

Stearns County, Minnesota - Aggregate Resources
Aggregate Pits and Prospects
Gravel Pits, Sand Pits, Borrow Pits, Prospects, and Quarries
stea_pits

Metadata Summary

<i>Originator</i>	Minnesota Department of Natural Resources, Division of Lands and Minerals, Mineral Potential Evaluation Section
<i>Abstract</i>	This dataset consists of location information, source information, and geological characteristics for 1037 aggregate pits (932 Gravel Pits, 16 Sand Pits, 28 Borrow Pits, 2 Crushed Stone Quarries, and 29 sand and gravel prospects) and also 30 Dimension Stone Quarries, in Stearns County, MN. There are pits that are currently being mined or have been mined. Several sources of information identify pit locations: topographic maps, aerial photographs, soil surveys, Mn/DOT (Aggregate Source Information System) ASIS files, fieldwork, gravel operators, and other miscellaneous sources. Pits range in size from less than 1 acre to greater than 50 acres and may be active, inactive, or reclaimed. The aggregate quality of the pit varies. Some gravel pits were observed in the field from 2005 until 2011. All gravel pits were re-evaluated using Farm Service Agency (FSA) 2010 air photographs.
<i>Browse Graphic</i>	none available
<i>Time Period of Content Date</i>	2010
<i>Currentness Reference</i>	Source information in the pit shapefile was collected from the following: field work, soil survey, topographic maps, aerial 7.5 minute topographic quadrangles, and ASIS (Aggregate Source Information System). Pits were identified during field work intermittently conducted from 2005 to 2011. Pit locations were digitized and edited in ArcGIS 9.3.1 either in real time while in the field or in the office on U.S. Geological Survey, 7.5 minute topographic quadrangles at a scale of 1:24000. The age of the quadrangles range from 1967 to 1983, with some quads photo revised in 1994. The aggregate pits located from the Soil Survey are from 2009. Pits from aerial photographs are identified from NAPP (National Aerial Photography Program), 1991-1992, 9 inch by 9 inch color infrared photographs at 1:40,000, Farm Service Agency (FSA) air photos from 2003-04, 2005, 2006, 2008, 2009, and 2010. ASIS data points were acquired from the Minnesota Department of Transportation in January of 2010.
<i>Access Constraints</i>	
<i>Use Constraints</i>	Acknowledgement of the Minnesota Department of Natural Resources is appreciated for products derived from these data.
<i>Distributor Organization</i>	Minnesota Department of Natural Resources, Division of Lands and Minerals
<i>Ordering Instructions</i>	Stearns County's aggregate resource spatial datasets (shapefiles & file geodatabase) are included in the file Stearnsdata.zip, accessible from the MN DNR Aggregate Mapping web page: http://www.dnr.state.mn.us/lands_minerals/aggregate_maps/completed/index.html The spatial datasets include: sand and gravel resource potential, crushed stone potential, test-holes drilled, geologic field observations, aggregate pits, Minnesota Geological Survey (MGS) County Well Index (CWI) data points, Mn/DOT Aggregate Source Information System (ASIS) points, and Mn/DOT ASIS pit quality table.
<i>Online Linkage</i>	Click here to download data. (See Ordering Instructions above for details.) By clicking here, you agree to the notice in "Distribution Liability" in Section 6 of this metadata.

Full Metadata

Stearns County Aggregate Resources: stea_pits (aggregate pits)

