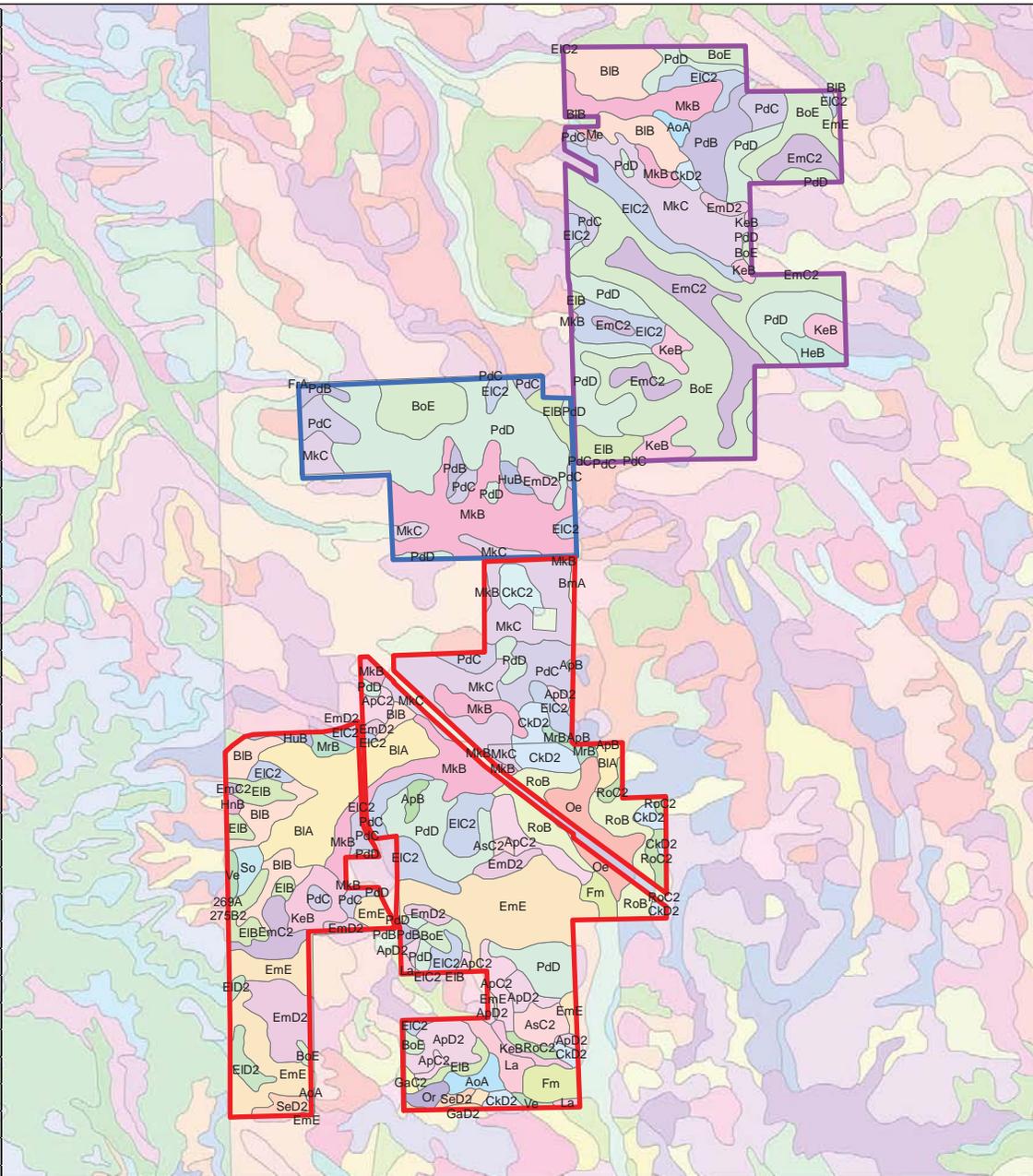


Map unit symbol	Map unit name	Rating	Phase 1	Phase 2	Phase 3	Total for 3 Phases
AoA	Arenville silt loam, 0 to 3 percent slopes	Moderately well drained	17		3	20
ApB	Arland sandy loam, 2 to 6 percent slopes	Well drained	3			3
ApC2	Arland sandy loam, 6 to 12 percent slopes, eroded	Well drained	25			25
ApD2	Arland sandy loam, 12 to 20 percent slopes, eroded	Well drained	21			21
Asc2	Arland loam, 6 to 12 percent slopes, eroded	Well drained	10			10
BIA	Billet sandy loam, 0 to 2 percent slopes	Well drained	52			52
BIB	Billet sandy loam, 2 to 6 percent slopes	Well drained	27		30	57
BmA	Billet sandy loam, moderately well drained, 0 to 3 percent slopes	Moderately well drained	1			1
BoE	Boone fine sand, 20 to 45 percent slopes	Excessively drained	28	20	125	173
CkC2	Chetek sandy loam, 6 to 12 percent slopes, eroded	Somewhat excessively drained	7			7
CkD2	Chetek-Mahtomedi complex, 12 to 25 percent slopes, eroded	Somewhat excessively drained	22		2	24
EIB	Eleva sandy loam, 2 to 6 percent slopes	Well drained	21	5	9	35
EIC2	Eleva sandy loam, 6 to 12 percent slopes, eroded	Well drained	43	5	39	87
EID2	Eleva sandy loam, 12 to 20 percent slopes, eroded	Well drained	14			14
EmC2	Elkmount loam, 6 to 12 percent slopes, eroded	Well drained	11		45	56
EmD2	Elkmount loam, 12 to 20 percent slopes, eroded	Well drained	40	5	3	48
EmE	Elkmount loam, 20 to 45 percent slopes	Well drained	127		1	128
Fm	Fordum loam, 0 to 2 percent slopes	Poorly drained	14			14
GaC2	Gale silt loam, 6 to 12 percent slopes, eroded	Well drained	1			1
GaD2	Gale silt loam, 12 to 20 percent slopes, eroded	Well drained	1			1
HeB	Hiles silt loam, 2 to 6 percent slopes	Moderately well drained			6	6
HnB	Hixton loam, 2 to 6 percent slopes	Well drained	3			3
HuB	Humbird sandy loam, 2 to 6 percent slopes	Moderately well drained			3	3
KeB	Kert silt loam, 1 to 6 percent slopes	Somewhat poorly drained	15		18	33
La	Lowes loam, 0 to 2 percent slopes	Poorly drained	10			10
Me	Markey muck, 0 to 1 percent slopes	Very poorly drained			1	1
MkB	Menasha loamy sand, 0 to 6 percent slopes	Excessively drained	37	52	22	111
MkC	Menasha loamy sand, 6 to 12 percent slopes	Excessively drained	51	12	31	94
MrB	Merrilan sandy loam, 1 to 6 percent slopes	Somewhat poorly drained	6			6
NtB	Northfield silt loam, 2 to 6 percent slopes	Well drained	2			2
Oe	Oesterle sandy loam, 0 to 2 percent slopes	Somewhat poorly drained	14			14
Or	Orion silt loam, 0 to 2 percent slopes	Somewhat poorly drained	5			5
PdB	Plain loamy sand, 2 to 6 percent slopes	Excessively drained	3	6	18	27
PdC	Plain loamy sand, 6 to 12 percent slopes	Excessively drained	27	14	10	51
PdD	Plain loamy sand, 12 to 20 percent slopes	Excessively drained	47	69	62	178
RoB	Rosholt sandy loam, 2 to 6 percent slopes	Well drained	35			35
RoC2	Rosholt sandy loam, 6 to 12 percent slopes, eroded	Well drained	9			9
SeC2	Seaton silt loam, 6 to 12 percent slopes, eroded	Well drained	2			2
SeD2	Seaton silt loam, 12 to 25 percent slopes, eroded	Well drained	7			7
So	Shiffer loam, 0 to 2 percent slopes	Somewhat poorly drained	5			5
Ve	Vesper silt loam, 0 to 2 percent slopes	Poorly drained	3			3
Subtotals for Soil Survey Area			765	190	425	1380

