REQUEST FOR PROPOSALS

for

GROUNDWATER SOURCE EXPLORATION

RFP # 35-17

City of Portsmouth

John P. Bohenko, City Manager

Prepared by:

City of Portsmouth
Public Works Department

City of Portsmouth
Portsmouth, New Hampshire
Public Works Department
Request for Proposals # 35-17

GROUNDWATER SOURCE EXPLORATION

Sealed proposals, plainly marked, RFP # 35-17 "GROUNDWATER SOURCE EXPLORATION" addressed to the Finance/Purchasing Department, City Hall, 1 Junkins Avenue, Portsmouth, New Hampshire, 03801. Proposals will be accepted until **03/02/2017 at 2:00 p.m.** Proposals received after 2:00 p.m. will be placed in the file unopened and will not be considered.

Proposal specifications may be obtained from the Finance/Purchasing Department on the third floor at the above address, or at http://www.cityofportsmouth.com/finance/purchasing.htm.

The City of Portsmouth reserves the right to reject any and all proposals, to waive technical or legal deficiencies, to accept any proposal that is in the best interest of the City and to negotiate the terms and conditions of any proposal leading to acceptance and final execution of a contract for services.

If you have any questions pertaining to the submittal process, please contact the Finance/Purchasing Department at the following number: 603-610-7227. Firms may also contact Al Pratt, Water Resource Manager with the City of Portsmouth at 603-520-0622 for additional information. In consideration to all proposers, no oral interpretations will be given to any proposers as to the meaning of the specification documents or any part thereof. Every request for such a consideration shall be made in writing. Email inquiries to Al Pratt at the Public Works Department, anpratt@cityofportsmouth.com by **02/23/2017**. Based upon such inquiry, the City may choose to issue an Addendum.

Addenda to this proposal, if any, including written answers to questions, will be posted on the City of Portsmouth website at http://www.cityofportsmouth.com/finance/purchasing.htm under the project heading. Addenda and updates will NOT be sent directly to firms. Contractors submitting a proposal should check the web site daily for addenda and updates after the release date. Contractors should print out, sign and return addenda with the proposal. Failure to do so may result in disqualification.

I. PURPOSE AND BACKGROUND

A study of groundwater resources in the Portsmouth area was conducted in 2008 and 2009 to identify areas that may be capable of providing additional sources of water for the City of Portsmouth water supply system (EGGI, 2009). This study identified and ranked 30 zones that warranted further investigation. Preliminary studies have been conducted on some of these sites. Geophysical surveys on four of these site have provided sufficient information to prioritize these sites for subsurface exploration. One of these sites has been selected for exploration under this project. This site is located near the intersection of Banfield Road and Ocean Road in Portsmouth NH (Attachment A). Geophysical survey data are provided in Attachment B for reference.

The purpose for this project is to drill both overburden and bedrock test wells, determine well yields, and evaluate water quality and sustained yield potential with respect to the feasibility of developing a new water supply source at the project site. Additional work under subsequent projects may include construction of final production well(s), new source permitting, and the design and construction of treatment, pumping and piping systems. The City of Portsmouth is seeking proposals for the following scope of work.

II. SCOPE OF WORK

The Contractor is to provide all materials, labor, equipment, fuel, tools, transportation, and services for drilling, construction, development, testing and completion of up to four (4) overburden test wells and up to three (3) bedrock test wells at the project site (Attachment A). The work shall be substantially complete by October 1, 2017. The firm selected for this project will perform the following services. These shall include, but are not limited to:

1. Project Management
    a. Assumes end-to-end project responsibility, including oversight of any/all subcontractors
    b. Coordinate schedule, site access, clearing, equipment setup and other site activities with the City Water Resource Manager.
    c. Conduct project meetings including at a minimum a preliminary site walk, pre-drilling site walk, pre-test pumping site walk, and a final project summary presentation.
    d. The Contractor shall, at his own expense, procure all permits, certificates and licenses required by law for the execution of the work. The Contractor shall comply with all federal, state or local laws, ordinances or rules and regulations relating to the performance of the work. This includes a temporary discharge permit required by the New Hampshire Department of Environmental Services prior to beginning any on-site activities. Work also includes notifying DigSafe to assure that there are no conflicts with existing utilities at the work sites.

2. Test Well Drilling
    a. Interpret geophysical survey results to identify best locations for the installation of the test wells. These location will be provided with the proposal submittals and will be subject to change upon discussions and mutual agreement between the City and Contractor.
    b. Sub-contract with drilling company capable of installing, developing, and pumping the wells as specified herein.
    c. Sub-contract with a heavy equipment contractor, if needed, to construct access roads and drilling pads as designed.
    d. Provide drilling-rig access
        i. A NH licensed Professional Engineer shall design access roads and drilling pad suitable for drill rig.
        ii. A NH certified wetlands scientist shall evaluate areas needed for access and drilling and apply for dredge and fill permits if needed.
        iii. Install erosion control measures as needed to protect natural areas and water features from access road and drilling pad runoff, and discharge from drilling operations.

iv. Manage drilling cuttings in a manner that minimizes impacts to the natural area.

e. Overburden Test Well Installation
   i. Provide details in proposal with respect to the number of test wells, drilling techniques and test well construction. Assume each well will be 80 feet in depth and the water table is no more than 15 feet below ground surface.
   ii. Provide assumptions for development requirements.
   iii. Perform short-duration (0.5 hour) pumping test on each of the overburden test wells.
   iv. If pumping performance is favorable and the City concurs that additional testing should be conducted:
      1. Install one (1) two-foot offset well at the most favorable test well location.
      2. Perform a 4-hour pumping test and monitor groundwater levels in the two-foot observation well to assess the aquifer characteristics.
      3. At the conclusion of the 4-hour pumping test, water quality samples shall be collected and analyzed by a NH Certified Laboratory for all of the EPA Primary and Secondary Drinking Water Standards and as well as 1,4-Dioxane, Glyphosate and PFAS (suite of 23 compounds including PFOS, PFOA & PFHxS, Method 537 modified)
   v. Overburden test wells shall remain in place and a lock and locking cap installed on each well.

f. Bedrock Well Installation
   i. Plan to install up to three (3) 6-inch bedrock wells to depths of up to 500 feet each installed in accordance with NHDES standards.
   ii. Eight (8)-inch casing shall be seated and grouted at least 10-feet into competent bedrock. Assume between 80 feet of overburden at drilling locations (this depth will need to be identified during the overburden drilling task). Eight-inch casing is recommended so the 6-inch hole could be reamed to 8-inches if well yields prove favorable.
   iii. The wells will be logged by a NH Professional Geologist, and samples will be collected from each geologic formation encountered.
   iv. Well logs shall include descriptions and locations of fracture zones and rock types.
   v. Well yield estimates shall be made during the drilling process by “blow” testing. This shall be conducted as needed to estimate contributions from substantial water bearing fractures.
   vi. If a well is drilled that has the potential to produce over 150 gpm, a pumping test will be conducted. Upon consultation and with agreement with the City, a forty-eight (48)- hour pumping test shall be conducted on the highest yielding bedrock well.
      1. A temporary discharge permit application shall be submitted to the NHDES and a permit granted prior to the test.
      2. Erosion control measures shall be in-place prior to the test.
      3. An appropriate discharge location must be identified and approved by the City prior to the test.
      4. Water levels shall be monitored at least hourly in all of the bedrock and overburden wells on the site.

5. At the conclusion of the 48-hour pumping test, water quality samples shall be collected and analyzed by a NH Certified Laboratory for all of the EPA Primary and Secondary Drinking Water Standards and as well as 1,4-Dioxane, Glyphosate and PFAS (suite of 23 compounds including PFOS, PFOA & PFHxS, Method 537 modified)

vii. Bedrock wells shall be equipped with locks and locking caps.

g. Hydrogeologic Report
   i. Within four (4) months of concluding the drilling and pumping test a Hydrogeologic Report shall be prepared that includes at least the following:
      1. Feasibility assessment of developing a new source at this site considering potential aquifer yield, well yield capacity, site limitations, water quality and other site parameters.
      2. Summary of drilling and well installation activities.
      3. Well construction diagrams and drilling logs.
      4. Short-term pumping data and summary of drawdown and pumping rates, specific capacities and aquifer response.
      5. Water quality results
      6. Recommendations for additional exploration and testing, or final production well construction.
   ii. Findings of the exploration and testing shall be conveyed to the City as soon as they are available.

III. SUBMITTAL REQUIREMENTS

Proposals shall provide sufficient information to allow the City to evaluate the firm's approach, experience, staff and availability. For this proposal, it is assumed by the City that all of these tasks will be completed, unless any proposed changes to the task list are clearly highlighted and noted in the firms' proposal. Alternative approaches to the drilling and test pumping program as detailed above will be considered and accepted if they are comparable and will satisfy the goal of this project.

