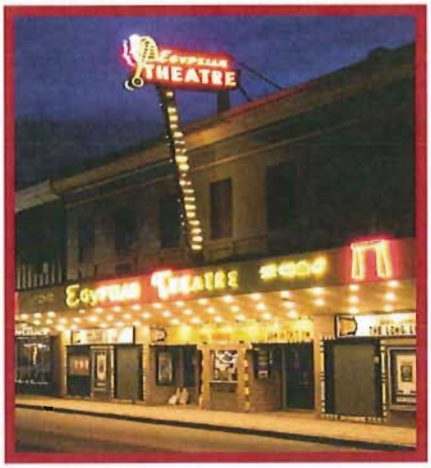

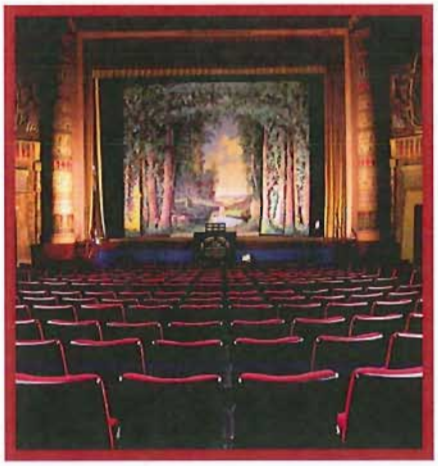

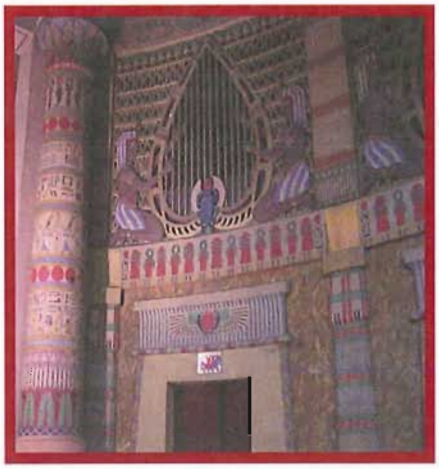

Egyptian Theatre

229 South Broadway Coos Bay, Oregon

Facilities Improvement Evaluation Report

Prepared For:

City of Coos Bay
Urban Renew Agency

December, 2010

Prepared by:
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ZBINDEN • CARTER • SOUDERS
ENGINEERING Inc.

December, 2010

Mr. Jim Hossley, Director of Public Works
City of Coos Bay
500 Central Ave.
Coos Bay, Oregon 97420

Reference: Egyptian Theatre

Subject: Facility Improvement Evaluation

Mr. Hossley,

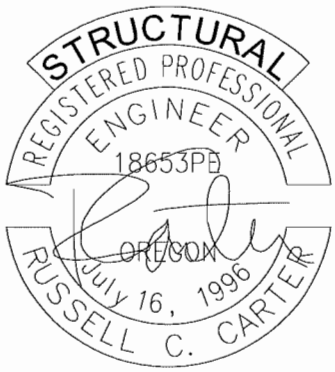
Please accept this report outlining our findings and recommendations for the facility improvement plan of the Egyptian Theatre located at 229 South Broadway in Coos Bay, Oregon. The purpose of our investigation was to verify the existing structural and non-structural systems and perform an assessment based on current building code requirements to determine deficiencies. In the enclosed report, we have outlined the findings of our evaluation.

If you have any questions or concerns, please do not hesitate to call me at (541) 479-3865 or email me at SyA@ZCSengineering.com.

Sincerely,

EXPIRES: 12/31/11

Sylas E. Allen, PE
Branch Manager



EXPIRES: 12-31-11

Russell C. Carter, PE, SE
Engineer of Record

Enc: Structural seismic evaluation report and support drawings, pictures, survey data, preliminary calculations, and testing reports provided by ZCS Engineering, Inc.

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1.0 Introduction

We have been directed by the City of Coos Bay to evaluate the existing Egyptian Theatre building, currently in use by the community, located at 229 South Broadway in Coos Bay, Oregon. The purpose of our effort is to evaluate the existing structure, perform a structural assessment to identify structural deficiencies, and identify a voluntarily Facilities Improvement Plan. In addition, we have evaluated the building to determine non-structural deficiencies when compared to current building code requirements for fire & life safety and accessibility.

The following scope of work has been developed using information provided, ASCE 31 Seismic Evaluation of Existing Buildings, and visual observations of the structural systems throughout the building. We have performed site verification of all structural systems through non-destructive and localized destructive measures. A 3-D scan survey model of the entire structure has been prepared. With this information we have been able to assemble an accurate set of as-built drawings. In addition, we have modeled and analyzed the existing structural systems based on current code loading configurations. Within this report, we have attempted to outline a facility assessment based on the building status and clearly define upgrades required to meet an acceptable level of safety performance (collapse prevention).

As part of this scope of work, design development level drawings have been created to illustrate the level of understanding with regards to the effort that will be required to seismically rehabilitate this building and address known structural and non-structural deficiencies. These drawings have been prepared using the current Oregon Structural Specialty Code (OSSC 2010), current International Existing Building Code (IEBC 2009) as amended by Statewide Alternate Method Number OSSC 08-05 (SAM 08-05), and the ASCE 41 (Seismic Rehabilitation of Existing Buildings) as references for prescribed loading, building performance level ratings, and building operational safety.

Once rehabilitation efforts have been completed, the building will be able to achieve a level of performance of Life Safety Occupancy based on the OSSC and ASCE 41. The building will be fitted with a new electrical system, and a modern fire protection/ detection system. The building will continue to maintain its status on the historical preservation registry. In addition, selected accessibility deficiencies will be improved to enhance the safe use for all members of the community.

The following is a description of the building as observed. Structural and non-structural code assessments have been included. Some of the non-structural items that have been determined to be non-essential to the continued operation of the building have been split into a second phase in the budget.

2.0 Project Overview

The facility in question consists of a multi-story structure built at-grade in a High Seismicity Zone. The original building was remodeled from a garage into a theatre in 1925, and it has recently been listed on the National Register of Historic Places. The base foot print of the building is approximately 10,540 square feet *(Figure 2.1)*. The upper level mezzanine and second floor are approximately 4,550 SF, consisting of a small lobby for the mezzanine, an office, and the facility's only restrooms *(Figure 2.2)*. According to the OSSC, the occupancy of the building is an assembly, specifically classified as an "A-1" occupancy. Based on the occupancy load factors listed in Table 1004.1.1 of the OSSC, the total occupancy of the building is 1,189 persons. The structure consists of cast in place concrete frames, walls with brick infill, and a flexible diaphragm (ACSE 31 Classification C2A/C3A).

It is our understanding that no repair work or structural upgrades have been done to date. The building has experienced many non-structural alterations, primarily in the lobby and front façade. The primary décor and layout of the theatre currently resembles the original construction with the exception of a few changes including the relocation of the large columns to each side if the stage. At one time the theatre was modified to

have three separate movie screens; two of them were located in the mezzanine and have since been removed. As a result of this work, the theatre was evaluated for hazardous materials and found to have asbestos in the ceilings plaster. The theatre has not yet been completely restored after the removal of the secondary theaters.

The structure measures approximately 73'-6" wide and 144' 6" long. The main structure has a peak roof height measuring approximately 36'-8" from street elevation. The rear fly loft roof height measures 48'-0" above the adjacent sidewalk *(Figure 2.3)*. A canopy is attached to the front of the structure over the walkway (Figure *2.4)*. The finish floor elevation is approximately 13' above sea level and within 'Zone AE' of the National Flood Insurance Program (NFIP) Flood Insurance Rate Map (FIRM) Panel 0327D *(Figure 2.5)*. The structure is within a block of buildings of similar dimension with the adjacent walls common to both spaces. The main entrance of the building fronts South Broadway, with the rear exits accessible by a shared access alley way. Refer to '*As-Built'* plans for additional information.

3.0 Main Roof Observation/ Assessment

3.1 Construction Deficiencies

The primary roof framing consists of heavy timber trusses spaced at 17' on-center (or less) supporting 4x6 rough sawn beams spaced at 14' o.c. The secondary roof framing consists of 2x6 rafters at 24" o.c. with 1x8 straight sheathing *(Figure 3.1)*. We performed several cores through the roof layers and discovered that the roof had been re-sheathed with 7/16" OSB over the original 3/16" thick asphaltic built-up roofing. The top layer consists of 1/4" thick asphaltic built-up roofing *(Figure 3.2)*. The ceiling construction consists of 2x8 rough sawn joists at 16" o.c. supported by the heavy timber truss bottom chords *(Figure 3.3)*. All of the framing is fastened together with 8d, 10d, and 20d common nails with the exception of the heavy timber trusses. The truss connections consist of 1/4" steel plates and through bolts *(Figure 3.4)*.

The trusses were analyzed using computer modeling software (RISA) to accurately determine a safe performance level and measure an acceptable deflection limit. The trusses were found to be performing within current codes standards for load capacity and deflection. However, it was determined the top chord of the truss was inadequately supported laterally *(Figure 3.5)*. The remaining roof framing elements were also analyzed and determined to be inadequate for load capacity during a code level event *(Figure 3.6)*.

A framing plan has been developed to illustrate the proposed solutions to the roof framing deficiencies described above *(Sheet S2.2)*. In general, the proposed solution includes the addition of roof beams to supplement existing beams to help support the existing rafters. This accomplishes three things: reduces the span of the existing rafters, strengthens the existing beams, and provide support to the existing truss top chord. In addition, the removal of the plaster ceiling will reduce the weight on the ceiling joists, alleviate a potential seismic falling hazard, and allow for proper abatement of known hazardous materials. Refer to '*Rehabilitation*' plans for additional information.

The roof is currently supported by a cast-in-place 12" thick concrete wall with 16" thick x 28" wide concrete pilasters at each truss *(Figure 3.7)*. It has been observed that the trusses at each end of the building have been moved off their original pilaster bearings (Gridline '2.4' and '7.5') and are currently resting on a 4" ledge supported by the 12" thick wall only *(Figure 3.8)*. It is our understanding the trusses were moved to make room of the fly loft and projection room construction when converted to a theatre in 1925. Unfortunately this condition was not properly addressed at the time of construction and has caused failure of connections and other roof framing members *(Figure 3.9)*. Supplemental support for the relocated trusses and unsupported roof framing has been illustrated in the framing plan provided for reference *(Sheet S2.1)*. Several large cracks have been identified along the exterior concrete walls at gridline '2.4' that appear to have been caused by differential settlement of the foundation *(Figure 3.10)*.

3.2 Seismic Deficiencies

The following list summarizes the structural seismic deficiencies noted during analysis.

- Top cord capacity and out-of-plan connection of exterior concrete walls to roof diaphragms
- Aspect ratio of roof diaphragms and lack of sheathing (straight sheathing)
- Out-of-plan capacity of partially reinforced concrete pilasters (up to 31' tall)
- Out-of-plane connection of heavy timber trusses to pilasters
- In-plane shear capacity of front wall concrete frame
- Anchorage of front entry canopy and marquee

3.3 Scope of Seismic Rehabilitation

The length-to-width ratio of the building and lack of out-of-plane connection creates the need to provide a plywood sheathed diaphragm at the ceiling elevation. This will cut the aspect ratios down to code acceptable levels and allow for proper resolution of top of concrete wall anchorage *(Sheet S2.1)*. We also recommend removing the existing roofing material and re-nailing the existing OSB sheathing to provide a dependable diaphragm for support of the truss top chords and parapet anchorage *(Sheet S2.2)*.

The concrete pilasters can be reinforced with steel wide flange columns located to each side of the pilaster and epoxy bolted to the existing concrete wall along its length. The top of the steel columns will then be connected to the trusses with a heavy steel bucket connection to provide a safe and dependable connection of the trusses to the walls *(Sheet S5.1)*. A steel braced frame needs to be installed at the inside face of the front wall inside the stair well to provide an adequate lateral force resisting system along the end of the building an out-of-plane support of the front wall pilasters *(Sheet S3.2)*. This work will require the foundation to be reinforced with micro piles to support additional seismic loads induced by the steel braced frames and reduce future settlement. Refer to '*Rehabilitation*' plans for additional information.

4.0 Mezzanine Observation/ Assessment

4.1 Construction Deficiencies

The primary mezzanine framing consists of cantilevered timber trusses spaced at 12" on-center supported by a W24x55 steel beam spanning 23' from exterior wall to interior steel 6" dia. columns, and 23' between interior columns (*Figure 4.1*). The trusses consist of 3x12 rough sawn members for top and (2) 2x14 bottom chords/webs. The trusses are over-framed with rough sawn 2x material to create the stepped stadium seating profile (*Figure 4.2*). We cut through the existing wall and ceiling finishes at several locations to provide inspection access to the framing. The remaining floor and ceiling framing for the projection room and lobby consists of 2x rough sawn framing supported by heavy timber rough sawn beams and posts. All of the framing is fastened together with 8d, 10d, and 20d common nails with the exception of the trusses. The truss connections consist of through bolts.

The trusses were analyzed using computer modeling software to accurately determine a safe performance level and measure an acceptable deflection limit. The trusses were found to be performing within current codes standards for load capacity and deflection. The remaining floor framing elements were also analyzed and determined to be within safe performance level with acceptable deflection limits. However, the floor framing in the mezzanine lobby area was found to be greatly overstressed when compared to current code loading configurations as an assembly area. It is plausible for the floor framing to eventually fail under heavy loading conditions such as a packed house where the lobby area is filled with people as standing room only.

A framing plan has been developed to illustrate the proposed solutions to the mezzanine framing deficiencies described above *(Sheet S1.2)*. In general, the proposed solution includes the addition of floor beams to supplement existing beams in supporting the existing floor joists. This accomplishes two things: reduces the span of the existing joists, and reduces the loads on the existing beams. The new beams can

be concealed in the floor framing cavity and not impact the ceiling height in the lower lobby area. Refer to '*Rehabilitation*' plans for additional information.

4.2 Seismic Deficiencies

The following list summarizes the structural seismic deficiencies noted during analysis:

- Lateral dependence on out-of-plane connection of exterior concrete walls to steel beams on floor framing
- Out-of-plane capacity of partially reinforced concrete pilasters (up to 31' tall)
- In-plane shear capacity of front of mezzanine support columns
- Aspect ratio of floor diaphragms

4.3 Scope of Seismic Rehabilitation

The concrete pilasters can be reinforced with steel wide flange beams located to each side of the pilaster as described above in section '3.1'. However, this in not sufficient to support lateral forces generated by the mid height mezzanine framing. The mezzanine framing will be laterally supported by a special moment frame located between the two existing steel columns and place tight to the bottom of the mezzanine ceiling *(Sheet S3.1)*. To reduce the aspect ratio of the floor diaphragm, a steel braced frame needs to be installed at the inside face of the front lobby wall inside the stair well to provide an adequate lateral force resisting system in addition to the exterior walls *(Sheet S3.1)*. This work will require the foundation to be reinforced with micro piles to support additional seismic loads induced by the steel braced frames and reduce future settlement. Refer to '*Rehabilitation*' plans for additional information.

5.0 Fly Loft Observation/ Assessment

5.1 Construction Deficiencies

The primary roof framing consists of one heavy timber truss spanning the length of the fly loft supporting built-up 7 ½"x 2" (3&4 ply) rough sawn beams spaced at 14' o.c. The secondary roof framing consists of 2x6 rafters at 24" o.c. with 1x8 straight sheathing *(Figure 5.1)*. We performed several cores through the roof layers and discovered that

the roof had been re-sheathed with 7/16" OSB over the two 1/8" layers of asphaltic roofing material. The top layer consists three 1/8" layers of asphaltic roofing material *(Figure 5.2)*. The ceiling construction consists of 2x8 rough sawn joists at 16" o.c. supported by built-up 11"x 2" (4 ply) rough sawn beams also used to support the backdrop rigging. All of the framing is fastened together with 8d, 10d, and 20d common nails with the exception of the heavy timber truss. The truss connections consist of 1/4" steel plates and through bolts *(Figure 5.3)*.

The truss was analyzed using computer modeling software (RISA) to accurately determine a safe performance level and measure an acceptable deflection limit. The truss was found to be indeterminate base on its dependence of the framing over the stage. However, the framing over the stage was determined to be inadequate and supported by the adjacent timber truss at gridline '2.4'. The connections are suspect and framing appears to be unstable worsened by the building separation along gridline '2.4' caused by the foundation settlement. The remaining roof framing elements were also analyzed and determined to be inadequate for load capacity during a code level event.

A framing plan has been developed to illustrate the proposed solutions to the roof framing deficiencies described above. In general, the proposed solutions include the complete demolition of the existing roof framing and replacement with modern steel construction for safe support of roof loads and rigging equipment. This approach will be become more apparent later in this evaluation report as it is necessary to facilitate a complete repair of the fly loft walls. Refer to '*Rehabilitation*' plans for additional information.

The roof is currently supported by a cast-in-place 12" thick concrete wall up to the main roof level. The fly loft was added later when it was converted to a theatre in 1925, so the upper walls have been cast directly over the original walls and reduced to 8" thick *(Figure 5.4)*. Again, 16" thick x 28" wide concrete pilasters have been provided at the

truss and four ply beams at the back wall *(Figure 5.5)*. Unfortunately, this condition was not properly addressed at the time of construction and has caused failure of connections, roof faming, floor framing members on every level, and the foundation system *(Figure 5.6)*. A geotechnical analysis was performed to determine cause of settlement (*See Appendix A*).

Supplemental support for these systems would be very extensive and limited to the space available. Foundation solutions would be hindered and upgrades to the theatrical equipment would be difficult to accomplish. Several large cracks have been identified along the exterior concrete walls that appear to have been caused by differential settlement of the foundation. A 3-D scan survey of the entire building has been performed to determine the level of settlement experienced by the fly loft. Most of the settlement of the fly loft has occurred along the back wall and measures approximately 7" to 9" vertically and approximately 7" to 9" horizontally outward at the top of the wall *(Figure 2.3)*. Essentially, the wall is leaning away from the rest of the building pulling the side walls and framing with it. The separation is occurring between the upper fly loft wall and lower main roof and down to the foundation (Gridline '2.4').

It is our understanding the settlement has worsened over the past 30 years according to the gentlemen tasked with the job of maintaining the organ instruments. The organ instruments rooms are located at the line of separation described above *(Sheet A1.3)*. This presents an interesting challenge to the project. The organ and its instruments are currently fully operational and are very valuable to the theatre's historical value *(Appendix D)*. The settlement of the fly loft has caused the floor in the instrument rooms to be unlevel putting the instruments in jeopardy of damage and improper function *(Figure 5.7)*. The goal of this project would be to provide a safe and level space to continue the use of the organ instruments.

5.2 Seismic Deficiency

The following list summarizes the structural seismic deficiencies noted during analysis:

- Top cord capacity and out-of-plan connection of exterior concrete walls to roof diaphragms
- Aspect ratio of roof diaphragms/lack of sheathing (straight sheathing)
- Out-of-plane capacity of partially reinforced concrete pilasters (up to 45' tall)
- In-plane shear capacity of back wall concrete frame
- Lack of lateral resisting system at front of fly loft/main roof (vertical irregularity)
- Undependable foundation systems to resist gravity and seismic forces

5.3 Scope of Seismic Rehabilitation

Rather than reinforce the existing concrete walls of the fly loft, we recommend removing the rear wall completely and the demolition of the side walls down the original main roof elevation, just above the adjacent building roof elevations. This will allow for crucial access to the foundation systems and interior framing deficiencies stated above. The walls will be replaced with factory-cast full height concrete panels *(Sheet S3.1)*. The concrete panels will extend across the separation line between the fly loft and main roof providing a lateral force resisting system at the vertical irregularity. This work will also correct the disconnect caused by the settlement of the existing fly loft construction.

The length to width ratio of the building and lack of out-of-plane connection creates the need to provide a steel deck diaphragm at the roof and floor elevations. The tall concrete walls develop very large forces during a seismic event that can be difficult to restrain with the existing wood roof framing. The steel construction will cut the aspect ratios down to code acceptable levels and allow for proper resolution of top of concrete wall anchorage. The steel and concrete construction in the fly loft will also provide a safer condition with respect to fire protection of the valuable backdrops and other theatrical equipment. In addition, the new construction will be designed to support future additional loads as the theatre upgrades and adds to the equipment. Refer to '*Rehabilitation*' plans for additional information.

6.0 Evaluation of Non-Structural Items

6.1 Overview

It is not uncommon for incidental, non-structural items to play a major role in the expense of rehabilitating an existing building. These costs can sometimes be significant, and can also be very difficult to estimate. For the purpose of this evaluation, we have focused on the necessary items required to improve the safety of the building and continue efficient use of the facility only. It is our understanding the second phase of the project will likely include additional non-essential items to enhance the historical texture and performance of the theatre's use. We have attempted to outline some of the phase two items in the budget to provide a list of additional financial impacts to the overall project to be completed. However, our attempt to identify phase two historical protection and restorative needs should not be considered a comprehensive list. A further evaluation by experts in theatrical design and historical restoration is recommended. Also a consensus needs to be reached by the City, Preservation society, and Coos Bay community on the use and purpose of the Theater. Originally designed for vaudeville productions, it evolved into a theater. Future uses could be as a museum, Movie Theater, live theatrical productions, live music shows, and other community functions. By addressing the use and purposes of the theater long term, resources can be applied to the design and project in a way that will meet the needs for long term sustainability. At present the numbers and items outlined should be considered preliminary and should be refined as the design needs become clearer and a deeper evaluation is preformed.

6.2 Electrical

The existing electrical system in the theatre has been modified and added to several times over the years. Much of the work is undocumented and appears to be difficult to evaluate (Figure 6.1). However, according to Cedar Electric, who had recently worked in the building, the following is a summary of the current condition:

- The Theater was built in the 1920's the electrical system is not much more modern.

- The electrical system has never had a major upgrade. The conductors are primarily rubber insulated with cloth covering. The conduits are painted black iron. Many are broken and not continuous. Some of the feeders are open spliced.
- There is no grounding electrode system. There is not a complete equipment grounding system.
- The little maintenance that has been performed appears to be piecemeal and of suspect quality. The same appears to be true for the occasional building alteration.
- The lighting is extremely difficult to maintain. Some areas require a 40 foot extension ladder to replace Edison base light bulbs. Most areas show signs of overheating and deterioration. Nearly all the lighting is extremely inefficient and, as mentioned, has high operational costs. It is also inadequate as to required light levels and theater visibility.
- Emergency Egress Lighting systems are minimal and inadequate. There is not any fire alarm or notification system. There is not any security system.

With the level of work being performed throughout the building and the potential fire danger of the existing system, it is our recommendation the primary electrical system is completely replaced during this phase of the project. The following is a summary of the recommended upgrades and improvements:

Phase 1

- Replace service with a new 1,000 Ampere Main Breaker, factory installed Surge Arrester, 120/208 VAC, 4-Wire, 3-Phase Service including:
    - 200% Rated Neutral, Silver Plated Copper Bus Work, and copper Service Entrance Conductors.
    - New Grounding Electrode System
    - Six of a 3-pole 225 Ampere CB; One of a 250 Ampere CB; and Two-250 Ampere spaces
- New Feeder Distribution, 225 Ampere, 3-phase, composed of 4-4/0 AWG & 1-# 4 AWG Copper 5-wire feeders, which terminate in 42 Circuit Panelboards to the following locations:
    - Projection Booth (including a factory installed surge arrester)

- Snack Bar
- Lobby Lights (including interior and exterior signage, receptacles, etc.)
- Auditorium Lighting
- Stage Lighting
- New HVAC up to 25 Tons

- General Devices and Small Appliances
  - General Use Receptacles throughout building
  - Snack Bar Appliances
- Emergency Backup Egress Lighting
  - Twenty-Four Dual Head with LED Exit Signs
- Life Safety and Communications
  - New Fire Alarm with Local and Remote Annunciation
  - New Security System
  - New HVAC Control System
  - New Lighting Control System
  - New Network and Communication System

<u>Phase 2</u>

- Projection Booth Equipment and Devices
- Stage Lighting
  - Power for motorized curtains
  - Stage Lighting from various locations composed of programmable LED (RGB)
- Auditorium Lighting
  - Work Lights and General Lighting
  - Theater Accent Lighting (LED [RGB] for the Cove, Pillars, etc.), and LED Aisle Lighting all (DMX) Programmable

This work has been included in the project budget and split into two phases. Depending on available grant funds such as the Energy Trust of Oregon, it may be feasible to include the auditorium and stage lights as described above in phase one. At the very least, it will be necessary to upgrade the aisle lighting for safe exiting.

6.3 Mechanical

It is our understanding the heating system in the building was recently upgraded from an oil furnace boiler system to a gas fired heating system. The remaining furnace and supporting structure will be removed during the reconstruction of the fly loft. The existing gas unit will need to be removed to allow room for the new construction of the fly loft, and put back in its original location. At this time no upgrade of the mechanical systems has been identified to complete this task and continue operations. The large diameter duct in the attic that feeds the rear of the theatre will be braced against seismic forces *(Figure 6.2)*. This work has been included in the project budget for this phase and should have a minimal impact.

6.4 Plumbing

It is our understanding the current fixture plumbing systems are fully operational and show no signs of deficiency. However, this phase of the project included the addition of two accessible unisex restrooms at the main floor level. The fixtures in each restroom will be plumbed into the existing system and evaluated at that time for any further repair as needed.

The building experiences an elevated ground water condition several times a year. A new sump pump has been recently installed under the stage area. It is recommended this pump is evaluated for capacity and possibly upgraded as needed during the reconstruction of the fly loft foundation work. In addition, a sump pump in the crawl space at the main front lobby area is recommended to reduce flooding during high ground water events reported every couple of years.

6.5 Fire Protection

Due to the high occupant load and financial investment, it has been determined that a fire protection system throughout the building is required to meet current code requirements for life safety and protect against property damage. A standard fire sprinkler system will be installed throughout the attic space, ceiling, mezzanine and

lobby framing. The exterior walls will have a water curtain system to protect against a fire migrating from adjacent buildings. It may be necessary to provide a special waterless fire protection system to avoid water damage to the sensitive back drops in the fly loft. It may also be possible to coat the backdrops with a sealant to protect against water damage from a traditional sprinkler system. A fire line will need to be extended into the building from the main water line in Broadway with a fire department connection on the face of the building. A fire riser will be located inside the stairwell with the required double check valve for proper back flow prevention.

A fire detection system will be installed to alert the fire department and occupants within the building in the event of a fire. Egress lighting to all exists will be upgraded as needed to provide safe exiting of the building. In addition, the hallway behind the projection room will be walled in to be used as a closet to the projection room. This will reduce the potential for confusion when exiting the mezzanine level.

6.6 Accessibility

It is the intent of the project to provide a safe and efficient facility for both employees and patrons of the theatre. Due to the level of work performed and its historical status, it is not required to completely address all accessibility deficiencies *(Appendix B)*. We have recommended selected areas to be addressed in phase one based on priority and limited impact to the historical value of the building. However, these improvements will not make the facility fully compliant to current ADA requirements. As discussed above, two unisex accessible restrooms will be constructed on the main level accessible from the lobby *(Sheet A1.1)*. The front door will be replaced to provide proper hardware and thresholds. The rear exit doors will be upgraded with handrail on each side ramps and the ramps will be rebuilt to provide a uniform path of travel *(Figure 6.3)*. Refer to '*Rehabilitation*' plans for additional information.

6.7 Environmental

It is our understanding from Koos Environmental who performed the asbestos abetment work when the secondary projection rooms were removed, that a limited environmental survey had been performed on the building in December 2007 *(Appendix C)*. The survey was limited to asbestos. It is recommend by Koos that additional testing of the furnace for asbestos and the furnace fuel tank for leaks be done before removal. In addition, lead based paint may be present on the interior art work and requires testing prior to any sanding or demolition of the artwork itself. The artwork paint presents a higher cost because of the number of colors and each one may need to be tested depending on the work to be preformed. For the work that does not involve sanding or demolition it may be possible to clear coat and protect the material by encapsulating any possible hazards material. Further evaluation, testing and potential abetment has been included in the budget.

6.8 Historical

It is the goal of this project to preserve the historical fabric of the original theatre layout and décor. While the level of work described in this report appears to be very intrusive to the existing finishes, it must be understood that it is necessary to preserve this building for future generations. Without this work, it is possible the building will become so unsafe that it may need to be abandoned. We have reviewed the proposed work with a Restoration Specialist with the Oregon State Historic Preservation Office (SHPO). They have provided their input on important historical preservation aspects of the project *(Appendix D)*. We have attempted to limit the impacts on the building and allow the final restoration to resemble its original construction. In addition, the large columns that have been placed to each side of the stage had originally been located on the stage and were later moved to make more room for large format cinema *(Figure 6.4)*. This need is no longer valid, therefore moving the columns back to their original location on the stage will represent a more historical condition *(Sheet A1.1)*.

6.9 Finishes

The exterior finishes facing the street will only be impacted as need to access the foundation and installing the water line for the sprinkler system. The concrete and tile sidewalk will need to be cut and removed and then replaced to match *(Figure 6.4)*. The exterior finish at the rear fly loft wall will be all new smooth concrete finish similar to the original construction. The "EGYPTIAN THEATRE" mural on this wall will need to be repainted *(Figure 6.4)*. It is our understanding the custom paint will need to be deferred to the second phase as it is not necessary to continue operations.

The interior finishes throughout the building are in disrepair, dirty, and have been modified to fit changing needs of the theatre owners *(Figure 6.5)*. The proposed structural renovation work outlined above will further impact the finish of the original construction. Every possible step should be taken to preserve what is not necessary to remove to provide access for the renovation. The areas that must be removed will be replaced with gypsum sheathing, textured to match, and painted with a solid base paint most resembling the area impacted. Areas that have custom artwork will need to be deferred to the second phase as it not necessary to continue operations. Any decorative wood case work that is removed will need to be deferred as well. A complete interior finish restoration project should be completed all at once and will require a significant design and budget.

7.0 Conclusion

Given the current condition of the structure, the current code section on existing buildings does not mandate that upgrades are required unless the building is scheduled for repairs, alterations, additions, or change in occupancy. However, it is our understanding the goal of the City is to preserve and continue utilizing the existing building as a facility for community assembly, and the City wants the seismic structural system to be compliant with acceptable levels of safety per current code. To clarify, upgrades outlined in this report are strictly at the discretion of the City.

We have attempted to identify all areas requiring upgrades to achieve a scope of work for current code compliance, and associated estimated budget *(Appendix E)*. In addition to the evaluation report and supporting appendices, we have attached as-built drawings, with survey data, library of photos, proposed preliminary rehabilitation drawings, preliminary structural analysis, and material testing reports. Additional design will be required before construction can begin. Depending on the final scope of the first phase, the following is a summary of the remaining design that has been included in the budget:

Phase 1

- Finalized structural and accessibility design and drawings
- Complete electrical design and drawings
- Complete plumbing design and drawings
- Back drop rigging equipment design and drawings
- Additional hazardous material testing
- Test foundation pier to determine actual capacity

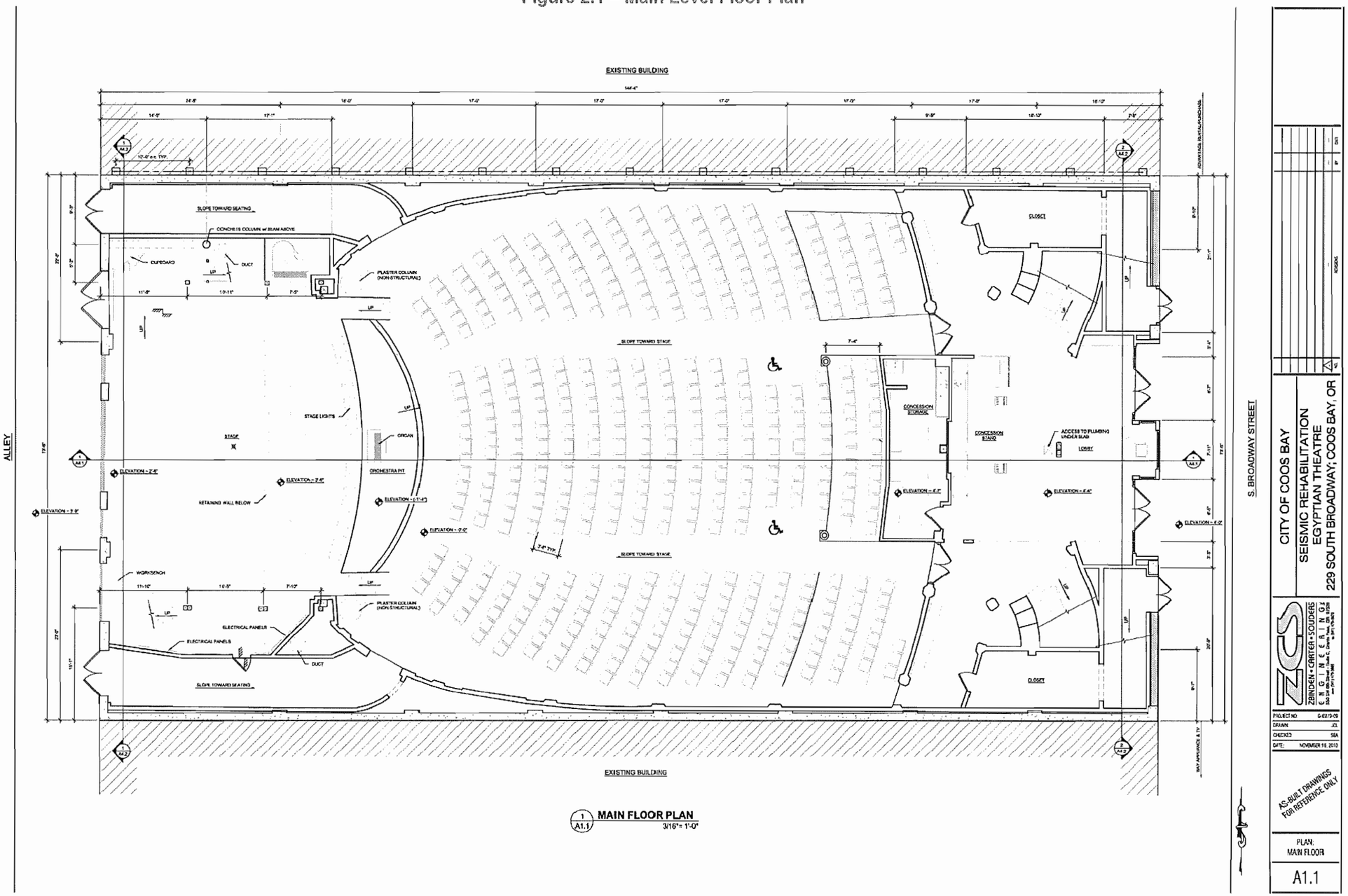
Phase 2

- Interior finishes and historical detailing restoration design
- Complete auditorium and theatrical stage lighting design and drawings
- Stage equipment upgrade (i.e. catwalks) design and drawing.
- Stage Curtains (i.e. main, skirt, legs, scrim) replacement design
- Projection equipment upgrade design and drawings
- Communication and sound equipment upgrade design and drawings
- Exterior Signage and Façade restoration design
- Exterior lighting and marquee upgrade design
- Full Organ instrument restoration design
- Concessions upgrade design and drawings

Please contact our office if you would like to discuss our findings. Please review the attached information and proposed restoration drawings that have been used to define a phase one scope and budget. This may give you enough information to make a decision on how to proceed and pursue funding opportunities.

FIGURES

Figure 2.1 – Main Level Floor Plan



1 / A1.1 **MAIN FLOOR PLAN**
3/16"= 1'-0"

CITY OF COOS BAY
SEISMIC REHABILITATION
EGYPTIAN THEATRE
229 SOUTH BROADWAY; COOS BAY, OR

ZCS ENGINEERING INC
ZBINDEN • CARTER • SOUDERS
550 SW 6th STREET, SUITE C, GRANTS PASS, OR 97526
(541) 479-3865

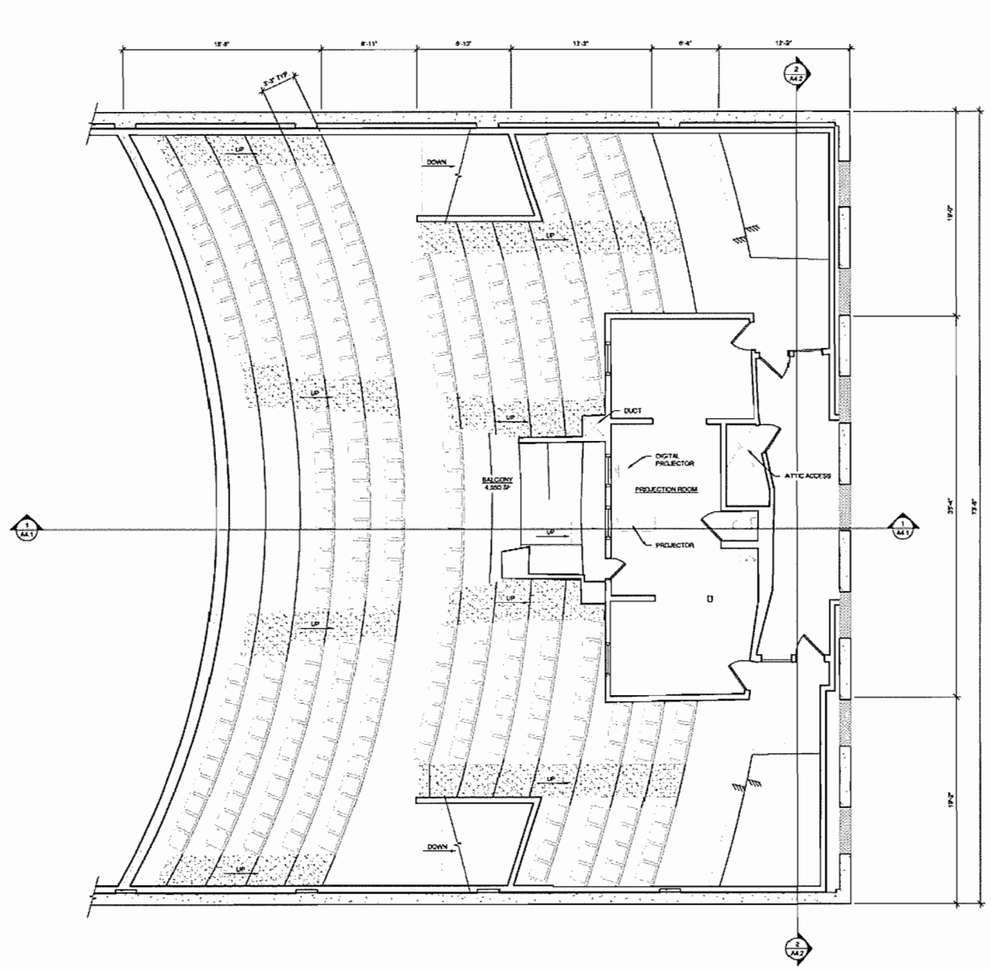
PROJECT NO: G-0279-09
DRAWN: JCL
CHECKED: SBA
DATE: NOVEMBER 18, 2010

AS-BUILT DRAWINGS FOR REFERENCE ONLY

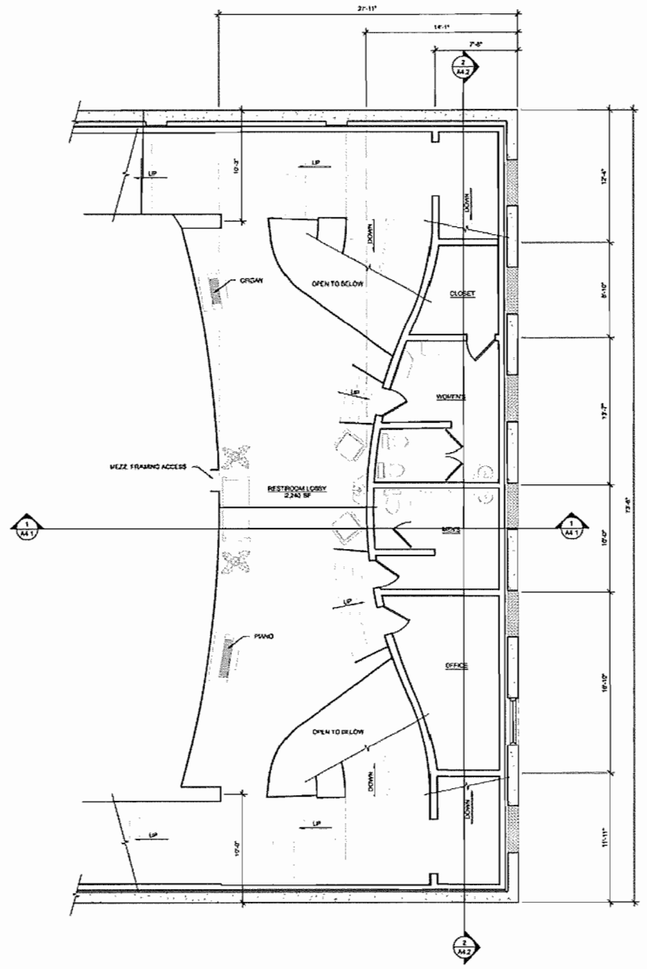
PLAN:
MAIN FLOOR

A1.1

Figure 2.2 – Second Level Floor Plans



1 A1.2 **BALCONY PLAN**
3/16"= 1'-0"



2 A1.2 **MEZZANINE RESTROOMS**
3/16"= 1'-0"

CITY OF COOS BAY
SEISMIC REHABILITATION
EGYPTIAN THEATRE
229 SOUTH BROADWAY; COOS BAY, OR

ZBINDEN • CARTER • SOUDERS
ENGINEERING

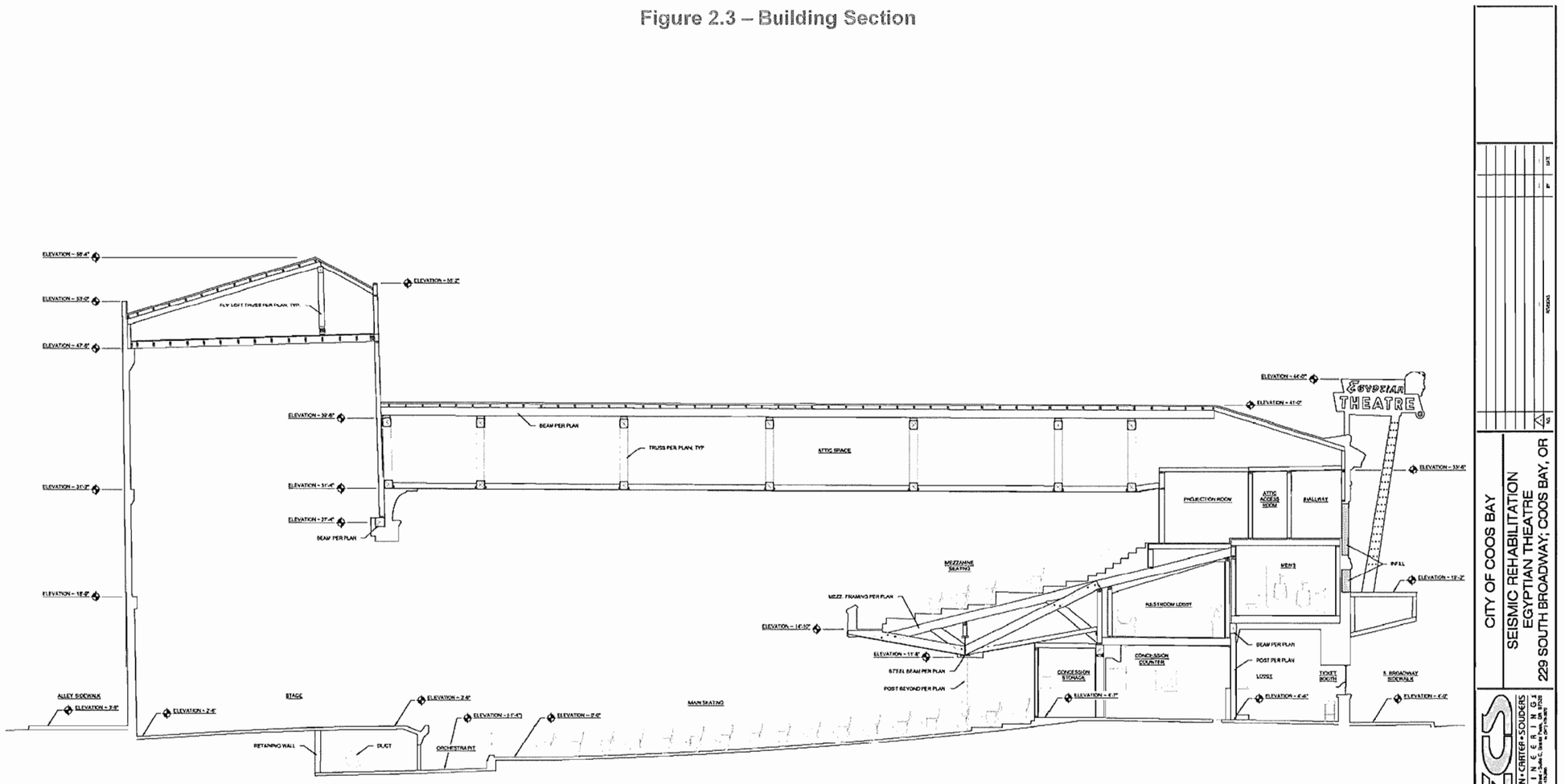
PROJECT NO G-0279-09
DRAWN KS
CHECKED SEA
DATE NOVEMBER 16, 2010