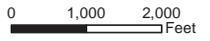


Legend

- Phase 1
- Phase 2
- Phase 3



N



0 1,000 2,000 Feet

Soils

Northern Sands
Howard
Chippewa County, Wisconsin

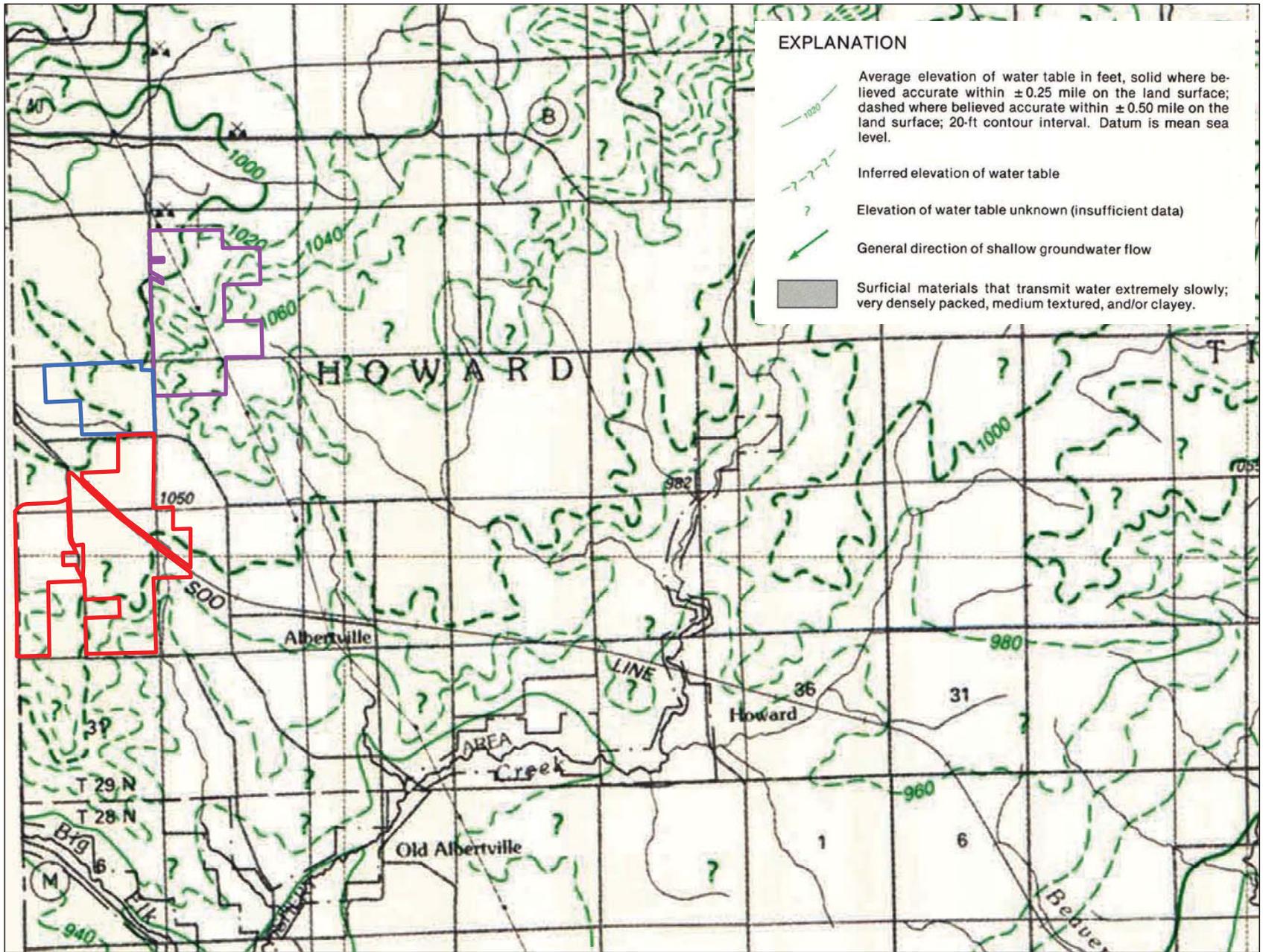
Figure 9

File: figure9_soils
Summit Proj. No.: 2232-0001
Plot Date: 12/16/2014
Arc Operator: JED
Reviewed by: TG



Summit EnviroSolutions

Map adapted from Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture, Web Soil Survey. Available online at <http://websoilsurvey.nrcs.usda.gov/>. Accessed 8/13/2014. Chippewa County GIS Mapping Site (<http://mapping.co.chippewa.wi.us/>).



