Mineral Potential Evaluation Section (MPES) Report 380: Aggregate Resource Potential in Parts of Northern St. Louis and Lake Counties, MN - Aggregate Pits (Gravel Pits, Sand Pits, Borrow Pits, and Quarries) - report380_pits

This page last updated: 2011
Metadata created using Minnesota Geographic Metadata Guidelines

---

Metadata Summary

Originator

Minnesota Department of Natural Resources, Division of Lands and Minerals, Mineral Potential Evaluation Section

Abstract

This dataset consists of location information, source information, and geological characteristics for 227 aggregate pits (207 Gravel Pits, 10 Sand Pits, 6 Borrow Pits, and 4 Quarries) in parts of northern St. Louis County and Lake County. 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, St. Louis County Land Department, 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.

Browse Graphic

none available

Time Period of Content Date

2010

Currentness Reference

Source information in the pit shapefile was collected from the following: field work, soil survey, topographic maps, aerial 7.5 minute topographic quadrangles, St. Louis County Land Department, and ASIS (Aggregate Source Information System). Pits were identified during field work in the fall of 2009 and the spring of 2010. Pit locations were digitized and edited in ArcGIS 9.3.1 either in real time while in the field or in the office. U.S. Geological Survey, 7.5 minute topographic quandrangles at a scale of 1:24000. The age of the quandrangles range from 1967 to 1983, with some quads photo revised in 1994. The aggregate pits located from the Soil Survey are from 2008. Pits from aerial photographs are identified from NAPP (National Aerial Photography Program), 1991-1992, 9 inch by 9 inch color infared photographs at 1:40,000, Farm Service Agency (FSA) air photos from 2003-04, 2005, 2006, 2008, and 2009. ASIS data points were aquired from the Minnesota Department of Transportation in January of 2008.

Access Constraints

None

Use Constraints

Acknowledgement of the Minnesota Department of Natural Resources is appreciated for products derived from these data.

Distributor Organization

Minnesota Department of Natural Resources, Division of Lands and Minerals

Ordering Instructions

The MPES Report 380's spatial datasets (shapefiles & file geodatabase) are included in the file report380data.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, clay and silt resource potential, field observations, aggregate pits, Minnesota Geological Survey (MGS) County Well Index (CWI) data points, MGS CWI stratigraphy table, sieve analysis database, 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" in Section 6 of this metadata.

Full Metadata

Mineral Potential Evaluation Section (MPES) Report 380: Aggregate Resource Potential in Parts of Northern St. Louis and Lake Counties, MN - Aggregate Pits (Gravel Pits, Sand Pits, Borrow Pits, and Quarries) - report380_pits

Go to Section:

Section 1	**Identification Information**		Top of page

Originator	Minnesota Department of Natural Resources, Division of Lands and Minerals, Mineral Potential Evaluation Section
Title	Mineral Potential Evaluation Section (MPES) Report 380: Aggregate Resource Potential in Parts of Northern St. Louis and Lake Counties, MN - Aggregate Pits (Gravel Pits, Sand Pits, Borrow Pits, and Quarries) - report380_pits
Abstract	This dataset consists of location information, source information, and geological characteristics for 227 aggregate pits (207 Gravel Pits, 10 Sand Pits, 6 Borrow Pits, and 4 Quarries) in parts of northern St. Louis County and Lake County. 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, St. Louis County Land Department, 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.
Purpose	To display the current and historic mining pit (gravel, sand, borrow, and clay) locations within the MPES Report 380 project boundary.
Time Period of Content Date	2010
Currentness Reference	Source information in the pit shapefile was collected from the following: field work, soil survey, topographic maps, aerial 7.5 minute topographic quadrangles, St. Louis County Land Department, and ASIS (Aggregate Source Information System). Pits were identified during field work in the fall of 2009 and the spring of 2010. Pit locations were digitized and edited in ArcGIS 9.3.1 either in real time while in the field or in the office. U.S. Geological Survey, 7.5 minute topographic quandrangles at a scale of 1:24000. The age of the quandrangles range from 1967 to 1983, with some quads photo revised in 1994. The aggregate pits located from the Soil Survey are from 2008. Pits from aerial photographs are identified from NAPP (National Aerial Photography Program), 1991-1992, 9 inch by 9 inch color infared photographs at 1:40,000, Farm Service Agency (FSA) air photos from 2003-04, 2005, 2006, 2008, and 2009. ASIS data points were aquired from the Minnesota Department of Transportation in January of 2008.
Progress	Complete