AS-BUILT DRAWINGS FOR REFERENCE ONLY

PLANS:
MEZZANINE SEATING & RESTROOM LEVEL

A1.2

Figure 2.3 – Building Section



1 A4.1 **EAST-WEST SECTION**
3/16"= 1'-0"

CITY OF COOS BAY
SEISMIC REHABILITATION
EGYPTIAN THEATRE
229 SOUTH BROADWAY; COOS BAY, OR

ZBINDEN • CARTER • SOUDERS

PROJECT NO: G-0279-09
DRAWN: JCL
CHECKED: SEA
DATE: NOVEMBER 16, 2010

AS-BUILT DRAWINGS FOR REFERENCE ONLY

SECTION
EAST-WEST

A4.1

Figure 2.4 – Street Elevation

Figure 2.5 – NFIP Flood Insurance Rate Map

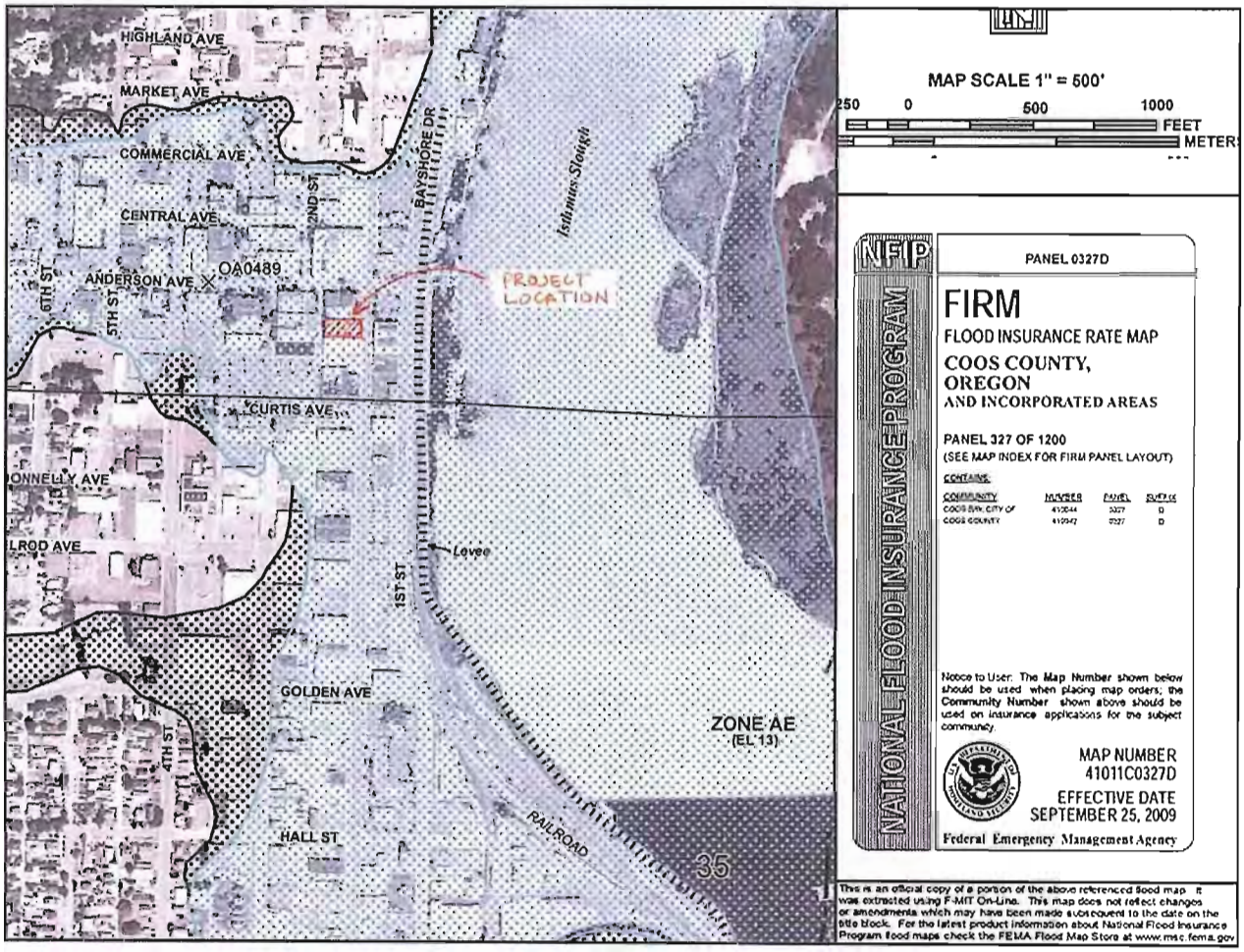


Figure 3.1 – Roof Framing

Figure 3.2 – Roofing Material

Figure 3.3 – Ceiling Framing

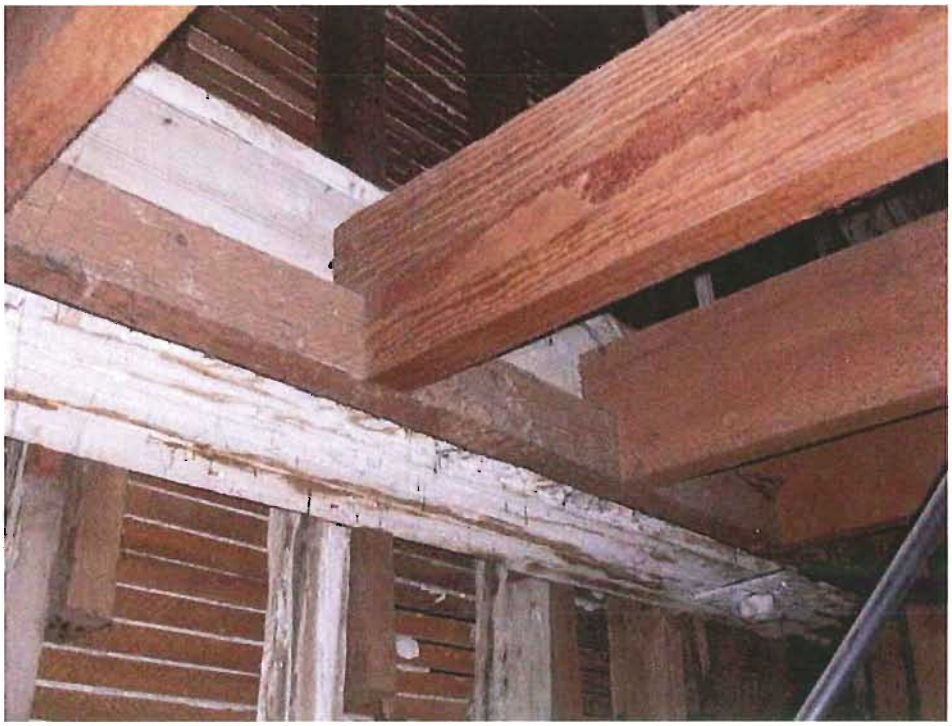


Figure 3.4 – Connections

Figure 3.5 – Truss Top Chord Support

Figure 3.6 – Secondary Roof Framing

Figure 3.7 – Typical Concrete Pilaster

Figure 3.8– Relocated Truss Bearing

Figure 3.9– Relocated Truss Damage

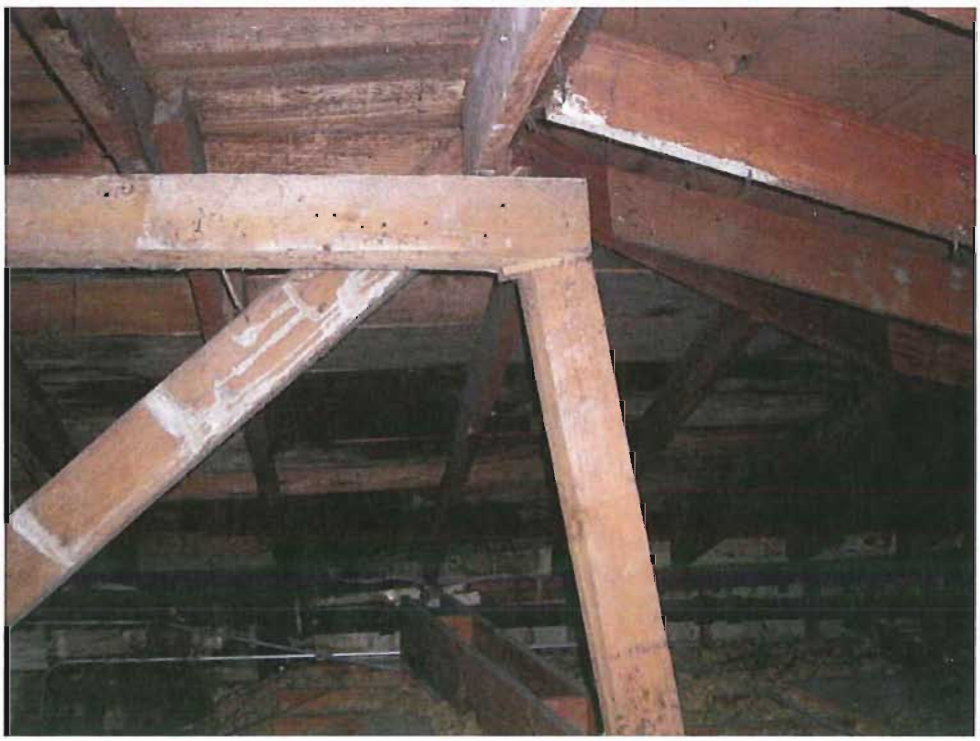


Figure 3.10 – Typical Large Wall Cracks

Figure 4.1 – Mezzanine Support Column

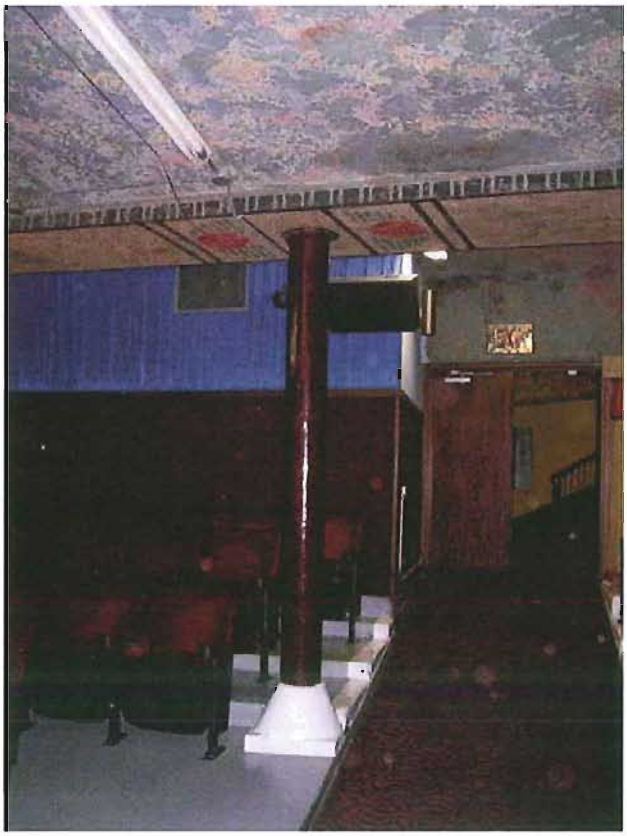


Figure 4.2 – Mezzanine Framing

Figure 4.2 – Mezzanine Framing

Figure 4.2 – Mezzanine Framing

Figure 5.1 – Fly Loft Framing

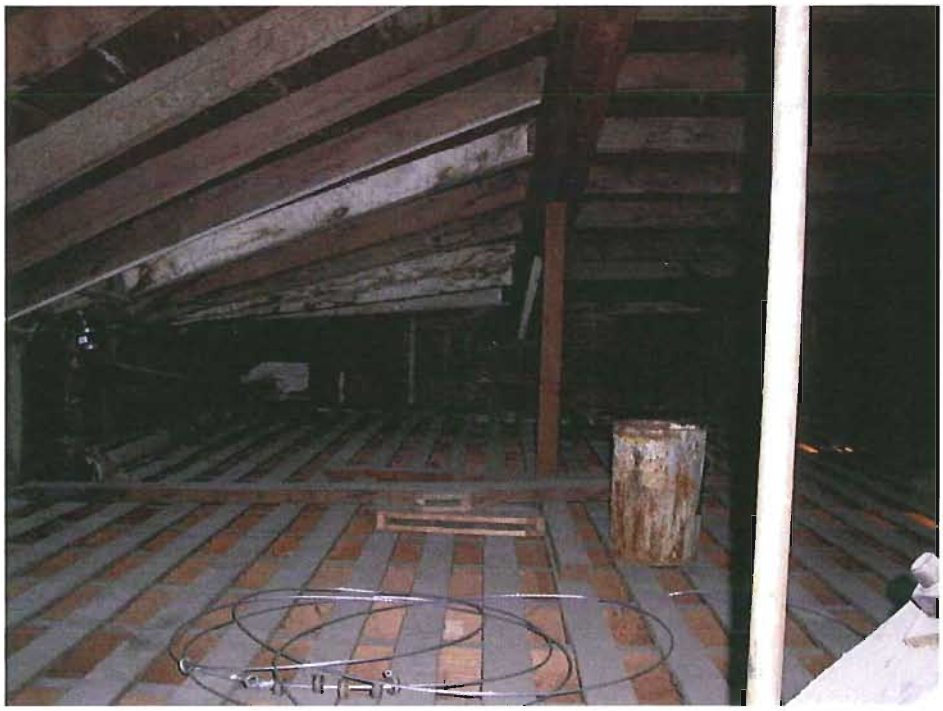


Figure 5.2 – Fly Loft Roofing Material

Figure 5.3 – Fly Loft Truss Connections

Figure 5.4 – Fly Loft Truss Support

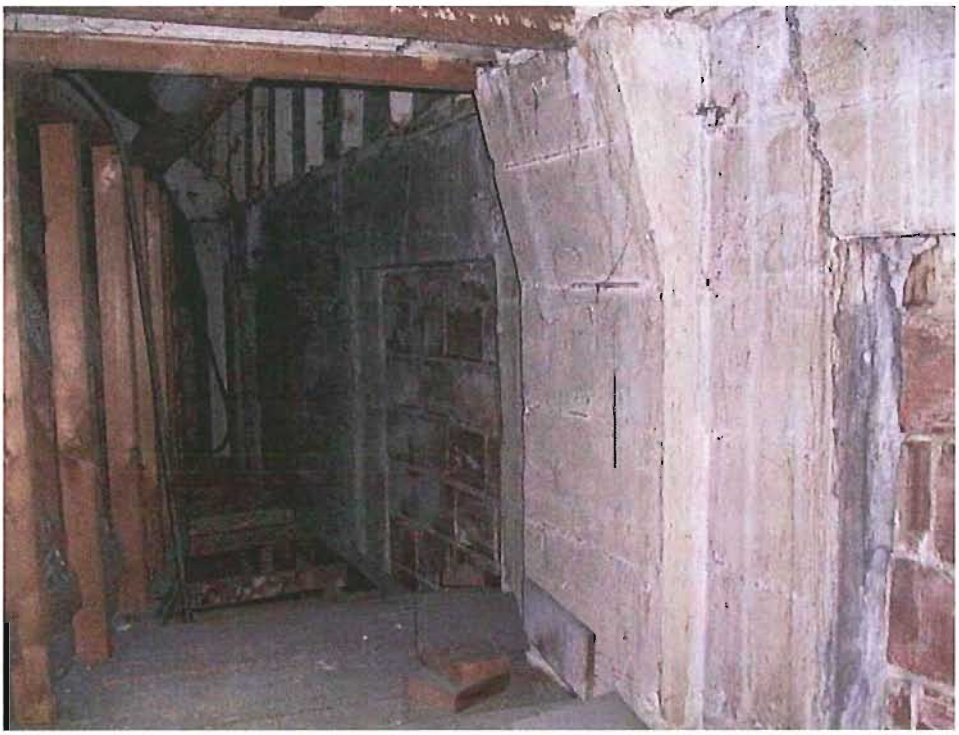


Figure 5.5 – Fly Loft Wall Construction

Figure 5.6 – Fly Loft Wall Settlement Damage

Figure 5.6 – Fly Loft Wall Settlement Damage

Figure 5.6 – Fly Loft Wall Settlement Damage

Figure 5.6 – Fly Loft Wall Settlement Damage

Figure 5.7 – Organ Room Settlement Damage

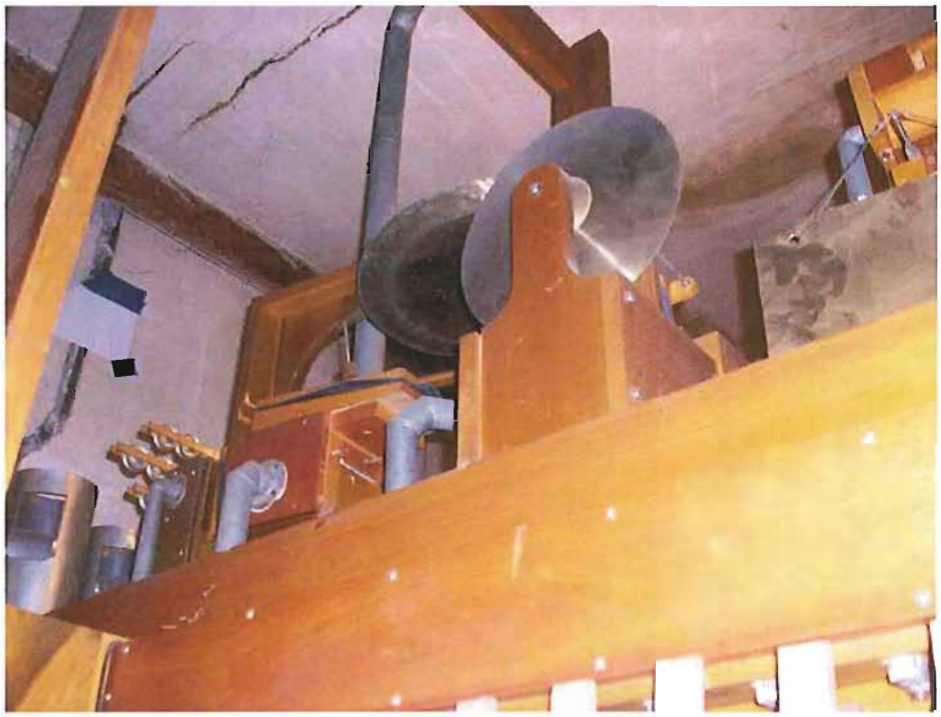


Figure 6.1 – Electrical System

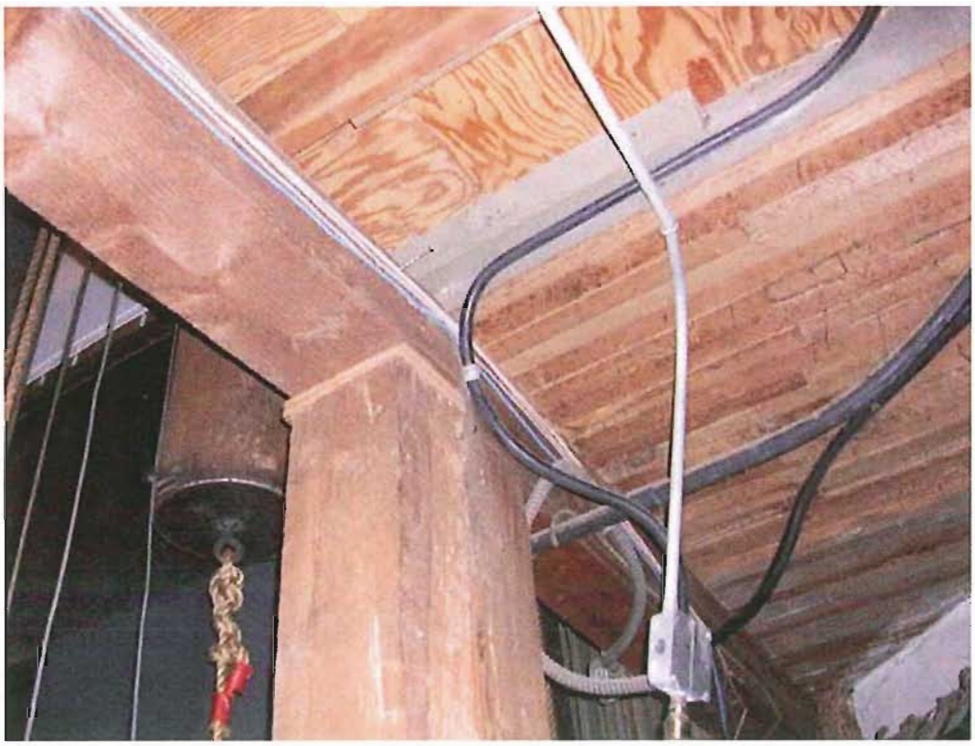


Figure 6.1 – Electrical System

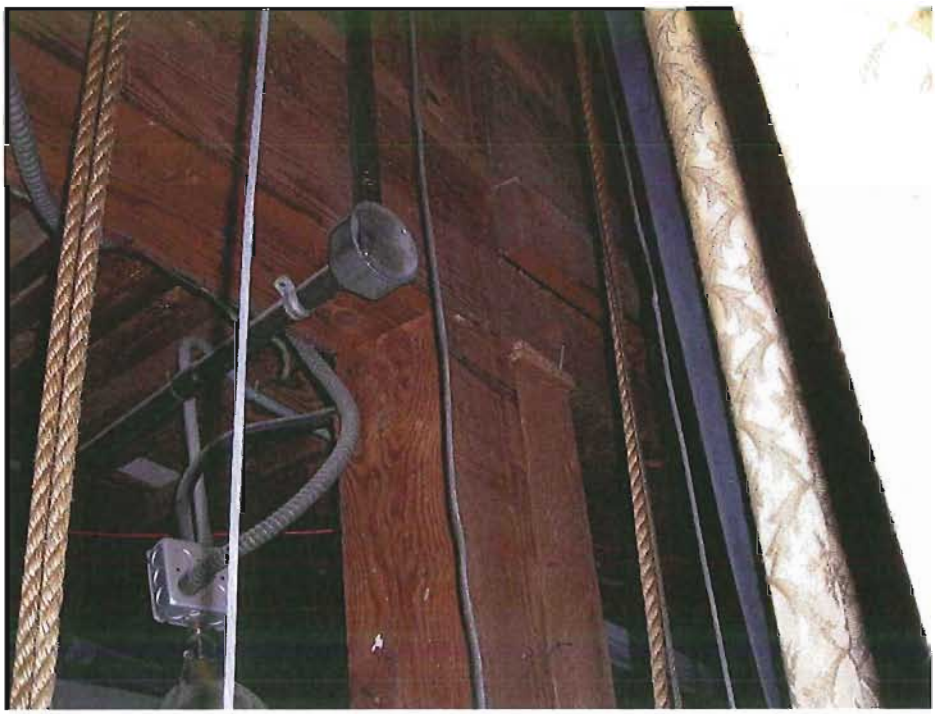


Figure 6.1 – Electrical System

Figure 6.2 – Mechanical System

Figure 6.2 – Mechanical System

Figure 6.3 – Rear Exit

Figure 6.4 – Exterior Finishes

Figure 6.5 – Interior Finishes (Stage)

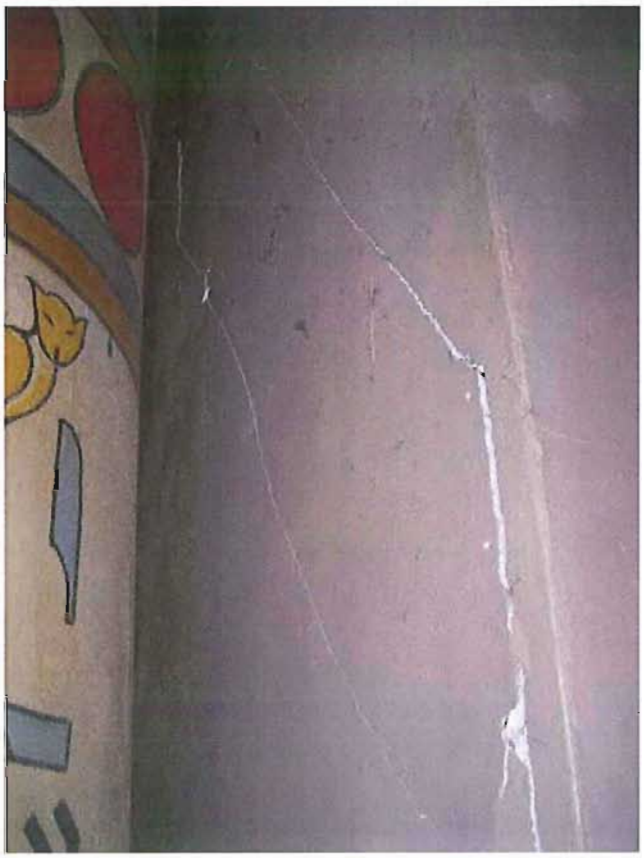


Figure 6.5 – Interior Finishes (Lobby)

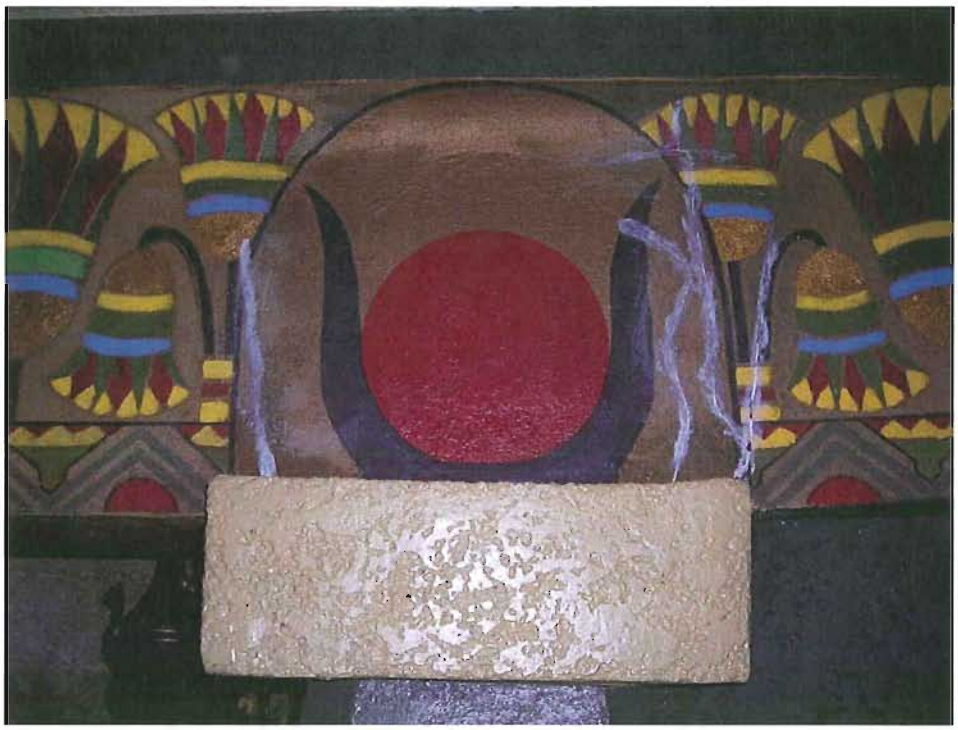


Figure 6.5 – Interior Finishes (Mezzanine)

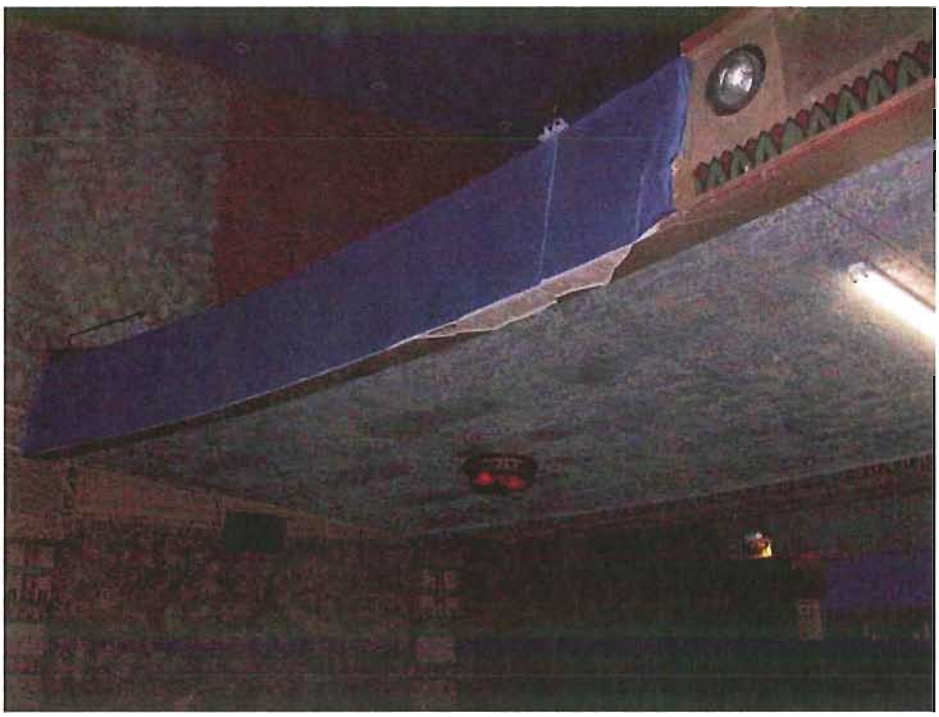


Figure 6.5 – Interior Finishes (Stairwell)

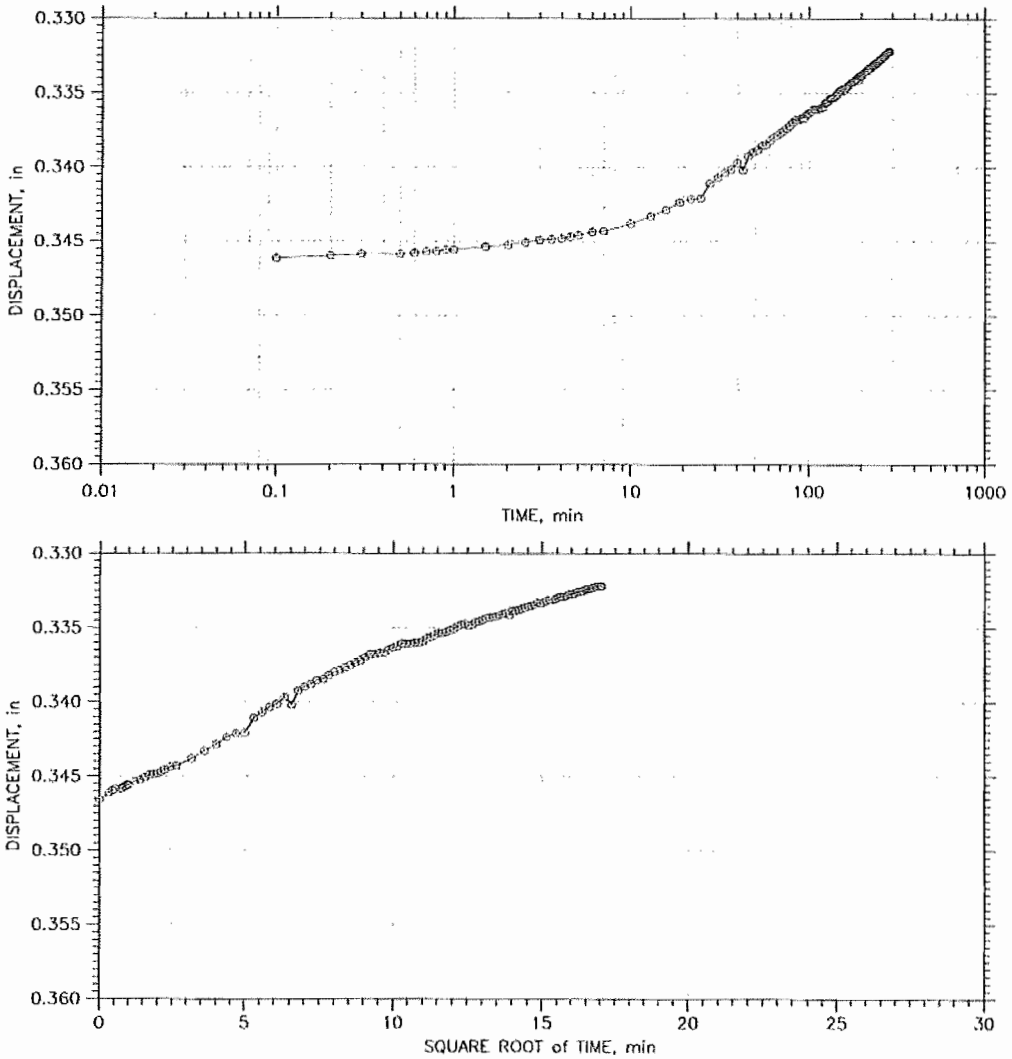
550 SW 6th Street, Suite C ° Grants Pass, OR 97526 ° P 541.479.3865 ° F 541.479.3870

APPENDIX A

Geotechnical Report by SHN Consulting Engineers & Geologists, Inc.
Dated September 14, 2010

CONSOLIDATION TEST DATA

TIME CURVES
Constant Load Step: 14 of 14
Stress: 500. psf



Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By:
Sample No.: 10-558	Test Date: 6/30/10	Depth: 25-27
Test No.: 10-558	Sample Type: 3"shelby	Elevation:
Description: Dark Brown Clayey SILT		
Remarks: 1500PSF Preload		

Wed, 15-SEP-2010 15:40:30

SHN CONSULTING ENGINEERS & GEOLOGISTS, INC.
275 Market Ave. Coos Bay, OR 97420-2228 • 541-266-9890 • FAX: 541-266-9496 • coosbayinfo@shn-engr.com

Reference: 609031.150

September 14, 2010

Mr. Jim Hossley, Director of Public Works
City of Coos Bay
500 Central Ave.
Coos Bay, OR 97420

Subject: Egyptian Theatre Geotechnical Evaluation

Dear Mr. Hossley:

SHN Consulting Engineers & Geologists, Inc., (SHN) is pleased to submit the results of our focused geotechnical investigation at the Egyptian Theatre in Coos Bay. The scope of work is defined by our proposal dated January 19, 2010, which is attached to City of Coos Bay Work Order No. G2. The objective of our study was to evaluate soil conditions and how they may relate to the damage in three areas of the theatre:

1. Rear wall settlement and side wall cracking
2. Back stage settlement
3. Cracks in the under-stage retaining wall and seepage through the wall.

Background

We understand that the original structure at the site was an automotive garage constructed in 1922. It was converted to a theatre in 1925. Since that time, there have been improvements and alterations made to the building, including an extended elevation fly loft above the stage, relocation of structural support elements, and a retaining structure beneath the stage.

Construction details, specifically regarding the foundation support system are unknown. We expect that the building is supported on driven timber piles, which was a typical practice at that time for heavy structures in Coos Bay, due to soft soil and high groundwater. The depth and number of piles is unknown. We initially assumed that the timber piles were driven to refusal in a sandy bearing layer at least 30 feet deep or adequate frictional resistance was developed, considering the limitations of the pile driving equipment in the early 1920s.

The theatre has experienced noticeable distress in the form of cracking of the side walls from near the seating level to the roof. Cracks appear to widen with increasing elevation and appear to be more numerous toward the rear of the theatre. The back wall appears to tilt outward.

Previous Studies

SHN previously accompanied ZCS Engineering in December 2009 in conducting an initial examination of the interior of the theatre. We documented our observations and cracks in the concrete walls. We suggested possible mechanisms to explain the observed distress to the theatre and made recommendations for further study in a report dated January 11, 2010.

We understand that a Geotechnical Study of the theatre was performed by Pinnacle Western, Inc. (Pinnacle). The copy of the Pinnacle report that we reviewed is undated but assumed to be from work performed in 2008. A single boring was drilled at the rear of the theatre to a depth of 30 feet.

Field and Laboratory Investigation

SHN conducted a field investigation in May 2010. Two Cone Penetration Test (CPT) borings were advanced in the alley behind the theatre to provide a continuous record of the subsurface conditions as close to the back wall as was practicable (Figure 1). The purpose of the CPT borings was to obtain specific engineering properties of the subsurface soil while measuring both tip and side friction resistance as the CPT probe was advanced. From CPT data, it is possible to determine the shear strength of the foundation soils. A secondary purpose was to identify a potential sandy bearing layer that could have provided end-bearing foundation support during pile driving in the 1920s. The CPT probes were advanced to 72 and 86 feet below existing grade.

SHN also performed a single rotary wash boring within 5 feet of the Pinnacle 2008 boring to a depth of 52 feet. The purpose of this boring was to obtain relatively undisturbed samples to perform laboratory tests to determine the shear strength and compressibility of the soft soils that were encountered.

Saw cuts had been made in the stage close to the back wall and mid-stage within 5 feet of the underlying retaining structure that appeared to support the stage. Shallow hand-auger borings were performed at those locations.

In addition to performing index tests on the representative soil samples, we also conducted triaxial shear and one-dimensional consolidation tests on samples obtained from pushing Shelby tubes through the soft soil. The objective was to: 1) identify soil shear strength with depth to determine empirical driven pile capacity; 2) evaluate compressibility and consolidation characteristics of the soils adjacent to the back wall, simulating loading conditions as the theatre was constructed and subsequently modified.

Logs of the borings, CPT probes, and hand-auger borings are included in Attachment 1. Laboratory test results are indicated on the appropriate boring log or are included in Attachment 2.

Subsurface Conditions

The focus of our investigation for the back wall was on the soils encountered below a depth of 30 feet, measured from the alley surface. This is based on our assumption that existing piles are at least 30 feet deep, which is the depth of the Pinnacle boring. In that boring, no soil layer was encountered that could provide end-bearing resistance.

In general, the subsurface soil is highly plastic silt to a depth of at least 70 feet, identified as MH according to the Unified Soil Classification System. This silt is highly compressible, having high moisture content and low dry density. The average soil data and engineering properties are summarized in Table 1.

550 SW 6th Street, Suite C • Grants Pass, OR 97526 • P 541.479.3865 • F 541.479.3870

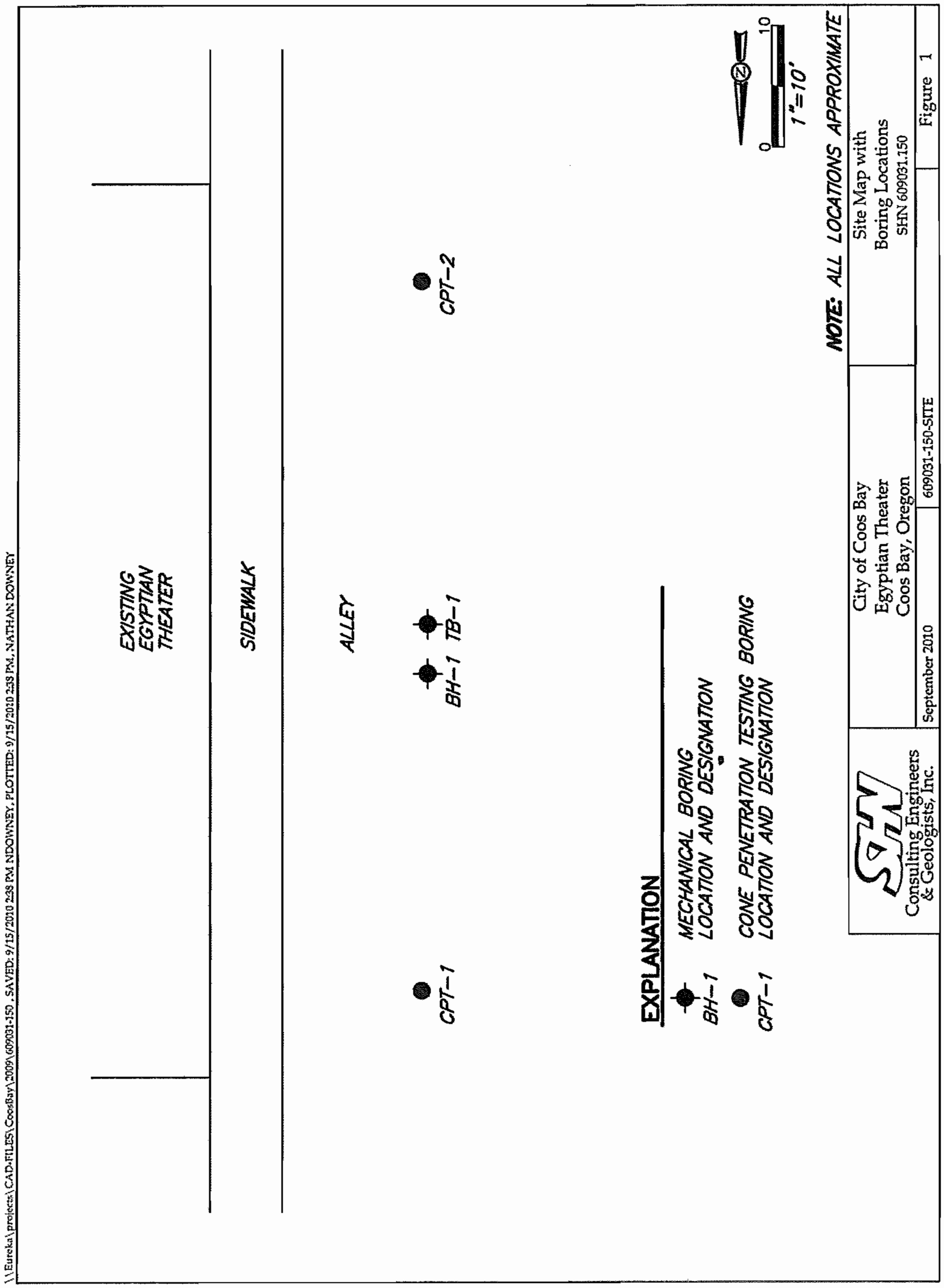

\\Eureka\projects\CAD-FILES\CoosBay\2009\609031-150 , SAVED: 9/15/2010 2:38 PM NDOWNEY, PLOTTED: 9/15/2010 2:38 PM, NATHAN DOWNEY
EXISTING EGYPTIAN THEATER
SIDEWALK
ALLEY
CPT-1
CPT-2
BH-1
TB-1
EXPLANATION
BH-1 MECHANICAL BORING LOCATION AND DESIGNATION
CPT-1 CONE PENETRATION TESTING BORING LOCATION AND DESIGNATION
N
0
10
1"=10'
NOTE: ALL LOCATIONS APPROXIMATE
Consulting Engineers & Geologists, Inc.
City of Coos Bay
Egyptian Theater
Coos Bay, Oregon
September 2010
609031-150-SITE
Site Map with
Boring Locations
SHN 609031.150
Figure 1

Table 1 Average Soil Engineering Properties, below 30 feet depth		
Property	**Symbol**	**Value**
Moisture Content	w	86 %
Dry Density	γ_{dry}	50 pcf (pounds per cubic foot)
Angle of Internal Friction (triaxial)	φ	18°
Cohesion	c	500 psf (pounds per square foot)
Coefficient of Consolidation	c'_v	0.032

The CPT borings were about 60 feet apart. Little variation between the two CPT data plots was observed. CPT-1 on the north indicated slightly more stiff silt than CPT-2 to the south, based on normalized SPT N_{60} values. Correlation between CPT and the Standard Penetration Test (SPT) is commonly performed. The SPT is universally accepted as the "standard" in the industry for measuring soil consistency. The SPT "N" value is the number of blows recorded to advance a standard 2-inch ID sampler 12 inches using a 140-pound hammer, following a drop of 30 inches. Automatic hammers have eliminated much of the error in early manual SPT measurements. Corrections for depth, rod length, and energy imparted are referred to as the N_{60} normalized value, which is correlated from CPT values. Table 2 reports the comparison between the CPTs behind the theatre.

Table 2 Normalized Average N_{60} SPT values for both CPT Borings		
Depth, feet	**CPT-1**	**CPT-2**
10 – 20	3	2
20 – 30	4	2
30 – 40	5	3
40 – 50	4	3
50 – 60	5	4
60 – 70	5[1]	4
70 – 80	5	4[2]
80 - 86	5	---

1. N_{60} = 30 from 68 – 70 feet
2. to 72 feet

In the hand-augered borings, we encountered very soft soil and debris beneath the stage close to the back wall. Mid-stage, we encountered a gap of about 18 inches between the bottom of the stage support and the soft ground and debris. It was possible to shine a light from the void and observe light through the vertical cracks in the retaining wall toward the front of the stage. Soils beneath the stage are very soft, nearly saturated, and contain debris, likely previously placed fill. Evidence of water and fine soil particles seeping through these cracks is apparent, a contribution to the voids that we observed.

Discussion

Initially, we presumed that the Egyptian Theatre pile foundations were driven to a sandy layer, 30 to 35 feet below grade. This is similar to what was found underlying the Chandler Building to the north. We had postulated that this layer was thin and underlain by soft, compressible soil. Had this been the case, the increased load imposed by the addition of the fly loft above the stage, may have been sufficient to "punch" the pile tip through the sand and into the softer soil. This was the mechanism suggested by Pinnacle. However, we did not encounter a sandy, more resistant layer in any of the three explorations behind the theatre. The only trace of increased (N_{60}) resistance occurs in CPT-1 at a depth of 68 to 70 feet.

Based on the field and laboratory data, a more likely situation occurred in the early 1920s in which refusal was believed to have been achieved during initial pile driving, regardless of whether a resistant layer was encountered. Adequate friction between the soil and the pile was believed to have been developed, based on the limitations of the equipment at that time.

Early pile foundation problems (prior to 1950) were experienced, mostly on the Eastern US coast, when a pile reached what appeared to a hard layer underlain by soft materials. Apparent high blows were recorded but when the load was applied, the hard layer was punctured or the soft layer below might consolidate, causing settlement. After about 1950, pile driving formulas were developed to estimate friction pile capacity, which were often only a guess.

The mode of failure of a pile depends on the shear strength of the surrounding soil and pile type. Settlement of pile foundations occurs because of shear failure of the supporting soils. General shear failure is the most common mode. In more competent materials where piles have "failed," the loads are applied quickly so that undrained conditions prevail (pore pressures within the soil take longer to dissipate). The failure surface is typically well-defined, and occurs suddenly, in a well defined bulge.

Punching failure is just the opposite, occurring in loose sand or silt that is loaded under slow, drained conditions. Punching failure may occur where only a lateral compression of the surrounding soil occurs and shear stresses do not yet mobilize the shear strength of the soil. Failure develops gradually by an ever-increasing load-settlement relationship until equilibrium is achieved. If the soil is highly compressible, large settlement can occur and vertical shear surfaces between the soil and pile are poorly defined.

Analysis

Along the back wall, there are four equally spaced vertical support pilasters, two on the corners and two in the center. ZCS provided estimated loading conditions for the back wall, based on the original construction and after the fly loft was added. These values are reported in Table 3.

Table 3 Estimated Theatre Back Wall Dead Plus Live Loads		
	Before Fly Loft	**After Fly Loft**
Middle (2) pilasters	147.2 kips	207.2 kips
Corner (2) pilasters	119.2 kips	176.2 kips

The above indicates a 43 to 58 percent increase in the dead load conditions by the addition of the fly loft. Our analysis of the estimated pile capacity is based on the loads provided in Table 3. Based on the laboratory tests, soil shear strength was found to be uniform, with a slight increase with increasing depth. This finding made analysis of pile capacity for various pile lengths and diameters a straight-forward process.

According to ZCS Engineering, the back wall of the theatre has settled approximately 6 to 9 inches and is leaning away from the theatre 5 to 7 inches. The front wall has also apparently settled 3 to 5 inches. The values were compared to settlement estimates for piles and pile groups of various sizes, capacity and depth, based on laboratory consolidation test data.

Based on the relatively uniform shear strength of the soil, we analyzed various pile supporting conditions. Piles are typically analyzed on a single pile basis. Piles may be combined together to constitute a pile group. Unless the piles are too close together, the total individual pile capacities are summed to represent the total ultimate pile group capacity. For our analysis, we considered 2-pile to 6-pile groups to determine the depth at which the ultimate capacity (Table 4) could be predicted, with no factor of safety included. Only the middle pilasters of the back wall were evaluated.

Table 4 Predicted Depth of Ultimate Pile Capacity to Support Design Loads		
Pile Grouping	**Depth to Resist DL + LL[1], 147.2 kips, Before Fly Loft**	**Depth to Resist DL + LL[1], 207.2 kips, After Fly Loft**
2-pile group	175 feet[2]	-
3-pile group	103 feet[2]	160 feet[2]
4-pile group	67 feet	112 feet[2]
5-pile group	43 feet	80 feet
6-pile group	28 feet	60 feet
1. Dead Load + Live Load (DL + LL) 2. Beyond the depth limits of this exploration		

Table 4 shows that increasing the number of piles in a group allows shallower depths at which total pile ultimate capacity can be achieved. By applying a factor of safety, such as 2.0, the number of piles in a group should increase. This was a common practice in 1920 and is applicable today. Increasing the load that the pile groups must support requires significantly increased embedment depths. Since the original pile depths were achieved in the early 1920s, the pile capacity has probably been exceeded.

Another way of expressing this is to compare the combined ultimate pile capacities at a fixed depth, as shown in Table 5.

Table 5
Ultimate Pile Capacity as a function of Depth

Pile Grouping	40 feet	60 feet	80 feet
Single pile	28 kips	34 kips	39 kips
2-pile group	57 kips	69 kips	82 kips
3-pile group	84 kips	104 kips	124 kips
4-pile group	113 kips	175 kips	164 kips
5-pile group	142 kips	208 kips	245 kips
6-pile group	228 kips	280 kips	---

From Table 5, it can be seen that to achieve the ultimate pile capacity of 147.2 kips before the fly loft addition, at a depth of 40 feet, nearly the 5-pile group would be required to support the middle pilaster column loads. However to achieve the ultimate pile capacity of 207.2 kips (after fly loft), the same 5-pile group would have to be about 60 feet deep, a 50 percent increase in embedment depth. Conversely, a 6-pile group would be required to provide the fly loft support at a depth of 40 feet.

Conclusions

Without knowledge of the foundation system (type, diameter, depth, number of piles in a group) our analysis is empirical and theoretical. We believe that we have reliable soil data from the laboratory tests that we performed. It seems likely that whatever foundation system that was initially installed in the early 1920s, it reached some refusal capacity for the driving hammer, at an unknown depth. It also seems likely that some settlement occurred during or shortly after initial construction of the garage. This is evident from the settlement that was measured at the front and back of the theatre and was estimated in our analysis. The soils are compressible and have limited shear strength. Throughout downtown Coos Bay, there is ample evidence of distress and settlement of other heavy buildings. Given the nature of the soft native sediment and filled lands that underlie most of the downtown area, such total and differential settlement should be expected. Other contributing factors include historic seismic events, tidal influence, and groundwater fluctuation that can result in pile deterioration, as has been the case at the nearby Chandler Building.

It seems likely that once the settlement was essentially completed after construction of the theatre, the foundation system achieved a state of equilibrium where no additional settlement would have occurred, if no additional loads had been applied. But when the fly loft was constructed, the new loading exceeded the shear strength of the soil, and the bond between the timber piles and surrounding soil was significantly reduced. This resulted in a slow and gradual punching failure. The result was about 6 inches of additional settlement. With no additional loading, it is likely that the pile systems have once again achieved a state of equilibrium. Unless there are other outside factors, in the absence of additional loading, we expect that settlement is effectively complete.

It is our opinion that the settlement of the back wall of the theatre is attributed to a gradual punching failure of soil surrounding the piles, from excessive loads that were applied with construction of the fly loft. The additional weight of the added structure simply exceeded the shear strength of the soil surrounding and immediately below the driven piles.

The amount of settlement both measured and estimated is excessive for most structures. The tilt of the back wall is problematic from a structural and safety perspective. We expect that there are three options available for consideration:

1. Shore up the existing back wall by tying the side walls and the back wall together, and installing pin- or micro-piles to provide additional foundation support to the existing foundations system;
2. Demolish the back wall, observe the condition of the existing foundation systems and provide either supplemental or replacement piles as needed;
3. Leave the existing structure as is, depending on the structural engineering analysis and acceptable risk.

From a geotechnical perspective, the second option is the most desirable, if there is little cost difference between shoring the wall and replacing the back wall. Option 2 allows observation of the type and condition of the existing foundations, aside from depth determination. That information is valuable in determining a replacement or supplemental foundation system.

Option 1 does not allow observation of the condition of the piles and will inhibit design of additional foundation support. It is possible to install additional piling along the perimeter of the pile caps, especially if the masonry infill of former garage doors is removed, allowing access to all four sides of the middle pilasters. It is unlikely that any geotechnical construction procedures can jack or restore the back wall to its original configuration.

The presence of very soft fill beneath the stage at the back of the theatre suggests that as the back wall settled, the stage settled also. It is unclear if the stage is structurally connected to the back wall. If the structure was initially used as a garage, it is possible that the access ramps were tied to the structure. This could explain the settlement of the back stage that we observed. After the ramps were removed to convert the structure to the theatre, the stage was free to "float" and probably settled as the fill settled. Groundwater fluctuations have contributed to this settlement.

The retaining wall appears to separate the orchestra pit and seating area from the back of the stage. This wall appears to be the most recent concrete in the theatre. The numerous vertical cracks, which are wider at the bottom, appear to be the result of bending of the retaining wall, which spans most of the width of the stage. Based on the void beneath the stage and the very soft soils that could be probed and sampled, it seems likely that the retaining wall settled due to inadequate support of the foundation soil/fill.

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Summary

In our opinion, the distress that we observed in three areas within theatre is attributed to the following:

1. The back wall of the theatre has settled 6 to 9 inches, likely due to a punching shear failure and resulting consolidation of the soil that supports the (probable) timber pile foundations, regardless of the depth of embedment. The wall tilt to the outside may be explained by higher loads on the four pilasters that support the back wall, compared to interior support. It is unlikely that the back wall tilt can be remediated by geotechnical construction techniques. A more practical solution is to demolish the back wall, observe the condition of the existing foundation system, and install supplemental or replacement micropiles or pin piles.
2. Back stage settlement is due to poor fill and soft soil that underlies the stage. In some areas, it is likely that there are voids between the stage support grid, which we partially observed, and the surface soil, which is nearly saturated. There are techniques available to fill the voids with lightweight material, but it is unlikely that the stage can be successfully raised to its original elevation. It may be more practical to remove the worst parts of the distressed stage and unsuitable underlying fill and soft soil, and place a suitable new foundation system to support the stage.
3. The retaining wall that spans the width of the stage appears to have settled due to inadequate support of the underlying soft soil, expected to extend to a depth of at least 10 feet, based on outside CPT probes. The widest vertical cracks in the retaining wall are toward the center of the stage. Fluctuating groundwater has caused mud and water to flow through the cracks, further deepening the void behind the wall. It may be feasible to underpin the retaining wall, possibly jacking the wall back into place, and seal the cracks.

Limitations

This report has been prepared for the specific application to the geotechnical analysis of the Egyptian Theatre as discussed herein. SHN prepared the findings, conclusions, and recommendations presented herein in accordance with generally accepted geotechnical engineering practices at the time and location that this report was prepared. No other warranty, express or implied, is made.

Soil materials are typically not homogeneous in type, strength, and other geotechnical properties, and can vary between points of observation and exploration. In addition, groundwater and soil moisture conditions can vary seasonally and for other reasons. SHN does not and cannot have a complete knowledge of the subsurface conditions underlying a site. The conclusions and recommendations presented in this report are based upon the findings at the points of exploration, interpolation, and extrapolation of information between and beyond the points of observation, and are subject to confirmation of the conditions revealed by construction. The opinions and

recommendations provided in this report are based on the assumption that an adequate program of tests and observations will be conducted by our firm during the construction phase, if the project advances to that stage, so that we may evaluate compliance with our recommendations.

Findings of this report are valid as of the date of issuance; however, changes in condition of a property can and will occur with the passage of time. Furthermore, changes in applicable or appropriate standards occur whether they result from legislation or advancement in technology. Accordingly, findings of this report may be invalidated wholly or partially by changes outside of SHN's control. This report is subject to SHN's review and remains valid for a period of two years, unless SHN issues a written opinion of its continued applicability thereafter. If the scope of the proposed construction, including the proposed loads, grades, or structural locations, changes from that described in this report, our recommendations should also be reviewed.

The scope of SHN's geotechnical services did not include any assessment for the presence or absence of any hazardous/toxic substances in the soil, ground water, surface water, or atmosphere, or the presence of any environmentally sensitive habitats or culturally significant areas.

Thank you for the opportunity to assist you with this project. If you have any questions, please feel free to contact us at 707-441-8855.

Sincerely,

SHN Consulting Engineers & Geologists

REGISTERED PROFESSIONAL ENGINEER 13028 OREGON July 26, 1985 RICHARD W. HANFORD JR. EXPIRES: 6/30/11

Richard W. Hanford, P.E., G.E.
Senior Geotechnical Engineer

RWH:jlr

Attachments: 1. Borings and Probes Logs
2. Laboratory Test Results
c. w/Attach.: Sy Allen, P.E., ZCS Engineering

Consulting Engineers & Geologists, Inc.
812 West Wabash, Eureka, CA 95501 ph. (707) 441-8855 fax. (707) 441-8877

PROJECT: Egyptian Theater
LOCATION: Back Alley
GROUND SURFACE ELEVATION: --
EXCAVATION METHOD: Truck Mounted Dietrick D-50
LOGGED BY: SMB

JOB NUMBER: 609031.150
DATE DRILLED: 6/24/10
TOTAL DEPTH OF BORING: 52 feet
SAMPLER TYPE: 3.0-inch (O.D.) Split Spoon & Shelby Tube

BORING NUMBER BH-1

DEPTH (FT)	SAMPLE TYPE	BLOWS PER 0.5'	USCS	PROFILE	DESCRIPTION	% Moisture	Dry Density (pcf)	Unc. Com. (psf)	% Passing 200	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Index	REMARKS
0.0					ASPHALT CONCRETE							Below Ground Surface (BGS).
-1.0												
-2.0												Boring advanced with rotary wash system.
-3.0												
-4.0												Samples driven with hydraulic piston sampler. 3.0-inch split spoon driven with automatic hammer.
-5.0												
-6.0												
-7.0												
-8.0												
-9.0												
-10.0		4	GW		FILL: GRAVEL WITH SAND, medium dense, saturated, grey							No returns.
-11.0		3										Wood between 5 and 10 feet BGS.
-12.0		10										
-13.0					ELASTIC SILT WITH ORGANICS, medium stiff, moist, grey							Wood in cutting between 12.25 and 15 feet BGS.
-14.0												
-15.0			MH									
-16.0												
-17.0												
-18.0												
-19.0												
-20.0						80	51			57	21	
-21.0												
-22.0												
-23.0												
-24.0					ELASTIC SILT, medium stiff, moist, grey	88	49			80	41	Consolidation Test.
-25.0			MH									Disturbed sample.
-26.0												
-27.0												

The log and data presented are a simplification of actual conditions encountered at the time of drilling at the drilled location. Subsurface conditions may differ at other locations and with the passage of time.

FIELD LOG

Consulting Engineers & Geologists, Inc.
812 West Wabash, Eureka, CA 95501 ph. (707) 441-8855 fax. (707) 441-8877

PROJECT: Egyptian Theater
LOCATION: Back Alley
GROUND SURFACE ELEVATION: --
EXCAVATION METHOD: Truck Mounted Dietrick D-50
LOGGED BY: SMB

JOB NUMBER: 609031.150
DATE DRILLED: 6/24/10
TOTAL DEPTH OF BORING: 52 feet
SAMPLER TYPE: 3.0-inch (O.D.) Split Spoon & Shelby Tube

BORING NUMBER BH-1

DEPTH (FT)	SAMPLE TYPE	BLOWS PER 0.5'	USCS	PROFILE	DESCRIPTION	% Moisture	Dry Density (pcf)	Unc. Com. (psf)	% Passing 200	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Index	REMARKS
-30.0			MH		Becomes blue grey in color							
-31.0						48	72			63	26	Direct Shear Test.
-35.0			MH			69	51			66	31	Consolidation Test.
-37.0					Limited wood in cutting between 37 and 40 feet BGS							
-40.0			MH			82	53			53	19	Direct Shear Test.
-45.0			MH									
-46.0						87	53			75	36	Consolidation Test.
-50.0			MH									
-51.0						87	59			79	39	Direct Shear Test.
-52.0					Halted boring at 52 feet BGS							Backfilled with bentonite chips and cap with cold patch asphalt concrete.

-28.0, -29.0, -32.0, -33.0, -34.0, -36.0, -38.0, -39.0, -41.0, -42.0, -43.0, -44.0, -47.0, -48.0, -49.0, -53.0, -54.0, -55.0

The log and data presented are a simplification of actual conditions encountered at the time of drilling at the drilled location. Subsurface conditions may differ at other locations and with the passage of time.

FIELD LOG

Page Number 2 of 2

Consulting Engineers & Geologists, Inc.
812 West Wabash, Eureka, CA 95501 ph. (707) 441-8855 fax. (707) 441-8877

PROJECT: Egyptian Theater
LOCATION: Center Stage
GROUND SURFACE ELEVATION: --
EXCAVATION METHOD: 3.25-inch diameter Hand Auger
LOGGED BY: SMB

JOB NUMBER: 609031.150
DATE DRILLED: 6/17/10
TOTAL DEPTH OF BORING: 5.4 feet
SAMPLER TYPE: 3.0-inch (O.D.) Shelby

BORING NUMBER HA-1

DEPTH (FT)	SAMPLE TYPE	BLOWS PER 0.5'	USCS	PROFILE	DESCRIPTION	% Moisture	Dry Density (pcf)	Unc. Com. (psf)	% Passing 200	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Index	REMARKS
0.0					CONCRETE SLAB							Below Ground Surface (BGS) Void betwen slab and existing ground surface
-1.0			GW		FILL: GRAVEL WITH SAND, dense, moist, light grey							
-2.0			SP-SM		FILL: SAND WITH SILT, loose, moist, yellowish brown							
			MH		FILL: ELASTIC SILT, soft, wet, brown							
-3.0												
-4.0			SC		FILL: CLAYEY SAND, medium dense, wet, yellowish brown to grey							
			ML-OL		FILL: SILT WITH ORGANICS, medium dense, soft, saturated, brown							
-5.0												
					Refusal on wood at 5.4 feet BGS							
-6.0												

The log and data presented are a simplification of actual conditions encountered at the time of drilling at the drilled location. Subsurface conditions may differ at other locations and with the passage of time.

FIELD LOG

Page Number 1 of 1

SHN Consulting Engineers & Geologists, Inc.
812 West Wabash, Eureka, CA 95501 ph. (707) 441-8855 fax. (707) 441-8877

PROJECT: Egyptian Theater
LOCATION: Center Stage
GROUND SURFACE ELEVATION: --
EXCAVATION METHOD: 3.25-inch diameter Hand Auger
LOGGED BY: SMB

JOB NUMBER: 609031.150
DATE DRILLED: 6/17/10
TOTAL DEPTH OF BORING: 5.0 feet
SAMPLER TYPE: 3.0-inch (O.D.) Shelby

BORING NUMBER HA-2

DEPTH (FT)	SAMPLE TYPE	BLOWS PER 0.5'	USCS	PROFILE	DESCRIPTION	% Moisture	Dry Density (pcf)	Unc. Com. (psf)	% Passing 200	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Index	REMARKS
0.0					CONCRETE SLAB							Below Ground Surface (BGS) Void betwen slab and existing ground surface
-1.0			GW		FILL: GRAVEL WITH SAND, dense, moist, light grey							
-2.0			SP-SM		FILL: SAND WITH SILT, loose, moist, yellowish brown							
			MH		FILL: ELASTIC SILT, soft, wet, brown							
-3.0												
-4.0			SC		FILL: CLAYEY SAND, medium dense, wet, yellowish brown to grey							
			ML-OL		FILL: SILT WITH ORGANICS, medium dense, soft, saturated, brown							
-5.0					Refusal on wood at 5.0 feet BGS							
-6.0												

The log and data presented are a simplification of actual conditions encountered at the time of drilling at the drilled location. Subsurface conditions may differ at other locations and with the passage of time.

