Hour water
- **SeasonalHiWaterDepth –** The Depth of the Seasonal High Water
- **SeasonalHiWaterDate –** Date of High Water

BoreholeSample.xlxs

Materials Tab

Columns Headers must not be changed from the sample

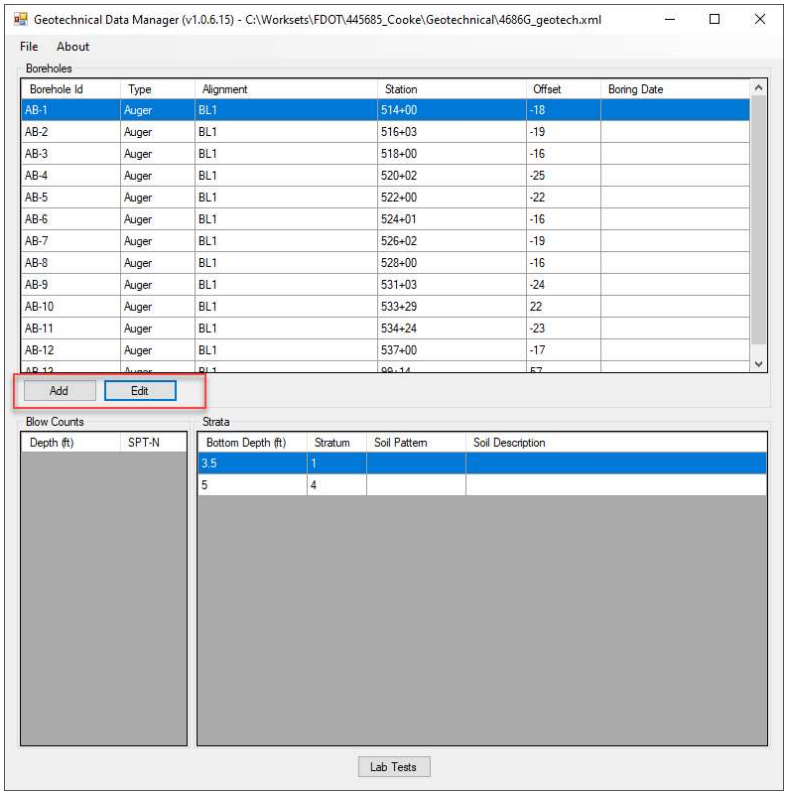
	A	B	C	D	E	F
1	BoreholeId	StratumId	ElevationType	Depth	AASHTO	SoilDescription
2	TL-180	3	DOC	4	A-2-4	GRAY, TAN - SILTY FINE SAND
3	TL-180	4	DOC	5.5	A-6	ORANGE - CLAYEY SOIL
4	TL-181L	3	DOC	8	A-2-4	GRAY, TAN - SILTY FINE SAND
5	TL-181L	4	DOC	10.5	A-6	ORANGE - CLAYEY SOIL
6	TL-181R	2	DOC	5.5	A-2-4	LIGHT BROWN, TAN, GRAY, DARK GRAY, LIGHT GRAY - SILTY FINE SAND
7	TL-182L	2	DOC	5.5	A-2-4	LIGHT BROWN, TAN, GRAY, DARK GRAY, LIGHT GRAY - SILTY FINE SAND
8	TL-182R	2	DOC	5.5	A-2-4	LIGHT BROWN, TAN, GRAY, DARK GRAY, LIGHT GRAY - SILTY FINE SAND
9	TL-183L	2	DOC	5.5	A-2-4	LIGHT BROWN, TAN, GRAY, DARK GRAY, LIGHT GRAY - SILTY FINE SAND
10	TL-183R	2	DOC	8	A-2-4	LIGHT BROWN, TAN, GRAY, DARK GRAY, LIGHT GRAY - SILTY FINE SAND
11	TL-183R	4	DOC	10.5	A-6	ORANGE - CLAYEY SOIL
12	TL-184L	2	DOC	5.5	A-2-4	LIGHT BROWN, TAN, GRAY, DARK GRAY, LIGHT GRAY - SILTY FINE SAND
13	TL-184R	2	DOC	5.5	A-2-4	LIGHT BROWN, TAN, GRAY, DARK GRAY, LIGHT GRAY - SILTY FINE SAND
14	TL-185	2	DOC	9	A-2-4	LIGHT BROWN, TAN, GRAY, DARK GRAY, LIGHT GRAY - SILTY FINE SAND
15	TL-185	3	DOC	10.5	A-2-4	GRAY, TAN - SILTY FINE SAND
16	TL-186	2	DOC	5.5	A-2-4	LIGHT BROWN, TAN, GRAY, DARK GRAY, LIGHT GRAY - SILTY FINE SAND
17	TL-187	1	DOC	5.5	A-3	BROWN, LIGHT BROWN, TAN, GRAY, LIGHT GRAY - FINE SAND
18	TL-188	3	DOC	7	A-2-4	GRAY, TAN - SILTY FINE SAND
19	TL-188	1	DOC	10.5	A-3	BROWN, LIGHT BROWN, TAN, GRAY, LIGHT GRAY - FINE SAND
20	TL-189	2	DOC	5.5	A-2-4	LIGHT BROWN, TAN, GRAY, DARK GRAY, LIGHT GRAY - SILTY FINE SAND
21	TL-190	1	DOC	5.5	A-3	BROWN, LIGHT BROWN, TAN, GRAY, LIGHT GRAY - FINE SAND
22	TL-191	1	DOC	10.5	A-3	BROWN, LIGHT BROWN, TAN, GRAY, LIGHT GRAY - FINE SAND
23	TL-192	2	DOC	5.5	A-2-4	LIGHT BROWN, TAN, GRAY, DARK GRAY, LIGHT GRAY - SILTY FINE SAND
24	TL-350	2	DOC	5.5	A-2-4	LIGHT BROWN, TAN, GRAY, DARK GRAY, LIGHT GRAY - SILTY FINE SAND
25	TL-351	2	DOC	5.5	A-2-4	LIGHT BROWN, TAN, GRAY, DARK GRAY, LIGHT GRAY - SILTY FINE SAND
26	TL-352	2	DOC	10.5	A-2-4	LIGHT BROWN, TAN, GRAY, DARK GRAY, LIGHT GRAY - SILTY FINE SAND

