CLACKAMAS COUNTY BOARD OF COUNTY COMMISSIONERS

Study Session Worksheet

Presentation Date: 5/6/14 **Approx. Start Time:** 1:30pm **Approx. Length:** 1 hr

Presentation Title: 902 Abernethy Road Property (aka Big Blue) Engineer Report

Department: Business & Community Services, Gary Barth, Director
Division: Business & Economic Development

Presenters:
Gary Barth, Director Business and Community Services
Catherine Comer, Business and Economic Development Manager
Mark R. Underhill, R.G., Project Manager, Kleinfelder
Marc Gonzales, Director, Finance

Other Invitees:

WHAT ACTION ARE YOU REQUESTING FROM THE BOARD?
The purpose of this study session is to present the Board of County Commissioners (BCC) with the results of an engineering report for County owned property located at 902 Abernethy Road, Oregon City.

EXECUTIVE SUMMARY:
Clackamas County Business & Economic Development was interested in the possible redevelopment of the county owned property located at 902 Abernethy Road In Oregon City (aka Big Blue) for multi-office and non-manufacturing flex space use. However, prior to the County moving forward with any use of the property it must first be determined if adaptive reuse is feasible and economically advisable for this property.

B&ED hired a consultant, Kleinfelder to do a feasibility and flood mitigation report which is attached.

FINANCIAL IMPLICATIONS (current year and ongoing):
No additional funds are being requested at this time.

LEGAL/POLICY REQUIREMENTS:
TBD

PUBLIC/GOVERNMENTAL PARTICIPATION:TBD

OPTIONS: Information and discussion only

RECOMMENDATION:

ATTACHMENTS:
Feasibility and Flood Mitigation Report

SUBMITTED BY:
Division Director/Head Approval
Department Director/Head Approval
County Administrator Approval

For information on this issue or copies of attachments, please contact
Clackamas County Economic Development 503-742-4329

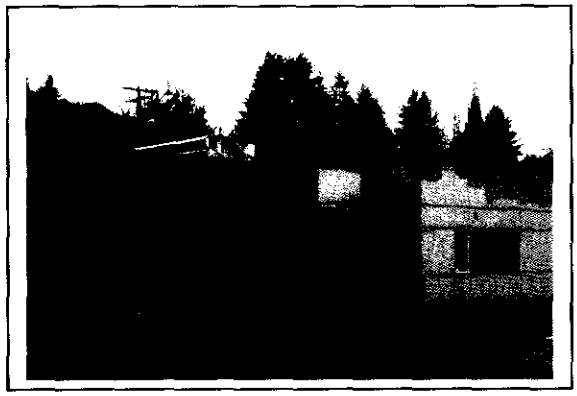
KLEINFELDER
Bright People. Right Solutions.

FEASIBILITY AND FLOOD MITIGATION REPORT FOR BUILDINGS LOCATED AT 902 ABERNETHY ROAD BIG BLUE AND UTILITY BUILDING OREGON CITY, OREGON

Prepared by:

Ronald Gibson.
Senior Structural Engineer

Bruce Curtis
Senior Hydraulic Engineer



January 22, 2014
Kleinfelder Project Number: 138488

KLENIFELDER, WEST, INC.
9200 SW Nimbus Avenue, Suite A
Beaverton, OR 97008
Phone: 503.644.9447
Fax: 503.643.1905

KLEINFELDER
Bright People. Right Solutions.

January 22, 2014
Project Number: 138488

Catherine Comer, Manager
Clackamas County Business & Economic Development
150 Beavercreek Road
Oregon City, OR 97045

Attention: Ms. Catherine Comer

Subject: **Feasibility and Flood Mitigation Report for Buildings Located at 902 Abernethy Road Big Blue Building and Utility Building Oregon City, OR**

Ms. Comer:

The attached report presents the results of Kleinfelder's high level analysis of two buildings located at 902 Abernethy Road. Per your request Kleinfelder has prepared this report for the main building (Big Blue) and the Utility Building.

Our report outlines the results of the structural investigation and the flood mitigation investigation.

Respectfully submitted,
KLEINFELDER WEST, INC.

Ronald F. Gibson
Senior Structural Engineer

Bruce Curtis
Senior Hydraulic Engineer

Enclosures

9200 SW Nimbus Avenue, Suite A, Beaverton, OR 97008 p| 503.644.9447 f| 503.643.1905

A Report Prepared for:

Catherine Comer, Manager
Clackamas County Business & Economic Development
150 Beavercreek Road
Oregon City, OR 97045

Feasibility and Flood Mitigation REPORT for
Buildings located at
902 Abernethy Road
Big Blue and Utility Building
Oregon City, OR

Kleinfelder Job No. 138488

Prepared by:

Garrett Erickson
Staff Engineer

Reviewed by:

Ronald F. Gibson
Senior Structural Engineer

KLEINFELDER WEST, INC.
9200 SW Nimbus Avenue, Suite A
Beaverton, OR 97008
503.644.9447
Fax: 503.643.1905

January 22, 2014

KLEINFELDER
Bright People. Right Solutions.

TABLE OF CONTENTS

1 INTRODUCTION

1.1 GENERAL

Clackamas County Business & Economic Development has contracted Kleinfelder to complete a conceptual analysis of 902 Abernethy Road and a companion building located to the west (the Utilities Building) to assess the structural integrity and evaluate the feasibility to redevelop one or both of the buildings for use as a multi-office and non-manufacturing flex space. The purpose of this analysis is to determine if adaptive reuse is feasible and economically advisable for this property.

This report will provide a structural feasibility study and the floodplain mitigation report which will provide a strategy that will minimize losses should another flood occur. A floodplain mitigation report was required because the buildings are located in the FEMA-designated 100-year floodplain for Abernathy Creek. Three alternatives, a levee/dike around the building, dry floodproofing, and wet floodproofing the building, will be briefly developed and evaluated.

1.2 PROJECT DESCRIPTION

The County-owned 902 Abernethy Road property has been unoccupied and used solely for storage since December 1999. This status is a direct result of water damage which occurred during the flood of February 1996. The building was inundated with eight (8) feet of water and suffered damage to drywall, carpeting, and surface fixtures; however, there is no documented evidence of structural damage to the building. The county received Federal Emergency Management Agency (FEMA) funds to clean up the property and has removed items which harbored mold and other health hazardous materials.

However, the building is not able to be occupied in its present state, owing to mold, mildew and other contaminants which necessitate the use of approved respirators to enter the facility.

Both buildings are currently used for storage. Sand bags are stored in the main area of the Big Blue Building and secure storage is used in the Utility Building.

1.3 PURPOSE AND SCOPE

1.3.1 STRUCTURAL EVALUATION

Clackamas County Business & Economic Development request a high level analysis of 902 Abernethy Road and a companion building located to the west (the Utilities Building) to assess the structural integrity and evaluate the feasibility to redevelop one or both of the buildings for use as a multi-office and non-manufacturing flex space.
Specific areas of study in this scope include:

- Building redevelopment/reuse feasibility analysis
- Non-engineered estimate of redevelopment costs

If the analysis determines that use of the buildings is feasible, further design and building construction proposals would be needed as a second phase.

1.3.2 FLOOD PLAIN MITIGATION PLAN

In addition, the buildings are located in a designated flood zone, therefore a flood plain mitigation plan will need to be done to ensure that, if/when another flood occurs, a strategy on minimizing future losses and damage is in place.
Specific areas of study in this scope include:

- Flood plain mitigation plan
- Estimate of mitigation costs

Kleinfelder has prepared a floodplain mitigation report that will recommend a strategy to minimize damages during a flood event. Two alternatives, a levee/dike around the building and "floodproofing" the building, will be briefly developed and evaluated. A conceptual design will be prepared for any construction efforts and a conceptual-level cost estimate will be prepared for each alternative.

It is assumed that the alternatives will only be developed for the FEMA designated 100-year floodplain and water surface elevation and that this information is readily available from FEMA. It is also assumed that topographic mapping of the site will be provided to Kleinfelder.

2 STRUCTURAL EVALUATION

2.1 EXISTING BUILDING INFORMATION AND PLANS

The two buildings evaluated sit on a 16.5 acre parcel of land located at 902 Abernethy Road. These buildings are part of a Clackamas County maintenance facility. The buildings to the east are currently used by Clackamas County and are not a part of this evaluation.

Site access is provided by two driveways off of Abernethy Road. The two buildings are separated from the maintenance facility by a chain link fence. A gate is located on the east and west end for access to back (south) side of the Big Blue building. The Utility building is outside of the fenced area.

Clackamas County provided enclosed plans for the existing Big Blue Building. These plans are not the original design documents but do show plans for a remodel. No plans were found for the Utility Building but an outline is shown on the Big Blue Building plans

2.2 BIG BLUE BUILDING STRUCTURAL FRAMING SYSTEM

The existing Big Blue Building is comprised of two attached sections. The original building on the east end is 54' wide (east west Grid K-N) by 108 feet long (north south Grid). Attached to this building is the main building which is 258 feet long by 71 feet wide (main building only). There are two vestibules attached to the front of the building that extend out 15 feet and 40 feet. The existing building was last used as an office space with two floors across the entire main structure. Office layouts are shown on plans 2.1 and 2.2.

The main floor is assumed at Elevation 42. The first floor is 9'-1-1/2" above ground floor. The roof coping height is 9'-5-1/2" above the second floor.

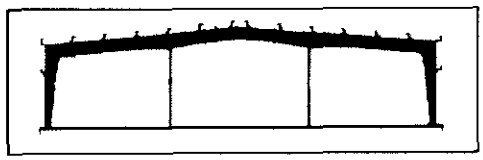
Our evaluation was based on the plans provided and our visual observations inside the building. Due to removal of wall materials and ceiling panels (mold removal) many sections for the structural frame were visible for observation. Photos of the Big Blue Building are located in Appendix A.
Based on our limited evaluation it would appear that the main structure (Grid lines A-K)

was constructed first with the main steel frame system spanning north-south. The east building (Grid lines K-N) are connected but separate structure with steel frames spanning east-west.

The original steel frame is a typical metal building system with tapered steel columns placed along grid lines 1 and 2. Most of the building is a clear span rigid frame spanning the entire 71 foot span from grid lines 1 and 2.

The main building frames are as shown below:

Columns lines F-I are module frames with two interior columns. Building frames along F-I are as shown below:



Plans show cross bracing in the north and south walls between Grids C-D. These were removed in the remodel and replaced with cross bracing between Grids G-H on the north wall and Grids B-C on the south wall. The roof is supported by Z purlins.

The second floor is supported on interior frame system with steel columns and floor beams that are separate from the main steel building frame.

2.3 BIG BLUE STRUCTURAL SLAB SYSTEM

The existing building foundation is a concrete floor system. No plans are available and no testing was completed to determine the type of foundation. The original building contained overhead door on the southeast and northeast sections indicating that this section was used for maintenance. The overhead doors were removed in the last remodel. The concrete slab was likely designed for heavy vehicle use.