Section 1	Identification Information		
Originator	Minnesota Department of Natural Resources, Division of Lands and Minerals, Mineral Potential Evaluation Section		
Title	Stearns County Aggregate Resources: stea_pits (aggregate pits)		
Abstract	<p>This dataset consists of location information, source information, and geological characteristics for 1037 aggregate pits (932 Gravel Pits, 16 Sand Pits, 28 Borrow Pits, 2 Crushed Stone Quarries, and 29 sand and gravel prospects) and also 30 Dimension Stone Quarries, in Stearns County, MN. There are pits that are currently being mined or have been mined. Several sources of information identify pit locations: topographic maps, aerial photographs, soil surveys, Mn/DOT (Aggregate Source Information System) ASIS files, fieldwork, gravel operators, and other miscellaneous sources. Pits range in size from less than 1 acre to greater than 50 acres and may be active, inactive, or reclaimed. The aggregate quality of the pit varies. Some gravel pits were observed in the field from 2005 until 2011. All gravel pits were re-evaluated using Farm Service Agency (FSA) 2010 air photographs.</p>		
Purpose	To display the current and historic mining pit (gravel, sand, borrow, and granite) locations within Stearns County, MN.		
Time Period of Content Date	2010		
Currentness Reference	Data were collected intermittently from 2005 through 2011		
Progress	Complete		
Maintenance and Update Frequency	None planned		
Spatial Extent of Data	Stearns County, Minnesota		
Bounding Coordinates	-95.13 -94.05 45.79 45.27		
Place Keywords	Stearns County, Minnesota		
Theme Keywords	Gravel pit, Sand pit, Aggregate Source Information System (ASIS)		
Theme Keyword Thesaurus			
Access Constraints			
Use Constraints	Acknowledgement of the Minnesota Department of Natural Resources is appreciated for products derived from these data.		
Contact Person Information	Aggregate Resource Mapping Program, Industrial Minerals Geologist or GIS Specialist Minnesota Department of Natural Resources, Division of Lands and Minerals 500 Lafayette Road St. Paul, MN 55155-4045 Phone: 651-259-5959 FAX: 651-296-5939		

E-mail: aggregatemap@state.mn.us

Browse Graphic

none available

***Browse Graphic
File Description***

***Associated Data
Sets***

Stearns County's aggregate resource spatial datasets (shapefiles & file geodatabase) are included in the file Stearnsdata.zip, accessible from the MN DNR Aggregate Mapping web page:

http://www.dnr.state.mn.us/lands_minerals/aggregate_maps/completed/index.html

The spatial datasets include: sand and gravel resource potential, crushed stone potential, test-holes drilled, geologic field observations, aggregate pits, Minnesota Geological Survey (MGS) County Well Index (CWI) data points, Mn/DOT Aggregate Source Information System (ASIS) points, and Mn/DOT ASIS pit quality table.

Section 2

Data Quality Information

Attribute Accuracy

Logical Consistency

Completeness

Described in the lineage section.

***Horizontal
Positional Accuracy***

These points were captured from several different sources, including USGS 1:24000 quadrangles, 1:12000 USGS DOQs (from 1991), Farm Service Agency (FSA) color air photos (from 2003-04, 2005, 2006, 2008, 2009, and 2010), Natural Resource Conservation Service Soil Survey point data, and the ASIS (Aggregate Source Information System) dataset from the Minnesota Department of Transportation. Points captured in the field were assisted with a GPS (+/- 2 Meters), Tablet PC, and ArcGIS 9.3.

***Vertical Positional
Accuracy***

Not applicable.

Lineage

These points were captured from several different sources in the summer of 2010 through spring of 2011, including USGS 1:24000 quadrangles, 1:12000 USGS DOQs (from 1991), Farm Service Agency (FSA) color air photos (from 2003-04, 2005, 2006, 2008, 2009, and 2010), Natural Resource Conservation Service Soil Survey point data, and the ASIS (Aggregate Source Information System) dataset from the Minnesota Department of Transportation. The pits captured were edited in the field during the Fall of 2010 and Spring of 2011 with a GPS (+/- 2 Meters), tablet PC, and ArcGIS 9.3. The gravel pits that are medium (5-15 Acres) to large (15+ Acres) are located somewhere in the disturbed area, and should be very accurate.