Boreholes | Materials

Sample Roadway Boring Materials Worksheet

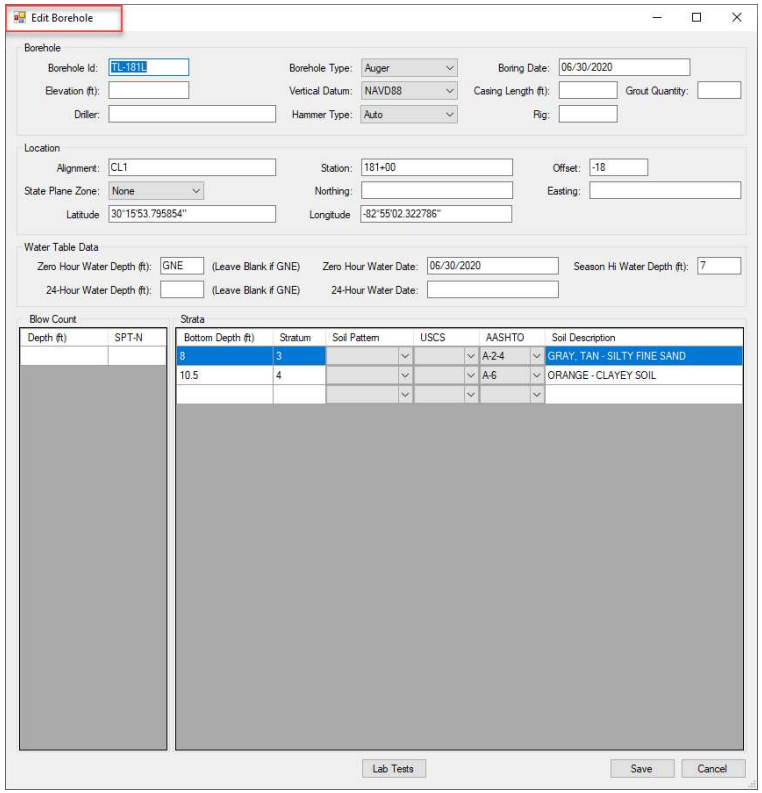
FDOTConnect Geotech Data Manager

- Edit



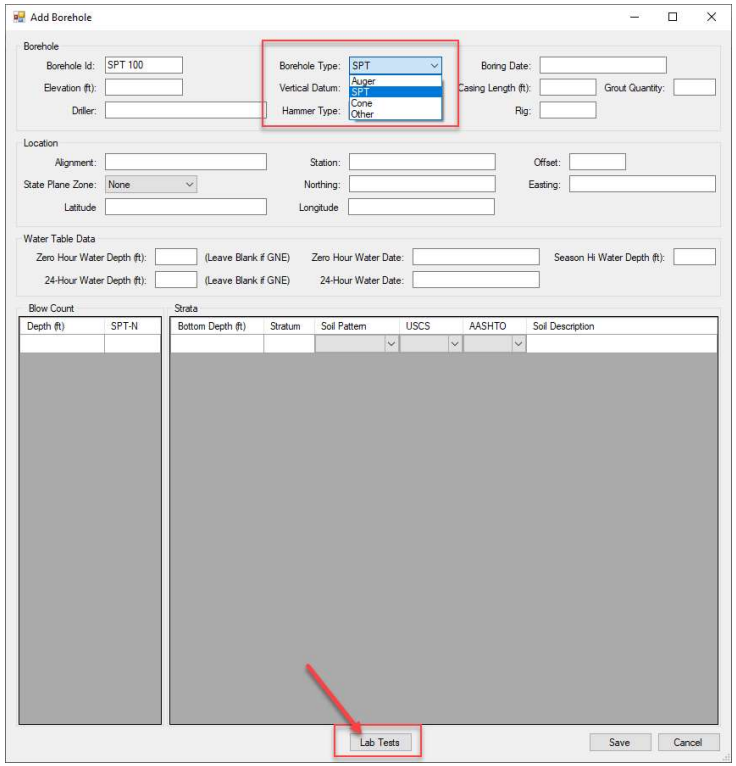
FDOTConnect Geotech Data Manager

- Edit



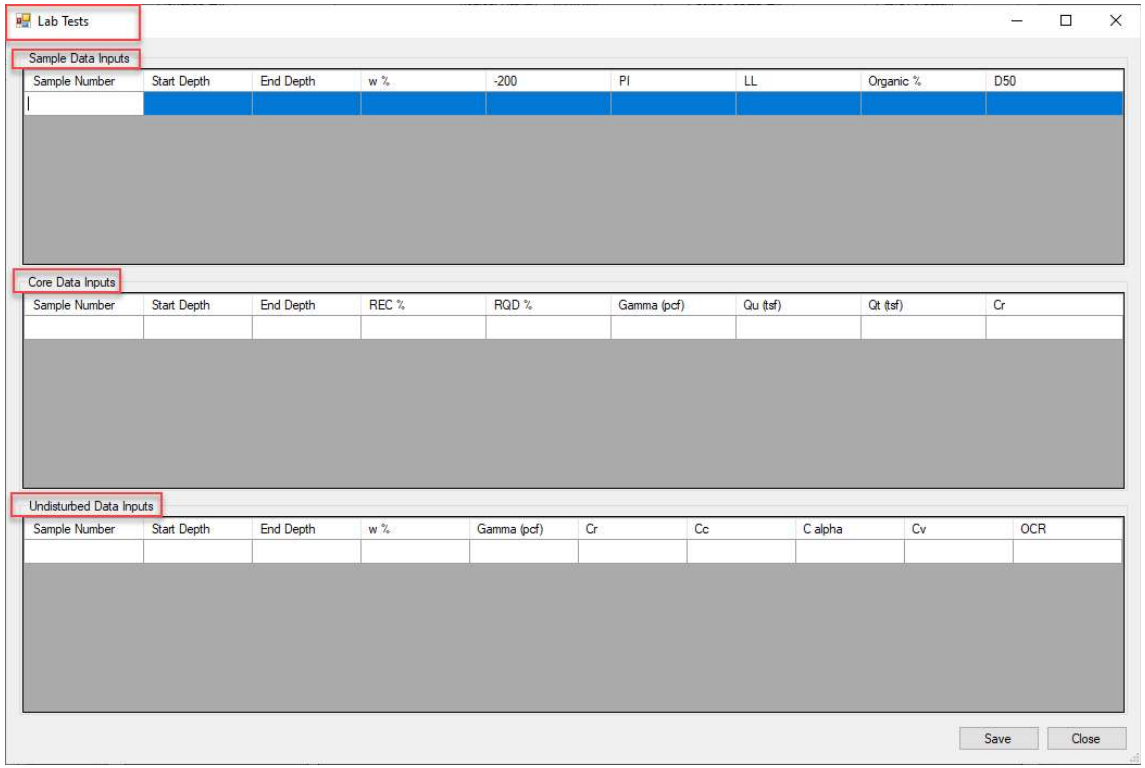
FDOTConnect Geotech Data Manager

- Add Types
  - Auger
  - SPT