A 4'-0" high concrete wall was constructed in from Grid Line F-K in the maintenance area. This concrete wall is visible on the north and south elevations. The wall was constructed outside the steel frame system and is not part of the structural system. The wall was also noted inside at approximately column line F.

Our limited investigation showed no signs of distress to the concrete floor system.

2.4 BIG BLUE BUILDING EXTERIOR AND ROOF

The exterior of the building is mostly wood siding except where the concrete wall is located. Metal siding was also noted on the south side of the building. The exterior of the building was in poor condition and will require removal or repair.

The roof has a slight pitch rising 4 feet in 34 feet. A roof inspection was not completed but there were not new signs of interior damage or leakage. Some damage to the ceiling tiles indicated that there were roof leaks in the past.

2.5 BIG BLUE BUILDING CONDITION ASSESSMENT

The main steel structure, foundation and roof structure all appear to be in good condition. There were not visual signs of deterioration or damage to the main frame structure. The second floor framing system also appeared to be in good condition.

The interior finishes of building were severely damaged by the flood, mold removal and lack of repairs since the flood. In order for the building to be used all interior surfaces should be removed and reconstructed. The interior should be stripped to the bare concrete floors and steel framing.

The exterior of the building is in fair to poor condition. Future use of the building should consider removal and reconstruction of the exterior walls.

A roofing company should inspect and determine recommendations if the building is remodeled for future use.

2.6 UTILITY BUILDING STRUCTURAL FRAMING SYSTEM

We were limited in our evaluation of the Utility Building since there was limited removal of walls and ceilings due to mold removal. The Utility Building is also currently being use for secure storage and several rooms were locked.

Based on plans and our limited access, the Utility Building is a 58'0" wide by 103' long one story building. The Utility Building is approximately 9 feet west of the Big Blue Building. The building is steel framed building with wood roof joists supported on the steel frame. The steel frame is supported by columns located on a grid. The north-south grid is spaced at 16', 33', 23' and 31' from north to south. The east west grids are spaced at 18', 23' and 17' west to east. Steel columns are located on the exterior walls. The building has wood siding and a flat roof.

The steel columns were 4" tube columns supporting 8" deep steel roof beams. The roof joists are wood and steel bar joist, 24" deep.

2.7 UTILITY BUILDING FOUNDATION

No plans are available on the Utility Building foundation. Due to flooring present we are unable to determine the type of foundation used. The concrete floor is likely supported on a slab with grade beams. No visible sign of foundation damage were noted inside the building.

2.8 UTILITY BUILDING CONDITION ASSESSMENT

No structural damage was observed in the Utility Building. Similar to the Big Blue Building, all interior walls and surface need to be removed to eliminate mold. This would include the ceiling tiles and framing. The exterior siding of the building should be removed and replaced.

3 FLOOD PLAIN MITIGATION PLAN

3.1 CLACKAMAS COUNTY FLOODPLAIN DEVELOPMENT PERMIT

A Clackamas County Floodplain Development Permit (FDP) will need to be acquired if the buildings are not "pre-FIRM structures," the improvements constitute a "substantial improvement," or the structure received "substantial damage" during the 1996 flood event. A pre-Firm structure is a building that was built before March 1, 1978. Substantial improvement is any repair, rehabilitation, reconstruction, or improvement of a pre-FIRM structure that costs more than 50 percent of the market value of the structure. Substantial damage is the damage sustained by a pre-FIRM structure whereby the cost of restoring the structure to it's before damage condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

If the structure is not exempt and a FDP is necessary, an application for a FDP will include the following:

- Site plan
- Specifications for building construction and materials
- Description of watercourse alteration
- Elevation certificate or FEMA National Flood Insurance Program Floodproofing Certificate for Non-Residential Structures

It is assumed that the building is a pre-FIRM structure, but that the improvements will constitute a substantial improvement and the structure received substantial damage during the 1996 flood event, so a FDP will be needed.

3.2 CLACKAMAS COUNTY ZONING AND DEVELOPMENT ORDINANCE

There are two types of floodproofing – dry floodproofing and wet floodproofing. Dry floodproofing means making the building watertight, substantially impermeable to floodwaters. Wet floodproofing is applying permanent or contingent measures to a structure and/or its contents that prevent or provide resistance to damage from flooding by allowing flood waters to enter the structure.

According to County Ordinance Section 703.11 Specific Standards, development in the flood fringe, which the building is located in, will require that the structure be dry

floodproofed, so that below the point one foot above the 100-year water surface elevation, the structure is watertight, with walls substantially impermeable to the passage of water. Applicants dry floodproofing non-residential structures shall be notified in writing that flood insurance premiums will be based on rates that are one foot below the dry floodproofed level (e.g. a building dry floodproofed to one foot above the 100-year water surface elevation will be rated as being dry floodproofed to the 100-year water surface elevation).

In addition, the structure shall have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy, and a professional engineer or licensed architect shall certify that the design and methods of construction are in accordance with accepted standards of practice for meeting provisions of this ordinance based on their development and/or review of the structural design, specifications, and plans. Such certifications shall be provided to the County.

Wet Floodproofing generally includes properly anchoring the structure, using flood resistant materials below the base flood elevation and protecting mechanical and utility equipment. Wet floodproofing may be acceptable as a flood protection technique under the National Flood Insurance Program if it is limited to enclosures below elevated residential and non-residential structures. Wet floodproofing is only acceptable to the County for nonresidential structures, if the County issues a variance to allow it.

3.3 FEMA PERMIT

If work is performed on the property that could affect the 100-year water surface elevation, a FEMA Conditional Letter of Map Revision (CLOMR) and Letter of Map Revision (LOMR) would need to be acquired. The CLOMR and LOMR essentially prove that the property is no longer in the floodplain and change the FEMA Flood Insurance Rate Map (FIRM) to demonstrate this.

To obtain a CLOMR from FEMA, a conceptual plan of the proposed construction would need to be developed. A hydraulic model would then need to be created of Abernethy Creek near the property for existing conditions and for conditions after the construction has been performed. The construction could not increase the 100-year water surface elevation in Abernethy Creek by more than one (1) foot. If it does, then additional work would be necessary to lower the water surface elevation. A report and CLOMR permit

application is then submitted to FEMA showing the construction that is planned and what effect it will have on the floodplain and water surface elevation of Abernathy Creek. If the water surface does not increase by more than one (1) foot, then FEMA will issue a CLOMR.

After construction has taken place, as-built surveys are taken of the construction; new drawings and hydraulic models are created; and a report and LOMR application is sent to FEMA. Once FEMA issues the LOMR, then the property owner no longer is required to buy flood insurance.

3.4 ALTERNATIVES

3.4.1 ALTERNATIVE 1 – LEVEE OR FLOODWALL

According to the survey information provided to Kleinfelder (see Figure 1), the ground surface elevation around the buildings varies from about 40 feet to 43 feet. For the ease of discussion, we will assume a constant ground surface elevation at the building of 42 feet. The 100-year water surface elevation at the building location is 48 feet based on the North American Vertical Datum of 1988 (NAVD 88) (see Figure 2). The depth of water at the building during the 100-year flood event would be six (6) feet (48 feet – 42 feet). A levee or wall constructed to keep water away from the buildings would need to be at least one (1) foot higher than the water surface elevation. This additional levee or wall height is called freeboard.

Based on this information, the levee or wall height would need to be about seven (7) feet (6 feet + 1 foot). A levee would need a top width of at least 10 feet and side slopes that were a slope no steeper than 3H to 1V (3:1). The total width of the levee at its base would be 52 feet wide. It would not be possible to place a levee on the north side of the buildings along Abernethy Road because there is not enough room between the building and the road to construct the levee. The cost of raising the elevation of Abernathy Road to act as a levee would be extremely expensive, and the accesses to the other buildings along Abernathy would also need to be raised and this would affect any utilities buried in the road. This option is not financially feasible or practicable. A conceptual design and cost estimate for constructing a levee to remove the buildings from the floodplain was not developed because this option is not feasible or reasonable, and it will not be discussed further.

Another option to remove the buildings from the floodplains would be to construct a floodwall around the property. The floodwall would need to be a minimum of seven (7) feet high and would require automatically-controlled flood gates at the access points to the property so cars

and trucks could drive onto the property. Figure 3 shows the approximate location of the floodwall. Because this would require construction in the 100-year floodplain and would affect the 100-year floodplain, a FEMA Conditional Letter of Map Revision (CLOMR) and Letter of Map Revision (LOMR) and a Clackamas County Floodplain Development Permit (FDP) would need to be acquired.

3.4.2 Alternative 2 – Dry Floodproofing

Dry floodproofing would require a FEMA Floodproofing Certificate for Non-Residential Structures and would require the building to be:

- Watertight
- Utilities located above the 100-year water surface elevation, located within the building, or made watertight to resist damage during flood conditions, and
- Buildings structural components must be capable of resisting specific flood-related forces.

A seven-foot high concrete wall would need to be built around the outside of the buildings to withstand the water pressure. The doors and windows would also need to be modified so that they could be made watertight and withstand the water pressure.

Other considerations on determining on whether is appropriate are warning time; safety and access; flood velocities, flood depth, and debris; flood frequency; flood emergency operation plan; and inspection and maintenance plan. The amount of time necessary to put human intervention floodproofing components in place will depend upon the number of components, their complexity, and the availability of personnel to put them in place.

Safe access to a floodproofed building is a critical factor in the determination of whether floodproofing is an appropriate design alternative. Any floodplain location with a base flood product number (flood depth times velocity) greater than 4 will create a hazard for anyone attempting to enter or leave the building. All roads to be used as excavation

routes from the building must remain passable as floodwater rise. According to FEMA's "Non-Residential Floodproofing – Requirements and Certification," for locations with velocities in excess of five (5) feet per second and flood depths greater than three (3) feet, costs may be prohibitive to use dry floodproofing.

3.4.3 ALTERNATIVE 3 – WET FLOODPROOFING

Wet floodproofing generally includes properly anchoring the structure, using flood resistant materials below the base flood elevation and protecting mechanical and utility equipment. Application of wet floodproofing as a flood protection technique under the National Flood Insurance Program is limited to enclosures below elevated residential and non-residential structures and to nonresidential structures that have been issued variances by the County.

Some non-residential structures — such as detached garages and storage sheds solely used for parking and limited storage that are no greater than 400 square feet in area, pole barns used for storage of farm machinery and equipment, small garden sheds, and structures used in conjunction with agricultural activities — may be granted an exception from the elevation and floodproofing standards, subject to the following criteria:

1. The structure will be wet floodproofed;
2. The structure will not cause significant flood risk;
3. The structure will not be used for human habitation, and will be utilized primarily for storage or parking;
4. The structure will be designed to have low flood damage potential;
5. The structure will be constructed and placed on the building site so as to offer the minimum resistance to the flow of flood waters; and
6. The structure will be constructed with flood-resistant materials that meet the requirements of the County Building Codes Division, up to a minimum of one foot above the BFE in flood fringe and flood hazard areas.