EXPLANATION

-  Average elevation of water table in feet, solid where believed accurate within ±0.25 mile on the land surface; dashed where believed accurate within ±0.50 mile on the land surface; 20-ft contour interval. Datum is mean sea level.
-  Inferred elevation of water table
-  Elevation of water table unknown (insufficient data)
-  General direction of shallow groundwater flow
-  Surficial materials that transmit water extremely slowly; very densely packed, medium textured, and/or clayey.

Legend

-  Phase 1
-  Phase 2
-  Phase 3

See insert for adapted groundwater legend excerpt



0 2,000 4,000 Feet

Groundwater Elevation

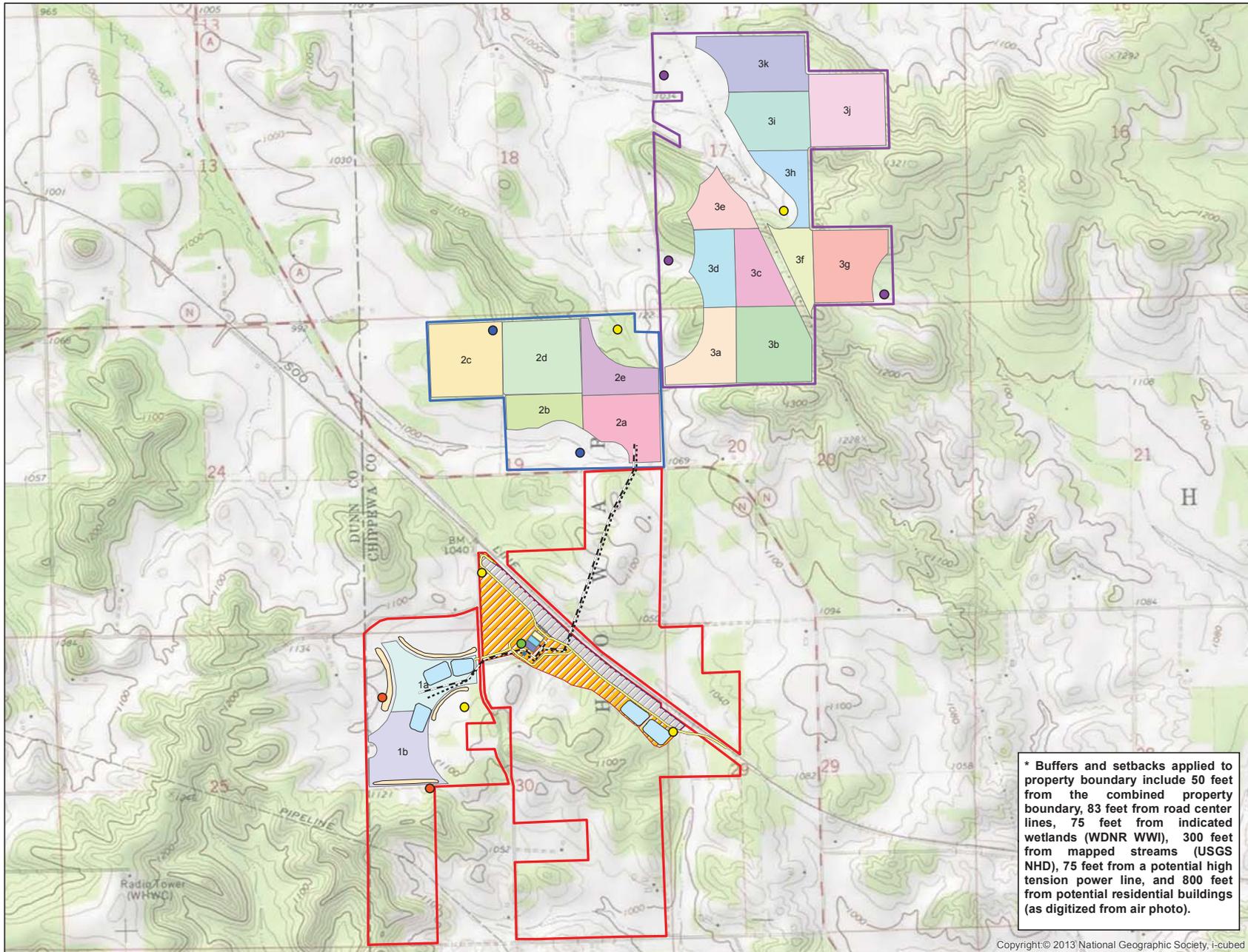
Northern Sands
Howard
Chippewa County, Wisconsin

Figure 10

File: figure10_groundwater elev
Summit Proj. No.: 2215-0001
Plot Date: 12/16/2014
Arc Operator: JED
Reviewed by: TG



Map adapted from Lippert, I.D., 1998, Generalized Water-Table Elevation of Chippewa County, Wisconsin: Wisconsin Geological and Natural History Survey Miscellaneous Map Series MO96, and the Chippewa County GIS Mapping Site (<http://mapping.co.chippewa.wi.us/>).



Legend

- Phase 1
- Phase 2
- Phase 3
- Intake Hopper
- Raw Sand Storage
- Wet Plant Process
- Dry Plant Process
- Vertical Storage
- Stormwater Ponds
- Berms
- Wash Plant/Transload Area
- Rail Yard
- Access Roads
- Overhead Conveyor (Raw Material)
- Overhead Conveyor (Waste Material)
- High Capacity Well

