

AASHTO Technology Implementation Group
Nomination of Technology Ready for Implementation
2005 NOMINATIONS DUE BY FRIDAY, SEPTEMBER 9, 2005

Sponsoring DOT	1. Sponsoring DOT (State): Idaho Transportation Department								
Primary Technical Contact	2. Name: David Ekern, PE, Director / Kerry Klinger INL Organization: Idaho Transportation Department Address: P.O. Box 7129 City: Boise State: ID Zip code: 83707 E-mail: david.ekern.itd.idaho.gov Phone: 208-334-8807 Fax: 208-334-8195								
Technology Description	<p>3. Name of Technology: In-situ Vitrified Piles for Bridge Applications</p> <p>4. Briefly describe the technology. Vitrification (the ability to turn parent soil into rock) technology has been evolving to the point such that in-place piles could be constructed in calculated diameters and locations at great depths, off angles and with competitive costs. In-situ vitrification was developed to encapsulate buried hazardous waste by melting, with electricity, the surrounding soils into rock.</p> <p>5. Briefly describe the history of its development. Bridges are subject to a variety of long-term stresses that eventually degrade performance and increase maintenance needs. In some cases, bridge piles/foundations and abutments are impacted by influences beyond those of everyday traffic use, such as erosion, seismic activities or settling. In response to the increasing amount of bridges in states of decay, this technology will increase the lifespan of many structures.</p>								
State of Development	<p>6. For how long and in approximately how many applications has your organization used this technology? The vision for this project is to provide a unique technology that would enable a minimal crew (as few as two workers) the ability to create on-site custom engineered piles composed of the parent soils with minimal excavation, no site preparation and minor site restoration activities.</p> <p>7. What additional development is necessary to enable routine deployment of the technology? Extensive tests need to be run to develop technology including: Laboratory test burns to establish soils index and optimum operator parameters for specific soil conditions, tests to gather information including unit weight, compressive and shear strengths and elastic moduli, flexural and tensile strength, seismic