



Staff Report for Administrative Approval – Hillside Review – Notice of Approval

Weber County Planning Division

Synopsis

Application Information

Application Request: Consideration and action on a request to approve a Hillside Review for Hannoy Residence Lot 127 in the Highlands at Wolf Creek.

Agenda Date: Wednesday, June 01, 2016

Applicant: Ann Hannoy

Authorized Representative: Paul Berman, Big Canyon Homes

File Number: HSR 2016-05

Property Information

Approximate Address: 3563 Pineview Court

Project Area: 0.754 acres

Zoning: RE-15

Existing Land Use: Vacant

Proposed Land Use: Single Family Residence

Parcel ID: 22-250-0007

Township, Range, Section: 7N 1E Sec 23

Adjacent Land Use

North: Residential	South: Residential
East: Residential	West: Residential

Staff Information

Report Presenter: Ronda Kippen
rkippen@co.weber.ut.us
 801-399-8768

Report Reviewer: RG

Applicable Ordinances

- Weber County Land Use Code Title 108 (Standards) Chapter 14 (Hillside Development Review)
- Weber County Land Use Code Title 104 (Zones) Chapter 27 (Natural Hazards Overlay District)

Background

It was determined during the building permit review process by the County Engineering Division that due to the slope and the potential of a geologic hazard being located on the site that the property be subject to a Hillside Review. The property owner hired AGECEC to perform the required geologic and geotechnical investigation to determine if there is a geologic hazard in order to better design the home for safety purposes. Information related to the construction of the dwelling including a site plan, grading plans, and a geotechnical report, were distributed to the Hillside Review Board for comment. The plans have been reviewed and approved by all applicable review agencies.

Planning Division Review

The Planning Division Staff has determined that the requirements and standards provided by the Hillside Review Chapter have been met for the excavation and construction of the dwelling. The following submittals were required:

1. Approved Plans (see Exhibit A)
2. Geotechnical Investigation Report (see Exhibit B)
3. Geologic Investigation Report (see Exhibit C)
4. Utah Pollution Discharge Elimination system (UPDES) Permit with Storm water Pollution Prevention Plan (See Building Permit Application Packet for UPDES and SWPPP)

Weber County Hillside Review Board comments

The Weber County Hillside Review Board, on this particular application, made comments related to the following:

Weber County Engineering Division: The Engineering Division granted approval on May 18, 2016. The approval is subject to the applicant following all recommendations found in the applicable Geotechnical and Geological Investigation Reports including any subsequent recommendations that are provided by their geo-technical and geological consultants. Subsequent recommendations may be necessary if additional geologic hazards are exposed during the excavation and construction phase of the dwelling.

Weber Fire District: The Fire district has granted an approval on May 26, 2016 subject to providing:

1. A residential fire suppression system in the dwelling
2. An address marker at the construction site
3. A Weber Fire District approved access road and fire apparatus access driveway
4. A fully functional water system including fire hydrants prior to any combustible construction
5. If the building is equipped with an fire suppression system, there shall be a weather proof horn/strobe device located on the street side of the building as approved by the Fire Prevention Division (coordinate with fire inspector regarding location)

Weber County Building Inspection Department: The Building Inspection Office has granted an approval due to the applicant's ability to satisfy all requirements provided in their review dated May 27, 2016.

Weber-Morgan Health Department: The Health Department has verified that that they will not impose any requirements or conditions for this application due to the existence of a culinary water and waste water system being in place.

Weber County Planning Division: The Planning Division has granted approval subject to the applicant complying with all Board requirements and conditions. This approval is also subject to the applicant developing Lot 127 according to approved plans.

Planning Division Findings

Based on site inspections and review agency comments, the Planning Division Staff has determined that it is not necessary to impose additional requirements or conditions prior to approving HSR #2016-05 and is recommending approval based on the following findings:

1. The application was submitted and has been deemed complete.
2. The requirements and standards found in the Hillside Development Review Procedures and Standards Chapter have been met or will be met during the excavation and construction phase of the dwelling.
3. The Hillside Review Board members reviewed the application individually and have provided their comments.
4. The applicant has met or will meet, as part of the building permit process and/or during the excavation and construction phase of the dwelling, the requirements and conditions set forth by the Hillside Review Board. As a condition it is understood, by the applicant and his geo-technical engineer and geologist, that if any geologic hazards are revealed during the excavation and construction phase of the dwelling, work on Lot 127 will cease pending the development of appropriate mitigation measures and subsequent approval by the County and the County's contracted geo-technical and/or geological consultant.
5. The Planning Division Staff has determined that the proposed improvements have been sited within the required setbacks for the RE-15 zone with the exception of the driveway and retaining wall(s).

Administrative Approval

Administrative approval of Lot 127 Hillside Review (HR#2016-05), is hereby granted based upon its compliance with the Weber County Land Use Code. This approval is subject to the requirements of applicable review agencies and is based on the findings listed in this staff report.

Date of Administrative Approval: June 1, 2016



Rick Grover
Weber County Planning Director

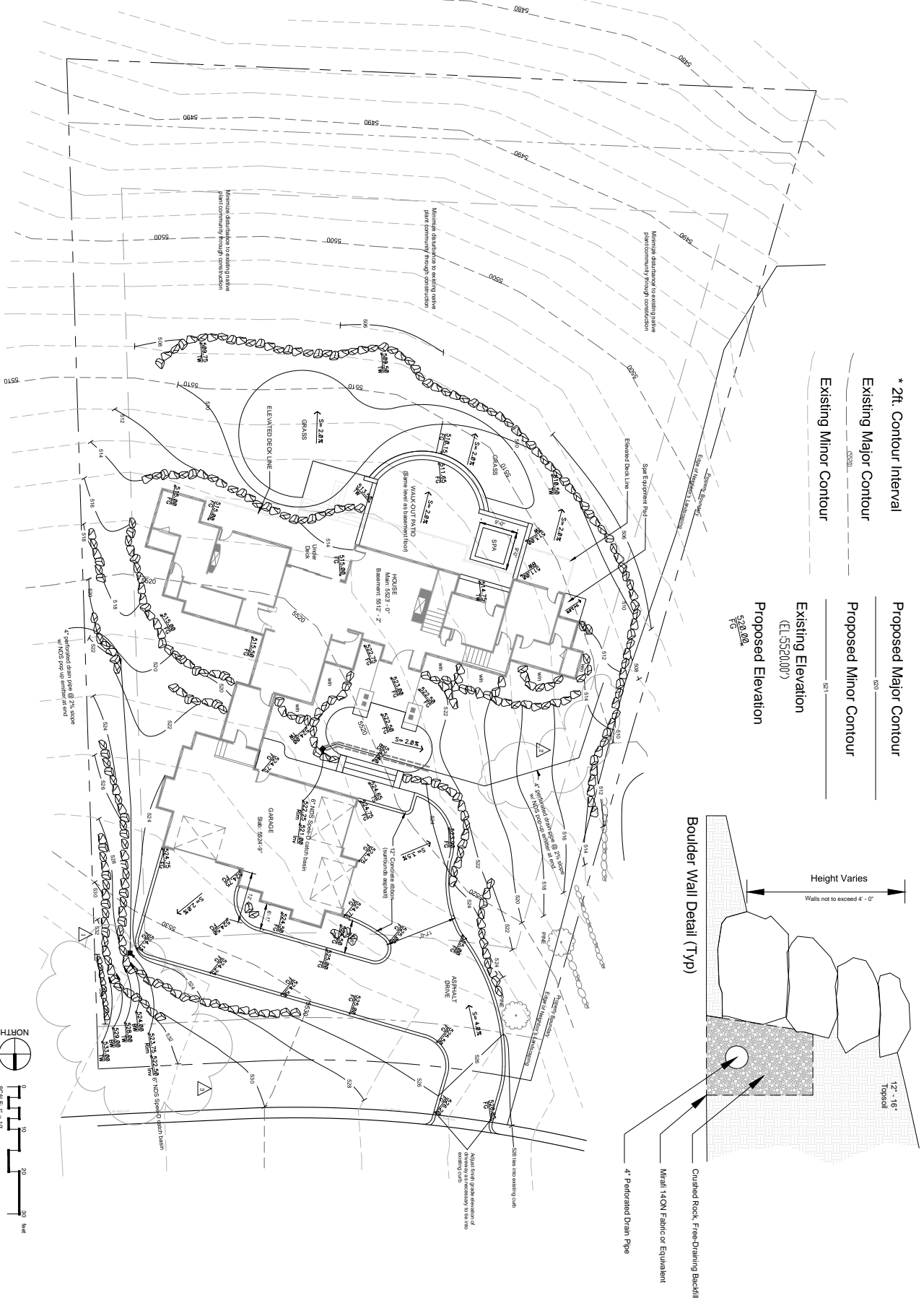
Exhibits

- A. Approved Plans
- B. Geotechnical Investigation Report
- C. Geologic Report

Map 1



Exhibit A

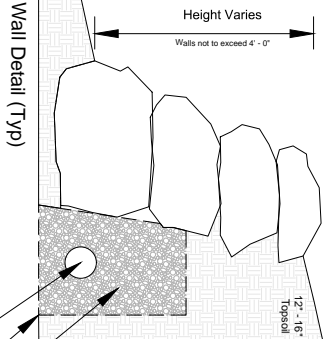


* 2ft. Contour Interval
 Existing Major Contour
 Existing Minor Contour

Proposed Major Contour
 Proposed Minor Contour

Existing Elevation
 (E.L. 520.00')
 Proposed Elevation
 520.00'
 520.00'

Boulder Wall Detail (Typ)



Crushed Rock, Free-Draining Backfill
 140N Fabric or Equivalent
 4" Perforated Drain Pipe



PROJECT: **Hannoy Residence**
 Lot 127, The Highlands at Wolf Creek, 3563 Pineview Court, Eden, UT

SHEET TITLE: **Landscape Grading & Drainage Plan**

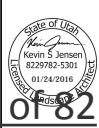
Owner(s): Doug & Ann Hannoy

DATE: Jun 24, 2016
 PROJECT NUMBER: 1501
 DRAWING SCALE: 1" = 10'
 DESIGNED BY: KJ
 DRAWN BY: KJ
 PROJ. STATUS: AC Submission
 NOTES:

REVISIONS	DESCRIPTION	DATE
1	Terrace NE Wall	8-30-15
2	Extend perforated pipe around house	9-29-15
3	Removed walks from utility easement area	1-24-16

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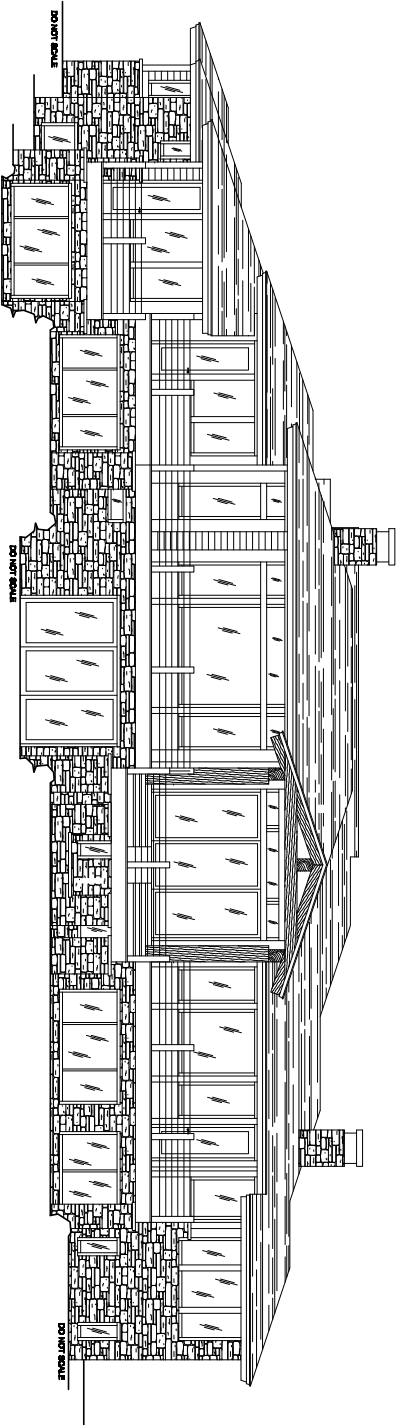
Written discussions shall have precedence over scaled dimensions. Contractors to verify and be responsible for any field measurements on the job. The architect's liability is limited to the design shown on the drawing.



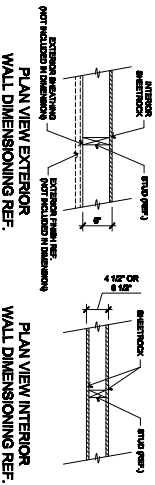
FIRMROOTS
 Landscape Architecture
 Connecting People to Place
 Kevin@firmrootsland.com



P.O. Box 339 Huntsville, Utah 84317
801.745.2711



HANNOY
WEBER COUNTY, UTAH



NO.	DESCRIPTION
01	GENERAL NOTES
02	FOUNDATION
03	WALLS
04	ROOFING
05	MECHANICAL, ELECTRICAL, PLUMBING
06	INTERIORS
07	EXTERIORS
08	PAINTS AND FINISHES
09	LANDSCAPE
10	ACCESSORIES
11	CONSTRUCTION METHODS
12	GENERAL CONTRACTOR'S OBLIGATIONS
13	OWNER'S OBLIGATIONS
14	DESIGNER'S OBLIGATIONS
15	ADDITIONAL NOTES

CONSTRUCTION SITE
LOT #127, THE HIGHLAND AT WOLF CREEK
3685 PINEVIEW COURT
EDEN, WEBER COUNTY, UTAH

AREA	MEASUREMENT
MAIN LEVEL FLOOR AREA	2,488 S.F.
LOWER LEVEL FLOOR AREA	2,488 S.F.
GARAGE FLOOR AREA	1,288 S.F.
STORAGE AREA BELOW GARAGE	411 S.F.

CONTRACTOR NOTE:
CONTRACTOR AND ALL SUB CONTRACTORS SHALL BE RESPONSIBLE FOR VERIFYING ALL DIMENSIONS AND CONDITIONS OF THE SITE PRIOR TO COMMENCEMENT OF WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL JURISDICTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL JURISDICTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL JURISDICTION.



- 1. CEILING HEIGHTS, HEADLINE ROOFS, HALLWAYS, CORRIDORS, LAUNDRY ROOMS AND BATHROOMS SHALL HAVE A CEILING HEIGHT OF NOT LESS THAN 7'6". MEASURED FROM FINISHED FLOOR TO FINISHED CEILING. BATHROOMS CAN BE 6'-0" MINIMUM, NOT MORE THAN 6'-6" OF HEAD HEIGHT - 6" MINIMUM.
2. WALLS, CEILING, T-CEILING ROOF, OR 2X FRAMING FINISH TYPE AND PAINT.
3. FINISH FLOORS, INSTALL CARPET AND PAD, WOOD LOOKING AND/OR FLOOR TILE WHERE INDICATED, AND AS SELECTED BY OWNER.
4. WINDOW INSTALLATION...
5. WINDOW WELLS...
6. ROOFS, INSTALL PERMITS...
7. DRAINAGE...
8. TRAIL WOOD FOR DOOR / WINDOW CASINGS...
9. ALL FINISHES...
10. GARAGE DOOR OPERATION...
11. GROUND WELLS...
12. ATTIC ACCESS...
13. BUMP BARS...
14. STUCCO...
15. EXTERIOR FINISHES...
16. READY PROTECTION...
17. TEMPLE PROTECTION...
18. INSULATION...
19. VAPOUR BARRIER...
20. PAINT JOINTS...
21. ROOFING SYSTEM...
22. ROOF OF BARBER...
23. RAIN OUTLETS...
24. SPLIT AND FACED...
25. EXTERIOR BRICK / FACE ROCK...
26. FOUNDATION PRIMAQUE...
27. WEIR REQUIRED BY LOCAL BUILDING OFFICIAL...
28. ROOF ON CONTROL...
29. CONSTRUCTION MATERIALS AND DEBRIS SHALL BE SCOURED...
30. NO STUUPS, RODS, OR ORGANIC MATERIAL SHALL BE PRESENT IN SOIL...
31. PROVIDE BUREAU OF PROFESSIONS...
32. OWNER CUTTER AND SHEAR...
33. CONSTRUCTION MATERIALS AND DEBRIS SHALL BE SCOURED...

- 1. USE DOUBLES FOR OR SHAPE FOR RAFTERS...
2. USE (2) 2x4's OR 2x6's...
3. USE SIMPSON OR EQUIVALENT...
4. WHERE STEEL STRONG WALLS (SEW) ARE SPECIFIED...
5. STEEL CONNECTIONS TO BE FULL PENETR...
6. RAFTERS ORIMENTS ON GABLE ROOFS...
7. ALL MULTIPLE BEAMS...
8. RAIL ROOF JOIST...
9. ALL ROOF LOADS...
10. CONTRACTOR SHALL FOLLOW...
11. STEEL STRONG WALLS...
12. FLOOR SHEATHING...
13. INSTALL DOOR JOIST BLOCKING...
14. BEST PLATES TO BE TREATED...
15. INSTALL FLOOR SHEATHING...
16. TRUSS AND ROOF SHEATHING NOTES

FOOTINGS, FOUNDATION & SLABS

- 1. FOOTINGS AND FOUNDATIONS SHALL BE PLACED ON UNDISTURBED SOIL...
2. FOUNDATIONS SHALL BE...
3. GROUND FLOOR...
4. ELEVATED GARAGE FLOOR...
5. TOP EDGE OF...
6. ALL REINFORCEMENT...
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PLUMBING

- 1. ALL PLUMBING INSTALLATIONS SHALL COMPLY WITH INTERNATIONAL PLUMBING CODE, 2012 ED.
2. PROVIDE WATER CLOSETS WITH A FLOW RATE OF NOT MORE THAN 1.5 GPM @ 80 PSI.
3. PROVIDE SHOWER HEADS WITH A FLOW RATE OF NOT MORE THAN 2.5 GPM @ 80 PSI.
4. PROVIDE NON-FREEZE THE BACKFLOW PREVENTER HOSE BBS # STOP-A-WASTE-TYPE VALVE AS REQUIRED.
5. ALL PLUMBING...
6. PROVIDE EXPANSION TANK ON THE CULKMARY WATER SYSTEM.
7. PROVIDE EXPANSION TANK ON THE CULKMARY WATER SYSTEM.
8. PROVIDE EXPANSION TANK ON THE CULKMARY WATER SYSTEM.
9. PROVIDE A FLOOR DRAIN BY THE WTR HEATER.
10. PROVIDE 2" DRAINAGE IN FRONT OF WATER CLOSET.
11. FLOOR DRAINS SHALL HAVE MINIMUM 2" DIAETER...
12. INSTALL FREEZELESS BACKFLOW PREVENTION HOSE BBS - MINIMUM TWO PER STRUCTURE...

- 1. INSTALLED VENTILATING & AIR CONDITIONING (HVAC) CONTRACTOR TO PROVIDE COMPLETE DESIGN AND INSTALLATION...
2. PROVIDE COMPLETE DESIGN AND INSTALLATION...
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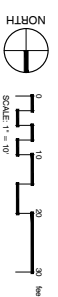
DATE: HANNOY
DRAWN BY: M.D.
NO: 06-29-15
SCALE: AS SHOWN



Exhibit A

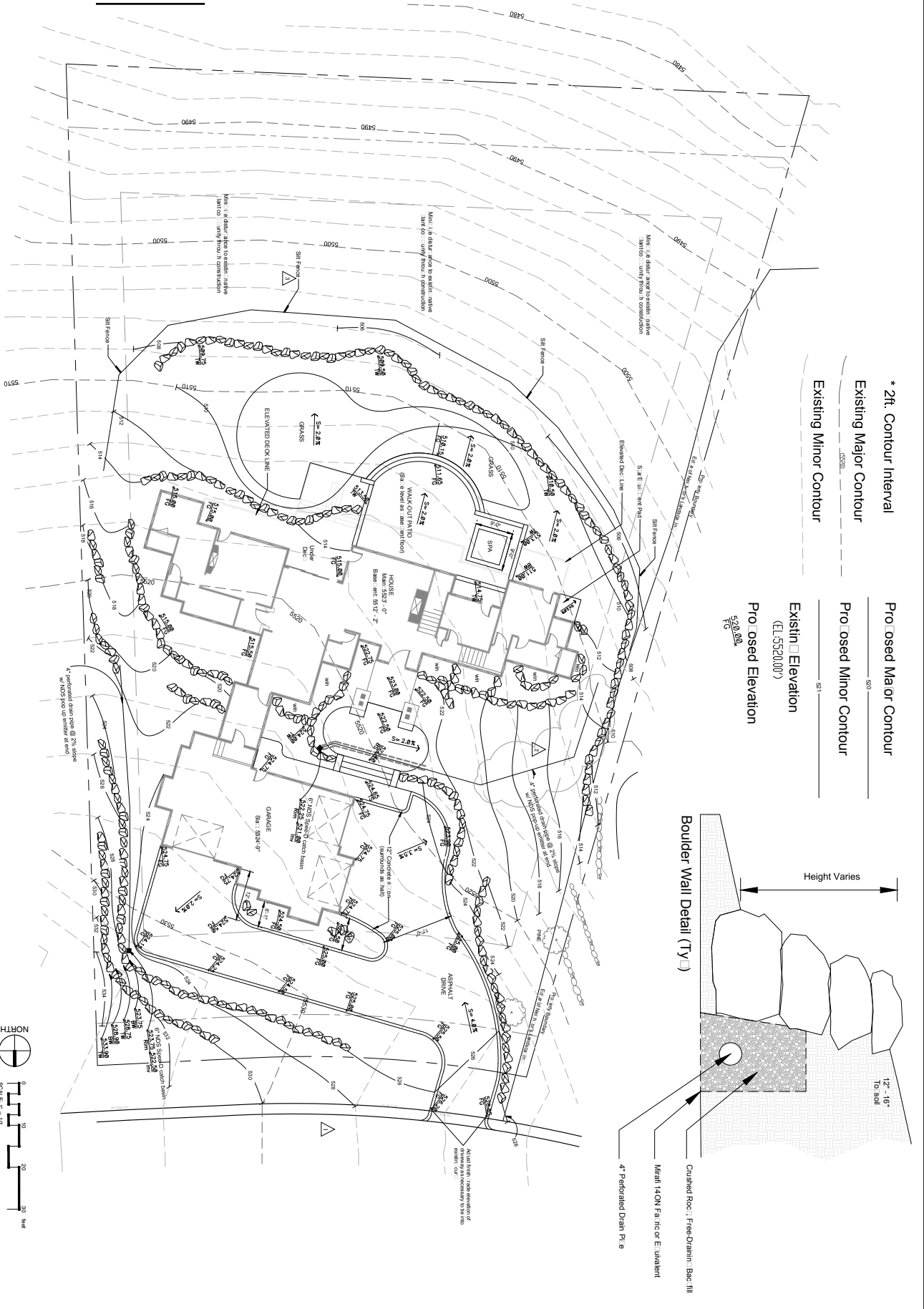


General Notes:
 - Contractor to verify all TO CITY boundary lines and easements and ensure that all work is performed within TO CITY boundaries.