Potential Monitoring Well Duration

- Life of Mine
- Phase I
- Phase II
- Phase III

0 2,000 Feet

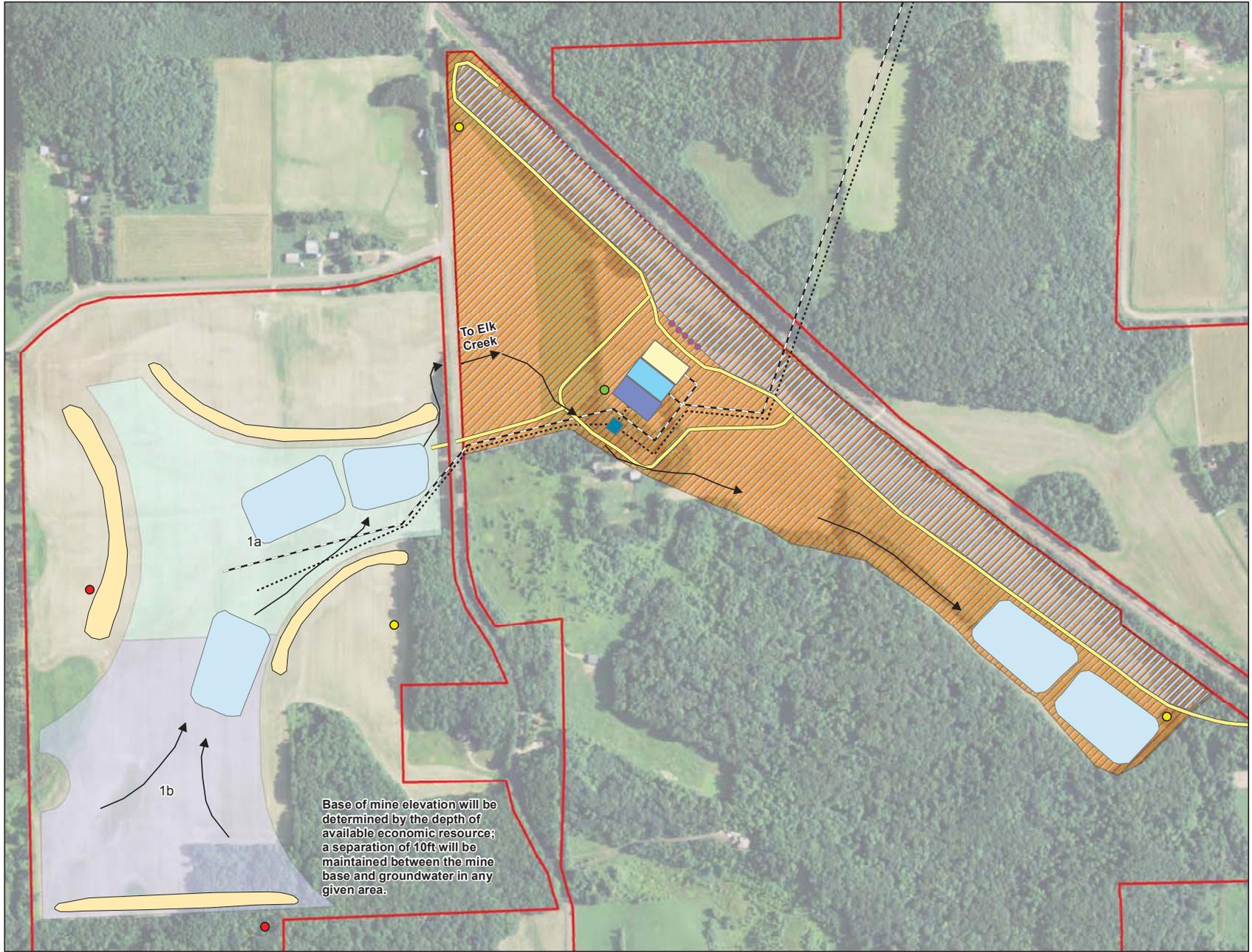
**CONCEPTUAL PROPOSED
MINE PLAN**
Northern Sands
Howard Site
Chippewa County, Wisconsin

Figure 11

File: 20150526_Figure_11_conceptual_mine_all_phases
Summit Proj. No.: 2215-0001
Plot Date: 5/26/2015
Arc Operator: KLM
Reviewed by: NRTB

* Buffers and setbacks applied to property boundary include 50 feet from the combined property boundary, 83 feet from road center lines, 75 feet from indicated wetlands (WDNR WWI), 300 feet from mapped streams (USGS NHD), 75 feet from a potential high tension power line, and 800 feet from potential residential buildings (as digitized from air photo).





Legend

- Phase 1
- Intake Hopper
- Raw Sand Storage
- Wet Plant Process
- Dry Plant Process
- Vertical Storage
- Storm Water Ponds
- Soil Berms
- Wash Plant/Transload Area
- Rail Yard
- Stormwater Flow
- Access Roads
- Overhead Conveyor (Raw Material)
- Overhead Conveyor (Waste Material)
- High Capacity Well

Potential Monitoring Well Duration

- Life of Mine
- Phase I

0 125 250 500 750 1,000
Feet

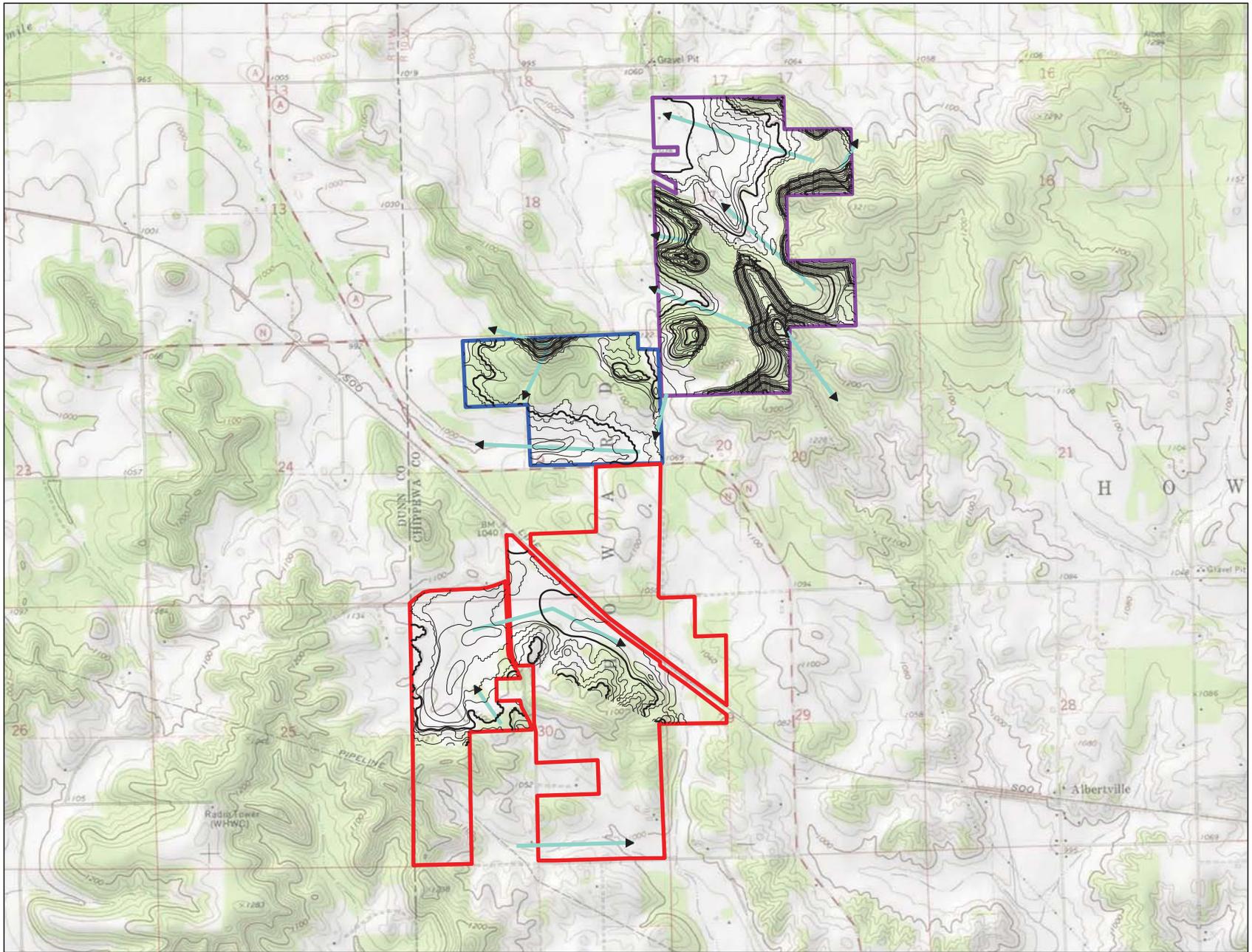
**CONCEPTUAL PROPOSED
MINE PLAN PHASE I**
Northern Sands
Howard Site
Chippewa County, Wisconsin

