1995

# Surface water and groundwater interaction in a shallow unconfined alluvial aquifer and small mountain stream Silver Bow Creek Montana

Eric William Smart
*The University of Montana*

Maureen and Mike

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# SURFACE WATER AND GROUNDWATER INTERACTION IN A SHALLOW UNCONFINED ALLUVIAL AQUIFER AND SMALL MOUNTAIN STREAM SILVER BOW CREEK, MONTANA

by

**Eric William Smart**

**B.S. University of California Los Angeles (UCLA)**

**Presented in partial fulfillment of requirements**

**for the degree of Master of Science in Geology**

**University of Montana**

**SPRING SEMESTER, 1995**

**Approved By:**

William W. Woessner

**Chairperson, Board of Examiners**

[signature]

**Dean, Graduate School**

June 5, 1995

**Date**

# ABSTRACT

Smart, Eric William, M.S., April, 1995 Geology

**Surface Water and Groundwater Interaction in a Shallow Unconfined Alluvial Aquifer and Small Mountain Stream, Silver Bow Creek, Montana. (170 pp.)**

Director: Dr. William W. Woessner WWW 5/26/95

A hydrogeologic and hydrogeochemical study performed at Miles Crossing of Silver Bow Creek revealed that the shallow groundwater system is in contact and interacts intimately with the stream system. The floodplain groundwater system flows to the creek channel and discharges to the creek through the upgradient bank. The shallow groundwater system is also recharged by the stream through the stream bed and opposite bank. An undetermined amount of groundwater flows beneath the stream, bypassing the stream channel and channel underflow. Shallow groundwater contains metals released from sulfide mining wastes distributed in the flood plain sediments. a portion of this groundwater interacts with the hyporheic zone adjacent to and beneath the creek.

Three dimensional numerical modeling using MODFLOW was used to simulate stream-aquifer interaction. The high hydraulic conductivity material adjacent to and beneath the creek channel and underflow parallel to stream flow direction were found to be major factors controlling groundwater flow in the vicinity of the stream. The model allowed examination of the field based conceptual model and helped lead to recommendations for additional detailed field work.

## DEDICATION

This is dedicated to my parents, Gary and Barbara.

## ACKNOWLEDGEMENTS

This research was completed in conjunction with a study performed by Shawn Benner, whose support, insights and effort made possible the completion of this project. A special thanks to Drs. William W. Woessner and Johnny N. Moore for their direction and knowledgeable comments, and to Dr. Garon Smith for his detailed review of this manuscript.

This study was funded by the National Mineland Reclamation Center, Energy & Environmental Research, North Dakota, and The University of Montana.

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# CHAPTER I: INTRODUCTION

Evaluating the environmental consequence of losing wetland areas (Kerbes *et al.*, 1990), altering in-stream flows, and attempting repair of riparian zones (Vellidis *et al.*, 1993; Leonard *et al.*, 1992; Harris, 1988) and contaminated floodplains, rivers and groundwater systems (Dietrich *et al.*, 1989; Jakeman *et al.*, 1989; Bencala *et al.*, 1990) requires consideration of the inter and intra-relationships among the biological, chemical and physical components associated with surface water and groundwater systems. To date, most studies have concentrated on a more general view of groundwater and surface water interaction, e.g., the consequence of groundwater withdrawl or stream diversion on these systems (Jorgensen *et al.*, 1989a; Jorgensen *et al.*, 1989b; Glover, 1990; Ruddy and Williams, 1991).

Recently, biologists studying aquatic fauna living in channel and floodplain sediments, have noted the importance of near channel groundwater flow and quality on the invertebrate population distribution and stream system nutrient cycling (Williams and Hynes, 1974; Stanford and Gaufin, 1974; Lee and Hynes, 1977/1978; Hynes, 1983; Rutherford and Hynes, 1987; Stanford and Ward, 1988). This area outside of the stream channel, composed of a mixture of stream and floodplain groundwater, is referred to as the hyporheic zone. This zone is reported to vary in thickness from a few inches in streams (Benner, 1994) to up to 3.2 kilometers in larger coarse gravel bed rivers (Stanford and Ward, 1988).

These observations prompted additional examination of the character of near channel groundwater systems. Results of work using chemical tracers revealed a high degree of variability in the patterns of groundwater flow into and around stream channels (Bencala, 1983; Bencala and Walters, 1983; Bencala *et al.*, 1984; Bencala, 1984; White *et al.*, 1987; Triska *et al.*, 1989; Castro and Hornberger, 1991). Such studies have identified transient storage of stream water in the bank and bed sediment outside of the stream channel (Dietrich *et al.*, 1989; Jakeman *et al.*, 1989; Bencala *et al.*, 1990).

Many streams and aquifer systems in the Rocky Mountains are affected by acidic, metal-rich water that originates from mining and smelting operations (Kimball *et al.*, 1988). A more limited number of researchers have documented the interrelationship between acidic and metal contaminated stream systems, local groundwater systems and hyporheic zones (Day and Briggs, 1988; McKnight and Bencala, 1990). The work of Harvey *et al.*, (1991) and Kimball *et al.*, (1991) evaluated an eight meter stretch of a small alpine stream (9L/s), where they found that the near channel distribution and magnitude of groundwater gradients controlled the mixing of surface water and groundwater.

Unfortunately, these previous studies seldom include a detailed analysis of the hydrogeologic setting including the identification of aquifer properties, flow directions and flow rates. In addition, only low discharge streams receiving mining wastes and contaminated floodplain groundwater have been described to date (Hynes, 1983; Hendricks and White, 1991). This study will attempt to describe the small scale hydrologic interactions between a mine-waste contaminated floodplain groundwater system and the channel of a medium sized stream.

## Project Goals and Objectives

This research effort was a joint project, performed with Shawn Benner to provide a basic framework of the chemical and physical hydrogeologic characteristics of the stream and groundwater system at Miles Crossing of Silver Bow Creek. This research effort was the initial phase of a larger interdisciplinary research project at the University of Montana, that was established to study the physical, chemical and biological properties of the metal mine waste contaminated surface water and groundwater system at Miles Crossing. The goal of this specific research effort is to describe and quantify the small scale, spatial and temporal exchange between Silver Bow Creek and the adjacent, metal-contaminated floodplain aquifer. The mechanisms influencing the rate of movement of water between the shallow alluvial aquifer and the stream (including underflow) will be quantified and related to stream morphology, floodplain composition and the size and shape of the hyporheic zone. Specific objectives will be to:

1) Summarize the regional hydrogeology, characterize the local hydrogeology and develop a conceptual model of the general relationships linking Silver Bow Creek and the floodplain aquifer;

2) Determine the scale of instrumentation and methods necessary to describe and quantify the exchange of water among Silver Bow Creek, the hyporheic zone and adjacent aquifer system; and,

3) Develop two-dimensional cross-sectional and three dimensional models of a portion of the floodplain groundwater system to evaluate the conceptual model describing the interrelationship among the surface water, the groundwater system and hyporheic zone.

## Thesis Organization

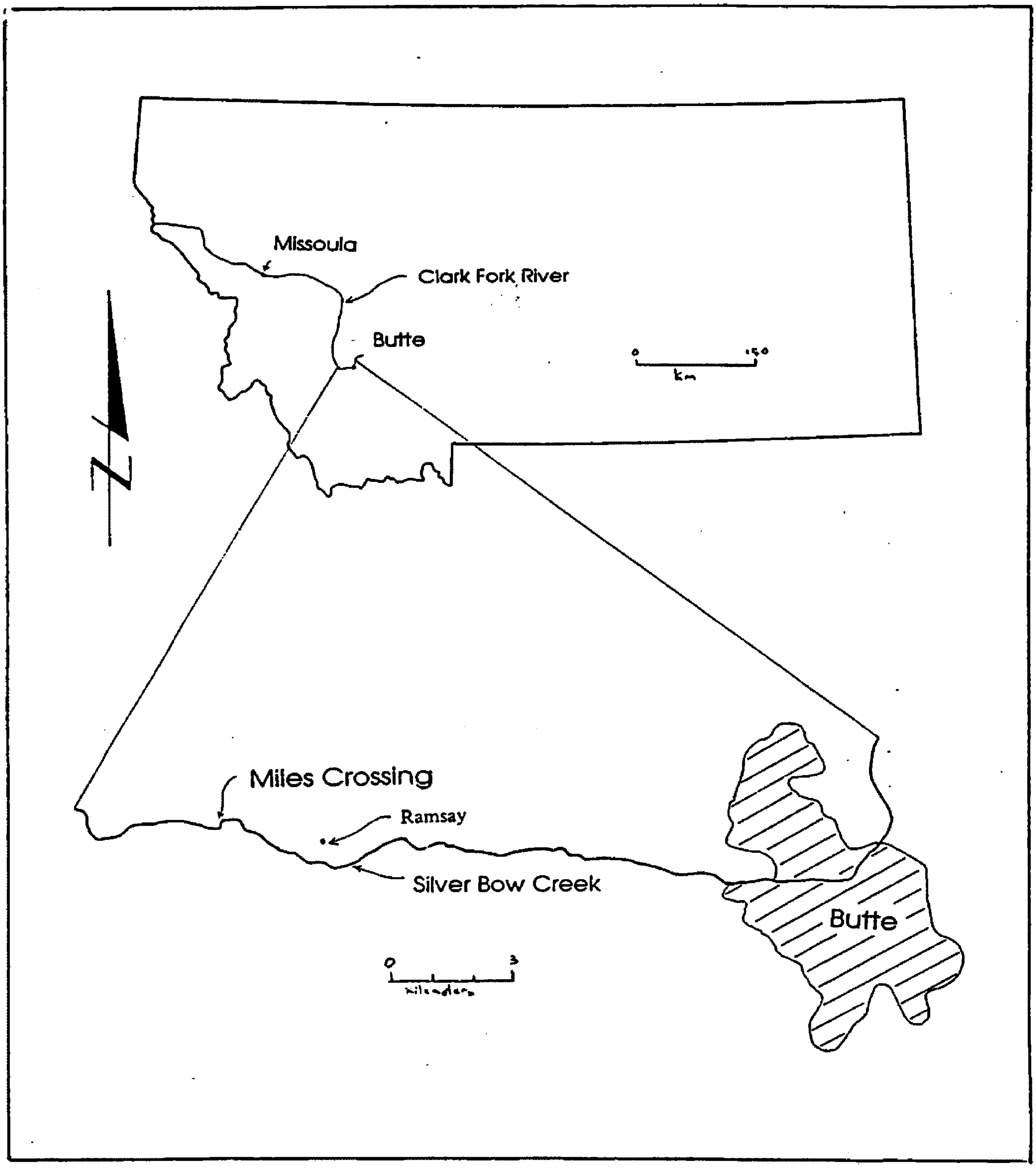
The thesis is organized in a concise journal format to facilitate publication in a professional journal. The first chapter is the introduction, including a description of the thesis problem and thesis goals. The second chapter describes the regional and site geologic setting. The third chapter describes the methods used to obtain field data. The fourth chapter presents the data and describes the results of the field experiments. The data are summarized in tables and attached in the appendices to limit the quantity of detail presented in the text. Pertinent data are presented in the text for clarity. The fifth chapter presents the conclusions of the thesis drawn from field results and observations. The conclusions include recommendations for further study.

**Site Background**

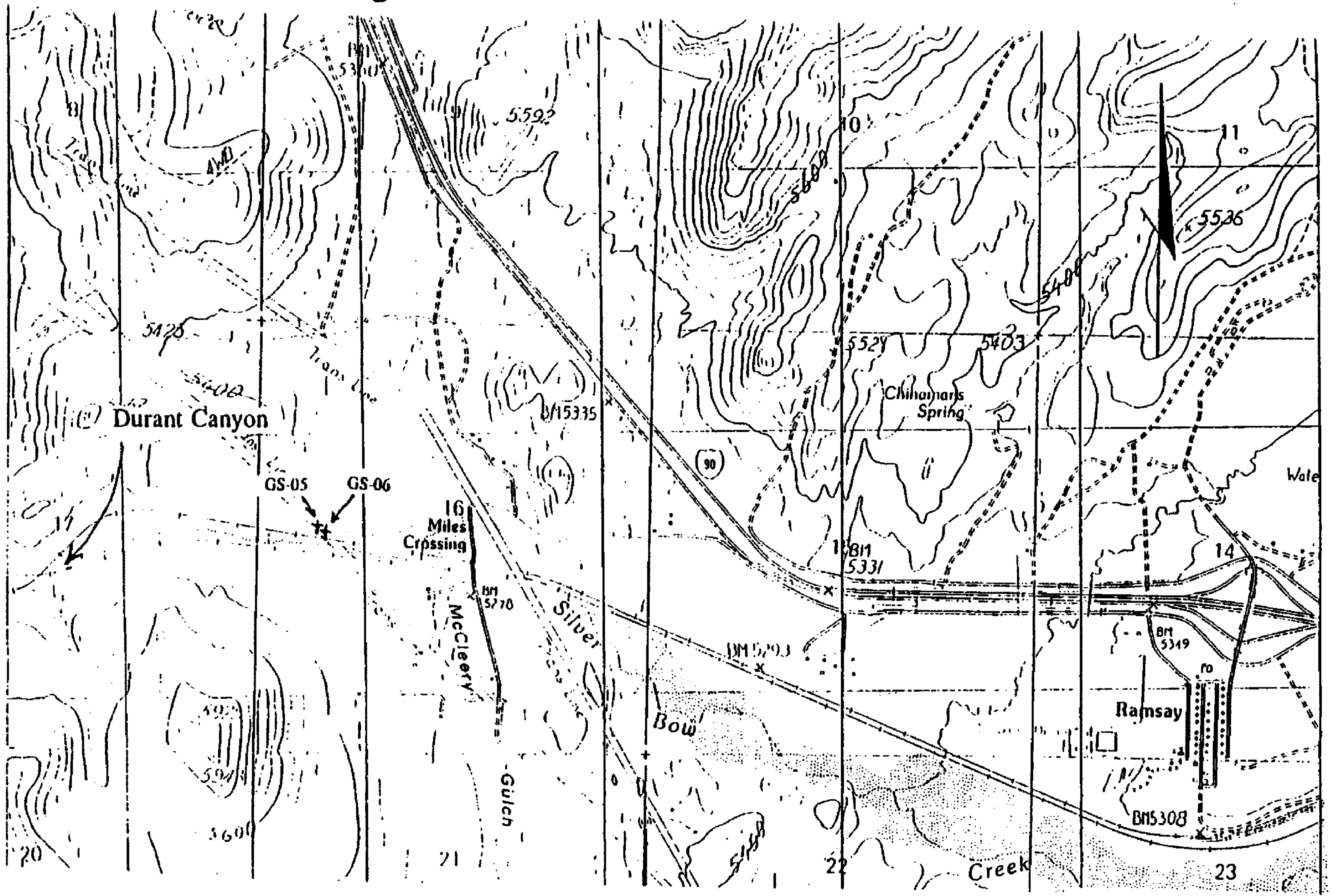
The headwaters of the Clark Fork River have received sulfide-rich mine and mill tailings since 1864. In the 1890's and early 1900's four major floods transported approximately 10 Mt of mining wastes over 180 km down river and onto the floodplain (Nimick and Moore, 1991; CH2M Hill,1989). Silver Bow Creek, the main headwater tributary to the Clark Fork River, received the bulk of the tailings (PTI, 1989b) (Figure 1a and 1b). The Silver Bow Creek area from Butte to Warm Springs Ponds was placed on the National Priorities List (NPL) in 1983 (MDHES, 1990). Remedial investigations and feasibility studies (RI/FS) began to determine the extent and levels of the metals and arsenic contamination associated with the tailings. Since approximately 1982, numerous studies were performed on Silver Bow Creek, the floodplain and the related groundwater systems to determine the extent and variability of tailings (metals) contamination (MultiTech, 1987; PTI, 1989a/1989b; Benner, 1994). In addition, feasibility studies for remedial alternatives were performed (Schafer *et.al.*, 1989; EA Engineering, 1990, Titan Environmental, 1995).

Previous studies performed on the Silver Bow Creek/Butte Area NPL site concentrated on delineating the general hydrogeology and metal chemistry of the groundwater, surface water and floodplain tailings on the entire, approximately 40 kilometer, reach of Silver Bow Creek (Stiller and Associates, 1985). None of the studies has concentrated on the small scale hydrogeology of the stream and groundwater systems. Although a long term goal of MDHES is to remediate Silver

# Figure 1a - GENERAL LOCATION MAP



# Figure 1b - VICINITY MAP




Ref: USGS Ramsay Quadrangle Contour Interval 40 feet

Bow Creek, no work has been proposed to examine the stream, the hyporheic zone and the associated floodplain groundwater system.

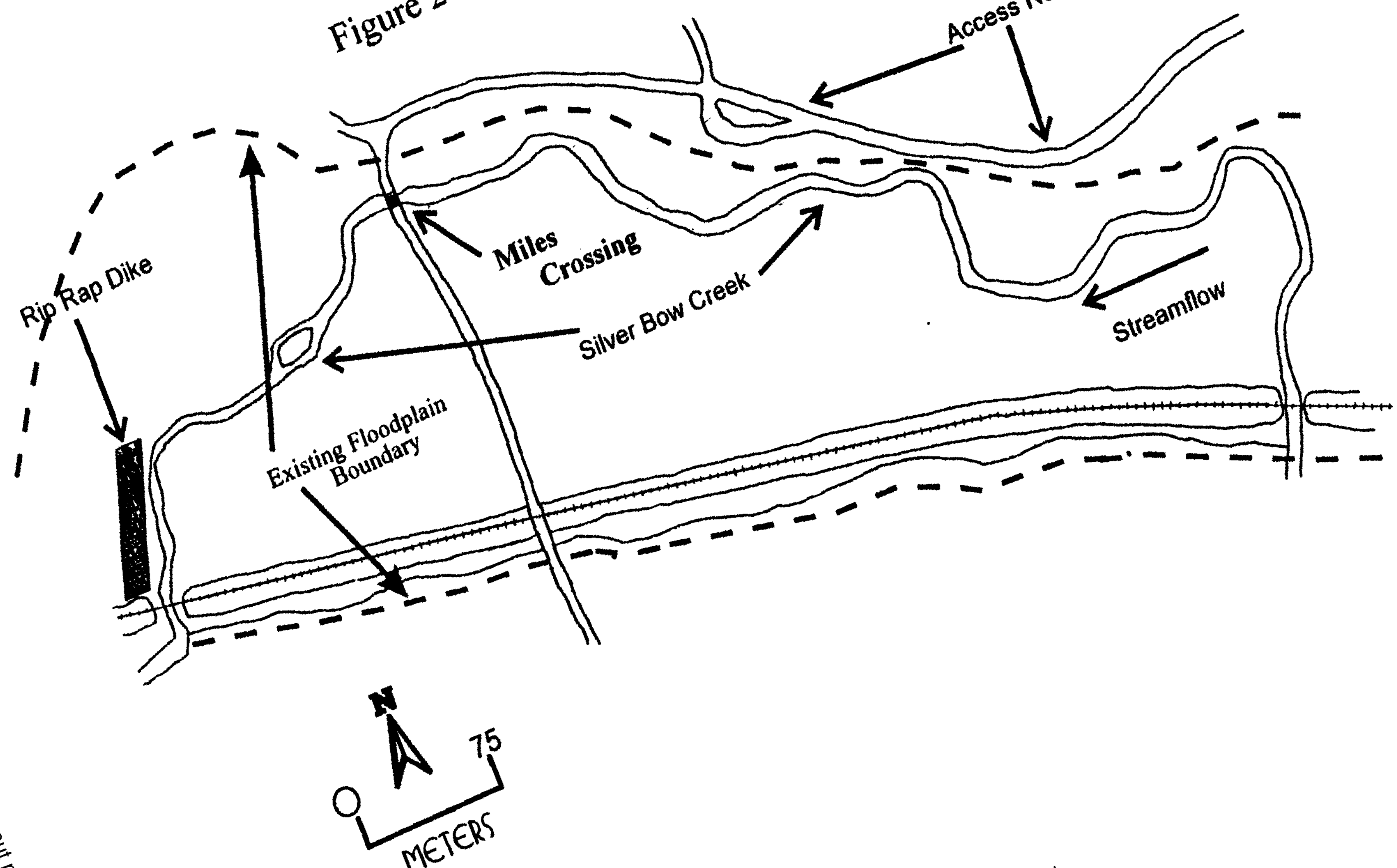
Most of the work prior to this study concludes that the main migratory pathway for metals to enter Silver Bow Creek is via surface runoff during spring and summer rainstorms (CH2M Hill, 1989). It is documented that rainstorms periodically wash large amounts of dissolved metals into the creek, which lowers the pH of the stream and causes death of aquatic life (Johnson and Schmidt, 1988). However, there are portions of the creek that are chronically elevated with metal concentrations even during base flow conditions (Nimick, 1993). It has not been demonstrated that contaminated groundwater discharging to the creek provides an additional pathway for metal contamination in Silver Bow Creek. It is likely that previous and current study designs and sampling approaches have not adequately represented the geochemistry of the floodplain aquifer.

# CHAPTER II: SITE DESCRIPTION

The project site is located in southwest Montana at Miles Crossing of Silver Bow Creek. Miles Crossing is located approximately 20 km west of Butte and approximately 4 km miles west of Ramsay, Montana (Figure 1a and 1b). The study site is approximately 0.2 $km^2$ along 610 meters of Silver Bow Creek (Figure 2).

Silver Bow Creek originates at the Continental Divide and flows approximately 37 km westward through Butte to Warm Springs, where it joins with Warm Springs Creek to form the Clark Fork of the Columbia River (Botz, 1969). The Miles Crossing site is located in a small, unnamed, 0.74 $km^2$, alluvial filled valley that is approximately 400 meters wide (Figure 1a, Figure 2). The floodplain is approximately 200 meters wide at the study site. The valley consists of a broad plain that slopes gently from northeast to southwest. The valley is bordered to the north and south by bedrock. McCleery Gulch, a small intermittent stream, enters the valley from the south (Figure 1a). Silver Bow Creek flows for approximately 1.8 km through the valley and enters and exits the valley through narrow bedrock constrictions. The bedrock constrictions consist of volcanic bedrock buttes. The constriction is approximately 270 meters wide where the stream enters from the east and approximately 60 meters wide where it exits to the west into Durant Canyon, 1.5 kilometers west of the study site (Figure 1a). Silver Bow Creek meanders through the eastern portion of the valley through the site, where it is directed by a rip-rap dike at

Figure 2 - **General Site Map**

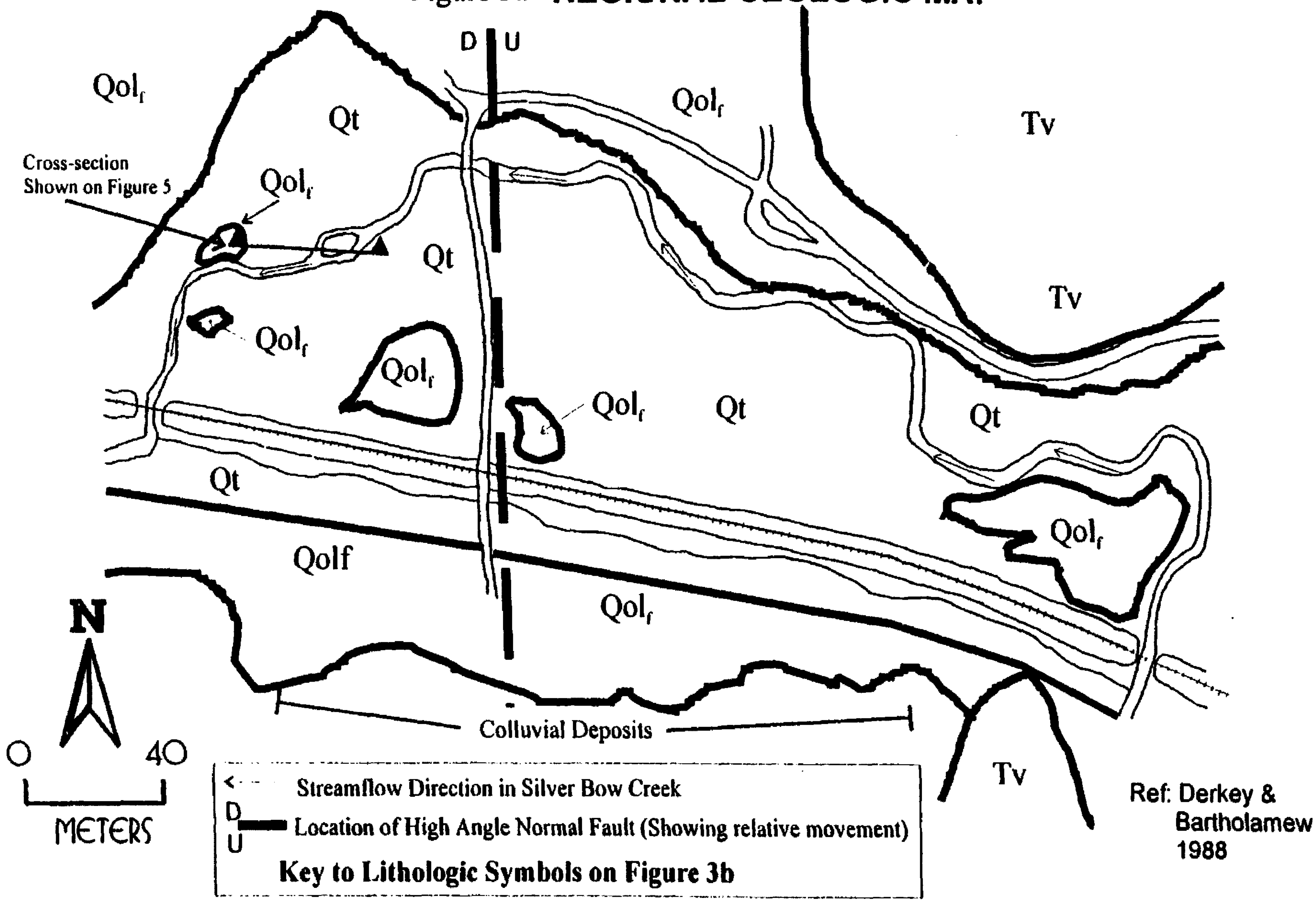


the western boundary of the study site under a train trestle. From the study site to the western border of the valley the creek is constricted between two railroad beds that are approximately 25 meters wide (Figure 1a). Silver Bow Creek is approximately 2-5 meters wide at the study site.

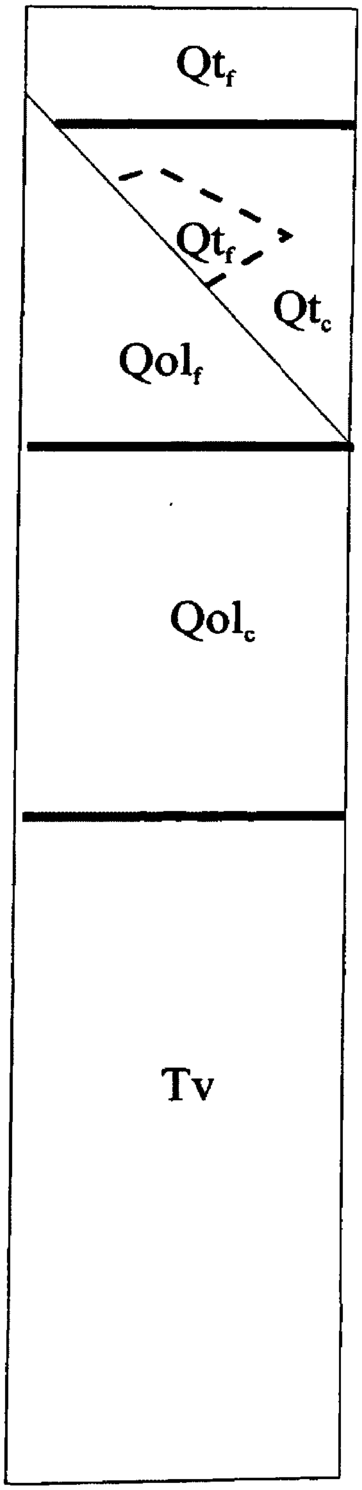
The study site is bounded on all sides by Eocene volcanic flows and welded tuffs that are members of the Lowland Creek Volcanics (Smedes, 1968) (Figure 3). Derkey and Barthalomew (1988) mapped a high angle normal fault through the study area. The fault trends north-south and dips approximately 85 degrees west with the downdrop block on the west. The surface expression of the fault is exposed approximately 8 km north of the site and is reportedly buried by approximately 30 meters of alluvium at the site. It was reported that the valley contains approximately 30 meters of Tertiary sandstone and 30 meters of alluvium overlying Lowland Creek Volcanics on the west side of the fault (Figure 3a and Figure 3b). The current flood plain alluvium consists of interbedded sands, gravels and fine grained mine and milling wastes from mining and smelting activities upstream in Butte, Montana..

The Miles Crossing area exhibits a semi-arid, continental climate with short, cool, dry summers and frigid winters. Average annual precipitation in the city of Butte, Montana, for the period of 1961-1990, was 12.1 inches (NOAA 1994). May and June are the wettest months, receiving 33 percent of the precipitation. Average flow in Silver Bow Creek at Miles Crossing is approximately 20.7 cfs (Stiller and Associates, 1985). Seasonal high flows are recorded in May and June, with a high

Figure 3a - **REGIONAL GEOLOGIC MAP**



# Figure 3b - **KEY TO LITHOLOGIC SYMBOLS**




**$Qt_f$ - Fine grained mill tailings**

**$Qt_c$ - Coarse grained sands, interpreted as placer tailings**

**Qt - Quaternary Tailings**

**$Qol_f$ - Fine grained overbank deposits, organic silts, clays and fine sands**

**$Qol_c$ - Coarse sands and gravels with cobbles to 10 cm diameter**

**Qol - Older Alluvium Pre-tailings deposits**

**Tv - Eocene volcanic flows and welded tuffs. Tuffs weather to green clay.**

flow of 74.7 cfs at the site on April 9, 1985 (Titan Environmental, 1995). Previous studies performed on Silver Bow Creek reported that instream concentrations of total iron and total copper increase with the distance downstream from Butte, and are strongly related to the total suspended solids in the water (Stiller and Associates, 1985). In addition, it was reported that dissolved zinc concentrations increase with distance downstream from Butte, and that zinc is entering the creek in the dissolved phase. They concluded that the majority of the metals in the creek were probably contained in and transported as sediments. However, it was noted and concluded, that in the area below Miles Crossing, in-stream increases in sulfate concentration "possibly" indicated that the stream was receiving local groundwater inputs (Stiller and Associates, 1985; Titan Environmental, 1995).

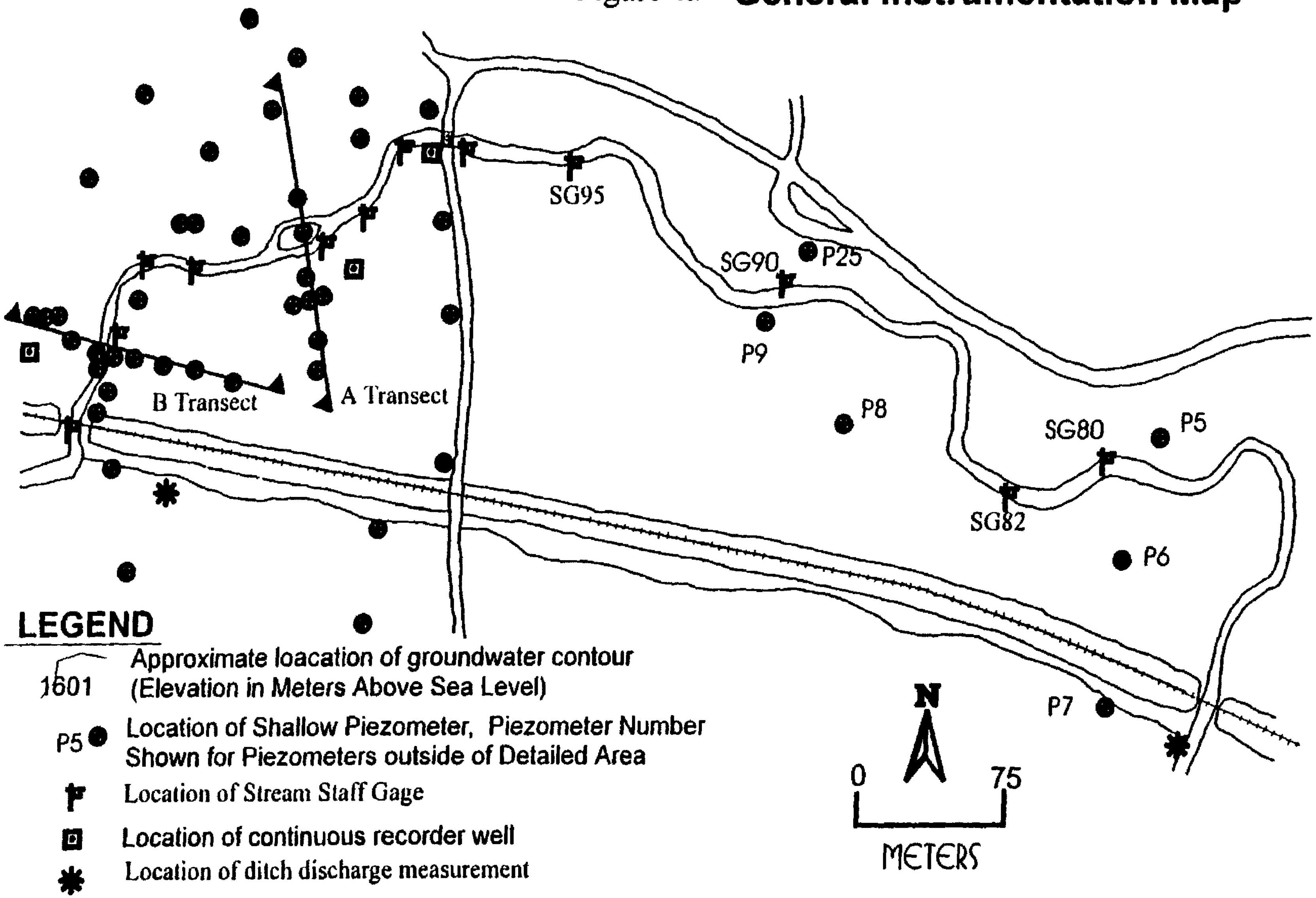
# CHAPTER III: METHODS

Instrumentation and data collection at the study site is presented in three components: preliminary instrumentation, detailed instrumentation, and stream and aquifer parameter data collection. An instrumentation location map is shown in Figures 4a and 4b. Detailed descriptions of instruments and data collection methods are attached in Appendix A. Numerical modeling techniques and methods are also described in this section.

## Preliminary Instrumentation

Initial efforts focused on locating a research site within the floodplain of the Clark Fork River or Silver Bow Creek where remediation efforts had not been performed and land owners would grant access. Once Miles Crossing of Silver Bow Creek was secured as a research site, 15 hand driven "mini" piezometers (Woessner, *et al.*, 1992) were installed to depths of 0.5 to 2 meters below the ground surface and a preliminary potentiometric map was developed. Eight to ten hand dug test pits were excavated to various depths to delineate the floodplain stratigraphy. Stream stage measurements were taken at eight staff gages installed into the stream channel (Figure 4a and 4b). Schematic drawings of the piezometers and staff gages area attached in Appendix A. The tops of the casings and staff gages were surveyed to within ±3.0 mm and tied to a USGS datum. Water levels in the site piezometers were measured within ±3.0 mm using an electronic tape.

Figure 4a - **General Instrumentation Map**



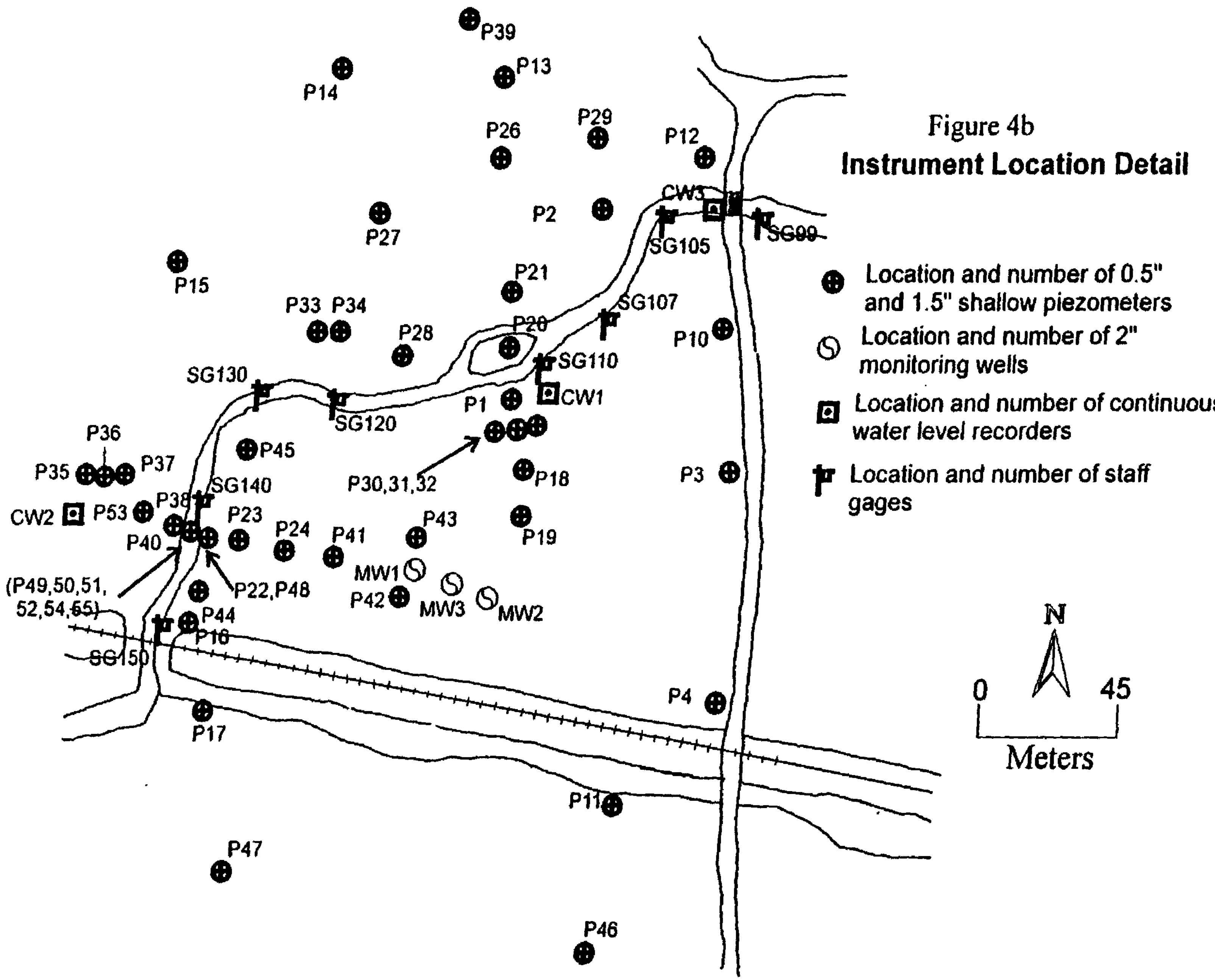



Figure 4b
**Instrument Location Detail**

**Detailed Instrumentation**

Two areas were selected to examine the detailed interaction between the flood plain groundwater and the stream system: Transect A, an area where groundwater flow is parallel to stream flow; and Transect B, an area where groundwater flow is perpendicular to stream flow (Figure 4a). Twenty-nine additional hand driven piezometers were installed in the vicinity of the two transects and an evaluation of the scale of detail needed to characterize the hydraulics was made.

Three piezometer nests were added at the site to determine the vertical component of flow in the aquifer. The piezometer nests were installed using a hollow-stem auger drilling rig. Drilling logs are attached in Appendix B. The nests consisted of two to three piezometers completed at 1.6 meter depth intervals to a maximum depth of 7.6 meters below the ground surface. The piezometers nests are P30/P31/P32, P33/P34, and P35/P36/P37. Two 18 cm diameter PVC wells were placed adjacent to two of the piezometer nests and fitted with Stevens' Type F, continuous water level recorders. An 18 cm diameter PVC stilling well, suspended from the bridge was fitted with a Stevens' continuous water level recorder to record stream stage. A rain gage was placed at the site to record precipitation.

Nests of polyethylene tubes, 0.95 cm inside diameter, were attached to the piezometers on the A-transect and B-transect. The tubes were constructed to obtain water samples for chemical analysis. One-inch, open-ended, steel and PVC piezometers were finished below and adjacent to the stream channel. The "mini" piezometers were completed at depths from 0.3 to 3 meters below the ground surface. These wells were constructed using a two-inch steel piped equipped with a solid steel drive rod in the center. The pipe and rod were driven by hand to the desired depth, the center rod was removed and the piezometer was inserted into the pipe. The pipe was then removed leaving the piezometer at the desired depth.

**Stream and Aquifer Characterization**

Slug tests and aquifer pumping tests were performed to determine the hydraulic conductivity and storage properties of the aquifer. In addition, constant head permeameter tests were performed on undisturbed samples obtained from test pits at the site. A pumping test was performed on a 10 cm diameter well installed specifically for this purpose. Slug tests were conducted on twenty-one selected wells throughout the site. Stream flow measurements were made using a Marsh-McBurney, direct reading, water velocity current meter. Seepage meters were installed in the creek bottom and walls of the creek to confirm the flux rates. The seepage meters were designed after Cherkauer and McBride (1988).

**Groundwater Model Development**

Two groundwater models were developed to evaluate a field based conceptual model of groundwater flow mechanisms into the creek at the B-transect. A two dimensional profile of the B-transect was developed using FLOWPATH (Waterloo Hydrologic, 1991). The model was used to evaluate the effect of the water table position and hydraulic conductivity distribution on the interaction of the surface water and the groundwater system. Model discretization is attached in Appendix C.

A seven layer, three-dimensional model was developed using MODFLOW (McDonald and Harbaugh, 1988) to examine the exchange of surface water and groundwater along a 32 meter section of stream in the vicinity of Transect B. In an attempt to develop groundwater flow parallel to the direction of the stream in layers adjacent to the base of the creek, well nodes were placed at the upstream and downstream boundary of the model. Well nodes were placed where the creek intersected the model boundary and in four of the layers beneath the creek. Well nodes at the upstream border of the model were set to input water into the model at the rate of the gradient times the hydraulic conductivity. Corresponding nodes at the downstream border of the model were set to withdraw water at the same rate. The remainder of the nodes at the upstream and downstream borders were set as no flow cells. Model discretization is attached in Appendix C. The upgradient and downgradient model boundaries were simulated using specified head nodes.

MODFLOW input files are attached in Appendix D. Profile equipotential maps were produced by entering model produced head data along a slice parallel to groundwater flow into Surfer (Golden Graphics, 1994).

## CHAPTER IV: RESULTS AND DISCUSSION

### Geologic Setting

Hand augured test holes, hollow stem auger borings and test pits were excavated in the flood plain. Site geology and stratigraphy are interpreted from logs of the borings and excavations.

There are three main stratigraphic units in the floodplain at the site (Figure 3a). The lower unit is interpreted as a weathered tuff unit (Tv) which acts as the lower boundary for the alluvial aquifer at the site. The thickness of the weathered tuff was not determined. Drilling at the site indicated that the tuff unit is at least 3.2 meters thick at the west portion of the site (Piezometer P31). The weathered tuff unit is approximately two to three meters below the ground surface. Drilling logs from monitoring wells GS-05 and GS-06 (Figure 1a) (Stiller and Associates, 1985), installed approximately 150 meters west of the site, did not report encountering green clay (Tv). The logs from their wells, drilled towards the center of the valley, report encountering interbedded red/brown clays and gravels. The middle unit is Pre-tailings alluvium ($Qol_f$, $Qol_c$). This unit is about 2-3 meters thick and is divided into two sub-units; a coarse sand and gravel unit ($Qol_c$), which is overlain by a fine grained sand and silt unit ($Qol_f$). The course sand and gravel unit was encountered in each of the piezometer pilot holes. The sand and gravel unit is present at an elevation equivalent to the level of the base of the stream channel (approximately 1601.5 meters above sea level). The sand and gravel likely represent the pre-tailings channel deposits ($Qol_c$).

Along the edges of the site and at various locations in the center of the site (Figure 3), the fine grained sand and silt unit was encountered above the coarse unit. This fine grained unit probably represents pre-tailings, overbank, flood deposits ($Qol_f$). Overlying the pre-tailings alluvium is the third unit, tailings alluvium (Qt). This unit locally extends outward from the creek as much as 50 meters, is from 0.6 to 2 meters thick and was deposited during a series of floods following mining activities upstream. In several areas the fine grained pre-tailings alluvium unit ($Qol_f$) is exposed at the surface. These areas are interpreted to be topographic highs that were not buried by flood deposits. The tailings (Qt) are composed of two sub-groups; coarse sand and fine grained sand and silt, each the product of different mining processes. It appears that the floods at the beginning of this century filled the floodplain with tailings. Test pits revealed that tailings were deposited against the fine grained unit at the northern portion of the site (Figure 3). Currently the stream system is down cutting through the tailings deposits. A cross section through the study site, from well nest P30/P31/P32 to well nest P33/P34, is shown in Figure 5.

A depositional history of repeated events of erosion, transport and deposition has resulted in stratigraphic sequences that have little or no lateral continuity. However, some trends can be found. A fine grained unit overlies much of the research site. Under a large portion of the site this sub-unit is underlain by the coarse grained unit down to the water table. One can think of these two sequences as idealized end-members, with much of the stratigraphy lying somewhere in between.

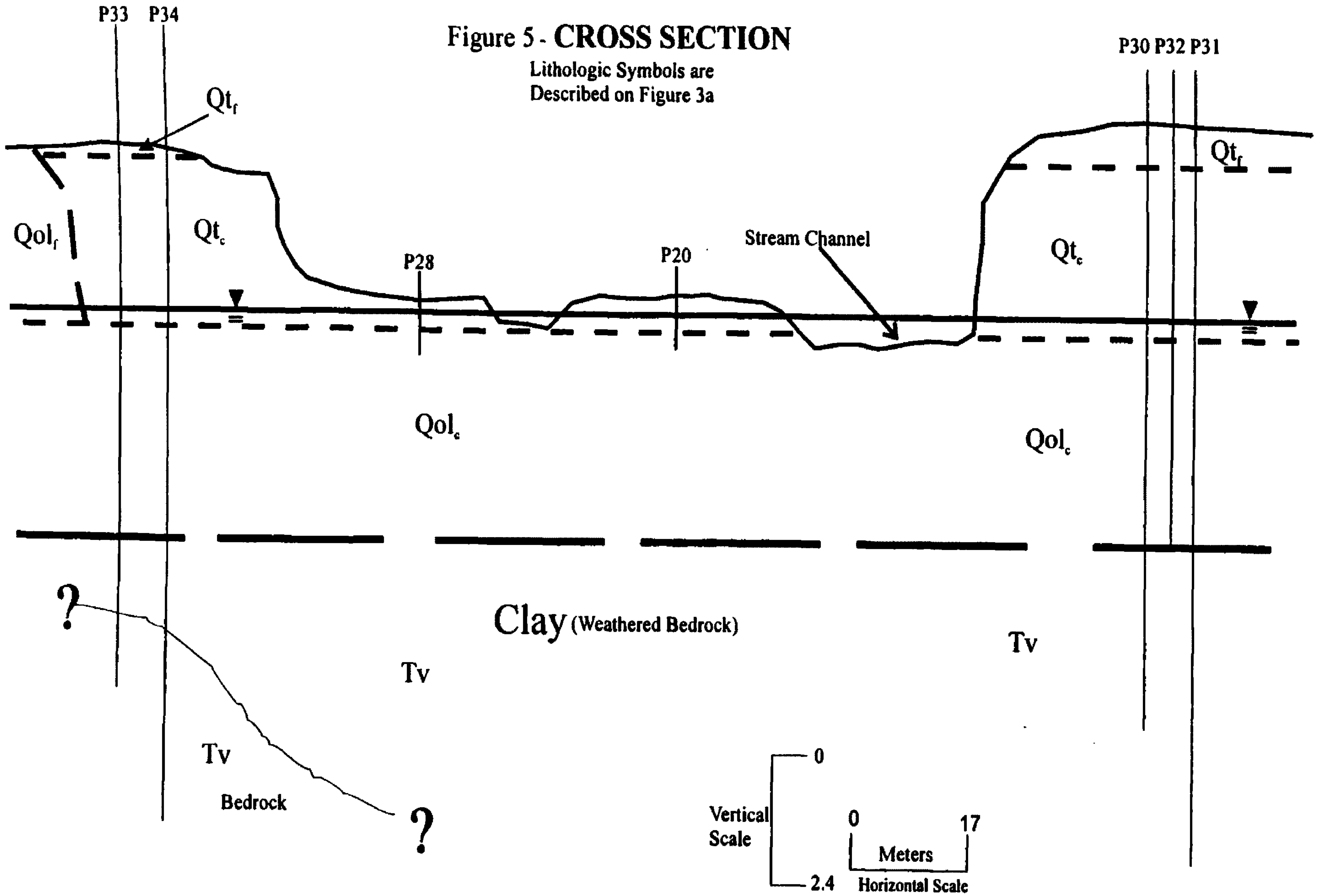



Figure 5 - **CROSS SECTION**

**Hydrogeology**

Groundwater is approximately 0.3 to 1.6 meters below the ground surface at the site. The depth to water depends on the surface topography at the site. The aquifer is unconfined and is approximately two meters thick. The aquifer consists of a coarse sand and gravel unit that is approximately 0.3 to one meter thick. The sand and gravel unit ($Qol_c$) is almost continuous throughout the site for the density of piezometers, and is considered to be pre-tailings alluvial deposits. Below the coarse sand and gravel unit is a coarse sand unit that is approximately 0.6 to 1.6 meters thick and continuous throughout the site. A stiff clay unit was encountered in soil borings advanced in the floodplain and drive points that were driven below the stream bed. The clay unit was encountered approximately 2 meters below the base of the stream bed. Undisturbed samples of the clay were not obtained during drilling. A hand lens was used to compare grab samples of the clay outcrops of Tertiary volcanic ash fall units in the area. It was interpreted that the clay was a weathered volcanic tuff. The weathered red volcanic unit is continuous throughout the south west half of the site. Borings were not advanced to the depth of the weathered unit at the east portion of the study area. The unit was assumed to be a semi-confining bottom to the alluvial aquifer beneath the site. Rock fragments were encountered approximately 5 meters below the ground surface in the pilot borings for P33 and P34, approximately one meter below the clay unit. Two monitoring wells, GS-05 and GS-06, installed as part of a remedial investigation, are located approximately 150 meters west of the site (Figure 1a)(Stiller and Associates, 1985). Drilling logs from the monitoring wells did not report encountering the green clay (Tv). The wells are drilled towards the center of the valley and the well logs report interbedded sands and gravels to 10 meters below the ground surface. A red brown clay was reported at 10 meters below the ground surface in each boring. It is likely that bedrock from the south extends beneath the site, but not in the area of boring GS-05 and GS-06, as indicated by the contour lines on Figure 1a. It was reported that alluvium is presumed to be hundreds of feet thick in the area between Ramsay and Miles Crossing, and that alluvium thins and bedrock is relatively shallow near the mouth of Durant Canyon (Titan Environmental, 1995). Boring CT-1080-1, excavated at the site, reportedly encountered green weathered bedrock at 20.5 feet below the ground surface (Titan Environmental, 1995).