SHEET L100	PROJECT: Hannoy Residence Lot 127, The Highlands at Wolf Creek, 3563 Pineview Court, Eden, UT	DATE: Aug 31, 2015 PROJECT NUMBER: 1501 DRAWING SCALE: 1" = 10' DESIGNED BY: KJ DRAWN BY: KJ PROJ. STATUS: AC Submission NOTES:	<table border="1"> <thead> <tr> <th>REVISIONS</th> <th>DESCRIPTION</th> <th>DATE</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	REVISIONS	DESCRIPTION	DATE																			This drawing is an instrument of service, is the property of the architect and may not be reproduced without the permission and under the responsibility of the architect. All designs and other information shown on this drawing are for use on the specified project only and shall not be used elsewhere without the express written permission of Kevin Jensen UT No. 622766-1301. Written discussions shall have precedence over scaled dimensions. Contractors to verify and be responsible for field conditions and conditions on job. The architect shall not be responsible for conditions shown on the drawing.		FIRMROOTS Landscape Architecture Connectin: Pee le to Place Kevin@FirmRootsLand.co
	REVISIONS	DESCRIPTION	DATE																								
SHEET TITLE: Landscape Site Plan	OWNER(S): Doug & Ann Hannoy	Page 8 of 82	01 82																								

Exhibit A

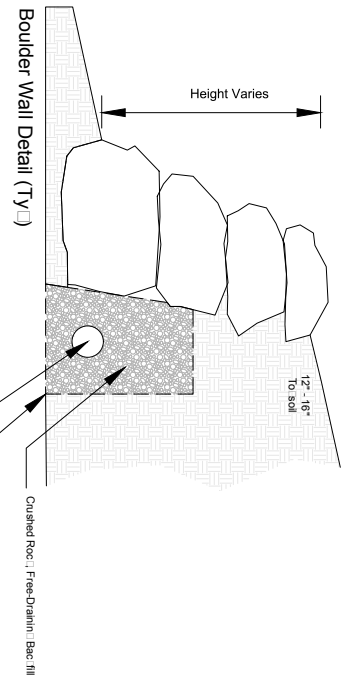


* 2ft. Contour Interval
 Existing Major Contour
 Existing Minor Contour

Proposed Major Contour
 Proposed Minor Contour

Existing Elevation
 (E.L. 552000')

Proposed Elevation
 5520 000
 5520 000



PROJECT: Hannoy Residence
 Lot 127, The Highlands at Wolf Creek, 3563 Pineview Court, Eden, UT

SHEET TITLE: Landscape Grading & Drainage Plan

Owner(s): Doug & Ann Hannoy

DATE: Aug 31, 2015
PROJECT NUMBER: 1501
DRAWING SCALE: 1" = 10'
DESIGNED BY: KJ
DRAWN BY: KJ
PROJ. STATUS: AC Submission
NOTES:

REVISIONS	DESCRIPTION	DATE
1	Terrace NE Wall	8-30-15
2	Extend perforated pipe around house	9-29-15
3	Add Silt Fence	11-4-15

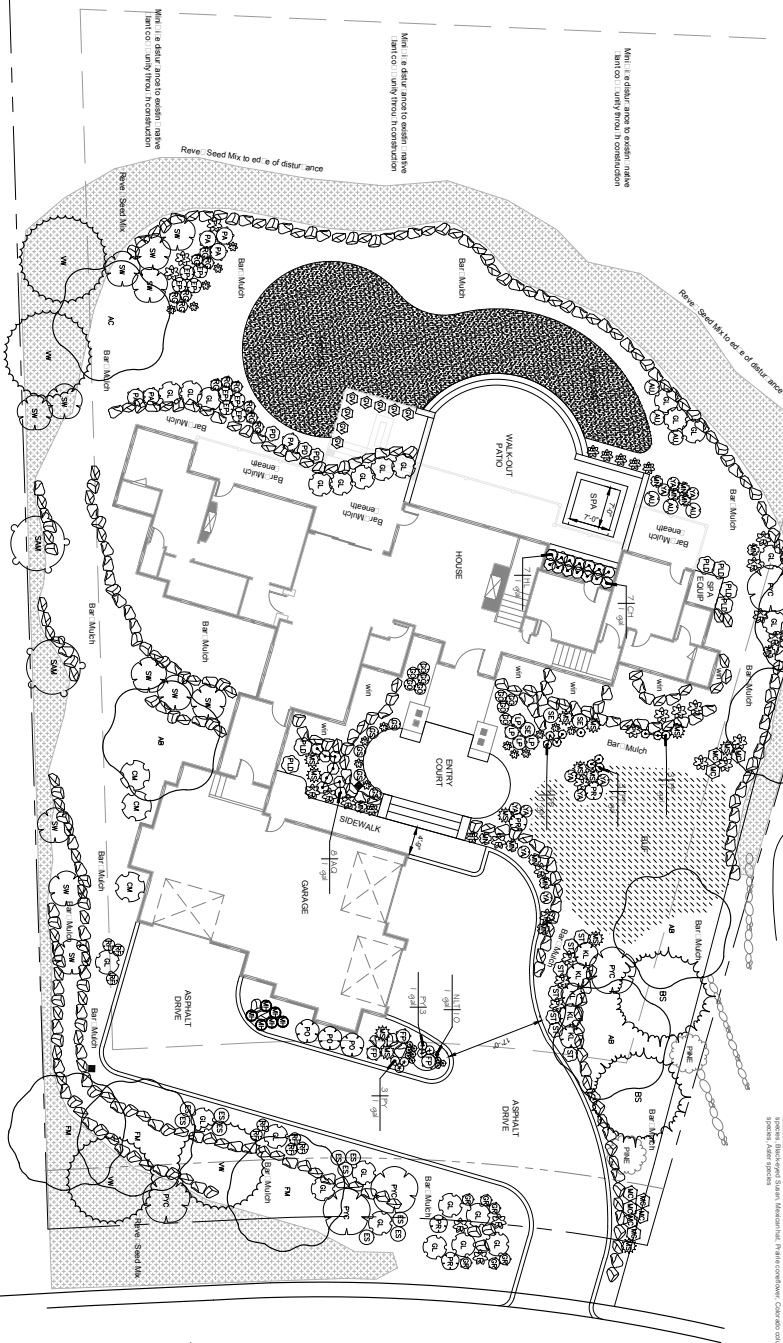
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Written discussions shall have precedence over scaled dimensions. Contractors to verify and be responsible for the field conditions and make any adjustments necessary for the field conditions.



FIRMROOTS
 Landscape Architecture
 Connectin' People to Place
 Kevin@FirmRoots.com

Exhibit A



Note 1: 12' plant spacing to center, center
 (Bar) (Co) : Utility from 10' construction

Note 2: 12' plant spacing to center, center
 (Bar) (Co) : Utility from 10' construction

Note 3: 12' plant spacing to center, center
 (Bar) (Co) : Utility from 10' construction

Note 4: 12' plant spacing to center, center
 (Bar) (Co) : Utility from 10' construction

Reve: Seed Mix to est. a of distur area

PLANT SCHEDULE

SYMBOL	PLANT NAME / COMMON NAME	SIZE	QUANTITY	REMARKS
1	Small tree / shrub	12" x 12"	10	Plant spacing to center, center
2	Medium tree / shrub	18" x 18"	5	Plant spacing to center, center
3	Large tree / shrub	24" x 24"	3	Plant spacing to center, center
4	Small tree / shrub	12" x 12"	15	Plant spacing to center, center
5	Medium tree / shrub	18" x 18"	8	Plant spacing to center, center
6	Large tree / shrub	24" x 24"	4	Plant spacing to center, center
7	Small tree / shrub	12" x 12"	20	Plant spacing to center, center
8	Medium tree / shrub	18" x 18"	10	Plant spacing to center, center
9	Large tree / shrub	24" x 24"	5	Plant spacing to center, center
10	Small tree / shrub	12" x 12"	12	Plant spacing to center, center
11	Medium tree / shrub	18" x 18"	6	Plant spacing to center, center
12	Large tree / shrub	24" x 24"	3	Plant spacing to center, center

GENERAL NOTES

1. Verify all utility locations with the contractor before construction.
2. All plants shall be installed within 14 days of final site preparation.
3. Plants shall be installed in accordance with the manufacturer's instructions.
4. All plants shall be watered and mulched after installation.
5. The contractor shall be responsible for all utility relocation and protection.
6. All plants shall be installed in accordance with the manufacturer's instructions.
7. All plants shall be watered and mulched after installation.
8. The contractor shall be responsible for all utility relocation and protection.
9. All plants shall be installed in accordance with the manufacturer's instructions.
10. All plants shall be watered and mulched after installation.
11. The contractor shall be responsible for all utility relocation and protection.
12. All plants shall be installed in accordance with the manufacturer's instructions.
13. All plants shall be watered and mulched after installation.
14. The contractor shall be responsible for all utility relocation and protection.

General Notes:
 Contractor to verify all utility locations on location, and ensure that all work is within property boundaries.



PROJECT: Hannoy Residence
 Lot 127, The Highlands at Wolf Creek, 3563 Pineview Court, Eden, UT

SHEET TITLE: Landscape Planting Plan

Owner(s): Doug & Ann Hannoy

DATE: Sept 29, 2015
PROJECT NUMBER: 1501
DRAWING SCALE: 1" = 10'
DESIGNED BY: KJ
DRAWN BY: KJ
PROJ. STATUS: Bid Alternate

REVISIONS	DESCRIPTION	DATE
1		
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Contractor to verify and report any utility relocation and protection to the architect before construction.

Scale: 1" = 10'

09/29/2015

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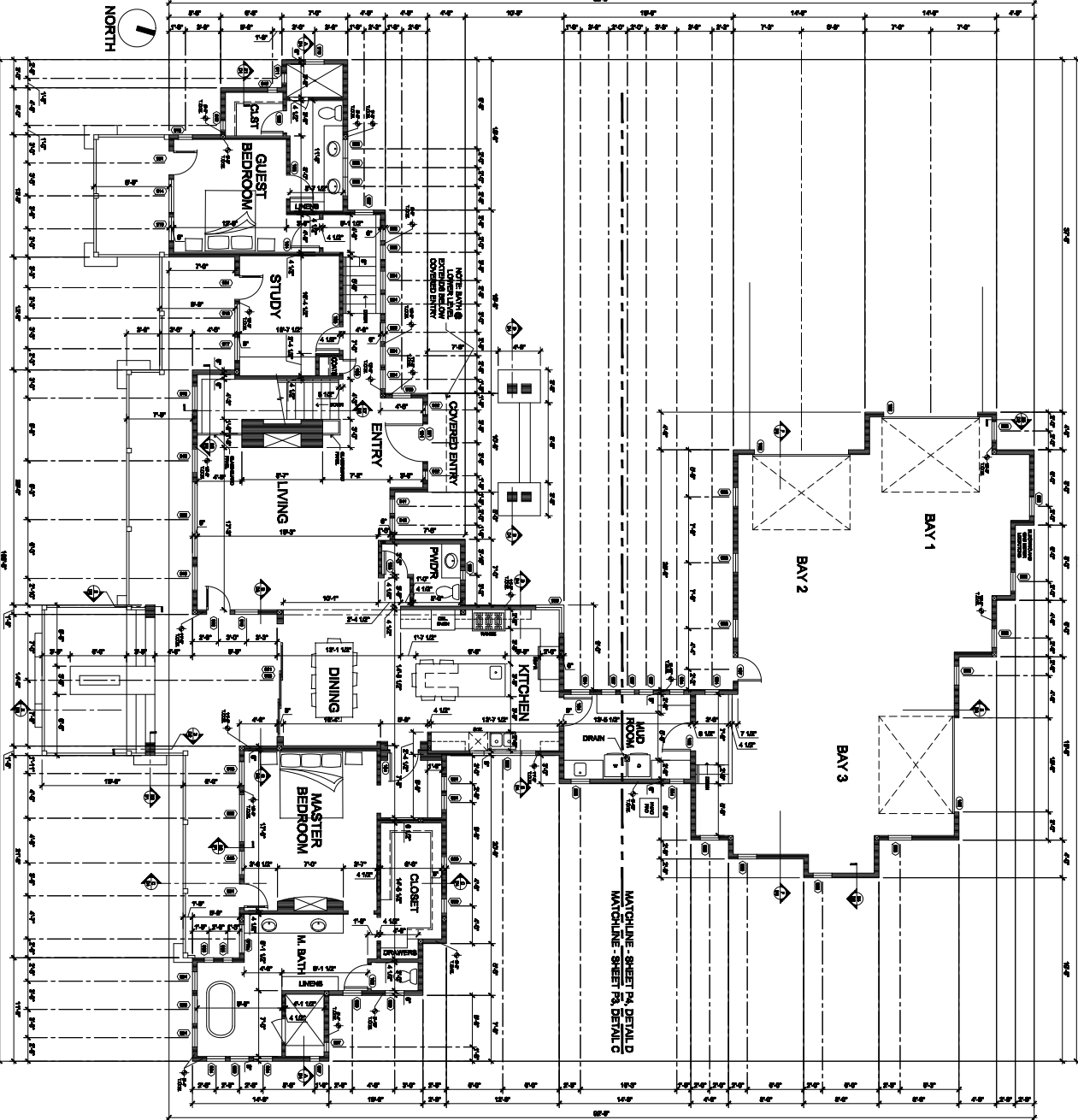
FIRMROOTS
 Landscape Architecture

Kevin S. Jensen
 2015 Utah Professional Seal
 09/29/2015

Contact: Peo te to Place
 Kevin@firmroots.com

NO.	SYMBOL	TYPE	REMARKS
1	1	GLASS DOOR	GLASS DOOR
2	2	GLASS WINDOW	GLASS WINDOW
3	3	GLASS WINDOW	GLASS WINDOW
4	4	GLASS WINDOW	GLASS WINDOW
5	5	GLASS WINDOW	GLASS WINDOW
6	6	GLASS WINDOW	GLASS WINDOW
7	7	GLASS WINDOW	GLASS WINDOW
8	8	GLASS WINDOW	GLASS WINDOW
9	9	GLASS WINDOW	GLASS WINDOW
10	10	GLASS WINDOW	GLASS WINDOW
11	11	GLASS WINDOW	GLASS WINDOW
12	12	GLASS WINDOW	GLASS WINDOW
13	13	GLASS WINDOW	GLASS WINDOW
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15	15	GLASS WINDOW	GLASS WINDOW
16	16	GLASS WINDOW	GLASS WINDOW
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100	100	GLASS WINDOW	GLASS WINDOW

NO.	SYMBOL	TYPE	REMARKS
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2	2	GLASS WINDOW	GLASS WINDOW
3	3	GLASS WINDOW	GLASS WINDOW
4	4	GLASS WINDOW	GLASS WINDOW
5	5	GLASS WINDOW	GLASS WINDOW
6	6	GLASS WINDOW	GLASS WINDOW
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98	98	GLASS WINDOW	GLASS WINDOW
99	99	GLASS WINDOW	GLASS WINDOW
100	100	GLASS WINDOW	GLASS WINDOW



A MAIN LEVEL FLOOR PLAN

CLIENT: HANNING
 DRAWN BY: JML
 DATE: 06-29-15
 SHEET: P1



B LOWER LEVEL FLOOR PLAN

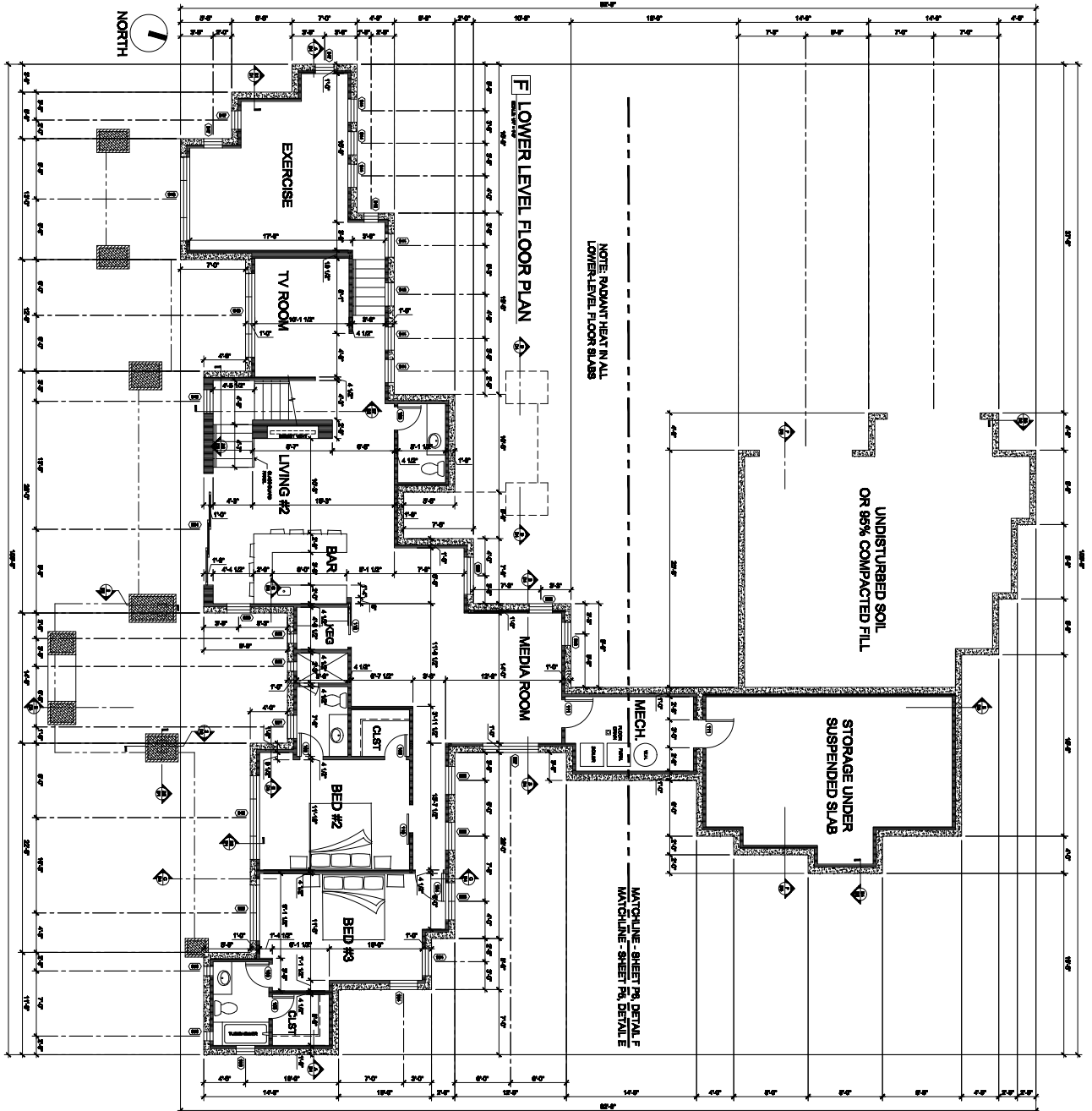
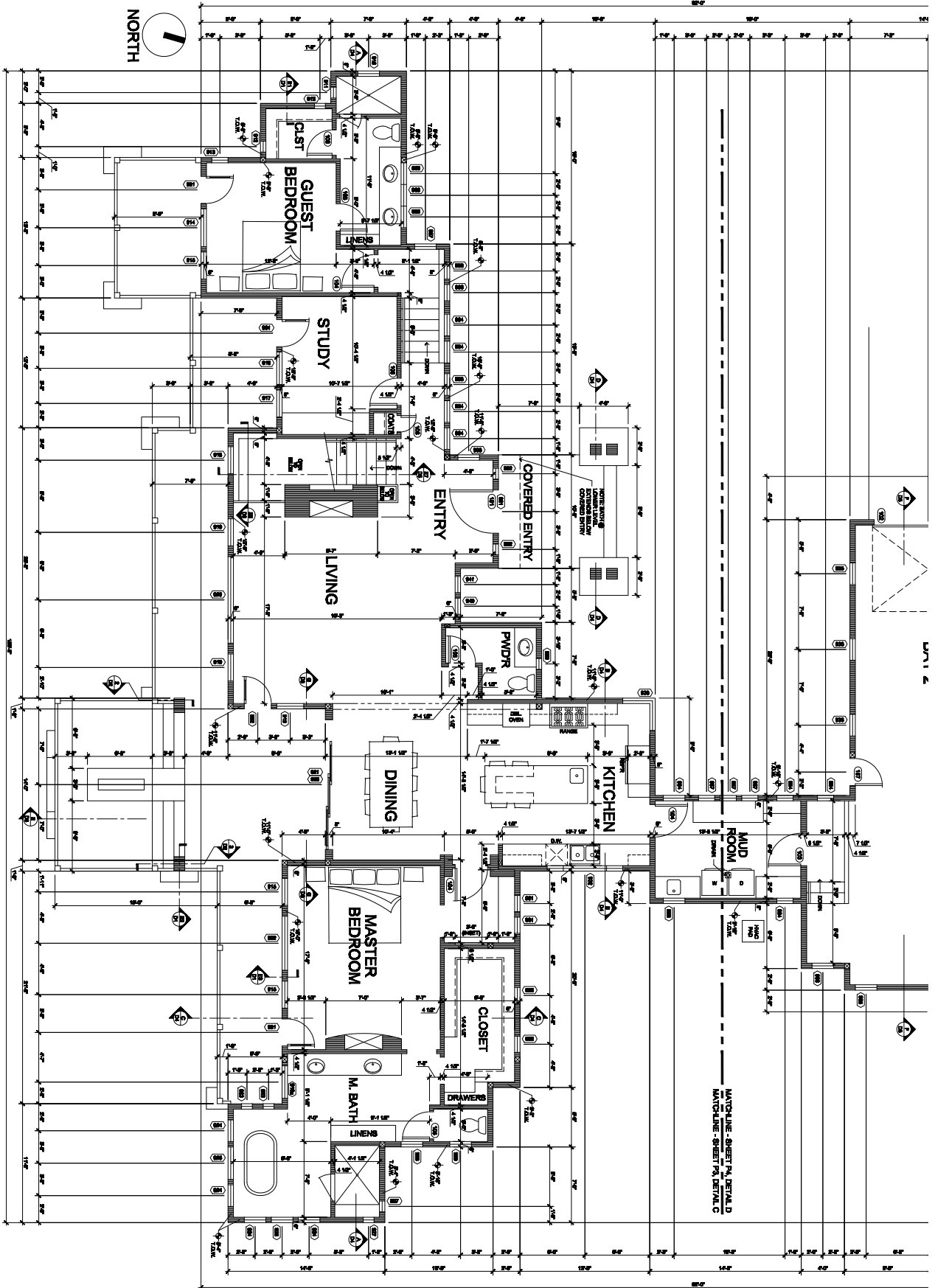


Exhibit A

C MAIN LEVEL FLOOR PLAN



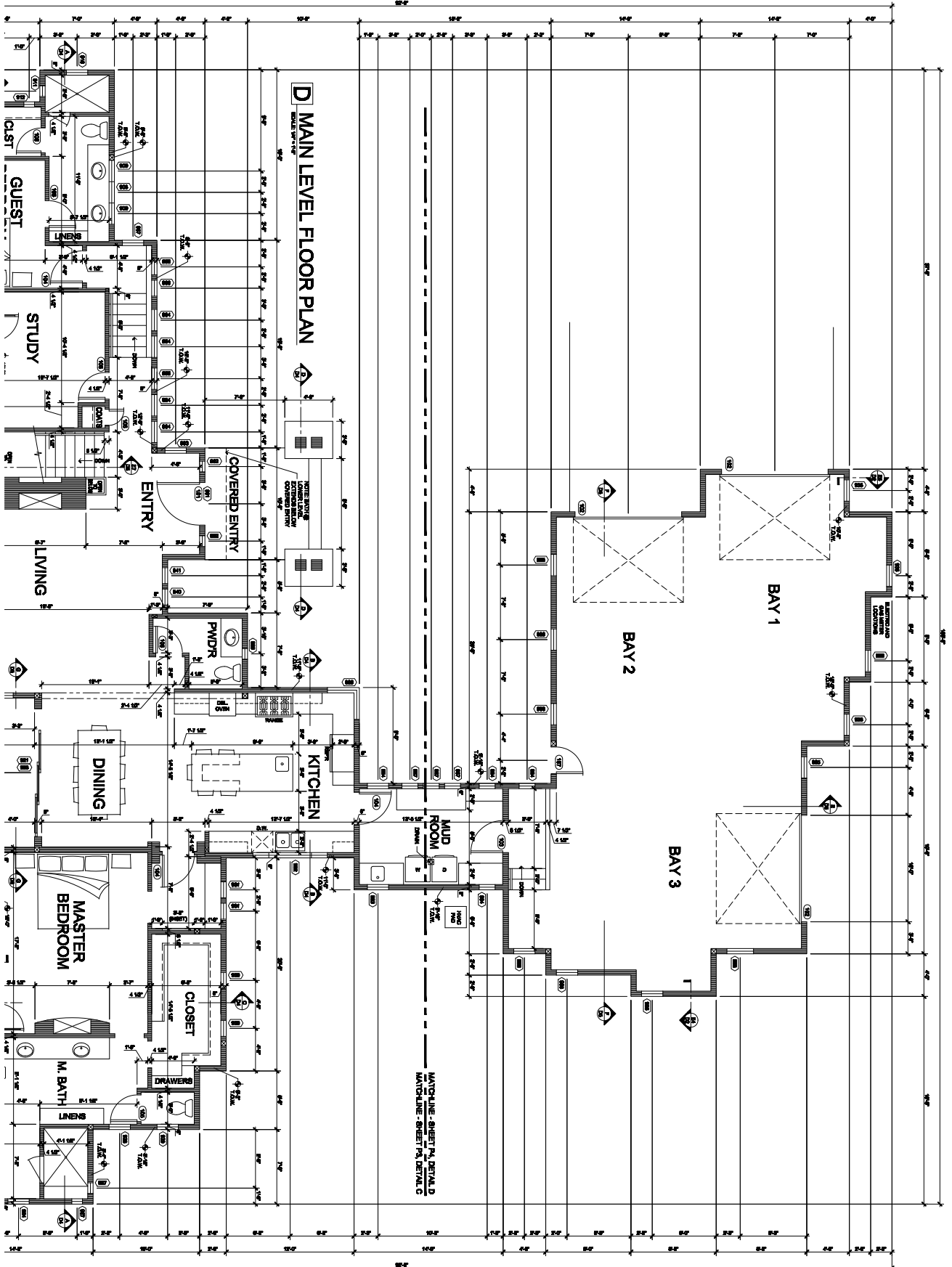
MANUFACTURE - SHEET A, DETAIL D
MATCHLINE - SHEET B, DETAIL C

CLIENT: HANNINOVY
DRAWN BY: JHDL
DATE: 06-28-15
SHEET: P3

Mark
DESIGN INC
P.O. Box 330 Huntville, Utah 84317
801.746.2711

NO.	REVISION	DATE

Exhibit A



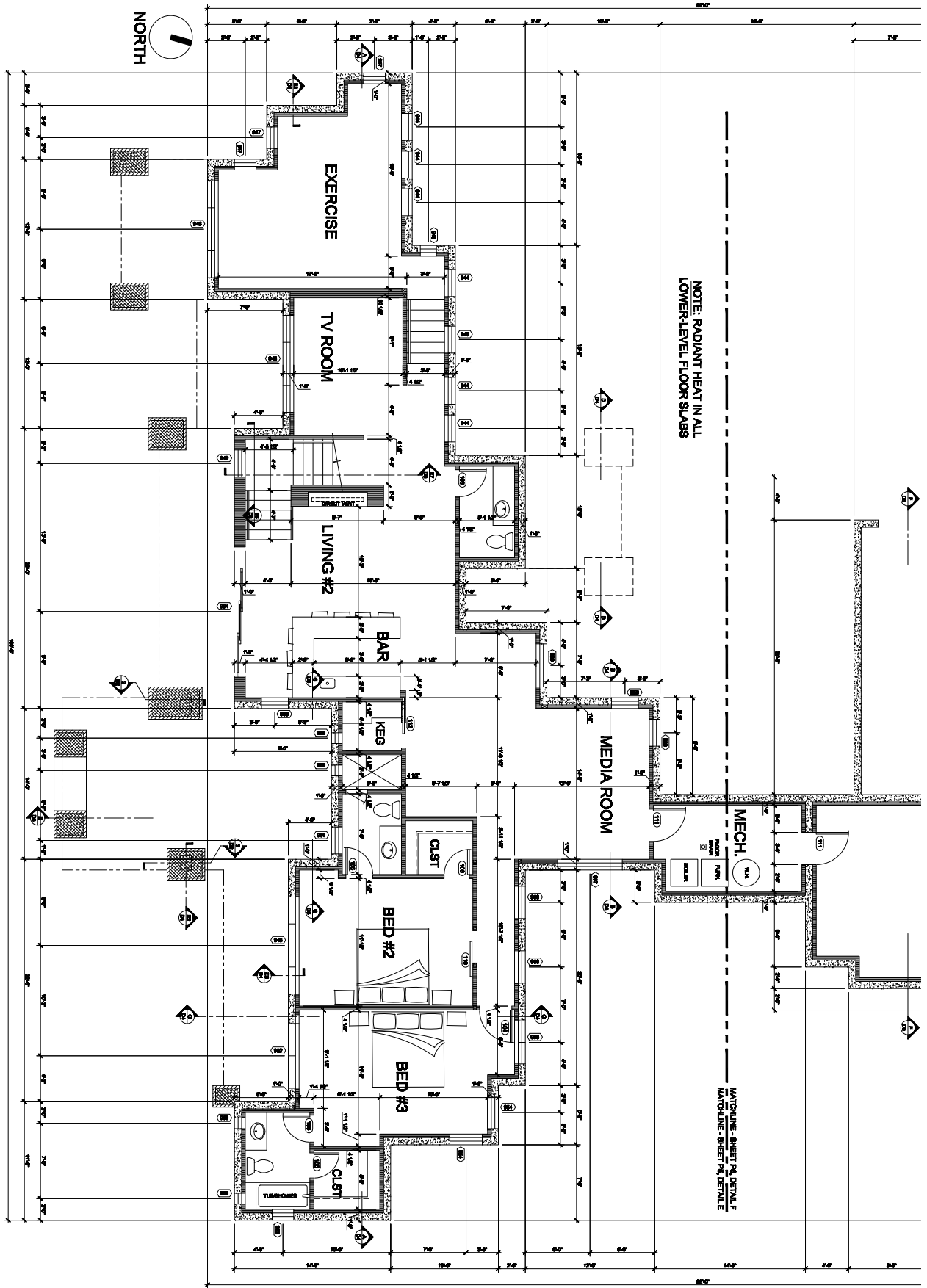
CLIENT: HANNIDY
 ARCHITECTS
 DATE: 06-28-15
 SHEET: P4