Figure 11a

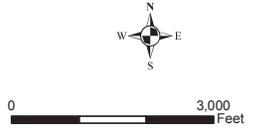
File: 20150529_Figure_11a_conceptual_mine_plan_EDIT
Summit Proj. No.: 2215-0001
Plot Date: 5/29/2015
Arc Operator: KLM
Reviewed by: NRTB



Service Layer Credits: Copyright: 2013 National Geographic Society.



- Legend**
- Reclamation Contours**
- 50 Major Contour Interval (50ft)
 - 10 Minor Contour Interval (10ft)
 - Mine Phase 1
 - Mine Phase 2
 - Mine Phase 3
 - ▶ Surface Water Flow Direction



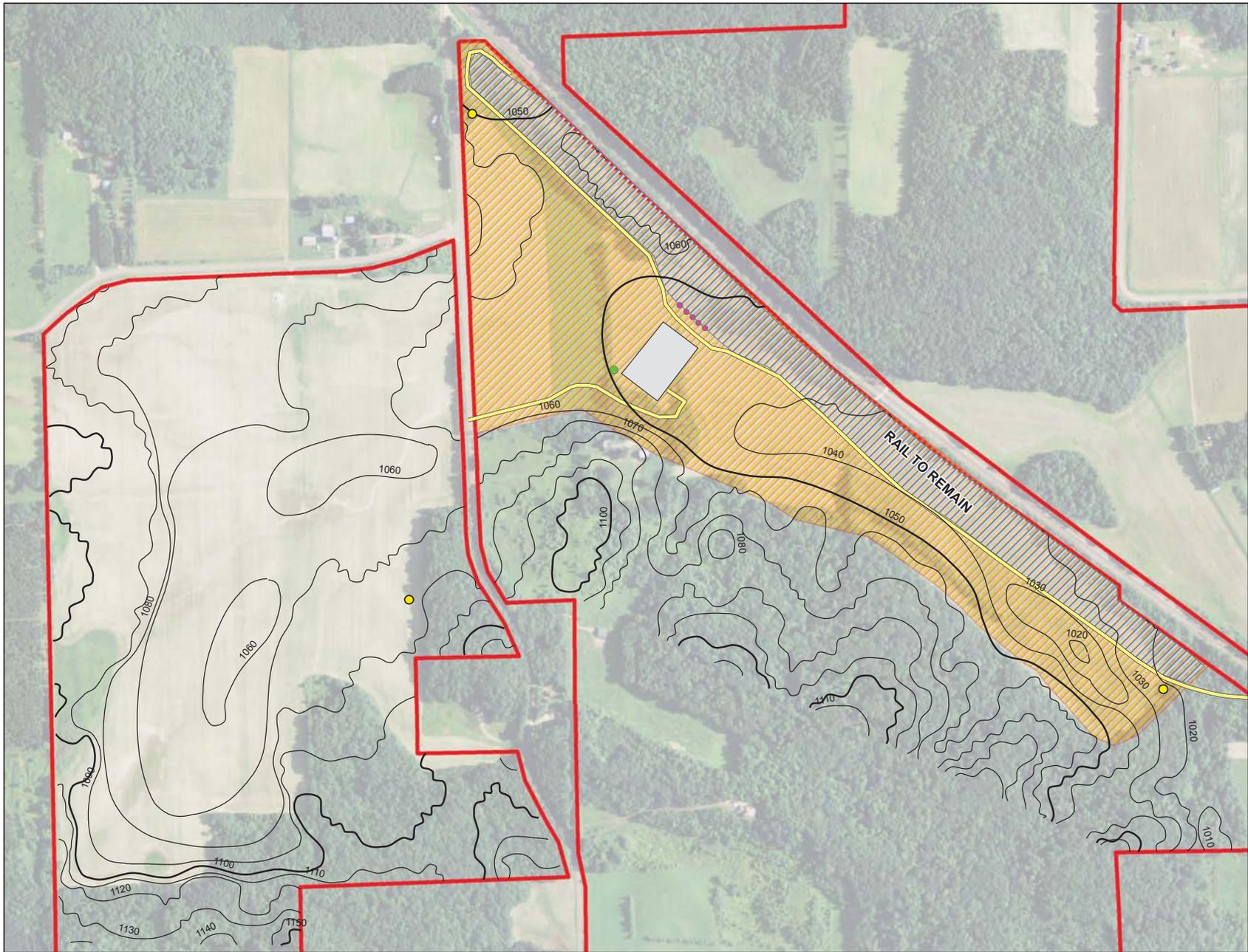
CONCEPTUAL RECLAMATION CONTOURS
 Northern Sands
 Howard Site
 Chippewa County, Wisconsin