The proposal shall include, and will be evaluated on, the following components:

1. An Executive Summary providing a brief history of the firm and identifying the firm's experience, expertise, and technical capabilities. The Executive Summary shall include contact information and be signed by an officer of the firm with the authority to commit the firm.
2. Organizational chart for the team managing and executing this contract. List the individual(s) who will serve as the lead representative for the work.
3. A list of similar projects in which the firm is currently involved, or has been involved. Please list project description and status.
4. Qualifications and resumes for key staff and subconsultants. The resumes shall include specific information about expertise.
5. A list of references (with contact name and telephone number) of similar projects, for which your company has, in whole or in part, provided services.

6. Other information, qualifications and/or exception that the firm may consider appropriate to raise during the selection process.
7. Project timeline with details of assumptions and critical path elements including proposed staff and/or subconsultant hours by task.
8. Summarized costs shall be provided in a separate sealed envelope marked "Groundwater Source Exploration RFP – Cost Submittal":
    a. Overburden drilling and well construction, including mobilization/de-mobilization, assume four (4), eighty (80) foot deep wells, protective casing, caps and locks.
    b. Bedrock drilling and well construction, assuming two (2) wells, ninety (90) feet of casing, total drilling depths of 500 feet, caps and locks.
    c. Access for drilling rig, assume 1,000 linear feet of clearing, road construction with one (1) one foot of sand & gravel placement and compaction, drilling pad leveling, erosion control, wetland mapping, and wetland permitting. Include all time and materials.
    d. Pumping test costs including water quality analyses as described above.
    e. Preparation of Hydrogeologic Report, assume one draft for City review and edits and final report, and delivery of two hard copies and one digital (.pdf).

Please provide, three (3) copies of the Proposals, including attachments.

IV. SELECTION CRITERIA

The City will review and evaluate the written responses to this Request for Proposals. Basis of award of service components will be considered in regards to total program success. Final scope of services will be negotiated based on applications. Firms with no prior experience and submittals that do not meet the minimum requirements will not be considered. The City reserves the right to interview and request additional information from proposers.

The City will evaluate each proposal based on the following criteria:

1. Understanding of project requirements as demonstrated in overall proposal submission and statement of project understanding; (10 points)
2. Quality and completeness of proposal submittal documentation; (10 points)
3. Projected timeline and approach to accomplish the scope of work; (20 points)
4. Professional qualifications, reputation and engagement of individuals assigned to the project; (20 points)
5. Professional qualifications, reputation and engagement of key project subcontractors and teaming firms; (10 points)
6. Firm's experience and qualifications working on projects of similar size and complexity; (20 points)
7. Qualifications of firm, teaming firm, or subcontractor to provide
    a. Final well design
    b. Engineering services for the connection of the new source to the distribution system, and

c. Engineering services for the design of treatment processes, if needed.

(10 points total for items 7a, 7b, 7c)

Using the criteria, the City will determine which company or team of companies will provide services in the best interest of the City. This selection process may include a follow-up interview with high ranking firms. The City will attempt to reach contract(s) with the selected company (ies). If negotiations are not successful, the City may proceed to enter into negotiations with another qualified company for services. By submitting a proposal, the firm consents to the City undertaking such investigation as it deems in its best interest to investigate the firm's qualifications. The submitting firm assumes all responsibility for any costs it incurs in preparing a response to this Request for Proposal. Additional projects associated with the development of a new groundwater source under this scope-of-work may be requested and continue as additions to this project contract if performance of service is acceptable to the City and the firm's qualifications meet the requirements of the additional project tasks.

Reservation of Rights

The City of Portsmouth reserves the right to reject any and all proposals, to waive technical or legal deficiencies, to make such investigation as it deems necessary to evaluate Contractor's qualifications, to accept any proposal that may be deemed in the best interest of the City and to negotiate terms and conditions of any proposal leading to acceptance and final execution of a contract for services.

V. INSURANCE REQUIREMENTS

Insurance shall be in such form as will protect the Contractor from all claims and liabilities for damages for bodily injury, including accidental death, and for property damage, which may arise from operations under this contract whether such operation by himself or by anyone directly or indirectly employed by him.

AMOUNT OF INSURANCE

A) Comprehensive General Liability:
Bodily injury or Property Damage -- $2,000,000/$2,000,000
Per occurrence and general aggregate

B) Automobile and Truck Liability:
Bodily Injury or Property Damage -- $2,000,000/$2,000,000
Per occurrence and general aggregate

C) Professional Liability -- $2,000,000/$2,000,000
Per occurrence and general aggregate

Additionally, the Contractor shall purchase and maintain the following types of insurance:

A) Workers Comprehensive Insurance coverage for all people employed by the Contractor to perform work on this project. This insurance shall at a minimum meet the requirements of the most current laws of the State of New Hampshire.

B) Contractual Liability Insurance coverage in the amounts specified above under Comprehensive General Liability.

C) Product and Completed Operations coverage to be included in the amounts specified above under Comprehensive General Liability.

D) Contractor shall also maintain such additional insurance as may be required by the State of New Hampshire for hazardous waste transporters.

ADDITIONAL INSURED

The City of Portsmouth shall be named as an additional insured and identified as a certificate holder on all policies as follows: City of Portsmouth, Attn: Legal Department, 1 Junkins Avenue Portsmouth, NH 03801.

Contractor shall provide proof of insurance coverage satisfactory to the City of Portsmouth.

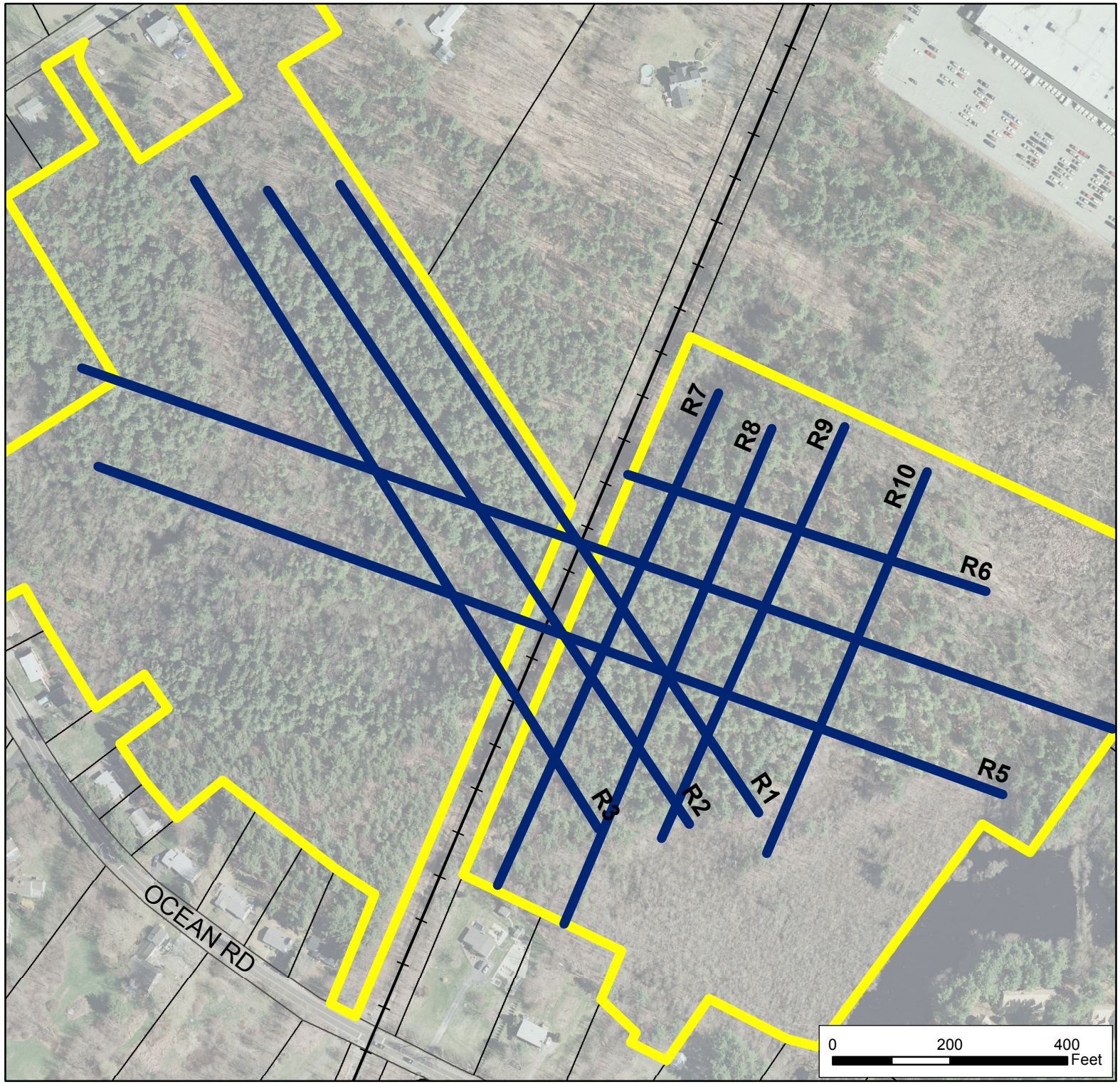
Coverages shall remain in effect for a period consistent with the Statues of Limitations under the Law of the State of New Hampshire.

