FINAL

TECHNICAL MEMORANDUM

FOR

Geotechnical Explorations of Levee System Within the Lower Rio Grande Flood Control Project

DONNA PUMP TO BROWNSVILLE LEVEE

Prepared for:

United States Section, International Boundary & Water Commission

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This document is not to be used for bidding, construction, or permit purposes.

TABLE OF CONTENTS

Page

Section I **PURPOSE OF TECHNICAL MEMORANDUM**

I.1 Introduction / Background ……..…… 1
I.2 Project Description ……..……. 2
I.3 Scope of Work ……..……. 2
I.4 Records / References / Acronyms…… 3

Section II **SAMPLING AND TESTING**

II.1 Field Exploration and Sampling……..4
II.2 Testing ……..…….. 4

Section III **SITE CONDITIONS**

III.1 Levee Characteristics / Area Geology…….. 4
III.2 Subsurface……..……..5
III.3 Groundwater……..…….. 5

Section IV **EVALUATION**

IV.1 General..…….. 6
IV.2 Potential Vertical Rise…..…….. 6

Section V **RECOMMENDATIONS**

V.1 Site Preparation…….. 6
V.2 Selection and Placement of Fill …….. 7
V.3 Settlement Analysis …….. 7
V.4 Slope Stability – General …….. 7
V.5 Construction Services…….. 8
V.6 Limitations……..…….. 8

TABLE OF CONTENTS

Appendix A	**TESTING PROCEDURES / USE OF REPORT**
Appendix B	**SELECT FILL REQUIREMENTS**
Appendix C	**SUMMARY OF SOIL PROPERTIES**
Appendix D	**BORE LOGS**
Appendix E	**UNCONFINED COMPRESSION**
Appendix F	**CONSOLIDATION**
Appendix G	**TRIAXIAL (UU)**
Appendix H	**POTENTIAL VERTICAL RISE**
Appendix I	**BORE COORDINATES**

Section I Purpose of Study

I.1 Introduction / Background

The United States Section of the International Boundary and Water Commission (USIBWC) recently conducted hydraulic and aerial geophysical studies to assess the ability of the United States levees of the Lower Rio Grande Flood Control Project (LRGFCP) to safely contain flood flows in the Rio Grande. From these studies, the USIBWC has determined that certain reaches of the levees require rehabilitation improvements for safe containment of the LRGFCP design flood flows.

The LRGFCP extends from the town of Peñitas, Texas at its upstream end, to 28 miles above the Gulf of Mexico, a distance of about 158 river miles. The LRGFCP has two diversion dams, Anzalduas Dam and Retamal Dam, approximately 17 and 57 river miles below Peñitas, which divert portions of the flood flows into the Main Floodway and the Mexico Floodway, respectively. The LRGFCP was constructed to provide flood protection to urban, suburban, and irrigated lands in the Rio Grande delta in both the United States and Mexico. Each country designed and constructed the portion of the LRGFCP located in its territory.

The USIBWC has developed a workplan to raise levees within the LRGFCP anywhere from 1 to 8 feet in height. That work plan is available at www.ibwc.state.gov. The geotechnical investigations are for the purpose of determining foundation stability for the added loading as well as to evaluate potential for seepage or piping through or below the levee in critical and questionable areas, in preparation for design of the levee rehabilitation projects. These areas have been identified in the US Army Corps of Engineers (USACE) Engineering Research Development Center (ERDC) reports *"Assessment of U.S. International Boundary and Water Commission, LRGV Levees, South Texas"* dated October 2003 and *"Supplement to Condition Assessment of U.S. International Boundary and Water Commission, LRGV Levees"* dated June 2004.

On September 28, 2006 a task order was issued by the USIBWC to S&B Infrastructure, Ltd. (S&B), as Contractor, to prepare a technical memorandum for geotechnical explorations of the existing levee system within the LRGFCP. S&B subcontracted the geotechnical exploration, laboratory testing, and evaluations to TSI Laboratories, Inc. (TSI) out of Victoria, Texas. The following information, along with a Borehole Location Map under separate cover, comprises the Technical Memorandum – Geotechnical Explorations of Levee System within the Lower Rio Grande Flood Control Project for the **Donna Pump to Brownsville Levee**.

I.2 Project Description: Donna Pump to Brownsville Levee

The **Donna Pump to Brownsville Levee** is approximately 67 miles in length (from the Carlson Settling Basin to the Retamal diversion Dam) beginning from 4650 feet west of FM 493 south of Donna near the Las Palomas State Wildlife Park to Brownsville. Encroachment and overtopping information from the 2003 USIBWC hydraulic model for the LRGFCP identify this levee reach as needing to be raised approximately 1 to 3 feet.

I.3 Scope of Work

The work to be performed included geotechnical investigations and evaluations along the alignment of the levee reach. Field work was coordinated with the USIBWC Mercedes Field Office and with the US Fish and Wildlife Service (USFWS). The technical memorandum contains the findings of the geotechnical investigations and evaluations, and also includes a set of location maps (24 inch x 36 inch, scale1 inch = 1,000 feet) under separate cover.

Specific activities and requirements that were performed by the Contractor included the following:

(a) Geotechnical Borings.
The field drilling services for the levee reach included drilling borings at an average spacing of approximately 500 linear feet, altering the spacing where required to drill if anomalies were discovered during the geophysical study. For the **Donna Pump to Brownsville Levee**, this equated to drilling a total of 193 borings along the top of the existing levee. These borings were drilled to depths of approximately 5 feet below the average ground surface elevation of the terrain on both sides of the levee, ranging from 11 to 20 feet below existing top-of-levee grades. If auger refusal was encountered in these borings prior to achieving their intended depths, the borings were terminated 5 feet into rock. All boring locations were accessible to a truck mounted drilling rig.

(b) General Procedures.
In all test borings, ground water level readings were taken upon completion of drilling activities, and the borings were backfilled utilizing auger cuttings generated during drilling operations. Activities did not include, and were not required for, the installation of monitor wells to assess ground water conditions.

All borings were located in the field utilizing tape and right angle measurements from existing benchmarks. Final boring locations were surveyed in the field following completion of the drilling activities.

Standard geotechnical drilling techniques were utilized for all borings. No environmentally sensitive boring sites were included in this scope. Soil cuttings were placed back in the test holes following completion of drilling activities, and therefore containerizing or disposal of the soil cuttings were not be required.

All drilling activities were logged by TSI. Samples were taken using conventional split-spoon and/or Shelby-tube sampling techniques. If auger refusal was encountered, air-rotary and/or mud-rotary drilling techniques were utilized to advance the borings to their final depths, and grab samples were collected from the cuttings. Representative portions of all samples were sealed and packaged for transportation to TSI laboratories.

(c) Laboratory Study.
Upon completion of the subsurface exploration, TSI conducted the following tests to define the strength and classification characteristics of the subsurface soils: moisture content, Atterberg

Limits (plasticity), gradation, unconfined compression, consolidation, and unconsolidated-undrained (UU) triaxial tests.

I.4 References and Definition of Acronyms

The following records and information were reviewed and provided for background:

(a) IBWC Minute No. 238, September 10, 1970, "Improvement of the International Flood Control Works of the Lower Rio Grande"

(b) USIBWC 2003 Hydraulic Study for LRGFCP

(c) USACE ERDC Levee Assessment Data:

(1) LIDAR Point Data

(2) LRGFCP Condition Assessment Plates

(3) *"Assessment of U.S. International Boundary and Water Commission, LRGV Levees, South Texas"*, dated October 2003

(4) *"Supplement to Condition Assessment of U.S. International Boundary and Water Commission, LRGV Levees"*, dated June 2004

Although some acronyms have been defined above, **Table I-1** on the below provides a consolidated summary of terms used throughout this report.

Acronym	Definition
ERDC	Engineering Research Development Center
(H:V)	Slope, horizontal to vertical
LRGFCP	Lower Rio Grande Flood Control Project
psf	pounds per square foot
PVR	Potential Vertical Rise
UU	unconsolidated-undrained
USACE	US Army Corps of Engineers
USFWS	US Fish and Wildlife Service
USIBWC	United States Section, International Boundary and Water Commission

Table I-1: Definition of Terms

Section II Sampling and Testing

II.1 Field Exploration and Sampling

Geotechnical exploration of the **Donna Pump to Brownsville Levee** included 193 soil test borings to depths ranging from 11 to 20 feet below existing top-of-levee grades. Boring locations were determined in the field with preliminary location maps provided by S&B and reviewed by the USIBWC. Boreholes were advanced using solid stem augers, and samples of the materials encountered were obtained by split barrel sampling in conjunction with standard penetration testing. Final elevations and coordinates of each borehole were obtained through field survey, and are located in Appendix I. Bore logs are documented in Appendix D, as well as the Borehole Location Map.

II.2 Testing

Appendix A identifies and summarizes testing procedures used for this technical memorandum; Appendices C, E, F, G, and H include the testing results for soil properties, unconfined compression, consolidation, unconsolidated-undrained (UU) triaxial tests, as well as potential vertical rise, respectively.

Soil samples were examined and visually classified by the samples representative of the various soil strata encountered. TSI supplemented the field investigation with a laboratory testing program for determining additional engineering characteristics of the subsurface soils encountered. The laboratory testing program included visual classification of the soil/rock samples retrieved in general compliance with ASTM D-2488. Selected samples were also tested to determine the natural moisture contents and the Atterberg limits in overall compliance with ASTM D-2216 and D-4318, respectively.

The estimated shear strength values were obtained, in the field, by the use of a calibrated hand penetrometer. The shear strength of the selected cohesive soils were evaluated from unconfined compressive shear strength tests on undisturbed sample in general conformance with ASTM D-2166. Other laboratory tests included consolidation tests and triaxial tests all following the testing standards found in ASTM D-2435 and D-4767, respectively.

The laboratory testing program was conducted in general accordance with applicable ASTM specifications. The samples not altered by laboratory testing, are to be retained for 30 days from the date of the test results and then be discarded. The test results are provided in various appendices attached to this technical memorandum as previously mentioned.

Section III Site Conditions

III.1 Levee Characteristics / Area Geology

During field exploration, the following general observations were reported:

(a) The levees, in general, were in a stable and non-eroded condition;

(b) The top of the levees were found to be used as a gravel roadway;

(c) The levee slopes and adjacent ground cover consisted of grass, native vegetation, small undergrowth, and small bushes;

(d) The existing levee slopes appeared stable with minimal erosion, with a 3:1 (H:V) side slope for most areas.

The *"Geologic Atlas of Texas", McAllen-Brownsville Sheet*, indicates the areas in this reach range from Alluvium Deposits, to Windblown Deposits and Beaumont Formation (Pleistocene) of the Quaternary Period, with mostly clay, silt, sand and gravel; including mainly stream channel, point bar, natural levee, and backswamp deposits; concretions and massive accumulations of calcium carbonate (caliche) and concretions of iron oxide and iron-manganese oxides in zone of weathering. Also, areas of floodplain deposits consisting of mud veneer over meander belt sand, little grain preserved and grass covered.

III.2 Subsurface

The site soils were evaluated by performing various field and laboratory tests on samples recovered during the drilling operations. The types of tests conducted on the subsurface samples are included in the Appendix of this technical memorandum. The soil strata and soil property results of the tests are summarized in Appendix C, and documented on the Bore Logs in Appendix D.

A key to bore log symbols and soil classifications, which defines the terms and descriptive symbols used on each boring log, is also presented in the Appendix D. The above descriptions are generalized to highlight stratification and engineering properties of the soils underlying this site. The bore logs should be consulted for specific information at each boring location.

Variations from the conditions indicated on the Bore Logs could occur between or beyond the boring locations. Also, the stratifications lines indicated on the Bore Logs represent approximate boundaries between soil and rock types and have been estimated based on an examination of the samples and on information from the drillers' field logs. Actual transitions may vary somewhat from the approximate levels shown and could be gradual.

III.3 Groundwater

In relatively pervious soils, like sands, the reported saturated soil condition is considered to be a relatively reliable indicator of groundwater table levels. However, in relatively impervious soils, water levels observed in the test borings, even after several days, may not provide reliable indications of groundwater table elevations; therefore, water levels at later times could be different from those observed during the subsurface exploration. It is noted that groundwater levels will fluctuate with seasonal climatic variations; however, groundwater is not a factor affecting levee design or construction at this site.

Section IV Evaluation

IV.1 General

The stiff to firm to hard clay soil mixtures underlying this site are strong, moderate to highly expansive soils that are competent to support the proposed levee system rehabilitation improvements. A surcharge load (due to heavy construction machinery) at the top of the levee is assumed to be in the range of 250 pounds per square foot (psf). TSI understands that the existing flood control levee system will consist of raising the top of levee elevation from approximately 1 to 3 feet in height, with side slopes at about 3:1 (H:V) and matching the existing levee slopes. Based on this information, the ultimate levee shape would be trapezoidal (16 feet wide on top, and approximately 64 feet wide on the bottom. Recommendations for site preparation, levee design, and construction are presented in the following section.

IV.2 Potential Vertical Rise

Potential vertical soil movements have been estimated using the Texas Department of Transportation method TEX-124-E, Potential Vertical Rise (PVR). This method utilizes the soils in-situ moisture conditions and plasticity characteristics within the active zone. It is estimated that depth of the active zone at this site is approximately 15 feet below natural grades. The estimated PVR values are identified in Appendix H. A sustained surcharge load of 1 pound per square inch is assumed to be supplied as a sustained live load in the PVR calculations. It is noted that the PVR estimates are provided as an indicator of the severity of potential soil movements at this site and are not intended as a prediction of actual soil foundation movements.

Section V Recommendations

All recommendations are based on knowledge of the area; however, the project design team should specify actual construction requirements. As presented at the beginning of this technical memorandum, based on information provided, it is understood that the embankments will be raised a maximum of approximately 3 feet in height and that the side slope will be constructed to match the existing slopes which appear to be 3:1 (H:V), unless a steeper slope is required due to other requirements and/or limitations. If required due to height increase and slope requirements, the USIBWC levee footprint will be expanded. These levee slope conditions will keep the levee in a general trapezoidal shape. During flood conditions it is anticipated that there will be a minimum of 3 feet of freeboard after the levee rehabilitation is completed.

V.1 Site Preparation

Site preparation should consist, initially, of clearing and the stripping of vegetation, loose soil materials, and any materials containing significant organic material from any site areas to be improved. More than ten percent by volume is considered organic material.

After levee site preparation, the exposed subgrade should be proof rolled with appropriate construction equipment weighing at least 15 tons. The purpose of this recommendation is to check the supporting soils for weak or soft areas prior to fill placement and compaction. The exposed subgrade should then be moisture conditioned between two (2%) percentage points below and four (4%) percentage points

above the optimum moisture content and be compacted to at least ninety-five (95%) percent of the maximum dry density determined per ASTM D698. This operation should be observed and evaluated by qualified geotechnical personnel experienced in earthwork operations.

If weak or soft areas are evidenced during proof rolling operations, the soil in the subject area should be removed to expose competent subgrade soils in both horizontal and vertical limits. The excavated soils, provided they are not contaminated with deleterious materials, or clean imported fill soils can be used to restore grade at these isolated areas; any imported fill should meet the requirements for select embankment fill. The fill requirements and compaction should be in accordance with recommendations found in Appendix B.

V.2 Selection and Placement of Fill

Fill materials, where needed or desired, should be low to moderate plasticity sandy clay soil mixtures or imported clayey sand, or mixtures of clay/sand/ and gravel. Recommended fill specifications are included in Appendix B and these may be used as a guide for the placement of fill and for pavement construction. All select fill materials should have a plasticity index ranging from twelve to eighteen percent (12% ~ 18%).

Particular attention should be given to maintaining the proper moisture content during compaction and to preventing the fill from drying before subsequent lifts are placed. Levee subgrade preparation should include rough grading prior to fill placement for proper drainage control and establishing final finish grade elevations.

V.3 Settlement Analysis

The deep penetration of vertical pressure (due to the levee heights above natural grade) could cause excessive consolidation of soft soil layers at a considerable depth below the foundation even though a relatively low unit surcharge load is used. Settlement of saturated cohesive soils is the summation of (a) immediate settlement, (b) consolidation settlement, and (c) secondary compression. Thus, as loads are applied, the immediate settlement occurs, when excess pore pressures generated by the loads are dissipated you have consolidation settlement, and secondary compression is basically controlled by the composition and structure of the soil skeleton and is usually small compared to the consolidation settlement.

Settlement analyses have been performed on the basis of the *e-log p* curves in conjunction with the consolidation test results to determine the theoretical primary consolidation settlement of the proposed mat foundations. It is determined that long term settlement is very limited due to the maintenance equipment live loads of 250 psf.

V.4 Slope Stability - General

The term ‘slope stability’ as previously stated in the USACE ERDC report defined the term as “the ability of a levee to maintain its integrity with few signs of distress …” This is quite evident in TSI’s experience in investigating distressed states of slope failure for different projects. Basically, the failure of a mass of soil on a failed slope is termed a slide and is caused by the downward and lateral movement of the entire mass of soil that has been compromised and has lead to the failure. There

exists many modes of conceivable failures or slides, many times it is a slow process and many times it occurs suddenly; and which may occur with or without any apparent incitement or provocation.

Typically, the excavation or soil removal of the toe or foot of the existing slope causes slides; however, for many instances it is the gradual disintegration of the soil structure itself. It usually begins with the hairline cracks that further subdivide the soil structure into larger angular fragments, while in others it is a direct cause by the increase in pore-water pressure, or in other instances it is related to an external shock force that liquefies the soil.

There exists a large variety of conditions for slope stability that often times it defies the theoretical analysis performed; therefore, the stability computations based on test results can only be relied upon when all conditions of the slope stability computations are satisfied. There are always undetected anomalies in the soil, such as old remnants of sliding, hairline cracks, or thin water-bearing seams of sand, which will disqualify the slope stability computation results..

V.5 Construction Services

It is recommended that a professional geotechnical laboratory be retained to provide soil-testing services during grading and levee rehabilitation construction activities. Services would include observations for compliance with the plans, specifications, and geotechnical recommendations and to incorporate design changes if the subsurface conditions differ from those anticipated before construction.

V.6 Limitations

The evaluation and recommendations submitted in this report are based, in part, upon the information obtained from the 193 soil borings drilled for this levee reach. The nature and extent of variations in the soil conditions between or beyond the borings and excavations may not become evident until actual construction.

The transition lines shown on the boring logs are approximate and the actual transitions may be gradual. If changes in nature or design of the project are planned, the conclusions and recommendations in this report should be reviewed by a soils engineer and, if necessary, modified. Soil samples not altered by laboratory testing will be retained for a period of 30 days and then, unless otherwise directed, will be discarded.

This report has been prepared for the exclusive use of the USIBWC and their design team for specific application to the **Donna Pump to Brownsville Levee** for the LRGFCP in Hidalgo County, Texas according to accepted foundation-engineering practices. No other warranty, expressed or implied, is made. Additional information regarding the uses and limitations of geotechnical engineering reports is included in the Appendix A.

APPENDIX A
Field and Laboratory Testing and Use of Geotechnical Reports

APPENDIX A
Field and Laboratory Testing Procedures and Use of Geotechnical Reports

I. Field Testing

A. Boring Procedure Between Samples

The borehole is extended downward, between samples, by continuous flight, hollow or solid stem augers or by rotary drilling techniques using bentonite drilling fluid or water.

B. Penetration Test and Split-Barrel Sampling of Soils (ASTM D-1586)

This sampling method consists of driving a 2-inch outside diameter split barrel sample using a 140 pound hammer freely falling through a distance of 30 inches. The sampler is first seated 6 inches into the material to be sampled and then driven an additional 12 inches. The number of blows required to drive the sampler the final 12 inches is knows as the Standard Penetration Resistance. Recovered samples are first classified as to color and texture by the driller. Later, in the laboratory, the driller's field classification is reviewed by the soils engineer who examines each sample.

C. Thin-walled Tube Geotechnical Sampling of Soils (ASTM D-1587)

This method consists of pushing thin walled steel tubes, usually 3 inches in diameter, into the soils to be sampled using hydraulic or other means. Cohesive soils are usually to be sampled in this manner and relatively undisturbed samples are recovered.

D. Soil Investigation and Sampling by Auger Borings (ASTM D-1452)

This method consists of augering a hole and removing representative soil samples from the auger flight or bit at 5 foot intervals or with each change in the substrata. Disturbed samples are obtained and this method is, therefore, limited to situations where it is satisfactory to determine the approximate subsurface profile.

E. Diamond Core Drilling for Site Investigation (ASTM D-2113)

This method consists of advancing a hole into hard strata by rotating a single or double tube core barrel equipped with a cutting bit. Diamond, tungsten carbide, or other cutting agents may be used for the bit. Wash water is used to remove the cuttings and to cool the bit. Normally, a 2 inch outside diameter by 1-3/8 inch inside diameter (NX) coring bit is used unless otherwise noted. The rock or hard material recovered within the core barrel is examined in the field and in the laboratory and the cores are stored in partitioned boxes. The core recovery is the length of the material recovered and is expressed as a percentage of the total distance penetrated.

F. Visual – Manual Soil Classification Procedure (ASTM D-2488)

This procedure is a visual – manual soil classification methodology for the description of soil for engineering purposes when precise soil classification is not required.

II. Laboratory Testing

A. Particle Size Analysis of Soils (ASTM D-422 and TEX 110-E)

Atterberg Limits determine the soil's plasticity characteristics. The soil's Plasticity Index (PI) is representative of this characteristic and is the difference between the Liquid Limit (LL) and the

APPENDIX A
Field and Laboratory Testing Procedures and Use of Geotechnical Reports

Plastic Limit (PL). The LL is the moisture content at which the soil will flow as a heavy viscous fluid. The PL is the moisture content at which the soil begins to lose its plasticity. The test results are presented on the boring logs adjacent to the appropriate sampling information.

B. Particle Size Analysis of Soils (ASTM D-422 and TEX 110-E)

Grain size analysis tests are performed to determine the particle size and distribution of the samples tested. The grain size distribution of the soils coarser than the Standard Number 200 sieve was determined by passing the sample through a standard set of nested sieves.

C. Laboratory Determination of Water (Moisture) Content of Soil and Rock (ASTM D-2216 and TEX 103-E)

The moisture content of soil is defined as the ratio, expressed as a percentage, of the weight of water in a given soil mass to the weight of solid particles. It is determined by measuring the wet and oven dry weights of a soil sample. The test results are presented on the boring logs.

D. Unconfined Compressive Strength and Cohesive Soil (ASTM D-2166)

The unconfined compressive strength of soil is determined by placing a section of an undisturbed sample into a loading frame and applying an axial load until the sample fails in shear. The test results are presented on the boring logs adjacent to the appropriate sampling information.

E. California Bearing Ratio (CBR) of Lab Compacted Soils (ASTM D-1883)

The CBR test is performed by compacting soil in a six inch diameter mold at the desired density, soaking the sample for four days under a surcharge load approximating the pavement weight and then testing the soils in punching shear. A two inch diameter piston is forced into the soil to determine the resistance to penetration. The CBR is the ratio if the actual load required to produce 0.1 inches of penetration to that producing the same penetration in a standard crushed stone.

F. Swell Test (ASTM D-4546)

The swell test is performed by confining a one inch thick specimen in a 2-1/2 inch diameter stainless steel ring and loading the specimen to the approximate overburden pressure. The test specimen is then inundated with distilled water and allowed to swell for forty-eight hours. The volumetric swell is measured as a percentage of the total volume and is converted mathematically to linear swell.

G. Compaction (ASTM D-698, D-1557, TEX 113-E or 114-E)

The compaction test is performed by compacting soil in a steel mold at varying moisture contents. Layers are compacted using a hammer weight and number of blows per layer which vary with the different test procedures, ASTM D-698, D-1557, TEX 113-E and 114-E. The data is plotted and the maximum unit weight and optimum moisture content determined. The test results are given in the appendix with a notation of the test method used.

H. Classification of Soils for Engineering Purposes (Unified Soil Classification System, D-2487)

This standard describes a system for classifying mineral and organo-mineral soils for engineering purposes based on Laboratory determination of particle-size characteristics, LL, and PI and shall be used when precise classification is required.

APPENDIX A
Field and Laboratory Testing Procedures and Use of Geotechnical Reports

III. Use of Geotechnical Reports

The following observations and suggestions are provided to assist in the utilization of this geotechnical engineering report and to reduce construction problems and delays related to the soil and groundwater conditions.

A. Report Is Based Upon Specific Site And Project

A geotechnical report is based on a subsurface exploration conducted on a specific site and planned using specific project information. The project information typically includes structure size and configuration, type of construction, and general location on the site. Limitations, such as existing buildings or utilities, specific foundation requirements for the structures, budget limitations, and the level of risk assumed by the client may affect the scope of the exploration.

Since the report applies to a specific structure and site, the geotechnical report should not be used in the following circumstances unless the geotechnical engineer has reviewed the changes and concurs in the use of the report:

- When the nature of the proposed structure changes;
- When the size, configuration, or elevation is changed;
- When the location of the structure on the site is changed; and,
- When there is a change of ownership

B. Findings Are Professional Estimates

The actual subsurface conditions are determined only at the boring locations and only at the time the samples are taken. The information is extrapolated by the geotechnical engineer who then renders professional opinions regarding the characteristics of the subsurface materials, the behavior of the soils during construction, and appropriate foundation designs. No exploration, however complete, can be assured of sampling the entire range of soil conditions. The soils may vary between or beyond the borings and stratum transitions may be more gradual or more abrupt, and all types of oils and rock existing on the site may not be found in the borings. The geotechnical engineer is often retained during construction to evaluate variances and recommend solutions to problems encountered on the site.

C. Subsurface Conditions Can Change

Grading operations on or close to the site, floods, groundwater fluctuations, utility construction, and utility leaks are among the events which can change the subsurface conditions. The geotechnical engineer should be kept appraised of such events.

D. Geotechnical Services Are Performed For Specific Purposes And Persons

A geotechnical report may have been made to evaluate foundation alternatives only, for preliminary site evaluation, or for other limited purposes. The exploration may also have been limited by the direction of the client, budget limitations, or the level of risk assumed by the client. Therefore, no one other than the original client should use the report for its intended purpose or other purposes without conferring with the geotechnical engineer.

APPENDIX A
Field and Laboratory Testing Procedures and Use of Geotechnical Reports

E. Geotechnical Reports Are Subject To Misinterpretation

Geotechnical reports are based on the project information available at the time the report was made and the judgment and opinions of the geotechnical engineer. This specialized information is subject to misinterpretation by other design professionals, contractors and owners. The geotechnical engineer should be retained during the design process to interpret the recommendations and review the adequacy of the plans and specifications relative to geotechnical issues. The boring logs should not be separated from the geotechnical report but, rather, the entire report should be made available to the contractors and others needing this information.

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APPENDIX B
Select Fill Requirements

APPENDIX B
Recommendations for Placement of Select Fill

I. General

The soils engineer should be the owner's representative to control the placement of compacted fill. The soils engineer should approve the subgrade preparation, the fill materials, the method of placement and compaction, and provide written approval of the complete fill.

II. Preparation of Existing Ground

All topsoil, plants and other organic material shall be removed. The exposed surface shall be scarified, moistened if necessary, and compacted in the manner specified for subsequent layers of fill.

III. Select Fill Material

Fill shall have a Liquid Limit (LL) of 37 or less and a Plasticity Index (PI) ranging from twelve to eighteen percent (12% ~ 18%). The fill shall contain no organic or other perishable material, and no stones larger than six (6) inches. Fill material should be approved by the soils engineer.

IV. Placing Select Fill

Fill materials shall be placed in horizontal layers not exceeding eight (8) inches thickness after compaction. Successive loads of material shall be dumped so as to secure even distribution, avoiding the formation of layers of lenses of dissimilar materials. The contractor shall route his hauling equipment to distribute travel evenly over the fill area.

V. Compaction of Select Fill

A. Moisture Control: The moisture content of the fill material shall be distributed uniformly throughout each layer of the material. The allowable range of moisture content during compaction shall be within plus two (+2) and minus two (-2) percentage points of the optimum moisture content. The contractor may be directed to add necessary moisture to the material either in the borrow area or upon the fill surface or to dry the material, as directed by the soils engineer. The drying of cohesive soils between lifts to moisture contents less than seventy percent (70%) of optimum before the placement of subsequent lifts shall be avoided or the fill reworked at the proper moisture content.

B. Compaction: The material in each layer shall be compacted to obtain proper densities. Compaction by the hauling equipment alone will not be considered sufficient. Structural fills, including subgrade, subbase and base, shall be compacted to densities equivalent to the percentages of the Standard Proctor (ASTM D-698) or the Modified Proctor (ASTM D-1557) maximum dry density listed in Table B-1 on the next page. The Texas Department of Highways and Public Transportation Method TEX 113-E or TEX 114-E compaction test, which varies the compactive effort with soil type, may be substituted for the Standard or Modified Proctor methods and the percentages listed in Table B-1 used.

Soils classified as coarse grained soils are those with more than fifty (50) percent, by weight, retained on the No. 200 Standard Sieve.

APPENDIX B
Recommendations for Placement of Select Fill

	PERCENT COMPACTION	
AREA	**Fine-Grained Soils ASTM D-698 (Standard) Or TEX 114-E**	**Coarse-Grained Soils ASTM D-1557 (Modified) Or TEX 114-E**
Within five (5) feet of building lines, under footings, floors slabs, slab-on-grade foundations and structures attached to the buildings (i.e. walls, patios, steps).	95%	95%+
More than five (5) feet beyond building lines, under walks, and fill areas to be landscaped.	90%	90%
Levee structure, pavement subgrade and subbase, including lime-treated soils.	95%	95%+
Flexible Base	N/A	98%

Table B-1

VI. Comparison Testing

Field density tests for the determination of the compaction of the fill should be performed by the geotechnical engineer in accordance with recognized procedures for making such tests. A representative number of tests shall be made in each compacted lift at locations selected by the soils engineer or his representative. For general structural and paving fills, one test per 3,000 square feet per lift with a minimum of three tests per lift is suggested.

APPENDIX C
Soil Properties Summary

APPENDIX C
Soil Properties Summary

Bore	Depth	Description	%w	LL	PL	PI	LI	Cc	Cr	Void Ratio e	C	Φ	γ (ave)	-200
B1	3	CL-ML	12	22	16	6	-0.67							75
B1	7	CL	18	38	24	14	-0.43				2.60		102	96
B1	10	CL	19	47	24	23	-0.22	0.21	0.04	0.76				98
B2	0 - 6	CL				0								
B2	7	CL-ML	10	28	23	5	-2.60							
B2	9	CL	14			0							104	
B3	3	CL	12	36	23	13	-0.85							98
B3	7	CL	26			0							98	
B3	9	CL	20			0							97	
B3	11	CL	17	36	20	16	-0.19	0.21	0.04	0.76			107	
B4	3	CH	14	56	23	33	-0.27							99
B4	5	CL	5	28	20	8	-1.88							86
B4	11 - 13	ML				0								
B5	0 - 8	CL				0								
B5	9	ML	9	29	27	2	-9.00							99
B6	1	CL	14	45	24	21	-0.48							91
B6	5	CL	11	40	17	23	-0.26							99
B6	6 - 11	SC				0								
B7	5	CL	15	48	16	32	-0.03							95
B7	11	CH	21	61	22	39	-0.03							100
B8	5	CL	12	40	19	21	-0.33							55
B8	7	CL	22			0				0.66			102	
B8	9	CL	18	47	21	26	-0.12							95
B9	7	CL	13	44	18	26	-0.19							99
B10	5	CL	10			0								81
B10	7	CL	19			0				0.61			105	
B10	9	CL	18	40	20	20	-0.10			0.62			104	98
B10	11	CL	21			0		0.29	0.05	0.70			100	
B11	3	CH	25	58	24	34	0.03				3.80		96	100
B11	9	CL	21	36	16	20	0.25			0.58			107	89
B12	3	CH	21	57	13	44	0.18				6.40		103	95
B12	7	CH	23			0				0.64			104	
B12	9	CH	22			0		0.30	0.07	0.77			96	
B12	12	CH	27	51	21	30	0.20			0.79			94	100
B13	7	CH	18	51	21	30	-0.10			0.73			98	100
B13	9	ML	6	23	22	1	-16.00							80
B14	5	CL	14	31	20	11	-0.55							91
B14	9	CL	18	29	13	16	0.31							98
B15	7	CL	15	36	13	23	0.09							98
B15	14	CL	26	47	22	25	0.16			0.77			95	96
B16	3	CL	13	32	23	9	-1.11							96

APPENDIX C
Soil Properties Summary

Bore	Depth	Description	%w	LL	PL	PI	LI	Cc	Cr	Void Ratio e	C	Φ	γ (ave)	-200
B16	9	CL	9	33	17	16	-0.50							97
B17	5	CL	15	32	18	14	-0.21							99
B17	9	CH	24	67	25	42	-0.02							99
B17	13	CH	22			0		0.19	0.05	0.65			104	
B18	5	CL	22	32	19	13	0.23							99
B18	9	CL	24	35	18	17	0.35							99
B18	15	CH	23			0				0.67			101	
B19	3	CL	12	36	22	14	-0.71							96
B19	9	CL	27	40	22	18	0.28							100
B19	13	CL	27			0				0.77			95	
B20	1	CL	17	41	20	21	-0.14							99
B20	7	CL	19			0					3.10		98	98
B20	16	CL	28			0		0.28	0.07	0.79			95	
B21	0 - 4	CL				0								
B21	5	CH	25	54	21	33	0.12			0.71			98	98
B21	9	CL	19	31	16	15	0.20							92
B21	12	CH	27	57	26	31	0.03							100
B21	16	CL	27	43	23	20	0.20							98
B22	0 - 4	CL				0								
B22	5	CH	23	53	21	32	0.06			0.75			96	97
B22	7	CL	17	42	18	24	-0.04							98
B22	17	CH	30	58	22	36	0.22			0.83			92	100
B23	3	CL	15	49	21	28	-0.21							98
B23	9	CL	26			0				0.79			94	
B23	13	CL	25			0				0.73			99	
B23	16	CL	25	44	18	26	0.27	0.22	0.03	0.79			95	100
B24	7	CL	21	38	16	22	0.23							99
B24	9	CL	18			0							103	
B24	16	SM	28	26	26	0								37
B25	5	CL	11	31	13	18	-0.11							
B25	9	CL	15	33	16	17	-0.06							99
B25	14 - 16	SM				0								
B26	3	CL	15	36	22	14	-0.50							98
B26	15	CL	33	30	18	12	1.25							97
B27	7	CL	15	29	15	14	0.00							95
B27	12	CL	25	32	21	11	0.36							100
B27	14 - 16	SM				0								
B28	3	CL	16	35	18	17	-0.12							98
B28	9	CL	15	28	19	9	-0.44							89
B28	12	CL	18			0		0.10	0.02	0.61			106	
B28	14 - 16	CH	29	52	21	31	0.26			0.81			93	90
B29	0 - 4	CL				0								
B29	5	CH	27	61	38	23	-0.48						93	99

APPENDIX C
Soil Properties Summary

Bore	Depth	Description	%w	LL	PL	PI	LI	Cc	Cr	Void Ratio e	C	Φ	γ (ave)	-200
B29	7	CH	28			0				0.78			95	
B29	9	CH	26	65	24	41	0.05							100
B29	11	CH	28			0				0.80			95	
B30	1	CL	14	42	20	22	-0.27							98
B30	11	CH	30	60	24	36	0.17			0.83			92	100
B30	13	CH	29			0		0.26	0.06	0.86			92	
B31	9	CL	25	44	20	24	0.21			0.75			96	99
B31	14	CL	32	39	18	21	0.67							99
B32	5	CL	19	35	17	18	0.11							91
B32	12	CL	26			0				0.83			92	
B33	3	CL	17	32	16	16	0.06							97
B33	9	CL	20	33	20	13	0.00							97
B34	3	CL	21	44	19	25	0.08				2.80		97	95
B34	5	CL	25			0				0.75			96	
B34	7	CL	22	35	19	16	0.19							96
B34	12	CL	26	44	20	24	0.25			0.72			98	99
B34	15	CL	27			0		0.24	0.04	0.78			96	
B35	3	CL-ML	13	26	21	5	-1.60							96
B35	5	CH	28	59	23	36	0.14			0.86			91	100
B35	9	CL	26	34	24	10	0.20			0.86			91	98
B35	15	CL	31	38	21	17	0.59							99
B36	7	CL	20	28	16	12	0.33							94
B37	0 - 4	CL				0								
B37	5	CH	16	71	33	38	-0.45				1.90		98	96
B37	9	CL	17	25	16	9	0.11							78
B37	15	CH	26	51	20	31	0.19			0.70			99	100
B38	1	CL	16	31	19	12	-0.25							98
B38	5	CL	23			0				0.66			101	
B38	9	CL	23			0				0.67			102	
B38	12	CL	23	39	21	18	0.11							98
B38	15	CL	26			0		0.19	3.04	0.75			98	
B39	7	CL	27			0				0.92			88	
B39	12	CL	22	41	16	25	0.24							96
B39	15	CL	28	30	22	8	0.75							99
B40	3	CL	16	35	19	16	-0.19							97
B40	7	CL	23	45	27	18	-0.22			0.65				97
B40	9	CL	23			0							102	
B41	3	CL	14	35	18	17	-0.24							95
B41	9	CL	22	42	19	23	0.13			0.77			95	99
B41	14	CL	23	28	8	20	0.75							80
B41	17	CL	23			0				0.70			99	
B42	5	CL	13	28	18	10	-0.50							86
B42	14	CL	22	35	16	19	0.32							97

APPENDIX C
Soil Properties Summary

Bore	Depth	Description	%w	LL	PL	PI	LI	Cc	Cr	Void Ratio e	C	Φ	γ (ave)	-200
B42	17	CH	24	58	23	35	0.03							100
B43	9	CL	13	33	16	17	-0.18							83
						0								
B44	1	CL	9			0								83
B44	5	CH	23	55	24	31	-0.03							99
B44	7	CH	22	54	24	30	-0.07				2.70		90	
B44	9	CH	27			0				0.79			94	
B44	14	CH	27	71	28	43	-0.02	0.22	0.04	0.83			93	100
B44	18	CH	28			0				0.89			90	
B45	5	CL	16	45	19	26	-0.12							96
B45	7	CH	21	66	24	42	-0.07			0.71			99	100
B45	14	CH	28			0				0.82			93	
B45	18	CH	29	69	32	37	-0.08							100
B46	3	CL	11	40	21	19	-0.53							96
B46	9	CL	11			0								87
B46	18	CH	30	62	22	40	0.20			0.83			92	100
B47	7	CL	11	34	19	15	-0.53							93
B47	14	CL	19	47	19	28	0.00							99
B47	18	CL	29			0				0.86			92	
B48	3	CL	13	49	20	29	-0.24							95
B48	14	CL	14	43	21	22	-0.32							98
B48	18	CH	30			0				0.88			90	
B49	7	CL	20	43	20	23	0.00							97
B49	9	CL	21			0				0.64			103	
B49	14	CL	25			0		0.20	0.04	0.75			98	
B49	19	CL	25	49	17	32	0.25			0.69			100	100
B50	5	CL	15	39	21	18	-0.33							98
B50	9	CH	22	55	22	33	0.00			0.64			103	99
B50	15	CH	21	56	21	35	0.00			0.73			97	100
B51	7	CL	18	37	16	21	0.10							99
B51	9	CL	17	45	19	26	-0.08			0.54			109	97
B52	3	CL	14	42	23	19	-0.47							99
B52	7	CL	18	46	18	28	0.00			0.66			101	94
B52	9	CL	21			0		0.25	0.05	0.67			102	
B52	14	CL	18			0				0.60			105	
B53	0 - 6	CL				0								
B53	7	CH	20	51	22	29	-0.07				3.10		99	97
B53	9	CH	19			0				0.64			103	
B53	16	CH	27	56	25	31	0.06							98
B54	0 - 6	CL				0								
B54	7	CH	19	53	19	34	0.00							99
B54	9	CH	21			0				0.65			102	
B54	14	CL	22	48	24	24	-0.08							97
B54	16	CL	25			0				0.72			98	

APPENDIX C
Soil Properties Summary

Bore	Depth	Description	%w	LL	PL	PI	LI	Cc	Cr	Void Ratio e	C	Φ	γ (ave)	-200
B55	5	CL	19	48	20	28	-0.04							96
B55	7	CL	22			0				0.76			96	
B55	9	CL-ML	16	24	17	7	-0.14							86
B55	16	CL	20	33	15	18	0.28							97
B56	3	CL	11	30	15	15	-0.27							92
B56	7	CH	22	50	19	31	0.10			0.77			96	100
B56	13 - 18	CL				0								
B57	3	CL	11	34	17	17	-0.35							95
B57	7	CH	23	53	21	32	0.06							99
B57	9	CL	24			0				0.80			95	
B57	14	CL	26			0		0.27	0.05	0.79			95	
B57	16	CL	24	46	19	27	0.19			0.65			102	97
B58	7	CL	19	34	22	12	-0.25							97
B58	14	CL	26			0				0.75			96	
B58	17	CL	28	34	16	18	0.67							99
B59	3	CL	17	40	20	20	-0.15							98
B59	13	CL	34	32	22	10	1.20							100
B60	5	CL	11	24	16	8	-0.63							86
B60	7	CL	26	49	19	30	0.23			0.78			95	100
B60	9	CL	27	35	22	13	0.38							99
B61	3	CL	16	34	18	16	-0.13							88
B62	5	CL	23	44	19	25	0.16							98
B62	7	CL	30	32	18	14	0.86							98
B62	9	CL	23			0							101	
B62	14	CL	31	48	21	27	0.37							100
B63	0 - 2	CL				0								
B63	3	CH	23	61	26	35	-0.09				2.80		95	100
B63	7	CL	27			0		0.21	0.03	0.82			94	
B63	9	CL	25	31	20	11	0.45			0.76			99	86
B64	0 - 2	CL				0								
B64	3	CL-ML	18	31	27	4	-2.25							93
B64	7	CL	27	35	17	18	0.56							89
B64	9	CL	24			0							96	
B64	11	CL-ML	36	28	24	4	3.00							96
B65	1	CL	8	31	18	13	-0.77							83
B65	9	CL	18	43	19	24	-0.04							98
B66	0 - 4	CL				0								
B66	5	CH	19	60	20	40	-0.03							100
B66	7	CH	23			0				0.64			103	
B66	9	CH	23			0		0.15	0.03	0.67			102	
B66	11	CL	23	44	18	26	0.19			0.63			103	100
B67	5	CL	15	33	18	15	-0.20							98
B67	9	CL	20			0				0.60			106	
B67	12	CL	20	42	20	22	0.00							100

APPENDIX C
Soil Properties Summary

Bore	Depth	Description	%w	LL	PL	PI	LI	Cc	Cr	Void Ratio e	C	Φ	γ (ave)	-200
B68	0 - 6	CL				0								
B68	7	CL-ML	10	29	22	7	-1.71							97
B68	9	CL	10	28	16	12	-0.50							98
B68	13	SM	17	20	20	0								44
B69	5	CL	16	47	17	30	-0.03							100
B69	14	CH	9	64	29	35	-0.57							100
B70	5	CL	19	41	19	22	0.00							100
B71	3	CL	20	48	20	28	0.00							100
B71	5	CL	23	42	17	25	0.24						98	98
B71	7	CL	25	41	21	20	0.20							98
B71	10	CL	24	32	20	12	0.33	0.29	0.03	0.85			92	
B72	3	CL	16	36	21	15	-0.33				2.90		97	98
B72	7	CL	22			0				0.69			101	
B72	9	CL	21	40	29	11	-0.73							100
B72	12	CL	20			0				0.62			104	
B73	7	CL	23	44	19	25	0.16			0.74			97	99
B73	12	CL	20			0				0.75			96	
B74	3	CL	17	46	26	20	-0.45							99
B74	7	CH	20			0				0.77			95	
B74	9	CH	18	52	19	33	-0.03				2.90		98	100
B74	14	CH	27			0				0.73			97	
B75	3	CH	15	54	18	36	-0.08							99
B75	7	CH	19			0				0.71			99	
B75	9	CH	20	52	17	35	0.09							99
B75	14	CH	25			0				0.69			100	
B76	5	CL	13	42	21	21	-0.38							98
B76	9	CL	15	49	19	30	-0.13							98
B76	17	CL	20			0				0.59			106	
B77	0 - 8	CL				0								
B77	9	CH	17	55	19	36	-0.06							98
B77	14	CH	23			0				0.70			99	
B77	17	CL	21	49	20	29	0.03			0.65			102	97
B78	0 - 2	CL				0								
B78	7	CH	20	59	20	39	0.00							99
B78	9	CH	21			0		0.26	0.05	0.77			96	
B78	14	CH	22			0				0.64			103	
B79	3	CH	17	55	21	34	-0.12							99
B79	9	CH	16	57	20	37	-0.11				4.00		99	99
B79	14	CH	21			0				0.67			102	
B80	0 - 2	CL				0								
B80	5	CH	21	53	22	31	-0.03							100
B80	7	CH	23			0				0.64			103	
B80	11	CL	24	47	20	27	0.15			0.68			101	95

APPENDIX C
Soil Properties Summary

Bore	Depth	Description	%w	LL	PL	PI	LI	Cc	Cr	Void Ratio e	C	Φ	γ (ave)	-200
B81	3	CH	15	53	25	28	-0.36							99
B81	7	CH	18	56	22	34	-0.12				2.40		98	
B81	9	CL	22	45	19	26	0.12			0.68			100	100
B81	13	CL	20			0							102	
B82	3	CH	17	58	22	36	-0.14							100
B82	9	CH	22			0				0.68			100	
B82	11	CH	19	53	21	32	-0.06							99
B82	13	CH	21			0				0.67			101	
B83	5	CL	19			0				0.53			110	
B83	7	CL	17	34	19	15	-0.13							92
B83	9	CL	18			0				0.64			103	
B84	3	CL	18	40	18	22	0.00							95
B84	7	CL	21	36	17	19	0.21							96
B84	12	CL	23	36	18	18	0.28			0.64			103	97
B85	5	CL	14	37	17	20	-0.15							99
B85	13	CL	21	31	19	12	0.17							89
B86	0 - 4	CL				0								
B86	9	CL-ML	31	28	22	6	1.50							98
B86	12	CL-ML	31			0		0.30	0.06	0.93			88	
B87	5	CL	12	39	21	18	-0.50							97
B87	11	CL	20	46	18	28	0.07							99
B88	3	CH	18	51	15	36	0.08				4.80		94	99
B88	7	CH	20			0		0.28	0.06	0.67			102	
B88	11	CH	23	50	26	24	-0.13							100
B89	1	CL	10	41	21	20	-0.55							97
B89	7	CH	24	57	24	33	0.00			0.83			92	100
B89	13	CH	24	52	22	30	0.07			0.93			88	100
B90	3	ML	8	21	19	2	-5.50							80
B90	7	CH	21	60	22	38	-0.03			0.63	4.10		95	66
B90	9	CH	20			0							103	
B91	5	CL	14	30	18	12	-0.33							99
B91	11	CL	22	43	19	24	0.13			0.65			102	100
B92	1	CH	15	50	24	26	-0.35							96
B92	7	ML	9	22	19	3	-3.33							82
B92	11	CH	27	54	24	30	0.10							98
B93	3	CH	16	55	21	34	-0.15							100
B93	9	CH	26	56	20	36	0.17			0.73			98	100
B93	13	CL-ML	17	24	19	5	-0.40							90
B94	0 - 6	CL				0								
B94	7	ML	7	24	23	1	-16.00							89
B94	9	CL	18	41	18	23	0.00							99

APPENDIX C
Soil Properties Summary

Bore	Depth	Description	%w	LL	PL	PI	LI	Cc	Cr	Void Ratio e	C	Φ	γ (ave)	-200
B95	1	CL	9	37	18	19	-0.47							95
B95	7	CL	13	38	22	16	-0.56							94
B95	11	CH	21			0		0.24	0.04	0.72			99	
B95	13	CH	22	52	22	22	0.00			0.76			96	100
B96	5	CH	17	51	22	29	-0.17							100
B96	11	CL	16	44	19	25	-0.12				3.20		96	99
B96	15	CL	21			0				0.68			100	
B97	3	CL	21	46	18	28	0.11			0.64			103	99
B97	5	CL	12	30	17	13	-0.38							92
B97	11	CH	26	50	19	31	0.23			0.74			97	100
B98	7	CL	18	35	18	17	0.00				2.70		98	99
B98	11	CL	28			0				0.81			94	
B98	13	CL	20	38	18	20	0.10			0.63			104	97
B99	3	CL	17	39	21	18	-0.22							
B99	7	CL	14	35	22	13	-0.62							99
B99	9	ML	5	25	24	1	-19.00							70
B100	5	CH	10	54	24	30	-0.47							100
B100	14	CH	10	55	19	36	-0.25			0.54			110	100
B101	1	CL	12	37	23	14	-0.79							97
B101	9	CH	20	58	24	34	-0.12				3.20		108	100
B101	12	CH	23			0				0.70			99	
B102	0 - 6	CL				0								
B102	7	CH	22	52	22	30	0.00							99
B102	9	CH	23	68	19	49	0.08			0.70			99	100
B102	11	CH	22			0		0.34	0.06	0.86			92	
B103	5	CL	15	38	18	20	-0.15				5.60		101	100
B103	11	CH	24	70	23	47	0.02			0.85			91	100
B103	13	CH	22			0				0.72			98	
B104	7	CL	15	48	23	25	-0.32							96
B105	3	CL	13	44	24	20	-0.55							95
B105	9	CH	19	57	20	37	-0.03				2.40		88	100
B105	12	SP-SC	9	32	18	14	-0.64							9
B106	7	CL	15	47	27	20	-0.60							91
B106	9	CH	16			0		0.19	0.06	0.57			108	
B106	12	CH	16	55	27	28	-0.39							
B107	5	CH	14	50	27	23	-0.57							99
B107	9	CL	11	40	19	21	-0.38							93
B107	11	CL	13	38	23	15	-0.67			0.72			98	
B108	3	CL	11	40	24	16	-0.81							90
B108	9	CL	8	36	22	14	-1.00							98
B108	11	CL	9	32	20	12	-0.92							96
B108	12 - 14	SP-SC				0								

APPENDIX C
Soil Properties Summary

Bore	Depth	Description	%w	LL	PL	PI	LI	Cc	Cr	Void Ratio e	C	Φ	γ (ave)	-200
B109	0 - 2	CL				0								
B109	3	CL-ML	12	27	22	5	-2.00							98
B109	9	CL	15	43	20	23	-0.22							82
B110	5	CL	12	31	20	11	-0.73							91
B110	12	CL	16	42	19	23	-0.13				2.40		94	99
B111	0 - 2	CL				0								
B111	3	ML	7	25	22	3	-5.00							56
B111	7	CL	11	32	18	14	-0.50							88
B111	11	CL	8	29	21	8	-1.63							92
B111	13	CL	19	45	20	25	-0.04			0.59			106	99
B112	1	CL	11	42	22	20	-0.55							92
B112	7	CL	12	33	18	15	-0.40							96
B112	13	CL	17			0				0.60			105	
B113	5	CL	21	47	19	28	0.07			0.65			102	100
B113	11	CL	24			0				0.71			100	
B113	12 - 14	ML				0								
B114	3	CL	13			0								93
B114	5	CL	19			0		0.13	0.03	0.62			105	
B114	7	CL	14	31	18	13	-0.31							90
B114	11	ML	6	25	23	2	-8.50							83
B115	1	CL	14			0								95
B115	5	CL	13	33	23	10	-1.00							98
B116	5	CL	14	32	22	10	-0.80							99
B117	3	CL	10	34	20	14	-0.71							91
B117	9	CL	10	34	22	12	-1.00							100
B117	13	SC-SM	2	21	15	6	-2.17							37
B118	1	CL	12	40	19	21	-0.33							100
B118	7	CL	10	34	20	14	-0.71							98
B118	14	ML	7	24	22	2	-7.50							50
B119	5	CL	16	46	27	19	-0.58							97
B119	9	CH	24	53	24	29	0.00							99
B119	11	CH	24			0		0.25	0.08	0.69			101	
B119	13	CH	20	50	20	30	0.00			0.62			104	100
B120	7	CL	37	36	22	14	1.07							
B120	11	CH	20	51	22	29	-0.07						101	100
B121	0 - 2	CL				0								
B121	3	CL	4	16	16	0								94
B121	7	CL	12	43	20	23	-0.35							40
B121	13	CL	10	28	18	10	-0.80							74
B122	5	CL	19	48	30	18	-0.61							98
B122	9	CH	24			0							95	
B122	11	CH	27	64	29	35	-0.06							99
B122	13	CH	26			0				0.82			93	

APPENDIX C
Soil Properties Summary

Bore	Depth	Description	%w	LL	PL	PI	LI	Cc	Cr	Void Ratio e	C	Φ	γ (ave)	-200
B123	3	CH	14	50	18	32	-0.13							98
B123	5	CH	18			0		0.35	0.05	0.80			95	
B123	9	CL	25	49	20	29	0.17			0.79			94	100
B123	14	CL	25			0				0.76			97	
B124	5	CL	13	38	22	16	-0.56							99
B124	7	CH	21	80	28	52	-0.13							99
B124	9	CL	15	31	21	10	-0.60							96
B124	14	CH	27			0				0.80			94	
B125	3	CL	18	48	25	23	-0.30							97
B125	7	CH	22	61	22	39	0.00				1.60		81	100
B125	8 - 14	CL				0								
B126	3	CH	20	53	26	27	-0.22							98
B126	7	CH	25			0				0.75			96	
B126	9	CH	24	57	24	33	0.00							99
B126	15	CH	29			0				0.92			88	
B127	3	CH	18	59	29	30	-0.37							98
B127	5	CH	24			0				0.81			93	
B127	9	CH	25			0				0.90			90	
B127	14	CH	20	60	23	37	-0.08			0.76			96	99
B128	5	CH	19	51	17	34	0.06							93
B128	9	CL	16	40	21	19	-0.26							94
B128	11	CL	21	41	18	23	0.13						89	93
B128	15	CL	21			0		0.17	0.03	0.69			101	
B129	5	CL	19	44	17	27	0.07			0.59			106	98
B129	7	CL	17	44	20	24	-0.13							79
B130	7	CH	21	50	22	28	-0.04				5.50		101	97
B130	11	CH	23	53	19	34	0.12							99
B130	13	CH	21			0				0.66			101	
B131	3	CH	17	60	22	38	-0.13							94
B131	5	CH	17	60	22	38	-0.13							93
B131	9	CH	23	54	27	27	-0.15				3.90		97	95
B131	12	CH	22			0				0.67			101	
B132	5	CH	22	58	29	29	-0.24							93
B132	13	CH	23	60	25	35	-0.06				1.80		90	100
B133	7	CL	20	46	19	27	0.04							92
B133	13	CL	27	45	18	27	0.33			0.72			98	100
B134	3	CL	12	48	25	23	-0.57							51
B134	9	CL	15	32	19	13	-0.31							89
B134	11	CH	24	55	20	35	0.11			0.73			97	100
B135	7	CL	15	42	24	18	-0.50							94
B135	11	CH	18			0				0.62			104	
B135	13	CH	24	59	21	38	0.08			0.83			92	100

APPENDIX C
Soil Properties Summary

Bore	Depth	Description	%w	LL	PL	PI	LI	Cc	Cr	Void Ratio e	C	Φ	γ (ave)	-200
B136	1	CL	13	42	24	18	-0.61							97
B136	9	CL	18	38	21	17	-0.18							98
B136	10 - 14	CH				0								
B137	3	CH	16	55	28	27	-0.44				4.30		101	98
B137	7	CL	15	48	23	25	-0.32			0.61			105	100
B138	3	CL	15	43	19	24	-0.17							98
B138	7	CH	21	55	26	29	-0.17							100
B139	1	CL	15	42	18	24	-0.13							100
B139	7	CL	20	47	22	25	-0.08							98
B139	13	CH	25	62	31	31	-0.19							99
B140	3	CL	17	45	18	27	-0.04							100
B140	7	CL	15			0		0.13	0.03	0.59			107	
B140	9	CH	22	52	25	27	-0.11							99
B140	12	CH	27			0		0.22	0.06	0.78			96	
B141	5	CL	17	43	17	26	0.00							97
B141	12	CH	26	61	23	38	0.08			0.71			98	100
B142	3	CL	13	35	18	17	-0.29							97
B142	9	CL	14	31	17	14	-0.21							95
B142	13	CH	26			0				0.75			97	
B143	1	CL	17	43	21	22	-0.18							100
B143	9	CH	26			0		0.22	0.06	0.75			97	
B143	13	CH	26	55	23	32	0.09			0.70			99	100
B144	7	CL	19	41	21	20	-0.10							98
B144	9	CL	19	41	21	20	-0.10							97
B144	13	CH	24			0				0.75			97	
B145	3	CL	13	43	22	21	-0.43							98
B145	7	CH	25	54	20	34	0.15						98	100
B145	12	CH	26			0				0.73			98	
B146	9	CL	16	43	18	25	-0.08							97
B146	11	CL	24	48	24	24	0.00			0.81			93	100
B147	3	CH	23	65	31	34	-0.24				2.00		89	100
B147	5	CL	12	48	20	28	-0.29							100
B147	9	CL	21			0				0.68			100	
B147	10 - 12	CH				0								
B148	5	CH	19	53	22	31	-0.10							99
B148	13	CH	27	55	21	34	0.18			0.76			96	100
B149	3	CH	20	56	22	34	-0.06				4.10		92	100
B149	9	CL	17	32	18	14	-0.07							94
B150	3	ML	8	24	23	1	-15.00							84
B150	9	CL	15	30	20	10	-0.50							96
B151	5	ML	9			0								84

APPENDIX C
Soil Properties Summary

Bore	Depth	Description	%w	LL	PL	PI	LI	Cc	Cr	Void Ratio e	C	Φ	γ (ave)	-200
B151	12	CL	14	33	23	10	-0.90							99
B152	1	ML	14	19	19	0								91
B152	7	CL-ML	10	25	19	6	-1.50							91
B152	12	ML	6	22	21	1	-15.00							75
B153	3	CL	14	41	21	20	-0.35							95
B153	7	CL-ML	14	25	18	7	-0.57							98
B153	13 - 15	ML				0								
B154	7	CL	11	34	21	13	-0.77							98
B154	14	CL	19	42	21	21	-0.10			0.60			106	95
B154	16 - 18	ML	6	20	20	0								69
B155	3	CL	13	35	16	19	-0.16							95
B155	9	CL	15	34	17	17	-0.12							97
B126	5	CL	15	45	22	23	-0.30							100
B156	13	CH	22	54	21	33	0.03			0.67			101	100
B157	1	CL	15	41	21	20	-0.30							98
B157	7	CH	15	53	26	27	-0.41			0.78				93
B157	13	CH	25			0							96	
B158	3	CL	12	38	22	16	-0.63							96
B158	9	CL	13	40	19	21	-0.29			0.55			109	93
B159	5	CH	24	59	25	34	-0.03				2.00		95	99
B159	9	CH	23			0								99
B159	13	CH	30			0		0.34	0.06	0.85			92	
B160	1	CH	16	57	23	34	-0.21							100
B160	14	CH	21	52	25	27	-0.15							100
B161	3	CH	13	60	24	36	-0.31							99
B161	5	CH	19			0				0.66			102	
B161	14	CH	25	53	24	29	0.03						94	100
B161	16	CH	26			0				0.81			94	
B162	5	CH	19	53	27	26	-0.31							98
B162	7	CH	21			0		0.28	0.06	0.68			102	
B162	13	CH	21	60	29	31	-0.26							99
B163	3	CL		40	19	21	-0.90							
B163	5	CL	14			0				0.50			112	
B163	9	CL	16	45	18	27	-0.07			0.54			109	99
B164	5	CL	14	37	21	16	-0.44							98
B164	9	CH	15			0				0.59			106	
B164	12	CH	18	58	22	36	-0.11				4.00		107	97
B165	3	CL	16	47	21	26	-0.19							100
B165	7	CL	18			0				0.54			111	
B165	9	CL	18			0		0.23	0.05	0.57			109	
B165	13	CL	18	47	21	26	-0.12			0.61			105	99

APPENDIX C
Soil Properties Summary

Bore	Depth	Description	%w	LL	PL	PI	LI	Cc	Cr	Void Ratio e	C	Φ	γ (ave)	-200
B166	1	CH	11	60	23	37	-0.32							79
B166	7	CH	20			0				0.66			102	
B166	9	CH	20	63	24	39	-0.10							99
B166	13	CH	20			0				0.69			100	
B167	5	CH	18	60	25	35	-0.20							99
B167	7	CH	22	60	22	38	0.00			0.69			100	100
B167	9	CH	23			0		0.29	0.06	0.92			89	
B167	12	CH	23			0				0.72			99	
B168	3	CL	13	36	22	14	-0.64							80
B168	7	ML	11	18	18	0								77
B169	0 - 2	CL				0								
B169	3	ML	14	23	21	2	-3.50							87
B169	7	CL	11	34	19	15	-0.53							65
B170	7	CL	19	40	17	23	0.09			0.55			109	96
B170	11	CL	17	34	20	14	-0.21							97
B171	3	CL	16	44	20	24	-0.17							98
B171	7	CL	17	39	20	19	-0.16			0.55			109	97
B172	5	CL	17	46	18	28	-0.04							99
B172	7	CL	13			0				0.57			108	
B172	14	CL	23	34	20	14	0.21	0.27	0.04	0.76			97	87
B172	20	CL	15			0								80
B173	0 - 13	CL				0								
B173	13 - 21	CH	23	67	26	41	-0.07			0.72			98	100
B174	1	CL	11	32	19	13	-0.62							93
B174	7	CL	21	46	21	25	0.00						99	99
B174	13	CL	29			0				0.90			90	
B175	1	CL	13			0								97
B175	3	CL				0								97
B175	9	CL	19	48	24	24	-0.21							96
B176	0 - 2	CL				0								
B176	5	CH	23	51	22	29	0.03							97
B176	9	CL	17	36	21	15	-0.27							
B176	14	CL	25			0		0.30	0.06	0.85			92	
B177	0 - 2	CL				0								
B177	7	CH	23	55	22	33	0.03				3.60		96	97
B177	13	CH	17			0				0.59			106	
B178	0 - 2	CL				0								
B178	7	CH	24			0				0.71			99	
B178	9	CH	22	60	25	35	-0.09							99
B178	17	CH	28	66	25	41	0.07			0.78			95	99.7
B179	3	CL	11	47	22	25	-0.44							93
B179	9	CL	23			0		0.24	0.05	0.69			101	
B179	14	CL	20	48	20	28	0.00			0.62			104	93

APPENDIX C
Soil Properties Summary

Bore	Depth	Description	%w	LL	PL	PI	LI	Cc	Cr	Void Ratio e	C	Φ	γ (ave)	-200
B179	16 - 18	CL-ML				0								
B180	0 - 8	CL				0								
B180	9	CH	23	51	23	28	0.00			0.68			101	99
B180	11	CH	20			0				0.61			106	
B180	15	CL-ML	17	25	21	4	-1.00							86
B181	7	CL	18			0				0.54			110	
B181	9	CH	19	51	19	32	0.00				5.10		103	92
B181	11	CL	17	40	20	20	-0.15			0.58			107	91
B182	3	CL	13	40	21	19	-0.42							91
B182	7	CL	20			0				0.58			107	
B182	9	CL	19	45	17	28	0.07							96
B182	13 - 15	CL-ML				0								
B183	0 - 4	CL				0								
B183	5	CH	32	57	22	35	0.29				4.40		89	96
B183	9	CL	17	44	21	23	-0.17			0.56			108	92
B183	13	CL	13	31	17	14	-0.29							83
B184	3	CL	17	42	20	22	-0.14							93
B184	9	CL	19	43	22	21	-0.14				2.70		101	87
B184	13	CL	20			0				0.66			101	
B185	3	CL	19	46	18	28	0.04							95
B185	9	CL	22	44	17	27	0.19			0.65			102	95
B185	15	CL	22	34	20	14	0.14							91
B186	3	CL	15	43	19	24	-0.17				3.90		106	94
B186	7	CL	14	34	17	17	-0.18							93
B186	9	CL	25			0		0.23	0.05	0.73			99	
B186	11	ML	13	26	23	3	-3.33							95
B187	3	CL		36	14	22	-0.64							
B187	12 - 14	ML				0								
B188	5	CL	18			0							107	
B188	7	CL	14	35	16	19	-0.11							89
B189	5	CL	17	39	19	20	-0.10							89
B189	14	CL	18	35	21	14	-0.21							99
B190	1	CL		44	19	25	-0.76							
B190	7	CL	19	48	21	27	-0.07			0.59			106	99
B191	5	CL				0					10.00			
B191	7	CL	16	41	18	23	-0.09							96
B191	11	CH	20	51	23	28	-0.11			0.58			106	100
B192	5	CL	20	48	21	27	-0.04				3.60		91	98
B192	9	CH	21			0		0.21	0.05	0.65			104	
B192	12	CH	22	68	22	46	0.00			0.60			105	99
B193	3	CH	18	68	22	46	-0.09				6.50		99	99
B193	7	CH	20	60	23	37	-0.08			0.68			100	99

APPENDIX C
Soil Properties Summary

Bore	Depth	Description	%w	LL	PL	PI	LI	Cc	Cr	Void Ratio e	C	Φ	γ (ave)	-200
B193	12	CH	19			0				0.61			105	
	Average Values		19	43	21	23	-0.08							

Where: Depth = feet below existing grade
Description = USC (Unified Soil Class)
%w = percent moisture
LL = Liquid Limit
PI = Plasticity Index
C = Shear Strength, tsf (undrained)
Φ = Internal Friction Angle, deg. (undrained)
γ = Effective unit weight, pcf
-200 = minus No.200 sieve, % retained

APPENDIX D
Bore Logs

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-1
LAB NO.: S-2544-07
DATE: 2/27/07
SURFACE ELEV.: 82.64'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-11'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=25									CLAY - Silty with Sand, brown (CL-ML)
			N=23	12		22	16	6	75			
5			N=12									CLAY - Lean, brown (CL)
			P=4.5	18	102	38	24	14	96	2.6	3.8	
10			P=3.5	19		47	24	23	98			
												Boring Terminated at 11'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-2
LAB NO.: S-2544-07
DATE: 2/27/07
SURFACE ELEV.: 82.70'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-12'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Atterberg Limits % Plastic Limit	Atterberg Limits % Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=26									CLAY - Lean, brown (CL)
			P=4.5									
5			N=30									
			N=12	10		28	23	5				CLAY - Silty with Sand, brown (CL-ML)
			P=4.5	14	104							CLAY - Lean, brown (CL)
10			N=9									
												Boring Terminated at 12'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-3
LAB NO.: S-2544-07
DATE: 2/27/07
SURFACE ELEV.: 81.94'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-12'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Atterberg Limits % Plastic Limit	Atterberg Limits % Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=28									CLAY - Lean, brown (CL)
			N=24	12		36	23	13	98			
5			N=15									
			P=4.5	26	98							
			P=4.5	20	97							
10			P=4.5	17	107							
												Boring Terminated at 12'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-4
LAB NO.: S-2544-07
DATE: 2/27/07
SURFACE ELEV.: 81.79'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-13'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=31									CLAY - Fat, brown (CH)
			N=22	14		56	23	33	99			
5			N=12	5		28	20	8	86			CLAY - Lean, brown (CL)
			N=9									
10			N=8									
			N=5									SILT - brown (ML)
												Boring Terminated at 13'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-5
LAB NO.: S-2544-07
DATE: 2/27/07
SURFACE ELEV.: 82.04'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-12'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=34									CLAY - Lean, brown (CL)
			N=21									
5			N=26									
			P=2.0									
			N=6	9		29	27	2	99			SILT - brown (ML)
10			N=4									
												Boring Terminated at 12'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-6
LAB NO.: S-2544-07
DATE: 2/27/07
SURFACE ELEV.: 81.79'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-11'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=32	14		45	24	21	91			CLAY - Lean, brown (CL)
			N=22									
5			N=11	11		40	17	23	99			
			N=7									CLAYEY SAND - brown (SC)
10			N=9									
												Boring Terminated at 11'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-7
LAB NO.: S-2544-07
DATE: 2/27/07
SURFACE ELEV.: 81.35'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-12'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=25									CLAY - Lean, brown (CL)
			N=29									
5			N=13	15		48	16	32	95			
			N=8									
			N=13									CLAY - Fat, brown (CH)
10			N=15	21		61	22	39	100			
												Boring Terminated at 12'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-8
LAB NO.: S-2544-07
DATE: 2/27/07
SURFACE ELEV.: 81.13'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-13'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=54									CLAY - Lean, brown (CL)
			N=20									
5			P=3.5	12		40	19	21	55			- Sandy, Lean, brown (CL)
			P=4.5	22	102							
			P=4.5	18		47	21	26	95			- Lean, brown (CL)
10			N=13									
												Boring Terminated at 13'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-9
LAB NO.: S-2544-07
DATE: 2/27/07
SURFACE ELEV.: 81.39'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-12'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=40									CLAY - Lean, brown (CL)
			N=28									
5			N=13									
			P=2.5	13		44	18	26	99			
			N=12									
10			N=9									
												Boring Terminated at 12'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-10
LAB NO.: S-2544-07
DATE: 2/27/07
SURFACE ELEV.: 81.64'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-12'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=25									2" Asphalt 6" Caliche CLAY - Lean with Sand, brown (CL)
			N=14									
5			P=4.5	10					81			
			P=4.5	19	105							
			P=4.5	18	104	40	20	20	98			- Lean, brown (CL)
10			P=4.5	21	100							
												Boring Terminated at 12'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-11
LAB NO.: S-2544-07
DATE: 2/27/07
SURFACE ELEV.: 81.47'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-12'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=17									1" Caliche CLAY - Fat, dark brown (CH)
			P=4.5	25	96	58	24	34	100	3.8	6.2	
5			N=18									
			P=4.5									
			P=3.5	21	107	36	16	20	89			CLAY - Lean, grayish brown (CL)
10			P=3.5									
												Boring Terminated at 12'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-12
LAB NO.: S-2544-07
DATE: 2/27/07
SURFACE ELEV.: 81.05'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-13'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Atterberg Limits % Plastic Limit	Atterberg Limits % Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=13									12" Caliche CLAY - Fat, dark brown (CH)
			P=4.5	21	103	57	13	44	95	6.4	10.0	
5			P=4.5									
			P=4.0	23	104							
			P=4.5	22	96							
10												- Fat, brown (CH)
			P=3.5	27	94	51	21	30	100			
												Boring Terminated at 13'
15												
20												
25												
30												
35												

DESCRIPTION OF STRATUM

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-13
LAB NO.: S-2544-07
DATE: 2/27/07
SURFACE ELEV.: 80.94'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-15'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=24									1" Caliche CLAY - Fat, dark brown (CH)
			N=16									
5			P=4.5									
			P=4.0	18	98	51	21	30	100			
			N=5	6		23	22	1	80			SILT - with Sand, brown (ML)
10												
			N=7									
15												Boring Terminated at 15'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-14
LAB NO.: S-2544-07
DATE: 2/28/07
SURFACE ELEV.: 80.34'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-15'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=9									CLAY - Lean, brown (CL)
			P=4.5									
5			P=4.5	14		31	20	11	91			
			P=3.0									
			N=3	18		29	13	16	98			
10												
			N=6									
15												Boring Terminated at 15'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-15
LAB NO.: S-2544-07
DATE: 2/28/07
SURFACE ELEV.: 80.85'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-15'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=15									CLAY - Lean, brown (CL)
			N=9									
5			N=9									
			N=8	15		36	13	23	98			
			N=5									
10												
			P=3.5	26	95	47	22	25	96			
15												Boring Terminated at 15'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-16
LAB NO.: S-2544-07
DATE: 2/28/07
SURFACE ELEV.: 79.93'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=16									CLAY - Lean, brown (CL)
			N=14	13		32	23	9	96			
5			P=2.5									
			N=8									
			N=8	9		33	17	16	97			
10												
			N=25									
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-17
LAB NO.: S-2544-07
DATE: 2/28/07
SURFACE ELEV.: 80.39'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=16									CLAY - Lean, brown (CL)
			N=11									
5			N=8	15		32	18	14	99			
			N=9									
			N=18	24		67	25	42	99			CLAY - Fat, brown (CH)
10												
			N=18	22	104							
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-18
LAB NO.: S-2544-07
DATE: 2/28/07
SURFACE ELEV.: 79.70'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-16'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=12									CLAY - Lean, brown (CL)
			N=17									
5			N=21	22		32	19	13	99			
			N=3.0									
			N=15	24		35	18	17	99			
10												
			P=4.5									CLAY - Fat, brown (CH)
15			P=4.5	23	101							
												Boring Terminated at 16'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-19
LAB NO.: S-2544-07
DATE: 2/28/07
SURFACE ELEV.: 79.71'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-17'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=29									CLAY - Lean, brown (CL)
			N=55	12		36	22	14	96			
5			N=24									
			N=8									
			P=4.5	27		40	22	18	100			
10												
			P=3.0	27	95							
15			P=2.0									
												Boring Terminated at 17'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-20
LAB NO.: S-2544-07
DATE: 2/28/07
SURFACE ELEV.: 80.75'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-17'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=13	17		41	20	21	99			CLAY - Lean, brown (CL)
			N=17									
5			N=14									
			P=4.0	19	98				98	3.1	8.9	
			P=4.5									
10												
			P=4.0									
15												
			P=3.0	28	95							
												Boring Terminated at 17'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-21
LAB NO.: S-2544-07
DATE: 2/28/07
SURFACE ELEV.: 80.65'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-17'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=30									CLAY - Lean, brown (CL)
			N=20									
5			P=4.5	25	98	54	21	33	98			CLAY - Fat, brown (CH)
			P=4.5									
			P=4.0	19		31	16	15	92			CLAY - Lean, brown (CL)
10												
			P=4.5	27		57	26	31	100			CLAY - Fat, brown (CH)
15			P=4.0	27		43	23	20	98			CLAY - Lean, brown (CL)
												Boring Terminated at 17'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-22
LAB NO.: S-2544-07
DATE: 2/28/07
SURFACE ELEV.: 80.23'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-18'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=24									CLAY - Lean, brown (CL)
			N=19									
5			P=4.0	23	96	53	21	32	97			CLAY - Fat, brown (CH)
			N=9	17		42	18	24	98			CLAY - Lean, brown (CL)
10			N=16									
			P=3.5									CLAY - Fat, brown (CH)
15			P=3.5	30	92	58	22	36	100			
												Boring Terminated at 18'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-23
LAB NO.: S-2544-07
DATE: 3/1/07
SURFACE ELEV.: 80.60'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-17'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=23									CLAY - Lean, brown (CL)
			N=21	15		49	21	28	98			
5			N=10									- Lean, dark brown (CL)
			P=4.5									
			P=4.5	26	94							- Lean, brown (CL)
10												
			P=4.5	25	99							
15			P=2.25	25	95	44	18	26	100			
												Boring Terminated at 17'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
South of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-24
LAB NO.: S-2544-07
DATE: 3/1/07
SURFACE ELEV.: 80.59'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-17'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=15									CLAY - Lean, brown (CL)
			N=16									
5			P=3.0									
			P=4.5	21		38	16	22	99			
												- Lean, dark brown (CL)
			P=4.5	18	103							
10												
												- Lean, brown (CL)
			P=3.5									
15				28		26	26	0	37			SAND - Silty, brown (SM) Very Wet
												Boring Terminated at 17'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
South of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-25
LAB NO.: S-2544-07
DATE: 3/1/07
SURFACE ELEV.: 80.14'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-16'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=9									CLAY - Lean, brown (CL)
			N=23									
5			N=5	11		31	13	18				
			N=6									
			P=4.5	15		33	16	17	99			- Lean, dark brown (CL)
10			P=3.0									
15			N=5									SAND - Silty, brown (SM) Very Wet
												Boring Terminated at 16'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
North of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-26
LAB NO.: S-2544-07
DATE: 3/1/07
SURFACE ELEV.: 80.12'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-16'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=16									CLAY - Lean, brown (CL)
			N=11	15		36	22	14	98			
5			P=4.5									
			P=3.5									
			N=7									
10			N=5									
												Wet
15			N=2	33		30	18	12	97			
												Boring Terminated at 16'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
South of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-27
LAB NO.: S-2544-07
DATE: 3/1/07
SURFACE ELEV.: 79.88'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-16'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=18									CLAY - Lean, brown (CL) w/sand layers
			N=15									
5			P=4.5									
			N=5	15		29	15	14	95			
			P=2.5									
10												- Lean, brown (CL) Wet
				25		32	21	11	100			
15			N=2									SAND - Silty, brown (SM) Wet
												Boring Terminated at 16'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
South of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-28
LAB NO.: S-2544-07
DATE: 3/1/07
SURFACE ELEV.: 80.29'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-16'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=44									CLAY - Lean, brown (CL)
			N=22	16		35	18	17	98			
5			P=3.5									
			N=6									
			P=3.0	15		28	19	9	89			
10			P=3.0	18	106							
15			P=2.0	29	93	52	21	31	90			CLAY - Fat, brown (CH)
												Boring Terminated at 16'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
South of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-29
LAB NO.: S-2544-07
DATE: 3/1/07
SURFACE ELEV.: 75.88'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-12'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=14									CLAY - Lean, brown (CL)
			P=4.5									
5			P=4.5	27	93	61	38	23	99	3.7	4.4	CLAY - Fat, dark brown (CH)
			P=3.5	28	95							
			P=4.5	26		65	24	41	100			- Fat, brown (CH)
10			P=3.0	28	95							
												Boring Terminated at 12'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
South of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-30
LAB NO.: S-2544-07
DATE: 3/1/07
SURFACE ELEV.: 77.25'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=24	14		42	20	22	98			CLAY - Lean, brown (CL)
			N=21									
5			P=3.0									
			P=2.5									CLAY - Fat, dark brown (CH)
			P=2.5									
10			P=2.5	30	92	60	24	36	100			
			P=2.5	29	92							
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
South of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-31
LAB NO.: S-2544-07
DATE: 3/1/07
SURFACE ELEV.: 77.36'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-15'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=15									CLAY - Lean, brown (CL)
			P=4.0									
5			N=7									
			P=2.0									- Lean, dark brown (CL)
			P=4.0	25	96	44	20	24	99			
10												
				32		39	18	21	99			
15												Boring Terminated at 15'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
North of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-32
LAB NO.: S-2544-07
DATE: 3/1/07
SURFACE ELEV.: 77.21'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-16'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=12									CLAY - Lean, brown (CL)
			P=4.5									
5			P=4.5	19		35	17	18	91			
			P=2.25									
			N=5									
10			P=1.25	26	92							
15			P=1.5									
												Boring Terminated at 16'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-33
LAB NO.: S-2544-07
DATE: 3/1/07
SURFACE ELEV.: 77.00'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-16'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=14									CLAY - Lean, brown (CL)
			N=13	17		32	16	16	97			
5			P=3.5									
			P=3.0									
			N=2	20		33	20	13	97			- Lean, dark brown (CL)
10			N=6									- Lean, brown (CL)
												Wet
15			N=4									
												Boring Terminated at 16'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
South of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-34
LAB NO.: S-2544-07
DATE: 3/1/07
SURFACE ELEV.: 77.25'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-16'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=8									CLAY - Lean, brown (CL)
			P=4.5	21	97	44	19	25	95	2.8	8.1	- Lean, dark brown (CL)
5			P=4.5	25	96							
			P=1.5	22		35	19	16	96			
			P=1.5									
10												- Lean, brown (CL)
			P=4.0	26	98	44	20	24	99			
15			P=2.0	27	96							
												Boring Terminated at 16'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-35
LAB NO.: S-2544-07
DATE: 3/1/07
SURFACE ELEV.: 77.09'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-16'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=12									CLAY - Silty, brown (CL-ML)
			N=11	13		26	21	5	96			
5			P=4.5	28	91	59	23	36	100			CLAY - Fat, brown (CH)
			P=1.0									
			P=4.0	26	91	34	24	10	98			CLAY - Lean, brown (CL)
10												Moist
			P=1.5									
												Moist
15			P=1.0	31		38	21	17	99			
												Boring Terminated at 16'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
North of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-36
LAB NO.: S-2544-07
DATE: 3/2/07
SURFACE ELEV.: 77.36'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-15'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=28									CLAY - Lean, brown (CL)
			P=4.5									
5			P=4.5									
			P=2.25	20		28	16	12	94			- Lean, dark brown (CL)
			P=1.25									- Lean, brown (CL)
10												
			N=8									
15												Boring Terminated at 15'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-37
LAB NO.: S-2544-07
DATE: 3/2/07
SURFACE ELEV.: 76.97'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-16'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=14									CLAY - Lean, brown (CL)
			P=4.5									
5			P=4.25	16	98	71	33	38	96	1.9	2.6	CLAY - Fat, dark brown (CH)
			P=2.5									CLAY - Lean, brown (CL)
			P=1.25	17		25	16	9	78			- Lean with Sand, brown (CL)
10			P=3.5									CLAY - Fat, brown (CH)
15			P=2.5	26	99	51	20	31	100			
												Boring Terminated at 16'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
North of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-38
LAB NO.: S-2544-07
DATE: 3/2/07
SURFACE ELEV.: 76.45'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-16'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=14	16		31	19	12	98			CLAY - Lean, brown (CL)
			P=4.5									
5			P=4.5	23	101							
			P=4.0									
			P=2.5	23	102							
10												- Lean, dark brown (CL)
			P=3.5	23		39	21	18	98			
15			P=2.5	26	98							
												Boring Terminated at 16'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-39
LAB NO.: S-2544-07
DATE: 3/2/07
SURFACE ELEV.: 75.55'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-16'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=19									CLAY - Lean, brown (CL)
			P=4.5									
5			P=4.5									
			P=4.0	27	88							- Lean, dark brown (CL)
			P=3.5									- Lean, brown (CL)
10			P=2.0	22		41	16	25	96			
												Wet
15			P=0.5	28		30	22	8	99			
												Boring Terminated at 16'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-40
LAB NO.: S-2544-07
DATE: 3/2/07
SURFACE ELEV.: 75.73'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-15'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=10									CLAY - Lean, brown (CL)
			P=2.0	16		35	19	16	97			- Lean, dark brown (CL)
5			N=8									- Lean, brown (CL)
			P=3.25	23		45	27	18	97			
			P=4.5	23	102							
10												Moist
			P=2.0									
15												Boring Terminated at 15'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-41
LAB NO.: S-2544-07
DATE: 3/2/07
SURFACE ELEV.: 76.15'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-18'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=19									CLAY - Lean, brown (CL)
			N=12	14		35	18	17	95			
5			N=13									
			P=2.5									- Lean, dark brown (CL)
			P=3.5	22	95	42	19	23	99			
10												- Lean with Sand, brown (CL)
			P=1.0	23		28	8	20	80			
15			P=4.5	23	99							
												Boring Terminated at 18'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
North of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-42
LAB NO.: S-2544-07
DATE: 3/2/07
SURFACE ELEV.: 76.20'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-18'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=18									CLAY - Lean, brown (CL)
			P=3.0									
5			P=4.5	13		28	18	10	86			
			P=9									
			P=3.5									- Lean, dark brown (CL)
10												
			P=1.5	22		35	16	19	97			- Lean, brown (CL)
15			P=4.5	24		58	23	35	100			CLAY - Fat, brown (CH)
												Boring Terminated at 18'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-43
LAB NO.: S-2544-07
DATE: 3/2/07
SURFACE ELEV.: 76.49'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-19'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Atterberg Limits % Plastic Limit	Atterberg Limits % Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=20									CLAY - Lean, brown (CL)
			N=12									- Lean with Sand, brown (CL)
5			N=9									
			N=12									
			N=10	13		33	16	17	83			
10												
			P=2.5									
15												- Lean, brown (CL)
			N=4									
20												Boring Terminated at 19'
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-44
LAB NO.: S-2544-07
DATE: 3/2/07
SURFACE ELEV.: 76.41'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-19'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=25	9					83			CLAY - Lean with Sand, brown (CL)
			N=18									
5			P=4.5	23		55	24	31	99			CLAY - Fat, dark brown (CH)
			P=4.5	22	90	54	24	30		2.7	4.0	
			P=4.5	27	94							
10												
			P=4.5	27	93	71	28	43	100			
15												
			P=3.5	28	90							
20												Boring Terminated at 19'
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-45
LAB NO.: S-2544-07
DATE: 3/2/07
SURFACE ELEV.: 77.46'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-19'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=18									CLAY - Lean, brown (CL)
			N=21									
5			P=4.5	16		45	19	26	96			
			P=4.5	21	99	66	24	42	100			CLAY - Fat, dark brown (CH)
			P=4.5									
10												
			P=4.5	28	93							
15												
			P=4.0	29		69	32	37	100			
												Boring Terminated at 19'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-46
LAB NO.: S-2544-07
DATE: 3/2/07
SURFACE ELEV.: 77.31'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-19'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Atterberg Limits % Plastic Limit	Atterberg Limits % Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=14									CLAY - Lean, brown (CL)
			N=32	11		40	21	19	96			
5			N=13									
			N=15									
			N=14	11					87			
10												
			N=10									
15												
			P=4.5	30	92	62	22	40	100			CLAY - Fat, dark brown (CH)
20												Boring Terminated at 19'
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-47
LAB NO.: S-2544-07
DATE: 3/2/07
SURFACE ELEV.: 76.27'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-19'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=29									CLAY - Lean, brown (CL)
			N=14									
5			N=7									
			N=8	11		34	19	15	93			
			N=11									
10												
												- Lean, dark brown (CL)
			P=4.5	19		47	19	28	99			
15												
			P=4.5	29	92							
20												Boring Terminated at 19'
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-48
LAB NO.: S-2544-07
DATE: 3/2/07
SURFACE ELEV.: 76.23'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-19'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=25									CLAY - Lean, brown (CL)
			N=24	13		49	20	29	95			
5			N=8									
			N=11									
			N=17									
10												
			N=17	14		43	21	22	98			
15												
			P=4.0	30	90							CLAY - Fat, dark brown (CH)
												Boring Terminated at 19'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-49
LAB NO.: S-2544-07
DATE: 3/2/07
SURFACE ELEV.: 75.41'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-20'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=23									CLAY - Lean, brown (CL)
			N=26									
5			P=4.5									
			P=4.5	20		43	20	23	97			- Lean, dark brown (CL)
			P=3.0	21	103							
10												
			P=4.5	25	98							
15												
			P=4.0	25	100	49	17	32	100			
20												Boring Terminated at 20'
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
South of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-50
LAB NO.: S-2544-07
DATE: 3/3/07
SURFACE ELEV.: 75.35'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-16'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=32									CLAY - Lean, brown (CL)
			P=4.5									
5			P=3.0	15		39	21	18	98			
			P=4.5									CLAY - Fat, brown (CH)
			P=4.5	22	103	55	22	33	99			
10												
			P=4.5									
15			P=4.5	21	97	56	21	35	100			
												Boring Terminated at 16'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
South of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-51
LAB NO.: S-2544-07
DATE: 3/3/07
SURFACE ELEV.: 75.06'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-15'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=22									CLAY - Lean, brown (CL)
			N=24									
5			P=4.5									
			P=4.5	18		37	16	21	99			
			P=4.5	17	109	45	19	26	97			
10												
			P=4.5									
15												Boring Terminated at 15'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
South of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-52
LAB NO.: S-2544-07
DATE: 3/3/07
SURFACE ELEV.: 74.82'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-15'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=24									CLAY - Lean, brown (CL)
			N=23	14		42	23	19	99			
5			P=4.5									
			P=4.5	18	101	46	18	28	94			
			P=4.5	21	102							
10												
			P=4.5	18	105							
15												Boring Terminated at 15'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-53
LAB NO.: S-2544-07
DATE: 3/3/07
SURFACE ELEV.: 75.66'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-17'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=44									CLAY - Lean, brown (CL)
			N=22									
5			P=4.5									
			P=4.5	20	99	51	22	29	97	3.1	3.6	CLAY - Fat, dark brown (CH)
			P=4.5	19	103							
10			P=4.5									
15			P=4.5	27		56	25	31	98			
												Boring Terminated at 17'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-54
LAB NO.: S-2544-07
DATE: 3/3/07
SURFACE ELEV.: 75.27'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-17'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=42									CLAY - Lean, brown (CL)
			N=24									
5			P=4.5									
			P=4.5	19		53	19	34	99			CLAY - Fat, dark brown (CH)
			P=4.5	21	102							
10												
			P=4.0	22		48	24	24	97			CLAY - Lean, brown (CL)
15			P=4.0	25	98							
												Boring Terminated at 17'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-55
LAB NO.: S-2544-07
DATE: 3/3/07
SURFACE ELEV.: 75.14'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-17'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=31									CLAY - Lean, brown (CL)
			N=22									
5			P=4.5	19		48	20	28	96			- Lean, dark brown (CL)
			P=4.0	22	96							
			P=2.5	16		24	17	7	86			CLAY - Silty, brown (CL-ML)
10												
			P=1.0									
15			N=11	20		33	15	18	97			CLAY - Lean, brown (CL)
												Boring Terminated at 17'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-56
LAB NO.: S-2544-07
DATE: 3/3/07
SURFACE ELEV.: 75.46'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-18'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=38									CLAY - Lean, brown (CL)
			N=25	11		30	15	15	92			
5			P=4.5									CLAY - Fat, dark brown (CH)
			P=4.0	22	96	50	19	31	100			
10			P=4.5									
15			N=11									CLAY - Lean, brown (CL)
			N=13									
20												Boring Terminated at 18'
25												
30												
35												

DESCRIPTION OF STRATUM

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-57
LAB NO.: S-2544-07
DATE: 3/3/07
SURFACE ELEV.: 74.71'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-17'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=26									CLAY - Lean, brown (CL)
			N=29	11		34	17	17	95			
5			P=4.0									
			P=3.5	23		53	21	32	99			CLAY - Fat, dark brown (CH)
			P=1.5	24	95							CLAY - Lean, dark brown (CL)
10												
			P=2.25	26	95							
15			P=3.0	24	102	46	19	27	97			
												Boring Terminated at 17'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-58
LAB NO.: S-2544-07
DATE: 3/3/07
SURFACE ELEV.: 74.50'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-18'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Atterberg Limits % Plastic Limit	Atterberg Limits % Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=33									CLAY - Lean, brown (CL)
			N=20									
5			P=4.5									
			P=4.5	19		34	22	12	97			- Lean, dark brown (CL)
			P=1.5									
10												
			P=3.0	26	96							- Lean, brown (CL) Moist
15												
			P=0.5	28		34	16	18	99			
												Boring Terminated at 18'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-59
LAB NO.: S-2544-07
DATE: 3/3/07
SURFACE ELEV.: 74.33'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=10									CLAY - Lean, brown (CL)
			N=5	17		40	20	20	98			
5			P=3.5									Moist
			P=0.5									Wet
10												Wet
				34		32	22	10	100			
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
North of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-60
LAB NO.: S-2544-07
DATE: 3/3/07
SURFACE ELEV.: 74.23'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-12'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=16									CLAY - Lean, brown (CL)
			N=14									
5			P=2.5	11		24	16	8	86			Moist
			P=2.5	26	95	49	19	30	100			Moist
			P=1.0	27		35	22	13	99			Moist
10			P=1.0									
												Boring Terminated at 12'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-61
LAB NO.: S-2544-07
DATE: 3/3/07
SURFACE ELEV.: 73.86'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Atterberg Limits % Plastic Limit	Atterberg Limits % Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=10									CLAY - Lean, brown (CL)
			N=11	16		34	18	16	88			
5			P=1.0									
			P=1.0									
			N=5									
10			N=2									Moist
			N=2									Moist
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-62
LAB NO.: S-2544-07
DATE: 3/3/07
SURFACE ELEV.: 73.93'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-15'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=12									CLAY - Lean, brown (CL)
			P=1.0									
5			P=2.0	23		44	19	25	98			
			P=0.5	30		32	18	14	98			- Lean, dark brown (CL) Moist
			P=0.5	23	101							
10												
			N=5	31		48	21	27	100			Moist
15												Boring Terminated at 15'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-63
LAB NO.: S-2544-07
DATE: 3/3/07
SURFACE ELEV.: 74.27'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-15'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=17									CLAY - Lean, brown (CL)
			P=4.5	23	95	61	26	35	100	2.8	4.4	CLAY - Fat, brown (CH)
5			P=2.5									CLAY - Lean, brown (CL)
				27	94							Moist
			P=1.0	25	99	31	20	11	86			
10												
			N=2									
15												Boring Terminated at 15'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-64
LAB NO.: S-2544-07
DATE: 3/3/07
SURFACE ELEV.: 74.20'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=14									CLAY - Lean, brown (CL)
			P=1.5	18		31	27	4	93			CLAY - Silty, brown (CL-ML)
5			P=1.0									CLAY - Lean, brown (CL)
			P=1.0	27		35	17	18	89			
			P=1.5	24	96							
10			P=4	36		28	24	4	96			CLAY - Silty, brown (CL-ML) Wet
			N=2									
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-65
LAB NO.: S-2544-07
DATE: 3/5/07
SURFACE ELEV.: 75.45'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=19	8		31	18	13	83			CLAY - Lean with Sand, brown (CL)
			N=18									
5			P=4.5									- Lean, brown (CL)
			P=4.0									
			P=4.0	18		43	19	24	98			
10												
			P=1.5									
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-66
LAB NO.: S-2544-07
DATE: 3/5/07
SURFACE ELEV.: 74.32'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-12'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=39									CLAY - Lean, brown (CL)
			N=23									
5			P=4.5	19		60	20	40	100			CLAY - Fat, brown (CH)
			P=4.5	23	103							
			P=4.5	23	102							
10			P=4.5	23	103	44	18	26	100			CLAY - Lean, brown (CL)
												Boring Terminated at 12'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-67
LAB NO.: S-2544-07
DATE: 3/5/07
SURFACE ELEV.: 73.99'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-13'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=32									CLAY - Lean, brown (CL)
			N=22									
5			P=4.5	15		33	18	15	98			
			P=4.5									
			P=4.5	20	106							
10			P=4.5	20		42	20	22	100			
												Boring Terminated at 13'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-68
LAB NO.: S-2544-07
DATE: 3/5/07
SURFACE ELEV.: 74.52'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=22									CLAY - Lean, brown (CL)
			N=28									
5			P=4.5									
			N=4	10		29	22	7	97			CLAY - Silty, brown (CL-ML)
			N=5	10		28	16	12	98			CLAY - Lean, brown (CL)
10			N=8									
			N=7	17		20	20	0	44			SAND - Silty, brown (SM)
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-69
LAB NO.: S-2544-07
DATE: 3/5/07
SURFACE ELEV.: 73.53'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-19'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=27									CLAY - Lean, brown (CL)
			P=4.5									
5			P=4.5	16		47	17	30	100			
			P=4.5									
			P=4.5									
10												
			P=4.5	9		64	29	35	100			CLAY - Fat, brown (CH)
15												
			P=4.0									
20												Boring Terminated at 19'
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-70
LAB NO.: S-2544-07
DATE: 3/5/07
SURFACE ELEV.: 72.98'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-13'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=21									CLAY - Lean, brown (CL)
			N=14									
5			P=4.5	19		41	19	22	100			
			P=4.5									
			P=4.5									
10			P=4.5									
												Boring Terminated at 13'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-71
LAB NO.: S-2544-07
DATE: 3/5/07
SURFACE ELEV.: 72.58'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-11'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=12									CLAY - Lean, brown (CL)
			P=4.5	20		48	20	28	100			
5			P=4.5	23	98	42	17	25	98			
			P=2.5	25		41	21	20	98			- Lean, dark brown (CL)
10			P=1.5	24	92	32	20	12				
												Boring Terminated at 11'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
South of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-72
LAB NO.: S-2544-07
DATE: 3/5/07
SURFACE ELEV.: 72.20'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-13'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=21									CLAY - Lean, brown (CL)
			P=4.5	16	97	36	21	15	98	2.9	2.3	
5			P=4.5									
			P=3.5	22	101							
			P=4.0	21		40	29	11	100			- Lean, dark brown (CL)
10			P=4.5	20	104							
												Boring Terminated at 13'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-73
LAB NO.: S-2544-07
DATE: 3/5/07
SURFACE ELEV.: 71.84'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-13'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=24									CLAY - Lean, brown (CL)
			P=4.5									
5			P=4.5									
			P=4.0	23	97	44	19	25	99			
			P=4.0									- Lean, dark brown (CL)
10			P=4.5	20	96							
												Boring Terminated at 13'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-74
LAB NO.: S-2544-07
DATE: 3/5/07
SURFACE ELEV.: 70.33'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-15'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=21									CLAY - Lean, brown (CL)
			P=4.5	17		46	26	20	99			
5			P=4.5									
			P=4.5	20	95							CLAY - Fat, brown (CH)
			P=4.5	18	98	52	19	33	100	2.9	8.1	
10												
			P=4.5	27	97							
15												Boring Terminated at 15'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
South of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-75
LAB NO.: S-2544-07
DATE: 3/5/07
SURFACE ELEV.: 71.07'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-15'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Atterberg Limits % Plastic Limit	Atterberg Limits % Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=21									CLAY - Fat, brown (CH)
			P=4.5	15		54	18	36	99			
5			P=4.5									
			P=4.5	19	99							
			P=4.5	20		52	17	35	99			
10												
			P=4.5	25	100							
15												Boring Terminated at 15'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
North of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-76
LAB NO.: S-2544-07
DATE: 3/5/07
SURFACE ELEV.: 71.45'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-18'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=37									CLAY - Lean, brown (CL)
			P=4.5									
5			P=4.5	13		42	21	21	98			
			P=4.5									
			P=4.5	15		49	19	30	98			
10												
			P=4.5									
15												
			P=4.5	20	106							
												Boring Terminated at 18'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-77
LAB NO.: S-2544-07
DATE: 3/5/07
SURFACE ELEV.: 71.22'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-18'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=19									CLAY - Lean, brown (CL)
			P=4.5									
5			P=4.5									
			P=4.5									
			P=4.5	17		55	19	36	98			CLAY - Fat, brown (CH)
10												
			P=4.5	23	99							
15			P=4.5	21	102	49	20	29	97			CLAY - Lean, brown (CL)
												Boring Terminated at 18'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
North of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-78
LAB NO.: S-2544-07
DATE: 3/5/07
SURFACE ELEV.: 71.17'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-15'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Atterberg Limits % Plastic Limit	Atterberg Limits % Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=21									CLAY - Lean, brown (CL)
			P=4.5									CLAY - Fat, brown (CH)
5			P=4.5									
			P=4.5	20		59	20	39	99			
				21	96							
10												
			P=4.5	22	103							
15												Boring Terminated at 15'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
South of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-79
LAB NO.: S-2544-07
DATE: 3/5/07
SURFACE ELEV.: 70.95'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-17'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Atterberg Limits % Plastic Limit	Atterberg Limits % Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=23									CLAY - Fat, brown (CH)
			P=4.0	17		55	21	34	99			
5			P=4.5									
			P=4.5									
			P=4.5	16	99	57	20	37	99	4.0	4.5	
10												
			P=4.5	21	102							
15			P=4.5									
												Boring Terminated at 17'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-80
LAB NO.: S-2544-07
DATE: 3/6/07
SURFACE ELEV.: 70.91'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-16'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=20									CLAY - Lean, brown (CL)
			P=4.5									CLAY - Fat, brown (CH)
5			P=4.5	21		53	22	31	100			
			P=4.5	23	103							
			P=4.0									
10			P=4.25	24	101	47	20	27	95			CLAY - Lean, brown (CL)
15			P=3.5									
												Boring Terminated at 16'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-81
LAB NO.: S-2544-07
DATE: 3/6/07
SURFACE ELEV.: 70.49'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=23									CLAY - Fat, brown (CH)
			P=4.5	15		53	25	28	99			
5			P=4.5									
			P=4.5	18	98	56	22	34		2.4	2.1	
			P=4.5	22	100	45	19	26	100			CLAY - Lean, brown (CL)
10			P=4.5									
			P=4.5	20	102							
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
South of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-82
LAB NO.: S-2544-07
DATE: 3/6/07
SURFACE ELEV.: 70.60'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Atterberg Limits % Plastic Limit	Atterberg Limits % Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=28									CLAY - Fat, brown (CH)
			P=4.5	17		58	22	36	100			
5			P=4.5									
			P=4.5									
			P=4.5	22	100							
10			P=4.5	19		53	21	32	99			
			P=4.5	21	101							
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-83
LAB NO.: S-2544-07
DATE: 3/6/07
SURFACE ELEV.: 69.86'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-15'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Atterberg Limits % Plastic Limit	Atterberg Limits % Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=15									CLAY - Lean, brown (CL)
			P=4.5									
5			P=4.5	19	110							
			P=4.5	17		34	19	15	92			
			P=4.5	18	103							
10												
			P=4.5									
15												Boring Terminated at 15'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
North of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-84
LAB NO.: S-2544-07
DATE: 3/6/07
SURFACE ELEV.: 69.67'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-13'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=13									CLAY - Lean, brown (CL)
			P=4.0	18		40	18	22	95			
5			P=4.0									
			P=1.5	21		36	17	19	96			
			P=2.0									
10			P=2.25	23	103	36	18	18	97			
												Boring Terminated at 13'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
North of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-85
LAB NO.: S-2544-07
DATE: 3/6/07
SURFACE ELEV.: 68.24'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=27									CLAY - Lean, brown (CL)
			N=23									
5			P=4.0	14		37	17	20	99			
			N=2									
			N=3									
10			N=5									
			N=6	21		31	19	12	89			
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
South of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-86
LAB NO.: S-2544-07
DATE: 3/6/07
SURFACE ELEV.: 66.29'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-13'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Atterberg Limits % Plastic Limit	Atterberg Limits % Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=18									3" Caliche CLAY - Lean, brown (CL)
			P=4.5									
5			P=3.0									CLAY - Silty, brown (CL-ML)
			P=3.0									
			P=3.0	31		28	22	6	98			Moist
10			P=3.0	31	88							Moist
												Boring Terminated at 13'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-87
LAB NO.: S-2544-07
DATE: 3/6/07
SURFACE ELEV.: 65.75'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-12'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=13									CLAY - Lean, brown (CL)
			N=14									
5			P=3.25	12		39	21	18	97			
			P=3.0									
			N=10									
10			N=13	20		46	18	28	99			
												Boring Terminated at 12'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-88
LAB NO.: S-2544-07
DATE: 3/6/07
SURFACE ELEV.: 60.13'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-16'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=19									CLAY - Fat, brown (CH)
			P=4.5	18	94	51	15	36	99	4.8	4.7	
5			P=3.5									
			P=3.5	20	102							
			P=3.5									
10			P=4.5	23		50	26	24	100			
			P=4.5									
15												Boring Terminated at 16'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-89
LAB NO.: S-2544-07
DATE: 3/6/07
SURFACE ELEV.: 60.01'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=30	10		41	21	20	97			CLAY - Lean, brown (CL)
			N=18									
5			P=4.5									CLAY - Fat, brown (CH)
			P=4.5	24	92	57	24	33	100			
			P=4.5									
10			P=4.5									
			P=4.5	24	88	52	22	30	100			
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-90
LAB NO.: S-2544-07
DATE: 3/6/07
SURFACE ELEV.: 59.30'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=11									SILT - with Sand, brown (ML)
			N=19	8		21	19	2	80			
5			P=4.5									
			P=4.5	21	95	60	22	38	66	4.1	4.4	CLAY - Sandy, Fat, brown (CH)
			P=4.5	20	103							
10			P=4.5									
			P=4.5									
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-91
LAB NO.: S-2544-07
DATE: 3/6/07
SURFACE ELEV.: 59.48'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=13									CLAY - Lean, brown (CL)
			P=4.5									
5			P=4.5	14		30	18	12	99			
			P=4.5									
			P=4.5									
10			P=4.5	22	102	43	19	24	100			
			P=4.5									
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-92
LAB NO.: S-2544-07
DATE: 3/6/07
SURFACE ELEV.: 59.39'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=21	15		50	24	26	96			CLAY - Fat, brown (CH)
			P=4.5									
5			N=7									SILT - with Sand, brown (ML)
			N=10	9		22	19	3	82			
			N=8									
10			N=13	27		54	24	30	98			CLAY - Fat, brown (CH)
			N=16									
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-93
LAB NO.: S-2544-07
DATE: 3/7/07
SURFACE ELEV.: 59.29'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=15									CLAY - Fat, brown (CH)
			P=3.0	16		55	21	34	100			
5			N=9									
			N=11									
			P=4.5	26	98	56	20	36	100			
10			P=4.0									
			P=1.0	17		24	19	5	90			CLAY - Silty, brown (CL-ML)
												Boring Terminated at 14'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-94
LAB NO.: S-2544-07
DATE: 3/7/07
SURFACE ELEV.: 59.37'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=26									CLAY - Lean, brown (CL)
			P=4.5									
5			P=4.5									
			N=10	7		24	24	0	89			SILT - brown (ML)
			P=4.5	18		41	18	23	99			CLAY - Lean, brown (CL)
10			P=4.0									
			P=1.5									
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-95
LAB NO.: S-2544-07
DATE: 3/7/07
SURFACE ELEV.: 59.12'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=30	9		37	18	19	95			CLAY - Lean, brown (CL)
			N=16									
5			P=4.5									
			P=4.5	13		38	22	16	94			
			P=4.5									
10			P=4.5	21	99							CLAY - Fat, brown (CH)
			P=4.5	22	96	52	22	30	100			
												Boring Terminated at 14'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-96
LAB NO.: S-2544-07
DATE: 3/7/07
SURFACE ELEV.: 58.83'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-16'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=16									CLAY - Fat, brown (CH)
			N=15									
5			P=4.5	17		51	22	29	100			
			P=4.5									
			P=4.5									
10			P=4.5	16	96	44	19	25	99	3.2	3.9	CLAY - Lean, brown (CL)
15			P=4.5	21	100							
												Boring Terminated at 16'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-97
LAB NO.: S-2544-07
DATE: 3/7/07
SURFACE ELEV.: 58.16'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-16'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=19									CLAY - Lean, brown (CL)
			P=4.5	21	103	46	18	28	99			
5			N=16	12		30	17	13	92			
			P=4.5									
			P=4.5									
10			P=2.0	26	97	50	19	31	100			CLAY - Fat, brown (CH)
15			P=4.5									
												Boring Terminated at 16'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-98
LAB NO.: S-2544-07
DATE: 3/7/07
SURFACE ELEV.: 58.55'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=24									CLAY - Lean, brown (CL)
			P=4.5									
5			N=14									
			P=4.5	18	98	35	18	17	99	2.7	5.2	
			P=4.5									
10			P=4.5	28	94							
			P=4.5	20	104	38	18	20	97			
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-99
LAB NO.: S-2544-07
DATE: 3/7/07
SURFACE ELEV.: 58.06'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-16'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=11									CLAY - Lean, brown (CL)
			P=4.0	17		39	21	18				
5			P=4.0									
			P=2.0	14		35	22	13	99			
			N=8	5		25	25	0	70			SILT - Sandy, brown (ML)
10			N=9									
15			N=11									
												Boring Terminated at 16'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-100
LAB NO.: S-2544-07
DATE: 3/7/07
SURFACE ELEV.: 57.70'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-17'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=26									CLAY - Fat, brown (CH)
			N=19									
5			N=14	10		54	24	30	100			
			N=13									
			N=13									
10												
			P=4.5	10	110	55	19	36	100			
15												
												Boring Terminated at 17'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-101
LAB NO.: S-2544-07
DATE: 3/7/07
SURFACE ELEV.: 57.13'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-13'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=38	12		37	23	14	97			CLAY - Lean, brown (CL)
			N=22									
5			N=17									
			P=4.5									
			P=4.5	20	108	58	24	34	100	3.2	2.6	CLAY - Fat, brown (CH)
10			P=4.5	23	99							
												Boring Terminated at 13'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-102
LAB NO.: S-2544-07
DATE: 3/7/07
SURFACE ELEV.: 57.43'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=15									CLAY - Lean, brown (CL)
			N=25									
5			N=18									
			P=4.5	22		52	22	30	99			CLAY - Fat, brown (CH)
			P=4.5	23	99	68	19	49	100			
10			P=4.5	22	92							
			P=4.5									
												Boring Terminated at 14'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-103
LAB NO.: S-2544-07
DATE: 3/7/07
SURFACE ELEV.: 57.18'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=16									CLAY - Lean, brown (CL)
			N=16									
5			P=4.5	15	101	38	18	20	100	5.6	3.2	
			P=4.5									CLAY - Fat, brown (CH)
			P=4.5									
10			P=4.5	24	91	70	23	47	100			
			P=4.5	22	98							
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-104
LAB NO.: S-2544-07
DATE: 3/7/07
SURFACE ELEV.: 56.28'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-12'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Atterberg Limits % Plastic Limit	Atterberg Limits % Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=24									CLAY - Lean, brown (CL)
			N=19									
5			P=4.5									
			P=4.5	15		48	23	25	96			
			P=4.5									
10			N=13									
												Boring Terminated at 12'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-105
LAB NO.: S-2544-07
DATE: 3/7/07
SURFACE ELEV.: 56.78'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-13'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=25									CLAY - Lean, brown (CL)
			P=4.5	13		44	24	20	95			
5			P=4.5									
			P=4.5									
			P=4.5	19	88	57	20	37	100	2.4	2.9	CLAY - Fat, brown (CH)
10			N=14	9		32	18	14	9			SAND - with Clay, light brown (SP-SC)
												Boring Terminated at 13'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
South of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-106
LAB NO.: S-2544-07
DATE: 3/7/07
SURFACE ELEV.: 55.65'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-13'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=29									CLAY - Lean, brown (CL)
			P=4.5									
5			P=4.5									
			P=4.5	15		47	27	20	91			
			P=4.5	16	108							CLAY - Fat, brown (CH)
10			P=4.5	16		55	27	28				
												Boring Terminated at 13'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-107
LAB NO.: S-2544-07
DATE: 3/7/07
SURFACE ELEV.: 56.86'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-12'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=40									CLAY - Fat, brown (CH)
			P=4.5									
5			P=4.5	14		50	27	23	99			
			P=4.5									
			P=4.5	11		40	19	21	93			CLAY - Lean, brown (CL)
10			P=4.5	13	98	38	23	15				
												Boring Terminated at 12'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-108
LAB NO.: S-2544-07
DATE: 3/7/07
SURFACE ELEV.: 57.14'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=33									CLAY - Lean, brown (CL)
			N=16	11		40	24	16	90			
5			N=4									
			N=6									
			N=11	8		36	22	14	98			
10			N=13	9		32	20	12	96			
			N=9									SAND - with Clay, light brown (SP-SC)
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-109
LAB NO.: S-2544-07
DATE: 3/8/07
SURFACE ELEV.: 56.32'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-13'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=32									CLAY - Lean, brown (CL)
			N=25	12		27	22	5	98			CLAY - Silty, brown (CL-ML)
5			P=4.5									CLAY - Lean with Sand, brown (CL)
			P=4.5									
			P=4.5	15		43	20	23	82			
10			P=4.5									
												Boring Terminated at 13'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-110
LAB NO.: S-2544-07
DATE: 3/8/07
SURFACE ELEV.: 56.26'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-13'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=19									CLAY - Lean, brown (CL)
			N=20									
5			P=4.5	12		31	20	11	91			
			P=4.0									
			P=4.5									
10			P=4.5	16	94	42	19	23	99	2.4	6.4	
												Boring Terminated at 13'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-111
LAB NO.: S-2544-07
DATE: 3/8/07
SURFACE ELEV.: 56.39'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=14									CLAY - Lean, brown (CL)
			N=24	7		25	22	3	56			SILT - Sandy, brown (ML)
5			N=25									
			N=17	11		32	18	14	88			CLAY - Lean, brown (CL)
			N=19									
10			N=15	8		29	21	8	92			- w/some gravel
			P=4.5	19	106	45	20	25	99			
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-112
LAB NO.: S-2544-07
DATE: 3/8/07
SURFACE ELEV.: 56.16'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=50	11		42	22	20	92			CLAY - Lean, brown (CL)
			N=24									
5			N=26									
			N=16	12		33	18	15	96			
			N=20									
10			N=14									
			P=4.5	17	105							- Lean, dark brown (CL)
												Boring Terminated at 14'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-13
LAB NO.: S-2544-07
DATE: 3/8/07
SURFACE ELEV.: 55.15'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=20									CLAY - Lean, brown (CL)
			N=26									
5			P=4.5	21	102	47	19	28	100			
			P=4.5									
			P=4.5									
10			P=4.5	24	100							- Lean, dark brown (CL)
			N=11									SILT - Sandy, brown (ML)
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
South of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-114
LAB NO.: S-2544-07
DATE: 3/8/07
SURFACE ELEV.: 55.16'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=25									CLAY - Lean, brown (CL)
			N=23	13					93			
5			P=4.5	19	105							
			P=4.5	14		31	18	13	90			
			P=4.5									
10			N=11	6		25	23	2	83			SILT - Sandy, brown (ML)
												Boring Terminated at 14'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
South of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-115
LAB NO.: S-2544-07
DATE: 3/8/07
SURFACE ELEV.: 54.66'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=14	14					95			CLAY - Lean, brown (CL)
			N=4									
5			N=4	13		33	23	10	98			
			N=9									
			N=8									
10			N=12									
			N=9									
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
North of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-116
LAB NO.: S-2544-07
DATE: 3/8/07
SURFACE ELEV.: 55.07'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=13									CLAY - Lean, brown (CL)
			N=5									
5			N=5	14		32	22	10	99			
			N=9									
			N=9									
10			N=13									
			N=12									
												Boring Terminated at 14'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-117
LAB NO.: S-2544-07
DATE: 3/8/07
SURFACE ELEV.: 55.10'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=24									CLAY - Lean, brown (CL)
			N=14	10		34	20	14	91			
5			N=7									
			N=8									
			N=17	10		34	22	12	100			
10			N=16									
			N=19	2		21	15	6	37			CLAYEY SAND - Silty, brown (SC-SM)
												Boring Terminated at 14'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
South of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-118
LAB NO.: S-2544-07
DATE: 3/8/07
SURFACE ELEV.: 55.15'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-15'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=24	12		40	19	21	100			CLAY - Lean, brown (CL)
			N=14									
5			N=7									
			N=12	10		34	20	14	98			
			N=16									
10												
				7		24	22	2	50			SILT - Sandy, brown (ML)
15												Boring Terminated at 15'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-119
LAB NO.: S-2544-07
DATE: 3/8/07
SURFACE ELEV.: 55.05'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=11									CLAY - Lean, dark brown (CL)
			N=5									
5			N=4	16		46	27	19	97			
			N=5									
			N=15	24		53	24	29	99			CLAY - Fat, dark brown (CH)
10			P=4.5	24	101							
			P=4.5	20	104	50	20	30	100			
												Boring Terminated at 14'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
North of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-120
LAB NO.: S-2544-07
DATE: 3/8/07
SURFACE ELEV.: 55.05'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-12'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=15									CLAY - Lean, dark brown (CL)
			N=6									
5			N=5									
			N=6	37		36	22	14				
			N=12									CLAY - Fat, brown (CH)
10			P=4.5	20	101	51	22	29	100			
												Boring Terminated at 12'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-121
LAB NO.: S-2544-07
DATE: 3/8/07
SURFACE ELEV.: 54.50'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=22									CLAY - Lean, brown (CL)
			N=5	4		16	16	0	94			SILT - brown (CL)
5			N=5									
			N=7	12		43	20	23	40			CLAYEY SAND - brown (CL)
			N=9									
10			N=20									CLAY - Lean with Sand, brown (CL)
			N=25	10		28	18	10	74			
												Boring Terminated at 14'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
South of Centerlin

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-122
LAB NO.: S-2544-07
DATE: 3/9/07
SURFACE ELEV.: 54.31'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=13									CLAY - Lean, brown (CL)
			N=7									
5			N=7	19		48	30	18	98			
			P=4.5									
			P=4.5	24	95							CLAY - Fat, dark brown (CH)
10			P=3.5	27		64	29	35	99			
			P=3.5	26	93							
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
North of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-123
LAB NO.: S-2544-07
DATE: 3/9/07
SURFACE ELEV.: 54.74'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-15'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=22									CLAY - Fat, brown (CH)
			N=11	14		50	18	32	98			
5			P=4.5	18	95							
			P=4.5									CLAY - Lean, dark brown (CL)
			P=4.5	25	94	49	20	29	100			
10												
			P=4.5	25	97							
15												Boring Terminated at 15'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-124
LAB NO.: S-2544-07
DATE: 3/9/07
SURFACE ELEV.: 54.35'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-15'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=18									CLAY - Lean, brown (CL)
			N=16									
5			N=8	13		38	22	16	99			
			P=4.5	21		80	28	52	99			CLAY - Fat, brown (CH)
			N=11	15		31	21	10	96			CLAY - Lean, brown (CL)
10												
			P=4.5	27	94							CLAY - Fat, dark brown (CH)
15												Boring Terminated at 15'
20												
25												
30												
35												

DESCRIPTION OF STRATUM

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
South of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-125
LAB NO.: S-2544-07
DATE: 3/9/07
SURFACE ELEV.: 54.56'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=20									CLAY - Lean, dark brown (CL)
			N=18	18		48	25	23	97			
5			N=7									
			P=4.0	22	81	61	22	39	100	1.6	1.9	CLAY - Fat, dark brown (CH)
			N=12									CLAY - Lean, dark brown (CL)
10			N=11									
			N=5									
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-126
LAB NO.: S-2544-07
DATE: 3/9/07
SURFACE ELEV.: 53.92'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-16'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Atterberg Limits % Plastic Limit	Atterberg Limits % Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=18									CLAY - Fat, dark brown (CH)
			N=14	20		53	26	27	98			
5			P=4.5									
			P=4.0	25	96							
			P=4.5	24		57	24	33	99			
10			P=4.0									
15			P=4.0	29	88							
												Boring Terminated at 16'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
North of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-127
LAB NO.: S-2544-07
DATE: 3/9/07
SURFACE ELEV.: 54.19'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-15'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Atterberg Limits % Plastic Limit	Atterberg Limits % Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=20									CLAY - Fat, dark brown (CH)
			N=14	18		59	29	30	98			
5			P=4.5	24	93							
			P=4.5									
			P=4.5	25	90							
10												
			P=3.25	20	96	60	23	37	99			
15												Boring Terminated at 15'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-128
LAB NO.: S-2544-07
DATE: 3/9/07
SURFACE ELEV.: 53.93'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-16'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=26									CLAY - Fat, dark brown (CH)
			N=14									
5			P=4.5	19		51	17	34	93			
			P=4.5									
			P=4.5	16		40	21	19	94			CLAY - Lean, dark brown (CL)
10			P=4.5	21	89	41	18	23	93			
15			P=4.5	21	101							
												Boring Terminated at 16'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
South of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-129
LAB NO.: S-2544-07
DATE: 3/9/07
SURFACE ELEV.: 53.07'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-13'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=22									CLAY - Lean, dark brown (CL)
			N=15									
5			P=4.5	19	106	44	17	27	98			
			P=4.5	17		44	20	24	79			- Lean with Sand, dark brown (CL)
			P=4.5									
10			P=4.5									
												Boring Terminated at 13'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-130
LAB NO.: S-2544-07
DATE: 3/9/07
SURFACE ELEV.: 53.66'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=25									CLAY - Fat, dark brown (CH)
			N=24									
5			P=4.5									
			P=4.5	21	101	50	22	28	97	5.5	8.4	
			P=4.5									
10			P=4.5	23		53	19	34	99			
			P=4.5	21	101							
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
North of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-131
LAB NO.: S-2544-07
DATE: 3/9/07
SURFACE ELEV.: 54.09'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-13'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=22									CLAY - Fat, dark brown (CH)
			N=25	17		60	22	38	94			
5			N=29	17		60	22	38	93			- Fat, brown (CH)
			P=4.5									
			P=4.5	23	97	54	27	27	95	3.9	6.9	
10			P=4.5	22	101							- Fat, dark brown (CH)
												Boring Terminated at 13'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-132
LAB NO.: S-2544-07
DATE: 3/9/07
SURFACE ELEV.: 54.17'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=25									CLAY - Fat, dark brown (CH)
			N=25									
5			P=4.5	22		58	29	29	93			
			P=4.25									
			P=4.5									
10			P=1.75									
			P=2.5	23	90	60	25	35	100	1.8	6.6	
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
North of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-133
LAB NO.: S-2544-07
DATE: 3/9/07
SURFACE ELEV.: 53.98'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=25									CLAY - Lean, dark brown (CL)
			N=20									
5			P=4.5									- w/sand layers
			P=3.25	20		46	19	27	92			
			P=4.25									
10			P=1.0									- w/sand layers
			P=2.5	27	98	45	18	27	100			
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
South of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-134
LAB NO.: S-2544-07
DATE: 3/9/07
SURFACE ELEV.: 53.49'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=15									CLAY - Sandy, Lean, brown (CL)
			N=13	12		48	25	23	51			
5			N=12									
			P=4.5									
			P=4.5	15		32	19	13	89			
10			P=4.5	24	97	55	20	35	100			CLAY - Fat, brown (CH)
			P=4.5									
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-135
LAB NO.: S-2544-07
DATE: 3/12/07
SURFACE ELEV.: 53.04'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=26									CLAY - Lean, brown (CL)
			N=20									
5			P=4.5									
			P=4.5	15		42	24	18	94			
			P=4.5									
10			P=4.5	18	104							CLAY - Fat, dark brown (CH)
			P=4.5	24	92	59	21	38	100			
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-136
LAB NO.: S-2544-07
DATE: 3/12/07
SURFACE ELEV.: 53.36'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=29	13		42	24	18	97			CLAY - Lean, brown (CL)
			N=23									
5			P=4.5									
			N=7									
			P=4.5	18		38	21	17	98			
10			P=4.5									CLAY - Fat, dark brown (CH)
			P=4.5									
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-137
LAB NO.: S-2544-07
DATE: 3/15/07
SURFACE ELEV.: 53.01'

FIELD DATA | LABORATORY DATA | DRILLING METHOD(S) : Dry Auger 0-11'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=27									CLAY - Fat, brown (CH)
			P=4.5	16	101	55	28	27	98	4.3	3.8	
5			P=4.5									
			P=4.5	15	105	48	23	25	100			CLAY - Lean, brown (CL)
10			P=4.5									
												Boring Terminated at 11'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
South of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-138
LAB NO.: S-2544-07
DATE: 3/15/07
SURFACE ELEV.: 52.87'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Atterberg Limits % Plastic Limit	Atterberg Limits % Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			P=4.5									CLAY - Lean, brown (CL)
			P=4.5	15		43	19	24	98			
5			P=4.5									
			P=4.5	21		55	26	29	100			CLAY - Fat, brown (CH)
10			P=4.5									
			P=4.5									
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-139
LAB NO.: S-2544-07
DATE: 3/15/07
SURFACE ELEV.: 53.03'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			P=4.5	15		42	18	24	100			CLAY - Lean, brown (CL)
			P=4.5									
5			P=4.5									
			P=4.5	20		47	22	25	98			
			P=4.5									
10			P=4.5	25		62	31	31	99			CLAY - Fat, dark brown (CH)
												Boring Terminated at 14'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-140
LAB NO.: S-2544-07
DATE: 3/15/07
SURFACE ELEV.: 52.75'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-13'

GROUNDWATER INFORMATION:
On Centerline

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			P=4.5									CLAY - Lean, brown (CL)
			P=4.5	17		45	18	27	100			
5			P=4.0									- w/sand layers
			P=4.5	15	107							
			P=4.5	22		52	25	27	99			CLAY - Fat, dark brown (CH)
10			P=4.5	27	96							
												Boring Terminated at 13'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-141
LAB NO.: S-2544-07
DATE: 3/15/07
SURFACE ELEV.: 52.80'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-13'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			P=4.5									CLAY - Lean, brown (CL)
			P=4.5									
5			P=4.5	17		43	17	26	97			
			P=4.5									
			P=4.5									
10			P=4.5	26	98	61	23	38	100			CLAY - Fat, dark brown (CH)
												Boring Terminated at 13'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-142
LAB NO.: S-2544-07
DATE: 3/15/07
SURFACE ELEV.: 52.68'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			P=4.5									CLAY - Lean, brown (CL)
			P=4.5	13		35	18	17	97			
5			P=4.5									
			P=4.0									
			P=4.5	14		31	17	14	95			
10												
			P=4.5	26	97							CLAY - Fat, dark brown (CH)
												Boring Terminated at 14'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-143
LAB NO.: S-2544-07
DATE: 3/15/07
SURFACE ELEV.: 53.40'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			P=4.5	17		43	21	22	100			CLAY - Lean, brown (CL)
			P=4.5									
5			P=4.0									
			P=4.5									
			P=4.5	26	97							CLAY - Fat, dark brown (CH)
10												
			P=4.5	26	99	55	23	32	100			
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-144
LAB NO.: S-2544-07
DATE: 3/15/07
SURFACE ELEV.: 52.02'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			P=4.5									CLAY - Lean, brown (CL)
			N=27									
5			P=4.5									
			P=4.5	19		41	21	20	98			
			P=4.5	19		41	21	20	97			
10			P=4.5	24	97							CLAY - Fat, dark brown (CH)
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
North of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-145
LAB NO.: S-2544-07
DATE: 3/15/07
SURFACE ELEV.: 52.75'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-13'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			P=4.5									CLAY - Lean, brown (CL)
			N=28	13		43	22	21	98			
5			P=4.5									
			P=4.5	25	98	54	20	34	100			CLAY - Fat, brown (CH)
			P=2.5									
10			P=3.5	26	98							- Fat, dark brown (CH)
												Boring Terminated at 13'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-146
LAB NO.: S-2544-07
DATE: 3/15/07
SURFACE ELEV.: 52.56'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-12'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			P=4.5									CLAY - Lean, brown (CL)
			P=4.5									
5			P=4.5									
			P=4.5									
			P=4.5	16		43	18	25	97			
10			P=4.5	24	93	48	24	24	100			
												Boring Terminated at 12'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
South of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-147
LAB NO.: S-2544-07
DATE: 3/15/07
SURFACE ELEV.: 52.71'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-12'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Atterberg Limits % Plastic Limit	Atterberg Limits % Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			P=4.5									CLAY - Fat, brown (CH)
			P=4.5	23	89	65	31	34	100	2.0	2.6	
5			P=4.5	12		48	20	28	100			CLAY - Lean, brown (CL)
			P=4.5									
			P=4.5	21	100							
10			P=4.5									CLAY - Fat, dark brown (CH)
												Boring Terminated at 12'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-148
LAB NO.: S-2544-07
DATE: 3/15/07
SURFACE ELEV.: 53.05'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			P=4.5									CLAY - Fat, brown (CH)
			P=4.5									
5			P=4.5	19		53	22	31	99			
			P=3.0									
			P=4.5									- Fat, dark brown (CH)
10												
			P=4.0	27	96	55	21	34	100			
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-149
LAB NO.: S-2544-07
DATE: 3/15/07
SURFACE ELEV.: 52.75'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			P=4.5									CLAY - Fat, brown (CH)
			P=4.5	20	92	56	22	34	100	4.1	3.5	
5			P=4.5									
			P=4.5									
			P=4.5	17		32	18	14	94			CLAY - Lean, dark brown (CL)
10			P=4.5									
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
North of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-150
LAB NO.: S-2544-07
DATE: 3/15/07
SURFACE ELEV.: 52.45'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-12'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=6									SILT - with Sand, brown (ML)
			N=5	8		24	23	1	84			
5			N=3									
			N=5									
			N=7	15		30	20	10	96			CLAY - Lean, brown (CL)
10			N=9									
												Boring Terminated at 12'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-151
LAB NO.: S-2544-07
DATE: 3/15/07
SURFACE ELEV.: 52.32'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-13'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=7									SILT - with Sand, brown (ML)
			N=6									
5			N=3	9					84			
			N=6									
			N=8									CLAY - Lean, brown (CL)
10												
			N=14	14		33	23	10	99			
												Boring Terminated at 13'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
South of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-152
LAB NO.: S-2544-07
DATE: 3/15/07
SURFACE ELEV.: 52.43'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-13'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=15	14		19	19	0	91			SILT - dark brown (ML)
			N=19									
5			N=9									
			N=10	10		25	19	6	91			CLAY - Silty, dark brown (CL-ML)
10			N=9									
			N=3	6		22	21	1	75			SILT - with Sand, dark brown (ML)
												Boring Terminated at 13'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-153
LAB NO.: S-2544-07
DATE: 3/15/07
SURFACE ELEV.: 52.62'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-15'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=15									CLAY - Lean, dark brown (CL)
			N=19	14		41	21	20	95			
5			N=8									CLAY - Silty, brown (CL-ML)
			N=13	14		25	18	7	98			
10			N=10									
15			N=3									SILT - with Sand, brown (ML)
												Boring Terminated at 15'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-154
LAB NO.: S-2544-07
DATE: 3/15/07
SURFACE ELEV.: 52.14'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-18'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=14									CLAY - Lean, dark brown (CL)
			N=17									
5			N=6									- Lean, brown (CL)
			N=7	11		34	21	13	98			
			N=14									
10												
			P=4.5	19	106	42	21	21	95			
15			N=4	6		20	20	0	69			SILT - Sandy, brown (ML)
												Boring Terminated at 18'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-155
LAB NO.: S-2544-07
DATE: 3/15/07
SURFACE ELEV.: 52.89'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=19									CLAY - Lean, dark brown (CL)
			N=17	13		35	16	19	95			
5			N=23									- Lean, brown (CL)
			N=22									
			N=22	15		34	17	17	97			
10			P=4.5									
												Boring Terminated at 14'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-156
LAB NO.: S-2544-07
DATE: 3/16/07
SURFACE ELEV.: 52.33'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			P=4.5									CLAY - Lean, brown (CL) w/some calcareous deposits
			P=4.5									
5			P=4.0	15		45	22	23	100			
			P=4.5									
			P=4.0									
10			P=4.5	22	101	54	21	33	100			CLAY - Fat, dark brown (CH)
												Boring Terminated at 14'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-157
LAB NO.: S-2544-07
DATE: 3/16/07
SURFACE ELEV.: 52.47'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-13'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			P=4.5	15		41	21	20	98			CLAY - Lean, dark brown (CL)
			P=4.5									
5			P=4.5									
			P=4.5	15		53	26	27	93			CLAY - Fat, brown (CH)
			P=4.5									
10			P=4.5	25	96							- Fat, dark brown (CH)
												Boring Terminated at 13'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-158
LAB NO.: S-2544-07
DATE: 3/16/07
SURFACE ELEV.: 52.23'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-12'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Atterberg Limits % Plastic Limit	Atterberg Limits % Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			P=4.5									CLAY - Lean, brown (CL)
			P=4.5	12		38	22	16	96			
5			P=4.5									
			P=3.25									
			P=4.5	13	109	40	19	21	93			- Lean, dark brown (CL)
10			N=9									
												Boring Terminated at 12'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-159
LAB NO.: S-2544-07
DATE: 3/16/07
SURFACE ELEV.: 52.29'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			P=4.5									CLAY - Fat, brown (CH)
			P=4.5									
5			P=4.5	24	95	59	25	34	99	2.0	2.8	
			P=4.5									
			P=4.5	23					99			
10												
			P=4.5	30	92							
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-160
LAB NO.: S-2544-07
DATE: 3/16/07
SURFACE ELEV.: 52.51'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-17'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			P=4.5	16		57	23	34	100			CLAY - Fat, brown (CH)
			P=4.5									
5			P=4.5									
			P=4.5									
			P=4.5									- Fat, dark brown (CH)
10												
			P=3.25	21		52	25	27	100			
15			P=4.5									
												Boring Terminated at 17'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-161
LAB NO.: S-2544-07
DATE: 3/16/07
SURFACE ELEV.: 51.80'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-17'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Atterberg Limits % Plastic Limit	Atterberg Limits % Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			P=4.5									CLAY - Fat, dark brown (CH)
			P=4.5	13		60	24	36	99			- Fat, brown (CH)
5			P=4.5	19	102							- Fat, dark brown (CH)
			P=4.5									
			P=3.5									
10												
			P=4.5	25	94	53	24	29	100			
15			P=4.5	26	94							
												Boring Terminated at 17'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-162
LAB NO.: S-2544-07
DATE: 3/16/07
SURFACE ELEV.: 51.86'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			P=4.5									CLAY - Fat, brown (CH)
			P=4.5									
5			P=4.5	19		53	27	26	98			
			P=4.5	21	102							- Fat, dark brown (CH)
			P=2.5									
10			P=4.5	21		60	29	31	99			
												Boring Terminated at 14'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-163
LAB NO.: S-2544-07
DATE: 3/16/07
SURFACE ELEV.: 51.62'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-13'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=26									2" Caliche CLAY - Lean, brown (CL)
			N=20			40	19	21				
5			P=4.5	14	112							
			P=4.5									
			P=4.5	16	109	45	18	27	99			
10			P=4.5									
												Boring Terminated at 13'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-164
LAB NO.: S-2544-07
DATE: 3/16/07
SURFACE ELEV.: 51.49'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-13'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=24									CLAY - Lean, brown (CL)
			N=14									
5			P=4.5	14		37	21	16	98			
			P=4.5									
			P=4.5	15	106							CLAY - Fat, brown (CH) w/some calcareous deposits
10			P=4.5	18	107	58	22	36	97	4.0	5.8	
												Boring Terminated at 13'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-165
LAB NO.: S-2544-07
DATE: 3/16/07
SURFACE ELEV.: 50.48'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=23									3" Caliche CLAY - Lean, dark brown (CL)
			P=4.5	16		47	21	26	100			
5			P=4.5									
			P=4.5	18	111							
			P=4.5	18	109							
10												
				18	105	47	21	26	99			
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-166
LAB NO.: S-2544-07
DATE: 3/16/07
SURFACE ELEV.: 48.27'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=23	11		60	23	37	79			3" Caliche CLAY - Fat, dark brown (CH)
			N=24									
5			P=4.5									
			P=4.5	20	102							
			P=4.5	20		63	24	39	99			
10												
			P=4.5	20	100							
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-167
LAB NO.: S-2544-07
DATE: 3/16/07
SURFACE ELEV.: 48.36'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-13'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=22									3" Caliche CLAY - Fat, dark brown (CH)
			N=27									
5			P=4.5	18		60	25	35	99			
			P=4.5	22	100	60	22	38	100			
			P=4.5	23	89							
10			P=4.5	23	99							
												Boring Terminated at 13'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-168
LAB NO.: S-2544-07
DATE: 3/16/07
SURFACE ELEV.: 44.62'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-11'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Atterberg Limits % Plastic Limit	Atterberg Limits % Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=22									3" Caliche CLAY - Lean with Sand, brown (CL)
			N=15	13		36	22	14	80			
5			P=4.5									
			N=8	11		18	18	0	77			SILT - with Sand, brown (ML)
10			N=7									
												Boring Terminated at 11'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-169
LAB NO.: S-2544-07
DATE: 3/16/07
SURFACE ELEV.: 44.56'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-12'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=29									3" Caliche CLAY - Lean, brown (CL)
			N=17	14		23	21	2	87			SILT - brown (ML)
5			P=4.0									CLAY - Lean, brown (CL)
			N=10	11		34	19	15	65			
			N=7									
10			N=5									
												Boring Terminated at 12'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-170
LAB NO.: S-2544-07
DATE: 3/19/07
SURFACE ELEV.: 44.00'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-12'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=28									3" Caliche CLAY - Lean, brown (CL)
			N=20									
5			N=18									
			P=4.5	19	109	40	17	23	96			
			P=3.5									
10			P=3.5	17		34	20	14	97			
												Boring Terminated at 12'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-171
LAB NO.: S-2544-07
DATE: 3/19/07
SURFACE ELEV.: **43.93'**

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-13'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=20									CLAY - Lean, brown (CL)
			N=21	16		44	20	24	98			
5			P=4.5									
			P=4.5	17	109	39	20	19	97			
			N=12									
10			N=14									
												Boring Terminated at 13'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-172
LAB NO.: S-2544-07
DATE: 3/20/07
SURFACE ELEV.: 43.13'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-21'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=19									3" Caliche CLAY - Lean, brown (CL)
			N=19									
5			P=4.5	17		46	18	28	99			
			P=4.5	13	108							
			P=4.5									
10												
			P=3.5	23	97	34	20	14	87			
15												
20			N=7	15					80			Boring Terminated at 21'
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-173
LAB NO.: S-2544-07
DATE: 3/21/07
SURFACE ELEV.: 42.92'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-21'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Atterberg Limits % Plastic Limit	Atterberg Limits % Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=13									CLAY - Lean, brown (CL)
			P=4.5									- Lean, dark brown (CL)
5			P=4.5									
			P=4.5									
			P=4.5									
10												
			P=4.5	23	98	67	26	41	100			CLAY - Fat, dark brown (CH)
15												
20			P=4.5									
												Boring Terminated at 21'
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-174
LAB NO.: S-2544-07
DATE: 3/20/07
SURFACE ELEV.: 41.76'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=11	11		32	19	13	93			CLAY - Lean, brown (CL)
			P=4.5									
5			P=4.5									
			P=4.5	21	99	46	21	25	99			
			P=2.25									
10												
			P=3.0	29	90							
												Boring Terminated at 14'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-175
LAB NO.: S-2544-07
DATE: 3/20/07
SURFACE ELEV.: 42.74'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-15'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=16	13					97			CLAY - Lean, brown (CL)
			N=18						97			
5			N=15									
			N=13									
			N=20	19		48	24	24	96			
10												
			N=22									
15												Boring Terminated at 15'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-176
LAB NO.: S-2544-07
DATE: 3/20/07
SURFACE ELEV.: 42.50'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-15'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=12									CLAY - Lean, brown (CL)
			P=4.5									CLAY - Fat, brown (CH)
5			P=4.5	23		51	22	29	97			
			P=4.5									
			P=3.0	17		36	21	15				CLAY - Lean, brown (CL)
10												
			P=3.25	25	92							
15												Boring Terminated at 15'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-177
LAB NO.: S-2544-07
DATE: 3/20/07
SURFACE ELEV.: 38.65'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=46									2" Caliche CLAY - Lean, brown (CL)
			N=22									CLAY - Fat, dark brown (CH)
5			P=4.5									
			P=4.5	23	96	55	22	33	97	3.6	5.3	
			P=3.5									
10												
			P=4.5	17	106							
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-178
LAB NO.: S-2544-07
DATE: 3/20/07
SURFACE ELEV.: 38.18'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-18'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=48									3" Caliche CLAY - Lean, brown (CL)
			N=17									CLAY - Fat, dark brown (CH)
5			P=4.5									
			P=4.5	24	99							
			P=4.5	22		60	25	35	99			
10												
			P=3.0									
15												
			P=2.5	28	95	66	25	41	100			
												Boring Terminated at 18'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-179
LAB NO.: S-2544-07
DATE: 3/20/07
SURFACE ELEV.: 37.56'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-18'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=27									3" Caliche CLAY - Lean, brown (CL)
			P=4.5	11		47	22	25	93			
5			P=4.5									- Lean, dark grayish brown (CL)
			P=4.5									
			P=4.5	23	101							
10												
			P=4.0	20	104	48	20	28	93			
15			P=3.0									CLAY - Silty, brown (CL-ML)
												Boring Terminated at 18'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-180
LAB NO.: S-2544-07
DATE: 3/20/07
SURFACE ELEV.: 37.75'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-16'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=24									3" Caliche CLAY - Lean, brown (CL)
			P=4.5									
5			P=4.5									
			P=4.5									
			P=4.5	23	101	51	23	28	99			CLAY - Fat, dark grayish brown (CH)
10			P=4.0	20	106							
15			P=3.0	17		25	21	4	86			CLAY - Silty, brown (CL-ML)
												Boring Terminated at 16'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-181
LAB NO.: S-2544-07
DATE: 3/21/07
SURFACE ELEV.: 37.06'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-16'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=29									3" Caliche CLAY - Lean, brown (CL)
			N=13									- Lean, dark brown (CL)
5			P=4.5									
			P=4.5	18	110							
			P=4.5	19	103	51	19	32	92	5.1	6.1	CLAY - Fat, dark brown (CH)
10			P=4.5	17	107	40	20	20	91			CLAY - Lean, brown (CL)
15			P=4.5									
												Boring Terminated at 16'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-182
LAB NO.: S-2544-07
DATE: 3/20/07
SURFACE ELEV.: 37.01'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-15'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=32									3" Caliche CLAY - Lean, brown (CL)
			P=4.5	13		40	21	19	91			
5			P=4.5									
			P=4.5	20	107							
			P=4.5	19		45	17	28	96			- Lean, dark grayish brown (CL)
10												
			N=7									CLAY - Silty, brown (CL-ML)
15												Boring Terminated at 15'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-183
LAB NO.: S-2544-07
DATE: 3/20/07
SURFACE ELEV.: 36.94'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=31									3" Caliche CLAY - Lean, brown (CL)
			P=4.5									
5			P=4.5	32	89	57	22	35	96	4.4	4.9	CLAY - Fat, dark grayish brown (CH)
			P=4.5									CLAY - Lean, brown (CL)
			P=4.5	17	108	44	21	23	92			
10			N=9	13		31	17	14	83			- Lean with Sand, brown (CL)
												Boring Terminated at 14'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-184
LAB NO.: S-2544-07
DATE: 3/20/07
SURFACE ELEV.: 36.43'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=23									2" Caliche CLAY - Lean, dark brown (CL)
			P=4.5	17		42	20	22	93			
5			P=4.5									
			P=4.5									
			P=3.5	19	101	43	22	21	87	2.7	14.7	
10												
			P=3.5	20	101							
15												Boring Terminated at 14'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-185
LAB NO.: S-2544-07
DATE: 3/21/07
SURFACE ELEV.: 36.76'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-16'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			P=4.5									CLAY - Lean, brown (CL)
			P=4.5	19		46	18	28	95			
5			P=4.5									
			P=4.5									
			P=4.5	22	102	44	17	27	95			
10			P=4.5									
15				22		34	20	14	91			
												Boring Terminated at 16'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-186
LAB NO.: S-2544-07
DATE: 3/21/07
SURFACE ELEV.: 37.17'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-16'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Atterberg Limits % Plastic Limit	Atterberg Limits % Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			P=4.5									CLAY - Lean, brown (CL)
			P=4.5	15	106	43	19	24	94	3.9	7.6	
5			P=4.5									
			P=4.5	14		34	17	17	93			
			P=4.5	25	99							
10			P=4.5	13		26	23	3	95			SILT - brown (ML)
15			P=2.5									
												Boring Terminated at 16'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-187
LAB NO.: S-2544-07
DATE: 3/21/07
SURFACE ELEV.: 37.17'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Atterberg Limits % Plastic Limit	Atterberg Limits % Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			P=4.5									CLAY - Lean, brown (CL)
			N=10			36	14	22	94			
5			N=9									
			P=4.5									
			P=4.5									
10			N=5									SILT - brown (ML)
												Boring Terminated at 14'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-188
LAB NO.: S-2544-07
DATE: 3/21/07
SURFACE ELEV.: 37.34'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-14'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=57									3" Caliche CLAY - Lean, dark brown (CL)
			N=42									- Lean, brown (CL)
5			P=4.5	18	107							
			P=4.5	14		35	16	19	89			
			P=4.5									- Lean, dark brown (CL)
10			P=4.0									- Lean, brown (CL)
												Boring Terminated at 14'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-189
LAB NO.: S-2544-07
DATE: 3/21/07
SURFACE ELEV.: 36.52'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-15'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=51									CLAY - Lean, brown (CL)
			N=42									
5			P=4.5	17		39	19	20	89			
			P=4.5									
			P=4.0									
10												
			P=3.0	18		35	21	14	99			
15												Boring Terminated at 15'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
East of Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-190
LAB NO.: S-2544-07
DATE: 3/21/07
SURFACE ELEV.: 36.34'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-16'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=24			44	19	25				CLAY - Lean, brown (CL)
			N=23									
5			P=4.5									
			P=4.5	19	106	48	21	27	99			
			P=4.5									
10			P=4.0									
15			P=4.5									
												Boring Terminated at 16'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-191
LAB NO.: S-2544-07
DATE: 3/21/07
SURFACE ELEV.: 36.41'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-16'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=25									CLAY - Lean, brown (CL)
			N=25									
5			P=4.5							10.0	7.5	
			P=4.5	16		41	18	23	96			
			P=4.5									
10			P=4.5	20	106	51	23	28	100			CLAY - Fat, brown (CH)
15			P=4.5									
												Boring Terminated at 16'
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-192
LAB NO.: S-2544-07
DATE: 3/21/07
SURFACE ELEV.: 32.55'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-13'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=41									CLAY - Lean, dark brown (CL)
			P=4.5									
5			P=4.5	20	91	48	21	27	98	3.6	2.2	
			P=4.5									
			P=4.5	21	104							CLAY - Fat, dark brown (CH)
10												
			P=4.5	22	105	68	22	46	99			
												Boring Terminated at 13'
15												
20												
25												
30												
35												

Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

Log of Boring

PROJECT: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Hidalgo & Cameron Counties

CLIENT: S&B Infrastructure, Ltd.

BORING NO.: BH-193
LAB NO.: S-2544-07
DATE: 3/21/07
SURFACE ELEV.: 32.08'

FIELD DATA | LABORATORY DATA

DRILLING METHOD(S) : Dry Auger 0-13'

GROUNDWATER INFORMATION:
None Encountered

DEPTH (FEET)	SAMPLE	SOIL TYPE	N : BLOWS/FT T : INCH/100 BLOWS P : TONS/SQ. FT. R : PERCENT RQD : RATIO	MOISTURE CONT. %	DRY DENSITY pounds/ft.3	Atterberg Limits % Liquid Limit	Plastic Limit	Plasticity Index	MINUS No. 200 SIEVE (%)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN %	DESCRIPTION OF STRATUM
0			N=37									CLAY - Fat, dark brown (CH)
			P=4.5	18	99	68	22	46	99	6.5	3.5	
5			P=4.5									
			P=4.5	20	100	60	23	37	99			
			P=4.5									
10			P=4.5	19	105							
												Boring Terminated at 13'
15												
20												
25												
30												
35												

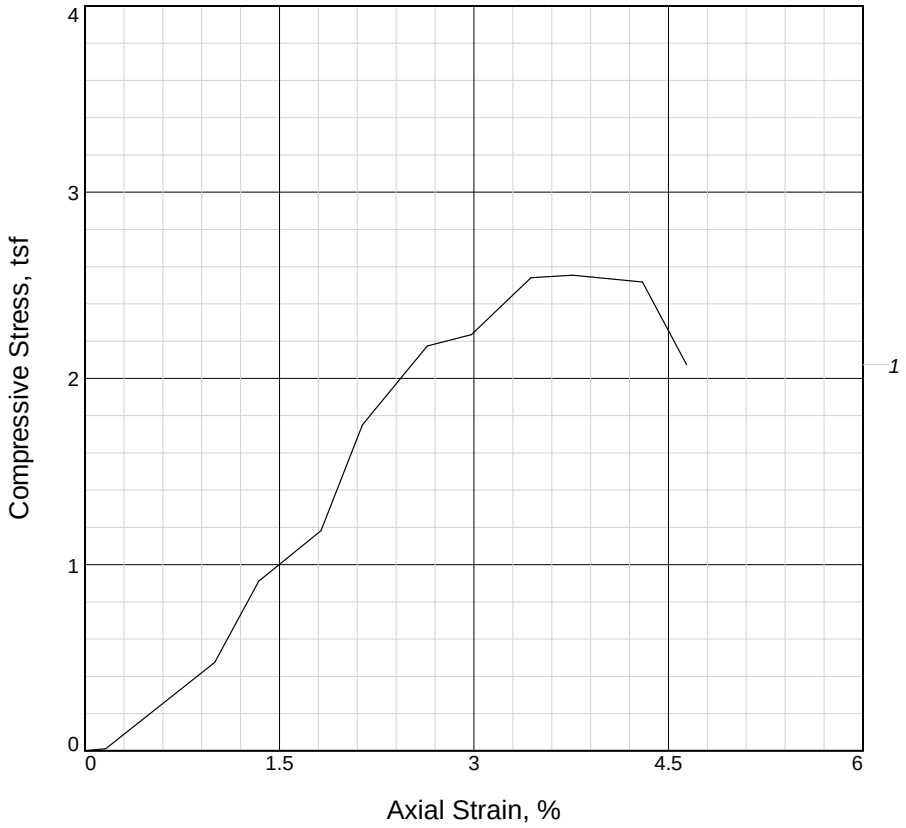
Steel Tube Sample
Split Spoon Sample
Disturbed Sample

REMARKS:
On Centerline

TSI Laboratories, Inc.

APPENDIX E
Unconfined Compression

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	2.555			
Undrained shear strength, tsf	1.277			
Failure strain, %	3.8			
Strain rate, in./min.	0.12			
Water content, %	18.4			
Wet density, pcf	120.1			
Dry density, pcf	101.5			
Saturation, %	75.1			
Void ratio	0.6611			
Specimen diameter, in.	2.80			
Specimen height, in.	5.00			
Height/diameter ratio	1.79			

Description:

LL = 38	**PL =** 24	**PI =** 14	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 2/27
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

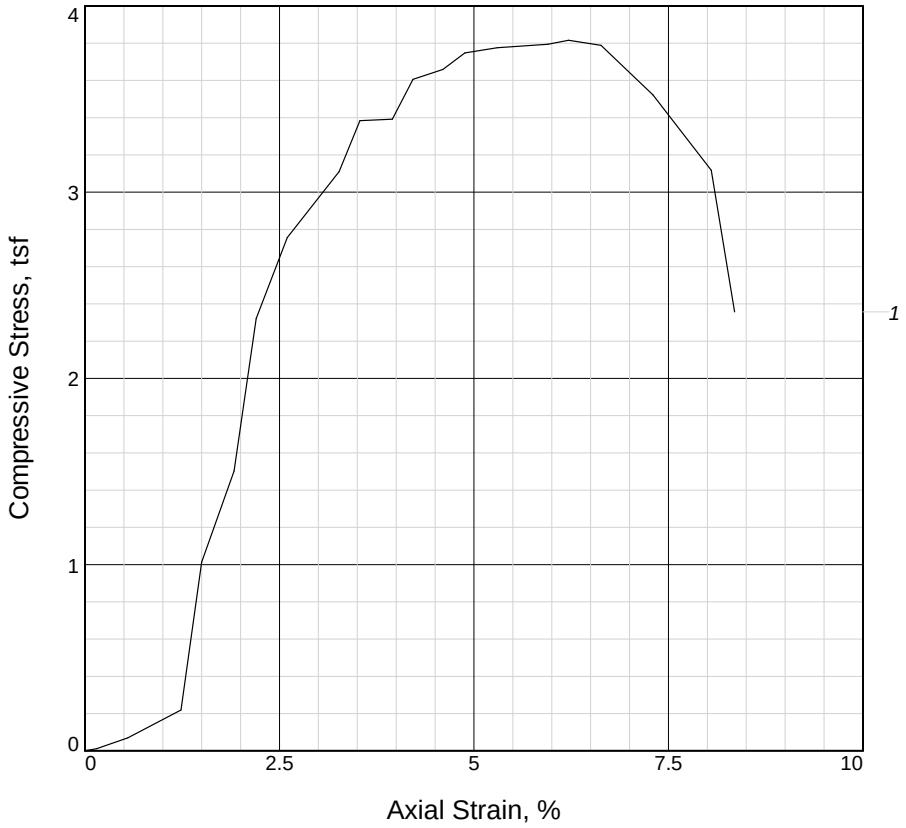
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-1 **Depth:** 6

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	3.816			
Undrained shear strength, tsf	1.908			
Failure strain, %	6.2			
Strain rate, in./min.	0.12			
Water content, %	24.6			
Wet density, pcf	119.9			
Dry density, pcf	96.2			
Saturation, %	88.4			
Void ratio	0.7513			
Specimen diameter, in.	2.80			
Specimen height, in.	6.00			
Height/diameter ratio	2.14			

Description:

LL = 58	**PL =** 24	**PI =** 34	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 2/27/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

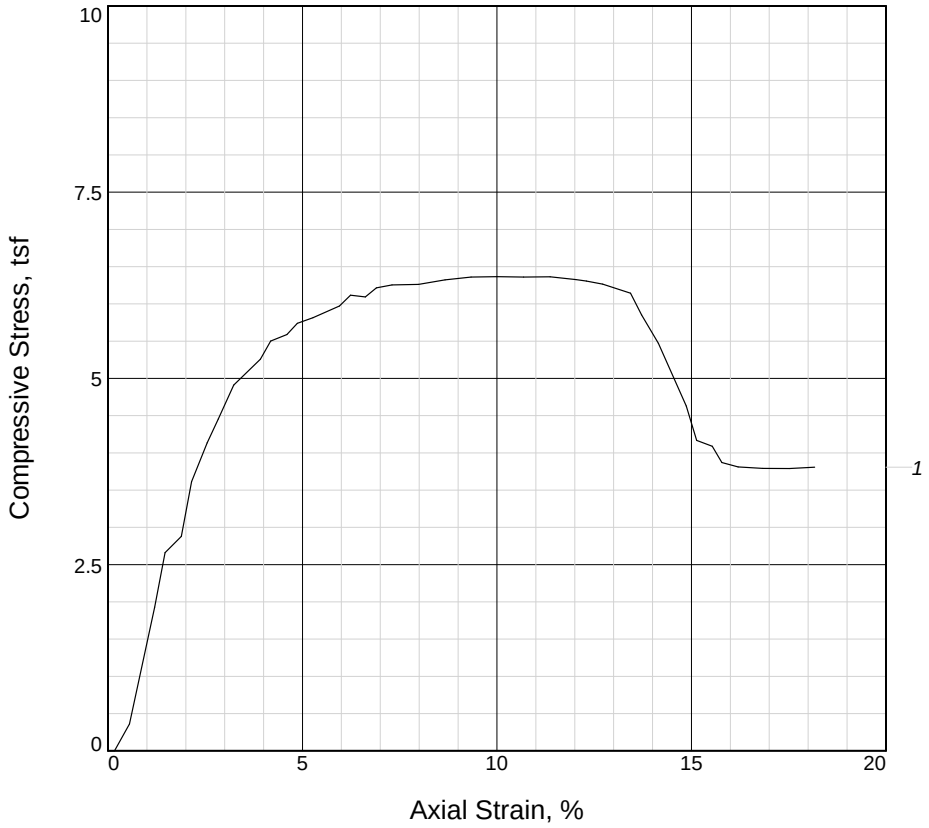
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-11 **Depth:** 2

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	6.367			
Undrained shear strength, tsf	3.183			
Failure strain, %	10.0			
Strain rate, in./min.	0.12			
Water content, %	21.1			
Wet density, pcf	124.9			
Dry density, pcf	103.1			
Saturation, %	89.9			
Void ratio	0.6343			
Specimen diameter, in.	2.80			
Specimen height, in.	6.00			
Height/diameter ratio	2.14			

Description:

LL = 57	**PL =** 13	**PI =** 44	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 2/27/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

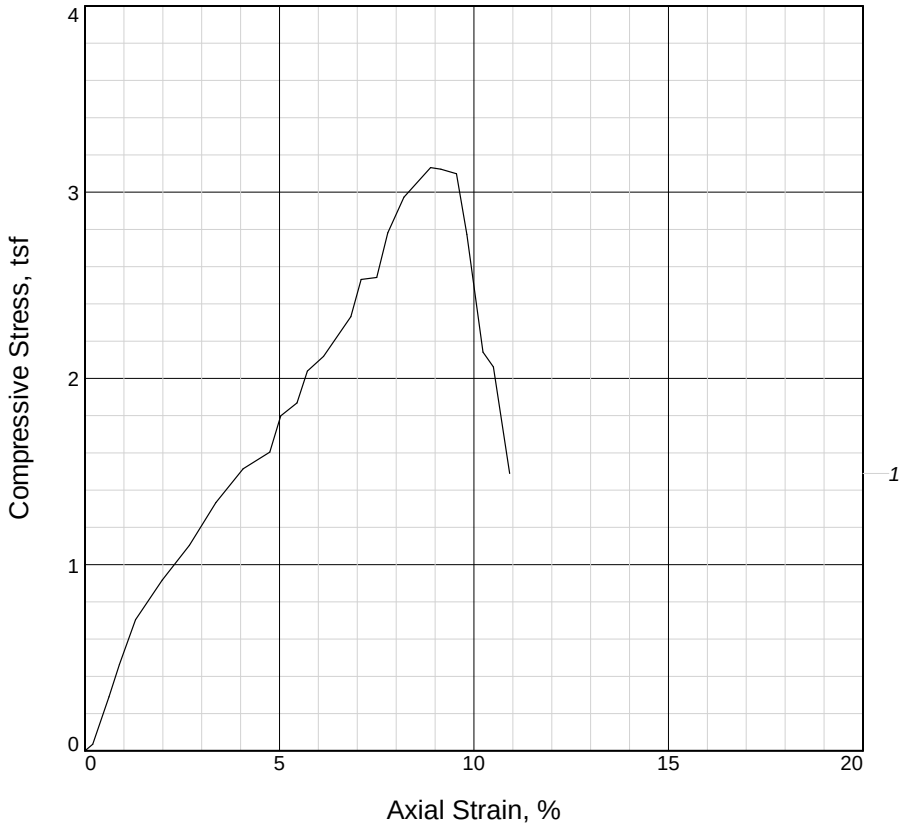
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-12 **Depth:** 2

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	3.132			
Undrained shear strength, tsf	1.566			
Failure strain, %	8.9			
Strain rate, in./min.	0.12			
Water content, %	19.0			
Wet density, pcf	117.0			
Dry density, pcf	98.3			
Saturation, %	71.8			
Void ratio	0.7154			
Specimen diameter, in.	2.80			
Specimen height, in.	6.00			
Height/diameter ratio	2.14			

Description:

LL =	**PL =**	**PI =**	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 2/28/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

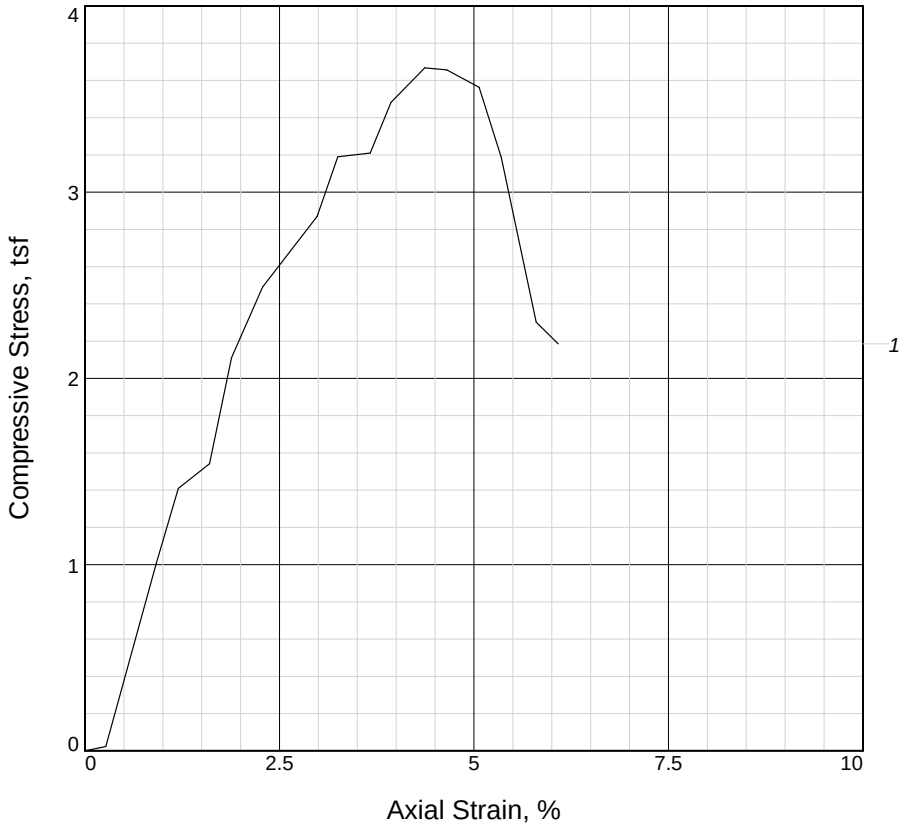
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-20 **Depth:** 6

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	3.668			
Undrained shear strength, tsf	1.834			
Failure strain, %	4.4			
Strain rate, in./min.	0.12			
Water content, %	26.9			
Wet density, pcf	118.1			
Dry density, pcf	93.1			
Saturation, %	89.6			
Void ratio	0.8111			
Specimen diameter, in.	2.80			
Specimen height, in.	6.00			
Height/diameter ratio	2.14			

Description: CLAY - Fat, dark brown (CH)

LL = 61	**PL =** 38	**PI =** 23	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 3/1/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

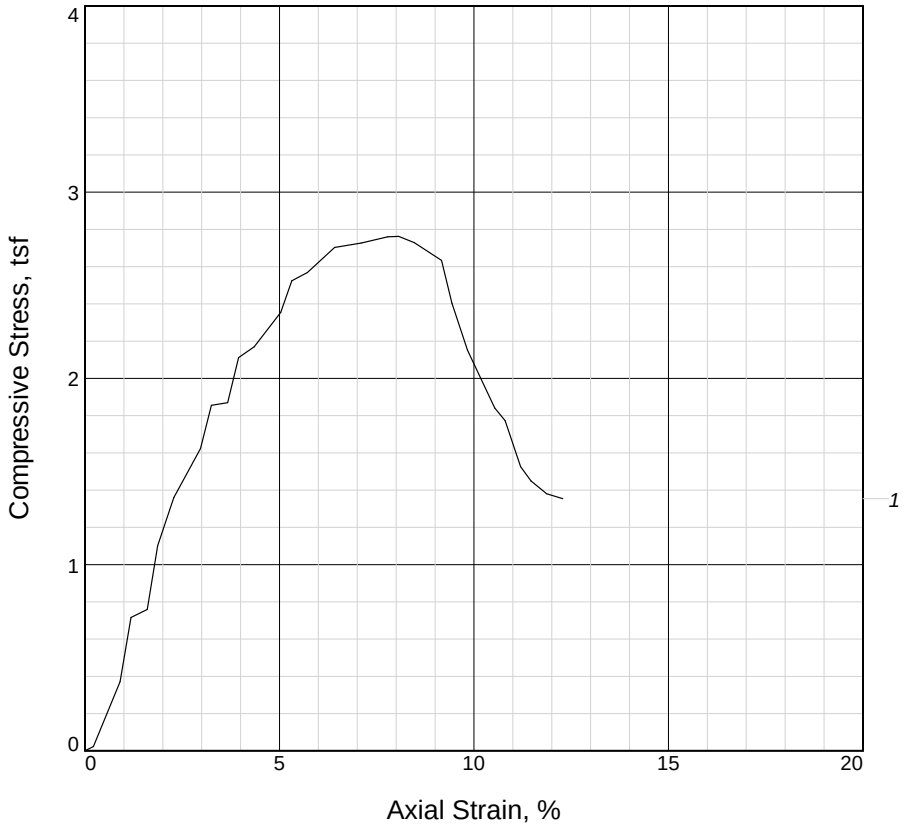
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-29 **Depth:** 4

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	2.763			
Undrained shear strength, tsf	1.381			
Failure strain, %	8.1			
Strain rate, in./min.	0.12			
Water content, %	21.0			
Wet density, pcf	117.1			
Dry density, pcf	96.8			
Saturation, %	76.4			
Void ratio	0.7415			
Specimen diameter, in.	2.80			
Specimen height, in.	6.00			
Height/diameter ratio	2.14			

Description: - Lean, dark brown (CL)

LL = 44	**PL =** 19	**PI =** 25	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 3/1/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

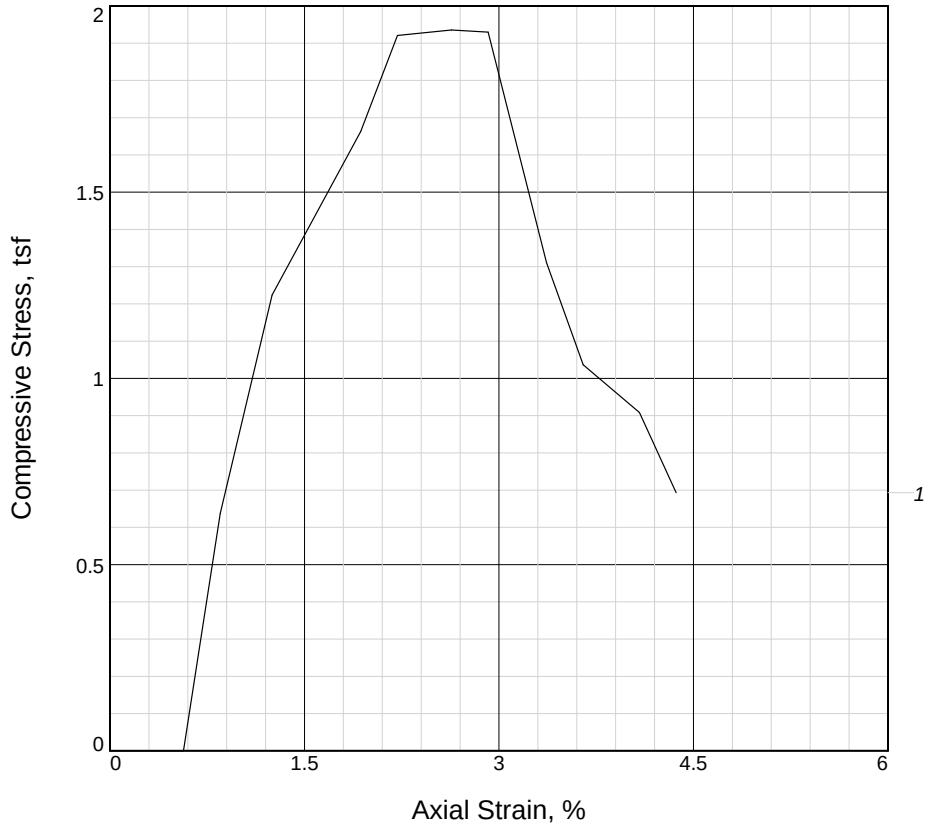
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-34 **Depth:** 2

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	1.935			
Undrained shear strength, tsf	0.968			
Failure strain, %	2.6			
Strain rate, in./min.	0.12			
Water content, %	16.0			
Wet density, pcf	113.4			
Dry density, pcf	97.8			
Saturation, %	59.7			
Void ratio	0.7239			
Specimen diameter, in.	2.80			
Specimen height, in.	6.00			
Height/diameter ratio	2.14			

Description: CLAY - Fat, dark brown (CH)

LL = 71	**PL =** 33	**PI =** 38	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 3/2/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

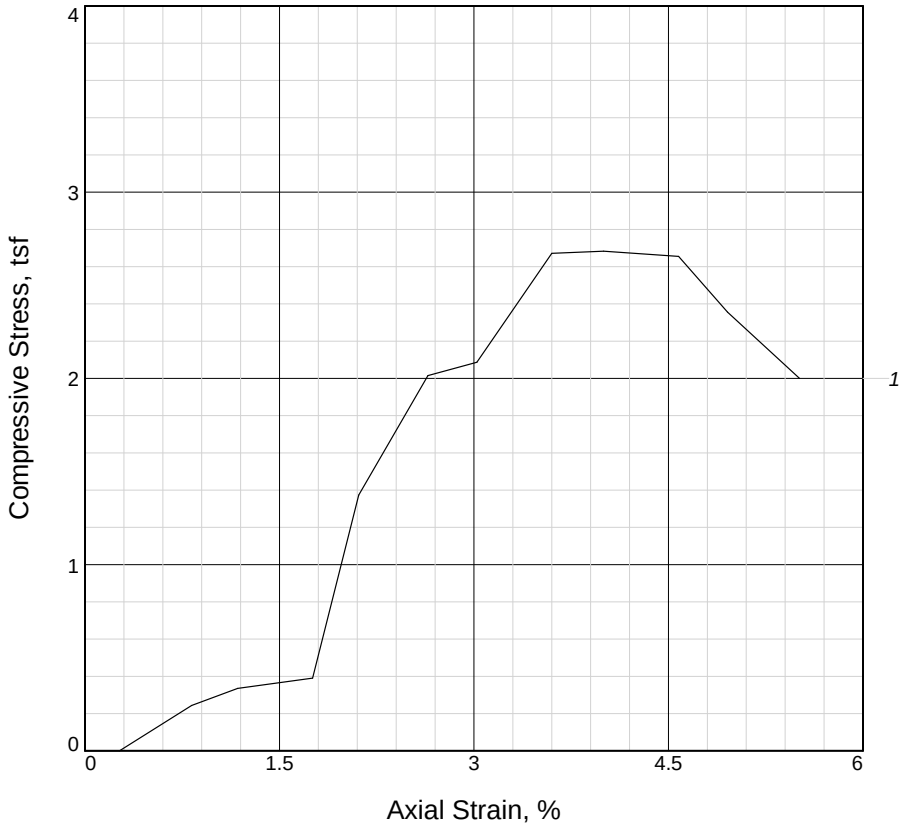
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-37 **Depth:** 4

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	2.683			
Undrained shear strength, tsf	1.341			
Failure strain, %	4.0			
Strain rate, in./min.	0.12			
Water content, %	21.9			
Wet density, pcf	109.2			
Dry density, pcf	89.6			
Saturation, %	67.0			
Void ratio	0.8804			
Specimen diameter, in.	2.80			
Specimen height, in.	4.50			
Height/diameter ratio	1.61			

Description:

LL = 54	**PL =** 24	**PI =** 30	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 3/2/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

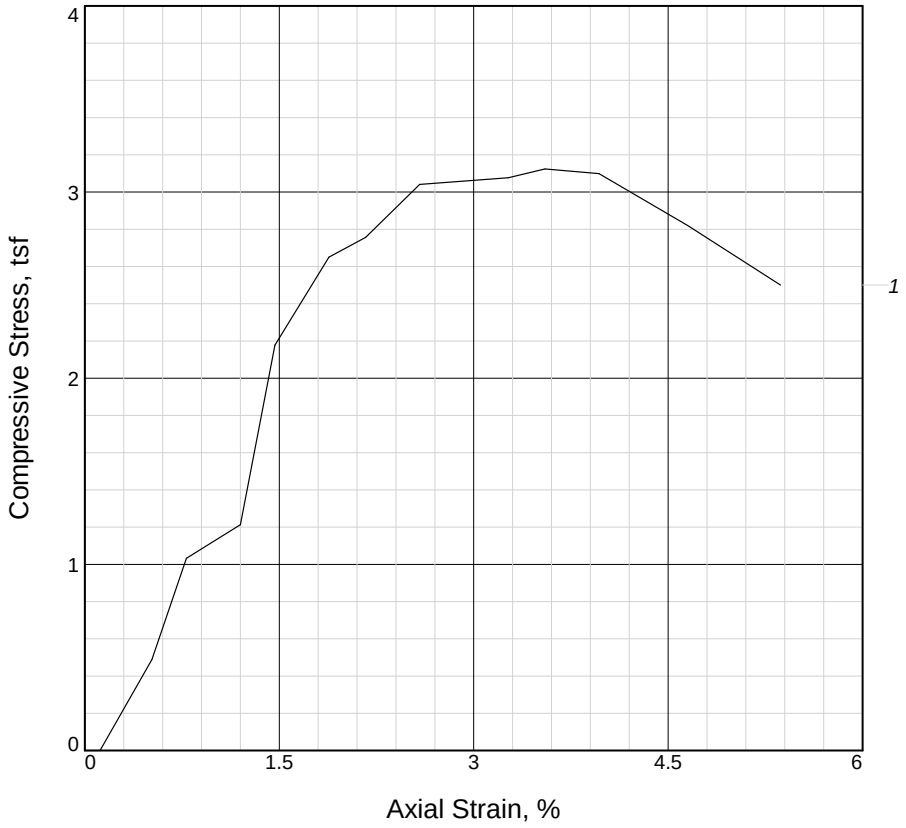
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-44 **Depth:** 6

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	3.124			
Undrained shear strength, tsf	1.562			
Failure strain, %	3.6			
Strain rate, in./min.	0.12			
Water content, %	19.9			
Wet density, pcf	118.6			
Dry density, pcf	98.9			
Saturation, %	76.4			
Void ratio	0.7048			
Specimen diameter, in.	2.80			
Specimen height, in.	6.00			
Height/diameter ratio	2.14			

Description: CLAY - Fat, dark brown (CH)

LL = 51	**PL =** 22	**PI =** 29	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 3/3/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

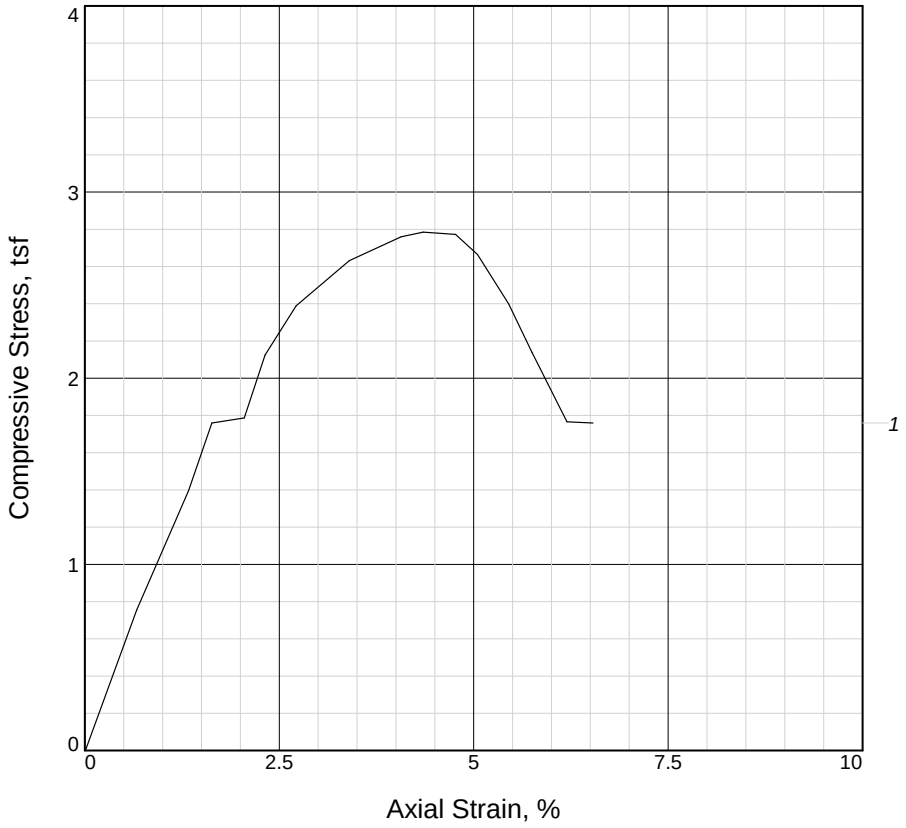
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-53 **Depth:** 6

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	2.785			
Undrained shear strength, tsf	1.392			
Failure strain, %	4.4			
Strain rate, in./min.	0.12			
Water content, %	23.3			
Wet density, pcf	116.6			
Dry density, pcf	94.6			
Saturation, %	80.4			
Void ratio	0.7823			
Specimen diameter, in.	2.80			
Specimen height, in.	6.00			
Height/diameter ratio	2.14			

Description: CLAY - Fat, brown (CH)

LL = 61	**PL =** 26	**PI =** 35	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 3/3/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

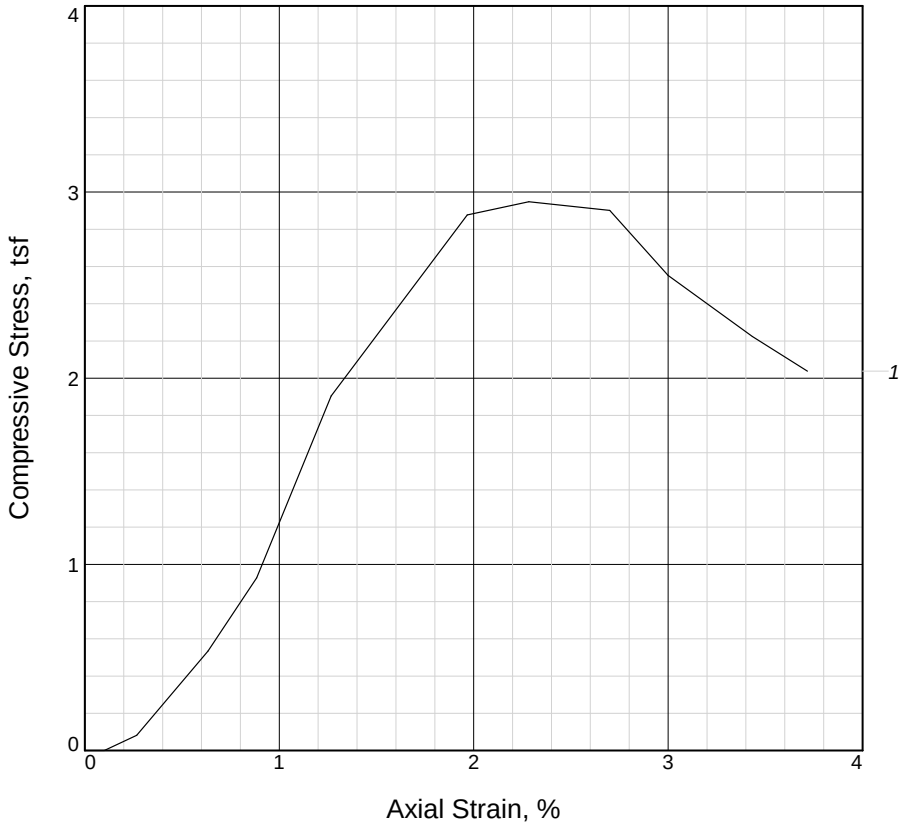
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-63 **Depth:** 2

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	2.948			
Undrained shear strength, tsf	1.474			
Failure strain, %	2.3			
Strain rate, in./min.	0.12			
Water content, %	15.7			
Wet density, pcf	112.5			
Dry density, pcf	97.2			
Saturation, %	57.7			
Void ratio	0.7336			
Specimen diameter, in.	2.80			
Specimen height, in.	6.00			
Height/diameter ratio	2.14			

Description:

LL = 36	**PL =** 21	**PI =** 15	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 3/5/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

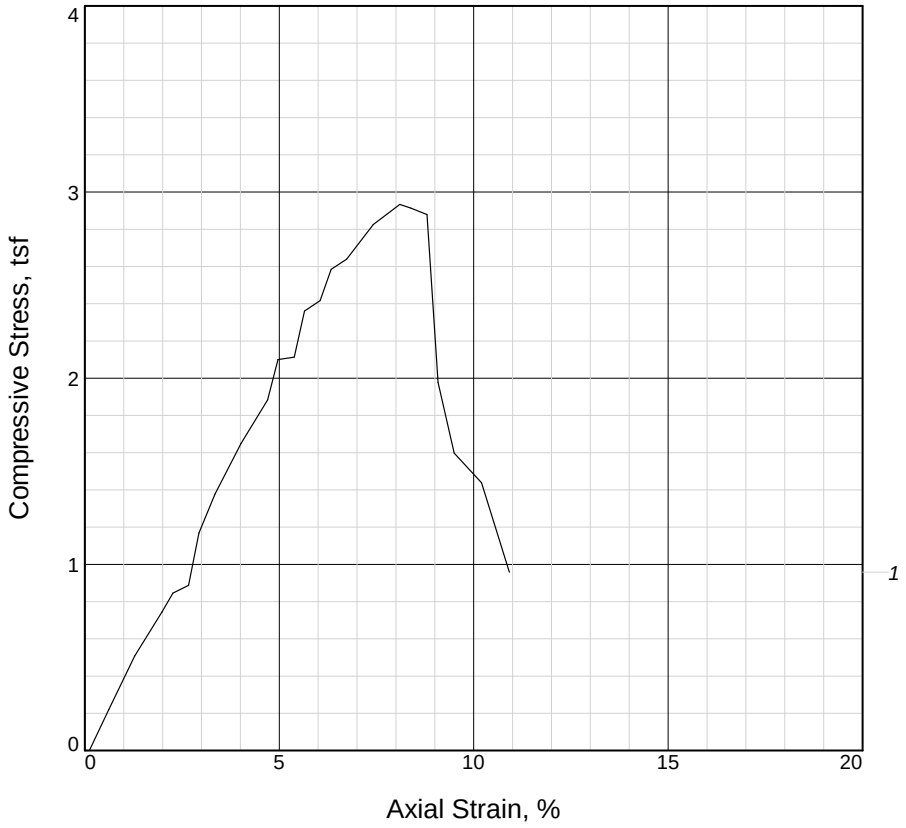
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-72 **Depth:** 2

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	2.934			
Undrained shear strength, tsf	1.467			
Failure strain, %	8.1			
Strain rate, in./min.	0.12			
Water content, %	17.8			
Wet density, pcf	116.0			
Dry density, pcf	98.4			
Saturation, %	67.5			
Void ratio	0.7123			
Specimen diameter, in.	2.80			
Specimen height, in.	6.00			
Height/diameter ratio	2.14			

Description:

LL = 52	**PL =** 19	**PI =** 33	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 3/5/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

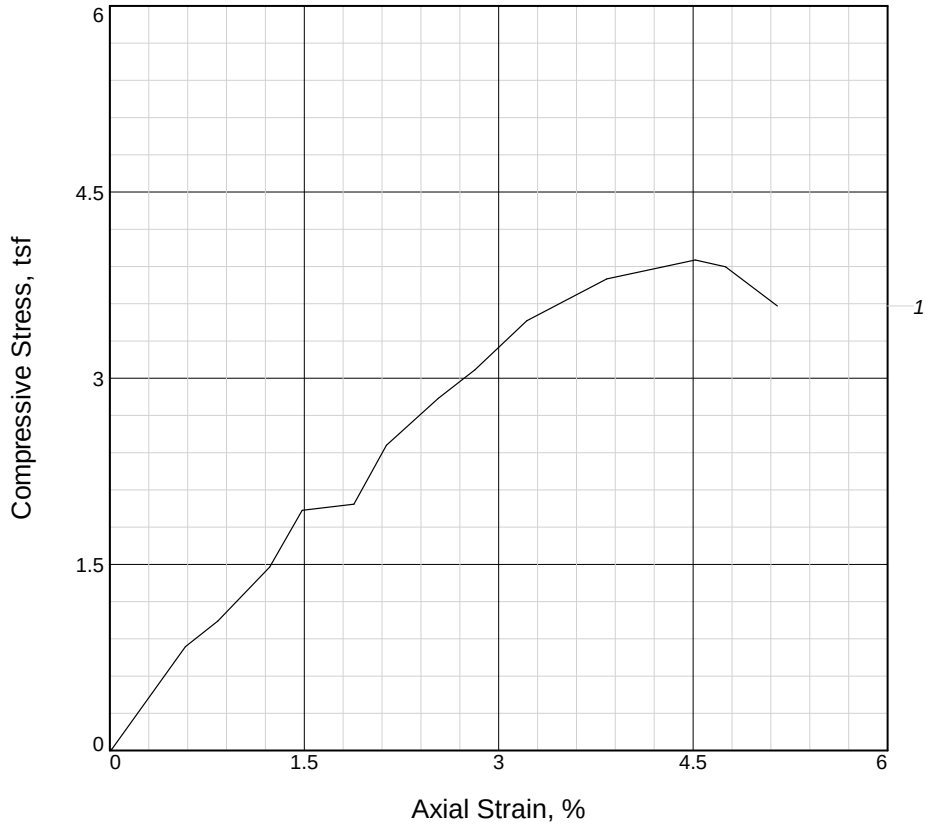
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-74 **Depth:** 8

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	3.952			
Undrained shear strength, tsf	1.976			
Failure strain, %	4.5			
Strain rate, in./min.	0.12			
Water content, %	16.2			
Wet density, pcf	114.5			
Dry density, pcf	98.6			
Saturation, %	61.5			
Void ratio	0.7099			
Specimen diameter, in.	2.80			
Specimen height, in.	6.00			
Height/diameter ratio	2.14			

Description:

LL = 57	**PL =** 20	**PI =** 37	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 3/5/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

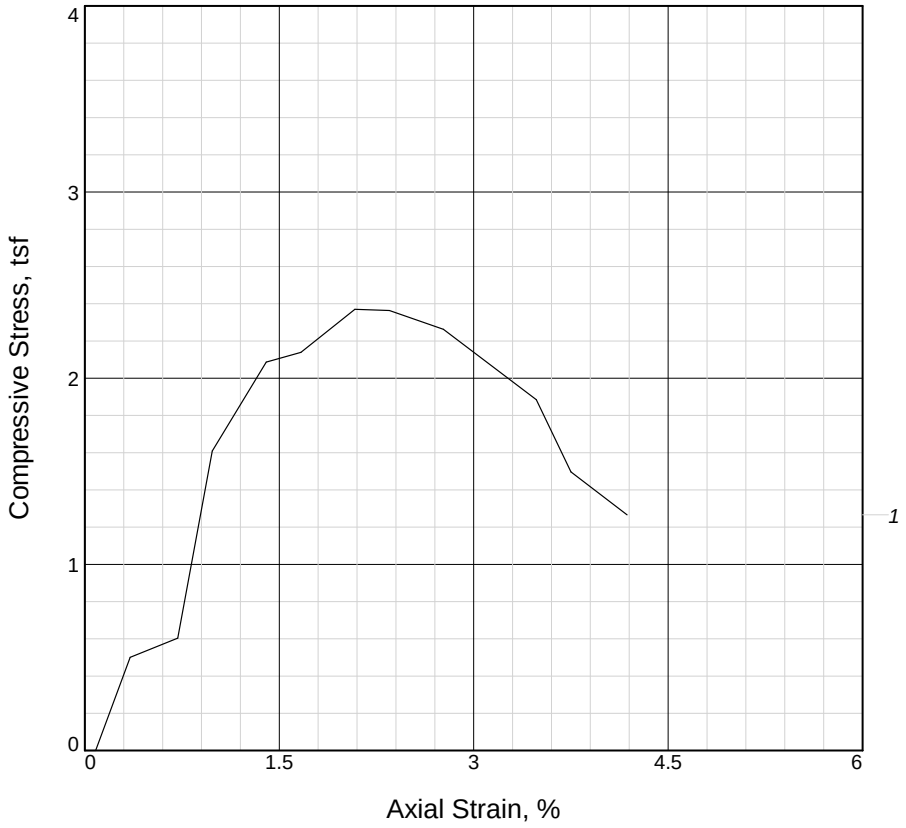
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-79 **Depth:** 8

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	2.370			
Undrained shear strength, tsf	1.185			
Failure strain, %	2.1			
Strain rate, in./min.	0.12			
Water content, %	17.8			
Wet density, pcf	115.0			
Dry density, pcf	97.6			
Saturation, %	66.2			
Void ratio	0.7279			
Specimen diameter, in.	2.80			
Specimen height, in.	6.00			
Height/diameter ratio	2.14			

Description:

LL = 56	**PL =** 22	**PI =** 34	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 3/6/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

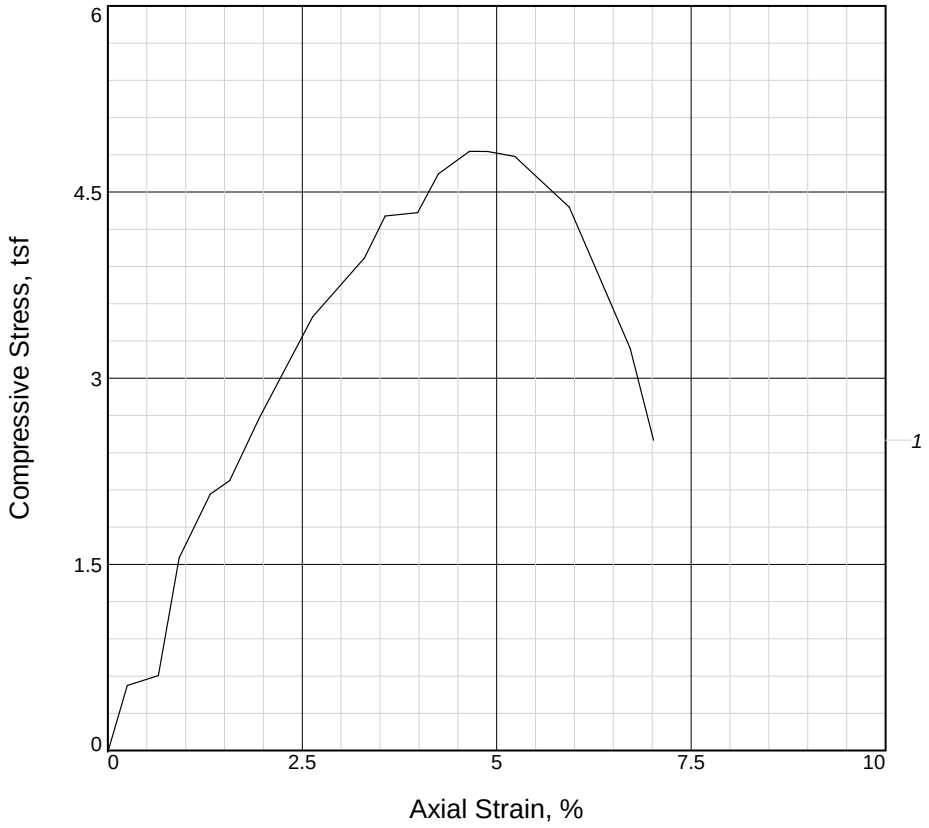
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-81 **Depth:** 6

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	4.828			
Undrained shear strength, tsf	2.414			
Failure strain, %	4.7			
Strain rate, in./min.	0.12			
Water content, %	17.7			
Wet density, pcf	110.9			
Dry density, pcf	94.3			
Saturation, %	60.5			
Void ratio	0.7875			
Specimen diameter, in.	2.80			
Specimen height, in.	6.00			
Height/diameter ratio	2.14			

Description:

LL = 51	**PL =** 15	**PI =** 36	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 3/6/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

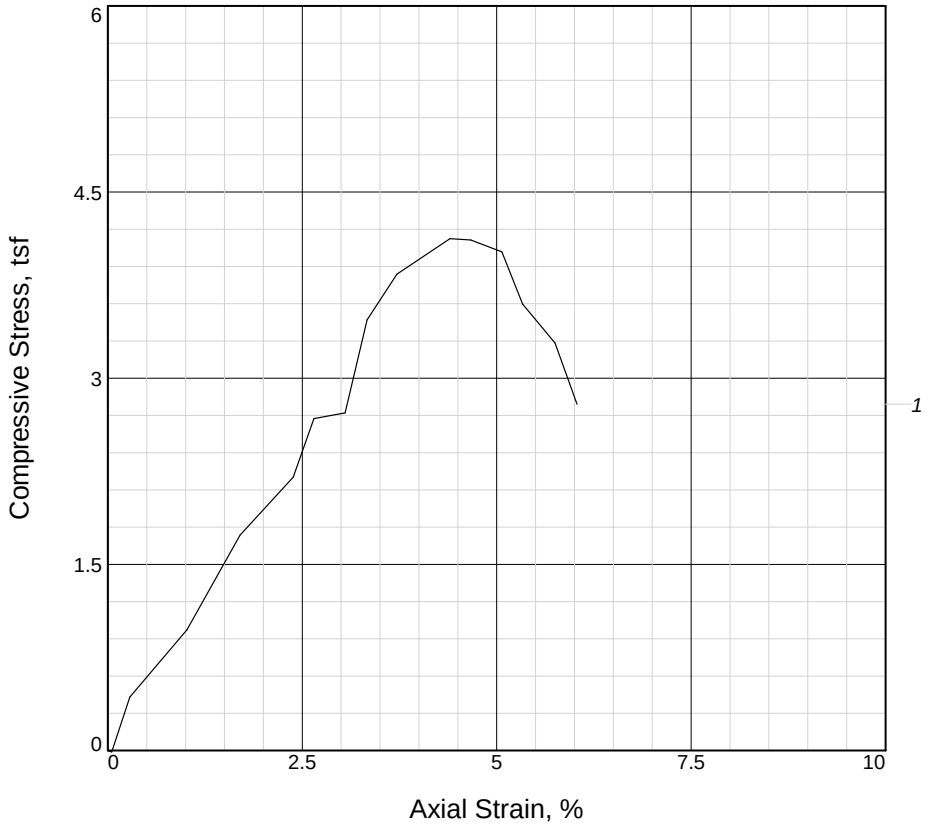
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-88 **Depth:** 2

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	4.125			
Undrained shear strength, tsf	2.062			
Failure strain, %	4.4			
Strain rate, in./min.	0.12			
Water content, %	20.9			
Wet density, pcf	114.8			
Dry density, pcf	95.0			
Saturation, %	72.7			
Void ratio	0.7743			
Specimen diameter, in.	2.80			
Specimen height, in.	6.00			
Height/diameter ratio	2.14			

Description: CLAY - Sandy, Fat, brown (CH)

LL = 60	**PL =** 22	**PI =** 38	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 3/5/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

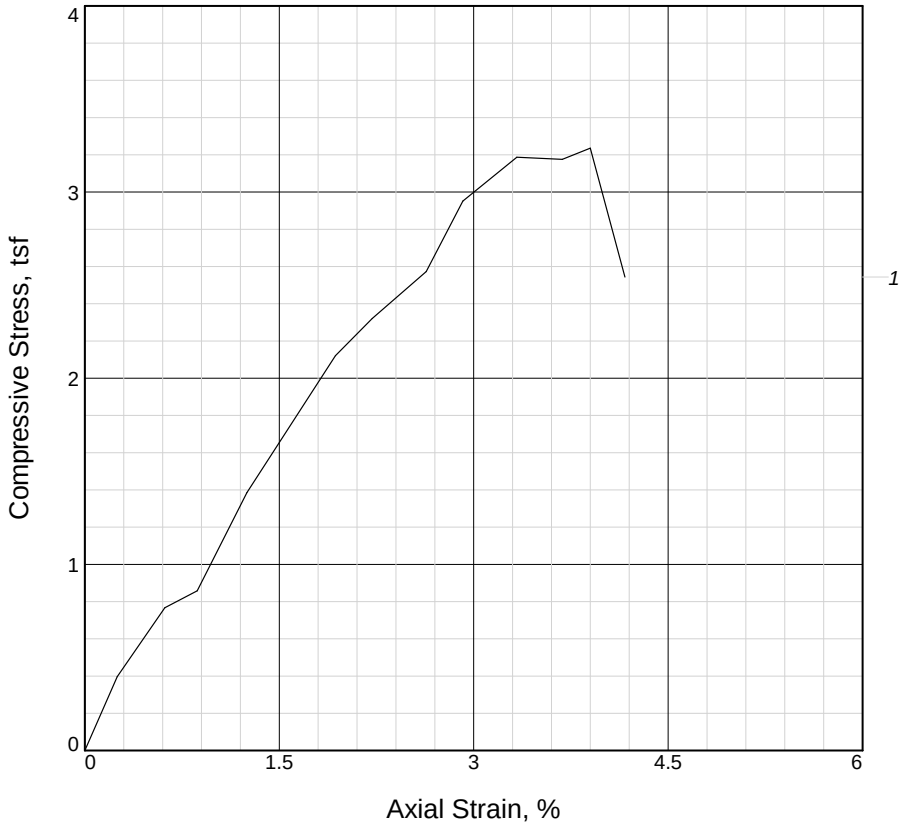
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-90 **Depth:** 6

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	3.236			
Undrained shear strength, tsf	1.618			
Failure strain, %	3.9			
Strain rate, in./min.	0.12			
Water content, %	15.5			
Wet density, pcf	110.8			
Dry density, pcf	96.0			
Saturation, %	55.2			
Void ratio	0.7566			
Specimen diameter, in.	2.80			
Specimen height, in.	6.00			
Height/diameter ratio	2.14			

Description: CLAY - Lean, brown (CL)

LL = 44	**PL =** 19	**PI =** 25	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 3/7/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

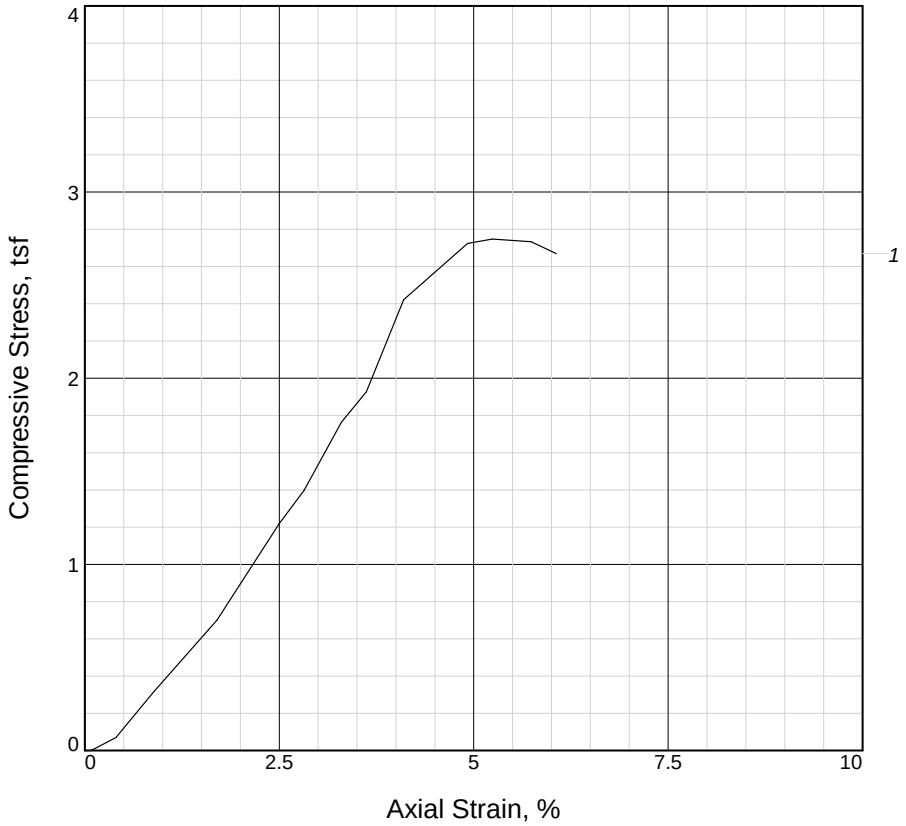
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-96 **Depth:** 10

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	2.748			
Undrained shear strength, tsf	1.374			
Failure strain, %	5.2			
Strain rate, in./min.	0.12			
Water content, %	17.7			
Wet density, pcf	115.5			
Dry density, pcf	98.1			
Saturation, %	66.5			
Void ratio	0.7174			
Specimen diameter, in.	2.80			
Specimen height, in.	5.00			
Height/diameter ratio	1.79			

Description:

LL = 35	**PL =** 18	**PI =** 17	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 3/7/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

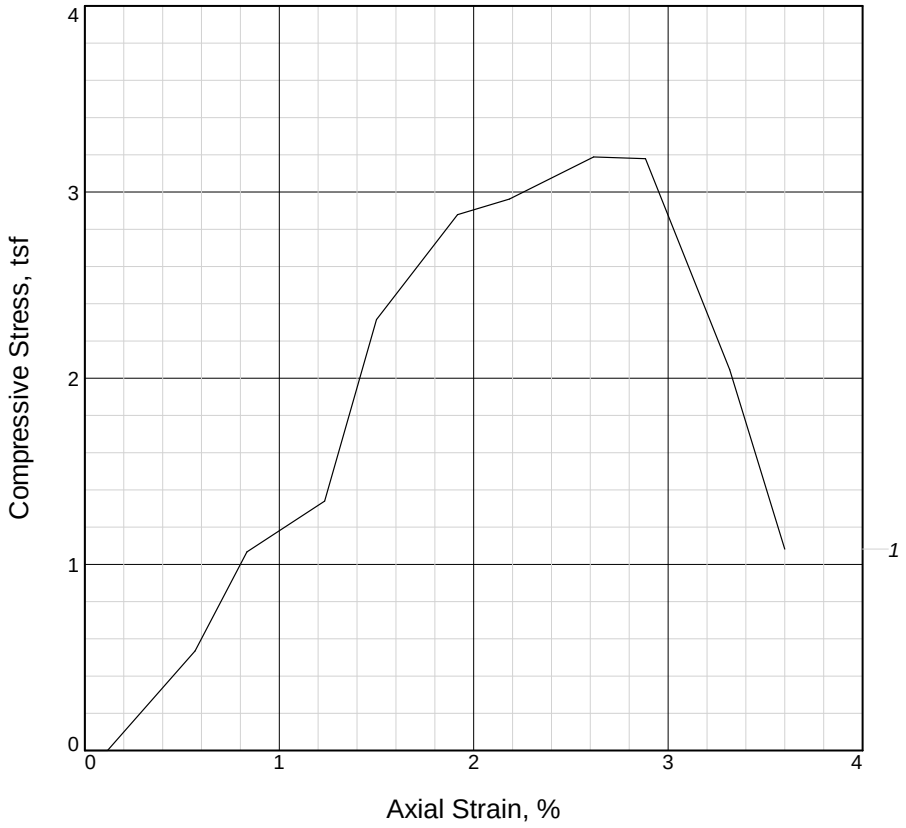
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-98 **Depth:** 6

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	3.188			
Undrained shear strength, tsf	1.594			
Failure strain, %	2.6			
Strain rate, in./min.	0.12			
Water content, %	2.3			
Wet density, pcf	110.6			
Dry density, pcf	108.1			
Saturation, %	11.1			
Void ratio	0.5587			
Specimen diameter, in.	2.80			
Specimen height, in.	6.00			
Height/diameter ratio	2.14			

Description: CLAY - Fat, brown (CH)

LL = 58	**PL =** 24	**PI =** 34	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 3/7/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

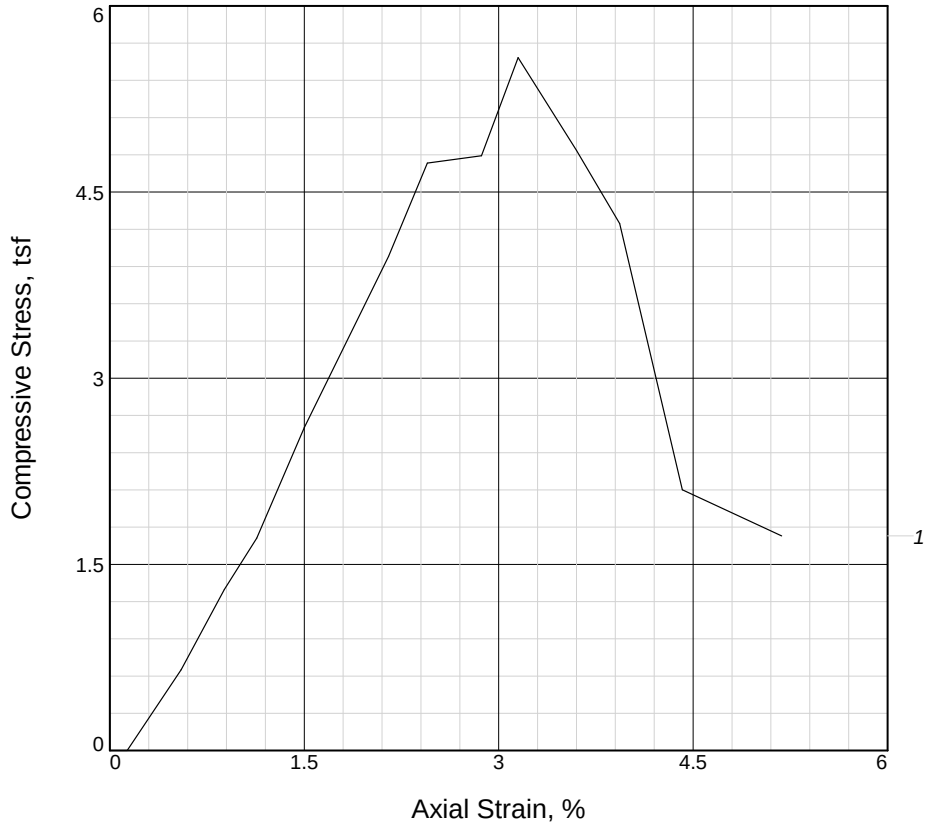
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-101 **Depth:** 8

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	5.583			
Undrained shear strength, tsf	2.792			
Failure strain, %	3.2			
Strain rate, in./min.	0.12			
Water content, %	15.2			
Wet density, pcf	116.7			
Dry density, pcf	101.3			
Saturation, %	61.8			
Void ratio	0.6633			
Specimen diameter, in.	2.80			
Specimen height, in.	6.00			
Height/diameter ratio	2.14			

Description:

LL = 38	**PL =** 18	**PI =** 20	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 3/7/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

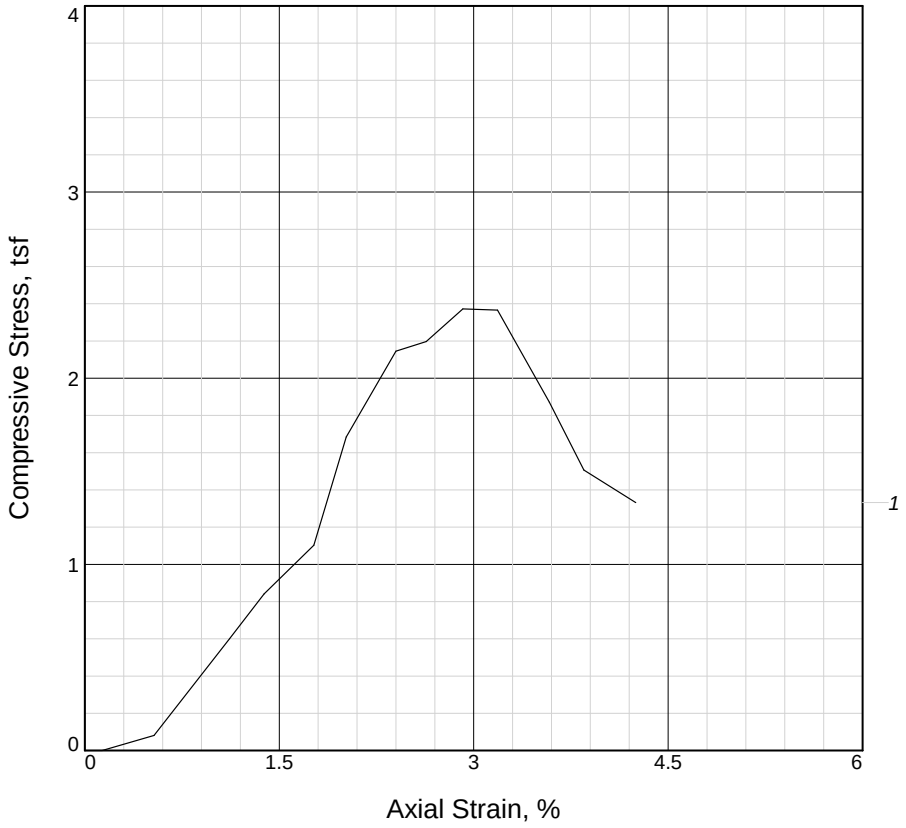
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-103 **Depth:** 4

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	2.373			
Undrained shear strength, tsf	1.186			
Failure strain, %	2.9			
Strain rate, in./min.	0.12			
Water content, %	18.8			
Wet density, pcf	104.7			
Dry density, pcf	88.1			
Saturation, %	55.6			
Void ratio	0.9133			
Specimen diameter, in.	2.80			
Specimen height, in.	6.00			
Height/diameter ratio	2.14			

Description: CLAY - Fat, brown (CH)

LL = 57	**PL =** 20	**PI =** 37	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 3/7/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

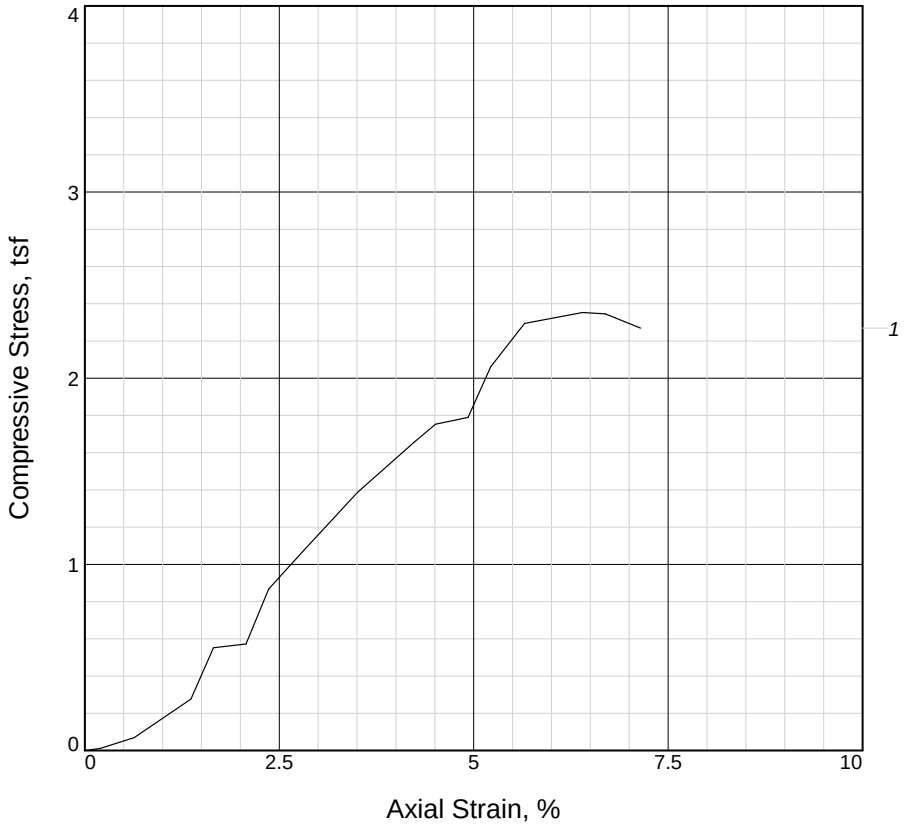
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-105 **Depth:** 8

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	2.353			
Undrained shear strength, tsf	1.177			
Failure strain, %	6.4			
Strain rate, in./min.	0.12			
Water content, %	15.8			
Wet density, pcf	108.8			
Dry density, pcf	93.9			
Saturation, %	53.8			
Void ratio	0.7945			
Specimen diameter, in.	2.80			
Specimen height, in.	5.50			
Height/diameter ratio	1.96			

Description:

LL = 42	**PL =** 19	**PI =** 23	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 3/8/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

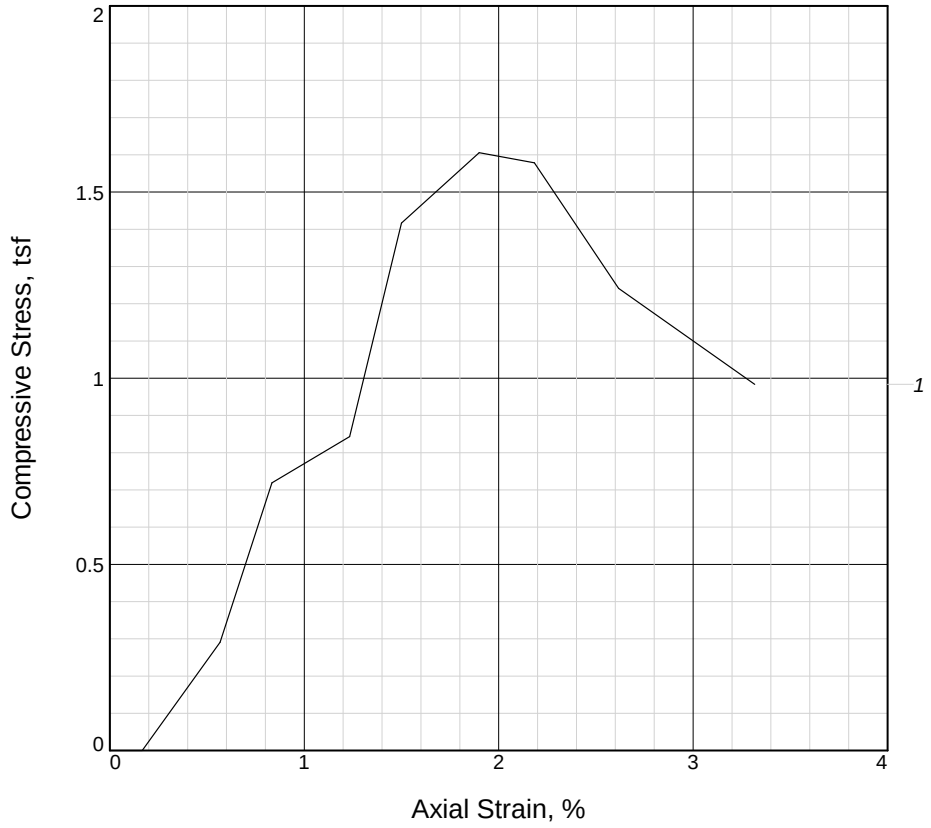
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-110 **Depth:** 11

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	1.606			
Undrained shear strength, tsf	0.803			
Failure strain, %	1.9			
Strain rate, in./min.	0.12			
Water content, %	21.7			
Wet density, pcf	98.1			
Dry density, pcf	80.6			
Saturation, %	53.6			
Void ratio	1.0907			
Specimen diameter, in.	2.80			
Specimen height, in.	6.00			
Height/diameter ratio	2.14			

Description: CLAY - Fat, dark brown (CH)

LL = 61	**PL =** 22	**PI =** 39	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 3/9/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

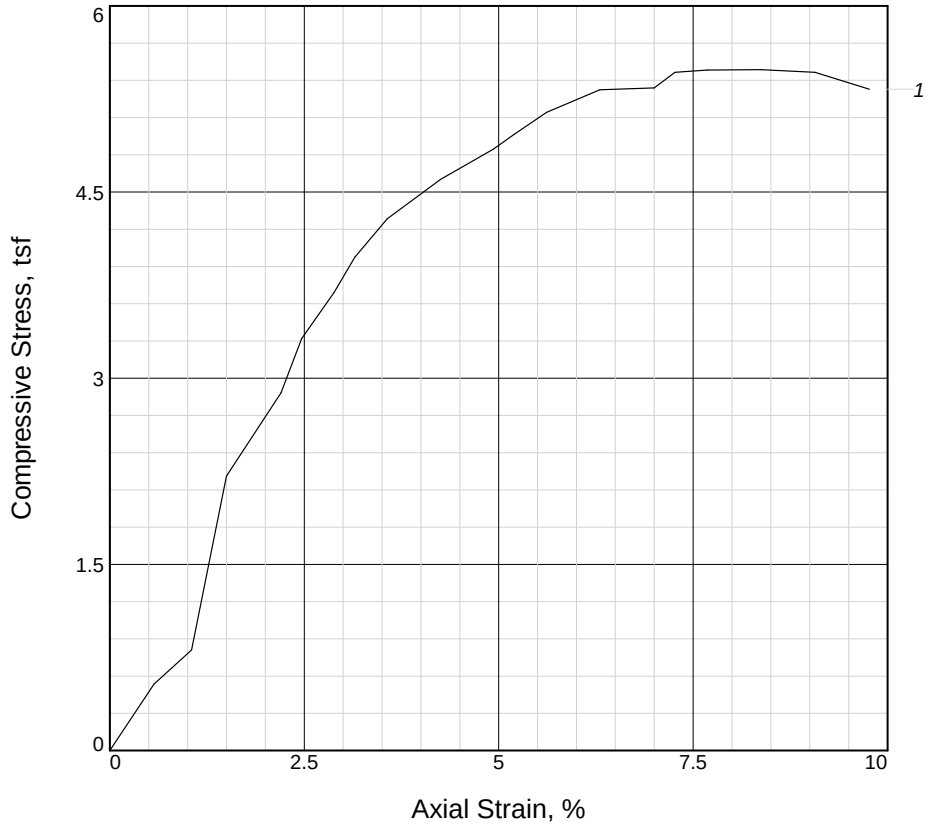
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-125 **Depth:** 6

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	5.486			
Undrained shear strength, tsf	2.743			
Failure strain, %	8.4			
Strain rate, in./min.	0.12			
Water content, %	20.7			
Wet density, pcf	121.6			
Dry density, pcf	100.8			
Saturation, %	83.1			
Void ratio	0.6728			
Specimen diameter, in.	2.80			
Specimen height, in.	6.00			
Height/diameter ratio	2.14			

Description:

LL = 50	**PL =** 22	**PI =** 28	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 3/9/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

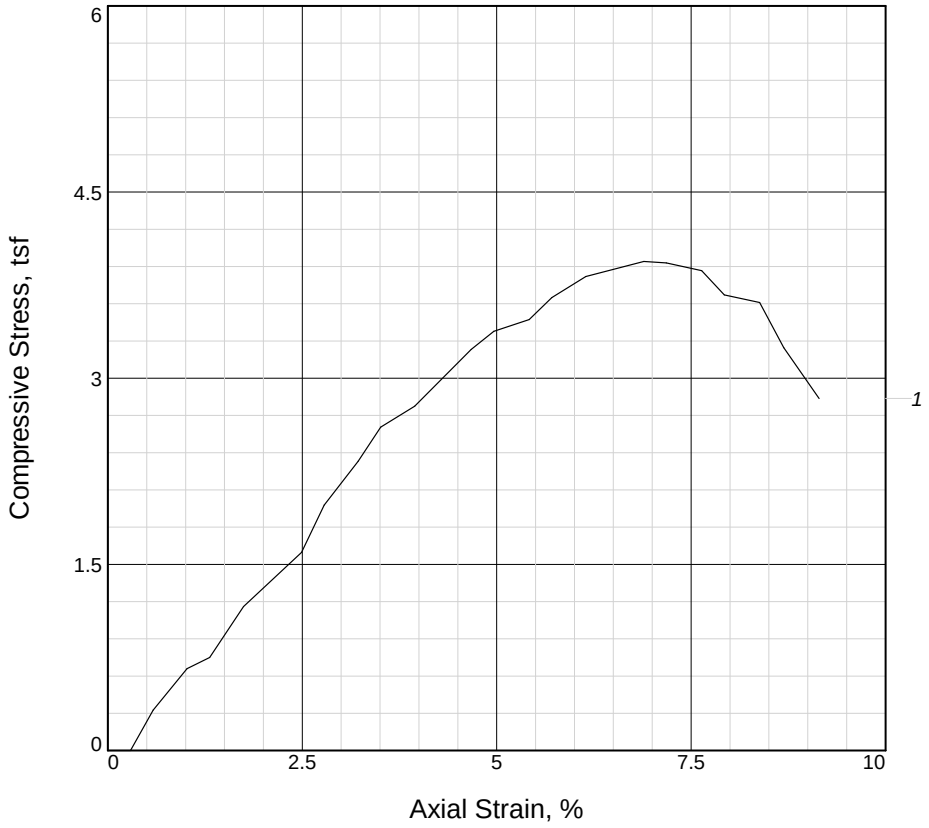
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-130 **Depth:** 6

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	3.941			
Undrained shear strength, tsf	1.971			
Failure strain, %	6.9			
Strain rate, in./min.	0.12			
Water content, %	22.9			
Wet density, pcf	118.6			
Dry density, pcf	96.5			
Saturation, %	82.8			
Void ratio	0.7458			
Specimen diameter, in.	2.80			
Specimen height, in.	5.50			
Height/diameter ratio	1.96			

Description:

LL = 54	**PL =** 27	**PI =** 27	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 3/9/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

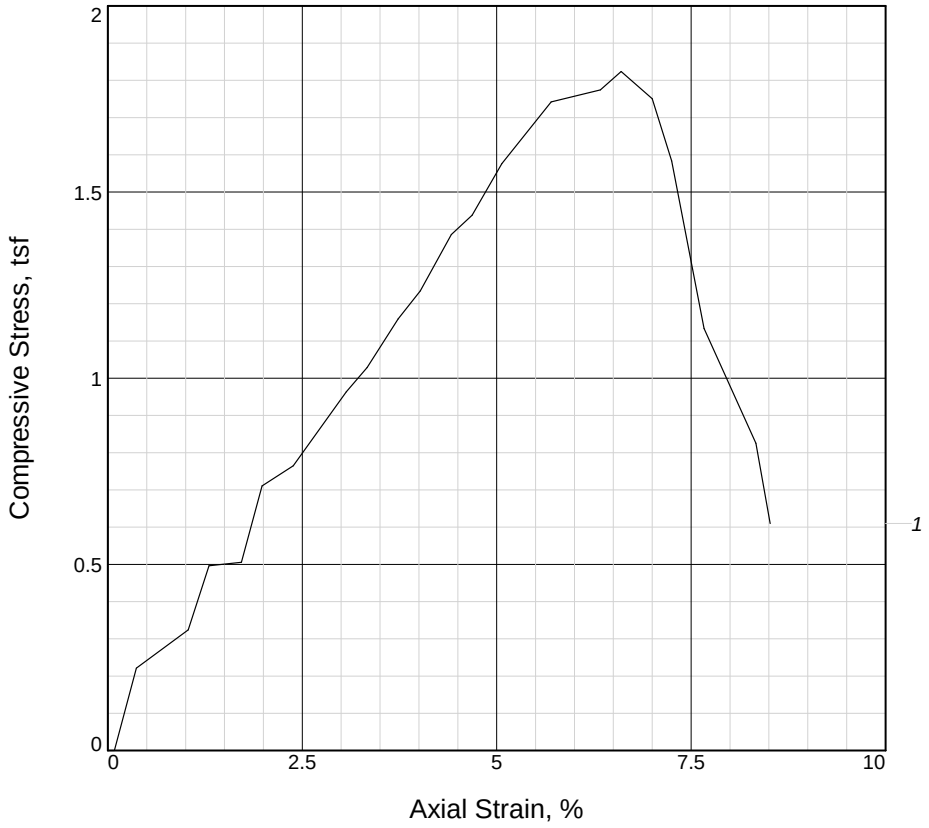
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-131 **Depth:** 8