FIELD LOG

Page Number 1 of 1

Consulting Engineers & Geologists, Inc.
812 West Wabash, Eureka, CA 95501 ph. (707) 441-8855 fax. (707) 441-8877

PROJECT: Egyptian Theater
LOCATION: Northwest Corner
GROUND SURFACE ELEVATION: --
EXCAVATION METHOD: 3.25-inch diameter Hand Auger
LOGGED BY: SMB

JOB NUMBER: 609031.150
DATE DRILLED: 6/17/10
TOTAL DEPTH OF BORING: 5.2 feet
SAMPLER TYPE: 3.0-inch (O.D.) Shelby & Bulk

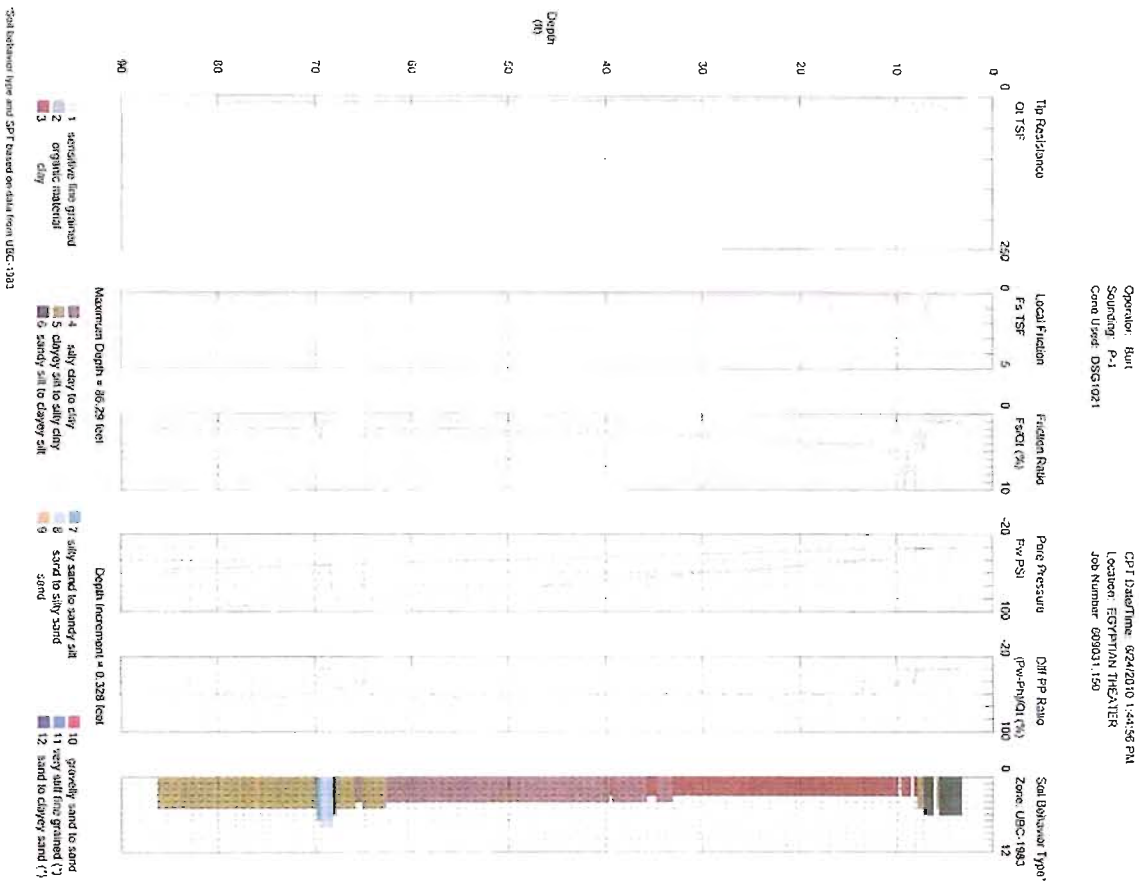
BORING NUMBER HA-3

DEPTH (FT)	SAMPLE TYPE	BLOWS PER 0.5'	USCS	PROFILE	DESCRIPTION	% Moisture	Dry Density (pcf)	Unc. Com. (psf)	% Passing 200	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Index	REMARKS
0.0					CONCRETE SLAB							Below Ground Surface (BGS)
			SC		FILL: CLAYEY SAND, medium dense, moist, yellowish brown to grey							Void betwen slab and existing ground surface
-1.0												
-2.0			SO		FILL: SAND, medium dense, wet, grey							
-3.0			SM-ML		FILL: SILTY SAND, medium dense, wet, blue grey							
-4.0												
-5.0			ML-OH		FILL: ORGANIC SILT, soft, moist, brown							
					Refusal on wood at 5.2 feet BGS							
-6.0												

The log and data presented are a simplification of actual conditions encountered at the time of drilling at the drilled location. Subsurface conditions may differ at other locations and with the passage of time

FIELD LOG

Page Number 1 of 1



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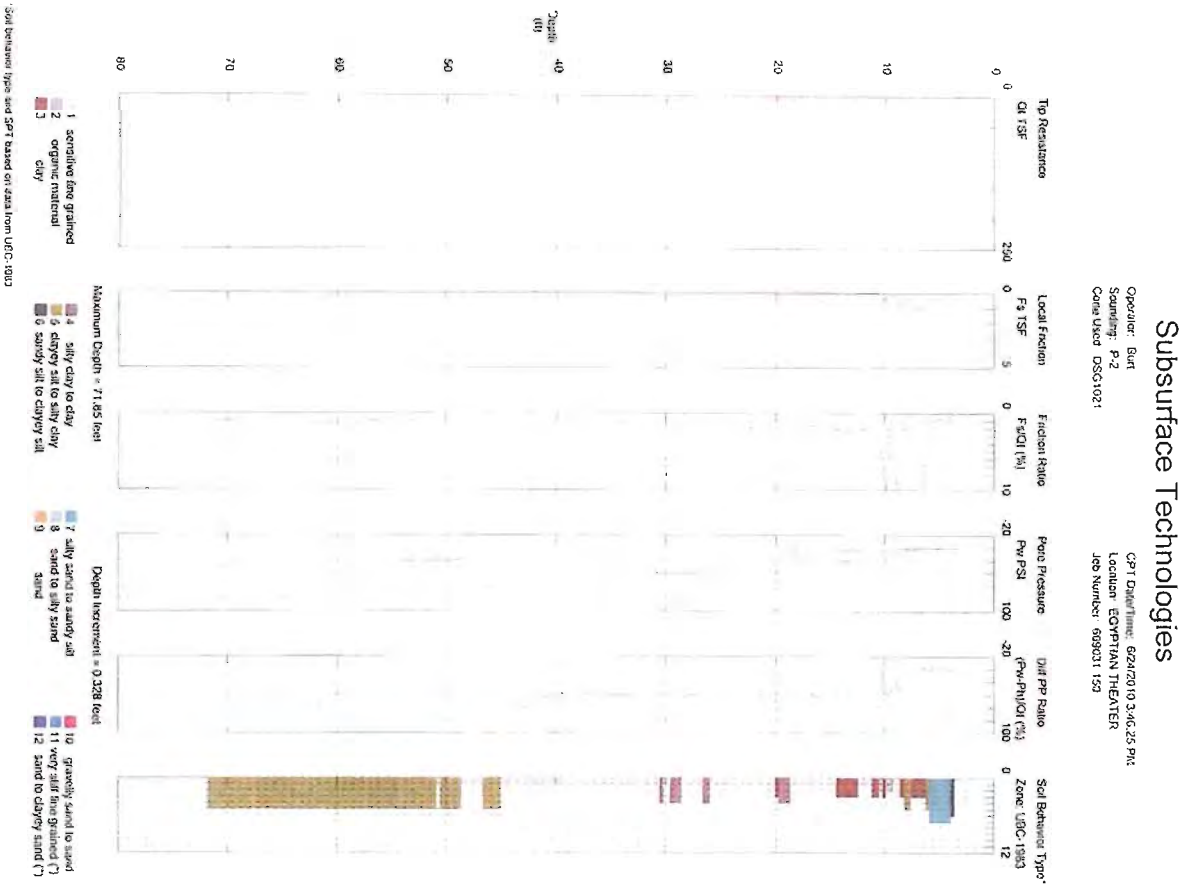
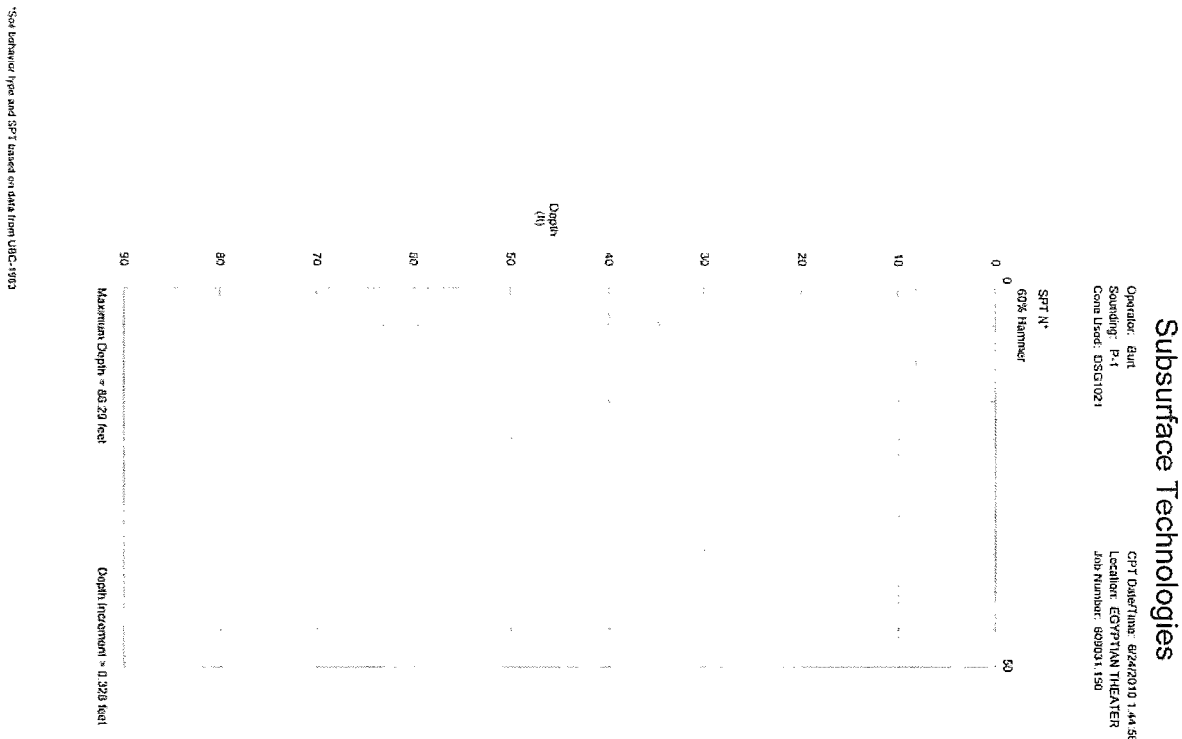
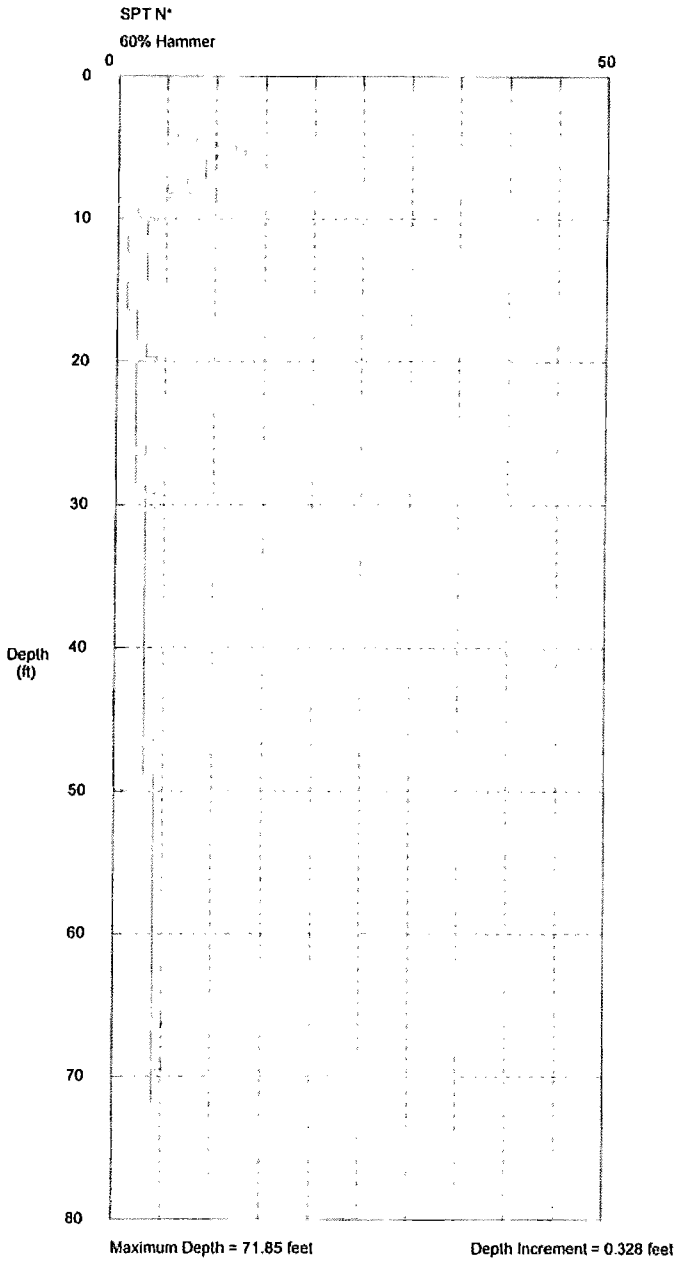

Subsurface Technologies
Operator: Burt
Sounding: P-2
Cone Used: DSG1021
CPT Date/Time: 6/24/2010 3:46:25 PM
Location: EGYPTIAN THEATER
Job Number: 609031 1SQ
Tip Resistance Qt TSF
Local Friction Fs TSF
Friction Ratio Fs/Qt (%)
Pore Pressure Pw PSI
Diff PP Ratio (Pw-Po)/Qt (%)
Soil Behavior Type Zone: USC-1983
Depth (ft)
Maximum Depth = 71.85 feet
Depth Increment = 0.328 feet
1 sensitive fine grained
2 organic material
3 clay
4 silty clay to clay
5 clayey silt to silty clay
6 sandy silt to clayey silt
7 silty sand to sandy silt
8 sand to silty sand
9 sand
10 gravelly sand to sand
11 very stiff fine grained (*)
12 sand to clayey sand (*)
Soil behavior type and SPT based on data from UBC-1983


Subsurface Technologies
Operator: Burt
Sounding: P-1
Cone Used: DSG1021
CPT Date/Time: 6/24/2010 1:44:56 PM
Location: EGYPTIAN THEATER
Job Number: 060931.150
SPT N¹
60% Hammer
Depth (ft)
0
10
20
30
40
50
60
70
80
90
Maximum Depth = 80.29 feet
Depth Increment = 0.328 feet
¹Soil behavior type and SPT based on data from UBC-1983

Subsurface Technologies

Operator: Burt
Sounding: P-2
Cone Used: DSG1021

CPT Date/Time: 6/24/2010 3:46:25 PM
Location: EGYPTIAN THEATER
Job Number: 609031.150



Soil behavior type and SPT based on data from UBC-1983

SHN CONSULTING ENGINEERS & GEOLOGISTS, INC.
812 W. Wabash Eureka, CA 95501-2138 Tel: 707/441-8855 FAX: 707/441-8877 E-mail: shninfo@shn-engr.com

DENSITY BY DRIVE- CYLINDER METHOD (ASTM D2937)

Project Name:	**Egyptian Theater**	**Project Number:**	**609013.150**
Performed By:	**JMA**	**Date:**	**7/7/2010**
Checked By:	**JB**	**Date:**	**8/9/10**
Project Manager:	**GSW**		

Lab Sample Number	10-557				
Boring Label	BH1				
Sample Depth (ft)	20-22				
Diameter of Cylinder, in	2.84				
Total Length of Cylinder, in.	5.20				
Length of Empty Cylinder A, in.	0.00				
Length of Empty Cylinder B, in.	0.00				
Length of Cylinder Filled, in	5.20				
Volume of Sample, in^3	32.94				
Volume of Sample, cc.	539.80				

Pan #	s28				
Weight of Wet Soil and Pan	948.6				
Weight of Dry Soil and Pan	593.0				
Weight of Water	355.6				
Weight of Pan	150.1				
Weight of Dry Soil	442.9				
Percent Moisture	80.3				
Dry Density, g/cc	0.82				
Dry Density, lb/ft^3	51.2				

Revised 6/06

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812 W. Wabash, Eureka, CA 95501-2138 Tel: 707/441-8855 FAX: 707/441-8877 E-mail: shneka@shn-engr.com

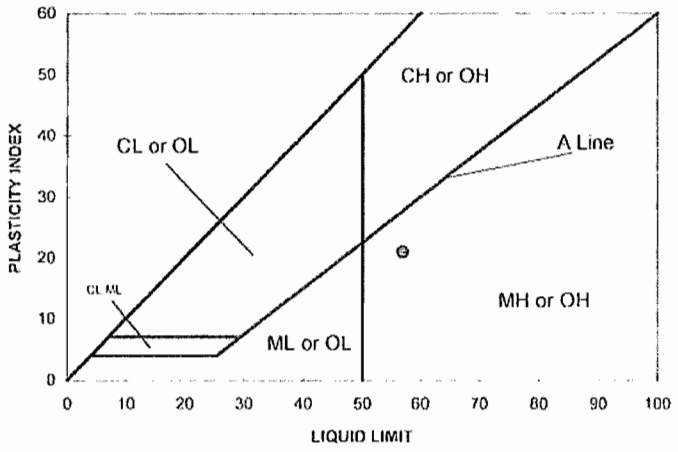
LIQUID LIMIT, PLASTIC LIMIT, and PLASTICITY INDEX (ASTM-D4318)

JOB NAME:	Egyptian Theater	JOB #	609013.150	LAB SAMPLE #:	10-557
SAMPLE ID:	BH1 @ 20-22'	PERFORMED BY:	JMA	DATE:	8/2/10
PROJECT MANGER:	SMB	CHECKED BY:	SS	DATE:	8/7/10

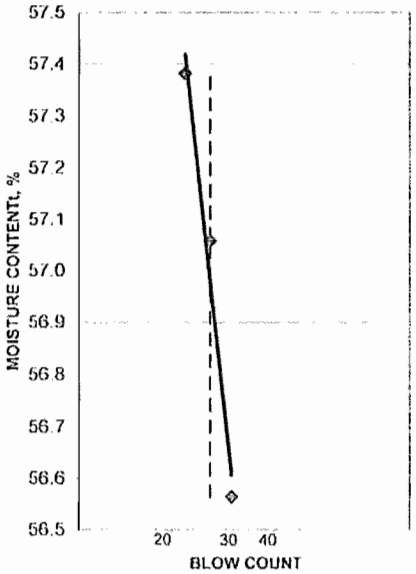
LINE NO.		TRIAL NO. 1	TRIAL NO. 2	TRIAL NO. 1	TRIAL NO. 2	TRIAL NO. 3
A	PAN #	13	14	7	8	9
B	PAN WT. (g)	22.232	20.000	29.032	29.137	28.737
C	WT. WET SOIL & PAN (g)	28.600	26.242	40.624	40.230	39.738
D	WT. DRY SOIL & PAN (g)	26.907	24.593	36.436	36.200	35.727
E	WT. WATER (C-D)	1.693	1.649	4.188	4.030	4.011
F	WT. DRY SOIL (D-B)	4.675	4.593	7.404	7.063	6.990
G	BLOW COUNT	--	--	29	25	21
H	MOISTURE CONTENT (E/F*100	36.2	35.9	56.6	57.1	57.4

LIQUID LIMIT	PLASTIC INDEX	PLASTIC LIMIT
57	21	36

PLASTICITY CHART



LIQUID LIMIT DETERMINATION



Revised 1/03

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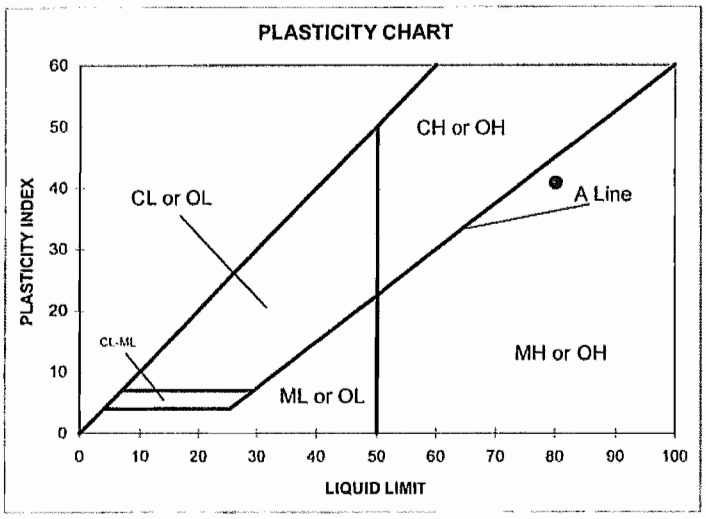
812 W. Wabash Eureka, CA 95501-2138 Tel: 707/441-8855 FAX: 707/441-8877 E-mail: shninfo@shn-engr.com

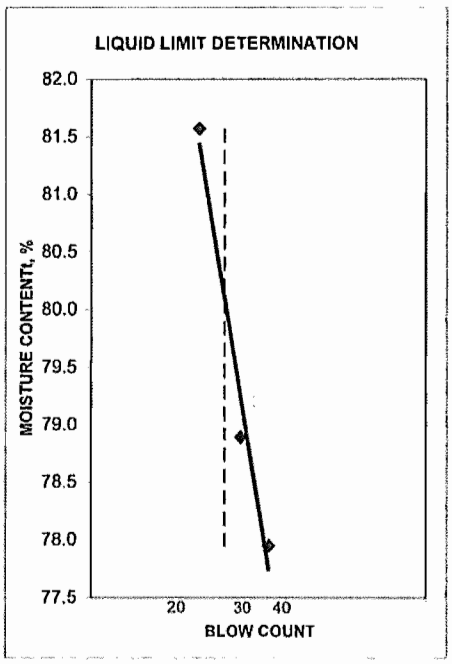
LIQUID LIMIT, PLASTIC LIMIT, and PLASTICITY INDEX (ASTM-D4318)

JOB NAME:	Egyptian Theater	JOB #:	609013.150	LAB SAMPLE #:	10-558
SAMPLE ID:	BH1 @ 25-27	PERFORMED BY:	JMA	DATE:	8/2/2010
PROJECT MANGER:	SMB	CHECKED BY:	SS	DATE:	8/9/10

LINE NO.		TRIAL NO. 1	TRIAL NO. 2	TRIAL NO. 1	TRIAL NO. 2	TRIAL NO. 3
A	PAN #	17	18	1	2	3
B	PAN WT. (g)	20.335	20.284	29.799	29.153	29.283
C	WT. WET SOIL & PAN (g)	26.424	26.635	39.337	40.407	40.286
D	WT. DRY SOIL & PAN (g)	24.708	24.844	35.159	35.444	35.343
E	WT. WATER (C-D)	1.716	1.791	4.178	4.963	4.943
F	WT. DRY SOIL (D-B)	4.373	4.560	5.360	6.291	6.060
G	BLOW COUNT	--	--	34	28	21
H	MOISTURE CONTENT (E/F*100)	39.2	39.3	77.9	78.9	81.6

LIQUID LIMIT	PLASTIC INDEX	PLASTIC LIMIT
80	41	39





Revised 1/03

SHN CONSULTING ENGINEERS & GEOLOGISTS, INC.
812 W. Wabash Eureka, CA 95501-2138 Tel: 707/441-8855 FAX: 707/441-8877 E-mail: shneka@shn-engr.com

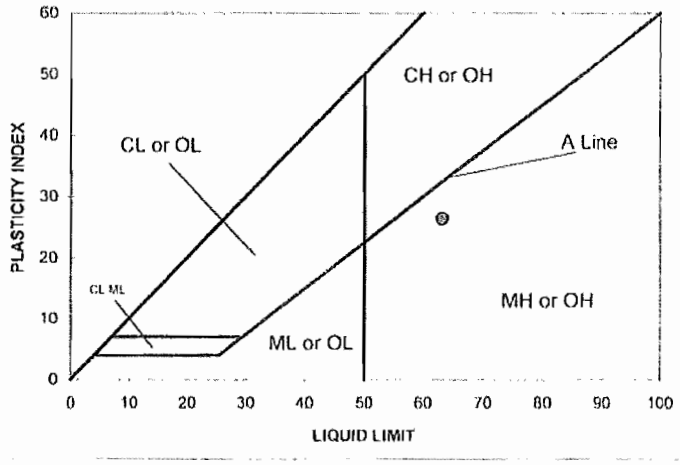
LIQUID LIMIT, PLASTIC LIMIT, and PLASTICITY INDEX (ASTM-D4318)

JOB NAME:	Egyptian Theater	JOB #:	609013.150	LAB SAMPLE #:	10559
SAMPLE ID:	10-BH1 @ 30-32'	PERFORMED BY:	JMA	DATE:	7/30/10
PROJECT MANGER:	SMB	CHECKED BY:	JB	DATE:	8/9/10

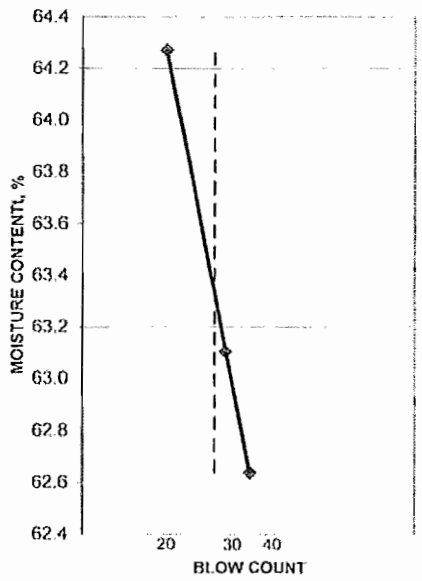
LINE NO.		TRIAL NO. 1	TRIAL NO. 2	TRIAL NO. 1	TRIAL NO. 2	TRIAL NO. 3
A	PAN #	13	14	7	8	9
B	PAN WT. (g)	22.237	20.003	29.035	29.147	28.737
C	WT. WET SOIL & PAN (g)	28.415	26.566	36.139	35.358	35.615
D	WT. DRY SOIL & PAN (g)	26.754	24.791	33.403	32.955	32.924
E	WT. WATER (C-D)	1.661	1.775	2.736	2.403	2.691
F	WT. DRY SOIL (D-B)	4.517	4.788	4.368	3.808	4.187
G	BLOW COUNT	--	--	32	27	18
H	MOISTURE CONTENT (E/F*100	36.8	37.1	62.6	63.1	64.3

LIQUID LIMIT	PLASTIC INDEX	PLASTIC LIMIT
63	26	37

PLASTICITY CHART



LIQUID LIMIT DETERMINATION



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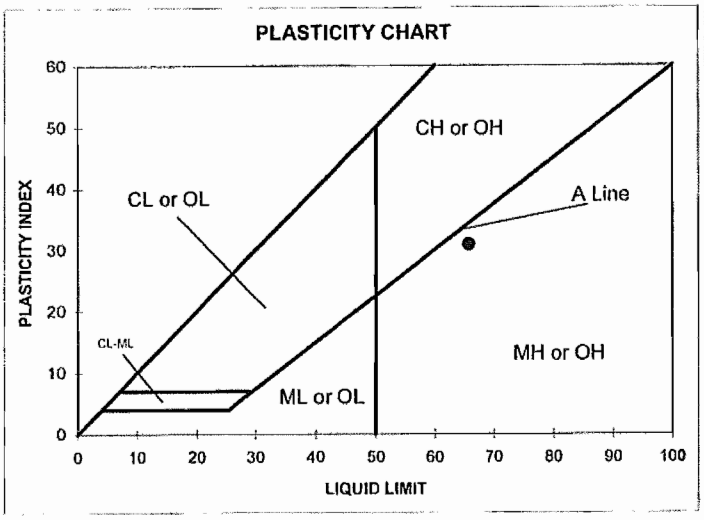
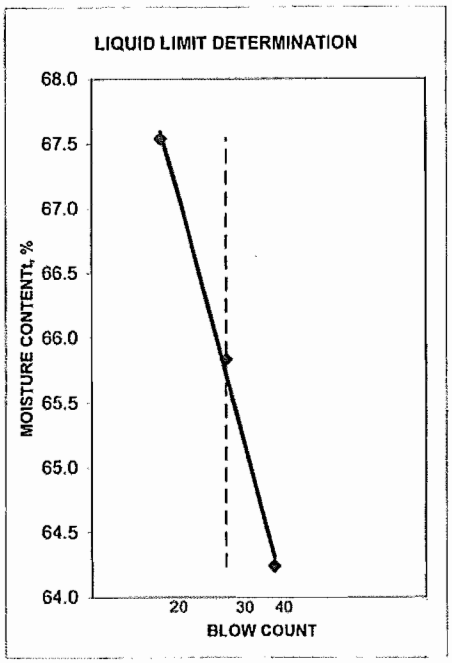
LIQUID LIMIT, PLASTIC LIMIT, and PLASTICITY INDEX (ASTM-D4318)

JOB NAME:	Egyptian Theater	JOB #:	609012.150	LAB SAMPLE #:	10-560
SAMPLE ID:	BH1 @ 35-37'	PERFORMED BY:	JMA	DATE:	8/3/2010
PROJECT MANGER:	SMB	CHECKED BY:		DATE:	8/9/10

LINE NO.		TRIAL NO. 1	TRIAL NO. 2	TRIAL NO. 1	TRIAL NO. 2	TRIAL NO. 3
A	PAN #	22	23	A	B	C
B	PAN WT. (g)	17.238	16.960	29.381	29.619	28.713
C	WT. WET SOIL & PAN (g)	24.772	23.419	41.157	40.657	39.908
D	WT. DRY SOIL & PAN (g)	22.824	21.752	36.551	36.275	35.395
E	WT. WATER (C-D)	1.948	1.667	4.606	4.382	4.513
F	WT. DRY SOIL (D-B)	5.586	4.792	7.170	6.656	6.682
G	BLOW COUNT	--	--	35	25	16
H	MOISTURE CONTENT (E/F*100)	34.9	34.8	64.2	65.8	67.5

LIQUID LIMIT	PLASTIC INDEX	PLASTIC LIMIT
66	31	35





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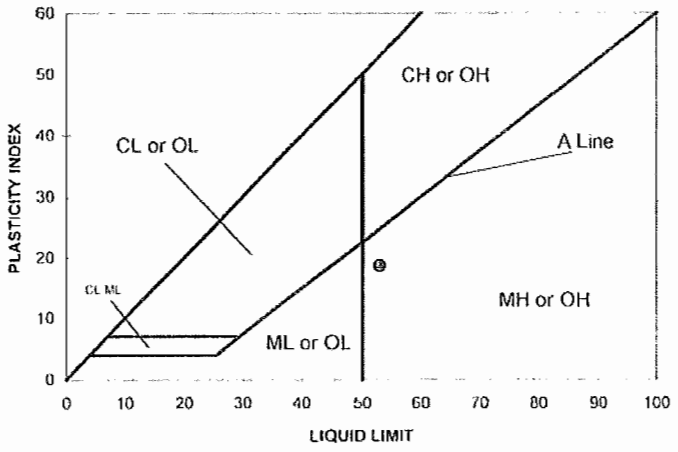
LIQUID LIMIT, PLASTIC LIMIT, and PLASTICITY INDEX (ASTM-D4318)

JOB NAME:	Egyptian Theater	JOB #:	609013.150	LAB SAMPLE #	10-561
SAMPLE ID:	BH1 @ 40-42'	PERFORMED BY:	JMA	DATE:	8/2/10
PROJECT MANGER:	SMB	CHECKED BY:		DATE:	8/9/10

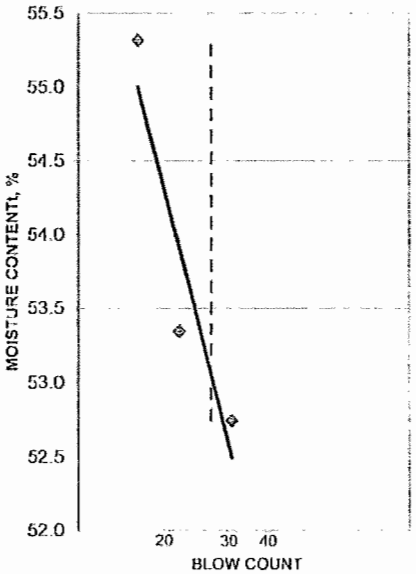
LINE NO.		TRIAL NO. 1	TRIAL NO. 2	TRIAL NO. 1	TRIAL NO. 2	TRIAL NO. 3
A	PAN #	15	16	4	5	6
B	PAN WT. (g)	20.620	21.017	29.371	28.814	29.683
C	WT. WET SOIL & PAN (g)	27.518	27.634	35.797	36.702	37.264
D	WT. DRY SOIL & PAN (g)	25.742	25.954	33.578	33.958	34.564
E	WT. WATER (C-D)	1.776	1.680	2.219	2.744	2.700
F	WT. DRY SOIL (D-B)	5.122	4.937	4.207	5.144	4.881
G	BLOW COUNT	--	--	29	20	15
H	MOISTURE CONTENT (E/F*100	34.7	34.0	52.7	53.3	55.3

LIQUID LIMIT	PLASTIC INDEX	PLASTIC LIMIT
53	19	34

PLASTICITY CHART



LIQUID LIMIT DETERMINATION



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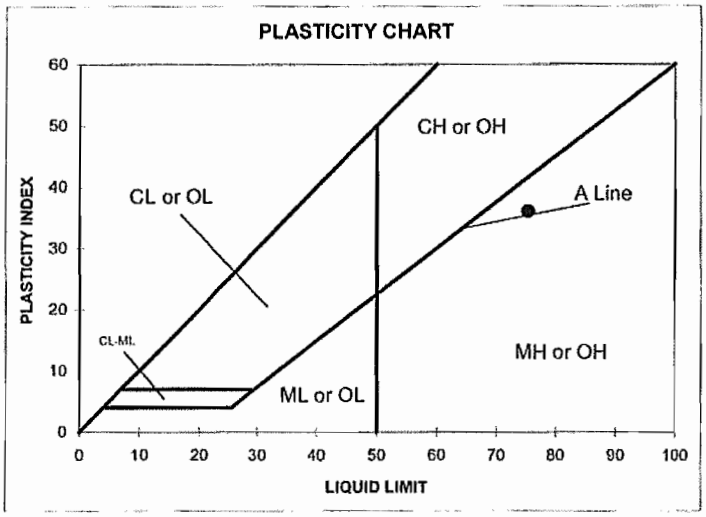
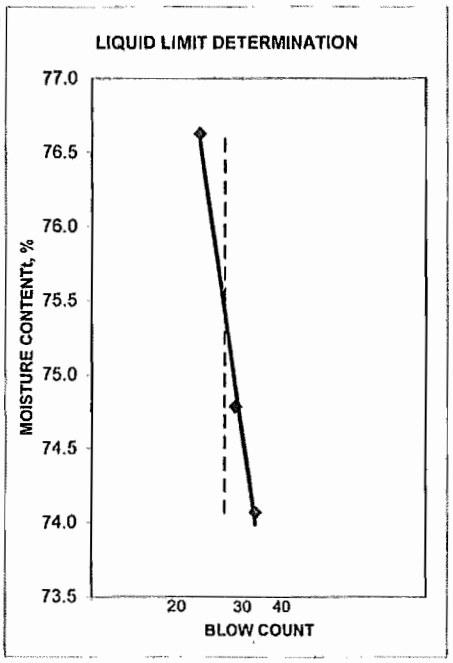
LIQUID LIMIT, PLASTIC LIMIT, and PLASTICITY INDEX (ASTM-D4318)

JOB NAME:	Egyptian Theater	JOB #:	609013.150	LAB SAMPLE #:	10-562
SAMPLE ID:	BH1 @ 45-47'	PERFORMED BY:	JMA	DATE:	8/4/2010
PROJECT MANGER:	SMB	CHECKED BY:		DATE:	8/9/10

LINE NO.		TRIAL NO. 1	TRIAL NO. 2	TRIAL NO. 1	TRIAL NO. 2	TRIAL NO. 3
A	PAN #	15	16	4	5	6
B	PAN WT. (g)	20.646	21.015	29.383	28.830	29.680
C	WT. WET SOIL & PAN (g)	26.990	27.498	39.103	39.934	39.919
D	WT. DRY SOIL & PAN (g)	25.133	25.643	34.967	35.183	35.477
E	WT. WATER (C-D)	1.857	1.855	4.136	4.751	4.442
F	WT. DRY SOIL (D-B)	4.487	4.628	5.584	6.353	5.797
G	BLOW COUNT	--	--	31	27	21
H	MOISTURE CONTENT (E/F*100)	41.4	40.1	74.1	74.8	76.6

LIQUID LIMIT	PLASTIC INDEX	PLASTIC LIMIT
75	36	41





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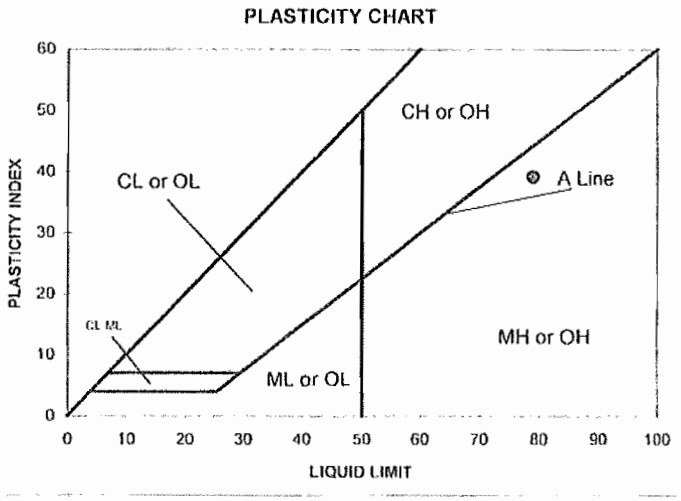
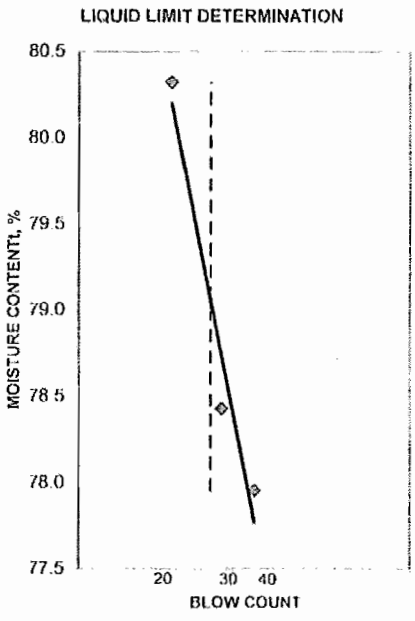
LIQUID LIMIT, PLASTIC LIMIT, and PLASTICITY INDEX (ASTM-D4318)

JOB NAME:	Egyptian Theater	JOB #:	609013.150	LAB SAMPLE #:	10-563
SAMPLE ID:	BH1 @ 50-52'	PERFORMED BY:	JMA	DATE:	8/3/10
PROJECT MANGER:	SMB	CHECKED BY:	JS	DATE:	8/9/10

LINE NO.		TRIAL NO. 1	TRIAL NO. 2	TRIAL NO. 1	TRIAL NO. 2	TRIAL NO. 3
A	PAN #	17	18	1	2	3
B	PAN WT. (g)	20.321	20.259	29.796	29.138	29.223
C	WT. WET SOIL & PAN (g)	27.026	26.426	39.838	38.823	39.916
D	WT. DRY SOIL & PAN (g)	25.118	24.667	35.439	34.566	35.153
E	WT. WATER (C-D)	1.908	1.759	4.399	4.257	4.763
F	WT. DRY SOIL (D-B)	4.797	4.408	5.643	5.428	5.930
G	BLOW COUNT	--	--	34	27	19
H	MOISTURE CONTENT (E/F*100)	39.8	39.9	78.0	78.4	80.3

LIQUID LIMIT	PLASTIC INDEX	PLASTIC LIMIT
79	39	40





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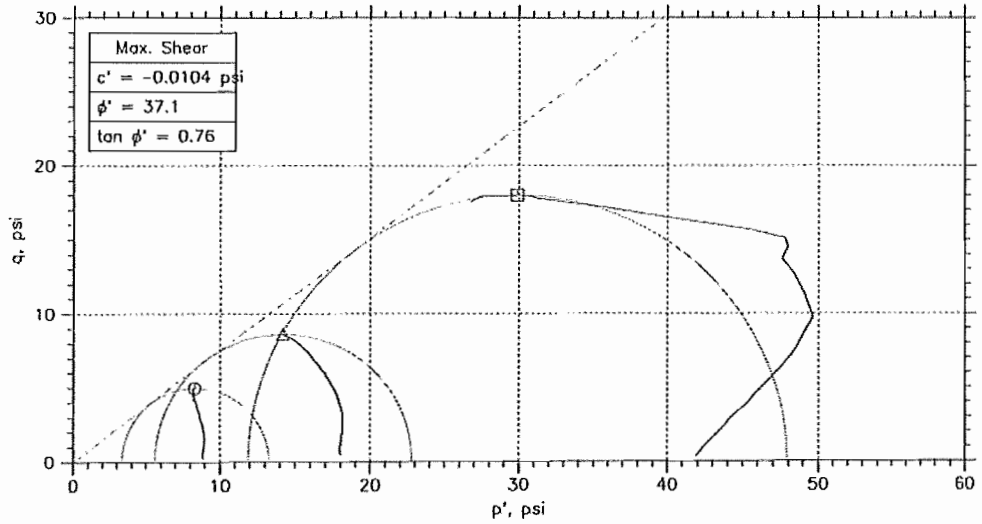
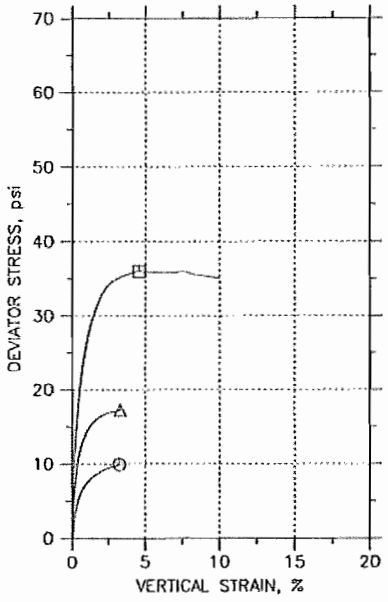
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767





Symbol		⊙	△	⊔	
Sample No.		10-559	10-559	10-559	
Test No.		10-559A	10-559B	10-559C	
Depth		30-32'	30-32'	30-32'	
Initial	Diameter, in	2.81	2.81	2.81	
	Height, in	6.13	6.13	6.13	
	Water Content, %	67.9	67.9	67.9	
	Dry Density, pcf	60.95	60.95	60.95	
	Saturation, %	104.5	104.5	104.5	
	Void Ratio	1.73	1.73	1.73	
Before Shear	Water Content, %	48.3	48.4	48.4	
	Dry Density, pcf	72.76	72.72	72.72	
	Saturation*, %	100.0	100.0	100.0	
	Void Ratio	1.29	1.29	1.29	
	Back Press., psi	29.98	43.85	.4321	
Ver. Eff. Cons. Stress, psi		10.41	20.8	41.58	
Shear Strength, psi		4.958	8.6	18.	
Strain at Failure, %		3.23	3.28	4.56	
Strain Rate, %/min		0.032	0.02	0.1	
B-Value		0.97	---	---	
Estimated Specific Gravity		2.67	2.67	2.67	
Liquid Limit		---	---	---	
Plastic Limit		---	---	---	

Project: Egyptian Theater
Location: Coos Bay
Project No.: 609013.150
Boring No.: BH1@ 30-32
Sample Type: 3" shelby
Description: Dark Gray SILT
Remarks: Consolidated Undrained

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Phase calculations based on start and end of test.
* Saturation is set to 100% for phase calculations.

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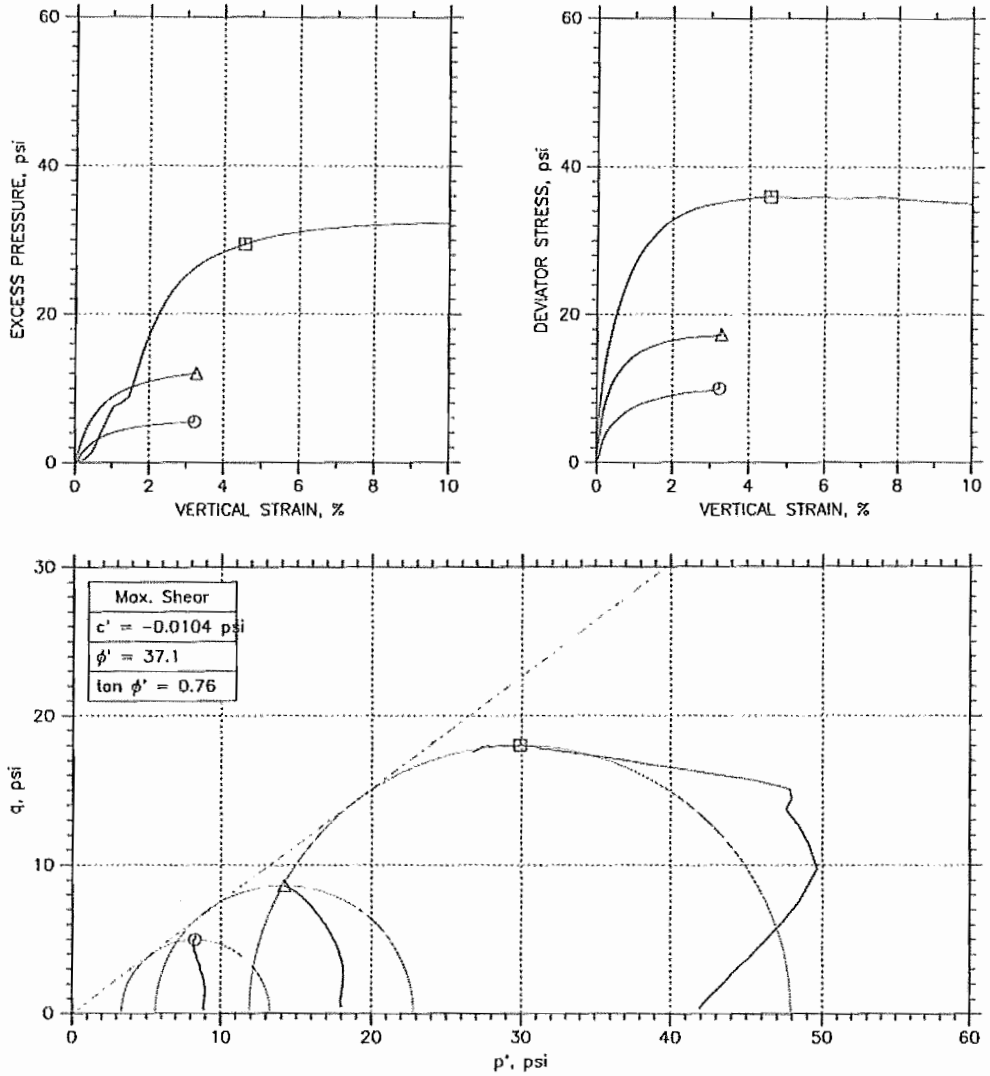
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767



	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
⊙	10-559	10-559A	30-32'	JMA	7/7/10	JB	8/9/10	10-559A2 Egypt.dat
△	10-559	10-559B	30-32'	JMA	7/9/10			10-559B Egypt.dat
⊡	10-559	10-559C	30-32'	JMA	7/10/10			10-559C Egypt.dat

Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1@ 30-32	Sample Type: 3" shelby	
Description: Dark Gray SILT		
Remarks: Consolidated Undrained		

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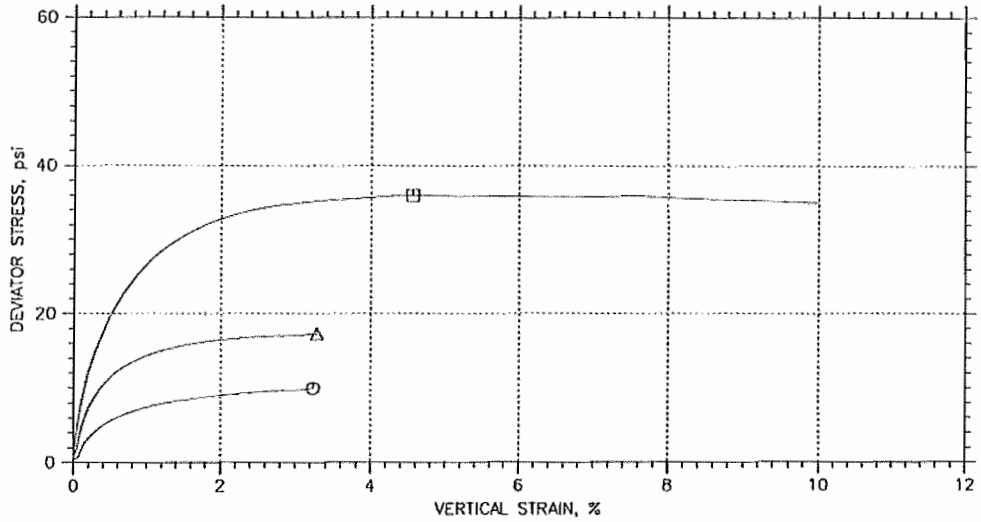
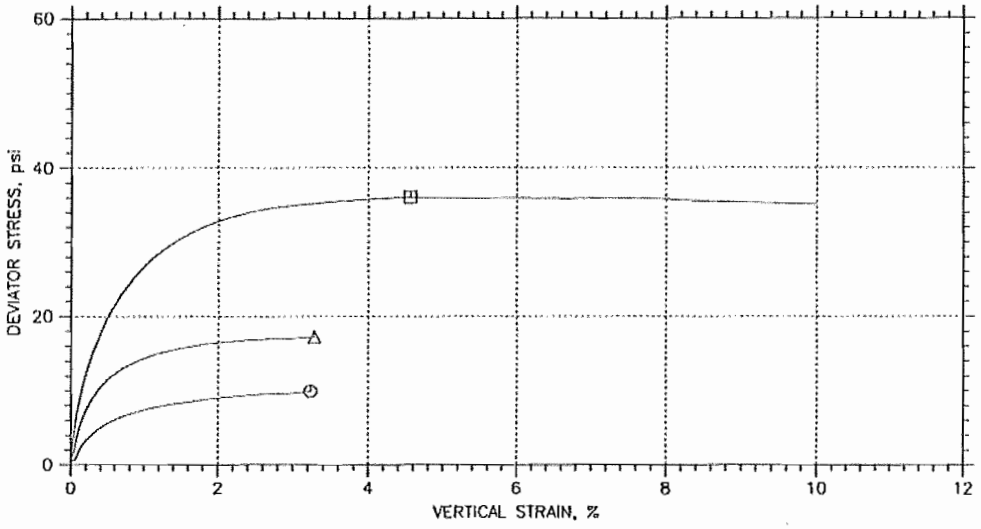
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767





	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
⊙	10-559	10-559A	30-32'	JMA	7/7/10		8/9/10	10-559A2 Egypt.dat
△	10-559	10-559B	30-32'	JMA	7/9/10			10-559B Egypt.dat
□	10-559	10-559C	30-32'	JMA	7/10/10			10-559C Egypt.dat

Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1@ 30-32	Sample Type: 3" shelby	
Description: Dark Gray SILT		
Remarks: Consolidated Undrained		

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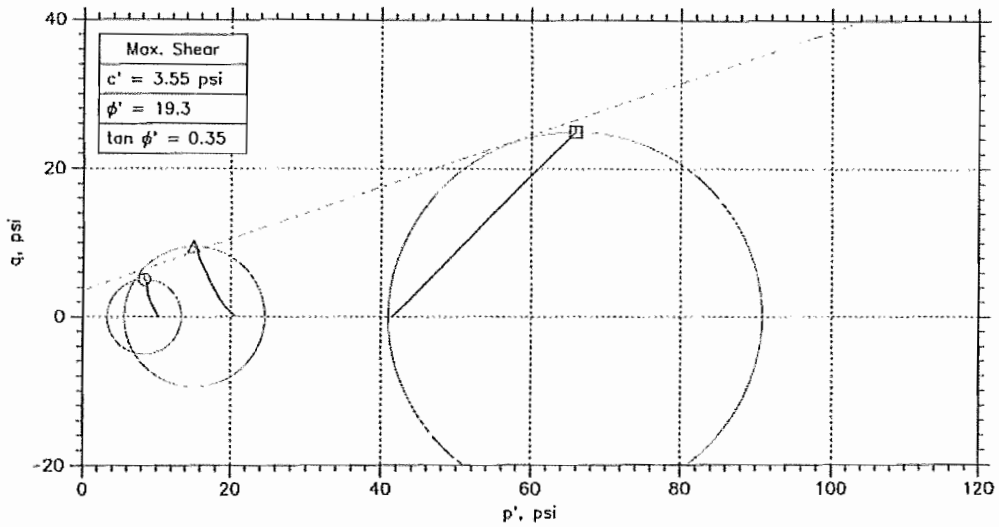
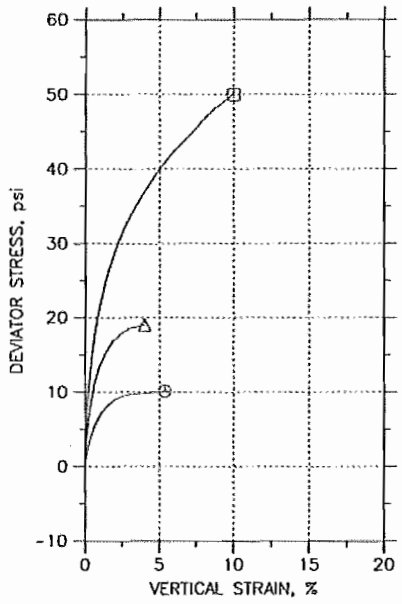
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767





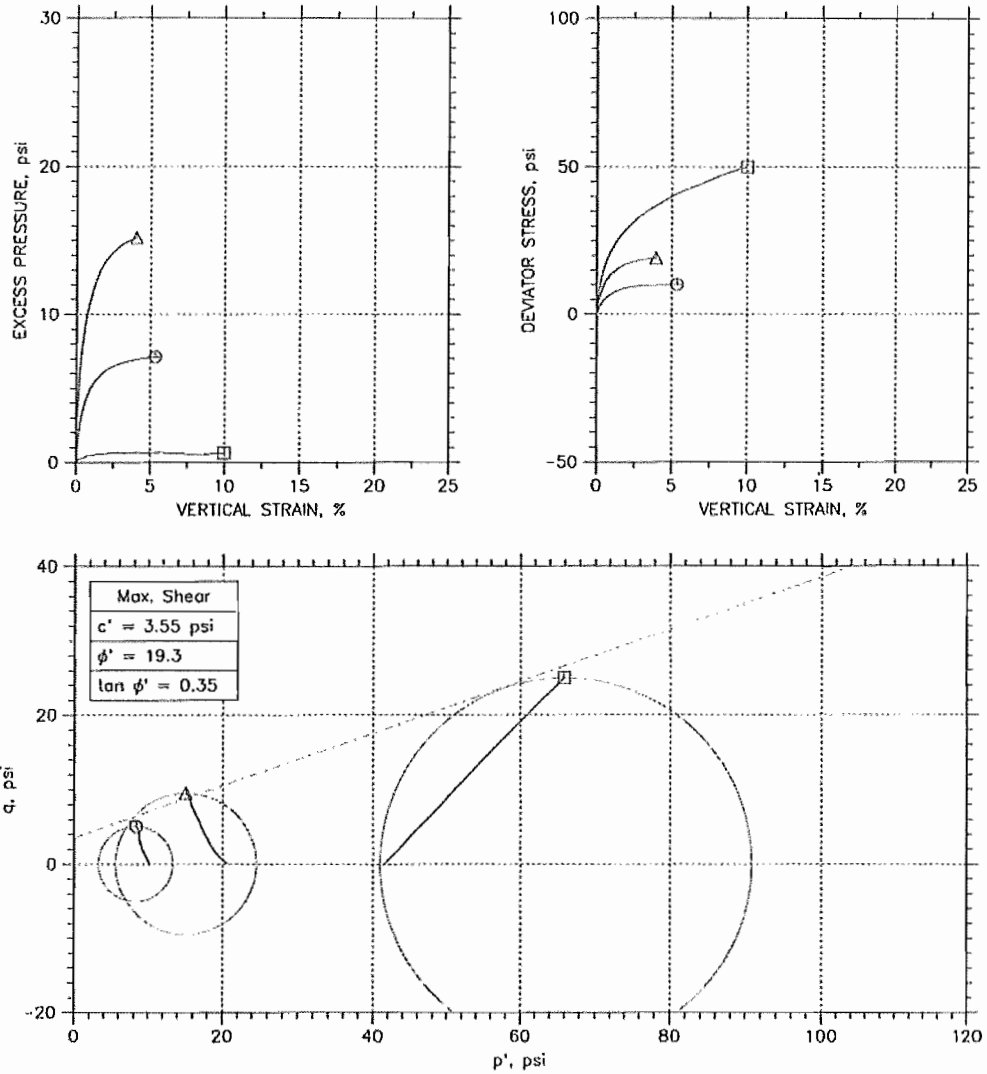
Symbol		⊙	△	⊡	
Sample No.		10-561	10-561	10-561	
Test No.		10-561A	10-561B	10-561C	
Depth		40-42	40-42	40-42	
Initial	Diameter, in	2.84	2.84	2.84	
	Height, in	6.05	6.05	6.05	
	Water Content, %	82.2	82.2	82.2	
	Dry Density, pcf	53.48	53.48	53.48	
	Saturation, %	103.8	103.8	103.8	
	Void Ratio	2.12	2.12	2.12	
Before Shear	Water Content, %	48.8	48.8	48.8	
	Dry Density, pcf	72.34	72.34	72.34	
	Saturation+, %	100.0	100.0	100.0	
	Void Ratio	1.3	1.3	1.3	
	Back Press., psi	30.	51.88	.4321	
Ver. Eff. Cons. Stress, psi		10.39	20.79	41.58	
Shear Strength, psi		5.057	9.496	24.96	
Strain at Failure, %		5.35	4	10	
Strain Rate, %/min		0.032	0.032	0.032	
B-Value		0.98	---	---	
Estimated Specific Gravity		2.67	2.67	2.67	
Liquid Limit		---	---	---	
Plastic Limit		---	---	---	

Project: Egyptian Theater
Location: Coos Bay
Project No.: 609013.150
Boring No.: BH1
Sample Type: 3"shelby
Description: Dark Gray SILT with fine sand
Remarks:

Fri, 30-JUL-2010 14:06:30

Phase calculations based on start and end of test.
+ Saturation is set to 100% for phase calculations.