Written notice shall be given to the City of Portsmouth, NH at least thirty (30) days prior to cancellation or non-renewal of such insurance coverage.

As evidence of insurance coverage, the City may, in lieu of actual policies, accept official written statements from the insurance company certifying that all the insurance policies specified are in force for the specified period.

Attachment A

Site Map Groundwater Source Exploration RFP# 35-17

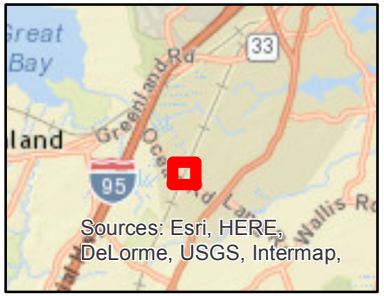


Legend

- City Property / Site Area
- Electrical Resistivity Survey Line
- Railroads
- Parcel/ROW
- Parcel Line

N

Locus

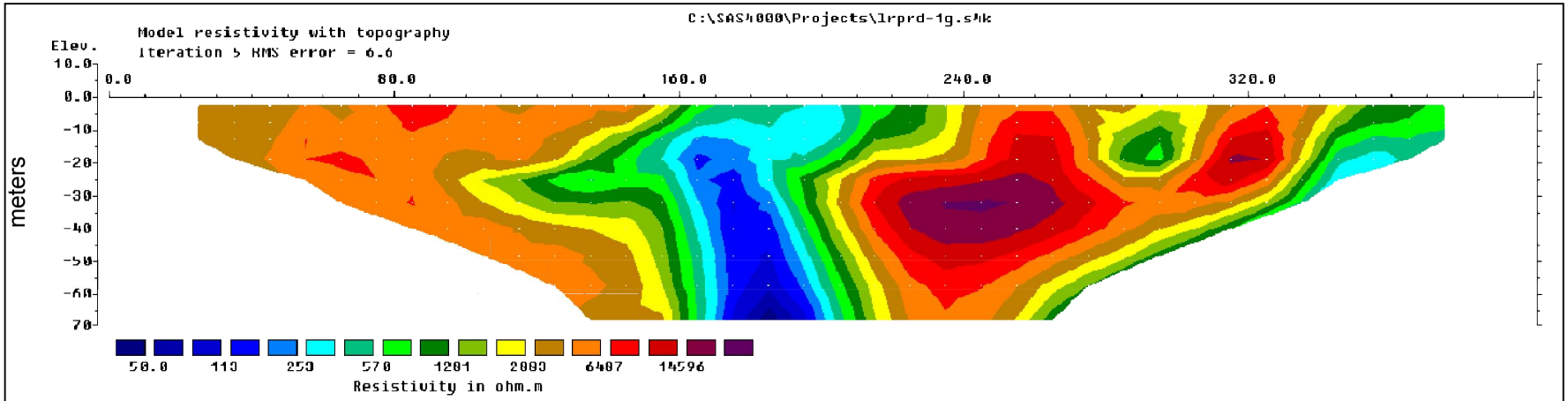


January 13, 2017

Attachment B

Electrical Resistivity Survey Line R1 - Gradient Method
Potiential Groundwater Development Zone SG2
Portsmouth, New Hampshire

Northwest **Southeast**



Horizontal and Vertical Axis Units are Meters

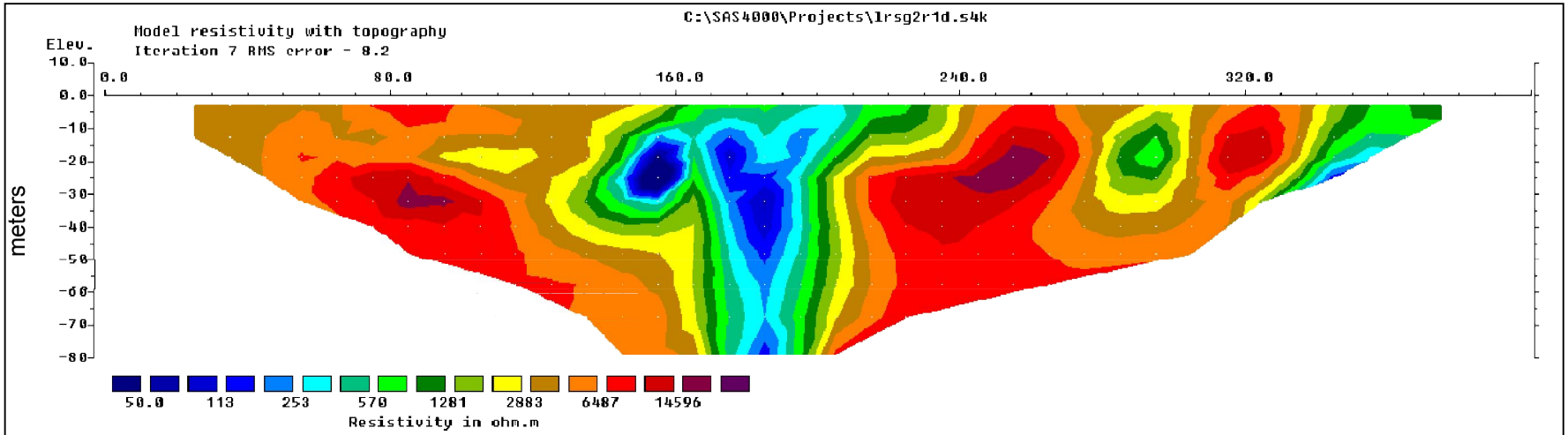
Survey Type:	Gradient
Electrode Spacing (m.):	10
Vertical Exaggeration:	1
Line orientation (geographic degrees):	148

Raw Data Quality Error Percent		
Minimum	Maximum	Average
0.000	15.144941	0.1743314

Number of Data Points		
Surveyed	After Modeling	Number Removed
500	431	69

Electrical Resistivity Survey Line R1 - Dipole Dipole Method
Potiential Groundwater Development Zone SG2
Portsmouth, New Hampshire

Northwest **Southeast**



Horizontal and Vertical Axis Units are Meters

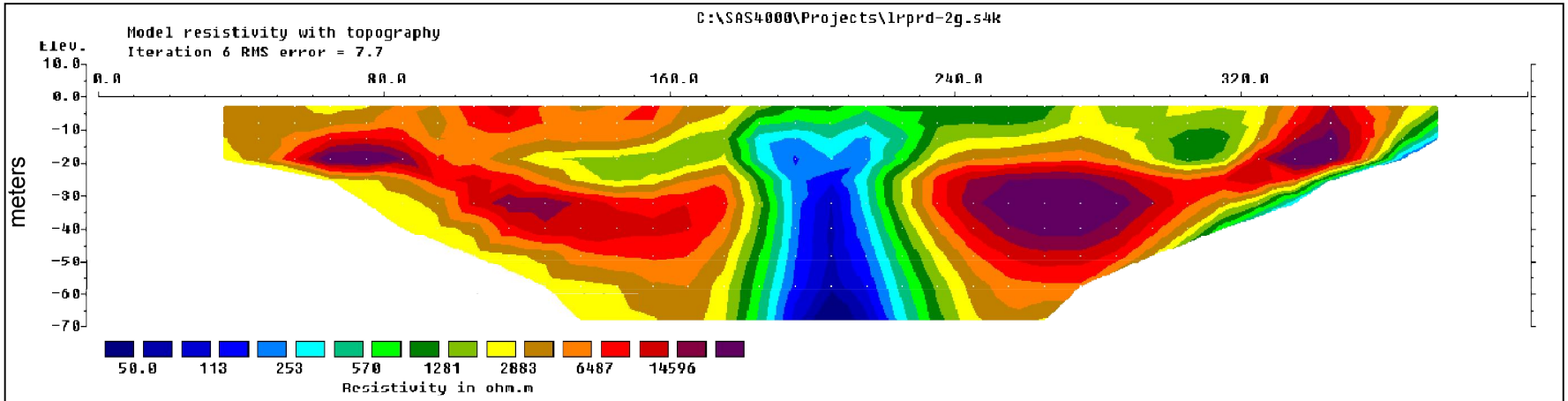
Survey Type:	Dipole-Dipole
Electrode Spacing (m.):	10
Vertical Exaggeration:	1
Line orientation (geographic degrees):	148