  - Core
  - Other
- Lab Tests



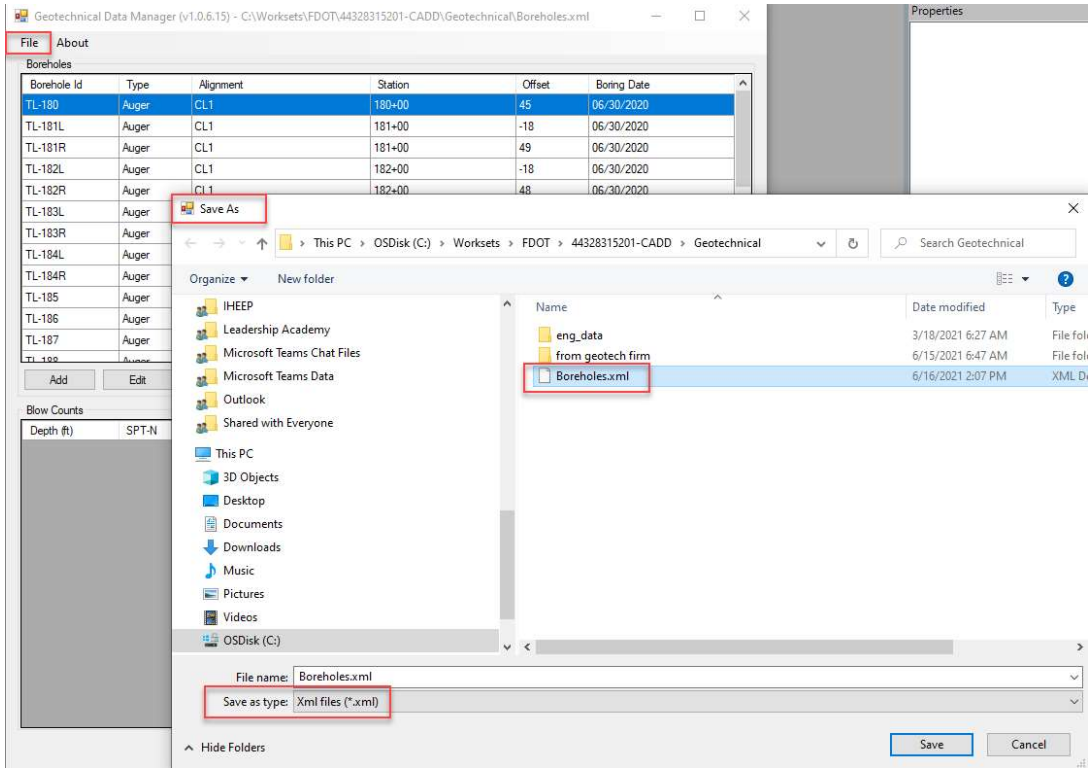
FDOTConnect Geotech Data Manager

- Add Lab Test Data

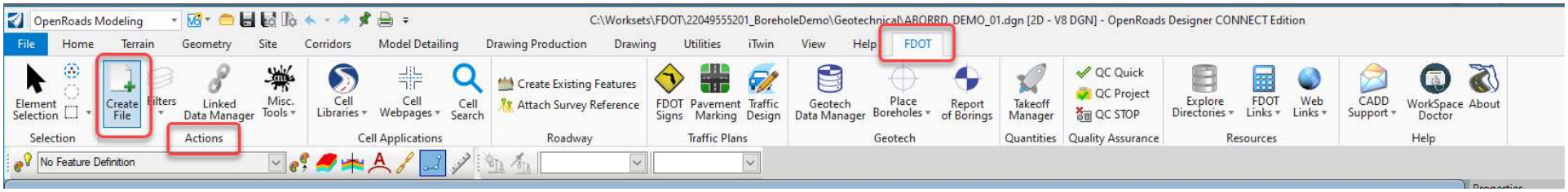


FDOTConnect Geotech Data Manager

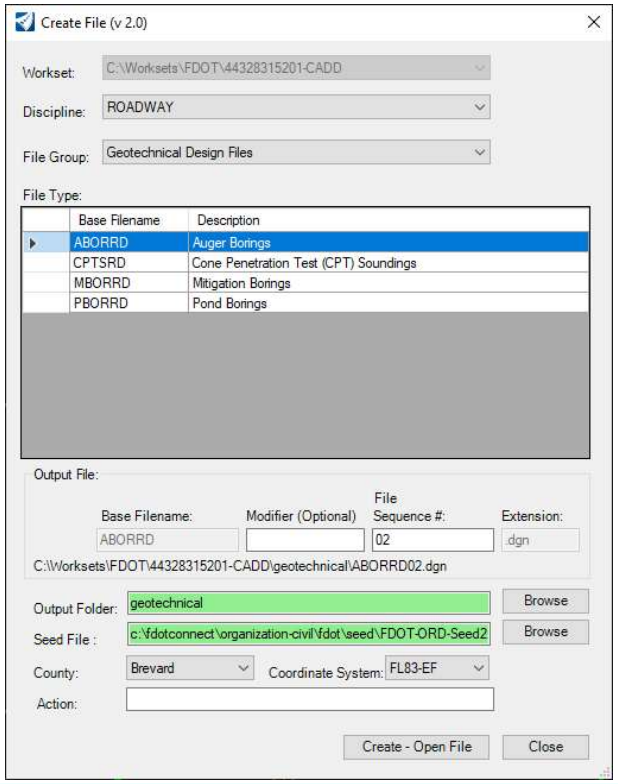
- File > Save As
  - Xml file



Now that you have the Borehole Data what do we do?