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767

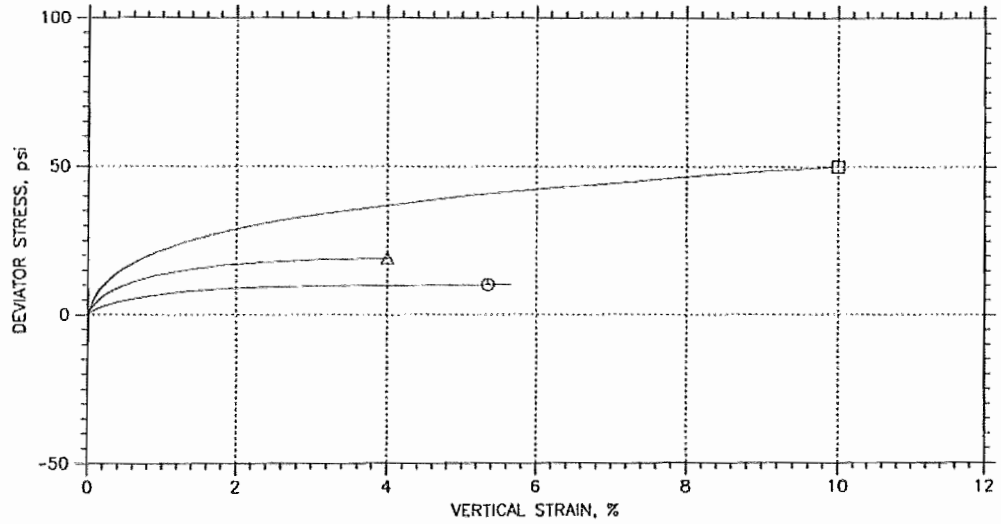


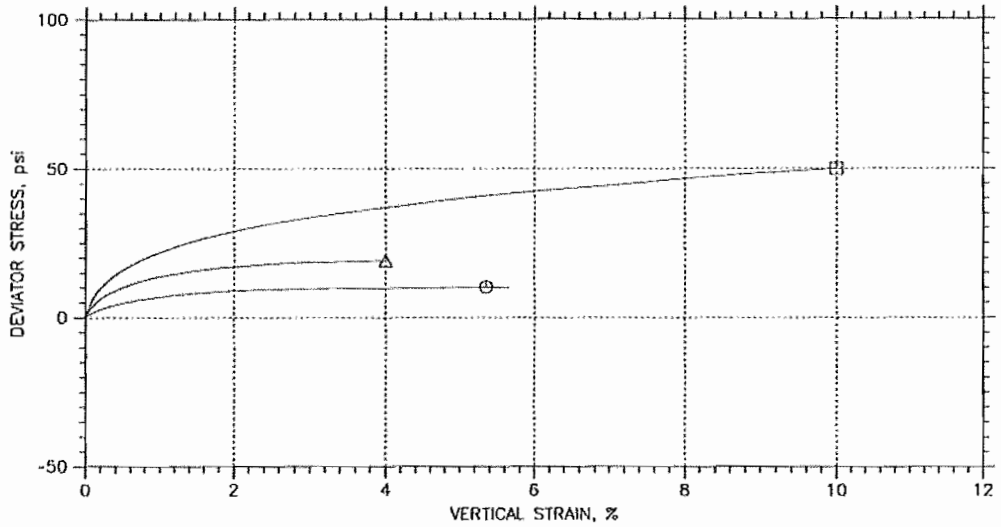
	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
○	10-561	10-561A	40-42	jma	7/12/10	JB	5/9/14	10-561A1 Egypt.dat
△	10-561	10-561B	40-42	jma	7/12/10			10-561B Egypt.dat
□	10-561	10-561C	40-42	jma	7/12/10			10-561C Egypt.dat

Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Sample Type: 3"shelby	
Description: Dark Groy SILT with fine sand		
Remarks:		

Fri, 30-JUL-2010 14:06:33

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767



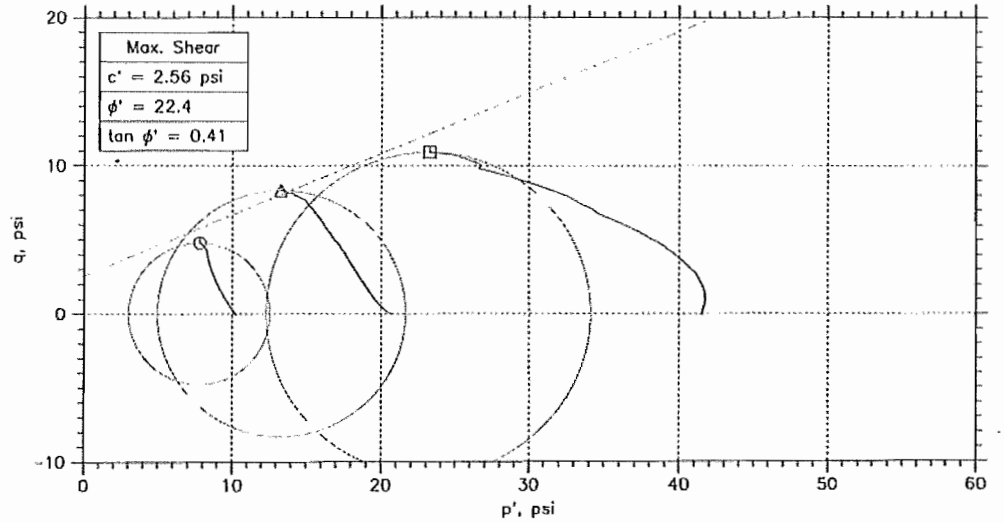


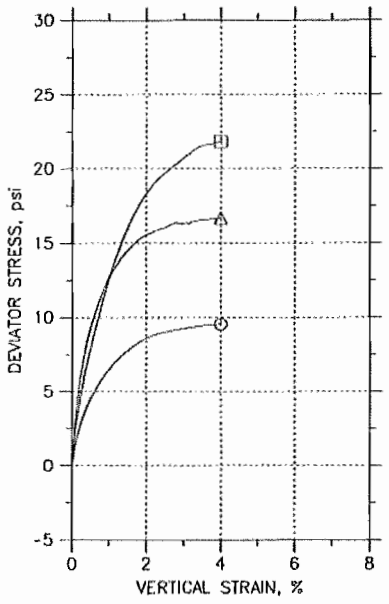
	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
⊙	10-561	10-561A	40-42	jma	7/12/10	SB	8/9/10	10-561A1 Egypt.dat
△	10-561	10-561B	40-42	jma	7/12/10	"	"	10-561B Egypt.dat
⊡	10-561	10-561C	40-42	jma	7/12/10	"	"	10-561C Egypt.dat

	Project: Egyption Theater	Location: Coos Bay	Project No.: 609013.150
	Boring No.: BH1	Sample Type: 3"shelby	
	Description: Dark Gray SILT with fine sand		
	Remarks:		

Fri, 30-JUL-2010 14:06:35

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767





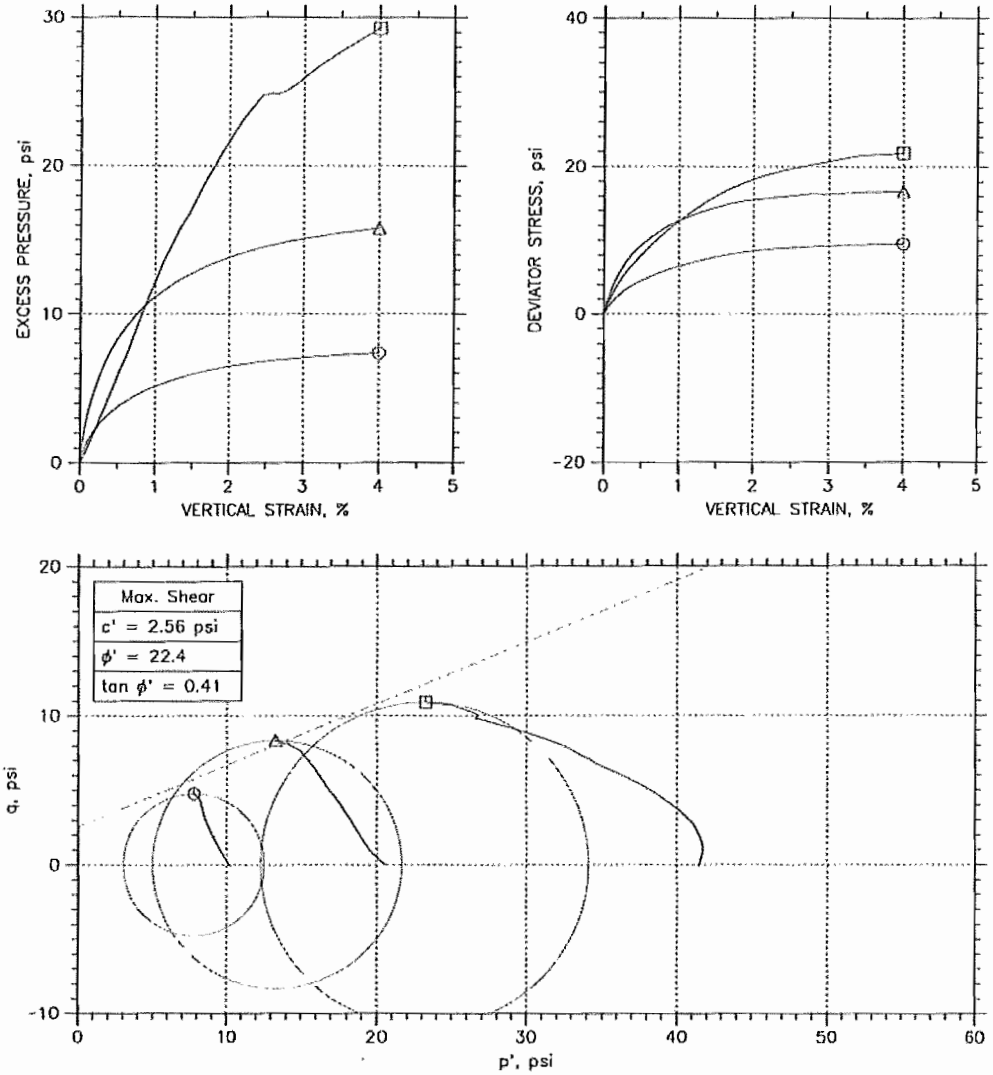
Symbol		⏲	△	⏍	
Sample No.		10-563	10-563	10-563	
Test No.		10-563A	10-563B	10-563C	
Depth		50-52'	50-52'	50-52'	
Initial	Diameter, in	2.84	2.84	2.84	
	Height, in	6.05	6.05	6.05	
	Water Content, %	87.1	87.1	87.1	
	Dry Density, pcf	50.12	50.12	50.12	
	Saturation, %	100.0	100.0	100.0	
	Void Ratio	2.33	2.33	2.33	
Before Shear	Water Content, %	69.0	69.0	69.0	
	Dry Density, pcf	58.66	58.66	58.66	
	Saturation*, %	100.0	100.0	100.0	
	Void Ratio	1.84	1.84	1.84	
	Back Press., psi	36.	32.07	3.024	
Ver. Eff. Cons. Stress, psi		10.38	20.77	41.55	
Shear Strength, psi		4.768	8.326	10.9	
Strain at Failure, %		4	4	4	
Strain Rate, %/min		0.02	0.02	0.02	
B-Value		0.95	---	---	
Estimated Specific Gravity		2.67	2.67	2.67	
Liquid Limit		---	---	---	
Plastic Limit		---	---	---	

Project: Egyptian Theater
Location: Coos Bay
Project No.: 609013.150
Boring No.: BH1
Sample Type: 3"shelby
Description: Dark Gray SILT with fine sand
Remarks:

Fri, 30-JUL-2010 14:47:08

Phase calculations based on start and end of test.
* Saturation is set to 100% for phase calculations.

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767

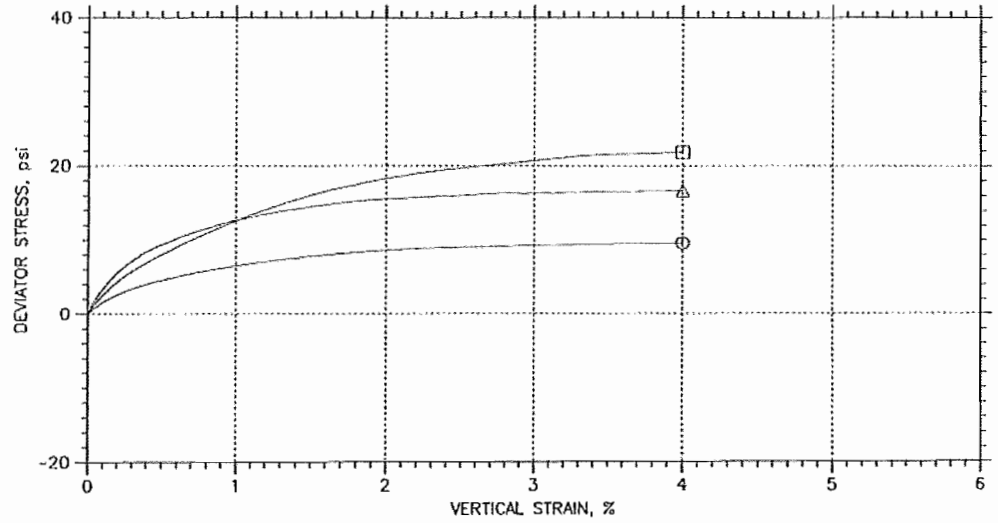


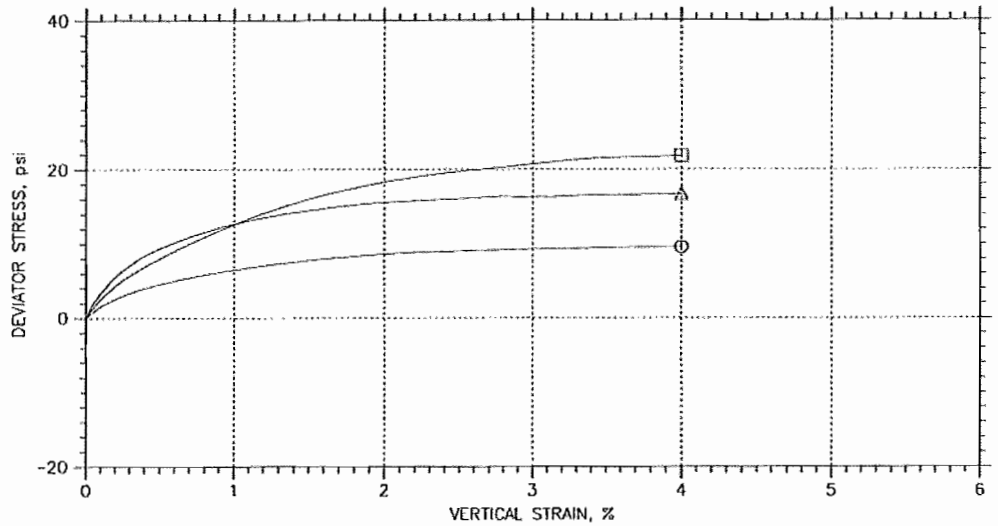
	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
○	10-563	10-563A	50-52'	jma	7/14/10	JS	8/9/10	10-563A Egypt.dat
△	10-563	10-563B	50-52'	jma	7/15/10	"	"	10-563B1 Egypt.dat
□	10-563	10-563C	50-52'	jma	7/15/10	"	"	10-563C Egypt.dat

Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Sample Type: 3"shelby	
Description: Dark Gray SILT with fine sand		
Remarks:		

Fri, 30-JUL-2010 14:47:11

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767





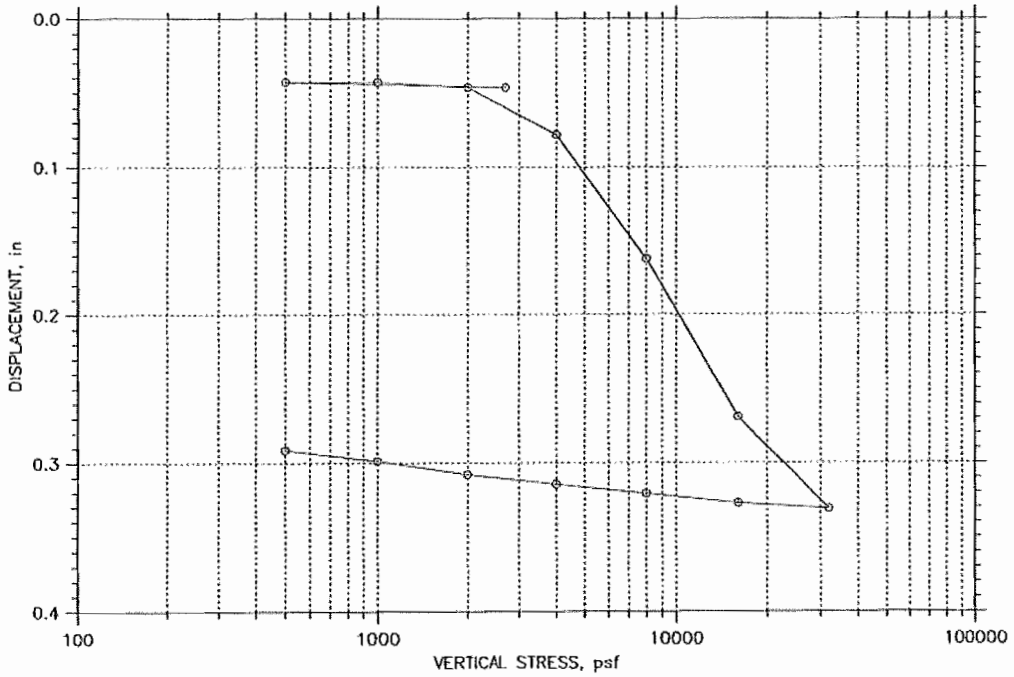
	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
⊙	10-563	10-563A	50-52'	jma	7/14/10	JS	8/9/10	10-563A Egypt.dat
△	10-563	10-563B	50-52'	jma	7/15/10			10-563B1 Egypt.dat
⊡	10-563	10-563C	50-52'	jma	7/15/10			10-563C Egypt.dat

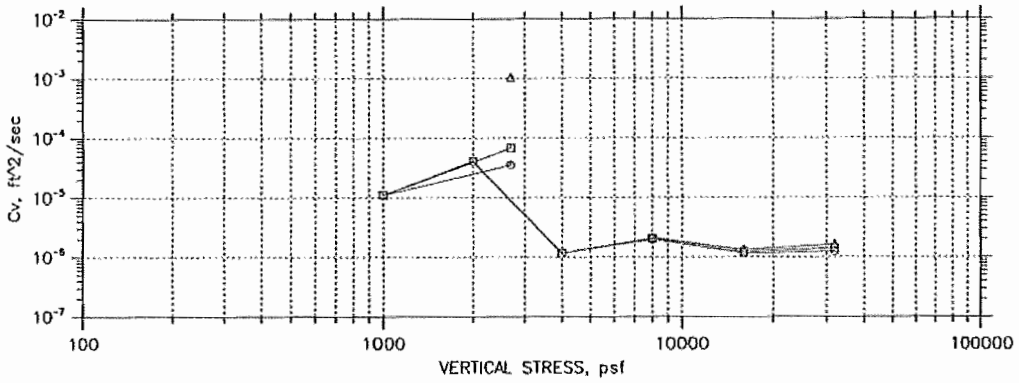
Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Sample Type: 3"shelby	
Description: Dark Gray SILT with fine sand		
Remarks:		

Fri, 30-JUL-2010 14:47:13

CONSOLIDATION TEST DATA

SUMMARY REPORT

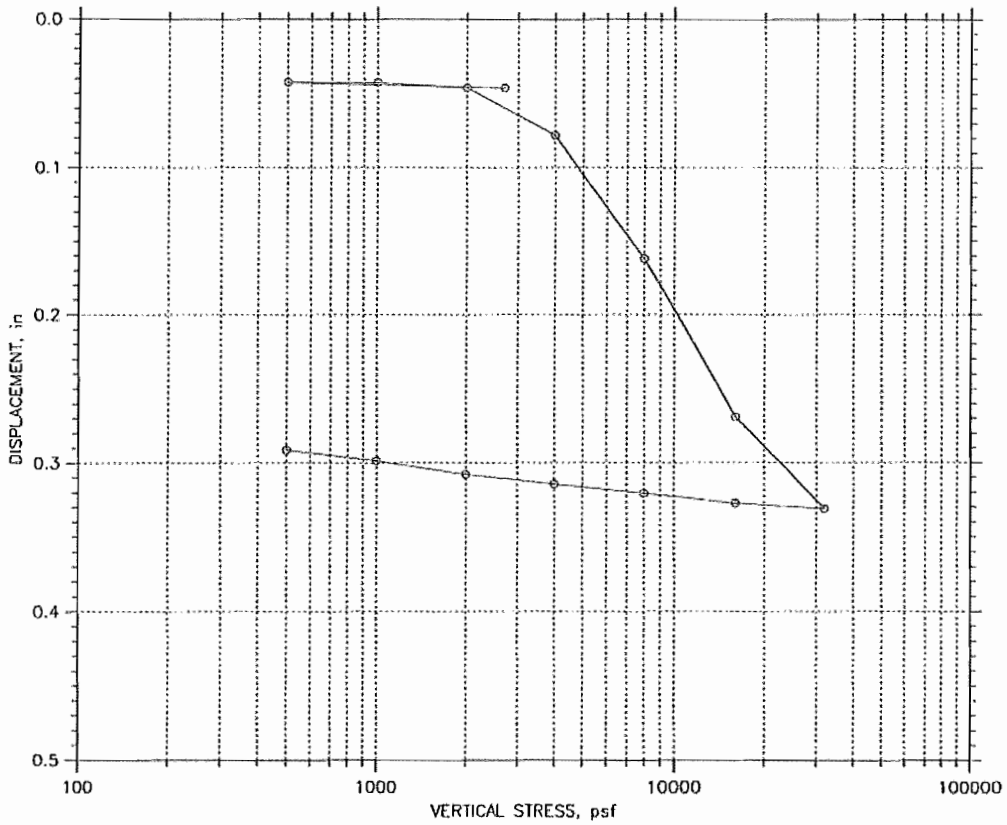




Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By:
Sample No.: 10-562	Test Date: 7/5/10	Depth: 45-47'
Test No.: 10-562	Sample Type: 3"shelby	Elevation:
Description: Dark Gray Clayey SILT		
Remarks: 2700 PSF Preload		

Mon, 09-AUG-2010 11:56:15

CONSOLIDATION TEST DATA
SUMMARY REPORT



					Before Test	After Test
Overburden Pressure, psf:				Water Content, %	87.50	53.25
Preconsolidation Pressure, psf:				Dry Unit Weight, pcf	48.854	68.944
Compression Index:				Saturation, %	97.17	100.82
Diameter: 2.5 in		Height: 1 in		Void Ratio	2.39	1.40
LL: 0	PL: 0	PI: 0	GS: 2.65			

Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By: JB
Sample No.: 10-562	Test Date: 7/5/10	Depth: 45-47'
Test No.: 10-562	Sample Type: 3"shelby	Elevation:
Description: Dark Gray Clayey SILT		
Remarks: 2700 PSF Preload		

Mon, 09-AUG-2010 11:56:16

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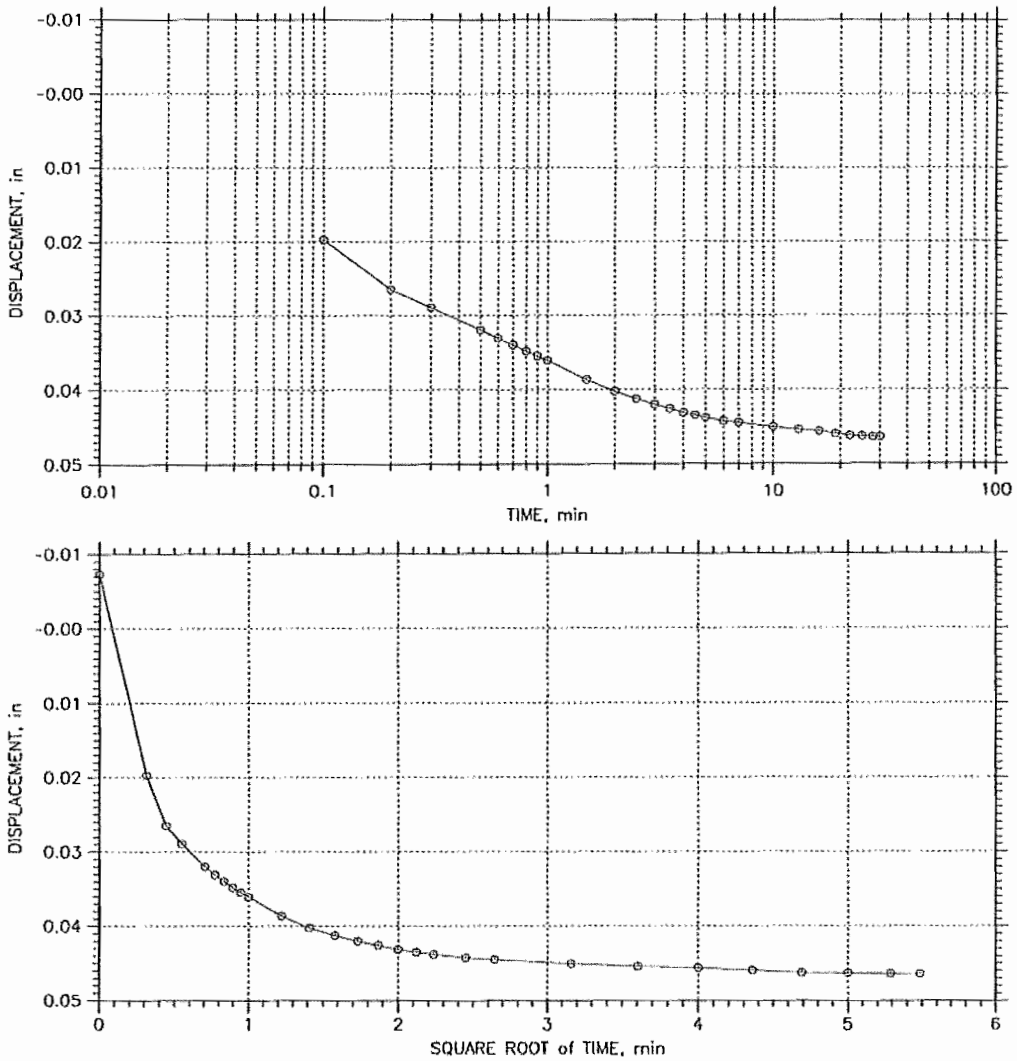
CONSOLIDATION TEST DATA

TIME CURVES

Constant Load Step: 1 of 14

Stress: 2700. psf



Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By: SB
Sample No.: 10-562	Test Date: 7/5/10	Depth: 45-47'
Test No.: 10-562	Sample Type: 3"shelby	Elevation:
Description: Dark Gray Clayey SILT		
Remarks: 2700 PSF Preload		

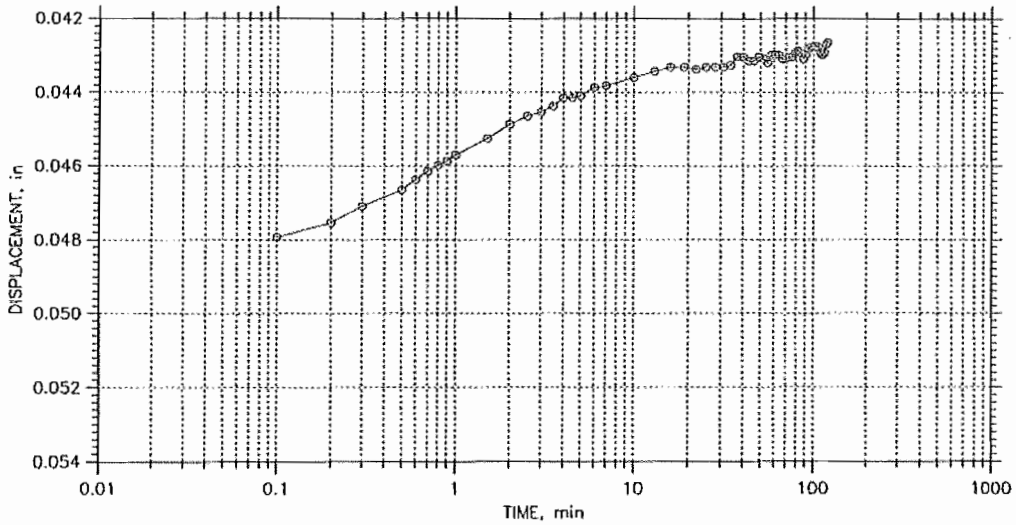
Mon, 09-AUG-2010 11:56:18

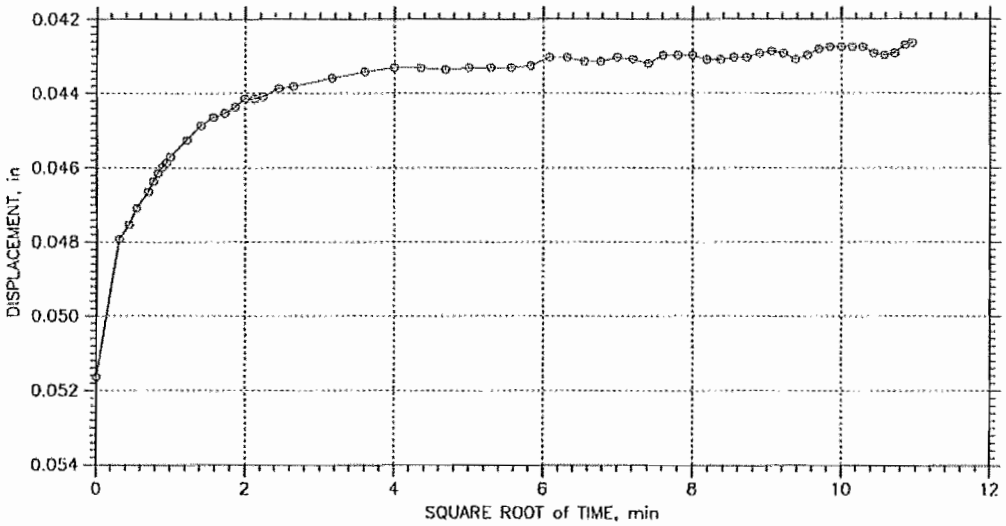
CONSOLIDATION TEST DATA

TIME CURVES

Constant Load Step: 2 of 14

Stress: 500. psf





Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By: JB
Sample No.: 10-562	Test Date: 7/5/10	Depth: 45-47'
Test No.: 10-562	Sample Type: 3"shelby	Elevation:
Description: Dark Gray Clayey SILT		
Remarks: 2700 PSF Preload		

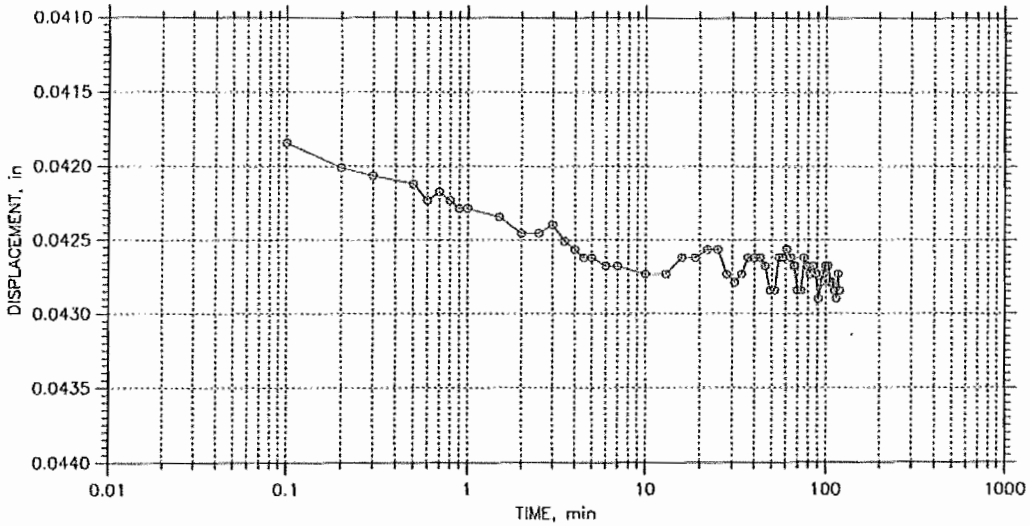
Mon, 09-AUG-2010 11:56:20

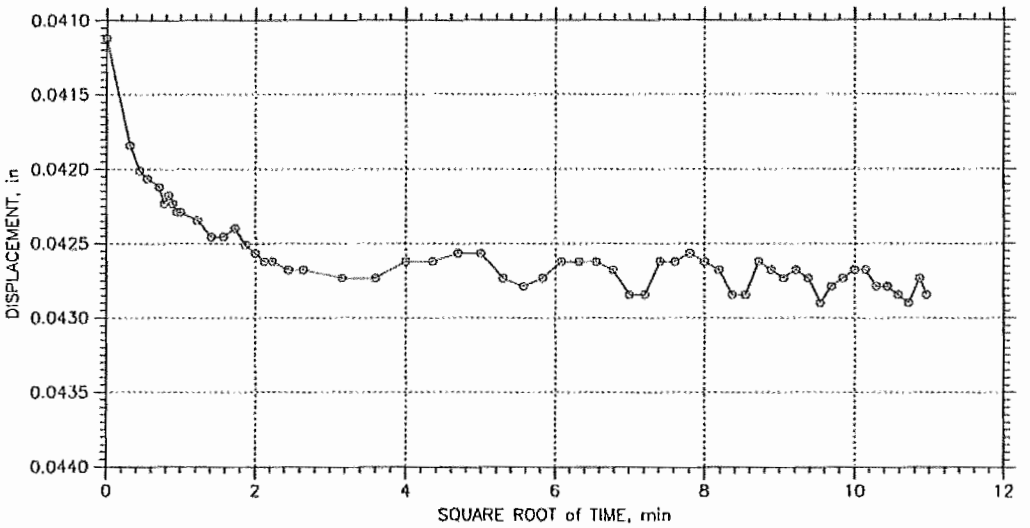
CONSOLIDATION TEST DATA

TIME CURVES

Constant Load Step: 3 of 14

Stress: 1000. psf





Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By: JB
Sample No.: 10-562	Test Date: 7/5/10	Depth: 45-47'
Test No.: 10-562	Sample Type: 3"shelby	Elevation:
Description: Dark Gray Clayey SILT		
Remarks: 2700 PSF Preload		

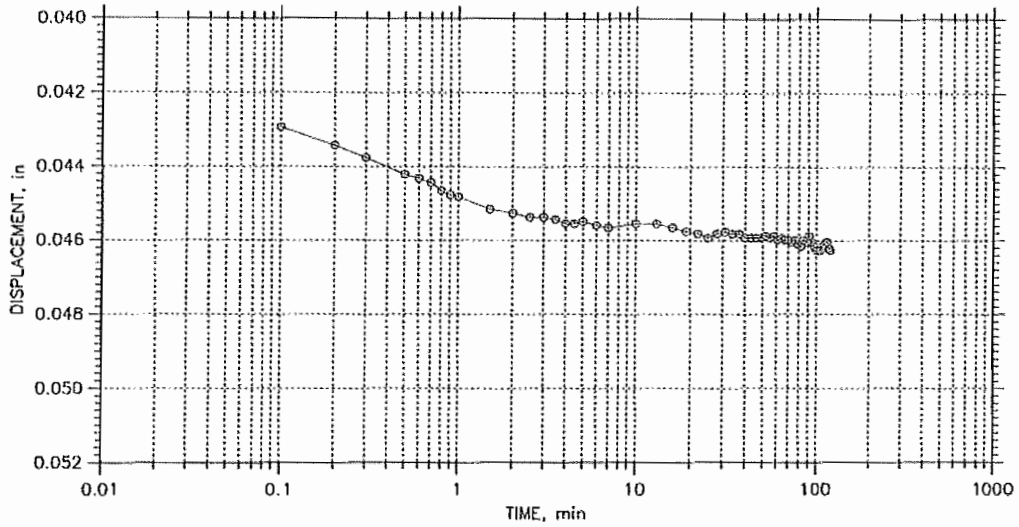
Mon, 09-AUG-2010 11:56:22

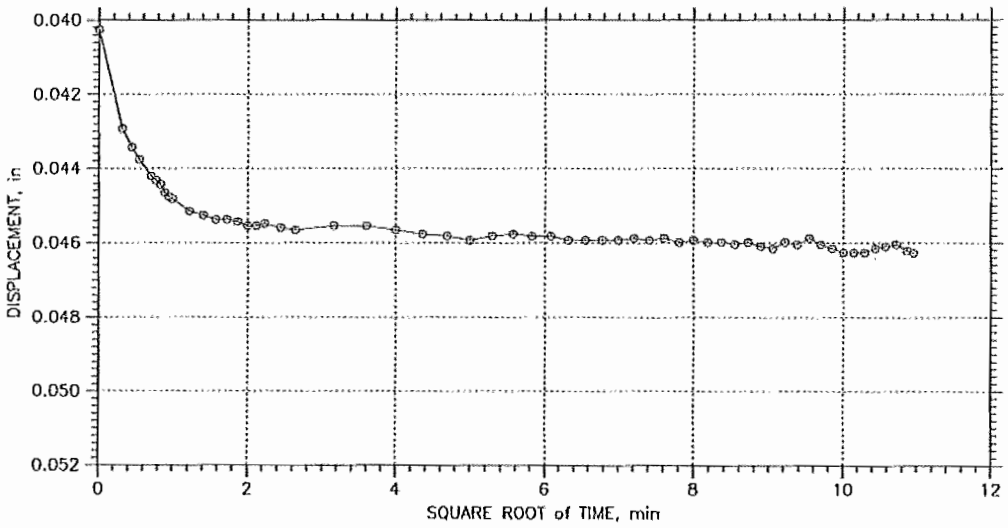
CONSOLIDATION TEST DATA

TIME CURVES

Constant Load Step: 4 of 14

Stress: 2000. psf





Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By: SB
Sample No.: 10-562	Test Date: 7/5/10	Depth: 45-47'
Test No.: 10-562	Sample Type: 3"shelby	Elevation:
Description: Dark Gray Clayey SILT		
Remarks: 2700 PSF Preload		

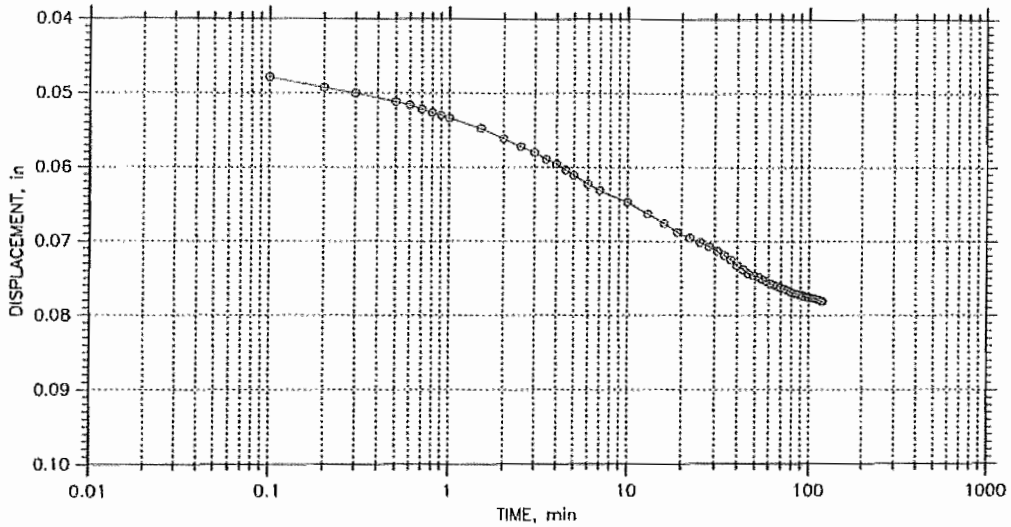
Mon, 09-AUG-2010 11:56:24

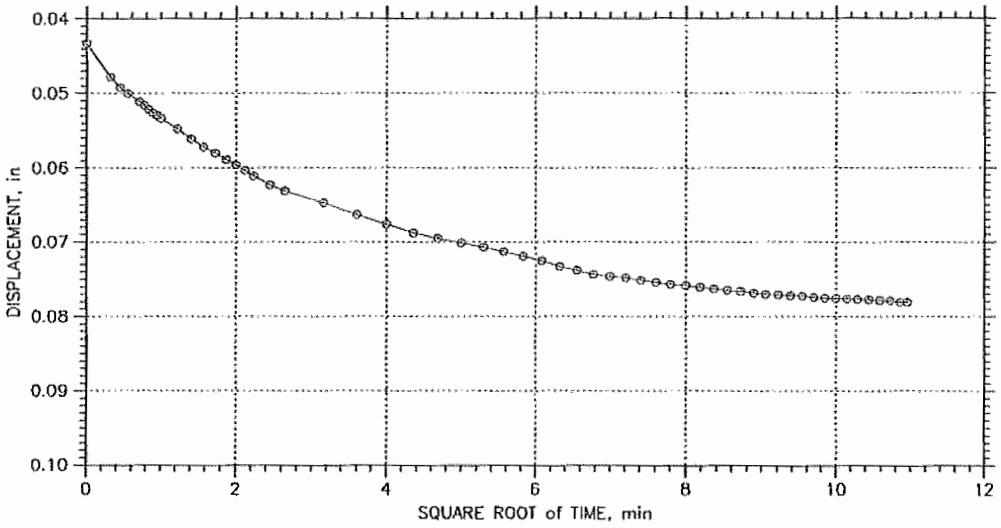
CONSOLIDATION TEST DATA

TIME CURVES

Constant Load Step: 5 of 14

Stress: 4000. psf



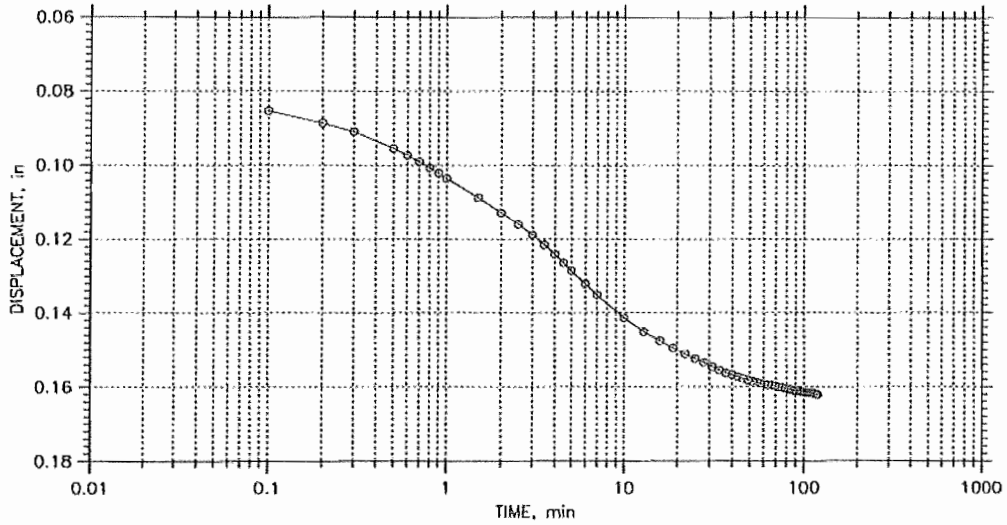


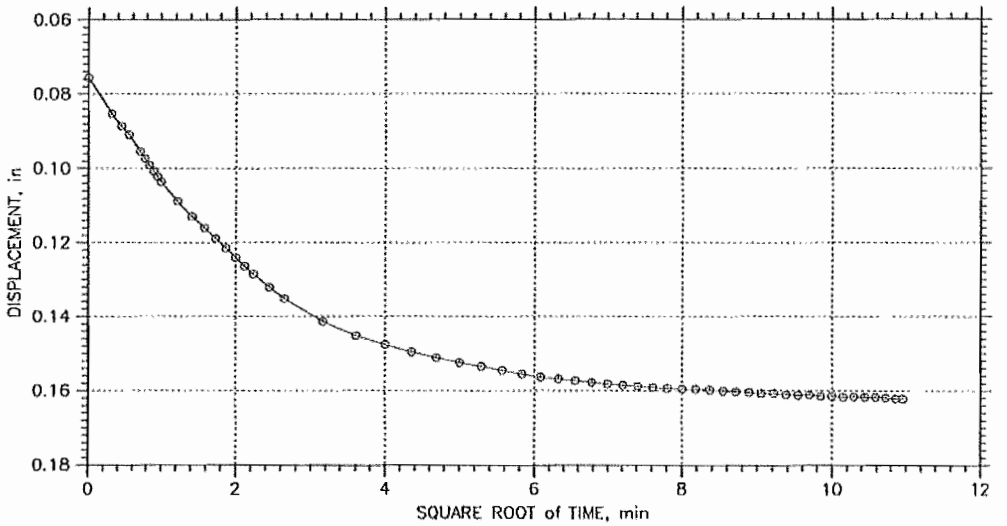
Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By: JB
Sample No.: 10-562	Test Date: 7/5/10	Depth: 45-47'
Test No.: 10-562	Sample Type: 3"shelby	Elevation:
Description: Dark Gray Clayey SILT		
Remarks: 2700 PSF Preload		

Mon, 09-AUG-2010 11:56:26

CONSOLIDATION TEST DATA

TIME CURVES
Constant Load Step: 6 of 14
Stress: 8000. psf



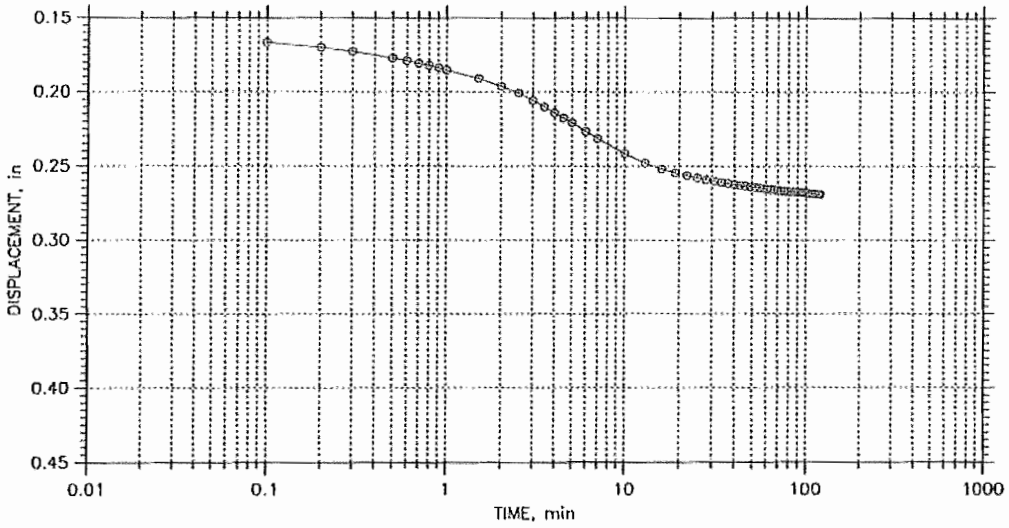


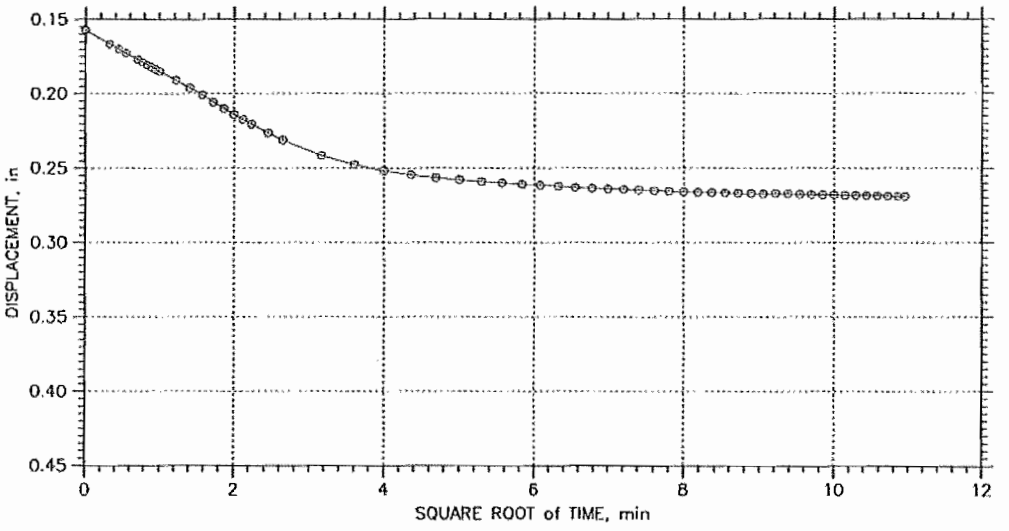
Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By: JB
Sample No.: 10-562	Test Date: 7/5/10	Depth: 45-47'
Test No.: 10-562	Sample Type: 3"shelby	Elevation:
Description: Dark Gray Clayey SILT		
Remarks: 2700 PSF Preload		

Mon, 09-AUG-2010 11:56:28

CONSOLIDATION TEST DATA

TIME CURVES
Constant Load Step: 7 of 14
Stress: 16000 psf





Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By:
Sample No.: 10-562	Test Date: 7/5/10	Depth: 45-47'
Test No.: 10-562	Sample Type: 3"shelby	Elevation:
Description: Dark Gray Clayey SILT		
Remarks: 2700 PSF Preload		

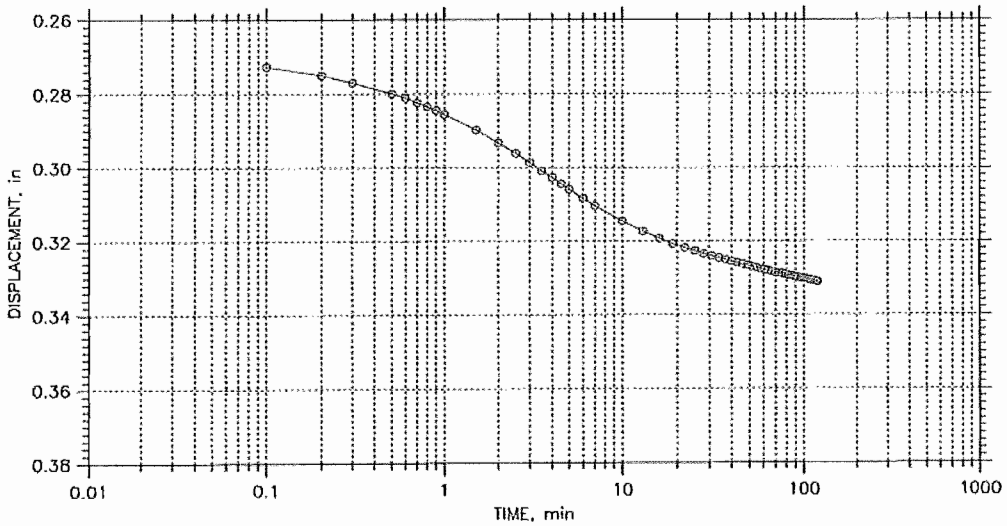
Mon, 09-AUG-2010 11:56:30

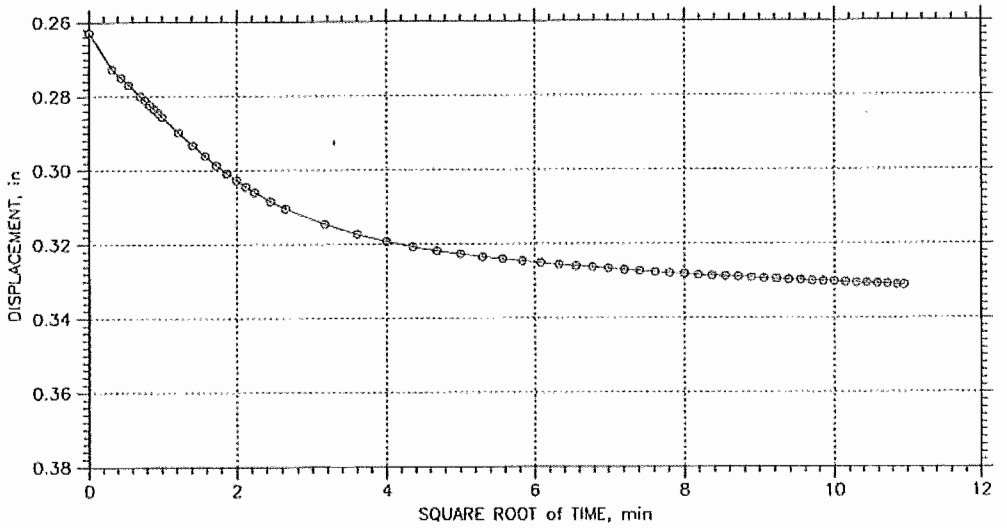
CONSOLIDATION TEST DATA

TIME CURVES

Constant Load Step: 8 of 14

Stress: 32000 psf





Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By: SB
Sample No.: 10-562	Test Date: 7/5/10	Depth: 45-47'
Test No.: 10-562	Sample Type: 3"shelby	Elevation:
Description: Dark Gray Clayey SILT		
Remarks: 2700 PSF Preload		