Groundwater flows generally from east to west at the site. The potentiometric maps are shown in Figures 6a through 6h. Contours on Figures 6b (December 4, 1992) and 6g (August 26, 1993) show stream water flowing out into the aquifer. On these days the stage of the creek was observed to rise approximately 0.3 meters within an hour. Water level measurements were obtained while the creek was at an elevated stage. Water level measurements indicate that the water table elevation intersects the stream stage. The groundwater gradient is approximately 0.0018. Although it is not apparent from the contours on the potentiometric maps, the gradient increases to approximately 0.01 on the downgradient side of the creek. The potentiometric maps

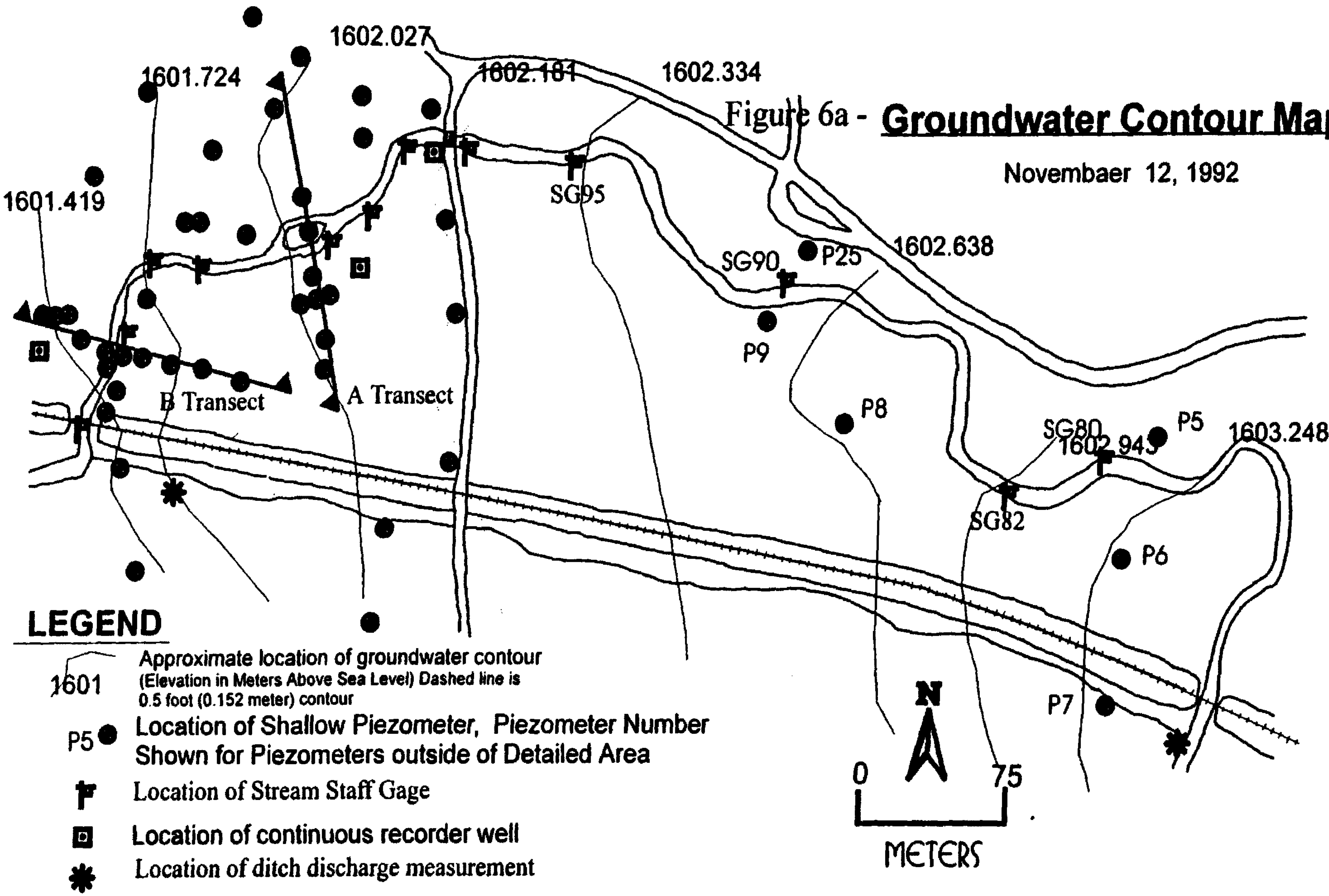


Figure 6a - Groundwater Contour Map
Novembaer 12, 1992
1602.027
1601.724
1602.181
1602.334
1601.419
SG95
SG90
P25
1602.638
P9
P8
B Transect
A Transect
SG80
1602.943
P5
1603.248
SG82
P6
P7
N
0
75
METERS
LEGEND
1601
Approximate location of groundwater contour
(Elevation in Meters Above Sea Level) Dashed line is
0.5 foot (0.152 meter) contour
P5
Location of Shallow Piezometer, Piezometer Number
Shown for Piezometers outside of Detailed Area
Location of Stream Staff Gage
Location of continuous recorder well
Location of ditch discharge measurement

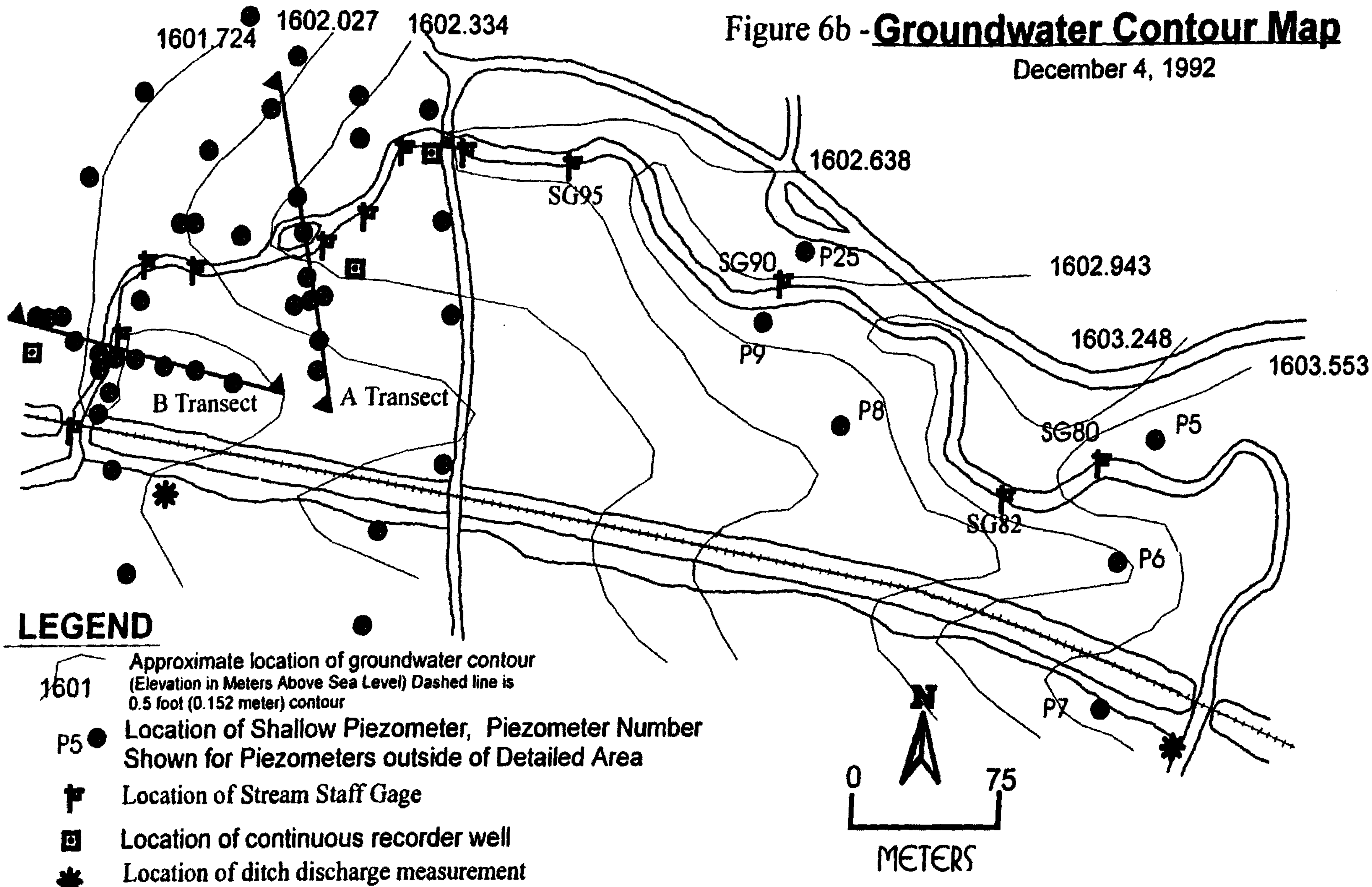



Figure 6b - **Groundwater Contour Map**

December 4, 1992

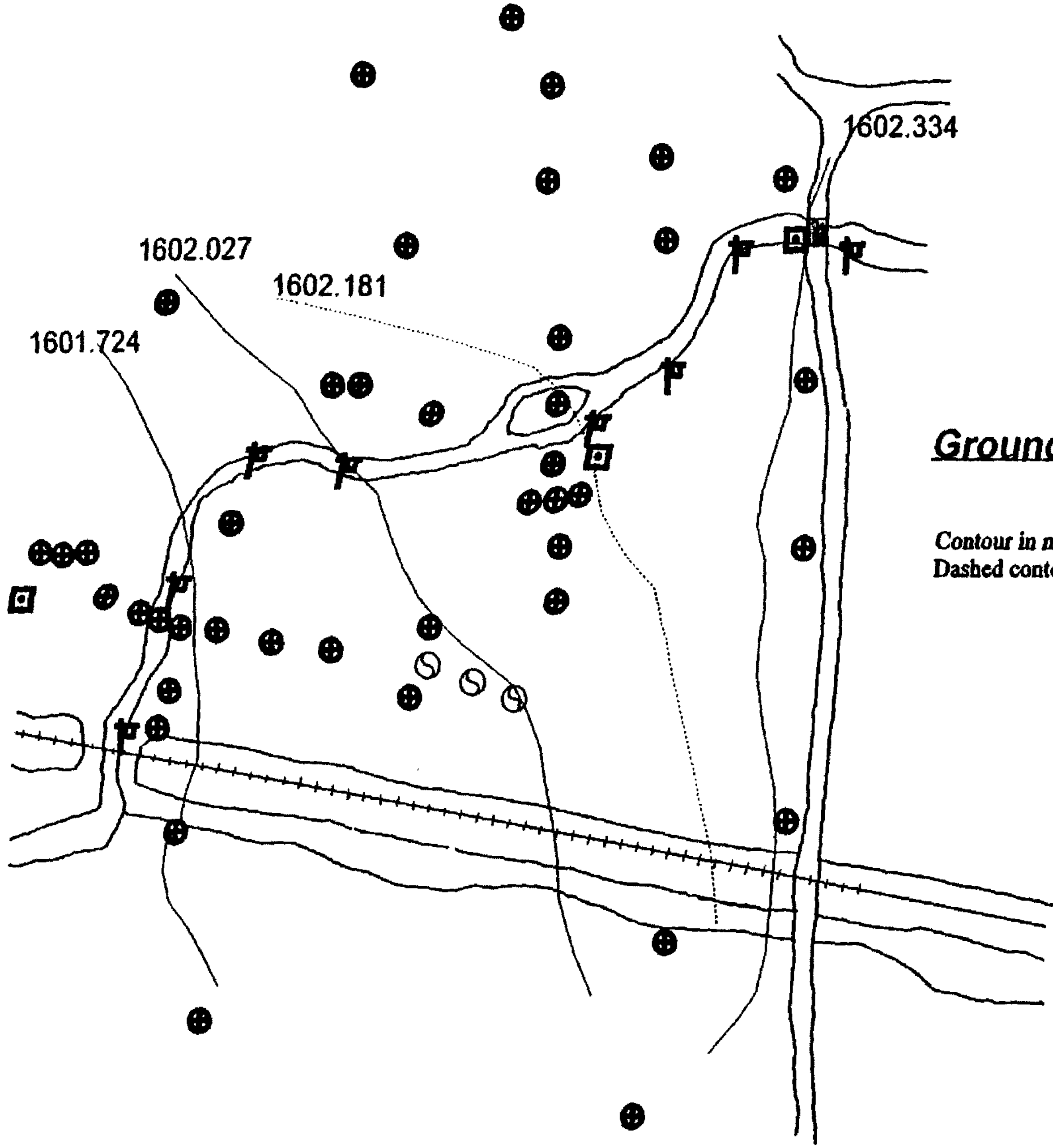
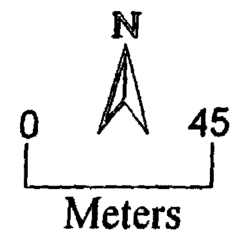



Figure 6c -

**Groundwater Contour Map**

*May 23, 1993*

**Contour in meters above sea level.**
**Dashed contour equals 0.5 feet (0.152 meters)**



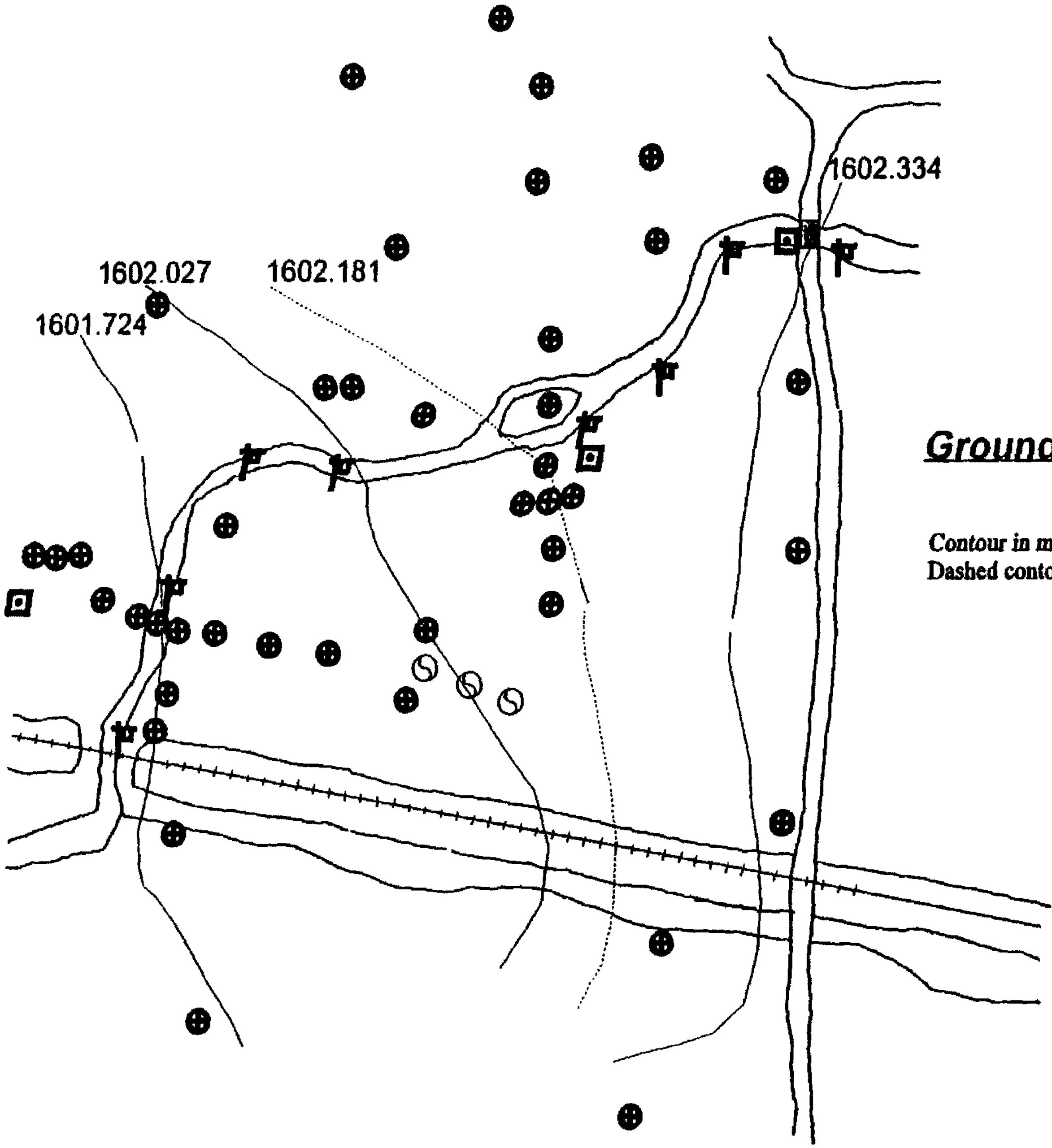
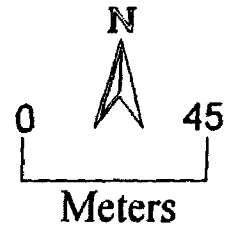



Figure 6d -
***Groundwater Contour Map***
*June 11, 1993*
**Contour in meters above sea level.**
**Dashed contour equals 0.5 feet (0.152 meters)**



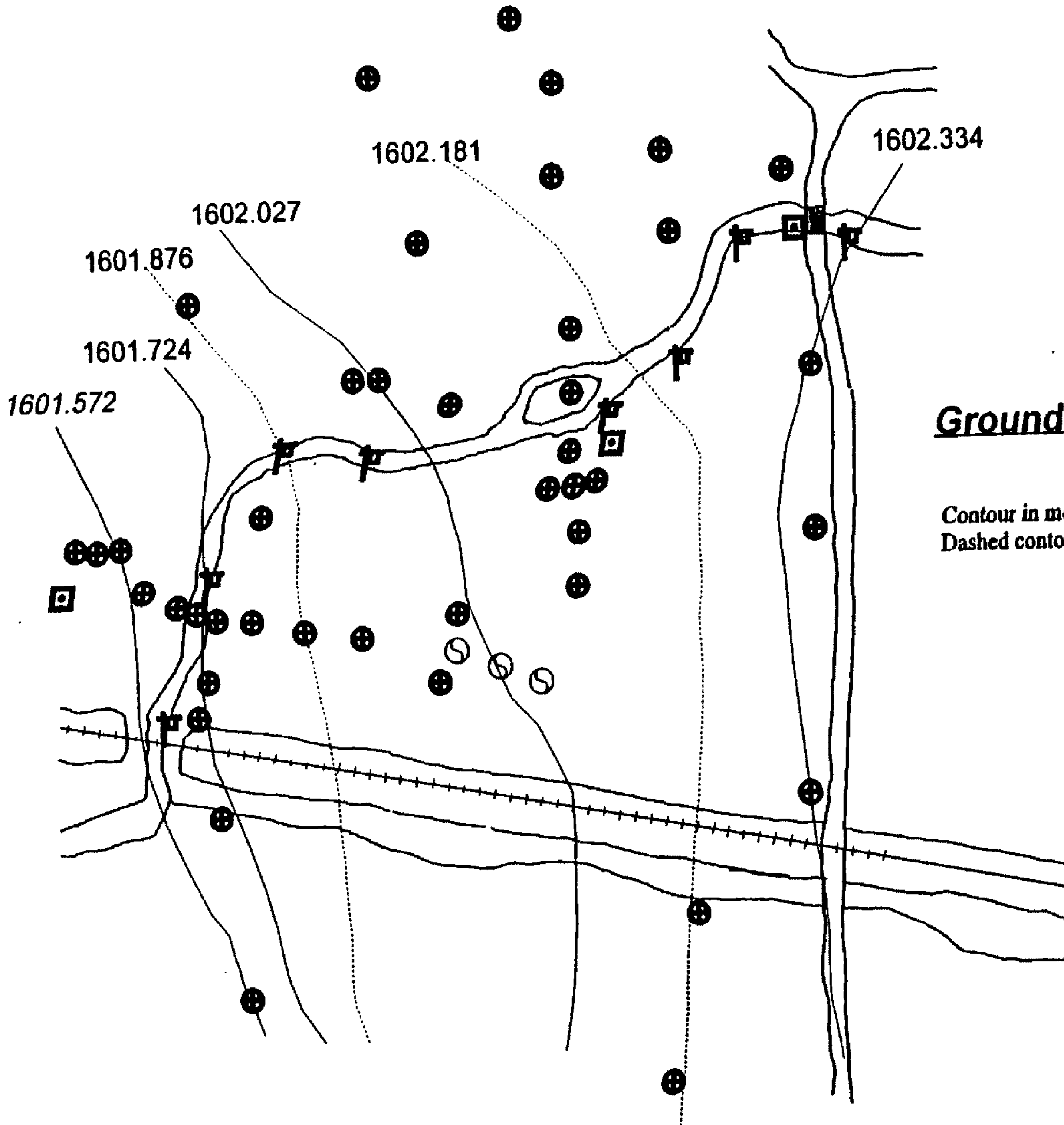
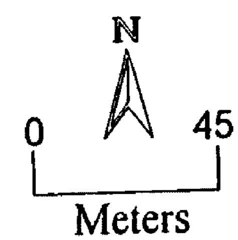



Figure 6e -

**Groundwater Contour Map**

*July 24, 1993*

**Contour in meters above sea level.**
**Dashed contour equals 0.5 feet (0.152 meters)**



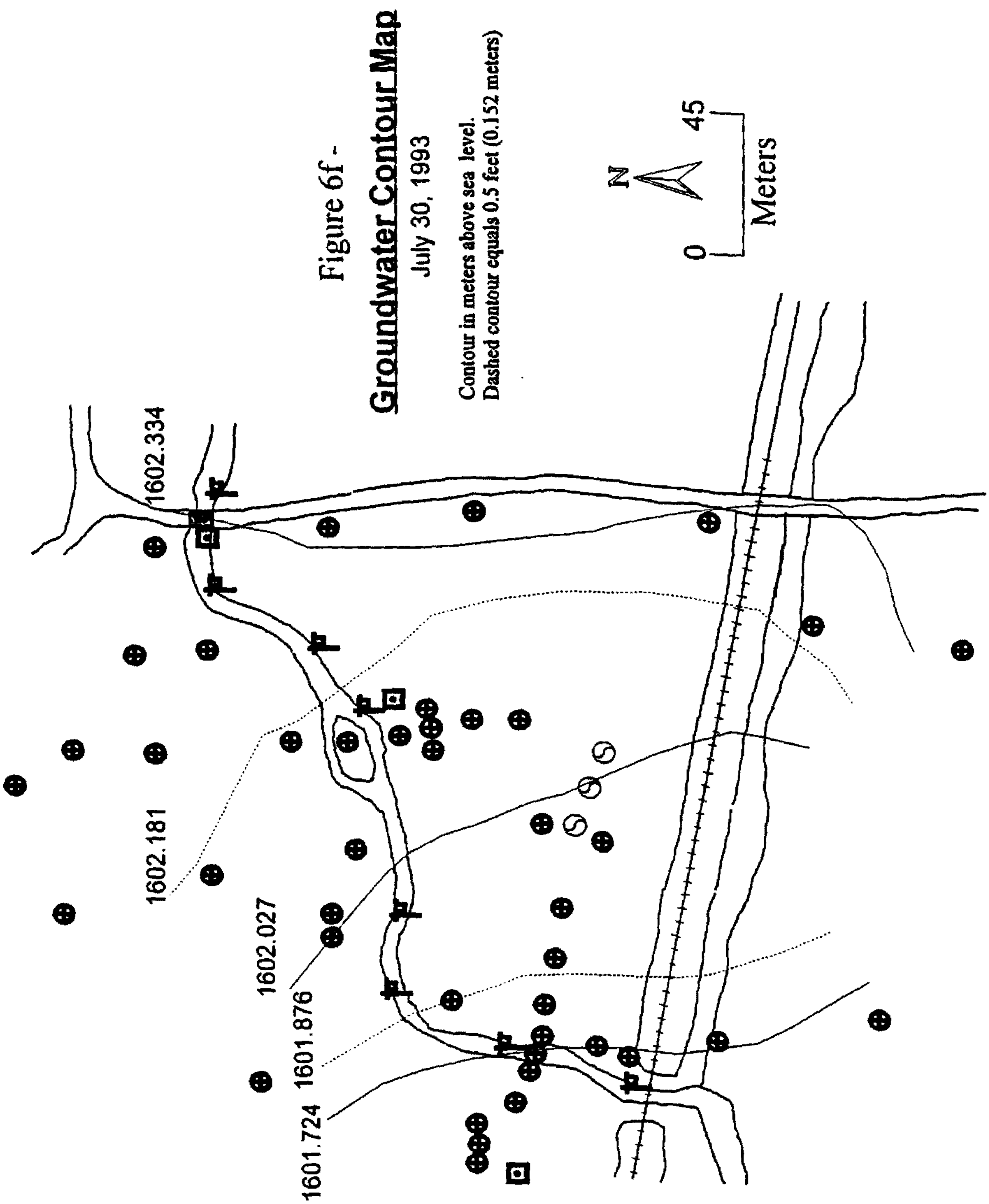



Figure 6f -
**Groundwater Contour Map**
July 30, 1993
Contour in meters above sea level.
Dashed contour equals 0.5 feet (0.152 meters)

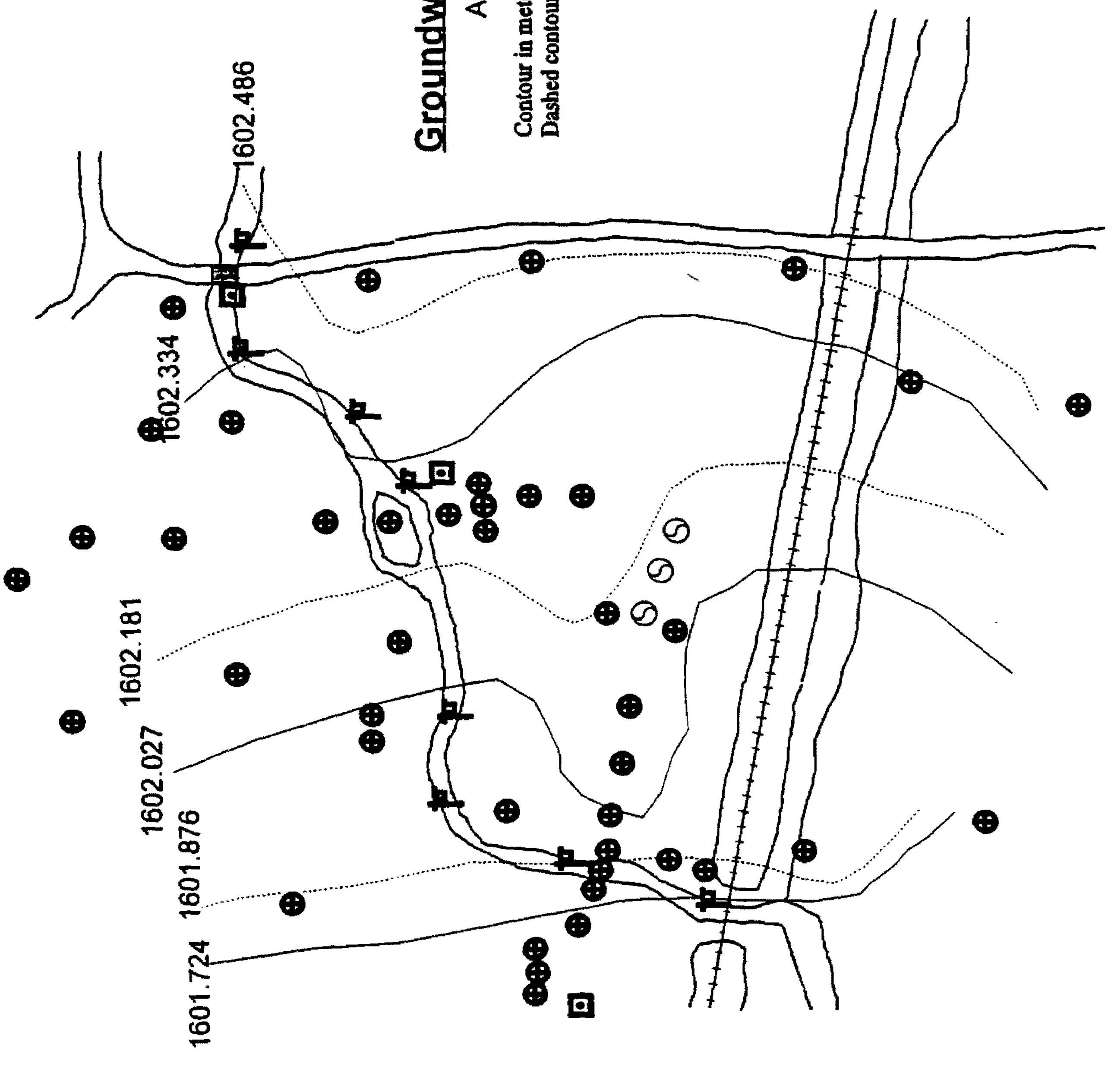



Figure 6g -
**Groundwater Contour Map**
August 26, 1993

Contour in meters above sea level.
Dashed contour equals 0.5 feet (0.152 meters)

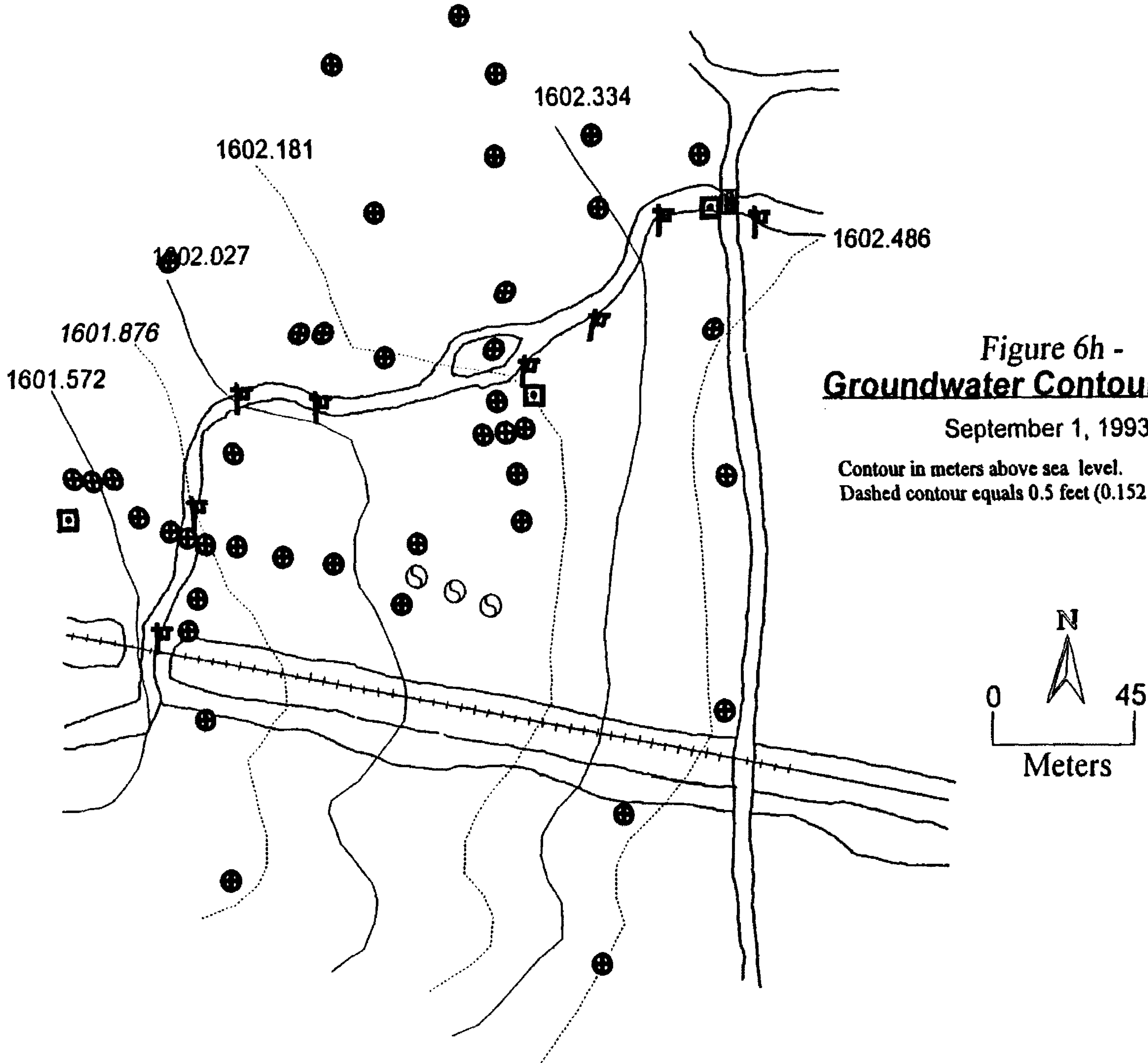
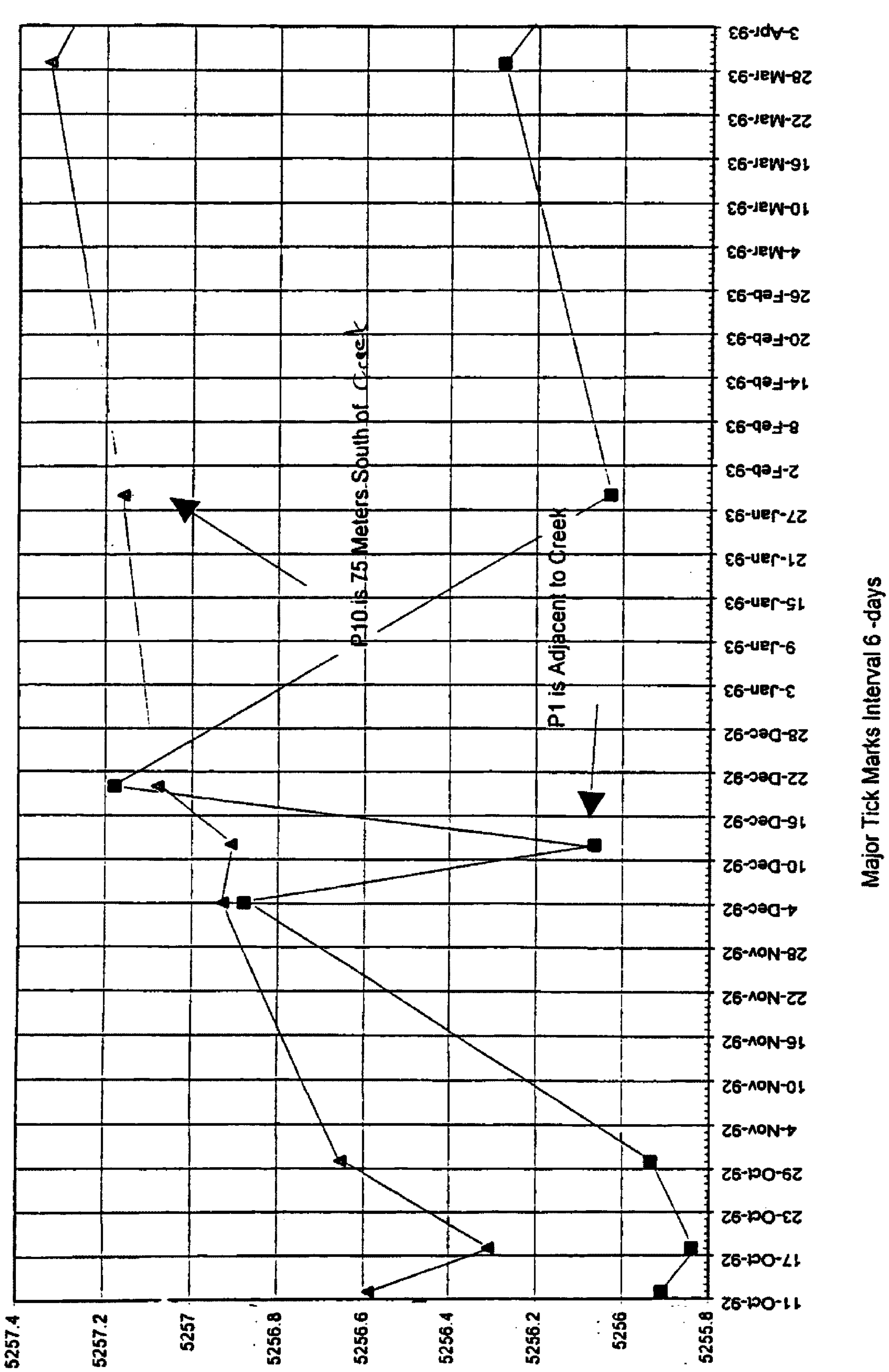



Figure 6h -
**Groundwater Contour Map**
September 1, 1993
Contour in meters above sea level.
Dashed contour equals 0.5 feet (0.152 meters)

show that groundwater flows into the creek at the west portion of the site. A complete table of water elevations measured at the site are attached in Appendix E. Average water elevations fluctuated approximately 0.46 meters from October 1992 to October 1993. Average water elevations fluctuated a maximum of 0.13 meters from January, 1993, to October, 1993. A hydrograph of water level fluctuations in wells representative of those adjacent to and away from the creek is shown in Figures 7a and 7b. Prior to 1993, western Montana had experienced 8 years of drought. The water year 1993 was the wettest on record (NOAA, 1994). Water levels measured in 1992 represented an eight year low. The extreme differences in precipitation over the study period likely account for the fluctuation in water levels seen in 1993. These fluctuations in the water table may not be indicative of fluctuations during normal annual precipitation. Graphs of daily and monthly precipitation in 1993 are attached in Appendix F.

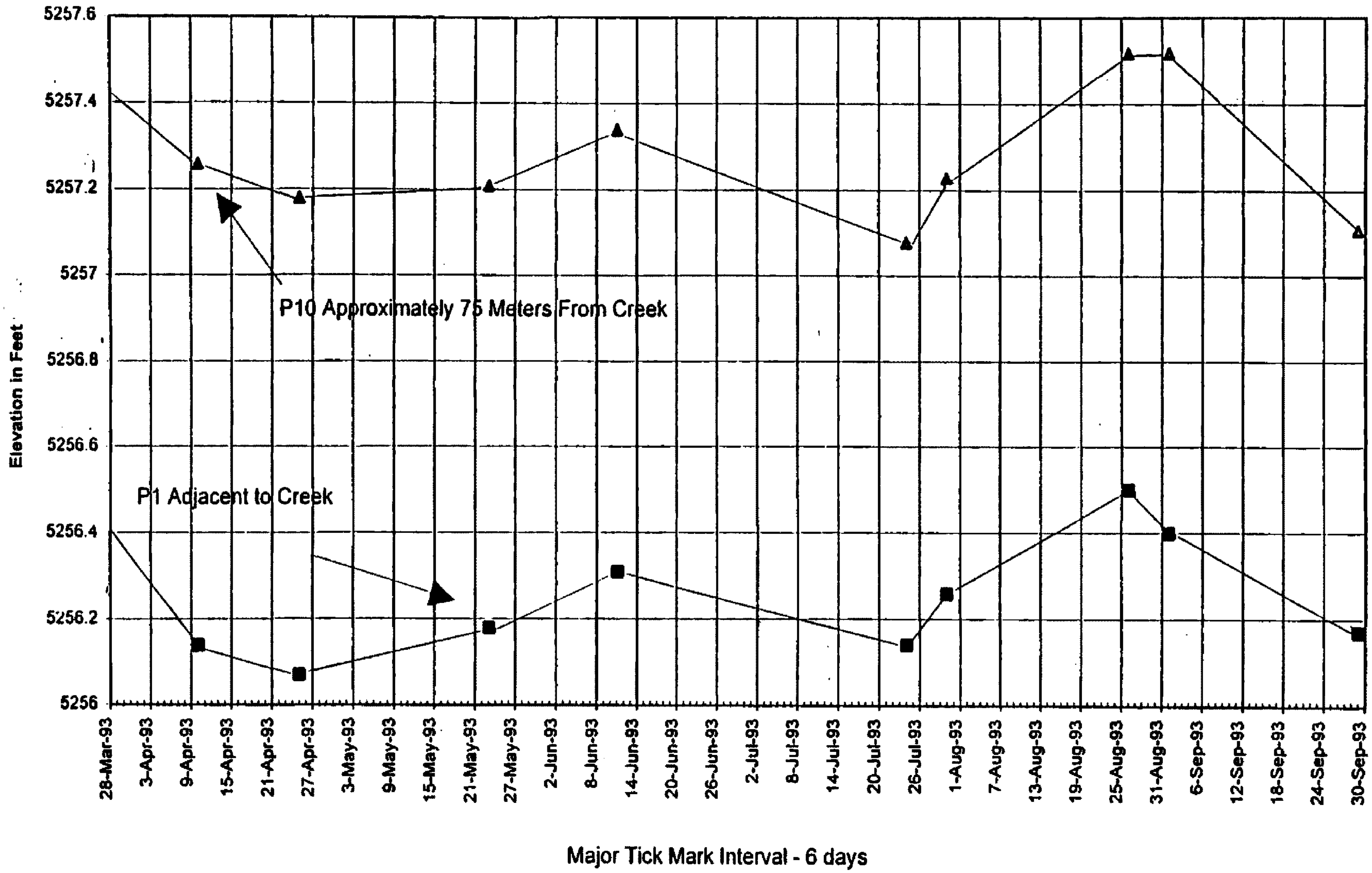
Stevens continuous water level recorders were placed at three locations at the site (Figure 4b). Two were completed in the aquifer and a third was constructed in a stilling well in the stream. The Stevens recorders indicate that changes in stream stage are followed by a corresponding change in groundwater elevation. Groundwater level changes show a quick response to diurnal and storm related changes in stream stage. The groundwater level responds in less than one-half hour to a change in the creek level. The response in groundwater levels to changes in creek levels appears to be

Figure 7a - WATER TABLE FLUCTUATIONS




To convert to meters multiply feet by .3048

Figure 7b - WATER LEVEL FLUCTUATION



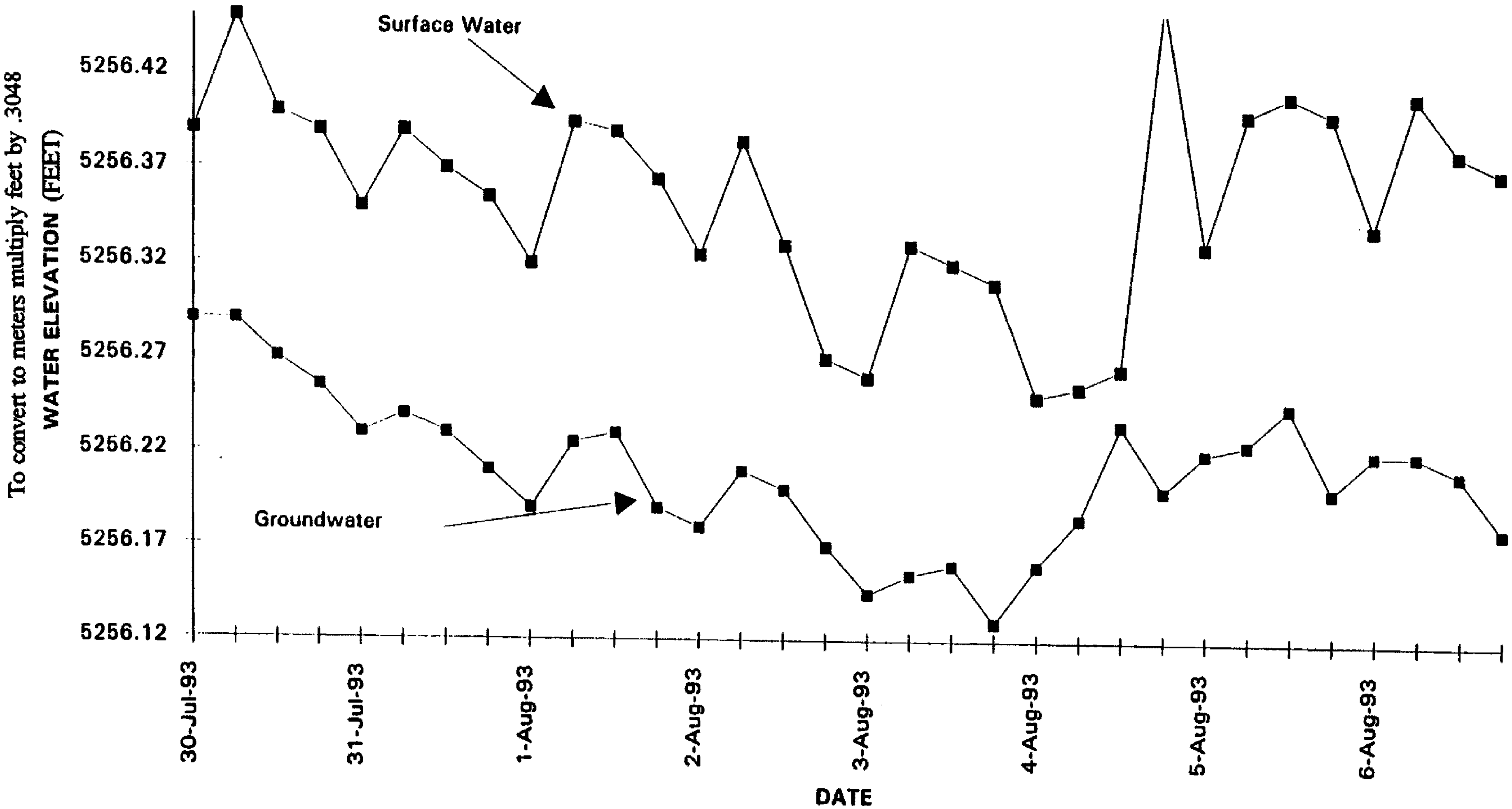

To convert to meters multiply feet by .3048

dampened. A hydrograph comparing the Stevens' data obtained during July and August 1993, from the stream stage recorder and the groundwater level in the Stevens recorder nearest the stream (CW1), is shown in Figure 8. Elevations in the stream were corrected to the staff gage (SG110) nearest the groundwater level recorder.

The general trends shown by the hydrographs are that groundwater changes are closely related to changes in stream stage. Eight hydrographs are attached in Appendix G to show water level fluctuations at various locations at the site. Changes in groundwater levels are always preceded by a change in stream stage. Piezometers close to the creek displayed more dynamic change in water levels than piezometers located away from the creek.

Perhaps the most interesting observations of water level changes occurred in the middle of winter when the creek and the surrounding floodplain became frozen. In January 1993, almost the entire creek was frozen. Ice cores revealed that approximately one-quarter of the streamflow occurred below the ice and three-quarters of the flow occurred over the ice. Test pits excavated in January 1993 in the floodplain where the depth to groundwater was less than 0.6 meters revealed that the floodplain or vadose zone was completely frozen. The top 0.3 to 0.6 meters of the vadose zone were frozen in areas where the vadose zone was greater than one meter thick. Water levels in the Stevens sitting well would fluctuate more than 0.5 meters in

Figure 8 - SURFACE WATER/GROUNDWATER RELATIONSHIPS



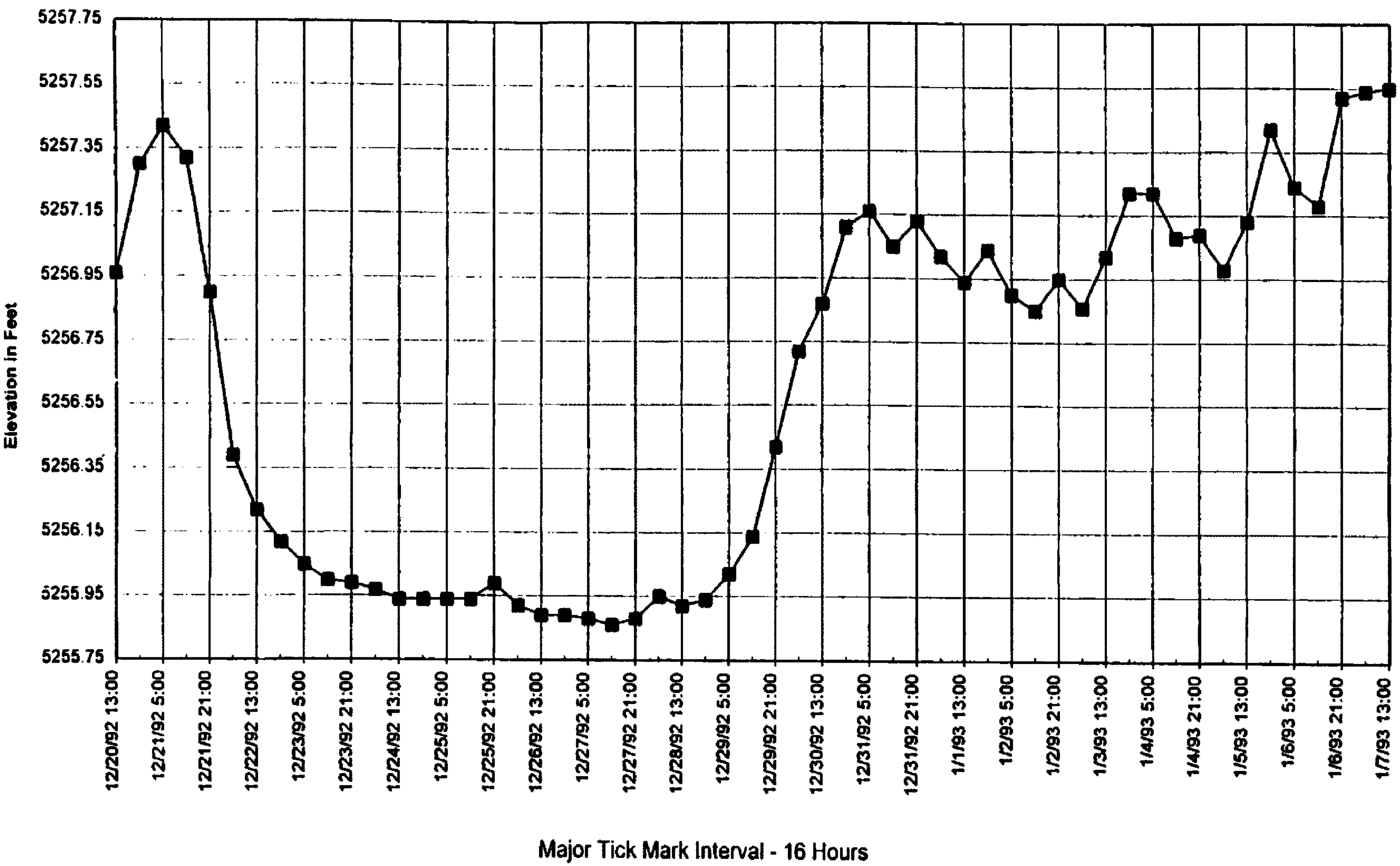
the span of 3 to four hours (Figure 9). It is interpreted that the frozen floodplain created a temporary confining condition for the aquifer causing water levels to rise rapidly.

Three nests of multilevel piezometers were installed at the site to quantify any vertical gradients present. During attempts to develop the piezometers, large amounts of clay were encountered in the well. Water levels in several piezometers recovered only after one week. Numerous attempts to achieve hydraulic connection between the aquifer and the wells failed. It is assumed that drilling operations disturbed the weathered bedrock so that hydraulic connection was not possible. Vertical gradients of approximately 0.049 were obtained in piezometers installed at different levels along the B-Transect (Figure 10). A detailed vertical gradient study was not performed.

**Stream Discharge**

Streamflow was measured on May 25, 1993 and July 7, 1993. Streamflow measurements are summarized below in Table 1. The purpose of measuring streamflow was to obtain an understanding of creek discharge. Stream loss to groundwater was not estimated from the discharge data due to measurement error. Flow measurements obtained during the Superfund Remedial Investigations performed at the site did not indicated any predominant trend. Based on seven low flow events, on average, it was reported that Silver Bow Creek gains two cfs (7%) at Miles

Figure 9 - Winter Water Level Fluctuation
(18 days) Well CW1




To convert to meters multiply feet by .3048

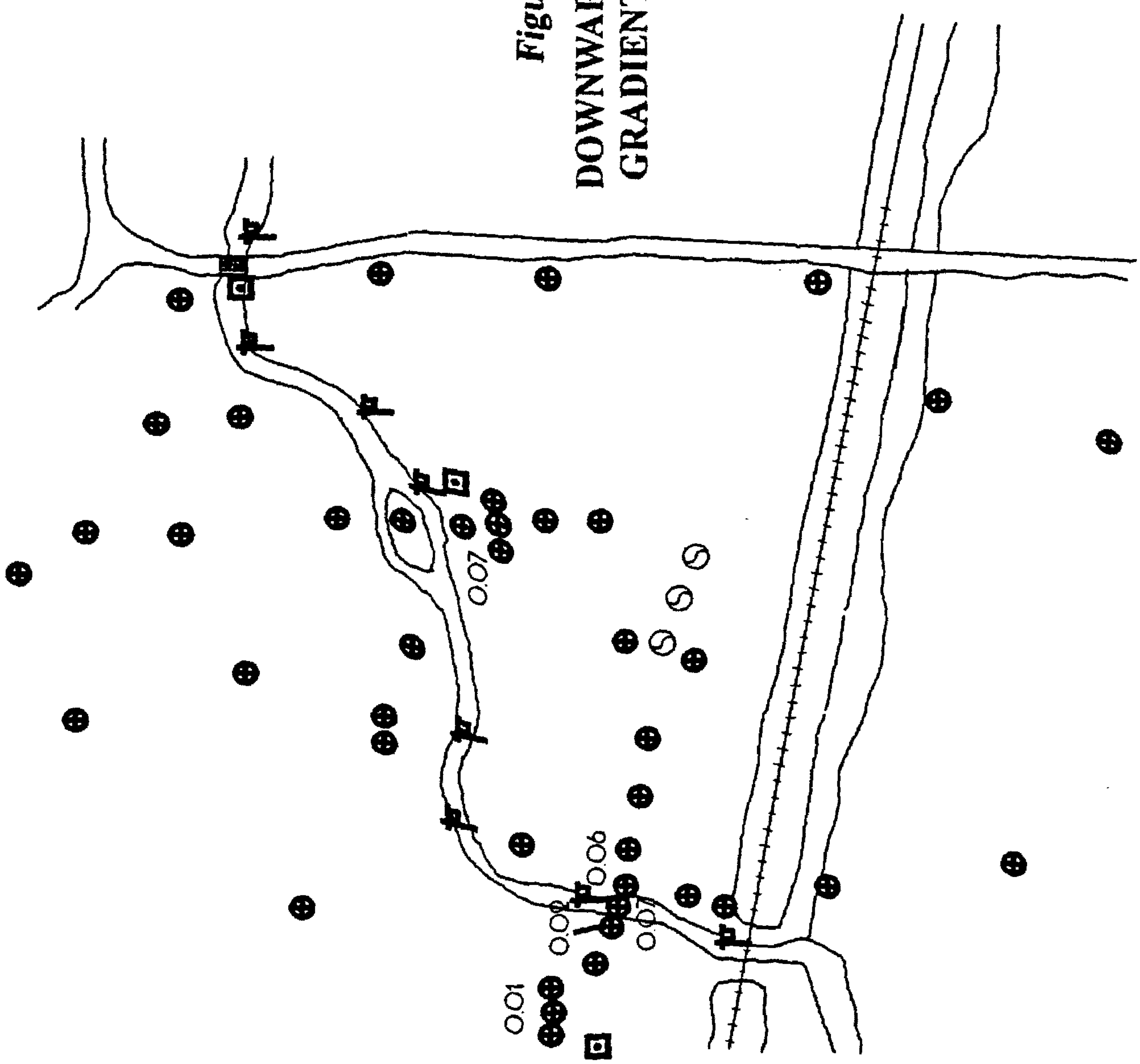



*Figure 10* - **DOWNWARD VERTICAL GRADIENT VALUES**

Crossing (Titan Environmental, 1995). It was noted that this gain was within the range of stream gaging errors encountered during low flow event measuring. Continuous stage recorder data indicates that the stream stage experiences a diurnal fluctuation. In March and April, 1993, the high stage occurred at 12:00pm. The high stage may be related to effluent releases from the Butte City Sewage Treatment Plant, however that information was not obtained for this study. In May, 1993, the high occurred around 7:00pm. In June and July, 1993, the normal high occurred around 7:00pm, however frequent thunder showers caused large fluctuations in the stream stage. Causes in stream stage fluctuation were not researched as a part of this study.

**TABLE 1** - Streamflow Measurements

| Date | Location | Flow (CFS) |
|---|---|---|
| 5/25/93 | Staff Gage 82 | 41.75 |
| 5/25/93 | Staff Gage 95 | 30.12 |
| 5/25/93 | Staff Gage 120 | 39.15 |
| 5/25/93 | Staff Gage 120 | 40.60 |
| 5/25/93 | Staff Gage 150 | 36.30 |
| 7/14/93 | Staff Gage 82 | 55.01 |
| 7/14/93 | Staff Gage 95 | 56.41 |
| 7/14/93 | Staff Gage 140 | 48.15 |
| 7/14/93 | Upper R.R. Drainage Ditch | 6.22 |
| 7/14/93 | Lower R.R. Drainage Ditch | 3.73 |

**Aquifer Parameters**

Slug tests and aquifer pumping tests were performed on selected wells finished in the top 0.6 meters of the shallow aquifer. In addition, soil samples were obtained adjacent to several wells and analyzed using constant head permeameter techniques. The results of the aquifer testing are summarized in Table 2.