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	1.824			
Undrained shear strength, tsf	0.912			
Failure strain, %	6.6			
Strain rate, in./min.	0.12			
Water content, %	23.4			
Wet density, pcf	111.1			
Dry density, pcf	90.0			
Saturation, %	72.4			
Void ratio	0.8732			
Specimen diameter, in.	2.80			
Specimen height, in.	6.00			
Height/diameter ratio	2.14			

Description:

LL = 60	**PL =** 25	**PI =** 35	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 3/9/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

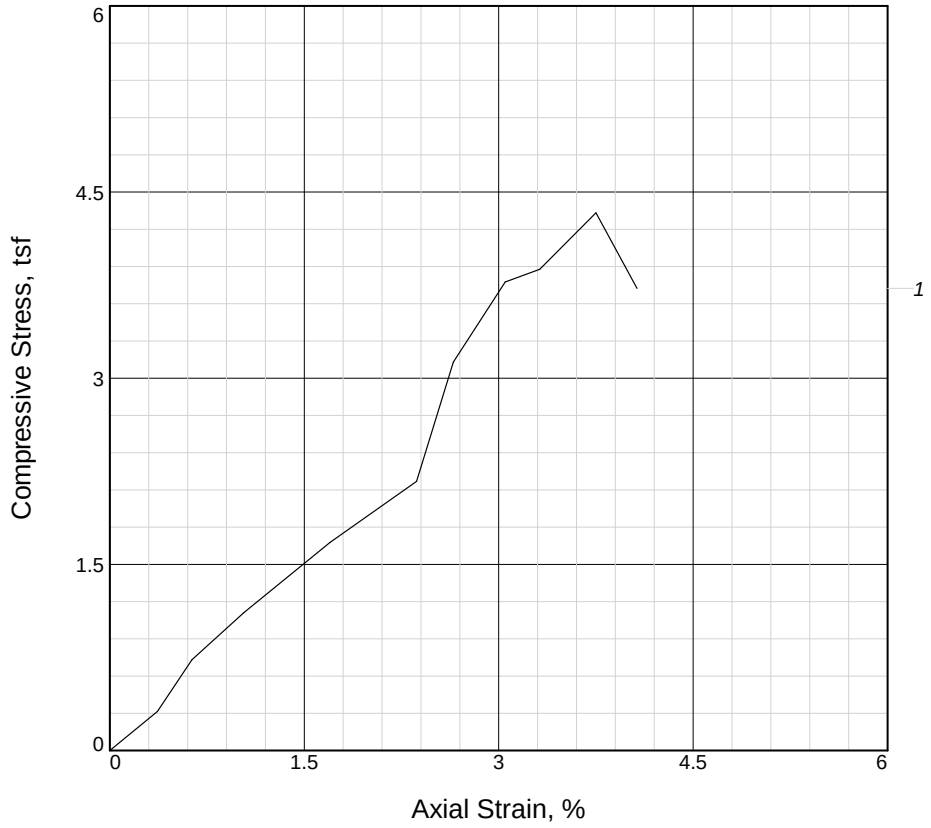
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-132 **Depth:** 12

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	4.333			
Undrained shear strength, tsf	2.166			
Failure strain, %	3.8			
Strain rate, in./min.	0.12			
Water content, %	16.2			
Wet density, pcf	117.7			
Dry density, pcf	101.2			
Saturation, %	65.9			
Void ratio	0.6652			
Specimen diameter, in.	2.80			
Specimen height, in.	6.00			
Height/diameter ratio	2.14			

Description:

LL = 55	**PL =** 28	**PI =** 27	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 3/15/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

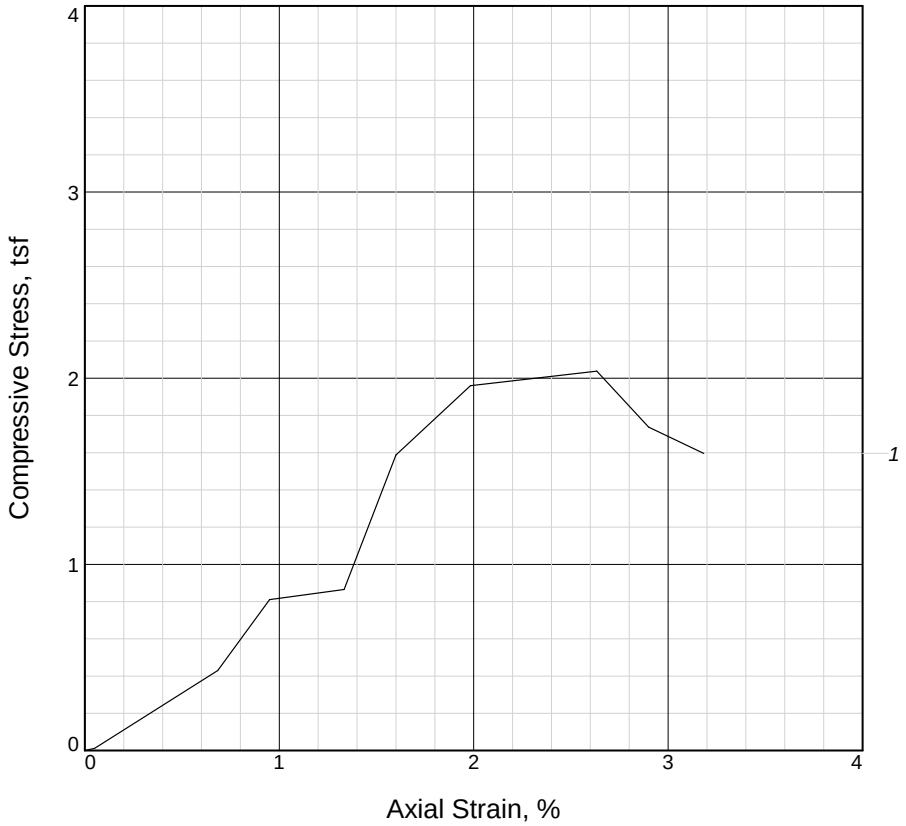
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-137 **Depth:** 2

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	2.038			
Undrained shear strength, tsf	1.019			
Failure strain, %	2.6			
Strain rate, in./min.	0.12			
Water content, %	23.0			
Wet density, pcf	109.8			
Dry density, pcf	89.3			
Saturation, %	69.9			
Void ratio	0.8875			
Specimen diameter, in.	2.80			
Specimen height, in.	6.00			
Height/diameter ratio	2.14			

Description:

LL = 65	**PL =** 31	**PI =** 34	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 3/15/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

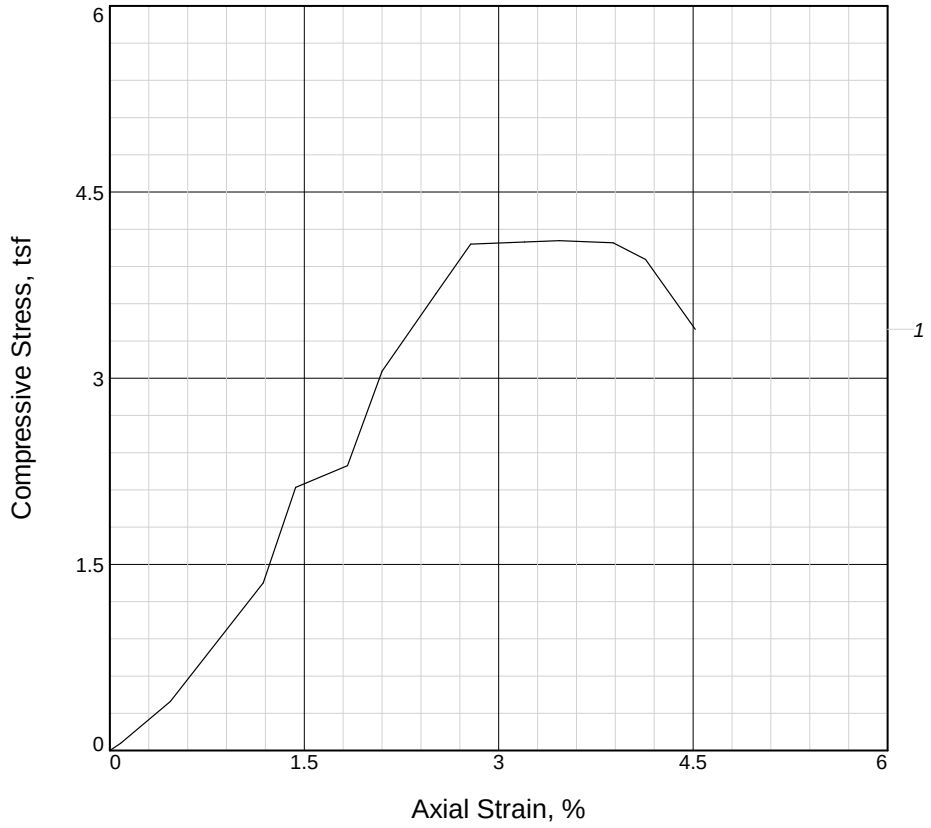
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-147 **Depth:** 2

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	4.109			
Undrained shear strength, tsf	2.054			
Failure strain, %	3.5			
Strain rate, in./min.	0.12			
Water content, %	19.9			
Wet density, pcf	110.4			
Dry density, pcf	92.1			
Saturation, %	64.6			
Void ratio	0.8310			
Specimen diameter, in.	2.80			
Specimen height, in.	6.00			
Height/diameter ratio	2.14			

Description:

LL = 56	**PL =** 22	**PI =** 34	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 3/15/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

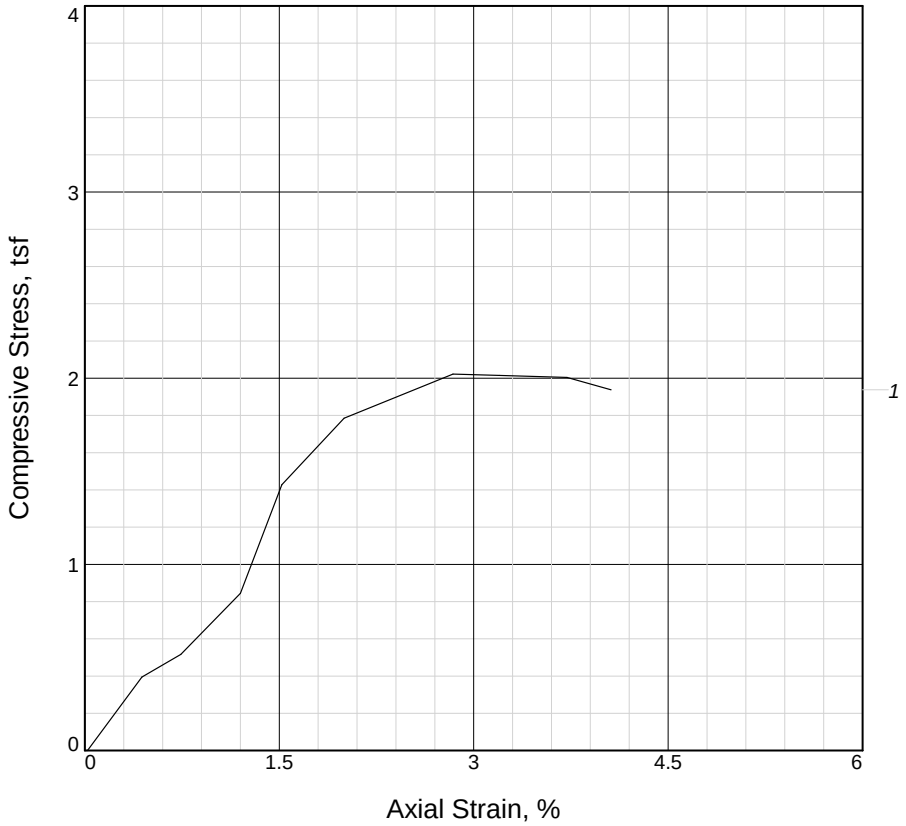
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-149 **Depth:** 2

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	2.023			
Undrained shear strength, tsf	1.011			
Failure strain, %	2.8			
Strain rate, in./min.	0.12			
Water content, %	23.7			
Wet density, pcf	117.8			
Dry density, pcf	95.2			
Saturation, %	83.2			
Void ratio	0.7704			
Specimen diameter, in.	2.72			
Specimen height, in.	5.00			
Height/diameter ratio	1.84			

Description:

LL = 59	**PL =** 25	**PI =** 34	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 3/16/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

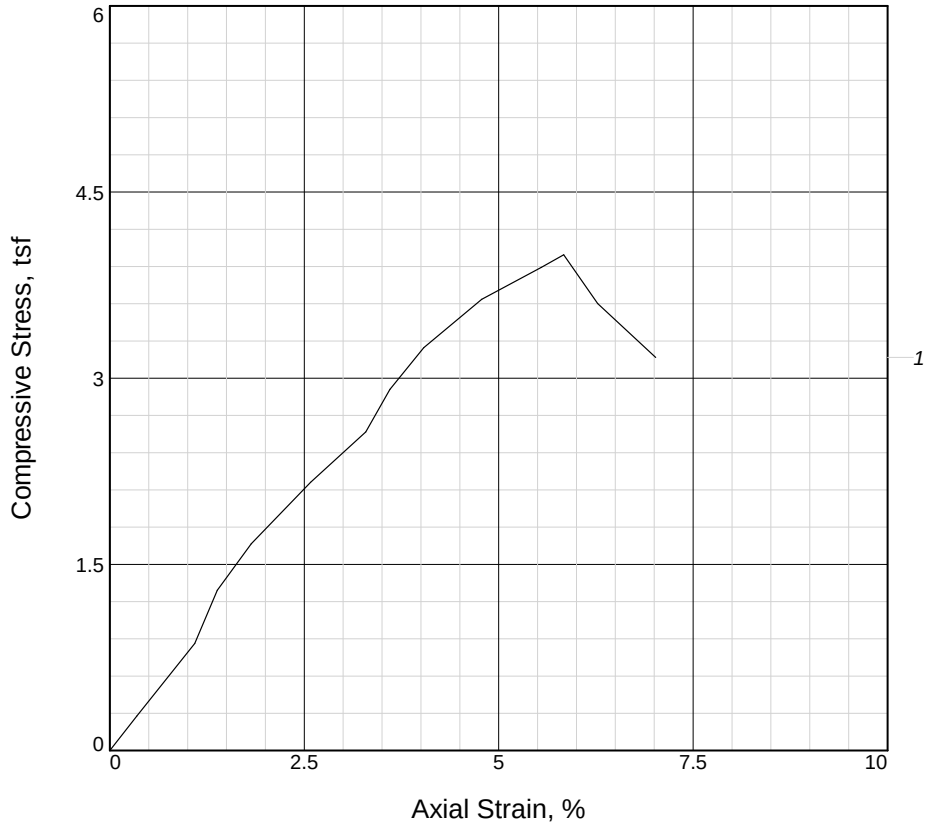
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-159 **Depth:** 4

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	3.995			
Undrained shear strength, tsf	1.998			
Failure strain, %	5.8			
Strain rate, in./min.	0.12			
Water content, %	18.0			
Wet density, pcf	125.8			
Dry density, pcf	106.6			
Saturation, %	83.6			
Void ratio	0.5817			
Specimen diameter, in.	2.75			
Specimen height, in.	5.50			
Height/diameter ratio	2.00			

Description:

LL = 58	**PL =** 22	**PI =** 36	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 3/16/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

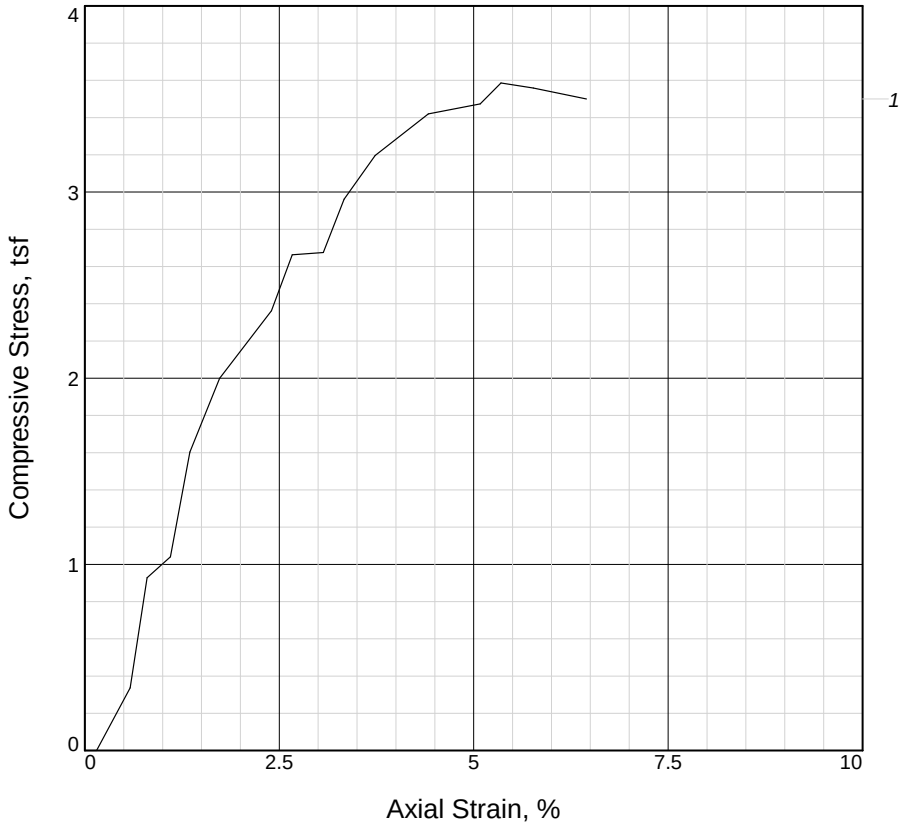
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-164 **Depth:** 11

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	3.586			
Undrained shear strength, tsf	1.793			
Failure strain, %	5.3			
Strain rate, in./min.	0.12			
Water content, %	22.9			
Wet density, pcf	118.5			
Dry density, pcf	96.4			
Saturation, %	82.7			
Void ratio	0.7482			
Specimen diameter, in.	2.80			
Specimen height, in.	6.00			
Height/diameter ratio	2.14			

Description:

LL = 55	**PL =** 22	**PI =** 33	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 3/20/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

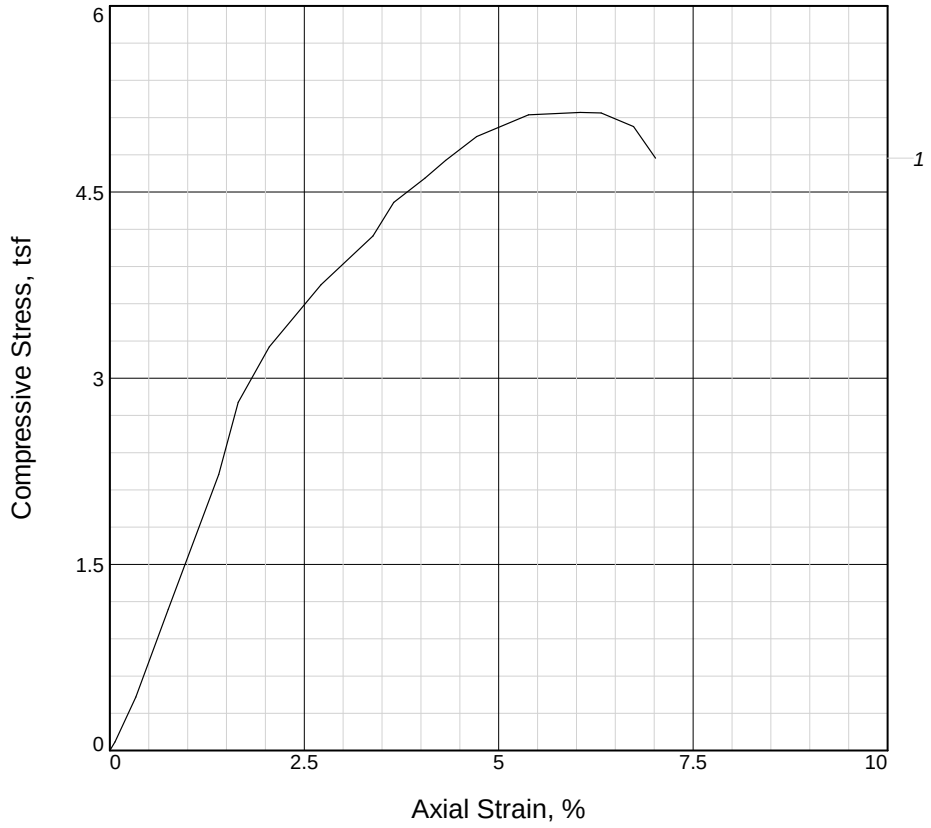
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-177 **Depth:** 6

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	5.141			
Undrained shear strength, tsf	2.571			
Failure strain, %	6.1			
Strain rate, in./min.	0.08			
Water content, %	16.4			
Wet density, pcf	119.3			
Dry density, pcf	102.5			
Saturation, %	68.7			
Void ratio	0.6441			
Specimen diameter, in.	2.80			
Specimen height, in.	6.00			
Height/diameter ratio	2.14			

Description: CLAY - Fat, dark brown (CH)

LL = 51	**PL =** 19	**PI =** 32	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 3/21/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

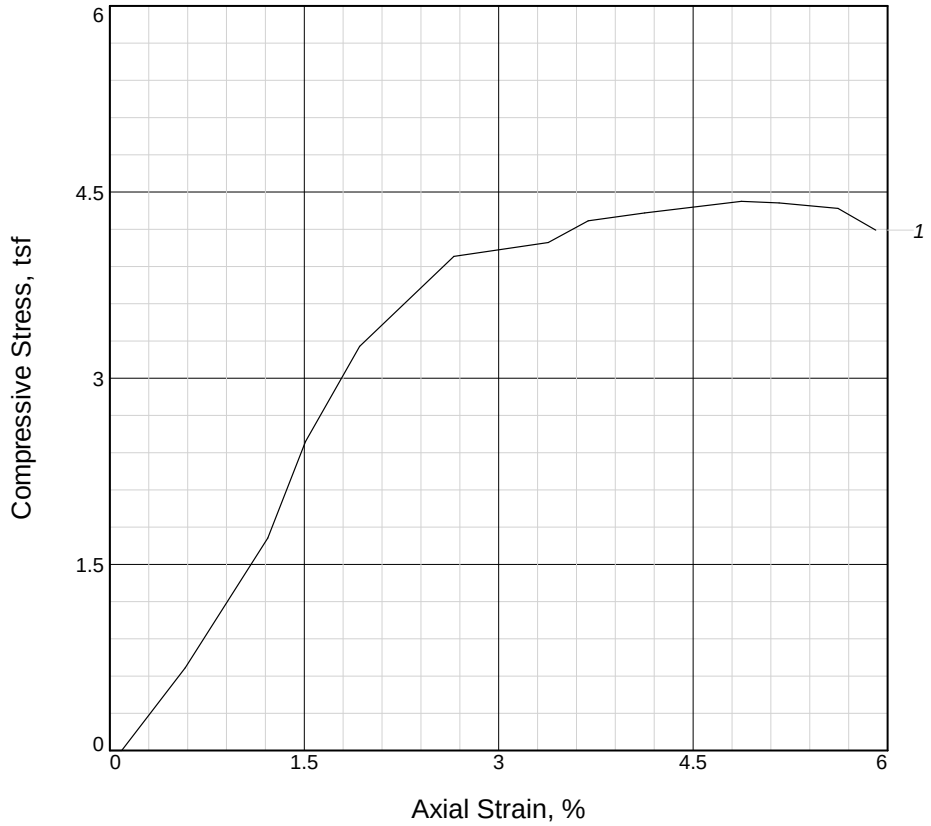
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-181 **Depth:** 8

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	4.426			
Undrained shear strength, tsf	2.213			
Failure strain, %	4.9			
Strain rate, in./min.	0.12			
Water content, %	31.6			
Wet density, pcf	116.8			
Dry density, pcf	88.7			
Saturation, %	95.0			
Void ratio	0.8995			
Specimen diameter, in.	2.74			
Specimen height, in.	5.50			
Height/diameter ratio	2.01			

Description: CLAY - Fat, dark grayish brown (CH)

LL = 57	**PL =** 22	**PI =** 35	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 3/20/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

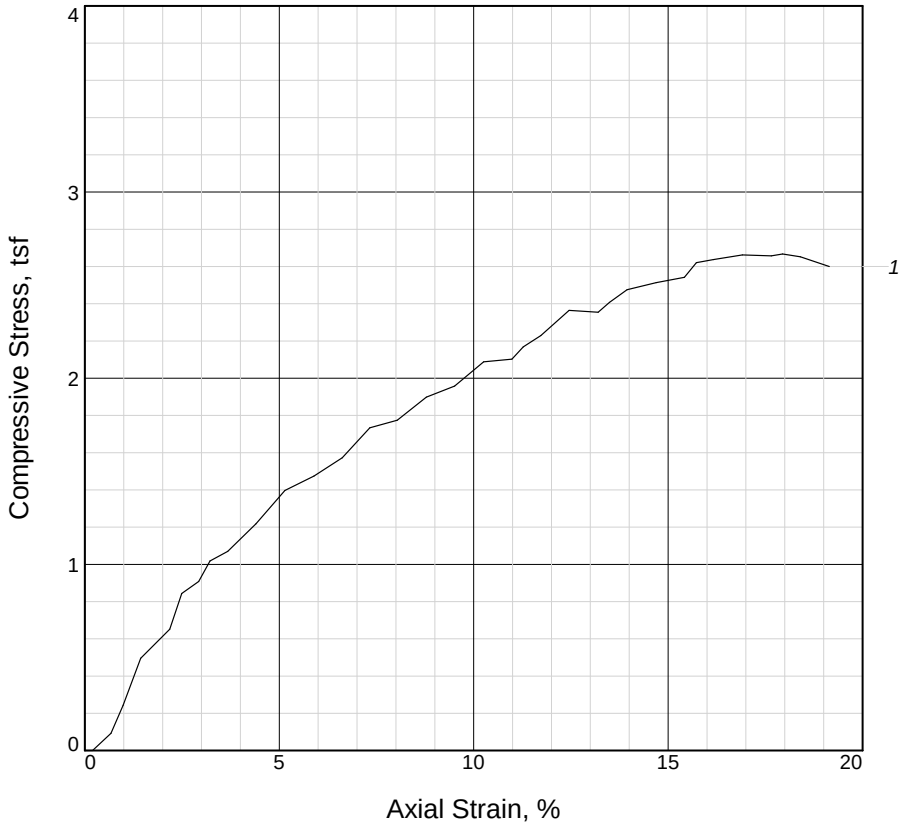
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-183 **Depth:** 4

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	2.514			
Undrained shear strength, tsf	1.257			
Failure strain, %	14.7			
Strain rate, in./min.	0.12			
Water content, %	18.8			
Wet density, pcf	119.7			
Dry density, pcf	100.7			
Saturation, %	75.5			
Void ratio	0.6733			
Specimen diameter, in.	2.80			
Specimen height, in.	5.50			
Height/diameter ratio	1.96			

Description:

LL = 43	**PL =** 22	**PI =** 21	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 3/20/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

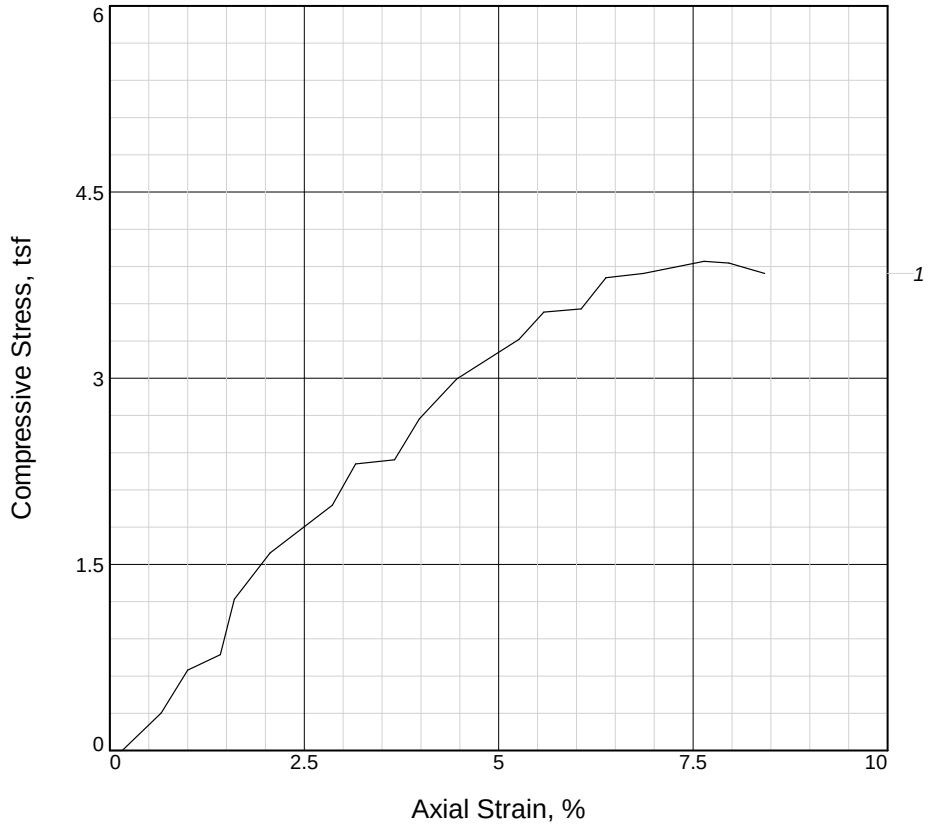
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-184 **Depth:** 8

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	3.942			
Undrained shear strength, tsf	1.971			
Failure strain, %	7.6			
Strain rate, in./min.	0.08			
Water content, %	15.2			
Wet density, pcf	122.1			
Dry density, pcf	106.0			
Saturation, %	69.5			
Void ratio	0.5895			
Specimen diameter, in.	2.80			
Specimen height, in.	5.00			
Height/diameter ratio	1.79			

Description:

LL = 43	**PL =** 19	**PI =** 24	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 3/21/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

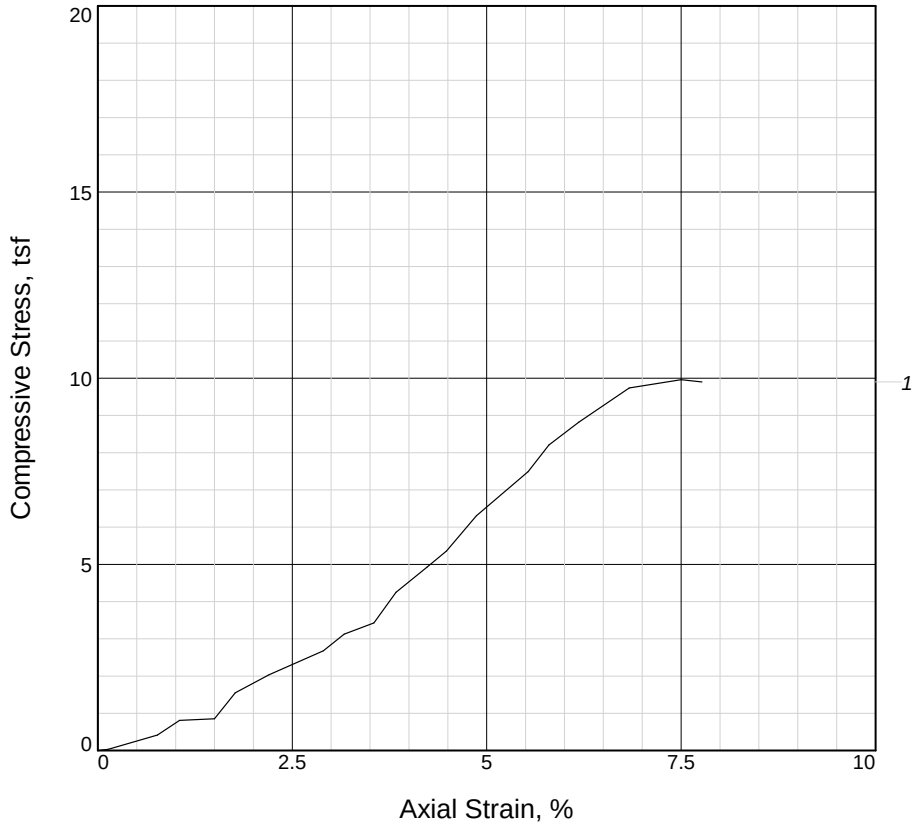
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-186 **Depth:** 2

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	9.962			
Undrained shear strength, tsf	4.981			
Failure strain, %	7.5			
Strain rate, in./min.	0.08			
Water content, %	N/A			
Wet density, pcf	125.3			
Dry density, pcf	N/A			
Saturation, %	N/A			
Void ratio	N/A			
Specimen diameter, in.	2.80			
Specimen height, in.	6.00			
Height/diameter ratio	2.14			

Description:

LL =	**PL =**	**PI =**	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled:
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

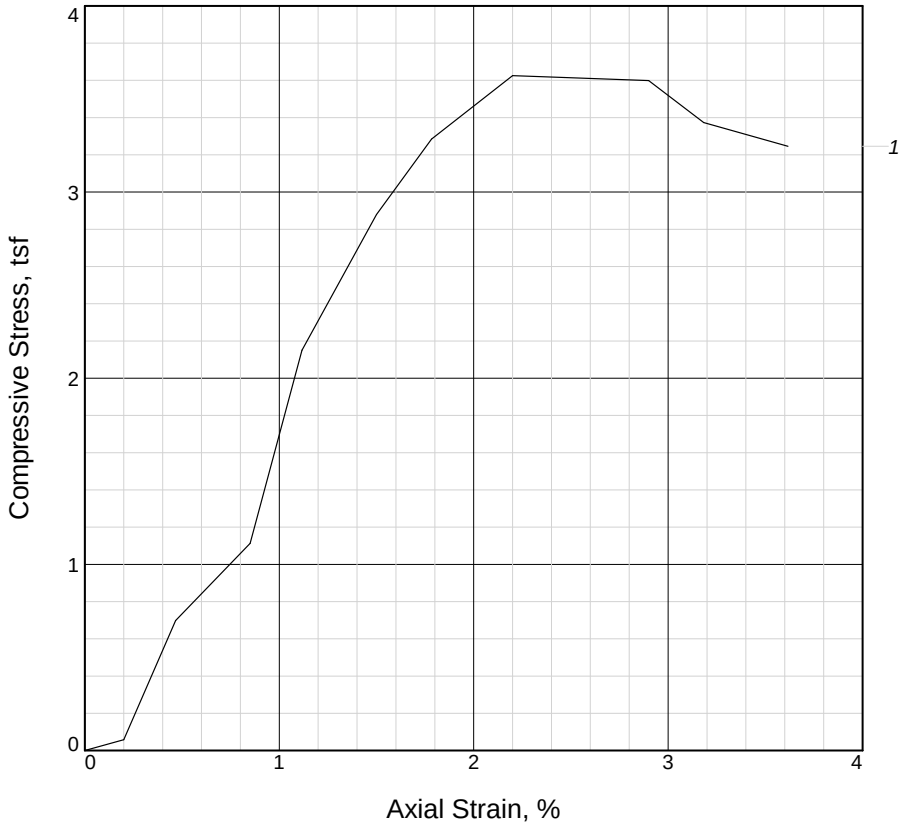
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-191 **Depth:** 4

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	3.625			
Undrained shear strength, tsf	1.813			
Failure strain, %	2.2			
Strain rate, in./min.	0.08			
Water content, %	20.0			
Wet density, pcf	109.5			
Dry density, pcf	91.3			
Saturation, %	63.7			
Void ratio	0.8469			
Specimen diameter, in.	2.80			
Specimen height, in.	6.00			
Height/diameter ratio	2.14			

Description:

LL = 48	**PL =** 21	**PI =** 27	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 3/21/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

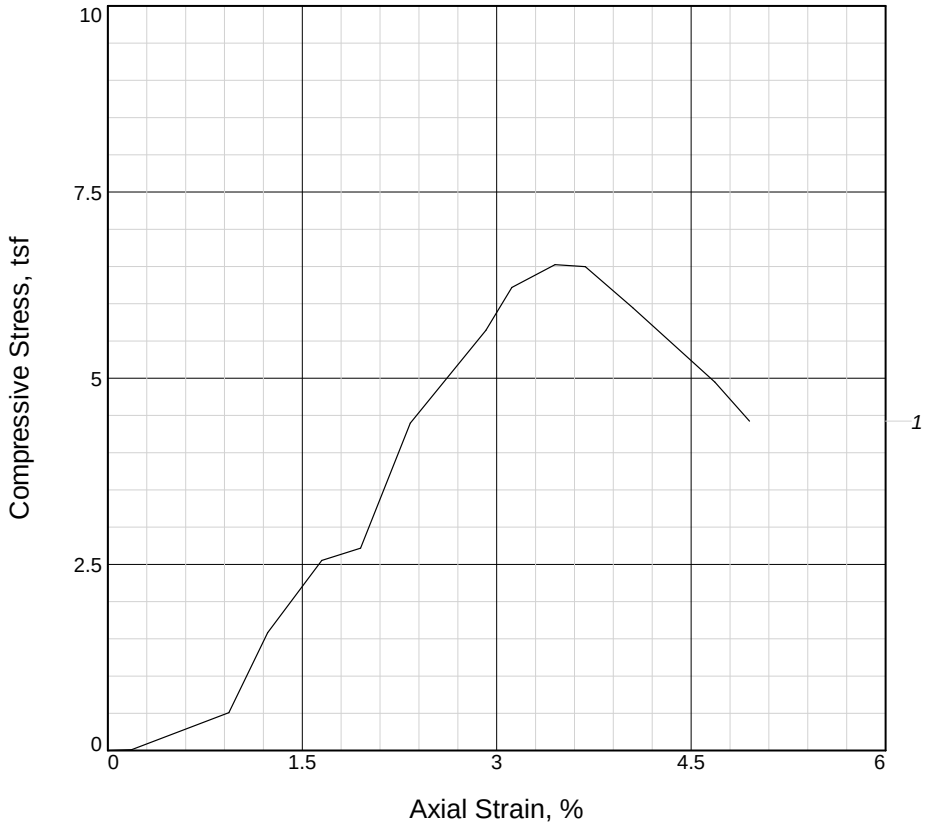
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-192 **Depth:** 4

UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

UNCONFINED COMPRESSION TEST



Sample No.	1			
Unconfined strength, tsf	6.525			
Undrained shear strength, tsf	3.263			
Failure strain, %	3.5			
Strain rate, in./min.	0.08			
Water content, %	18.4			
Wet density, pcf	116.7			
Dry density, pcf	98.6			
Saturation, %	70.1			
Void ratio	0.7099			
Specimen diameter, in.	2.80			
Specimen height, in.	6.00			
Height/diameter ratio	2.14			

Description:

LL = 68	**PL =** 22	**PI =** 46	**Assumed GS=** 2.70	**Type:** Undisturbed

Project No.: S-2544-07
Date Sampled: 3/21/07
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-193 **Depth:** 2

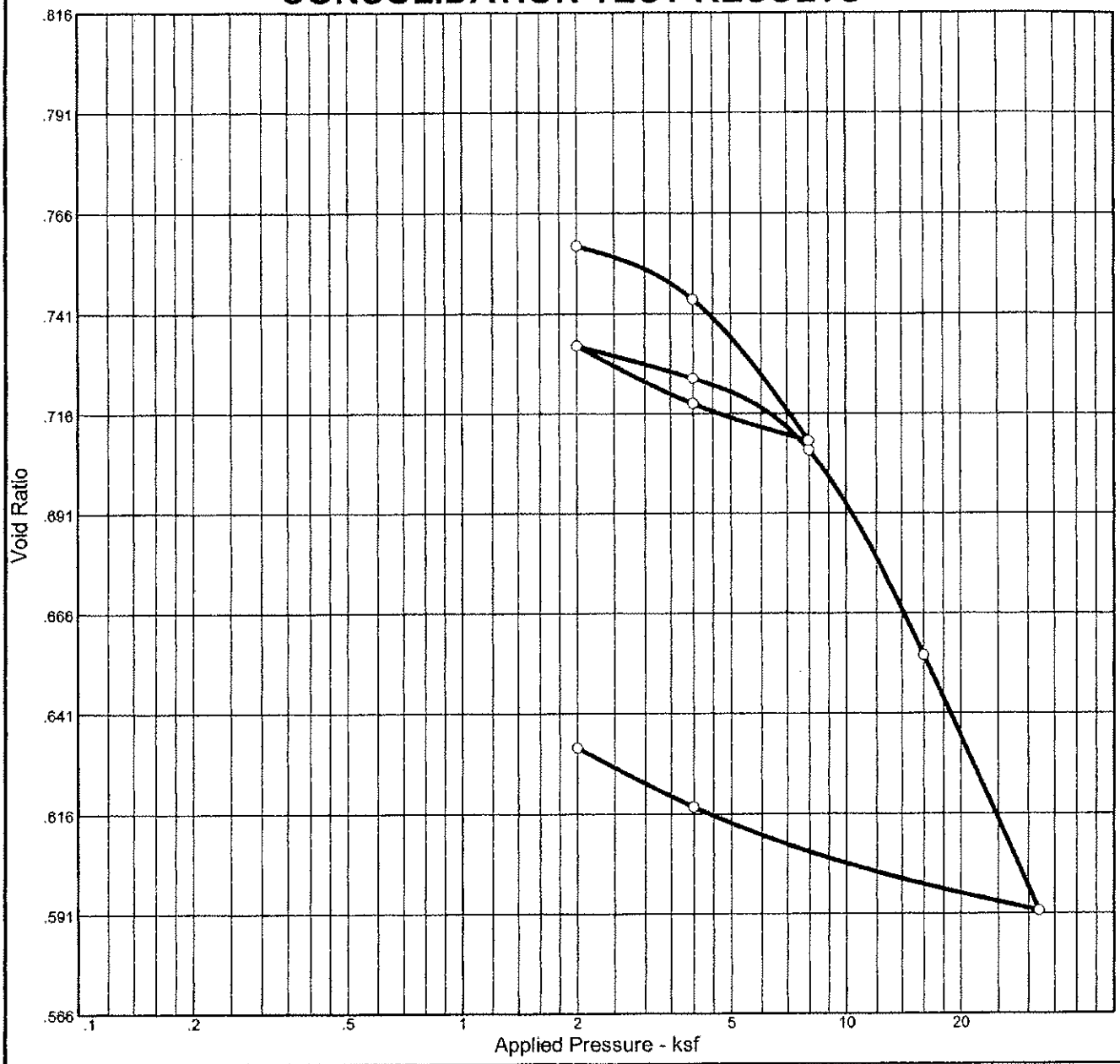
UNCONFINED COMPRESSION TEST

TSI Laboratories

Tested By: MR **Checked By:** TP

APPENDIX F
Consolidation

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
73.5 %	20.4 %	97.0	NA	NA	2.73		6.74	0.21	0.04	0.758

MATERIAL DESCRIPTION	USCS	AASHTO
Gray Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownswille

Location: BH-3, 8-10 ft.

Terracon, Inc.

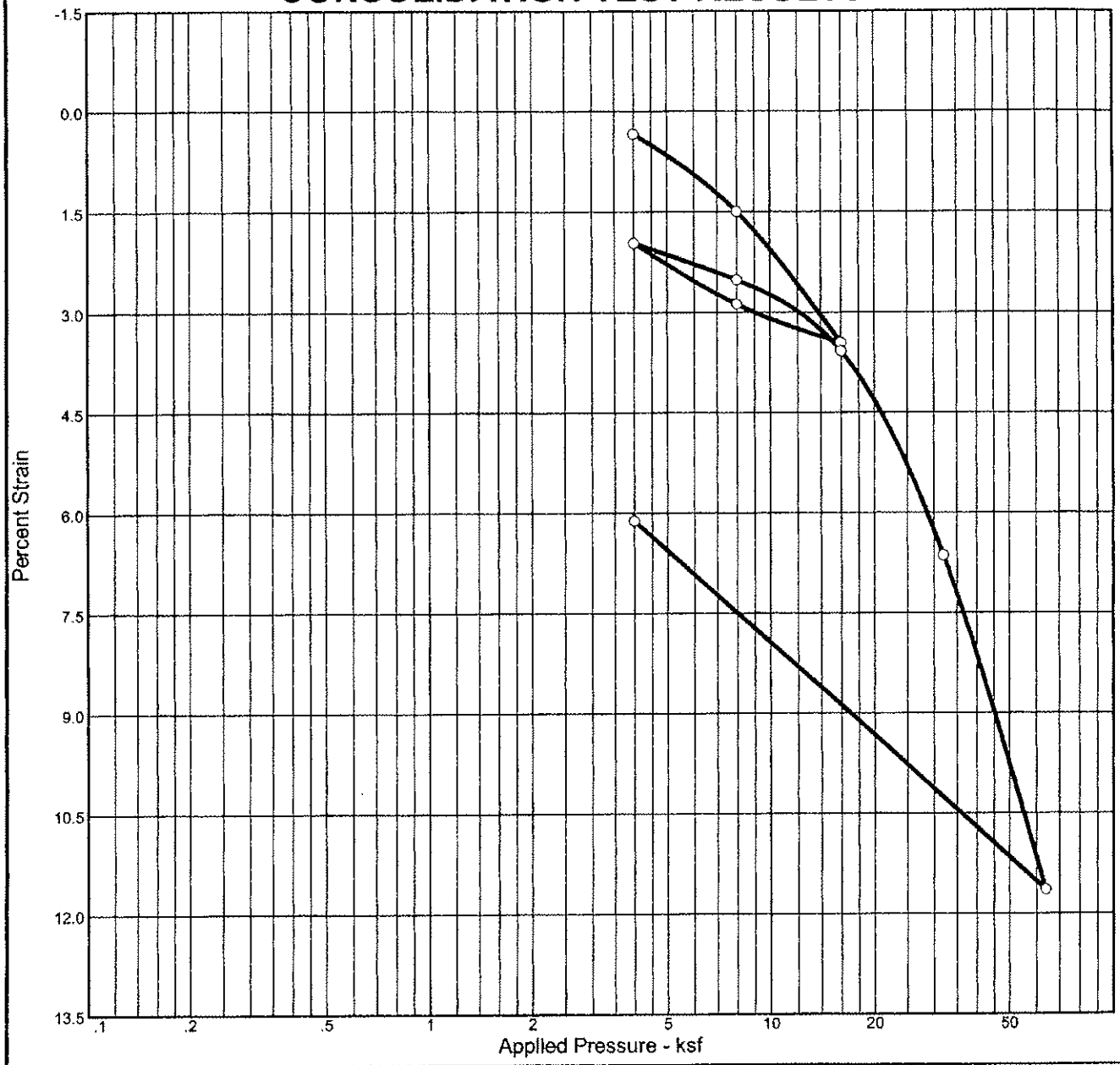
Houston, TX

Remarks:

ASTM D2435
Specific Gravity Asumed

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
82.6 %	21.1 %	100.4	NA	NA	2.73		18.42	0.29	0.05	0.698

MATERIAL DESCRIPTION	USCS	AASHTO
Gray Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownswille

Location: BH-10, 10-12 ft.

Terracon, Inc.

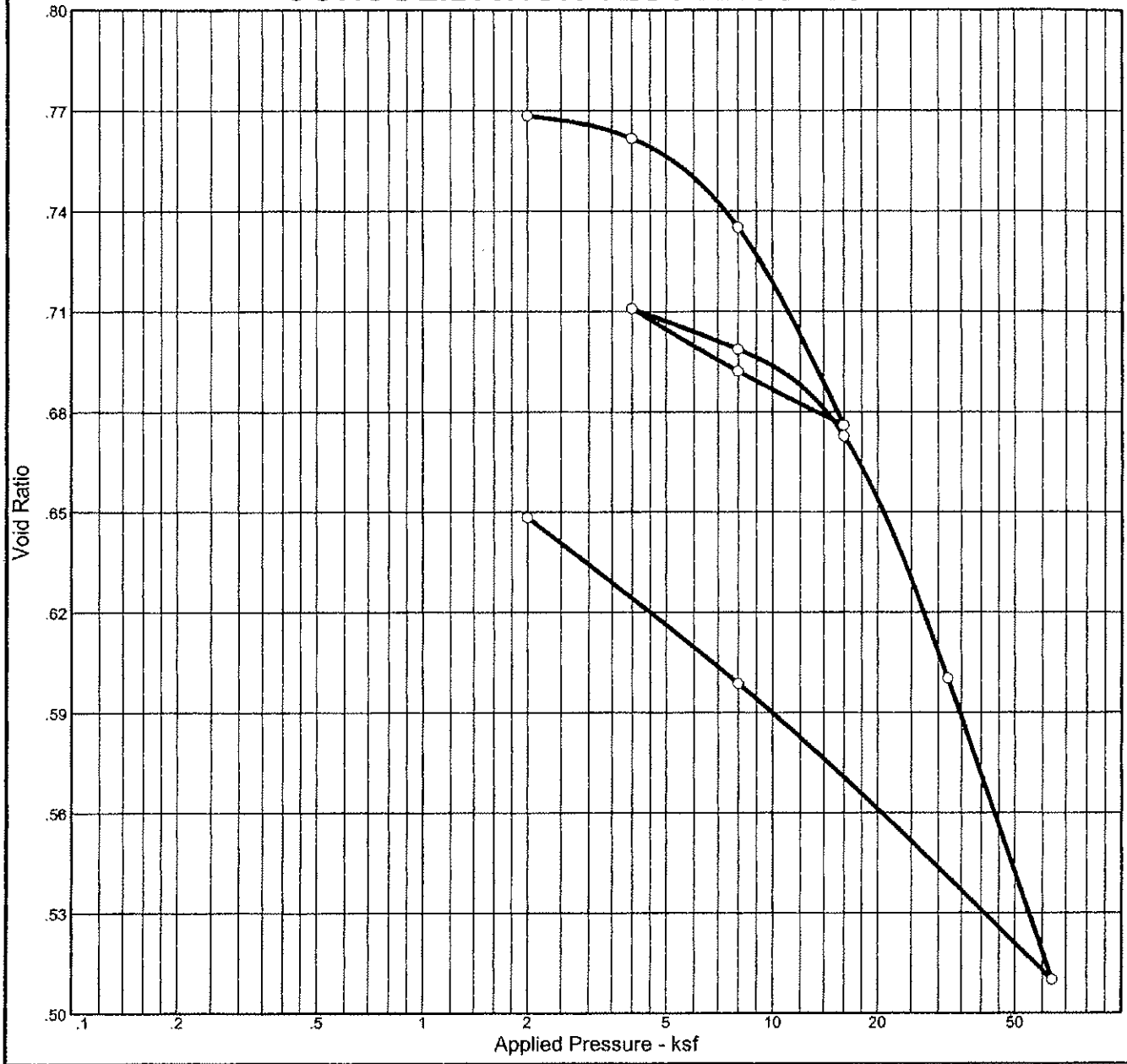
Houston, TX

Remarks:

ASTM D2435
Specific gravity Assumed

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
78.8 %	22.1 %	96.4	NA	NA	2.73		12.20	0.30	0.07	0.768

MATERIAL DESCRIPTION	USCS	AASHTO
Gray Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownswille

Location: BH-12, 8-10 ft.

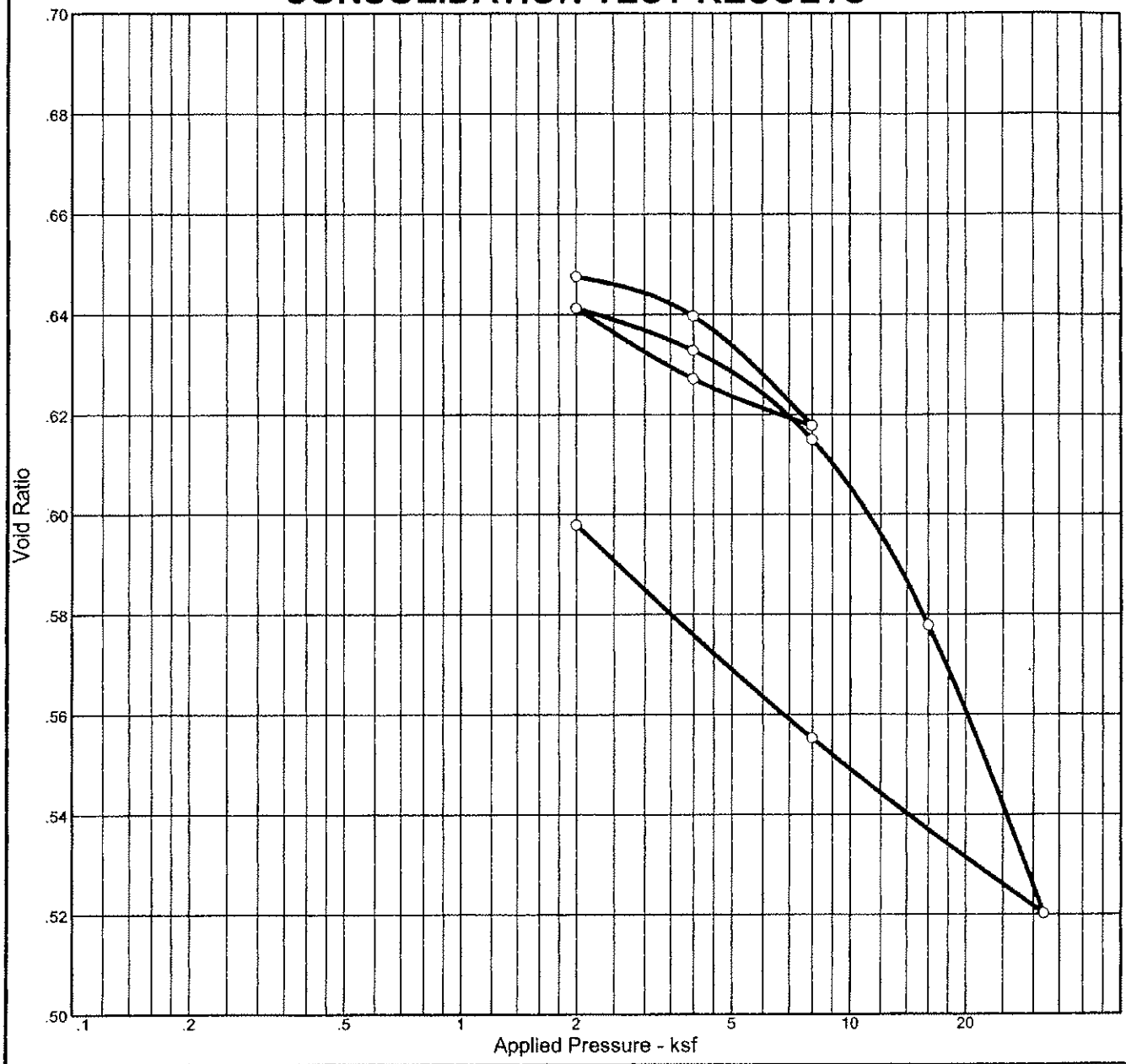
Remarks:
ASTM D2435
Specific Gravity Assumed

Terracon, Inc.

Houston, TX

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
91.9 %	21.8 %	103.5	NA	NA	2.73		8.62	0.19	0.05	0.647

MATERIAL DESCRIPTION	USCS	AASHTO
Brown Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownswille

Location: BH-17, 12-14 ft.

Terracon, Inc.

Houston, TX

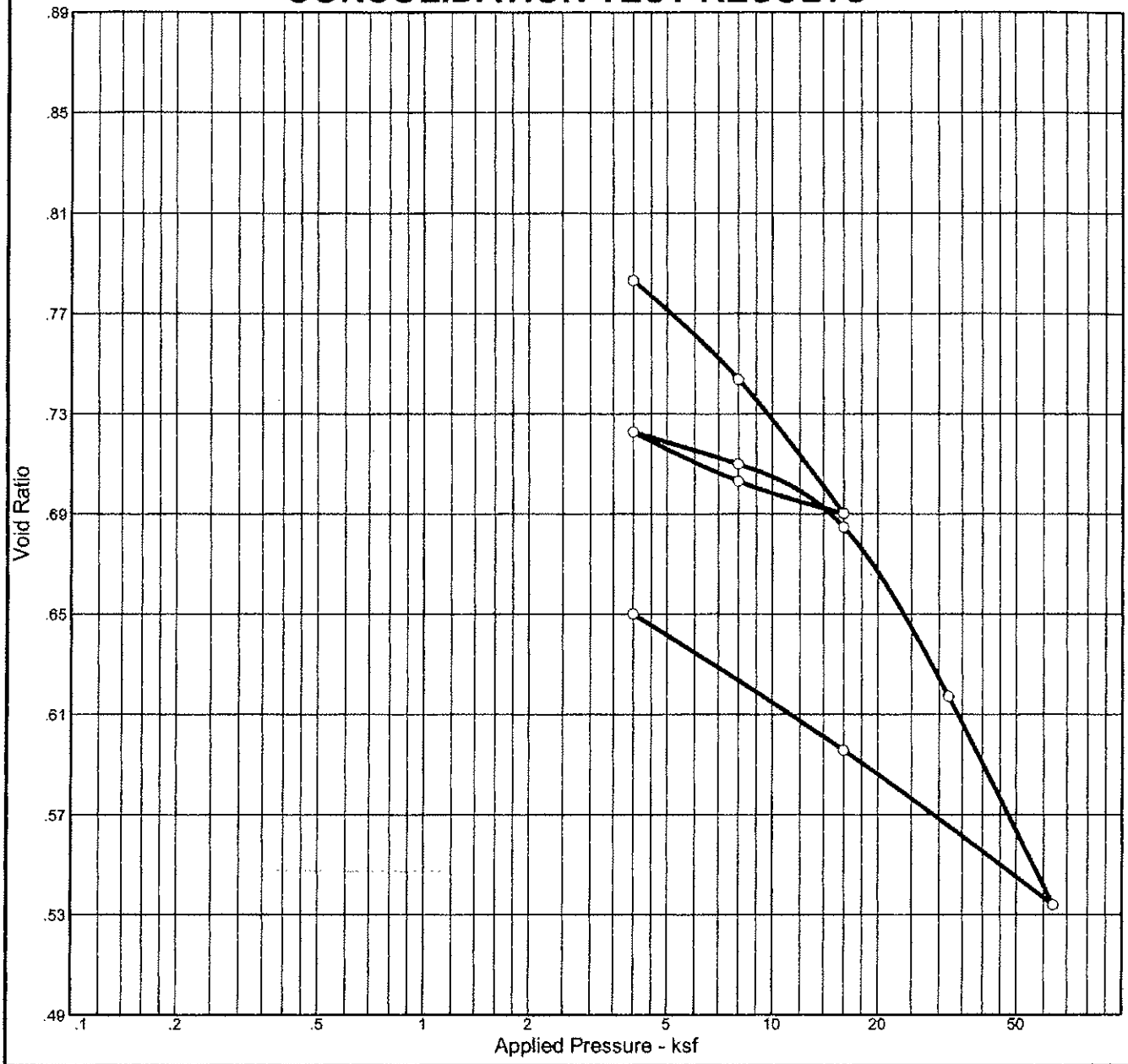
Remarks:

ASTM D2435

Specific Gravity Assumed

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
95.2 %	27.6 %	95.1	NA	NA	2.73		15.92	0.28	0.07	0.791

MATERIAL DESCRIPTION	USCS	AASHTO
Dark Brown Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownsville

Location: BH-20, 15-17 ft.

Terracon, Inc.

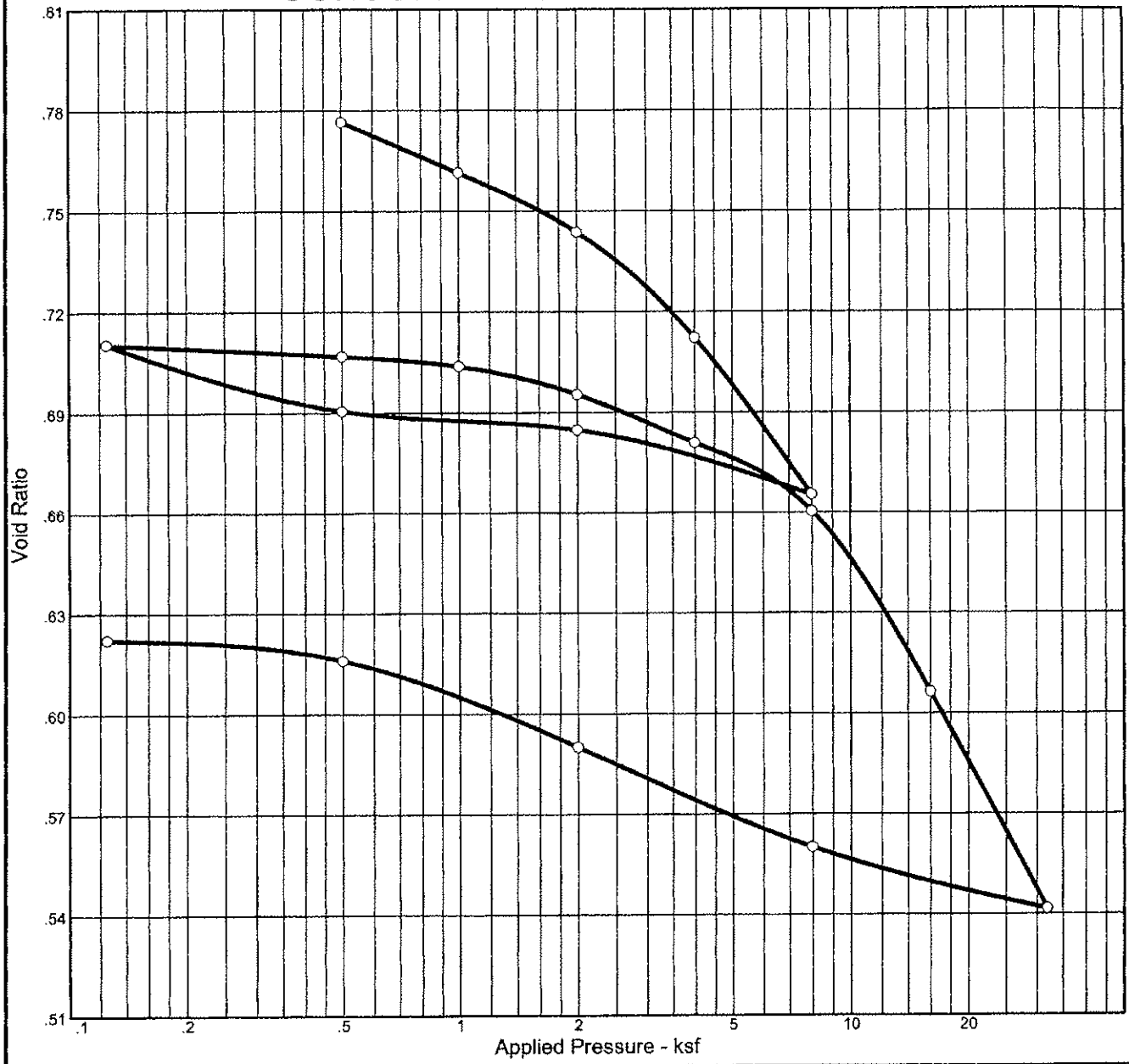
Houston, TX

Remarks:

ASTM D2435
Specific Gravity Assumed

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
86.0 %	24.8 %	95.3	NA	NA	2.73		4.23	0.22	0.03	0.788

MATERIAL DESCRIPTION	USCS	AASHTO
Gray Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownswille

Location: BH-23, 15-17 ft.

Terracon, Inc.

Houston, TX

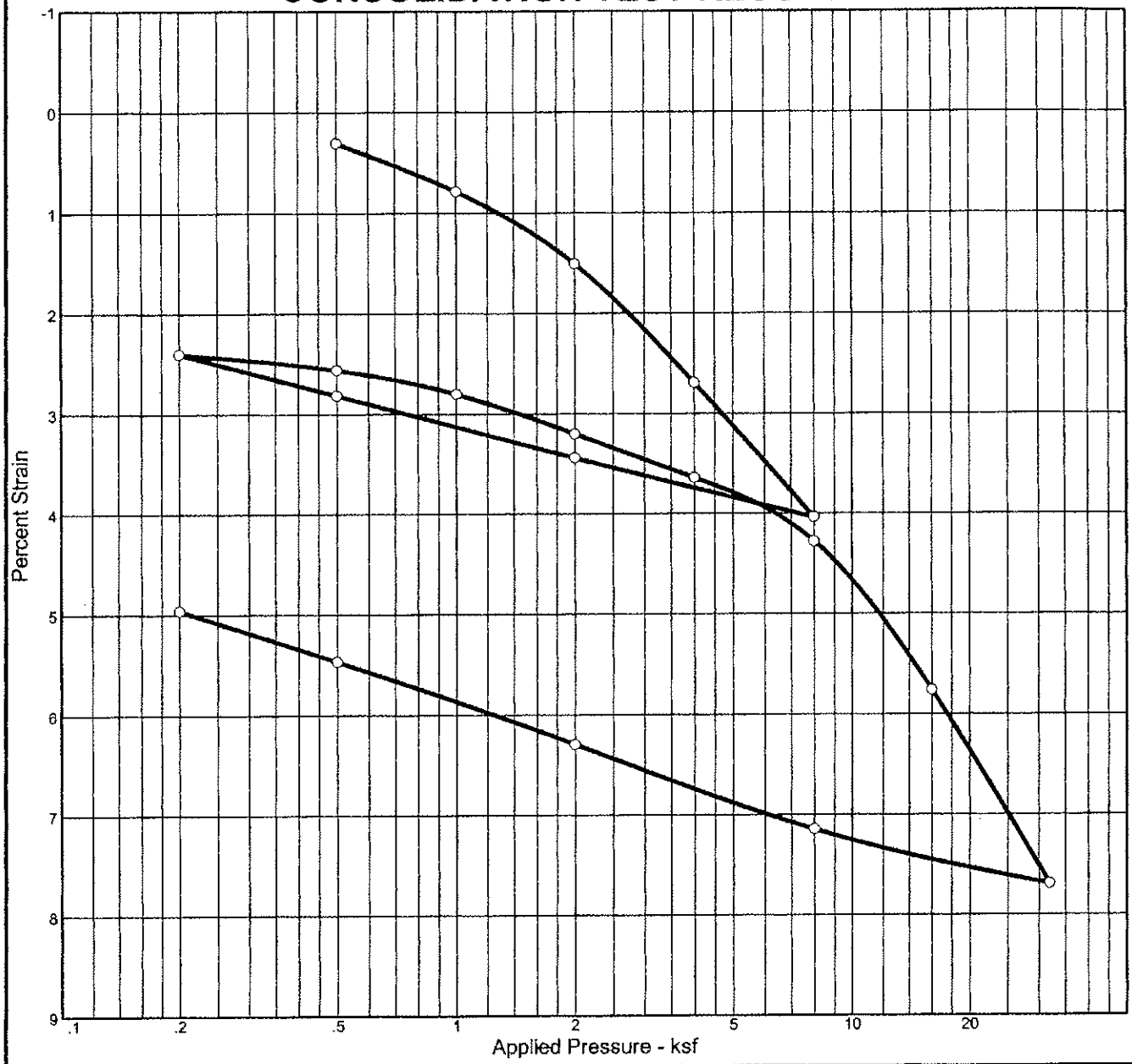
Remarks:

ASTM D2435

Specific Gravity Assumed

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
79.0 %	17.7 %	105.8	NA	NA	2.73		4.33	0.10	0.02	0.611

MATERIAL DESCRIPTION	USCS	AASHTO
Gray Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownsville

Location: BH-28, 11-13 ft.

Terracon, Inc.

Houston, TX

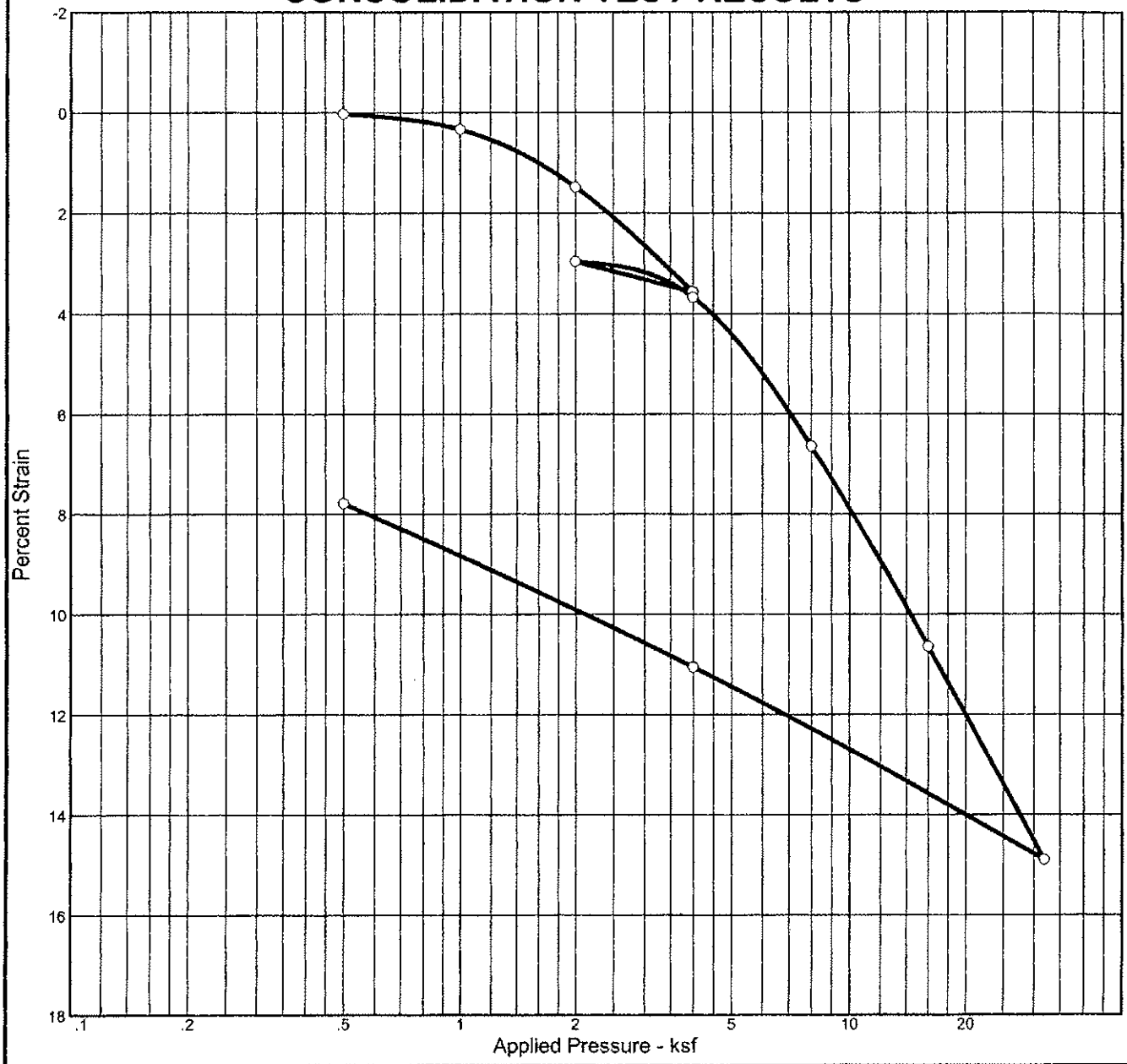
Remarks:

ASTM D2435

Specific Gravity Assumed

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
93.0 %	29.1 %	91.9	NA	NA	2.73		3.29	0.26	0.06	0.855

MATERIAL DESCRIPTION	USCS	AASHTO
Brown Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownswille

Location: BH-30, 12-14 ft.

Terracon, Inc.

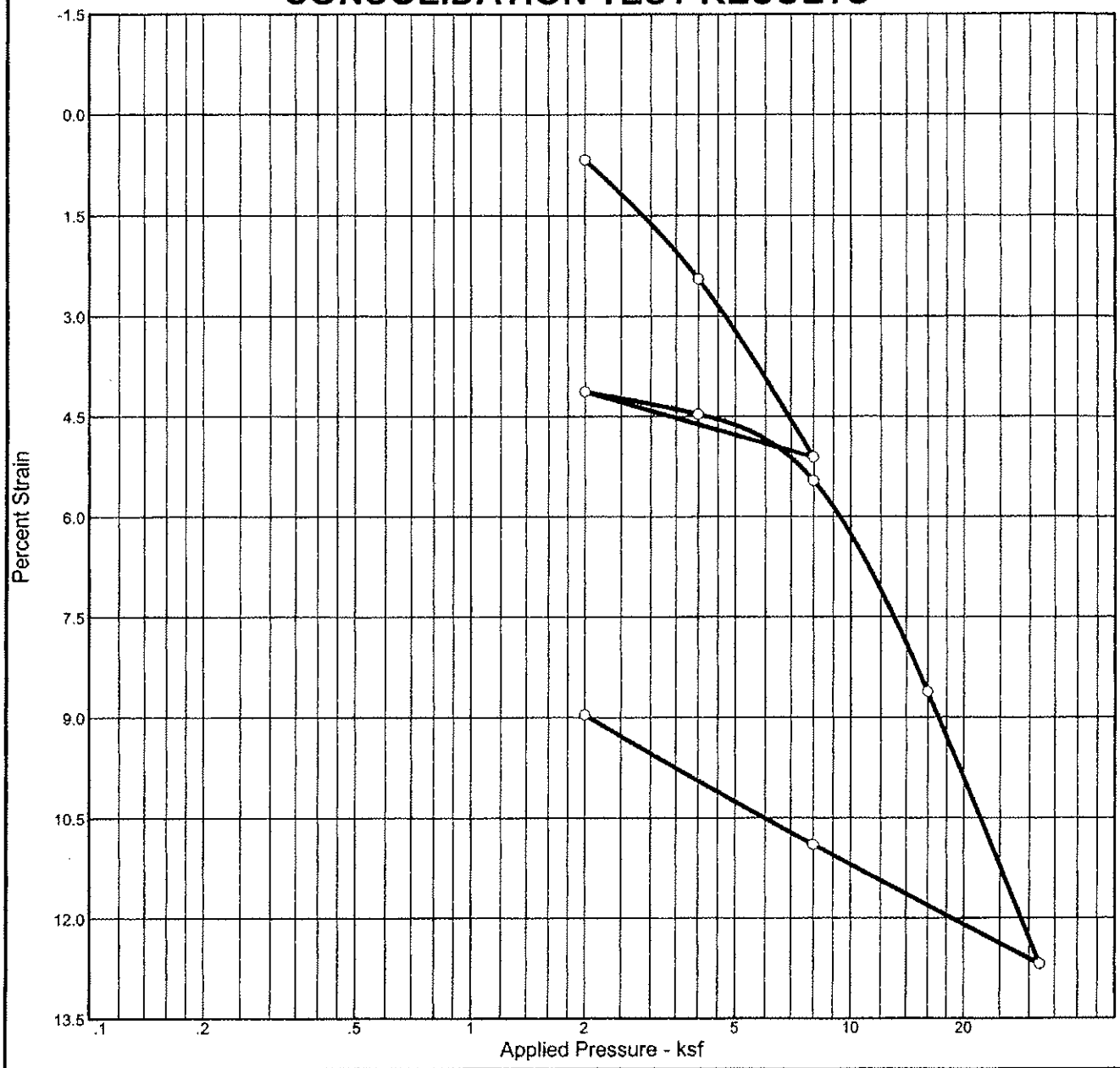
Houston, TX

Remarks:

ASTM D2435
Specific Gravity Assumed

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
96.0 %	27.3 %	96.0	NA	NA	2.73		6.42	0.24	0.04	0.776

MATERIAL DESCRIPTION	USCS	AASHTO
Brown Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownswille

Location: BH-34, 14-16 ft

Terracon, Inc.

Houston, TX

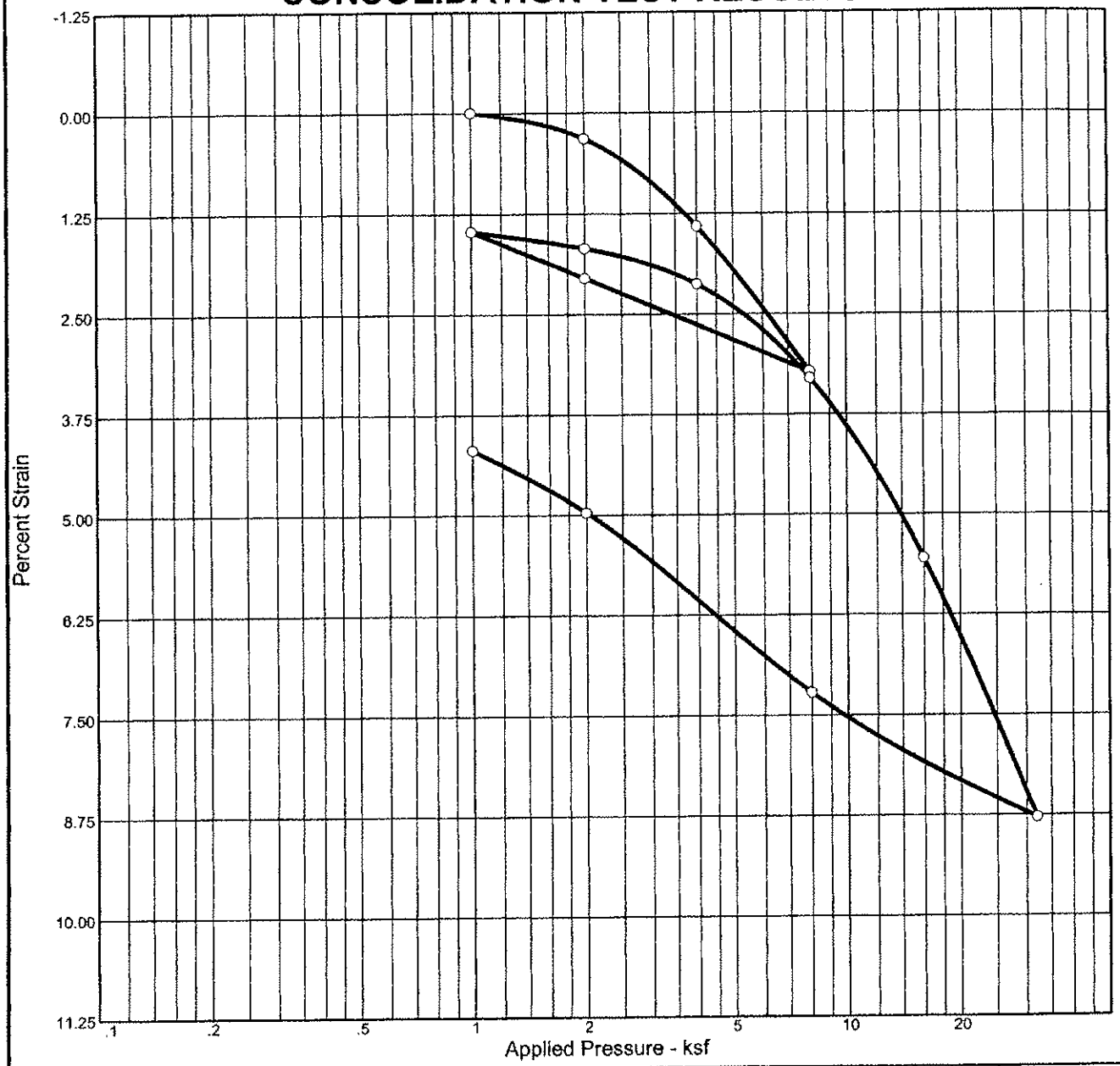
Remarks:

ASTM D2435

Specific Gravity Assumed

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
95.3 %	26.0 %	97.6	NA	NA	2.73		6.02	0.19	0.04	0.746

MATERIAL DESCRIPTION	USCS	AASHTO
Brown Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownswille

Location: BH-38, 14-16 ft.

Terracon, Inc.

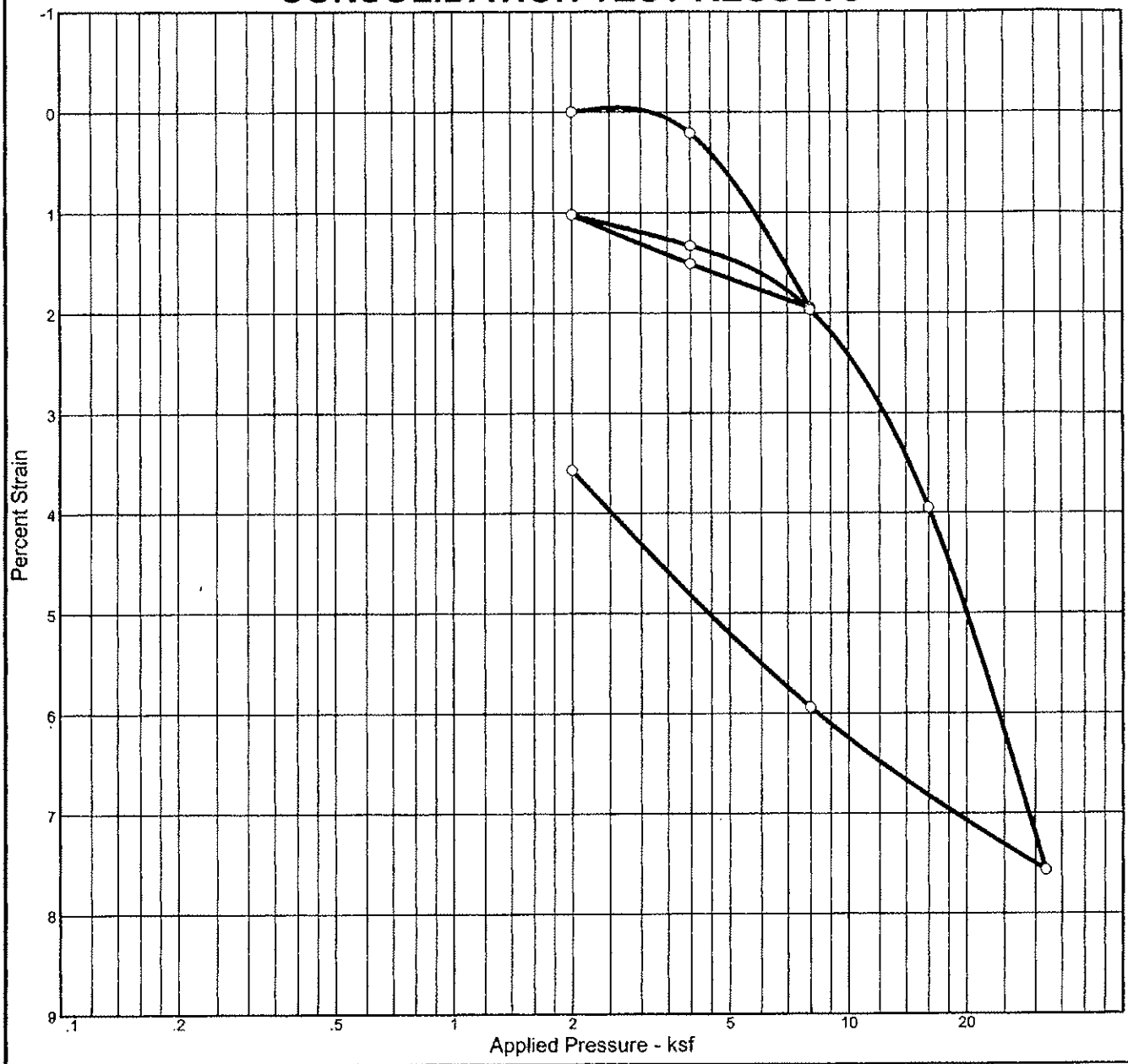
Houston, TX

Remarks:

ASTM D2435
Specific Gravity Assumed

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
88.9 %	26.9 %	93.3	NA	NA	2.73		9.25	0.22	0.04	0.826

MATERIAL DESCRIPTION	USCS	AASHTO
Gray Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownswille

Location: BH-44, 13-15 ft.

Terracon, Inc.

Houston, TX

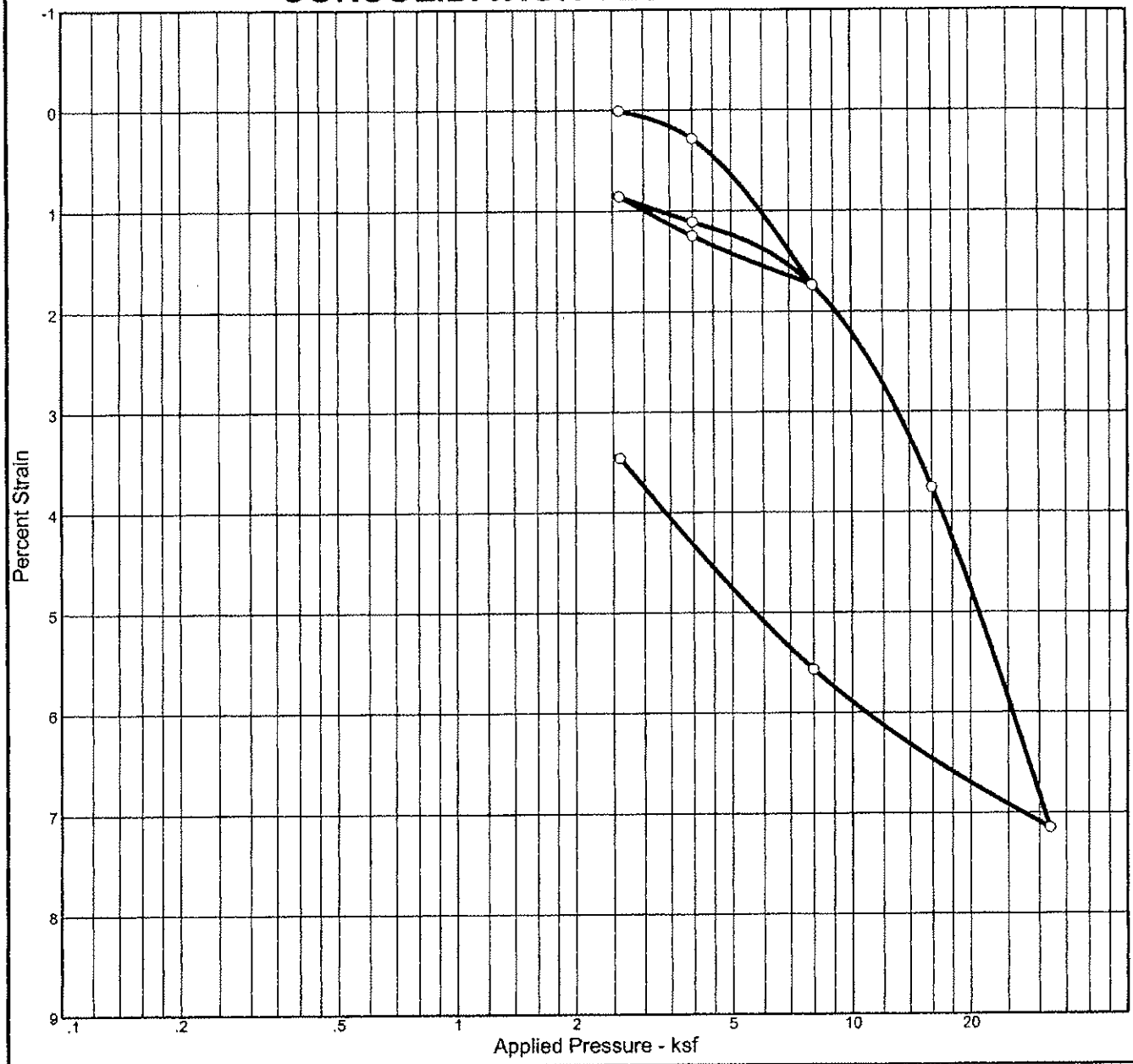
Remarks:

ASTM D2435

Specific Gravity Assumed

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
92.0 %	25.1 %	97.6	NA	NA	2.73		9.05	0.20	0.04	0.746

MATERIAL DESCRIPTION	USCS	AASHTO
Gray Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownswille

Location: IBH 49 13-15 ft.

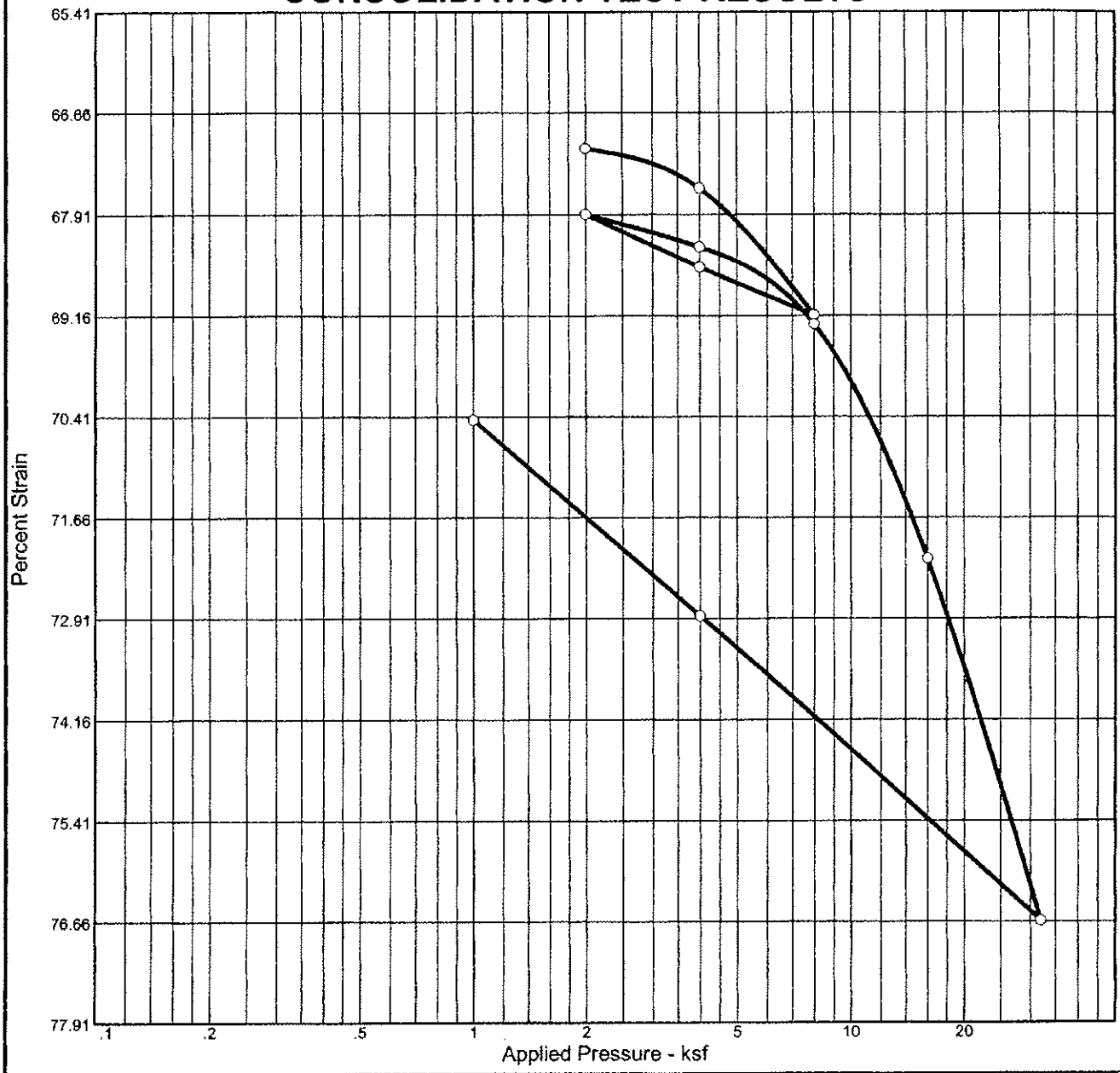
Remarks:
ASTM D2435
Specific Gravity Assumed

Terracon, Inc.

Houston, TX

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
86.3 %	21.0 %	102.4	NA	NA	2.73		16.63	0.25	0.05	0.665

MATERIAL DESCRIPTION	USCS	AASHTO
Gryish Brown Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownswille

Location BH 52, 8-10 FT.

Terracon, Inc.

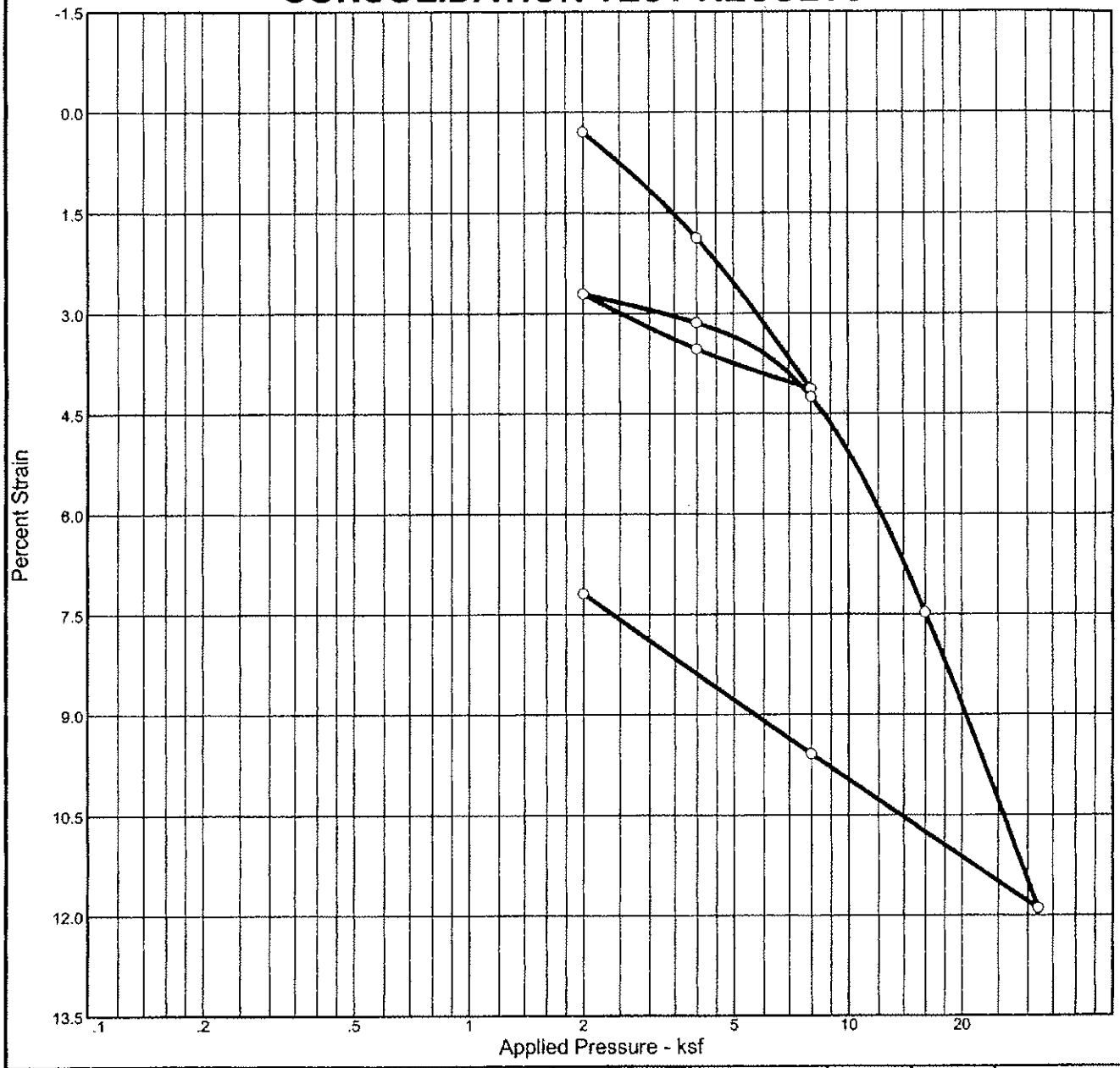
Houston, TX

Remarks:

ASTM D2435
Specific Gravity Assumed

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
90.6 %	26.2 %	95.2	NA	NA	2.73		9.46	0.27	0.05	0.790

MATERIAL DESCRIPTION	USCS	AASHTO
Gray Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownswille

Location BH 57, 13-15 ft.

Terracon, Inc.

Houston, TX

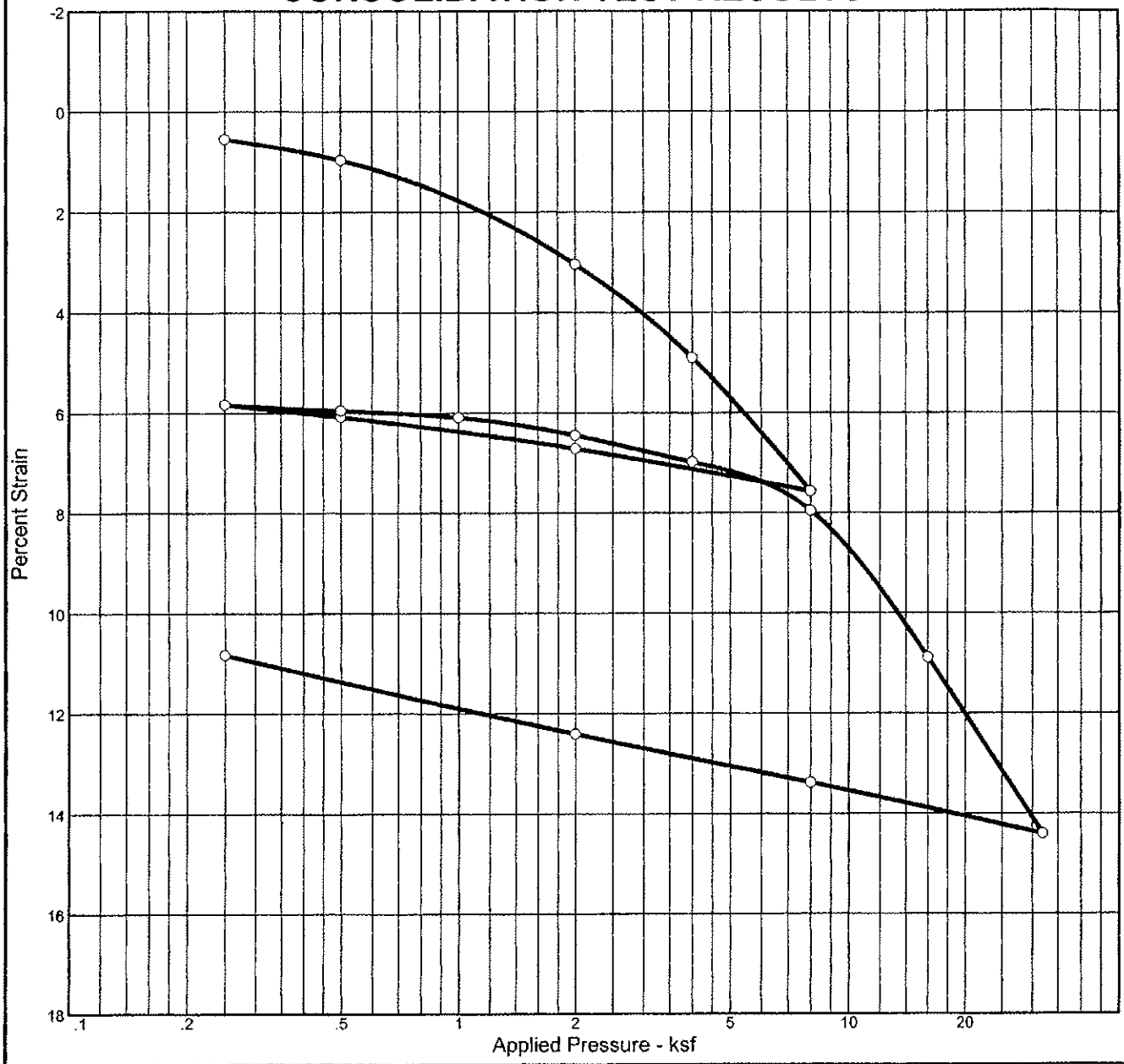
Remarks:

ASTM D2435

Specific Gravity Assumed

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
90.6 %	27.1 %	93.9	NA	NA	2.73		5.43	0.21	0.03	0.816

MATERIAL DESCRIPTION	USCS	AASHTO
Gray Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownswille

Location: BH 63 , 6-8 ft.

Terracon, Inc.

Houston, TX

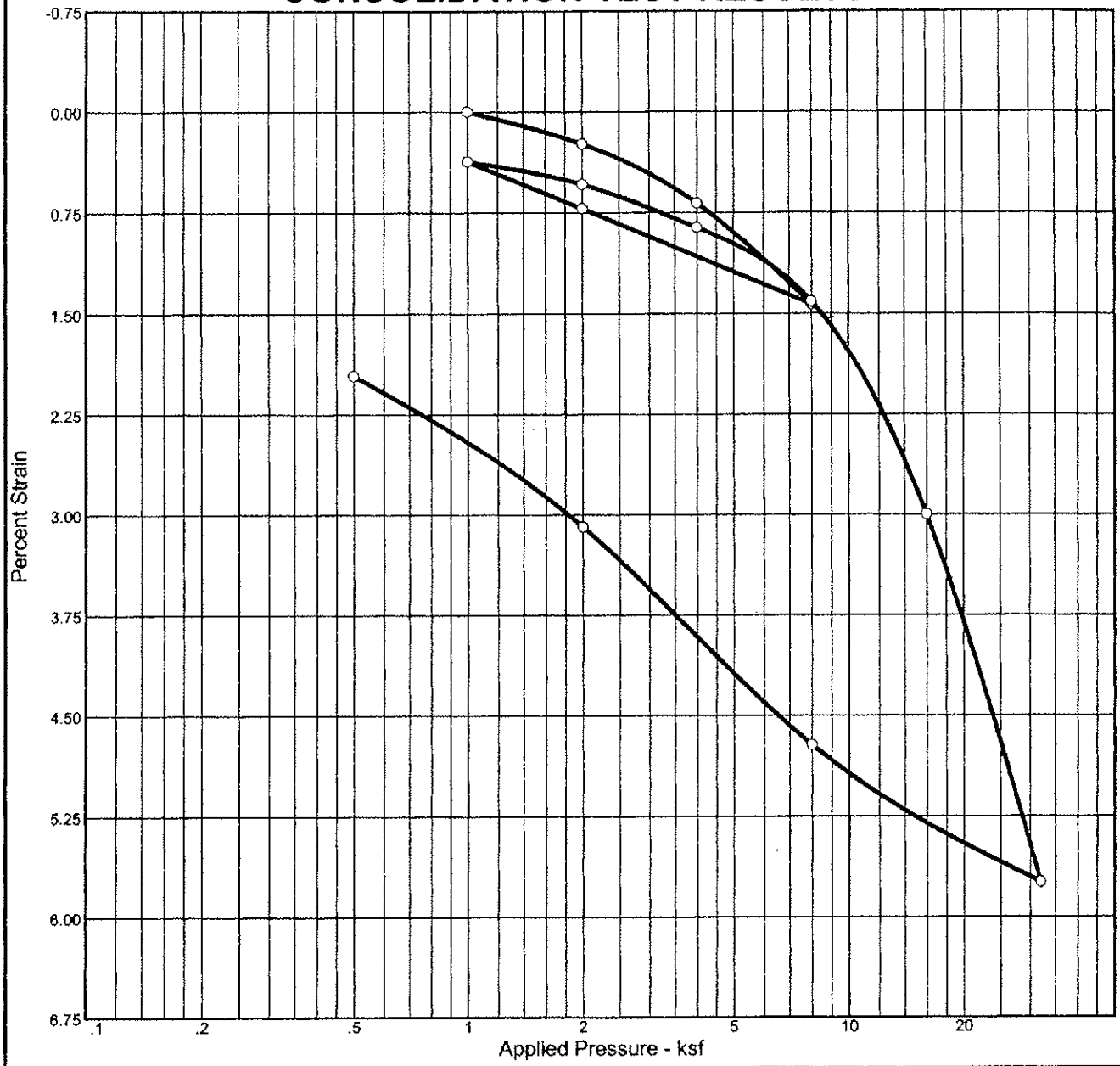
Remarks:

ASTM D2435

Specific Gravity Assumed

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
95.9 %	23.4 %	102.3	NA	NA	2.73		12.76	0.15	0.03	0.666

MATERIAL DESCRIPTION	USCS	AASHTO
Gray Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownswille

Location: BH 66, 8-10 ft.

Terracon, Inc.

Houston, TX

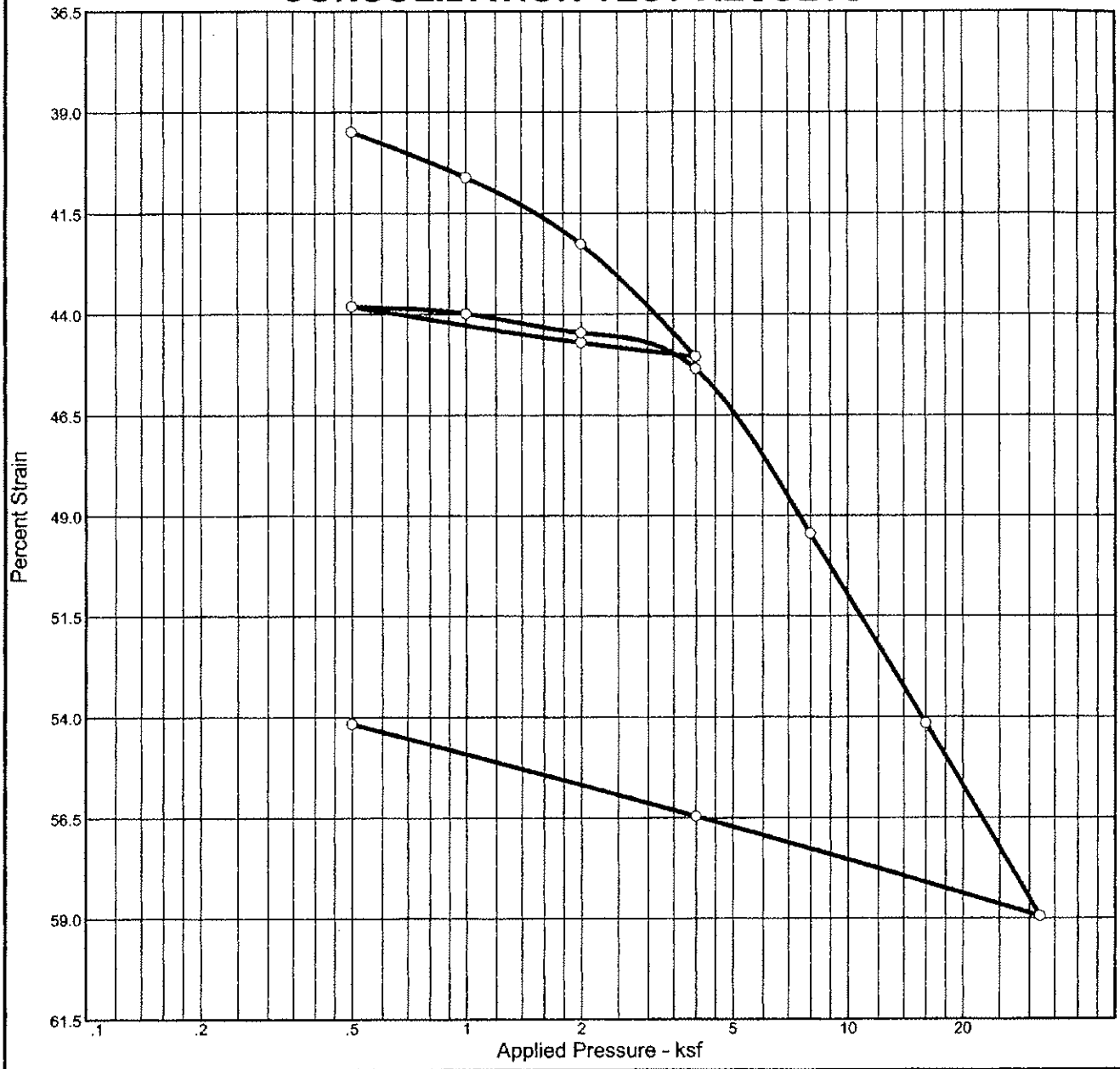
Remarks:

ASTM D2435

Specific Gravity Assumed

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
75.7 %	23.5 %	92.2	NA	NA	2.73		4.53	0.29	0.03	0.847

MATERIAL DESCRIPTION	USCS	AASHTO
Brown Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownswille

Location: BH 71, 9-11 ft.

Terracon, Inc.

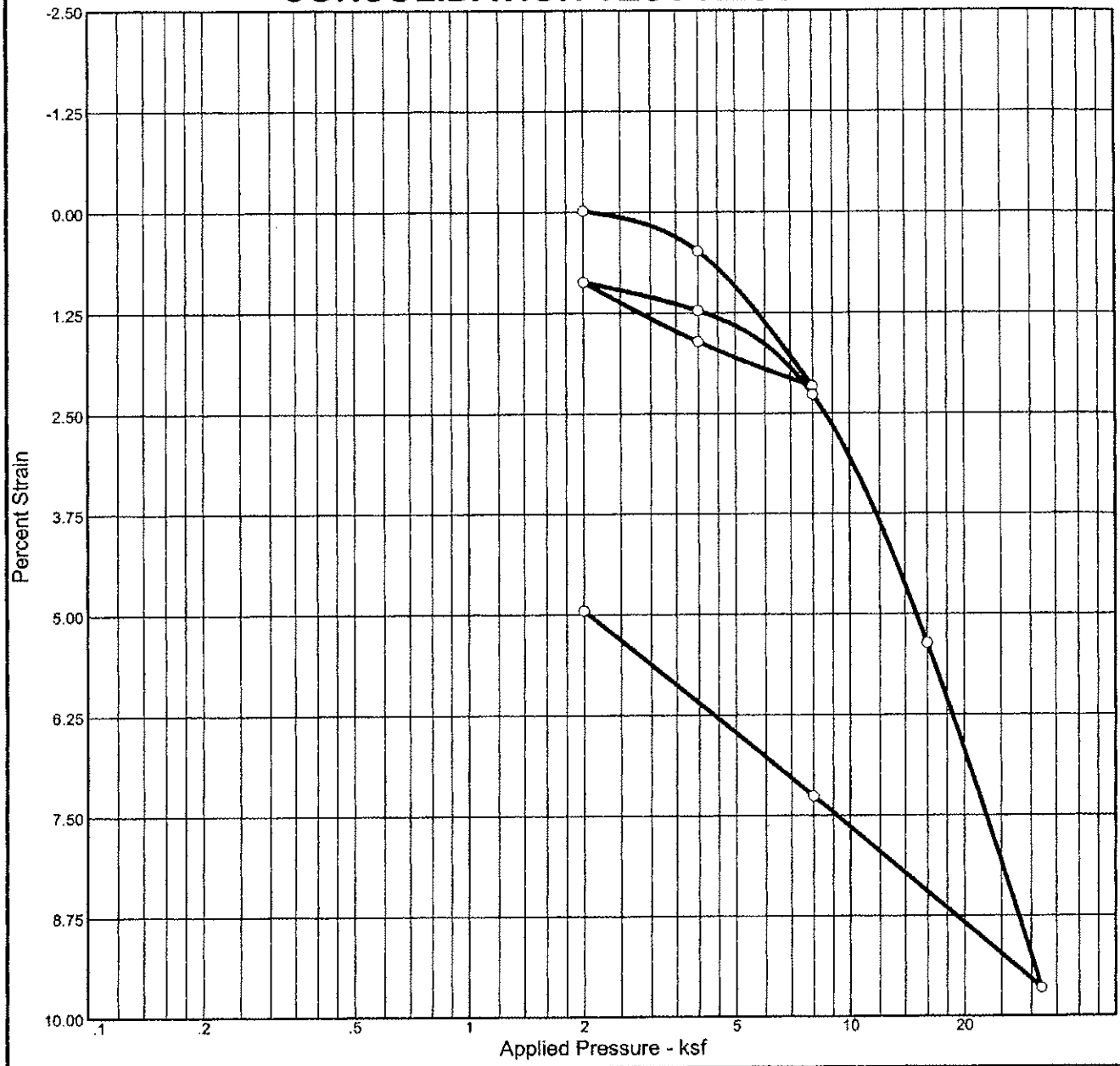
Houston, TX

Remarks:

ASTM D2435
Specific Gravity Assumed

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
75.7 %	21.4 %	96.2	NA	NA	2.73		8.04	0.26	0.05	0.771

MATERIAL DESCRIPTION	USCS	AASHTO
Gray Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownswille

Location: BH 77, 8-10 ft.

Terracon, Inc.

Houston, TX

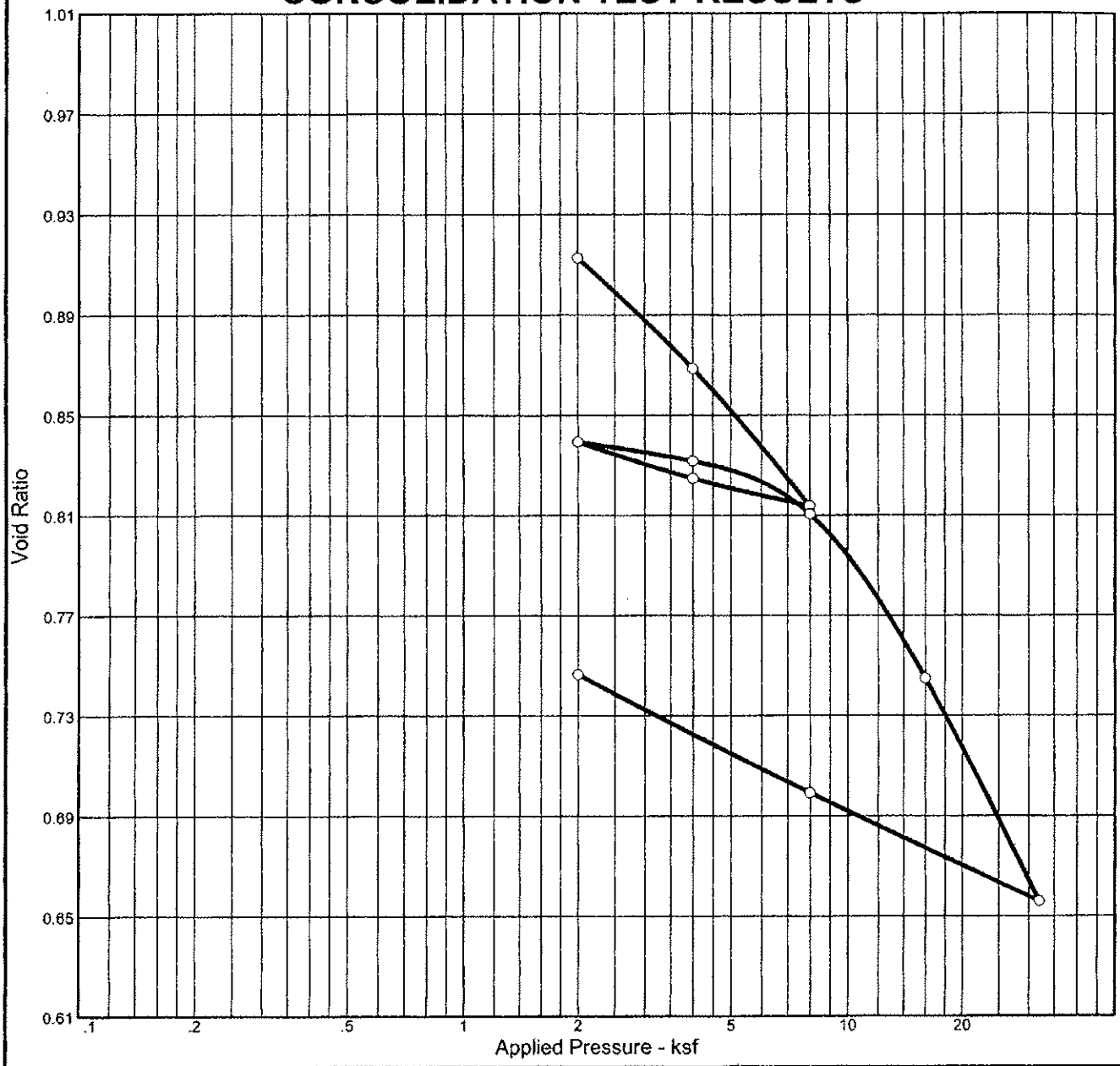
Remarks:

ASTM D2435

Specific Gravity Assumed

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
91.3 %	31.2 %	88.2	NA	NA	2.73		16.37	0.30	0.06	0.933

MATERIAL DESCRIPTION	USCS	AASHTO
Brown Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownswille

Location: BH 86, 11-13 ft.

Terracon, Inc.

Houston, TX

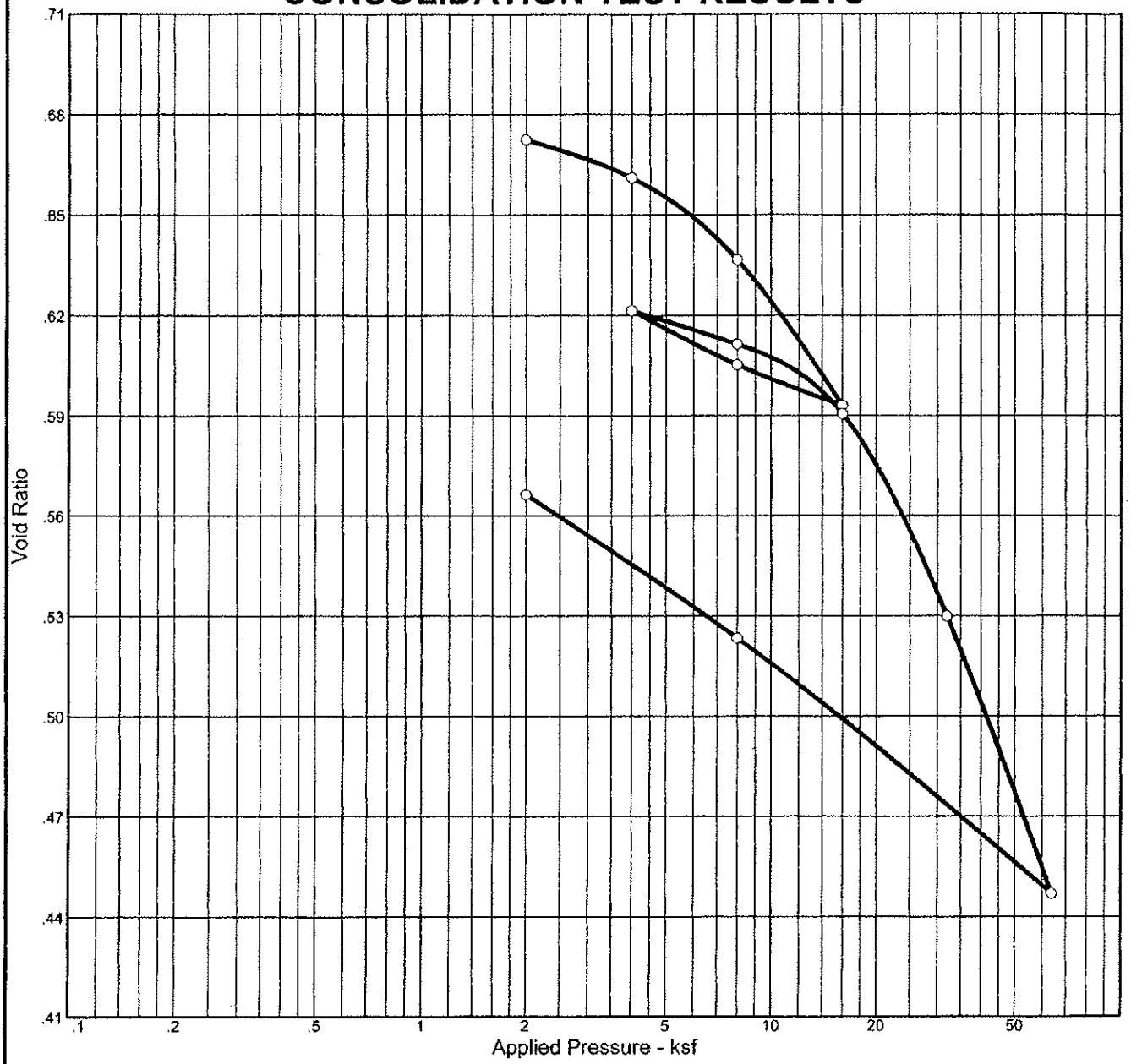
Remarks:

ASTM D2435

Specific Gravity Assumed

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
80.3 %	19.8 %	101.8	NA	NA	2.73		14.67	0.28	0.06	0.674

MATERIAL DESCRIPTION	USCS	AASHTO
Gray Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownsville

Location: BH 88 , 6-8 ft.

Terracon, Inc.

Houston, TX

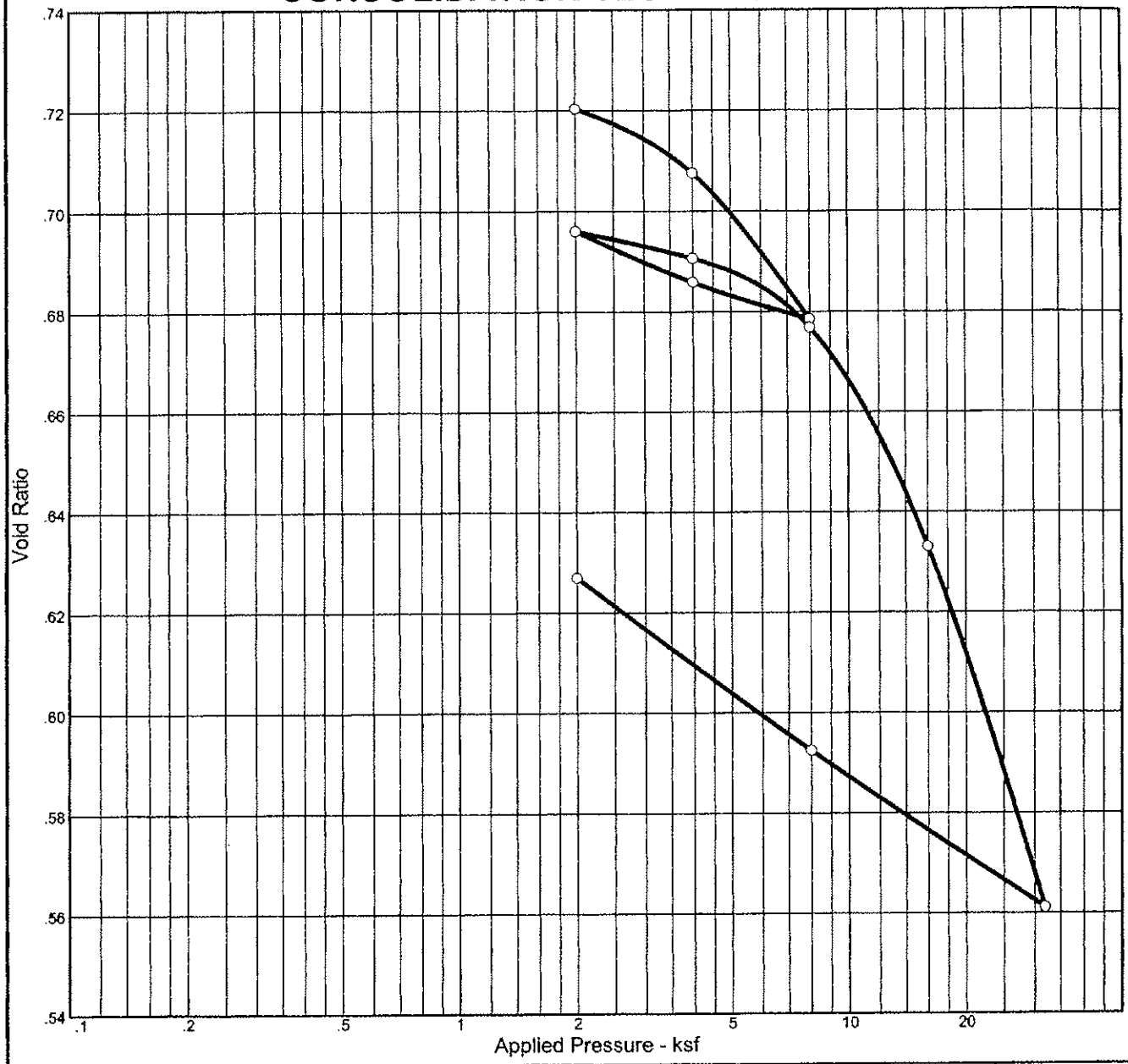
Remarks:

ASTM D2435

Specific Gravity Assumed

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
79.1 %	21.0 %	98.9	NA	NA	2.73		9.09	0.24	0.04	0.724

MATERIAL DESCRIPTION	USCS	AASHTO
Gray Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownswille

Location: BH 95 10-12 ft.

Terracon, Inc.

Houston, TX

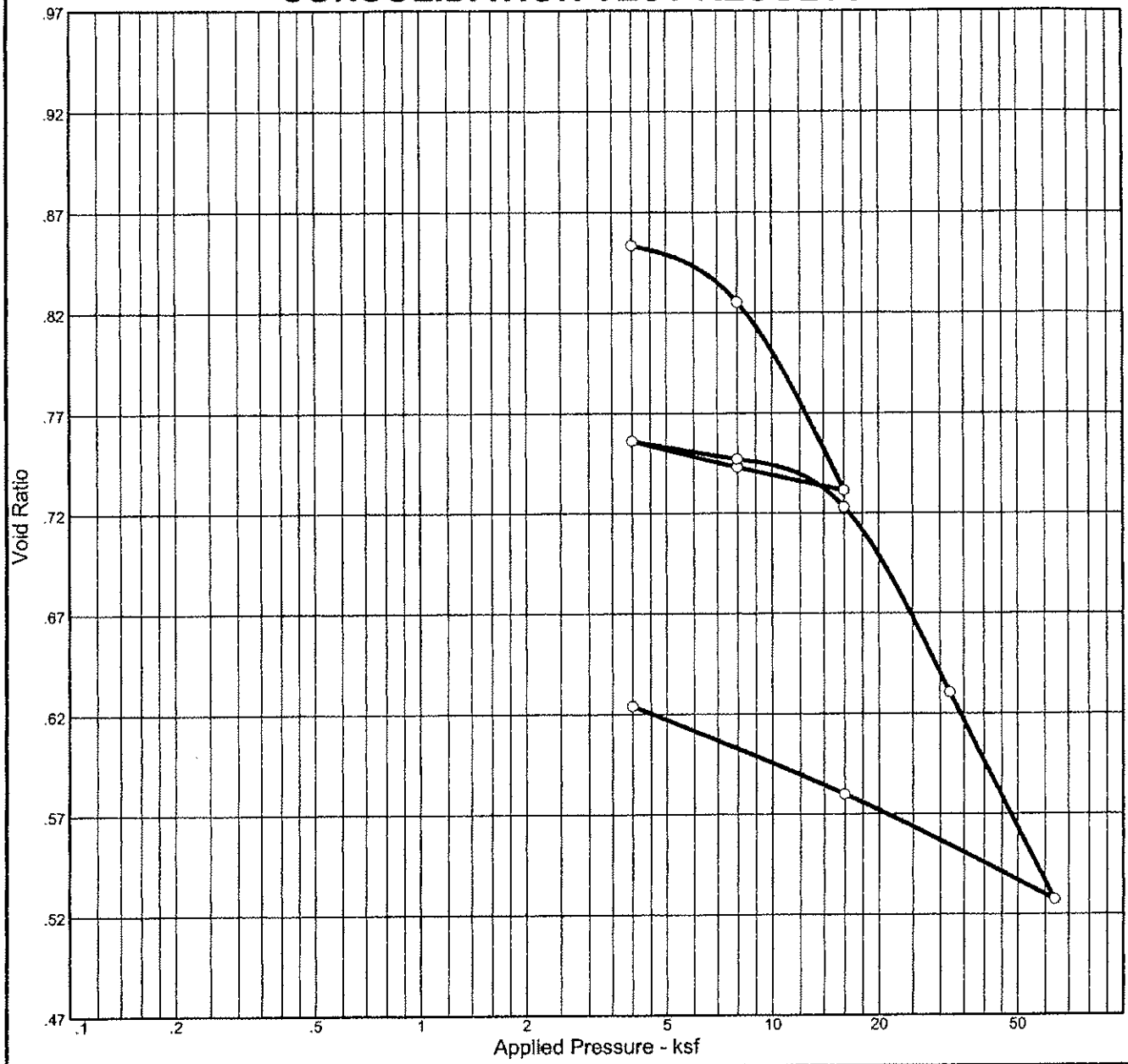
Remarks:

ASTM D2435

Specific Gravity Assumed

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
68.5 %	21.5 %	91.7	NA	NA	2.73		8.80	0.34	0.06	0.859

MATERIAL DESCRIPTION	USCS	AASHTO
Gray Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownswille

Location: BH 102, 10-12 ft

Terracon, Inc.

Houston, TX

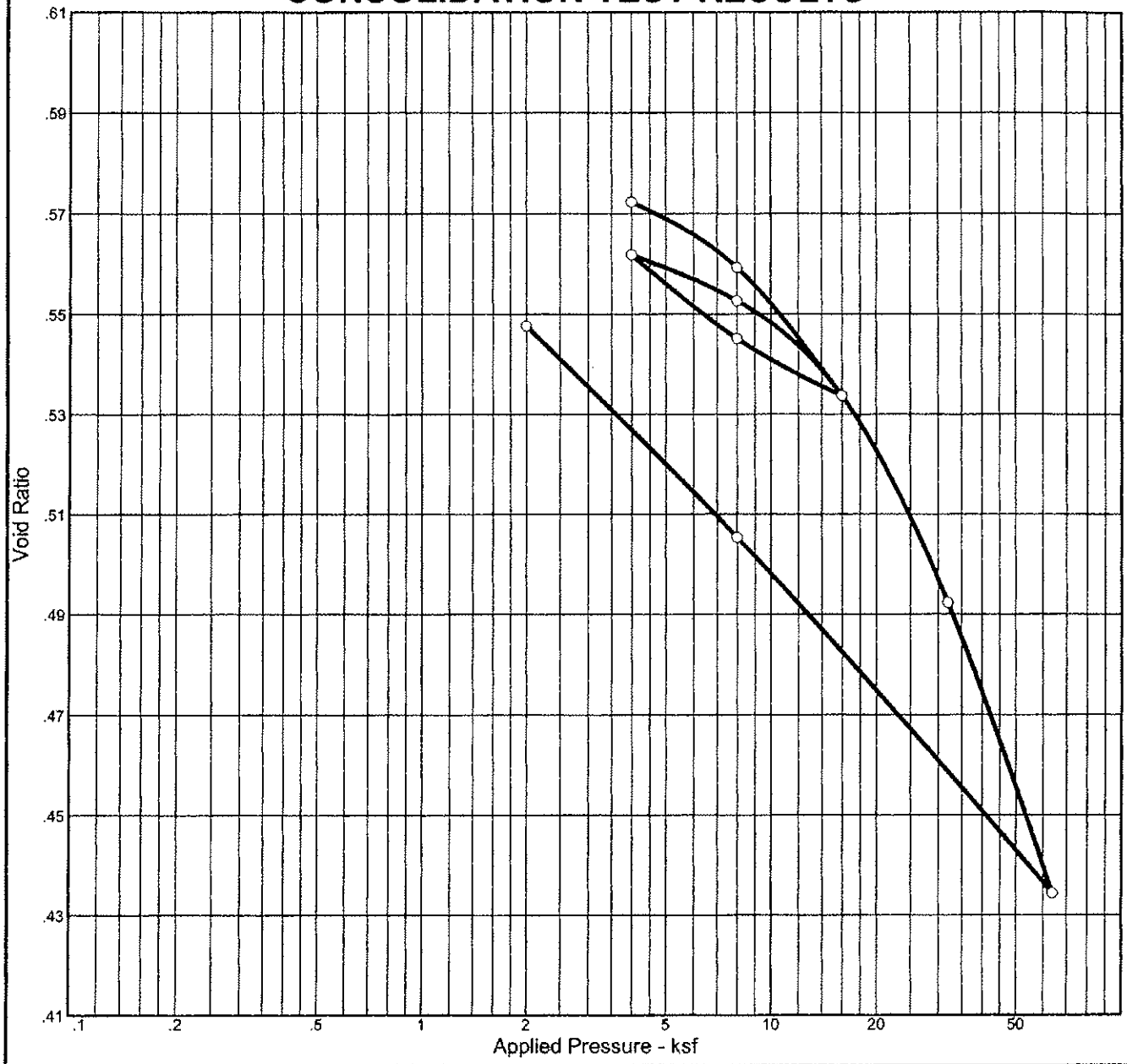
Remarks:

ASTM D2435

Specific Gravity Assumed

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
76.2 %	16.0 %	108.4	NA	NA	2.73		16.50	0.19	0.06	0.572

MATERIAL DESCRIPTION	USCS	AASHTO
Gray Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownswille

Location: BH 106, 8-10 ft.

Terracon, Inc.

Houston, TX

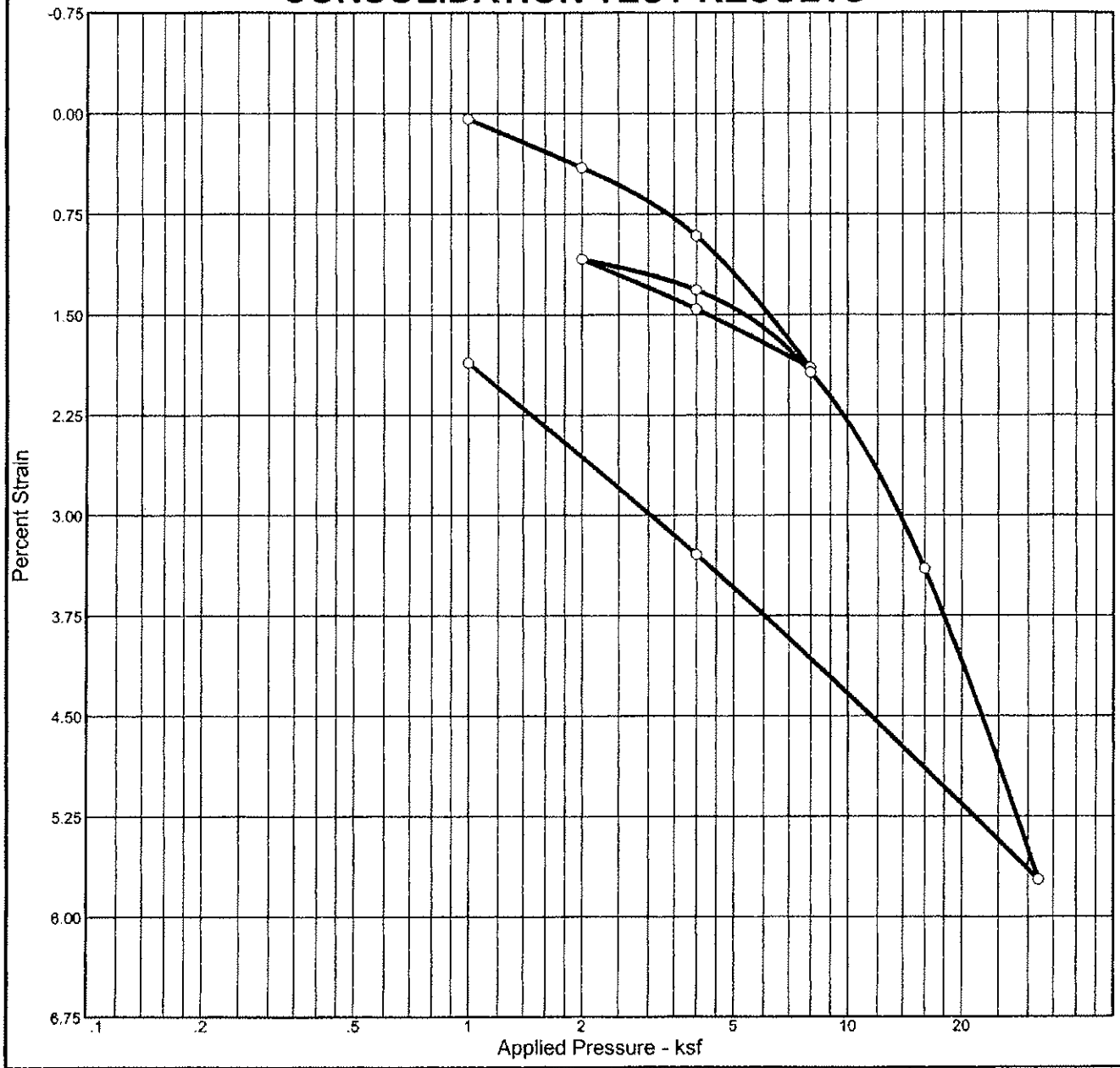
Remarks:

ASTM D2435

Specific Gravity Assumed

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
84.0 %	19.2 %	104.9	NA	NA	2.73		8.95	0.13	0.03	0.624

MATERIAL DESCRIPTION	USCS	AASHTO
Gray Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownswille

Location: BH 114, 4-6 ft.

Terracon, Inc.

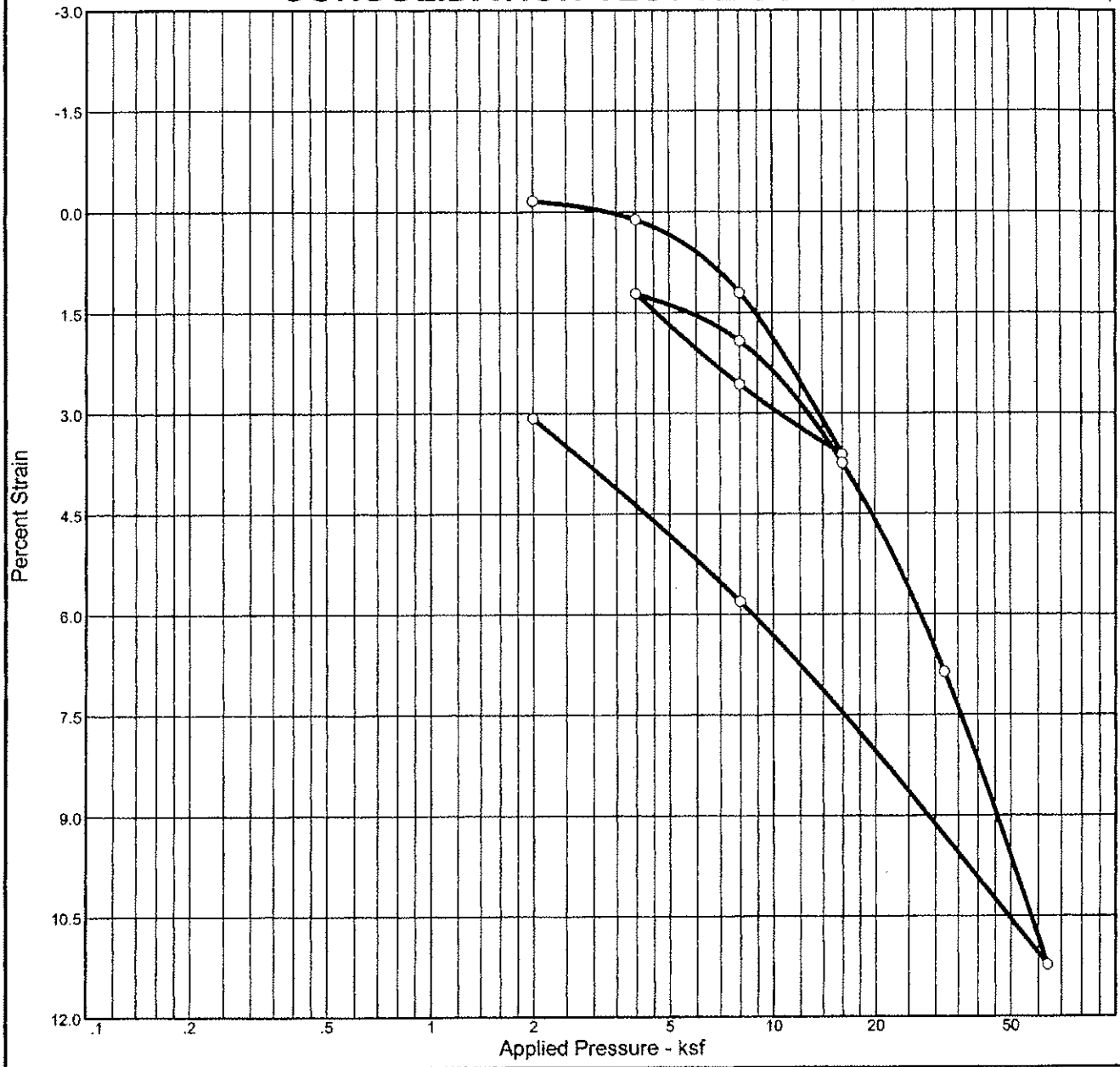
Houston, TX

Remarks:

ASTM D2435
Specific Gravity Assumed

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
95.4 %	24.0 %	101.0	NA	NA	2.73		14.93	0.25	0.08	0.688

MATERIAL DESCRIPTION	USCS	AASHTO
Grayish Brown Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownsville

Location: BH 119 S-6, 10-12 ft.

Terracon, Inc.

Houston, TX

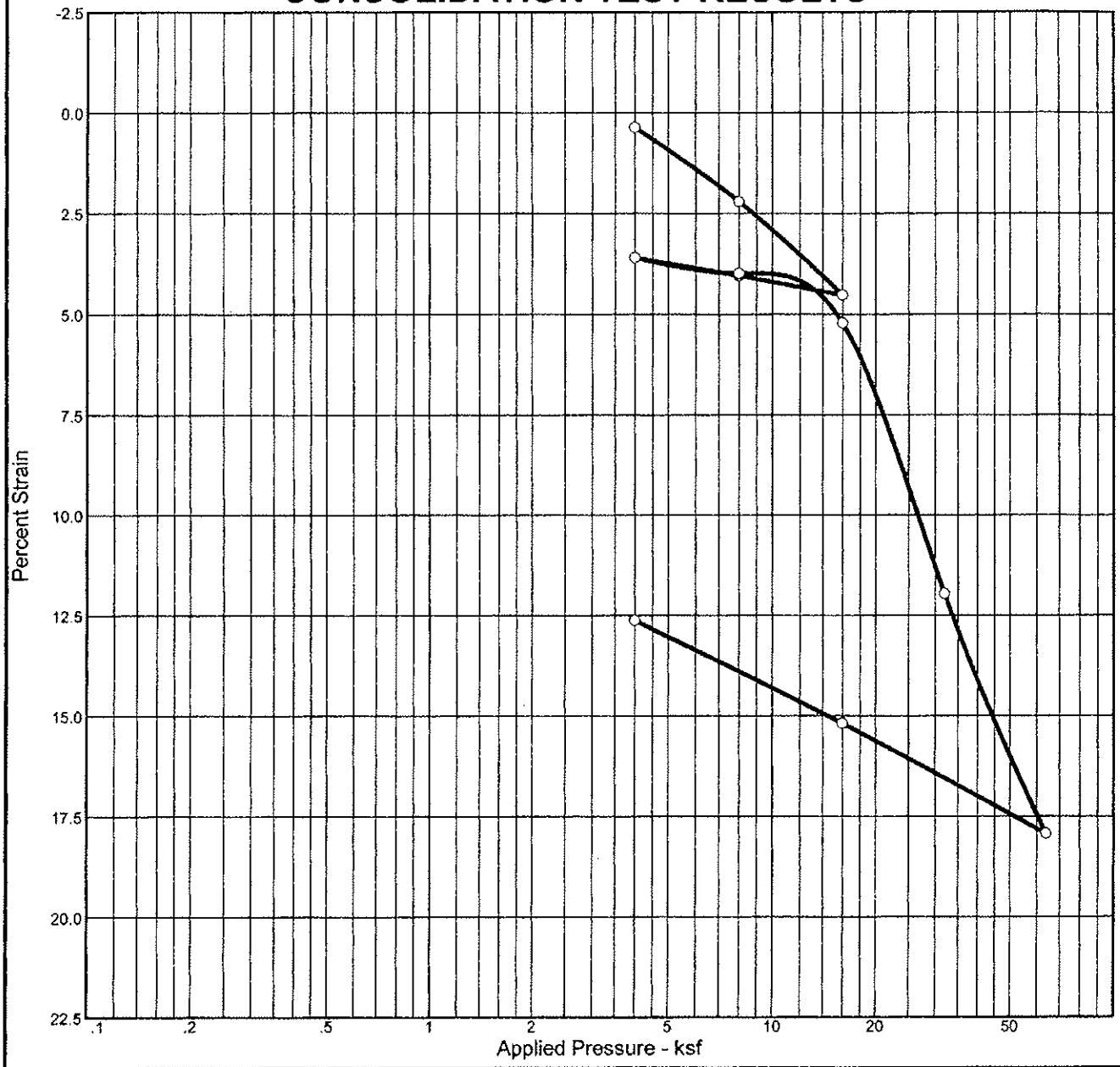
Remarks:

ASTM D2435

Specific Gravity Assumed

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
61.4 %	17.9 %	94.9	NA	NA	2.73		10.57	0.35	0.05	0.796

MATERIAL DESCRIPTION	USCS	AASHTO
Gray Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownsville

Location: BH 123, 4-6 ft.

Terracon, Inc.

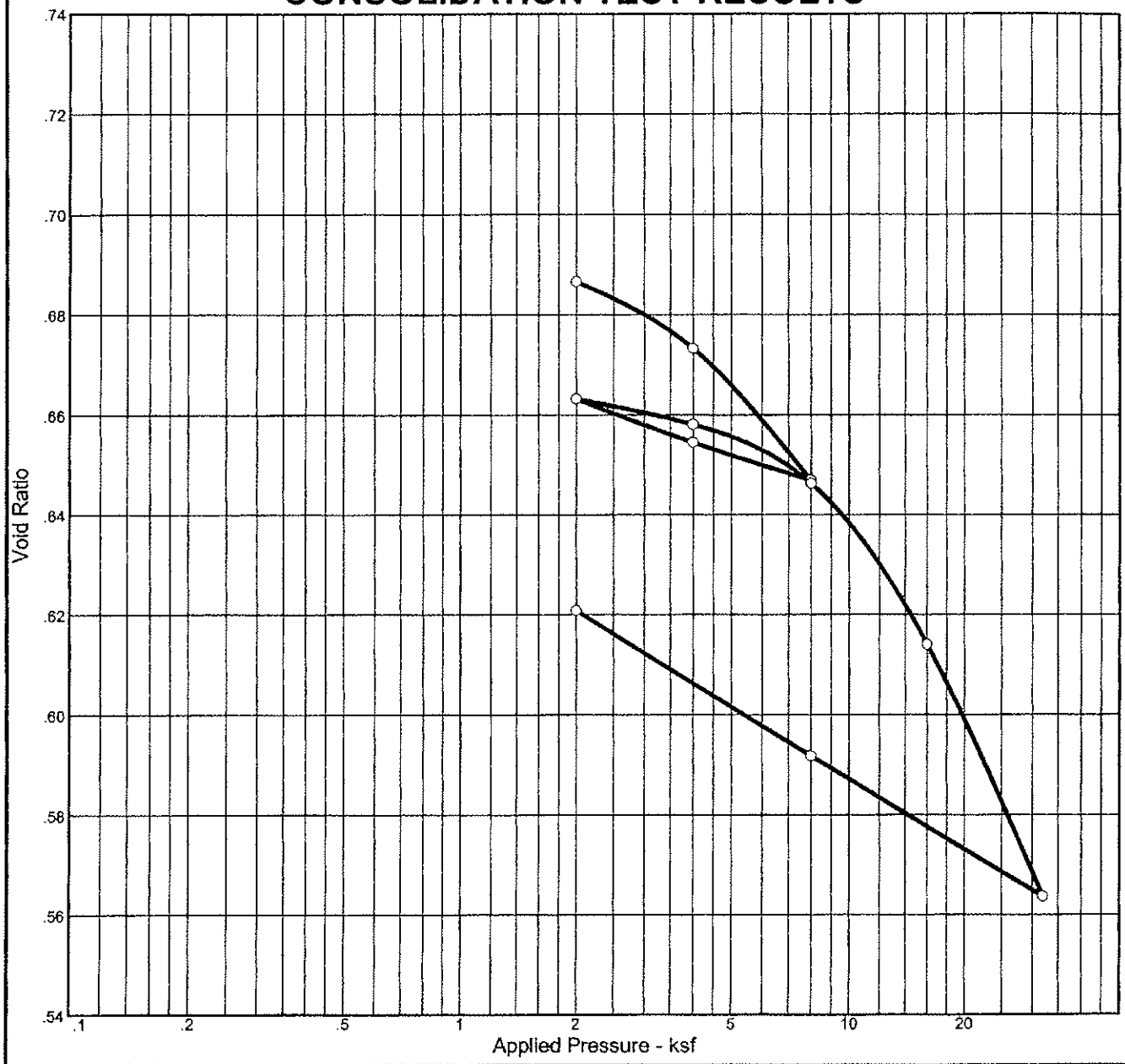
Houston, TX

Remarks:

ASTM D2435
Specific Gravity Assumed

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
85.1 %	21.4 %	101.0	NA	NA	2.73		8.53	0.17	0.03	0.688

MATERIAL DESCRIPTION	USCS	AASHTO
Gray Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownswille

Location: BH 128, 14-16 ft.

Terracon, Inc.

Houston, TX

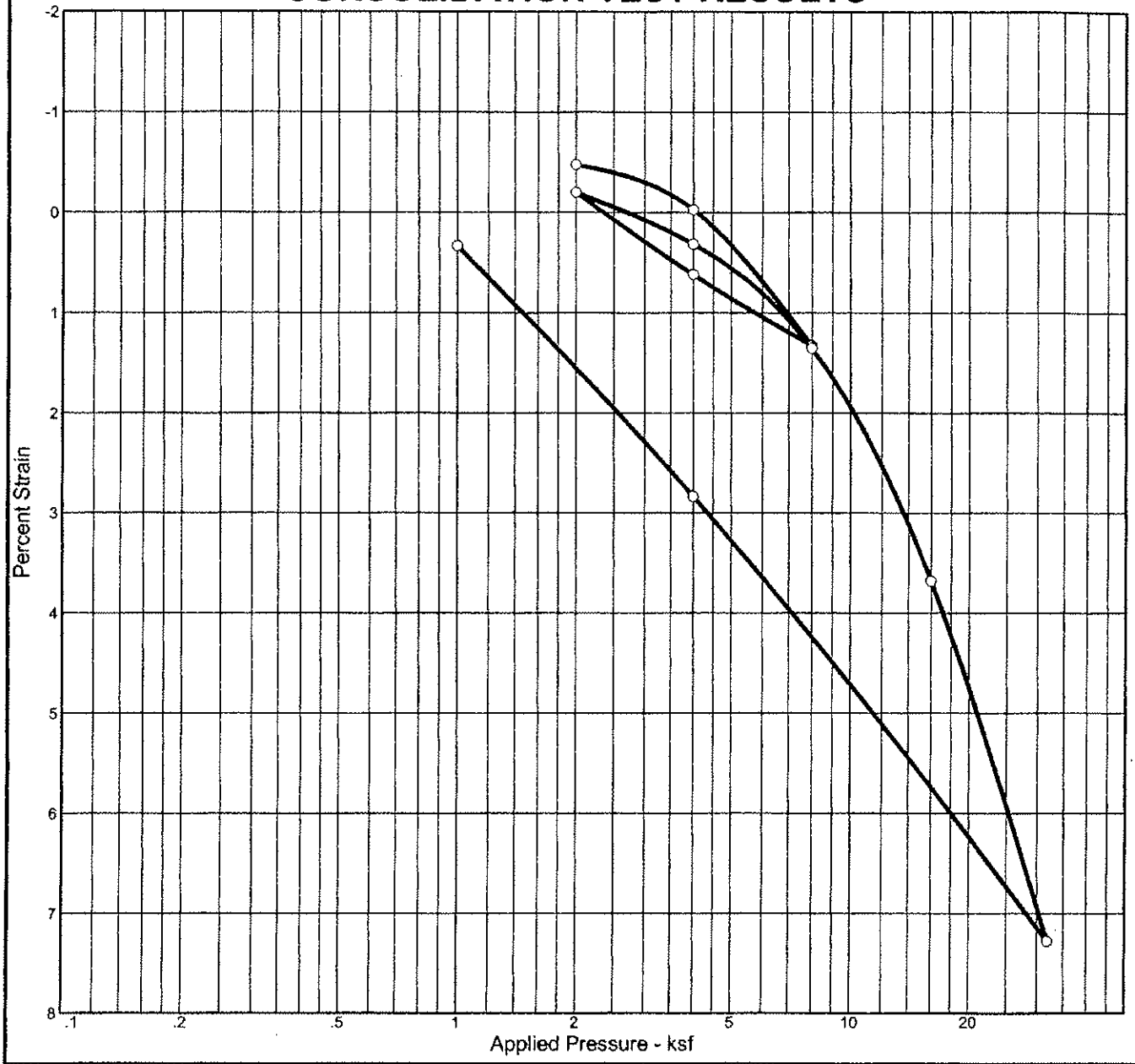
Remarks:

ASTM D2435

Specific Gravity Assumed

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
94.5 %	27.0 %	95.7	NA	NA	2.73		8.90	0.22	0.06	0.781

MATERIAL DESCRIPTION	USCS	AASHTO
Gray Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownsville

Location: BH 140, 11-13 ft.

Terracon, Inc.

Houston, TX

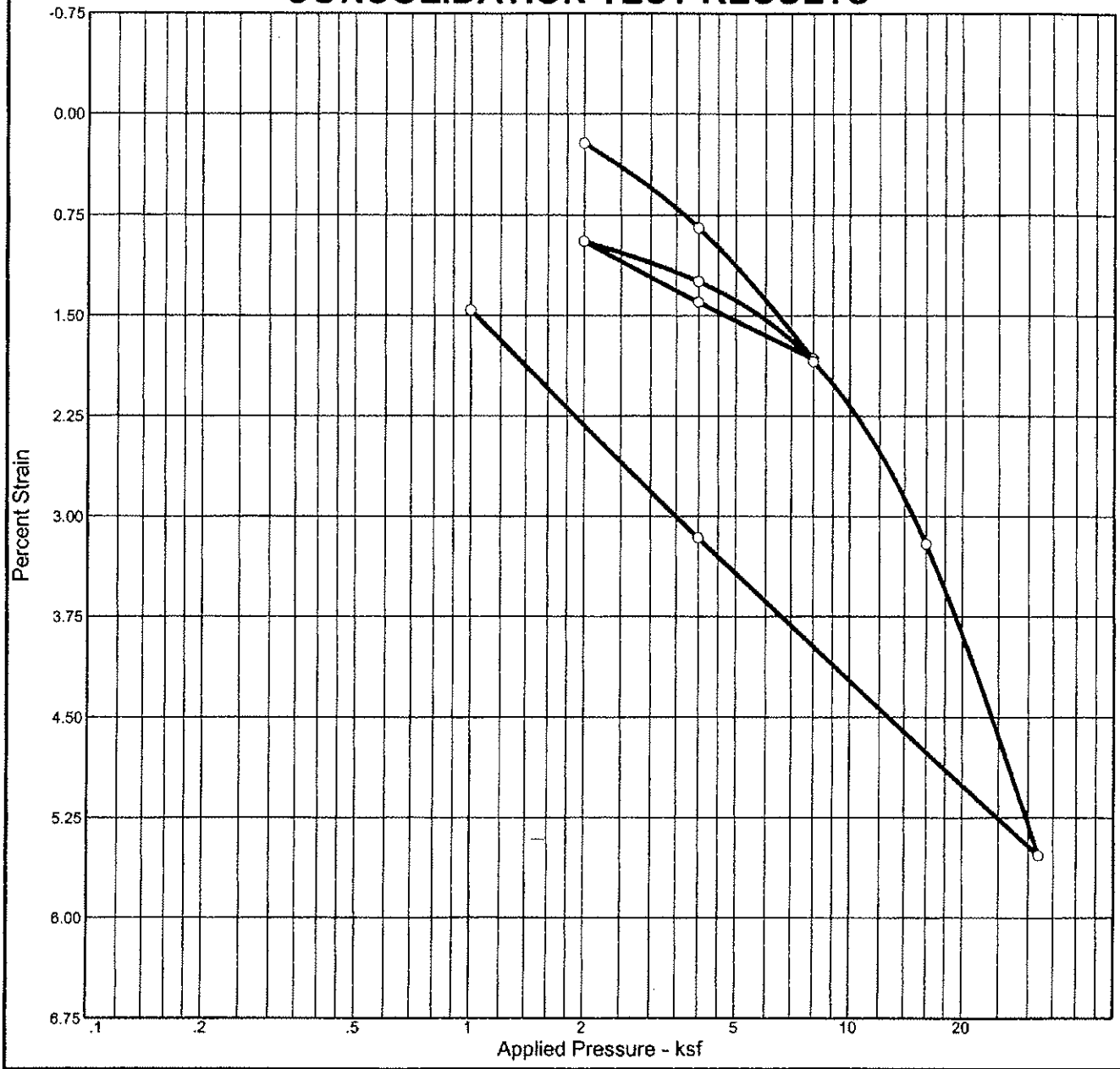
Remarks:

ASTM D2435

Specific Gravity Assumed

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
69.3 %	15.1 %	106.9	NA	NA	2.73		15.66	0.13	0.03	0.594

MATERIAL DESCRIPTION	USCS	AASHTO
Gray Clay w/sand and silt		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownswille

Location: BH 140, 6-8 ft.

Terracon, Inc.

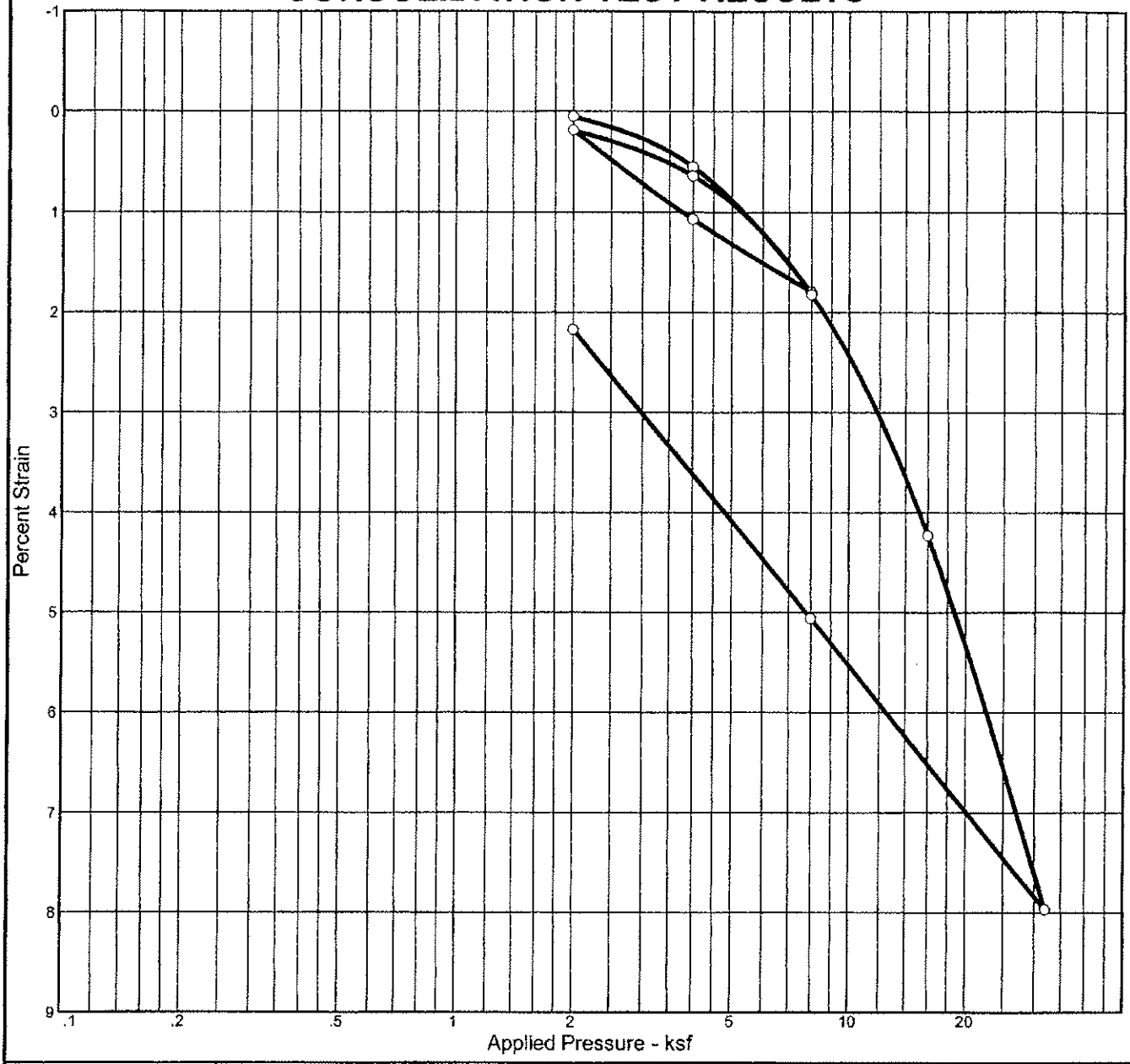
Houston, TX

Remarks:

ASTM D2435
Specific Gravity Assumed

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
94.0 %	25.9 %	97.3	NA	NA	2.73		9.43	0.22	0.06	0.752

MATERIAL DESCRIPTION	USCS	AASHTO
Gray Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownsville

Location: BH 143, 8-10 ft.

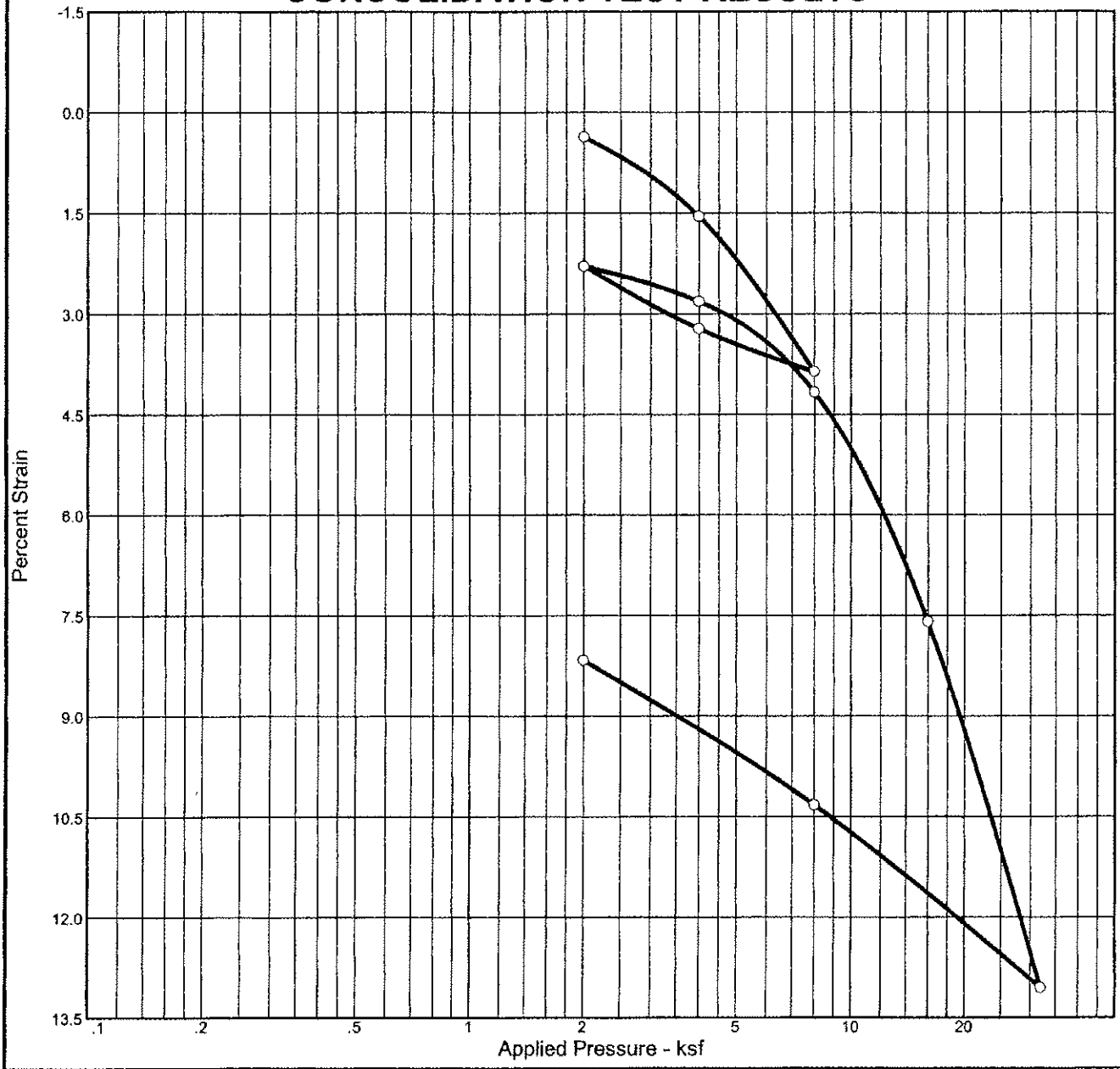
Remarks:
ASTM D2435
Specific Gravity Assumed

Terracon, Inc.

Houston, TX

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
95.5 %	29.8 %	92.1	NA	NA	2.73		8.68	0.34	0.06	0.850

MATERIAL DESCRIPTION	USCS	AASHTO
Brown Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownsville

Location: BH 159, 12-14 ft.

Terracon, Inc.

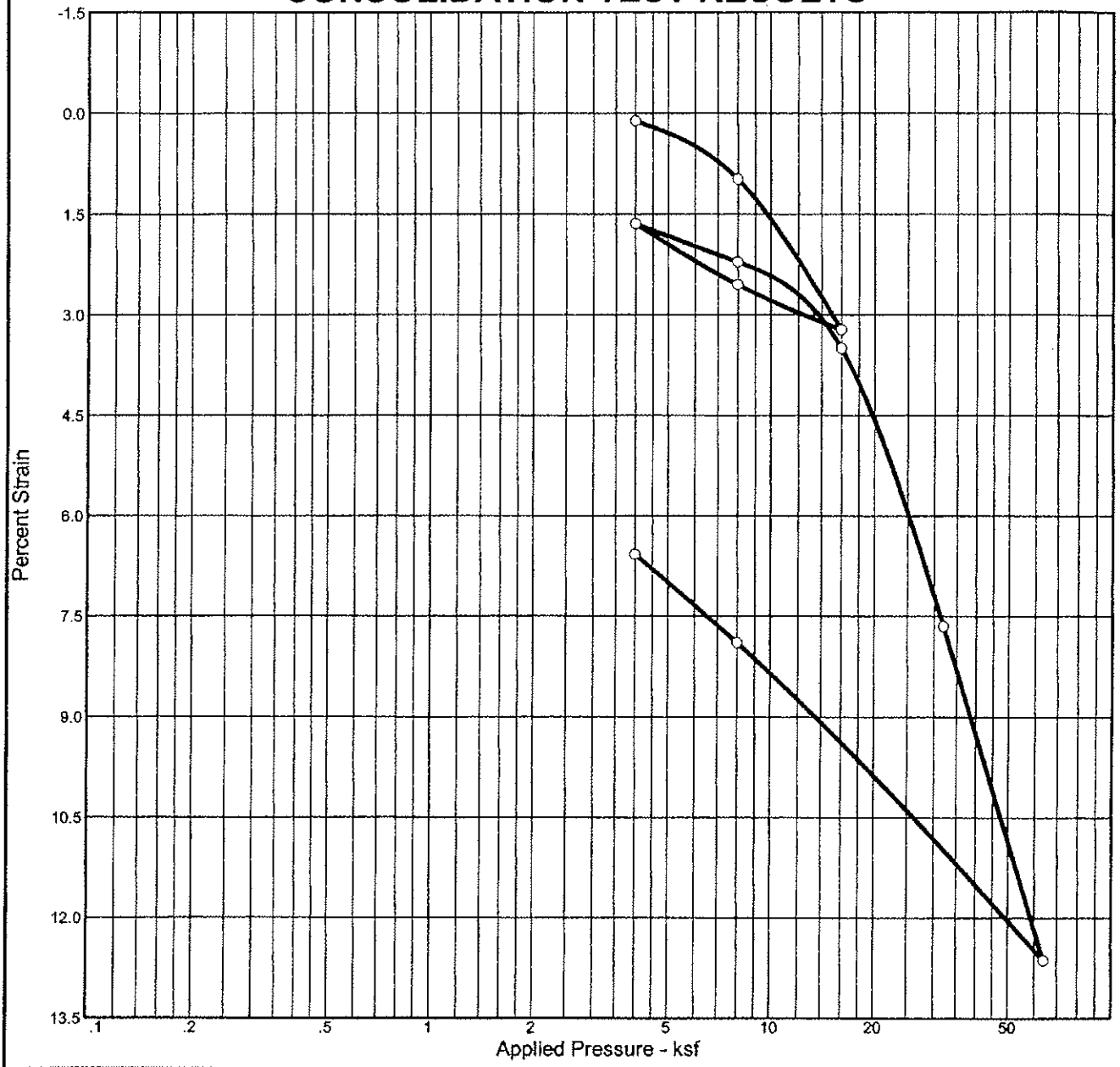
Houston, TX

Remarks:

ASTM D2435
Specific Gravity Assumed

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
85.6 %	21.3 %	101.5	NA	NA	2.73		15.27	0.28	0.06	0.679

MATERIAL DESCRIPTION	USCS	AASHTO
Gray Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownsville

Location: BH 162, 6-8 ft.

Terracon, Inc.

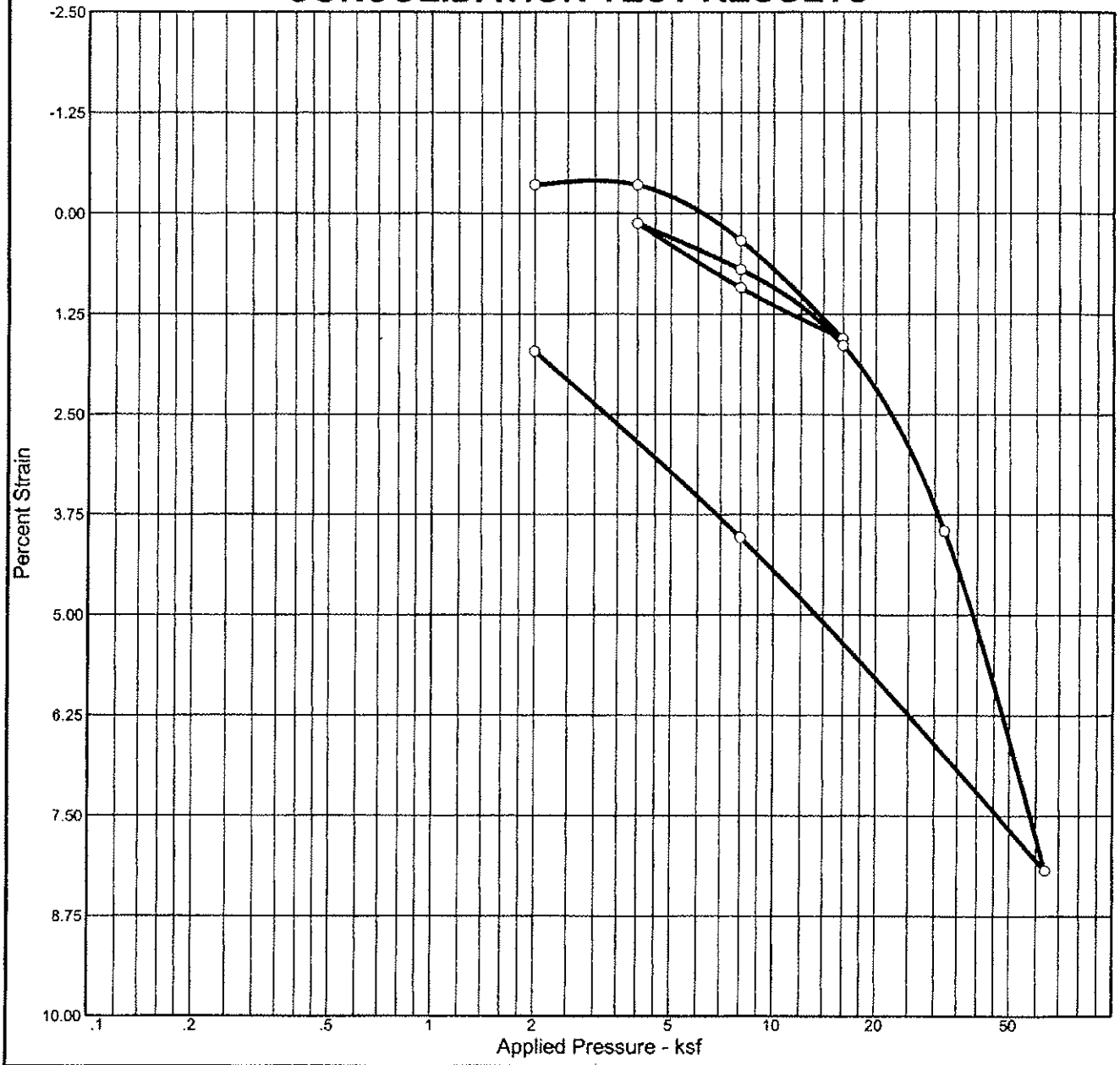
Houston, TX

Remarks:

ASTM D2435
Specific Gravity Assumed

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
87.7 %	18.2 %	108.7	NA	NA	2.73		17.54	0.23	0.05	0.567

MATERIAL DESCRIPTION	USCS	AASHTO
Dark Brown Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownsville

Location: BH 165, 8-10 ft.

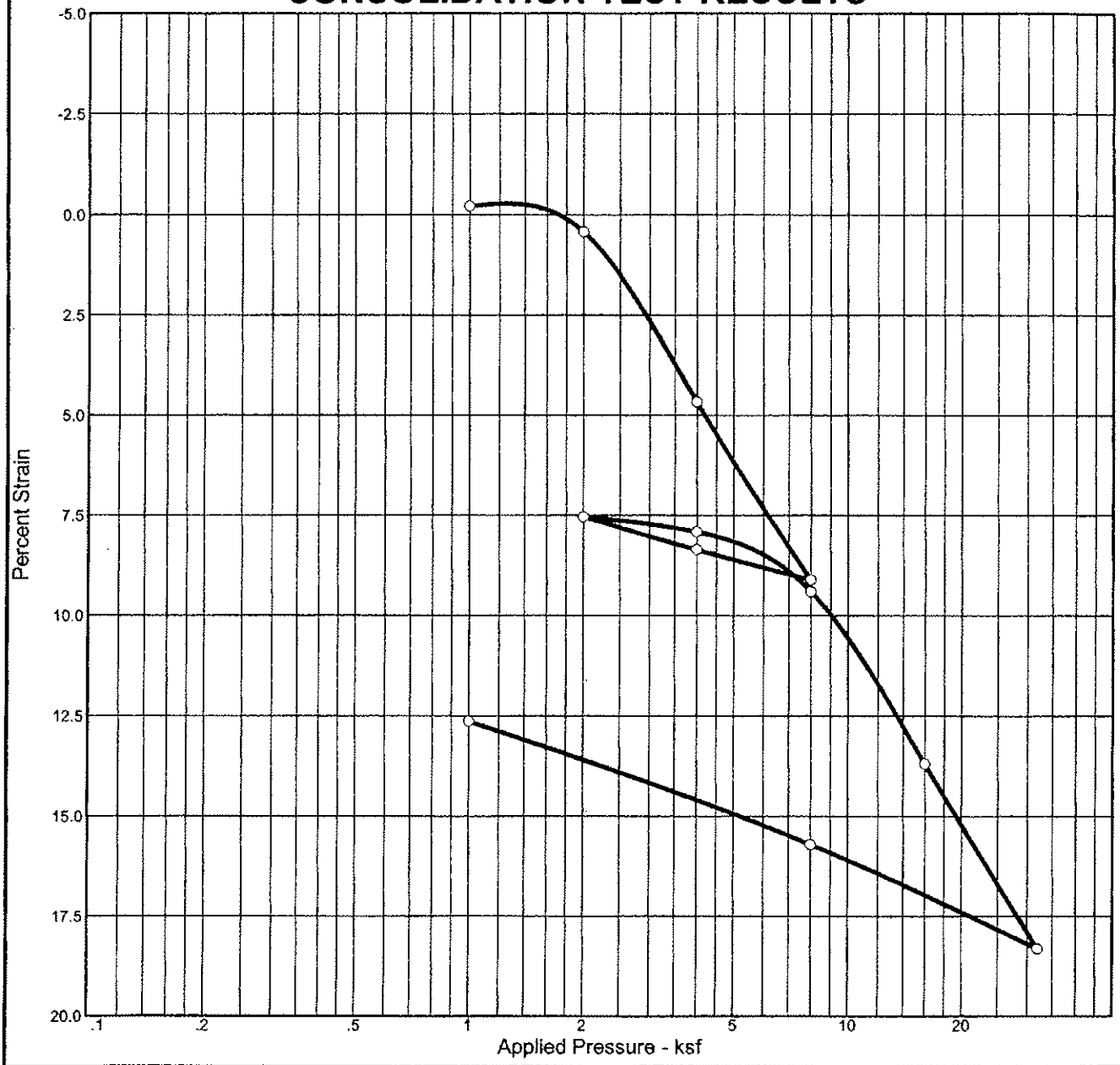
Remarks:
ASTM D2435
Specific Gravity Assumed

Terracon, Inc.

Houston, TX

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
66.8 %	22.5 %	88.9	NA	NA	2.73		2.21	0.29	0.06	0.918

MATERIAL DESCRIPTION	USCS	AASHTO
Brown Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownswille

Location BH 167,8-10 ft.

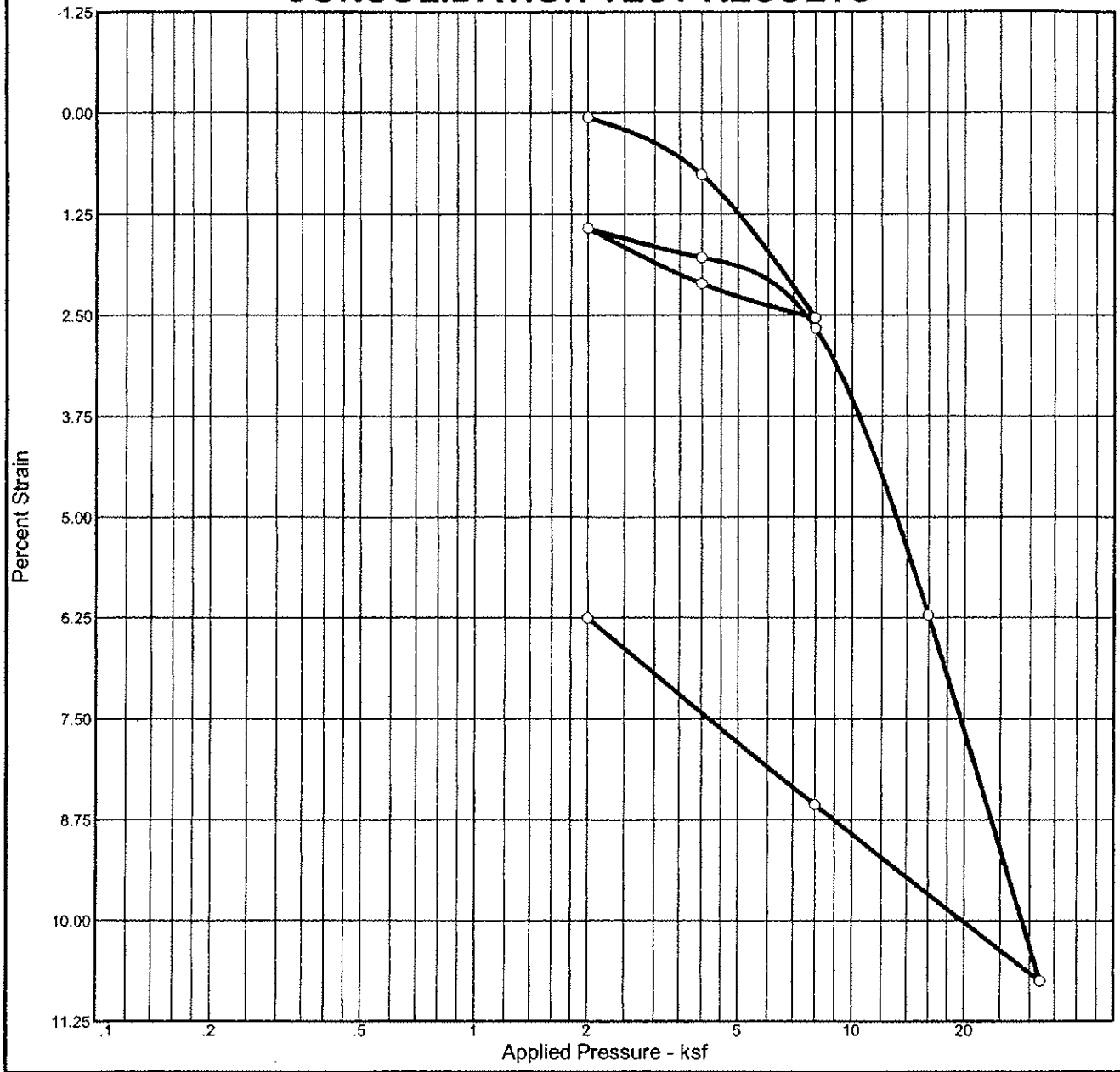
Remarks:
ASTM D2435
Specific Gravity Assumed

Terracon, Inc.

Houston, TX

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
84.4 %	23.4 %	97.0	NA	NA	2.73		8.63	0.27	0.04	0.757

MATERIAL DESCRIPTION	USCS	AASHTO
Gray Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownswille

Location: D-172, 13-15 ft.

Terracon, Inc.

Houston, TX

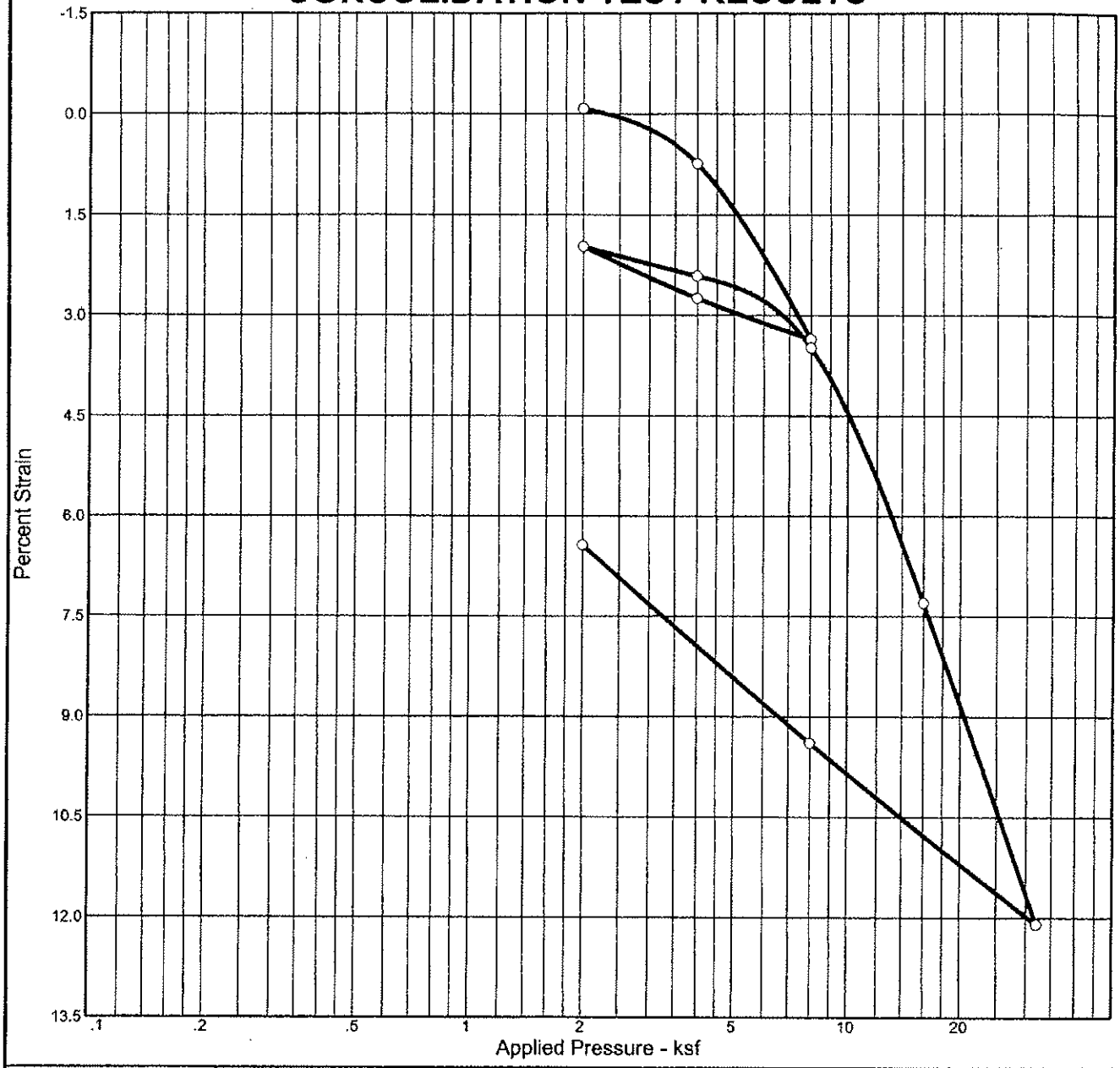
Remarks:

ASTM D2435

Specific Gravity Assumed

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
79.7 %	24.9 %	92.0	NA	NA	2.73		6.87	0.30	0.06	0.853

MATERIAL DESCRIPTION	USCS	AASHTO
Brown Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownsville

Location: BH-176, 13-15 ft.

Terracon, Inc.

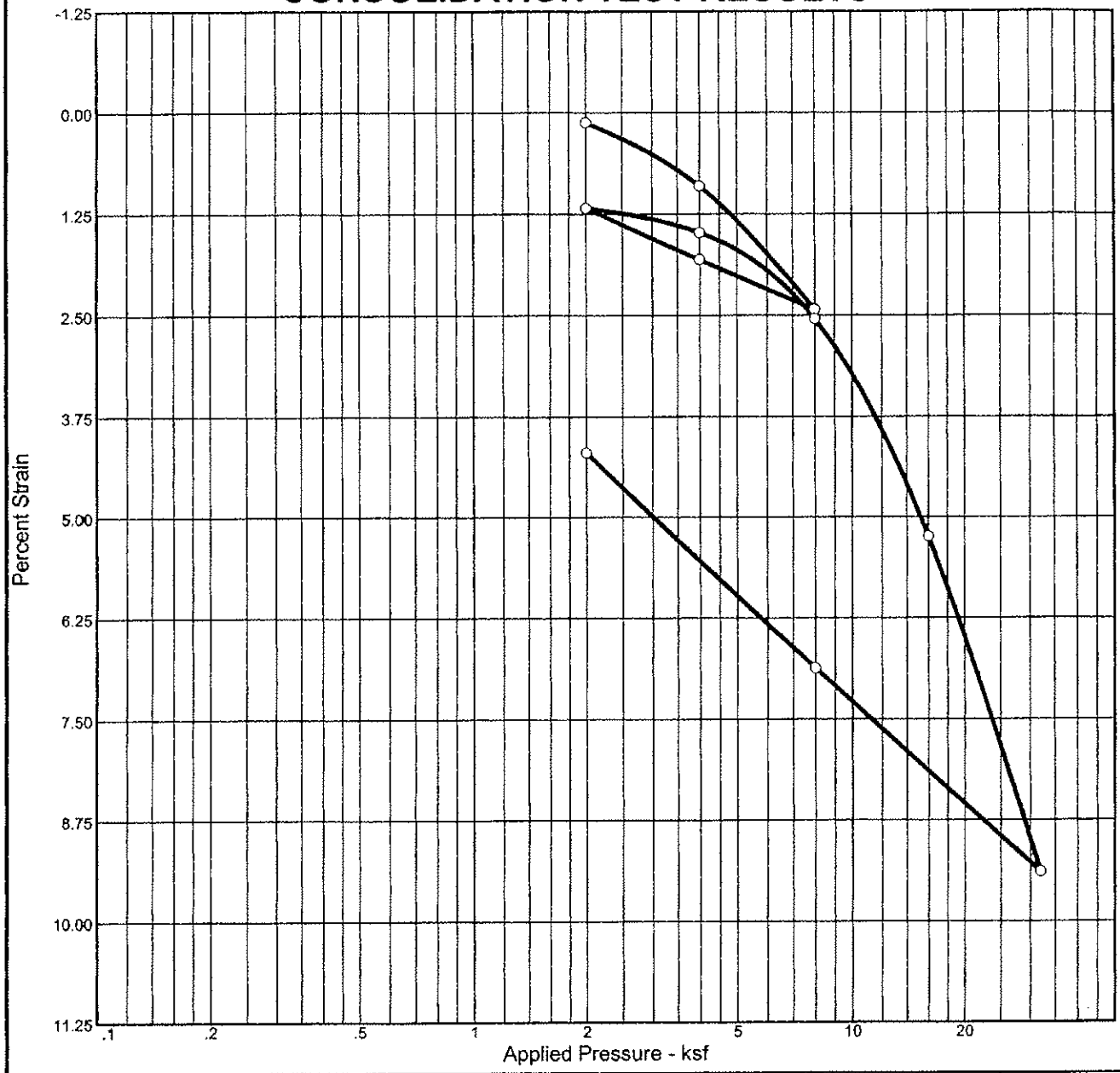
Houston, TX

Remarks:

ASTM D2435
Specific Gravity Assumed

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
93.0 %	23.3 %	101.2	NA	NA	2.73		10.03	0.24	0.05	0.685

MATERIAL DESCRIPTION	USCS	AASHTO
Dark Brown and Brown Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownswille

Location: BH179, 8-10 ft.

Terracon, Inc.

Houston, TX

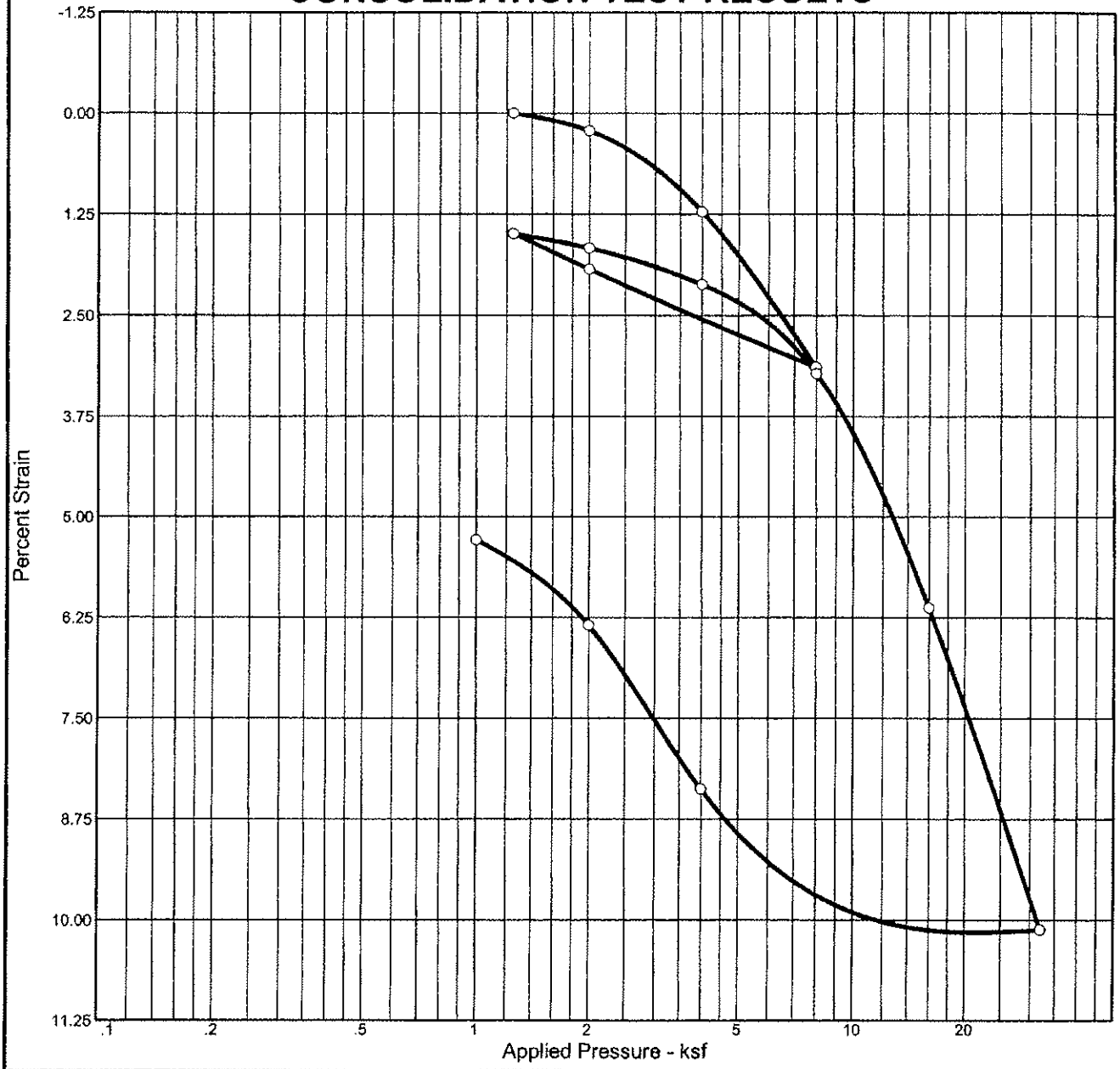
Remarks:

ASTM D2435

Specific Gravity Assumed

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
94.4 %	25.1 %	98.7	NA	NA	2.73		6.35	0.23	0.05	0.726

MATERIAL DESCRIPTION	USCS	AASHTO
Dark Brown Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownswille

Location: D-186, 8-10 ft.

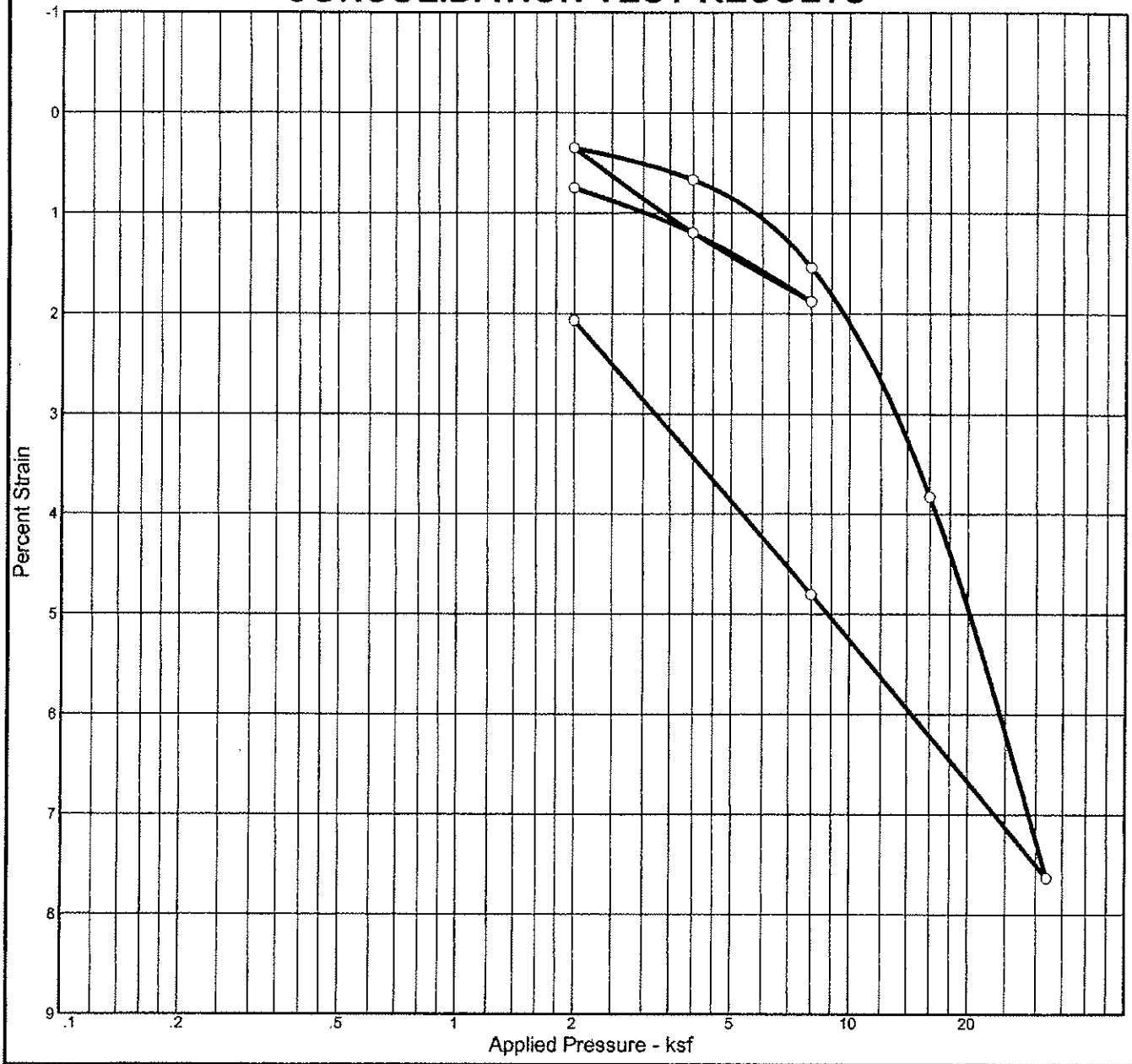
Remarks:
ASTM D2435
Specific Gravity Assumed

Terracon, Inc.

Houston, TX

Figure

CONSOLIDATION TEST RESULTS



Natural		Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (ksf)	P_c (ksf)	C_c	C_r	Initial Void Ratio
Saturation	Moisture									
86.4 %	20.5 %	103.5	NA	NA	2.73		12.76	0.21	0.05	0.647

MATERIAL DESCRIPTION	USCS	AASHTO
Gray Clay		

Project No. 92065702 **Client:** T.S.I. Laboratories, Inc.

Project: LRGFCP Levee Project - Donna Pump to Brownsville

Location: D-192, 8-10 ft.

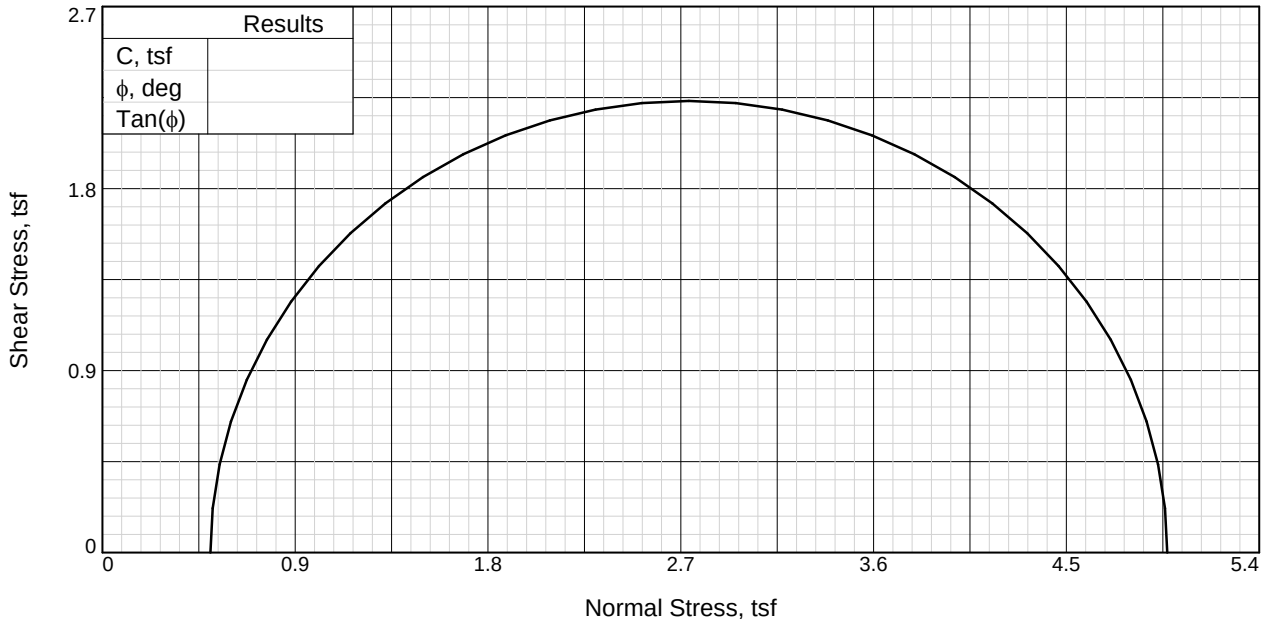
Remarks:
ASTM D2435
Specific Gravity Assumed

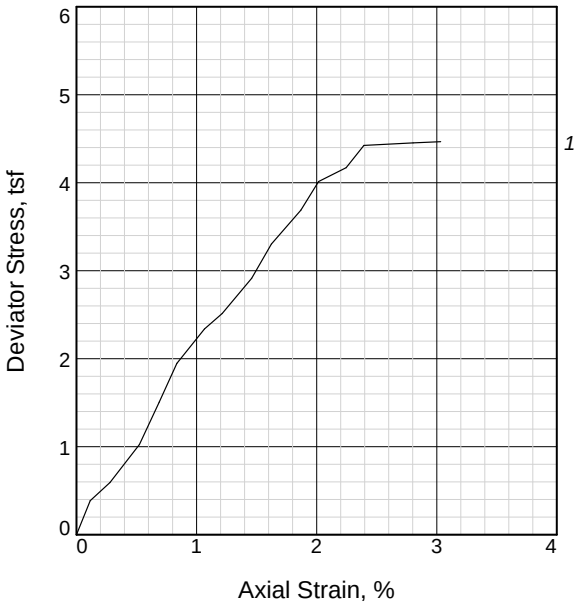
Terracon, Inc.