***Source Scale
Denominator***

24000

Section 3

**Spatial Data Organization
Information**

***Native Data Set
Environment***

ArcGIS 9.3

***Geographic
Reference for
Tabular Data***

Spatial Object Type

Point

***Vendor Specific
Object Types***

Point

Tiling Scheme None

Section 4	Spatial Reference Information		
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<i>Horizontal Coordinate Scheme</i>	UTM		
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<i>Ellipsoid</i>	GRS80		
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<i>Horizontal Datum</i>	NAD83		
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<i>Horizontal Units</i>	Meters		
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<i>Distance Resolution</i>			
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<i>Altitude Datum</i>	Not applicable		
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<i>Depth Datum</i>	Not applicable		
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<i>UTM Zone Number</i>	15E		
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Section 5	Entity and Attribute Information		
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<i>Entity and Attribute Overview</i>	This dataset consists of pit information such as; location, type, source, relative size, material thickness and overburden, depth to water table, dominant texture, lithology, and geologist comments.		
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<i>Entity and Attribute Detailed Citation</i>	See beyond Section 7 for detailed field and attribute information		
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Section 6	Distribution Information		
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<i>Publisher</i>	Minnesota Department of Natural Resources, Division of Lands and Minerals, Mineral Potential Evaluation Section		
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<i>Publication Date</i>	2012		
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<i>Contact Person Information</i>	Aggregate Resource Mapping Program Industrial Minerals Geologist or GIS Specialist Minnesota Department of Natural Resources, Division of Lands and Minerals 500 Lafayette Road St. Paul, MN 55155-4045 Phone: 651-259-5959 FAX: 651-296-5939 E-mail: aggregatemap@state.mn.us		
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<i>Distributor's Data Set Identifier</i>	Stearns County Aggregate Resources, Sand and Gravel Potential		
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<i>Distribution Liability</i>	The State of Minnesota makes no representations or warranties express or implied, with respect to the use of the information contained herein regardless of its format or the means of its transmission. There is no guarantee or representation to the user as to the accuracy, currency, suitability, completeness, usefulness, or reliability of this information for any purpose. The user accepts the information "as is." The State of Minnesota assumes no responsibility for loss or damage incurred as a result of any user's reliance on this information. All maps, reports, data, and other information contained herein are protected by copyright. Permission is granted to copy and use the materials herein for any lawful noncommercial purpose. Any user of this information agrees not to		
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transmit or provide access to all or any part of this information to another party unless the user shall include with the information a copy of this disclaimer.

***Transfer Format
Name***

***Transfer Format
Version Number***

Transfer Size mb for data, mb for associated maps

***Ordering
Instructions***

Stearns County's aggregate resource spatial datasets (shapefiles & file geodatabase) are included in the file Stearnsdata.zip, accessible from the MN DNR Aggregate Mapping web page:

http://www.dnr.state.mn.us/lands_minerals/aggregate_maps/completed/index.html

The spatial datasets include: sand and gravel resource potential, crushed stone potential, test-holes drilled, geologic field observations, aggregate pits, Minnesota Geological Survey (MGS) County Well Index (CWI) data points, Mn/DOT Aggregate Source Information System (ASIS) points, and Mn/DOT ASIS pit quality table.

Online Linkage [Click here](#) to download data. (See Ordering Instructions above for details.) By clicking here, you agree to the notice in "Distribution Liability" above.

Section 7

Metadata Reference Information

Metadata Date

2012

***Contact Person
Information***

Aggregate Resource Mapping Program, Industrial Minerals Geologist or GIS Specialist
Minnesota Department of Natural Resources, Division of Lands and Minerals
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St. Paul, MN 55155-4045
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FAX: 651-296-5939
E-mail: aggregatemap@state.mn.us