Maintenance and Update Frequency	None planned
Spatial Extent of Data	Northern St. Louis County and Lake County, Minnesota
Bounding Coordinates	-92.30 -91.65 47.92 47.45
Place Keywords	St. Louis County, Lake County, Minnesota
Theme Keywords	Gravel pit, Sand pit, Aggregate Source Information System (ASIS)
Theme Keyword Thesaurus	None
Access Constraints	None
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	None Available
Associated Data Sets	The MPES Report 380's spatial datasets (shapefiles & file geodatabase) are included in the file report380data.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, clay and silt resource potential, field observations, aggregate pits, Minnesota Geological Survey (MGS) County Well Index (CWI) data points, MGS CWI stratigraphy table, sieve analysis database, Mn/DOT Aggregate Source Information System (ASIS) points, and Mn/DOT ASIS pit quality table.

Section 2 Data Quality Information

Top of full metadata | Top of page

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), 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	Not applicable.

Accuracy	
Lineage	These points were captured from several different sources in the summer of 2009 through spring of 2010, including USGS 1:24000 quadrangles, 1:12000 USGS DOQs (from 1991), Farm Service Agency (FSA) color air photos (from 2003-04, 2005, 2006, 2008), 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 2009 and Spring of 2010 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**	Top of full metadata	Top of page
Native Data Set Environment	ArcGIS 9.3.1		
Geographic Reference for Tabular Data	None		
Spatial Object Type	Point		
Vendor Specific Object Types	Point		
Tiling Scheme	MPES Report 380 Project Boundary		

Section 4	**Spatial Reference Information**	Top of full metadata	Top of page
Horizontal Coordinate Scheme	UTM		
Ellipsoid	GRS80		
Horizontal Datum	NAD83		
Horizontal Units	Meters		
Distance Resolution			
Altitude Datum	Not applicable		
Depth Datum	Not applicable		
UTM Zone Number	15E		

Section 5	**Entity and Attribute Information**	Top of full metadata	Top of page
Entity and Attribute Overview	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.		
Entity and Attribute	Attribute values can be found in a table at the bottom of this document (report380_pits.pdf). If you are viewing this		

Detailed Citation metadata in ArcCatalog, from the .xml file, the attribute table is not displayed. You will have to refer to the 'report380_pits.pdf' document included in the project zip file report380data.zip, which can be found at the following folder directory: report380data\resource\shapefiles\mn_dnr\metadata

Section 6 Distribution Information

Top of full metadata | Top of page

Publisher Minnesota Department of Natural Resources, Division of Lands and Minerals, Mineral Potential Evaluation Section

Publication Date 2011

Contact Person Information
Aggregate Resource Mapping Program
Industrial Mineral 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

Distributor's Data Set Identifier MPES Report 380: Aggregate Resource Potential in Parts of Northern St. Louis and Lake Counties, MN

Distribution Liability The Minnesota Department of Natural Resources makes no representation or warranties, express or implied, with respect to the reuse of data provided herewith, 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, or reliability of this data for any purpose. The user accepts the data 'as is', and assumes all risks associated with its use. By accepting this data, the user agrees not to transmit this data or provide access to it or any part of it to another party unless the user shall include with the data a copy of this disclaimer. The Minnesota Department of Natural Resources assumes no responsibility for actual or consequential damage incurred as a result of any user's reliance on this data.

