



Agenda
Hearing Examiner Meeting
Thursday, November 17, 2016
City Hall Council Chamber | 505 Swift Boulevard

Hearing Examiner: Gary McLean

Liaisons: Staff Liaison Development Services Manager Simon

Public Hearing – 6:00 p.m.

Public Hearing Explanation:

New Business – Public Hearing:

- I. S2016-102 - Public Hearing to Review the Preliminary Plat Application of Jolianna Heights, a Residential Subdivision of 55 Lots on 28.4 Acres Located North of Westcliffe Boulevard and South of Shockley Road.

Adjournment

The next Hearing Examiner Meeting is As Needed

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HEARING EXAMINER AGENDA ITEM COVERSHEET

Meeting Date: 11/17/2016

Agenda Category: New Business – Public Hearing

Prepared By: Rick Simon, Development Services Manager

Subject:

S2016-102 - Public Hearing to Review the Preliminary Plat Application of Jolianna Heights, a Residential Subdivision of 55 Lots on 28.4 Acres Located North of Westcliffe Boulevard and South of Shockley Road.

Department:

Community & Development Services

Recommended Motion:

Staff recommends approval of S2016-102, subject to completion of the conditions included in the Technical Advisory Committee Report.

Summary:

Wes Hodges has applied for a preliminary plat application to divided a 28.4 acre site into a 55 lot residential subdivision, known as Jolianna Heights. The property is located north of Westcliffe Boulevard, South of Shockley Road and west of Apple Cider Court. A more detailed description of the proposal, copies of the application materials and comments received from other agencies and the public are summarized in the attached staff report.

Attachments:

1. S2016-102 Staff Report

**CITY OF RICHLAND DEVELOPMENT SERVICES DIVISION
STAFF REPORT TO THE HEARING EXAMINER**

GENERAL INFORMATION:

PROPOSAL NAME: Jolianna Heights Preliminary Plat

LOCATION: North of Westcliffe Boulevard, west of Apple Cider Court and south of Shockley Road.

APPLICANT: Wes Hodges

FILE NO.: S2016-102

DESCRIPTION: Request to divide 28.4 acres into 55 single family residential lots and 4 tracts.

PROJECT TYPE: Type III Preliminary Plat

HEARING DATE: November 17, 2015

REPORT BY: Rick Simon, Development Services Manager

RECOMMENDED ACTION: Approval subject to completion of proposed conditions.



Figure 1 - Vicinity Map (site highlighted in green)

DESCRIPTION OF PROPOSAL

Wes Hodges has filed an application for a preliminary plat to divide 28.4 acres into 55 single family residential lots, known as the plat of Julianna Heights. The lots would be accessed from Westcliffe Boulevard, which forms the southern boundary of the plat and from a proposed road that would extend southerly from Shockley Road into the northern portion of the site. The site also abuts Apple Cider Court along its eastern boundary, but no vehicular access is proposed from that street. The Kennewick Irrigation District canal forms the southwestern boundary of the property. The interior road system proposed would consist of a series of single loaded streets, providing access to lots on only one (downhill) side of the street, as the hillside site would be terraced to provide level building pads on each lot, utilizing the city's standard for a single frontage local street. Lots would be served with city water, sewer and power and would average 15,473 square feet in area. The plat also proposes a total of four tracts. (Refer to the attached application, preliminary plat map and grading plan – Exhibits 1 - 3.)

COMPREHENSIVE PLAN

The subject property and all adjacent properties are designated as Low Density Residential in the comprehensive plan. The plan anticipates an average density

of 3.5 units/acre and a maximum of 5 units/acre within the low density residential designation. The density of the proposed plat is 1.9 lots/acre.

Land Use Goal #4 in the plan addresses residential development. It states:
The city will establish a broad range of residential land use designations to accommodate a variety of lifestyles and housing opportunities.

Policy 1 – The City will provide a balanced distribution of residential uses and densities throughout the urban growth area.

Policy 2 – The City will encourage residential densification through its land use regulations.

Policy 3 – The City will encourage innovative and non-traditional residential development through expanded use of planned unit developments, density bonuses and multi-use developments.

Policy 4 – The City will encourage conservation of lands identified as “Recreation Resource Conservation Areas” in the City’s Parks, Recreation Facilities and Open Space Master Plan, by allowing developers to increase densities on adjacent lands. Such projects should occur as Planned Unit Developments.

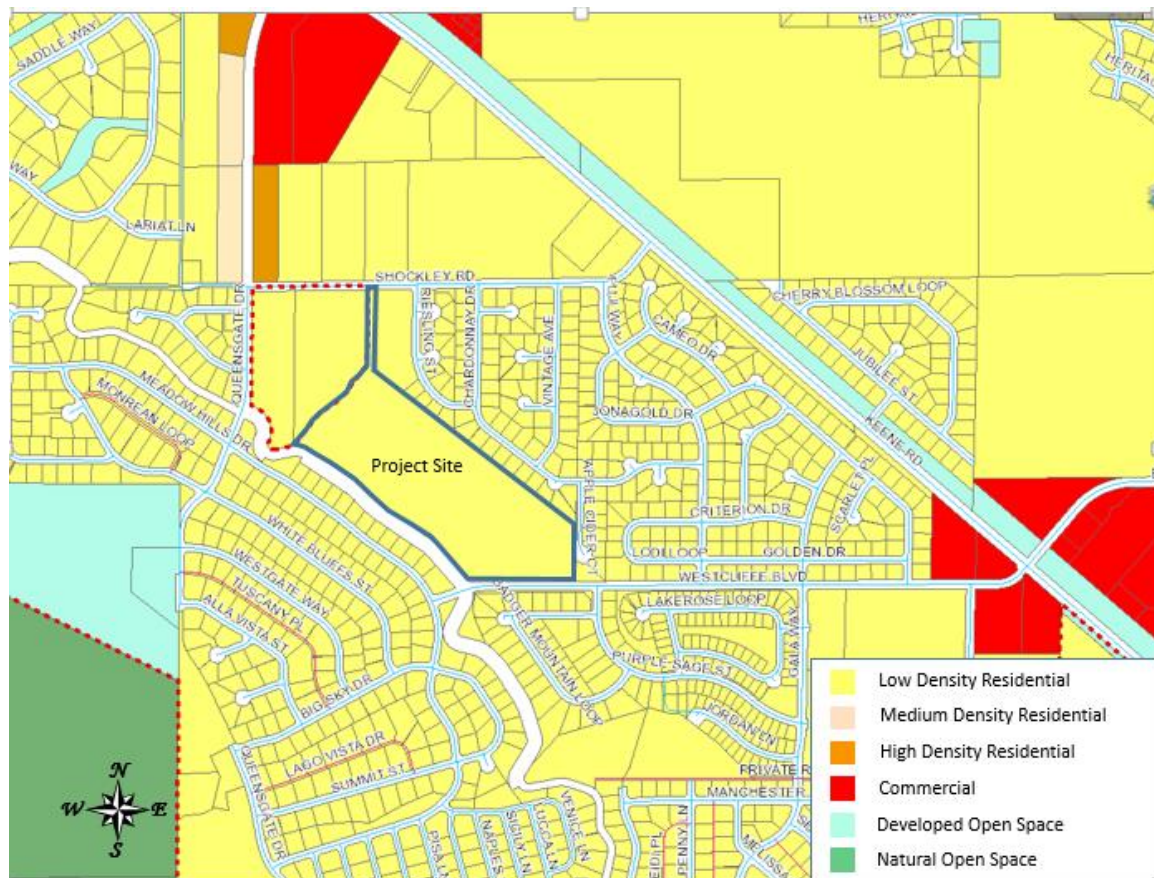


Figure 2 – Comprehensive Plan

Both Shockley Road and Westcliffe Boulevard are designated as Collector Arterial streets in the transportation element of the comprehensive plan. The City's Transportation element of its comprehensive plan includes the following policy statement (Goal #4, Policy 3):

The City will encourage public/private partnerships for financing transportation projects that foster economic growth and address the needs of growth and development.

Policy 1: The City will reserve property for needed rights-of-way as quickly as possible by requiring dedication of right-of-way as a condition for development.

Policy 2: The City will only consider land use changes (such as planned unit development, master planned projects, rezones and plats) when existing and proposed transportation needs are adequately met.

Policy 3: The City will route major and secondary arterials around, rather than through, neighborhoods and communities so as to minimize traffic impacts on residential neighborhoods.

- a. New residential collector street corridors should be designed and constructed through areas that are not already developed with single family housing.
- b. Existing local residential streets should not be converted into collector street routes. In instances where existing streets must be converted to collector roads, these streets shall be brought up to the minimum design standards for collector roads.
- c. In those cases where collector street corridors must be built in close proximity to existing residential neighborhoods, the collector street must be designed in such a way as to minimize the impact to adjoining residents through the use of landscape buffers, sound barriers or similar measures.
- d. In order for arterial collector streets to function effectively, access restrictions shall be imposed on new arterial collector streets. Such access restrictions shall not prevent commercial businesses from accessing directly onto an arterial collector street. Further, residential access may be allowed in specific instances where such access can be demonstrated to have no negative impacts on traffic safety, road function and/or circulation.

ZONING

The site is located within the R1-10 Single Family Residential District. Adjacent property to the northwest is located outside of the City limits and is zoned Urban Growth Area Residential under the Benton County zoning regulations. Property

to the northeast is zoned Suburban Agriculture. All other adjacent properties are included in the R1-10 Single Family Residential district.

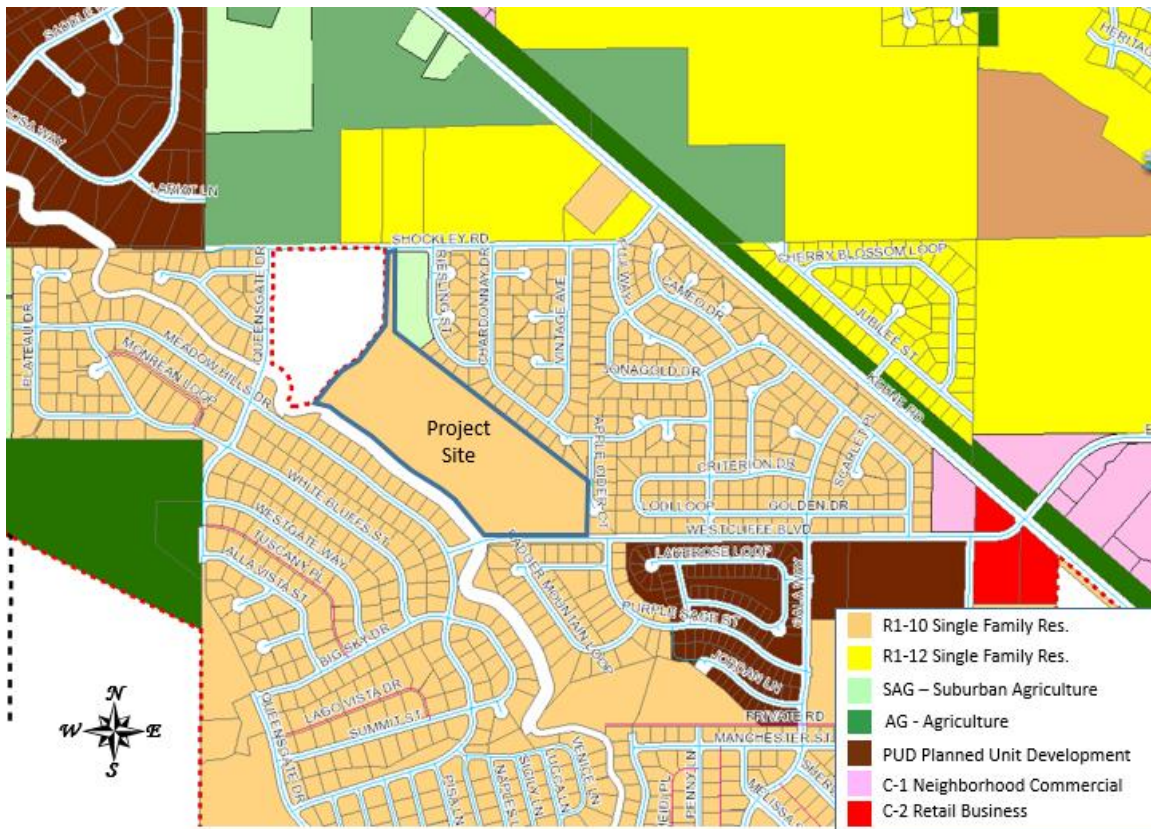


Figure 3 - Zoning

Land Uses and Dimensional Standards

The following standards apply in the R1-10 Single Family Residential Zone:

Uses Permitted:	Single Family House Accessory Unit
Front yard setback:	20 foot minimum;
Side yard setback:	10 foot minimum
Rear yard setback:	25 foot minimum
Maximum building height:	30 feet

SITE DESCRIPTION & ADJACENT LAND USES

The site consists of a cherry orchard and contains an existing residence and agricultural building. The site slopes from south to north, with the highest point of the property located along the southerly boundary adjoining the irrigation canal at

approximately elevation 664 and the lowest point at the northeast corner of the property at approximately elevation 560. (Site photos are included in Exhibit 4.)

Existing uses in the vicinity include unplatted large lots that contain single family residences located to the northwest and northeast of the site. All other adjacent properties are single family platted lots consisting of the following plats and lot sizes:

Plat Name	Average Lot Size (square feet)
Westcliffe Phase 1	11,435
Bordeaux Grove	10,089
Vineyards Phase 2	12,268
Apple Valley Ranch	13,232
Badger Mountain Village Phase 1	14,480
<i>Overall Average Lot Size</i>	<i>12,718</i>

CRITERIA FOR PRELIMINARY PLAT APPROVAL

Section 24.12.053 of the RMC sets forth the criteria that must be met before a preliminary plat application can be approved. It states:

The hearing examiner shall not recommend approval of any preliminary plat application, unless the approval is accompanied by written findings that:

- A. The preliminary plat conforms to the requirements of this title;
- B. Appropriate provisions are made for the public health, safety and general welfare and for such open spaces, drainage ways, streets or roads, alleys, other public ways, transit stops, potable water supplies, sanitary wastes, parks and recreation, playgrounds, schools and school grounds and all other relevant facts, including sidewalks and other planning features that assure safe walking conditions for students who only walk to and from school;
- C. The public use and interest will be served by the platting of such subdivision and dedication; and
- D. The application is consistent with the requirements of RMC 19.60.095

RMC Section 24.12.050 designates the Hearing Examiner as the hearing body responsible for conducting the review of preliminary plat applications.

PUBLIC NOTICE

Application Date:	October 6, 2016
Notice of Hearing Mailed:	October 26, 2016
Notice of Hearing Posted:	October 27, 2016
Notice of Hearing Published:	October 30, 2016
Public Hearing:	November 17, 2016

A combined notice of application, SEPA determination and notice of hearing was provided through posting of the property, mailing of notice to property owners within 300 feet of the site and publication in the *Tri-City Herald* newspaper. Copies of the notices and affidavits are included in Exhibit 5.

UTILITY AVAILABILITY

City sewer lines are located in Apple Cider Court and along Shockley Road adjacent to the site. Water mains are located on Shockley Road, Apple Cider Court and in Westcliffe Boulevard. Electrical power lines are located along Shockley Road and Westcliffe Boulevard. The site is located within the Kennewick Irrigation District boundaries and is currently served with irrigation water.

TRANSPORTATION

Both Shockley Road and Westcliffe Boulevard are designated as Collector Arterial streets in the transportation element of the comprehensive plan. Apple Cider Court lies immediately adjacent to the site. The plat of Apple Valley Ranch included a note on the final plat stating that a *"One foot no access/screening easement shall exist along the west side of Apple Cider Court."* This condition was a plat requirement imposed by the City to ensure that Apple Cider Court remained only a low traffic volume local access street and did not serve a collector street function when the subject site was developed. The proposed plat does not contemplate any vehicular access from Apple Cider Court.

SEPA

The applicant filed an environmental checklist with the City (see Exhibit 6). Staff reviewed the checklist and issued a Mitigated Determination of Non-Significance on October 14, 2016 (see Exhibit 7).

CRITICAL AREAS

The site has been mapped by the City as a geologic hazard area under its Sensitive Areas Ordinance (RMC Section 22.10.260) and requires that a geologic report be provided. The applicant submitted a report (See Exhibit 8).

AGENCY COMMENTS

A variety of public agencies and City departments were given an opportunity to comment on the proposal. Comments received were from the Kennewick Irrigation District, Richland Civil & Utility Engineering Division (see Exhibit 9).

PUBLIC COMMENTS

At the time this report was prepared, the City had received three comment letters from the public. (See Exhibit 10.)

TECHNICAL ADVISORY COMMITTEE RECOMMENDATIONS

City staff has prepared a list of recommended conditions for the application. (See Exhibit 11.)

ANALYSIS

The criteria approval of a preliminary plat application are reprinted here, with a summary of how the application complies with the standard:

A. The preliminary plat conforms to the requirements of this title;

The City's subdivision regulations set forth specific requirements for the filing of an application, how notice of the application is to be provided and requires that the Hearing Examiner conduct a public hearing and make recommendation to the City Council. These steps have been followed to date.

B. Appropriate provisions are made for the public health, safety and general welfare and for such open spaces, drainage ways, streets or roads, alleys, other public ways, transit stops, potable water supplies, sanitary wastes, parks and recreation, playgrounds, schools and school grounds and all other relevant facts, including sidewalks and other planning features that assure safe walking conditions for students who only walk to and from school;

- The proposed plat does not include specific provisions for open space but City code requires the payment of a parks mitigation fee at the time that homes are constructed within the plat. These fees would be used by the City to purchase park land and/or construct park improvements within the South Richland park district. The site is located approximately .4 miles from the nearest neighborhood park located at the southeast corner of Westcliffe Boulevard and Gala Way. The Badger Mountain Park, a regional facility is located approximately a mile from the site on Keene Road.
- The existing adjacent collector street of Westcliffe Boulevard would provide access to the proposed subdivision. The function of collector

- streets is to collect traffic from local streets and provide a route of travel to the arterial street system. The portion of Westcliffe Boulevard adjacent to the site is narrow and does not include a sidewalk or walk path on the north side of the street. City development regulations require that the applicant improve the street frontage to meet City standards, including widening of the street and installation of curb, gutter and sidewalk.
- The existing collector street of Shockley Road would also provide access to the proposed subdivision. The panhandle portion of the site that extends south from Shockley Road into the site would be developed with a standard local residential street, with curb, gutter and sidewalk on both sides of the street.
 - Apple Cider Court which adjoins the site would not be used for access into the subdivision, so all traffic generated from the subdivision would be directed onto collector streets.
 - The site is located within the Ben Franklin Transit service area, Bus service is provided along Keene Road, approximately 1/3 mile from the site. The transit service was given an opportunity to comment on the preliminary plat proposal but did not provide any comments to the City.
 - The plat would be served by City domestic water and sewer lines that are located within the adjacent streets. Said lines have capacity to provide for the proposed project.
 - The plat would be served by existing Richland Energy Services electrical power.
 - The plat would be served by Kennewick Irrigation District irrigation water.
 - In accordance with City development standards, storm water drainage would have to be retained on-site. The proposed plat design includes a tract for a storm water drainage facility to be located in the northeastern (lowest) portion of the site.
 - The site is located approximately .6 miles from the nearest elementary school, which is Orchards Elementary. The proposed project, with its requirement to improve its frontage along Westcliffe Boulevard, would result in a walking path from the subdivision to school that would be improved with sidewalks over the entire route. The Richland School District was given an opportunity to comment on the preliminary plat proposal, but did not provide any comments to the City.

C. The public use and interest will be served by the platting of such subdivision and dedication;

The proposed project is consistent with the comprehensive plan, both in terms of the proposed density of the plat and with the proposed access, which provides direct access onto collector streets and avoids directing traffic from the project onto existing local streets. Further, the project is consistent with the City's zoning regulations, and would be consistent with development pattern in the surrounding neighborhood.

D. The application is consistent with the requirements of RMC 19.60.095, which states:

No development application for a Type II or Type III permit shall be approved by the city of Richland unless the decision to approve the permit application is supported by the following findings and conclusions:

A. The development application is consistent with the adopted comprehensive plan and meets the requirements and intent of the Richland Municipal Code.

The proposal is consistent with the comprehensive and does meet the requirements of the municipal code as outlined above.

B. Impacts of the development have been appropriately identified and mitigated under Chapter 22.09 RMC.

Chapter 22.09 is the City's adoption of the State Environmental Policy Act provisions. The applicants filed an environmental checklist and the City issued and distributed a Mitigated Determination of Non-Significance, which completed the SEPA review process.

C. The development application is beneficial to the public health, safety and welfare and is in the public interest.

The project is consistent with the City's comprehensive plan and development regulations and in therefore would be considered beneficial to public health, safety and welfare and would be in the public interest.

D. The development does not lower the level of service of transportation facilities below the level of service D, as identified in the comprehensive plan; provided, that if a development application is projected to decrease the level of service lower than level of service D, the development may still be approved if improvements or strategies to raise the level of service above the minimum level of service are made concurrent with development. For the purposes of this section, "concurrent with development" means that required improvements or strategies are in place at the time of occupancy of the project, or a financial commitment is in place to complete the required improvements within six years of approval of the development.

The project would add 55 new residential lots onto an existing collector street system (Shockley Road and Westcliffe Boulevard). This volume of traffic was anticipated in the City's transportation plan and would not be expected to result in any decrease in the level of service of these transportation facilities. The City requires the payment of a transportation impact fee that is used to fund planned improvements to the transportation system. This fee is levied on each home constructed within South Richland.

E. Any conditions attached to a project approval are as a direct result of the impacts of the development proposal and are reasonably needed to mitigate the impacts of the development proposal.

The conditions of approval recommended for this project are as a direct result of imposing City development standards as contained in City code. One of the conditions responds to the public comment received from an adjacent land owner, who indicated a shared community well is located on the project site. However, the application shows the well location to be outside of the plat boundaries. Regardless of the exact location of the well, if construction of the plat damages the well, the applicant has some responsibility to ensure that domestic water is provided to the existing well users. This issue is addressed in the TAC report.

FINDINGS AND CONCLUSIONS

Staff has completed its review the preliminary plat application of Jolianna Heights (S2016-102) and recommends approval of the request subject to conformance with the conditions of approval included in the attached Technical Advisory Committee Report (Exhibit 11) based on the following findings:

Findings of Fact:

1. The Richland Comprehensive Plan designates the project site as suitable for low density residential development, with an average density of 3.5 units per acre and a maximum density of 5 units per acre.
2. The proposed preliminary plat consists of 55 lots averaging 15,473 square feet in area, representing a density of 1.9 units per acre, a lower density than the existing, adjacent residential developments.
3. The adjacent road to the south is Westcliffe Boulevard and the adjacent road to the north is Shockley Road, both of which are classified as collector streets within the City's transportation plan.
4. The proposed project would direct all traffic from within the proposed subdivision onto the adjacent collector streets.

Conclusion of Law:

The proposed preliminary plat is consistent with and would provide for development of the subject property in conformance with the density and type of land use envisioned in the land use and transportation elements of the adopted comprehensive plan.

Findings of Fact:

5. The site is zoned R1-10 Single Family Residential, which requires a minimum 8,000 square foot lot size and an average lot size of 10,000 square feet.

6. The 55 lots proposed have an average lot size of 15,493 square feet and the smallest lot is 12,446 square feet.

Conclusion of Law:

The lots within the proposed subdivision are consistent with the provisions of the City's R1-10 Single Family Residential zoning regulations.

Findings of Fact:

7. Section 24.12.053 of the RMC sets forth standards for review of preliminary plats that require the Hearing Examiner to consider whether appropriate provisions are made for the public health, safety and general welfare and for such open spaces, drainage ways, streets or roads, alleys other public ways, transit stops, potable water supplies, sanitary wastes, parks and recreation, playgrounds, schools and school grounds and all other relevant facts, including sidewalks and other planning features that assure safe walking conditions for students who only walk to and from school.
8. The proposed preliminary plat provides for the extension of streets that are consistent with the surrounding street network, includes provisions for the extension of public domestic water, sewer, irrigation water and electrical power lines.
9. The proposed preliminary plat would not provide access onto Apple Cider Court, in conformance with the plat restrictions against vehicular access applied to the Apple Valley Ranch plat but would allow emergency vehicle access as required under City code.
10. The proposed improvements to serve the preliminary plat are consistent with the City's development standards.
11. The project is subject to payment of park mitigation fees, which will be used to construct future park and trail improvements within the South Richland community. The site is also within .4 miles of an existing City park.
12. The project is located .6 miles from an existing elementary school in the Richland School District. The District was given an opportunity to comment on the proposal but did not provide any comments.
13. Development of the proposed project in conformance with City standards would result in a walking route for school children from the project site to the Orchards Elementary School that would be entirely on sidewalks.
14. Bus service is currently provided approximately .3 miles from the project site. The Benton Franklin Transit Authority was given an opportunity to comment on the project but did not provide any comments.
15. City staff and other utility providers reviewed the project and have recommended specific conditions of approval as set forth in the Technical Advisory Committee report.

Conclusion of Law:

As conditioned, the proposed preliminary plat makes appropriate provisions for the public health, safety and general welfare and for such open spaces, drainage ways, streets or roads, alleys, other public ways, transit stops, potable water supplies, sanitary wastes, parks and recreation, playgrounds, schools and school grounds and all other relevant facts, including sidewalks and other planning features that assure safe walking conditions for students who only walk to and from school.

Findings of Fact:

16. The applicant submitted a geotechnical report as required under the City's Sensitive Areas Ordinance.
17. The applicant filed an environmental checklist along with their preliminary plat application as required under the State Environmental Policy Act.
18. After review of the checklist and application materials, staff issued a Mitigated Determination of Non-Significance on October 14, 2016.

Conclusion of Law:

Pursuant to Chapters 22.09 and 22.10 of the RMC, the procedures required under the City's Sensitive Areas Ordinance and the State Environmental Policy Act have been completed.

Findings of Fact:

19. RMC 19.60.095(D) requires that development not lower the level of service standard for transportation facilities below a level of service D.
20. The proposed project would add 55 single family lots that would have direct access onto two collector streets: Westcliffe Boulevard and Shockley Road.
21. The City's transportation plan for the South Richland area assumed development of the project site and surrounding areas to average approximately 3 units per acre. The actual density of development is slightly under 2 units per acre and so would generate traffic volumes well within that anticipated in the transportation plan that was designed to keep transportation facilities in South Richland operating at a level of service D or better.
22. The project will be required to pay transportation impact fees in accordance with the provisions of RMC Chapter 12.03 and so will provide its proportionate share of funding for transportation system improvements planned for the south Richland area.

Conclusion of Law:

The proposed project would not result in a decline of transportation service levels within the area surrounding the project and so is consistent with the provisions of RMC 19.60.095.

Overall Conclusion:

Based on the above findings and conclusions, approval of the proposed preliminary plat of Jolianna Heights subject to the recommended conditions lists in the Technical Advisory Committee Report is warranted because the project conforms to the City's adopted comprehensive plan and zoning regulations; has followed the required Sensitive Areas Ordinance and State Environmental Policy Act procedures; and is consistent with the requirements of the City's subdivision regulations.