NO.	DATE	REVISION

Exhibit A

E LOWER LEVEL FLOOR PLAN

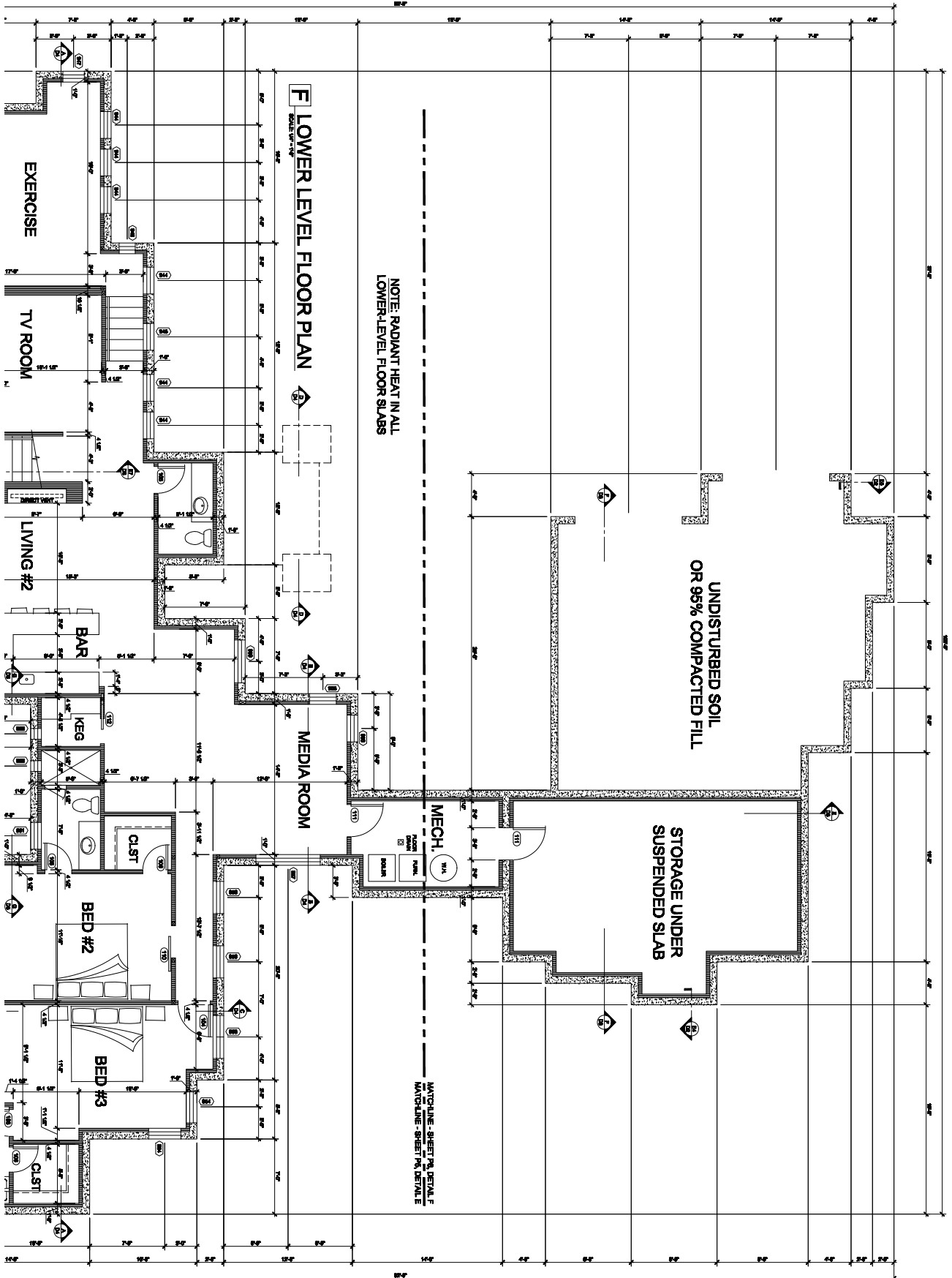


CLIENT: HANNODY
 DRAWN BY: M.D.L.
 DATE: 08-28-15
 SHEET: P5

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NO.	REVISION	DATE

Exhibit A

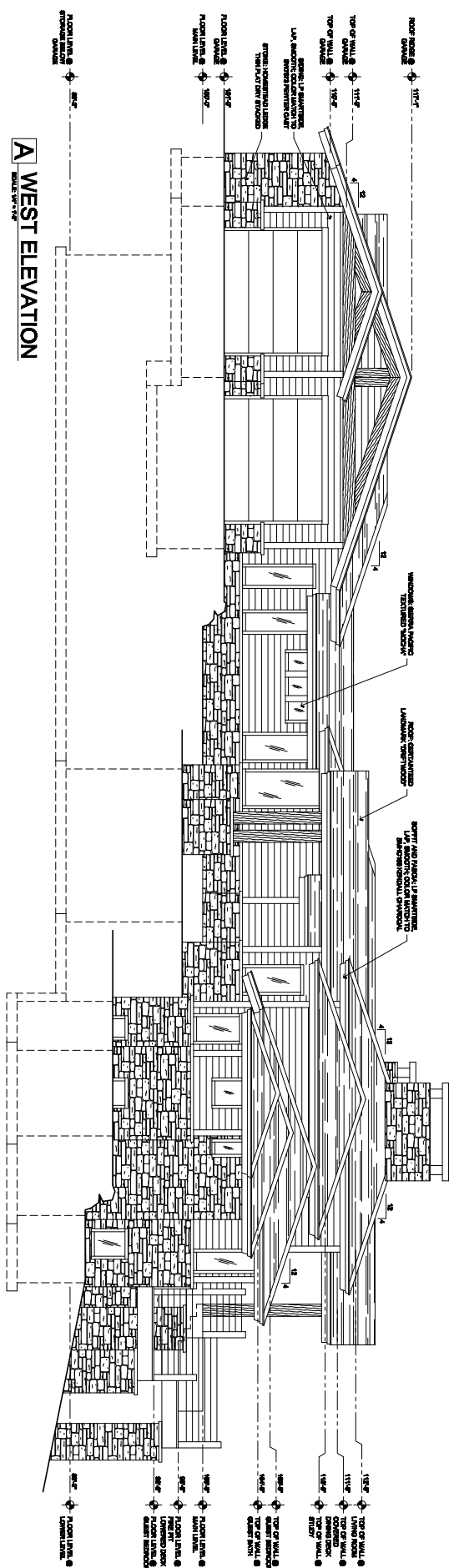


P6

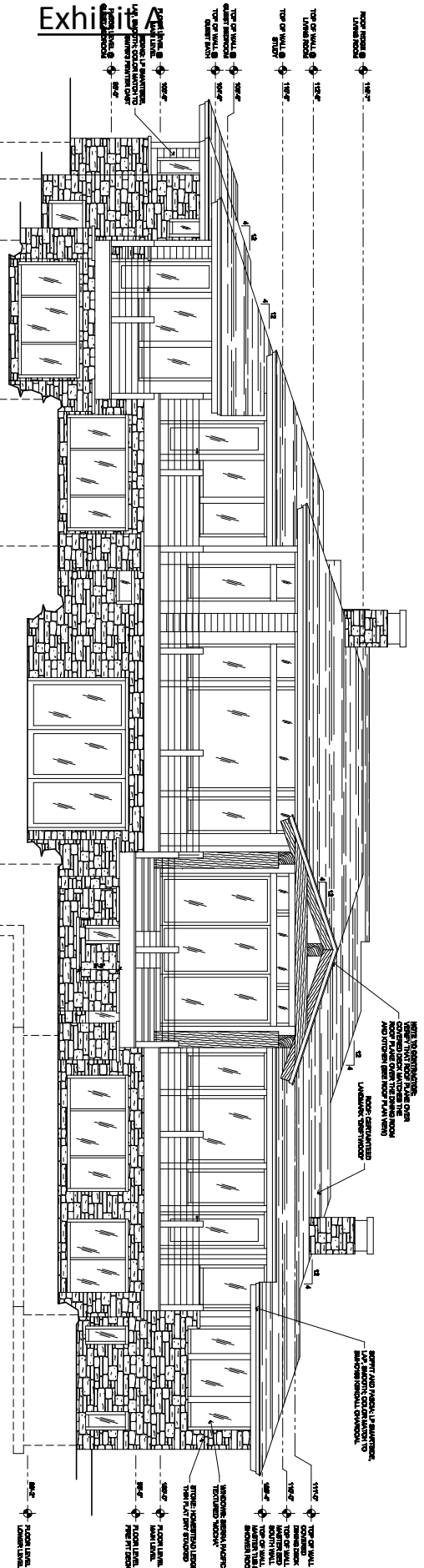
CLIENT: HANNODY
 DRAWN BY: M.D.L.
 DATE: 08-28-15
 SHEET:

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DESIGN INC
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 801.746.2711

NO.	DATE	REVISION



A WEST ELEVATION
SCALE: 1/4" = 1'-0"



B SOUTH ELEVATION
SCALE: 1/4" = 1'-0"

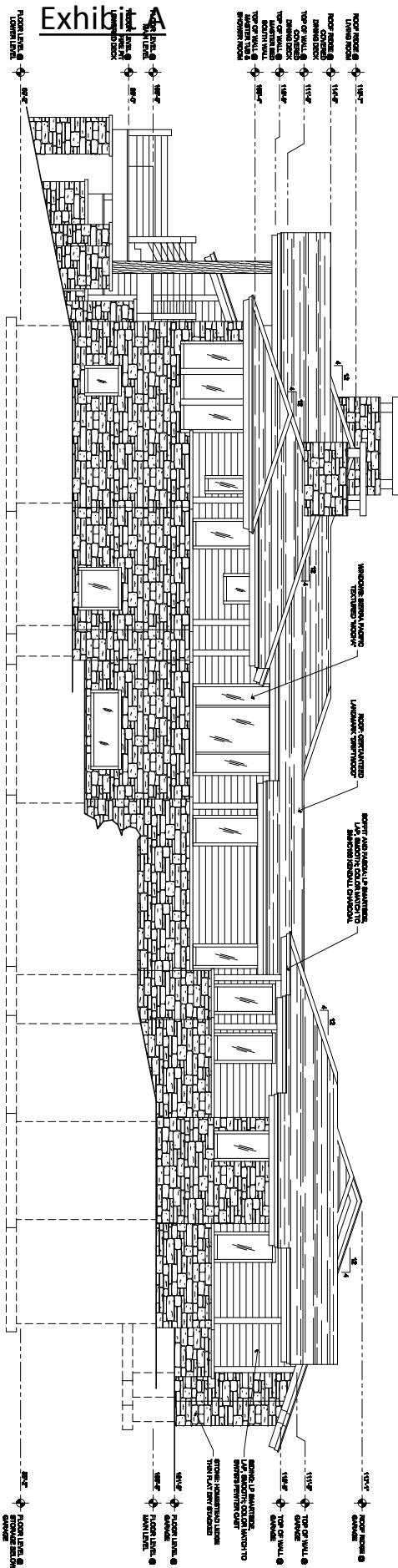
Exhibit A

CLIENT: HANNIDY
DRAWN: M.D.L.
DATE: 08-28-15
SHEET: L1

Mark DESIGN INC
P.O. Box 330 Huntsville, Utah 84317
801.746.2711

REVISION
DATE

C EAST ELEVATION



D NORTH ELEVATION

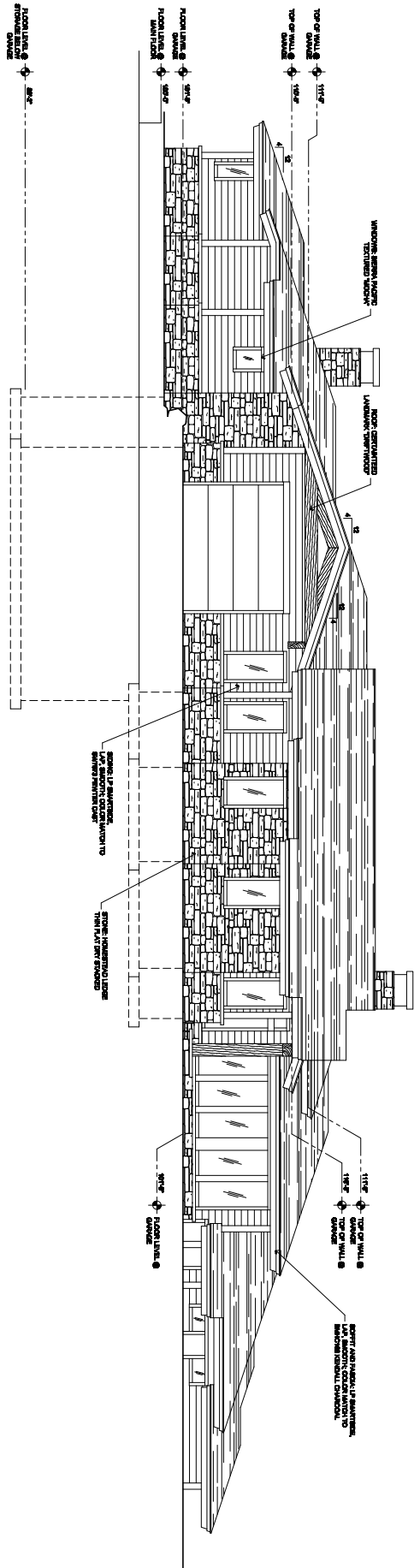
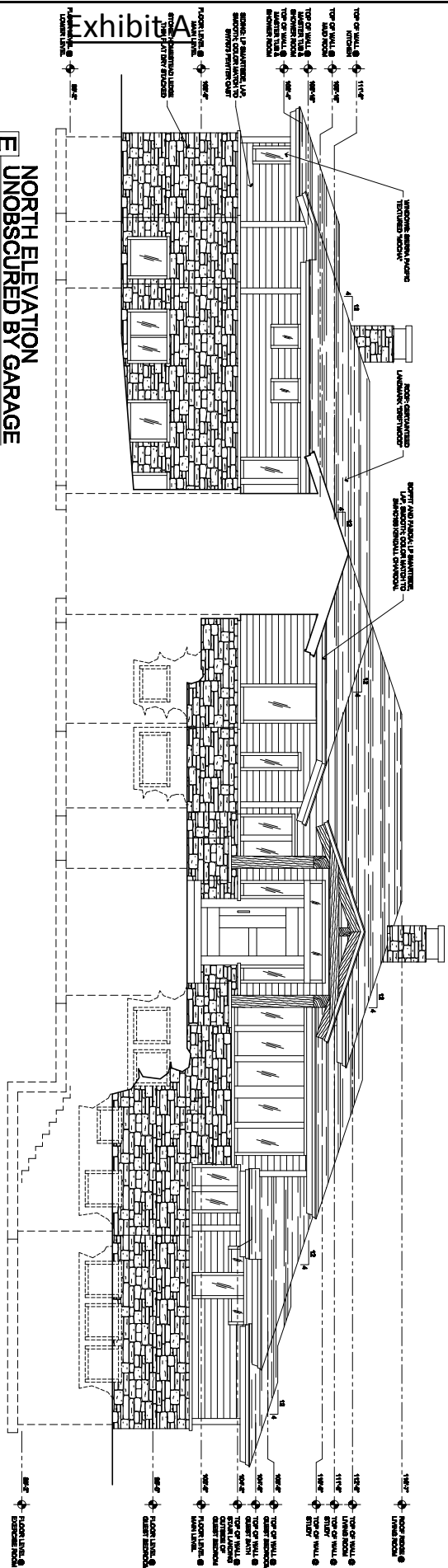


Exhibit A

E NORTH ELEVATION UNOBSERVED BY GARAGE

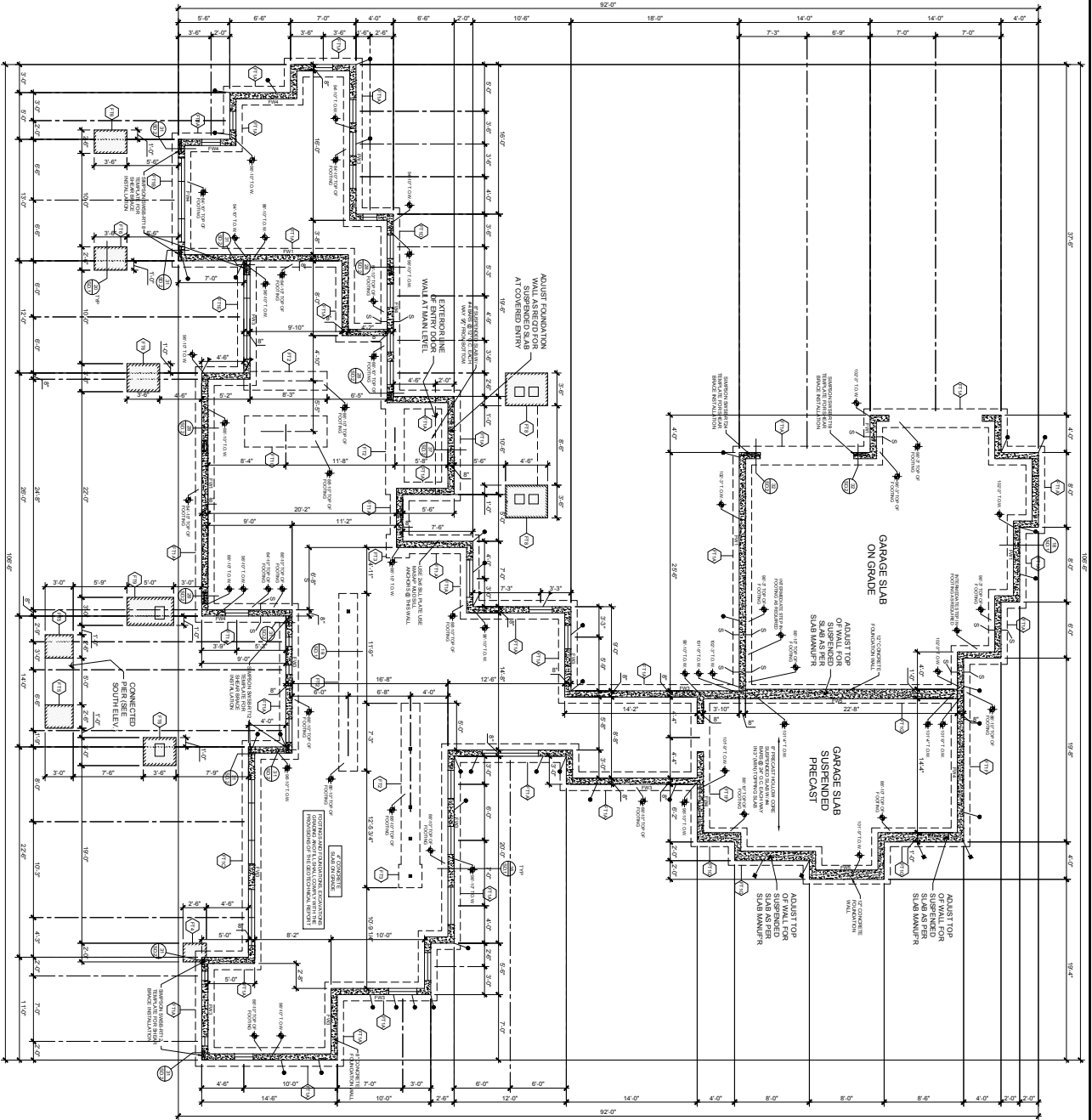


DATE: 08-29-15
 DRAWN BY: HANNIDY
 PROJECT: L3

Mark
DESIGN INC
 P.O. Box 330 Huntville, Utah 84317
 801.746.2711

NO.	DATE

B FOOTING / FOUND. PLAN
SCALE: 3/16" = 1'-0"



FOOTING SCHEDULE

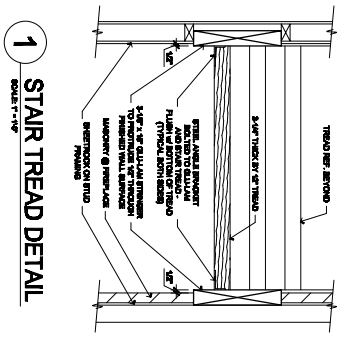
ITEM	LENGTH	WIDTH	DEPTH	TYPE	REMARKS	QUANTITY	UNIT	NOTE
F1A	30'-0"	12'-0"	4'-0"	CONC	FOOTING	1.00	CY	1.00
F1B	30'-0"	12'-0"	4'-0"	CONC	FOOTING	1.00	CY	1.00
F1C	30'-0"	12'-0"	4'-0"	CONC	FOOTING	1.00	CY	1.00
F1D	30'-0"	12'-0"	4'-0"	CONC	FOOTING	1.00	CY	1.00
F1E	30'-0"	12'-0"	4'-0"	CONC	FOOTING	1.00	CY	1.00
F1F	30'-0"	12'-0"	4'-0"	CONC	FOOTING	1.00	CY	1.00
F1G	30'-0"	12'-0"	4'-0"	CONC	FOOTING	1.00	CY	1.00
F1H	30'-0"	12'-0"	4'-0"	CONC	FOOTING	1.00	CY	1.00
F1I	30'-0"	12'-0"	4'-0"	CONC	FOOTING	1.00	CY	1.00
F1J	30'-0"	12'-0"	4'-0"	CONC	FOOTING	1.00	CY	1.00
F1K	30'-0"	12'-0"	4'-0"	CONC	FOOTING	1.00	CY	1.00
F1L	30'-0"	12'-0"	4'-0"	CONC	FOOTING	1.00	CY	1.00
F1M	30'-0"	12'-0"	4'-0"	CONC	FOOTING	1.00	CY	1.00
F1N	30'-0"	12'-0"	4'-0"	CONC	FOOTING	1.00	CY	1.00
F1O	30'-0"	12'-0"	4'-0"	CONC	FOOTING	1.00	CY	1.00
F1P	30'-0"	12'-0"	4'-0"	CONC	FOOTING	1.00	CY	1.00
F1Q	30'-0"	12'-0"	4'-0"	CONC	FOOTING	1.00	CY	1.00
F1R	30'-0"	12'-0"	4'-0"	CONC	FOOTING	1.00	CY	1.00
F1S	30'-0"	12'-0"	4'-0"	CONC	FOOTING	1.00	CY	1.00
F1T	30'-0"	12'-0"	4'-0"	CONC	FOOTING	1.00	CY	1.00
F1U	30'-0"	12'-0"	4'-0"	CONC	FOOTING	1.00	CY	1.00
F1V	30'-0"	12'-0"	4'-0"	CONC	FOOTING	1.00	CY	1.00
F1W	30'-0"	12'-0"	4'-0"	CONC	FOOTING	1.00	CY	1.00
F1X	30'-0"	12'-0"	4'-0"	CONC	FOOTING	1.00	CY	1.00
F1Y	30'-0"	12'-0"	4'-0"	CONC	FOOTING	1.00	CY	1.00
F1Z	30'-0"	12'-0"	4'-0"	CONC	FOOTING	1.00	CY	1.00

FOUNDATION WALL SCHEDULE

ITEM	LENGTH	WIDTH	DEPTH	TYPE	REMARKS	QUANTITY	UNIT	NOTE
F2A	30'-0"	12'-0"	4'-0"	CONC	FOUNDATION WALL	1.00	CY	1.00
F2B	30'-0"	12'-0"	4'-0"	CONC	FOUNDATION WALL	1.00	CY	1.00
F2C	30'-0"	12'-0"	4'-0"	CONC	FOUNDATION WALL	1.00	CY	1.00
F2D	30'-0"	12'-0"	4'-0"	CONC	FOUNDATION WALL	1.00	CY	1.00
F2E	30'-0"	12'-0"	4'-0"	CONC	FOUNDATION WALL	1.00	CY	1.00
F2F	30'-0"	12'-0"	4'-0"	CONC	FOUNDATION WALL	1.00	CY	1.00
F2G	30'-0"	12'-0"	4'-0"	CONC	FOUNDATION WALL	1.00	CY	1.00
F2H	30'-0"	12'-0"	4'-0"	CONC	FOUNDATION WALL	1.00	CY	1.00
F2I	30'-0"	12'-0"	4'-0"	CONC	FOUNDATION WALL	1.00	CY	1.00
F2J	30'-0"	12'-0"	4'-0"	CONC	FOUNDATION WALL	1.00	CY	1.00
F2K	30'-0"	12'-0"	4'-0"	CONC	FOUNDATION WALL	1.00	CY	1.00
F2L	30'-0"	12'-0"	4'-0"	CONC	FOUNDATION WALL	1.00	CY	1.00
F2M	30'-0"	12'-0"	4'-0"	CONC	FOUNDATION WALL	1.00	CY	1.00
F2N	30'-0"	12'-0"	4'-0"	CONC	FOUNDATION WALL	1.00	CY	1.00
F2O	30'-0"	12'-0"	4'-0"	CONC	FOUNDATION WALL	1.00	CY	1.00
F2P	30'-0"	12'-0"	4'-0"	CONC	FOUNDATION WALL	1.00	CY	1.00
F2Q	30'-0"	12'-0"	4'-0"	CONC	FOUNDATION WALL	1.00	CY	1.00
F2R	30'-0"	12'-0"	4'-0"	CONC	FOUNDATION WALL	1.00	CY	1.00
F2S	30'-0"	12'-0"	4'-0"	CONC	FOUNDATION WALL	1.00	CY	1.00
F2T	30'-0"	12'-0"	4'-0"	CONC	FOUNDATION WALL	1.00	CY	1.00
F2U	30'-0"	12'-0"	4'-0"	CONC	FOUNDATION WALL	1.00	CY	1.00
F2V	30'-0"	12'-0"	4'-0"	CONC	FOUNDATION WALL	1.00	CY	1.00
F2W	30'-0"	12'-0"	4'-0"	CONC	FOUNDATION WALL	1.00	CY	1.00
F2X	30'-0"	12'-0"	4'-0"	CONC	FOUNDATION WALL	1.00	CY	1.00
F2Y	30'-0"	12'-0"	4'-0"	CONC	FOUNDATION WALL	1.00	CY	1.00
F2Z	30'-0"	12'-0"	4'-0"	CONC	FOUNDATION WALL	1.00	CY	1.00