fracture analysis, degradation tests – life cycle analysis and freeze-thaw tests. The field testing will include the welding of piles, off angle procedures, excavation and material testing of vitrified soils. The ultimate objective will be to develop the understanding and procedures necessary to enable the use of vitrification in any soil, at any angle and at substantial depths. Testing period is over two years.</p> <p>8. Have other organizations used this technology? If so, please list organization names and contacts.</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Organization</th> <th style="text-align: left;">Name</th> <th style="text-align: left;">Phone</th> <th style="text-align: left;">E-mail</th> </tr> </thead> <tbody> <tr> <td>INL</td> <td>Dean Harding</td> <td>208-526-6111</td> <td>Dean.Harding@inl.gov</td> </tr> </tbody> </table>	Organization	Name	Phone	E-mail	INL	Dean Harding	208-526-6111	Dean.Harding@inl.gov
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INL	Dean Harding	208-526-6111	Dean.Harding@inl.gov						
Potential for Payoff	<p>9. What benefits has your organization realized from using this technology? Include cost savings, safety improvements, transportation efficiency or effectiveness, environmental benefits, or other advantages over other existing technologies. As the decay of our nation's transportation infrastructure is ever-increasing, the Bridge community maintains, rehabilitates, and replaces deficient and aging bridge structures and designs new infrastructure to enhance safety, mobility, and economic development, there is a growing need to use new technologies that will provide longer service life at lower costs with the least amount of disturbance to the environment.</p>								

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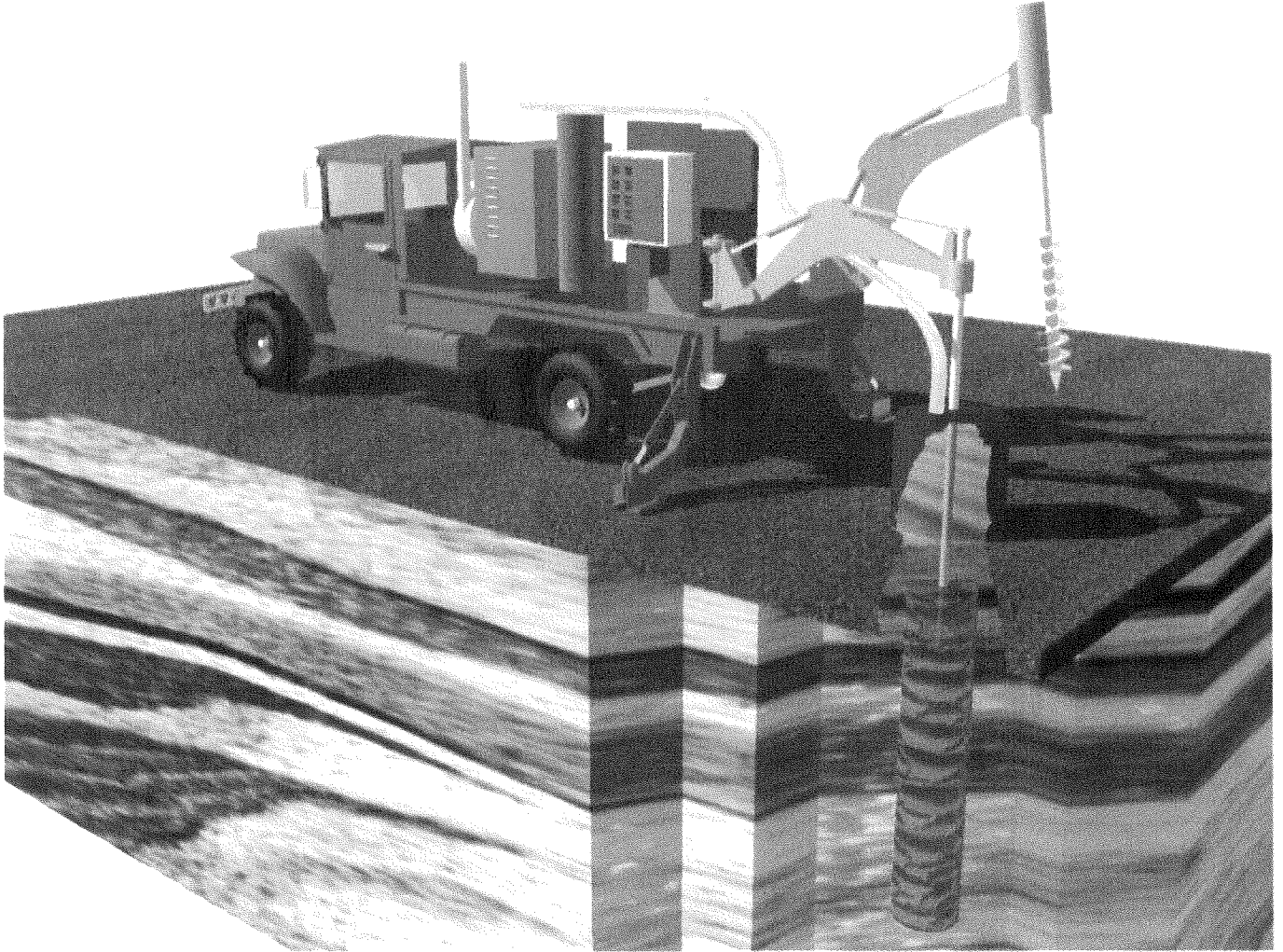
Implementation Potential	10. Please describe what actions another transportation agency would need to take to adopt this technology.
	11. What is the estimated cost, effort, and length of time required for procurement or adoption by another transportation agency?
	12. What organization(s) currently supply and provide technical support for this technology?
	13. Please describe any legal, regulatory, social, intellectual property, or other issues that could affect ease of implementation.