- Create File
  - Roadway

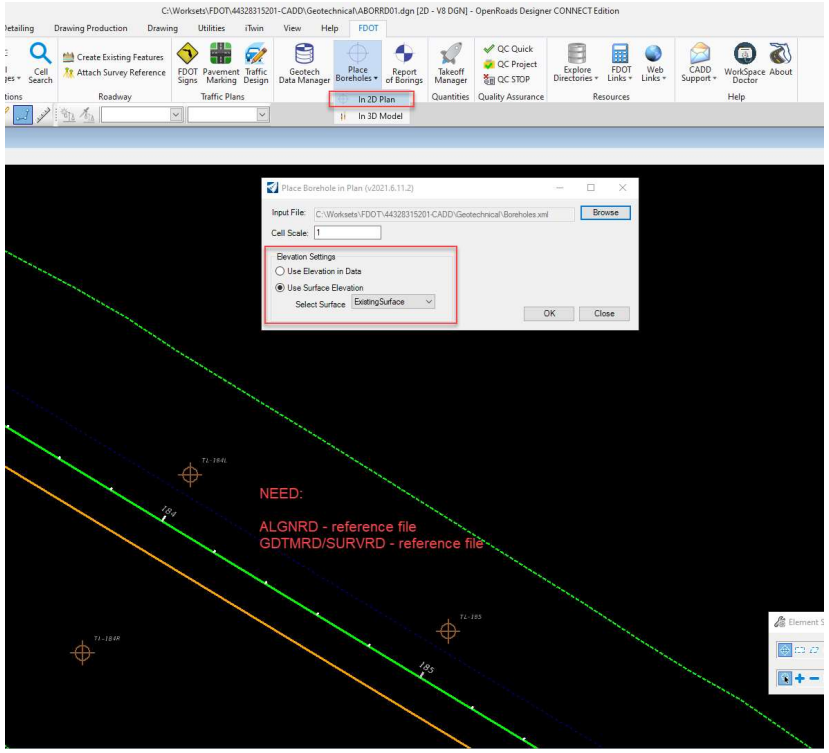


Referencing in Design Files

- ALGNRD
- GDTMRD or SURVRD

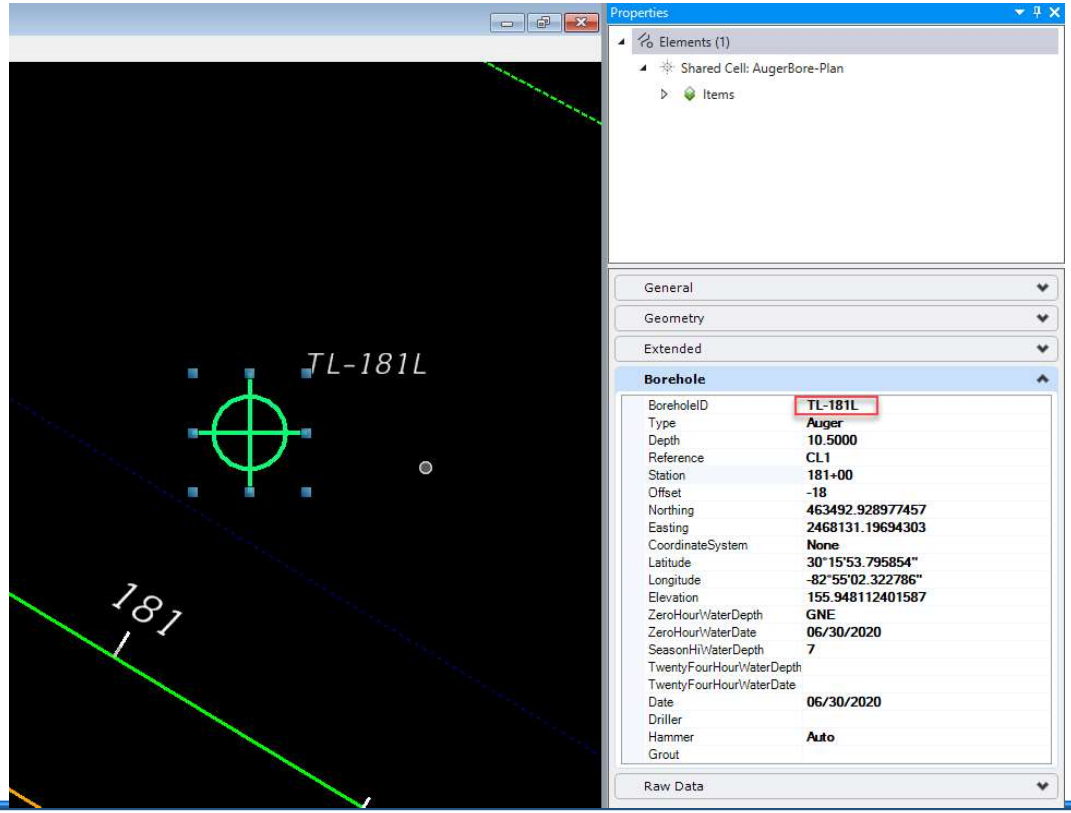
FDOTConnect Place Boreholes

- In 2D Plan



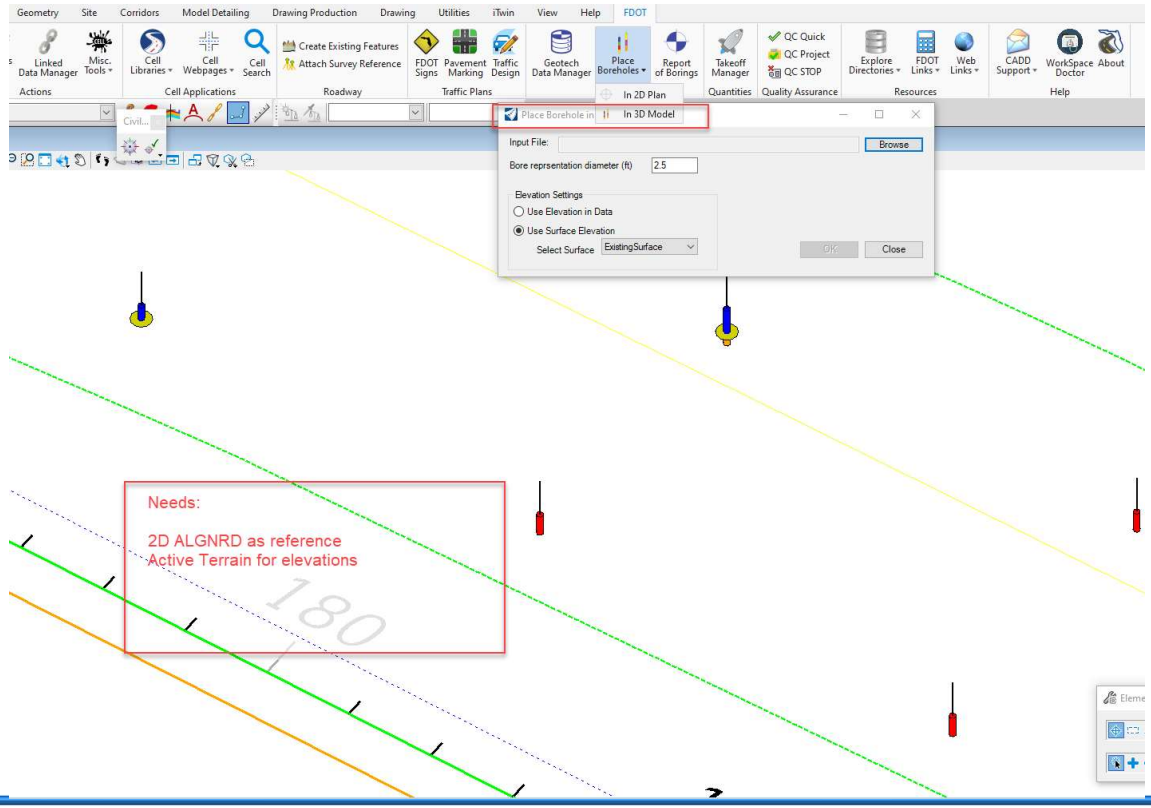