EXHIBIT LIST

1. Application
2. Preliminary Plat Map
3. Grading Plan
4. Site Photos
5. Public Notice
6. Environmental Checklist
7. Mitigated Determination of Non-Significance
8. Geotechnical Report
9. Public Agency Comments
10. Public Comments
11. Technical Advisory Committee Report

Development & Permit Services Division • Current Planning Section
840 Northgate Dr. • Richland, WA 99352
General Information: 509/942-7794 • Fax: 509/942-7764

PRELIMINARY PLAT APPLICATION

Applicant's Section			
Applicant or Sponsor <u>Wes Hooyer</u>			
Address <u>1191 Plateau Pl</u>		City <u>Richland</u>	State <u>WA</u> Zip <u>99352</u>
Phone Number <u>509 539 6940</u>	Fax Number	Other	
Proposed Subdivision Name <u>Johanna Heights</u>		Legal Description <u>10 1/2 of 106 Q 10 1/2 of 5 1/2 NW</u>	
Average Size Lots		Proposed Number of Tracts	
Average Lot Size (Residential Lots) <u>12,500 SQF</u>		Area in Acres <u>26.38</u>	
Proposed Number of Lots <u>55</u>		Proposed Number of Blocks	
Name of Surveyor Platting Subdivision <u>STRAITON Survey</u>			
Address <u>7525 W. Desclutes PL 1st</u>		City <u>Kenneth</u>	State <u>WA</u> Zip <u>99336</u>
Phone Number <u>509-735 7314</u>	Fax Number	Other	

I DECLARE UNDER THE PENALTY OF THE PERJURY LAWS THAT THE INFORMATION I HAVE PROVIDED ON THIS FORM/APPLICATION IS TRUE, CORRECT AND COMPLETE.

Wes Hooyer
Applicant's Signature

10-6-16
Date

OFFICE USE ONLY

Filed on 10/6/16

[Signature]
Signature

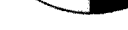
Case File No. S2016-102

Date of Planning Commission Hearing _____

Action by Planning Commission - Minutes _____

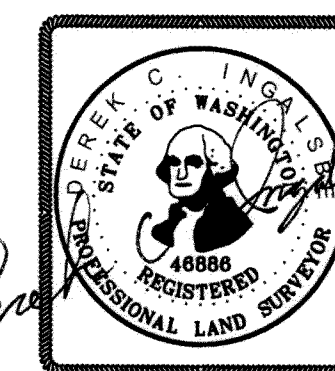
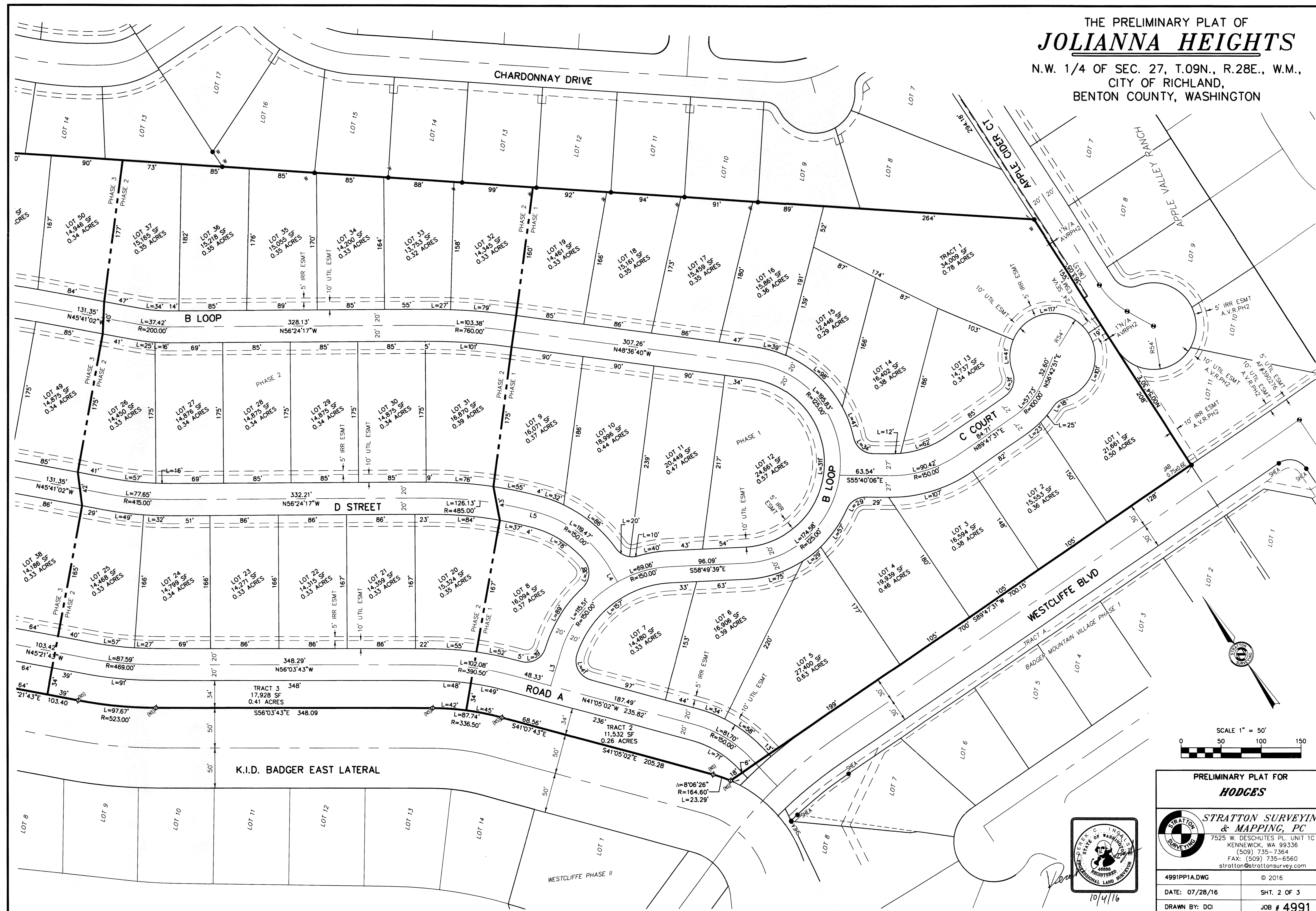
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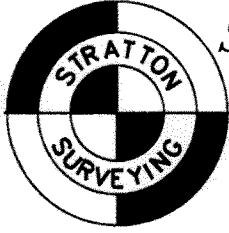
1. 30 Copies
2. 11" x 17" reduction
3. Ownership Report from Title Company listing all Owners within 300-feet.

INDEX				 (509) 735-7364 FAX: (509) 735-6560 stratton@strattonsurvey.com	
				4991PP1A.DWG © 2016	DATE: 07/28/16 SHT. 1 OF 3 DRAWN BY: DCI JOB # 4991

THE PRELIMINARY PLAT OF
JOLIANNA HEIGHTS

N.W. 1/4 OF SEC. 27, T.09N., R.28E., W.M.,
CITY OF RICHLAND,
BENTON COUNTY, WASHINGTON



PRELIMINARY PLAT FOR HODGES	
 STRATTON SURVEYING & MAPPING, PC 7525 W. DESCHUTES PL. UNIT 1C KENNEWICK, WA 99336 (509) 735-7364 FAX: (509) 735-6560 stratton@strattonsurvey.com	
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DATE: 07/28/16	SHT. 2 OF 3
DRAWN BY: DCI	JOB # 4991

THE PRELIMINARY PLAT OF
JOLIANNNA HEIGHTS

N.W. 1/4 OF SEC. 27, T.09N., R.28E., W.M.,
CITY OF RICHLAND,
BENTON COUNTY, WASHINGTON



PRELIMINARY PLAT FOR
HODGES

STRATTON SURVEYING & MAPPING, PC
7525 W. DESCHUTES PL. UNIT 1C
KENNEWICK, WA 99336
(509) 735-7364
FAX: (509) 735-6560
stratton@strattonsurvey.com

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From Westcliffe Boulevard Looking Northwest



From Westcliffe Boulevard Looking North



From Westcliffe Boulevard Looking East



From Westcliffe Boulevard Looking West – along KID Canal

A photograph of a rural landscape. In the foreground, there is a green field with some dry grass and a wire fence. In the middle ground, there is a line of trees and a red barn. The sky is overcast and grey. The text "Project Site" is overlaid on the image.

Project Site

From Shockley Road Looking Southeast



Access Road

From Shockley Road Looking Southeast – along Access Road to Site



Site

From Riesling Street Looking South



CITY OF RICHLAND NOTICE OF APPLICATION AND PUBLIC HEARING (S2016-102)

Notice is hereby given that Wes Hodges on October 6, 2016, filed an application for preliminary plat approval to subdivide an approximately 28.4 acre site into 55 single family residential lots (Preliminary Plat of Jolianna Heights). The proposed plat is located north of Westcliffe Boulevard, west of Apple Cider Court and south of the plat of Vineyards and Shockley Road. The proposed plat would have an average lot size of 15,473 square feet.

The Richland Hearings Examiner, on Thursday November 17, 2016, will conduct a public hearing and review of the application at 6:00 p.m. in the Richland City Hall Council Chambers, 505 Swift Boulevard. All interested parties are invited to attend and present testimony at the public hearing.

Any person desiring to express his views or to be notified of any decisions pertaining to this application should notify Rick Simon, Development Services Manager, 840 Northgate Drive, P.O. Box 190, Richland, WA 99352. Comments may also be faxed to (509) 942-7764 or emailed to rsimon@ci.richland.wa.us. Written comments should be received no later than 5:00 p.m. on Wednesday, November 9, 2016 to be incorporated into the staff report. Comments received after that date will be entered into the record at the hearing.

The application will be reviewed in accordance with the regulations in RMC Title 19 Development Regulations Administration and Tile 24 Plats and Subdivisions. Appeal procedures of decisions related to the above referenced application are set forth in RMC Chapter 19.70. Contact the Richland Planning Division at the above referenced address with questions related to the available appeal process.

Rick Simon,
Development Services Manager



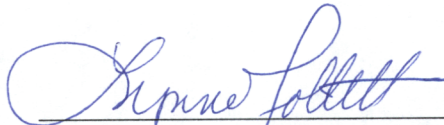
AFFIDAVIT OF MAILING

STATE OF WASHINGTON)
) ss.
COUNTY OF BENTON)

COMES NOW, Lynne Follett, who, being first duly sworn upon oath deposes and says:

1. I am an employee in the Planning & Development Department for the City of Richland.

2. On the 26th day of October, 2016, I mailed a copy of the attached NOTICE OF PUBLIC HEARING for the preliminary plat approval to subdivide approximately 28.4 acres, file number S2016-102, to the attached list of individuals via regular USPS mail on the date indicated above.



Print Name: Lynne Follett

SIGNED AND SWORN to before me this 26th day of October, 2016.



Cynthia Lynn Somers
Notary Public in and for the State of Washington,

Cynthia Lynn Somers
Printed Name

Residing at Kennerick WA

My appointment expires: July 10, 2020

NOTICE OF PUBLIC HEARING

The Board of Planning and Development Department of the City of Portland, Oregon, will hold a public hearing on the proposed amendments to the Comprehensive Zoning Ordinance, Chapter 33.02, at the City of Portland, Oregon, on the 10th day of May, 2010, at 10:00 a.m. The public hearing will be held in the Board Room of the City of Portland, Oregon, at 1221 SW 5th Avenue, Portland, Oregon 97204. The purpose of the public hearing is to receive comments from the public on the proposed amendments to the Comprehensive Zoning Ordinance, Chapter 33.02, and to provide an opportunity for the public to be heard on the proposed amendments. The proposed amendments are available for review at the City of Portland, Oregon, at 1221 SW 5th Avenue, Portland, Oregon 97204, from 8:00 a.m. to 5:00 p.m. on the 10th day of May, 2010. The public is invited to attend the public hearing and to provide comments on the proposed amendments to the Comprehensive Zoning Ordinance, Chapter 33.02, at the public hearing. The public may also provide comments on the proposed amendments to the Comprehensive Zoning Ordinance, Chapter 33.02, by email at planning@portlandoregon.gov or by mail at the City of Portland, Oregon, at 1221 SW 5th Avenue, Portland, Oregon 97204, by the 10th day of May, 2010. The public hearing is open to the public and no fee will be charged for attendance. The public hearing is subject to the availability of space. The public is invited to attend the public hearing and to provide comments on the proposed amendments to the Comprehensive Zoning Ordinance, Chapter 33.02, at the public hearing. The public may also provide comments on the proposed amendments to the Comprehensive Zoning Ordinance, Chapter 33.02, by email at planning@portlandoregon.gov or by mail at the City of Portland, Oregon, at 1221 SW 5th Avenue, Portland, Oregon 97204, by the 10th day of May, 2010. The public hearing is open to the public and no fee will be charged for attendance. The public hearing is subject to the availability of space.



City Clerk

Approved by the Board of Planning and Development on May 10, 2010.



City Manager

Approved by the Board of Planning and Development on May 10, 2010.



City Manager

Approved by the Board of Planning and Development on May 10, 2010.



AFFIDAVIT OF POSTING

STATE OF WASHINGTON)
) ss.
COUNTY OF BENTON)

COMES NOW, **Shane O'Neill**, who, being first duly sworn upon oath deposes and says:

1. I am an employee in the Planning & Development Department for the City of Richland.

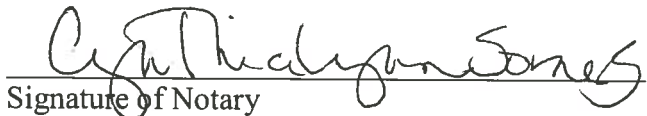
2. On the 27th day of October, 2016, I posted the attached NOTICE OF PUBLIC HEARING, File Number S2016-102 on the property at:

761 Shockley Road
PIN # 1- 27982000009000



Print Name: Shane O'Neill

SIGNED AND SWORN to before me this 27th day of October, 2016 by SHANE O'NEILL.



Signature of Notary

Cynthia Lynn Somers

Printed Name

Notary Public in and for the State of Washington,

Residing in Kennedick WA

My appointment expires: 07/10/2020



**City of Richland
Notice of Public Hearing**

File No: S2016-102

Proponent: Wes Hodges

Proposal: Preliminary Plat of Jolianna Heights to divide 28.4 acres into 55 single family residential lots, and 4 tracts.

Location: North of Westcliffe Boulevard, west of Apple Cider Court & south of the plat of Vineyards and Shockley Road.

Hearing: Before the Richland Hearing Examiner on Thursday, November 17, 2016 at 6:00 p.m. in the Council Chambers, Richland City Hall, 505 Swift Boulevard.

Contact: Rick Simon, Development Services Manager
PO Box 190, MS-35
Richland, WA 99352
rsimon@ci.richland.wa.us

A. BACKGROUND

1. Name of proposed project, if applicable: JOLIQUA Heights

2. Name of applicant: Wes Hodges

3. Applicant contact information:

Address: 1191 Plateau Dr.
Richland WA 99352

Phone #: 509 539 6940

email address: _____

4. Date checklist prepared: 9-30-16

5. Agency requesting checklist: _____

6. Proposed timing or schedule (including phasing, if applicable): within 4 year 2017

City of Richland
RS
10/12/16

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain. no

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal. none

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain. no

10. List any government approvals or permits that will be needed for your proposal, if known.

Stanwood City

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

28 Acres of Land, subdivided into approx 57 lots
Average size 12,500 sq ft

Attached
preliminary plot
show 55 lots
and 4 tracts
RS
10/12/16

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

760 Shockley Rd Richland WA 99352

761

Portion of NW corner of Section 2 Township N. Range 28 E

...location cont'd:

B. ENVIRONMENTAL ELEMENTS

1. Earth

- a. General description of the site (circle one): Flat, rolling, hilly, steep slopes, mountainous, other _____
- b. What is the steepest slope on the site (approximate percent slope)? 15 %
- c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils. Sandy Loam
- d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe. NO
- e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill. NO SITE FILL, GRADE ONLY 150 SQ YARDS
- f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe. TYPICAL CONSTRUCTION EROSION
- g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)? 40%
- h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any: WATER AND SOIL CONTROL MEASURES
2. Air
- a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known. NONE
- b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe. NO
- c. Proposed measures to reduce or control emissions or other impacts to air, if any: N/A

Typical impervious surface coverage for large lot SF subdivision and accompanying street system is approx 50%
RS
10/12/16

3. Water

a. Surface Water:

- 1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into. *no*
- 2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans. *no*
- 3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material. *none*
- 4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known. *no*
- 5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan. *no*
- 6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge. *no*

b. Ground Water:

- 1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known. *no*
- 2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve. *no*

c. Water runoff (including stormwater):

- 1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe. *infiltration cells and storm retention pond if necessary*
- 2) Could waste materials enter ground or surface waters? If so, generally describe. *no*

3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.

no

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any:

CITY Required

4. Plants

a. Check the types of vegetation found on the site:

___deciduous tree: alder, maple, aspen, other

___evergreen tree: fir, cedar, pine, other

___shrubs

___grass

___pasture

___crop or grain

* ___Orchards, vineyards or other permanent crops.

___wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other

___water plants: water lily, eelgrass, milfoil, other

___other types of vegetation

b. What kind and amount of vegetation will be removed or altered?

All Cherry Trees

c. List threatened and endangered species known to be on or near the site.

none

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

none

e. List all noxious weeds and invasive species known to be on or near the site.

None

5. Animals

a. List any birds and other animals which have been observed on or near the site or are known to be on or near the site. Examples include:

birds: hawk, heron, eagle, songbirds, other: _____

mammals: deer, bear, elk, beaver, other: _____

fish: bass, salmon, trout, herring, shellfish, other: _____

According to Dept. of Fish
and Wildlife PHS mapping,
there are no known priority
habitats or species on-site
PS
10/12/16

b. List any threatened and endangered species known to be on or near the site.

N/A

c. Is the site part of a migration route? If so, explain.

Yes, Richland is within the Pacific Flyway.

no

d. Proposed measures to preserve or enhance wildlife, if any:

e. List any invasive animal species known to be on or near the site.

no

6. Energy and natural resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

All City Services

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

no

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

Development of site will require compliance with WA State Energy Code
RS
10/12/16

7. Environmental health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.

1) Describe any known or possible contamination at the site from present or past uses.

no

2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.

no

3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.

no

4) Describe special emergency services that might be required.

no

5) Proposed measures to reduce or control environmental health hazards, if any:

no

b. Noise

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)? *none*

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site. *none*

3) Proposed measures to reduce or control noise impacts, if any:

8. Land and shoreline use

a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe. *Residential*

b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use? *was a Cherry Farm*

i) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how: *no*

b. Describe any structures on the site. *Manufactured house, and shop*

d. Will any structures be demolished? If so, what? *yes*

e. What is the current zoning classification of the site? *Residential*

f. What is the current comprehensive plan designation of the site? *Residential*

g. If applicable, what is the current shoreline master program designation of the site? *NA*

h. Has any part of the site been classified as a critical area by the city or county? If so, specify. *no*

i. Approximately how many people would reside or work in the completed project? *150*

j. Approximately how many people would the completed project displace? *none*

k. Proposed measures to avoid or reduce displacement impacts, if any: *none*

*R1-10 Single Family Residential
RS 10/12/16*

*Low Density Residential
RS 10/12/16*

no Slopes in excess of 15% require geotechnical review under City Sensitive Area Ordinance. Report is attached

RS 10/12/16

L. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any: *Adhere to City Ordinance*

m. Proposed measures to ensure the proposal is compatible with nearby agricultural and forest lands of long-term commercial significance, if any: *N/A*

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing. *57 high income*

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing. *None*

c. Proposed measures to reduce or control housing impacts, if any: *None*

*Proposal consists of 55 lot subdivision
RS 10/12/16*

10. Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed? *57' wood house*

b. What views in the immediate vicinity would be altered or obstructed? *None*

c. Proposed measures to reduce or control aesthetic impacts, if any: *Color paint*

*Zoning limits building height to 30 feet
RS 10/12/16*

11. Light and glare

a. What type of light or glare will the proposal produce? What time of day would it mainly occur? *Typical house*

b. Could light or glare from the finished project be a safety hazard or interfere with views? *No*

c. What existing off-site sources of light or glare may affect your proposal? *None*

d. Proposed measures to reduce or control light and glare impacts, if any: *N/A*

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity? *NO*

b. Would the proposed project displace any existing recreational uses? If so, describe. *NO*

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any: *N/A*

*There is an existing neighborhood park approximately .3 miles east of the site. The site is adjacent to the KID canal, which is informally used as a walking path
RS 10/12/16*

*Project is subject to payment of park mitigation fees per RMC 22.12
RS 10/12/16*

13. Historic and cultural preservation

- a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers located on or near the site? If so, specifically describe. *no*
- b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources. *no*
- c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc. *N/A*
- d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required. *no*

14. Transportation

- a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any. *Access to be provided from adjacent Shackley Road and Westcliffe Blvd. RS 10/12/16*
- b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop? *yes, BUS*
- c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate? *no*
- d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private). *yes public streets*
- e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe. *no*
- f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates? *no.*

ITE Trip generation manual estimates 10 trips per single family residence / day, resulting in an estimated ADT of 550. RS 10/12/16

g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe. NO

h. Proposed measures to reduce or control transportation impacts, if any: N/A

Project is subject to
payment of traffic
impact fees
RS 10/12/14

15. Public services

a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe. NO

b. Proposed measures to reduce or control direct impacts on public services, if any. N/A

16. Utilities

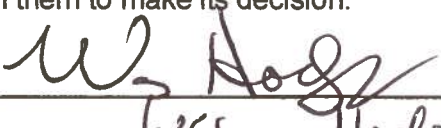
a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

CITY OF RICHMOND

C. Signature

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: 

Name of signee: W. S. Hodgson

Position and Agency/Organization: owner

Date Submitted: 9-30-16

Community & Economic Development Department

This application was reviewed by the Planning Division of the Community & Economic Development Department. Any comments or changes made by the Department are entered in the body of the checklist and contain initials of the reviewer.


Reviewer Signature

10/12/14
Date

D. supplemental sheet for nonproject actions

CITY OF RICHLAND
Mitigated Determination of Non-Significance

Description of Proposal the subdivision of a 28.4 acre site to consisting of 55 single family residential lots and 4 tracts with associated street construction, utility line extensions and storm drainage system construction.

Proponent Wes Hodges

Location of Proposal South of Shockley Road, North of Westcliffe Boulevard and Kennewick Irrigation District East Badger Lateral Canal and West of Apple Cider Court in the Northwest ¼ of Section 27, Township 9 North, Range 28 E.W.M.

Lead Agency City of Richland

The lead agency for this proposal has determined that, as conditioned, it does not have a probable significant adverse impact on the environment. (A copy of the required conditions is attached.) An environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public on request.

- () There is no comment for the DNS.
- (XX) This MDNS is issued under WAC 197-11-340(2); the lead agency will not act on this proposal for 14 days from the date below. Comments must be submitted by **October 31, 2016**.
- () This DNS is issued after using the optional DNS process in WAC 197-11-355. There is no further comment period on the DNS.

Responsible Official Rick Simon

Position/Title Planning and Development Services Manager

Address P.O. Box 190, Richland, WA 99352

Date October 14, 2016

Signature _____



CONDITIONS FOR MITIGATING ENVIRONMENTAL IMPACTS

- 1) The project shall proceed in conformance with the Geotechnical Investigation Report for Jolianna Heights prepared by White Shield, Inc. dated September 26, 2016, including recommendations for review of final site grading and construction plans and engineering observation of soil pretreatment, soil placement and compaction, soil testing, engineering observation of slope construction process, geotechnical engineering approval of final site grading, soil compaction and monitoring of groundwater conditions.
- 2) Stormwater control measures shall be implemented during construction activities, utilizing best management practices in accordance with the Storm Water Control Manual for Eastern Washington and as identified by permit conditions issued by the City of Richland and or the Washington State Department of Ecology.
- 3) An erosion control plan shall be prepared by the applicant and submitted to the City of Richland for review and approval at the time that engineered plans are submitted for project construction. The plan shall be designed to prevent erosion from occurring within the site and prevent erosion or deposition onto adjacent properties. Erosion control measures shall be maintained throughout the construction of the project.
- 4) A dust control plan shall be prepared by the applicant and approved by the Benton Clean Air Authority prior to the commencement of earth moving or construction activities on-site. Said dust control plan shall be implemented throughout the duration of project construction.
- 5) No grading and excavation work shall be permitted on-site without the issuance of a valid grading permit by the City of Richland.
- 6) The applicant shall comply with City and state noise standards throughout the construction of the project.
- 7) Development within the project site shall be subject to the payment of traffic and parks mitigation fees as required under Chapters 12.03 and 22.12 of the Richland Municipal Code.
- 8) If during grading and construction activities archeological or paleontological resources are uncovered, the developer shall suspend work in that particular area and contact the Washington State Office of Archeology and Historic Preservation to determine a plan for mitigation of the disturbance to the resource.

Geotechnical Investigation Report

Jolianna Heights

Richland, Washington

September 26, 2016

Submitted To:

Mr. Wes Hodges
Richland, Washington

Prepared By:



White Shield, Inc.
320 North 20th Avenue
Pasco, WA 99301
509-547-0100 office
509-547-8292 fax
Email: Info@whiteshield.com
<http://www.whiteshield.com>

White Shield, Inc. Project No. 116-073-01

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APPENDICES

APPENDIX A

- Figure 1: Site Location Map
- Figure 2: Site Exploration/Topography Map
- Figure 3: Geologic Cross-Section of the Pasco Basin

APPENDIX B

- Soil Classification and Log Key
- Test Pit Logs TP-1 through TP-24
- Infiltration Test Plot
- Seven Sieve Analyses

APPENDIX C

- Washington State Department of Ecology Well Log Data

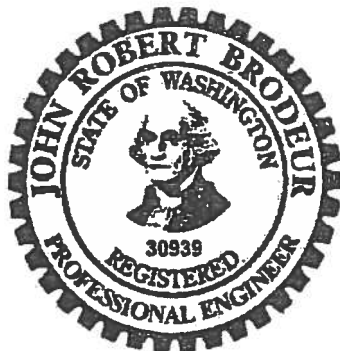
Jolianna Heights
Richland, Washington

Geotechnical Investigation Report
September 26, 2016

CERTIFICATE OF ENGINEER

***Geotechnical Investigation Report
Jolianna Heights
Richland, Washington***

The technical information and data contained in this report were prepared under the direction and supervision of the undersigned, whose seal, as a professional engineer licensed to practice as such, is affixed below.



JOHN ROBERT BRODEUR

Prepared by:

A handwritten signature of John R. Brodeur in cursive script.

John R. Brodeur, PE, LEG
Geotechnical Engineer, Geophysicist

1.0 INTRODUCTION

1.1 Project Background

White Shield Inc. (WSI) is pleased to present this Geotechnical Investigation Report for the Jolianna Heights development in Richland, Washington (site). The site location is shown in the attached Appendix A, Figure 1: Site Location Map.