Raw Data Quality Error Percent		
Minimum	Maximum	Average
0.000	19.749092	0.8162617

Number of Data Points		
Surveyed	After Modeling	Number Removed
372	321	51

Electrical Resistivity Survey Line R2 - Gradient Method
Potiential Groundwater Development Zone SG2
Portsmouth, New Hampshire

Northwest **Southeast**



Horizontal and Vertical Axis Units are Meters

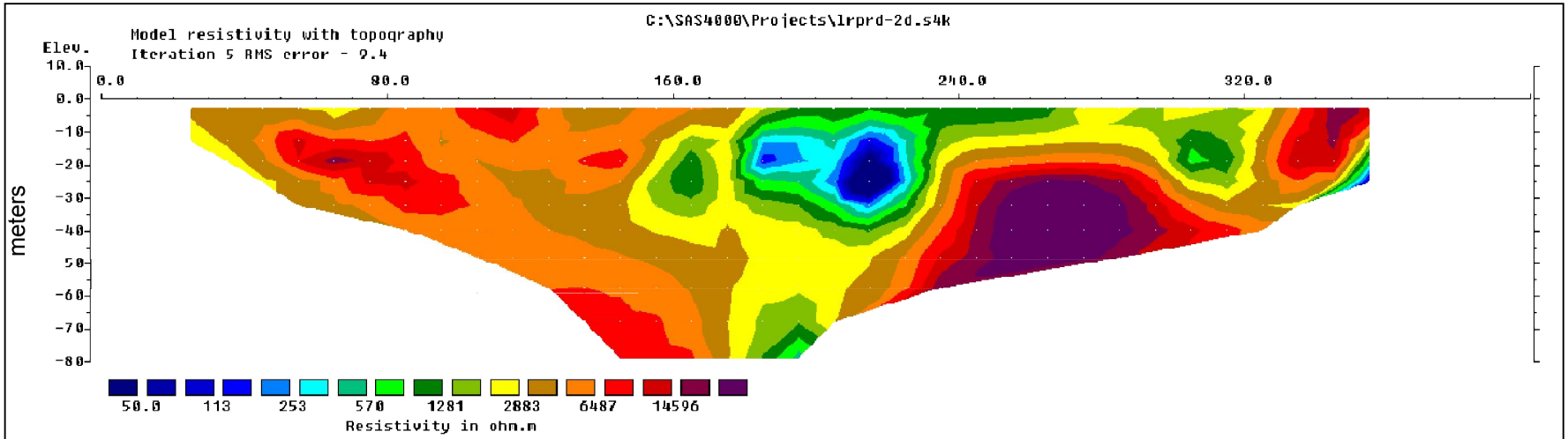
Survey Type:	Gradient
Electrode Spacing (m.):	10
Vertical Exaggeration:	1
Line orientation (geographic degrees):	148

Raw Data Quality Error Percent		
Minimum	Maximum	Average
0.000	1.698432	0.2016899

Number of Data Points		
Surveyed	After Modeling	Number Removed
504	454	50

Electrical Resistivity Survey Line R2 - Dipole Dipole Method
Potiential Groundwater Development Zone SG2
Portsmouth, New Hampshire

Northwest **Southeast**



Horizontal and Vertical Axis Units are Meters

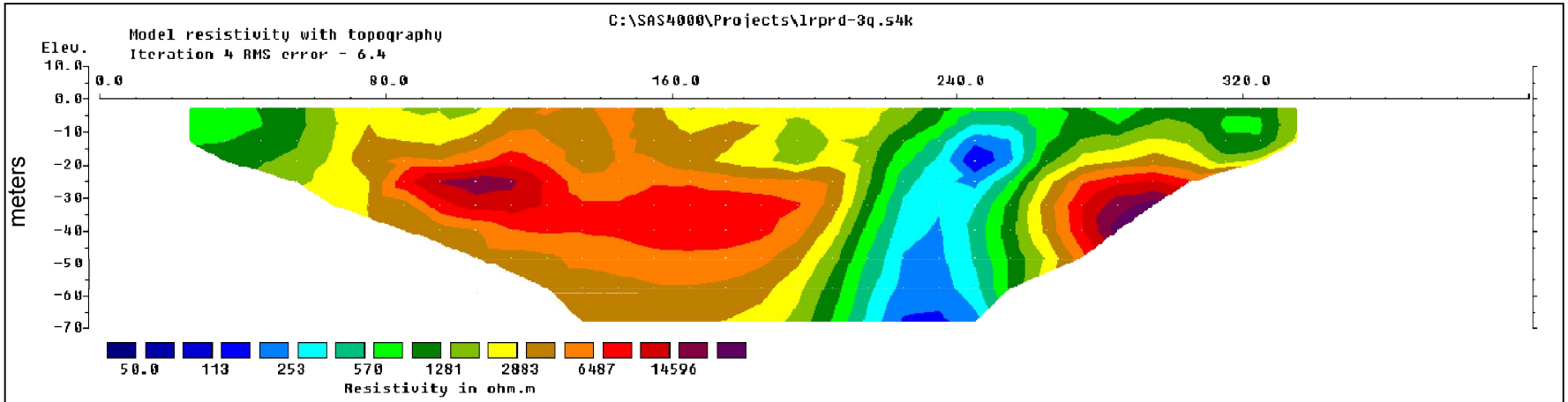
Survey Type:	Dipole-Dipole
Electrode Spacing (m.):	10
Vertical Exaggeration:	1
Line orientation (geographic degrees):	148

Raw Data Quality Error Percent		
Minimum	Maximum	Average
0.000	20.054358	1.2089862

Number of Data Points		
Surveyed	After Modeling	Number Removed
372	293	79

Electrical Resistivity Survey Line R3 - Gradient Method
Potiential Groundwater Development Zone SG2
Portsmouth, New Hampshire

Northwest **Southeast**



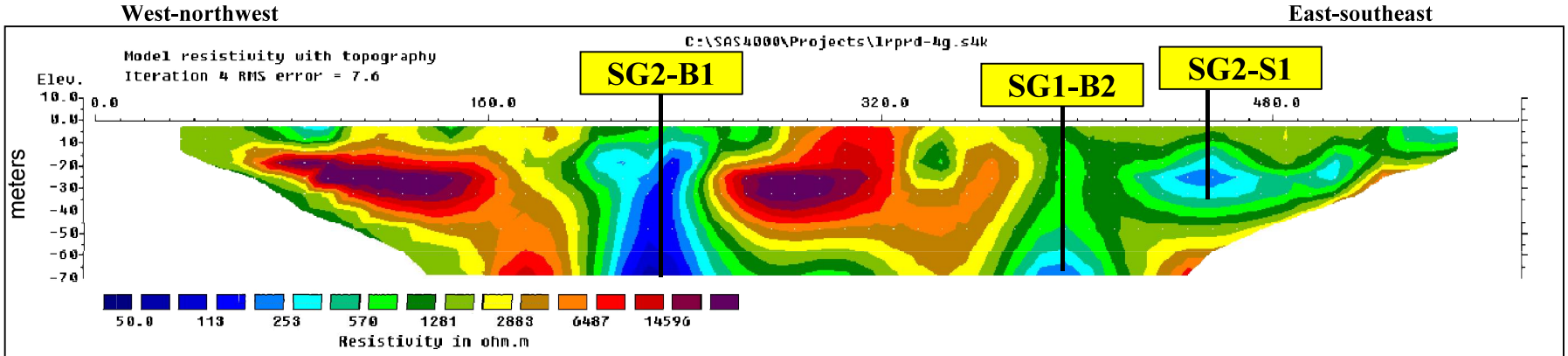
Horizontal and Vertical Axis Units are Meters

Survey Type:	Gradient
Electrode Spacing (m.):	10
Vertical Exaggeration:	1
Line orientation (geographic degrees):	148

Raw Data Quality Error Percent		
Minimum	Maximum	Average
0.000	0.996614	0.1183577

Number of Data Points		
Surveyed	After Modeling	Number Removed
504	431	73

Electrical Resistivity Survey Line R4 - Gradient Method
Potiential Groundwater Development Zone SG2
Portsmouth, New Hampshire