Houston, TX

Figure

APPENDIX G
Triaxial (UU)





Sample No.		1
Initial	Water Content, %	16.9
	Dry Density, pcf	107.3
	Saturation, %	80.2
	Void Ratio	0.5707
	Diameter, in.	2.75
	Height, in.	6.10
At Test	Water Content, %	16.9
	Dry Density, pcf	107.3
	Saturation, %	80.2
	Void Ratio	0.5707
	Diameter, in.	2.75
	Height, in.	6.10
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		4.47
Strain, %		3.0
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.97
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

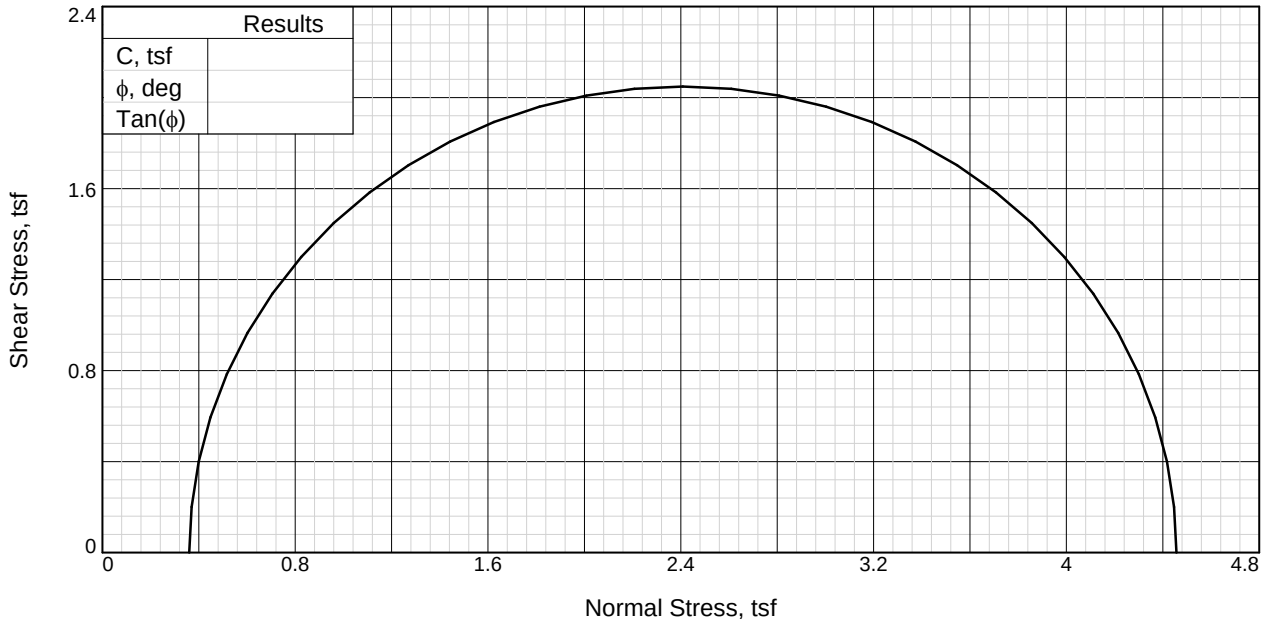
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-3 **Depth:** 10

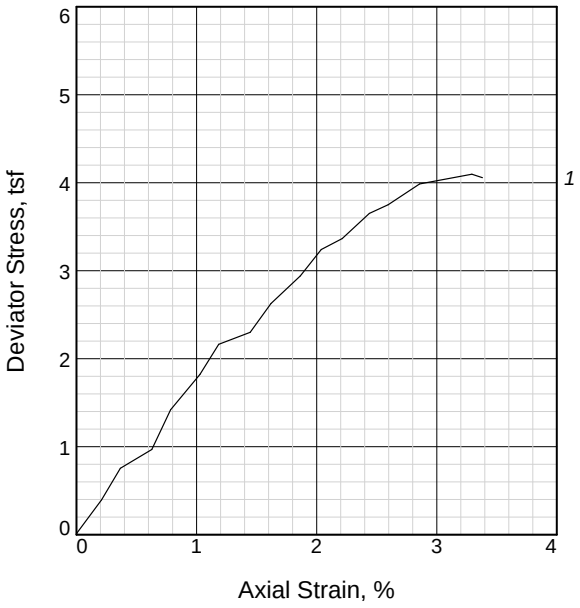
Proj. No.: S-2544-07 **Date Sampled:** 2/27/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	22.2
	Dry Density, pcf	101.5
	Saturation, %	90.6
	Void Ratio	0.6604
	Diameter, in.	2.76
	Height, in.	5.74
At Test	Water Content, %	22.2
	Dry Density, pcf	101.5
	Saturation, %	90.6
	Void Ratio	0.6604
	Diameter, in.	2.76
	Height, in.	5.74
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.36
Fail. Stress, tsf		4.10
Strain, %		3.3
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.46
σ_3 Failure, tsf		0.36

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

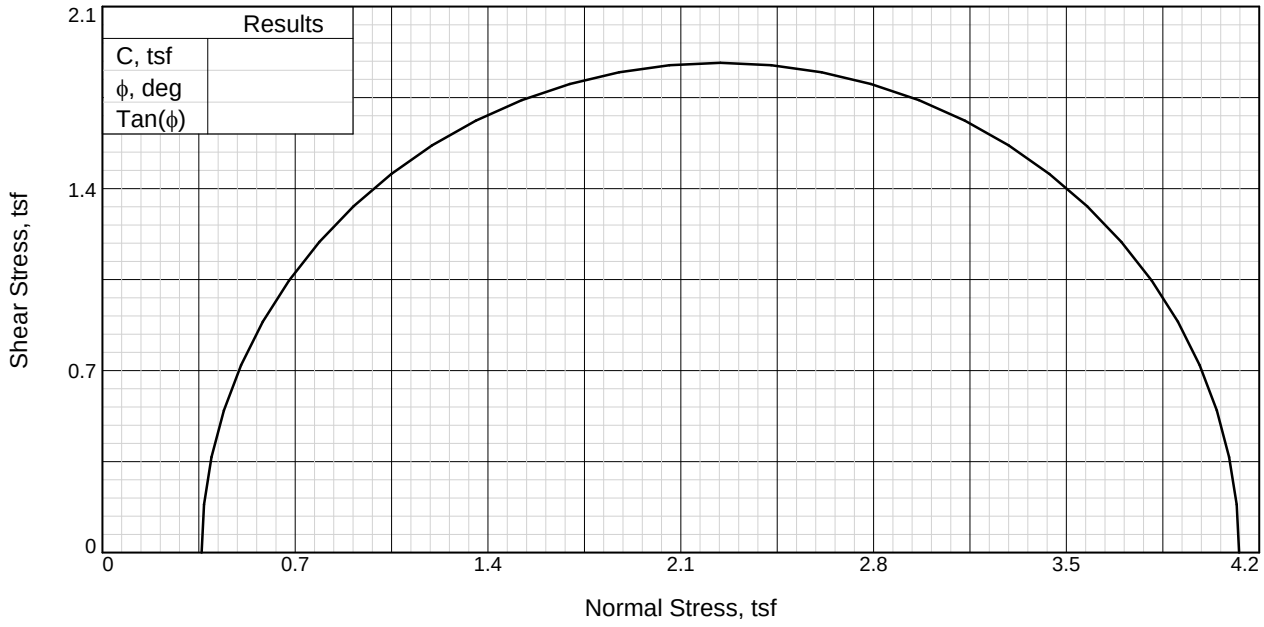
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-8 **Depth:** 6

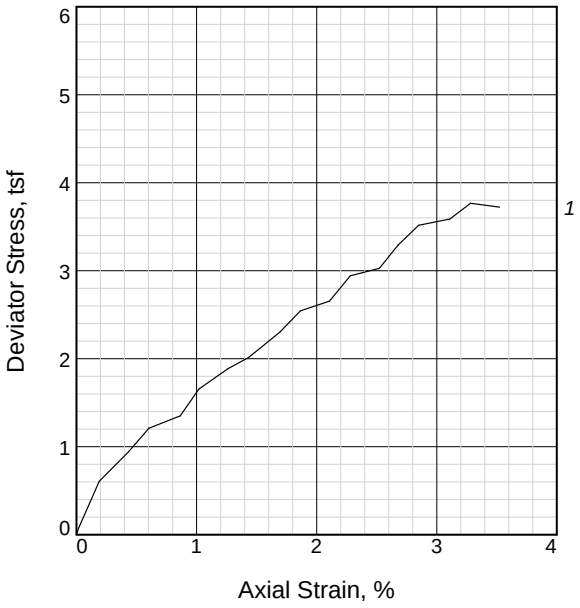
Proj. No.: S-2544-07 **Date Sampled:** 2/27/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	18.5
	Dry Density, pcf	104.6
	Saturation, %	81.9
	Void Ratio	0.6109
	Diameter, in.	2.77
	Height, in.	5.79
At Test	Water Content, %	18.5
	Dry Density, pcf	104.6
	Saturation, %	81.9
	Void Ratio	0.6109
	Diameter, in.	2.77
	Height, in.	5.79
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.36
Fail. Stress, tsf		3.77
Strain, %		3.3
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.13
σ_3 Failure, tsf		0.36

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

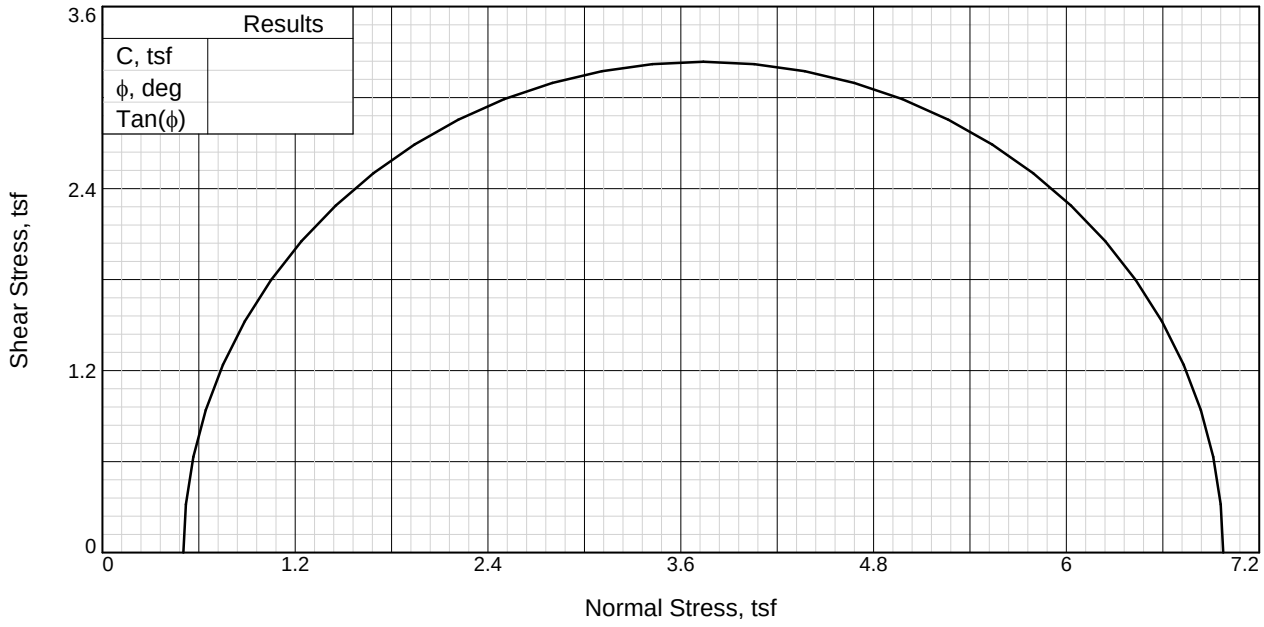
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-10 **Depth:** 6

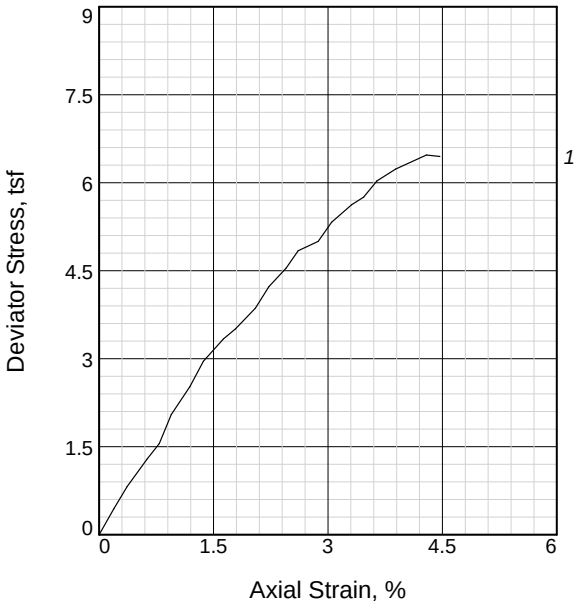
Proj. No.: S-2544-07 **Date Sampled:** 2/27/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	18.1
	Dry Density, pcf	104.2
	Saturation, %	79.0
	Void Ratio	0.6179
	Diameter, in.	2.77
	Height, in.	5.71
At Test	Water Content, %	18.1
	Dry Density, pcf	104.2
	Saturation, %	79.0
	Void Ratio	0.6179
	Diameter, in.	2.77
	Height, in.	5.71
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		6.47
Strain, %		4.3
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		6.98
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: - Lean, brown (CL)

LL= 40 **PL=** 20 **PI=** 20
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

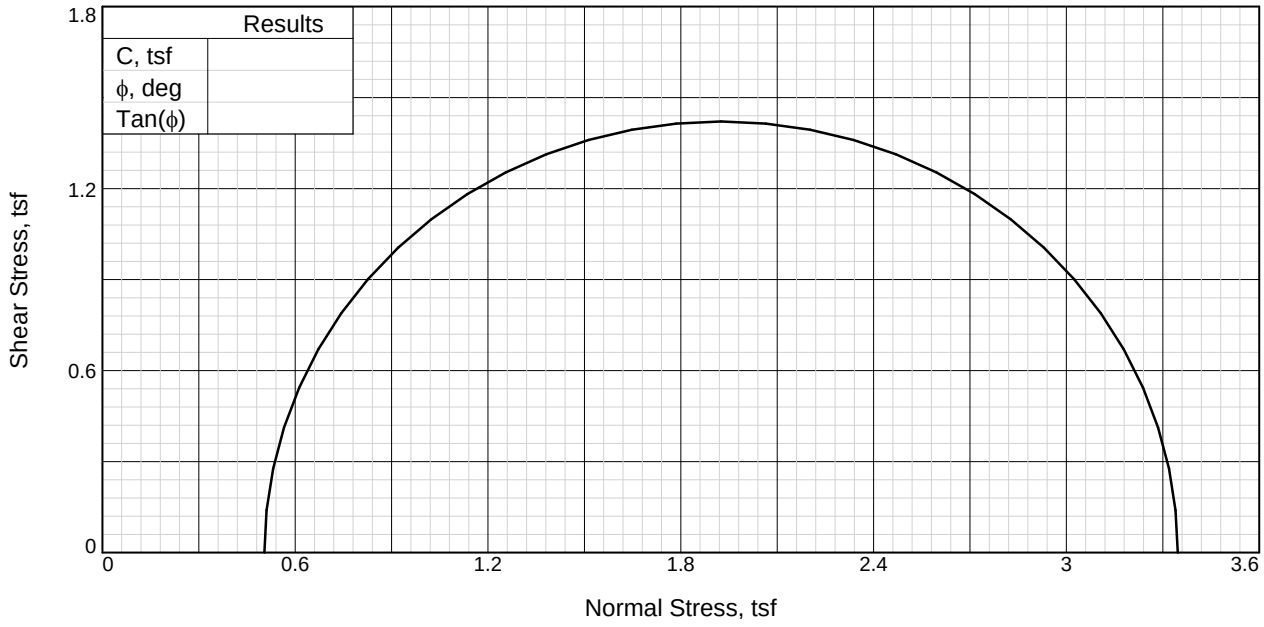
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-10 **Depth:** 8

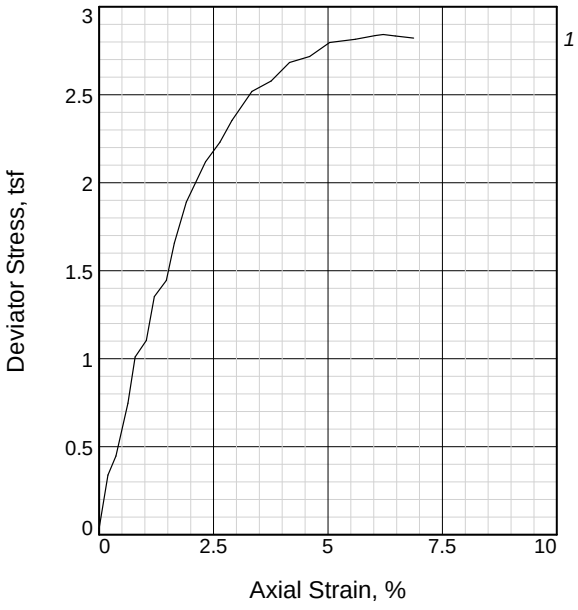
Proj. No.: S-2544-07 **Date Sampled:** 2/27/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	21.1
	Dry Density, pcf	106.6
	Saturation, %	98.1
	Void Ratio	0.5807
	Diameter, in.	2.75
	Height, in.	5.72
At Test	Water Content, %	21.1
	Dry Density, pcf	106.6
	Saturation, %	98.1
	Void Ratio	0.5807
	Diameter, in.	2.75
	Height, in.	5.72
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		2.84
Strain, %		6.2
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.35
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: CLAY - Lean, grayish brown (CL)

LL= 36 **PL=** 16 **PI=** 20
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

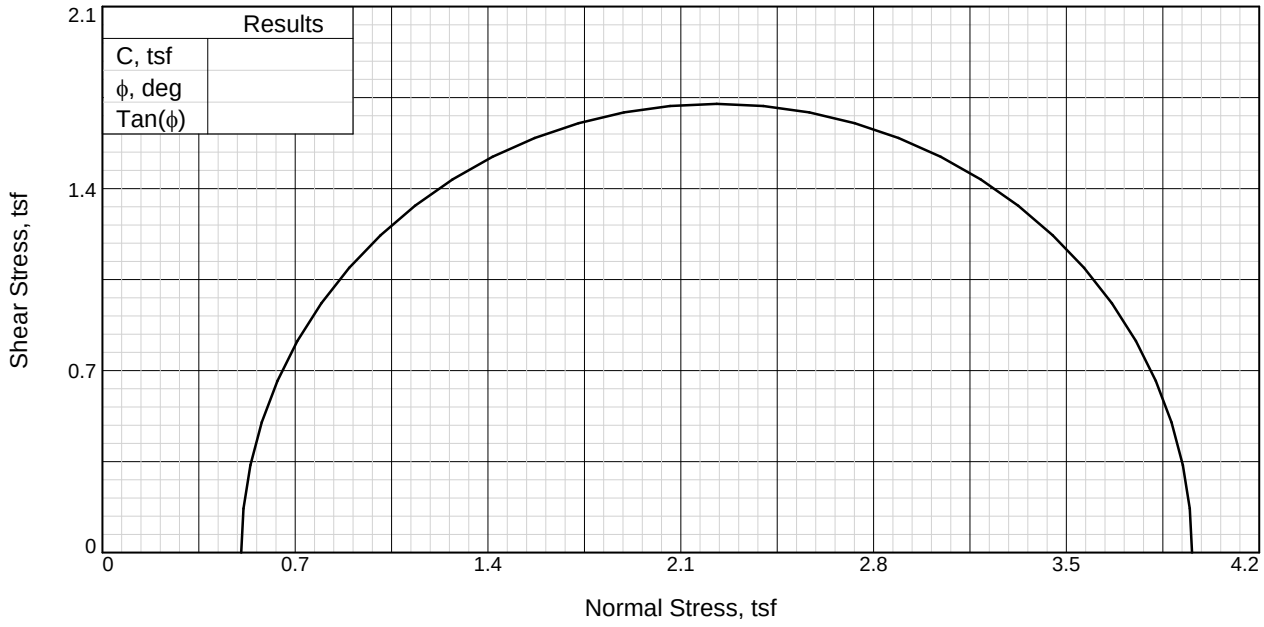
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-11 **Depth:** 8

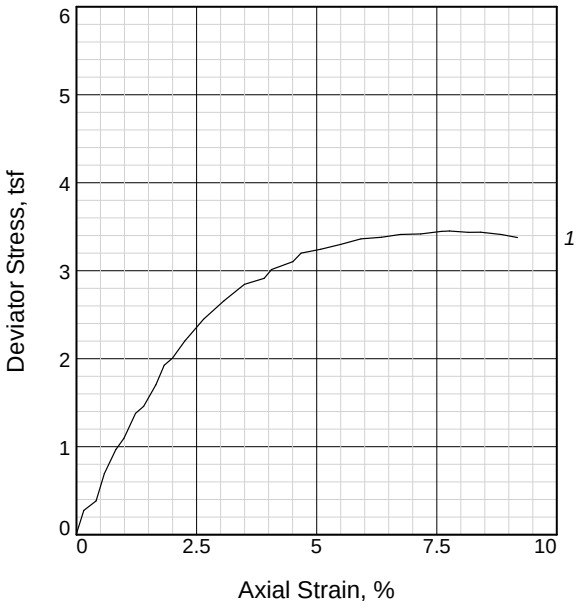
Proj. No.: S-2544-07 **Date Sampled:** 2/27/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	27.4
	Dry Density, pcf	94.1
	Saturation, %	93.5
	Void Ratio	0.7906
	Diameter, in.	2.76
	Height, in.	5.86
At Test	Water Content, %	27.4
	Dry Density, pcf	94.1
	Saturation, %	93.5
	Void Ratio	0.7906
	Diameter, in.	2.76
	Height, in.	5.86
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		3.45
Strain, %		7.8
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.96
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: - Fat, brown (CH)

LL= 51 **PL=** 21 **PI=** 30
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

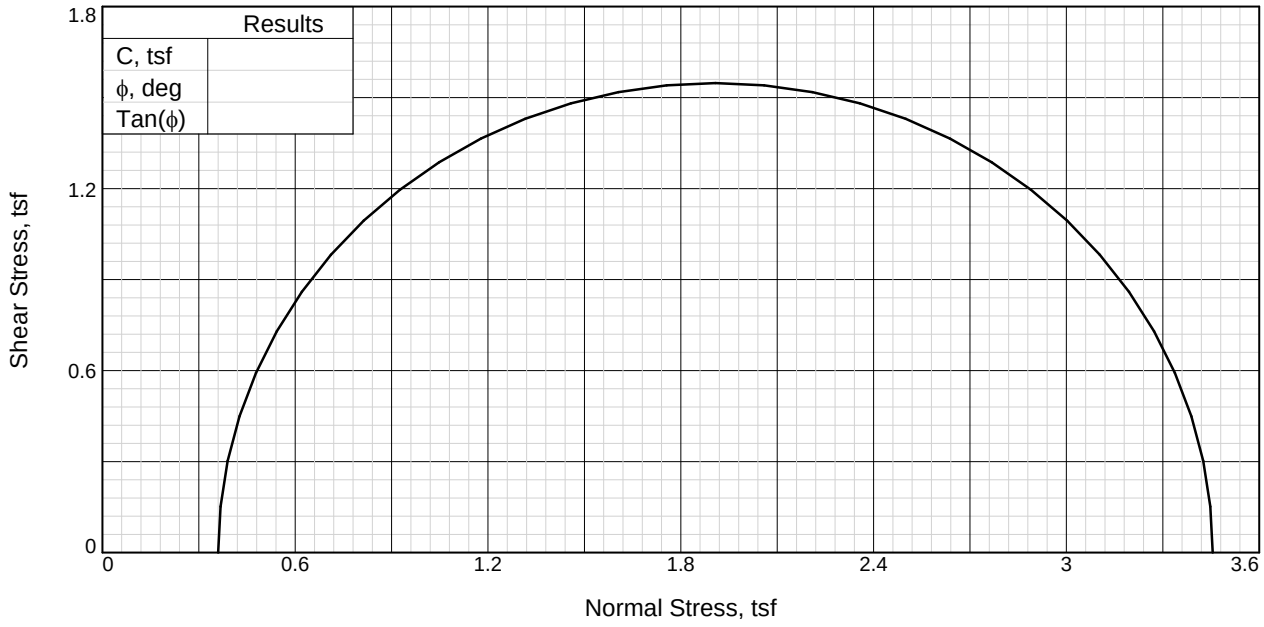
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-12 **Depth:** 11

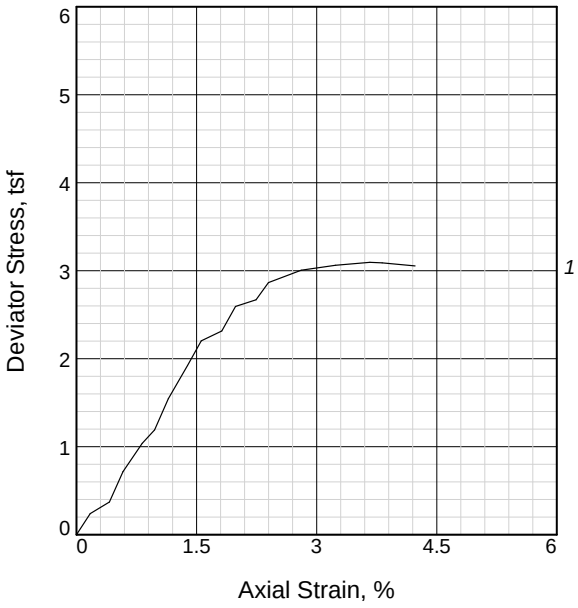
Proj. No.: S-2544-07 **Date Sampled:** 2/27/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	18.0
	Dry Density, pcf	97.6
	Saturation, %	66.9
	Void Ratio	0.7272
	Diameter, in.	2.76
	Height, in.	5.84
At Test	Water Content, %	18.0
	Dry Density, pcf	97.6
	Saturation, %	66.9
	Void Ratio	0.7272
	Diameter, in.	2.76
	Height, in.	5.84
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.36
Fail. Stress, tsf		3.10
Strain, %		3.7
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.46
σ_3 Failure, tsf		0.36

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 51 **PL=** 21 **PI=** 30
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

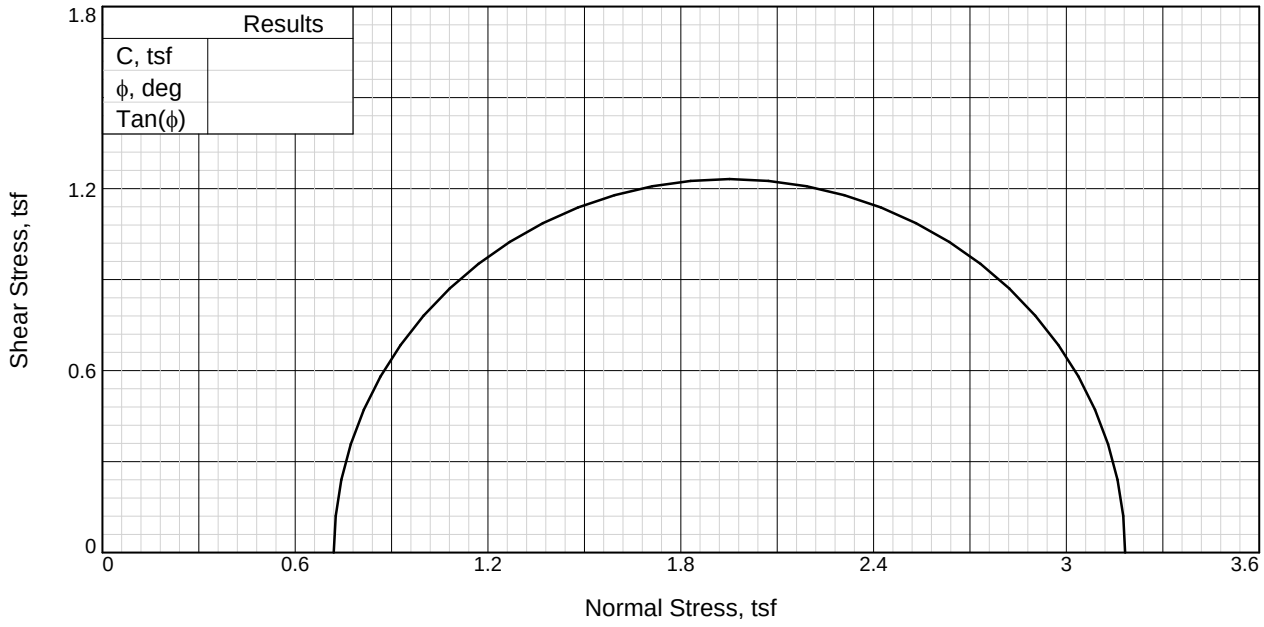
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-13 **Depth:** 6

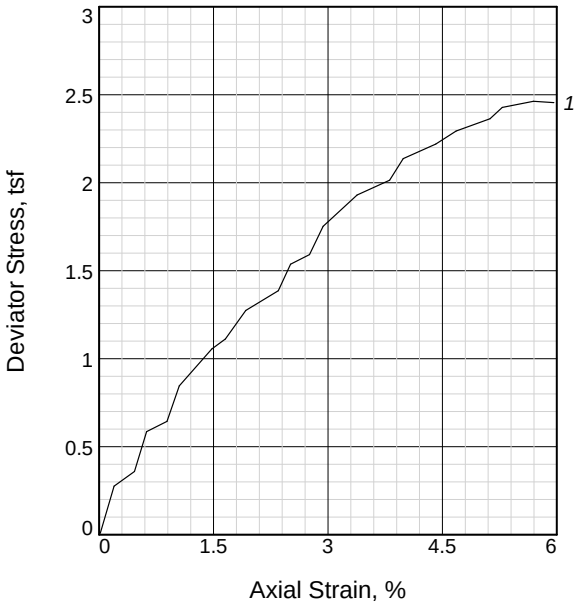
Proj. No.: S-2544-07 **Date Sampled:** 2/27/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	26.0
	Dry Density, pcf	95.4
	Saturation, %	91.5
	Void Ratio	0.7675
	Diameter, in.	2.76
	Height, in.	5.62
At Test	Water Content, %	26.0
	Dry Density, pcf	95.4
	Saturation, %	91.5
	Void Ratio	0.7675
	Diameter, in.	2.76
	Height, in.	5.62
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		2.46
Strain, %		5.7
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.18
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 47 **PL=** 22 **PI=** 25
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

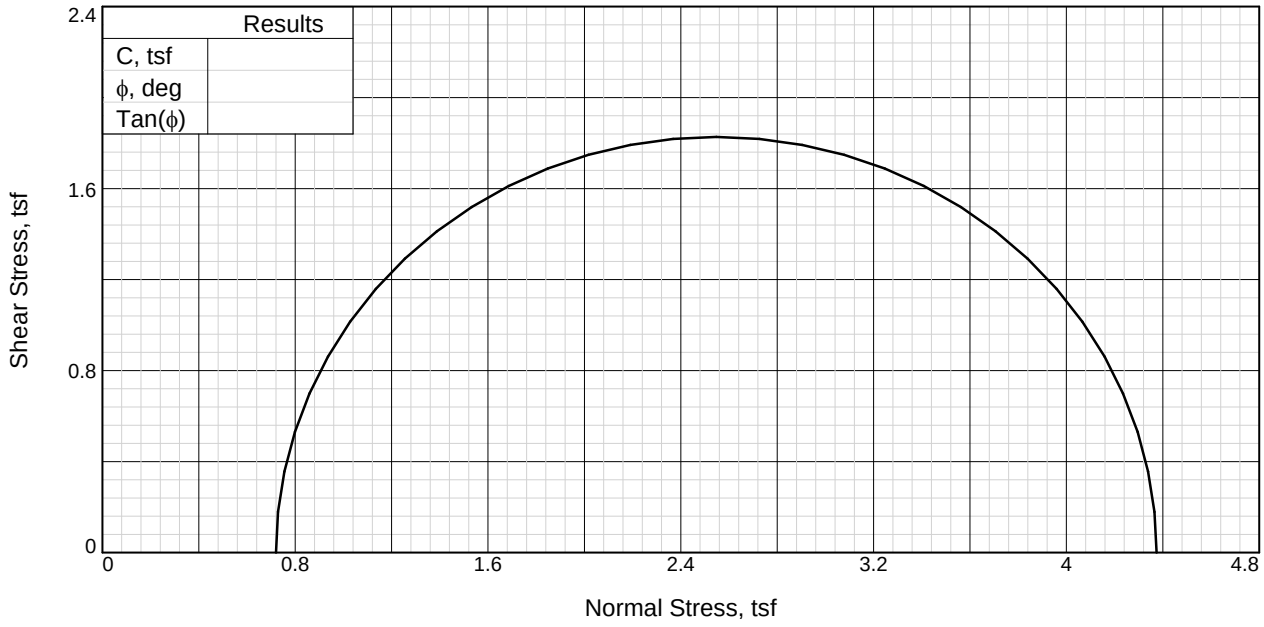
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-15 **Depth:** 13

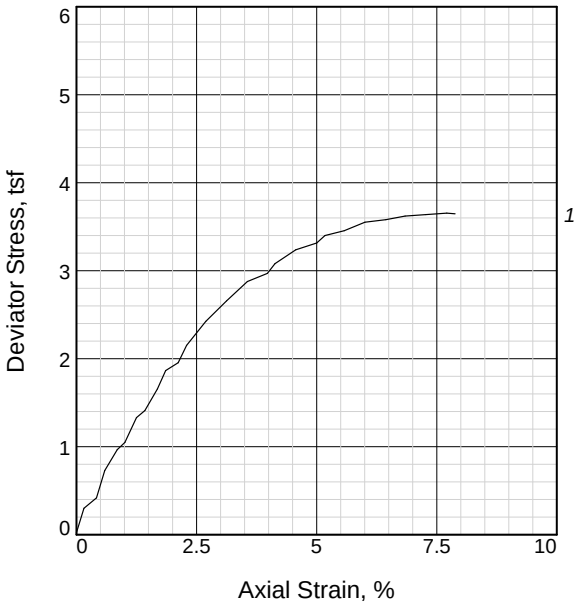
Proj. No.: S-2544-07 **Date Sampled:** 2/28/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	23.4
	Dry Density, pcf	101.2
	Saturation, %	94.7
	Void Ratio	0.6657
	Diameter, in.	2.76
	Height, in.	5.76
At Test	Water Content, %	23.4
	Dry Density, pcf	101.2
	Saturation, %	94.7
	Void Ratio	0.6657
	Diameter, in.	2.76
	Height, in.	5.76
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		3.65
Strain, %		7.7
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.37
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

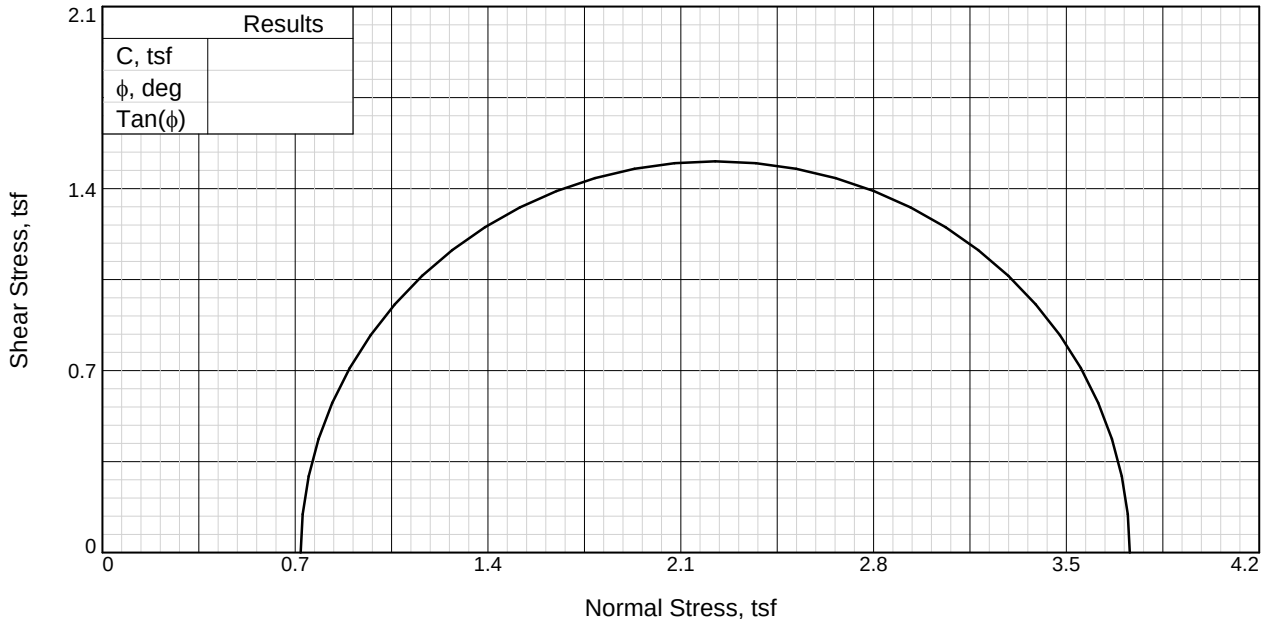
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-18 **Depth:** 14

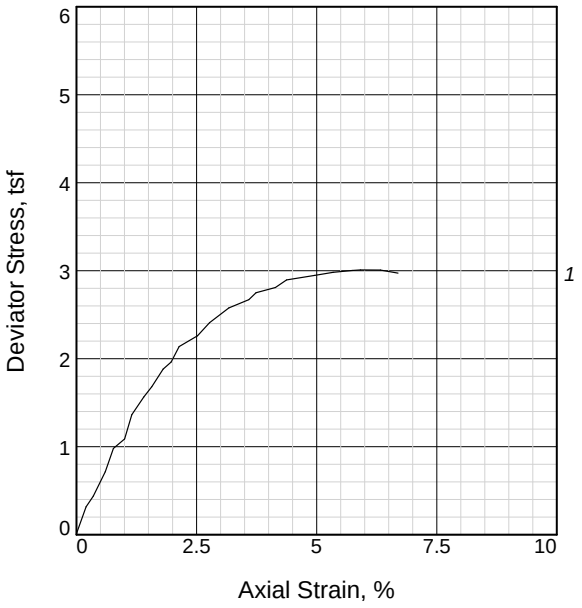
Proj. No.: S-2544-07 **Date Sampled:** 2/28/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	26.8
	Dry Density, pcf	95.4
	Saturation, %	94.1
	Void Ratio	0.7675
	Diameter, in.	2.74
	Height, in.	5.99
At Test	Water Content, %	26.8
	Dry Density, pcf	95.4
	Saturation, %	94.1
	Void Ratio	0.7675
	Diameter, in.	2.74
	Height, in.	5.99
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		3.01
Strain, %		5.9
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.73
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-19 **Depth:** 12

Proj. No.: S-2544-07 **Date Sampled:** 2/28/07

TRIAXIAL SHEAR TEST REPORT

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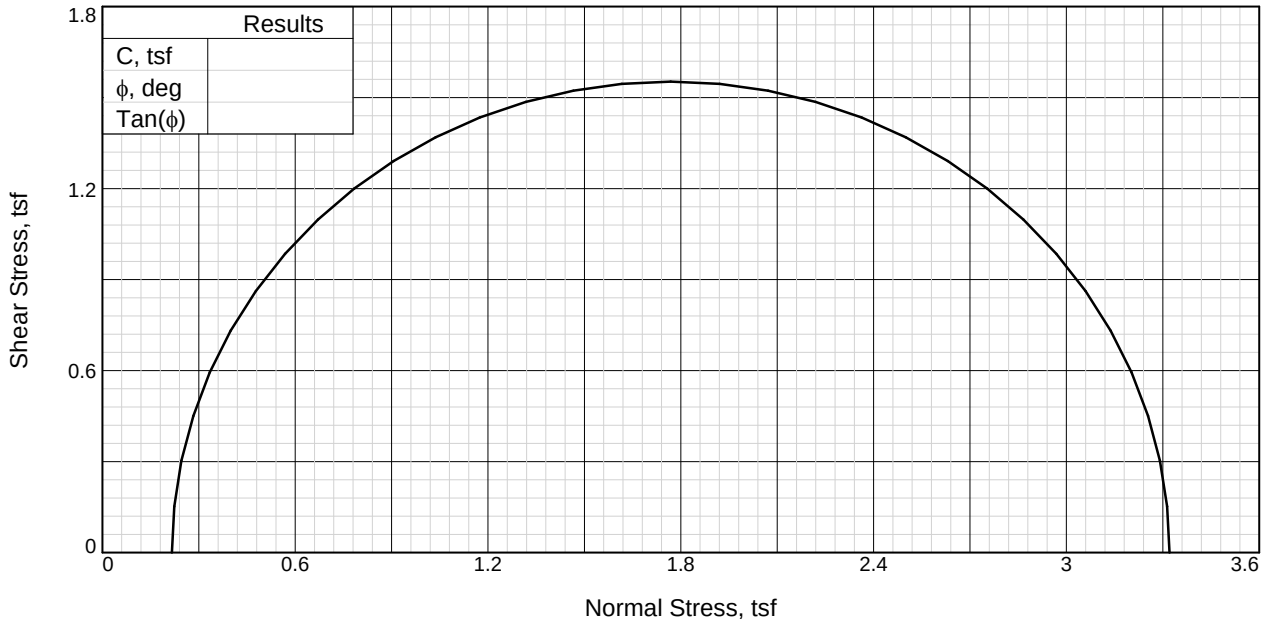
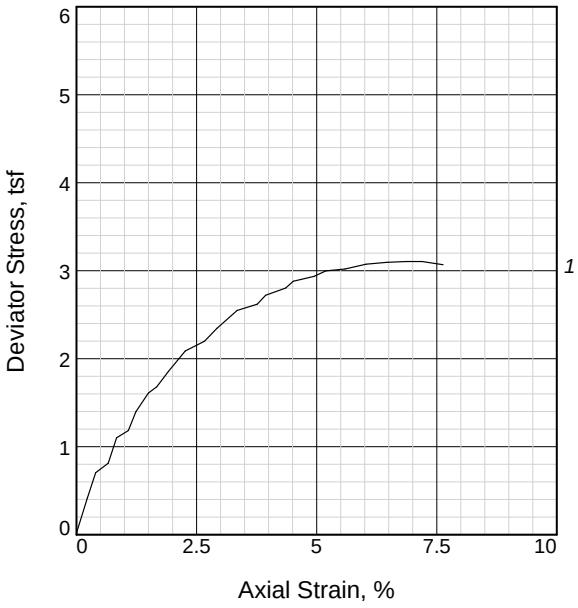
Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	24.6
	Dry Density, pcf	98.4
	Saturation, %	93.1
	Void Ratio	0.7137
	Diameter, in.	2.74
	Height, in.	5.74
At Test	Water Content, %	24.6
	Dry Density, pcf	98.4
	Saturation, %	93.1
	Void Ratio	0.7137
	Diameter, in.	2.74
	Height, in.	5.74
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.22
Fail. Stress, tsf		3.11
Strain, %		7.2
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.32
σ_3 Failure, tsf		0.22

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: CLAY - Fat, brown (CH)

LL= 54 **PL=** 21 **PI=** 33
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-21 **Depth:** 4

Proj. No.: S-2544-07 **Date Sampled:** 2/28/07

TRIAXIAL SHEAR TEST REPORT

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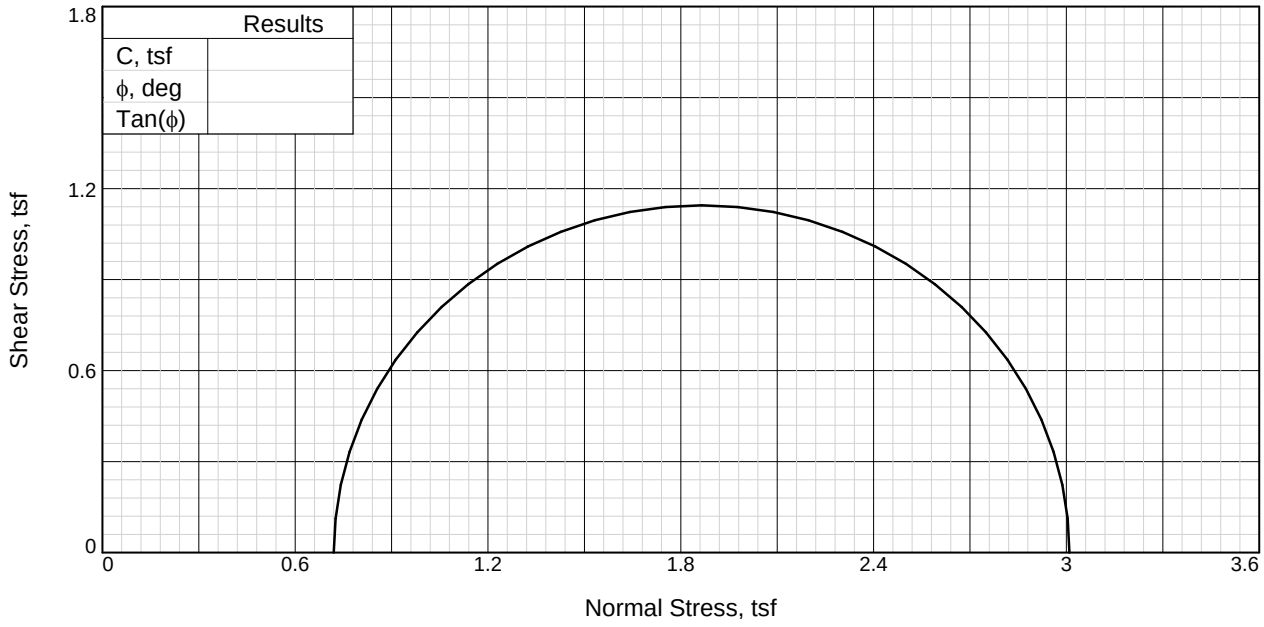
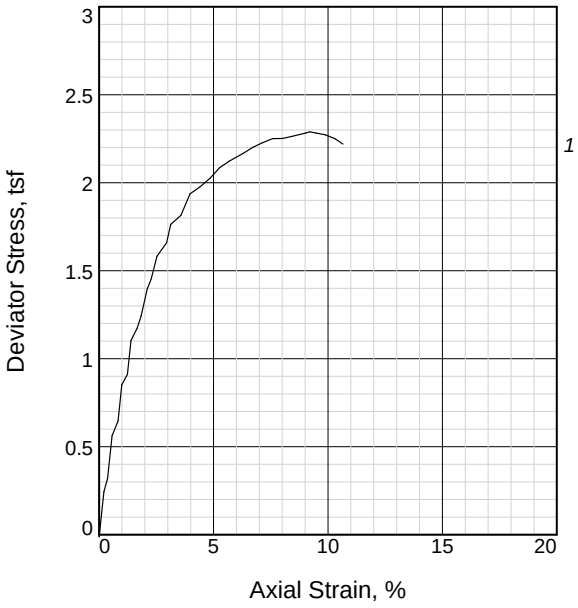
Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	29.6
	Dry Density, pcf	92.1
	Saturation, %	96.2
	Void Ratio	0.8305
	Diameter, in.	2.73
	Height, in.	5.66
At Test	Water Content, %	29.6
	Dry Density, pcf	92.1
	Saturation, %	96.2
	Void Ratio	0.8305
	Diameter, in.	2.73
	Height, in.	5.66
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		2.29
Strain, %		9.2
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.01
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 58 **PL=** 22 **PI=** 36
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

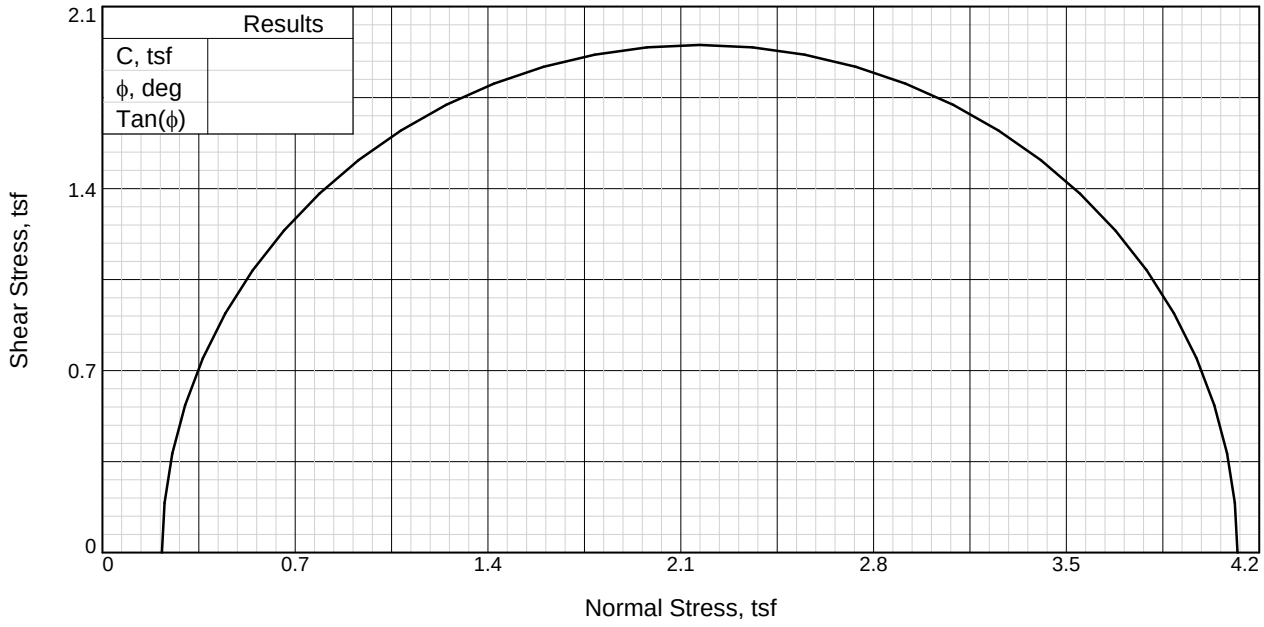
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-22 **Depth:** 16

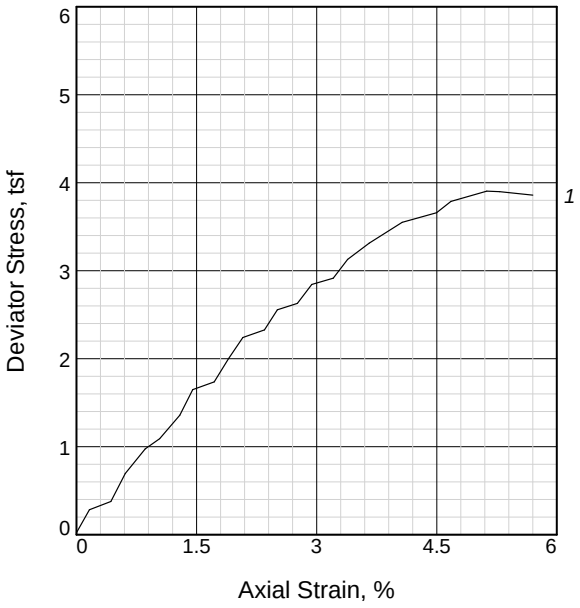
Proj. No.: S-2544-07 **Date Sampled:** 2/28/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	23.4
	Dry Density, pcf	96.3
	Saturation, %	84.1
	Void Ratio	0.7499
	Diameter, in.	2.78
	Height, in.	5.58
At Test	Water Content, %	23.4
	Dry Density, pcf	96.3
	Saturation, %	84.1
	Void Ratio	0.7499
	Diameter, in.	2.78
	Height, in.	5.58
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.22
Fail. Stress, tsf		3.91
Strain, %		5.1
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.12
σ_3 Failure, tsf		0.22

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: CLAY - Fat, brown (CH)

LL= 53 **PL=** 21 **PI=** 32
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

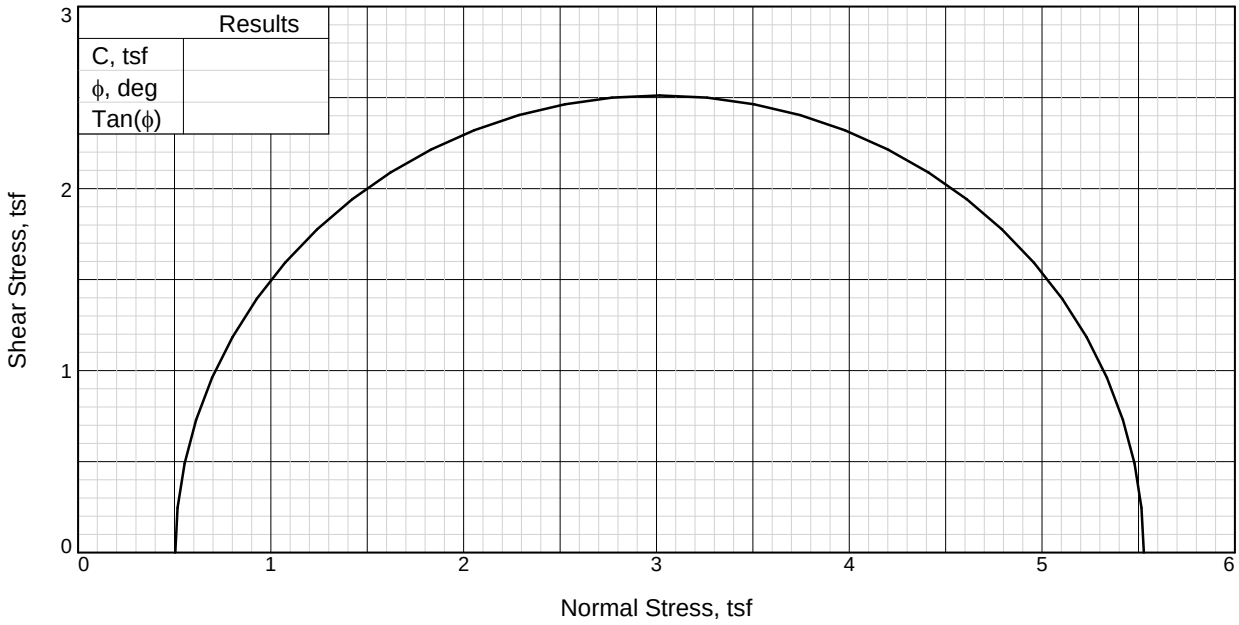
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-22 **Depth:** 4

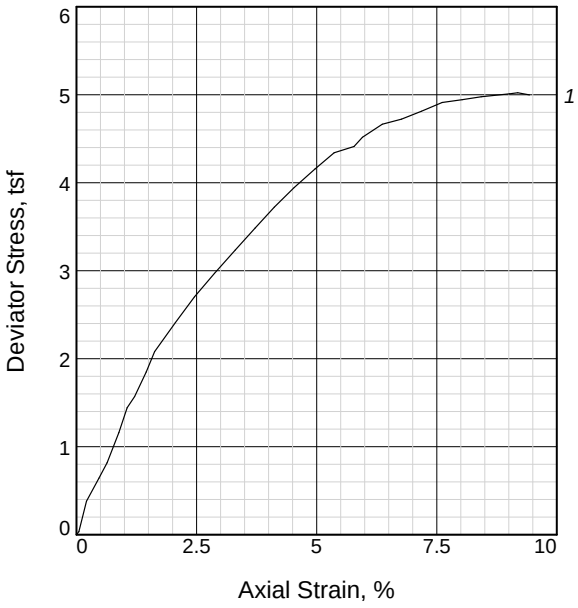
Proj. No.: S-2544-07 **Date Sampled:** 2/28/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	26.4
	Dry Density, pcf	94.2
	Saturation, %	90.4
	Void Ratio	0.7886
	Diameter, in.	2.77
	Height, in.	5.78
At Test	Water Content, %	26.4
	Dry Density, pcf	94.2
	Saturation, %	90.4
	Void Ratio	0.7886
	Diameter, in.	2.77
	Height, in.	5.78
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		5.02
Strain, %		9.2
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		5.53
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: - Lean, brown (CL)

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-23 **Depth:** 8

Proj. No.: S-2544-07 **Date Sampled:** 3/1/07

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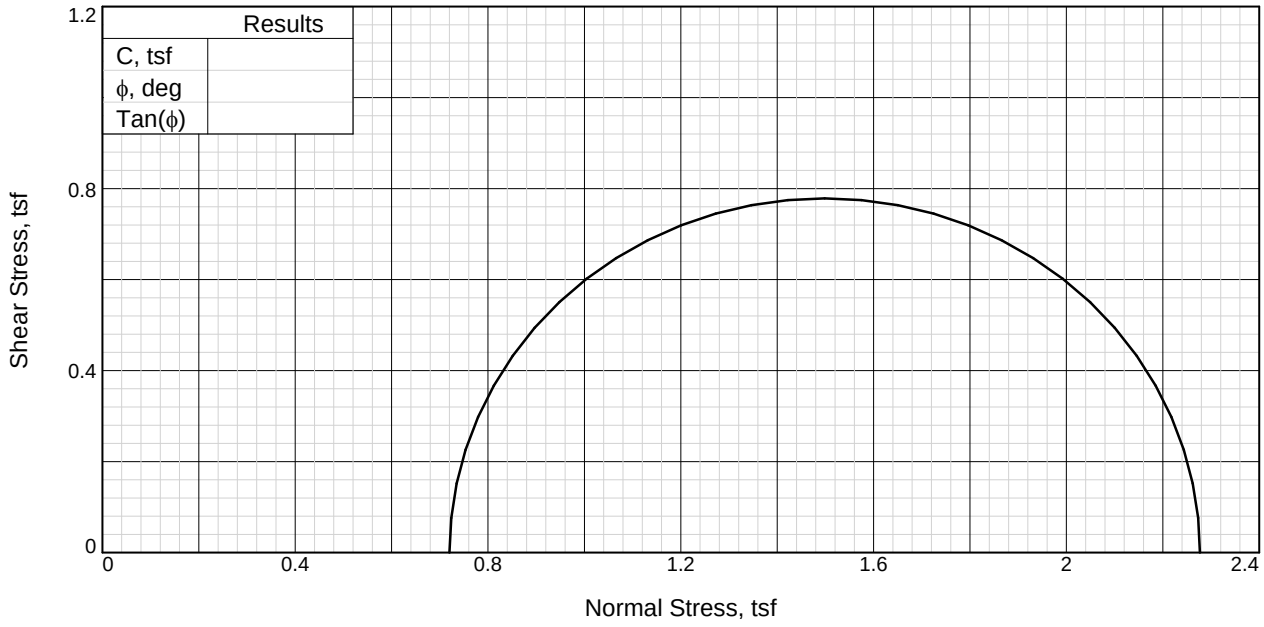
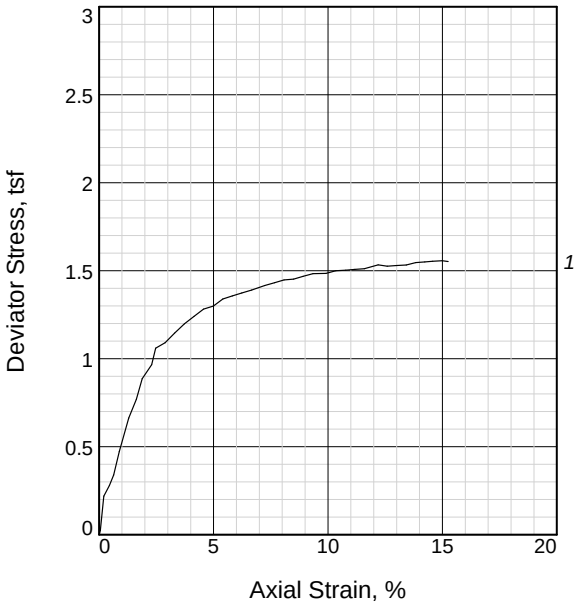
Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	28.7
	Dry Density, pcf	93.4
	Saturation, %	96.1
	Void Ratio	0.8054
	Diameter, in.	2.74
	Height, in.	5.79
At Test	Water Content, %	28.7
	Dry Density, pcf	93.4
	Saturation, %	96.1
	Void Ratio	0.8054
	Diameter, in.	2.74
	Height, in.	5.79
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		1.56
Strain, %		15.0
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		2.28
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: CLAY - Fat, brown (CH)

LL= 52 **PL=** 21 **PI=** 31
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-28 **Depth:** 14

Proj. No.: S-2544-07 **Date Sampled:** 3/1/07

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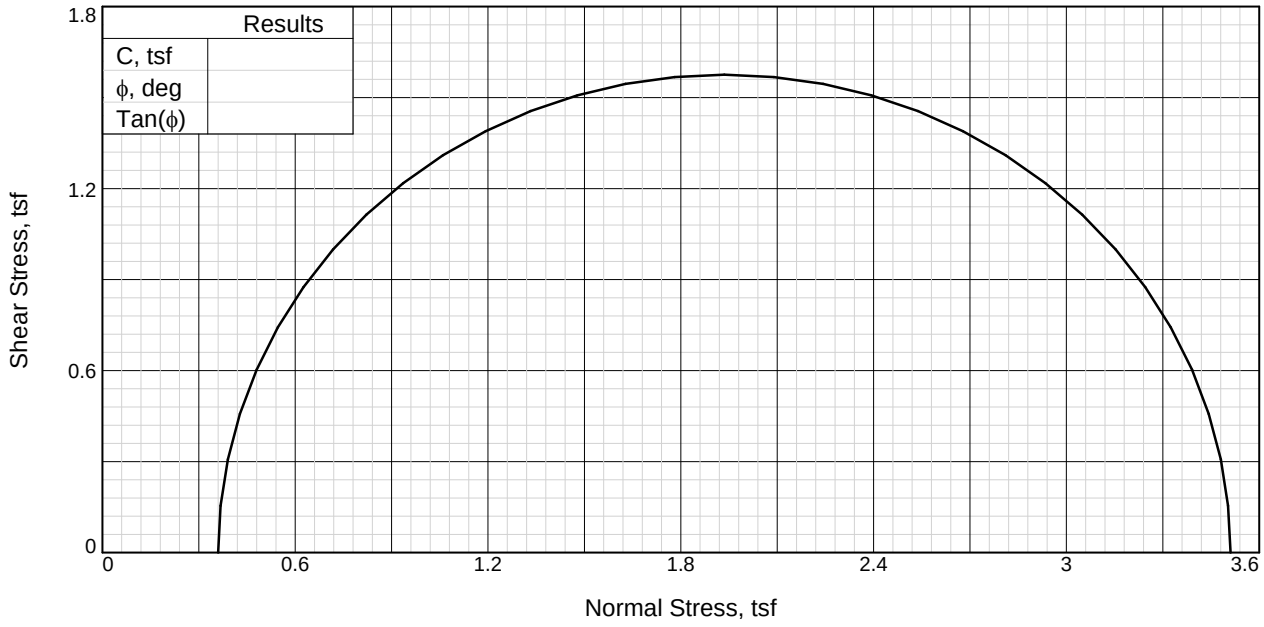
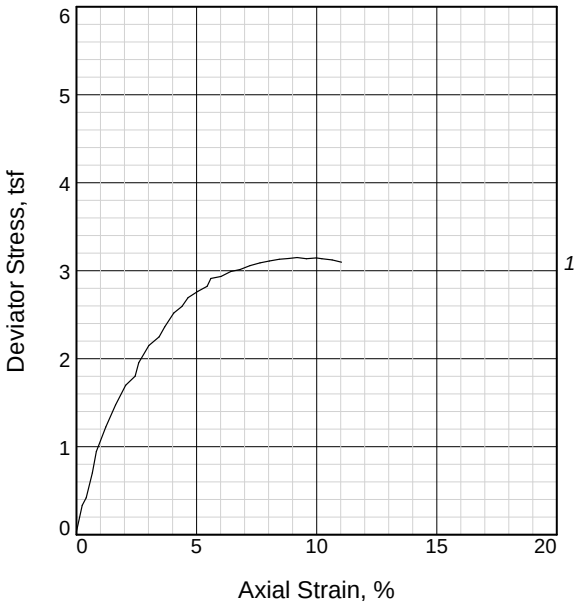
Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	28.1
	Dry Density, pcf	94.5
	Saturation, %	96.9
	Void Ratio	0.7841
	Diameter, in.	2.72
	Height, in.	5.90
At Test	Water Content, %	28.1
	Dry Density, pcf	94.5
	Saturation, %	96.9
	Void Ratio	0.7841
	Diameter, in.	2.72
	Height, in.	5.90
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.36
Fail. Stress, tsf		3.15
Strain, %		9.2
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.51
σ_3 Failure, tsf		0.36

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

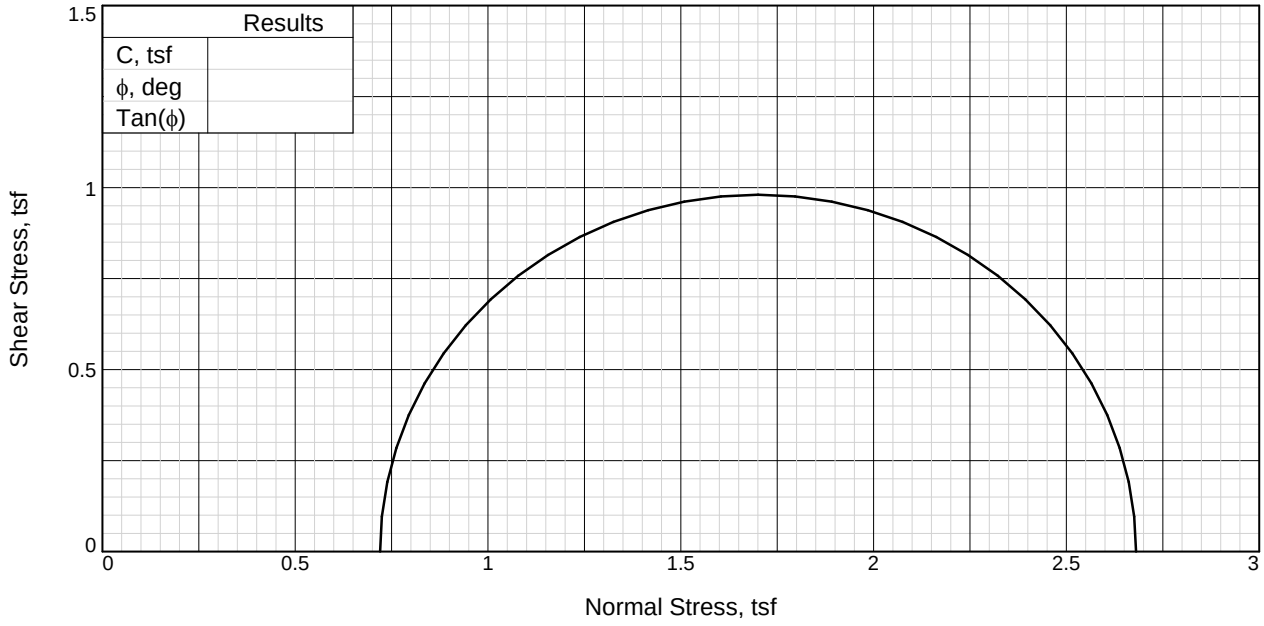
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-29 **Depth:** 6

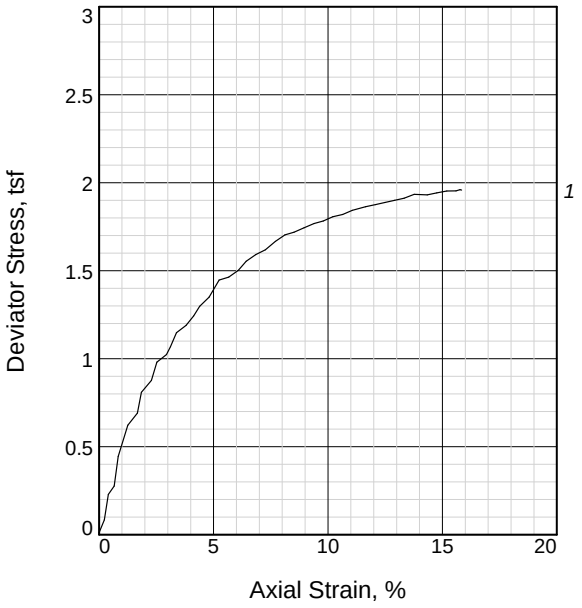
Proj. No.: S-2544-07 **Date Sampled:** 3/1/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	29.6
	Dry Density, pcf	91.9
	Saturation, %	95.7
	Void Ratio	0.8340
	Diameter, in.	2.75
	Height, in.	5.74
At Test	Water Content, %	29.6
	Dry Density, pcf	91.9
	Saturation, %	95.7
	Void Ratio	0.8340
	Diameter, in.	2.75
	Height, in.	5.74
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		1.96
Strain, %		15.8
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		2.68
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 60 **PL=** 24 **PI=** 36
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

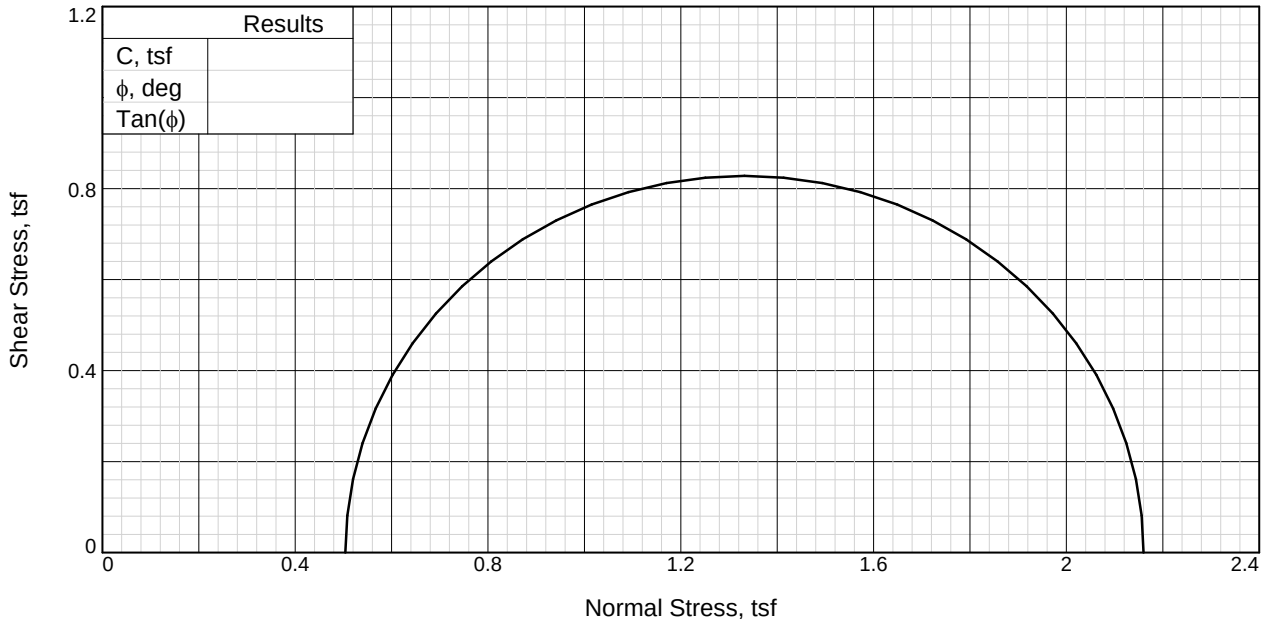
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-30 **Depth:** 10

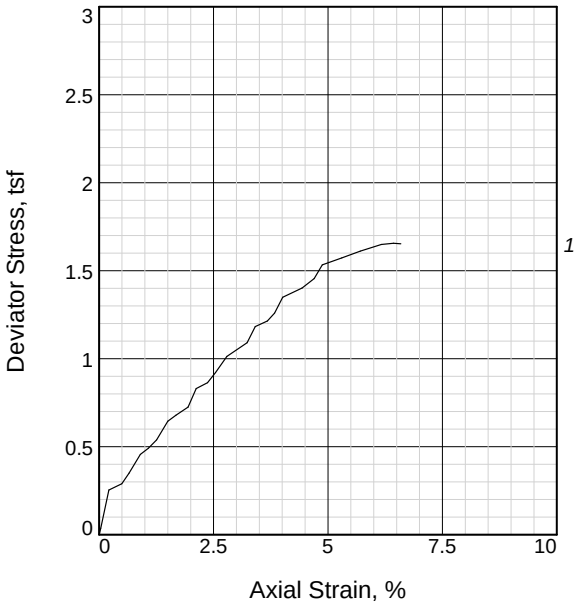
Proj. No.: S-2544-07 **Date Sampled:** 3/1/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	24.9
	Dry Density, pcf	96.1
	Saturation, %	89.2
	Void Ratio	0.7548
	Diameter, in.	2.75
	Height, in.	5.66
At Test	Water Content, %	24.9
	Dry Density, pcf	96.1
	Saturation, %	89.2
	Void Ratio	0.7548
	Diameter, in.	2.75
	Height, in.	5.66
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		1.66
Strain, %		6.4
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		2.16
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 44 **PL=** 20 **PI=** 24
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

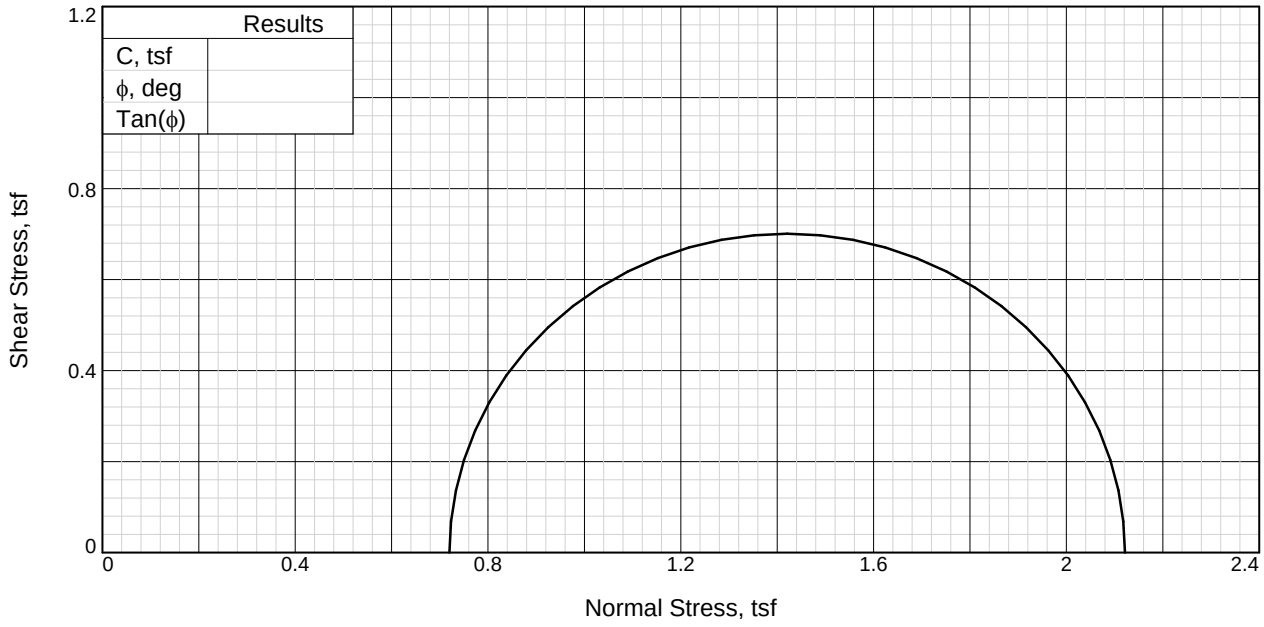
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-31 **Depth:** 8

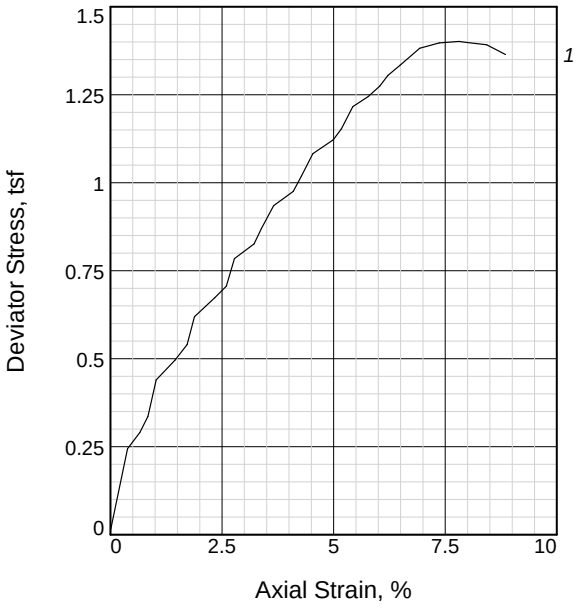
Proj. No.: S-2544-07 **Date Sampled:** 3/1/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	25.8
	Dry Density, pcf	92.2
	Saturation, %	84.3
	Void Ratio	0.8280
	Diameter, in.	2.80
	Height, in.	5.47
At Test	Water Content, %	25.8
	Dry Density, pcf	92.2
	Saturation, %	84.3
	Void Ratio	0.8280
	Diameter, in.	2.80
	Height, in.	5.47
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		1.40
Strain, %		7.8
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		2.12
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

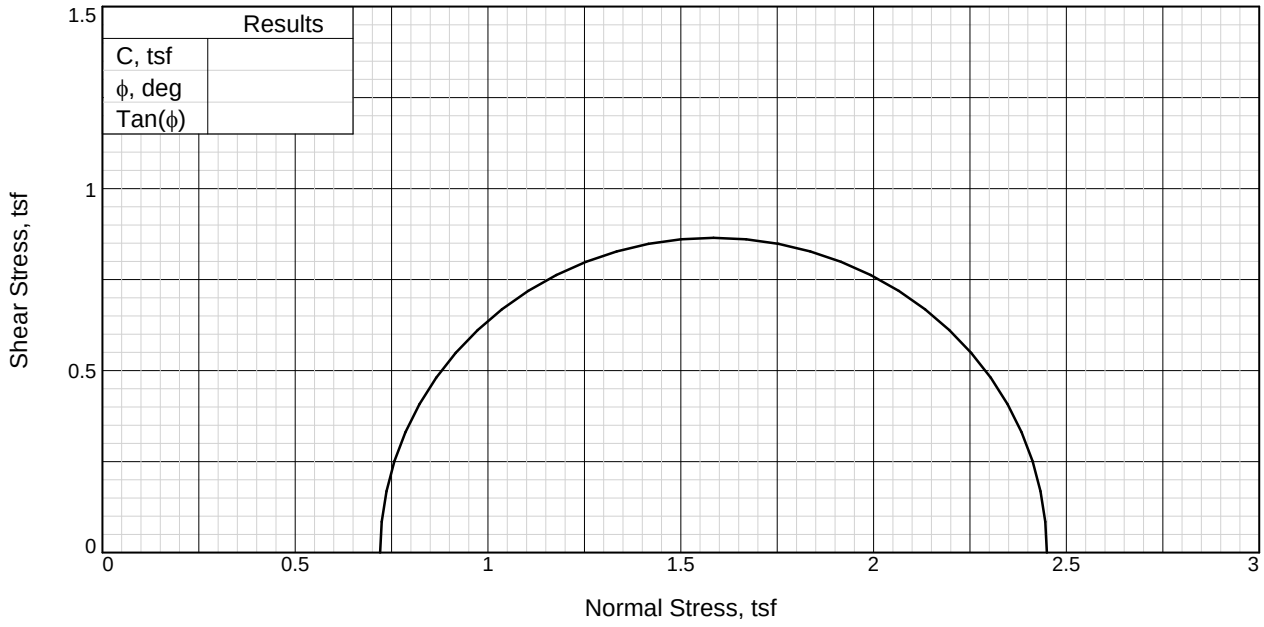
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-32 **Depth:** 11

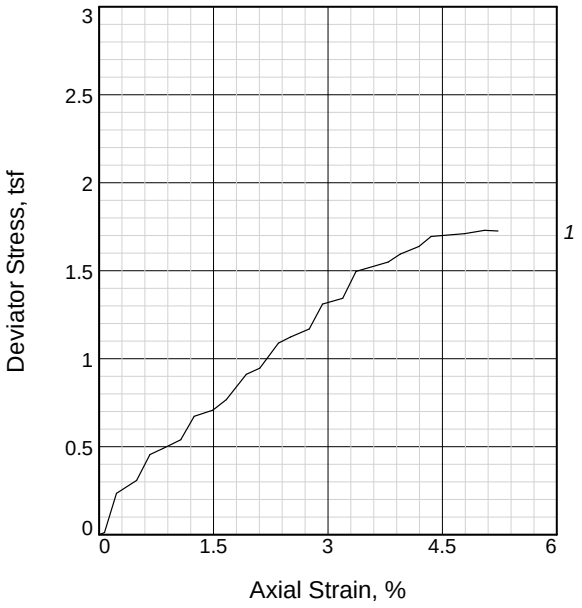
Proj. No.: S-2544-07 **Date Sampled:** 3/1/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	26.0
	Dry Density, pcf	98.1
	Saturation, %	97.7
	Void Ratio	0.7182
	Diameter, in.	2.72
	Height, in.	5.70
At Test	Water Content, %	26.0
	Dry Density, pcf	98.1
	Saturation, %	97.7
	Void Ratio	0.7182
	Diameter, in.	2.72
	Height, in.	5.70
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		1.73
Strain, %		5.1
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		2.45
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: - Lean, brown (CL)

LL= 44 **PL=** 20 **PI=** 24
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

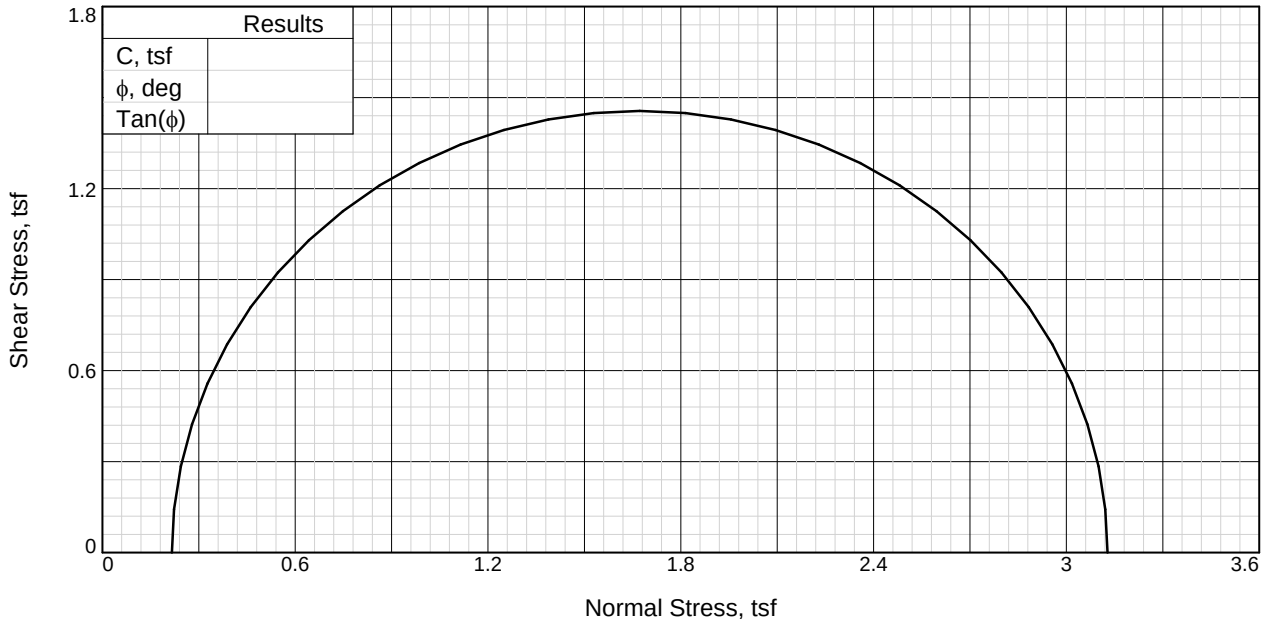
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-34 **Depth:** 11

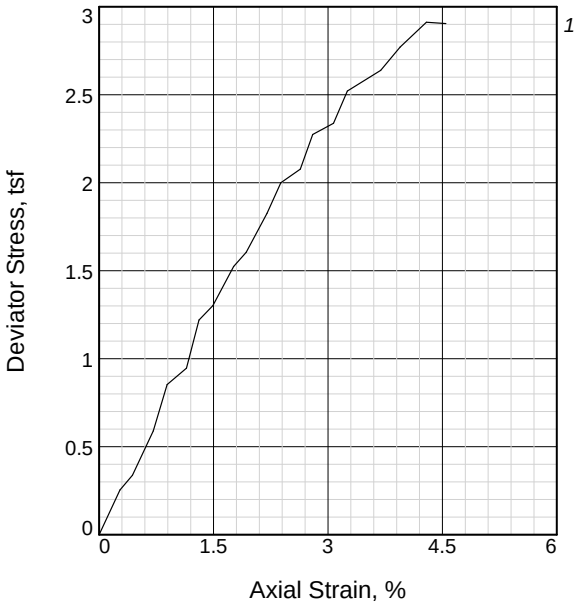
Proj. No.: S-2544-07 **Date Sampled:** 3/1/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	24.8
	Dry Density, pcf	96.3
	Saturation, %	89.1
	Void Ratio	0.7505
	Diameter, in.	2.75
	Height, in.	5.50
At Test	Water Content, %	24.8
	Dry Density, pcf	96.3
	Saturation, %	89.1
	Void Ratio	0.7505
	Diameter, in.	2.75
	Height, in.	5.50
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.22
Fail. Stress, tsf		2.91
Strain, %		4.3
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.13
σ_3 Failure, tsf		0.22

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-34 **Depth:** 4

Proj. No.: S-2544-07 **Date Sampled:** 3/1/07

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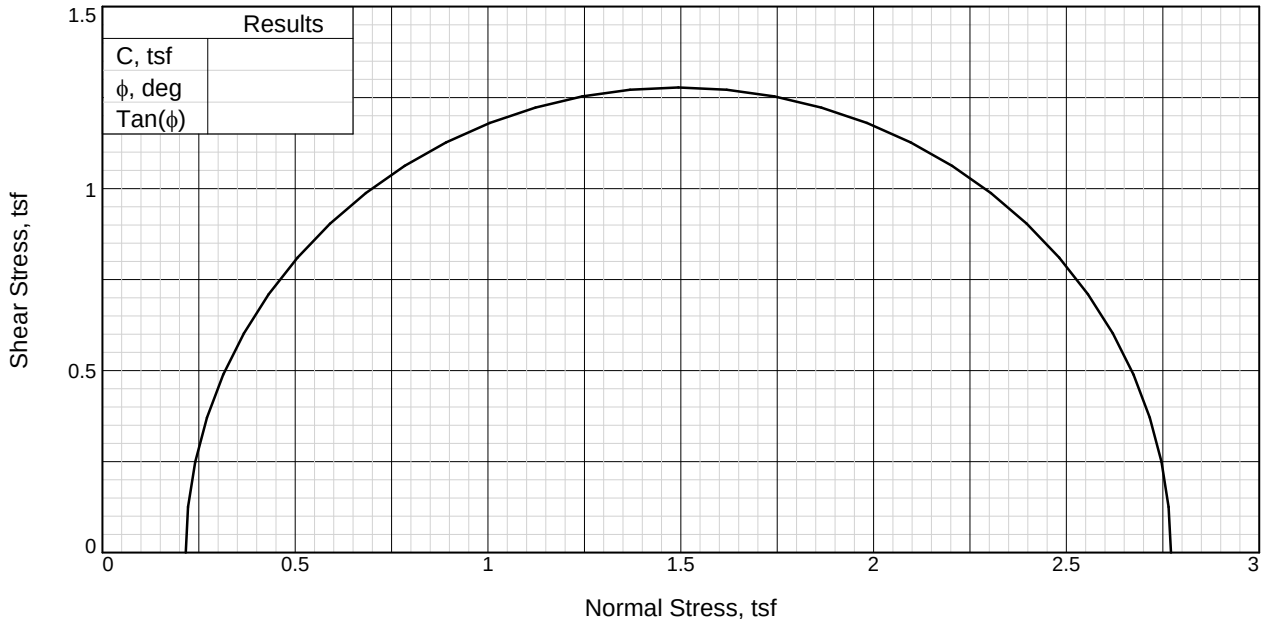
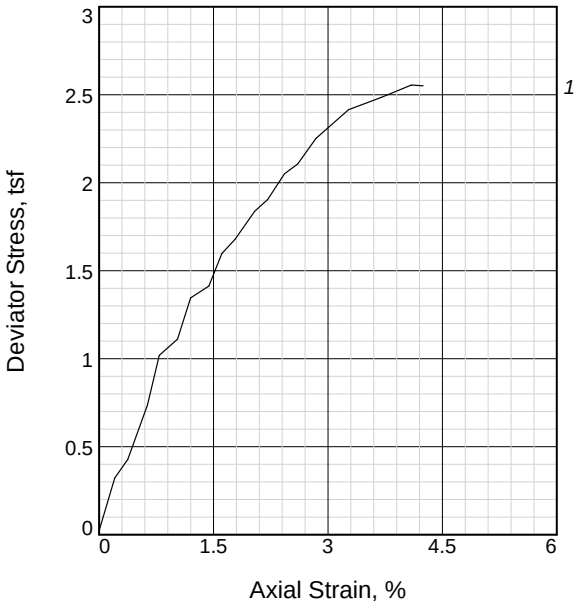
Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	27.9
	Dry Density, pcf	90.6
	Saturation, %	87.5
	Void Ratio	0.8600
	Diameter, in.	2.77
	Height, in.	5.84
At Test	Water Content, %	27.9
	Dry Density, pcf	90.6
	Saturation, %	87.5
	Void Ratio	0.8600
	Diameter, in.	2.77
	Height, in.	5.84
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.22
Fail. Stress, tsf		2.56
Strain, %		4.1
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		2.77
σ_3 Failure, tsf		0.22

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: CLAY - Fat, brown (CH)

LL= 59 **PL=** 23 **PI=** 36
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-35 **Depth:** 4

Proj. No.: S-2544-07 **Date Sampled:** 3/1/07

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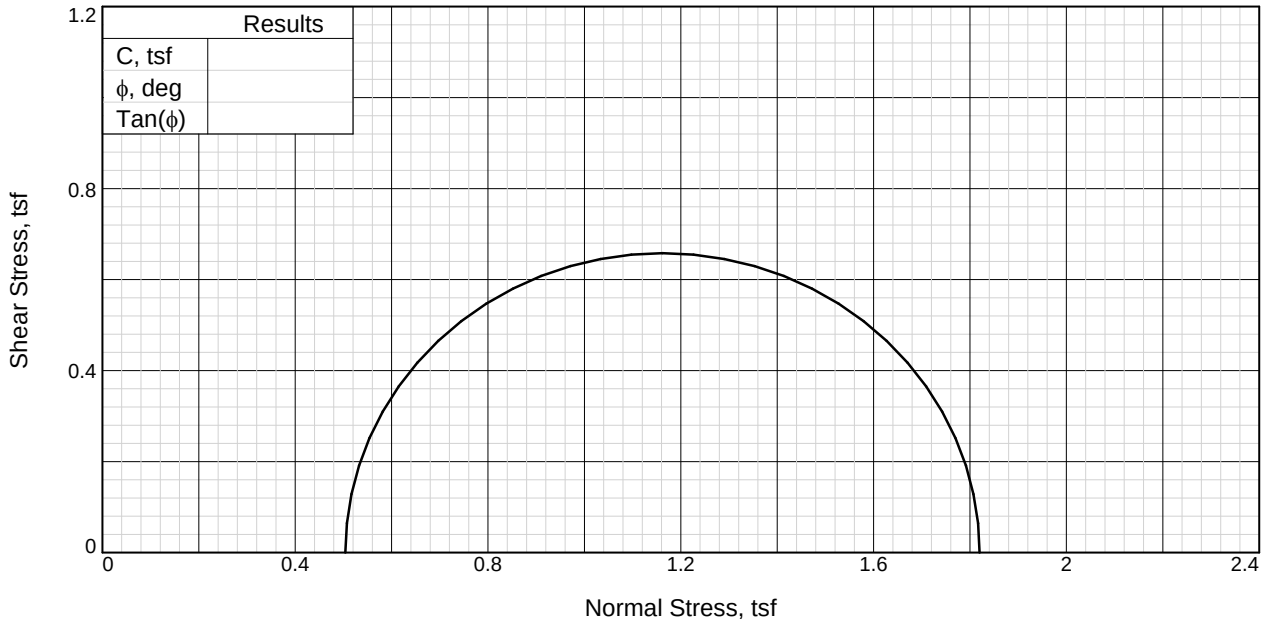
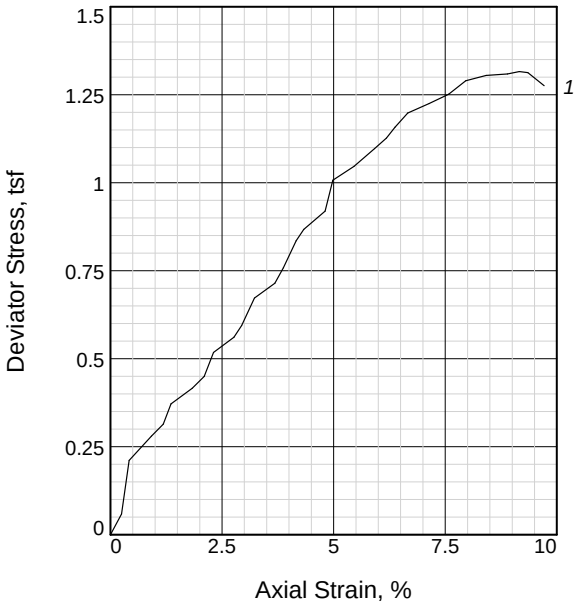
Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	25.6
	Dry Density, pcf	90.7
	Saturation, %	80.4
	Void Ratio	0.8589
	Diameter, in.	2.79
	Height, in.	5.24
At Test	Water Content, %	25.6
	Dry Density, pcf	90.7
	Saturation, %	80.4
	Void Ratio	0.8589
	Diameter, in.	2.79
	Height, in.	5.24
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		1.32
Strain, %		9.2
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		1.82
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: CLAY - Lean, brown (CL)

LL= 34 **PL=** 24 **PI=** 10
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-35 **Depth:** 8

Proj. No.: S-2544-07 **Date Sampled:** 3/1/07

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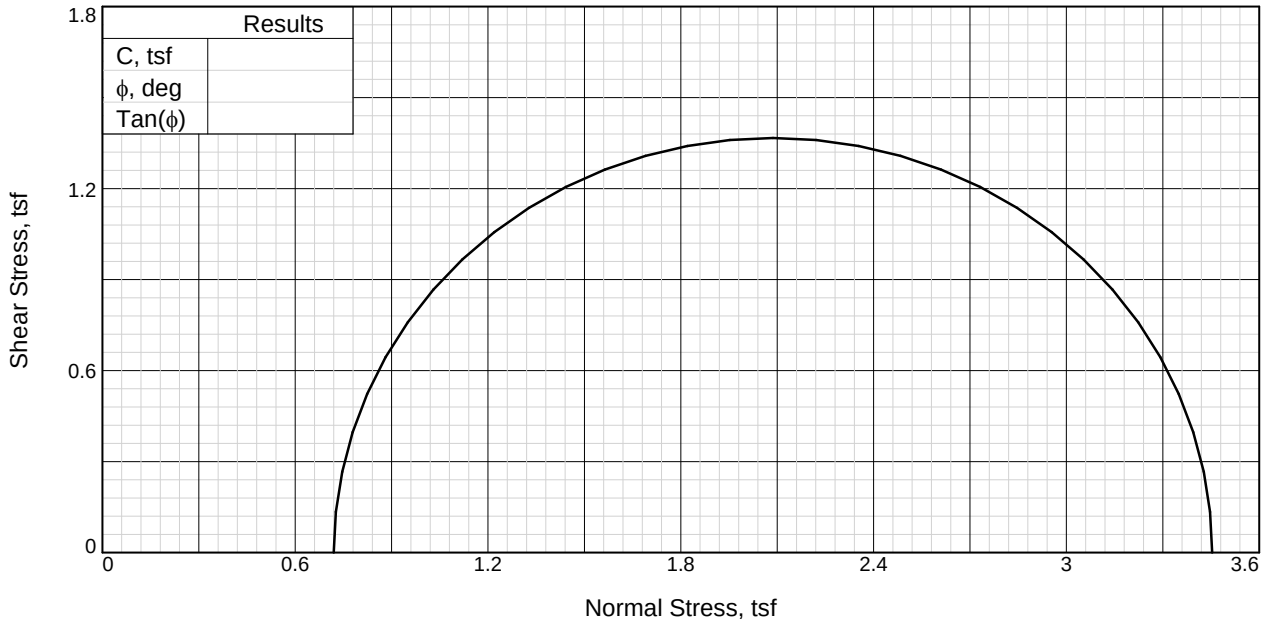
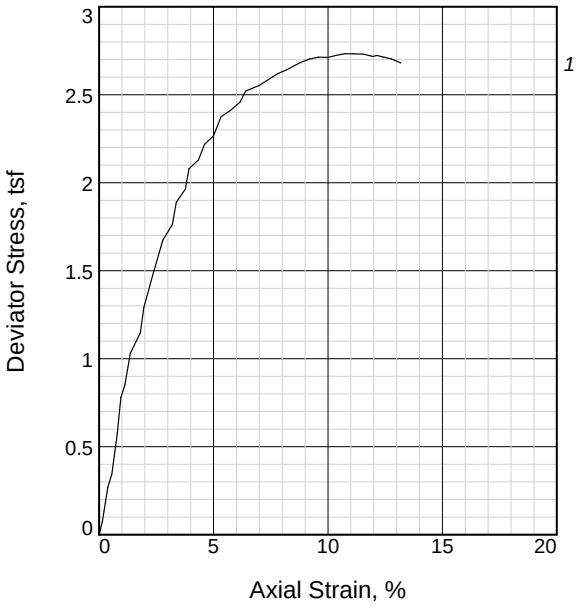
Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	25.8
	Dry Density, pcf	99.2
	Saturation, %	99.4
	Void Ratio	0.6998
	Diameter, in.	2.73
	Height, in.	5.78
At Test	Water Content, %	25.8
	Dry Density, pcf	99.2
	Saturation, %	99.4
	Void Ratio	0.6998
	Diameter, in.	2.73
	Height, in.	5.78
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		2.73
Strain, %		10.7
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.45
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 51 **PL=** 20 **PI=** 31
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-37 **Depth:** 14

Proj. No.: S-2544-07 **Date Sampled:** 3/2/07

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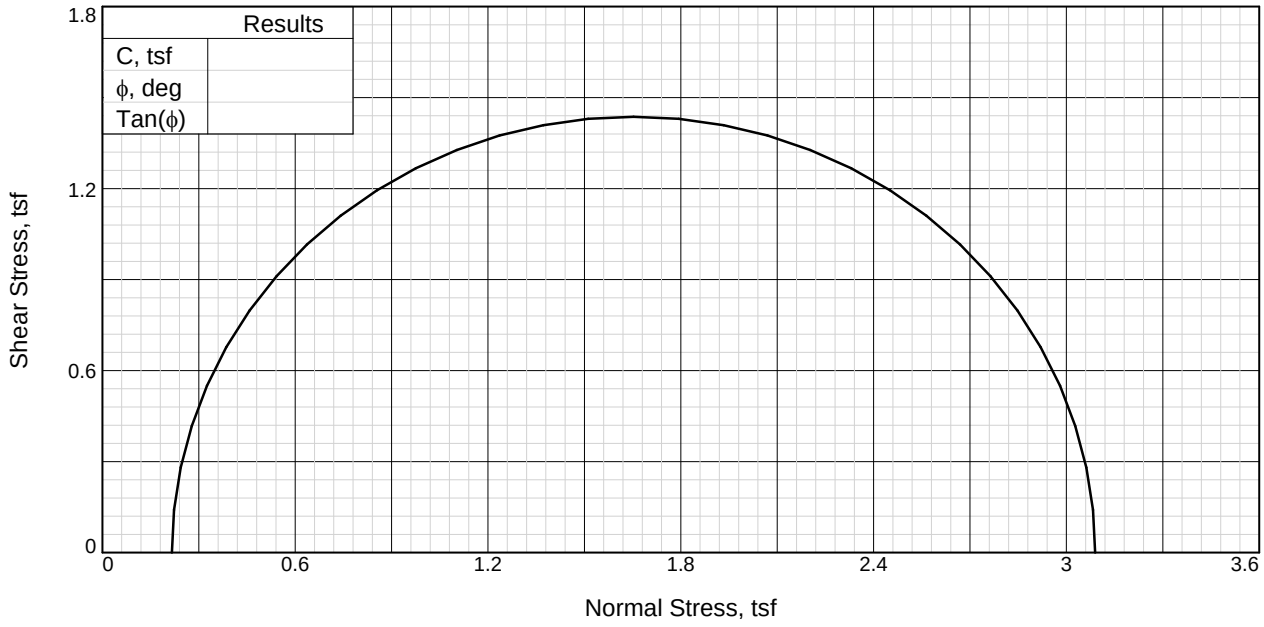
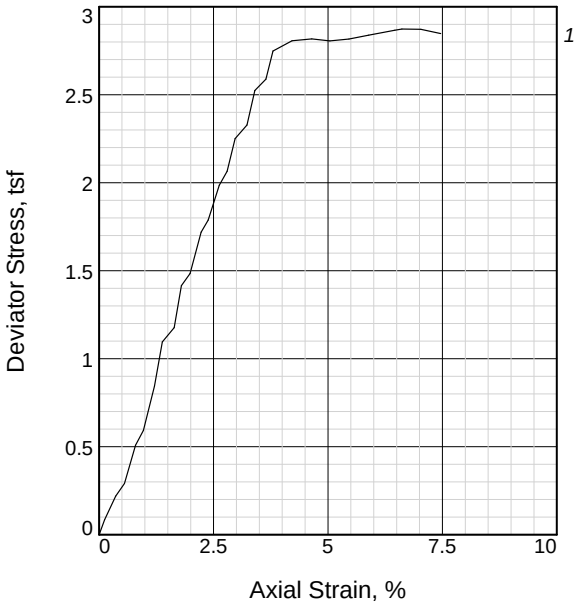
Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	23.1
	Dry Density, pcf	101.4
	Saturation, %	94.3
	Void Ratio	0.6623
	Diameter, in.	2.74
	Height, in.	5.79
At Test	Water Content, %	23.1
	Dry Density, pcf	101.4
	Saturation, %	94.3
	Void Ratio	0.6623
	Diameter, in.	2.74
	Height, in.	5.79
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.22
Fail. Stress, tsf		2.87
Strain, %		6.6
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.09
σ_3 Failure, tsf		0.22

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

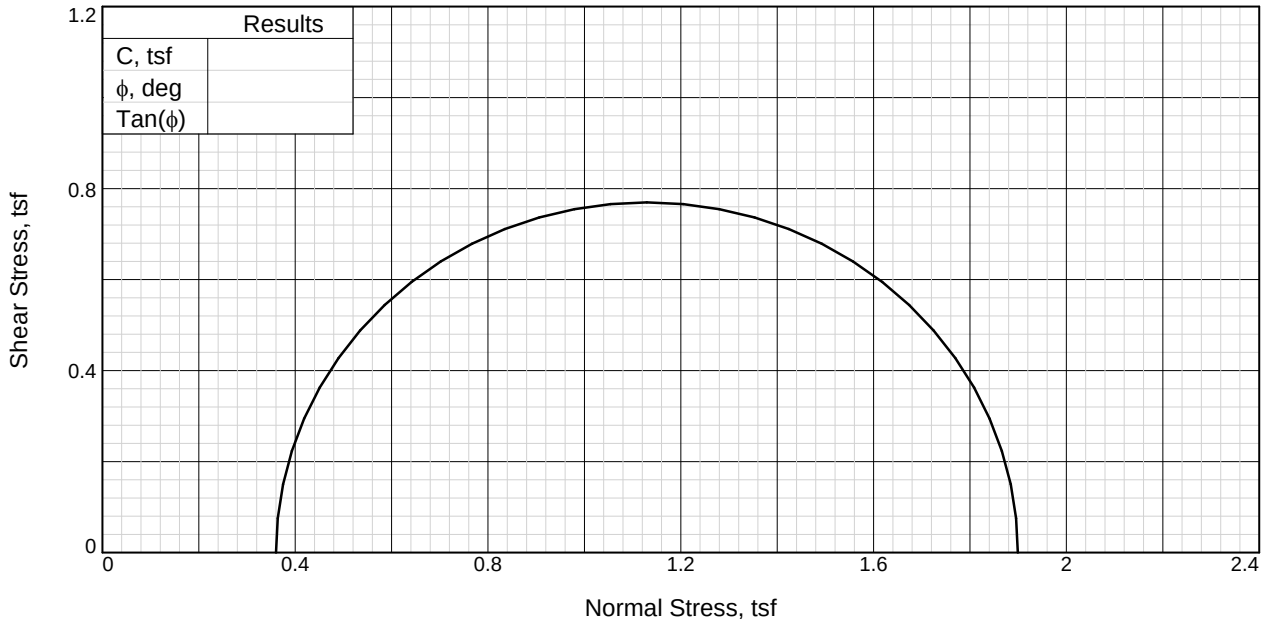
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-38 **Depth:** 4

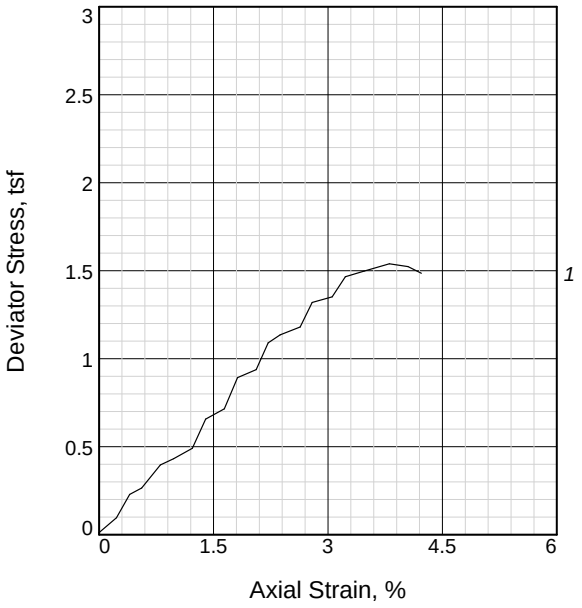
Proj. No.: S-2544-07 **Date Sampled:** 3/2/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	26.5
	Dry Density, pcf	87.9
	Saturation, %	78.0
	Void Ratio	0.9174
	Diameter, in.	2.75
	Height, in.	5.73
At Test	Water Content, %	26.5
	Dry Density, pcf	87.9
	Saturation, %	78.0
	Void Ratio	0.9174
	Diameter, in.	2.75
	Height, in.	5.73
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.36
Fail. Stress, tsf		1.54
Strain, %		3.8
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		1.90
σ_3 Failure, tsf		0.36

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: - Lean, dark brown (CL)

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

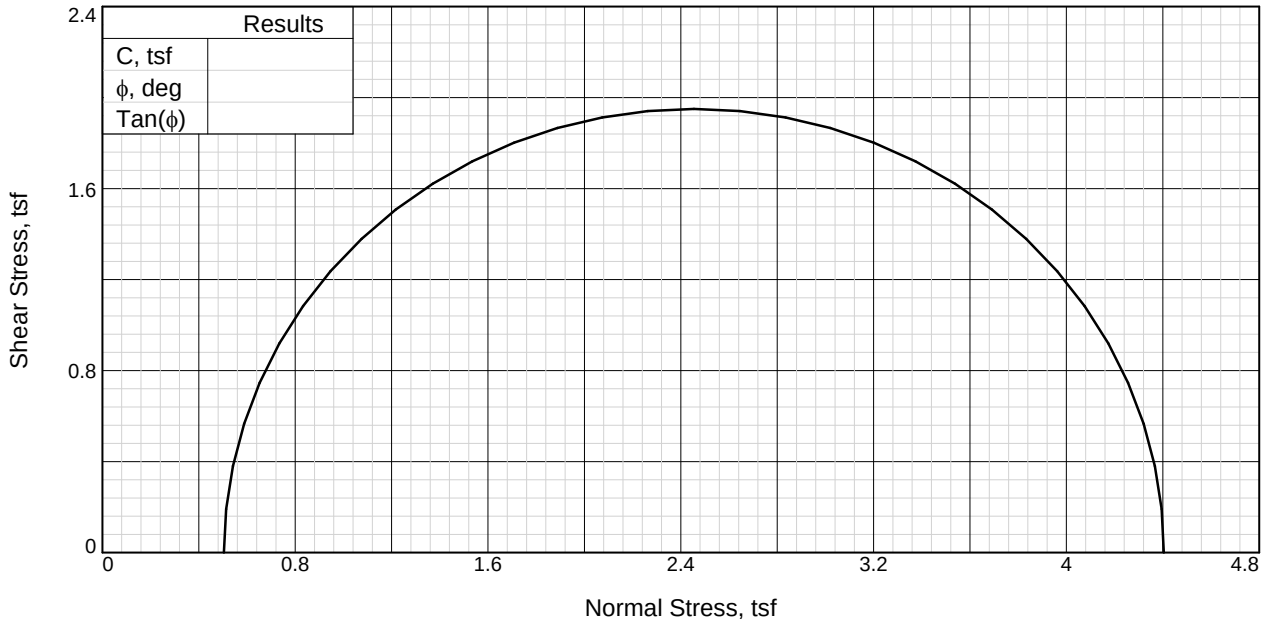
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-39 **Depth:** 6

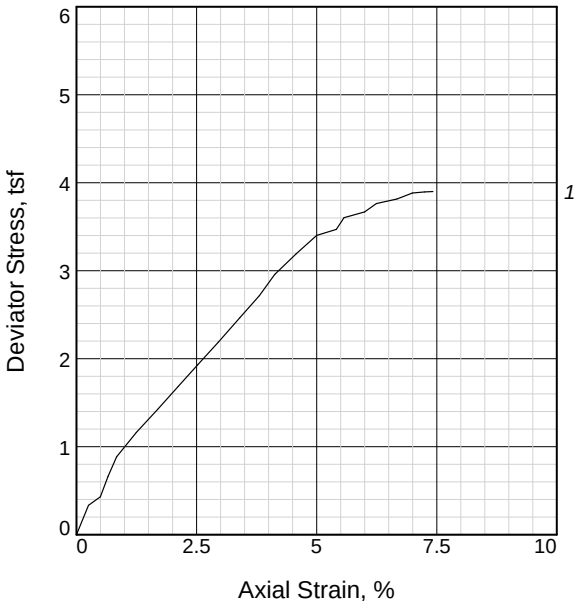
Proj. No.: S-2544-07 **Date Sampled:** 3/2/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	22.7
	Dry Density, pcf	101.9
	Saturation, %	93.7
	Void Ratio	0.6535
	Diameter, in.	2.72
	Height, in.	5.62
At Test	Water Content, %	22.7
	Dry Density, pcf	101.9
	Saturation, %	93.7
	Void Ratio	0.6535
	Diameter, in.	2.72
	Height, in.	5.62
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		3.90
Strain, %		7.4
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.40
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

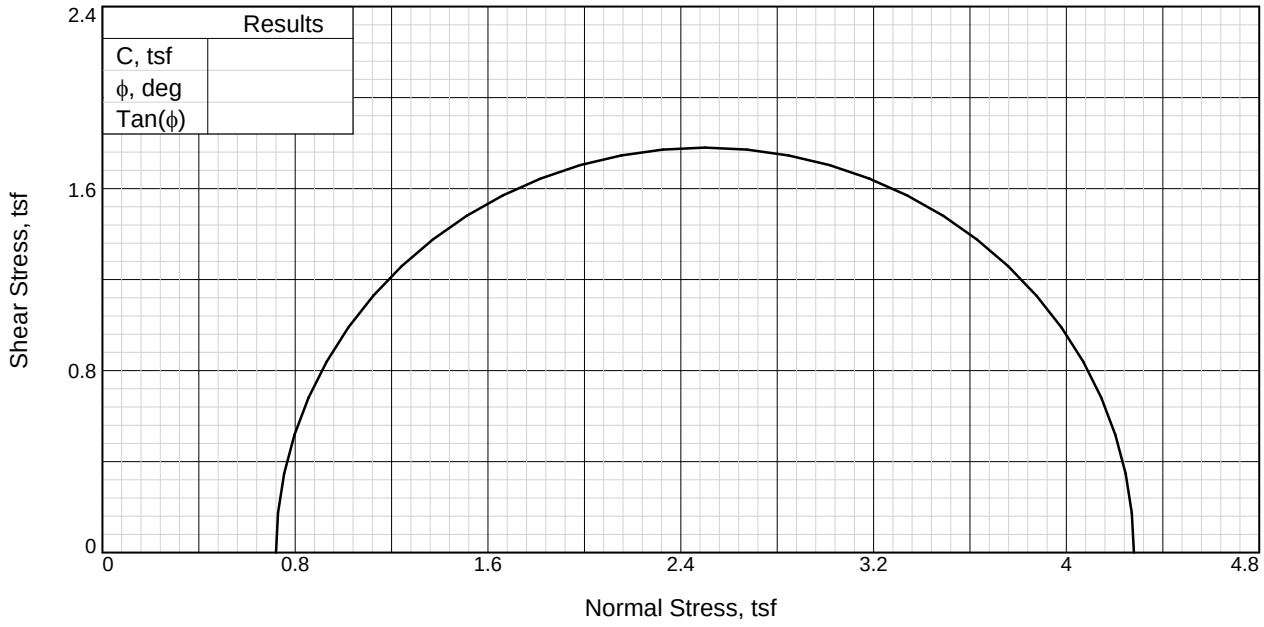
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-40 **Depth:** 8

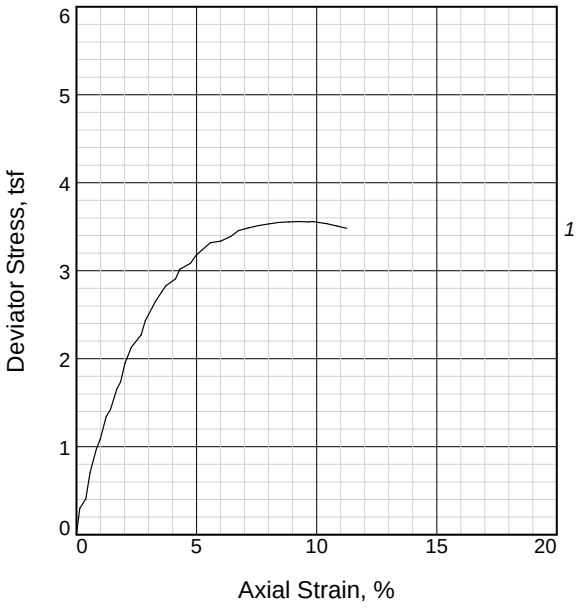
Proj. No.: S-2544-07 **Date Sampled:** 3/2/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	22.9
	Dry Density, pcf	98.9
	Saturation, %	87.9
	Void Ratio	0.7044
	Diameter, in.	2.76
	Height, in.	5.65
At Test	Water Content, %	22.9
	Dry Density, pcf	98.9
	Saturation, %	87.9
	Void Ratio	0.7044
	Diameter, in.	2.76
	Height, in.	5.65
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		3.56
Strain, %		9.3
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.28
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-41 **Depth:** 16

Proj. No.: S-2544-07 **Date Sampled:** 3/2/07

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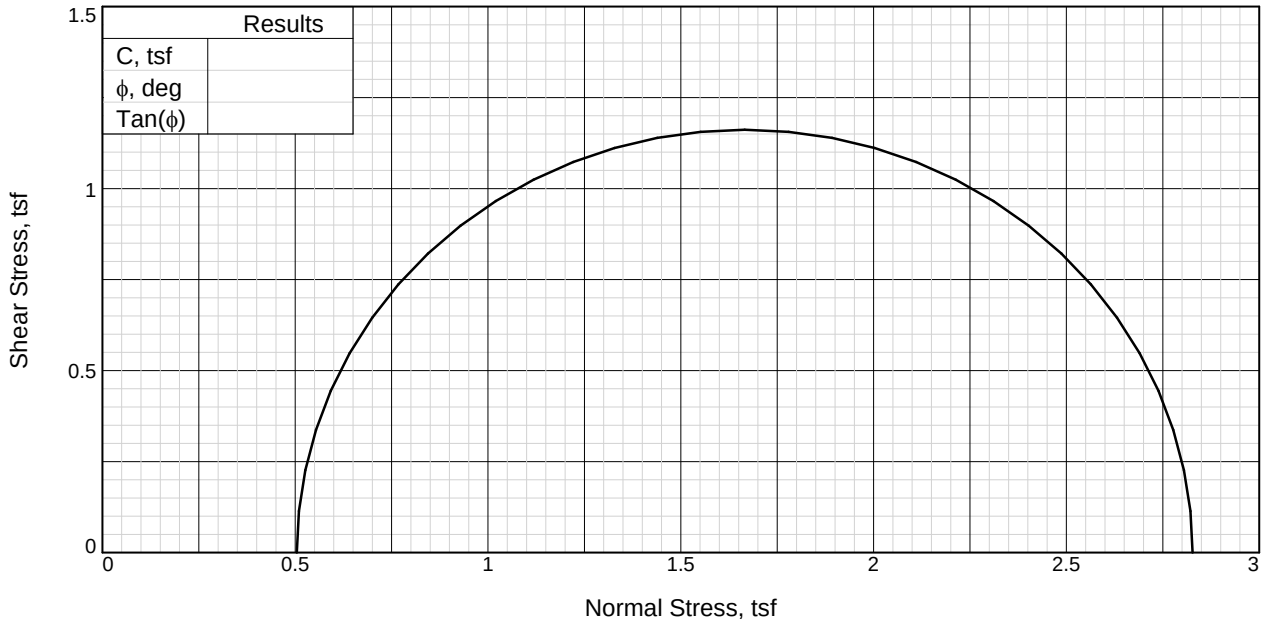
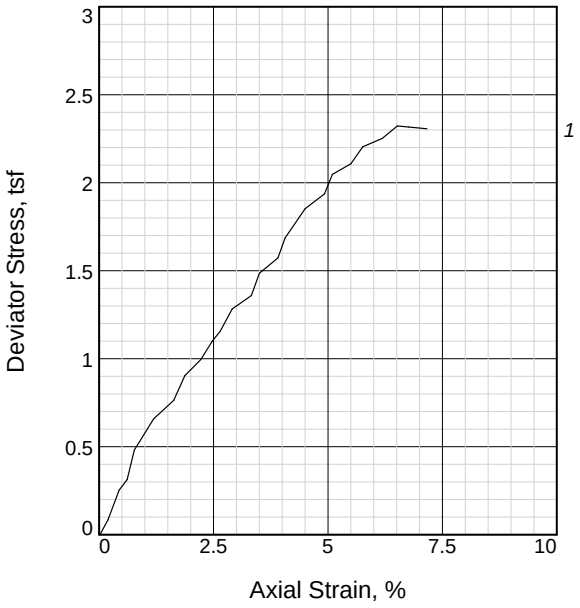
TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	21.8
	Dry Density, pcf	95.1
	Saturation, %	76.2
	Void Ratio	0.7728
	Diameter, in.	2.75
	Height, in.	5.71
At Test	Water Content, %	21.8
	Dry Density, pcf	95.1
	Saturation, %	76.2
	Void Ratio	0.7728
	Diameter, in.	2.75
	Height, in.	5.71
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		2.32
Strain, %		6.5
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		2.83
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: - Lean, dark brown (CL)

LL= 42 **PL=** 19 **PI=** 23
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

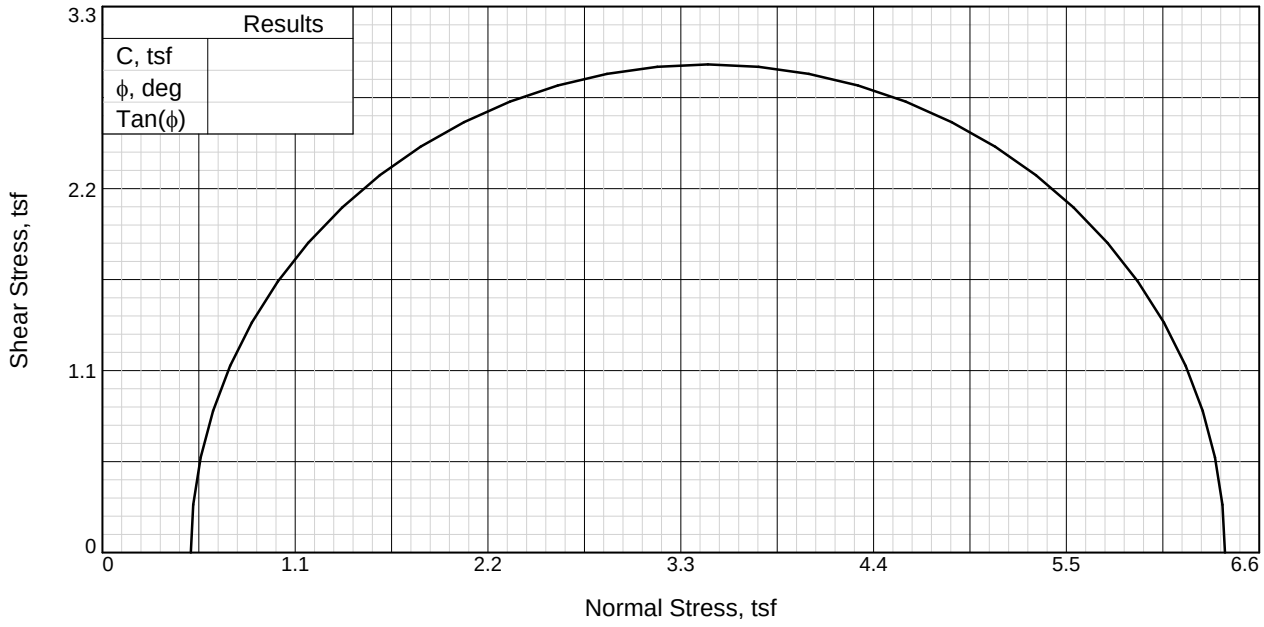
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-41 **Depth:** 8

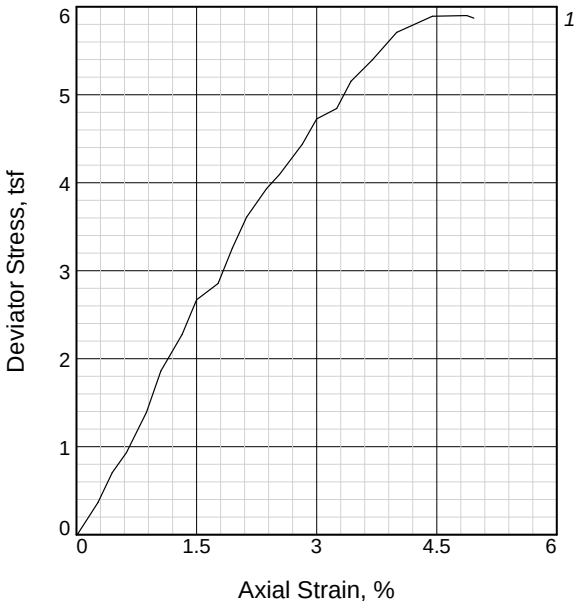
Proj. No.: S-2544-07 **Date Sampled:** 3/2/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	27.2
	Dry Density, pcf	94.2
	Saturation, %	92.9
	Void Ratio	0.7894
	Diameter, in.	2.74
	Height, in.	5.60
At Test	Water Content, %	27.2
	Dry Density, pcf	94.2
	Saturation, %	92.9
	Void Ratio	0.7894
	Diameter, in.	2.74
	Height, in.	5.60
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		5.90
Strain, %		4.9
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		6.40
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

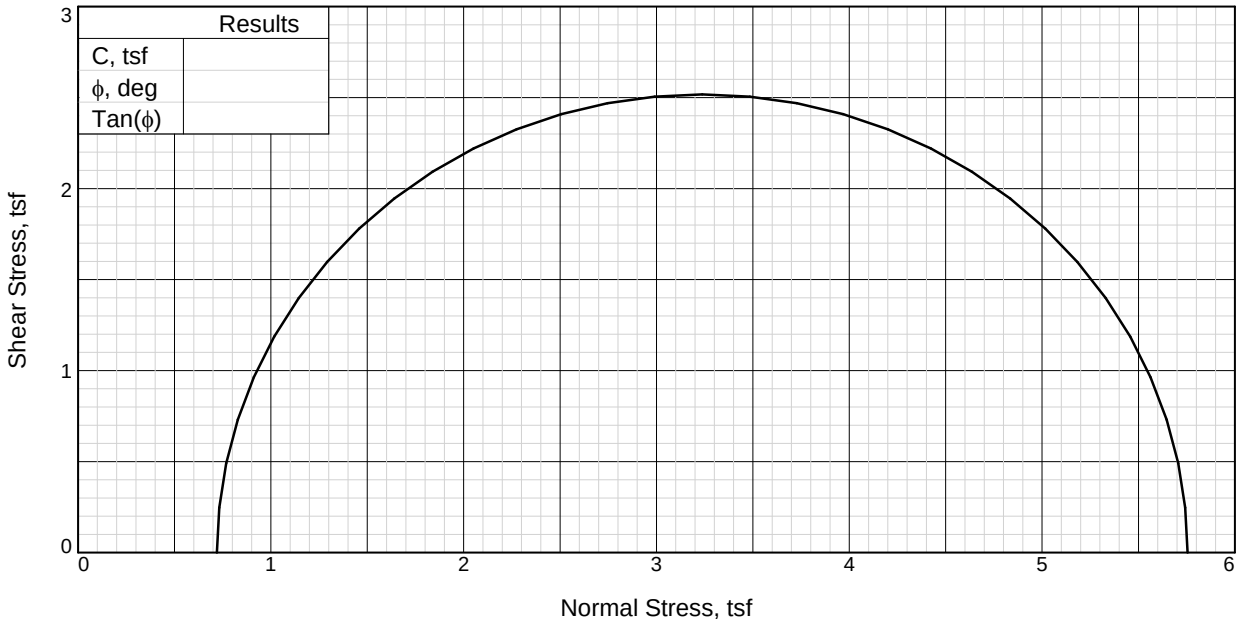
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-44 **Depth:** 8

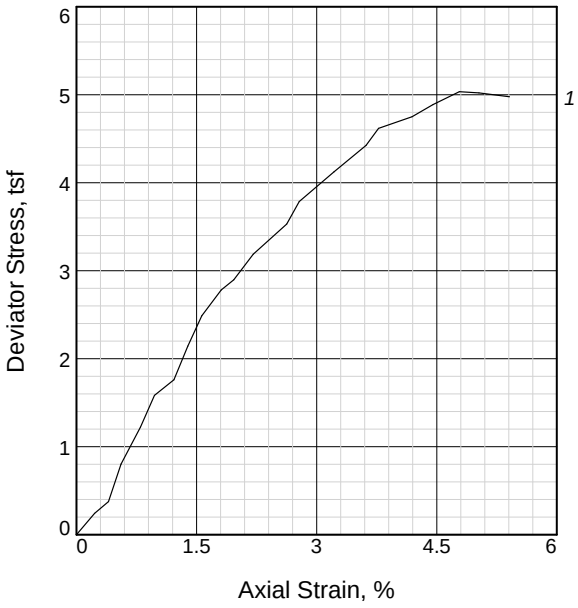
Proj. No.: S-2544-07 **Date Sampled:** 3/2/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	28.2
	Dry Density, pcf	92.8
	Saturation, %	93.3
	Void Ratio	0.8158
	Diameter, in.	2.74
	Height, in.	5.75
At Test	Water Content, %	28.2
	Dry Density, pcf	92.8
	Saturation, %	93.3
	Void Ratio	0.8158
	Diameter, in.	2.74
	Height, in.	5.75
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		5.03
Strain, %		4.8
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		5.75
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

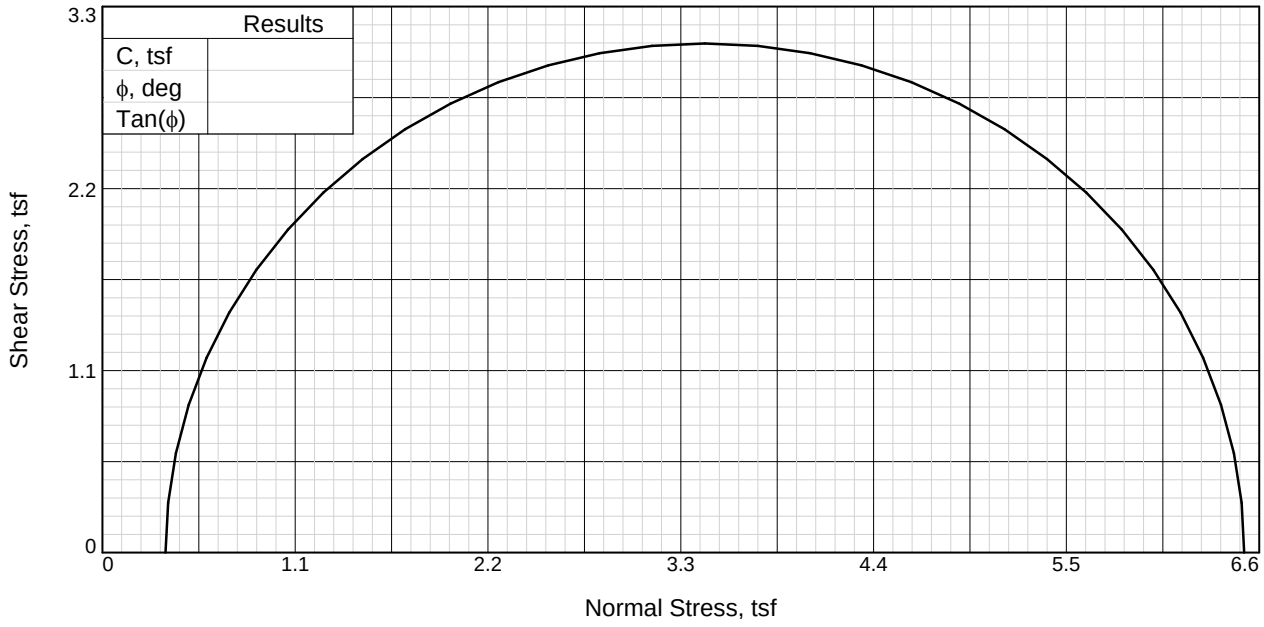
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-45 **Depth:** 13

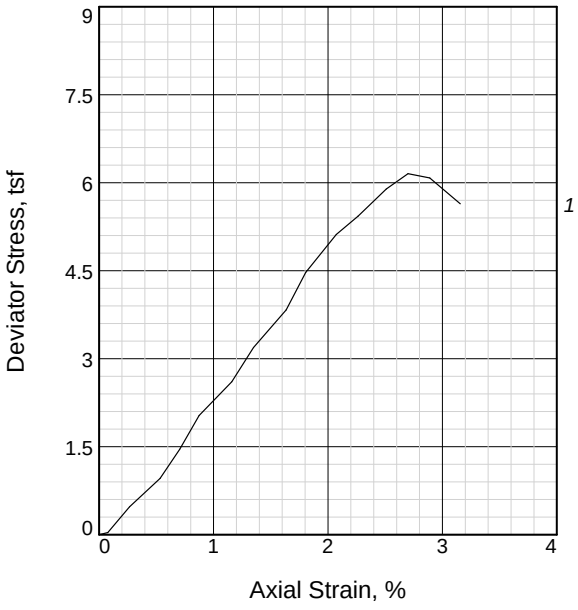
Proj. No.: S-2544-07 **Date Sampled:** 3/2/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	20.8
	Dry Density, pcf	98.5
	Saturation, %	79.1
	Void Ratio	0.7114
	Diameter, in.	2.74
	Height, in.	5.26
At Test	Water Content, %	20.8
	Dry Density, pcf	98.5
	Saturation, %	79.1
	Void Ratio	0.7114
	Diameter, in.	2.74
	Height, in.	5.26
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.36
Fail. Stress, tsf		6.15
Strain, %		2.7
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		6.51
σ_3 Failure, tsf		0.36

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: CLAY - Fat, dark brown (CH)

LL= 66 **PL=** 24 **PI=** 42
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

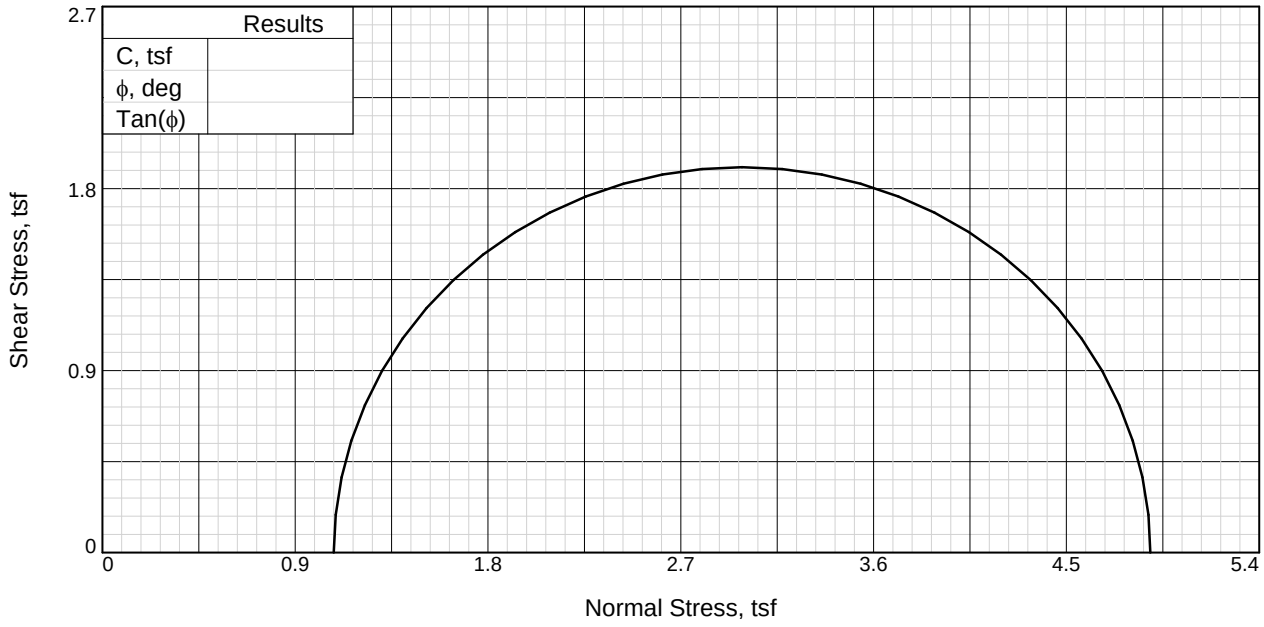
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-45 **Depth:** 6

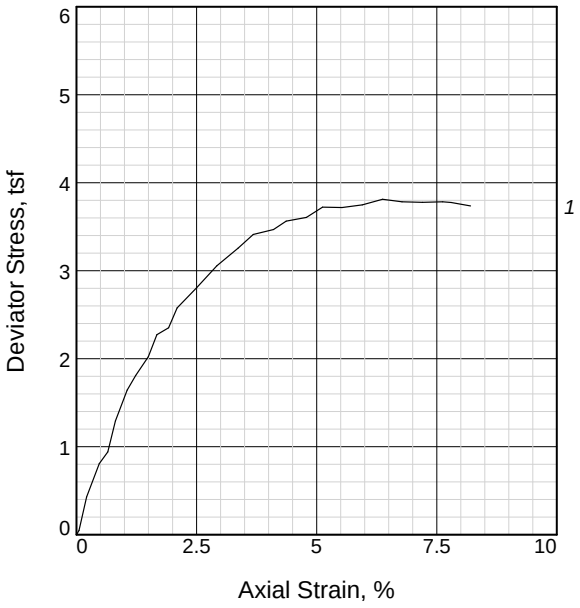
Proj. No.: S-2544-07 **Date Sampled:** 3/2/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	30.0
	Dry Density, pcf	92.3
	Saturation, %	98.2
	Void Ratio	0.8253
	Diameter, in.	2.73
	Height, in.	5.68
At Test	Water Content, %	30.0
	Dry Density, pcf	92.3
	Saturation, %	98.2
	Void Ratio	0.8253
	Diameter, in.	2.73
	Height, in.	5.68
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		1.08
Fail. Stress, tsf		3.81
Strain, %		6.4
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.89
σ_3 Failure, tsf		1.08

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: CLAY - Fat, dark brown (CH)

LL= 62 **PL=** 22 **PI=** 40
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-46 **Depth:** 17

Proj. No.: S-2544-07 **Date Sampled:** 3/2/07

TRIAXIAL SHEAR TEST REPORT

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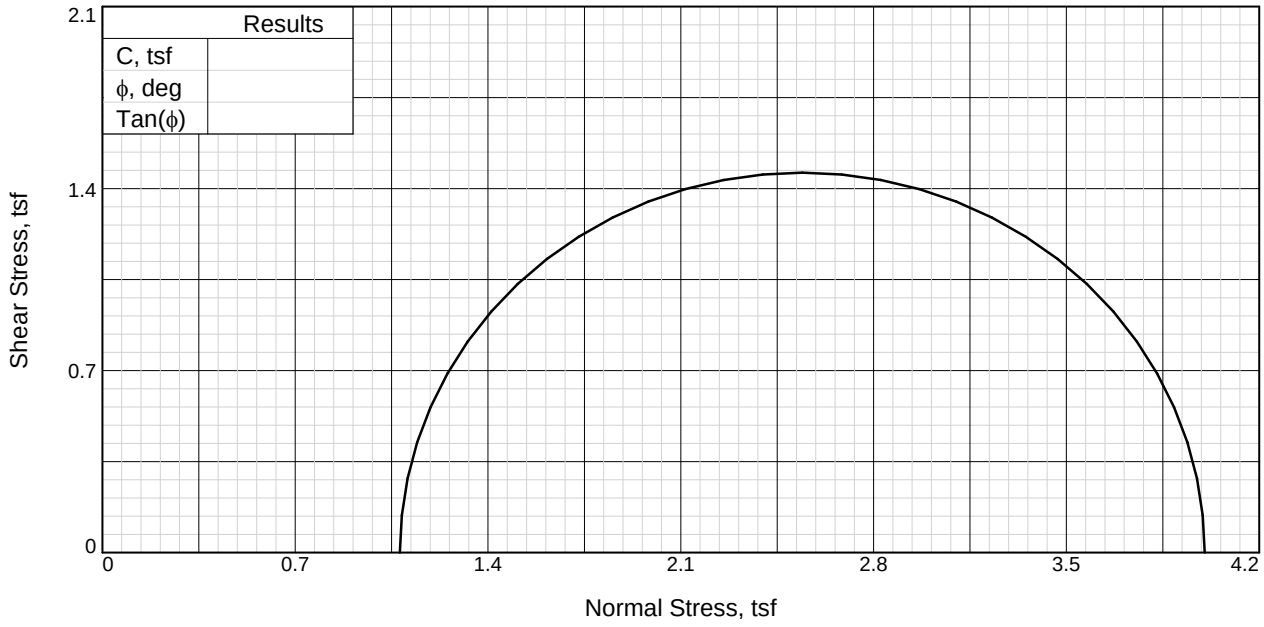
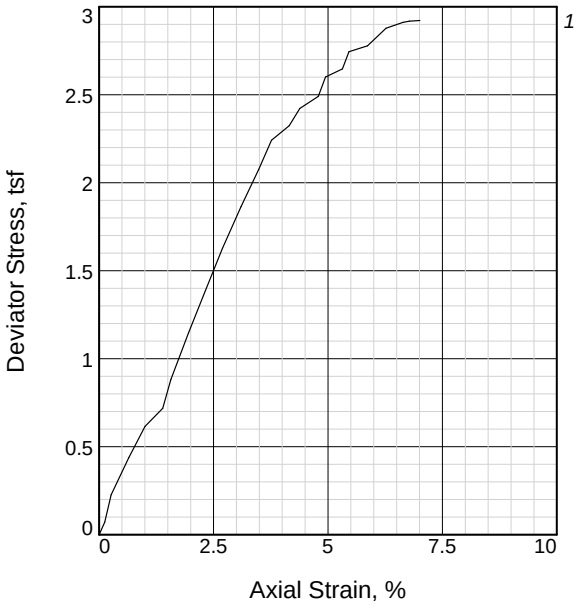
Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	30.1
	Dry Density, pcf	89.5
	Saturation, %	91.8
	Void Ratio	0.8842
	Diameter, in.	2.77
	Height, in.	5.68
At Test	Water Content, %	30.1
	Dry Density, pcf	89.5
	Saturation, %	91.8
	Void Ratio	0.8842
	Diameter, in.	2.77
	Height, in.	5.68
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		1.08
Fail. Stress, tsf		2.92
Strain, %		7.0
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.00
σ_3 Failure, tsf		1.08

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: CLAY - Fat, dark brown (CH)

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

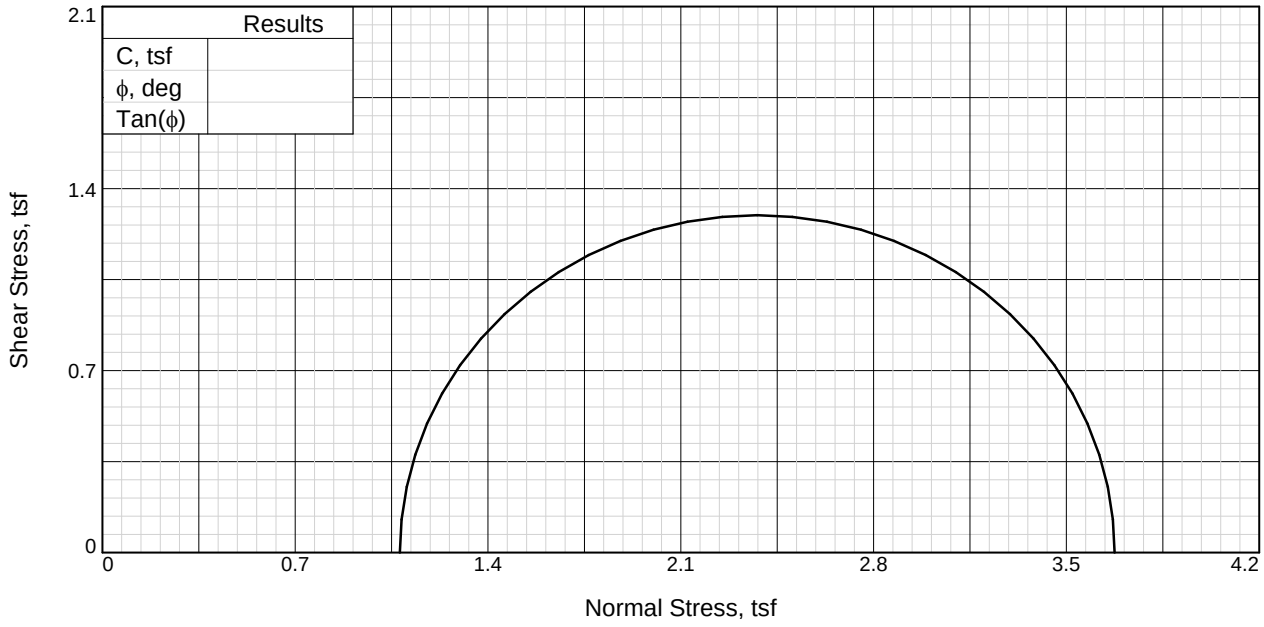
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-48 **Depth:** 17

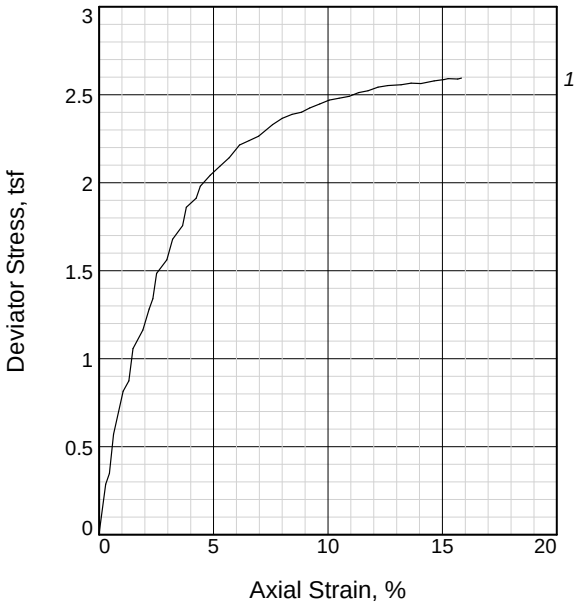
Proj. No.: S-2544-07 **Date Sampled:** 3/2/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	24.7
	Dry Density, pcf	100.0
	Saturation, %	97.5
	Void Ratio	0.6850
	Diameter, in.	2.71
	Height, in.	5.54
At Test	Water Content, %	24.7
	Dry Density, pcf	100.0
	Saturation, %	97.5
	Void Ratio	0.6850
	Diameter, in.	2.71
	Height, in.	5.54
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		1.08
Fail. Stress, tsf		2.60
Strain, %		15.8
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.68
σ_3 Failure, tsf		1.08

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 49 **PL=** 17 **PI=** 32
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-49 **Depth:** 18

Proj. No.: S-2544-07 **Date Sampled:** 3/2/07

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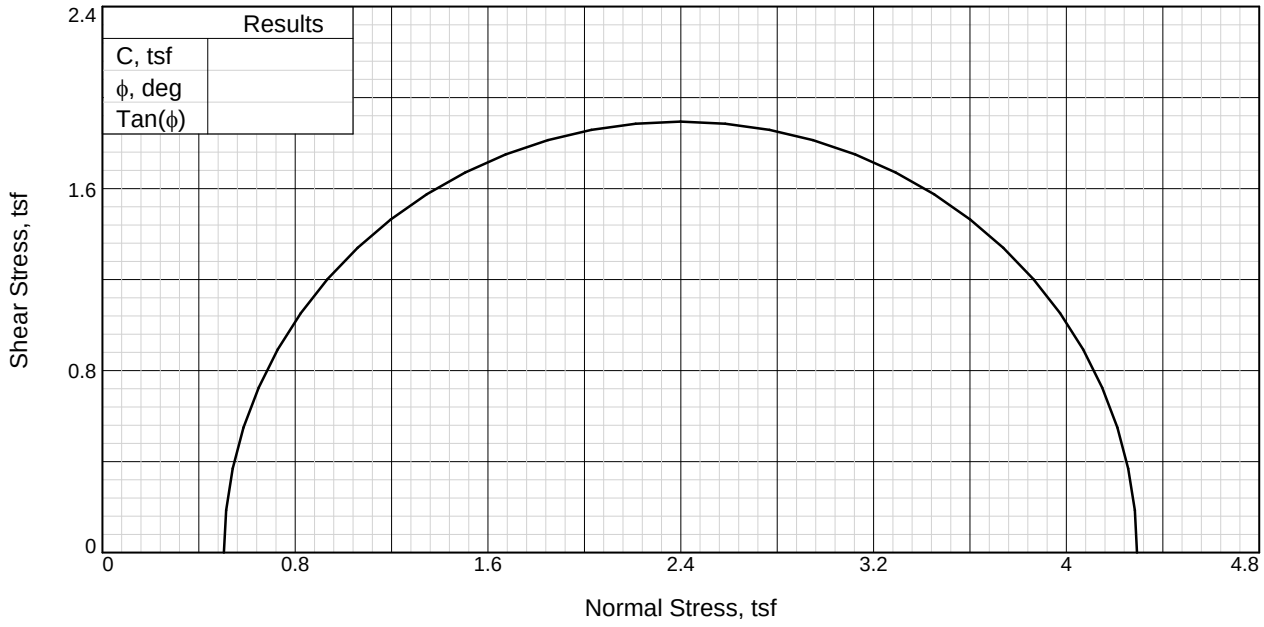
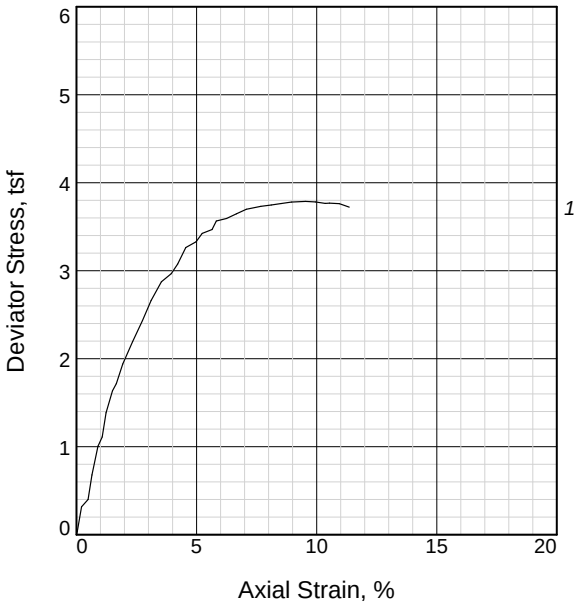
Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	21.4
	Dry Density, pcf	102.9
	Saturation, %	90.7
	Void Ratio	0.6383
	Diameter, in.	2.74
	Height, in.	5.60
At Test	Water Content, %	21.4
	Dry Density, pcf	102.9
	Saturation, %	90.7
	Void Ratio	0.6383
	Diameter, in.	2.74
	Height, in.	5.60
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		3.79
Strain, %		9.5
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.29
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-49 **Depth:** 8

Proj. No.: S-2544-07 **Date Sampled:** 3/2/07

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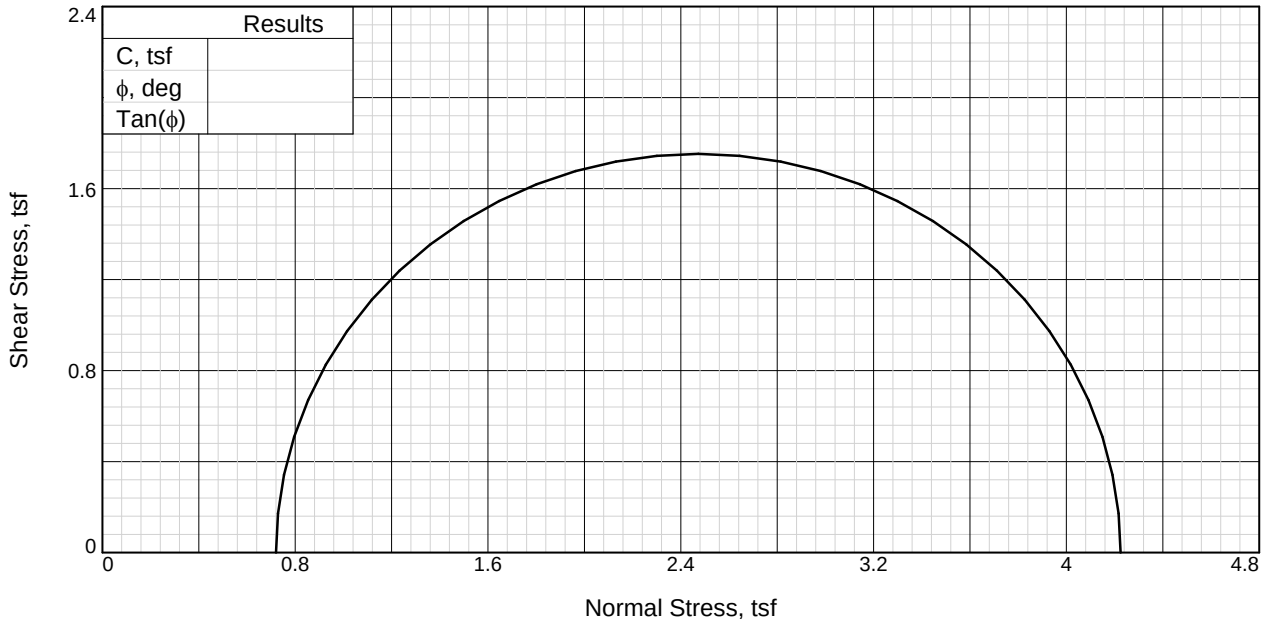
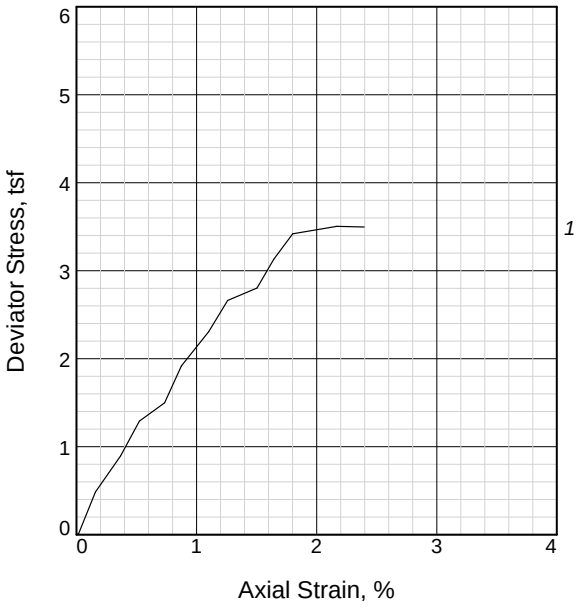
TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	20.5
	Dry Density, pcf	97.3
	Saturation, %	75.5
	Void Ratio	0.7328
	Diameter, in.	2.71
	Height, in.	5.72
At Test	Water Content, %	20.5
	Dry Density, pcf	97.3
	Saturation, %	75.5
	Void Ratio	0.7328
	Diameter, in.	2.71
	Height, in.	5.72
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		3.50
Strain, %		2.2
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.22
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 56 **PL=** 21 **PI=** 35
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-50 **Depth:** 14

Proj. No.: S-2544-07 **Date Sampled:** 3/3/07

TRIAXIAL SHEAR TEST REPORT

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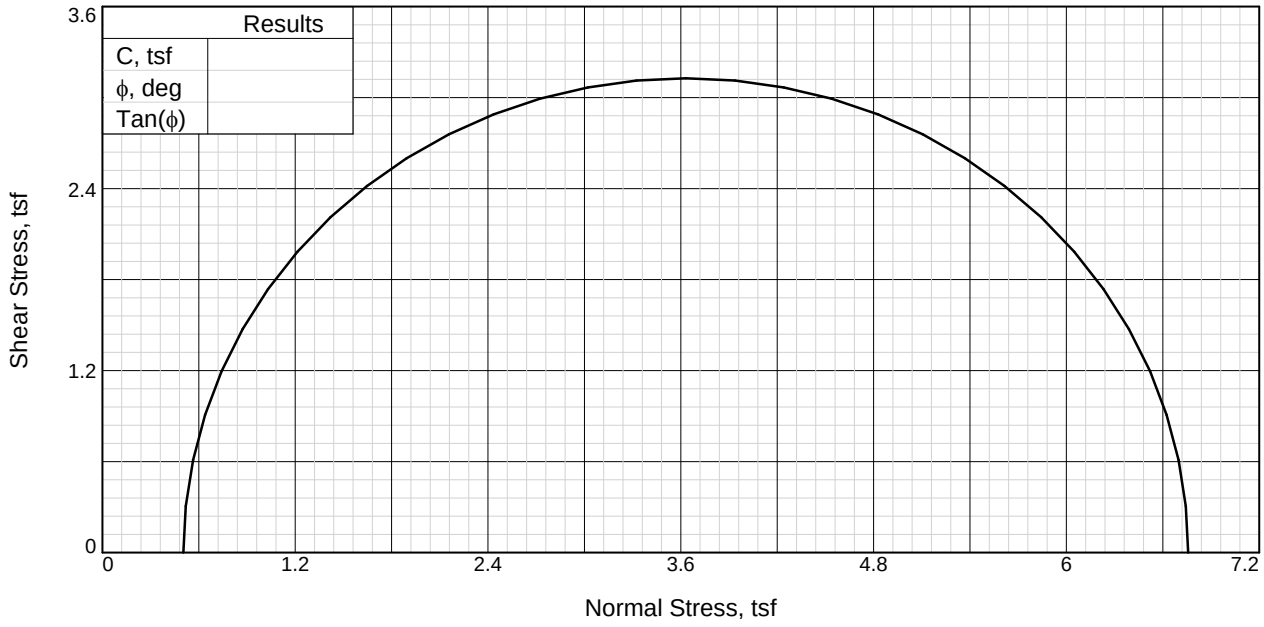
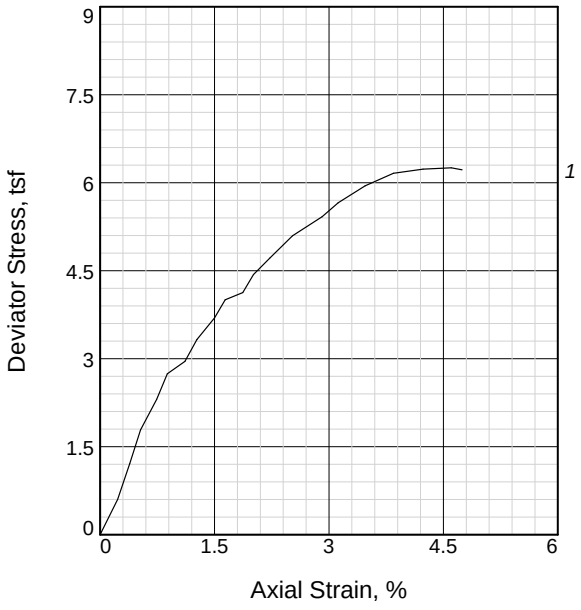
Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	21.8
	Dry Density, pcf	102.6
	Saturation, %	91.6
	Void Ratio	0.6420
	Diameter, in.	2.73
	Height, in.	5.67
At Test	Water Content, %	21.8
	Dry Density, pcf	102.6
	Saturation, %	91.6
	Void Ratio	0.6420
	Diameter, in.	2.73
	Height, in.	5.67
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		6.25
Strain, %		4.6
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		6.76
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 55 **PL=** 22 **PI=** 33
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-50 **Depth:** 8

Proj. No.: S-2544-07 **Date Sampled:** 3/3/07

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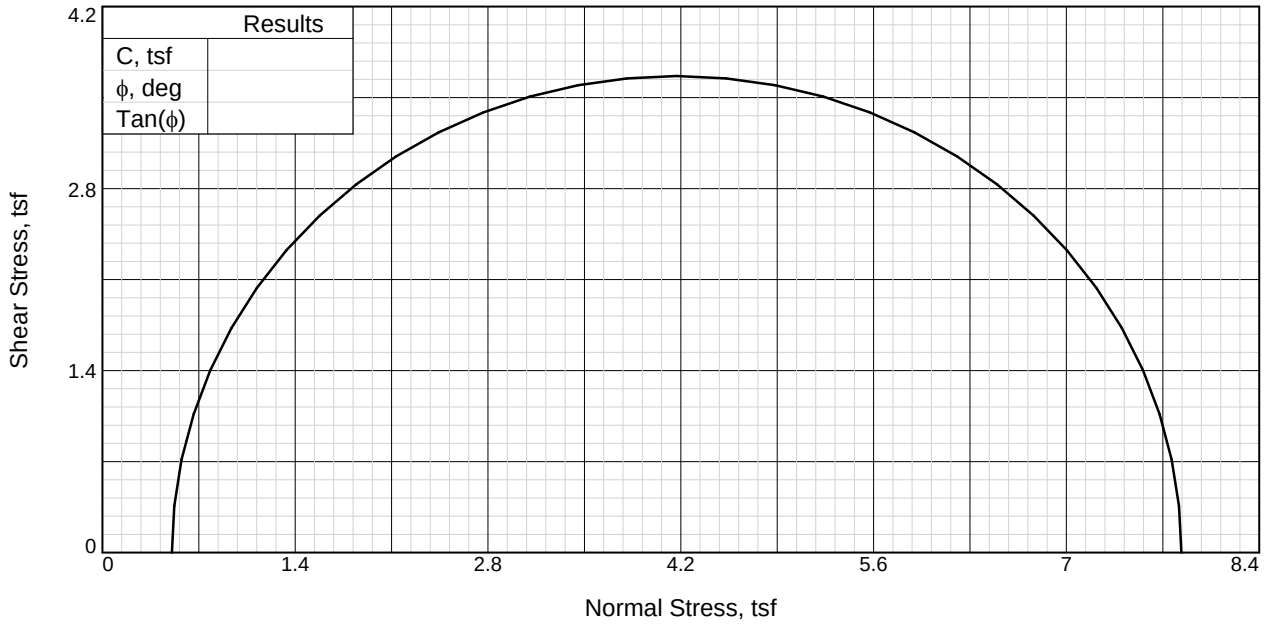
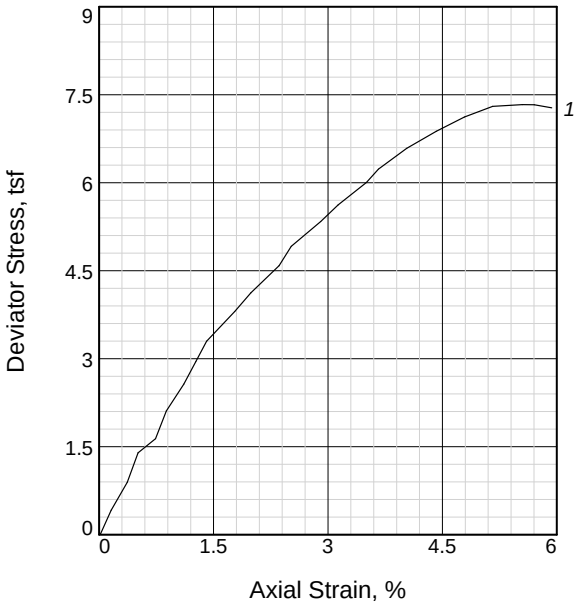
Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	16.8
	Dry Density, pcf	109.4
	Saturation, %	83.6
	Void Ratio	0.5414
	Diameter, in.	2.73
	Height, in.	5.68
At Test	Water Content, %	16.8
	Dry Density, pcf	109.4
	Saturation, %	83.6
	Void Ratio	0.5414
	Diameter, in.	2.73
	Height, in.	5.68
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		7.33
Strain, %		5.5
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		7.84
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 45 **PL=** 19 **PI=** 26
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-51 **Depth:** 8

Proj. No.: S-2544-07 **Date Sampled:** 3/3/07

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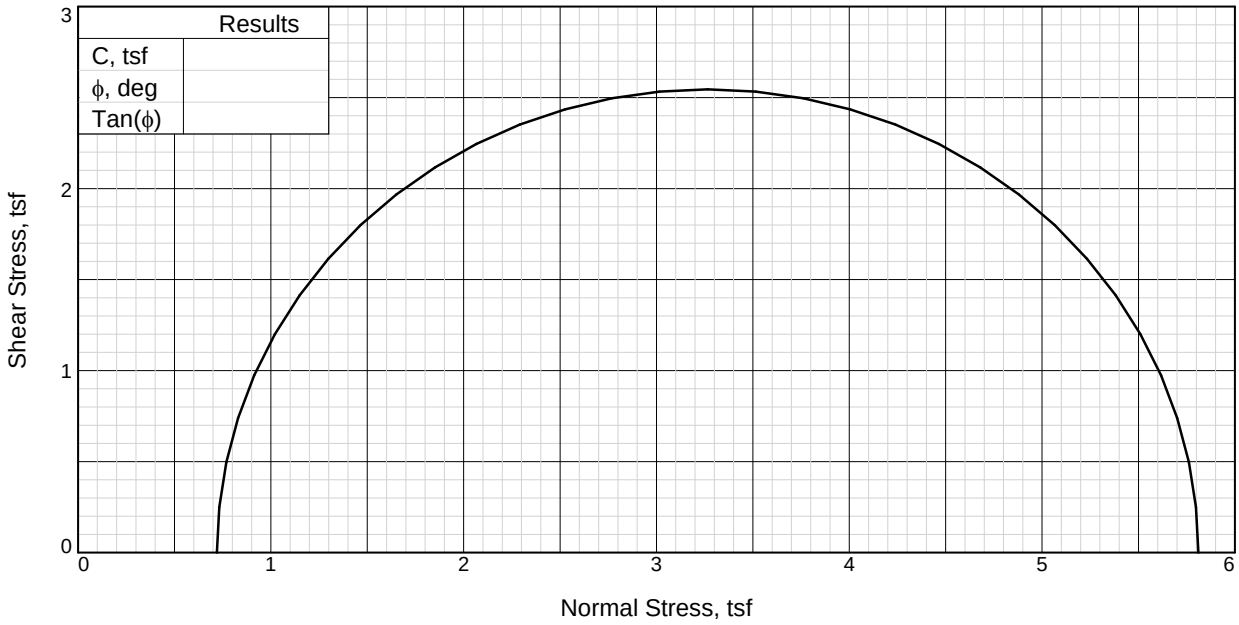
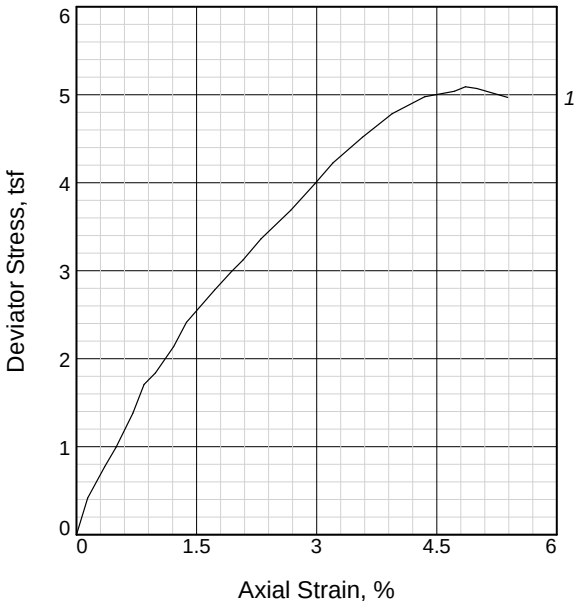
Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	17.9
	Dry Density, pcf	105.2
	Saturation, %	80.0
	Void Ratio	0.6023
	Diameter, in.	2.73
	Height, in.	5.68
At Test	Water Content, %	17.9
	Dry Density, pcf	105.2
	Saturation, %	80.0
	Void Ratio	0.6023
	Diameter, in.	2.73
	Height, in.	5.68
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		5.09
Strain, %		4.9
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		5.81
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-52 **Depth:** 13

Proj. No.: S-2544-07 **Date Sampled:** 3/3/07

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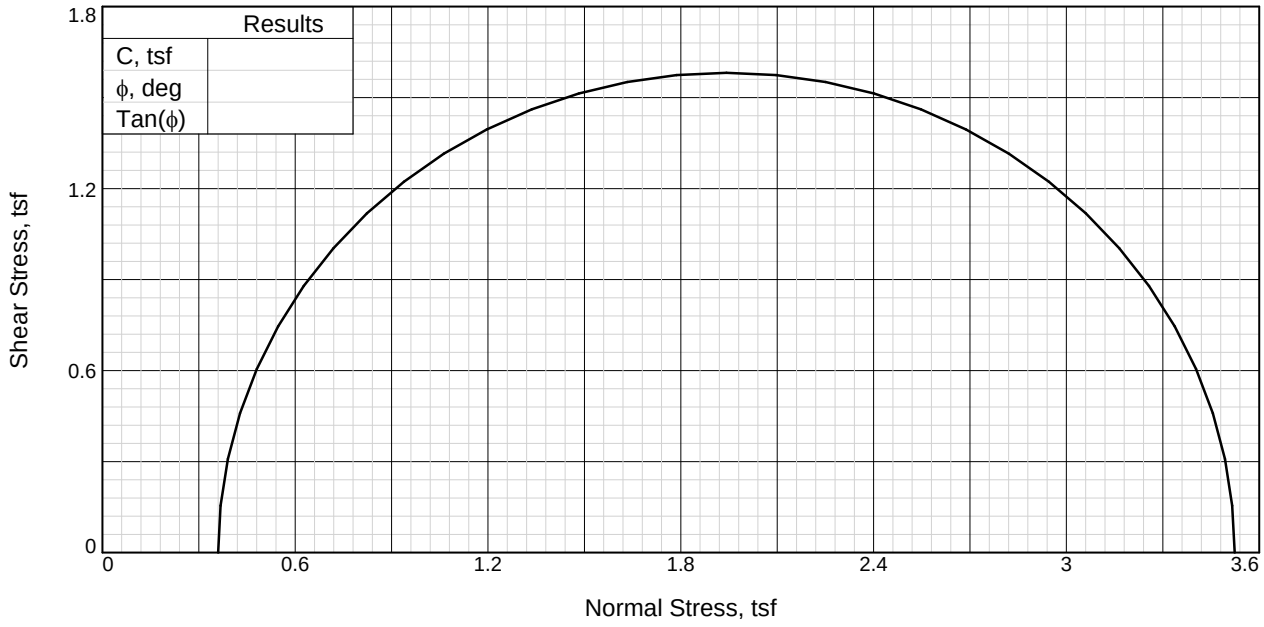
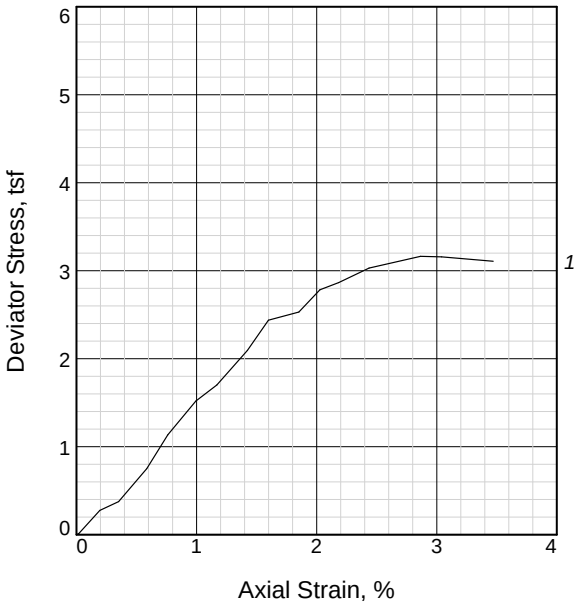
Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	18.2
	Dry Density, pcf	101.3
	Saturation, %	73.9
	Void Ratio	0.6635
	Diameter, in.	2.70
	Height, in.	5.13
At Test	Water Content, %	18.2
	Dry Density, pcf	101.3
	Saturation, %	73.9
	Void Ratio	0.6635
	Diameter, in.	2.70
	Height, in.	5.13
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.36
Fail. Stress, tsf		3.16
Strain, %		2.9
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.52
σ_3 Failure, tsf		0.36

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 46 **PL=** 18 **PI=** 28
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-52 **Depth:** 6

Proj. No.: S-2544-07 **Date Sampled:** 3/3/07

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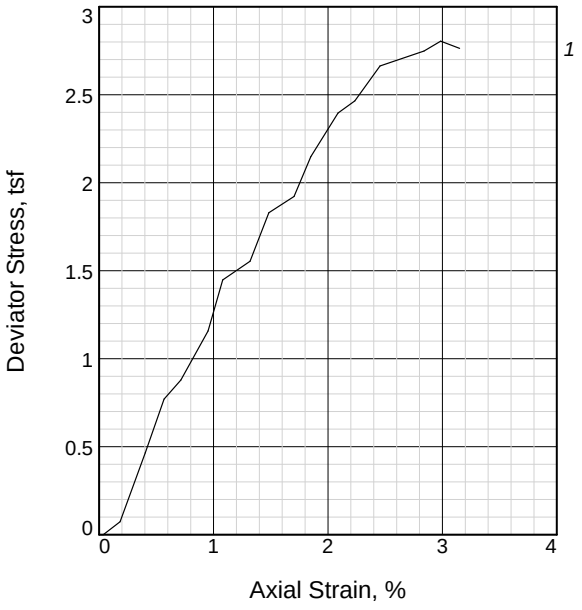
Tested By: MC **Checked By:** TP



Sample No.		1
Initial	Water Content, %	18.5
	Dry Density, pcf	103.0
	Saturation, %	78.7
	Void Ratio	0.6357
	Diameter, in.	2.73
	Height, in.	5.46
At Test	Water Content, %	18.5
	Dry Density, pcf	103.0
	Saturation, %	78.7
	Void Ratio	0.6357
	Diameter, in.	2.73
	Height, in.	5.46
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		2.80
Strain, %		3.0
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.31
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-53 **Depth:** 8

Proj. No.: S-2544-07 **Date Sampled:** 3/3/07

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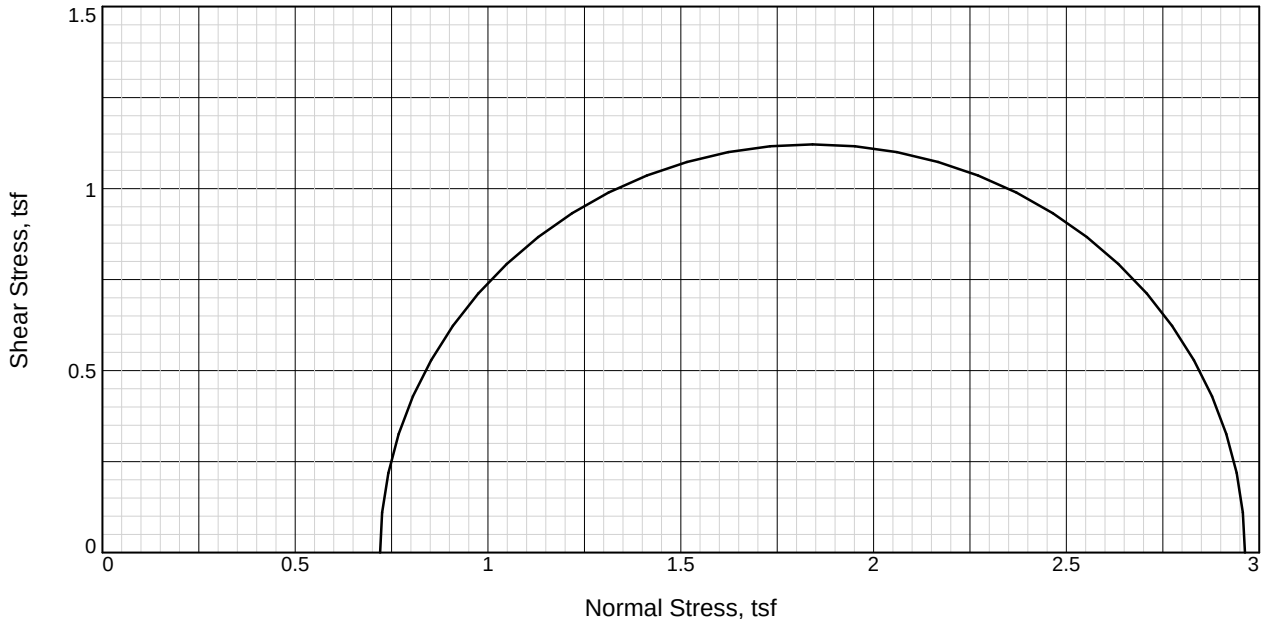
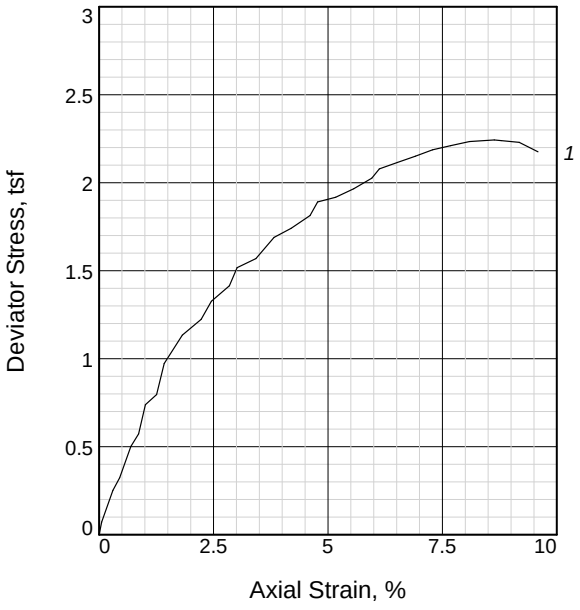
TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	24.8
	Dry Density, pcf	98.1
	Saturation, %	93.2
	Void Ratio	0.7178
	Diameter, in.	2.76
	Height, in.	5.34
At Test	Water Content, %	24.8
	Dry Density, pcf	98.1
	Saturation, %	93.2
	Void Ratio	0.7178
	Diameter, in.	2.76
	Height, in.	5.34
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		2.24
Strain, %		8.6
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		2.96
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

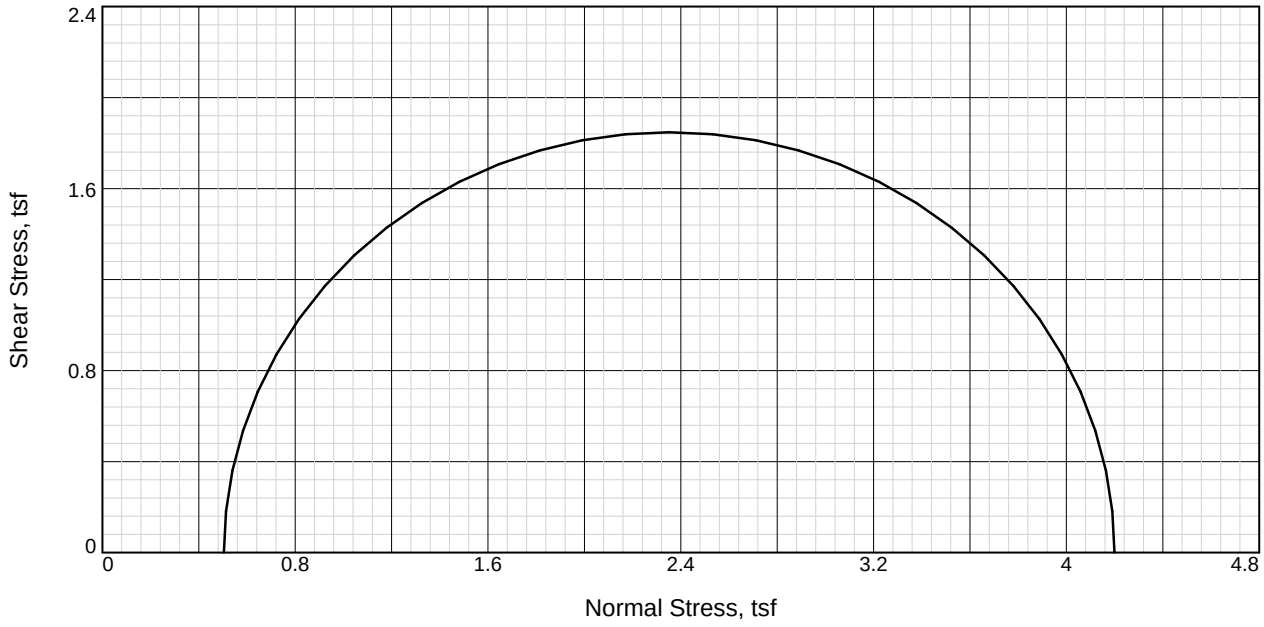
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-54 **Depth:** 15

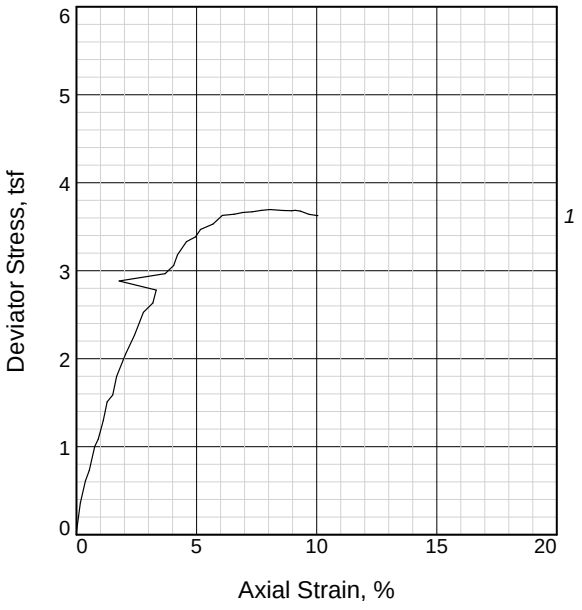
Proj. No.: S-2544-07 **Date Sampled:** 3/3/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	20.8
	Dry Density, pcf	102.3
	Saturation, %	86.9
	Void Ratio	0.6469
	Diameter, in.	2.76
	Height, in.	5.63
At Test	Water Content, %	20.8
	Dry Density, pcf	102.3
	Saturation, %	86.9
	Void Ratio	0.6469
	Diameter, in.	2.76
	Height, in.	5.63
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		3.70
Strain, %		8.1
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.20
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

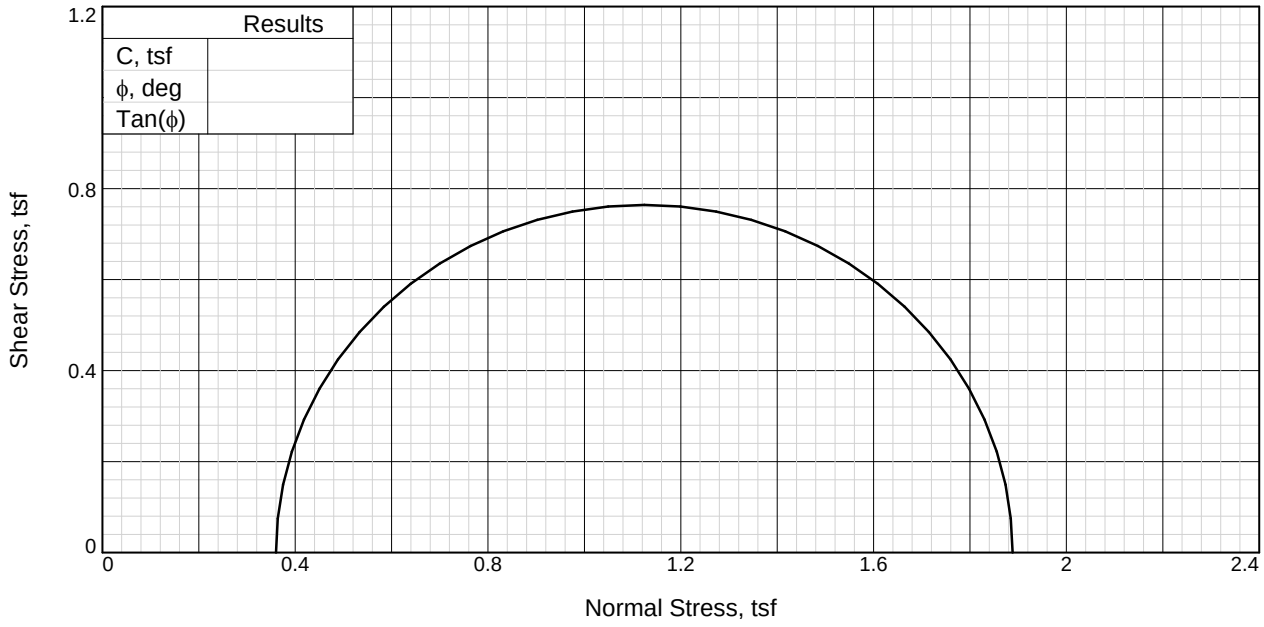
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-54 **Depth:** 8

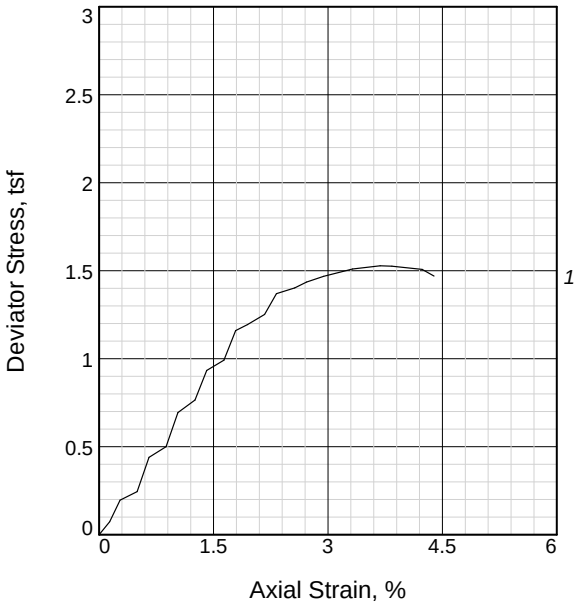
Proj. No.: S-2544-07 **Date Sampled:** 3/3/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	21.8
	Dry Density, pcf	95.5
	Saturation, %	76.8
	Void Ratio	0.7644
	Diameter, in.	2.73
	Height, in.	5.81
At Test	Water Content, %	21.8
	Dry Density, pcf	95.5
	Saturation, %	76.8
	Void Ratio	0.7644
	Diameter, in.	2.73
	Height, in.	5.81
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.36
Fail. Stress, tsf		1.53
Strain, %		3.7
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		1.89
σ_3 Failure, tsf		0.36

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-55 **Depth:** 6

Proj. No.: S-2544-07 **Date Sampled:** 3/3/07

TRIAXIAL SHEAR TEST REPORT

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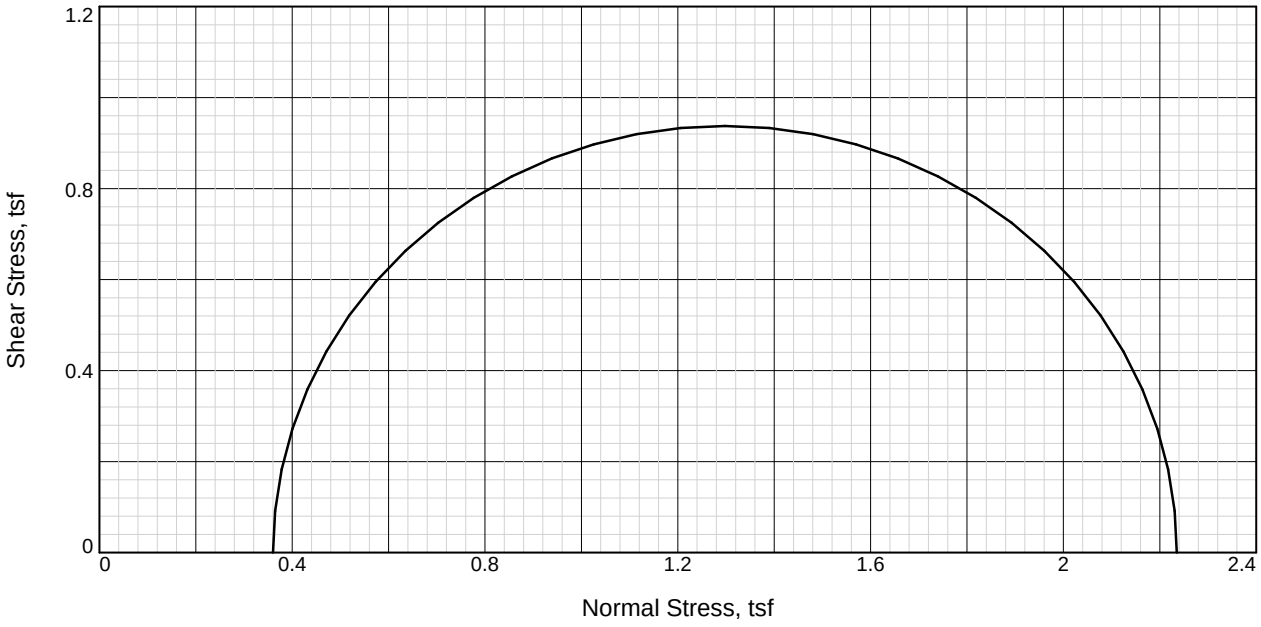
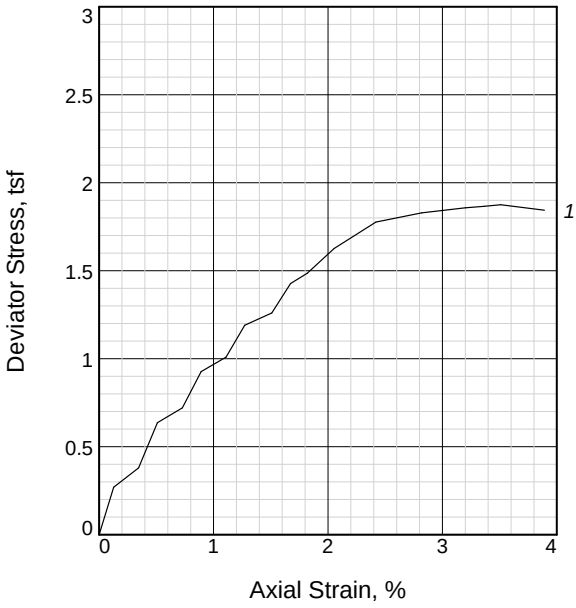
Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	22.2
	Dry Density, pcf	95.5
	Saturation, %	78.3
	Void Ratio	0.7651
	Diameter, in.	2.73
	Height, in.	5.50
At Test	Water Content, %	22.2
	Dry Density, pcf	95.5
	Saturation, %	78.3
	Void Ratio	0.7651
	Diameter, in.	2.73
	Height, in.	5.50
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.36
Fail. Stress, tsf		1.88
Strain, %		3.5
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		2.24
σ_3 Failure, tsf		0.36

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 50 **PL=** 19 **PI=** 31
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

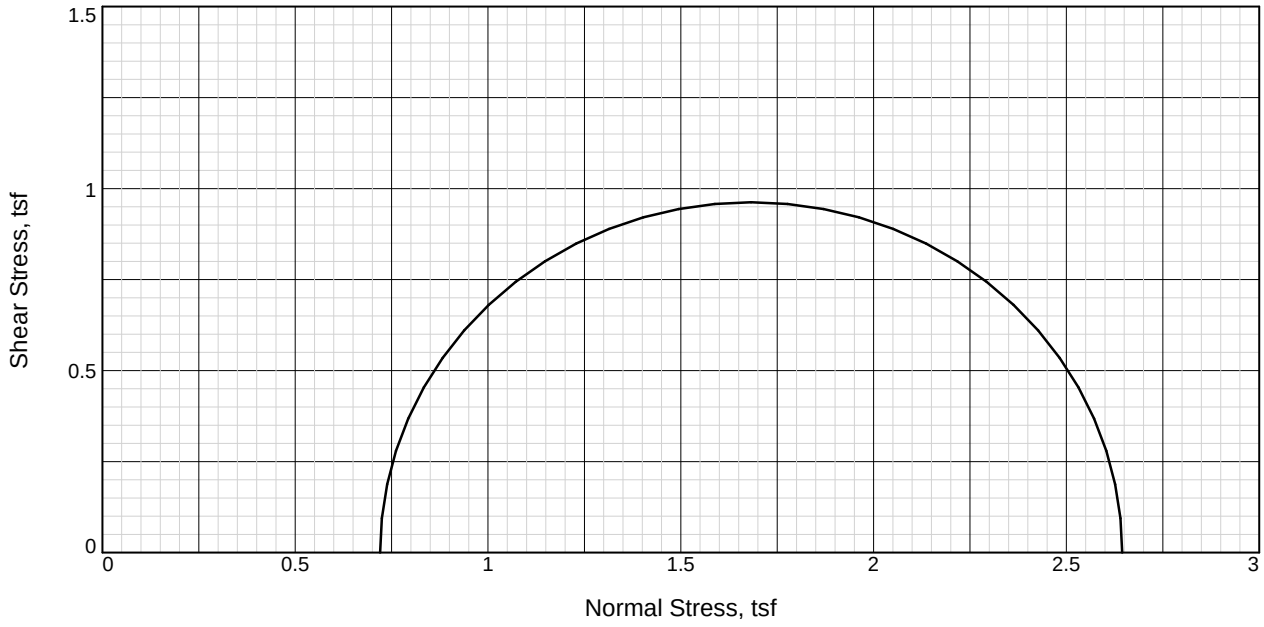
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-56 **Depth:** 6

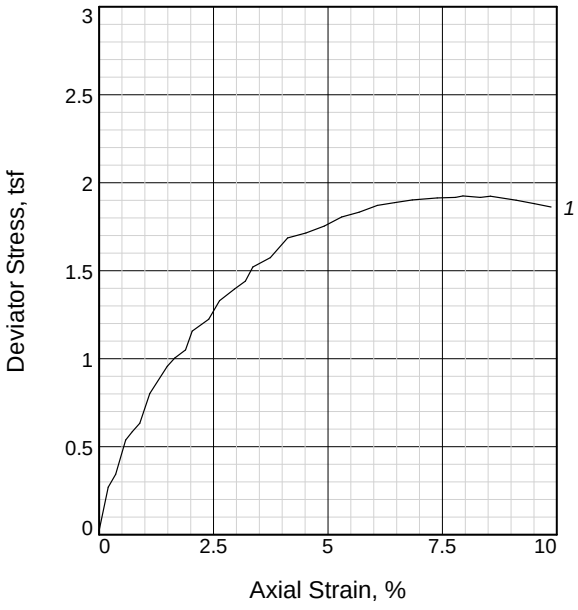
Proj. No.: S-2544-07 **Date Sampled:** 3/3/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	23.8
	Dry Density, pcf	102.2
	Saturation, %	99.0
	Void Ratio	0.6491
	Diameter, in.	2.73
	Height, in.	5.51
At Test	Water Content, %	23.8
	Dry Density, pcf	102.2
	Saturation, %	99.0
	Void Ratio	0.6491
	Diameter, in.	2.73
	Height, in.	5.51
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		1.92
Strain, %		7.9
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		2.64
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 46 **PL=** 19 **PI=** 27
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

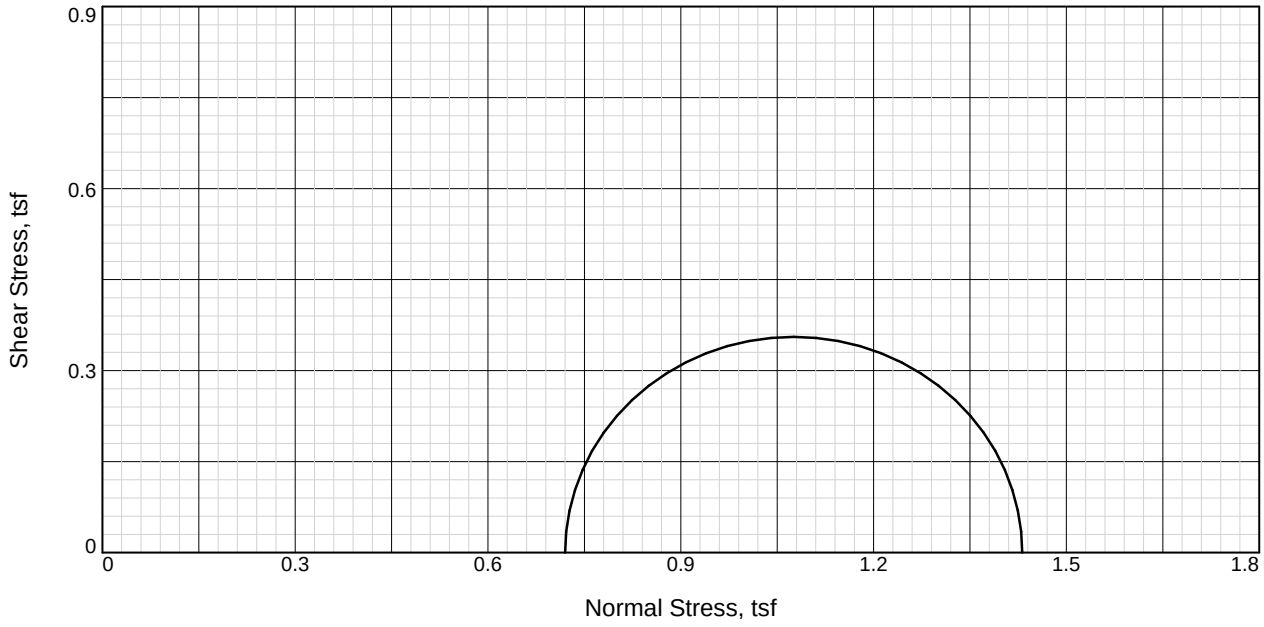
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-57 **Depth:** 15

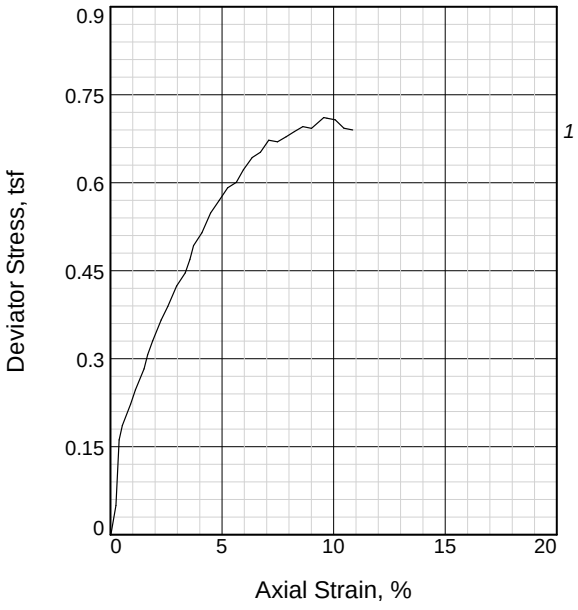
Proj. No.: S-2544-07 **Date Sampled:** 3/3/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	25.6
	Dry Density, pcf	96.3
	Saturation, %	92.0
	Void Ratio	0.7505
	Diameter, in.	2.71
	Height, in.	5.64
At Test	Water Content, %	25.6
	Dry Density, pcf	96.3
	Saturation, %	92.0
	Void Ratio	0.7505
	Diameter, in.	2.71
	Height, in.	5.64
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		0.71
Strain, %		9.6
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		1.43
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: - Lean, brown (CL)
Moist

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

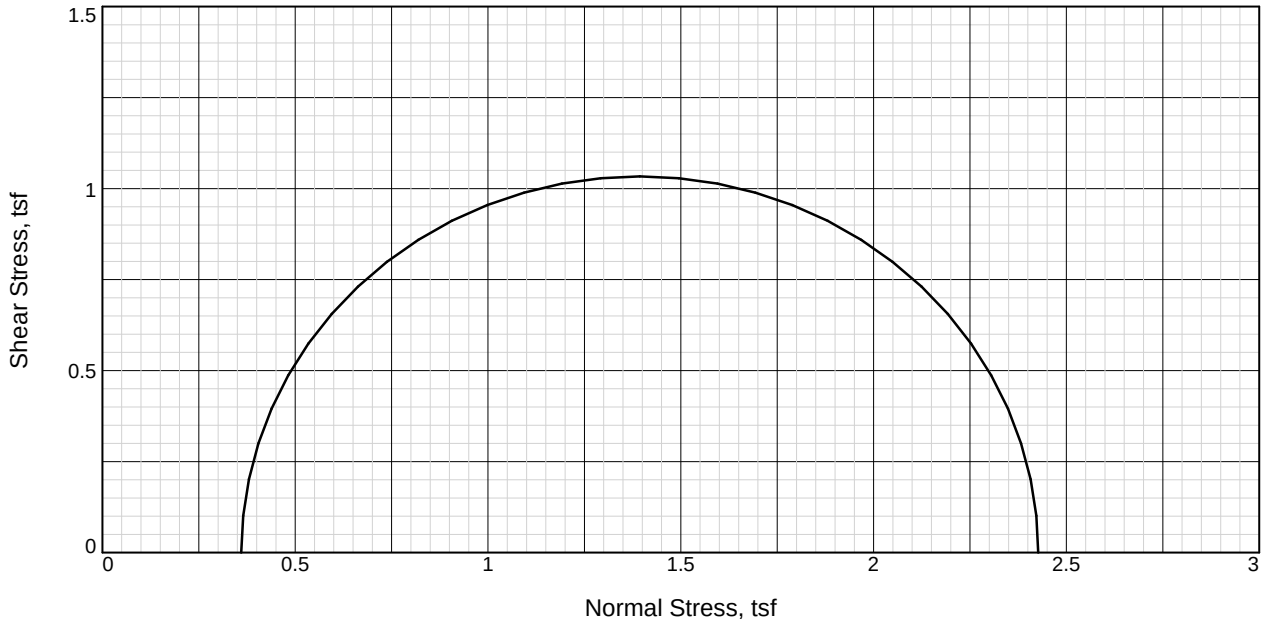
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-58 **Depth:** 13

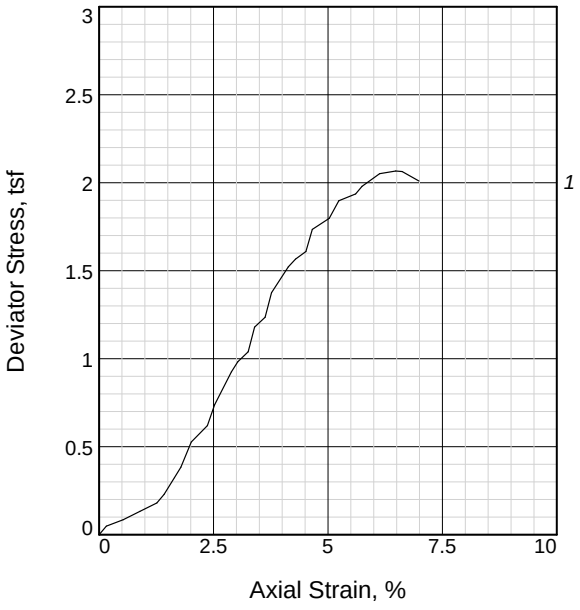
Proj. No.: S-2544-07 **Date Sampled:** 3/3/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	26.4
	Dry Density, pcf	94.6
	Saturation, %	91.2
	Void Ratio	0.7816
	Diameter, in.	2.74
	Height, in.	5.71
At Test	Water Content, %	26.4
	Dry Density, pcf	94.6
	Saturation, %	91.2
	Void Ratio	0.7816
	Diameter, in.	2.74
	Height, in.	5.71
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.36
Fail. Stress, tsf		2.07
Strain, %		6.5
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		2.43
σ_3 Failure, tsf		0.36

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: Moist

LL= 49 **PL=** 19 **PI=** 30
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

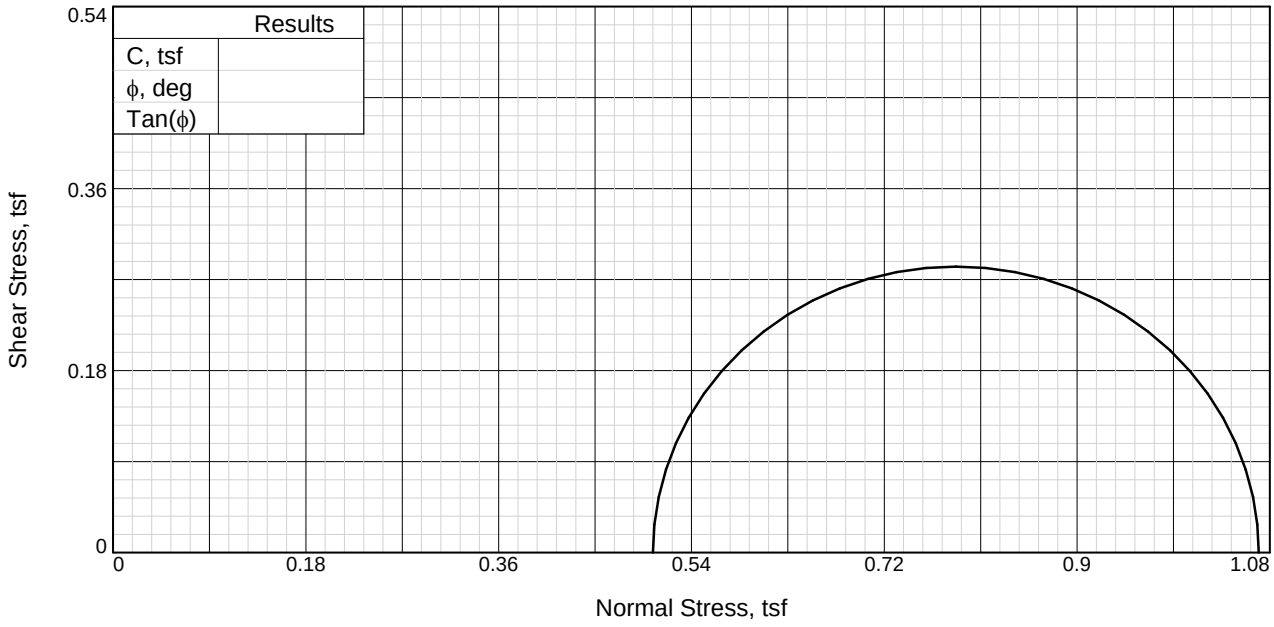
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-60 **Depth:** 6

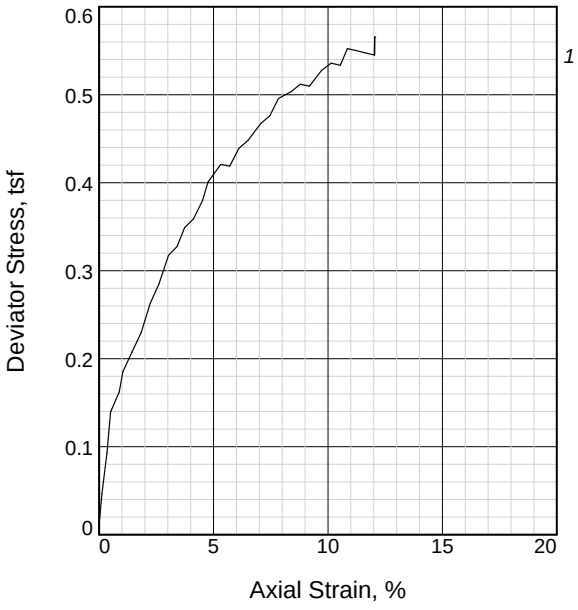
Proj. No.: S-2544-07 **Date Sampled:** 3/3/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	24.4
	Dry Density, pcf	95.6
	Saturation, %	86.2
	Void Ratio	0.7635
	Diameter, in.	2.80
	Height, in.	5.78
At Test	Water Content, %	24.4
	Dry Density, pcf	95.6
	Saturation, %	86.2
	Void Ratio	0.7635
	Diameter, in.	2.80
	Height, in.	5.78
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		0.57
Strain, %		12.0
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		1.07
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-64 **Depth:** 8

Proj. No.: S-2544-07 **Date Sampled:** 3/3/07

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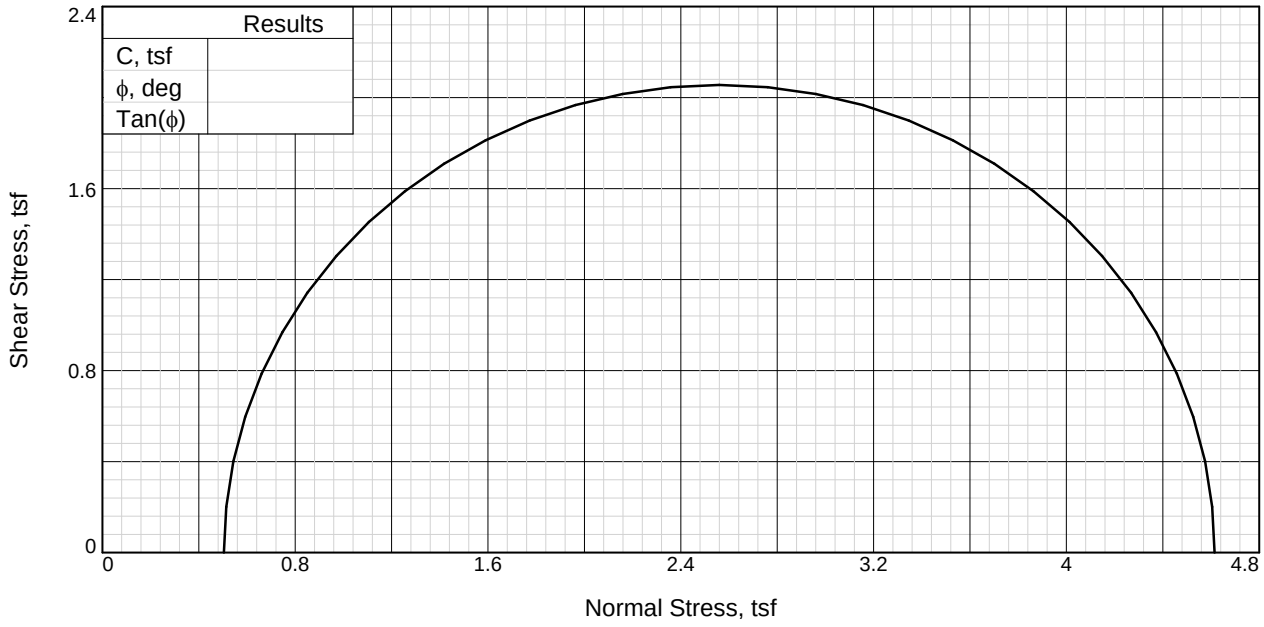
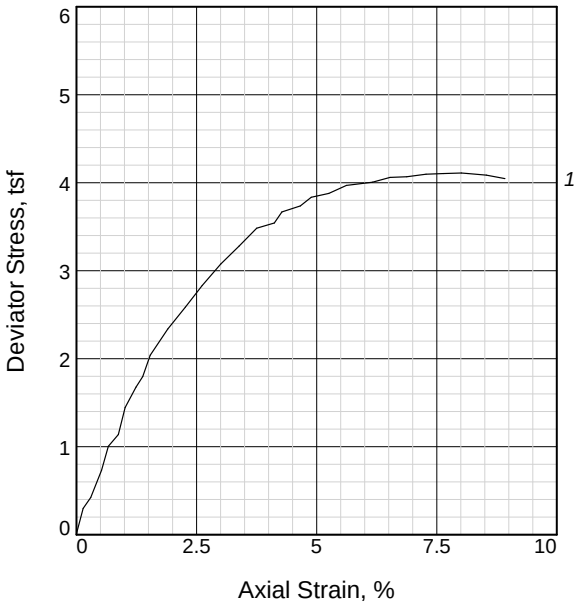
TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	22.7
	Dry Density, pcf	103.3
	Saturation, %	97.0
	Void Ratio	0.6310
	Diameter, in.	2.71
	Height, in.	5.73
At Test	Water Content, %	22.7
	Dry Density, pcf	103.3
	Saturation, %	97.0
	Void Ratio	0.6310
	Diameter, in.	2.71
	Height, in.	5.73
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		4.11
Strain, %		8.0
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.61
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: CLAY - Lean, brown (CL)

LL= 44 **PL=** 18 **PI=** 26
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-66 **Depth:** 10

Proj. No.: S-2544-07 **Date Sampled:** 3/5/07

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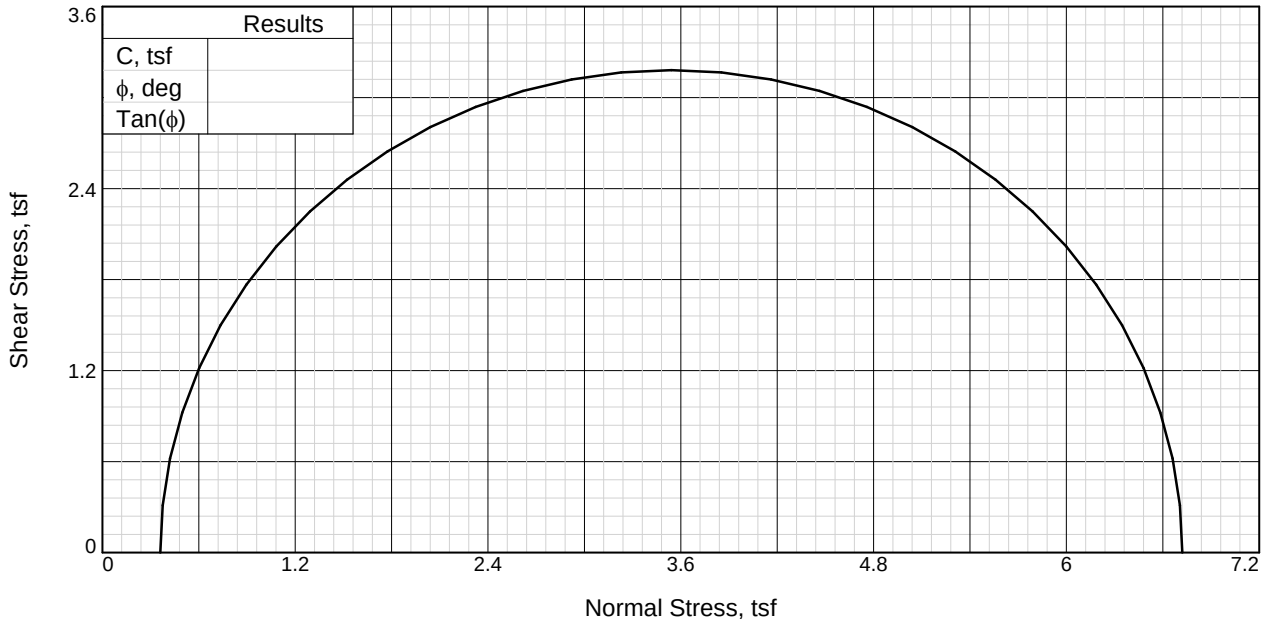
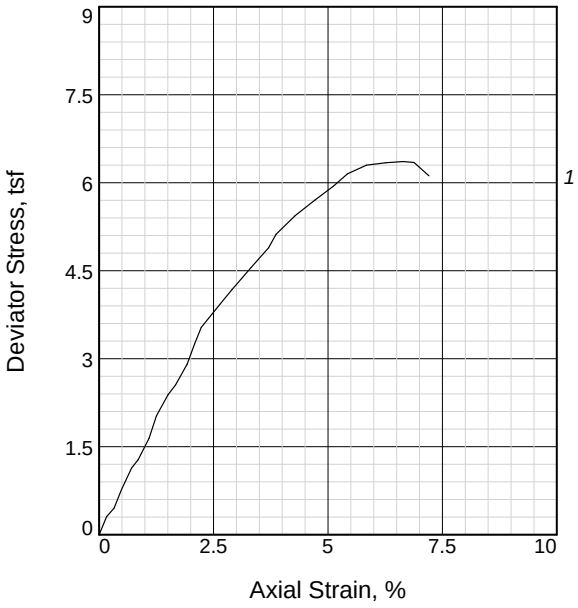
Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	22.5
	Dry Density, pcf	103.0
	Saturation, %	95.5
	Void Ratio	0.6369
	Diameter, in.	2.73
	Height, in.	5.51
At Test	Water Content, %	22.5
	Dry Density, pcf	103.0
	Saturation, %	95.5
	Void Ratio	0.6369
	Diameter, in.	2.73
	Height, in.	5.51
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.36
Fail. Stress, tsf		6.36
Strain, %		6.6
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		6.72
σ_3 Failure, tsf		0.36

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-66 **Depth:** 6

Proj. No.: S-2544-07 **Date Sampled:** 3/5/07

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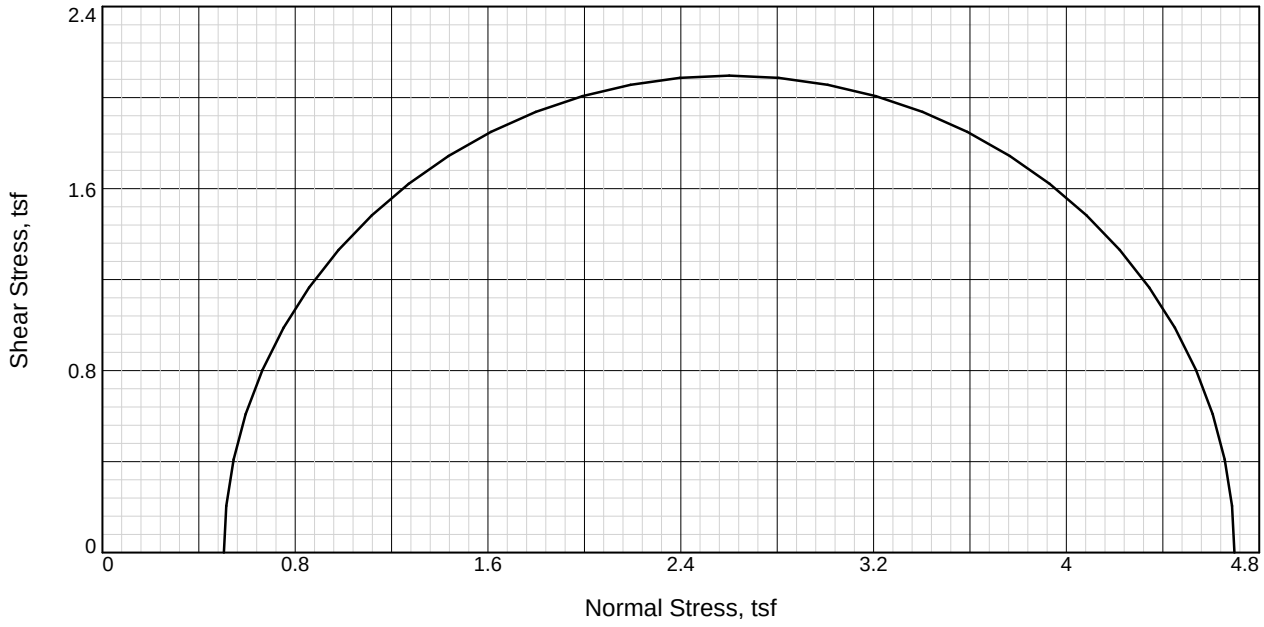
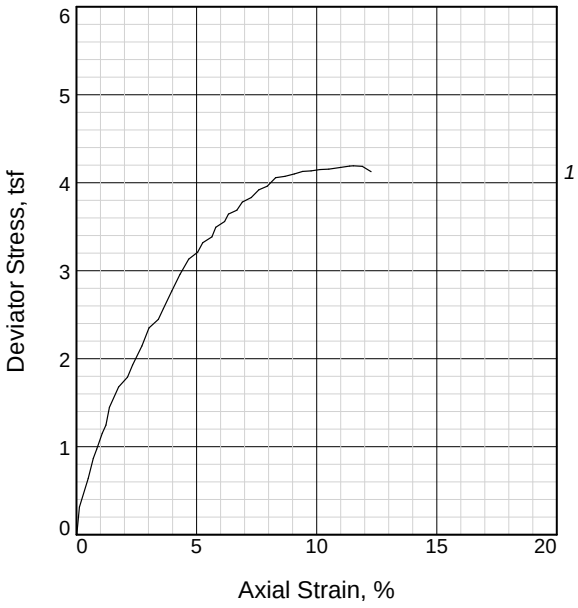
TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	20.4
	Dry Density, pcf	105.6
	Saturation, %	92.7
	Void Ratio	0.5957
	Diameter, in.	2.75
	Height, in.	5.69
At Test	Water Content, %	20.4
	Dry Density, pcf	105.6
	Saturation, %	92.7
	Void Ratio	0.5957
	Diameter, in.	2.75
	Height, in.	5.69
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		4.19
Strain, %		11.5
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.70
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

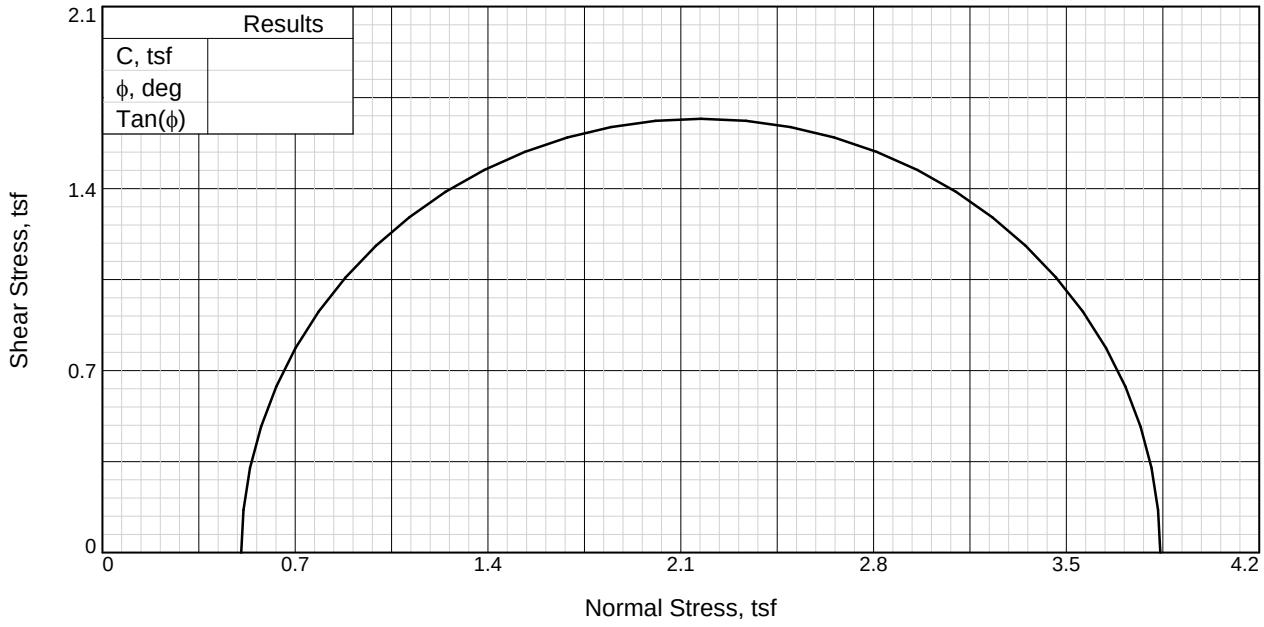
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-67 **Depth:** 8

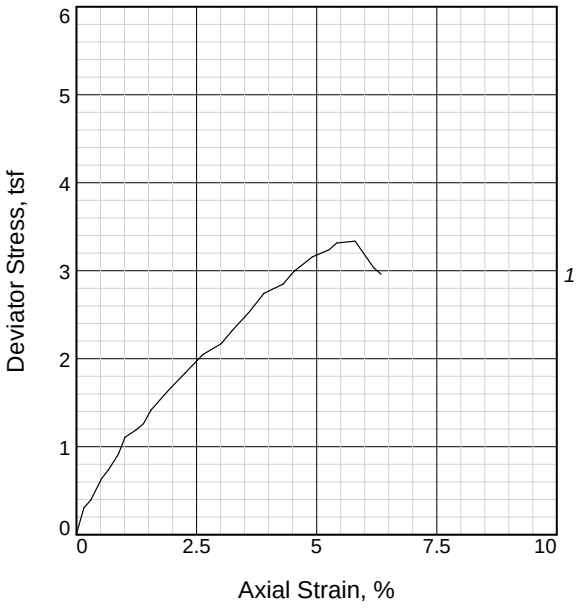
Proj. No.: S-2544-07 **Date Sampled:** 3/5/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	20.0
	Dry Density, pcf	104.0
	Saturation, %	86.9
	Void Ratio	0.6200
	Diameter, in.	2.73
	Height, in.	5.74
At Test	Water Content, %	20.0
	Dry Density, pcf	104.0
	Saturation, %	86.9
	Void Ratio	0.6200
	Diameter, in.	2.73
	Height, in.	5.74
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		3.34
Strain, %		5.8
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.84
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

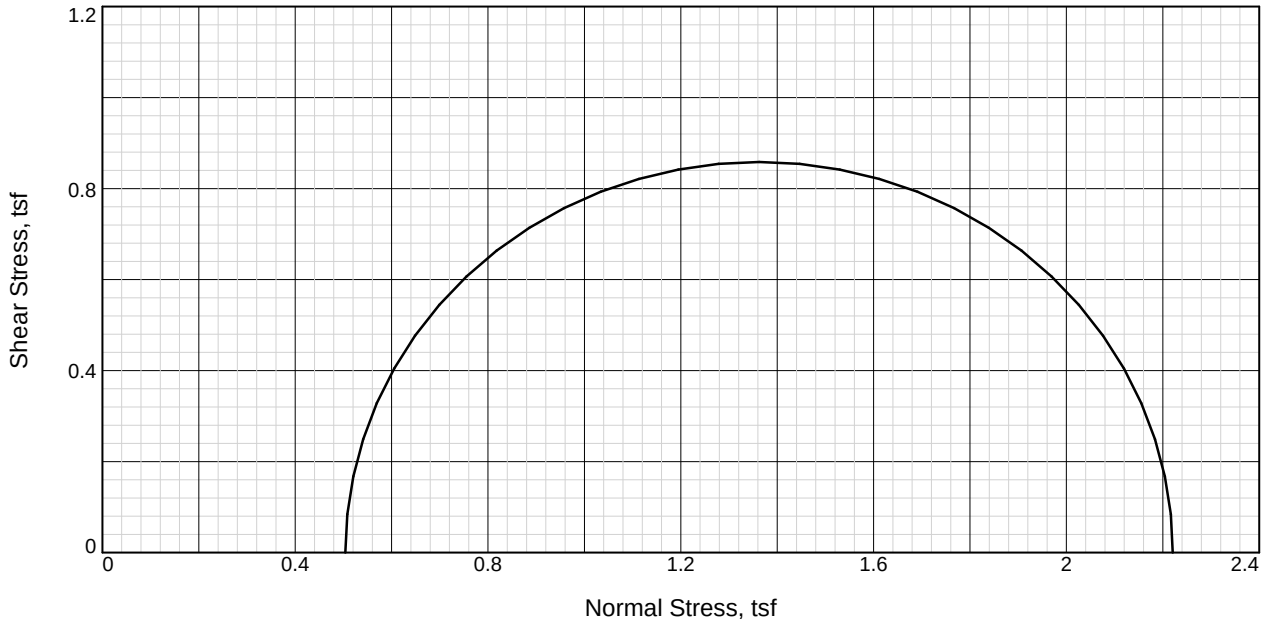
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-72 **Depth:** 11

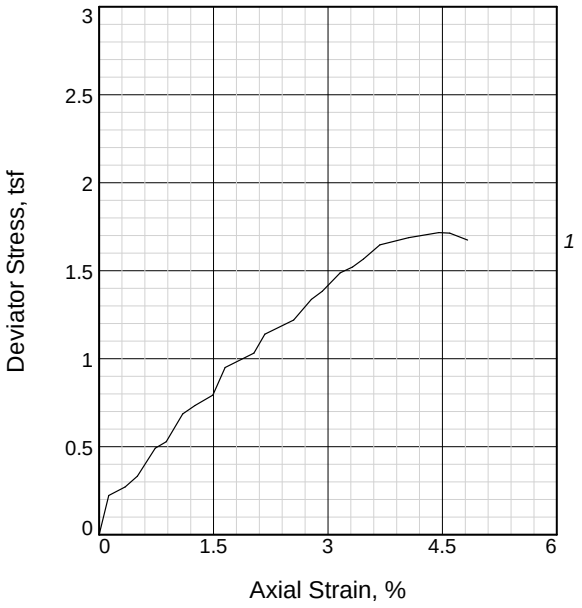
Proj. No.: S-2544-07 **Date Sampled:** 3/5/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	20.3
	Dry Density, pcf	96.4
	Saturation, %	73.2
	Void Ratio	0.7477
	Diameter, in.	2.72
	Height, in.	5.57
At Test	Water Content, %	20.3
	Dry Density, pcf	96.4
	Saturation, %	73.2
	Void Ratio	0.7477
	Diameter, in.	2.72
	Height, in.	5.57
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		1.72
Strain, %		4.5
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		2.22
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

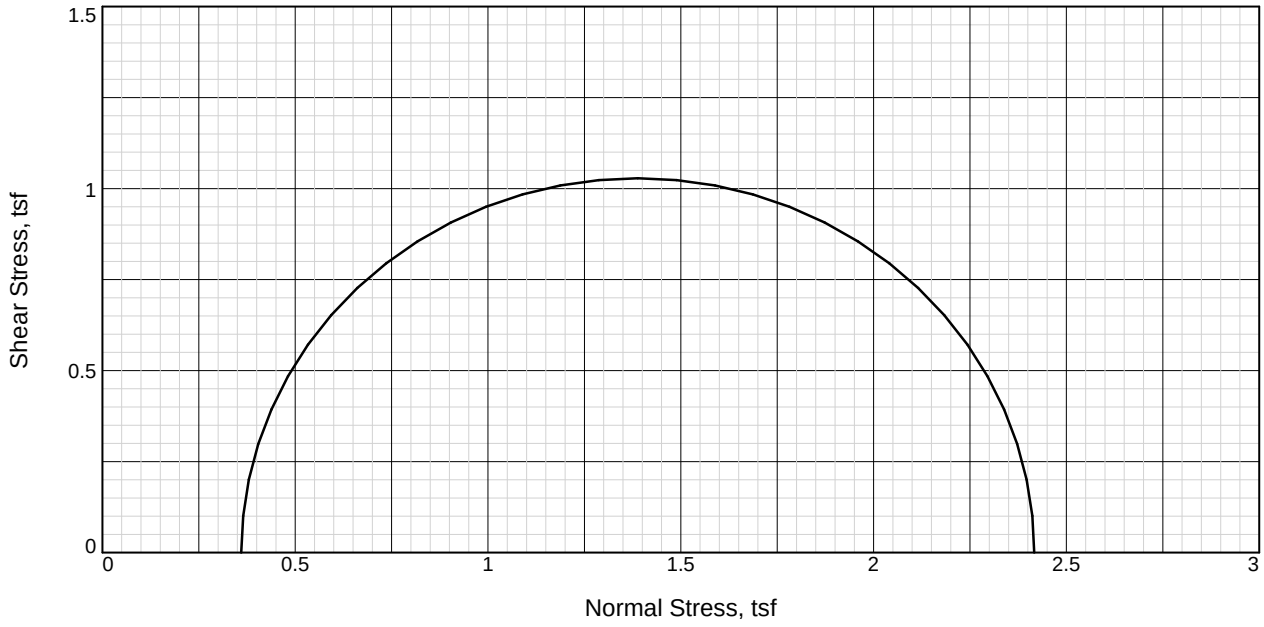
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-73 **Depth:** 11

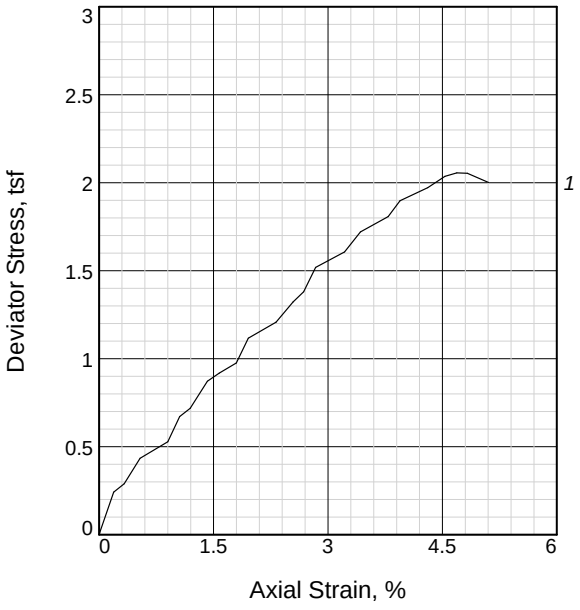
Proj. No.: S-2544-07 **Date Sampled:** 3/5/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	23.4
	Dry Density, pcf	97.0
	Saturation, %	85.6
	Void Ratio	0.7382
	Diameter, in.	2.75
	Height, in.	5.78
At Test	Water Content, %	23.4
	Dry Density, pcf	97.0
	Saturation, %	85.6
	Void Ratio	0.7382
	Diameter, in.	2.75
	Height, in.	5.78
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.36
Fail. Stress, tsf		2.06
Strain, %		4.7
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		2.42
σ_3 Failure, tsf		0.36

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 44 **PL=** 19 **PI=** 25
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-73 **Depth:** 6

Proj. No.: S-2544-07 **Date Sampled:** 3/5/07

TRIAXIAL SHEAR TEST REPORT

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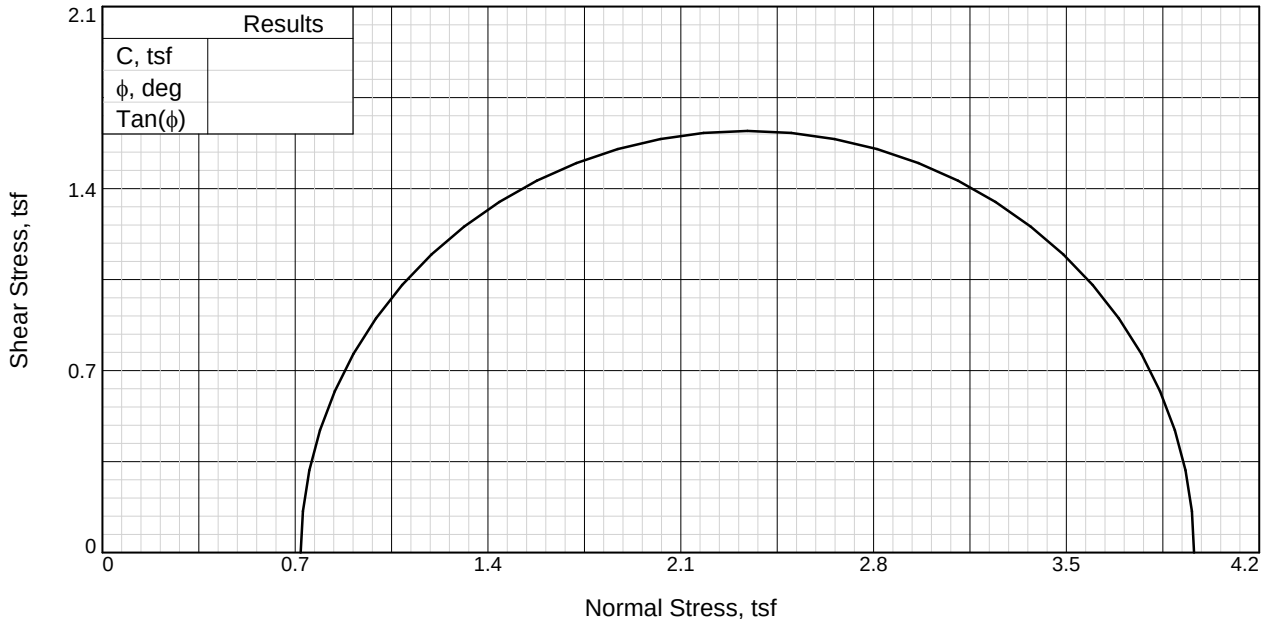
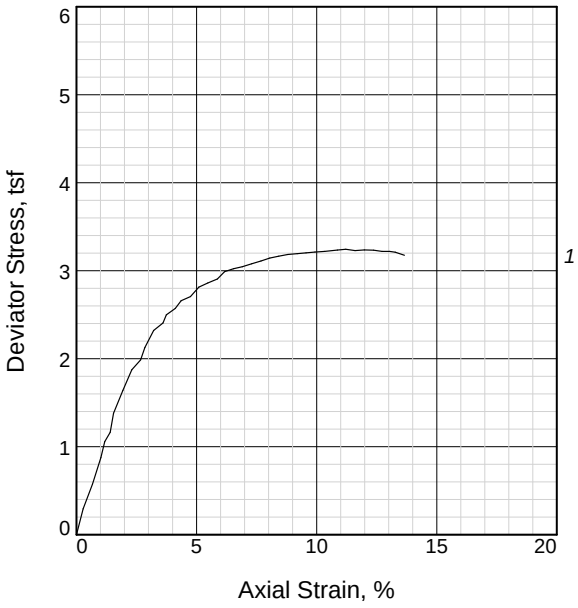
Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	26.8
	Dry Density, pcf	97.4
	Saturation, %	99.0
	Void Ratio	0.7297
	Diameter, in.	2.73
	Height, in.	5.69
At Test	Water Content, %	26.8
	Dry Density, pcf	97.4
	Saturation, %	99.0
	Void Ratio	0.7297
	Diameter, in.	2.73
	Height, in.	5.69
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		3.24
Strain, %		11.2
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.96
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-74 **Depth:** 13

Proj. No.: S-2544-07 **Date Sampled:** 3/5/07

TRIAXIAL SHEAR TEST REPORT

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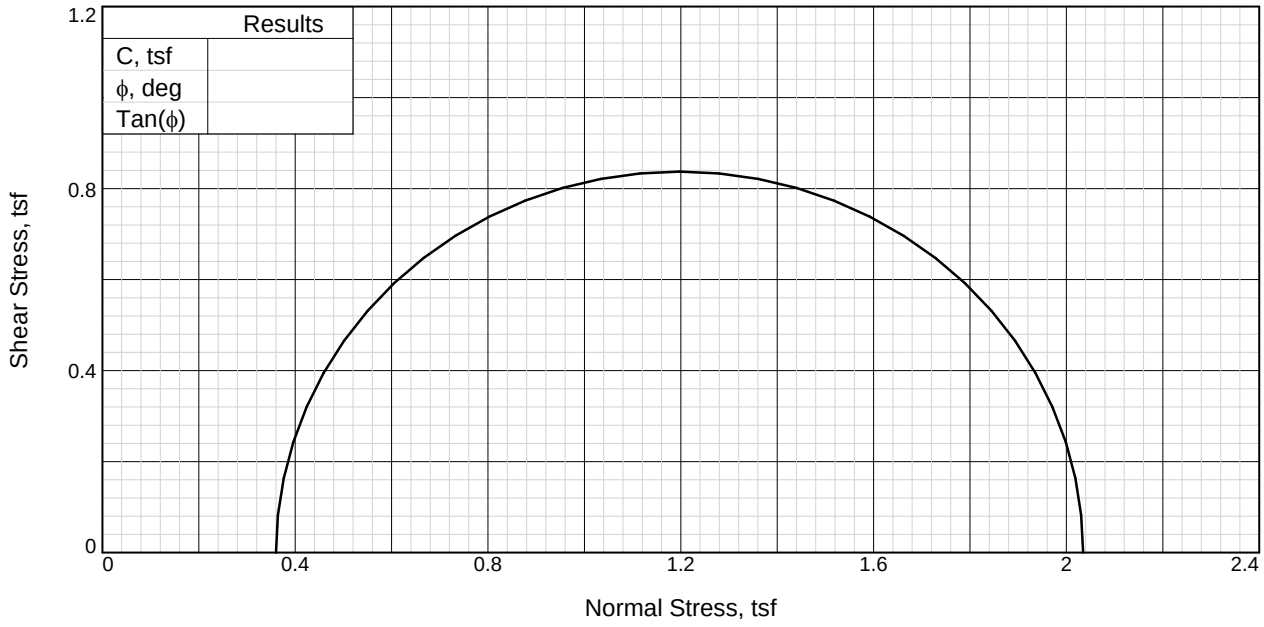
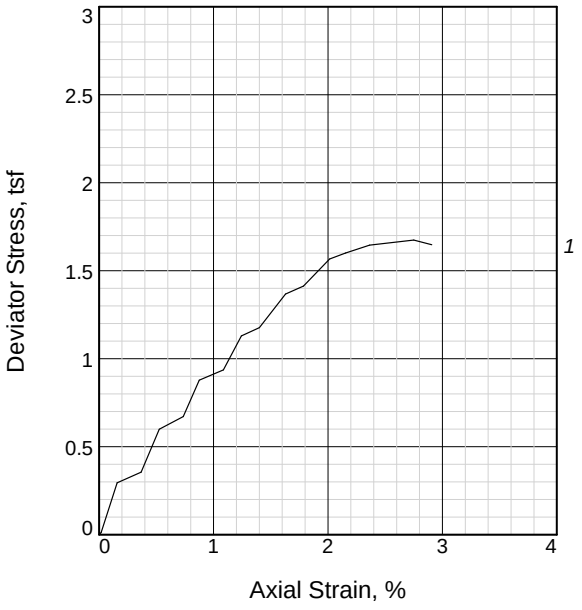
Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	20.3
	Dry Density, pcf	95.2
	Saturation, %	71.3
	Void Ratio	0.7703
	Diameter, in.	2.73
	Height, in.	5.71
At Test	Water Content, %	20.3
	Dry Density, pcf	95.2
	Saturation, %	71.3
	Void Ratio	0.7703
	Diameter, in.	2.73
	Height, in.	5.71
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.36
Fail. Stress, tsf		1.67
Strain, %		2.7
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		2.03
σ_3 Failure, tsf		0.36