Figure 12

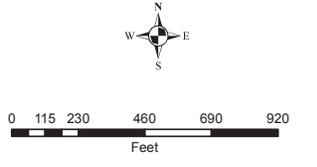
File: figure12_conceptual_contours
 Summit Proj. No.: 2215-0001
 Plot Date: 6/5/2015
 Arc Operator: KLM
 Reviewed by: NRTB



Map Adapted from the National Elevation Dataset courtesy of the U.S. Geological Survey, and the Chippewa County GIS Mapping Site (<http://mapping.co.chippewa.wi.us/>) and from Copyright © 2013 National Geographic Society, i-cubed



- Legend**
- Mine Phase 1
 - Repurposed Commercial Infrastructure
 - Vertical Storage
 - Rail Yard
 - Commercial Transload Area
 - High Capacity Well
 - Life of Mine Monitoring Well
 - Access Roads
 - Major Contour Interval (50ft)
 - Minor Contour Interval (10ft)

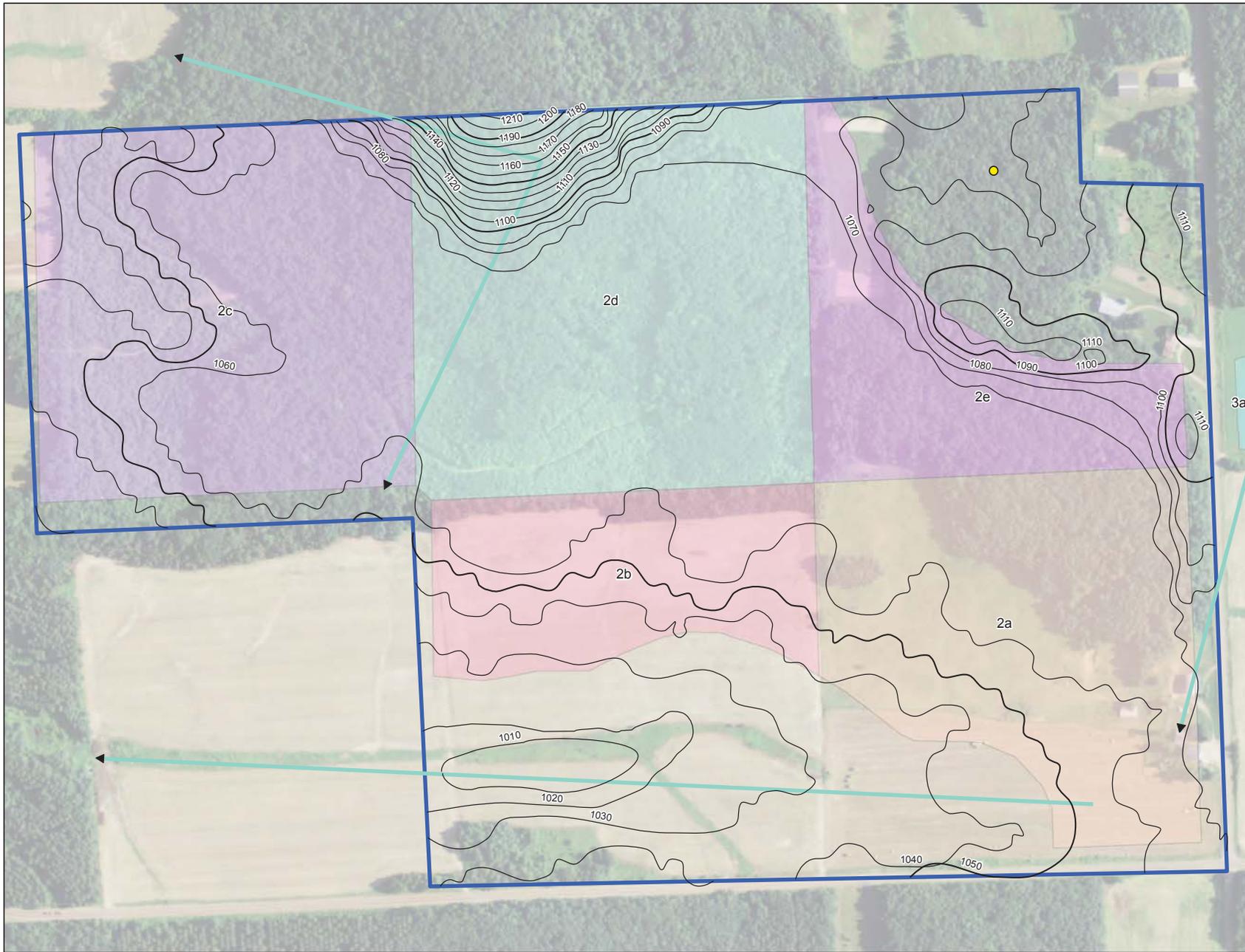


**CONCEPTUAL RECLAMATION
CONTOURS PHASE I**
Northern Sands
Howard Site
Chippewa County, Wisconsin

Figure 12a
File: figure12a_conceptual_rec_contours_PhaseI
Summit Proj. No.: 2215-0001
Plot Date: 5/27/2015
Arc Operator: KLM
Reviewed by: NRTB

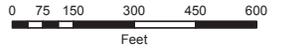


Map Adapted from the National Elevation Dataset courtesy of the U.S. Geological Survey, and the Chippewa County GIS Mapping Site (<http://mapping.co.chippewa.wi.us/>) and from



Legend

- Mine Phase 2
- Major Contour Interval (50ft)
- Minor Contour Interval (10ft)
- Surface Water Flow Direction
- Life of Mine Monitoring Well



