Appendix 9: Adjusting Hydrologic Soil Group for Construction

This appendix provides hydrologic soil group (HSG) values for undisturbed Ohio soils and predictable HSG values for Ohio soils that are altered by construction practices.

Hydrologic soil groups are used to assign a Curve Number (CN) when performing runoff calculations or in hydrologic models. Soil map units have been assigned to the four Hydrologic Soil Groups in technical resources and soil resources published by the USDA Natural Resource Conservation Service[1] (NRCS). NRCS HSG values are based on undisturbed, naturally-occurring soils. In contrast, soils at development sites are typically changed dramatically by construction practices that remove topsoil, change the soil profile and compact soils with heavy equipment. The runoff potential of a site is significantly impacted by these changes and should be reflected in hydrologic modeling and runoff calculations.

The following tables contain the HSGs and predicted HSGs for post-construction that were developed by applying the HSG criteria to modeled representative post-construction soil profiles. The modeled scenario consisted of the removal of the topsoil and subsoil to a depth of 18 inches and the compaction of the zone from 0 to 6 inches at the new surface. A fuller explanation of this process is available at the end of this appendix.

Soil Map Unit Component	HSG[1]	Post-Const HSG
Aaron	C	D
Abscota Variant (Warren)	A	No Eval.
Adrian	A/D	D
Aetna	B/D	D
Alexandria	C	D
Alford	B	D
Algansee	A/D	D
Algiers	B/D	D
Allegheny	B	C
Allegheny Variant (Belmont, Pike)	B	No Eval.
Allis	D	D
Alvada	B/D	D
Amanda	C	D
Amanda Variant (Licking)	B	No Eval.
Arkport	A	A
Ashton	B	D
Atlas	D	D
Aurand	C/D	D
Ava	C	D
Avonburg	D	D
Barkcamp	A	No Eval.

Soil Map Unit Component	HSG[1]	Post-Const HSG
Barkcamp (CL surface)	A	A
Barkcamp (L surface)	A	B
Beasley	C	No Eval.
Beaucoup	C/D	D
Belmore	B	C
Belpre	C	No Eval.
Bennington	C/D	D
Berks	B	D
Bethesda	C	D
Biglick	D	D
Birkbeck	B	D
Bixler	B	D
Blairton	C	No Eval.
Blakeslee	B/D	D
Blanchester	C/D	D
Blount	C/D	D
Bogart	B/D	D
Bogart Variant (Mahoning)	C	No Eval.
Bonnell	C	D
Bonnie	C/D	D
Bono	C/D	D

Notes: CL = clay loam; L = loam; substr = substratum; limestne substr = limestone substratum; Dual classes in Ohio, such as A/D, B/D, C/D are given for drained or undrained condition; No Eval. = No evaluation performed.

1. Hydrologic Soil Groups (HSGs) for Ohio (for undisturbed naturally-occuring sites) were updated in 2008 and should be used rather than HSGs from earlier publications (http://www.oh.nrcs.usda.gov/technical/soils/OH_hsg.pdf or contact the USDA Natural Resources Conservation Service in Columbus, Ohio). You may also utilize www.OhioERIN.com to find site specific HSG (unaltered).

Soil Map Unit Component	HSG[1]	Post-Const HSG
Boston	C	D
Boyer	A	B
Braceville	C/D	D
Brady	B	No Eval.
Bratton	C	D
Brecksville	D	D
Brenton	B	No Eval.
Bronson	B	No Eval.
Brooke	D	D
Brookside	C	D
Brookston	B/D	D
Broughton	D	D
Brownsville	A	D
Brushcreek	C	D
Calcutta	C/D	D
Cambridge	D	D
Cana	C	D
Cana Variant	C	No Eval.
Canadice	D	D
Canal	C/D	D
Caneadea	D	D
Canfield	C	D
Canfield (Summit)	D	D
Canfield Variant (Stark)	C	No Eval.
Captina	C	No Eval.
Cardinal	C/D	D
Cardington	C	D
Carlisle	A/D	D
Casco	B	A
Castalia	A	D
Cedarfalls	A	No Eval.
Celina	C	D
Celina Variant	C	No Eval.
Centerburg	C	D
Ceresco	A/D	D
Chagrin	B	C
Channahon	D	D
Chavies	A	B
Chenango	A	A
Chili	B	C
Cidermill	B	D
Cincinnati	C	D
Clarksburg	C	D
Claysville	C/D	D