4 CONCLUSIONS AND RECOMMENDATIONS

4.1 ALTERNATIVE 1 – FLOOD WALL

For Alternative 1 - Floodwall, a County FDP, a FEMA CLOMR, and a FEMA LOMR will be needed. A conceptual cost was generated (see Table 1), and the estimated cost of Alternative 1 would be about $3,043,635. This alternative would be acceptable only if there is sufficient time and a warning system is in place to allow people in the buildings to leave before flood waters made travel from the property unsafe.

4.2 ALTERNATIVE 2 – DRY FLOODPROOFING

For Alternative 2 – Dry Floodproofing, a County FDP and a FEMA Floodproofing Certificate for Non-Residential Structures will be needed. A FEMA CLOMR and LOMR should not be needed. A conceptual cost was generated (see Table 2), and the estimated cost of Alternative 2 would be more than $3,511,794. This alternative also would be acceptable only if there is sufficient time and a warning system is in place to allow people in the buildings to install the flood prevention equipment and leave before flood waters made travel from the property unsafe.

4.3 ALTERNATIVE 3 – WET FLOODPROOFING

For Alternative 3 – Wet Floodproofing, a County FDP and a County variance will be needed. A FEMA CLOMR and LOMR should not be needed. A conceptual cost was generated (see Table 3), and the estimated cost of Alternative 3 would be more than $3,105,360. This alternative also would be acceptable only if there is sufficient time and a warning system is in place to allow people in the buildings to leave before flood waters made travel from the property unsafe.

4.4 POTENTIAL ALTERNATIVE USE

During our site visit we met with Clackamas County and discussed one possible use for these two buildings. A film studio would like to use the east end of Big Blue Building as a two-story office complex. The second floor of the main area of Big Blue would be removed which would provide an open two-story high studio area where temporary props would be constructed for filming. Windows would be eliminated in the studio

area. A film studio operation could utilize the existing building if modifications were feasible.

The use of either building for multi-office space will have limits depending on the alternative selected. Alternatives 1 and 2 would be acceptable for multi-office space. Alternative 3 would have to consider the damage that would occur during a flood to the lower floor space.

Use of the space for non-manufacturing flex space is also feasible for all 3 Alternatives. Alternative 3 would have to consider the damage that would occur during a flood. The lease amount of equipment or permanent walls should be considered for the lower floors if Alternative 3 is selected.

4.5 CONCLUSION

One issue that was discussed was the interior columns located along Grid lines F-I. These columns cannot be removed without additional structural analysis. It is however feasible to redesign and modify these frame at an additional cost.

If the existing steel frame will be used for future use then the building will need a code and seismic update to meet current codes. This will require structural modifications that are included in the cost estimates.

If office space on the ground floor is considered for these buildings, then Dry Waterproofing should be investigated. A more detailed investigation of the foundation would be required to determine if this option is feasible.

For all options cost will be a key factor in determining the feasibility of reuse of these buildings. Cost assumed that all interior components of both building must be removed and replaced.

Essentially you are saving the foundation, steel frame and roof frame systems with major remodeling of the exterior siding. You are also saving the cost of land, utilities, and parking lot. After removing the interior and all potential mold surfaced the steel frame should be inspected, cleaned and repaired if required.

5 LIMITATIONS

The recommendations in this report are based on our field observations, laboratory testing, and our present understanding of the proposed construction. It is possible that subsurface conditions can vary between or beyond the points explored. If the conditions found during construction differ from those described in this report, please notify us immediately so that we can review our report in light of those conditions and provide supplemental recommendations as necessary. We should also review the report if the scope of the proposed construction, including the proposed loads or structure locations, changes from that described in this report.

Kleinfelder has prepared this report for the exclusive use of Clackamas County for the proposed improvements to the buildings. The report was prepared in substantial accordance with the generally accepted standards of practice for geotechnical engineering as exist in the site area at the time of our investigation. No warranty is expressed or implied. The recommendations in this report are based on the assumption that Kleinfelder will be provided review comments and additional information as required to revise/refine recommendations. They also are based on the assumption that Kleinfelder will be retained to conduct an adequate program of construction testing and observation to evaluate compliance with our recommendations.

This report may be used only by the Client, and only for the purposes stated, within a reasonable time from its issuance, but in no event later than one year from the date of the report. Land use, site conditions (both on- and off-site), or other factors may change over time, so that additional investigation or revision of our recommendations may be required with the passage of time. It is the Client's responsibility to see that all parties to the project including the designer, contractor, and subcontractors, are made aware of this report in its entirety. The use of information contained in this report for bidding purposes shall be at the Contractor's option and risk. Any party other than the Client who wishes to use this report must notify Kleinfelder of such intended use. Based on that intended use of the report, Kleinfelder may require that additional work be performed and that an updated report be issued. Noncompliance with these requirements by the Client or anyone else will release Kleinfelder from any liability resulting from the use of this report by an unauthorized party.

Important Information About Your Geoenvironmental Report

Geoenvironmental studies are commissioned to gain information about environmental conditions on and beneath the surface of a site. The more comprehensive the study, the more reliable the assessment is likely to be. But remember: Any such assessment is to a greater or lesser extent based on professional opinions about conditions that cannot be seen or tested. Accordingly, no matter how many data are developed, risks created by unanticipated conditions will always remain. *Have realistic expectations.* Work with your geoenvironmental consultant to manage known and unknown risks. Part of that process should already have been accomplished, through the risk allocation provisions you and your geoenvironmental professional discussed *and included in your contract's general terms and conditions.* This document is intended to explain some of the concepts that may be included in your agreement, and to pass along information and suggestions to help you manage your risk.

Beware of Change; Keep Your Geoenvironmental Professional Advised

The design of a geoenvironmental study considers a variety of factors that are subject to change. Changes can undermine the applicability of a report's findings, conclusions, and recommendations. *Advise your geoenvironmental professional about any changes you become aware of.* Geoenvironmental professionals cannot accept responsibility or liability for problems that occur because a report fails to consider conditions that did not exist when the study was designed. Ask your geoenvironmental professional about the types of changes you should be particularly alert to. Some of the most common include:

- modification of the proposed development or ownership group,
- sale or other property transfer,
- replacement of or additions to the financing entity,
- amendment of existing regulations or introduction of new ones, or
- changes in the use or condition of adjacent property.

Should you become aware of any change, *do not rely on a geoenvironmental report.* Advise your geoenvironmental professional immediately; follow the professional's advice.

Recognize the Impact of Time

A geoenvironmental professional's findings, recommendations, and conclusions cannot remain valid indefinitely. The more time that passes, the more likely it is that important latent changes will occur. *Do not rely on a geoenvironmental report if too much time has elapsed since it was completed.* Ask your environmental professional to define "too much time." In the case of Phase I Environmental Site Assessments (ESAs), for example, more than 180 days after submission is generally considered "too much."

Prepare To Deal with Unanticipated Conditions

The findings, recommendations, and conclusions of a Phase I ESA report typically are based on a review of historical information, interviews, a site "walkover," and other forms of noninvasive research. When site subsurface conditions are not sampled in any way, the risk of unanticipated conditions is higher than it would otherwise be.

While borings, installation of monitoring wells, and similar invasive test methods can help reduce the risk of unanticipated conditions, *do not overvalue the effectiveness of testing.* Testing provides information about actual conditions only at the precise locations where samples are taken, and only when they are taken. Your geoenvironmental professional has applied that specific information to develop a general opinion about environmental conditions. *Actual conditions in areas not sampled may differ (sometimes sharply) from those predicted in a report.* For example, a site may contain an unregistered underground storage tank that shows no surface trace of its existence. *Even conditions in areas that were tested can change* sometimes suddenly due to any number of events, not the least of which include occurrences at

adjacent sites. Recognize, too, that *even some conditions in tested areas may go undiscovered*, because the tests or analytical methods used were designed to detect only those conditions assumed to exist.

Manage your risks by retaining your geoenvironmental professional to work with you as the project proceeds. Establish a contingency fund or other means to enable your geoenvironmental professional to respond rapidly, in order to limit the impact of unforeseen conditions. And to help prevent any misunderstanding, identify those empowered to authorize changes and the administrative procedures that should be followed.

Do Not Permit Any Other Party To Rely on the Report

Geoenvironmental professionals design their studies and prepare their reports to meet the specific needs of the clients who retain them, in light of the risk management methods that the client and geoenvironmental professional agree to, and the statutory, regulatory, or other requirements that apply. The study designed for a developer may differ sharply from one designed for a lender, insurer, public agency, or even another developer. *Unless the report specifically states otherwise, it was developed for you and only you.* Do not unilaterally permit any other party to rely on it. The report and the study underlying it may not be adequate for another party's needs, and you could be held liable for shortcomings your geoenvironmental professional was powerless to prevent or anticipate. Inform your geoenvironmental professional when you know or expect that someone else—a third-party—will want to use or rely on the report. *Do not permit third-party use or reliance until you first confer with the geoenvironmental professional who prepared the report.* Additional testing, analysis, or study may be required and, in any event, appropriate terms and conditions should be agreed to so both you and your geoenvironmental professional are protected from third-party risks. *Any party who relies on a geoenvironmental report without the express written permission of the professional who prepared it and the client for whom it was prepared may be solely liable for any problems that arise.*

Avoid Misinterpretation of the Report

Design professionals and other parties may want to rely on the report in developing plans and specifications. They need to be advised, in writing, that their needs may not have been considered when the study's scope was developed, and, even if their needs were considered, they might misinterpret geoenvironmental findings, conclusions, and recommendations. *Commission your geoenvironmental professional to explain pertinent elements of the report to others who are permitted to rely on it, and to review any plans, specifications or other instruments of professional service that incorporate any of the report's findings, conclusions, or recommendations.* Your geoenvironmental professional has the best understanding of the issues involved, including the fundamental assumptions that underpinned the study's scope.

Give Contractors Access to the Report

Reduce the risk of delays, claims, and disputes by giving contractors access to the full report, *providing that it is accompanied by a letter of transmittal that can protect you* by making it unquestionably clear that: 1) the study was not conducted and the report was not prepared for purposes of bid development, and 2) the findings, conclusions, and recommendations included in the report are based on a variety of opinions, inferences, and assumptions and are subject to interpretation. Use the letter to also advise contractors to consult with your geoenvironmental professional to obtain clarifications, interpretations, and guidance (a fee may be required for this service), and that—in any event—they should conduct additional studies to obtain the specific type and extent of information each prefers for preparing a bid or cost estimate. Providing access to the full report, with the appropriate caveats, helps prevent formation of adversarial attitudes and claims of concealed or differing conditions. If a contractor elects to ignore the warnings and advice in the letter of transmittal, it would do so at its own risk. Your geoenvironmental professional should be able to help you prepare an effective letter.