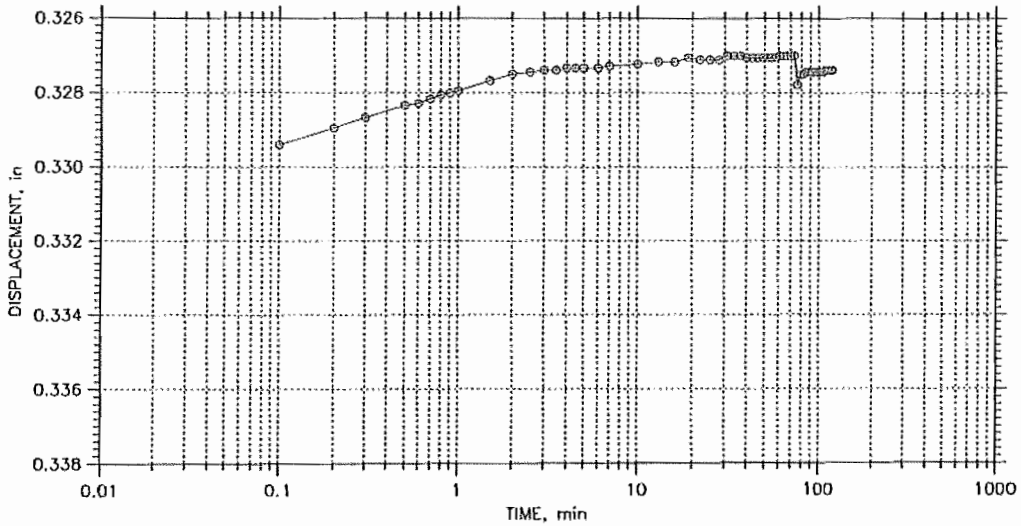
Mon, 09-AUG-2010 11:56:32

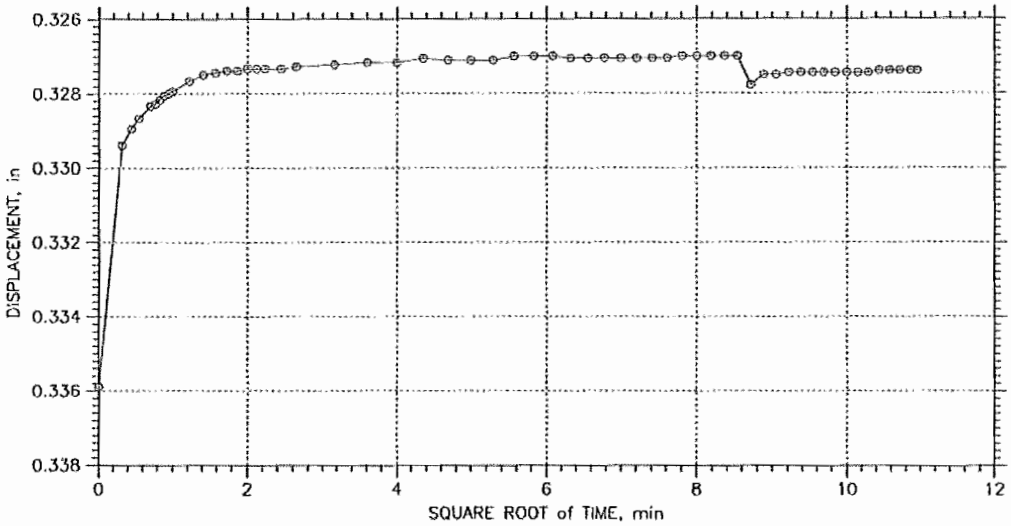
CONSOLIDATION TEST DATA

TIME CURVES

Constant Load Step: 9 of 14

Stress: 16000 psf



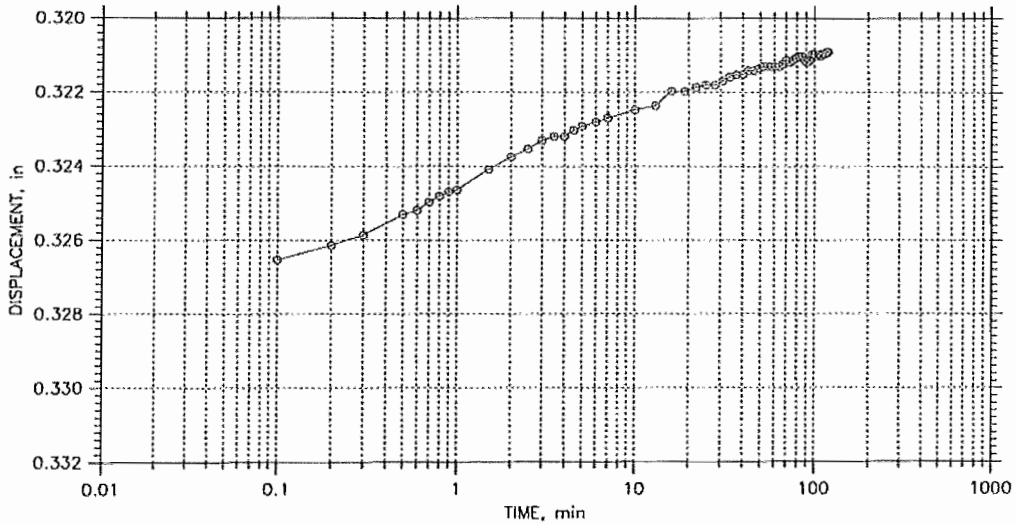


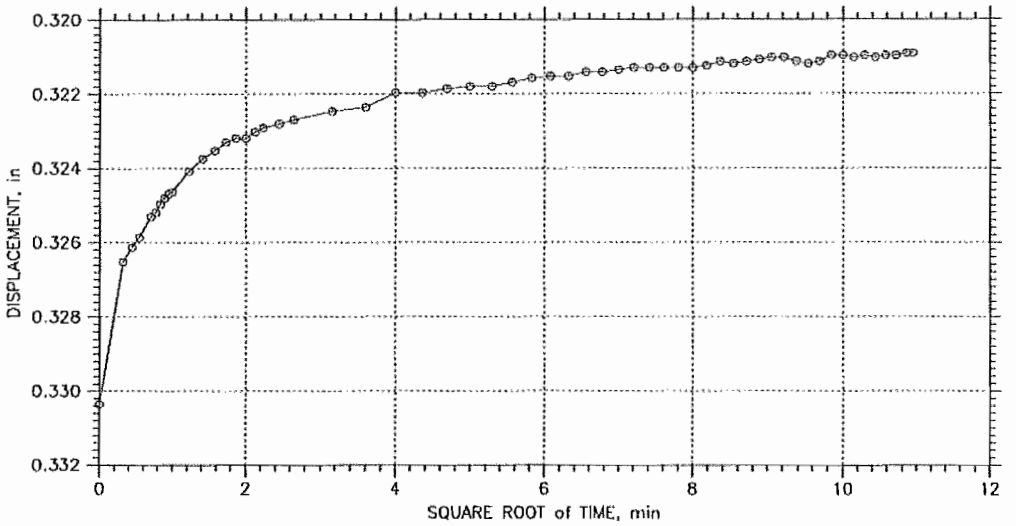
Project: Egyption Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By: SB
Sample No.: 10-562	Test Date: 7/5/10	Depth: 45-47'
Test No.: 10-562	Sample Type: 3"shelby	Elevation:
Description: Dark Gray Clayey SILT		
Remarks: 2700 PSF Preload		

Mon, 09-AUG-2010 11:56:34

CONSOLIDATION TEST DATA

TIME CURVES
Constant Load Step: 10 of 14
Stress: 8000. psf





Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By: CS
Sample No.: 10-562	Test Date: 7/5/10	Depth: 45-47'
Test No.: 10-562	Sample Type: 3"shelby	Elevation:
Description: Dark Gray Clayey SILT		
Remarks: 2700 PSF Preload		

Mon, 09-AUG-2010 11:56:36

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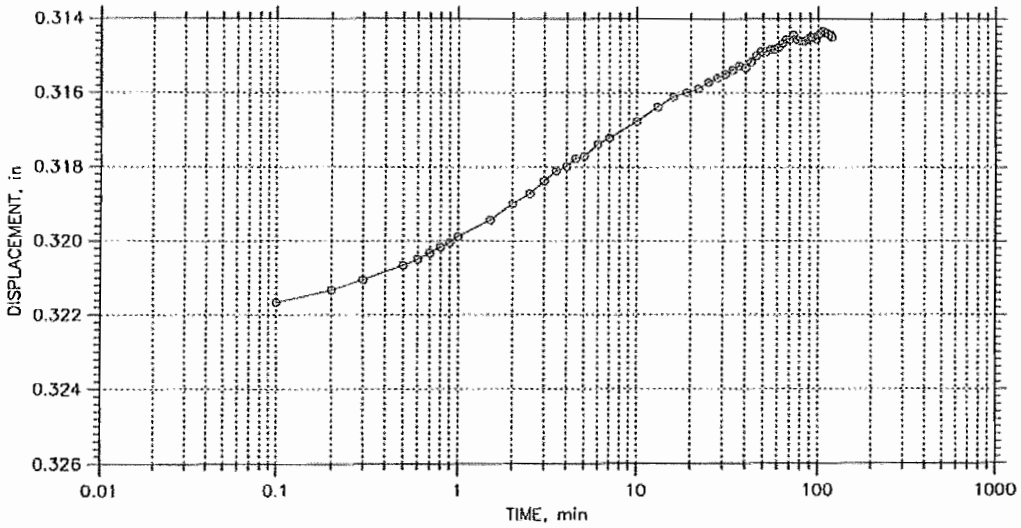
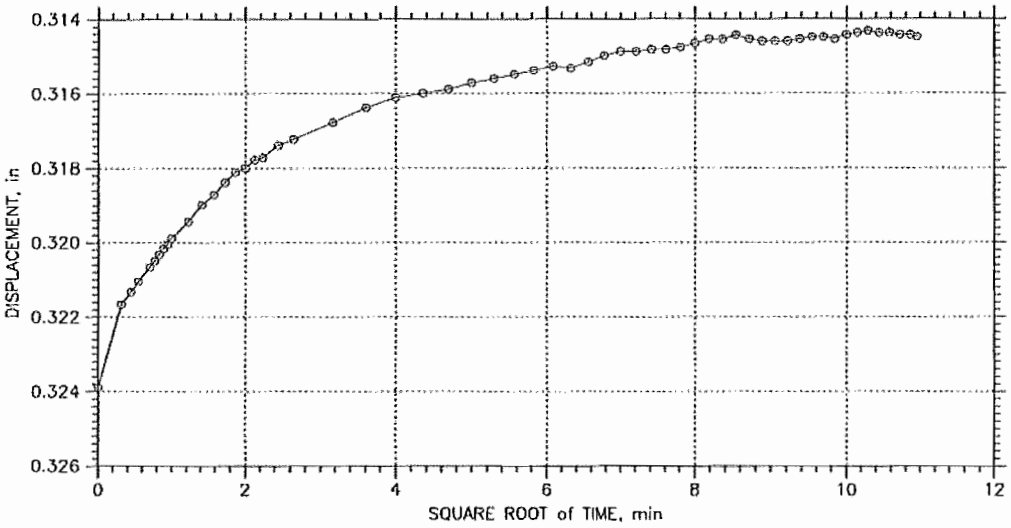
CONSOLIDATION TEST DATA

TIME CURVES

Constant Load Step: 11 of 14

Stress: 4000. psf



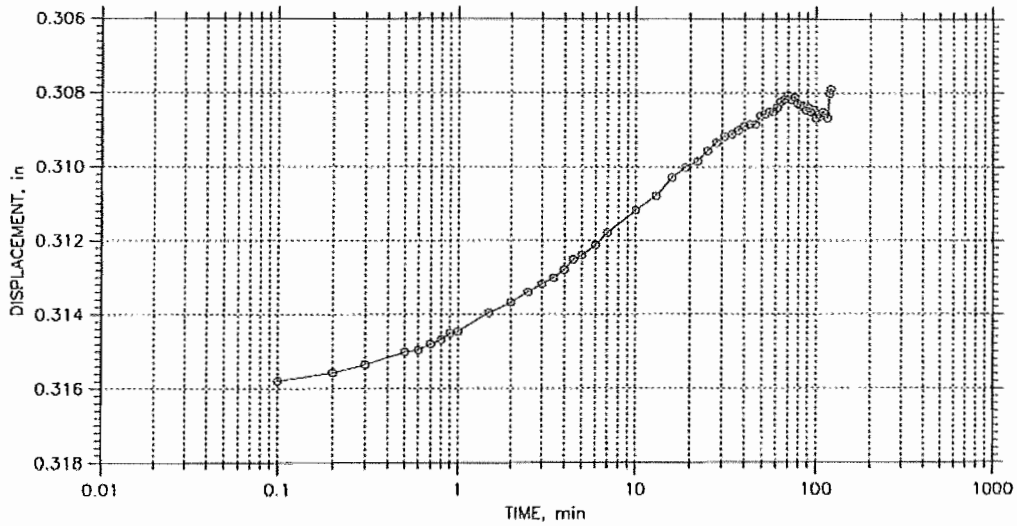


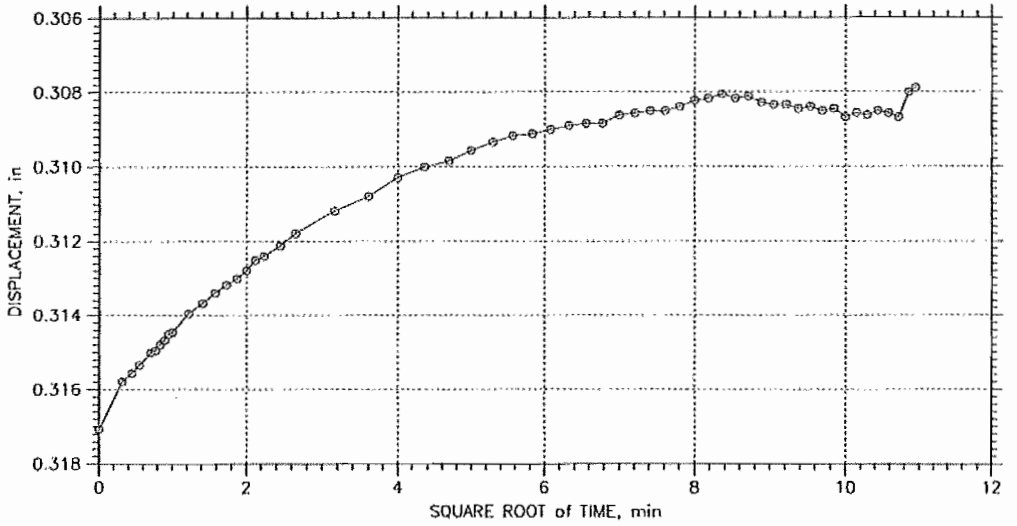
Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By: SB
Sample No.: 10-562	Test Date: 7/5/10	Depth: 45-47'
Test No.: 10-562	Sample Type: 3"shelby	Elevation:
Description: Dark Gray Clayey SILT		
Remarks: 2700 PSF Preload		

Mon, 09-AUG-2010 11:56:38

CONSOLIDATION TEST DATA

TIME CURVES
Constant Load Step: 12 of 14
Stress: 2000. psf





Project: Egyption Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By:
Sample No.: 10-562	Test Date: 7/5/10	Depth: 45-47'
Test No.: 10-562	Sample Type: 3"shelby	Elevation:
Description: Dark Gray Clayey SILT		
Remarks: 2700 PSF Preload		

Mon, 09-AUG-2010 11:56:40

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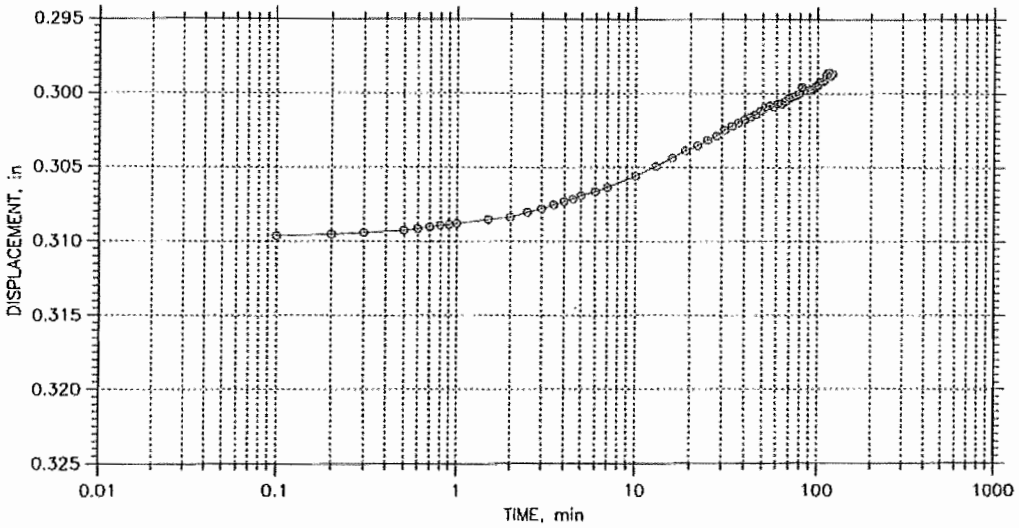
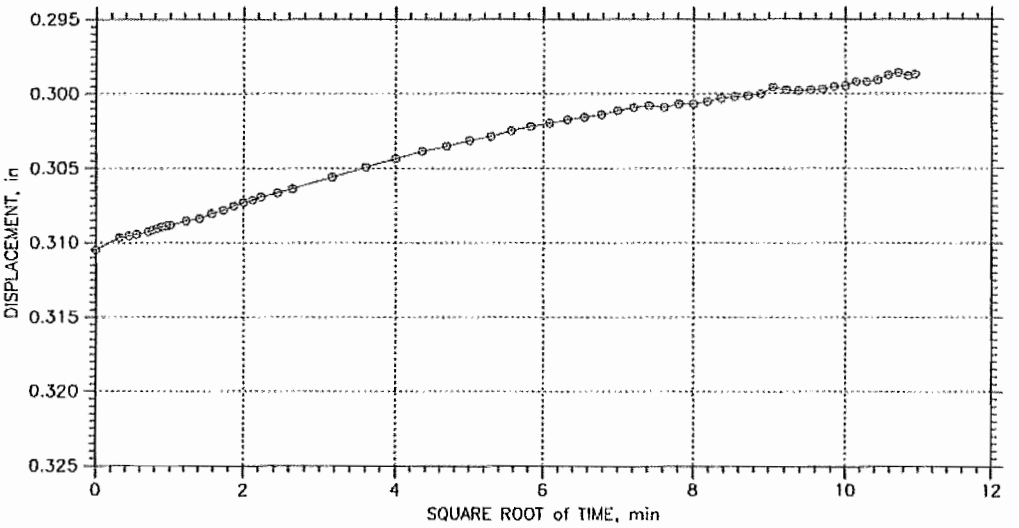
CONSOLIDATION TEST DATA

TIME CURVES

Constant Load Step: 13 of 14

Stress: 1000. psf





Project: Egyption Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By: SJ
Sample No.: 10-562	Test Date: 7/5/10	Depth: 45-47'
Test No.: 10-562	Sample Type: 3"shelby	Elevation:
Description: Dark Gray Clayey SILT		
Remarks: 2700 PSF Preload		

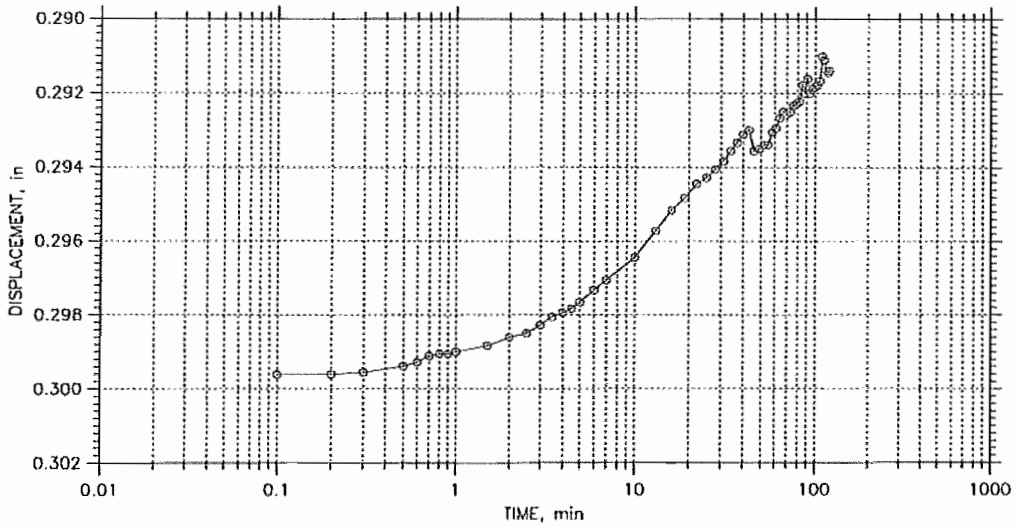
Mon, 09-AUG-2010 11:56:42

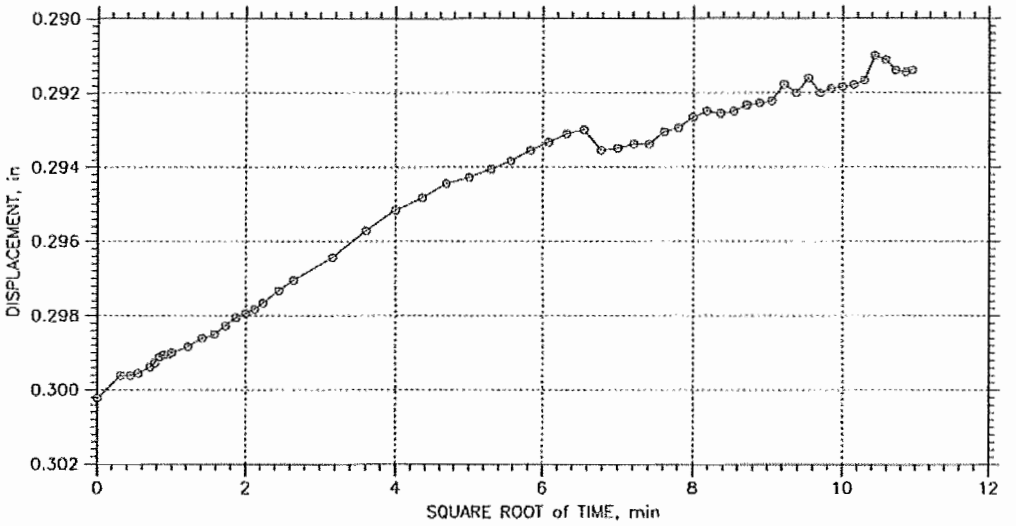
CONSOLIDATION TEST DATA

TIME CURVES

Constant Load Step: 14 of 14

Stress: 500. psf



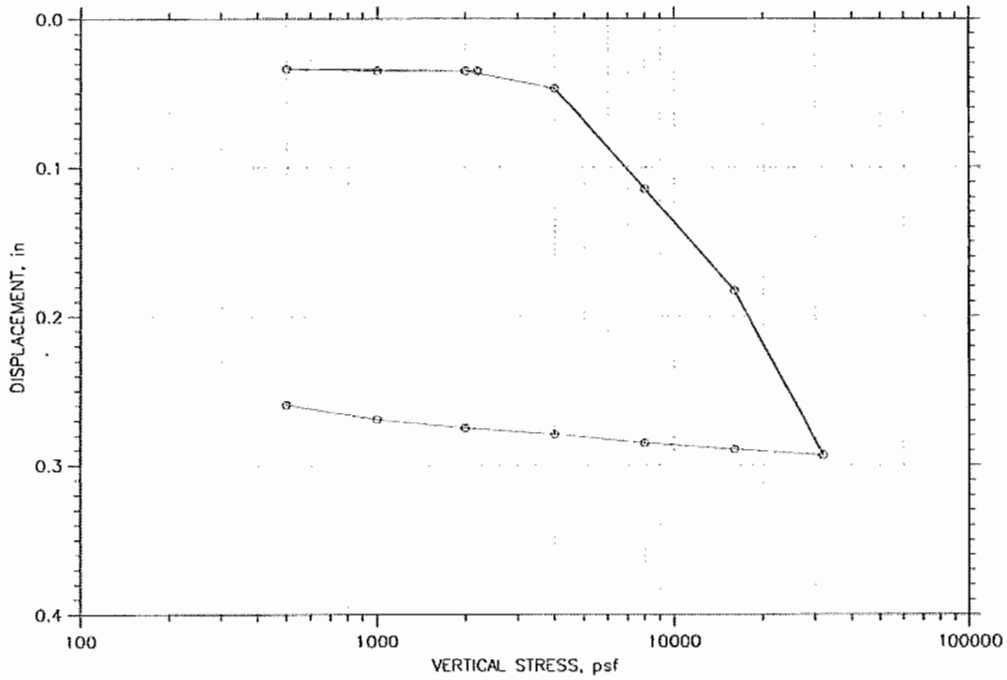


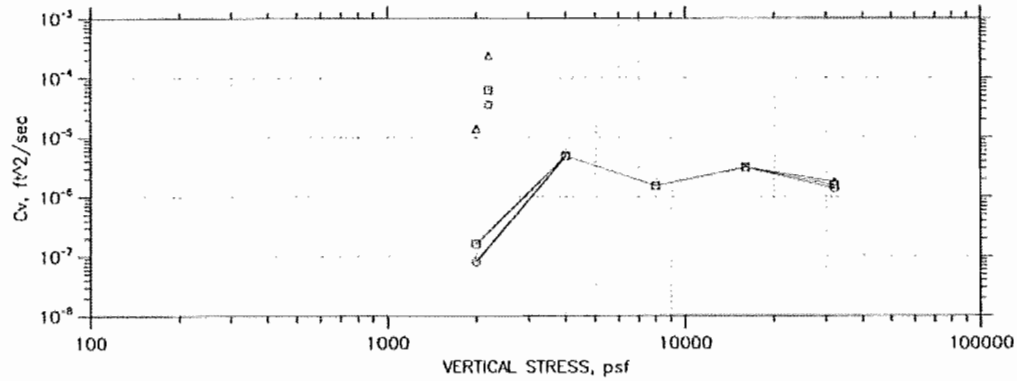
Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By:
Sample No.: 10-562	Test Date: 7/5/10	Depth: 45-47'
Test No.: 10-562	Sample Type: 3"shelby	Elevation:
Description: Dark Gray Clayey SILT		
Remarks: 2700 PSF Preload		

Mon, 09-AUG-2010 11:56:44

CONSOLIDATION TEST DATA

SUMMARY REPORT



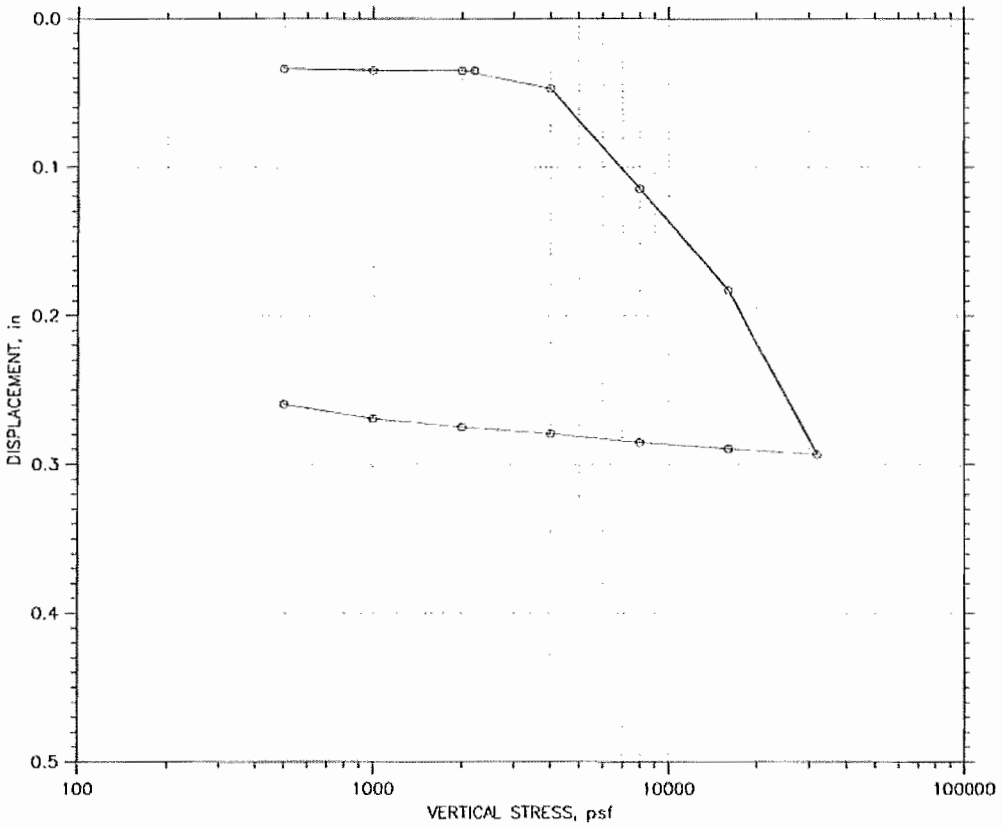


Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By: SB
Sample No.: 10-560	Test Date: 7/2/10	Depth: 35-37'
Test No.: 10-560	Sample Type: 3"shelby	Elevation:
Description: Dark Gray Clayey SILT		
Remarks: 2200 PSF Preload		

Wed, 15-SEP-2010 15:41:03

CONSOLIDATION TEST DATA

SUMMARY REPORT



					Before Test	After Test
Overburden Pressure, psf:				Water Content, %	88.91	44.64
Preconsolidation Pressure, psf:				Dry Unit Weight, pcf	51.354	69.353
Compression Index:				Saturation, %	106.06	85.39
Diameter: 2.5 in		Height: 1 in		Void Ratio	2.22	1.39
LL: 0	PL: 0	PI: 0	GS: 2.65			

Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By:
Sample No.: 10-560	Test Date: 7/2/10	Depth: 35-37'
Test No.: 10-560	Sample Type: 3"shelby	Elevation:
Description: Dark Gray Clayey SILT		
Remarks: 2200 PSF Preload		

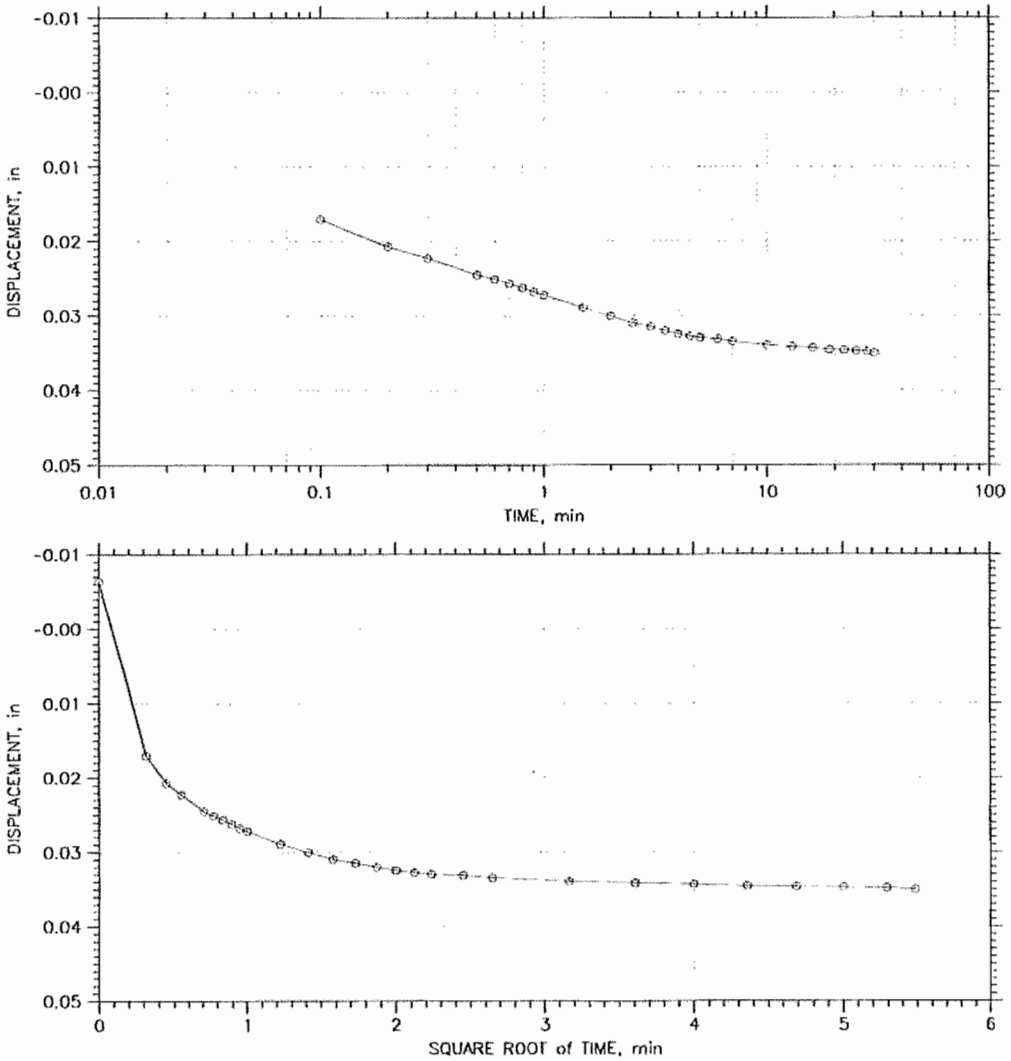
Wed, 15-SEP-2010 15:41:04

CONSOLIDATION TEST DATA

TIME CURVES

Constant Load Step: 1 of 14

Stress: 2200. psf

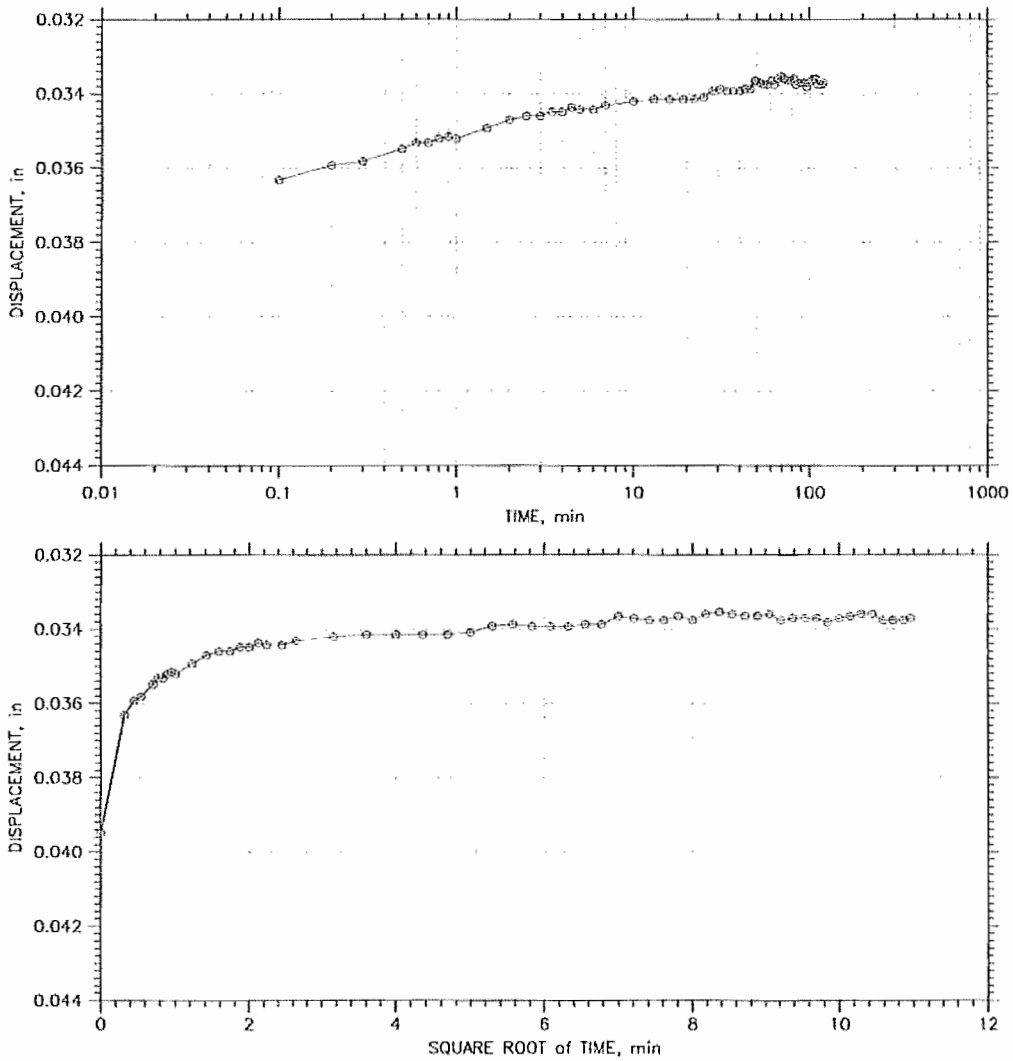


Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By:
Sample No.: 10-560	Test Date: 7/2/10	Depth: 35-37'
Test No.: 10-560	Sample Type: 3"shelby	Elevation:
Description: Dark Gray Clayey SILT		
Remarks: 2200 PSF Preload		

Wed, 15-SEP-2010 15:41:04

CONSOLIDATION TEST DATA

TIME CURVES
Constant Load Step: 2 of 14
Stress: 500. psf

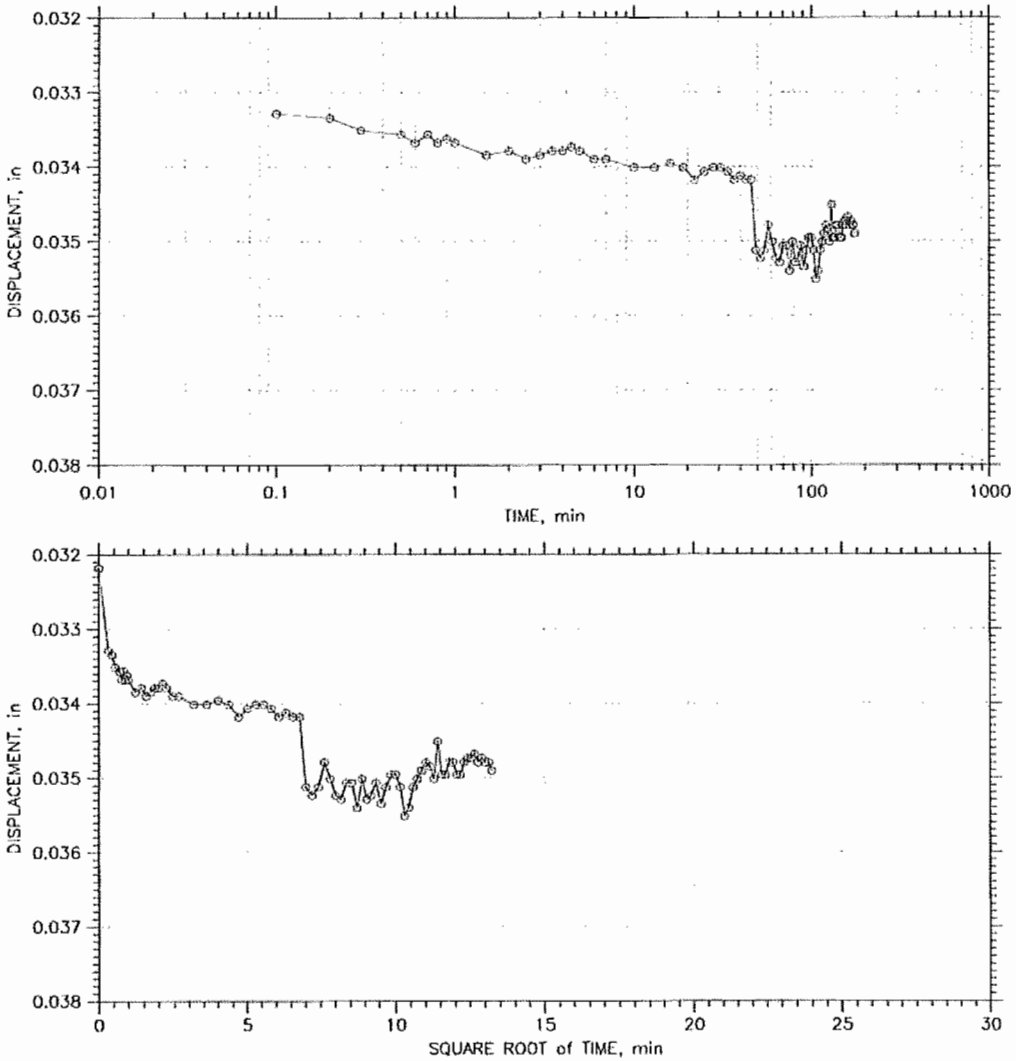


Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By: TS
Sample No.: 10-560	Test Date: 7/2/10	Depth: 35-37'
Test No.: 10-560	Sample Type: 3"shelby	Elevation:
Description: Dark Gray Clayey SILT		
Remarks: 2200 PSF Preload		

Wed, 15-SEP-2010 15:41:05

CONSOLIDATION TEST DATA

TIME CURVES
Constant Load Step: 3 of 14
Stress: 1000. psf

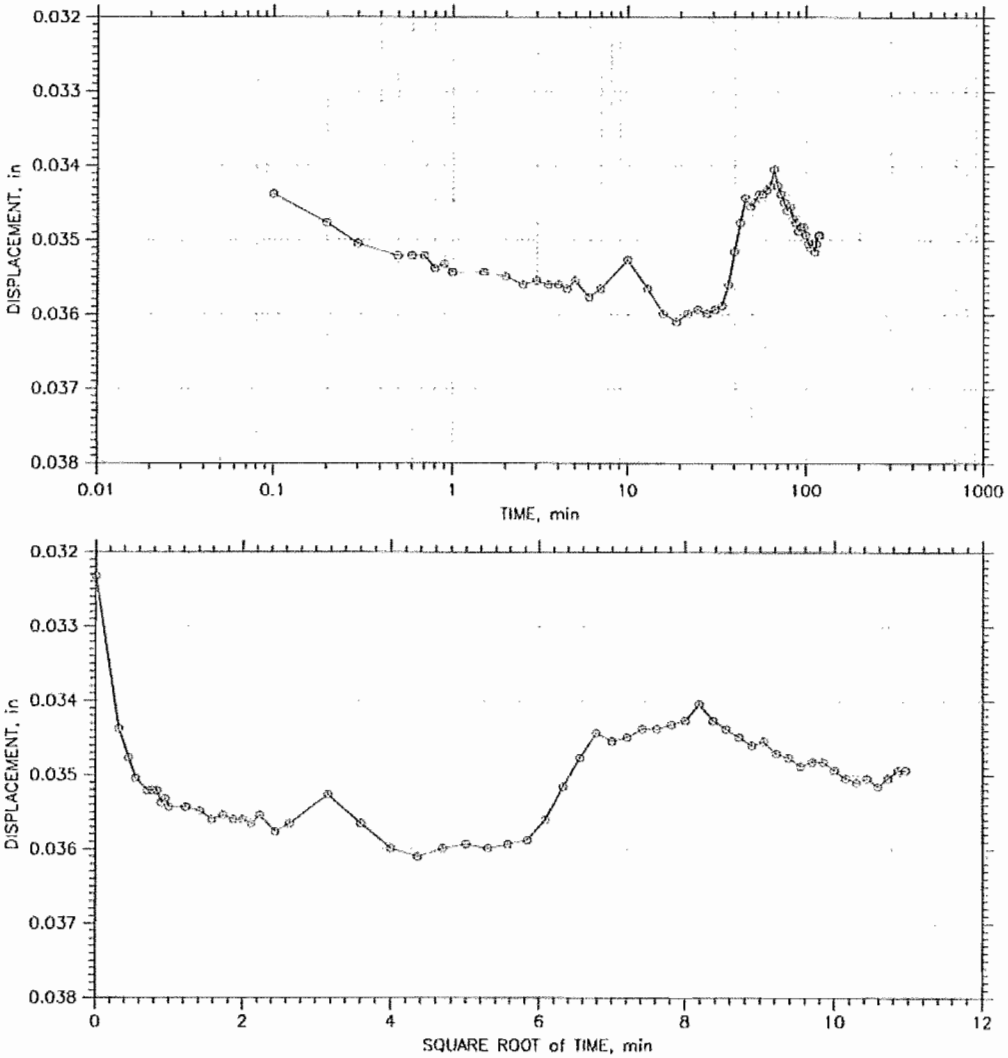


Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By:
Sample No.: 10-560	Test Date: 7/2/10	Depth: 35-37'
Test No.: 10-560	Sample Type: 3"shelby	Elevation:
Description: Dark Gray Clayey SILT		
Remarks: 2200 PSF Preload		
.		

Wed, 15-SEP-2010 15:41:05

CONSOLIDATION TEST DATA

TIME CURVES
Constant Load Step: 4 of 14
Stress: 2000. psf



Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By: JB
Sample No.: 10-560	Test Date: 7/2/10	Depth: 35-37'
Test No.: 10-560	Sample Type: 3"shelby	Elevation:
Description: Dark Gray Clayey SILT		
Remarks: 2200 PSF Preload		

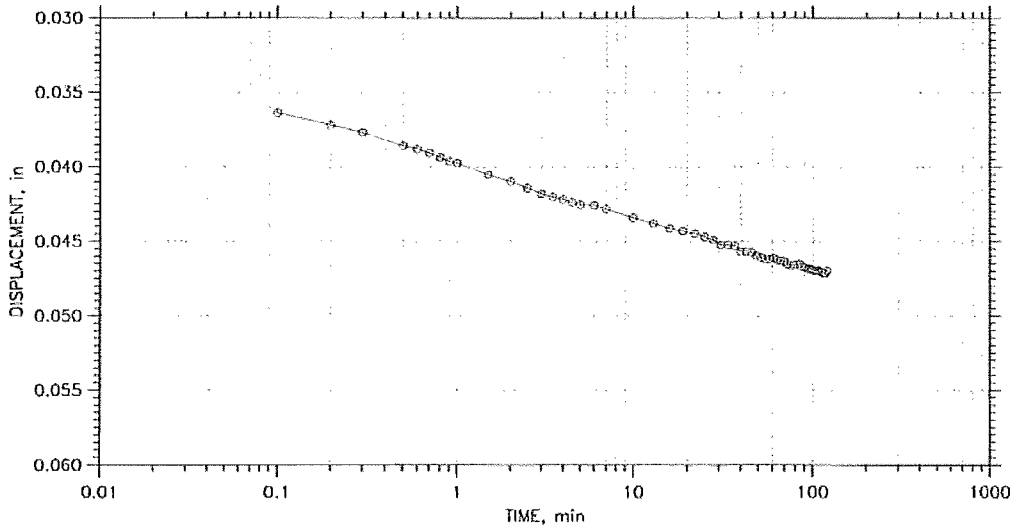
Wed, 15-SEP-2010 15:41:06

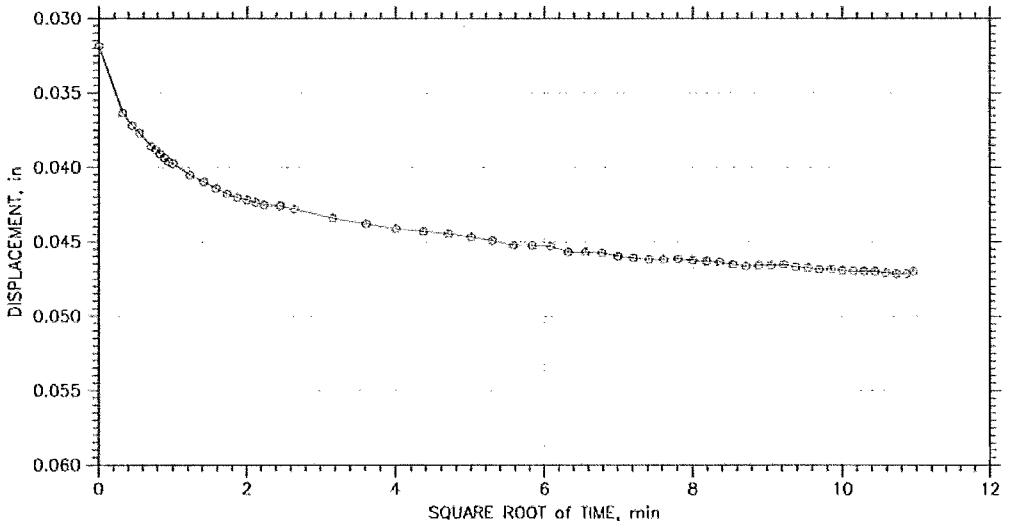
CONSOLIDATION TEST DATA

TIME CURVES

Constant Load Step: 5 of 14

Stress: 4000. psf



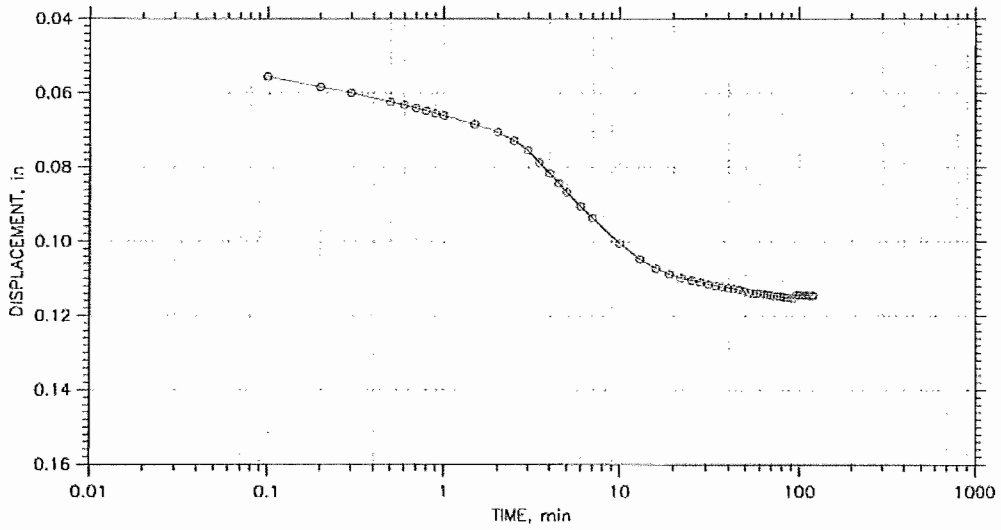


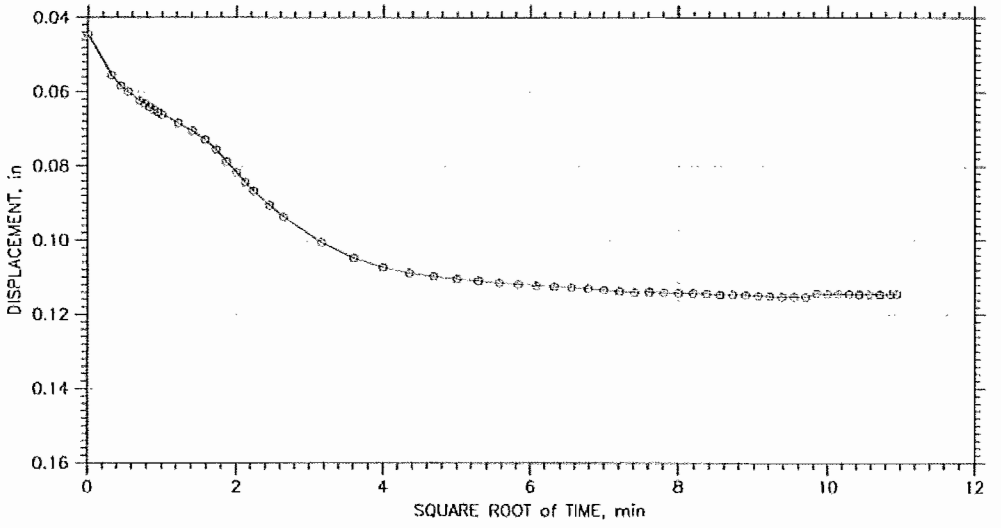
Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By: JS
Sample No.: 10-560	Test Date: 7/2/10	Depth: 35-37'
Test No.: 10-560	Sample Type: 3"shelby	Elevation:
Description: Dark Gray Clayey SILT		
Remarks: 2200 PSF Preload		

Wed, 15-SEP-2010 15:41:07

CONSOLIDATION TEST DATA

TIME CURVES
Constant Load Step: 6 of 14
Stress: 8000. psf





Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By: JS
Sample No.: 10-560	Test Date: 7/2/10	Depth: 35-37'
Test No.: 10-560	Sample Type: 3"shelby	Elevation:
Description: Dark Gray Clayey SILT		
Remarks: 2200 PSF Preload		