***Metadata Standard
Name***

Minnesota Geographic Metadata Guidelines

***Metadata Standard
Version***

2.1

***Metadata Standard
Online Linkage***

<http://www.lmic.state.mn.us/gc/stds/metadata.htm>

Table Name	Field Name	Definition	Valid Values	Descriptions
stea_pits.dbf				
	PIT_Q_ID	Number, 9,0	Ex: 1,2,3,4,5,6,7.... 341, 342, 343, 344	Aggregate pit unique ID
	Source	Text, 30	See Below	Construction aggregate pit data source compiled from or observed (ex: topographic map- found on the topographic map). Where multiple records existed for a single gravel pit, data points were removed based on a constructed hierarchy of source information. The following sources of information are listed according to rank.
			MNDOT ASIS	Minnesota Department of Transportation database called Aggregate Source Information Systems. If the location did intersect a gravel pit, the locations were interpreted off of existing gravel pit sheets to relocate the mines to as specified on the sheet. This was ranked highest because of associated quality and texture data. Some locations were modified to better correlate to present gravel pit boundaries and on top of USGS 7.5 Minute Topographic Map symbols.
			Topographic Map	These gravel pits are located from USGS 7.5 minute quadrangles. This was ranked second highest because of the widespread use of the maps. Where field checked, some of these pit types were changed from gravel to borrow or sand pits to reflect the material excavated.
			Field Work	These pits were located while in the field. These pits were ranked third highest due to the fact they were directly observed for quality, texture, and spatial accuracy.
			Soil Survey	The records for these pits are from the Soil Survey Geographic Database (SSURGO) Stearns County. The dataset was downloaded in June 2010. These pits were ranked fourth highest.
			Air Photograph	Gravel mines were also located and some attributes were interpreted with air photography. These pits were ranked last because they were remotely interpreted.
	Type	Text, 30	See Below	The type of pit observed
			Aggregate Quarry	Crushed Stone Quarry
			Borrow Pit	Borrow Pit- is defined not by use but by material. If a pit contains significant clay and silt material, it was classified as borrow.
			Gravel Pit	Gravel Pit
			Prospect	Site that has been prospected, leased, or assigned an ASIS number by Mn/DOT. This designation does not imply the site has produced aggregate or is currently producing aggregate. The site may have been leased by Mn/DOT. Sites with this designation include ASIS status classifications: P, O, C, and I.
			Sand Pit	Sand Pit
			Stone Quarry	Dimension Stone Quarry
	Asis_numbr	Text, 8, 0	Ex: 73077, 73021	Aggregate Source Information System Number (MN/DOT Database). An empty field means that it does not have an ASIS number. Use this field to join with stea_asisquality.dbf for the pits that list the Source

				as “MNDOT ASIS”
	Size	Text, 8	See Below	Refers to the relative size of the pit.
			Small	Small pits are less than five acres. These pits are usually used by private landowners or for small jobs.
			Medium	Between 5 and 15 acres in size. These pits are used by landowners and for small construction jobs. They are generally used for short periods of time by contractors.
			Large	These pits are generally greater than 15 acres and are typically used by commercial aggregate operators.
			N/A	Not available
	Thickness	Text, 15	Ex: >10, ~20, <25, Not Available	The thickness of the deposit expressed in combination with a modifier. Not Available indicates that the measurement does not apply or was not observed.
	Thick_mod	Text, 1	Ex: >,<,&sim	Modifiers to express numeric approximations observed for deposit thickness: > greater than < less than &sim approximate
	Thick_val	Number, 4	Ex: 5, 10, 15...-999	Gives the value for thickness. (-999 is a null value)
	Overburden	Text, 15	Ex: >10, ~20, <25, Not Available	Expresses overburden thickness by possibly using one or both the modifier and value. Not Available indicates that the measurement does not apply or was not observed.
	Ob_mod	Text, 1	Ex: >,<,&sim	Modifiers to express numeric approximations observed for deposit thickness: > greater than < less than &sim approximate
	Ob_val	Number, 4	Ex: 5, 10, 15...-999	Gives the value for overburden thickness. (-999 is a null value).
	Watertable	Text, 15	Ex: >10, ~20, <25, Not Available	The depth of the water table expressed in combination with a modifier. Not Available indicates that the measurement does not apply or was not observed.
	Wattabmod	Text, 1	Ex: ~, -, +	Modifiers to express numeric approximations for the depth to the water table: ~ approximate - to, as in 10-20 + greater than
	Wattabval	Number, 4	Ex: 5, 10, 15...-999	Describes the depth to the water table within a pit or quarry. If 20 feet of gravel was exposed and there was no water table encountered, then >20 were used. (-999 is a null value)
	Status_1	Text, 20	See Below	Refers to the status of the pit at the time of mapping.
			Active	Active indicates that the pit is either being actively mined or used for other mining related usage like stockpiling material.