Do Not Separate Documentation from the Report

Geoenvironmental reports often include supplemental documentation, such as maps and copies of regulatory files, permits, registrations, citations, and correspondence with regulatory agencies. If subsurface explorations were performed, the report may contain final boring logs and copies of laboratory data. If remediation activities occurred on site, the report may include copies of daily field reports, waste manifests, and information about the disturbance of subsurface materials, the type and thickness of any fill placed on site, and fill placement practices, among other types of documentation. *Do not separate supplemental documentation from the report. Do not, and do not permit any other party to redraw or modify any of the supplemental documentation for incorporation into other professionals' instruments of service.*

Understand the Role of Standards

Unless they are incorporated into statutes or regulations, standard practices and standard guides developed by the American Society for Testing and Materials (ASTM) and other recognized standards-developing organizations (SDOs) are little more than aspirational methods agreed to by a consensus of a committee. The committees that develop standards may not comprise those best-qualified to establish methods and, no matter what, no standard method can possibly consider the infinite client- and project-specific variables that fly in the face of the theoretical "standard conditions" to which standard practices and standard guides apply. In fact, these variables can be so pronounced that geoenvironmental professionals who comply with every directive of an ASTM or other standard procedure could run afoul of local custom and practice, thus violating the standard of care.

Accordingly, when geoenvironmental professionals indicate in their reports that they have performed a service "in general compliance" with one standard or another, it means they have applied professional judgement in creating and implementing a scope of service designed for the specific client and project involved, and which follows some of the general precepts laid out in the referenced standard. To the extent that a report indicates "general compliance" with a standard, you may wish to speak with your geoenvironmental professional to learn more about what was and was not done. Do not assume a given standard was followed to the letter. Research indicates that that seldom is the case.

Realize that Recommendations May Not Be Final

The technical recommendations included in a geoenvironmental report are based on assumptions about actual conditions, and so are *preliminary or tentative. Final recommendations can be prepared only* by observing actual conditions as they are exposed. For that reason *you should retain the geoenvironmental professional of record to* observe construction and/or remediation activities on site, to permit rapid response to unanticipated conditions. *The geoenvironmental professional who prepared the report cannot assume responsibility or liability for the report's recommendations if that professional is not retained to observe relevant site operations.*

Understand That Geotechnical Issues Have Not Been Addressed

Unless geotechnical engineering was specifically included in the scope of professional service, a report is not likely to relate any findings, conclusions, or recommendations about the suitability of subsurface materials for construction purposes, especially when site remediation has been accomplished through the removal, replacement, encapsulation, or chemical treatment of on-site soils. The equipment, techniques, and testing used by geotechnical engineers differ markedly from those used by geoenvironmental professionals; their education, training, and experience are also significantly different. If you plan to build on the subject site, but have not yet had a geotechnical engineering study conducted, your geoenvironmental professional should be able to provide guidance about the next steps you should take. The same firm may provide the services you need.

Read Responsibility Provisions Closely

Geoenvironmental studies cannot be exact, they are based on professional judgement and opinion. Nonetheless, some clients, contractors, and others assume geoenvironmental reports are or certainly should be unerringly precise. Such assumptions have created unrealistic expectations *that have led to wholly unwarranted claims and disputes.* To help prevent such problems, geoenvironmental professionals *have developed a number of report provisions and contract terms* that explain who is responsible for what, and how risks are to be allocated. Some people mistake these for "exculpatory clauses," that is, provisions whose purpose is to transfer one party's rightful responsibilities and liabilities to someone else. Read the responsibility provisions included in a report and in the contract you and your geoenvironmental professional agree to. *Responsibility provisions are not "boilerplate."* They are important.

Rely on Your Geoenvironmental Professional for Additional Assistance

Membership in ASFE exposes geoenvironmental professionals to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a geoenvironmental project. Confer with your ASFE-member geoenvironmental professional for more information.

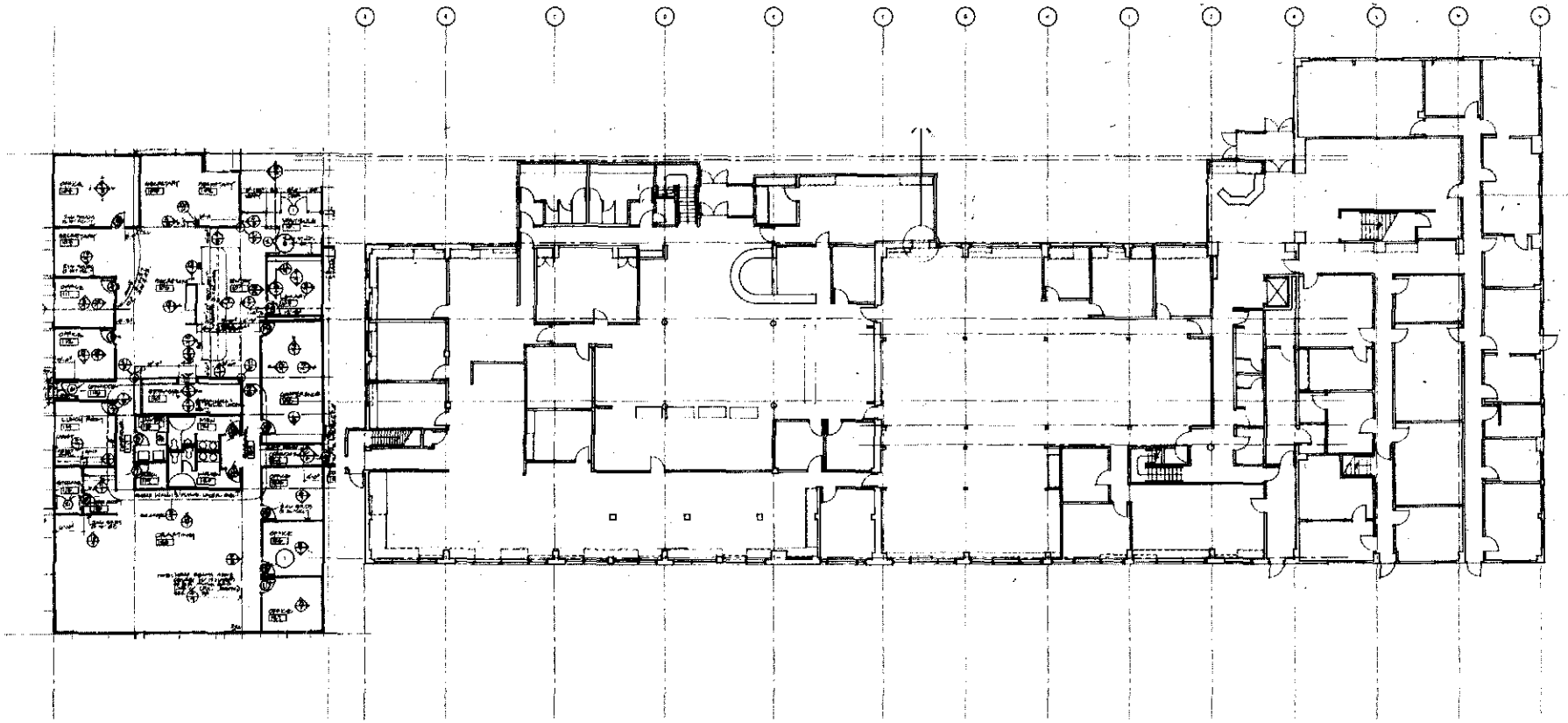
ASFE

8811 Colesville Road/Suite G106, Silver Spring, MD 20910
Telephone: 301/565-2733 Telefax: 301/589-2017
e-mail: mail@asfe.org www.asfe.org

HGR06005.DM

KLEINFELDER
Bright People. Right Solutions.