The proposed project consists of construction of a housing development covering 26 acres of land with 55, ½-acre lots. A draft site development plan showing the proposed lot layout is provided on Figure 2: Site Exploration/Topography Map. The entire site currently consists of a cherry orchard surrounded by high density residential development. The property has a moderate slope toward the northeast with an average grade across the site of about 15 percent.

This report presents the results of our geotechnical investigation. The investigation was conducted to determine the basic soil and groundwater conditions at the development site and to provide geotechnical design and construction specifications for construction of the development. It includes a review of the regional and local geology, a description of site soils and soil profiles, an assessment of the infiltration rate of the soils for stormwater system design, and geotechnical recommendations and specifications for construction of the development.

The site investigation for this report was accomplished by excavating twenty-four exploration test pits across the site to allow WSI to observe, sample, and test the soil and to assess subsurface conditions. One test pit infiltration test was conducted at a possible infiltration site to measure the infiltration rate of the soil.

1.2 Scope of Services

This geotechnical investigation scope of services for this project was limited to the following principal tasks.

1.2.1 Literature Review

Literature review for this project included a review of geology references of the area, a review of groundwater well logs from the area, and an assessment and correlation of information about the local geology that we have obtained from previous work in the area. Basic site geology information is provided in the detailed geologic map of the Richland Quadrangle compiled by Reidel and Fecht (1994). Additional information on the basic geology of the Mid-Columbia area is included in Lindsey (1996) and a discussion of the underlying Miocene-age basalt bedrock structure is provided in Reidel (et al., 1994). The additional information about the underlying geology and geohydrology of the site comes from correlating the site data with data from nearby locations.

Well logs of two nearby groundwater wells were obtained from the Washington State Department of Ecology online database and are provided in Appendix C. However, the logs proved to contain little reliable information about the sediments overlying bedrock. The two logs did provide an assessment of the approximate depth-to-bedrock in the area.

1.2.2 Test Pit Investigation

The subsurface exploration was completed by excavating twenty-four exploration test pits across the site (designated as TP-1 through TP-24). The test pits were excavated around the perimeter of the existing orchard using a large trackhoe to depths of up to 16 feet below the ground surface (bgs). Test pits placed across the middle of the orchard were excavated by a mini-excavator to depths of up to 10 feet bgs. The test pits were logged by WSI geotechnical staff, representative soil samples were collected, in-situ soil tests were conducted, and soil moisture conditions were determined. All test pit logs are provided in Appendix B. Approximate test pit locations are provided on Figure 2.

1.2.3 Infiltration Testing

One infiltration test was conducted adjacent to test pit TP-6 at the northeast corner of the property to assess the infiltration rate at the proposed location of an infiltration pond. The infiltration test involved excavating a test pit to a depth of 10 feet bgs, filling it with water, and monitoring the drawdown over time until a steady-state infiltration rate was achieved. The results of the infiltration test are provided in Appendix B as a drawdown plot over time.

1.2.4 Laboratory Soils Testing

Soil samples collected during the field investigation were returned to our geotechnical laboratory for characterization, classification, and testing. Soil testing for this project included index properties testing, dry sieve analyses, and moisture content determinations of select soil samples. Soil characterization laboratory tests and classification results are shown on the test pit logs. Sieve analyses results are also provided in Appendix B.

1.2.5 Geotechnical Design Analysis

Data collected during our site investigation were analyzed to develop site- and project-specific geotechnical design and construction recommendations for the proposed development.

1.2.6 Report Preparation:

This Geotechnical Investigation Report presents the results of our work including information as it relates to the following:

- Test pit exploration logs.
- Infiltration test results.
- Laboratory test results.
- Description of subsurface soil and groundwater conditions.
- Earthwork and site preparation recommendations.
- Slope design and construction recommendations.
- Design recommendations for shallow-home foundations.
- Design earth pressure recommendations.
- International Building Code (IBC [2012]) seismic design parameters.

-
- Site infiltration design/stormwater management recommendations.

2.0 SITE CONDITIONS

2.1 Local and Site Geology

Keene Road is the approximate center of a synclinal depression between two northwest- to southeast-trending uplifts or fold belts in the Columbia River basalt bedrock that underlies the site. The site is located near the base of a sloping uplifted block of basalt that extends up into the Westcliffe development above the Kennewick Irrigation District (KID) canal.

Well log data, provided in Appendix C, indicates that basalt bedrock underlies adjacent areas just below the site at about 100 feet deep. Test pit data suggest that basalt bedrock may be shallow along the drainage on the northwest side of the site. Older Google Earth™ images of that drainage show that it extended up into the upper uplifted block. Since most of the drainages off of Badger Mountain developed in areas with transverse thrust faults, this would explain the shallow rock encountered in the northwest corner of the site.

Supra-basalt sediments deposited in the Keene Road valley area on top of the folded Miocene-age basalt bedrock include sediments of the pre-Pleistocene Ringold Formation as well as Pleistocene-age outwash flood deposits and post-Pleistocene eolian (wind-blown) sediments. An idealized geologic cross section of the Pasco Basin (Lindsey [1996]) is provided on Figure 3 for the following discussion. Sediments of the Savage Island Member at the top of the Ringold Formation are present beneath the site, although they were not intercepted at the site by any of the deep test pits.

At about 3.4 Ma (mega-annum [millions of years]) the environment in Columbia Valley turned into a drying lake bed conditions for about a million years, and a silt and carbonate evaporite layer formed at the top of the Ringold Formation. This carbonate-cemented silt layer forms the top of the White Bluffs overlooking the Columbia River. At Moses Lake, in the middle of the Columbia Basin, the carbonate and silt layer is about 50 feet thick and is covered with about 50 feet of glacial outwash material. This carbonate layer is referred to as the Plio-Pleistocene unit (Plio-P) and it is specifically labeled on Figure 3.

In the Pasco Basin, the Plio-P unit is found in West Richland at Paradise and Bombing Range Road and we have traced it across Richland and Kennewick up against the Badger Mountain and Thompson's Hill uplifts right at the base of the main KID canal. At the base of Thompson's hill, the Plio-P is about 2 feet thick and is continuous across the base of the uplift. Throughout most of the upper valleys, such as that along Keene Road, the Plio-P unit was eroded away during the early Pleistocene-age cataclysmic floods, leaving only a remnant bathtub ring of carbonate up against the uplifts and within the native bedrock where it has sealed the fractures and pores in the bedrock. The Plio-P carbonate unit creates a temporal marker bed that tells exactly where one is within the geologic time section (refer, Figure 3). The Plio-P unit is also highly impermeable, creating areas in Kennewick and Richland where storm and irrigation water infiltrates onto the slopes up above and travels downslope along the top of the Plio-P, only to daylight-out down below.

At this site, we would expect to find the Plio-P unit up against the KID canal. However, we found evidence of the Plio-P unit only in test pit TP-14 at a depth of 10 feet bgs. In this case, it was too deep to positively confirm this interpretation.

During the late Pleistocene, cataclysmic flood events occurred at times when Wallula Gap was clogged with previous flood debris. This inundated the Pasco Basin multiple times creating temporary glacial Lake Lewis. When a flood event occurred and Lake Lewis formed, the static lake water was laden with silt that rained down onto the temporary lake bed depositing rhythmically-bedded silt deposits that are referred to as Touchet Beds. The fine rhythmic bedding lines are formed by slow moving currents in the slackwater as the silt settled down on the lake bed. Areas inundated by glacial Lake Lewis that had faster currents show sequences of coarser sand rather than silt and classic deep water current structures were formed, such as parallel bedding, cross bedding, and deeper cross cuts in the soil profile.

The geologic map of the project area shows the surface material on the site as (Qht) for Quaternary Touchet Bed deposits. These deposits are described as:

Rhythmically bedded silt with stringers of coarse-grained sand and gravel. Deposited in low energy slackwater areas of Pleistocene floods, predominantly quartz and feldspar, often containing discrete ash horizons. Ice-rafted debris locally on top surface of unit.

This is the principal soil type found at this site. Qht also includes Mount Saint Helens volcanic ash that is dated to about thirteen-thousand years before present (ka) in the late Pleistocene.

2.2 Site Description and Surface Conditions

The southwest side of this rough, rectangular- polygonal-shaped site borders the somewhat level KID canal and the surface of the site slopes toward the northeast. The total drop across the site from southwest to northeast is about 100 feet and the net grade across the site is about 14 percent. That grade is relatively consistent across the site, no doubt due to previous earthwork when they set up the cherry orchard. The orchard covers most of the site except for perimeter roadways. The orchard has been and continues to be irrigated for production next spring.

Paleodrainages are present on the northwest and southeast sides of the site as indicated by the upgradient V shapes in the KID canal at these points. A review of historical Google Earth images revealed both drainages are seen in the oldest image from 1996, before the WestCliffe development was constructed above the canal. The paleodrainages would likely control the subsurface drainage in the local area and the bottom of the drainages would be the best place to look for shallow groundwater.

2.3 Site Soils

The basic soil profile at this site consists of a variable thickness surface layer of eolian fine sand and silt overlying a thick sequence of late Pleistocene Touchet Bed silt deposits. The

surface eolian soil is highly disturbed from the native condition and the surface soil is likely mixed to some degree with the underlying silt soil.

The Touchet Bed silt soil is described as dry to moist, olive-brown to light olive-brown silt with little to some fine sand.

Six sieve analyses of this soil showed silt content between 60 and 70 percent silt, classifying the soil as **ML** for sandy silt. This soil shows relatively high soil strength, or a medium dense to dense consistency, as determined by dynamic penetrometer measures. That high strength is the result of a high degree of carbonate cementation in the soil.

Nuclear density measures of the mass density of the silt were not obtained during our site investigation. However, our experience with the local Touchet Bed silt soils tells us that the native soil density is likely to be low and the soil has some potential for hydro-collapse. The low density is caused by the way it was deposited into deep, slack-floodwater conditions where the silt accumulated on the lake bottom without any compaction. The soil is held together by carbonate and clay cementation. The cementation largely breaks down with wetting. As a result, areas of the project with native soil must be remediated with deep moisture conditioning and compaction treatment during construction, and then proof-rolling to verify. Touchet Bed silt was found in most of the test pits and it represents the principal soil that will be encountered at this site. The thickness of the Touchet Bed deposits is greater than the deepest test pit at about 16 feet bgs.

On the northwest side of the development in test pits TP-1, TP- 16 and TP-17, gravel and cobble were encountered, which eventually turned into coarse angular basalt cobble colluvium. As a result, we believe there is a bedrock subcrop below the shallow overburden in this area. Review of the surface topography contours on Figure 2 suggest the presence of a small subsurface ridge of bedrock adjacent to the drainage just northwest of the site. This would not be a good place to plan for extensive soil cuts. Better definition of that area is possible in the future if required. Sewer line installation in this area may require some bedrock excavation.

On the southeast side of the development in test pits TP-8, TP-9 and TP-24, subrounded gravel and cobble were encountered. This was likely deposited within the old paleo drainage that cut through this area. This was not angular basalt cobble that would suggest the presence of bedrock in this area. This gravel is probably alluvium material from above that was carried down by floodwaters and co-deposited with the Touchet Bed silt.

In test pit TP-14 at a depth of 10 feet bgs, we found probable remnants of the Plio-Pleistocene carbonate unit. This carbonate unit was only about 2 feet thick, which is consistent with other occurrences of the unit elsewhere in Richland and Kennewick. The carbonate was underlain by an indurated silt that we believe to be the Savage Island member of the Ringold Formation.

The Touchet Bed silt soil also contains volcanic ash from an eruption from Mount Saint Helens 13 thousand years ago—dating the soil to the end of the Pleistocene as one would

expect. The volcanic ash also contributes to the soils low density, high cementation, and relatively high strength of the Touchet Beds.

2.4 Site Groundwater

No areas with perched groundwater were found within the thick sequence of Touchet Bed silt soil at the site in any of the test pits. Areas with moist soil were limited to the upper few feet of the subsurface. No deep subsurface moist areas were found at the site. Test pits along the northeast side of the site were extended as deep as 16 feet bgs with a trackhoe for the purpose of looking for any subsurface water on the downhill side. Instead, we found nothing but dry Touchet Bed silt soil. In spite of the fact that the site has been continually irrigated, not subsurface perched groundwater conditions have developed at the site.

3.0 GEOTECHNICAL DESIGN RECOMMENDATIONS

3.1 Site Grading Design

Grading design should use a maximum slope of 1V:2H (vertical to horizontal), or 50 percent grade for all cut and fill slopes. Preliminary grading plans by Spink Engineering, LLC call for three terraced rows with level home pads and 1V:2H slopes between terraces.

3.2 Earthwork

3.2.1 Site Preparations

Prior to start of construction, the cherry trees must be removed and all major roots and stumps must be removed from the site. The site must be cleared and grubbed to remove all areas of surface vegetation. Grubbing material should either be used as landscape fill or it should be hauled off the site. Remove all roots and organic material, loose or soft soil, and old topsoil from all areas to receive fill soil, foundations, driveways, etc.

Positive drainage away from structures and pavement subgrade areas should be constructed and maintained throughout the project.

3.2.2 Base Soil Preparations

Some areas with high silt content may have a low soil density creating the potential for the soil to exhibit hydrocollapse. This is particularly the case with the high silt Touchet Bed deposits. Therefore, after grubbing is complete, all areas to receive soil fill shall be deep moisture conditioned and compacted to a minimum of 95 percent of the maximum dry density per ASTM International (ASTM) D1557. In areas of soil cut, the final cut surface shall also be deep moisture conditioned and compacted to specifications. Moisture conditioning shall penetrate at least 3 feet deep before the soil is compacted. In areas where the soil has a silt content of 80 percent or more, deep moisture conditioning may require a flood treatment to get good moisture penetration for effective compaction. Soil compaction shall be accomplished by wheel rolling with heavy equipment or with a large vibratory sheep's-foot roller compactor.

3.2.3 Proof-rolling and Native Subgrade Compaction Verification

Prior to receiving fill soil, the subgrade soil shall be proof-rolled with a heavily-loaded scraper or other wheeled grading equipment to allow the geotechnical engineer to verify compaction.

All final grade soil cut areas on the lots and roadways with native undisturbed soil shall also be deep moisture conditioned and compacted to a minimum of 95 percent of the maximum dry density per ASTM D1557. Soil compaction shall be verified by nuclear density test method. The 1V:2H cut slopes in native undisturbed soil areas generally will not need moisture conditioning and compaction treatment as described above. Soil cut slopes shall be inspected by the geotechnical engineer to determine if any additional soil compaction is required.

3.2.4 Excavations

Conventional excavation and large earth-moving equipment can be used to excavate the silt and sand soil at this site. A maximum slope of 1V:1.5H is recommended for all

unsupported excavation sidewalls in the soil at the site. Any trenching or excavations over 4 feet bgs will require either the side slopes or shoring and bracing of the excavation.

The information excavation on slope protection is based on the Occupational Safety and Health Administration (OSHA) regulations and is provided entirely as a service to WSI's Client. Under no circumstances should the Client, their contractors, or subcontractors interpret this information to mean, or otherwise imply, that WSI assumes responsibility for construction site safety and/or temporary slope stability or the contractor's activities. Such responsibility is not implied and should not be inferred.

3.2.5 Structural Fill Soil Placement and Compaction

All soil fill placed during site grading operations is considered to be structural fill that must be placed and compacted according to the specifications in this section.

For structural fill, use existing on-site soil or approved imported soil. The on-site soil can be used as structural fill, provided it is free of organics and boulders that are greater than 6 inches in diameter and is installed in lifts and compacted in place. Imported structural fill soil should be sand or gravel that is well graded from fine to coarse and contains less than 15 percent by weight passing the No. 200 Sieve (silt). Crushed gravel is the best structural fill for home foundation subgrade areas.

All structural fill shall be placed in maximum 8-inch-loose lifts, moisture conditioned to optimum moisture content, and compacted to at least 95 percent of maximum dry density per ASTM D1557. Large, heavy, vibratory roller compactors or wheel-roller compaction equipment generally produces the best soil compaction results for large areas. If lightweight compaction equipment is used to compact the soil the maximum lift, thickness may need to be decreased.

Moisture requirements for soil compaction will vary as the silt content of the cut soil varies. It may be necessary to increase or decrease the water content during soil compaction to match the requirements of the soil. Mass grading and soil placement and compaction operations shall be observed and documented by WSI geotechnical staff. Soil compaction testing shall be accomplished using the Standard Test Method for In-Place Density (ASTM D6938).

3.2.6 Soil Cut and Fill Slopes

Soil cut slopes constructed in native undisturbed soil do not require the deep moisture conditioning and compaction treatment described in Section 3.2.2. Soil cut slopes shall be final graded, moisture conditioned and compacted to a non-yielding condition.

Soil fill slopes shall be built by first excavating a 2-foot by 2-foot keyway at the base or the toe of the slope to be constructed. The keyway excavation shall be backfilled with excavated soil that is placed in layers and compacted to specifications in Section 3.2.5. Upon completion of the keyway construction, the slope shall be constructed by laying in the soil fill in horizontal layers from the base upward, compacting each lift and overbuilding the slope as the soil is placed. Final grading should cut the final slope to a

maximum slope angle of 1V:2H. All soil fill slopes shall be constructed as structural fill slopes with the compaction of each layer conforming to the compaction requirements for structural fill in Section 3.2.4.

3.3 Geotechnical Recommendations for Home Construction

3.3.1 Foundation Design

Homes in this development can be supported on conventional spread footings in a manner consistent with IBC requirements. All footings should be supported on properly prepared subgrade in native soils, or on structural fill as previously discussed in this report. Footings shall have minimum widths, consistent with IBC Table 1805.3.1, and the bottom of the exterior footings shall be at least 24 inches below the lowest adjacent exterior grade for frost protection.

3.3.2 Foundation Subgrade Preparation

Home foundation subgrade areas shall be moisture conditioned and compacted to at least 95 percent of the maximum dry density per ASTM D1557.

3.3.3 Bearing Pressure

Building foundations will bear on the sandy silt soil at this site. WSI recommends the footings be sized to be consistent with the requirements of IBC Section 1804 and as summarized in Table 1804.2. For a sandy silt soil-type, foundations should exert a maximum soil bearing pressure of 1,500 pounds per square foot (lb/ft²). Please note that this allowable soil bearing pressure assumes a minimum confinement depth, or depth of burial, of 2 feet bgs.

An assessment of loading on the foundation system should be completed by the structural engineer or building designer, to verify that the footing sizes comply with the aforementioned IBC requirements and the footings are correctly apportioned for the specified bearing capacity. For lateral forces, use a friction coefficient of 0.3 between the base of the footings and the underlying subgrade soil.

3.3.4 Foundation Walls and Lateral Earth Pressure

For foundation wall design purposes, use the following data:

Assumed Soil Density	=	110 lb/ft ³
Assumed Soil Internal Friction Angle	=	30 degrees
Coefficient of At-Rest Earth Pressure	K_o	= 0.50
At-rest Earth Pressure Equivalent Fluid Density	=	55 lb/ft ³
Coefficient of Active Earth Pressure	K_a	= 0.33
Active Earth Pressure Equivalent Fluid Density	=	36.3 lb/ft ³
Coefficient of Passive Earth Pressure	K_p	= 3.0
Passive Earth Pressure Equivalent Fluid Density	=	300 lb/ft ³

Use the at-rest pressure coefficient for the design of foundation walls and compact the backfill as recommended to fully mobilize the passive earth resistance.

3.3.5 Lot grading, Drainage, and Stormwater Infiltration

The ground surface adjacent to the homes shall slope away from the stem wall or slab at 5 percent for a minimum distance of 100 feet from the structure, per the requirements of IBC 1803.3. Landscaping and lot grading should consider drainage requirements of the structures and prevent ponding of water near structures or in yard areas. Roof drainage and other stormwater generated at each lot shall be infiltrated on each lot.

3.3.6 Seismic Design Criteria

The silty sand soil profile at this site has soil properties consistent with a seismic design Site Class D for a "Soft Soil Profile". For this site, use the seismic design parameters provided in the following Table 1.

Table 1: 2012 IBC Seismic Design Parameters

	Short Period	1 sec
Maximum Credible Earthquake Acceleration	$S_s = 0.428$	$S_1 = 0.164$
Site Class	D	
Site Coefficient	$F_a = 1.45$	$F_v = 2.14$
Adjusted Spectral Acceleration	$S_{MS} = 0.623$	$S_{M1} = 0.352$
Design Response Acceleration	$S_{DS} = 0.416$	$S_{D1} = 0.235$
Design Peak Ground Acceleration	0.16 g	

3.4 Site Infiltration Rate and Stormwater Recommendations

Preliminary plans call for stormwater to be infiltrated into infiltration trenches graded into the soil adjacent to the upper roadways. Infiltration trenches will be cut into all roadways, which

will be sloped toward the trenches. Any trench overflow will be routed to infiltration/evaporation ponds located along the bottom of the site.

The proposed stormwater infiltration approach will distribute and retain the runoff within the upper portion of the Touchet Bed silt soil and prevent the concentration of water in one area. This approach has the lowest potential for creating deep downgradient groundwater issues because the stormwater will infiltrate into the thick sequence of late Pleistocene Touchet Bed silt and not into the deeper subsurface. This soil is considered to have a high treatment capacity for adsorption of contaminants.

3.4.1 Infiltration Rate

The drawdown plot from the infiltration tests at TP-6 shows asymptotic steady-state drawdown rate of about 10 in/hr. To determine a reliable estimated infiltration or drawdown rate, WSI recommends starting with 10 inches per hour (in/hr) and reducing that value by a factor of 3 to account for horizontal to vertical anisotropy of the soil, as well as the inaccuracies in the infiltration test. WSI recommends using a design infiltration rate of 3 to 3.5 in/hr for the Touchet Bed silt soil at this site.

4.0 SUMMARY CONCLUSIONS

A geotechnical investigation was completed by conducting test pit explorations at the site and by collecting relevant geologic and geotechnical information about the site and surrounding area. Soil samples were collected for laboratory analyses including index properties testing, sieve analyses, and soil classification.

The basic soil profile consists of a few feet of near-surface silty sand (**SM**) and sandy silt (**ML**) which is underlain by late Pleistocene slackwater flood deposits called Touchet Bed silt. This soil is composed of a thick sequence of finely laminated sandy silt (**ML**). This soil shows a high degree of carbonate cementation and a significant amount of volcanic ash. Both the cementation and the volcanic ash content cause the soil to have a low density and relatively high soil strength. The Touchet Bed silt soil extends to a depth that is greater than 16 feet deep across most of the site.

Geotechnical specifications and recommendations are provided for site grading operations including recommendations for native soil moisture treatment, soil placement and compaction and slope construction. All native undisturbed areas that will receive soil fill and areas that remain after a soil cut, require deep moisture conditioned and compacted prior to placing fill soil. Pretreatment of the native soil is intended to densify any potentially collapsible soil areas.

Geotechnical specifications are included in this report for construction of homes according to standard IBC criteria.

Preliminary plans call for infiltration of stormwater into infiltration trenches along the side of the roadways. This effectively distributes the stormwater within the upper portion of the Touchet Bed silt soil where it will be retained for evapotranspiration. This infiltration method minimizes the possibility for the development of deep subsurface perched groundwater conditions. WSI recommends using a net design infiltration rate that is between 3.0 and 3.5 in/hr.

5.0 CONSTRUCTION OBSERVATION AND TESTING

Geotechnical engineering construction observation is required during construction of the development to monitor earthwork and soil and groundwater conditions. Construction observation will allow us to identify unexpected soil or groundwater conditions that were not identified in our test pit explorations and allow us to adjust our geotechnical recommendations as required. For this project, the following construction observation and field verification program is required.

- Geotechnical engineering review of the final site grading and construction plans and specifications.
- Geotechnical engineering observation of the soil pretreatment, including moisture conditioning and deep compaction of the soil.
- Geotechnical engineering observation of soil placement and compaction method, process, and soil testing to verify compaction.
- Geotechnical engineering observation of the slope construction process.

-
- Geotechnical engineering approval of final site grading and soil compaction.
 - Geotechnical engineering monitoring of groundwater conditions.

6.0 LIMITATIONS AND RESTRICTIONS

The opinions, discussion, and conclusions presented in this report were based on information obtained or collected in the conduct of this geotechnical investigation. Soil conditions that are encountered beyond our exploratory test pits may vary. Unanticipated soil conditions and seasonal soil moisture variations are commonly encountered and cannot be fully determined by a few test pits or soil borings. Such variations may result in changes to our recommendations and may require that additional expenditures be made to attain a properly constructed project.

If there is a substantial lapse of time between submission of this report and the start of excavation work at the site, or if site conditions have changed due to natural causes, or if the basic project scheme is significantly modified from that assumed in the preparation of this report, WSI recommends that the report be reviewed to determine the applicability of the conclusions and recommendations.

This report was prepared exclusively for the Client and their architects and engineers for aiding in the design and construction of the proposed project and is not to be used for other projects of similar type or at a site in close proximity to this site. This report is not to be photographed, photocopied, or reproduced in total or in part, without the written consent of the Client and White Shield, Inc.