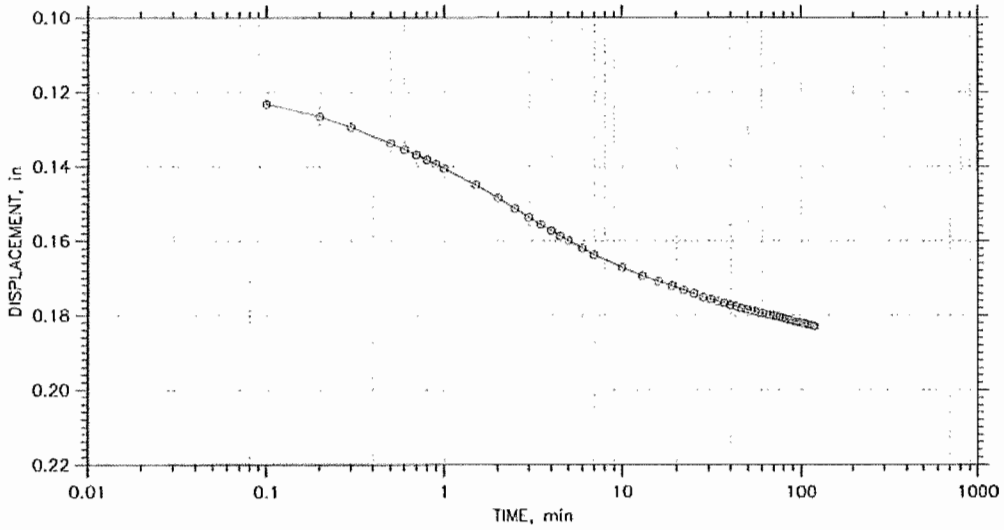
Wed, 15-SEP-2010 15:41:07

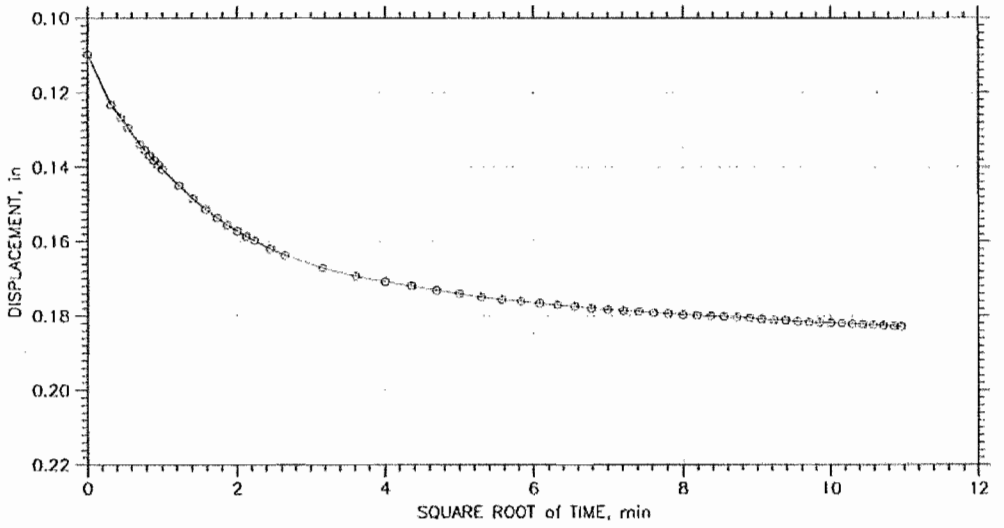
CONSOLIDATION TEST DATA

TIME CURVES

Constant Load Step: 7 of 14

Stress: 16000 psf



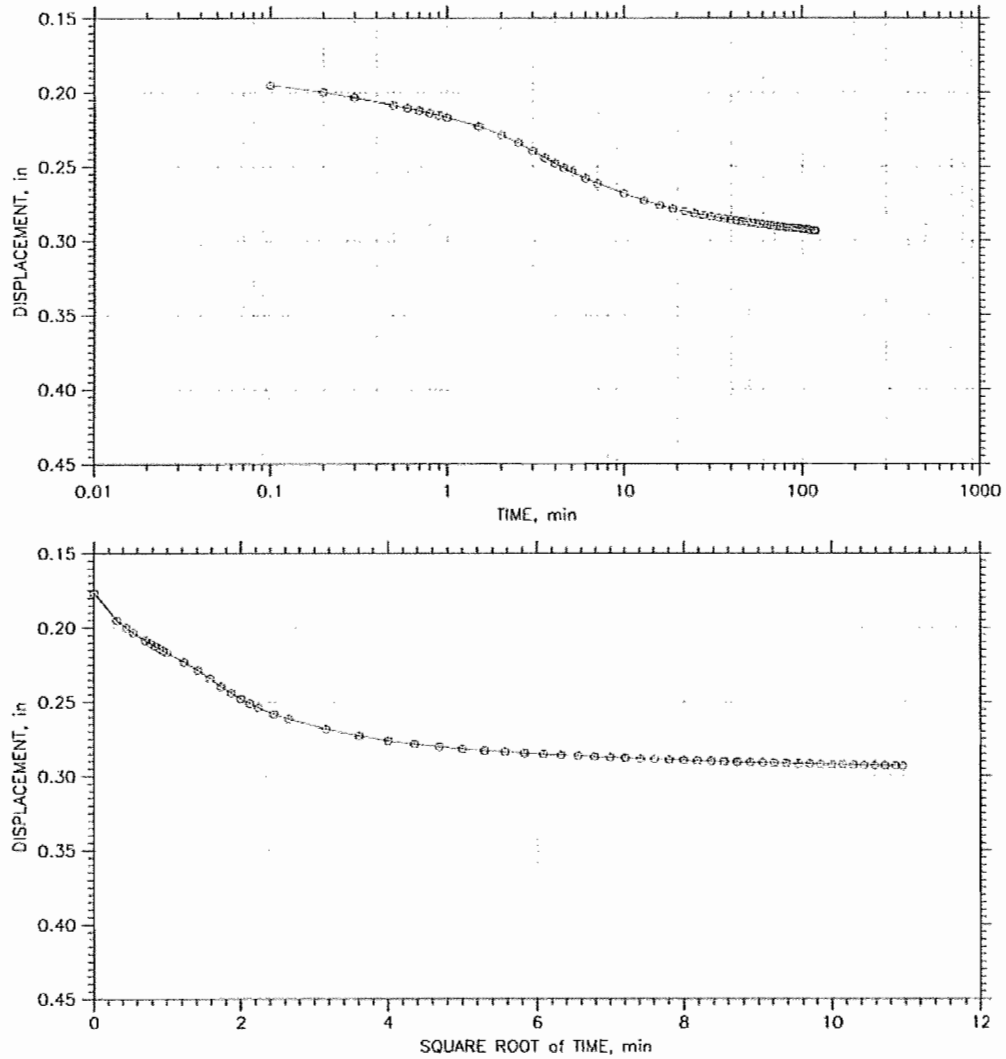


Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By: SB
Sample No.: 10-560	Test Date: 7/2/10	Depth: 35-37'
Test No.: 10-560	Sample Type: 3"shelby	Elevation:
Description: Dark Gray Clayey SILT		
Remarks: 2200 PSF Preload		

Wed, 15-SEP-2010 15:41:08

CONSOLIDATION TEST DATA

TIME CURVES
Constont Load Step: 8 of 14
Stress: 32000 psf

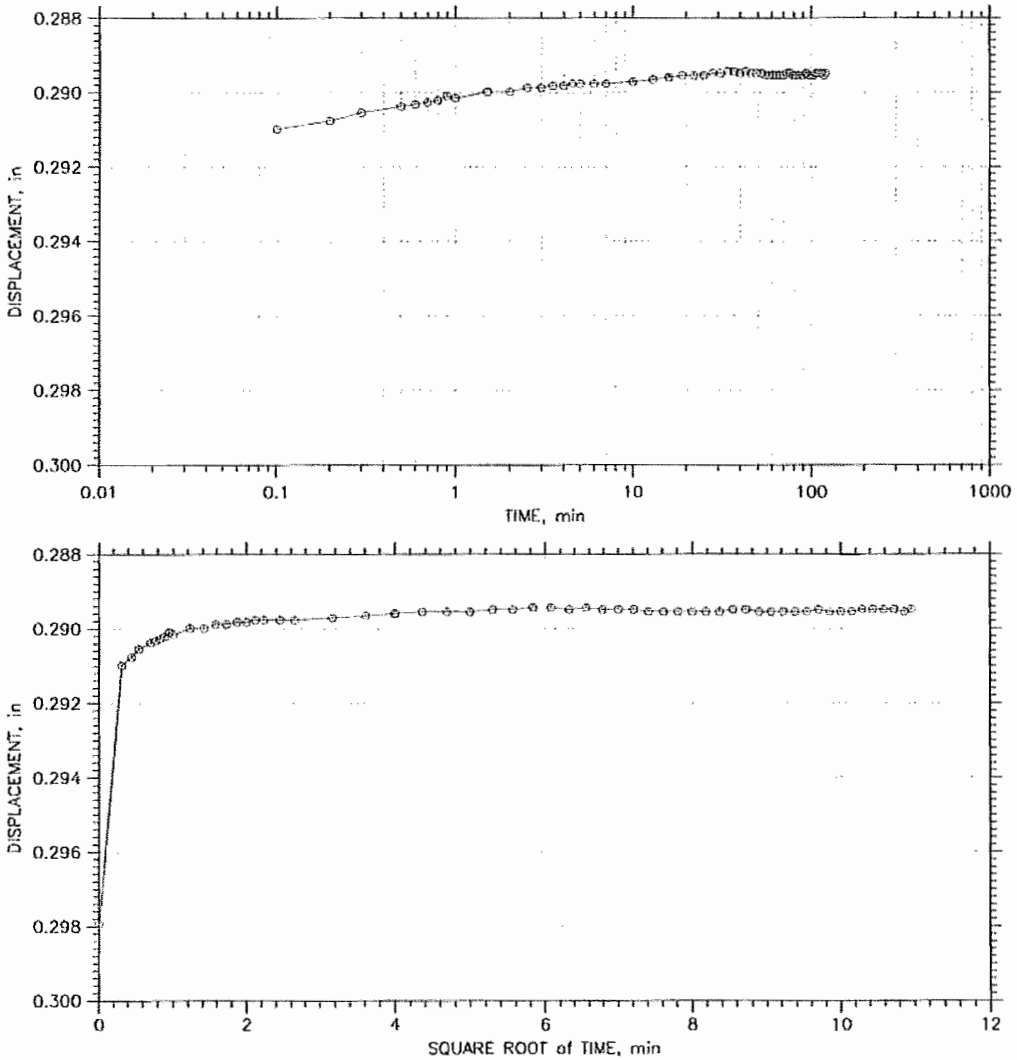


Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By:
Sample No.: 10-560	Test Date: 7/2/10	Depth: 35-37'
Test No.: 10-560	Sample Type: 3"shelby	Elevation:
Description: Dark Gray Clayey SILT		
Remarks: 2200 PSF Preload		

Wed, 15-SEP-2010 15:41:08

CONSOLIDATION TEST DATA

TIME CURVES
Constant Load Step: 9 of 14
Stress: 16000 psf

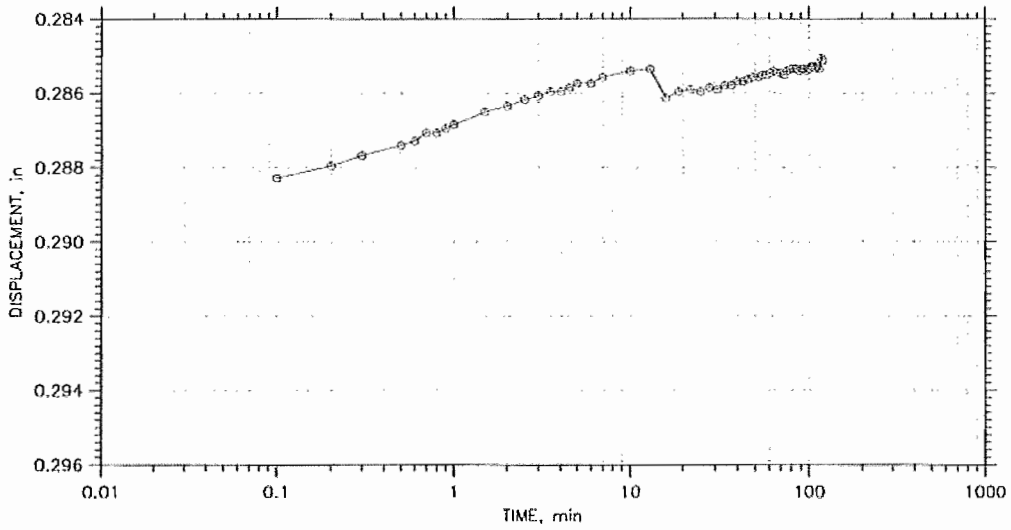


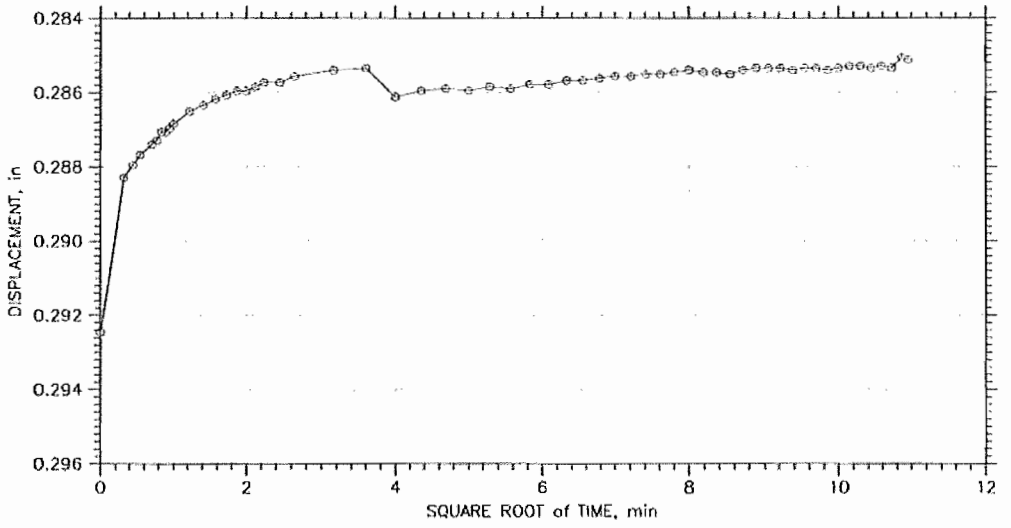
Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By:
Sample No.: 10-560	Test Date: 7/2/10	Depth: 35-37'
Test No.: 10-560	Sample Type: 3"shelby	Elevation:
Description: Dark Gray Clayey SILT		
Remarks: 2200 PSF Preload		

Wed, 15-SEP-2010 15:41:09

CONSOLIDATION TEST DATA

TIME CURVES
Constant Load Step: 10 of 14
Stress: 8000. psf



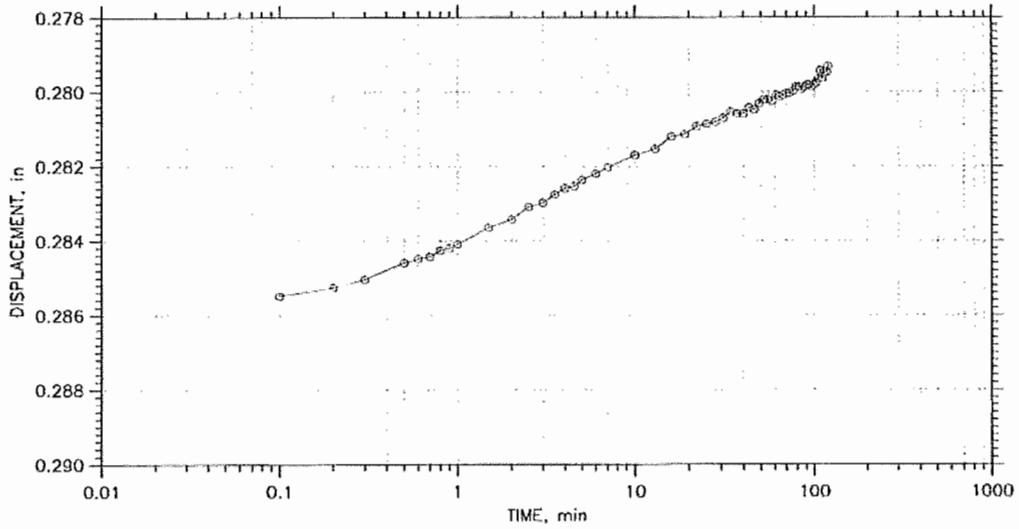


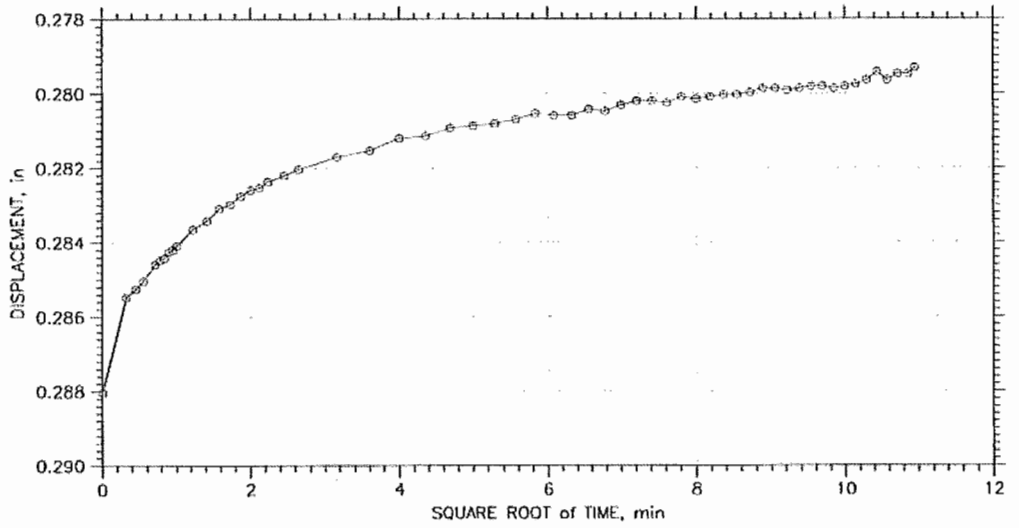
Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By:
Sample No.: 10-560	Test Date: 7/2/10	Depth: 35-37'
Test No.: 10-560	Sample Type: 3"shelby	Elevation:
Description: Dark Gray Clayey SILT		
Remarks: 2200 PSF Preload		

Wed, 15-SEP-2010 15:41:10

CONSOLIDATION TEST DATA

TIME CURVES
Constant Load Step: 11 of 14
Stress: 4000. psf



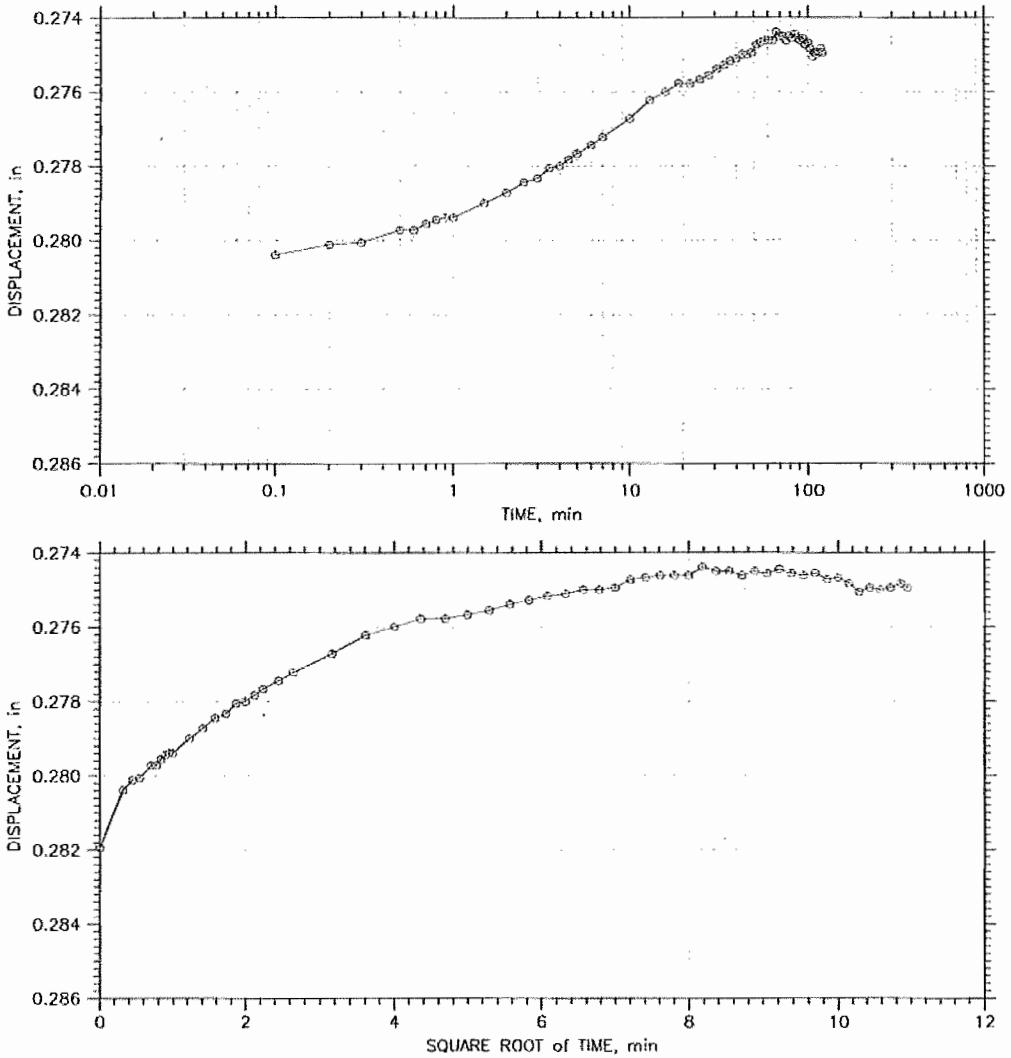


Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By:
Sample No.: 10-560	Test Date: 7/2/10	Depth: 35-37'
Test No.: 10-560	Sample Type: 3"shelby	Elevation:
Description: Dark Gray Clayey SILT		
Remarks: 2200 PSF Preload		

Wed, 15-SEP-2010 15:41:10

CONSOLIDATION TEST DATA

TIME CURVES
Constant Load Step: 12 of 14
Stress: 2000. psf



Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By: SS
Sample No.: 10-560	Test Date: 7/2/10	Depth: 35-37'
Test No.: 10-560	Sample Type: 3"shelby	Elevation:
Description: Dark Gray Clayey SILT		
Remarks: 2200 PSF Preload		

Wed, 15-SEP-2010 15:41:11

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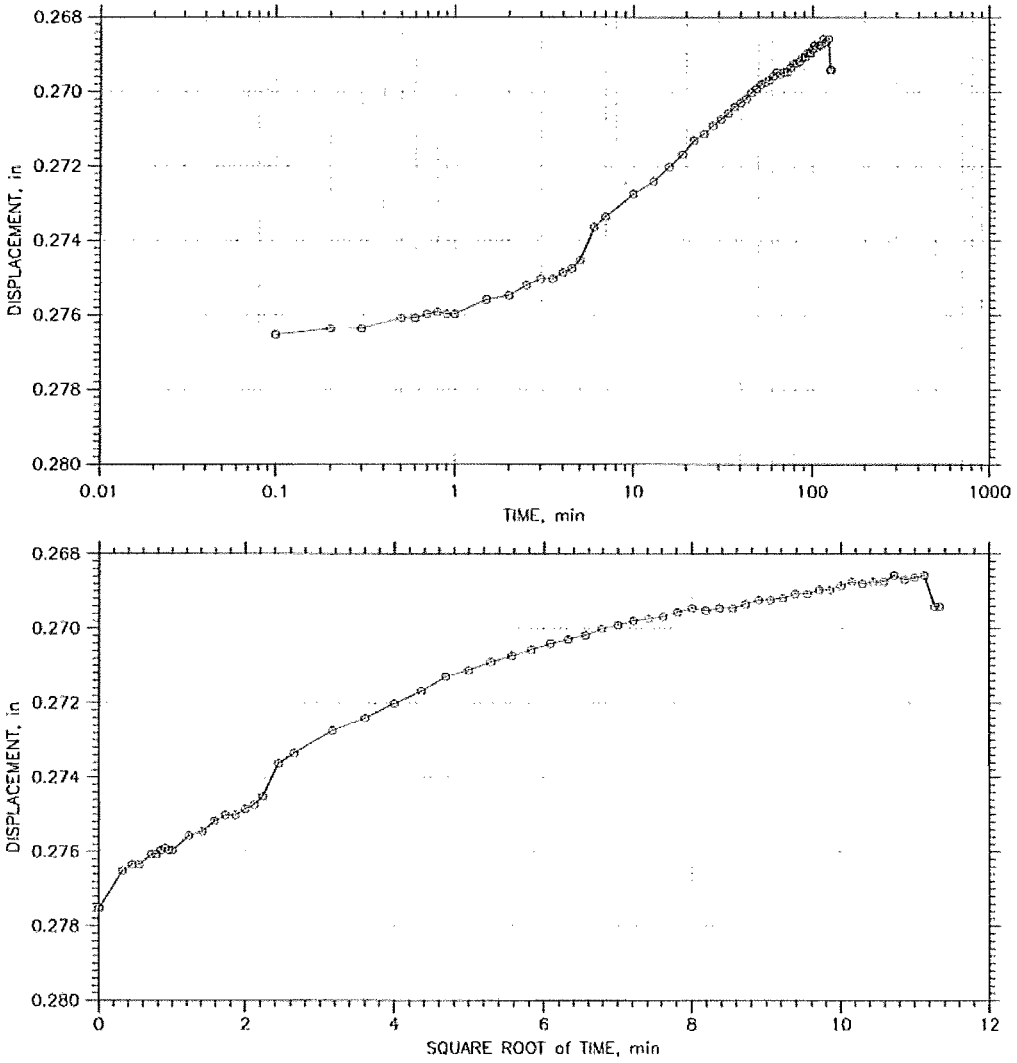
CONSOLIDATION TEST DATA

TIME CURVES

Constant Load Step: 13 of 14

Stress: 1000. psf

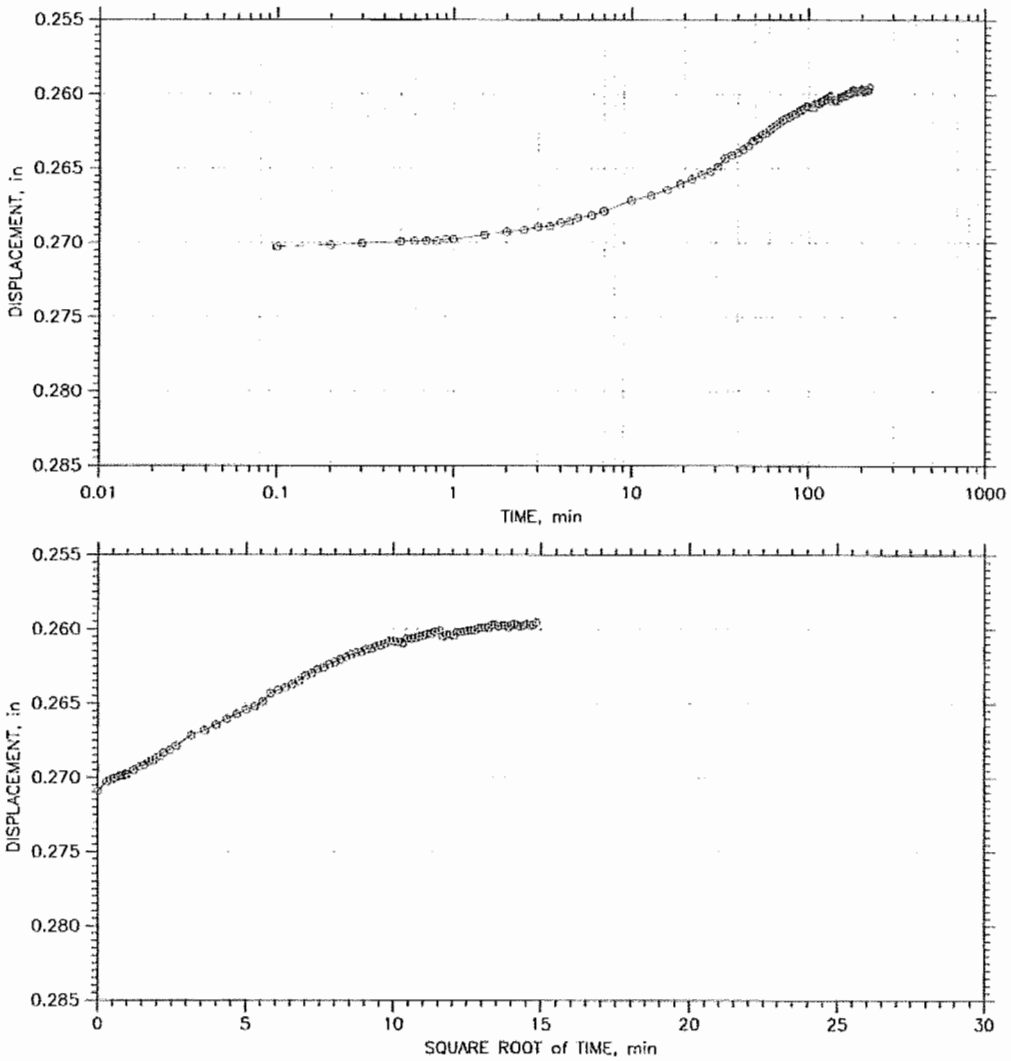


Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By:
Sample No.: 10-560	Test Date: 7/2/10	Depth: 35-37'
Test No.: 10-560	Sample Type: 3"shelby	Elevation:
Description: Dark Gray Clayey SILT		
Remarks: 2200 PSF Preload		

Wed, 15-SEP-2010 15:41:11

CONSOLIDATION TEST DATA

TIME CURVES
Constant Load Step: 14 of 14
Stress: 500. psf



Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By: JB
Sample No.: 10-560	Test Date: 7/2/10	Depth: 35-37'
Test No.: 10-560	Sample Type: 3"shelby	Elevation:
Description: Dark Gray Clayey SILT		
Remarks: 2200 PSF Preload		

Wed, 15-SEP-2010 15:41:12

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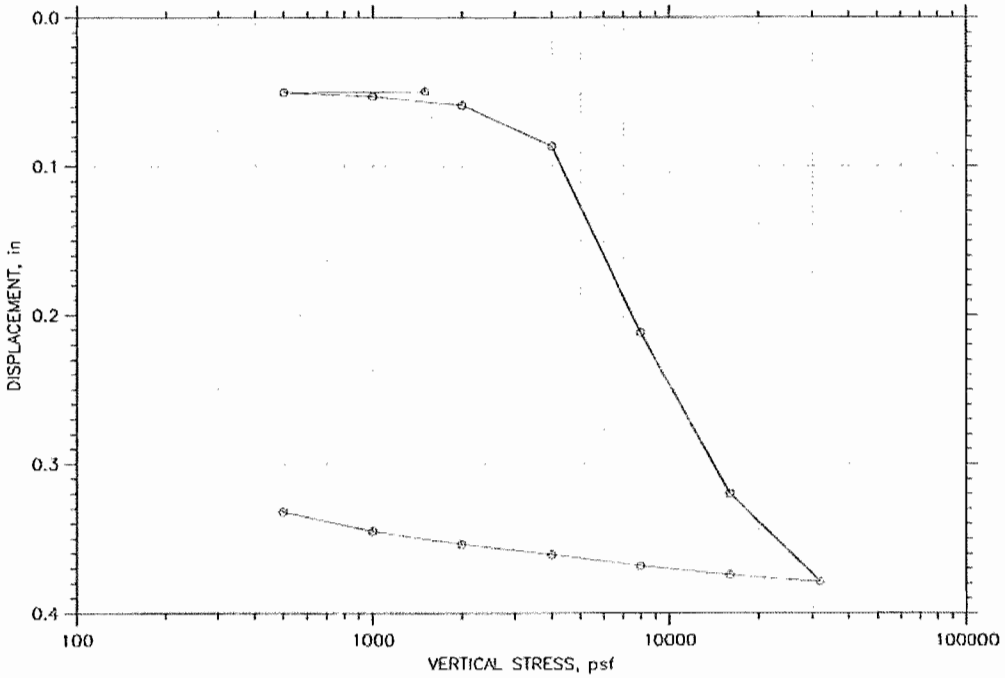
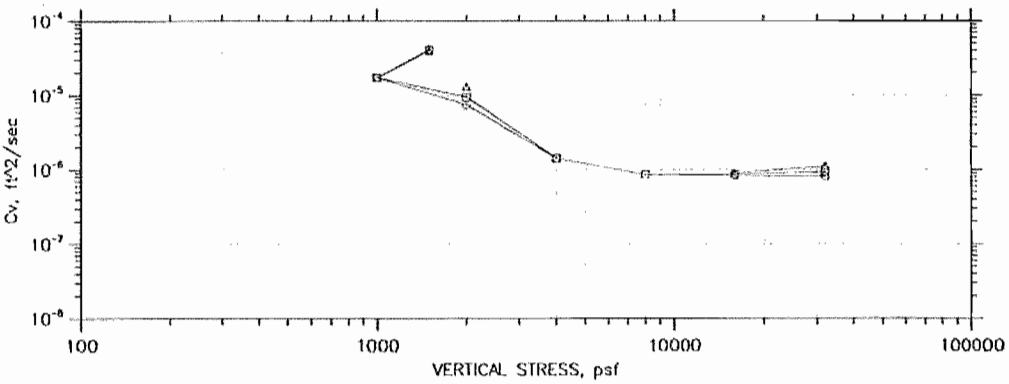
CONSOLIDATION TEST DATA

SUMMARY REPORT



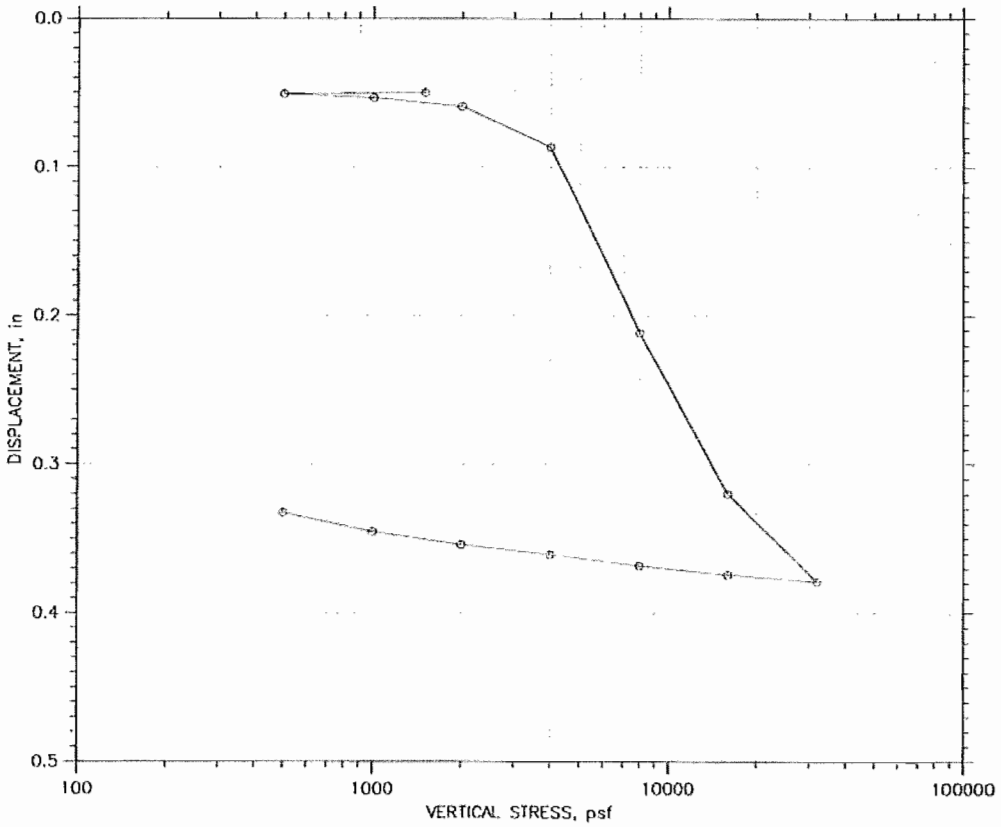


Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By: JS
Sample No.: 10-558	Test Date: 6/30/10	Depth: 25-27
Test No.: 10-558	Sample Type: 3"shelby	Elevation:
Description: Dark Brown Clayey SILT		
Remarks: 1500PSF Preload		

Wed, 15-SEP-2010 15:40:21

CONSOLIDATION TEST DATA

SUMMARY REPORT



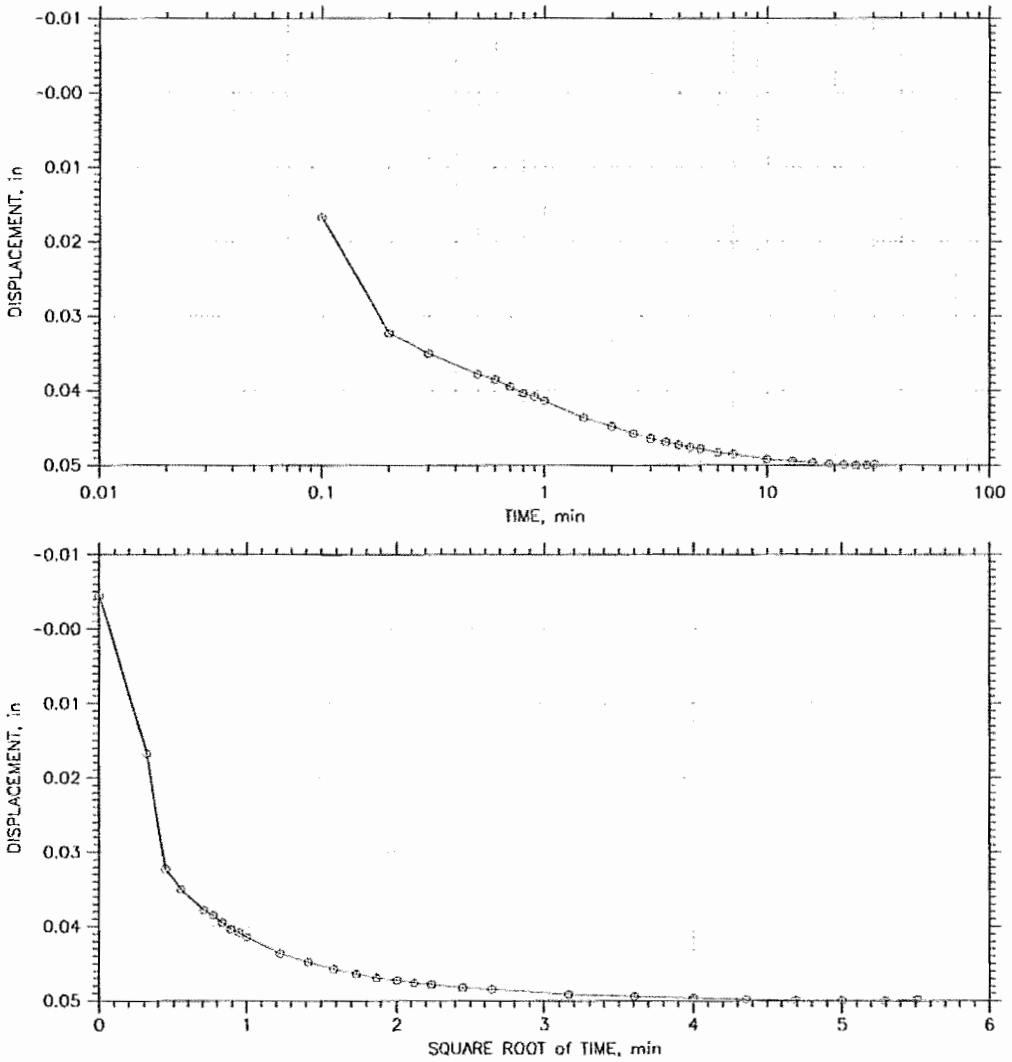
					Before Test	After Test
Overburden Pressure, psf:				Water Content, %	88.01	49.87
Preconsolidation Pressure, psf:				Dry Unit Weight, pcf	49.118	73.551
Compression Index:				Saturation, %	98.48	105.78
Diameter: 2.5 in		Height: 1 in		Void Ratio	2.37	1.25
LL: 0	PL: 0	PI: 0	GS: 2.65			

Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By: SP
Sample No.: 10-558	Test Date: 6/30/10	Depth: 25-27
Test No.: 10-558	Sample Type: 3"shelby	Elevation:
Description: Dark Brown Clayey SILT		
Remarks: 1500PSF Preload		

Wed, 15-SEP-2010 15:40:22

CONSOLIDATION TEST DATA

TIME CURVES
Constant Load Step: 1 of 14
Stress: 1500. psf



Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By: ES
Sample No.: 10-558	Test Date: 6/30/10	Depth: 25-27
Test No.: 10-558	Sample Type: 3"shelby	Elevation:
Description: Dark Brown Clayey SILT		
Remarks: 1500PSF Preload		

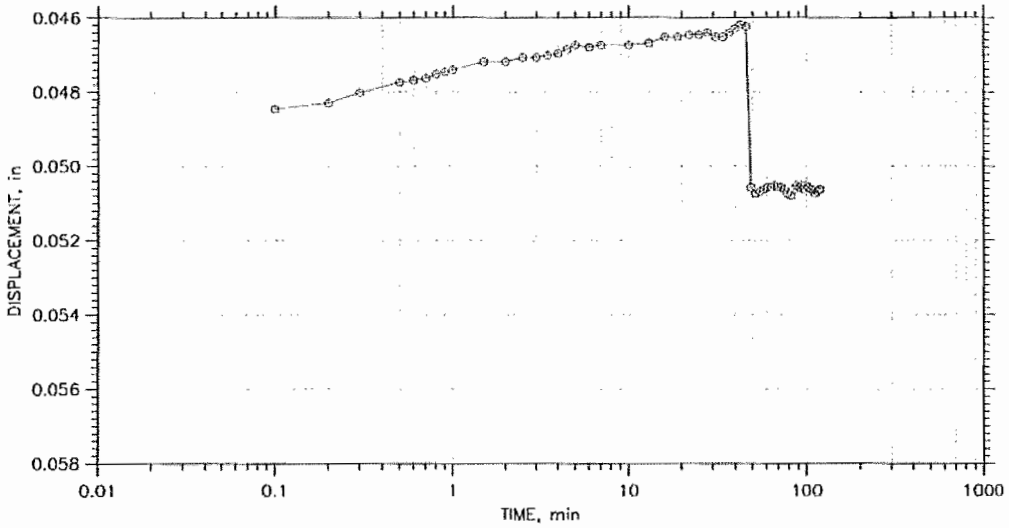
Wed, 15-SEP-2010 15:40:22

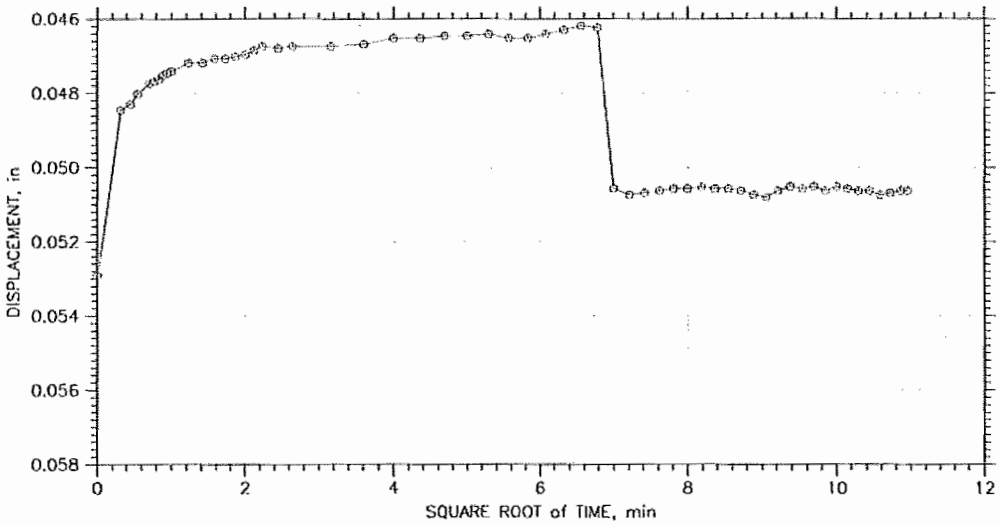
CONSOLIDATION TEST DATA

TIME CURVES

Constant Load Step: 2 of 14

Stress: 500. psf



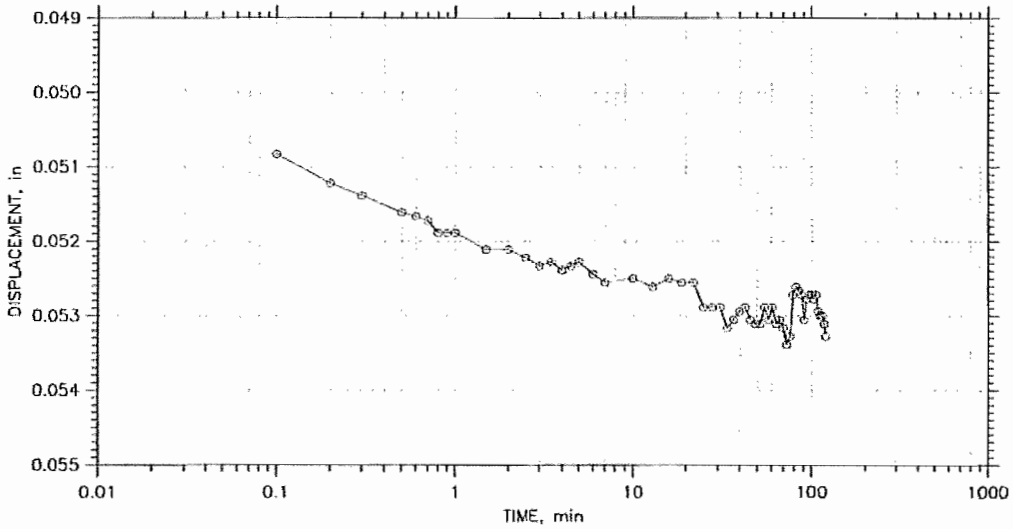


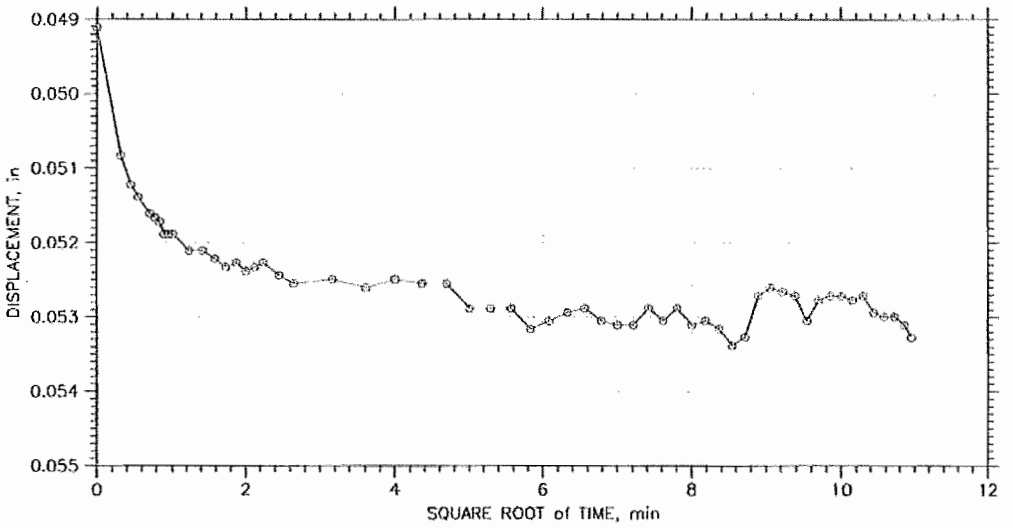
Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By:
Sample No.: 10-558	Test Date: 6/30/10	Depth: 25-27
Test No.: 10-558	Sample Type: 3"shelby	Elevation:
Description: Dark Brown Clayey SILT		
Remarks: 1500PSF Preload		

Wed, 15-SEP-2010 15:40:23

CONSOLIDATION TEST DATA

TIME CURVES
Constant Load Step: 3 of 14
Stress: 1000. psf





Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By: ZB
Sample No.: 10-558	Test Date: 6/30/10	Depth: 25-27
Test No.: 10-558	Sample Type: 3"shelby	Elevation:
Description: Dark Brown Clayey SILT		
Remarks: 1500PSF Preload		

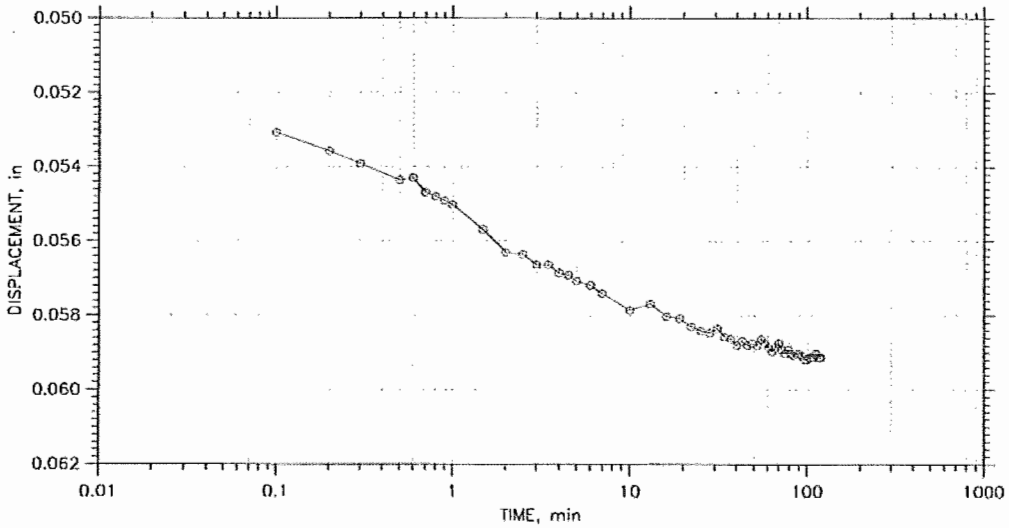
Wed, 15-SEP-2010 15:40:23

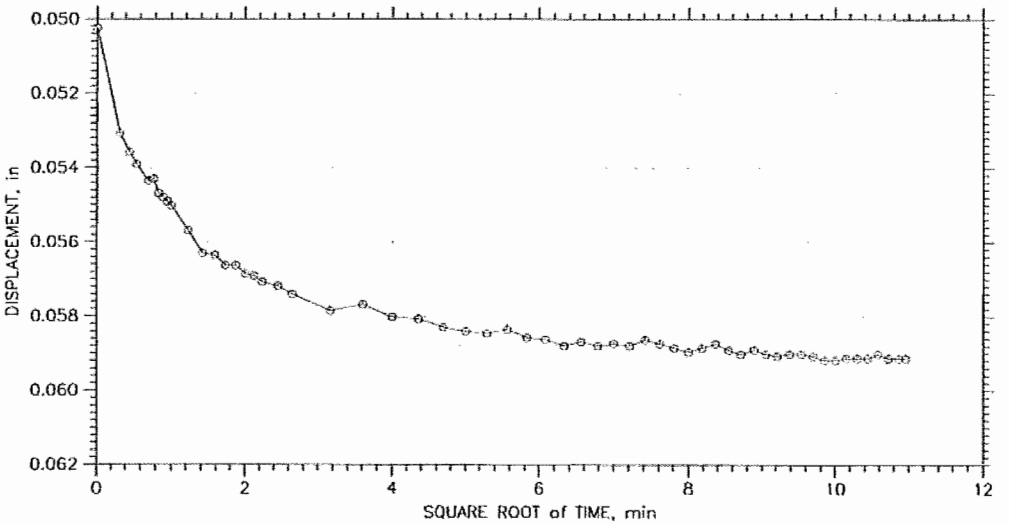
CONSOLIDATION TEST DATA

TIME CURVES

Constant Load Step: 4 of 14

Stress: 2000. psf





Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By: JS
Sample No.: 10-558	Test Date: 6/30/10	Depth: 25-27
Test No.: 10-558	Sample Type: 3"shelby	Elevation:
Description: Dark Brown Clayey SILT		
Remarks: 1500PSF Preload		

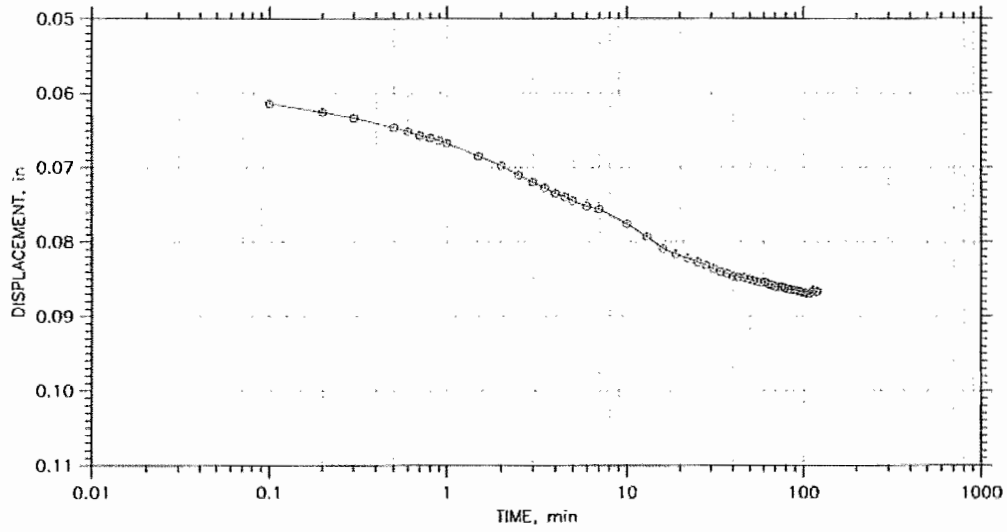
Wed, 15-SEP-2010 15:40:24

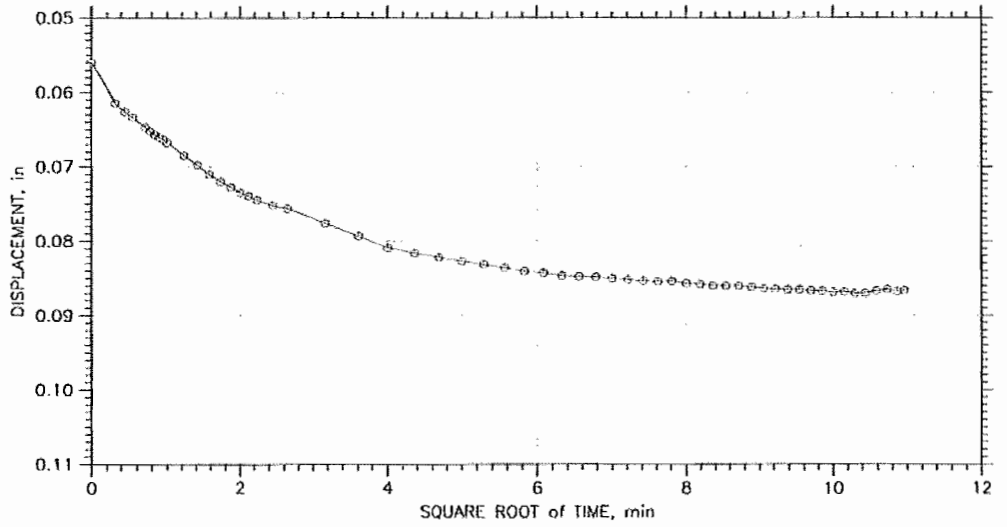
CONSOLIDATION TEST DATA

TIME CURVES

Constant Load Step: 5 of 14

Stress: 4000. psf





Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By: JS
Sample No.: 10-558	Test Date: 6/30/10	Depth: 25-27
Test No.: 10-558	Sample Type: 3"shelby	Elevation:
Description: Dark Brown Clayey SILT		
Remarks: 1500PSF Preload		

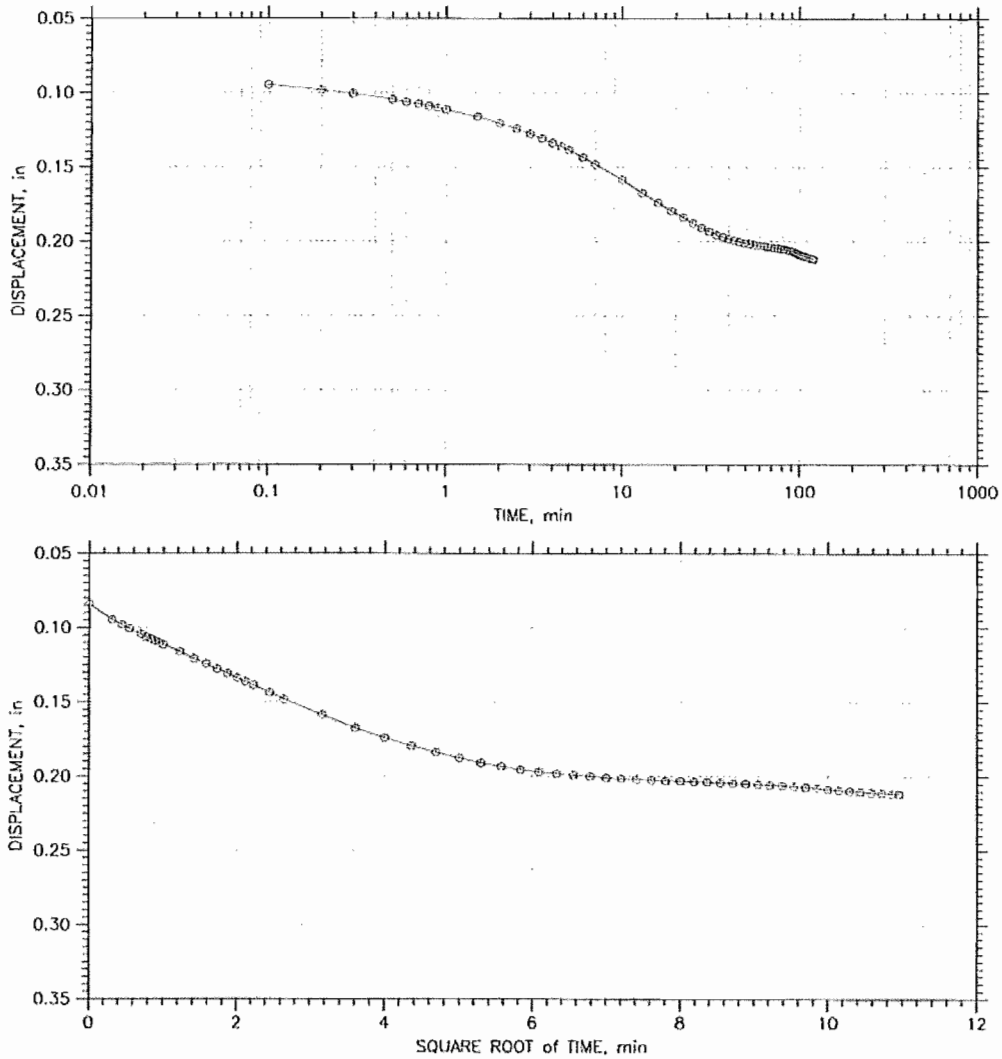
Wed, 15-SEP-2010 15:40:25

CONSOLIDATION TEST DATA

TIME CURVES

Constant Load Step: 6 of 14

Stress: 8000. psf



Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By: EB
Sample No.: 10-558	Test Date: 6/30/10	Depth: 25-27
Test No.: 10-558	Sample Type: 3"shelby	Elevation:
Description: Dark Brown Clayey SILT		
Remarks: 1500PSF Preload		