APPENDIX A
Existing Plans



CLACKAMAS COUNTY SHOPS

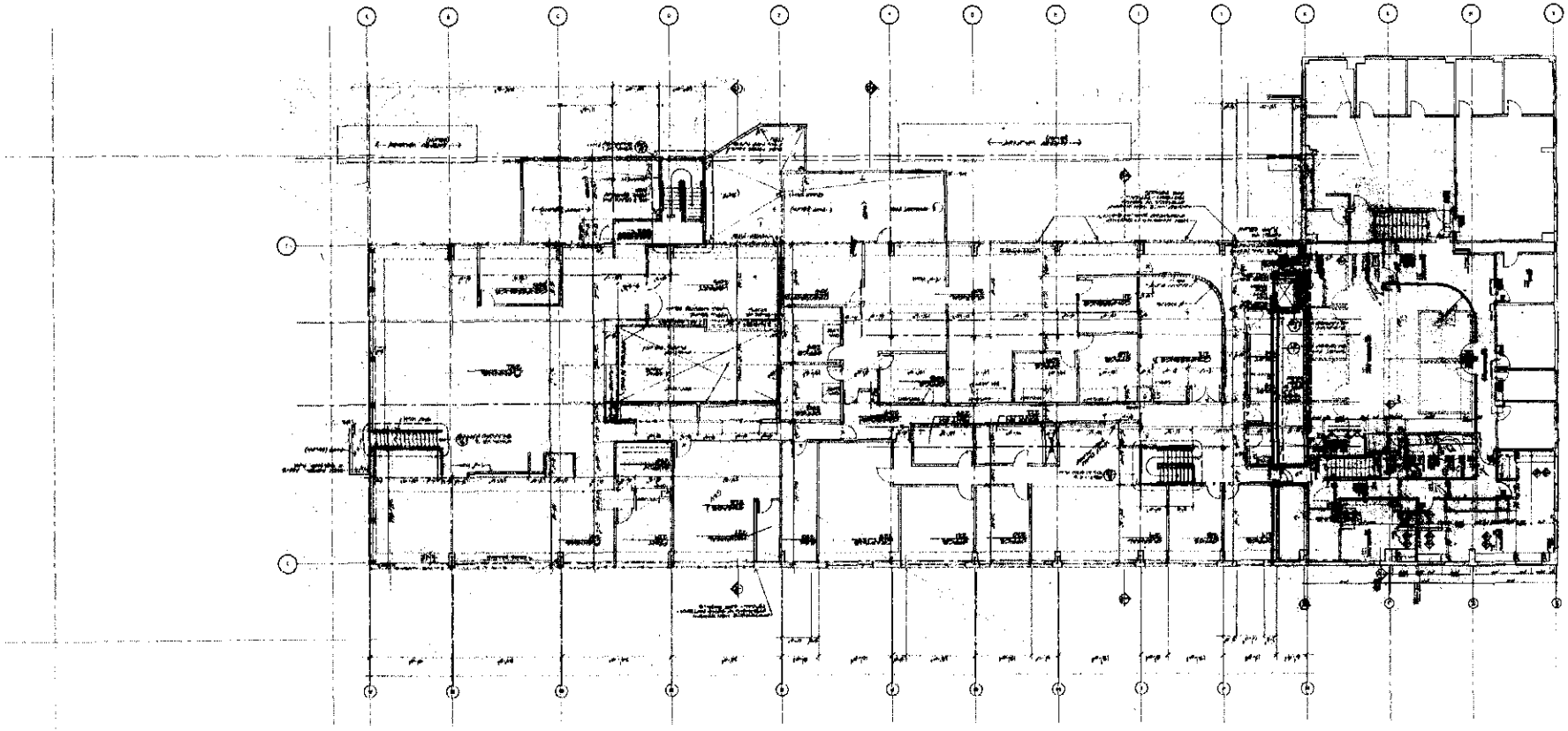
OREGON CITY, OREGON

HILL ARCHITECTS

FIRST FLOOR PLAN **2.1**

AUGUST 15, 2013

1014 WILLAMETTE FALLS DRIVE • SUITE 250 • WEST LINN • OREGON 97068



CLACKAMAS COUNTY SHOPS

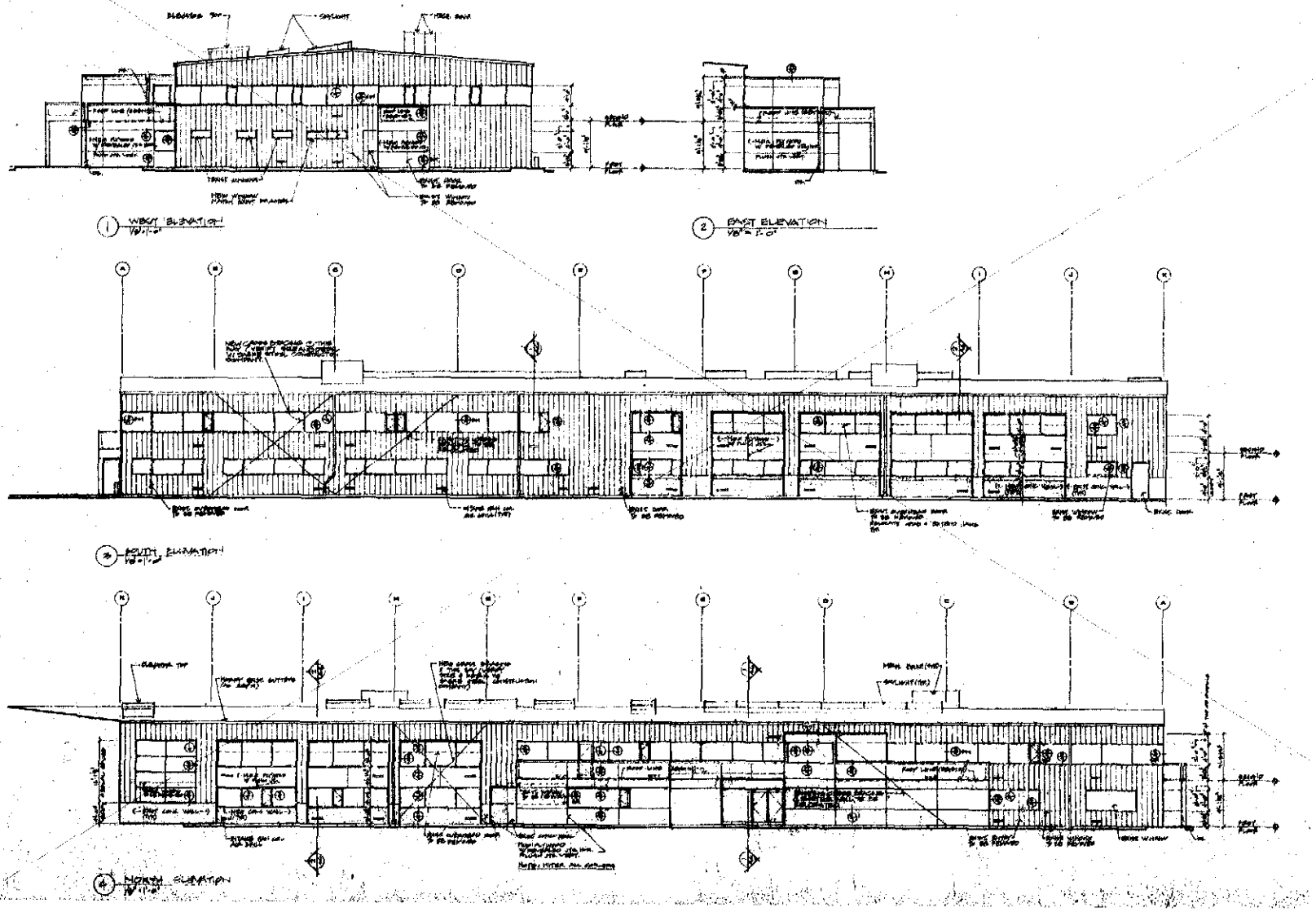
OREGON CITY, OREGON

HILL ARCHITECTS

SECOND FLOOR PLAN **2.2**

AUGUST 15, 2013

1914 WILLAMETTE FALLS DRIVE • SUITE 280 • WEST LINN • OREGON 97068



CLACKAMAS COUNTY SHOPS

OREGON CITY, OREGON

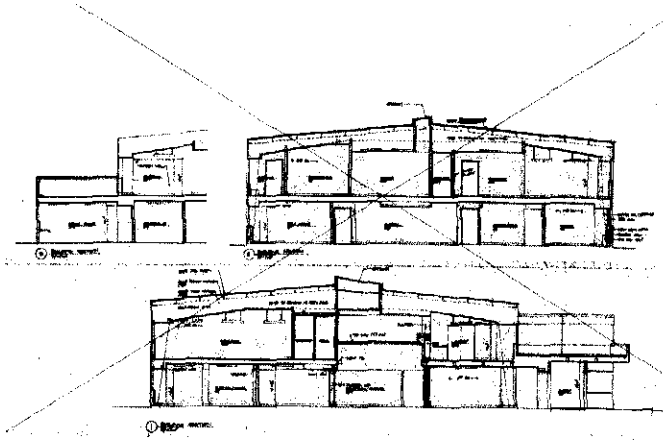
HILL ARCHITECTS

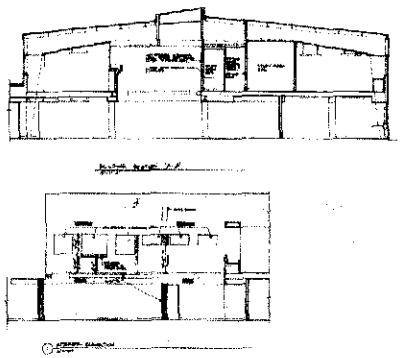
ELEVATIONS **3.0**

AUGUST 14, 2013

19141 WILLAMETTE FALLS DRIVE • SUITE 280 • WEST LINN • OREGON 97068

H





CLACKAMAS COUNTY SHOPS