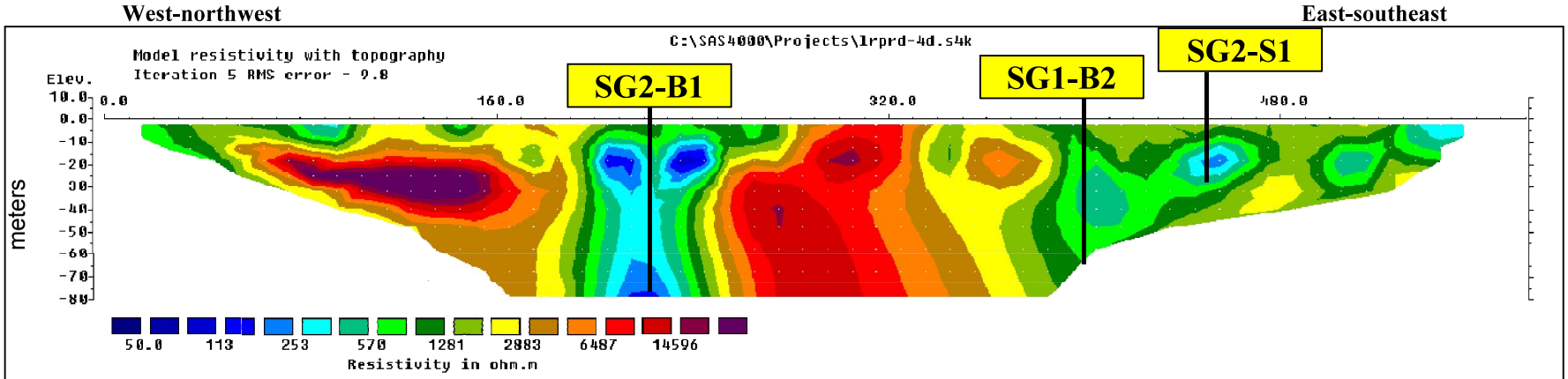
Horizontal and Vertical Axis Units are Meters

Survey Type:	Gradient
Electrode Spacing (m.):	10
Vertical Exaggeration:	1
Line orientation (geographic degrees):	110

Raw Data Quality Error Percent		
Minimum	Maximum	Average
0.000	15.868917	0.2362505

Number of Data Points		
Surveyed	After Modeling	Number Removed
838	725	113

Electrical Resistivity Survey Line R4 - Dipole-Dipole Method
Potiential Groundwater Development Zone SG2
Portsmouth, New Hampshire



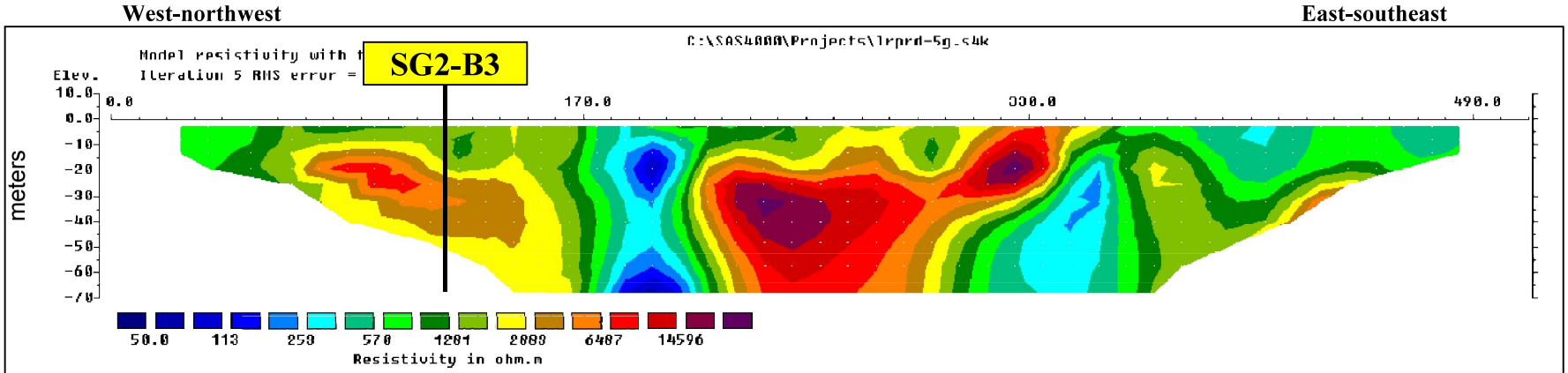
Horizontal and Vertical Axis Units are Meters

Survey Type:	Dipole-Dipole
Electrode Spacing (m.):	10
Vertical Exaggeration:	1
Line orientation (geographic degrees):	110

Raw Data Quality Error Percent		
Minimum	Maximum	Average
0.000	238.45035	2.7548459

Number of Data Points		
Surveyed	After Modeling	Number Removed
538	415	123

Electrical Resistivity Survey Line R5 - Gradient Method
Potiential Groundwater Development Zone SG2
Portsmouth, New Hampshire



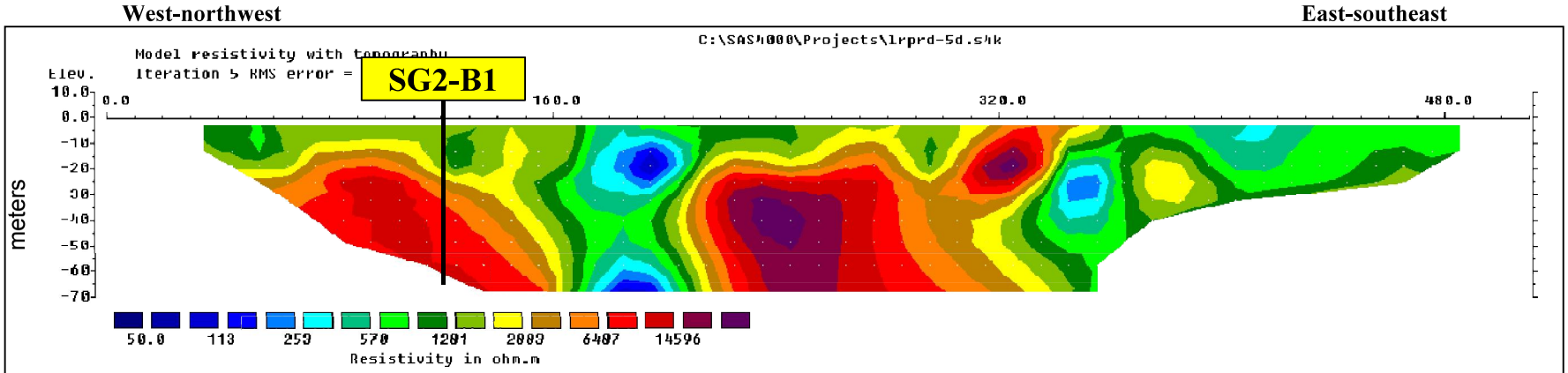
Horizontal and Vertical Axis Units are Meters

Survey Type:	Gradient
Electrode Spacing (m.):	10
Vertical Exaggeration:	1
Line orientation (geographic degrees):	110

Raw Data Quality Error Percent		
Minimum	Maximum	Average
0.000	1823.92	2.9410509

Number of Data Points		
Surveyed	After Modeling	Number Removed
659	598	61

Electrical Resistivity Survey Line R5 - Dipole-Dipole Method
Potiential Groundwater Development Zone SG2
Portsmouth, New Hampshire



Horizontal and Vertical Axis Units are Meters

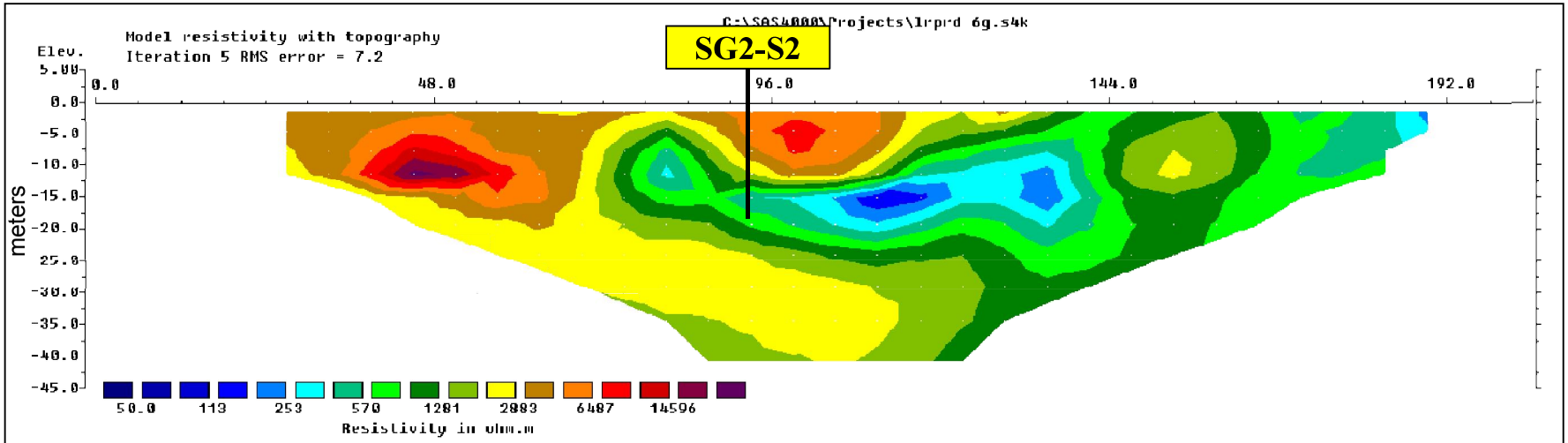
Survey Type:	Dipole-Dipole
Electrode Spacing (m.):	10
Vertical Exaggeration:	1
Line orientation (geographic degrees):	110