Willingness to Champion	14. Is the sponsoring DOT willing to promote this technology to other states, if partially supported by the AASHTO Task Force on Technology Implementation? X Yes <input type="checkbox"/> No
Date Submitted	15. Date: 8/24/05

16. Please include image(s) of sketches or photographs, if available Image(s) are attached.*

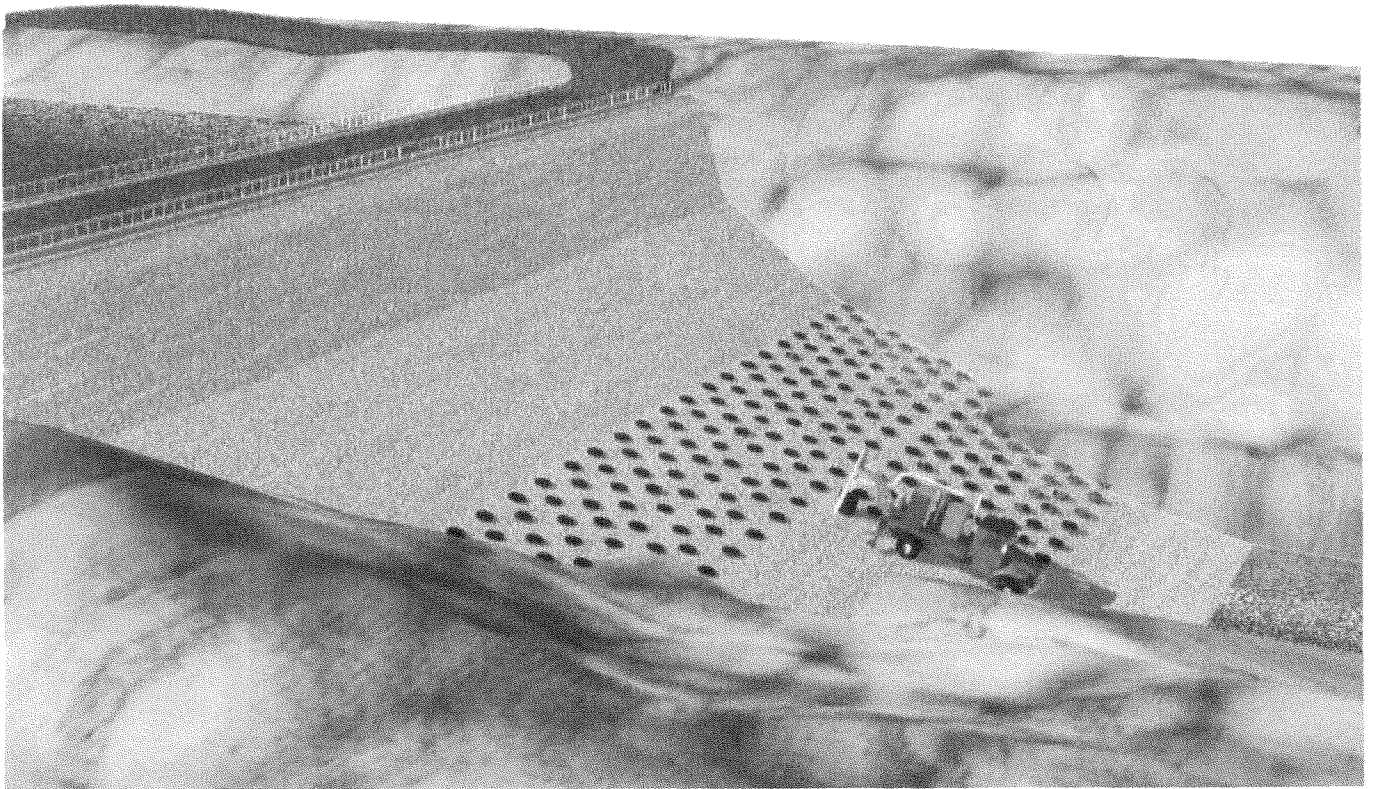
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AASHTO CONTACT	MARTY VITALE ADMINISTRATIVE COORDINATOR FOR ENGINEERING AASHTO	PHONE: 202.624.5862 FAX: 202.624.5469 mvitale@aaashoto.org
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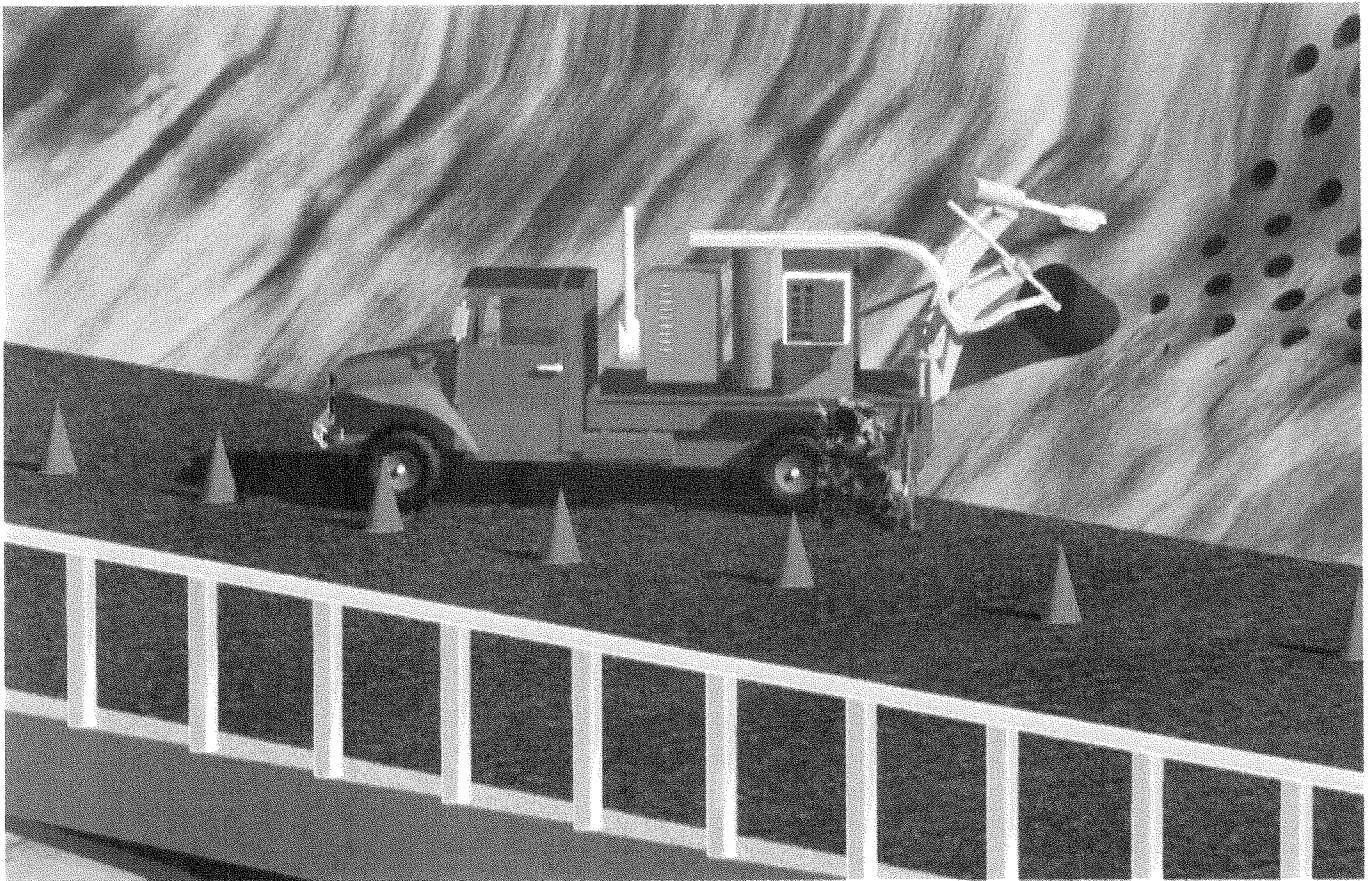
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