OREGON CITY, OREGON

HILL ARCHITECTS

SECTIONS 3.1

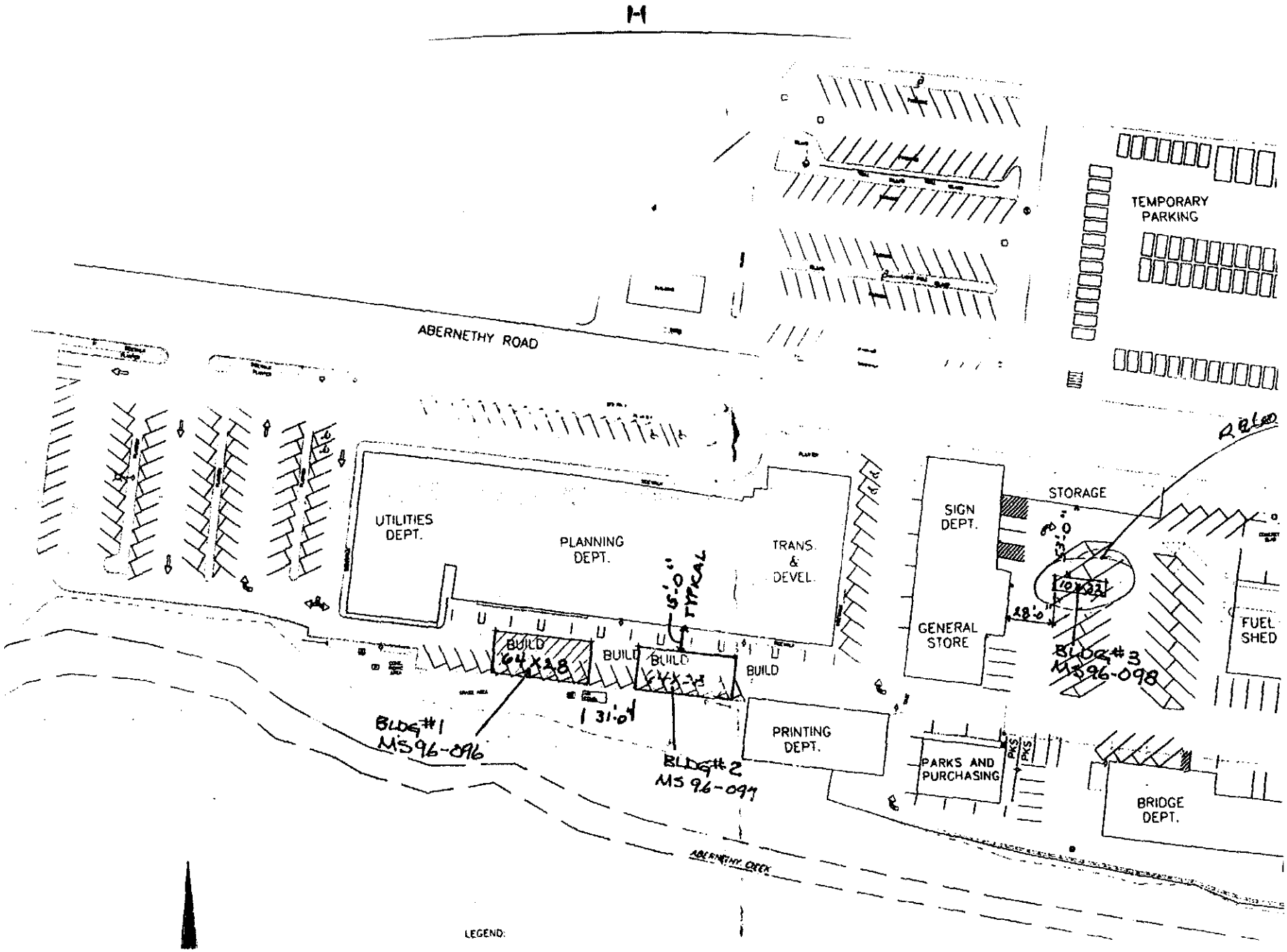
AUGUST 14, 2013

19141 WILLAMETTE FALLS DRIVE · SUITE 280 · WEST LINN · OREGON 97068

CLACKAMAS COUNTY SHOPS
OREGON CITY, OREGON

HILL ARCHITECTS

EXISTING SITE GIS 1.0
AUGUST 15, 2013



CLACKAMAS COUNTY SHOPS

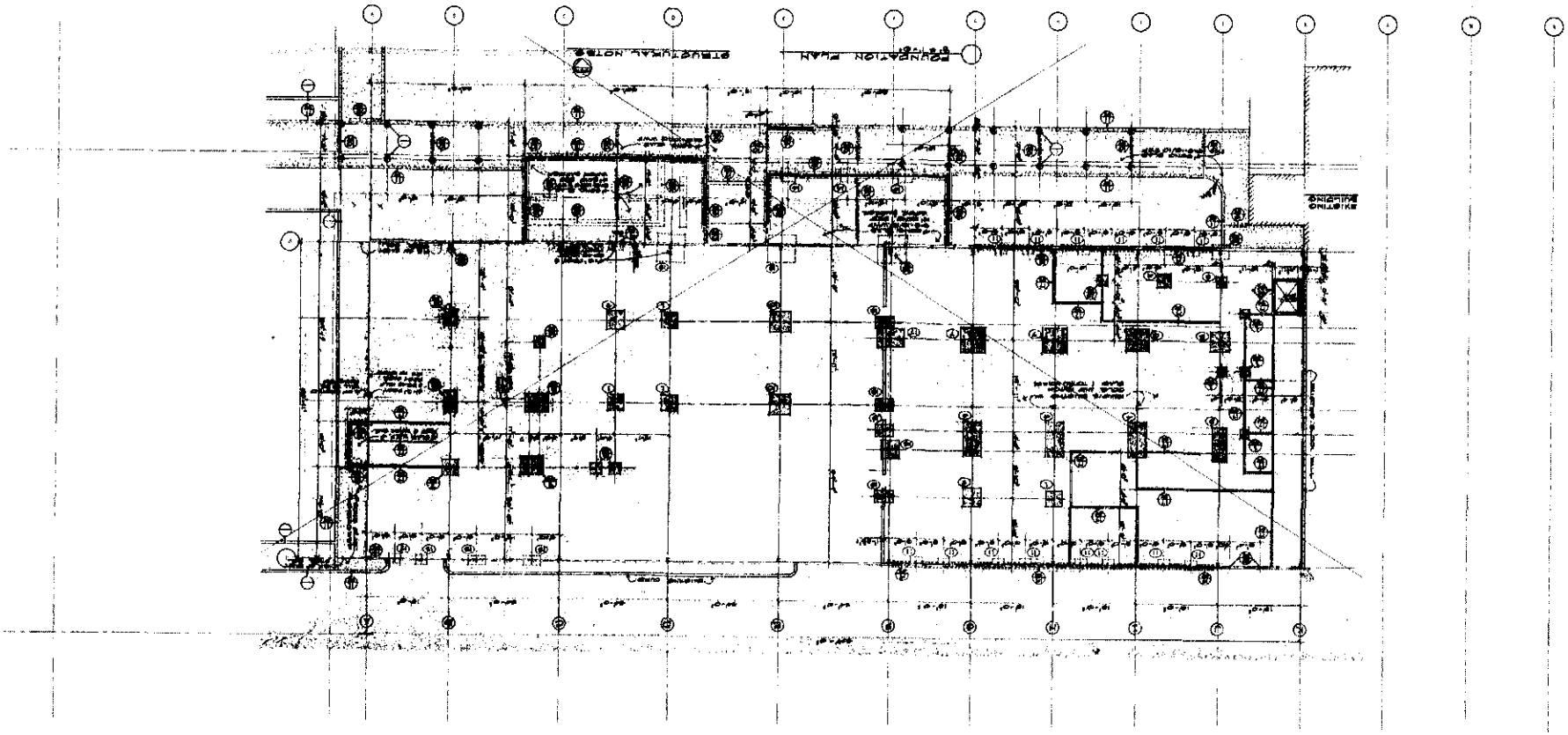
OREGON CITY, OREGON

HILL ARCHITECTS

EXISTING SITE **1.1**

AUGUST 15, 2013

19114 WILLAMETTE FALLS DRIVE • SUITE 200 • WEST LINN • OREGON 97068



CLACKAMAS COUNTY SHOPS
OREGON CITY, OREGON

HILL ARCHITECTS

FOUNDATION PLAN 2.0
AUGUST 15, 2013

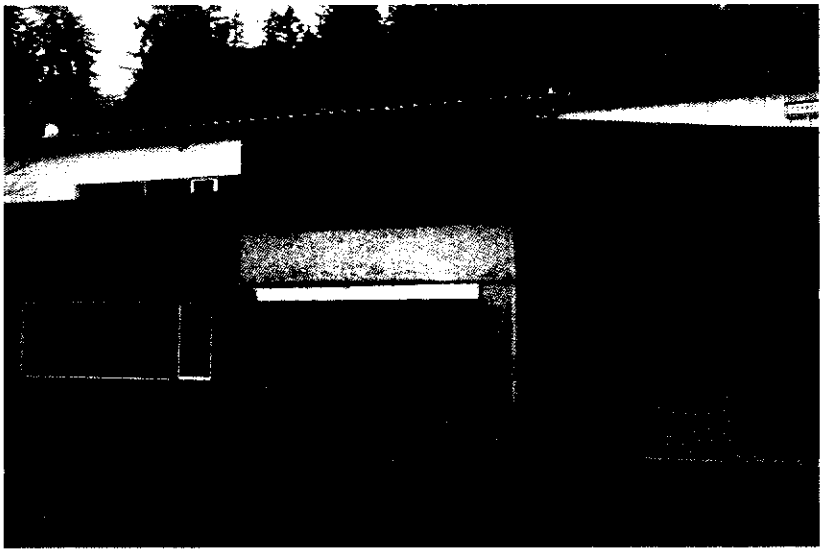
1044 WILLAMETTE FALLS DRIVE • SUITE 280 • WEST LINN • OREGON 97068

KLEINFELDER
Bright People. Right Solutions.

