Analyses Of Lateral Loaded Piles With P Y Curves

Essentials of Offshore Structures: Framed and Gravity Platforms examines the engineering ideas and offshore drilling platforms for exploration and production. This book offers a clear and acceptable demonstration of both the theory and application of the relevant procedures of structural, fluid, and geotechnical mechanics to offshore structures. It

Laterally loaded deep foundations are commonly analyzed using the Winkler model with the soil-pile interaction modeled through nonlinear springs in the form of p-y curves. Computer programs such as FloridaPier and COM624P use default p-y curves when performing lateral analyses. These curves are based on input soil properties such as subgrade modulus, friction angle, undrained shear strength, etc. Soil properties must be deduced by laboratory testing or correlation to in situ test results. This is a source of uncertainty. In a few cases, lateral load tests are performed on instrumented piles, and the validity of such assumptions can be assessed. Test piles are commonly instrumented with strain gages and/or inclinometers. P-y curves can be back computed from these data, and the curves obtained with the two methods should agree closely. Results from a field test on a concrete pile are presented and the critical factors for the analysis are

discussed. One added difficulty with concrete is its nonlinear behavior particularly near structural failure. The curves obtained are also compared with those developed from the Dilatometer/Cone Pressuremeter Test and the Standard Penetration Test.

A simplified approach to applying the Finite Element Method to geotechnical problems Predicting soil behavior by constitutive equations that are based on experimental findings and embodied in numerical methods, such as the finite element method, is a significant aspect of soil mechanics. Engineers are able to solve a wide range of geotechnical engineering problems, especially inherently complex ones that resist traditional analysis. Applied Soil Mechanics with ABAQUS® Applications provides civil engineering students and practitioners with a simple, basic introduction to applying the finite element method to soil mechanics problems. Accessible to someone with little background in soil mechanics and finite element analysis, Applied Soil Mechanics with ABAQUS® Applications explains the basic concepts of soil mechanics and then prepares the reader for solving geotechnical engineering problems using both traditional engineering solutions and the more versatile, finite element solutions. Topics covered include: Properties of Soil Elasticity and Plasticity Stresses in Soil Consolidation Shear Strength of Soil Shallow Foundations Lateral Earth Pressure

and Retaining Walls Piles and Pile Groups Seepage Taking a unique approach, the author describes the general soil mechanics for each topic, shows traditional applications of these principles with longhand solutions, and then presents finite element solutions for the same applications, comparing both. The book is prepared with ABAQUS® software applications to enable a range of readers to experiment firsthand with the principles described in the book (the software application files are available under "student resources" at www.wiley.com/college/helwany). By presenting both the traditional solutions alongside the FEM solutions, Applied Soil Mechanics with ABAQUS® Applications is an ideal introduction to traditional soil mechanics and a guide to alternative solutions and emergent methods. Dr. Helwany also has an online course based on the book available at www.geomilwaukee.com.

This book contains nine classic papers from the Offshore Technology Conference (OTC), which is the world's leading event for the development of offshore resources in the fields of drilling, exploration, production, and environmental protection. These papers provide innovation in, vision for, and lasting impact on design, construction or installation of offshore infrastructure, and have influence far beyond the offshore industry, some becoming integral to the design process of onshore structures such as buildings and bridges. The

ASCE OTC Committee have chosen these classic documents to represent the outstanding papers from the early years of the OTC that withstand test of time. They contain engineering methods that have proven their value through widespread use, permeating codes, standards, guidelines and engineering software. Topics include: wave force evaluation; ultimate strength and reverse capacity; tubular joint material and design; pile foundations; and pipeline installation.

The reliability-based analysis of laterally loaded piles needs to be incorporated where the lateral movement of the foundation affects the operation of the structure. The 'p-y' approach is a widely used soil-pile interaction model to analyze the response of laterally loaded piles. Currently, nominal values of soil parameters are used in the 'p-y' model depending on the judgments of the designers. This judgment leads to ambiguity which can potentially be overcome by using reliability based design. Following the Load and Resistance Factor Design (LRFD) approach, resistance factors may be developed for the use in design of laterally loaded piles. Furthermore, using the 'p-y' model and Monte Carlo simulation, lateral load displacement curves can be developed for laterally loaded piles. Hyperbolic load displacement behavior of the soil-pile interface is considered for the analysis. The load displacement curves are analyzed to find

the probabilistic load capacity relationships of piles. These relations are then utilized to further develop the resistance factors that can be included in LRFD applications. Finally, a parametric analysis is carried out where the soil-pile interface parameters are varied to understand their effect on the resistance factors.