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: CLAY - Fat, brown (CH)

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-74 **Depth:** 6

Proj. No.: S-2544-07 **Date Sampled:** 3/5/07

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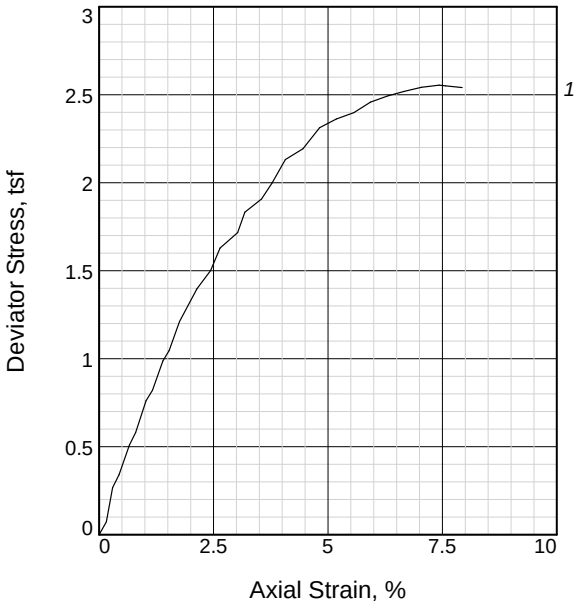
Tested By: MC **Checked By:** TP



Sample No.		1
Initial	Water Content, %	24.9
	Dry Density, pcf	99.7
	Saturation, %	97.2
	Void Ratio	0.6910
	Diameter, in.	2.74
	Height, in.	5.75
At Test	Water Content, %	24.9
	Dry Density, pcf	99.7
	Saturation, %	97.2
	Void Ratio	0.6910
	Diameter, in.	2.74
	Height, in.	5.75
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		2.55
Strain, %		7.4
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.27
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

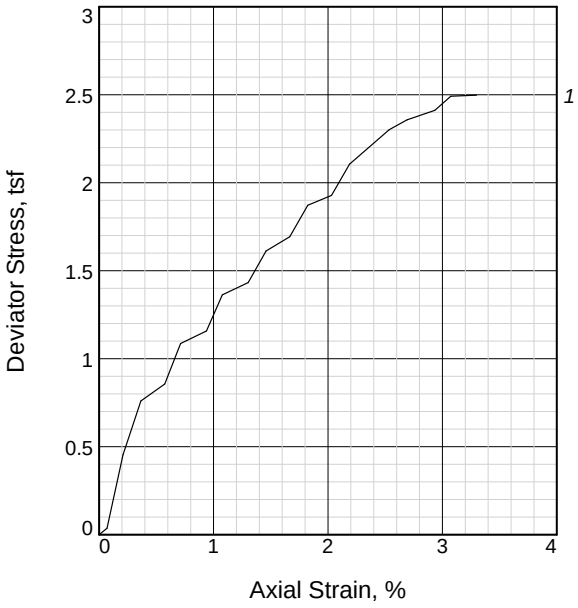
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-75 **Depth:** 13

Proj. No.: S-2544-07 **Date Sampled:** 3/5/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP



Sample No.		1
Initial	Water Content, %	19.2
	Dry Density, pcf	98.5
	Saturation, %	72.9
	Void Ratio	0.7120
	Diameter, in.	2.73
	Height, in.	5.76
At Test	Water Content, %	19.2
	Dry Density, pcf	98.5
	Saturation, %	72.9
	Void Ratio	0.7120
	Diameter, in.	2.73
	Height, in.	5.76
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.36
Fail. Stress, tsf		2.50
Strain, %		3.3
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		2.86
σ_3 Failure, tsf		0.36

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-75 **Depth:** 6

Proj. No.: S-2544-07 **Date Sampled:** 3/5/07

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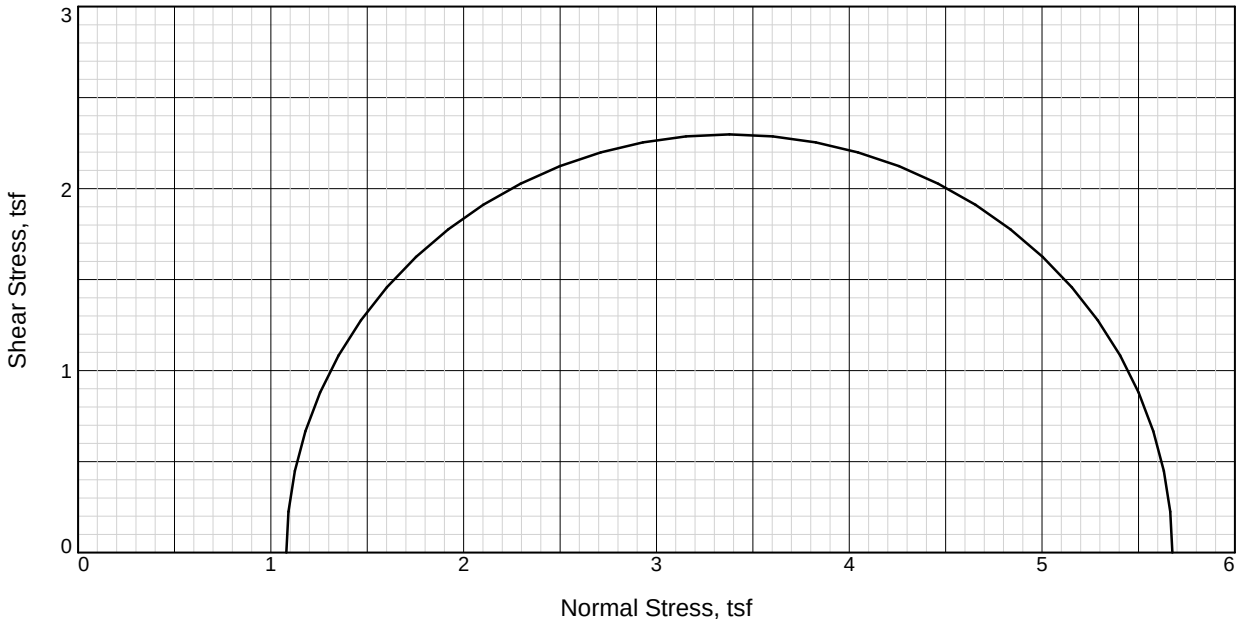
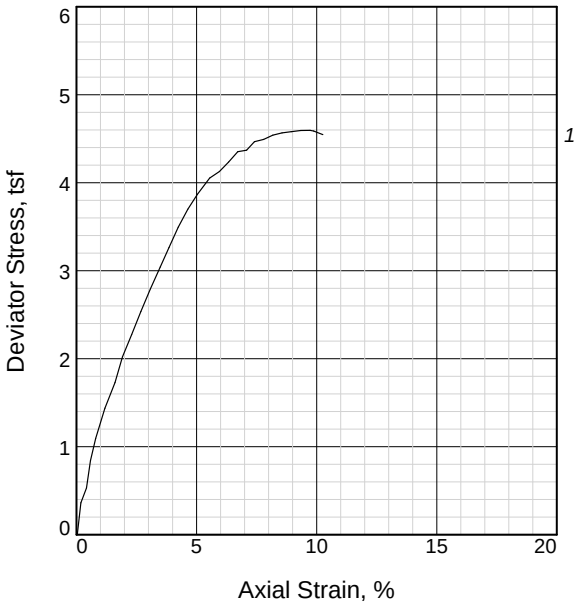
Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	20.4
	Dry Density, pcf	105.8
	Saturation, %	92.8
	Void Ratio	0.5928
	Diameter, in.	2.75
	Height, in.	5.48
At Test	Water Content, %	20.4
	Dry Density, pcf	105.8
	Saturation, %	92.8
	Void Ratio	0.5928
	Diameter, in.	2.75
	Height, in.	5.48
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		1.08
Fail. Stress, tsf		4.60
Strain, %		9.7
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		5.68
σ_3 Failure, tsf		1.08

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

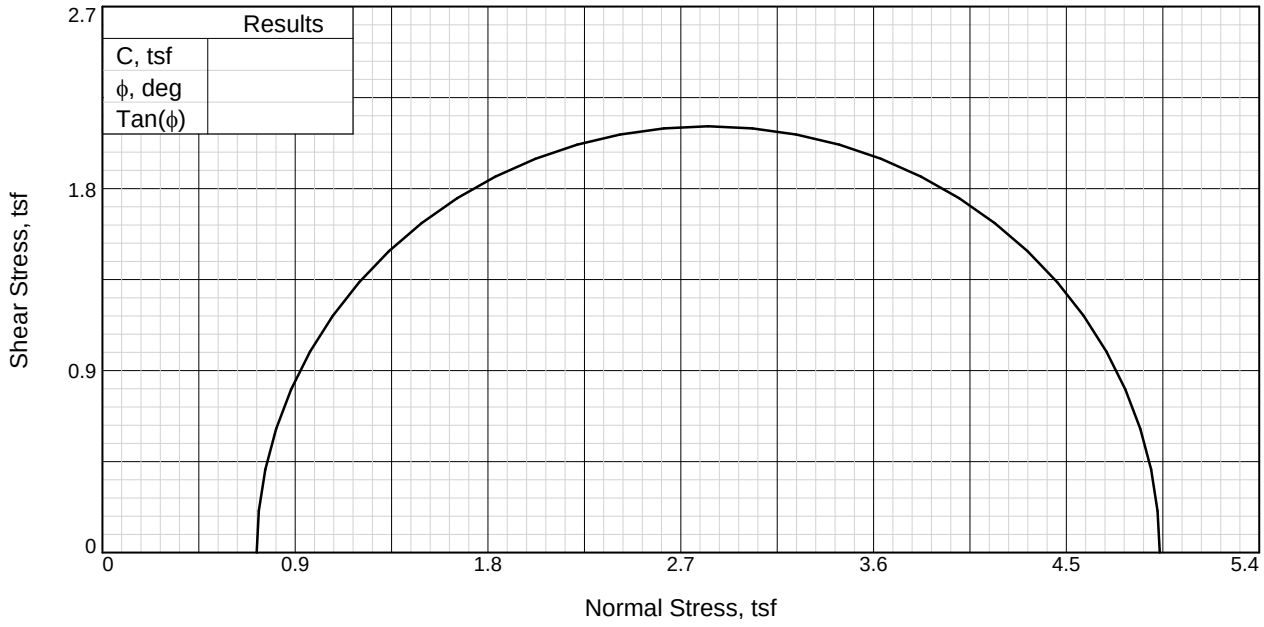
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-76 **Depth:** 16

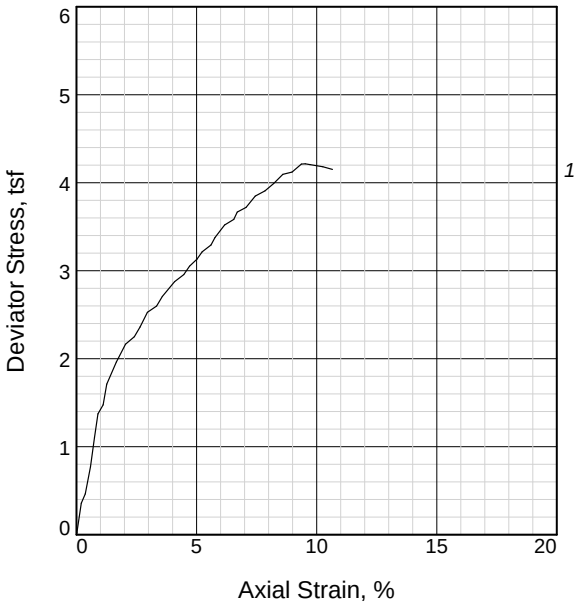
Proj. No.: S-2544-07 **Date Sampled:** 3/5/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	23.3
	Dry Density, pcf	99.1
	Saturation, %	89.8
	Void Ratio	0.7005
	Diameter, in.	2.77
	Height, in.	5.48
At Test	Water Content, %	23.3
	Dry Density, pcf	99.1
	Saturation, %	89.8
	Void Ratio	0.7005
	Diameter, in.	2.77
	Height, in.	5.48
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		4.22
Strain, %		9.5
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.94
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

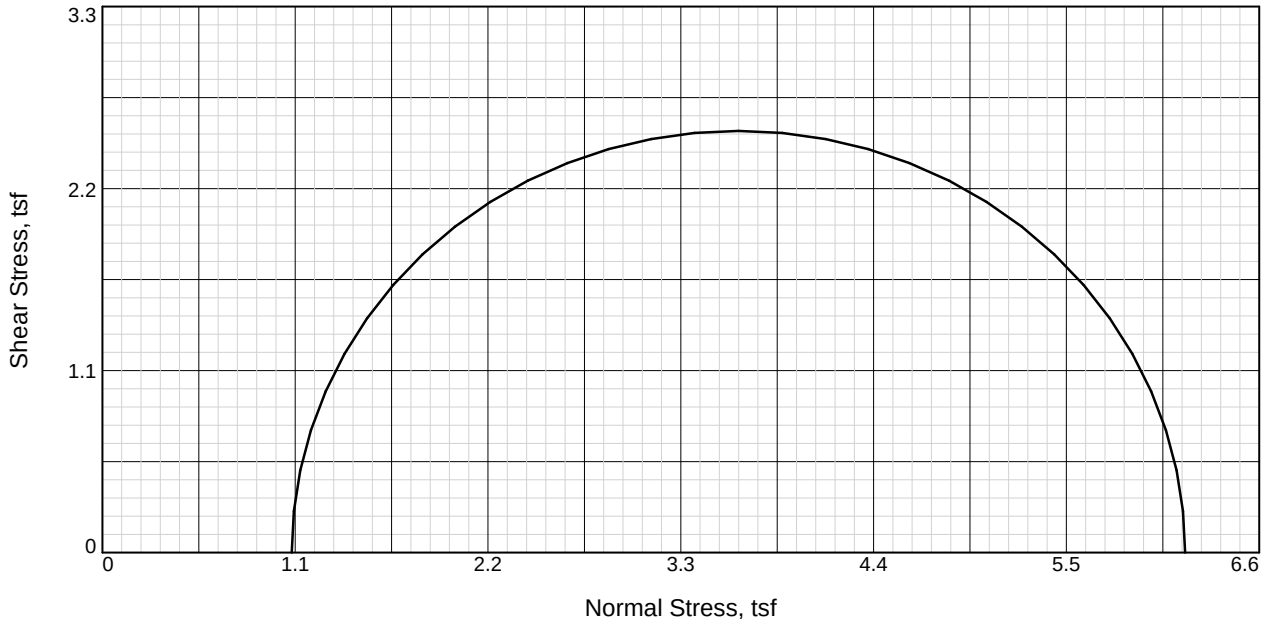
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-77 **Depth:** 13

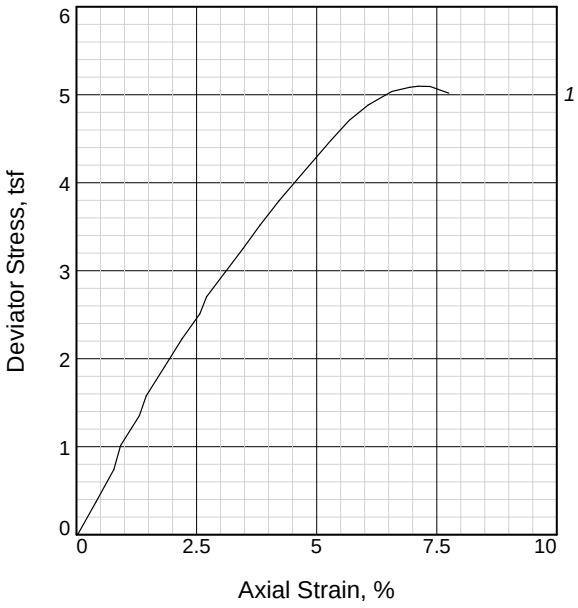
Proj. No.: S-2544-07 **Date Sampled:** 3/5/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	21.0
	Dry Density, pcf	102.3
	Saturation, %	87.5
	Void Ratio	0.6480
	Diameter, in.	2.76
	Height, in.	5.65
At Test	Water Content, %	21.0
	Dry Density, pcf	102.3
	Saturation, %	87.5
	Void Ratio	0.6480
	Diameter, in.	2.76
	Height, in.	5.65
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		1.08
Fail. Stress, tsf		5.10
Strain, %		7.1
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		6.18
σ_3 Failure, tsf		1.08

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: CLAY - Lean, brown (CL)

LL= 49 **PL=** 20 **PI=** 29
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-77 **Depth:** 16

Proj. No.: S-2544-07 **Date Sampled:** 3/5/07

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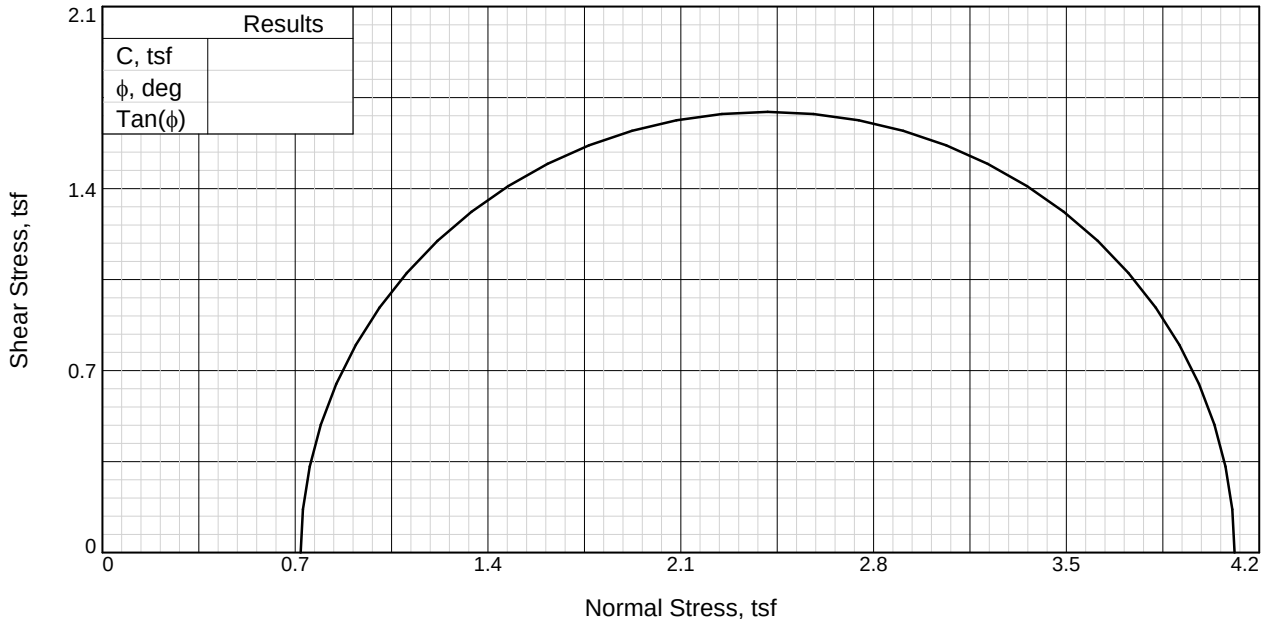
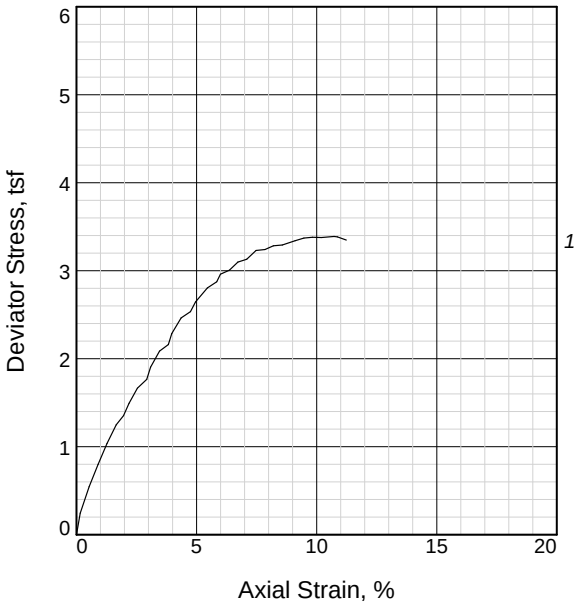
Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	22.0
	Dry Density, pcf	102.9
	Saturation, %	92.9
	Void Ratio	0.6385
	Diameter, in.	2.74
	Height, in.	5.67
At Test	Water Content, %	22.0
	Dry Density, pcf	102.9
	Saturation, %	92.9
	Void Ratio	0.6385
	Diameter, in.	2.74
	Height, in.	5.67
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		3.39
Strain, %		10.7
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.11
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-78 **Depth:** 13

Proj. No.: S-2544-07 **Date Sampled:** 3/5/07

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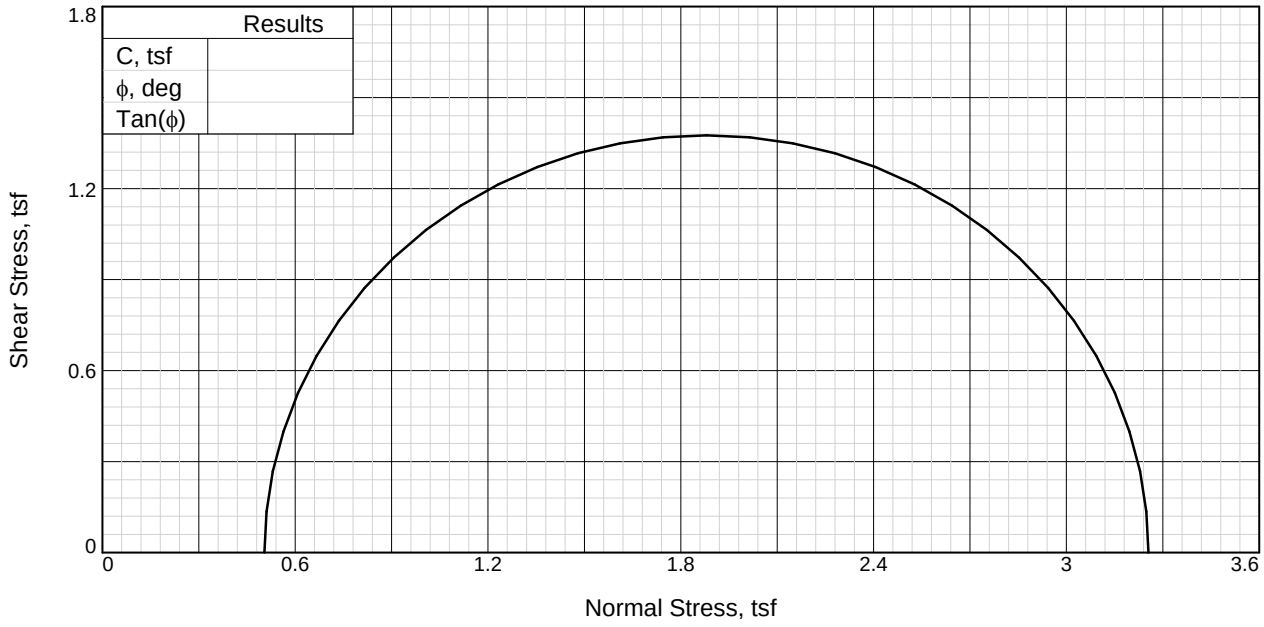
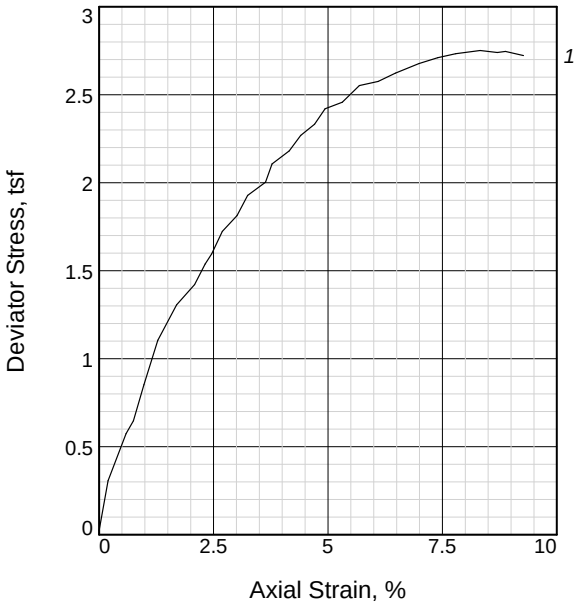
TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	24.0
	Dry Density, pcf	100.5
	Saturation, %	95.7
	Void Ratio	0.6767
	Diameter, in.	2.73
	Height, in.	5.61
At Test	Water Content, %	24.0
	Dry Density, pcf	100.5
	Saturation, %	95.7
	Void Ratio	0.6767
	Diameter, in.	2.73
	Height, in.	5.61
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		2.75
Strain, %		8.3
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.26
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: CLAY - Lean, brown (CL)

LL= 47 **PL=** 20 **PI=** 27
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-80 **Depth:** 10

Proj. No.: S-2544-07 **Date Sampled:** 3/6/07

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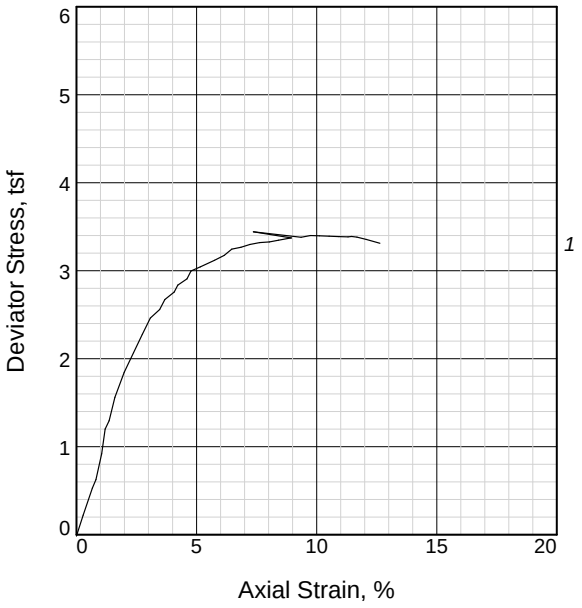
TSI Laboratories

Tested By: MC **Checked By:** TP



Sample No.		1
Initial	Water Content, %	22.9
	Dry Density, pcf	102.7
	Saturation, %	96.5
	Void Ratio	0.6408
	Diameter, in.	2.72
	Height, in.	5.43
At Test	Water Content, %	22.9
	Dry Density, pcf	102.7
	Saturation, %	96.5
	Void Ratio	0.6408
	Diameter, in.	2.72
	Height, in.	5.43
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.36
Fail. Stress, tsf		3.44
Strain, %		7.4
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.80
σ_3 Failure, tsf		0.36

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

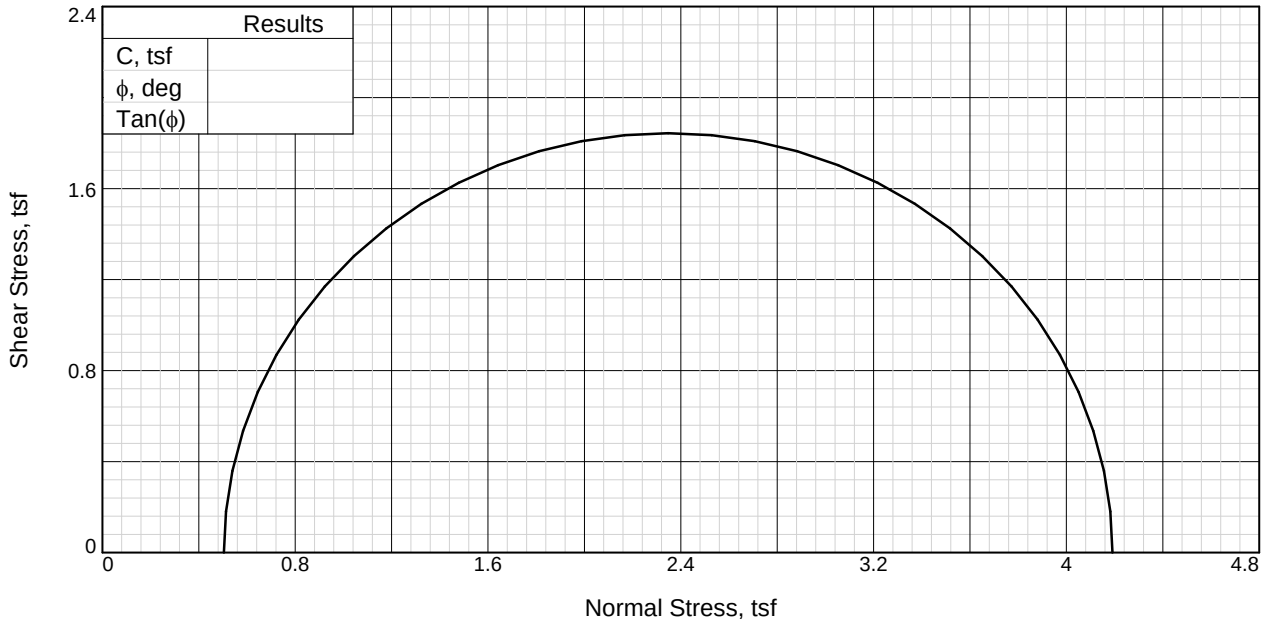
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-80 **Depth:** 6

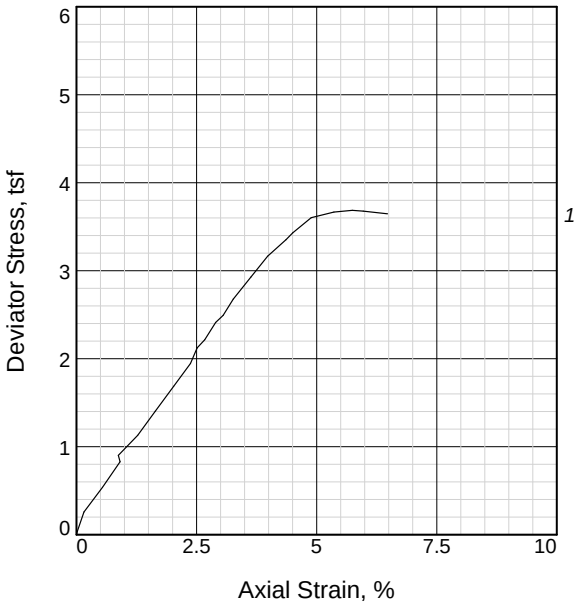
Proj. No.: S-2544-07 **Date Sampled:** 3/6/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	22.2
	Dry Density, pcf	100.2
	Saturation, %	87.6
	Void Ratio	0.6830
	Diameter, in.	2.73
	Height, in.	5.73
At Test	Water Content, %	22.2
	Dry Density, pcf	100.2
	Saturation, %	87.6
	Void Ratio	0.6830
	Diameter, in.	2.73
	Height, in.	5.73
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		3.69
Strain, %		5.7
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.19
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: CLAY - Lean, brown (CL)

LL= 45 **PL=** 19 **PI=** 26
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

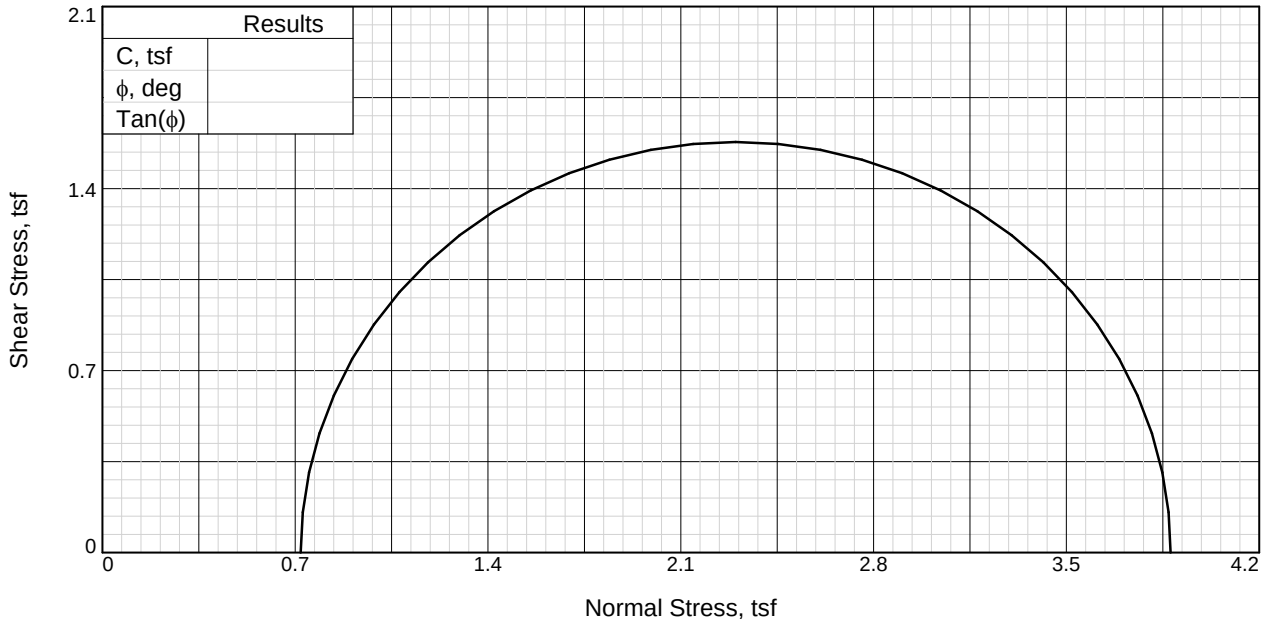
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-81 **Depth:** 8

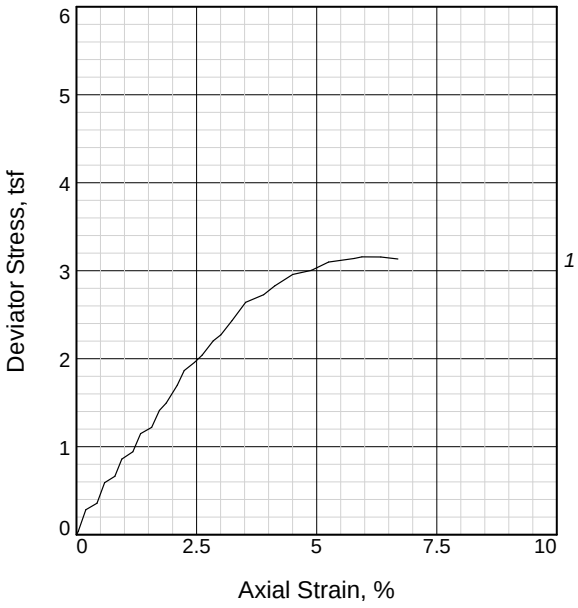
Proj. No.: S-2544-07 **Date Sampled:** 3/6/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	20.7
	Dry Density, pcf	100.9
	Saturation, %	83.6
	Void Ratio	0.6702
	Diameter, in.	2.72
	Height, in.	5.62
At Test	Water Content, %	20.7
	Dry Density, pcf	100.9
	Saturation, %	83.6
	Void Ratio	0.6702
	Diameter, in.	2.72
	Height, in.	5.62
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		3.16
Strain, %		5.9
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.88
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

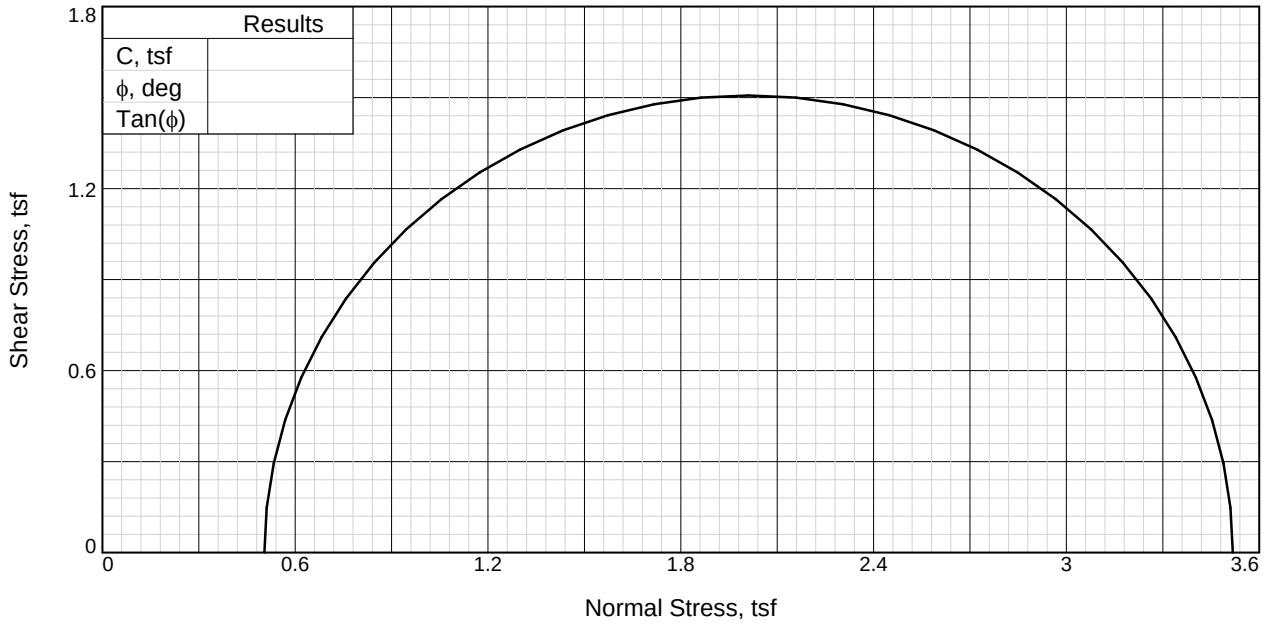
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-82 **Depth:** 12

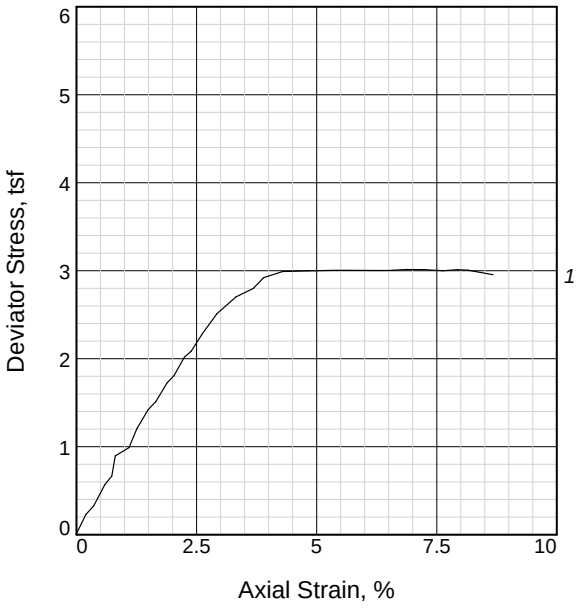
Proj. No.: S-2544-07 **Date Sampled:** 3/6/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	22.2
	Dry Density, pcf	100.3
	Saturation, %	88.0
	Void Ratio	0.6811
	Diameter, in.	2.74
	Height, in.	5.57
At Test	Water Content, %	22.2
	Dry Density, pcf	100.3
	Saturation, %	88.0
	Void Ratio	0.6811
	Diameter, in.	2.74
	Height, in.	5.57
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		3.01
Strain, %		6.9
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.52
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-82 **Depth:** 8

Proj. No.: S-2544-07 **Date Sampled:** 3/6/07

TRIAXIAL SHEAR TEST REPORT

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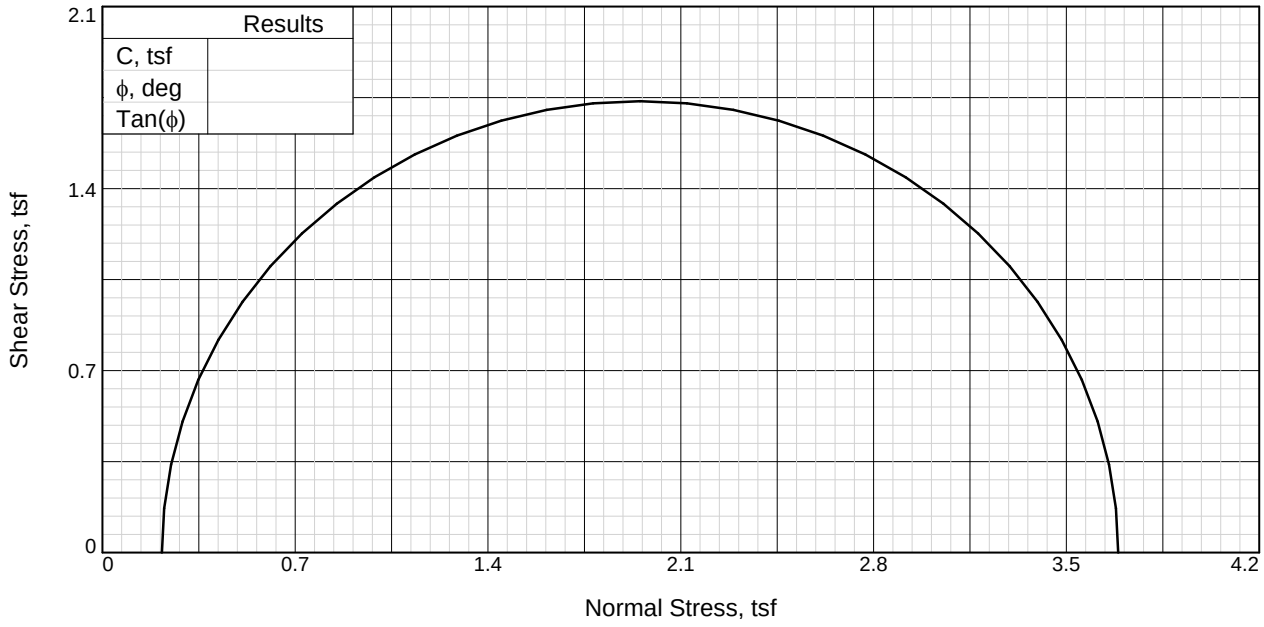
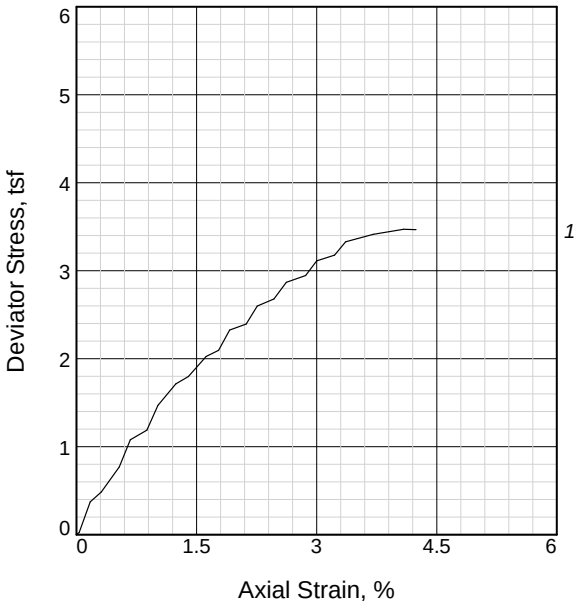
Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	18.7
	Dry Density, pcf	110.4
	Saturation, %	95.7
	Void Ratio	0.5270
	Diameter, in.	2.71
	Height, in.	5.80
At Test	Water Content, %	18.7
	Dry Density, pcf	110.4
	Saturation, %	95.7
	Void Ratio	0.5270
	Diameter, in.	2.71
	Height, in.	5.80
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.22
Fail. Stress, tsf		3.47
Strain, %		4.1
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.69
σ_3 Failure, tsf		0.22

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

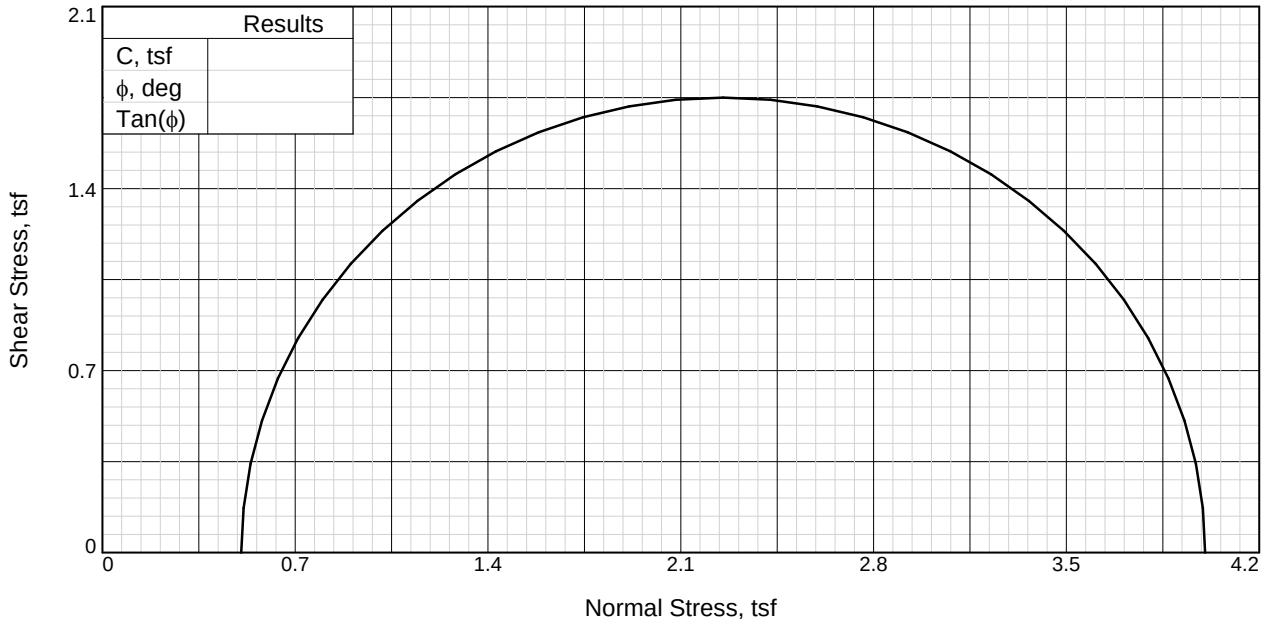
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-83 **Depth:** 4

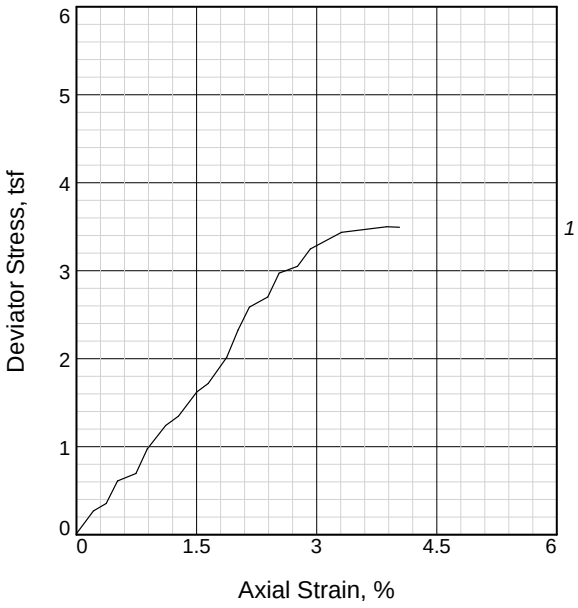
Proj. No.: S-2544-07 **Date Sampled:** 3/6/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	17.7
	Dry Density, pcf	102.7
	Saturation, %	74.7
	Void Ratio	0.6406
	Diameter, in.	2.73
	Height, in.	5.65
At Test	Water Content, %	17.7
	Dry Density, pcf	102.7
	Saturation, %	74.7
	Void Ratio	0.6406
	Diameter, in.	2.73
	Height, in.	5.65
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		3.50
Strain, %		3.9
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.00
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

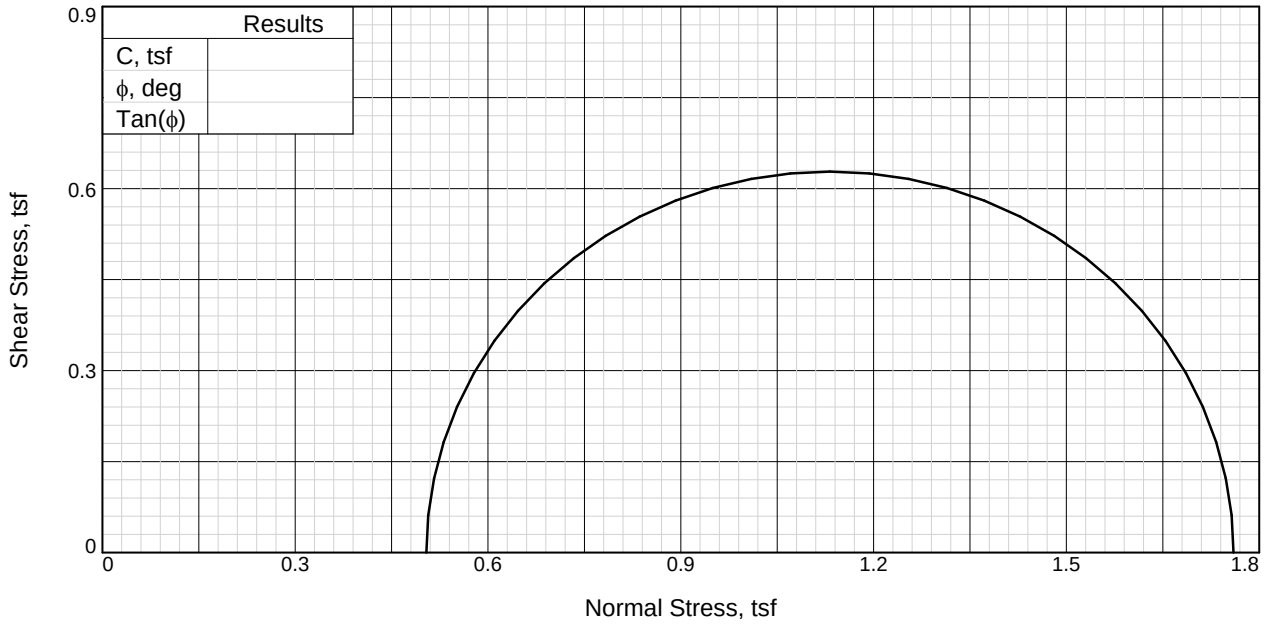
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-83 **Depth:** 8

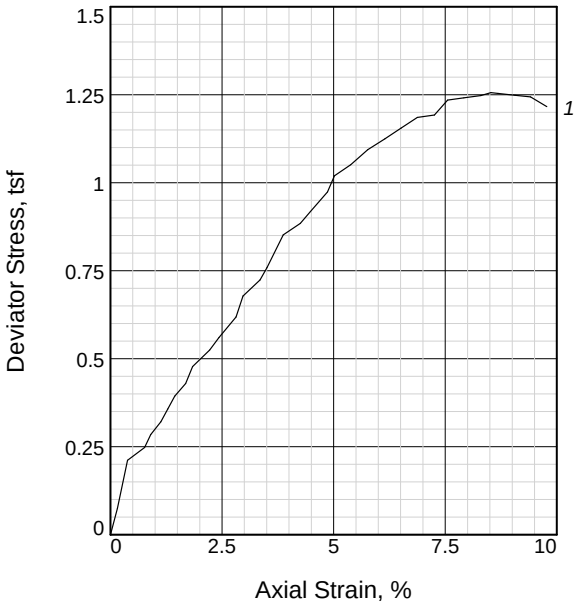
Proj. No.: S-2544-07 **Date Sampled:** 3/6/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	22.6
	Dry Density, pcf	102.8
	Saturation, %	95.4
	Void Ratio	0.6391
	Diameter, in.	2.71
	Height, in.	5.76
At Test	Water Content, %	22.6
	Dry Density, pcf	102.8
	Saturation, %	95.4
	Void Ratio	0.6391
	Diameter, in.	2.71
	Height, in.	5.76
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		1.26
Strain, %		8.5
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		1.76
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 36 **PL=** 18 **PI=** 18
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

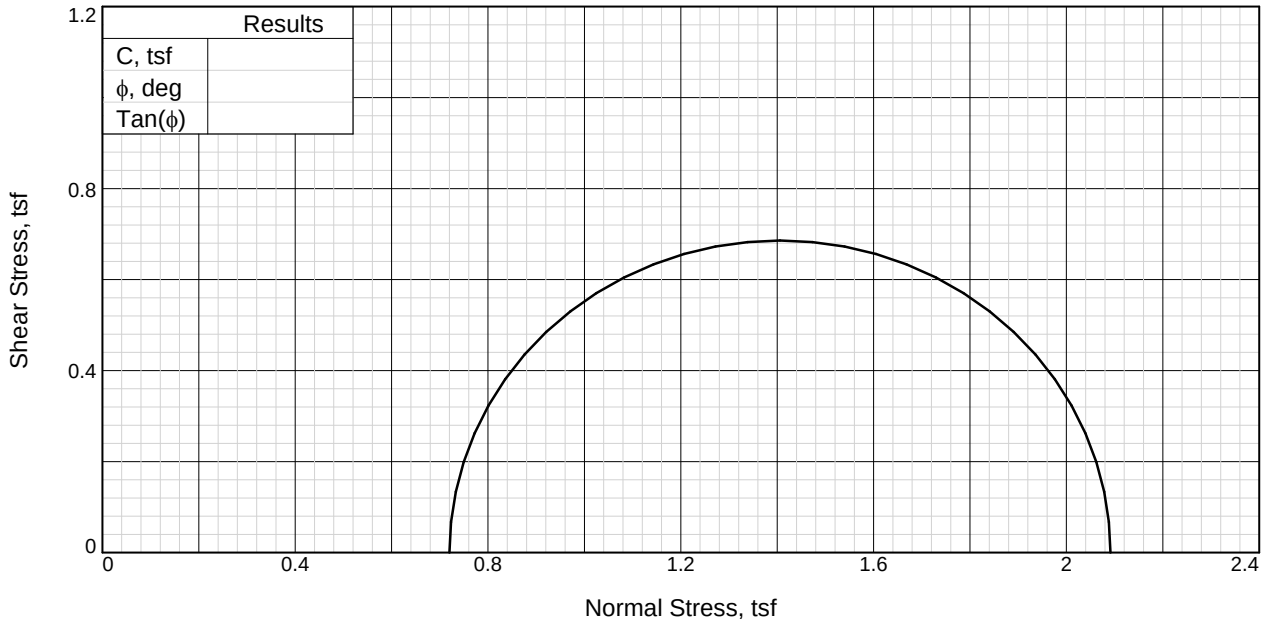
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-84 **Depth:** 11

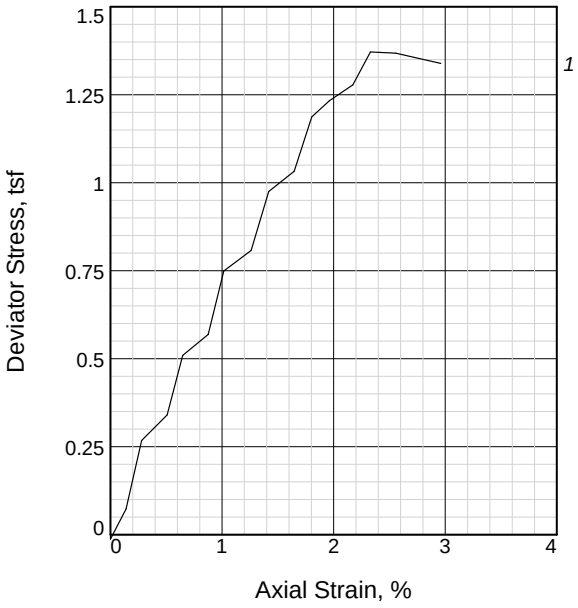
Proj. No.: S-2544-07 **Date Sampled:** 3/6/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	23.6
	Dry Density, pcf	87.5
	Saturation, %	68.9
	Void Ratio	0.9270
	Diameter, in.	2.74
	Height, in.	5.71
At Test	Water Content, %	23.6
	Dry Density, pcf	87.5
	Saturation, %	68.9
	Void Ratio	0.9270
	Diameter, in.	2.74
	Height, in.	5.71
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		1.37
Strain, %		2.3
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		2.09
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 52 **PL=** 22 **PI=** 30
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

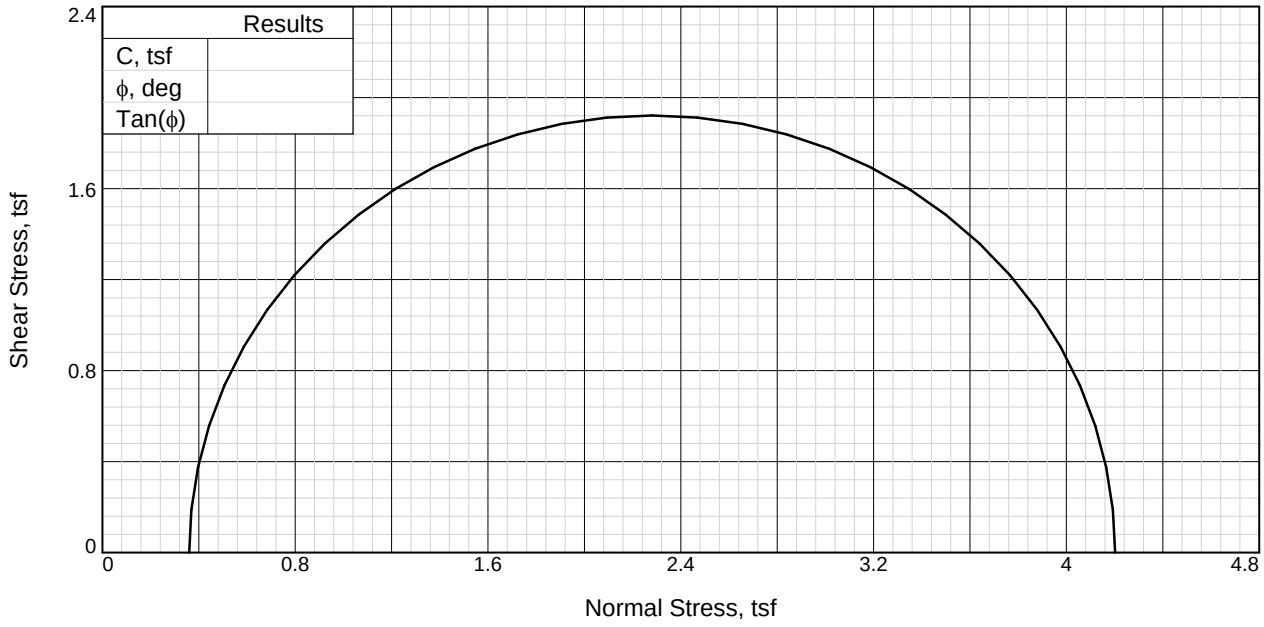
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-89 **Depth:** 12

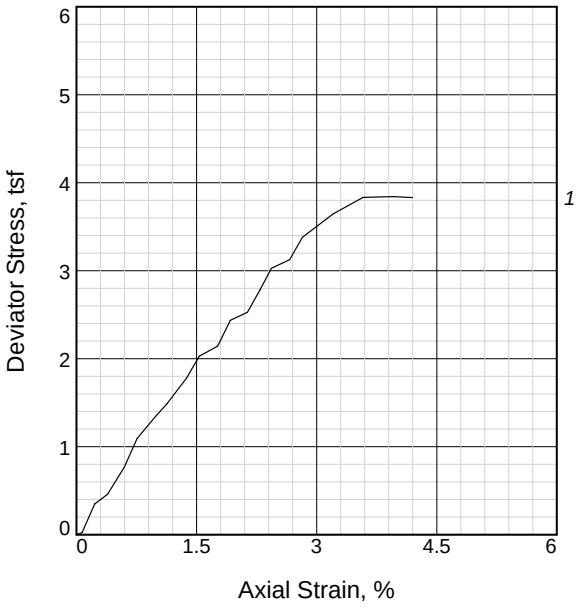
Proj. No.: S-2544-07 **Date Sampled:** 3/6/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	24.0
	Dry Density, pcf	92.2
	Saturation, %	78.2
	Void Ratio	0.8278
	Diameter, in.	2.75
	Height, in.	5.67
At Test	Water Content, %	24.0
	Dry Density, pcf	92.2
	Saturation, %	78.2
	Void Ratio	0.8278
	Diameter, in.	2.75
	Height, in.	5.67
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.36
Fail. Stress, tsf		3.84
Strain, %		4.0
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.20
σ_3 Failure, tsf		0.36

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 57 **PL=** 24 **PI=** 33
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

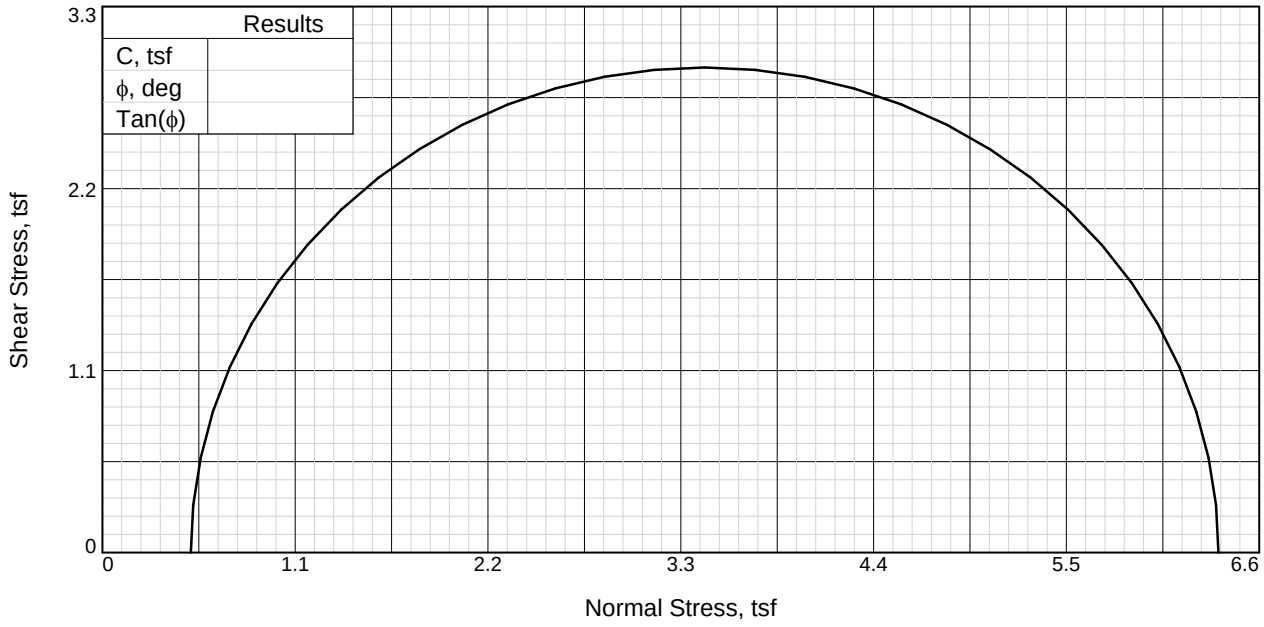
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-89 **Depth:** 6

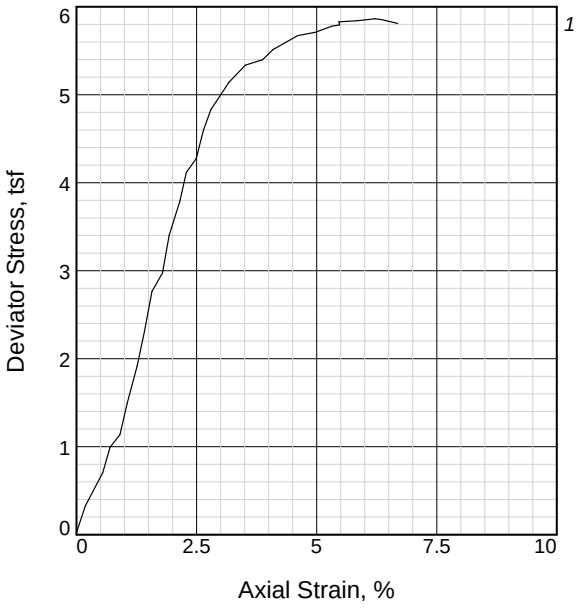
Proj. No.: S-2544-07 **Date Sampled:** 3/6/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	20.2
	Dry Density, pcf	103.3
	Saturation, %	86.1
	Void Ratio	0.6323
	Diameter, in.	2.74
	Height, in.	5.86
At Test	Water Content, %	20.2
	Dry Density, pcf	103.3
	Saturation, %	86.1
	Void Ratio	0.6323
	Diameter, in.	2.74
	Height, in.	5.86
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		5.86
Strain, %		6.2
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		6.37
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

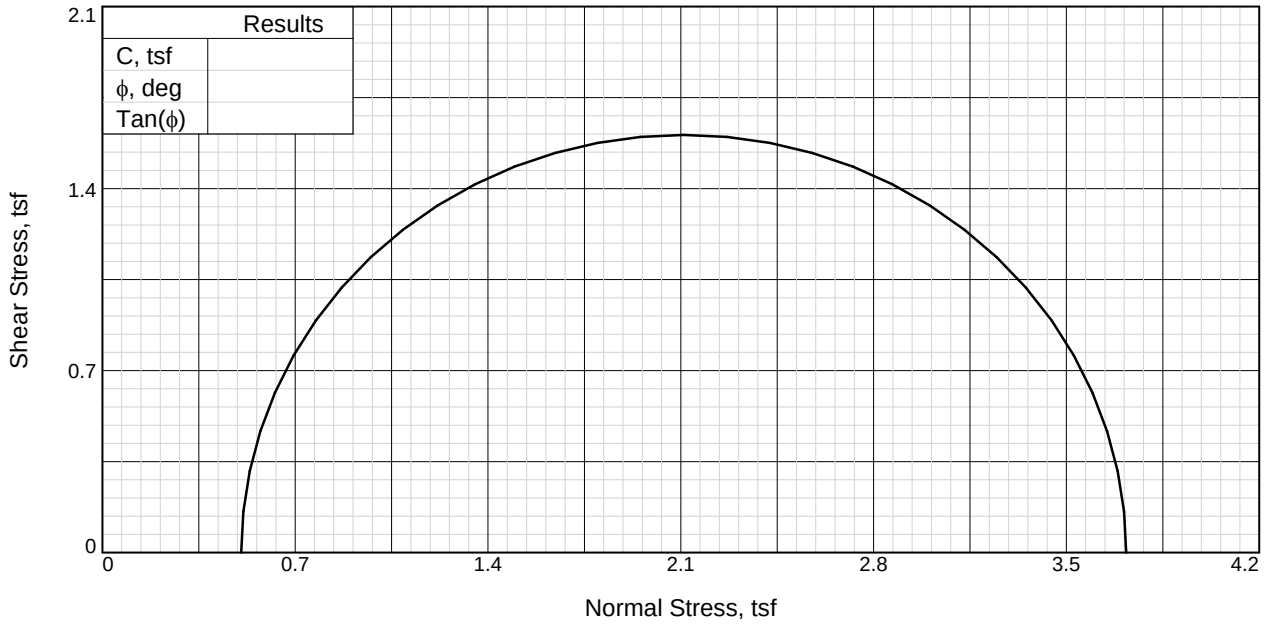
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-90 **Depth:** 8

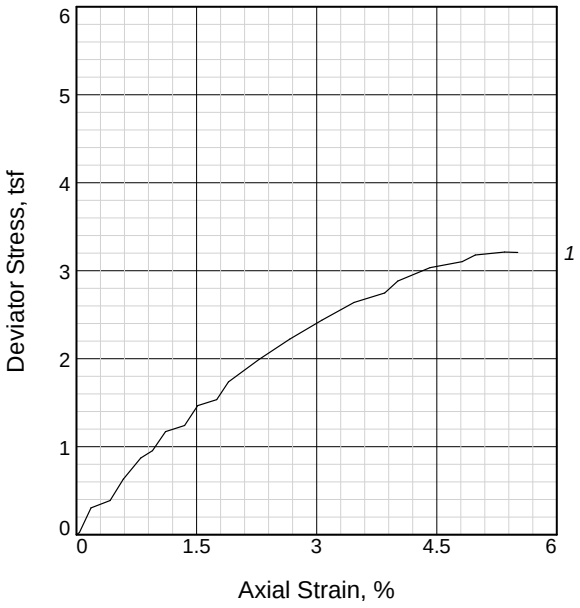
Proj. No.: S-2544-07 **Date Sampled:** 3/6/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	22.0
	Dry Density, pcf	102.1
	Saturation, %	91.3
	Void Ratio	0.6514
	Diameter, in.	2.74
	Height, in.	5.48
At Test	Water Content, %	22.0
	Dry Density, pcf	102.1
	Saturation, %	91.3
	Void Ratio	0.6514
	Diameter, in.	2.74
	Height, in.	5.48
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		3.21
Strain, %		5.3
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.72
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 43 **PL=** 19 **PI=** 24
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

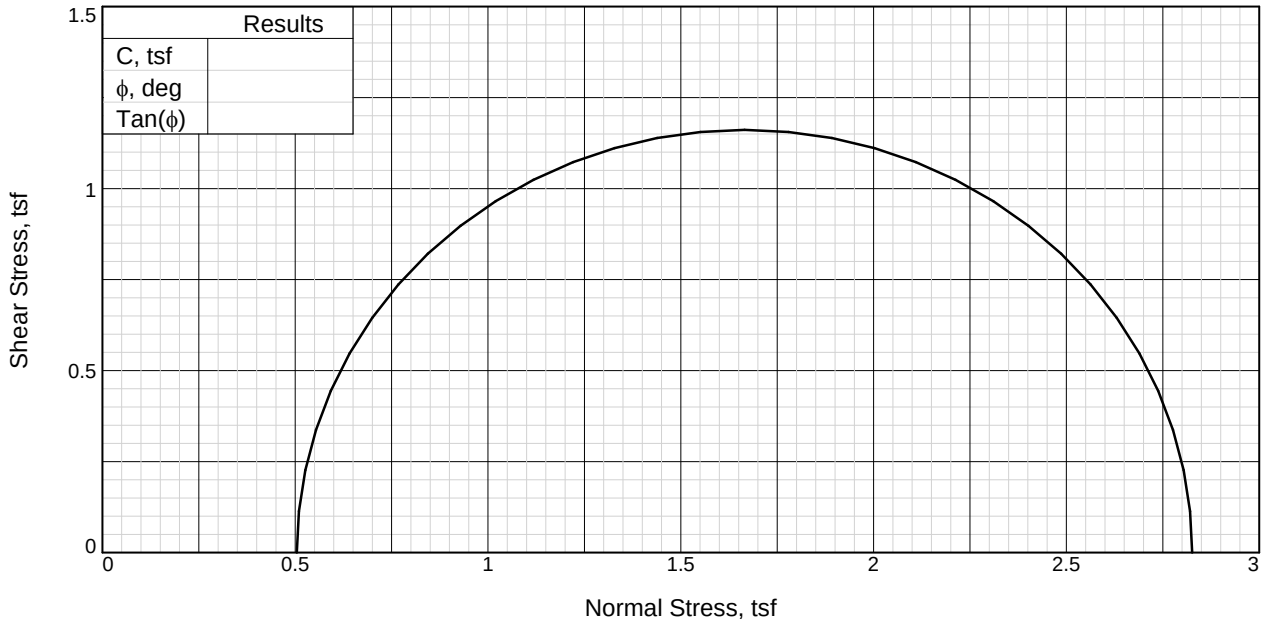
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-91 **Depth:** 10

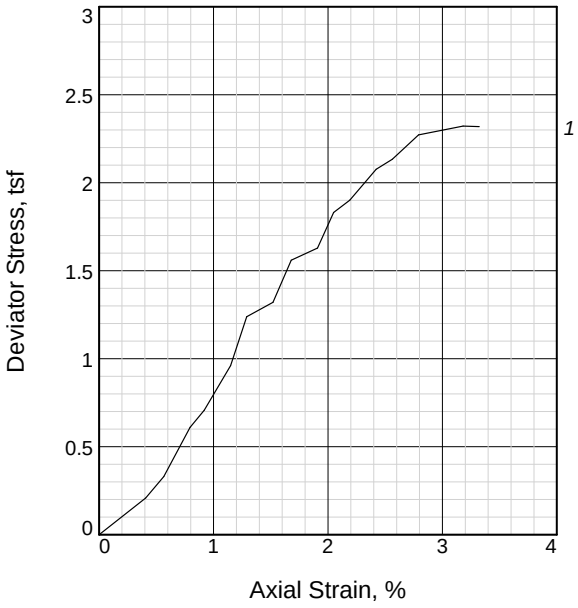
Proj. No.: S-2544-07 **Date Sampled:** 3/6/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	25.5
	Dry Density, pcf	97.5
	Saturation, %	94.2
	Void Ratio	0.7294
	Diameter, in.	2.73
	Height, in.	5.66
At Test	Water Content, %	25.5
	Dry Density, pcf	97.5
	Saturation, %	94.2
	Void Ratio	0.7294
	Diameter, in.	2.73
	Height, in.	5.66
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		2.32
Strain, %		3.2
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		2.83
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 56 **PL=** 20 **PI=** 36
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

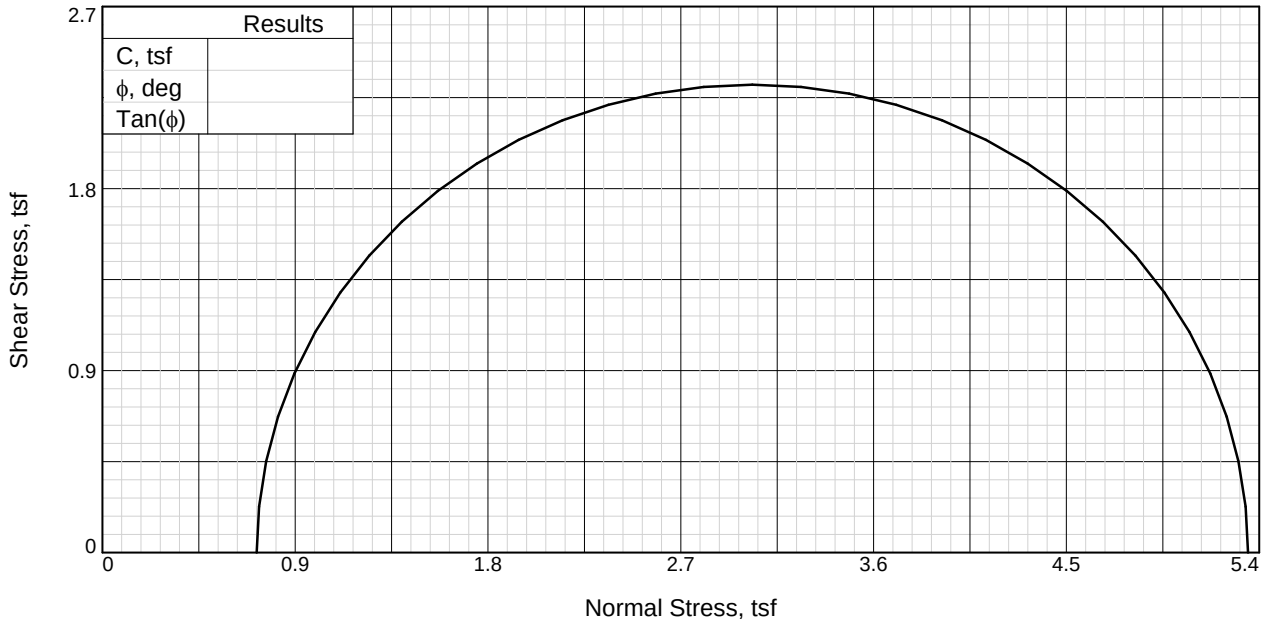
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-93 **Depth:** 8

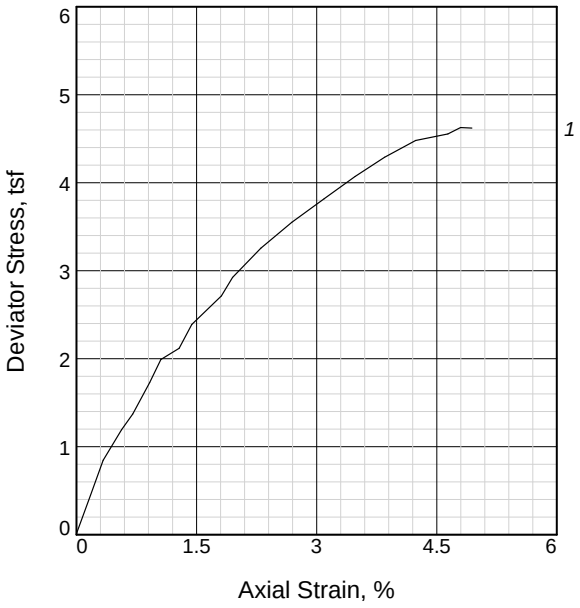
Proj. No.: S-2544-07 **Date Sampled:** 3/7/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	22.0
	Dry Density, pcf	95.7
	Saturation, %	78.2
	Void Ratio	0.7606
	Diameter, in.	2.75
	Height, in.	5.69
At Test	Water Content, %	22.0
	Dry Density, pcf	95.7
	Saturation, %	78.2
	Void Ratio	0.7606
	Diameter, in.	2.75
	Height, in.	5.69
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		4.63
Strain, %		4.8
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		5.35
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 52 **PL=** 22 **PI=** 30
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

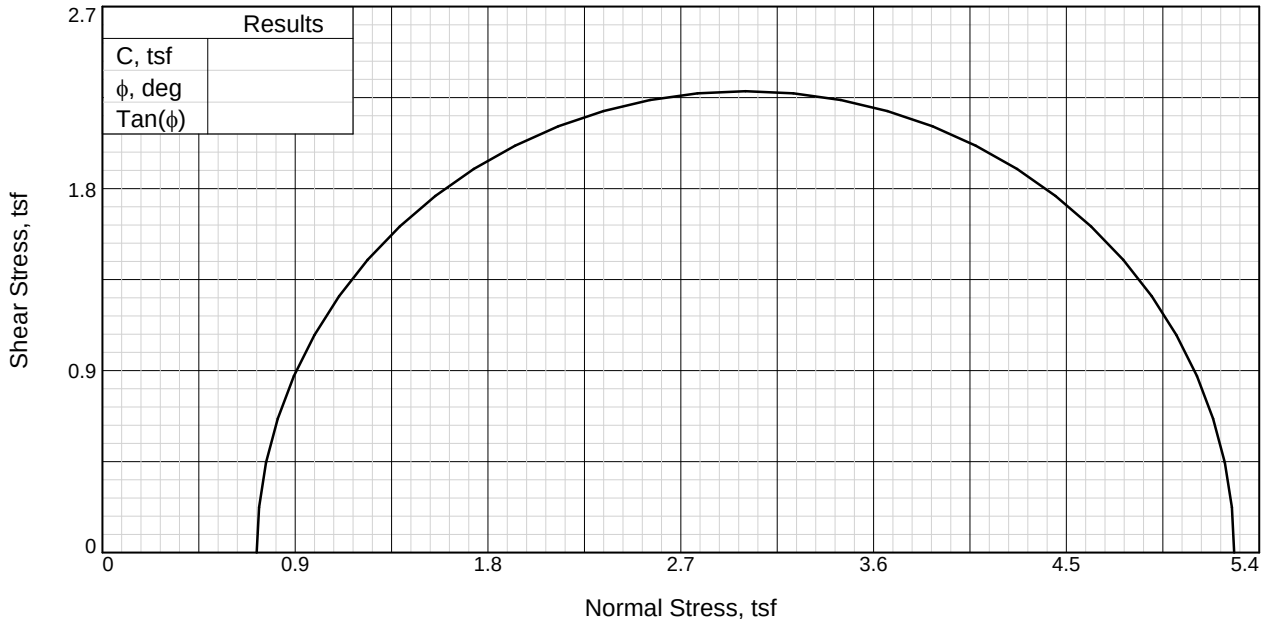
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-95 **Depth:** 12

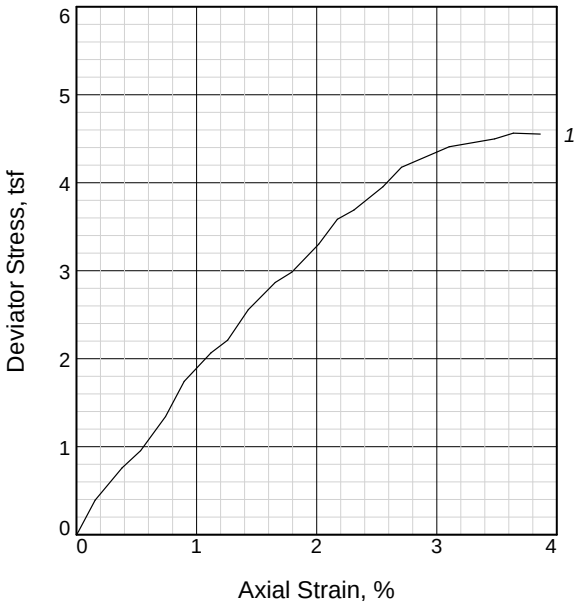
Proj. No.: S-2544-07 **Date Sampled:** 3/7/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	20.5
	Dry Density, pcf	100.1
	Saturation, %	81.1
	Void Ratio	0.6831
	Diameter, in.	2.73
	Height, in.	5.80
At Test	Water Content, %	20.5
	Dry Density, pcf	100.1
	Saturation, %	81.1
	Void Ratio	0.6831
	Diameter, in.	2.73
	Height, in.	5.80
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		4.56
Strain, %		3.6
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		5.28
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

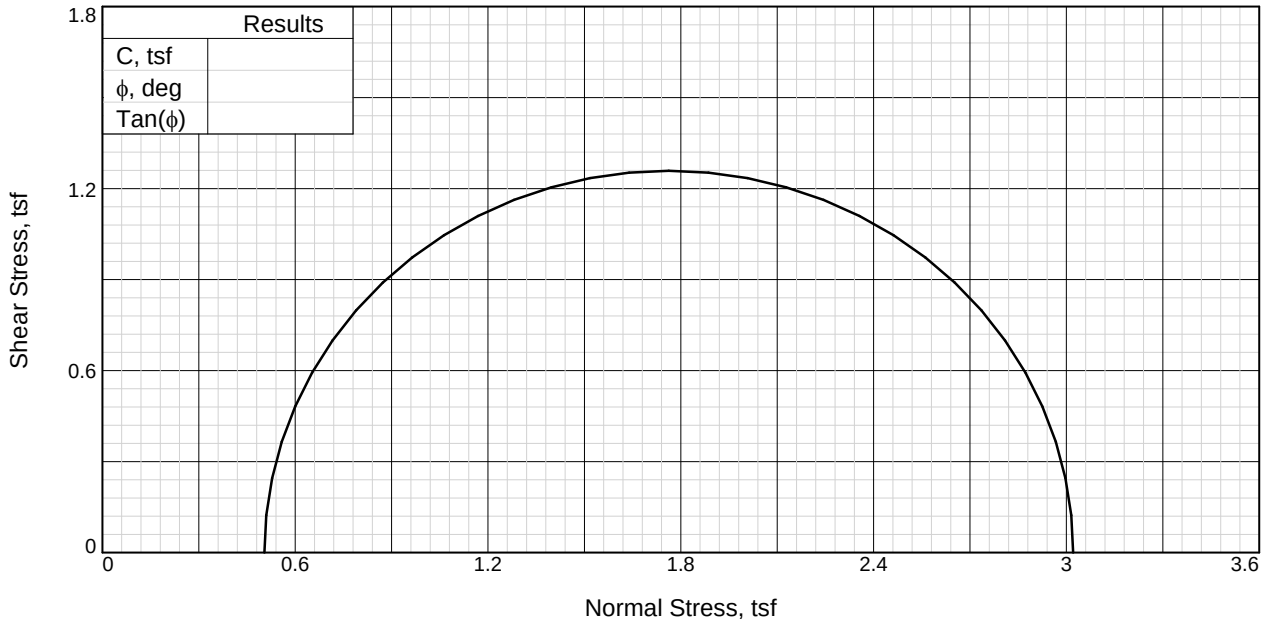
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-93 **Depth:** 14

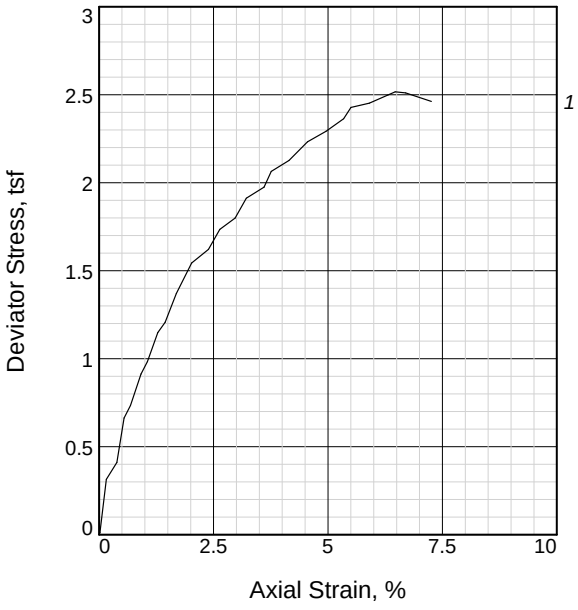
Proj. No.: S-2544-07 **Date Sampled:** 3/7/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	26.0
	Dry Density, pcf	96.8
	Saturation, %	94.9
	Void Ratio	0.7406
	Diameter, in.	2.75
	Height, in.	5.69
At Test	Water Content, %	26.0
	Dry Density, pcf	96.8
	Saturation, %	94.9
	Void Ratio	0.7406
	Diameter, in.	2.75
	Height, in.	5.69
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		2.52
Strain, %		6.5
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.02
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: CLAY - Fat, brown (CH)

LL= 50 **PL=** 19 **PI=** 31
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-97 **Depth:** 10

Proj. No.: S-2544-07 **Date Sampled:** 3/7/07

TRIAXIAL SHEAR TEST REPORT

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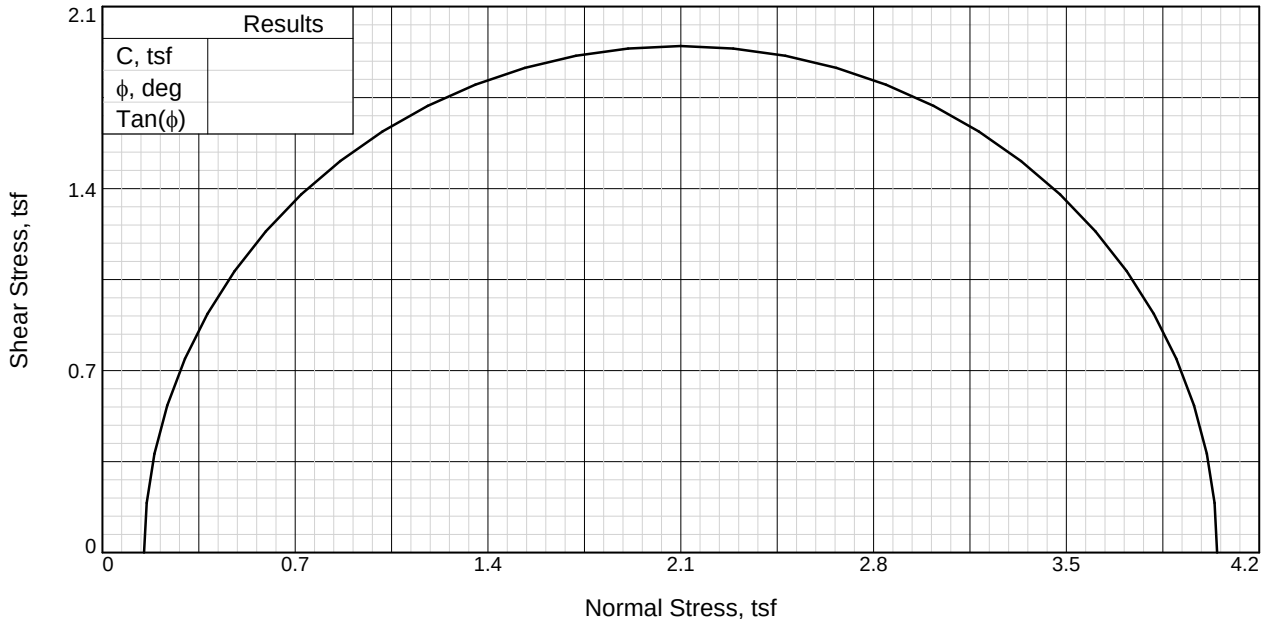
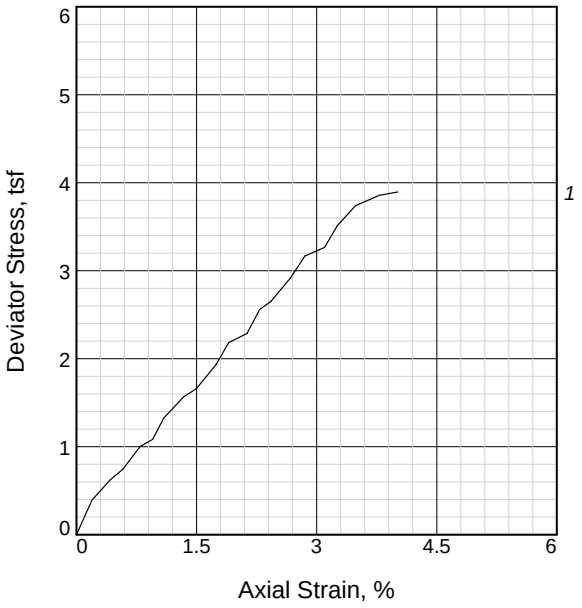
Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	20.8
	Dry Density, pcf	102.9
	Saturation, %	88.2
	Void Ratio	0.6381
	Diameter, in.	2.73
	Height, in.	5.68
At Test	Water Content, %	20.8
	Dry Density, pcf	102.9
	Saturation, %	88.2
	Void Ratio	0.6381
	Diameter, in.	2.73
	Height, in.	5.68
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.15
Fail. Stress, tsf		3.90
Strain, %		4.0
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.05
σ_3 Failure, tsf		0.15

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 46 **PL=** 18 **PI=** 28
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

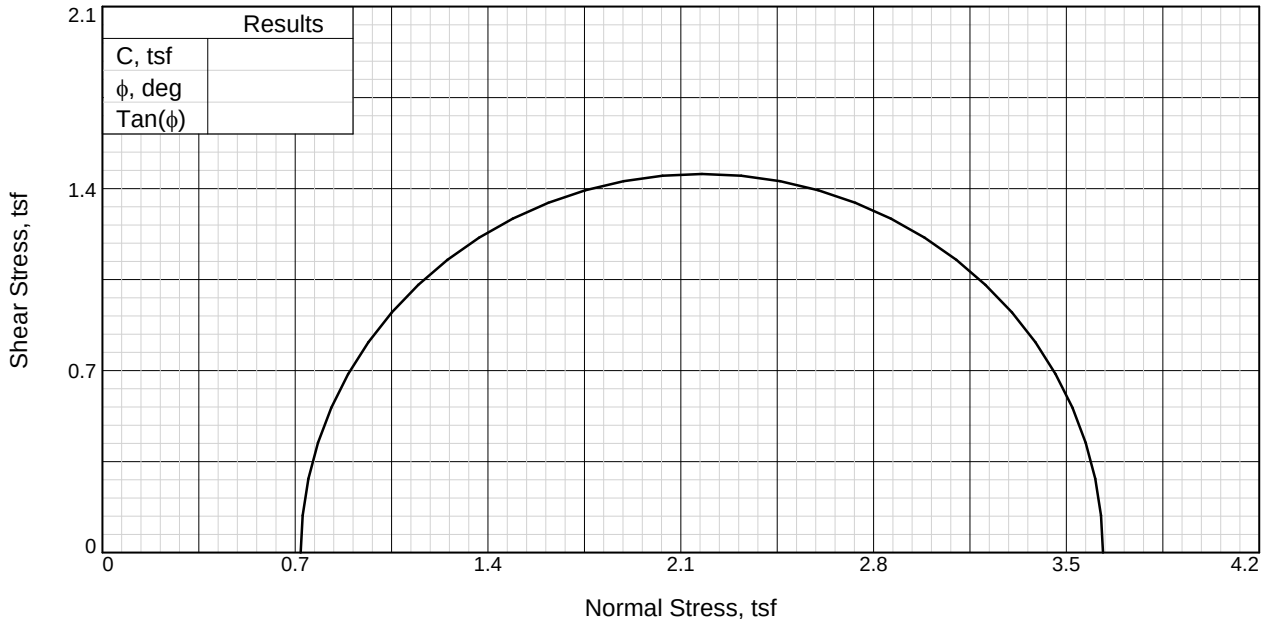
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-97 **Depth:** 2

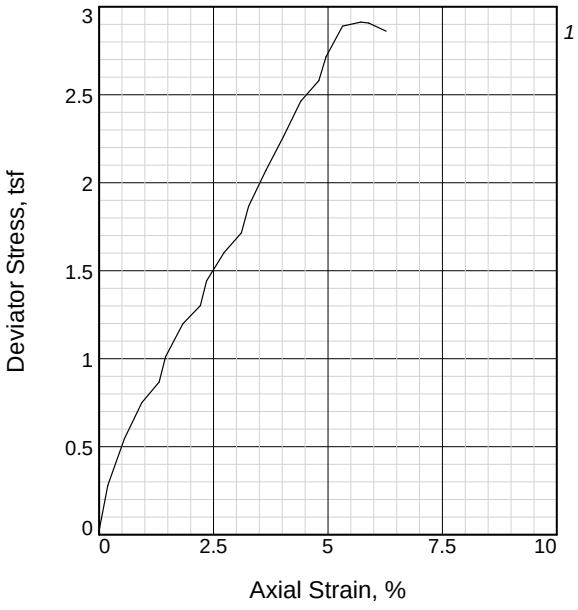
Proj. No.: S-2544-07 **Date Sampled:** 3/7/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	19.7
	Dry Density, pcf	103.5
	Saturation, %	84.4
	Void Ratio	0.6292
	Diameter, in.	2.74
	Height, in.	5.79
At Test	Water Content, %	19.7
	Dry Density, pcf	103.5
	Saturation, %	84.4
	Void Ratio	0.6292
	Diameter, in.	2.74
	Height, in.	5.79
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		2.91
Strain, %		5.7
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.63
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 38 **PL=** 18 **PI=** 20
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

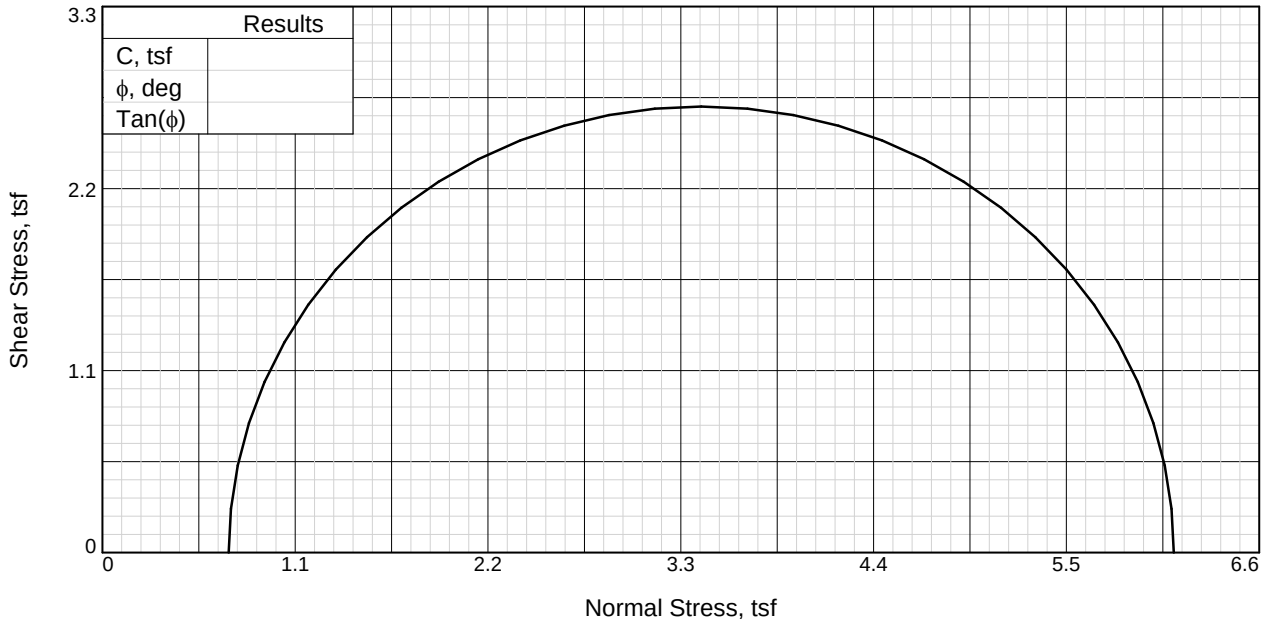
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-98 **Depth:** 12

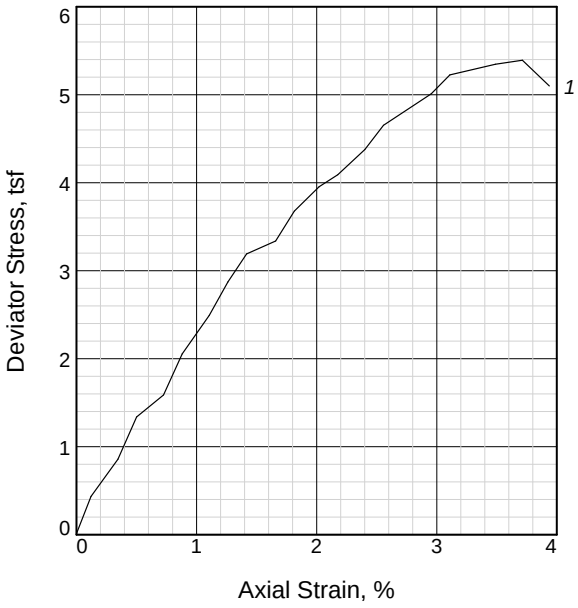
Proj. No.: S-2544-07 **Date Sampled:** 3/7/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	10.0
	Dry Density, pcf	109.7
	Saturation, %	50.6
	Void Ratio	0.5361
	Diameter, in.	2.75
	Height, in.	5.79
At Test	Water Content, %	10.0
	Dry Density, pcf	109.7
	Saturation, %	50.6
	Void Ratio	0.5361
	Diameter, in.	2.75
	Height, in.	5.79
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		5.39
Strain, %		3.7
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		6.11
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 55 **PL=** 19 **PI=** 36
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

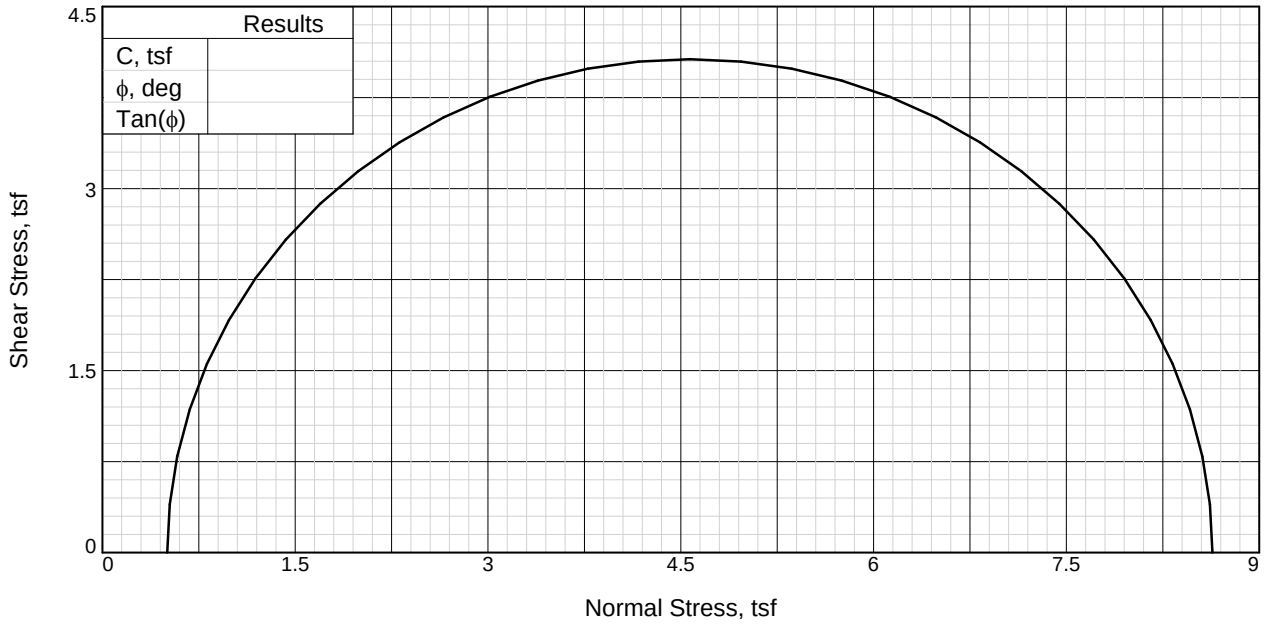
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-100 **Depth:** 13

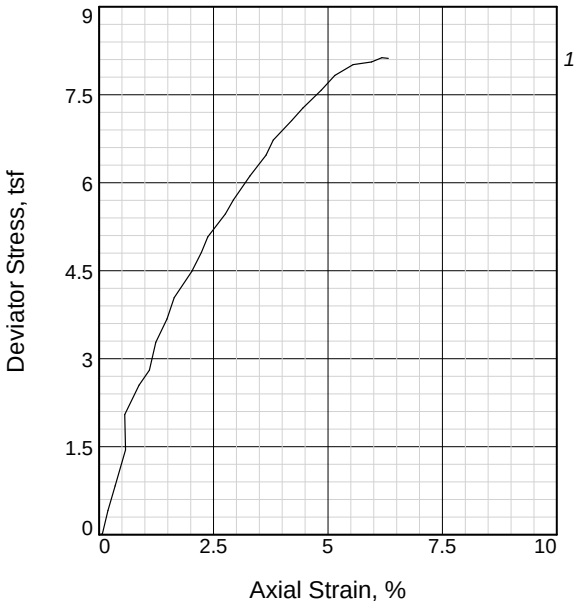
Proj. No.: S-2544-07 **Date Sampled:** 3/7/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	22.5
	Dry Density, pcf	98.9
	Saturation, %	86.1
	Void Ratio	0.7041
	Diameter, in.	2.75
	Height, in.	5.73
At Test	Water Content, %	22.5
	Dry Density, pcf	98.9
	Saturation, %	86.1
	Void Ratio	0.7041
	Diameter, in.	2.75
	Height, in.	5.73
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		8.13
Strain, %		6.2
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		8.64
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

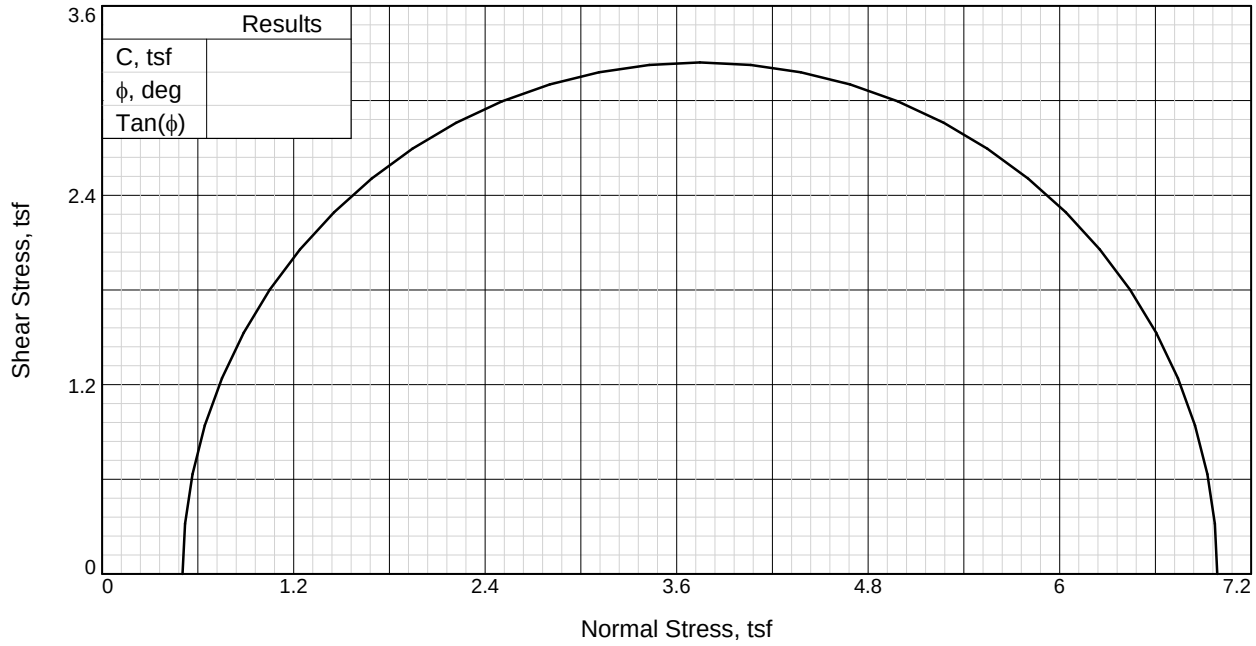
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-101 **Depth:** 11

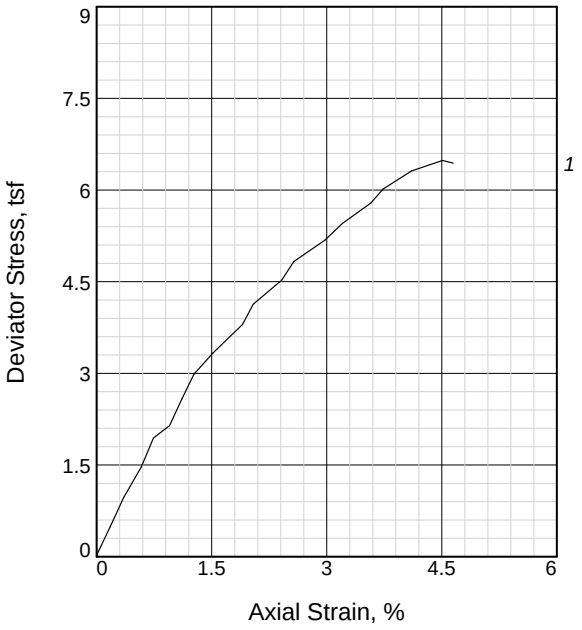
Proj. No.: S-2544-07 **Date Sampled:** 3/7/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	23.1
	Dry Density, pcf	98.9
	Saturation, %	88.5
	Void Ratio	0.7038
	Diameter, in.	2.73
	Height, in.	5.68
At Test	Water Content, %	23.1
	Dry Density, pcf	98.9
	Saturation, %	88.5
	Void Ratio	0.7038
	Diameter, in.	2.73
	Height, in.	5.68
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		6.48
Strain, %		4.5
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		6.99
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 68 **PL=** 19 **PI=** 49
Assumed Specific Gravity= 2.70
Remarks: Tech:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-102 **Depth:** 8

Proj. No.: S-2544-07 **Date Sampled:**

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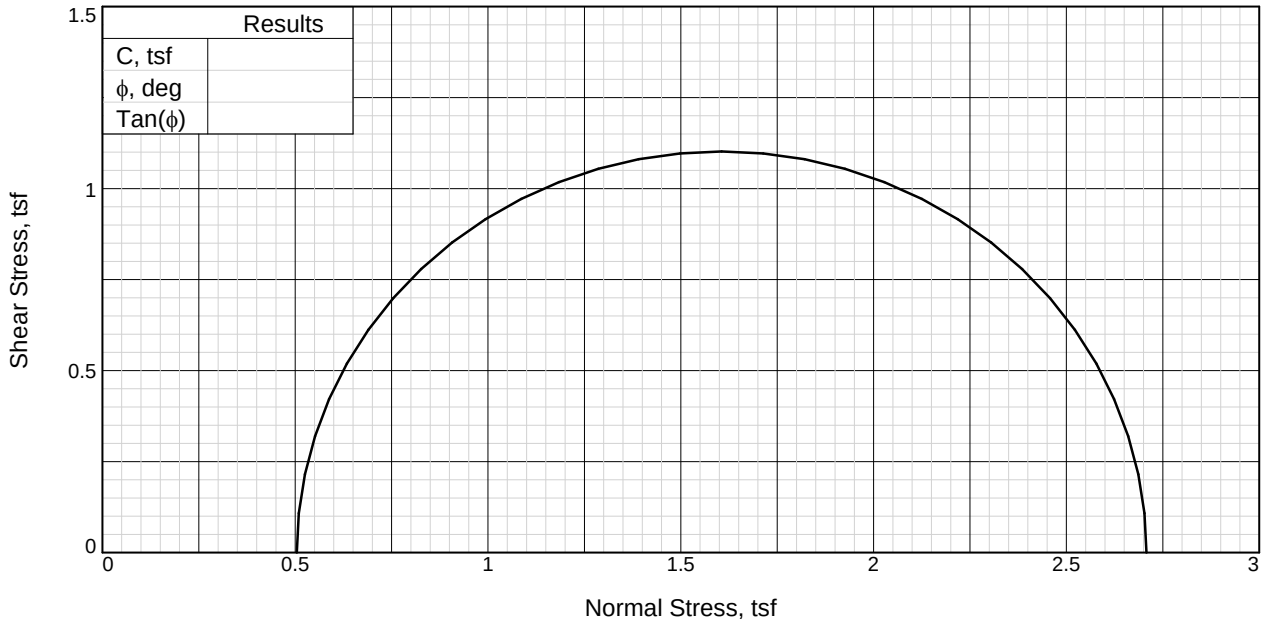
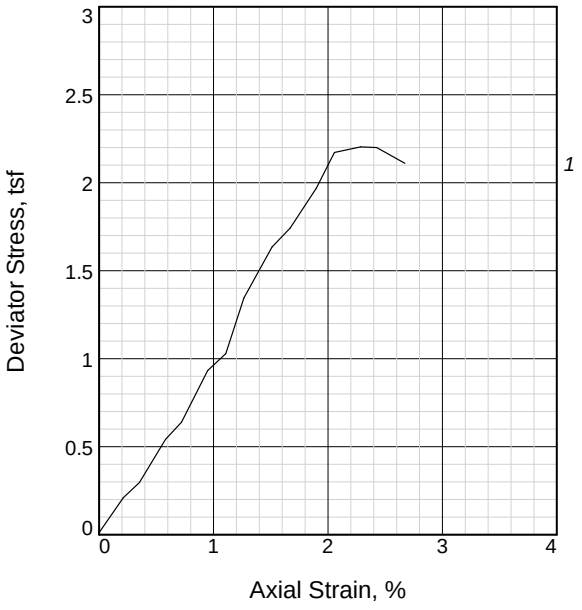




Sample No.		1
Initial	Water Content, %	23.5
	Dry Density, pcf	91.3
	Saturation, %	75.0
	Void Ratio	0.8464
	Diameter, in.	2.72
	Height, in.	5.69
At Test	Water Content, %	23.5
	Dry Density, pcf	91.3
	Saturation, %	75.0
	Void Ratio	0.8464
	Diameter, in.	2.72
	Height, in.	5.69
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		2.20
Strain, %		2.3
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		2.71
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 70 **PL=** 23 **PI=** 47
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

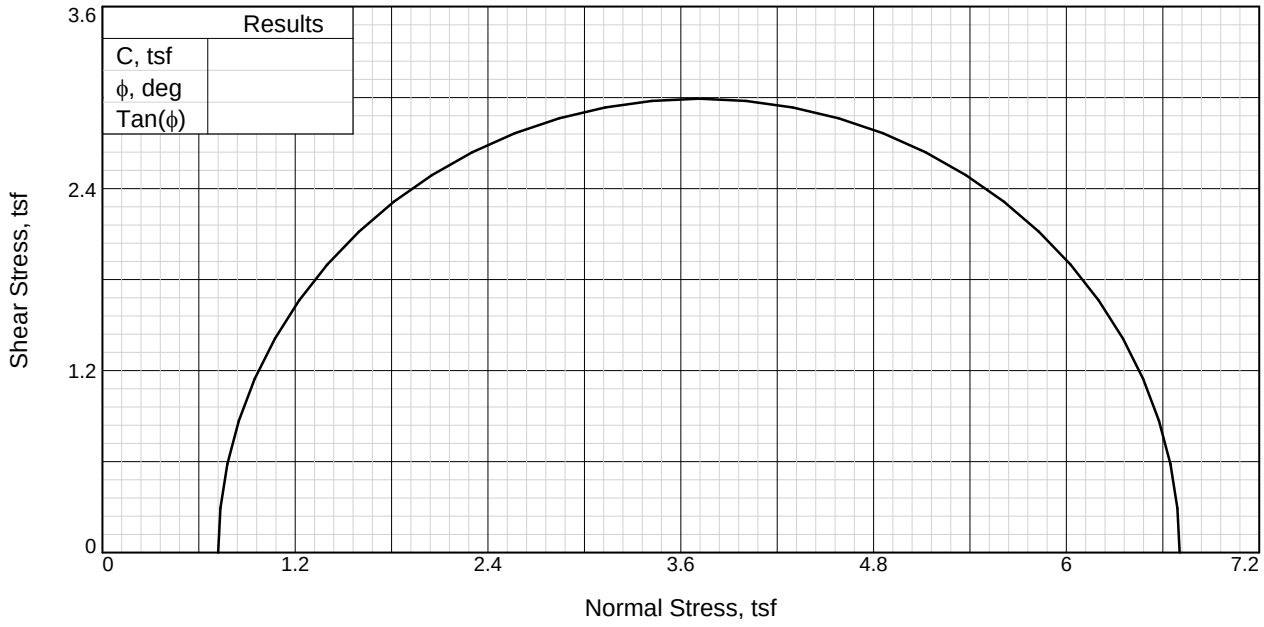
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-103 **Depth:** 10

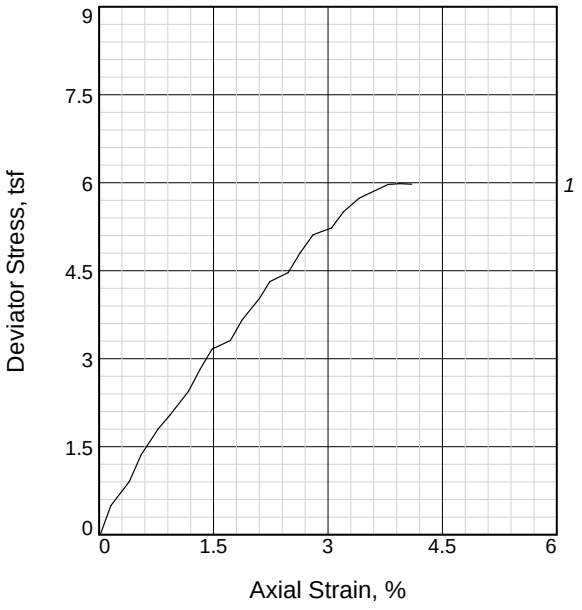
Proj. No.: S-2544-07 **Date Sampled:** 3/7/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	21.9
	Dry Density, pcf	98.2
	Saturation, %	82.3
	Void Ratio	0.7170
	Diameter, in.	2.75
	Height, in.	5.81
At Test	Water Content, %	21.9
	Dry Density, pcf	98.2
	Saturation, %	82.3
	Void Ratio	0.7170
	Diameter, in.	2.75
	Height, in.	5.81
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		5.99
Strain, %		3.9
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		6.71
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

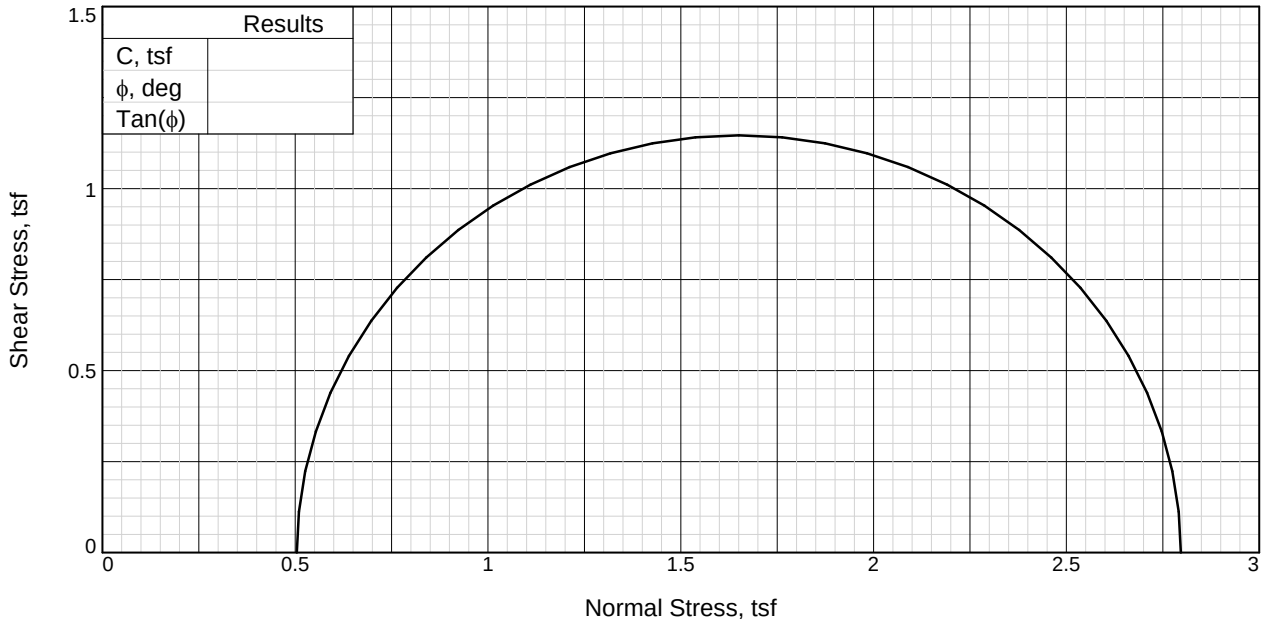
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-103 **Depth:** 12

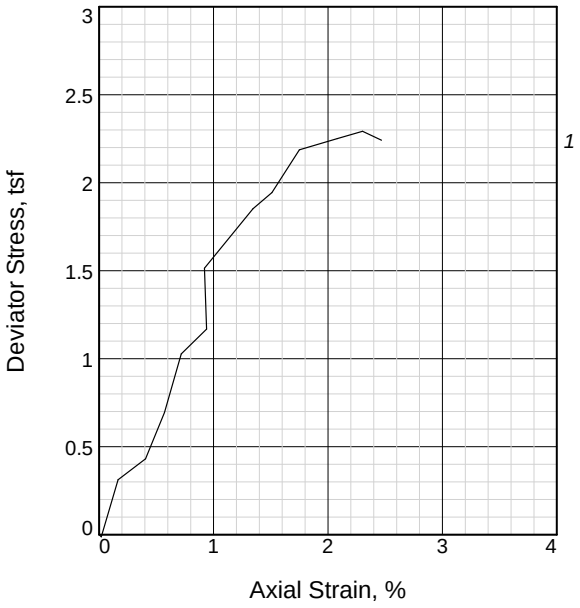
Proj. No.: S-2544-07 **Date Sampled:** 3/7/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	13.0
	Dry Density, pcf	98.2
	Saturation, %	48.9
	Void Ratio	0.7164
	Diameter, in.	2.76
	Height, in.	5.43
At Test	Water Content, %	13.0
	Dry Density, pcf	98.2
	Saturation, %	48.9
	Void Ratio	0.7164
	Diameter, in.	2.76
	Height, in.	5.43
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		2.29
Strain, %		2.3
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		2.80
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 38 **PL=** 23 **PI=** 15
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

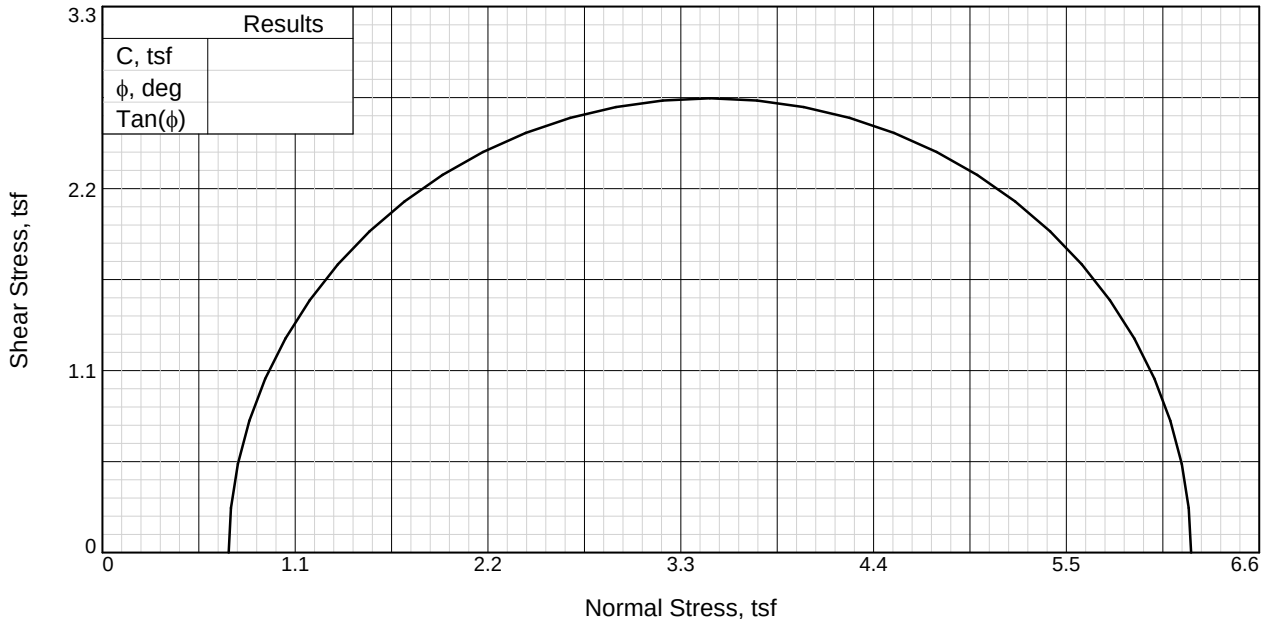
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-107 **Depth:** 10

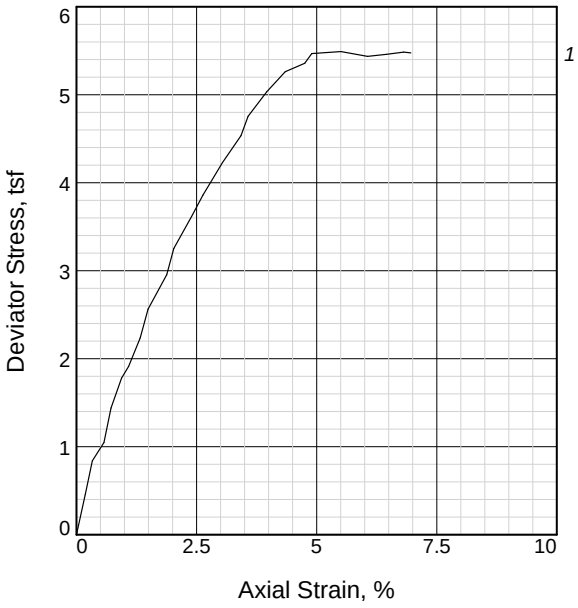
Proj. No.: S-2544-07 **Date Sampled:** 3/7/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	19.3
	Dry Density, pcf	106.3
	Saturation, %	89.0
	Void Ratio	0.5852
	Diameter, in.	2.72
	Height, in.	5.43
At Test	Water Content, %	19.3
	Dry Density, pcf	106.3
	Saturation, %	89.0
	Void Ratio	0.5852
	Diameter, in.	2.72
	Height, in.	5.43
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		5.49
Strain, %		5.5
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		6.21
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 45 **PL=** 20 **PI=** 25
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

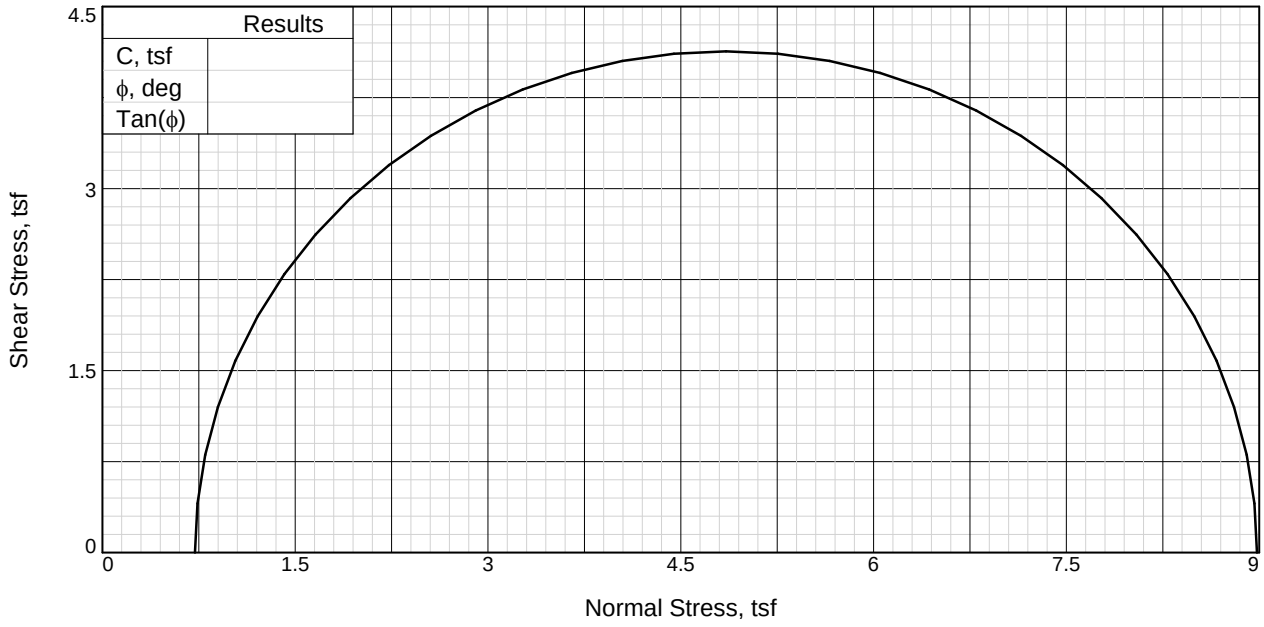
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-111 **Depth:** 12

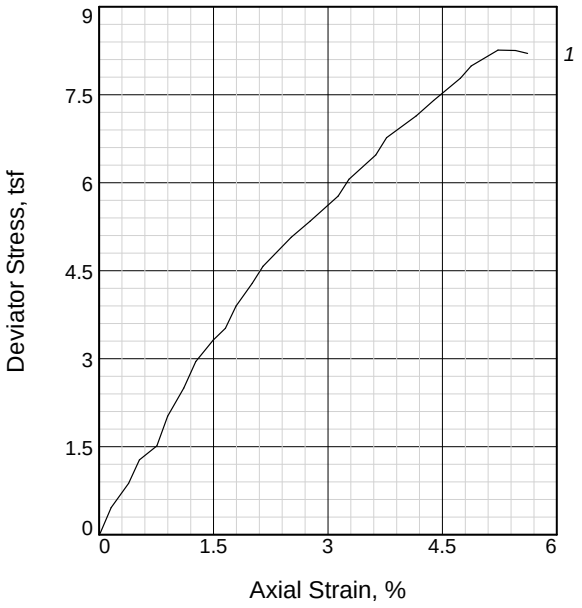
Proj. No.: S-2544-07 **Date Sampled:** 3/8/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	17.3
	Dry Density, pcf	105.3
	Saturation, %	77.7
	Void Ratio	0.6007
	Diameter, in.	2.74
	Height, in.	5.68
At Test	Water Content, %	17.3
	Dry Density, pcf	105.3
	Saturation, %	77.7
	Void Ratio	0.6007
	Diameter, in.	2.74
	Height, in.	5.68
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		8.26
Strain, %		5.2
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		8.98
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: - Lean, dark brown (CL)

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

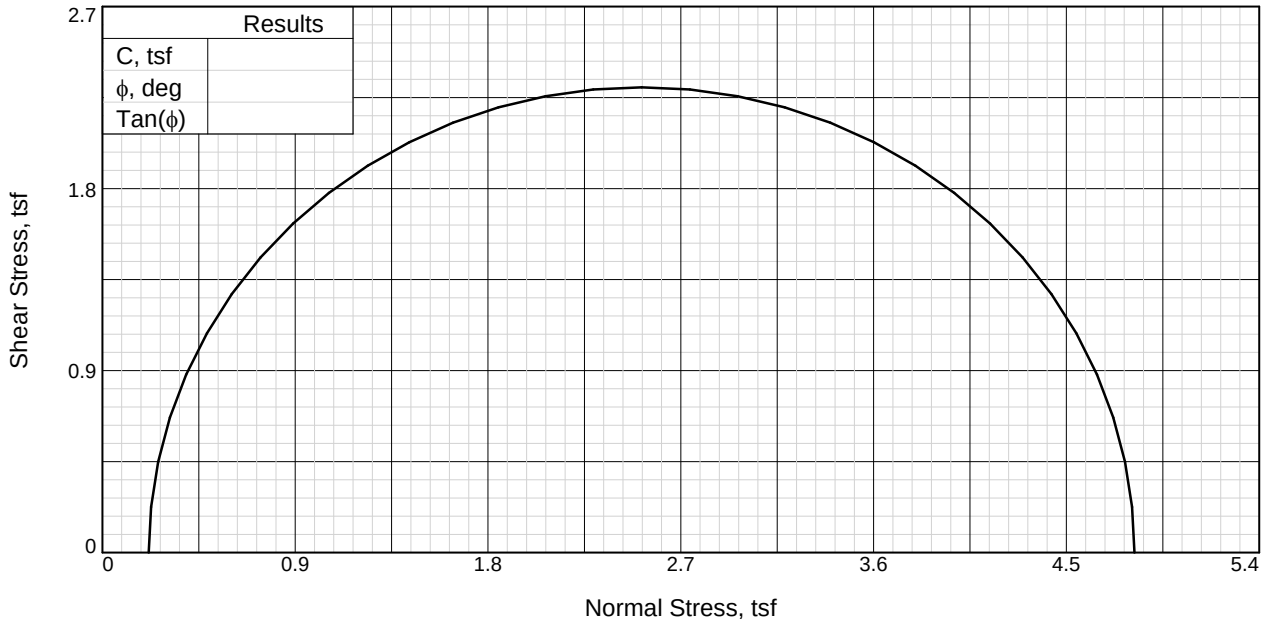
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-112 **Depth:** 12

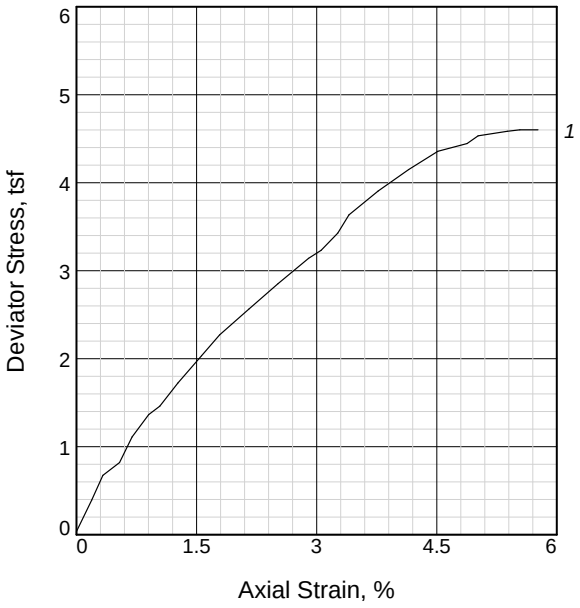
Proj. No.: S-2544-07 **Date Sampled:** 3/8/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	20.6
	Dry Density, pcf	102.3
	Saturation, %	85.9
	Void Ratio	0.6477
	Diameter, in.	2.73
	Height, in.	5.76
At Test	Water Content, %	20.6
	Dry Density, pcf	102.3
	Saturation, %	85.9
	Void Ratio	0.6477
	Diameter, in.	2.73
	Height, in.	5.76
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.22
Fail. Stress, tsf		4.60
Strain, %		5.8
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.82
σ_3 Failure, tsf		0.22

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 47 **PL=** 19 **PI=** 28
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

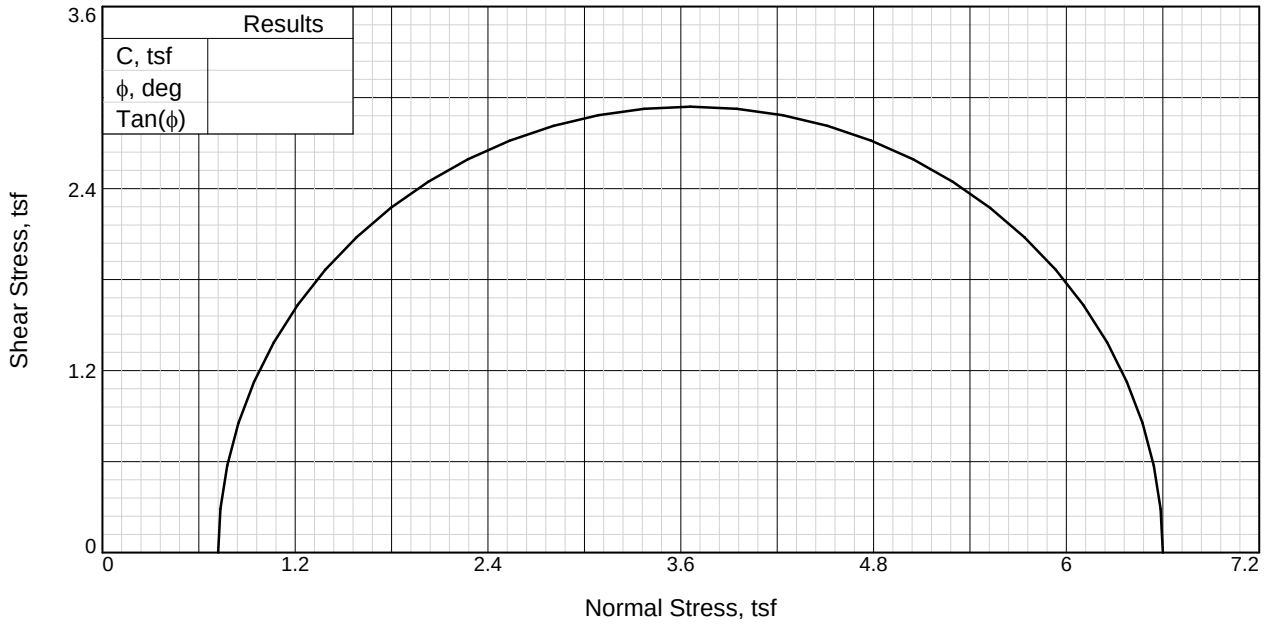
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-113 **Depth:** 4

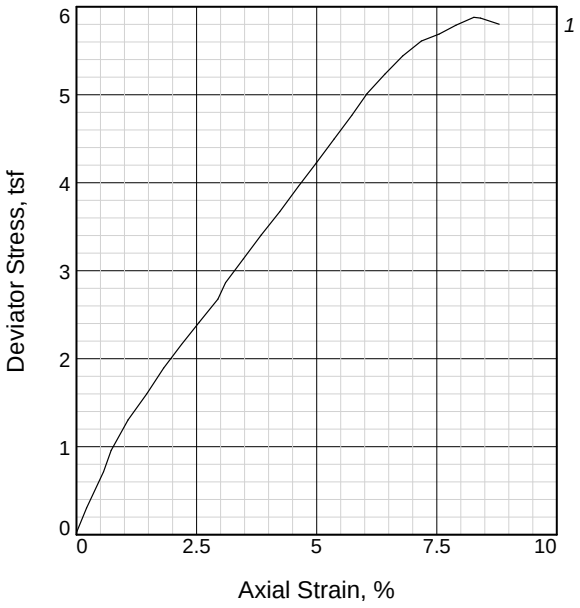
Proj. No.: S-2544-07 **Date Sampled:** 3/8/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	19.8
	Dry Density, pcf	104.1
	Saturation, %	86.1
	Void Ratio	0.6198
	Diameter, in.	2.74
	Height, in.	5.67
At Test	Water Content, %	19.8
	Dry Density, pcf	104.1
	Saturation, %	86.1
	Void Ratio	0.6198
	Diameter, in.	2.74
	Height, in.	5.67
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		5.88
Strain, %		8.3
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		6.60
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 50 **PL=** 20 **PI=** 30
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

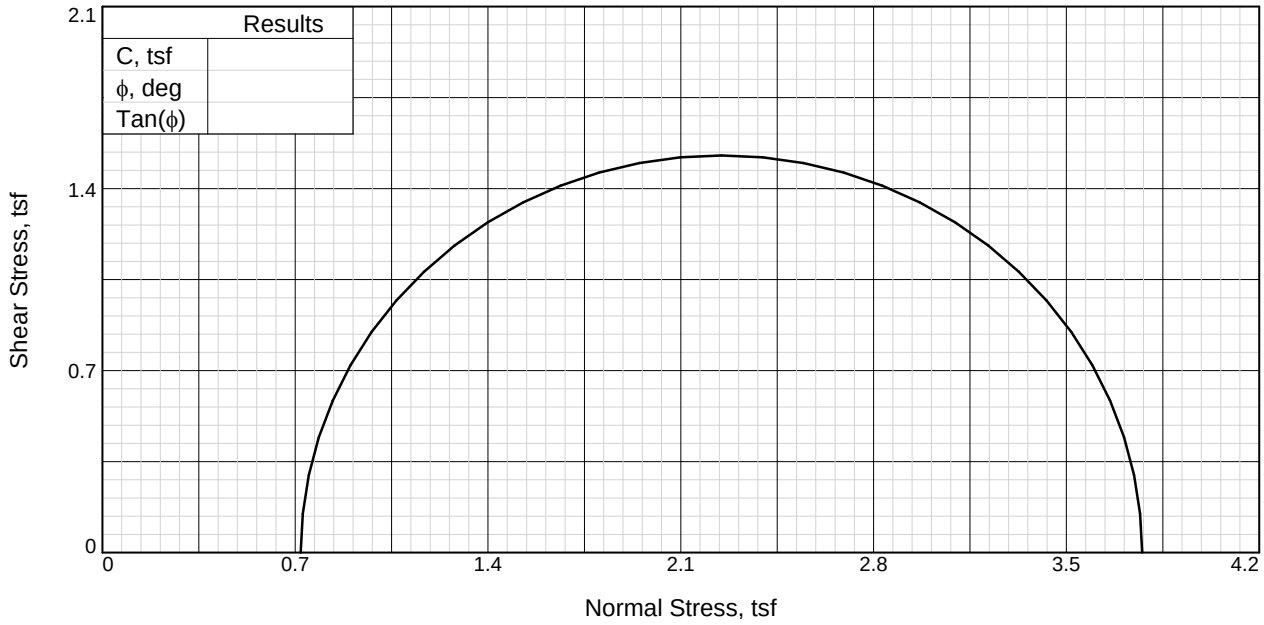
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-119 **Depth:** 12

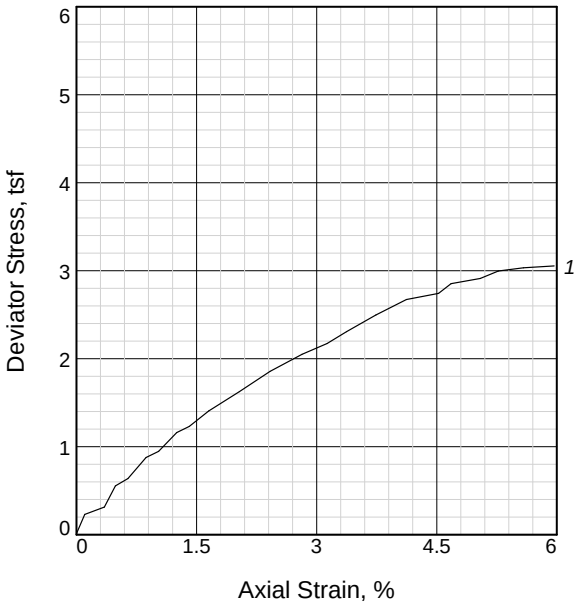
Proj. No.: S-2544-07 **Date Sampled:** 3/8/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	26.4
	Dry Density, pcf	92.7
	Saturation, %	87.2
	Void Ratio	0.8183
	Diameter, in.	2.75
	Height, in.	5.75
At Test	Water Content, %	26.4
	Dry Density, pcf	92.7
	Saturation, %	87.2
	Void Ratio	0.8183
	Diameter, in.	2.75
	Height, in.	5.75
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		3.05
Strain, %		6.0
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.77
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

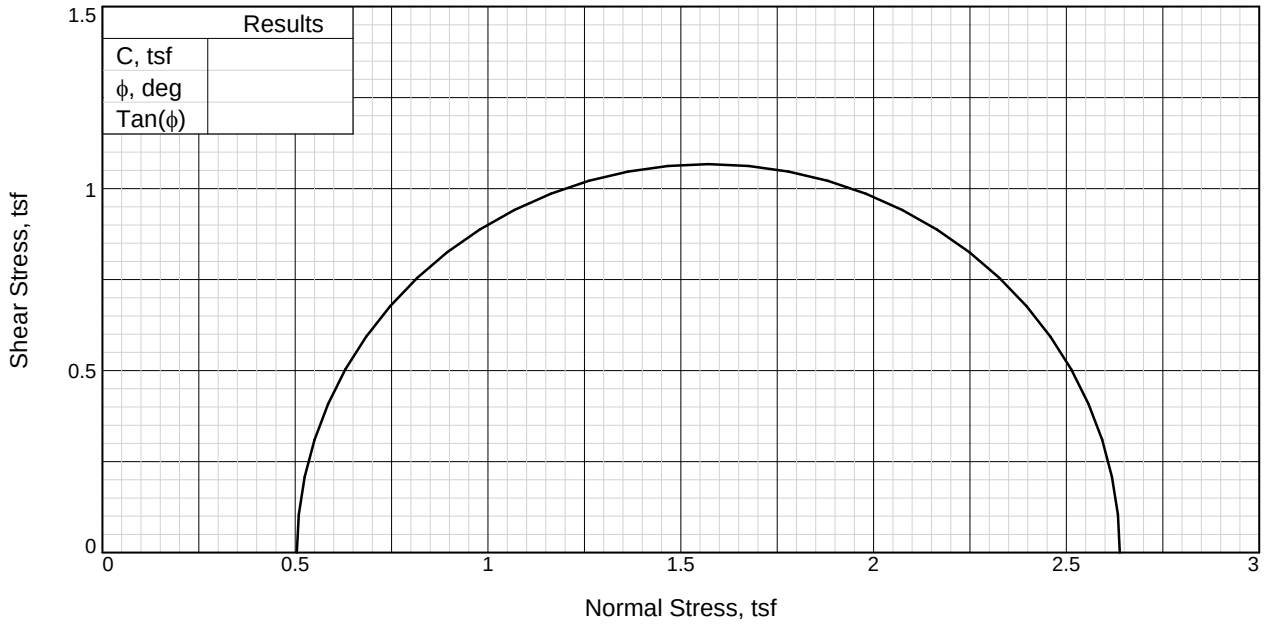
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-122 **Depth:** 12

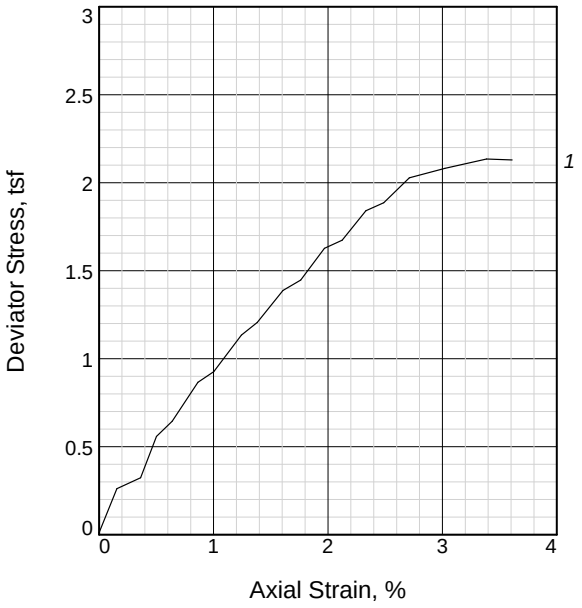
Proj. No.: S-2544-07 **Date Sampled:** 3/9/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	24.8
	Dry Density, pcf	94.1
	Saturation, %	84.5
	Void Ratio	0.7918
	Diameter, in.	2.71
	Height, in.	5.79
At Test	Water Content, %	24.8
	Dry Density, pcf	94.1
	Saturation, %	84.5
	Void Ratio	0.7918
	Diameter, in.	2.71
	Height, in.	5.79
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		2.13
Strain, %		3.4
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		2.64
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 49 **PL=** 20 **PI=** 29
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

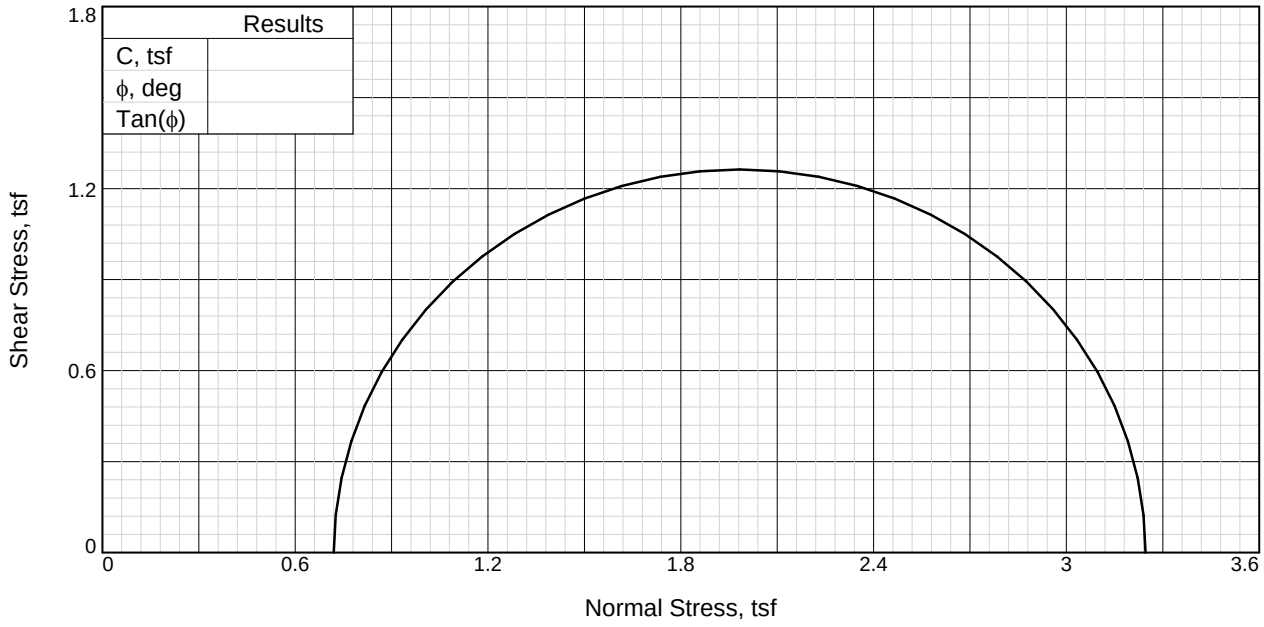
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-123 **Depth:** 8

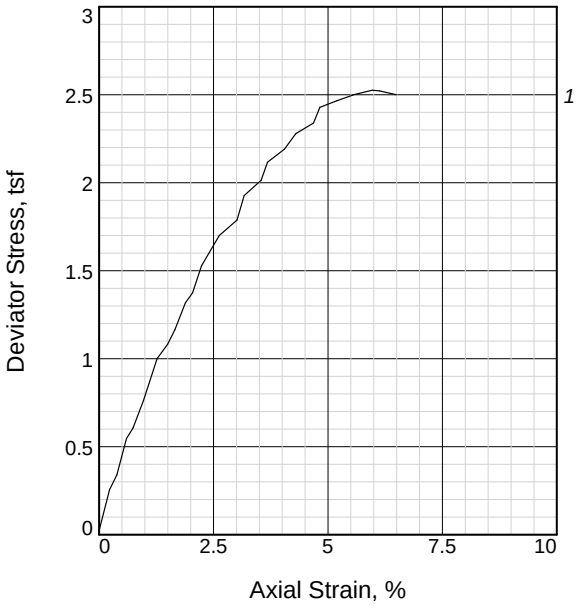
Proj. No.: S-2544-07 **Date Sampled:** 3/9/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	26.8
	Dry Density, pcf	93.6
	Saturation, %	90.5
	Void Ratio	0.8002
	Diameter, in.	2.74
	Height, in.	5.68
At Test	Water Content, %	26.8
	Dry Density, pcf	93.6
	Saturation, %	90.5
	Void Ratio	0.8002
	Diameter, in.	2.74
	Height, in.	5.68
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		2.53
Strain, %		6.0
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.25
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: CLAY - Fat, dark brown (CH)

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

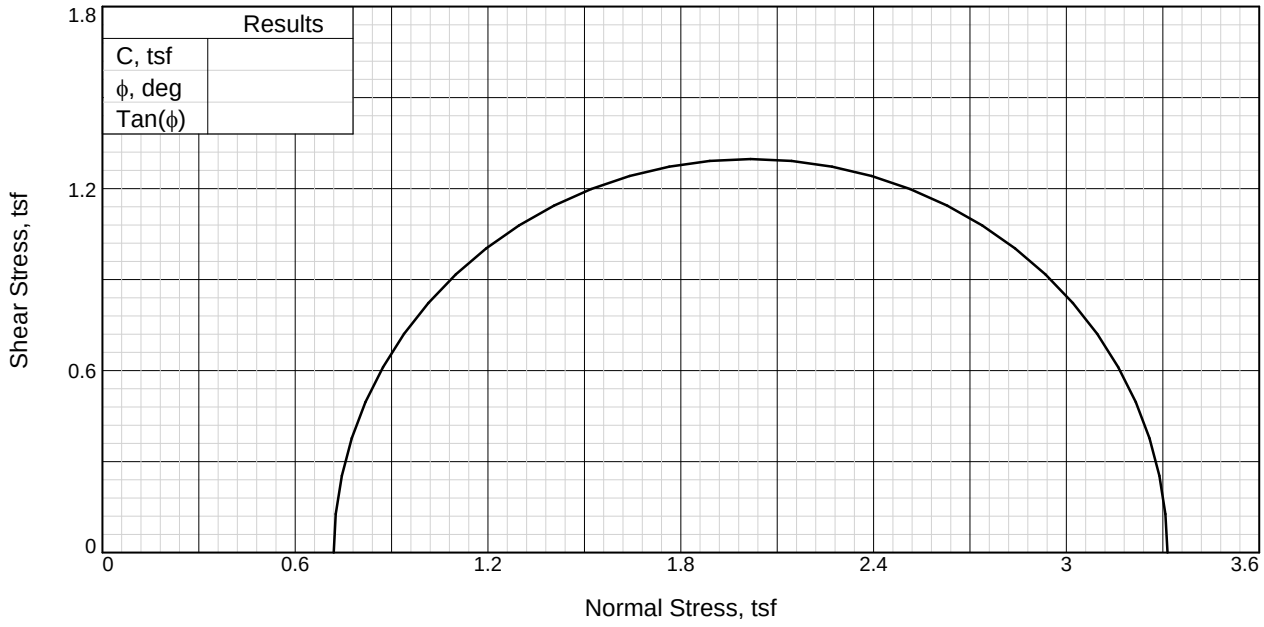
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-124 **Depth:** 13

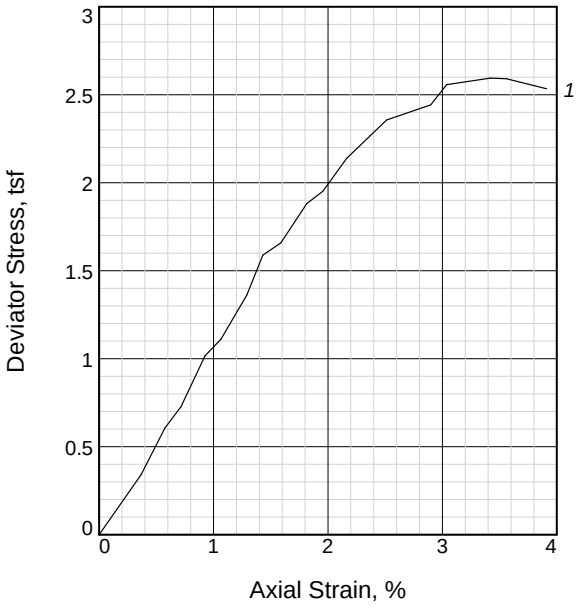
Proj. No.: S-2544-07 **Date Sampled:** 3/9/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	29.4
	Dry Density, pcf	87.9
	Saturation, %	86.6
	Void Ratio	0.9184
	Diameter, in.	2.74
	Height, in.	5.73
At Test	Water Content, %	29.4
	Dry Density, pcf	87.9
	Saturation, %	86.6
	Void Ratio	0.9184
	Diameter, in.	2.74
	Height, in.	5.73
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		2.59
Strain, %		3.4
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.31
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

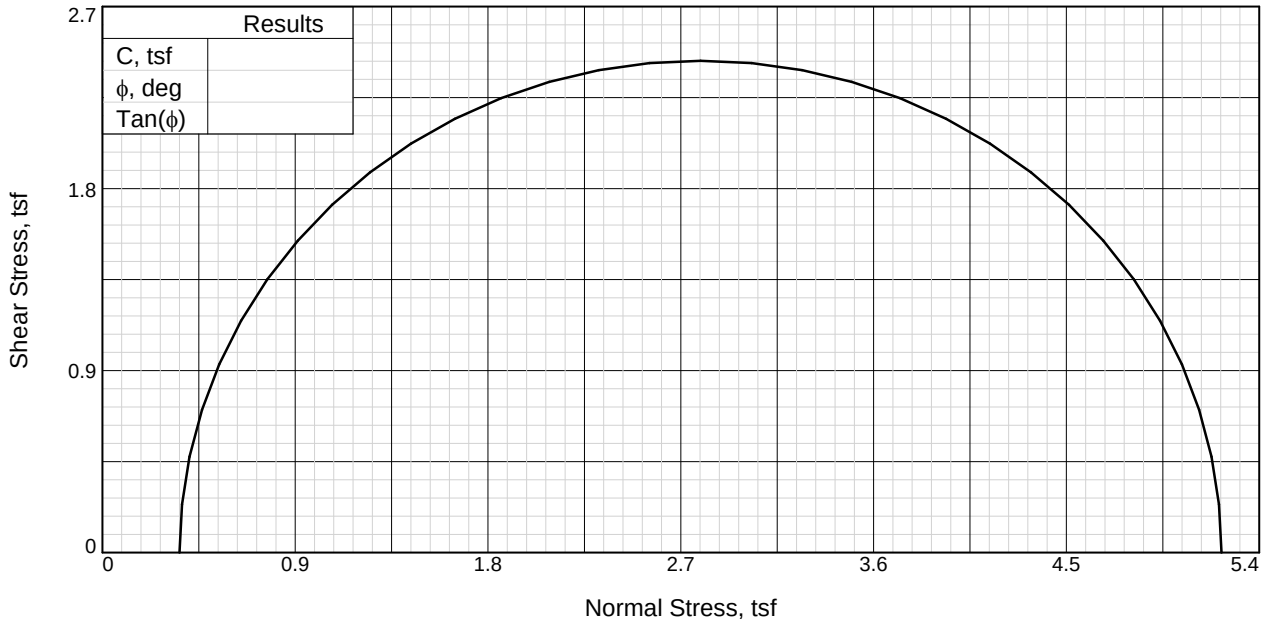
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-126 **Depth:** 14

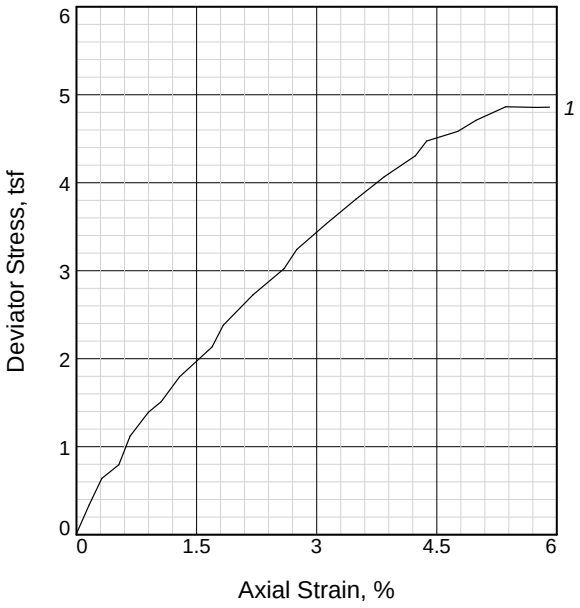
Proj. No.: S-2544-07 **Date Sampled:** 3/9/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	25.1
	Dry Density, pcf	96.4
	Saturation, %	90.3
	Void Ratio	0.7490
	Diameter, in.	2.75
	Height, in.	5.67
At Test	Water Content, %	25.1
	Dry Density, pcf	96.4
	Saturation, %	90.3
	Void Ratio	0.7490
	Diameter, in.	2.75
	Height, in.	5.67
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.36
Fail. Stress, tsf		4.86
Strain, %		5.4
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		5.22
σ_3 Failure, tsf		0.36

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

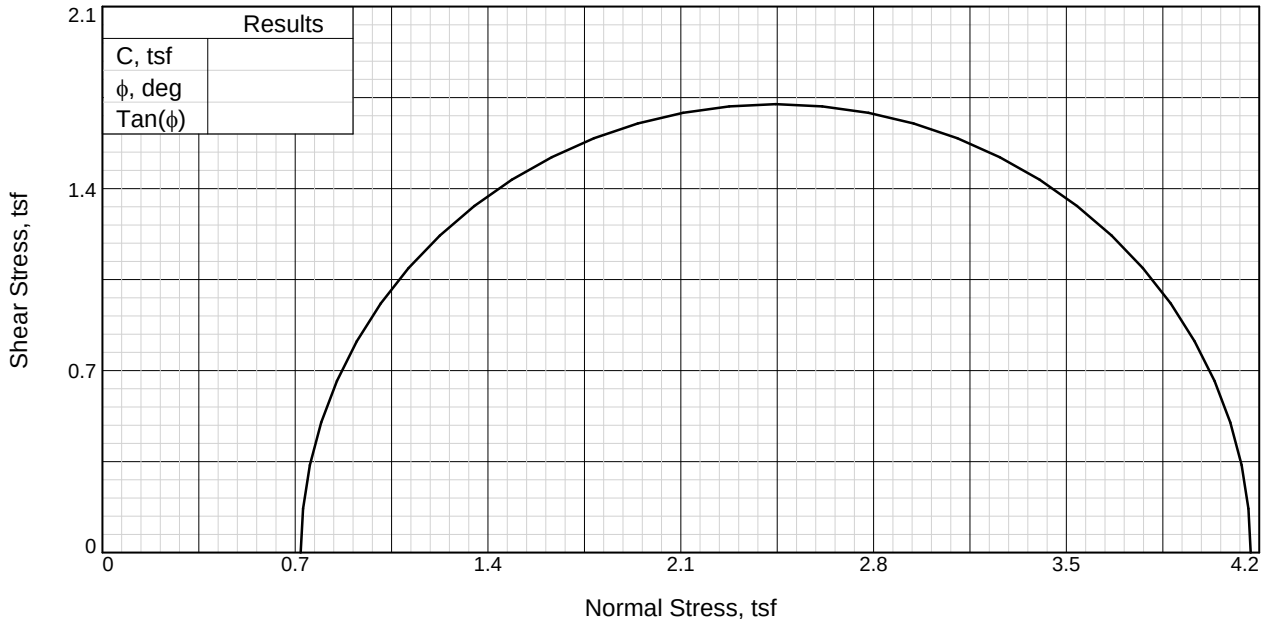
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-126 **Depth:** 6

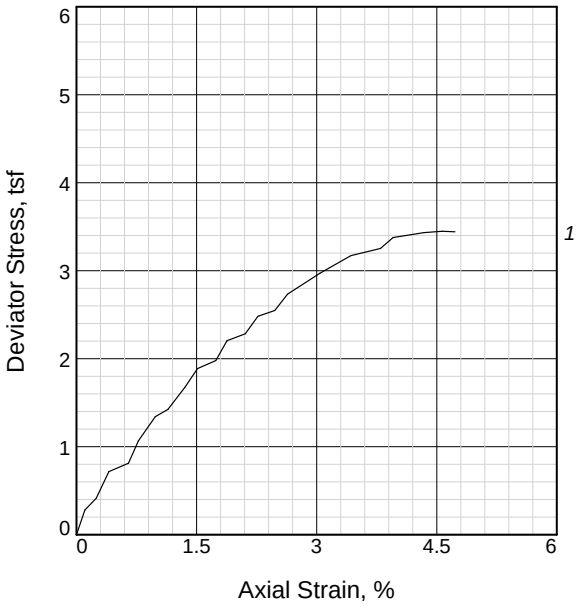
Proj. No.: S-2544-07 **Date Sampled:** 3/9/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	19.7
	Dry Density, pcf	95.7
	Saturation, %	69.8
	Void Ratio	0.7612
	Diameter, in.	2.74
	Height, in.	5.69
At Test	Water Content, %	19.7
	Dry Density, pcf	95.7
	Saturation, %	69.8
	Void Ratio	0.7612
	Diameter, in.	2.74
	Height, in.	5.69
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		3.45
Strain, %		4.6
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.17
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 60 **PL=** 23 **PI=** 37
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

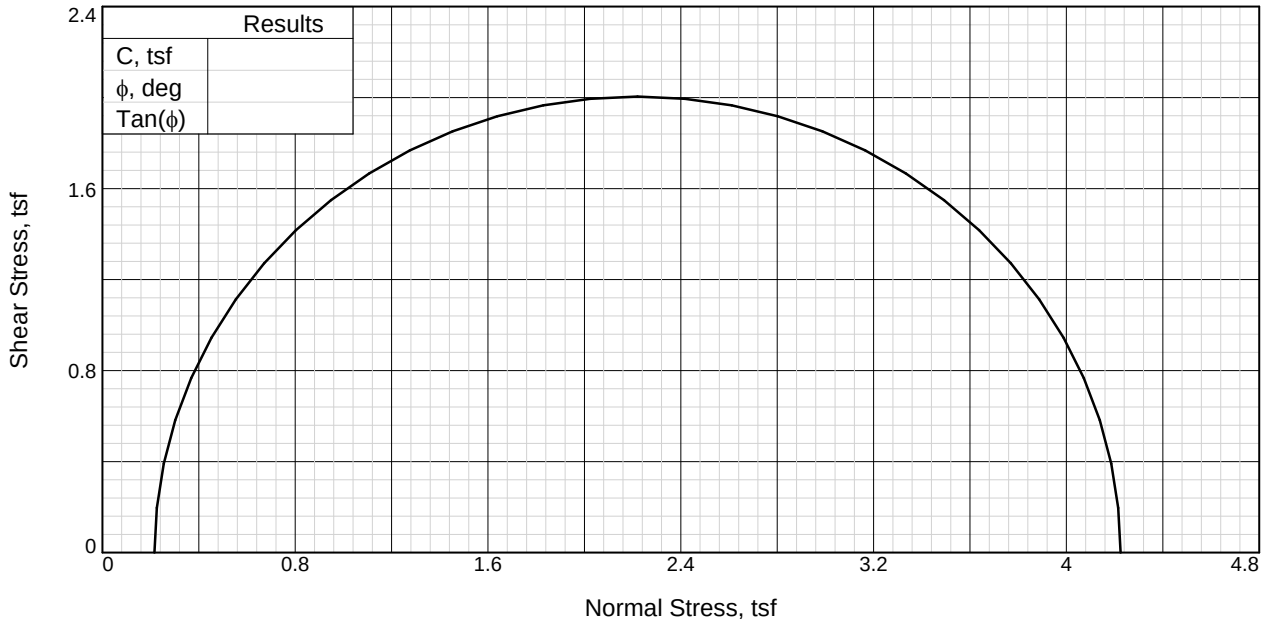
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-127 **Depth:** 13

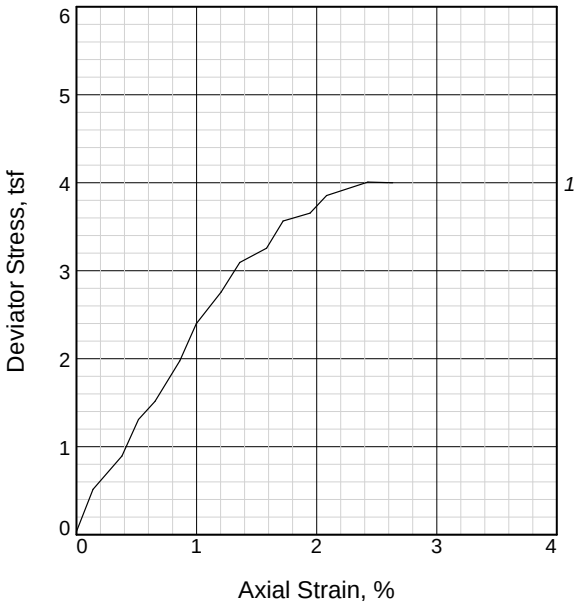
Proj. No.: S-2544-07 **Date Sampled:** 3/9/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	23.9
	Dry Density, pcf	93.3
	Saturation, %	79.9
	Void Ratio	0.8074
	Diameter, in.	2.73
	Height, in.	5.81
At Test	Water Content, %	23.9
	Dry Density, pcf	93.3
	Saturation, %	79.9
	Void Ratio	0.8074
	Diameter, in.	2.73
	Height, in.	5.81
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.22
Fail. Stress, tsf		4.01
Strain, %		2.4
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.22
σ_3 Failure, tsf		0.22

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

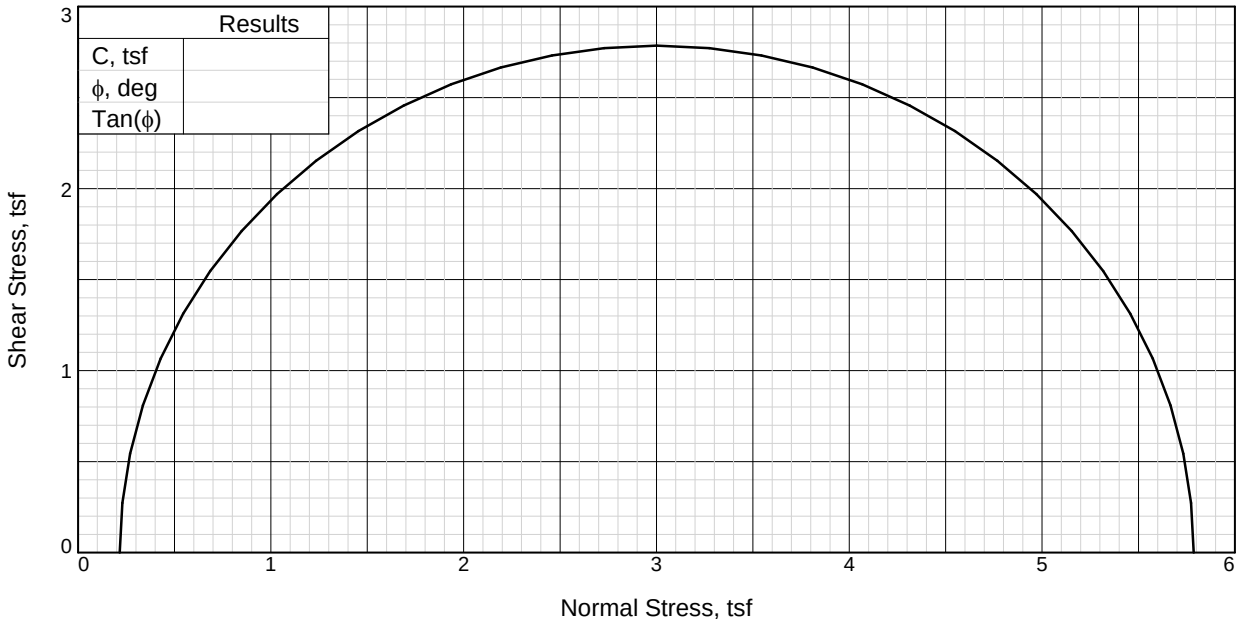
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-127 **Depth:** 4

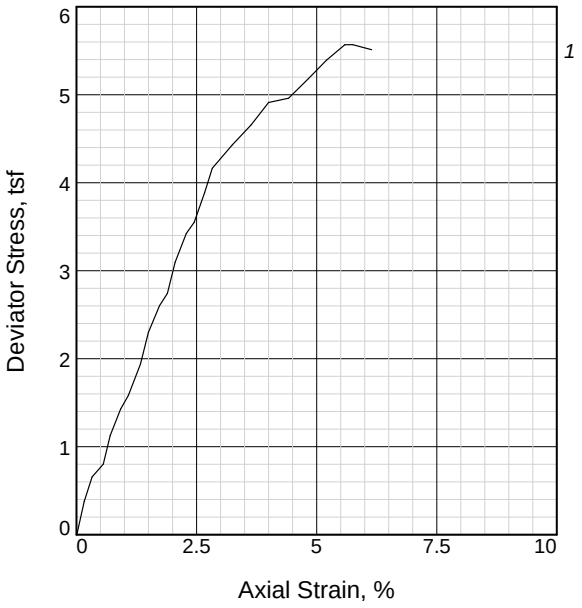
Proj. No.: S-2544-07 **Date Sampled:** 3/9/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	18.5
	Dry Density, pcf	105.9
	Saturation, %	84.4
	Void Ratio	0.5914
	Diameter, in.	2.74
	Height, in.	5.55
At Test	Water Content, %	18.5
	Dry Density, pcf	105.9
	Saturation, %	84.4
	Void Ratio	0.5914
	Diameter, in.	2.74
	Height, in.	5.55
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.22
Fail. Stress, tsf		5.57
Strain, %		5.7
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		5.79
σ_3 Failure, tsf		0.22

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 44 **PL=** 17 **PI=** 27
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

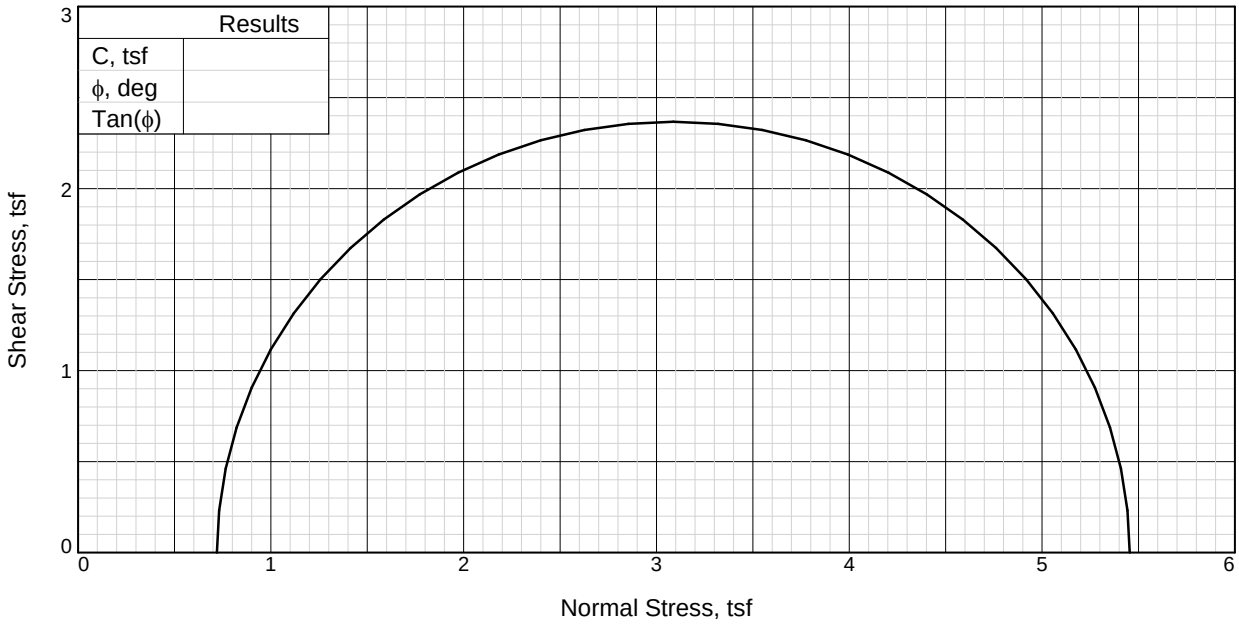
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-129 **Depth:** 4

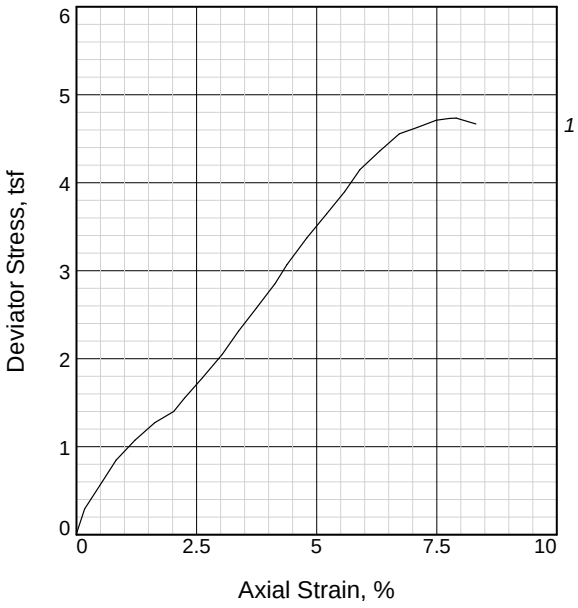
Proj. No.: S-2544-07 **Date Sampled:** 3/9/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	20.8
	Dry Density, pcf	101.3
	Saturation, %	84.7
	Void Ratio	0.6647
	Diameter, in.	2.74
	Height, in.	5.34
At Test	Water Content, %	20.8
	Dry Density, pcf	101.3
	Saturation, %	84.7
	Void Ratio	0.6647
	Diameter, in.	2.74
	Height, in.	5.34
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		4.73
Strain, %		7.9
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		5.45
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

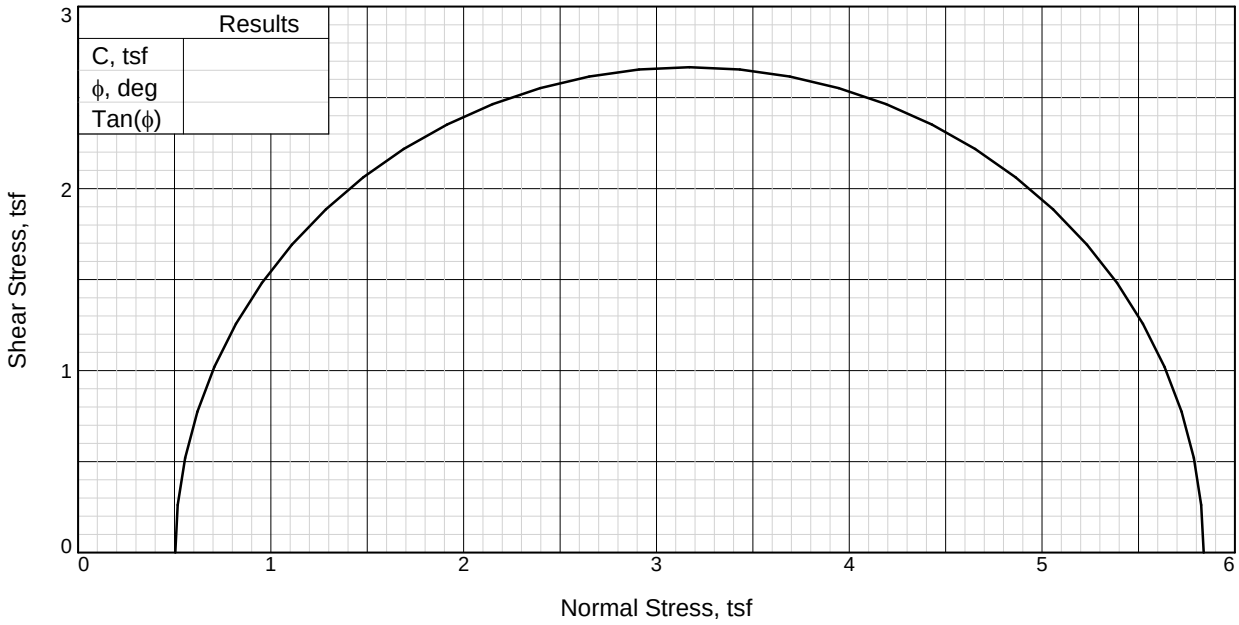
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-130 **Depth:** 12

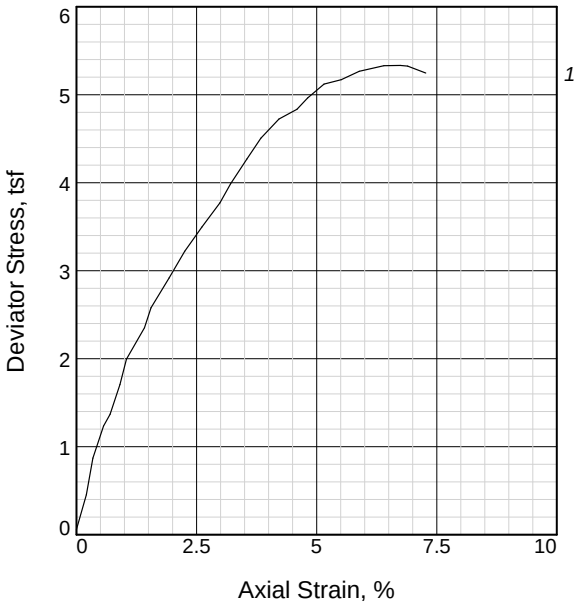
Proj. No.: S-2544-07 **Date Sampled:** 3/9/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	22.3
	Dry Density, pcf	101.0
	Saturation, %	90.0
	Void Ratio	0.6685
	Diameter, in.	2.73
	Height, in.	5.86
At Test	Water Content, %	22.3
	Dry Density, pcf	101.0
	Saturation, %	90.0
	Void Ratio	0.6685
	Diameter, in.	2.73
	Height, in.	5.86
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		5.33
Strain, %		6.7
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		5.84
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: - Fat, dark brown (CH)

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

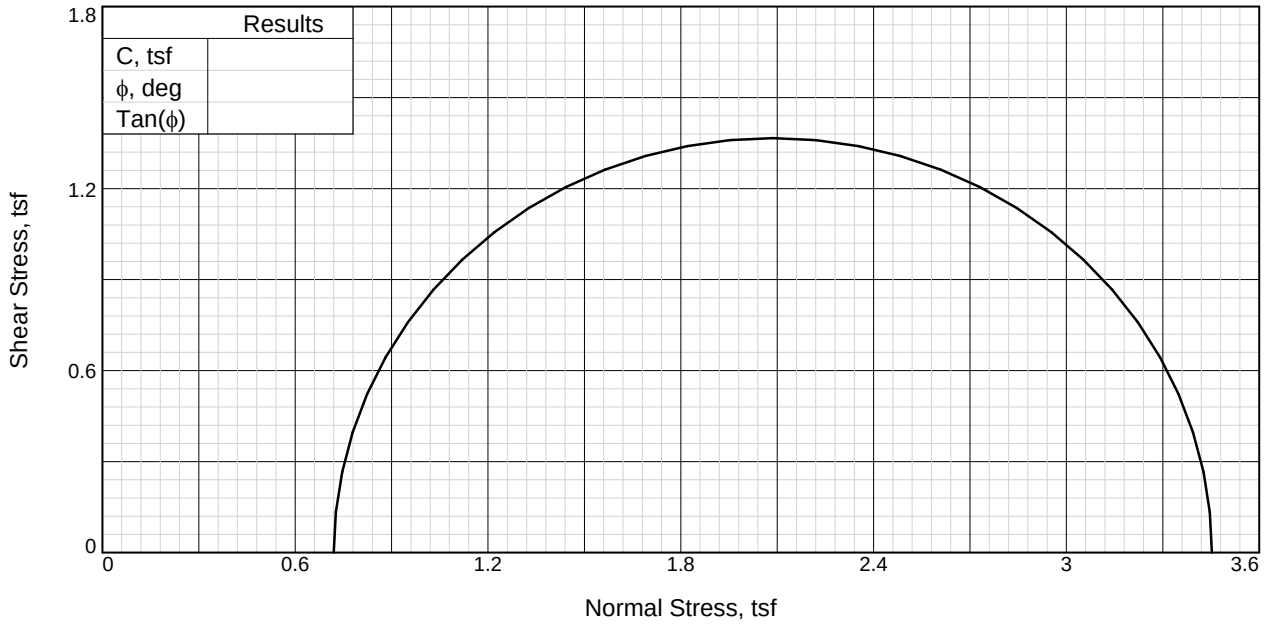
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-131 **Depth:** 11

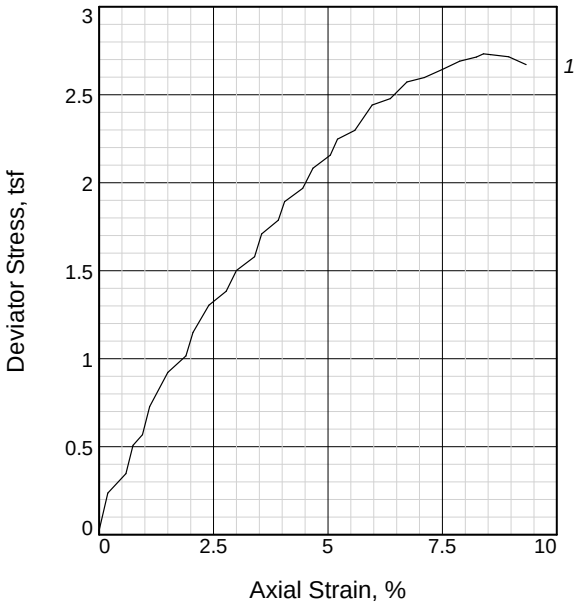
Proj. No.: S-2544-07 **Date Sampled:** 3/9/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	26.5
	Dry Density, pcf	98.0
	Saturation, %	99.1
	Void Ratio	0.7206
	Diameter, in.	2.71
	Height, in.	5.80
At Test	Water Content, %	26.5
	Dry Density, pcf	98.0
	Saturation, %	99.1
	Void Ratio	0.7206
	Diameter, in.	2.71
	Height, in.	5.80
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		2.73
Strain, %		8.4
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.45
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 45 **PL=** 18 **PI=** 27
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

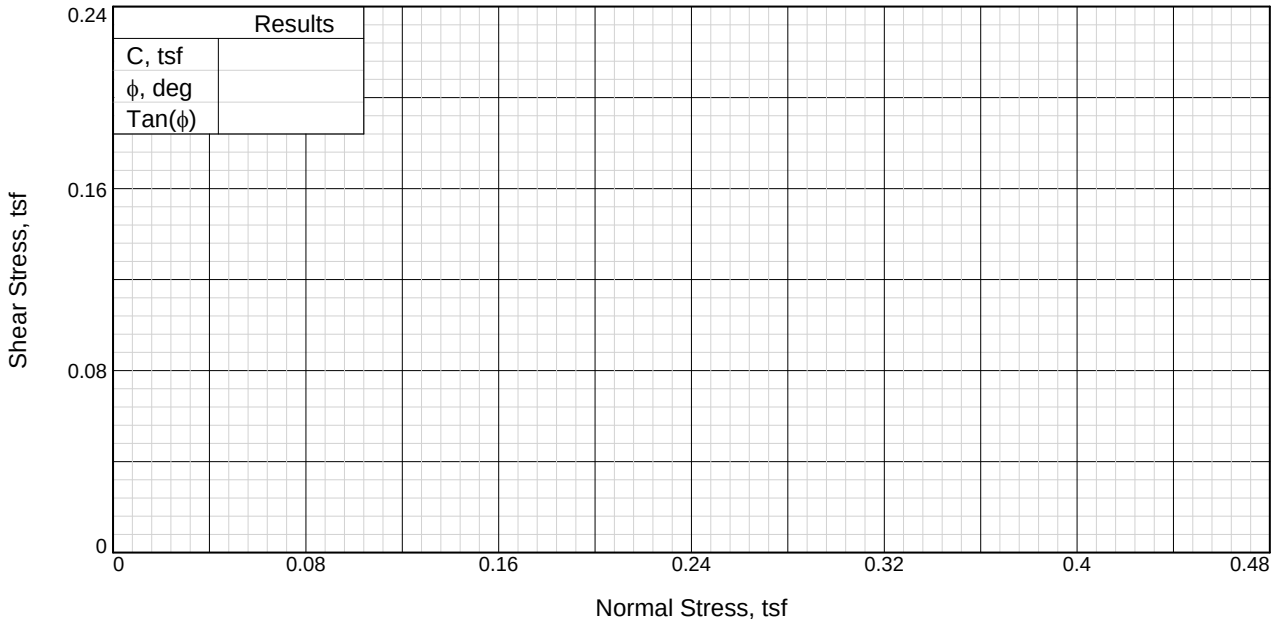
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-133 **Depth:** 12

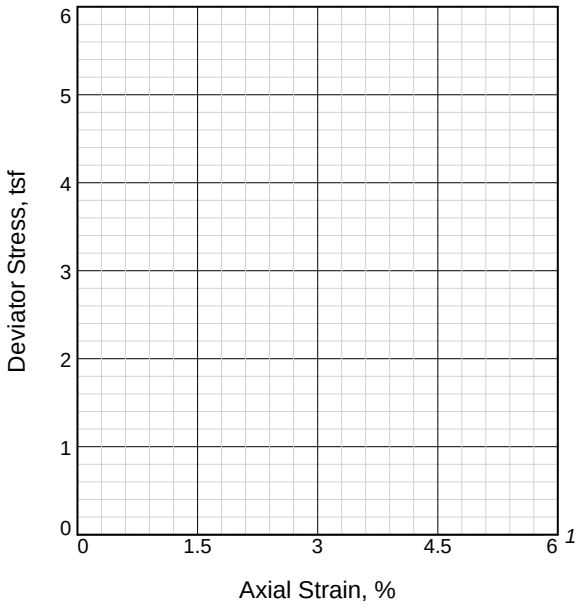
Proj. No.: S-2544-07 **Date Sampled:** 3/9/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	23.8
	Dry Density, pcf	97.2
	Saturation, %	87.6
	Void Ratio	0.7340
	Diameter, in.	2.71
	Height, in.	5.51
At Test	Water Content, %	23.8
	Dry Density, pcf	97.2
	Saturation, %	87.6
	Void Ratio	0.7340
	Diameter, in.	2.71
	Height, in.	5.51
Strain rate, in./min.		0.08
Back Pressure, tsf		0.0000
Cell Pressure, tsf		0.5040
Fail. Stress, tsf		0.0000
Strain, %		0.0
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		0.5040
σ_3 Failure, tsf		0.5040

Type of Test:
Unconsolidated Undrained
Sample Type:
Description: CLAY - Fat, brown (CH)

LL= 55 **PL=** 20 **PI=** 35
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

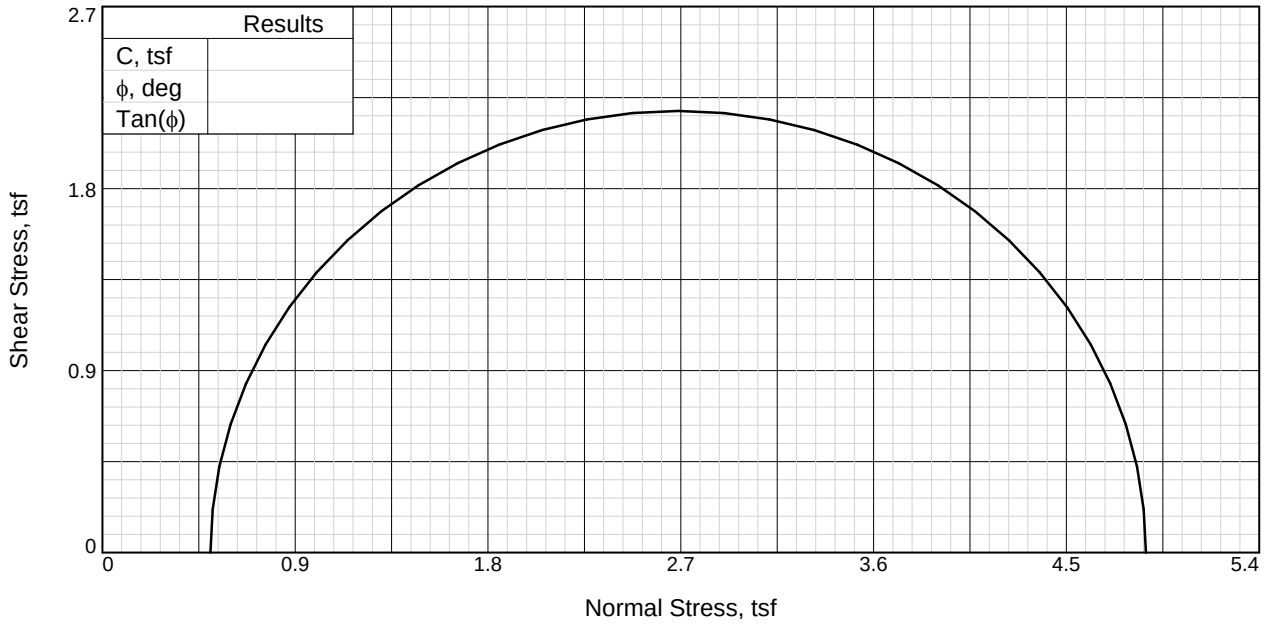
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-134 **Depth:** 10

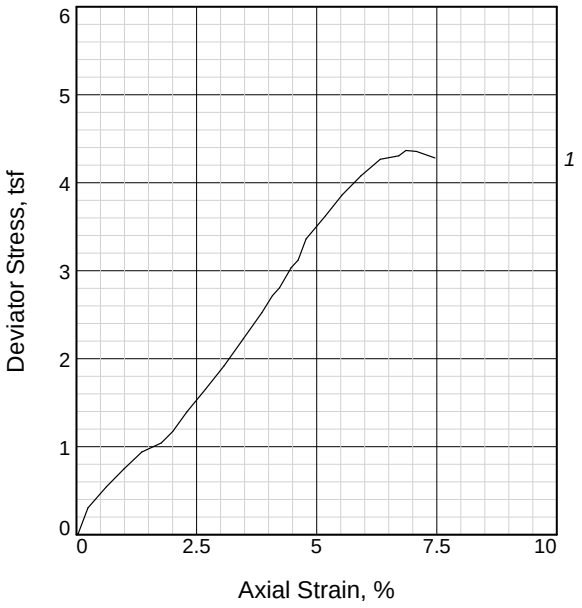
Proj. No.: S-2544-07 **Date Sampled:** 3/9/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	17.7
	Dry Density, pcf	104.2
	Saturation, %	77.3
	Void Ratio	0.6173
	Diameter, in.	2.74
	Height, in.	5.44
At Test	Water Content, %	17.7
	Dry Density, pcf	104.2
	Saturation, %	77.3
	Void Ratio	0.6173
	Diameter, in.	2.74
	Height, in.	5.44
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		4.37
Strain, %		6.9
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.87
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: CLAY - Fat, dark brown (CH)

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

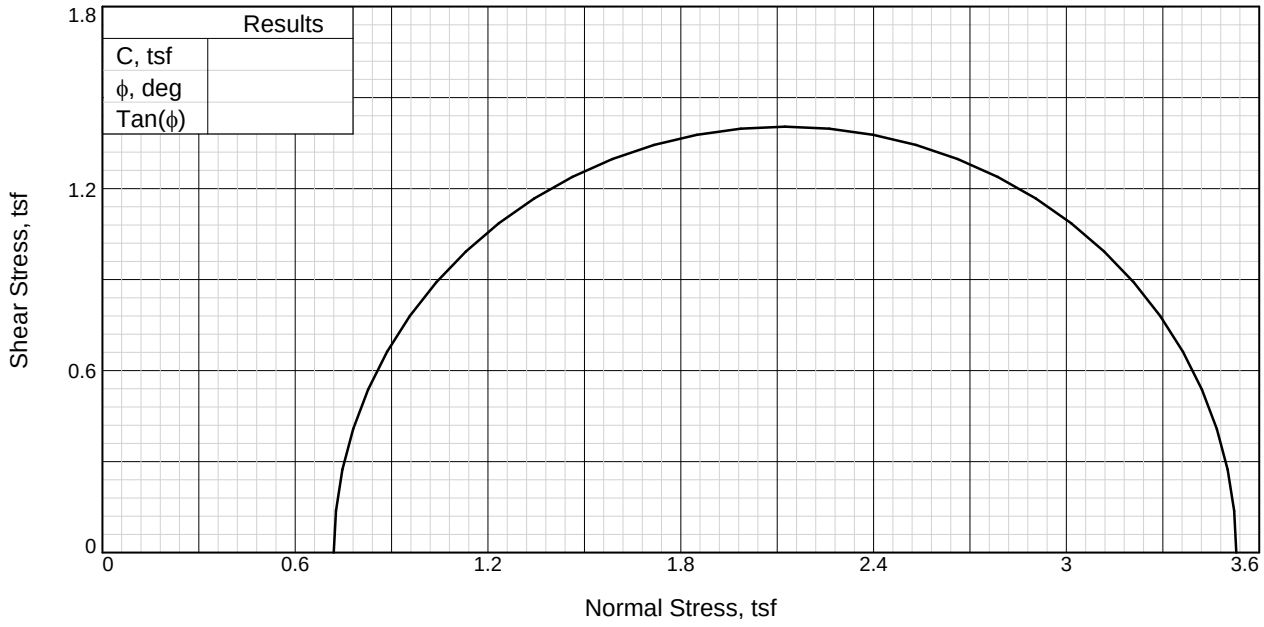
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-135 **Depth:** 10

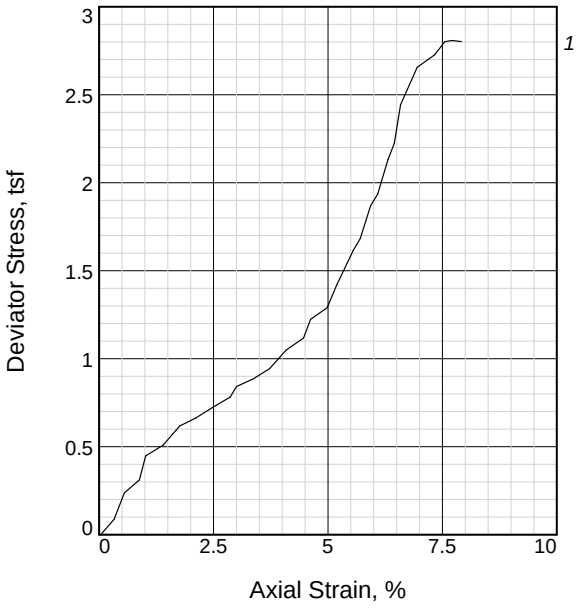
Proj. No.: S-2544-07 **Date Sampled:** 3/12/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	23.8
	Dry Density, pcf	91.9
	Saturation, %	77.1
	Void Ratio	0.8335
	Diameter, in.	2.70
	Height, in.	5.80
At Test	Water Content, %	23.8
	Dry Density, pcf	91.9
	Saturation, %	77.1
	Void Ratio	0.8335
	Diameter, in.	2.70
	Height, in.	5.80
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		2.81
Strain, %		7.7
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.53
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 59 **PL=** 21 **PI=** 38
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

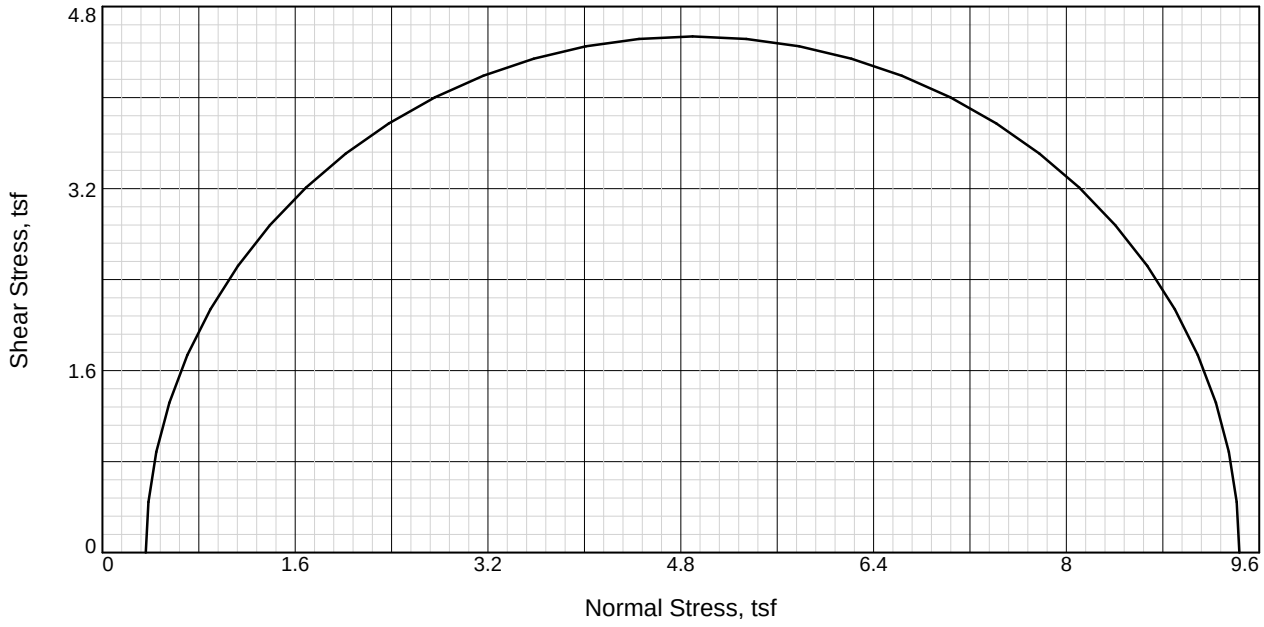
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-135 **Depth:** 12

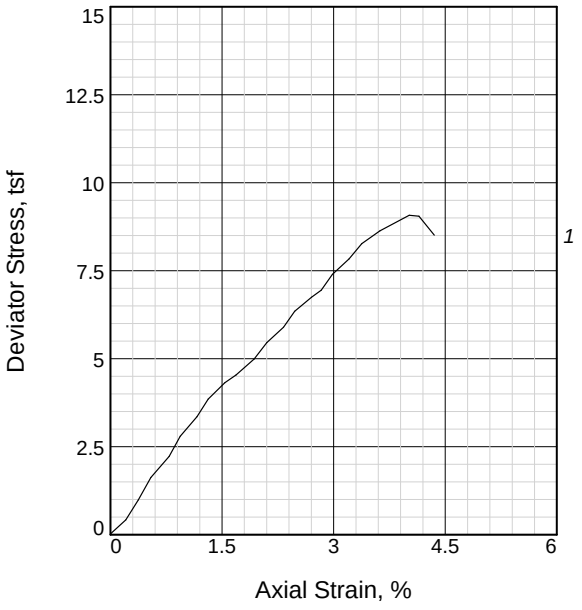
Proj. No.: S-2544-07 **Date Sampled:** 3/12/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	15.1
	Dry Density, pcf	104.6
	Saturation, %	66.5
	Void Ratio	0.6113
	Diameter, in.	2.75
	Height, in.	5.33
At Test	Water Content, %	15.1
	Dry Density, pcf	104.6
	Saturation, %	66.5
	Void Ratio	0.6113
	Diameter, in.	2.75
	Height, in.	5.33
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.36
Fail. Stress, tsf		9.08
Strain, %		4.0
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		9.44
σ_3 Failure, tsf		0.36

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: CLAY - Lean, brown (CL)

LL= 48 **PL=** 23 **PI=** 25
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

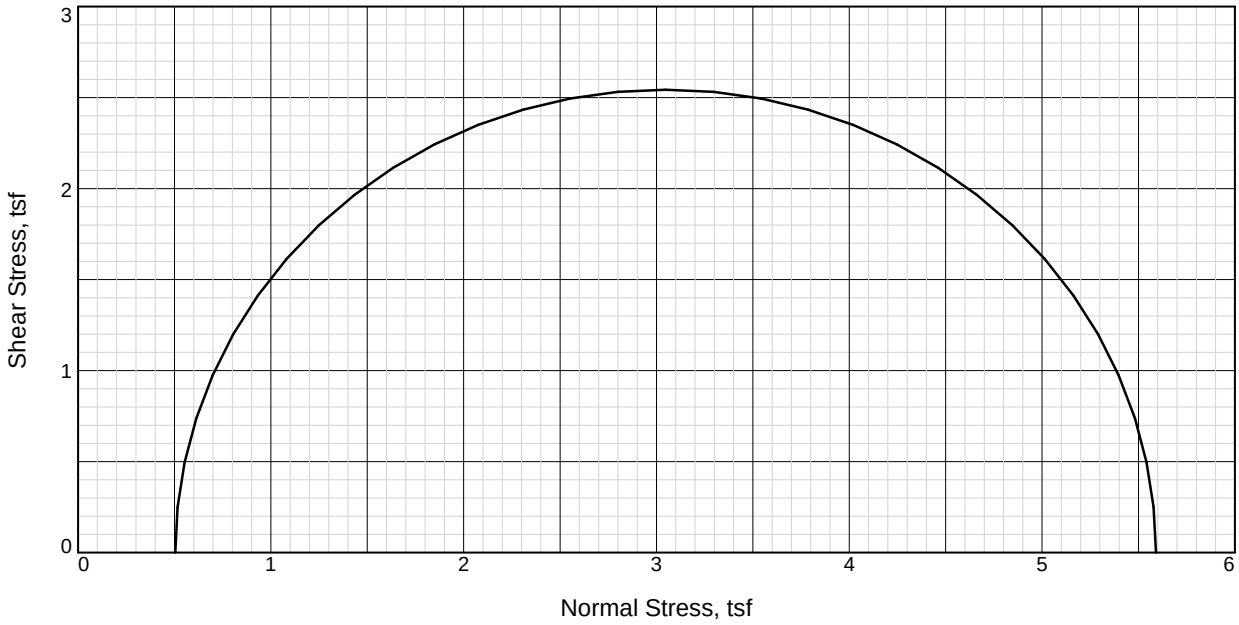
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-137 **Depth:** 6

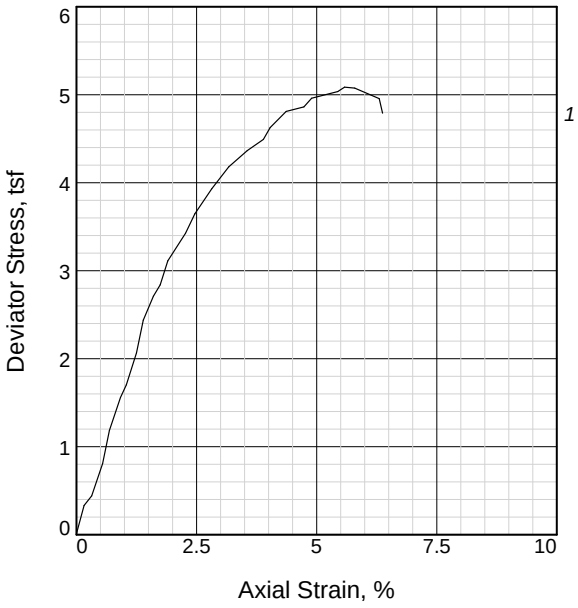
Proj. No.: S-2544-07 **Date Sampled:** 3/15/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	25.6
	Dry Density, pcf	98.4
	Saturation, %	97.0
	Void Ratio	0.7126
	Diameter, in.	2.73
	Height, in.	5.68
At Test	Water Content, %	25.6
	Dry Density, pcf	98.4
	Saturation, %	97.0
	Void Ratio	0.7126
	Diameter, in.	2.73
	Height, in.	5.68
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		5.09
Strain, %		5.6
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		5.59
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: CLAY - Fat, dark brown (CH)

LL= 61 **PL=** 23 **PI=** 38
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

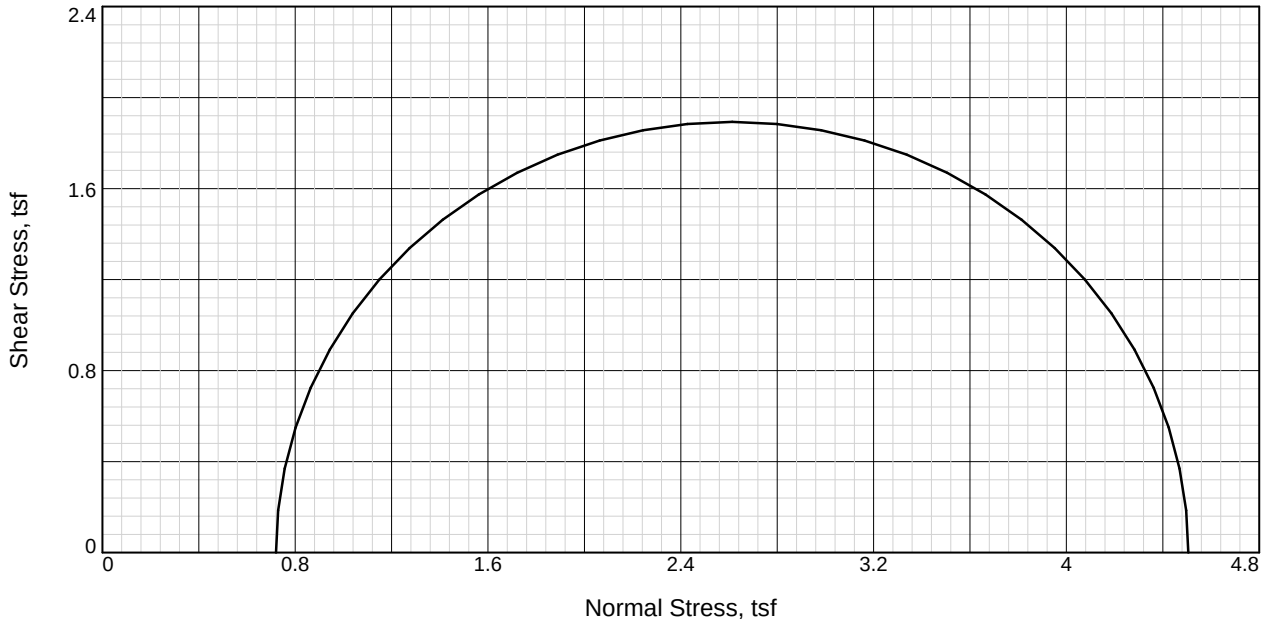
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-141 **Depth:** 11

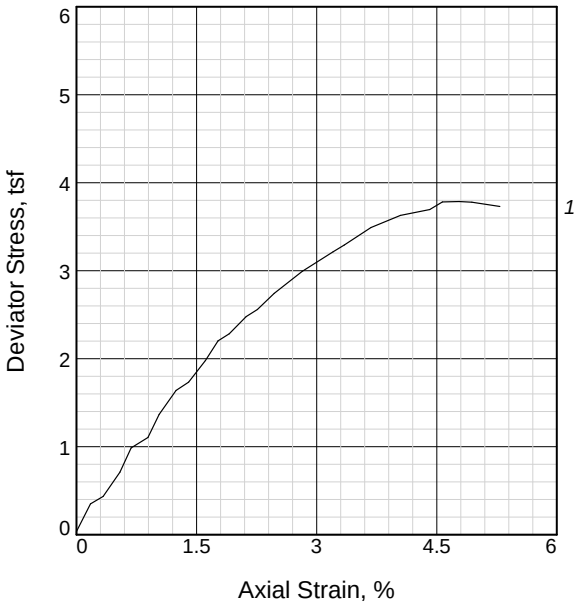
Proj. No.: S-2544-07 **Date Sampled:** 3/15/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	26.3
	Dry Density, pcf	96.5
	Saturation, %	95.2
	Void Ratio	0.7471
	Diameter, in.	2.75
	Height, in.	5.71
At Test	Water Content, %	26.3
	Dry Density, pcf	96.5
	Saturation, %	95.2
	Void Ratio	0.7471
	Diameter, in.	2.75
	Height, in.	5.71
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		3.79
Strain, %		4.8
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.51
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: CLAY - Fat, dark brown (CH)

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

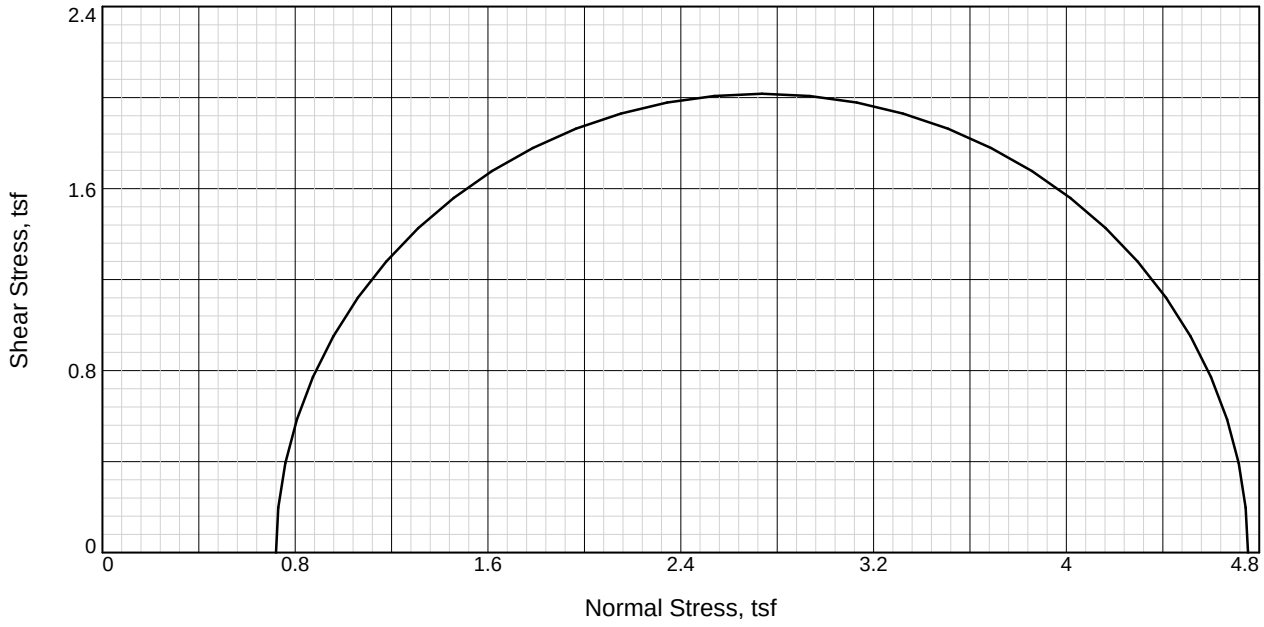
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-142 **Depth:** 12

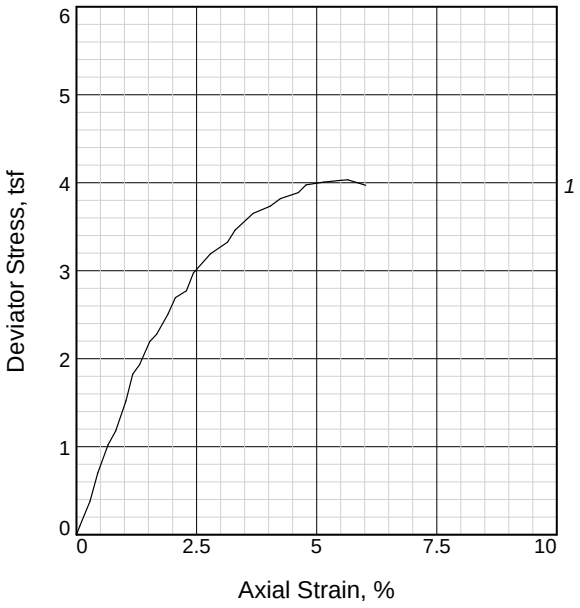
Proj. No.: S-2544-07 **Date Sampled:** 3/15/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	25.6
	Dry Density, pcf	98.9
	Saturation, %	98.0
	Void Ratio	0.7046
	Diameter, in.	2.72
	Height, in.	5.63
At Test	Water Content, %	25.6
	Dry Density, pcf	98.9
	Saturation, %	98.0
	Void Ratio	0.7046
	Diameter, in.	2.72
	Height, in.	5.63
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		4.03
Strain, %		5.6
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.75
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 55 **PL=** 23 **PI=** 32
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

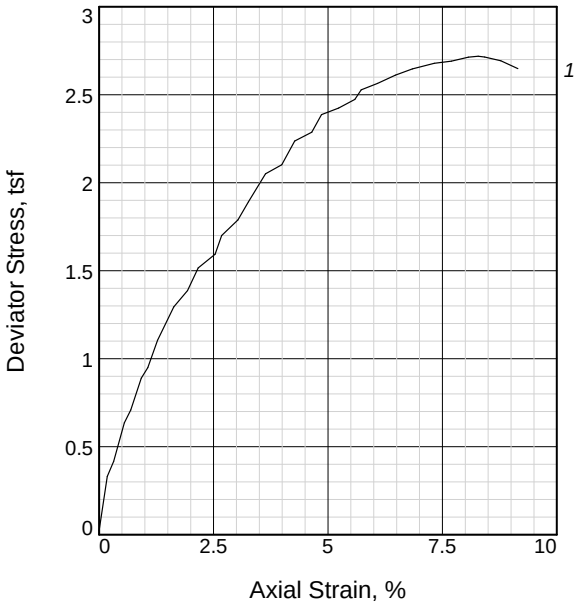
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-143 **Depth:** 12

Proj. No.: S-2544-07 **Date Sampled:** 3/15/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP



Sample No.		1
Initial	Water Content, %	25.9
	Dry Density, pcf	97.6
	Saturation, %	96.2
	Void Ratio	0.7268
	Diameter, in.	2.73
	Height, in.	5.64
At Test	Water Content, %	25.9
	Dry Density, pcf	97.6
	Saturation, %	96.2
	Void Ratio	0.7268
	Diameter, in.	2.73
	Height, in.	5.64
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		2.72
Strain, %		8.3
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.22
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: - Fat, dark brown (CH)

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

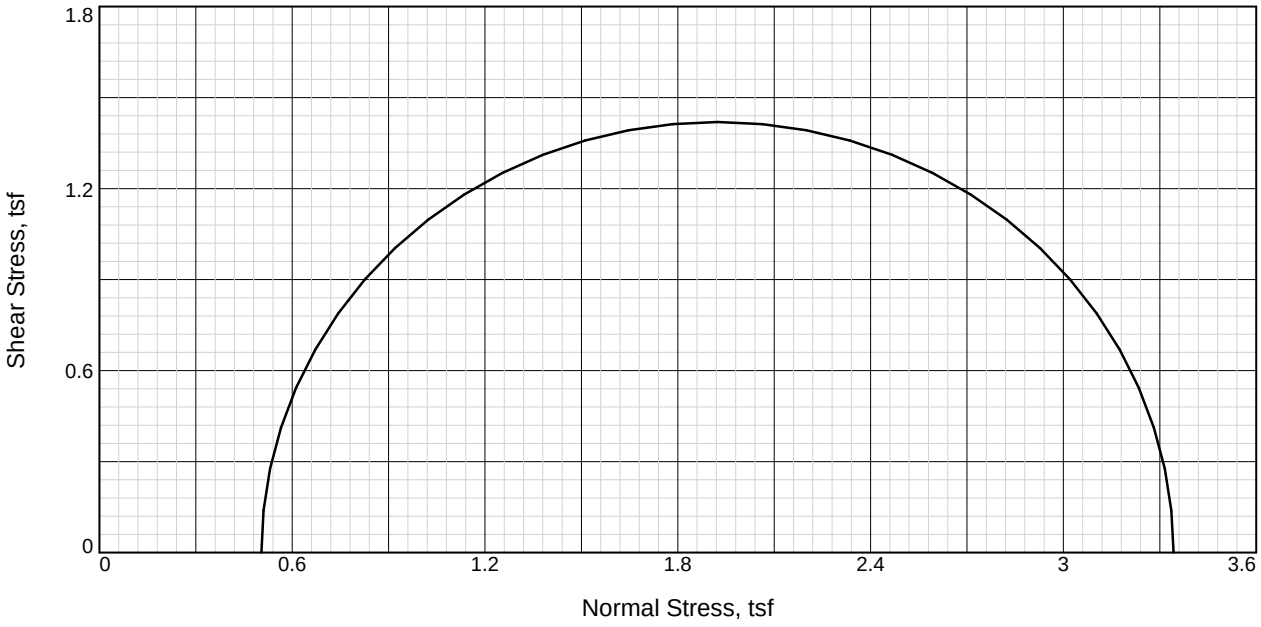
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-145 **Depth:** 11

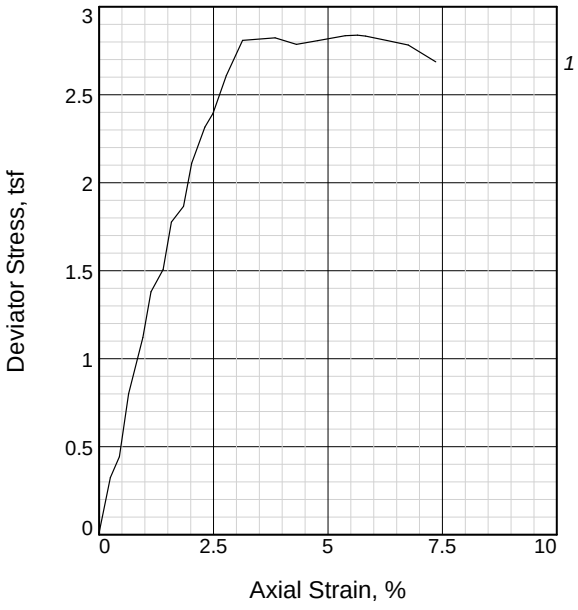
Proj. No.: S-2544-07 **Date Sampled:** 3/15/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	24.3
	Dry Density, pcf	93.2
	Saturation, %	81.2
	Void Ratio	0.8080
	Diameter, in.	2.76
	Height, in.	4.50
At Test	Water Content, %	24.3
	Dry Density, pcf	93.2
	Saturation, %	81.2
	Void Ratio	0.8080
	Diameter, in.	2.76
	Height, in.	4.50
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		2.84
Strain, %		5.6
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.34
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 48 **PL=** 24 **PI=** 24
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