APPENDIX B
Photos

KLEINFELDER

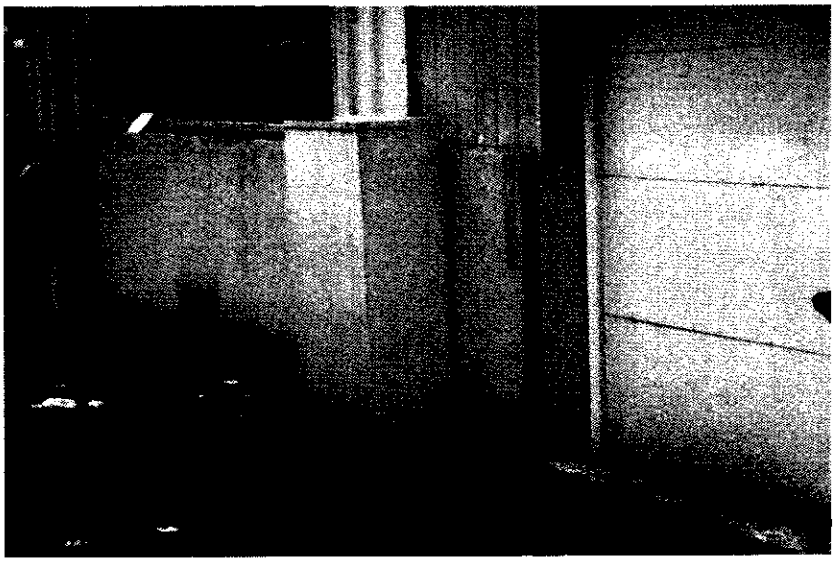
Big Blue Bldg. Center Section – Photo 1



Big Blue Bldg. Center Section – Photo 2

KLEINFELDER

Big Blue Bldg. South Side, Concrete Wall – Photo 3



Big Blue Bldg. Roof Purlins – Photo 4

KLEINFELDER

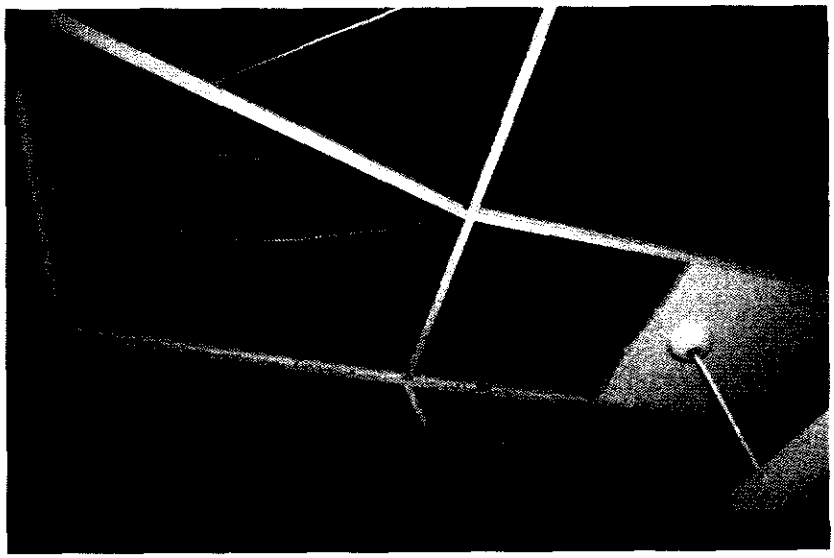
Big Blue Bldg. Roof Purlins – Photo 5

Big Blue Ceiling Beam, Additional Column Support – Photo 6

KLEINFELDER

Big Blue Ceiling Beam, Additional Column Support – Photo 7

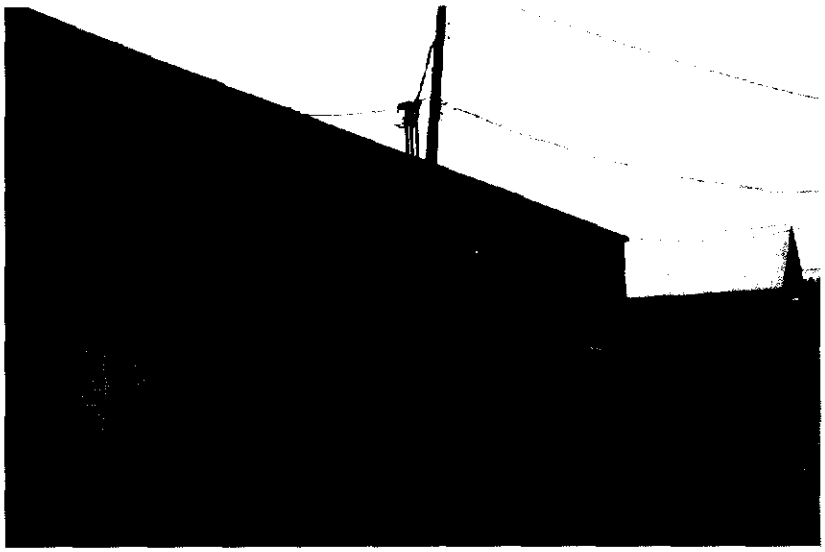
Big Blue Ceiling Main Beam – Photo 8



KLEINFELDER

Big Blue Main Front Entrance – Photo 9

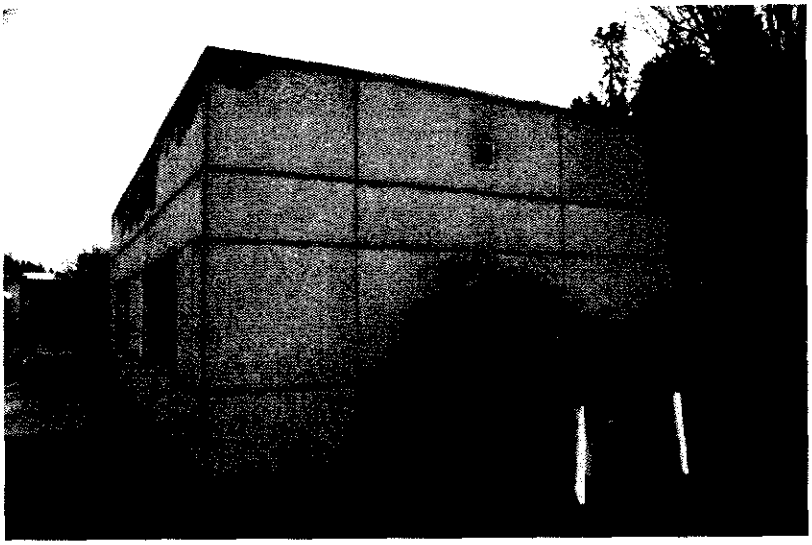
Big Blue South Side 6 – Photo 10



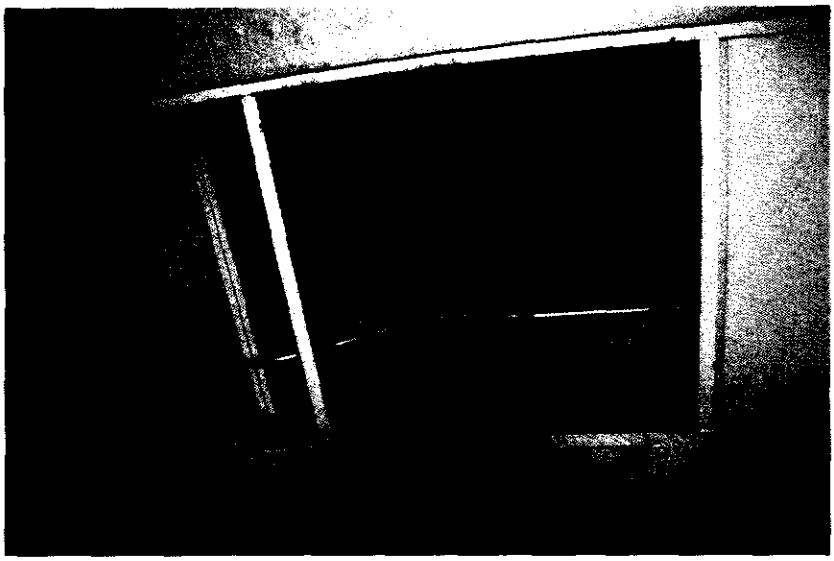
KLEINFELDER

Utility Bldg. West Side 1 – Photo 11

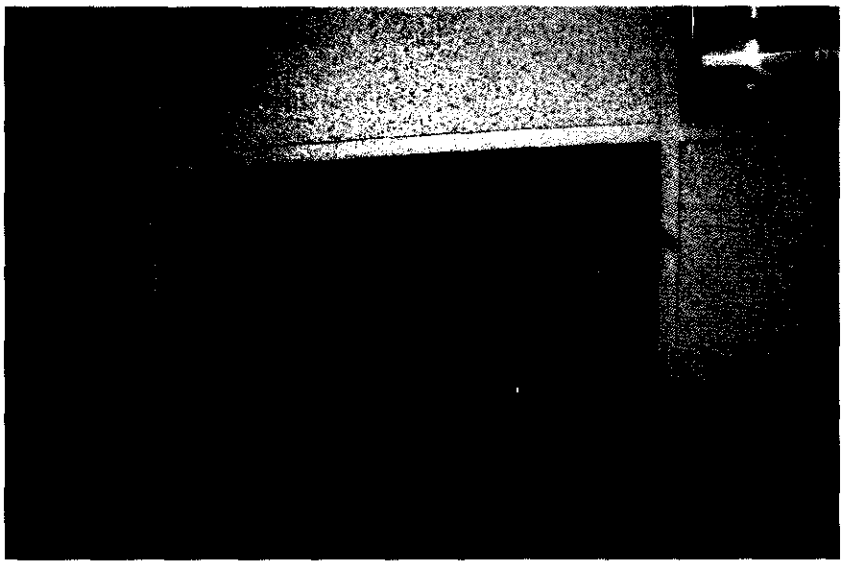
Utility Bldg. West Side 2 – Photo 12



Utility Bldg., Roof Joists – Photo 13

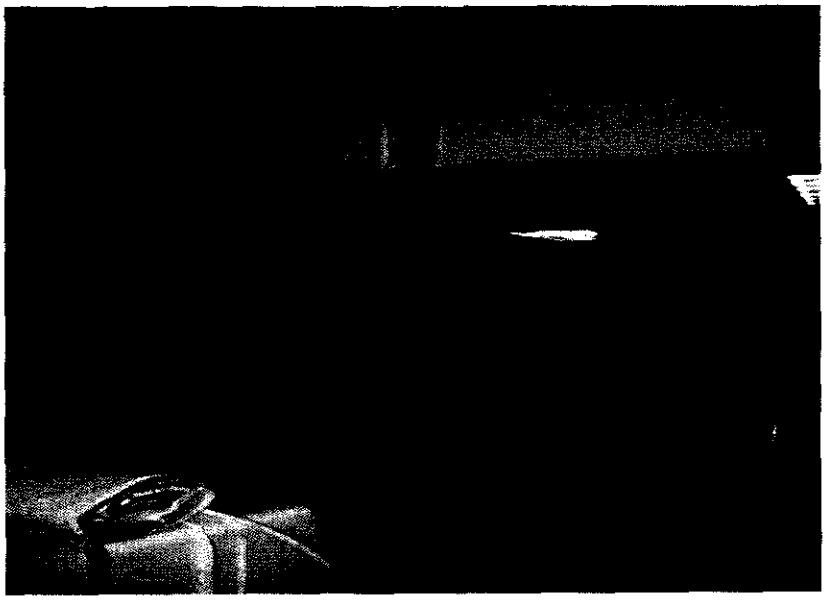


Utility Bldg. Ceiling Beam – Photo 14



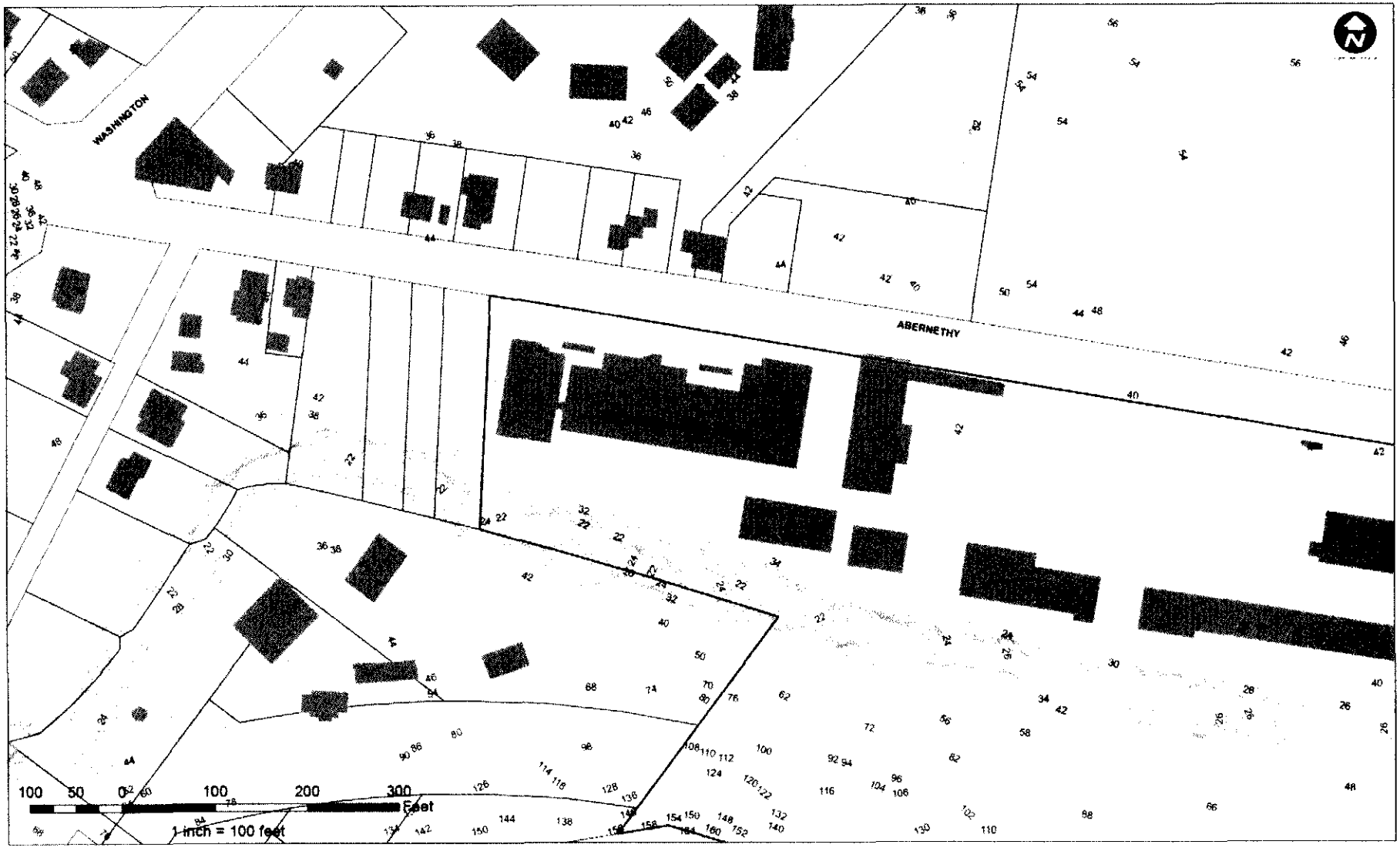
KLEINFELDER

Utility Bldg., Roof Column – Photo 15



KLEINFELDER
Bright People. Right Solutions.