7.0 REFERENCES

- Lindsey, K.A. (1996). *The Miocene to Pliocene Ringold Formation and Associated Deposits of the Ancestral Columbia River System, South-Central Washington and North Central Oregon*. Washington Department of Natural Resources, Division of Geology and Earth Resources, Open-File Report 96-8, 45 p., 4 Appendices.
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- Reidel, S.P. and K.R. Fecht, (June 1994). *Geologic Map of the Richland 1:100,000 Quadrangle, Washington*, WA Div Geo Earth Res. OFR 94-8
- RHO (1979). *Compilation Geologic Map of the Pasco Basin, South Central Washington*. RHO-BWI-ST-4, Rockwell Hanford Operations, Richland, WA

APPENDIX A

Figure 1: Site Location Map

Figure 2: Draft Site Exploration/Topography Map

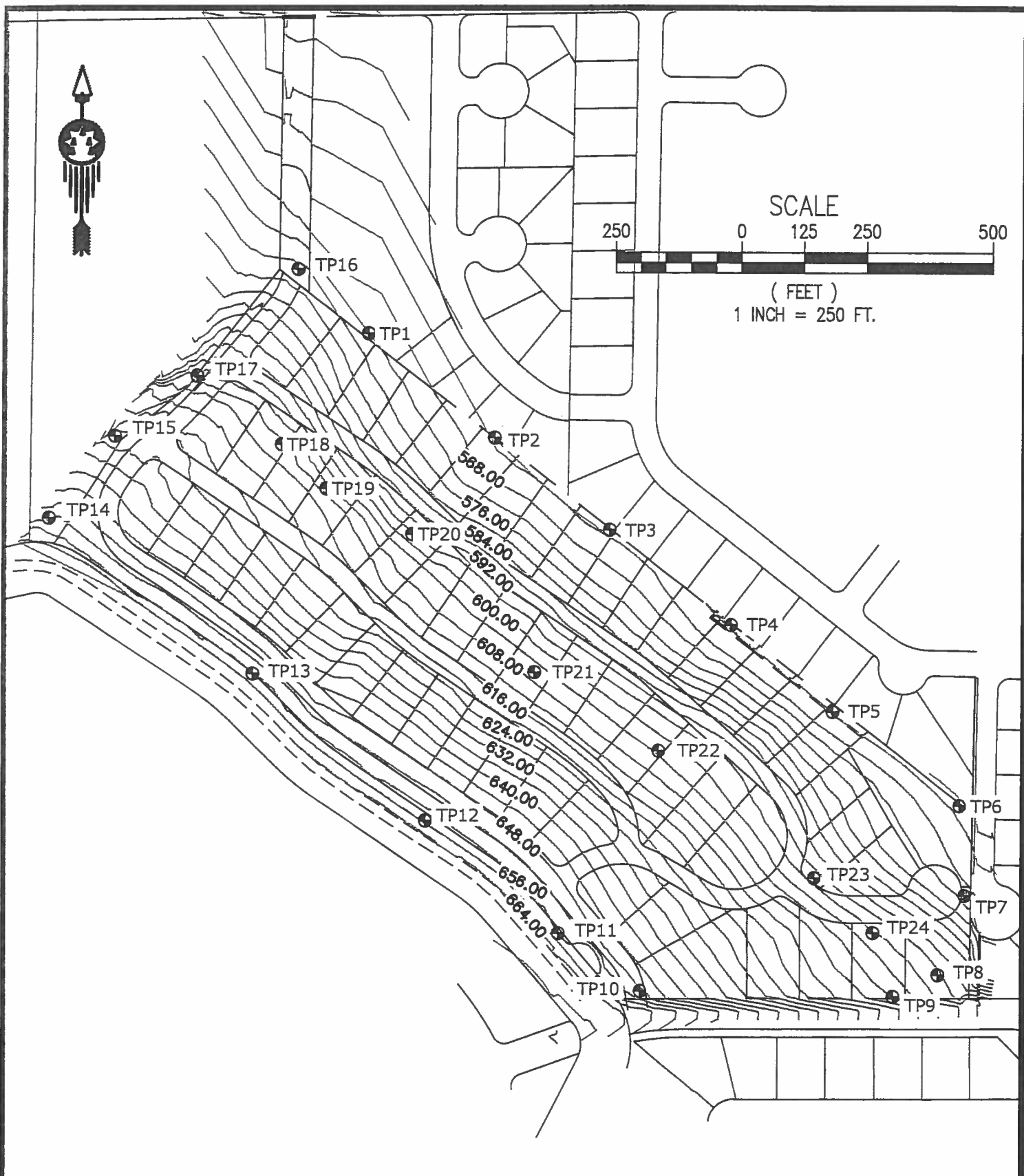
Figure 3: Geologic Cross-Section of the Pasco Basin



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JOLIANNA HEIGHTS

FIGURE 1 : SITE LOCATION MAP

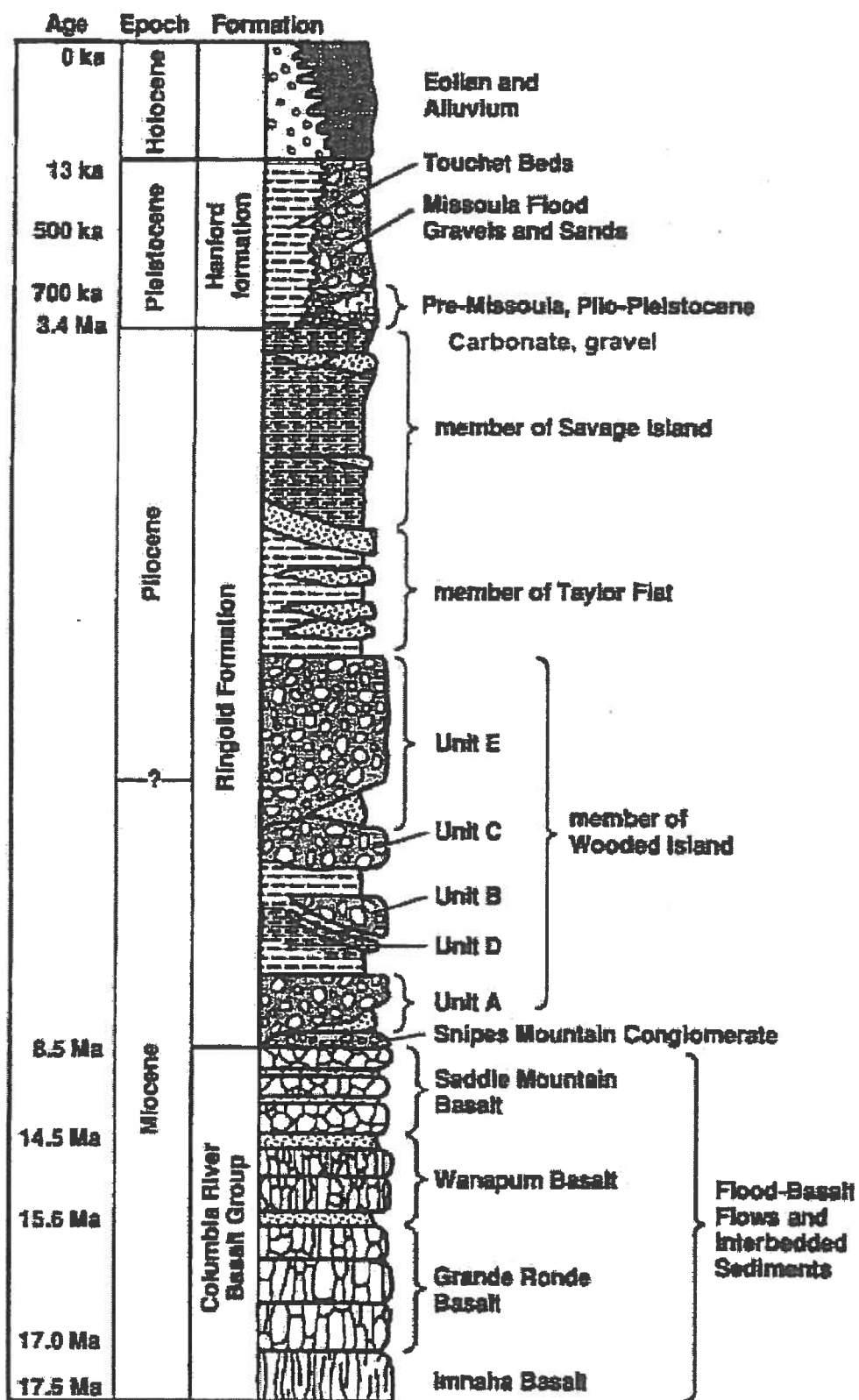


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JOLIANNA HEIGHTS

FIGURE 2 : SITE EXPLORATION/TOPOGRAPHIC MAP



REFERENCE: KEVIN LINDSEY, 1996

APPENDIX B

Soil Classification and Log Key
Test Pit Logs TP-1 through TP-24
Infiltration Test Plot
Seven Sieve Analyses



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SOIL CLASSIFICATION AND LOG KEY

White Shield, Inc. (WSI) uses a soil classification system modified from the Unified Soil Classification System (USCS). Elements of the USCS and other definitions are provided on this page. Soil descriptions are based on visual-manual procedures (ASTM D 2488-93) unless otherwise noted.

MATERIAL GRAPHICS



ASH

BOULDERS

CALICHE

CARBONATE

CLAY

COBBLES

CONGLOMERATE

GRAVEL

ORGANICS

PEAT

SAND

SAND (BLACK)

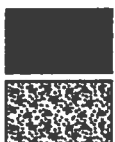
SAND/SILT

SILT

SLOUGH

TOPSOIL

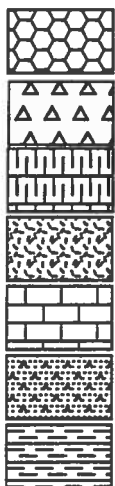
OTHER SYMBOLS



ASPHALT

CONCRETE

ROCK GRAPHICS



BASALT

BEDROCK

IGNEOUS

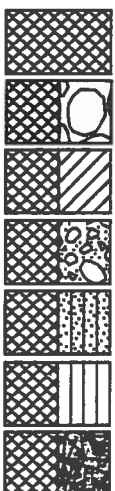
INTRUSIVE ROCK

LIMESTONE

MEDIMORPHIC ROCK

SEDIMENTARY ROCK

FILL



FILL

FILL/BOULDERY

FILL/CLAYEY

FILL/GRAVELLY

FILL/SANDY/SILTY

FILL/SILTY

FILL/TRASH

WELL GRAPHICS



BENTONITE GROUT

BENTONITE

CONCRETE

PVC CAP

SILICA SAND

SLOUGH/NATIVE/CAVE-IN

WSI CLASSIFICATION OF SOIL CONSTITUENTS

- Major constituents compose more than 50 percent by weight of the soil. Major constituent is capitalized ("SAND").
- Minor constituents compose 12 to 50 percent of the soil and precede the major constituent ("silty" SAND). Minor constituent preceded by "slightly" compose 5 to 12 percent of the soil ("slightly" silty SAND).
- Trace constituents compose 0 to 5 percent of the soil (slightly silty SAND, "trace" of gravel).

MOISTURE CONTENT DEFINITIONS

Dry	Absence of moisture, dusty, dry to the touch
Damp	Slight moisture
Moist	Obvious moisture but no visible water
Wet	Visible free water, usually below water table

GRAIN SIZE DEFINITIONS

Description	Sieve Size
FINES	< #200 (0.8 mm)
SAND*	
- Fine	#200 - #40 (0.4 mm)
- Medium	#40 - #10 (2 mm)
- Coarse	#10 - #4 (5 mm)
GRAVEL*	
- Fine	#4 - 3/4 inch
- Coarse	3/4 - 3 inches
COBBLES	3 - 12 inches
BOULDERS	> 12 inches

RELATIVE DENSITY/CONSISTENCY

Coarse-Grain Soil		Fine-Grain Soil	
N, SPT Blows/FL	Relative Density	N, SPT Blows/FL	Relative Density
0 - 4	Very loose	<2	Very soft
4 - 10	Loose	2 - 4	Soft
10 - 30	Medium dense	4 - 8	Medium stiff
30 - 50	Dense	8 - 15	Stiff
Over 50	Very dense	15 - 30	Very stiff
		Over 30	Hard

ABBREVIATIONS

AMSL Above Mean Sea Level	IN Inch(s)	RES Resilient Modulus
ATD At Time of Drilling	kPa KiloPascal	SIEV Sieve
ATT Atterberg	LBS Pounds	SP Static Penetrometer
BGS Below the Ground Surface	LL Liquid Limit	SPT Standard Penetration Test
CBR California Bearing Ratio	MON Monument	SS Split-Spoon Sampler
CON Consolidation	N Blows Last two 6" increments	TOR Torvane
DCP Dynamic Cone Penetrometer	NA Not Applicable/Not Available	UC Unconfined Compression
DD Dry Density	OC Organic Content	USC Unified Soil Classification
DS Direct Shear	OD Outside Diameter	VS Vane Shear
ELE Elevation	OVA Organic Vapor Analyzer	WLJ Water Level Indicator
FT Foot/Feet	P200 Percent Passing No. 220 Sieve	
GPS Global Positioning System	PI Plasticity Index	
HCL Hydrochloric Acid	PID Photoionization Detector	
HSA Hollow-Stem Auger	PL Plasticity Limit	
HCL Hydrochloric Acid	PP Pocket Penetrometer	
HYD Hydrometer Gradation	PPM Part Per Million	
ID Inside Diameter	PVC Polyvinyl Chloride	



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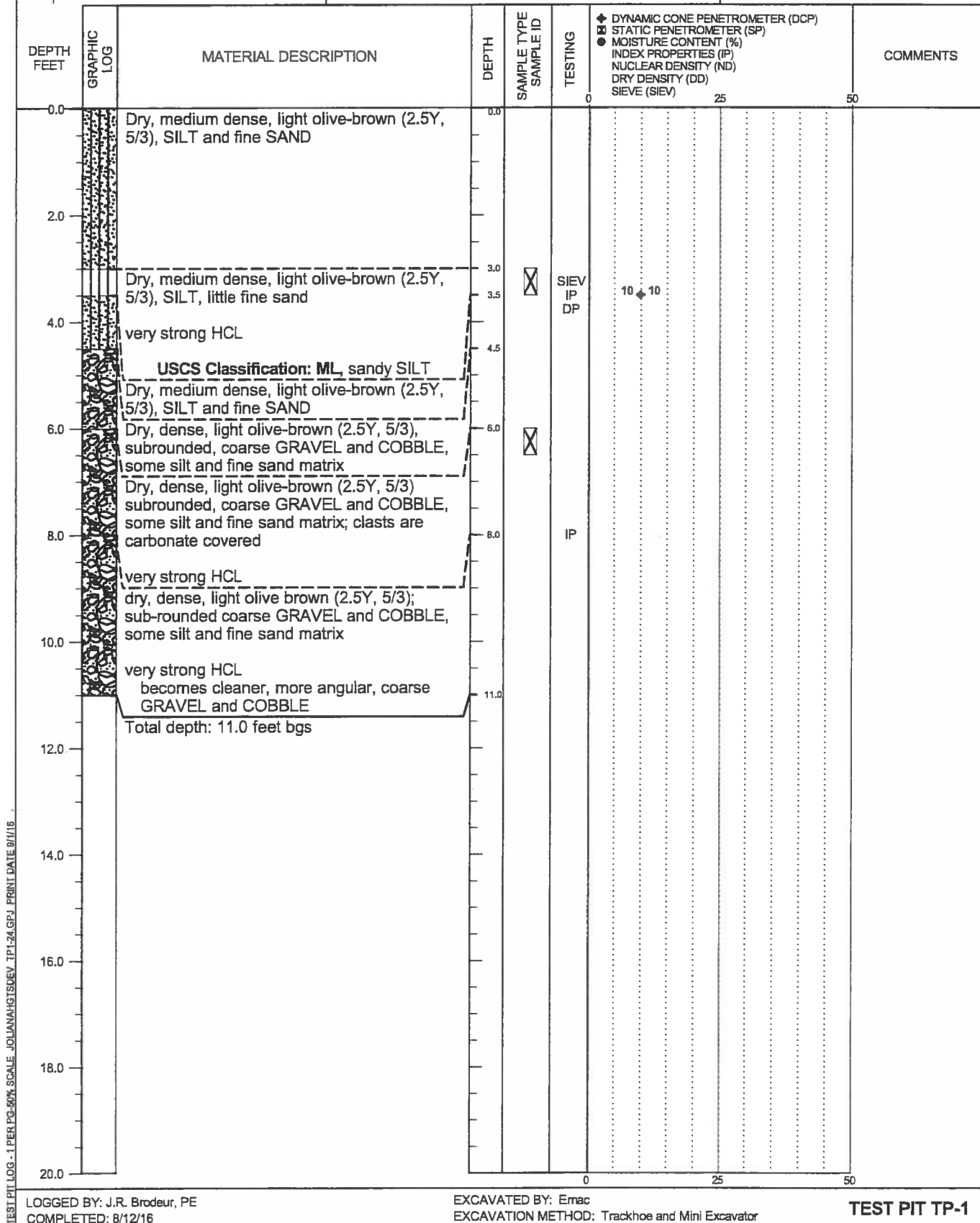
JOLIANNA HEIGHTS DEVELOPMENT
RICHLAND, WASHINGTON

WSI PROJECT NUMBER:
116-073-01

FIGURE TP-1

Page 1 of 1

APPROX. TEST PIT TP-1 LOCATION:
Lat: 46° 14.418' N Long: 119° 18.038' W
See Site Exploration Map, Figure 2





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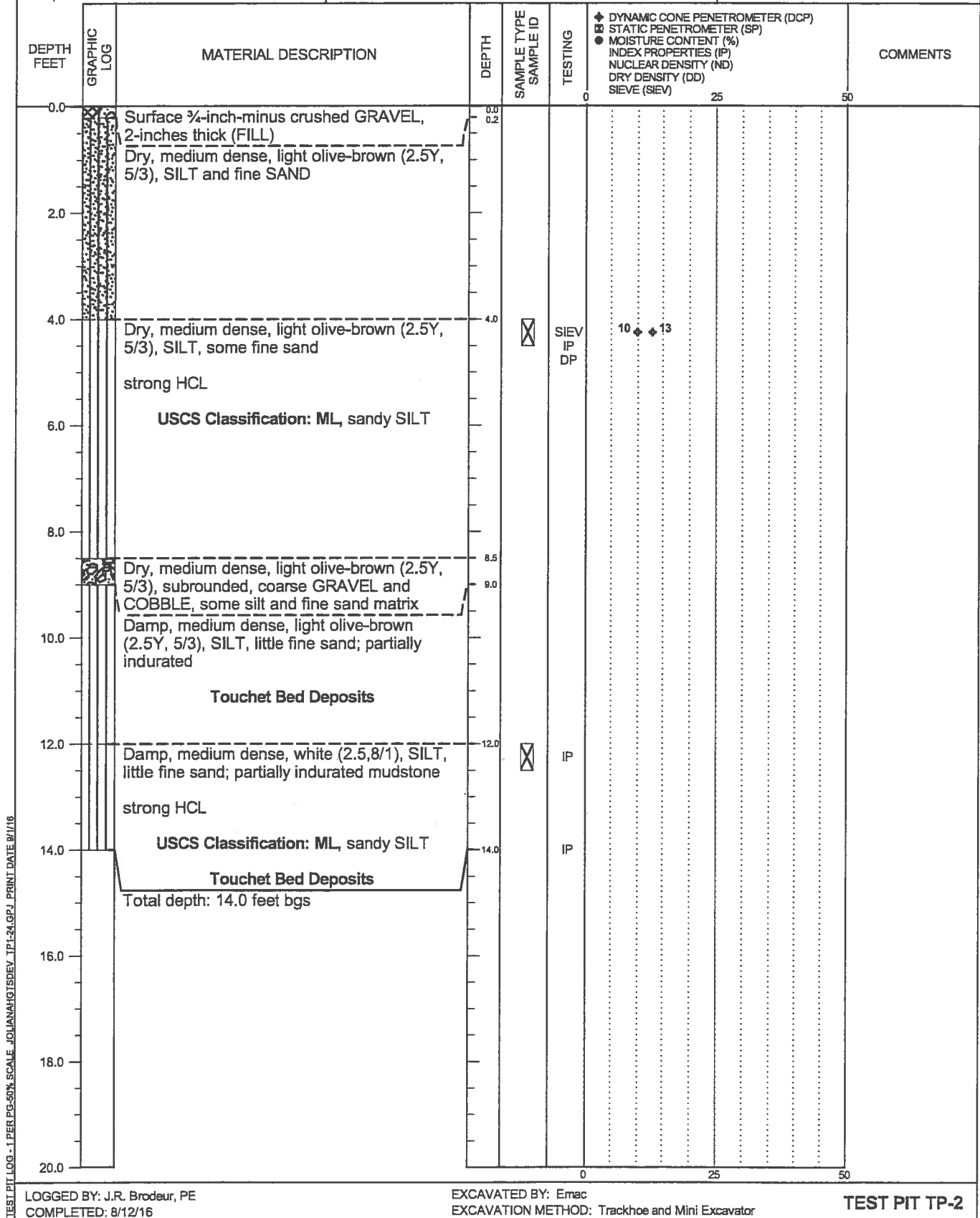
JOLIANNA HEIGHTS DEVELOPMENT
RICHLAND, WASHINGTON

WSI PROJECT NUMBER:
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FIGURE TP-2

Page 1 of 1

APPROX. TEST PIT TP-2 LOCATION:
Lat: 46° 14.386' N Long: 119° 17.98' W
See Site Exploration Map, Figure 2





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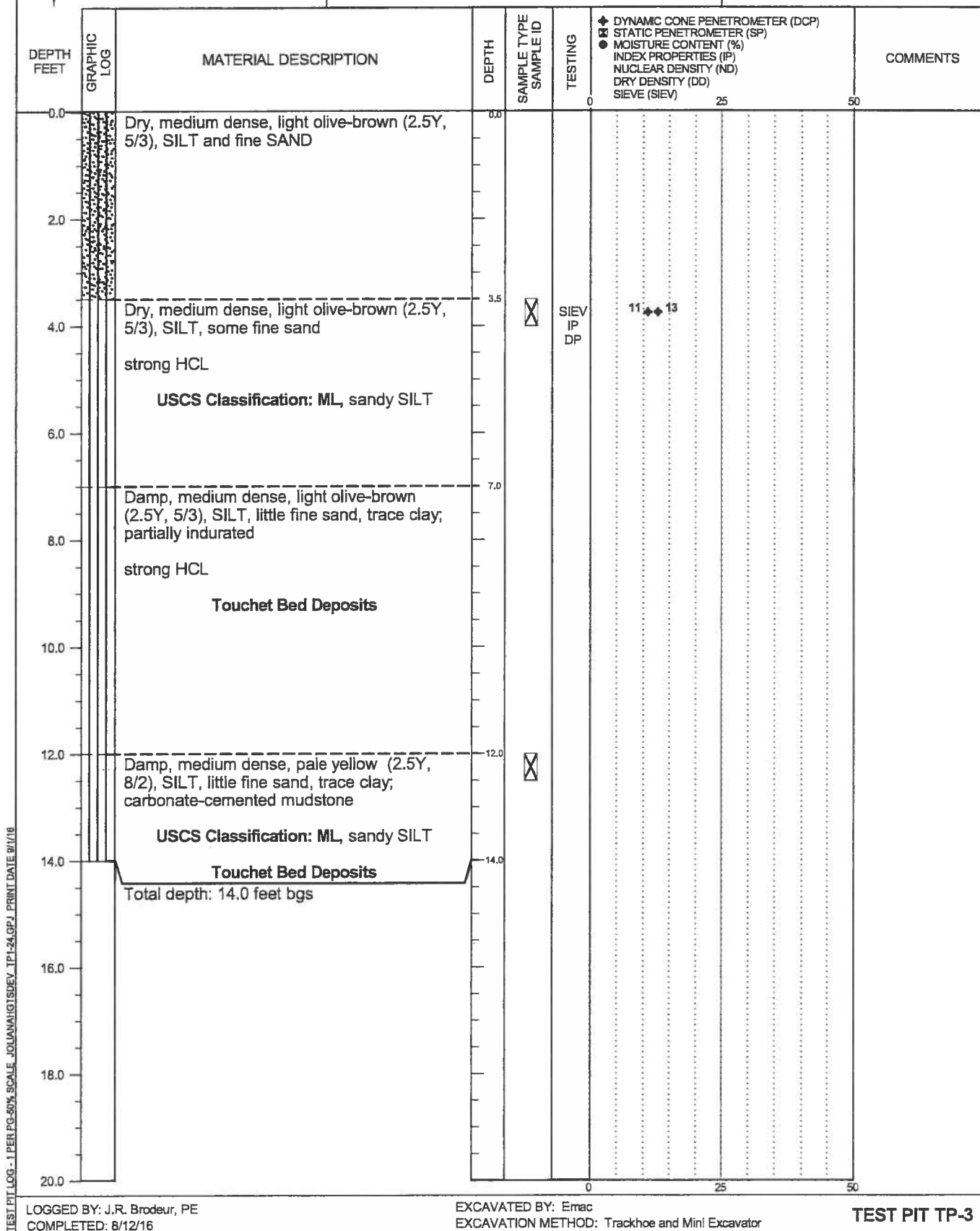
JOLIANNIA HEIGHTS DEVELOPMENT
RICHLAND, WASHINGTON

WSI PROJECT NUMBER:
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FIGURE TP-3

Page 1 of 1

APPROX. TEST PIT TP-3 LOCATION:
Lat: 46° 14.356' N Long: 119° 17.925' W
See Site Exploration Map, Figure 2





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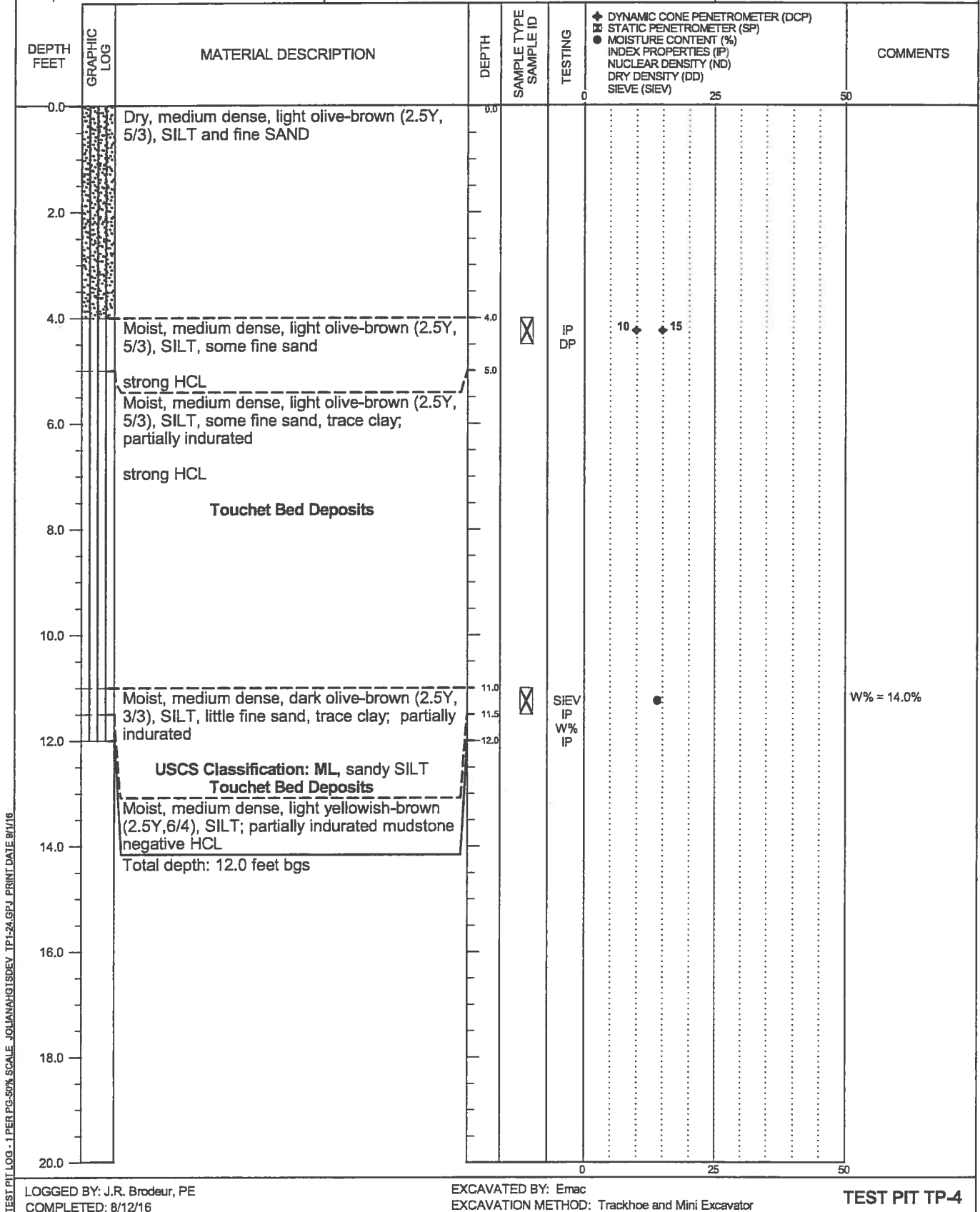
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FIGURE TP-4