Soil Map Unit Component	HSG[1]	Post-Const HSG
Clermont	D	D
Clifty	A	C
Clymer	B	C
Coblen	B	No Eval.
Cohoctah	A/D	D
Colonie	A	A
Colwood	B/D	D
Colwood (Erie)	C/D	D
Colyer	D	D
Colyer Variant	C	No Eval.
Condit	C/D	D
Conneaut	C/D	D
Conotton	A	C
Conotton Variant	A	No Eval.
Coolville	C	D
Corwin	C	D
Coshocton	C	D
Crane	B/D	D
Crider	B	No Eval.
Crosby	C/D	D
Crouse	B	No Eval.
Cruze	C	D
Cuba	B	C
Culleoka	B	D
Cyclone	B/D	D
Cygnet	B/D	D
Damascus	B/D	D
Damascus (Stark)	C/D	D
Dana	B	D
Darien	C/D	D
Darroch	B/D	D
Defiance	C/D	D
Dekalb	B	D
Del Rey	C/D	D
Del Rey Variant	C/D	D
Digby	B/D	D
Digby (till substr) (Wood)	C/D	D
Digby Variant (Auglaize, Putnam)	C/D	D
Dixboro	B/D	D
Doles	C/D	D
Donnelsville	B	No Eval.
Drummer	B/D	D
Dubois	C/D	D
Dunbridge	B	D

Notes: CL = clay loam; L = loam; substr = substratum; limestne substr = limestone substratum; Dual classes in Ohio, such as A/D, B/D, C/D are given for drained or undrained condition; No Eval. = No evaluation performed.

1. Hydrologic Soil Groups (HSGs) for Ohio (for undisturbed naturally-occuring sites) were updated in 2008 and should be used rather than HSGs from earlier publications (http://www.oh.nrcs.usda.gov/technical/soils/OH_hsg.pdf or contact the USDA Natural Resources Conservation Service in Columbus, Ohio). You may also utilize www.OhioERIN.com to find site specific HSG (unaltered).

Soil Map Unit Component	HSG[1]	Post-Const HSG
Duncannon	B	C
Dunham	B/D	D
Eden	D	D
Edenton	C	D
Edwards	C/D	D
Eel	B/D	D
Eel moderately deep	C/D	D
Eel Variant (Shelby)	C	No Eval.
Elba	C	D
Eldean	B	D
Elkinsville	B	D
Elliott	C/D	D
Ellsworth	C	D
Elnora	A/D	D
Endoaquents	D	D
Enoch	C	C
Ernest	C	D
Euclid	C/D	D
Fairmount	D	D
Fairmount Variant (Greene)	C	No Eval.
Fairpoint	C	D
Farmerstown	C	C
Faywood	C	D
Fincastle	C/D	D
Fitchville	C/D	D
Fitchville Variant	C/D	D
Flatrock	B/D	D
Flatrock (limestne substr)	B/D	D
Fluvaquents	D	D
Fox	B	D
Frankstown Variant	C	No Eval.
Fredericktown	B	No Eval.
Frenchtown	D	D
Fries	D	D
Fulton	C/D	D
Fulton (till substr)	C/D	D
Fulton Variant	C/D	D
Fulton (till substr)	C/D	D
Gageville	C/D	D
Galen	A/D	D
Gallia	B	C
Gallipolis	C	C
Gallman	B	C
Gasconade	D	D

Soil Map Unit Component	HSG[1]	Post-Const HSG
Gavers	C/D	D
Geeburg	D	D
Genesee	B	C
Genesee Variant (Ottawa)	C	No Eval.
Germano	B	D
Gessie	B	C
Gilford	A/D	D
Gilpin	C	D
Ginat	C/D	D
Glendora	A/D	D
Glenford	C/D	D
Glynwood	D	D
Glynwood (limestne substr) (Hancock)	C/D	D
Gosport	D	D
Granby	A/D	D
Granby (till substr)	A/D	D
Grayford	B	No Eval.
Gresham	C/D	D
Guernsey	C	D
Hackers	B	D
Haney	B	D
Hanover	C	D
Harbor	B/D	D
Harrod	C/D	D
Hartshorn	B	D
Hartshorn Variant (Monroe)	B/D	D
Haskins	C/D	D
Haubstadt	D	D
Haymond	B	C
Hayter	A	C
Hazleton	A	C
Hennepin	D	D
Henshaw	C/D	D
Henshaw Variant	C/D	D
Heverlo	C	No Eval.
Hickory	B	C
Holly	B/D	D
Holton	B/D	D
Homer	B/D	D
Homewood	C	D
Homeworth	B/D	D
Hornell	D	D
Houcktown	C/D	D
Hoytville	C/D	D