FDOTConnect Place Boreholes

- In 2D Plan
- Adds Item Type Data



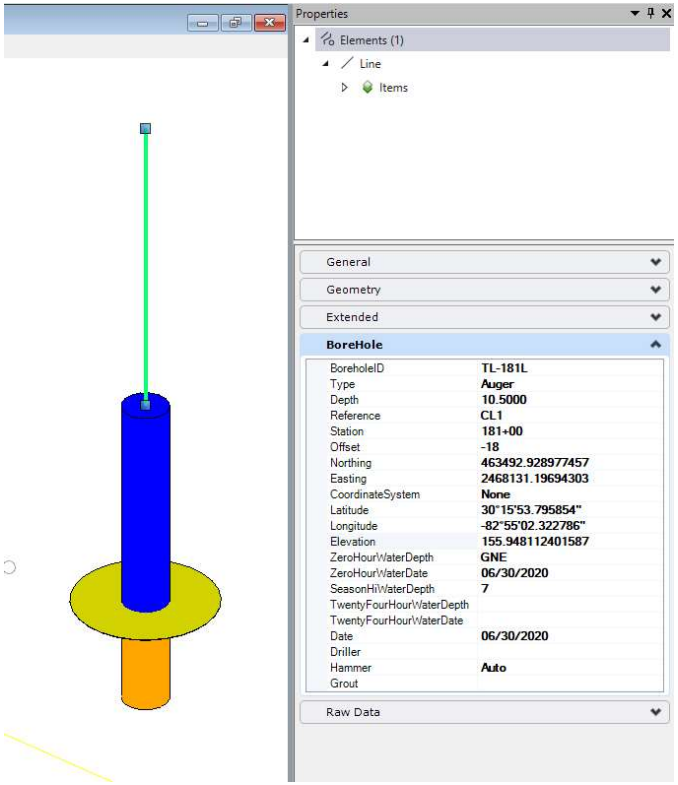
FDOTConnect Place Boreholes

- In 3D Model



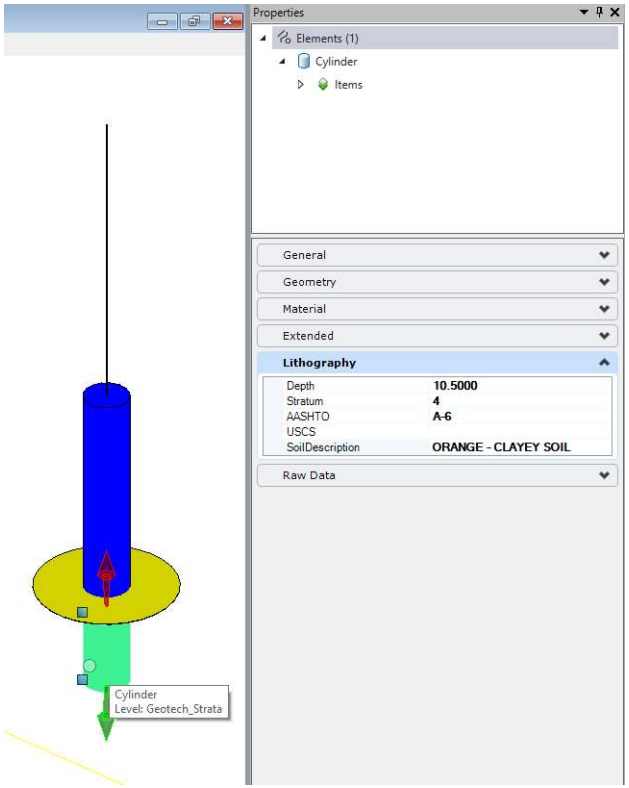
FDOTConnect Place Boreholes

- Pin