Numerical Methods in Geotechnical Engineering contains the proceedings of the 8th European Conference on Numerical Methods in Geotechnical Engineering (NUMGE 2014, Delft, The Netherlands, 18-20 June 2014). It is the eighth in a series of conferences organised by the European Regional Technical Committee ERTC7 under the auspices of the International

Correctly understanding, designing and analyzing the foundations that support structures is fundamental to their safety. This book by a range of academic, design and contracting world experts provides a review of the state-of-the-art techniques for modelling foundations using both linear and non linear numerical analysis. It applies to a range of infrastructure, civil engineering and structural engineering projects and allows designers, engineers, architects, researchers and clients to understand some of the advanced numerical techniques used in the analysis and design of foundations. Topics include: Ground vibrations caused by trains Pile-group effects Bearing capacity of shallow foundations under static and seismic conditions Bucket foundation

technology for offshore oilfields Seismically induced liquefaction in earth embankment foundations and in pile foundations Free vibrations of industrial chimneys and TV towers with flexibility of the soil Settlements of high rise structures Seepage, stress fields and dynamic responses in dams Site investigation

The current best practice in geotechnical engineering in determining lateral capacity of piles is to replace the soil reaction with a series of independent springs. Basically, the model uses beam theory to represent the pile and uncoupled, non-linear load transfer functions, called p-y curves to represent the soil. Most of the existing methods for determining p-y curves are highly empirical, based on a limited number of cases of laterally loaded piles, which were instrumented, enabling to measure the pile deflection in discrete depth intervals subject to different lateral load (i.e. Matlock 1970, Reese 1975). In essence, these methods have their own limitations, and are mainly applicable for the conditions similar to the tested conditions. Although later, more detailed investigations by different people addressed some of the problems, still the basis of the existing design programs such as LPILE, or procedures introduced in applicable codes such as API (American Petroleum Institute), is the same original recommendations made by Matlock and Reese during seventies. In recent era, demand in employment of in-situ direct-pushed based methods using multi-measurement in-situ devices, such as the seismic cone penetration test with pore water measurement (SCPTu) and Seismic Flat Dilatometer Test (SDMT) is significantly increased. The main objective of this

research is to introduce a unified CPT-based approach for determining p-y curves and pile responses to lateral loads. The suggested approach will provide explicit and defined steps/criteria to develop p-y curves for piles subjected to lateral loads using CPT data. CPT data will be used to determine soil strength parameters. Recent developments in relating CPT data to soil basic parameters using Critical State Soil Mechanics (CSSM) framework will be implemented in the suggested model. In all current common models, pre-determination of the soil behavior and the model to be used (e.g. Matlock clay, 1970 or Reese sand, 1975), will become warranted even before commencement of the analysis. On the contrary, in the proposed model, the need for the said pre-determination of soil behavior is eliminated. As discussed in Section 2.3.5, soil behavior in the model is being classified into four broad and general groups: drained-dilative, drained- contractive, undrained-dilative and undrained-contractive The main factor driving the suggested analytical approach is Soil Behavior Type Index, Ic. In the proposed approach, the SBT index, Ic, will be used to determine the in-situ characteristics and behavior of the soil. Based on the value of Ic calculated from CPT data, it could be determined that the soil behaves as a sand-like or a clay-like soil, and during the shearing would behave in undrained or drained condition. The measured shear wave velocity during field test using seismic cone penetration test or other methods such as SASW (Spectral Analysis of Surface Waves) or Cross-Hole logging, may be used to determine the small strain shear modulus, G0, which

corresponds to the initial stiffness of the linear part of the p-y curve. In this research, the proposed model will be verified using collected case histories of laterally loaded piles with available CPT data at the same site. The p-y curves, and pile force-head displacements determined from the model will be compared to the field-resulted p-y curves and pile head displacement measurements available from the case histories.

This book presents a comprehensive topical overview on soil dynamics and foundation modeling in offshore and earthquake engineering. The spectrum of topics include, but is not limited to, soil behavior, soil dynamics, earthquake site response analysis, soil liquefactions, as well as the modeling and assessment of shallow and deep foundations. The author provides the reader with both theory and practical applications, and thoroughly links the methodological approaches with engineering applications. The book also contains cutting-edge developments in offshore foundation engineering such as anchor piles, suction piles, pile torsion modeling, soil ageing effects and scour estimation. The target audience primarily comprises research experts and practitioners in the field of offshore engineering, but the book may also be beneficial for graduate students.