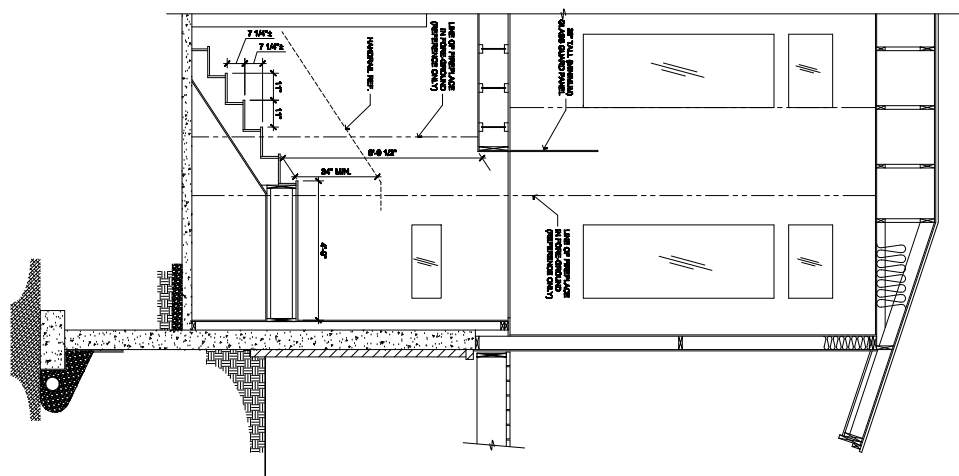


Exhibit A

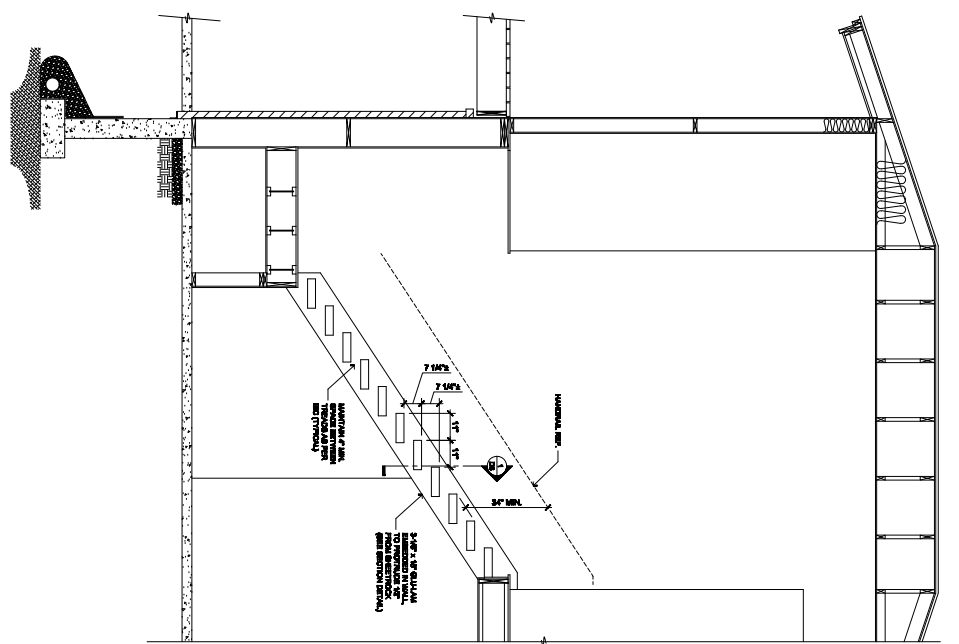


1 STAIR TREAD DETAIL
SCALE: 1" = 1/2"

E6 STAIR SECTION
SCALE: 1/4" = 1'-0"



E7 STAIR SECTION
SCALE: 1/4" = 1'-0"

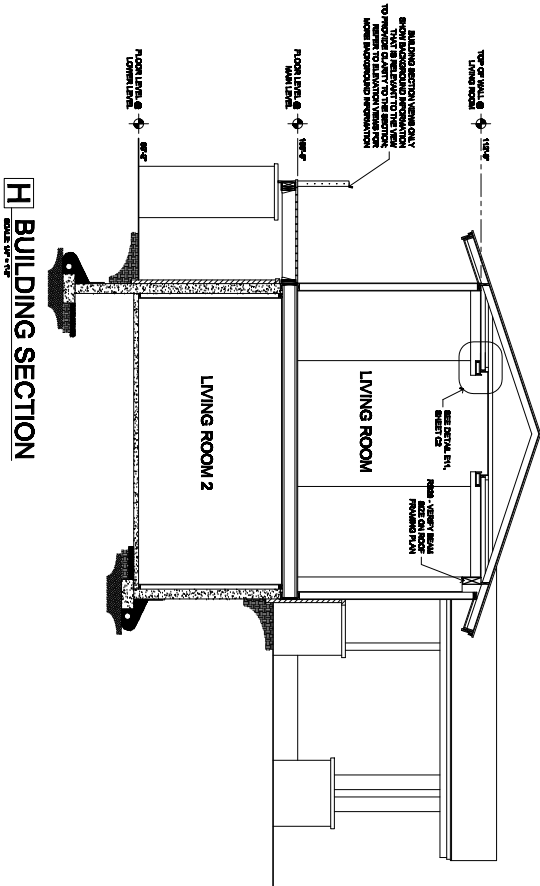


D3

CLIENT: HANNINDY
 INVENTOR: M.D.L.
 DATE: 08-28-15
 SHEET:

NO.	DATE

Exhibit A



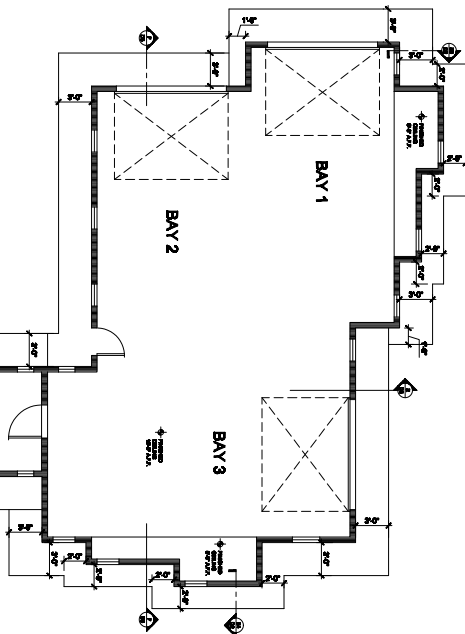
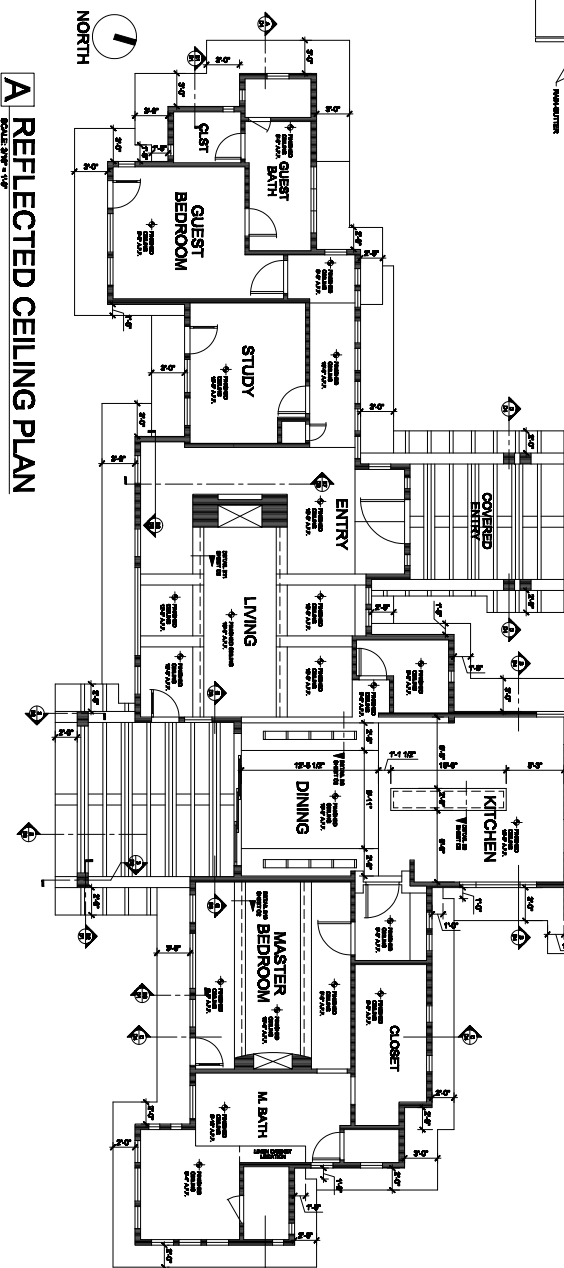
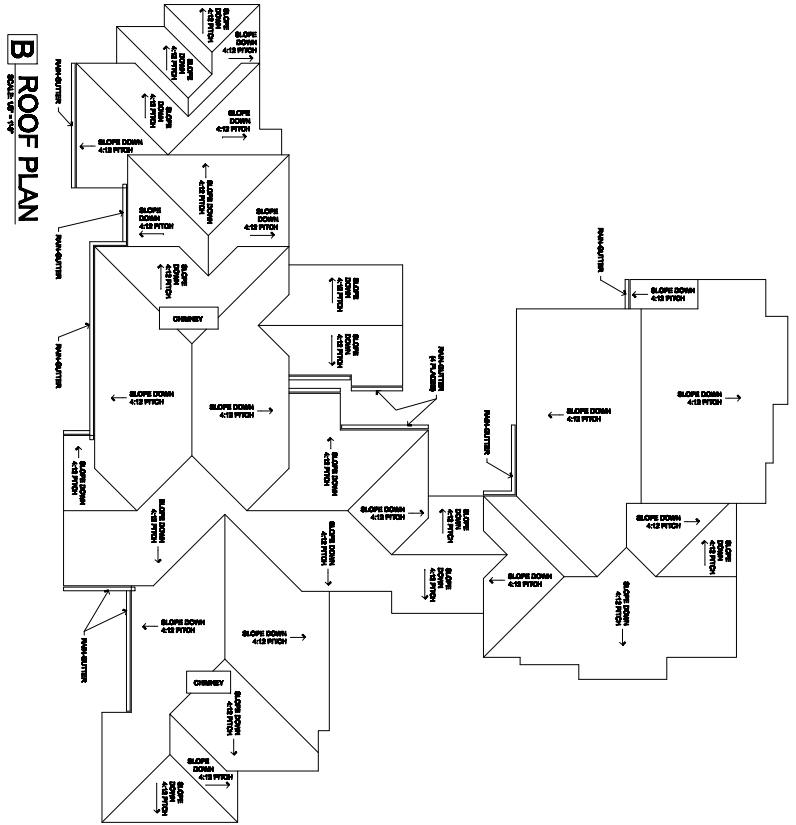
D6

CLIENT: HANNIDY
 DRAWN BY: M.D.L.
 DATE: 09-29-15
 SHEET:

Mark
DESIGN INC
 P.O. Box 330 Huntsville, Utah 84317
 801.746.2711

NO.	DATE	REVISION

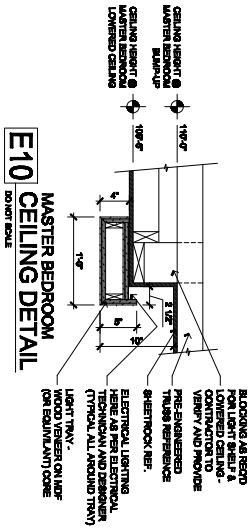
Exhibit A



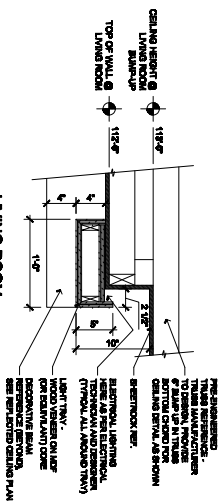
C1

CLIENT: HANNIDY
DRAWN BY: JHL
DATE: 06-28-15
SHEET:

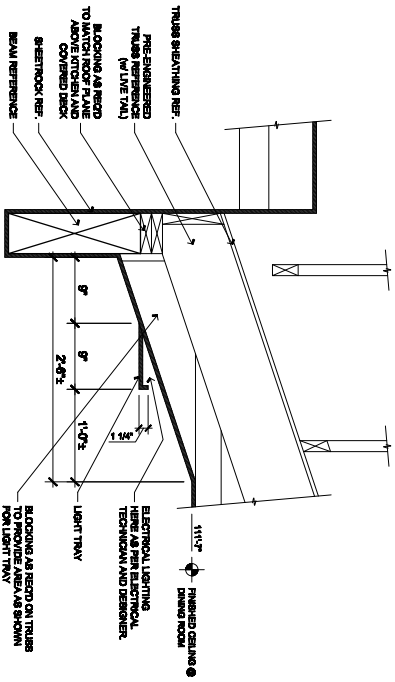
REVISION	DATE



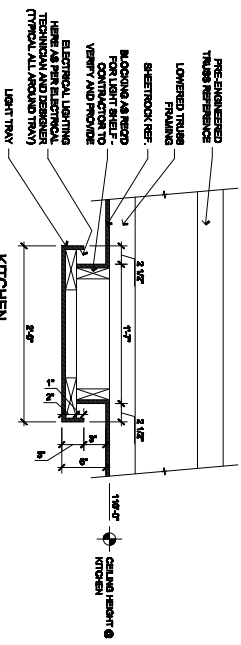
E10
MASTER BEDROOM
CEILING DETAIL
DO NOT SCALE



E11
LIVING ROOM
CEILING DETAIL
DO NOT SCALE



E8
DINING ROOM
CEILING DETAIL
DO NOT SCALE



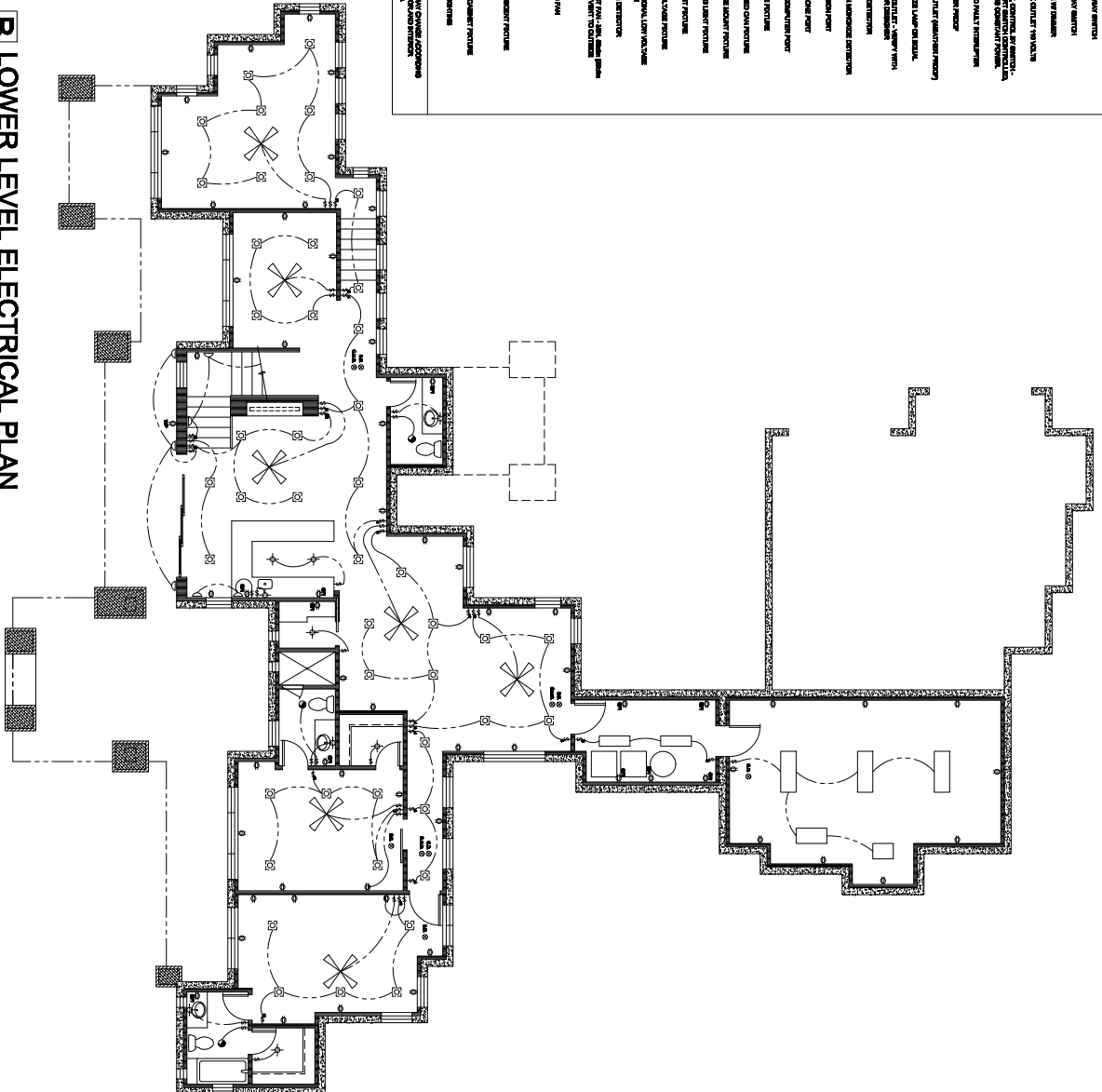
E9
KITCHEN
CEILING DETAIL
DO NOT SCALE

DATE: HANNOY
DRAWN: JDL
DATE: 06-28-15
SHEET: C2

Exhibit A

ELECTRICAL LEGEND	
SYMBOL	DESCRIPTION
	SWITCH
	120V SINGLE PHASE OUTLET
	240V SINGLE PHASE OUTLET
	SWITCH WITH BREAKER
	200A/400A BREAKER
	CIRCUIT BREAKER (15A, 20A, 30A, 40A, 50A, 60A, 75A, 100A, 125A, 150A, 200A, 250A, 300A, 350A, 400A, 450A, 500A, 600A, 700A, 800A, 900A, 1000A)
	120V/240V SPLIT PHASE
	120V/240V SINGLE PHASE
	120V/240V 3-PHASE
	120V/240V 3-PHASE WYE
	120V/240V 3-PHASE DELTA
	120V/240V 3-PHASE 4-WIRE
	120V/240V 3-PHASE 5-WIRE
	120V/240V 3-PHASE 6-WIRE
	120V/240V 3-PHASE 7-WIRE
	120V/240V 3-PHASE 8-WIRE
	120V/240V 3-PHASE 9-WIRE
	120V/240V 3-PHASE 10-WIRE
	120V/240V 3-PHASE 11-WIRE
	120V/240V 3-PHASE 12-WIRE
	120V/240V 3-PHASE 13-WIRE
	120V/240V 3-PHASE 14-WIRE
	120V/240V 3-PHASE 15-WIRE
	120V/240V 3-PHASE 16-WIRE
	120V/240V 3-PHASE 17-WIRE
	120V/240V 3-PHASE 18-WIRE
	120V/240V 3-PHASE 19-WIRE
	120V/240V 3-PHASE 20-WIRE
	120V/240V 3-PHASE 21-WIRE
	120V/240V 3-PHASE 22-WIRE
	120V/240V 3-PHASE 23-WIRE
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	120V/240V 3-PHASE 26-WIRE
	120V/240V 3-PHASE 27-WIRE
	120V/240V 3-PHASE 28-WIRE
	120V/240V 3-PHASE 29-WIRE
	120V/240V 3-PHASE 30-WIRE
	120V/240V 3-PHASE 31-WIRE
	120V/240V 3-PHASE 32-WIRE
	120V/240V 3-PHASE 33-WIRE
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	120V/240V 3-PHASE 99-WIRE
	120V/240V 3-PHASE 100-WIRE

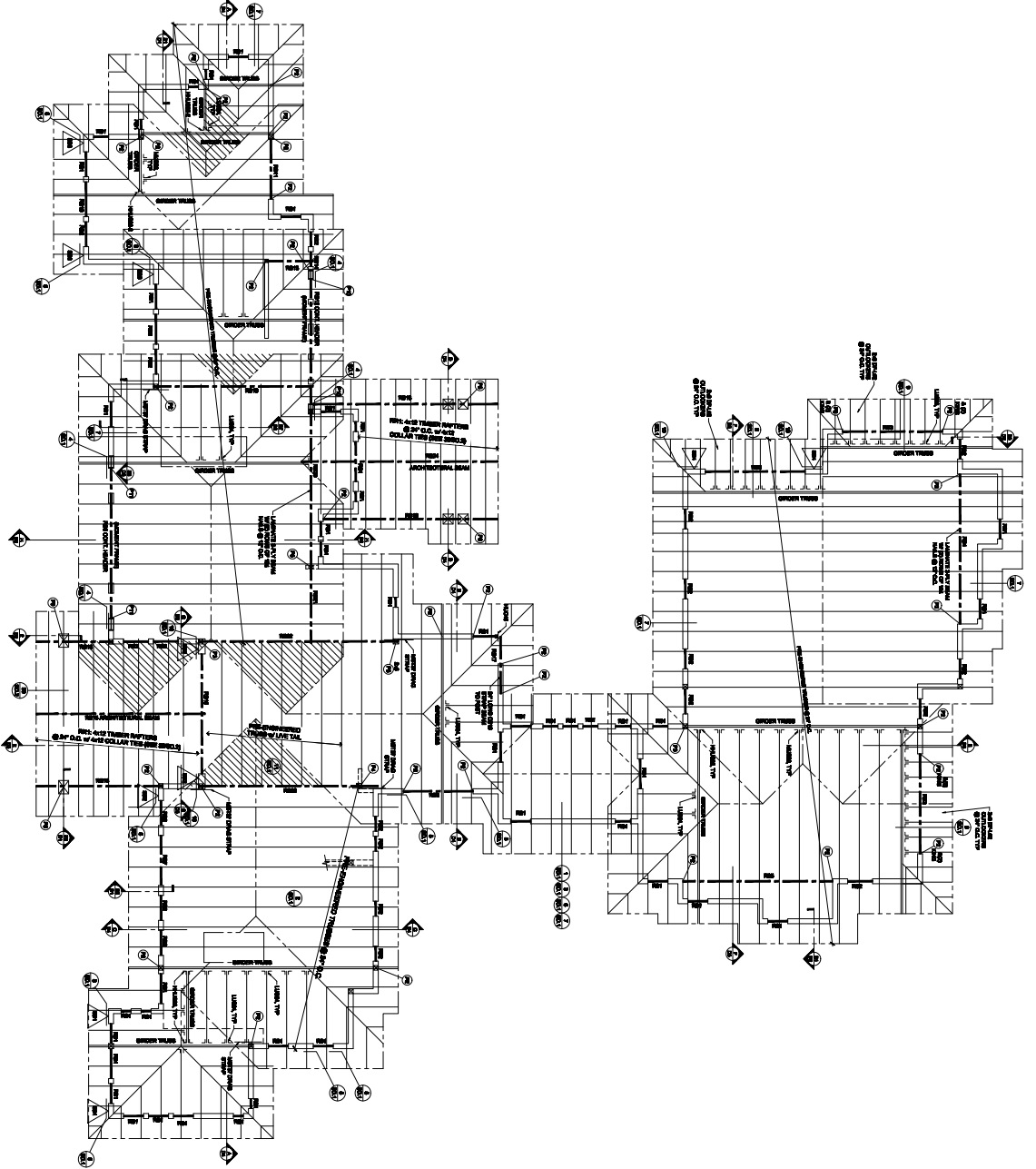
B LOWER LEVEL ELECTRICAL PLAN



CLIENT: HANNODY
 DRAWN BY: JKL
 DATE: 06-28-15
 SHEET: E2

Mark DESIGN INC
 P.O. Box 330 Huntville, Utah 84317
 801.746.2711

B ROOF FRAMING PLAN
SCALE: 3/8" = 1'-0"



BASIS FOR DESIGN

1. UNIFORM DEAD LOAD = 10 PSF
2. UNIFORM LIVE LOAD = 20 PSF
3. FLOOR FINISH LOAD = 5 PSF
4. FLOOR FINISH LOAD = 5 PSF
5. FLOOR FINISH LOAD = 5 PSF
6. FLOOR FINISH LOAD = 5 PSF
7. FLOOR FINISH LOAD = 5 PSF
8. FLOOR FINISH LOAD = 5 PSF
9. FLOOR FINISH LOAD = 5 PSF
10. FLOOR FINISH LOAD = 5 PSF

FRAMING NOTES

1. ALL FRAMING TO BE CONFORM WITH THE 2015 IBC.
2. ALL FRAMING TO BE PERFORMED BY A LICENSED CARPENTER.
3. ALL FRAMING TO BE PERFORMED BY A LICENSED CARPENTER.
4. ALL FRAMING TO BE PERFORMED BY A LICENSED CARPENTER.
5. ALL FRAMING TO BE PERFORMED BY A LICENSED CARPENTER.
6. ALL FRAMING TO BE PERFORMED BY A LICENSED CARPENTER.
7. ALL FRAMING TO BE PERFORMED BY A LICENSED CARPENTER.
8. ALL FRAMING TO BE PERFORMED BY A LICENSED CARPENTER.
9. ALL FRAMING TO BE PERFORMED BY A LICENSED CARPENTER.
10. ALL FRAMING TO BE PERFORMED BY A LICENSED CARPENTER.