**TABLE 2** - Hydraulic Conductivity

| Location | Test Type | K(ft/day) | K(cm/sec) |
|---|---|---|---|
| P1 | Slug | 117.89 | 4.16e-02 |
| P1 | Permeameter | 100.48<br>102.18<br>104.33 | 3.53e-02<br>3.60e-02<br>3.68e-02 |
| P2 | Slug | 2263.68 | 7.99e-01 |
| P3 | Slug | 158.83 | 5.60e-02 |
| P10 | Slug | 25.08 | 8.8e-03 |
| P10 | Slug | 61.70 | 2.18e-02 |
| P19 | Permeameter | 141.29<br>142.77<br>143.43 | 4.98e-02<br>5.03e-02<br>5.07e-02 |
| P22 | Permeameter | 81.54<br>82.43<br>84.40 | 2.87e-02<br>2.90e-02<br>2.97e-02 |
| P22 | Slug | 30.26 | 1.07e-02 |
| P28 | Slug | 166.61 | 5.88e-02 |
| P41 | Slug | 64.17 | 2.26e-02 |
| P41 | Slug | 14.52 | 5.10e-03 |
| P42 | Pump | 184 | 6.5e-02 |

| | | | |
|---|---|---|---|
| P42 | Slug | 42.58 | 1.50e-02 |
| P43 | Slug | 243 | 8.57e-02 |
| P43 | Pump | 103 | 3.63e-02 |
| P50 | Slug | 440.01 | 1.55e-01 |
| MT-2 | Slug | 26.96 | 9.50e-03 |
| MT-1 | Slug | 157.53 | 5.56e-02 |
| All wells and piezometers are finished in the coarse sand and gravel unit. | | | |

Hydraulic conductivity values in the aquifer range from 0.005 to 0.086 cm/sec. One slug test performed on a piezometer finished in the bed sediment of the stream had a hydraulic conductivity value of 0.16 cm/sec.

## Groundwater Flux

Groundwater flux rates into the creek were determined by two methods. First, by using seepage meter values at the B-Transect and second, by averaging hydraulic conductivity values determined at the B-Transect, measuring the gradient and using Darcy's Law (Darcy, 1856):

$$Q=-K\left(\frac{dh}{dl}\right)A$$

where Q is the discharge rate in ml/day(cm$^3$/day), dh/dl is the gradient and A is the area receiving discharge. These discharge rates were integrated over the area of the creek that intersects the direction of groundwater flow. Groundwater flux rates range from -20 to 71 (ml/day)/$cm^2$ (($cm^3$/day)/$cm^2$). The area of the channel receiving influx from the groundwater was determined by estimating the vertical channel, approximately 37 cm deep by 60 meters long that intersects the groundwater flow. Groundwater was assumed not to enter from the bottom of the channel. The area of the stream channel receiving influx from groundwater is approximately 223,000 $cm^2$.

An attempt was made to measure the discharge into an area where highly contaminated water was entering the creek. This occurred where the stream channel flows perpendicular to the direction of contaminated groundwater flow. Using water table maps and inferred groundwater flow directions, it was estimated that approximately 60 meters of the creek was receiving groundwater discharge at the west end of the site (Figure 4). Flow net diagrams, Darcy's Law and seepage meters were used to calculate the groundwater discharge rates into the stream channel. A flux value of 0.009 (liters/day)/$cm^2$ was calculated using Darcy's Law, as mentioned above. A flux value of 0.05 (liters/day)/$cm^2$ was calculated using seepage meters installed into the vertical channel wall. The seepage meter data was obtained on August 29, 1993. At this time, the stream stage was lower that the groundwater level adjacent to the creek. It is assumed that the seepage measurements were obtained at a period when surface water was receiving maximum input from groundwater. The seepage meter flux value and the flux value calculated using Darcy's law were used as the high and low estimates of flux rates, respectively. The area of seepage or seepage face of the stream channel was determined using flow net diagrams in conjunction with physical measurements. The total amount of water entering the creek is listed in Table 3. Water samples were obtained from four small diameter sampling wells, located at 15 meter intervals along the creek, and 20 to 60 cm upgradient from the east stream bank. Average chemical values for Cu, Cd, Fe and Zn from these wells are listed in Table 4. Average daily and yearly metals loading rates are calculated in Table 4. Benner (1994) noted in his chemical model, that most of the metals entering the creek through the seepage face appear to precipitate on contact with the surface water. Therefore, it is possible that a large portion of the metals loading may become bed sediment. These values should be considered estimates and they indicate the significance of the groundwater as a source of metals to the creek.

**TABLE 3** - Groundwater Discharge Along 60 meters of Seepage Face at the B-Transect

| Discharge Rate (liter/day/$cm^2$) | Surface Area Receiving Groundwater | Discharge (l/day) |
|---|---|---|
| Low 0.009 | 223,000$cm^2$ | 2,000 |
| High 0.05 | | 11,150 |

| TABLE 4 - Element Loading Along Seepage Face at B-Transect | | | |
|---|---|---|---|
| Element Concentration | Discharge (l/day) | Element Loading Rate (day) | Element Loading Rate (year) |
| Fe 242.3 mg/l | Low 2,000 | 0.50 kg/day | 183.6 kg/yr |
| | High 11,150 | 2.7 kg/day | 985 kg/yr |
| Cd 0.15 mg/l | Low 2,000 | 0.0003 kg/day | 0.11 kg/yr |
| | High 11,150 | 0.002 kg/day | 0.73 kg/yr |
| Cu 14.0 mg/l | Low 2,000 | 0.03 kg/day | 11 kg/yr |
| | High 11,150 | 0.15 kg/day | 54.8 kg/yr |
| Zn 29.6 mg/l | Low 2,000 | 0.06 kg/day | 21.9 kg/yr |
| | High 11,150 | 0.33 kg/day | 120.5 kg/yr |

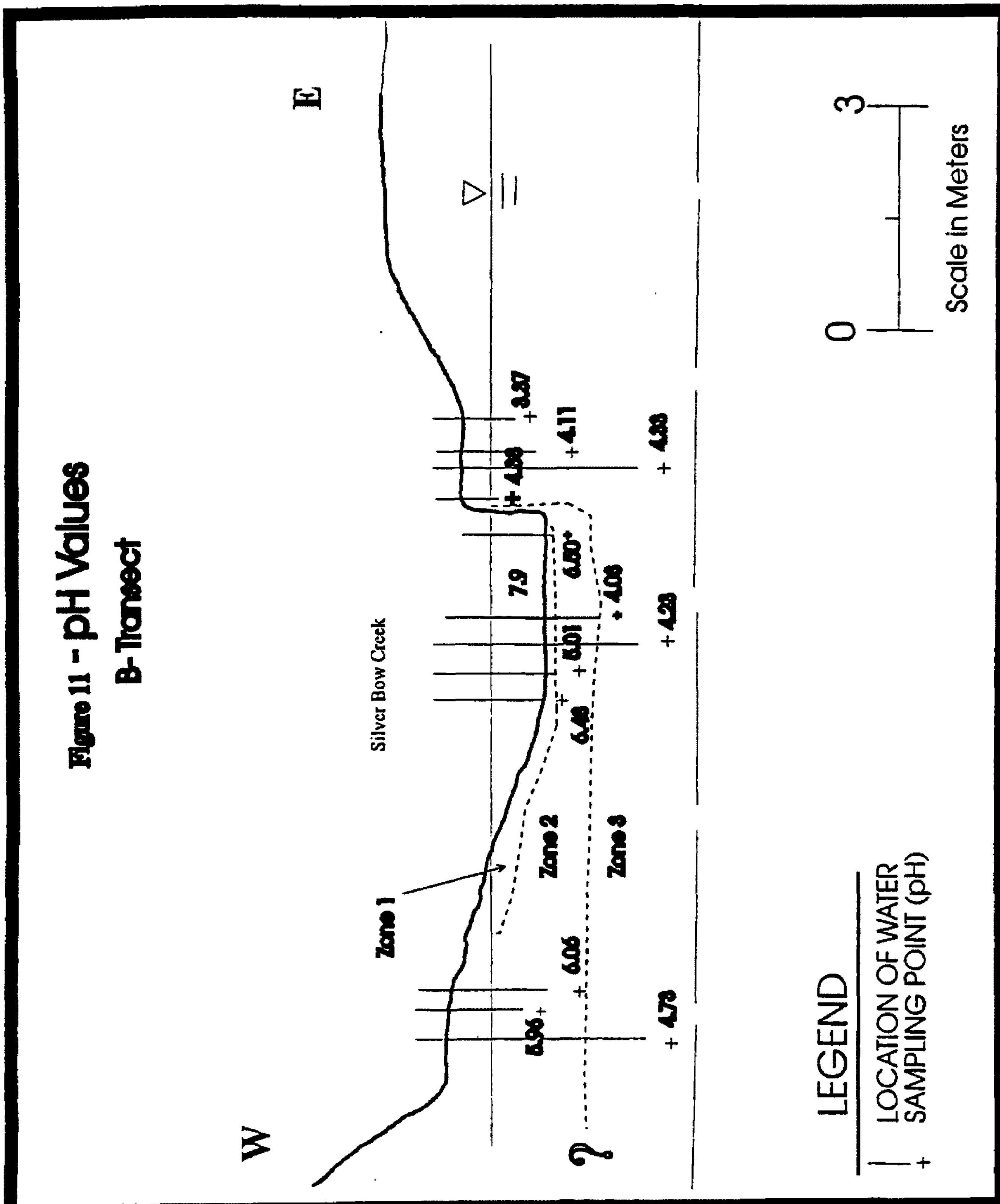
**Surface Water and Groundwater Interaction**

Piezometers and groundwater sampling tubes were installed at the B-Transect. The purpose of the concentrated instrumentation in this area was to describe the small scale physical and chemical interaction in the area of the stream channel. The B-Transect was chosen in an area where surface water and groundwater flow was perpendicular. Initially it was hypothesized that groundwater enters the stream on the up-gradient, east bank of the channel and stream water enters the aquifer on the down-gradient west bank. The extreme chemical differences between surface water and groundwater in addition to the perpendicular flow fields of the two systems at the B-Transect were hoped to make measuring the interaction between the two systems manageable.

Water samples were obtained from the creek and from 10 to 140 cm below the stream bed from the pore water of the bed sediment and the aquifer. Benner (1994) reports three zones of water with distinct chemistries. The depths of the zones are reported in centimeters from the base of the creek. The zones include: Zone 1, from 8 to -8 cm, the pH is ~7.8; Zone 2, from -8 to -80 cm, the pH is ~6.5; and Zone 3, from -80 to -140 cm the pH is ~4.5 (Figure 11). Pore water chemistry in Zone 2, to a depth of 80 cm in the stream bed, is clearly different from both surface (Zone 1) and surrounding groundwater (Zone 3). This water, with a pH of 6.5, average alkalinity of 70 mg/l, and average dissolved oxygen concentrations of 6 mg/l, chemically falls in between surface and groundwater. This suggests a profile of the ground and surface water interaction composed of two aqueous end members, surface water and contaminated groundwater separated by a zone of intermediate composition, the transition zone. Mixing models, using chloride as a conservative element, demonstrated that the water in the transition zone was composed of approximately 94% surface water and 6% groundwater (Benner, 1994). This transition zone, comprised primarily of surface water, is the area referred to by biologist as the hyporheic zone (Williams and Hynes, 1974; Stanford and Gaufin, 1974; Lee and Hynes, 1977/1978; Hynes, 1983; Rutherford and Hynes, 1987; Stanford and Ward, 1988). Benner (1994) showed elevated Cu, Zn, and Mg concentrations in the lower pH groundwater and transition zone pore water. Metal-oxide precipitation experiments using sterile ceramic beads revealed an approximately 5 cm wide band of orange

Figure 11 - pH Values

B-Transect



coatings at the contact between the transition zone and groundwater (-80 cm) (Benner, 1994). These data suggest that two distinct flow systems exist in the area beneath the creek, namely, the area adjacent to the base of the creek dominated by surface water and the floodplain groundwater system located below the transition zone.

Water samples obtained from wells as close as 10 cm upgradient from the stream channel contained contaminated groundwater. In addition, pH values in water samples obtained from seepage meters installed into the stream bank varied from 4 to 7. Varying flows into and out of the seepage meters were observed. Seepage meter data are summarized below in Table 5.

**TABLE 5** - Seepage Meter Measured Flux Through Channel Wall

| Date | S.Meter # | Stage (Meters) | GW Level (Meters) | Flux ($ml/hr/cm^2$) | pH |
|---|---|---|---|---|---|
| 8/24/93 | SM1 | 1601.663 | 1601.724 | 2.5 | 4.2 |
| | SM2 | Not Measured | Not Measured | 2.0 | 4.8 |
| | SM4 | Not Measured | Not Measured | 1.0 | 4.6 |
| 8/29/93 | SM1 | 1601.724 | 1601.724 | 1.2 | 6.5 |
| | SM2 | Not Measured | Not Measured | 1.8 | 7 |
| | SM4 | Not Measured | Not Measured | 0.4 | 6.1 |

This suggests that contaminated groundwater periodically enters the stream through the upgradient bank. On days when pH 4 water was measured in the seepage meters, it is interpreted that metals-rich groundwater entered the stream, or at least precipitated at the channel wall. A large amount of Fe-oxide precipitation was observed on the upgradient bank of the creek, indicating that metals rich groundwater is precipitating as it comes in contact with stream water. Colloids of flocculated oxides were also observed in protected pools along the upgradient side of the stream bank.

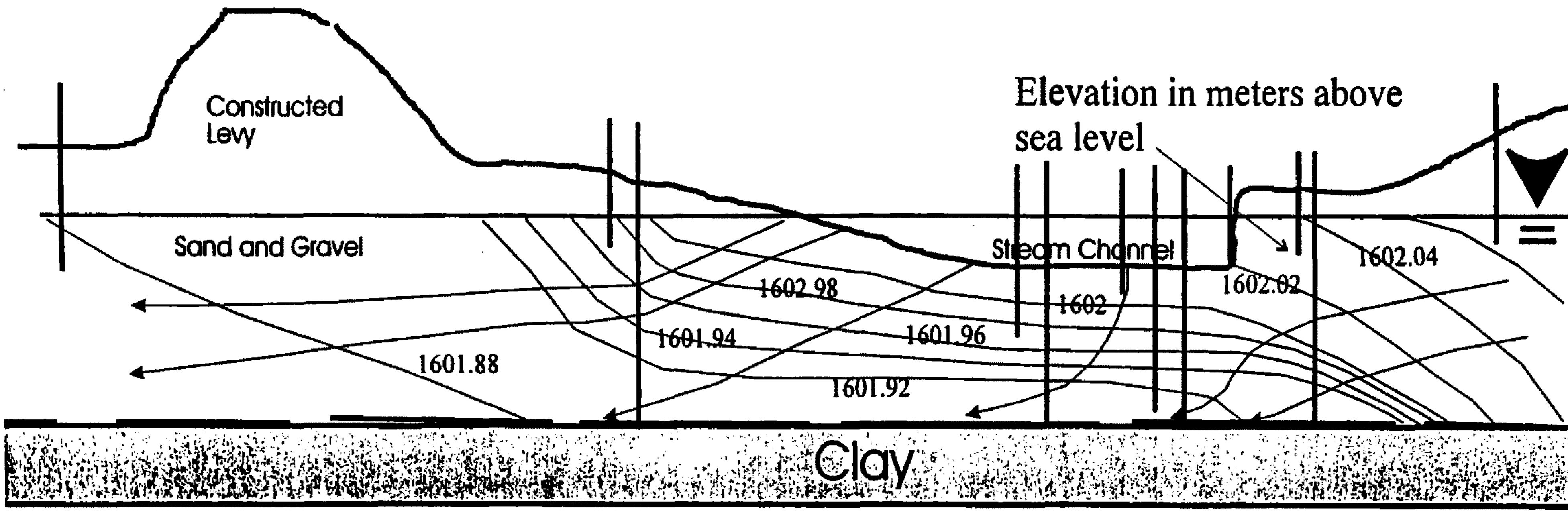
Stream stage and groundwater level measurements were not obtained continuously during seepage meter measurements. Seepage meter water generally had low pH values when the creek stage was lower than the water table at the east bank of the creek. As shown in earlier in Figure 8, changes in stream levels precede a corresponding, but delayed change in water table position. This indicates that as the stage rises above the bank water table, stream water flows into the stream bank. On several days, pH values of 6 to 7 were measured in the seepage meters. This is interpreted to indicate that streamwater entered bank prior to sampling the seepage meters. Chemical data show that the surface water and ground water boundary has never extended greater that one meter upgradient into the east stream bank. The timing and rate of water exchange between these two systems is probably very dependent on stage changes. It is likely that these fluxes are very transient in nature. As shown in Figure 11, groundwater chemistry has characteristics of stream water up to several meters downgradient of the west bank of the channel.

Water level measurements obtained at various levels along the B-Transect indicate that a downward gradient exists beneath the creek and extends beyond the clay unit. Piezometers in the shallow bed sediment up to 20 cm below the channel bottom had localized upward groundwater gradients. These localized upward gradients are likely similar to those seen by Savant *et al.* (1987), who attributed such gradients to the turbulent flow caused by varying channel morphology . They showed that the downstream faces of dune-like stream bottom sediment structures had upward gradients in stream systems with overall downward gradients. These upward gradients were related to localized hydraulics created by the dune-like sediment structures. Chemical data imply that downward flow and mixing of surface water and groundwater dissipates at the boundary between the transition zone and groundwater (80 cm). Physical flow data generated using heads measured at the B-transect appear to contradict the chemical model and imply that the chemical signature of groundwater should continue beyond the lower boundary as gradients imply flow from the channel is downward. A flow net (Figure 12) was developed using head values measured in piezometers various depths and positions along the B-Transect in and around the creek. Potentiometric lines were drawn by hand using the measured head values. The aquifer was assumed to have a 2:1 horizontal to vertical anisotropy, based on empirical values of anisotropy of sand and gravel aquifers (Fetter, 1994). Flow lines were drawn by hand using a graphical technique (Fetter, 1994) to achieve the correct angle that the

Figure 12 - **Flow Net**

B Transect

Using Hand Measured Head Data




0 3

Scale In Meters

Cross Sectional View Looking North

**Note:** Flow Lines Adjusted for Anisotropy (2:1 Horizontal)

Ref: Water level measurements from piezometers flow line must cross the equipotential line. The flow net (Figure 12) shows that stream water flows downward into the underflow groundwater system beneath the channel and that the groundwater gradient at the site increases from 0.0018 to approximately 0.125, beneath the stream channel. This may be due to the water being forced beneath the channel. The bed sediments beneath the stream grade from very coarse and clean washed sands at the base of the channel to coarse sands, with silt and clay contents increasing with depth. The gradational nature of the upper sediments beneath the stream channel is similar to the model of stream-pore water interaction described by Castro and Hornberger (1991). They examined physical mixing using tracers and found that surface water interacted extensively with the shallow gravel bed and, to a lesser degree, with deeper alluvium. Their study was performed on an aquifer where surface water and groundwater flows were parallel. The hydraulic conductivity of the bed sediment in their study is similar to the sediment grading and hydraulic conductivity observed at the study site, with high hydraulic conductivity sediments (k=0.15 cm/sec) at the base of the channel, and hydraulic conductivity decreasing with depth beneath the channel ( 0.006 to 0.003 cm/sec).

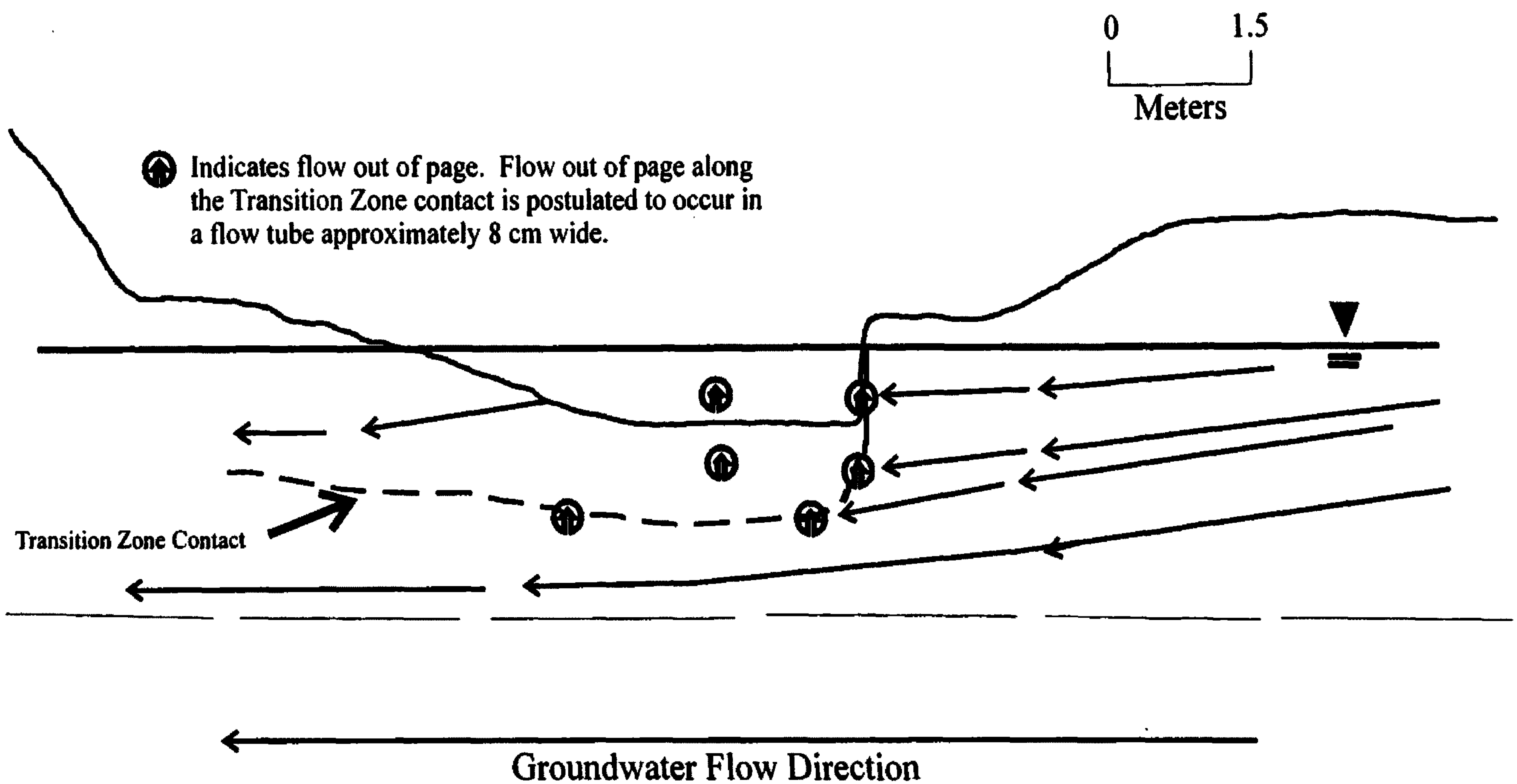
The downward flow of streamwater into the bed sediment pore water, and the size of the transition zone may be controlled by several factors at the site. The hydraulic conductivity distribution, which is strongly related to the sorting of the bed sediment, would likely control the depth to which underflow would occur parallel to the stream channel. Pore water chemistry data suggest that stream water is present up to 80 cm below the stream channel (Figure 11). This component of flow parallel to the stream bottom that occurs in the high hydraulic conductivity bed sediment has a relatively high velocity compared to adjacent groundwater flow system. Most likely this channel water is an important component when attempting to describe this interaction of surface water and groundwater at this site.

A mechanism is proposed to describe the groundwater flow field in and around the stream channel. Chemical data suggest that surface water in the bed sediment does not mix appreciably with groundwater within the 80 cm of sediment below the base of the channel. Figure 11 shows a distinct boundary or divide between groundwater and the transition zone which is predominantly surface water. Most likely this water in the transition zone is channel underflow that flows parallel to the direction of the stream and perpendicular to groundwater at the B-Transect. Water velocity in the transition zone is greater than groundwater simply based on relative hydraulic conductivities. Shallow groundwater that intersects the stream channel underflow in the transition zone likely enters a flow tube that is parallel to the stream channel. Benner (1994) used results of bead column experiments to determine the size and shape of the transition zone and observed an approximately 8 cm wide zone of metal oxide precipitation at the contact between the transition zone and groundwater. It is interpreted that this idealized flow tube can accommodate the volume of groundwater that intersects the contact because of the greater groundwater velocities present in the transition zone. It is proposed that surface water and channel underflow, up to 80 cm beneath the stream channel, comprise a secondary flow system in relation to the shallow aquifer at the B-Transect. The increased groundwater gradient beneath the stream channel (Figure 12) may be caused by the area of groundwater intersecting the channel and transition zone being partially forced beneath the channel underflow system. A conceptual model is shown in Figure 13. Water in this idealized flow tube mixes with the transition zone to some extent down the channel flowpath by advection and dispersion.

## Numerical Simulation

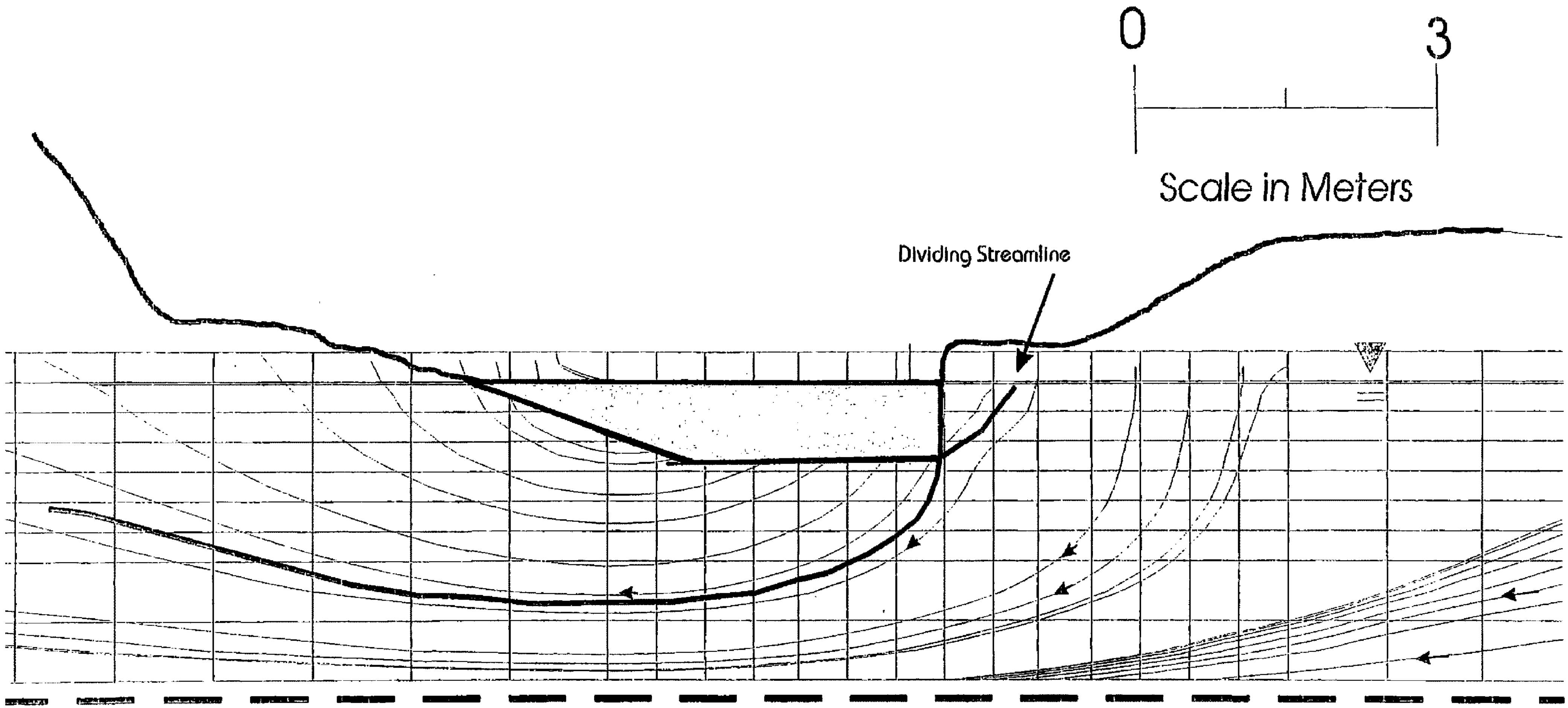
A zone beneath the channel that has high hydraulic conductivity bed sediments beneath the channel, tends to direct stream water to a depth of 80 cm. This is hypothesized to be the major factor affecting the chemical distribution and physical flow fields observed in the vicinity of the stream at the B-Transect. Two numerical models were developed to test this hypothesis. Flowpath, a two dimensional finite difference model, was used in profile to simulate the effect of the high conductivity bed material and stream channel on the groundwater flow field. The flow field generated by Flowpath (Figure 14) is similar to the model based on water chemistry (Figure 11). A vertical gradient of 0.047 was produced in the model using specified heads at the upgradient and downgradient boundaries. Particle tracking results show

Figure 13 - **Proposed Conceptual Model**



water flows down to the no flow boundary at the base of the simulated aquifer. Particle tracking results show stream water flowing into the groundwater and then flowing parallel to groundwater at a depth of 150 cm below the stream channel. Flow out of the downgradient side of the channels appears to flow up to the surface, this is an artifact of using constant head cells to represent the water table position. Nield *et al.* (1994) used two-dimensional numerical models to examine groundwater flow in a vertical section near surface water bodies. A large number of flow regimes were simulated to examine the effect of model dimensions and aquifer anisotropy on flow geometries. Groundwater divides generated by the model were examined for varying geometries around the body of water. These divides separated zone in the model where groundwater flowed into the surface water body and where groundwater passed under the surface water body. The groundwater divide shown on Figure 14 is similar to the dividing streamlines modeled by Nield *et al.* (1994) for a similar model geometry and to the chemical divide between the transition zone and groundwater on Figure 11. This would imply that the high hydraulic conductivity material surrounding the creek is a factor controlling the flow field around the channel. It should be noted that the Flowpath simulations, as well as work by Nield, do not allow water to flow parallel to the stream, in and out of the page, and thus the actual three-dimensional flow field around the base of the creek is being represented in only two dimensions.

Figure 14 - **Flowpath Particle Tracking Results**

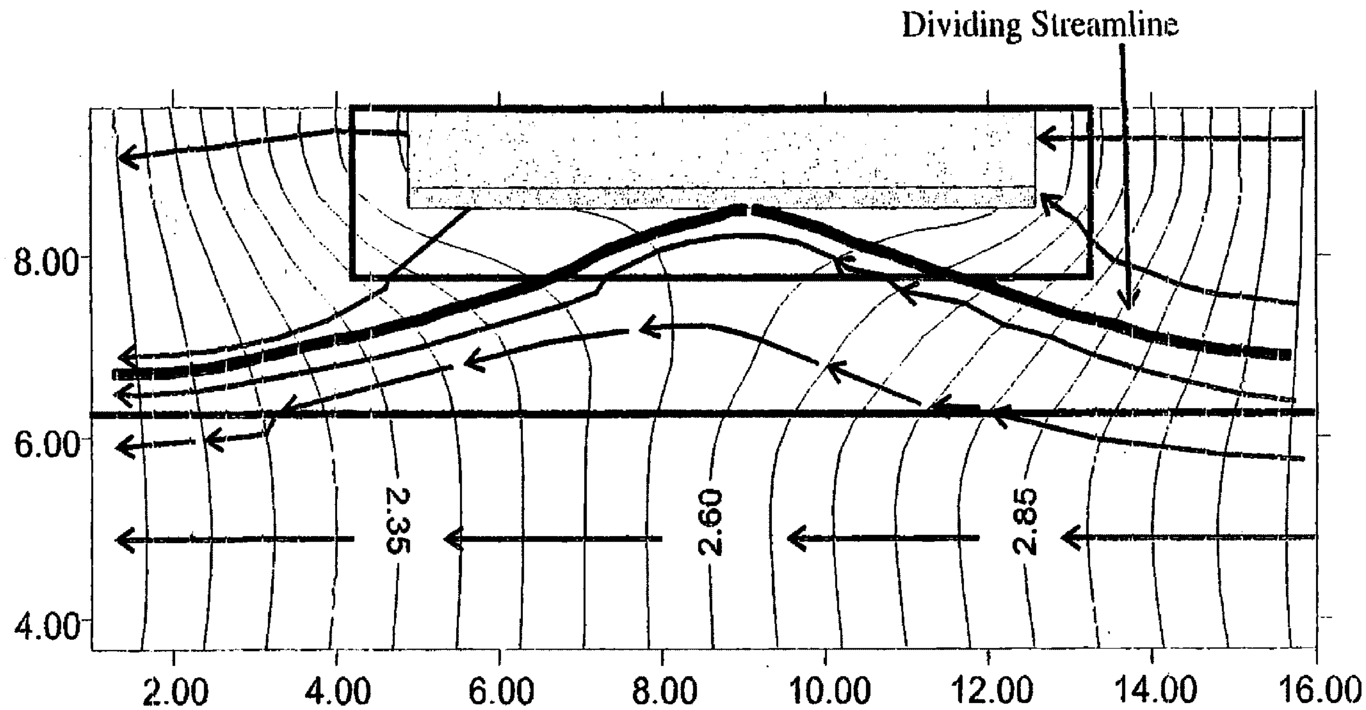


MODFLOW (McDonald and Harbaugh, 1988), a three dimensional, finite difference, groundwater flow model code was used to simulate a three dimensional representation of the groundwater flow field in the vicinity of transect B. Though this model is somewhat generic in nature, it was designed to allow for the presence of a stream with channel underflow and a shallow groundwater that intersects the stream channel at an oblique angle (approximately 60 degrees). Flow within the shallow groundwater was established in the model using specified heads at the east and west boundaries of the model. (east and west sides of the stream, respectively). A block diagram showing the model discretization is attached in Appendix C. Establishing sub-channel flow was attempted by using well nodes at the upstream and downstream boundaries of the model, in the second and third layers of the model. The model was not sensitive to the flow volumes in and out of the model produced by well nodes at the model boundary. Setting the nodes to the stream stage in the river module directed flow parallel to the stream in the top four layers (or two meters) beneath the stream. The MODFLOW output file, including head data generated for each layer and contour plots using the data is attached in Appendix I.

The model output along a vertical slice through the center of the model, perpendicular to streamflow direction was assimilated from the model output, and contoured using SURFER (Golden Graphics, 1994). Flowlines were drawn over the contour data using a graphical technique to correct for anisotropy (Fetter, 1994). A vertical slice through the three dimensional flow field is shown on Figure 15. The flow field indicates that shallow flow is directed towards the eastern one-half of the channel bottom and its east bank, and water flows from the creek on the western one half of the creek channel into the shallow groundwater system. Models developed using physical and chemical data suggest that only a small section of the stream profile receives groundwater at the east bank of the stream near the water table (Figures 11 and 12). Figure 15 does not show the component of flow of the stream and sub-channel that is perpendicular to the page. The simulated contact between the transition zone and groundwater appears much shallower than observed by plotting the chemical data (Figure 11). This may be due to the size of the modeled high hydraulic conductivity zone around the creek and the absence of modeled downward vertical gradients. Figure 15 shows groundwater from the clay layer at the base of the aquifer, flowing into the shallow aquifer beneath the stream. Groundwater at the water table is shown entering the upgradient bank of the stream. This apparent upward flow is also likely due to the induced horizontal flow in the model, which ignores the downward vertical gradient present at the site. The groundwater divide shown on Figure 15 is almost identical to the two-dimensional results presented by Nield for identical model parameters. This implies that the component of flow parallel to the stream may not have an effect on the groundwater flow field generated by MODFLOW or that flow parallel to the stream was not simulated in the model.

Figure 15 - Profile Slice through 3D Model

Slice is Perpendicular to Streamflow



MODFLOW simulated head values were contoured using SURFER. Figures 16a - 16g show the contoured flow fields for model layers 1 - 7. Groundwater flowlines were drawn by hand over the equipotential lines generated by SURFER. Layer 1 (Figure 16a) shows that as groundwater approaches the stream channel, it is influenced by the streamflow and encounters a groundwater divide at the upgradient channel wall (represented by modeled river nodes). The flowfield in layer 2 (Figure 16b) is also influenced by the sub-channel flow directly below the river nodes, in that the flow direction in the cells beneath the creek is parallel to the creek. The flowfields in layer 3 and 4 (Figure 16c and 16d) each show slightly less influence from the overlying river nodes than layer 2. The flowfield in layers 5, 6 and 7 (Figures 16e - 16g) are not influenced by the overlying stream. Cell-by-cell flow terms generated by MODFLOW are represented graphically in Figure 17. Horizontal flow is shown by arrow vectors. Gray shaded nodes indicated where the component of flow out of the page (sub-channel flow parallel to streamflow) is at least one order of magnitude greater than horizontal flow (across the page). It should be noted that, in the simulated high conductivity areas adjacent to the modeled stream channel, the majority of the flow is parallel to the stream (out of the page). To understand the modeled percentage of water in the transition zone from groundwater and surface water, cell-by-cell flows for the cells in layers 2, 3 and 4 were used to calculate volume ratios of flux across the cells at the ugradient or eastern edge of the transition zone (Figure 17). The values are shown below in Table 6.

## Model Layer 1

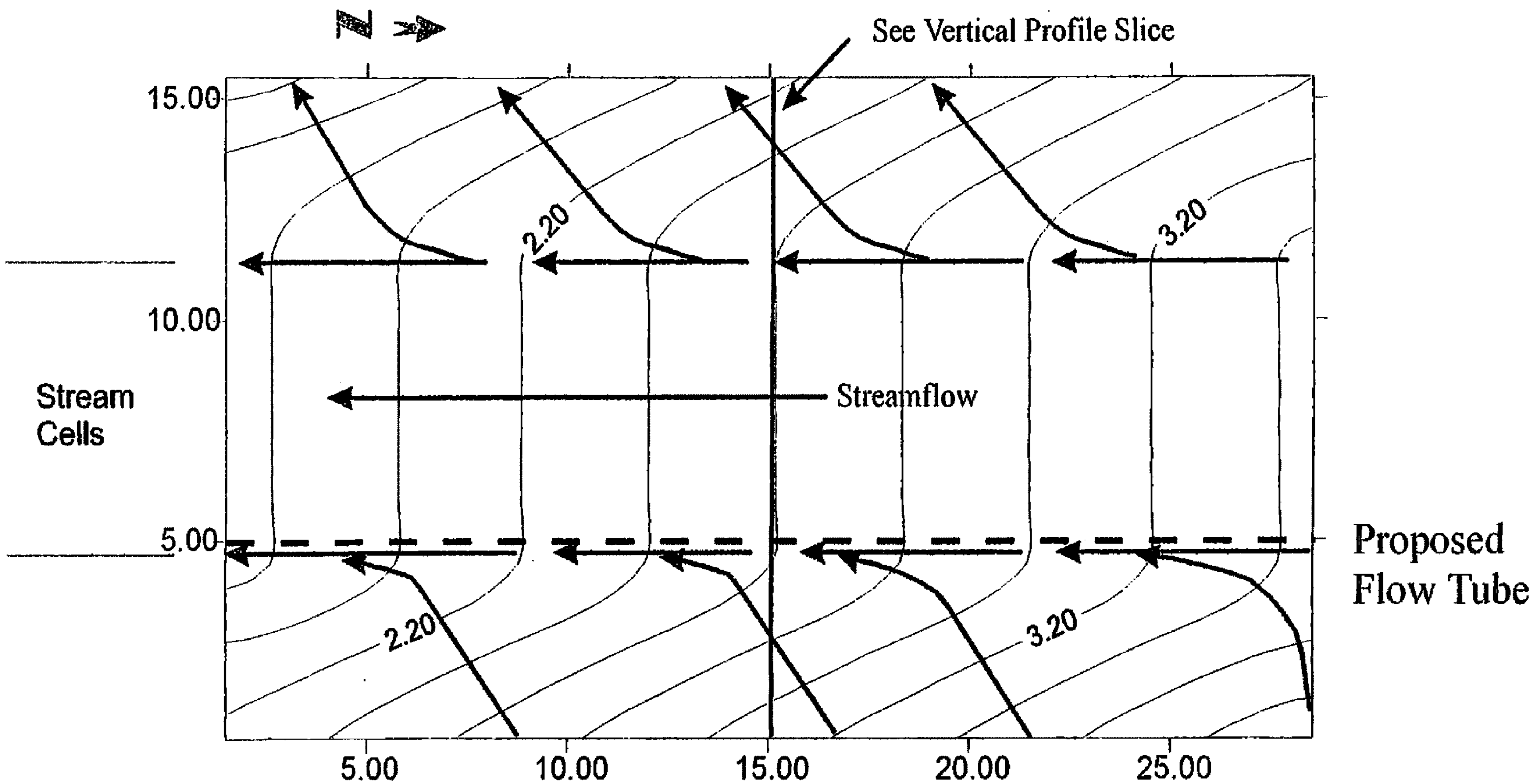



Figure 16a . - Modeled Flowfield 0-1m Below Water Table.

Scale in Meters

Contours in (X+1600) Meters Abover Sea Level

Contour Interval 0.2 Meters

## Model Layer 2

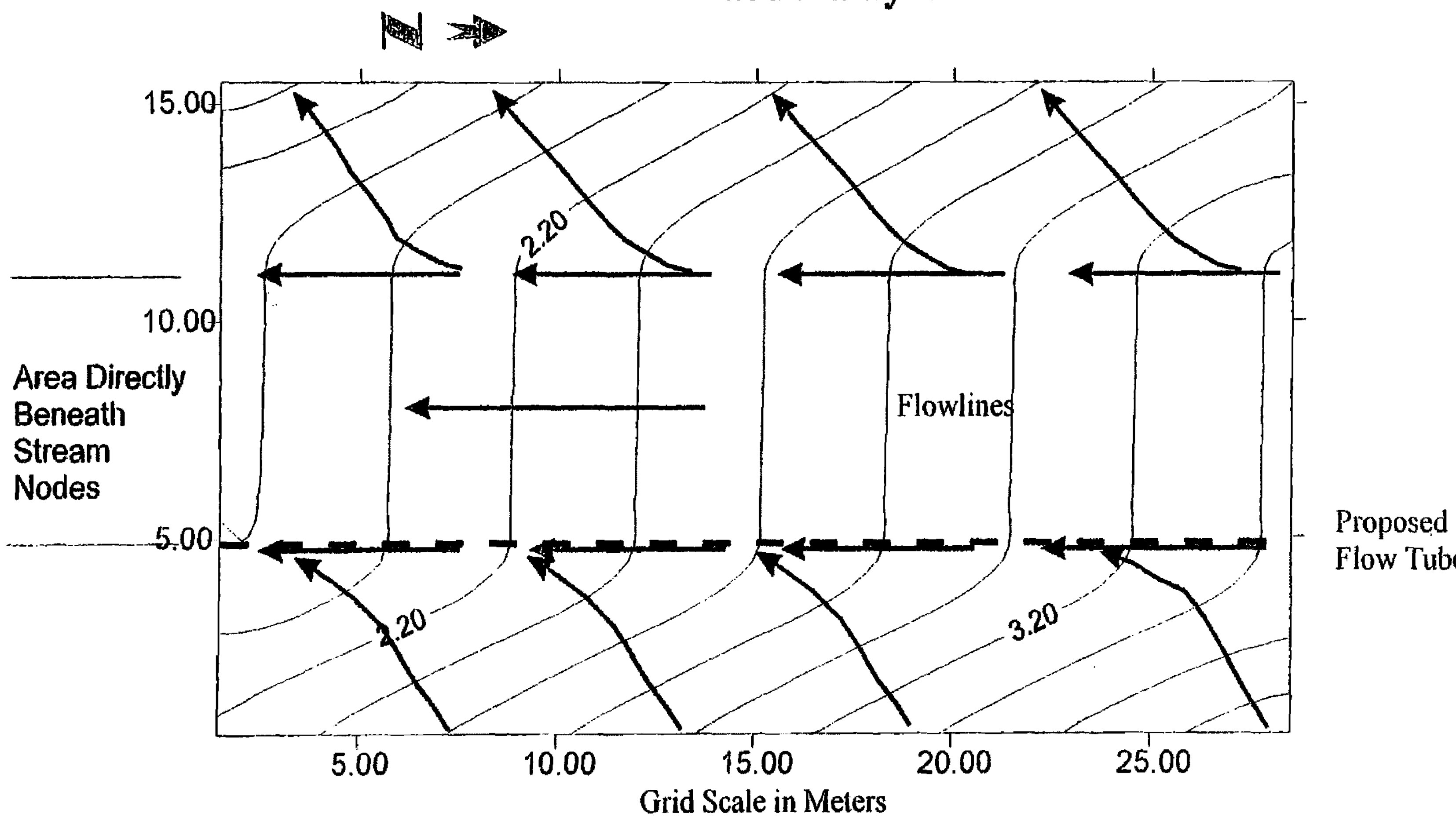



**Figure 16b.** - Modeled flowfield 1 to 1.33 meters Below Water Table

Contours (X + 1600) Meters Above Sea Level
Contour Inverval 0.2 Meters

## Model Layer 3

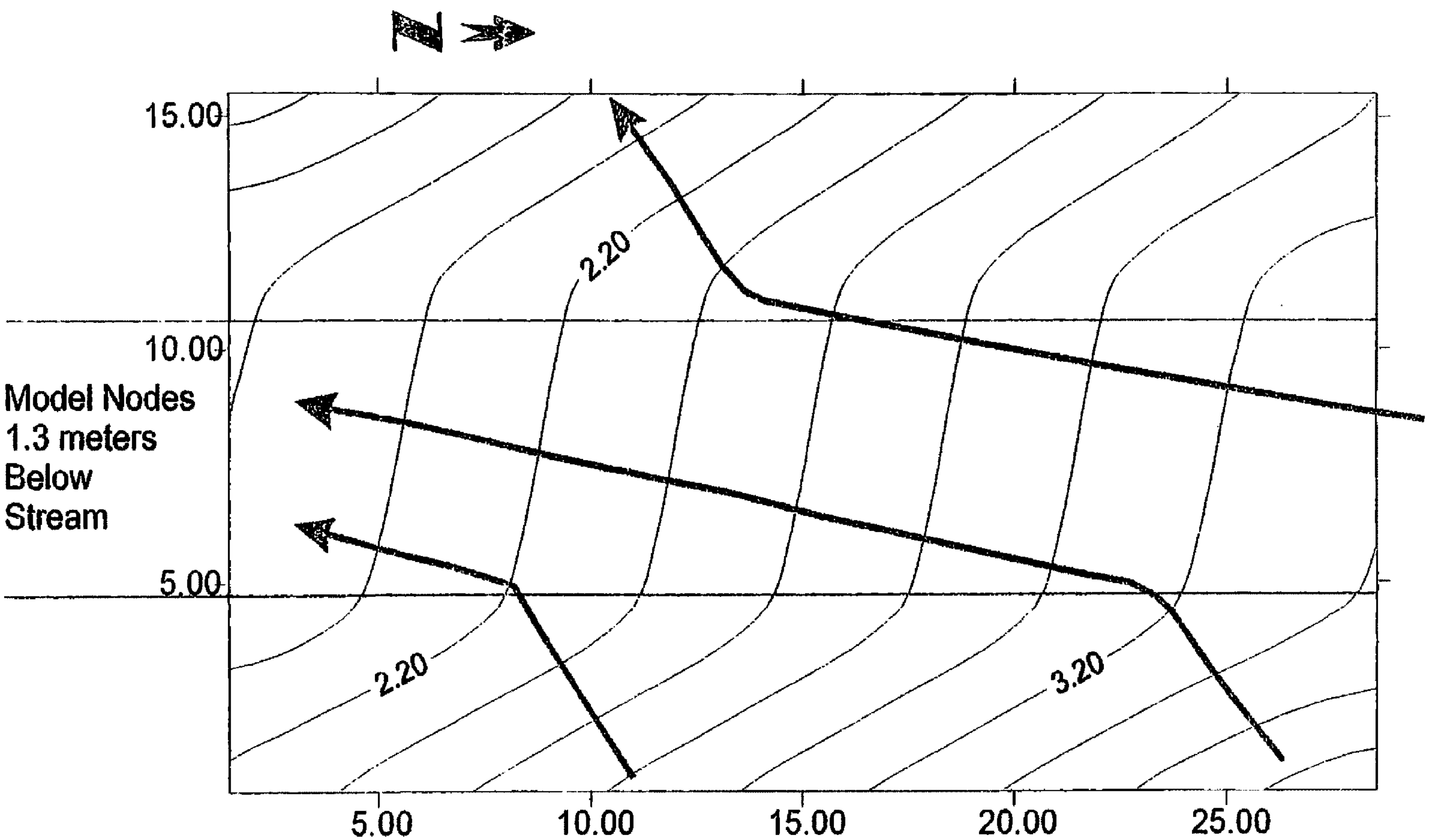
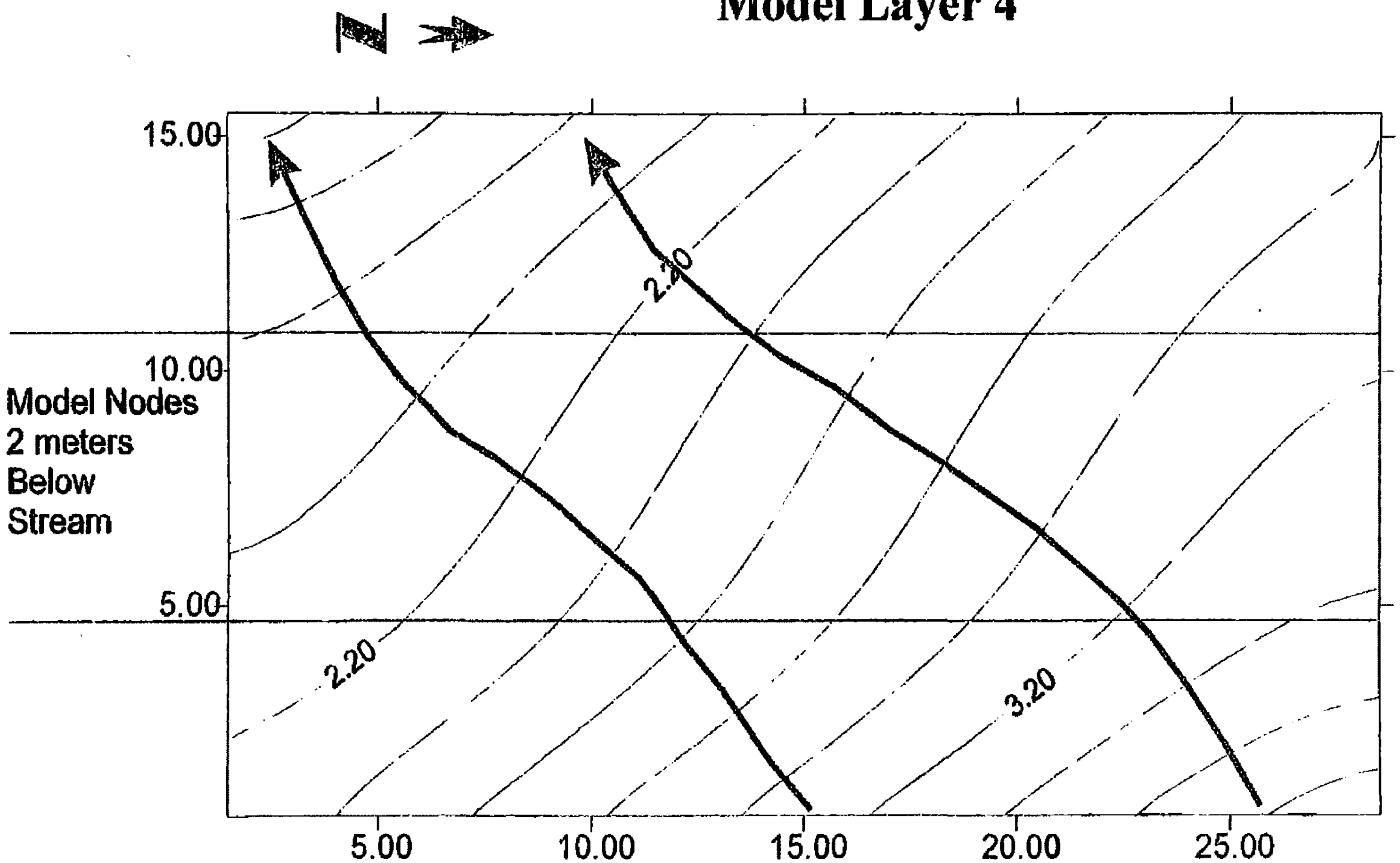



Figure 16c. - Modeled Flowfield
1.33 to 1.66 meters Below Water Table

## Model Layer 4

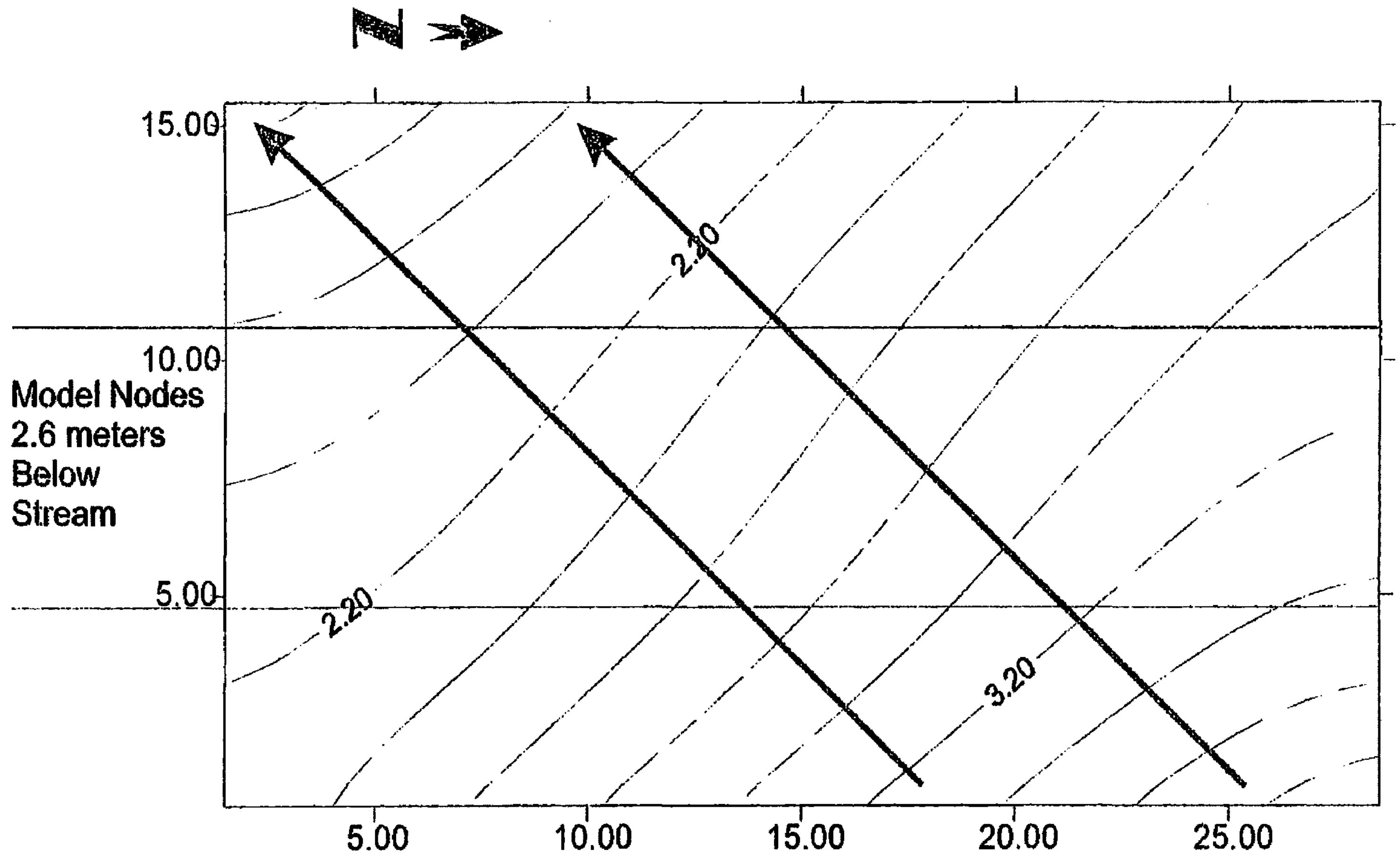



Scale in Meters

Contour Elevation (X + 1600) Meters Above Sea Level
Contour Interval 0.2 Meter

**Figure 16d.** - Modeled Flowfield 2.33 to 2.99m Below Water Table.

## Model Layer 5




Scale in Meters
Contour Elevation (X+1600) Meters Above Seal Level
Contour Interval 0.2 Meters

**Figure 16e.** - Modeled Flowfield 2.99 to 3.55 m Below Water Table. Showing no effect from overlying stream.

## Model Layer 6

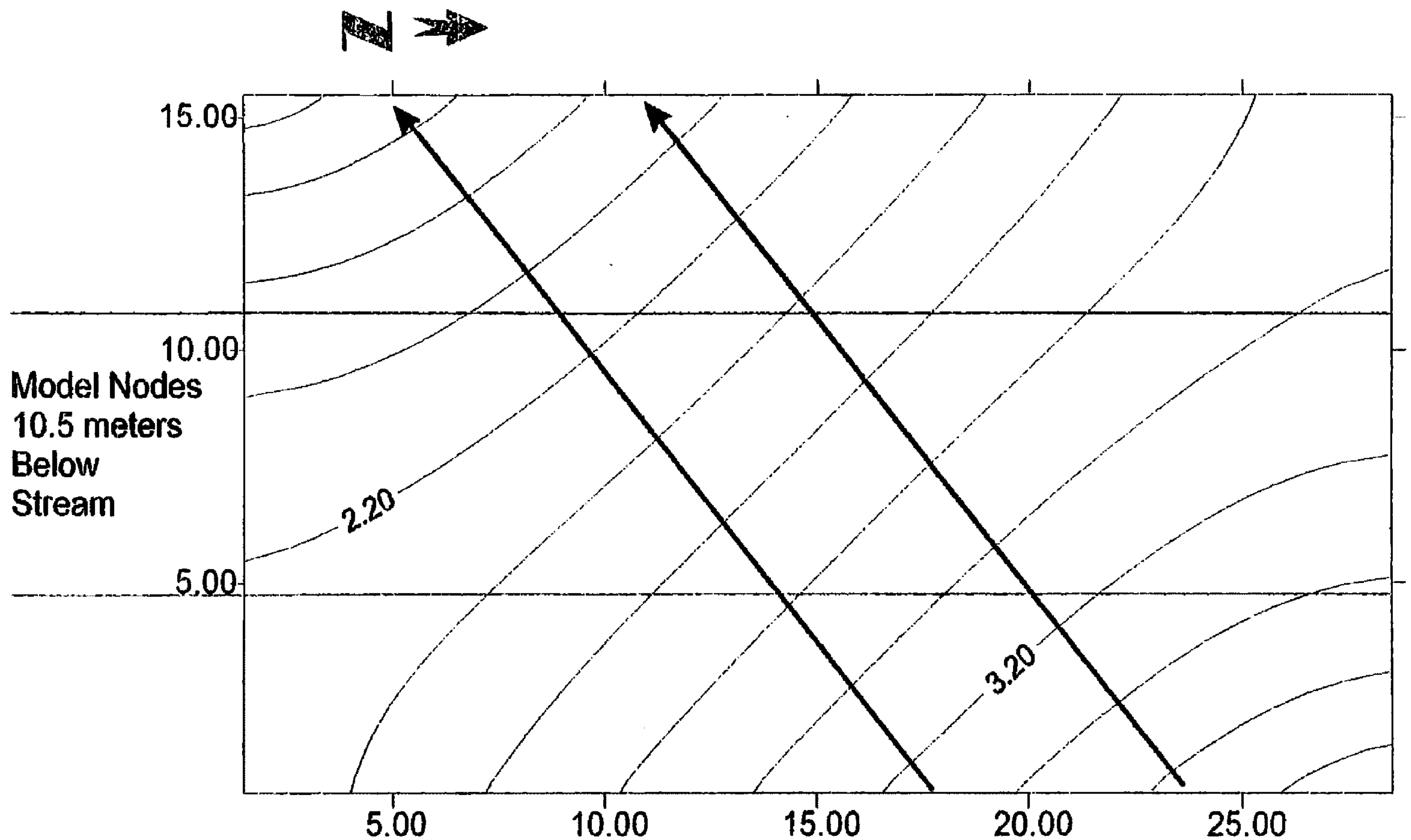



Figure 16f. - Modeled Flowfield
3.55 to 11.55m Below Water Table.
Shows no effect of overlying stream.