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APPROX. TEST PIT TP-4 LOCATION:
Lat: 46° 14.325' N Long: 119° 17.868' W
See Site Exploration Map, Figure 2



TEST PIT LOG - 1 PER PG-50% SCALE, JOLIANNAGTSDEV, TP1-24.GPJ, PRINT DATE 9/1/16

LOGGED BY: J.R. Brodeur, PE
COMPLETED: 8/12/16

EXCAVATED BY: Emac
EXCAVATION METHOD: Trackhoe and Mini Excavator

TEST PIT TP-4



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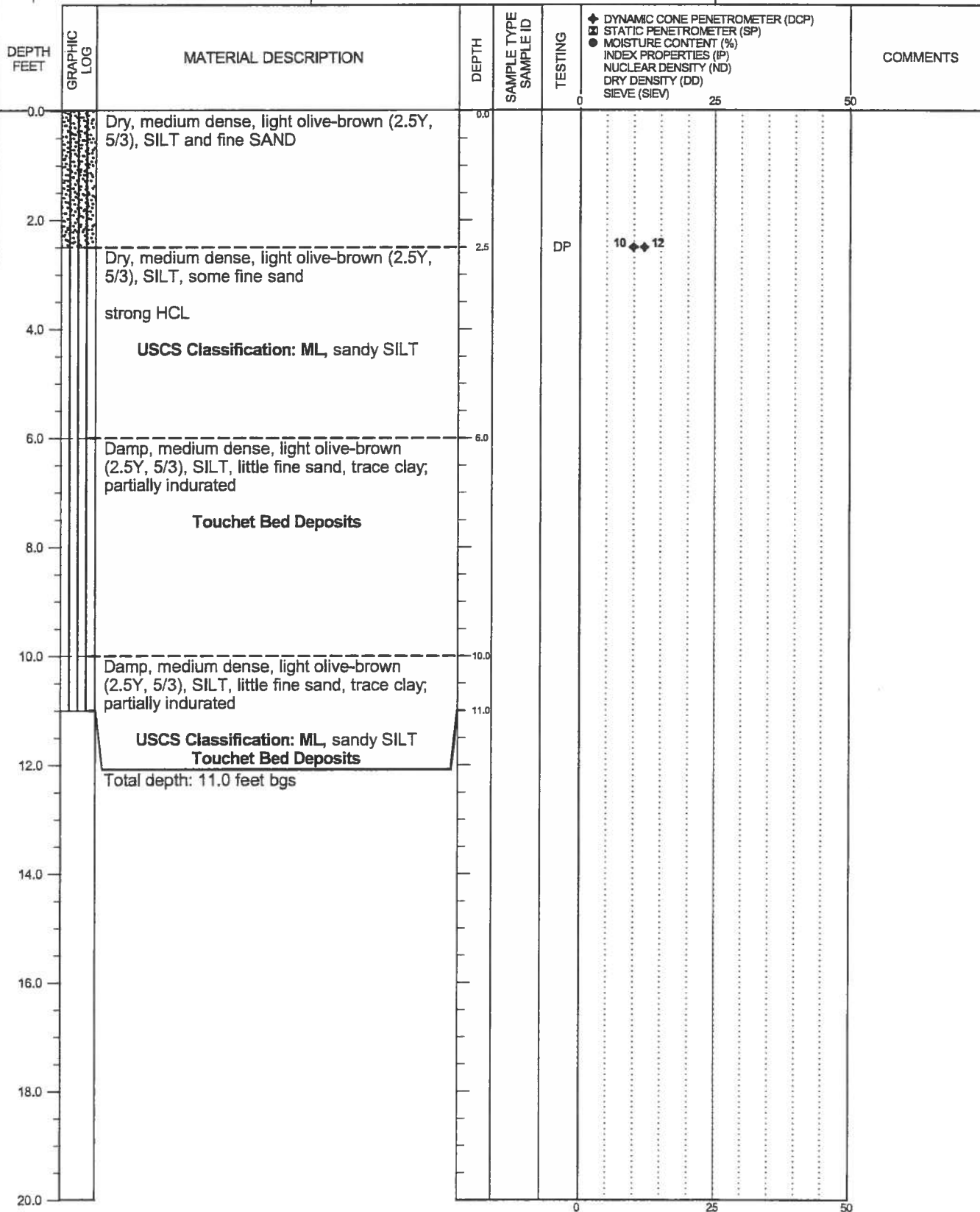
JOLIENNA HEIGHTS DEVELOPMENT
RICHLAND, WASHINGTON

WSI PROJECT NUMBER:
116-073-01

FIGURE TP-5

Page 1 of 1

APPROX. TEST PIT TP-5 LOCATION:
Lat: 46° 14.297' N Long: 119° 17.818' W
See Site Exploration Map, Figure 2



TEST PIT LOG - 1 PER PG-50% SCALE, JOLIENNA HEIGHTS DEV, TP-5, GPJ, PRINT DATE 8/11/16

LOGGED BY: J.R. Brodeur, PE
COMPLETED: 8/12/16

EXCAVATED BY: Emac
EXCAVATION METHOD: Trackhoe and Mini Excavator

TEST PIT TP-5



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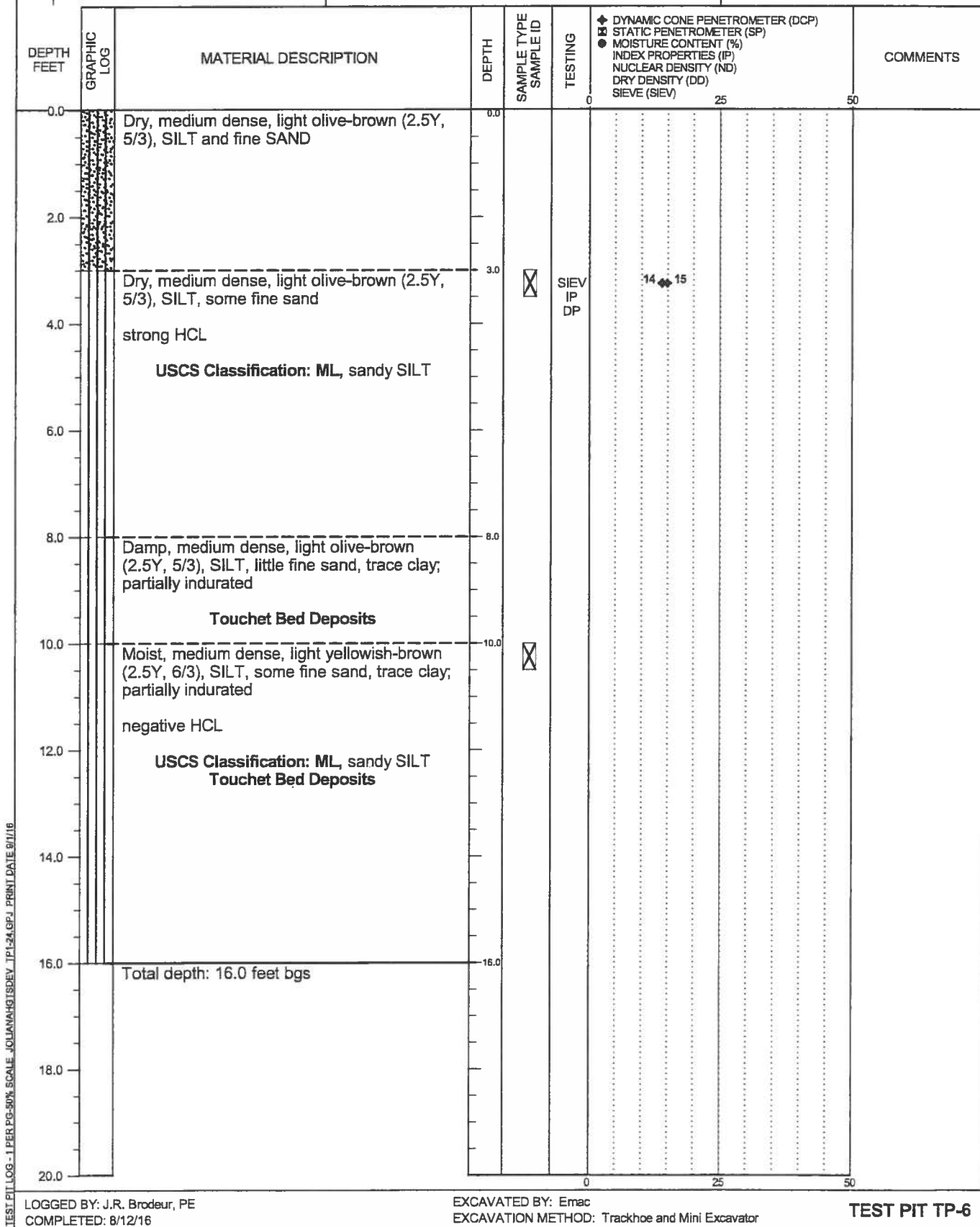
JOLIANNA HEIGHTS DEVELOPMENT
RICHLAND, WASHINGTON

WSI PROJECT NUMBER:
116-073-01

FIGURE TP-6

Page 1 of 1

APPROX. TEST PIT TP-6 LOCATION:
Lat: 46° 14.266' N Long: 119° 17.759' W
See Site Exploration Map, Figure 2





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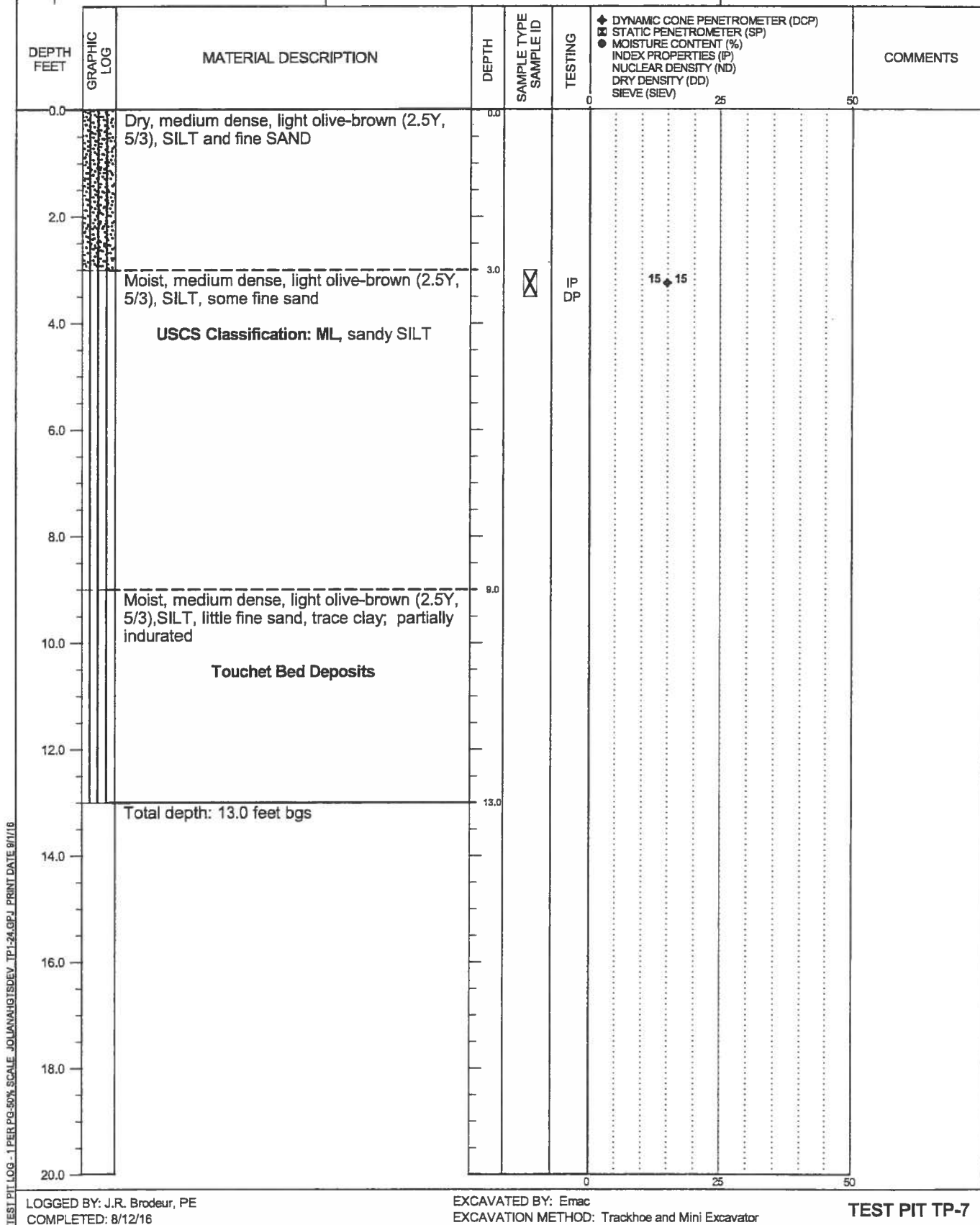
JOLIANNA HEIGHTS DEVELOPMENT
RICHLAND, WASHINGTON

WSI PROJECT NUMBER:
116-073-01

FIGURE TP-7

Page 1 of 1

APPROX. TEST PIT TP-7 LOCATION:
Lat 46° 14.237' N Long: 119° 17.757' W
See Site Exploration Map, Figure 2





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FIGURE TP-8

Page 1 of 1

APPROX. TEST PIT TP-8 LOCATION:
Lat: 46° 14.212' N Long: 119° 17.77' W
See Site Exploration Map, Figure 2

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH	SAMPLE TYPE SAMPLE ID	TESTING	◆ DYNAMIC CONE PENETROMETER (DCP) ⊠ STATIC PENETROMETER (SP) ● MOISTURE CONTENT (%) ● INDEX PROPERTIES (IP) ● NUCLEAR DENSITY (ND) ● DRY DENSITY (DD) ● SIEVE (SIEV)	COMMENTS
0.0		Dry, medium dense, light olive-brown (2.5Y, 5/3), SILT and fine SAND	0.0		0	25	50
2.0		Dry, dense, light olive-brown (2.5Y, 5/3), subrounded, coarse GRAVEL and COBBLE, some silt and fine sand matrix; clasts are carbonate covered becomes very dense	2.0				
4.0		Total depth: 3.0 feet bgs	3.0				Hard digging at 3.0 feet bgs
6.0							
8.0							
10.0							
12.0							
14.0							
16.0							
18.0							
20.0							

TEST PIT LOG - 1 PER PG-50% SCALE, JOLIANNAGTSDEV, TP1-24.GPJ, PRINT DATE 8/11/16

LOGGED BY: J.R. Brodeur, PE
COMPLETED: 8/12/16

EXCAVATED BY: Emac
EXCAVATION METHOD: Trackhoe and Mini Excavator

TEST PIT TP-8



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WSI PROJECT NUMBER:
116-073-01

FIGURE TP-9

Page 1 of 1

APPROX. TEST PIT TP-9 LOCATION:
Lat: 46° 14.206' N Long: 119° 187.792' W
See Site Exploration Map, Figure 2

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH	SAMPLE TYPE SAMPLE ID	TESTING	0	25	50	COMMENTS
0.0		Dry, medium dense, light olive-brown (2.5Y, 5/3), SILT and fine SAND	0.0						
2.0									
4.0									
6.0		Dry, dense, light olive-brown (2.5Y, 5/3), subrounded, coarse COBBLE and GRAVEL, little silt and fine sand; clasts are carbonate covered	6.0						
7.0		becomes very dense	7.0						
8.0		Total depth: 7.0 feet bgs							
10.0									
12.0									
14.0									
16.0									
18.0									
20.0									

TEST PIT LOG - 1 PER PG-50% SCALE - JOLIANNHEIGHTSDEV_TP1-24.GPJ PRINT DATE 8/11/16



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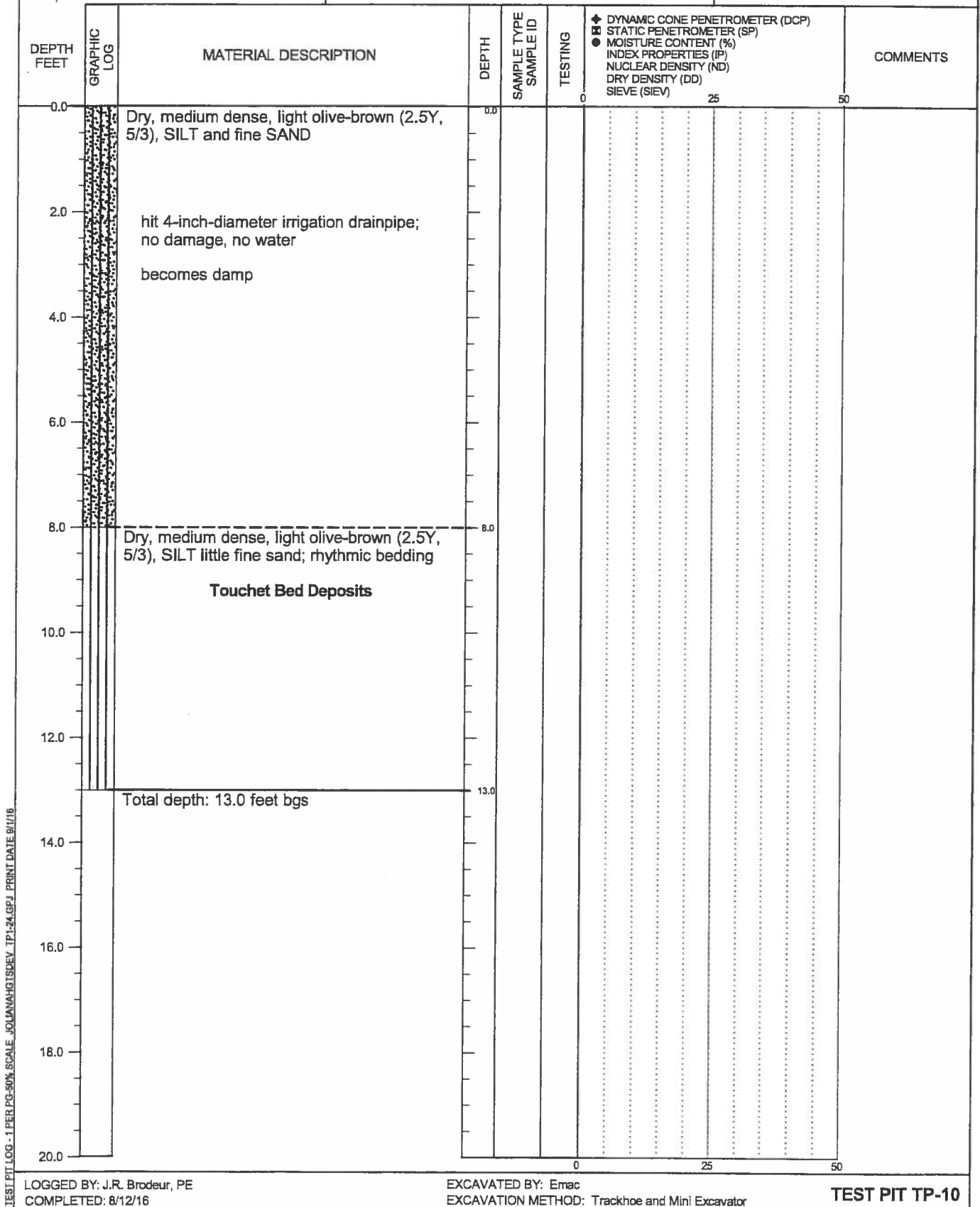
JOLIANNNA HEIGHTS DEVELOPMENT
RICHLAND, WASHINGTON

WSI PROJECT NUMBER:
116-073-01

FIGURE TP-10

Page 1 of 1

APPROX. TEST PIT TP-10 LOCATION:
Lat: 46° 14.209' N Long: 119° 17.909' W
See Site Exploration Map, Figure 2





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FIGURE TP-11

Page 1 of 1

APPROX. TEST PIT TP-11 LOCATION:
Lat: 46° 14.227' N Long: 119° 17.947' W
See Site Exploration Map, Figure 2

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH	SAMPLE TYPE SAMPLE ID	TESTING	◆ DYNAMIC CONE PENETROMETER (DCP) ■ STATIC PENETROMETER (SP) ● MOISTURE CONTENT (%) INDEX PROPERTIES (IP) NUCLEAR DENSITY (ND) DRY DENSITY (DD) SIEVE (SIEV)	COMMENTS
0.0		Dry, medium dense, light olive-brown (2.5Y, 5/3), SILT and fine SAND	0.0		0	25	50
2.0							
4.0		Dry, medium dense, light olive-brown (2.5Y, 5/3), SILT, little fine sand, trace clay; mudstone partially indurated	4.0				
6.0		Touchet Bed Deposits					
8.0							
10.0							
11.0		Total depth: 11.0 feet bgs	11.0				
12.0							
14.0							
16.0							
18.0							
20.0							

TEST PIT LOG - 1 PER PG-50% SCALE JOLIANN HEIGHTS DEV TP-11-24.GPJ PRINT DATE 8/1/16

LOGGED BY: J.R. Brodeur, PE
COMPLETED: 8/12/16

EXCAVATED BY: Emac
EXCAVATION METHOD: Trackhoe and Mini Excavator

TEST PIT TP-11



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116-073-01

FIGURE TP-12

Page 1 of 1

APPROX. TEST PIT TP-12 LOCATION:
Lat: 46° 14.263' N Long: 119° 18.008' W
See Site Exploration Map, Figure 2

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH	SAMPLE TYPE SAMPLE ID	TESTING	◆ DYNAMIC CONE PENETROMETER (DCP) ■ STATIC PENETROMETER (SP) ● MOISTURE CONTENT (%) ● INDEX PROPERTIES (IP) ● NUCLEAR DENSITY (ND) ● DRY DENSITY (DD) ● SIEVE (SIEV)	COMMENTS
0.0		Dry, medium dense, light olive-brown (2.5Y, 5/3), SILT and fine SAND	0.0			0 25 50	
2.0			2.5	⊗	SIEV IP		
4.0		Dry, medium dense, light olive-brown (2.5Y, 5/3), SILT and fine SAND, trace clay; partially indurated	4.5	⊗	IP		
6.0		Damp, medium dense, dark grayish-brown (2.5Y, 4/2), coarse to fine SAND and SILT, trace clay; sticky when wet	6.0				
		Total depth: 6.0 feet bgs					
8.0							
10.0							
12.0							
14.0							
16.0							
18.0							
20.0							

TEST PIT LOG - 1 PER PG-50X SCALE - JOLIANNIA HEIGHTS DEV. TP-12.GPJ PRINT DATE 9/1/16

LOGGED BY: J.R. Brodeur, PE
COMPLETED: 8/12/16

EXCAVATED BY: Emac
EXCAVATION METHOD: Trackhoe and Mini Excavator

TEST PIT TP-12



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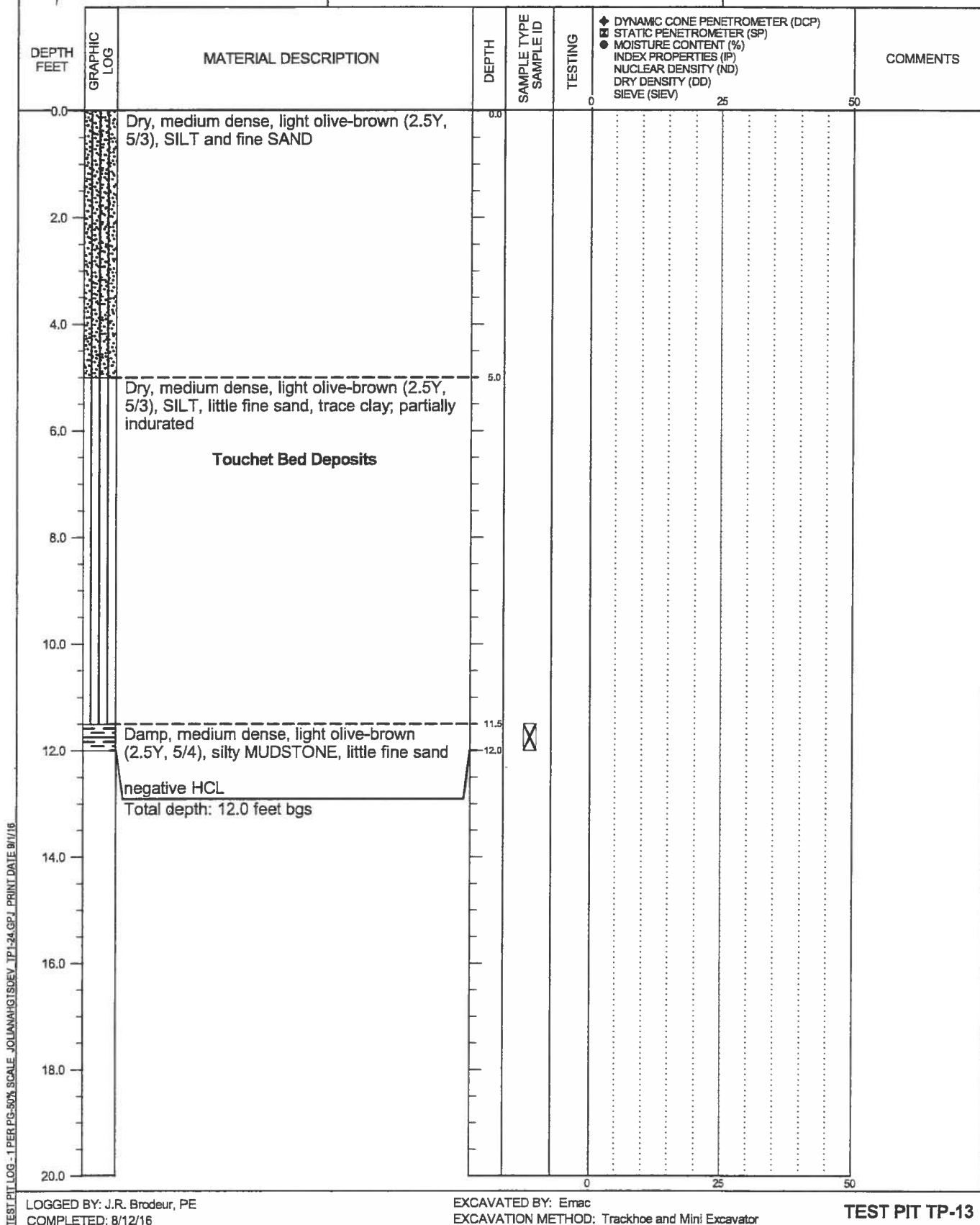
JOLIANN HEIGHTS DEVELOPMENT
RICHLAND, WASHINGTON

WSI PROJECT NUMBER:
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FIGURE TP-13

Page 1 of 1

APPROX. TEST PIT TP-13 LOCATION:
Lat: 46° 14.308' N Long: 119° 18.088' W
See Site Exploration Map, Figure 2