Raw Data Quality Error Percent		
Minimum	Maximum	Average
0.000	17.348719	0.3302327

Number of Data Points		
Surveyed	After Modeling	Number Removed
444	402	42

Electrical Resistivity Survey Line R6 - Gradient Method
Potiential Groundwater Development Zone SG2
Portsmouth, New Hampshire

West-northwest East-southeast



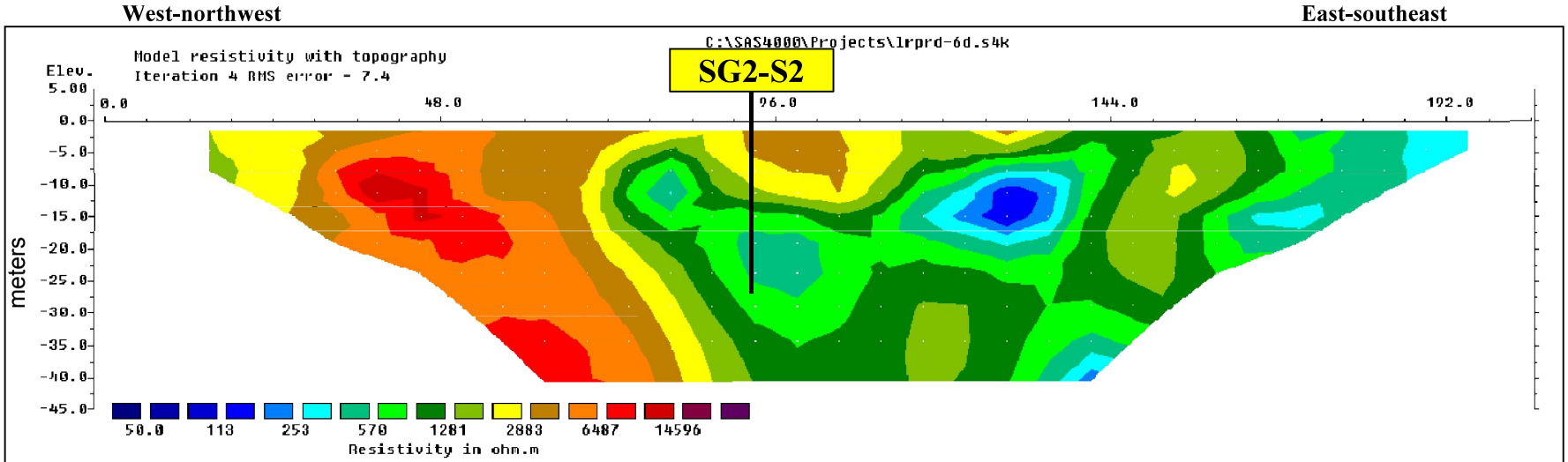
Horizontal and Vertical Axis Units are Meters

Survey Type:	Gradient
Electrode Spacing (m.):	6
Vertical Exaggeration:	1
Line orientation (geographic degrees):	110

Raw Data Quality Error Percent		
Minimum	Maximum	Average
0.000	0.653502	0.091964

Number of Data Points		
Surveyed	After Modeling	Number Removed
360	326	34

Electrical Resistivity Survey Line R6 - Dipole-Dipole Method
Potiential Groundwater Development Zone SG2
Portsmouth, New Hampshire



Horizontal and Vertical Axis Units are Meters

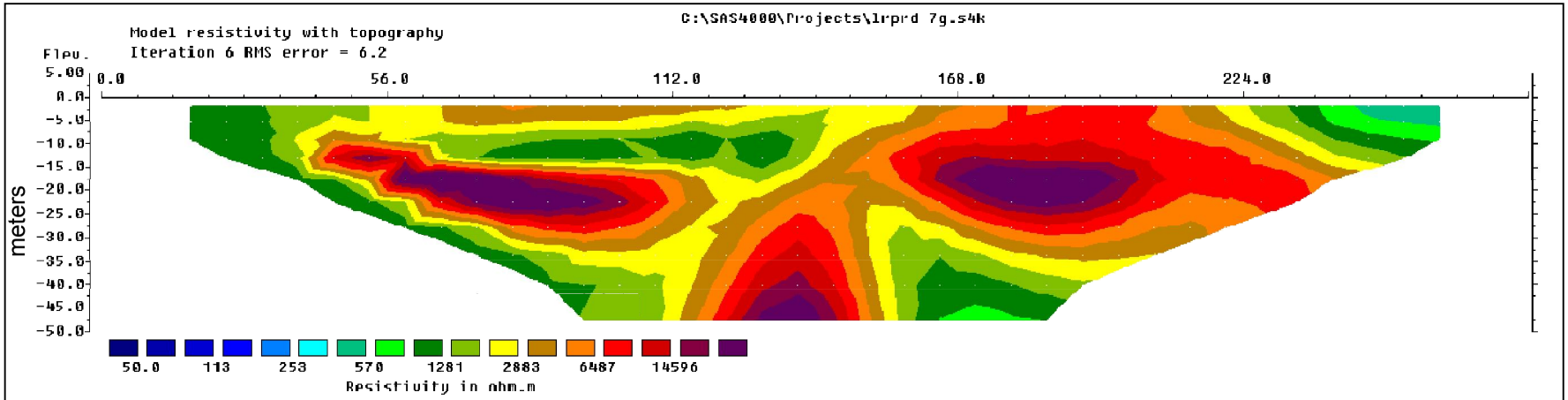
Survey Type:	Dipole-Dipole
Electrode Spacing (m.):	6
Vertical Exaggeration:	1
Line orientation (geographic degrees):	110

Raw Data Quality Error Percent		
Minimum	Maximum	Average
0.000	12.982446	0.4133737

Number of Data Points		
Surveyed	After Modeling	Number Removed
306	270	36

Electrical Resistivity Survey Line R7 - Gradient Method
Potiential Groundwater Development Zone SG2
Portsmouth, New Hampshire

South-southwest **North-northeast**



Horizontal and Vertical Axis Units are Meters

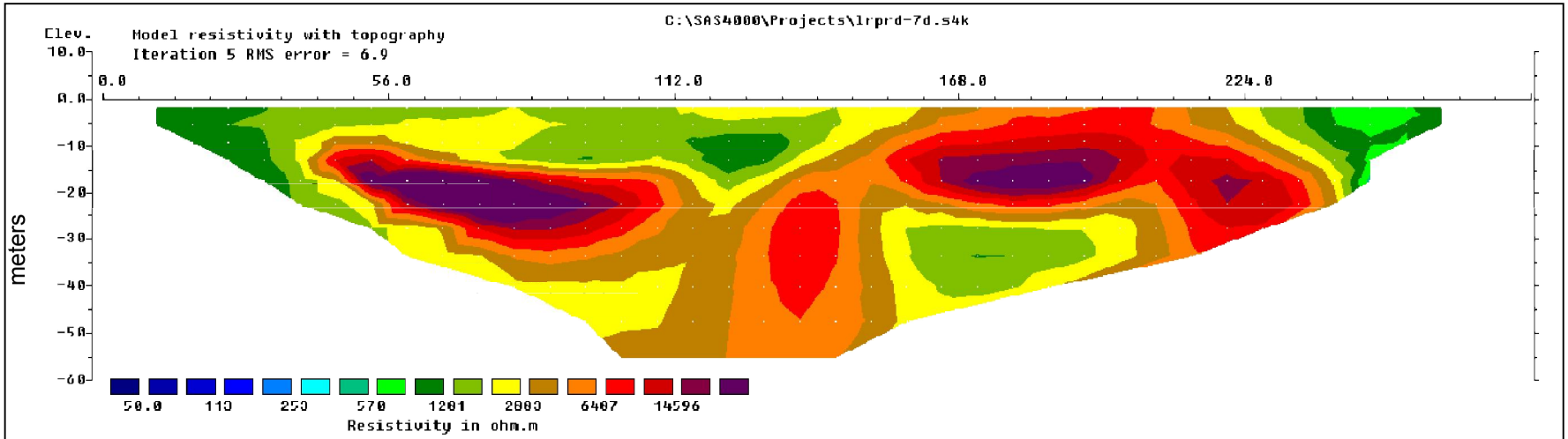
Survey Type:	Gradient
Electrode Spacing (m.):	7
Vertical Exaggeration:	1
Line orientation (geographic degrees):	18