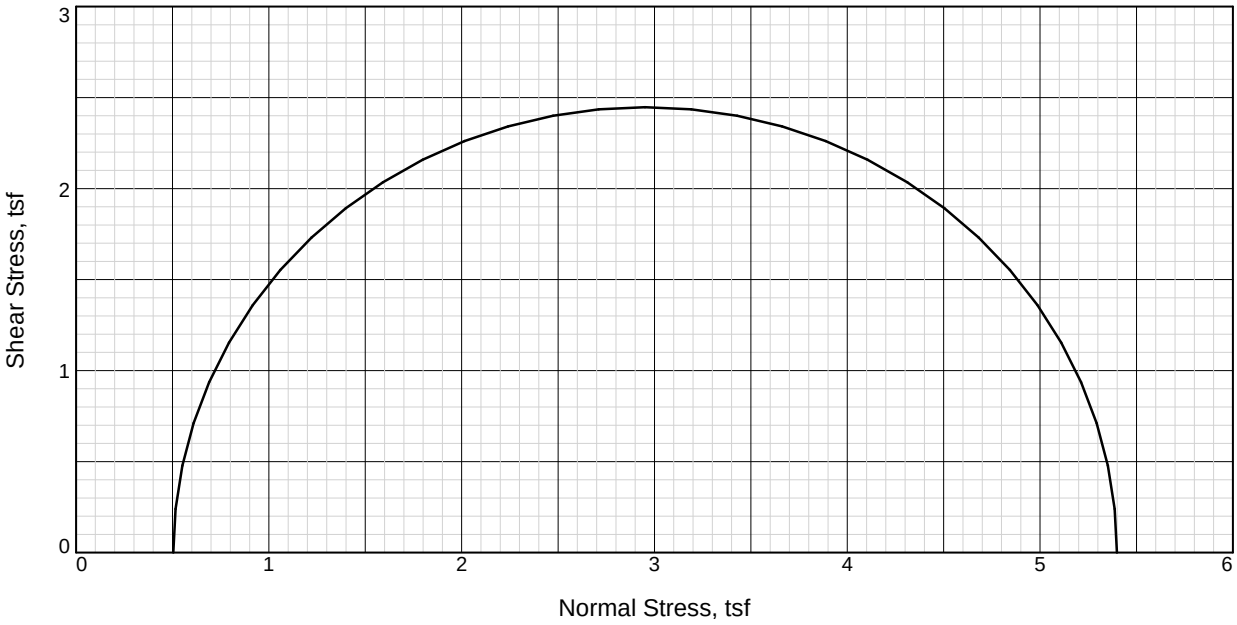
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-146 **Depth:** 10

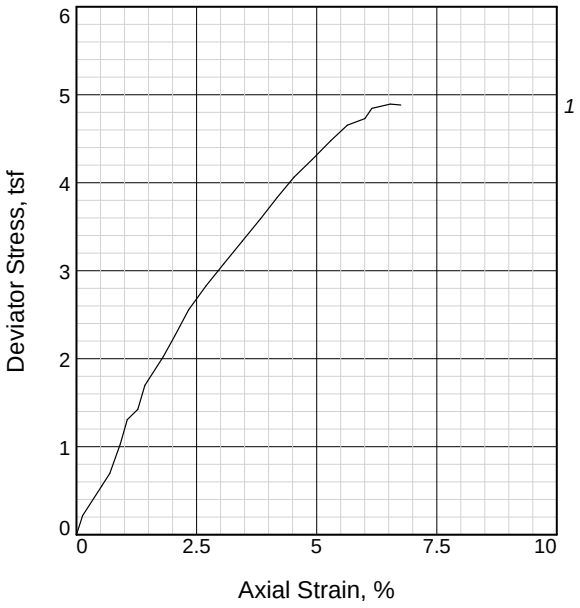
Proj. No.: S-2544-07 **Date Sampled:** 3/15/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	20.6
	Dry Density, pcf	100.2
	Saturation, %	81.7
	Void Ratio	0.6814
	Diameter, in.	2.75
	Height, in.	5.48
At Test	Water Content, %	20.6
	Dry Density, pcf	100.2
	Saturation, %	81.7
	Void Ratio	0.6814
	Diameter, in.	2.75
	Height, in.	5.48
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		4.89
Strain, %		6.5
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		5.40
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

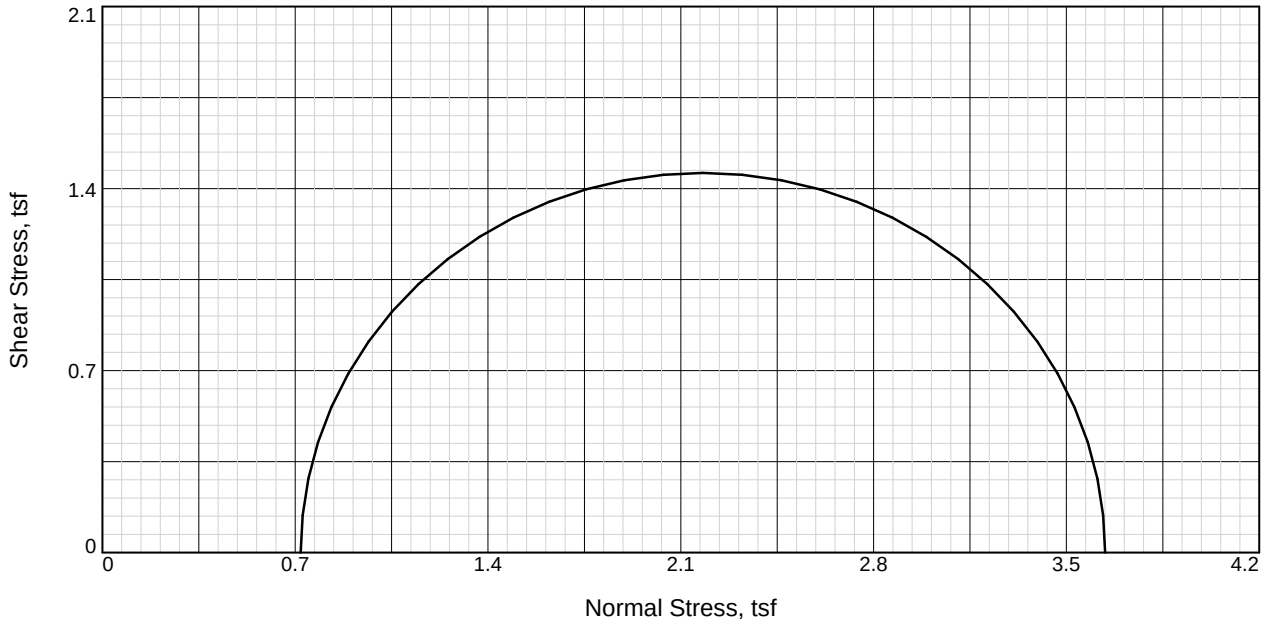
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-147 **Depth:** 8

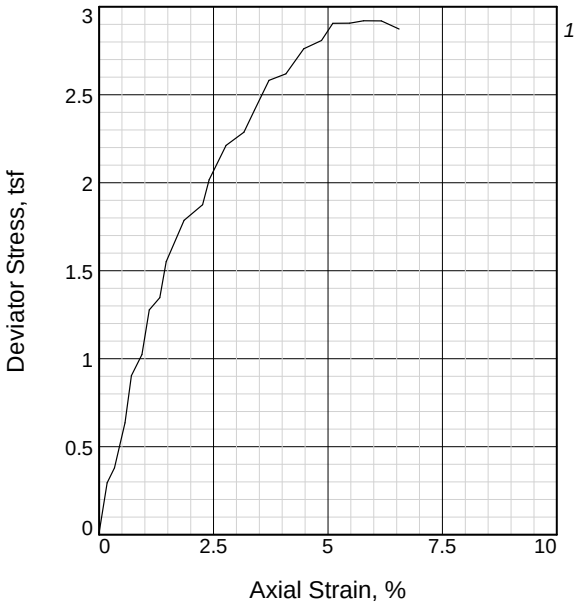
Proj. No.: S-2544-07 **Date Sampled:** 3/15/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	27.1
	Dry Density, pcf	95.7
	Saturation, %	96.1
	Void Ratio	0.7616
	Diameter, in.	2.73
	Height, in.	5.66
At Test	Water Content, %	27.1
	Dry Density, pcf	95.7
	Saturation, %	96.1
	Void Ratio	0.7616
	Diameter, in.	2.73
	Height, in.	5.66
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		2.92
Strain, %		5.8
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.64
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 55 **PL=** 21 **PI=** 34
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

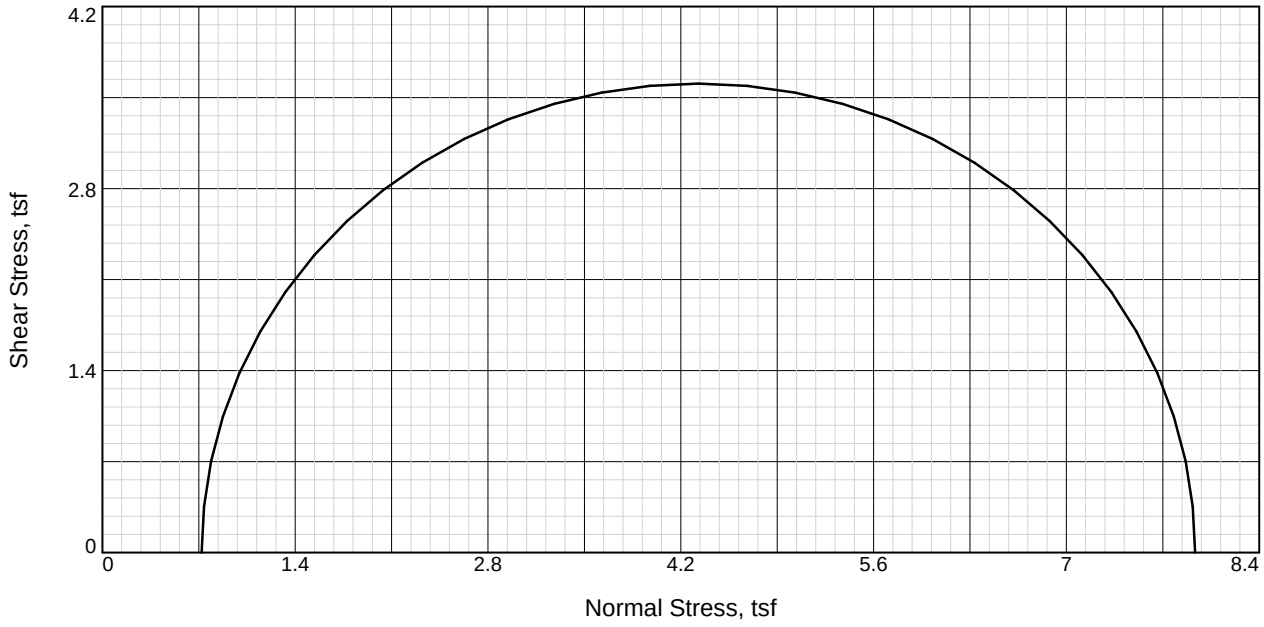
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-148 **Depth:** 12

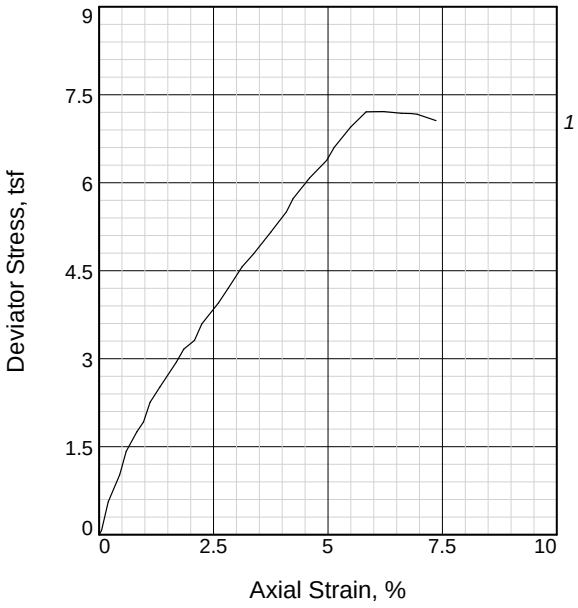
Proj. No.: S-2544-07 **Date Sampled:** 3/15/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	18.5
	Dry Density, pcf	105.5
	Saturation, %	83.3
	Void Ratio	0.5983
	Diameter, in.	2.74
	Height, in.	5.57
At Test	Water Content, %	18.5
	Dry Density, pcf	105.5
	Saturation, %	83.3
	Void Ratio	0.5983
	Diameter, in.	2.74
	Height, in.	5.57
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		7.21
Strain, %		6.2
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		7.93
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 42 **PL=** 21 **PI=** 21
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

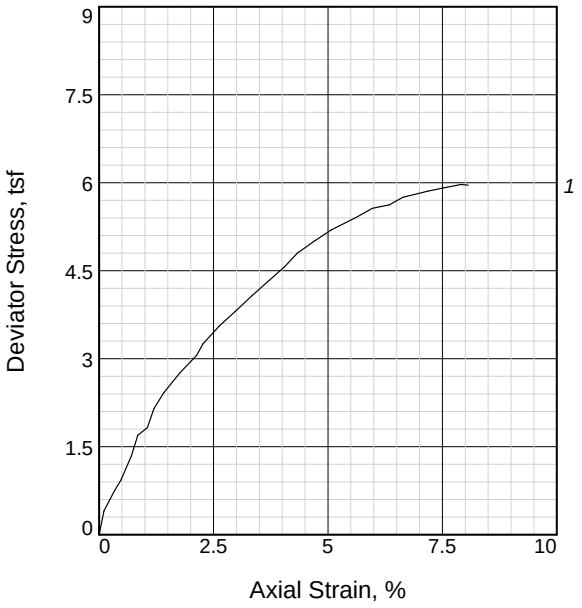
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-154 **Depth:** 13

Proj. No.: S-2544-07 **Date Sampled:** 3/15/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP



Sample No.		1
Initial	Water Content, %	22.1
	Dry Density, pcf	100.7
	Saturation, %	88.7
	Void Ratio	0.6739
	Diameter, in.	2.73
	Height, in.	5.68
At Test	Water Content, %	22.1
	Dry Density, pcf	100.7
	Saturation, %	88.7
	Void Ratio	0.6739
	Diameter, in.	2.73
	Height, in.	5.68
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		5.97
Strain, %		7.9
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		6.69
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: CLAY - Fat, dark brown (CH)

LL= 54 **PL=** 21 **PI=** 33
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

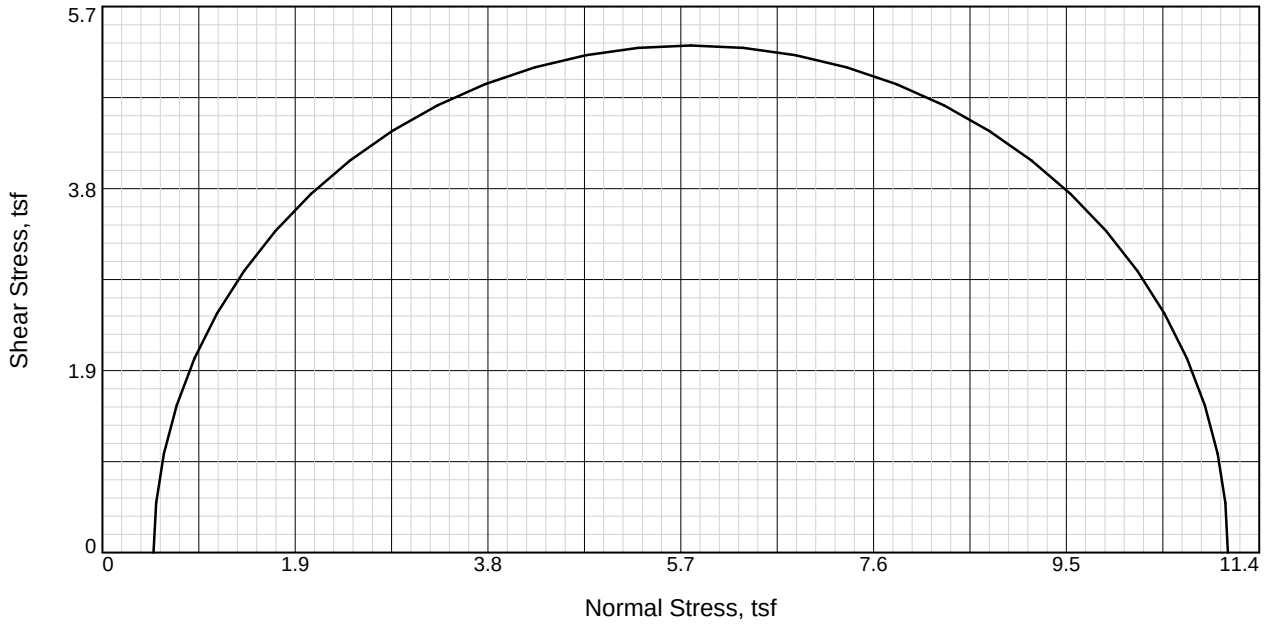
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-156 **Depth:** 12

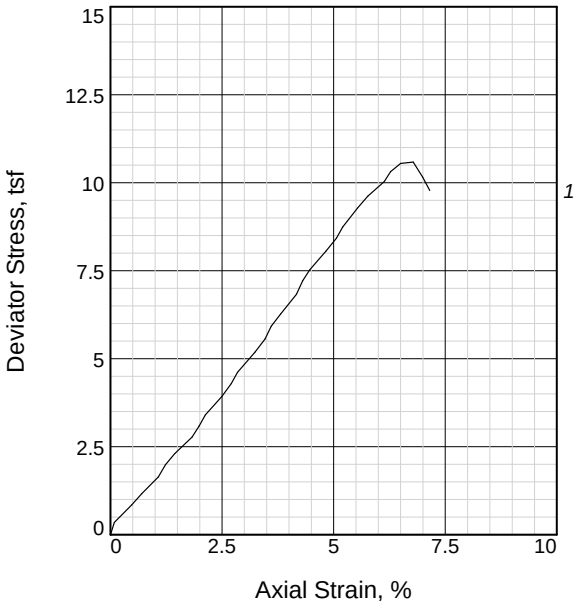
Proj. No.: S-2544-07 **Date Sampled:** 3/16/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	12.8
	Dry Density, pcf	108.5
	Saturation, %	62.4
	Void Ratio	0.5541
	Diameter, in.	2.75
	Height, in.	5.69
At Test	Water Content, %	12.8
	Dry Density, pcf	108.5
	Saturation, %	62.4
	Void Ratio	0.5541
	Diameter, in.	2.75
	Height, in.	5.69
Strain rate, in./min.		0.08
Back Pressure, tsf		0.0
Cell Pressure, tsf		0.5
Fail. Stress, tsf		10.6
Strain, %		6.8
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		11.1
σ_3 Failure, tsf		0.5

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: - Lean, dark brown (CL)

LL= 40 **PL=** 19 **PI=** 21
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

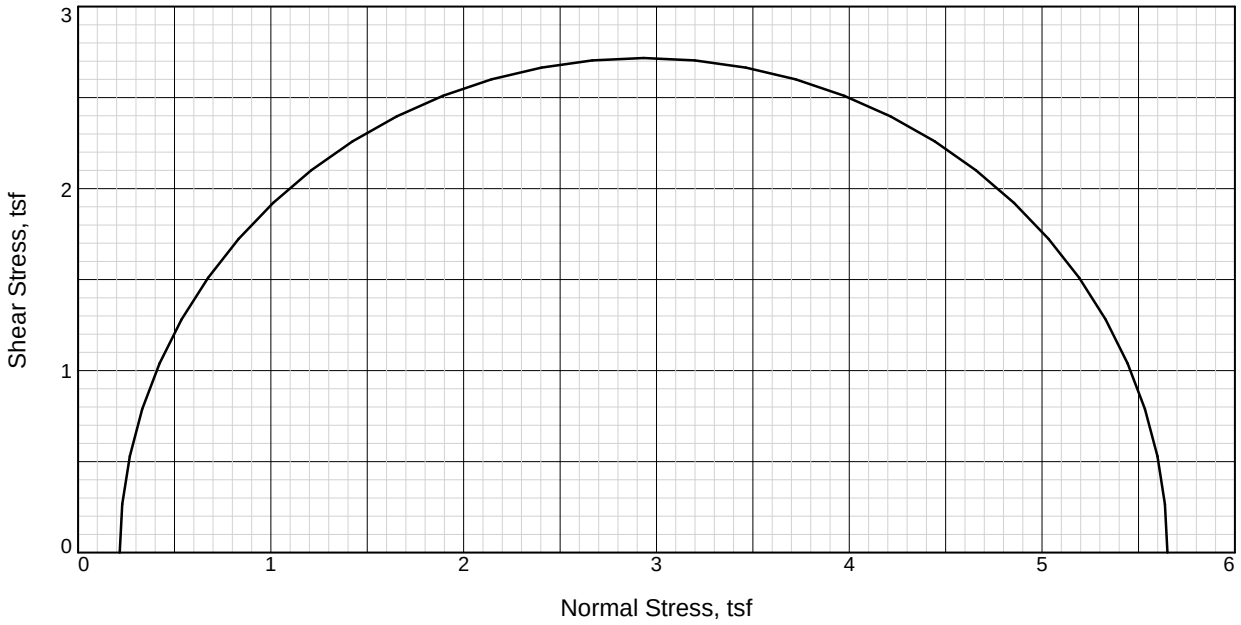
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-158 **Depth:** 8

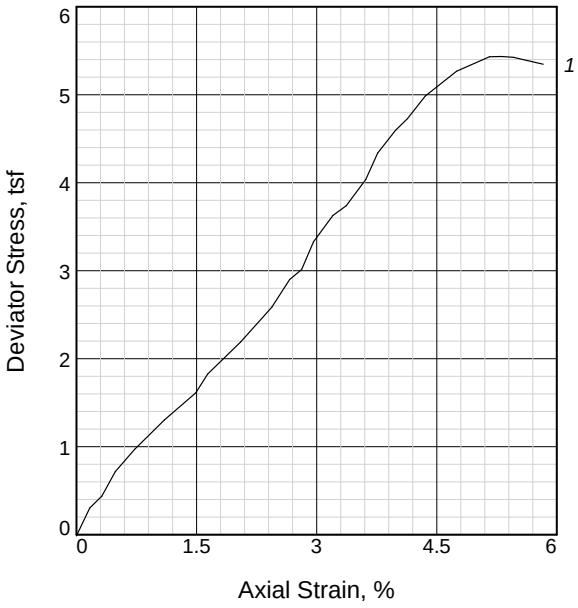
Proj. No.: S-2544-07 **Date Sampled:** 3/16/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	18.9
	Dry Density, pcf	101.6
	Saturation, %	77.3
	Void Ratio	0.6591
	Diameter, in.	2.74
	Height, in.	5.37
At Test	Water Content, %	18.9
	Dry Density, pcf	101.6
	Saturation, %	77.3
	Void Ratio	0.6591
	Diameter, in.	2.74
	Height, in.	5.37
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.22
Fail. Stress, tsf		5.43
Strain, %		5.3
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		5.65
σ_3 Failure, tsf		0.22

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: - Fat, dark brown (CH)

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

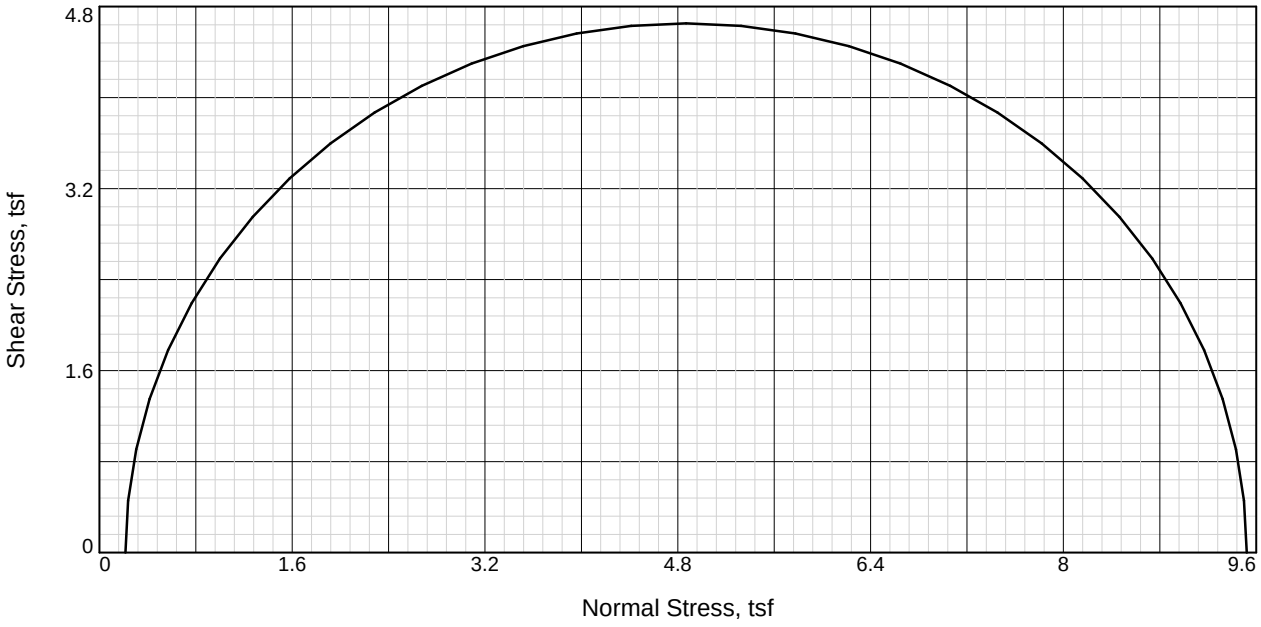
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-161 **Depth:** 4

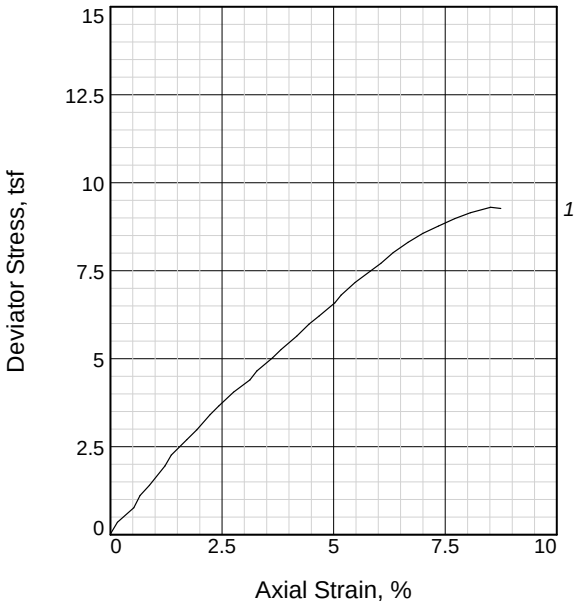
Proj. No.: S-2544-07 **Date Sampled:** 3/16/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	14.4
	Dry Density, pcf	112.0
	Saturation, %	77.1
	Void Ratio	0.5044
	Diameter, in.	2.74
	Height, in.	5.73
At Test	Water Content, %	14.4
	Dry Density, pcf	112.0
	Saturation, %	77.1
	Void Ratio	0.5044
	Diameter, in.	2.74
	Height, in.	5.73
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.22
Fail. Stress, tsf		9.31
Strain, %		8.5
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		9.52
σ_3 Failure, tsf		0.22

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

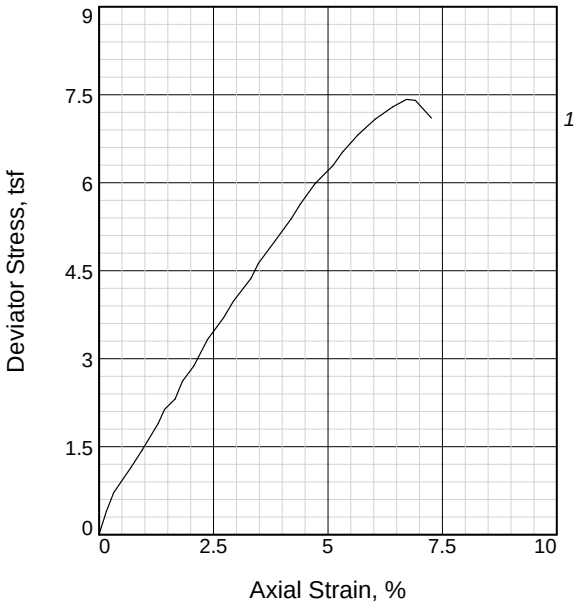
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-163 **Depth:** 4

Proj. No.: S-2544-07 **Date Sampled:** 3/16/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP



Sample No.		1
Initial	Water Content, %	15.7
	Dry Density, pcf	109.2
	Saturation, %	78.1
	Void Ratio	0.5440
	Diameter, in.	2.72
	Height, in.	5.66
At Test	Water Content, %	15.7
	Dry Density, pcf	109.2
	Saturation, %	78.1
	Void Ratio	0.5440
	Diameter, in.	2.72
	Height, in.	5.66
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		7.42
Strain, %		6.7
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		7.92
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 45 **PL=** 18 **PI=** 27
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

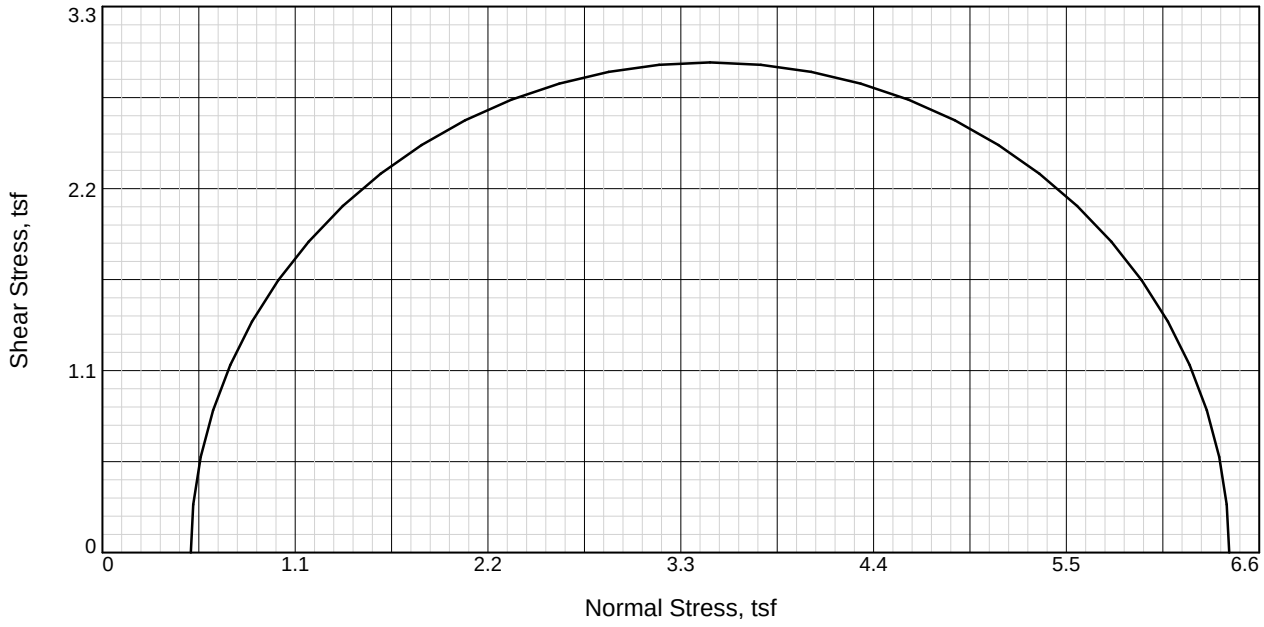
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-163 **Depth:** 8

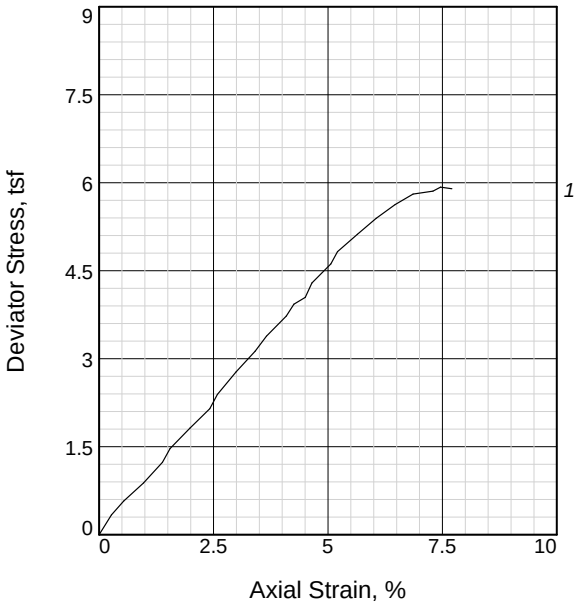
Proj. No.: S-2544-07 **Date Sampled:** 3/16/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	14.7
	Dry Density, pcf	105.9
	Saturation, %	67.3
	Void Ratio	0.5910
	Diameter, in.	2.76
	Height, in.	4.84
At Test	Water Content, %	14.7
	Dry Density, pcf	105.9
	Saturation, %	67.3
	Void Ratio	0.5910
	Diameter, in.	2.76
	Height, in.	4.84
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		5.92
Strain, %		7.5
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		6.43
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: CLAY - Fat, brown (CH)
w/some calcareous deposits

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

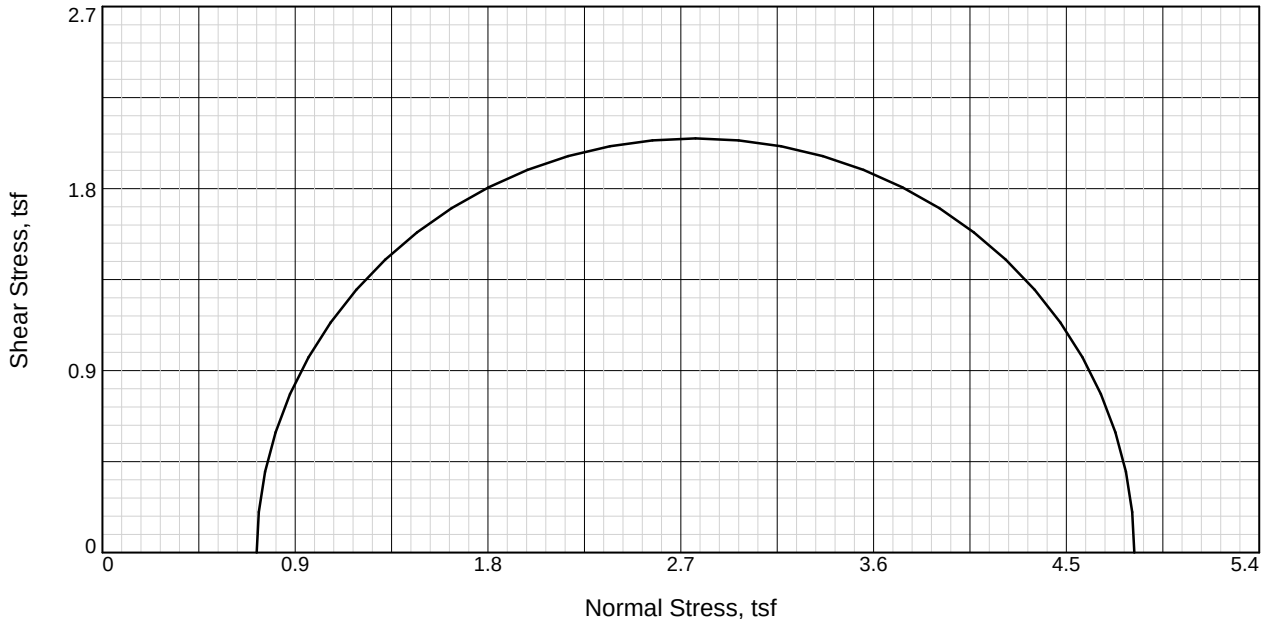
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-164 **Depth:** 8

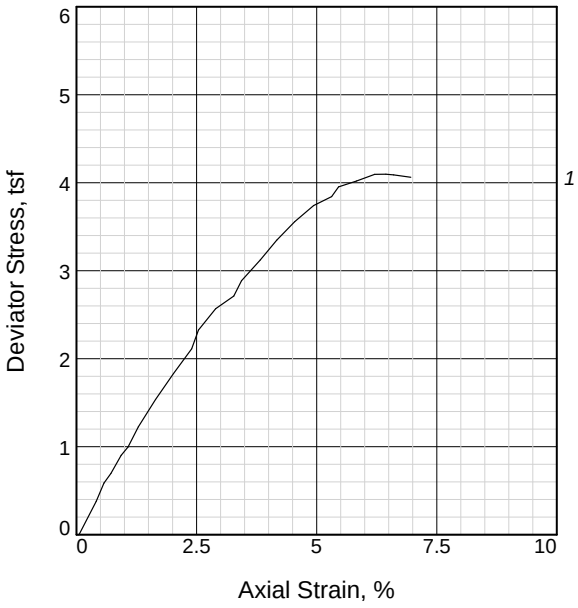
Proj. No.: S-2544-07 **Date Sampled:** 3/16/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	18.4
	Dry Density, pcf	104.9
	Saturation, %	82.0
	Void Ratio	0.6072
	Diameter, in.	2.73
	Height, in.	5.59
At Test	Water Content, %	18.4
	Dry Density, pcf	104.9
	Saturation, %	82.0
	Void Ratio	0.6072
	Diameter, in.	2.73
	Height, in.	5.59
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		4.10
Strain, %		6.4
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.82
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 47 **PL=** 21 **PI=** 26
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

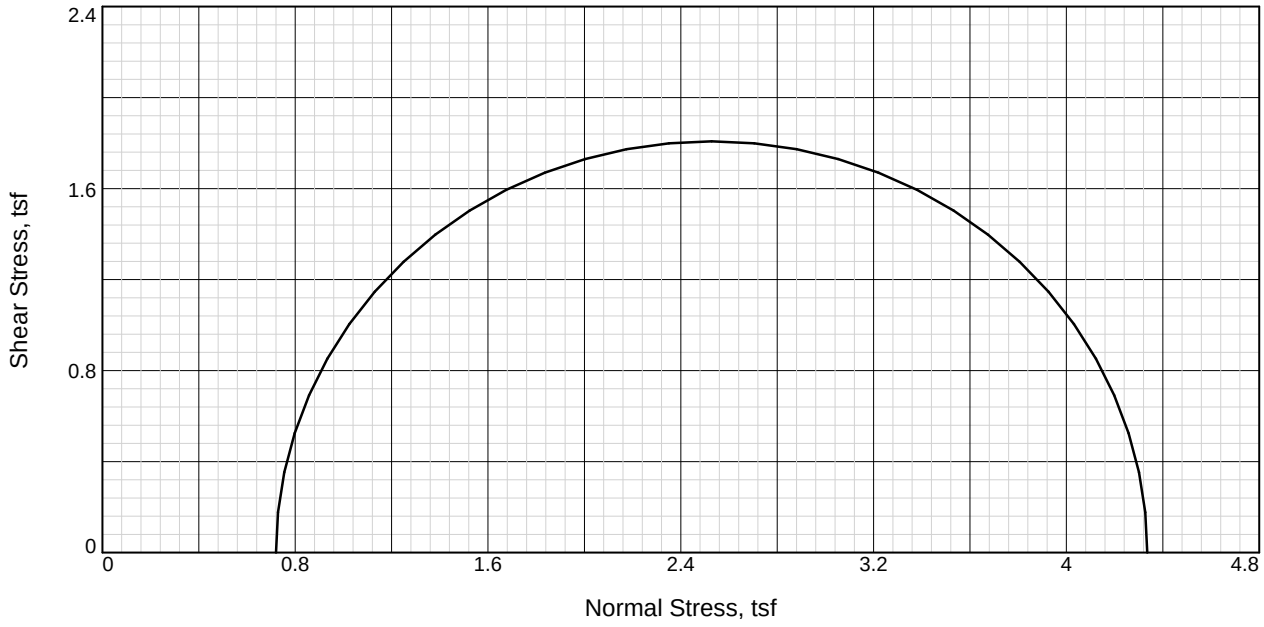
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-165 **Depth:** 12

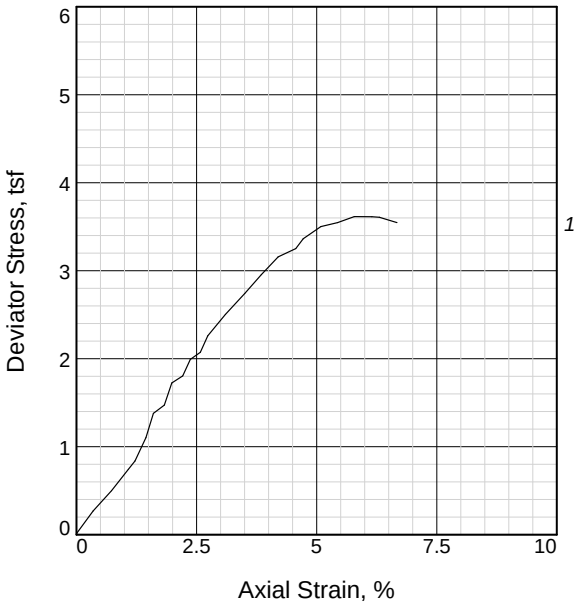
Proj. No.: S-2544-07 **Date Sampled:** 3/16/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	19.9
	Dry Density, pcf	99.9
	Saturation, %	78.2
	Void Ratio	0.6874
	Diameter, in.	2.73
	Height, in.	5.74
At Test	Water Content, %	19.9
	Dry Density, pcf	99.9
	Saturation, %	78.2
	Void Ratio	0.6874
	Diameter, in.	2.73
	Height, in.	5.74
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		3.62
Strain, %		5.8
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.34
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

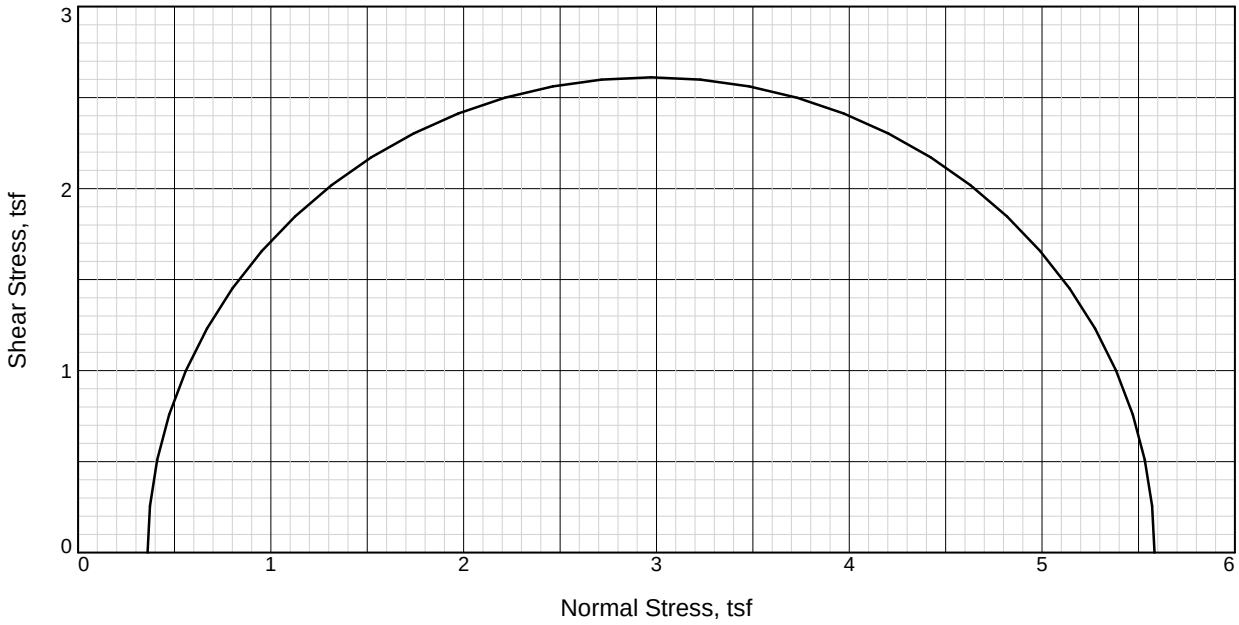
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-166 **Depth:** 12

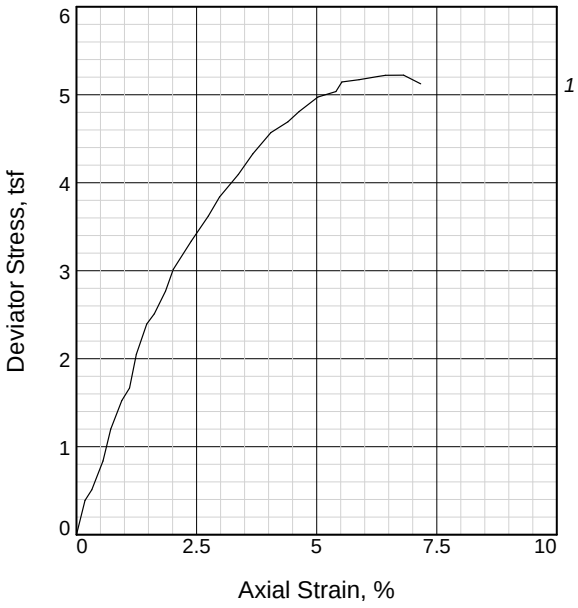
Proj. No.: S-2544-07 **Date Sampled:** 3/16/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	20.2
	Dry Density, pcf	101.5
	Saturation, %	82.7
	Void Ratio	0.6609
	Diameter, in.	2.74
	Height, in.	5.61
At Test	Water Content, %	20.2
	Dry Density, pcf	101.5
	Saturation, %	82.7
	Void Ratio	0.6609
	Diameter, in.	2.74
	Height, in.	5.61
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.36
Fail. Stress, tsf		5.22
Strain, %		6.8
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		5.58
σ_3 Failure, tsf		0.36

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

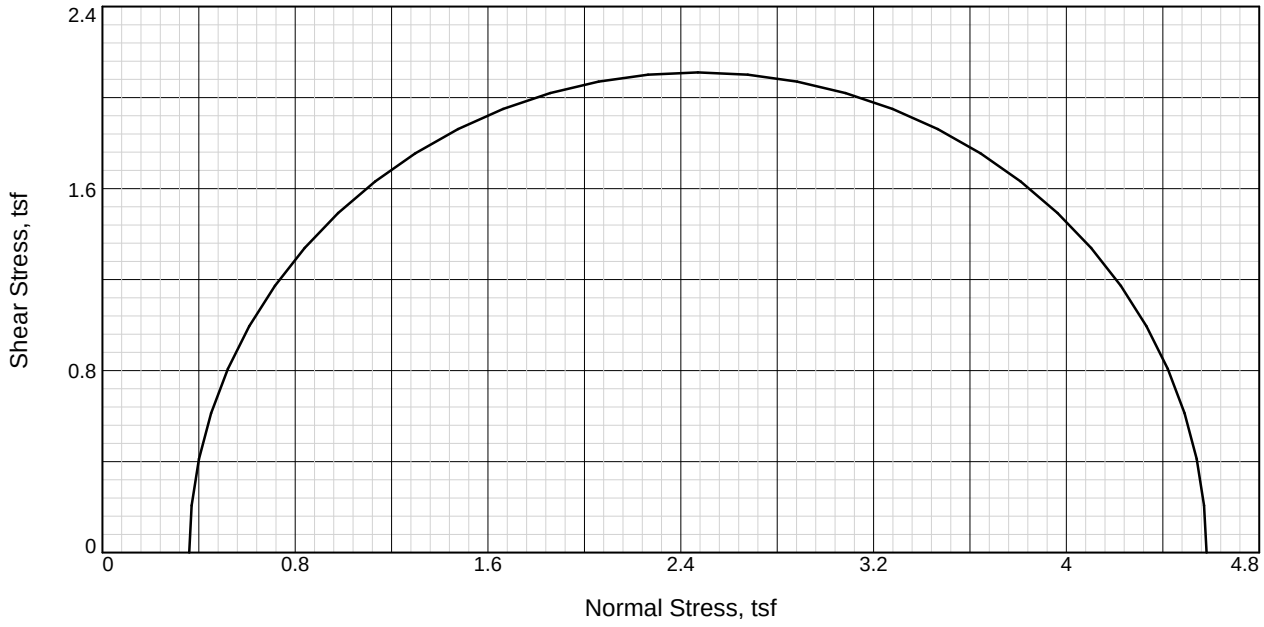
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-166 **Depth:** 6

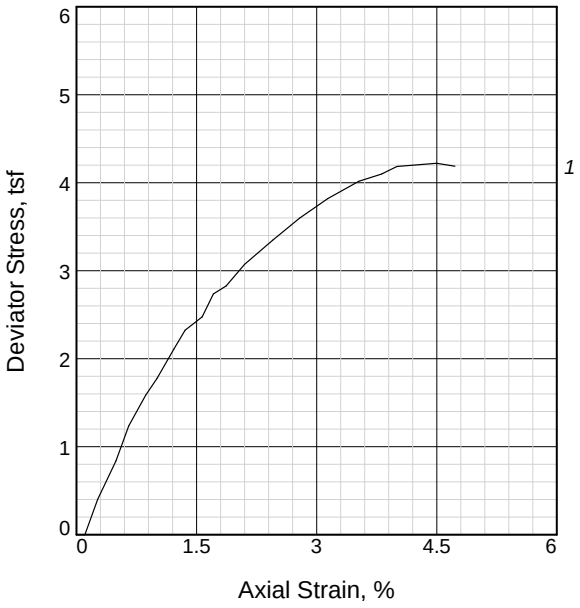
Proj. No.: S-2544-07 **Date Sampled:** 3/16/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	22.2
	Dry Density, pcf	99.8
	Saturation, %	86.9
	Void Ratio	0.6893
	Diameter, in.	2.74
	Height, in.	5.67
At Test	Water Content, %	22.2
	Dry Density, pcf	99.8
	Saturation, %	86.9
	Void Ratio	0.6893
	Diameter, in.	2.74
	Height, in.	5.67
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.36
Fail. Stress, tsf		4.22
Strain, %		4.5
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.58
σ_3 Failure, tsf		0.36

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 60 **PL=** 22 **PI=** 38
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

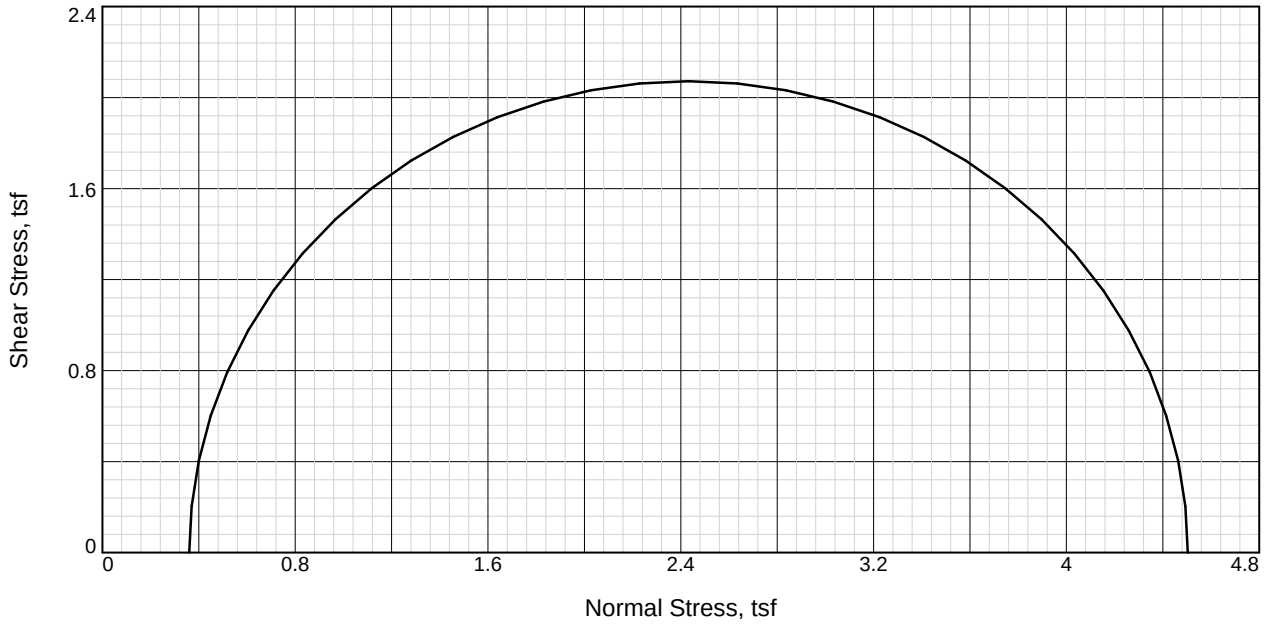
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-167 **Depth:** 6

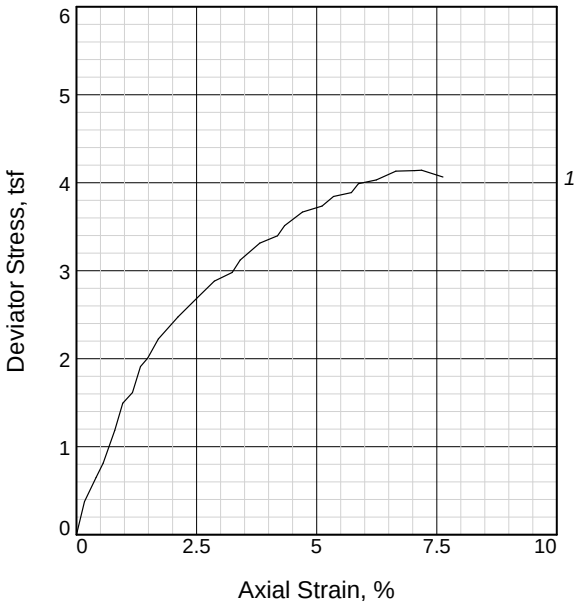
Proj. No.: S-2544-07 **Date Sampled:** 3/16/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	19.2
	Dry Density, pcf	108.9
	Saturation, %	94.5
	Void Ratio	0.5475
	Diameter, in.	2.70
	Height, in.	5.40
At Test	Water Content, %	19.2
	Dry Density, pcf	108.9
	Saturation, %	94.5
	Void Ratio	0.5475
	Diameter, in.	2.70
	Height, in.	5.40
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.36
Fail. Stress, tsf		4.14
Strain, %		7.2
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.50
σ_3 Failure, tsf		0.36

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 40 **PL=** 17 **PI=** 23
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

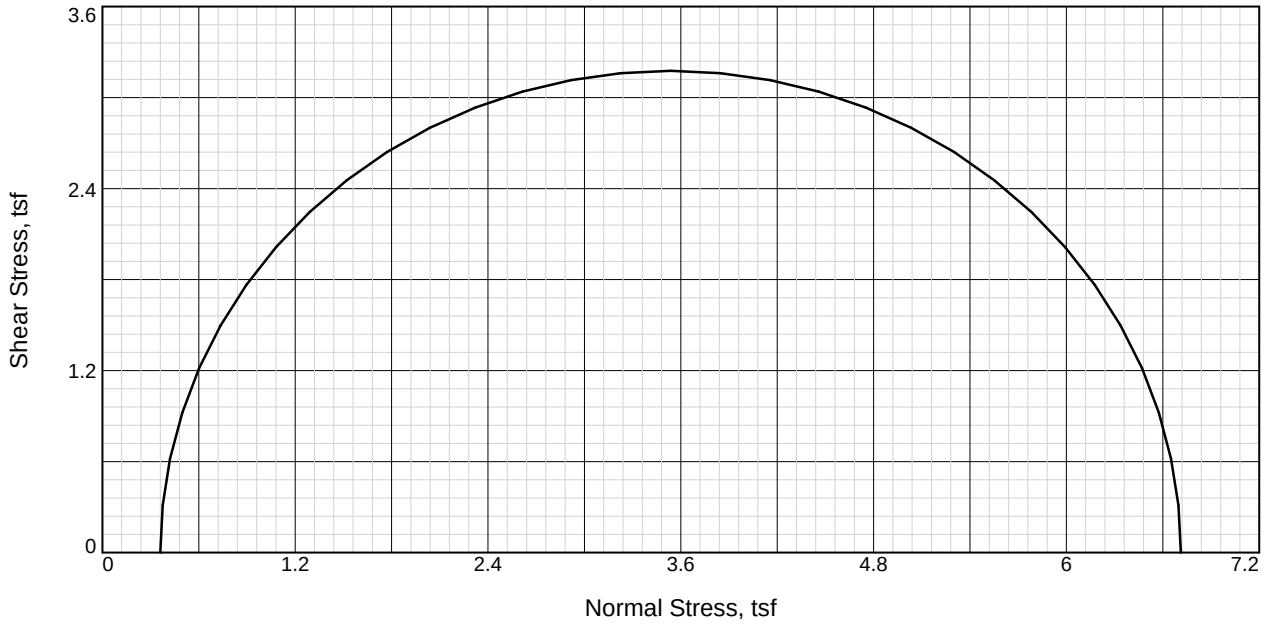
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-170 **Depth:** 6

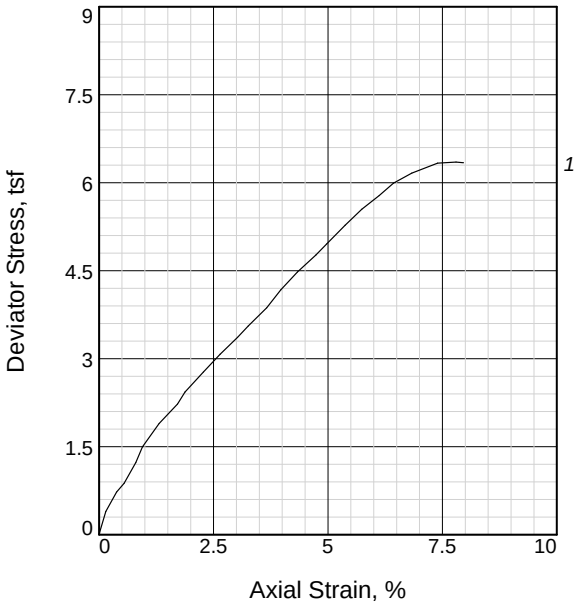
Proj. No.: S-2544-07 **Date Sampled:** 3/19/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	17.2
	Dry Density, pcf	108.8
	Saturation, %	84.5
	Void Ratio	0.5496
	Diameter, in.	2.72
	Height, in.	5.49
At Test	Water Content, %	17.2
	Dry Density, pcf	108.8
	Saturation, %	84.5
	Void Ratio	0.5496
	Diameter, in.	2.72
	Height, in.	5.49
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.36
Fail. Stress, tsf		6.35
Strain, %		7.8
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		6.71
σ_3 Failure, tsf		0.36

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 39 **PL=** 20 **PI=** 19
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-171 **Depth:** 6

Proj. No.: S-2544-07 **Date Sampled:** 3/19/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

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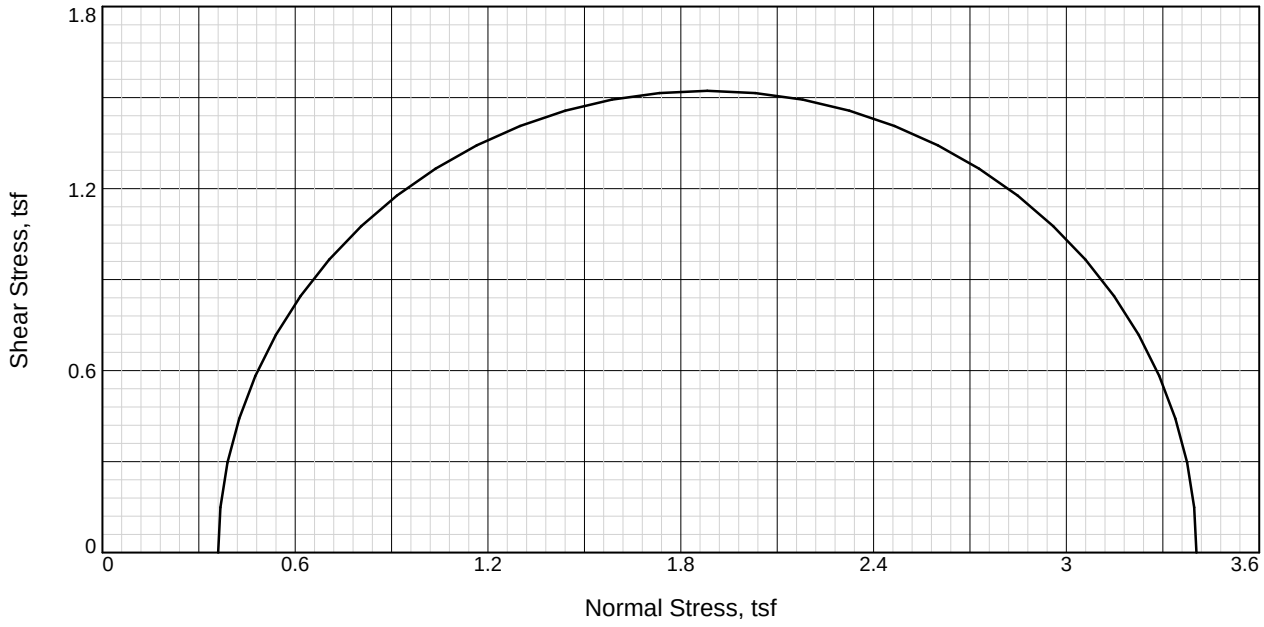
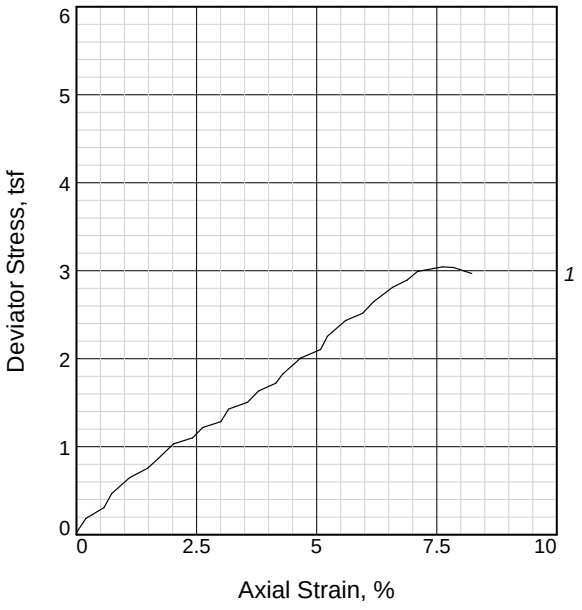




Sample No.		1
Initial	Water Content, %	12.9
	Dry Density, pcf	107.5
	Saturation, %	61.3
	Void Ratio	0.5682
	Diameter, in.	2.72
	Height, in.	5.59
At Test	Water Content, %	12.9
	Dry Density, pcf	107.5
	Saturation, %	61.3
	Void Ratio	0.5682
	Diameter, in.	2.72
	Height, in.	5.59
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.36
Fail. Stress, tsf		3.04
Strain, %		7.6
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.40
σ_3 Failure, tsf		0.36

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

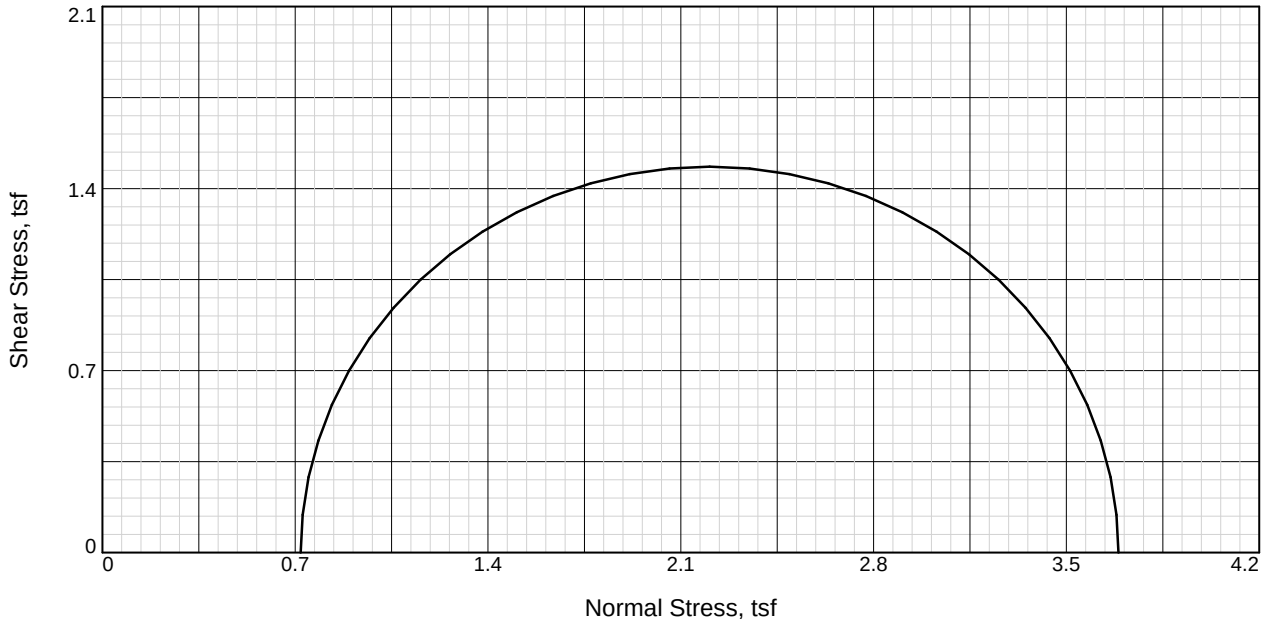
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-172 **Depth:** 6

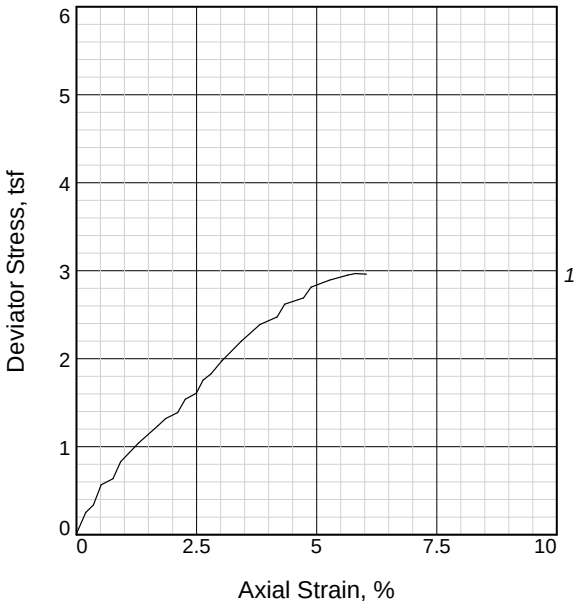
Proj. No.: S-2544-07 **Date Sampled:** 3/20/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	22.6
	Dry Density, pcf	98.0
	Saturation, %	84.9
	Void Ratio	0.7203
	Diameter, in.	2.75
	Height, in.	5.65
At Test	Water Content, %	22.6
	Dry Density, pcf	98.0
	Saturation, %	84.9
	Void Ratio	0.7203
	Diameter, in.	2.75
	Height, in.	5.65
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		2.97
Strain, %		5.8
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		3.69
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: CLAY - Fat, dark brown (CH)

LL= 67 **PL=** 26 **PI=** 41
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-173 **Depth:** 13

Proj. No.: S-2544-07 **Date Sampled:** 3/21/07

TRIAXIAL SHEAR TEST REPORT

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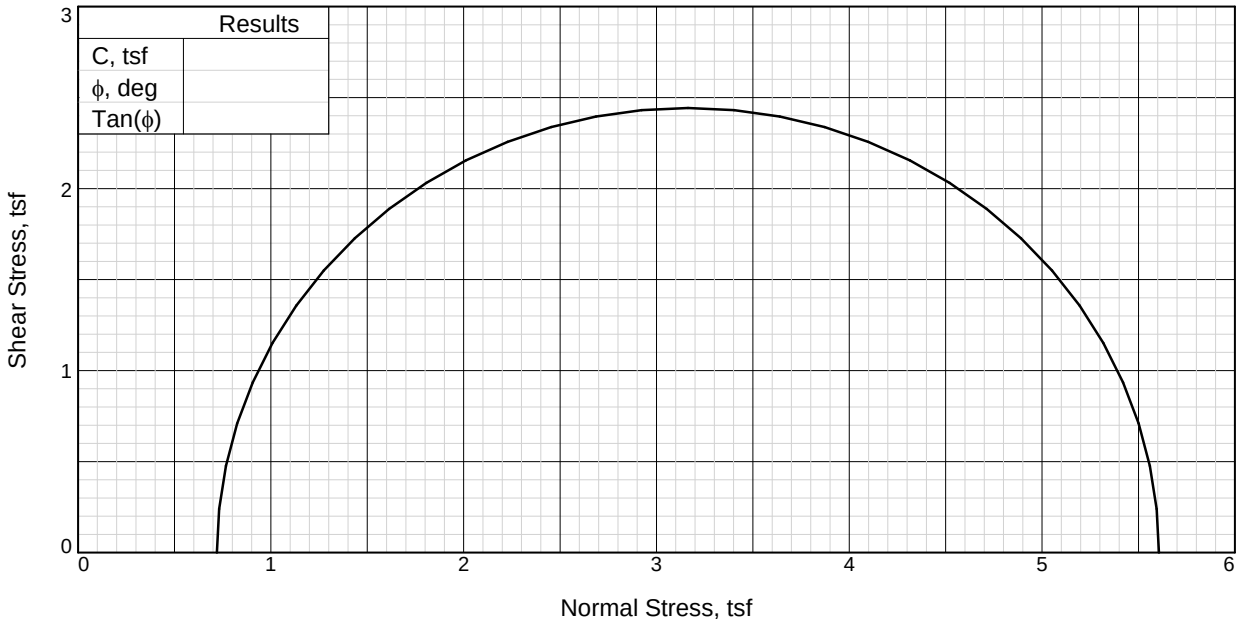
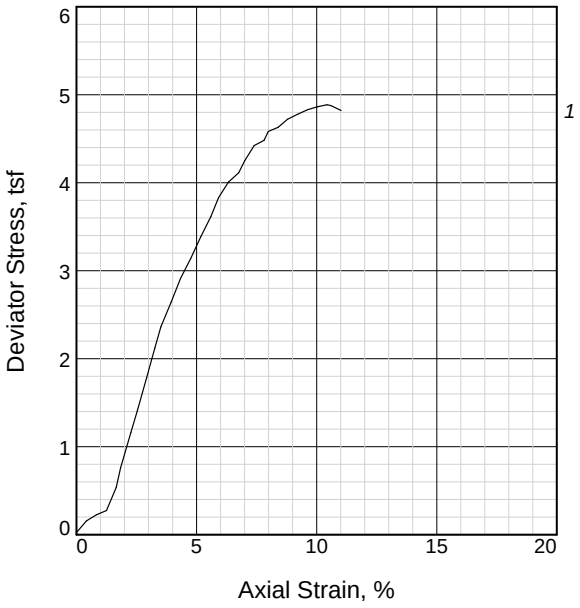
Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	17.3
	Dry Density, pcf	106.1
	Saturation, %	79.3
	Void Ratio	0.5893
	Diameter, in.	2.75
	Height, in.	5.61
At Test	Water Content, %	17.3
	Dry Density, pcf	106.1
	Saturation, %	79.3
	Void Ratio	0.5893
	Diameter, in.	2.75
	Height, in.	5.61
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		4.89
Strain, %		10.4
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		5.61
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

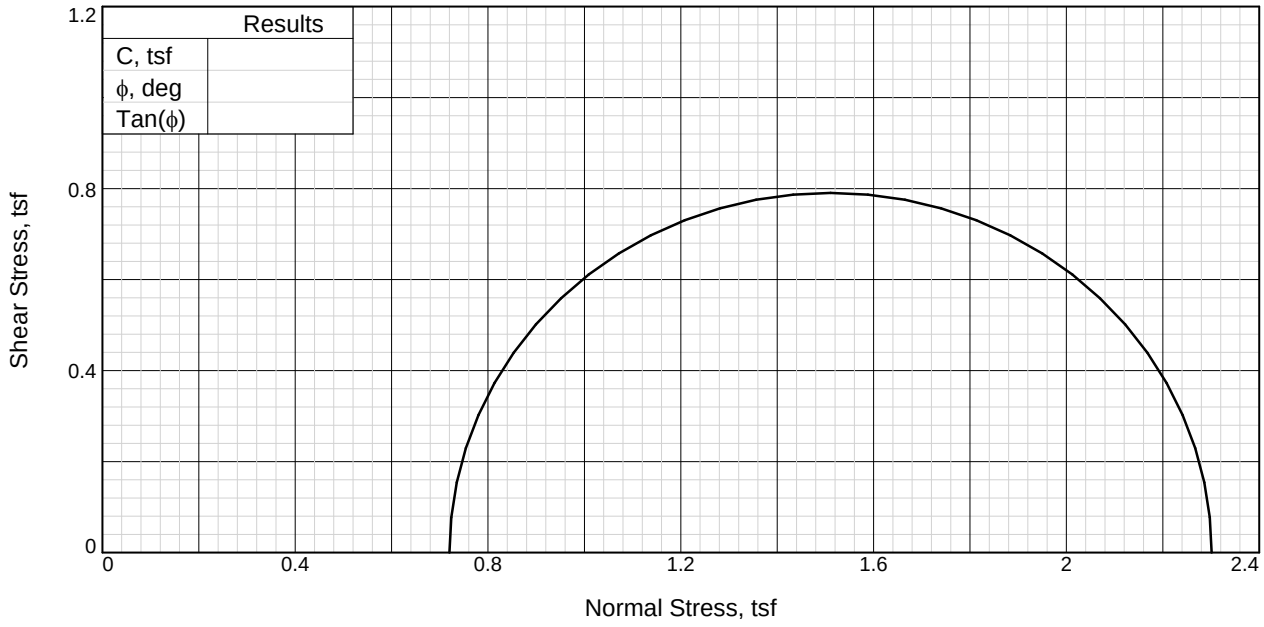
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-177 **Depth:** 12

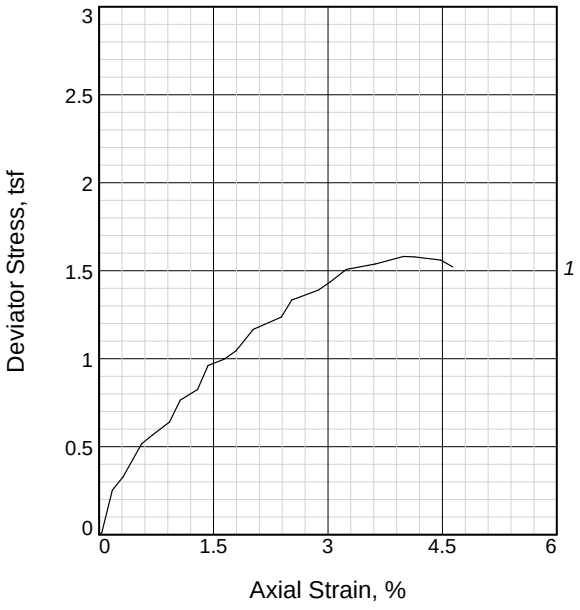
Proj. No.: S-2544-07 **Date Sampled:** 3/20/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	27.7
	Dry Density, pcf	94.7
	Saturation, %	96.1
	Void Ratio	0.7793
	Diameter, in.	2.69
	Height, in.	5.74
At Test	Water Content, %	27.7
	Dry Density, pcf	94.7
	Saturation, %	96.1
	Void Ratio	0.7793
	Diameter, in.	2.69
	Height, in.	5.74
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		1.58
Strain, %		4.0
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		2.30
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 66 **PL=** 25 **PI=** 41
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

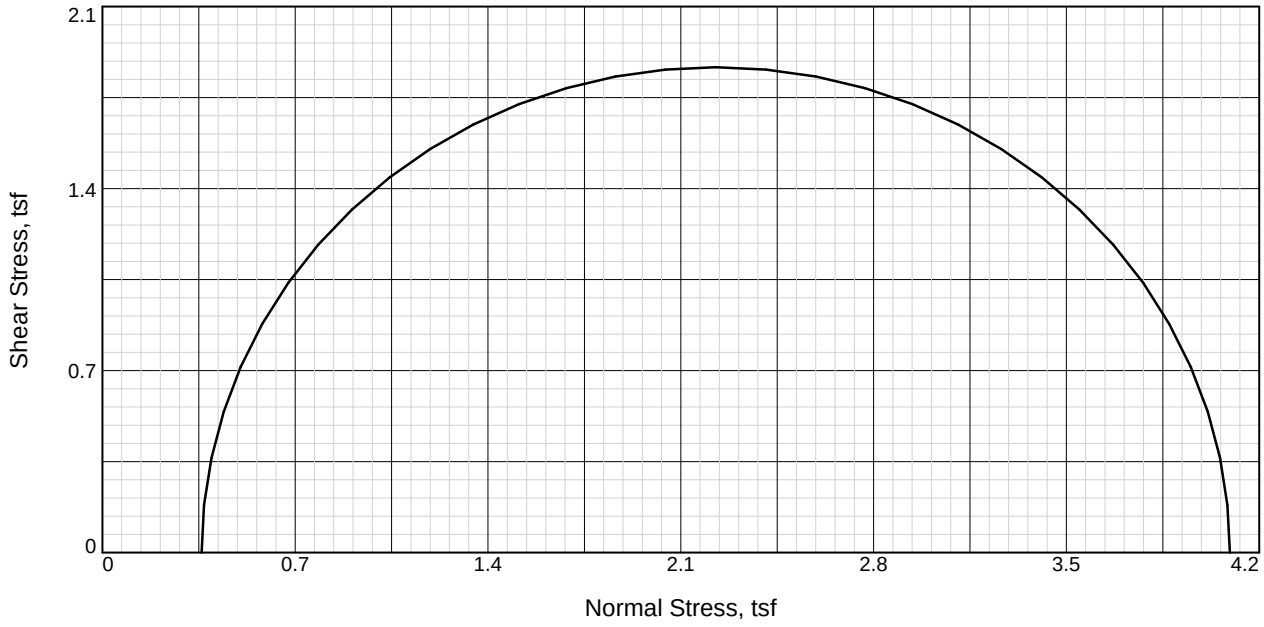
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-178 **Depth:** 16

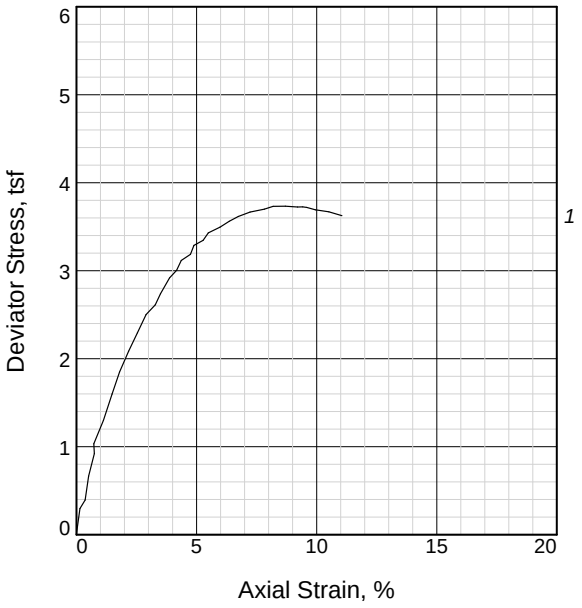
Proj. No.: S-2544-07 **Date Sampled:** 3/20/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	24.3
	Dry Density, pcf	98.5
	Saturation, %	92.3
	Void Ratio	0.7113
	Diameter, in.	2.72
	Height, in.	5.52
At Test	Water Content, %	24.3
	Dry Density, pcf	98.5
	Saturation, %	92.3
	Void Ratio	0.7113
	Diameter, in.	2.72
	Height, in.	5.52
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.36
Fail. Stress, tsf		3.73
Strain, %		8.7
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.09
σ_3 Failure, tsf		0.36

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

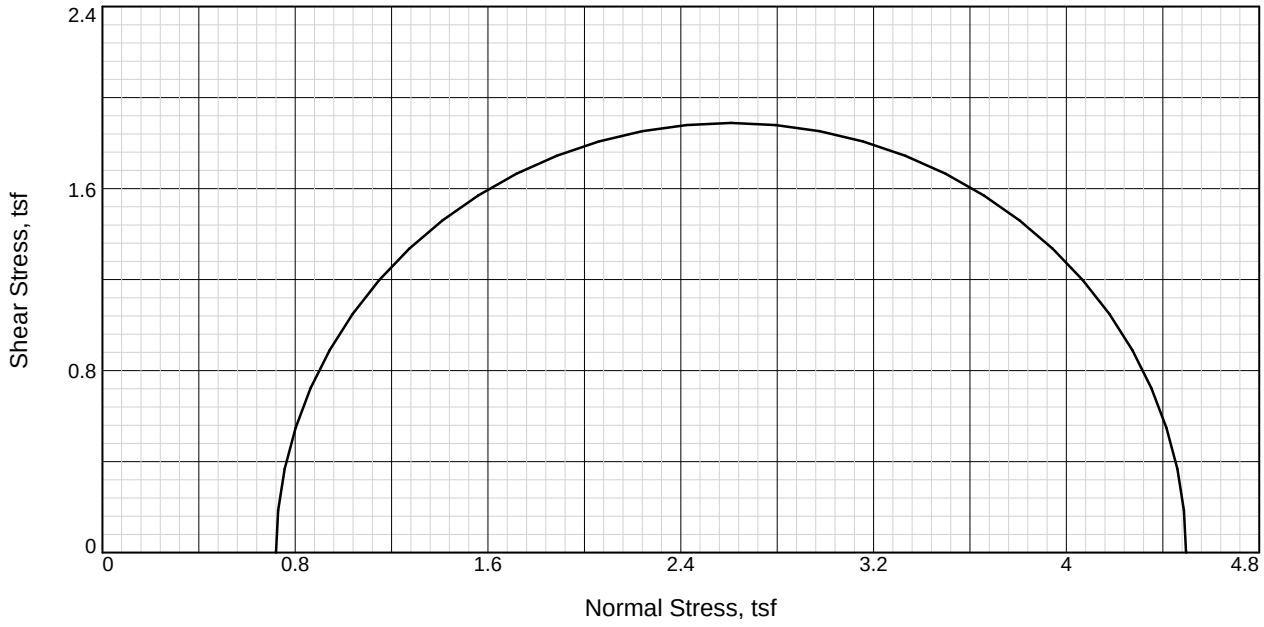
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-178 **Depth:** 6

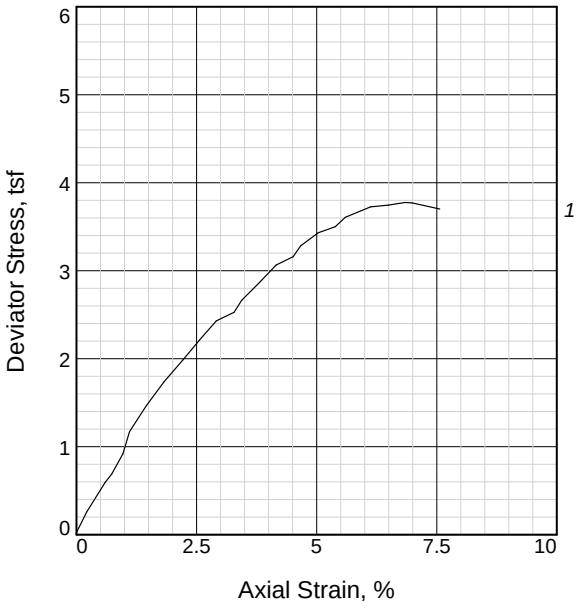
Proj. No.: S-2544-07 **Date Sampled:** 3/20/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	20.3
	Dry Density, pcf	104.3
	Saturation, %	89.1
	Void Ratio	0.6166
	Diameter, in.	2.74
	Height, in.	5.70
At Test	Water Content, %	20.3
	Dry Density, pcf	104.3
	Saturation, %	89.1
	Void Ratio	0.6166
	Diameter, in.	2.74
	Height, in.	5.70
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		3.78
Strain, %		6.8
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.50
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 48 **PL=** 20 **PI=** 28
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

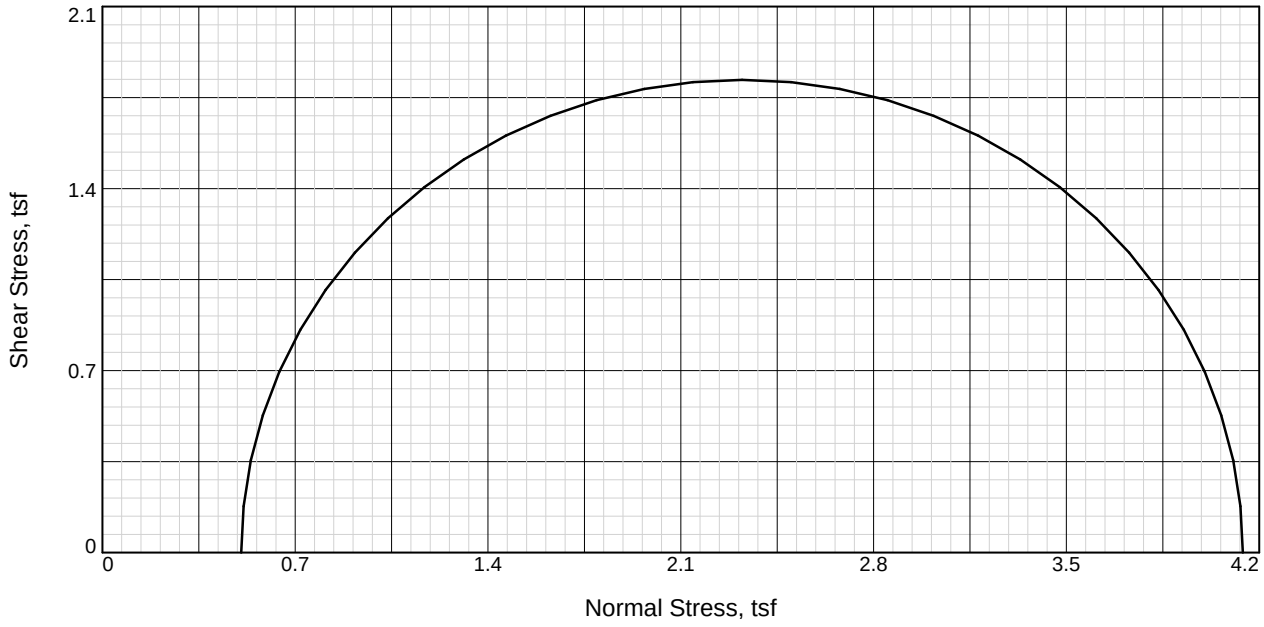
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-179 **Depth:** 13

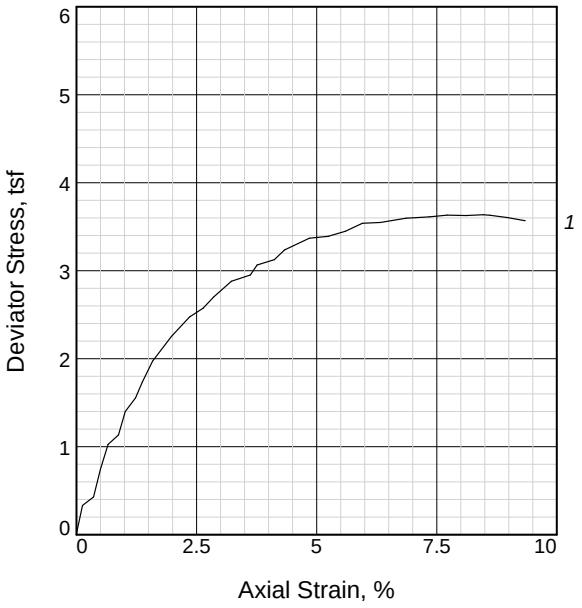
Proj. No.: S-2544-07 **Date Sampled:** 3/20/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	22.9
	Dry Density, pcf	100.5
	Saturation, %	91.2
	Void Ratio	0.6770
	Diameter, in.	2.73
	Height, in.	5.61
At Test	Water Content, %	22.9
	Dry Density, pcf	100.5
	Saturation, %	91.2
	Void Ratio	0.6770
	Diameter, in.	2.73
	Height, in.	5.61
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		3.64
Strain, %		8.5
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.14
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: CLAY - Fat, dark grayish brown (CH)

LL= 51 **PL=** 23 **PI=** 28
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-180 **Depth:** 8

Proj. No.: S-2544-07 **Date Sampled:** 3/20/07

TRIAXIAL SHEAR TEST REPORT

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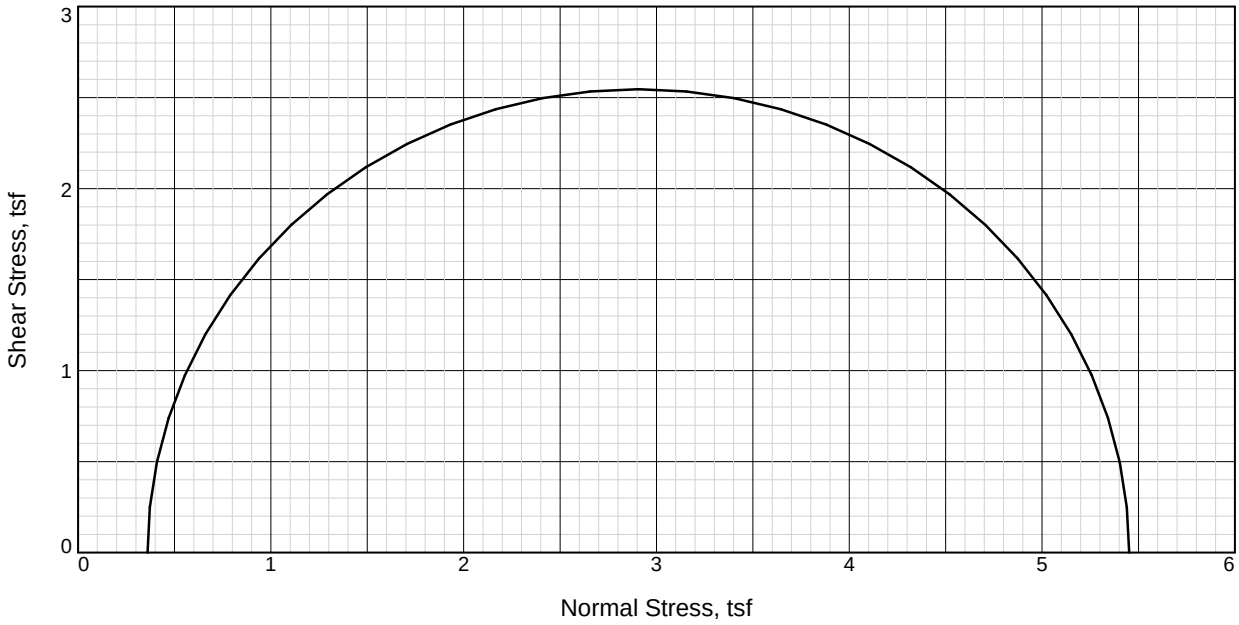
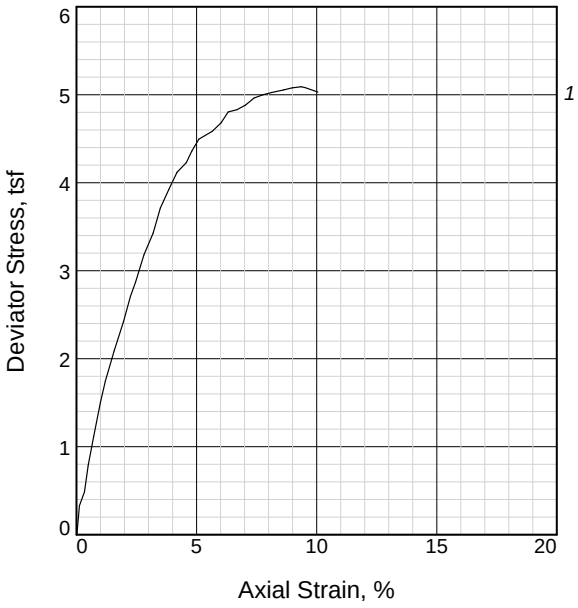
Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	17.6
	Dry Density, pcf	109.5
	Saturation, %	88.1
	Void Ratio	0.5386
	Diameter, in.	2.74
	Height, in.	5.73
At Test	Water Content, %	17.6
	Dry Density, pcf	109.5
	Saturation, %	88.1
	Void Ratio	0.5386
	Diameter, in.	2.74
	Height, in.	5.73
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.36
Fail. Stress, tsf		5.09
Strain, %		9.4
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		5.45
σ_3 Failure, tsf		0.36

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-181 **Depth:** 6

Proj. No.: S-2544-07 **Date Sampled:** 3/21/07

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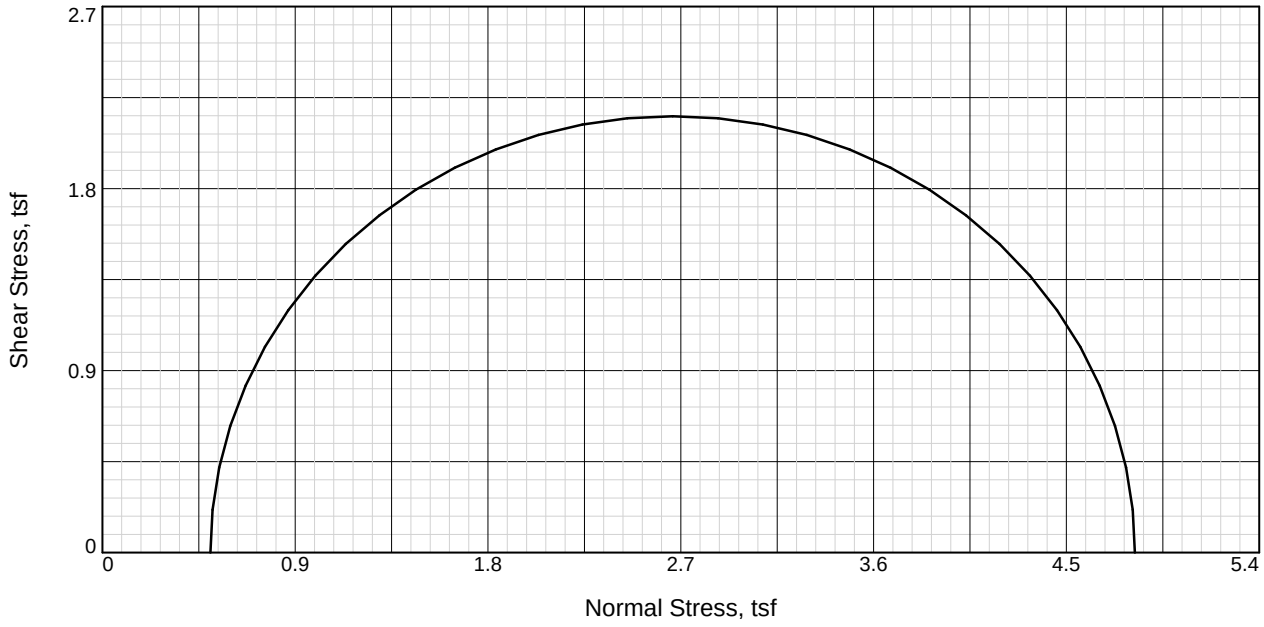
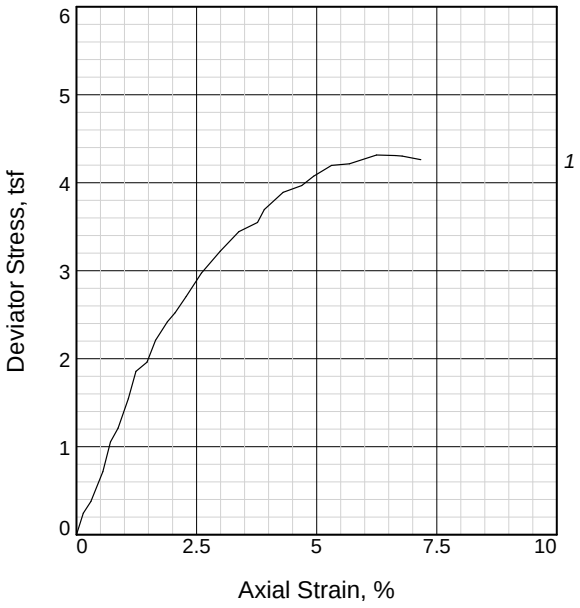
TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	16.8
	Dry Density, pcf	106.5
	Saturation, %	77.6
	Void Ratio	0.5829
	Diameter, in.	2.74
	Height, in.	5.65
At Test	Water Content, %	16.8
	Dry Density, pcf	106.5
	Saturation, %	77.6
	Void Ratio	0.5829
	Diameter, in.	2.74
	Height, in.	5.65
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		4.32
Strain, %		6.2
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.82
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: CLAY - Lean, brown (CL)

LL= 40 **PL=** 20 **PI=** 20
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

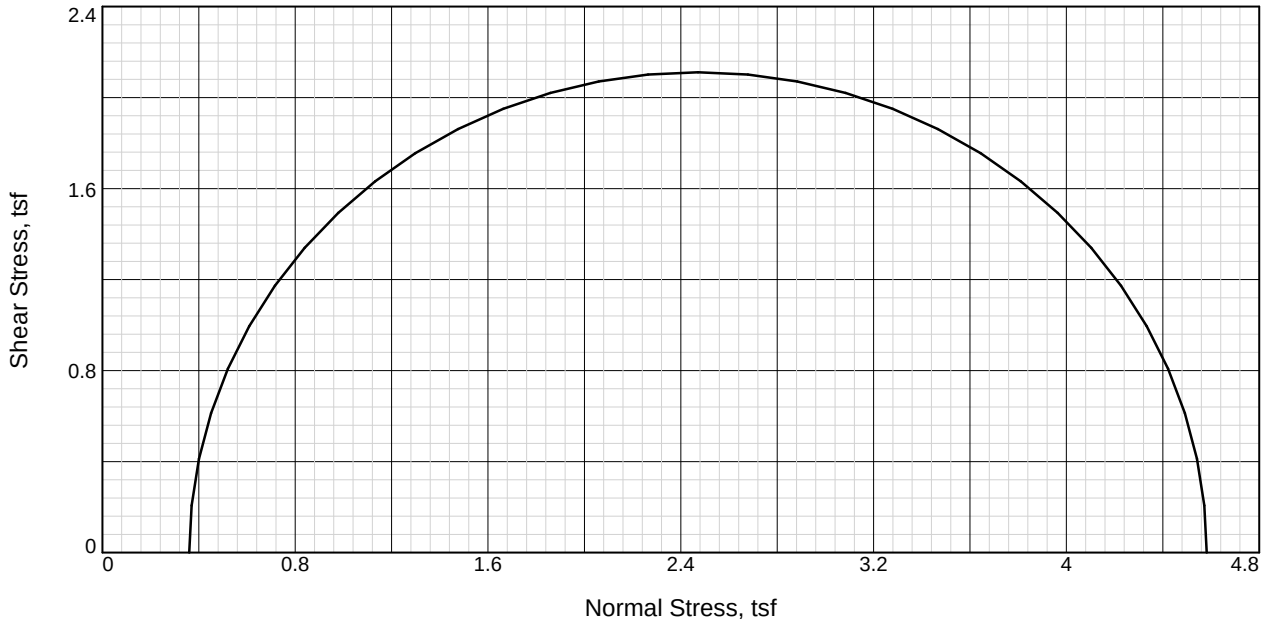
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-181 **Depth:** 10

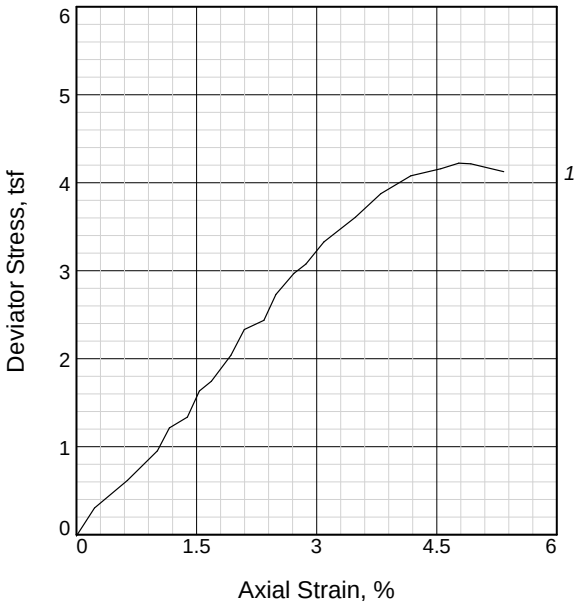
Proj. No.: S-2544-07 **Date Sampled:** 3/21/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	19.7
	Dry Density, pcf	106.9
	Saturation, %	92.2
	Void Ratio	0.5773
	Diameter, in.	2.69
	Height, in.	5.34
At Test	Water Content, %	19.7
	Dry Density, pcf	106.9
	Saturation, %	92.2
	Void Ratio	0.5773
	Diameter, in.	2.69
	Height, in.	5.34
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.36
Fail. Stress, tsf		4.22
Strain, %		4.8
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		4.58
σ_3 Failure, tsf		0.36

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

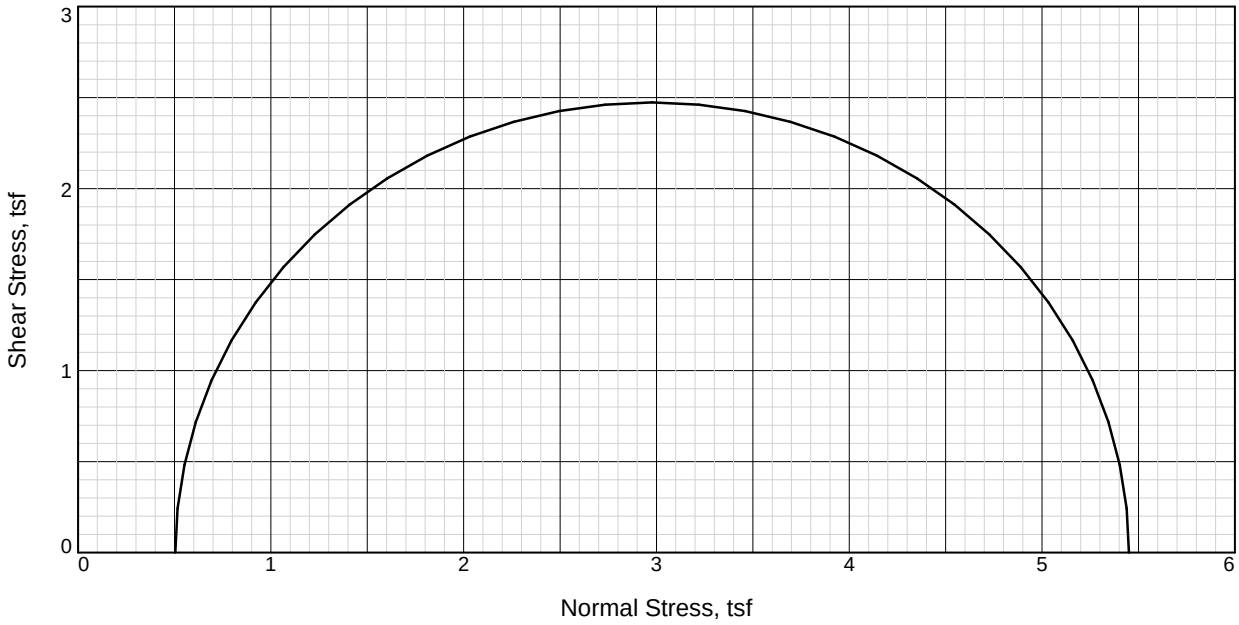
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-182 **Depth:** 6

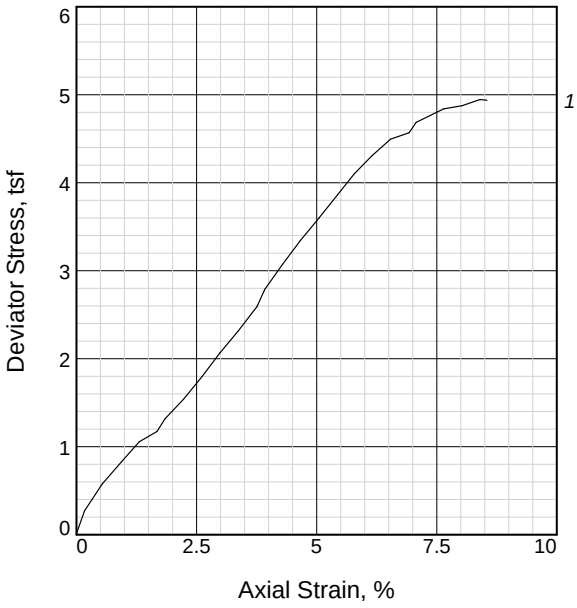
Proj. No.: S-2544-07 **Date Sampled:** 3/20/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	17.1
	Dry Density, pcf	108.1
	Saturation, %	82.3
	Void Ratio	0.5597
	Diameter, in.	2.73
	Height, in.	5.43
At Test	Water Content, %	17.1
	Dry Density, pcf	108.1
	Saturation, %	82.3
	Void Ratio	0.5597
	Diameter, in.	2.73
	Height, in.	5.43
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		4.95
Strain, %		8.4
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		5.45
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 44 **PL=** 21 **PI=** 23
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

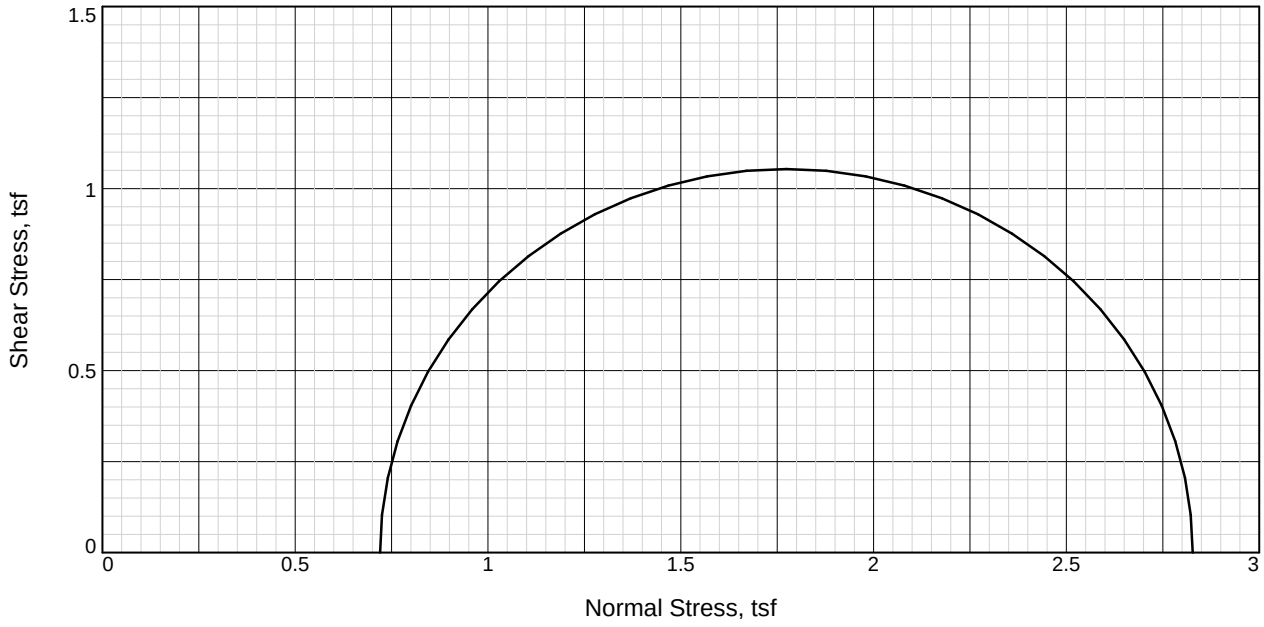
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-183 **Depth:** 8

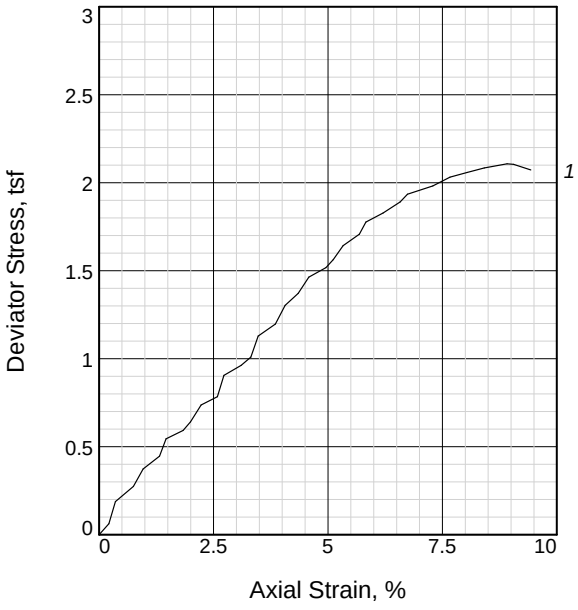
Proj. No.: S-2544-07 **Date Sampled:** 3/20/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	20.2
	Dry Density, pcf	101.3
	Saturation, %	82.1
	Void Ratio	0.6636
	Diameter, in.	2.70
	Height, in.	5.61
At Test	Water Content, %	20.2
	Dry Density, pcf	101.3
	Saturation, %	82.1
	Void Ratio	0.6636
	Diameter, in.	2.70
	Height, in.	5.61
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.72
Fail. Stress, tsf		2.11
Strain, %		8.9
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		2.83
σ_3 Failure, tsf		0.72

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

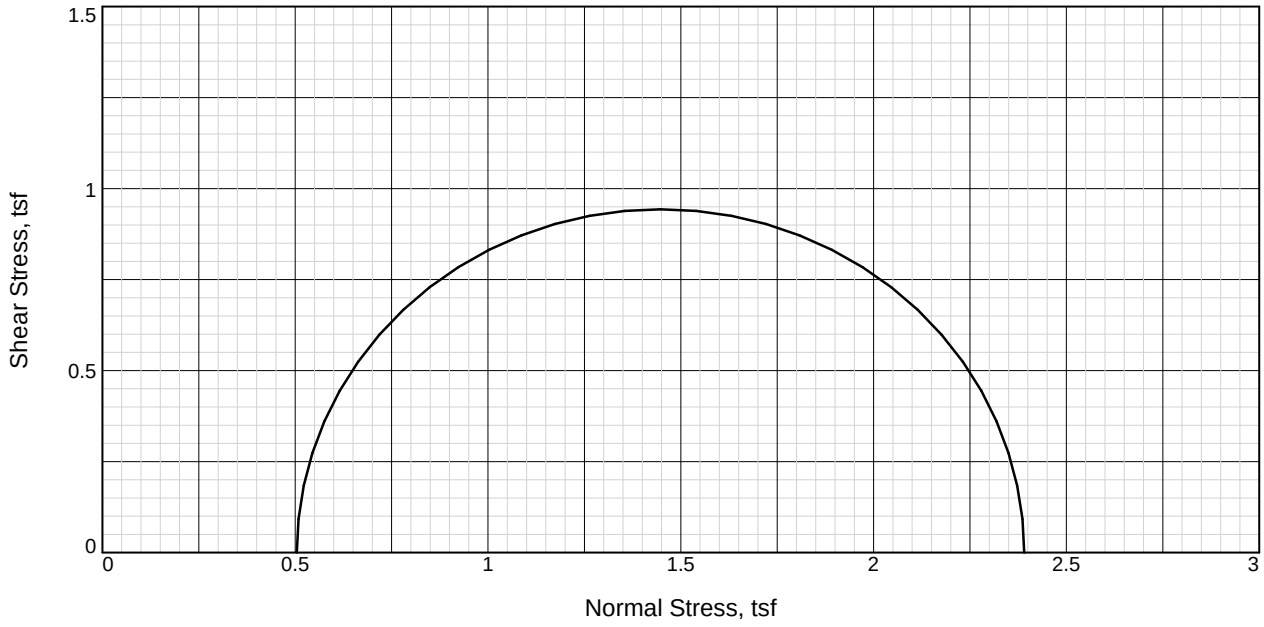
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-184 **Depth:** 12

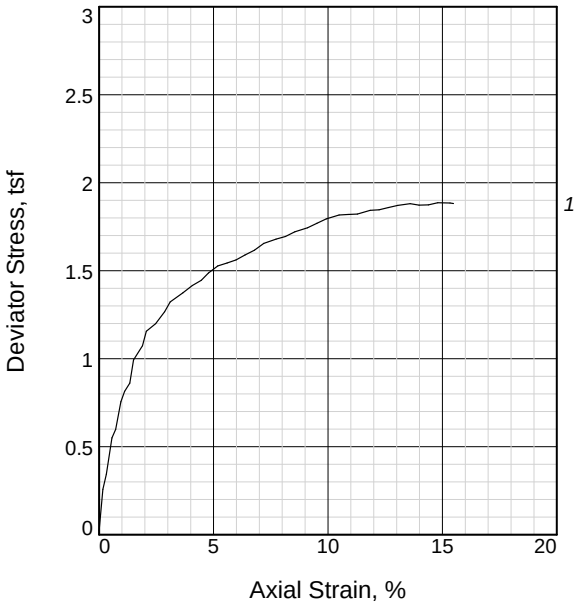
Proj. No.: S-2544-07 **Date Sampled:** 3/20/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	22.4
	Dry Density, pcf	101.9
	Saturation, %	92.4
	Void Ratio	0.6544
	Diameter, in.	2.73
	Height, in.	5.38
At Test	Water Content, %	22.4
	Dry Density, pcf	101.9
	Saturation, %	92.4
	Void Ratio	0.6544
	Diameter, in.	2.73
	Height, in.	5.38
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		1.89
Strain, %		14.8
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		2.39
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 44 **PL=** 17 **PI=** 27
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

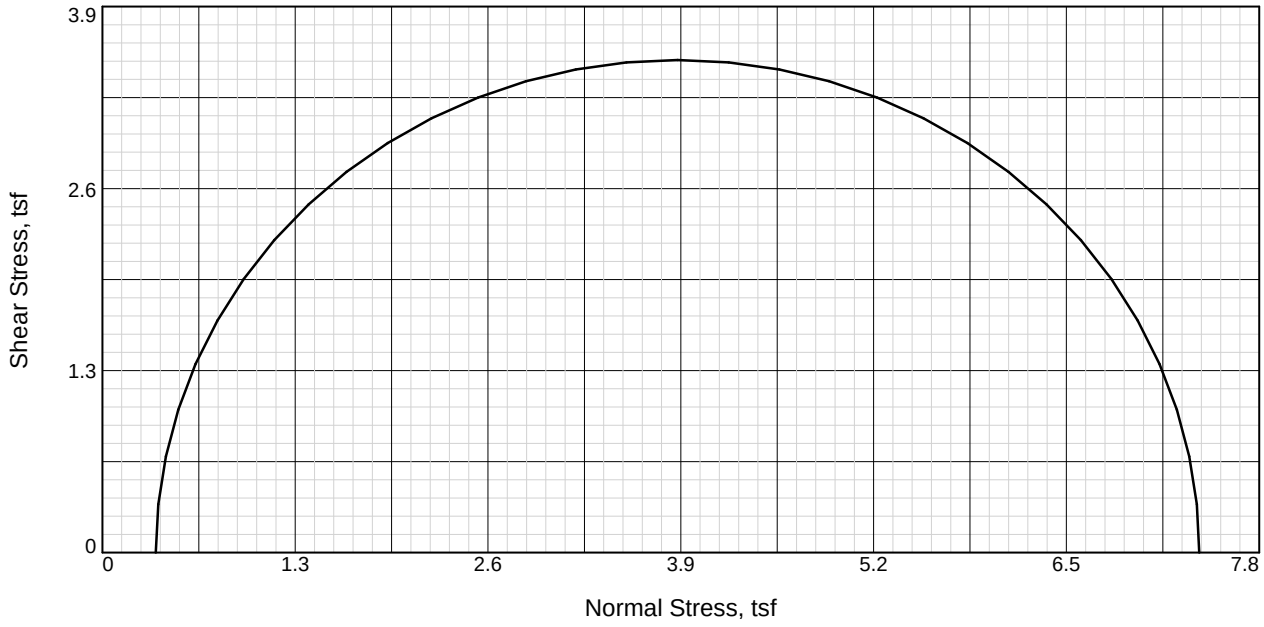
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-185 **Depth:** 8

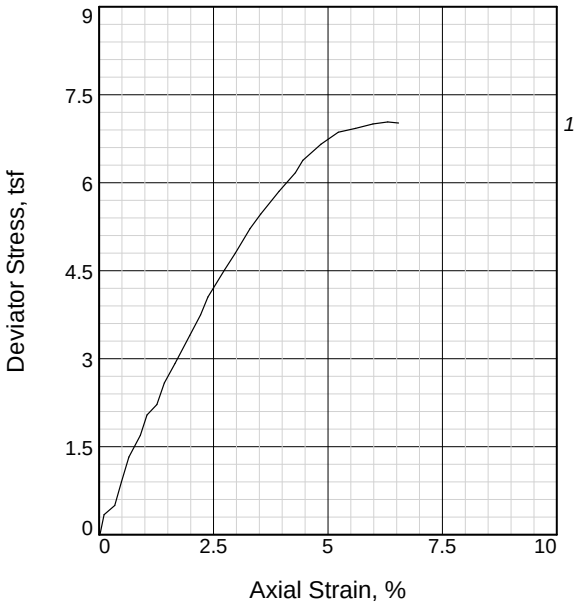
Proj. No.: S-2544-07 **Date Sampled:** 3/21/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	18.5
	Dry Density, pcf	105.9
	Saturation, %	84.2
	Void Ratio	0.5923
	Diameter, in.	2.74
	Height, in.	5.55
At Test	Water Content, %	18.5
	Dry Density, pcf	105.9
	Saturation, %	84.2
	Void Ratio	0.5923
	Diameter, in.	2.74
	Height, in.	5.55
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.36
Fail. Stress, tsf		7.04
Strain, %		6.3
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		7.40
σ_3 Failure, tsf		0.36

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 48 **PL=** 21 **PI=** 27
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

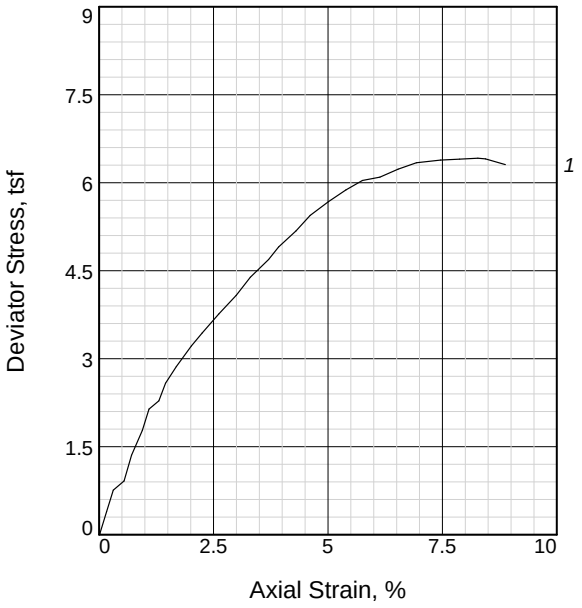
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-190 **Depth:** 6

Proj. No.: S-2544-07 **Date Sampled:** 3/21/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP



Sample No.		1
Initial	Water Content, %	19.8
	Dry Density, pcf	106.4
	Saturation, %	91.3
	Void Ratio	0.5840
	Diameter, in.	2.73
	Height, in.	5.51
At Test	Water Content, %	19.8
	Dry Density, pcf	106.4
	Saturation, %	91.3
	Void Ratio	0.5840
	Diameter, in.	2.73
	Height, in.	5.51
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		6.42
Strain, %		8.3
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		6.92
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description: CLAY - Fat, brown (CH)

LL= 51 **PL=** 23 **PI=** 28
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

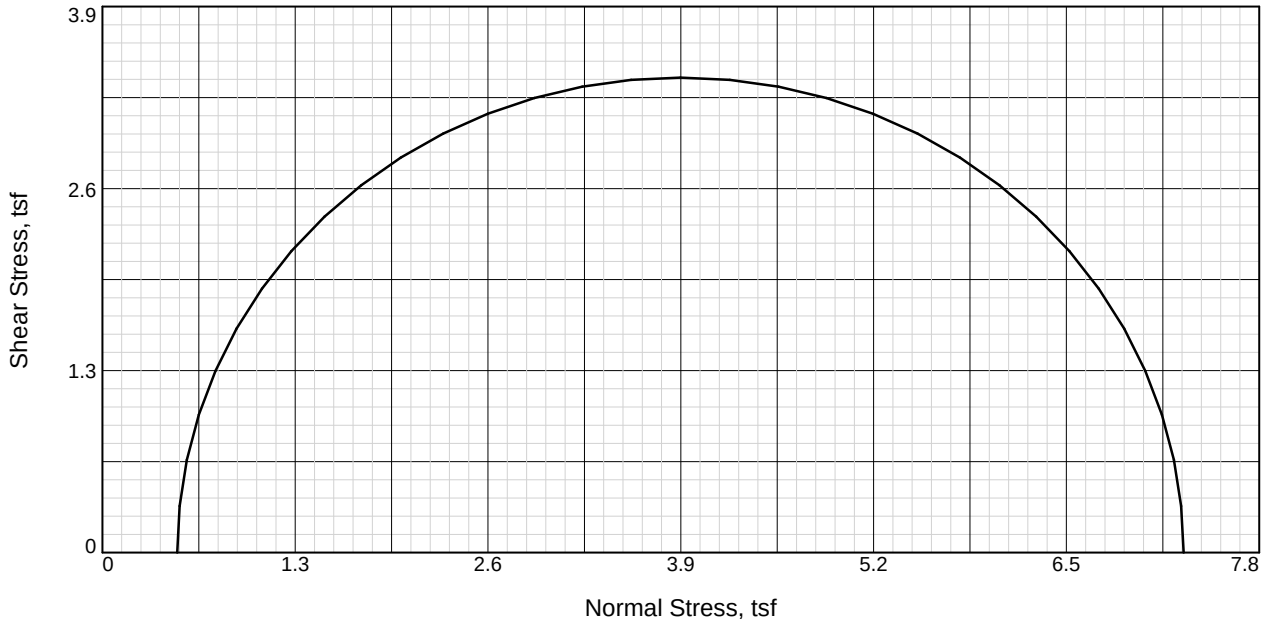
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-191 **Depth:** 10

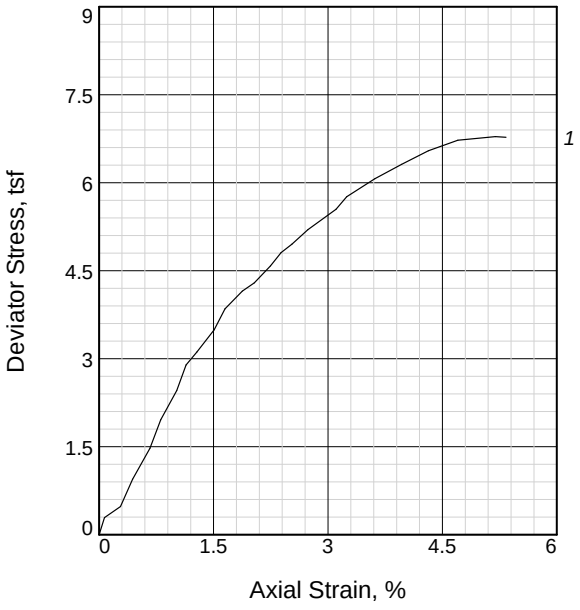
Proj. No.: S-2544-07 **Date Sampled:** 3/21/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	21.8
	Dry Density, pcf	105.4
	Saturation, %	98.2
	Void Ratio	0.5996
	Diameter, in.	2.69
	Height, in.	5.70
At Test	Water Content, %	21.8
	Dry Density, pcf	105.4
	Saturation, %	98.2
	Void Ratio	0.5996
	Diameter, in.	2.69
	Height, in.	5.70
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		6.79
Strain, %		5.2
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		7.29
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 68 **PL=** 22 **PI=** 46
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

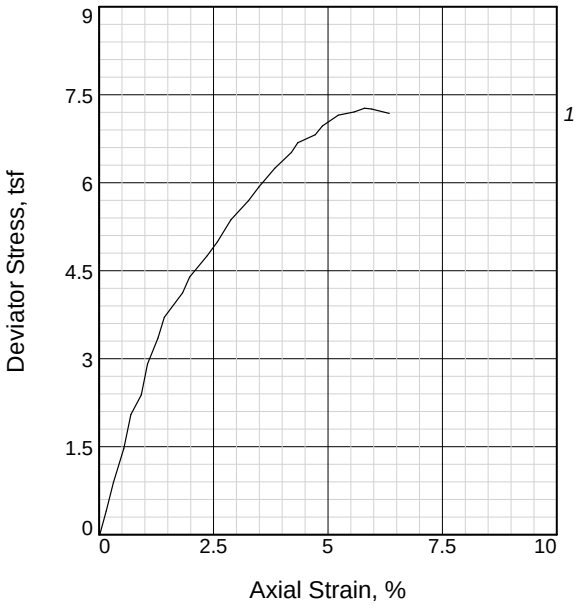
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-192 **Depth:** 11

Proj. No.: S-2544-07 **Date Sampled:** 3/21/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP



Sample No.		1
Initial	Water Content, %	19.0
	Dry Density, pcf	104.8
	Saturation, %	84.3
	Void Ratio	0.6083
	Diameter, in.	2.74
	Height, in.	5.76
At Test	Water Content, %	19.0
	Dry Density, pcf	104.8
	Saturation, %	84.3
	Void Ratio	0.6083
	Diameter, in.	2.74
	Height, in.	5.76
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.50
Fail. Stress, tsf		7.27
Strain, %		5.8
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		7.77
σ_3 Failure, tsf		0.50

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

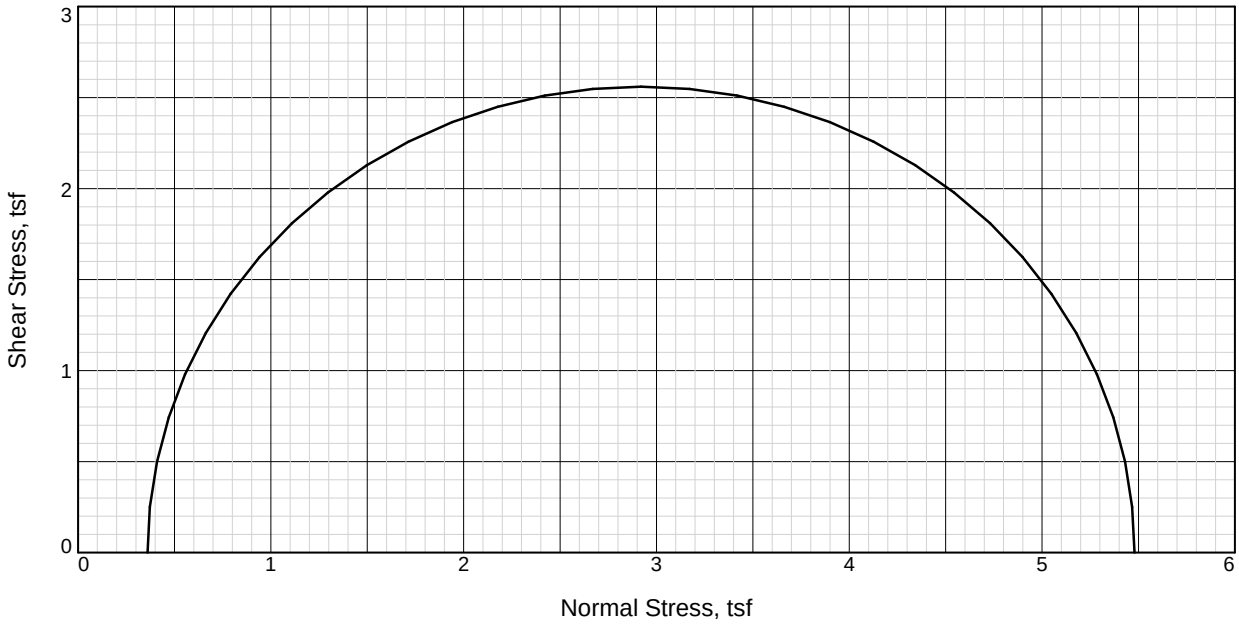
Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-193 **Depth:** 11

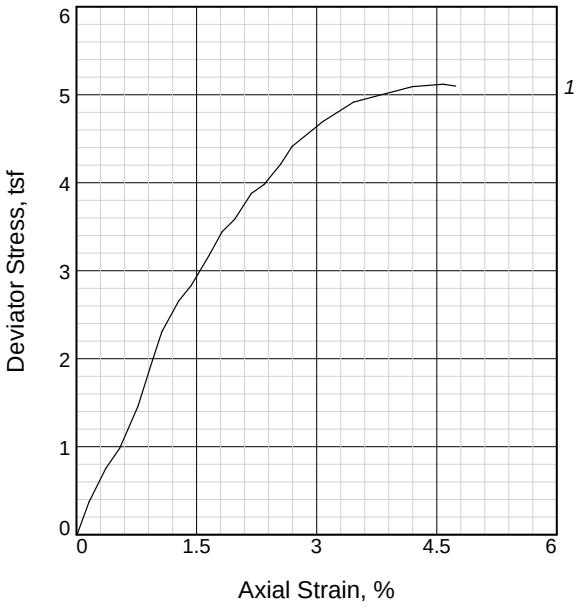
Proj. No.: S-2544-07 **Date Sampled:** 3/21/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP





Sample No.		1
Initial	Water Content, %	19.9
	Dry Density, pcf	100.4
	Saturation, %	79.0
	Void Ratio	0.6788
	Diameter, in.	2.72
	Height, in.	5.72
At Test	Water Content, %	19.9
	Dry Density, pcf	100.4
	Saturation, %	79.0
	Void Ratio	0.6788
	Diameter, in.	2.72
	Height, in.	5.72
Strain rate, in./min.		0.08
Back Pressure, tsf		0.00
Cell Pressure, tsf		0.36
Fail. Stress, tsf		5.12
Strain, %		4.6
Ult. Stress, tsf		
Strain, %		
σ_1 Failure, tsf		5.48
σ_3 Failure, tsf		0.36

Type of Test:
Unconsolidated Undrained
Sample Type: Undisturbed
Description:

LL= 60 **PL=** 23 **PI=** 37
Assumed Specific Gravity= 2.70
Remarks:

Figure _____

Client: S&B Infrastructure, Ltd.

Project: DONNA PUMP TO BROWNSVILLE
Lower Rio Grande Flood Control Project
Source of Sample: BH-193 **Depth:** 6

Proj. No.: S-2544-07 **Date Sampled:** 3/21/07

TRIAXIAL SHEAR TEST REPORT

TSI Laboratories

Tested By: MC **Checked By:** TP

APPENDIX H
Potential Vertical Rise

TSI Laboratories, Inc.
1810 South Laurent
Victoria, TX 77901

HYDROMETER ANALYSIS

Source: Donna Pump to Brownsville
Sample ID : BH-45 6'-8'
Assumed Sp Gr : 2.70
Sample Weight: 50.00 grams
Hydroscopic Moisture: 0.00%
Adjusted Sample Wgt : 50.00 grams

Hydrometer Reading Minutes	Corrected Reading	Percent Passing	Soils Particle Diameter
2	50.15	98.5%	0.0270 mm
5	49.15	96.5%	0.0173 mm
15	47.15	92.6%	0.0102 mm
30	45.15	88.7%	0.0073 mm
60	41.15	80.8%	0.0054 mm
250	33.15	65.1%	0.0028 mm
1440	25.15	49.4%	0.0012 mm

% Gravel: 0.0%
% Sand: 0.8%
% Silt: 20.7%
% Clay: 78.5%

Liquid Limit: 66.0 %
Plastic Limit: 24.0 %
Plasticity Index: 42.0 %

ASTM D 2487 Soils Classification

Sieve Analysis Grain Size Distribution	Sieve Size	Percent Passing	Soils Particle Diameter	
	3.0"	100.0%	75.000	mm
	2.0"	100.0%	50.000	mm
	1.5"	100.0%	37.500	mm
	1.25"	100.0%	31.500	mm
	1.0"	100.0%	25.000	mm
	3/4"	100.0%	19.000	mm
	5/8"	100.0%	16.000	mm
	1/2"	100.0%	12.500	mm
	3/8"	100.0%	9.500	mm
	1/4"	100.0%	6.300	mm
	#4	100.0%	4.750	mm
	#10	100.0%	2.000	mm
	#20	100.0%	0.850	mm
	#40	100.0%	0.425	mm
	#100	100.0%	0.150	mm
	#200	99.2%	0.075	mm
	Silts	99.2%	0.074	mm
		98.8%	0.050	mm
		97.1%	0.020	mm
	Clays	78.5%	0.005	mm
		57.0%	0.002	mm
	Colloids	39.9%	0.001	mm

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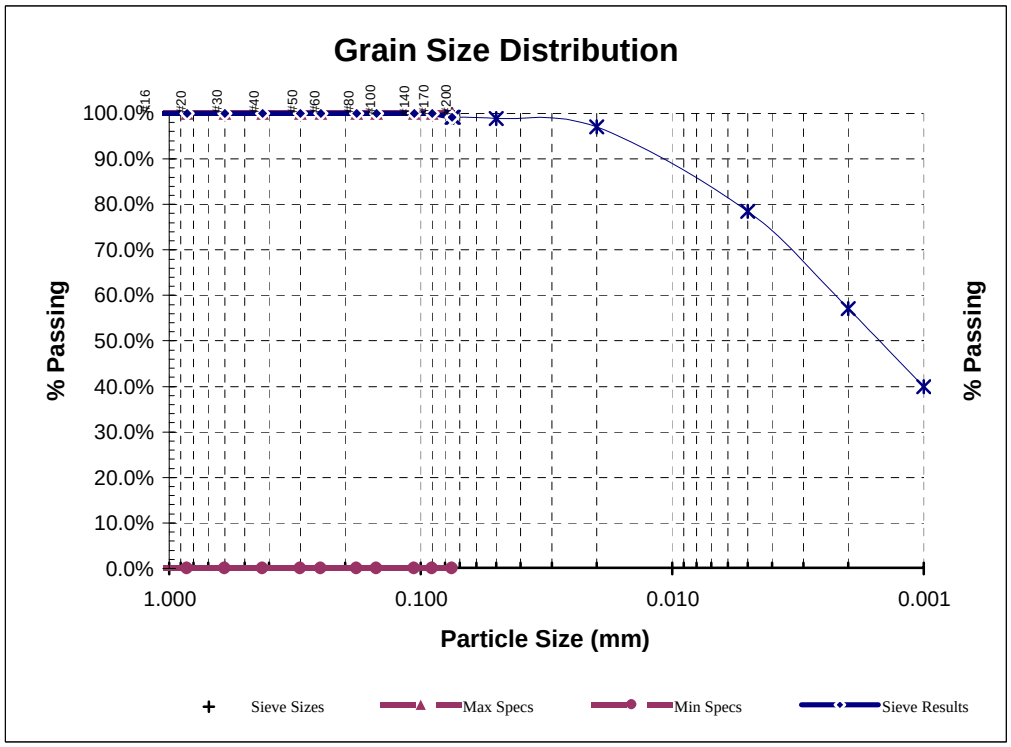

TSI Laboratories, Inc.
1810 South Laurent
Victoria, TX 77901

HYDROMETER ANALYSIS

Source: Donna Pump to Brownsville
Sample ID : BH-173 13'-15'
Assumed Sp Gr : 2.70
Sample Weight: 50.00 grams
Hydroscopic Moisture: 0.00%
Adjusted Sample Wgt : 50.00 grams

Hydrometer Reading Minutes	Corrected Reading	Percent Passing	Soils Particle Diameter
2	50.15	97.8%	0.0270 mm
5	49.15	95.9%	0.0173 mm
15	47.15	92.0%	0.0102 mm
30	46.15	90.0%	0.0073 mm
60	44.15	86.1%	0.0052 mm
250	38.15	74.4%	0.0027 mm
1440	30.15	58.8%	0.0012 mm

% Gravel: 0.0%
% Sand: 1.5%
% Silt: 13.5%
% Clay: 85.0%

Liquid Limit: 67.0 %
Plastic Limit: 26.0 %
Plasticity Index: 41.0 %

ASTM D 2487 Soils Classification

Sieve Analysis Grain Size Distribution	Sieve Size	Percent Passing	Soils Particle Diameter
	3.0"	100.0%	75.000 mm
	2.0"	100.0%	50.000 mm
	1.5"	100.0%	37.500 mm
	1.25"	100.0%	31.500 mm
	1.0"	100.0%	25.000 mm
	3/4"	100.0%	19.000 mm
	5/8"	100.0%	16.000 mm
	1/2"	100.0%	12.500 mm
	3/8"	100.0%	9.500 mm
	1/4"	100.0%	6.300 mm
	#4	100.0%	4.750 mm
	#10	100.0%	2.000 mm
	#20	100.0%	0.850 mm
	#40	100.0%	0.425 mm
	#100	100.0%	0.150 mm
	#200	98.5%	0.075 mm
	Silts	98.5%	0.074 mm
		98.1%	0.050 mm
		96.4%	0.020 mm
	Clays	85.0%	0.005 mm
		67.1%	0.002 mm
	Colloids	49.2%	0.001 mm

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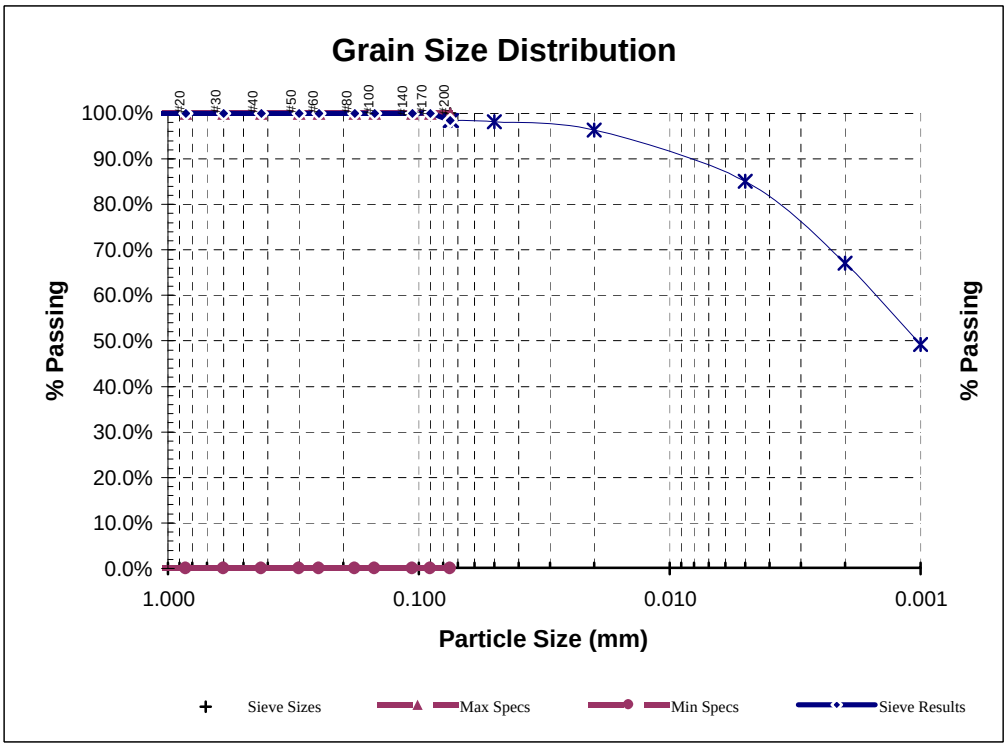
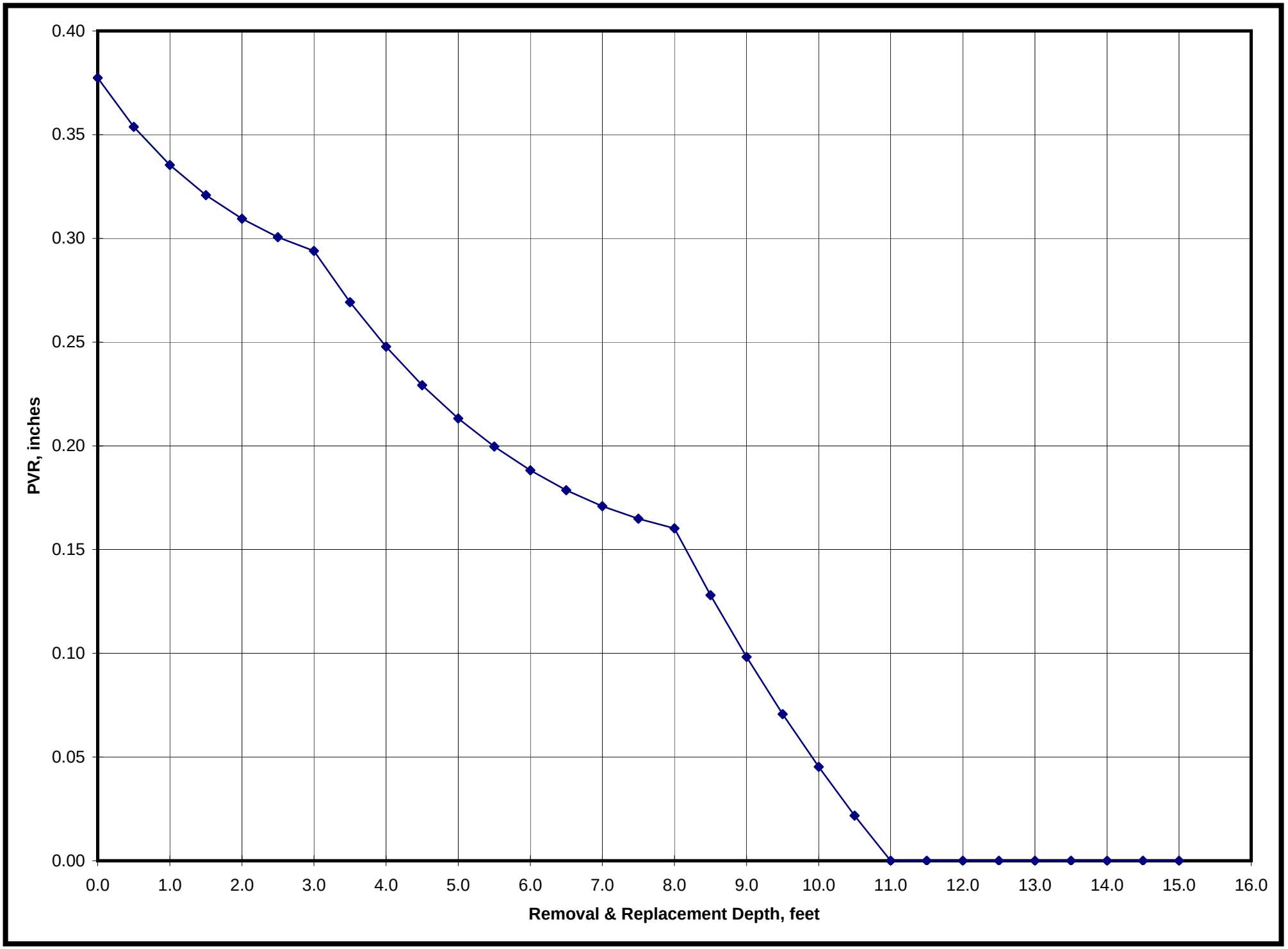
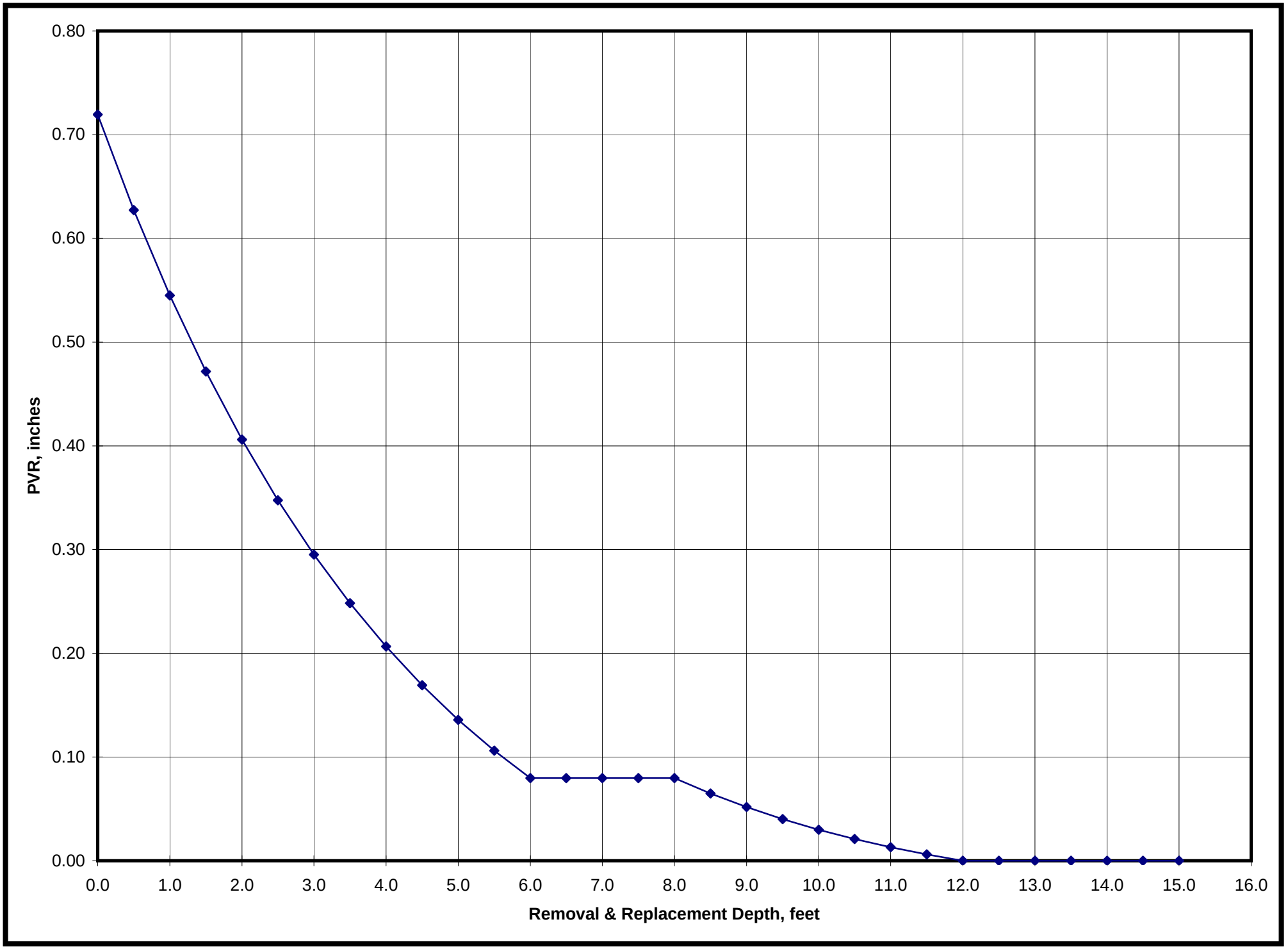
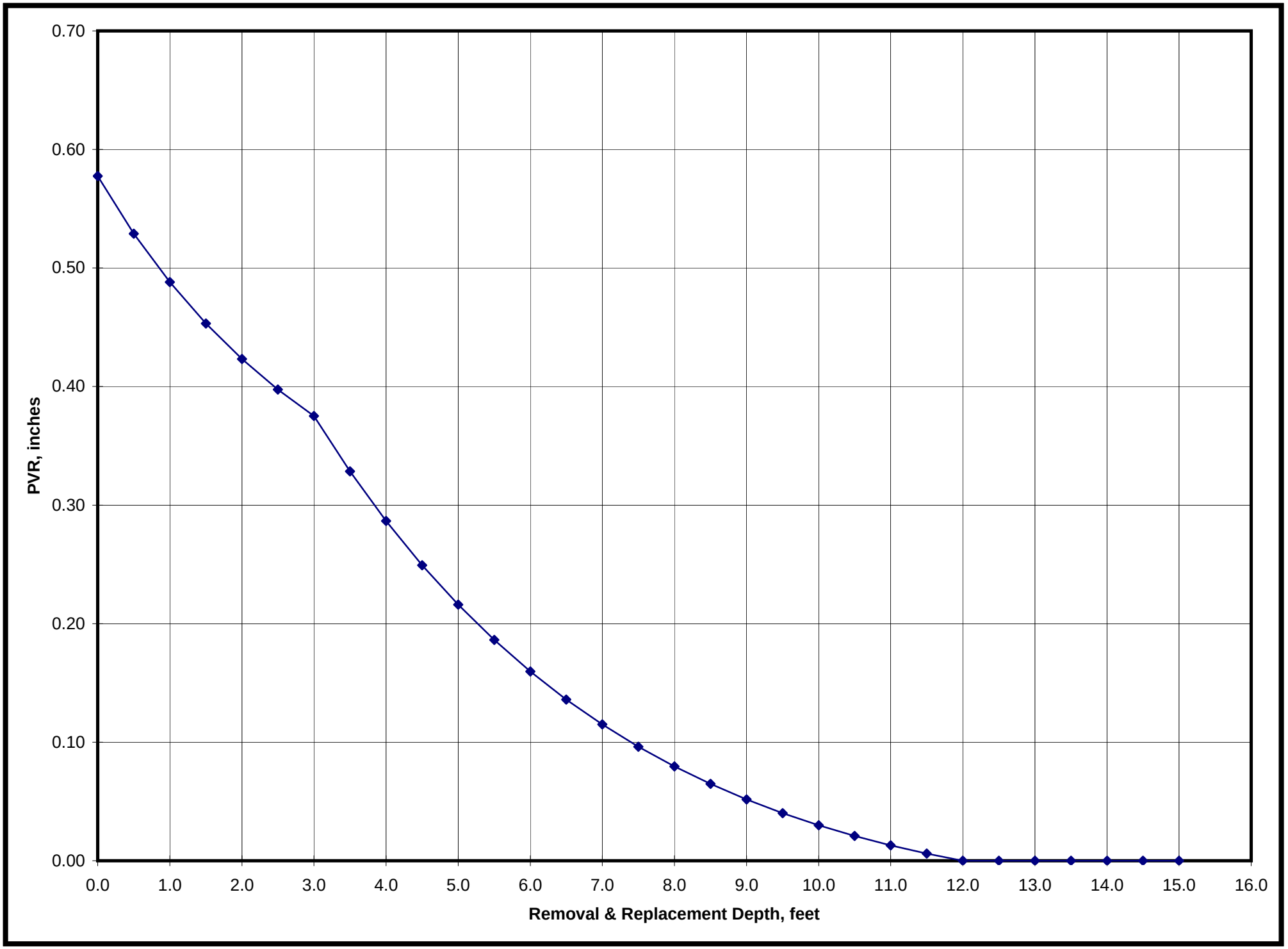




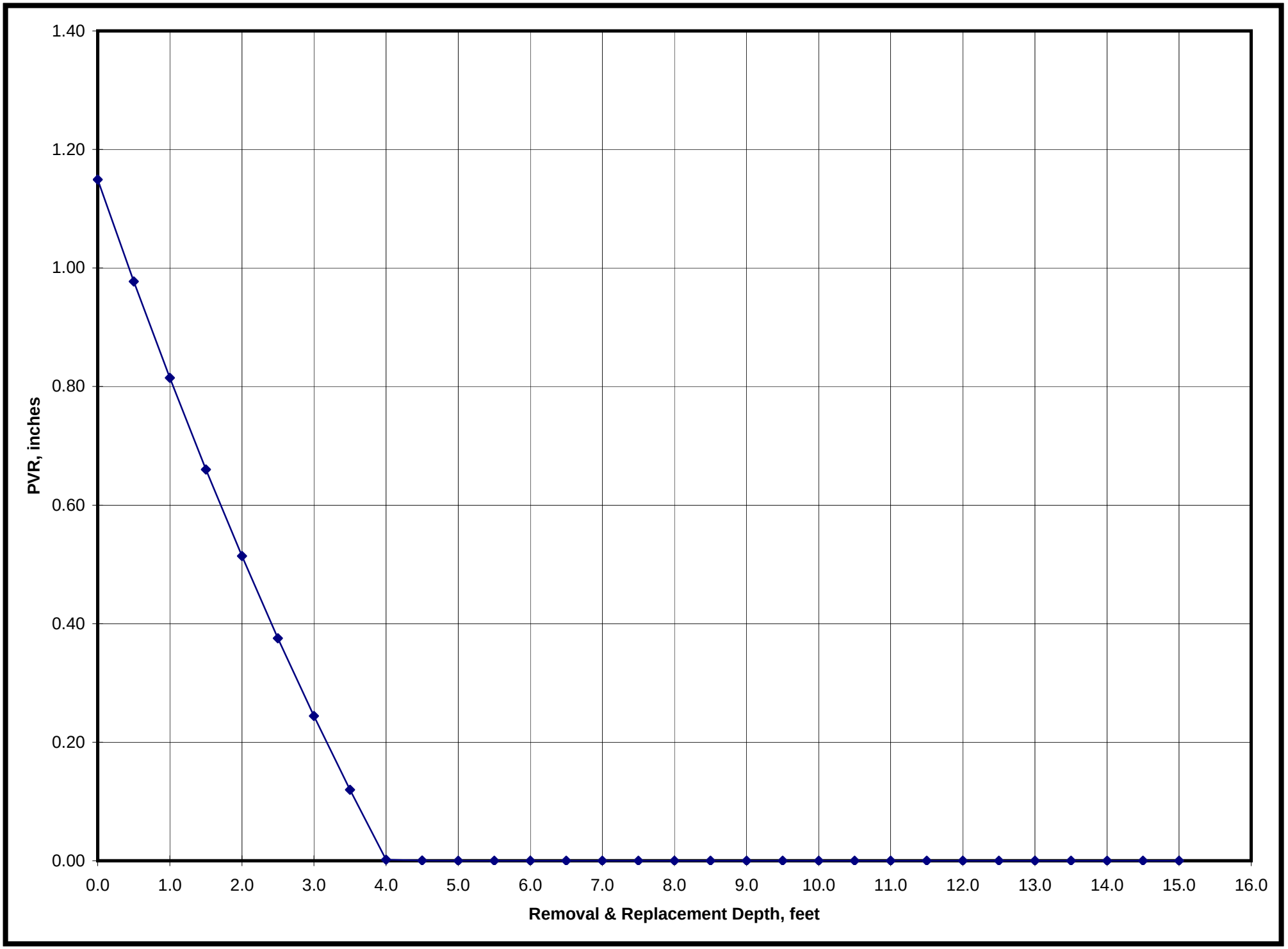
DONNA PUMP TO BROWNSVILLE - BH 1



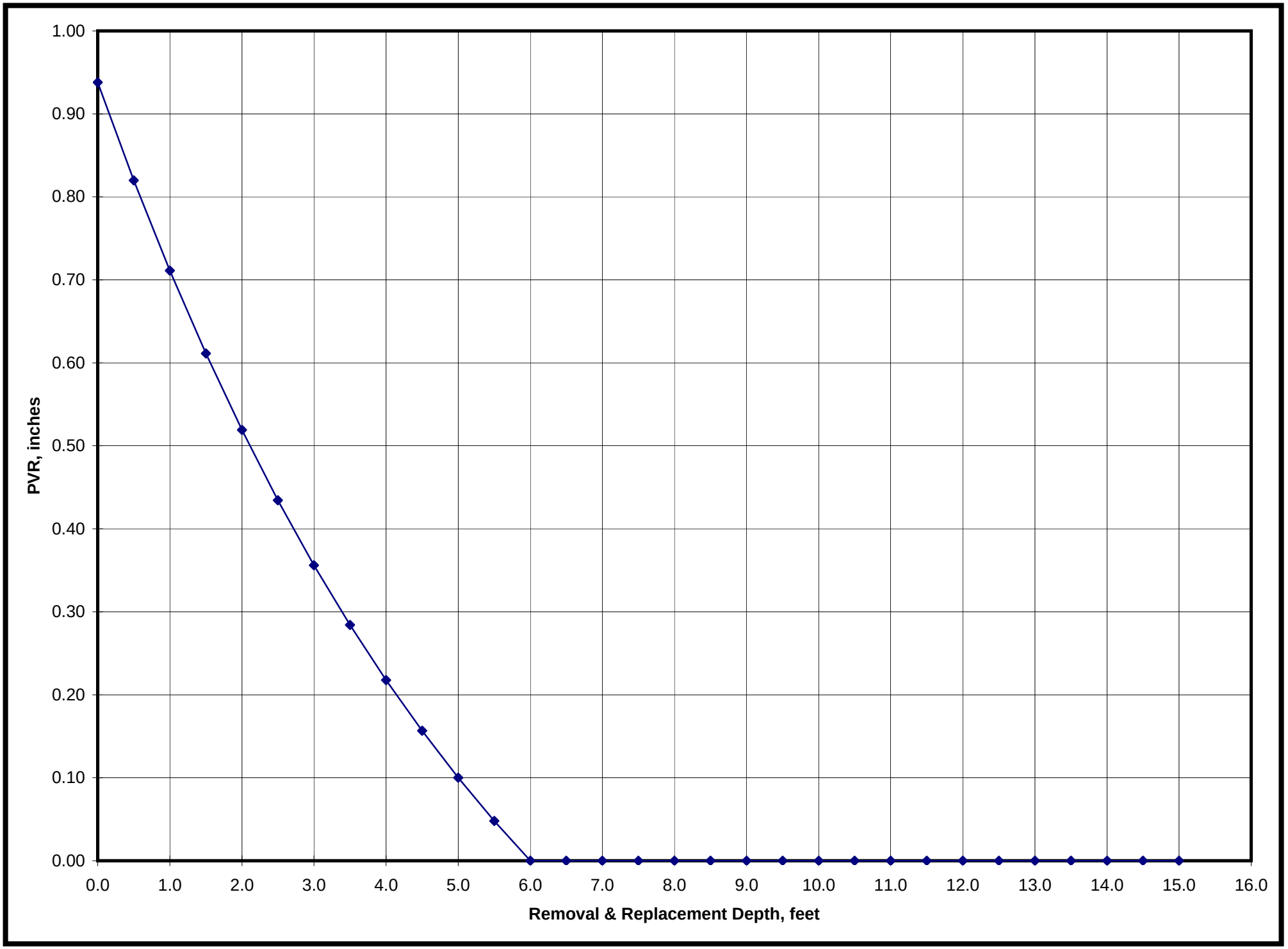
DONNA PUMP TO BROWNSVILLE - BH 2



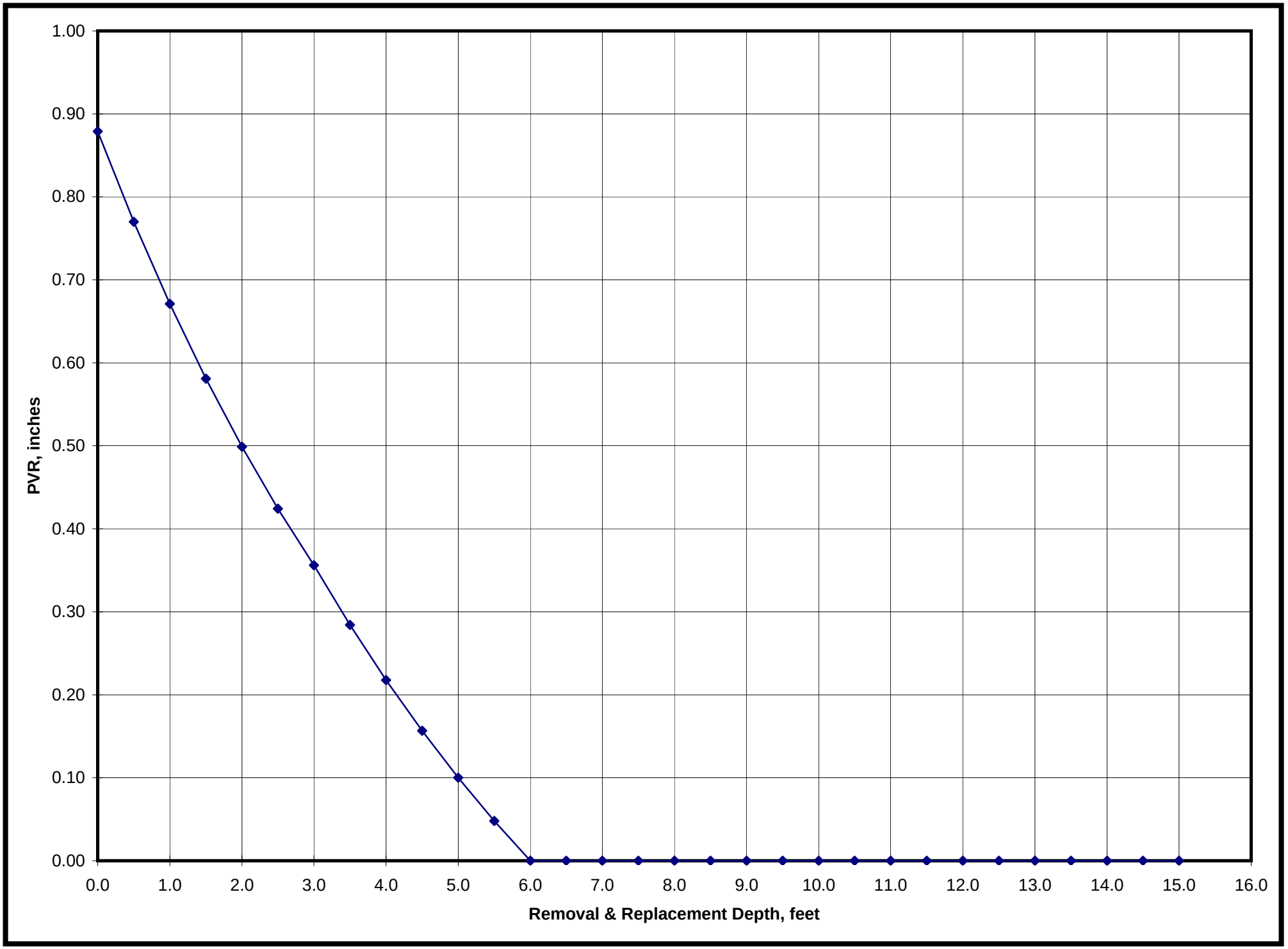
DONNA PUMP TO BROWNSVILLE - BH 3



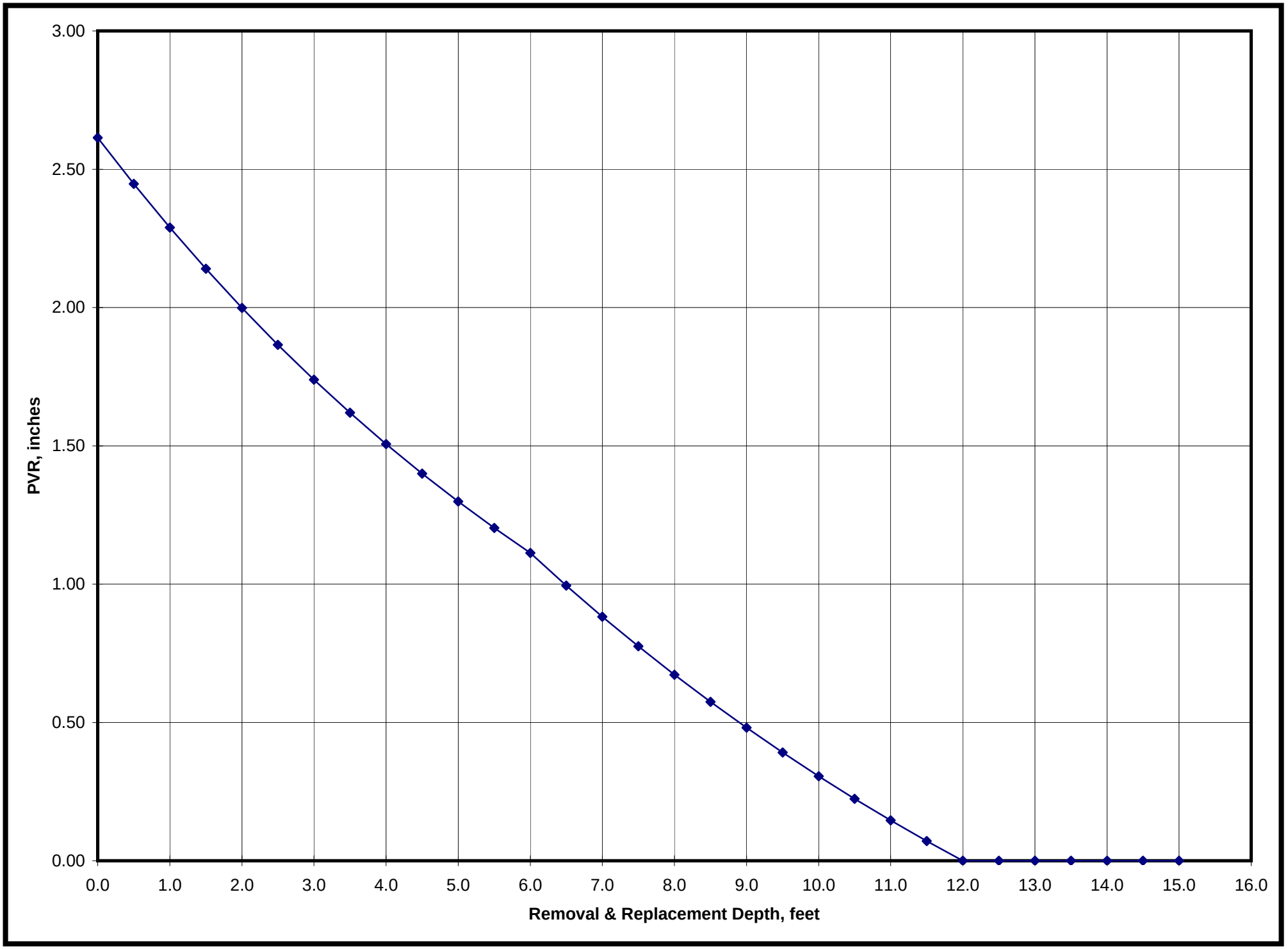
DONNA PUMP TO BROWNSVILLE - BH 4



DONNA PUMP TO BROWNSVILLE - BH 5



DONNA PUMP TO BROWNSVILLE - BH 6



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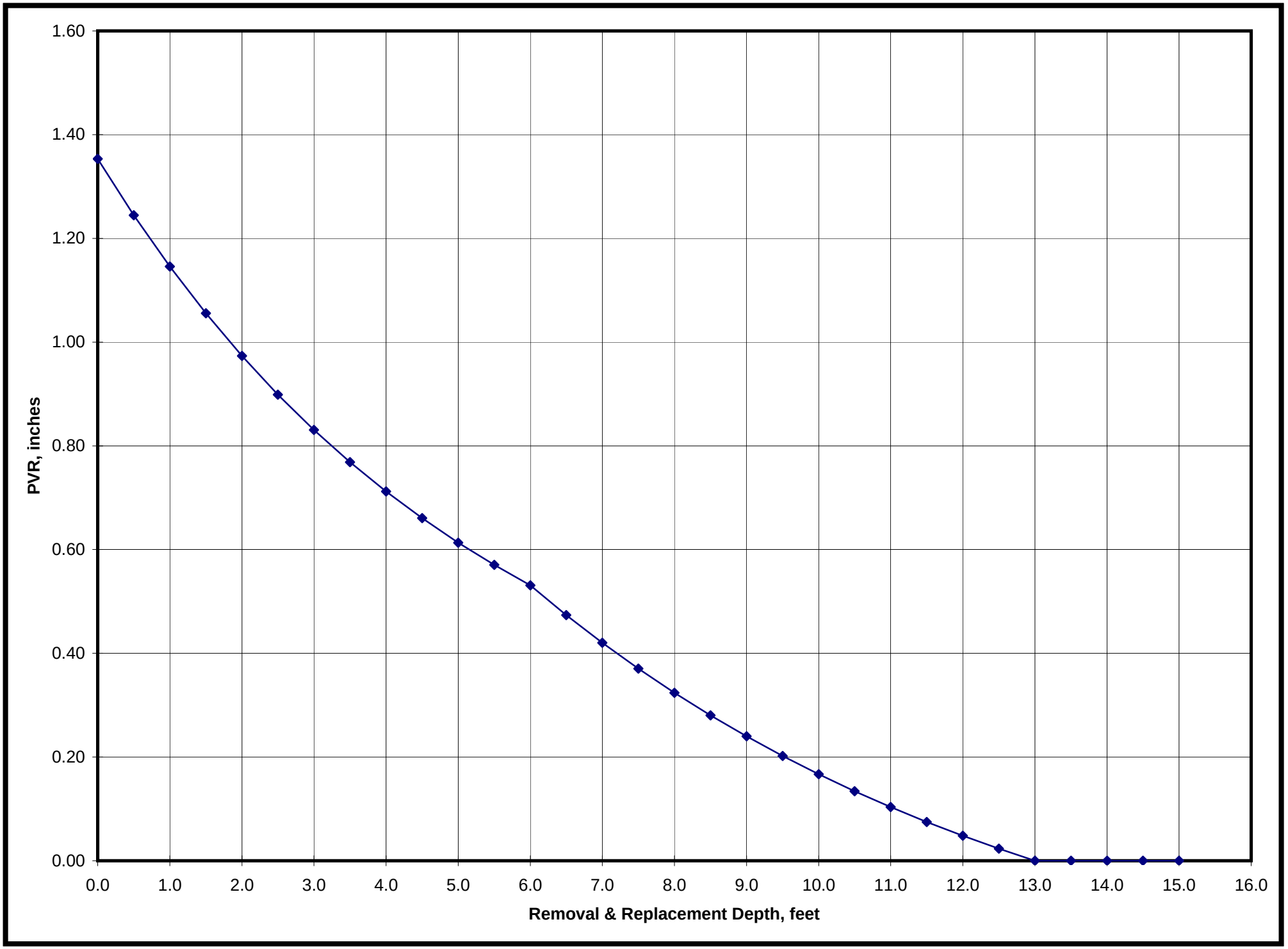
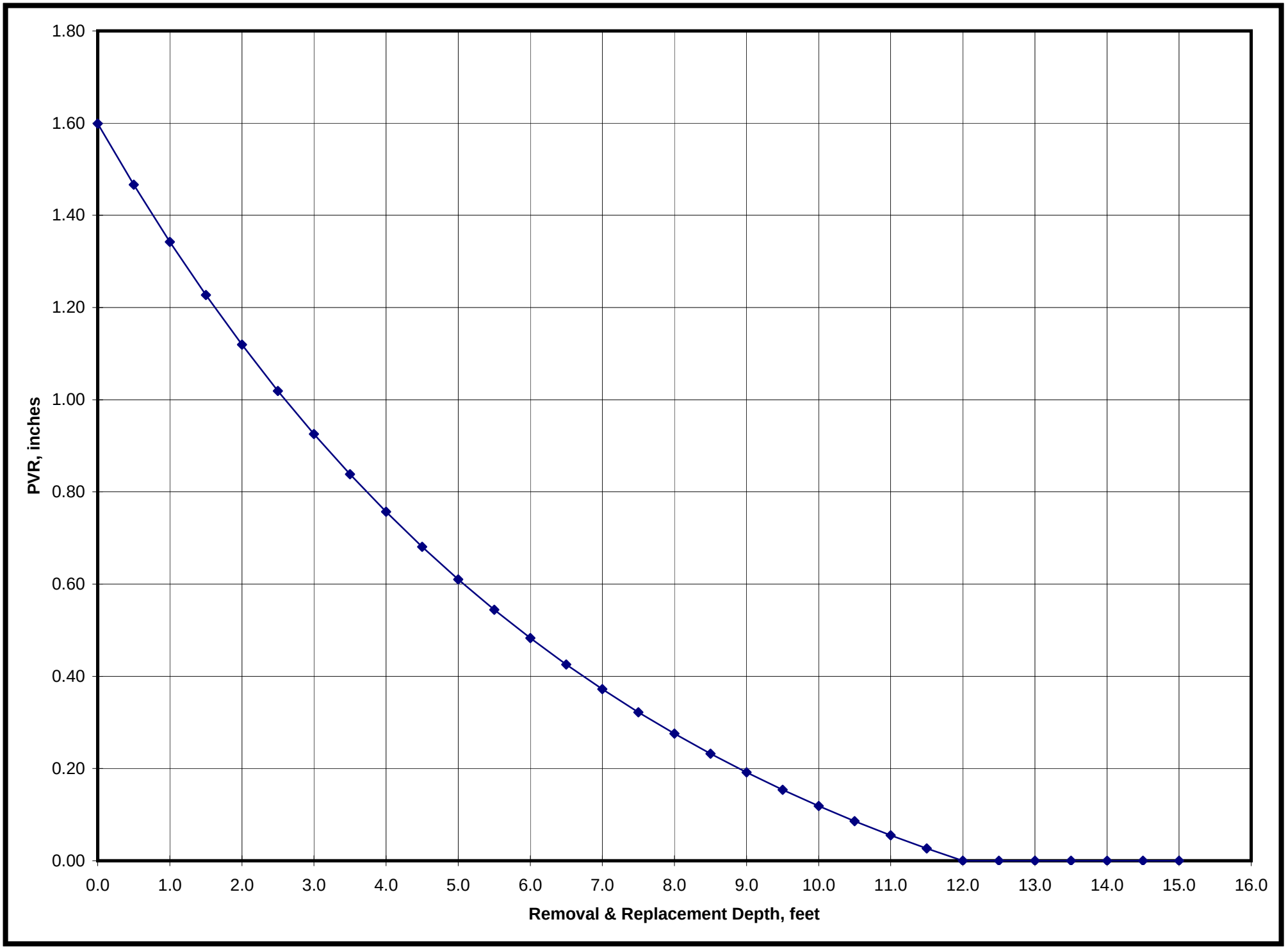


DONNA PUMP TO BROWNSVILLE - BH 8



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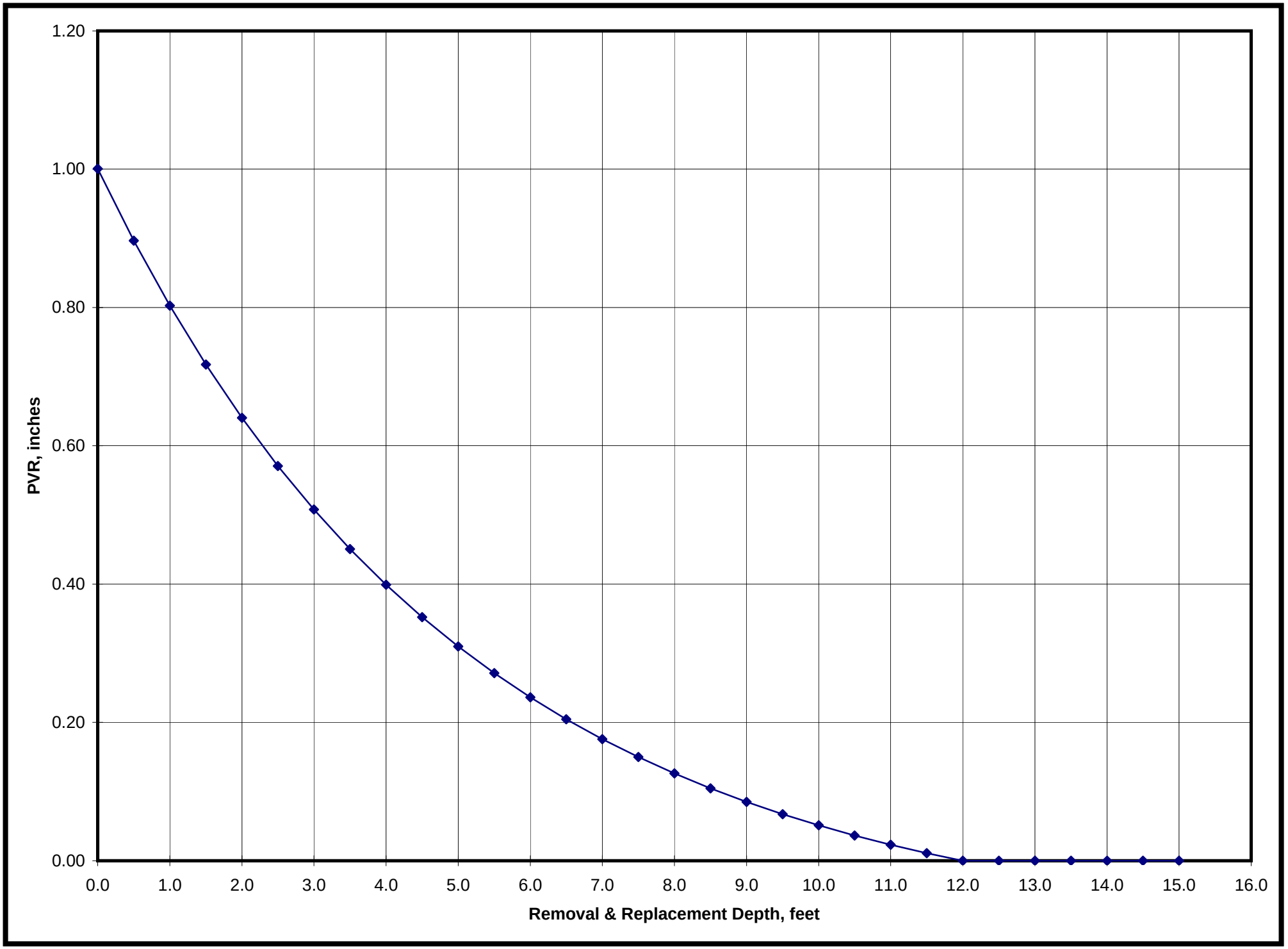
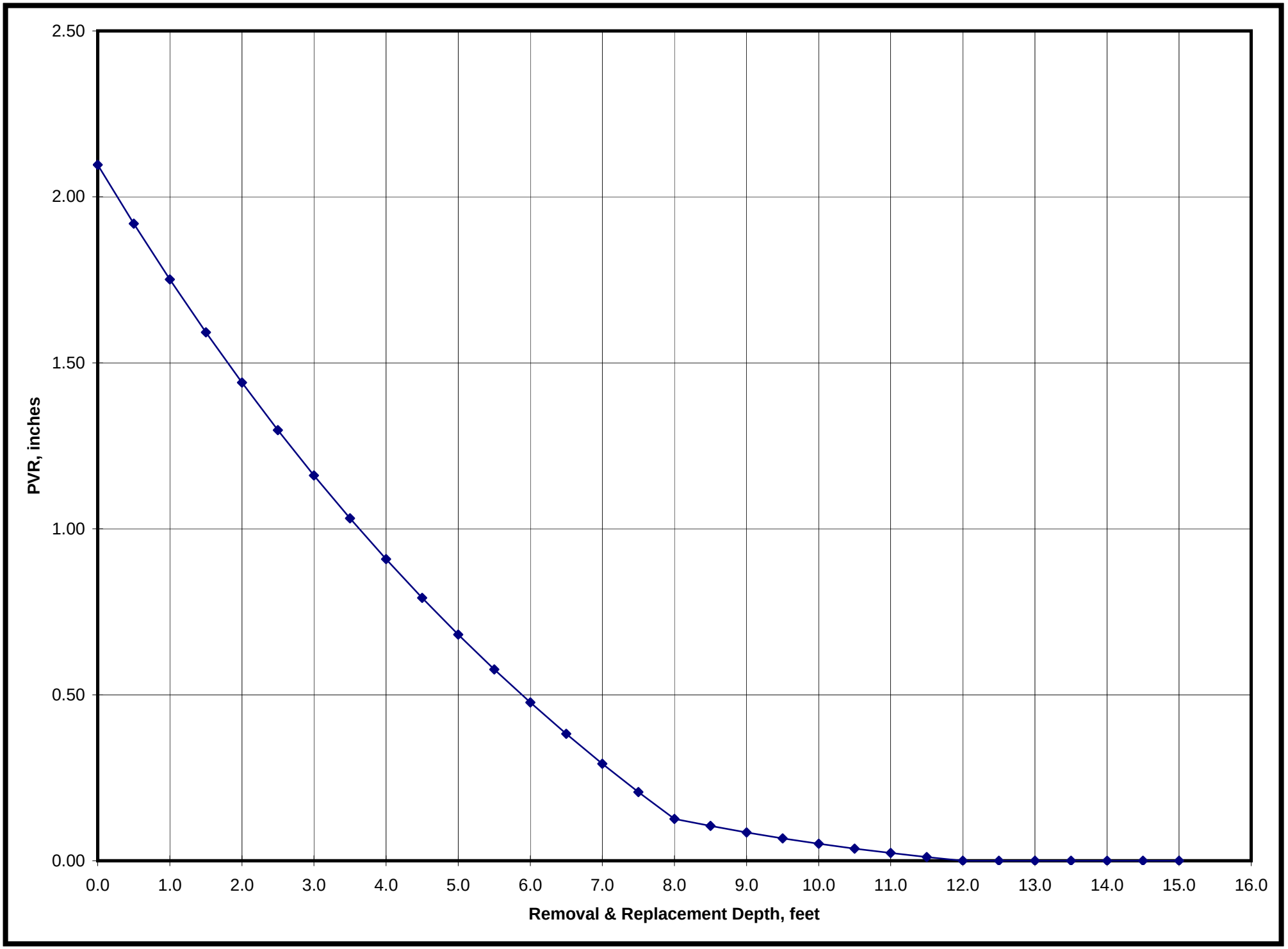
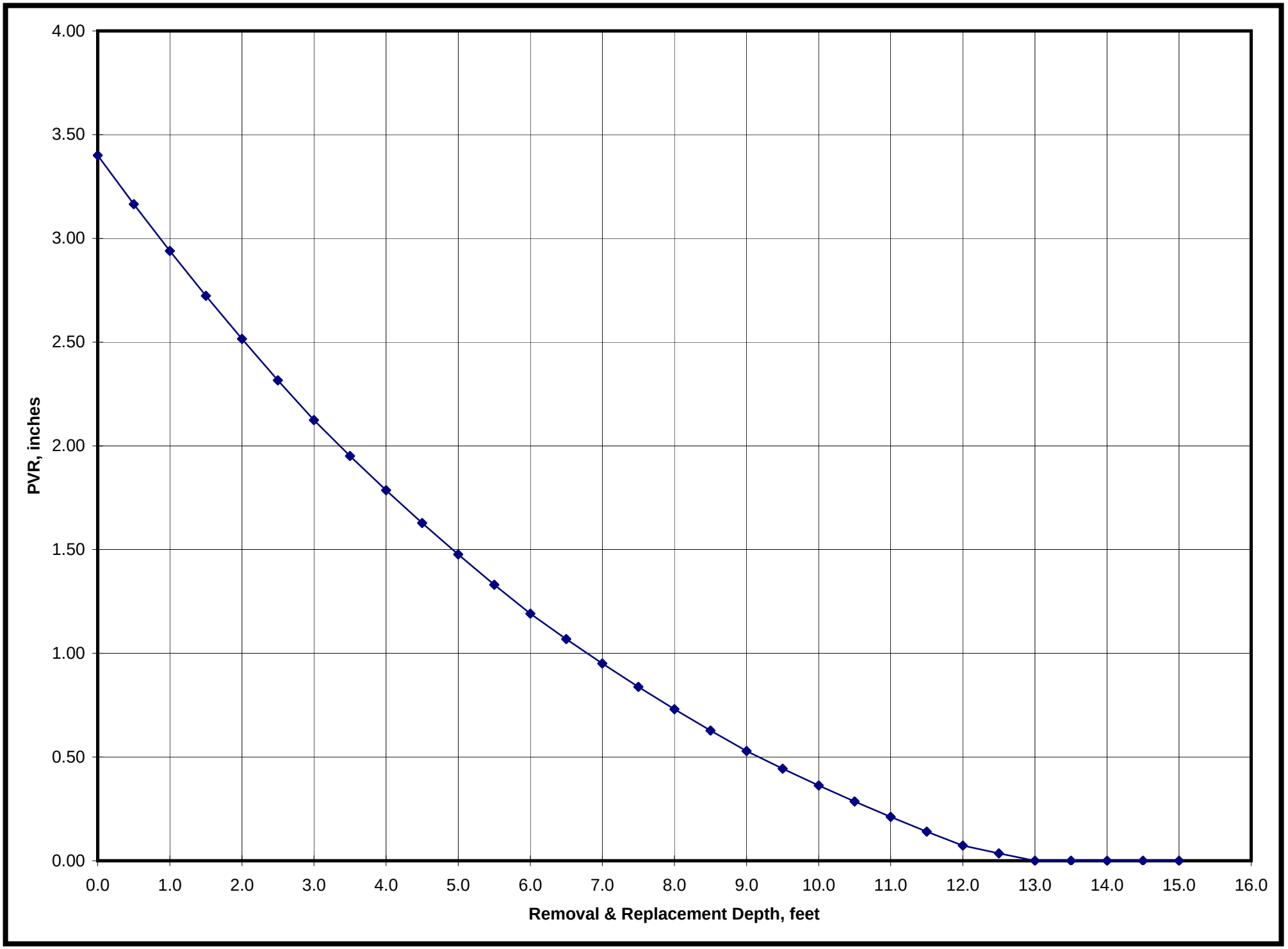


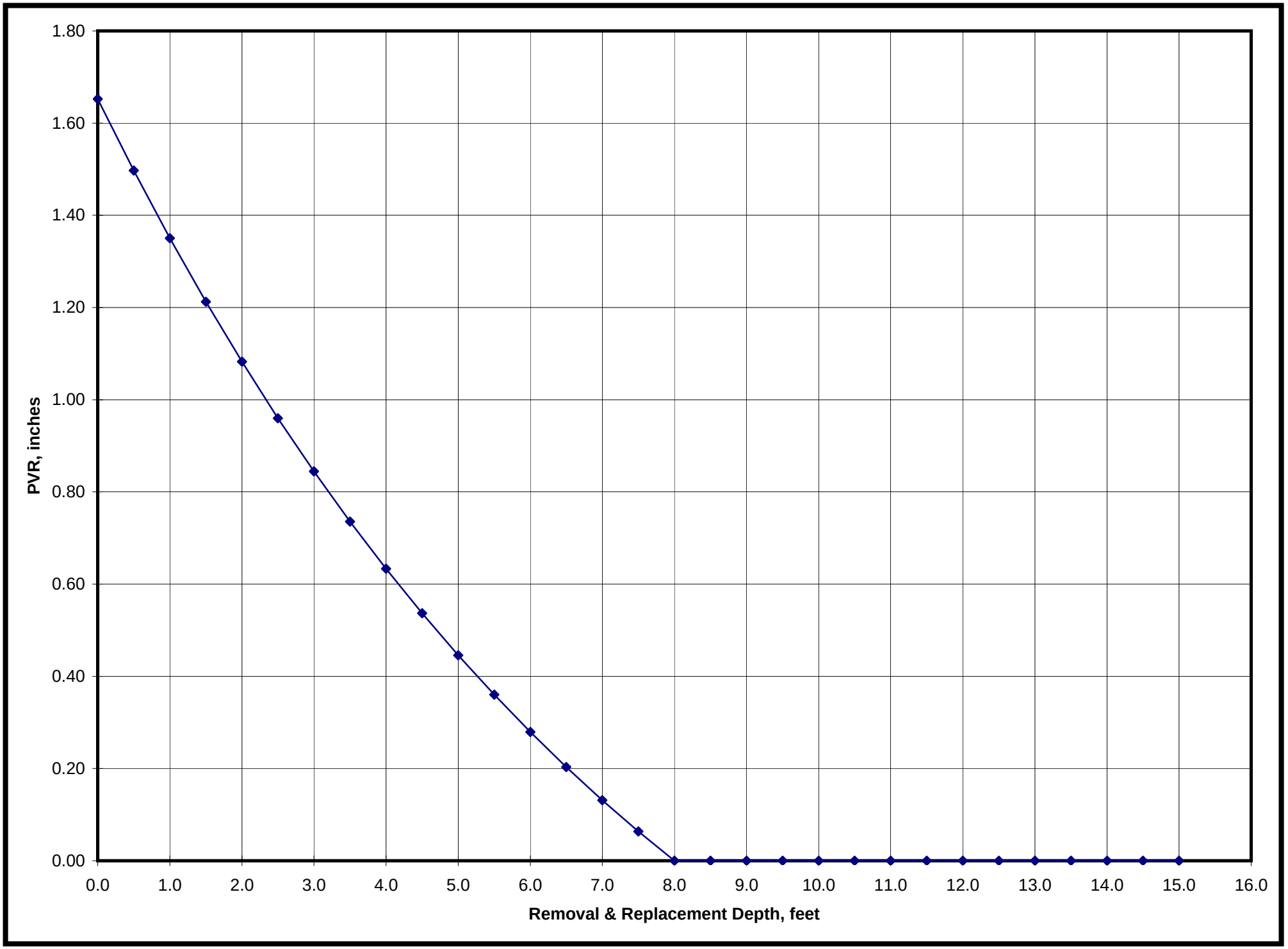
DONNA PUMP TO BROWNSVILLE - BH 10



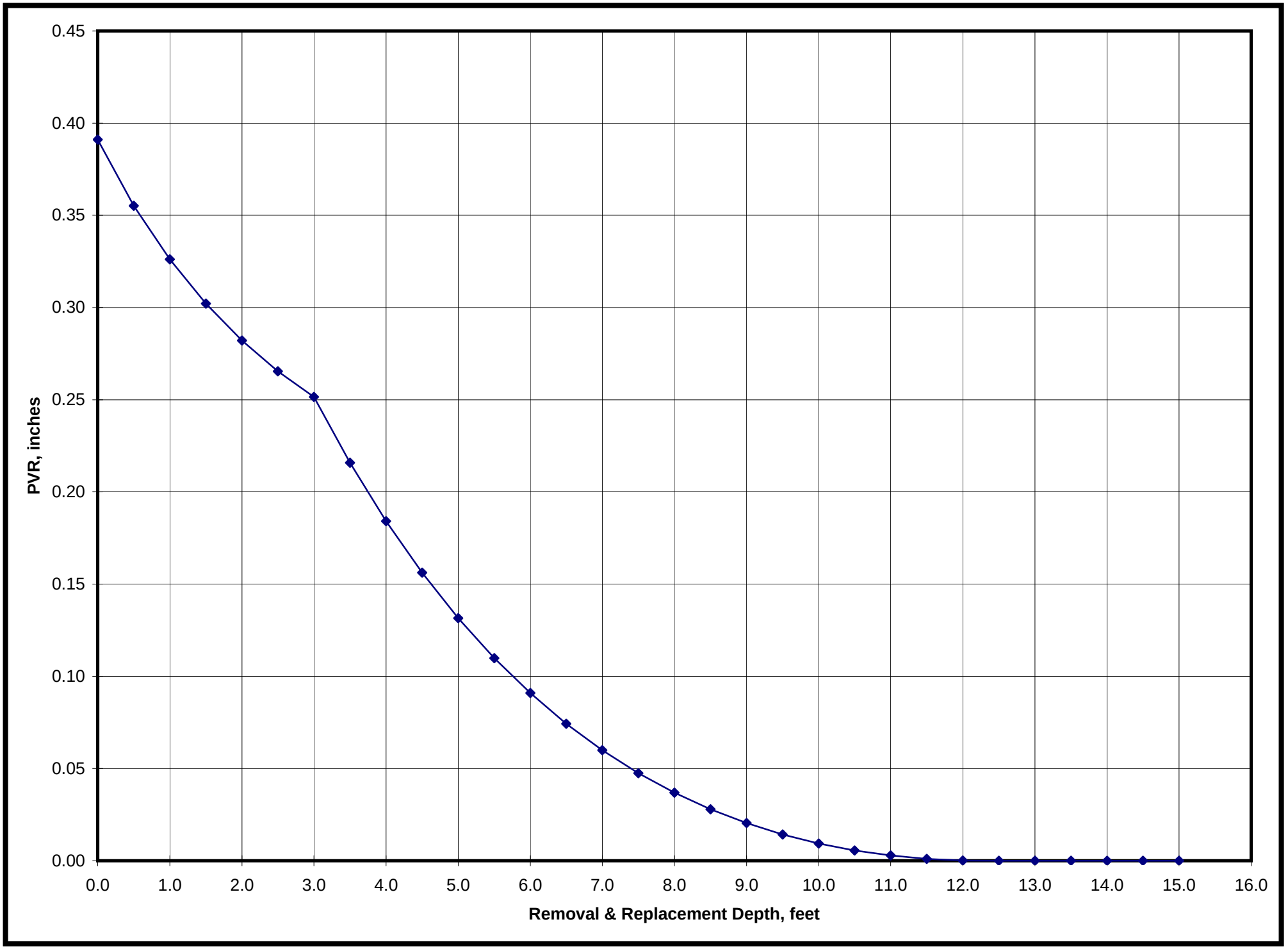
DONNA PUMP TO BROWNSVILLE - BH 11



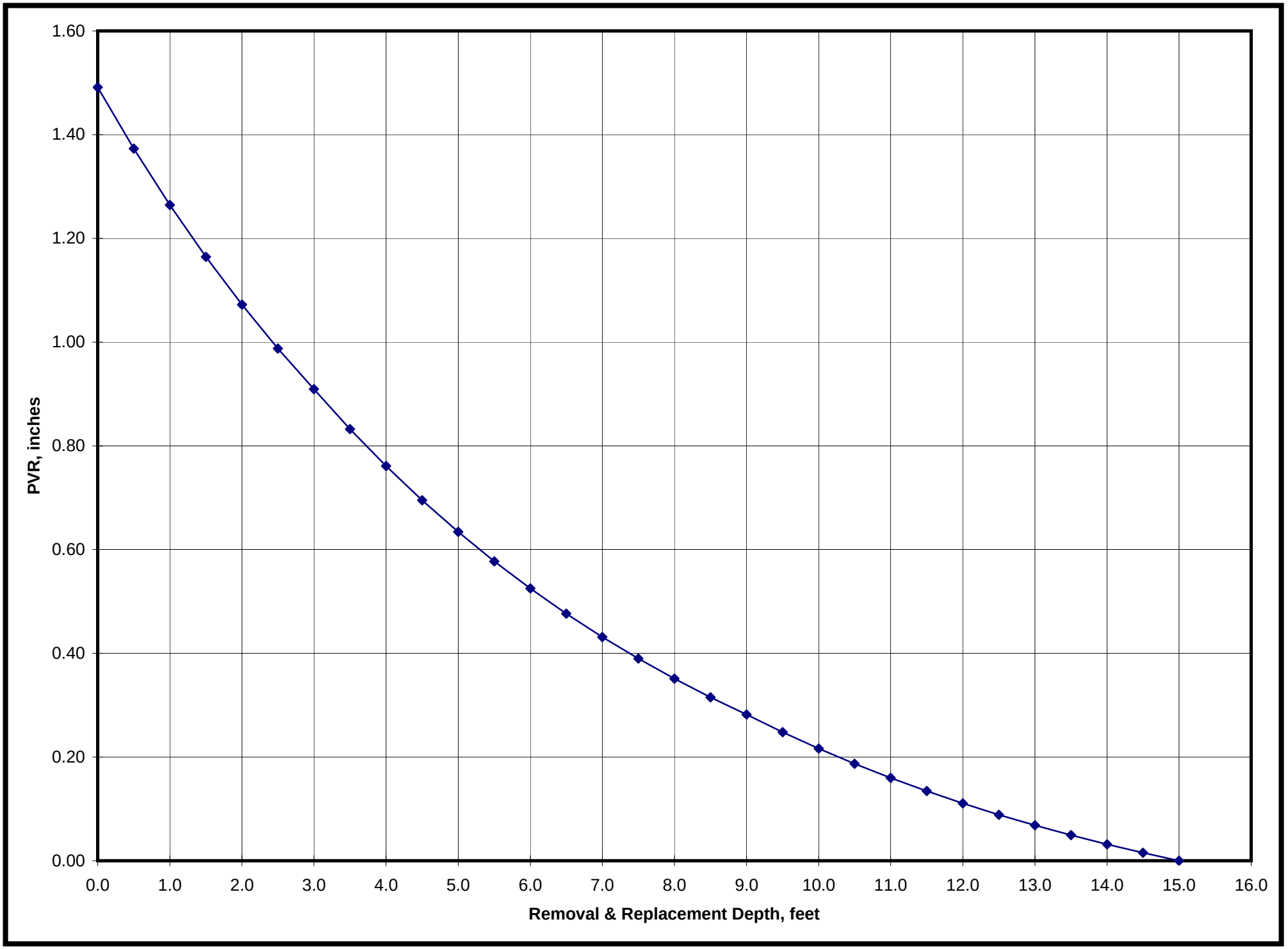
DONNA PUMP TO BROWNSVILLE - BH 12



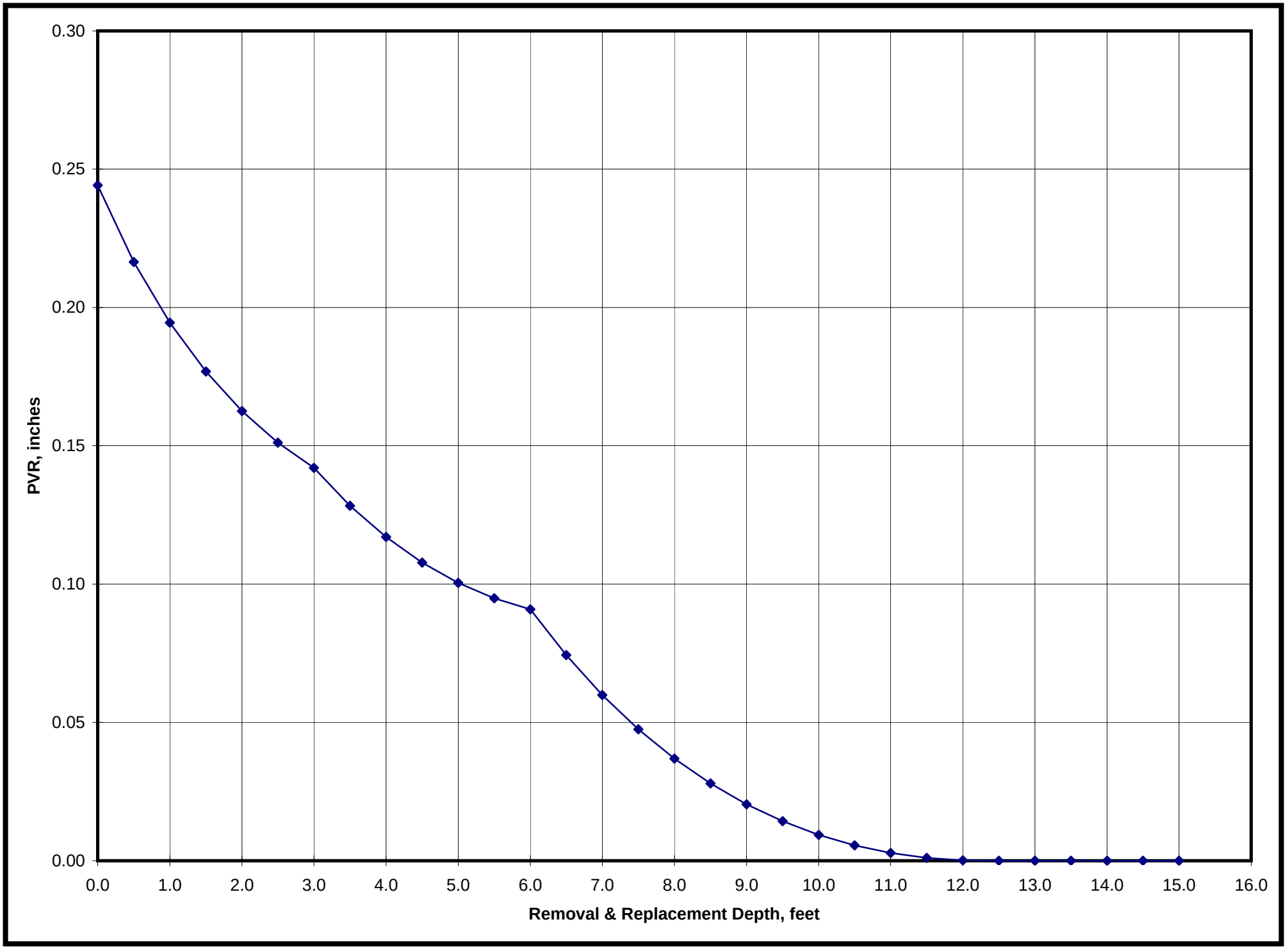
DONNA PUMP TO BROWNSVILLE - BH 13



DONNA PUMP TO BROWNSVILLE - BH 14

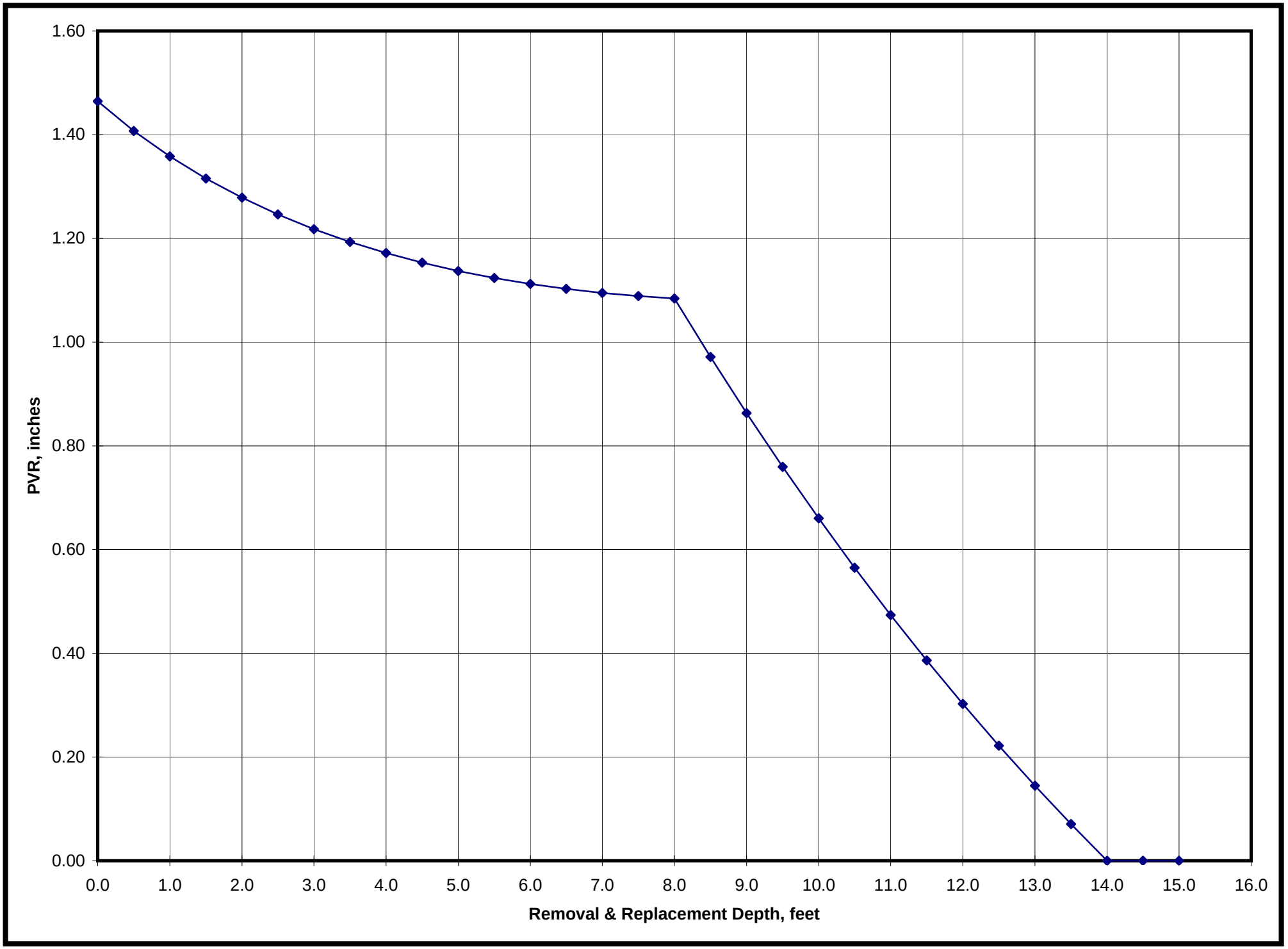


DONNA PUMP TO BROWNSVILLE - BH 15

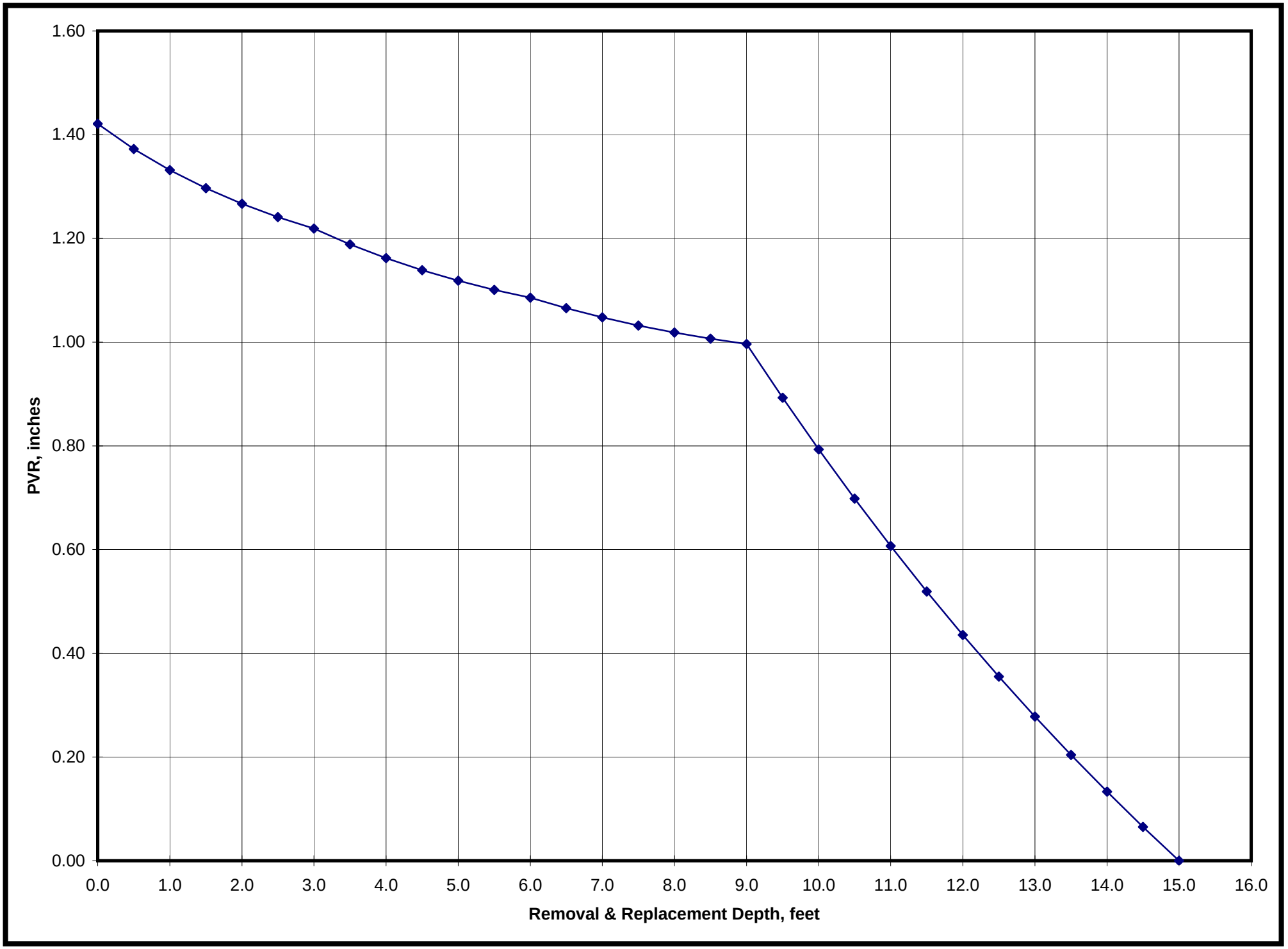


DONNA PUMP TO BROWNSVILLE - BH 16

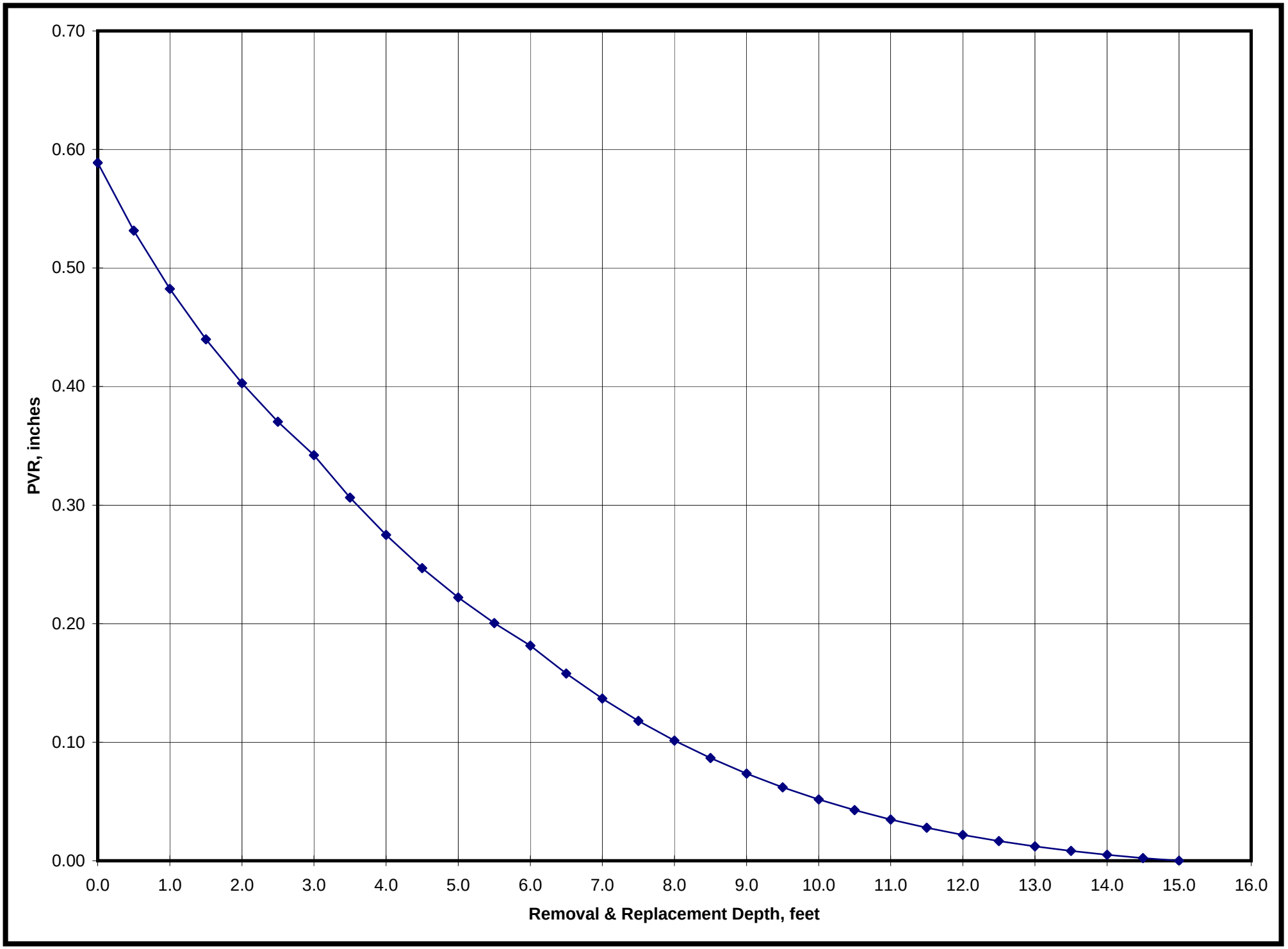
BH 16



DONNA PUMP TO BROWNSVILLE - BH 17



DONNA PUMP TO BROWNSVILLE - BH 18



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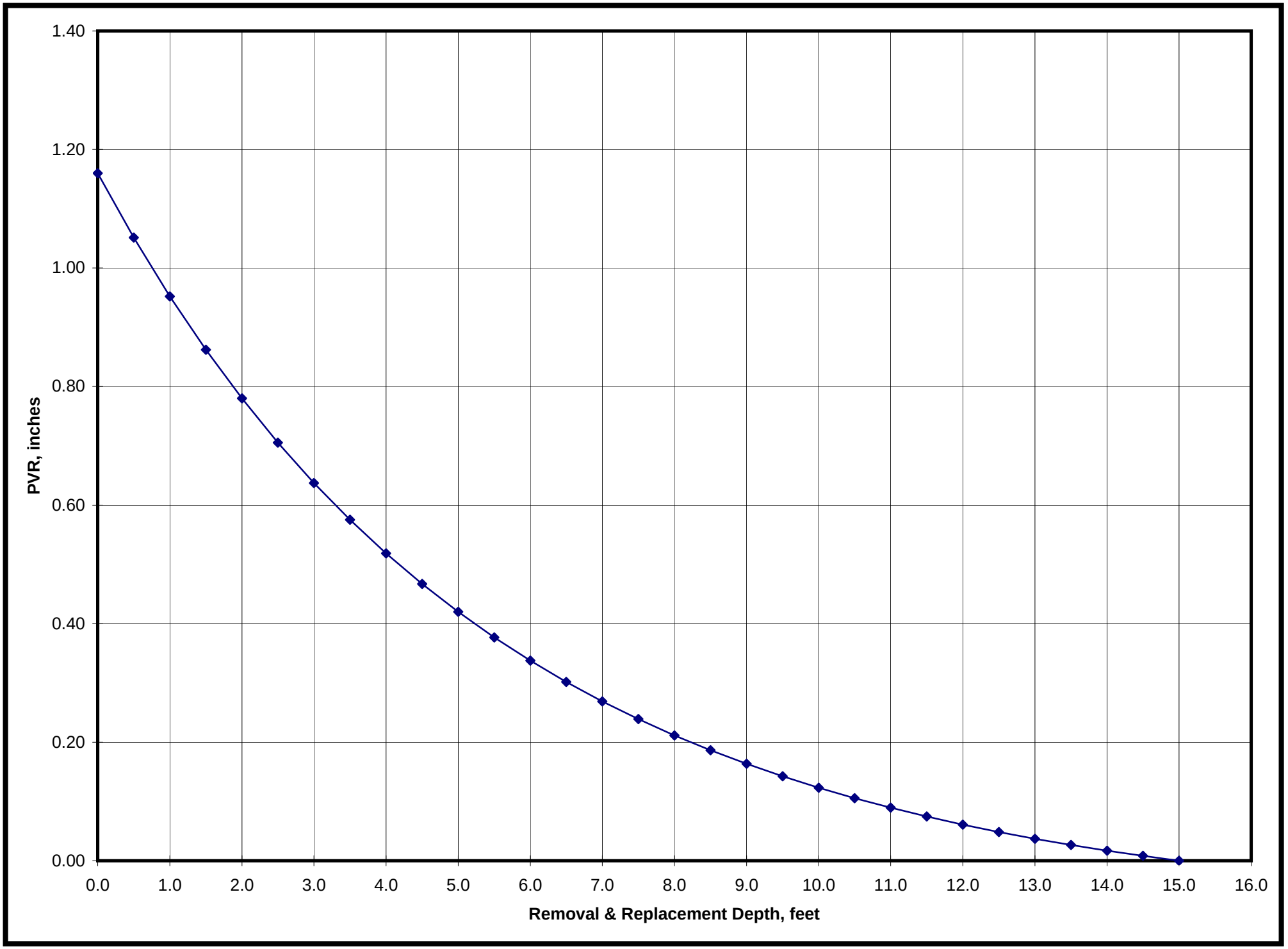
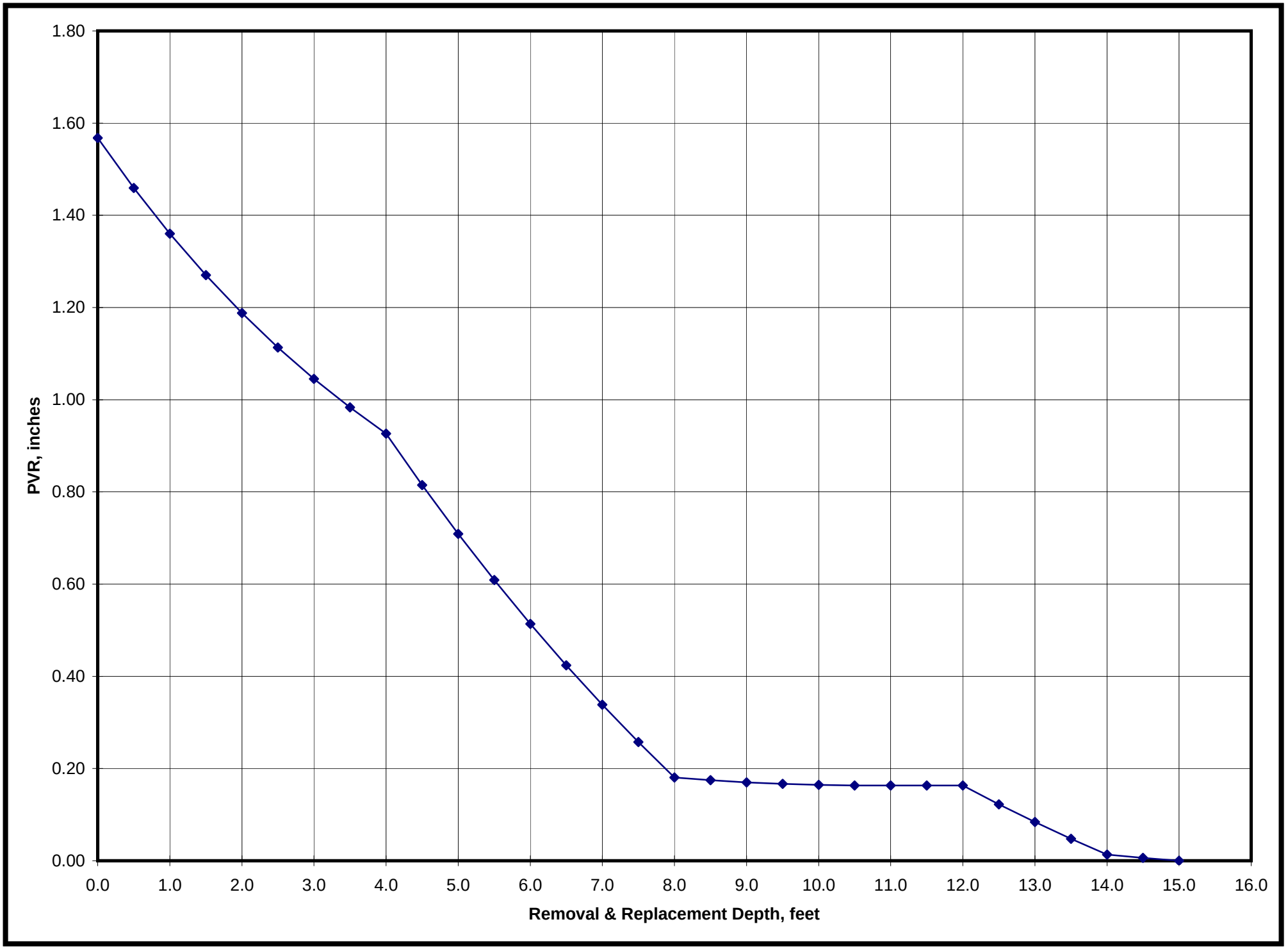


