

A cross-section of soil and grass under a blue sky with clouds. The top half of the image shows a bright blue sky with scattered white clouds. Below the sky is a layer of vibrant green grass. The bottom half of the image shows a cross-section of dark brown soil with small, colorful organisms (possibly insects or microbes) visible within it.

# Successful Vegetation Management

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# Vegetation Requirements under IDEM Construction Stormwater General Permit

- ▶ Minimize Disturbance
- ▶ Preserve Natural Buffers
- ▶ Topsoil must be preserved and protected, unless infeasible
- ▶ Unvegetated areas that are left idle or scheduled to be left inactive must be temporarily or permanently stabilized with measures appropriate for the season to minimize erosion potential.
- ▶ Final Stabilization achieved when there is a density of 70% cover



# Final Stabilization begins before the project starts

- ▶ Is there a realistic number of mobilizations in the contract?
- ▶ Are there items in the budget for temporary stabilization?
- ▶ Is the final stabilization method appropriate for the type of work, season and length of contract?
- ▶ Who is responsible for stabilization? What about sub-contractor or utility work?
- ▶ What is the pre-construction condition of existing vegetation?

# Condition of Existing Vegetation

- ▶ Visual inspection of existing conditions
- ▶ What is growing?
  - ▶ Monocultures?
  - ▶ Weeds?
  - ▶ Native Vegetation?
- ▶ Are there areas with no vegetation, bare soil?
- ▶ Are there existing erosion issues?
- ▶ Stream Bank condition
- ▶ Potential for contaminated soils?



# Soil layers

Humus

Topsoil

Subsoil

Weathered rock fragments

Bedrock



# Organic Matter Layer



A close-up photograph of a person's hand holding a mound of dark, rich soil. The hand is positioned above a larger pile of the same soil. The background is a soft, out-of-focus green, suggesting a natural outdoor setting. The text "Do not treat soil like dirt" is overlaid in white, sans-serif font across the center of the image.

Do not treat soil like  
dirt

# Protect your topsoil

- ▶ Assembly line grading operations
- ▶ Temp or permanent seed topsoil stockpiles
- ▶ Install topsoil as soon as grading and structures are installed
- ▶ Track properly
- ▶ Re-Vegetate as soon as possible





# Use proper methods to prepare the soil for permanent stabilization

- Avoid Compaction
- Avoid working soil when too wet
- Proper tracking
- Proper seed bed preparation.





Compaction

# Erosion Control Blanket VS Hydroseeding



# INDOT Plant Growth Layer Specification 629-R-630

- ▶ Pre-Bid soil testing – INDOT Geotech
- ▶ Contractor – take samples and test early to determine necessary amendments
- ▶ Amendment may be added prior to major grading
- ▶ Amend soils then stockpile
- ▶ Testing facilities can give amendment recommendations from soil test result which can help

INDIANA DEPARTMENT OF TRANSPORTATION  
GEOTECHNICAL SERVICES DIVISION

Summary of Existing Topsoil Test Results for use with Plant Growth Layer

Date: 2/13/2020  
Des. No.: 1901395  
Project: Interstate-69 Section 6, Contract 4, "6.3"  
Location: Morgan County