Raw Data Quality Error Percent		
Minimum	Maximum	Average
0.000	0.660195	0.076865

Number of Data Points		
Surveyed	After Modeling	Number Removed
492	489	3

Electrical Resistivity Survey Line R7 - Dipole-Dipole Method
Potiential Groundwater Development Zone SG2
Portsmouth, New Hampshire

South-southwest **North-northeast**



Horizontal and Vertical Axis Units are Meters

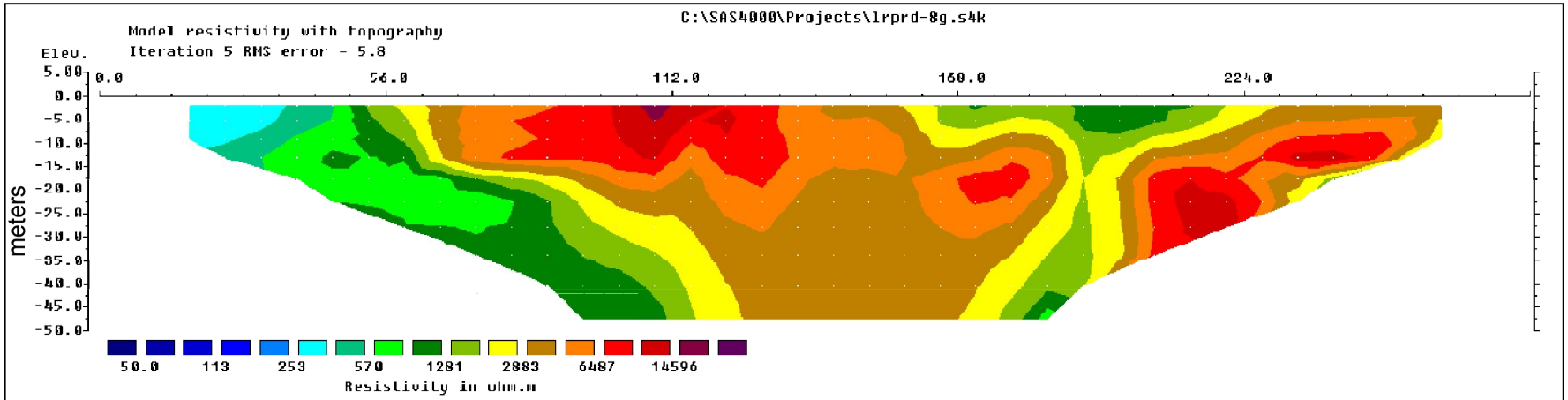
Survey Type:	Dipole-Dipole
Electrode Spacing (m.):	7
Vertical Exaggeration:	1
Line orientation (geographic degrees):	18

Raw Data Quality Error Percent		
Minimum	Maximum	Average
0.000	6.521562	0.2579107

Number of Data Points		
Surveyed	After Modeling	Number Removed
372	343	29

Electrical Resistivity Survey Line R8 - Gradient Method
Potiential Groundwater Development Zone SG2
Portsmouth, New Hampshire

South-southwest **North-northeast**



Horizontal and Vertical Axis Units are Meters

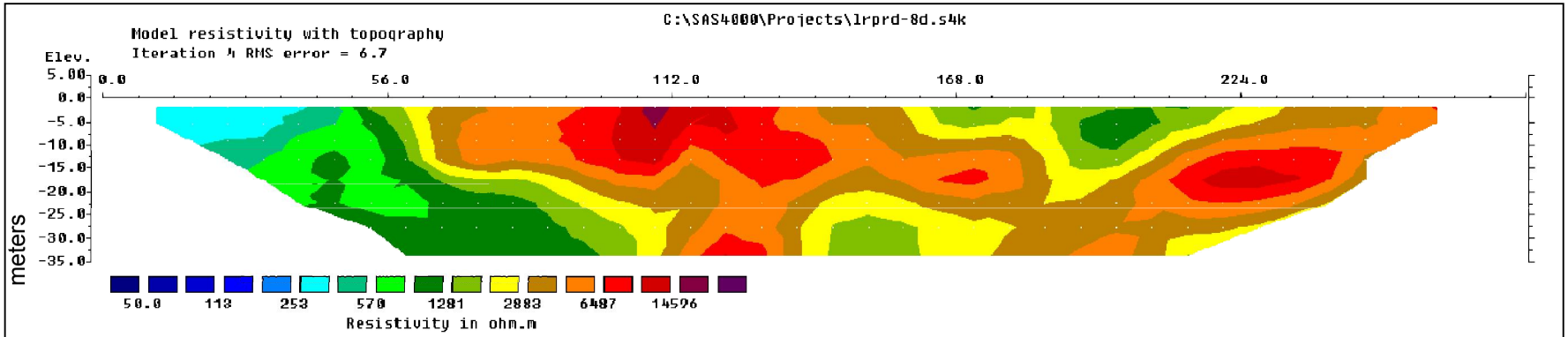
Survey Type:	Gradient
Electrode Spacing (m.):	7
Vertical Exaggeration:	1
Line orientation (geographic degrees):	18

Raw Data Quality Error Percent		
Minimum	Maximum	Average
0.000	2.941252	0.0737004

Number of Data Points		
Surveyed	After Modeling	Number Removed
504	497	7

Electrical Resistivity Survey Line R8 - Dipole-Dipole Method
Potiential Groundwater Development Zone SG2
Portsmouth, New Hampshire

South-southwest **North-northeast**



Horizontal and Vertical Axis Units are Meters

Survey Type:	Dipole-Dipole
Electrode Spacing (m.):	7
Vertical Exaggeration:	1
Line orientation (geographic degrees):	18

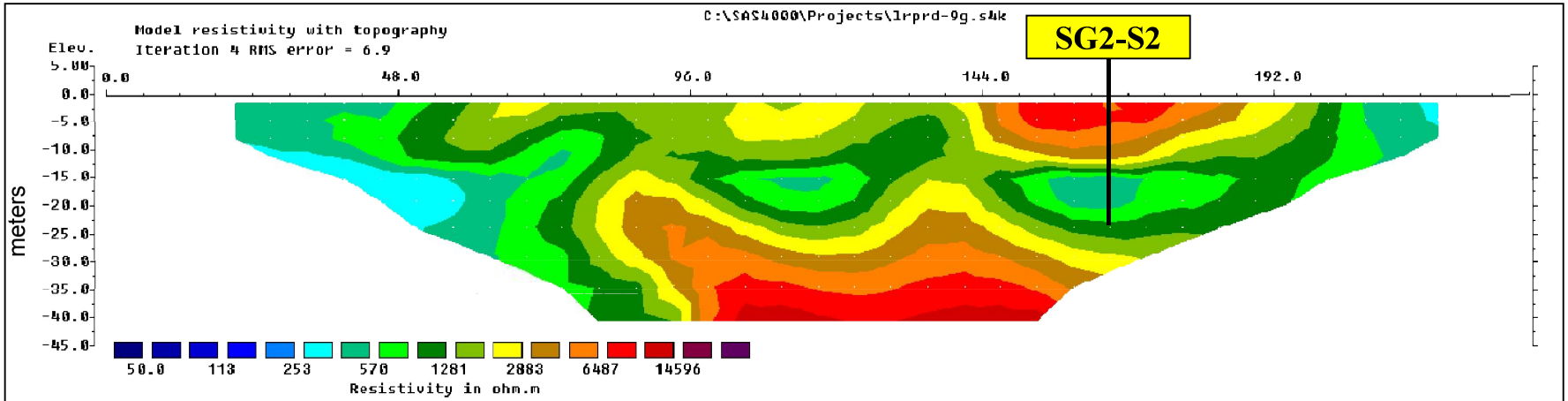
Raw Data Quality Error Percent		
Minimum	Maximum	Average
0.000	4.353413	0.2857742

Number of Data Points		
Surveyed	After Modeling	Number Removed
372	347	25

Electrical Resistivity Survey Line R9 - Gradient Method
Potiential Groundwater Development Zone SG2
Portsmouth, New Hampshire