POST SCHEDULE

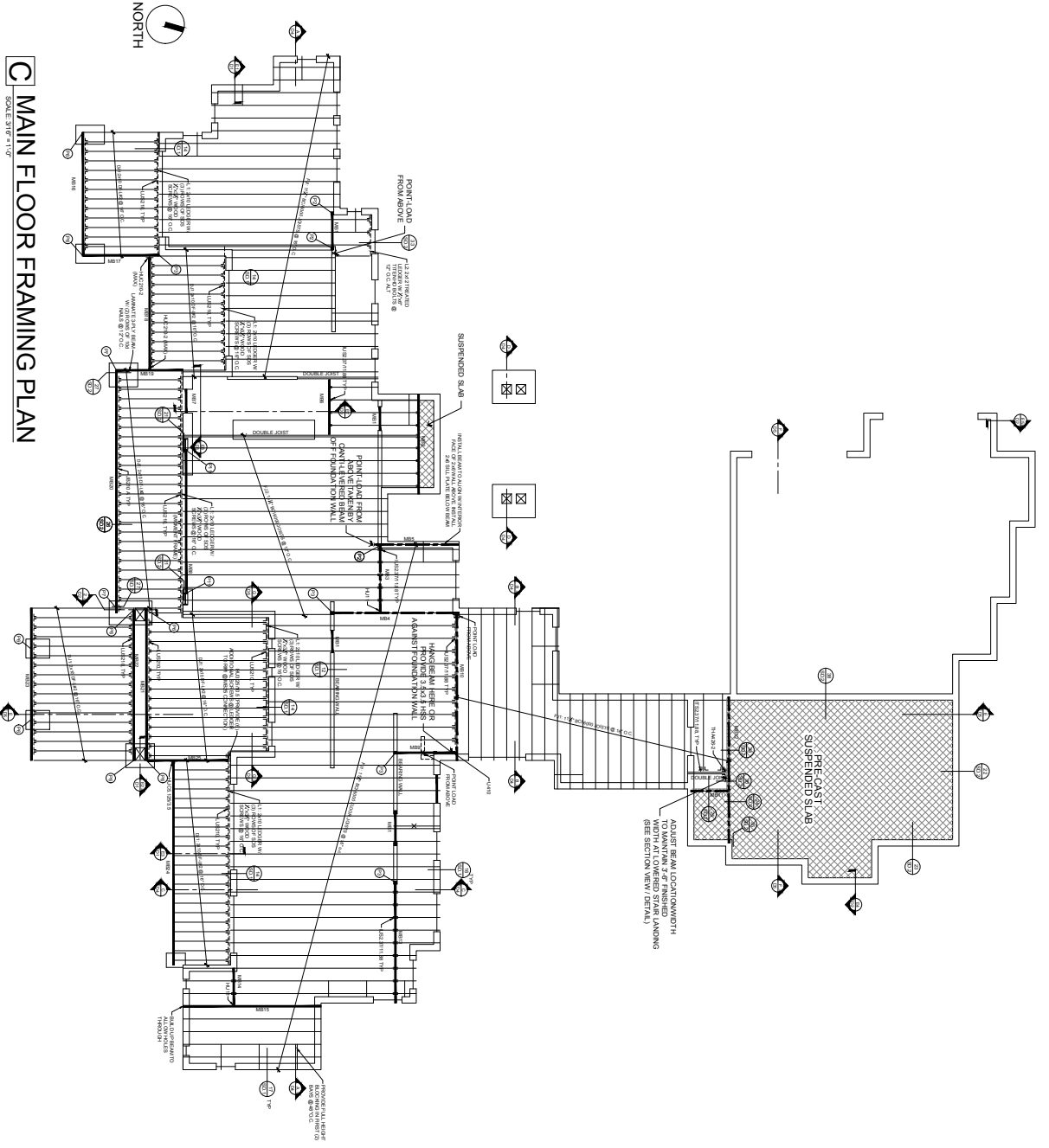
POST	TYPE	SPACING
1	4" x 4" LVL	12' o.c.
2	4" x 4" LVL	12' o.c.
3	4" x 4" LVL	12' o.c.
4	4" x 4" LVL	12' o.c.
5	4" x 4" LVL	12' o.c.
6	4" x 4" LVL	12' o.c.
7	4" x 4" LVL	12' o.c.
8	4" x 4" LVL	12' o.c.
9	4" x 4" LVL	12' o.c.
10	4" x 4" LVL	12' o.c.

BEAM SCHEDULE

BEAM	TYPE	SPACING
1	4" x 12" LVL	12' o.c.
2	4" x 12" LVL	12' o.c.
3	4" x 12" LVL	12' o.c.
4	4" x 12" LVL	12' o.c.
5	4" x 12" LVL	12' o.c.
6	4" x 12" LVL	12' o.c.
7	4" x 12" LVL	12' o.c.
8	4" x 12" LVL	12' o.c.
9	4" x 12" LVL	12' o.c.
10	4" x 12" LVL	12' o.c.

S2

CLIENT: HANNING
DATE: 09-28-15



C MAIN FLOOR FRAMING PLAN
SCALE: 3/16" = 1'-0"

FRAMING NOTES

1. FRAMING NOT COMPLETE WITHOUT THE STRUCTURAL CALCULATIONS.
2. ALL DIMENSIONS ARE TO FACE UNLESS NOTED OTHERWISE.
3. FOR THE GENERAL STRUCTURAL NOTES FOR THIS PROJECT, SEE SHEET 08-10.
4. WITH DIMENSIONS AT FACE, EOE: 12" O.C. FIELD.
5. BEARING SHALL BE AM BAYED 2X8.
6. BEAMS SHALL BE PERMANENTLY PROTECTED FROM THE DECKING SHALL BE RESISTANT SPEC'S CONTACT, IF A DIFFERENT SPECIES IS TO BE USED.
7. ALL DIMENSIONS SHALL BE TO FACE UNLESS NOTED OTHERWISE.
8. BEAMS SHALL BE PERMANENTLY PROTECTED FROM THE DECKING SHALL BE RESISTANT SPEC'S CONTACT, IF A DIFFERENT SPECIES IS TO BE USED.
9. BEAMS SHALL BE PERMANENTLY PROTECTED FROM THE DECKING SHALL BE RESISTANT SPEC'S CONTACT, IF A DIFFERENT SPECIES IS TO BE USED.
10. BEAMS SHALL BE PERMANENTLY PROTECTED FROM THE DECKING SHALL BE RESISTANT SPEC'S CONTACT, IF A DIFFERENT SPECIES IS TO BE USED.
11. BEAMS SHALL BE PERMANENTLY PROTECTED FROM THE DECKING SHALL BE RESISTANT SPEC'S CONTACT, IF A DIFFERENT SPECIES IS TO BE USED.
12. BEAMS SHALL BE PERMANENTLY PROTECTED FROM THE DECKING SHALL BE RESISTANT SPEC'S CONTACT, IF A DIFFERENT SPECIES IS TO BE USED.
13. BEAMS SHALL BE PERMANENTLY PROTECTED FROM THE DECKING SHALL BE RESISTANT SPEC'S CONTACT, IF A DIFFERENT SPECIES IS TO BE USED.
14. BEAMS SHALL BE PERMANENTLY PROTECTED FROM THE DECKING SHALL BE RESISTANT SPEC'S CONTACT, IF A DIFFERENT SPECIES IS TO BE USED.
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19. BEAMS SHALL BE PERMANENTLY PROTECTED FROM THE DECKING SHALL BE RESISTANT SPEC'S CONTACT, IF A DIFFERENT SPECIES IS TO BE USED.
20. BEAMS SHALL BE PERMANENTLY PROTECTED FROM THE DECKING SHALL BE RESISTANT SPEC'S CONTACT, IF A DIFFERENT SPECIES IS TO BE USED.

POST SCHEDULE

NO.	TYPE	SECTION	HEIGHT
1	POST	1	12'-0"
2	POST	2	12'-0"
3	POST	3	12'-0"
4	POST	4	12'-0"
5	POST	5	12'-0"
6	POST	6	12'-0"
7	POST	7	12'-0"
8	POST	8	12'-0"
9	POST	9	12'-0"
10	POST	10	12'-0"
11	POST	11	12'-0"
12	POST	12	12'-0"
13	POST	13	12'-0"
14	POST	14	12'-0"
15	POST	15	12'-0"
16	POST	16	12'-0"
17	POST	17	12'-0"
18	POST	18	12'-0"
19	POST	19	12'-0"
20	POST	20	12'-0"

BEAM SCHEDULE

NO.	TYPE	SECTION	HEIGHT
1	BEAM	1	12'-0"
2	BEAM	2	12'-0"
3	BEAM	3	12'-0"
4	BEAM	4	12'-0"
5	BEAM	5	12'-0"
6	BEAM	6	12'-0"
7	BEAM	7	12'-0"
8	BEAM	8	12'-0"
9	BEAM	9	12'-0"
10	BEAM	10	12'-0"
11	BEAM	11	12'-0"
12	BEAM	12	12'-0"
13	BEAM	13	12'-0"
14	BEAM	14	12'-0"
15	BEAM	15	12'-0"
16	BEAM	16	12'-0"
17	BEAM	17	12'-0"
18	BEAM	18	12'-0"
19	BEAM	19	12'-0"
20	BEAM	20	12'-0"



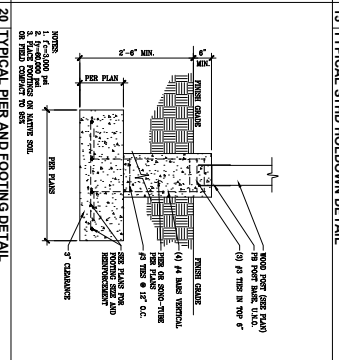
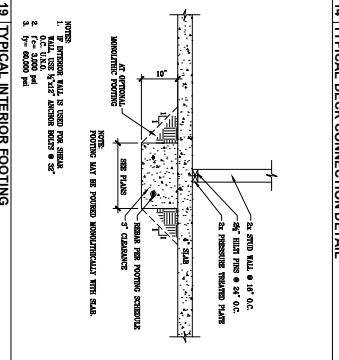
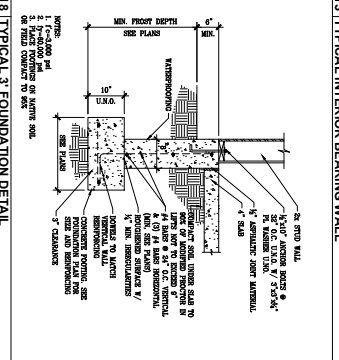
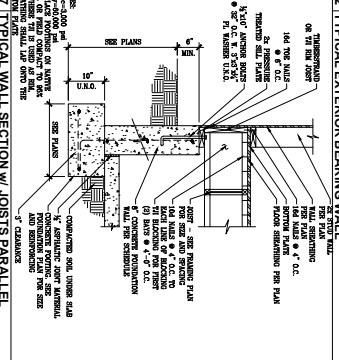
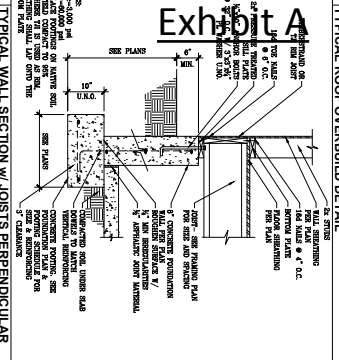
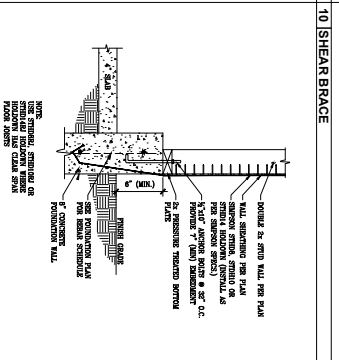
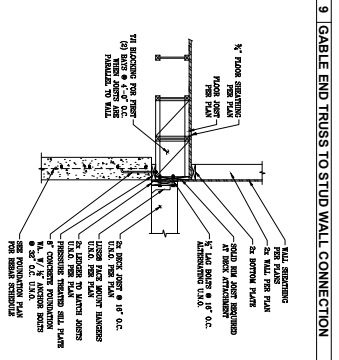
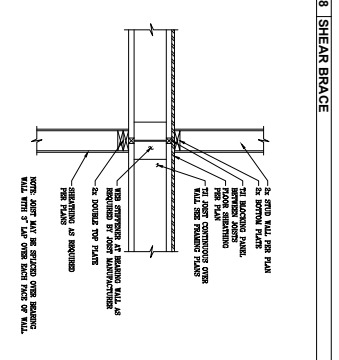
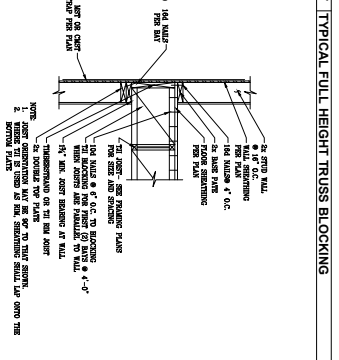
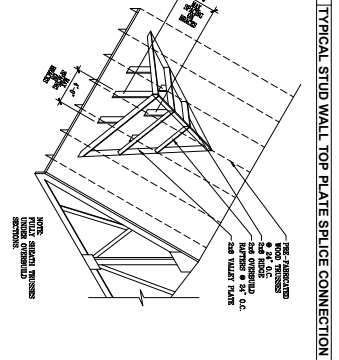
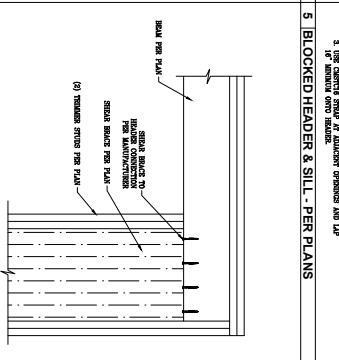
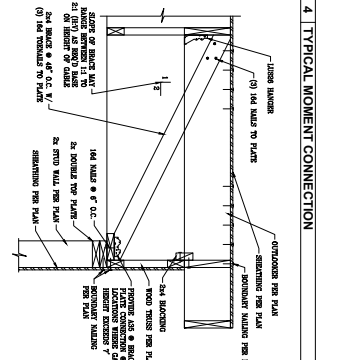
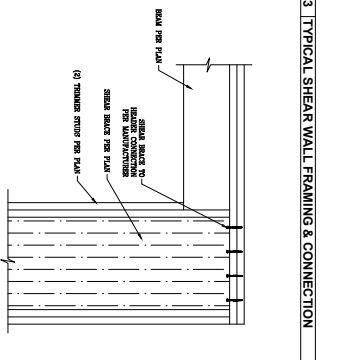
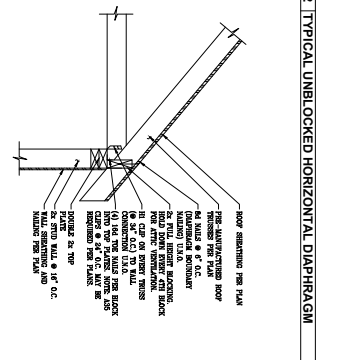
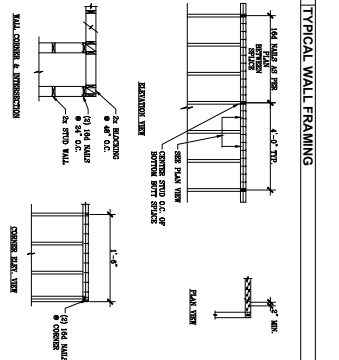
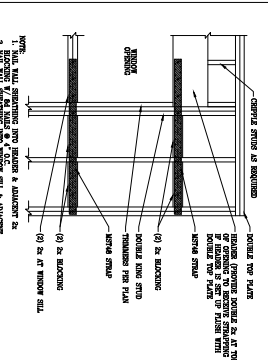
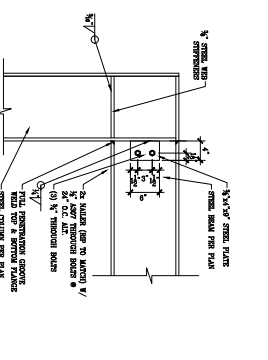
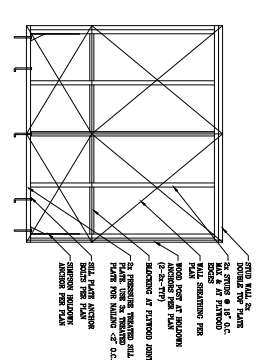
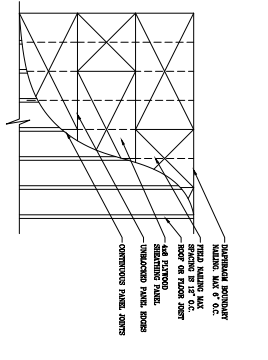
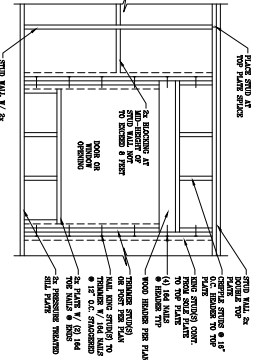


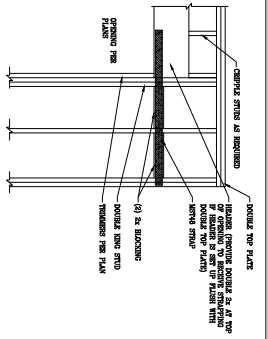
Exhibit A

DATE: 09/17/2015
 SCALE: N=1/8\"/>

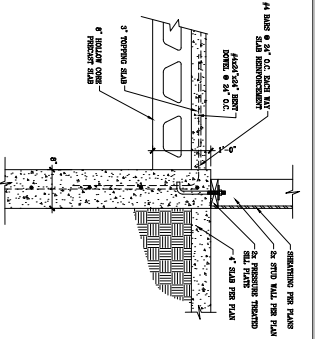
NOTED: IN CASE OF CONFLICT, THE CONTRACTOR SHALL FOLLOW THE MOST RESTRICTIVE REQUIREMENT.
 ALL DIMENSIONS ARE IN FEET AND INCHES UNLESS OTHERWISE NOTED.
 ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE NOTED.

HANNOY
 LOT #127, HIGHLANDS AT WOLF CREEK SUBDIVISION, EDEN, UTAH
STRUCTURAL DETAILS

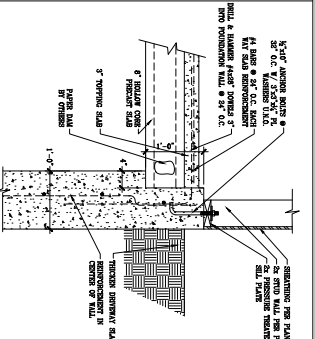
ETI
 ENGINEERS
 SURVEYORS
 PLANNERS
 1701 N. MAIN ST.
 SUITE 100
 PHOENIX, AZ 85002
 (602) 998-8888
 WWW.ETI-UTAH.COM



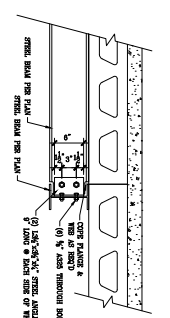
21 HEADER BLOCKING DETAIL - PER PLANS



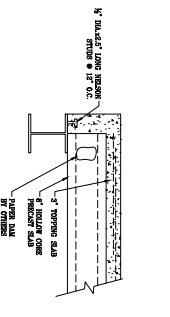
22 PRECAST SUSPENDED SLAB TO FDN WALL



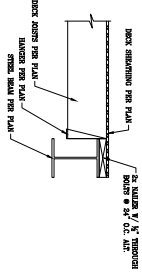
23 PRECAST SUSPENDED SLAB TO FDN WALL



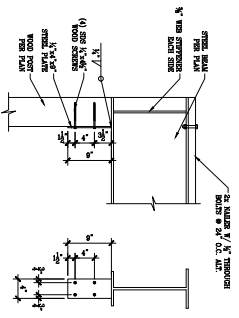
24 SUSPENDED SLAB TO STEEL BEAM PARALLEL



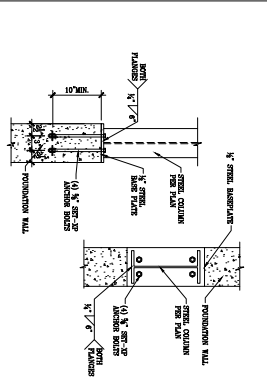
25 SUSPENDED SLAB TO STEEL BEAM PERPENDICULAR



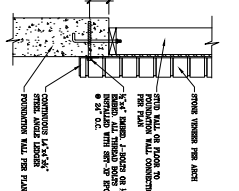
26 DECK JOISTS PER PLAN



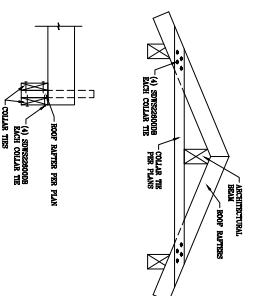
27 STEEL BEAM TO WOOD POST



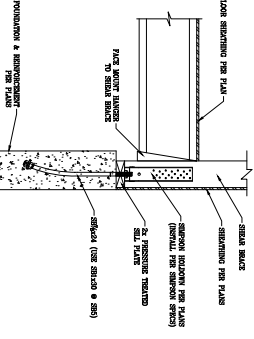
28 MOMENT FRAME BASE PLATE



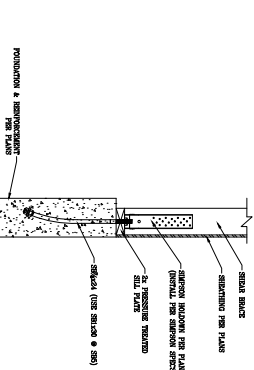
29 TYPICAL STEEL ANGLE LEDGER FOR STONE VENEER



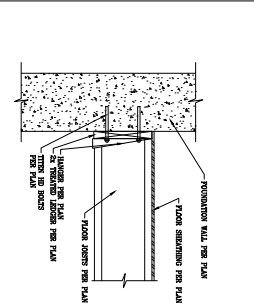
30 COLLAR TIE CONNECTION



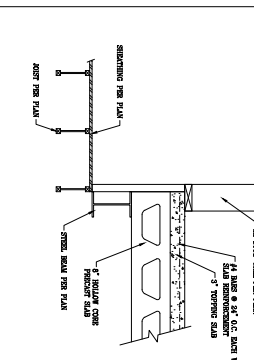
31 SHEAR BRACE ANCHOR AT FLOOR



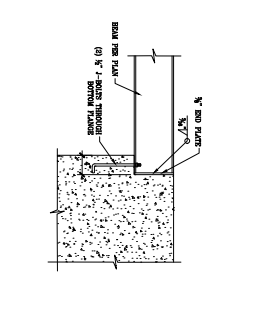
32 SHEAR BRACE ANCHOR



33 LEDGER AT FOUNDATION WALL

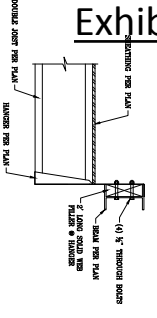


34 FLOOR JOIST PARALLEL TO PRECAST SLAB

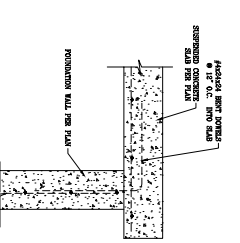


35 BEAM TO FOUNDATION

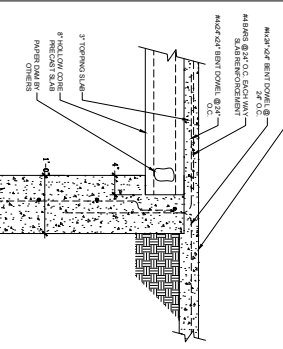
Exhibit A



36 DOUBLE JOIST TO STEEL BEAM



37 SUSPENDED SLAB AT FOUNDATION WALL



38 SUSPENDED SLAB TO FOUNDATION WALL

39 NOT USED

40 NOT USED

SD.2

DATE IN CHARGE: [blank]
 PROJECT NO: 2018-2771
 CLIENT: K&W
 SCALE: EBM
 DATE: 09/17/2015

HANNOY
 LOT #127, HIGHLANDS AT WOLF CREEK SUBDIVISION, EDEN, UTAH
 STRUCTURAL DETAILS

Page 20 of 89

ENGINEERS SURVEYORS PLANNERS

12/1/2018

UTAH PROFESSIONAL ENGINEERING BOARD

UTAH PROFESSIONAL SURVEYING BOARD



**GEOTECHNICAL INVESTIGATION
PROPOSED HANNOY RESIDENCE
3563 PINEVIEW COURT
EDEN, UTAH**

PREPARED FOR:

**BIG CANYON HOMES, INC.
1925 SW HOYTSTVILLE ROAD
WANSHIP, UTAH 84017**

ATTENTION: PAUL BERMAN

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FIGURES

TEST PIT AND BORING LOCATIONS	FIGURE 1
BORING & TEST PIT LOGS, LEGEND AND NOTES	FIGURE 2
CONSOLIDATION TEST RESULTS	FIGURE 3
GRADATION TEST RESULTS	FIGURE 4
SUMMARY OF LABORATORY TEST RESULTS	TABLE I

APPENDIX

SLOPE STABILITY PRINTOUTS

EXECUTIVE SUMMARY

1. The subsurface soil encountered in Boring B-1 consists of approximately 4 feet of fill overlying clay. The clay extends to a depth of approximately 10½ feet and is underlain by clayey gravel extending the full depth of the boring, approximately 15 feet where practical auger refusal was encountered. The test pits encountered approximately ½ foot of topsoil overlying clayey gravel extending the full depth investigated, approximately 26 feet.
2. No subsurface water was encountered to the maximum depth investigated.
3. The proposed residence may be supported on spread footings bearing on the undisturbed natural gravel or on structural fill extending down to the undisturbed natural gravel and may be designed for a net allowable bearing pressure of 3,500 pounds per square foot.
4. Geotechnical information related to foundations, subgrade preparation and materials is included in the report.