DONNA PUMP TO BROWNSVILLE - BH 20



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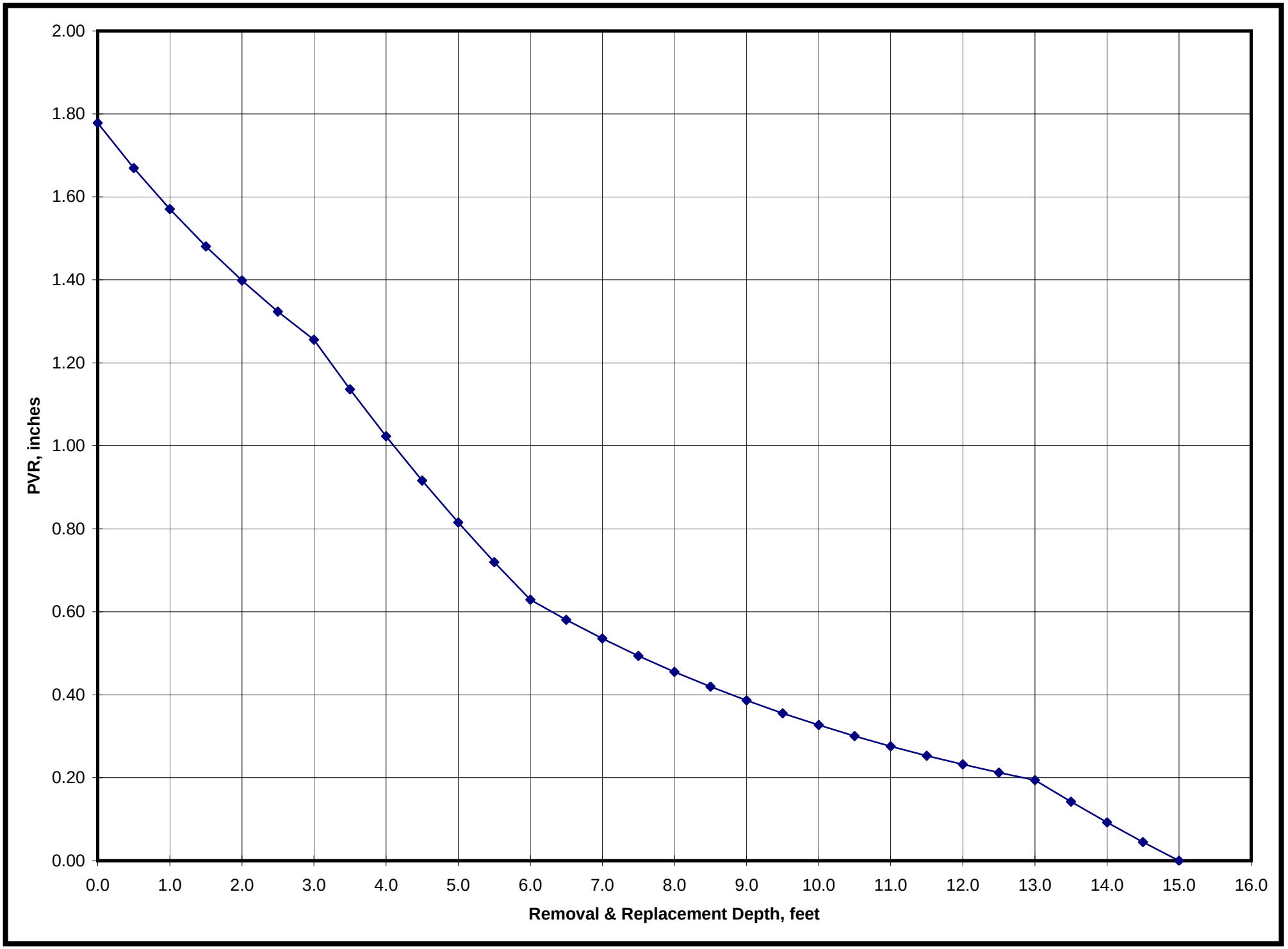
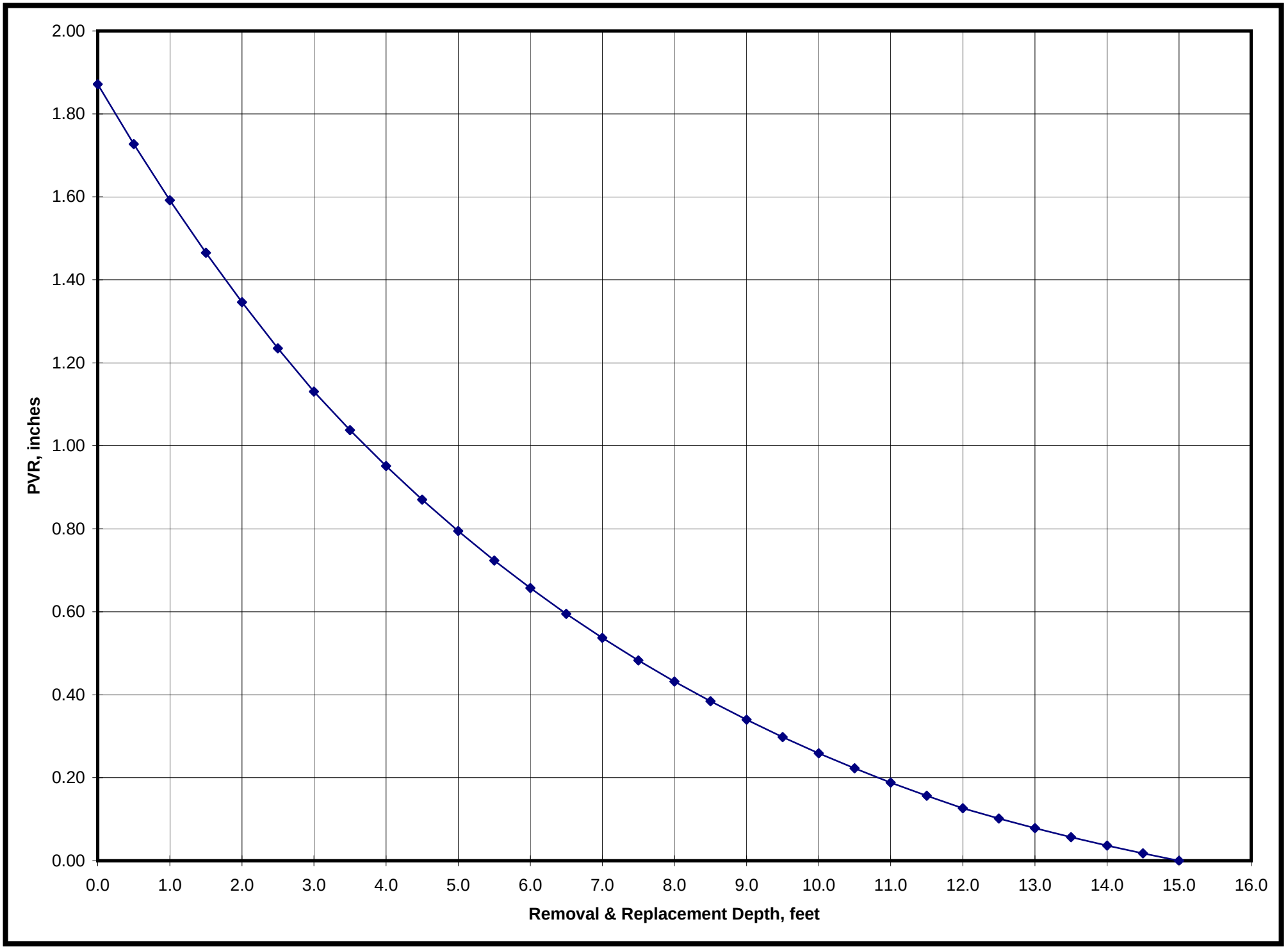
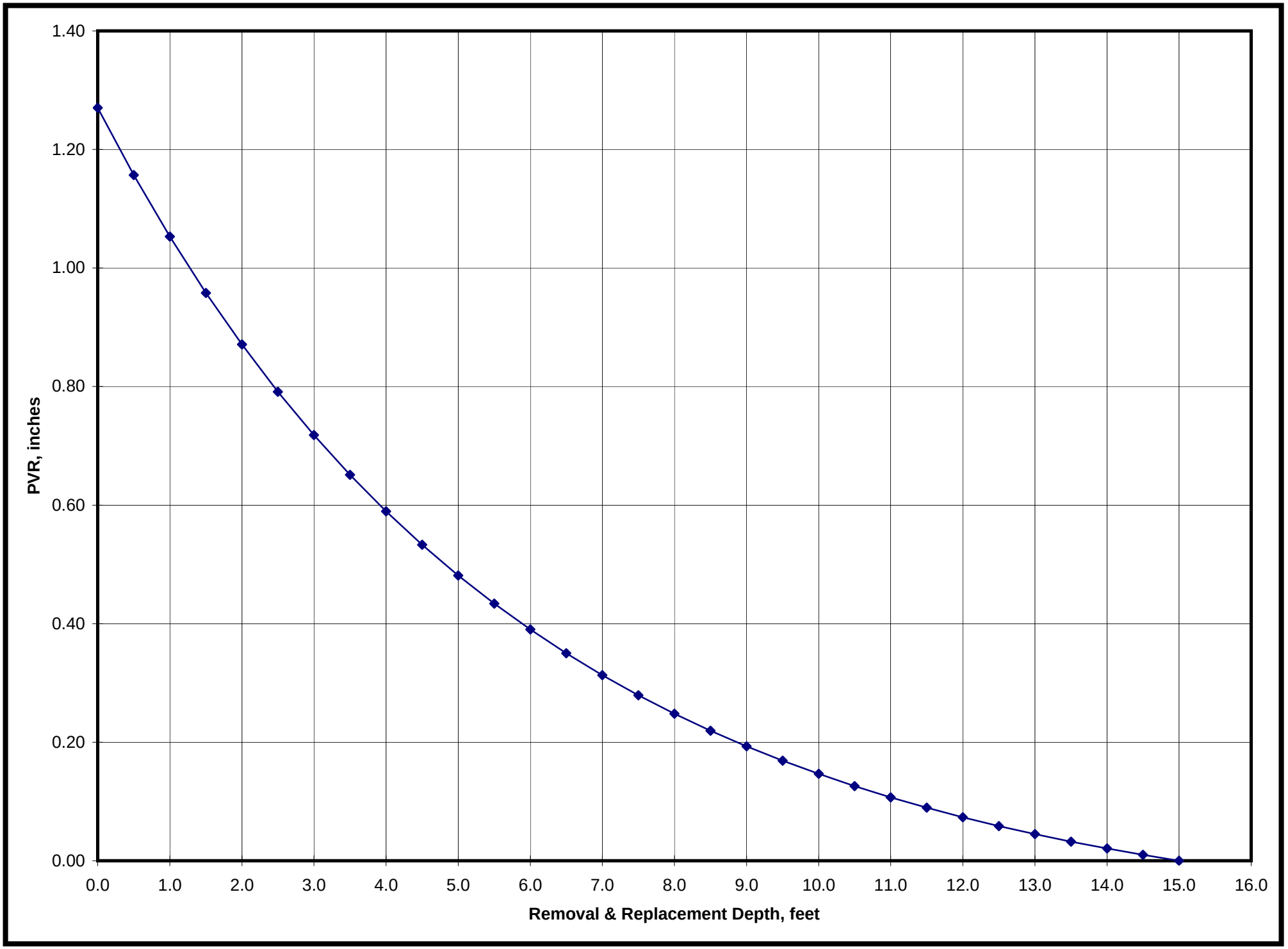


DONNA PUMP TO BROWNSVILLE - BH 22



DONNA PUMP TO BROWNSVILLE - 23



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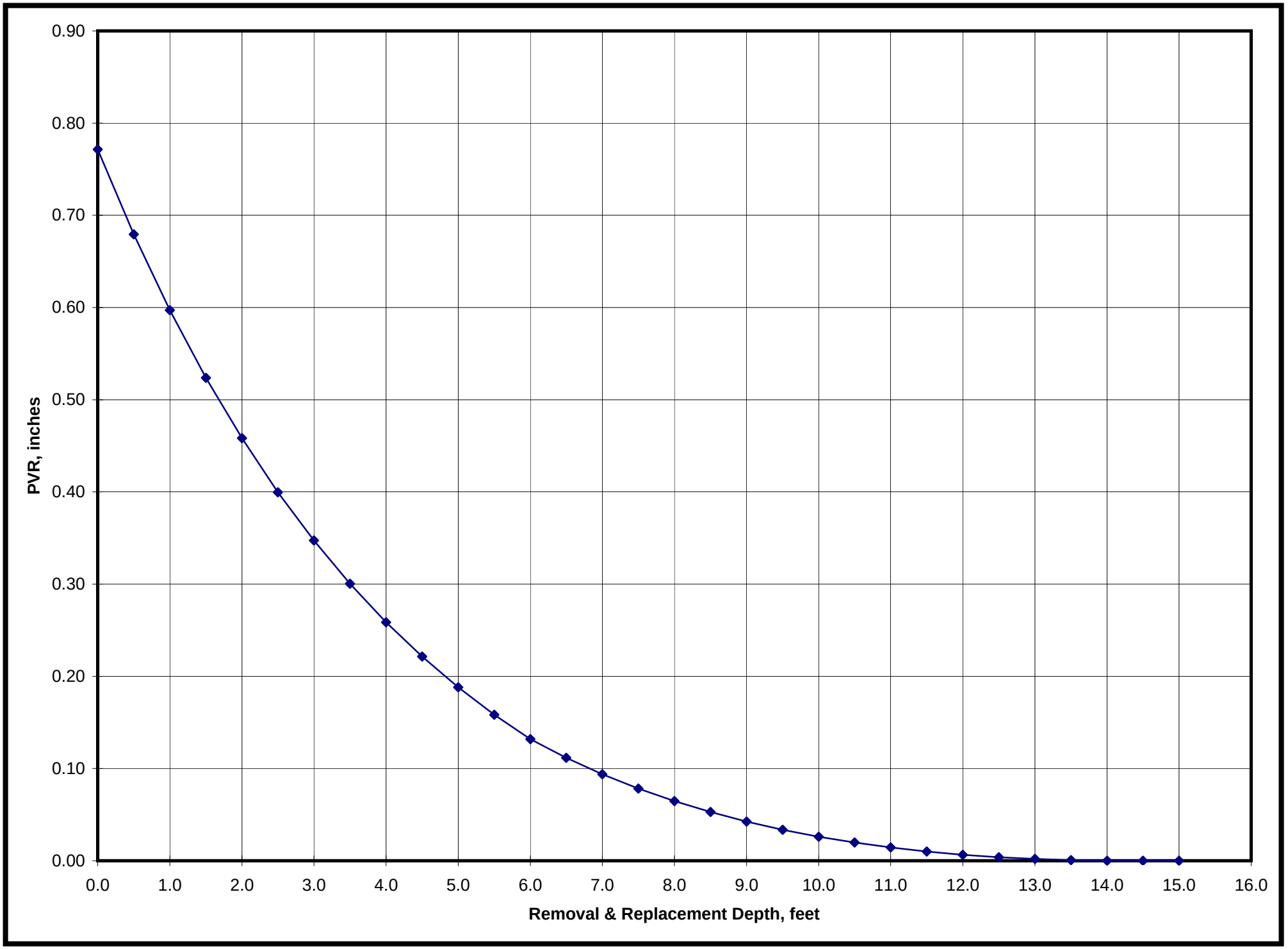
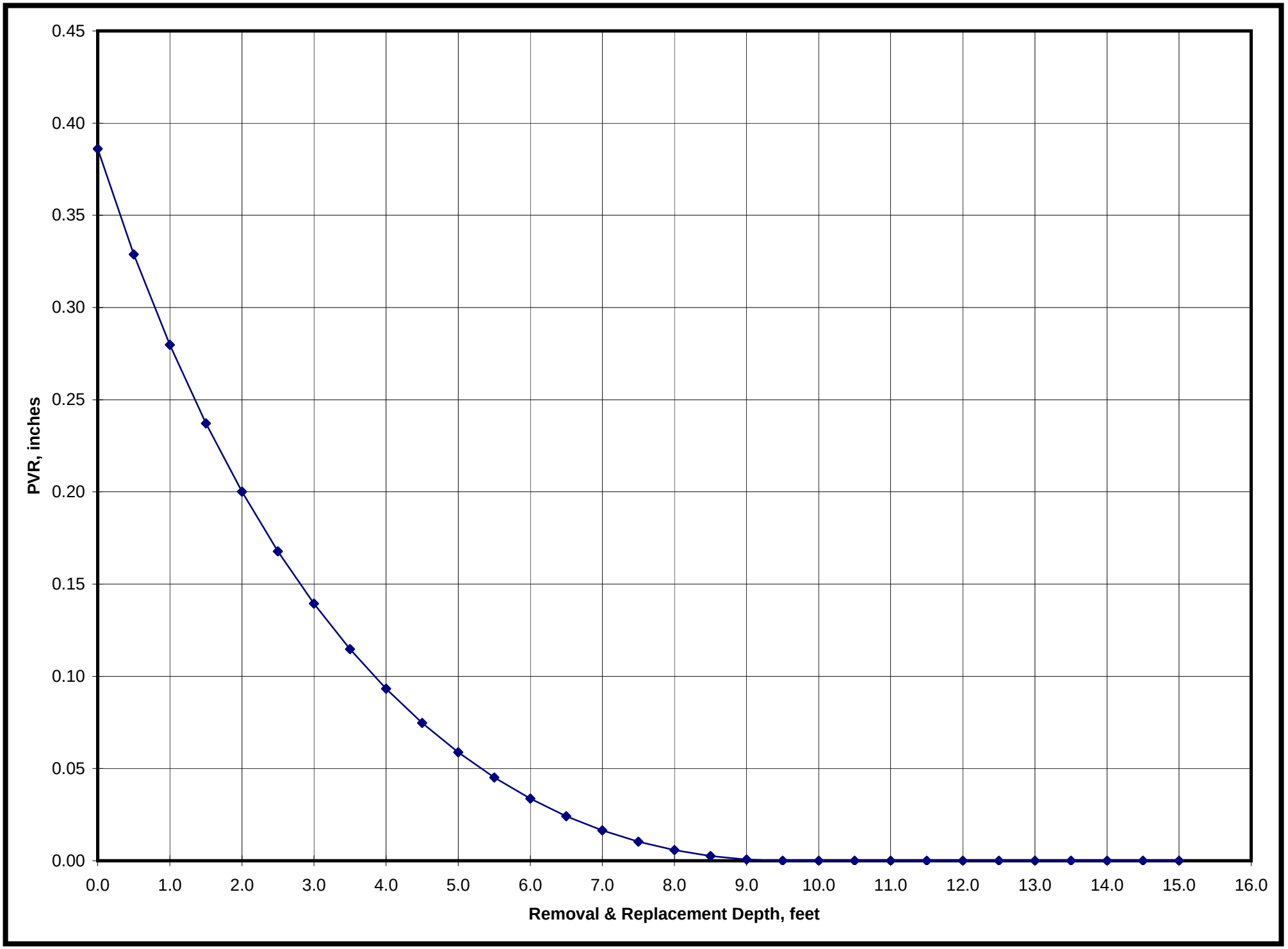
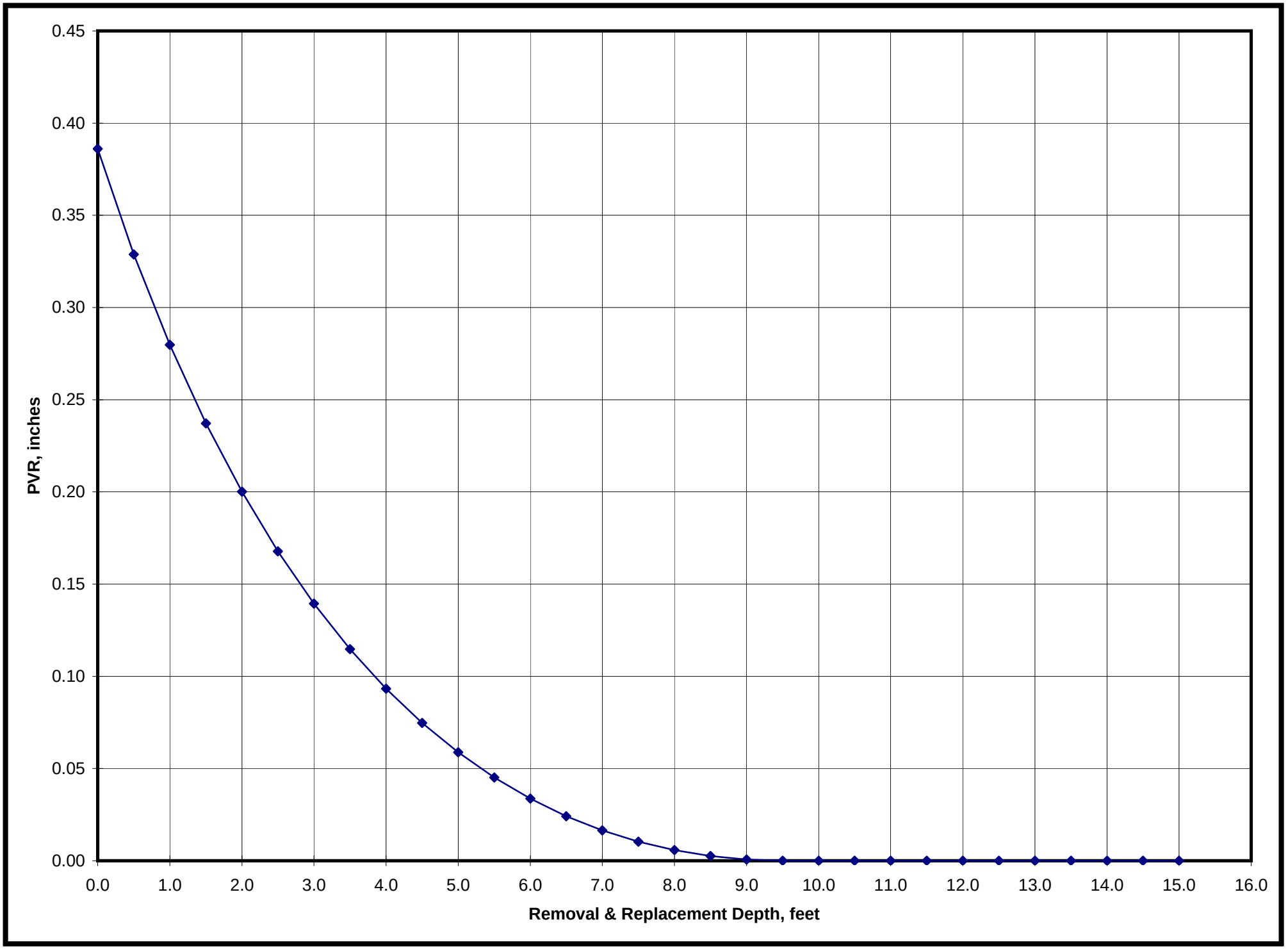


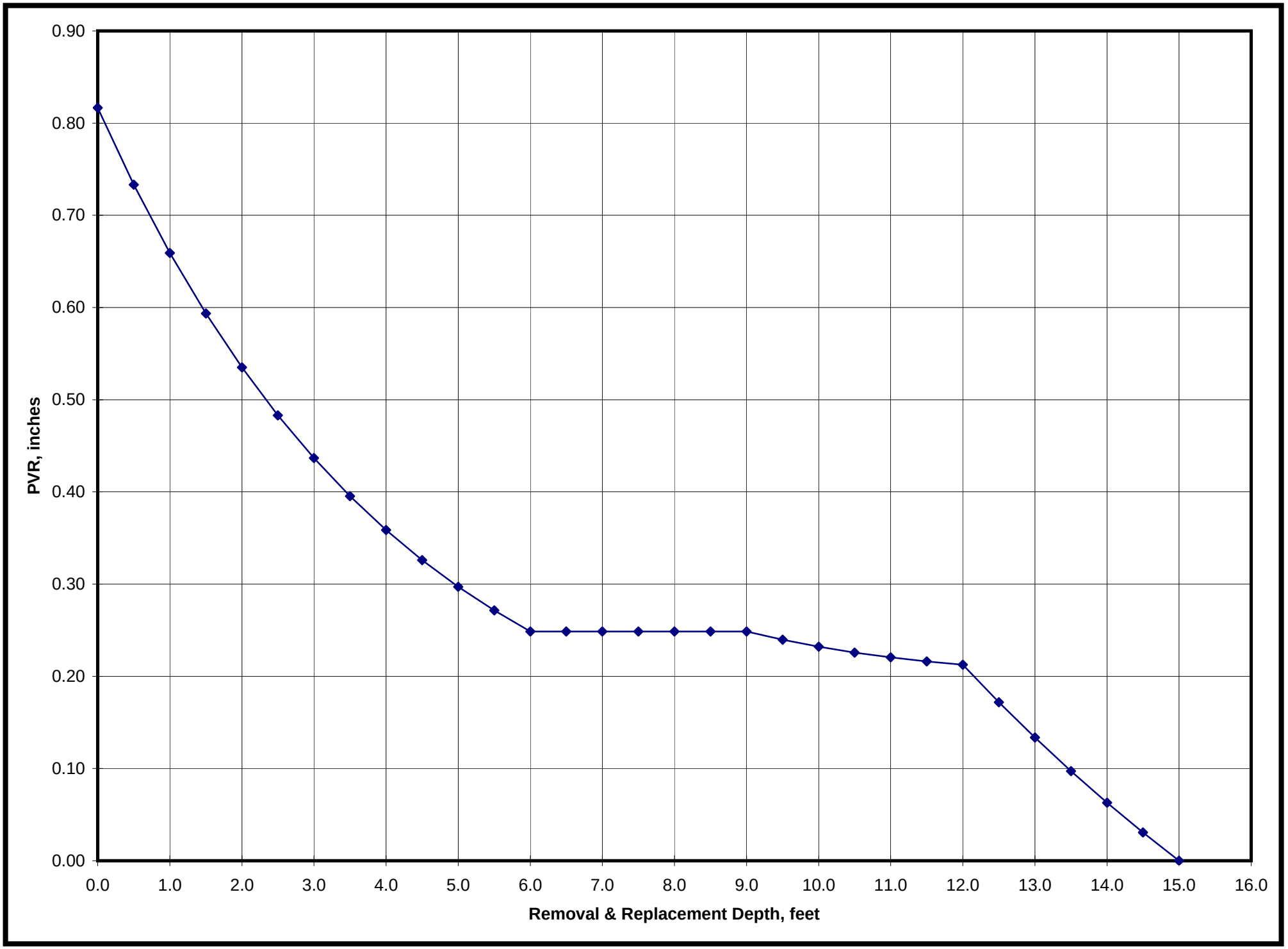
DONNA PUMP TO BROWNSVILLE - BH 25



DONNA PUMP TO BROWNSVILLE - BH 26



DONNA PUMP TO BROWNSVILLE - BH 27



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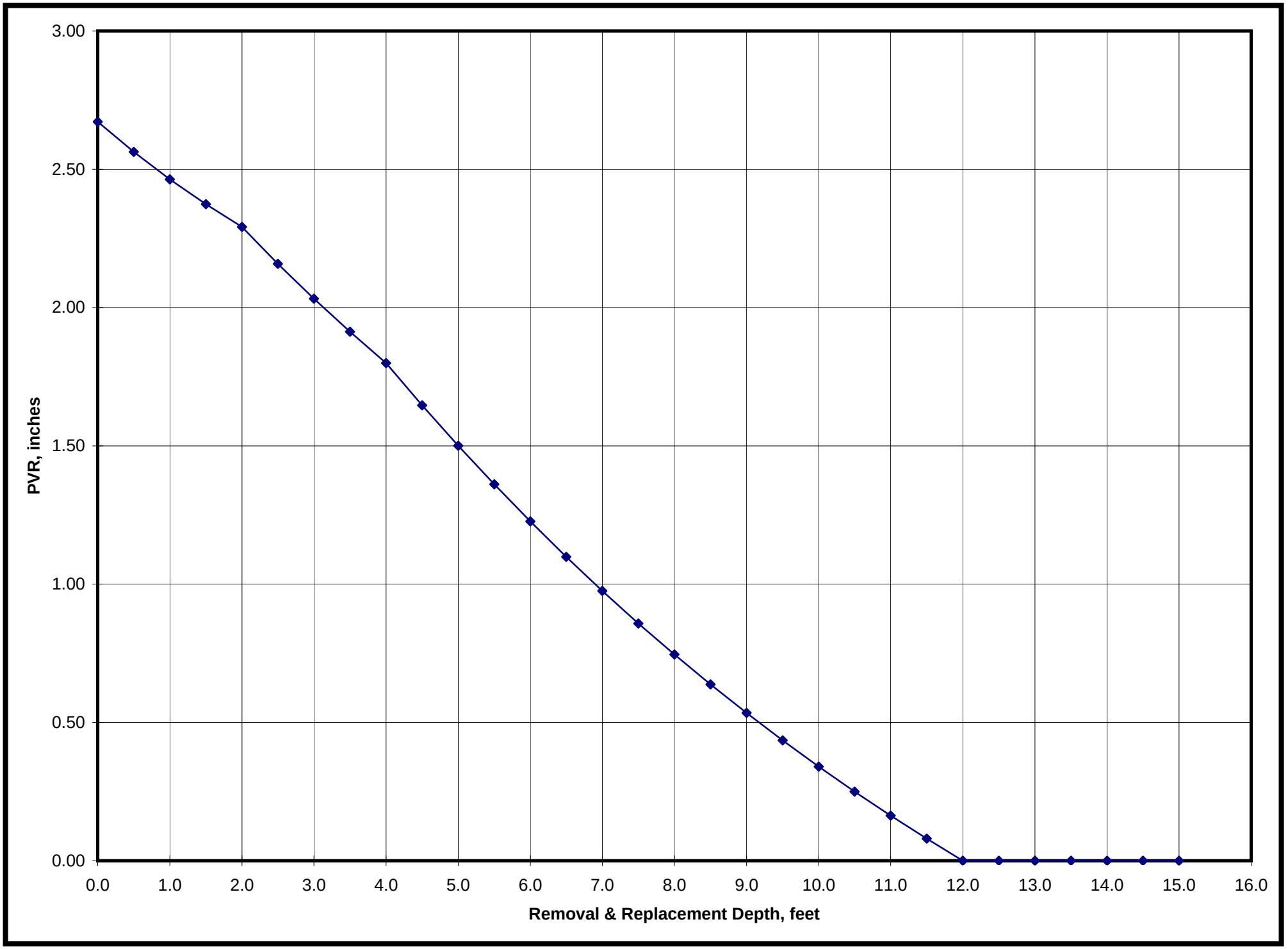

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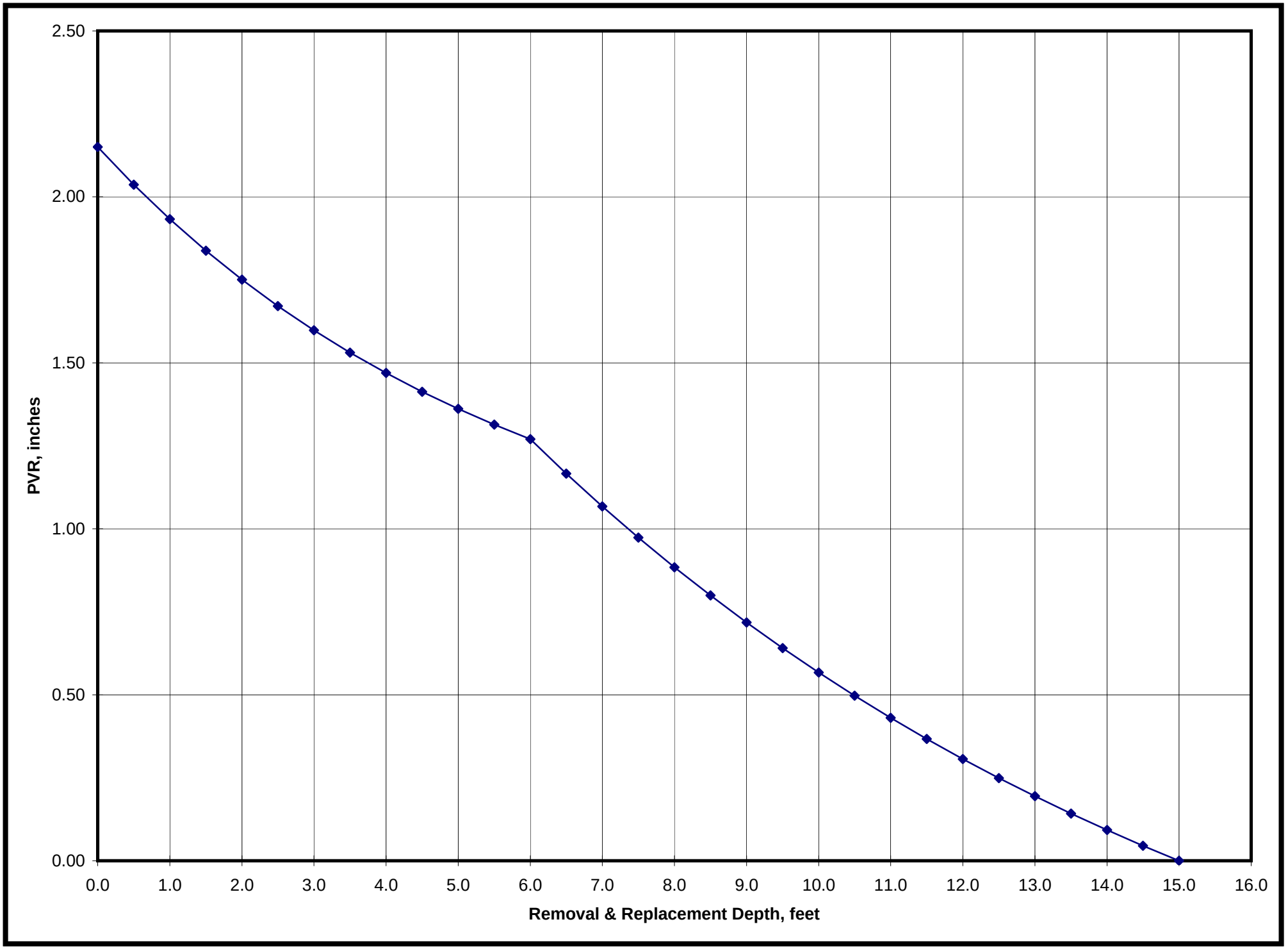
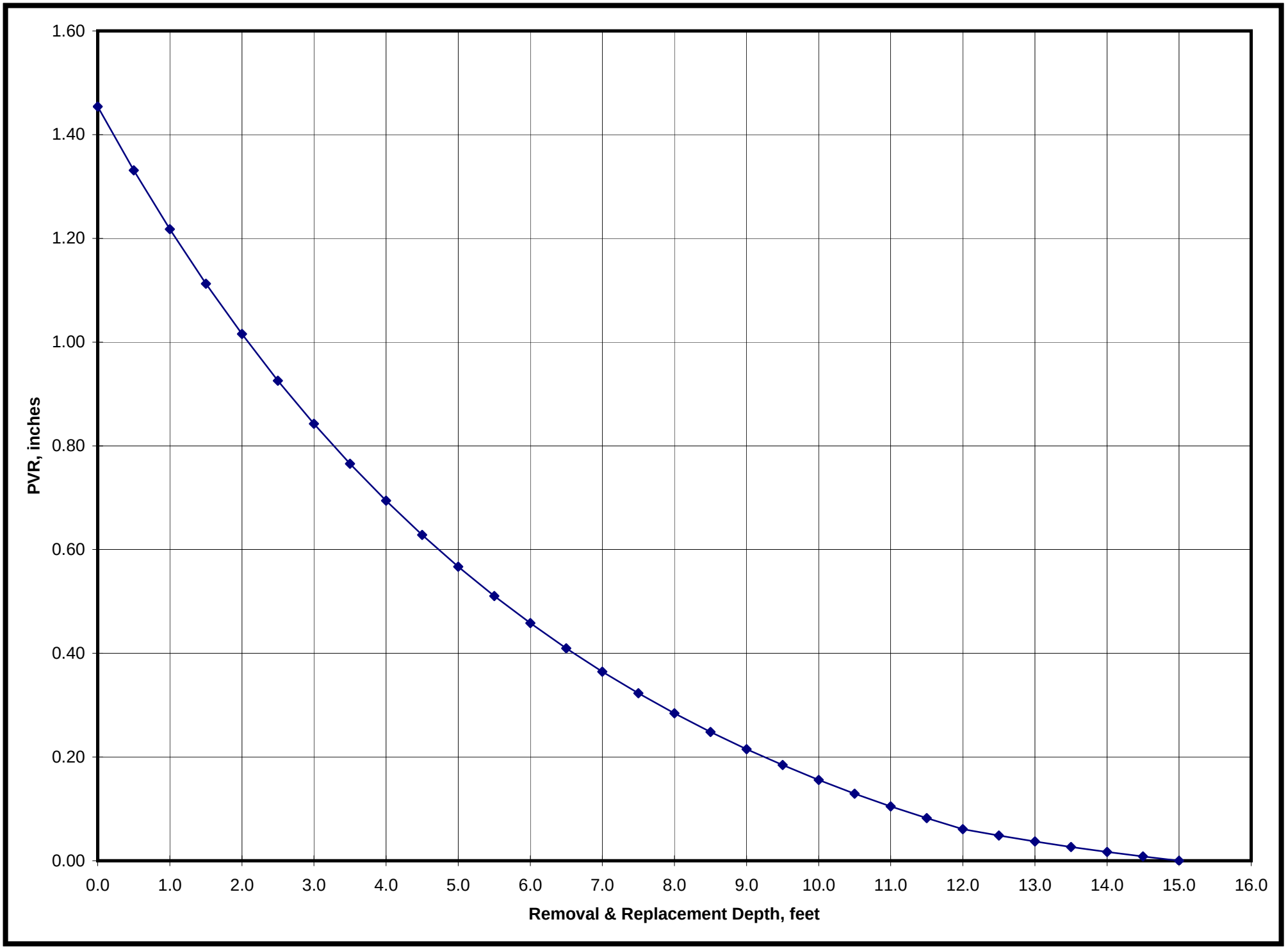
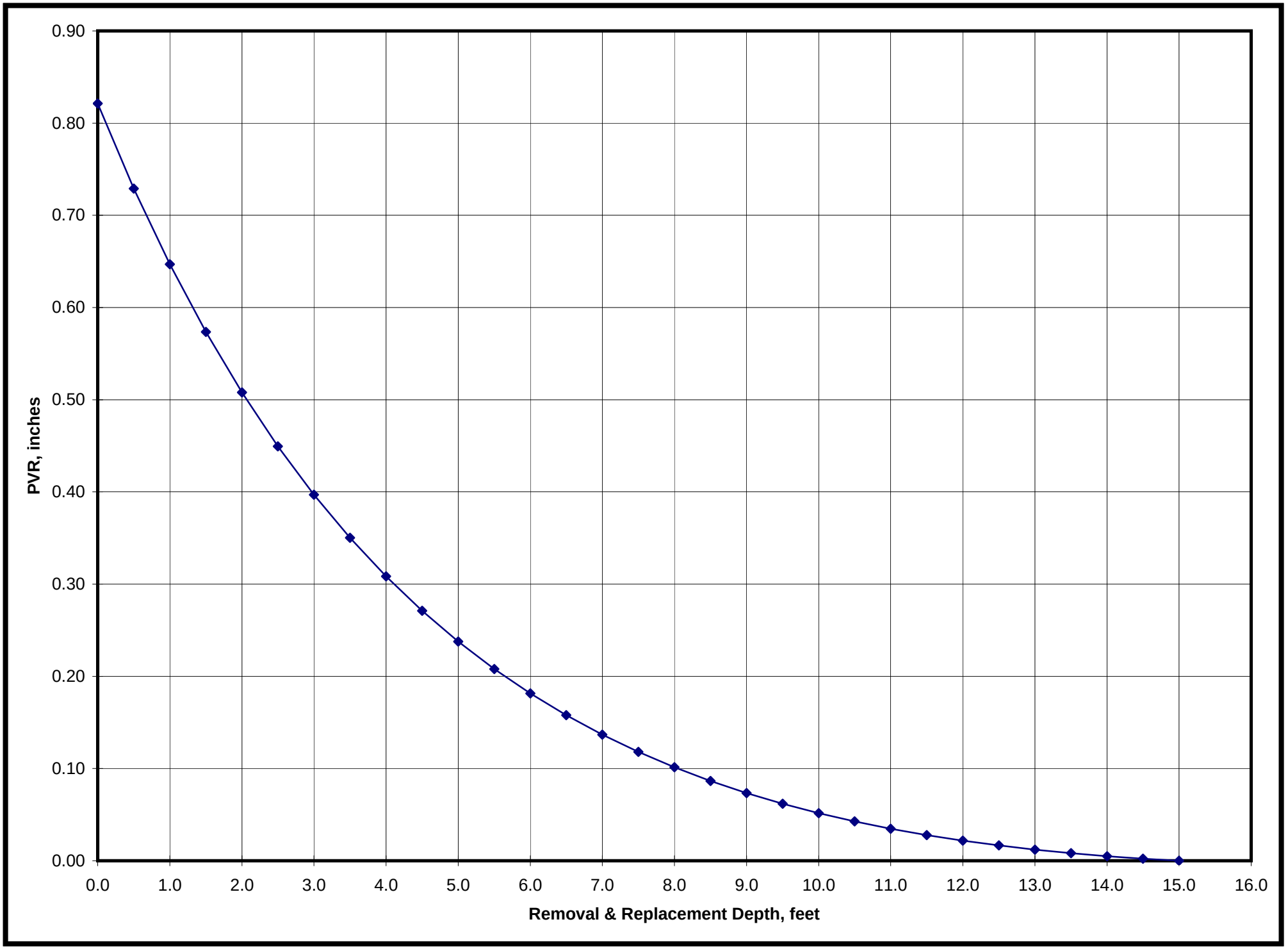


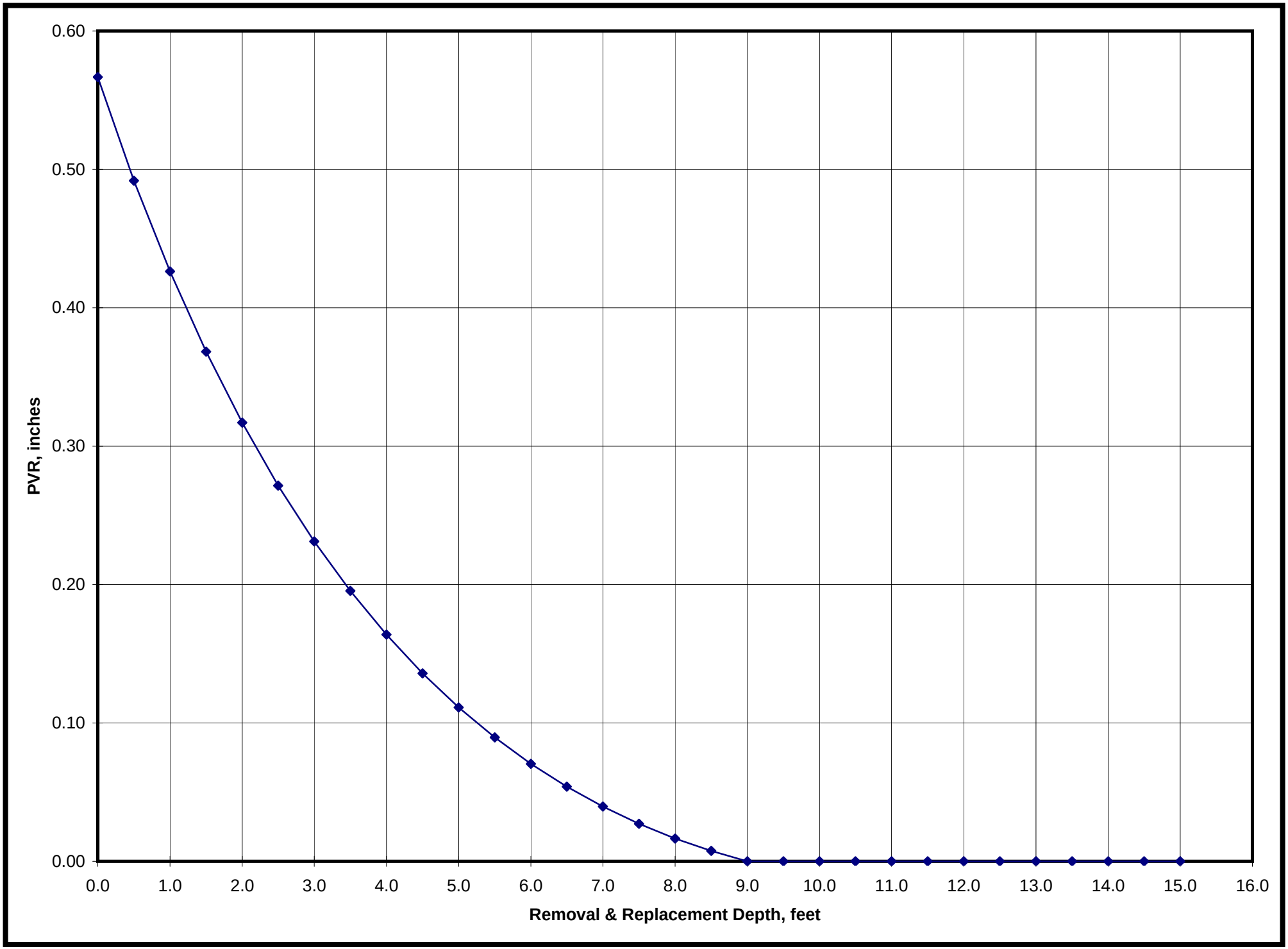
DONNA PUMP TO BROWNSVILLE - BH 30



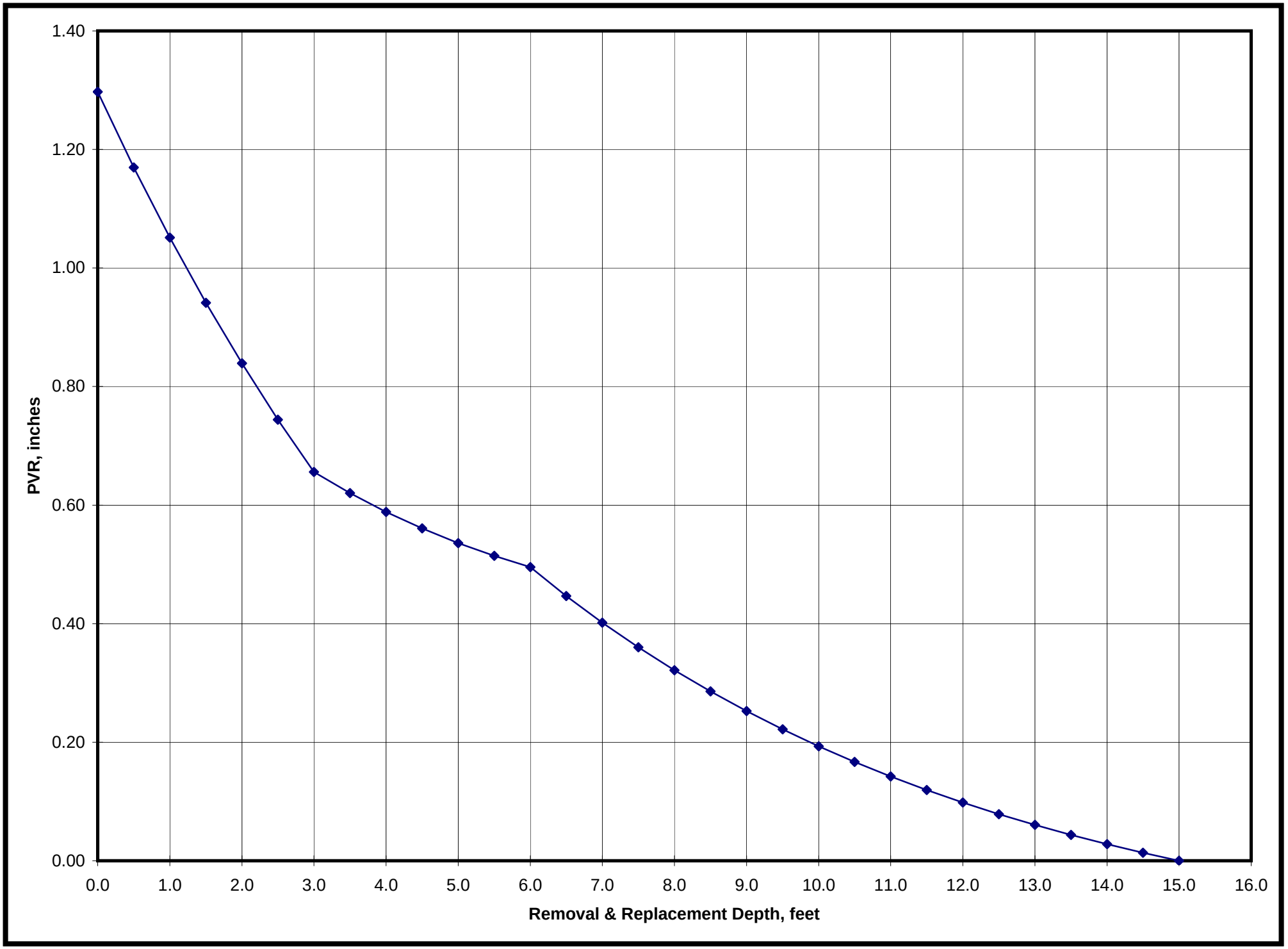
DONNA PUMP TO BROWNSVILLE - BH 31



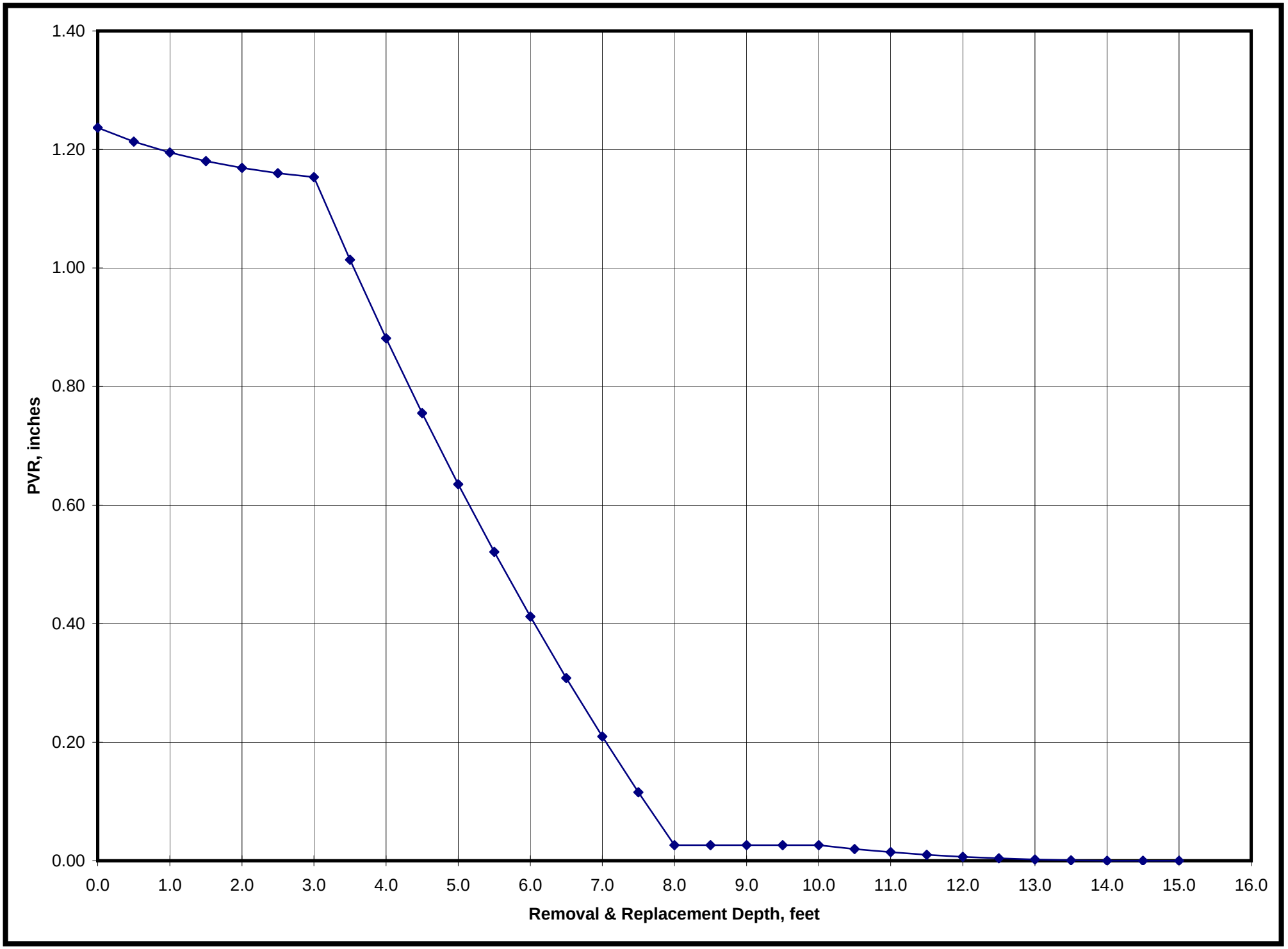
DONNA PUMP TO BROWNSVILLE - BH 32



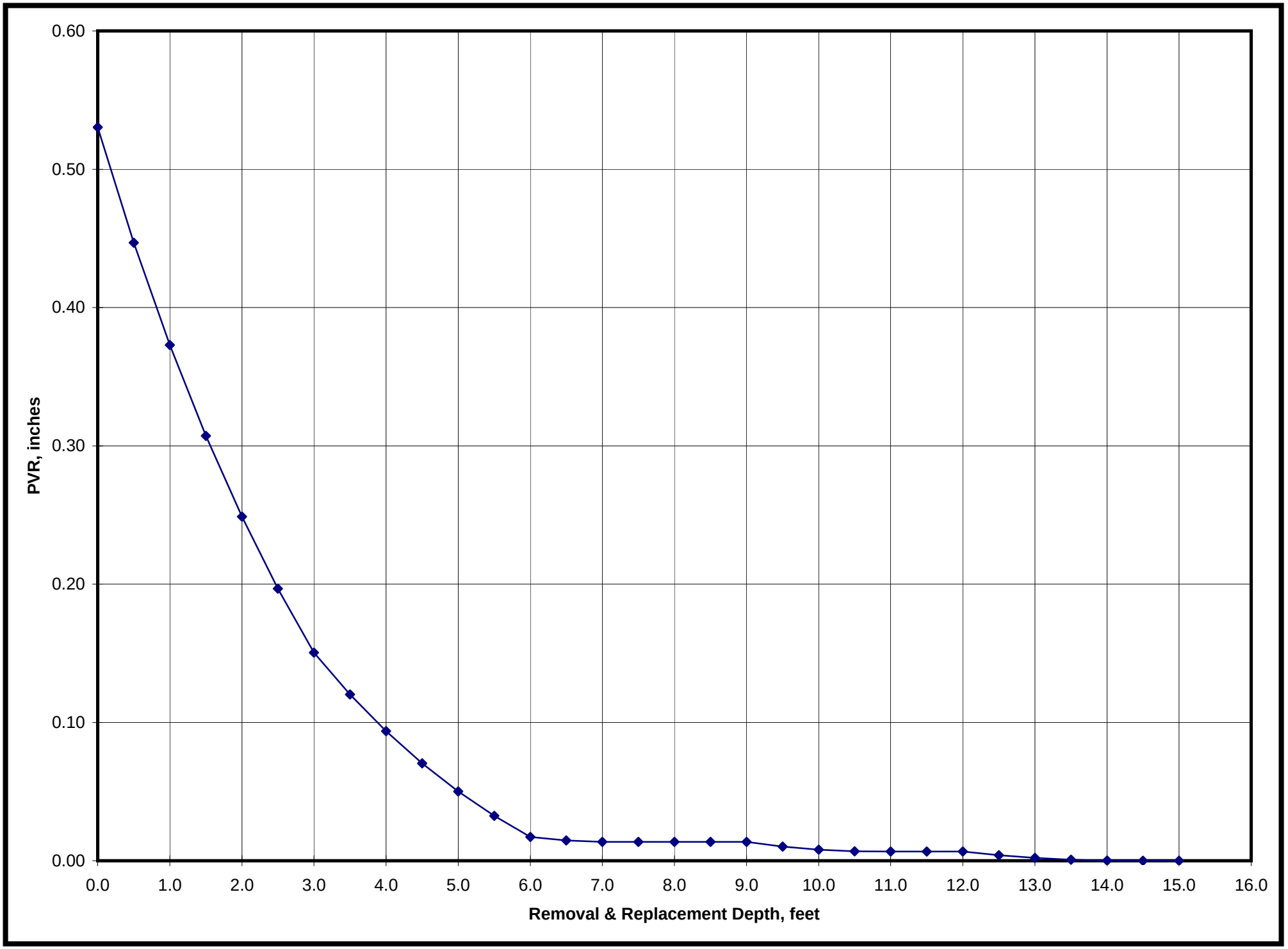
DONNA PUMP TO BROWNSVILLE - BH 33



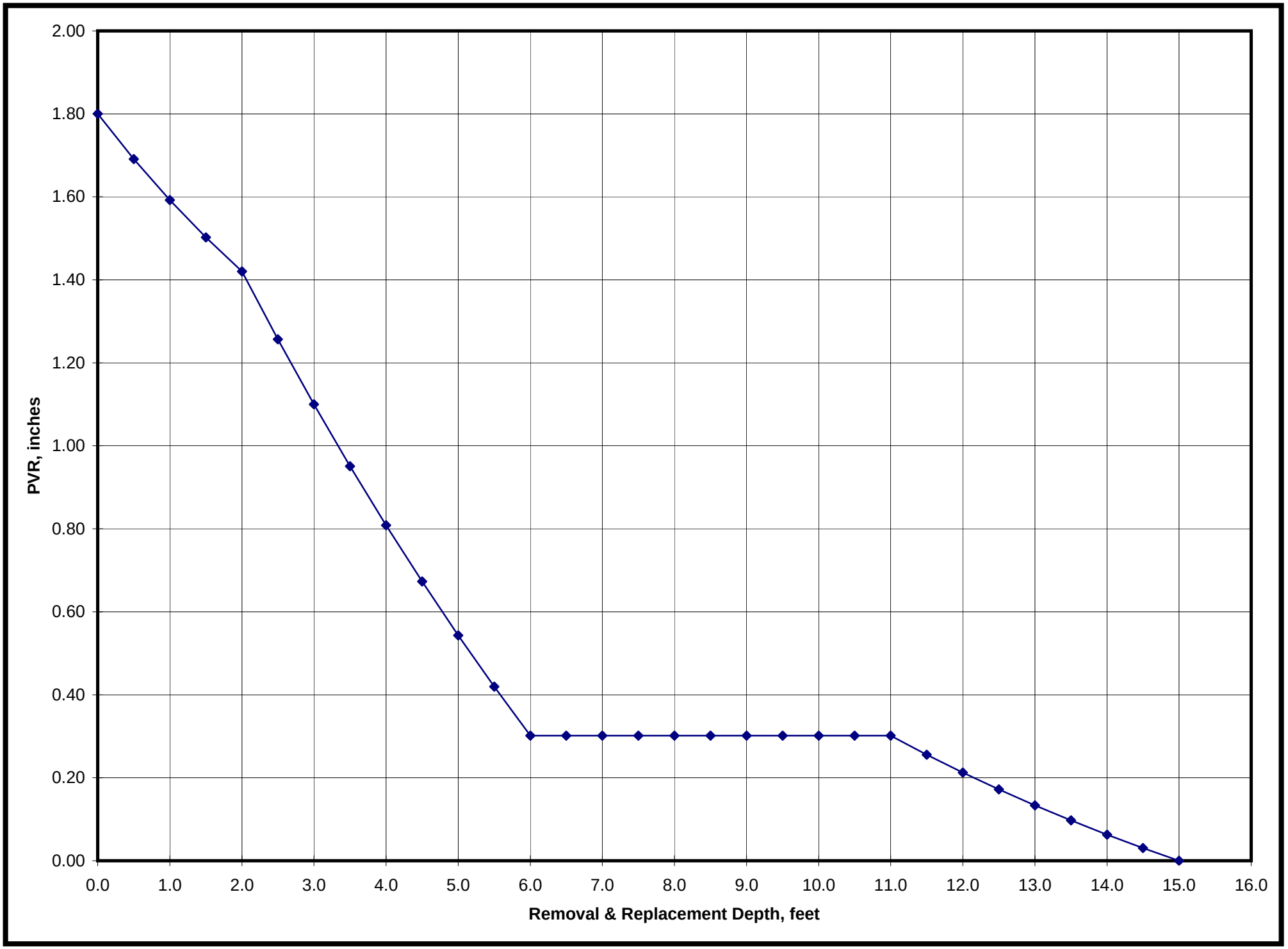
DONNA PUMP TO BROWNSVILLE - BH 34



DONNA PUMP TO BROWNSVILLE - BH 35



DONNA PUMP TO BROWNSVILLE - BH 36



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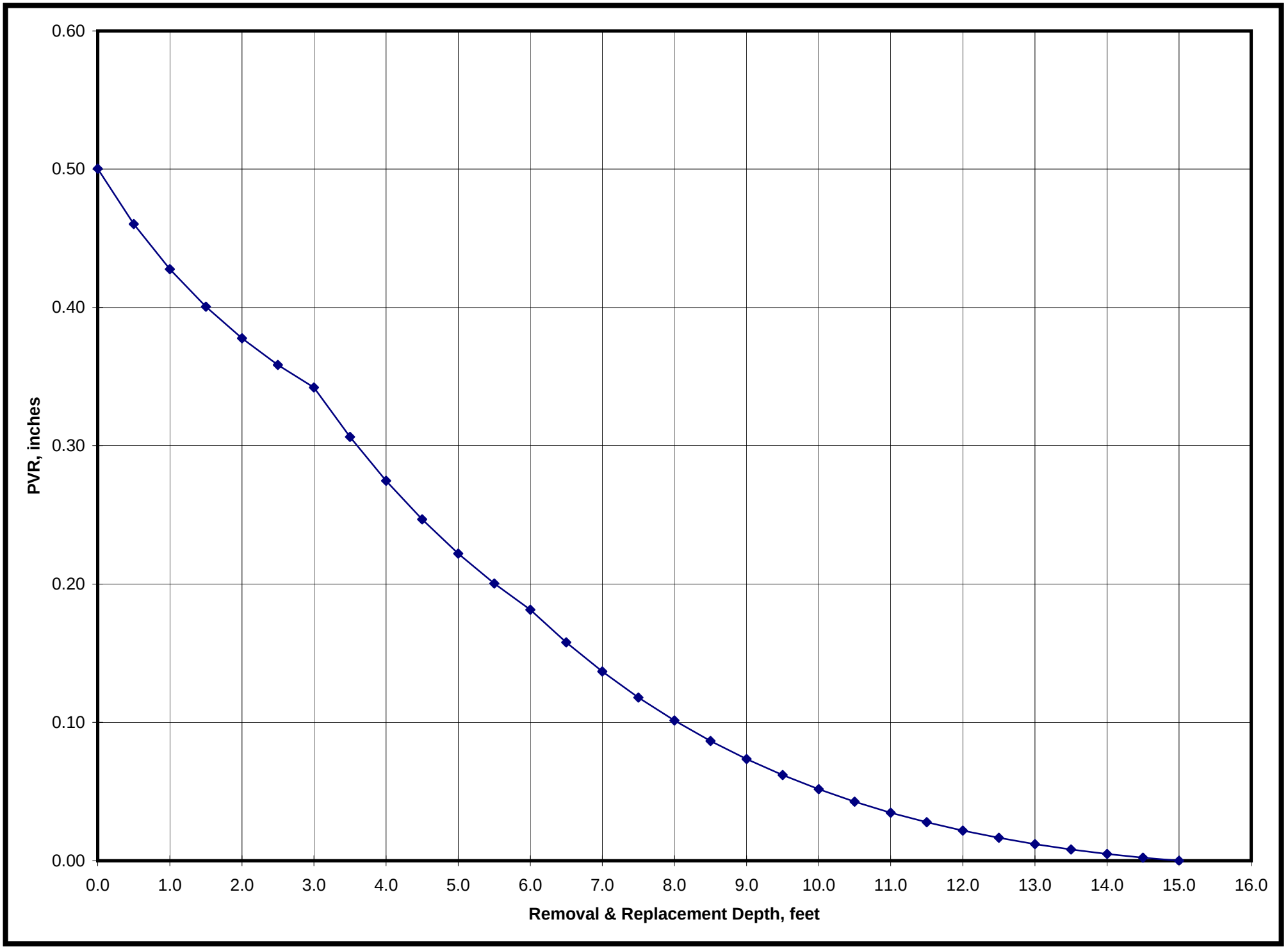

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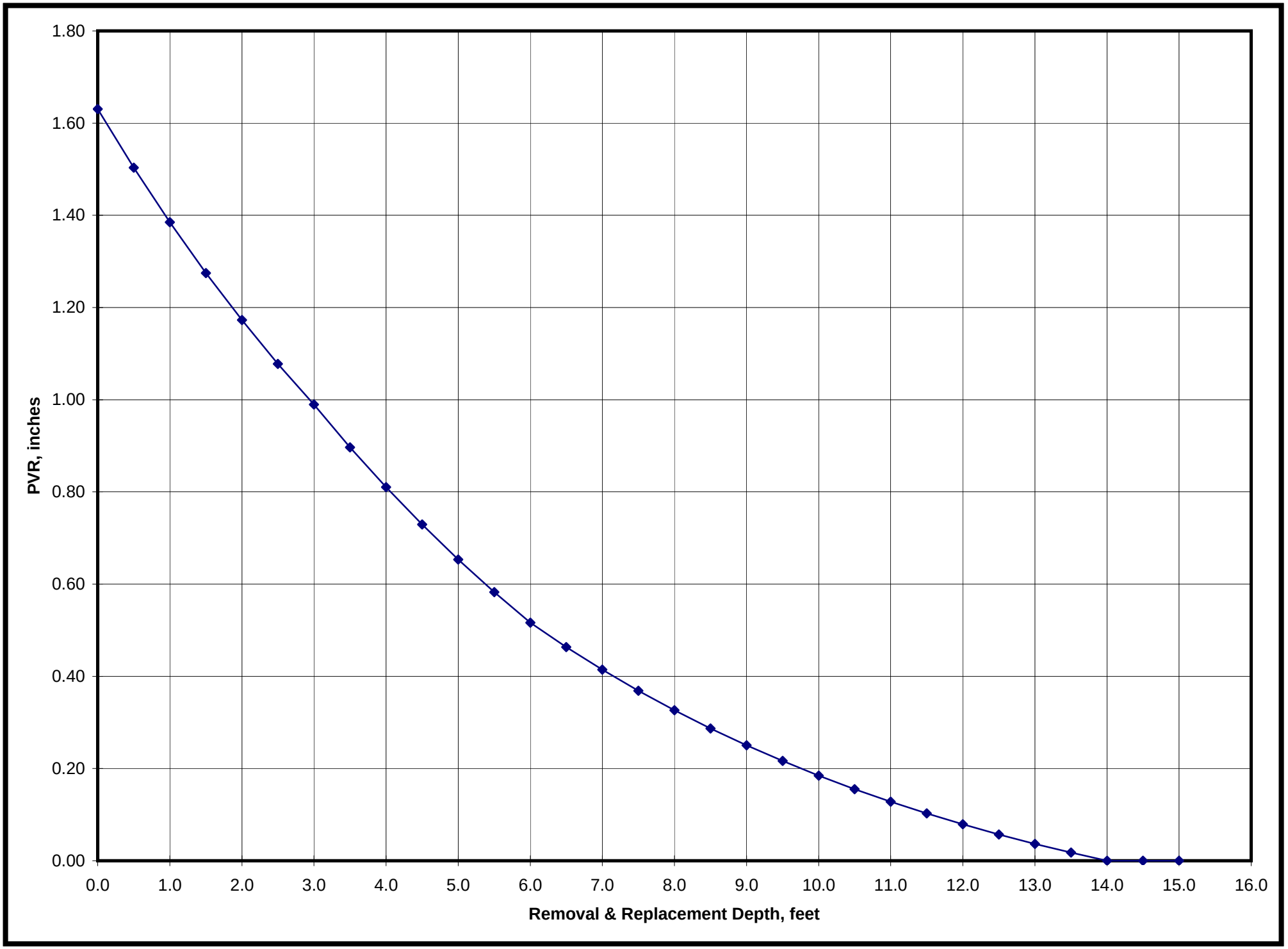

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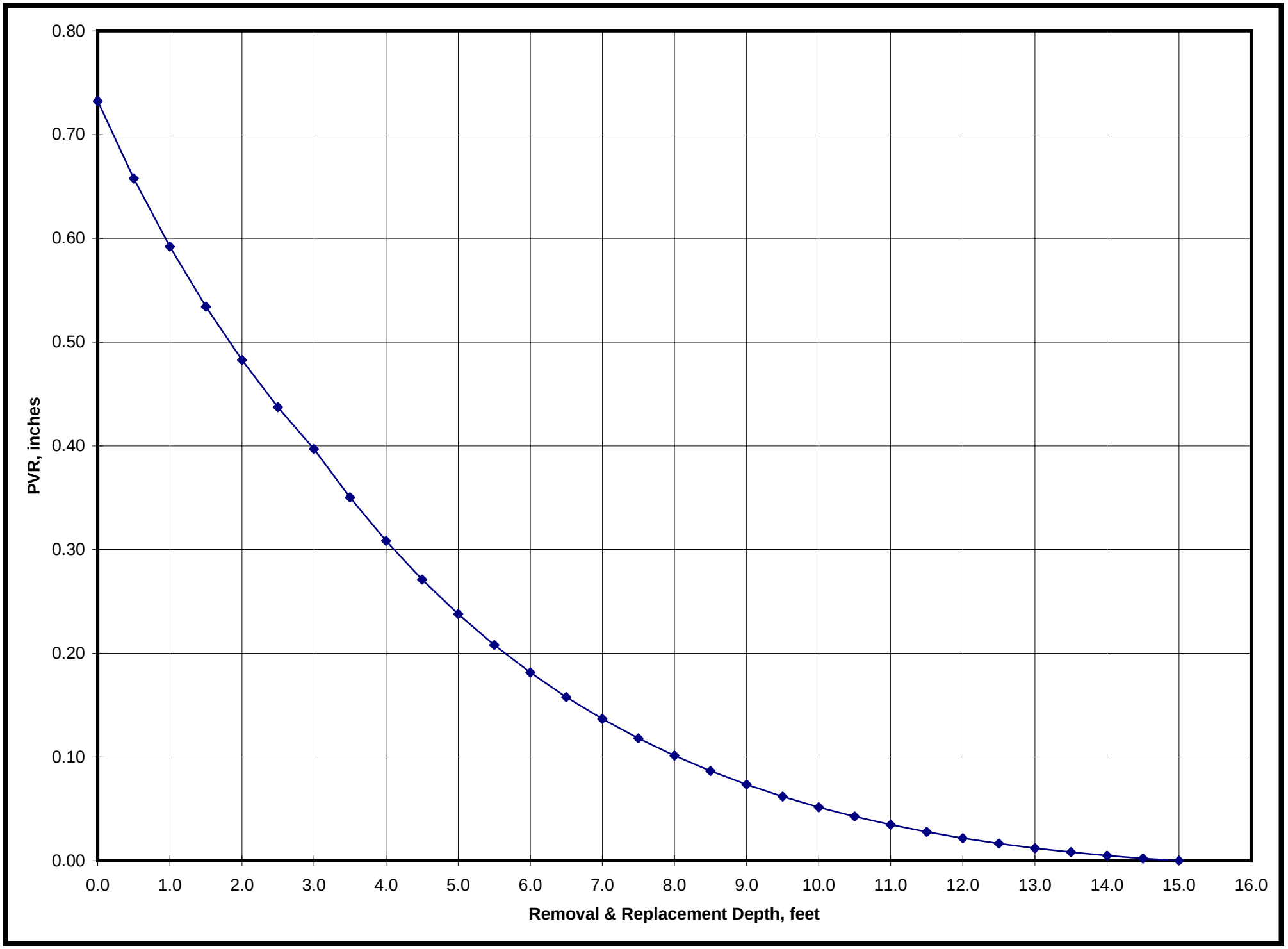

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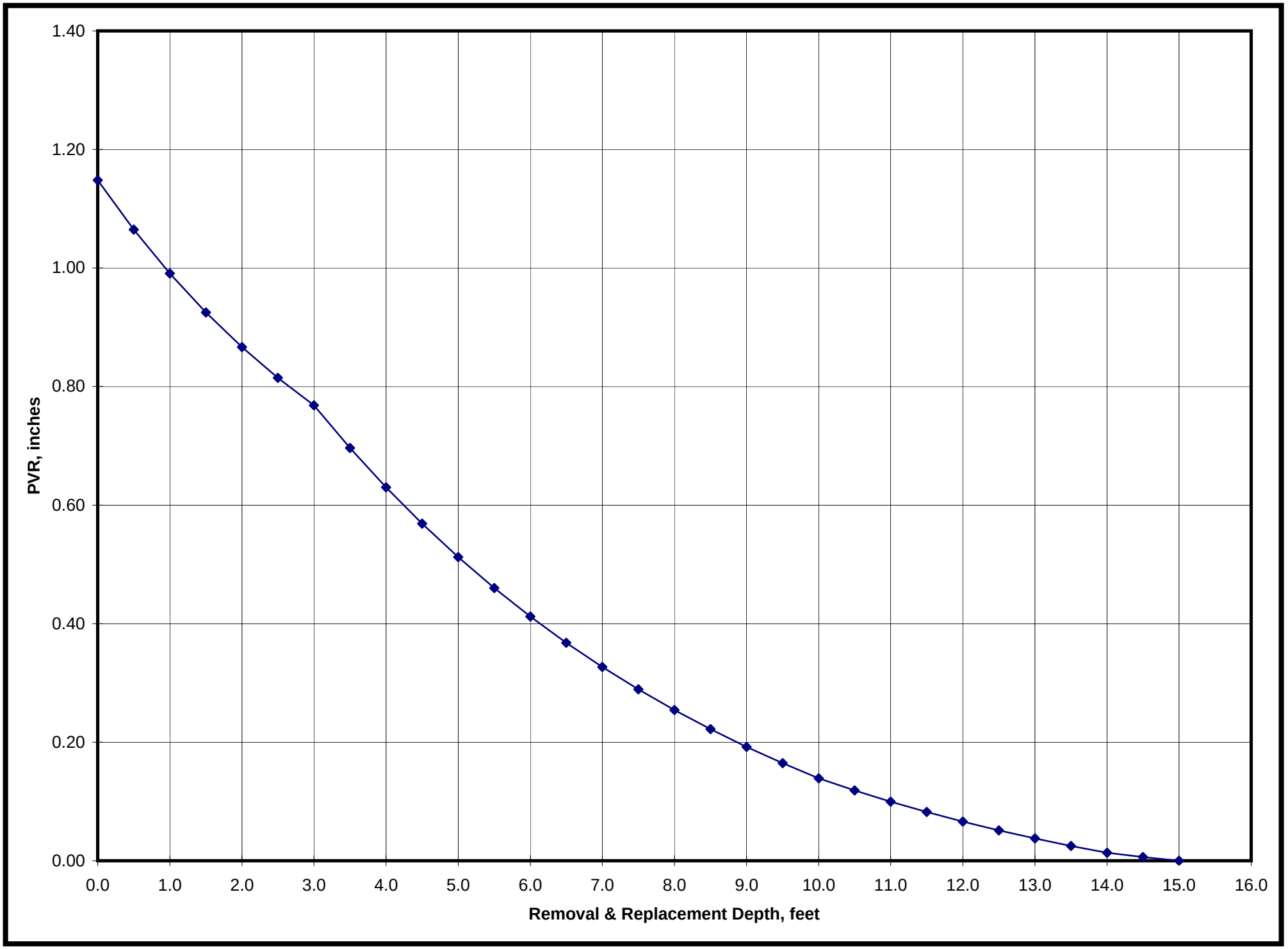
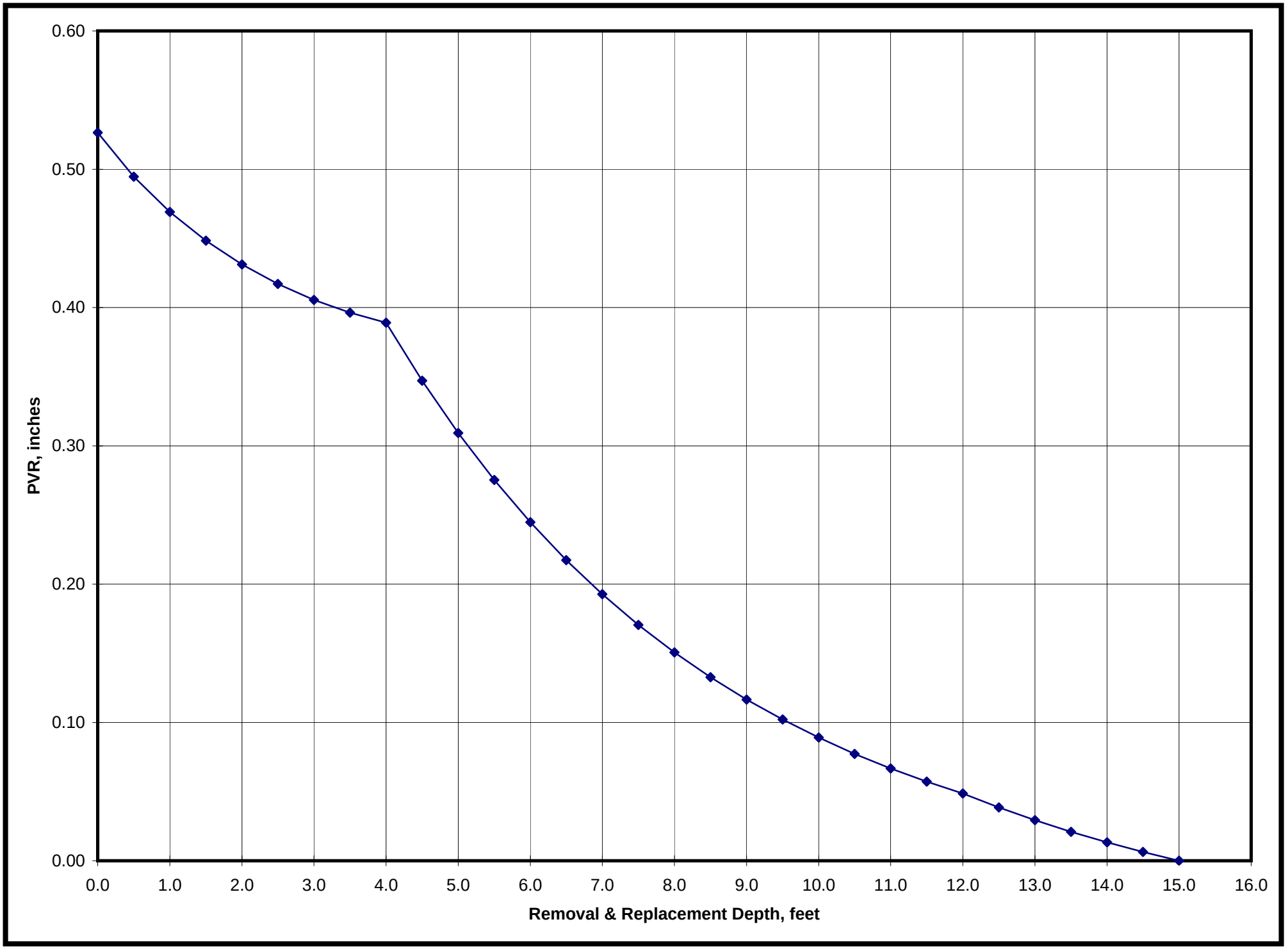
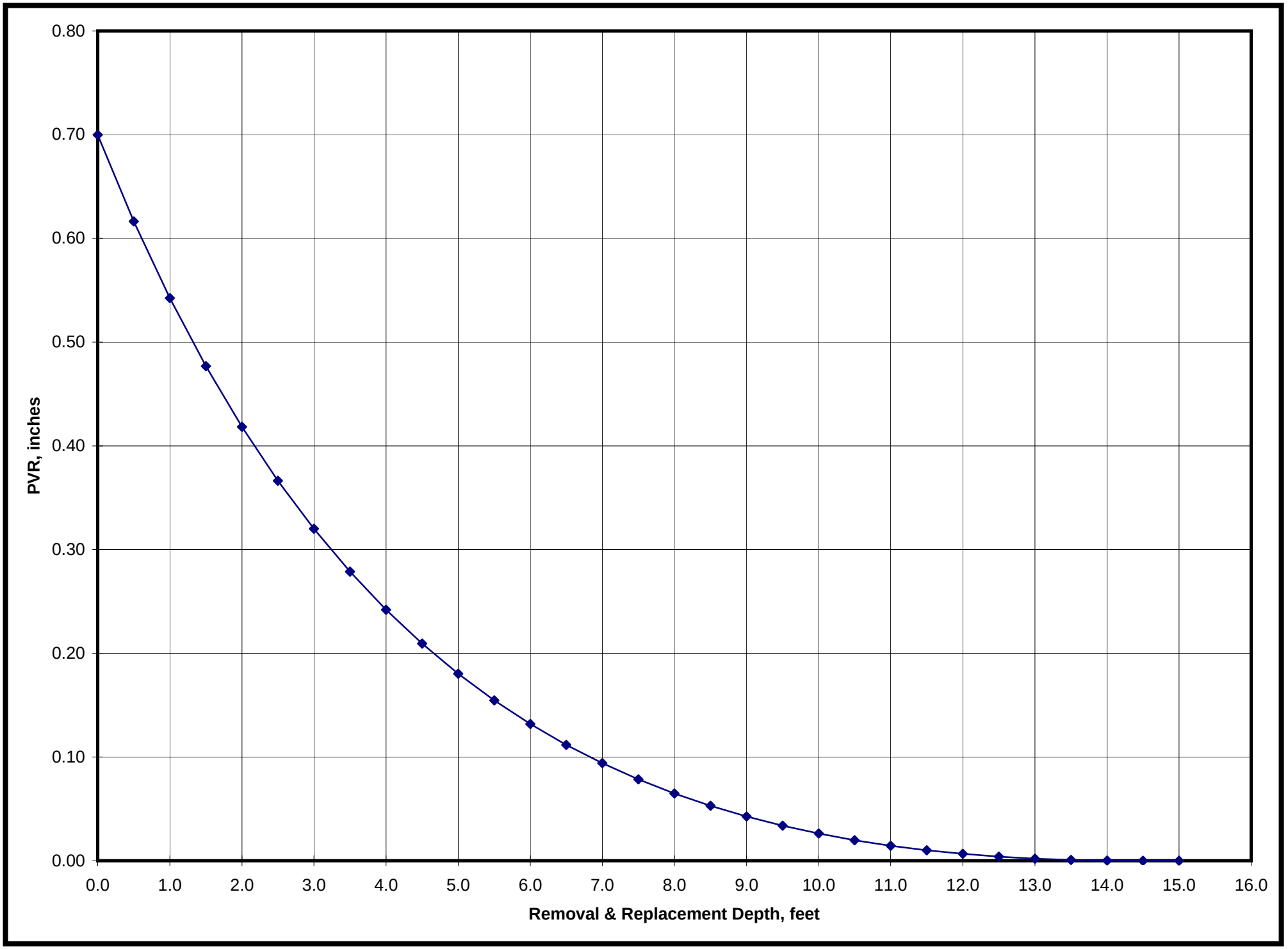


DONNA PUMP TO BROWNSVILLE - BH 41



DONNA PUMP TO BROWNSVILLE - BH 42



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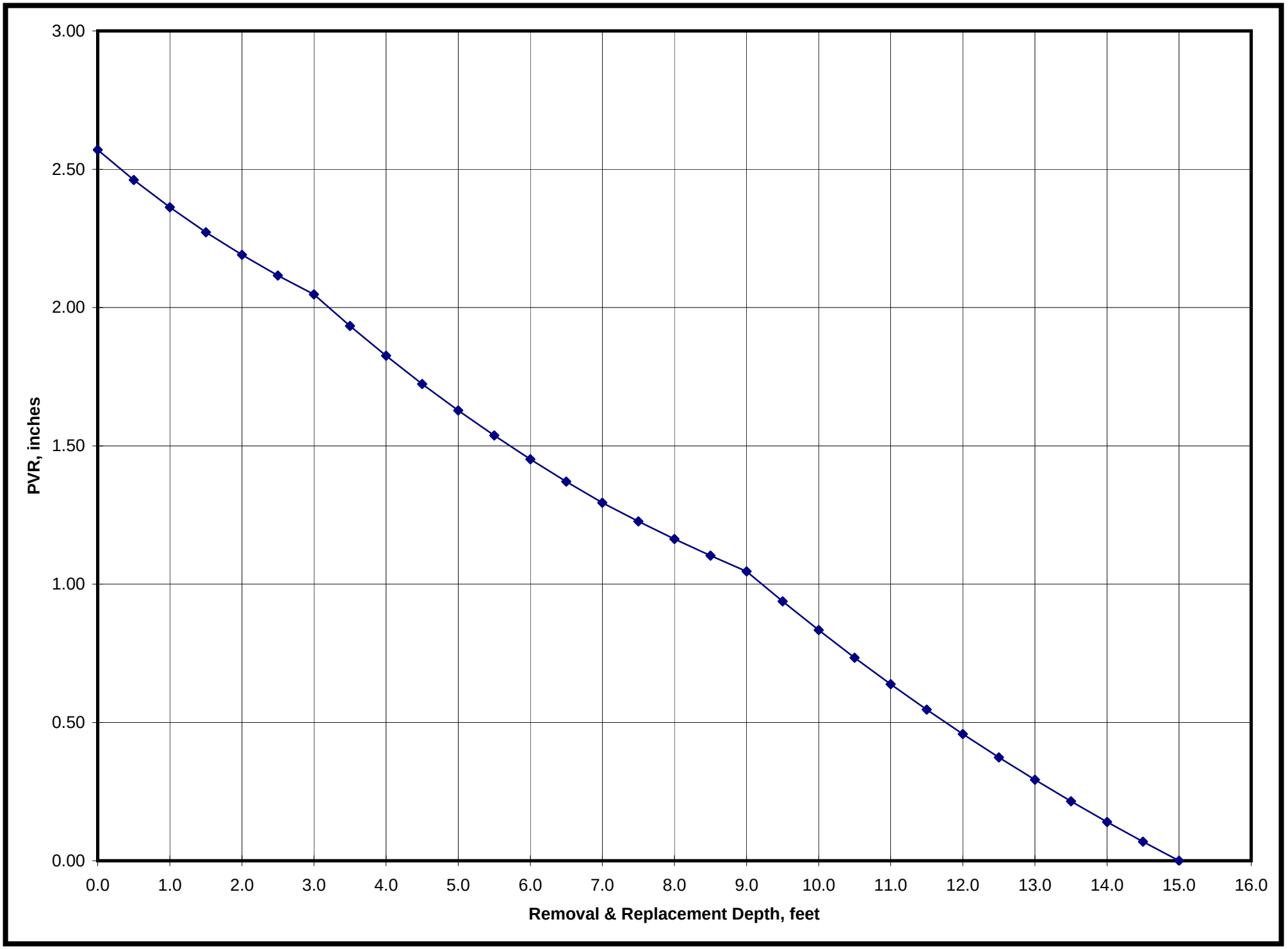

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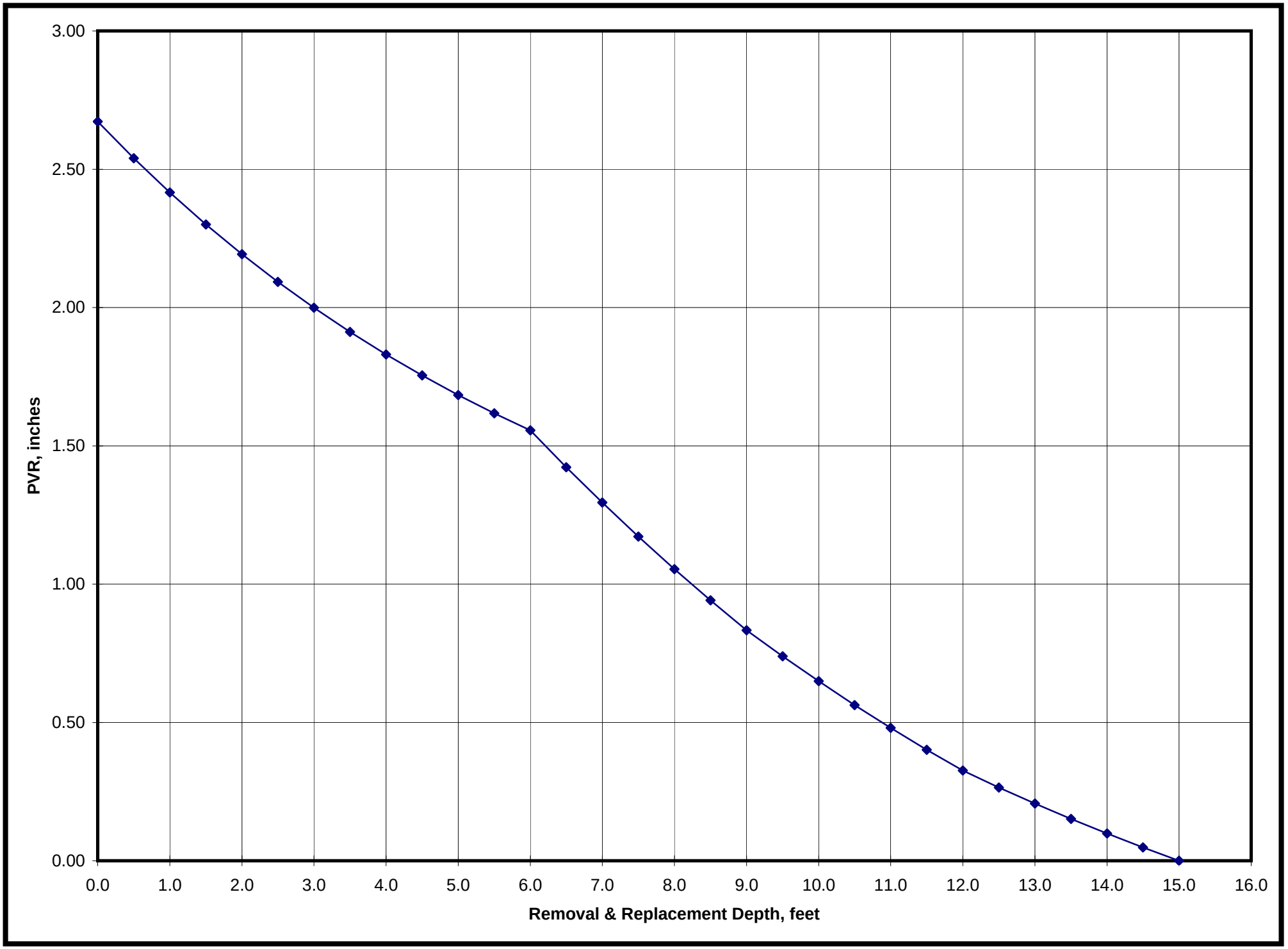
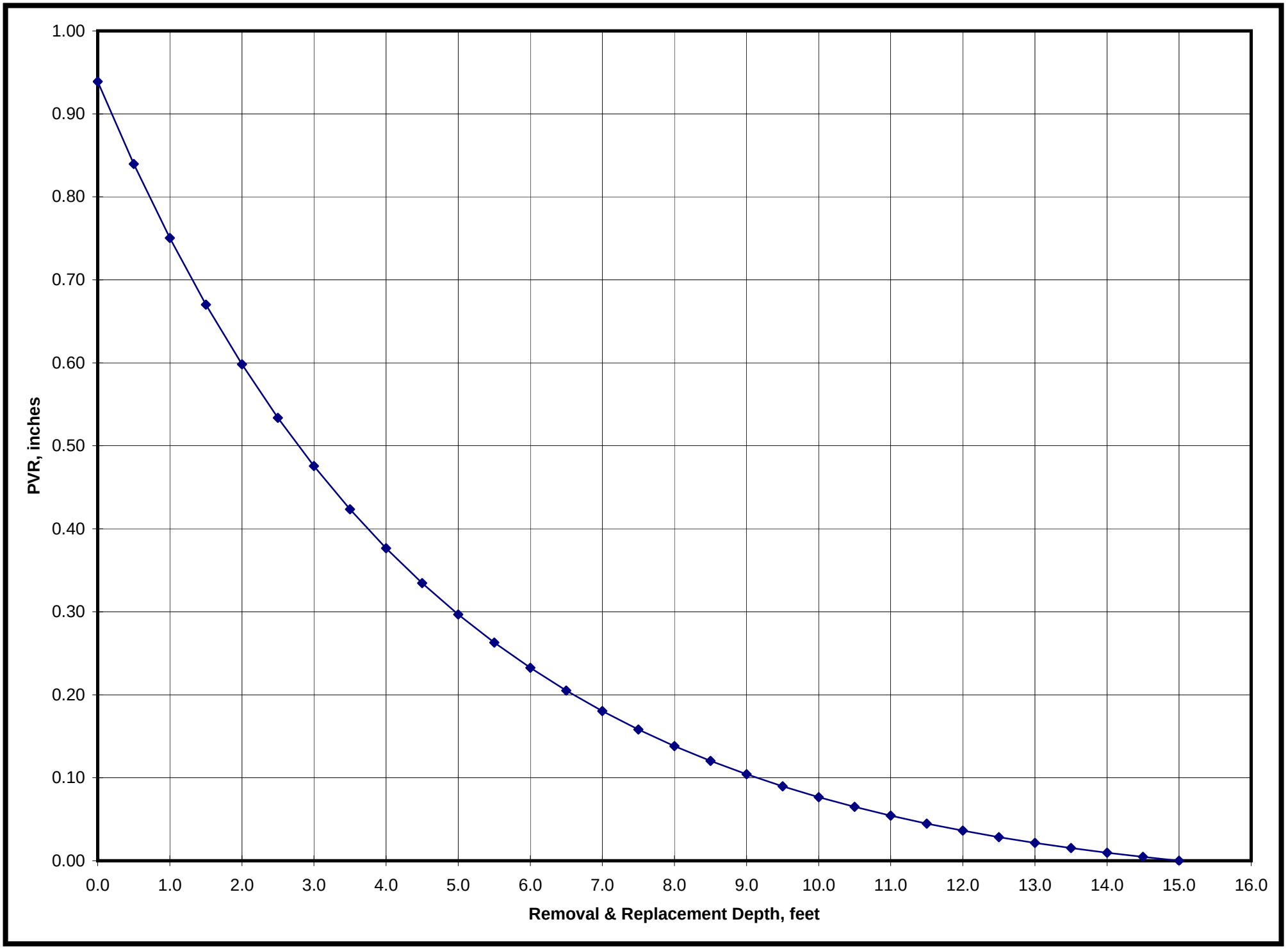
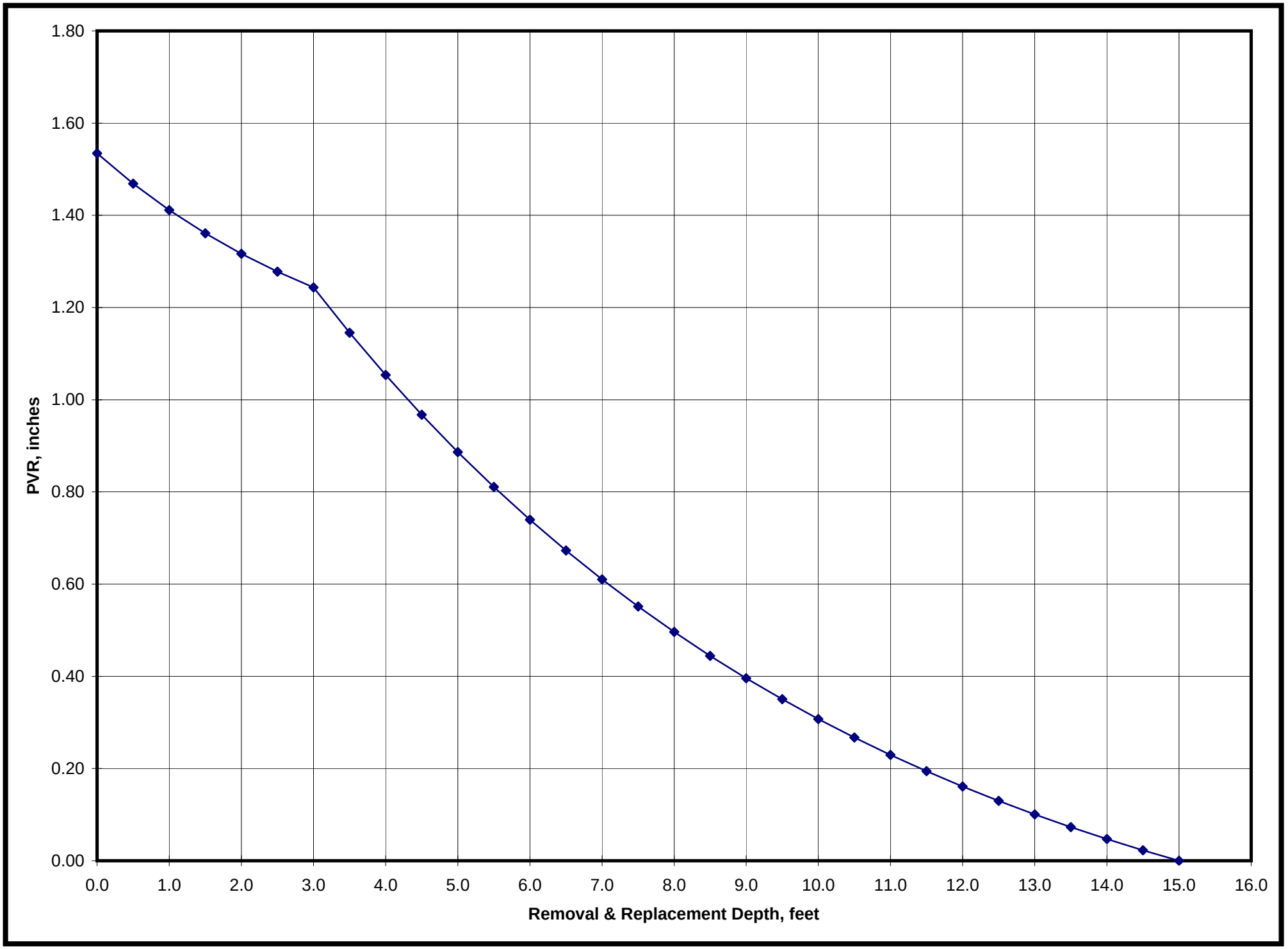


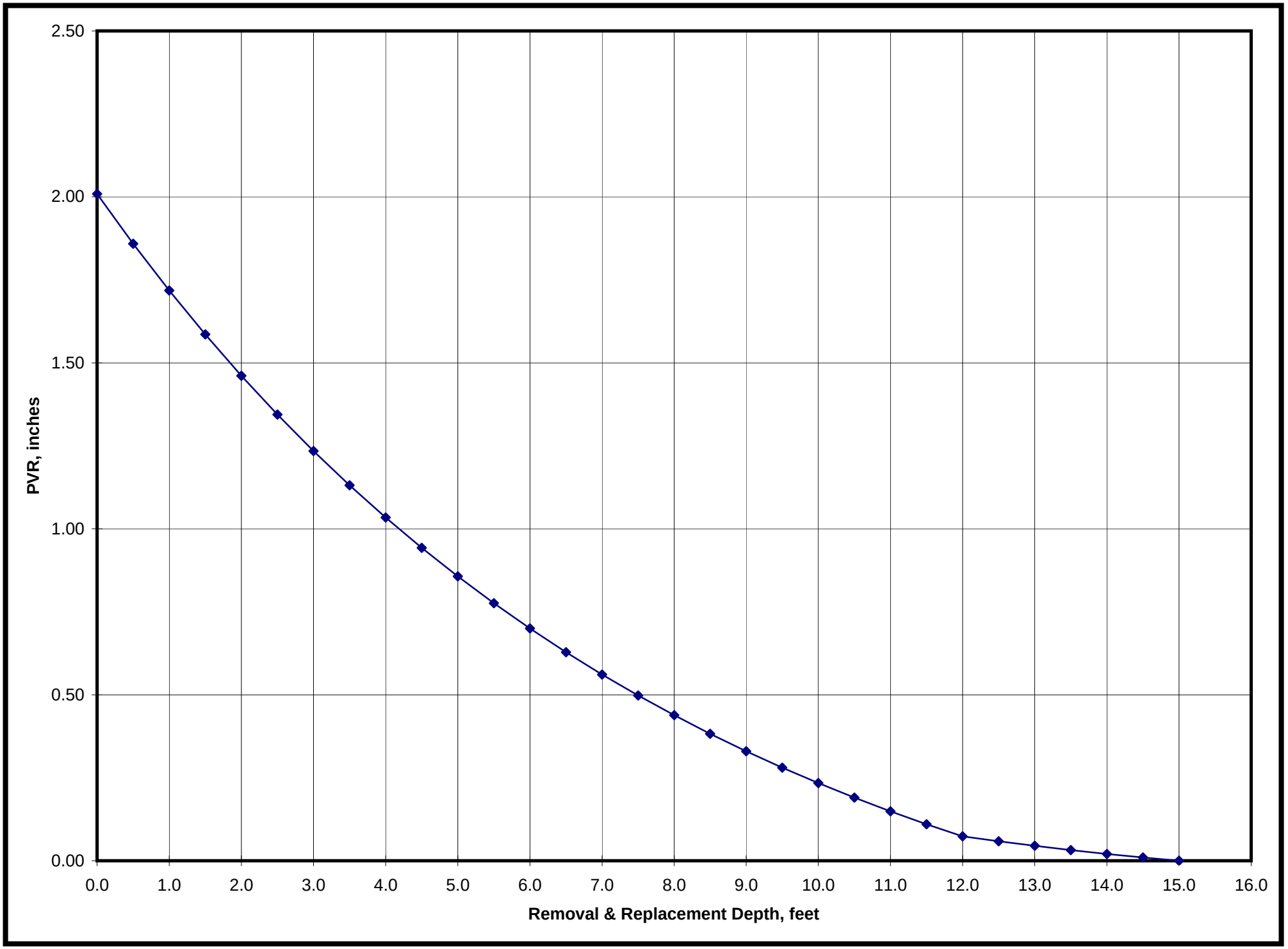
DONNA PUMP TO BROWNSVILLE - BH 45



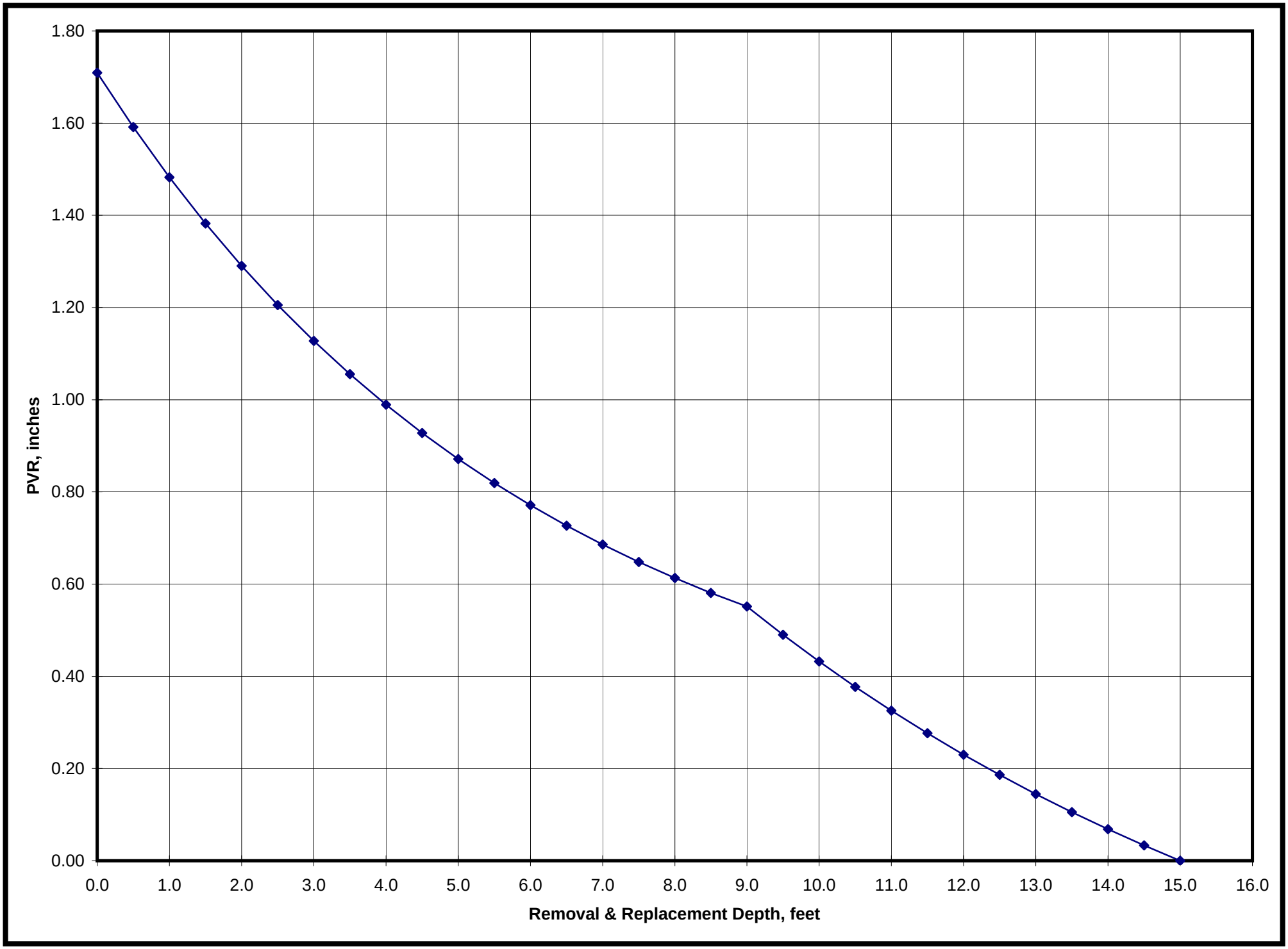
DONNA PUMP TO BROWNSVILLE - BH 46



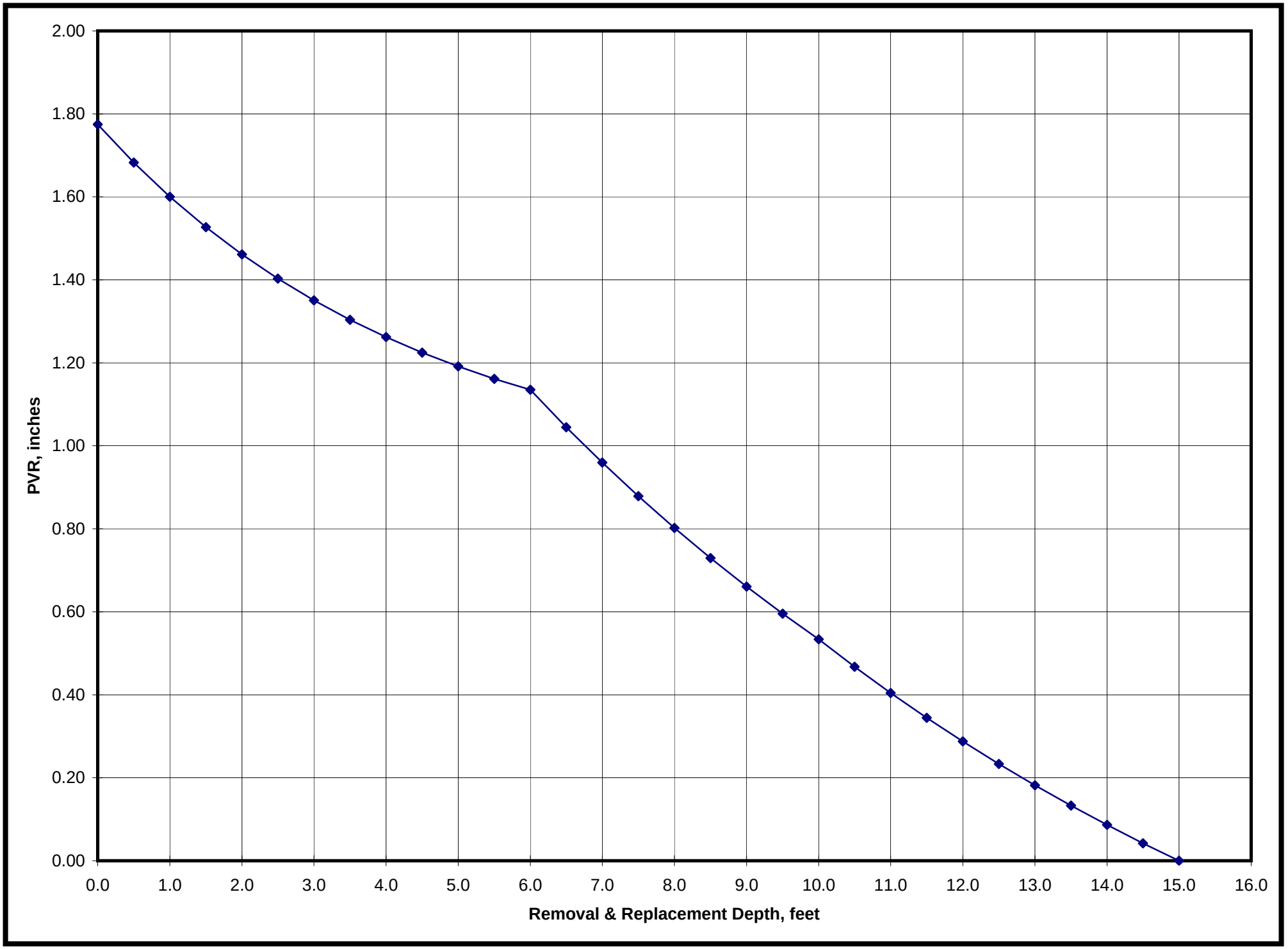
DONNA PUMP TO BROWNSVILLE - BH 47



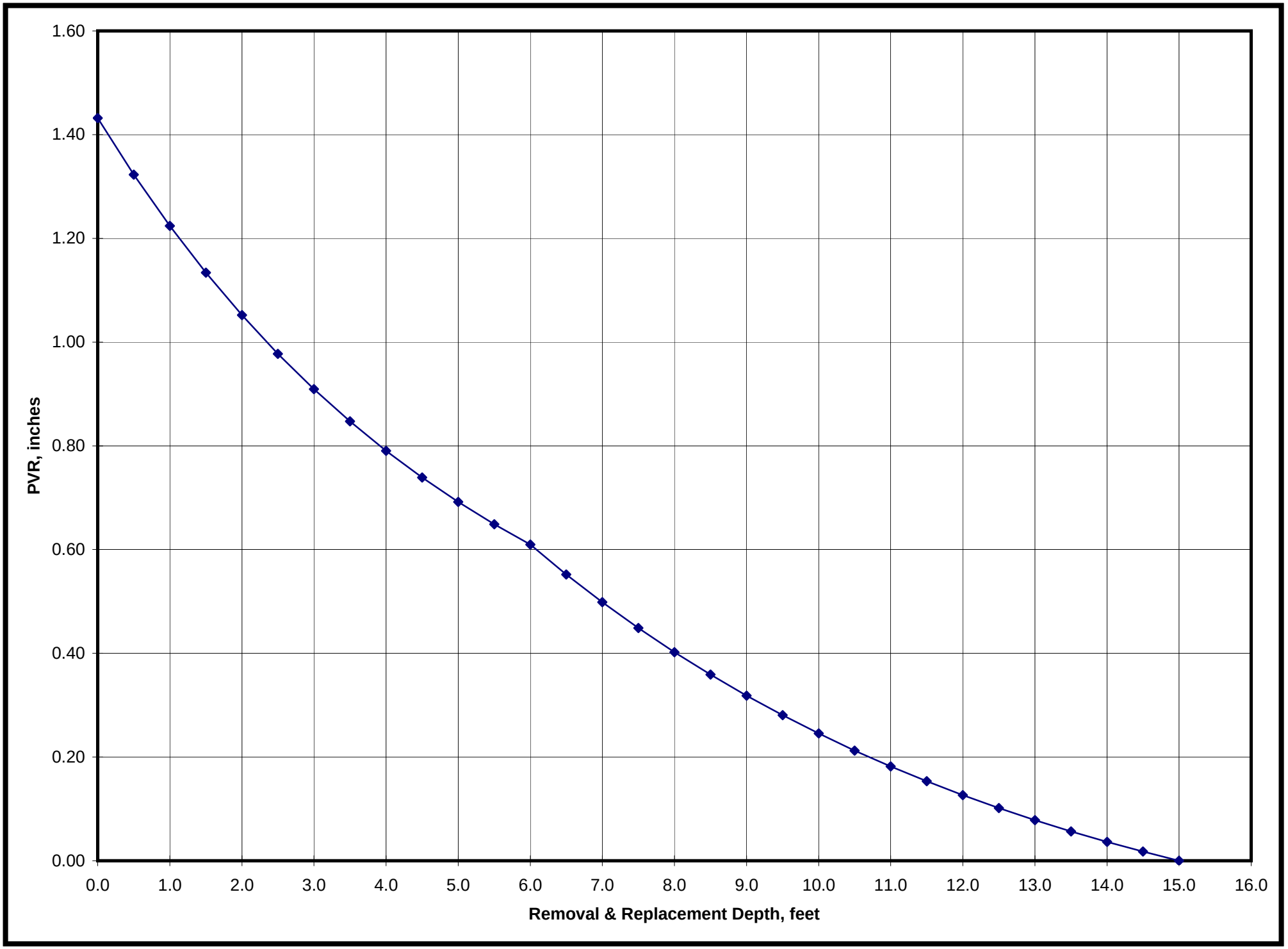
DONNA PUMP TO BROWNSVILLE - BH 48



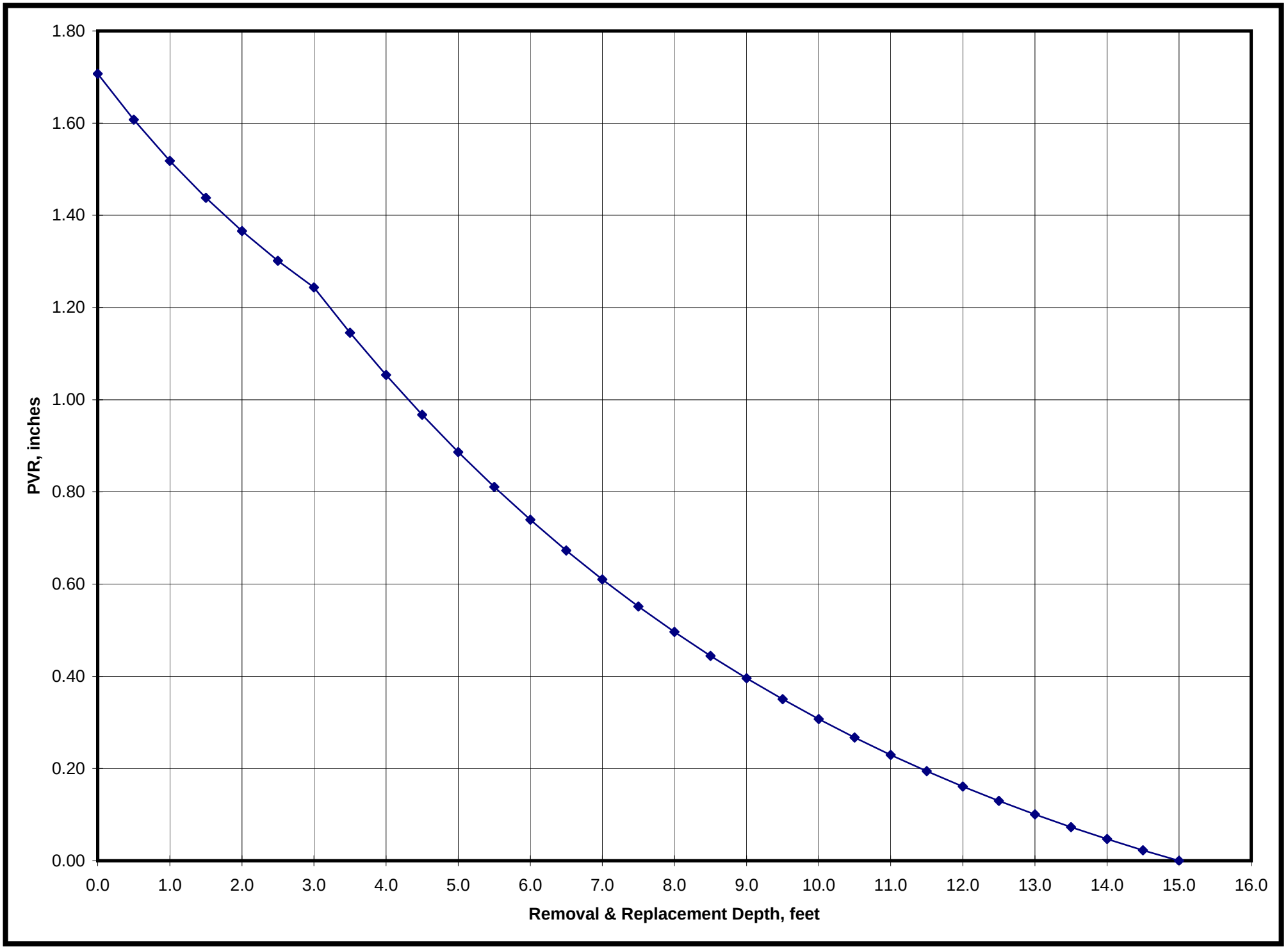
DONNA PUMP TO BROWNSVILLE - BH 49



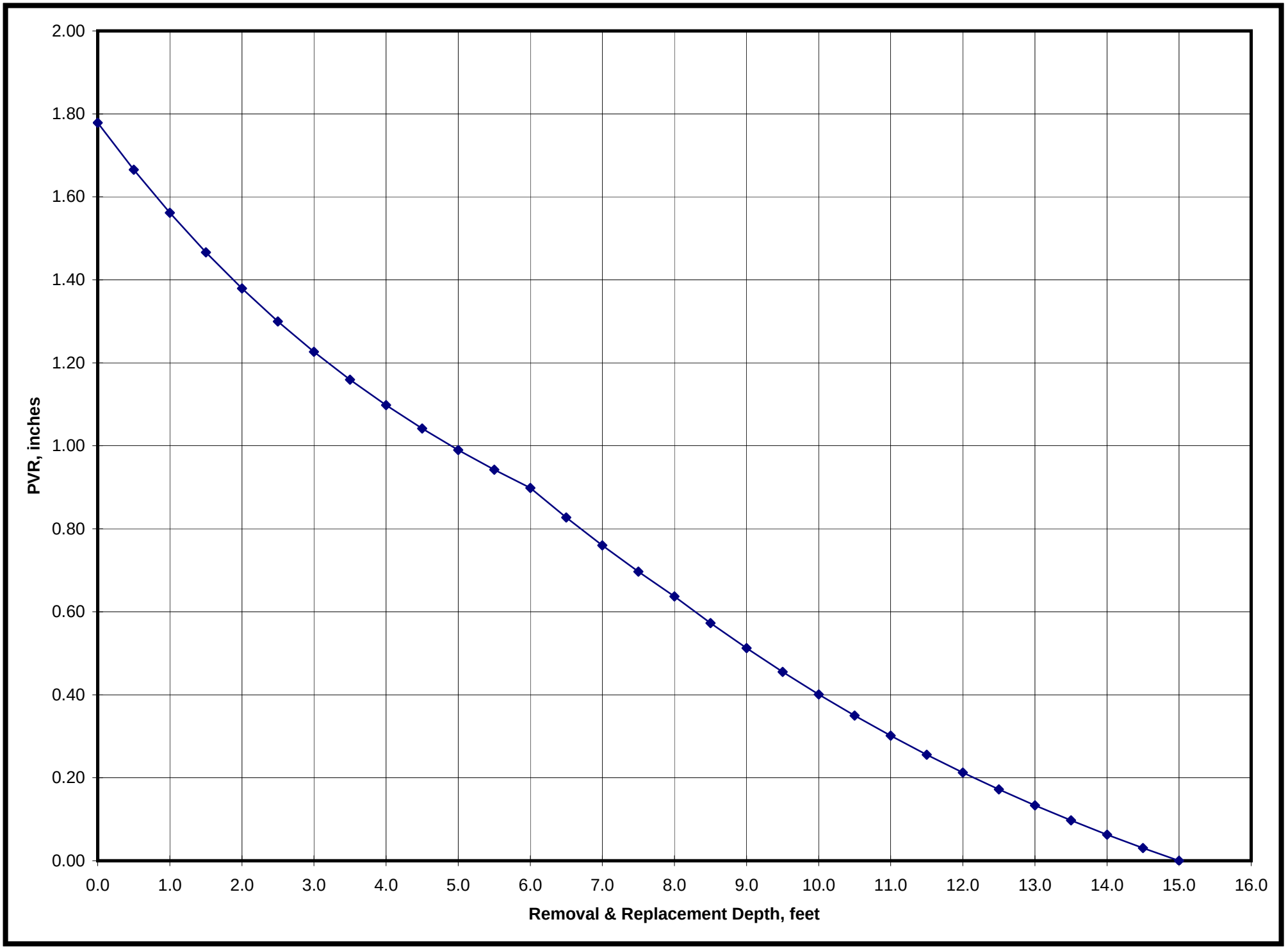
DONNA PUMP TO BROWNSVILLE - BH 50



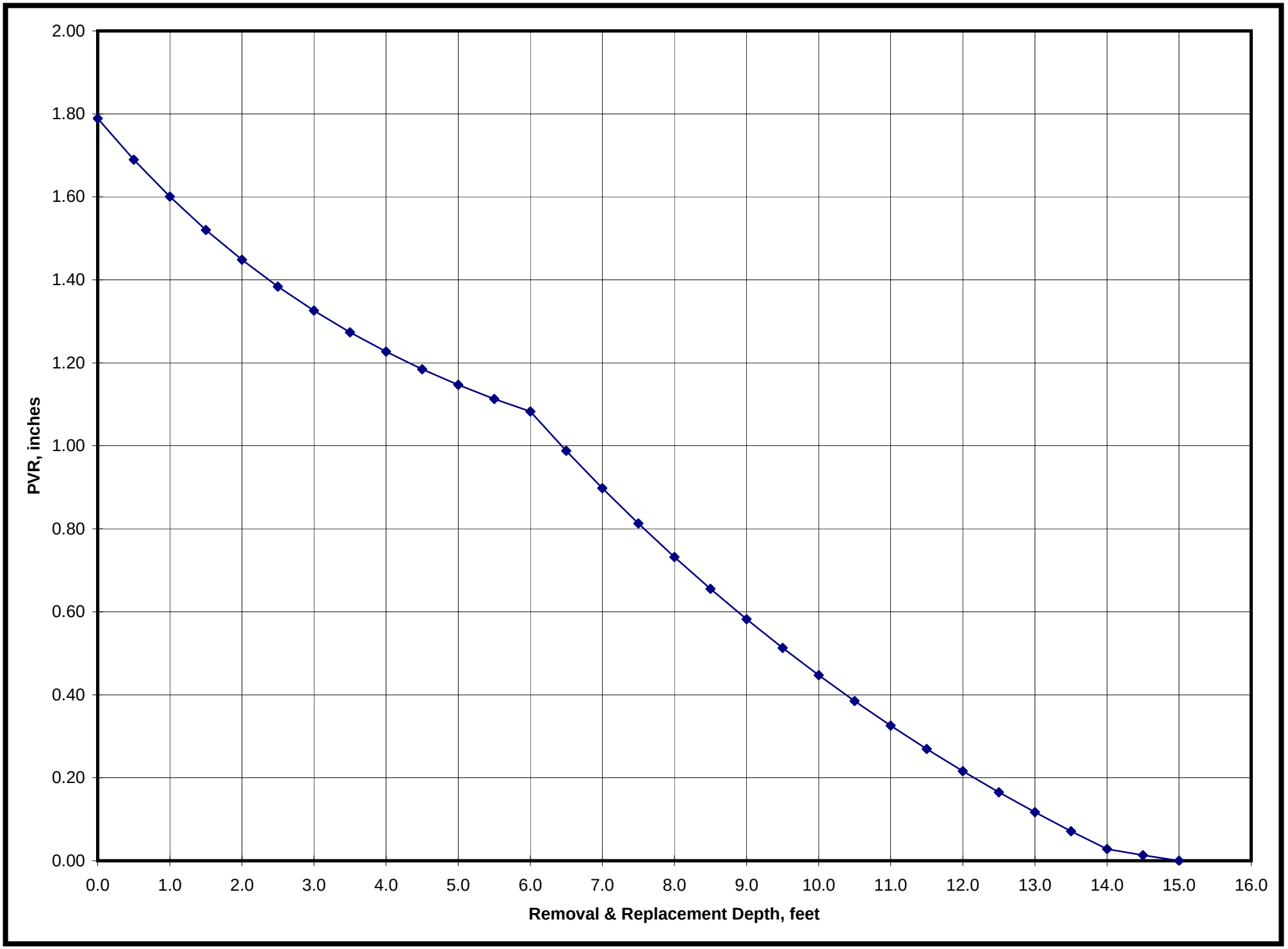
DONNA PUMP TO BROWNSVILLE - BH 51



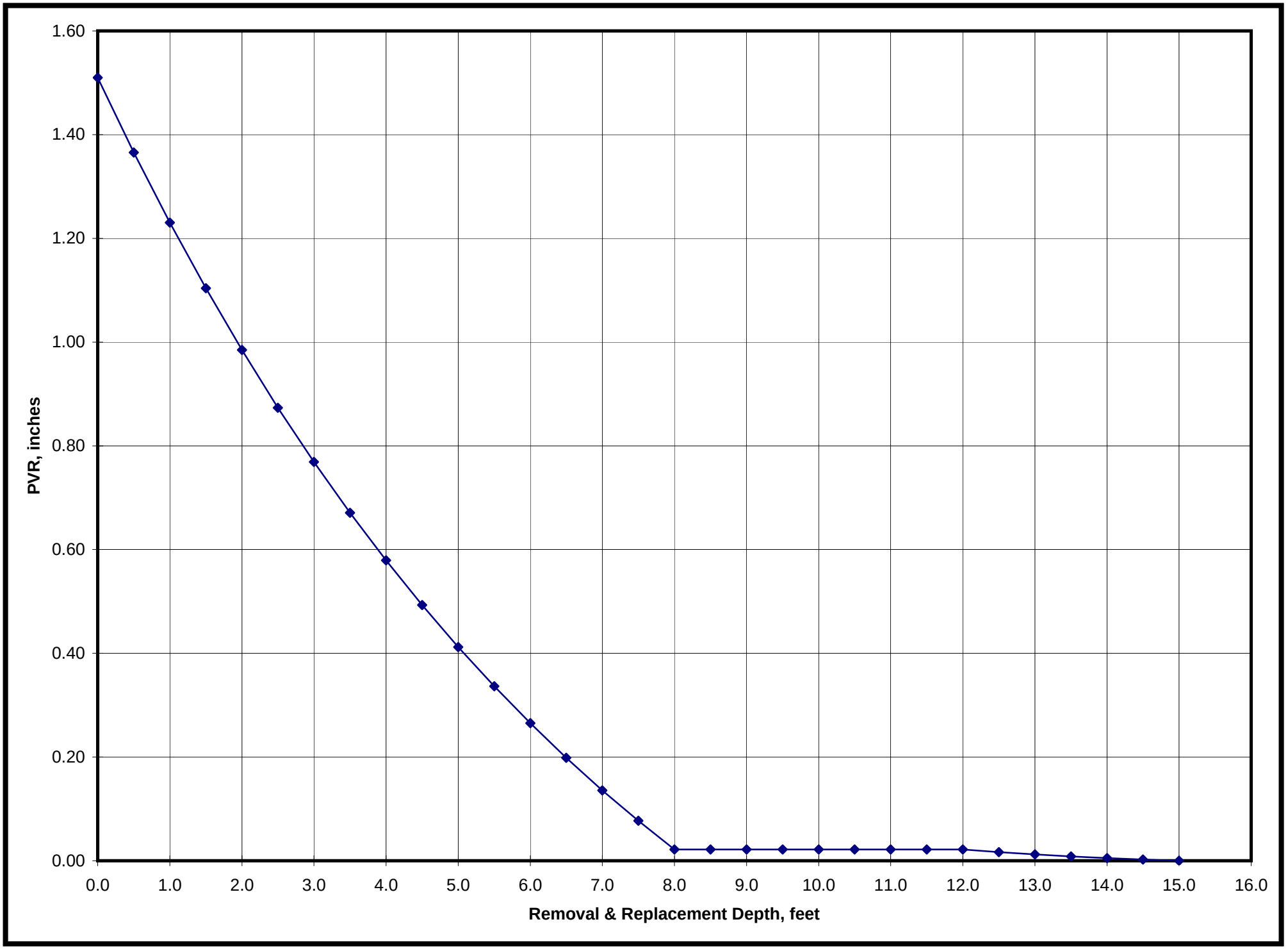
DONNA PUMP TO BROWNSVILLE - BH 52



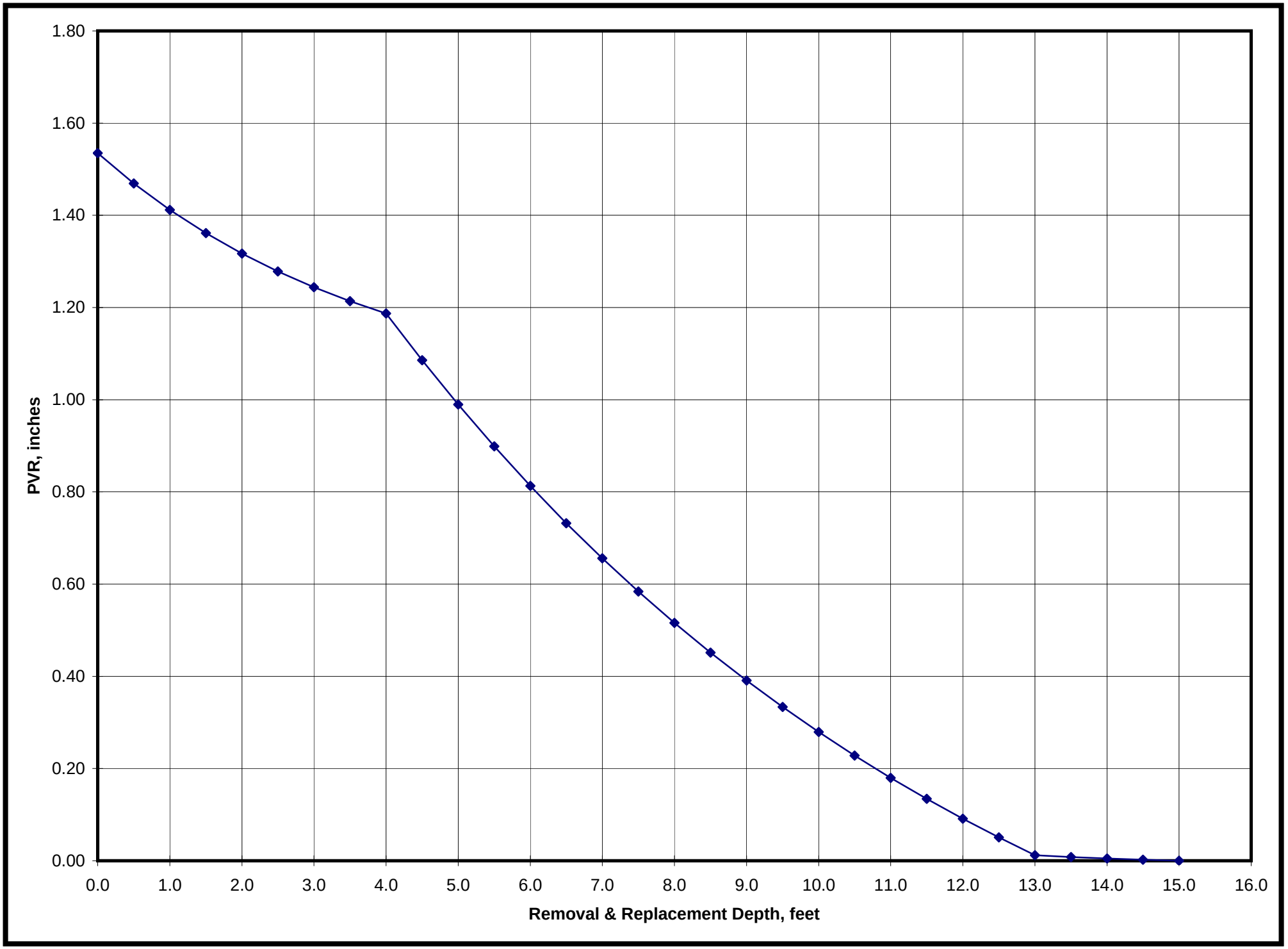
DONNA PUMP TO BROWNSVILLE - BH 53



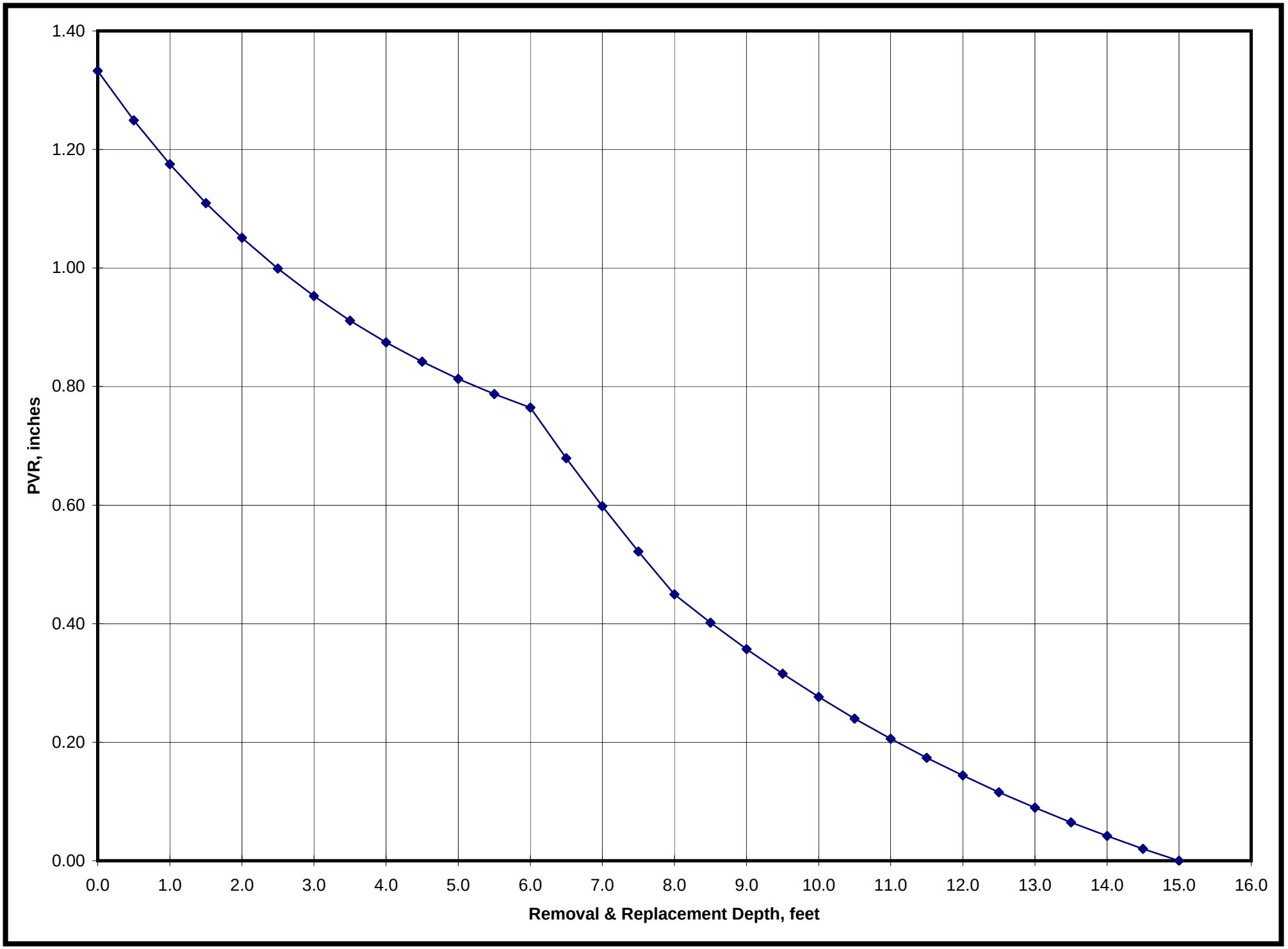
DONNA PUMP TO BROWNSVILLE - BH 54



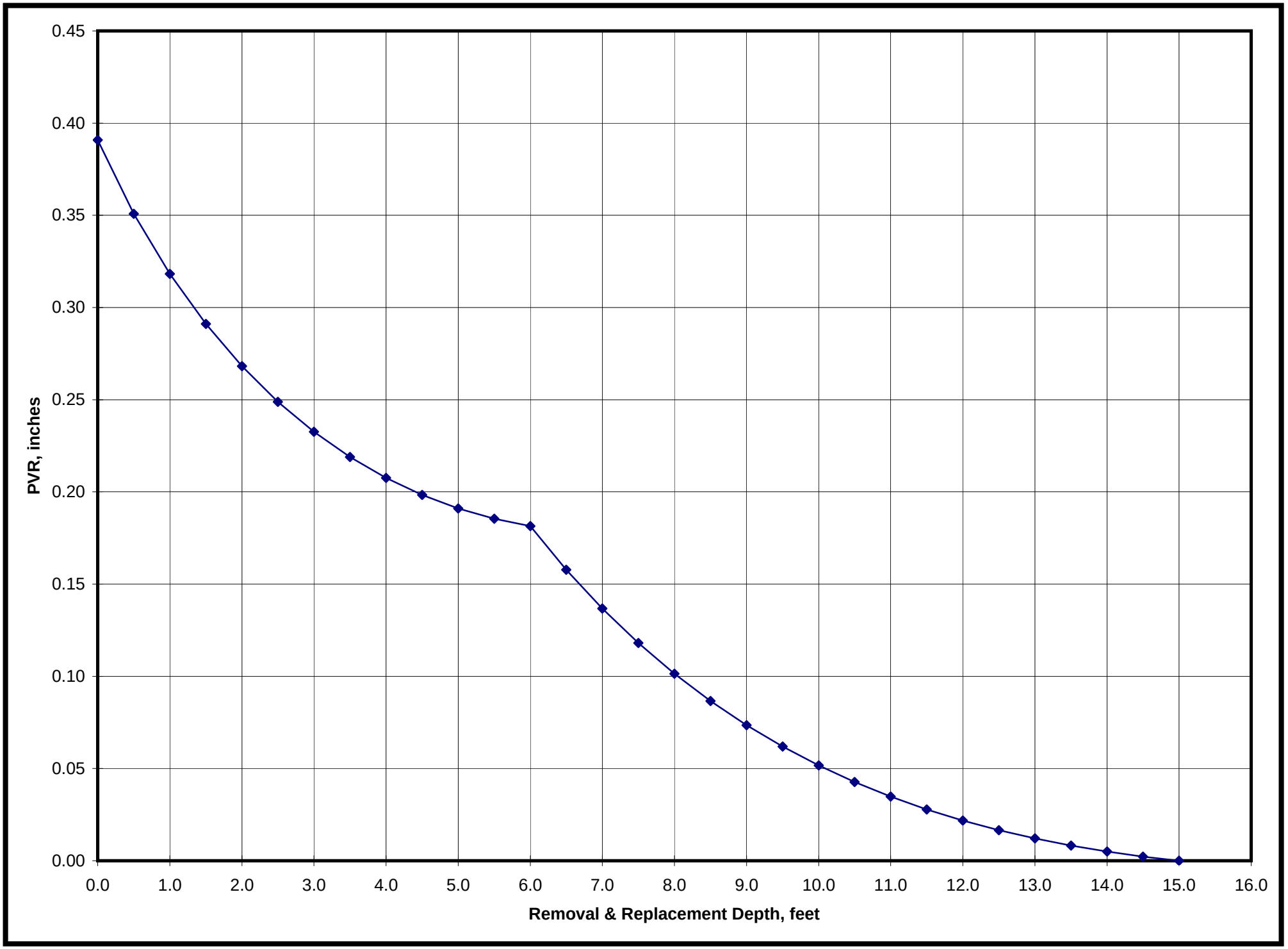
DONNA PUMP TO BROWNSVILLE - BH 55



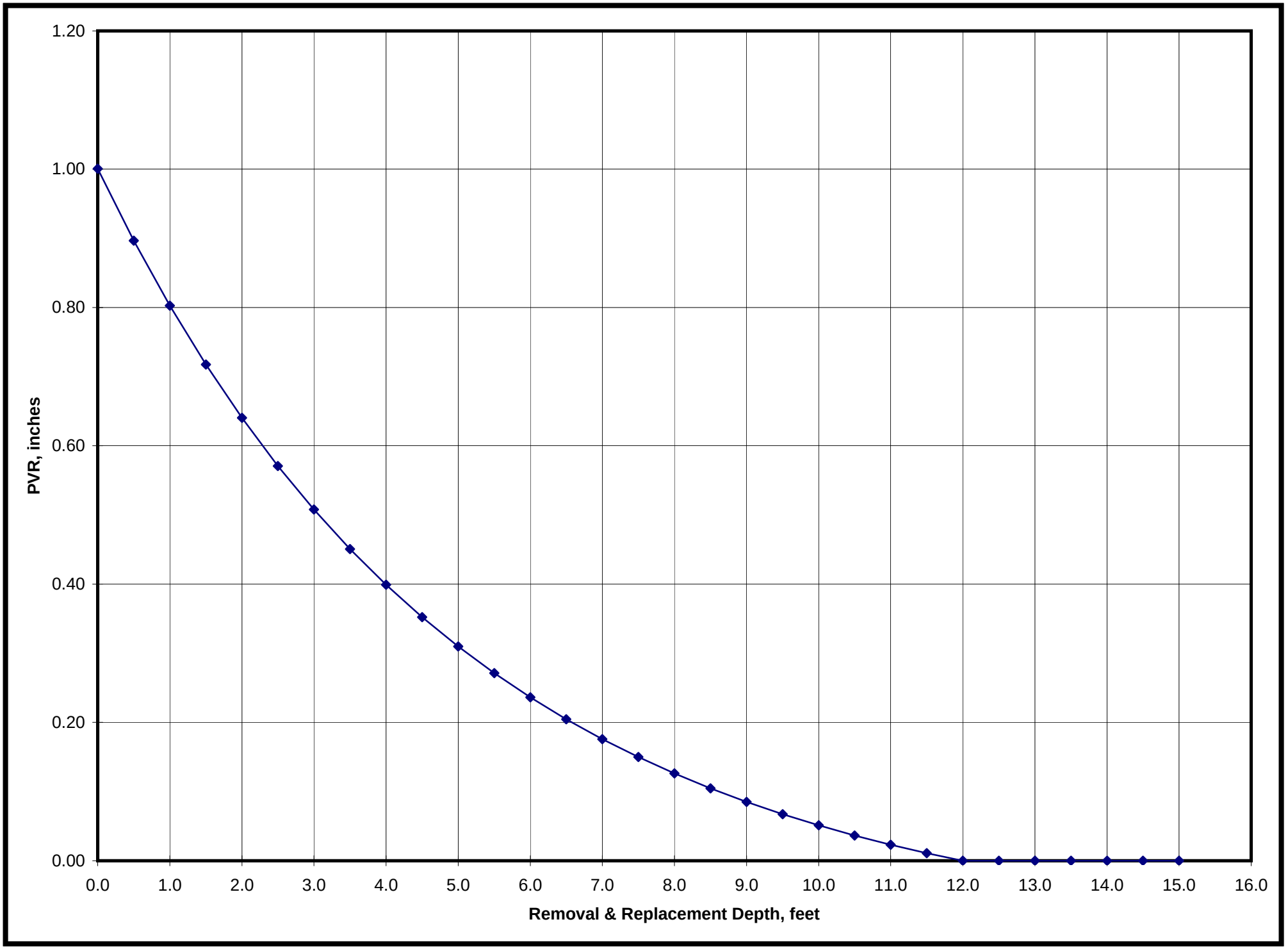
DONNA PUMP TO BROWNSVILLE - BH 56



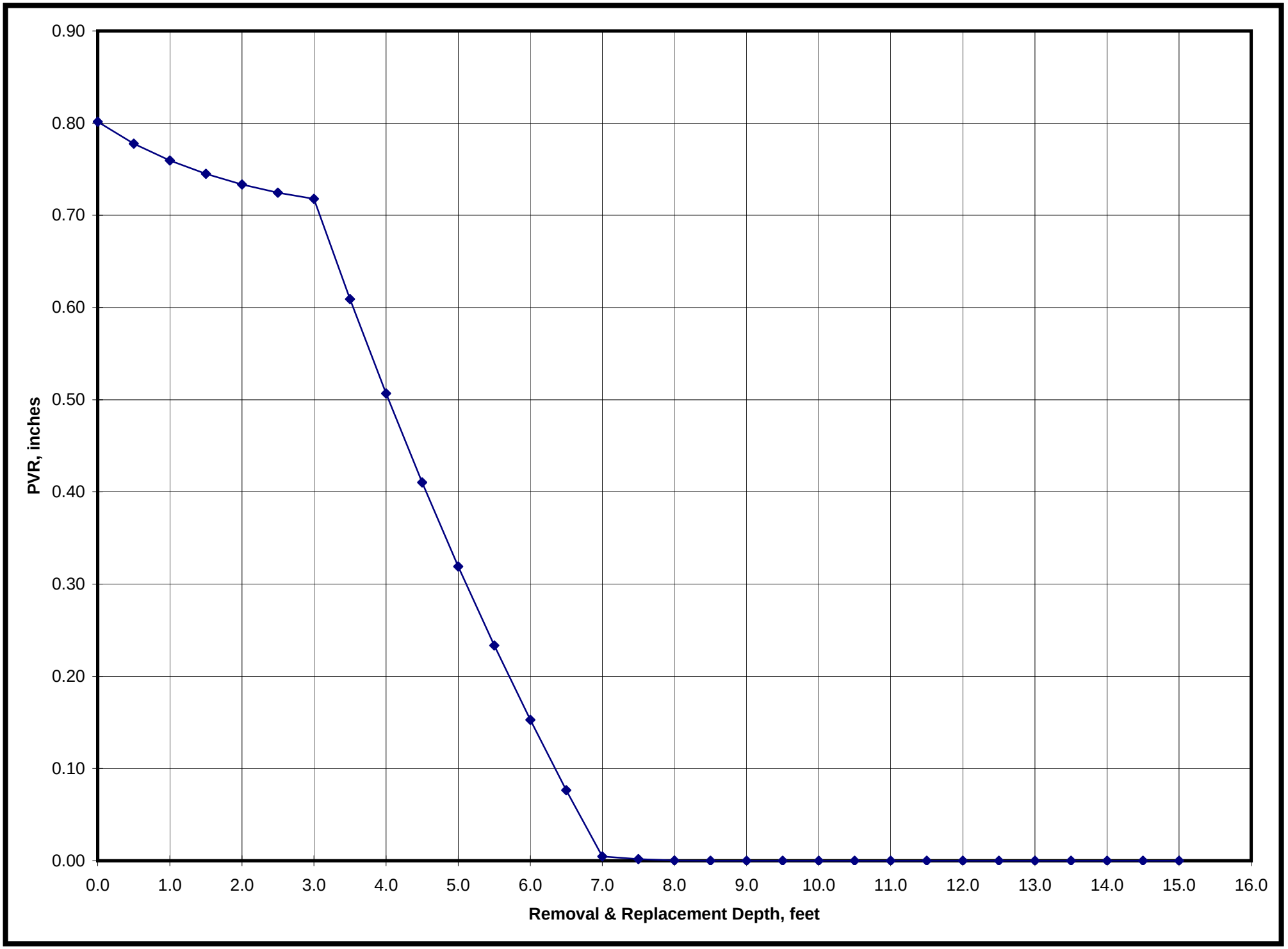
DONNA PUMP TO BROWNSVILLE - BH 57



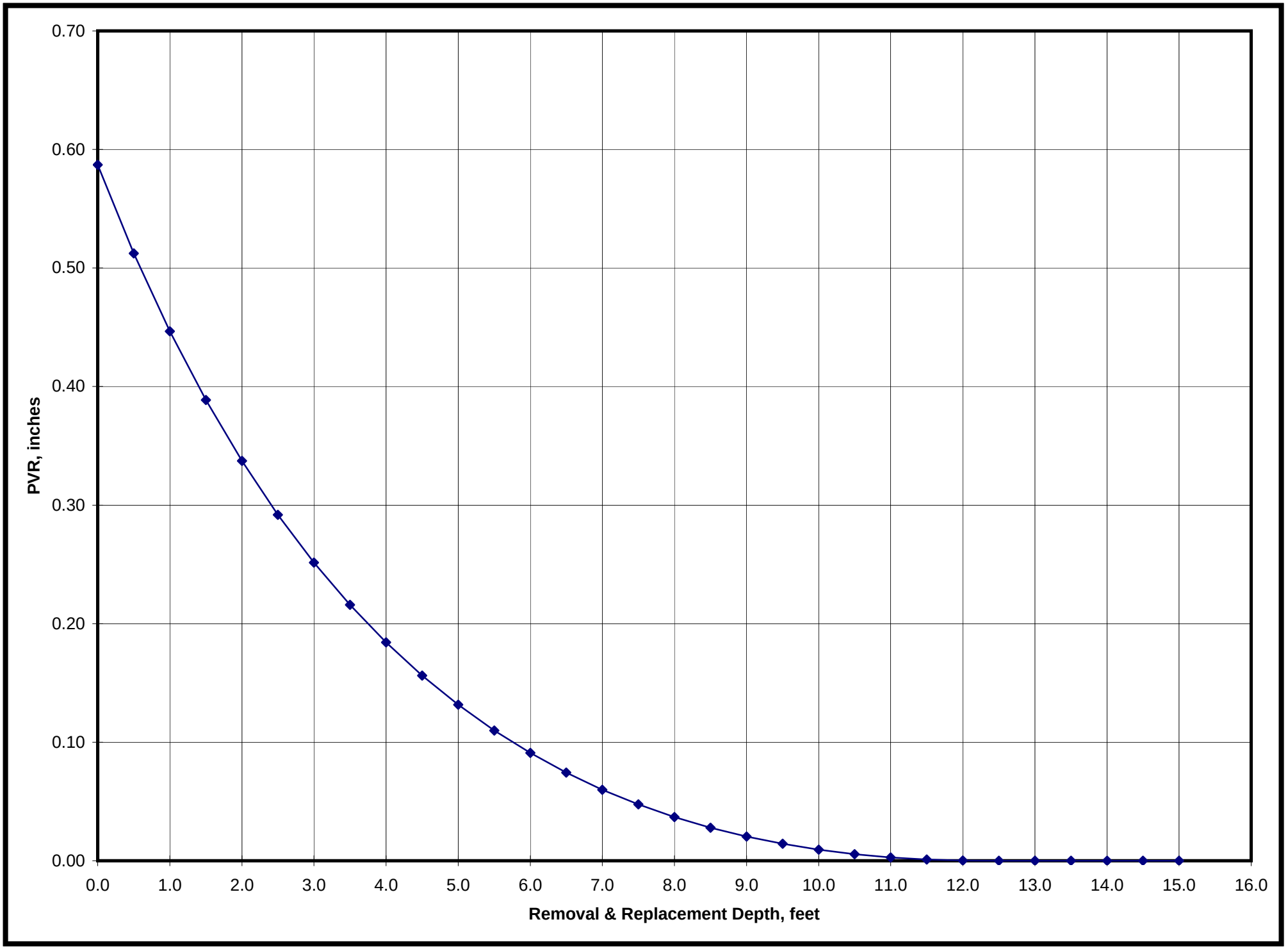
DONNA PUMP TO BROWNSVILLE - BH 58



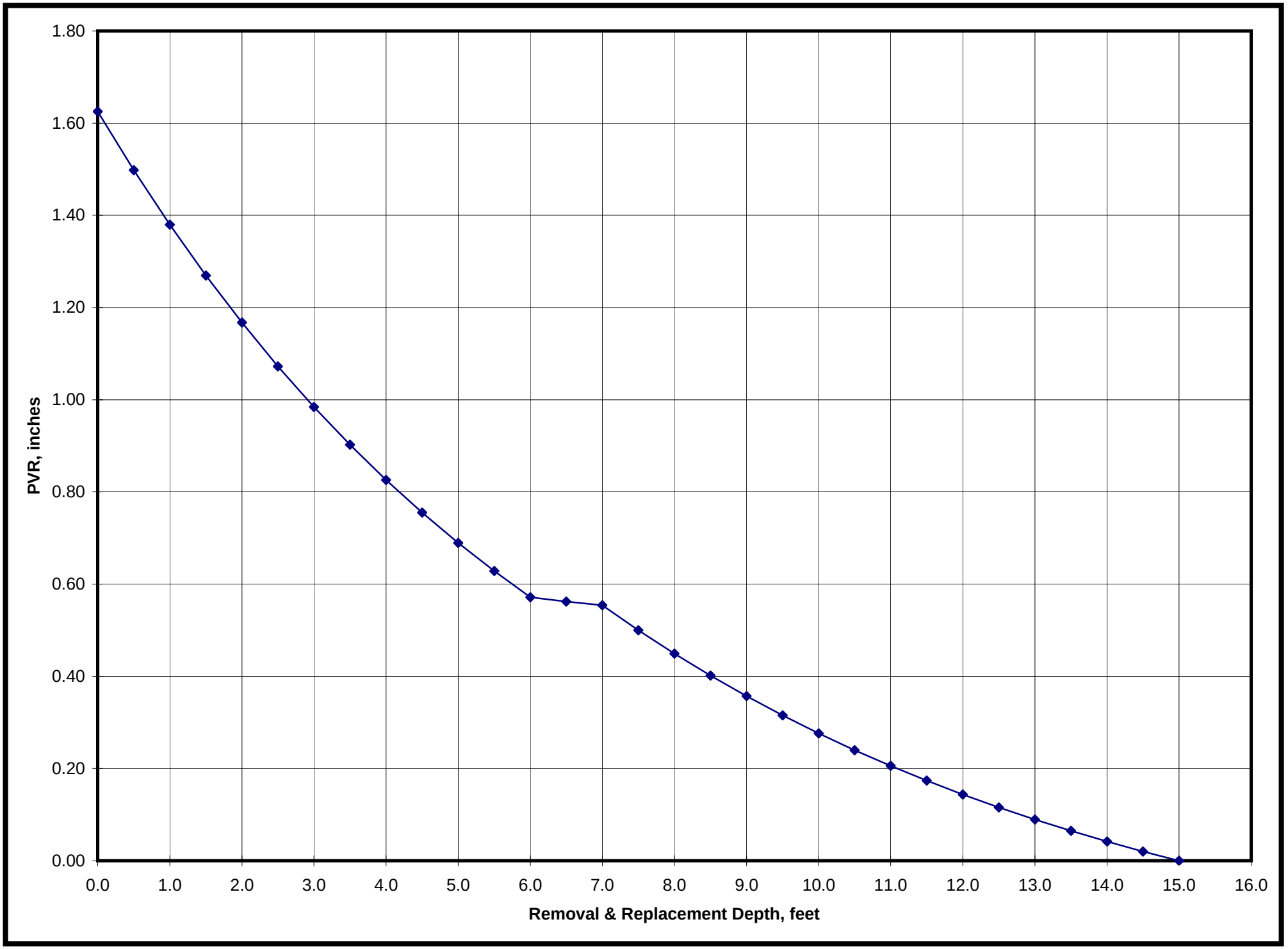
DONNA PUMP TO BROWNSVILLE - BH 59



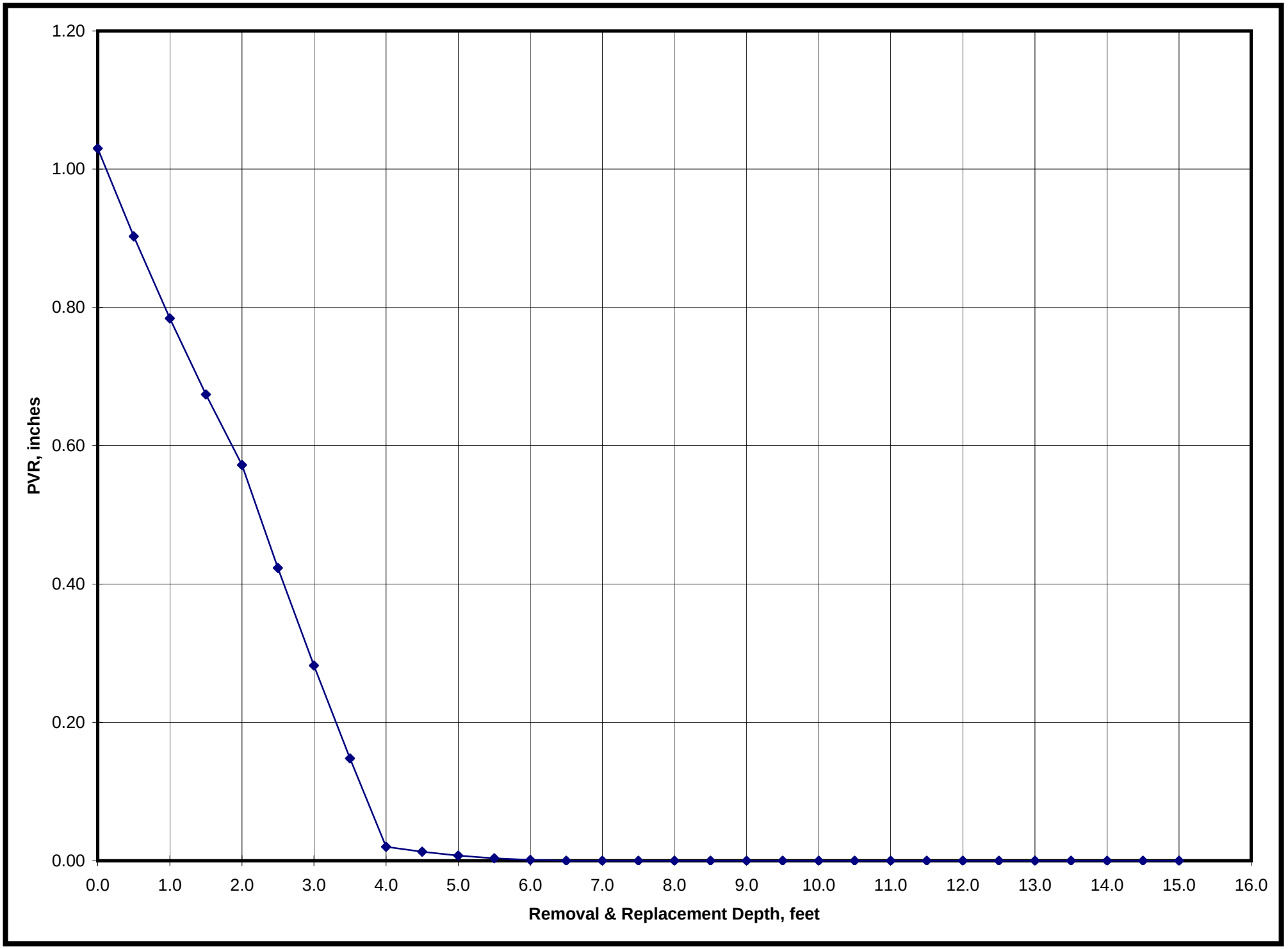
DONNA PUMP TO BROWNSVILLE - BH 60



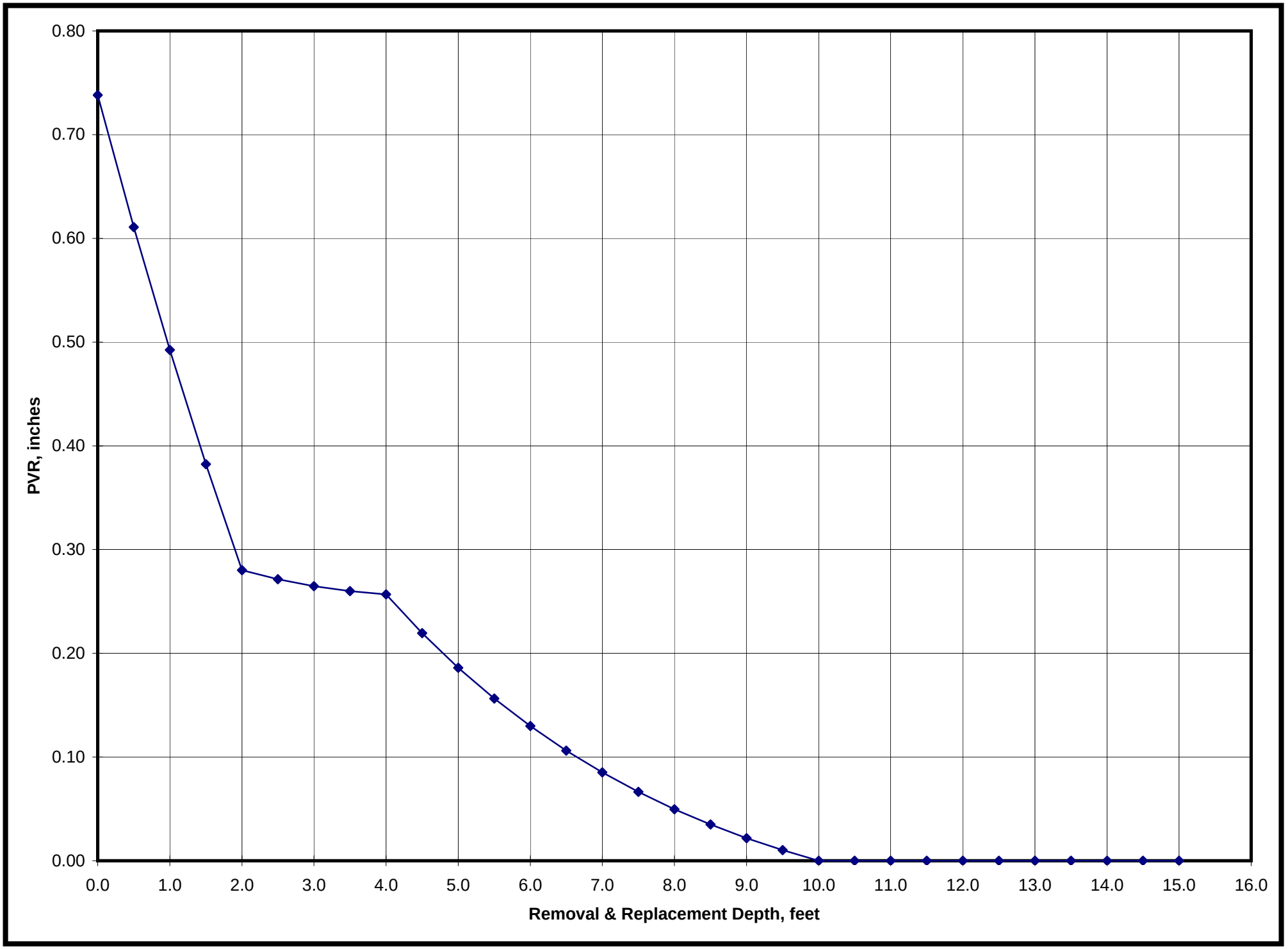
DONNA PUMP TO BROWNSVILLE - BH 61



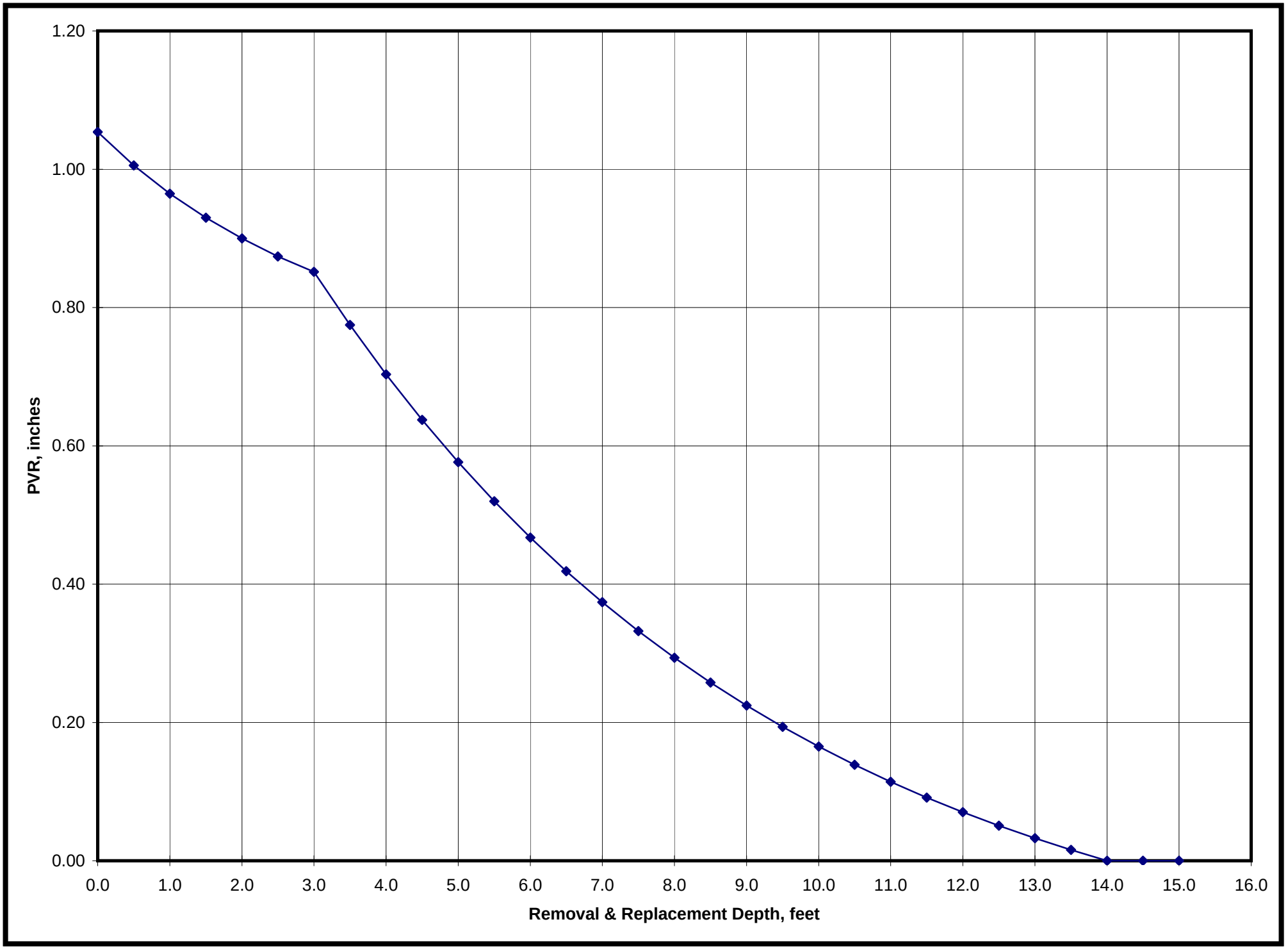
DONNA PUMP TO BROWNSVILLE - BH 62



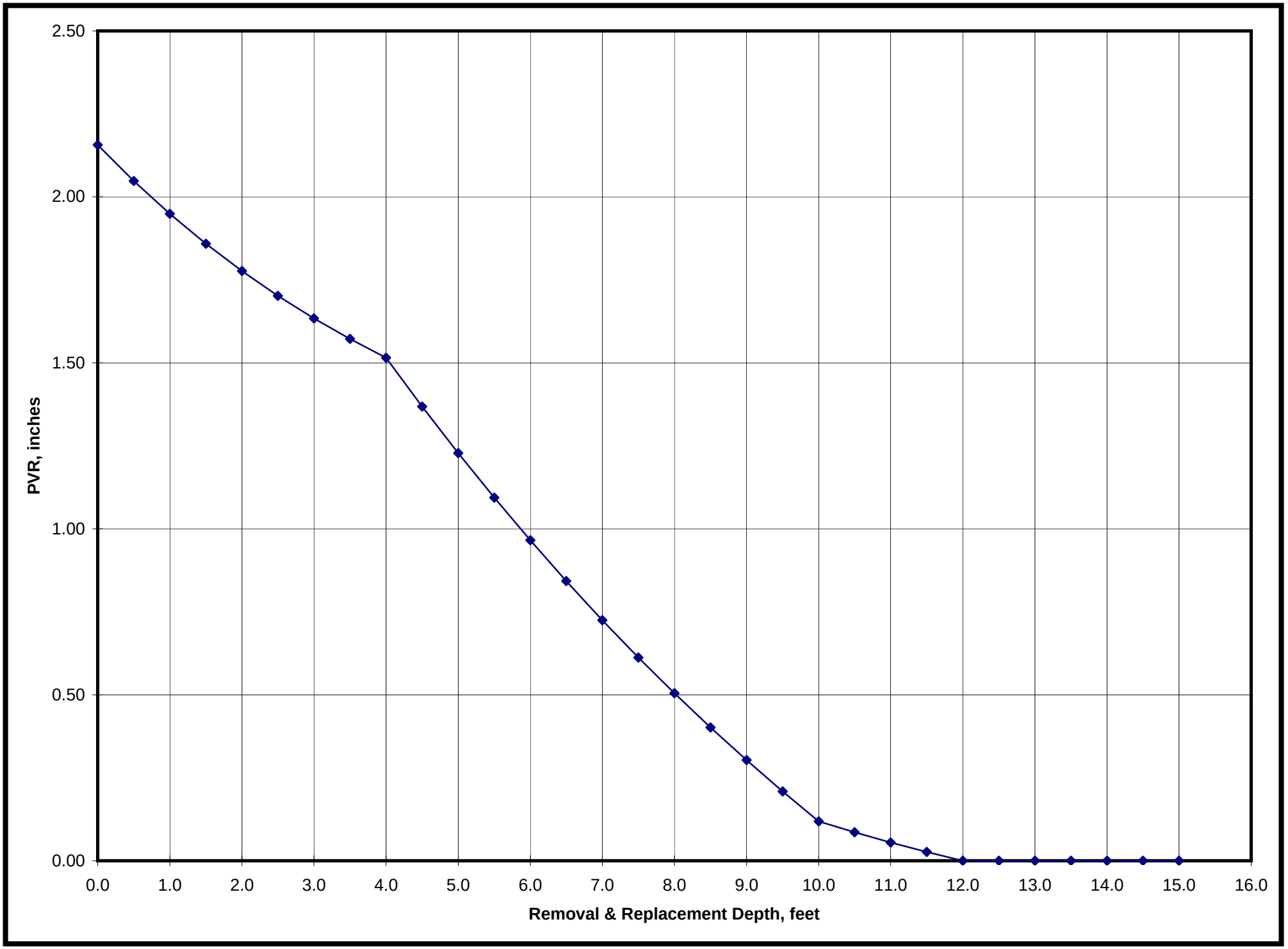
DONNA PUMP TO BROWNSVILLE - BH 63



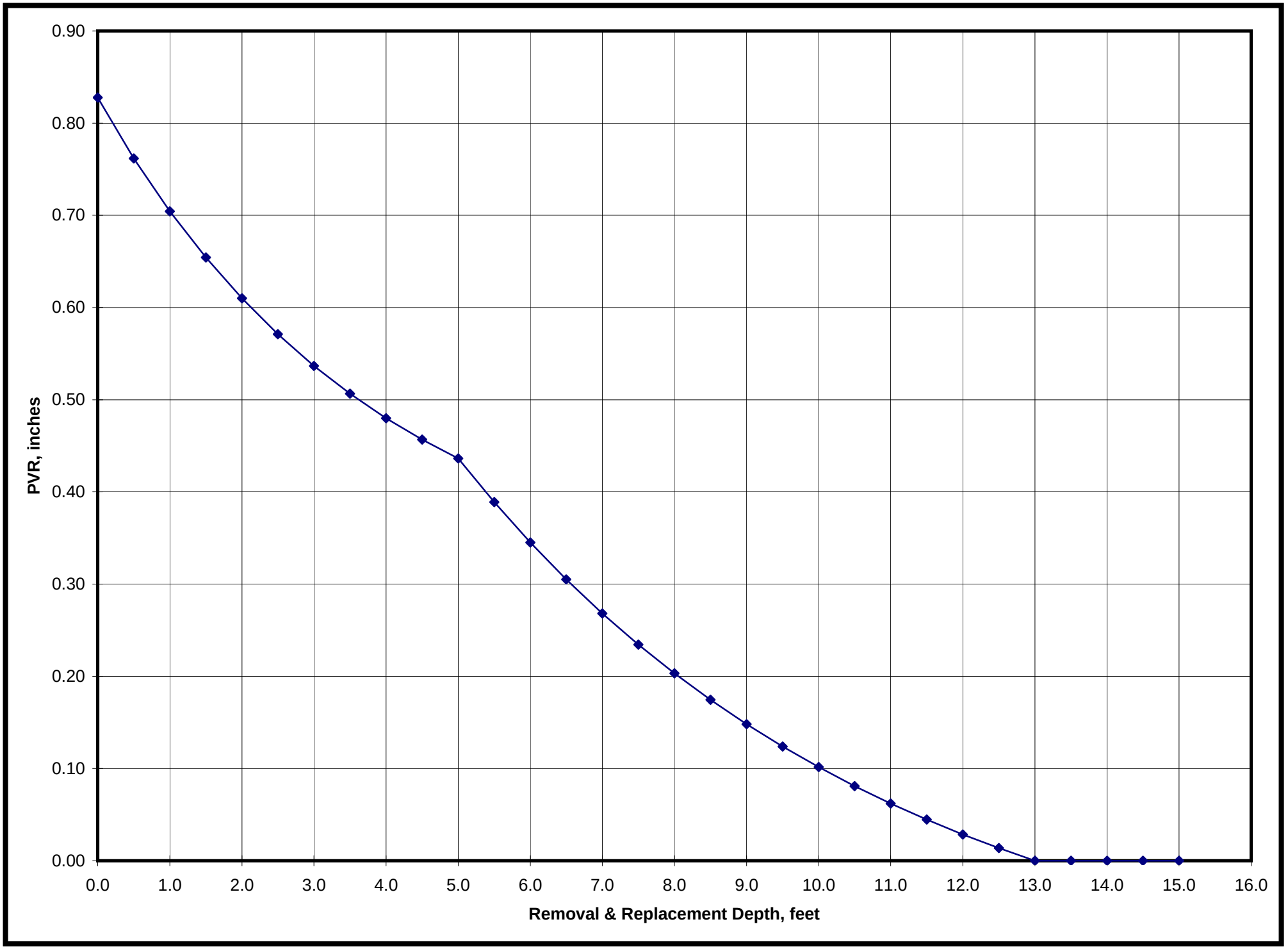
DONNA PUMP TO BROWNSVILLE - BH 64



DONNA PUMP TO BROWNSVILLE - BH 65



DONNA PUMP TO BROWNSVILLE - BH 66



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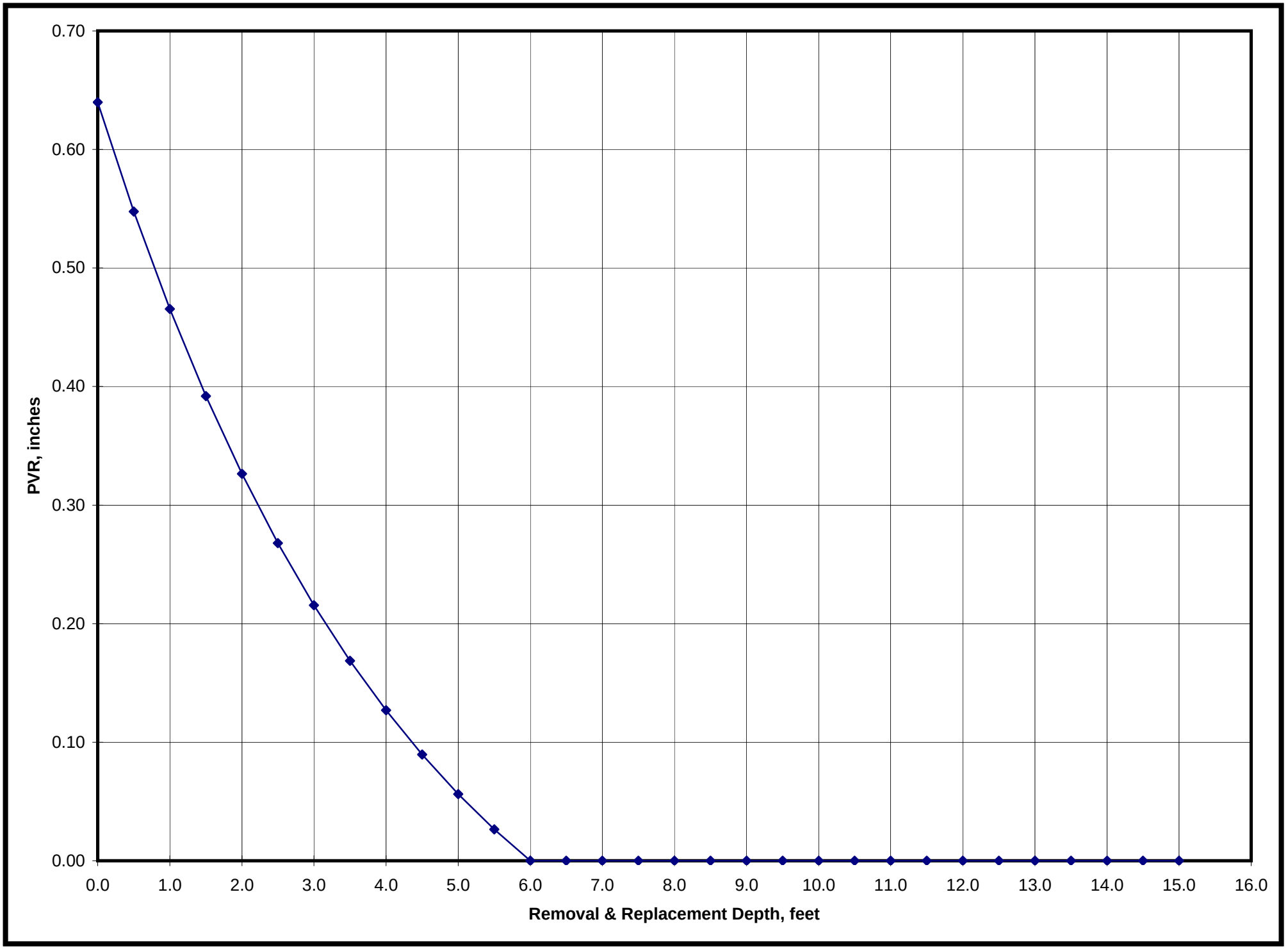
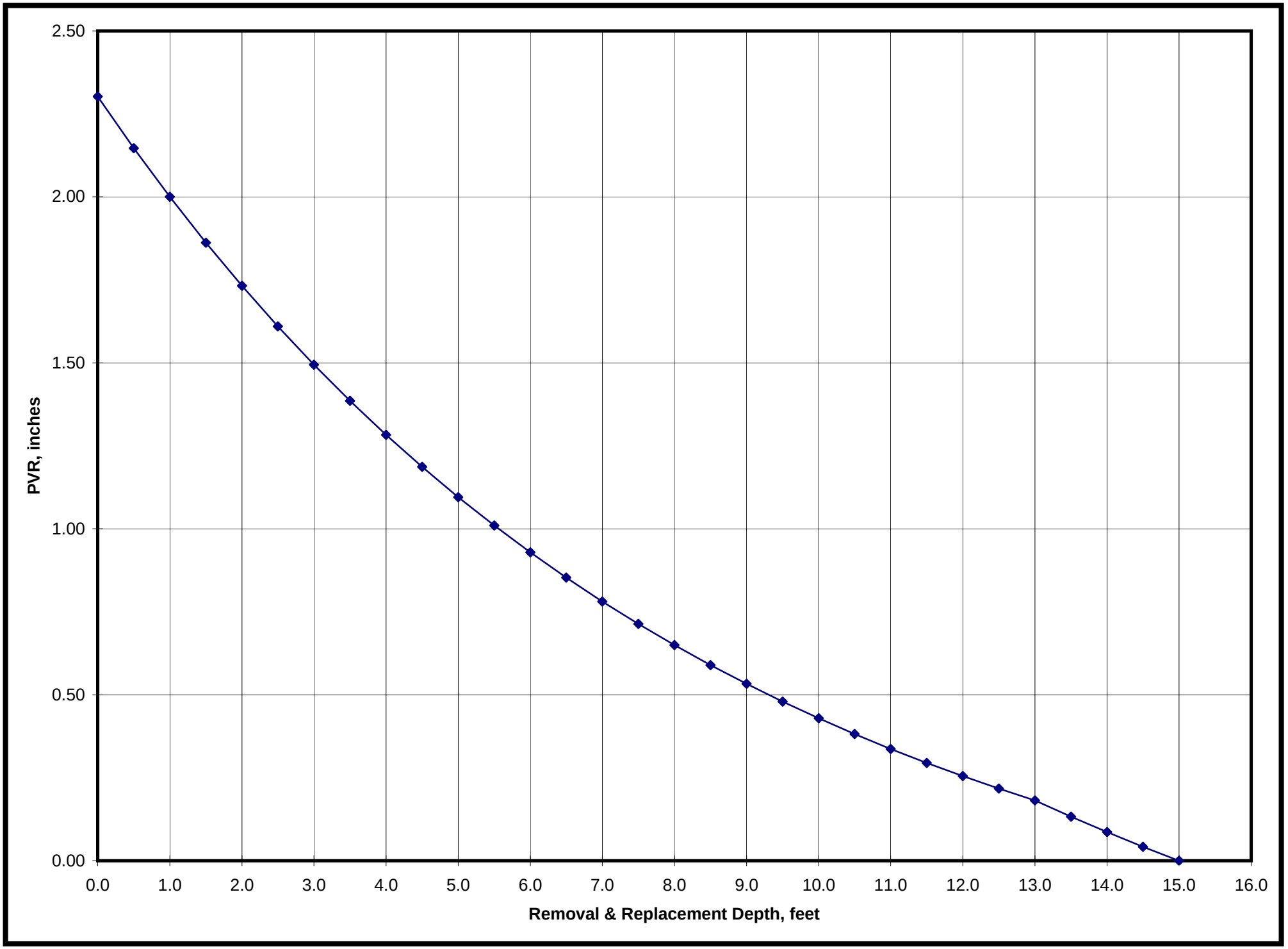


DONNA PUMP TO BROWNSVILLE - BH 68



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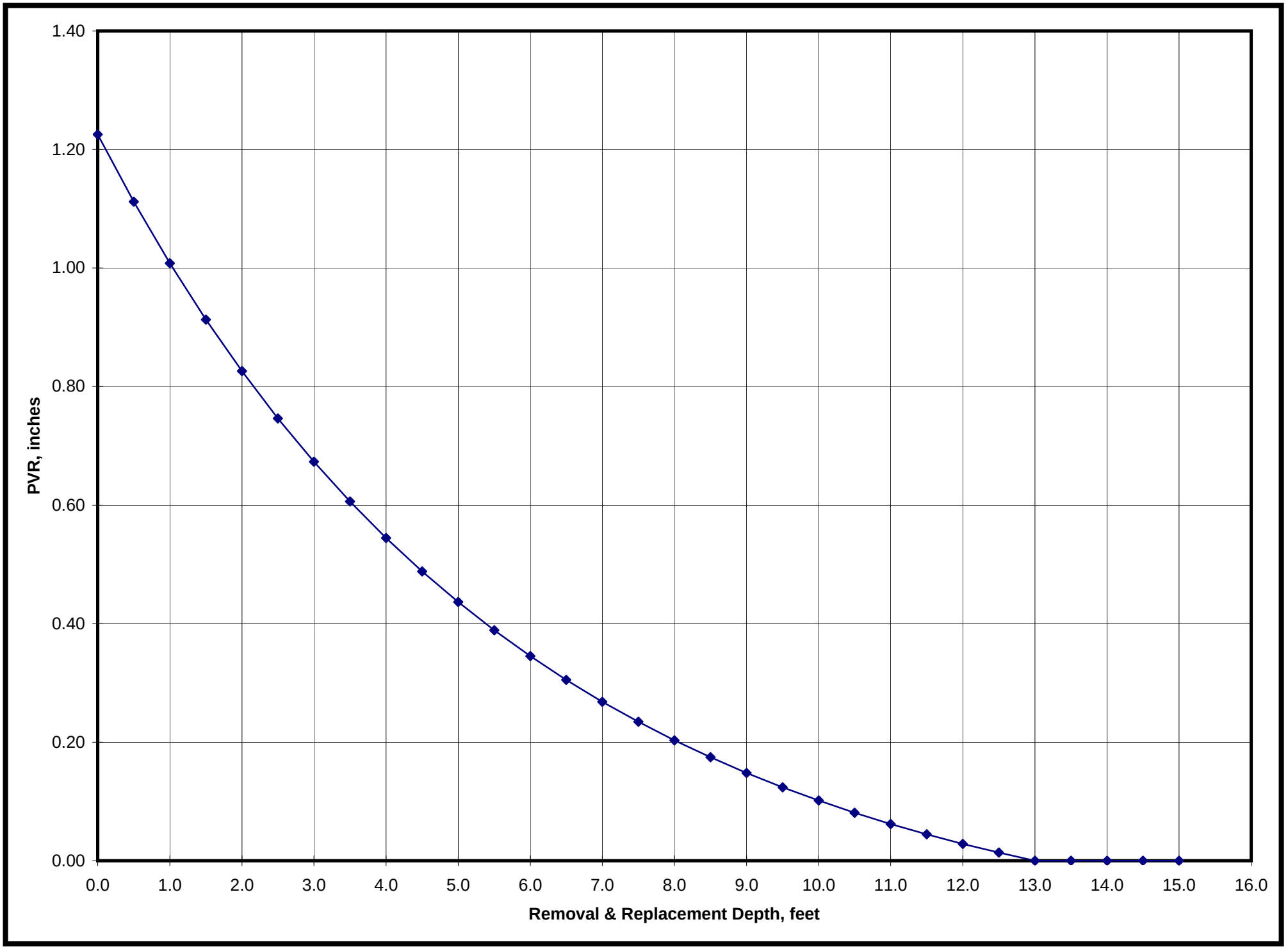

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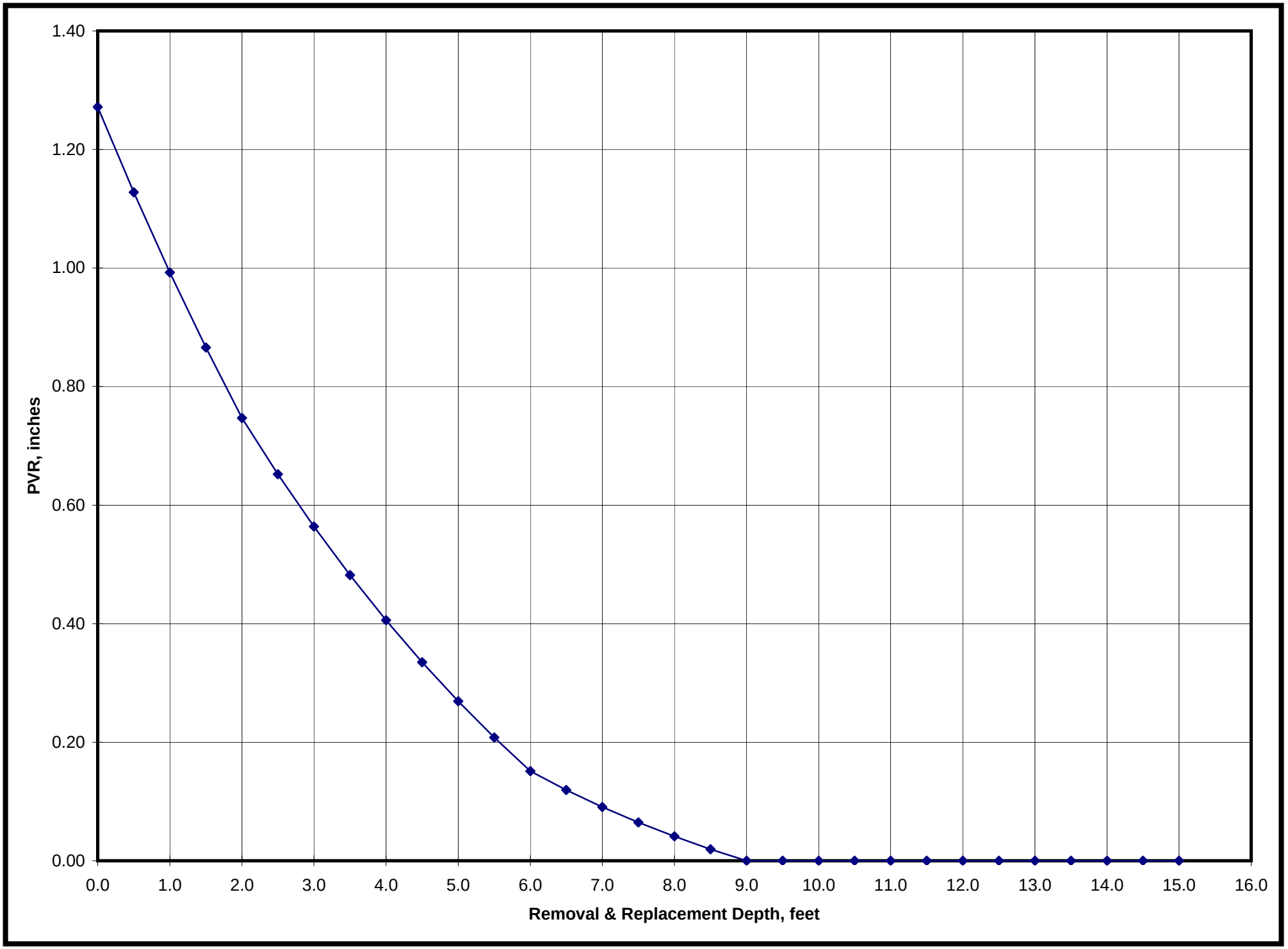

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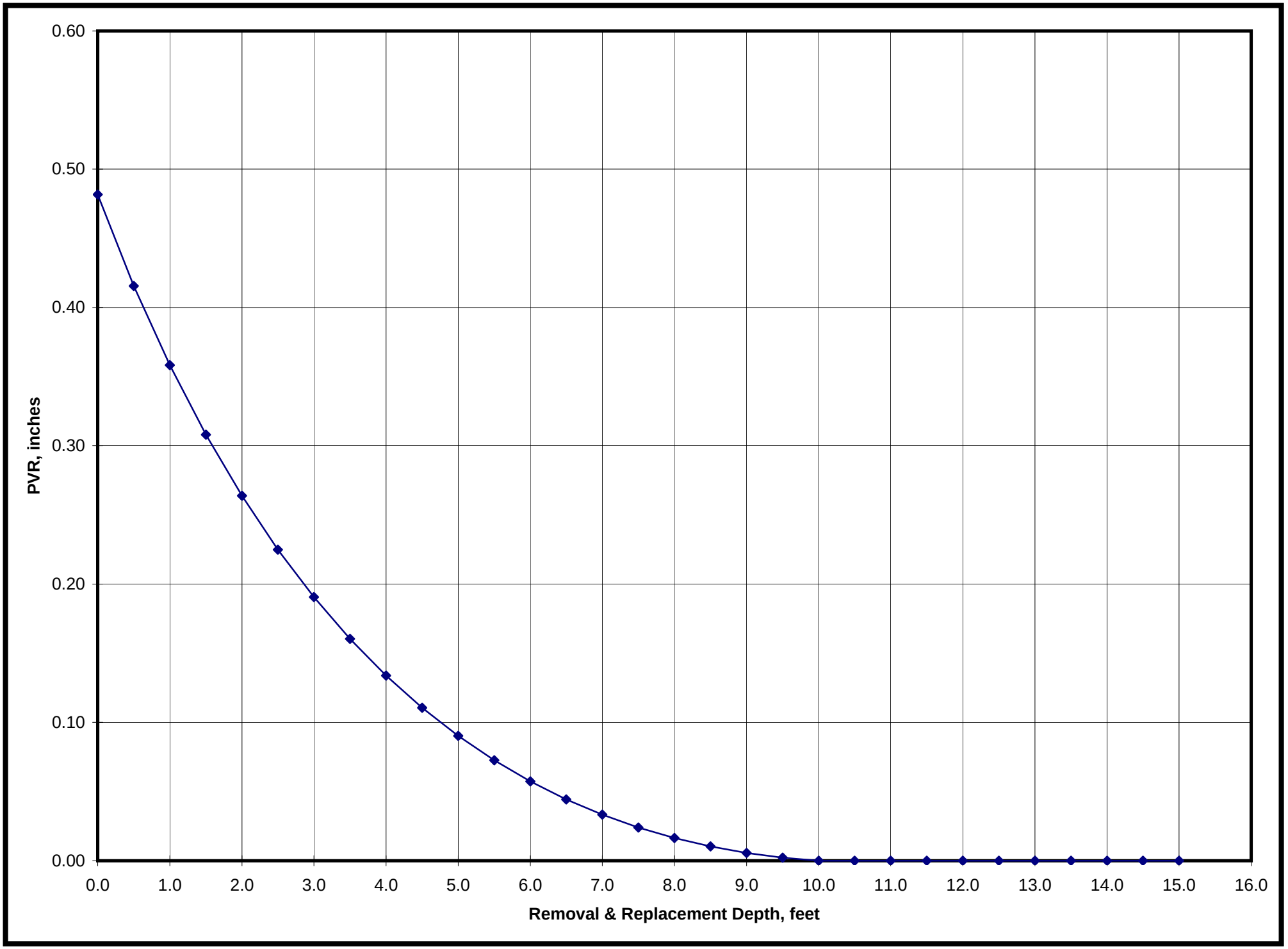

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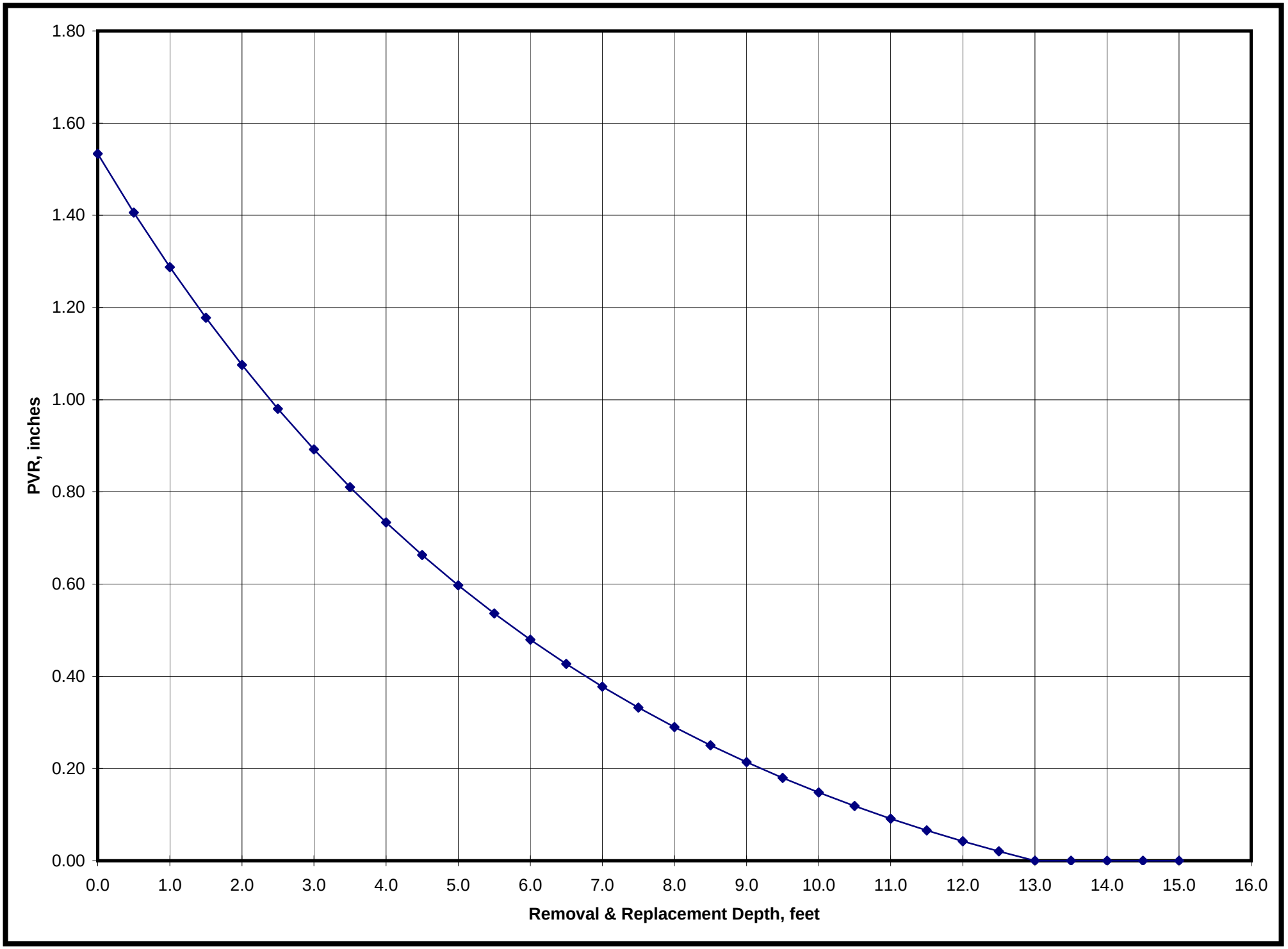

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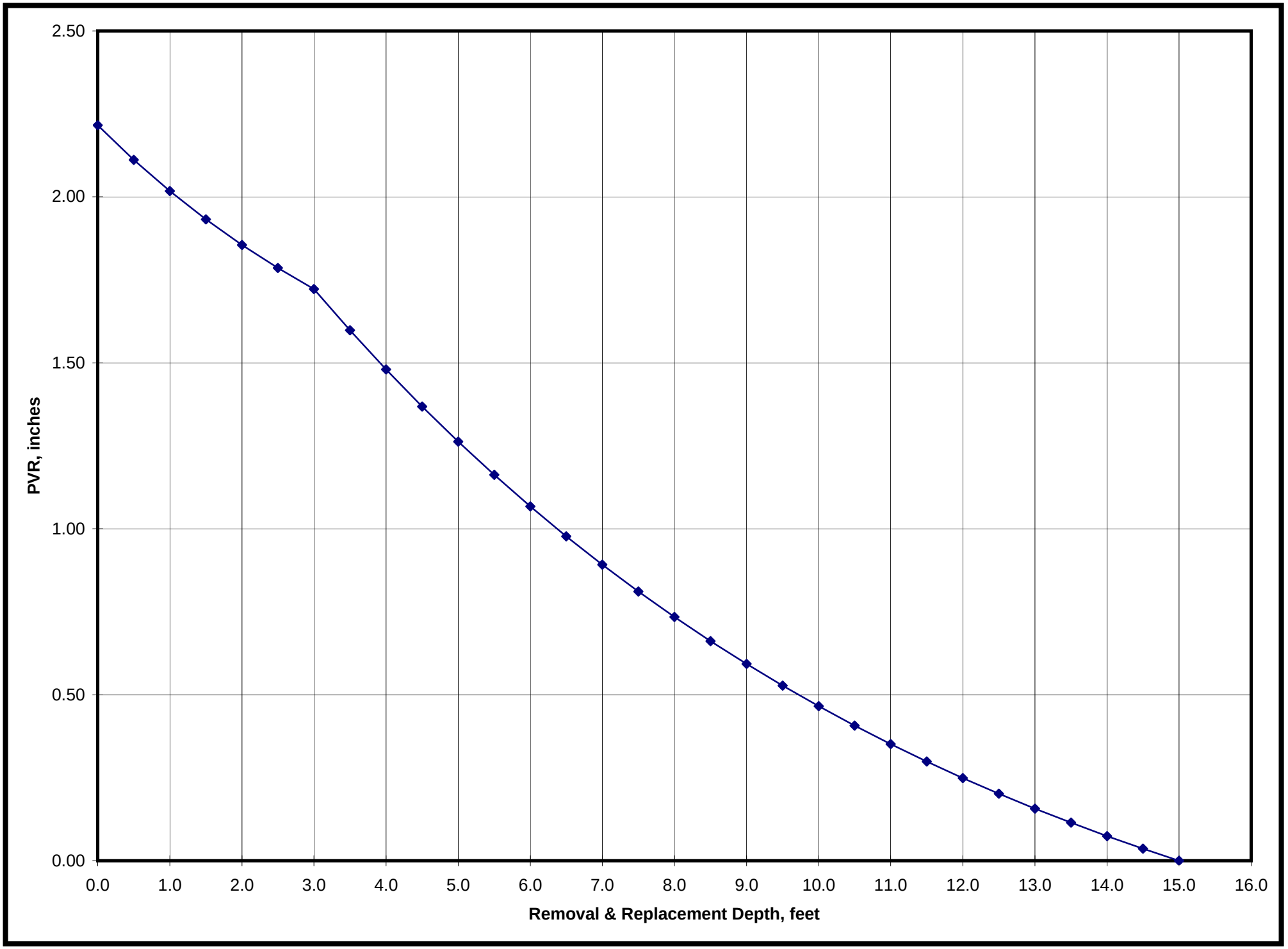

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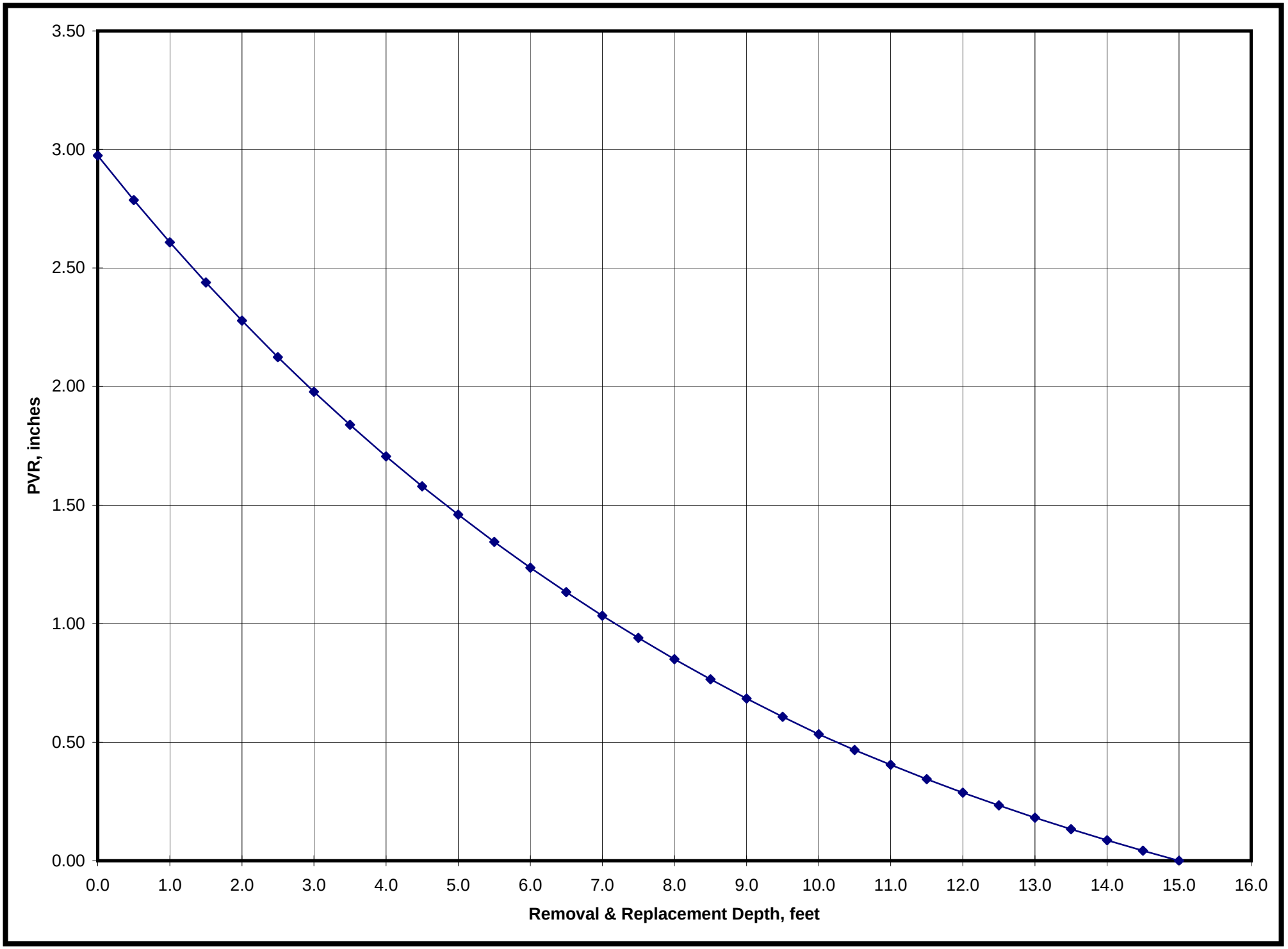

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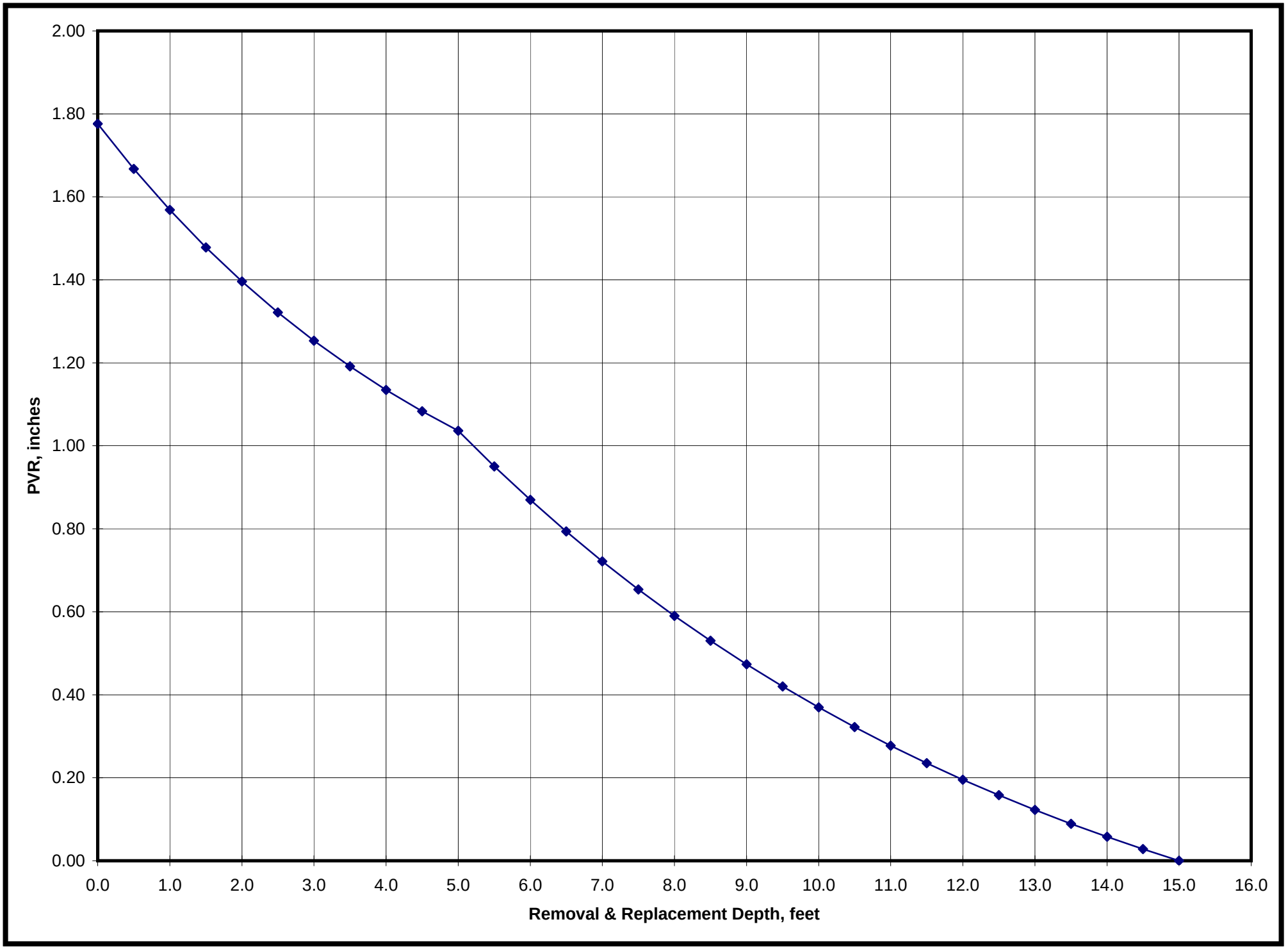

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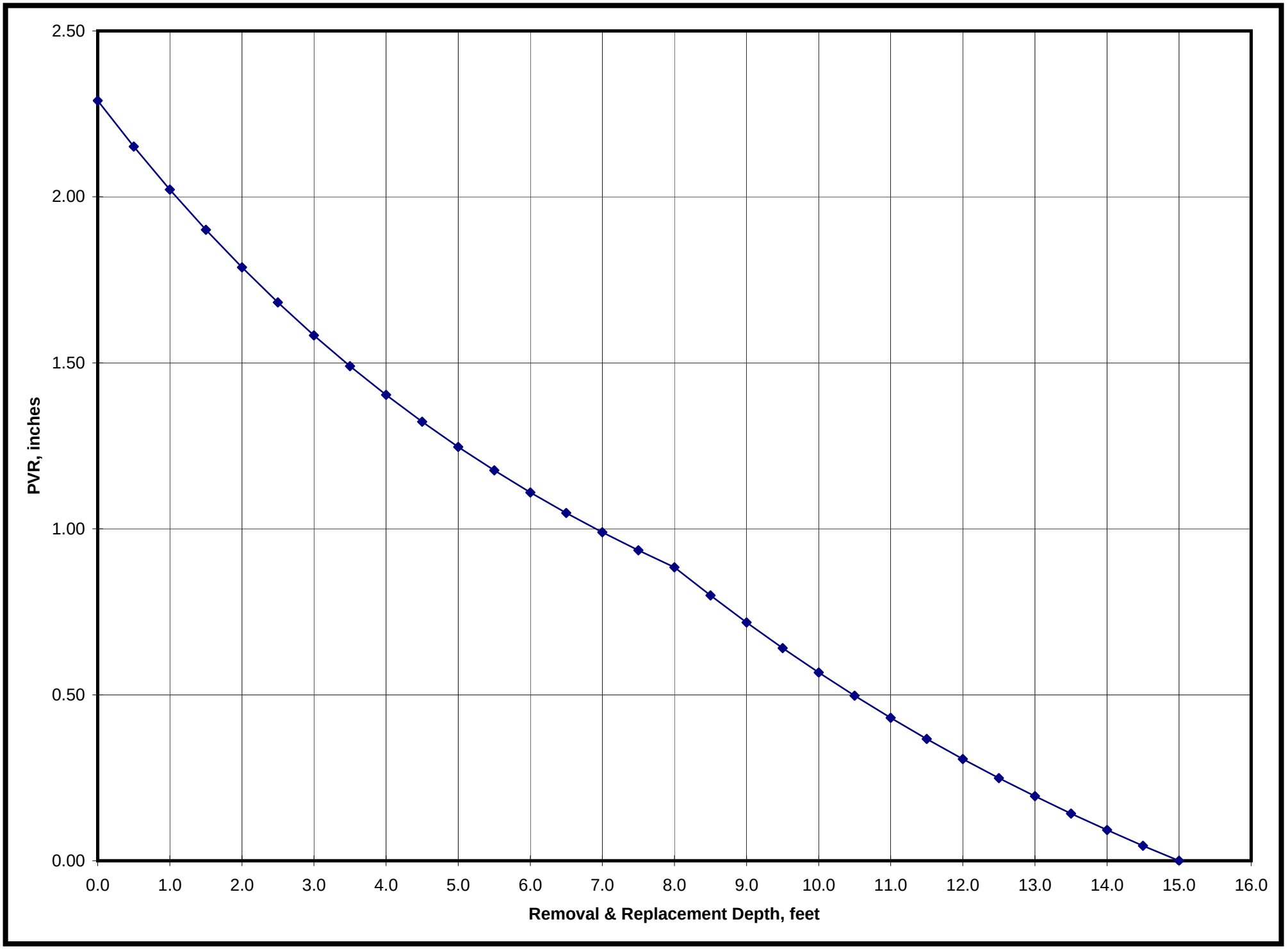

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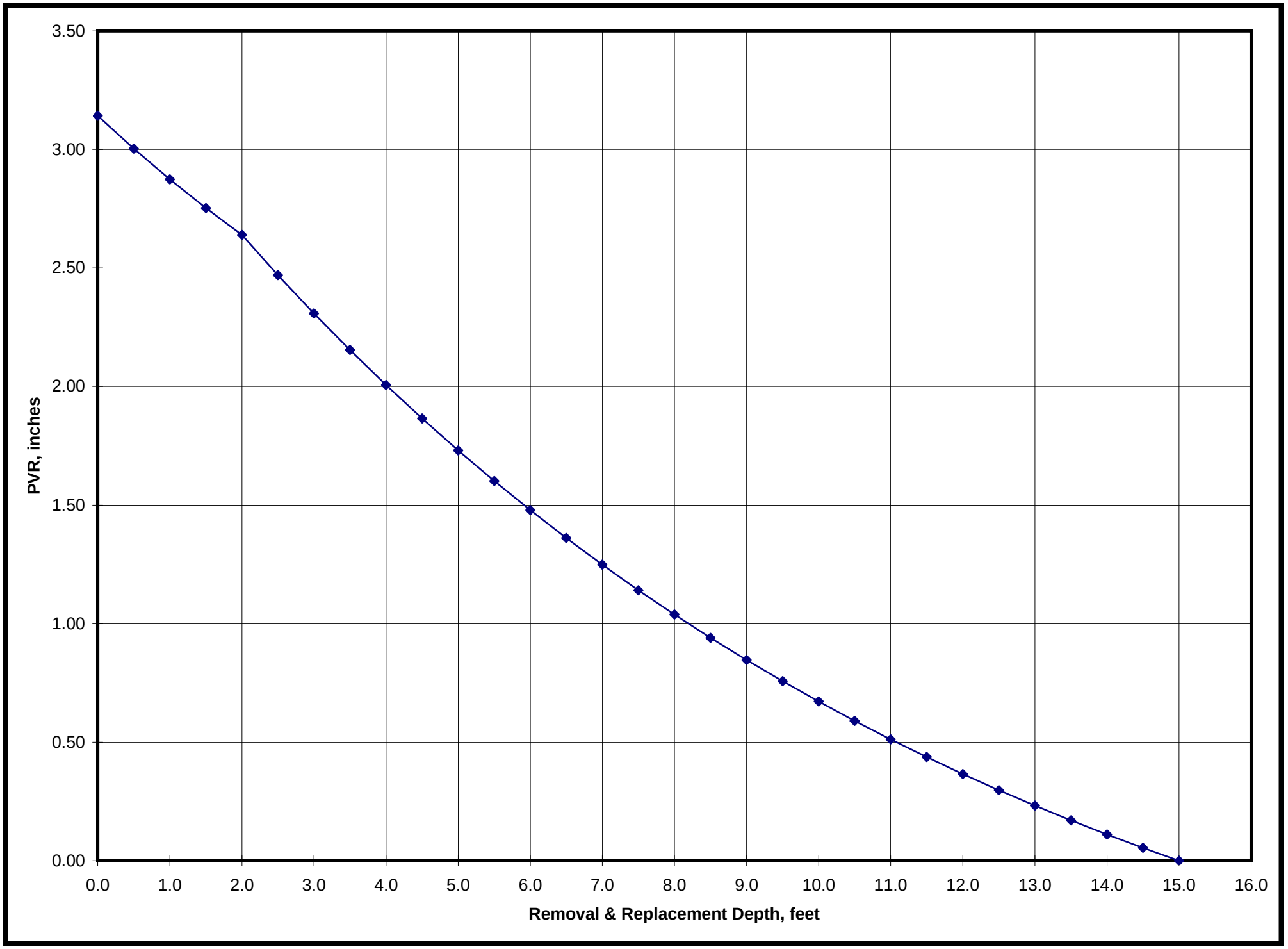

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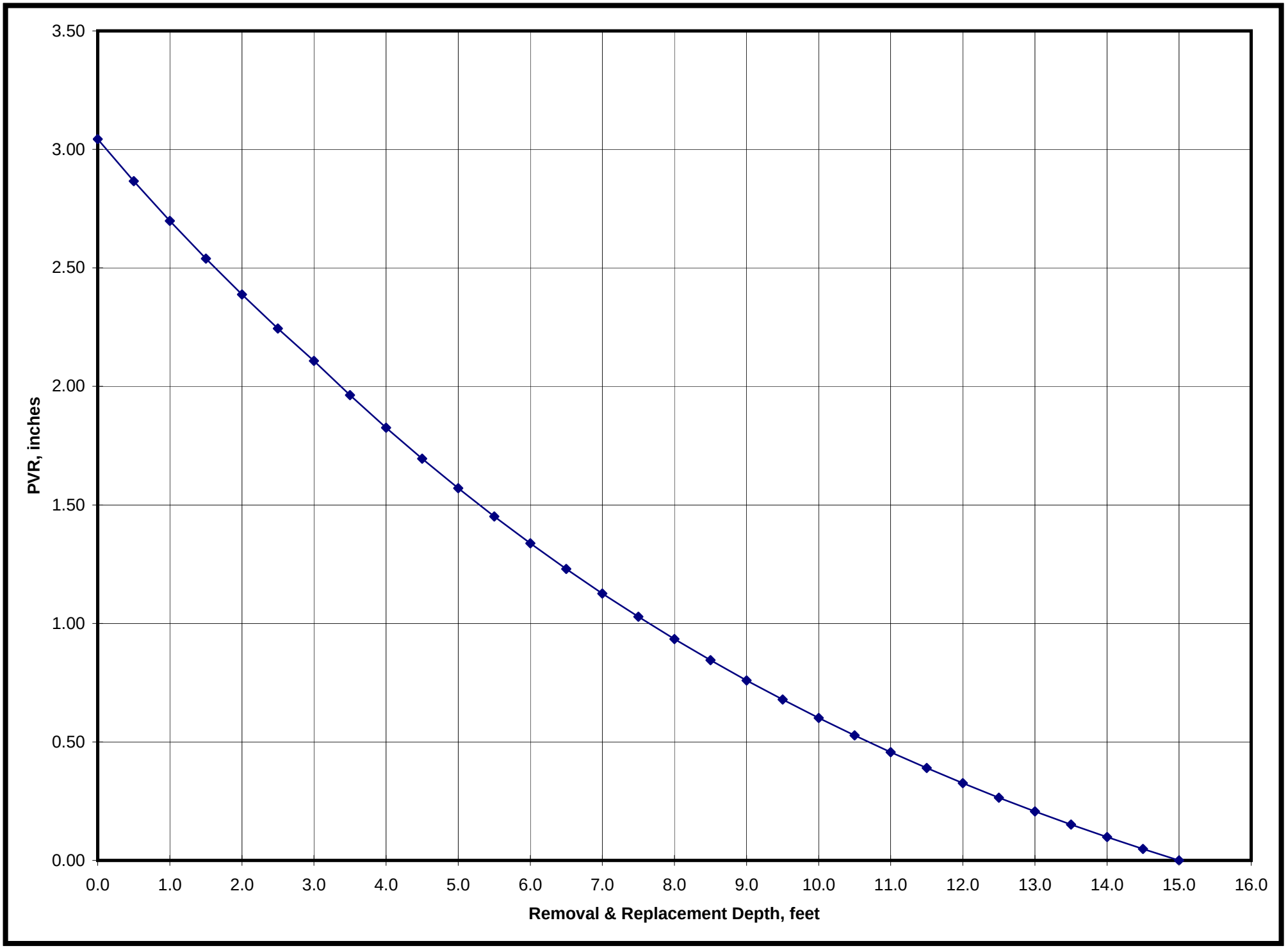