  - Borehole



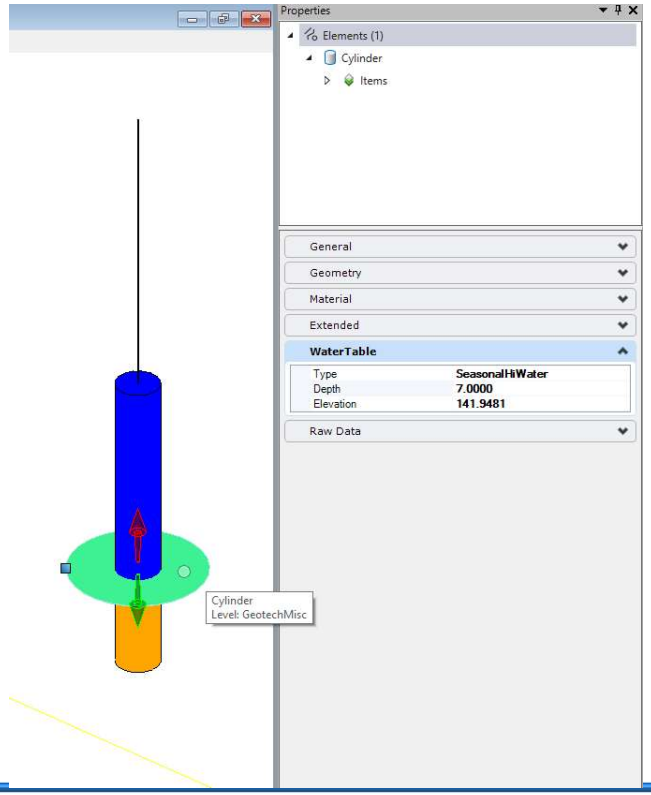
FDOTConnect Place Boreholes

- Strata
  - Colors by Strata



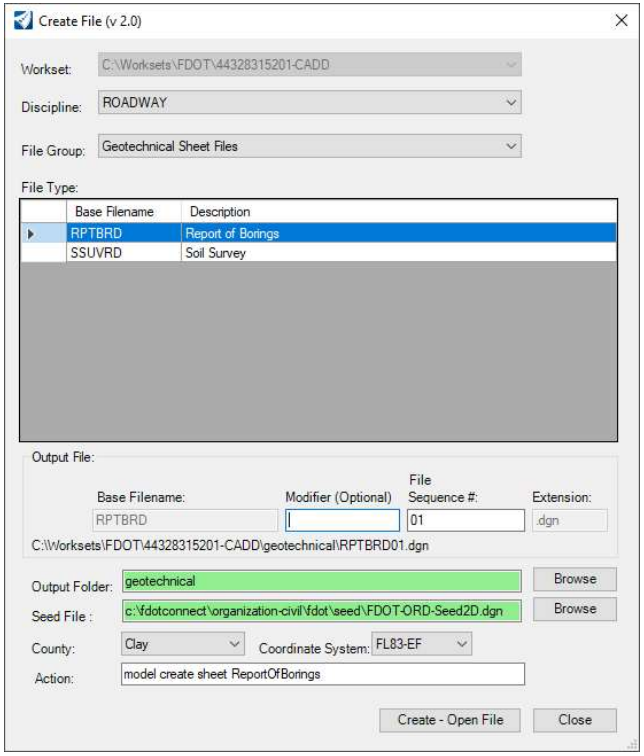
FDOTConnect Place Boreholes

- Water Elev. Disc
  - Yellow SHW
  - 0 Hour
  - 24 Hour