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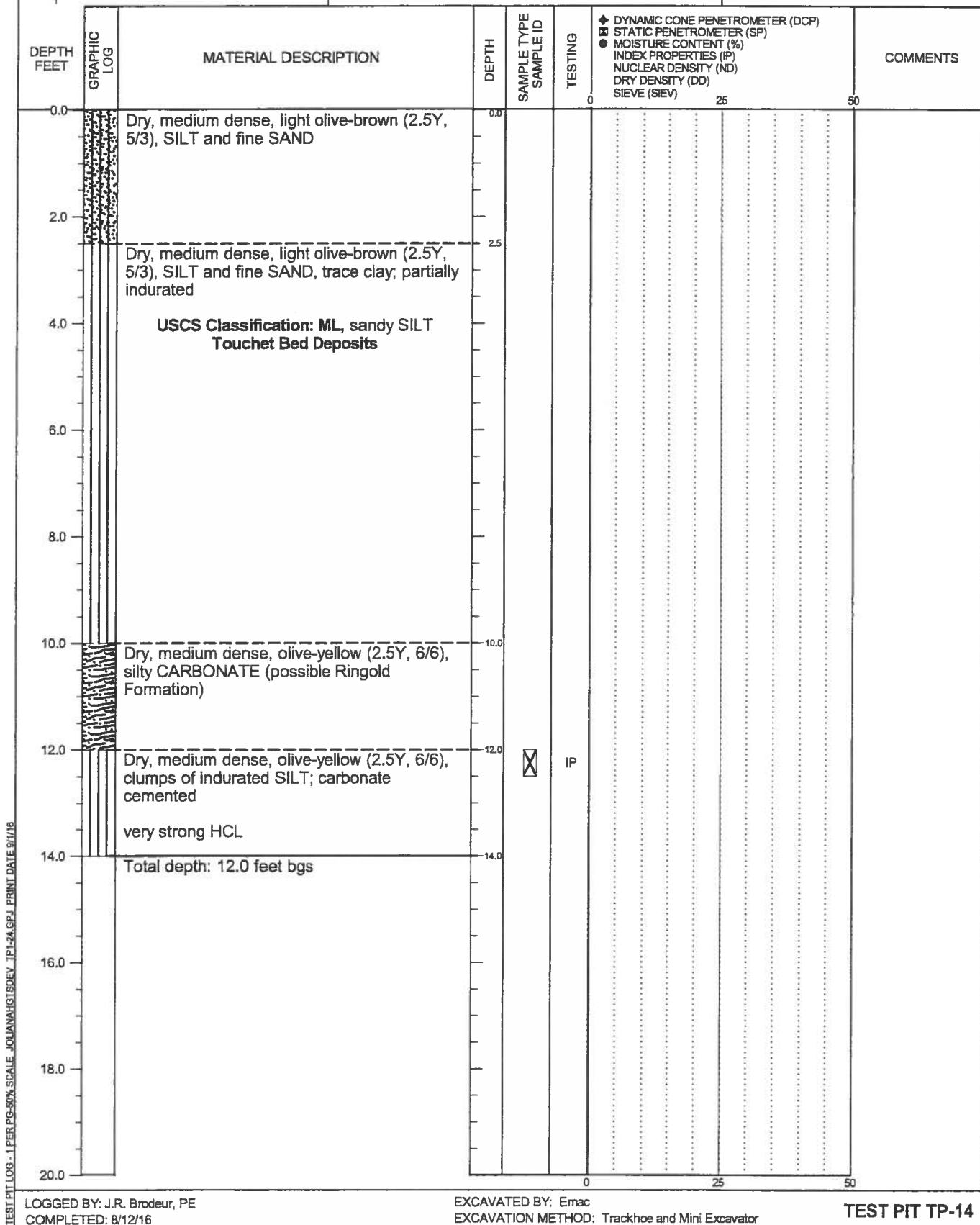
JOLIANNA HEIGHTS DEVELOPMENT
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FIGURE TP-14

Page 1 of 1

APPROX. TEST PIT TP-14 LOCATION:
Lat: 46° 14.358' N Long: 119° 18.18' W
See Site Exploration Map, Figure 2





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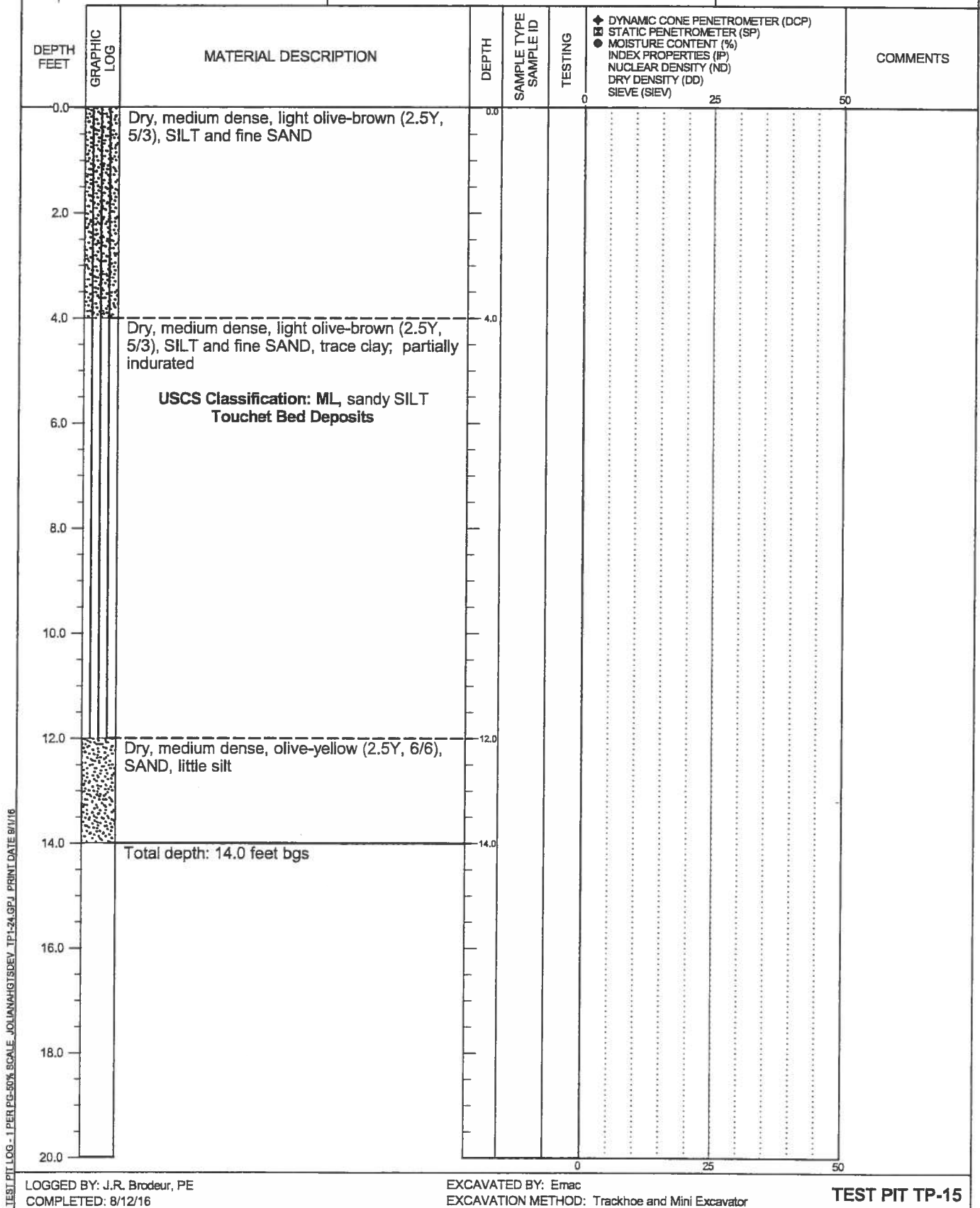
JOLIANN HEIGHTS DEVELOPMENT
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116-073-01

FIGURE TP-15

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APPROX. TEST PIT TP-15 LOCATION:
Lat: 46° 14.386' N Long: W119° 18.152' W
See Site Exploration Map, Figure 2





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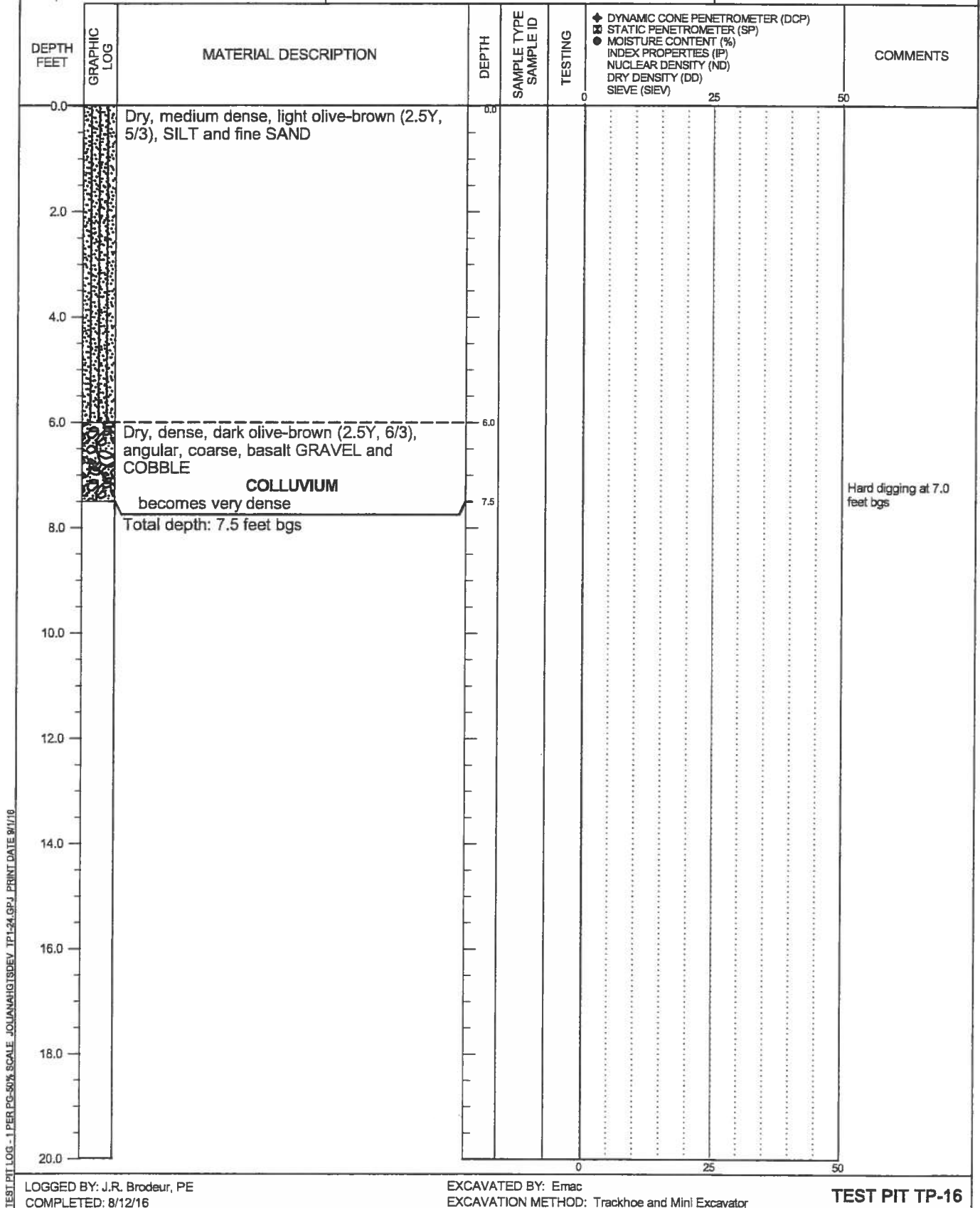
JOLIANNA HEIGHTS DEVELOPMENT
RICHLAND, WASHINGTON

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FIGURE TP-16

Page 1 of 1

APPROX. TEST PIT TP-16 LOCATION:
Lat: 46° 14.438' N Long: 119° 18.072' W
See Site Exploration Map, Figure 2





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FIGURE TP-17

Page 1 of 1

APPROX. TEST PIT TP-17 LOCATION:
Lat: 46° 14.403' N Long: 119° 18.117' W
See Site Exploration Map, Figure 2

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH	SAMPLE TYPE SAMPLE ID	TESTING	◆ DYNAMIC CONE PENETROMETER (DCP) ■ STATIC PENETROMETER (SP) ● MOISTURE CONTENT (%) ● INDEX PROPERTIES (IP) ● NUCLEAR DENSITY (ND) ● DRY DENSITY (DD) ● SIEVE (SIEV)	COMMENTS
0.0		Dry, medium dense, light olive-brown (2.5Y, 5/3), SILT and fine SAND	0.0		0	25	50
2.0		Dry, dense, dark olive-brown (2.5Y, 6/3), angular, coarse, basalt GRAVEL and COBBLE, carbonate stained	2.0				
4.0		COLLUVIUM carbonate band, 1½ foot thick, in GRAVEL and COBBLE					
6.0		carbonate stained					
7.0		Total depth: 7.0 feet bgs	7.0				
8.0							
10.0							
12.0							
14.0							
16.0							
18.0							
20.0							

TEST PIT LOG - 1 PER PG-50% SCALE JOLIANNAGHSDEV TP-17-24.GPJ PRINT DATE 9/11/16

LOGGED BY: J.R. Brodeur, PE
COMPLETED: 8/12/16

EXCAVATED BY: Emac
EXCAVATION METHOD: Trackhoe and Mini Excavator

TEST PIT TP-17



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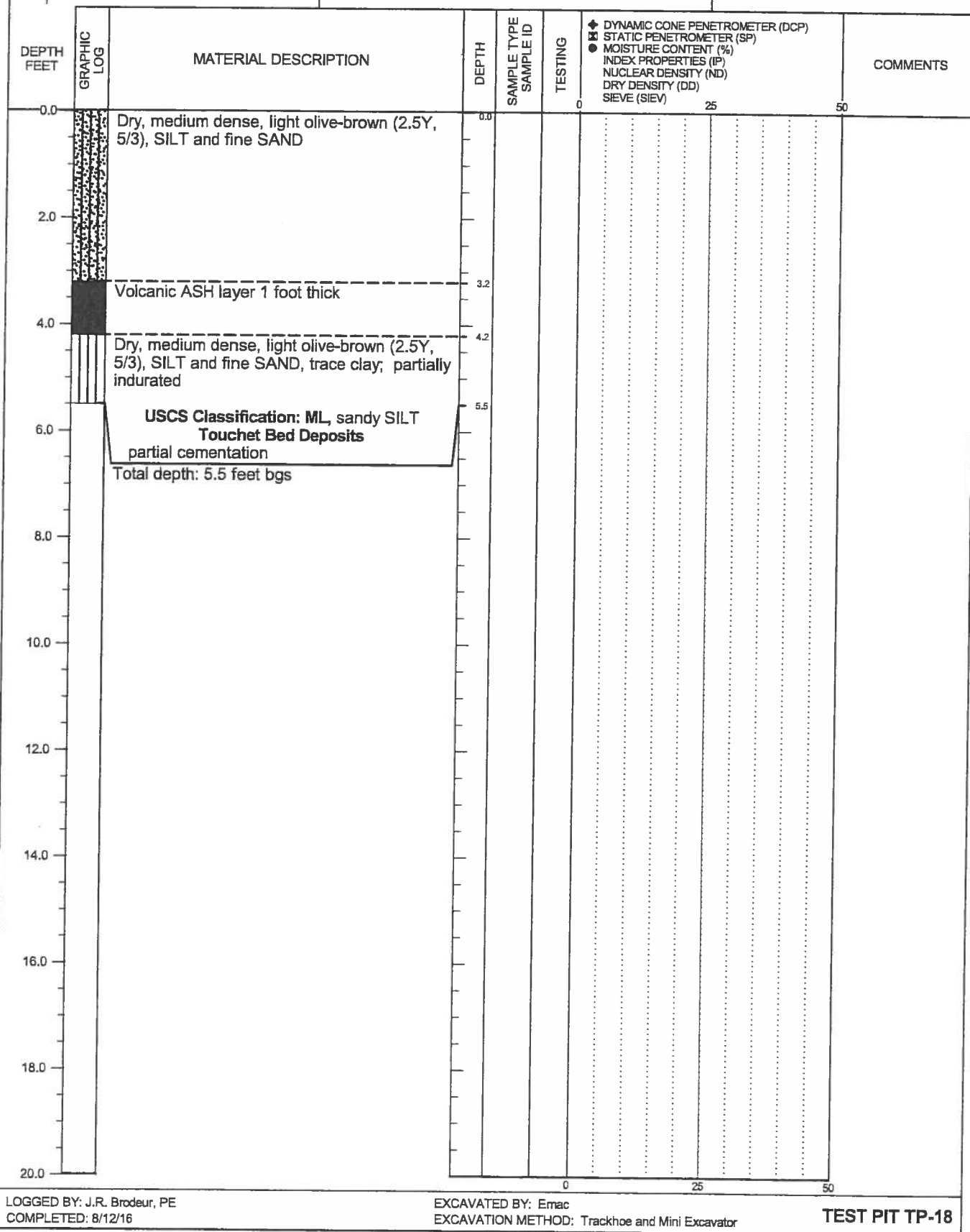
JOLIANNNA HEIGHTS DEVELOPMENT
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FIGURE TP-18

Page 1 of 1

APPROX. TEST PIT TP-18 LOCATION:
Lat: 46° 14.38' N Long: 119° 18.082' W
See Site Exploration Map, Figure 2





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FIGURE TP-19

Page 1 of 1

APPROX. TEST PIT TP-19 LOCATION:
Lat: 46° 14.367' N Long: 119° 18.06' W
See Site Exploration Map, Figure 2

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH	SAMPLE TYPE SAMPLE ID	TESTING	◆ DYNAMIC CONE PENETROMETER (DCP) ● STATIC PENETROMETER (SP) ● MOISTURE CONTENT (%) ● INDEX PROPERTIES (IP) ● NUCLEAR DENSITY (ND) ● DRY DENSITY (DD) ● SIEVE (SIEV)	COMMENTS
0.0		Dry, medium dense, light olive-brown (2.5Y, 5/3), SILT and fine SAND	0.0		0	25	50
2.0		Dry, medium dense, light olive-brown (2.5Y, 5/3), SILT and fine SAND, trace clay; partially indurated	1.0				
		USCS Classification: ML, sandy SILT Touchet Bed Deposits					
4.0		Dry, medium dense, white to pale yellow, fine SAND (possible Ringold Formation)	4.0				
		Total depth: 5.0 feet bgs	5.0				
6.0							
8.0							
10.0							
12.0							
14.0							
16.0							
18.0							
20.0							

TEST PIT LOG - 1 PER PG-50% SCALE JOLIANNH91SD0V TP-19.GPJ PRINT DATE 8/17/16

LOGGED BY: J.R. Brodeur, PE
COMPLETED: 8/12/16

EXCAVATED BY: Emac
EXCAVATION METHOD: Trackhoe and Mini Excavator

TEST PIT TP-19



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FIGURE TP-20

Page 1 of 1

APPROX. TEST PIT TP-20 LOCATION:
Lat 46° 14.351' N Long: 119° 18.022' W
See Site Exploration Map, Figure 2

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH	SAMPLE TYPE SAMPLE ID	TESTING	◆ DYNAMIC CONE PENETROMETER (DCP) ■ STATIC PENETROMETER (SP) ● MOISTURE CONTENT (%) ● INDEX PROPERTIES (IP) ● NUCLEAR DENSITY (ND) ● DRY DENSITY (DD) ● SIEVE (SIEV)	COMMENTS
0.0		Dry, medium dense, light olive-brown (2.5Y, 5/3), SILT and fine SAND	0.0			0 25 50	
2.0		Dry, white, volcanic ASH and GRAVEL and fine SAND	1.5				
		Dry, medium dense, dark olive-brown (2.5Y, 6/3), subrounded, COBBLE, coarse GRAVEL, some SILT and trace fine sand	2.0	⊗	IP		
4.0			5.0				
6.0		Dry, white, fine SAND; partially cemented chunks of soil with carbonate cementation (possible Ringold Formation)	6.0				
		Total depth: 7.0 feet bgs	7.0				
8.0							
10.0							
12.0							
14.0							
16.0							
18.0							
20.0							

TEST PIT LOG - 1 PER PG-50% SCALE JOLIANN HEIGHTS DEV. TP-20.GPJ PRINT DATE 8/11/16

LOGGED BY: J.R. Brodeur, PE
COMPLETED: 8/12/16

EXCAVATED BY: Emac
EXCAVATION METHOD: Trackhoe and Mini Excavator

TEST PIT TP-20



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FIGURE TP-21

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APPROX. TEST PIT TP-21 LOCATION:
Lat: 46° 14.31' N Long: 119° 17.957' W
See Site Exploration Map, Figure 2

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH	SAMPLE TYPE SAMPLE ID	TESTING	0	25	50	COMMENTS
0.0		Dry, medium dense, light olive-brown (2.5Y, 5/3), SILT and fine SAND	0.0						
2.0		becomes grayish-brown	2.5						
		Total depth: 2.5 feet bgs due to presence of 3-inch-diameter metal pipe							
4.0									
6.0									
8.0									
10.0									
12.0									
14.0									
16.0									
18.0									
20.0									

TEST PIT LOG - 1 PER PG-50% SCALE JOLIANNHTSDEV.TPJ-24.GPJ PRINT DATE 8/1/16

LOGGED BY: J.R. Brodeur, PE
COMPLETED: 8/12/16

EXCAVATED BY: Emac
EXCAVATION METHOD: Trackhoe and Mini Excavator

TEST PIT TP-21



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FIGURE TP-22

Page 1 of 1

APPROX. TEST PIT TP-22 LOCATION:
Lat: 46° 14.284' N Long: 119° 17.901' W
See Site Exploration Map, Figure 2

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH	SAMPLE TYPE SAMPLE ID	TESTING	COMMENTS
0.0		Dry, medium dense, light olive-brown (2.5Y, 5/3), SILT and fine SAND	0.0		0	
2.0						
4.0						
4.5		Dry, medium dense, dark olive-brown (2.5Y, 6/3) subrounded COBBLE, coarse GRAVEL, some silt and trace fine sand	4.5			
5.0			5.0			
6.0		Dry, pale white, fine SAND, some rounded gravel; partially cemented	6.0			
6.5		Total depth: 6.5 feet bgs	6.5			
8.0						
10.0						
12.0						
14.0						
16.0						
18.0						
20.0						

TEST PIT LOG - 1 PER PG-50% SCALE JOLIANNAGTSDDEV TP-24.GPJ PRINT DATE 8/11/16

LOGGED BY: J.R. Brodeur, PE
COMPLETED: 8/12/16

EXCAVATED BY: Emac
EXCAVATION METHOD: Trackhoe and Mini Excavator

TEST PIT TP-22



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FIGURE TP-23

Page 1 of 1

APPROX. TEST PIT TP-23 LOCATION:
Lat: 46° 14.243' N Long: 119° 17.829' W
See Site Exploration Map, Figure 2

DEPTH FEET	GRAPHIC LOG	MATERIAL DESCRIPTION	DEPTH	SAMPLE TYPE SAMPLE ID	TESTING	0	25	50	COMMENTS
0.0		Dry, medium dense, light olive-brown (2.5Y, 5/3), SILT and fine SAND	0.0						
2.0									
4.0									
6.0									
7.0		Dry, grayish-brown to pale white, fine SAND and GRAVEL	7.0						
7.5		Total depth: 7.5 feet bgs	7.5						
8.0									
10.0									
12.0									
14.0									
16.0									
18.0									
20.0									

TEST PIT LOG - 1 PER PG-50% SCALE JOLIANNAGISDEV TP-24.GPJ PRINT DATE 9/1/16

LOGGED BY: J.R. Brodeur, PE
COMPLETED: 8/12/16

EXCAVATED BY: Emac
EXCAVATION METHOD: Trackhoe and Mini Excavator

TEST PIT TP-23



White Shield, Inc.
320 North 20th Avenue
Pasco, Washington 99301
Phone: (509) 547-0100
Fax: (509) 547-8292