Notes: CL = clay loam; L = loam; substr = substratum; limestne substr = limestone substratum; Dual classes in Ohio, such as A/D, B/D, C/D are given for drained or undrained condition; No Eval. = No evaluation performed.

1. Hydrologic Soil Groups (HSGs) for Ohio (for undisturbed naturally-occuring sites) were updated in 2008 and should be used rather than HSGs from earlier publications (http://www.oh.nrcs.usda.gov/technical/soils/OH_hsg.pdf or contact the USDA Natural Resources Conservation Service in Columbus, Ohio). You may also utilize www.OhioERIN.com to find site specific HSG (unaltered).

Soil Map Unit Component	HSG[1]	Post-Const HSG
Hoytville Variant	C/D	D
Huntington	B	D
Hyatts	C/D	D
Ionia	B	No Eval.
Iva	C/D	D
Jenera	C/D	D
Jeneva	B	No Eval.
Jessup	C	D
Jimtown	B/D	D
Johnsburg	D	D
Joliet	D	D
Jonesboro	C	D
Jules	B	No Eval.
Kanawha	B	C
Kane	B/D	D
Keene	C	D
Kendallville	C	C
Kensington	B	C/D
Kerston	C/D	D
Kibbie	B/D	D
Killbuck	C/D	D
Kings Variant	C/D	D
Kingsville	A/D	D
Kinn	B	No Eval.
Knoxdale	B	No Eval.
Kokomo	C/D	D
Kyger	A/D	D
Lakin	A	A
Lamberjack	B/D	D
Lamson	A/D	D
Landes	A	A
Lanier	A	A
Latham	D	D
Latty	C/D	D
Latty (till substr)	C/D	D
Lawshe	D	D
Lenawee	C/D	D
Lenawee Variant	C/D	D
Leoni	A	No Eval.
Lewisburg	D	D
Library Variant	C/D	D
Libre	C	No Eval.
Licking	C	D
Lily	B	D

Soil Map Unit Component	HSG[1]	Post-Const HSG
Lindside	C	D
Linwood	B/D	D
Lippincott	B/D	D
Lobdell	C	D
Lockport	D	D
Lorain	C/D	D
Lordstown	C	D
Lorenzo	A	No Eval.
Losantville	D	D
Loudon	C	D
Loudonville	C	D
Lowell	C	D
Lucas	D	D
Lumberton	B	D
Luray	C/D	D
Luray Variant (Stark)	B/D	D
Lybrand	C	D
Lykens	C	D
Mahalasville	B/D	D
Mahoning	C/D	D
Marblehead	D	D
Marengo	B/D	D
Markland	C	D
Martinsville	B	D
Martisco	B/D	D
Martisco Variant (Logan)	C/D	D
McGary	C/D	D
McGary Variant	C/D	D
McGuffey	D	D
Mechanicsburg	B	C
Medway	C	D
Medway Variant	C	D
Medway (limestne substr)	B/D	D
Melvin	B/D	D
Mentor	B	D
Mermill	C/D	D
Mermill Variant	C/D	D
Mertz	C	C
Metamora	B/D	D
Miami	C	D
Miami Variant	C	No Eval.
Miamian	C	D
Miamian Variant	C	No Eval.
Milford	C/D	D

Notes: CL = clay loam; L = loam; substr = substratum; limestne substr = limestone substratum; Dual classes in Ohio, such as A/D, B/D, C/D are given for drained or undrained condition; No Eval. = No evaluation performed.

1. Hydrologic Soil Groups (HSGs) for Ohio (for undisturbed naturally-occuring sites) were updated in 2008 and should be used rather than HSGs from earlier publications (http://www.oh.nrcs.usda.gov/technical/soils/OH_hsg.pdf or contact the USDA Natural Resources Conservation Service in Columbus, Ohio). You may also utilize www.OhioERIN.com to find site specific HSG (unaltered).