SCOPE

This report presents the results of a geotechnical investigation for a proposed Hannoy residence to be constructed at 3563 Pineview Court in Eden, Utah. The report presents the subsurface conditions encountered, laboratory test results and recommendations for foundations. The study was conducted in general accordance with our proposal dated March 14, 2016. A geologic-hazard study is being prepared in conjunction with this study and was reported May 2, 2016 under Project No. 1160176A.

Field exploration was conducted to obtain information on the subsurface conditions. Samples obtained from the field investigation were tested in the laboratory to determine physical and engineering characteristics of the on-site soil. Information obtained from the field and laboratory was used to define conditions at the site for our engineering analysis and to develop recommendations for the proposed foundations.

This report has been prepared to summarize the data obtained during the study and to present our conclusions and recommendations based on the proposed construction and the subsurface conditions encountered. Design parameters and a discussion of geotechnical engineering considerations related to construction are included in the report.

SITE CONDITIONS

At the time of our field study, there were no permanent structures or pavement on the site. The site consists of an undeveloped residential lot. It appears that some fill has been placed along the north edge of the site. This fill is approximately 4 feet thick at the boring location.

The ground surface at the site slopes gently to moderately down toward the south and southwest with slopes of approximately 6 horizontal to 1 vertical and flatter throughout most of the proposed building area and slopes on the order of 3 horizontal to 1 vertical and flatter south of the proposed building area.

Vegetation at the site consists of grass and brush.

There is a residential house west of the site and Pineveiw Court to the north. There are undeveloped lots to the south and east.

FIELD STUDY

The field study was conducted on April 13, 2016. One boring was drilled and two test pits excavated at the approximate locations indicated on Figure 1. The boring and test pits were logged by a geologist from AGECE. Logs of the subsurface conditions encountered in the boring and test pits are presented on Figure 2.

The test pits were backfilled without significant compaction. The backfill in the test pits should be removed and replaced with properly compacted fill where it will support proposed buildings, floor slabs or other settlement-sensitive improvements.

SUBSURFACE CONDITIONS

The subsurface soil encountered in Boring B-1 consists of approximately 4 feet of fill overlying clay. The clay extends to a depth of approximately 10½ feet and is underlain by clayey gravel extending the full depth of the boring, approximately 15 feet where practical auger refusal was encountered. The test pits encountered approximately ½ foot of topsoil overlying clayey gravel extending the full depth investigated, approximately 26 feet.

A description of the soil encountered in the boring and test pits follows:

Fill - The fill consists of sandy lean clay with gravel and occasional cobbles. It is moist and dark brown.

Topsoil - The topsoil consists of clayey gravel with sand, cobbles and occasional boulders up to approximately 3 feet in size. It is very moist, dark brown and contains roots and organics.

Lean Clay - The clay contains occasional gravel. It is stiff to very stiff, moist and brown.

Laboratory tests performed on a sample of the clay indicate it has a natural moisture content of 23 percent and a natural dry density of 100 pounds per cubic foot (pcf). Results a consolidation test performed on a sample of the clay indicate it will compress a small amount with the addition of light to moderate loads. Results of the consolidation test are presented on Figure 3.

Clayey Gravel with Sand - The gravel contains cobbles and boulders up to approximately 3 feet in size. It is dense to very dense, moist to very moist and brown with iron oxide staining.

Results of a gradation test performed on a sample of the gravel are presented on Figure 4.

Results of the laboratory tests are included on the boring and test pit logs and Table I.

SUBSURFACE WATER

No subsurface water was encountered to the maximum depth investigated, approximately 26 feet.

PROPOSED CONSTRUCTION

A single-family residence is planned for the site. The building will be a single-story structure with a basement. We have assumed building loads to consist of wall loads up to 3 kips per lineal foot and column loads up to 50 kips.

Grading for the site will be relatively minor with most rockeries planned to be 5 feet or less in height. The tallest rockery is planned for the northeast corner of the site along the driveway where a two-tier rockery is planned to be up to approximately 10 feet in height. We understand that rockery design is to be provided by others.

If the proposed construction or building loads are significantly different from those described above, we should be notified so that we can reevaluate the recommendations given.

SLOPE STABILITY EVALUATION

A slope stability evaluation was performed using the program SLIDE 7.0 by Rocscience. The strength selected for the clayey gravel is based on Stark and Eid (1997) for the clay component assuming a fully-softened condition and a friction angle of 39 degrees for the gravel component. The strength contributed to the clay is assumed to be 15 percent with 85 percent attributed to the gravel. The soil profile was considered to consist entirely of clayey gravel using these strengths. The slope profile was developed from the contours presented on Figure 1 in conjunction with elevation contours obtained from the Lidar data. The results of the stability analysis indicate a safety factor of 2.3 under static conditions and 1.4 under seismic conditions. The seismic condition was evaluated using a pseudostatic analysis from the same computer program and is based on a peak ground acceleration for a seismic event with a 2 percent probability of occurrence in 50 years.

Based on this study, both static and pseudostatic slope stability safety factors are at or above the required safety factors of 1.5 and 1.0, respectively. Printouts of the stability analyses are included in the appendix.

No subsurface water was encountered to the maximum depth investigated and a perched water table is not expected to form since the building will be connected to a sewer. A long-term perched-water condition could cause stability concerns for the undeveloped slope but not the house. Site grading should be planned to promote surface runoff away from the house and sumps should not be constructed in the slope below the proposed building area.

RECOMMENDATIONS

A. Site Grading

1. Subgrade Preparation

Prior to placing grading fill or base course, the topsoil, organic material, unsuitable fill and other deleterious materials should be removed. The north portion of the property appears to have been raised with fill and this fill is not considered suitable for support of buildings, slabs or other settlement-sensitive features and should be removed from below such structures and features.

2. Cut and Fill Slopes

Temporary unretained excavation slopes may be constructed at 1 horizontal to 1 vertical or flatter. Permanent, unretained cut and fill slopes up to 15 feet in height may be constructed at slopes of 3 horizontal to 1 vertical or flatter. Slopes greater than 15 feet in height will require a stability analysis.

Good surface drainage should be provided upslope of cut and fill slopes to direct surface runoff away from the face of the slopes. The slopes should be protected from erosion by revegetation or other methods.

3. Excavation

We anticipate that excavation at the site can be accomplished with heavy-duty excavation equipment. Significant difficulty can be expected for confined excavations where boulders are encountered. Care should be taken not to disturb the natural soil to remain in the proposed building area.

4. Materials

Listed below are materials recommended for imported structural fill:

<u>Fill to Support</u>	<u>Recommendations</u>
Footings	Non-expansive granular soil Passing No. 200 Sieve < 35% Liquid Limit < 30% Maximum size 4 inches
Floor Slab (Upper 4 inches)	Sand and/or Gravel Passing No. 200 Sieve < 5% Maximum size 2 inches
Slab Support	Non-expansive granular soil Passing No. 200 Sieve < 50% Liquid Limit < 30% Maximum size 6 inches

Fill placed below areas of the proposed building should consist of granular soil as indicated above. The on-site sand and gravel is generally expected to meet these criteria if the oversized particles are removed.

5. Compaction

Compaction of materials placed at the site should equal or exceed the minimum densities as indicated below when compared to the maximum dry density as determined by ASTM D 1557.

<u>Fill To Support</u>	<u>Compaction</u>
Foundations	≥ 95%
Concrete Slabs	≥ 90%
Landscaping	≥ 85%
Retaining Wall Backfill	85 - 90%

The moisture of the soil should be adjusted to within 2 percent of optimum to facilitate compaction.

Fill placed for the project should be frequently tested for compaction. Fill should be placed in thin enough lifts to allow for proper compaction.

6. Drainage

The ground surface surrounding the proposed building should be sloped away from the residence in all directions. Roof down spouts and drains should discharge beyond the limits of backfill.

B. Foundations

1. Bearing Material

The proposed residence may be supported on spread footings bearing on the undisturbed natural gravel or on compacted structural fill that extends down to the natural undisturbed gravel. Structural fill placed below footings should

extend out away from the edge of footings at least a distance equal to the depth of fill below footings.

The topsoil, organics, unsuitable fill, debris and other deleterious materials should be removed from below proposed foundation areas.

2. Bearing Pressure

Spread footings bearing on the undisturbed, natural gravel or on compacted structural fill may be designed for a net allowable bearing pressure of 3,500 pounds per square foot.

3. Settlement

We estimate that total and differential settlement will be less than ½ inch for footings designed as indicated above.

4. Temporary Loading Conditions

The allowable bearing pressure may be increased by one-half for temporary loading conditions such as wind or seismic loads.

5. Minimum Footing Width and Embedment

Spread footings should have a minimum width of 1 ½ feet and a minimum depth of embedment of 10 inches.

6. Frost Depth

Exterior footings and footings beneath unheated areas should be placed at least 36 inches below grade for frost protection.

7. Foundation Base

The base of foundation excavations should be cleared of loose or deleterious material prior to structural fill or concrete placement. The subgrade should not be scarified prior to structural fill placement.

8. Construction Observation

A representative of the geotechnical engineer should observe footing excavations prior to structural fill or concrete placement.

C. Concrete Slab-on-Grade

1. Slab Support

Concrete slabs may be supported on the undisturbed natural soil or on compacted structural fill that extends down to the undisturbed natural soil.

Topsoil, unsuitable fill, organics, debris and other deleterious materials should be removed from below proposed slabs.

2. Underslab Sand and/or Gravel

Consideration may be given to placing a 4-inch layer of free-draining sand and/or gravel (less than 5 percent passing the No. 200 sieve) below slabs to promote even curing of the slab concrete.

D. Lateral Earth Pressures

1. Lateral Resistance for Footings

Lateral resistance for footings placed on natural soil or on compacted structural fill is controlled by sliding resistance between the footing and foundation soils. A friction value of 0.45 may be used in design for ultimate lateral resistance.

2. Subgrade Walls and Retaining Structures

The following equivalent fluid weights are given for design of subgrade walls and retaining structures. The active condition is where the wall moves away from the soil. The passive condition is where the wall moves into the soil and

the at-rest condition is where the wall does not move. The values listed below assume a horizontal surface adjacent the top and bottom of the wall.

Soil Type	Active	At-Rest	Passive
Clay & Silt	50 pcf	65 pcf	250 pcf
Sand & Gravel	40 pcf	55 pcf	300 pcf

3. Seismic Conditions

Under seismic conditions, the equivalent fluid weight should be increased by 22 pcf and 7 pcf for active and at-rest conditions, respectively, and decreased by 22 pcf for the passive condition. This assumes a peak horizontal ground acceleration of 0.35g for a seismic event having a 2 percent probability of exceedance in a 50-year period (IBC, 2012).

4. Safety Factors

The values recommended above for active and passive conditions assume mobilization of the soil to achieve the soil strength. Conventional safety factors used for structural analysis for such items as overturning and sliding resistance should be used in design.

E. Seismicity, Faulting and Liquefaction

1. Seismicity

Listed below is a summary of the site parameters for the 2012 International Building Code.

- a. Site Class C
- b. Short Period Spectral Response Acceleration, S_s 0.89g
- c. One Second Period Spectral Response Acceleration, S_1 0.30g

2. Faulting

There are no mapped active faults extending through the site. The closest mapped fault considered to be active is the Wasatch fault located approximately 6.7 miles west of the site (Black and others, 2003).

3. Liquefaction

Based on the subsurface conditions encountered at the site, published literature and our understanding of the geologic conditions in the area, liquefaction is not considered a hazard at this site.

F. Water Soluble Sulfates

One sample of the natural soil was tested in the laboratory for water soluble sulfate content. Results of the test indicate there is less than 0.1 percent water soluble sulfate in the sample tested. Based on the results of the test and published literature, the natural soil possesses negligible sulfate attack potential on concrete. No special cement type is required for concrete placed in contact with the natural soil. Other conditions may dictate the type of cement to be used in concrete for the project.

G. Subsurface Drain

We recommend that a subsurface drain be provided for the below-grade floor portion of the residence. The subsurface drain system should consist of at least the following items:

- a. The subsurface drain system should consist of a perforated pipe installed in a gravel filled trench around the perimeter of the subgrade floor portion of the residence. A geosynthetic drain could be used as an alternative. The drain

should extend up the foundation walls high enough (to within approximately 3 feet of the ground surface) to intercept potential subsurface water.

- b. At least 6 inches of free-draining gravel should be placed below the floor slab of the residence. The gravel should connect the perimeter drainage pipe.
- c. The flow line of the pipe should be placed at least 14 inches below the finished floor level and should slope to a sump or outlet where water can be removed by pumping or by gravity flow.
- d. If placing the gravel and drain pipe requires excavation below the bearing level of the footing, the excavation for the drain pipe and gravel should have a slope no steeper than 1:1 (horizontal to vertical) so as not to disturb the soil below the building.
- e. A filter fabric should be placed between the natural soil and the drain gravel. This will help reduce the potential for fine grained material filling in the void spaces of the gravel.
- f. Consideration may be given to installing cleanouts to allow access into the perimeter drain should cleaning of the pipe be required in the future.

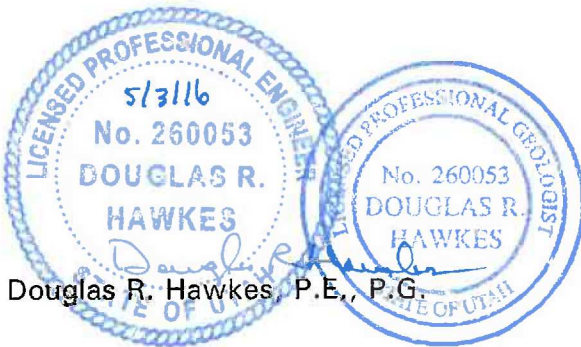
H. Preconstruction Meeting

A preconstruction meeting should be held with representatives of the owner, project architect, geotechnical engineer, general contractor, earthwork contractor and other members of the design team to review construction plans, specifications, methods and schedule.

LIMITATIONS

This report has been prepared in accordance with generally accepted soil and foundation engineering practices in the area for the use of the client for design purposes. The conclusions and recommendations included within the report are based on the information obtained from the boring drilled and test pits excavated at the approximate locations indicated on the site plan and the data obtained from laboratory testing. Variations in the subsurface conditions may not become evident until additional exploration or excavation is conducted. If the proposed construction, subsurface conditions or groundwater level is found to be significantly different from what is described above, we should be notified to reevaluate the recommendations given.

APPLIED GEOTECHNICAL ENGINEERING CONSULTANTS, INC.



Douglas R. Hawkes, P.E., P.G.

Jay R. McQuivey

Reviewed by Jay R. McQuivey, P.E.

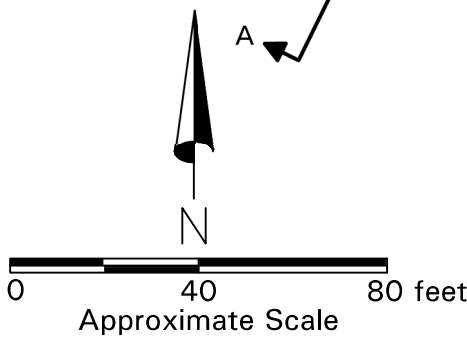
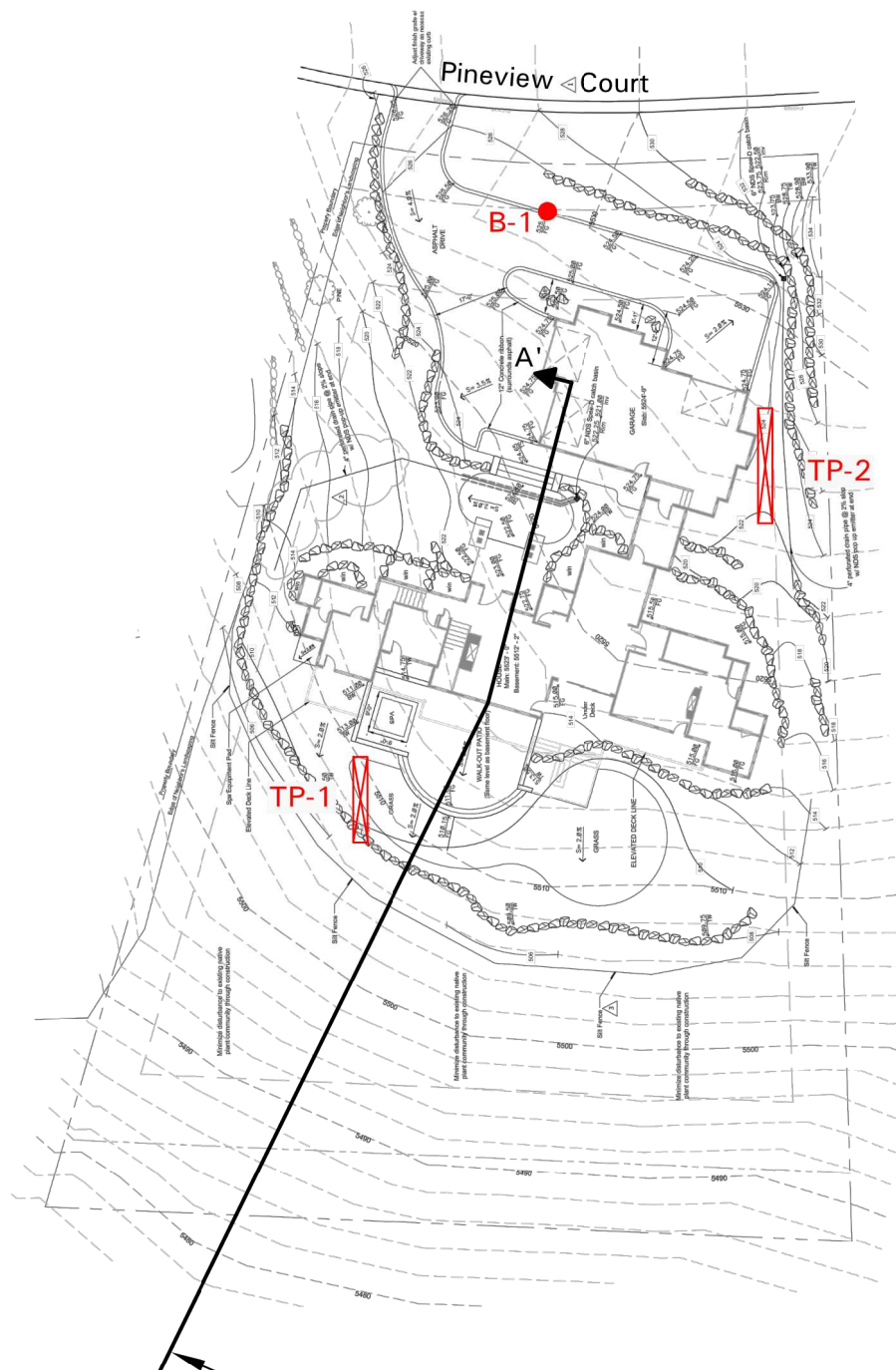
DRH/rs

REFERENCES

Black, B.D., Hecker, S., Hylland, M.D., Christenson, G.E., and McDonald, G.N., 2003; Quaternary fault and fold database and map of Utah; Utah Geological Survey Map 193DM.

International Building Codes, 2012; International Code Council, Inc., Falls Church, Virginia.

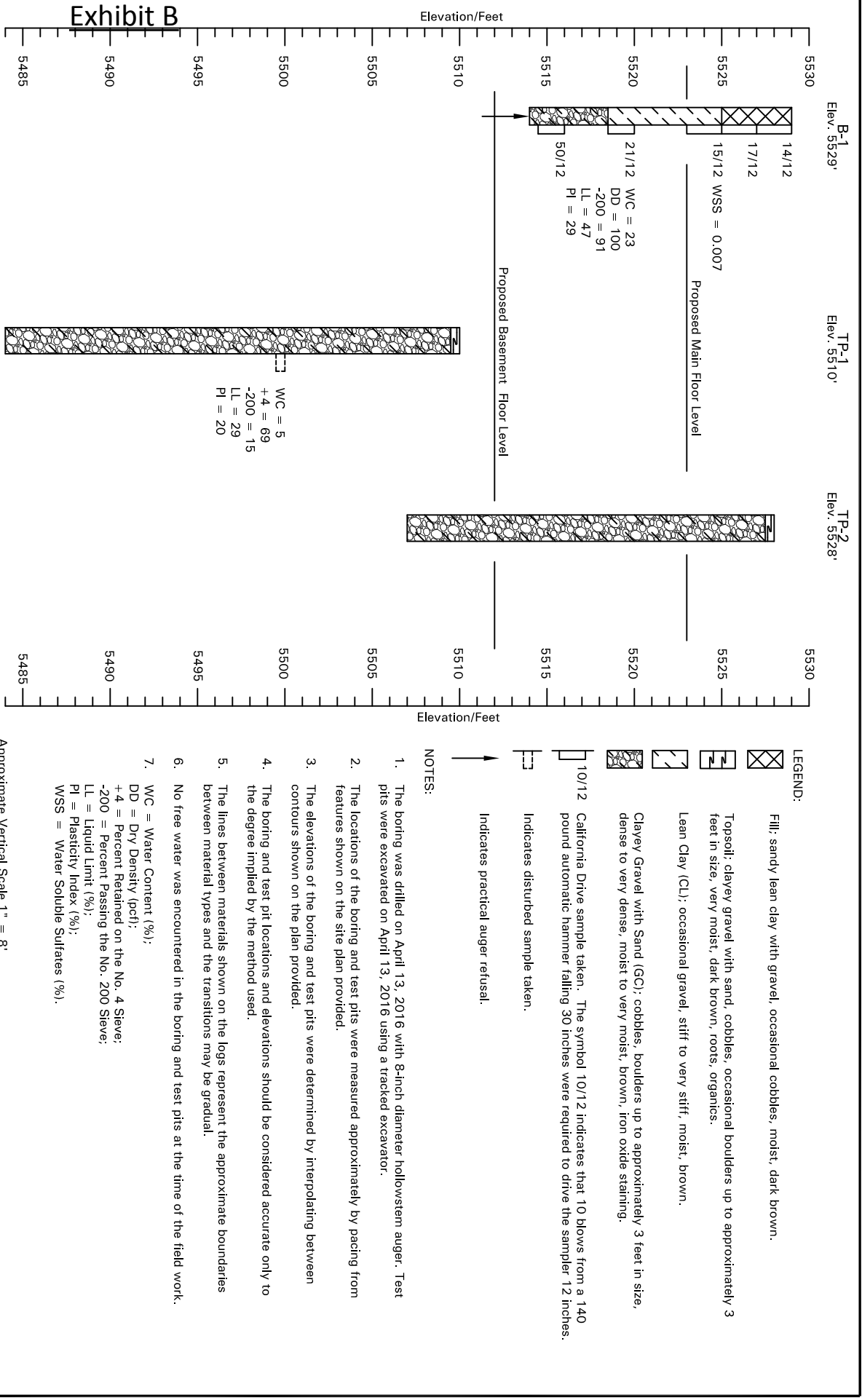
Stark, T.D. and Eid, H.T., 1997; Slope stability analyses in stiff fissured clays, J. of Geotechnical and Geoenvironmental Engineering, Vol. 123, No. 4, April 1997.