Transfer Format Name

Transfer Format Version Number

Transfer Size mb for data, mb for associated maps

Ordering Instructions The MPES Report 380's spatial datasets (shapefiles & file geodatabase) are included in the file report380data.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, clay and silt resource potential, field observations, aggregate pits, Minnesota Geological Survey (MGS) County Well Index (CWI) data points, MGS CWI stratigraphy table, sieve analysis database, 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

Top of full metadata | Top of page

Metadata Date 2011

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

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

---

This page last updated: 2011

Table Name	Field Name	Begin Column	Definition	Valid Values	Descriptions
report380_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.
				St. Louis County	The records for these pits are from St. Louis County. They were not directly observed but were cross-checked with air photos for spatial accuracy. For that reason they are ranked fourth.
				Soil Survey	The records for these pits are from the Soil Survey Geographic Database (SSURGO) Embarrass, St. Louis County. The dataset was downloaded in December 2008. These pits were ranked fifth highest.
				Air Photo	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
				Gravel Pit	Gravel Pit
				Sand Pit	Sand Pit
				Quarry	Quarry designation derived from topographic map, could not view evidence of excavation due to heavy revegetation in these locations.
				Dimension Stone Quarry	Dimension 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.
	Asis_numbr		Text, 8, 0	Ex: 09002, 09019,, 09115,	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 mpes380_dotqual.dbf for the pits that list the Source as "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.
	Thickness		Text, 15	Ex: +10, ~20, +25, 10, 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: +,-	Modifiers to express numeric approximations observed for deposit thickness: + greater than - to, as in 10-20
	Thick_min		Number, 4	Ex: 5, 10, 15…-999	Gives the minimum value for thickness. (-999 is a null value)
	Thick_max		Number, 4	Ex: 5, 10, 15…-999	Gives the maximum value for thickness. (-999 is a null value)
	Overburden		Text, 15	Ex: +10, ~20, +25, 10, 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: ~, -, +	Modifiers to express numeric approximations for the overburden thickness at a gravel pit. ~ approximate - to, as in 10-20

					+ greater than
	Ob_min		Number, 4	Ex: 5, 10. 15…-999	Gives the minimum value for overburden thickness. (-999 is a null value).
	Ob_max		Number, 4	Ex: 5, 10. 15…-999	Gives the maximum value for overburden thickness. (-999 is a null value).
	Watertable		Text, 15	Ex: +10, ~20, +25, 10, 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
	Wattabmin		Number, 4	Ex: 5, 10. 15…-999	Describes the minimum 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)
	Wattabmax		Number, 4	Ex: 5, 10. 15…-999	Describes the maximum 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.
				Reclaimed	The pit has been passively or actively reclaimed. Status_2 further describes the type of reclamation.
				Partially Reclaimed	Part of 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.
				Commercial	Mine has been reclaimed into an commercial development like a strip mall, a store, etc.
				Inactive	Mine is not presently active at time of assessment.
				Industrial	Mine has been reclaimed into a refinery, substation, highway or other industrial application.
				Naturally Vegetated	Mine has been passively or naturally revegetated over time.
				Naturally Vegetated - Grass	Mine has been revegetated with grass.
				Naturally Vegetated - Trees	Mine has been revegetated with trees.
				Partially Vegetated	Mine has been partially revegetated and is partially unreclaimed.
				Partially Vegetated - Grass	Mine has been partially revegetated with grass and is partially unreclaimed.
				Partially Vegetated - Trees	Mine has been partially revegetated with trees and is partially unreclaimed.
				Pond	Mining was likely below the water table and created a pond.
				Recreation area	Mine has been reclaimed into a public recreation area.
				Residential	Mine has been reclaimed into residential development.
	Dom_litho		Text, 30	See Below	Dominant lithology of the pit.

				Rainy Lobe	Rainy Lobe is a northeastern sourced glacier flowing to the southwest from the northeast. The quality of these deposits varies widely, largely dependent on the underlying bedrock.
				Superior Lobe	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).
	Dom_text		Text, 35	See Below	The dominant texture of the pit.
				Dimension Stone	Competent bedrock quarried for a wide variety of uses for building applications, examples include: tiles countertops, and facades.
				Could not observe	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.
				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, 100	Ex: Very sandy deposit with limited gravel	Geologist comments related to the pit.
	Gpqname		Text, 50	Ex: Mesabi Bit Pit, Mn/DOT Pit, Murphy Gravel	If available, the pit name at the time of mapping.
				Not Available	Information about the pit name was not available.