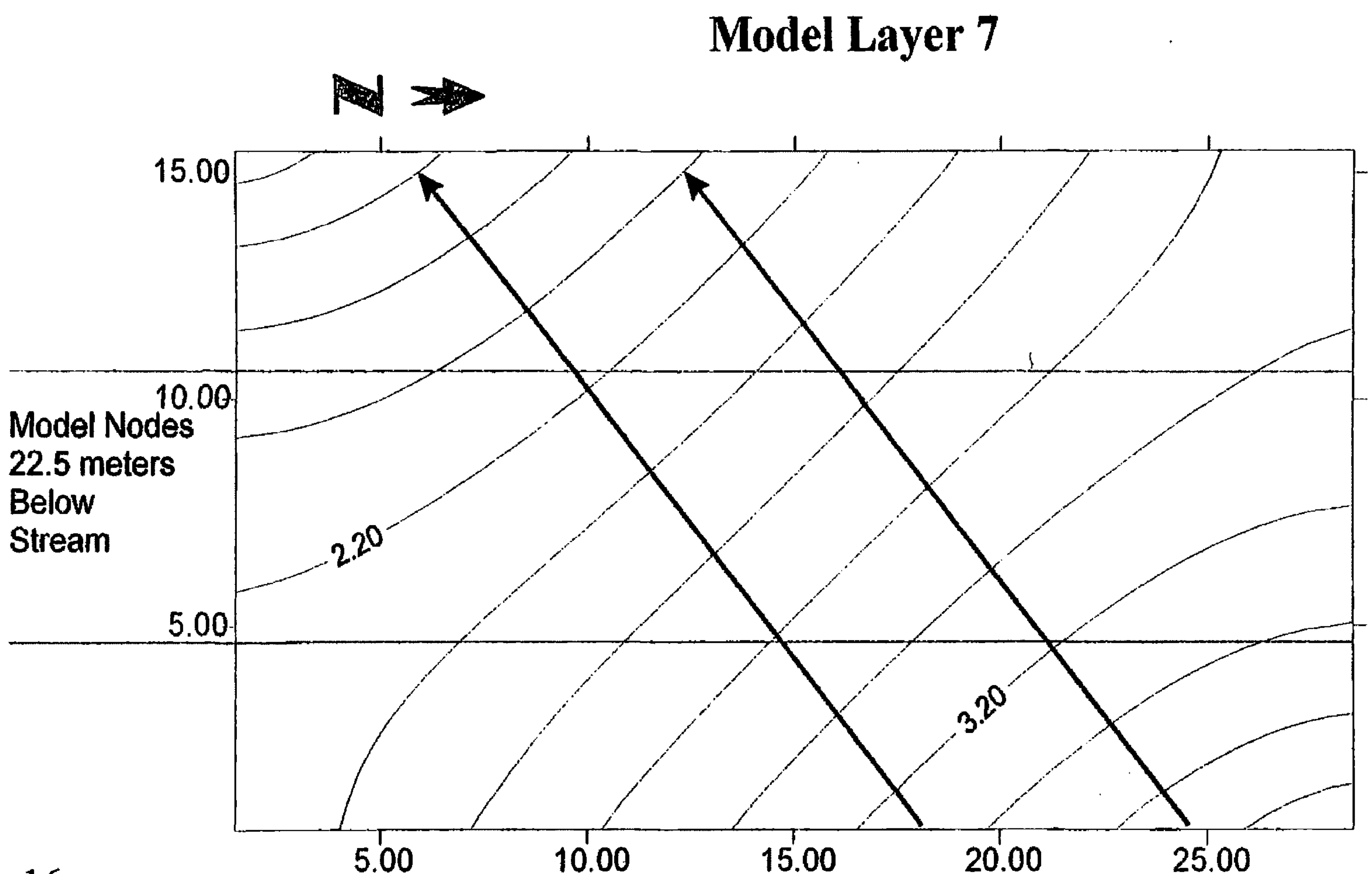
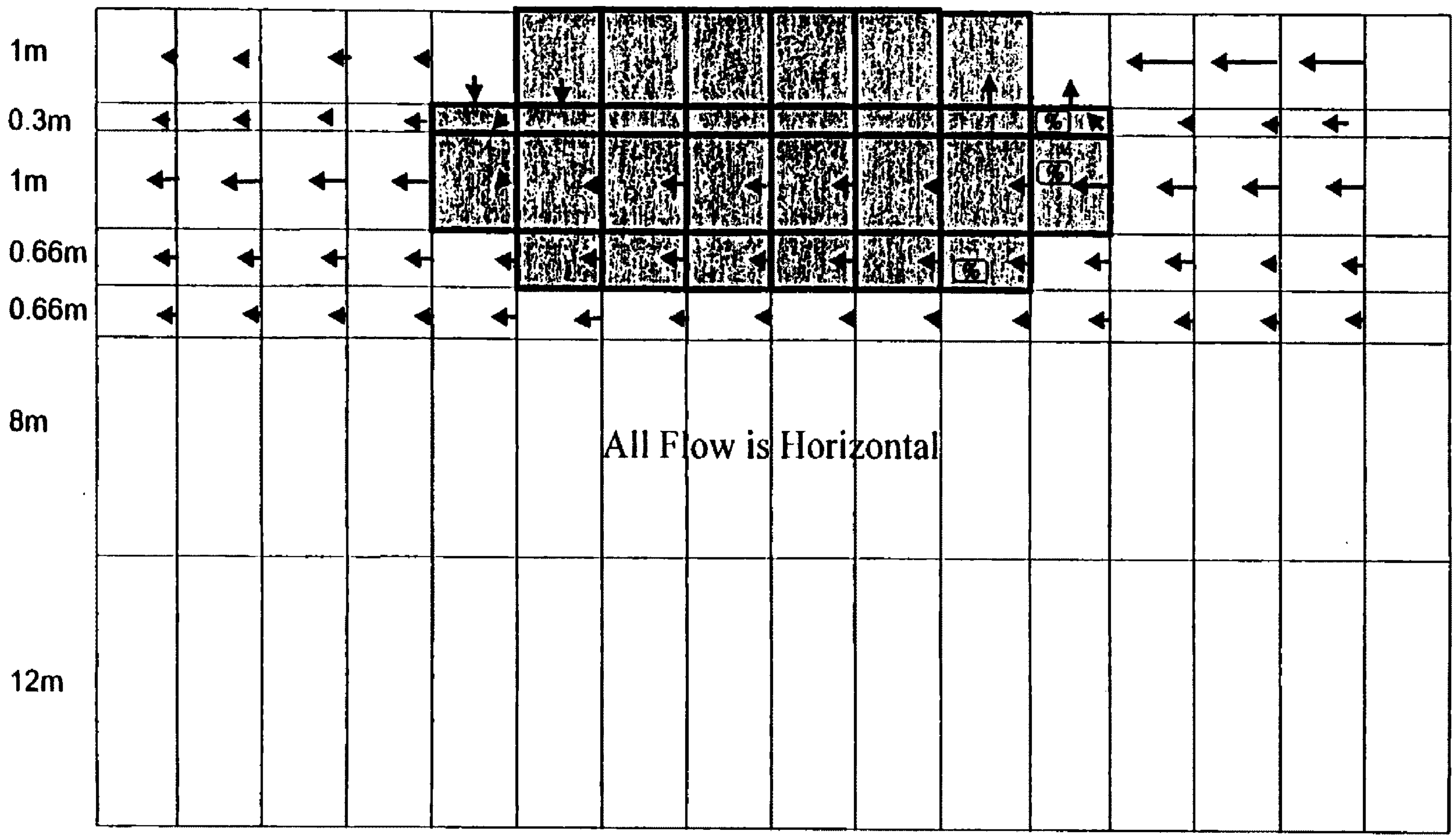



**Figure 16g.** - Modeled Flowfield 11.55 to 23.55m Below the Water Table. Shows no affect from overlying stream.

Figure 17 - **Cell-By-Cell Flow**

Ref: Cell-By-Cell Output from Modflow




Indicates Cell Where Majority of Flow is Out of the Page (At Least 10x Horizontal)

Indicates Flow Vector in Horizontal Direction

Cells used to calculate ratio of water entering transition zone from groundwater

| TABLE 6 - Cell-by-Cell Flux Transition Zone Boundary | | | |
|---|---|---|---|
| Layer # | Depth Below Channel Bottom | Percent SW | Percent GW |
| 2 | 33 cm | 94 | 6 |
| 3 | 133 cm | 35 | 65 |
| 4 | 233 cm | 15 | 85 |

The cell-by-cell flow terms indicate that at the contact between groundwater and the transition zone, 33 cm beneath the channel bottom, 6 percent of the water entering the cell is groundwater and 94 percent of the water enters from the adjacent upstream cell in the transition zone. At 133 cm below the channel bottom, 35 percent of the water entering the cell is groundwater and 65 percent is transition zone water.

The results of the stream-shallow groundwater interaction model represented on Figures 15, 16 and 17 indicate that the high hydraulic conductivity sediments beneath and adjacent to the creek, transmit water as underflow parallel to the streamflow. This component of flow parallel to streamflow creates semi-isolated flow regimes consisting of a stream channel underflow (transition zone), and groundwater. As groundwater flows parallel to the sub-channel flow, a certain degree of mixing, related to advection and dispersion, must occur. Groundwater, described as entering a flow tube at the contact between the stream channel and transition zone boundary, must be considered part of the surface water and transition zone system.

Modeled flow nets showing the groundwater flow field beneath the stream did not agree well with the physical and chemical data collected at transect B. This is likely due to the generic nature of the boundary conditions used for the simulation, methods used to force channel underflow and values used to represent hydraulic conductivities of layers. Additional characterization of the flow regimes at transect B would provide data to refine these initial modeling efforts. This study did not look at a particles path as it moved along the channel and mixed with transition zone water. These semi-isolated flow systems may account for the small amount of contaminated groundwater, measured by Benner (1994), in the transition zone.

## CHAPTER V: CONCLUSIONS AND RECOMMENDATIONS

There is extensive physical and chemical interaction between the surface and shallow ground water systems at the Silver Bow Creek site. This study documented a strong connection between the groundwater system and the stream stage of Silver Bow Creek. Metal contaminated groundwater was shown to enter the creek and form, what are observed to be metal-oxide precipitates on the stream bank. Based on these observations and characterization of the interaction of the floodplain groundwater system and the creek, groundwater discharge may prove to be a larger source of metals to the stream system than previously described (Titan, 1995). Metal-oxide precipitation was also observed in the aquifer where contaminated groundwater was in contact with transition zone water (Benner, 1994). A distinct boundary, consisting of an approximately 8cm wide band of metal-oxide precipitation, was observed approximately 80 cm below the base of the channel between the transition zone and contaminated groundwater. Conceptually, surface water enters the pores of the high hydraulic conductivity bed sediment and becomes channel underflow, flowing parallel to the stream, in the area immediately adjacent to and beneath the channel. The water found in the transition zone beneath the channel is underflow and flows parallel to the direction of the stream and at transect B flows perpendicular to the shallow floodplain groundwater system. The groundwater velocity in the transition zone is greater than the associated floodplain groundwater. Floodplain groundwater that intersects the stream channel and channel underflow in the transition zone likely enters a flow tube that is parallel to the stream channel. It is proposed that surface water and transition zone water (underflow) that is present to a depth of 80 cm beneath the stream channel are semi-isolated from the shallow aquifer flow system at the B-Transect. As groundwater in this flow tube moves parallel to the sub-channel flow, mixing between groundwater and surface water, related to advection and dispersion occurs. Groundwater flow along the hypothesized flow tube at the transition zone boundary was not studied during this project.

A two-dimensional numerical simulation of the flow field at the B-Transect demonstrated that the presence of a zone of high conductivity streambed sediment is one factor controlling groundwater flow in the vicinity of the stream bed. The three dimensional representation of the surface water-groundwater interaction simulated groundwater flow parallel to streamflow up to one meter beneath the channel. The presence of the stream and the channel underflow influenced the sub-channel flow direction up to two meters beneath the channel. Cell-by-cell flow values indicate that the cell at the eastern contact between groundwater and the transition zone, 33 cm beneath the channel bottom, receives 6 percent of its water from groundwater and 94 percent of the water enters the cell from the adjacent upstream cell in the transition zone. At 133 cm below the channel bottom 35 percent of the water entering the cell is groundwater and 65 percent is transition zone water. These correspond well to the 80 cm deep transition zone boundary reported by Benner (1994).

Flownets generated by contouring hand measured water levels at the B-Transect did not show any evidence of semi-isolated flow systems in the transition zone and groundwater. Model generated flow nets reproduced a transition zone however, the three dimensional representation poorly matched field derived flow data. This is likely due to the models oversimplification of the stream and groundwater system. It is likely with refinement of the conductivity data, including using vertical gradients in the model and additional potentiometric data, that model generated flow fields would begin to better represent physical system.

To better understand the surface water and groundwater relationship at Miles Crossing, additional field data collection and modeling efforts are suggested. A three dimensional well (grid) array should be developed in the vicinity of transect B. At least one transect of wells should be installed in the creek bed at several depths to document if a gradient in the bed sediment parallel to stream flow exists. Additional wells are also need to further refine the three dimensional groundwater flow field. An important goal of future research at the site should be to identify if distinctly separate flow fields exist in the transition zone and the shallow aquifer. To date, modeling efforts have assumed steady state conditions. To obtain a better understanding of the transient nature of the surface water and groundwater systems, well arrays should be monitored in real time using a multi-channel pressure transducer and pH probe data logger. The increased density of sampling points along with real time data collection will most likely be necessary to examine the dynamic nature of the channel underflow and floodplain groundwater systems. Finally, this study should be used as a guide to describe areas of surface water-groundwater interaction where groundwater and surface water flow are parallel. Once these data sets are collected and evaluated a large scale conceptual model of interaction between Silver Bow Creek and the adjacent metal-contaminated alluvial aquifer can be developed.

## REFERENCES


Bencala, K.E. and Walters, R.A. (1983) Simulation of solute transport in a mountain pool-and-riffle stream: A transient storage model, Water Resources Research, 19(3): p. 718-724.

Bencala, K.E. (1983) Simulation of solute transport in a mountain pool-and-riffle stream with a kinetic mass transfer model for sorption, Water Resources Research, 19(3): p. 7732-738.

Bencala, K.E., Kennedy, V.C., Zellweger, G.W., Jackman, A.P., and Avanzino, R.J. (1984) Interactions of solutes and streambed sediment: 1. An experimental analysis of cation and anion transport in a mountain stream, Water Resources Research 20(12): p. 1797-1803.

Bencala, K.E. (1984) Interactions of solutes and streambed sediment: 2. a dynamic analysis of coupled hydrologic and chemical processes that determine solute transport, Water Resources Research, 20(12): p. 1797-1803.

Bencala, K.E., McKnight D.M., and Zellweger G.W. (1990) Characterization of transport in an acidic and metal rich mountain stream based on a lithium tracer injection and simulations of transient storage, Water Resources Research, 26(5): p. 989-1000.

Benner, S.G., (1994) Geochemical Processes in a transition zone between surface water and acidic, metal rich groundwater. Unpublished Masters Thesis, University of Montana, 71p.

Botz, M.K. (1969) Hydrogeology of the upper Silver Bow Creek drainage area, Montana, Bureau of Mines and Geology, Bulletin 75: 32p.

Buchanan, T.J., and Somers, W.P. (1969) Discharge Measurements at gaging stations, Techniques of Water-Resources Investigations of the United States Geological Survey, Book 3; Applications of Hydraulics: Chapter 8, 65p.

Castro, N.M. and Hornberger, G.M. (1991) Surface-subsurface water interactions in an alluviated mountain stream channel, Water Resources Research, 27(7): p. 1613-1621.

CH2M Hill (1989) Silver Bow Creek flood modeling study, Prepared for Montana Department of Health and Environmental Sciences. p28.

Cherkauer, D.A. and McBride, J.M. (1988) A Remotely Operated Seepage Meter for Use in Large Lakes and Rivers. Groundwater, 26(2), p. 165-171.

Darcy, H.P.G. (1856) Les Fountaines publiques de la Villa de Dijon: Paris, Victor Dalmont, 656p.

Day, K.W. and Briggs, P.H. (1988) Preliminary assessment of the effects of acid mine drainage on ground water beneath a wetland near Leadville, Colorado, USGS Toxic Substances Hydrology Program, Proceedings of the Technical Meeting, Phoenix, Arizona, September 26-30, 1988, p. 119-124.

Derkey, P.D. and Bartholamew, M.J. (1988) Geologic Map of the Ramsay Quadrangle, Montana Bureau of Mines and Geology Special Report; GM 47.

Dietrich, C.R., Jakeman, A.J. and Thomas, G.A. (1989) Solute transport in a stream-aquifer system: 1. Derivation of a model, Wat Res Res 25(10), p. 2171-2176.

EA Engineering. (1990) Silver Bow Creek remediation demonstration project field investigation workplan, Prepared for ARCO Coal Company, EA Engineering, Science and Technology, Redmond, WA.

Fetter, C.W. (1994) Applied Hydrogeology, Third Edition, Merril Publishing ,691 p.

Glover, K.C. (1990) Stream-aquifer system in the upper Bear River Valley, Wyoming, USGS Water Resource Investigations Report 89-4173, 58p.

Golden Graphics (1994) SURFER for Windows: Contouring and 3D Surface Mapping, Golden Software, Inc.

Harris, R.R. (1988) Associations between stream valley geomorphology and riparian vegetation as a basis for landscape analysis in the eastern Sierra Nevada, California, Environmental Management, 12(2): p. 219-228.

Harvey, J.W., Bencala, K.E., Zellweger, G.W.(1991) Preliminary Investigation on the effect of hillslope hydrology on the mechanics of solute exchange between streams and subsurface gravel zones, USGS Wat. Res. Invest., WRI 91-4034: p. 413-418.

Hendricks, S.P. and White, D.S. (1991) Physicochemical patterns within a Hyporheic zone of a northern Michigan river, with comments on surface water patterns, Canadian Journal of Fisheries and Aquatic Sciences, 48: p.1645-1654.

Hynes, H.B.N.(1983) Groundwater and Stream Ecology, Hydrobiologia, 100: p. 93-99.

Jakeman, A.J., Dietrich, C.R., and Thomas, G.A. (1989) Solute transport in a stream-aquifer system: 1. Application of model identification to the River Murray, Water Resources Research, 25(10), p. 2177-2185.

Johnson, H.E., and Schmidt, C.L. (1988) Clark Fork basin project status report and action plan, Clark Fork Basin Project, Office of the Governor, Helena, Montana.

Jorgensen, D.G., Signor, D.C. and Imes, J.L. (1989a) Accounting for intracell flow in models with emphasis on water table recharge and stream-aquifer interaction: 1. Problems and Concepts, Water Resources Research 25(4): p. 669-676.

Jorgensen, D.G., Signor, D.C. and Imes, J.L. (1989b) Accounting for intracell flow in models with emphasis on water table recharge and stream-aquifer interaction: 2. A Procedure, Water Resources Research 25(4): p. 677-684.

Kerbes, R.H., Kotanen, P.M., Jefferies, R.L. (1990) Destruction of wetland habitats by lesser snow geese: a keystone species on the west coast of Hudson Bay, The Journal of Applied Ecology, 27: p.242-258.

Kimball, B.A., Bencala, K.E. and McKnight, D.M. (1988) Research on metals in acid mine drainage in Leadville, Colorado, USGS Toxic Substances Hydrology Program, Proceedings of the Technical Meeting, Phoenix, Arizona, September 26-30, 1988, p. 119-124.

Kimball, B.A., Broshears, R.E., Bencala, K.E. and McKnight, D.M. (1991) Comparison of rates of hydrologic and hillslope hydrology on the mechanics of solute exchange between streams and subsurface gravel zones, USGS Water Resource Investigation, WRI 91-4034, p. 413-418

Lee, D.R. and Hynes, H.B.N. (1977/1978) Identification of groundwater discharge zones in a reach of Hillman Creek in southern Ontario, Water Pollution Research Canada, 15: p. 121-132.

Leonard, S.G., Staidl, G.J, Gebhardt, K.A. (1992) Range site/ecological site information requirements for classification of riverine riparian ecosystems (viewpoint), Journal of Range Management, 45: p.431-435.

Luoma, S.N. and Davis, (1983), Requirements for modeling trace metal partitioning in oxidized estuarine sediments. Marine Chemistry, 12; 159-181.

McDonald, M.G. and Harbaugh, A.W. (1988) A Modula Three-Dimensional Finite-Difference Ground-Water Flow Model, Techniques of Water-Resources Investigations of the United States Geological Survey, USGS Open File Report 83-875.
McKnight, D.M. and Bencala, K.E. (1990) The chemistry of iron, aluminum, and dissolved organic material in three acidic, metal-enriched, mountain streams, as controlled by watershed and in-stream processes, Water Resources Research, 26(12): p. 3087-3100.

MDHES (1990) Clark Fork data systems reference. (revised June 22, 1990) Montana Department of Health and Environmental Sciences, Solid and Hazardous Waste Bureau, Helena, MT.

Moore, J.N. and Luomo, S.N. (1990) Hazardous wastes from large-scale metal extraction, A case study, Environmental Science and Technology, Vol 24, p.1279-1285.

MultiTech (1987) Silver Bow Creek remedial investigation final report, groundwater and tailings investigation, MultiTech, Butte, MT.

Nield, S.P., Townley, L.R., and Barr, A.D. (1994) A framework for quantitative analysis of surface water-groundwater interaction: Flow geometry in a vertical section, Water Resources Research, Vol. 30, No. 8, p. 2461-2475.

Nimick, D.A. and Moore, J.N. (1991) Prediction of water-soluble metal concentrations in fluvially deposited tailings sediments, Upper Clark Fork Valley, Montana, U.S.A., Applied Geochemistry, Vol. 6.

Nimick, D.A. (1993) Hydrology and water chemistry of shallow aquifers along the Upper Clark Fork, USGS Water-Resources Investigations Report 93-4052, 63p.

NOAA (1994) Hourly Precipitation Data Elements, Butte, MT. (Station 241309) National Oceanic and Atmospheric Administration, National Climatic Data Center, Ashville, North Carolina.

PTI Environmental Services (1989a), Silver Bow Creek Sediment Sampling Data, Prepared for the Montana Department of Health and Environmental Sciences, 19p.

PTI Environmental Services (1989b), Silver Bow Creek Tailings Investigation, Prepared for the Montana Department of Health and Environmental Sciences, 23p.

Ruddy, B.C. and Williams Jr., R.S. (1991) Hydrologic relations between streamflow and subalpine wetlands in Grand County, Colorado, USGS Water-Resources Investigations Report 90-4129, 53p.

Rutherford, J.E. and Hynes, H.B.N. (1987) Dissolved organic carbon in streams and groundwater, Hydrobiologia, 154: p. 33-48.

Savant, S.A., Reible, D.D., and Thibodeaux, L.J. (1987) Convective transport within stable river sediments, Water Resources Research, Vol. 23(9), p. 1763-1768.

Schafer and Associates, MSU, and CH2M Hill (1989) Silver Bow Creek RI/FS streamside tailings and revegetation studies, STARS Phase III: Final Work Plan, MDHES Document No.SBC-STARS- Phase III-WP-F-R0-110-189.

Smedes, H.W. (1968) Preliminary geologic map of part of the Butte Montana Quadrangle, Silver Bow, Deer Lodge and Jefferson counties, Montana. USGS Geological Survey Open-File Report 86-254. Scale 1:36,000.

Snoeyink, V.L. and Jenkins, D. (1980) Water Chemistry, 463p.

Stanford, J.A. and Gaufin, A.R. (1974) Hyporheic communities of two Montana Rivers, Science 185: p. 700-702.

Stanford, J.A. and Ward, J.V. (1988) The hyporheic habitat of a river ecosystem. Nature (London) 335: p. 64-66.

Stiller and Associates (1985) Silver Bow Creek CERCLA remedial investigation: interim surface water and point source memorandum, for MDHES, 215p.

Titan Environmental Corporation (1995) Silver Bow Creek/Butte Area NPL Site Streamside Tailings Operable Unit RI/FS, Draft Remedial Investigation Report, Vol 1 and Vol 2, 240p.

Triska, F.J., Kennedy, V.C., Avanzino, R.J., Zellweger, G.W., and Bencala, K.E. (1989) Retention and transport of nutrients in a third-order stream in northwestern California: Hyporheic processes, Ecology 70(6): p. 1893-1905.

Vellidis, G., Lowrance, R., Smith, M.C. and Hubbard, R.K. (1993) Methods to assess the water quality impact of a restored riparian wetland, Journal of Soil and Water Science, 48: p. 223-230.

White, D.S., Elzinga, C.H., and Hendricks, S.P. (1987) Temperature patterns within the hyporheic zone of a northern Michigan river, Journal of North American Benthological Society, 6(2): p. 85-91.

Williams, D.D. and Hynes, H.B.N. (1974) The occurrence of benthos deep in the substratum of a stream, Freshwater Biology, 4: p. 233-256.

Woessner, W.W., Remenda, V.H., Ingelton, R., and Kuhnel, V. (1992) Design and installation of Small Diameter Piezometers to Characterize Flow and Transport in Lake Agasiz Clay, Proceedings of North Dakota Water Quality Symposium, p.292-301.

# APPENDIX A - Methods

## Instrumentation and Data Collection

### Piezometers, Wells and Staff Gages

From Methods Chapter III.

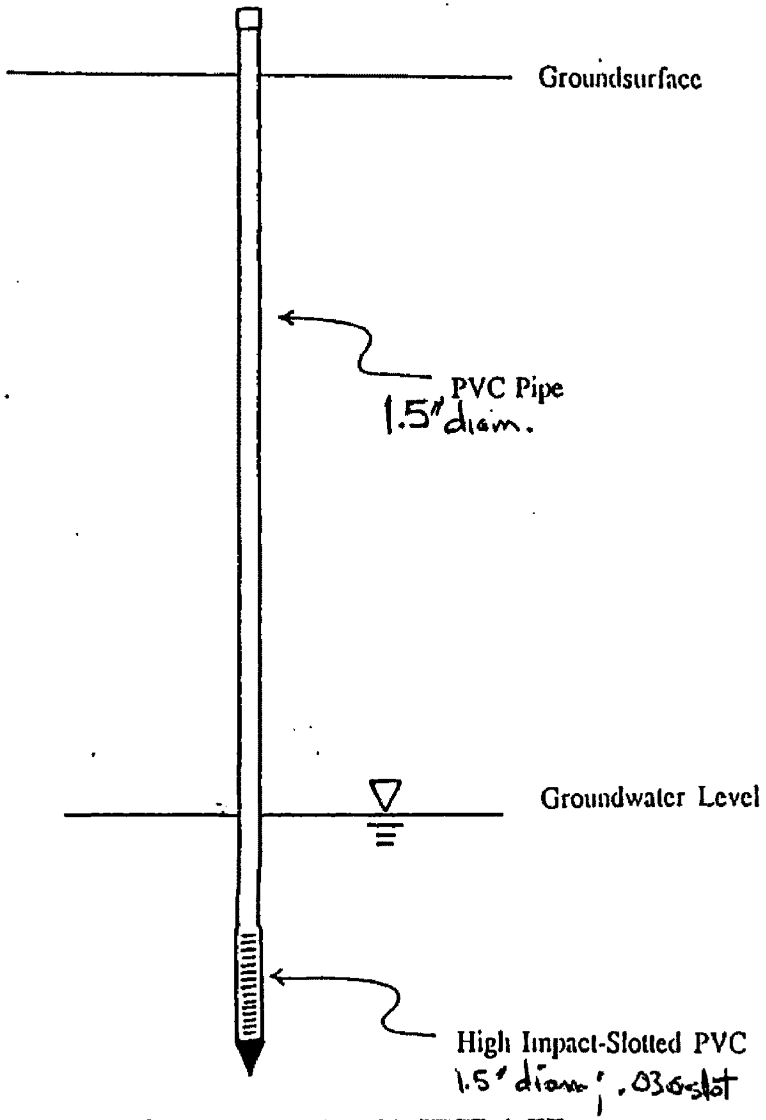
See attached figures.

### Stream Gaging

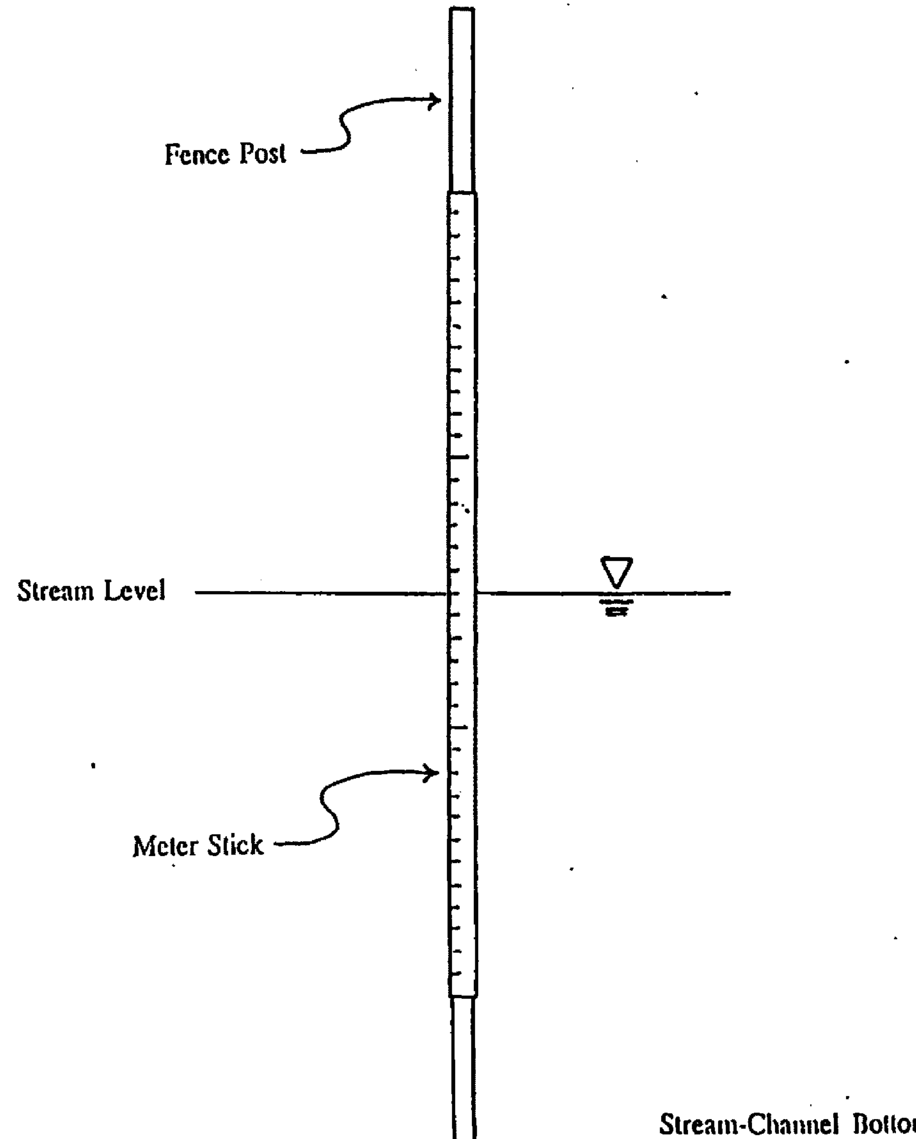
Stream discharge was measured using a March-McBurney water velocity meter. Discharge was measured at six location at the site. Water velocity measurements were obtained at 0.6 depth in the stream (Buchannon and Somers, 1969).

### Surveying

Well heads, staff gages and floodplain morphology were surveyed using plane table and auto-level methods. Survey control was a USGS bench mark (x5267)




PIEZOMETER DETAIL




STREAM GAGE

located south of the study area. Wellheads and staff gages were surveyed within 3.0mm of the datum.

## Seepage Meters

Seepage meters were installed in the creek bottom and walls of the creek to help confirm flux rates in and out of the stream. The seepage meters consisted of a 5-gallon can cut in half . The pour spout of the can was plugged with a rubber stopper. A plastic bag was attached, using Tygon tubing, to a hole in the stopper. The seepage rate was determined by measuring the volume of water that entered the bag over a period of time.

## Aquifer Testing

Hydrologic properties of the aquifer were estimated by performing slug tests, pumping tests and permeameter tests.

One 10 cm and two 5 cm diameter wells were installed with the aid of a hollow stem auger drilling rig for the aquifer pumping test. These wells were finished at 12 feet below the ground surface and screened across the water table. The well was pumped at 7.2 liters per minute for 17 hours. Water level changes were measured in the 5 cm wells and five additional piezometers using an In-situ, "Hermit 1000", data-logger equipped with pressure transducers, and by hand measurements. Discharge was measured using the bucket-stopwatch method.

Rising head slug tests were performed on 21, 3 cm diameter piezometers. Slug test were performed by lowering the pressure transducer and slug into the piezometer and allowing the water levels to stabilize. Water level measurements were monitored with a water level indicator before and after equipment was placed into the well to determine when water levels had stabilized. When the slug was removed from the well water levels were recorded using the above references data-logger.

Slug data was analyzed using graphical techniques and the AQTESOLV aquifer test solving program.

Water Sampling

Water samples were obtained from 0.95 cm tubing slotted and screened at the bottom, installed at various levels in the groundwater and beneath the stream channel. Small diameter tubes were used to limit groundwater exposure to oxygen and to minimize the purge volume necessary to obtain a representative sample. Groundwater quality data is summarized in Benner (1994). Groundwater was pumped with a peristaltic pump. Temperature, dissolved oxygen, pH and Eh were measured in-line during purging. Water samples were obtained after these measured parameters stabilized. Cation samples were filtered through a 0.45μm filter, then acidified using concentrated, trace metal grade HCl to bring the pH of the sample to 2.0. Cation samples were analyzed using a Thermo-Jarrel Ash ICP. Anion samples were filtered through a 0.45μm filter, then analyzed using a Dionex 2000 IC. Total alkalinity was measured using colorimetric titration.

# APPENDIX B - Well Boring Logs

FIELD LOG
LOCATION OF BORING

ELEVATION____

DRILLING CONTR. MBMG

BY Ews DATE____ CHKD BY____

| JOB # SBC | CLIENT | LOCATION Miles Cross. |
|---|---|---|
| DRILL RIG - B47 Mobile | | BORING # P30 |
| SAMPLING METHOD - 1" Continuous Sampler | | SHEET 1 of 1 |
| MONITORING WELL - | | DRILLING |
| DEPTH TO BOTTOM OF CASING - 18 | | START TIME 10am / FINISH TIME |
| WATER LEVEL | | |
| TIME | | |
| DATE | | START DATE 11/8/92 / FINISH DATE |
| FREE PRODUCT | | |

| SAMPLE TYPE | SAMPLE DEPTH | BLOWS PER FT | MOISTURE CONTENT | DRY UNIT WEIGHT | USCS CODE | FEET DEPTH | PID READING PPMV | EPA TEST ID | 1.5" Casing w/ Tygon tubing a top of screen |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 0 | | | Alluvium fine sand w/ silt, brn to orange brown, moist dense w/ abundant oxidation staining |
| | | | | | | 1 | | | |
| | | | | | | 2 | | | Coarse sand orange/brown moist medium dense w/ abundant oxidation staining |
| | | | | | | 3 | | | |
| | | | | | | 4 | | | |
| | | | | | | 5 | | | Cobbles w/ sand to coarse sand; Black to brown, wet cement w/ mag. + Iron [illegible] |
| | | | | | | 6 | | | |
| | | | | | | 7 | | | |
| | | | | | | 8 | | | sand w/ grades to large cobbles to 3" [illegible], loose |
| | | | | | | 9 | | | |
| | | | | | | 10 | | | |
| | | | | | | 1 | | | |
| | | | | | | 2 | | | Bedrock Clay w/ lithic fragments green, stiff, moist possibly weathered tuff |
| | | | | | | 13 | | | |
| | | | | | | 4 | | | |
| | | | | | | 5 | | | |
| | | | | | | 6 | | | End @ 18' Water @ 6' Set casing at 18' w/ 6' of .030 slot at bottom |
| | | | | | | 7 | | | |
| | | | | | | 18 | | | |
| | | | | | | 9 | | | |
| | | | | | | 0 | | | |

FIELD LOG
LOCATION OF BORING

| JOB# | CLIENT | LOCATION M.les Crossi[illegible] |
|---|---|---|
| DRILL RIG – | | BORING # P31 |
| SAMPLING METHOD – | | SHEET 1 of 1 |
| MONITORING WELL – | | DRILLING |
| DEPTH TO BOTTOM OF CASING – 23 feet | | START / FINISH |
| WATER LEVEL | | TIME / TIME |
| TIME | | |
| DATE | | DATE 11/8/92 / DATE |
| FREE PRODUCT | | |

ELEVATION

DRILLING CONTR.

BY / DATE / CHKD BY

| SAMPLE TYPE | SAMPLE DEPTH | BLOWS PER FT | MOISTURE CONTENT | DRY UNIT WEIGHT | USCS CODE | FEET DEPTH | PID READING PPMV | EPA TEST ID | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 0 | | | Alluvium fine to Med Sand w/ silt orange/brown, moist, dense w/ abundant oxidation stains |
| | | | | | | 1 | | | |
| | | | | | | 2 | | | Coarse sand w/ silt & fine sand orange/brn, moist, dense. |
| | | | | | | 3 | | | |
| | | | | | | 4 | | | |
| | | | | | | 5 | | | |
| | | | | | | 6 | | | Water |
| | | | | | | 7 | | | Coarse sand w/ Cobbles, brn/blk wet [illegible] |
| | | | | | | 8 | | | Coarse sand w/ cobbles, [illegible] wet loose |
| | | | | | | 9 | | | |
| | | | | | | 10 | | | |
| | | | | | | 1 | | | |
| | | | | | | 2 | | | |
| | | | | | | 13 | | | Bedrock 13–25 ft |
| | | | | | | 4 | | | Weathered [illegible] Clay w/ |
| | | | | | | 5 | | | rock frags, green, moist, stiff |
| | | | | | | 6 | | | |
| | | | | | | 7 | | | |
| | | | | | | 8 | | | |
| | | | | | | 9 | | | |
| | | | | | | 0 | 25' | | End @ 25' Set casing @ 23' water @ 6.5' |

FIELD LOG
LOCATION OF BORING

| JOB # | CLIENT | LOCATION |
|---|---|---|
| DRILL RIG – | | BORING # P32 |
| SAMPLING METHOD – | | SHEET 2 of 7 |
| MONITORING WELL – | | DRILLING |
| DEPTH TO BOTTOM OF CASING – | | START / FINISH |
| WATER LEVEL | | TIME 11 / TIME |
| TIME | | |
| DATE | | DATE 11/8 / DATE |
| FREE PRODUCT | | |

ELEVATION______

DRILLING CONTR.______

BY______ DATE______ CHKD BY______

| SAMPLE TYPE | SAMPLE DEPTH | BLOWS PER FT | MOISTURE CONTENT | DRY UNIT WEIGHT | USCS CODE | FEET DEPTH | PID READING PPMV | EPA TEST ID | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 0 | | | Alluvium Fine Grained tailings Same as P31 & P30 |
| | | | | | | 1 | | | → Coarse Sand |
| | | | | | | 2 | | | |
| | | | | | | 3 | | | Placer tailings Same as P30 31 |
| | | | | | | 4 | | | |
| | | | | | | 5 | | | reduced zone in saturated fines? magnesium/Iron Cement |
| | | | | | | 6 | | | Water |
| | | | | | | 7 | | | |
| | | | | | | 8 | | | Coarse sands w/ Gravel |
| | | | | | | 9 | | | |
| | | | | | | 0 | | | |
| | | | | | | 1 | | | Clay (Weathered Bedrock) |
| | | | | | | 12 | | | |
| | | | | | | 13 | | | |
| | | | | | | 4 | | | End @ 13' Water @ 6' No Caving |
| | | | | | | 5 | | | Set well (1" .030 Slot) @ 13' |
| | | | | | | 6 | | | Tygon Tubes attached above screen |
| | | | | | | 7 | | | |
| | | | | | | 8 | | | |
| | | | | | | 9 | | | |
| | | | | | | 0 | | | |

## FIELD LOG
## LOCATION OF BORING

| JOB # | CLIENT | LOCATION |
|---|---|---|
| | | |

DRILL RIG – B47 Mobile

BORING # P33

SAMPLING METHOD –

SHEET

MONITORING WELL –

DEPTH TO BOTTOM OF CASING –

| | | | | |
|---|---|---|---|---|
| WATER LEVEL | | | | |
| TIME | | | | |
| DATE | | | | |
| FREE PRODUCT | | | | |

| DRILLING | |
|---|---|
| START | FINISH |
| TIME ~~10~~ 8 | TIME |
| DATE 11/8/92 | DATE |

ELEVATION________

DRILLING CONTR.______

BY______ DATE______ CHKD BY______

| SAMPLE TYPE | SAMPLE DEPTH | BLOWS PER FT | MOISTURE CONTENT | DRY UNIT WEIGHT | USCS CODE | FEET DEPTH | PID READING PPMV | EPA TEST ID | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Alluvium |
| | | | | | | 0 | | | fine Sand w/ silt, |
| | | | | | | 1 | | | ("tailings"), orange brn |
| | | | | | | 2 | | | Grades to coarse sand |
| | | | | | | 3 | | | |
| | | | | | | 4 | | | |
| | | | | | | 5 | | | Water |
| | | | | | | 6 | | | Coarse sand w/ cobbles |
| | | | | | | 7 | | | |
| | | | | | | 8 | | | Abundant Cobbles |
| | | | | | | 9 | | | |
| | | | | | | 0 | | | |
| | | | | | | 1 | | | |
| | | | | | | 2 | | | Bedrock ~~?~~ Clay (Weathered Tuff) |
| | | | | | | 13 | | | |
| | | | | | | 4 | | | Clay w/ green volcanic rock chips (Andesite?) |
| | | | | | | 5 | | | graded to slightly weathered volcanics |
| | | | | | | 6 | | | brown, wet angular |
| | | | | | | 7 | | | |
| | | | | | | 8 | | | |
| | | | | | | 9 | | | |
| | | | | | | 0 | | | |

**FIELD LOG**
**LOCATION OF BORING**

| JOB # | CLIENT | LOCATION |
|---|---|---|
| DRILL RIG - | | BORING # P34 |
| SAMPLING METHOD - | | SHEET |
| MONITORING WELL - | | |
| DEPTH TO BOTTOM OF CASING - | | DRILLING START TIME 1558 / FINISH TIME |
| WATER LEVEL | | |
| TIME | | |
| DATE | | START DATE 11/8/92 / FINISH DATE |
| FREE PRODUCT | | |

ELEVATION______

DRILLING CONTR.______

BY______ DATE______ CHKD BY______

| SAMPLE TYPE | SAMPLE DEPTH | BLOWS PER FT | MOISTURE CONTENT | DRY UNIT WEIGHT | USCS CODE | FEET DEPTH | PID READING PPMV | EPA TEST ID | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 0 | | | Alluvium Tailings |
| | | | | | | 1 | | | Fine |
| | | | | | | 2 | | | Coarse sand, orange staining |
| | | | | | | 3 | | | |
| | | | | | | 4 | | | |
| | | | | | | 5 | | | Water ▼ |
| | | | | | | 6 | | | Coarse sand w/ cobbles |
| | | | | | | 7 | | | |
| | | | | | | 8 | | | |
| | | | | | | 9 | | | |
| | | | | | | 0 | | | |
| | | | | | | 1 | | | |
| | | | | | | 2 | | | |
| | | | | | | 3 | | | Bedrock |
| | | | | | | 4 | | | Same as P33 |
| | | | | | | 5 | | | |
| | | | | | | 6 | | | |
| | | | | | | 7 | | | |
| | | | | | | 8 | | | |
| | | | | | | 9 | | | |
| | | | | | | 0 | | | |

**FIELD LOG**
**LOCATION OF BORING**

| JOB# | CLIENT | LOCATION |
|---|---|---|
| DRILL RIG – | | BORING # P3S |
| SAMPLING METHOD – | | SHEET |
| MONITORING WELL – | | |
| DEPTH TO BOTTOM OF CASING – | | DRILLING START / FINISH |
| WATER LEVEL | | START TIME / FINISH TIME |
| TIME | | |
| DATE | | DATE 11/9 / DATE |
| FREE PRODUCT | | |

ELEVATION______

DRILLING CONTR.______

BY______ DATE______ CHKD BY______

| SAMPLE TYPE | SAMPLE DEPTH | BLOWS PER FT. | MOISTURE CONTENT | DRY UNIT WEIGHT | USCS CODE | FEET DEPTH | PID READING PPMV | EPA TEST ID | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 0 | | | Alluvium (Tailings) – Fine sand w/ silt mottled brn/orange, moist loose. |
| | | | | | | 1 | | | |
| | | | | | | 2 | | | |
| | | | | | | 3 | | | Coarse sand, mottled brn/orange |
| | | | | | | 4 | | | |
| | | | | | | 5 | | | Water (encountered @ WT) |
| | | | | | | 6 | | | Cobbles w/ sand grey, wet loose |
| | | | | | | 7 | | | |
| | | | | | | 8 | | | |
| | | | | | | 9 | | | |
| | | | | | | 0 | | | |
| | | | | | | 1 | | | |
| | | | | | | 2 | | | |
| | | | | | | 13 | | | Bedrock Clay w/ lithic frags, green, moist, stiff to firm |
| | | | | | | 4 | | | |
| | | | | | | 5 | | | |
| | | | | | | 6 | | | Grades Stiffer w/ depth |
| | | | | | | 7 | | | |
| | | | | | | 8 | | | |
| | | | | | | 9 | | | |
| | | | | | | 20 | 25 | | End @ 25, set well @ 23 (6" .030) Sand pack 25-20 ft / Bentonite to surf. |

| JOB# | CLIENT | LOCATION |
|---|---|---|
| DRILL RIG – | | BORING # P36 |
| SAMPLING METHOD – | | SHEET |
| MONITORING WELL – | | |
| DEPTH TO BOTTOM OF CASING – | | DRILLING START / FINISH |

FIELD LOG
LOCATION OF BORING

| WATER LEVEL | | | | | START TIME | FINISH TIME |
|---|---|---|---|---|---|---|
| TIME | | | | | | |
| DATE | | | | | DATE 11/9/92 | DATE |
| FREE PRODUCT | | | | | | |

ELEVATION________

| SAMPLE TYPE | SAMPLE DEPTH | BLOWS PER FT | MOISTURE CONTENT | DRY UNIT WEIGHT | USCS CODE | FEET DEPTH | PID READING PPMV | EPA TEST ID | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 0 | | | Alluvium (Tailings) |
| | | | | | | 1 | | | Same as P35 |
| | | | | | | 2 | | | |
| | | | | | | 3 | | | |
| | | | | | | 4 | | | |
| | | | | | | 5 | | | Water |
| | | | | | | 6 | | | Sand w/ cobbles |
| | | | | | | 7 | | | |
| | | | | | | 8 | | | |
| | | | | | | 9 | | | |
| | | | | | | 0 | | | |
| | | | | | | 1 | | | |
| | | | | | | 2 | | | |
| | | | | | | 13 | | | Bedrock Weathered to Clay |
| | | | | | | 4 | | | |
| | | | | | | 5 | | | |
| | | | | | | 6 | | | |
| | | | | | | 7 | | | |
| | | | | | | 18 | | | End @ 18' Well set @ 18' (6" .030 Slot) |
| | | | | | | 9 | | | |
| | | | | | | 0 | | | |

DRILLING CONTR.________

BY________ DATE________ CHKD BY________

FIELD LOG
LOCATION OF BORING

| | |
|---|---|
| JOB # SBC | CLIENT |
| LOCATION Miles Crossing | BORING # P37 |
| DRILL RIG - 847 Mobile Drill | SHEET |
| SAMPLING METHOD - | |
| MONITORING WELL - | |
| DEPTH TO BOTTOM OF CASING - | |

| | | | | |
|---|---|---|---|---|
| WATER LEVEL | | | | |
| TIME | | | | |
| DATE | | | | |
| FREE PRODUCT | | | | |

| DRILLING | |
|---|---|
| START | FINISH |
| TIME | TIME |
| DATE 11/9/92 | DATE |

ELEVATION______

| SAMPLE TYPE | SAMPLE DEPTH | BLOWS PER FT | MOISTURE CONTENT | DRY UNIT WEIGHT | USCS CODE | FEET DEPTH | PID READING PPMV | EPA TEST ID | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 0 | | | Alluvium Same as P35 |
| | | | | | | 1 | | | Tailings |
| | | | | | | 2 | | | |
| | | | | | | 3 | | | → Coarse sand w/ fine sand stringers brown/orange moist, dense |
| | | | | | | 4 | | | |
| | | | | | | 5 | | | |
| | | | | | | 6 | | | → Water ▼ |
| | | | | | | 7 | | | → Cobbles w/ sand grey wet loose |
| | | | | | | 8 | | | |
| | | | | | | 9 | | | |
| | | | | | | 0 | | | Coarse sand w/ cobbles |
| | | | | | | 1 | | | |
| | | | | | | 2 | | | → Bedrock Clay, Green, moist firm |
| | | | | | | 13 | | | |
| | | | | | | 4 | | | → End @ 13' Set well @ 13' (6" of .030) Sand Pack to 8' Bentonite to surface |
| | | | | | | 5 | | | |
| | | | | | | 6 | | | |
| | | | | | | 7 | | | |
| | | | | | | 8 | | | |
| | | | | | | 9 | | | |
| | | | | | | 0 | | | |