Profile for Slope
Stability Evaluation

PROPOSED HANNOY RESIDENCE
3563 PINEVIEW COURT
EDEN, UTAH

Exhibit B



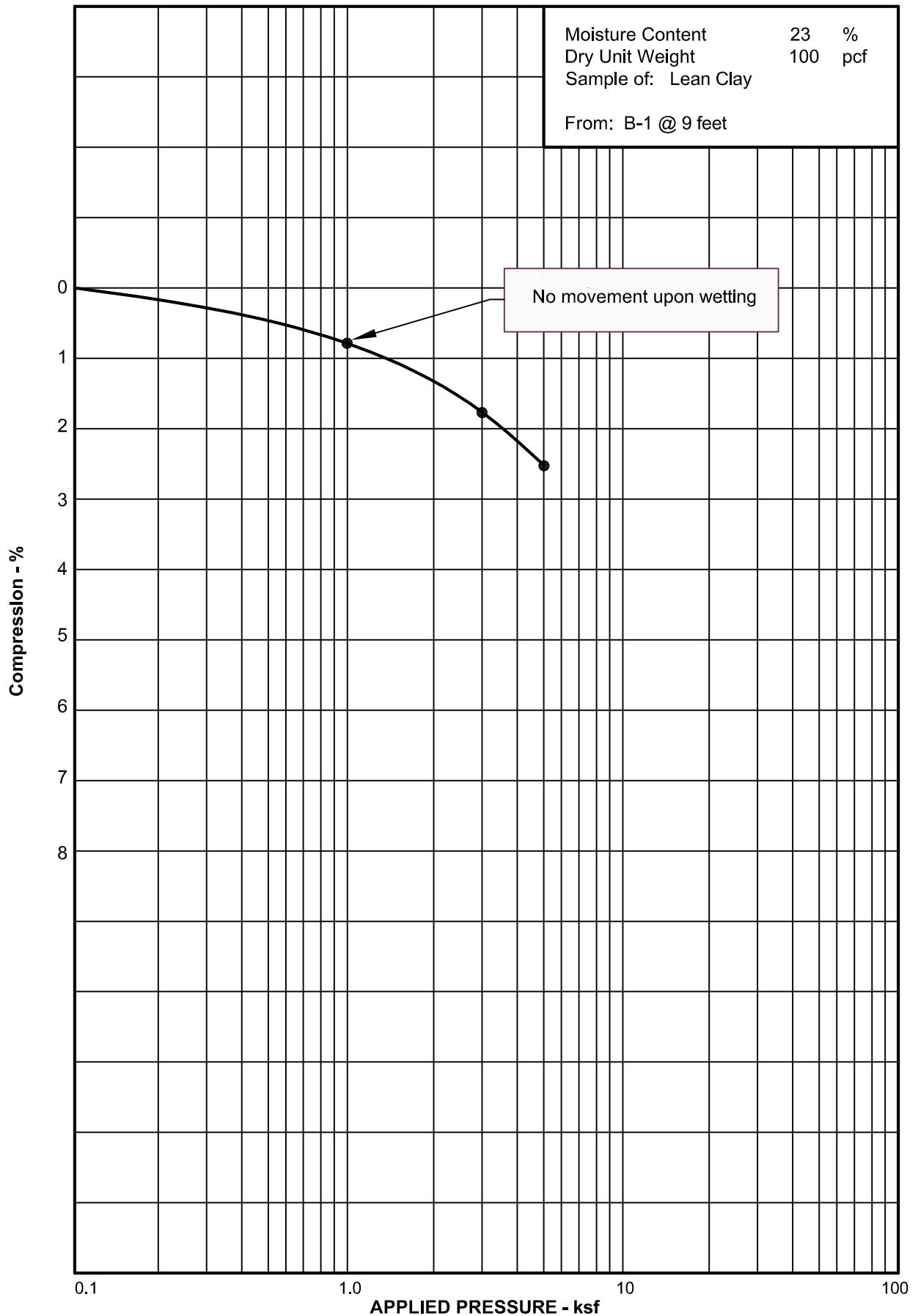
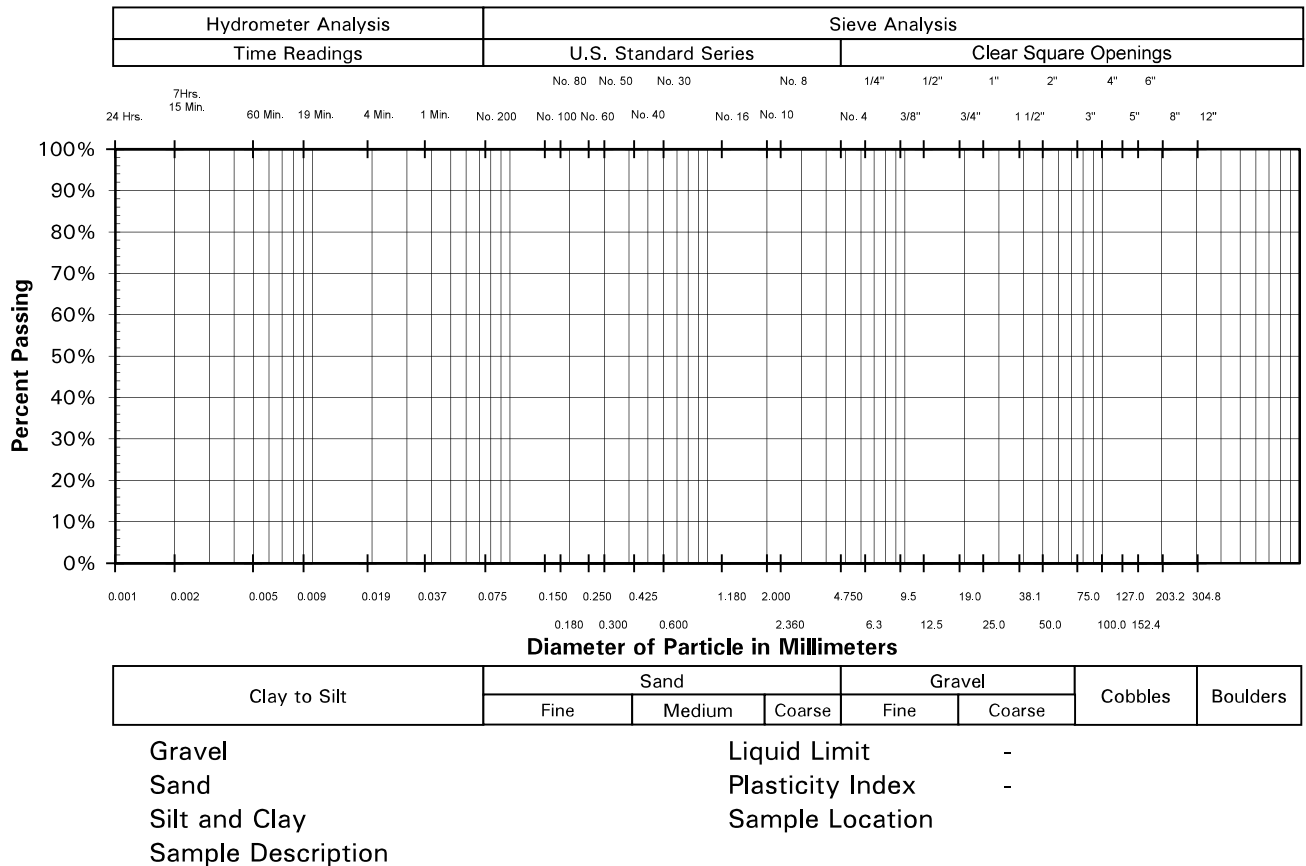
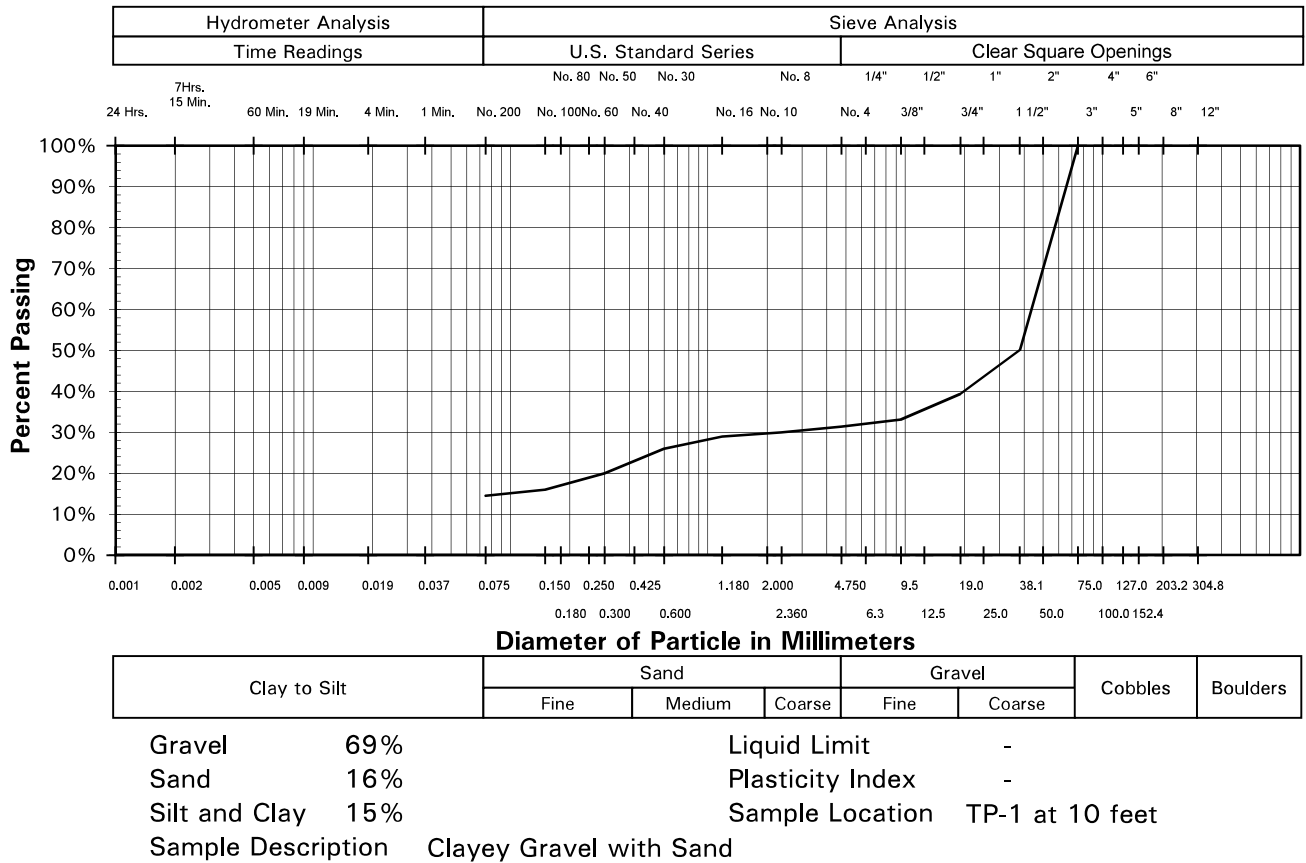


Exhibit B

APPLIED GEOTECHNICAL ENGINEERING CONSULTANTS, INC.



APPLIED GEOTECHNICAL ENGINEERING CONSULTANTS, INC.

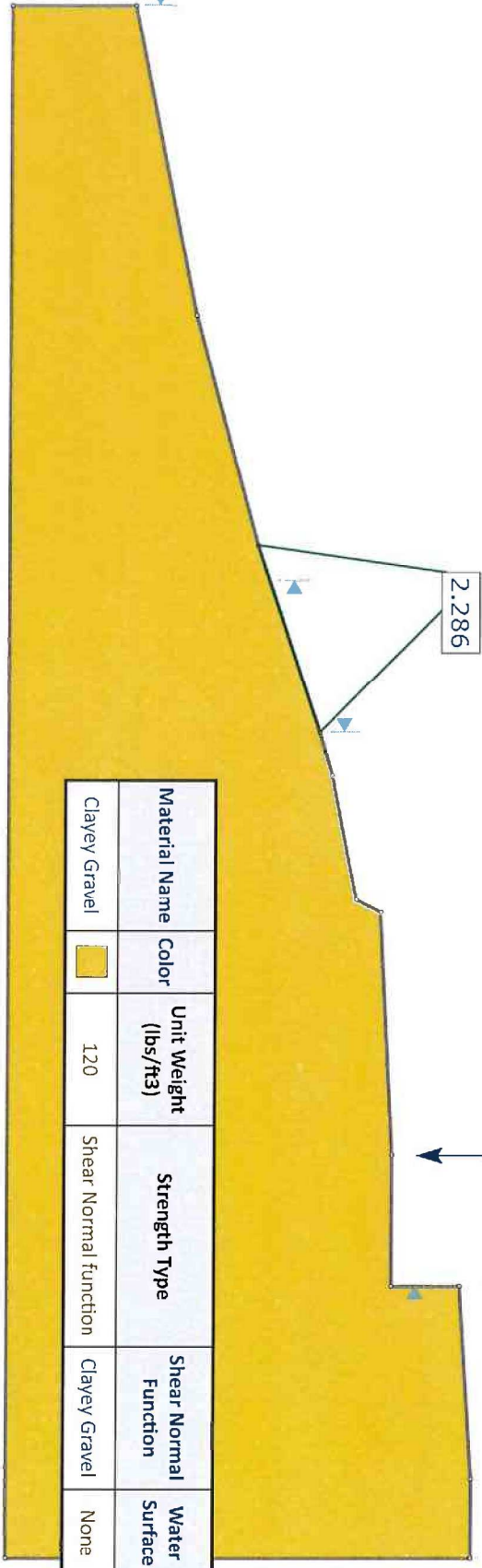
TABLE I
 SUMMARY OF LABORATORY TEST RESULTS

PROJECT NUMBER 11601768B

SAMPLE LOCATION	DEPTH (FEET)	NATURAL MOISTURE CONTENT (%)	NATURAL DRY DENSITY (PCF)	GRADATION			ATTERBERG LIMITS			UNCONFINED COMPRESSIVE STRENGTH (PSF)	WATER SOLUBLE SULFATE (%)	SAMPLE CLASSIFICATION
				GRAVEL (%)	SAND (%)	SILT/CLAY (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)				
B-1	4											Lean Clay
	9	23	100			91	47	29				Lean Clay
TP-1	10	5		69	16	15	29	20				Clayey Gravel with Sand
Exhibit B												

APPENDIX
SLOPE STABILITY PRINTOUTS

Exhibit B



Static Condition


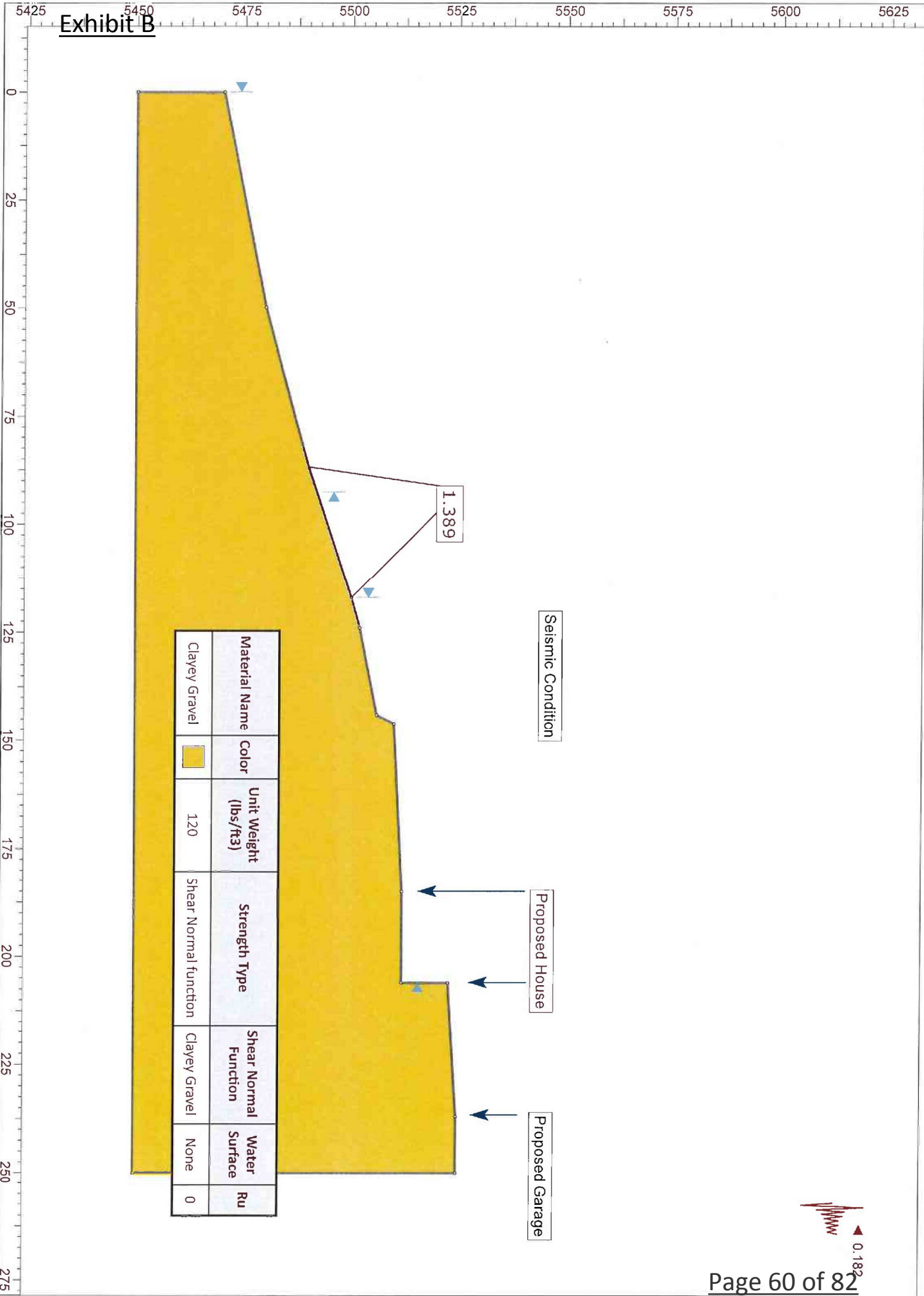

Material Name	Color	Unit Weight (lbs./ft ³)	Strength Type	Shear Normal Function	Water Surface	Ru
Clayey Gravel		120	Shear Normal function	Clayey Gravel	None	0

Exhibit B



Material Name	Color	Unit Weight (lbs/ft ³)	Strength Type	Shear Normal Function	Water Surface	Ru
Clayey Gravel		120	Shear Normal function	Clayey Gravel	None	0

Seismic Condition

Proposed House

Proposed Garage



0.182

Slide Analysis Information

SLIDE - An Interactive Slope Stability Program

Project Summary

File Name: 1160176 Seismic Condition
 Slide Modeler Version: 7.014
 Project Title: SLIDE - An Interactive Slope Stability Program
 Date Created: 5/2/2016, 10:42:47 AM

General Settings

Units of Measurement: Imperial Units
 Time Units: days
 Permeability Units: feet/second
 Failure Direction: Right to Left
 Data Output: Standard
 Maximum Material Properties: 20
 Maximum Support Properties: 20

Analysis Options

Slices Type: Vertical

Analysis Methods Used

Spencer

Number of slices: 50
 Tolerance: 0.005
 Maximum number of iterations: 75
 Check malpha < 0.2: Yes
 Create Interslice boundaries at intersections with water tables and piezos: Yes
 Initial trial value of FS: 1
 Steffensen Iteration: Yes

Groundwater Analysis

Groundwater Method: Water Surfaces
 Pore Fluid Unit Weight [lbs/ft³]: 62.4
 Advanced Groundwater Method: None

Random Numbers

Pseudo-random Seed: 10116
 Random Number Generation Method: Park and Miller v.3

Surface Options

Search Method: Auto Refine Search
 Divisions along slope: 10
 Circles per division: 10
 Number of iterations: 10
 Divisions to use in next iteration: 50%
 Number of vertices per surface: 12
 Minimum Elevation: Not Defined
 Minimum Depth: Not Defined
 Minimum Area: Not Defined
 Minimum Weight: Not Defined

Seismic

Advanced seismic analysis: No
 Staged pseudostatic analysis: No

Loading

Seismic Load Coefficient (Horizontal): 0.182

Material Properties

Property	Clayey Gravel
Color	<input type="checkbox"/>
Strength Type	Shear Normal function
Unit Weight [lbs/ft3]	120
Water Surface	None
Ru Value	0

Shear Normal Functions

Name: Clayey Gravel

Normal (psf)	Shear (psf)
0	0
1050	800
2000	1540
4000	3085
8350	6375

Global Minimums

Method: spencer

FS **1.388850**
 Axis Location: 91.825, 5525.199
 Left Slip Surface Endpoint: 86.773, 5489.939
 Right Slip Surface Endpoint: 117.002, 5500.001
 Resisting Moment: 3293.89 lb-ft
 Driving Moment: 2371.66 lb-ft
 Resisting Horizontal Force: 97.8572 lb
 Driving Horizontal Force: 70.4591 lb
 Total Slice Area: 1.26602 ft2
 Surface Horizontal Width: 30.2298 ft
 Surface Average Height: 0.0418798 ft

Global Minimum Coordinates

Method: spencer



X	Y
86.7726	5489.94
87.419	5490.11
88.4014	5490.44
89.3839	5490.76
90.312	5491.07
91.2402	5491.37
92.1683	5491.68
93.0964	5491.99
94.3228	5492.39
95.5491	5492.8
96.2066	5493.02
96.8835	5493.24
97.5604	5493.47
98.5661	5493.8
99.5718	5494.14
100.845	5494.56
102.119	5494.98
102.763	5495.2
103.406	5495.41
104.693	5495.84
105.649	5496.17
106.605	5496.49
107.561	5496.81
108.517	5497.13
109.489	5497.45
110.462	5497.78
111.434	5498.11
112.406	5498.43
113.235	5498.72
114.064	5499
114.893	5499.28
115.722	5499.56
117.002	5500

Valid / Invalid Surfaces

Method: spencer

Number of Valid Surfaces: 1666
 Number of Invalid Surfaces: 2836

Error Codes:

- Error Code -105 reported for 38 surfaces
- Error Code -111 reported for 37 surfaces
- Error Code -113 reported for 2761 surfaces

Error Codes

- The following errors were encountered during the computation:
- 105 = More than two surface / slope intersections with no valid slip surface.
 - 111 = safety factor equation did not converge
 - 113 = Surface intersects outside slope limits.

Slice Data

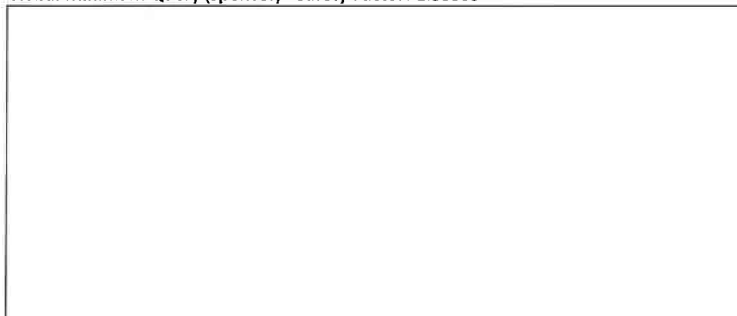
Global Minimum Query (spencer) - Safety Factor: 1.38885



Slice Number	Width [ft]	Weight [lbs]	Angle of Slice Base [degrees]	Base Material	Base Cohesion [psf]	Base Friction Angle [degrees]	Shear Stress [psf]	Shear Strength [psf]	Base Normal Stress [psf]	Pore Pressure [psf]	Effective Normal Stress [psf]
1	0.646406	0.664783	15.1221	Clayey Gravel	-1.11022e-016	37.304	0.508383	0.706068	0.926714	0	0.926714
2	0.491235	1.62417	18.2021	Clayey Gravel	0	37.304	1.54018	2.13908	2.80754	0	2.80754
3	0.491235	1.75474	18.2021	Clayey Gravel	-4.44089e-016	37.304	1.664	2.31104	3.03324	0	3.03324
4	0.982469	3.90117	18.2021	Clayey Gravel	0	37.304	1.84971	2.56897	3.37177	0	3.37177
5	0.464066	2.00445	18.2816	Clayey Gravel	0	37.304	2.00904	2.79025	3.6622	0	3.6622
6	0.464066	2.08126	18.2816	Clayey Gravel	-4.44089e-016	37.304	2.08602	2.89717	3.80254	0	3.80254
7	0.464066	2.15806	18.2816	Clayey Gravel	-4.44089e-016	37.304	2.163	3.00408	3.94286	0	3.94286
8	0.464066	2.23487	18.2816	Clayey Gravel	0	37.304	2.23998	3.111	4.08318	0	4.08318
9	0.464066	2.31168	18.2816	Clayey Gravel	-4.44089e-016	37.304	2.31697	3.21792	4.22352	0	4.22352
10	0.464066	2.38849	18.2816	Clayey Gravel	-8.88178e-016	37.304	2.39395	3.32484	4.36385	0	4.36385
11	0.464066	2.46529	18.2816	Clayey Gravel	-4.44089e-016	37.304	2.47093	3.43175	4.50417	0	4.50417
12	0.464066	2.5421	18.2816	Clayey Gravel	-4.44089e-016	37.304	2.54791	3.53867	4.64451	0	4.64451
13	0.613163	3.45163	18.3388	Clayey Gravel	-4.44089e-016	37.304	2.61545	3.63247	4.76762	0	4.76762
14	0.613163	3.53573	18.3388	Clayey Gravel	-4.44089e-016	37.304	2.67918	3.72098	4.88379	0	4.88379
15	0.613163	3.61983	18.3388	Clayey Gravel	0	37.304	2.7429	3.80948	4.99995	0	4.99995
16	0.613163	3.70392	18.3388	Clayey Gravel	0	37.304	2.80663	3.89799	5.11612	0	5.11612
17	0.657558	4.05209	18.3656	Clayey Gravel	-4.44089e-016	37.304	2.86169	3.97446	5.21649	0	5.21649
18	0.676893	4.22726	18.3972	Clayey Gravel	-8.88178e-016	37.304	2.89838	4.02541	5.28335	0	5.28335
19	0.676893	4.26745	18.3972	Clayey Gravel	-8.88178e-016	37.304	2.92594	4.06369	5.33358	0	5.33358
20	0.502836	3.19918	18.3869	Clayey Gravel	0	37.304	2.95334	4.10175	5.38356	0	5.38356
21	0.502836	3.22745	18.3869	Clayey Gravel	0	37.304	2.97944	4.138	5.43111	0	5.43111
22	0.502836	3.25572	18.3869	Clayey Gravel	0	37.304	3.00554	4.17424	5.47869	0	5.47869
23	0.502836	3.28399	18.3869	Clayey Gravel	-8.88178e-016	37.304	3.03164	4.21049	5.52626	0	5.52626
24	0.636832	4.18032	18.4279	Clayey Gravel	0	37.304	3.04473	4.22867	5.55013	0	5.55013
25	0.636832	4.18695	18.4279	Clayey Gravel	-8.88178e-016	37.304	3.04955	4.23537	5.55892	0	5.55892
26	0.636832	4.19358	18.4279	Clayey Gravel	0	37.304	3.05438	4.24208	5.56773	0	5.56773
27	0.636832	4.2002	18.4279	Clayey Gravel	0	37.304	3.05921	4.24878	5.57653	0	5.57653
28	0.643539	4.22747	18.4771	Clayey Gravel	0	37.304	3.04413	4.22784	5.54905	0	5.54905
29	0.643539	4.18683	18.4771	Clayey Gravel	0	37.304	3.01487	4.1872	5.4957	0	5.4957
30	0.643539	4.14619	18.4771	Clayey Gravel	-8.88178e-016	37.304	2.9856	4.14655	5.44235	0	5.44235
31	0.643539	4.10555	18.4771	Clayey Gravel	0	37.304	2.95634	4.10591	5.38901	0	5.38901
32	0.47796	3.00998	18.5257	Clayey Gravel	-8.88178e-016	37.304	2.91561	4.04934	5.31476	0	5.31476
33	0.47796	2.96171	18.5257	Clayey Gravel	-4.44089e-016	37.304	2.86885	3.9844	5.22952	0	5.22952
34	0.47796	2.91343	18.5257	Clayey Gravel	-4.44089e-016	37.304	2.82208	3.91945	5.14427	0	5.14427
35	0.47796	2.86516	18.5257	Clayey Gravel	0	37.304	2.77532	3.85451	5.05905	0	5.05905
36	0.47796	2.81688	18.5257	Clayey Gravel	0	37.304	2.72856	3.78956	4.9738	0	4.9738
37	0.47796	2.7686	18.5257	Clayey Gravel	0	37.304	2.6818	3.72462	4.88856	0	4.88856
38	0.47796	2.72033	18.5257	Clayey Gravel	-4.44089e-016	37.304	2.63504	3.65967	4.80332	0	4.80332
39	0.47796	2.67205	18.5257	Clayey Gravel	0	37.304	2.58828	3.59473	4.71807	0	4.71807
40	0.486176	2.64912	18.5959	Clayey Gravel	-4.44089e-016	37.304	2.51934	3.49899	4.59244	0	4.59244
41	0.486176	2.56051	18.5959	Clayey Gravel	0	37.304	2.43507	3.38195	4.43882	0	4.43882
42	0.972352	4.8552	18.5959	Clayey Gravel	0	37.304	2.30867	3.2064	4.2084	0	4.2084
43	0.972352	4.50075	18.5959	Clayey Gravel	0	37.304	2.14013	2.97232	3.90117	0	3.90117
44	0.486176	2.11746	18.5959	Clayey Gravel	0	37.304	2.01372	2.79676	3.67076	0	3.67076
45	0.486176	2.02885	18.5959	Clayey Gravel	0	37.304	1.92946	2.67973	3.51714	0	3.51714
46	0.828803	3.15522	18.7196	Clayey Gravel	0	37.304	1.75605	2.43889	3.20105	0	3.20105
47	0.828803	2.69939	18.7196	Clayey Gravel	0	37.304	1.50236	2.08655	2.73861	0	2.73861
48	0.828803	2.24357	18.7196	Clayey Gravel	-4.44089e-016	37.304	1.24867	1.73422	2.27615	0	2.27615
49	0.828803	1.78775	18.7196	Clayey Gravel	0	37.304	0.994981	1.38188	1.81371	0	1.81371
50	1.28081	1.21389	19.0595	Clayey Gravel	-1.11022e-016	37.304	0.434372	0.603277	0.791798	0	0.791798