Developments in Geographic Information Technology have raised the expectations of users. A static map is no longer enough; there is now demand for a dynamic representation. Time is of great importance when operating on real world geographical phenomena, especially when these are dynamic. Researchers in the field of Temporal

Geographical Information Systems (TGIS) have been developing methods of incorporating time into geographical information systems. Spatio-temporal analysis embodies spatial modelling, spatio-temporal modelling and spatial reasoning and data mining. Advances in Spatio-Temporal Analysis contributes to the field of spatio-temporal analysis, presenting innovative ideas and examples that reflect current progress and achievements.

One-of-a-kind coverage on the fundamentals of foundation analysis and design Analysis and Design of Shallow and Deep Foundations is a significant new resource to the engineering principles used in the analysis and design of both shallow and deep, load-bearing foundations for a variety of building and structural types. Its unique presentation focuses on new developments in computer-aided analysis and soil-structure interaction, including foundations as deformable bodies. Written by the world's leading foundation engineers, Analysis and Design of Shallow and Deep Foundations covers everything from soil investigations and loading analysis to major types of foundations and construction methods. It also features: * Coverage on computer-assisted analytical methods, balanced with standard methods such as site visits and the role of engineering geology * Methods for computing the capacity and settlement of both shallow and deep foundations * Field-testing methods and sample case studies, including projects where foundations have failed, supported with analyses of the failure * CD-ROM containing demonstration versions of analytical geotechnical software from

Ensoft, Inc. tailored for use by students in the classroom

Behavior of laterally loaded single piles and pile groups in fine grained soils are investigated using a non-linear finite element methodology. The purpose is to gather behavioral information that would help improve our knowledge of pile behavior and enhance the applicability of some existing methods of analysis. A three-dimensional non-linear finite element program, PILE3D, has been developed. An anisotropically hardening bounding surface plasticity model is used to model soil behavior. Behavior of soil-pile interface is modeled using thin isoparametric elements. Various geotechnical loading and boundary conditions including drained and undrained loading, water table, in-situ stresses, preconsolidation and formation of gap at the soil-pile interface, have been implemented. Two full-scale laterally loaded pile tests are analyzed using two- and three-dimensional idealizations and results are compared with observed pile behavior. Good agreement is obtained between measured and computed bending moment, soil resistance and lateral deflection along the length of the pile, load-deflection response at the pile-head and p-y curves at different depths. Influence on the behavior of the pile-soil system of flexural rigidity and diameter of the pile, shear strength, lateral pressure coefficient, friction angle and preconsolidation of the soil, and gap formation behind the pile at the soil-pile interface are investigated. Results are compared with some existing criteria for the determination of p-y curves. Effect of interaction between the individual piles in a group is studied using three different

configurations: (i) an $infty$ x 1 group, (ii) a 1 x $infty$ group and (iii) an $infty$ x $infty$ group. Influence of spacing between the piles in a group is investigated. Results are compared with some existing theoretical solutions and with results of full-scale and model-scale pile load tests. Interactions factors are developed to adjust single pile p-y curves to account for group interaction.

Designed to provide engineers with quick access to current and practical information on the dynamics of structure and foundation, this unique work, consisting of two separately available volumes, serves as a complete reference, especially for those involved with earthquake or dynamic analysis, or the design of machine foundations in the oil, gas, a

Following on from the International Conference on Structural Engineering, Mechanics and Computation, held in Cape Town in April 2001, this book contains the Proceedings, in two volumes. There are over 170 papers written by Authors from around 40 countries worldwide. The contributions include 6 Keynote Papers and 12 Special Invited Papers. In line with the aims of the SEMC 2001 International Conference, and as may be seen from the List of Contents, the papers cover a wide range of topics under a variety of themes. There is a healthy balance between papers of a theoretical nature, concerned with various aspects of structural mechanics and computational issues, and those of a more practical

nature, addressing issues of design, safety and construction. As the contributions in these Proceedings show, new and more efficient methods of structural analysis and numerical computation are being explored all the time, while exciting structural materials such as glass have recently come onto the scene. Research interest in the repair and rehabilitation of existing infrastructure continues to grow, particularly in Europe and North America, while the challenges to protect human life and property against the effects of fire, earthquakes and other hazards are being addressed through the development of more appropriate design methods for buildings, bridges and other engineering structures.