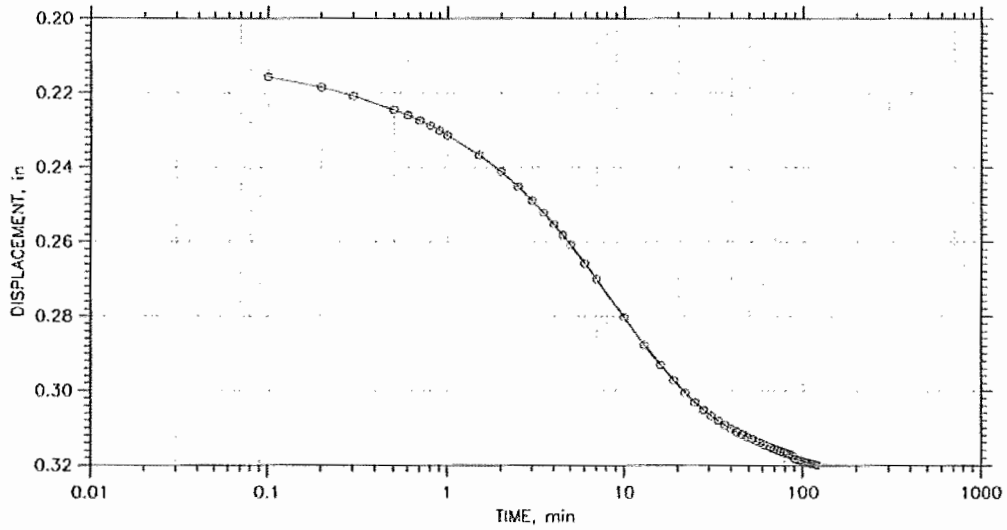
Wed, 15-SEP-2010 15:40:25

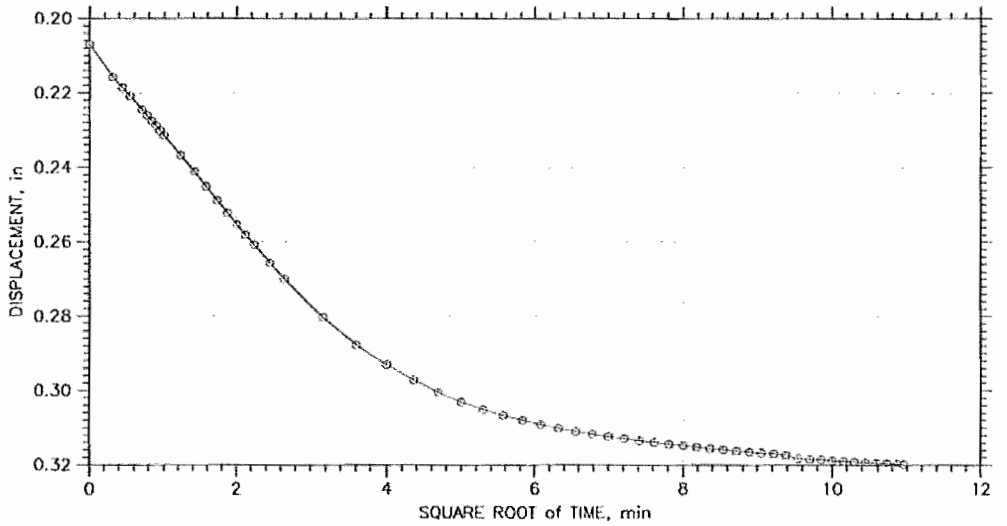
CONSOLIDATION TEST DATA

TIME CURVES

Constant Load Step: 7 of 14

Stress: 16000 psf





Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By: SB
Sample No.: 10-558	Test Date: 6/30/10	Depth: 25-27
Test No.: 10-558	Sample Type: 3"shelby	Elevation:
Description: Dark Brown Clayey SILT		
Remarks: 1500PSF Preload		

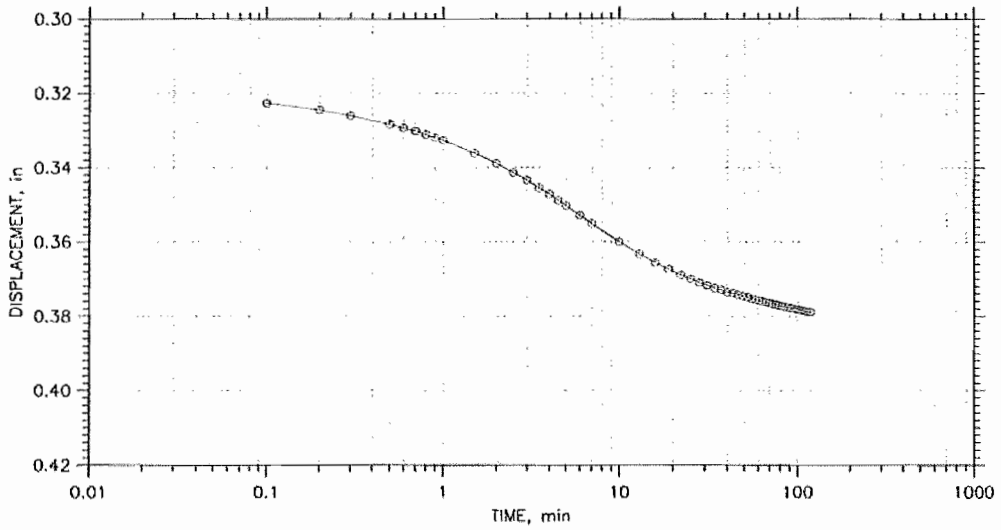
Wed, 15-SEP-2010 15:40:26

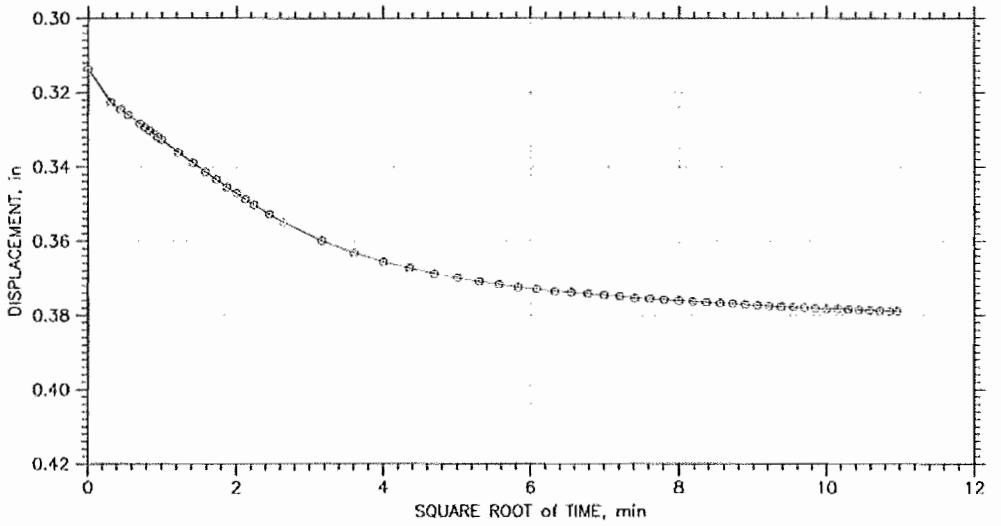
CONSOLIDATION TEST DATA

TIME CURVES

Constant Load Step: 8 of 14

Stress: 32000 psf





Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By: SB
Sample No.: 10-558	Test Date: 6/30/10	Depth: 25-27
Test No.: 10-558	Sample Type: 3"shelby	Elevation:
Description: Dark Brown Clayey SILT		
Remarks: 1500PSF Preload		

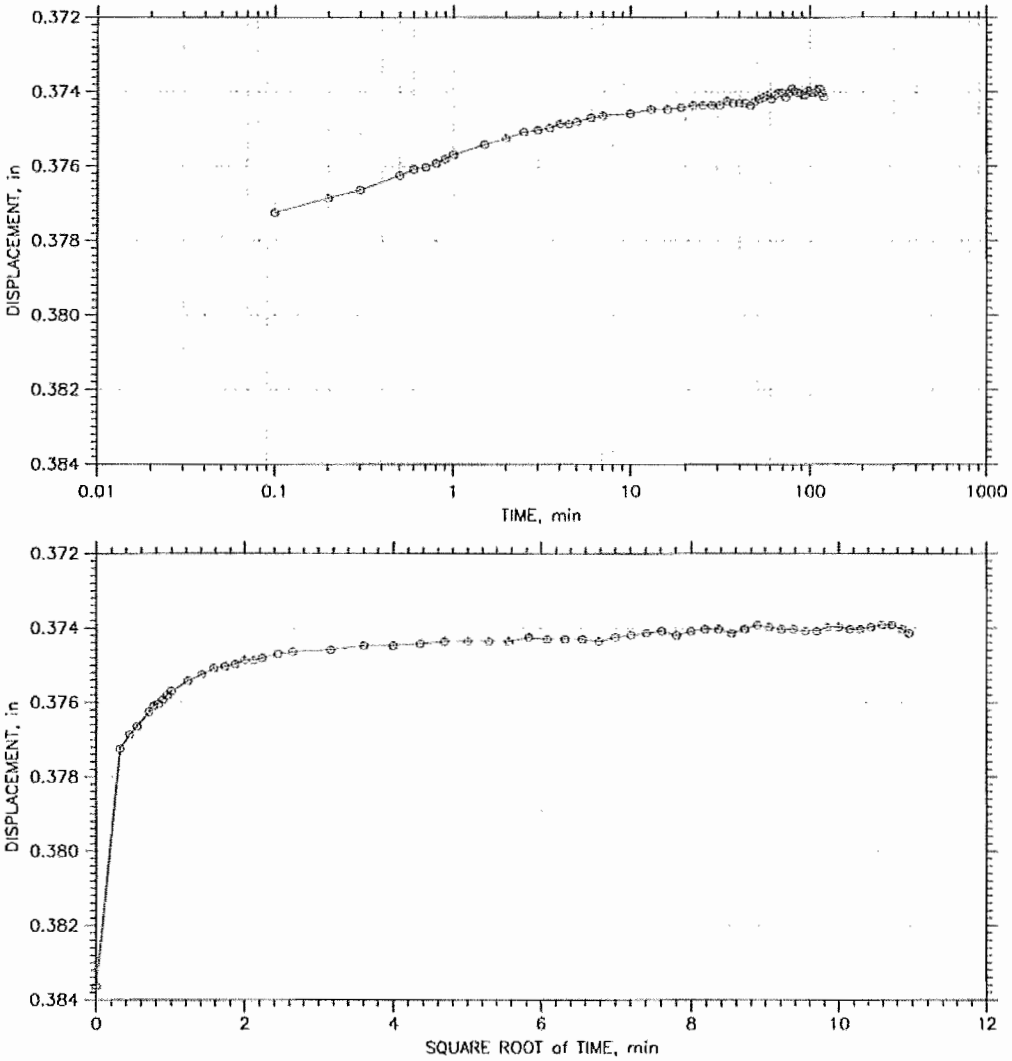
Wed, 15-SEP-2010 15:40:27

CONSOLIDATION TEST DATA

TIME CURVES

Constant Load Step: 9 of 14

Stress: 16000 psf



Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By:
Sample No.: 10-558	Test Date: 6/30/10	Depth: 25-27
Test No.: 10-558	Sample Type: 3"shelby	Elevation:
Description: Dark Brown Clayey SILT		
Remarks: 1500PSF Preload		

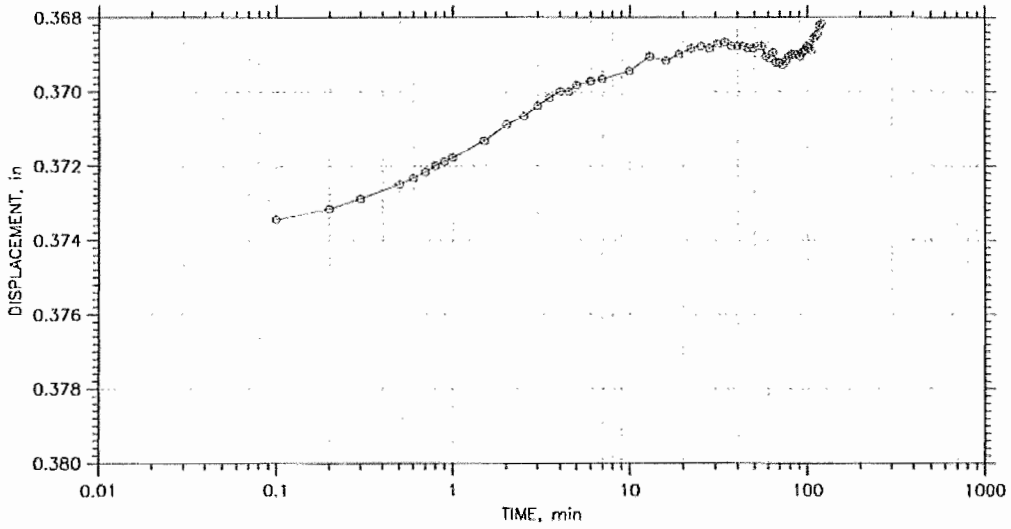
Wed, 15-SEP-2010 15:40:27

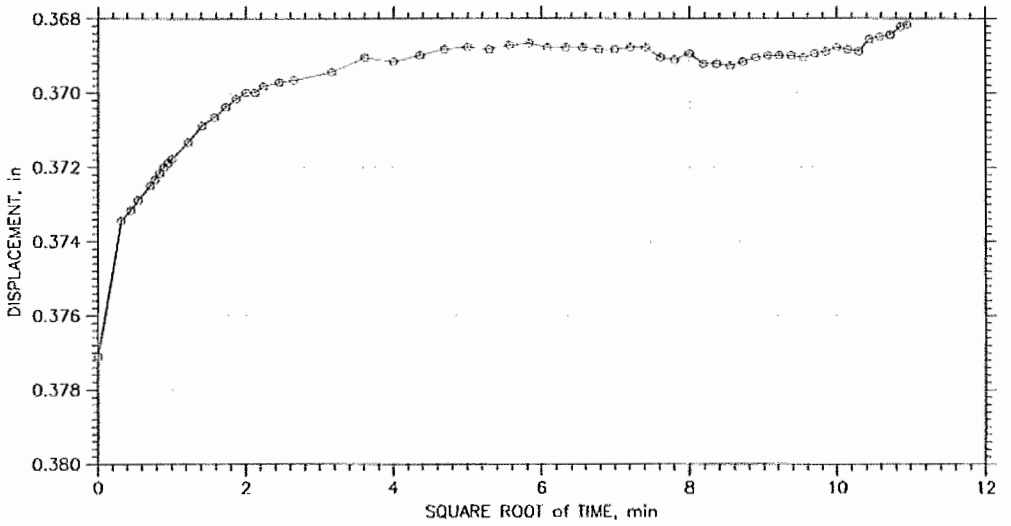
CONSOLIDATION TEST DATA

TIME CURVES

Constant Load Step: 10 of 14

Stress: 8000. psf



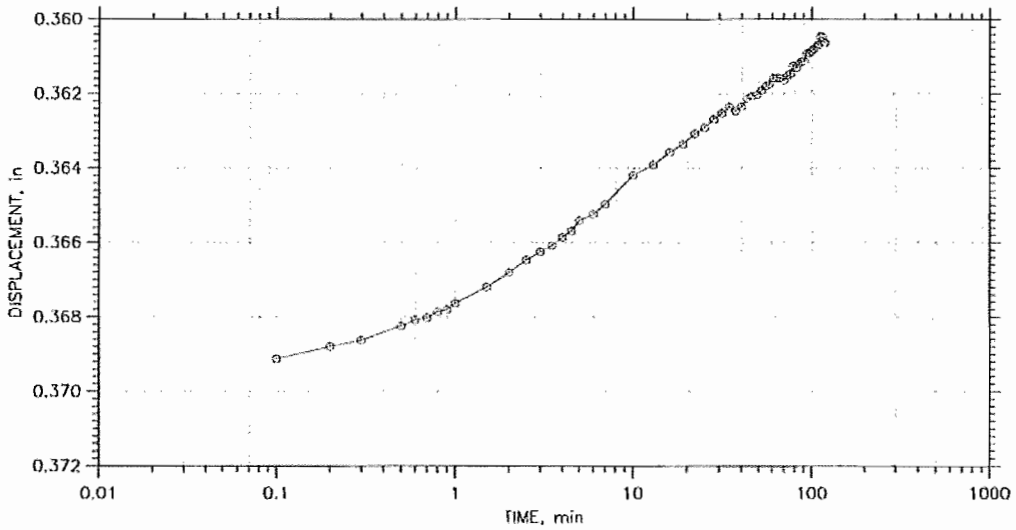


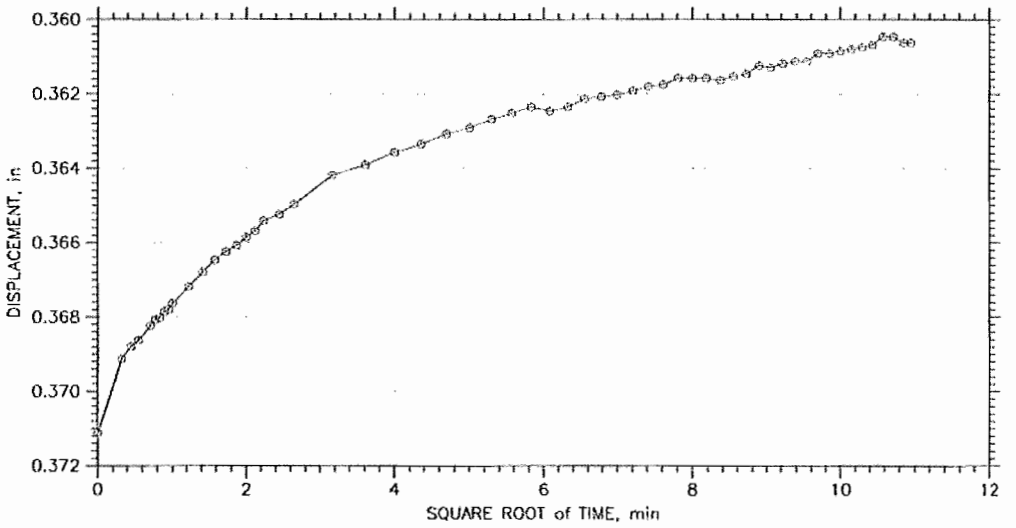
Project: Egyption Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By: JE
Sample No.: 10-558	Test Date: 6/30/10	Depth: 25-27
Test No.: 10-558	Sample Type: 3"shelby	Elevation:
Description: Dark Brown Clayey SILT		
Remarks: 1500PSF Preload		

Wed, 15-SEP-2010 15:40:28

CONSOLIDATION TEST DATA

TIME CURVES
Constant Load Step: 11 of 14
Stress: 4000. psf



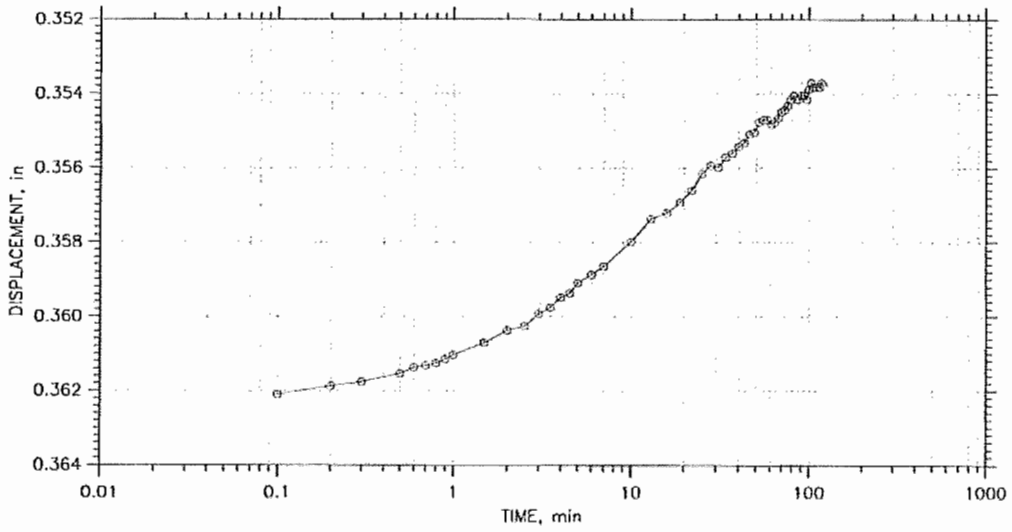


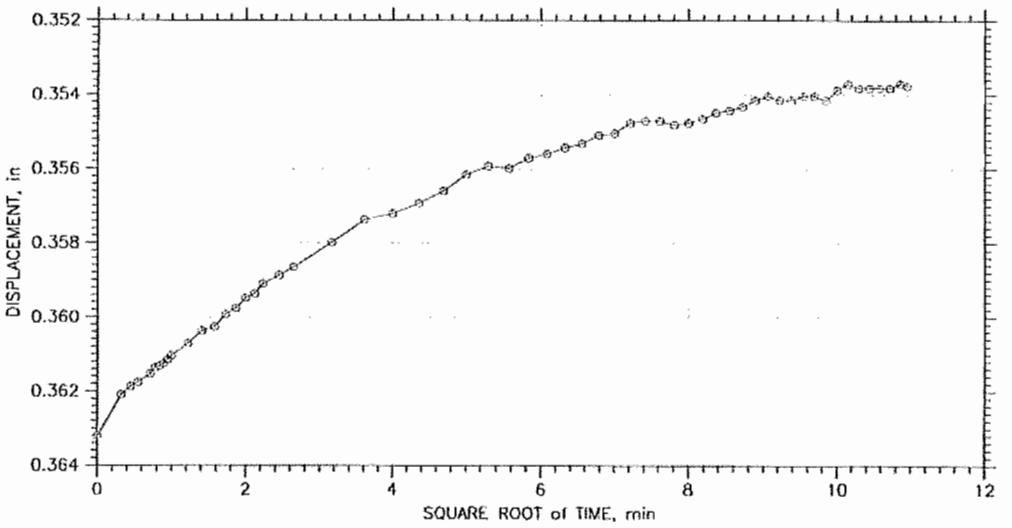
Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By: JB
Sample No.: 10-558	Test Date: 6/30/10	Depth: 25-27
Test No.: 10-558	Sample Type: 3"shelby	Elevation:
Description: Dark Brown Clayey SILT		
Remarks: 1500PSF Preload		

Wed, 15-SEP-2010 15:40:28

CONSOLIDATION TEST DATA

TIME CURVES
Constant Load Step: 12 of 14
Stress: 2000. psf



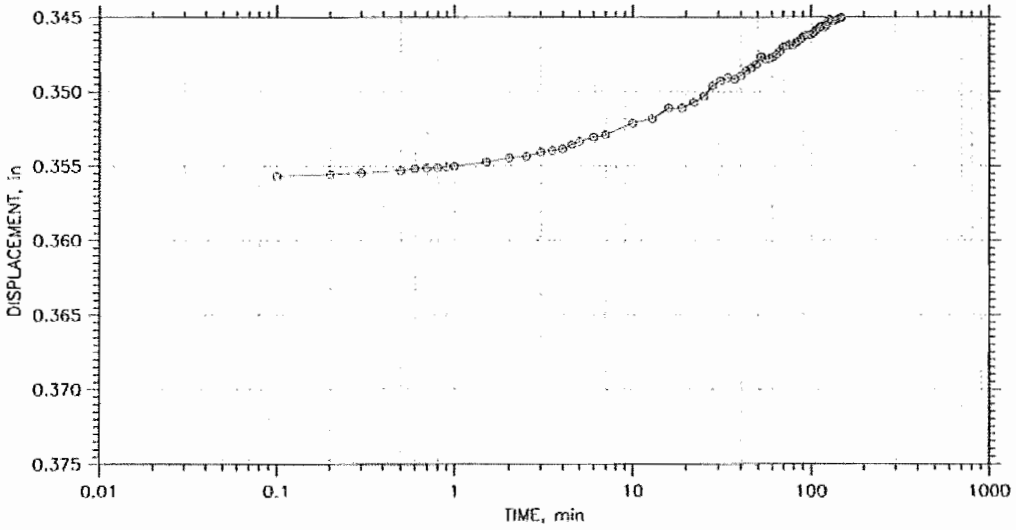


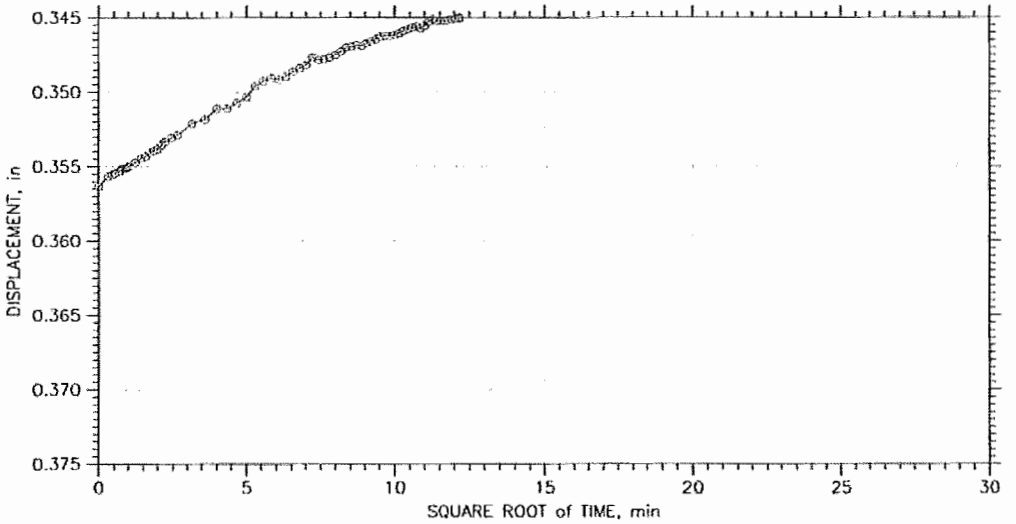
Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By: SJB
Sample No.: 10-558	Test Date: 6/30/10	Depth: 25-27
Test No.: 10-558	Sample Type: 3"shelby	Elevation:
Description: Dark Brown Clayey SILT		
Remarks: 1500PSF Preload		

Wed, 15-SEP-2010 15:40:29

CONSOLIDATION TEST DATA

TIME CURVES
Constant Load Step: 13 of 14
Stress: 1000. psf





Project: Egyptian Theater	Location: Coos Bay	Project No.: 609013.150
Boring No.: BH1	Tested By: JMA	Checked By: SB
Sample No.: 10-558	Test Date: 6/30/10	Depth: 25-27
Test No.: 10-558	Sample Type: 3"shelby	Elevation:
Description: Dark Brown Clayey SILT		
Remarks: 1500PSF Preload		

Wed, 15-SEP-2010 15:40:30

APPENDIX B

Code Summary by ZCS Engineering, Inc.
Dated December 1, 2010

December 01, 2010

City of Coos Bay Public Works & Development Department
Attn: Mike Smith, Building Codes Administrator
500 Central Avenue
Coos Bay, OR 97402

Reference: Egyptian Theatre Rehabilitation

Subject: Code Review Summary

Mr. Smith,

ZCS Engineering, Inc. is presently developing a Facility Improvement Plan for the City of Coos Bay's Egyptian Theatre located at 229 South Broadway, Coos Bay, Oregon. The improvement plan voluntarily addresses existing structural deficiencies. A code screening utilizing the 2010 Oregon Structural Specialty Code (OSSC), and the 2009 International Existing Building Code (IEBC) was performed to determine any code requirements and potential non-structural implications to the project based on the work being considered. As the plan currently stands, the occupancy of the building will not be changed, and structural retrofit is the only construction that will occur when the plan is implemented.

The original building was remodeled from a garage into a theater in 1925, and it has recently been listed on the National Register of Historic Places. The base foot print of the building is approximately 10,540 square feet. A 4,550 square foot mezzanine and a second floor that consists of a small lobby for the mezzanine, an office, and the facility's restrooms lie within the building. According to the OSSC, the occupancy of the building is an assembly, specifically classified as an "A-1" occupancy. Based on the occupancy load factors listed in Table 1004.1.1 of the OSSC, the total occupancy of the building is 1,189 persons.

550 SW 6th Street, Suite C • Grants Pass, OR 97526 • P 541.479.3865 • F 541.479.3870

Section 3401.5 of the OSSC allows the use of the IEBC for evaluation of existing buildings as amended by Statewide Alternate Method Number OSSC 08-05 (SAM 08-05). Section 402.1 of the IEBC states repairs "*...include the patching or restoration or replacement of damaged materials, elements, equipment or fixtures for the purpose of maintaining such components in good or sound condition with respect to existing loads or performance requirements.*" Additionally, Section 403 specifies that Level 1 alterations "*...include the removal and replacement or the covering of existing materials, elements, equipment, or fixtures using new materials, elements, equipment, or fixtures that serve the same purpose.*" Both Level 2 and Level 3 alterations (IEBC Sections 404 and 405) are classified by the amount of space reconfiguration occurring during the work.

The purpose of the voluntary structural retrofit is to improve the adequacy of the existing lateral and gravity systems to resist current code loading requirements. Portions of the building show evidence of deficiency in the existing lateral system while others are being strengthened to limit damage in the event of a code seismic event. None of the building space will be reconfigured through this plan. The Facility Improvement Plan only adds structural support over and above that present; thus, it is our understanding this work is classified as a Level 1 alteration.

Chapter 6 of the IEBC governs Level 1 alteration work and specifies additional requirements that may be triggered by the proposed work. Several portions of the work being considered and covered in Chapter 6 of the IEBC were not adopted by the State of Oregon. Of the requirements listed in IEBC or altered by SAM 08-05, flood hazard areas (OSSC 3404.2), fire protection (IEBC 603), means of egress (IEBC 604), accessibility (OSSC 1113), structural (IEBC 606), and energy conservation (Oregon Energy Conservation Specialty Code) sections could potentially impact the Egyptian Theatre project. The requirements of each of these sections and their pertinence to this project are discussed below.

The building is located within a flood plain and SAM 08-05 requires that all work related to structures within flood hazard areas utilize Section 3404.2 of the OSSC rather than the IEBC. Section 3404.2 requires that, where the alterations constitute a substantial improvement to the building, the entire building must be brought into compliance with Section 1612 "Flood Loads" of the OSSC. The definition of substantial improvements listed in Section 1612.3 specifically excludes "*Any alteration of a historic structure provided that the alteration will not preclude the structure's continued designation as a historic structure.*" It is the intent of this project that the Theatre will remain listed on the National Register of Historic Places following the seismic retrofit and as such, the work is not considered a substantial improvement and is not required to conform to Section 1612.

Sections 603 and 604 of the IEBC cover the "Fire Protection" and "Means of Egress" requirements, respectively, when performing Level 1 alterations. Both of these sections specify the alterations being made must maintain the current level of protection in the building. The work included in the Facility Improvement Plan does not alter the level of fire protection or the means of egress; therefore, no additional fire protection or egress alterations are required as a portion of the Facility Improvement Plan to comply with these sections. Regardless of the lack of requirements for increased fire protection, it is recommended that installation of fire sprinklers be included in the Facility Improvement Plan due to the high occupant load.

Accessibility of existing facilities undergoing alterations is covered in OSSC Section 1113 and specifically ORS 447.241. ORS 447.241 (Standards for renovation or modification of certain buildings; barrier removal improvement plan) part (1) states that "*Every project for renovation, alteration or modification to affected buildings and related facilities that affects or could affect the usability of, or access to, an area containing a primary function shall be made to insure that, to the maximum extent feasible, the paths of travel to the altered area and the restrooms, telephones and drinking fountains*

serving the altered area are readily accessible to and usable by individuals with disabilities, unless such alterations are disproportionate to the overall alterations in terms of cost and scope." The alterations in the Facility Improvement Plan are being performed on an affected building; however, none of the improvements will affect the usability of, or access to, any areas containing a primary function. Therefore, the requirements of ORS 447.241 are not applicable to the proposed improvement plan.

The provisions of Section 606 require certain seismic upgrades in the event of a roof replacement. The seismic upgrades listed in this section are included in the Facility Improvement Plan and will be performed when the roof is replaced. Additionally, the roof replacement will comply with the Oregon Energy Conservation Specialty Code. This is the only new work that will impact the energy conservation of the facility.

We have attempted to address all of the potential primary code issues to determine the scope of the Egyptian Theatre Facility Improvement Plan. Please review our findings and provide any comments regarding our analysis. Feel free to contact our office if you have any questions or require additional information. Your review comments and input at this level of the project are greatly appreciated.

Sincerely,

Sylas E. Allen, PE

SEA/ZAS

APPENDIX C

Environmental Reports by Koos Environmental Services, Inc.
Dated December 12, 2007

Environmental Report by Department of Consumer and Business Services
(OR-OSHA)
Dated December 21, 2007

KOOS Environmental Services, Inc

Steve Doty
City of Coos Bay
500 Central Ave
Coos Bay, Or. 97420

December 12, 2007
K-1501

Re: Asbestos Survey at Egyptian Theater

At your request, KOOS Environmental Services, Inc. (KES) conducted a Survey for asbestos at 229 S. Broadway Coos Bay, Or. The asbestos containing materials found during the survey include the stage curtain, steam pipe and the ceiling texture throughout the building.

- Background information

The building surveyed is the Egyptian Theater in Coos Bay. Opened since 1925. The theatre is still in operation having some remodeling through the years. It is also used as a community arts facility.

- Building description

The building is 2 story, cement structure with stage and enough seating for 500 people. It has steam heat, 30 foot ceilings, and stucco texture throughout.

- Survey methodology

The survey was conducted in accordance with the sampling protocol in 40 CFR 763.86. There was no attempt to breach any covered or inaccessible areas. The classification of asbestos are as used in the AHERA standards, either SM (Surfacing Material), TSI (Thermal System Insulation), or MBM (Miscellaneous Building Material). Each is further characterized as either friable or non-friable. The condition of the ACM (Asbestos Containing Material) is further indicated, as is the potential for future disturbance. Each assessment is divided into the respective functional space they are found.

The analysis of the suspect material has been done in a laboratory accredited by NIST (National Institute of Standards and Technology) under NVLAP (National Voluntary Laboratory Accreditation Program). The primary identification will be PLM (Polarized Light Microscopy) using EPA 600/R-93/116 method, the current accepted standard for bulk analysis of asbestos containing material.

Fourteen samples were taken for testing during the inspection from inside the theatre.

P. O. BOX 4068, COOS BAY, OR 97420
Phone (541) 266-0511 Fax (541) 266-8721
E-mail knewman@koosenvironmental.com
OR CCB 135210

Asbestos Survey at 229 S. Broadway Coos Bay, Or.

- Asbestos identification

MBM TSI pipe insulation

Description:	Friable 50% Chrysotile
Condition:	Fair
Potential for Disturbance:	high

Stage curtain

Description:	Non- friable 60% Chrysotile
Condition	Fair
Potential for Disturbance	Low

Ceiling Texture

Description	Friable 10% Chrysotile
Condition	Fair
Potential for Disturbance	Low

- Recommendations

It is our recommendation that any asbestos containing material be encapsulated or removed before any remodeling. This would be considered a friable abatement due to the type of material in question, DEQ category A. The owner/occupant can remove the material provided all DEQ forms are submitted and the material is disposed of properly.

- Supporting information

Inspection Firm:	KOOS Environmental Services, Inc P.O. Box 4068 Coos Bay, OR 97420 Phone 541 266-0511 OR CCB #: 135210/LBP OR DEQ #: FSC665 ORHD# 1153
Inspector:	Donna Damon, KOOS Environmental Service, Inc EPA/AHERA Building Inspector ID# 07-1050
Laboratory:	EMSL Analytical, Inc 2235 Polvorosa Ave. Suite 230 San Leandro, Ca. Phone 510-895-3675 NVLAP #: 101048-3 ELAP #:1620
Owner/Customer	City of Coos Bay 500 Central Ave. Coos Bay, Or. 97420
Structure Inspected:	Egyptian Theatre

Asbestos Survey at 229 S. Broadway Coos Bay, Or.
229 S. Broadway
Coos Bay, Or.

Inspection Purpose:	For identification of hazardous materials.
Inspection Dates:	Physical survey done December 7, 2007 Report completed December 12, 2007
Attached:	Analysis by EMSL – 2 pg Chain of custody for samples EMSL – 2 pg.

Donna Damon

EPA/AHERA Building Inspector
07-1050 Expires February 23, 2008

550 SW 6th Street, Suite C ° Grants Pass, OR 97526 ° P 541.479.3865 ° F 541.479.3870

EMSL Analytical, Inc
2235 Polvorosa Ave , Suite 230, San Leandro, CA 94577
Phone: (510) 895-3675 Fax: (510) 895-3680 Email: mlpitaslab@emsl.com

Attn: **Donna Damon**
Koos Environmental Services, Inc.
P.O.Box 4068
Coos Bay, OR 97420

Fax: (541) 266-8721 Phone: (541) 266-0511
Project: **K-1501, Egyptian Survey City of Coos Bay**

Customer ID: KOOS50
Customer PO: K-1501
Received: 12/10/07 9:00 AM
EMSL Order: 090707179

EMSL Proj:
Analysis Date: 12/11/2007
Report Date: 12/11/2007

Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos			Asbestos
Sample	**Location**	**Appearance**	**% Fibrous**		**% Non-Fibrous**	**% Type**
9OCT, Counter top *090707179-0009*	Office	Green, Brown Non-Fibrous Homogeneous			100% Non-fibrous (other)	**None Detected**
10BCTS, Ceiling tile *090707179-0010*	Stg	Blue Non-Fibrous Homogeneous			90% Non-fibrous (other)	**10% Chrysotile**
11TMS, Tape mud *090707179-0011*	Storage	White Non-Fibrous Homogeneous			100% Non-fibrous (other)	**None Detected**
12USSB, Sound board *090707179-0012*	Up stairs	Brown Fibrous Homogeneous	95%	Cellulose	5% Non-fibrous (other)	**None Detected**
13SBD *090707179-0013*	Back drop stage	Brown Fibrous Homogeneous	98%	Cellulose	2% Non-fibrous (other)	**None Detected**
14FCE, Formica counter *090707179-0014*	Entry	Black Non-Fibrous Homogeneous			100% Non-fibrous (other)	**None Detected**

Analyst(s)

Rui Cindy Geng (14)

Baojia Ke, Laboratory Manager
or other approved signatory

Due to magnification limitations inherent in PLM, asbestos fibers in dimensions below the resolution capability of PLM may not be detected. Samples reported as <1% or none detected may require additional testing by TEM to confirm asbestos quantities. The above test report relates only to the items tested and may not be reproduced in any form without the express written approval of EMSL Analytical, Inc. EMSL's liability is limited to the cost of analysis. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.
Analysis performed by EMSL San Leandro (NVLAP #101048-3)

PLM-1

THIS IS THE LAST PAGE OF THE REPORT.

2

EMSL Analytical, Inc
2235 Polvorosa Ave , Suite 230, San Leandro, CA 94577
Phone: (510) 895-3675 Fax: (510) 895-3680 Email: mdpitaslab@emsl.com

Attn: **Donna Damon**
Koos Environmental Services, Inc.
P.O.Box 4068
Coos Bay, OR 97420

Fax (541) 266-8721 Phone: (541) 266-0511
Project: **K-1501, Egyptian Survey City of Coos Bay**

Customer ID: KOOS50
Customer PO: K-1501
Received: 12/10/07 9:00 AM
EMSL Order: 090707179

EMSL Proj:
Analysis Date: 12/11/2007
Report Date: 12/11/2007

Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos			Asbestos
Sample	**Location**	**Appearance**	**% Fibrous**		**% Non-Fibrous**	**% Type**
1MOC *090707179-0001*	Main organ chamber	Tan Non-Fibrous Homogeneous			100% Non-fibrous (other)	**None Detected**
2CTW, Ceiling texture *090707179-0002*	Walls	Gray Non-Fibrous Homogeneous			100% Non-fibrous (other)	**None Detected**
3SC *090707179-0003*	Stage curtain	White Fibrous Homogeneous	35%	Cellulose	5% Non-fibrous (other)	**60% Chrysotile**
4SP *090707179-0004*	Steam pipe	White Fibrous Homogeneous	40%	Cellulose	10% Non-fibrous (other)	**50% Chrysotile**
5GSC *090707179-0005*	Stage curtain	Green Fibrous Homogeneous	99%	Cellulose	1% Non-fibrous (other)	**None Detected**
6YSC *090707179-0006*	Stage curtain	Yellow Fibrous Homogeneous	80% 19%	Cellulose Synthetic	1% Non-fibrous (other)	**None Detected**
7FSW *090707179-0007*	Front stage walls	Tan Non-Fibrous Homogeneous			100% Non-fibrous (other)	**None Detected**
8BRL, Linoleum *090707179-0008*	Bath room	Green, White Fibrous Heterogeneous	20% 5%	Cellulose Glass	75% Non-fibrous (other)	**None Detected**

Analyst(s)

Rui Cindy Geng (14)

Baojia Ke, Laboratory Manager
or other approved signatory

Due to magnification limitations inherent in PLM, asbestos fibers in dimensions below the resolution capability of PLM may not be detected. Samples reported as <1% or none detected may require additional testing by TEM to confirm asbestos quantities. The above test report relates only to the items tested and may not be reproduced in any form without the express written approval of EMSL Analytical, Inc. EMSL's liability is limited to the cost of analysis. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. Samples received in good condition unless otherwise noted.
Analysis performed by EMSL San Leandro (NVLAP #101048-3)

PLM-1

1

90707179

EMSL

EMSL Analytical, Inc.
Revised 07/07/99

CHAIN OF CUSTODY

ASBESTOS

EMSL Rep:

Third Party billing requires written autorization from third party

Your Company Name:	KOOS Environmental Services Inc.	EMSL-BILL to:	
Street:	242 "E" Street	Street:	
Box #:	PO Box 4068	Box#:	
City/State:	Coos Bay OR ZIP: 97420	City/State:	
Phone Results to:		Fax Results tp:	
Name:		Name:	Donna Damon
Telephone #:		Fax #	(541) 266-8721
Project Name/Number	K-1501 Egyptian Survey City of Coos Bay	Purchase order #:	

MATRIX

☐ AIR ☐ FLOOR TILE ☐ SOIL
■ bulk ☐ Drinking Water ☐ Dust
☐ Wipe ☐ wastewater ☐ Micro-vac

TURNAROUND

☐ 3hrs ☐ 6hrs ☐ same day or 12hrs* ■ 24 hours or 1 day
☐ 48 hrs ☐ 72 hrs ☐ 96 hrs ☐ 120 hrs
2 days 3 days 4 days 5 days
☐ 144+hours 6-10 days

TEM AIR, 3 hours, 6 hours, Please call ahead to schedule. There is a premium charge for 3 hour tat, please call 1-800-220-3675 for price prior to sending samples, you will be asked to sign and authorization form for this service. 12 hours (must arrive by 11:00 a.m Mon-Fri..) Please refer to price quote.

PCM - Air
☐ NIOSH 7400
☐ OSHA
☐ OTHER:

TEM AIR
☐ AHERA
☐ NIOSH 7402
☐ EPA LEVEL 2

TEM WATER
☐ WASTEWATER
☐ DRINKING WATER EPA 100.1
☐ WATER-NY Wastewater
☐ Water-NY Drinking Water

PLM - BULK
■ EPA 600/R-93/116
☐ EPA POINT COUNT
☐ NY Statified Point Count
☐ PLM NOB (Gravimetric)
☐ Other:

TEM BULK/misc
☐ Drop Mount (Qualitative)
☐ Chatfield
☐ TEM NOB (Gravimetric) NY 198.4

TEM MICROVAC/WIPE
☐ ASTM D 5755-95
Quantitative method

XRD
☐ Asbestos
☐ Silica

SEM Air or Bulk
☐ Qualitative
☐ Quantitative

OTHER
☐

SAMPLE NUMBER	LOCATION	VOLUME (If Applicable)
1MOC	main organ chamber	
2CTW	ceiling texture, walls	
3SC	stage curtian	
4SP	steam pipe	
5GSC	gray stage curtian	
6YSC	yellow stage curtian	

Client Sample # (s) 1MOC — 14FCE Total Samples # 14

Relinquished: Donna Damon Date 12-07-07 Time: 10:55

Received: Date 12/10/07 Time: 9am Fedex

Relinquished: Date Time:

Received: Date Time:

90707179

EMSL

EMSL Analytical, Inc. **CHAIN OF CUSTODY** **ASBESTOS**
Revised 07/07/99

SAMPLE NUMBER	LOCATION	VOLUME (If Applicable)
7FSW	front stage walls	
8BRL	bath room linoleum	
9-Oct	office counter top	
10BCTS	blue ceiling tex. Stg.	
11TMS	tape mud storage	
12USSB	up stairs sound board	
13SBD	stage back drop	
14FCE	formica counter entry	

Oregon
Theodore R. Kulongoski, Governor

Department of Consumer and Business Services
Oregon Occupational Safety & Health Division (OR-OSHA)

RECEIVED
JAN 15 2008
City of Coos Bay

December 21, 2007

City of Coos Bay
500 Central Ave
Coos Bay OR 97420

Inspection Number: 310741426
Optional Report Number: K7290-006-08
Employer Number: 5602057-012
Inspection Date: 12/03/2007

The Oregon Occupational Safety and Health Division (OR-OSHA) conducted an inspection of your workplace located at 229 S Broadway Hwy 101, Coos Bay, Oregon. The inspection was to determine if safety or health hazards were present which could cause injury or illness to your employees.

In the course of the inspection, the OR-OSHA representative noted certain conditions which may potentially cause injuries and/or illnesses. These conditions are listed in the Notice on the following page. At this time it is not mandatory that you take any action to correct them. Nonetheless, in the interest of reducing the high cost and human suffering associated with work-related injuries and illnesses, OR-OSHA encourages you to initiate corrective measures with respect to the conditions listed in the Notice.

There may be other hazards present which were not apparent at the time of the inspection. If you need assistance in identifying and/or eliminating health or safety hazards consultative and training services are available to you at no cost through OR-OSHA by calling (503) 378-3272.

Your continuing effort to identify and eliminate work-related hazards is appreciated.

Doug Brandow
Health Enforcement Manager
OR-OSHA Eugene Field Office
1140 Willagillespie Rd Suite 42
Eugene OR 97401-2101
(541) 686-7562

310741426-dao

cc: Central Office Files
Field Office Files
Jean Brinton

NOTICE

Employer Name: City of Coos Bay
Employer Number: 5602057-012
Inspection Number: 310741426
Optional Report Number: K7290-006-08

THE FOLLOWING IS A LIST OF CONDITIONS WHICH COULD CAUSE WORK-RELATED INJURIES OR ILLNESSES TO EMPLOYEES. ALTHOUGH NOT MANDATORY AT THIS TIME THE OREGON OCCUPATIONAL SAFETY AND HEALTH DIVISION ENCOURAGES YOU TO INITIATE CORRECTIVE MEASURES FOR THESE PROBLEM AREAS IN THE INTEREST OF REDUCING THE HIGH COST AND HUMAN SUFFERING ASSOCIATED WITH WORK-RELATED INJURIES AND ILLNESSES.

Item 1-02

Rule: Asbestos Rules for Construction 29 CFR 1926.1101

During a recent occupational health inspection at the Egyptian Theater, the OR-OSHA Health Compliance Officer (HCO) learned that city employees visited the theater during recent demolition and remodel work. The Asbestos Rules for Construction (29 CFR 1926.1101) specify that it is the duty of building owners and employers to ascertain whether the building materials impacted during remodeling contain asbestos. None of the materials were tested prior to starting the work at the Egyptian Theater. During this inspection, the HCO collected samples of sheetrock, wallboard, joint compound and sheet rock tape. Fortunately, none of these materials were found to contain asbestos.

Asbestos is a recognized carcinogen. It can cause disabling respiratory diseases and lung cancer if the fibers are inhaled. The symptoms of these diseases generally do not appear for 20 years or more after the initial exposure.

Many common building materials including floor tile, roofing, mastic, siding, insulation, cement pipe, and ceiling and wall plaster can contain asbestos. Even the joint compound used to fill in seams of sheetrock panels can contain asbestos. The rule requires the building owner to determine the presence, location and quantity of asbestos materials and to inform their own employees and the general contractor about the asbestos materials.

Employees engaged in activities during which they contact but do not disturb asbestos materials, or materials presumed to contain asbestos, also need to have asbestos hazard awareness training *annually,* as outlined in Construction Asbestos Rules 29 CFR 1926.1101(k)(9). The training should include information on prohibited activities such as sweeping asbestos debris, and sanding, sawing or otherwise disturbing asbestos.

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When asbestos-containing materials are impacted or disturbed during remodeling, the Construction Asbestos Rules (29 CFR 1926.1101) would apply. OR-OSHA recommends that you develop a pre-job asbestos hazard evaluation for future remodel or demolition projects. Private consulting companies are available to conduct asbestos building inspections and testing.

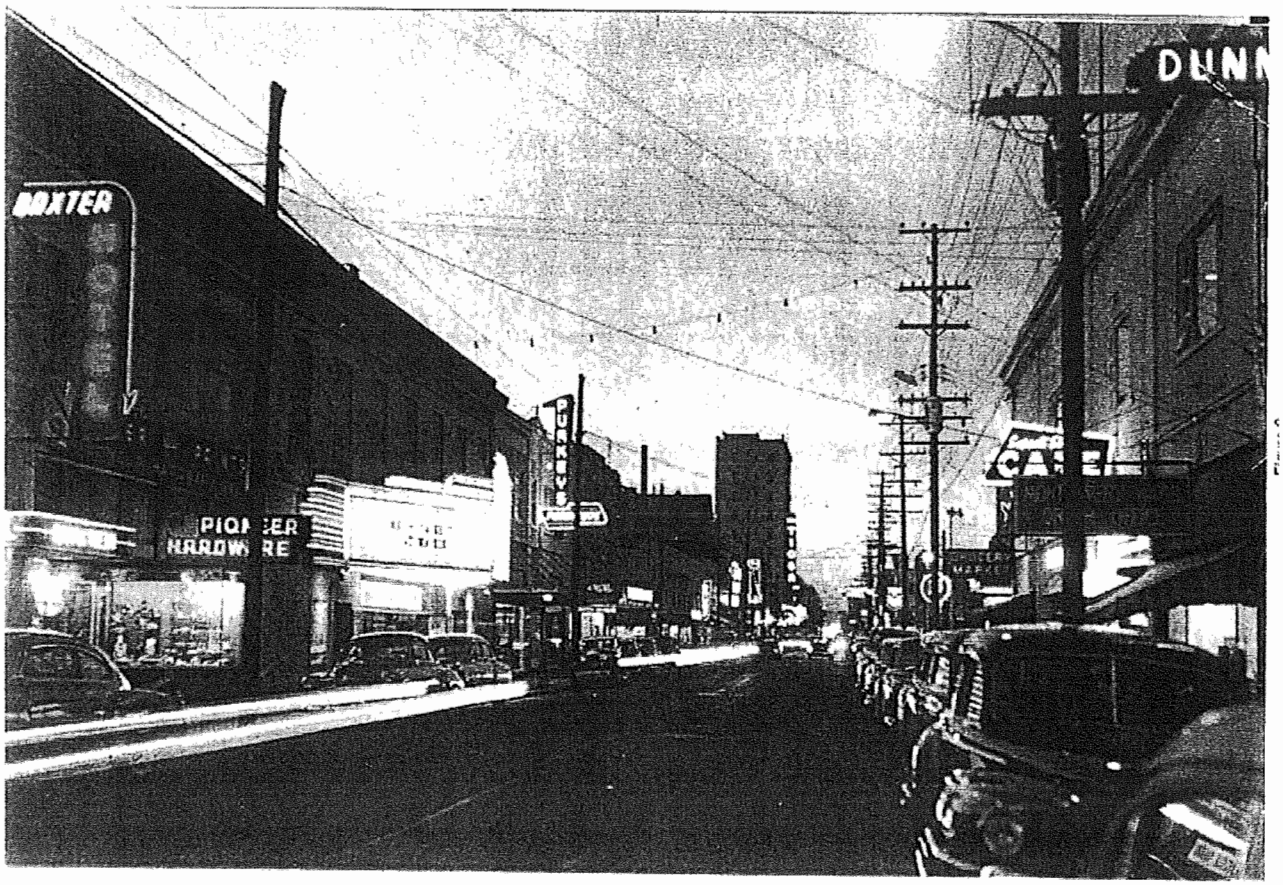
OR-OSHA also recommends that you contact Consultative Services of OR-OSHA to help you develop asbestos awareness training for your employees. If hazards involving worker exposure to asbestos are identified in future inspections, citations could be issued.