DRILLING CONTR.______

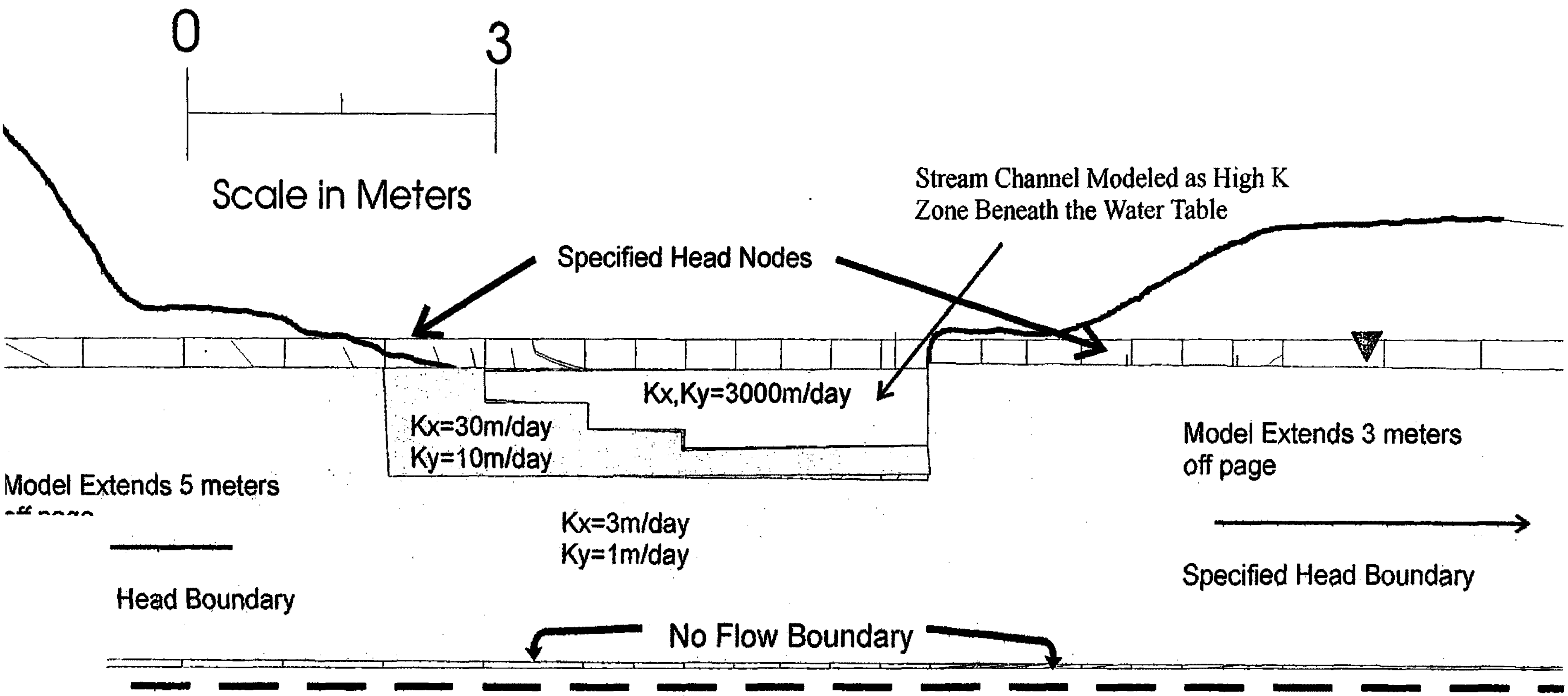
BY______ DATE______ CHKD BY______

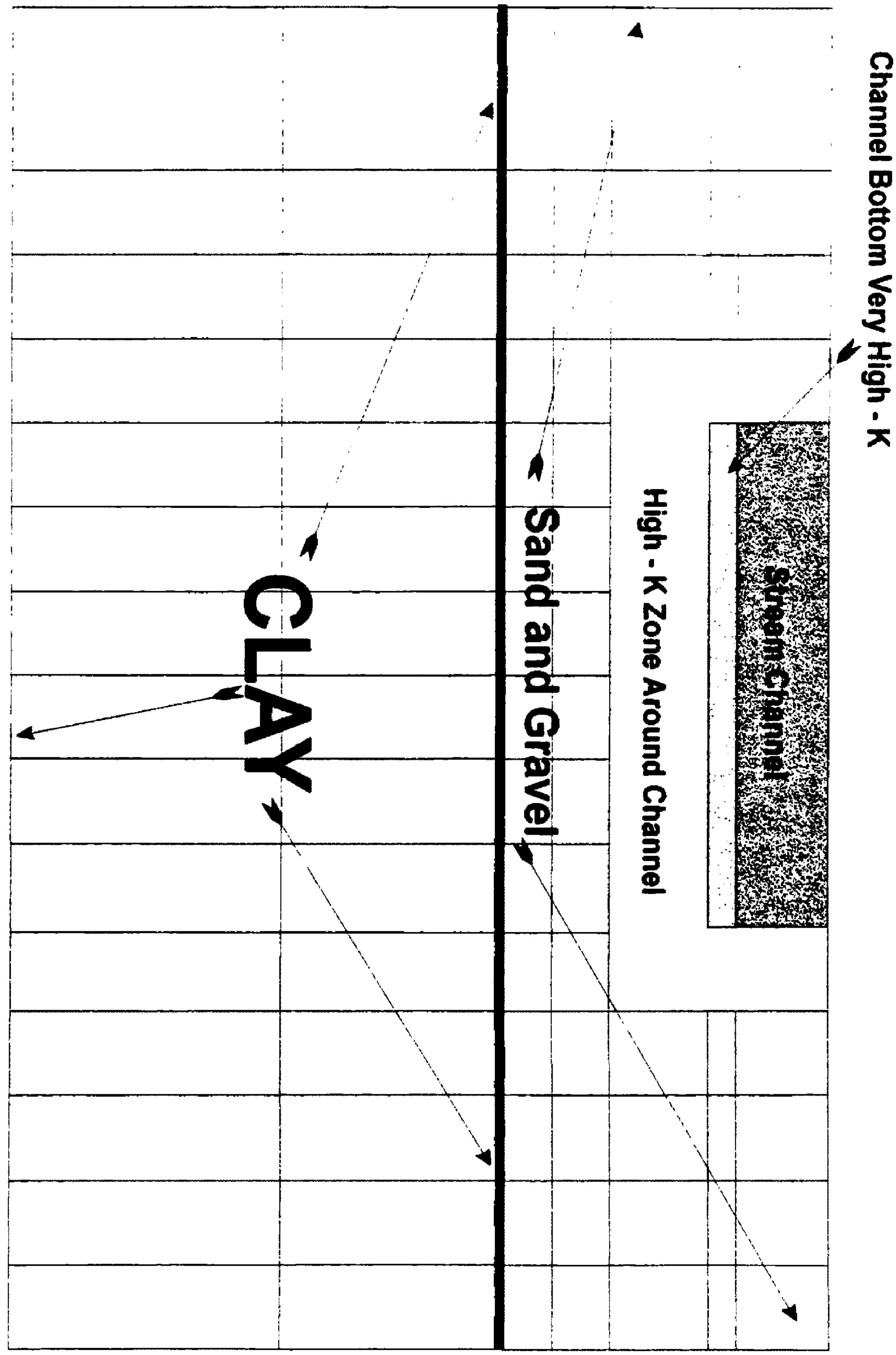
| | | Well Construction Info | | | | |
|---|---|---|---|---|---|---|
| | | | | | | |
| | Wellhead | | | | Total | Aquifer |
| | Elev | Construct | Screen | Date | Depth | Unit |
| P1 | 5261.79 | 1.25" ID PVC | 6" | | 8.27' | Sand and Gravel |
| P2 | 5260.1 | 1.25" ID PVC | 6" | | 5.95' | Sand and Gravel |
| P3 | 5261.95 | 1.25" ID PVC | 6" | | 6.65' | Sand and Gravel |
| P4 | 5261.93 | 1.25" ID PVC | 6" | | 60" | Sand and Gravel |
| P5* | 5265.07 | 1.25" ID PVC | 6" | | ? | Sand and Gravel |
| P6* | 5264.38 | 1.25" ID PVC | 6" | | 96" | Sand and Gravel |
| P8* | 5259.67 | 1.25" ID PVC | 6" | | 24" | Sand and Gravel |
| P9* | 5263.68 | 1.25" ID PVC | 6" | | 56" | Sand and Gravel |
| P10 | 5262.04 | 1.25" ID PVC | 6" | | 8.3' | Sand and Gravel |
| P11* | 5258.62 | 1.25" ID PVC | 6" | | 32" | Sand and Gravel |
| P12 | 5262.23 | 1.25" ID PVC | 6" | | 84" | Sand and Gravel |
| P13 | 5260.2 | 1.25" ID PVC | 6" | | 48" | Sand and Gravel |
| P14 | 5261.86 | 1.25" ID PVC | 6" | | 60" | Sand and Gravel |
| P15 | 5260.06 | 1.25" ID PVC | 6" | | 70" | Sand and Gravel |
| P16 | 5258.4 | 1.25" ID PVC | 6" | | 60" | Sand and Gravel |
| P17* | 5258.1 | 1.25" ID PVC | 6" | | 70" | Sand and Gravel |
| P18 | 5261.69 | 1.25" ID PVC | 6" | | 82" | Sand and Gravel |
| P19 | 5261.7 | 1.25" ID PVC | 6" | | 72" | Sand and Gravel |
| P20 | 5258.04 | 1.25" ID PVC | 6" | | 48" | Sand and Gravel |
| P21 | 5259.71 | 1.25" ID PVC | 6" | | 40" | Sand and Gravel |
| P22 | 5257.71 | 1.25" ID PVC | 6" | | 60" | Sand and Gravel |
| P23 | 5260.81 | 1.25" ID PVC | 6" | | 8.2' | Sand and Gravel |
| P24 | 5260.44 | 1.25" ID PVC | 6" | | 7.04' | Sand and Gravel |
| P25* | 5264.4 | 1.25" ID PVC | 6" | | | Sand and Gravel |
| P26 | 5257.67 | 1.25" ID PVC | 6" | | 24" | Sand and Gravel |
| P27 | 5258.72 | 1.25" ID PVC | 6" | | | Sand and Gravel |
| P28 | 5258.1 | 1.25" ID PVC | 6" | | 3.67' | Sand and Gravel |
| P29 | 5258.61 | 1.25" ID PVC | 6" | | | Sand and Gravel |
| P30* | 5262.005 | 1.25" ID PVC | 6" | | 14.5' | Clay |
| P31* | 5261.96 | 1.25" ID PVC | 6" | | 26' | Clay |
| P32* | 5261.89 | 1.25" ID PVC | 6" | | 18' | Clay |
| P33 | 5261.41 | 1.25" ID PVC | 6" | | 19' | Clay |
| P34 | 5261.49 | 1.25" ID PVC | 6" | | 14' | Clay |
| P35 | 5260.63 | 1.25" ID PVC | 6" | | 24' | Clay |
| P36 | 5260.61 | 1.25" ID PVC | 6" | | 18' | Clay |
| P37 | 5260.45 | 1.25" ID PVC | 6" | | 14' | Clay |
| P38 | 5257.44 | 1.25" ID PVC | 6" | | 3.95' | Sand and Gravel |
| P39 | 5262.23 | 1.25" ID PVC | 6" | | | Sand and Gravel |
| P40 | 5259.34 | 1.25" ID PVC | 6" | | | Sand and Gravel |
| P41 | 5260.78 | 1.25" ID PVC | 6" | | 7.9' | Sand and Gravel |
| P42 | 5261.59 | 1.25" ID PVC | 6" | | | Sand and Gravel |
| P43 | 5261.53 | 1.25" ID PVC | 6" | | 8.46' | Sand and Gravel |
| P44 | 5258.58 | 1.25" ID PVC | 6" | | | Sand and Gravel |
| P45 | 5257.62 | 1.25" ID PVC | 6" | | | Sand and Gravel |
| P46 | 5261.73 | 1.25" ID PVC | 6" | | | Sand and Gravel |

| | | | | | | |
|---|---|---|---|---|---|---|
| P47 | 5262.1 | 1.25" ID PVC | 6" | | | Sand and Gravel |
| P48 | 5257.5 | 1.25" ID PVC | 6" | | | Sand and Gravel |
| P49 | 5256.22 | 1.25" ID PVC | 6" | | | Sand and Gravel |
| P50 | 5256.28 | 1" Steel | open | | 4.14' | Sand and Gravel |
| P51 | 5257.24 | 1" Steel | open | | | Sand and Gravel |
| P52 | 5257.01 | 1" Steel | open | | 9" | Sand and Gravel |
| P53 | | 1.25" ID PVC | 6" | | | Sand and Gravel |
| P54 | | 1.25" ID PVC | 6" | | 5.9' | Sand and Gravel |
| P55 | | 1.25" ID PVC | 6" | | 9.15' | Sand and Gravel |
| MW1 | 5261.71 | 2" ID PVC | 5' | | 8' | Sand and Gravel |
| MW2 | 5261.67 | 2" ID PVC | 5' | | 8' | Sand and Gravel |
| MW3 | 5261.13 | 4" ID PVC | 10' | | 10' | Sand and Gravel |
| SG80 | 5261.45 | Post | N/A | | | N/A |
| SG90 | 5260.75 | Post | N/A | | | N/A |
| SG99 | 5258.91 | Post | N/A | | | N/A |
| SG105 | 5259.42 | Post | N/A | | | N/A |
| SG107 | 5259.11 | Post | N/A | | | N/A |
| SG110 | 5259.15 | Post | N/A | | | N/A |
| SG121 | 5258.44 | Post | N/A | | | N/A |
| SG130 | 5257.98 | Post | N/A | | | N/A |
| SG140 | 5256.66 | Post | N/A | | | N/A |
| SG150* | 5256.3 | Post | N/A | | | N/A |

# APPENDIX C - Model Discretization

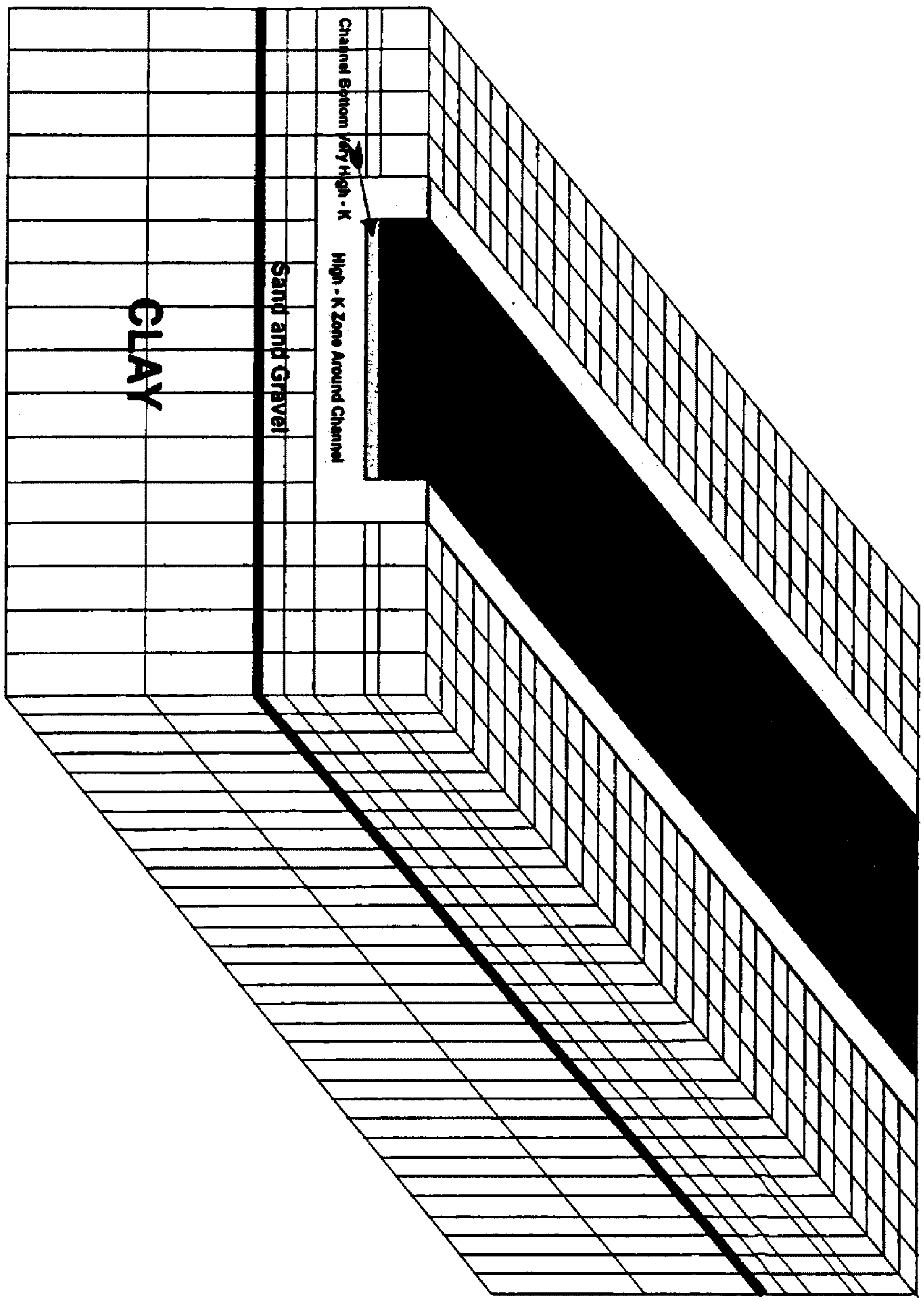
# Flowpath Model Discretization



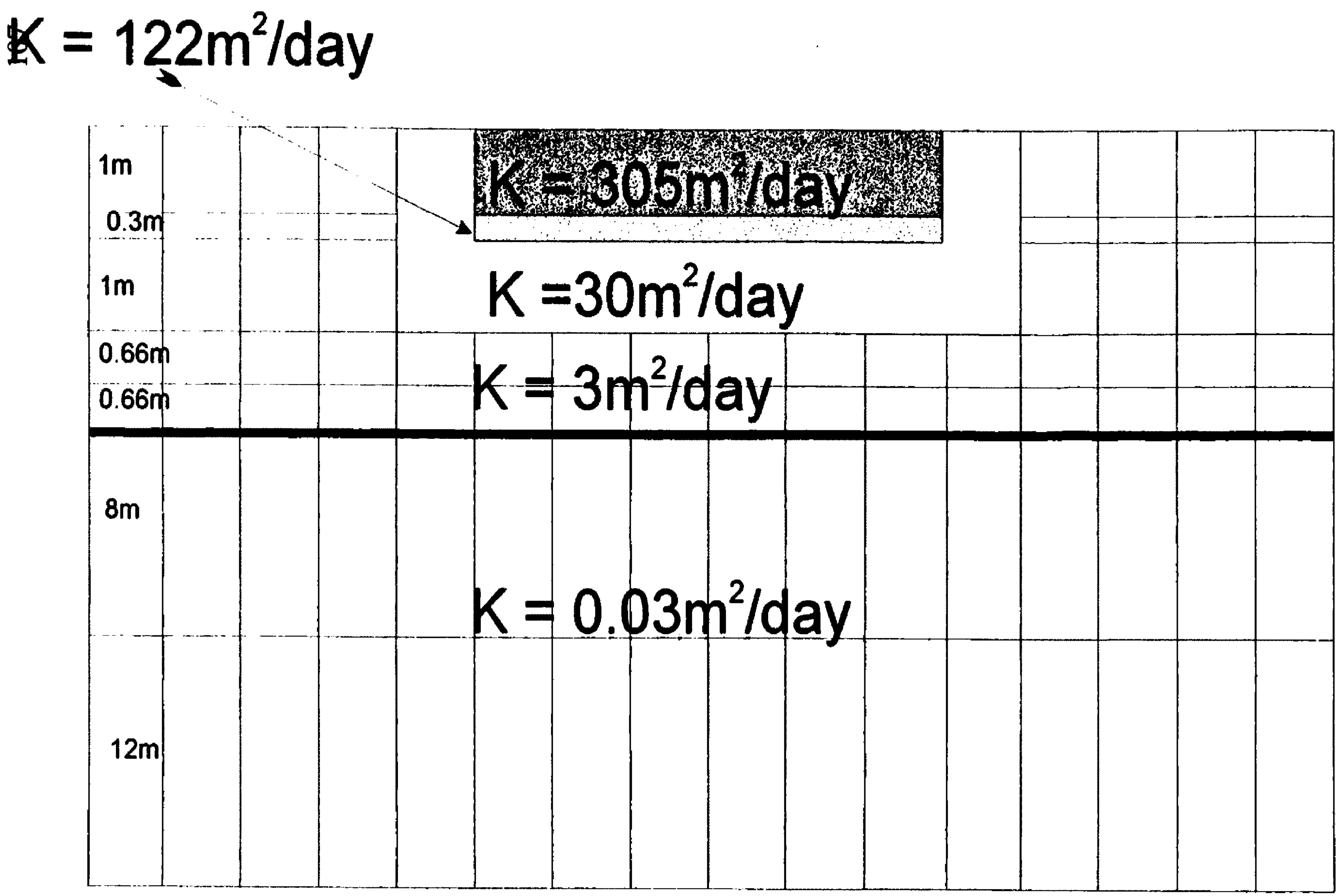



Modflow

**REPRESENTATION OF STREAM AND STREAM CHANNEL**

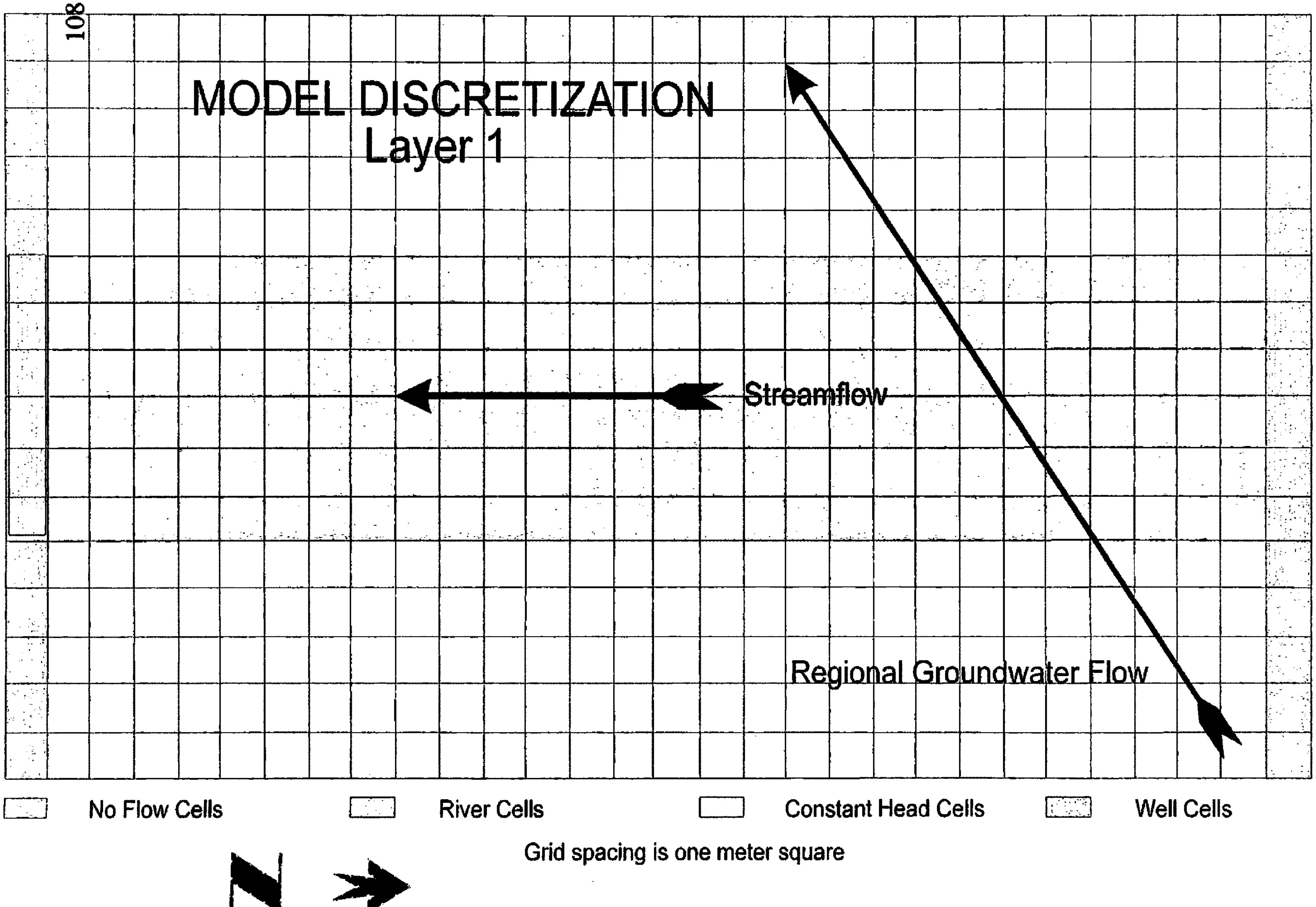


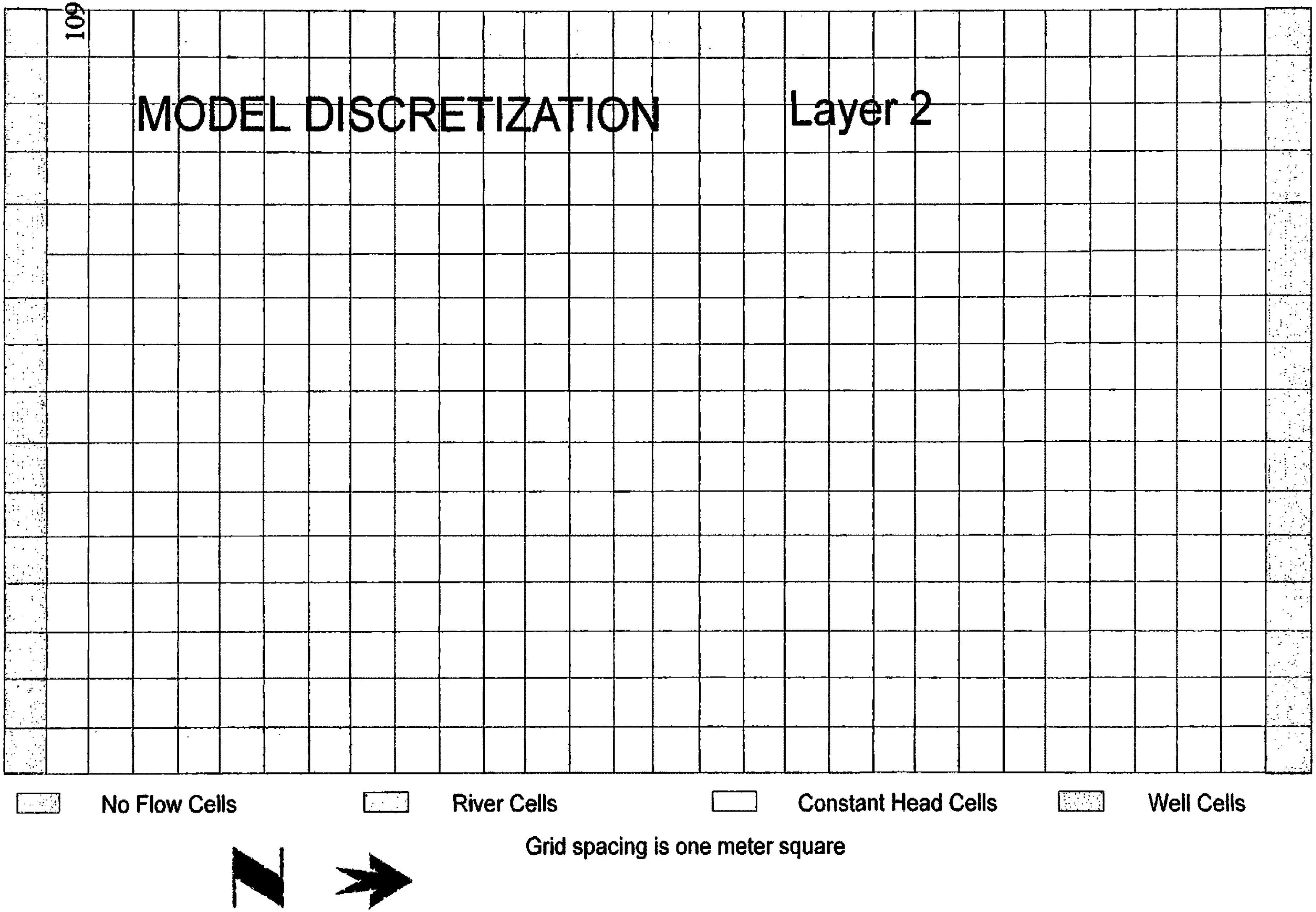

REPRESENTATION OF STREAM AND STREAM CHANNEL

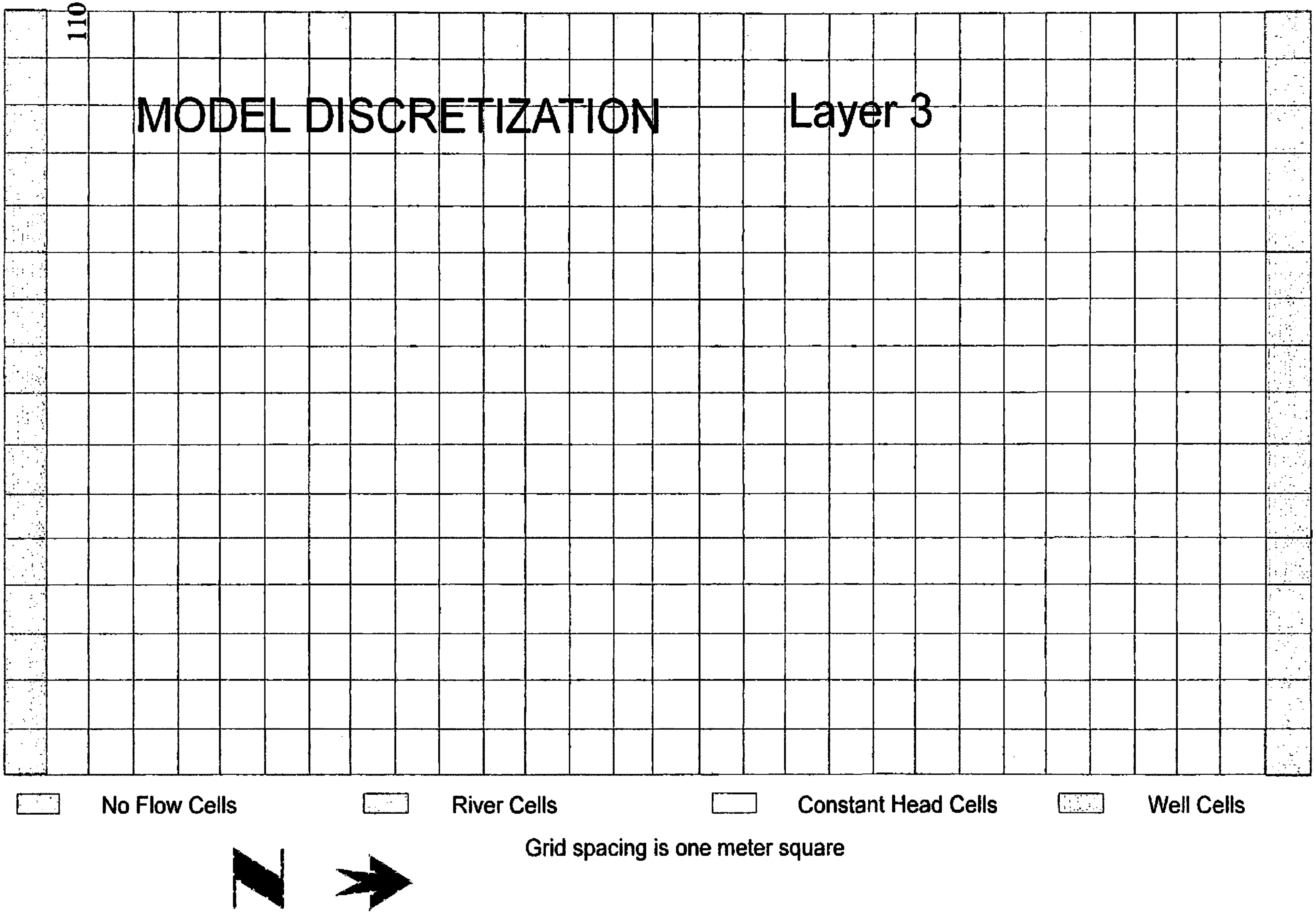


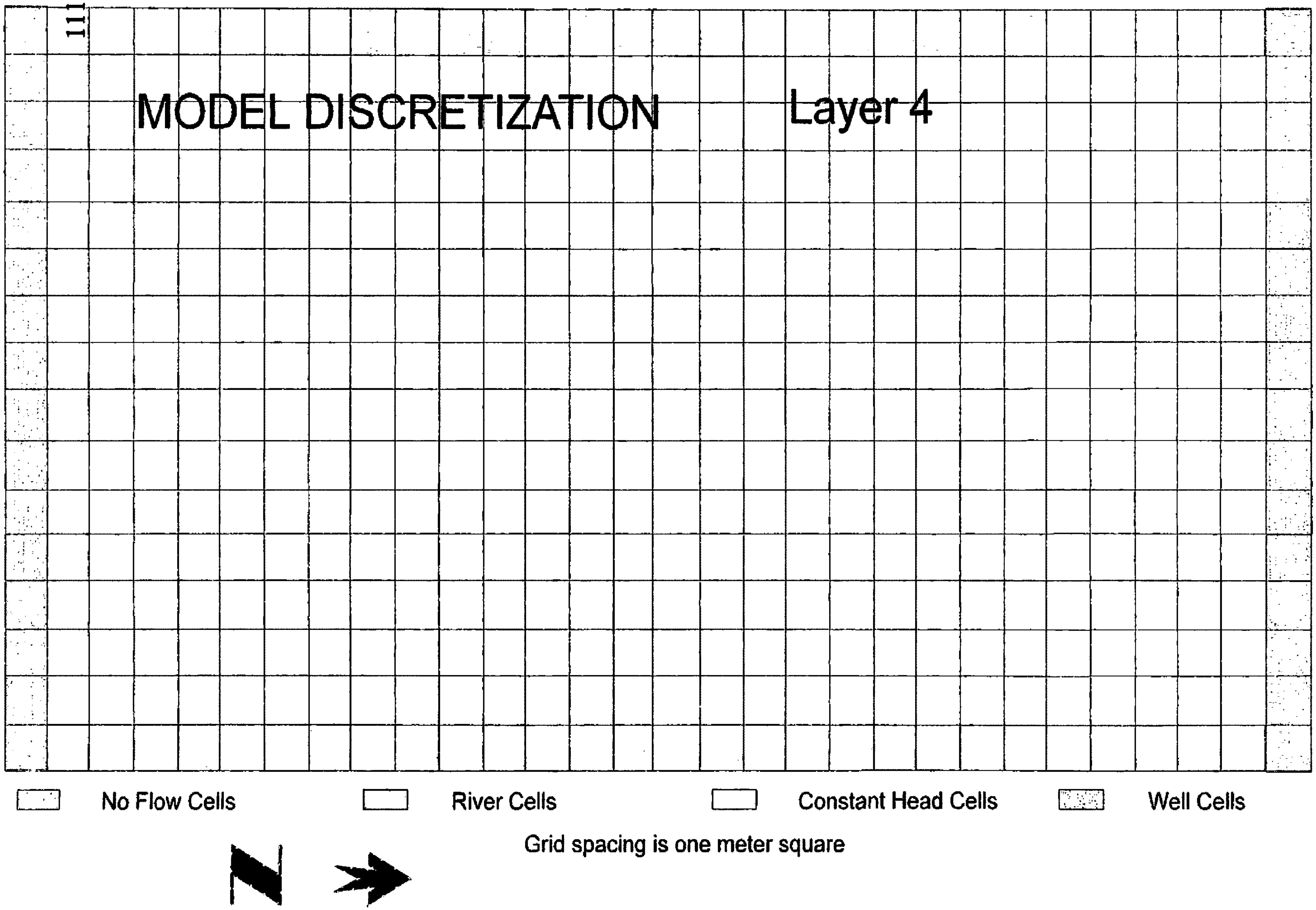

Modflow

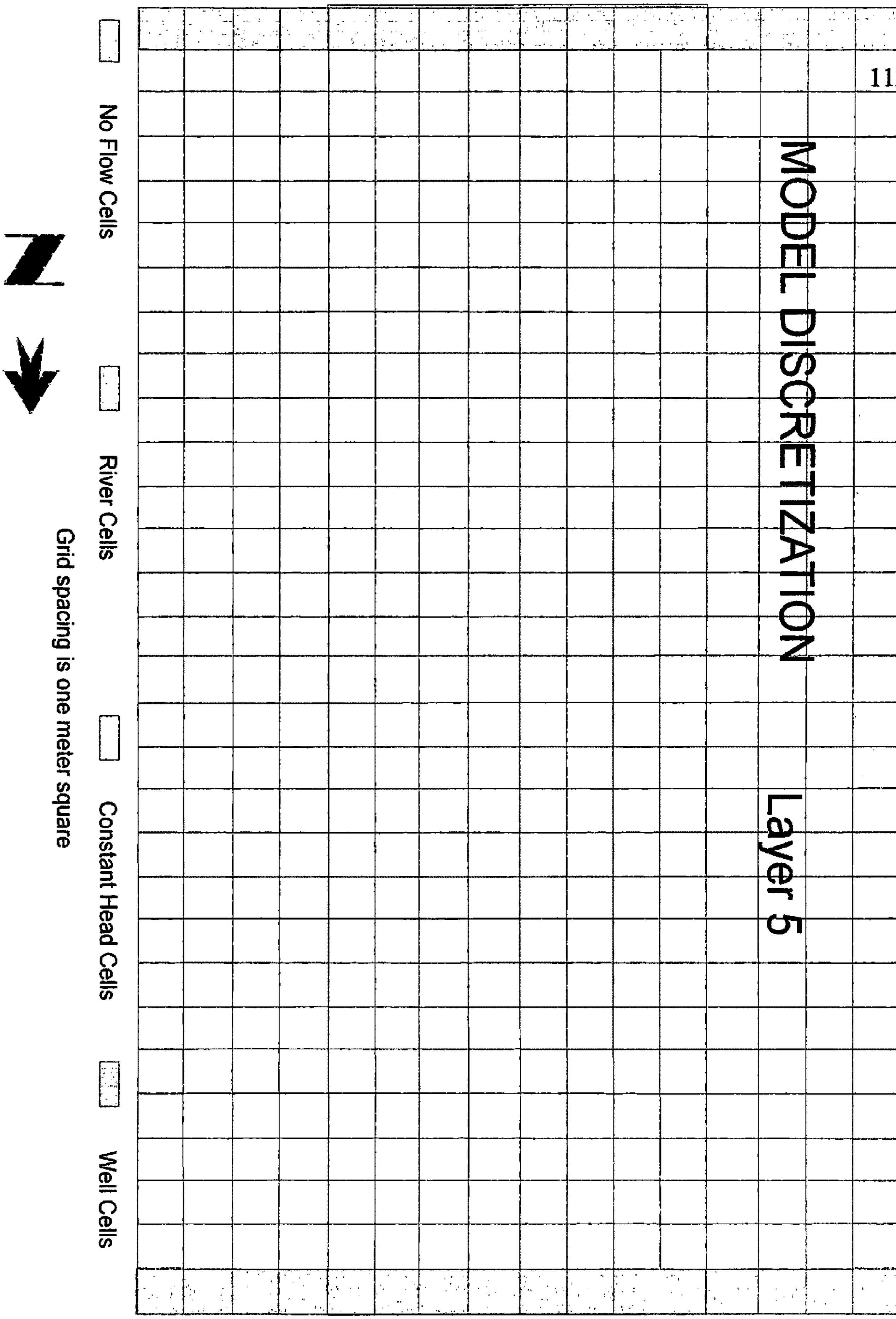
**A profile view of the model Hydraulic Conductivity Values (K) and the layer thicknesses.**

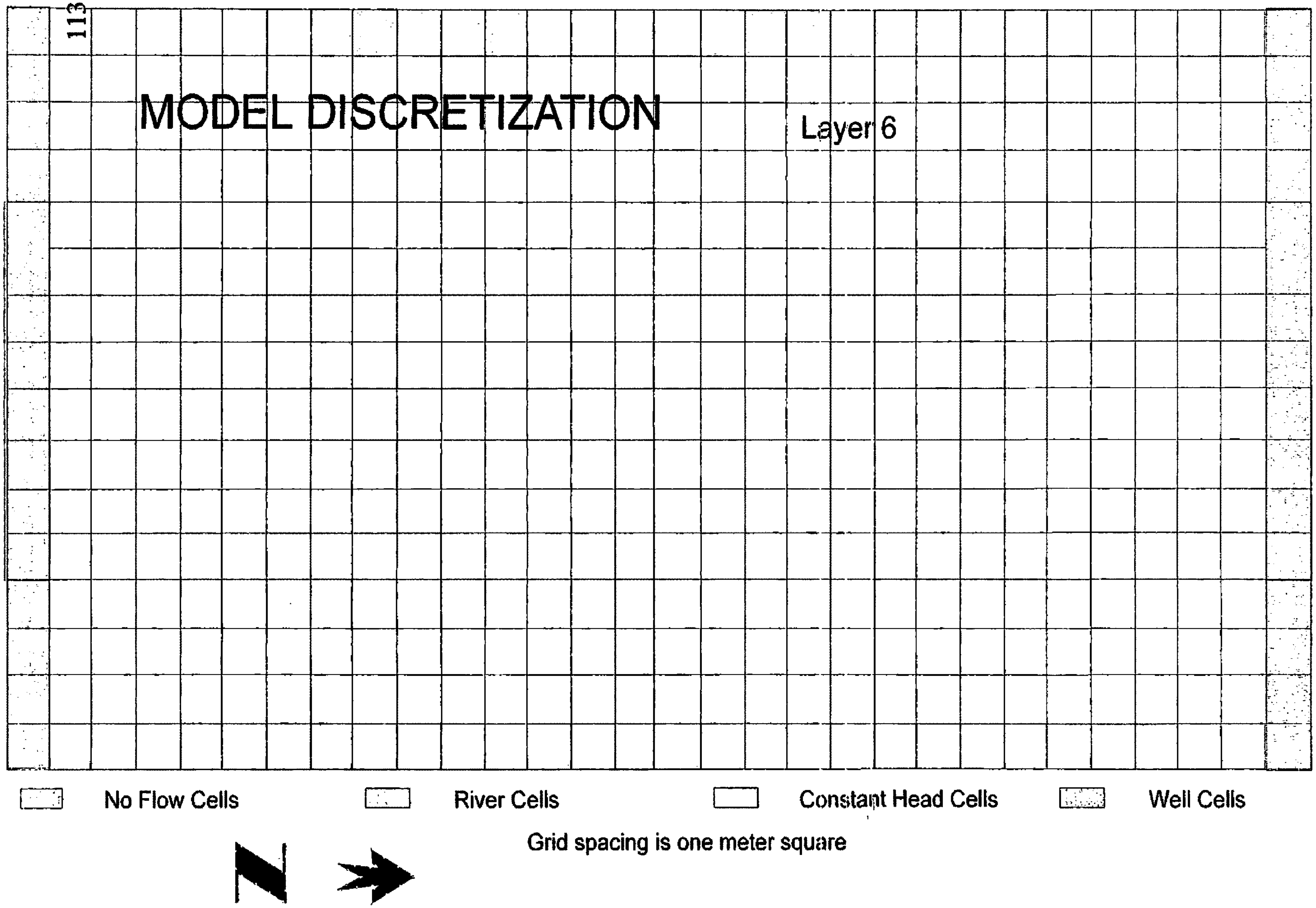

MODEL DISCRETIZATION
Layer 1
Streamflow
Regional Groundwater Flow
No Flow Cells
River Cells
Constant Head Cells
Well Cells
Grid spacing is one meter square
N


MODEL DISCRETIZATION
Layer 2
No Flow Cells
River Cells
Constant Head Cells
Well Cells
Grid spacing is one meter square
N


MODEL DISCRETIZATION
Layer 3
No Flow Cells
River Cells
Constant Head Cells
Well Cells
Grid spacing is one meter square


MODEL DISCRETIZATION
Layer 4
No Flow Cells
River Cells
Constant Head Cells
Well Cells
Grid spacing is one meter square
N


MODEL DISCRETIZATION
Layer 5
No Flow Cells
River Cells
Constant Head Cells
Well Cells
N
Grid spacing is one meter square


MODEL DISCRETIZATION
Layer 6
No Flow Cells
River Cells
Constant Head Cells
Well Cells
Grid spacing is one meter square
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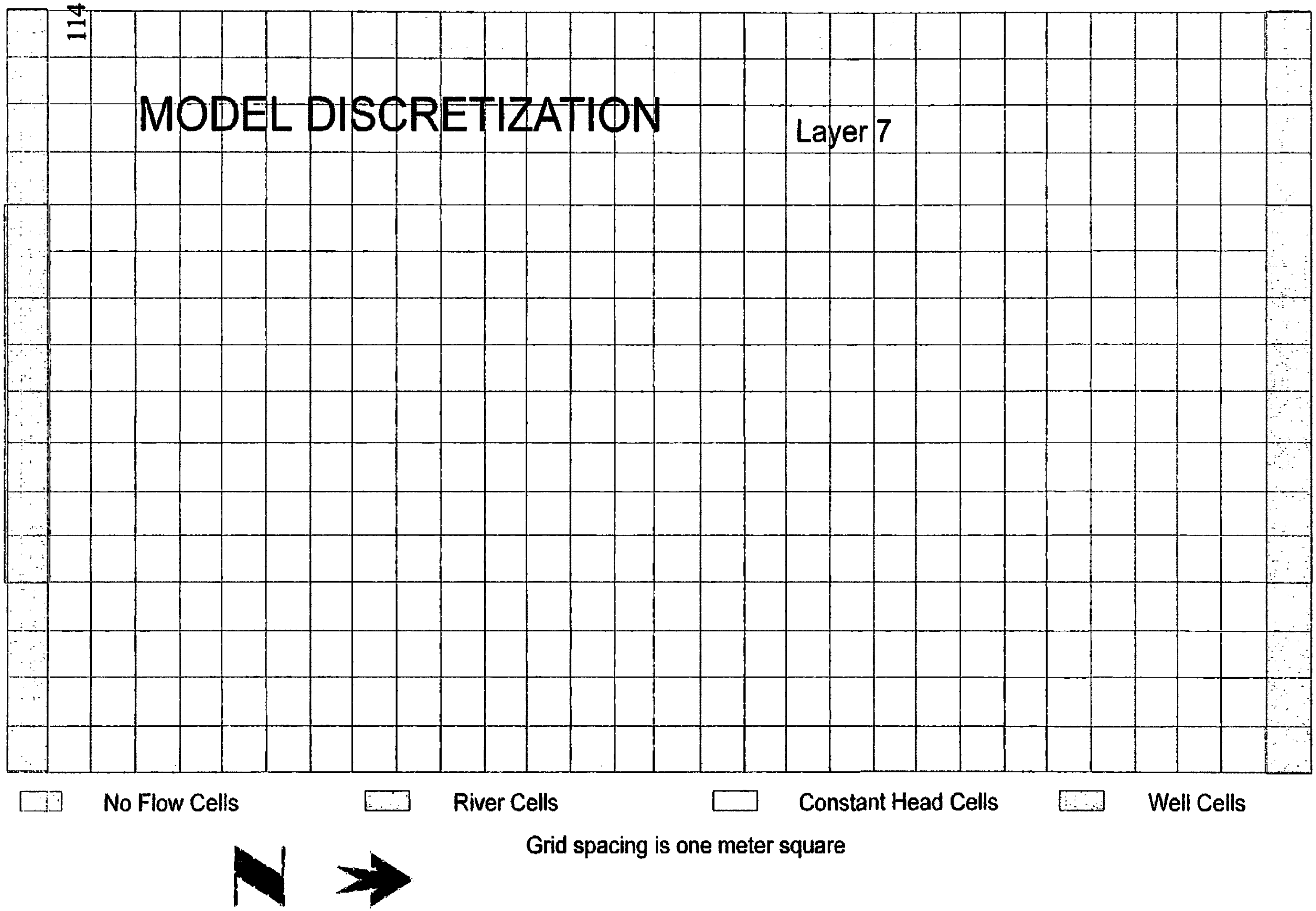
MODEL DISCRETIZATION
Layer 7
No Flow Cells
River Cells
Constant Head Cells
Well Cells
Grid spacing is one meter square
N

# APPENDIX D - Model Input Files

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Silver Bow Creek  BASIC PACKAGE
Stream Aquifer Simulation
       7      16      30       1       4
 11 12  0  0  0  0  0  0 19  0  0 13
       0       0
       1    1(40I2)                 2
0-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1 0
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-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1
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-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1
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0-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1 0
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0-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1 0
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0-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1 0
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0-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1 0
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0.0

1 0.100E+01(7G11.4) 12

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| 1.660 | 1.730 | 1.790 | 1.860 | 1.920 | 1.980 | 2.050 |
| 2.110 | 2.180 | 2.240 | 2.300 | 2.370 | 2.430 | 2.500 |
| 2.560 | 2.620 | 2.680 | 2.750 | 2.810 | 2.880 | 2.940 |
| 3.000 | 0.0000 | | | | | |
| 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
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| 3.000 | 0.0000 | | | | | |
| 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| 3.000 | 0.0000 | | | | | |
| 1.660 | 1.730 | 1.790 | 1.860 | 1.920 | 1.980 | 2.050 |
| 2.110 | 2.180 | 2.240 | 2.300 | 2.370 | 2.430 | 2.500 |
| 2.560 | 2.620 | 2.680 | 2.750 | 2.810 | 2.880 | 2.940 |
| 3.000 | 3.070 | 3.130 | 3.200 | 3.260 | 3.320 | 3.390 |
| 3.450 | 3.520 | | | | | |
| 1.660 | 1.730 | 1.790 | 1.860 | 1.920 | 1.980 | 2.050 |
| 2.110 | 2.180 | 2.240 | 2.300 | 2.370 | 2.430 | 2.500 |
| 2.560 | 2.620 | 2.680 | 2.750 | 2.810 | 2.880 | 2.940 |
| 3.000 | 3.070 | 3.130 | 3.200 | 3.260 | 3.320 | 3.390 |
| 3.450 | 3.520 | | | | | |
| 1.660 | 1.730 | 1.790 | 1.860 | 1.920 | 1.980 | 2.050 |
| 2.110 | 2.180 | 2.240 | 2.300 | 2.370 | 2.430 | 2.500 |
| 2.560 | 2.620 | 2.680 | 2.750 | 2.810 | 2.880 | 2.940 |
| 3.000 | 3.070 | 3.130 | 3.200 | 3.260 | 3.320 | 3.390 |
| 3.450 | 3.520 | | | | | |
| 1.660 | 1.730 | 1.790 | 1.860 | 1.920 | 1.980 | 2.050 |
| 2.110 | 2.180 | 2.240 | 2.300 | 2.370 | 2.430 | 2.500 |
| 2.560 | 2.620 | 2.680 | 2.750 | 2.810 | 2.880 | 2.940 |
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| 1.660 | 1.730 | 1.790 | 1.860 | 1.920 | 1.980 | 2.050 |
| 2.110 | 2.180 | 2.240 | 2.300 | 2.370 | 2.430 | 2.500 |
| 2.560 | 2.620 | 2.680 | 2.750 | 2.810 | 2.880 | 2.940 |
| 3.000 | 3.070 | 3.130 | 3.200 | 3.260 | 3.320 | 3.390 |
| 3.450 | 3.520 | | | | | |
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| 2.560 | 2.620 | 2.680 | 2.750 | 2.810 | 2.880 | 2.940 |
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| 3.450 | 3.520 | | | | | |
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| 2.110 | 2.180 | 2.240 | 2.300 | 2.370 | 2.430 | 2.500 |
| 2.560 | 2.620 | 2.680 | 2.750 | 2.810 | 2.880 | 2.940 |
| 3.000 | 3.070 | 3.130 | 3.200 | 3.260 | 3.320 | 3.390 |
| 3.450 | 3.520 | | | | | |
| 1.660 | 1.730 | 1.790 | 1.860 | 1.920 | 1.980 | 2.050 |
| 2.110 | 2.180 | 2.240 | 2.300 | 2.370 | 2.430 | 2.500 |
| 2.560 | 2.620 | 2.680 | 2.750 | 2.810 | 2.880 | 2.940 |
| 3.000 | 3.070 | 3.130 | 3.200 | 3.260 | 3.320 | 3.390 |
| 3.450 | 3.520 | | | | | |