South-southwest

North-northeast



Horizontal and Vertical Axis Units are Meters

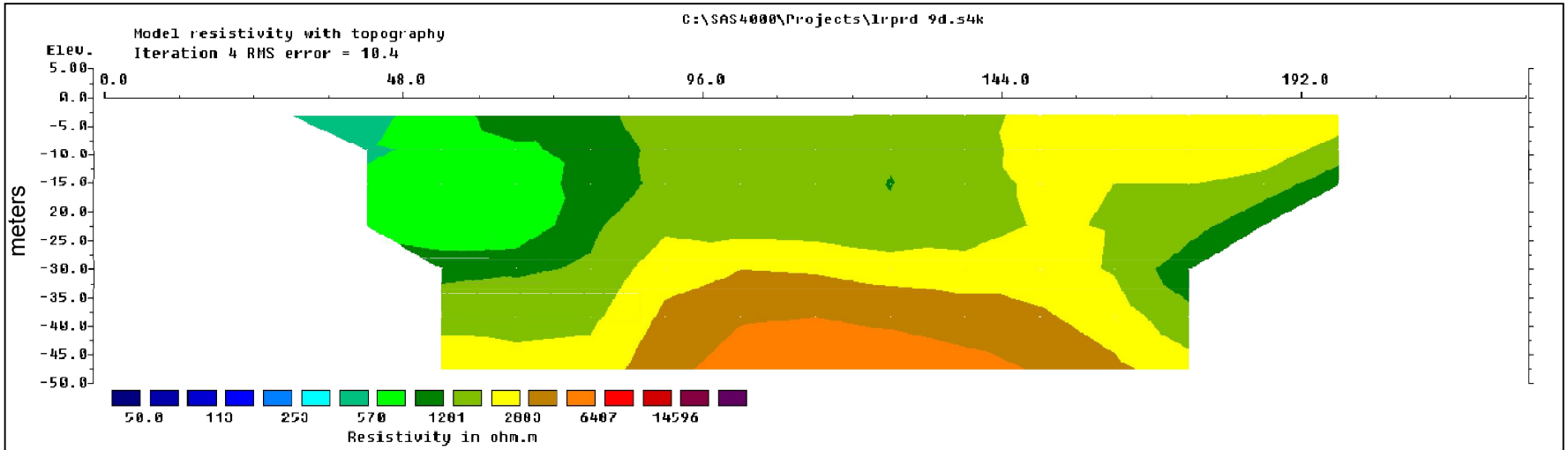
Survey Type:	Gradient
Electrode Spacing (m.):	6
Vertical Exaggeration:	1
Line orientation (geographic degrees):	18

Raw Data Quality Error Percent		
Minimum	Maximum	Average
0.000	64.753876	0.4424121

Number of Data Points		
Surveyed	After Modeling	Number Removed
480	450	30

Electrical Resistivity Survey Line R9 - Dipole-Dipole Method
Potiential Groundwater Development Zone SG2
Portsmouth, New Hampshire

South-southwest **North-northeast**



Horizontal and Vertical Axis Units are Meters

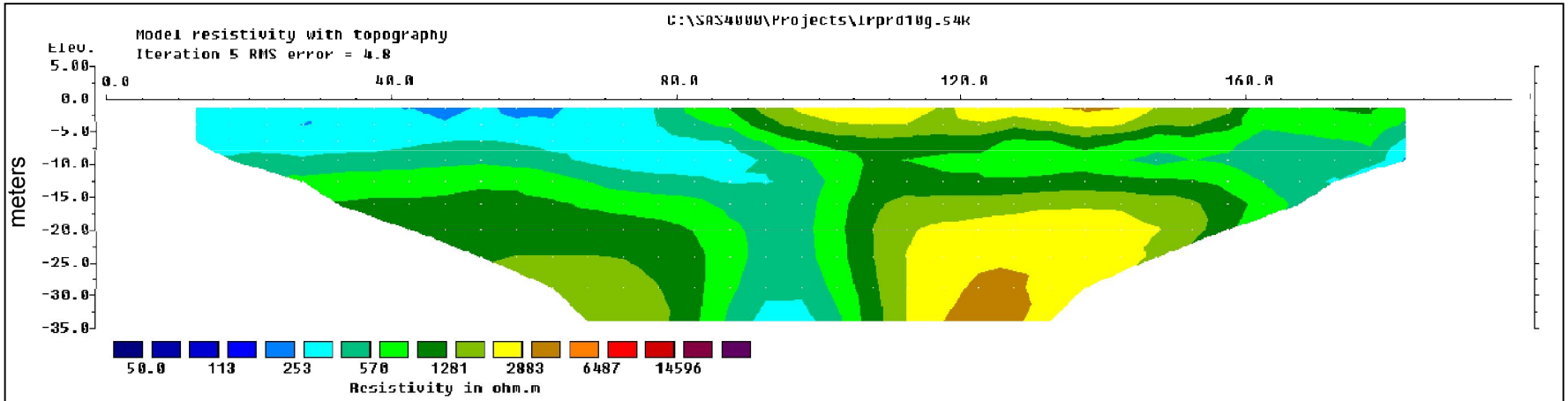
Survey Type:	Dipole-Dipole
Electrode Spacing (m.):	6
Vertical Exaggeration:	1
Line orientation (geographic degrees):	18

Raw Data Quality Error Percent		
Minimum	Maximum	Average
0.003	4.169151	0.3120134

Number of Data Points		
Surveyed	After Modeling	Number Removed
102	81	21

Electrical Resistivity Survey Line R10 - Gradient Method
Potiential Groundwater Development Zone SG2
Portsmouth, New Hampshire

South-southwest **North-northeast**



Horizontal and Vertical Axis Units are Meters

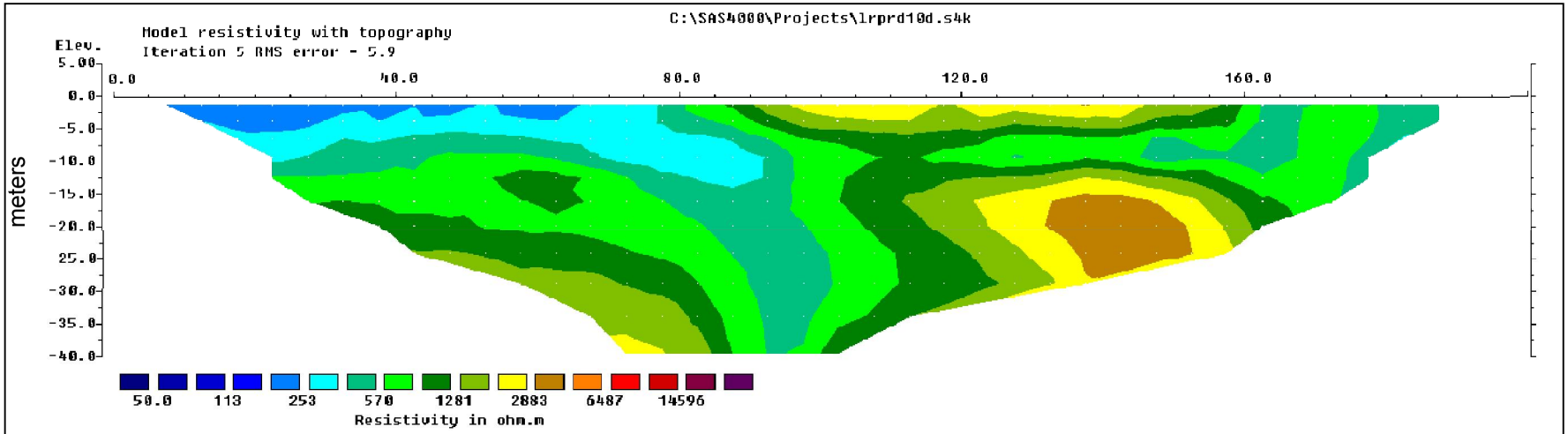
Survey Type:	Gradient
Electrode Spacing (m.):	5
Vertical Exaggeration:	1
Line orientation (geographic degrees):	20

Raw Data Quality Error Percent		
Minimum	Maximum	Average
0.000	10.082739	0.1122722

Number of Data Points		
Surveyed	After Modeling	Number Removed
504	496	8

Electrical Resistivity Survey Line R10 - Dipole-Dipole Method
Potiential Groundwater Development Zone SG2
Portsmouth, New Hampshire

South-southwest **North-northeast**



Horizontal and Vertical Axis Units are Meters

Survey Type:	Dipole-Dipole
Electrode Spacing (m.):	5
Vertical Exaggeration:	1
Line orientation (geographic degrees):	20

Raw Data Quality Error Percent		
Minimum	Maximum	Average
0.000	13.02747	0.1735949

Number of Data Points		
Surveyed	After Modeling	Number Removed
372	360	12