			Inactive	Refers to a pit that was not immediately active when documented or may appear to have been inactive for some time.
			Not Available	Not Available
			Reclaimed	The pit has been passively or actively reclaimed. Status_2 further describes the type of reclamation.
	Status_2	Text, 50	See Below	Associated with the field Status_1. This field further explains the condition of a partially or fully reclaimed gravel pit. The status could be a combination of more than one use.
			Active	Specifies that mine is an active aggregate producing mine.
			Agriculture	Mine has been reclaimed into an agricultural use.
			Cement Facility	Mine has been reclaimed into an industrial use as a cement facility.
			Commercial	Mine has been reclaimed into an commercial development like a strip mall, a store, etc.
			Compost Area	Mine has been reclaimed into a compost site.
			DNR-Wildlife	Mine is currently reclaimed, used, and/or managed by DNR-Wildlife
			Golf Course	Mine has been reclaimed into a golf course.
			Highway	Mine has been reclaimed or has been developed over by a highway.
			Inactive	Mine is not presently active at time of assessment.
			Industrial	Mine has been reclaimed into a refinery, substation, highway or other industrial application.
			Mixed Use	Mine has been reclaimed with mixed uses.
			Municipal Land Use	Mine has been reclaimed for municipal land use.
			Not Available	Not available
			Park	Mine has been reclaimed into a recreational park.
			Pasture	Mine has been reclaimed into an agricultural use as a pasture.
			Pile	Mine is covered by waste rock pile.
			Pond	Mining was likely below the water table and created a pond.
			Prairie	Mine has been reclaimed into a prairie.
			Race Track	Mine has been reclaimed into a race track.
			Recreation	Mine has been reclaimed into a public recreation area.
			Residential	Mine has been reclaimed into residential development.
			Rifle Range	Mine has been reclaimed as a rifle range.
			Right of Way	Mine has been reclaimed or has been developed over by a right of way.
			Sloped	Mine has been purposely reclaimed, walls of mine have been actively sloped.
			Vegetated- Grass	Mine has been partially or entirely reclaimed and vegetated with grass
			Vegetated- Trees	Mine has been partially or entirely reclaimed and vegetated with trees

			Wetland	Part or all of mine is covered by a wetland.
	Dom_litho	Text, 30	See Below	Dominant lithology of the pit.
			Des Moines	Sand and gravel associated with a glacier called the Des Moines Lobe. These sands and gravels contain deleterious rocks (like shale, iron oxides, and soft limestones) that can degrade the quality of the deposit.
			Des Moines/Superior	Des Moines Lobe sediments intermixed and/or stratigraphically above Superior Lobe sediments.
			Granite	An intrusive, felsic igneous rock that has a medium to coarse texture.
			N/A	The source of the sand and gravel could not be determined. This is primarily due to the deposit could not be accessed and was not observed and the surrounding geology is too complex to extrapolate the source.
			Superior	Superior Lobe is a northeastern sourced glacier flowing from the Lake Superior basin to the southwest. The quality of these deposits tends to be high to very high due to the rock types found within the deposits (basalt, granite, rhyolite).
			Wadena	Wadena Lobe is a northeastern source glacier, also referred to as Rainy Lobe. The quality of these deposits tend to be moderate due to the higher amounts of carbonate.
	Dom_text	Text, 35	See Below	The dominant texture of the pit.
			N/A	The texture of the pit was undetermined due to lack of access or exposure. In some cases proximal geologic evidence was used to make a textural determination.
			Sand	Indicates the deposit is composed of sand and has a fine texture.
			Sand and Gravel	Indicates the deposit has approximately equal or slightly more sand than gravel by percent weight.
			Sand with Gravel	Indicates the deposit overall has more sand than gravel by percent weight and has an overall fine texture.
			Sandy Till	Indicates the deposit is composed of till with some sand.
			Till	Heterogeneous deposit possibly consisting of any combination of clay, silt, sand, gravel, cobbles, and boulders. Any granular material (fine sand to boulders) suspended within a variable matrix (silty clay to sand). Till can be loose or compacted. Till is synonymous with "drift," and can be deposited subglacially or supraglacially.
	Comments	Text, 200	Ex: Very sandy deposit with limited gravel	Geologist comments related to the pit.