APPENDIX D

Historical Photos by State Historical Preservation Office
Dated May 2010

City of Coos Bay, Urban Renewal Agency
Coos Bay, Oregon

December, 2010
Project No: G-0279-09



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City of Coos Bay, Urban Renewal Agency
Coos Bay, Oregon

December, 2010
Project No: G-0279-09

Figure 7

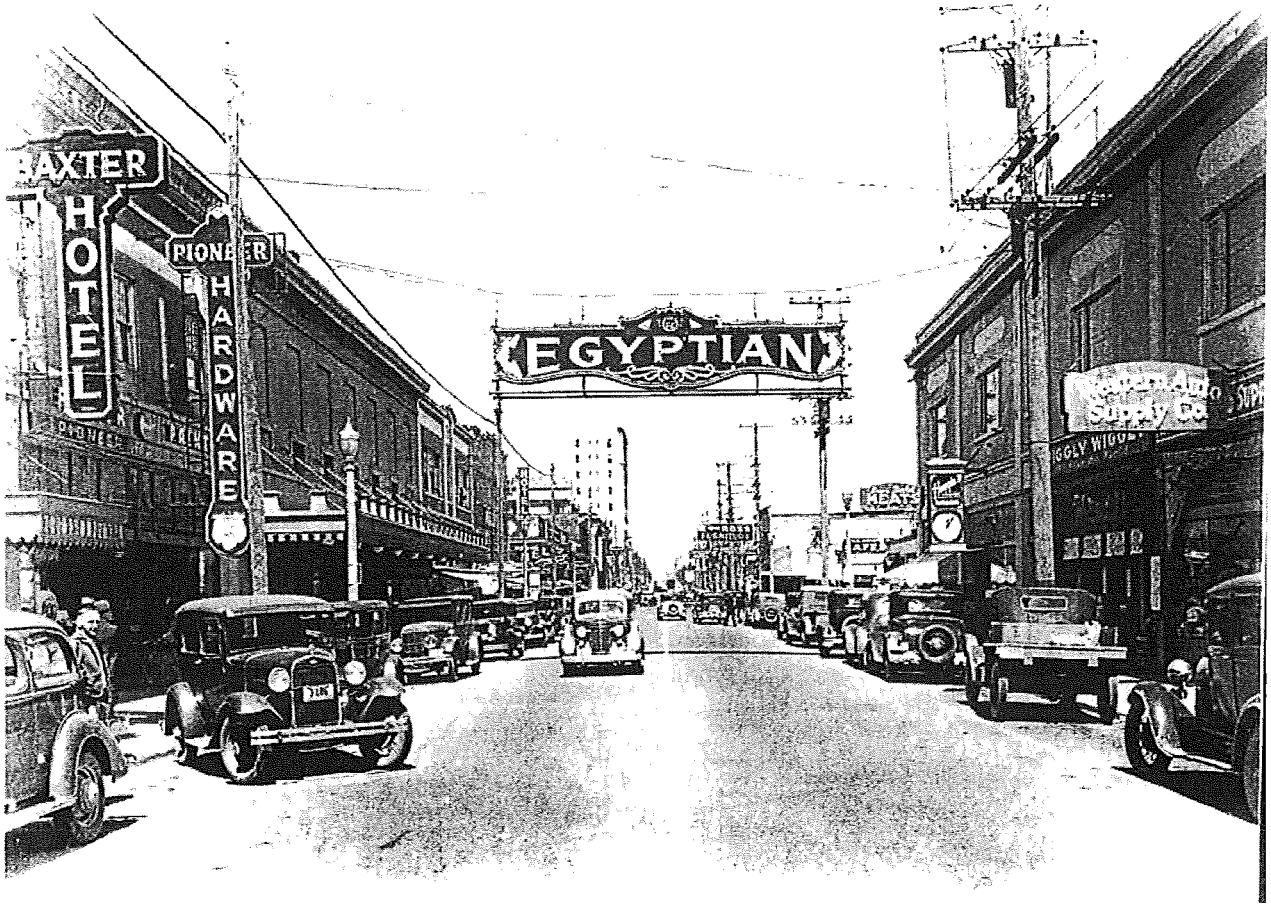
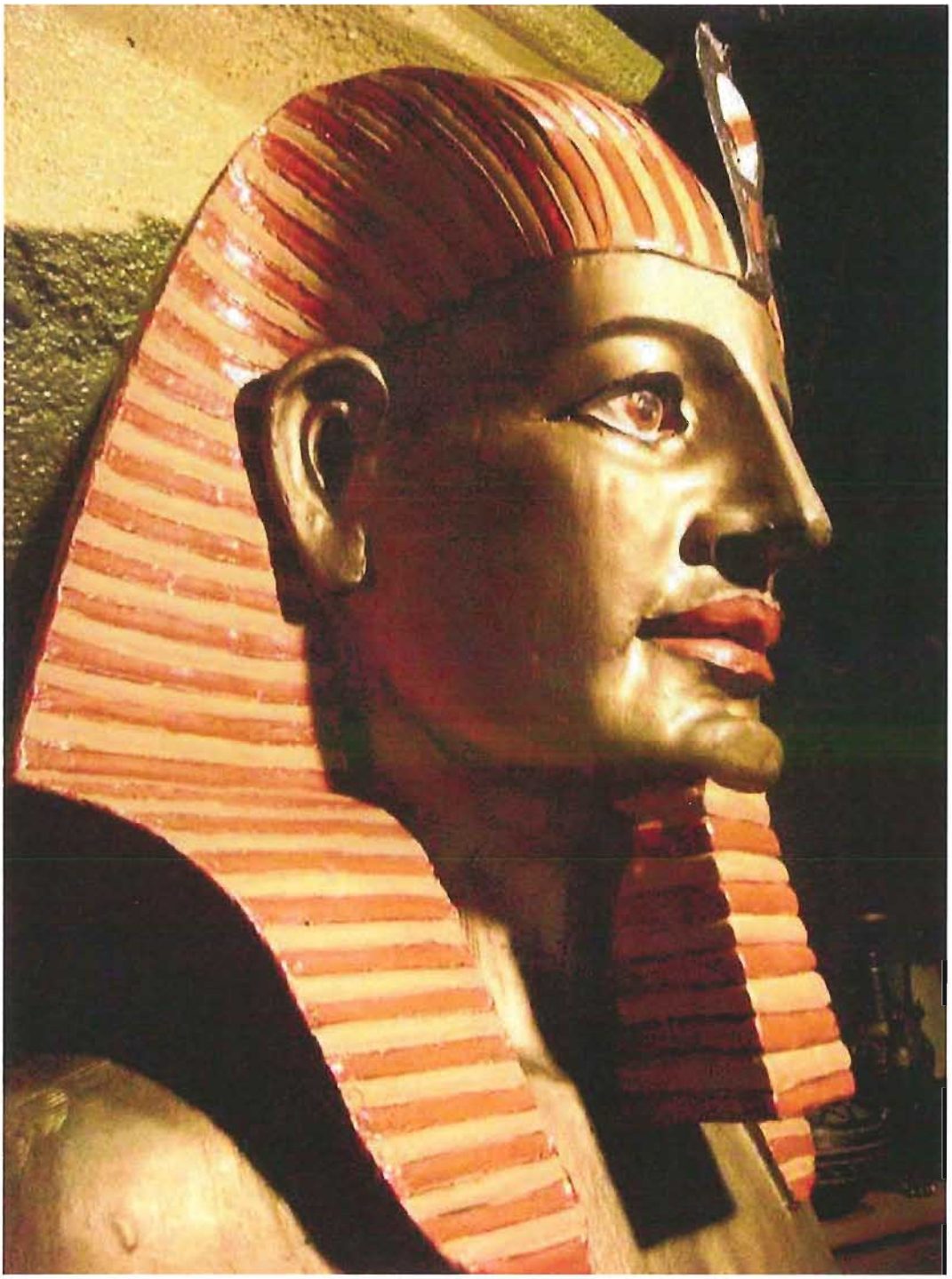
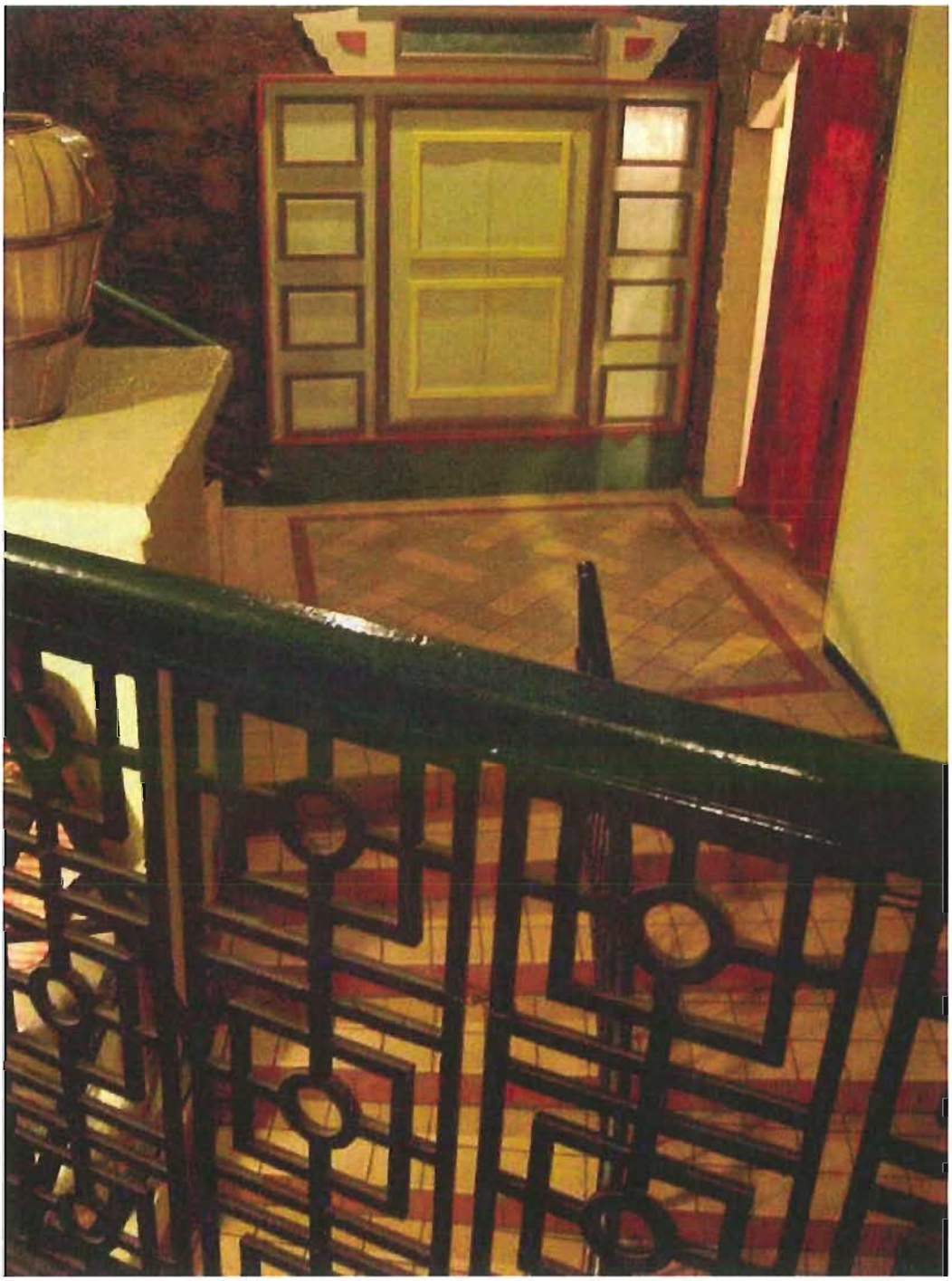
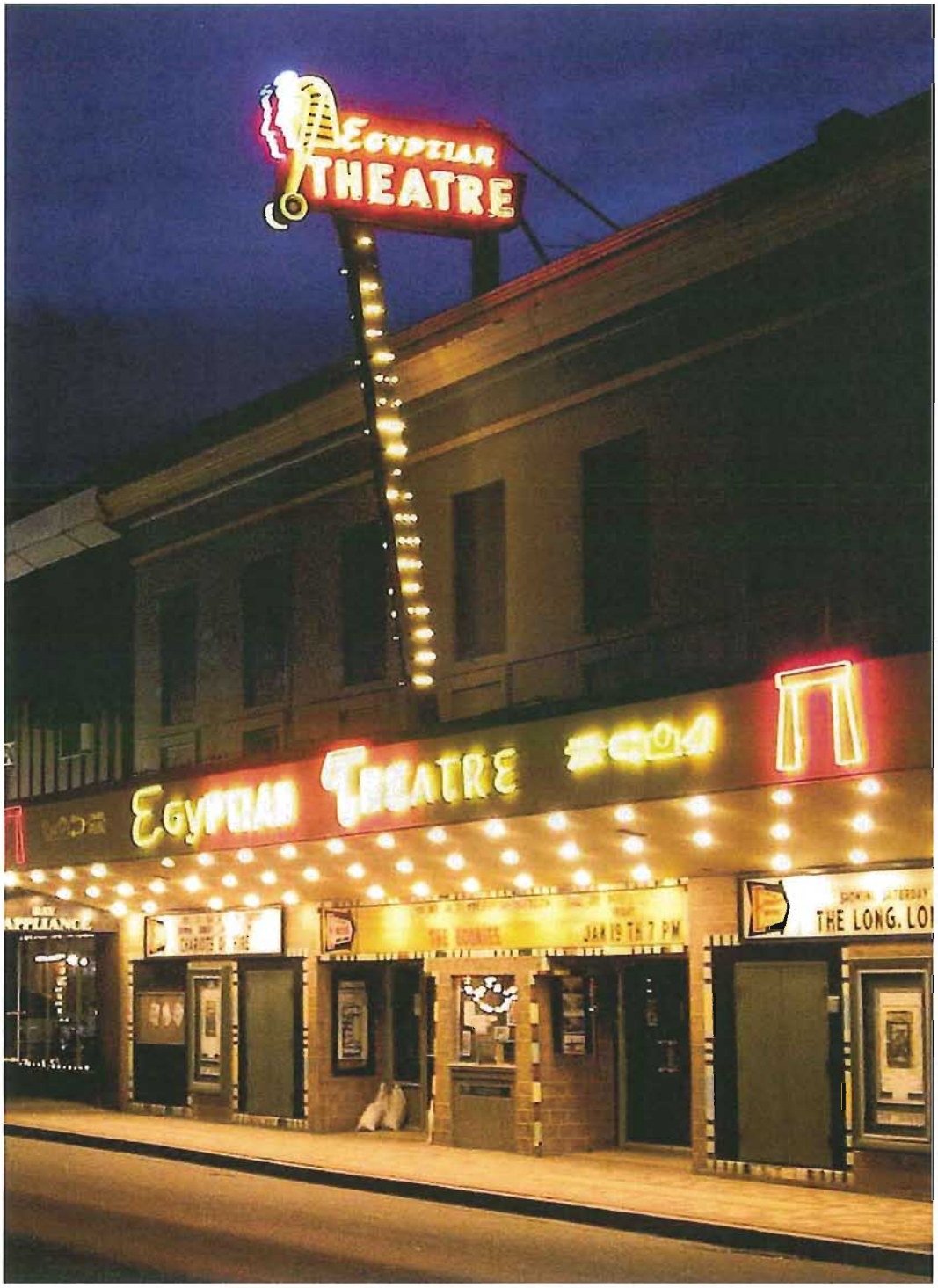


Figure 8



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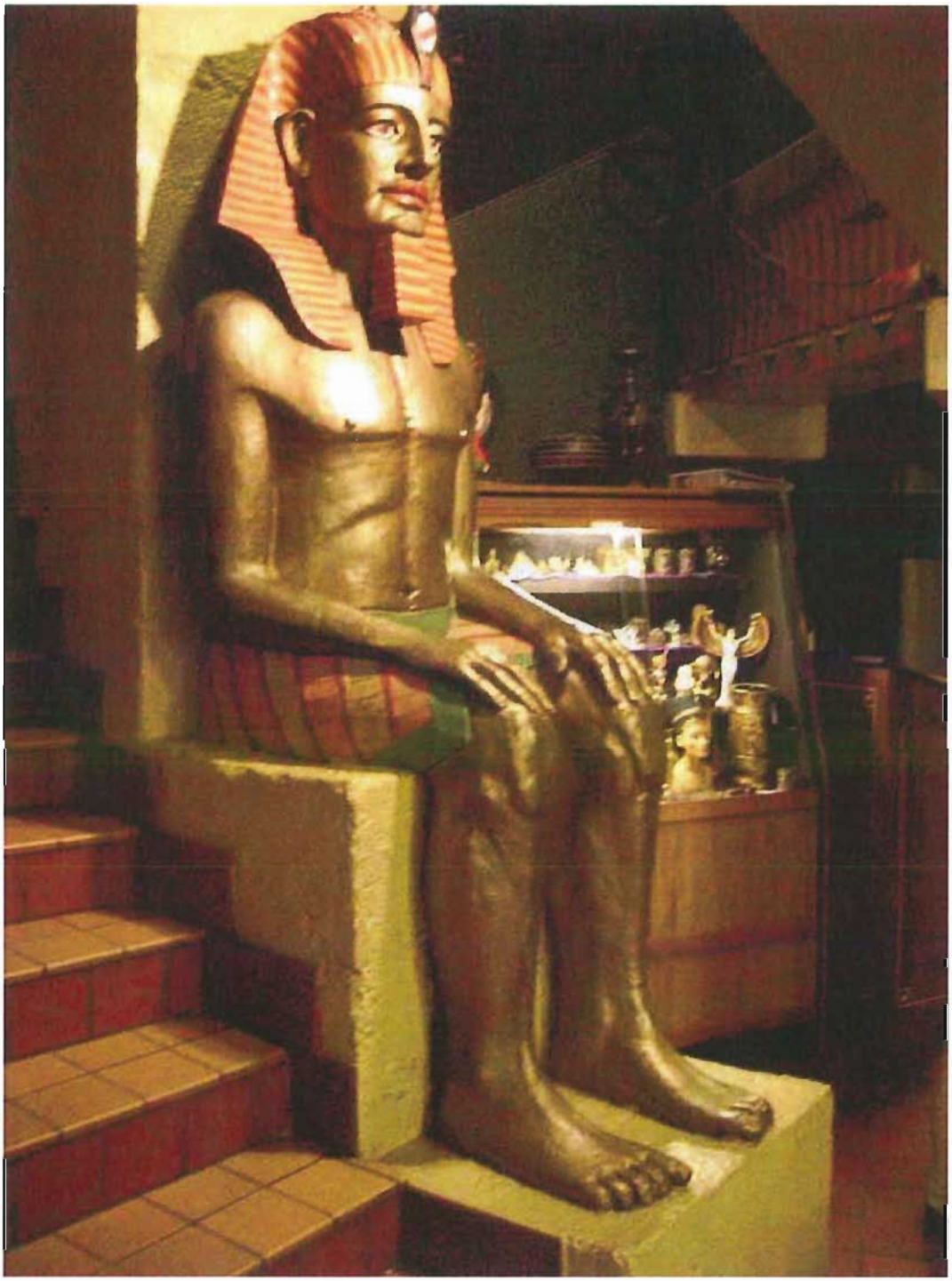

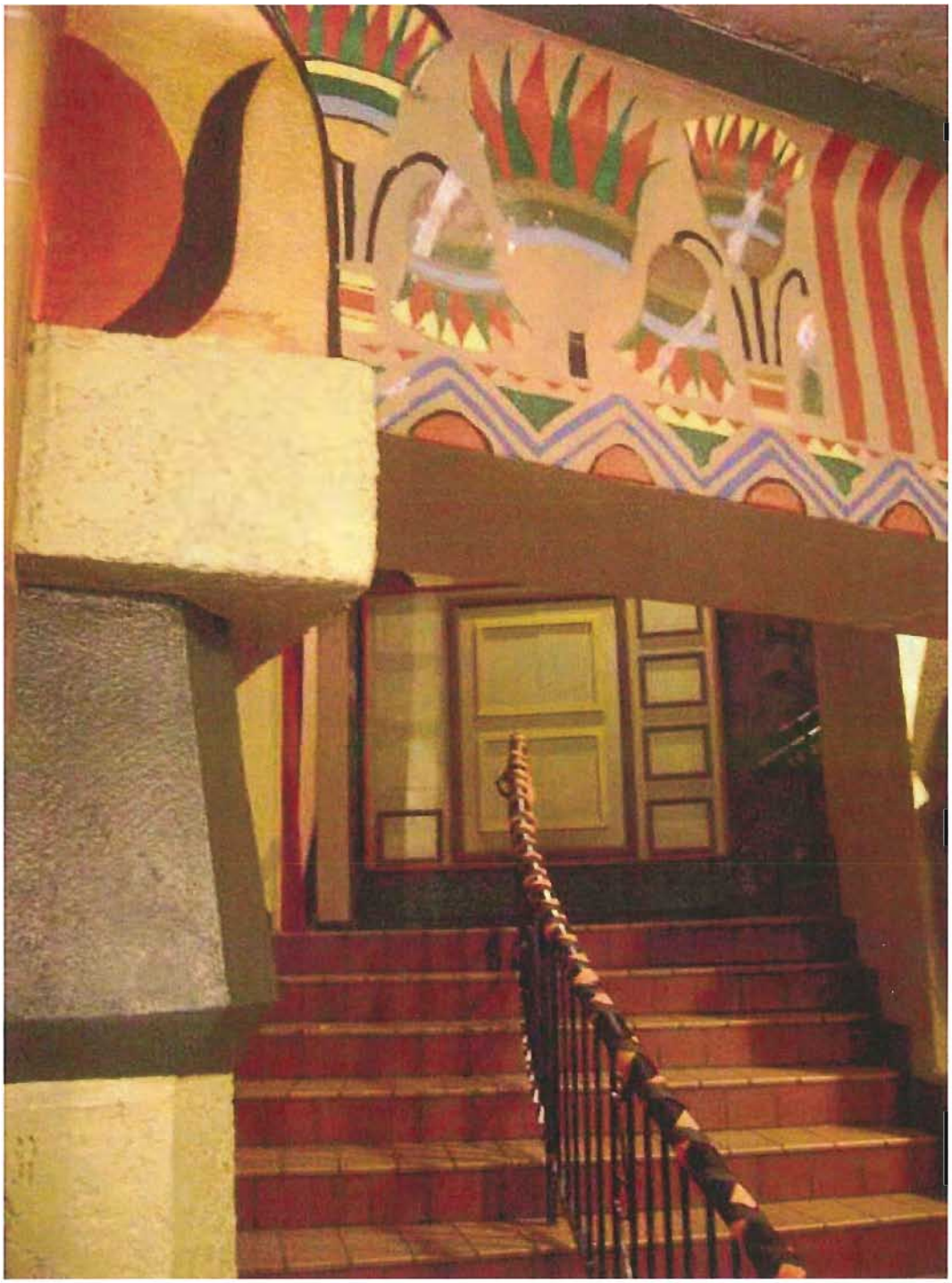

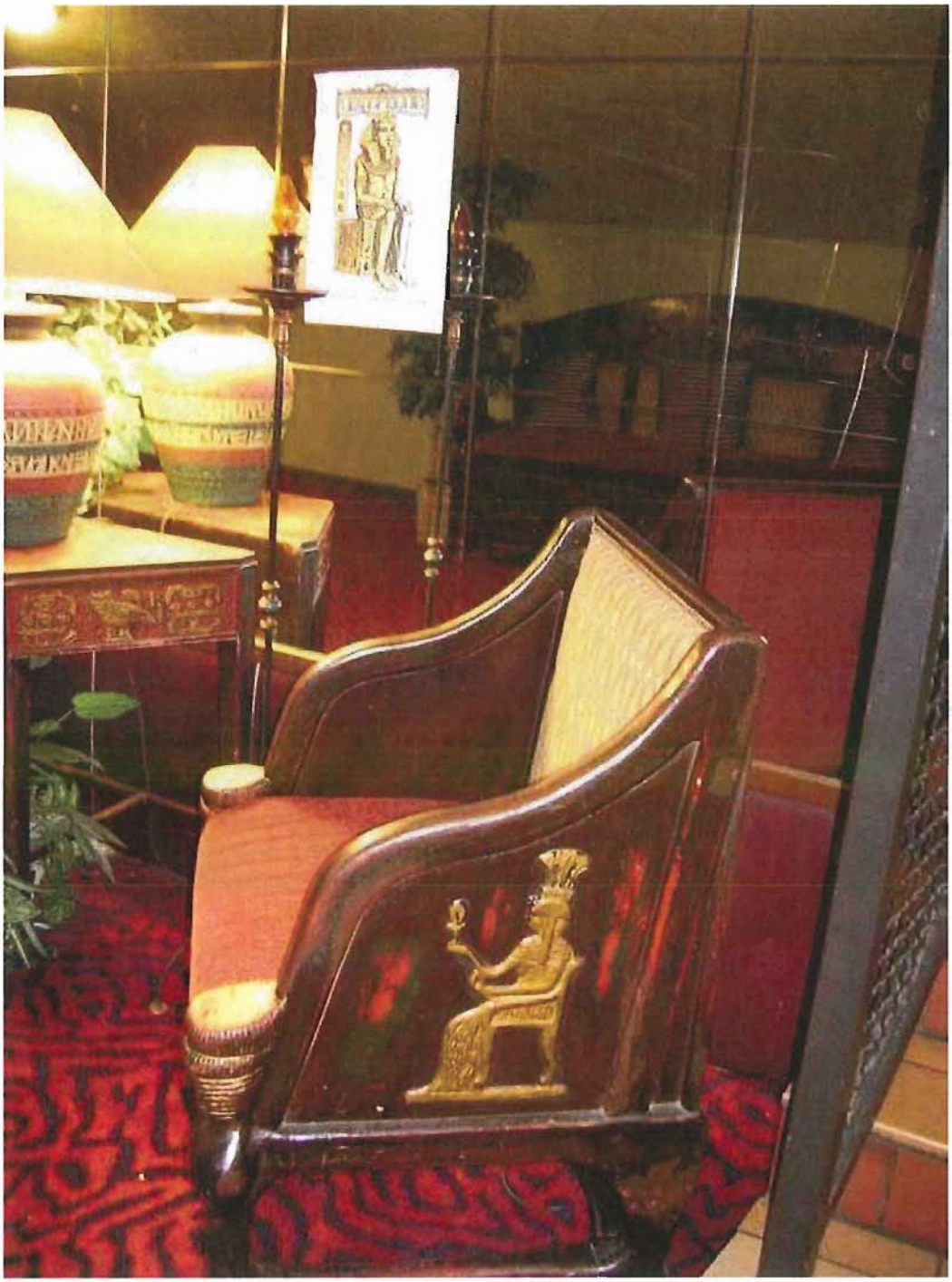

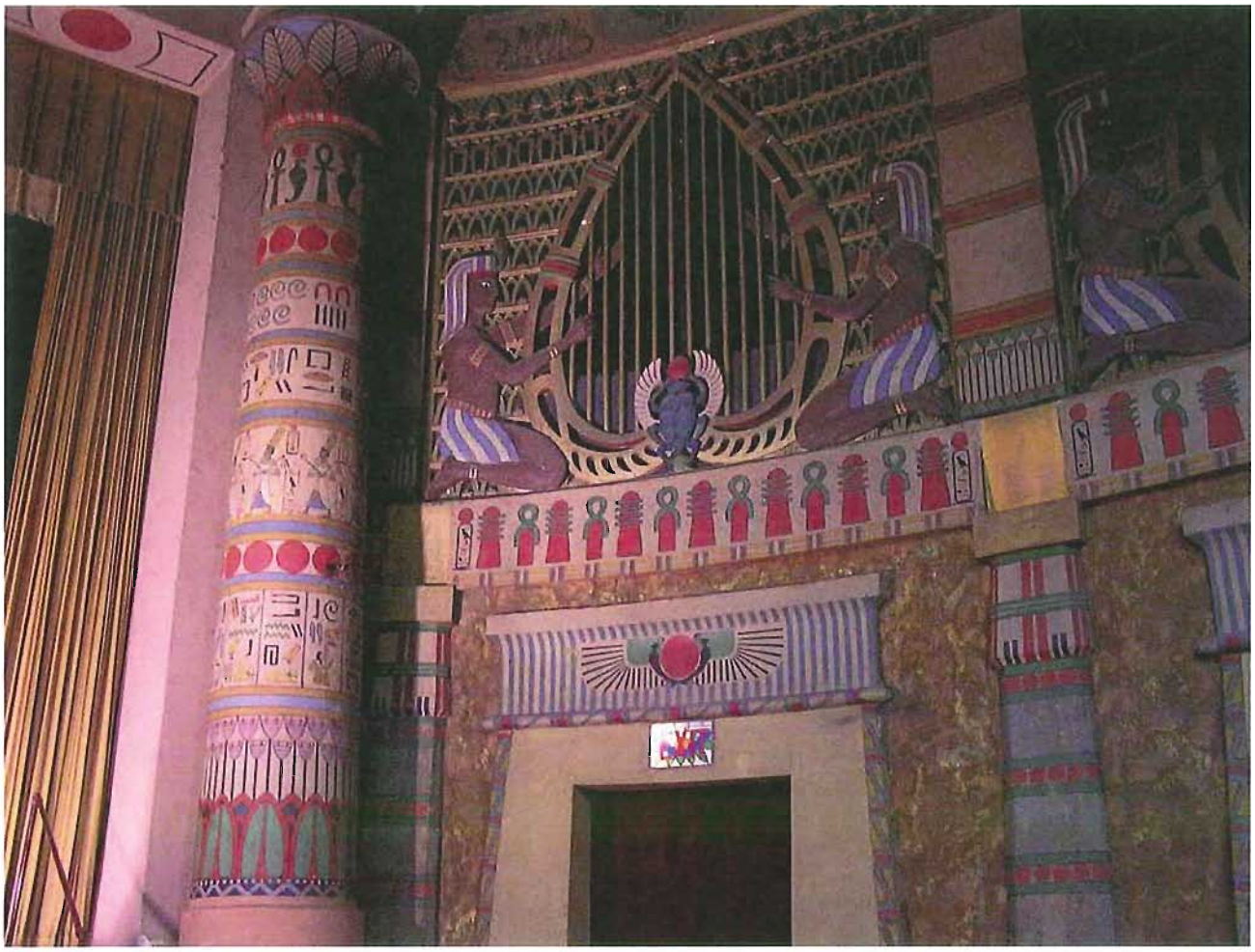

APPENDIX E

Opinion of Anticipated Project Budget by Mike Homfeldt, Estimator
Dated December 2010

City of Coos Bay, Urban Renewal Agency
Coos Bay, Oregon

December, 2010
Project No: G-0279-09

Budget Narrative

In preparation of the budget for the Coos Bay Egyptian Theater I made a number of assumptions. I was able to spend a day in the Theater and review photos and the as builts that were available. I was able to review the preliminary design documents and discuss them with the Engineer as well as various suppliers and subcontractors.

One of my first assumptions was to provide a budget based on the documents and the information available at present. I tried to provide line items in the budget that outlined an organized over view of the basic components. I also attempted to not be inclined to start budgeting for the "what ifs" that tend to inflate an estimate. I tried to address that by having a contingency of 15%. In any remodel there will be unknown and unforeseen conditions that only become apparent upon demolition.

I also did not allow for some considerations that may become apparent as design progresses or future use of the building is clarified. The additional ADA bathrooms do not address the adequacy of the existing bathrooms for a crowd of 1000+. Needs for potential additional storage, dressing rooms, concessions, or restoration of the projection room were also not addressed. These would be addressed later in the design and in phase 2 restoration.

I also was dependant on a variety of experts that did not have the opportunity to do an in depth evaluation. Cost estimates provided are based on their past experiences, photos, and drawings available at this time. A number of them, such as the environmental assessment, require testing and evaluation that will generate a more accurate assessment of the abatement needs. The need to have some expertise in theater design and restoration evaluation will also impact the budget in phase 2.

Items such as permits and fees are typically difficult to determine unless final design and valuations are finalized. For building permit I used a project valuation of phase 1 of 3 million.

I started to do a time line schedule of construction of the project. From my point of view a schedule seems a little premature. There are some huge variables in the time line and with as many specialty subcontractors involved it would be difficult to pin down. Generally I see the time line as follows. Evaluation of the budget and determination of theater use would be the first step. Grant writing and fundraising efforts would follow. At the point that sufficient funds are available full design could take place from the Engineer. Full environmental testing could take place and an abatement plan could be finalized. At this point a theatrical architect or experts would need to be involved as well as experts in restoration of the paint, signs, backdrops, organ, and other historical features. When full design is finished, a general contractor would need to be selected. A long lead time would be necessary to start the project to allow for some fairly complicated logistics to be worked out and fabrication to be done. During this lead time suitable storage would need to be located and the theater contents will need to be

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removed. When construction is begun I would think that we are looking at a t least 9 months of demolition, structural improvements, new construction, and completion of phase 1. The theater would then be reoccupied and phase 2 work could be done over time as funds allow.

It should be understood that an exhaustive evaluation of the current structural system was performed. However there are typically unknown or unseen issues that arise during extensive demolition and rehabilitation. A prudent contingency is critical in the budgetary and fund raising process.

Budget Resources and Contacts

Contact		Location	Phone	email
Koos Environmental / Ken Newman	Hazardous waste	Coos Bay	541-266-0511	knewman@koosenvirmontal.com
Fernando Duarte Design	Historical Restorations	Sacramento	510-375-0263	duarteid@gmail.com
Cedar Electric / Grant Cousens	Electrical	Coos Bay	541-756-3402	grant@cedar-electric.com
Comfort Flow / Jared Eck	HVAC	Coos Bay	541-266-7558	
Chambers / Jerry Gross	Plumbing	Coos Bay	541-269-9334	chambersplumbing@uci.net
PNTA / Steve Cooper	Theater equipment & Design	Seattle	800-622-7850	SteveC@pnta.com
Alpha Signs / Aaron Gilliland	Sign Restoration	Sacramento	916-379-0225	aaronquicksilver@yahoo.com
Knife River / Pat Haynes	Fabrication Tilt up concrete		541-995-6327	pat.hynes@kniferiver.com
Pacific Iron Works	Steel Fab and erection	Grants Pass	541-476-9945	
Foundation Support Works / James Malone	Pile Systems		402-689-4560	
Viking Sprinkler / Dave Wittkopf	Fire suppression	Medford	541-733-1052	dave.wittkopf@vikingsprinkler.net
Bullet Rentals / Jim Belt	Equipment Rental	Medford	541-885-5555	
Win R Insulation / Tom Reeves	Insulation	Klamath Falls	541-884-8008	
Modoc Contracting / Dave Lockwood	Drywall & Base paint	Klamath Falls	541-850-1295	
Diamond Home Improvement	Wood Materials	G Pass K Falls	541-885-3535	
Diamond Home Improvement / John	Flooring	Klamath Falls	541-885-3535	
Viking Concrete Cutting / Morgan Steiner	Concrete cut and demo	Klamath Falls	541-884-1399	
Cooks Glass / Ron Bockleman	Glass Store front	Klamath Falls	541-884-2665	
Bell Hardware / Ken Shill	Doors and Hardware	Klamath Falls	541-882-7246	
Valley Garage Door / Ron Able	Dock Door	Klamath Falls	541-884-4191	
Or St Historical Preservation Ofc / Joy Sears	Historical review	Salem	503-986-0688	Joy.Sears@state.or.us
PLA Designs / Paul Luntsford	Theater Architect	Portland		http://www.pladesigns.com
Ward Design Group / Dale Ward	Theater Architect	Seattle		http://www.warddesigngroup.us/

City of Coos Bay, Urban Renewal Agency
Coos Bay, Oregon

December, 2010
Project No: G-0279-09

Egyptian Theater Budget December 2010

Item	Amt	Units	Price	Cost	Percent	Mark-up	Total	Notes
Project Administration								
Supervision	2,800	hours	$25.00	$70,000.00	10%	$7,000.00	$77,000.00	
Temporary Office & Overhead	16	months	$500.00	$8,000.00	10%	$800.00	$8,800.00	
Restrooms	12	months	$100.00	$1,200.00	5%	$60.00	$1,260.00	
Fuel	12	lump sum	$1,000.00	$12,000.00	0%	$0.00	$12,000.00	
Insurance Bonds	1	allowance	$3,000.00	$3,000.00	10%	$300.00	$3,300.00	
Clean up labor	500	hours	$20.00	$10,000.00	20%	$2,000.00	$12,000.00	
Disposal fees dump	1	lump sum	$5,000.00	$5,000.00	10%	$500.00	$5,500.00	
Traffic control	1	lump sum	$2,500.00	$2,500.00	10%	$250.00	$2,750.00	
Construction fencing	1	lump sum	$5,000.00	$5,000.00	10%	$500.00	$5,500.00	
Moving of contents out and in	320	lump sum	$20.00	$6,400.00	20%	$1,280.00	$7,680.00	contents etc allowance 4 men I week
Safety	1	lump sum	$5,000.00	$5,000.00	10%	$500.00	$5,500.00	
Off site storage	16	months	$1,200.00	$19,200.00	10%	$1,920.00	$21,120.00	**ALLOWANCE unknown specific needs**
Full Final Cleaning	1	lump sum	$10,000.00	$10,000.00	10%	$1,000.00	$11,000.00	**ALLOWANCE unknown specific needs**
						Subtotal	*$173,410.00*	
Fees								
Planning Permit	1	allowance		$0.00	0%	$0.00	$0.00	Included in building permit
Building Permit	1	allowance	$28,475.00	$28,475.00	0%	$0.00	$28,475.00	based on $3 Mil valuation of project
ROW Permit	1	allowance	$300.00	$300.00	0%	$0.00	$300.00	City
Electrical Permit	1	allowance	$2,000.00	$2,000.00	0%	$0.00	$2,000.00	State
Plumbing Permit	1	allowance	$305.00	$305.00	0%	$0.00	$305.00	State
Sprinkler Permit	1	allowance		$0.00	0%	$0.00	$0.00	assumes it is included in estimate By Viking Sprinkler
						Subtotal	*$31,080.00*	
Engineering								
Engineering Design	1	lump sum	$35,000.00	$35,000.00	0%	$0.00	$35,000.00	N / A
Engineering Construction administration	1	lump sum	$100,000.00	$100,000.00	0%	$0.00	$100,000.00	
Electrical design & Lighting design	1	lump sum	$35,000.00	$35,000.00	0%	$0.00	$35,000.00	Phase 1 design

Marquee evaluation and phase 1 design	1	lump sum	$3,500.00	$3,500.00	0%	$0.00	$3,500.00	Alpha Signs
Historical plan review	1	lump sum		$0.00	0%	$0.00	$0.00	State of Oregon
Restoration Consultant Survey Phase 1	1	lump sum	$3,500.00	$3,500.00	0%	$0.00	$3,500.00	
Theatrical Architect	1	lump sum	$12,000.00	$12,000.00	0%	$0.00	$12,000.00	Phase 2
Special Inspections/Testing	1	allowance	$8,500.00	$8,500.00	0%	$0.00	$8,500.00	
						Subtotal	*$197,500.00*	
Infrastructure Upgrade								
Allowance	1	lump sum	$13,000.00	$13,000.00	10%	$1,300.00	$14,300.00	6" supply to theater for sprinkler?
						Subtotal	*$14,300.00*	
Hazardous Material								
Assessment	1	lump sum	$3,300.00	$3,300.00	10%	$330.00	$3,630.00	Koos Environmental
Abatement	1	lump sum	$28,310.00	$28,310.00	10%	$2,831.00	$31,141.00	Koos Environmental (ceiling & screen cleaning)
						Subtotal	*$31,141.00*	
Organ								
Subcontractor remove, restore, replace	1	lump sum	$125,000.00	$125,000.00	0%	$0.00	$125,000.00	**ALLOWANCE unknown specific needs**
						Subtotal	*$125,000.00*	remove and reset
Demolition								
Const of temp protection labor& material	1	lump sum	$3,759.00	$3,759.00	10%	$375.90	$4,134.90	
removal of temp wall	1	lump sum	$1,200.00	$1,200.00	10%	$120.00	$1,320.00	
Remove and reset theater seats	320	hours	$25.00	$8,000.00	20%	$1,600.00	$9,600.00	
Demo old roofing	10,730	sq ft	$0.50	$5,365.00	10%	$536.50	$5,901.50	
Demo roof sheathing	2,000	sq ft	$0.50	$1,000.00	10%	$100.00	$1,100.00	
Boiler removal & Disposal	1	allowance	$4,000.00	$4,000.00	10%	$400.00	$4,400.00	**ALLOWANCE unknown specific needs**
Concrete cut and drill layouts	40	hours	$25.00	$1,000.00	20%	$200.00	$1,200.00	
Concrete saw cutting and demo	1	lump sum	$100,000.00	$100,000.00	10%	$10,000.00	$110,000.00	Viking Concrete cutting (K Falls)
Concrete removal walls		hours	$25.00	$0.00	10%	$0.00	$0.00	Viking Concrete cutting (K Falls)
Concrete slab cuts demo removal		hours	$25.00	$0.00	10%	$0.00	$0.00	Viking Concrete cutting (K Falls)
Concrete removal stage area		hours	$25.00	$0.00	10%	$0.00	$0.00	Viking Concrete cutting (K Falls)
Removal of interior ceiling main theater	40	hours	$25.00	$1,000.00	20%	$200.00	$1,200.00	abatement removes most
Removal of interior ceiling other areas	160	hours	$25.00	$4,000.00	20%	$800.00	$4,800.00	

Selective demo of walls	160	hours	$25.00	$4,000.00	20%	$800.00	$4,800.00	
Selective demo of rigging / historical items	320	hours	$25.00	$8,000.00	20%	$1,600.00	$9,600.00	
Demo	1	fees	$10,000.00	$10,000.00	10%	$1,000.00	$11,000.00	
Demo Hauling	160	hours	$60.00	$9,600.00	20%	$1,920.00	$11,520.00	
Demo handling	640	hours	$25.00	$16,000.00	20%	$3,200.00	$19,200.00	
Removal of OIL tank		hours	$25.00	$0.00	10%	$0.00	$0.00	**Not in estimate TBD based on testing**
						Subtotal	*$199,776.40*	
Foundation systems								
Agur Cast Pile	1	lump sum	$216,000.00	$216,000.00	10%	$21,600.00	$237,600.00	Dewitt
Push Pile		lump sum	$225,000.00	$0.00	10%	$0.00	$0.00	PLI
						Subtotal	*$237,600.00*	
Excavation								
interior excavation in support of Foundation	1	lump sum	$10,000.00	$10,000.00	10%	$1,000.00	$11,000.00	
plumbing excavation	1	lump sum	$2,000.00	$2,000.00	10%	$200.00	$2,200.00	
		cyd		$0.00	10%	$0.00	$0.00	
		sf		$0.00	10%	$0.00	$0.00	
						Subtotal	*$13,200.00*	
Concrete								
New footing and foundation	42	cyds	$500.00	$21,000.00	10%	$2,100.00	$23,100.00	
New stage slab	2,400	sq ft	$8.00	$19,200.00	10%	$1,920.00	$21,120.00	
Ramps	600	sq ft	$8.00	$4,800.00	10%	$480.00	$5,280.00	
Patch slab cuts	710	sq ft	$10.00	$7,100.00	10%	$710.00	$7,810.00	
Sidewalks and exterior replacement	800	sq ft	$8.00	$6,400.00	10%	$640.00	$7,040.00	
Tilt up panels fab, delivery	1	lump sum	$384,000.00	$384,000.00	10%	$38,400.00	$422,400.00	Knife River
Tilt up erection, temp shoring		lump sum		$0.00	10%	$0.00	$0.00	Pacific Iron Works (G Pass) included in number below
Tilt up welding		lump sum		$0.00	10%	$0.00	$0.00	Pacific Iron Works (G Pass) included in number below
Specialty repairs grout etc	1	allowance	$6,000.00	$6,000.00	10%	$600.00	$6,600.00	
Organ "tub"	1	allowance	$4,000.00	$4,000.00	10%	$400.00	$4,400.00	
Pan deck light weight conc	1,800	sq ft	$10.00	$18,000.00	10%	$1,800.00	$19,800.00	
						Subtotal	*$517,550.00*	

Structural Steel								
Structural Steel fabrication	1	lump sum	$286,480.00	$286,480.00	10%	$28,648.00	$315,128.00	Pacific Iron Works (G Pass)
Structural Steel erection labor		each		$0.00	10%	$0.00	$0.00	Pacific Iron Works (G Pass)
Structural steel transport		lump sum		$0.00	10%	$0.00	$0.00	Pacific Iron Works (G Pass)
Structural steel equipment		ea		$0.00	10%	$0.00	$0.00	Pacific Iron Works (G Pass)
Structural steel welding		hours		$0.00	10%	$0.00	$0.00	Pacific Iron Works (G Pass)
Crane time		hours		$0.00	10%	$0.00	$0.00	Pacific Iron Works (G Pass)
Web joist system		lump sum		$0.00	10%	$0.00	$0.00	Pacific Iron Works (G Pass)
Roof pan deck, Mezz pan deck		lump sum		$0.00	10%	$0.00	$0.00	Pacific Iron Works (G Pass)
Joist and pan deck installation		lump sum		$0.00	10%	$0.00	$0.00	Pacific Iron Works (G Pass)
Seismic upgrade of pilasters		lump sum		$0.00	10%	$0.00	$0.00	Pacific Iron Works (G Pass)
Seismic upgrade of connections		lump sum		$0.00	10%	$0.00	$0.00	Pacific Iron Works (G Pass)
Stairwells and rails		hours		$0.00	10%	$0.00	$0.00	Pacific Iron Works (G Pass)
		lump sum		$0.00	10%	$0.00	$0.00	
Catwalks at stage		lump sum		$0.00	10%	$0.00	$0.00	Phase 2?
Epoxy and anchor bolts		lump sum		$0.00	10%	$0.00	$0.00	Pacific Iron Works (G Pass)
Labor to drill epoxy and anchor I beams		hours		$0.00	10%	$0.00	$0.00	Pacific Iron Works (G Pass)
		lump sum		$0.00	10%	$0.00	$0.00	
		lump sum		$0.00	10%	$0.00	$0.00	
						Subtotal	*$315,128.00*	
Structural Replacement Wood								
layout	80	hours	$25.00	$2,000.00	20%	$400.00	$2,400.00	
Materials for wood framing and carpentry	1	lump sum	$50,870.00	$50,870.00	10%	$5,087.00	$55,957.00	
Fasteners, clips, bolts	1	lump sum	$10,196.00	$10,196.00	10%	$1,019.60	$11,215.60	
Moving of columns	1	allowance	$10,000.00	$10,000.00	20%	$2,000.00	$12,000.00	
Blocking and structural ceiling work	200	hours	$25.00	$5,000.00	20%	$1,000.00	$6,000.00	
Structural framing	1,800	hours	$25.00	$45,000.00	20%	$9,000.00	$54,000.00	
Fir out new structural members	536	hours	$25.00	$13,400.00	20%	$2,680.00	$16,080.00	
Cat walk thru attic	1	lump sum	$750.00	$750.00	10%	$75.00	$825.00	
Cat walk thru attic	96	hours	$25.00	$2,400.00	20%	$480.00	$2,880.00	

Labor the Sheath ceiling	200	hours	$25.00	$5,000.00	20%	$1,000.00	$6,000.00	
Sheathing of ceiling materials	8,362	sq ft	$1.50	$12,543.00	10%	$1,254.30	$13,797.30	materials
Doors	1	lump sum	$36,000.00	$36,000.00	10%	$3,600.00	$39,600.00	Bells Hardwr 4 Dbl ext 2 Dbl entry 4 fire 10 other Hdwr
Door installation	160	hours	$25.00	$4,000.00	20%	$800.00	$4,800.00	
						Subtotal	*$225,554.90*	
Equipment								
boom truck	2	months	$4,650.00	$9,300.00	10%	$930.00	$10,230.00	1585 wk 4650 mo
Backhoe	1	months	$2,250.00	$2,250.00	10%	$225.00	$2,475.00	
20' scissor lift	4	months	$250.00	$1,000.00	10%	$100.00	$1,100.00	
10,000 lb reach forklift	6	months	$3,300.00	$19,800.00	10%	$1,980.00	$21,780.00	1100 wk 3300 mo
40' Rt scissor lifts	4	months	$1,500.00	$6,000.00	10%	$600.00	$6,600.00	480 wk 1500 mo (2 lifts needed)
60' Boom Lift	3	months	$3,000.00	$9,000.00	10%	$900.00	$9,900.00	1000 wk 3000 mo
compressor	3	months	$900.00	$2,700.00	10%	$270.00	$2,970.00	300 wk 900 mo
Misc tools	1	lump sum	$3,000.00	$3,000.00	10%	$300.00	$3,300.00	
Transport, mileage,	1	lump sum	$2,000.00	$2,000.00	10%	$200.00	$2,200.00	
						Subtotal	*$60,555.00*	
Roofing								
New roof sheathing and membrane roof	10,730	sq ft	$5.25	$56,332.50	10%	$5,633.25	$61,965.75	
						Subtotal	*$61,965.75*	
Fire Sprinkler								
Fire Sprinkler	1	lump sum	$125,000.00	$125,000.00	10%	$12,500.00	$137,500.00	Viking Sprinkler (Medford)
						Subtotal	*$137,500.00*	
HVAC								
HVAC removal of system and replace	1	lump sum	$5,000.00	$5,000.00	10%	$500.00	$5,500.00	Comfort Flow
						Subtotal	*$5,500.00*	
Plumbing								
Rough in and repair	1	lump sum	$16,327.00	$16,327.00	10%	$1,632.70	$17,959.70	Chambers ADA bathrooms and upgrade sump system
						Subtotal	*$17,959.70*	
Electrical / Alarm / Communications								
Electrical rough in	1	lump sum	$295,500.00	$295,500.00	10%	$29,550.00	$325,050.00	Cedar Electric

Electrical fixtures	1	lump sum		$0.00	10%	$0.00	$0.00	Cedar Electric
						Subtotal	*$0.00*	
Vintage back drop								
Removal, package, and reset	1	allowance	$15,000.00	$15,000.00	0%	$0.00	$15,000.00	**Duarte (SAC) Cost TBD upon site evaluation**
						Subtotal	*$15,000.00*	
Sheet Rock								
Installation tape and texture	31,200	sq ft	$1.50	$46,800.00	10%	$4,680.00	$51,480.00	Modoc (KF)
						Subtotal	*$51,480.00*	
Paint Base								
Prime and base coat interior	30,000	sq ft	$1.25	$37,500.00	10%	$3,750.00	$41,250.00	Modoc (KF)
Prime and base coat exterior	5,000	sq ft	$1.00	$5,000.00	10%	$500.00	$5,500.00	Modoc (KF)
Historical Restorative Painting	1	allowance		$0.00	10%	$0.00	$0.00	**ALLOWANCE unknown specific needs**
						Subtotal	*$5,500.00*	
Insulation								
Blown in ceiling 12"	1	lump sum	$12,200.00	$12,200.00	10%	$1,220.00	$13,420.00	Win R Insulation (KF)
R 21 Batt insulation	14,000	sq ft	$0.80	$11,200.00	10%	$1,120.00	$12,320.00	some walls and sound damping areas
						Subtotal	*$25,740.00*	
Scaffolding								
Subcontractor	1	lump sum	$12,000.00	$12,000.00	10%	$1,200.00	$13,200.00	
						Subtotal	*$13,200.00*	
Store front door replacement								
Store front glass door system	2	lump sum	$4,300.00	$8,600.00	10%	$860.00	$9,460.00	Cooks Glass (KF) add $4 to $5K for ADA actuated door
						Subtotal	*$9,460.00*	
Finish Carpentry								
Subcontractor	1	allowance	$30,000.00	$30,000.00	10%	$3,000.00	$33,000.00	Stage front of balcony etc
						Subtotal	*$33,000.00*	
Ornamental steel								
railings	500	lf	$20.00	$10,000.00	10%	$1,000.00	$11,000.00	
						Subtotal	*$11,000.00*	
Theater Equipment								

Fly system	1	allowance	$250,000.00	$250,000.00	10%	$25,000.00	$275,000.00	PNTA Seattle Wa
	1	allowance		$0.00	10%	$0.00	$0.00	
		allowance		$0.00	10%	$0.00	$0.00	
Installation of new equipment	1	allowance	$5,000.00	$5,000.00	10%	$500.00	$5,500.00	
						Subtotal	*$280,500.00*	
Flooring								
Carpet	4,000	sq ft	$3.10	$12,400.00	10%	$1,240.00	$13,640.00	Diamond Home Improvement (KF)
Tile	1,300	sq ft	$10.50	$13,650.00	10%	$1,365.00	$15,015.00	Lobby patch and repair
Hardwood	2,400	sq ft	$11.00	$26,400.00	10%	$2,640.00	$29,040.00	Stage floor
Painting of Concrete Floors	7,000	sq ft	$1.25	$8,750.00	10%	$875.00	$9,625.00	Modoc (KF)
Vinyl	500	sq ft	$3.30	$1,650.00	10%	$165.00	$1,815.00	
						Subtotal	*$69,135.00*	
Misc								
Bathroom fixtures	1	allowance	$2,600.00	$2,600.00	10%	$260.00	$2,860.00	Bells Hardware
Fire Extinguishers	7	each	$400.00	$2,800.00	10%	$280.00	$3,080.00	Bells Hardware
Loading dock door 10 X 12	1	lump sum	$4,000.00	$4,000.00	10%	$400.00	$4,400.00	Valley Door (KF)
		allowance		$0.00	10%	$0.00	$0.00	
		sf		$0.00	10%	$0.00	$0.00	
		lf		$0.00	10%	$0.00	$0.00	
		sf		$0.00	10%	$0.00	$0.00	
		sf		$0.00	10%	$0.00	$0.00	
		lf		$0.00	10%	$0.00	$0.00	
		sf		$0.00	10%	$0.00	$0.00	
		sf		$0.00	10%	$0.00	$0.00	
		lf		$0.00	10%	$0.00	$0.00	
		sf		$0.00	10%	$0.00	$0.00	
						Subtotal	*$10,340.00*	
Misc phase 2 Elements								
Exterior Signage Remove and restore		allowance	$300,000.00	$0.00	10%	$0.00	$0.00	**ALLOWANCE unknown specific needs**
Exterior Façade				$0.00	10%	$0.00	$0.00	Alpha Signs range for signs marquee will be 150K to

Exterior lighting and marquee				$0.00	10%	$0.00	$0.00	750K if restorative lower rebuild higher
Marquee evaluation and phase 2 design		allowance	$16,500.00	$0.00	10%	$0.00	$0.00	
Restoration design		allowance	$13,000.00	$0.00	10%	$0.00	$0.00	
Backdrop restoration		allowance	$60,000.00	$0.00	10%	$0.00	$0.00	
Phase 2 Design		allowance	$100,000.00	$0.00	10%	$0.00	$0.00	**ALLOWANCE unknown specific needs**
Ceiling Coving reconstruction		allowance	$15,000.00	$0.00	10%	$0.00	$0.00	
Replacement of Main, Skirt, Legs, Scrim		allowance	$100,000.00	$0.00	10%	$0.00	$0.00	PNTA Seattle Wa
Upgrade Stage Communication system		allowance	$10,000.00	$0.00	10%	$0.00	$0.00	PNTA Seattle Wa
Upgrade Sound System		allowance	$50,000.00	$0.00	10%	$0.00	$0.00	PNTA Seattle Wa
Full Organ restoration		allowance	$500,000.00	$0.00	10%	$0.00	$0.00	
Historical Restorative Painting		allowance	$100,000.00	$0.00	10%	$0.00	$0.00	**ALLOWANCE unknown specific needs**
Concession upgrades		allowance		$0.00	10%	$0.00	$0.00	
Projection Booth Rework		allowance		$0.00	10%	$0.00	$0.00	
Fly system		allowance		$0.00	10%	$0.00	$0.00	in phase 1 budget
Acoustic Panels		allowance		$0.00	10%	$0.00	$0.00	**Not in design at this time**
Catwalks at stage		allowance	$10,000.00	$0.00	10%	$0.00	$0.00	
Electrical design		allowance	$35,000.00	$0.00	10%	$0.00	$0.00	Cedar Electric
General lighting		allowance	$145,000.00	$0.00	10%	$0.00	$0.00	Cedar Electric
Projection Booth Equipment and Devices		allowance	$10,000.00	$0.00	10%	$0.00	$0.00	Cedar Electric
Theatrical Lighting		allowance	$150,000.00	$0.00	10%	$0.00	$0.00	Cedar electric and PNTA
Phase 2 Allowances			$1,614,500.00			*Subtotal*	*$0.00*	
Total Subtotals				*$2,983,312.50*		*#REF!*	*$3,255,375.75*	
Contingency				$3,255,375.75	15.0%		$488,306.36	
			Total				**$3,743,682.11**	