Soil Map Unit Component	HSG[1]	Post-Const HSG
Mill	C/D	D
Millgrove	B/D	D
Millsdale	C/D	D
Milton	C	D
Milton Variant	C	No Eval.
Miner	C/D	D
Minoa	B/D	D
Mitiwanga	C/D	D
Mitiwanga Variant	D	D
Monongahela	D	D
Montgomery	C/D	D
Montgomery Variant (Pike)	D	D
Morley	D	D
Morley (limestone substr)	C	No Eval.
Morningsun	B	No Eval.
Morristown	C	C
Morrisville	C	No Eval.
Mortimer	C/D	D
Moshannon	B	D
Muck	B/D	D
Muse	C	D
Muskego	C/D	D
Muskingum	C	C
Nappanee	D	D
Negley	A	C
Neotoma	A	No Eval.
Newark	B/D	D
Newark Variant	B/D	D
Nicely	C	No Eval.
Nicholson	C	No Eval.
Nineveh	B	No Eval.
Nolin	B	D
Nolin Variant	B	No Eval.
Oakville	A	A
Ockley	B	C
Odell	C/D	D
Ogontz	B	No Eval.
Olentangy	B/D	D
Olmsted	B/D	D
Omulga	D	D
Opequon	D	D
Orrville	B/D	D
Orrville Variant (Richland)	A/D	D
Orrville Variant (Ashland)	C/D	D

Soil Map Unit Component	HSG[1]	Post-Const HSG
Oshtemo	A	A
Oshtemo (till substr)	A	C
Otego	B/D	D
Otisville	A	A
Ottokee	A	D
Ottokee (till substr)	A	No Eval.
Otwell	D	D
Pacer	B	No Eval.
Painesville	C/D	D
Pandora	C/D	D
Papakating	C/D	D
Parke	B	D
Parr	B	No Eval.
Pate	D	D
Patton	B/D	D
Patton Variant	B/D	D
Paulding	D	D
Pekin	D	D
Peoga	C/D	D
Perrin	A	No Eval.
Pewamo	C/D	D
Pewamo Variant	C/D	D
Philo	B	D
Pierpont	C	D
Pike	B	D
Pinegrove	A	A
Pinnebog	A/D	D
Piopolis	C/D	D
Plainfield	A	A
Platea	D	D
Plattville	C	No Eval.
Plumbrook	A/D	D
Pope	B	A
Princeton	B	B
Prout	C/D	D
Purdy Variant	C/D	D
Pyrmont	D	D
Ragsdale	C/D	D
Rainsboro	C	D
Rainsville	C	No Eval.
Ramsey	D	D
Randolph	C/D	D
Rarden	D	D
Raub	B/D	D

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Soil Map Unit Component	HSG[1]	Post-Const HSG
Ravenna	D	D
Rawson	D	D
Red Hook	B/D	D
Reesville	B/D	D
Remsen	D	D
Rensselaer	B/D	D
Rensselaer (till substr)	B/D	D
Richland	B	D
Riddles	B	C
Rigley	A	A
Rigley Variant	A	No Eval.
Rimer	A/D	D
Rimer (deep phase)	A/D	D
Risingsun	C/D	D
Ritchey	D	D
Rittman	D	D
Rockmill	B/D	D
Rodman	A	A
Rollersville	C/D	D
Romeo	D	D
Roselms	D	D
Ross	B	C
Ross Variant	D	D
Rossburg	B	D
Rossmoyne	C	D
Roundhead	C/D	D
Rush	B	D
Russell	B	D
Russell (bedrock substr)	B	No Eval.
Sandusky	B/D	D
Sarahsville	D	D
Saranac	C/D	D
Sardinia	B	D
Savona	B/D	D
Saylesville	C	D
Schaffenaker	A	D
Schaffer	C/D	D
Scioto	B	No Eval.
Sciotoville	C	D
Sebring	C/D	D
Sebring Variant	C/D	D
Secondcreek	C/D	D
Sees	C	D
Senecaville	C/D	D