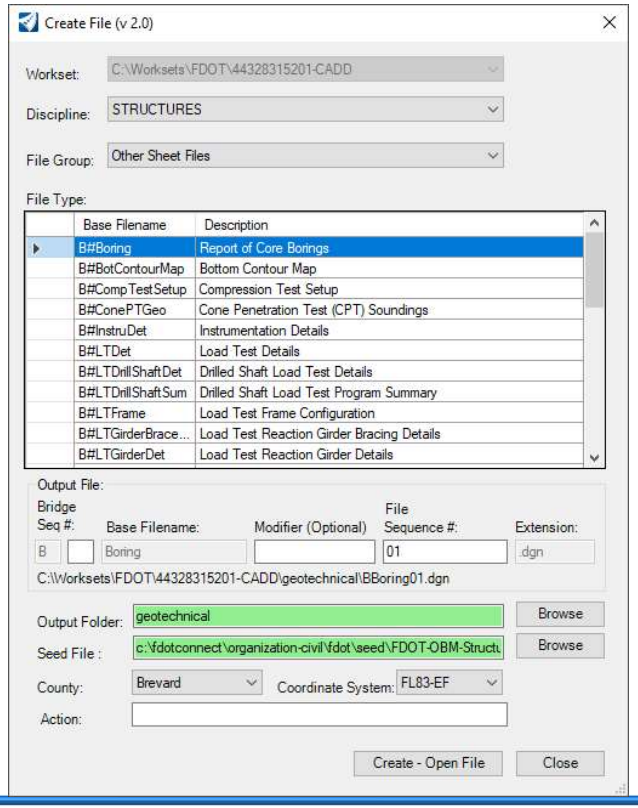
FDOTConnect Report of Boring

- Create File
  - Roadway

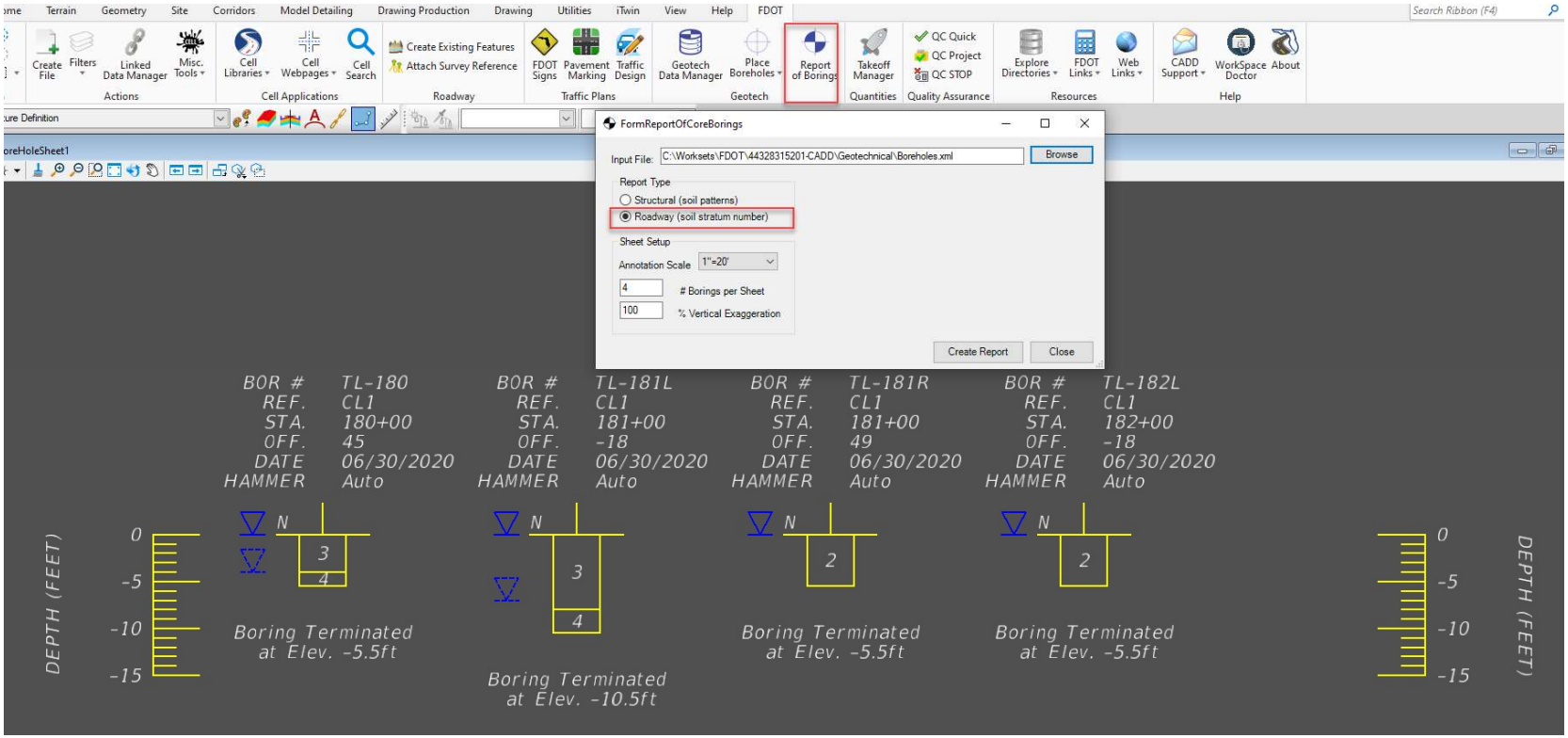


FDOTConnect Report of Borings

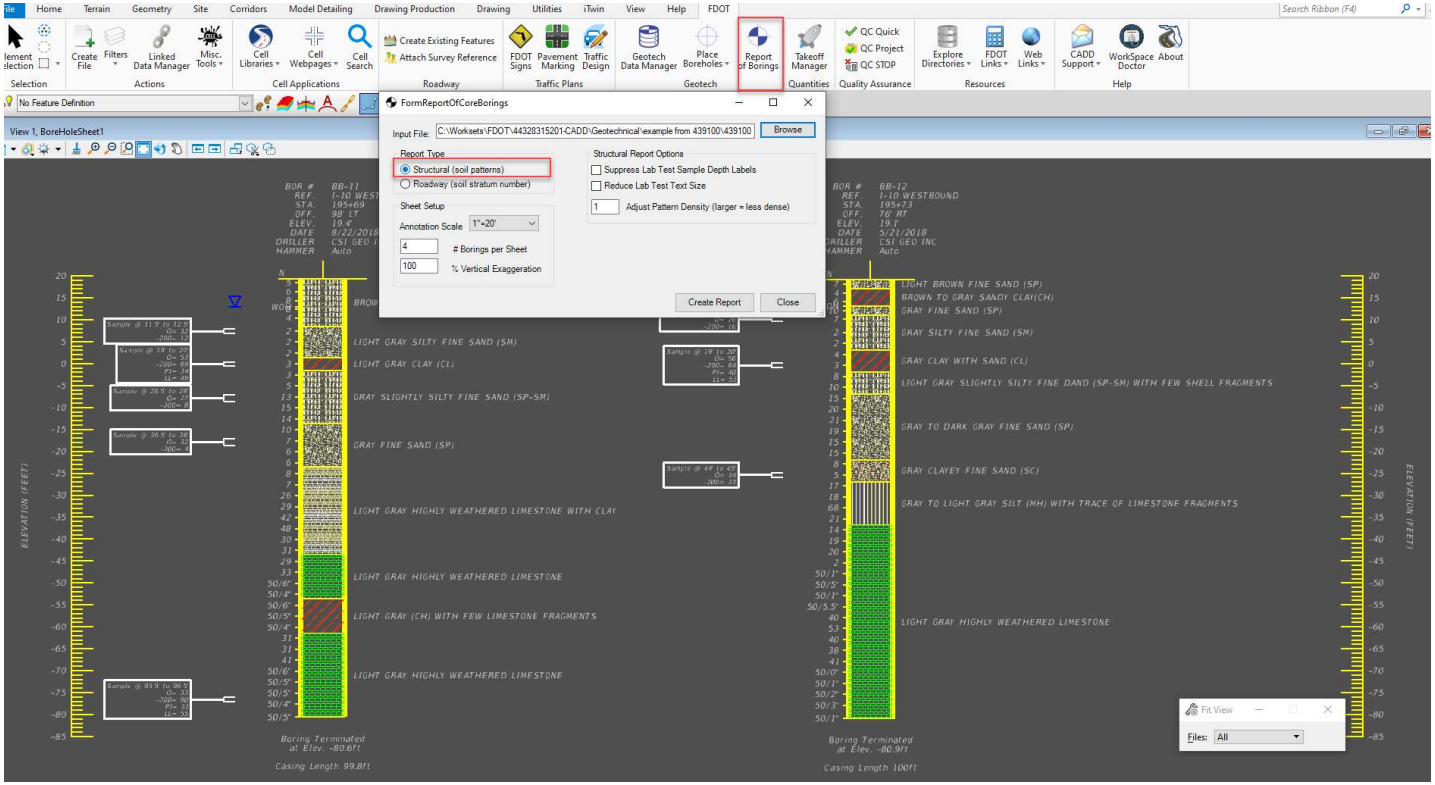
- Create File
  - Structures



FDOTConnect Report of Boring



FDOTConnect Report of Boring



DEMO of Tools

Future enhancements

Labeling in Cross Sections

Input Location by Latitude and Longitude

Thank you

Please send any Questions to

CADD.support@dot.state.fl.us