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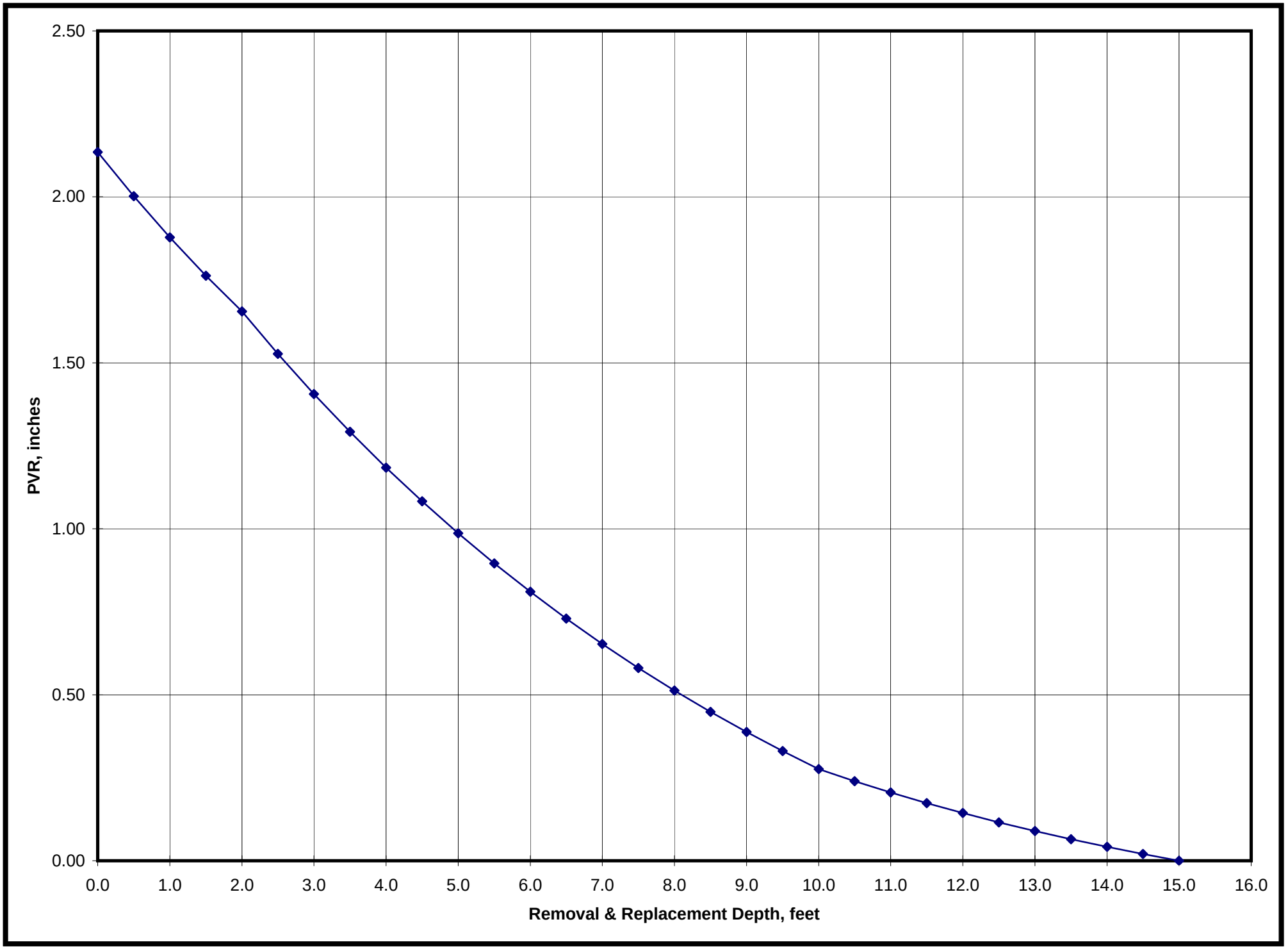

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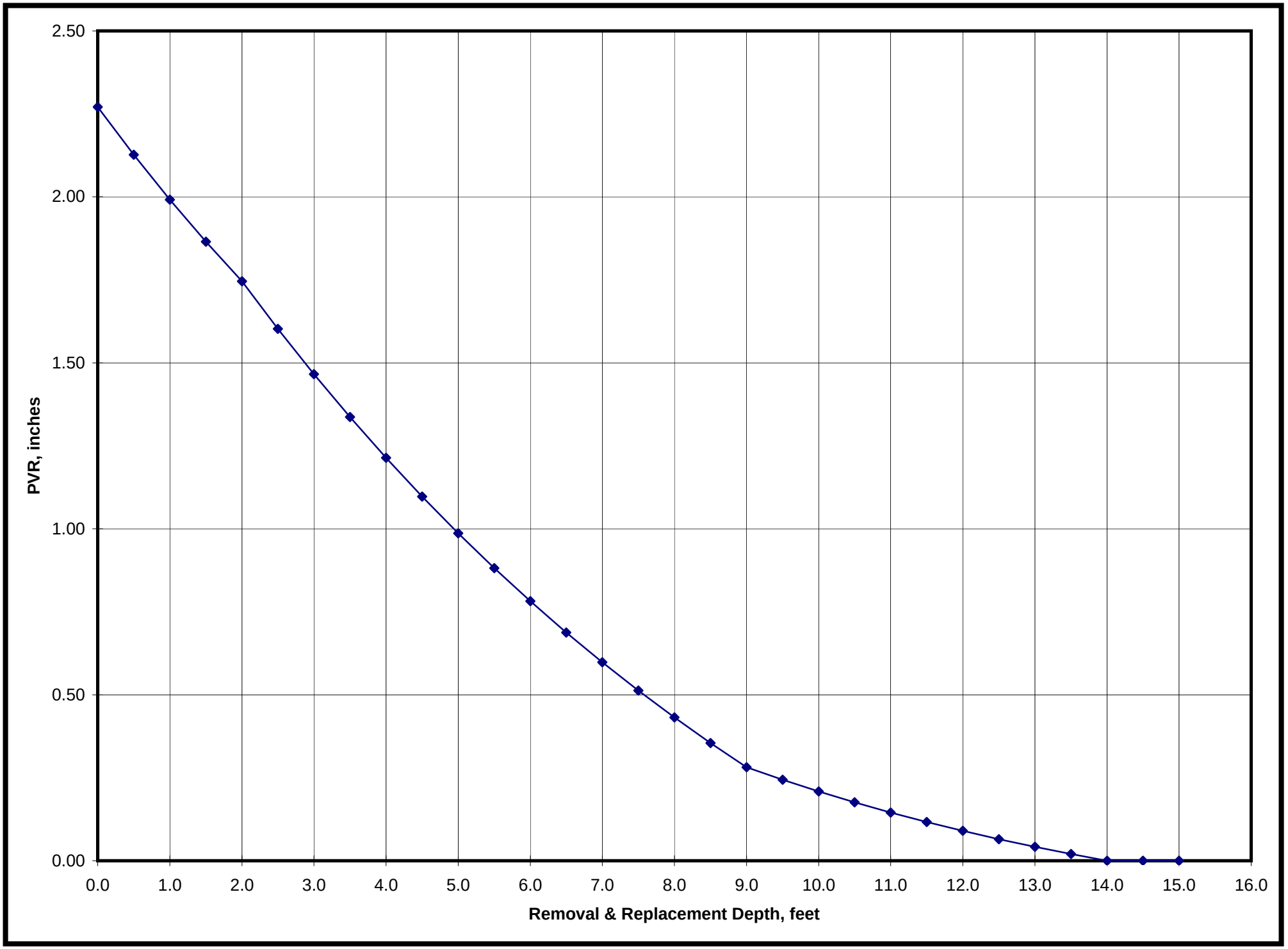

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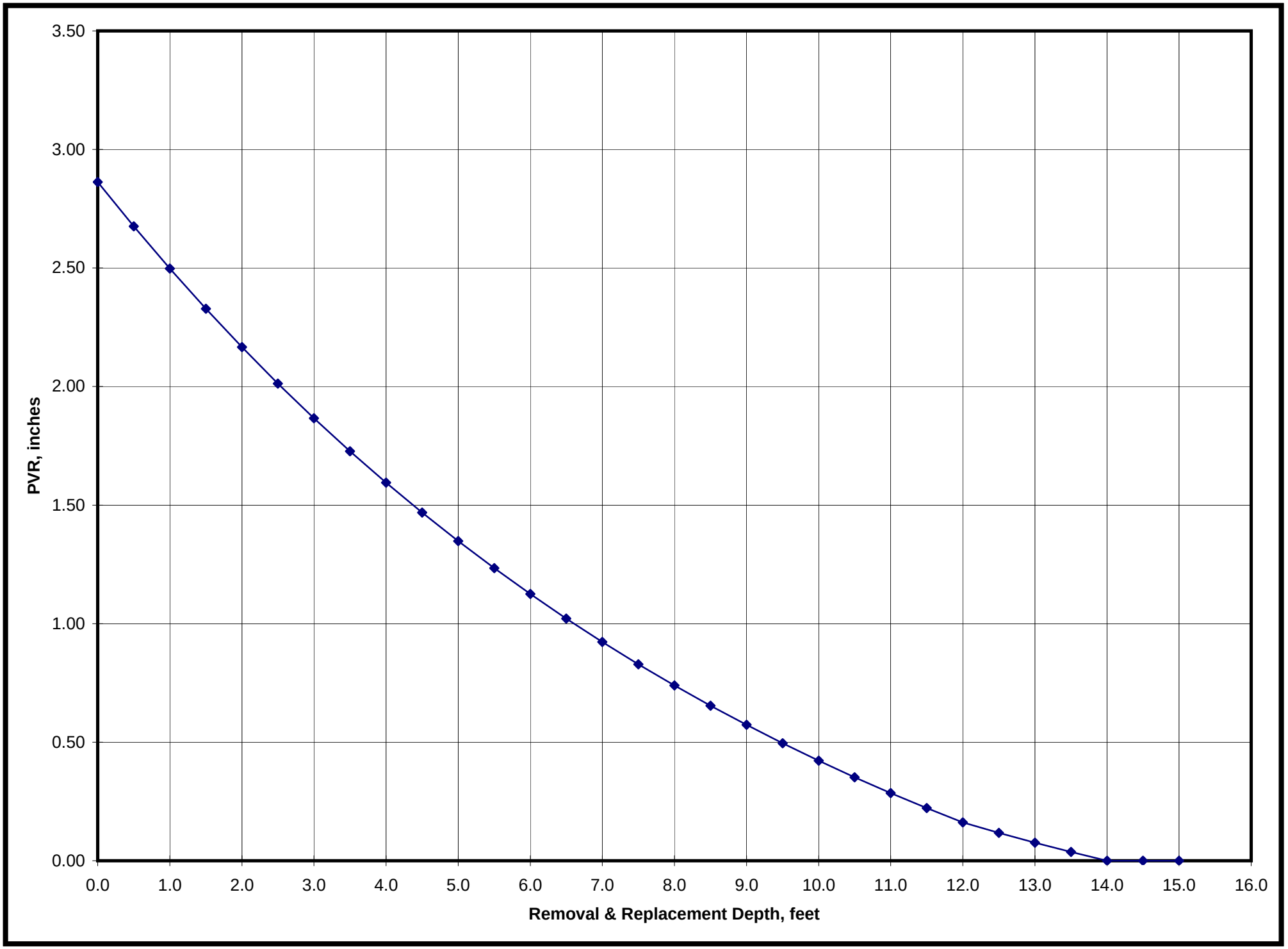

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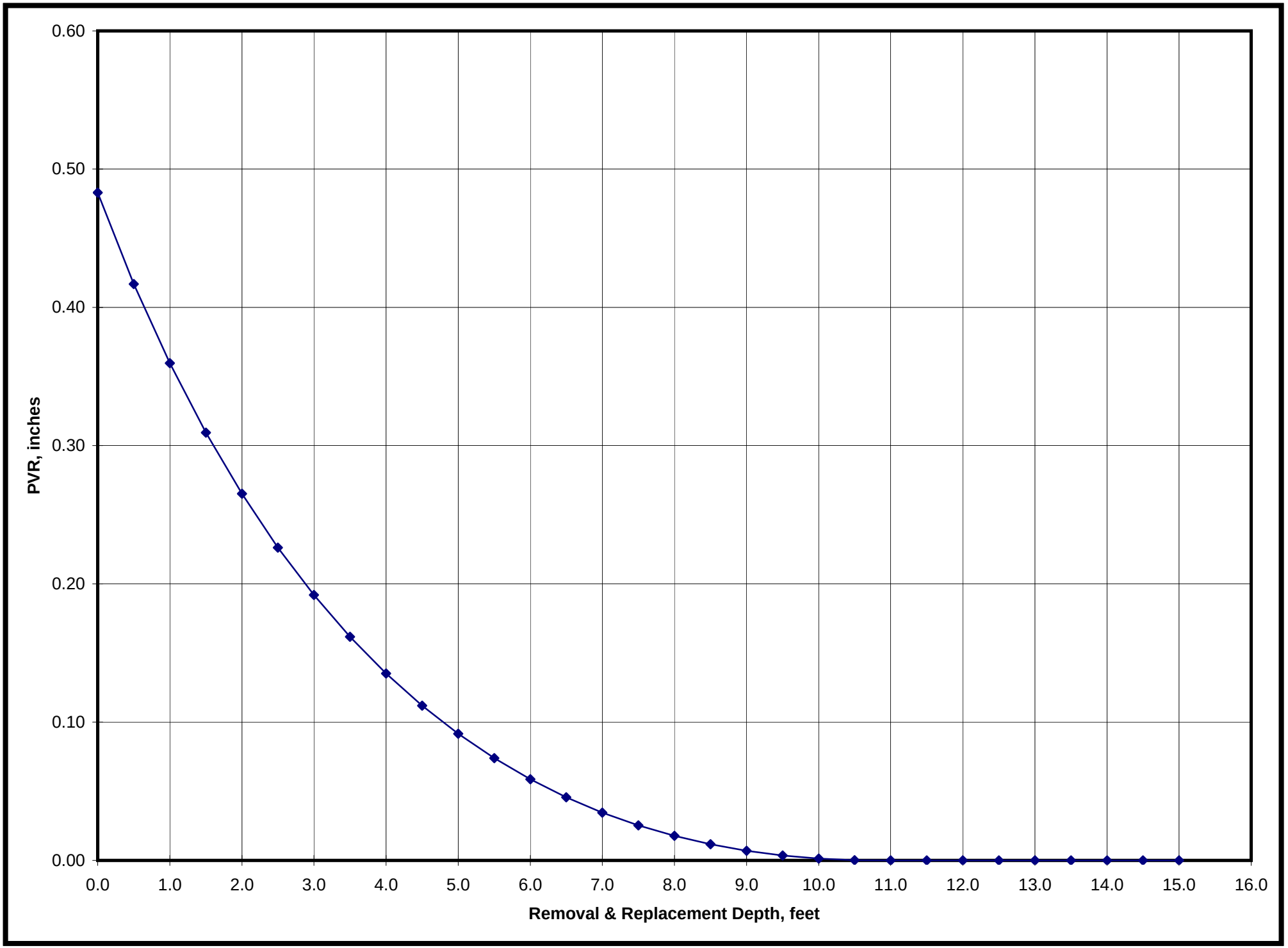

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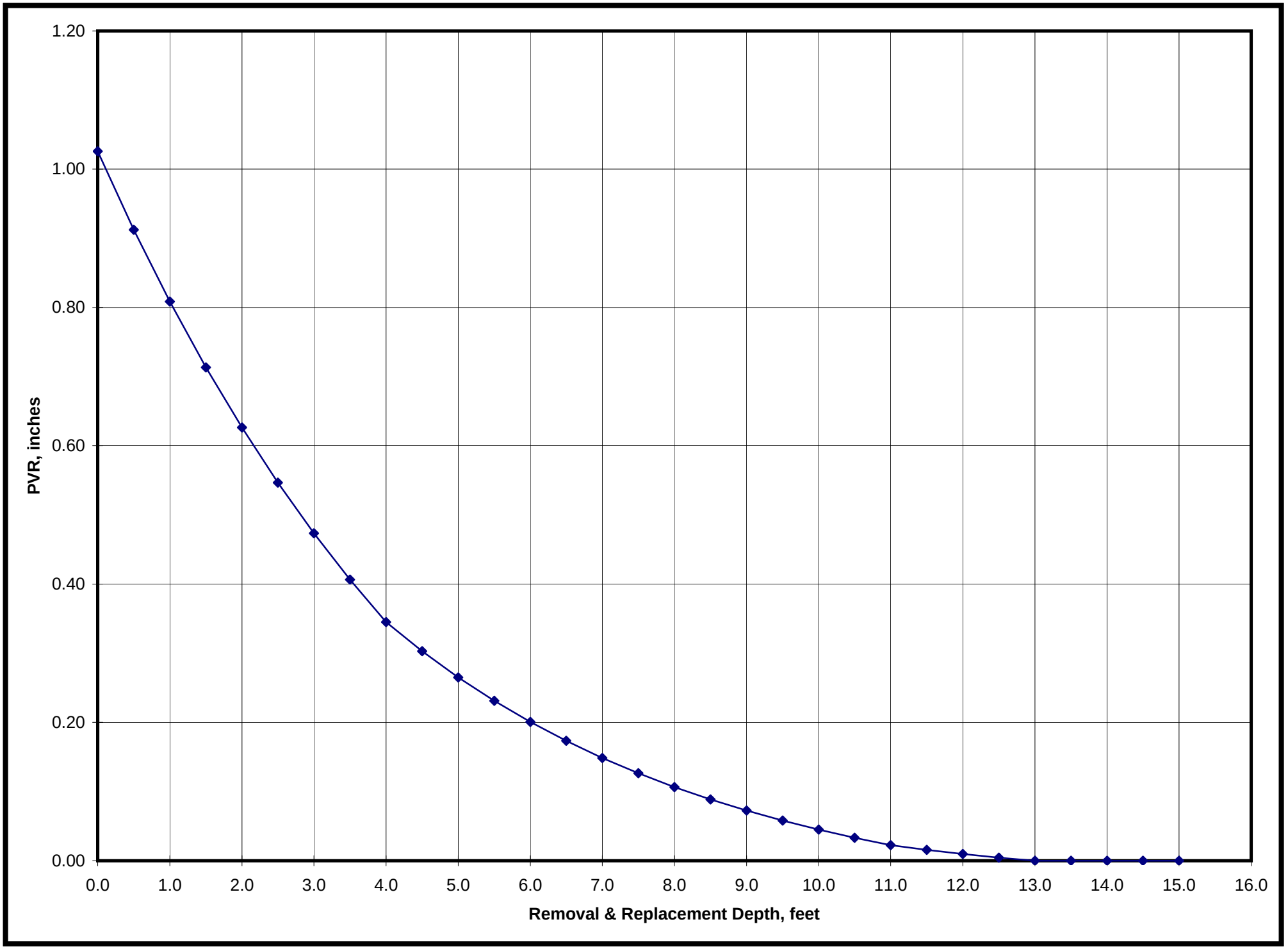

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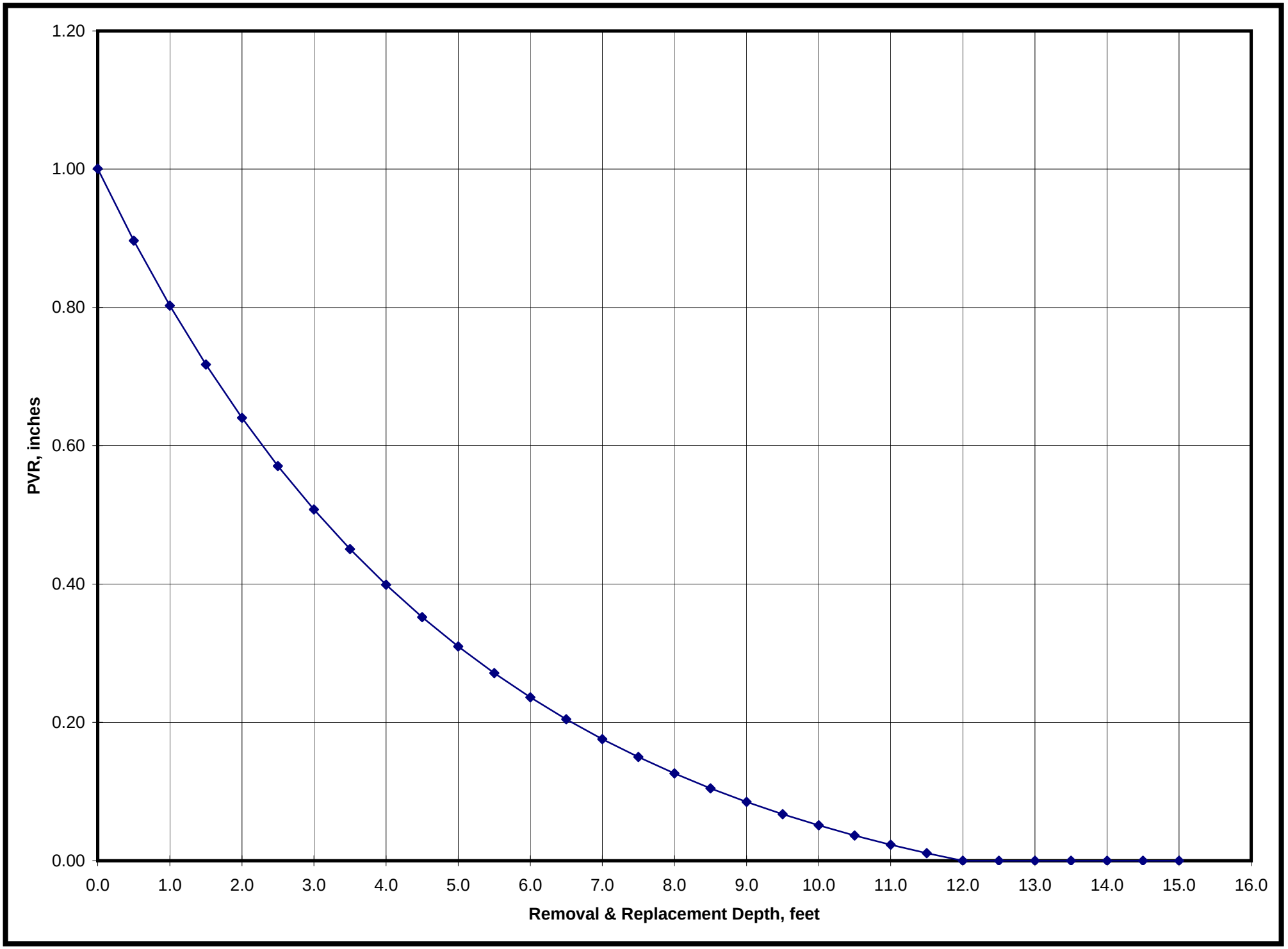

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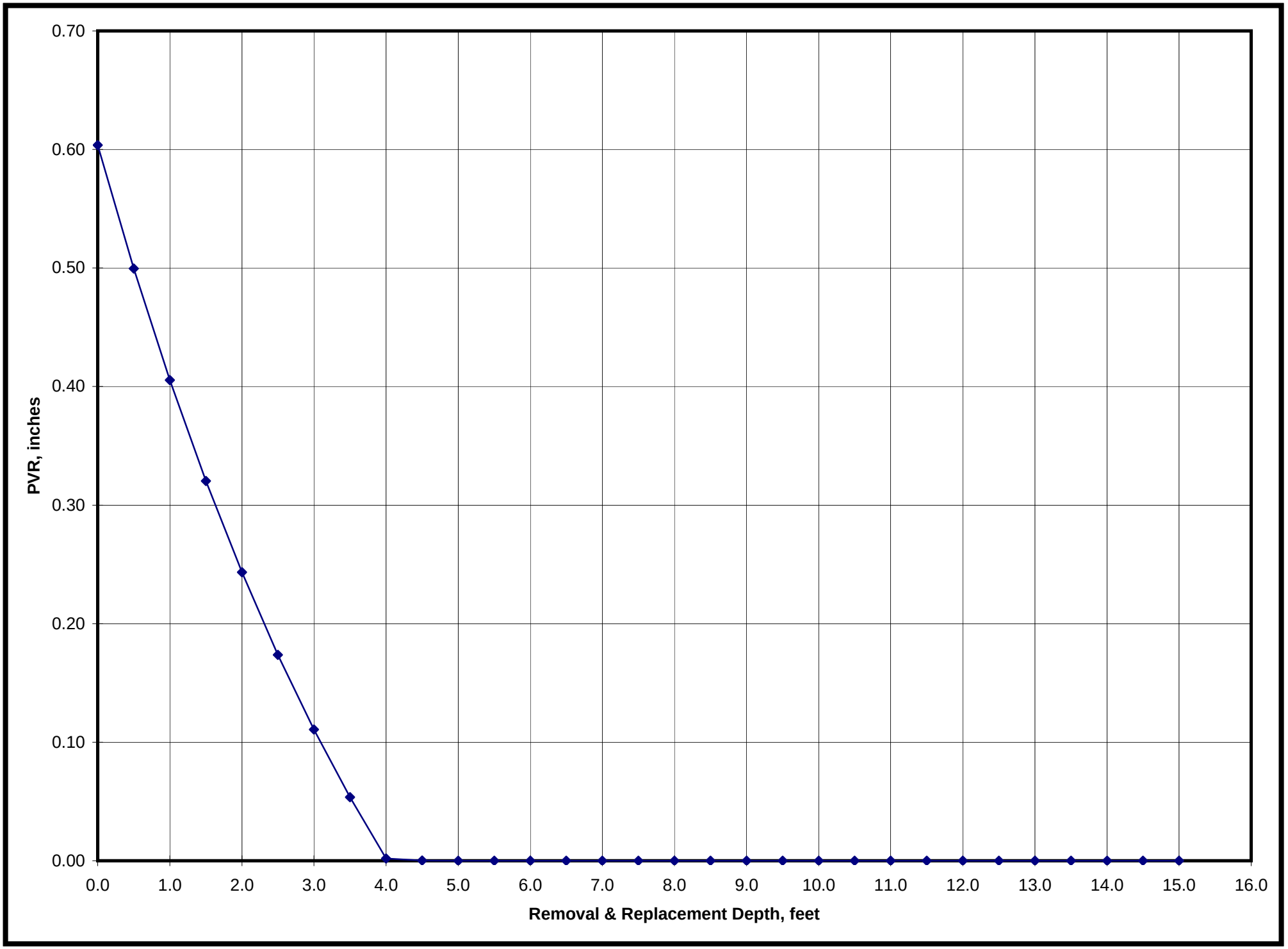

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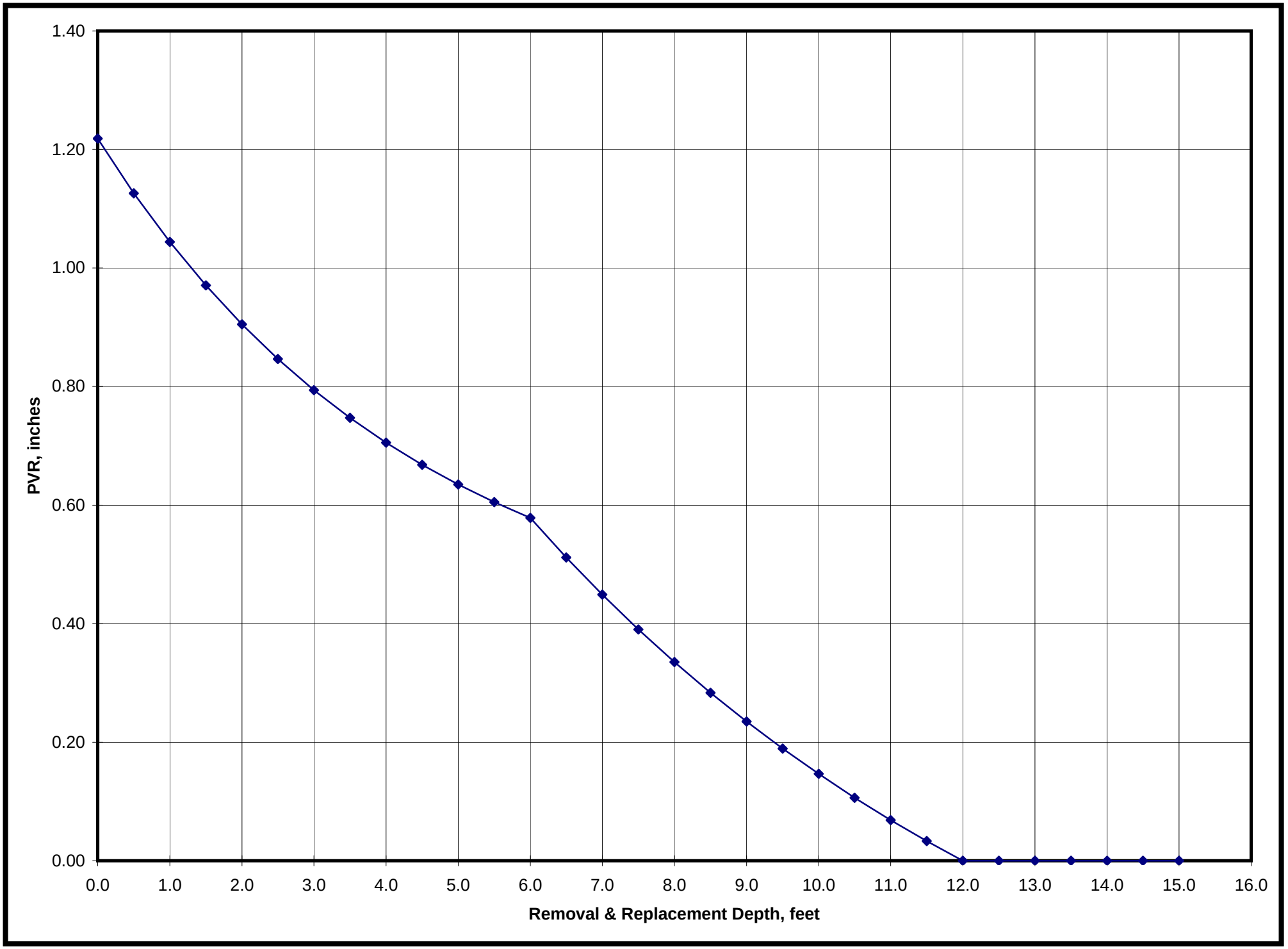

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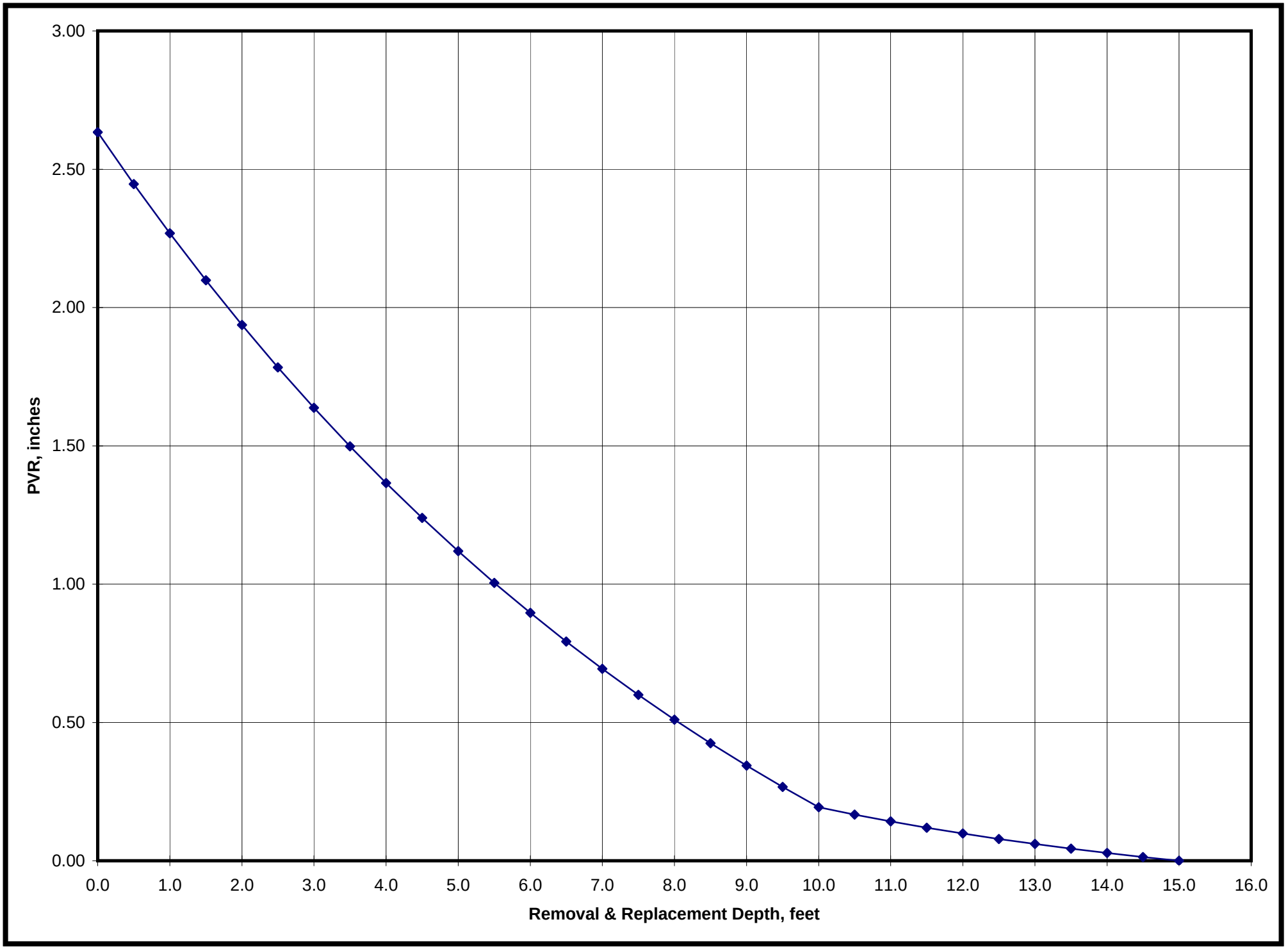

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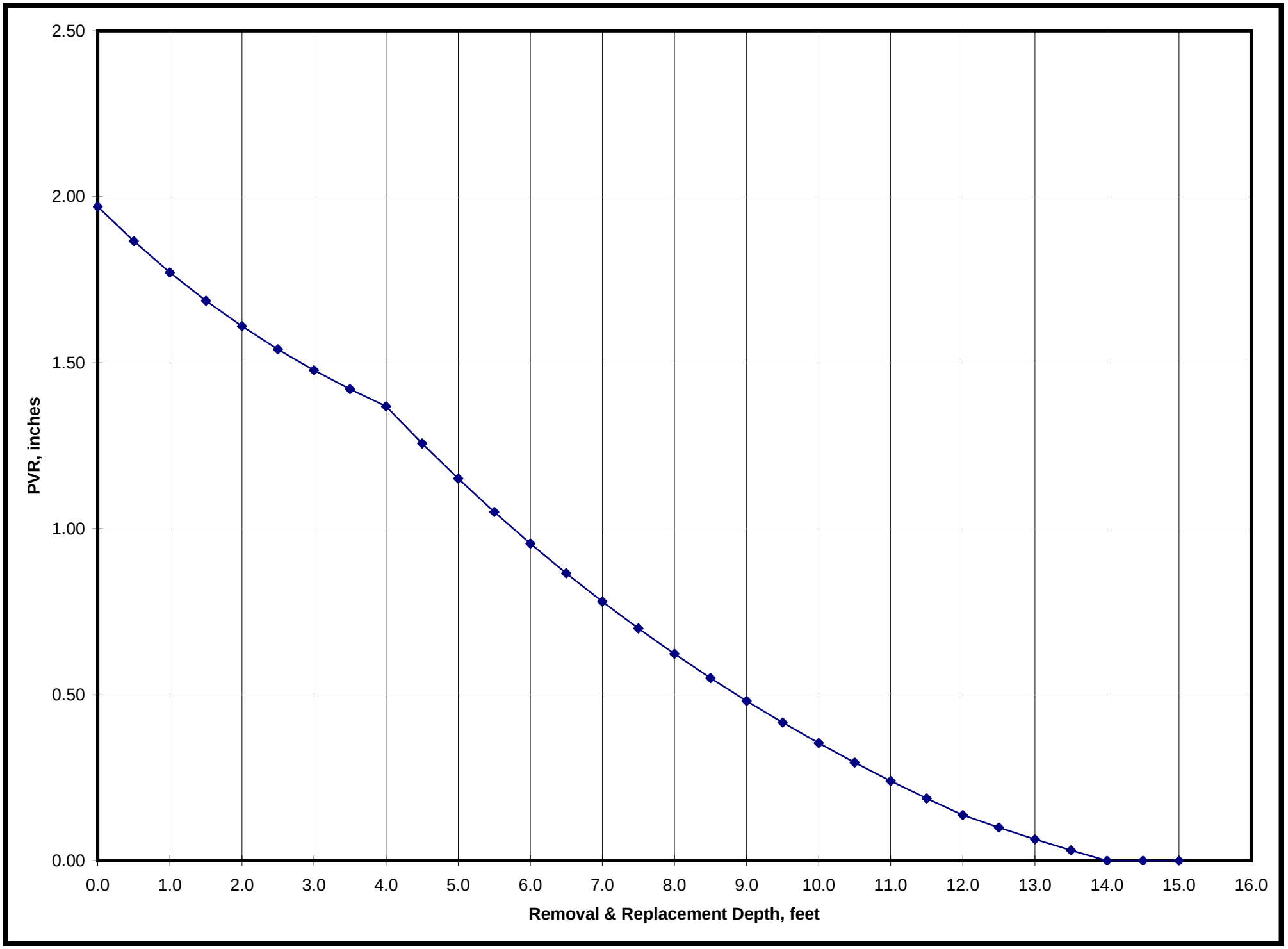

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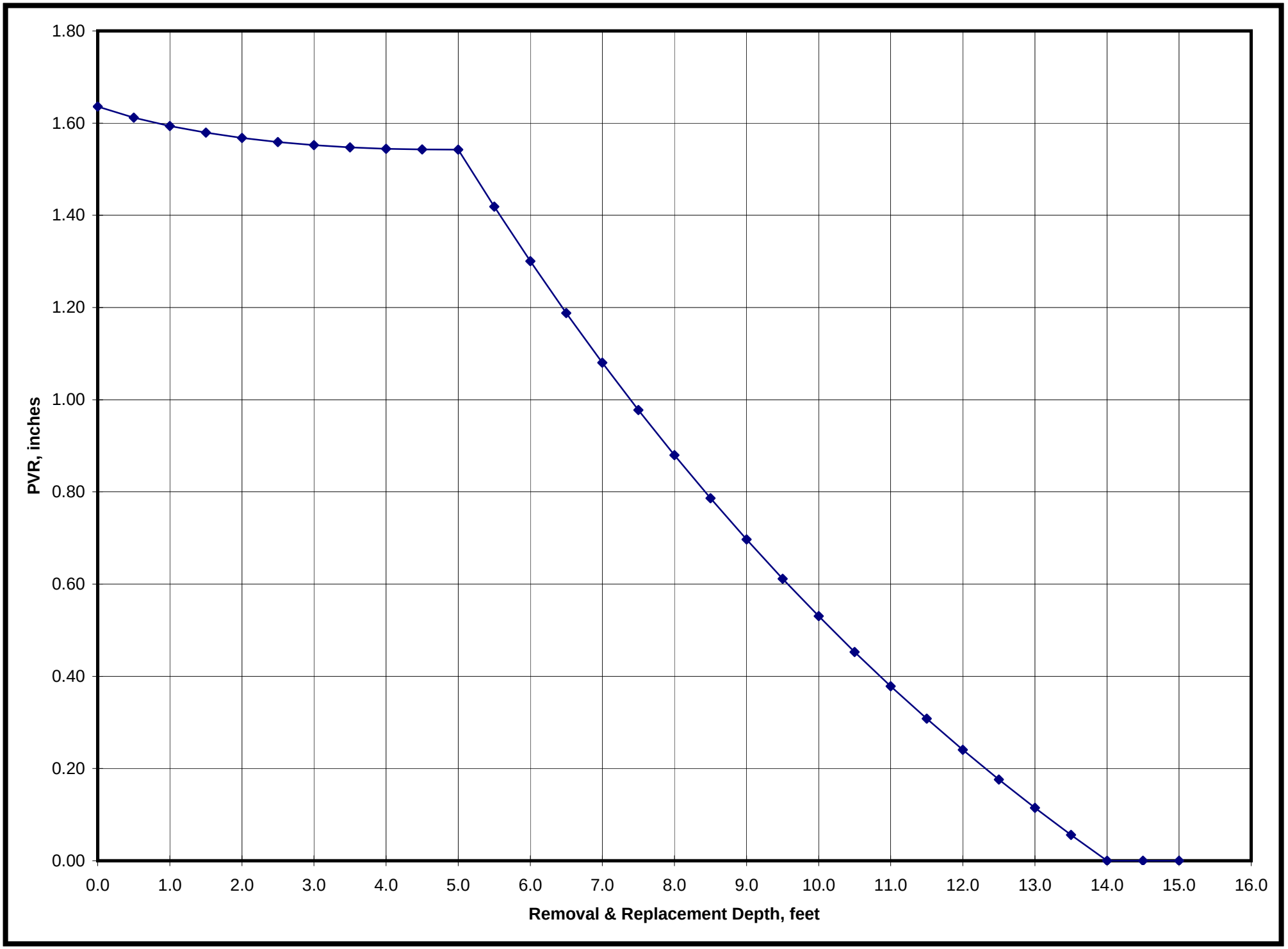

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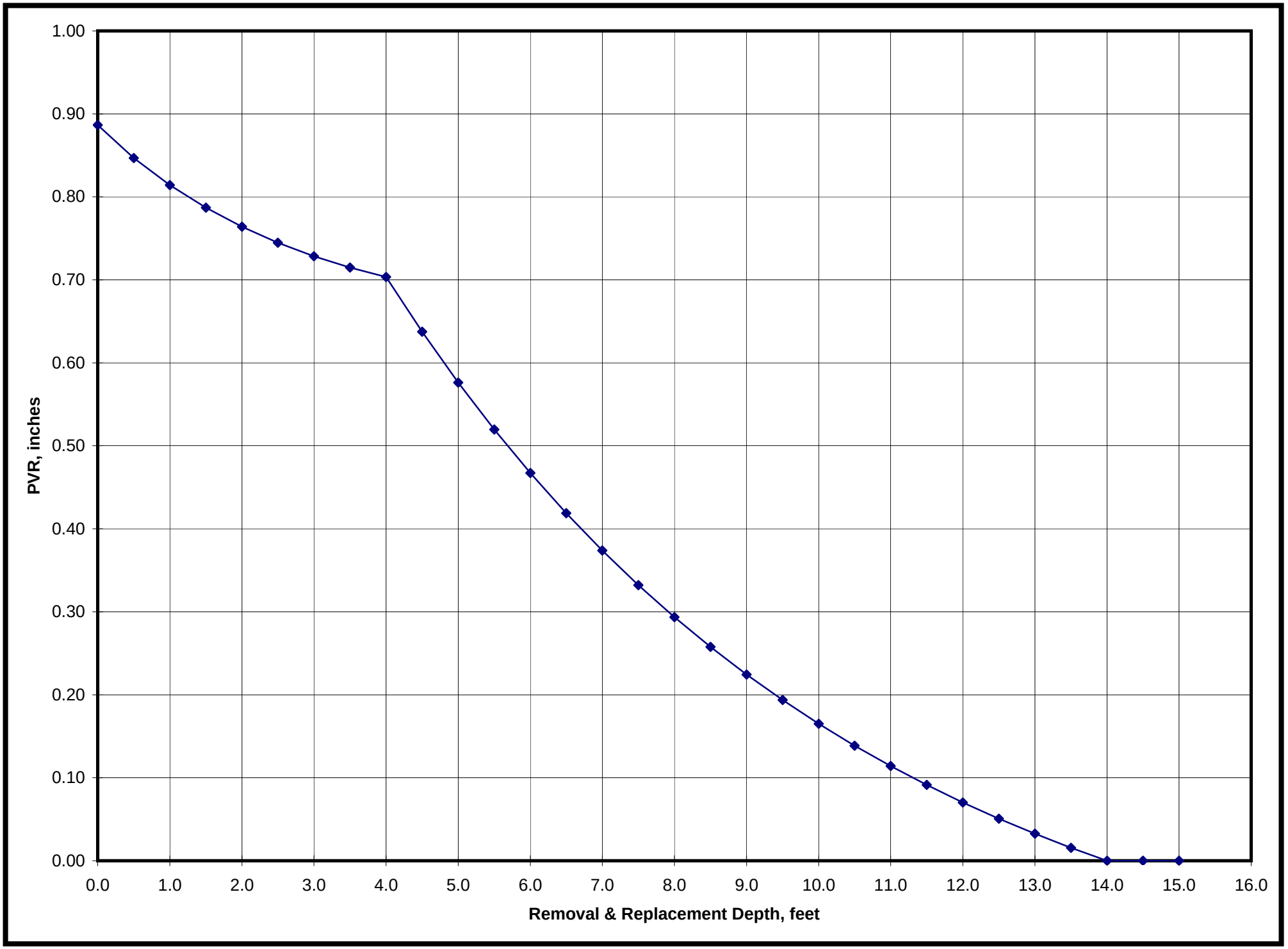

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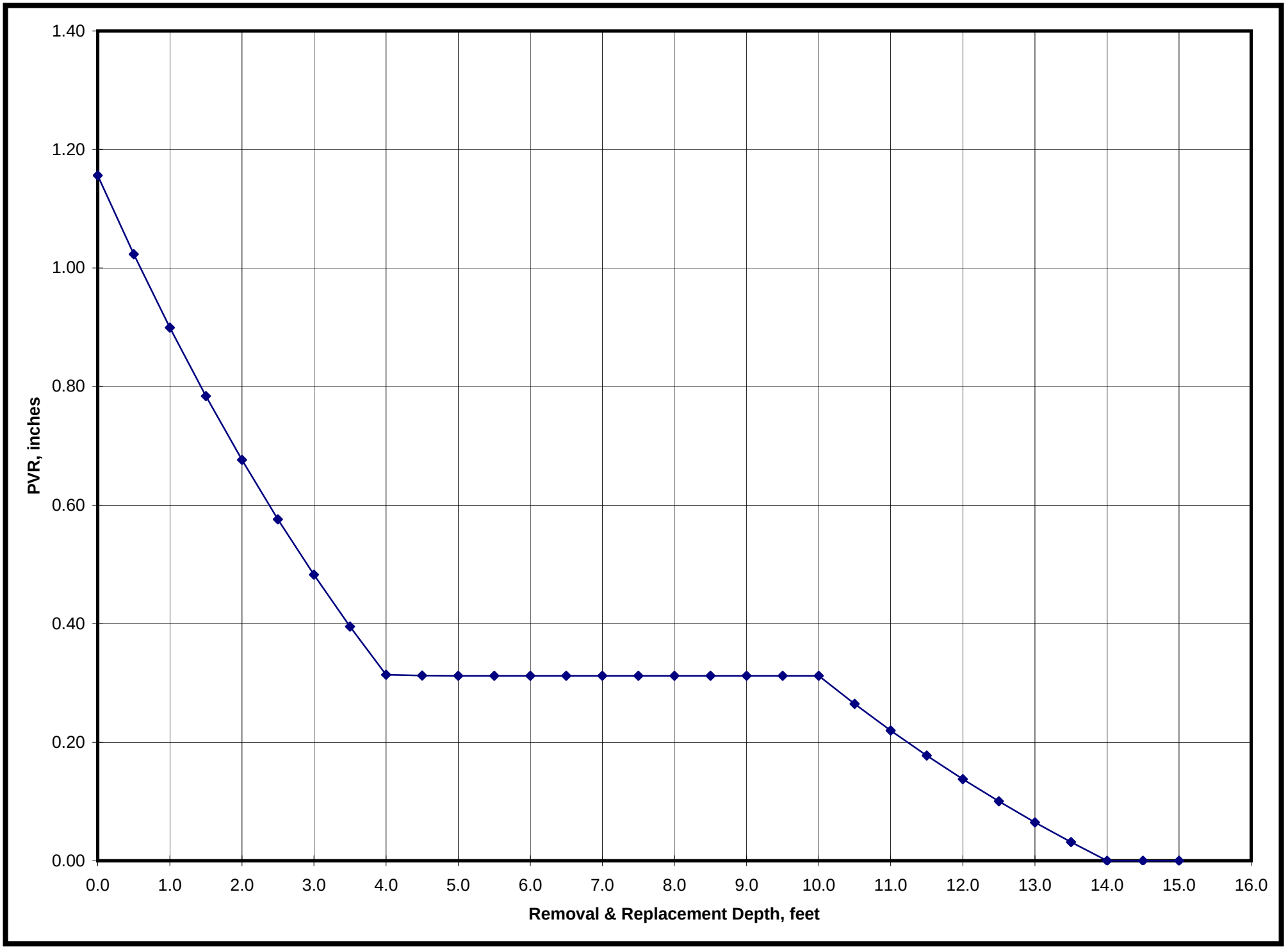

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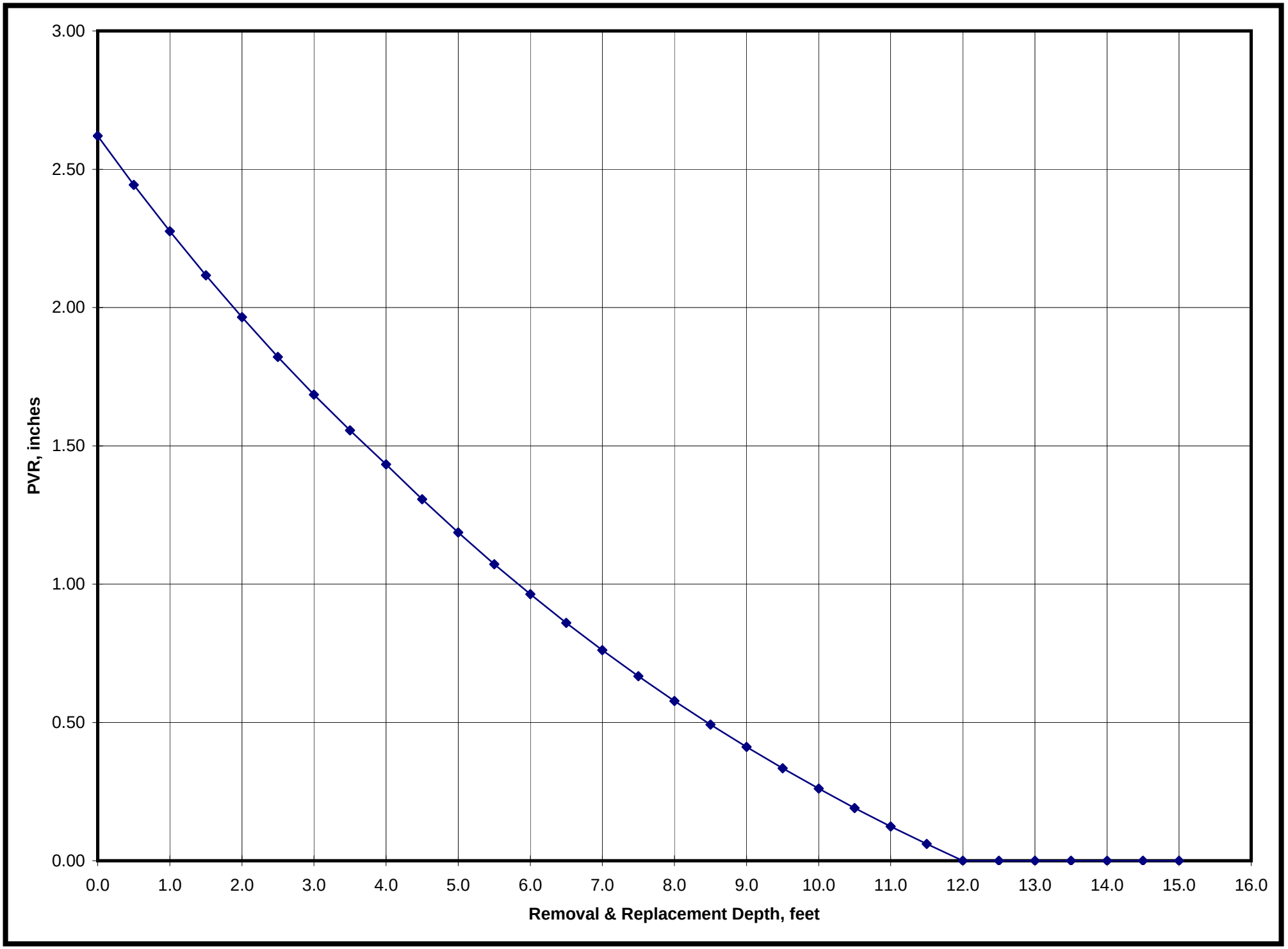

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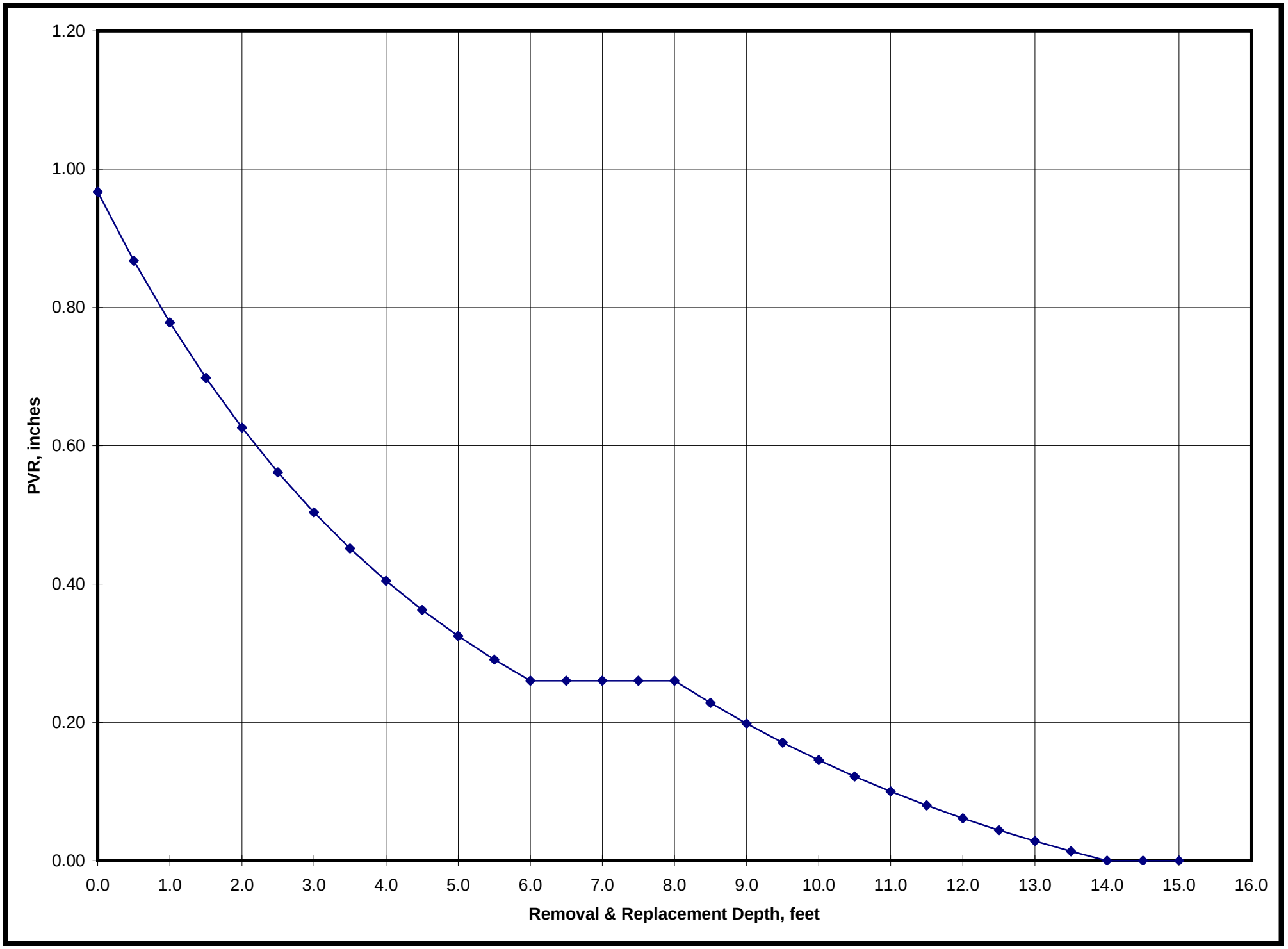

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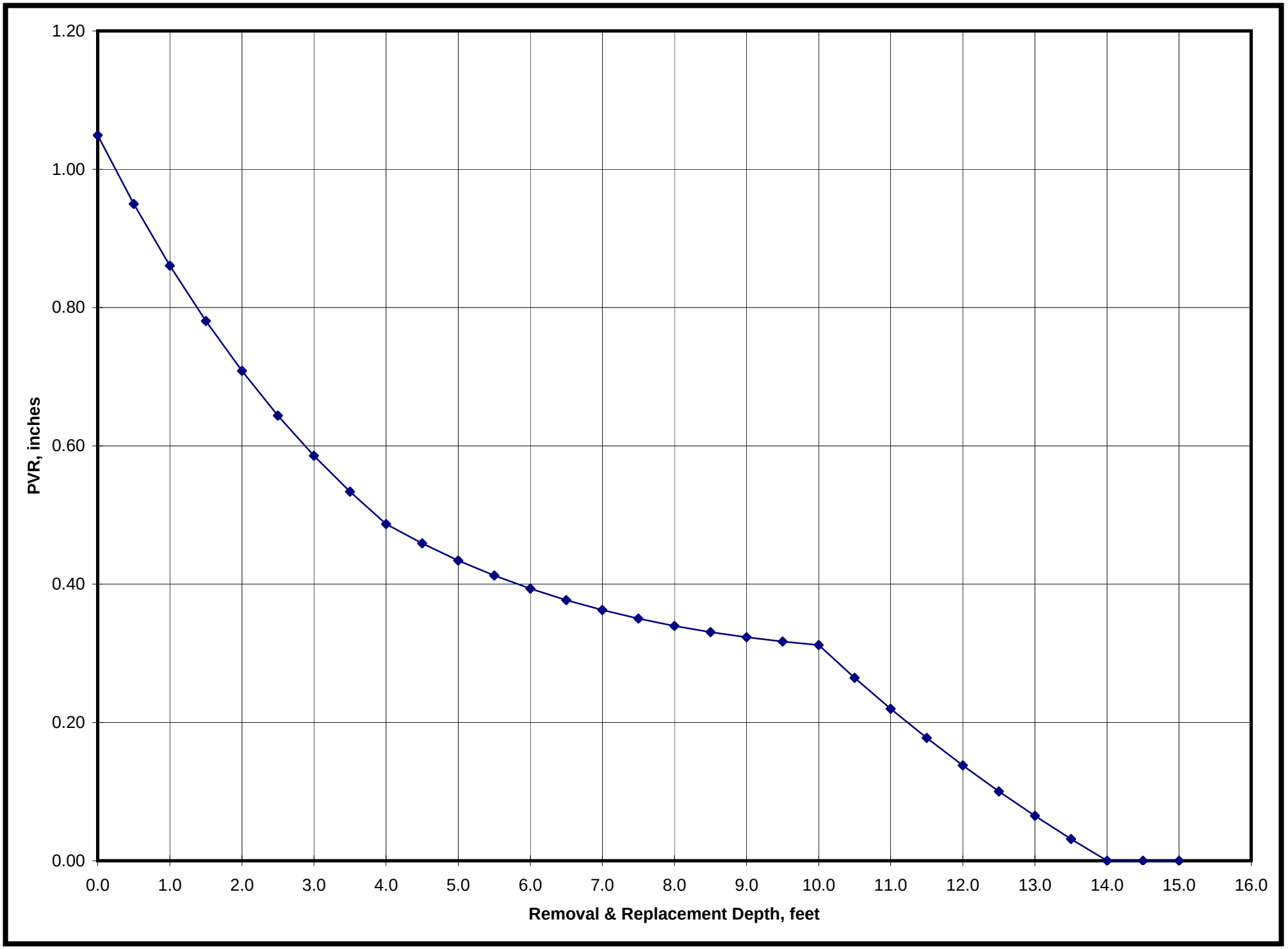

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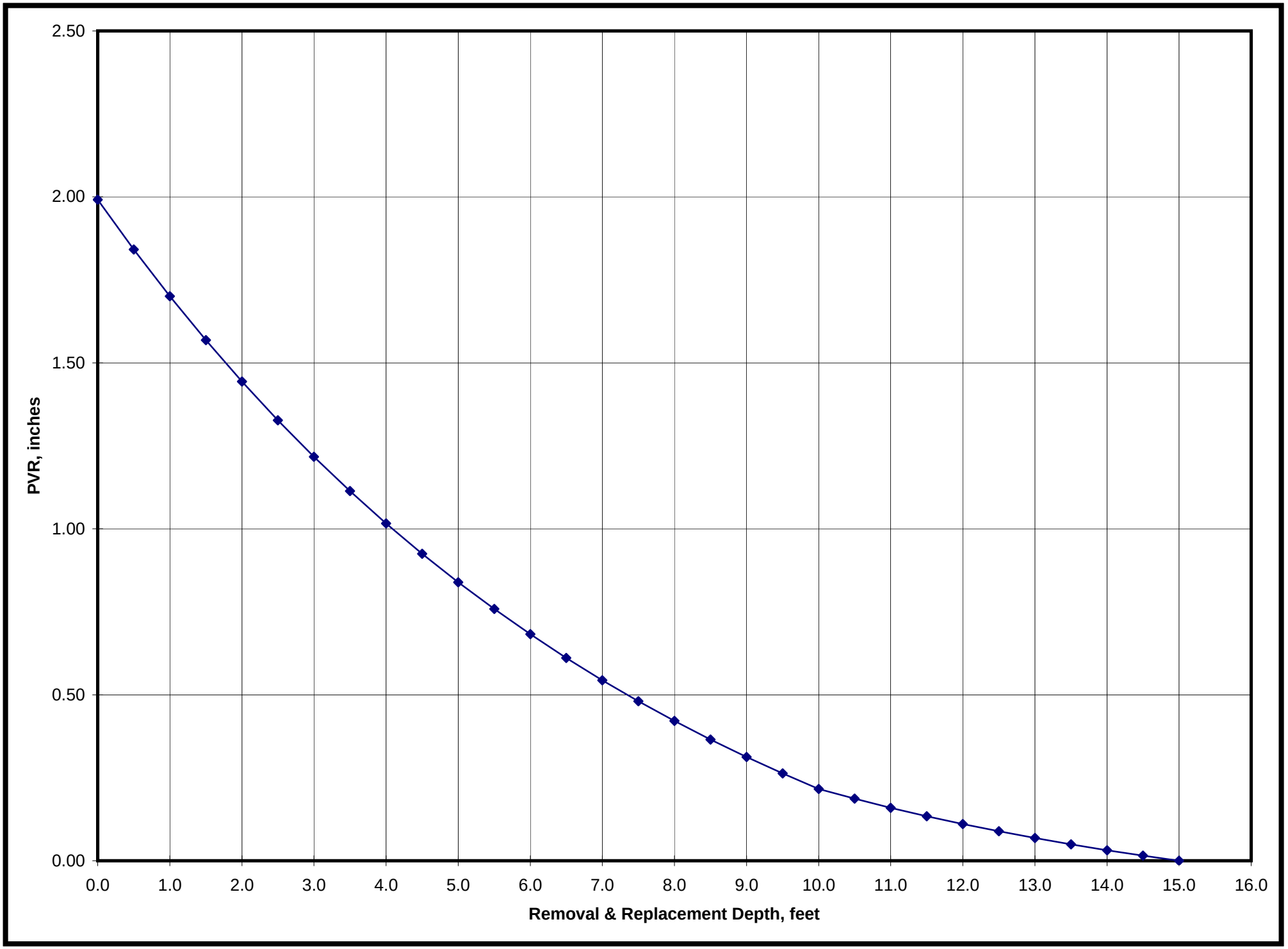

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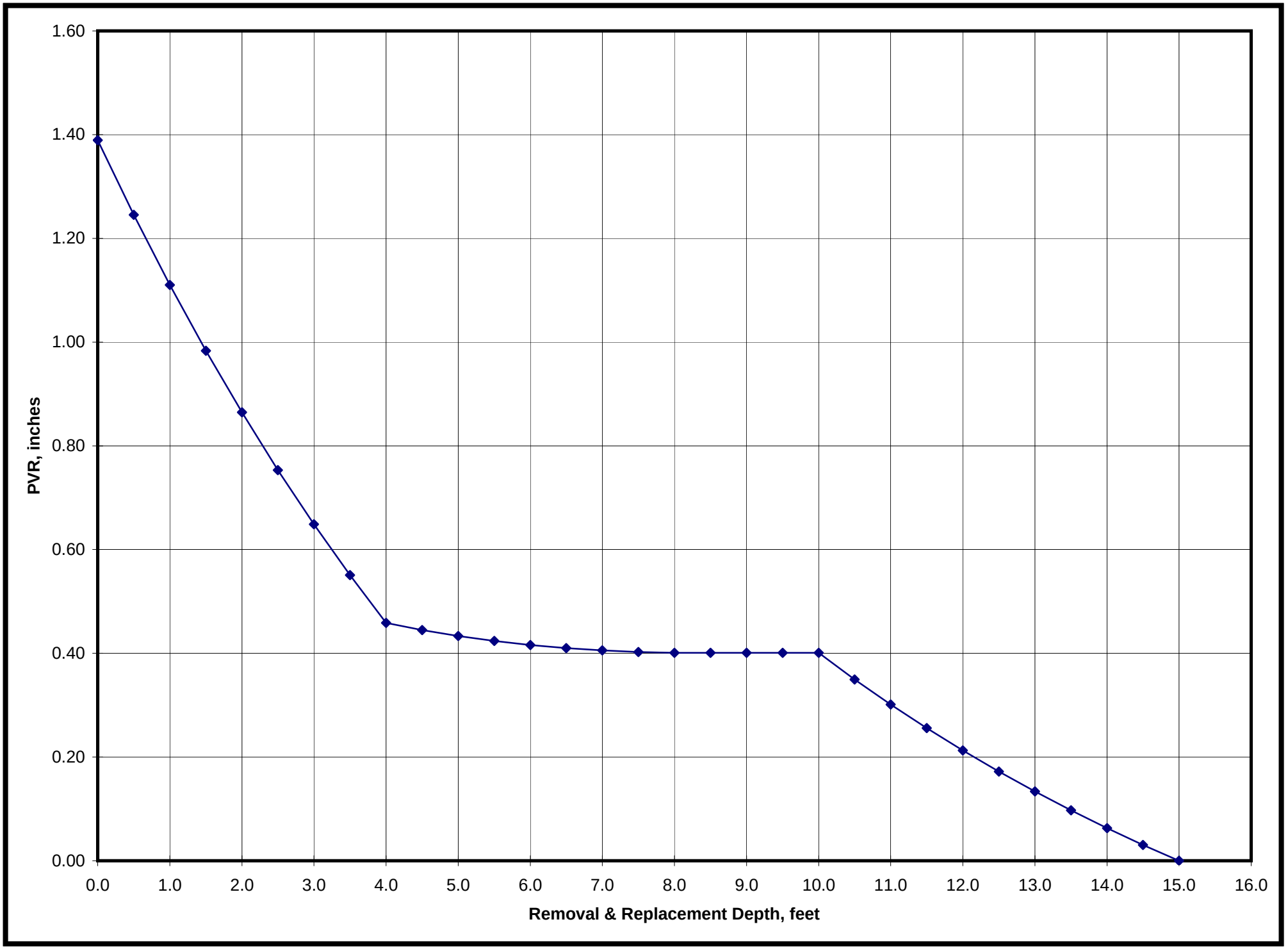

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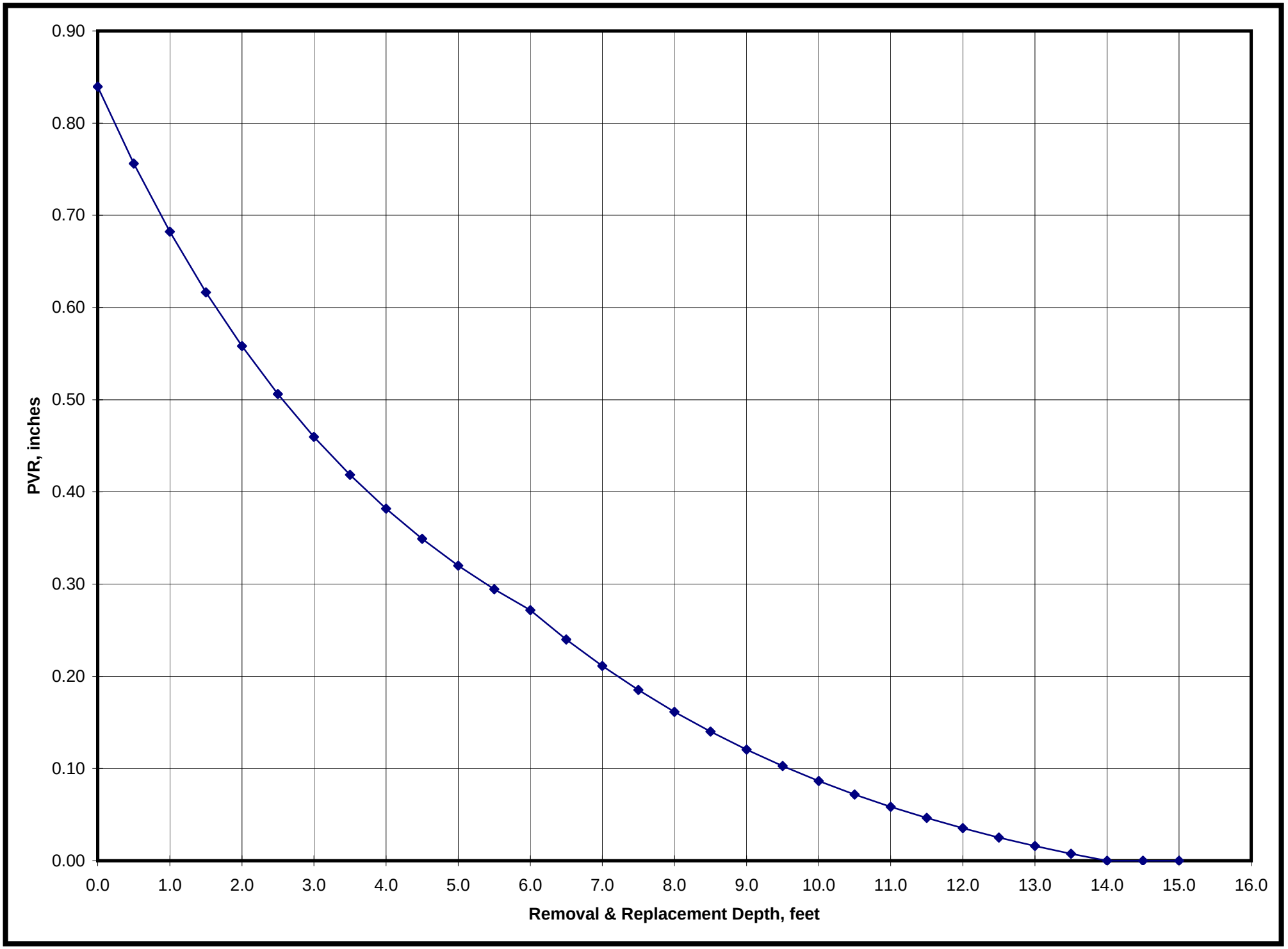

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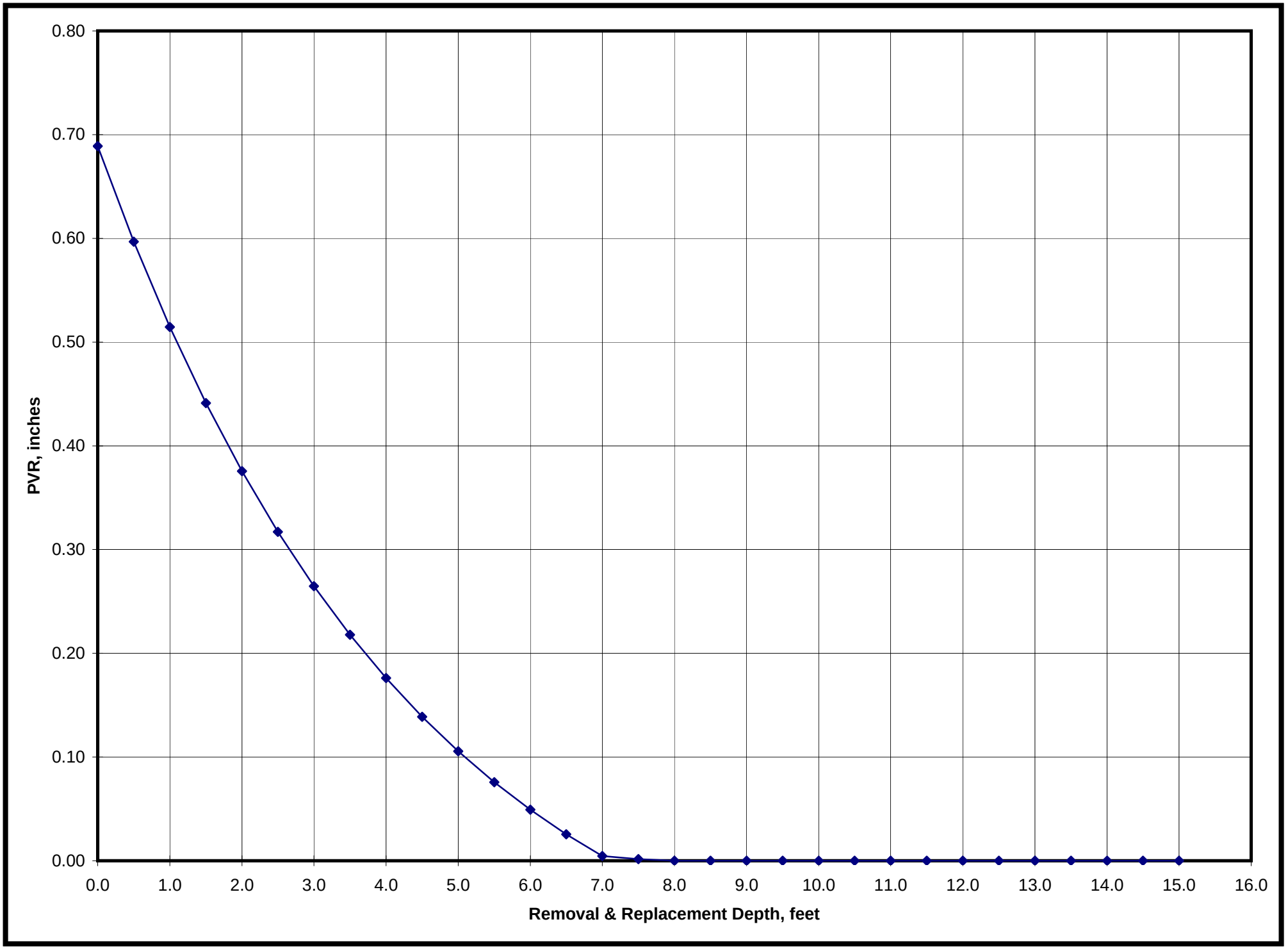

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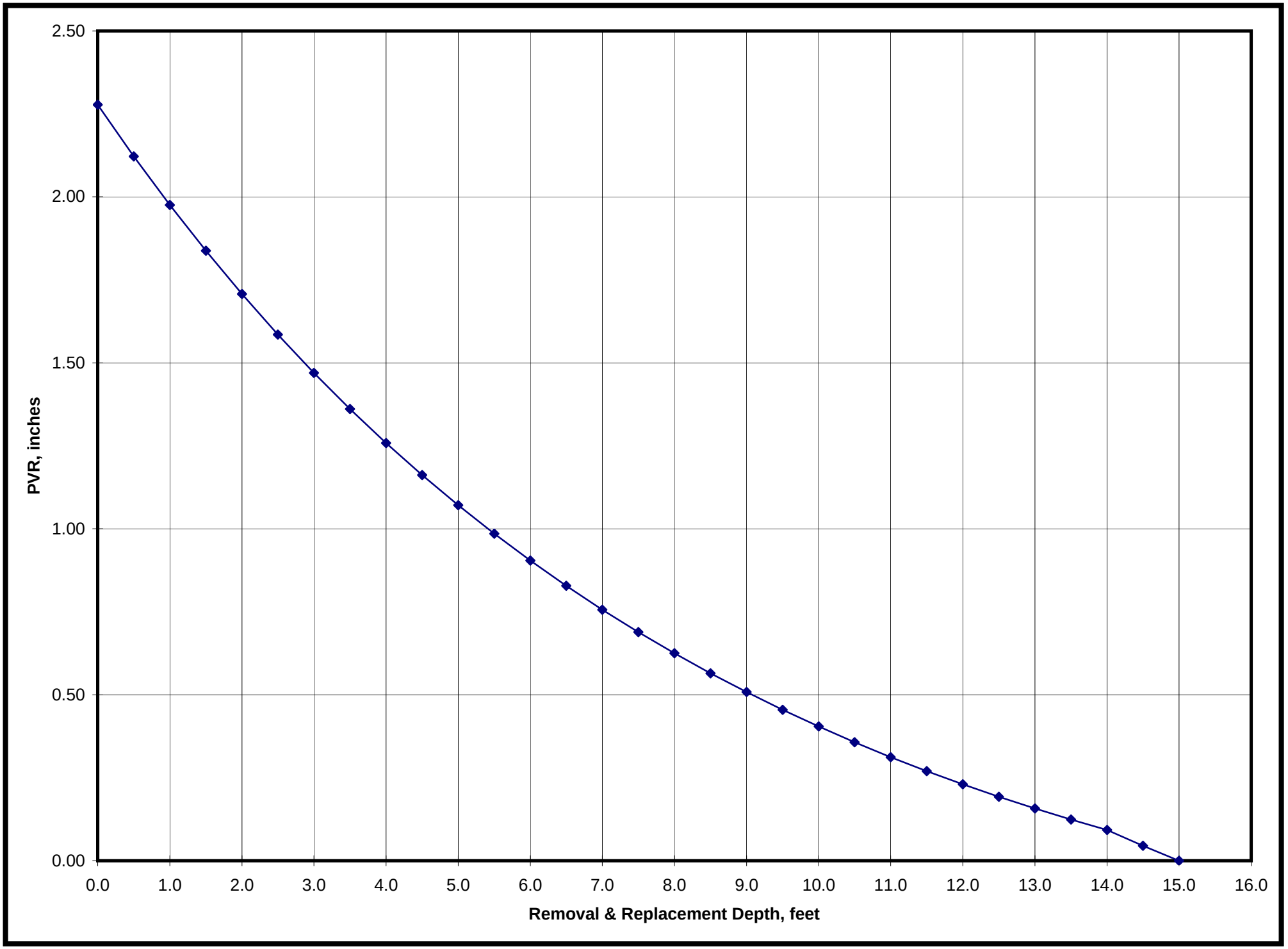

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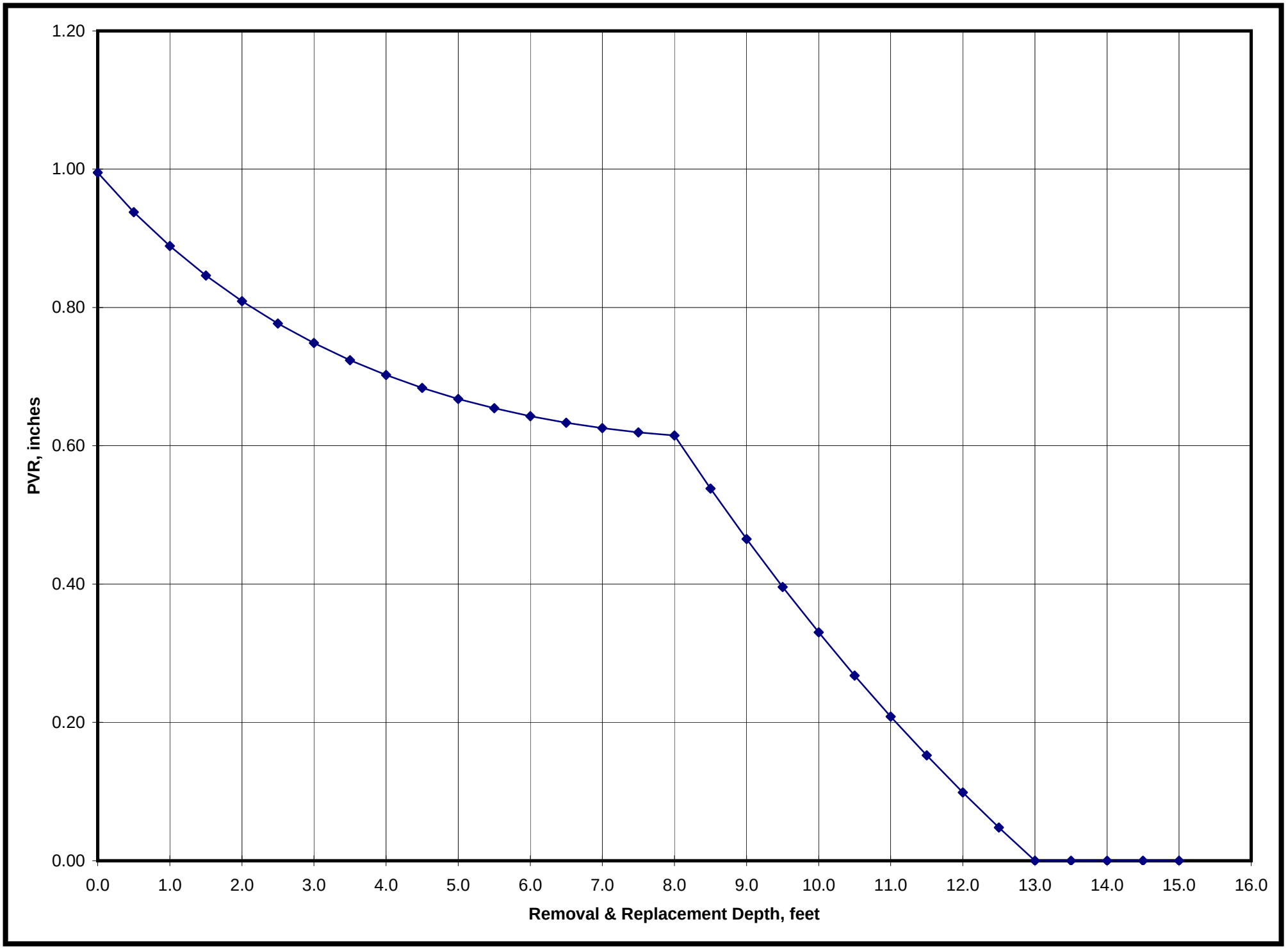

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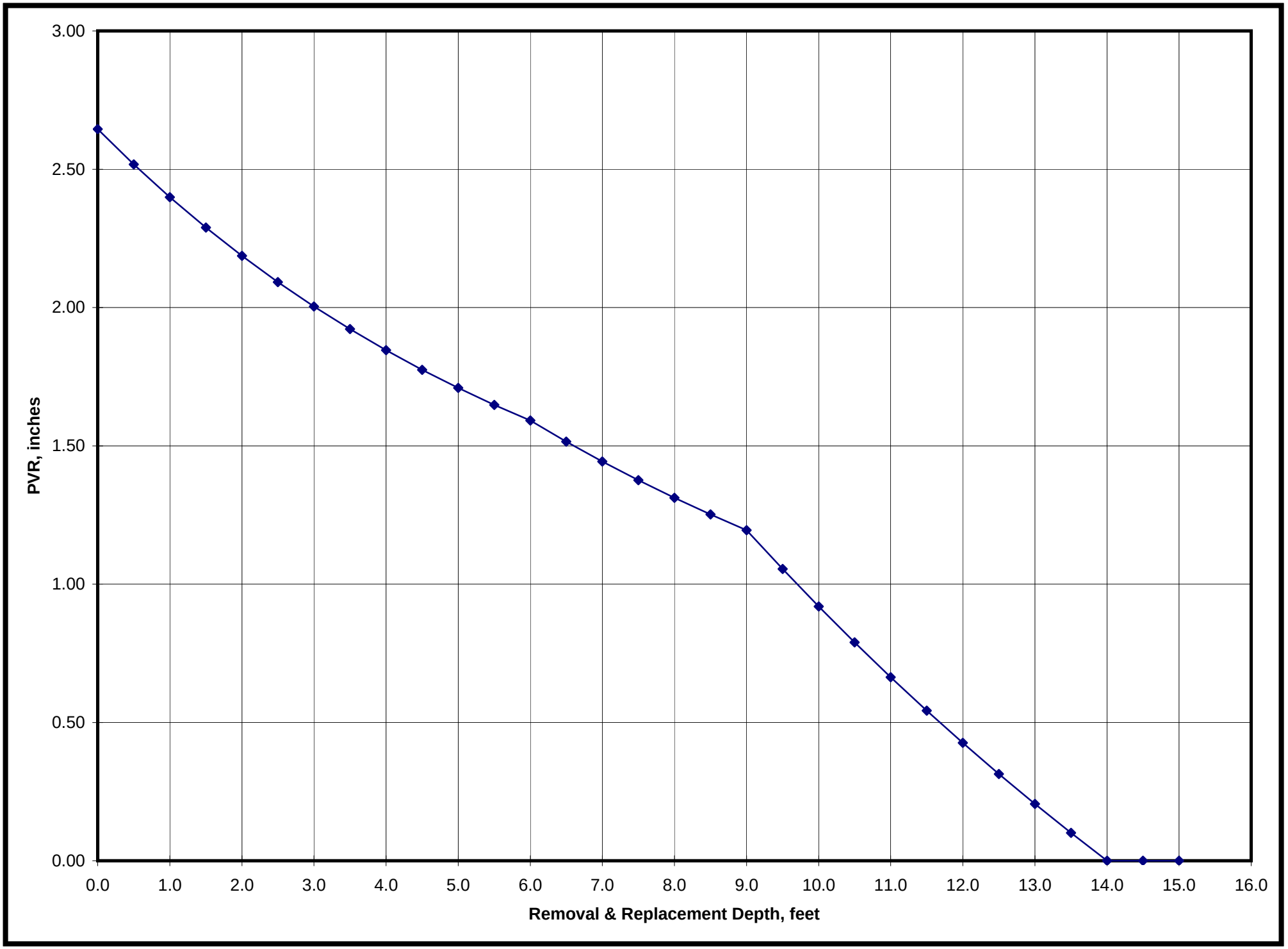

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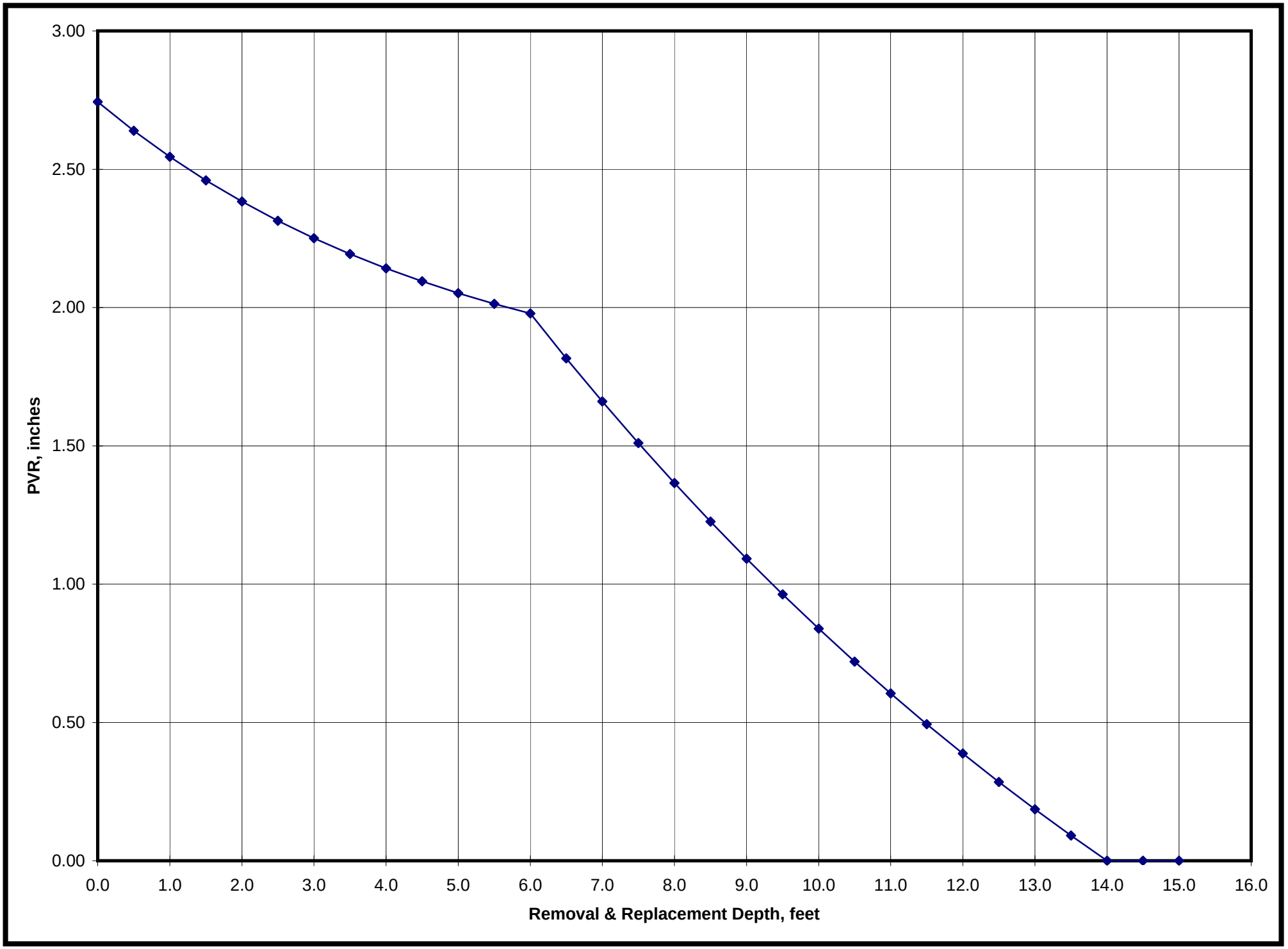

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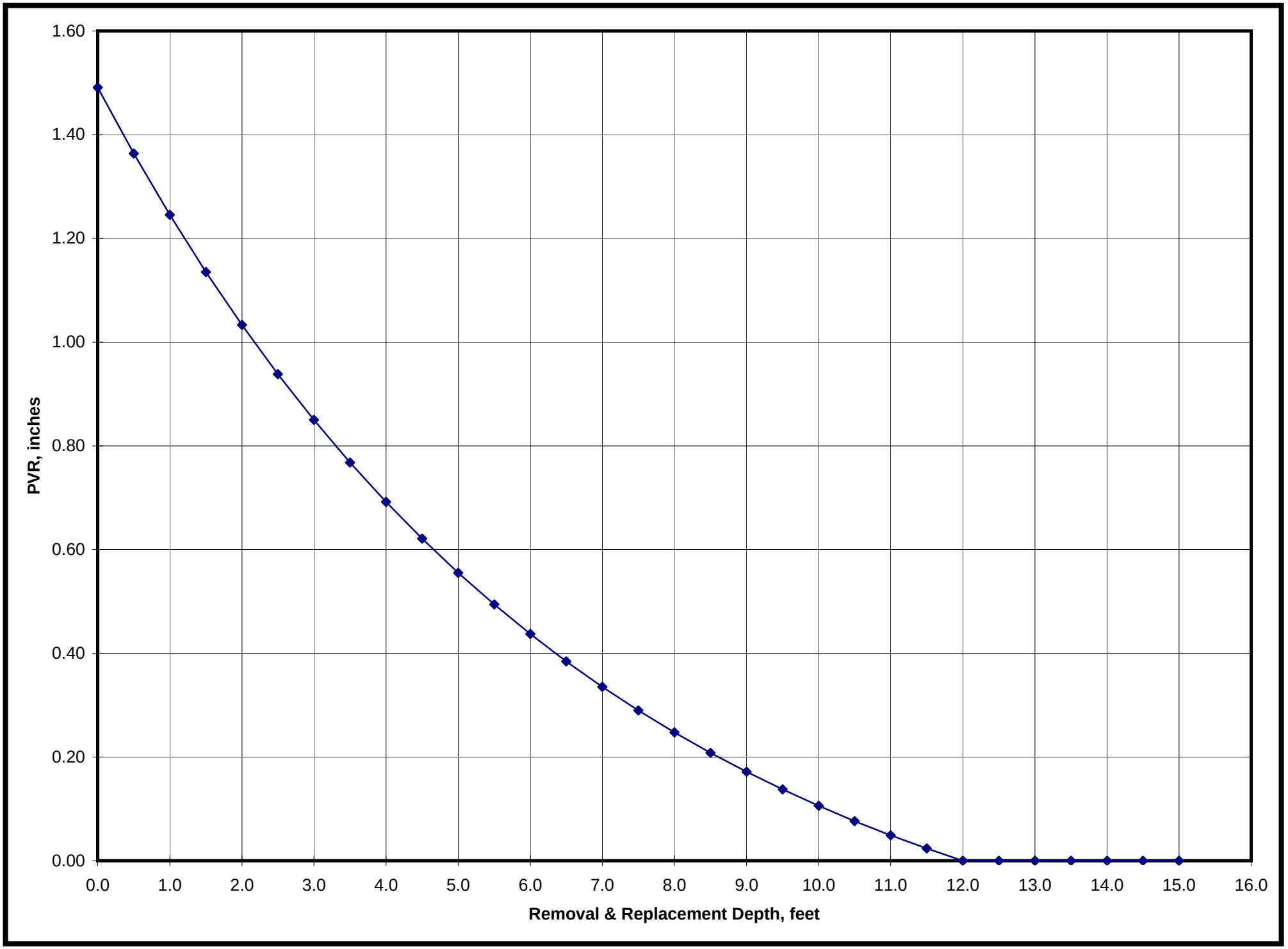

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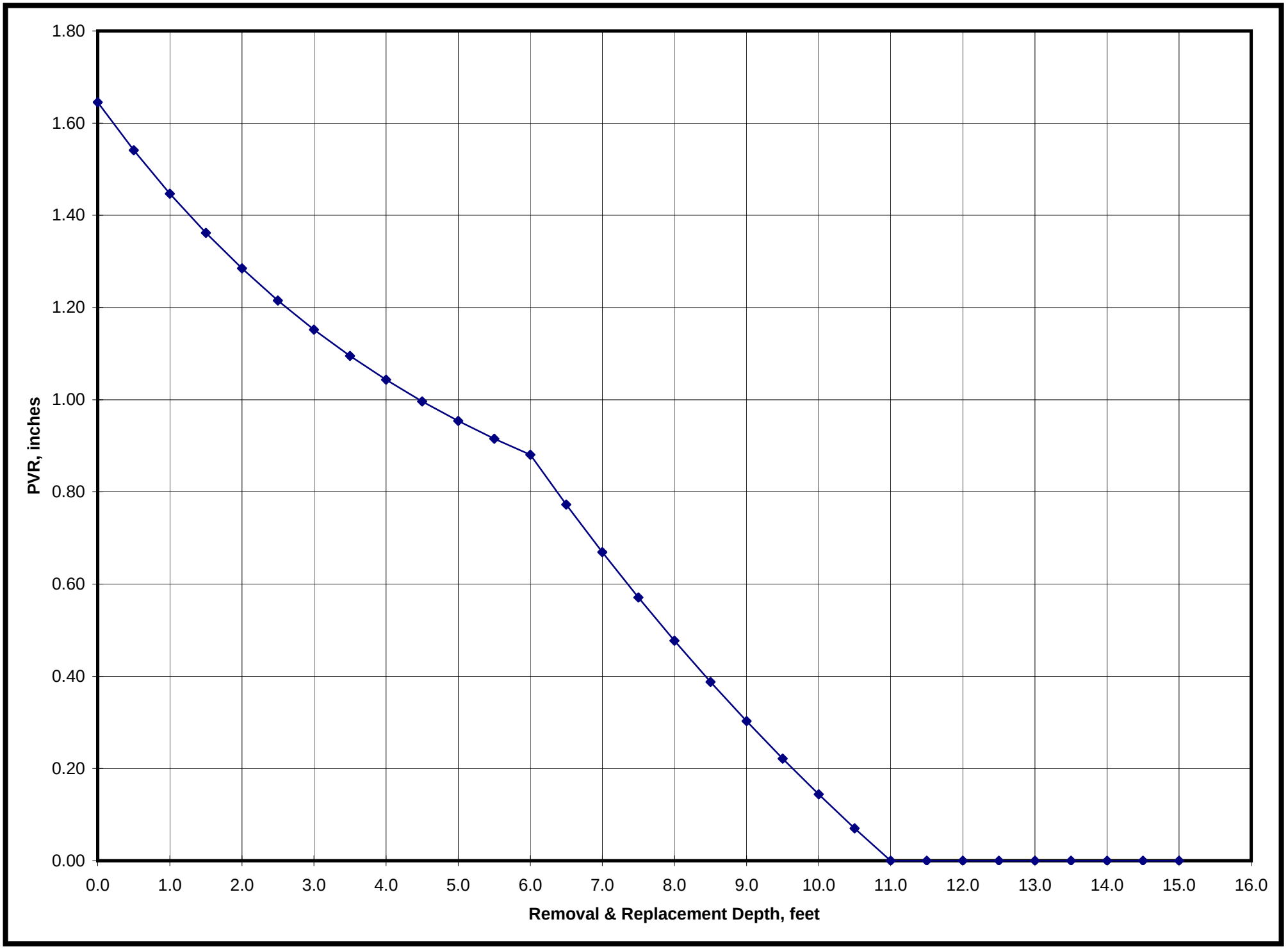

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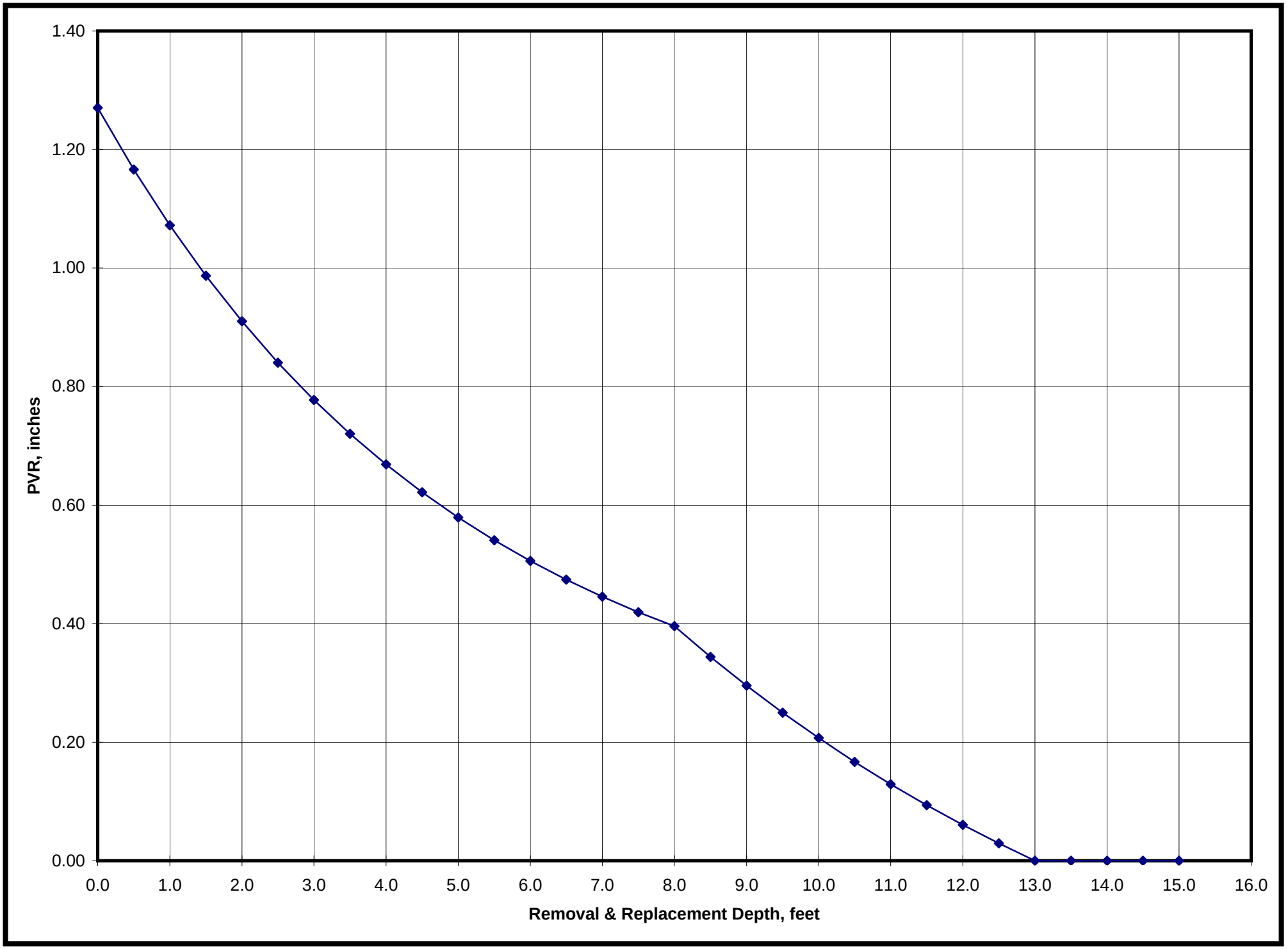

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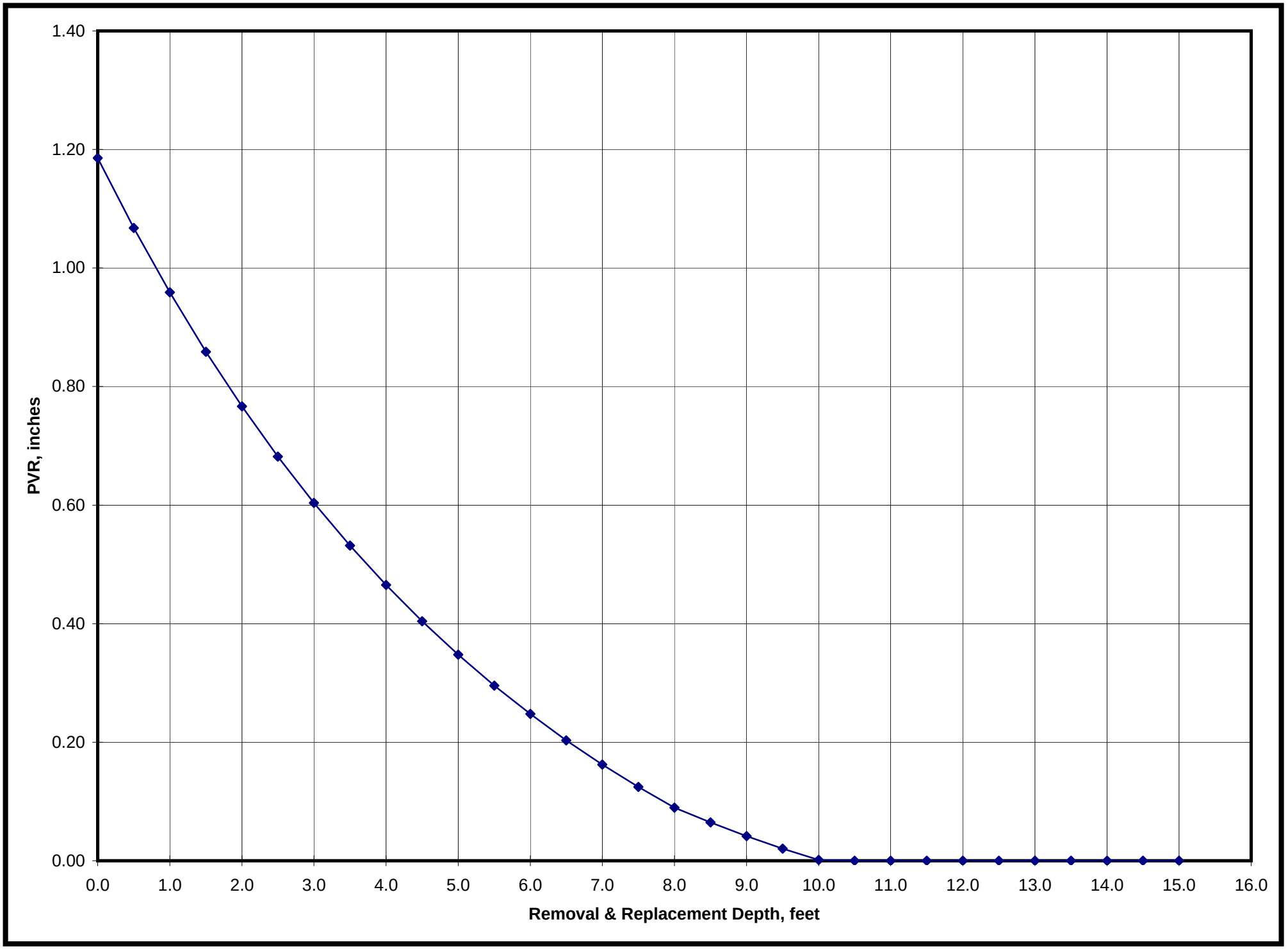

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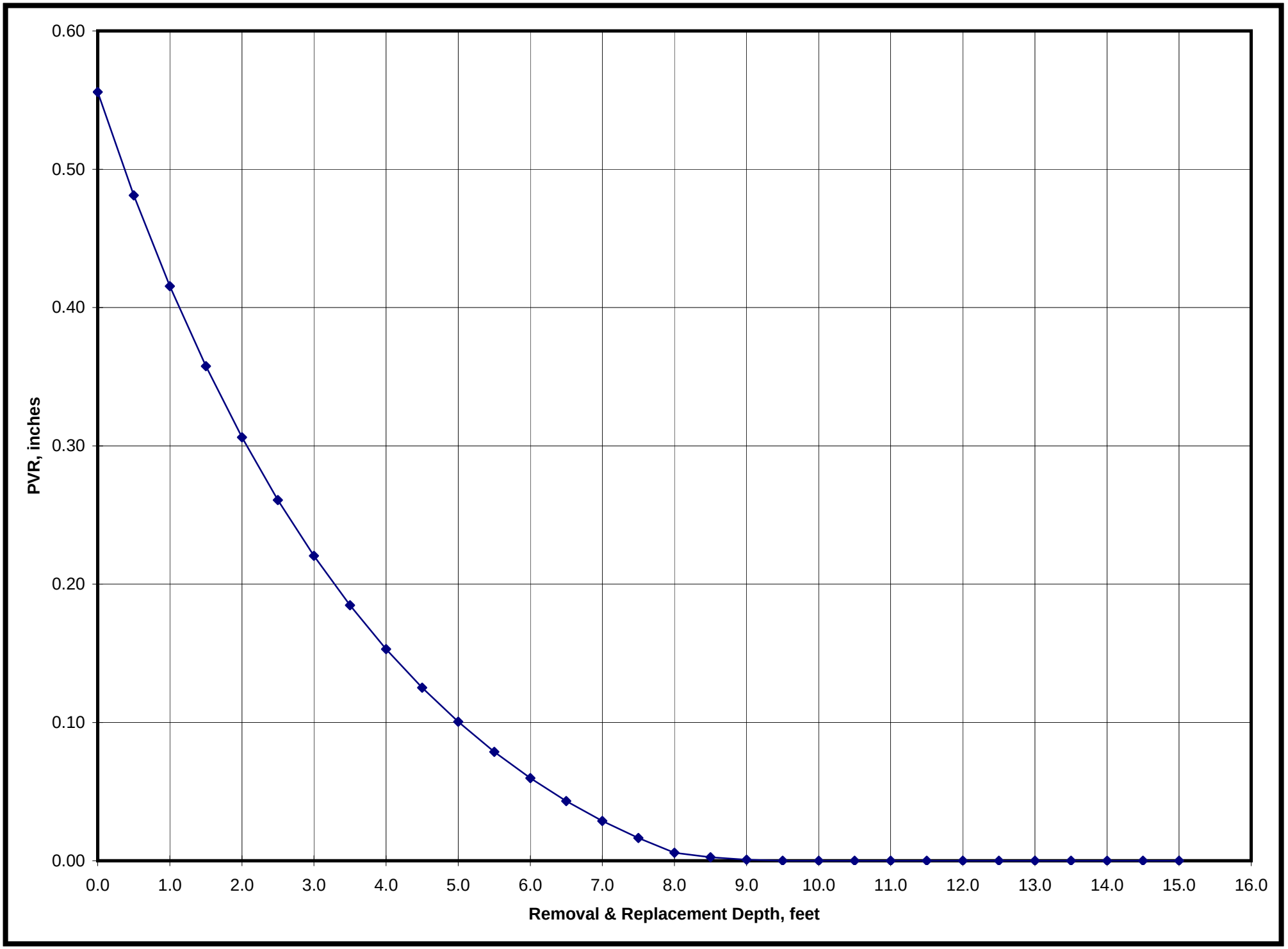

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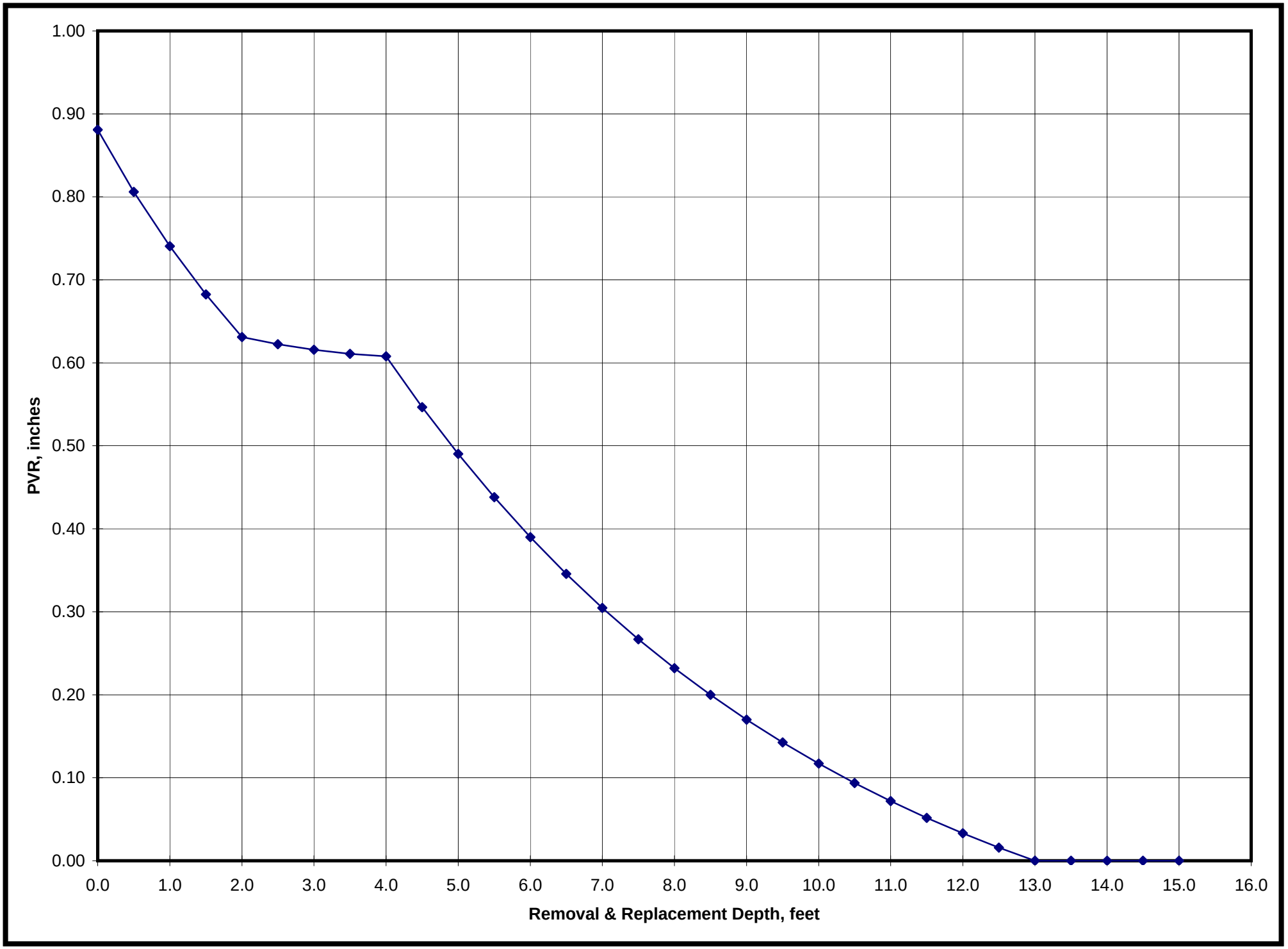

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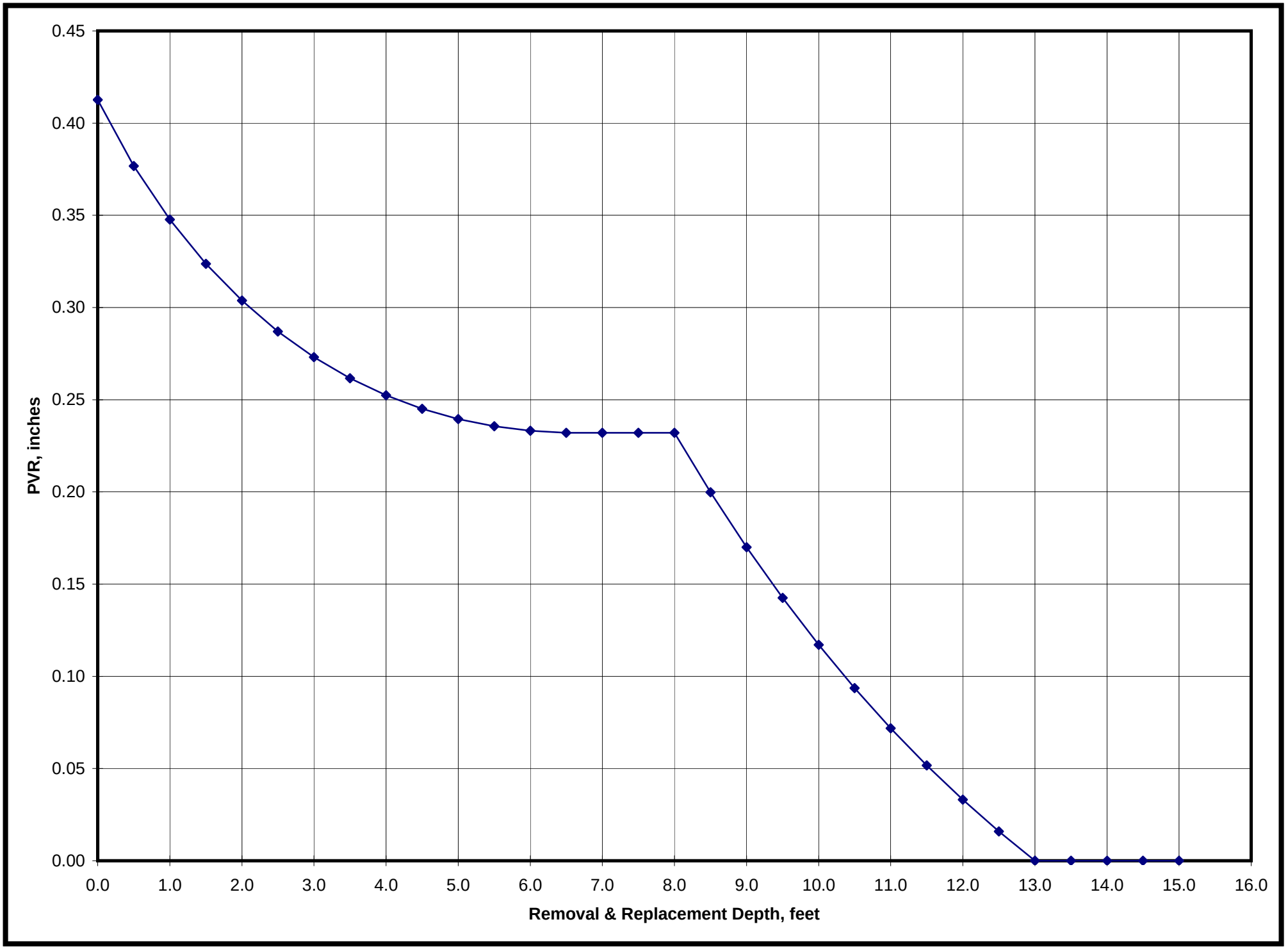

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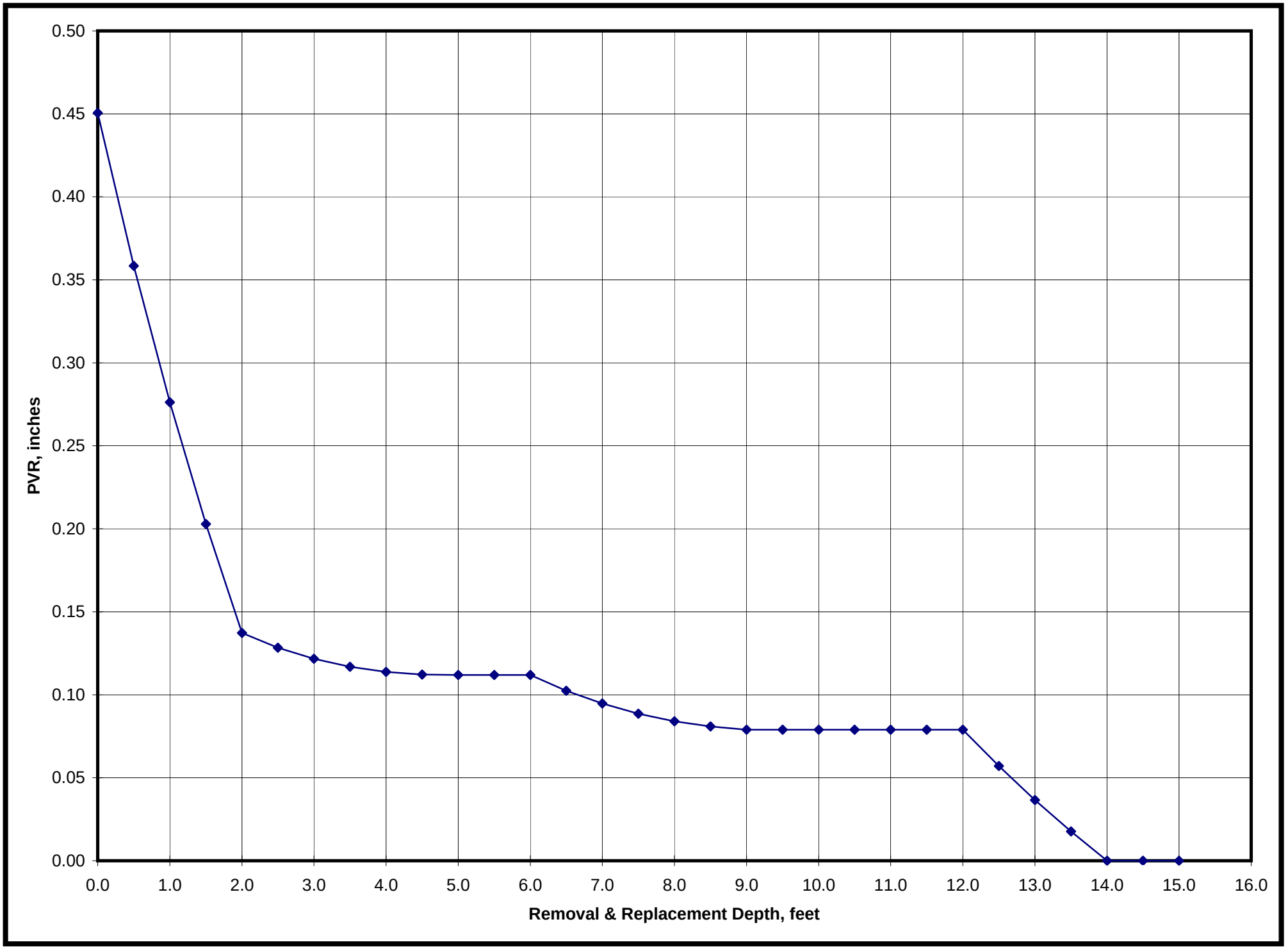

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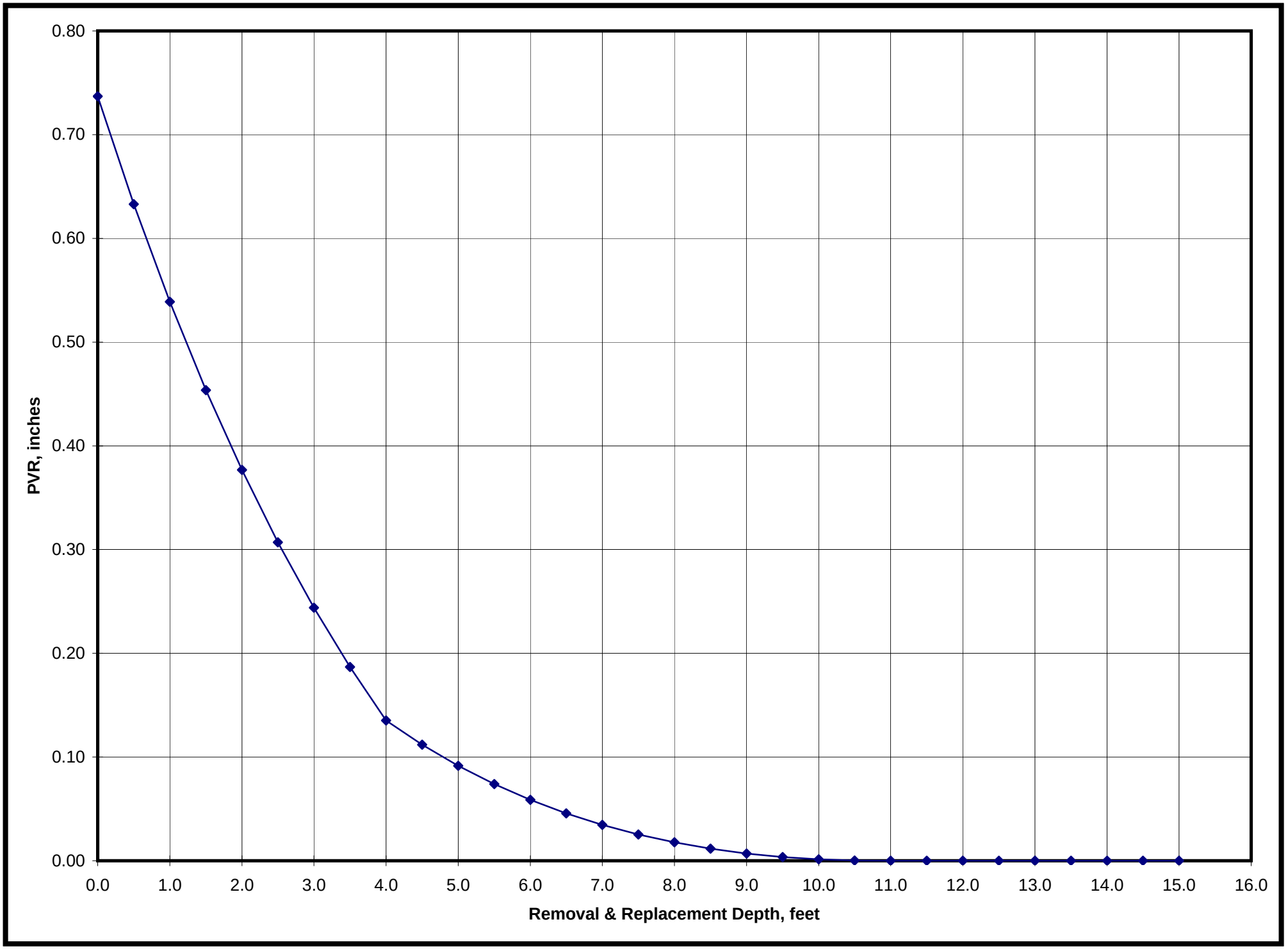

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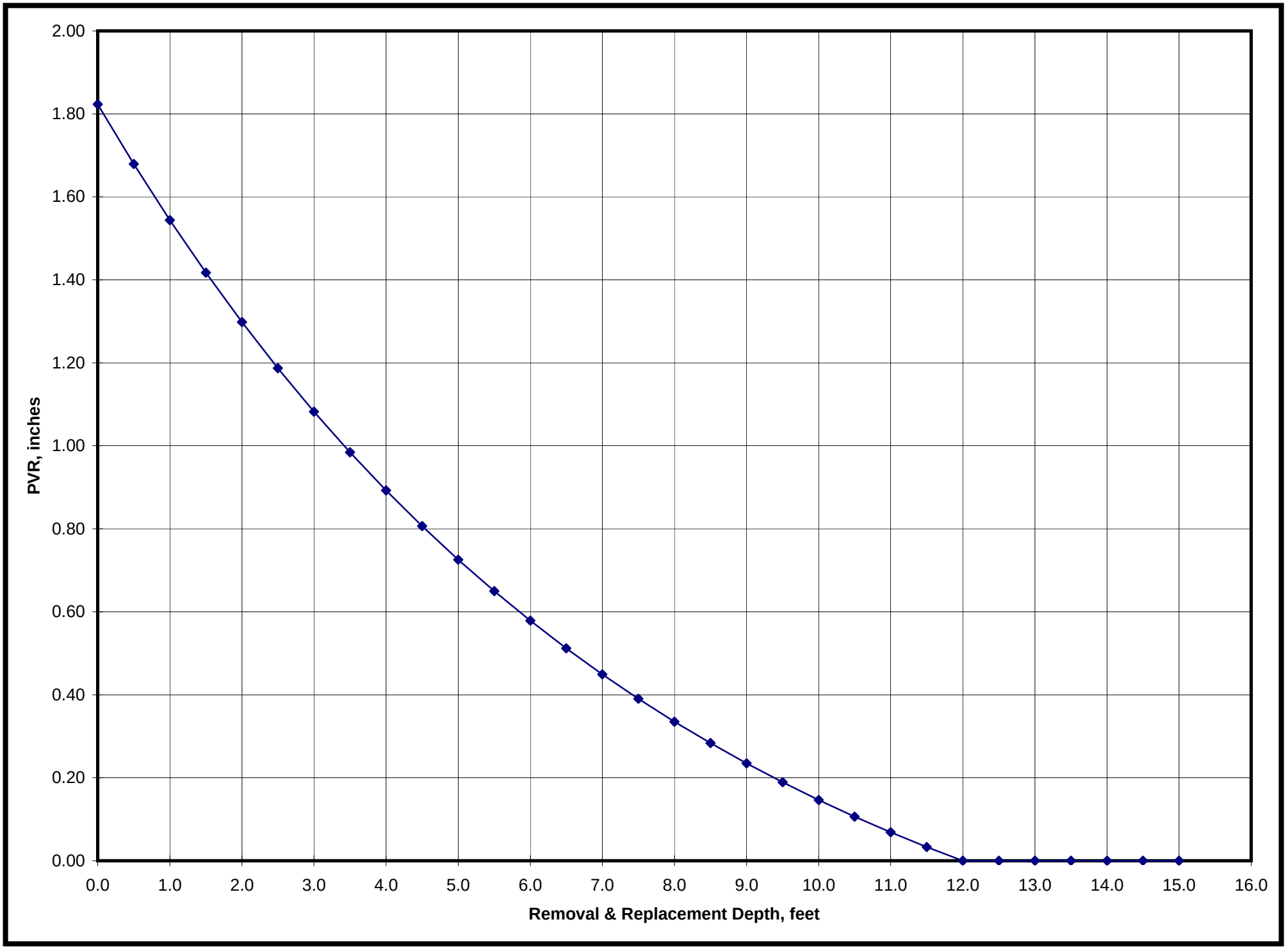
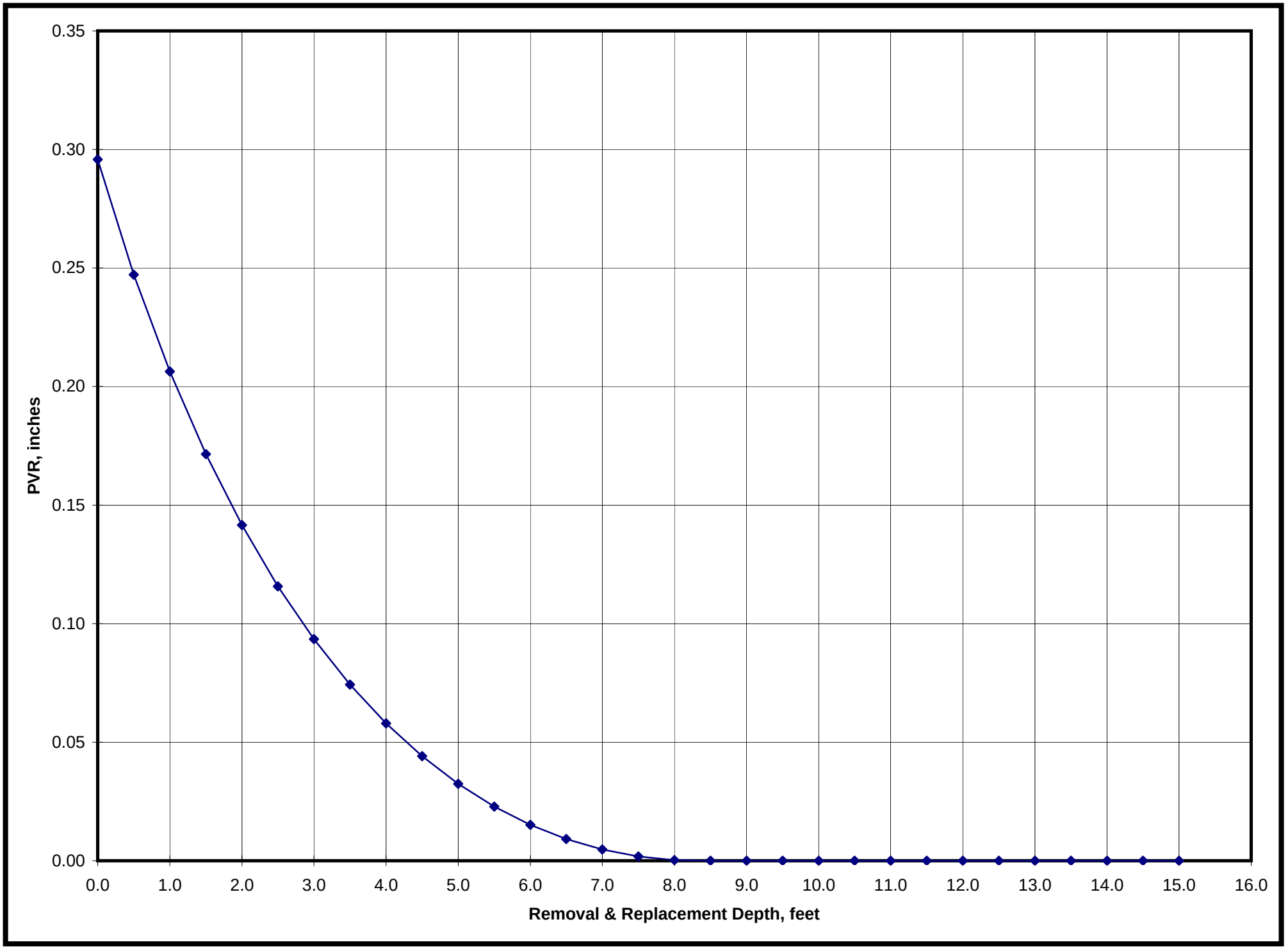
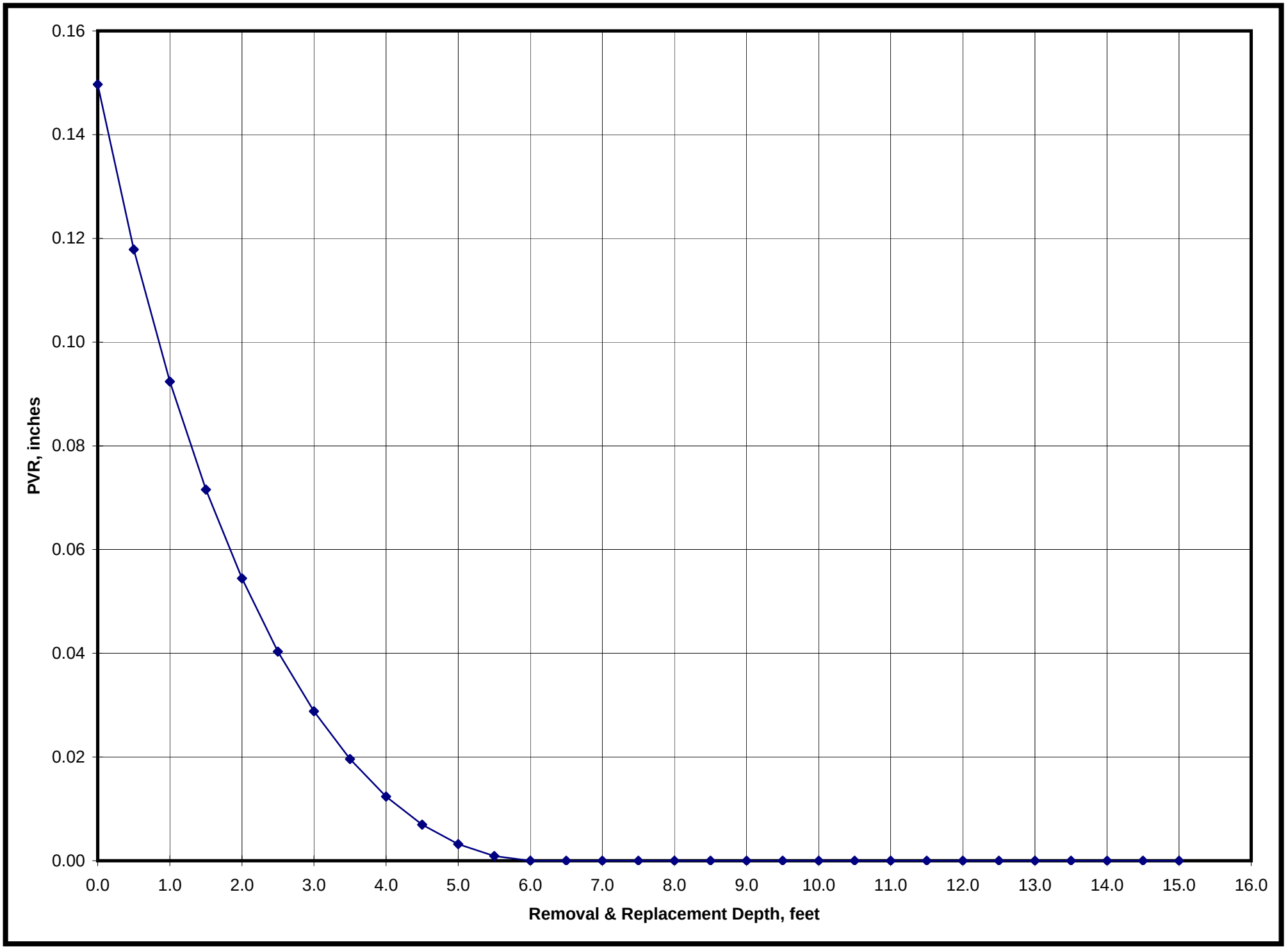


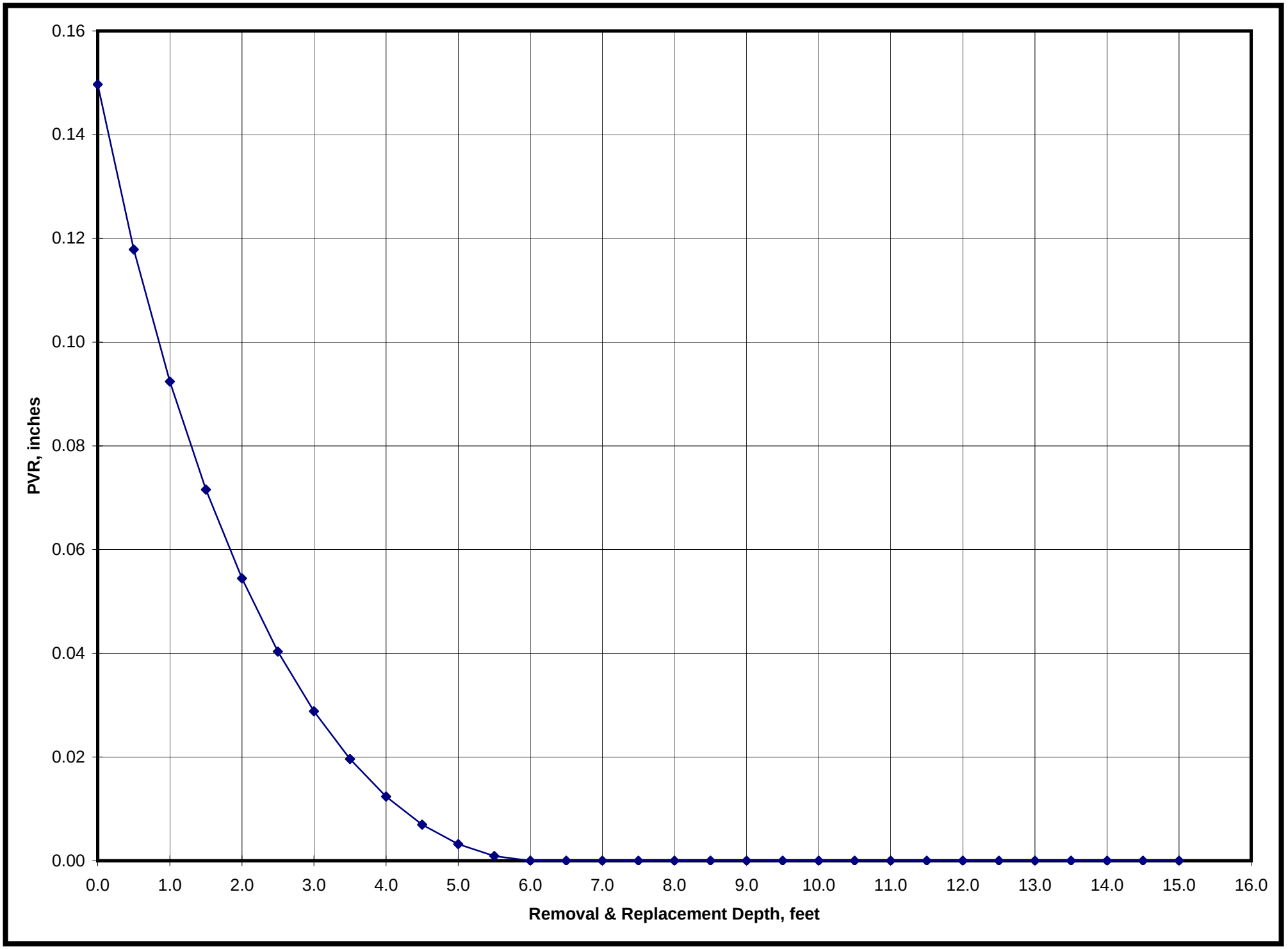
DONNA PUMP TO BROWNSVILLE - BH 113



DONNA PUMP TO BROWNSVILLE - BH 114



DONNA PUMP TO BROWNSVILLE - BH 115



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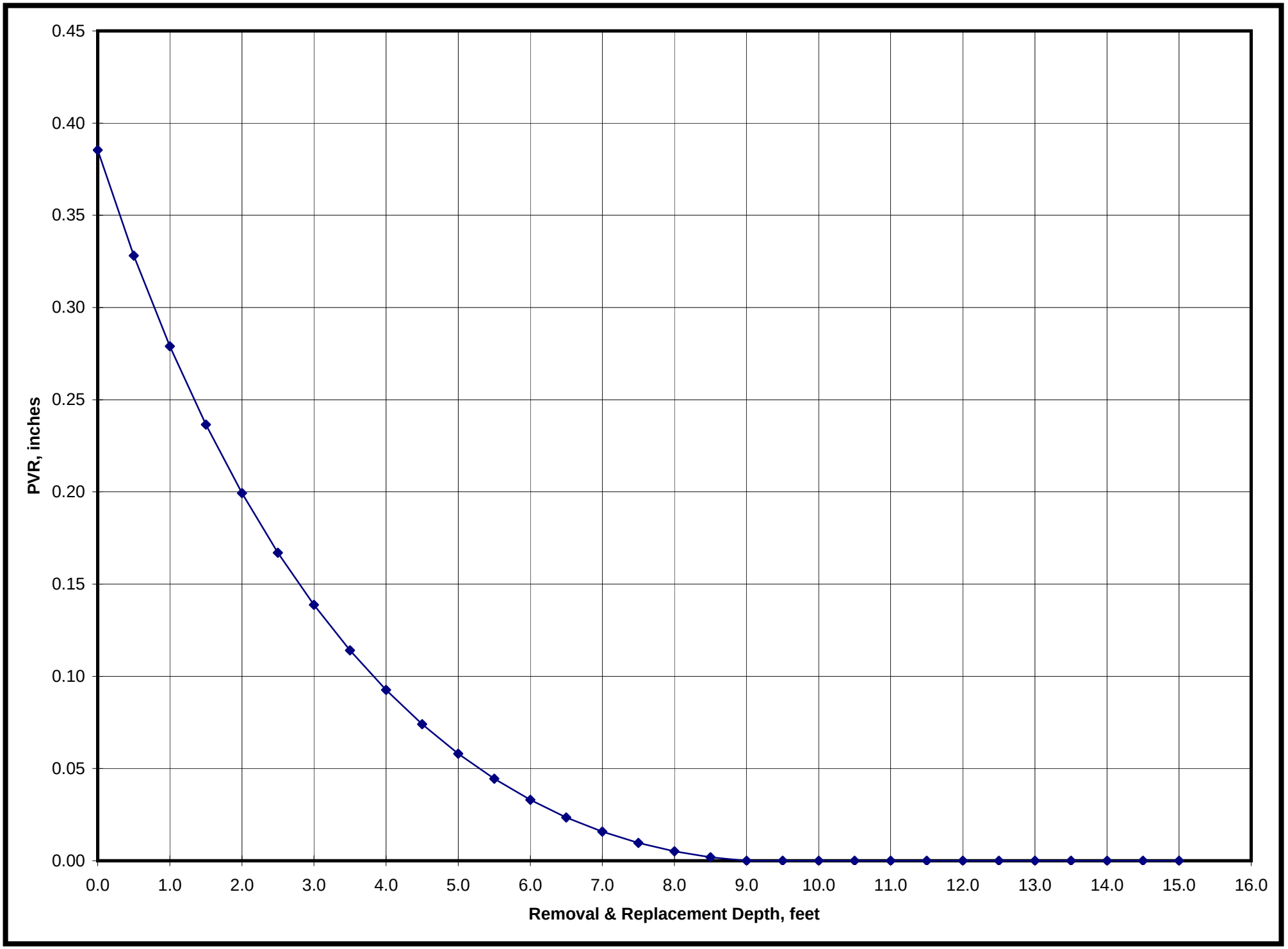

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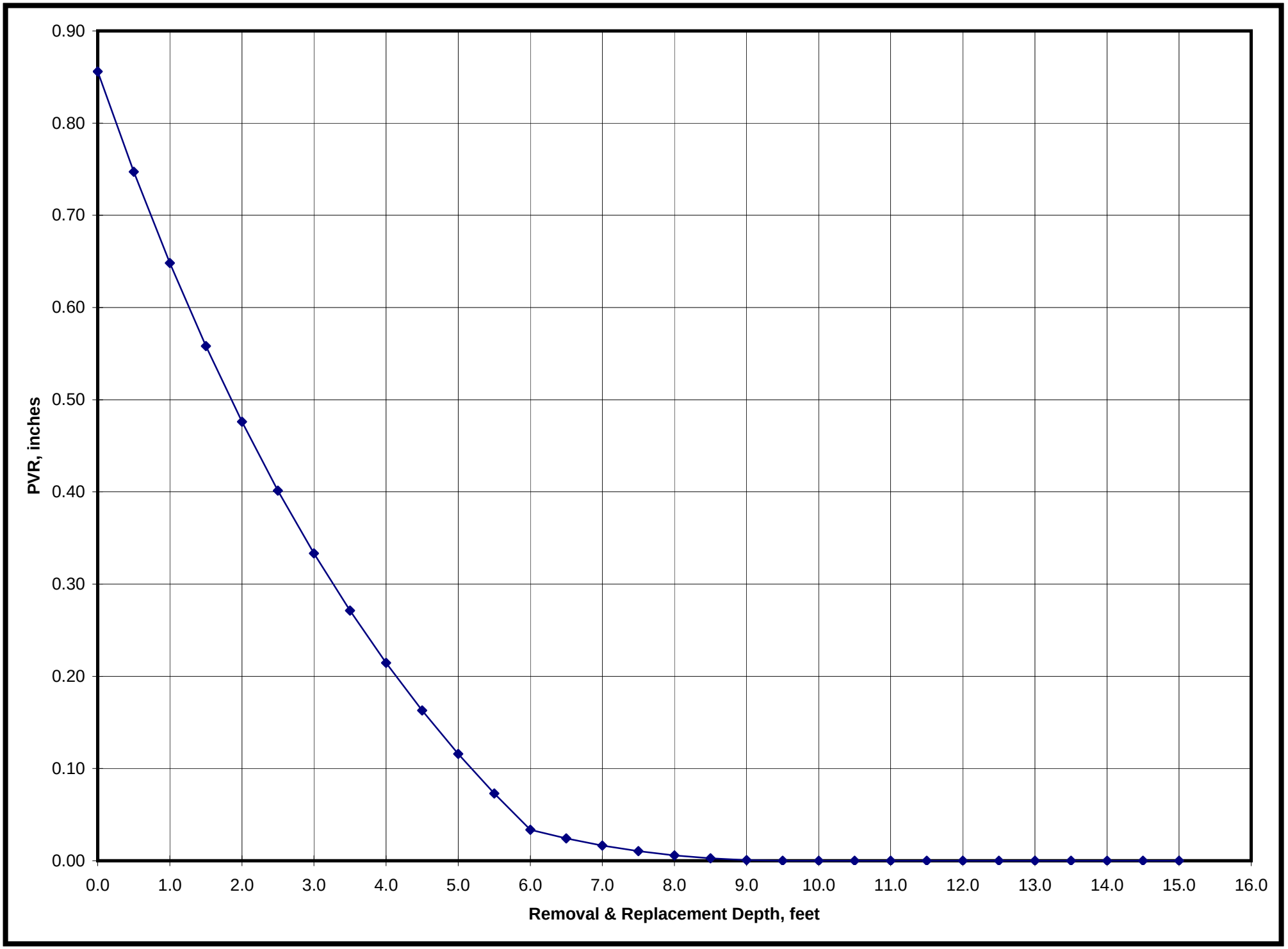
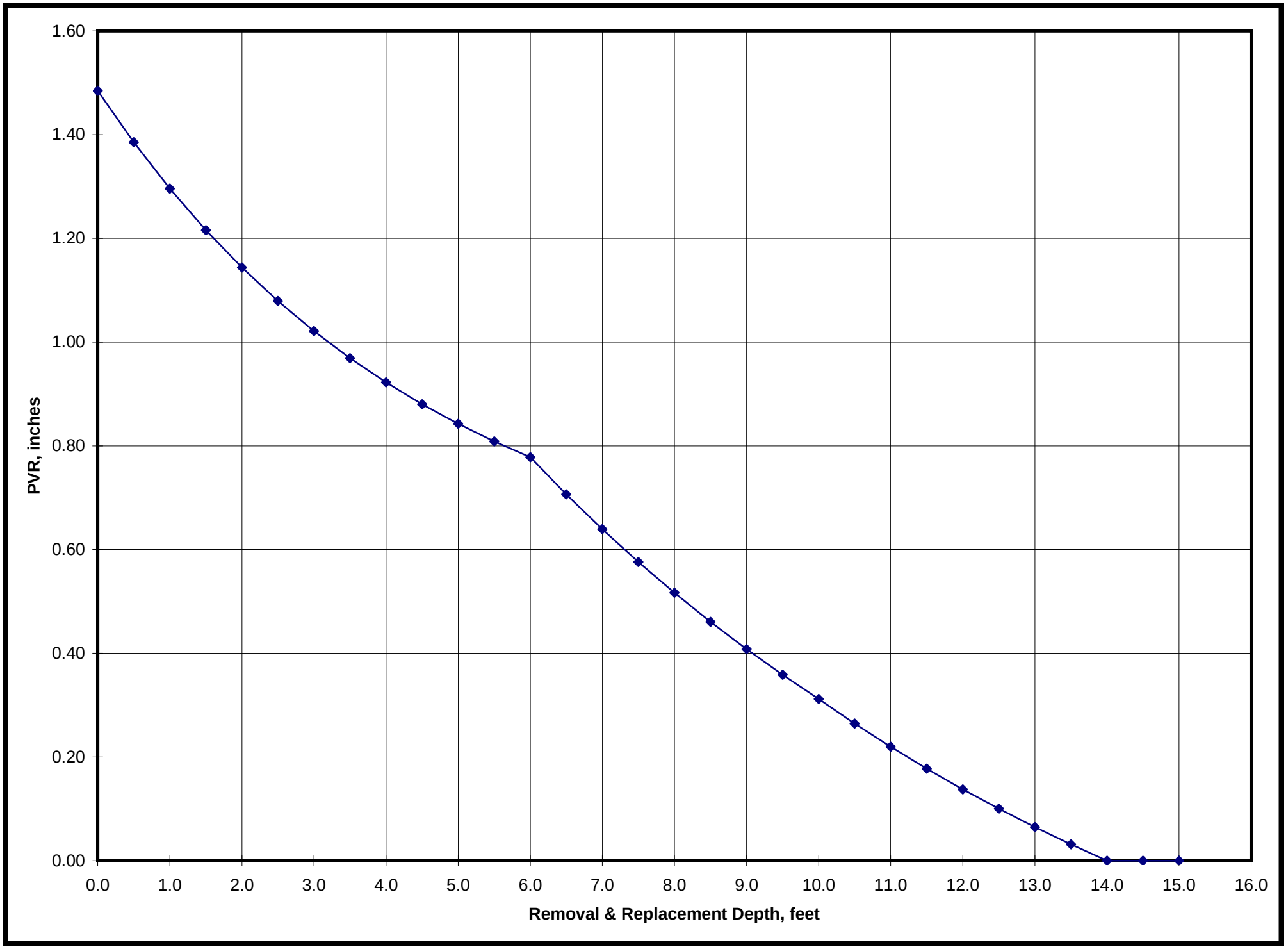


DONNA PUMP TO BROWNSVILLE - BH 118



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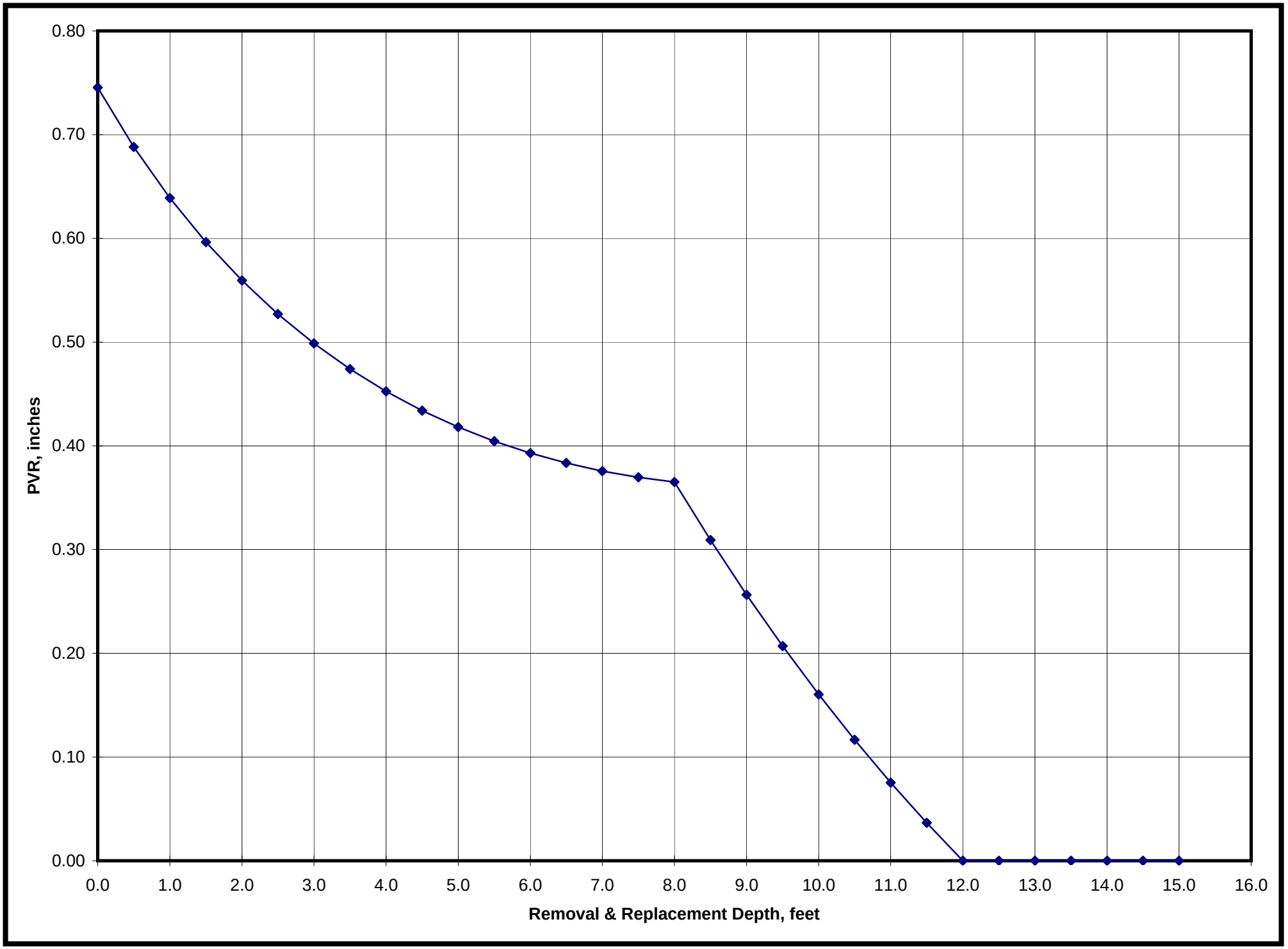

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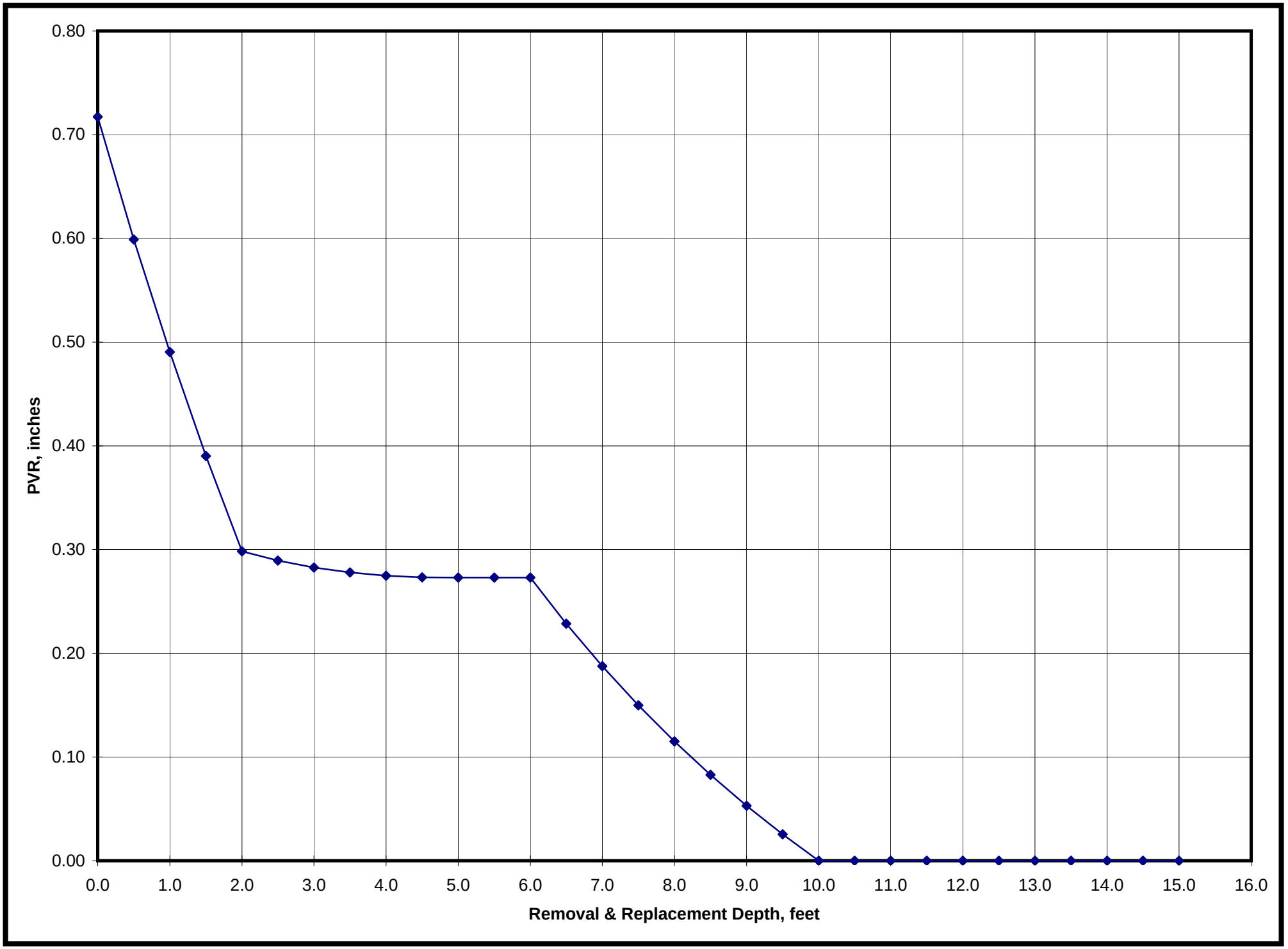

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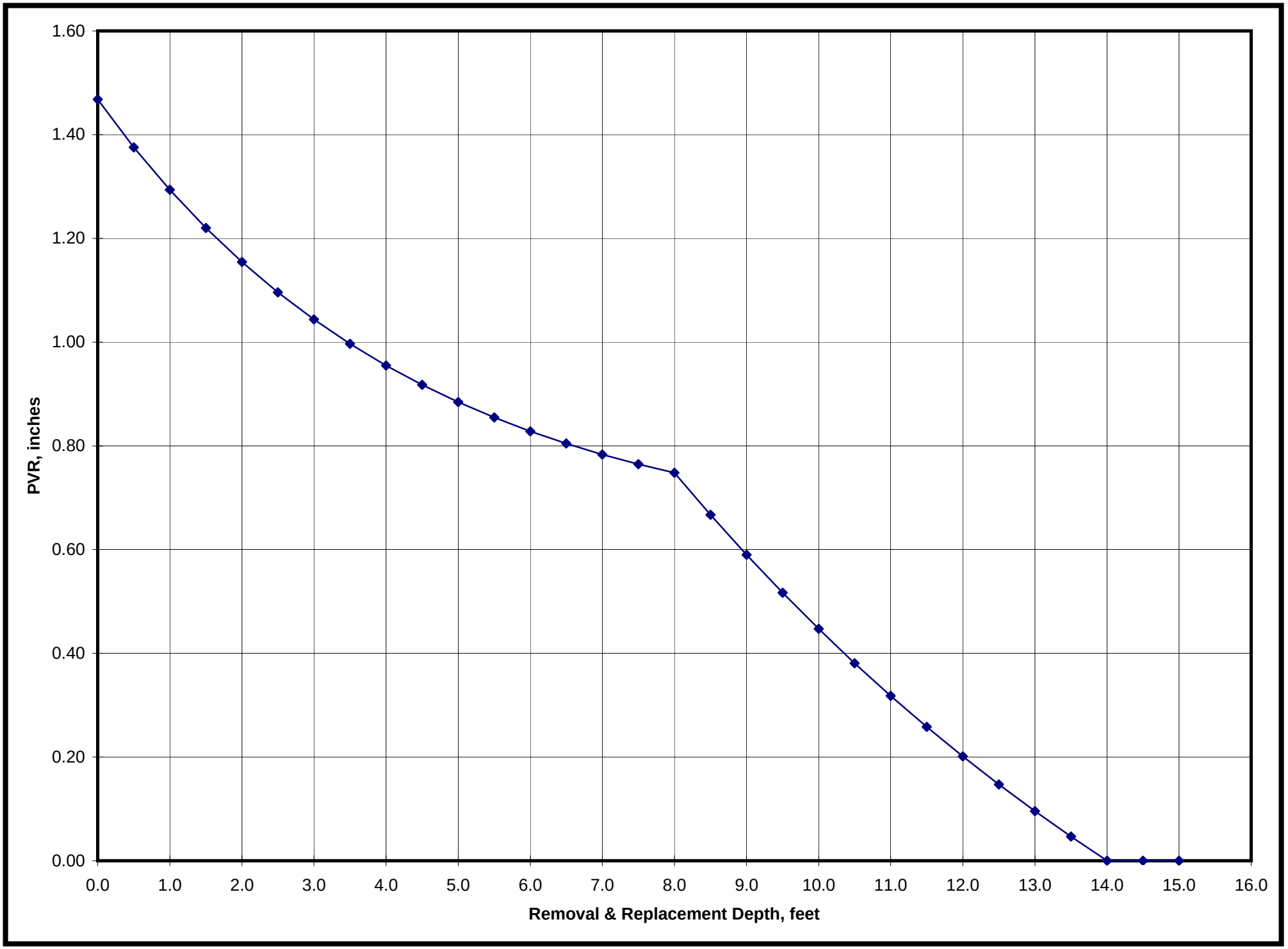

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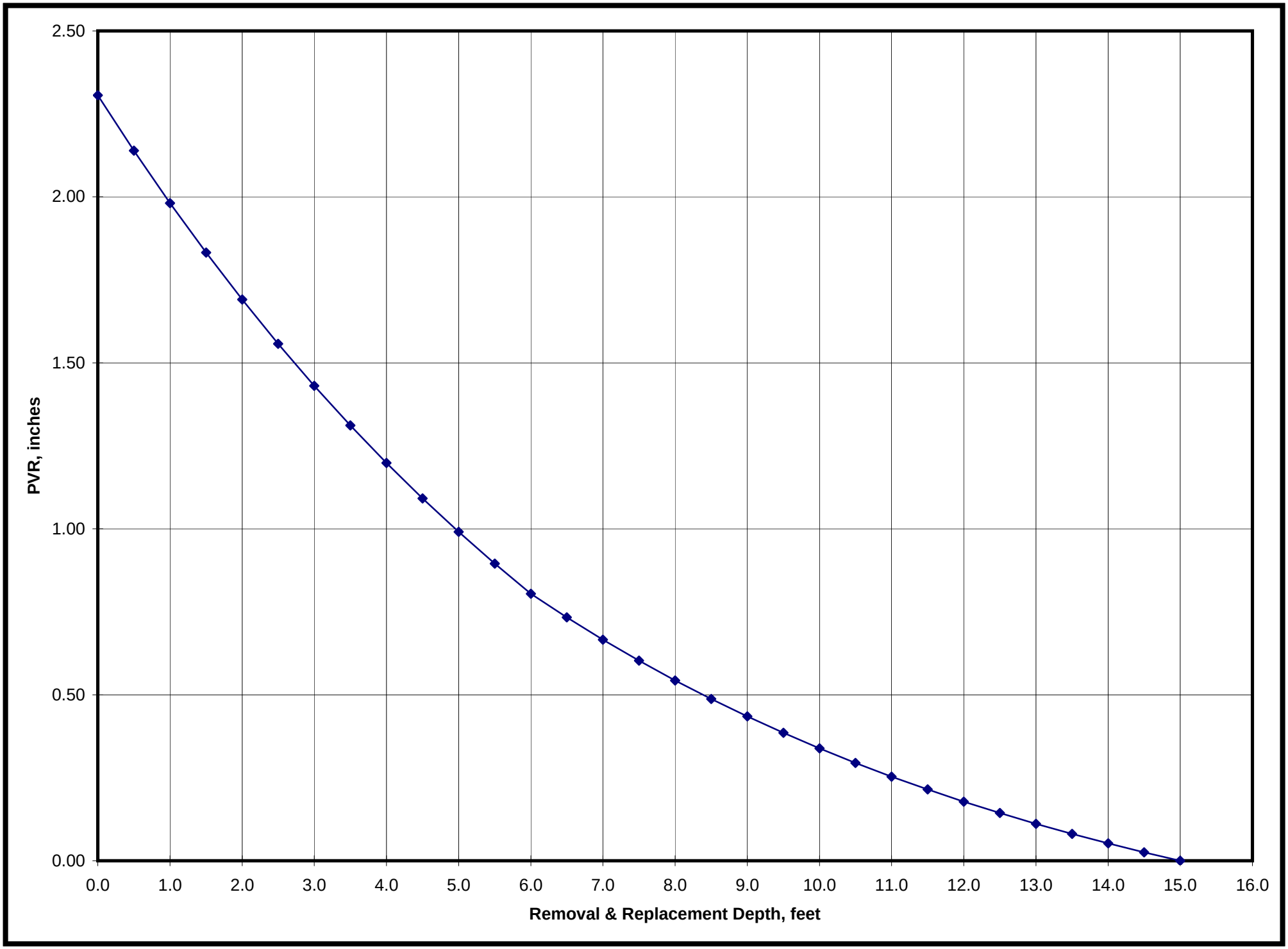

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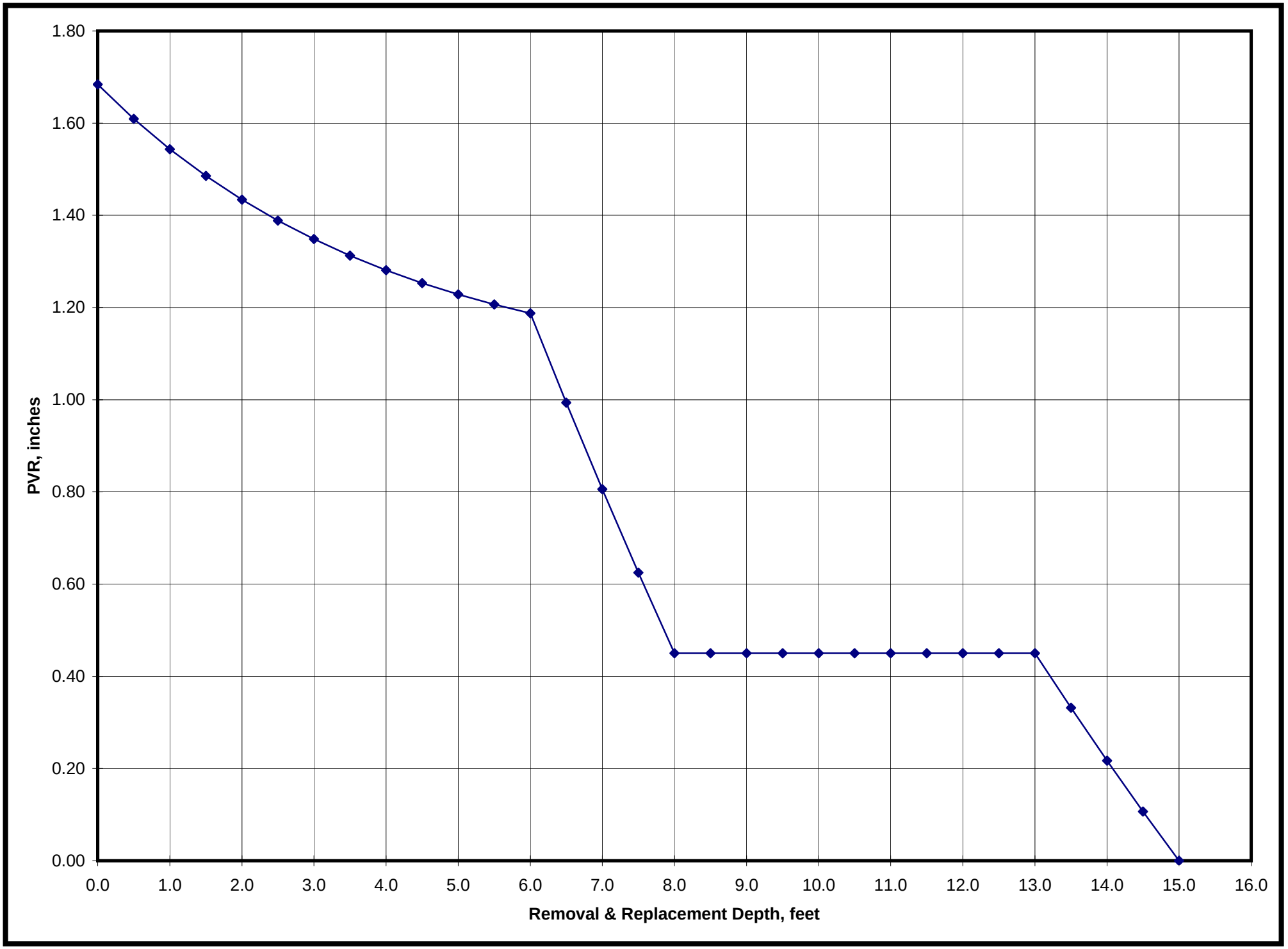

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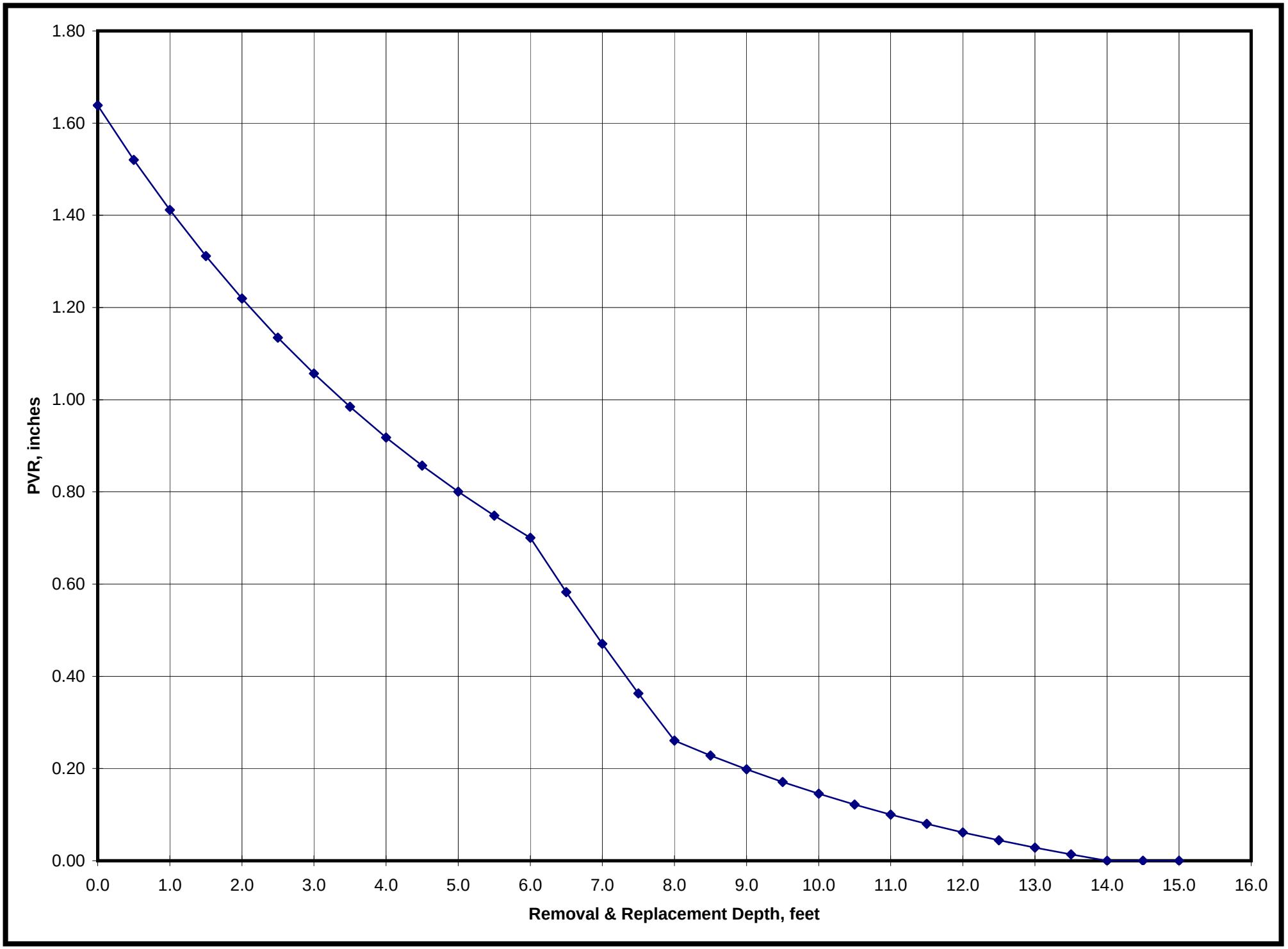

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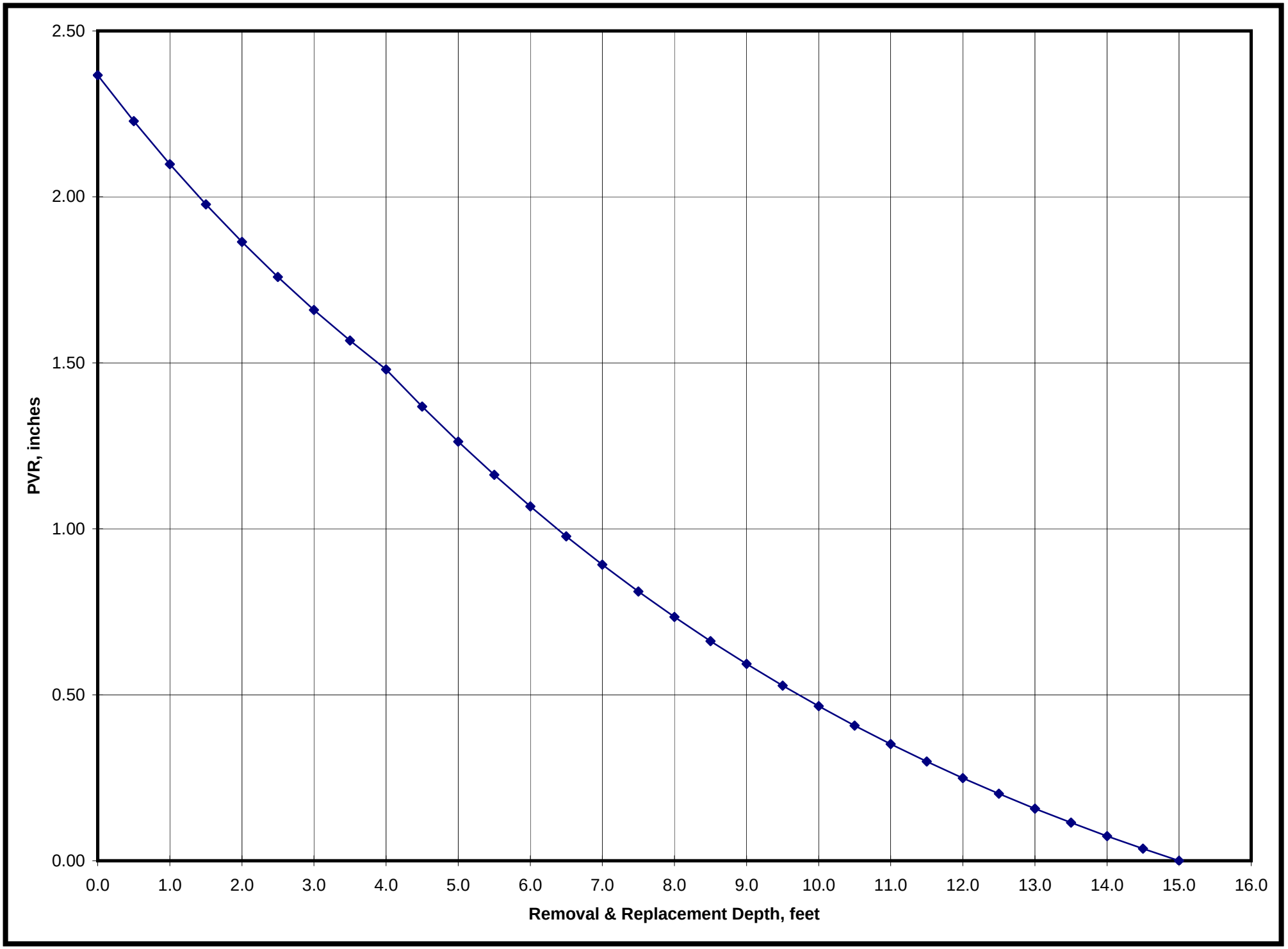

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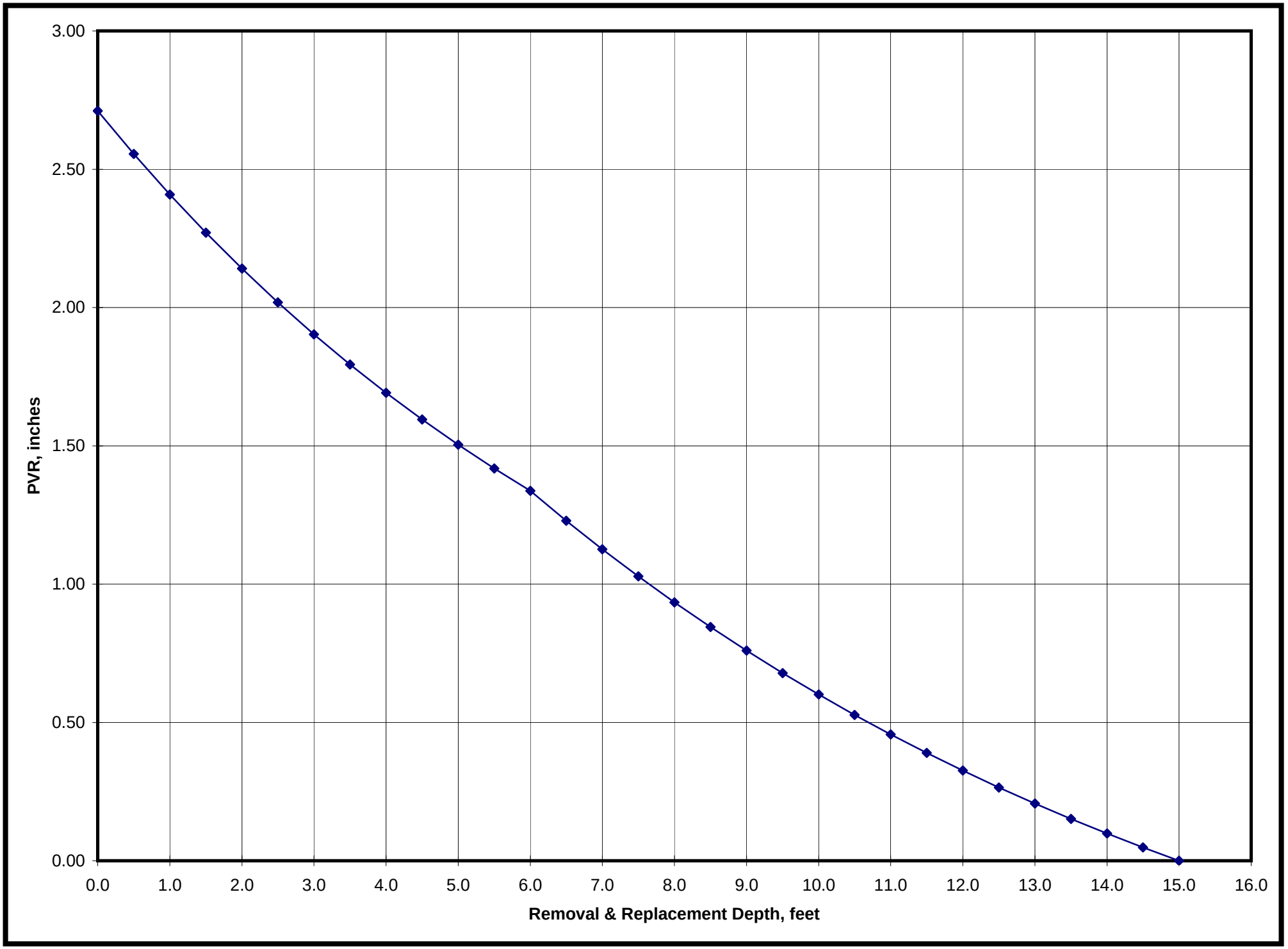

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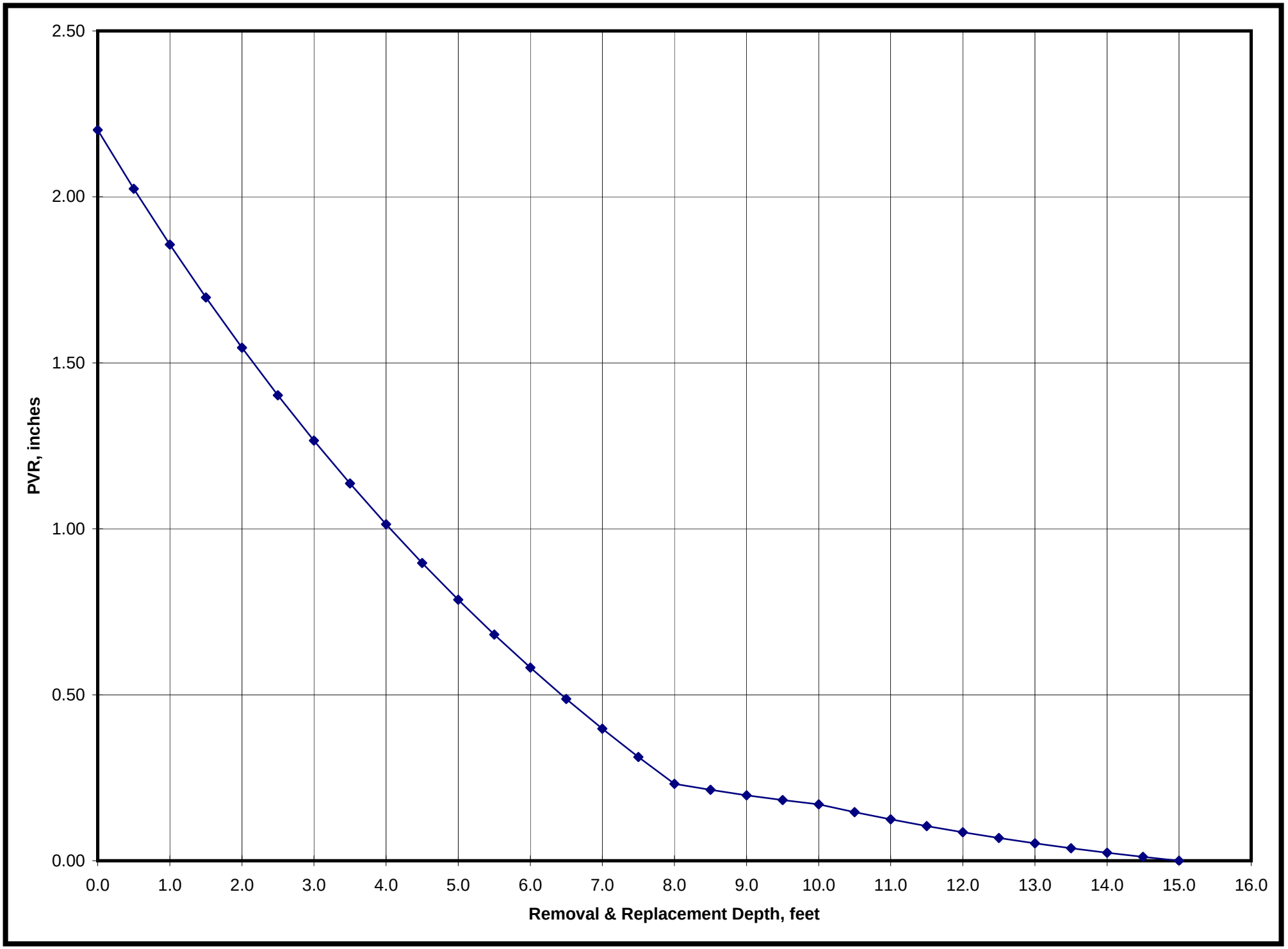
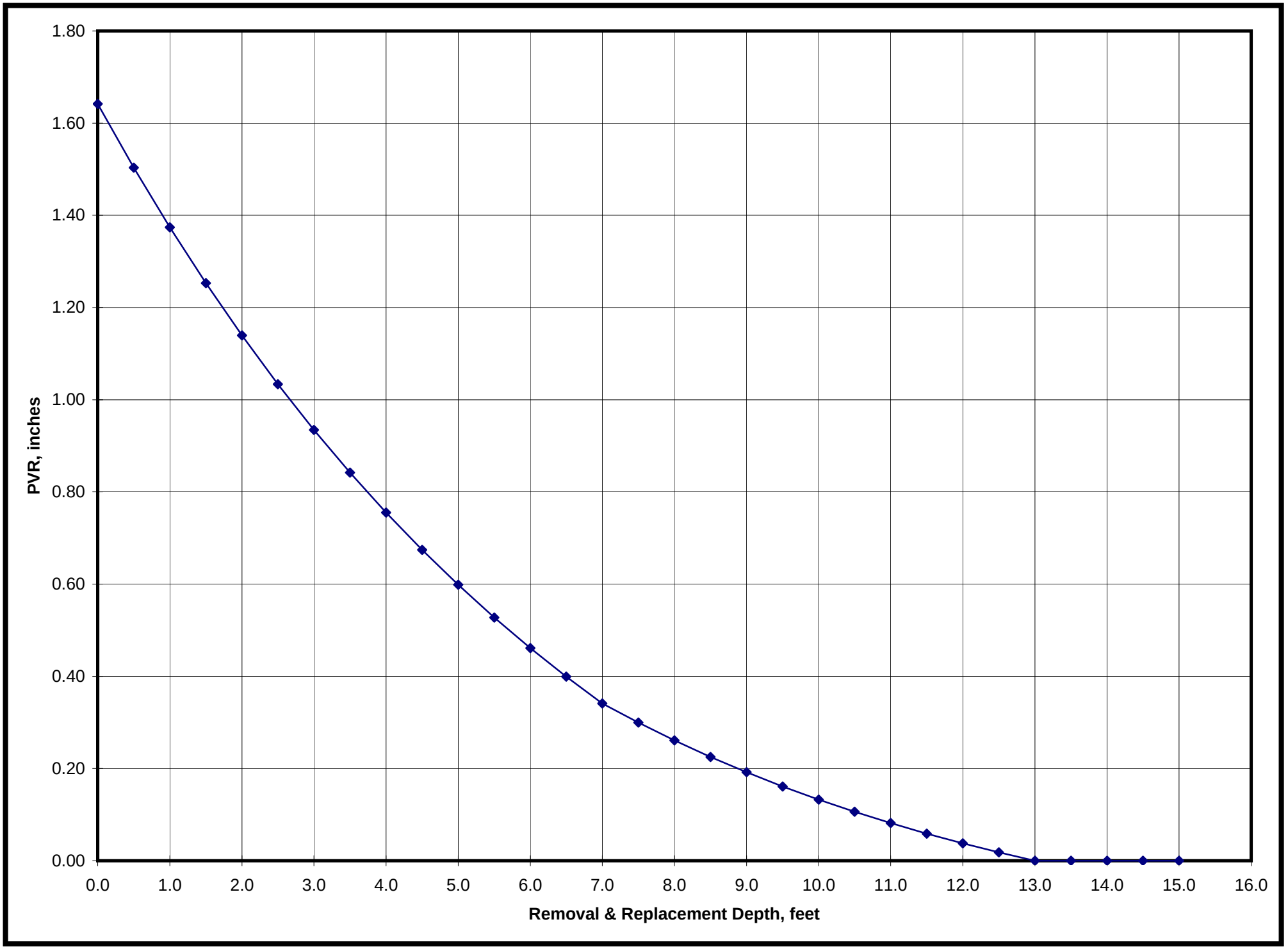


DONNA PUMP TO BROWNSVILLE - BH 128



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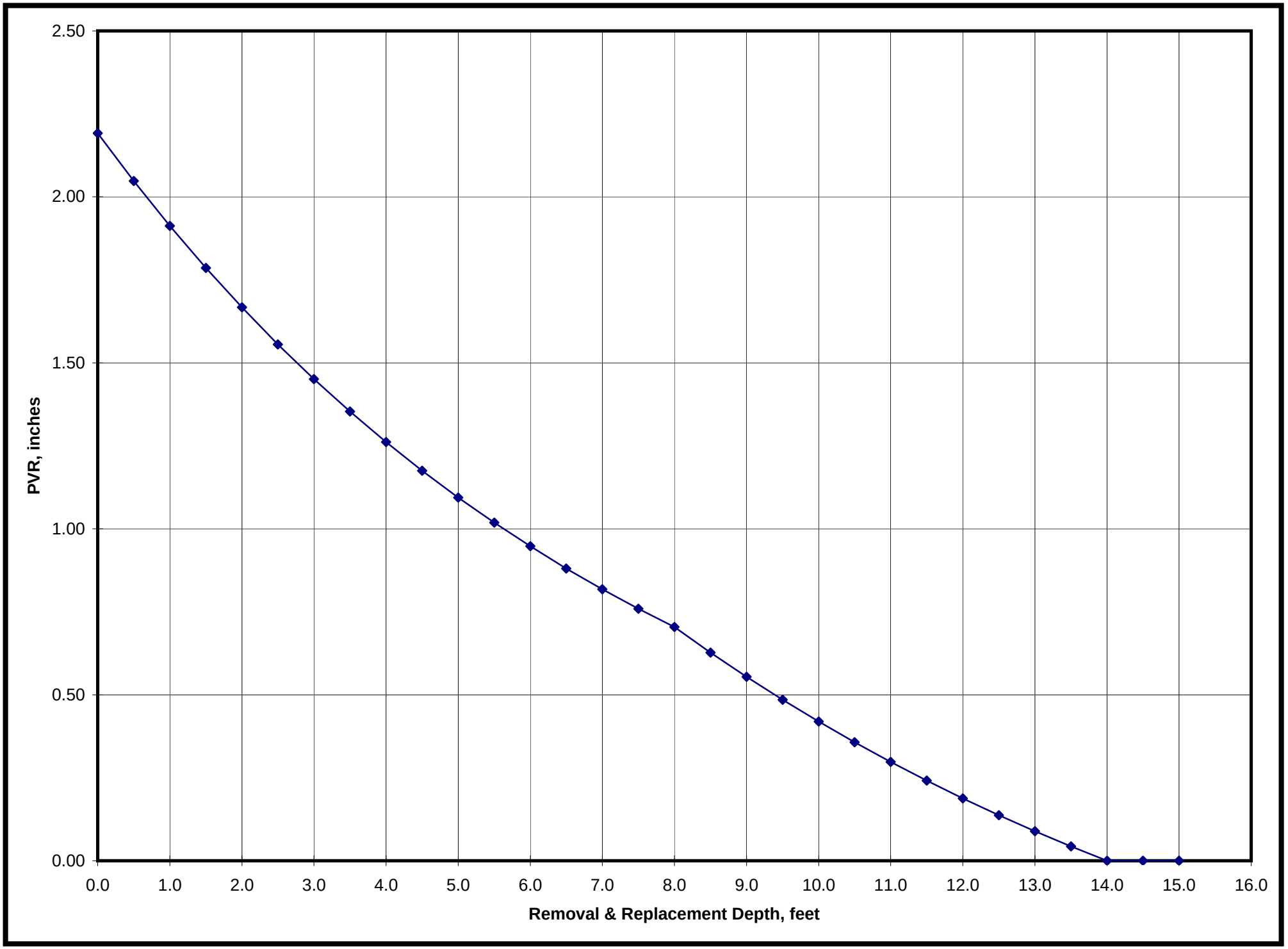

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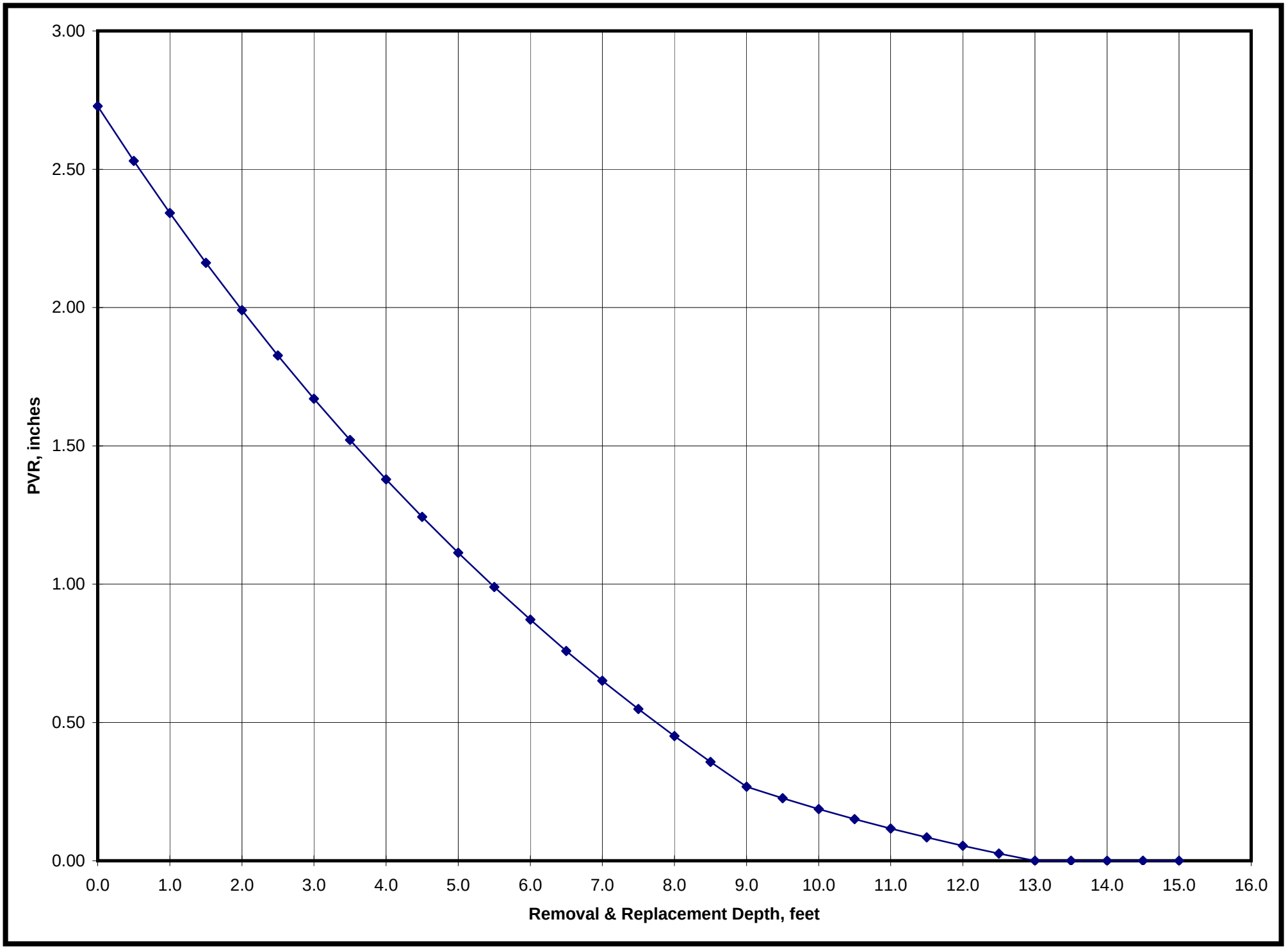

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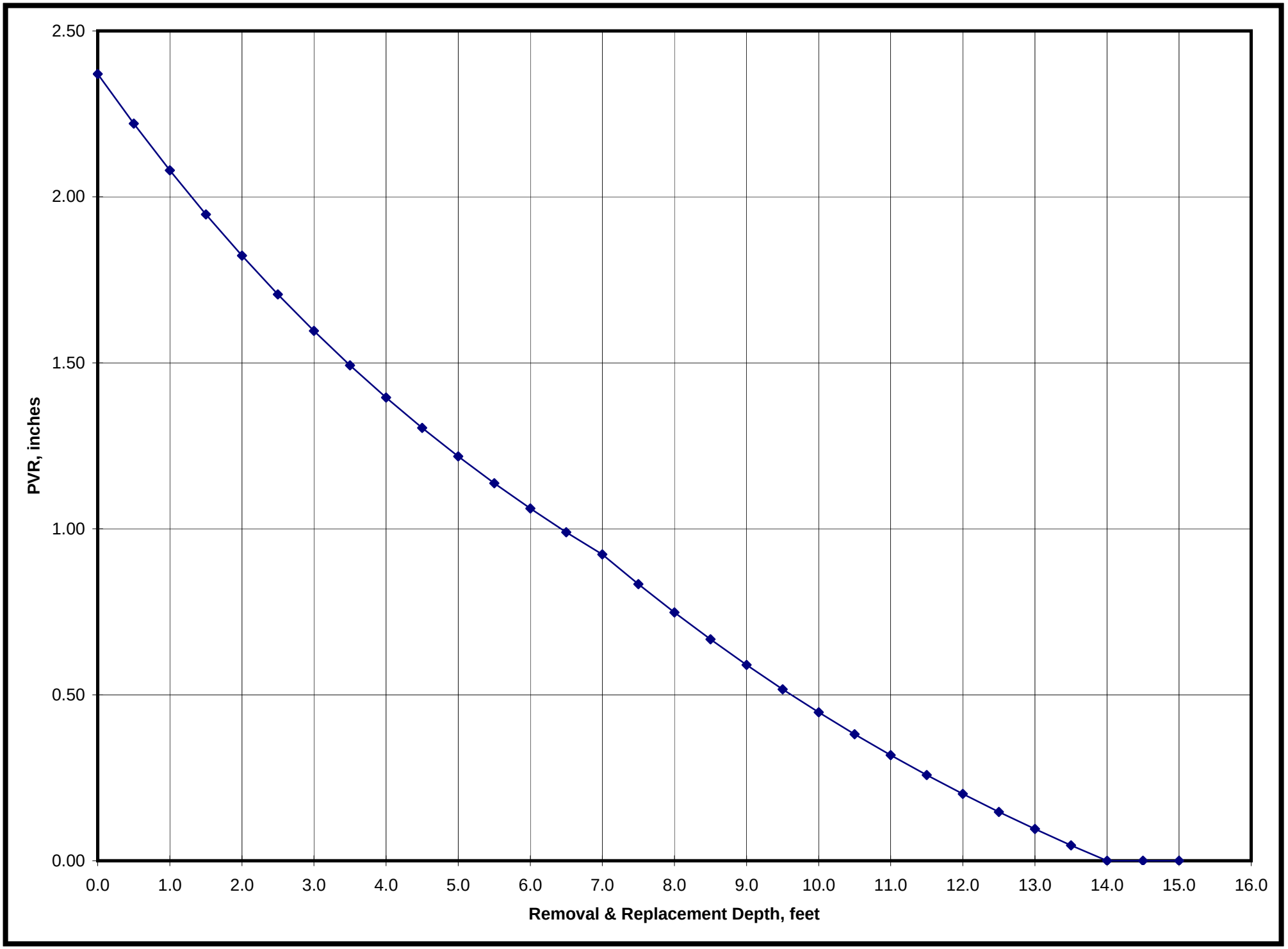

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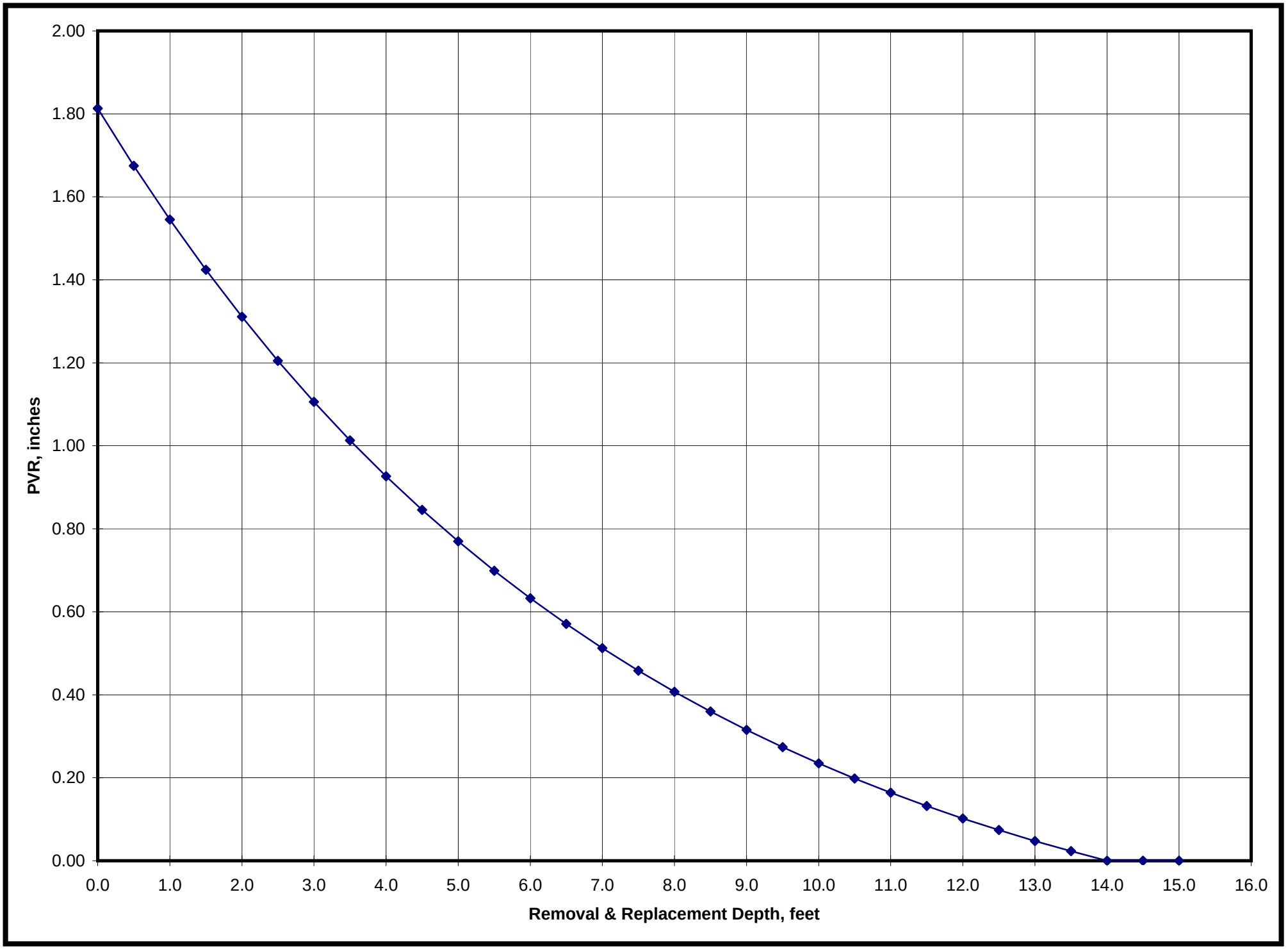

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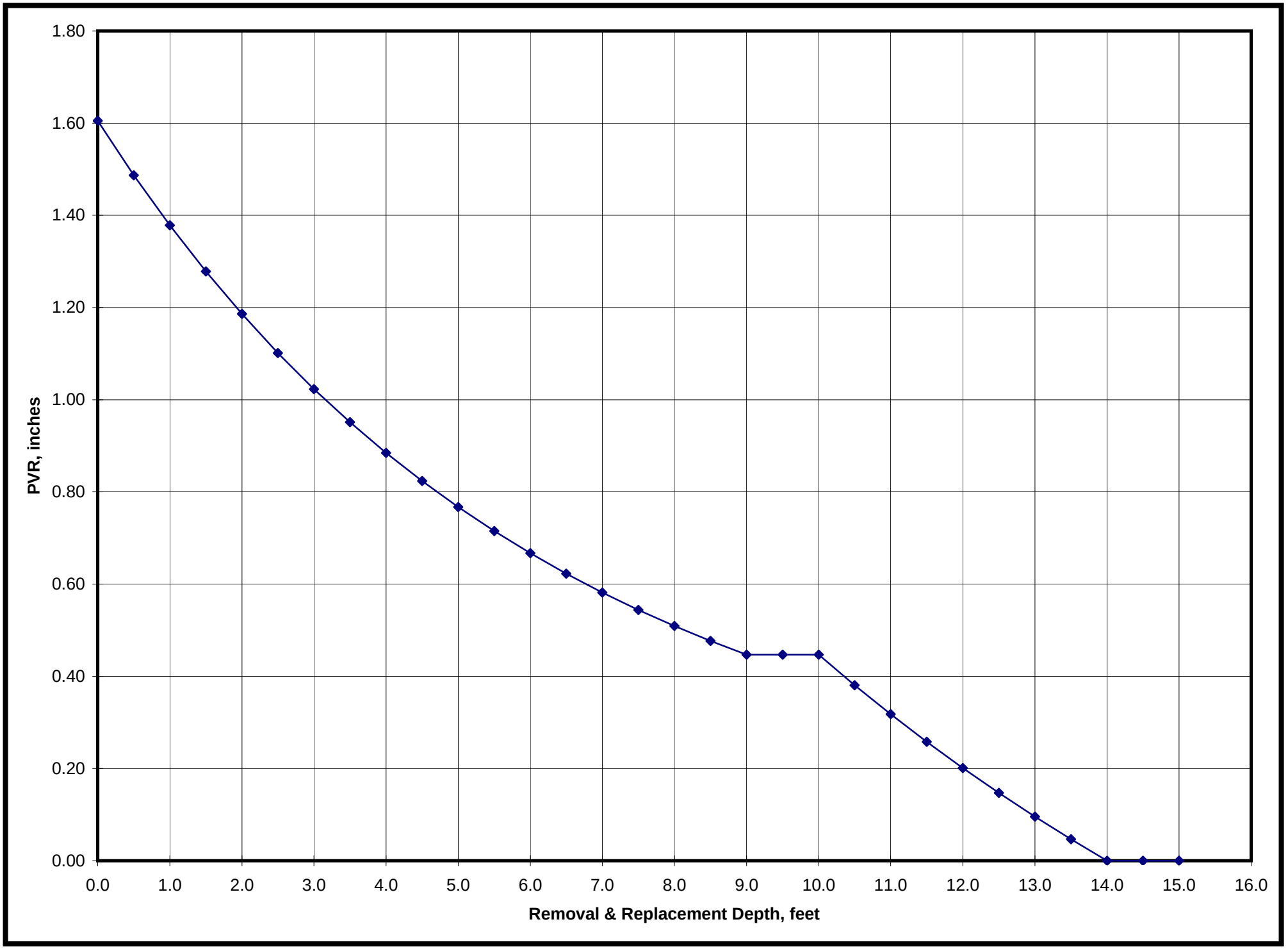

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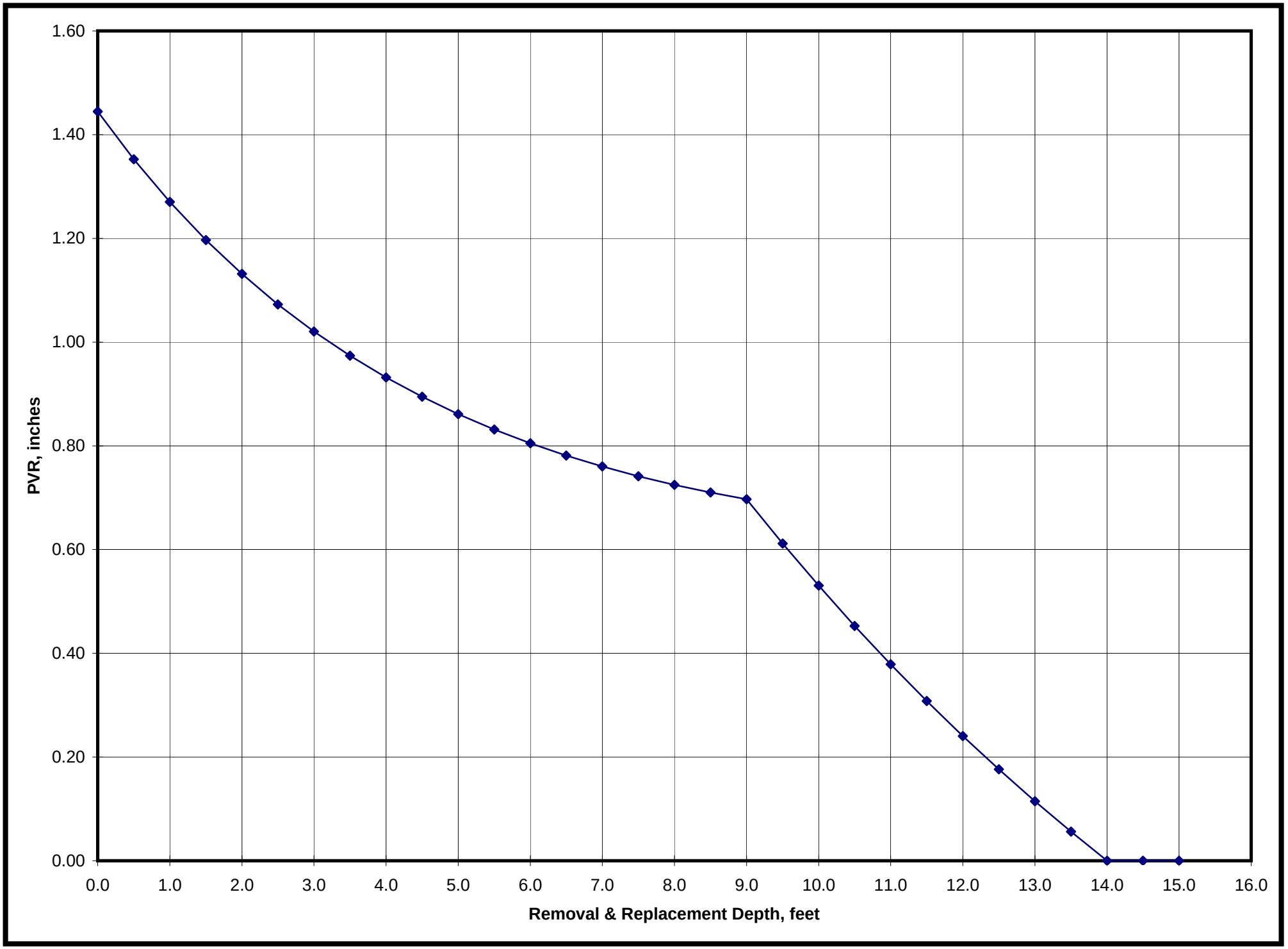

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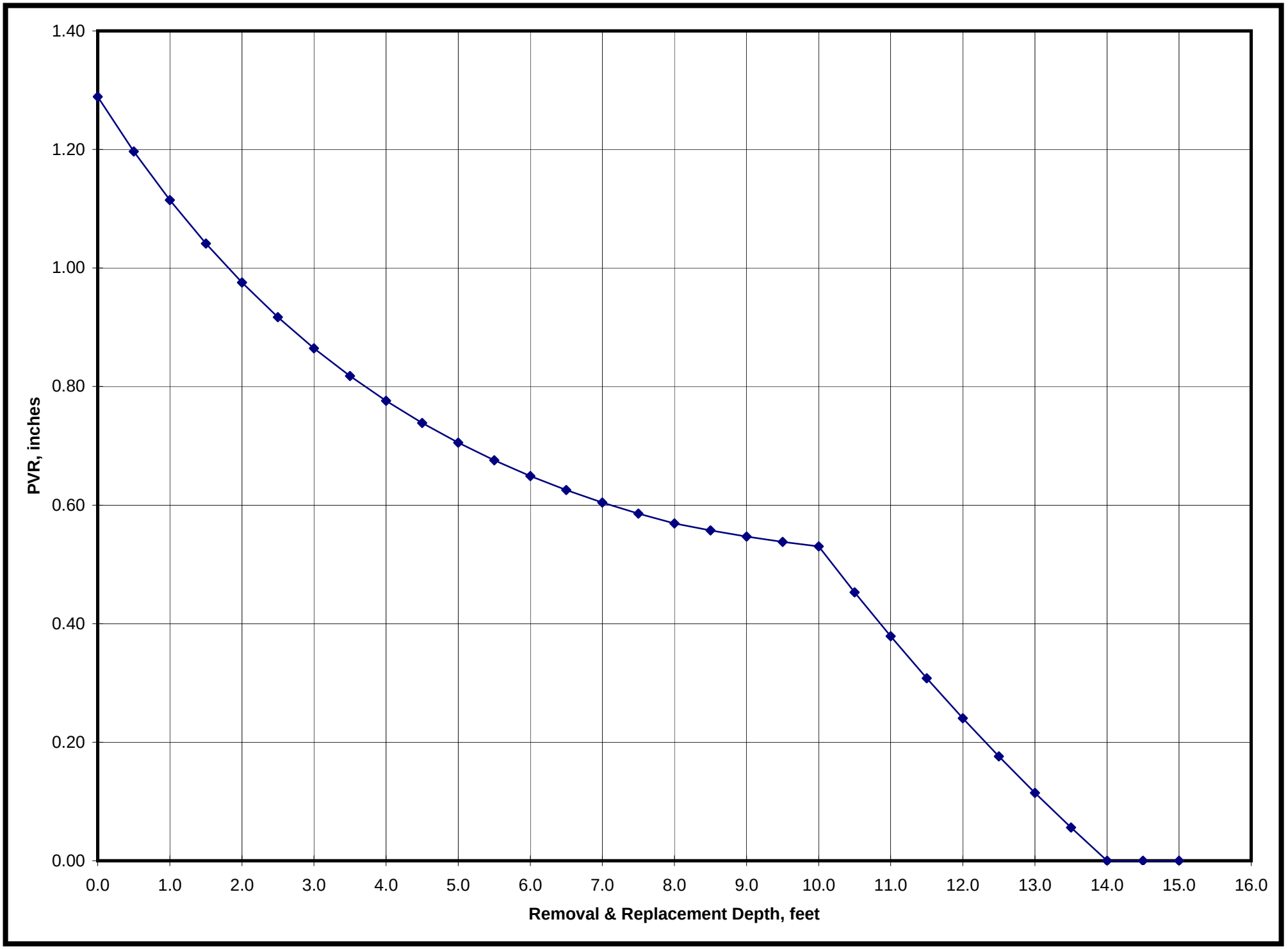

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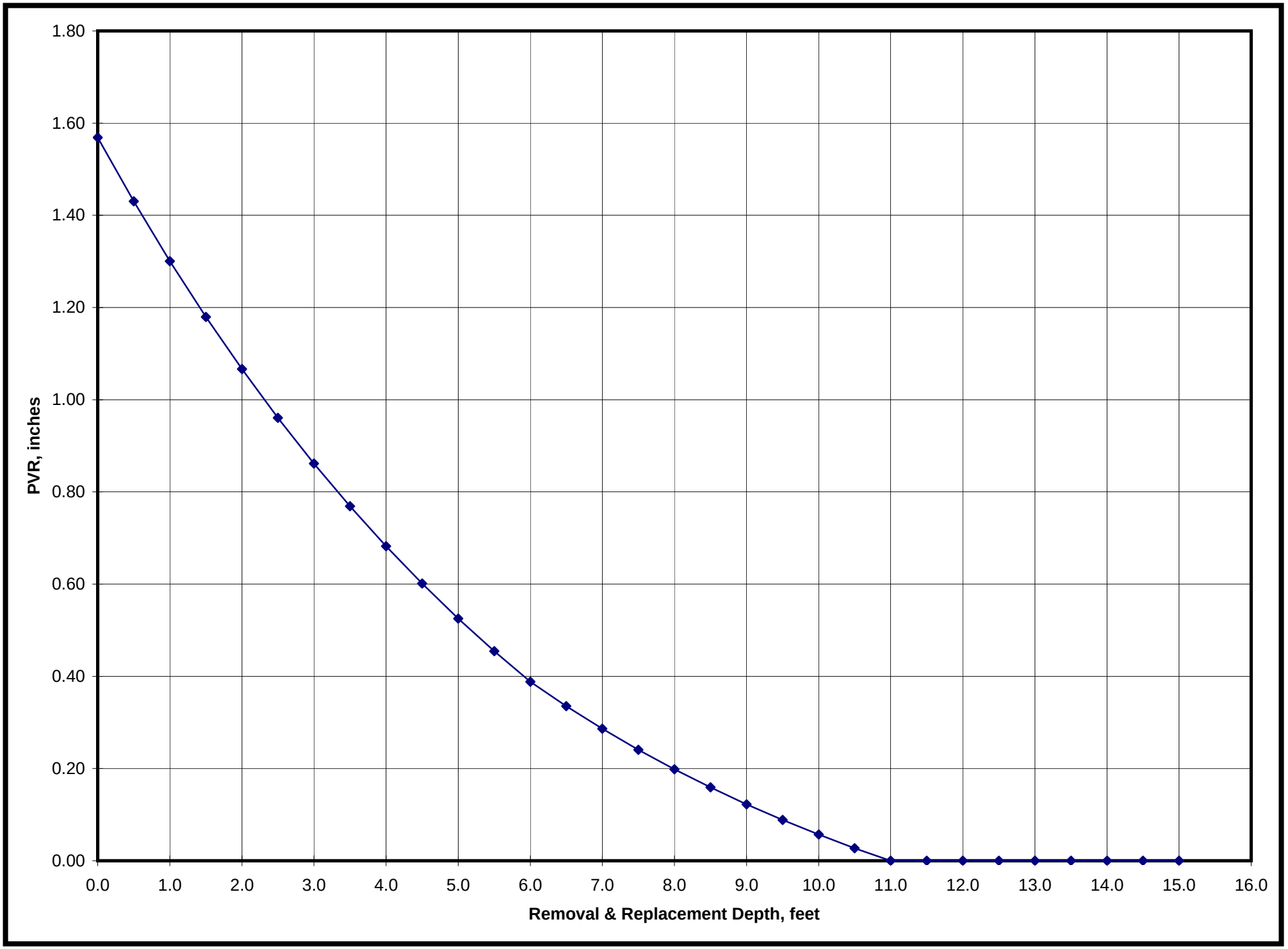

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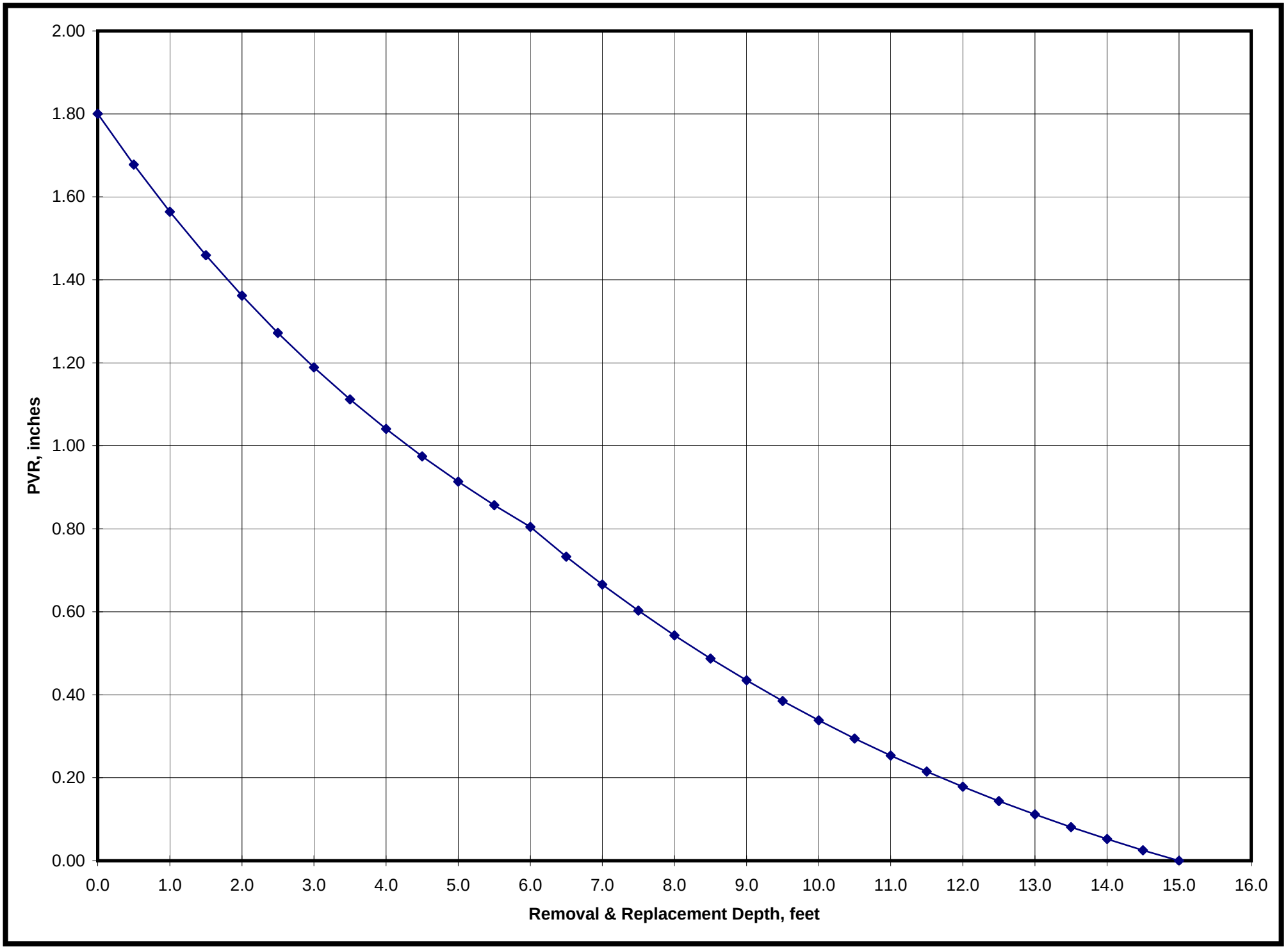