Soil Map Unit Component	HSG[1]	Post-Const HSG
Seward	A	D
Sewell	A	No Eval.
Shawtown	B	No Eval.
Sheffield	D	D
Shelocta	B	D
Shinrock	C	D
Shinrock Variant (Henry)	C/D	D
Shinrock (till substr)	C/D	D
Shoals	B/D	D
Shoals (mod deep)	C/D	D
Shoals Variant	C/D	D
Sisson	B	D
Skidmore	A	C
Skidmore Variant	A	No Eval.
Sleeth	B/D	D
Sligo	B	No Eval.
Sloan	B/D	D
Sloan (mod deep)	B/D	D
Sloan Variant	B/D	D
Sloan (limestone substr)	B/D	D
Smothers	C/D	D
Spargus	B	No Eval.
Sparta	A	No Eval.
Spinks	A	A
Spinks (deep to limestone)	A	No Eval.
St. Clair	D	D
Stafford	A/D	D
Stanhope	B/D	D
Steinsburg	B	D
Stendal	B/D	D
Stone	C/D	D
Stonelick	A	B
Strawn	D	D
Stringley	A	No Eval.
Sugarvalley	B/D	D
Summitville	C	D
Swanton	B/D	D
Switzerland	B	No Eval.
Taggart	C/D	D
Tarhollow	C	D
Tarlton	C	No Eval.
Tedrow	A/D	D
Tedrow (till substr) (Wood)	C/D	D
Teegarden	C/D	D

Notes: CL = clay loam; L = loam; substr = substratum; limestne substr = limestone substratum; Dual classes in Ohio, such as A/D, B/D, C/D are given for drained or undrained condition; No Eval. = No evaluation performed.

1. Hydrologic Soil Groups (HSGs) for Ohio (for undisturbed naturally-occuring sites) were updated in 2008 and should be used rather than HSGs from earlier publications (http://www.oh.nrcs.usda.gov/technical/soils/OH_hsg.pdf or contact the USDA Natural Resources Conservation Service in Columbus, Ohio). You may also utilize www.OhioERIN.com to find site specific HSG (unaltered).

Soil Map Unit Component	HSG[1]	Post-Const HSG
Thackery	B	D
Thackery Variant	B	No Eval.
Thackery (till substr)	B/D	D
Thrifton	D	D
Tiderishi	C/D	D
Tilsit	D	D
Tioga	A	C
Tioga variant (Cuyahoga)	A	No Eval.
Tioga variant (Lake)	B	No Eval.
Tippecanoe	B	D
Tiro	C/D	D
Titusville	D	D
Toledo	C/D	D
Towerville	C/D	D
Trappist	C	D
Treaty	B/D	D
Tremont	C	D
Trumbull	D	D
Tuscarawas	C	No Eval.
Tuscola	C	D
Tuscola Variant	C	No Eval.
Tygart	C/D	D
Tyler	D	D
Tyner	A	A
Tyner Variant	A	No Eval.
Typic Udorthents	C	No Eval.
Uniontown	C	D
Upshur	C	D
Valley	D	D
Vandalia	C	D
Vandergrift	C/D	D
Vanlue	C/D	D
Vaughnsville	C	D
Venango	C/D	D
Vincent	C	D
Wabasha	C/D	D
Wabasha Variant	D	D
Wadsworth	D	D
Wadsworth Variant	D	D
Wakeland	B	No Eval.
Wakeman	B	No Eval.
Wallkill	B/D	D
Wallkill Variant	C/D	D
Wapahani	D	D

Soil Map Unit Component	HSG[1]	Post-Const HSG
Wappinger	B	No Eval.
Warners	C/D	D
Warsaw	B	C
Warsaw Variant	B	No Eval.
Watertown	A	A
Waupecan	B	No Eval.
Wauseon	A/D	D
Wauseon (deep to till)	A/D	D
Wayland	C/D	D
Waynetown	B/D	D
Wea	B	B
Wea Variant	B	No Eval.
Weikert	D	D
Weinbach	D	D
Wellston	B	D
Wernock	C	No Eval.
Wernock Variant	C	No Eval.
Westboro	C/D	D
Westgate	C	D
Westland	B/D	D
Westmore	C	D
Westmoreland	B	C
Wetzel	C/D	D
Weyers	A/D	D
Wharton	C	D
Wheeling	B	C
Whitaker	B/D	D
Wick	B/D	D
Wilbur	B	No Eval.
Willette	C/D	D
Williamsburg	B	C
Wilmer Variant	C	No Eval.
Woodsfield	C	C
Woolper	C	No Eval.
Wooster	C	D
Wyatt	D	D
Wynn	C	D
Xenia	C	D
Zanesville	C	D
Zepernick	B/D	D
Zipp	C/D	D
Zurich	C	No Eval.