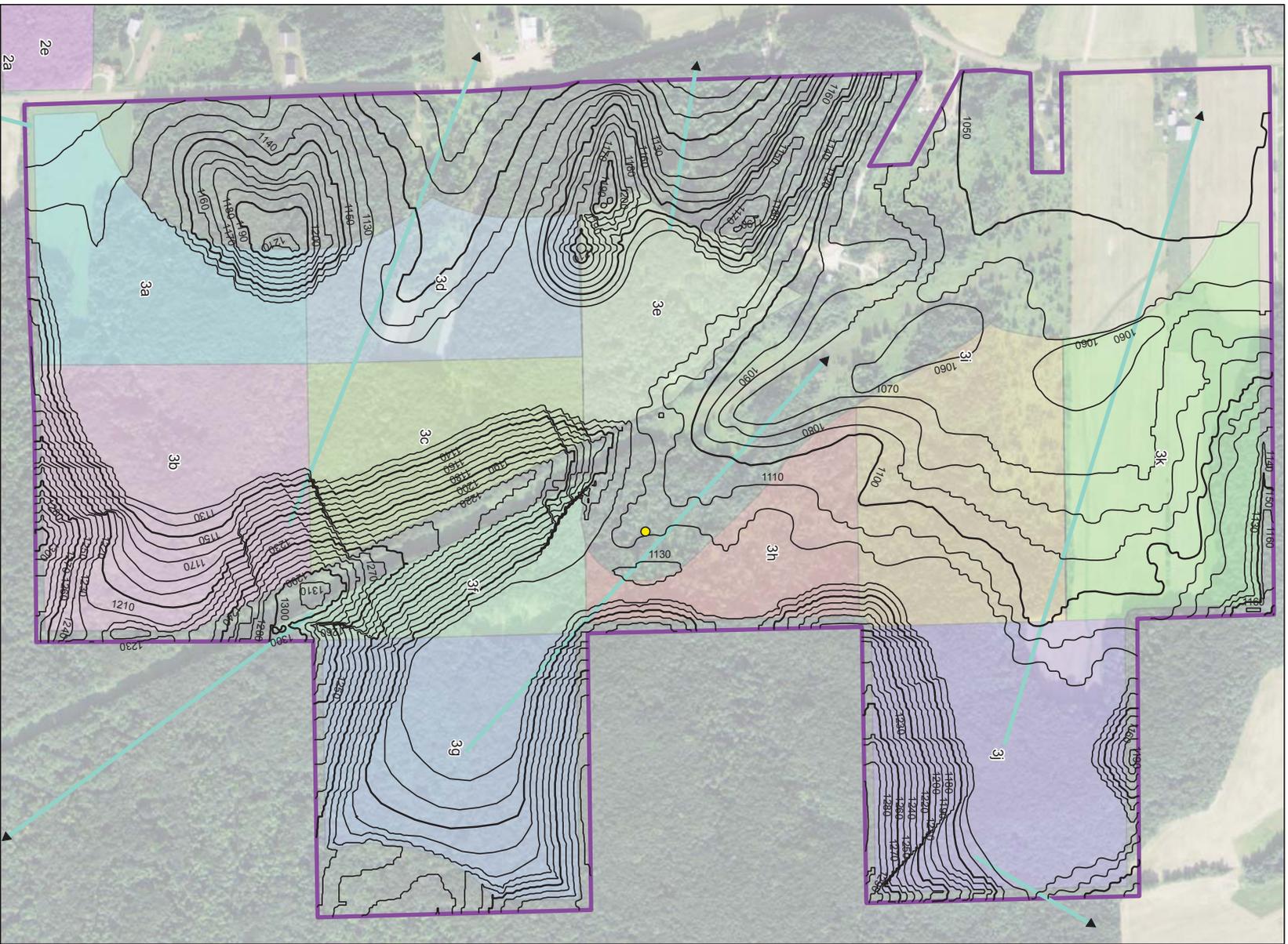
**CONCEPTUAL RECLAMATION
CONTOURS PHASE II**
Northern Sands
Howard Site
Chippewa County, Wisconsin

Figure 12b

File: figure12_conceptual_rec_contours_PhaseII
Summit Proj. No.: 2215-0001
Plot Date: 5/26/2015
Arc Operator: KLM
Reviewed by: NRTB



Map Adapted from the National Elevation Dataset courtesy of the U.S. Geological Survey, and the Chippewa County GIS Mapping Site (<http://mapping.co.chippewa.wi.us/>) and from



Legend

- Mine Phase 3
- Major Contour Interval (50ft)
- Minor Contour Interval (10ft)
- Surface Water Flow Direction
- Life of Mine Monitoring Well



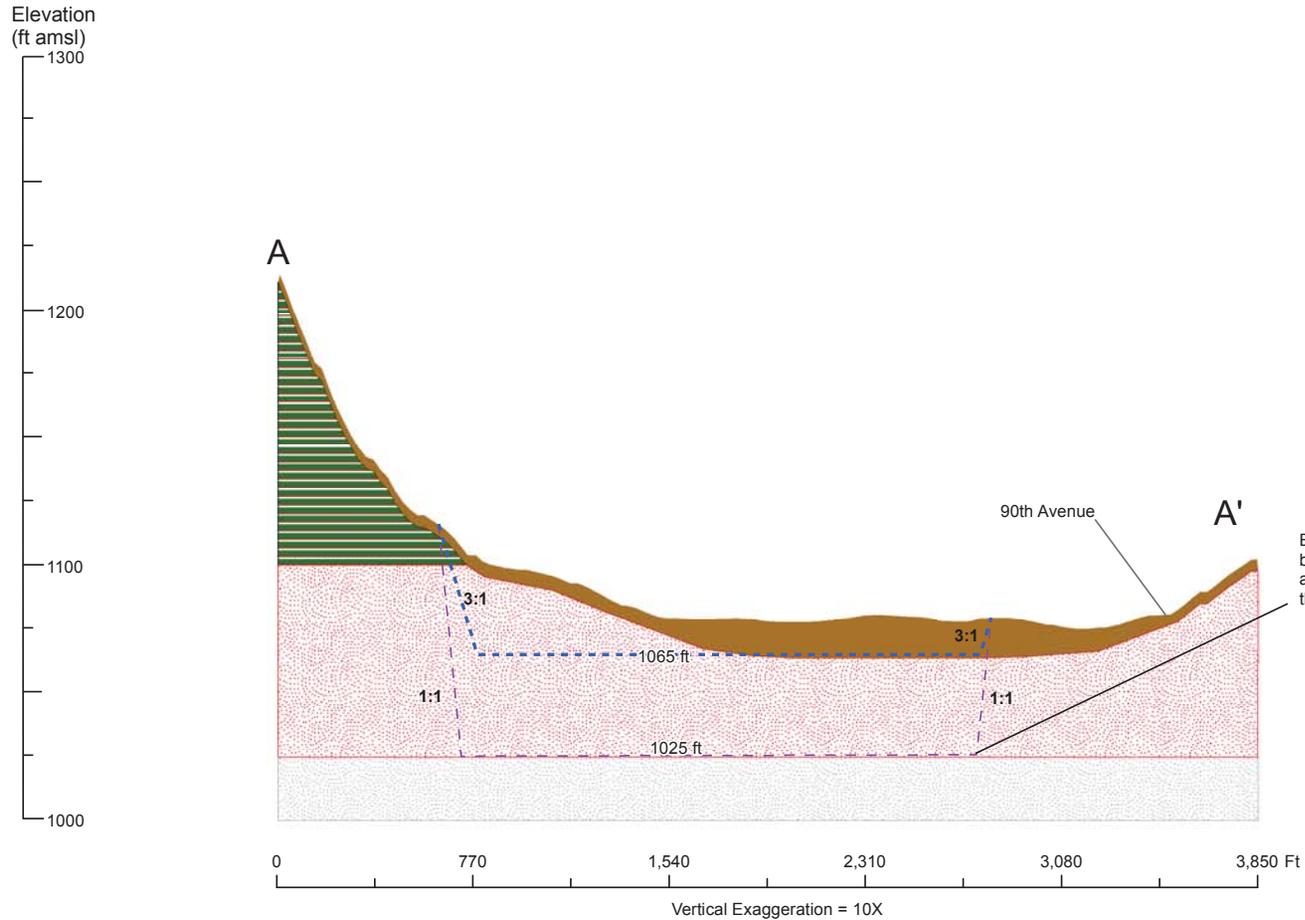
CONCEPTUAL RECLAMATION CONTOURS PHASE III