Interslice Data

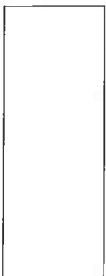
Global Minimum Query (spencer) - Safety Factor: 1.38885



Slice Number	X coordinate [ft]	Y coordinate - Bottom [ft]	Interslice Normal Force [lbs]	Interslice Shear Force [lbs]	Interslice Force Angle [degrees]
1	86.7726	5489.94	0	0	0
2	87.419	5490.11	0.045752	0.0230554	26.7445
3	87.9102	5490.27	0.0532396	0.0268286	26.7445
4	88.4014	5490.44	0.061329	0.030905	26.7445
5	89.3839	5490.76	0.0793137	0.0399679	26.7445
6	89.848	5490.91	0.0853778	0.0430237	26.7445
7	90.312	5491.07	0.0916743	0.0461967	26.7445
8	90.7761	5491.22	0.0982032	0.0494867	26.7445
9	91.2402	5491.37	0.104964	0.0528938	26.7446
10	91.7042	5491.53	0.111958	0.056418	26.7445
11	92.1683	5491.68	0.119184	0.0600593	26.7445
12	92.6324	5491.83	0.126642	0.0638177	26.7445
13	93.0964	5491.99	0.134333	0.0676932	26.7445
14	93.7096	5492.19	0.140842	0.0709731	26.7444
15	94.3228	5492.39	0.147509	0.0743329	26.7445
16	94.9359	5492.6	0.154335	0.0777725	26.7445
17	95.5491	5492.8	0.161319	0.0812921	26.7445
18	96.2066	5493.02	0.166801	0.0840544	26.7445
19	96.8835	5493.24	0.169856	0.0855943	26.7446
20	97.5604	5493.47	0.172941	0.0871488	26.7445
21	98.0633	5493.63	0.175912	0.088646	26.7446
22	98.5661	5493.8	0.17891	0.0901565	26.7445
23	99.0689	5493.97	0.181933	0.0916801	26.7446
24	99.5718	5494.14	0.184983	0.0932171	26.7446
25	100.209	5494.35	0.185458	0.0934561	26.7445
26	100.845	5494.56	0.185933	0.0936955	26.7445
27	101.482	5494.77	0.186408	0.0939352	26.7446
28	102.119	5494.98	0.186885	0.0941754	26.7445
29	102.763	5495.2	0.183239	0.0923381	26.7445
30	103.406	5495.41	0.179628	0.0905186	26.7446
31	104.05	5495.63	0.176053	0.0887166	26.7444
32	104.693	5495.84	0.172512	0.0869324	26.7445
33	105.171	5496.01	0.167017	0.0841634	26.7445
34	105.649	5496.17	0.16161	0.0814389	26.7446
35	106.127	5496.33	0.156292	0.0787587	26.7445
36	106.605	5496.49	0.151061	0.0761229	26.7445
37	107.083	5496.65	0.145919	0.0735316	26.7445
38	107.561	5496.81	0.140865	0.0709847	26.7445
39	108.039	5496.97	0.135898	0.0684822	26.7446
40	108.517	5497.13	0.131021	0.0660241	26.7444
41	109.003	5497.29	0.122506	0.0617333	26.7445
42	109.489	5497.45	0.114276	0.057586	26.7445
43	110.462	5497.78	0.0986703	0.0497221	26.7445
44	111.434	5498.11	0.084204	0.0424322	26.7445
45	111.92	5498.27	0.0773981	0.0390026	26.7445
46	112.406	5498.43	0.070877	0.0357165	26.7446
47	113.235	5498.72	0.0530306	0.0267232	26.7445
48	114.064	5499	0.0377623	0.0190293	26.7446
49	114.893	5499.28	0.0250723	0.0126345	26.7446
50	115.722	5499.56	0.0149605	0.00753893	26.7446
51	117.002	5500	0	0	0

List Of Coordinates

External Boundary



X	Y
0	5450
250	5450
250	5525
237	5525
206	5523
206	5512
185	5512
146	5510
144	5506
124	5502
117	5500
87	5490
50	5480
0	5470



**GEOLOGIC-HAZARD STUDY
PROPOSED HANNOY RESIDENCE
3563 PINEVIEW COURT
EDEN, UTAH**

PREPARED FOR:

**BIG CANYON HOMES, INC.
1925 SW HOYTSVILLE ROAD
WANSHIP, UTAH 84017**

ATTENTION: PAUL BERMAN

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PURPOSE AND SCOPE OF INVESTIGATION

This report presents the results of a geologic-hazard study for the proposed Hannoy residence to be constructed at 3563 Pineview Court in Eden, Utah. A geotechnical study is being prepared under Project No. 1160176B along with this report to provide geotechnical related recommendations.

This study was conducted to evaluate geologic hazards that may affect the proposed development of the lot. The hazards evaluated are surface fault rupture, landslide, tectonic subsidence, rockfall, debris flow and liquefaction. The study included a review of geologic literature, aerial photographs and Lidar data, site reconnaissance, subsurface exploration and geologic analysis. This report has been prepared to summarize the data obtained during the study and to present our conclusions.

PROPOSED CONSTRUCTION

A single-family residence is planned for the site. The building will be a single-story structure with a basement. Grading for the site will be relatively minor with most rockeries planned to be 5 feet or less in height. The tallest rockery is planned for the northeast corner of the site along the driveway where a two-tier rockery is planned to be up to approximately 10 feet in height.

SITE DESCRIPTION

At the time of our field study, there were no permanent structures or pavement on the site. The site consists of an undeveloped residential lot. It appears that some fill has been placed along the north edge of the site. This fill is approximately 4 feet thick at the boring location.

The ground surface at the site slopes gently down toward the south and southwest with slopes of approximately 6 horizontal to 1 vertical and flatter throughout most of the proposed building area and slopes on the order of 3 horizontal to 1 vertical and flatter south of the proposed building area.

Vegetation at the site consists of grass and brush.

There is a residential house west of the site and Pineveiw Court to the north. There are undeveloped lots to the south and east.

OFFICE METHODS OF INVESTIGATION

Geologic conditions at the site were evaluated by a review of geologic literature, aerial photographs and Lidar data. Aerial photographs used during the investigation were downloaded from the Utah Geological Survey website. They have photograph numbers of ELK-2-205 and 206 and a photograph date of June 25, 1963. The Lidar data has a date of 2011 and was obtained from the Open Topography website.

A. Geologic Literature Review

The site is located in Ogden Valley, which is a northwest trending valley within the Wasatch Mountains of north/central Utah. The valley is filled with an accumulation of lacustrine, alluvial and colluvial sediments from deposition during the past 15 million years (Sorensen and Crittenden, 1979). The surface deposits across the site consist of Quaternary-age colluvium consisting of clayey gravel with cobbles and boulders. These sediments are underlain by bedrock consisting of Tertiary-age pyroclastics of the Norwood Tuff.

Ogden Valley is a down-dropped structure with the Ogden Valley Northeast margin fault along the northeast side of the valley and the Ogden Valley Southwest margin

fault and the Ogden Valley North Fork fault along the southwest side of the valley. These faults are oriented in a general northwest/southeast direction with the two western faults estimated to have moved in the last 750,000 years and the east fault having evidence of movement in the last 2.6 million years. The faults are considered normal faults with dip direction down to the northeast on the two west fault systems and down to the southwest for the Ogden Valley Northeast margin fault. The faults are considered relatively old structures and do not represent a significant surface-fault-rupture hazard for development within the Ogden Valley area. Tectonic subsidence associated with fault movement would similarly not be a significant hazard at this site.

The Utah Fault and Fold database shows the Ogden Valley North Fork fault located along the north fork of the Ogden River approximately 1.9 miles to the southwest and the Ogden Valley Northeast margin fault located on the hillside to the northeast, approximately 1.1 miles from the site. No active faults are mapped through or near the site. The closest active fault to the site based on the Utah Geological Survey database is the Wasatch fault located approximately 6.7 miles to the west.

The geologic map by Sorensen and Crittenden (1979) shows the site to be underlain by colluvium and slope wash of Holocene age.

Mapping by Coogan and King (2001) shows the area underlain by alluvium and colluvium of Quaternary age and states that this unit locally includes mass-movement deposits. The map shows a fault with sense of movement down to the southwest approximately 1,500 feet northeast of the site.

The Elliott and Harty (2010) landslide map shows the site and surrounding area as landslide deposits.

The King and others (2014) geologic map, which is a map in progress and currently has no legend, shows the site mapped as “Qmso? (QTg?)” with a note stating “like Tcg” (see Figure 1). This mapping would suggest that the site is underlain by potential older landslide or gravel deposits. Gravel deposits were encountered in the boring drilled and test pits excavated at the site. The map shows a fault approximately 1,700 feet to the northeast of the site and several lineations in the area with the closest located approximately 700 feet to the west. The map shows a queried back-tilt feature about 800 feet to the southeast. The lineations can be attributed to differential weathering of the underlying bedrock in the area. The back-tilt features are dubious in nature.

B. Aerial Photograph and Lidar Review

The geologic literature indicates that there are landslide deposits in the area of the site. Review of aerial photographs and Lidar data finds evidence of potential geomorphology consistent with landslide deposits in the area but no evidence of landslide geomorphology at the site. Based on the mapped landslide deposits for the site and vicinity, a slope stability evaluation was made for the site. The results of the study are reported in the geotechnical report and find slope stability not to be a significant hazard for the proposed development.

Based on the topography of the site and surrounding area, rockfall and debris flow are not potential geologic hazards at the site. The site is protected from potential debris-flow sources on the steep mountain slopes approximately ½ mile to the northeast by a ridge just to the north of the site, which would effectively divert debris flows away from the site.

C. Seismicity

The property is located in the Intermountain Seismic Zone, which consists of an area of relatively high historical seismic activity. The most intense seismic ground shaking at the site is expected to originate from the Wasatch fault zone. The Wasatch fault

zone is considered capable of producing earthquakes on the order of 7 to 7.5 magnitude and can result in significant seismic ground shaking at the site. The US Geological Survey data indicate that a peak ground acceleration of 0.35g can be expected to have a 2 percent probability of being exceeded in a 50-year time period at this site (IBC, 2012).

FIELD METHODS OF INVESTIGATION

Two test pits and a boring were used to determine subsurface conditions at the site. Test Pits TP-1 and TP-2 were extended to depths of approximately 26 and 21 feet, respectively. Clayey gravel with sand, cobbles and boulders up to approximately 3 feet in size was encountered the full depths of the test pits and the lower 5 feet of the boring, where practical auger refusal was met. The gravel is primarily matrix to clast-supported and represents colluvial deposits. No evidence of faults or landslide slip planes were found in the test pits. Logs for the upper 15 feet of the test pits are presented on Figure 3. Photographs of the upper 15 feet of the test pits are presented in the appendix.

Liquefaction is not a hazard at this site because of the type of sediments encountered and the expected depth to groundwater.

CONCLUSIONS

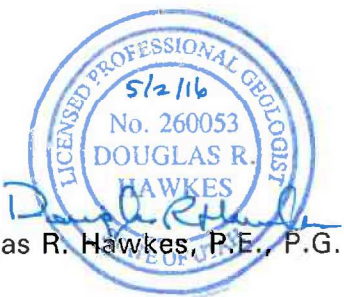
Seismic ground shaking is considered the only significant geologic hazard at the site. This hazard will be mitigated through structural design. It is our professional opinion that landslide, debris flow, rockfall, surface fault rupture, tectonic subsidence and liquefaction are not significant hazards at the site.

LIMITATIONS

The analysis and report findings are based on published geologic maps and reports, aerial photographs and Lidar data of the site, the test pits excavated and boring drilled at the approximate locations indicated on Figure 2 and our interpretation of geologic conditions at the site. Our conclusions are based on currently accepted geologic interpretation of this information. The geologic logs of the excavations presented in this report depict geologic conditions only along the specific corridors and to the depths excavated. The logs do not necessarily reflect geologic conditions at other locations or at greater depths. No attempt has been made to predict earthquake ground motions or to determine the potential magnitude for earthquakes associated with faults in the area.

The test pits were backfilled without significant compaction. The backfill in the test pits should be removed and properly compacted where it will support settlement-sensitive structures, slabs or pavement.

APPLIED GEOTECHNICAL ENGINEERING CONSULTANTS, INC.



Douglas R. Hawkes, P.E., P.G.

Stephanie J. Merkley by rs

Reviewed by Stephanie J. Merkley, P.G.

DRH/rs

REFERENCES

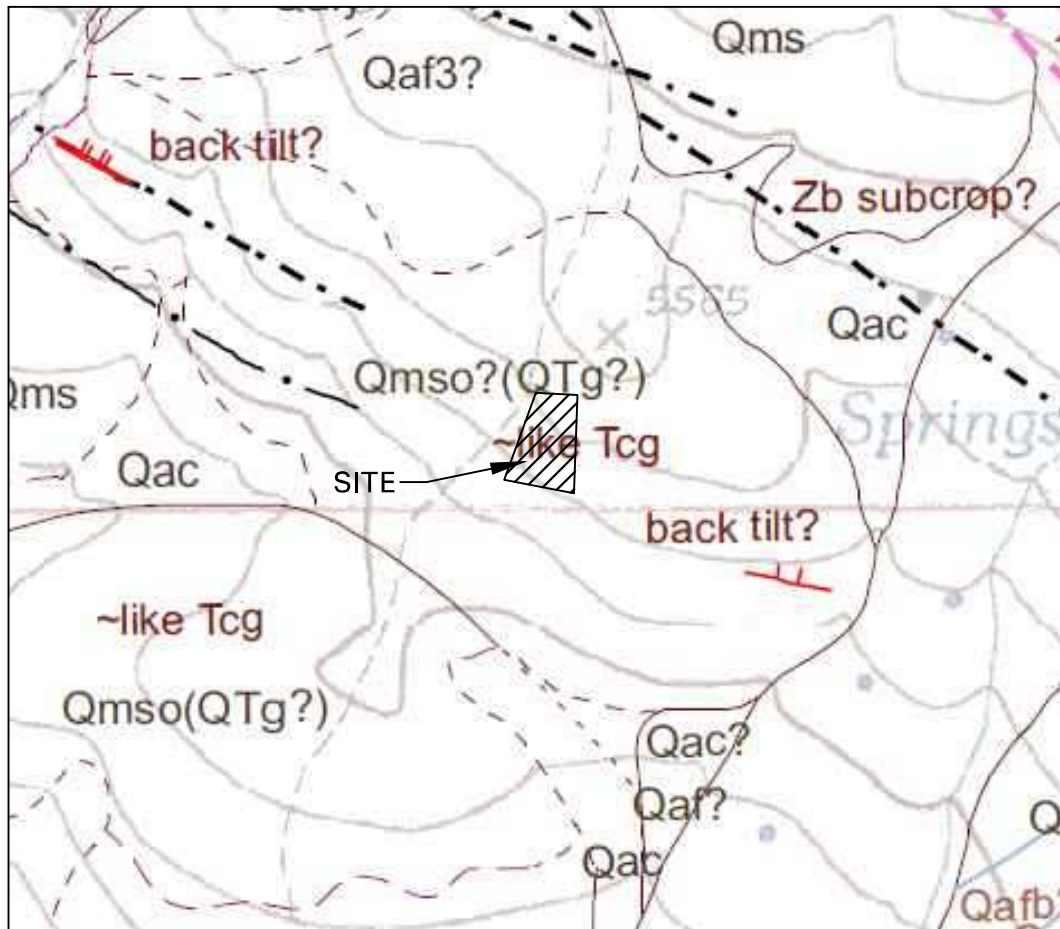
Coogan, J.C. and King, J.K., 2000; Progress report geologic map of the Ogden 30' X 60' quadrangle, Utah and Wyoming, Utah Geological Survey Open-file Map 380.

Elliott, A.H. and Harty, K.M., 2010; Landslide maps of Utah, Ogden 30' X 60' quadrangle, Utah Geological Survey Map 246DM, Plate 6.

King, J.K., McDonald, G.N. and Coogan, J.C., 2014; Progress report geologic map of the Huntsville quadrangle, Weber and Cache Counties, Utah, Utah Geological Survey map in progress.

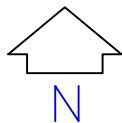
Sorensen, M.L. and Crittenden, M.D., Jr., 1979; Geologic map of the Huntsville quadrangle, Weber and Cache Counties, Utah, US Geological Survey Map GQ-1503.

Utah fault and fold database accessed on March 18, 2016 at geology.utah.gov/resources/data-databases/qfaults/.



Approximate Scale 1" = 600'

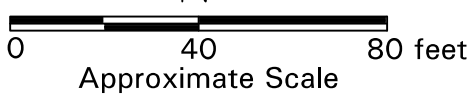
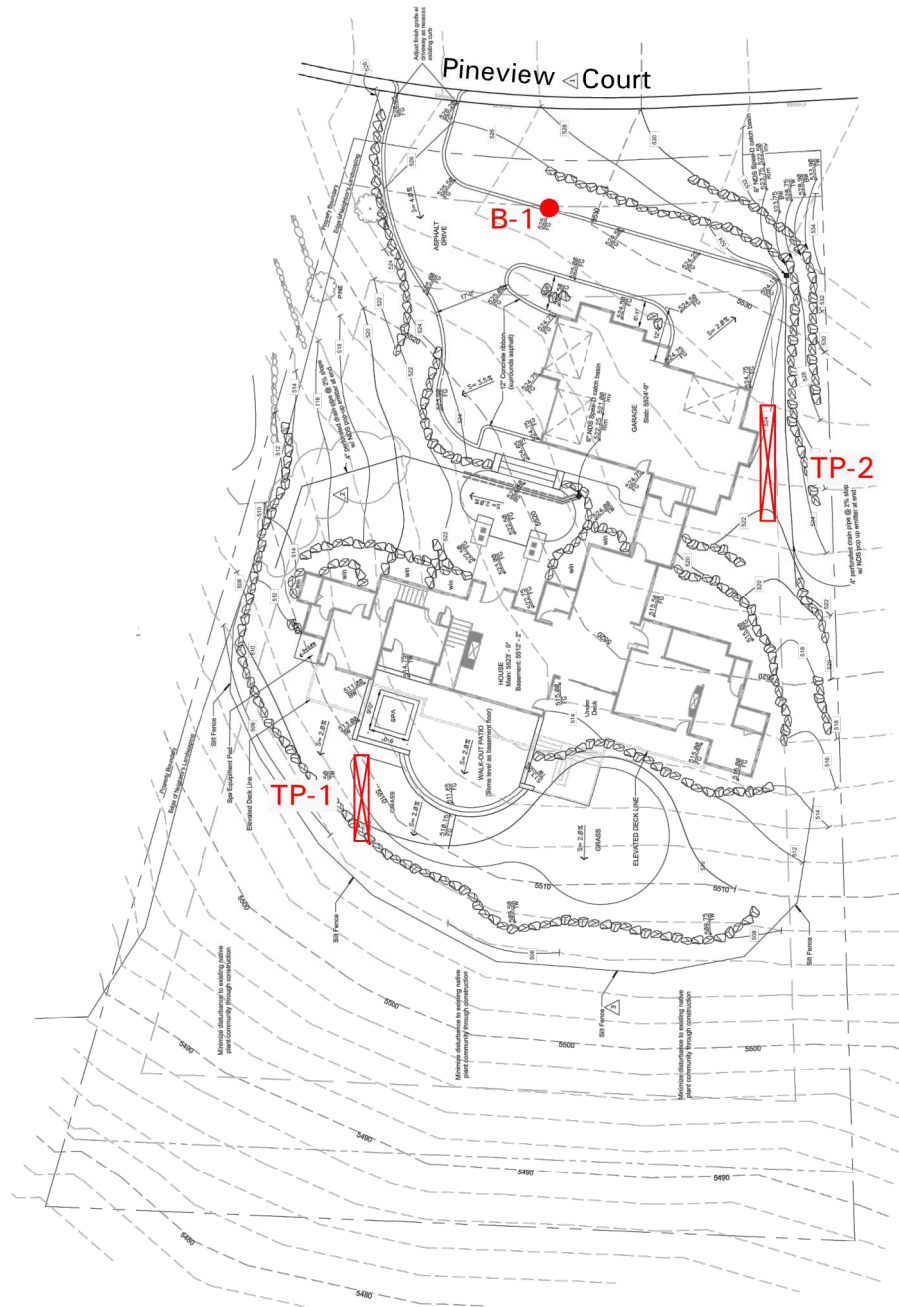
From King and others (2014)



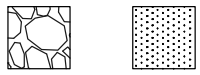
DESCRIPTION OF GEOLOGIC UNITS AND SYMBOLS

- Qac - Quaternary Alluvium and Colluvium
- Qaf - Quaternary Alluvial-fan deposit
- Qms - Quaternary Landslide deposits
- Qmso (QTg) - Quaternary Older Landslide deposits (gravel deposits)
- .-.-.-.- Lineation
- contact between units, dashed where approximate

PROPOSED HANNOY RESIDENCE
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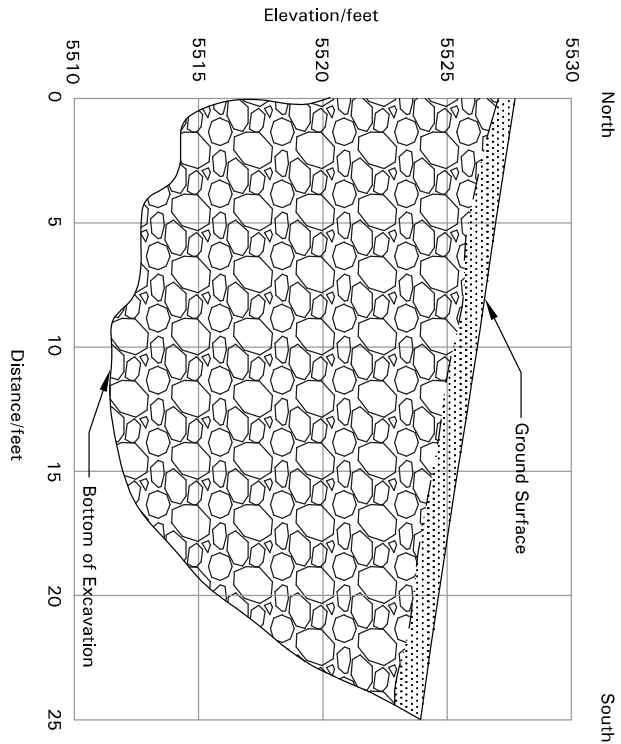
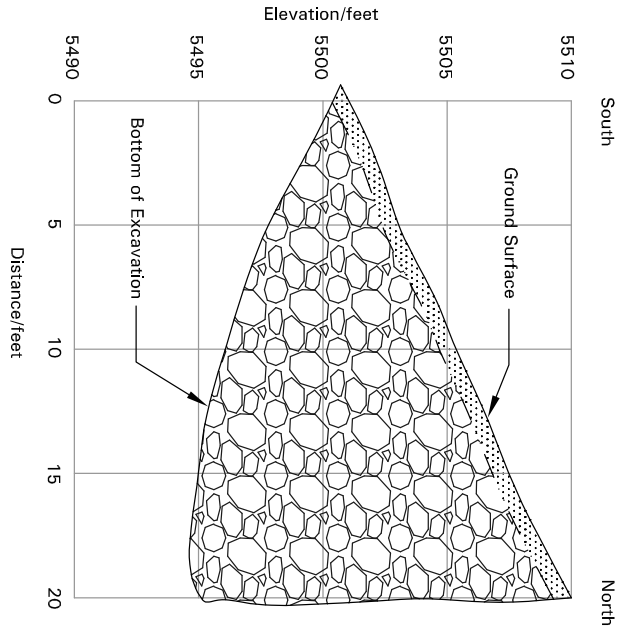
PROPOSED HANNYO RESIDENCE
3563 PINEVIEW COURT
EDEN, UTAH



LEGEND:

Topsoil: clayey gravel with sand, cobbles, occasional boulders up to approximately 3 feet in size, very moist, dark brown, roots, organics.

Clayey Gravel with Sand (GC): cobbles, occasional boulders up to approximately 3 feet in size, dense to very dense, moist to very moist, brown, iron oxide staining. (Colluvium)





Test Pit TP-1



Test Pit TP-1



Test Pit TP-2



Test Pit TP-2