This book comprises select proceedings of the annual conference of the Indian Geotechnical Society. The conference brings together research and case histories on various aspects of geotechnical and geoenvironmental engineering. The book presents papers on geotechnical applications and case histories, covering topics such as (i) Characterization of Geomaterials and Physical Modelling; (ii) Foundations and Deep Excavations; (iii) Soil Stabilization and Ground Improvement; (iv) Geoenvironmental Engineering and Waste Material Utilization; (v) Soil Dynamics and Earthquake Geotechnical Engineering; (vi) Earth Retaining Structures, Dams and Embankments; (vii) Slope Stability and Landslides; (viii) Transportation Geotechnics; (ix) Geosynthetics Applications; (x)

Computational, Analytical and Numerical Modelling; (xi) Rock Engineering, Tunnelling and Underground Constructions; (xii) Forensic Geotechnical Engineering and Case Studies; and (xiii) Others Topics: Behaviour of Unsaturated Soils, Offshore and Marine Geotechnics, Remote Sensing and GIS, Field Investigations, Instrumentation and Monitoring, Retrofitting of Geotechnical Structures, Reliability in Geotechnical Engineering, Geotechnical Education, Codes and Standards, and other relevant topics. The contents of this book are of interest to researchers and practicing engineers alike.

The complexities of designing piles for lateral loads are manifold as there are many forces that are critical to the design of big structures such as bridges, offshore and waterfront structures and retaining walls. The loads on structures should be supported either horizontally or laterally or in both directions and most structures have in common that they are founded on piles. To create solid foundations, the pile designer is driven towards finding the critical load on a certain structure, either by causing overload or by causing too much lateral deflection. This second edition of Reese and Van Impe's course book explores and explains lateral load design and procedures for designing piles and pile groups, accounting for the soil resistance, as related to the lateral deflection of the pile. It addresses the analysis of piles of varying stiffness installed into soils

with a variety of characteristics, accounting for the axial load at the top of the pile and for the rotational restraint of the pile head. The presented method using load-transfer functions is currently applied in practice by thousands of engineering offices in the world. Moreover, various experimental case design examples, including the design of an offshore platform pile foundation are given to complement theory. The rich list of relevant publications will serve the user into further reading. Designed as a textbook for senior undergraduate/graduate student courses in pile engineering, foundation engineering and related subjects, this set of book and CD-ROM will also benefit professionals in civil and mining engineering and in the applied earth sciences.

This is the fifth volume in a series of publications containing classic papers from the early years of the Offshore Technology Conference (OTC), the world s leading event for the development of offshore resources in the fields of exploration, drilling, production, and environmental protection. The American Society of Civil Engineers (ASCE), through its participation in and support of the OTC, plays a major role in the innovation and evolution of the technologies needed to overcome the challenges facing development of resources in the offshore environment. The years since the first OTC Conference in 1969 have seen the presentation of over 10,000 papers in the various technical disciplines

central to offshore development. A few of the civil engineering papers, presented throughout OTC s history, provided innovation in, vision for and lasting impact on the design, construction, or installation of offshore infrastructure. Many have been adopted by design standards worldwide or became an integral part of design software. Some have had influence far beyond the offshore industry, and some have become integral to the design process of onshore structures such as buildings and bridges. Offshore Technology in Civil Engineering: Hall of Fame Papers from the Early Years; Volume Five is a collection of the eight winning papers inducted in 2010 at an award ceremony during OTC in May of 2010. The engineering methods published in these papers have proven their value through widespread use, permeating codes, standards, guidelines, and engineering software.

Pile Foundations are an essential basis for many structures. It is vital that they be designed with the utmost reliability, because the cost of failure is potentially huge. Covering a whole range of design issues relating to pile design, this book presents economical and efficient design solutions and demonstrates them using real world examples. Co

'Baltic Piling' contains the proceedings of the ‘Baltic Piling Days 2012’ (Tallinn, Estonia, 3-5 September 2012). The book includes contributions on current issues in pile

foundation engineering: - Interaction of pile and grillage; - Formation of pile bearing capacity - Settlements of piles - Pile foundation under historical buildings - Thermopiles, and - Interaction of georgid and pile. 'Baltic Piling' will be of interest to engineers, academics and students interested in pile foundation engineering and related disciplines.