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|---|---|---|---|---|---|---|
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| 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
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| 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| 3.000 | 0.0000 | | | | | |
| 0.0000 | 2.240 | 2.300 | 2.370 | 2.430 | 2.500 | 2.560 |
| 2.620 | 2.680 | 2.750 | 2.810 | 2.880 | 2.940 | 3.000 |
| 3.070 | 3.130 | 3.200 | 3.260 | 3.320 | 3.390 | 3.450 |
| 3.520 | 3.580 | 3.650 | 3.710 | 3.780 | 3.840 | 3.900 |
| 3.970 | 0.0000 | | | | | |
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| 2.110 | 2.180 | 2.240 | 2.300 | 2.370 | 2.430 | 2.500 |
| 2.560 | 2.620 | 2.680 | 2.750 | 2.810 | 2.880 | 2.940 |
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| 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| 3.000 | 0.0000 | | | | | |
| 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
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| 3.000 | 0.0000 | | | | | |
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3.000   0.0000
0.0000  2.240   2.300   2.370   2.430   2.500   2.560
2.620   2.680   2.750   2.810   2.880   2.940   3.000
3.070   3.130   3.200   3.260   3.320   3.390   3.450
3.520   3.580   3.650   3.710   3.780   3.840   3.900
3.970   0.0000
     1 0.100E+01(7G11.4)             12
0.0000  1.280   1.340   1.400   1.470   1.530   1.600
1.660   1.730   1.790   1.860   1.920   1.980   2.050
2.110   2.180   2.240   2.300   2.370   2.430   2.500
2.560   2.620   2.680   2.750   2.810   2.880   2.940
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| 3.000 | 0.0000 | | | | | |
| 0.0000 | 2.240 | 2.300 | 2.370 | 2.430 | 2.500 | 2.560 |
| 2.620 | 2.680 | 2.750 | 2.810 | 2.880 | 2.940 | 3.000 |
| 3.070 | 3.130 | 3.200 | 3.260 | 3.320 | 3.390 | 3.450 |
| 3.520 | 3.580 | 3.650 | 3.710 | 3.780 | 3.840 | 3.900 |
| 3.970 | 0.0000 | | | | | |

1 0.100E+01(7G11.4) 12

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|---|---|---|---|---|---|---|
| 0.0000 | 1.280 | 1.340 | 1.400 | 1.470 | 1.530 | 1.600 |
| 1.660 | 1.730 | 1.790 | 1.860 | 1.920 | 1.980 | 2.050 |
| 2.110 | 2.180 | 2.240 | 2.300 | 2.370 | 2.430 | 2.500 |

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0.0000   2.240   2.300   2.370   2.430   2.500   2.560
 2.620   2.680   2.750   2.810   2.880   2.940   3.000
 3.070   3.130   3.200   3.260   3.320   3.390   3.450
 3.520   3.580   3.650   3.710   3.780   3.840   3.900
 3.970  0.0000
     1 0.100E+01(7G11.4)          12
0.0000   1.280   1.340   1.400   1.470   1.530   1.600
 1.660   1.730   1.790   1.860   1.920   1.980   2.050
 2.110   2.180   2.240   2.300   2.370   2.430   2.500
 2.560   2.620   2.680   2.750   2.810   2.880   2.940
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| 3.000 | 0.0000 | | | | | |
| 0.0000 | 2.240 | 2.300 | 2.370 | 2.430 | 2.500 | 2.560 |
| 2.620 | 2.680 | 2.750 | 2.810 | 2.880 | 2.940 | 3.000 |
| 3.070 | 3.130 | 3.200 | 3.260 | 3.320 | 3.390 | 3.450 |
| 3.520 | 3.580 | 3.650 | 3.710 | 3.780 | 3.840 | 3.900 |
| 3.970 | 0.0000 | | | | | |
| 1 0.100E+01(7G11.4) | | | | 12 | | |
| 0.0000 | 1.280 | 1.340 | 1.400 | 1.470 | 1.530 | 1.600 |
| 1.660 | 1.730 | 1.790 | 1.860 | 1.920 | 1.980 | 2.050 |
| 2.110 | 2.180 | 2.240 | 2.300 | 2.370 | 2.430 | 2.500 |
| 2.560 | 2.620 | 2.680 | 2.750 | 2.810 | 2.880 | 2.940 |
| 3.000 | 0.0000 | | | | | |
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| 2.620 | 2.680 | 2.750 | 2.810 | 2.880 | 2.940 | 3.000 |
| 3.070 | 3.130 | 3.200 | 3.260 | 3.320 | 3.390 | 3.450 |
| 3.520 | 3.580 | 3.650 | 3.710 | 3.780 | 3.840 | 3.900 |
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| 1 0.100E+01(7G11.4) | | | | 12 | | |
| 0.0000 | 1.280 | 1.340 | 1.400 | 1.470 | 1.530 | 1.600 |
| 1.660 | 1.730 | 1.790 | 1.860 | 1.920 | 1.980 | 2.050 |
| 2.110 | 2.180 | 2.240 | 2.300 | 2.370 | 2.430 | 2.500 |
| 2.560 | 2.620 | 2.680 | 2.750 | 2.810 | 2.880 | 2.940 |
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 2.620    2.680    2.750    2.810    2.880    2.940    3.000
 3.070    3.130    3.200    3.260    3.320    3.390    3.450
 3.520    3.580    3.650    3.710    3.780    3.840    3.900
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| 0.0000 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
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| 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 0.0000 | | | | | |
| 0.0000 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 0.0000 | | | | | |
| 0.0000 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 0.0000 | | | | | |
| 11 0.100E+01(7G11.4) | | | | 12 | | |
| 0.0000 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 |
| 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 |
| 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 |

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|---|---|---|---|---|---|---|
| 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 |
| 9.150 | 0.0000 | | | | | |
| 0.0000 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 |
| 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 |
| 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 |
| 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 |
| 9.150 | 0.0000 | | | | | |
| 0.0000 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 |
| 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 |
| 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 |
| 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 |
| 9.150 | 0.0000 | | | | | |
| 0.0000 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 |
| 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 |
| 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 |
| 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 |
| 9.150 | 0.0000 | | | | | |
| 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 |
| 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 |
| 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 |
| 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 |
| 91.47 | 91.47 | | | | | |
| 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 |
| 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 |
| 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 |
| 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 |
| 91.47 | 91.47 | | | | | |
| 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 |
| 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 |
| 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 |
| 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 |
| 91.47 | 91.47 | | | | | |
| 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 |
| 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 |
| 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 |
| 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 |
| 91.47 | 91.47 | | | | | |
| 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 |
| 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 |
| 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 |
| 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 |
| 91.47 | 91.47 | | | | | |
| 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 |
| 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 |
| 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 |
| 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 |
| 91.47 | 91.47 | | | | | |
| 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 |
| 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 |
| 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 |
| 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 |
| 91.47 | 91.47 | | | | | |
| 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 |
| 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 |
| 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 |
| 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 | 91.47 |
| 91.47 | 91.47 | | | | | |
| 0.0000 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 |
| 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 |
| 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 |
| 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 |
| 9.150 | 0.0000 | | | | | |

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|---|---|---|---|---|---|---|
| 0.0000 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 |
| 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 |
| 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 |
| 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 |
| 9.150 | 0.0000 | | | | | |
| 0.0000 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 |
| 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 |
| 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 |
| 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 |
| 9.150 | 0.0000 | | | | | |
| 0.0000 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 |
| 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 |
| 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 |
| 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 |
| 9.150 | 0.0000 | | | | | |
| 11 | 0.100E+01(7G11.4) | | | 12 | | |
| 0.0000 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 0.0000 | | | | | |
| 0.0000 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 0.0000 | | | | | |
| 0.0000 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 0.0000 | | | | | |
| 0.0000 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 0.0000 | | | | | |
| 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
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| 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |

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| 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
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| 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
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| 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 30.49 | | | | | |
| 0.0000 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 0.0000 | | | | | |
| 0.0000 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 0.0000 | | | | | |
| 0.0000 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 0.0000 | | | | | |
| 0.0000 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| 3.050 | 0.0000 | | | | | |
| 11 | 0.100E+01(7G11.4) | | | 12 | | |
| 0.0000 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 0.0000 | | | | | |
| 0.0000 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 0.0000 | | | | | |
| 0.0000 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 0.0000 | | | | | |
| 0.0000 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 0.0000 | | | | | |
| 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 122.0 | 122.0 | | | | | |
| 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |

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|---|---|---|---|---|---|---|
| 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 122.0 | 122.0 | | | | | |
| 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 122.0 | 122.0 | | | | | |
| 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 122.0 | 122.0 | | | | | |
| 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 122.0 | 122.0 | | | | | |
| 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 122.0 | 122.0 | | | | | |
| 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 122.0 | 122.0 | | | | | |
| 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 122.0 | 122.0 | | | | | |
| 0.0000 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 0.0000 | | | | | |
| 0.0000 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 0.0000 | | | | | |
| 0.0000 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 0.0000 | | | | | |
| 0.0000 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 30.49 | 0.0000 | | | | | |

0 0.305E+01
0 0.185E+02
0 0.305E+01
0 0.186E+02
0 0.851E-03
0 0.851E-01
0 0.851E-03
0 0.851E-01

WELL PACKAGE

| | | |
|---|---|---|
| 48 | -1 | |
| 48 | | |
| 1 | 5 | 1-0.448 |
| 1 | 12 | 1-0.448 |
| 1 | 5 | 30 0.448 |
| 1 | 12 | 30 0.448 |
| 1 | 6 | 1-30.00 |
| 1 | 7 | 1-30.00 |
| 1 | 8 | 1-30.00 |
| 1 | 9 | 1-30.00 |
| 1 | 10 | 1-30.00 |
| 1 | 11 | 1-30.00 |
| 1 | 6 | 30 30.00 |
| 1 | 7 | 30 30.00 |
| 1 | 8 | 30 30.00 |
| 1 | 9 | 30 30.00 |
| 1 | 10 | 30 30.00 |
| 1 | 11 | 30 30.00 |
| 2 | 5 | 1 -1.49 |
| 2 | 6 | 1 -1.49 |
| 2 | 7 | 1 -1.49 |
| 2 | 8 | 1 -1.49 |
| 2 | 9 | 1 -1.49 |
| 2 | 10 | 1 -1.49 |
| 2 | 11 | 1 -1.49 |
| 2 | 12 | 1 -1.49 |
| 2 | 5 | 30 1.49 |
| 2 | 6 | 30 1.49 |
| 2 | 7 | 30 1.49 |
| 2 | 8 | 30 1.49 |
| 2 | 9 | 30 1.49 |
| 2 | 10 | 30 1.49 |
| 2 | 11 | 30 1.49 |
| 2 | 12 | 30 1.49 |
| 3 | 5 | 1-0.179 |
| 3 | 6 | 1-0.179 |
| 3 | 7 | 1-0.179 |
| 3 | 8 | 1-0.179 |
| 3 | 9 | 1-0.179 |
| 3 | 10 | 1-0.179 |
| 3 | 11 | 1-0.179 |
| 3 | 12 | 1-0.179 |
| 3 | 5 | 30 0.179 |
| 3 | 6 | 30 0.179 |
| 3 | 7 | 30 0.179 |
| 3 | 8 | 30 0.179 |
| 3 | 9 | 30 0.179 |
| 3 | 10 | 30 0.179 |
| 3 | 11 | 30 0.179 |
| 3 | 12 | 30 0.179 |

RIVER PACKAGE

| | | | | | |
|---|---|---|---|---|---|
| 180 | -1 | | | | |
| 180 | | | | | |
| 1 | 6 | 1 | 1.6600 | 305.0000 | 0.6600 |
| 1 | 7 | 1 | 1.6600 | 305.0000 | 0.6600 |
| 1 | 8 | 1 | 1.6600 | 305.0000 | 0.6600 |
| 1 | 9 | 1 | 1.6600 | 305.0000 | 0.6600 |
| 1 | 10 | 1 | 1.6600 | 305.0000 | 0.6600 |
| 1 | 11 | 1 | 1.6600 | 305.0000 | 0.6600 |
| 1 | 6 | 2 | 1.7300 | 305.0000 | 0.7300 |
| 1 | 7 | 2 | 1.7300 | 305.0000 | 0.7300 |
| 1 | 8 | 2 | 1.7300 | 305.0000 | 0.7300 |

| | | | | | |
|---|---|---|---|---|---|
| 1 | 9 | 2 | 1.7300 | 305.0000 | 0.7300 |
| 1 | 10 | 2 | 1.7300 | 305.0000 | 0.7300 |
| 1 | 11 | 2 | 1.7300 | 305.0000 | 0.7300 |
| 1 | 6 | 3 | 1.7900 | 305.0000 | 0.7900 |
| 1 | 7 | 3 | 1.7900 | 305.0000 | 0.7900 |
| 1 | 8 | 3 | 1.7900 | 305.0000 | 0.7900 |
| 1 | 9 | 3 | 1.7900 | 305.0000 | 0.7900 |
| 1 | 10 | 3 | 1.7900 | 305.0000 | 0.7900 |
| 1 | 11 | 3 | 1.7900 | 305.0000 | 0.7900 |
| 1 | 6 | 4 | 1.8600 | 305.0000 | 0.8600 |
| 1 | 7 | 4 | 1.8600 | 305.0000 | 0.8600 |
| 1 | 8 | 4 | 1.8600 | 305.0000 | 0.8600 |
| 1 | 9 | 4 | 1.8600 | 305.0000 | 0.8600 |
| 1 | 10 | 4 | 1.8600 | 305.0000 | 0.8600 |
| 1 | 11 | 4 | 1.8600 | 305.0000 | 0.8600 |
| 1 | 6 | 5 | 1.9200 | 305.0000 | 0.9200 |
| 1 | 7 | 5 | 1.9200 | 305.0000 | 0.9200 |
| 1 | 8 | 5 | 1.9200 | 305.0000 | 0.9200 |
| 1 | 9 | 5 | 1.9200 | 305.0000 | 0.9200 |
| 1 | 10 | 5 | 1.9200 | 305.0000 | 0.9200 |
| 1 | 11 | 5 | 1.9200 | 305.0000 | 0.9200 |
| 1 | 6 | 6 | 1.9800 | 305.0000 | 0.9800 |
| 1 | 7 | 6 | 1.9800 | 305.0000 | 0.9800 |
| 1 | 8 | 6 | 1.9800 | 305.0000 | 0.9800 |
| 1 | 9 | 6 | 1.9800 | 305.0000 | 0.9800 |
| 1 | 10 | 6 | 1.9800 | 305.0000 | 0.9800 |
| 1 | 11 | 6 | 1.9800 | 305.0000 | 0.9800 |
| 1 | 6 | 7 | 2.0500 | 305.0000 | 1.0500 |
| 1 | 7 | 7 | 2.0500 | 305.0000 | 1.0500 |
| 1 | 8 | 7 | 2.0500 | 305.0000 | 1.0500 |
| 1 | 9 | 7 | 2.0500 | 305.0000 | 1.0500 |
| 1 | 10 | 7 | 2.0500 | 305.0000 | 1.0500 |
| 1 | 11 | 7 | 2.0500 | 305.0000 | 1.0500 |
| 1 | 6 | 8 | 2.1100 | 305.0000 | 1.1100 |
| 1 | 7 | 8 | 2.1100 | 305.0000 | 1.1100 |
| 1 | 8 | 8 | 2.1100 | 305.0000 | 1.1100 |
| 1 | 9 | 8 | 2.1100 | 305.0000 | 1.1100 |
| 1 | 10 | 8 | 2.1100 | 305.0000 | 1.1100 |
| 1 | 11 | 8 | 2.1100 | 305.0000 | 1.1100 |
| 1 | 6 | 9 | 2.1800 | 305.0000 | 1.1800 |
| 1 | 7 | 9 | 2.1800 | 305.0000 | 1.1800 |
| 1 | 8 | 9 | 2.1800 | 305.0000 | 1.1800 |
| 1 | 9 | 9 | 2.1800 | 305.0000 | 1.1800 |
| 1 | 10 | 9 | 2.1800 | 305.0000 | 1.1800 |
| 1 | 11 | 9 | 2.1800 | 305.0000 | 1.1800 |
| 1 | 6 | 10 | 2.2400 | 305.0000 | 1.2400 |
| 1 | 7 | 10 | 2.2400 | 305.0000 | 1.2400 |
| 1 | 8 | 10 | 2.2400 | 305.0000 | 1.2400 |
| 1 | 9 | 10 | 2.2400 | 305.0000 | 1.2400 |
| 1 | 10 | 10 | 2.2400 | 305.0000 | 1.2400 |
| 1 | 11 | 10 | 2.2400 | 305.0000 | 1.2400 |
| 1 | 6 | 11 | 2.3000 | 305.0000 | 1.3000 |
| 1 | 7 | 11 | 2.3000 | 305.0000 | 1.3000 |
| 1 | 8 | 11 | 2.3000 | 305.0000 | 1.3000 |
| 1 | 9 | 11 | 2.3000 | 305.0000 | 1.3000 |
| 1 | 10 | 11 | 2.3000 | 305.0000 | 1.3000 |
| 1 | 11 | 11 | 2.3000 | 305.0000 | 1.3000 |
| 1 | 6 | 12 | 2.3700 | 305.0000 | 1.3700 |
| 1 | 7 | 12 | 2.3700 | 305.0000 | 1.3700 |
| 1 | 8 | 12 | 2.3700 | 305.0000 | 1.3700 |
| 1 | 9 | 12 | 2.3700 | 305.0000 | 1.3700 |
| 1 | 10 | 12 | 2.3700 | 305.0000 | 1.3700 |

| | | | | | |
|---|---|---|---|---|---|
| 1 | 11 | 12 | 2.3700 | 305.0000 | 1.3700 |
| 1 | 6 | 13 | 2.4300 | 305.0000 | 1.4300 |
| 1 | 7 | 13 | 2.4300 | 305.0000 | 1.4300 |
| 1 | 8 | 13 | 2.4300 | 305.0000 | 1.4300 |
| 1 | 9 | 13 | 2.4300 | 305.0000 | 1.4300 |
| 1 | 10 | 13 | 2.4300 | 305.0000 | 1.4300 |
| 1 | 11 | 13 | 2.4300 | 305.0000 | 1.4300 |
| 1 | 6 | 14 | 2.5000 | 305.0000 | 1.5000 |
| 1 | 7 | 14 | 2.5000 | 305.0000 | 1.5000 |
| 1 | 8 | 14 | 2.5000 | 305.0000 | 1.5000 |
| 1 | 9 | 14 | 2.5000 | 305.0000 | 1.5000 |
| 1 | 10 | 14 | 2.5000 | 305.0000 | 1.5000 |
| 1 | 11 | 14 | 2.5000 | 305.0000 | 1.5000 |
| 1 | 6 | 15 | 2.5600 | 305.0000 | 1.5600 |
| 1 | 7 | 15 | 2.5600 | 305.0000 | 1.5600 |
| 1 | 8 | 15 | 2.5600 | 305.0000 | 1.5600 |
| 1 | 9 | 15 | 2.5600 | 305.0000 | 1.5600 |
| 1 | 10 | 15 | 2.5600 | 305.0000 | 1.5600 |
| 1 | 11 | 15 | 2.5600 | 305.0000 | 1.5600 |
| 1 | 6 | 16 | 2.6200 | 305.0000 | 1.6200 |
| 1 | 7 | 16 | 2.6200 | 305.0000 | 1.6200 |
| 1 | 8 | 16 | 2.6200 | 305.0000 | 1.6200 |
| 1 | 9 | 16 | 2.6200 | 305.0000 | 1.6200 |
| 1 | 10 | 16 | 2.6200 | 305.0000 | 1.6200 |
| 1 | 11 | 16 | 2.6200 | 305.0000 | 1.6200 |
| 1 | 6 | 17 | 2.6800 | 305.0000 | 1.6800 |
| 1 | 7 | 17 | 2.6800 | 305.0000 | 1.6800 |
| 1 | 8 | 17 | 2.6800 | 305.0000 | 1.6800 |
| 1 | 9 | 17 | 2.6800 | 305.0000 | 1.6800 |
| 1 | 10 | 17 | 2.6800 | 305.0000 | 1.6800 |
| 1 | 11 | 17 | 2.6800 | 305.0000 | 1.6800 |
| 1 | 6 | 18 | 2.7500 | 305.0000 | 1.7500 |
| 1 | 7 | 18 | 2.7500 | 305.0000 | 1.7500 |
| 1 | 8 | 18 | 2.7500 | 305.0000 | 1.7500 |
| 1 | 9 | 18 | 2.7500 | 305.0000 | 1.7500 |
| 1 | 10 | 18 | 2.7500 | 305.0000 | 1.7500 |
| 1 | 11 | 18 | 2.7500 | 305.0000 | 1.7500 |
| 1 | 6 | 19 | 2.8100 | 305.0000 | 1.8100 |
| 1 | 7 | 19 | 2.8100 | 305.0000 | 1.8100 |
| 1 | 8 | 19 | 2.8100 | 305.0000 | 1.8100 |
| 1 | 9 | 19 | 2.8100 | 305.0000 | 1.8100 |
| 1 | 10 | 19 | 2.8100 | 305.0000 | 1.8100 |
| 1 | 11 | 19 | 2.8100 | 305.0000 | 1.8100 |
| 1 | 6 | 20 | 2.8800 | 305.0000 | 1.8800 |
| 1 | 7 | 20 | 2.8800 | 305.0000 | 1.8800 |
| 1 | 8 | 20 | 2.8800 | 305.0000 | 1.8800 |
| 1 | 9 | 20 | 2.8800 | 305.0000 | 1.8800 |
| 1 | 10 | 20 | 2.8800 | 305.0000 | 1.8800 |
| 1 | 11 | 20 | 2.8800 | 305.0000 | 1.8800 |
| 1 | 6 | 21 | 2.9400 | 305.0000 | 1.9400 |
| 1 | 7 | 21 | 2.9400 | 305.0000 | 1.9400 |
| 1 | 8 | 21 | 2.9400 | 305.0000 | 1.9400 |
| 1 | 9 | 21 | 2.9400 | 305.0000 | 1.9400 |
| 1 | 10 | 21 | 2.9400 | 305.0000 | 1.9400 |
| 1 | 11 | 21 | 2.9400 | 305.0000 | 1.9400 |
| 1 | 6 | 22 | 3.0000 | 305.0000 | 2.0000 |
| 1 | 7 | 22 | 3.0000 | 305.0000 | 2.0000 |
| 1 | 8 | 22 | 3.0000 | 305.0000 | 2.0000 |
| 1 | 9 | 22 | 3.0000 | 305.0000 | 2.0000 |
| 1 | 10 | 22 | 3.0000 | 305.0000 | 2.0000 |
| 1 | 11 | 22 | 3.0000 | 305.0000 | 2.0000 |
| 1 | 6 | 23 | 3.0700 | 305.0000 | 2.0700 |

| | | | | | |
|---|---|---|---|---|---|
| 1 | 7 | 23 | 3.0700 | 305.0000 | 2.0700 |
| 1 | 8 | 23 | 3.0700 | 305.0000 | 2.0700 |
| 1 | 9 | 23 | 3.0700 | 305.0000 | 2.0700 |
| 1 | 10 | 23 | 3.0700 | 305.0000 | 2.0700 |
| 1 | 11 | 23 | 3.0700 | 305.0000 | 2.0700 |
| 1 | 6 | 24 | 3.1300 | 305.0000 | 2.1300 |
| 1 | 7 | 24 | 3.1300 | 305.0000 | 2.1300 |
| 1 | 8 | 24 | 3.1300 | 305.0000 | 2.1300 |
| 1 | 9 | 24 | 3.1300 | 305.0000 | 2.1300 |
| 1 | 10 | 24 | 3.1300 | 305.0000 | 2.1300 |
| 1 | 11 | 24 | 3.1300 | 305.0000 | 2.1300 |
| 1 | 6 | 25 | 3.2000 | 305.0000 | 2.2000 |
| 1 | 7 | 25 | 3.2000 | 305.0000 | 2.2000 |
| 1 | 8 | 25 | 3.2000 | 305.0000 | 2.2000 |
| 1 | 9 | 25 | 3.2000 | 305.0000 | 2.2000 |
| 1 | 10 | 25 | 3.2000 | 305.0000 | 2.2000 |
| 1 | 11 | 25 | 3.2000 | 305.0000 | 2.2000 |
| 1 | 6 | 26 | 3.2600 | 305.0000 | 2.2600 |
| 1 | 7 | 26 | 3.2600 | 305.0000 | 2.2600 |
| 1 | 8 | 26 | 3.2600 | 305.0000 | 2.2600 |
| 1 | 9 | 26 | 3.2600 | 305.0000 | 2.2600 |
| 1 | 10 | 26 | 3.2600 | 305.0000 | 2.2600 |
| 1 | 11 | 26 | 3.2600 | 305.0000 | 2.2600 |
| 1 | 6 | 27 | 3.3200 | 305.0000 | 2.3200 |
| 1 | 7 | 27 | 3.3200 | 305.0000 | 2.3200 |
| 1 | 8 | 27 | 3.3200 | 305.0000 | 2.3200 |
| 1 | 9 | 27 | 3.3200 | 305.0000 | 2.3200 |
| 1 | 10 | 27 | 3.3200 | 305.0000 | 2.3200 |
| 1 | 11 | 27 | 3.3200 | 305.0000 | 2.3200 |
| 1 | 6 | 28 | 3.3900 | 305.0000 | 2.3900 |
| 1 | 7 | 28 | 3.3900 | 305.0000 | 2.3900 |
| 1 | 8 | 28 | 3.3900 | 305.0000 | 2.3900 |
| 1 | 9 | 28 | 3.3900 | 305.0000 | 2.3900 |
| 1 | 10 | 28 | 3.3900 | 305.0000 | 2.3900 |
| 1 | 11 | 28 | 3.3900 | 305.0000 | 2.3900 |
| 1 | 6 | 29 | 3.4500 | 305.0000 | 2.4500 |
| 1 | 7 | 29 | 3.4500 | 305.0000 | 2.4500 |
| 1 | 8 | 29 | 3.4500 | 305.0000 | 2.4500 |
| 1 | 9 | 29 | 3.4500 | 305.0000 | 2.4500 |
| 1 | 10 | 29 | 3.4500 | 305.0000 | 2.4500 |
| 1 | 11 | 29 | 3.4500 | 305.0000 | 2.4500 |
| 1 | 6 | 30 | 3.5200 | 305.0000 | 2.5200 |
| 1 | 7 | 30 | 3.5200 | 305.0000 | 2.5200 |
| 1 | 8 | 30 | 3.5200 | 305.0000 | 2.5200 |
| 1 | 9 | 30 | 3.5200 | 305.0000 | 2.5200 |
| 1 | 10 | 30 | 3.5200 | 305.0000 | 2.5200 |
| 1 | 11 | 30 | 3.5200 | 305.0000 | 2.5200 |

OUTPUT CONTROL PACKAGE

| | | | |
|---|---|---|---|
| -6 | 0 | 55 | 77 |
| 1 | 1 | 1 | 1 |
| 1 | 0 | 1 | 0 |
| 1 | 0 | 1 | 0 |
| 1 | 0 | 1 | 0 |
| 1 | 0 | 1 | 0 |
| 1 | 0 | 1 | 0 |
| 1 | 0 | 1 | 0 |
| 1 | 0 | 1 | 0 |

STRONGLY IMPLICIT PROCEDURE

| | | | |
|---|---|---|---|
| 50 | 5 | | |
| 1.0000 | .10000E-01 | 1.00000 | 1 |

# APPENDIX E - Water Level Elevations

Hydrograph Data

| | P1 | P2 | P3 | P4 | P5 | P6 | P7 | P8 | P9 | P10 | P11 | P12 | P13 | P14 | P15 | P16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12-Oct-92 | 5255.91 | 5256.34 | 5256.61 | 5256.07 | 5259.33 | 5259.47 | 5260.3 | 5258.05 | 5257.9 | 5256.59 | 5255.87 | 5256.18 | 5256 | 5255.85 | 5254.33 | 5254.52 |
| 18-Oct-92 | 5255.84 | 5256.34 | 5256.62 | 5256.06 | 5258.48 | 5259.485 | 5260.29 | 5258 | 5257.95 | 5256.31 | 5255.95 | 5256.21 | 5256 | 5255.85 | 5254.32 | 5254.47 |
| 30-Oct-92 | 5255.935 | 5256.45 | 5256.645 | 5256.17 | | | | | | 5256.655 | | 5256.285 | 5256.09 | 5255.935 | 5254.385 | 5254.705 |
| 4-Dec-02 | 5256.88 | 5257.03 | 5256.79 | 5256.56 | 5259.9 | 5259.67 | 5261.49 | 5259.47 | 5258.26 | 5256.93 | 5257.82 | 5256.51 | 5256.16 | 5256.01 | 5254.56 | 5255.86 |
| 12-Dec-92 | 5256.065 | 5256.54 | 5257.05 | 5256.81 | 5260.42 | 5260.06 | | | 5258.685 | 5256.91 | | 5256.48 | | 5256.16 | 5254.61 | 5254.67 |
| 20-Dec-92 | 5257.18 | 5257.13 | 5256.98 | 5256.79 | | | | | | 5257.08 | | 5256.6 | 5256.3 | 5256.2 | 5254.78 | 5256.63 |
| 29-Jan-93 | 5256.03 | | 5257.46 | 5257.9 | | | | | | 5257.16 | | 5256.59 | | 5256.23 | 5254.92 | |
| 29-Mar-93 | 5256.28 | #VALUE! | 5257.56 | 5257.53 | #VALUE! | #VALUE! | | #VALUE! | 5259.09 | 5257.33 | #VALUE! | 5256.92 | 5256.69 | 5256.52 | 5255.04 | #VALUE! |
| 10-Apr-93 | 5256.14 | #VALUE! | 5257.5 | 5257.21 | 5259.88 | 5260.19 | | #VALUE! | 5258.96 | 5257.26 | #VALUE! | 5256.85 | 5256.63 | 5256.48 | 5254.98 | #VALUE! |
| 25-Apr-93 | 5256.07 | #VALUE! | 5257.39 | 5257.08 | 5259.93 | 5260.05 | | #VALUE! | 5258.84 | 5257.18 | #VALUE! | 5256.84 | 5256.62 | 5256.48 | 5254.98 | #VALUE! |
| 23-May-93 | 5256.18 | 5256.68 | 5257.32 | 5257.08 | 5260.03 | 5260.03 | | 5258.13 | 5258.69 | 5257.21 | 5256.98 | 5256.93 | 5256.74 | 5256.53 | 5255.03 | 5254.97 |
| 11-Jun-93 | 5256.31 | 5256.82 | 5257.5 | 5257.38 | 5260.02 | 5260.27 | | 5258.28 | 5258.86 | 5257.34 | 5257.05 | 5256.93 | 5256.71 | 5256.6 | 5255.09 | 5255.18 |
| 24-Jul-93 | 5256.14 | 5256.63 | 5257.18 | 5256.94 | 5260.06 | 5259.92 | | 5258.11 | 5258.55 | 5257.08 | 5256.72 | 5256.7 | 5256.55 | 5256.37 | 5254.93 | 5254.89 |
| 30-Jul-93 | 5256.26 | 5256.81 | 5257.38 | 5257.33 | #VALUE! | #VALUE! | | #VALUE! | #VALUE! | 5257.23 | 5257.13 | 5256.89 | 5256.75 | 5256.55 | 5255.04 | 5254.96 |
| 26-Aug-93 | 5256.5 | 5257.18 | | 5257.77 | | | | | | 5257.52 | | 5257.14 | 5256.77 | 5256.6 | 5255.29 | 5255.77 |
| 1-Sep-93 | 5256.4 | 5256.88 | 5257.73 | 5257.78 | #VALUE! | #VALUE! | #VALUE! | #VALUE! | 5257.52 | 5257.5 | 5257.1 | 5256.88 | 5256.7 | 5255.29 | 5255.16 | 5254.66 |
| 29-Sep-93 | 5256.17 | 5256.66 | 5257.22 | 5257.18 | #VALUE! | #VALUE! | #VALUE! | #VALUE! | 5257.11 | 5257.03 | 5256.73 | 5256.6 | 5256.44 | 5254.99 | 5254.8 | 5254.15 |

Elevation in Feet Above Sea Level; to convert to meters multiply value by 0.3048

| | P17 | P18 | P19 | P20 | P21 | P22 | P23 | P24 | P25 | P26 | P27 | P28 | P29 | P30 | P31 | P32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12-Oct-92 | 5253.75 | 5255.81 | 5255.71 | 5256.06 | 0 | 5252.92 | 5254.91 | 5254.93 | 5257.48 | | | | | | | |
| 18-Oct-92 | 5253.665 | 5255.795 | 5255.72 | 5255.975 | 0 | 5254.85 | 5254.86 | 5254.9 | 5257.48 | | | | | | | |
| 30-Oct-92 | 5253.825 | 5255.87 | 5255.74 | 5256.065 | 5256.25 | 5254.99 | 5258.015 | 5255.07 | | 5256.26 | 5256.045 | 5255.91 | 5256.445 | | | |
| 4-Dec-02 | | 5256.47 | 5255.93 | | 5256.8 | 5256.03 | 5255.73 | 5255.55 | 5257.5 | 5257.54 | 5256.21 | 5256.45 | 5256.75 | 5255.685 | 5255.27 | 5256.62 |
| 12-Dec-92 | 5253.87 | 5256.11 | 5256.18 | | | | 5255.09 | 5255.21 | 5257.82 | | | | 5256.48 | 5255.935 | 5255.6 | 5256.1 |
| 20-Dec-92 | 5254.78 | 5256.81 | 5256.14 | | 5257.2 | | 5256.59 | 5256.35 | | | | | 5256.79 | 5255.905 | 5255.47 | 5257.01 |
| 29-Jan-93 | 5254.29 | 5256.16 | 5256.48 | | | | 5255.02 | 5255.11 | | | | | | 5255.945 | 5255.85 | 5256.11 |
| 29-Mar-93 | 5254.75 | 5256.32 | 5256.35 | #VALUE! | #VALUE! | #VALUE! | 5255.43 | 5255.51 | 5258.31 | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | 5255.83 | 5256.34 |
| 10-Apr-93 | 5254.43 | 5256.17 | 5256.22 | #VALUE! | #VALUE! | #VALUE! | 5255.23 | 5255.31 | 5258.29 | #VALUE! | #VALUE! | #VALUE! | #VALUE! | 5255.565 | 5255.68 | 5256.22 |
| 25-Apr-93 | 5254.26 | 5256.11 | 5256.17 | 5255.79 | 5256.72 | #VALUE! | 5255.14 | 5255.22 | 5258.3 | 5256.48 | 5256.28 | #VALUE! | #VALUE! | 5254.925 | 5255.59 | 5256.14 |
| 23-May-93 | 5254.29 | 5256.01 | 5256.02 | 5252.51 | 5257.85 | 5254.37 | 5255.28 | 5255.34 | 5258.39 | 5256.57 | 5256.34 | 5256.13 | 5256.75 | 5255.965 | 5255.61 | 5256.21 |
| 11-Jun-93 | 5254.48 | 5256.3 | 5256.25 | 5256.29 | 5256.52 | 5255.43 | 5255.47 | 5255.53 | 5258.5 | 5256.7 | 5256.51 | 5256.21 | 5256.8 | 5256.065 | 5255.74 | 5256.36 |
| 24-Jul-93 | 5254.14 | 5256.08 | 5256.05 | 5256.16 | 5256.34 | 5255.18 | 5255.18 | 5255.24 | 5258.16 | 5256.43 | 5256.25 | 5256.02 | 5256.68 | 5255.935 | 5255.77 | 5256.13 |
| 30-Jul-93 | 5254.28 | 5256.24 | 5256.24 | 5256.21 | 5256.38 | 5255.28 | 5255.32 | 5255.39 | #VALUE! | 5256.51 | 5256.39 | 5256.05 | 5256.77 | 5256.065 | 5255.69 | 5256.28 |
| 26-Aug-93 | 5255.18 | 5256.43 | 5256.25 | 5256.82 | 5256.86 | 5255.71 | 5255.67 | 5255.73 | | 5256.93 | 5256.49 | 5256.47 | 5256.95 | 5256.165 | 5255.85 | 5256.52 |
| 1-Sep-93 | 5256.39 | 5256.4 | 5256.33 | 5256.5 | 5255.43 | 5255.47 | 5255.56 | #VALUE! | 5256.66 | 5256.53 | 5256.21 | 5256.92 | 5256.255 | 5256.01 | 5256.41 | 5256.32 |
| 29-Sep-93 | 5256.11 | 5256.09 | 5256.17 | 5256.29 | 5255.15 | 5255.17 | 5255.24 | #VALUE! | 5256.39 | 5256.26 | 5255.97 | 5256.65 | 5255.985 | 5255.74 | 5256.16 | 5256.25 |

Elevation in Feet Above Sea Level; to convert to meters multiply value by 0.3048

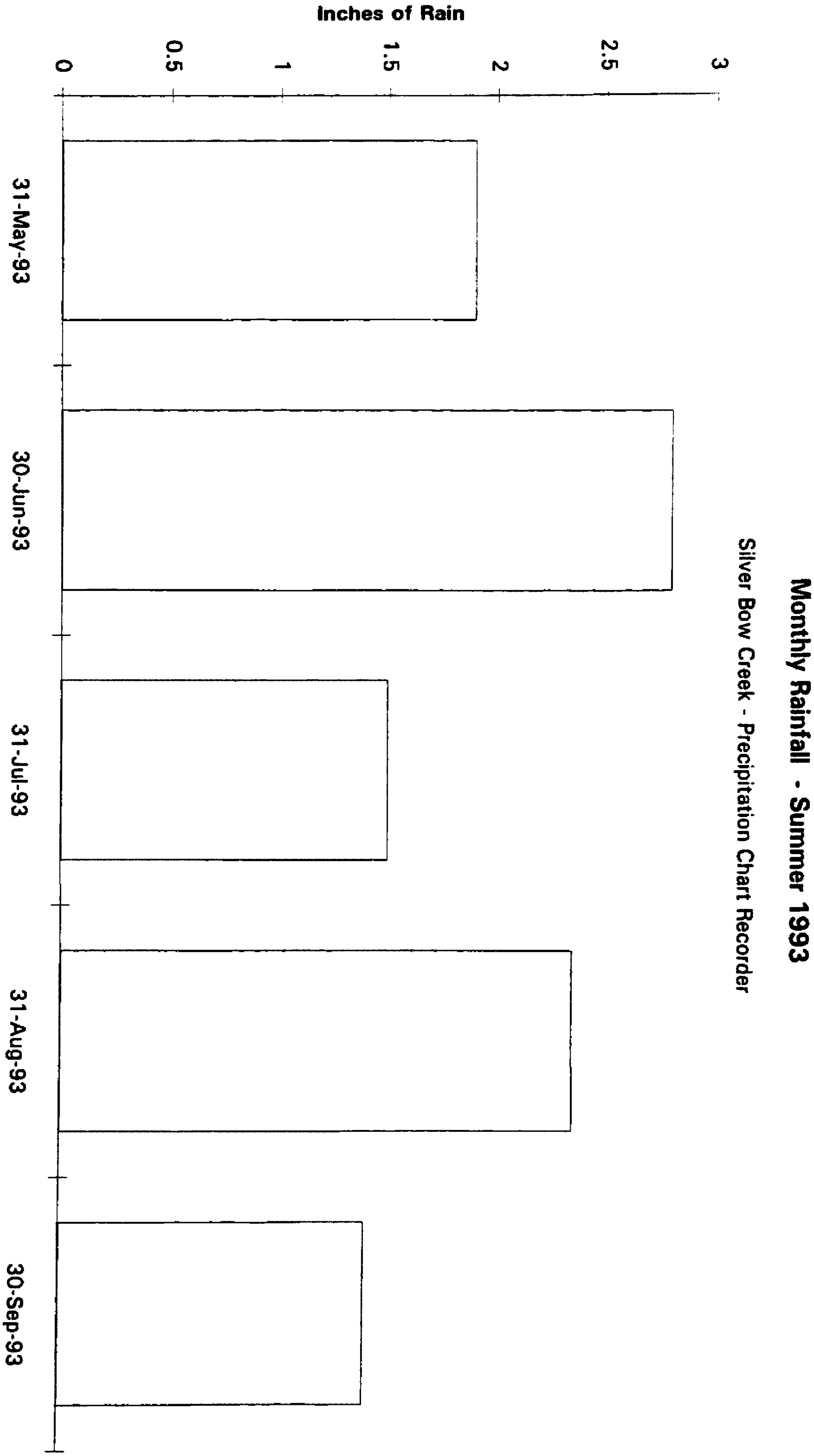
Elevation in Feet Above Sea Level; to convert to meters multiply value by 0.3048

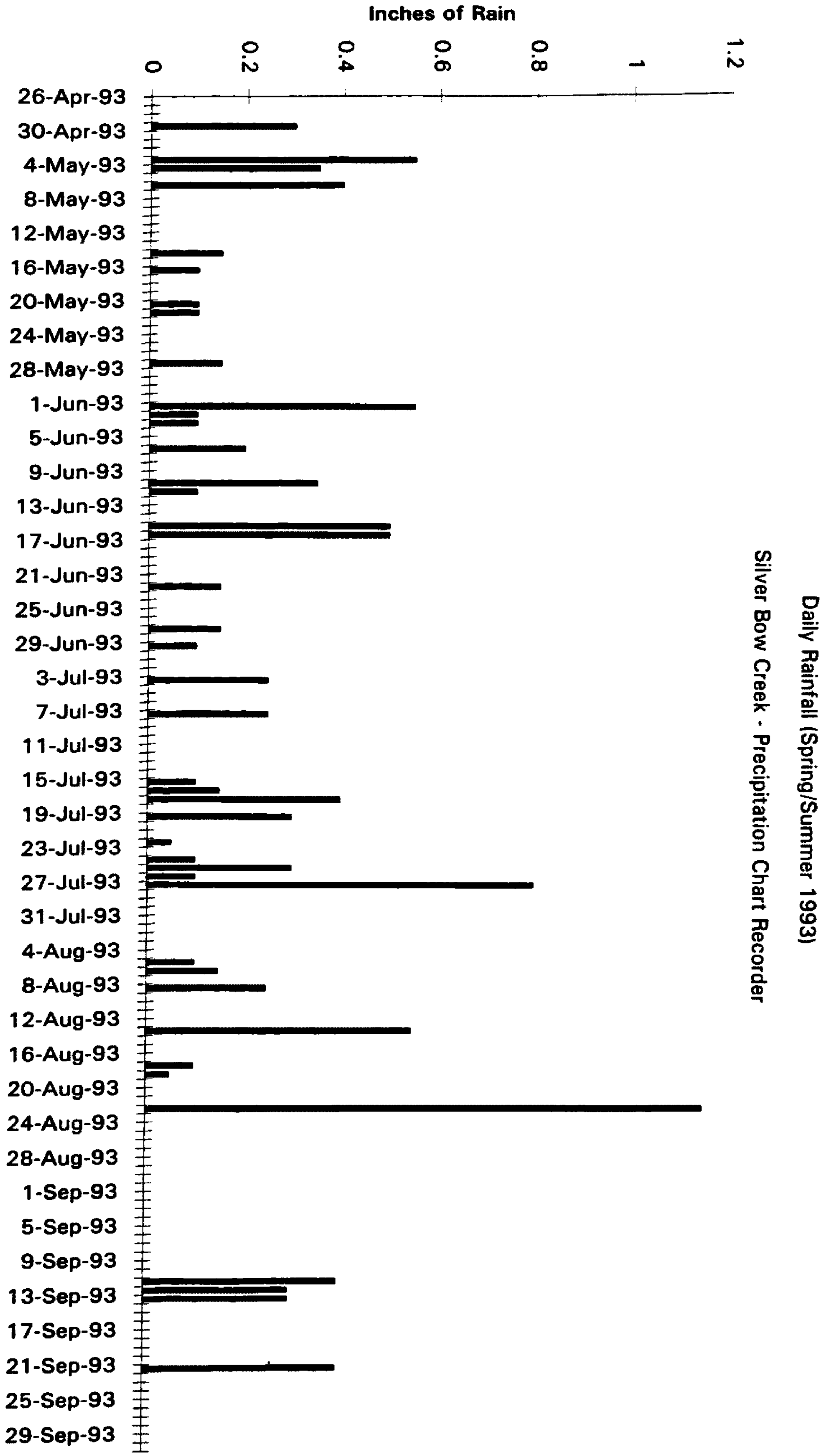
| | P49 | P50 | P51 | P52 | MW1 | MW2 | MW3 | SG80 | SG90 | SG99 | SG105 | SG107 | SG110 | SG120 | SG130 | SG140 | SG150 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12-Oct-92 | | | | | | | | 0 | 0 | 0 | | | | 0 | 0 | 0 | 0 |
| 18-Oct-92 | | | | | | | | | | | | | | | | | |
| 30-Oct-92 | | | | | | | | | | 5256.973 | | | 5256.08 | 5255.7 | 5255.32 | 5254.935 | 5254.665 |
| 4-Dec-02 | | | | | | | | 5261.12 | 5259.75 | 5257.965 | | | 5257.4 | 5257.01 | 5256.41 | 5256.4 | 5256 |
| 12-Dec-92 | | | | | | | | | | | | | | | | | |
| 20-Dec-92 | | | | | | | | | | | | | | | | | |
| 29-Jan-93 | | | | | | | | | | | | | | | | | |
| 29-Mar-93 | | | | | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! |
| 10-Apr-93 | | | | | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | 5257.09 | 5256.49 | 5256.39 | 5256.14 | 5255.73 | 5255.46 | 5255.13 | 5254.95 |
| 25-Apr-93 | | | | | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | 5257.02 | 5256.46 | 5256.3 | 5256.04 | 5255.7 | 5255.39 | 5255.1 | 5254.9 |
| 23-May-93 | | | | | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | 5257.11 | 5256.86 | 5256.43 | 5256.17 | 5255.82 | 5255.44 | 5255.22 | 5255.1 |
| 11-Jun-93 | | | | | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | 5256.3 | 5256.97 | 5256.55 | 5256.29 | 5255.95 | 5255.68 | 5255.43 | 5255.27 |
| 24-Jul-93 | | | | | 5255.7 | 5255.86 | 5255.7 | #VALUE! | #VALUE! | #VALUE! | 5256.78 | 5256.43 | 5256.14 | 5255.74 | 5255.43 | 5255.14 | #VALUE! |
| 30-Jul-93 | | | | | 5255.89 | 5256.05 | 5255.94 | #VALUE! | #VALUE! | 5257.14 | 5256.81 | 5256.46 | 5256.18 | 5255.78 | 5255.49 | 5255.21 | 5255 |
| 26-Aug-93 | 5255.7 | 5255.68 | 5255.02 | 5254.92 | 5256 | 5256.06 | 5255.97 | | | 5257.63 | 5257.31 | 5257.02 | 5256.89 | 5256.62 | | 5255.78 | |
| 1-Sep-93 | 5255.88 | 5254.97 | 5255.08 | 5256.03 | 5256.25 | 5256.08 | #VALUE! | #VALUE! | 5257.25 | 5256.95 | 5256.59 | 5256.31 | 5255.93 | 5255.71 | 5255.41 | 5255.19 | |
| 29-Sep-93 | 5255.19 | 5255.66 | 5254.99 | 5255.72 | 5255.86 | 5255.76 | #VALUE! | #VALUE! | 5257.09 | 5256.79 | 5256.39 | 5256.14 | 5255.75 | 5255.41 | 5255.12 | 5254.92 | |

Elevation in Feet Above Sea Level; to convert to meters multiply value by 0.3048

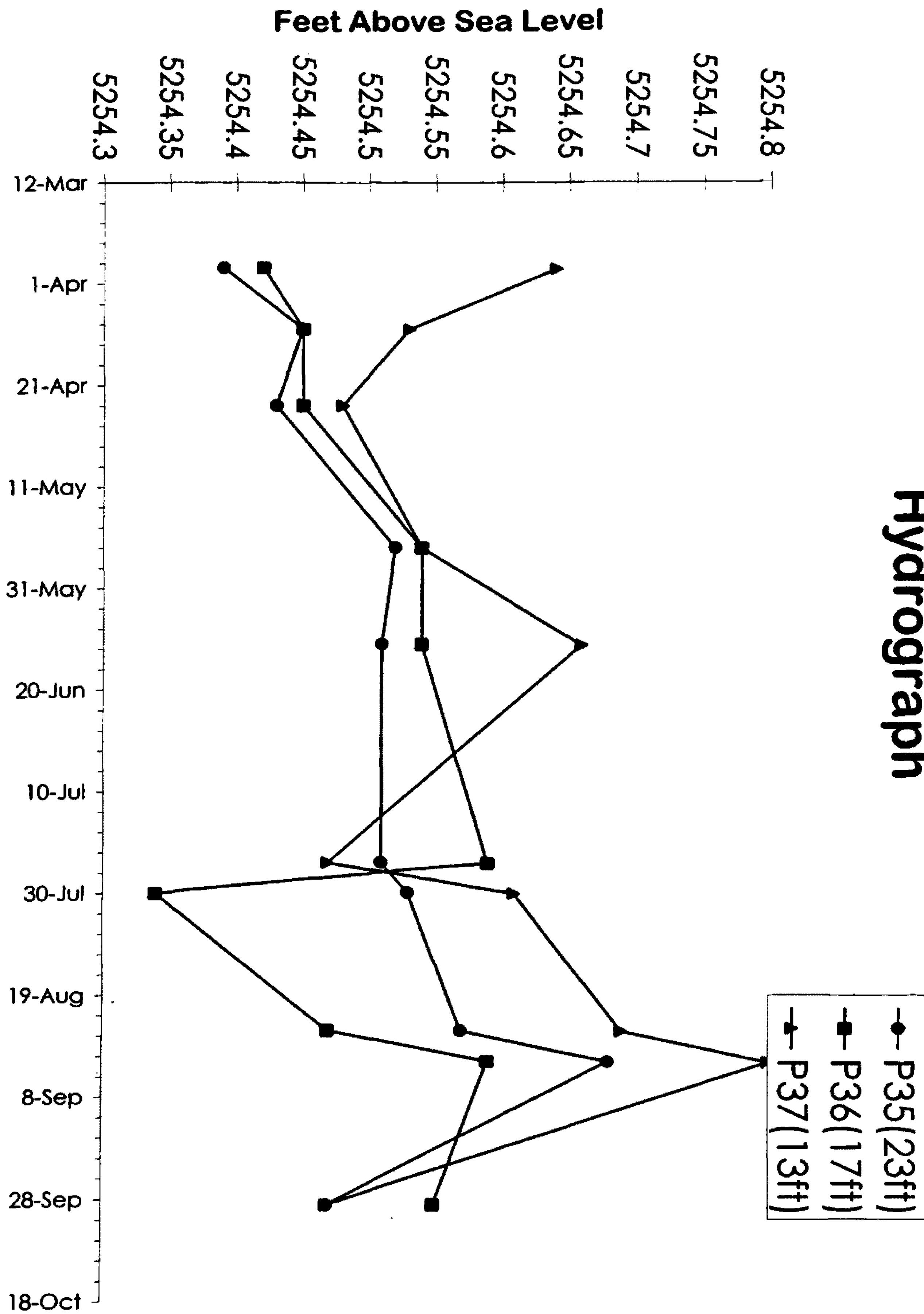
| | P49 | P50 | P51 | P52 | MW1 | MW2 | MW3 | SG80 | SG90 | SG99 | SG105 | SG107 | SG110 | SG120 | SG130 | SG140 | SG150 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12-Oct-92 | | | | | | | | 0 | 0 | 0 | | | | 0 | 0 | 0 | 0 |
| 18-Oct-92 | | | | | | | | | | | | | | | | | |
| 30-Oct-92 | | | | | | | | | | 5256.973 | | | 5256.08 | 5255.7 | 5255.32 | 5254.935 | 5254 665 |
| 4-Dec-02 | | | | | | | | 5261.12 | 5259.75 | 5257.965 | | | 5257.4 | 5257.01 | 5256.41 | 5256.4 | 5256 |
| 12-Dec-92 | | | | | | | | | | | | | | | | | |
| 20-Dec-92 | | | | | | | | | | | | | | | | | |
| 29-Jan-93 | | | | | | | | | | | | | | | | | |
| 29-Mar-93 | | | | | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! |
| 10-Apr-93 | | | | | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | 5257 09 | 5256.49 | 5256.39 | 5256.14 | 5255.73 | 5255.46 | 5255 13 | 5254 95 |
| 25-Apr-93 | | | | | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | 5257.02 | 5256.46 | 5256.3 | 5256.04 | 5255.7 | 5255.39 | 5255 1 | 5254 9 |
| 23-May-93 | | | | | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | 5257.11 | 5256.86 | 5256.43 | 5256 17 | 5255.82 | 5255.44 | 5255.22 | 5255.1 |
| 11-Jun-93 | | | | | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | 5256.3 | 5256.97 | 5256.55 | 5256.29 | 5255.95 | 5255.68 | 5255 43 | 5255 27 |
| 24-Jul-93 | | | | | 5255.7 | 5255.86 | 5255.7 | #VALUE! | #VALUE! | #VALUE! | 5256.78 | 5256 43 | 5256.14 | 5255.74 | 5255.43 | 5255 14 | #VALUE! |
| 30-Jul-93 | | | | | 5255.89 | 5256.05 | 5255 94 | #VALUE! | #VALUE! | 5257 14 | 5256.81 | 5256.46 | 5256.18 | 5255.78 | 5255.49 | 5255.21 | 5255 |
| 26-Aug-93 | 5255.7 | 5255.68 | 5255.02 | 5254 92 | 5256 | 5256 06 | 5255.97 | | | 5257.63 | 5257.31 | 5257.02 | 5256.89 | 5256.62 | | 5255.78 | |
| 1-Sep-93 | 5255 88 | 5254 97 | 5255.08 | 5256.03 | 5256.25 | 5256.08 | #VALUE! | #VALUE! | 5257 25 | 5256.95 | 5256.59 | 5256.31 | 5255.93 | 5255.71 | 5255.41 | 5255.19 | |
| 29-Sep-93 | 5255.19 | 5255.66 | 5254.99 | 5255.72 | 5255.86 | 5255.76 | #VALUE! | #VALUE! | 5257.09 | 5256.79 | 5256.39 | 5256.14 | 5255.75 | 5255.41 | 5255.12 | 5254.92 | |