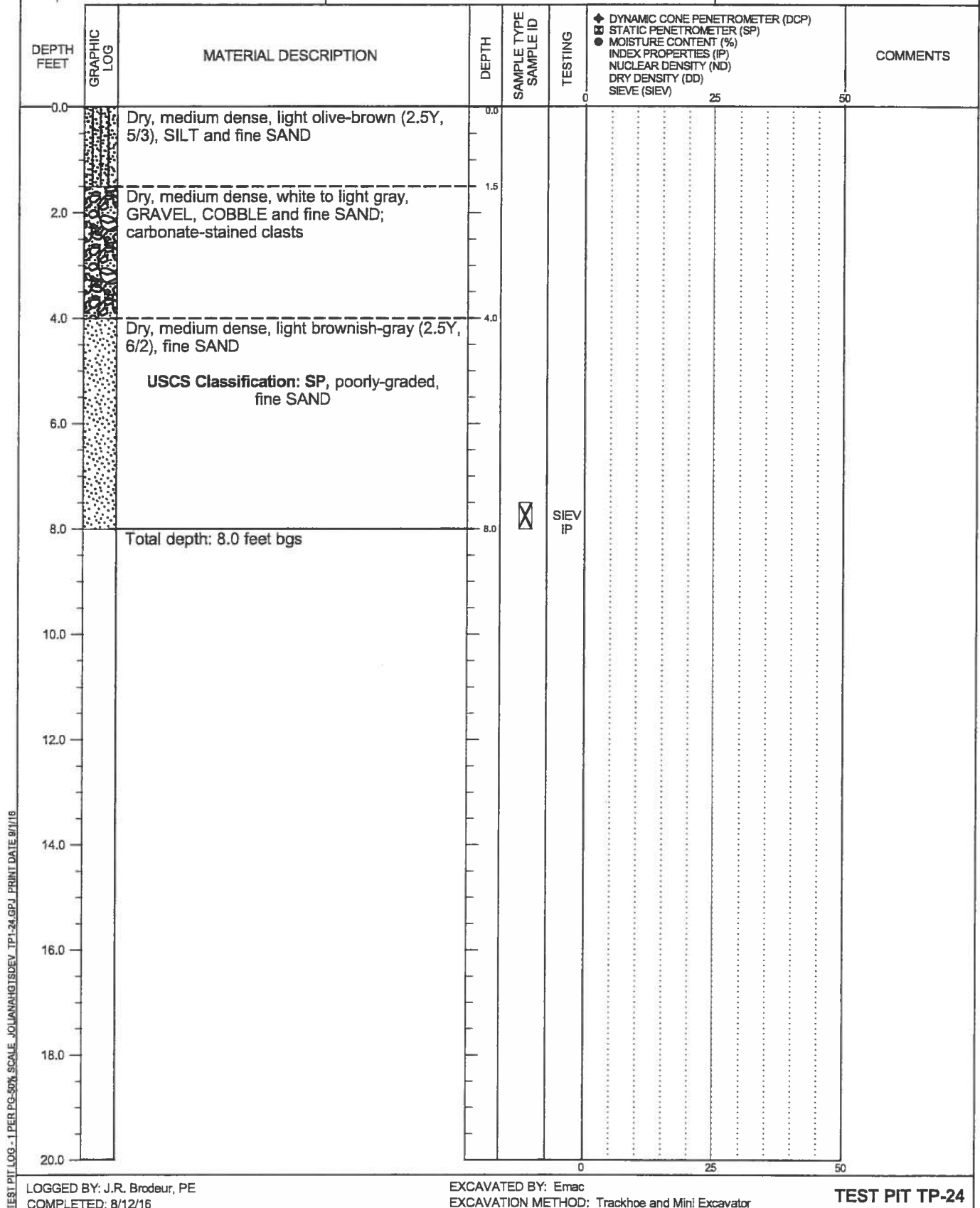
JOLIANNA HEIGHTS DEVELOPMENT
RICHLAND, WASHINGTON

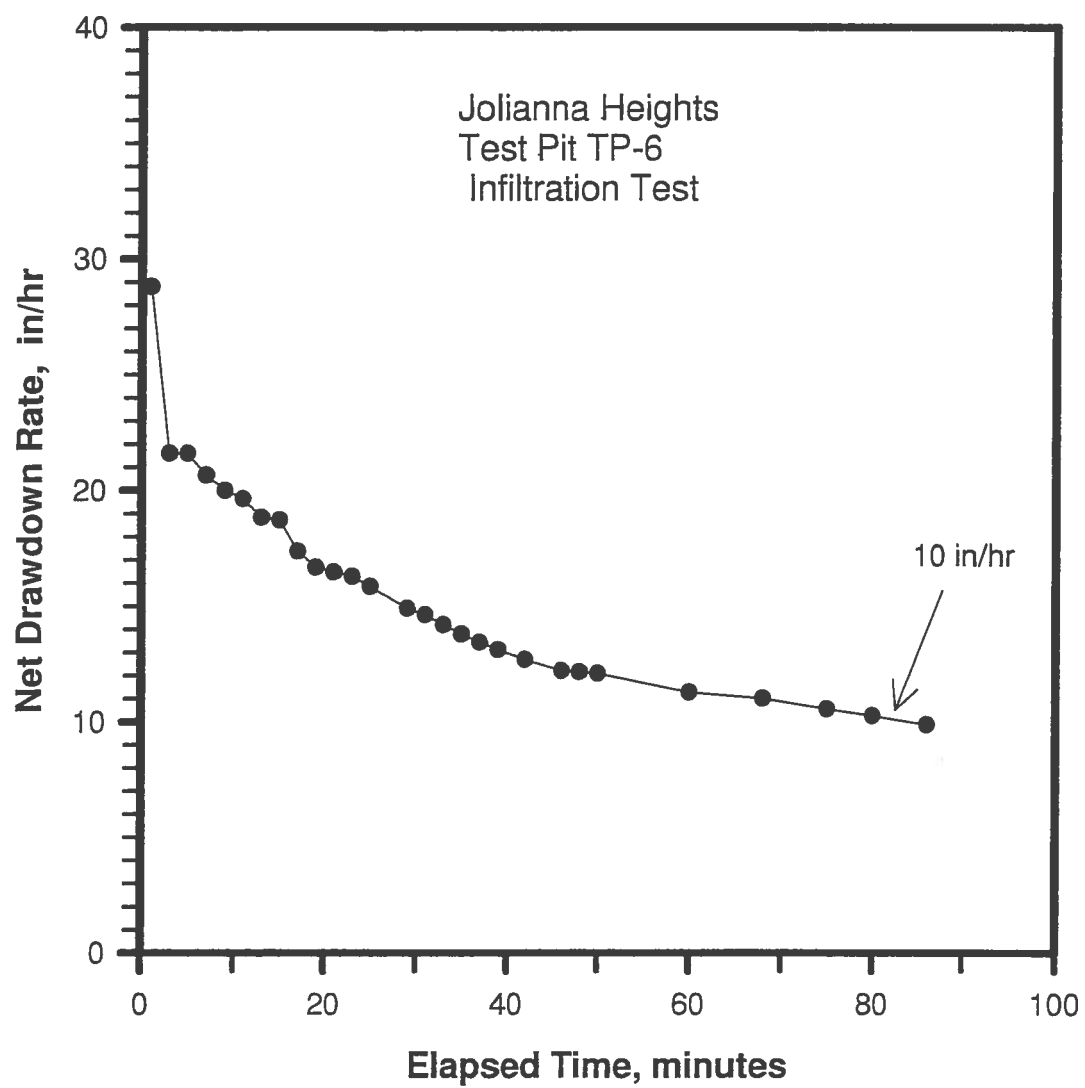
WSI PROJECT NUMBER:
116-073-01

FIGURE TP-24

Page 1 of 1

APPROX. TEST PIT TP-24 LOCATION:
Lat: 46° 14.225' N Long: 119° 17.801' W
See Site Exploration Map, Figure 2





Geotechnical Laboratory Test Results

Soil Particle-Size Analysis
ASTM D 422 - 63
Dry sample preparation

Project:: **Jolianna Heights, Richland**
WSI Project # 116-073-01

Sample Description: light olive brown (2.5Y, 5/3)
silt, little fine sand

Unified classification: **ML** - sandy silt

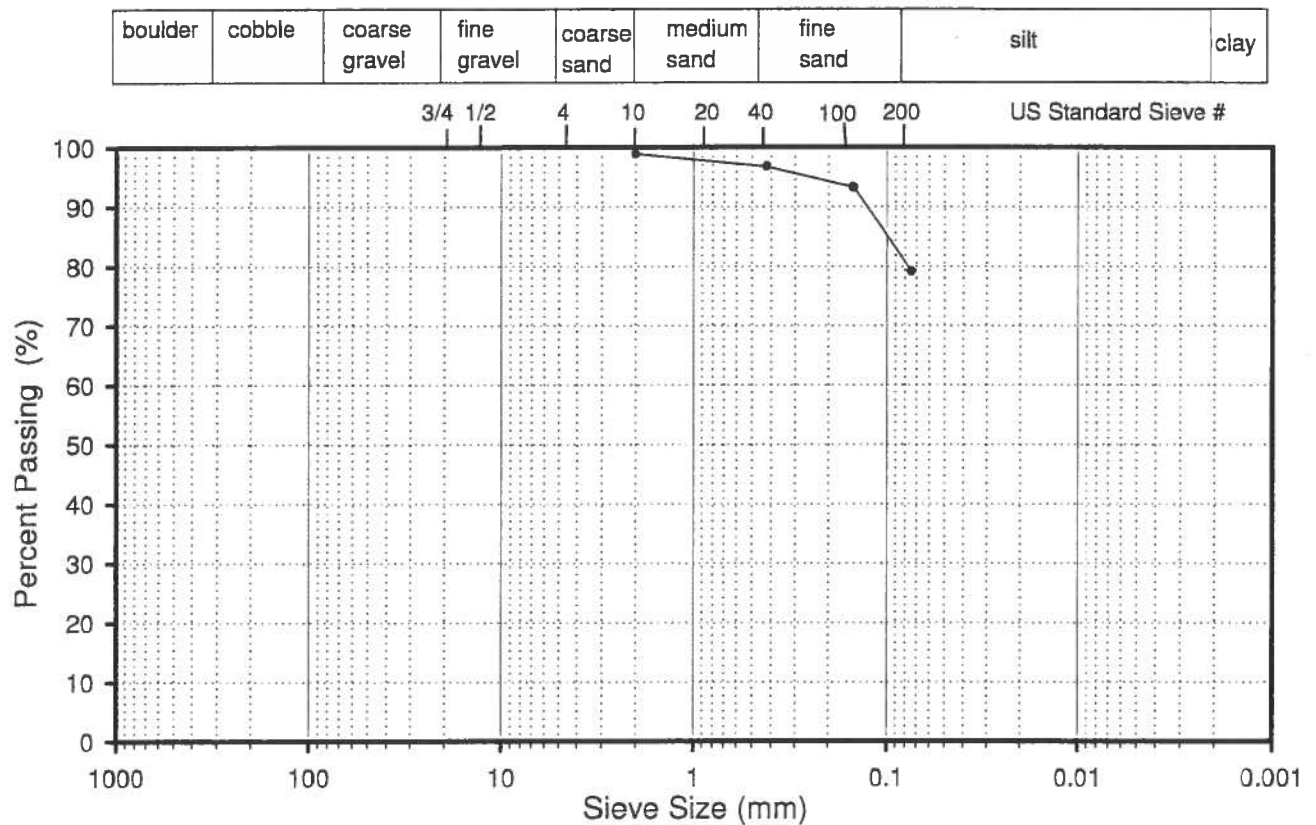
Sample Origin: Test pit TP-1 at 3 feet

Sample Number:

TP-1 @ 3 ft

Test Date: 8/12/16
Test by: J. Brodeur

Soil Particle Size Distribution



Sieve #	Size mm	Retained grams	Retained %	Passing %	Summary Results		
4	4.75	0.9			0.2% coarse sand		
10	2	0.2	0.2	98.9	2.1% Med Sand		
40	0.42	2.2	2.1	96.8	17.7% Fine Sand		
100	0.149	3.7	3.5	93.3	79.2% Silt		
200	0.074	14.8	14.1	79.2			
Pan		82.8	79.2				
Sum		104.6	100				

Geotechnical Laboratory Test Results

Soil Particle-Size Analysis

ASTM D 422 - 63

Dry sample preparation

Project:: **Jolianna Heights, Richland**
WSI Project # 116-073-01

Sample Description: light olive brown (2.5Y, 5/3)
silt, some fine sand

Unified classification: **ML** - sandy silt

Sample Origin: Test pit TP-3 at 3.5 feet

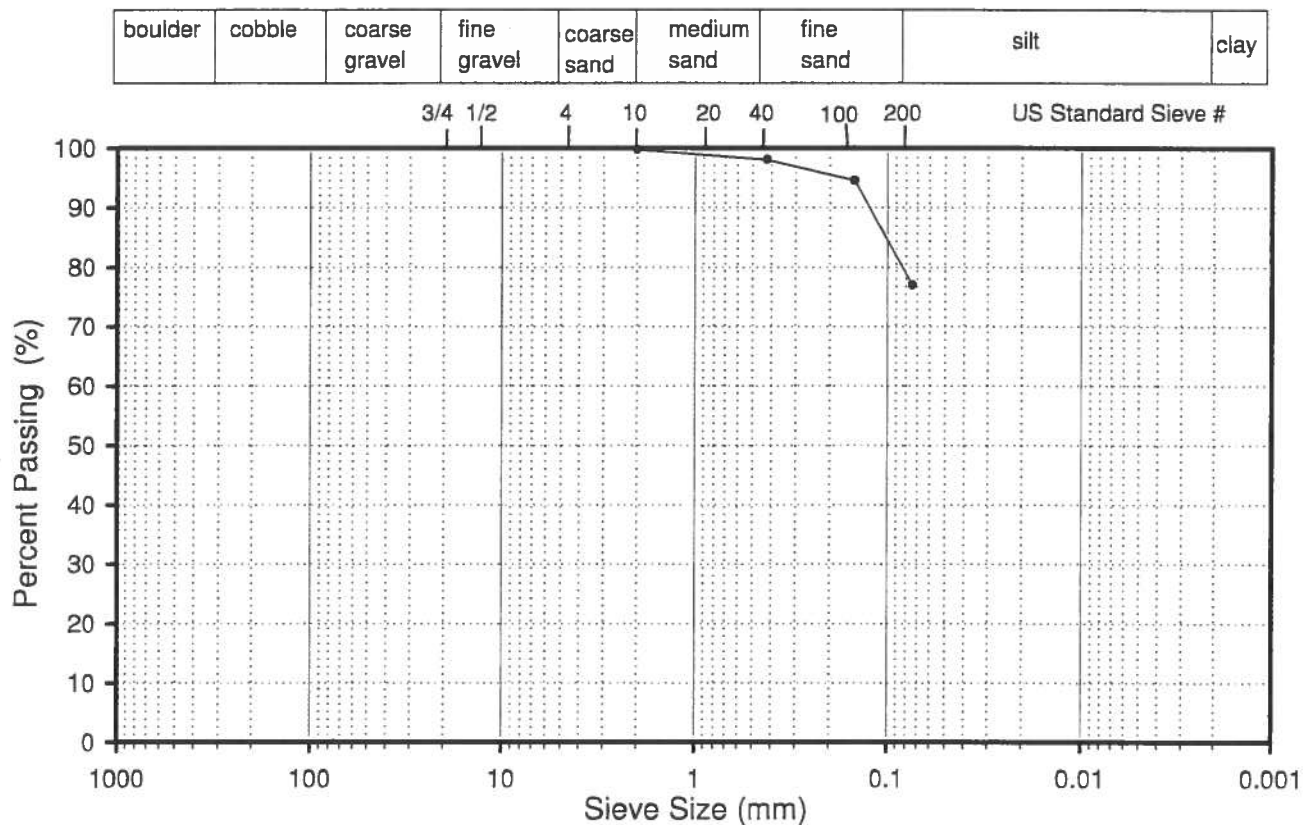
Sample Number:

TP-3 @ 3.5 ft

Test Date: 8/12/16

Test by: J. Brodeur

Soil Particle Size Distribution



Sieve #	Size	Retained	Retained	Passing	Summary Results		
	mm	grams	%	%			
4	4.75	0			0.2% coarse sand		
10	2	0.2	0.2	99.8	1.7% Med Sand		
40	0.42	1.7	1.7	98.1	21.1% Fine Sand		
100	0.149	3.5	3.5	94.6	77.0% Silt		
200	0.074	17.6	17.6	77.0			
Pan		77	77.0				
Sum		100	100				

Geotechnical Laboratory Test Results

Soil Particle-Size Analysis
ASTM D 422 - 63
Dry sample preparation

Project:: **Jolianna Heights, Richland**
WSI Project # 116-073-01

Sample Description: light yellowish brown (2.5Y, 6/3)
silt, some fine sand

Unified classification: **ML** - sandy silt

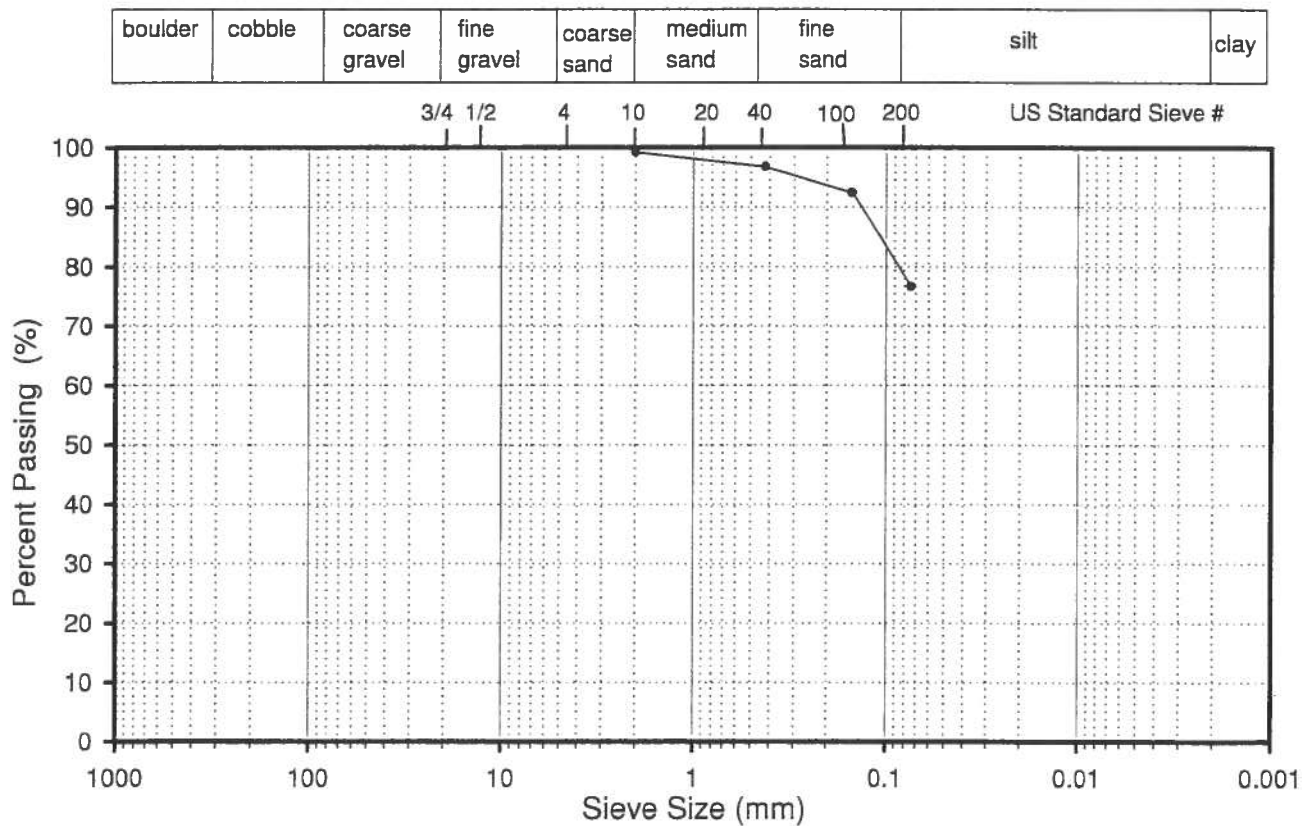
Sample Origin: Test pit TP-2 at 4 feet

Sample Number:

TP-2 @ 4 ft

Test Date: 8/12/16
Test by: J. Brodeur

Soil Particle Size Distribution



Sieve #	Size	Retained	Retained	Passing	Summary Results		
	mm	grams	%	%			
4	4.75	0			0.7% coarse sand		
10	2	0.9	0.7	99.3	2.4% Med Sand		
40	0.42	3	2.4	96.8	20.1% Fine Sand		
100	0.149	5.4	4.4	92.5	76.7% Silt		
200	0.074	19.5	15.8	76.7			
Pan		94.8	76.7				
Sum		123.6	100				

Geotechnical Laboratory Test Results

Soil Particle-Size Analysis
ASTM D 422 - 63
Dry sample preparation

Project:: **Jolianna Heights, Richland**
WSI Project # 116-073-01

Sample Description: dark olive brown (2.5Y, 3/3)
silt and fine sand

Unified classification: **ML** - sandy silt

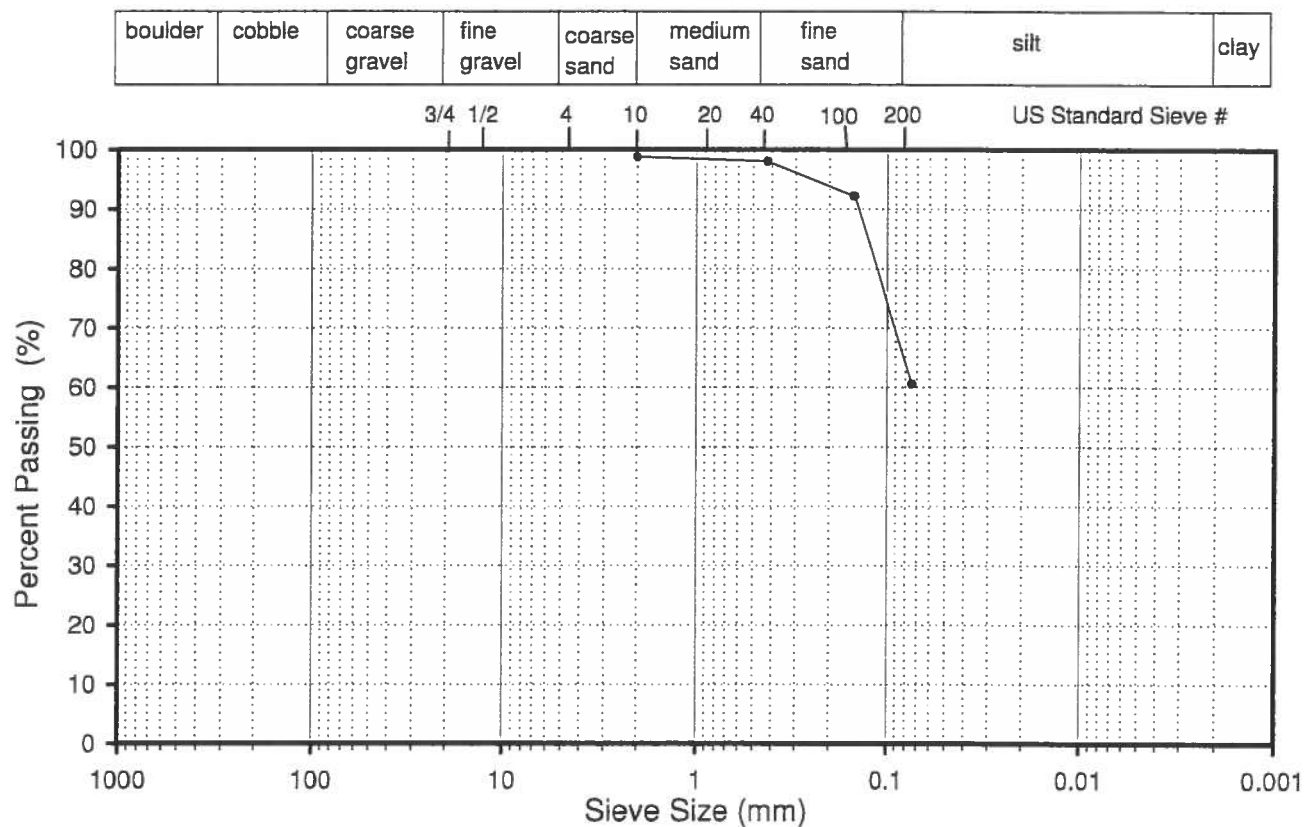
Sample Origin: Test pit TP- 4 at 11 feet

Sample Number:

TP- 4 @ 11 ft

Test Date: 8/12/16
Test by: J. Brodeur

Soil Particle Size Distribution



Sieve #	Size	Retained	Retained	Passing	Summary Results		
	mm	grams	%	%			
4	4.75	0.4			0.8% coarse sand		
10	2	0.8	0.8	98.8	0.8% Med Sand		
40	0.42	0.8	0.8	98.0	37.5% Fine Sand		
100	0.149	5.9	5.8	92.3	60.6% Silt		
200	0.074	32.3	31.7	60.6			
Pan		61.8	60.6				
Sum		102	100				

Geotechnical Laboratory Test Results

Soil Particle-Size Analysis
ASTM D 422 - 63
Dry sample preparation

Project:: **Jolianna Heights, Richland**
WSI Project # 116-073-01

Sample Description: light olive brown (2.5Y, 5/3)
silt, some fine sand

Unified classification: **ML** - sandy silt

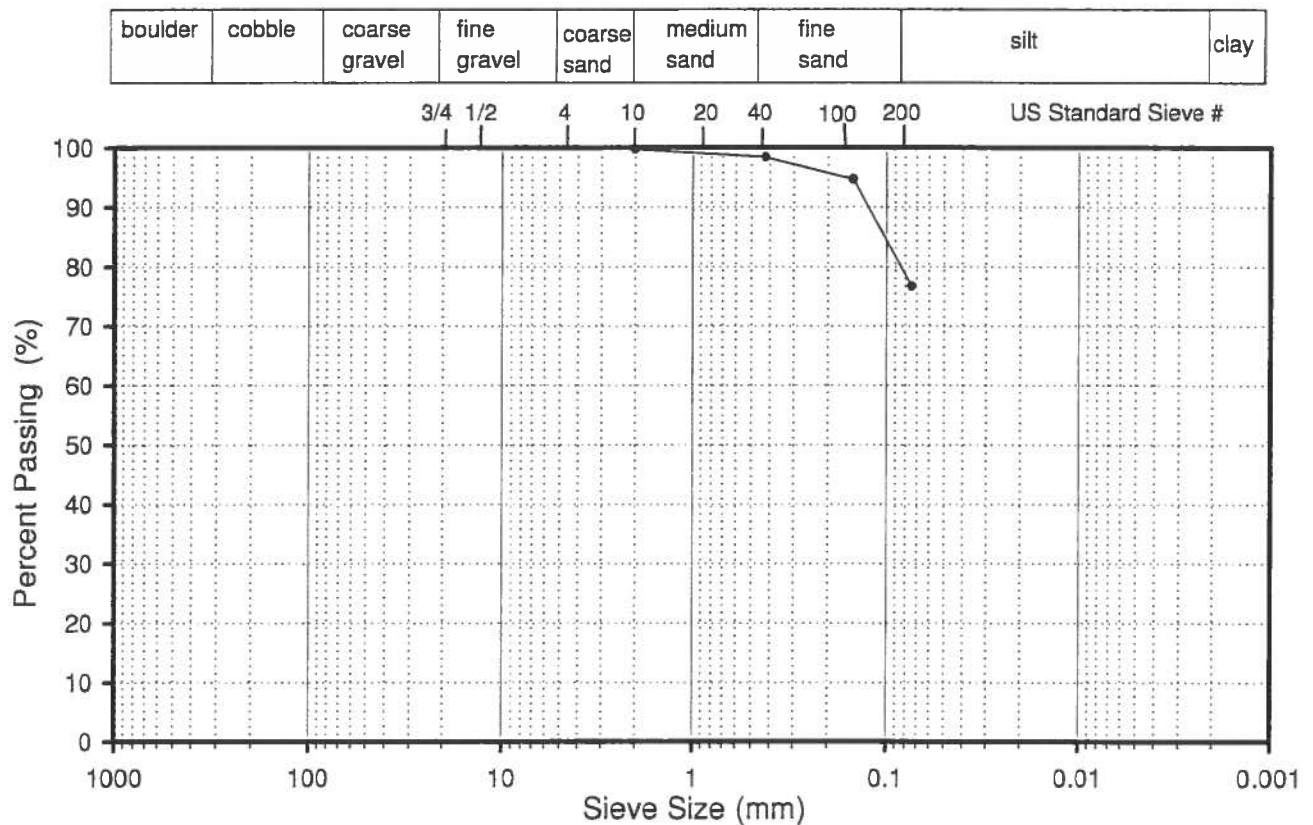
Sample Origin: Test pit TP-6 at 3 feet

Sample Number:

TP-6 @ 3 ft

Test Date: 8/12/16
Test by: J. Brodeur

Soil Particle Size Distribution



Sieve #	Size	Retained	Retained	Passing	Summary Results		
	mm	grams	%	%			
4	4.75	0			0.2% coarse sand		
10	2	0.3	0.2	99.8	1.3% Med Sand		
40	0.42	1.9	1.3	98.5	21.7% Fine Sand		
100	0.149	5.4	3.8	94.7	76.7% Silt		
200	0.074	25.8	18.0	76.7			
Pan		110.1	76.7				
Sum		143.5	100				