Single piles and pile groups are frequently subjected to high lateral forces. The safety and functionality of many structures depends on the ability of the supporting pile foundation to resist the resulting lateral forces. In the analysis and design of laterally loaded piles, two criterions usually govern. First, the deflection at the working load should not be so excessive as to impair the proper function of the supporting member. Second, the ultimate strength of the pile should be high enough to take the load imposed on it under the worst loading condition. Typically, pile length, pile section, soil type, and pile restraint dictate the analysis. This paper presents different methods, specifically Broms' method and the p-y method, for both the analysis and design of laterally loaded single piles. Both linear and nonlinear analyses are considered. The measured results of several full-scale field tests performed by Lymon Reese are compared to computed results using Broms' method of analysis and the p-y method of analysis. Observations are made as to the correlation between the results and recommendations are made as to the applicability of the accepted methods for the analysis and design of laterally loaded piles.

Effective measurement of the composition and properties of petroleum is essential for its exploration, production, and refining; however, new technologies and methodologies are not adequately documented in much of the current literature. Analytical Methods in Petroleum Upstream Applications explores advances in the analytical methods and instrumentation that allow more accurate determination of the components, classes of compounds, properties, and features of petroleum and its fractions. Recognized experts explore a host of topics, including: A petroleum molecular composition continuity model as a context for other analytical measurements A modern modular sampling system for use in the lab or the process area to collect and control samples for subsequent analysis The importance of oil-in-water measurements and monitoring The chemical and physical properties of heavy oils, their fractions, and products from their upgrading Analytical measurements using gas chromatography and nuclear magnetic resonance (NMR) applications Asphaltene and heavy ends analysis Chemometrics and modeling approaches for understanding petroleum composition and properties to improve upstream, midstream, and downstream operations Due to the renaissance of gas and oil production in North America, interest has grown in analytical methods for a wide range of applications. The understanding provided in this text is designed to help chemists, geologists, and chemical and petroleum engineers make more accurate estimates of the crude value to specific refinery configurations, providing insight into optimum development and extraction schemes.

Landslides and debris flows belong to the most dangerous natural hazards in many parts of the world. Despite intensive research, these events continue to result in human suffering, property losses, and environmental degradation every year. Better understanding of the mechanisms and processes of landslides and debris flows will help make reliable predictions, develop mitigation strategies and reduce vulnerability of infrastructure. This book presents contributions to the workshop on Recent Developments in the Analysis, Monitoring and Forecast of Landslides and Debris Flow, in Vienna, Austria, September 9, 2013. The contributions cover a broad spectrum of topics from material behavior, physical modelling over numerical simulation to applications and case studies. The workshop is a joint event of three research projects funded by the European Commission within the 7th Framework Program: MUMOLADE (Multiscale modelling of landslides and debris flows, www.mumolade.com), REVENUES (Numerical Analysis of Slopes with Vegetations, http://www.revenues-eu.com) and HYDRODRIL (Integrated Risk Assessment of Hydrologically-Driven Landslides, www.boku.ac.at/igt/).

During the 1980s, research was being carried out to instrument and monitor the piled foundation beneath one leg of the BP Magnus platform in order to determine the actual loads imposed on the piles and seabed by the structural and environmental forces. This volume brings together the findings and discussions resulting from this research.

More than ten years have passed since the first edition was published. During that

period there have been a substantial number of changes in geotechnical engineering, especially in the applications of foundation engineering. As the world population increases, more land is needed and many soil deposits previously deemed unsuitable for residential housing or other construction projects are now being used. Such areas include problematic soil regions, mining subsidence areas, and sanitary landfills. To overcome the problems associated with these natural or man-made soil deposits, new and improved methods of analysis, design, and implementation are needed in foundation construction. As society develops and living standards rise, tall buildings, transportation facilities, and industrial complexes are increasingly being built. Because of the heavy design loads and the complicated environments, the traditional design concepts, construction materials, methods, and equipment also need improvement. Further, recent energy and material shortages have caused additional burdens on the engineering profession and brought about the need to seek alternative or cost-saving methods for foundation design and construction.