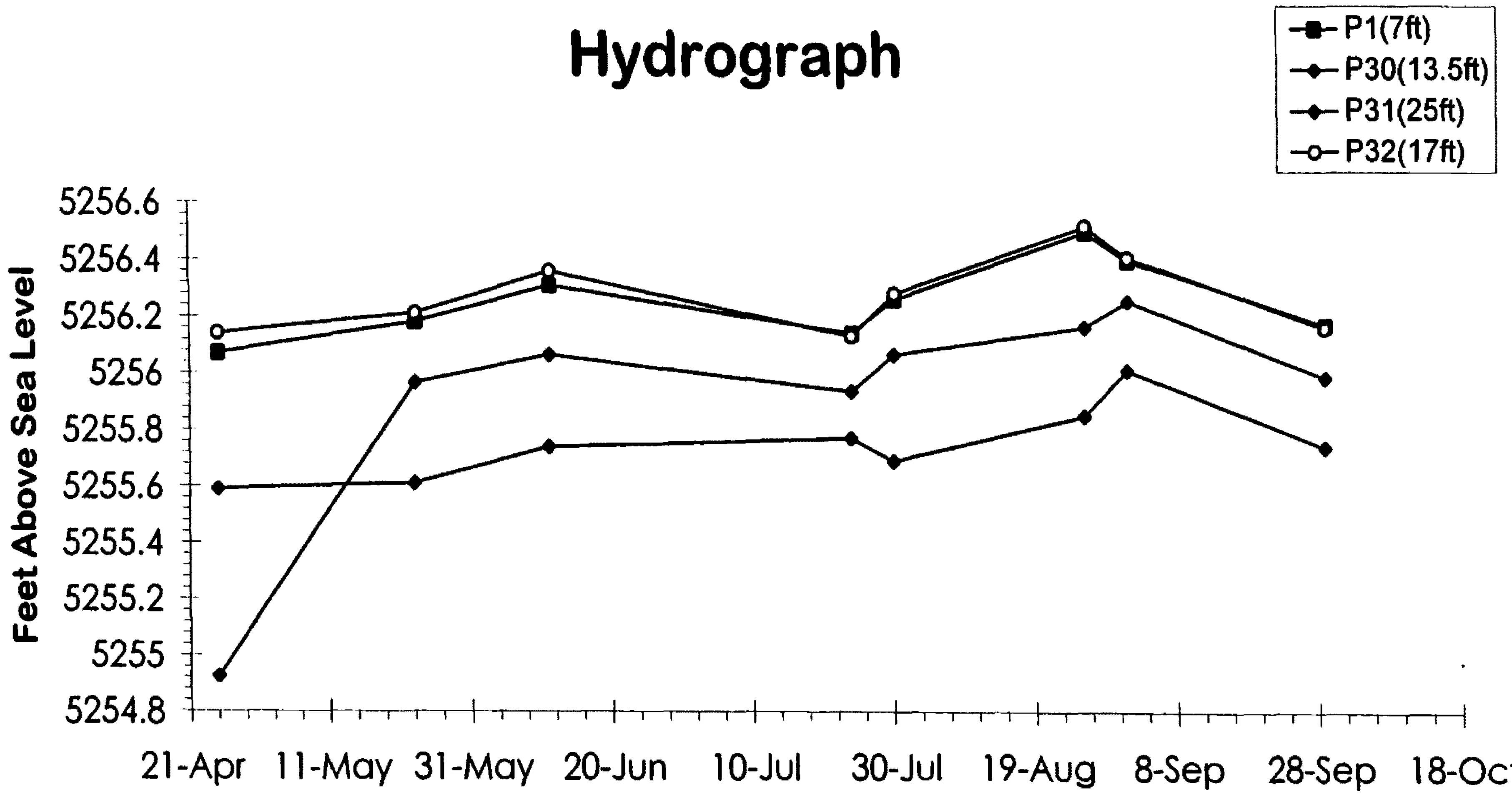
# APPENDIX F - Rainfall Data


Monthly Rainfall - Summer 1993
Silver Bow Creek - Precipitation Chart Recorder
Inches of Rain
0
0.5
1
1.5
2
2.5
3
31-May-93
30-Jun-93
31-Jul-93
31-Aug-93
30-Sep-93

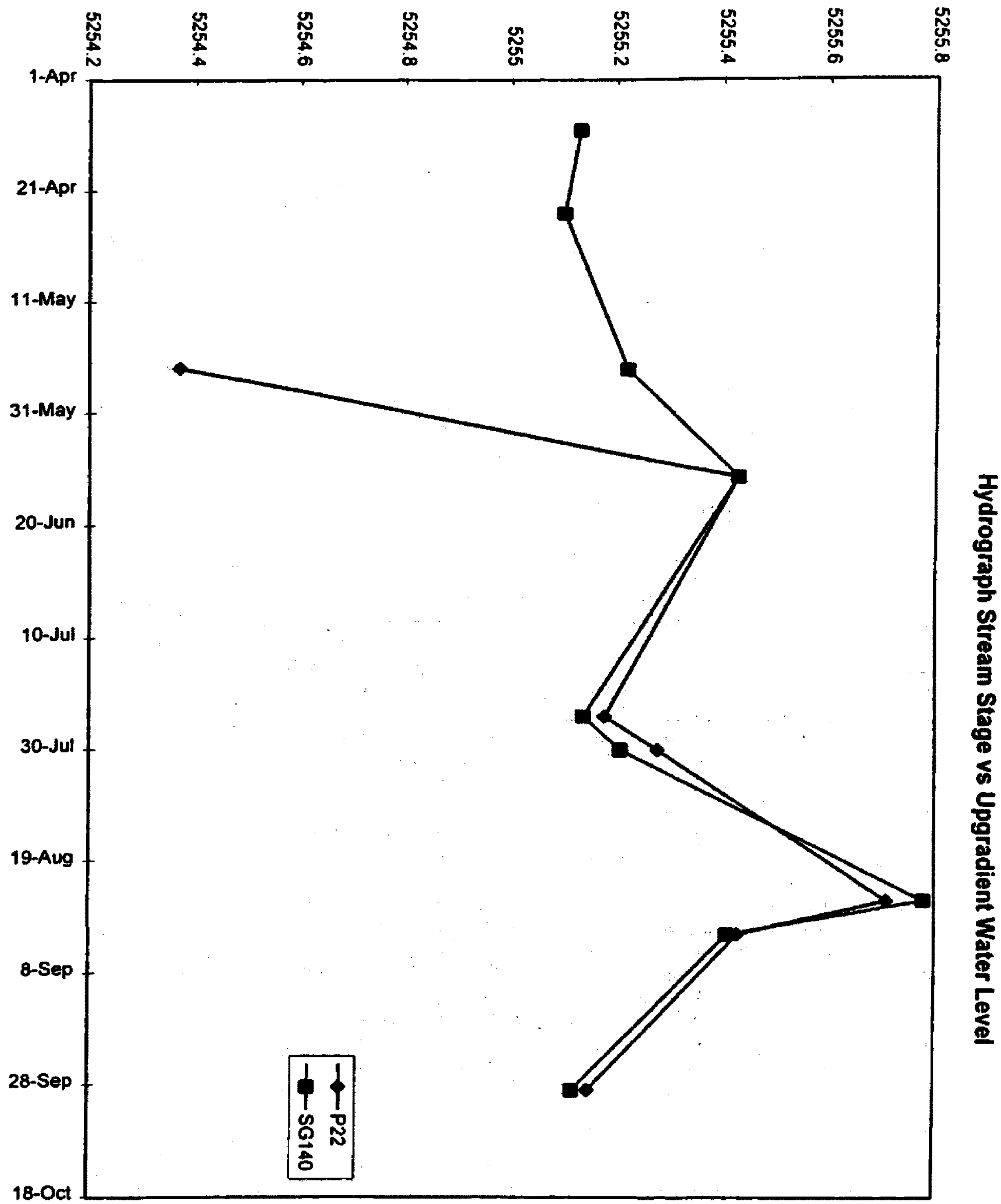

Daily Rainfall (Spring/Summer 1993)
Silver Bow Creek - Precipitation Chart Recorder
Inches of Rain
0
0.2
0.4
0.6
0.8
1
1.2
26-Apr-93
30-Apr-93
4-May-93
8-May-93
12-May-93
16-May-93
20-May-93
24-May-93
28-May-93
1-Jun-93
5-Jun-93
9-Jun-93
13-Jun-93
17-Jun-93
21-Jun-93
25-Jun-93
29-Jun-93
3-Jul-93
7-Jul-93
11-Jul-93
15-Jul-93
19-Jul-93
23-Jul-93
27-Jul-93
31-Jul-93
4-Aug-93
8-Aug-93
12-Aug-93
16-Aug-93
20-Aug-93
24-Aug-93
28-Aug-93
1-Sep-93
5-Sep-93
9-Sep-93
13-Sep-93
17-Sep-93
21-Sep-93
25-Sep-93
29-Sep-93

# APPENDIX G - Hydrographs


Hydrograph
Feet Above Sea Level
5254.3
5254.35
5254.4
5254.45
5254.5
5254.55
5254.6
5254.65
5254.7
5254.75
5254.8
12-Mar
1-Apr
21-Apr
11-May
31-May
20-Jun
10-Jul
30-Jul
19-Aug
8-Sep
28-Sep
18-Oct
P35(23ft)
P36(17ft)
P37(13ft)



Hydrograph
P1(7ft)
P30(13.5ft)
P31(25ft)
P32(17ft)
Feet Above Sea Level
5256.6
5256.4
5256.2
5256
5255.8
5255.6
5255.4
5255.2
5255
5254.8
21-Apr
11-May
31-May
20-Jun
10-Jul
30-Jul
19-Aug
8-Sep
28-Sep
18-Oct


Hydrograph Stream Stage vs Upgradient Water Level
5254.2
5254.4
5254.6
5254.8
5255
5255.2
5255.4
5255.6
5255.8
1-Apr
21-Apr
11-May
31-May
20-Jun
10-Jul
30-Jul
19-Aug
8-Sep
28-Sep
18-Oct
P22
SG140

# APPENDIX H - Model Output

```
1                U.S. GEOLOGICAL SURVEY MODULAR FINITE-DIFFERENCE GROUND-WATER MODEL
0Silver Bow Creek                                          Stream Aquifer Simulation
   7 LAYERS        16 ROWS        30 COLUMNS
  1 STRESS PERIOD(S) IN SIMULATION
 MODEL TIME UNIT IS DAYS
0I/O UNITS:
 ELEMENT OF IUNIT:  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
          I/O UNIT: 11 12  0  0  0  0  0  0 19  0  0 13  0  0  0  0  0  0  0  0  0  0  0  0
0BAS1 -- BASIC MODEL PACKAGE, VERSION 1, 9/1/87 INPUT READ FROM UNIT  1
 ARRAYS RHS AND BUFF WILL SHARE MEMORY.
 START HEAD WILL NOT BE SAVED -- DRAWDOWN CANNOT BE CALCULATED
   29834 ELEMENTS IN X ARRAY ARE USED BY BAS
   29834 ELEMENTS OF X ARRAY USED OUT OF  517000
0BCF1 -- BLOCK-CENTERED FLOW PACKAGE, VERSION 1, 9/1/87 INPUT READ FROM UNIT 11
 STEADY-STATE SIMULATION
 CELL-BY-CELL FLOWS WILL BE RECORDED ON UNIT 77
     LAYER  AQUIFER TYPE
     ----------------
       1        1
       2        0
       3        0
       4        0
       5        0
       6        0
       7        0
     967 ELEMENTS IN X ARRAY ARE USED BY BCF
   30801 ELEMENTS OF X ARRAY USED OUT OF  517000
0WEL1 -- WELL PACKAGE, VERSION 1, 9/1/87 INPUT READ FROM 12
 MAXIMUM OF   36 WELLS
 CELL-BY-CELL FLOWS WILL BE PRINTED WHEN ICBCFL NOT 0
     144 ELEMENTS IN X ARRAY ARE USED FOR WELLS
   30945 ELEMENTS OF X ARRAY USED OUT OF  517000
0SIP1 -- STRONGLY IMPLICIT PROCEDURE SOLUTION PACKAGE, VERSION 1, 9/1/87 INPUT READ FROM UNIT 19
 MAXIMUM OF  50 ITERATIONS ALLOWED FOR CLOSURE
  5 ITERATION PARAMETERS
   13645 ELEMENTS IN X ARRAY ARE USED BY SIP
   44590 ELEMENTS OF X ARRAY USED OUT OF  517000
1Silver Bow Creek                                          Stream Aquifer Simulation

                    BOUNDARY ARRAY FOR LAYER  1 WILL BE READ ON UNIT  1 USING FORMAT: (40I2)
                    ------------------------------------------------------------------

       1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
 ..........................................................................................
 0 1   0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1  0
 0 2   0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  0
 0 3   0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  0
 0 4   0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  0
 0 5  -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1
 0 6  -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1
 0 7  -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1
 0 8  -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1
 0 9  -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1
 0 10 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1
 0 11 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1
 0 12 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1
 0 13  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  0
 0 14  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  0
 0 15  0  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  1  0
 0 16  0 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1  0
                    BOUNDARY ARRAY FOR LAYER  2 WILL BE READ ON UNIT  1 USING FORMAT: (40I2)
```

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 1 | 0 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 |
| 0 2 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 3 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 4 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 5 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 0 6 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 0 7 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 0 8 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 0 9 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 0 10 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 0 11 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 0 12 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 0 13 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 14 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 15 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 16 | 0 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 |

**BOUNDARY ARRAY FOR LAYER 3 WILL BE READ ON UNIT 1 USING FORMAT: (40I2)**

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 1 | 0 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 |
| 0 2 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 3 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 4 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 5 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 0 6 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 0 7 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 0 8 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 0 9 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 0 10 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 0 11 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 0 12 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 0 13 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 14 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 15 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 16 | 0 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 |

**BOUNDARY ARRAY FOR LAYER 4 WILL BE READ ON UNIT 1 USING FORMAT: (40I2)**

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 1 | 0 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 |
| 0 2 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 3 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 4 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 5 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 6 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 7 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 8 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 9 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 10 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 11 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 12 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 13 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 14 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 15 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 16 | 0 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 |

**BOUNDARY ARRAY FOR LAYER 5 WILL BE READ ON UNIT 1 USING FORMAT: (40I2)**

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 1 | 0 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 |
| 0 2 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 3 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 4 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 5 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 6 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 7 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 8 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 9 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 10 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 11 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 12 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 13 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 14 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 15 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 16 | 0 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 |

BOUNDARY ARRAY FOR LAYER 6 WILL BE READ ON UNIT 1 USING FORMAT: (40I2)

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 1 | 0 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 |
| 0 2 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 3 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 4 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 5 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 6 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 7 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 8 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 9 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 10 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 11 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 12 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 13 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 14 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 15 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 16 | 0 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 |

BOUNDARY ARRAY FOR LAYER 7 WILL BE READ ON UNIT 1 USING FORMAT: (40I2)

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 1 | 0 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 |
| 0 2 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 3 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 4 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 5 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 6 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 7 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 8 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 9 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 10 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 11 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 12 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 13 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 14 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 15 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| 0 16 | 0 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 |

0AQUIFER HEAD WILL BE SET TO 0.00000 AT ALL NO-FLOW NODES (IBOUND=0).

INITIAL HEAD FOR LAYER 1 WILL BE READ ON UNIT 1 USING FORMAT: (7G11.4)

| | 1<br>11<br>21 | 2<br>12<br>22 | 3<br>13<br>23 | 4<br>14<br>24 | 5<br>15<br>25 | 6<br>16<br>26 | 7<br>17<br>27 | 8<br>18<br>28 | 9<br>19<br>29 | 10<br>20<br>30 |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 1 | 0.0000 | 1.280 | 1.340 | 1.400 | 1.470 | 1.530 | 1.600 | 1.660 | 1.730 | 1.790 |
| | 1.860 | 1.920 | 1.980 | 2.050 | 2.110 | 2.180 | 2.240 | 2.300 | 2.370 | 2.430 |
| | 2.500 | 2.560 | 2.620 | 2.680 | 2.750 | 2.810 | 2.880 | 2.940 | 3.000 | 0.0000 |
| 0 2 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 3 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 4 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 5 | 1.660 | 1.730 | 1.790 | 1.860 | 1.920 | 1.980 | 2.050 | 2.110 | 2.180 | 2.240 |
| | 2.300 | 2.370 | 2.430 | 2.500 | 2.560 | 2.620 | 2.680 | 2.750 | 2.810 | 2.880 |
| | 2.940 | 3.000 | 3.070 | 3.130 | 3.200 | 3.260 | 3.320 | 3.390 | 3.450 | 3.520 |
| 0 6 | 1.660 | 1.730 | 1.790 | 1.860 | 1.920 | 1.980 | 2.050 | 2.110 | 2.180 | 2.240 |
| | 2.300 | 2.370 | 2.430 | 2.500 | 2.560 | 2.620 | 2.680 | 2.750 | 2.810 | 2.880 |
| | 2.940 | 3.000 | 3.070 | 3.130 | 3.200 | 3.260 | 3.320 | 3.390 | 3.450 | 3.520 |
| 0 7 | 1.660 | 1.730 | 1.790 | 1.860 | 1.920 | 1.980 | 2.050 | 2.110 | 2.180 | 2.240 |
| | 2.300 | 2.370 | 2.430 | 2.500 | 2.560 | 2.620 | 2.680 | 2.750 | 2.810 | 2.880 |
| | 2.940 | 3.000 | 3.070 | 3.130 | 3.200 | 3.260 | 3.320 | 3.390 | 3.450 | 3.520 |
| 0 8 | 1.660 | 1.730 | 1.790 | 1.860 | 1.920 | 1.980 | 2.050 | 2.110 | 2.180 | 2.240 |
| | 2.300 | 2.370 | 2.430 | 2.500 | 2.560 | 2.620 | 2.680 | 2.750 | 2.810 | 2.880 |
| | 2.940 | 3.000 | 3.070 | 3.130 | 3.200 | 3.260 | 3.320 | 3.390 | 3.450 | 3.520 |
| 0 9 | 1.660 | 1.730 | 1.790 | 1.860 | 1.920 | 1.980 | 2.050 | 2.110 | 2.180 | 2.240 |
| | 2.300 | 2.370 | 2.430 | 2.500 | 2.560 | 2.620 | 2.680 | 2.750 | 2.810 | 2.880 |
| | 2.940 | 3.000 | 3.070 | 3.130 | 3.200 | 3.260 | 3.320 | 3.390 | 3.450 | 3.520 |
| 0 10 | 1.660 | 1.730 | 1.790 | 1.860 | 1.920 | 1.980 | 2.050 | 2.110 | 2.180 | 2.240 |
| | 2.300 | 2.370 | 2.430 | 2.500 | 2.560 | 2.620 | 2.680 | 2.750 | 2.810 | 2.880 |
| | 2.940 | 3.000 | 3.070 | 3.130 | 3.200 | 3.260 | 3.320 | 3.390 | 3.450 | 3.520 |
| 0 11 | 1.660 | 1.730 | 1.790 | 1.860 | 1.920 | 1.980 | 2.050 | 2.110 | 2.180 | 2.240 |
| | 2.300 | 2.370 | 2.430 | 2.500 | 2.560 | 2.620 | 2.680 | 2.750 | 2.810 | 2.880 |
| | 2.940 | 3.000 | 3.070 | 3.130 | 3.200 | 3.260 | 3.320 | 3.390 | 3.450 | 3.520 |
| 0 12 | 1.660 | 1.730 | 1.790 | 1.860 | 1.920 | 1.980 | 2.050 | 2.110 | 2.180 | 2.240 |
| | 2.300 | 2.370 | 2.430 | 2.500 | 2.560 | 2.620 | 2.680 | 2.750 | 2.810 | 2.880 |
| | 2.940 | 3.000 | 3.070 | 3.130 | 3.200 | 3.260 | 3.320 | 3.390 | 3.450 | 3.520 |
| 0 13 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 14 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 15 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 16 | 0.0000 | 2.240 | 2.300 | 2.370 | 2.430 | 2.500 | 2.560 | 2.620 | 2.680 | 2.750 |
| | 2.810 | 2.880 | 2.940 | 3.000 | 3.070 | 3.130 | 3.200 | 3.260 | 3.320 | 3.390 |
| | 3.450 | 3.520 | 3.580 | 3.650 | 3.710 | 3.780 | 3.840 | 3.900 | 3.970 | 0.0000 |

INITIAL HEAD FOR LAYER 2 WILL BE READ ON UNIT 1 USING FORMAT: (7G11.4)

| 1<br>11 | 2<br>12 | 3<br>13 | 4<br>14 | 5<br>15 | 6<br>16 | 7<br>17 | 8<br>18 | 9<br>19 | 10<br>20 |
|---|---|---|---|---|---|---|---|---|---|

| | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 1 | 0.0000 | 1.280 | 1.340 | 1.400 | 1.470 | 1.530 | 1.600 | 1.660 | 1.730 | 1.790 |
| | 1.860 | 1.920 | 1.980 | 2.050 | 2.110 | 2.180 | 2.240 | 2.300 | 2.370 | 2.430 |
| | 2.500 | 2.560 | 2.620 | 2.680 | 2.750 | 2.810 | 2.880 | 2.940 | 3.000 | 0.0000 |
| 0 2 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 3 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 4 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 5 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| 0 6 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| 0 7 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| 0 8 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| 0 9 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| 0 10 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| 0 11 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| 0 12 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| 0 13 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 14 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 15 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 16 | 0.0000 | 2.240 | 2.300 | 2.370 | 2.430 | 2.500 | 2.560 | 2.620 | 2.680 | 2.750 |
| | 2.810 | 2.880 | 2.940 | 3.000 | 3.070 | 3.130 | 3.200 | 3.260 | 3.320 | 3.390 |
| | 3.450 | 3.520 | 3.580 | 3.650 | 3.710 | 3.780 | 3.840 | 3.900 | 3.970 | 0.0000 |

INITIAL HEAD FOR LAYER 3 WILL BE READ ON UNIT 1 USING FORMAT: (7G11.4)

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 0 1 | 0.0000 | 1.280 | 1.340 | 1.400 | 1.470 | 1.530 | 1.600 | 1.660 | 1.730 | 1.790 |
| | 1.860 | 1.920 | 1.980 | 2.050 | 2.110 | 2.180 | 2.240 | 2.300 | 2.370 | 2.430 |
| | 2.500 | 2.560 | 2.620 | 2.680 | 2.750 | 2.810 | 2.880 | 2.940 | 3.000 | 0.0000 |
| 0 2 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 3 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 4 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 5 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| 0 6 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| 0 7 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| 0 8 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| 0 9 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| 0 10 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| 0 11 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| 0 12 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| 0 13 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 14 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 15 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 16 | 0.0000 | 2.240 | 2.300 | 2.370 | 2.430 | 2.500 | 2.560 | 2.620 | 2.680 | 2.750 |
| | 2.810 | 2.880 | 2.940 | 3.000 | 3.070 | 3.130 | 3.200 | 3.260 | 3.320 | 3.390 |
| | 3.450 | 3.520 | 3.580 | 3.650 | 3.710 | 3.780 | 3.840 | 3.900 | 3.970 | 0.0000 |

INITIAL HEAD FOR LAYER 4 WILL BE READ ON UNIT 1 USING FORMAT: (7G11.4)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 0 1 | 0.0000 | 1.280 | 1.340 | 1.400 | 1.470 | 1.530 | 1.600 | 1.660 | 1.730 | 1.790 |
| | 1.860 | 1.920 | 1.980 | 2.050 | 2.110 | 2.180 | 2.240 | 2.300 | 2.370 | 2.430 |
| | 2.500 | 2.560 | 2.620 | 2.680 | 2.750 | 2.810 | 2.880 | 2.940 | 3.000 | 0.0000 |
| 0 2 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 3 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 4 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 5 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 6 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 7 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 8 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 9 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 10 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 11 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 12 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 13 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 14 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 15 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 16 | 0.0000 | 2.240 | 2.300 | 2.370 | 2.430 | 2.500 | 2.560 | 2.620 | 2.680 | 2.750 |
| | 2.810 | 2.880 | 2.940 | 3.000 | 3.070 | 3.130 | 3.200 | 3.260 | 3.320 | 3.390 |
| | 3.450 | 3.520 | 3.580 | 3.650 | 3.710 | 3.780 | 3.840 | 3.900 | 3.970 | 0.0000 |

**INITIAL HEAD FOR LAYER 5 WILL BE READ ON UNIT 1 USING FORMAT: (7G11.4)**

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 0 1 | 0.0000 | 1.280 | 1.340 | 1.400 | 1.470 | 1.530 | 1.600 | 1.660 | 1.730 | 1.790 |
| | 1.860 | 1.920 | 1.980 | 2.050 | 2.110 | 2.180 | 2.240 | 2.300 | 2.370 | 2.430 |
| | 2.500 | 2.560 | 2.620 | 2.680 | 2.750 | 2.810 | 2.880 | 2.940 | 3.000 | 0.0000 |
| 0 2 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 3 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 4 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 5 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 6 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 7 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 8 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 9 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 10 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 11 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 12 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 13 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 14 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 15 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 16 | 0.0000 | 2.240 | 2.300 | 2.370 | 2.430 | 2.500 | 2.560 | 2.620 | 2.680 | 2.750 |
| | 2.810 | 2.880 | 2.940 | 3.000 | 3.070 | 3.130 | 3.200 | 3.260 | 3.320 | 3.390 |
| | 3.450 | 3.520 | 3.580 | 3.650 | 3.710 | 3.780 | 3.840 | 3.900 | 3.970 | 0.0000 |

INITIAL HEAD FOR LAYER 6 WILL BE READ ON UNIT 1 USING FORMAT: (7G11.4)

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 0 1 | 0.0000 | 1.280 | 1.340 | 1.400 | 1.470 | 1.530 | 1.600 | 1.660 | 1.730 | 1.790 |
| | 1.860 | 1.920 | 1.980 | 2.050 | 2.110 | 2.180 | 2.240 | 2.300 | 2.370 | 2.430 |
| | 2.500 | 2.560 | 2.620 | 2.680 | 2.750 | 2.810 | 2.880 | 2.940 | 3.000 | 0.0000 |
| 0 2 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 3 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 4 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 5 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 6 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 7 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 8 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 9 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 10 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 11 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 12 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 13 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 14 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 15 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 16 | 0.0000 | 2.240 | 2.300 | 2.370 | 2.430 | 2.500 | 2.560 | 2.620 | 2.680 | 2.750 |
| | 2.810 | 2.880 | 2.940 | 3.000 | 3.070 | 3.130 | 3.200 | 3.260 | 3.320 | 3.390 |
| | 3.450 | 3.520 | 3.580 | 3.650 | 3.710 | 3.780 | 3.840 | 3.900 | 3.970 | 0.0000 |

**INITIAL HEAD FOR LAYER 7 WILL BE READ ON UNIT 1 USING FORMAT: (7G11.4)**

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 0 1 | 0.0000 | 1.280 | 1.340 | 1.400 | 1.470 | 1.530 | 1.600 | 1.660 | 1.730 | 1.790 |
| | 1.860 | 1.920 | 1.980 | 2.050 | 2.110 | 2.180 | 2.240 | 2.300 | 2.370 | 2.430 |
| | 2.500 | 2.560 | 2.620 | 2.680 | 2.750 | 2.810 | 2.880 | 2.940 | 3.000 | 0.0000 |
| 0 2 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 3 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 4 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 5 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 6 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 7 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 8 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 9 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 10 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |
| | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 0.0000 |
| 0 11 | 0.0000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 |

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      3.000    3.000    3.000    3.000    3.000    3.000    3.000    3.000    3.000    3.000
      3.000    3.000    3.000    3.000    3.000    3.000    3.000    3.000    3.000    0.0000
0 12  0.0000   3.000    3.000    3.000    3.000    3.000    3.000    3.000    3.000    3.000
      3.000    3.000    3.000    3.000    3.000    3.000    3.000    3.000    3.000    3.000
      3.000    3.000    3.000    3.000    3.000    3.000    3.000    3.000    3.000    0.0000
0 13  0.0000   3.000    3.000    3.000    3.000    3.000    3.000    3.000    3.000    3.000
      3.000    3.000    3.000    3.000    3.000    3.000    3.000    3.000    3.000    3.000
      3.000    3.000    3.000    3.000    3.000    3.000    3.000    3.000    3.000    0.0000
0 14  0.0000   3.000    3.000    3.000    3.000    3.000    3.000    3.000    3.000    3.000
      3.000    3.000    3.000    3.000    3.000    3.000    3.000    3.000    3.000    3.000
      3.000    3.000    3.000    3.000    3.000    3.000    3.000    3.000    3.000    0.0000
0 15  0.0000   3.000    3.000    3.000    3.000    3.000    3.000    3.000    3.000    3.000
      3.000    3.000    3.000    3.000    3.000    3.000    3.000    3.000    3.000    3.000
      3.000    3.000    3.000    3.000    3.000    3.000    3.000    3.000    3.000    0.0000
0 16  0.0000   2.240    2.300    2.370    2.430    2.500    2.560    2.620    2.680    2.750
      2.810    2.880    2.940    3.000    3.070    3.130    3.200    3.260    3.320    3.390
      3.450    3.520    3.580    3.650    3.710    3.780    3.840    3.900    3.970    0.0000
0HEAD PRINT FORMAT IS FORMAT NUMBER -6    DRAWDOWN PRINT FORMAT IS FORMAT NUMBER  0
0HEADS WILL BE SAVED ON UNIT 55    DRAWDOWNS WILL BE SAVED ON UNIT 77
0OUTPUT CONTROL IS SPECIFIED EVERY TIME STEP
0                              COLUMN TO ROW ANISOTROPY =   1.000000
0                                        DELR =   1.000000
0                                        DELC =   1.000000
                     HYD. COND. ALONG ROWS FOR LAYER  1 WILL BE READ ON UNIT 11 USING FORMAT:
(7G11.4)
                    ________________________________________________________________
        1        2        3        4        5        6        7        8        9       10
       11       12       13       14       15       16       17       18       19       20
       21       22       23       24       25       26       27       28       29       30
 ...........................................................................................
0 1   30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49
      30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49
      30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49
0 2   30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49
      30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49
      30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49
0 3   30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49
      30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49
      30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49
0 4   30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49
      30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49
      30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49    30.49
0 5   3049.    3049.    3049.    3049.    3049.    3049.    3049.    3049.    3049.    3049.
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0 6   3049.    3049.    3049.    3049.    3049.    3049.    3049.    3049.    3049.    3049.
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0 7   3049.    3049.    3049.    3049.    3049.    3049.    3049.    3049.    3049.    3049.
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0 9   3049.    3049.    3049.    3049.    3049.    3049.    3049.    3049.    3049.    3049.
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0 10  3049.    3049.    3049.    3049.    3049.    3049.    3049.    3049.    3049.    3049.
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0 11  3049.    3049.    3049.    3049.    3049.    3049.    3049.    3049.    3049.    3049.
      3049.    3049.    3049.    3049.    3049.    3049.    3049.    3049.    3049.    3049.
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|---|---|---|---|---|---|---|---|---|---|---|
| | 3049. | 3049. | 3049. | 3049. | 3049. | 3049. | 3049. | 3049. | 3049. | 3049. |
| 0 12 | 3049. | 3049. | 3049. | 3049. | 3049. | 3049. | 3049. | 3049. | 3049. | 3049. |
| | 3049. | 3049. | 3049. | 3049. | 3049. | 3049. | 3049. | 3049. | 3049. | 3049. |
| | 3049. | 3049. | 3049. | 3049. | 3049. | 3049. | 3049. | 3049. | 3049. | 3049. |
| 0 13 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 0 14 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 0 15 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 0 16 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |

0 BOTTOM = 1.000000 FOR LAYER 1

VERT HYD COND /THICKNESS FOR LAYER 1 WILL BE READ ON UNIT 11 USING FORMAT: (7G11.4)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 0 1 | 0.0000 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 0.0000 |
| 0 2 | 0.0000 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 0.0000 |
| 0 3 | 0.0000 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 0.0000 |
| 0 4 | 0.0000 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 0.0000 |
| 0 5 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 |
| | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 |
| | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 |
| 0 6 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 |
| | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 |
| | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 |
| 0 7 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 |
| | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 |
| | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 |
| 0 8 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 |
| | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 |
| | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 |
| 0 9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 |
| | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 |
| | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 |
| 0 10 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 |
| | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 |
| | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 |
| 0 11 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 |
| | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 |
| | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 |
| 0 12 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 |
| | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 |
| | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 | 304.9 |
| 0 13 | 0.0000 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |

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      3.050   3.050   3.050   3.050   3.050   3.050   3.050   3.050   3.050   0.0000
0 14  0.0000  3.050   3.050   3.050   3.050   3.050   3.050   3.050   3.050   3.050
      3.050   3.050   3.050   3.050   3.050   3.050   3.050   3.050   3.050   3.050
      3.050   3.050   3.050   3.050   3.050   3.050   3.050   3.050   3.050   0.0000
0 15  0.0000  3.050   3.050   3.050   3.050   3.050   3.050   3.050   3.050   3.050
      3.050   3.050   3.050   3.050   3.050   3.050   3.050   3.050   3.050   3.050
      3.050   3.050   3.050   3.050   3.050   3.050   3.050   3.050   3.050   0.0000
0 16  0.0000  3.050   3.050   3.050   3.050   3.050   3.050   3.050   3.050   3.050
      3.050   3.050   3.050   3.050   3.050   3.050   3.050   3.050   3.050   3.050
      3.050   3.050   3.050   3.050   3.050   3.050   3.050   3.050   3.050   0.0000
```

**TRANSMIS. ALONG ROWS FOR LAYER 2 WILL BE READ ON UNIT 11 USING FORMAT: (7G11.4)**

```
        1       2       3       4       5       6       7       8       9      10
       11      12      13      14      15      16      17      18      19      20
       21      22      23      24      25      26      27      28      29      30
.......................................................................................
0 1   0.0000  9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150
      9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150
      9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   0.0000
0 2   0.0000  9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150
      9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150
      9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   0.0000
0 3   0.0000  9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150
      9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150
      9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   0.0000
0 4   0.0000  9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150
      9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150
      9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   0.0000
0 5   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47
      91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47
      91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47
0 6   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47
      91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47
      91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47
0 7   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47
      91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47
      91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47
0 8   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47
      91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47
      91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47
0 9   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47
      91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47
      91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47
0 10  91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47
      91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47
      91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47
0 11  91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47
      91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47
      91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47
0 12  91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47
      91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47
      91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47   91.47
0 13  0.0000  9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150
      9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150
      9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   0.0000
0 14  0.0000  9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150
      9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150
      9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   0.0000
0 15  0.0000  9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150
      9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150
      9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   9.150   0.0000
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 16 | 0.0000 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 |
| | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 |
| | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 9.150 | 0.0000 |

**VERT HYD COND /THICKNESS FOR LAYER 2 WILL BE READ ON UNIT 11 USING FORMAT: (7G11.4)**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 0 1 | 0.0000 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 0.0000 |
| 0 2 | 0.0000 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 0.0000 |
| 0 3 | 0.0000 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 0.0000 |
| 0 4 | 0.0000 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 0.0000 |
| 0 5 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 0 6 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 0 7 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 0 8 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 0 9 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 0 10 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 0 11 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 0 12 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| 0 13 | 0.0000 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 0.0000 |
| 0 14 | 0.0000 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 0.0000 |
| 0 15 | 0.0000 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 0.0000 |
| 0 16 | 0.0000 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 |
| | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 3.050 | 0.0000 |

**TRANSMIS. ALONG ROWS FOR LAYER 3 WILL BE READ ON UNIT 11 USING FORMAT: (7G11.4)**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 0 1 | 0.0000 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 0.0000 |
| 0 2 | 0.0000 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 0.0000 |
| 0 3 | 0.0000 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 0.0000 |
| 0 4 | 0.0000 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 0.0000 |
| 0 5 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 0 6 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 0 7 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 0 8 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 0 9 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 0 10 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 0 11 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 0 12 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 | 122.0 |
| 0 13 | 0.0000 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 0.0000 |
| 0 14 | 0.0000 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 0.0000 |
| 0 15 | 0.0000 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 0.0000 |
| 0 16 | 0.0000 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 |
| | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 30.49 | 0.0000 |

0 VERT HYD COND /THICKNESS = 3.050000 FOR LAYER 3
0 TRANSMIS. ALONG ROWS = 18.50000 FOR LAYER 4
0 VERT HYD COND /THICKNESS = 3.050000 FOR LAYER 4
0 TRANSMIS. ALONG ROWS = 18.60000 FOR LAYER 5
0 VERT HYD COND /THICKNESS = 0.8510000E-03 FOR LAYER 5
0 TRANSMIS. ALONG ROWS = 0.8510000E-01 FOR LAYER 6
0 VERT HYD COND /THICKNESS = 0.8510000E-03 FOR LAYER 6
0 TRANSMIS. ALONG ROWS = 0.8510000E-01 FOR LAYER 7

SOLUTION BY THE STRONGLY IMPLICIT PROCEDURE

0 MAXIMUM ITERATIONS ALLOWED FOR CLOSURE = 50
ACCELERATION PARAMETER = 1.0000
HEAD CHANGE CRITERION FOR CLOSURE = 0.10000E-01
SIP HEAD CHANGE PRINTOUT INTERVAL = 1
0 CALCULATE ITERATION PARAMETERS FROM MODEL CALCULATED WSEED
1 STRESS PERIOD NO. 1, LENGTH = 1.000000

NUMBER OF TIME STEPS = 1
MULTIPLIER FOR DELT = 1.000
INITIAL TIME STEP SIZE = 1.000000

0 36 WELLS

| LAYER | ROW | COL | STRESS RATE | WELL NO. |
|---|---|---|---|---|
| 1 | 5 | 1 | -0.44800 | 1 |
| 1 | 12 | 1 | -0.44800 | 2 |
| 1 | 5 | 30 | 0.44800 | 3 |
| 1 | 12 | 30 | 0.44800 | 4 |
| 2 | 5 | 1 | -1.4900 | 5 |
| 2 | 6 | 1 | -1.4900 | 6 |
| 2 | 7 | 1 | -1.4900 | 7 |
| 2 | 8 | 1 | -1.4900 | 8 |
| 2 | 9 | 1 | -1.4900 | 9 |
| 2 | 10 | 1 | -1.4900 | 10 |
| 2 | 11 | 1 | -1.4900 | 11 |
| 2 | 12 | 1 | -1.4900 | 12 |
| 2 | 5 | 30 | 1.4900 | 13 |
| 2 | 6 | 30 | 1.4900 | 14 |
| 2 | 7 | 30 | 1.4900 | 15 |
| 2 | 8 | 30 | 1.4900 | 16 |
| 2 | 9 | 30 | 1.4900 | 17 |
| 2 | 10 | 30 | 1.4900 | 18 |
| 2 | 11 | 30 | 1.4900 | 19 |
| 2 | 12 | 30 | 1.4900 | 20 |
| 3 | 5 | 1 | -0.17900 | 21 |
| 3 | 6 | 1 | -0.17900 | 22 |
| 3 | 7 | 1 | -0.17900 | 23 |
| 3 | 8 | 1 | -0.17900 | 24 |
| 3 | 9 | 1 | -0.17900 | 25 |
| 3 | 10 | 1 | -0.17900 | 26 |
| 3 | 11 | 1 | -0.17900 | 27 |
| 3 | 12 | 1 | -0.17900 | 28 |
| 3 | 5 | 30 | 0.17900 | 29 |
| 3 | 6 | 30 | 0.17900 | 30 |
| 3 | 7 | 30 | 0.17900 | 31 |
| 3 | 8 | 30 | 0.17900 | 32 |
| 3 | 9 | 30 | 0.17900 | 33 |
| 3 | 10 | 30 | 0.17900 | 34 |
| 3 | 11 | 30 | 0.17900 | 35 |
| 3 | 12 | 30 | 0.17900 | 36 |

0AVERAGE SEED = 0.00120304
MINIMUM SEED = 0.00000230
0
5 ITERATION PARAMETERS CALCULATED FROM AVERAGE SEED:

0.0000000E+00 0.8137613E+00 0.9653152E+00 0.9935403E+00 0.9987969E+00

0
6 ITERATIONS FOR TIME STEP 1 IN STRESS PERIOD 1
0MAXIMUM HEAD CHANGE FOR EACH ITERATION:
0 HEAD CHANGE LAYER,ROW,COL HEAD CHANGE LAYER,ROW,COL HEAD CHANGE LAYER,ROW,COL HEAD CHANGE
LAYER,ROW,COL HEAD CHANGE LAYER,ROW,COL

```
-1.213   ( 2, 5, 1) -0.6849   ( 2, 3, 3) -0.5562   ( 4, 5, 3) -0.4280   ( 6, 8, 2) -0.5703E-01 ( 5, 11, 2)
 0.6971E-02 ( 4, 5, 2)
0
0HEAD/DRAWDOWN PRINTOUT FLAG = 1    TOTAL BUDGET PRINTOUT FLAG = 1    CELL-BY-CELL FLOW TERM
FLAG = 1
0OUTPUT FLAGS FOR EACH LAYER:
       HEAD   DRAWDOWN  HEAD  DRAWDOWN
 LAYER PRINTOUT PRINTOUT SAVE   SAVE
 ----------------------------------------
   1     1       0      1      0
   2     1       0      1      0
   3     1       0      1      0
   4     1       0      1      0
   5     1       0      1      0
   6     1       0      1      0
   7     1       0      1      0
 "  CONSTANT HEAD" BUDGET VALUES WILL BE SAVED ON UNIT 77 AT END OF TIME STEP  1, STRESS PERIOD
 1
 "FLOW RIGHT FACE " BUDGET VALUES WILL BE SAVED ON UNIT 77 AT END OF TIME STEP  1, STRESS PERIOD
 1
 "FLOW FRONT FACE " BUDGET VALUES WILL BE SAVED ON UNIT 77 AT END OF TIME STEP  1, STRESS PERIOD
 1
 "FLOW LOWER FACE " BUDGET VALUES WILL BE SAVED ON UNIT 77 AT END OF TIME STEP  1, STRESS PERIOD
 1
0      WELLS  PERIOD 1  STEP 1  WELL  5  LAYER 2  ROW  5  COL  1  RATE -1.490000
0      WELLS  PERIOD 1  STEP 1  WELL  6  LAYER 2  ROW  6  COL  1  RATE -1.490000
0      WELLS  PERIOD 1  STEP 1  WELL  7  LAYER 2  ROW  7  COL  1  RATE -1.490000
0      WELLS  PERIOD 1  STEP 1  WELL  8  LAYER 2  ROW  8  COL  1  RATE -1.490000
0      WELLS  PERIOD 1  STEP 1  WELL  9  LAYER 2  ROW  9  COL  1  RATE -1.490000
0      WELLS  PERIOD 1  STEP 1  WELL 10  LAYER 2  ROW 10  COL  1  RATE -1.490000
0      WELLS  PERIOD 1  STEP 1  WELL 11  LAYER 2  ROW 11  COL  1  RATE -1.490000
0      WELLS  PERIOD 1  STEP 1  WELL 12  LAYER 2  ROW 12  COL  1  RATE -1.490000
0      WELLS  PERIOD 1  STEP 1  WELL 13  LAYER 2  ROW  5  COL 30  RATE  1.490000
0      WELLS  PERIOD 1  STEP 1  WELL 14  LAYER 2  ROW  6  COL 30  RATE  1.490000
0      WELLS  PERIOD 1  STEP 1  WELL 15  LAYER 2  ROW  7  COL 30  RATE  1.490000
0      WELLS  PERIOD 1  STEP 1  WELL 16  LAYER 2  ROW  8  COL 30  RATE  1.490000
0      WELLS  PERIOD 1  STEP 1  WELL 17  LAYER 2  ROW  9  COL 30  RATE  1.490000
0      WELLS  PERIOD 1  STEP 1  WELL 18  LAYER 2  ROW 10  COL 30  RATE  1.490000
0      WELLS  PERIOD 1  STEP 1  WELL 19  LAYER 2  ROW 11  COL 30  RATE  1.490000
0      WELLS  PERIOD 1  STEP 1  WELL 20  LAYER 2  ROW 12  COL 30  RATE  1.490000
0      WELLS  PERIOD 1  STEP 1  WELL 21  LAYER 3  ROW  5  COL  1  RATE -0.1790000
0      WELLS  PERIOD 1  STEP 1  WELL 22  LAYER 3  ROW  6  COL  1  RATE -0.1790000
0      WELLS  PERIOD 1  STEP 1  WELL 23  LAYER 3  ROW  7  COL  1  RATE -0.1790000
0      WELLS  PERIOD 1  STEP 1  WELL 24  LAYER 3  ROW  8  COL  1  RATE -0.1790000
0      WELLS  PERIOD 1  STEP 1  WELL 25  LAYER 3  ROW  9  COL  1  RATE -0.1790000
0      WELLS  PERIOD 1  STEP 1  WELL 26  LAYER 3  ROW 10  COL  1  RATE -0.1790000
0      WELLS  PERIOD 1  STEP 1  WELL 27  LAYER 3  ROW 11  COL  1  RATE -0.1790000
0      WELLS  PERIOD 1  STEP 1  WELL 28  LAYER 3  ROW 12  COL  1  RATE -0.1790000
0      WELLS  PERIOD 1  STEP 1  WELL 29  LAYER 3  ROW  5  COL 30  RATE 0.1790000
0      WELLS  PERIOD 1  STEP 1  WELL 30  LAYER 3  ROW  6  COL 30  RATE 0.1790000
0      WELLS  PERIOD 1  STEP 1  WELL 31  LAYER 3  ROW  7  COL 30  RATE 0.1790000
0      WELLS  PERIOD 1  STEP 1  WELL 32  LAYER 3  ROW  8  COL 30  RATE 0.1790000
0      WELLS  PERIOD 1  STEP 1  WELL 33  LAYER 3  ROW  9  COL 30  RATE 0.1790000
0      WELLS  PERIOD 1  STEP 1  WELL 34  LAYER 3  ROW 10  COL 30  RATE 0.1790000
0      WELLS  PERIOD 1  STEP 1  WELL 35  LAYER 3  ROW 11  COL 30  RATE 0.1790000
0      WELLS  PERIOD 1  STEP 1  WELL 36  LAYER 3  ROW 12  COL 30  RATE 0.1790000
1           HEAD IN LAYER  1 AT END OF TIME STEP  1 IN STRESS PERIOD  1
       ----------------------------------------
         1      2      3      4      5      6      7      8      9     10     11     12     13     14     15
 .......................................................................................................
0 1  0.0000 1.2800 1.3400 1.4000 1.4700 1.5300 1.6000 1.6600 1.7300 1.7900 1.8600 1.9200 1.9800 2.0500 2.1100
0 2  0.0000 1.5053 1.5350 1.5815 1.6370 1.6953 1.7570 1.8183 1.8815 1.9434 2.0068 2.0687 2.1307 2.1947 2.2571
```

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 3 | 0.0000 | 1.6312 | 1.6618 | 1.7097 | 1.7650 | 1.8238 | 1.8854 | 1.9472 | 2.0101 | 2.0722 | 2.1345 | 2.1976 | 2.2602 | 2.3238 | 2.3860 |
| 0 4 | 0.0000 | 1.7125 | 1.7547 | 1.8127 | 1.8714 | 1.9319 | 1.9967 | 2.0590 | 2.1243 | 2.1861 | 2.2480 | 2.3135 | 2.3762 | 2.4417 | 2.5034 |
| 0 5 | 1.6600 | 1.7300 | 1.7900 | 1.8600 | 1.9200 | 1.9800 | 2.0500 | 2.1100 | 2.1800 | 2.2400 | 2.3000 | 2.3700 | 2.4300 | 2.5000 | 2.5600 |
| 0 6 | 1.6600 | 1.7300 | 1.7900 | 1.8600 | 1.9200 | 1.9800 | 2.0500 | 2.1100 | 2.1800 | 2.2400 | 2.3000 | 2.3700 | 2.4300 | 2.5000 | 2.5600 |
| 0 7 | 1.6600 | 1.7300 | 1.7900 | 1.8600 | 1.9200 | 1.9800 | 2.0500 | 2.1100 | 2.1800 | 2.2400 | 2.3000 | 2.3700 | 2.4300 | 2.5000 | 2.5600 |
| 0 8 | 1.6600 | 1.7300 | 1.7900 | 1.8600 | 1.9200 | 1.9800 | 2.0500 | 2.1100 | 2.1800 | 2.2400 | 2.3000 | 2.3700 | 2.4300 | 2.5000 | 2.5600 |
| 0 9 | 1.6600 | 1.7300 | 1.7900 | 1.8600 | 1.9200 | 1.9800 | 2.0500 | 2.1100 | 2.1800 | 2.2400 | 2.3000 | 2.3700 | 2.4300 | 2.5000 | 2.5600 |
| 0 10 | 1.6600 | 1.7300 | 1.7900 | 1.8600 | 1.9200 | 1.9800 | 2.0500 | 2.1100 | 2.1800 | 2.2400 | 2.3000 | 2.3700 | 2.4300 | 2.5000 | 2.5600 |
| 0 11 | 1.6600 | 1.7300 | 1.7900 | 1.8600 | 1.9200 | 1.9800 | 2.0500 | 2.1100 | 2.1800 | 2.2400 | 2.3000 | 2.3700 | 2.4300 | 2.5000 | 2.5600 |
| 0 12 | 1.6600 | 1.7300 | 1.7900 | 1.8600 | 1.9200 | 1.9800 | 2.0500 | 2.1100 | 2.1800 | 2.2400 | 2.3000 | 2.3700 | 2.4300 | 2.5000 | 2.5600 |
| 0 13 | 0.0000 | 1.8542 | 1.8958 | 1.9534 | 2.0120 | 2.0725 | 2.1370 | 2.1990 | 2.2640 | 2.3258 | 2.3878 | 2.4533 | 2.5159 | 2.5813 | 2.6431 |
| 0 14 | 0.0000 | 2.0372 | 2.0691 | 2.1189 | 2.1753 | 2.2353 | 2.2966 | 2.3580 | 2.4204 | 2.4830 | 2.5456 | 2.6093 | 2.6721 | 2.7352 | 2.7981 |
| 0 15 | 0.0000 | 2.1624 | 2.1997 | 2.2540 | 2.3123 | 2.3746 | 2.4356 | 2.4964 | 2.5581 | 2.6224 | 2.6852 | 2.7498 | 2.8121 | 2.8744 | 2.9390 |
| 0 16 | 0.0000 | 2.2400 | 2.3000 | 2.3700 | 2.4300 | 2.5000 | 2.5600 | 2.6200 | 2.6800 | 2.7500 | 2.8100 | 2.8800 | 2.9400 | 3.0000 | 3.0700 |

1 HEAD IN LAYER 1 AT END OF TIME STEP 1 IN STRESS PERIOD 1

| | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 1 | 2.1800 | 2.2400 | 2.3000 | 2.3700 | 2.4300 | 2.5000 | 2.5600 | 2.6200 | 2.6800 | 2.7500 | 2.8100 | 2.8800 | 2.9400 | 3.0000 | 0.0000 |
| 0 2 | 2.3208 | 2.3828 | 2.4452 | 2.5097 | 2.5727 | 2.6370 | 2.6990 | 2.7607 | 2.8226 | 2.8861 | 2.9467 | 3.0057 | 3.0560 | 3.0909 | 0.0000 |
| 0 3 | 2.4482 | 2.5104 | 2.5739 | 2.6374 | 2.7012 | 2.7642 | 2.8266 | 2.8896 | 2.9521 | 3.0149 | 3.0749 | 3.1316 | 3.1805 | 3.2118 | 0.0000 |
| 0 4 | 2.5644 | 2.6262 | 2.6918 | 2.7548 | 2.8205 | 2.8826 | 2.9446 | 3.0101 | 3.0727 | 3.1379 | 3.1987 | 3.2577 | 3.3156 | 3.3573 | 0.0000 |
| 0 5 | 2.6200 | 2.6800 | 2.7500 | 2.8100 | 2.8800 | 2.9400 | 3.0000 | 3.0700 | 3.1300 | 3.2000 | 3.2600 | 3.3200 | 3.3900 | 3.4500 | 3.5200 |
| 0 6 | 2.6200 | 2.6800 | 2.7500 | 2.8100 | 2.8800 | 2.9400 | 3.0000 | 3.0700 | 3.1300 | 3.2000 | 3.2600 | 3.3200 | 3.3900 | 3.4500 | 3.5200 |
| 0 7 | 2.6200 | 2.6800 | 2.7500 | 2.8100 | 2.8800 | 2.9400 | 3.0000 | 3.0700 | 3.1300 | 3.2000 | 3.2600 | 3.3200 | 3.3900 | 3.4500 | 3.5200 |
| 0 8 | 2.6200 | 2.6800 | 2.7500 | 2.8100 | 2.8800 | 2.9400 | 3.0000 | 3.0700 | 3.1300 | 3.2000 | 3.2600 | 3.3200 | 3.3900 | 3.4500 | 3.5200 |
| 0 9 | 2.6200 | 2.6800 | 2.7500 | 2.8100 | 2.8800 | 2.9400 | 3.0000 | 3.0700 | 3.1300 | 3.2000 | 3.2600 | 3.3200 | 3.3900 | 3.4500 | 3.5200 |
| 0 10 | 2.6200 | 2.6800 | 2.7500 | 2.8100 | 2.8800 | 2.9400 | 3.0000 | 3.0700 | 3.1300 | 3.2000 | 3.2600 | 3.3200 | 3.3900 | 3.4500 | 3.5200 |
| 0 11 | 2.6200 | 2.6800 | 2.7500 | 2.8100 | 2.8800 | 2.9400 | 3.0000 | 3.0700 | 3.1300 | 3.2000 | 3.2600 | 3.3200 | 3.3900 | 3.4500 | 3.5200 |
| 0 12 | 2.6200 | 2.6800 | 2.7500 | 2.8100 | 2.8800 | 2.9400 | 3.0000 | 3.0700 | 3.1300 | 3.2000 | 3.2600 | 3.3200 | 3.3900 | 3.4500 | 3.5200 |
| 0 13 | 2.7043 | 2.7662 | 2.8317 | 2.8945 | 2.9602 | 3.0224 | 3.0847 | 3.1504 | 3.2133 | 3.2785 | 3.3393 | 3.3982 | 3.4558 | 3.4974 | 0.0000 |
| 0 14 | 2.8604 | 2.9234 | 2.9868 | 3.0499 | 3.1140 | 3.1772 | 3.2408 | 3.3047 | 3.3683 | 3.4310 | 3.4916 | 3.5480 | 3.5971 | 3.6293 | 0.0000 |
| 0 15 | 3.0017 | 3.0663 | 3.1287 | 3.1913 | 3.2562 | 3.3194 | 3.3845 | 3.4478 | 3.5127 | 3.5751 | 3.6378 | 3.6953 | 3.7467 | 3.7855 | 0.0000 |
| 0 16 | 3.1300 | 3.2000 | 3.2600 | 3.3200 | 3.3900 | 3.4500 | 3.5200 | 3.5800 | 3.6500 | 3.7100 | 3.7800 | 3.8400 | 3.9000 | 3.9700 | 0.0000 |