Notes: CL = clay loam; L = loam; substr = substratum; limestne substr = limestone substratum; Dual classes in Ohio, such as A/D, B/D, C/D are given for drained or undrained condition; No Eval. = No evaluation performed.

1. Hydrologic Soil Groups (HSGs) for Ohio (for undisturbed naturally-occuring sites) were updated in 2008 and should be used rather than HSGs from earlier publications (http://www.oh.nrcs.usda.gov/technical/soils/OH_hsg.pdf or contact the USDA Natural Resources Conservation Service in Columbus, Ohio). You may also utilize www.OhioERIN.com to find site specific HSG (unaltered).

Hydrologic Soil Groups for Post-construction Soils

Overview

Hydrologic soil groups were created as a simple means to categorize inherent soil runoff potential and are commonly used to assign an appropriate Curve Number (CN) for hydrologic modeling purposes. Soil types have been assigned to hydrologic soil groups (HSG) in soil survey publications. In Ohio the HSGs are based on undisturbed, naturally occurring soils in an agricultural field or woodland setting. Soils properties at development sites are often changed dramatically by construction practices. Topsoil is removed, soil profiles are truncated or covered by grading activities, and exposed surfaces are compacted by heavy equipment traffic. The runoff potential is significantly impacted by these changes to the soil. This project predicts changes to HSG for soils that are altered by standard construction practices by applying the HSG criteria to modeled post-construction soil profiles.

Data for soil horizons from the USDA National Soil Information System (NASIS[1]) database were used to represent pre-construction profiles. From soil series with HSG = A, B or C, 150 soil series of significant extent in Ohio were selected for evaluation. A representative component was selected from official data sets for each series from commonly occurring map units. The standard construction practices were defined as: the removal of 18 inches of soil material from the top of the soil profile and the compaction of the zone from 0 to 6 inches at the new surface. To mirror the impact of the construction practices, layer depths in the component soil moisture table data were adjusted to reflect the removal of 18 inches (46 cm.) of soil. Similar adjustments were made to layer depths for the component soil moisture (water table) table and the component restrictions (impermeable layers) table. At the new surface, the top 6-inch (15 cm.) layer was modified in the component horizon table to show changes in infiltration caused by compaction at the surface. The USDA SPAW[2] tool was used to populate infiltration rates for the compacted soils utilizing pedon transfer functions. A report generator in NASIS was programmed to assign HSG criteria to each component. A comparison of the model's pre-construction to post-construction HSG values showed that most soils are downgraded by 1 or 2 HSG classes as a result of standard construction practices.

Methods

To calculate post-construction HSG, standard construction practices were defined as: the removal of 18 inches of soil material from the top of the soil profile and the compaction of the zone from 0 to 6 inches at the new surface.

In 2008, USDA-NRCS soil scientists in Ohio revised the HSG assigned to soil map unit data in their NASIS database. HSG were revised because of changes to Part 630 Chapter 7 of the National Engineering Handbook. Criteria for assignment of HSG was revised in Chapter 7. The published data had been compiled from manual calculations of soil profile data for each map unit. The previously published HSGs were computed on a component (soil series) basis, with representative groups based on the series typical pedon description and Soil Interpretation Record (old Soil 5 form) depths. For the revi-

1 Information regarding the USDA National Soil Information System (NASIS) database is available at http://soils.usda.gov/technical/nasis/index.html.

2 SPAW is a daily hydrologic budget model for agricultural fields and ponds developed by Dr. Keith Saxton, USDA-ARS (retired). This model includes a Soil Water Characteristics Hydraulic Properties Calculator, a program developed by Saxton and Dr. Walter Rawls USDA-ARS (retired) that can be used to estimate soil water tension, conductivity and water holding capability based on soil texture, organic matter, gravel content, salinity, and compaction. The model is available at: http://hydrolab.arsusda.gov/SPAW/Index.htm (site last updated on Oct 29, 2009).

sion, they used a report generator that calculated HSGs from published soil layer data. A large number of map units had different groups when calculated with the report generator than what had been published in the official data set. The report generator, which uses the criteria from Chapter 7 of Part 630 NEH, is run on soil map units, not components (series). Because of variation in depth to restrictive features, similar map units could receive different HSG by using the report generator. The differences in HSGs were due to changes in criteria in addition to variations between map units of the same component. In 2008 and 2009, NRCS edited their official data to show the revised HSG values. From the revised HSG values, soil components (series) with HSG = A, B or C, 150 soil series of significant extent in Ohio were selected for evaluation.