APPENDIX C
Hydraulic Data and Figures



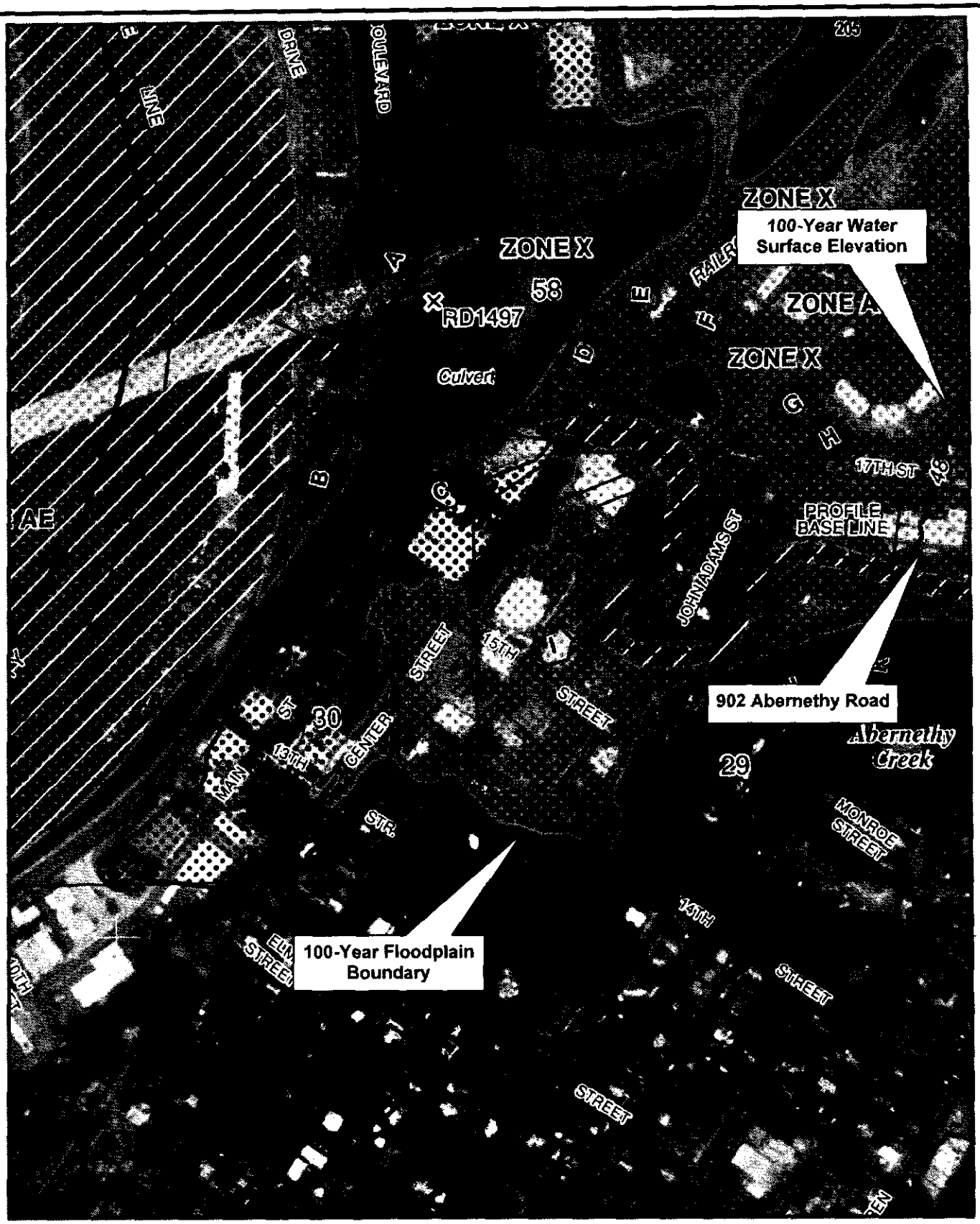
KLEINFELDER
Bright People. Right Solutions.
www.kleinfelder.com

PROJECT NO.	138488
DRAWN:	1/16/2014
DRAWN BY:	A.Leonard
CHECKED BY:	B.Curtis
FILE NAME:	Clackmas_Contour_Fig1.pdf

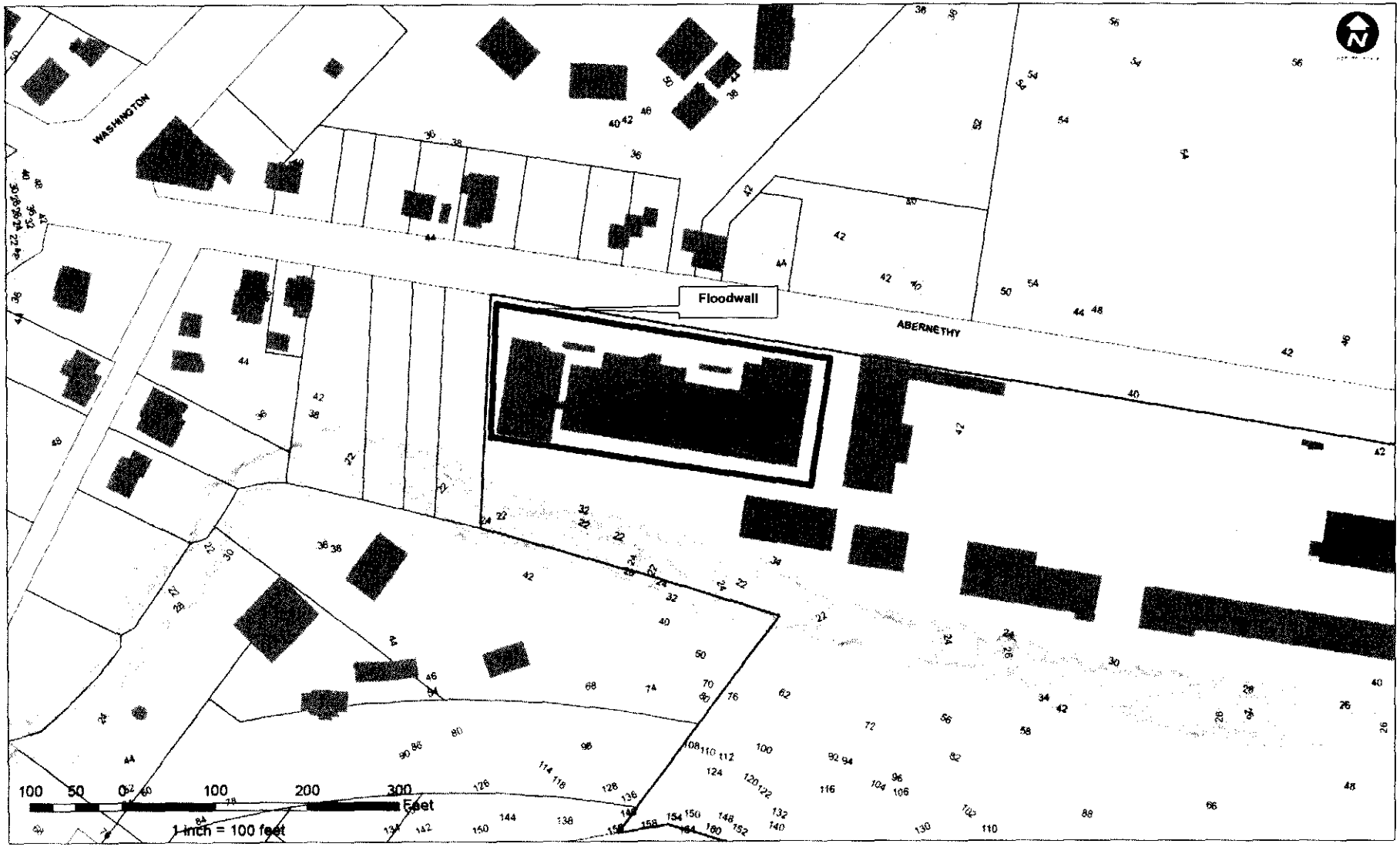
Clackamas County Business and Economic Development

Contour Map
Clackamas County, Oregon

FIGURE
1



KLEINFELDER Bright People. Right Solutions. www.kleinfelder.com	PROJECT NO. 138488 DRAWN: 1/16/2014 DRAWN BY: A.Leonard CHECKED BY: B.Curtis FILE NAME: Clackamas_FEMA.pdf	**Clackamas County Business and Economic Development** FEMA FIRM Map Clackamas County, Oregon	FIGURE **2**



KLEINFELDER
Bright People. Right Solutions.
www.kleinfelder.com

PROJECT NO.	138488
DRAWN:	1/16/2014
DRAWN BY:	A.Leonard
CHECKED BY:	B.Curtis
FILE NAME:	Clackamas_Contour_Fig3.pdf

Clackamas County Business and Economic Development

Alternative 1
Floodwall
Clackamas County, Oregon

FIGURE
3

KLEINFELDER
Bright People. Right Solutions.
www.kleinfelder.com

PROJECT NO:	138488
DRAWN:	1/16/2014
DRAWN BY:	A.Leonard
CHECKED BY:	B.Curtis
FILE NAME:	Clackmas_Contour_Fig3.pdf

Clackamas County Business and Economic Development

Alternative 2
Dry Floodproofing
Clackamas County, Oregon

FIGURE
4

KLEINFELDER
Bright People. Right Solutions.

APPENDIX D
Cost Estimate

TABLE 1: CONCEPTUAL ENGINEERS OPINION OF PROBABLE COST

Alternative 1 - Floodwall

ITEM NO.	ITEM	QUANTITY	UNITS	UNIT PRICE	COST
1	Floodwall (7 feet high)	1000	LF	$ 300	$ 300,000
2	Floodgates	1	Each	$ 100,000	$ 100,000
3	Renovation of Big Blue Building	24150	SF	$ 75	$ 1,811,250
4	Renovation of Utility Building (New Bldg)	6000	SF	$ 50	$ 300,000
5					$ -
6					$ -
7					$ -
8					$ -
	SUBTOTAL				**$ 2,511,250**
			% of Subtotal		
	UTILITY RELOCATIONS		1.0%		$ 25,113
	SUBTOTAL				**$ 2,536,363**
	CONSTRUCTION CONTINGENCY		20.0%		$ 507,273
	TOTAL CONSTRUCTION COST				**$ 3,043,635**

*COSTS DO NOT INCLUDE PERMITTING OR ENVIRONMENTAL COSTS.

TABLE 2: CONCEPTUAL ENGINEERS OPINION OF PROBABLE COST
Alternative 2 - Dry Floodproofing

ITEM NO.	ITEM	QUANTITY	UNITS	UNIT PRICE	COST
1	Concrete Wall (7 feet high)	1120	LF	$ 300	$ 336,000
2	Watertight Doors	2	Each	$ 10,000	$ 20,000
3	Renovation of Big Blue Building	24150	SF	$ 80	$ 1,932,000
4	Renovation of Utility Building (New Bldg)	6000	SF	$ 50	$ 300,000
5	Foundation Modifications	24150	SF	$ 3	$ 72,450
6					$ -
7					$ -
8					$ -
	SUBTOTAL				**$ 2,660,450**
			% of Subtotal		
	UTILITY RELOCATIONS		10.0%		$ 266,045
	SUBTOTAL				**$ 2,926,495**
	CONSTRUCTION CONTINGENCY		20.0%		$ 585,299
	TOTAL CONSTRUCTION COST				**$ 3,511,794**

*COSTS DO NOT INCLUDE PERMITTING OR ENVIRONMENTAL COSTS.

Table 3: CONCEPTUAL ENGINEERS OPINION OF PROBABLE COST
Alternative 3 - Wet Floodproofing

ITEM NO.	ITEM	QUANTITY	UNITS	UNIT PRICE	COST
1	Renovation of Big Blue Building	24150	SF	$ 85	$ 2,052,750
2	Renovation of Utility Building (New Bldg)	6000	SF	$ 50	$ 300,000
3					$ -
4					$ -
5					$ -
6					$ -
7					$ -
8					$ -
	SUBTOTAL				**$ 2,352,750**
			% of Subtotal		
	UTILITY RELOCATIONS		10.0%		$ 235,275
	SUBTOTAL				**$ 2,588,025**
	CONSTRUCTION CONTINGENCY		20.0%		$ 517,605
	TOTAL CONSTRUCTION COST				**$ 3,105,630**

*COSTS DO NOT INCLUDE PERMITTING OR ENVIRONMENTAL COSTS.