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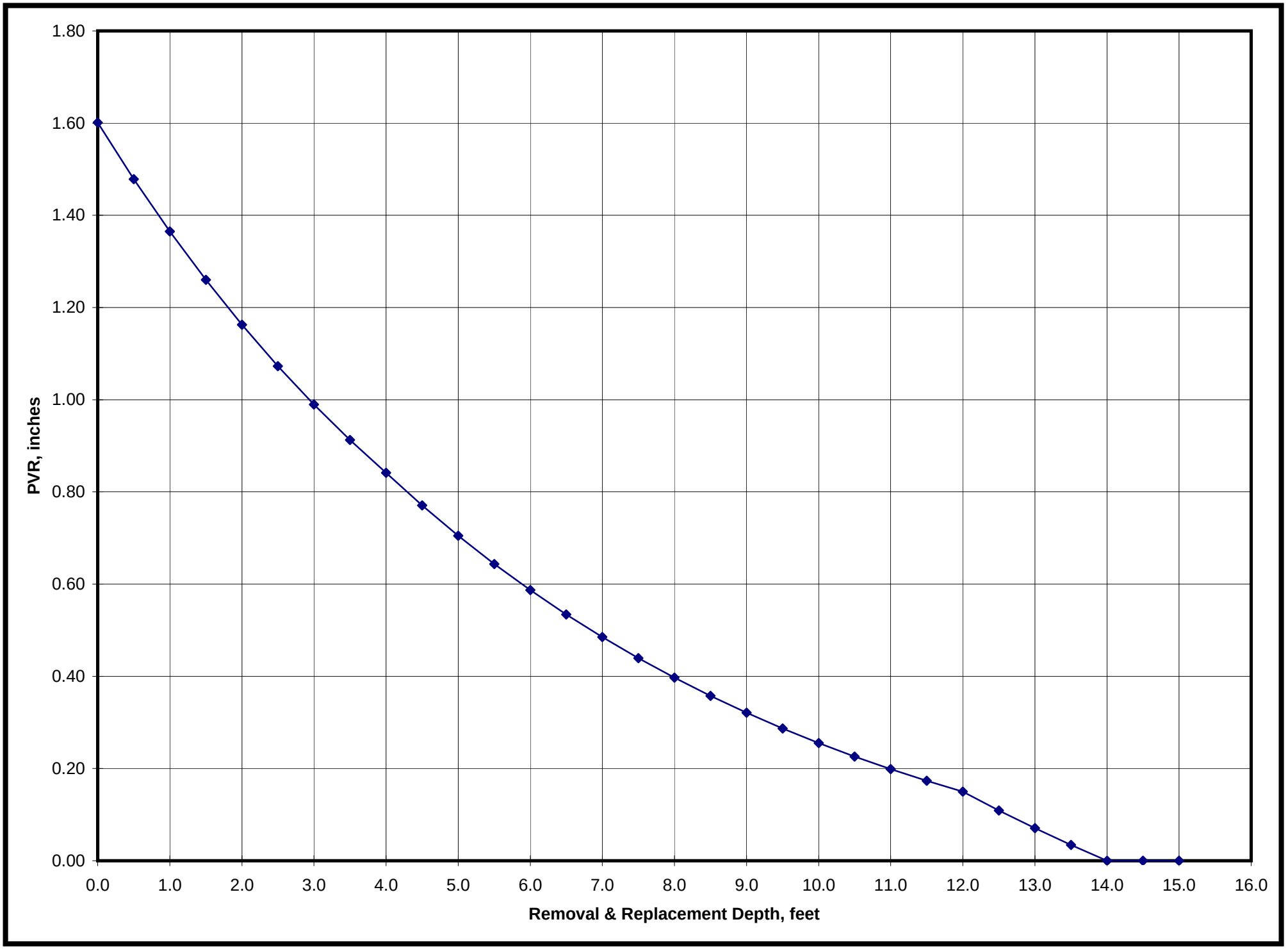

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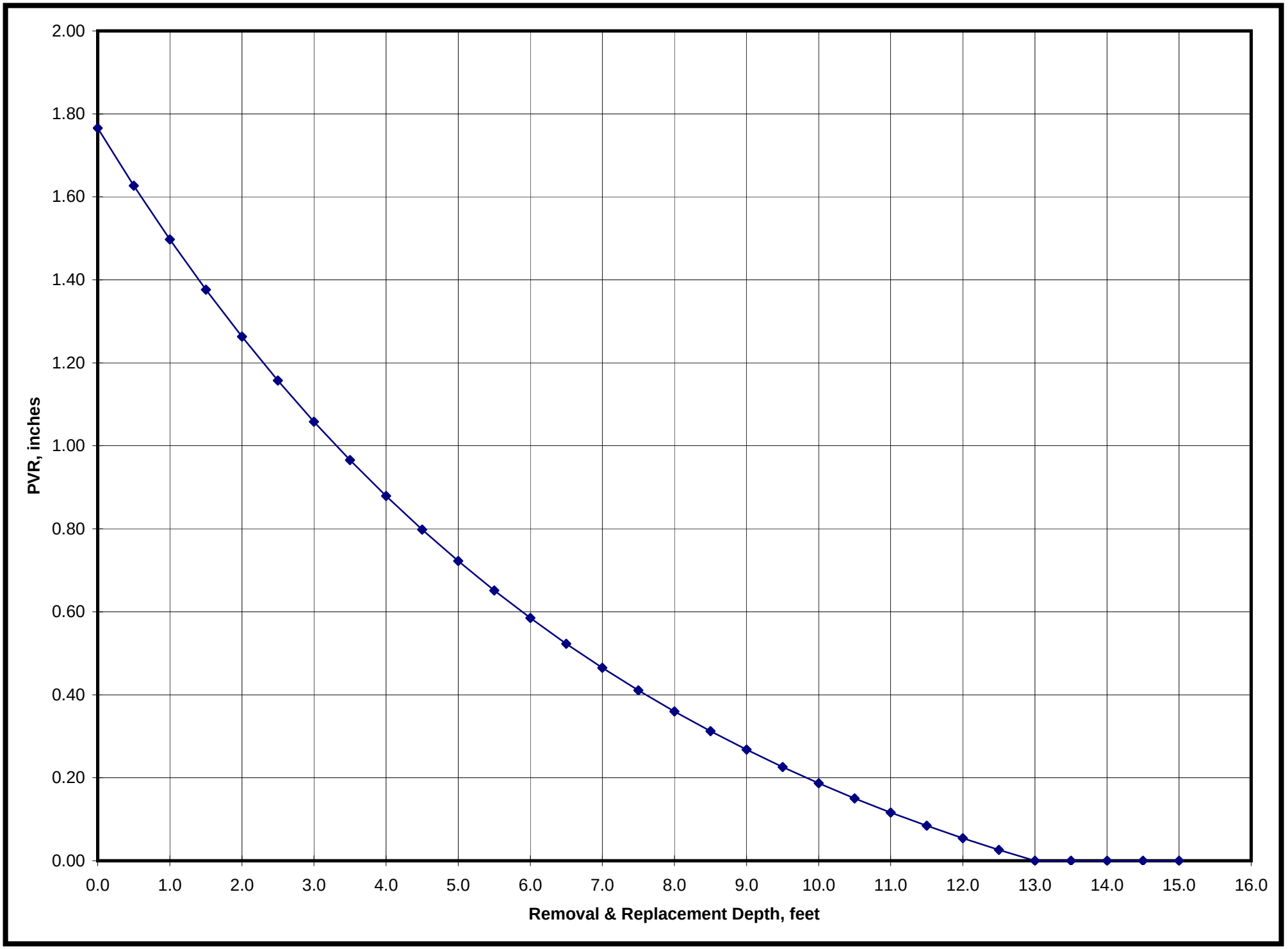

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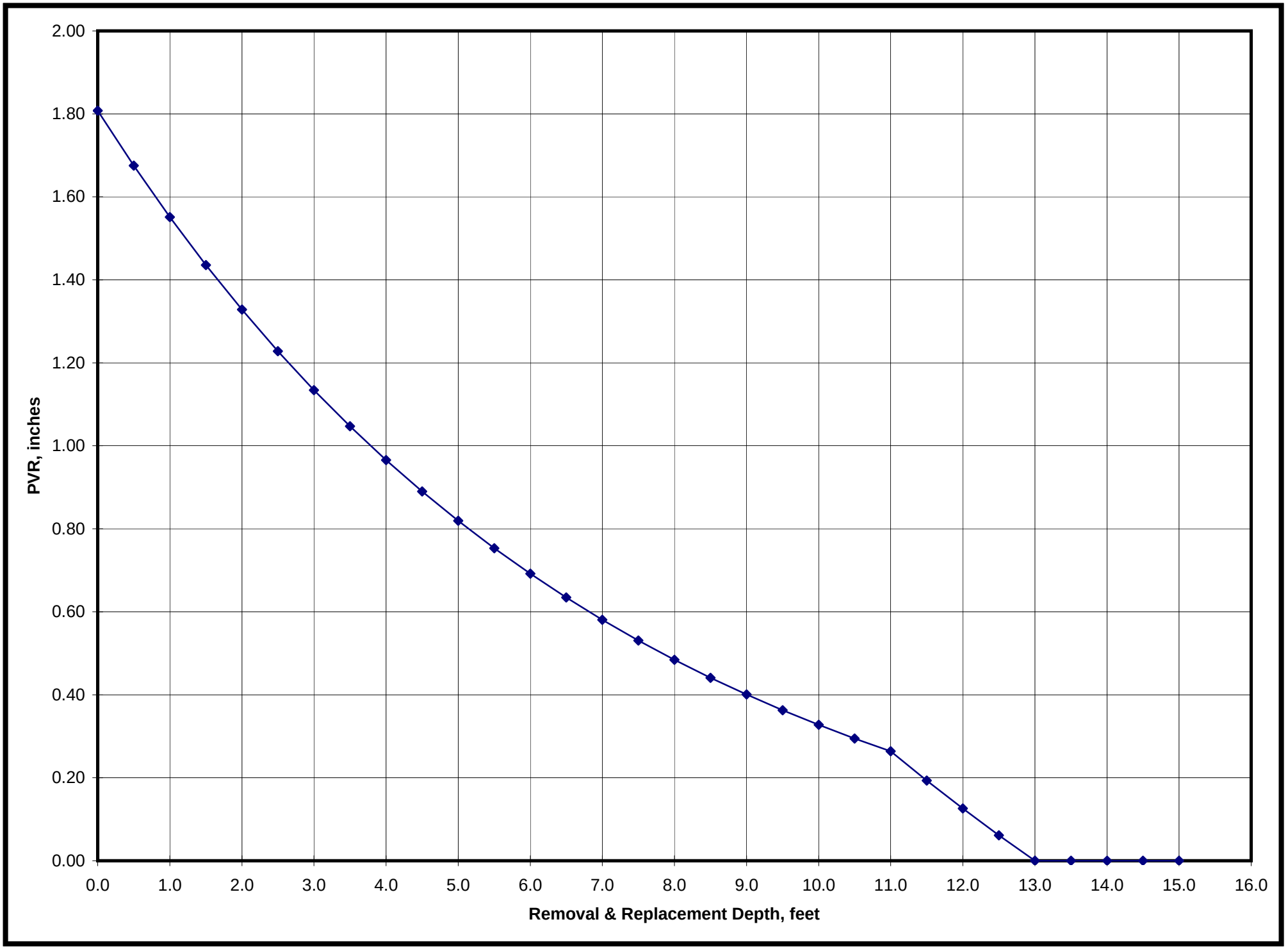

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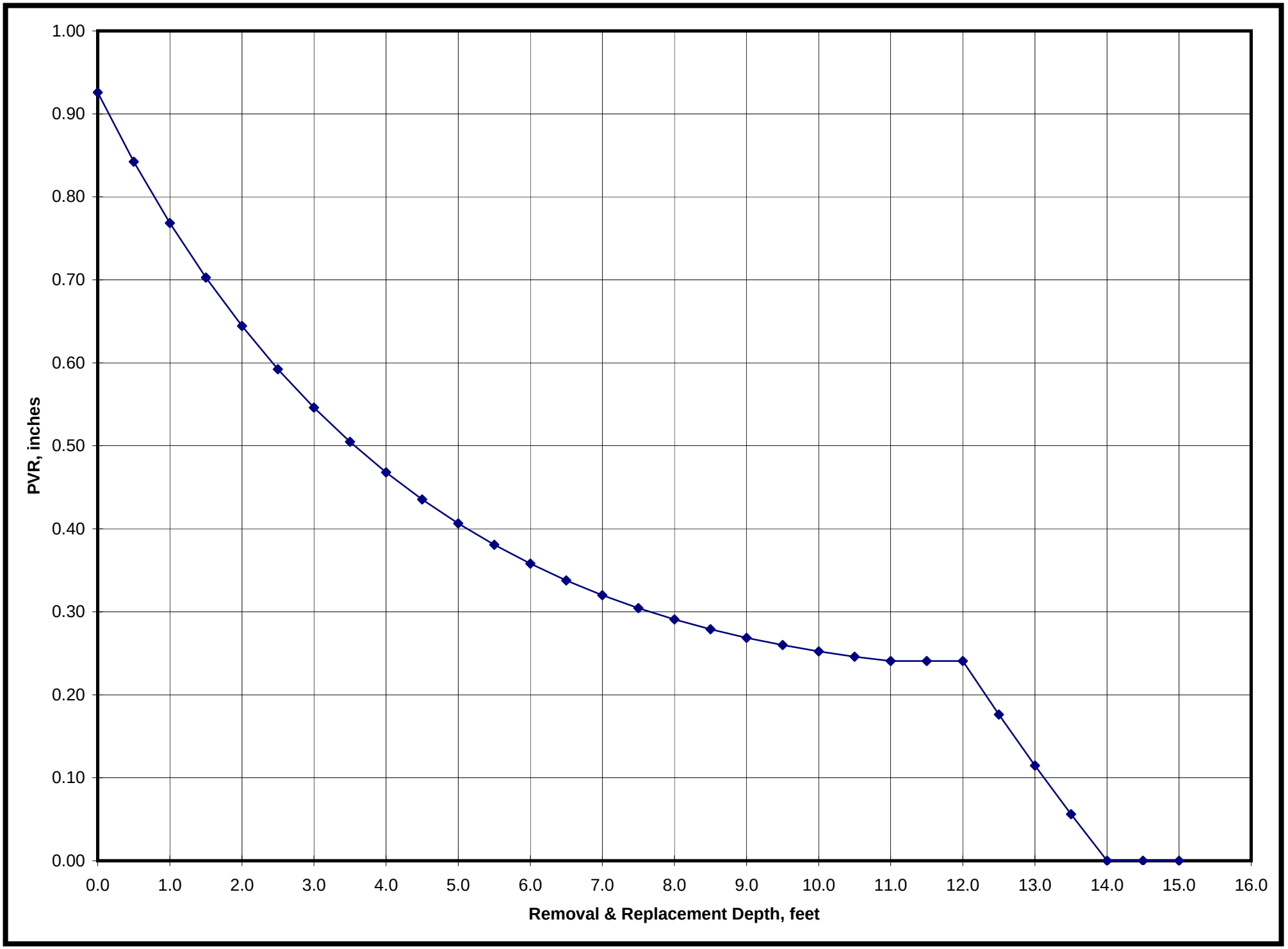

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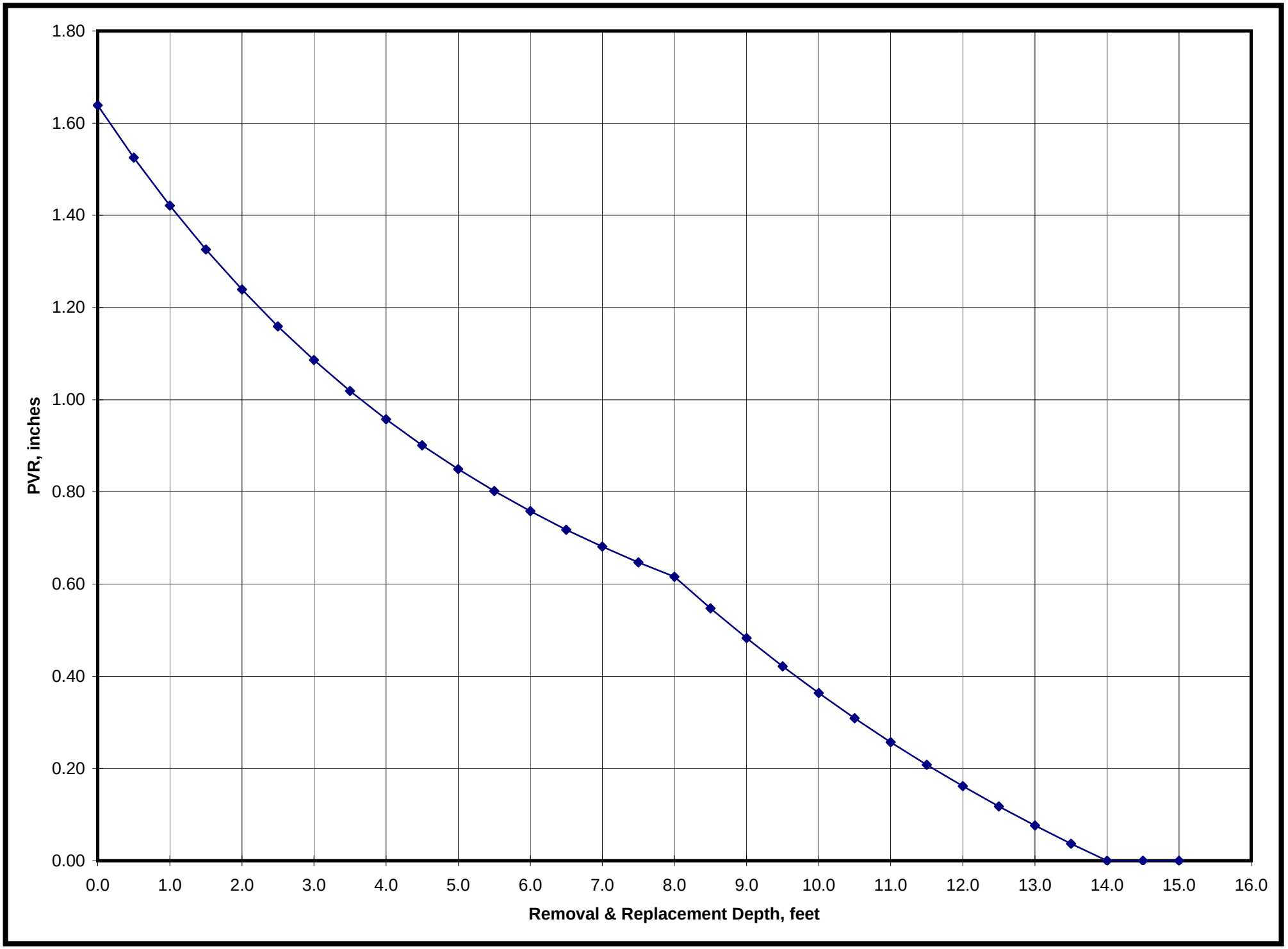

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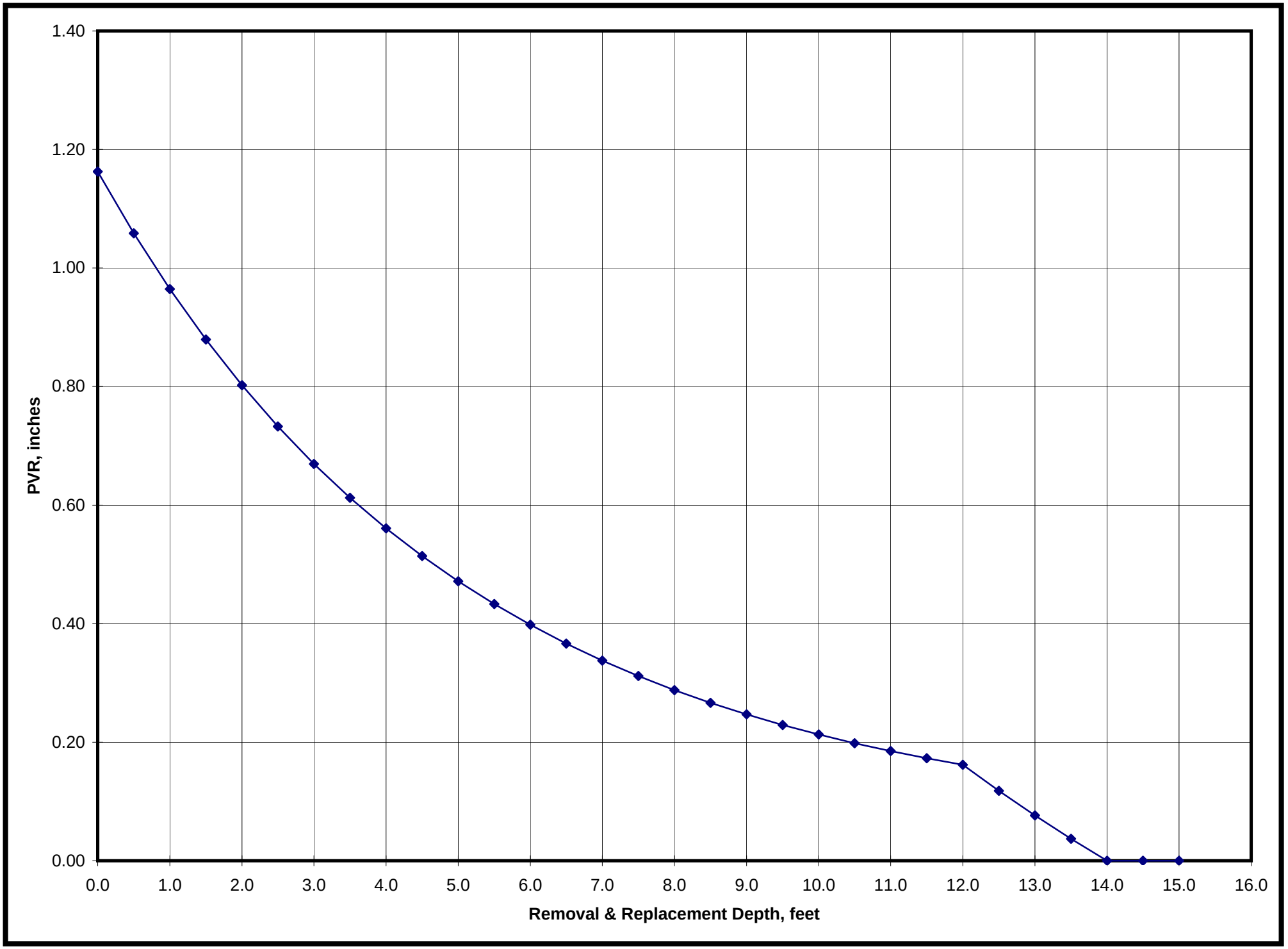

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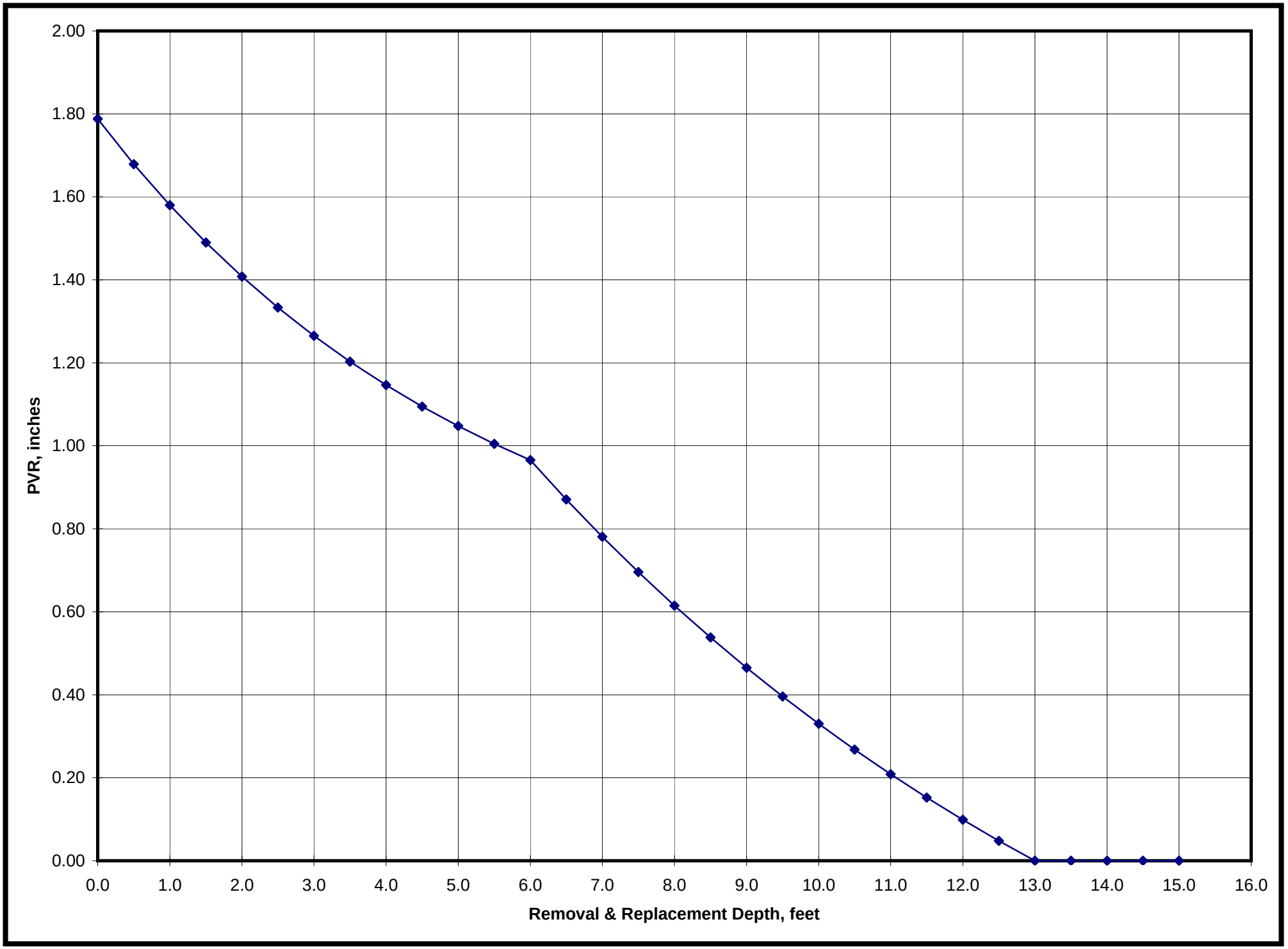

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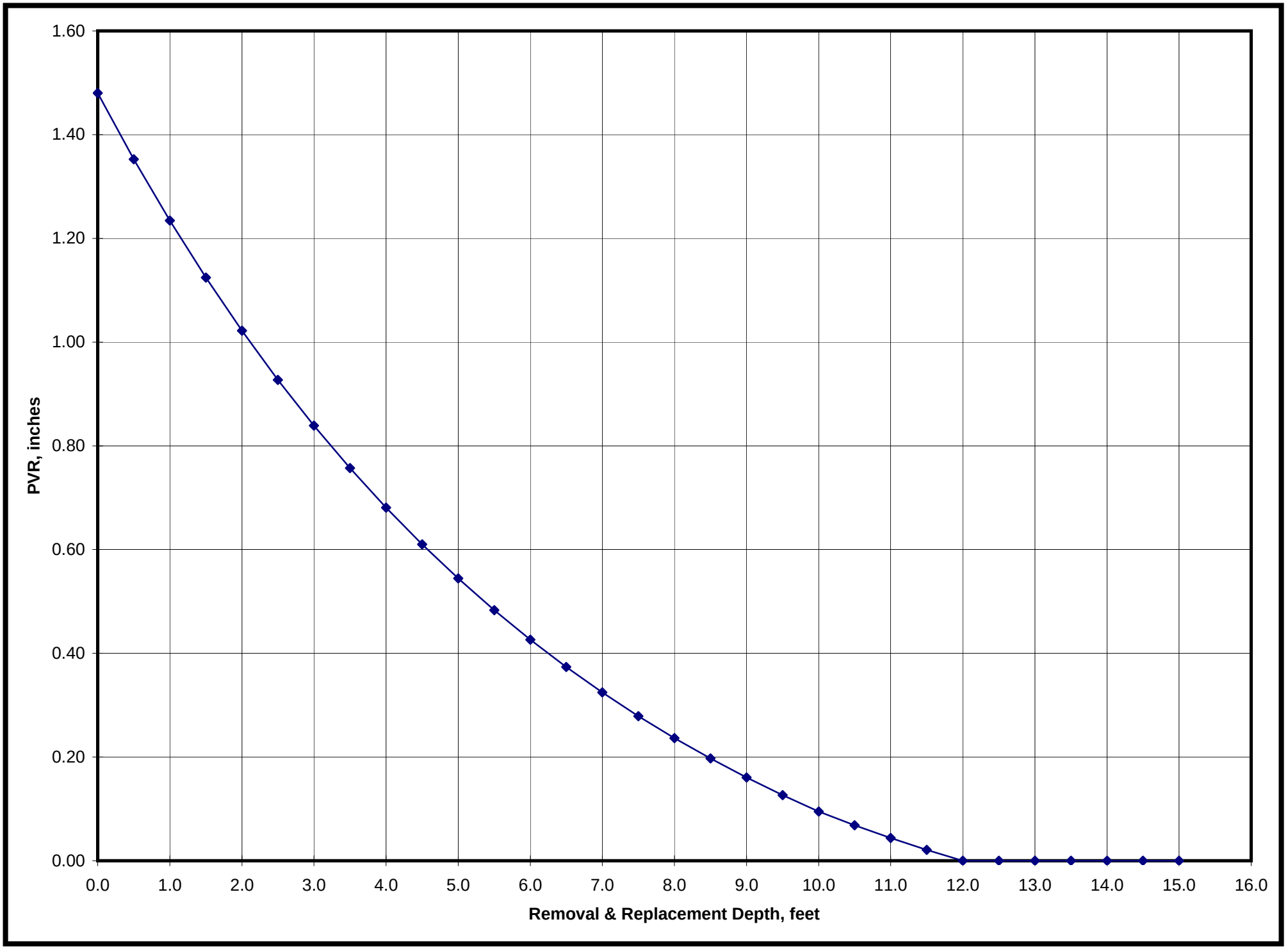

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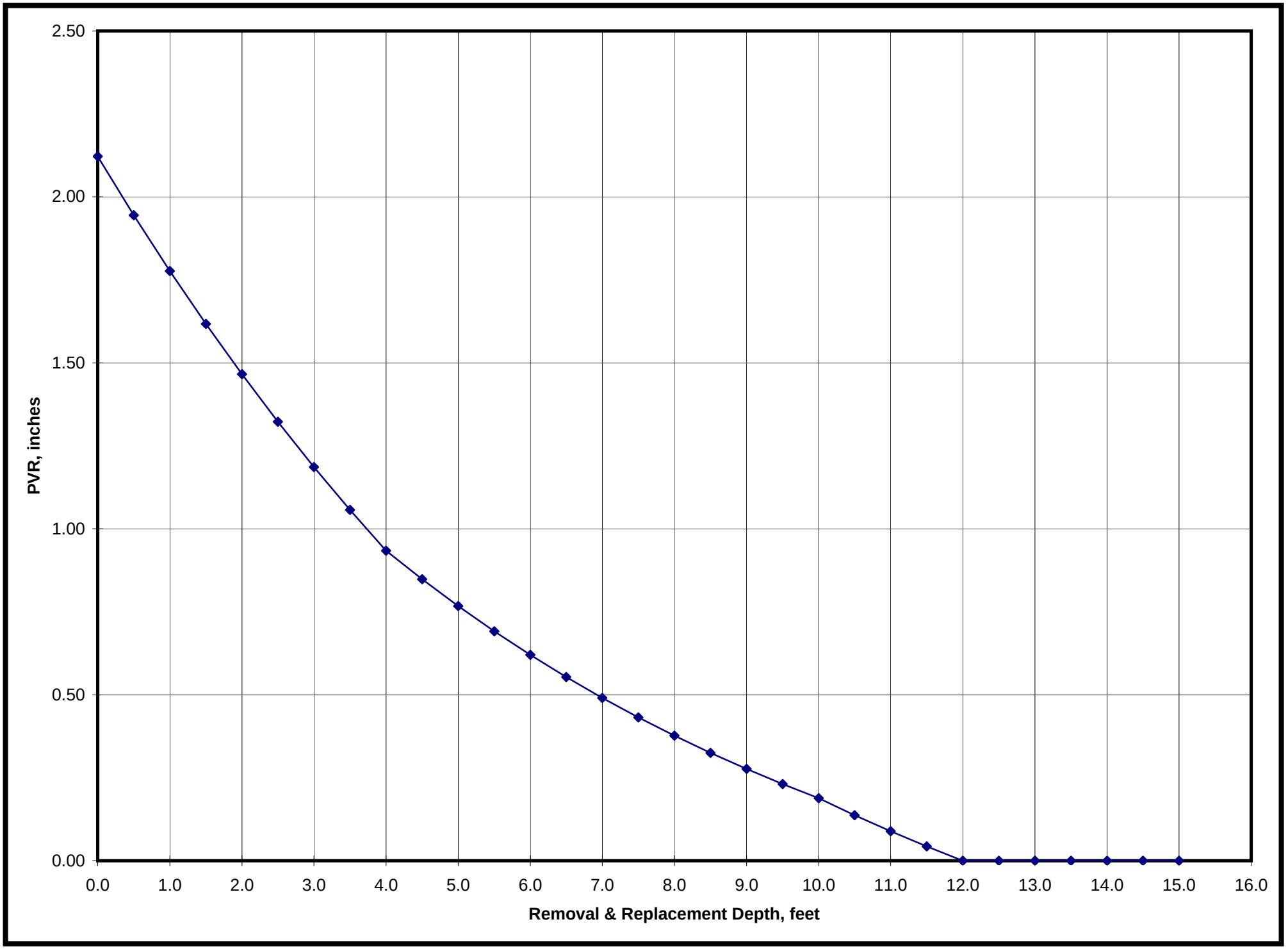

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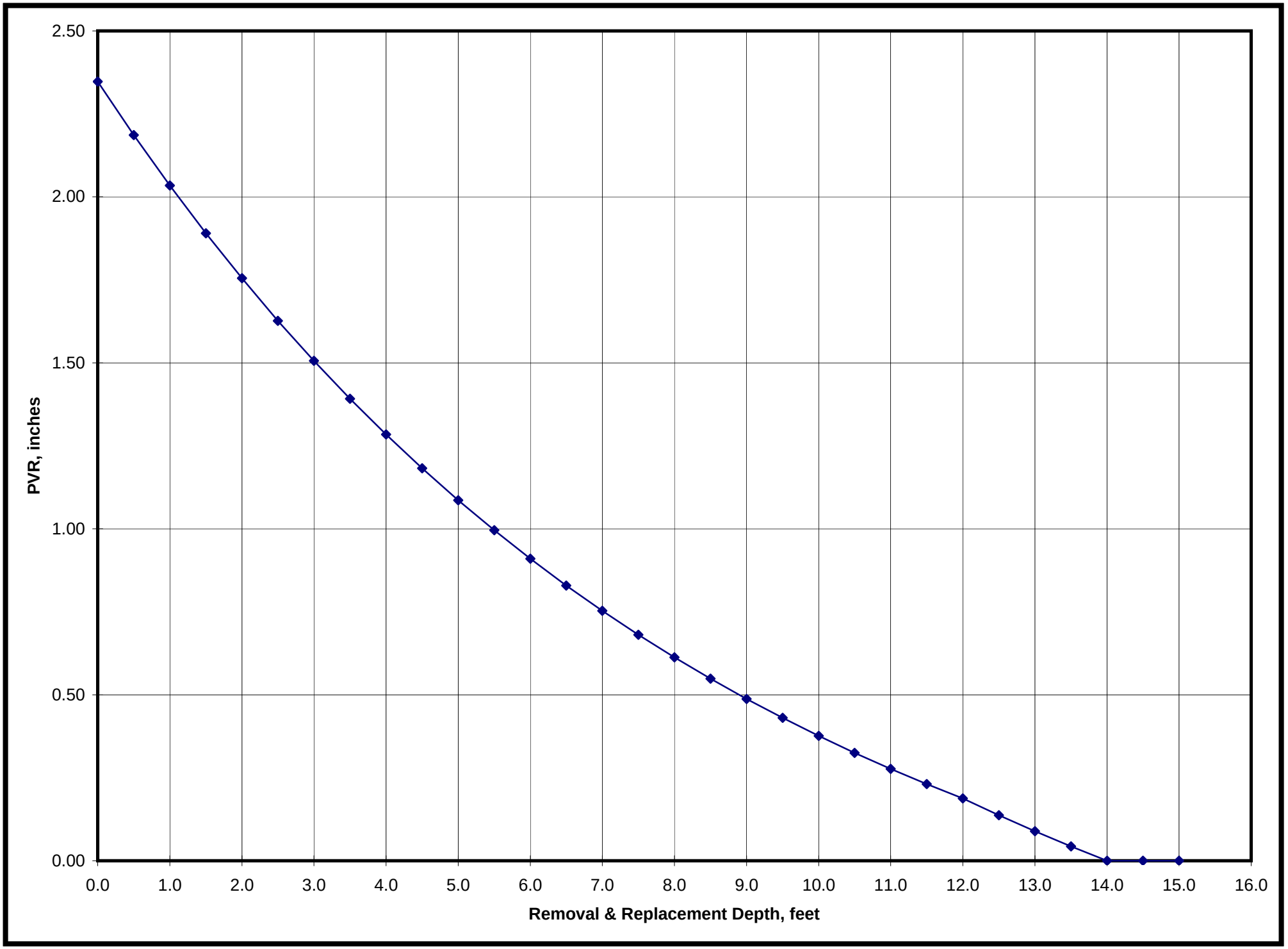

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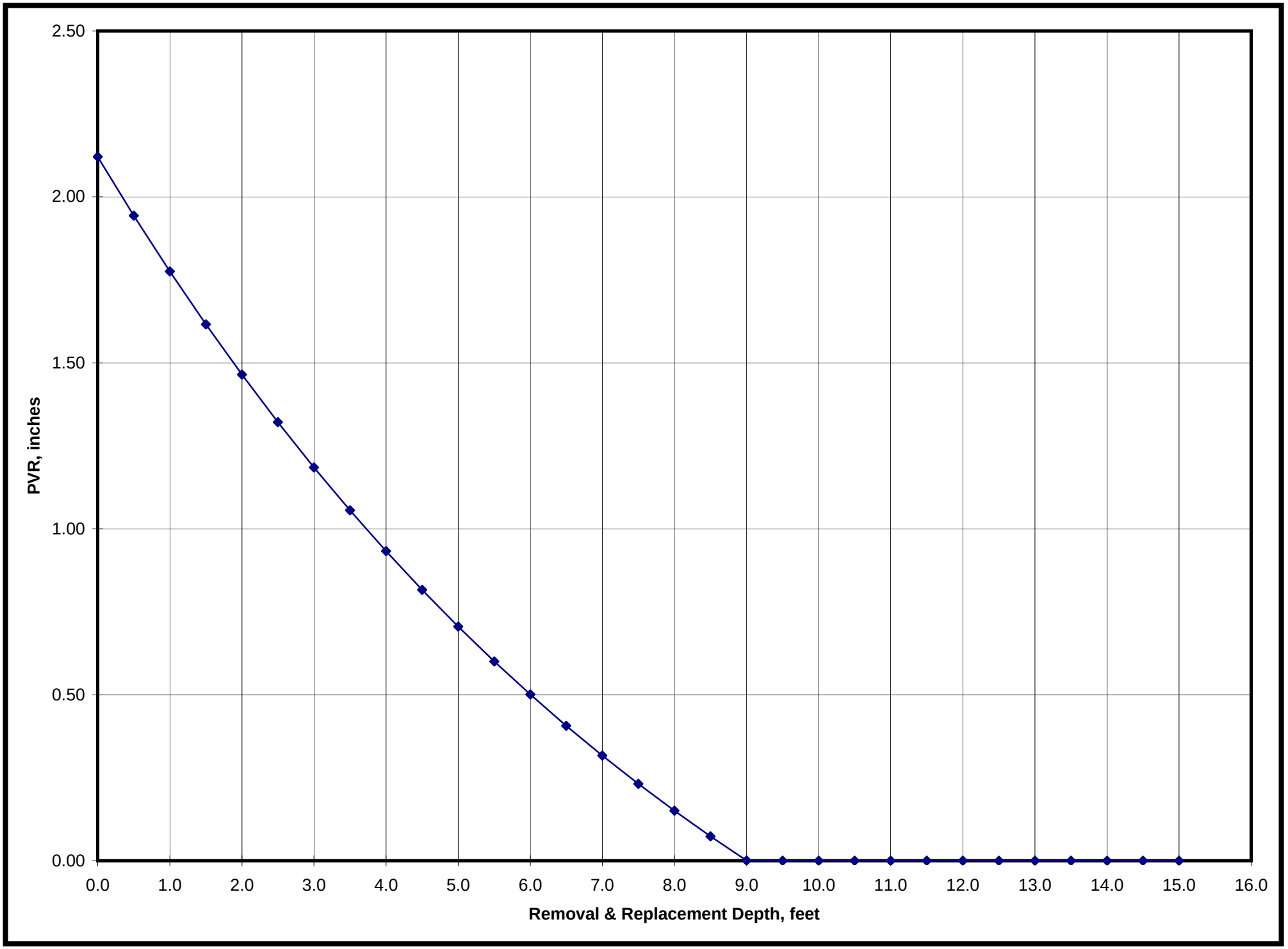

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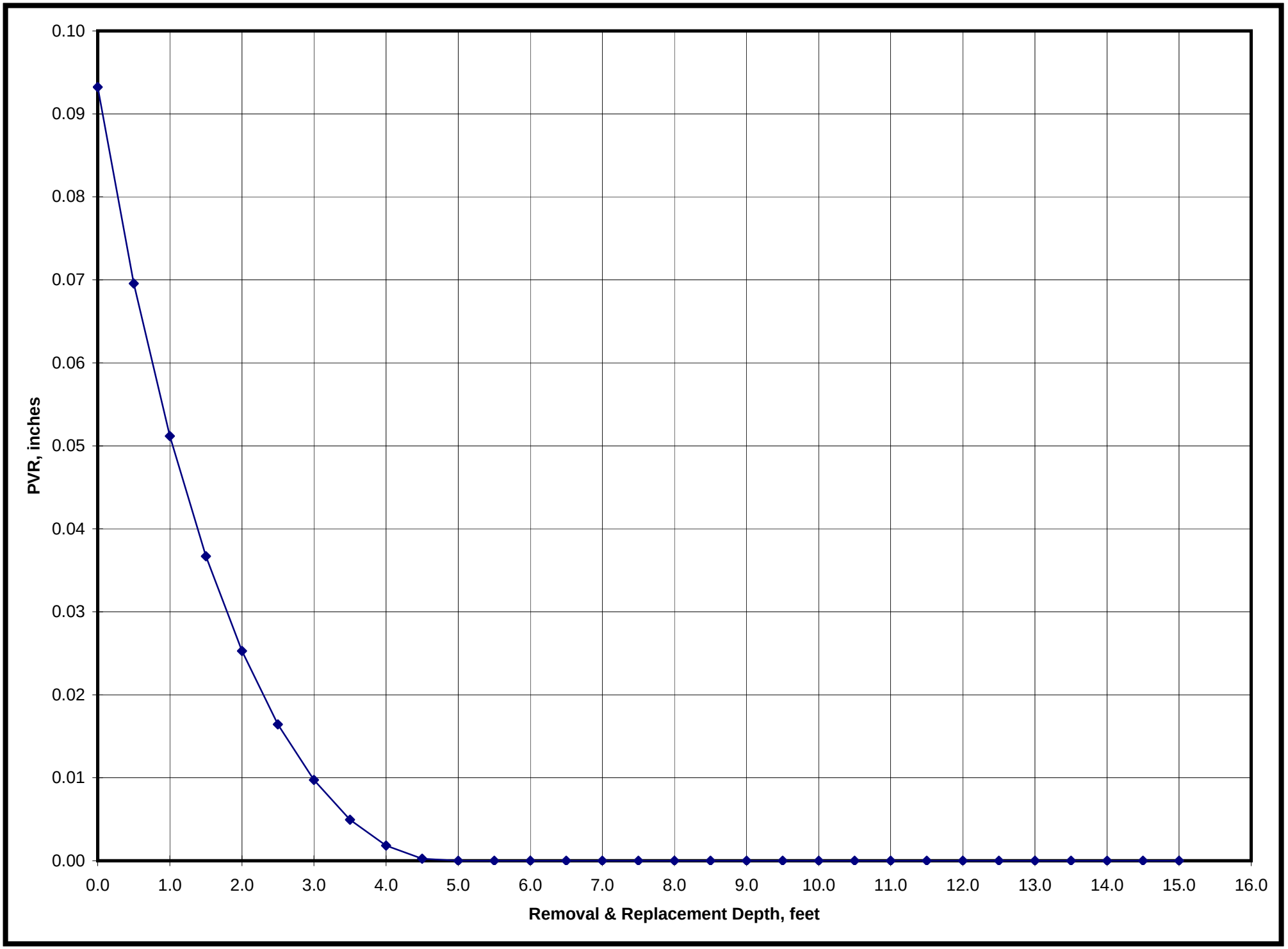

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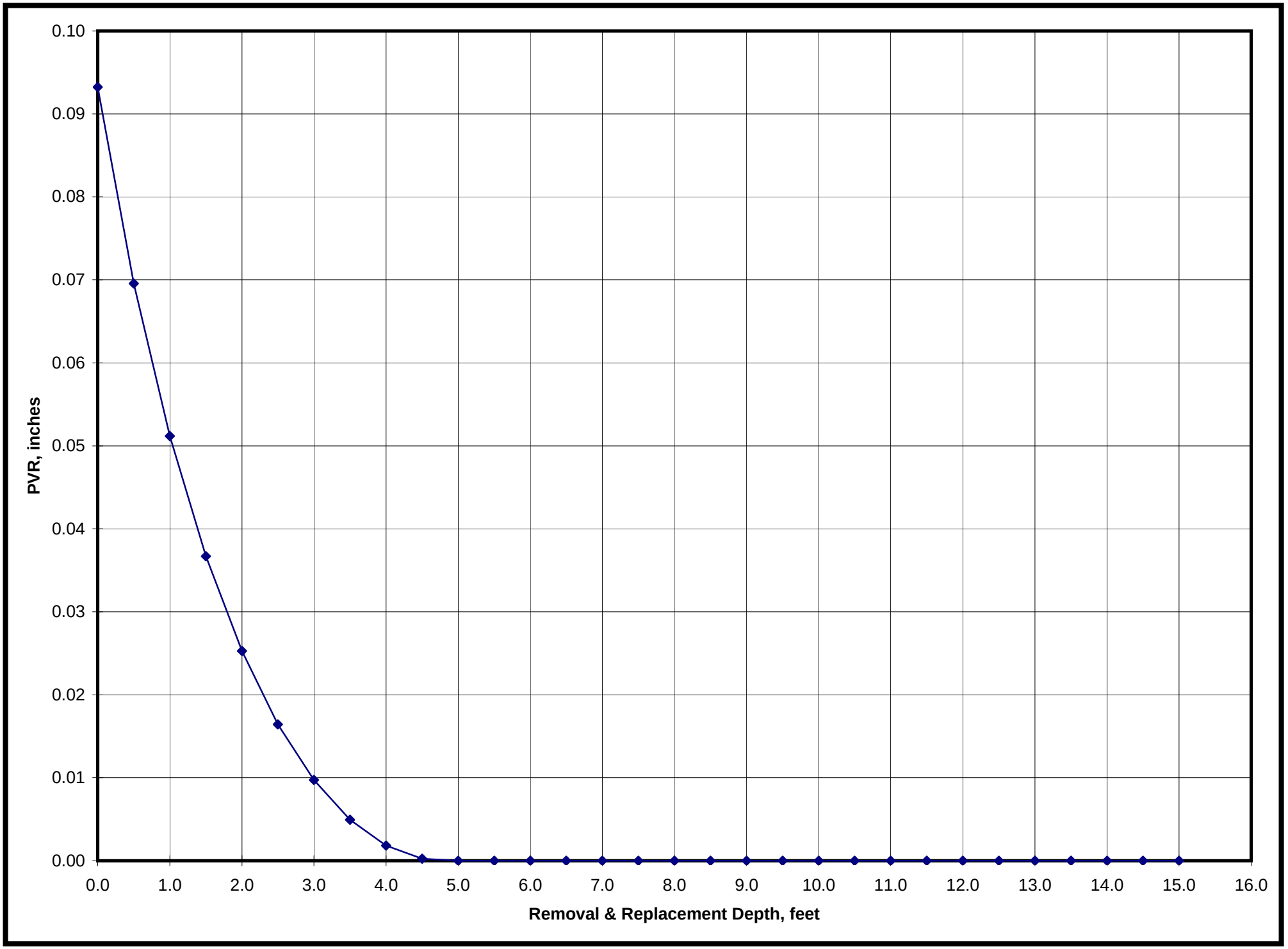

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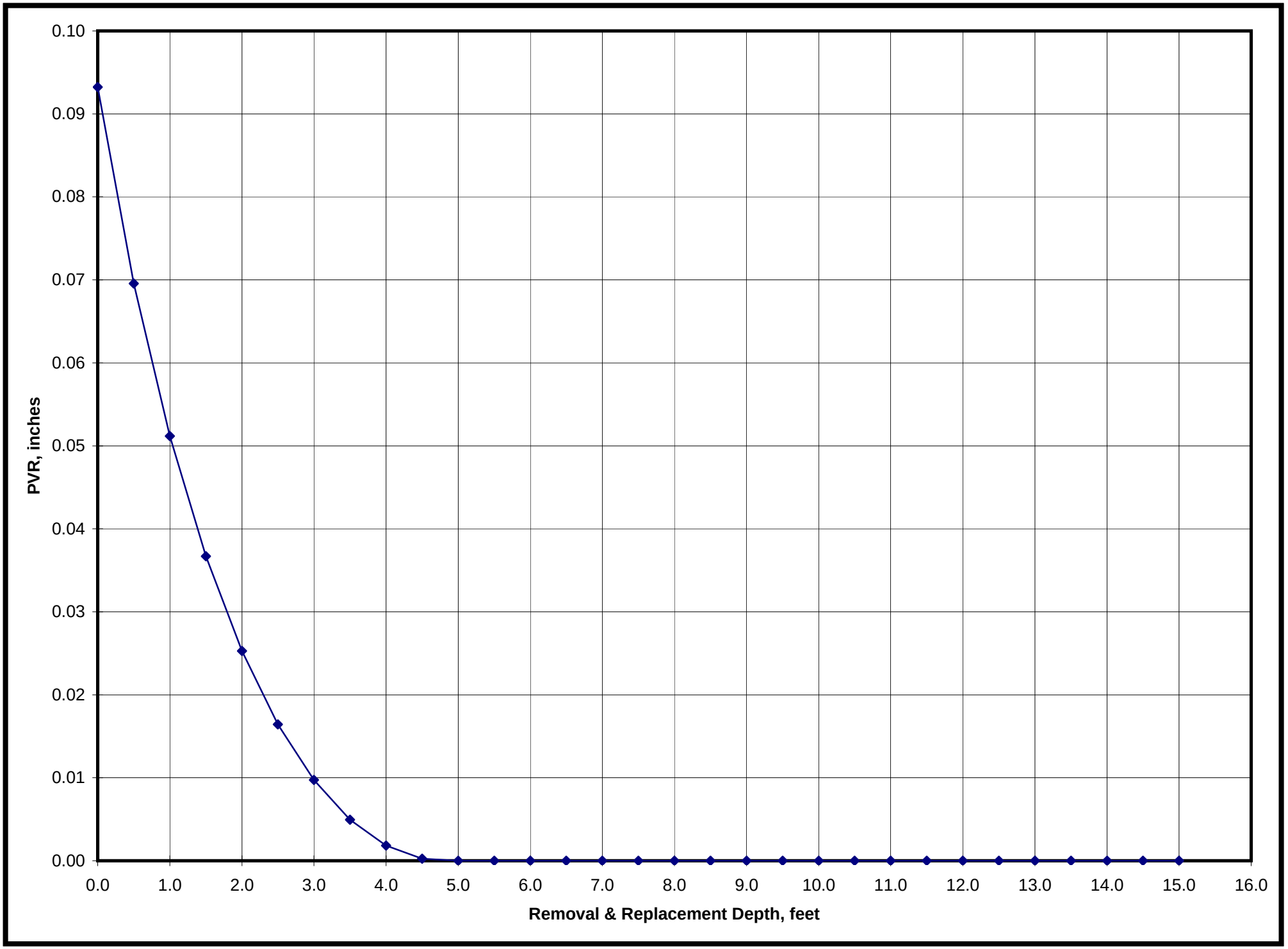

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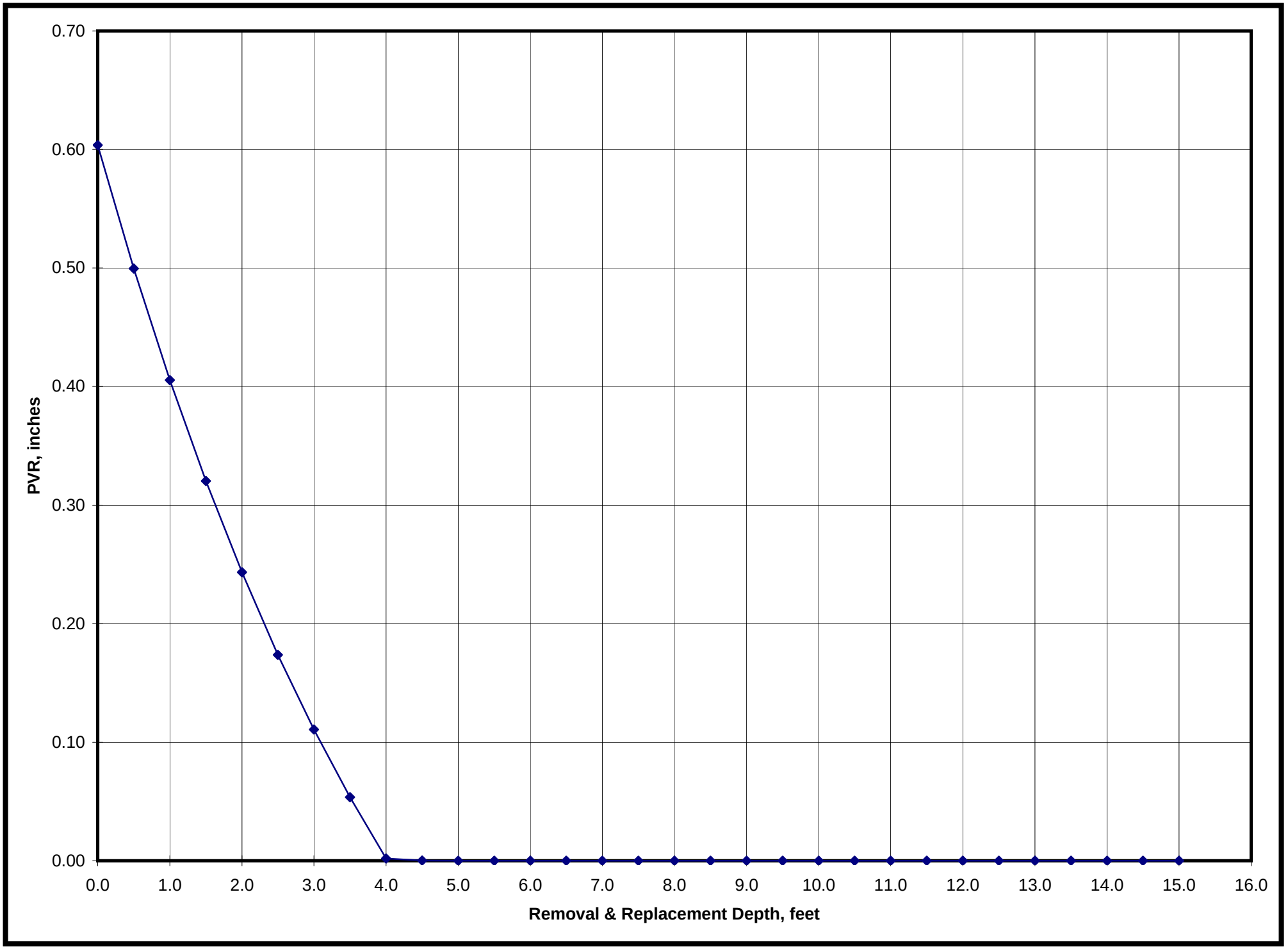

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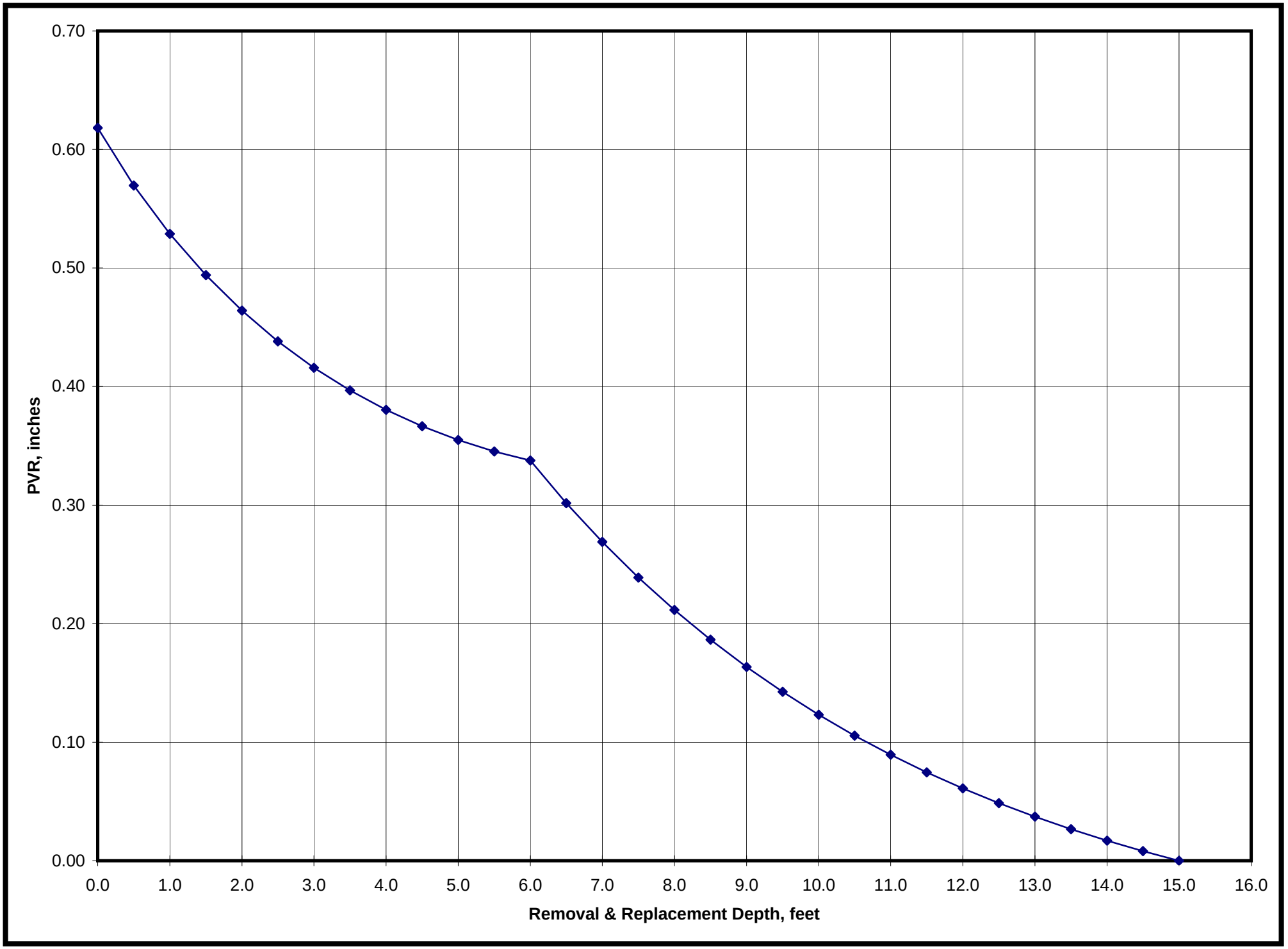

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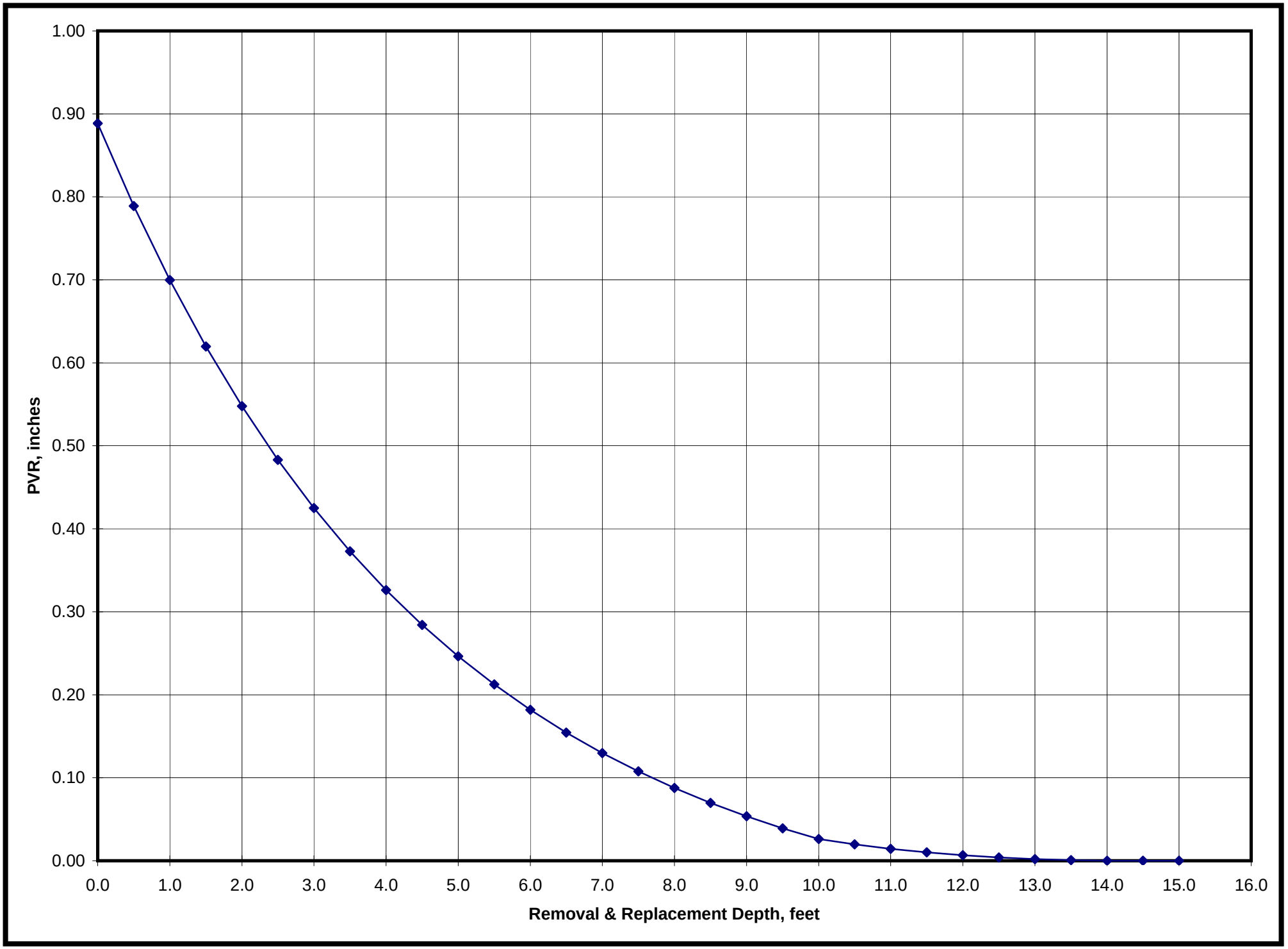

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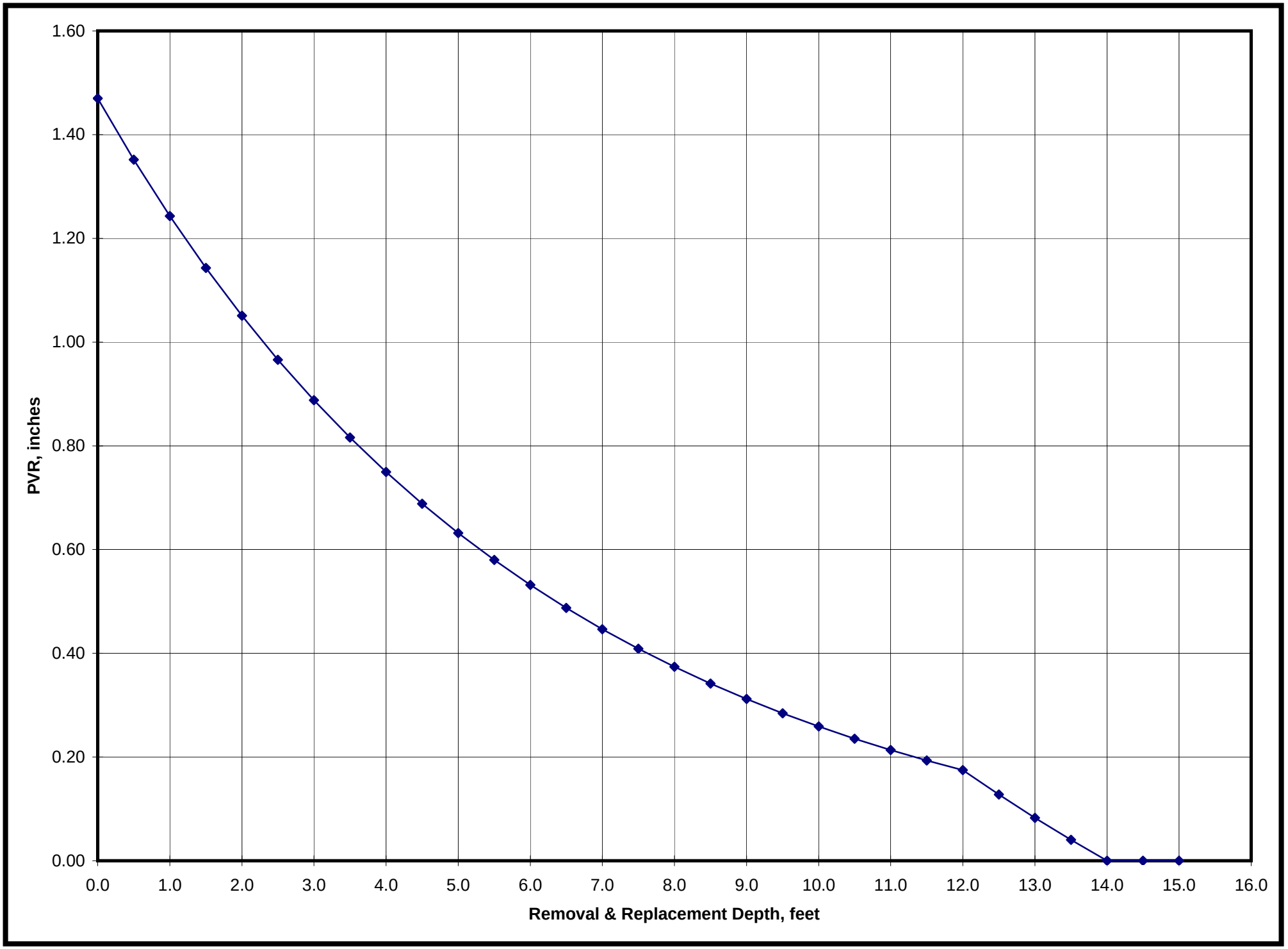

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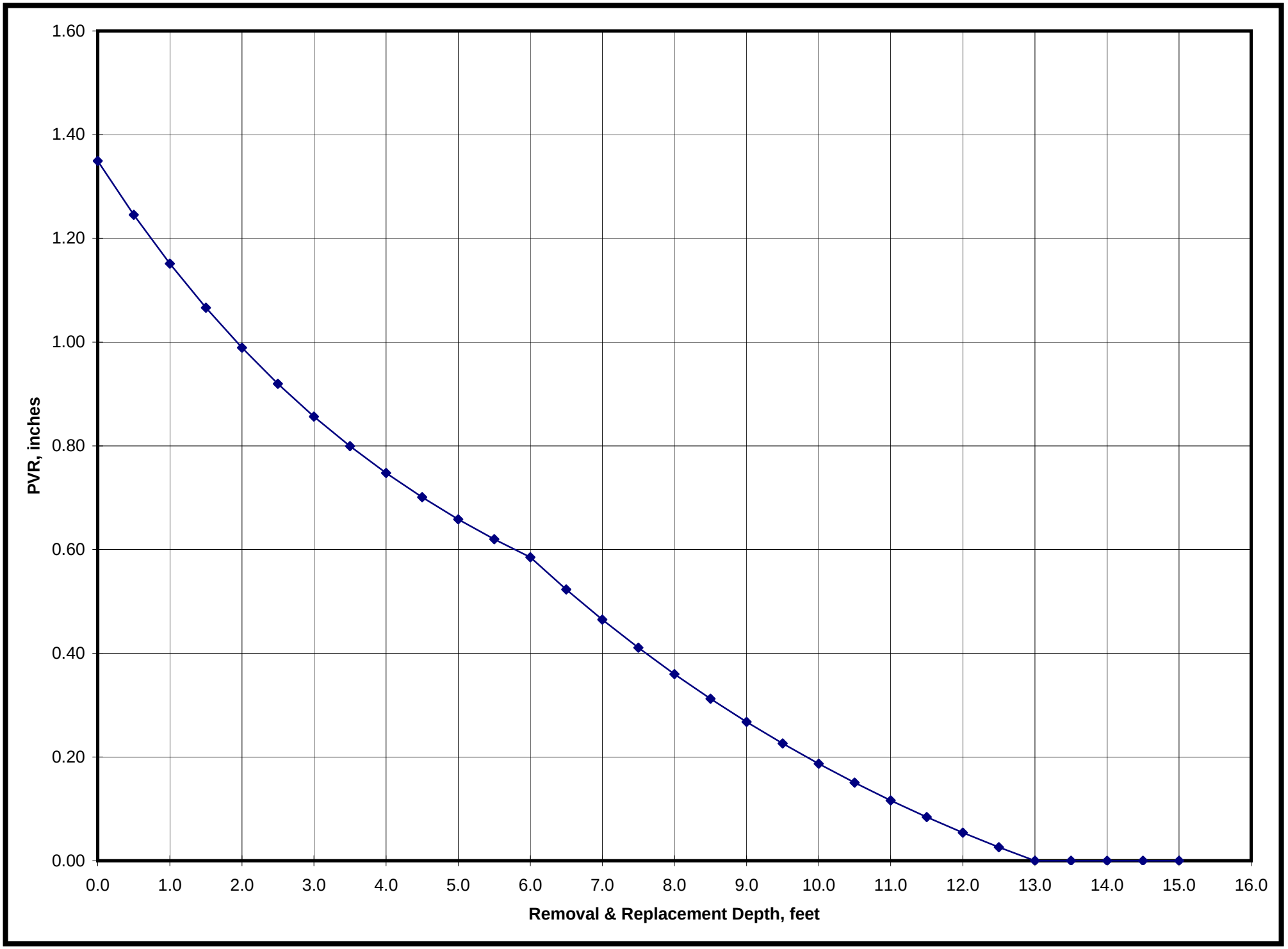

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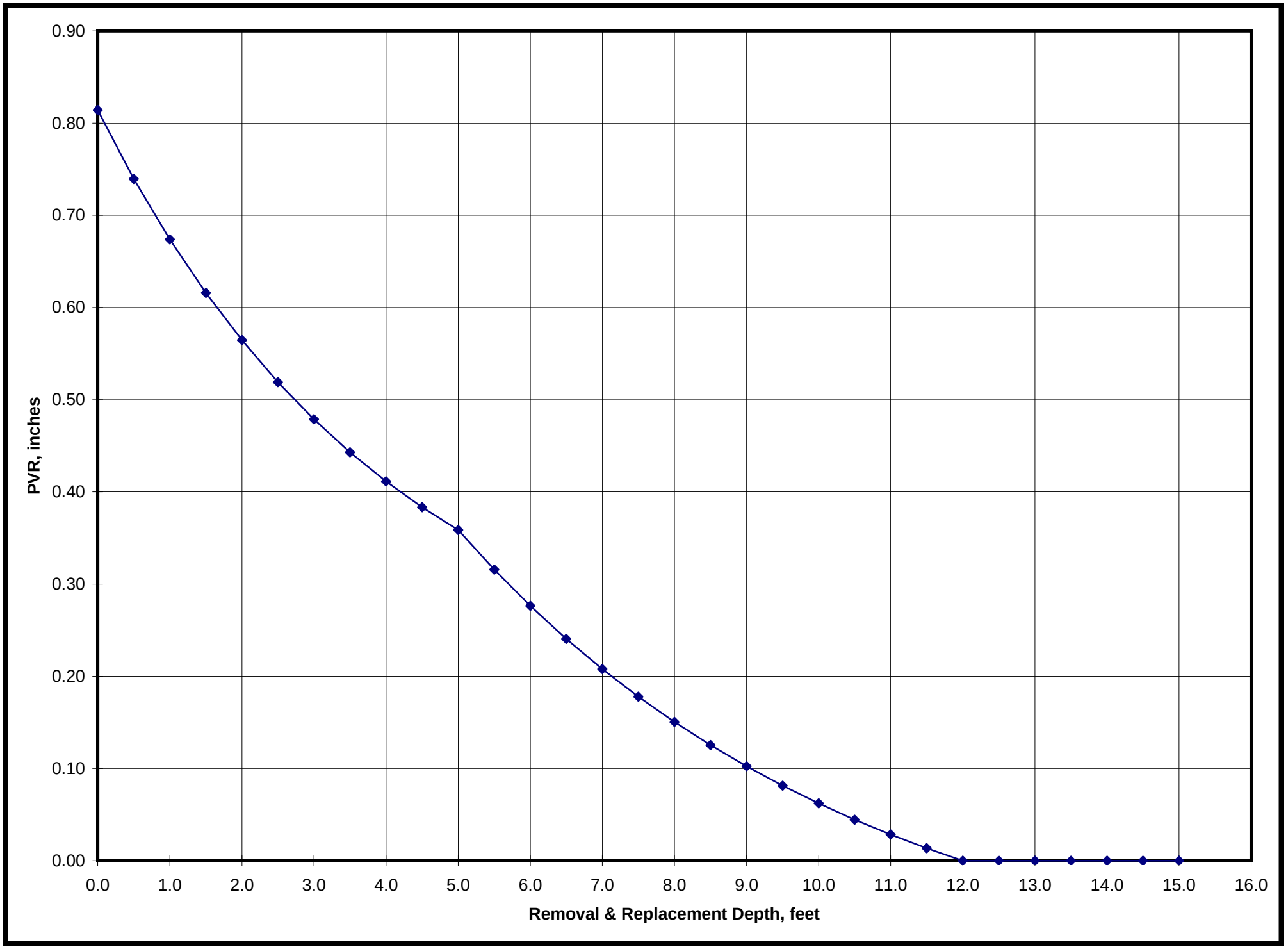

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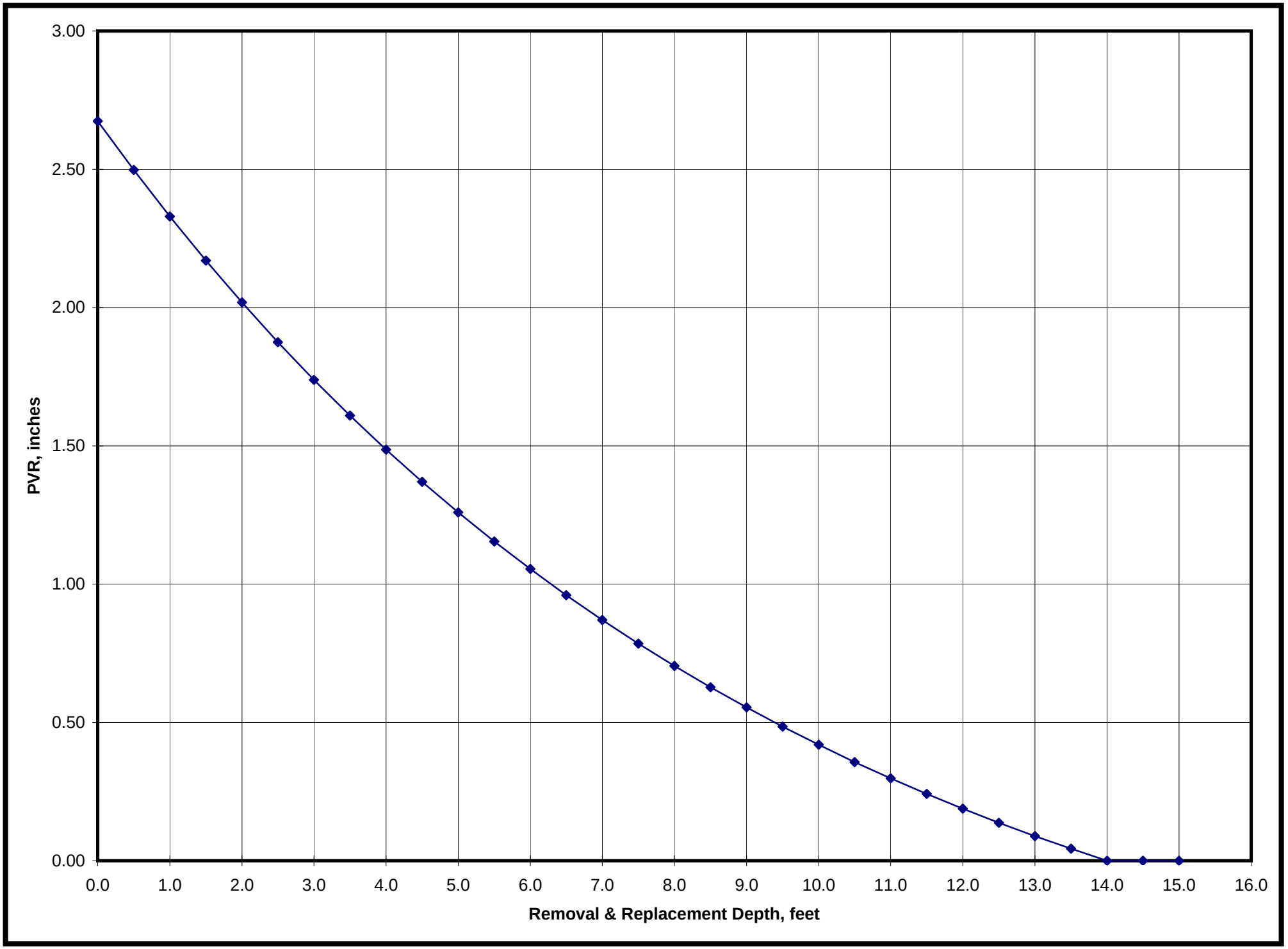

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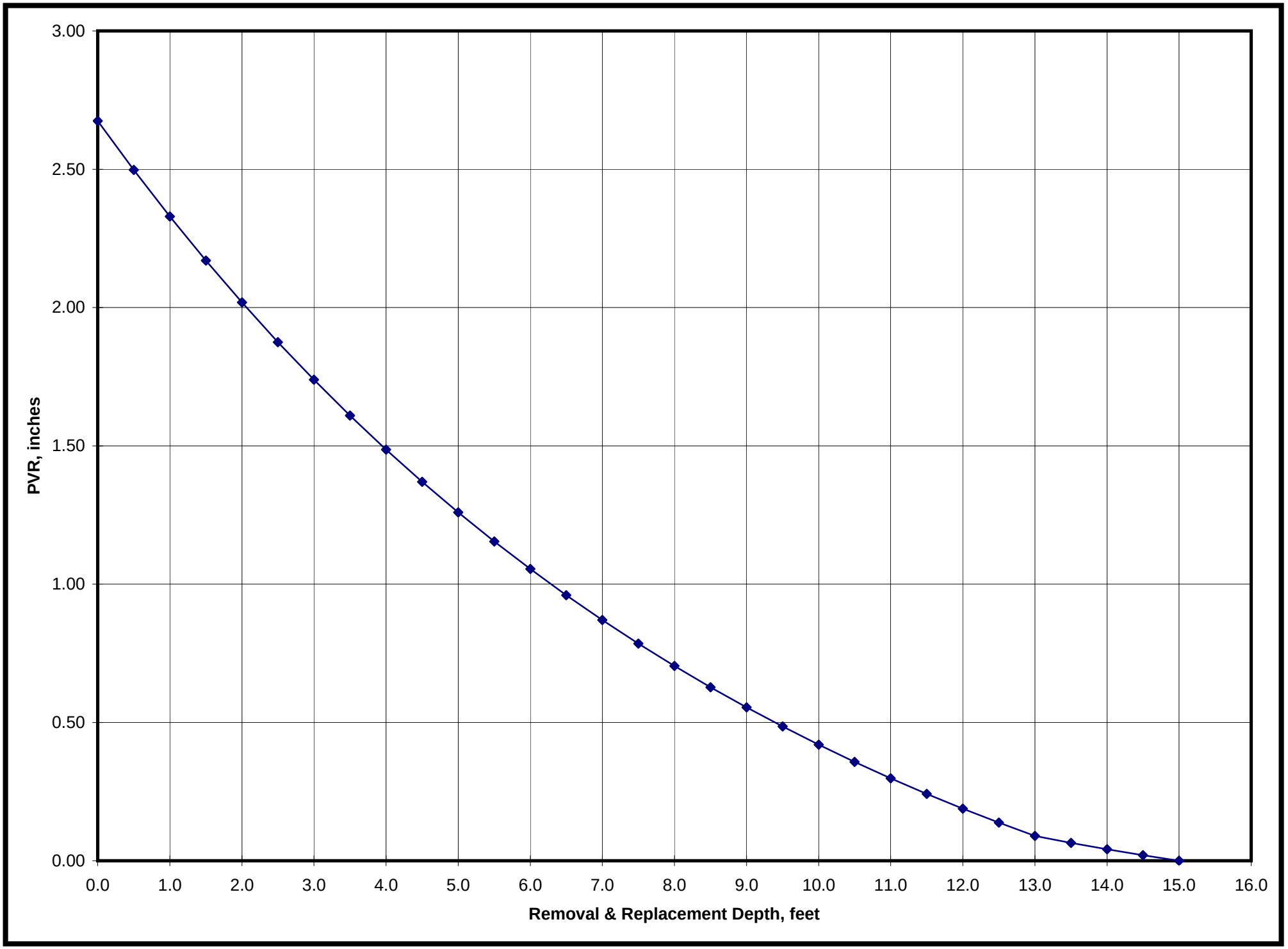

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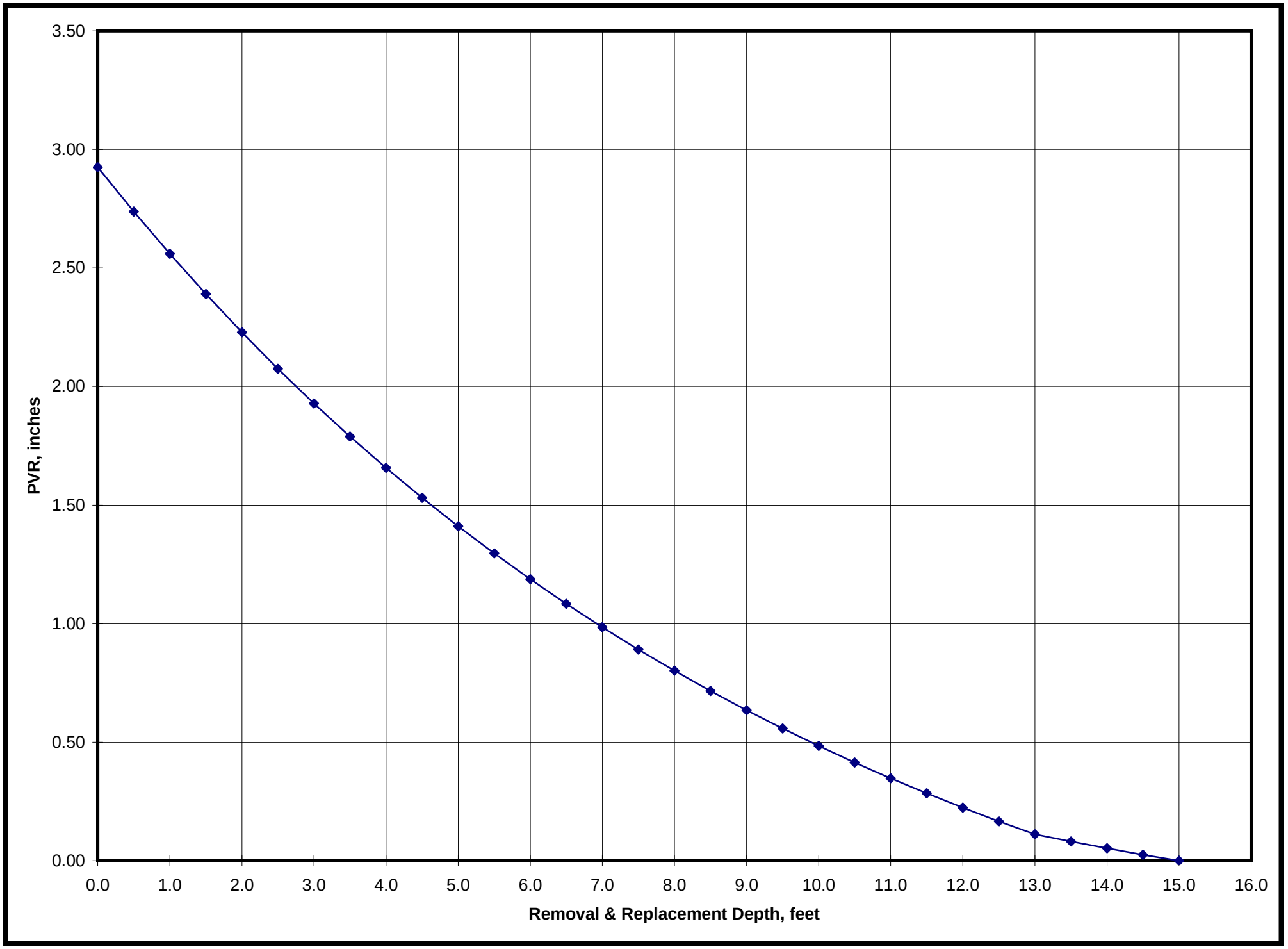

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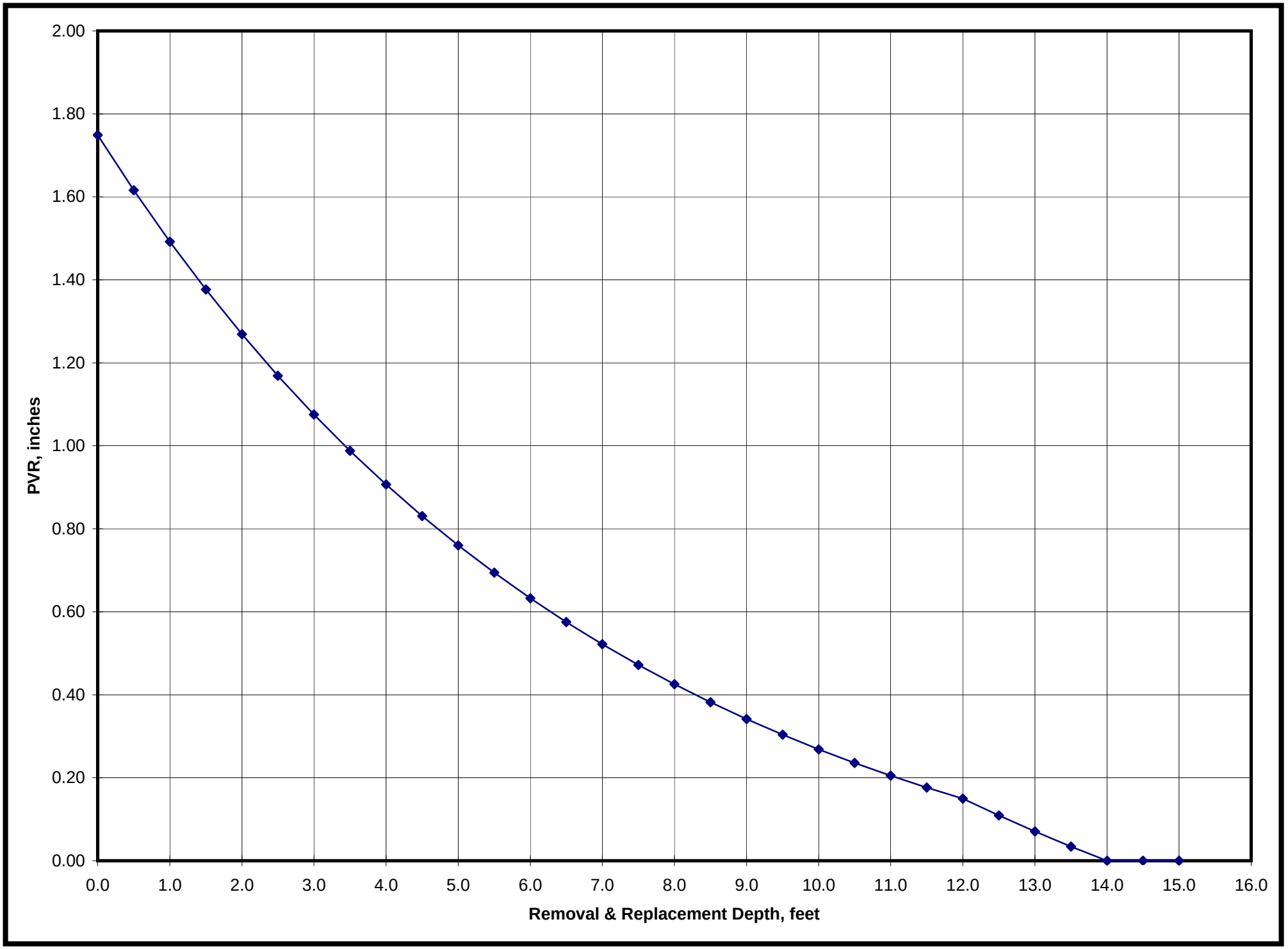

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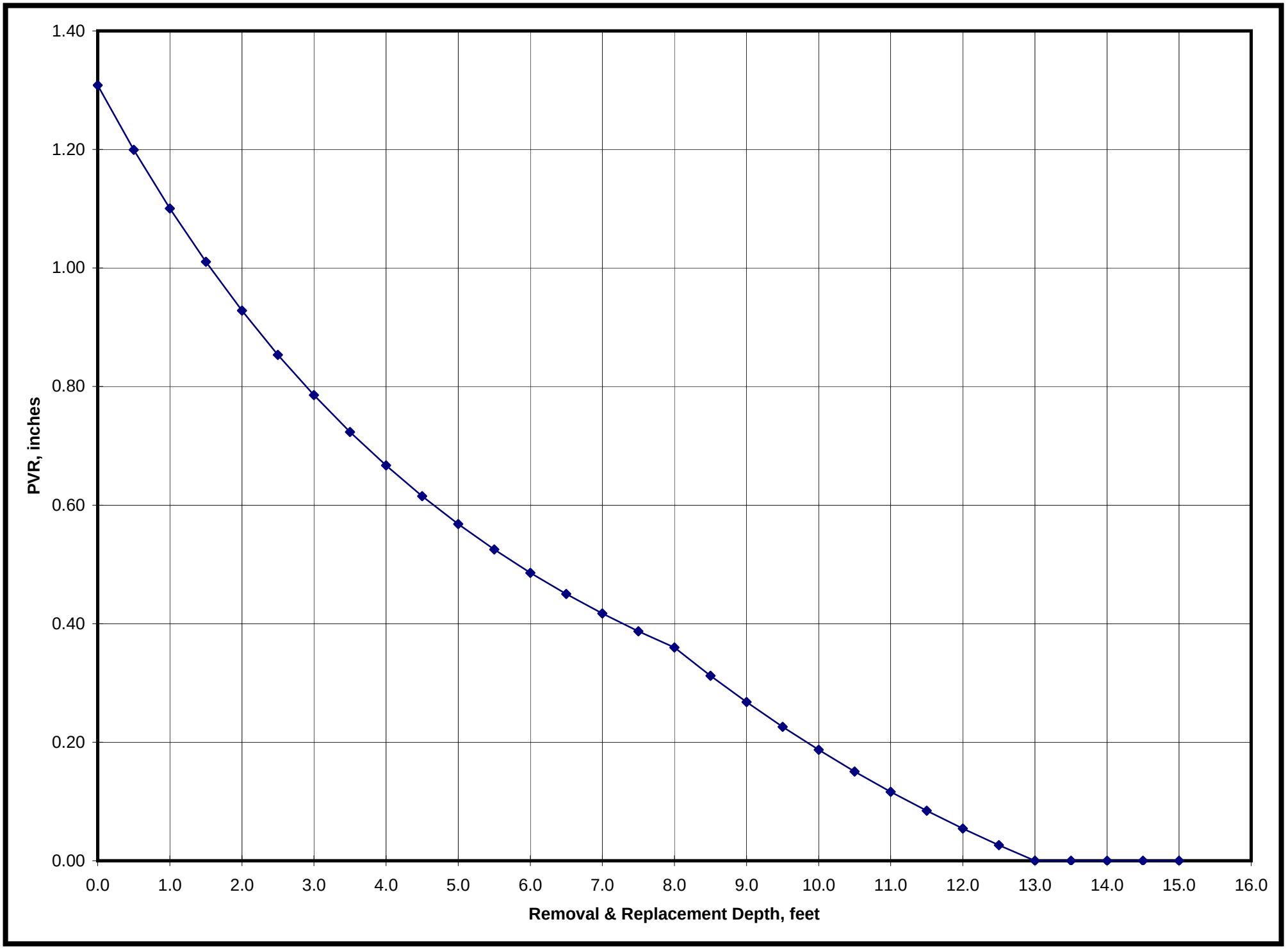

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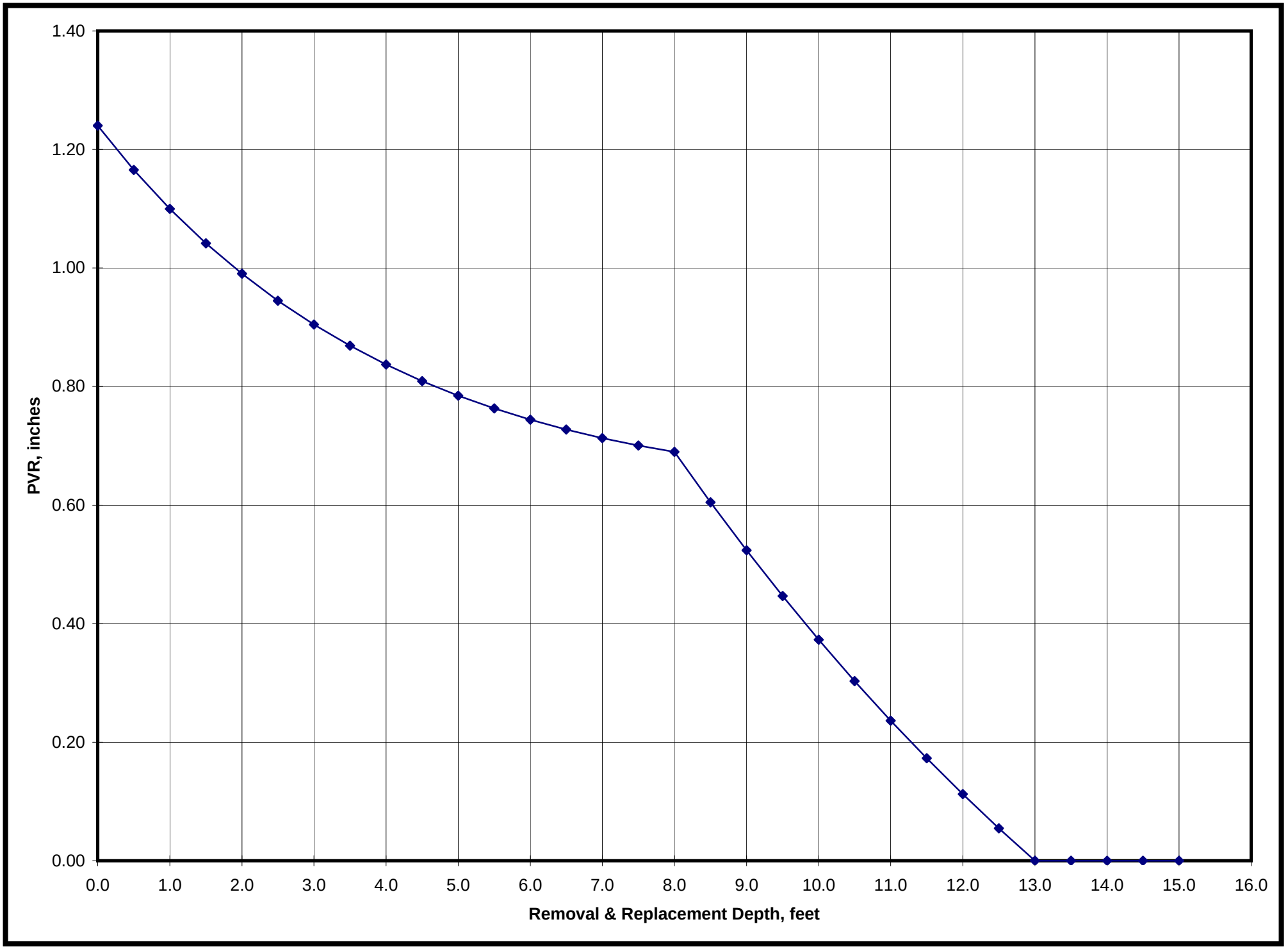

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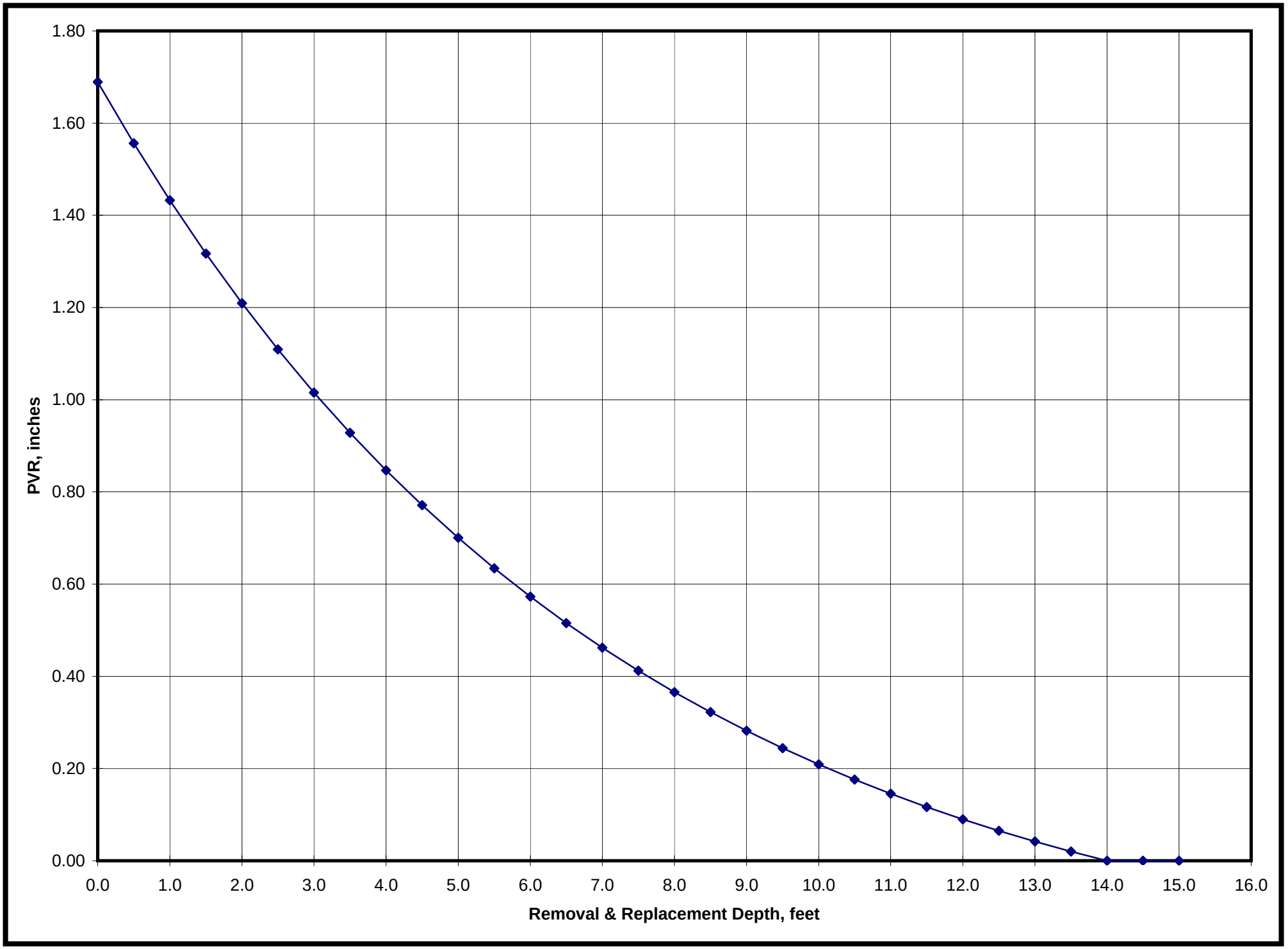
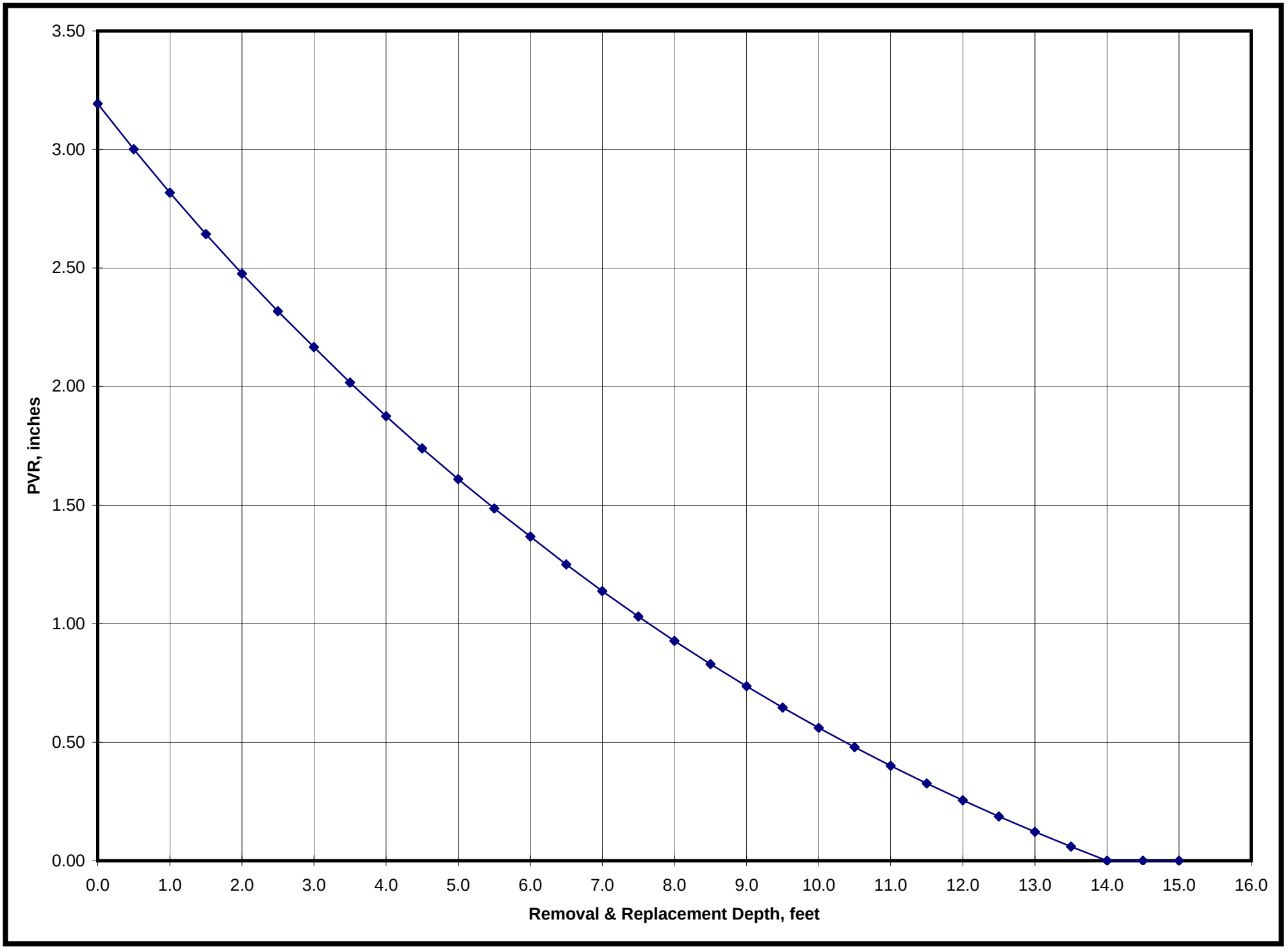
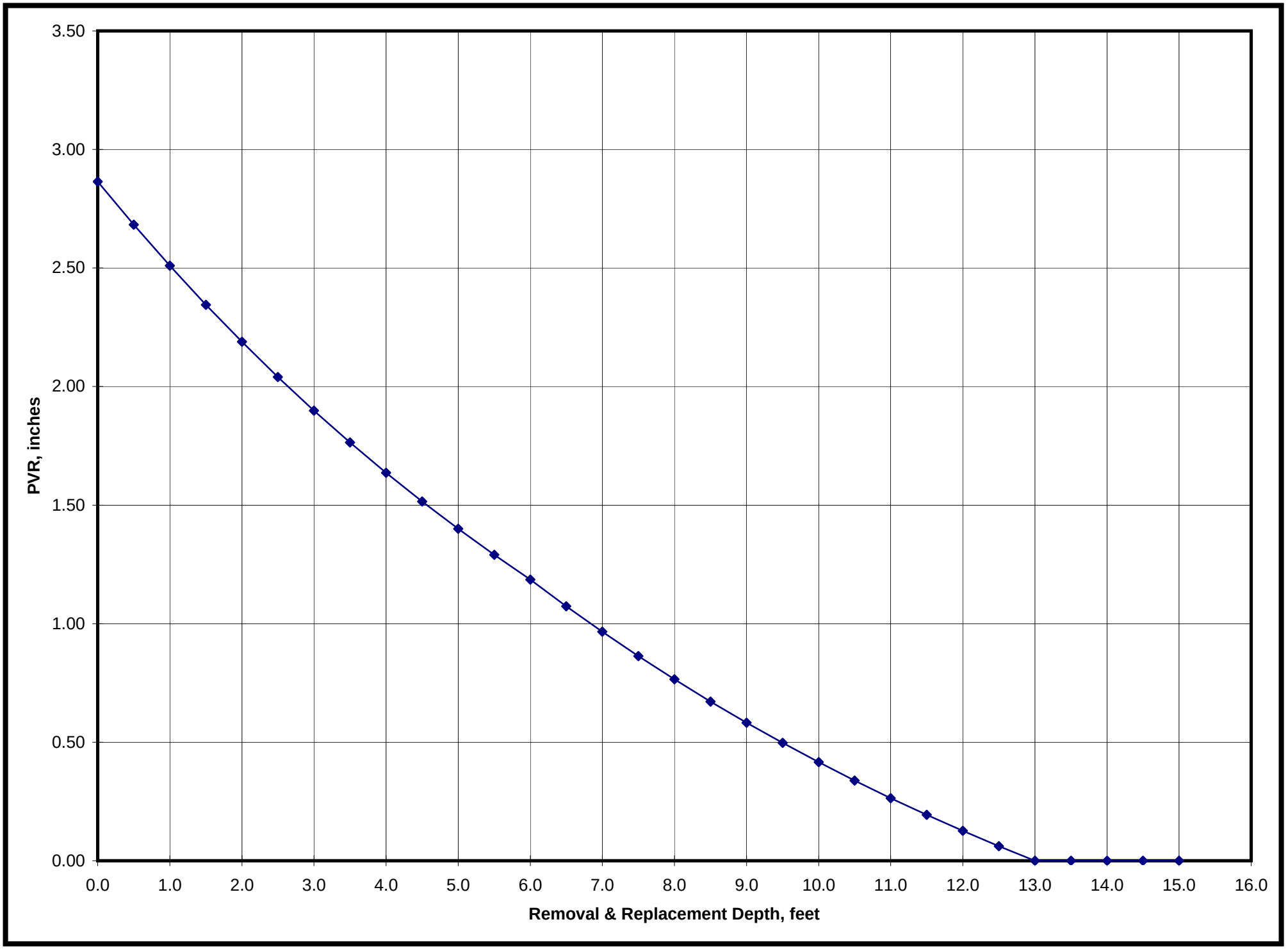


DONNA PUMP TO BROWNSVILLE - BH 165



DONNA PUMP TO BROWNSVILLE - BH 166



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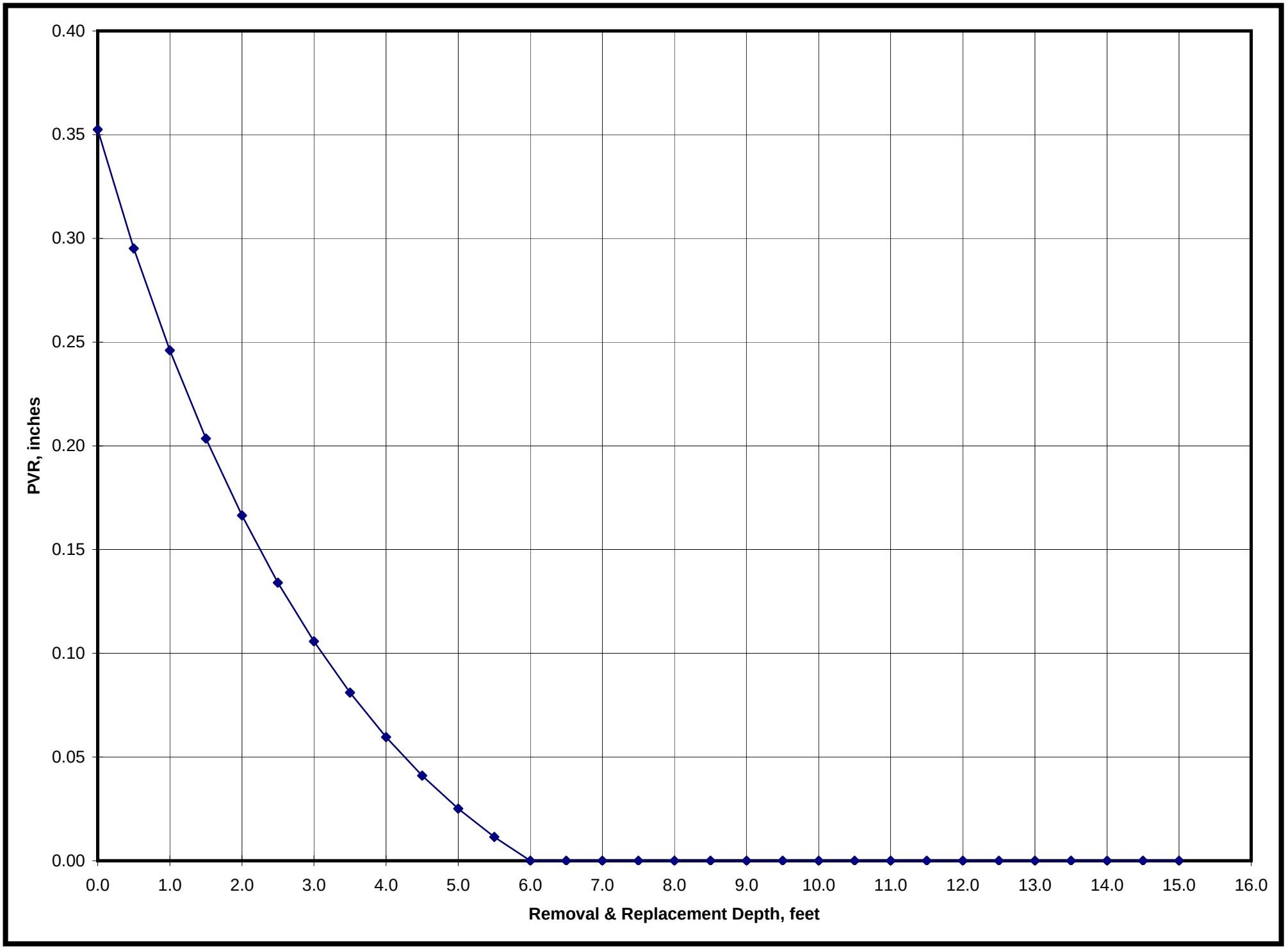
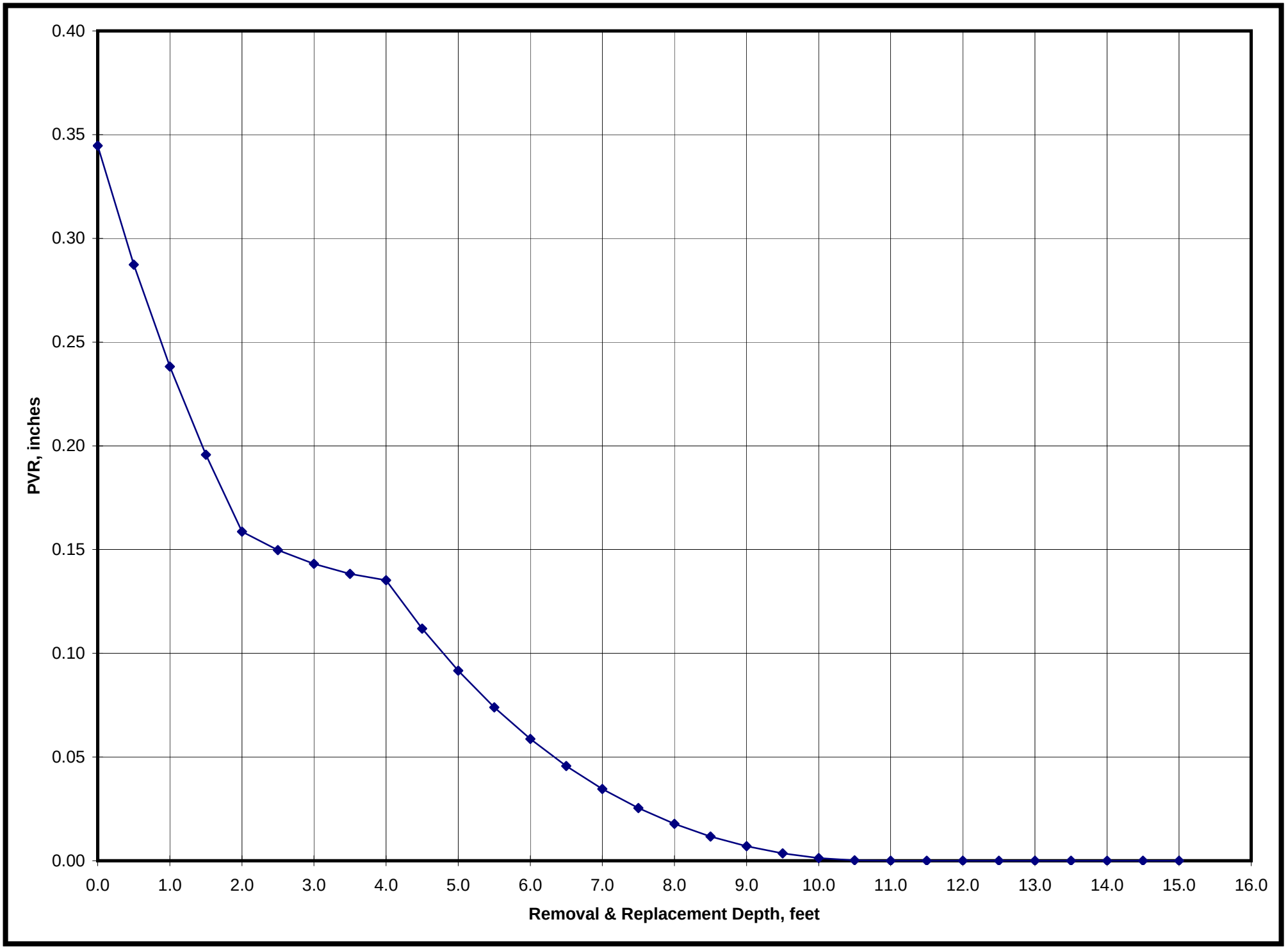
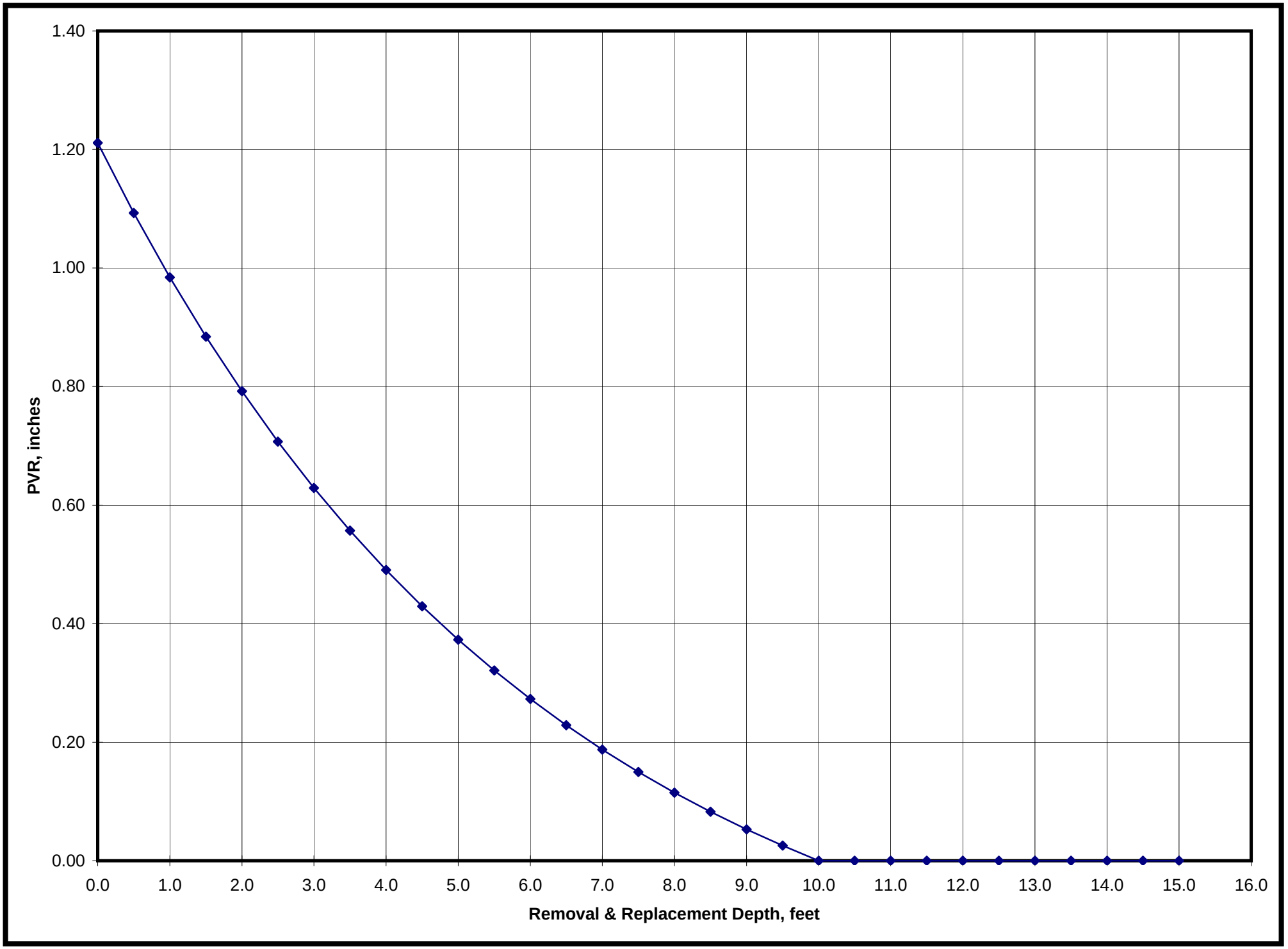


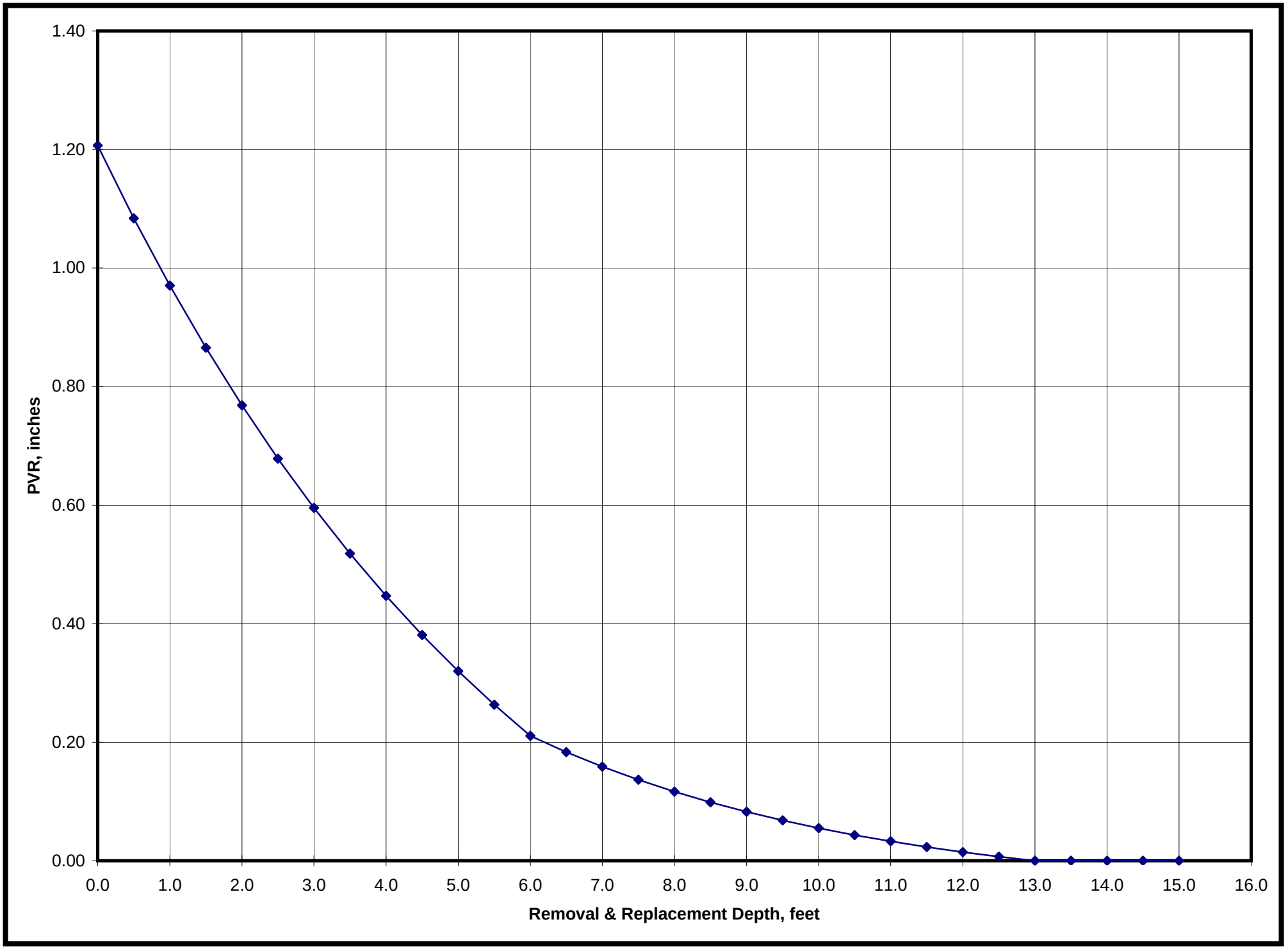
DONNA PUMP TO BROWNSVILLE - BH 168



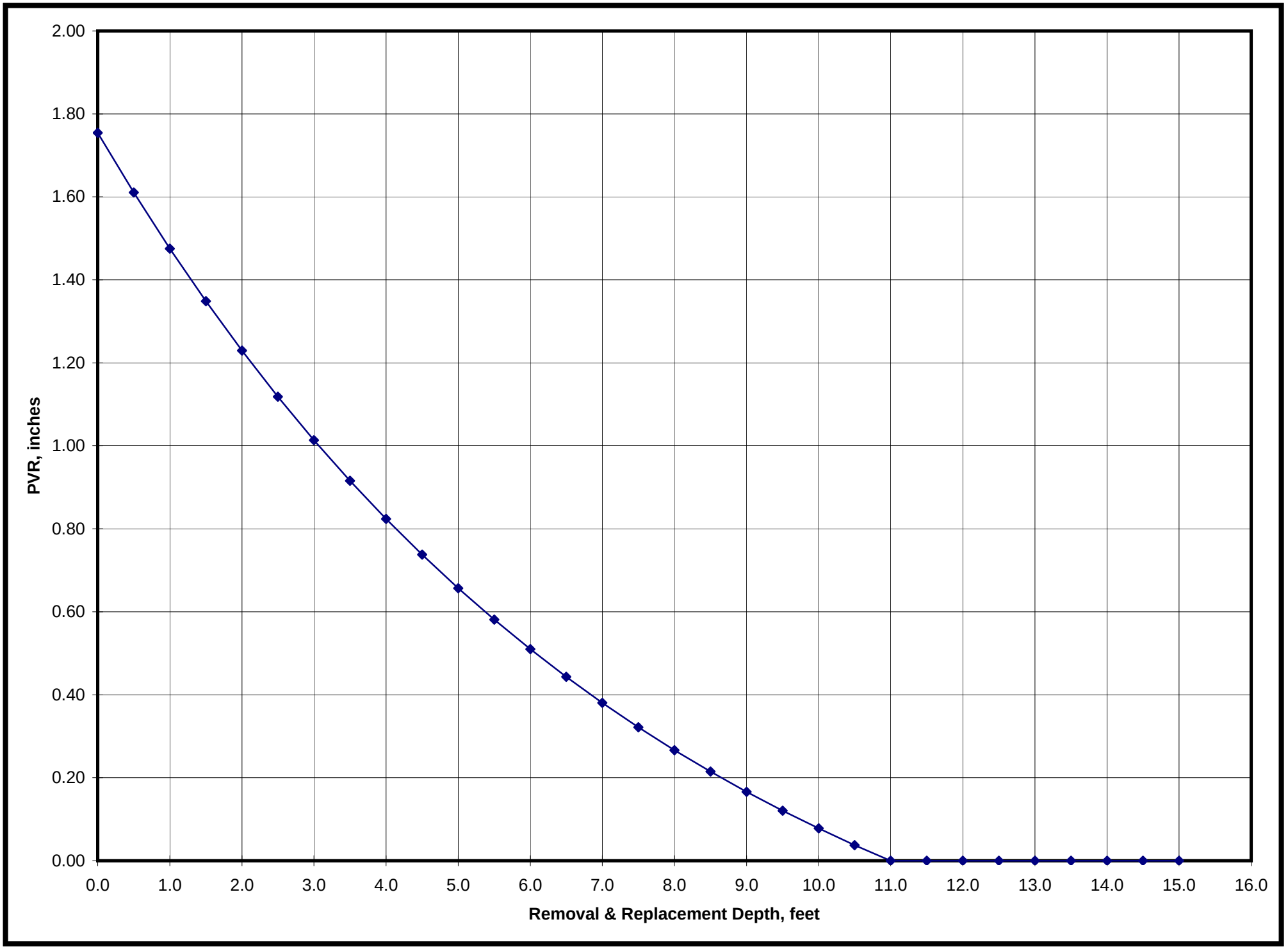
DONNA PUMP TO BROWNSVILLE - BH 169



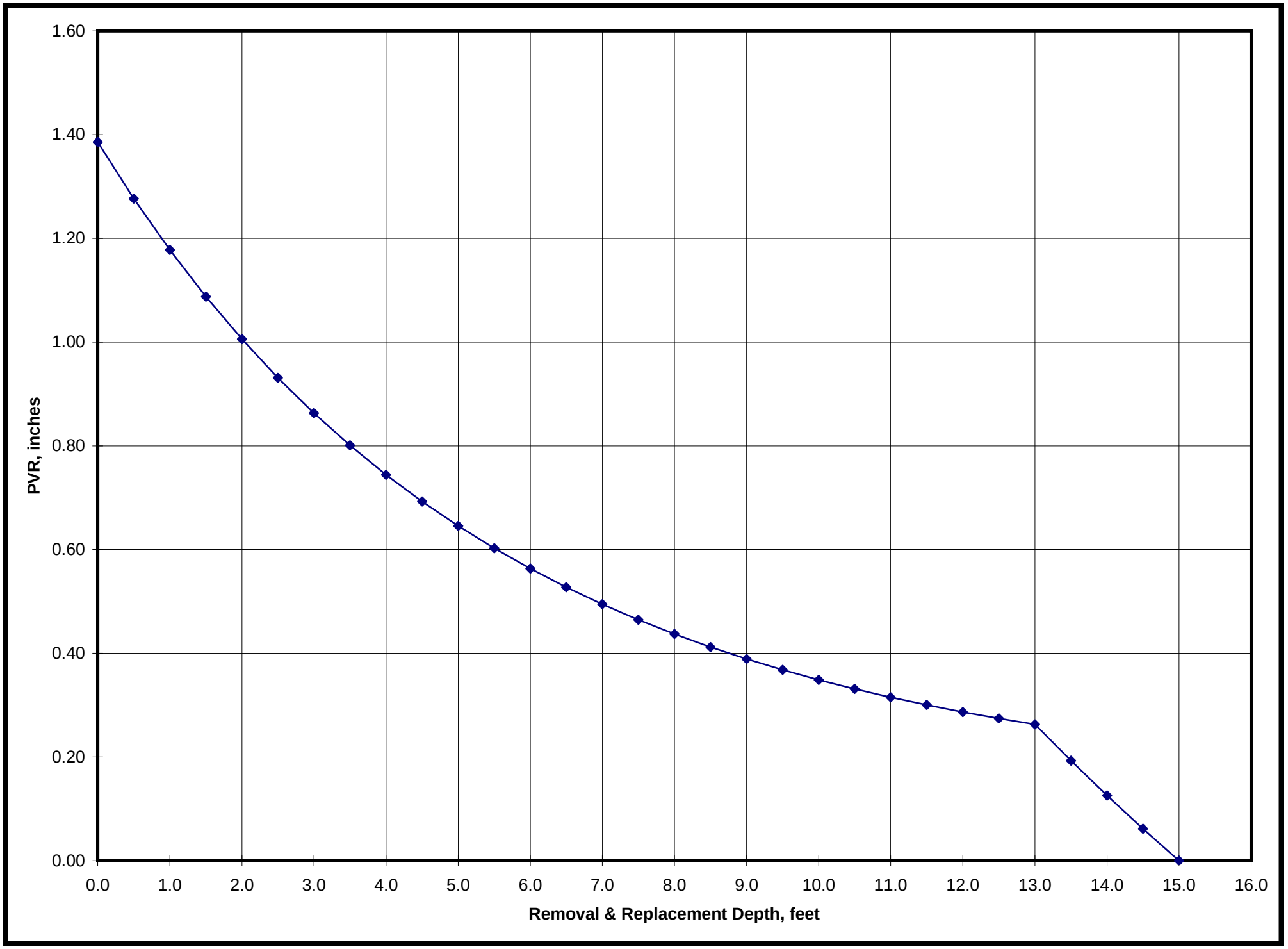
DONNA PUMP TO BROWNSVILLE - BH 170



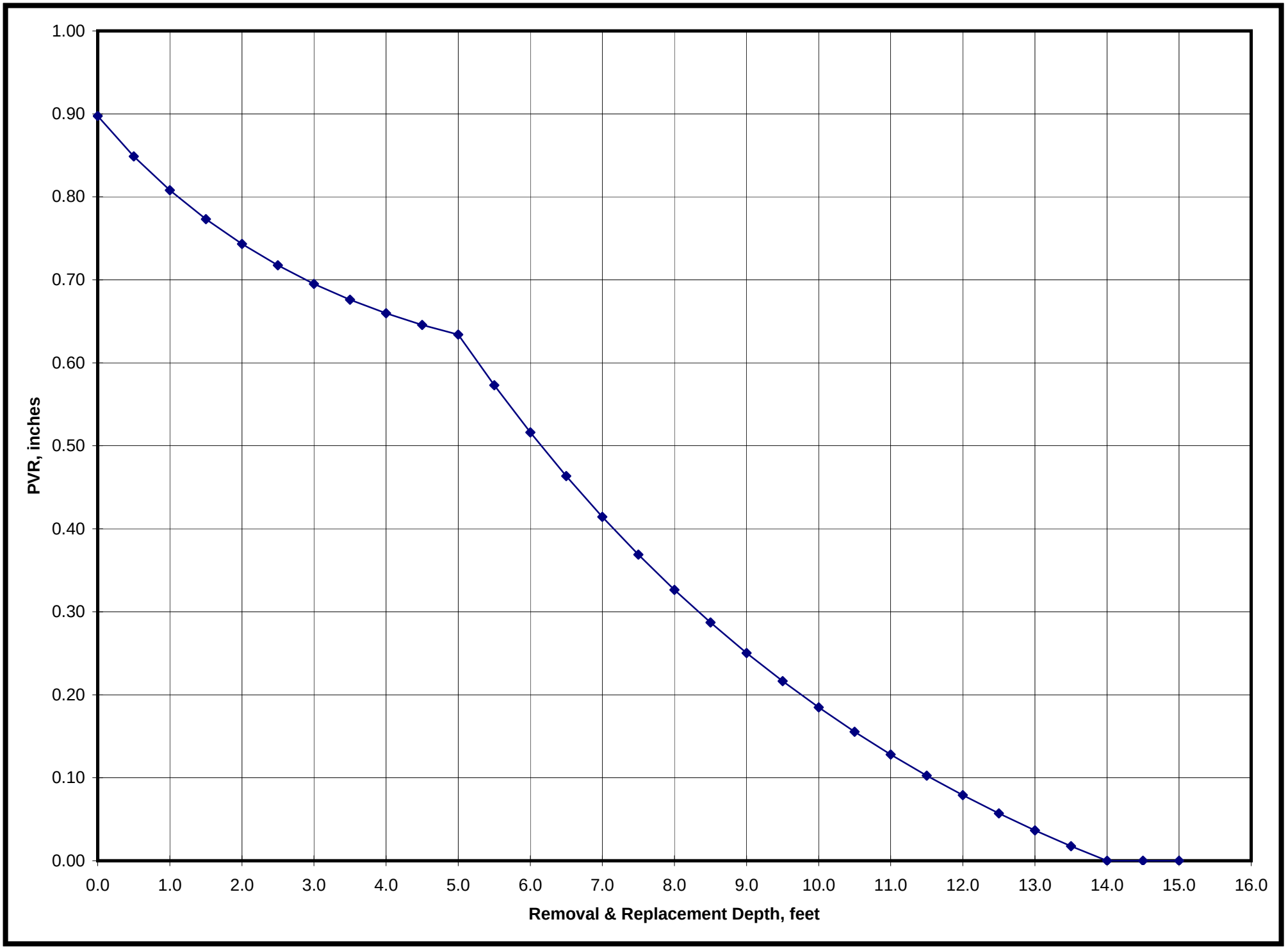
DONNA PUMP TO BROWNSVILLE - BH 171



DONNA PUMP TO BROWNSVILLE - BH 172



DONNA PUMP TO BROWNSVILLE - BH 173



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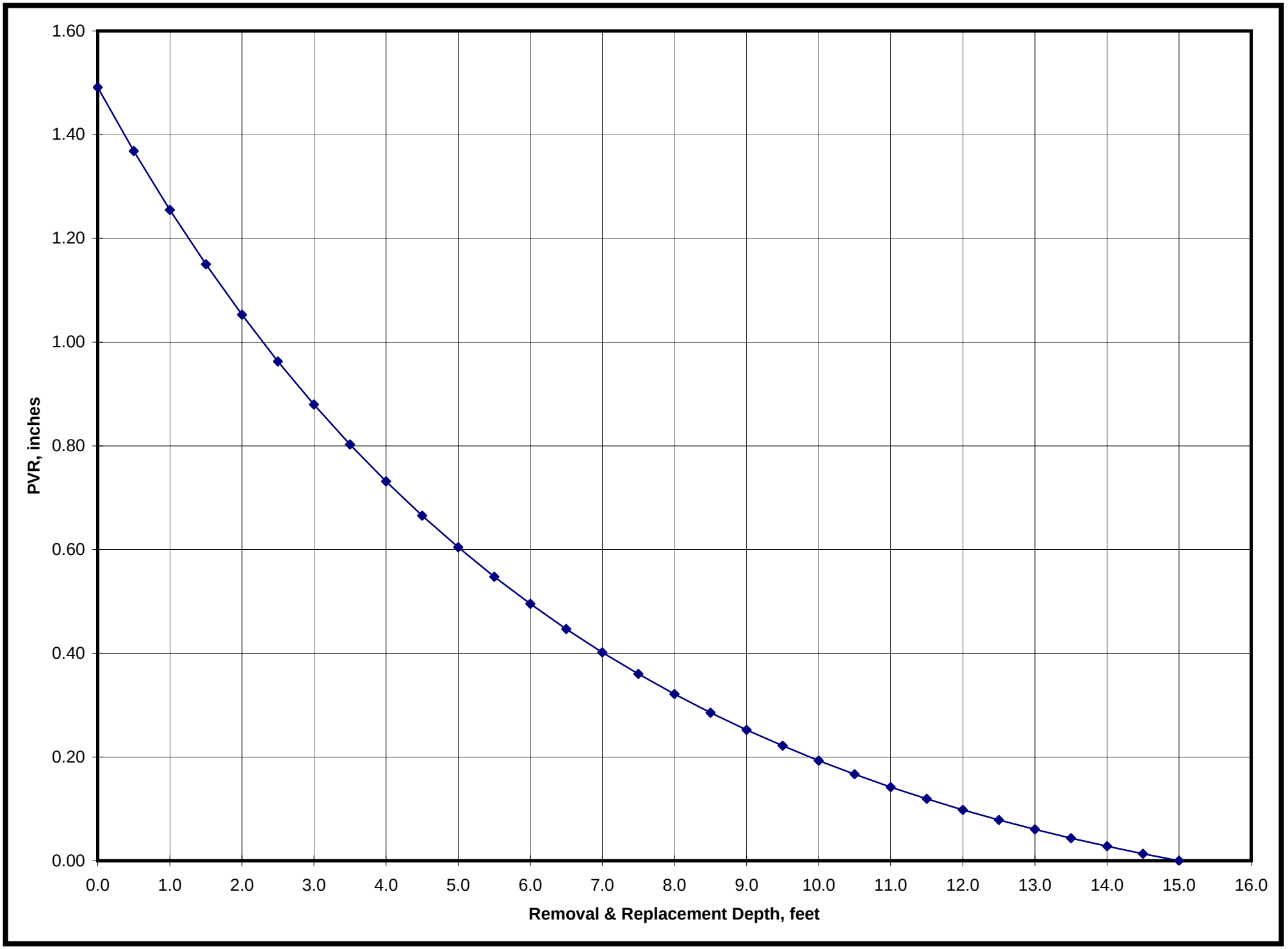
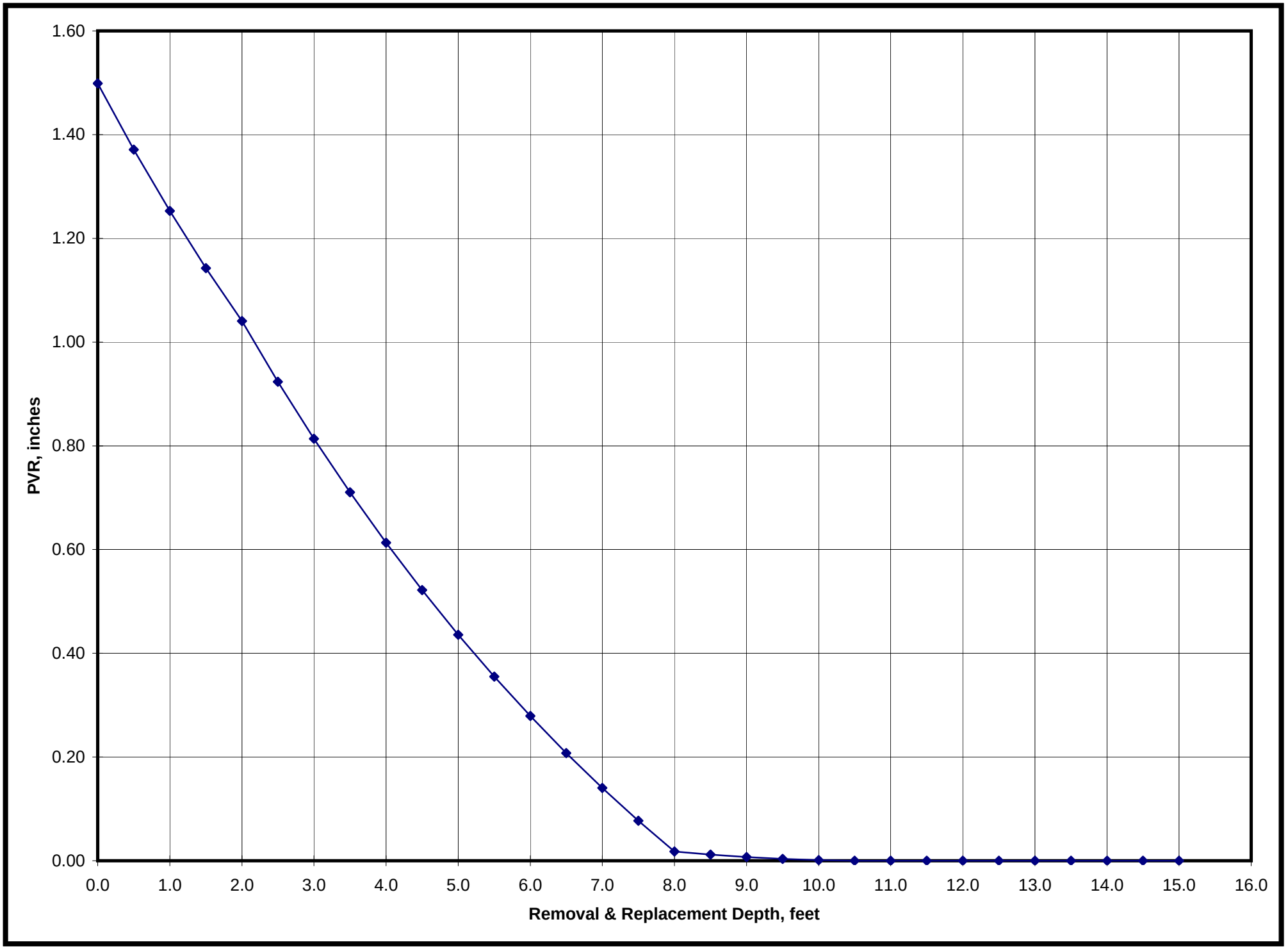
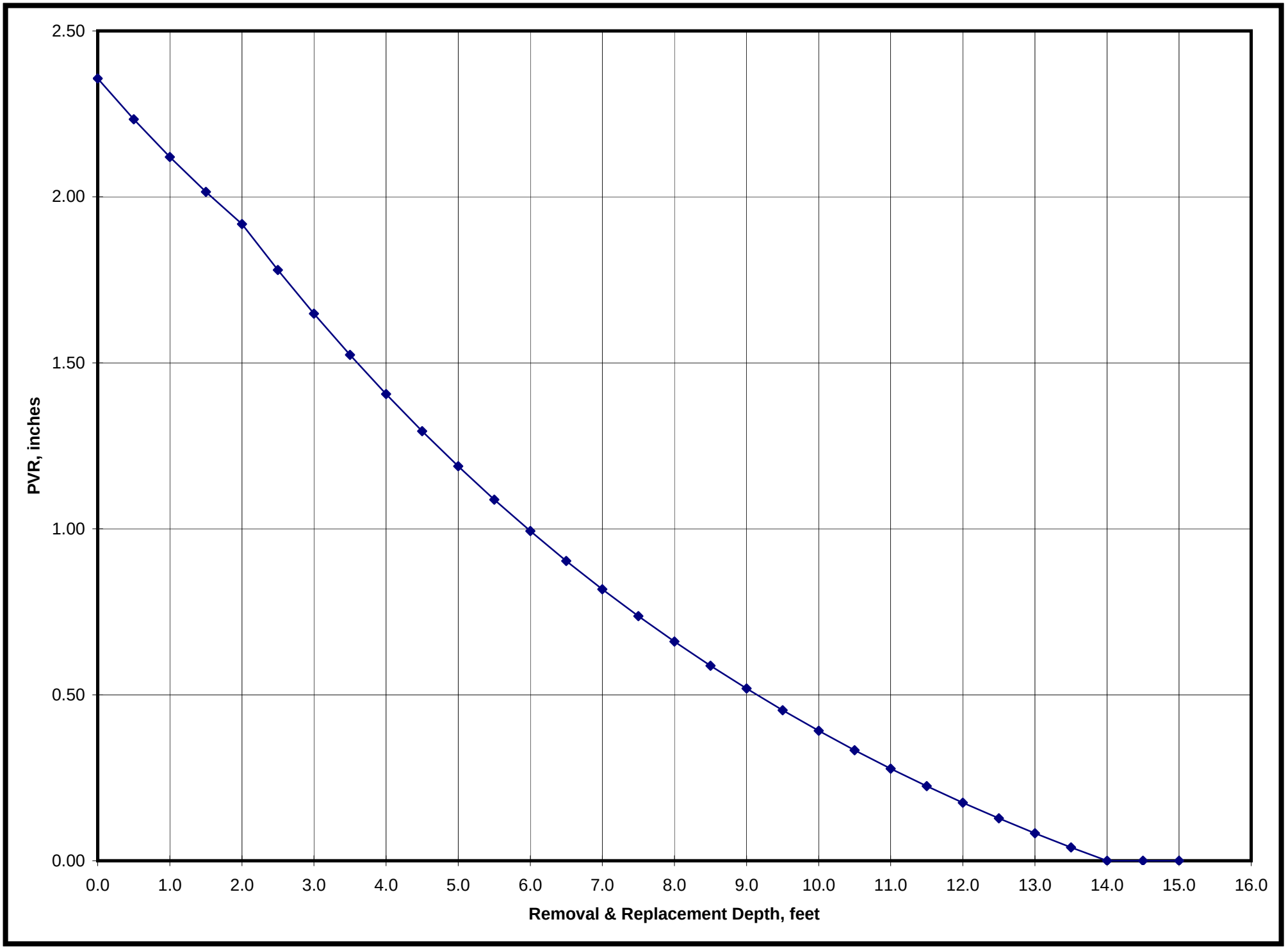


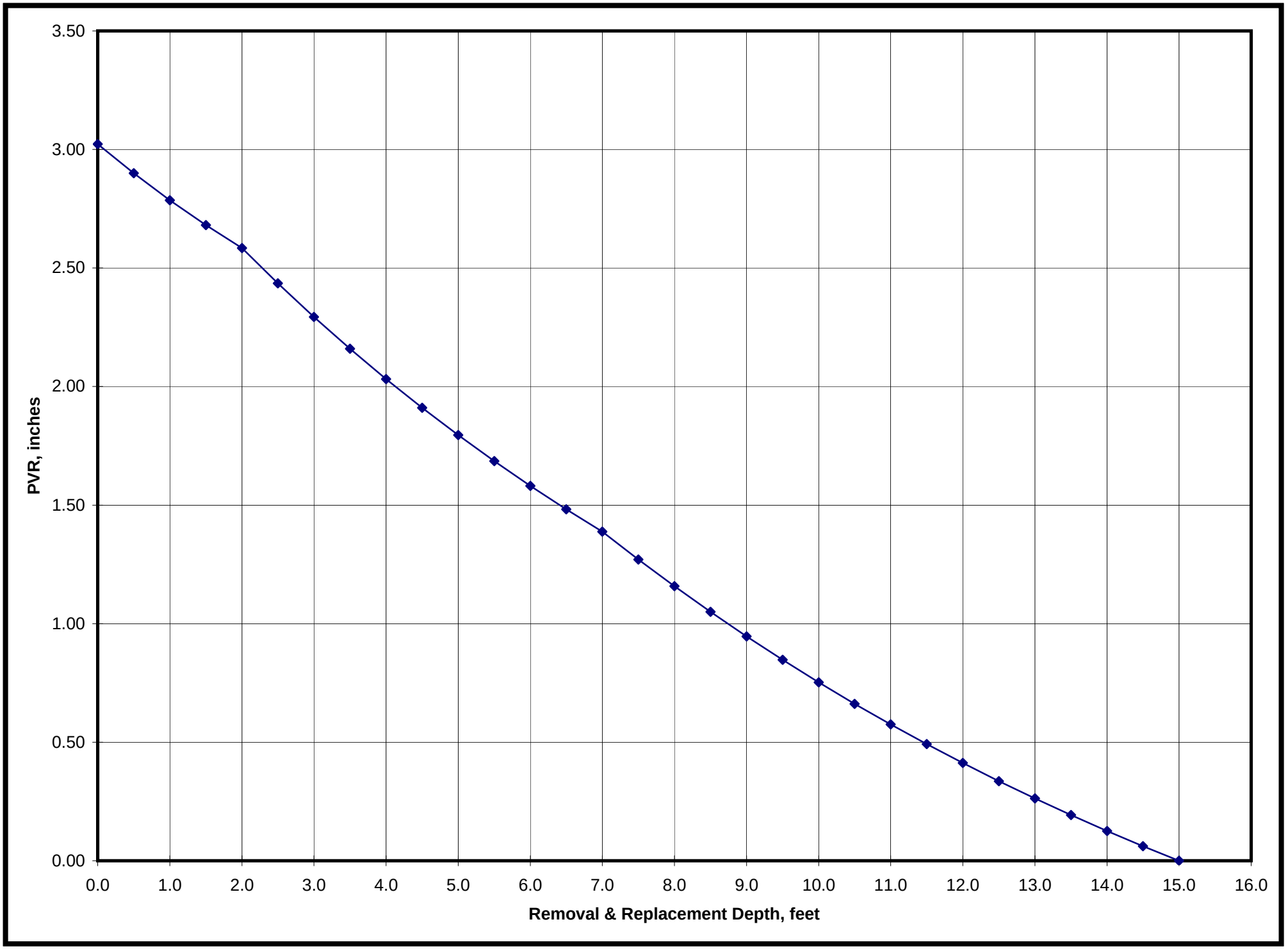
DONNA PUMP TO BROWNSVILLE - BH 175



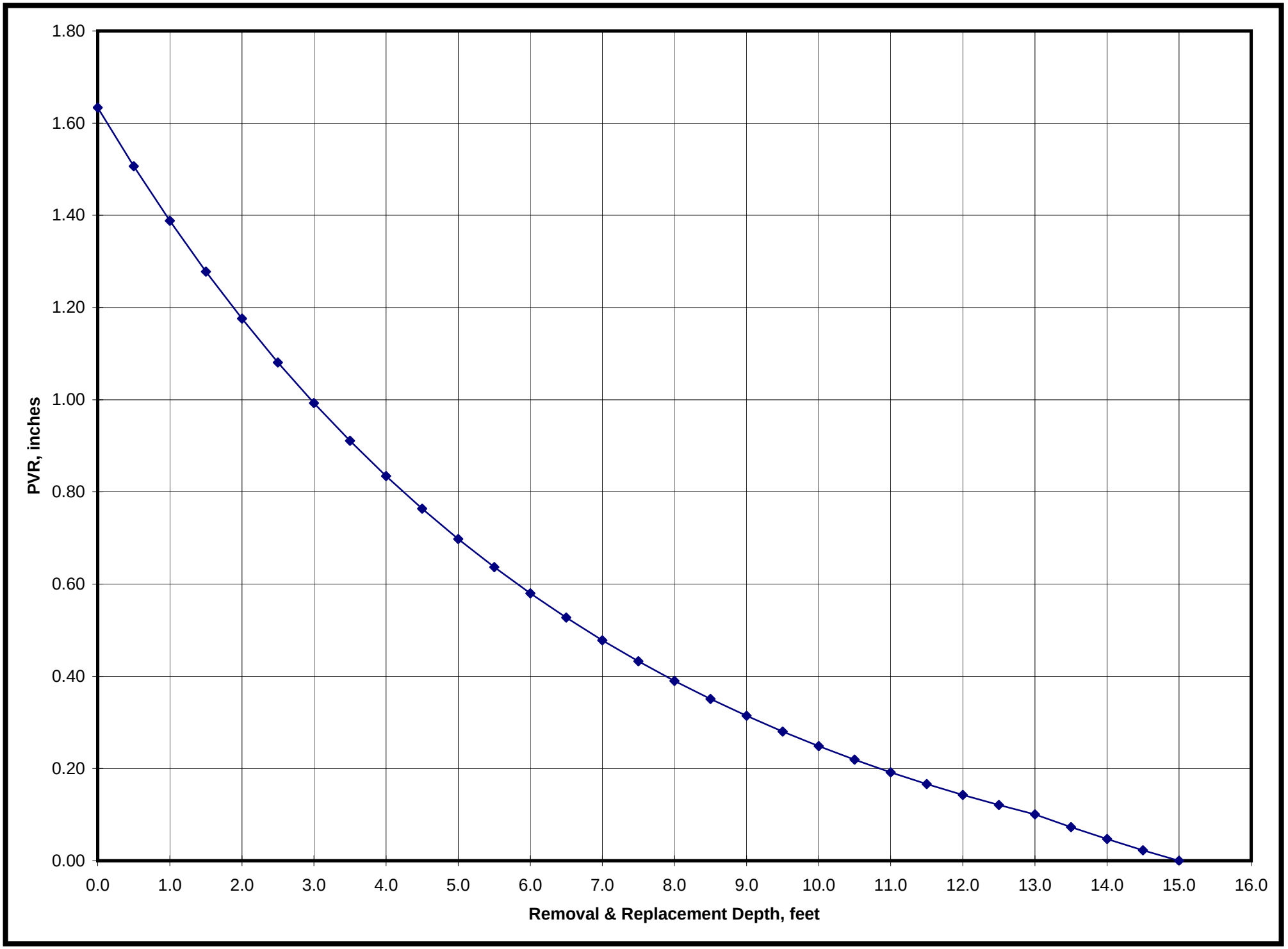
DONNA PUMP TO BROWNSVILLE - BH 176



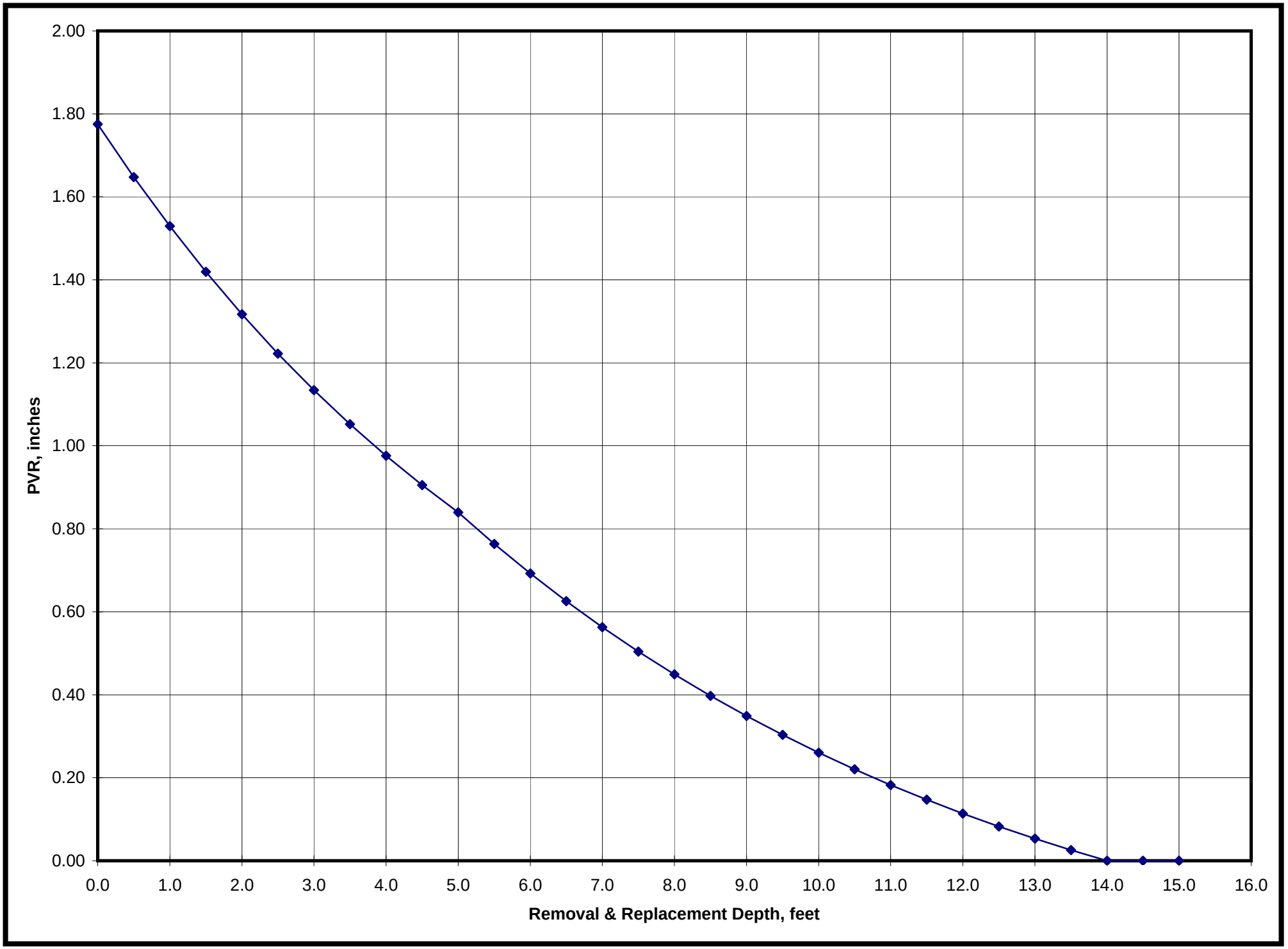
DONNA PUMP TO BROWNSVILLE - BH 177



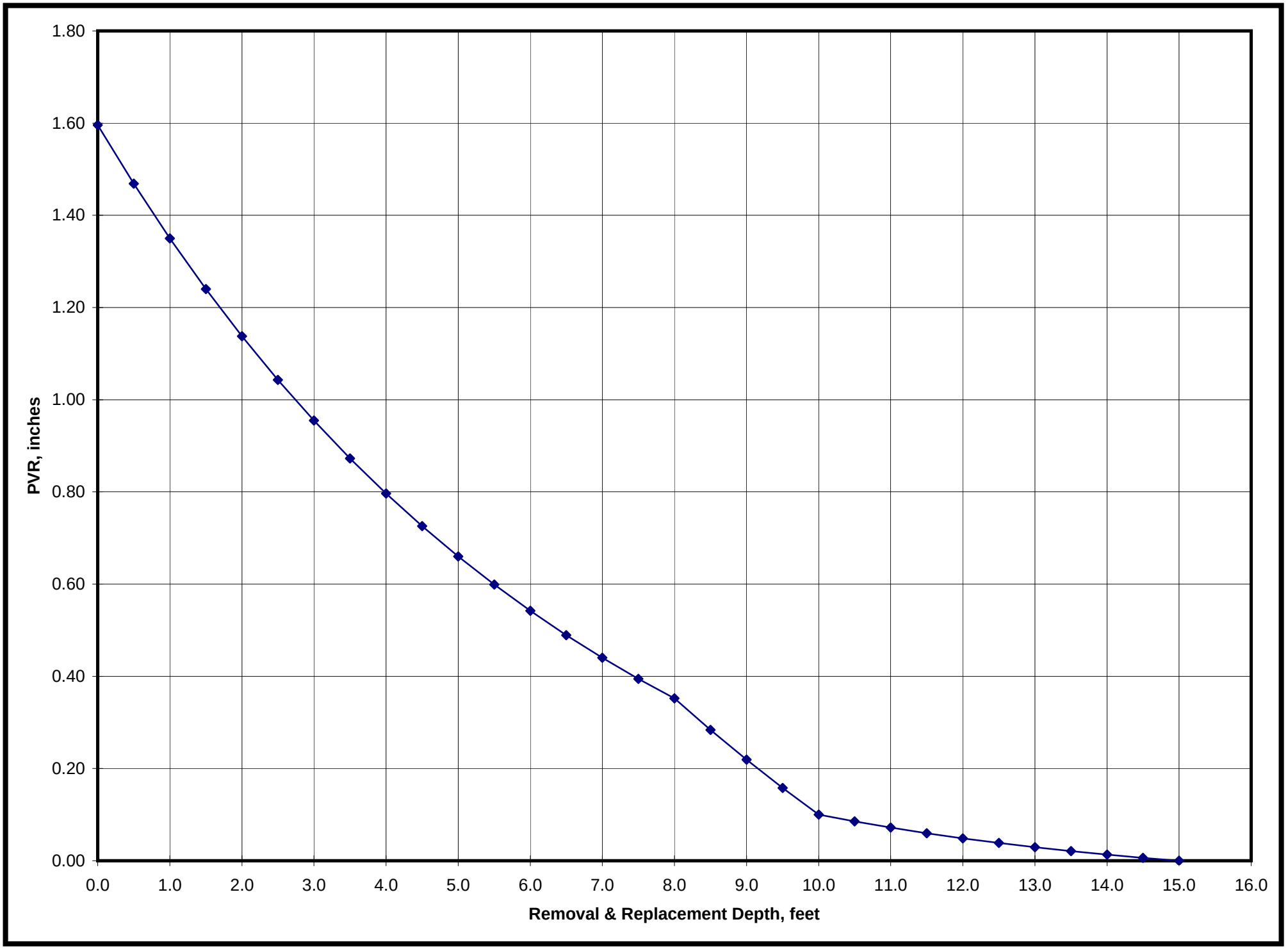
DONNA PUMP TO BROWNSVILLE - BH 178



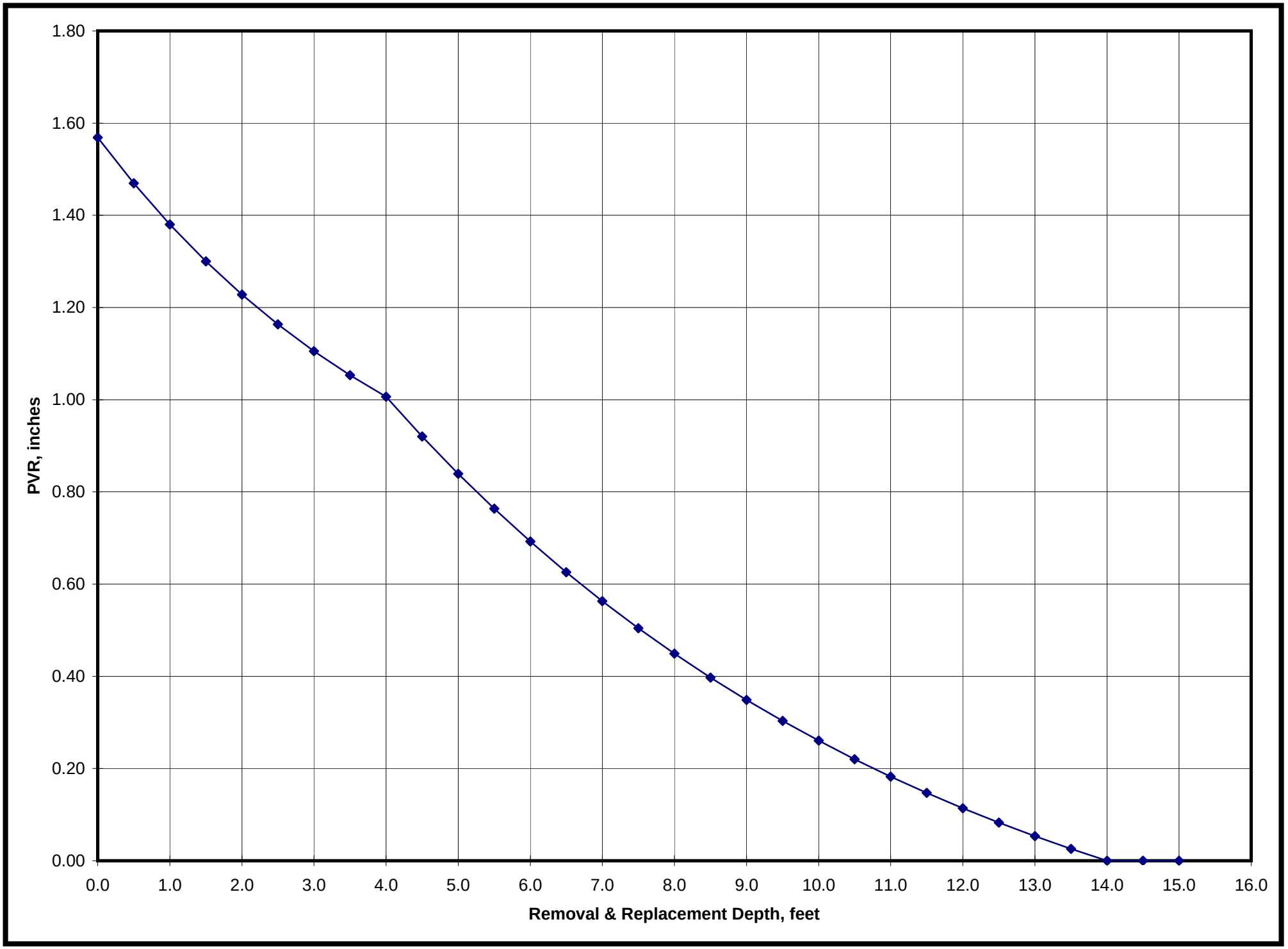
DONNA PUMP TO BROWNSVILLE - BH 179



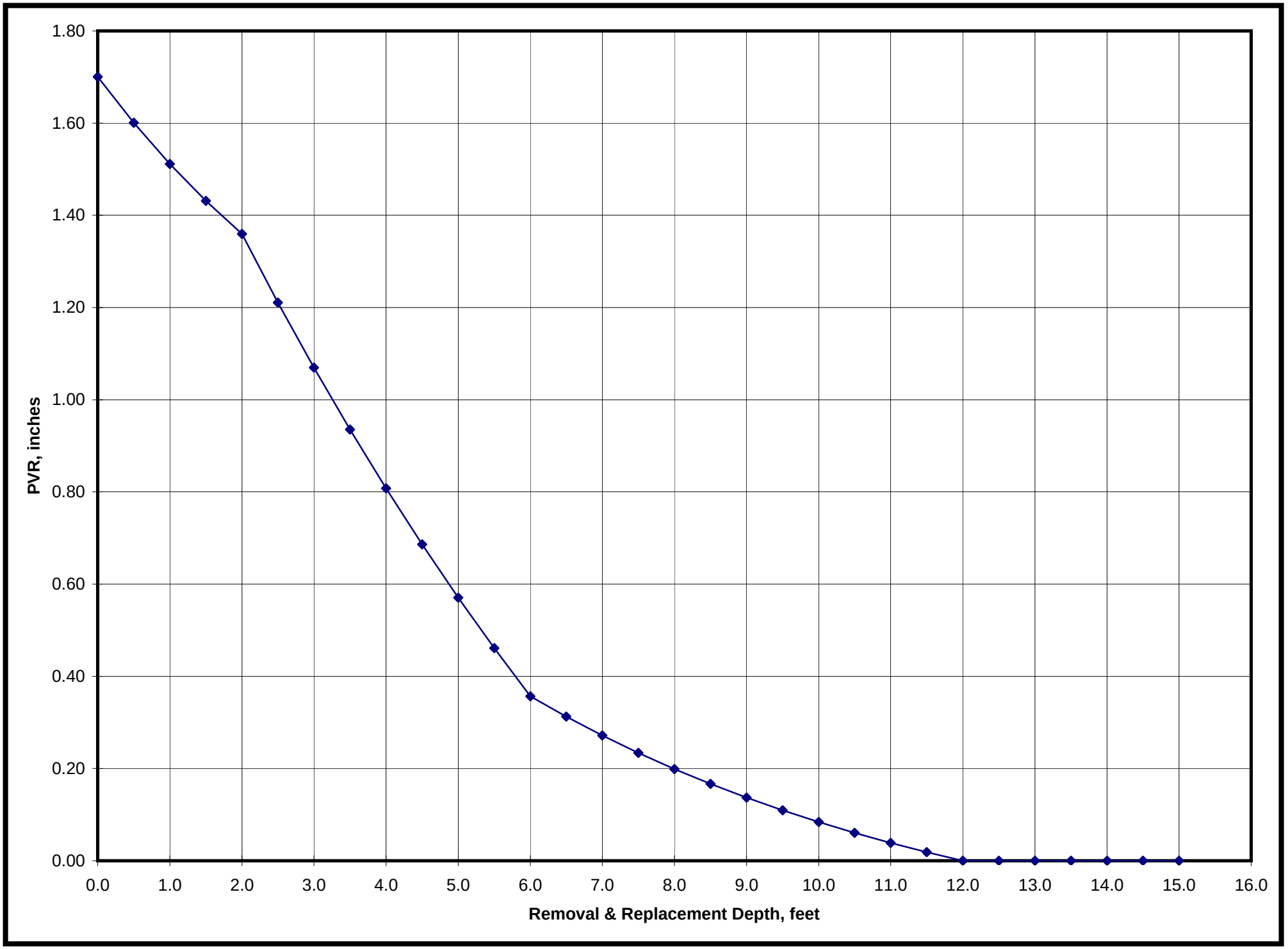
DONNA PUMP TO BROWNSVILLE - BH 180



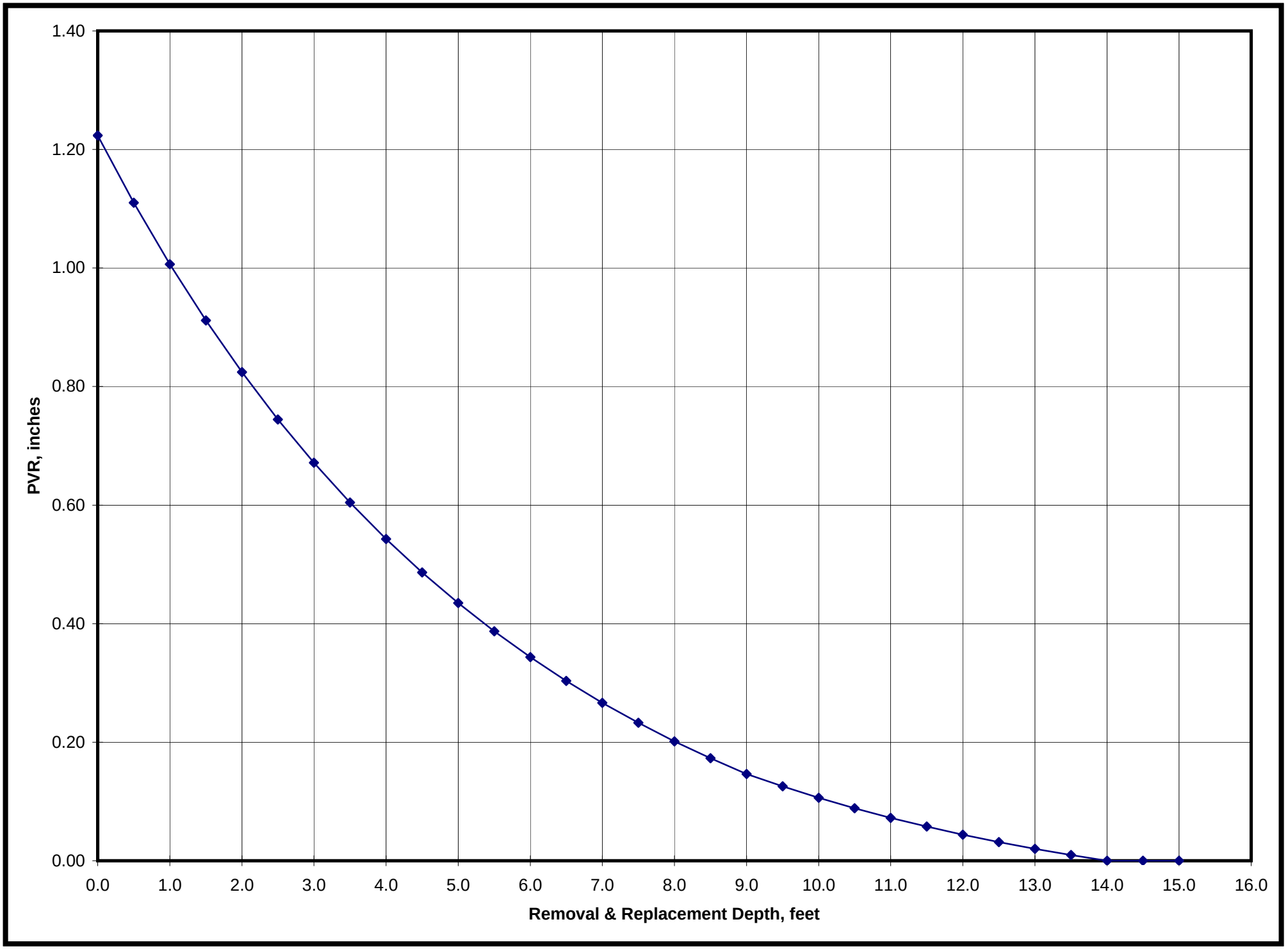
DONNA PUMP TO BROWNSVILLE - BH 181



DONNA PUMP TO BROWNSVILLE - BH 182



DONNA PUMP TO BROWNSVILLE - BH 183



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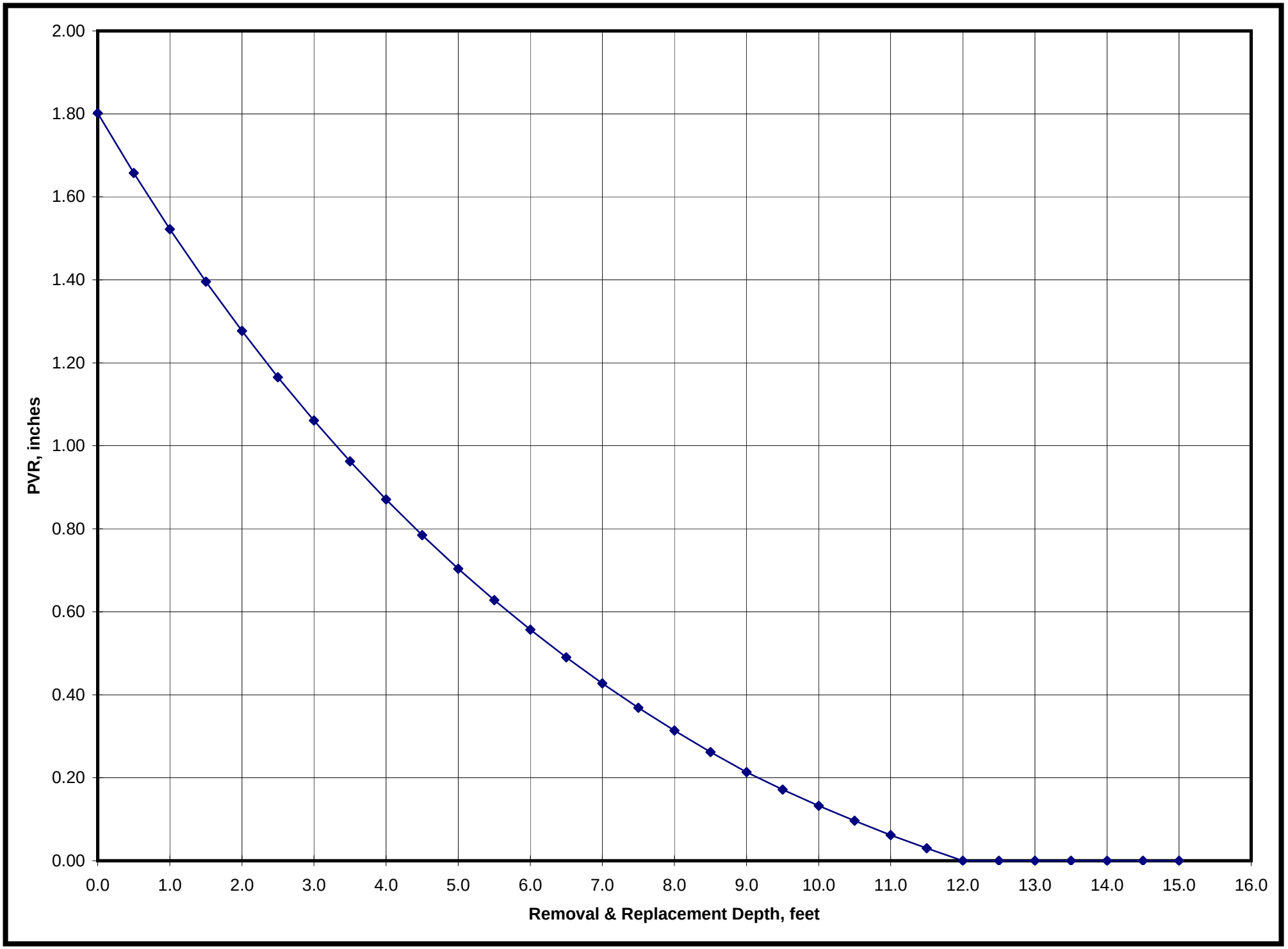
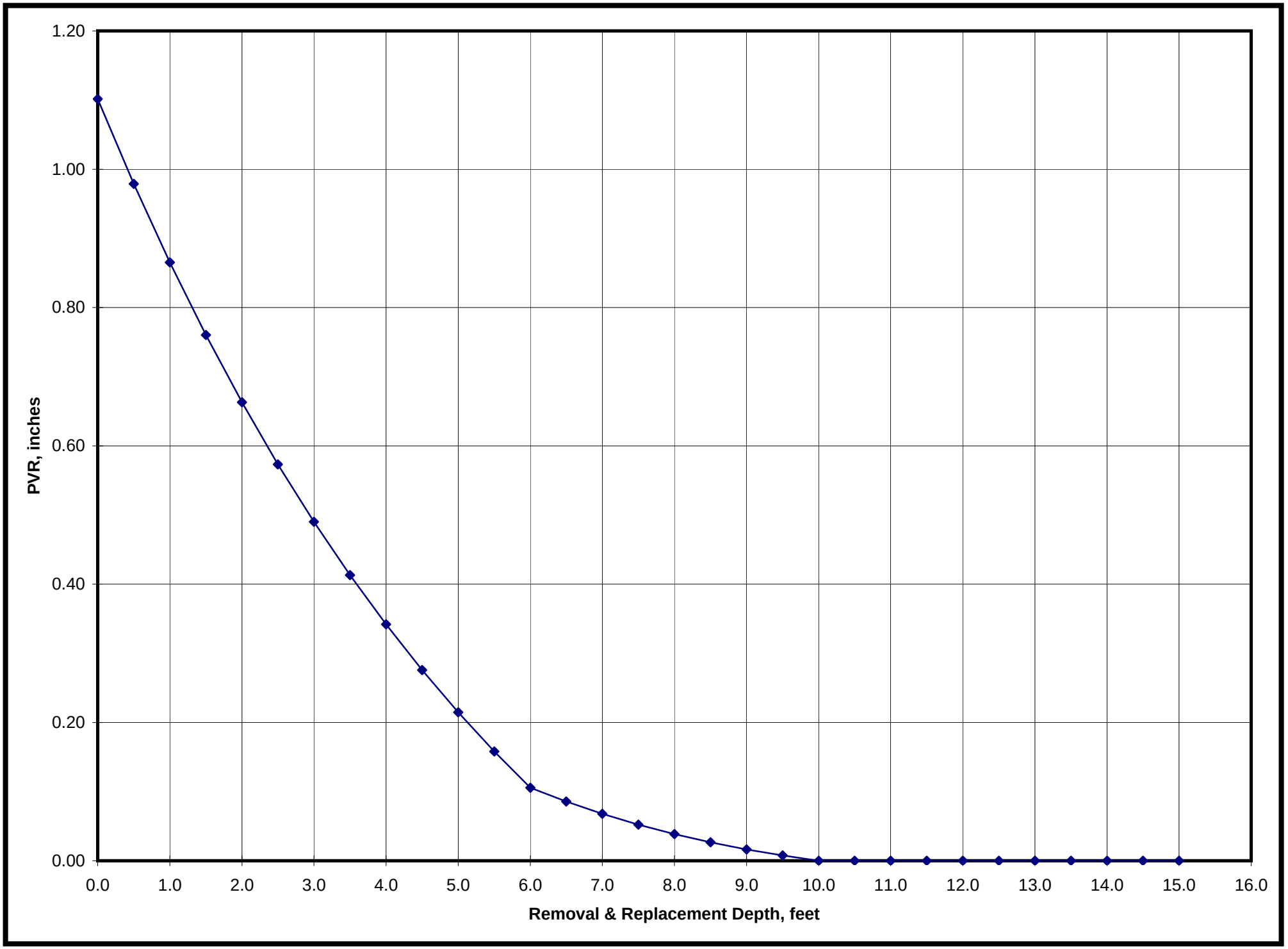
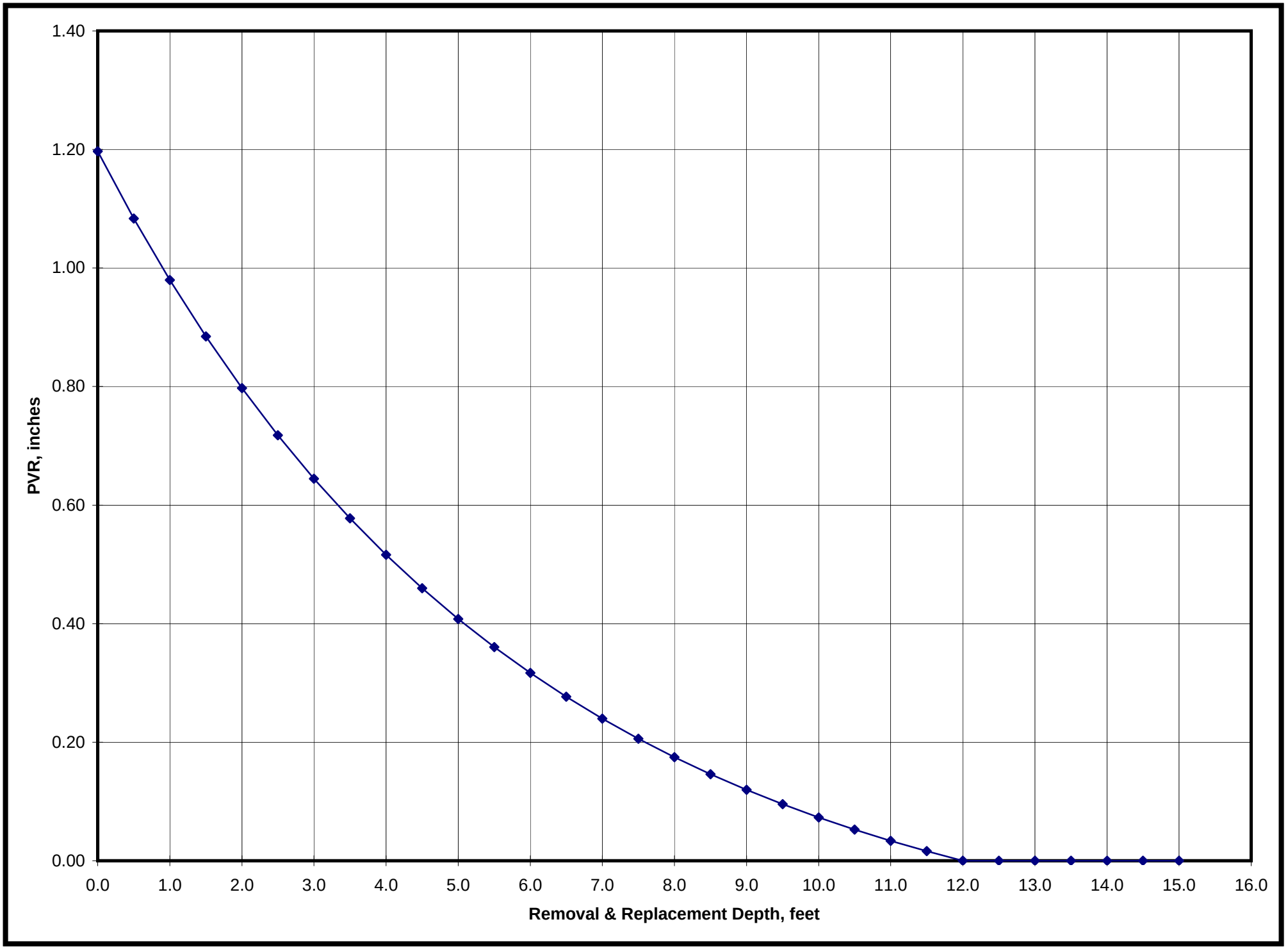


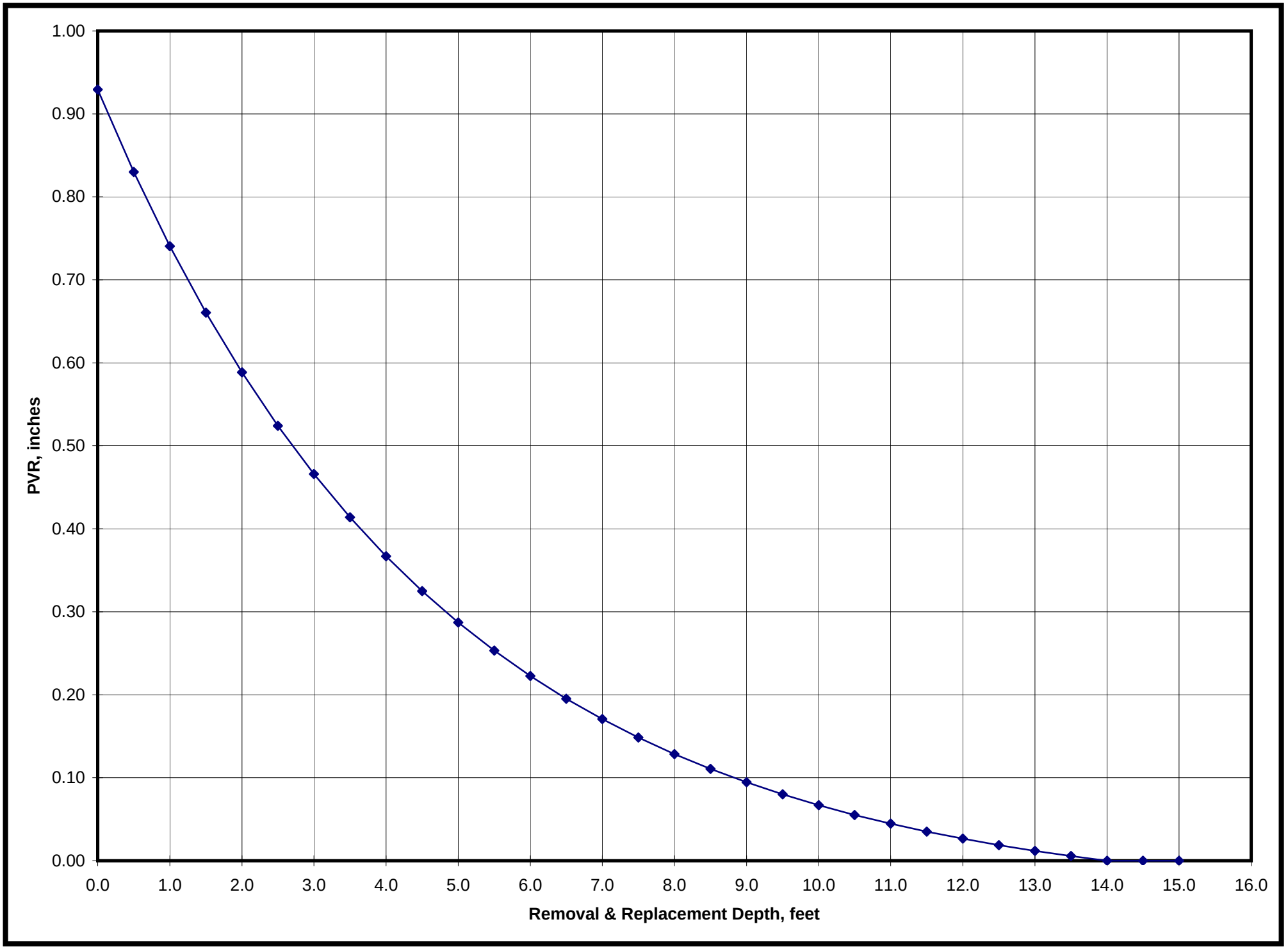
DONNA PUMP TO BROWNSVILLE - BH 185



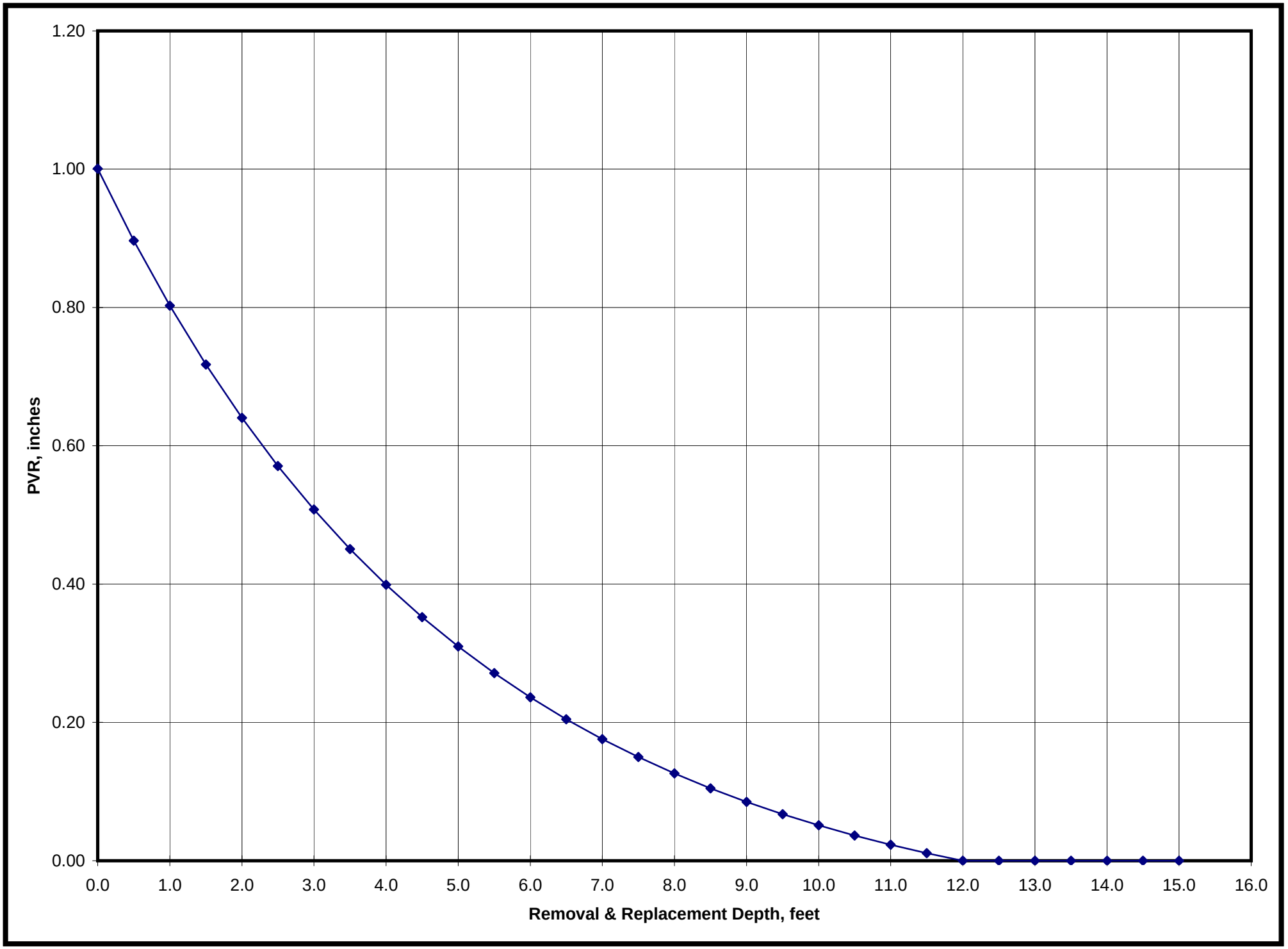
DONNA PUMP TO BROWNSVILLE - BH 186



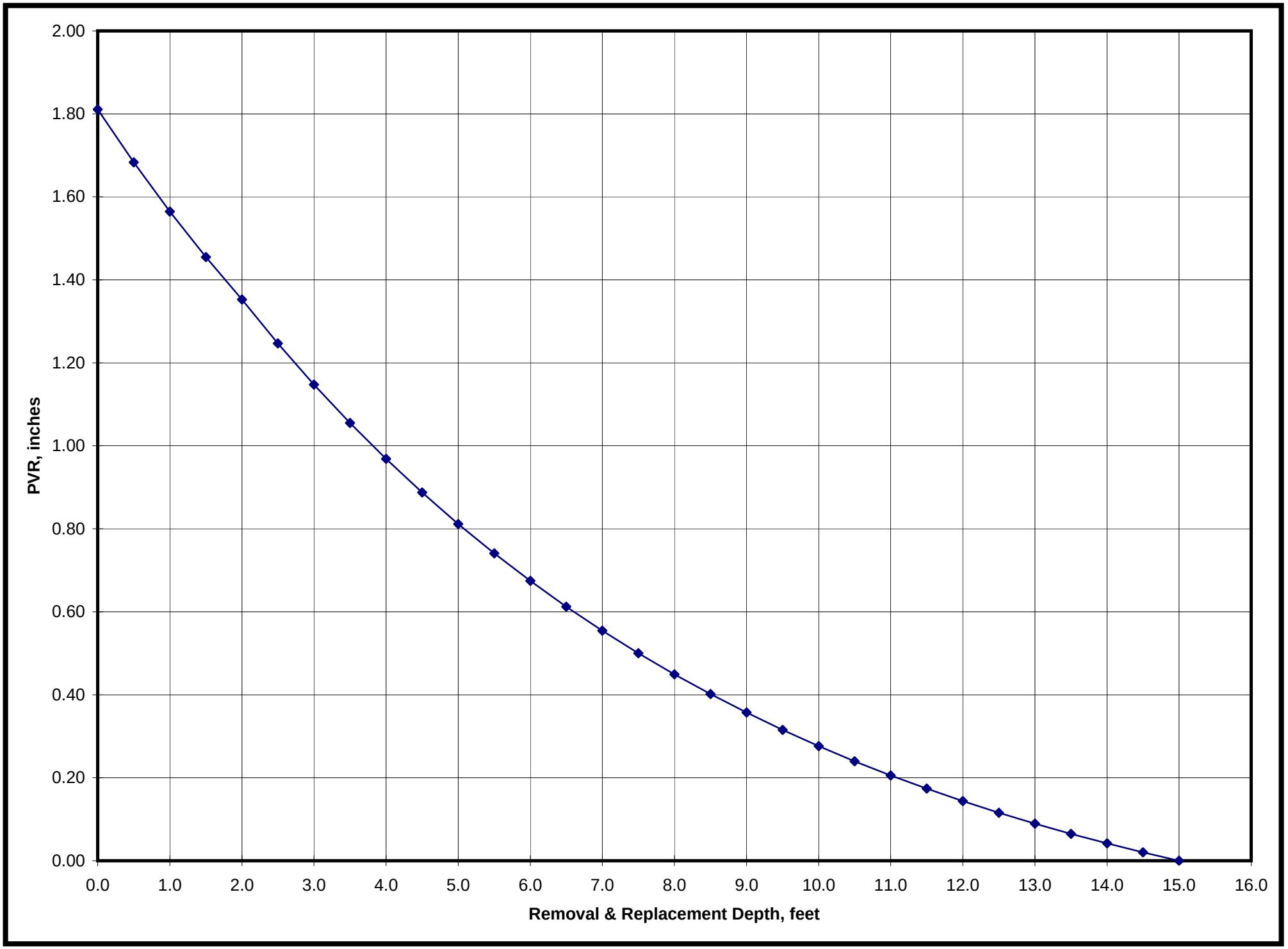
DONNA PUMP TO BROWNSVILLE - BH 187



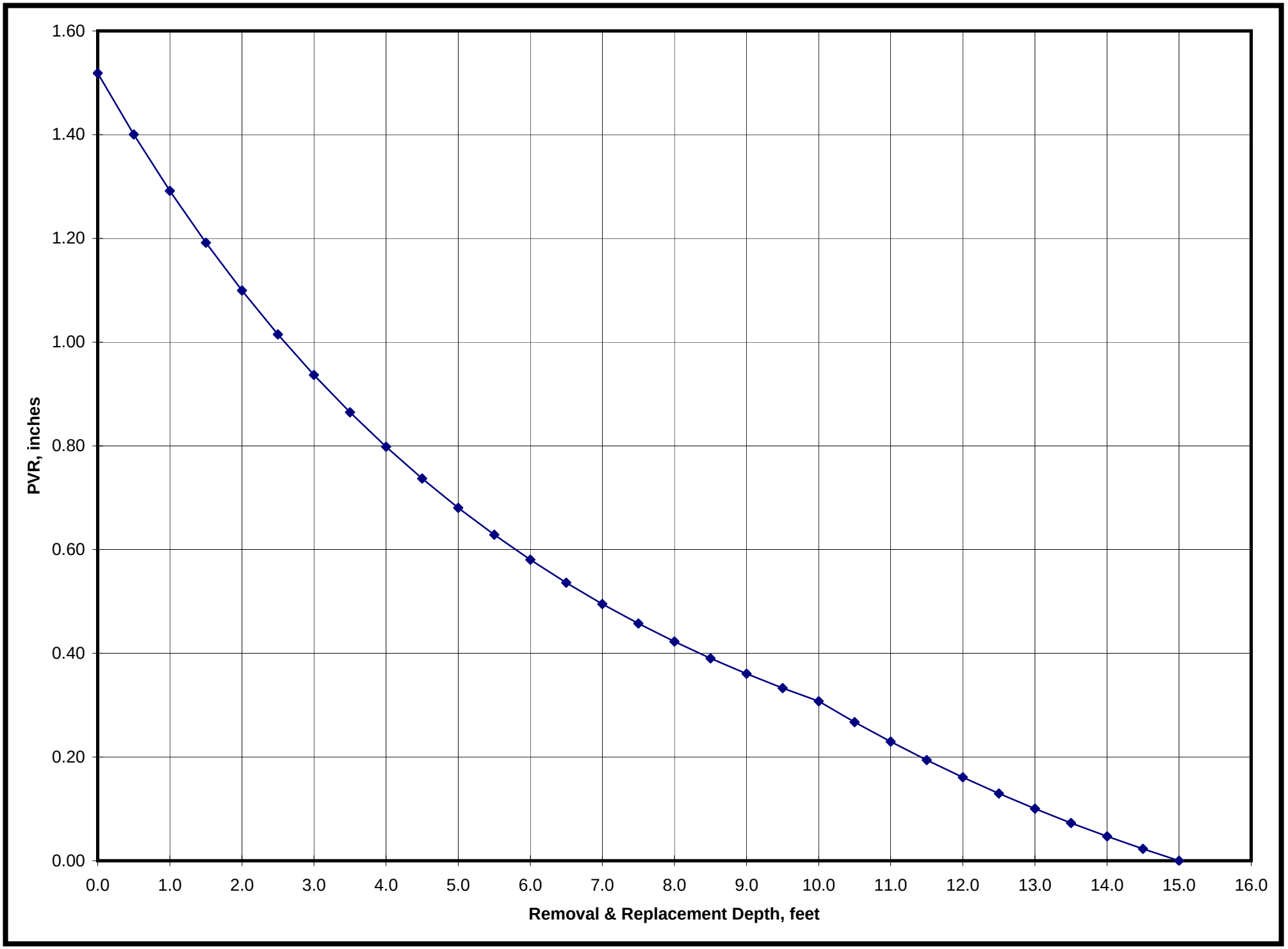
DONNA PUMP TO BROWNSVILLE - BH 188



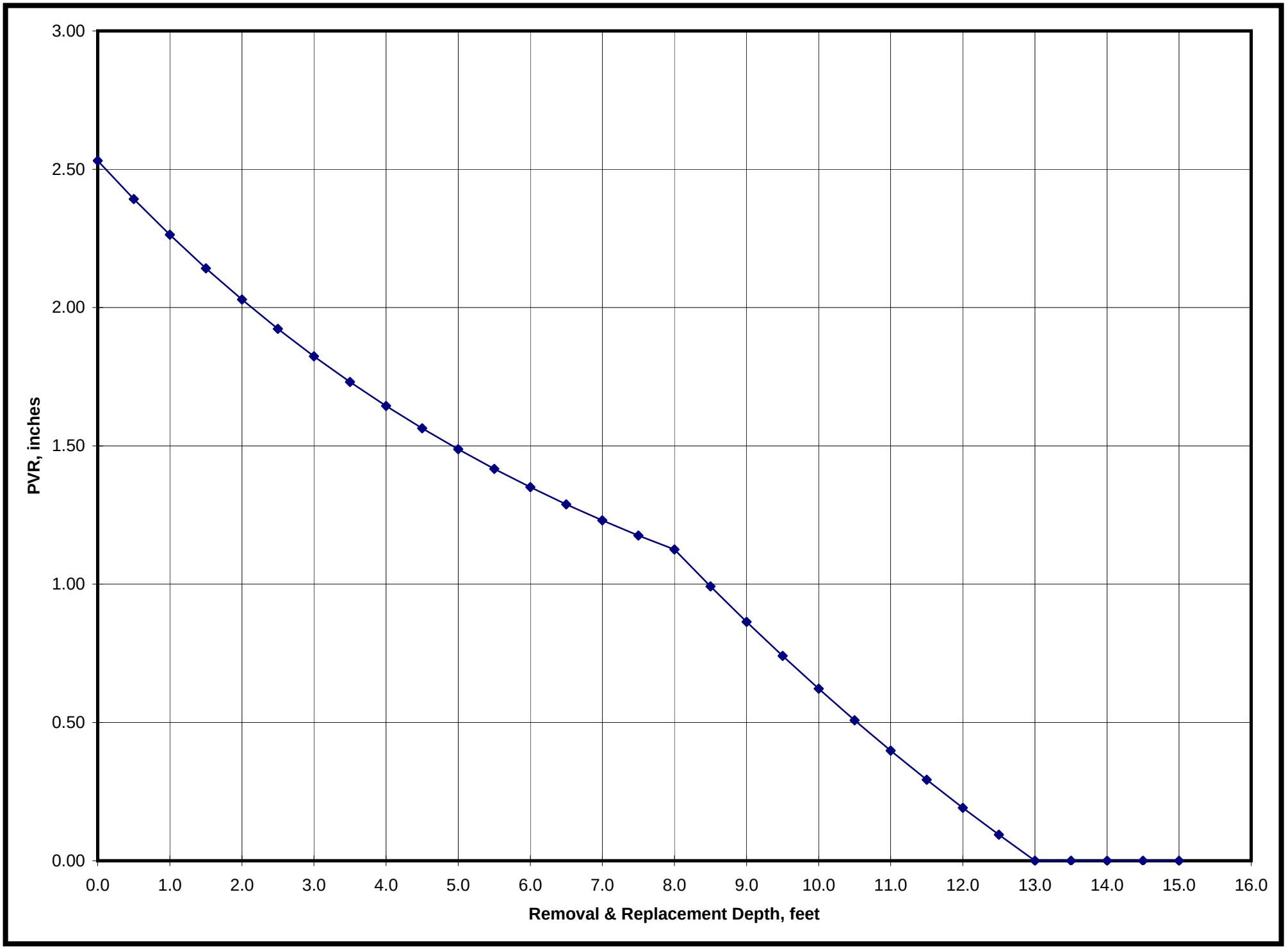
DONNA PUMP TO BROWNSVILLE - BH 189



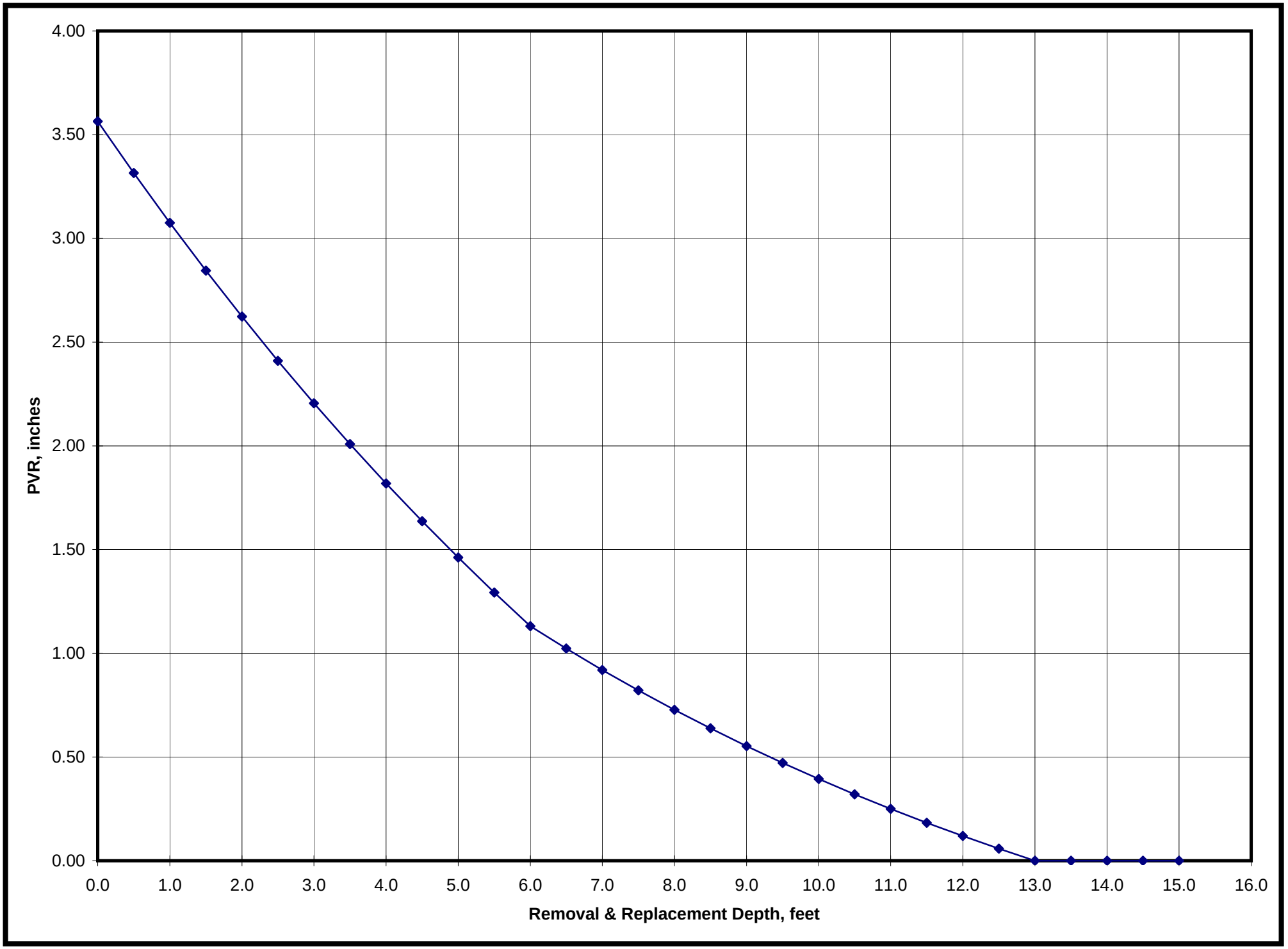
DONNA PUMP TO BROWNSVILLE - BH 190



DONNA PUMP TO BROWNSVILLE - BH 191



DONNA PUMP TO BROWNSVILLE - 192



DONNA PUMP TO BROWNSVILLE - BH 193

APPENDIX I
Bore Coordinates

APPENDIX I
Bore Coordinates & Surface Elevations

Point No.	Northing	Easting	Elevation	Bore Hole
1001	16546363.20	1161293.04	82.64	BH1
1002	16546668.93	1161393.78	82.70	BH 2
1003	16547143.67	1161650.52	81.94	BH 3
1004	16547535.61	1161954.16	81.79	BH 4
1005	16547778.58	1162391.66	82.04	BH 5
1006	16548021.51	1162781.08	81.79	BH 6
1007	16548353.36	1163211.72	81.35	BH 7
1008	16548749.41	1163434.84	81.13	BH 8
1009	16548777.96	1163911.04	81.39	BH 9
1010	16548771.28	1164435.01	81.64	BH 10
1011	16548631.88	1165399.16	81.47	BH 11
1012	16548637.84	1165929.79	81.05	BH 12
1013	16548705.15	1166394.57	80.94	BH 13
1014	16548705.42	1166841.17	80.34	BH 14
1015	16549216.78	1166951.83	80.85	BH 15
1016	16549509.26	1167255.84	79.93	BH 16
1017	16549399.04	1167737.93	80.39	BH 17
1018	16549282.45	1168143.36	79.70	BH 18
1019	16549587.22	1168534.55	79.71	BH 19
1020	16550100.82	1168637.84	80.75	BH 20
1021	16550327.67	1169128.01	80.65	BH 21
1022	16550496.08	1169619.71	80.23	BH 22
1023	16550567.55	1170106.01	80.60	BH 23
1024	16550628.65	1170624.09	80.59	BH 24
1025	16550694.21	1171197.45	80.14	BH 25
1026	16550785.07	1172031.16	80.12	BH 26
1027	16550705.20	1172813.05	79.88	BH 27
1028	16549864.13	1176202.90	80.29	BH 28
1029	16551791.02	1184071.29	75.88	BH 29
1030	16551848.40	1184319.59	77.25	BH 30
1031	16552136.19	1185251.38	77.36	BH 31
1032	16552522.18	1185565.32	77.21	BH 32
1033	16552932.81	1185845.89	77.00	BH 33
1034	16553190.31	1186015.54	77.25	BH 34
1035	16553358.78	1186124.19	77.09	BH 35
1036	16553684.53	1186487.75	77.36	BH 36
1037	16553956.77	1186926.08	76.97	BH 37
1038	16554216.65	1187363.26	76.45	BH 38
1039	16554483.79	1187813.70	75.55	BH 39
1040	16554747.55	1188236.31	75.73	BH 40
1041	16555060.29	1188570.11	76.15	BH 41
1042	16555412.00	1188769.68	76.20	BH 42
1043	16555422.33	1188998.44	76.49	BH 43
1044	16555442.22	1189850.02	76.41	BH 44
1045	16555462.57	1190855.68	77.46	BH 45
1046	16555473.75	1191378.31	77.31	BH 46
1048	16555856.86	1192655.31	76.27	BH 47
1049	16556281.99	1193624.12	76.23	BH 48
1050	16556106.82	1194333.26	75.41	BH 49
1051	16555363.05	1194629.97	75.35	BH 50
1052	16555113.25	1195043.39	75.06	BH 51
1053	16554879.66	1195480.39	74.82	BH 52
1054	16554695.54	1195955.87	75.66	BH 53
1055	16554533.83	1196394.43	75.27	BH 54
1056	16554270.71	1196831.19	75.14	BH 55
1057	16554062.93	1197318.40	75.46	BH 56
1058	16553732.51	1197657.98	74.71	BH 57
1059	16553339.40	1197836.52	74.50	BH 58

Borehole locations and elevations are based on NAD 83 / NAVD 88 Texas South Zone 4205

APPENDIX I
Bore Coordinates & Surface Elevations

Point No.	Northing	Easting	Elevation	Bore Hole
1060	16552361.62	1198054.85	74.33	BH 59
1061	16551384.73	1198301.33	74.23	BH 60
1062	16550010.08	1197908.22	73.86	BH 61
1063	16549601.31	1197632.54	73.93	BH 62
1064	16549187.04	1197359.66	74.27	BH 63
1065	16548659.85	1197116.88	74.20	BH 64
1066	16546019.17	1198230.27	75.45	BH 65
1067	16545795.34	1199837.82	74.32	BH 66
1068	16545975.05	1201282.53	73.99	BH 67
1069	16548304.63	1205930.08	74.52	BH 68
1070	16547424.11	1208451.76	73.53	BH 69
1071	16546773.58	1209103.59	72.98	BH 70
1072	16547114.27	1209867.77	72.58	BH 71
1073	16547910.08	1209850.34	72.20	BH 72
1074	16548417.27	1209834.19	71.84	BH 73
1075	16548881.80	1209971.69	70.33	BH 74
1076	16549134.78	1210320.69	71.07	BH 75
1077	16549340.90	1210649.10	71.45	BH 76
1078	16549697.98	1211004.96	71.22	BH 77
1079	16549689.66	1211467.22	71.17	BH 78
1080	16549610.84	1211935.91	70.95	BH 79
1081	16549403.92	1212422.61	70.91	BH 80
1082	16549015.54	1213329.78	70.49	BH 81
1083	16548545.77	1214195.94	70.60	BH 82
1084	16547690.44	1215312.77	69.86	BH 83
1085	16546963.04	1216583.78	69.67	BH 84
1086	16543913.05	1226364.50	68.24	BH 85
1087	16542451.80	1228796.04	66.29	BH 86
1088	16542012.49	1228438.45	65.75	BH 87
1089	16540163.66	1253685.00	60.13	BH 88
1090	16540320.97	1256966.27	60.01	BH 89
1091	16540469.20	1257347.37	59.30	BH 90
1092	16540695.80	1257780.83	59.48	BH 91
1093	16540739.25	1258267.00	59.39	BH 92
1094	16540728.09	1258843.50	59.29	BH 93
1095	16540559.34	1259201.24	59.37	BH 94
1096	16539739.01	1259936.86	59.12	BH 95
1097	16539083.60	1260322.94	58.83	BH 96
1098	16538341.25	1260503.29	58.16	BH 97
1099	16538012.47	1261276.84	58.55	BH 98
1100	16537888.84	1262247.47	58.06	BH 99
1101	16537591.79	1263136.58	57.70	BH 100
1102	16536786.90	1263688.12	57.13	BH 101
1103	16536684.88	1264119.06	57.43	BH 102
1104	16536962.21	1265093.40	57.18	BH 103
1105	16536727.82	1265535.93	56.28	BH 104
1106	16536487.85	1265993.53	56.78	BH 105
1107	16536072.60	1266281.39	55.65	BH 106
1108	16535755.47	1266594.76	56.86	BH 107
1109	16535389.29	1266974.21	57.14	BH 108
1110	16534998.14	1267322.60	56.32	BH 109
1111	16534633.86	1267655.79	56.26	BH 110
1112	16534247.48	1267955.65	56.39	BH 111
1113	16533765.27	1268046.38	56.16	BH 112
1114	16533261.74	1268119.27	55.15	BH 113
1115	16532774.29	1268203.60	55.16	BH 114
1116	16532256.23	1268243.99	54.66	BH 115
1117	16531743.28	1268193.52	55.07	BH 116

APPENDIX I
Bore Coordinates & Surface Elevations

Point No.	Northing	Easting	Elevation	Bore Hole
1118	16531240.41	1268216.56	55.10	BH 117
1119	16530837.82	1268491.14	55.15	BH 118
1120	16530550.56	1268942.74	55.05	BH 119
1121	16530281.28	1269350.71	55.05	BH 120
1122	16530018.22	1269791.73	54.50	BH 121
1123	16529814.10	1270251.08	54.31	BH 122
1124	16529520.99	1270662.07	54.74	BH 123
1125	16529231.99	1271064.77	54.35	BH 124
1126	16528941.16	1271493.55	54.56	BH 125
1127	16528677.00	1271922.13	53.92	BH 126
1128	16528410.17	1272334.82	54.19	BH 127
1129	16528417.99	1272794.85	53.93	BH 128
1130	16528648.30	1273325.94	53.07	BH 129
1131	16528635.24	1273781.14	53.66	BH 130
1132	16528363.90	1274214.81	54.09	BH 131
1133	16527940.79	1274466.12	54.17	BH 132
1134	16527492.58	1274689.23	53.98	BH 133
1135	16527049.95	1274906.26	53.49	BH 134
1136	16526600.65	1275125.72	53.04	BH 135
1137	16526170.78	1275337.88	53.36	BH 136
1138	16525696.53	1275461.97	53.01	BH 137
1139	16525199.19	1275464.77	52.87	BH 138
1140	16524717.74	1275394.01	53.03	BH 139
1141	16524215.84	1275318.27	52.75	BH 140
1142	16523737.92	1275249.00	52.80	BH 141
1143	16523235.16	1275170.19	52.68	BH 142
1144	16522720.08	1275144.31	53.40	BH 143
1145	16522228.53	1275357.24	52.02	BH 144
1146	16521738.85	1275287.91	52.75	BH 145
1147	16521334.21	1274990.12	52.56	BH 146
1148	16520980.78	1274637.17	52.71	BH 147
1149	16520519.96	1274530.75	53.05	BH 148
1150	16520017.57	1274519.78	52.75	BH 149
1151	16519606.73	1274788.50	52.45	BH 150
1152	16519513.61	1275284.54	52.32	BH 151
1153	16519864.57	1275645.05	52.43	BH 152
1154	16520140.39	1276042.81	52.62	BH 153
1155	16520389.56	1276489.84	52.14	BH 154
1156	16519793.02	1277901.89	52.89	BH 155
1157	16518460.23	1280104.10	52.33	BH 156
1158	16518112.48	1280190.80	52.47	BH 157
1159	16517335.86	1279918.14	52.23	BH 158
1160	16516711.91	1279530.27	52.29	BH 159
1161	16515849.10	1279100.09	52.51	BH 160
1162	16514842.44	1279883.66	51.80	BH 161
1163	16514527.08	1280999.11	51.86	BH 162
1164	16513420.26	1284305.00	51.62	BH 163
1165	16513433.79	1285300.32	51.49	BH 164
1166	16512340.90	1287487.07	50.48	BH 165
1167	16507977.59	1291994.31	48.27	BH 166
1168	16507658.19	1292102.61	48.36	BH 167
1169	16500327.73	1301337.23	44.62	BH 168
1170	16499534.61	1300906.03	44.56	BH 169
1171	16497897.03	1303370.47	44.00	BH 170
1171a	16493082.17	1304707.71	43.93	BH 171
1172	16492118.72	1305935.01	43.13	BH 172
1173	16492320.16	1308543.84	42.92	BH 173
1174	16489519.36	1311195.70	41.76	BH 174

APPENDIX I
Bore Coordinates & Surface Elevations

Point No.	Northing	Easting	Elevation	Bore Hole
1175	16489446.08	1312185.63	42.74	BH 175
1176	16489970.26	1313029.01	42.50	BH 176
1179	16487991.46	1325325.28	38.65	BH 177
1180	16486579.81	1327555.51	38.18	BH 178
1181	16486175.82	1327859.92	37.56	BH 179
1182	16485789.92	1328154.22	37.75	BH 180
1183	16485380.70	1328463.75	37.06	BH 181
1184	16484976.32	1328771.84	37.01	BH 182
1185	16484597.22	1329058.81	36.94	BH 183
1186	16484213.93	1329348.74	36.43	BH 184
1187	16483753.73	1329697.47	36.76	BH 185
1188	16483355.10	1329999.58	37.17	BH 186
1189	16482577.30	1330542.30	37.17	BH 187
1190	16482314.71	1329937.49	37.34	BH 188
1191	16481846.75	1329931.30	36.52	BH 189
1192	16481080.98	1330219.80	36.34	BH 190
1193	16480876.05	1330541.49	36.41	BH 191
1194	16475503.07	1337867.36	32.55	BH 192
1195	16475525.28	1339912.15	32.08	BH 193