REF.	LOCATION				ANALYSIS							
					AASHTO T 289	AASHTO T 88 and T 89	AASHTO T 88 and T 89	AASHTO T 88 and T 89	AASHTO T 88 and T 89	AASHTO T 267 and T 21**	Bray P-1 Equivalent	NCRRP 221, Chapt 7***
Boring Log	Station	Offset (feet)	Lt/Rt	Tested Depth (inch)	pH	Gravel*	Sand	Silt	Clay	Organic Content (% by Wt)	Phosphorus (ppm)	Potassium (ppm)
						(% by Weight)						
TS-01	"PR-A" 1858+04	30	Rt	3 to 6	7.9	0.8	49.2	42.7	7.4	4.5	53	129
TS-02	"PR-B" 1885+38	40	Rt	3 to 6	8.7	8.7	36.4	42.4	12.5	1.6	7	48
TS-03	"PR-B" 1911+43	36	Lt	3 to 6	8.1	20.1	51.8	26.9	1.2	6.0	39	76
TS-04	"PR-B" 1939+69	38	Rt	3 to 6	8.5	3.7	30.5	52.4	13.4	1.9	14	64
TS-05	"PR-A" 1968+02	24	Rt	3 to 6	7.9	22.0	54.9	19.2	3.9	5.5	12	47
TS-06	"PR-B" 1991+09	33	Rt	3 to 6	7.8	13.4	53.5	31.0	2.1	4.7	12	61
TS-07	"PR-C" 2022+58	65	Rt	3 to 6	7.7	12.0	45.9	39.8	2.3	4.0	7	69
TS-08	"PR-C" 2052+81	74	Lt	3 to 6	8.2	1.5	40.2	53.0	5.4	2.8	26	87
TS-09	"PR-C" 2079+67	64	Rt	3 to 6	6.9	0.1	63.7	33.9	2.4	2.1	27	226
TS-10	"PR-C" 2108+49	2	Lt	3 to 6	8.2	27.8	50.4	18.3	3.4	1.9	9	53
TS-11	"PR-C" 2138+35	78	Lt	3 to 6	7.8	5.6	39.0	48.6	6.8	4.6	42	290
TS-12	"PR-C" 2163+89	75	Rt	3 to 6	8.0	20.0	54.3	24.5	1.3	6.3	28	155
Acceptable Ranges per 914.01 =					6.0 - 7.3	N/A	5 - 50%	30 - 80%	5 - 30%	3 - 10%**	20 - 80	105 - 250

\* For informational purposes only

\*\* In Davies, Gibson, Knox, Pike Posey, and Vanderburgh Counties, AASHTO T 21 shall also be performed. Acceptable range is 4 - 10%

\*\*\* North Central Regional Research Publication 221, Chapter 7

Note: All existing topsoil test results presented herein are for information only.

See attached A&L Great Lakes Laboratories Report of Analysis for exact Method of Analysis for determination of Phosphorus and Potassium

# What does this stuff mean?

<i>TOPSOIL REQUIREMENTS AFTER INSTALLATION</i>			
<i>Requirement</i>	<i>Measurement</i>	<i>Range</i>	<i>Test Method</i>
<i>pH</i>		<i>6.0 - 7.3</i>	<i>AASHTO T 289</i>
<i>Clay</i>	<i>Weight</i>	<i>5% - 30%</i>	<i>AASHTO T 88 and T 89</i>
<i>Silt</i>	<i>Weight</i>	<i>30% - 80%</i>	<i>AASHTO T 88 and T 89</i>
<i>Sand</i>	<i>Weight</i>	<i>5% - 50%</i>	<i>AASHTO T 88 and T 89</i>
<i>Organic Material</i>	<i>Weight</i>	<i>3% - 10%<sup>***</sup></i>	<i>AASHTO T 267 and AASHTO T 21<sup>***</sup></i>
<i>Phosphorus</i>	<i>Weight</i>	<i>46-110 ppm<sup>*</sup></i>	<i>North Central Regional Research Publication 221, Chapter 6, Bray P-1</i>
<i>Potassium</i>	<i>Weight</i>	<i>105-250 ppm<sup>**</sup></i>	<i>North Central Regional Research Publication 221, Chapter 7</i>
<sup>*</sup> <i>Alternatively 92-220 lb/ac</i> <sup>**</sup> <i>Alternatively 210-500 lb/ac</i> <sup>***</sup> <i>In the counties of Daviess, Gibson, Knox, Pike, Posey, and Vanderburgh AASHTO T 21 shall also be performed and the organic material content shall be from 4% - 10%</i>			

*Table 1*

# Take Aways

- ▶ Have a solid revegetation plan before the contract starts
- ▶ Make sure that the vegetation plan makes sense taking into consideration
  - ▶ Existing vegetation/soil conditions
  - ▶ Length of contract
  - ▶ Timing of seeding
  - ▶ Proper soil management
  - ▶ The right stabilization method for field conditions and season.
  - ▶ Re-disturbance

- ▶ Know your soil
  - ▶ Are their existing soil issues
  - ▶ Understand your existing soil conditions
- ▶ Understand your seasonal limitations
- ▶ Have a working knowledge of how things grow, gravity.