Soil component data is published by county soil survey areas in Ohio. To reflect regional variations in soil properties for a single named component, each county's component data set is unique for the occurrence of that soil type in that county – and in some counties, the component data is unique for each occurrence in a map unit. For a single component soil type named, the statewide database may contain a few, several or many unique data sets. An effort was made to select a representative component data set for each component by reviewing map unit characteristics. Map unit extent and distribution was evaluated. Preference was given to map units with larger acreage and to map units centrally located to the geographic distribution.

Layer depths in the component horizon (CH) table data were adjusted to reflect the removal of 18 inches (46 cm.) of soil. Any layer where bottom depth is less than or equal to 46 cm was deleted. Any layer where the bottom depth was greater than 46 cm and the top depth was less than 46 cm, the top depth was set at 0 cm. and 46 cm. was subtracted from the bottom depth. If the resulting layer was less than 6 cm. thick, it was deleted and the top depth of the next lowest layer was set at 0 cm. Where top depth greater than 46 cm, 46 cm was subtracted from both top and bottom depth.

The depth of two soil features that influence HSG are tracked independently of the CH table: soil water tables and soil restrictive features. Depth to soil water tables is stored in the component soil moisture (CSM) table and depth to restrictive features is stored in the component restrictions (CR) table. In both tables, top and bottom layer depths for all layers were edited by subtracting 46 cm, and values less than 0 cm edited as 0 cm.

Layer depths and Ksat values in the CH table data were adjusted to reflect creation of a 6 in. (15 cm.) zone of compacted surface during construction. If the thickness of the surface layer of the cut-soil was less than or equal to 25 cm the entire layer was used to represent the compacted zone. If it was greater than 25 cm, the upper 15 cm was replicated and modified to show compaction. The surface layer of the cut soil was copied and pasted above the original layer. The depths of the pasted layer were set at top equal to 0 cm and bottom equal to 15 cm. The top depth for the copied layer was set at top equal to 15 cm.

The USDA-ARS pedon transfer function tool 'SPAW' was used to calculate the Ksat values for the compacted surface. Ksat low range values were calculated using high clay percent and low sand percent and gravel percent; and conversely Ksat high values were calculated using low clay percent and high sand and gravel percent. Organic matter and salinity were assumed to be 0 percent. The compaction level was set at 'dense' resulting in a 110 percent compaction value.

Data used in the post-construction calculations for HSG values can be viewed in NASIS.

Load data from Area Type equal to Ohio Urban; Area equal to Ohio Urban Land; and Area Symbol equal to OHUL. Legend status equal to 'non-project'. An edit setup in the MO13 directory named "Marietta Urban" was created to view layer data that was edited in the post-construction data map units. The standard report named "EXPORT HSG data;" in the MO11 Directory was used to generate HSGs.)

Site Data

As a companion project to the development of the post-construction data set for NASIS, ODNR-DSWC soil scientist planned to gather soil profile descriptions for post-construction soils. The goal was to see how accurately the standard construction practices, as defined in our model (the removal of 18 inches of soil material from the top of the soil profile and the compaction of the zone from 0 to 6 inches at the new surface), matched actual site data gathered from the field.

Urban sites and soil types were identified for sampling. In the field, site disturbances from construction practices were verified and profile descriptions were taken from small hand-dug pits. When site conditions permitted, adjacent, undisturbed soils were also described. The extent of sampling was curtailed by staff reductions that occurred during the project.

From 13 sites, 24 profile descriptions were collected: 14 descriptions were classified as 'post-construction' and the remaining 10 descriptions were natural soils adjacent to the construction sites. The post-construction soils were judged to be cut profiles at 4 sites; fill profiles at 9 sites and 1 site was undetermined. Compaction was evaluated at the sites with a hand held penetrometer and by physical observations. At most sites compaction was rated severe in at least one horizon. The compacted horizon was not always the surface horizon.