1 HEAD IN LAYER 2 AT END OF TIME STEP 1 IN STRESS PERIOD 1

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 1 | 0.0000 | 1.2800 | 1.3400 | 1.4000 | 1.4700 | 1.5300 | 1.6000 | 1.6600 | 1.7300 | 1.7900 | 1.8600 | 1.9200 | 1.9800 | 2.0500 | 2.1100 |
| 0 2 | 0.0000 | 1.4619 | 1.4962 | 1.5456 | 1.6039 | 1.6639 | 1.7273 | 1.7897 | 1.8544 | 1.9173 | 1.9820 | 2.0446 | 2.1073 | 2.1722 | 2.2353 |
| 0 3 | 0.0000 | 1.5999 | 1.6290 | 1.6754 | 1.7304 | 1.7894 | 1.8512 | 1.9137 | 1.9772 | 2.0402 | 2.1036 | 2.1670 | 2.2303 | 2.2943 | 2.3574 |
| 0 4 | 0.0000 | 1.7009 | 1.7390 | 1.7922 | 1.8495 | 1.9094 | 1.9725 | 2.0353 | 2.0995 | 2.1622 | 2.2250 | 2.2895 | 2.3531 | 2.4177 | 2.4803 |
| 0 5 | 1.6788 | 1.7330 | 1.7906 | 1.8549 | 1.9152 | 1.9761 | 2.0424 | 2.1047 | 2.1713 | 2.2330 | 2.2946 | 2.3614 | 2.4240 | 2.4908 | 2.5524 |
| 0 6 | 1.6796 | 1.7350 | 1.7935 | 1.8583 | 1.9187 | 1.9797 | 2.0461 | 2.1084 | 2.1751 | 2.2367 | 2.2984 | 2.3652 | 2.4278 | 2.4946 | 2.5562 |
| 0 7 | 1.6805 | 1.7362 | 1.7949 | 1.8599 | 1.9204 | 1.9814 | 2.0479 | 2.1102 | 2.1769 | 2.2385 | 2.3002 | 2.3670 | 2.4296 | 2.4964 | 2.5579 |
| 0 8 | 1.6812 | 1.7371 | 1.7960 | 1.8610 | 1.9216 | 1.9827 | 2.0491 | 2.1115 | 2.1782 | 2.2398 | 2.3014 | 2.3683 | 2.4309 | 2.4977 | 2.5592 |
| 0 9 | 1.6820 | 1.7380 | 1.7970 | 1.8621 | 1.9228 | 1.9838 | 2.0503 | 2.1126 | 2.1793 | 2.2409 | 2.3026 | 2.3694 | 2.4320 | 2.4989 | 2.5604 |
| 0 10 | 1.6829 | 1.7391 | 1.7982 | 1.8634 | 1.9241 | 1.9851 | 2.0516 | 2.1140 | 2.1807 | 2.2423 | 2.3039 | 2.3708 | 2.4334 | 2.5002 | 2.5617 |
| 0 11 | 1.6841 | 1.7409 | 1.8002 | 1.8654 | 1.9261 | 1.9872 | 2.0536 | 2.1160 | 2.1827 | 2.2443 | 2.3060 | 2.3728 | 2.4354 | 2.5022 | 2.5637 |
| 0 12 | 1.6855 | 1.7460 | 1.8053 | 1.8703 | 1.9309 | 1.9919 | 2.0582 | 2.1206 | 2.1872 | 2.2489 | 2.3105 | 2.3773 | 2.4399 | 2.5067 | 2.5682 |
| 0 13 | 0.0000 | 1.8728 | 1.9123 | 1.9666 | 2.0243 | 2.0844 | 2.1474 | 2.2099 | 2.2739 | 2.3365 | 2.3992 | 2.4638 | 2.5273 | 2.5918 | 2.6544 |
| 0 14 | 0.0000 | 2.0404 | 2.0711 | 2.1192 | 2.1746 | 2.2341 | 2.2951 | 2.3568 | 2.4193 | 2.4825 | 2.5456 | 2.6095 | 2.6728 | 2.7363 | 2.7997 |
| 0 15 | 0.0000 | 2.1618 | 2.1979 | 2.2507 | 2.3081 | 2.3700 | 2.4309 | 2.4920 | 2.5539 | 2.6184 | 2.6815 | 2.7464 | 2.8091 | 2.8718 | 2.9365 |
| 0 16 | 0.0000 | 2.2400 | 2.3000 | 2.3700 | 2.4300 | 2.5000 | 2.5600 | 2.6200 | 2.6800 | 2.7500 | 2.8100 | 2.8800 | 2.9400 | 3.0000 | 3.0700 |

1 HEAD IN LAYER 2 AT END OF TIME STEP 1 IN STRESS PERIOD 1

| | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 1 | 2.1800 | 2.2400 | 2.3000 | 2.3700 | 2.4300 | 2.5000 | 2.5600 | 2.6200 | 2.6800 | 2.7500 | 2.8100 | 2.8800 | 2.9400 | 3.0000 | 0.0000 |
| 0 2 | 2.3000 | 2.3625 | 2.4252 | 2.4901 | 2.5535 | 2.6181 | 2.6803 | 2.7418 | 2.8035 | 2.8669 | 2.9272 | 2.9861 | 3.0363 | 3.0712 | 0.0000 |
| 0 3 | 2.4206 | 2.4835 | 2.5470 | 2.6109 | 2.6746 | 2.7380 | 2.8005 | 2.8630 | 2.9251 | 2.9869 | 3.0462 | 3.1018 | 3.1490 | 3.1793 | 0.0000 |
| 0 4 | 2.5423 | 2.6049 | 2.6695 | 2.7331 | 2.7978 | 2.8605 | 2.9230 | 2.9870 | 3.0497 | 3.1129 | 3.1730 | 3.2308 | 3.2848 | 3.3242 | 0.0000 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 5 | 2.6131 | 2.6747 | 2.7414 | 2.8040 | 2.8708 | 2.9325 | 2.9941 | 3.0607 | 3.1231 | 3.1894 | 3.2504 | 3.3110 | 3.3759 | 3.4351 | 3.4950 |
| 0 6 | 2.6169 | 2.6784 | 2.7452 | 2.8078 | 2.8746 | 2.9363 | 2.9979 | 3.0646 | 3.1270 | 3.1934 | 3.2544 | 3.3151 | 3.3803 | 3.4395 | 3.4962 |
| 0 7 | 2.6186 | 2.6802 | 2.7470 | 2.8096 | 2.8764 | 2.9381 | 2.9997 | 3.0664 | 3.1287 | 3.1952 | 3.2563 | 3.3169 | 3.3821 | 3.4411 | 3.4973 |
| 0 8 | 2.6199 | 2.6814 | 2.7482 | 2.8108 | 2.8777 | 2.9393 | 3.0009 | 3.0676 | 3.1300 | 3.1964 | 3.2575 | 3.3181 | 3.3832 | 3.4422 | 3.4981 |
| 0 9 | 2.6211 | 2.6826 | 2.7494 | 2.8120 | 2.8788 | 2.9405 | 3.0021 | 3.0688 | 3.1311 | 3.1976 | 3.2586 | 3.3192 | 3.3842 | 3.4431 | 3.4989 |
| 0 10 | 2.6224 | 2.6839 | 2.7507 | 2.8133 | 2.8802 | 2.9418 | 3.0034 | 3.0701 | 3.1324 | 3.1989 | 3.2599 | 3.3204 | 3.3853 | 3.4440 | 3.4997 |
| 0 11 | 2.6244 | 2.6859 | 2.7527 | 2.8153 | 2.8822 | 2.9438 | 3.0054 | 3.0721 | 3.1344 | 3.2008 | 3.2618 | 3.3222 | 3.3869 | 3.4453 | 3.5006 |
| 0 12 | 2.6290 | 2.6905 | 2.7572 | 2.8198 | 2.8866 | 2.9483 | 3.0099 | 3.0765 | 3.1388 | 3.2051 | 3.2660 | 3.3263 | 3.3905 | 3.4479 | 3.5015 |
| 0 13 | 2.7164 | 2.7790 | 2.8435 | 2.9071 | 2.9717 | 3.0345 | 3.0973 | 3.1616 | 3.2244 | 3.2875 | 3.3475 | 3.4046 | 3.4577 | 3.4961 | 0.0000 |
| 0 14 | 2.8626 | 2.9260 | 2.9895 | 3.0529 | 3.1169 | 3.1803 | 3.2439 | 3.3073 | 3.3703 | 3.4320 | 3.4914 | 3.5461 | 3.5929 | 3.6232 | 0.0000 |
| 0 15 | 2.9996 | 3.0644 | 3.1271 | 3.1899 | 3.2549 | 3.3182 | 3.3832 | 3.4463 | 3.5108 | 3.5728 | 3.6347 | 3.6913 | 3.7414 | 3.7790 | 0.0000 |
| 0 16 | 3.1300 | 3.2000 | 3.2600 | 3.3200 | 3.3900 | 3.4500 | 3.5200 | 3.5800 | 3.6500 | 3.7100 | 3.7800 | 3.8400 | 3.9000 | 3.9700 | 0.0000 |

1 HEAD IN LAYER 3 AT END OF TIME STEP 1 IN STRESS PERIOD 1

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 1 | 0.0000 | 1.2800 | 1.3400 | 1.4000 | 1.4700 | 1.5300 | 1.6000 | 1.6600 | 1.7300 | 1.7900 | 1.8600 | 1.9200 | 1.9800 | 2.0500 | 2.1100 |
| 0 2 | 0.0000 | 1.4507 | 1.4839 | 1.5317 | 1.5886 | 1.6475 | 1.7101 | 1.7722 | 1.8365 | 1.8995 | 1.9643 | 2.0269 | 2.0897 | 2.1547 | 2.2181 |
| 0 3 | 0.0000 | 1.5891 | 1.6140 | 1.6551 | 1.7059 | 1.7619 | 1.8215 | 1.8827 | 1.9452 | 2.0081 | 2.0715 | 2.1346 | 2.1979 | 2.2618 | 2.3254 |
| 0 4 | 0.0000 | 1.7050 | 1.7303 | 1.7707 | 1.8201 | 1.8750 | 1.9335 | 1.9940 | 2.0558 | 2.1182 | 2.1812 | 2.2445 | 2.3079 | 2.3715 | 2.4348 |
| 0 5 | 1.7520 | 1.7651 | 1.7966 | 1.8402 | 1.8909 | 1.9463 | 2.0051 | 2.0657 | 2.1276 | 2.1898 | 2.2526 | 2.3161 | 2.3796 | 2.4432 | 2.5064 |
| 0 6 | 1.7590 | 1.7794 | 1.8142 | 1.8593 | 1.9107 | 1.9664 | 2.0254 | 2.0860 | 2.1479 | 2.2102 | 2.2729 | 2.3364 | 2.3998 | 2.4635 | 2.5266 |
| 0 7 | 1.7670 | 1.7902 | 1.8271 | 1.8734 | 1.9254 | 1.9814 | 2.0405 | 2.1012 | 2.1631 | 2.2254 | 2.2881 | 2.3515 | 2.4150 | 2.4786 | 2.5417 |
| 0 8 | 1.7750 | 1.7997 | 1.8378 | 1.8850 | 1.9375 | 1.9937 | 2.0530 | 2.1137 | 2.1757 | 2.2380 | 2.3007 | 2.3641 | 2.4276 | 2.4912 | 2.5542 |
| 0 9 | 1.7830 | 1.8090 | 1.8482 | 1.8960 | 1.9490 | 2.0055 | 2.0649 | 2.1257 | 2.1877 | 2.2499 | 2.3126 | 2.3761 | 2.4395 | 2.5032 | 2.5662 |
| 0 10 | 1.7920 | 1.8196 | 1.8600 | 1.9085 | 1.9618 | 2.0185 | 2.0780 | 2.1389 | 2.2009 | 2.2632 | 2.3259 | 2.3894 | 2.4528 | 2.5164 | 2.5794 |
| 0 11 | 1.8021 | 1.8334 | 1.8756 | 1.9249 | 1.9784 | 2.0352 | 2.0947 | 2.1556 | 2.2177 | 2.2799 | 2.3427 | 2.4061 | 2.4695 | 2.5331 | 2.5961 |
| 0 12 | 1.8119 | 1.8547 | 1.8988 | 1.9483 | 2.0017 | 2.0584 | 2.1178 | 2.1786 | 2.2406 | 2.3029 | 2.3656 | 2.4291 | 2.4925 | 2.5560 | 2.6190 |
| 0 13 | 0.0000 | 1.9594 | 1.9902 | 2.0348 | 2.0863 | 2.1423 | 2.2010 | 2.2613 | 2.3229 | 2.3852 | 2.4480 | 2.5113 | 2.5746 | 2.6379 | 2.7011 |
| 0 14 | 0.0000 | 2.0872 | 2.1145 | 2.1581 | 2.2099 | 2.2666 | 2.3255 | 2.3857 | 2.4472 | 2.5100 | 2.5730 | 2.6365 | 2.6997 | 2.7629 | 2.8265 |
| 0 15 | 0.0000 | 2.1822 | 2.2169 | 2.2678 | 2.3236 | 2.3842 | 2.4441 | 2.5045 | 2.5660 | 2.6304 | 2.6934 | 2.7582 | 2.8208 | 2.8835 | 2.9484 |
| 0 16 | 0.0000 | 2.2400 | 2.3000 | 2.3700 | 2.4300 | 2.5000 | 2.5600 | 2.6200 | 2.6800 | 2.7500 | 2.8100 | 2.8800 | 2.9400 | 3.0000 | 3.0700 |

1 HEAD IN LAYER 3 AT END OF TIME STEP 1 IN STRESS PERIOD 1

| | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 1 | 2.1800 | 2.2400 | 2.3000 | 2.3700 | 2.4300 | 2.5000 | 2.5600 | 2.6200 | 2.6800 | 2.7500 | 2.8100 | 2.8800 | 2.9400 | 3.0000 | 0.0000 |
| 0 2 | 2.2830 | 2.3457 | 2.4084 | 2.4733 | 2.5365 | 2.6011 | 2.6629 | 2.7239 | 2.7849 | 2.8473 | 2.9063 | 2.9637 | 3.0121 | 3.0458 | 0.0000 |
| 0 3 | 2.3891 | 2.4523 | 2.5156 | 2.5793 | 2.6426 | 2.7058 | 2.7678 | 2.8291 | 2.8895 | 2.9491 | 3.0056 | 3.0575 | 3.1002 | 3.1269 | 0.0000 |
| 0 4 | 2.4981 | 2.5613 | 2.6247 | 2.6881 | 2.7514 | 2.8141 | 2.8762 | 2.9377 | 2.9980 | 3.0569 | 3.1127 | 3.1641 | 3.2080 | 3.2383 | 0.0000 |
| 0 5 | 2.5692 | 2.6323 | 2.6959 | 2.7594 | 2.8228 | 2.8855 | 2.9477 | 3.0096 | 3.0704 | 3.1298 | 3.1864 | 3.2395 | 3.2884 | 3.3316 | 3.3723 |
| 0 6 | 2.5894 | 2.6524 | 2.7161 | 2.7795 | 2.8429 | 2.9056 | 2.9678 | 3.0299 | 3.0907 | 3.1501 | 3.2068 | 3.2602 | 3.3091 | 3.3506 | 3.3811 |
| 0 7 | 2.6045 | 2.6675 | 2.7311 | 2.7945 | 2.8579 | 2.9206 | 2.9828 | 3.0449 | 3.1057 | 3.1651 | 3.2218 | 3.2749 | 3.3232 | 3.3632 | 3.3904 |
| 0 8 | 2.6170 | 2.6800 | 2.7435 | 2.8069 | 2.8703 | 2.9330 | 2.9952 | 3.0572 | 3.1180 | 3.1774 | 3.2338 | 3.2866 | 3.3343 | 3.3732 | 3.3989 |
| 0 9 | 2.6289 | 2.6919 | 2.7554 | 2.8188 | 2.8822 | 2.9448 | 3.0070 | 3.0690 | 3.1297 | 3.1889 | 3.2452 | 3.2975 | 3.3445 | 3.3824 | 3.4070 |
| 0 10 | 2.6421 | 2.7051 | 2.7687 | 2.8320 | 2.8954 | 2.9580 | 3.0201 | 3.0820 | 3.1427 | 3.2018 | 3.2577 | 3.3095 | 3.3556 | 3.3921 | 3.4151 |
| 0 11 | 2.6589 | 2.7218 | 2.7854 | 2.8487 | 2.9120 | 2.9746 | 3.0367 | 3.0986 | 3.1592 | 3.2180 | 3.2736 | 3.3247 | 3.3695 | 3.4038 | 3.4237 |
| 0 12 | 2.6818 | 2.7448 | 2.8083 | 2.8716 | 2.9350 | 2.9976 | 3.0597 | 3.1215 | 3.1819 | 3.2406 | 3.2959 | 3.3462 | 3.3894 | 3.4204 | 3.4315 |
| 0 13 | 2.7642 | 2.8274 | 2.8907 | 2.9539 | 3.0172 | 3.0799 | 3.1422 | 3.2039 | 3.2642 | 3.3225 | 3.3772 | 3.4262 | 3.4664 | 3.4915 | 0.0000 |
| 0 14 | 2.8899 | 2.9536 | 3.0167 | 3.0799 | 3.1434 | 3.2065 | 3.2696 | 3.3317 | 3.3929 | 3.4519 | 3.5080 | 3.5582 | 3.5991 | 3.6246 | 0.0000 |
| 0 15 | 3.0117 | 3.0766 | 3.1392 | 3.2019 | 3.2667 | 3.3298 | 3.3945 | 3.4571 | 3.5207 | 3.5815 | 3.6418 | 3.6964 | 3.7442 | 3.7801 | 0.0000 |
| 0 16 | 3.1300 | 3.2000 | 3.2600 | 3.3200 | 3.3900 | 3.4500 | 3.5200 | 3.5800 | 3.6500 | 3.7100 | 3.7800 | 3.8400 | 3.9000 | 3.9700 | 0.0000 |

1 HEAD IN LAYER 4 AT END OF TIME STEP 1 IN STRESS PERIOD 1

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 1 | 0.0000 | 1.2800 | 1.3400 | 1.4000 | 1.4700 | 1.5300 | 1.6000 | 1.6600 | 1.7300 | 1.7900 | 1.8600 | 1.9200 | 1.9800 | 2.0500 | 2.1100 |
| 0 2 | 0.0000 | 1.4381 | 1.4700 | 1.5158 | 1.5706 | 1.6276 | 1.6888 | 1.7497 | 1.8132 | 1.8757 | 1.9400 | 2.0024 | 2.0649 | 2.1297 | 2.1929 |
| 0 3 | 0.0000 | 1.5628 | 1.5844 | 1.6207 | 1.6669 | 1.7190 | 1.7754 | 1.8342 | 1.8950 | 1.9567 | 2.0193 | 2.0818 | 2.1447 | 2.2082 | 2.2716 |
| 0 4 | 0.0000 | 1.6638 | 1.6812 | 1.7124 | 1.7536 | 1.8019 | 1.8552 | 1.9118 | 1.9709 | 2.0315 | 2.0932 | 2.1555 | 2.2182 | 2.2812 | 2.3444 |
| 0 5 | 0.0000 | 1.7433 | 1.7588 | 1.7875 | 1.8260 | 1.8719 | 1.9231 | 1.9782 | 2.0360 | 2.0957 | 2.1567 | 2.2187 | 2.2812 | 2.3440 | 2.4069 |
| 0 6 | 0.0000 | 1.8053 | 1.8199 | 1.8474 | 1.8845 | 1.9289 | 1.9788 | 2.0327 | 2.0897 | 2.1487 | 2.2093 | 2.2709 | 2.3331 | 2.3958 | 2.4585 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 7 | 0.0000 | 1.8565 | 1.8708 | 1.8977 | 1.9341 | 1.9777 | 2.0268 | 2.0800 | 2.1364 | 2.1950 | 2.2551 | 2.3165 | 2.3785 | 2.4410 | 2.5036 |
| 0 8 | 0.0000 | 1.9011 | 1.9155 | 1.9423 | 1.9784 | 2.0216 | 2.0703 | 2.1232 | 2.1792 | 2.2375 | 2.2975 | 2.3586 | 2.4205 | 2.4829 | 2.5453 |
| 0 9 | 0.0000 | 1.9426 | 1.9572 | 1.9842 | 2.0203 | 2.0636 | 2.1123 | 2.1651 | 2.2210 | 2.2792 | 2.3390 | 2.4001 | 2.4619 | 2.5241 | 2.5865 |
| 0 10 | 0.0000 | 1.9835 | 1.9986 | 2.0260 | 2.0626 | 2.1062 | 2.1552 | 2.2082 | 2.2643 | 2.3226 | 2.3825 | 2.4435 | 2.5053 | 2.5675 | 2.6299 |
| 0 11 | 0.0000 | 2.0263 | 2.0421 | 2.0704 | 2.1079 | 2.1523 | 2.2020 | 2.2556 | 2.3120 | 2.3706 | 2.4307 | 2.4918 | 2.5537 | 2.6160 | 2.6784 |
| 0 12 | 0.0000 | 2.0739 | 2.0908 | 2.1204 | 2.1594 | 2.2053 | 2.2561 | 2.3105 | 2.3677 | 2.4267 | 2.4872 | 2.5486 | 2.6106 | 2.6730 | 2.7356 |
| 0 13 | 0.0000 | 2.1292 | 2.1476 | 2.1796 | 2.2212 | 2.2694 | 2.3219 | 2.3776 | 2.4357 | 2.4955 | 2.5566 | 2.6184 | 2.6807 | 2.7433 | 2.8061 |
| 0 14 | 0.0000 | 2.1845 | 2.2070 | 2.2443 | 2.2905 | 2.3426 | 2.3977 | 2.4549 | 2.5142 | 2.5754 | 2.6372 | 2.6998 | 2.7623 | 2.8250 | 2.8884 |
| 0 15 | 0.0000 | 2.2266 | 2.2595 | 2.3080 | 2.3613 | 2.4197 | 2.4778 | 2.5368 | 2.5973 | 2.6608 | 2.7232 | 2.7876 | 2.8499 | 2.9124 | 2.9771 |
| 0 16 | 0.0000 | 2.2400 | 2.3000 | 2.3700 | 2.4300 | 2.5000 | 2.5600 | 2.6200 | 2.6800 | 2.7500 | 2.8100 | 2.8800 | 2.9400 | 3.0000 | 3.0700 |

1 HEAD IN LAYER 4 AT END OF TIME STEP 1 IN STRESS PERIOD 1

| | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 1 | 2.1800 | 2.2400 | 2.3000 | 2.3700 | 2.4300 | 2.5000 | 2.5600 | 2.6200 | 2.6800 | 2.7500 | 2.8100 | 2.8800 | 2.9400 | 3.0000 | 0.0000 |
| 0 2 | 2.2578 | 2.3203 | 2.3827 | 2.4472 | 2.5099 | 2.5737 | 2.6347 | 2.6946 | 2.7541 | 2.8148 | 2.8717 | 2.9266 | 2.9727 | 3.0048 | 0.0000 |
| 0 3 | 2.3351 | 2.3980 | 2.4607 | 2.5236 | 2.5859 | 2.6477 | 2.7081 | 2.7670 | 2.8246 | 2.8804 | 2.9325 | 2.9790 | 3.0158 | 3.0378 | 0.0000 |
| 0 4 | 2.4074 | 2.4702 | 2.5328 | 2.5951 | 2.6568 | 2.7176 | 2.7771 | 2.8349 | 2.8907 | 2.9436 | 2.9920 | 3.0338 | 3.0658 | 3.0841 | 0.0000 |
| 0 5 | 2.4697 | 2.5324 | 2.5948 | 2.6567 | 2.7179 | 2.7782 | 2.8370 | 2.8939 | 2.9484 | 2.9995 | 3.0456 | 3.0849 | 3.1147 | 3.1318 | 0.0000 |
| 0 6 | 2.5212 | 2.5837 | 2.6459 | 2.7076 | 2.7686 | 2.8284 | 2.8867 | 2.9430 | 2.9966 | 3.0465 | 3.0913 | 3.1290 | 3.1575 | 3.1737 | 0.0000 |
| 0 7 | 2.5662 | 2.6286 | 2.6906 | 2.7522 | 2.8129 | 2.8725 | 2.9304 | 2.9863 | 3.0394 | 3.0885 | 3.1324 | 3.1693 | 3.1970 | 3.2127 | 0.0000 |
| 0 8 | 2.6078 | 2.6701 | 2.7321 | 2.7936 | 2.8542 | 2.9136 | 2.9714 | 3.0271 | 3.0798 | 3.1286 | 3.1721 | 3.2085 | 3.2358 | 3.2511 | 0.0000 |
| 0 9 | 2.6489 | 2.7112 | 2.7732 | 2.8346 | 2.8953 | 2.9547 | 3.0125 | 3.0682 | 3.1209 | 3.1696 | 3.2130 | 3.2493 | 3.2763 | 3.2915 | 0.0000 |
| 0 10 | 2.6923 | 2.7546 | 2.8166 | 2.8782 | 2.9389 | 2.9985 | 3.0565 | 3.1124 | 3.1654 | 3.2144 | 3.2581 | 3.2946 | 3.3217 | 3.3368 | 0.0000 |
| 0 11 | 2.7409 | 2.8032 | 2.8654 | 2.9271 | 2.9881 | 3.0480 | 3.1065 | 3.1629 | 3.2165 | 3.2663 | 3.3106 | 3.3478 | 3.3754 | 3.3907 | 0.0000 |
| 0 12 | 2.7982 | 2.8608 | 2.9231 | 2.9851 | 3.0465 | 3.1070 | 3.1661 | 3.2235 | 3.2781 | 3.3291 | 3.3749 | 3.4134 | 3.4422 | 3.4580 | 0.0000 |
| 0 13 | 2.8690 | 2.9318 | 2.9944 | 3.0567 | 3.1187 | 3.1799 | 3.2401 | 3.2987 | 3.3551 | 3.4080 | 3.4562 | 3.4973 | 3.5286 | 3.5460 | 0.0000 |
| 0 14 | 2.9516 | 3.0150 | 3.0778 | 3.1404 | 3.2032 | 3.2653 | 3.3270 | 3.3872 | 3.4460 | 3.5019 | 3.5540 | 3.5997 | 3.6361 | 3.6582 | 0.0000 |
| 0 15 | 3.0403 | 3.1050 | 3.1675 | 3.2299 | 3.2944 | 3.3570 | 3.4211 | 3.4828 | 3.5453 | 3.6045 | 3.6630 | 3.7156 | 3.7616 | 3.7961 | 0.0000 |
| 0 16 | 3.1300 | 3.2000 | 3.2600 | 3.3200 | 3.3900 | 3.4500 | 3.5200 | 3.5800 | 3.6500 | 3.7100 | 3.7800 | 3.8400 | 3.9000 | 3.9700 | 0.0000 |

1 HEAD IN LAYER 5 AT END OF TIME STEP 1 IN STRESS PERIOD 1

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 1 | 0.0000 | 1.2800 | 1.3400 | 1.4000 | 1.4700 | 1.5300 | 1.6000 | 1.6600 | 1.7300 | 1.7900 | 1.8600 | 1.9200 | 1.9800 | 2.0500 | 2.1100 |
| 0 2 | 0.0000 | 1.4352 | 1.4666 | 1.5116 | 1.5655 | 1.6217 | 1.6821 | 1.7424 | 1.8054 | 1.8675 | 1.9315 | 1.9936 | 2.0559 | 2.1205 | 2.1836 |
| 0 3 | 0.0000 | 1.5582 | 1.5787 | 1.6134 | 1.6577 | 1.7080 | 1.7628 | 1.8203 | 1.8801 | 1.9410 | 2.0029 | 2.0650 | 2.1274 | 2.1906 | 2.2536 |
| 0 4 | 0.0000 | 1.6598 | 1.6755 | 1.7040 | 1.7423 | 1.7878 | 1.8387 | 1.8934 | 1.9509 | 2.0103 | 2.0710 | 2.1326 | 2.1947 | 2.2573 | 2.3200 |
| 0 5 | 0.0000 | 1.7454 | 1.7586 | 1.7836 | 1.8182 | 1.8603 | 1.9083 | 1.9608 | 2.0165 | 2.0746 | 2.1345 | 2.1954 | 2.2572 | 2.3194 | 2.3817 |
| 0 6 | 0.0000 | 1.8186 | 1.8305 | 1.8534 | 1.8857 | 1.9256 | 1.9716 | 2.0224 | 2.0768 | 2.1340 | 2.1931 | 2.2536 | 2.3149 | 2.3769 | 2.4390 |
| 0 7 | 0.0000 | 1.8826 | 1.8938 | 1.9156 | 1.9465 | 1.9851 | 2.0298 | 2.0795 | 2.1331 | 2.1895 | 2.2480 | 2.3081 | 2.3692 | 2.4309 | 2.4929 |
| 0 8 | 0.0000 | 1.9400 | 1.9510 | 1.9722 | 2.0025 | 2.0404 | 2.0845 | 2.1336 | 2.1866 | 2.2426 | 2.3008 | 2.3606 | 2.4215 | 2.4831 | 2.5449 |
| 0 9 | 0.0000 | 1.9931 | 2.0041 | 2.0254 | 2.0556 | 2.0934 | 2.1374 | 2.1864 | 2.2393 | 2.2951 | 2.3532 | 2.4128 | 2.4736 | 2.5351 | 2.5969 |
| 0 10 | 0.0000 | 2.0435 | 2.0549 | 2.0767 | 2.1075 | 2.1458 | 2.1903 | 2.2396 | 2.2927 | 2.3486 | 2.4068 | 2.4665 | 2.5273 | 2.5888 | 2.6506 |
| 0 11 | 0.0000 | 2.0924 | 2.1045 | 2.1274 | 2.1595 | 2.1991 | 2.2446 | 2.2947 | 2.3485 | 2.4049 | 2.4634 | 2.5233 | 2.5842 | 2.6458 | 2.7078 |
| 0 12 | 0.0000 | 2.1399 | 2.1533 | 2.1784 | 2.2128 | 2.2545 | 2.3018 | 2.3533 | 2.4080 | 2.4653 | 2.5243 | 2.5847 | 2.6459 | 2.7077 | 2.7699 |
| 0 13 | 0.0000 | 2.1847 | 2.2006 | 2.2294 | 2.2676 | 2.3127 | 2.3625 | 2.4159 | 2.4722 | 2.5306 | 2.5906 | 2.6516 | 2.7132 | 2.7753 | 2.8379 |
| 0 14 | 0.0000 | 2.2226 | 2.2436 | 2.2790 | 2.3231 | 2.3732 | 2.4265 | 2.4823 | 2.5403 | 2.6005 | 2.6616 | 2.7236 | 2.7857 | 2.8481 | 2.9113 |
| 0 15 | 0.0000 | 2.2458 | 2.2779 | 2.3255 | 2.3778 | 2.4353 | 2.4925 | 2.5508 | 2.6107 | 2.6737 | 2.7357 | 2.7998 | 2.8619 | 2.9242 | 2.9888 |
| 0 16 | 0.0000 | 2.2400 | 2.3000 | 2.3700 | 2.4300 | 2.5000 | 2.5600 | 2.6200 | 2.6800 | 2.7500 | 2.8100 | 2.8800 | 2.9400 | 3.0000 | 3.0700 |

1 HEAD IN LAYER 5 AT END OF TIME STEP 1 IN STRESS PERIOD 1

| | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 1 | 2.1800 | 2.2400 | 2.3000 | 2.3700 | 2.4300 | 2.5000 | 2.5600 | 2.6200 | 2.6800 | 2.7500 | 2.8100 | 2.8800 | 2.9400 | 3.0000 | 0.0000 |
| 0 2 | 2.2483 | 2.3106 | 2.3728 | 2.4370 | 2.4993 | 2.5627 | 2.6232 | 2.6824 | 2.7412 | 2.8008 | 2.8567 | 2.9106 | 2.9557 | 2.9871 | 0.0000 |
| 0 3 | 2.3169 | 2.3794 | 2.4416 | 2.5040 | 2.5656 | 2.6266 | 2.6859 | 2.7435 | 2.7994 | 2.8534 | 2.9033 | 2.9476 | 2.9823 | 3.0029 | 0.0000 |
| 0 4 | 2.3826 | 2.4449 | 2.5068 | 2.5683 | 2.6290 | 2.6886 | 2.7465 | 2.8025 | 2.8559 | 2.9060 | 2.9512 | 2.9895 | 3.0181 | 3.0339 | 0.0000 |
| 0 5 | 2.4441 | 2.5061 | 2.5677 | 2.6286 | 2.6886 | 2.7473 | 2.8042 | 2.8587 | 2.9102 | 2.9576 | 2.9995 | 3.0342 | 3.0593 | 3.0727 | 0.0000 |
| 0 6 | 2.5011 | 2.5630 | 2.6243 | 2.6849 | 2.7445 | 2.8025 | 2.8586 | 2.9121 | 2.9622 | 3.0079 | 3.0478 | 3.0802 | 3.1034 | 3.1155 | 0.0000 |
| 0 7 | 2.5549 | 2.6166 | 2.6778 | 2.7382 | 2.7974 | 2.8551 | 2.9108 | 2.9636 | 3.0129 | 3.0576 | 3.0962 | 3.1274 | 3.1495 | 3.1610 | 0.0000 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 8 | 2.6068 | 2.6685 | 2.7296 | 2.7899 | 2.8491 | 2.9067 | 2.9621 | 3.0147 | 3.0636 | 3.1078 | 3.1460 | 3.1766 | 3.1983 | 3.2094 | 0.0000 |
| 0 9 | 2.6588 | 2.7204 | 2.7816 | 2.8420 | 2.9012 | 2.9589 | 3.0144 | 3.0671 | 3.1161 | 3.1604 | 3.1986 | 3.2292 | 3.2509 | 3.2620 | 0.0000 |
| 0 10 | 2.7125 | 2.7743 | 2.8356 | 2.8962 | 2.9557 | 3.0137 | 3.0696 | 3.1227 | 3.1723 | 3.2171 | 3.2559 | 3.2872 | 3.3093 | 3.3206 | 0.0000 |
| 0 11 | 2.7698 | 2.8318 | 2.8933 | 2.9542 | 3.0142 | 3.0727 | 3.1294 | 3.1834 | 3.2340 | 3.2800 | 3.3201 | 3.3526 | 3.3758 | 3.3878 | 0.0000 |
| 0 12 | 2.8322 | 2.8944 | 2.9563 | 3.0176 | 3.0782 | 3.1376 | 3.1953 | 3.2507 | 3.3029 | 3.3508 | 3.3930 | 3.4277 | 3.4529 | 3.4662 | 0.0000 |
| 0 13 | 2.9005 | 2.9631 | 3.0254 | 3.0872 | 3.1486 | 3.2090 | 3.2682 | 3.3253 | 3.3798 | 3.4305 | 3.4760 | 3.5144 | 3.5430 | 3.5589 | 0.0000 |
| 0 14 | 2.9743 | 3.0376 | 3.1001 | 3.1624 | 3.2248 | 3.2864 | 3.3474 | 3.4067 | 3.4643 | 3.5187 | 3.5692 | 3.6131 | 3.6479 | 3.6691 | 0.0000 |
| 0 15 | 3.0519 | 3.1166 | 3.1790 | 3.2412 | 3.3055 | 3.3679 | 3.4316 | 3.4929 | 3.5548 | 3.6133 | 3.6710 | 3.7228 | 3.7680 | 3.8021 | 0.0000 |
| 0 16 | 3.1300 | 3.2000 | 3.2600 | 3.3200 | 3.3900 | 3.4500 | 3.5200 | 3.5800 | 3.6500 | 3.7100 | 3.7800 | 3.8400 | 3.9000 | 3.9700 | 0.0000 |

1 HEAD IN LAYER 6 AT END OF TIME STEP 1 IN STRESS PERIOD 1

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 1 | 0.0000 | 1.2800 | 1.3400 | 1.4000 | 1.4700 | 1.5300 | 1.6000 | 1.6600 | 1.7300 | 1.7900 | 1.8600 | 1.9200 | 1.9800 | 2.0500 | 2.1100 |
| 0 2 | 0.0000 | 1.4446 | 1.4754 | 1.5194 | 1.5720 | 1.6267 | 1.6854 | 1.7441 | 1.8056 | 1.8662 | 1.9290 | 1.9899 | 2.0512 | 2.1148 | 2.1770 |
| 0 3 | 0.0000 | 1.5785 | 1.5979 | 1.6305 | 1.6722 | 1.7195 | 1.7711 | 1.8254 | 1.8822 | 1.9402 | 1.9996 | 2.0593 | 2.1197 | 2.1809 | 2.2422 |
| 0 4 | 0.0000 | 1.6933 | 1.7073 | 1.7328 | 1.7673 | 1.8083 | 1.8545 | 1.9045 | 1.9575 | 2.0128 | 2.0697 | 2.1278 | 2.1868 | 2.2466 | 2.3066 |
| 0 5 | 0.0000 | 1.7943 | 1.8055 | 1.8267 | 1.8563 | 1.8927 | 1.9347 | 1.9810 | 2.0310 | 2.0837 | 2.1386 | 2.1952 | 2.2529 | 2.3115 | 2.3705 |
| 0 6 | 0.0000 | 1.8841 | 1.8938 | 1.9124 | 1.9388 | 1.9721 | 2.0110 | 2.0547 | 2.1022 | 2.1529 | 2.2062 | 2.2613 | 2.3180 | 2.3756 | 2.4338 |
| 0 7 | 0.0000 | 1.9642 | 1.9732 | 1.9903 | 2.0150 | 2.0463 | 2.0833 | 2.1251 | 2.1710 | 2.2202 | 2.2722 | 2.3263 | 2.3821 | 2.4390 | 2.4966 |
| 0 8 | 0.0000 | 2.0354 | 2.0442 | 2.0607 | 2.0846 | 2.1151 | 2.1512 | 2.1921 | 2.2371 | 2.2855 | 2.3368 | 2.3903 | 2.4455 | 2.5019 | 2.5592 |
| 0 9 | 0.0000 | 2.0984 | 2.1073 | 2.1239 | 2.1480 | 2.1785 | 2.2147 | 2.2556 | 2.3006 | 2.3489 | 2.3999 | 2.4532 | 2.5082 | 2.5645 | 2.6217 |
| 0 10 | 0.0000 | 2.1532 | 2.1625 | 2.1801 | 2.2052 | 2.2368 | 2.2740 | 2.3158 | 2.3614 | 2.4102 | 2.4617 | 2.5153 | 2.5705 | 2.6270 | 2.6843 |
| 0 11 | 0.0000 | 2.1998 | 2.2100 | 2.2292 | 2.2564 | 2.2901 | 2.3292 | 2.3727 | 2.4198 | 2.4698 | 2.5223 | 2.5766 | 2.6325 | 2.6894 | 2.7472 |
| 0 12 | 0.0000 | 2.2377 | 2.2494 | 2.2714 | 2.3017 | 2.3387 | 2.3807 | 2.4267 | 2.4759 | 2.5278 | 2.5818 | 2.6373 | 2.6942 | 2.7520 | 2.8105 |
| 0 13 | 0.0000 | 2.2653 | 2.2798 | 2.3062 | 2.3414 | 2.3829 | 2.4288 | 2.4780 | 2.5300 | 2.5843 | 2.6403 | 2.6976 | 2.7558 | 2.8147 | 2.8743 |
| 0 14 | 0.0000 | 2.2799 | 2.2996 | 2.3336 | 2.3757 | 2.4234 | 2.4740 | 2.5271 | 2.5823 | 2.6397 | 2.6981 | 2.7576 | 2.8173 | 2.8774 | 2.9385 |
| 0 15 | 0.0000 | 2.2755 | 2.3069 | 2.3537 | 2.4051 | 2.4614 | 2.5174 | 2.5742 | 2.6327 | 2.6943 | 2.7550 | 2.8178 | 2.8787 | 2.9398 | 3.0034 |
| 0 16 | 0.0000 | 2.2400 | 2.3000 | 2.3700 | 2.4300 | 2.5000 | 2.5600 | 2.6200 | 2.6800 | 2.7500 | 2.8100 | 2.8800 | 2.9400 | 3.0000 | 3.0700 |

1 HEAD IN LAYER 6 AT END OF TIME STEP 1 IN STRESS PERIOD 1

| | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 1 | 2.1800 | 2.2400 | 2.3000 | 2.3700 | 2.4300 | 2.5000 | 2.5600 | 2.6200 | 2.6800 | 2.7500 | 2.8100 | 2.8800 | 2.9400 | 3.0000 | 0.0000 |
| 0 2 | 2.2408 | 2.3023 | 2.3636 | 2.4269 | 2.4882 | 2.5506 | 2.6100 | 2.6680 | 2.7254 | 2.7838 | 2.8384 | 2.8910 | 2.9351 | 2.9660 | 0.0000 |
| 0 3 | 2.3037 | 2.3645 | 2.4250 | 2.4856 | 2.5453 | 2.6042 | 2.6612 | 2.7165 | 2.7699 | 2.8212 | 2.8685 | 2.9104 | 2.9432 | 2.9626 | 0.0000 |
| 0 4 | 2.3668 | 2.4266 | 2.4860 | 2.5449 | 2.6027 | 2.6593 | 2.7140 | 2.7664 | 2.8161 | 2.8623 | 2.9037 | 2.9385 | 2.9643 | 2.9783 | 0.0000 |
| 0 5 | 2.4296 | 2.4885 | 2.5469 | 2.6045 | 2.6609 | 2.7158 | 2.7685 | 2.8185 | 2.8652 | 2.9077 | 2.9447 | 2.9748 | 2.9963 | 3.0075 | 0.0000 |
| 0 6 | 2.4921 | 2.5503 | 2.6079 | 2.6646 | 2.7200 | 2.7736 | 2.8248 | 2.8731 | 2.9176 | 2.9574 | 2.9915 | 3.0186 | 3.0376 | 3.0472 | 0.0000 |
| 0 7 | 2.5544 | 2.6121 | 2.6693 | 2.7254 | 2.7801 | 2.8329 | 2.8832 | 2.9303 | 2.9734 | 3.0116 | 3.0439 | 3.0693 | 3.0867 | 3.0955 | 0.0000 |
| 0 8 | 2.6167 | 2.6742 | 2.7311 | 2.7870 | 2.8414 | 2.8938 | 2.9437 | 2.9902 | 3.0327 | 3.0702 | 3.1017 | 3.1263 | 3.1431 | 3.1515 | 0.0000 |
| 0 9 | 2.6792 | 2.7366 | 2.7936 | 2.8495 | 2.9041 | 2.9566 | 3.0065 | 3.0532 | 3.0957 | 3.1333 | 3.1649 | 3.1895 | 3.2064 | 3.2149 | 0.0000 |
| 0 10 | 2.7420 | 2.7997 | 2.8569 | 2.9133 | 2.9683 | 3.0214 | 3.0719 | 3.1193 | 3.1626 | 3.2011 | 3.2336 | 3.2592 | 3.2768 | 3.2858 | 0.0000 |
| 0 11 | 2.8053 | 2.8635 | 2.9213 | 2.9784 | 3.0342 | 3.0883 | 3.1400 | 3.1887 | 3.2337 | 3.2739 | 3.3083 | 3.3357 | 3.3549 | 3.3648 | 0.0000 |
| 0 12 | 2.8693 | 2.9283 | 2.9869 | 3.0448 | 3.1018 | 3.1573 | 3.2108 | 3.2616 | 3.3090 | 3.3519 | 3.3893 | 3.4197 | 3.4416 | 3.4532 | 0.0000 |
| 0 13 | 2.9341 | 2.9940 | 3.0536 | 3.1128 | 3.1712 | 3.2286 | 3.2843 | 3.3378 | 3.3885 | 3.4353 | 3.4770 | 3.5120 | 3.5382 | 3.5528 | 0.0000 |
| 0 14 | 2.9996 | 3.0609 | 3.1216 | 3.1820 | 3.2423 | 3.3018 | 3.3604 | 3.4172 | 3.4721 | 3.5238 | 3.5716 | 3.6133 | 3.6465 | 3.6669 | 0.0000 |
| 0 15 | 3.0655 | 3.1292 | 3.1906 | 3.2518 | 3.3150 | 3.3763 | 3.4388 | 3.4987 | 3.5592 | 3.6164 | 3.6728 | 3.7234 | 3.7678 | 3.8015 | 0.0000 |
| 0 16 | 3.1300 | 3.2000 | 3.2600 | 3.3200 | 3.3900 | 3.4500 | 3.5200 | 3.5800 | 3.6500 | 3.7100 | 3.7800 | 3.8400 | 3.9000 | 3.9700 | 0.0000 |

1 HEAD IN LAYER 7 AT END OF TIME STEP 1 IN STRESS PERIOD 1

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 1 | 0.0000 | 1.2800 | 1.3400 | 1.4000 | 1.4700 | 1.5300 | 1.6000 | 1.6600 | 1.7300 | 1.7900 | 1.8600 | 1.9200 | 1.9800 | 2.0500 | 2.1100 |
| 0 2 | 0.0000 | 1.4460 | 1.4768 | 1.5207 | 1.5732 | 1.6278 | 1.6864 | 1.7449 | 1.8063 | 1.8667 | 1.9293 | 1.9901 | 2.0512 | 2.1147 | 2.1768 |
| 0 3 | 0.0000 | 1.5814 | 1.6007 | 1.6332 | 1.6747 | 1.7217 | 1.7730 | 1.8270 | 1.8835 | 1.9412 | 2.0003 | 2.0597 | 2.1198 | 2.1808 | 2.2418 |
| 0 4 | 0.0000 | 1.6978 | 1.7116 | 1.7370 | 1.7711 | 1.8118 | 1.8576 | 1.9071 | 1.9596 | 2.0144 | 2.0709 | 2.1285 | 2.1871 | 2.2465 | 2.3062 |
| 0 5 | 0.0000 | 1.8005 | 1.8114 | 1.8324 | 1.8616 | 1.8976 | 1.9390 | 1.9848 | 2.0341 | 2.0862 | 2.1405 | 2.1964 | 2.2536 | 2.3117 | 2.3702 |
| 0 6 | 0.0000 | 1.8920 | 1.9014 | 1.9197 | 1.9458 | 1.9785 | 2.0168 | 2.0597 | 2.1065 | 2.1564 | 2.2089 | 2.2634 | 2.3193 | 2.3763 | 2.4339 |
| 0 7 | 0.0000 | 1.9738 | 1.9825 | 1.9993 | 2.0235 | 2.0542 | 2.0905 | 2.1315 | 2.1765 | 2.2249 | 2.2760 | 2.3293 | 2.3843 | 2.4405 | 2.4974 |
| 0 8 | 0.0000 | 2.0464 | 2.0549 | 2.0711 | 2.0945 | 2.1243 | 2.1597 | 2.1998 | 2.2439 | 2.2914 | 2.3416 | 2.3942 | 2.4486 | 2.5042 | 2.5607 |
| 0 9 | 0.0000 | 2.1102 | 2.1189 | 2.1353 | 2.1588 | 2.1888 | 2.2242 | 2.2643 | 2.3083 | 2.3556 | 2.4057 | 2.4580 | 2.5121 | 2.5676 | 2.6239 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 10 | 0.0000 | 2.1653 | 2.1745 | 2.1917 | 2.2164 | 2.2475 | 2.2840 | 2.3250 | 2.3697 | 2.4176 | 2.4681 | 2.5207 | 2.5750 | 2.6306 | 2.6871 |
| 0 11 | 0.0000 | 2.2115 | 2.2215 | 2.2405 | 2.2673 | 2.3005 | 2.3390 | 2.3818 | 2.4281 | 2.4773 | 2.5288 | 2.5823 | 2.6373 | 2.6934 | 2.7503 |
| 0 12 | 0.0000 | 2.2480 | 2.2597 | 2.2815 | 2.3115 | 2.3480 | 2.3895 | 2.4350 | 2.4836 | 2.5347 | 2.5879 | 2.6427 | 2.6988 | 2.7558 | 2.8136 |
| 0 13 | 0.0000 | 2.2738 | 2.2881 | 2.3144 | 2.3494 | 2.3905 | 2.4361 | 2.4849 | 2.5364 | 2.5901 | 2.6455 | 2.7022 | 2.7597 | 2.8180 | 2.8770 |
| 0 14 | 0.0000 | 2.2859 | 2.3055 | 2.3393 | 2.3813 | 2.4288 | 2.4792 | 2.5319 | 2.5868 | 2.6438 | 2.7018 | 2.7609 | 2.8202 | 2.8799 | 2.9406 |
| 0 15 | 0.0000 | 2.2786 | 2.3099 | 2.3567 | 2.4080 | 2.4642 | 2.5200 | 2.5767 | 2.6350 | 2.6965 | 2.7570 | 2.8195 | 2.8802 | 2.9411 | 3.0045 |
| 0 16 | 0.0000 | 2.2400 | 2.3000 | 2.3700 | 2.4300 | 2.5000 | 2.5600 | 2.6200 | 2.6800 | 2.7500 | 2.8100 | 2.8800 | 2.9400 | 3.0000 | 3.0700 |

1 HEAD IN LAYER 7 AT END OF TIME STEP 1 IN STRESS PERIOD 1

| | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 1 | 2.1800 | 2.2400 | 2.3000 | 2.3700 | 2.4300 | 2.5000 | 2.5600 | 2.6200 | 2.6800 | 2.7500 | 2.8100 | 2.8800 | 2.9400 | 3.0000 | 0.0000 |
| 0 2 | 2.2405 | 2.3018 | 2.3630 | 2.4262 | 2.4875 | 2.5497 | 2.6090 | 2.6669 | 2.7242 | 2.7824 | 2.8369 | 2.8895 | 2.9335 | 2.9643 | 0.0000 |
| 0 3 | 2.3031 | 2.3637 | 2.4240 | 2.4843 | 2.5438 | 2.6025 | 2.6593 | 2.7143 | 2.7675 | 2.8186 | 2.8657 | 2.9074 | 2.9401 | 2.9595 | 0.0000 |
| 0 4 | 2.3660 | 2.4255 | 2.4846 | 2.5432 | 2.6007 | 2.6570 | 2.7114 | 2.7635 | 2.8128 | 2.8587 | 2.8998 | 2.9343 | 2.9600 | 2.9739 | 0.0000 |
| 0 5 | 2.4289 | 2.4874 | 2.5454 | 2.6026 | 2.6586 | 2.7131 | 2.7654 | 2.8150 | 2.8613 | 2.9034 | 2.9400 | 2.9698 | 2.9911 | 3.0022 | 0.0000 |
| 0 6 | 2.4918 | 2.5494 | 2.6066 | 2.6628 | 2.7177 | 2.7708 | 2.8215 | 2.8693 | 2.9133 | 2.9527 | 2.9864 | 3.0132 | 3.0319 | 3.0413 | 0.0000 |
| 0 7 | 2.5546 | 2.6117 | 2.6683 | 2.7239 | 2.7780 | 2.8302 | 2.8800 | 2.9265 | 2.9691 | 3.0068 | 3.0387 | 3.0637 | 3.0809 | 3.0895 | 0.0000 |
| 0 8 | 2.6175 | 2.6743 | 2.7306 | 2.7859 | 2.8397 | 2.8915 | 2.9408 | 2.9867 | 3.0286 | 3.0656 | 3.0967 | 3.1209 | 3.1374 | 3.1456 | 0.0000 |
| 0 9 | 2.6807 | 2.7374 | 2.7937 | 2.8490 | 2.9029 | 2.9548 | 3.0041 | 3.0501 | 3.0920 | 3.1291 | 3.1602 | 3.1845 | 3.2011 | 3.2094 | 0.0000 |
| 0 10 | 2.7440 | 2.8010 | 2.8575 | 2.9132 | 2.9676 | 3.0200 | 3.0699 | 3.1167 | 3.1594 | 3.1974 | 3.2294 | 3.2547 | 3.2721 | 3.2809 | 0.0000 |
| 0 11 | 2.8077 | 2.8652 | 2.9223 | 2.9787 | 3.0338 | 3.0873 | 3.1384 | 3.1866 | 3.2310 | 3.2707 | 3.3047 | 3.3318 | 3.3508 | 3.3606 | 0.0000 |
| 0 12 | 2.8718 | 2.9300 | 2.9880 | 3.0453 | 3.1017 | 3.1567 | 3.2096 | 3.2599 | 3.3067 | 3.3492 | 3.3863 | 3.4164 | 3.4381 | 3.4497 | 0.0000 |
| 0 13 | 2.9363 | 2.9956 | 3.0547 | 3.1133 | 3.1713 | 3.2281 | 3.2834 | 3.3365 | 3.3867 | 3.4332 | 3.4746 | 3.5095 | 3.5355 | 3.5501 | 0.0000 |
| 0 14 | 3.0012 | 3.0621 | 3.1224 | 3.1824 | 3.2424 | 3.3015 | 3.3598 | 3.4162 | 3.4708 | 3.5223 | 3.5700 | 3.6115 | 3.6446 | 3.6650 | 0.0000 |
| 0 15 | 3.0663 | 3.1298 | 3.1910 | 3.2520 | 3.3151 | 3.3762 | 3.4385 | 3.4982 | 3.5586 | 3.6156 | 3.6719 | 3.7225 | 3.7668 | 3.8005 | 0.0000 |
| 0 16 | 3.1300 | 3.2000 | 3.2600 | 3.3200 | 3.3900 | 3.4500 | 3.5200 | 3.5800 | 3.6500 | 3.7100 | 3.7800 | 3.8400 | 3.9000 | 3.9700 | 0.0000 |

0HEAD WILL BE SAVED ON UNIT 55 AT END OF TIME STEP 1, STRESS PERIOD 1

VOLUMETRIC BUDGET FOR ENTIRE MODEL AT END OF TIME STEP 1 IN STRESS PERIOD 1

| | CUMULATIVE VOLUMES L**3 | RATES FOR THIS TIME STEP L**3/T |
|---|---|---|
| | IN: | IN: |
| | STORAGE = 0.00000 | STORAGE = 0.00000 |
| | CONSTANT HEAD = 798.71 | CONSTANT HEAD = 798.71 |
| | WELLS = 13.352 | WELLS = 13.352 |
| 0 | TOTAL IN = 812.06 | TOTAL IN = 812.06 |
| 0 | OUT: | OUT: |
| | STORAGE = 0.00000 | STORAGE = 0.00000 |
| | CONSTANT HEAD = 789.60 | CONSTANT HEAD = 789.60 |
| | WELLS = 13.352 | WELLS = 13.352 |
| 0 | TOTAL OUT = 802.96 | TOTAL OUT = 802.96 |
| 0 | IN - OUT = 9.1050 | IN - OUT = 9.1050 |
| 0 | PERCENT DISCREPANCY = 1.13 | PERCENT DISCREPANCY = |

1.13

TIME SUMMARY AT END OF TIME STEP 1 IN STRESS PERIOD 1

| | SECONDS | MINUTES | HOURS | DAYS | YEARS |
|---|---|---|---|---|---|
| TIME STEP LENGTH | 86400.0 | 1440.00 | 24.0000 | 1.00000 | 0.273785E-02 |
| STRESS PERIOD TIME | 86400.0 | 1440.00 | 24.0000 | 1.00000 | 0.273785E-02 |
| TOTAL SIMULATION TIME | 86400.0 | 1440.00 | 24.0000 | 1.00000 | 0.273785E-02 |

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