Northern Sands
Howard Site
Chippewa County, Wisconsin

Figure 12c

File: figure12c_conceptual_rec_contours_PhaseIII
Summit Proj No.: Z215-00071
Plot Date: 01/12/2015
Arc Operator: RMTB
Reviewed by: NNTB





Surface elevations are based on National Elevation Dataset 1/3 arc-second Digital Elevation Model

Legend

- Unconsolidated Material Mine Extent
- Sandstone Overburden Conceptual Reclaimed Surface
- Potential Resource Material
- Underlying Sandstone

NOTE: Unconsolidated material thickness is estimated based on Syverson, K.M., 2008, Pleistocene geology of Chippewa County, Wisconsin: Digital Information: Wisconsin Geological and Natural History Survey Bulletin 103-DI and Lippelt, I.D., 1988, Depth to Bedrock of Chippewa County, Wisconsin, Miscellaneous Map Series. Top and bottom elevations of "Potential Resource Material" were provided by Northern Sands.

Figure 13



GENERALIZED CROSS-SECTION A-A'

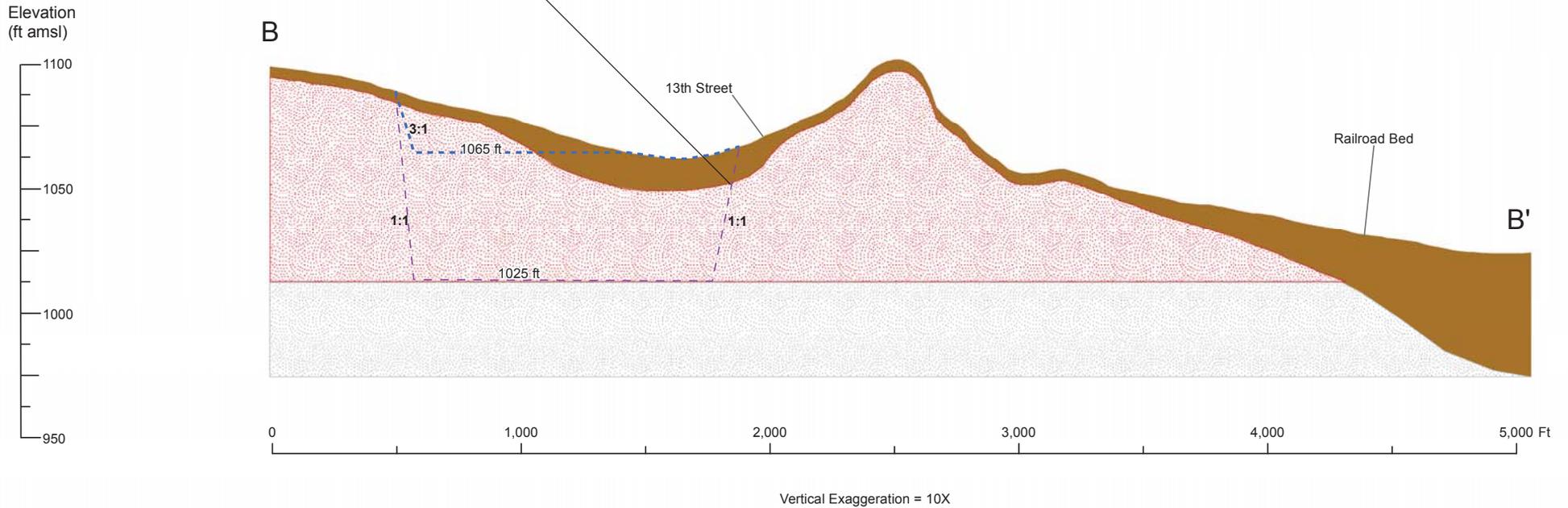
Northern Sands
Howard Site
Chippewa County, Wisconsin

File: Xsec_AtoAprime
Summit Proj. No.: 2215-0001
Plot Date: 06/05/2015
Arc Operator: KLM
Reviewed by: JED

W

E

Base of mine elevations will be determined by the depth of available economic resource; a separation of 10 ft will be maintained between the mine base and groundwater in any given area.



Surface elevations are based on National Elevation Dataset 1/3 arc-second Digital Elevation Model

Legend

- Unconsolidated Material
- Potential Resource Material
- Underlying Sandstone
- Mine Extent
- Conceptual Reclaimed Surface

NOTE: Unconsolidated material thickness is estimated based on Syverson, K.M., 2008, Pleistocene geology of Chippewa County, Wisconsin: Digital Information: Wisconsin Geological and Natural History Survey Bulletin 103-DI and Lippelt, I.D., 1988, Depth to Bedrock of Chippewa County, Wisconsin, Miscellaneous Map Series. Top and bottom elevations of "Potential Resource Material" were provided by Northern Sands.

Figure 14



GENERALIZED CROSS-SECTION B-B'

Northern Sands
Howard Site
Chippewa County, Wisconsin

File: Xsec_BtoBprime
Summit Proj. No.: 2215-0001
Plot Date: 06/05/2015
Arc Operator: KLM
Reviewed by: JED