Pile foundations are the most common form of deep foundations that are used both onshore and offshore to transfer large superstructural loads into competent soil strata. This book provides many case histories of failure of pile foundations due to earthquake loading and soil liquefaction. Based on the observed case histories, the possible mechanisms of failure of the pile foundations are postulated. The book also deals with the additional loading attracted by piles in

liquefiable soils due to lateral spreading of sloping ground. Recent research at Cambridge forms the backbone of this book with the design methodologies being developed directly based on quantified centrifuge test results and numerical analysis. The book provides designers and practicing civil engineers with a sound knowledge of pile behaviour in liquefiable soils and easy-to-use methods to design pile foundations in seismic regions. For graduate students and researchers, it brings together the latest research findings on pile foundations in a way that is relevant to geotechnical practice. Sample Chapter(s). Foreword (85 KB). Chapter 1: Performance of Pile Foundations (4,832 KB). Contents: Performance of Pile Foundations; Inertial and Kinematic Loading; Accounting for Axial Loading in Level Ground; Lateral Spreading of Sloping Ground; Axial Loading on Piles in Laterally Spreading Ground; Design Examples. Readership: Researchers, academics, designers and graduate students in earthquake engineering, civil engineering and ocean/coastal engineering.

The main themes of this conference are experimental investigations into deformation properties - from very small strains to beyond failure, laboratory, in-situ and field observation interpretations, and behaviour characterization and modelling. Emphasis is placed on exploring recent investigations into time-related stresses, and on applying advanced geotechnical testing to real engineering

problems.

Laterally Loaded Deep FoundationsAnalysis and Performance : a SymposiumASTM InternationalProbabilistic Analysis of Laterally Loaded Piles Using P-y Method

The most up-to-date method for the design of laterally loaded piles is to solve numerically the differential equation describing pile behavior. Iterative solutions are necessary since there is a nonlinear relationship between soil resistance and pile deflection. Curves giving soil resistance as a function of pile deflection, called p-y curves, have been the subject of research for a number of years. The development of p-y curves normally requires that a test be performed on an instrumented laterally loaded pile. A curve showing bending moment in the pile needs to be obtained for each of the applied loads. This curve can be differentiated twice to obtain soil resistance, and it can be integrated twice to obtain pile deflection. Cross plots of these values can be made at desired depths to obtain the p-y curves. This paper shows that nondimensional curves, developed from the numerical solutions of the differential equation, can be used to estimate p-y curves if only the following easily obtainable information is reported; pile properties, magnitude of the individual lateral loads, point of load application, deflection of the top of the pile, slope of the top of the pile, and

condition of restraint (if any) at the top of the pile. Thus, there needs to be no instrumentation of the pile except above ground. The procedure is illustrated by applying it to a test reported in the literature.

In areas of weathered and decomposed rock profiles, the definition of soil parameters needed for the analysis and design of laterally loaded drilled shafts poses a great challenge. The lack of an acceptable analysis procedure is compounded by the unavailability of a means for evaluating the weathered profile properties, including the lateral subgrade modulus, which often leads to the conservative design. Results from this research revealed that currently proposed P-y approaches to design drilled shafts embedded in weathered Piedmont profiles do not provide reasonable estimates of load-deflection response. Results in this report are used to develop and validate a procedure for the analysis of laterally loaded drilled shafts embedded in a weathered rock mass. The developed procedure is based on the P-y method of analysis in which the shape and magnitude of the P-y function are defined. The research proceeded along four complementary tracks: i) Finite Element modeling, ii) Laboratory work, iii) Field testing using full scale shafts; field work also included estimation of in situ modulus of subgrade reaction using "rock" dilatometer, and finally iv) Performance predictions. The proposed P-y curves are developed as hyperbolic

functions. A method to evaluate in situ stiffness properties of the weathered rock by utilization of the rock dilatometer, as well as by using geologic information of joint conditions, RQD, and the strength properties of cored samples, is proposed. A computational scheme for lateral behavior is advanced by which different lateral subgrade responses are assigned in the model based on the location of the point of rotation. Above the point of rotation, a coefficient of lateral subgrade reaction is assigned on the basis of evaluated modulus as computed from rock dilatometer data or from index geologic properties. A stiffer lateral subgrade reaction is assigned below the point of rotation in order to model the relatively small shear strains in this region. Predictions based on the proposed Py model for weathered rock show good agreement with field test results, which were performed in various rock profiles. The proposed method is also verified by comparisons with published results of an additional field test. Concepts of the proposed weathered rock model have been encoded into the computer program LTBASE.