Geotechnical Laboratory Test Results

Soil Particle-Size Analysis

ASTM D 422 - 63

Dry sample preparation

**Project:: Jolianna Heights, Richland
WSI Project # 116-073-01**

Sample Description: light olive brown (2.5Y, 5/3)
silt and fine sand

Unified classification: **ML** - sandy silt

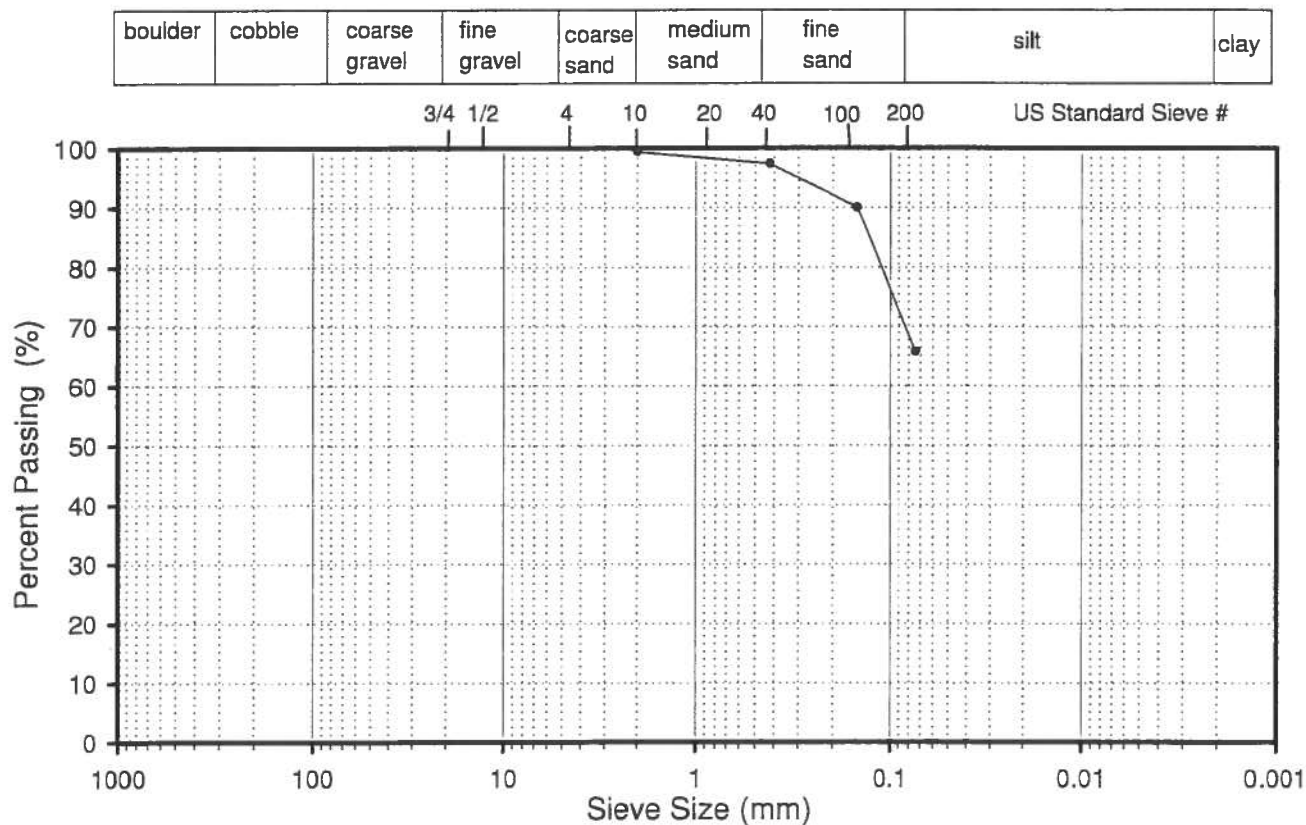
Sample Origin: Test pit TP- 12 at 2 feet

Sample Number:

TP- 12 @ 2 ft

Test Date: 8/12/16
Test by: J. Brodeur

Soil Particle Size Distribution

[illegible]

Geotechnical Laboratory Test Results

Soil Particle-Size Analysis
ASTM D 422 - 63
Dry sample preparation

Project:: **Jolianna Heights, Richland**
WSI Project # 116-073-01

Sample Description: light brownish gray (2.5Y, 6/2)
fine sand, trace med sand, trace silt
Unified classification: **SP** - poorly graded fine sand

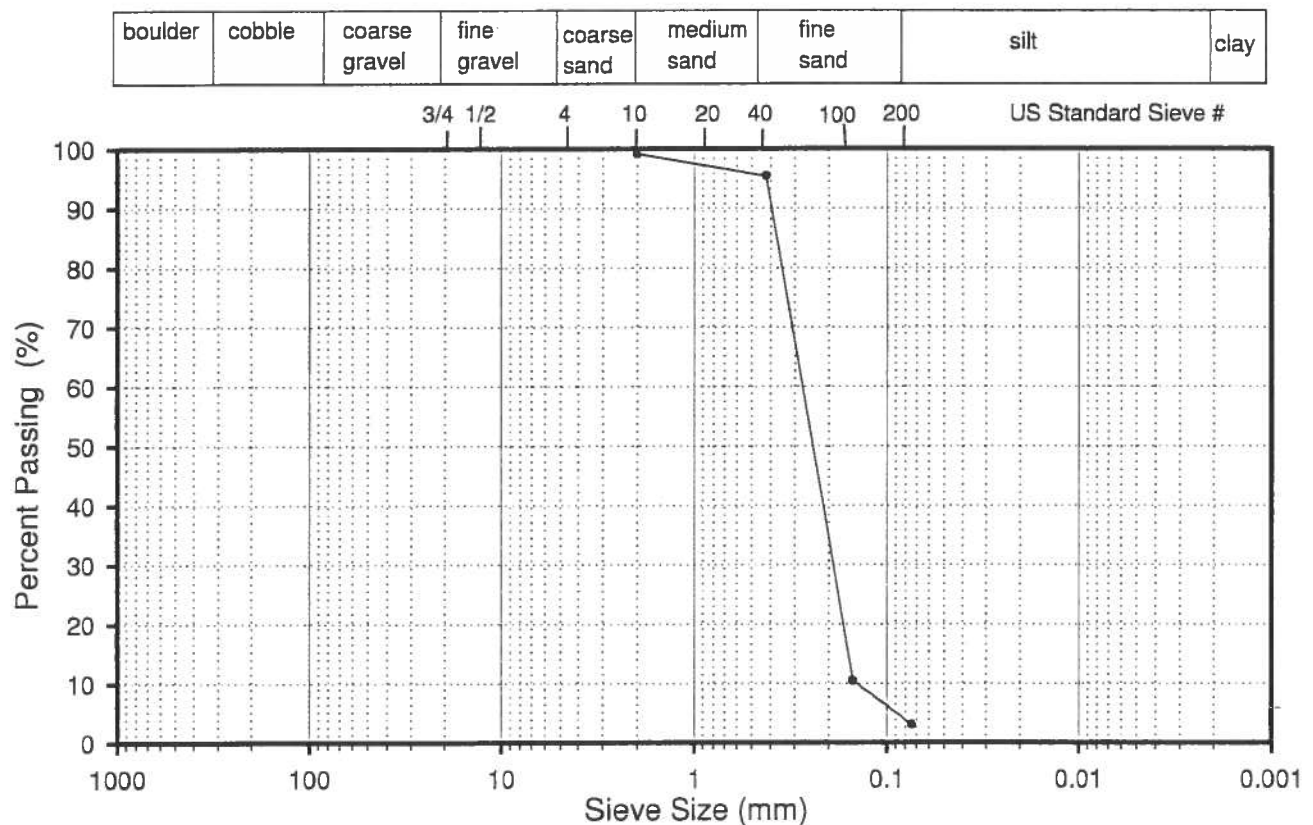
Sample Origin: Test pit TP- 24 at 8 feet

Sample Number:

TP- 24 @ 8 ft

Test Date: 8/12/16
Test by: J. Brodeur

Soil Particle Size Distribution



Sieve #	Size	Retained	Retained	Passing	Summary Results
	mm	grams	%	%	
4	4.75	0.6			0.3% coarse sand
10	2	0.4	0.3	99.2	3.7% Med Sand
40	0.42	4.7	3.7	95.5	92.5% Fine Sand
100	0.149	107	85.0	10.5	3.0% Silt
200	0.074	9.4	7.5	3.0	
Pan		3.8	3.0		
Sum		125.9	100		

APPENDIX C

Washington State Department of Ecology Well Log Data

WATER WELL REPORT

STATE OF WASHINGTON

Application No. _____

Permit No. _____

(1) OWNER: Name George Sharp Address Keene Rd. Richland
(2) LOCATION OF WELL: County Benton NW 1/4 NW 1/4 Sec. 27 T. 9 N., R. 286 W.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) 2
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 274 ft. Depth of completed well 274 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from _____ ft. to 135 ft.
Threaded ☐ " Diam. from _____ ft. to _____ ft.
Welded ☐ " Diam. from _____ ft. to _____ ft.

Perforations: Yes ☐ No ☒

Type of perforator used _____
SIZE of perforations _____ in. by _____ in.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.

Screens: Yes ☐ No ☒

Manufacturer's Name _____
Type _____ Model No. _____
Diam. _____ Slot size _____ from _____ ft. to _____ ft.
Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel packed: Yes ☐ No ☐ Size of gravel: _____
Gravel placed from _____ ft. to _____ ft.

Surface seal: Yes ☒ No ☐ To what depth? _____ ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? _____ Depth of strata _____
Method of sealing strata off _____

(7) PUMP: Manufacturer's Name Red Jacket
Type: Submersible HP _____

(8) WATER LEVELS: Land-surface elevation above mean sea level... _____ ft.
Static level 187 ft. below top of well Date _____
Artesian pressure _____ lbs. per square inch Date _____
Artesian water is controlled by _____ (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? Yes ☐ No ☐ If yes, by whom? _____
Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.
" 30 " " " " " " " " " " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____
Per test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Pea Gravel & boulders	0	22
Brown clay	22	203
Black basalt	103	128
Red porous basalt	128	135
Grey basalt solid	135	207
Grey clay	207	212
Fractured grey basalt (small amt water)	212	221
Green clay	221	249
Black porous basalt	249	262
Brown " "	262	268
Fractured grey basalt	268	274

RECEIVED

OCT 24 1978

DEPARTMENT OF ECOLOGY
CENTRAL REGIONAL OFFICE

Work started 6-9- 1970 Completed 6-17 1970

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME H & H Drilling Inc.
(Person, firm, or corporation) (Type or print)

Address Richland, Wn.

[Signed] James E. Haney
(Well Driller)

License No. 6783 Date _____, 19____

(USE ADDITIONAL SHEETS IF NECESSARY)



2015 South Ely Street
Kennewick, WA 99337
Phone 509-586-9111
FAX 509-586-7663
www.kid.org

November 1, 2016

Rick Simon
Development Services Manager
City of Richland
Development Services Division
PO Box 190
Richland, WA 99352

Subject: Preliminary Plat S2016-102 – Jolianna Heights Review Comments

Dear Mr. Simon:

This letter provides Kennewick Irrigation District (KID) review comments on Preliminary Plat No. S2016-102 Jolianna Heights submitted by Wes Hodges, 1191 Plateau Dr, Richland, WA 99352. Jolianna Heights is generally located northeast of the Badger East Lateral and north of Westcliffe Blvd and includes the following parcel:

- 1-2798-200-0009-000 (27.67 irrigable acres)

The properties identified on the proposed preliminary plat are located within the KID boundaries. The properties within this preliminary plat are classified as irrigable land and consist of **27.67 irrigable acres**. KID provides the following comments as a condition of approval by the legislative authority for R.C.W. 58.17.310:

- 1) The following are KID easement requirements:
 - a. Dedicate to KID an irrigation easement 10 feet in width via a recorded deed to match any irrigation system components, centered on an irrigation pipe line.
 - b. Dedicate to KID an irrigation easement 10 feet in width, five (5) feet in width if adjacent to a utility easement, along the road frontage of all lots.
- 2) Please note that there exists a 100 foot United States Bureau of Reclamation (USBR) Right-of-Way (ROW) adjacent to the properties. Please show this ROW on the preliminary plat and indicate if the land under the ROW is owned by the applicant. Copies of the ROW maps are available upon request.
 - a. *Deed subject to license.* At the time of final plat, ***if the Applicant owns the land under the ROW***, applicant must deed to KID/USBR a tract of land equal in dimension to the USBR ROW, subject to the Applicant and KID entering into a license under which Applicant agrees to construct and maintain fencing and landscaping.
 - b. Applicant must construct and maintain a fence adjacent to the USBR ROW.
 - c. Please add a note to the face of the plat that states: "No grading may be performed or any permanent structure built within the United States Bureau of Reclamation right of

way without an approved permit from the Kennewick Irrigation District and/or the United States Bureau of Reclamation, when applicable.”

- 3) The property owner or developer is required to remove all trees and vegetation located in the USBR ROW on the northeast canal bank. Tree roots may over time, grow into and impact the compacted embankment of the canal resulting in a canal breach. After tree and trunk removal clean fill shall be brought in and compacted 95% of maximum density.
- 4) The property owner or developer is required to decommission private infrastructure in the canal ROW at the southwest corner of the property to fill in the existing irrigation pond serving this property.
- 5) The property owner or developer is required to install an irrigation system that conforms to the most recent edition of the KID Standard Specifications pursuant to Resolution 86-15-A. This includes providing distribution pipelines adequate to provide individual pressurized irrigation services to each lot within the preliminary plat. This system will be dedicated to the KID upon completion, at the time of final plat.
 - a. In addition, KID Standard Specifications require that a storage pond facility be constructed and sized appropriately for this plat application. Please dedicate this storage facility as a Tract of land deeded to the KID. In addition, the KID Standard Specifications require that a pump station facility be construction and sized appropriately for this plat application.
 - b. **As an alternative** to a pond, pump station, and other “on site” construction requirements per KID Standards Specifications, the Applicant and KID may mutual agree that it is in each of their best interests that other “off site” improvements may be made to allow for the delivery of pressurized irrigation water to the project. The other improvements would be proportionate and equitable to the “on site” requirements and may include:
 - i. The installation of irrigation pipelines off-site.
 - ii. The upsizing of irrigation pipelines within the subdivision
 - iii. Improvements to KID’s existing pond and pump facility located southeast of the property.
 - iv. Entering into a voluntary mitigation agreement with the KID.
- 6) The property owner or developer is required to submit an irrigation plan designed by a professional engineer for review and approval by the KID. The plan may be hand drawn or computer drafted. The plan shall be accurate and to a scale not to exceed one (1) inch = 50 feet. This is a vital step of the approval process. After approval of the plan, completion of all the facilities is required prior to KID signature on the Final Plat. Please contact me at 586-9111 for more information regarding this irrigation plan.
 - a. In addition, this plan shall ensure all reasonable measures are taken to protect any easements, ROW’s, and facilities. In the event any KID facilities are damaged during construction, the damage must be fully repaired to KID’s then-existing standards.
 - b. For each phase of the Project, KID review and approval of construction and grading plans is required to allow KID to assure all reasonable measures to protect any

- easements and ROW's. Such review and approval will be coordinated as part of the City's review and Final Plat approval process.
- c. KID will require that USBR signage be installed by the Applicant along the Canal ROW prior to final plat approval of each phase abutting the Canal.
 - d. No permanent structures are allowed within the KID's ROW.
- 7) The KID must inspect any new irrigation system installations or modifications. The property owner or developer shall contact the KID to arrange an inspection at least 48 hours in advance of the desired inspection date.
 - 8) Prior to approval of each phase, the current year's assessment must be paid. If the final plat is submitted for review after May 31st of a given year or submitted for review prior to May 31st but not submitted for final approval prior to June 15th, the next year's estimated assessment (125% of the current year's assessment) must be paid prior to plat approval.
 - 9) Prior to approval of the first phase, the United States Bureau of Reclamation (USBR) construction loan for **all parcels** owned by the property owner within the boundaries of the KID must be paid and all other USBR requirements associated with this payout must be completed.
 - 10) The Review and Inspection fees in place at the time of each review request must be paid. At the time of application the review fees are as follows:
 - a. A Preliminary Plat review fee of \$825.00 which must be paid prior to scheduling for final plat approval at a KID Board meeting for the first phase.
 - b. For each Phase an inspection fee \$350 for the first 20 lots/tracts plus \$25 per lot/tract after 20 lots/tracts.
 - c. Final Plat review fee for each phase of \$225.00.
 - 11) Per KID Policy 4.17, "Irrigable Land Recalibration Principles," as land within the boundaries of the KID is subdivided or developed; KID will remove the irrigation water allocation from the impermeable surfaces, such as streets, from the plats.
 - 12) In order to receive KID irrigation water delivery, a Watermaster (or point of contact) for the subdivision must be appointed. This water master can be appointed by the Home Owners Association (or similar organization) officers, or must be elected from among the property owners within the boundary of this proposed subdivision. If no HOA (or similar organization) is organized, than an election method similar to the attached document is required.
 - 13) Prior to approval of each phase, an electronic file (AutoCAD 2004 format) and hard copy (6-mil mylar, sealed by a professional engineer) of construction as-builts must be provided to KID.
 - 14) All subdivisions of land are required to be approved by the KID Board of Directors during a KID Board Meeting. KID Board Meetings are regularly scheduled on the first and third Tuesdays of each month. All conditions must be completed prior to submittal to KID for final

approval. The submittal for final approval must be received by KID a minimum of two weeks prior to a regularly scheduled Board Meeting in order to be considered at that meeting.

15) Conditions Related to Design, Grading, and Construction

- a. For each phase of the Project, KID review and approval of construction plans is required to allow KID to assure all reasonable measures to protect any easements and ROWs. Such review and approval will be coordinated as part of the City's review and Final Plat approval process.

16) Conditions Related to Residential Use, The Applicant Shall:

- a. Include the potential failure of KID system components in its public offering statement for the plat pursuant to RCW 58.19.055(1)(r), which requires a public offering statement to include "[a] list of any physical hazards known to the developer which particularly affect the development or the immediate vicinity in which the developer is located and which are not readily ascertainable by the purchaser"; and

17) Future review, KID reserves the following rights regarding future review of the plat:

- a. KID reserves the right to provide review comments under RCW 58.17.330(1) and RCW 58.17.330(2) in response to future design submittals by the Applicant prior to final plat approval. The scope of these reviews will be limited to Phases that are adjacent to the District's Rights of Way. KID review of construction plans will be consistent with the City of Kennewick's plan review timelines.
- b. KID reserves the right to review and comment on the Applicant's plat line revisions for potential additional revisions to protect KID system components for Phases that are adjacent to KID's easements or ROWs.
- c. KID reserves the right to review and comment on the Applicant's CC&Rs to evaluate whether they should include any terms regarding protection of KID system components after construction and fencing requirements.
- d. KID reserves the right to submit additional comments during the City's review process under the State Environmental Policy Act (SEPA).
- e. All subdivisions of land are required to be approved by the KID Board of Directors.

Please provide notice to KID of any Public meeting or hearing where this project will be an agenda item. If you have any questions regarding these comments, please contact me at the address/phone number listed below.

Sincerely,



Jason McShane, P.E.
Engineering/Operations Manager

Sample Watermaster Election Process

That the Water Users are deemed to agree as a condition of water delivery as follows::

- i. The LID participants will elect a Watermaster from among themselves, as follows:
 - a. Election of First Watermaster. The first Watermaster shall be elected prior to April 1, 2011, and shall be elected as described in paragraph d. below.
 - b. Resignation of Watermaster. If the Watermaster resigns, the parties shall meet at a place and time designated by the resigning Watermaster in a written notice and elect a new Watermaster, or if the Watermaster does not designate a time and a place for such a meeting, the parties shall meet at a time and a place first designated in writing by two of the parties hereto to elect a new Watermaster.
 - c. Death or Incapacity of Watermaster. If the Watermaster dies or becomes incapacitated, the parties shall meet at a time and a place first designated in writing by two of the parties hereto to elect a new Watermaster.
 - d. Elections and Replacement of Watermaster. The Watermaster shall be assigned by the elected members of the Royal Ann Estates Homeowner Association Board of Directors. If the Homeowner's Association defaults or stops functioning, the Watermaster shall be elected by and may be replaced by a sixty percent (60%) majority of the Water Users participating in the LID at an election called for by a majority of the properties that are subject hereto. Each property shall have one (1) vote. If more than one person owns a property, the owners of the property shall designate in writing the person who shall have the right to vote for that property. If the owners of the property cannot agree on the person who shall vote for the property, that property shall have no vote in the election. The owners' properties which are calling for an election or replacement of a new Watermaster shall give or cause the other parties to be given a written notice stating the place and time of the election. Any notice required under this paragraph, which notice shall be mailed by U.S. Mail as certified mail to the common address identified above for the property not more than thirty days and not less than ten days

prior to the election. Any election held hereunder shall be held in Benton County, Washington, between 6:00 p.m. and 9:00 p.m.

- ii. Powers and Duties of Watermaster. The Watermaster shall have the power and it shall be his or her duty to take all actions reasonably necessary to fulfill the purposes of this agreement, including but not limited to:
 - a. Provide a primary point of contact for KID to communicate system problems, outages, schedules, drought mitigation measures, etc.
 - b. Assist KID in providing the LID participants information regarding system problems, outages, water schedules, drought mitigation measures, etc.
- iii. Qualified Immunity of Watermaster from Liability. The Watermaster shall not be liable for any damages caused to the parcels or persons subject hereto so long as the Watermaster acts in good faith.
- iv. No water delivery unless a Watermaster is performing duties. If at any time a Watermaster no longer is performing his/her duties, as outlined above, for more than 30 days, KID will stop water delivery to the participants of the LID until a new Watermaster has been elected.
- v. Alternate Watermaster. An alternate Watermaster may be elected in the same manner as described above for the Watermaster. This alternate Watermaster can function as Watermaster for a limited time, not to exceed 60 days, in case of the elected Watermaster being unavailable.

**CITY OF RICHLAND
CIVIL AND UTILITY ENGINEERING
DEVELOPMENT COMMENTS**

DATE: November 10, 2016

TO: RICK SIMON, DEVELOPMENT SERVICES MANAGER

PLAT REVIEW BY: JASON REATHAFORD, ENGINEERING TECH 4
PETE ROGALSKY, PUBLIC WORKS DIRECTOR
JEFF PETERS, TRANSPORTATION ENGINEER

PROJECT NAME: JOLIANNA HEIGHTS (S2016-102)

PROJECT LOCATION: NORTH OF THE PLAT OF WESTCLIFFE, SOUTH OF THE PLAT OF THE VINEYARDS

The Civil and Utility Engineering Division has reviewed the preliminary plat received in this office on October 14, 2016, for the above referenced property and has the following conditions.

General Conditions:

1. All final plans for public improvements shall be submitted prior to pre-con on a 24" x 36" hardcopy format and also electronically in .dwg format compatible with the City's standard CAD software. Addendums are not allowed, all information shall be supplied in the specified 24 x 36 (and electronic) format. When construction of the infrastructure has been substantially completed, the applicant shall provide paper, mylar and electronic record drawings in accordance with the City's "Record Drawing Requirements". The electronic as-built record drawings shall be submitted in a AutoCAD format compatible with the City's standard CAD software. Electronic copies of the construction plans are required prior to the pre-con meeting, along with the multiple sets of paper drawings. The mylar record drawings (including street lights) shall be submitted and approved by the City before the final punchlist inspection will be performed. All final punchlist items shall be completed or financially guaranteed prior to recording of the final plat.
2. Any and all necessary permits that may be required by jurisdictional entities outside of the City of Richland shall be the responsibility of the developer to obtain.
3. A copy of the construction drawings shall be submitted for review to the appropriate jurisdictions by the developer and his engineer. All required comments / conditions from all appropriate reviewing jurisdictions (e.g.: Benton County, any appropriate irrigation districts, other utilities, etc.) shall be incorporated into one comprehensive set of drawings and resubmitted (if necessary) for final permit review and issuance.
4. Any work within the public right-of-way or easements or involving public infrastructure will require the applicant to obtain a right-of-way permit prior to construction. A plan review and inspection fee in the amount equal to 5% of the construction costs of the work within the right-of-way or easement will be collected at the time the permit is issued. A stamped, itemized Engineers estimate (Opinion of probable cost) and a copy of the material submittals shall be submitted along with the final plan submittal.
5. When the construction is substantially complete a paper set of "record drawings" shall be prepared by a licensed surveyor and include all changes and deviations. Please reference the Public Works document "RECORD DRAWING REQUIREMENTS & PROCEDURES" for a complete description of the record drawing process. After approval by the City of the paper copy, a mylar copy of the record

drawings shall be submitted along with a CAD copy of them. The electronic as-built record drawings shall be submitted in a AutoCAD format compatible with the City's standard CAD software. All final punchlist items shall be completed or financially guaranteed prior to recording of the final plat.

6. Public utility infrastructure located on private property will require recording of a City standard form easement prior to acceptance of the infrastructure and release of the final plat. The City requires preparation of the easement legal description by the developer two weeks prior to the scheduled date of acceptance. Once received, the City will prepare the easement document and provide it to the developer. The developer shall record the easement at the Benton County Assessor and return a recorded original document to the City prior to application for acceptance.
7. A pre-construction conference will be required prior to the start of any work within the public right-of-way or easement. Contact the Civil and Environmental Engineering Division at 942-7500 to schedule a pre-construction conference.
8. Site plan drawings which involve the construction of public infrastructure shall be drawn on a standard 24" x 36" drawing format to a scale which shall not be less than 1"= 40'.
9. All plan sheets involving construction of public infrastructure shall have the stamp of a current Washington State licensed professional engineer.
10. All construction plan sheets shall include the note "CALL TWO WORKING DAYS BEFORE YOU DIG 1-800-424-5555 (or "811")." Or: <http://www.call811.com/>
11. An irrigation source and distribution system, entirely separate from the City's domestic water system, shall be provided for this development. *Construction plans will not be accepted for review until adequate and viable proof of an irrigation source is made available by the developer.* The designing Engineer shall submit plans for the proposed irrigation system to the Irrigation District with jurisdiction over the property at the same time that they are submitted to the City for construction review. Plans shall be reviewed and accepted by said irrigation district prior to issuance of a Right-of-Way permit by the City. Easements shall be provided on the final plat for this system where needed.
12. A copy of the preliminary plat shall be supplied to the Post Office and all locations of future mailbox clusters approved prior to final platting.

Design Standards:

13. Public improvement design shall follow the following general format:
 - A. Sanitary sewer shall be aligned on the north and west side of street centerlines.
 - B. Storm sewer shall be aligned on the south and east side of street centerlines.
 - C. Any sewer or storm manholes that are installed outside of public Right of Way shall have an acceptable 12-foot wide gravel access road (minimum) provided from a public street for maintenance vehicles.
 - D. 10-foot horizontal spacing shall be maintained between domestic water and sanitary sewer mainlines and service lines.
 - E. Water lines shall be aligned on the south and east side of street centerlines.
 - F. Watermains larger than 8-inches in diameter shall be ductile iron.
 - G. Watermains installed outside of the City Right of Way or in very rocky native material, shall be ductile iron and may need restrained joints.
 - H. All watermains outside areas zoned R1 shall be ductile iron.
 - I. Fire hydrant location shall be reviewed and approved by the City Fire Marshal.
 - J. Sewer mains over 15-feet deep shall be constructed out of SDR26 PVC, C900 PVC or ductile iron. The entire main from manhole to manhole shall be the same material. Private sewer service lines over 15-feet deep shall also be constructed of the same material, then transition to regular sewer piping above 15-feet.

- K. Water valves and manholes installed on private property shall be placed so as to avoid parked cars whenever feasible.
 - L. Trash compactors (high capacity dumpsters) shall be plumbed to the sanitary sewer system.
 - M. All utilities shall be extended to the adjacent property (properties) at the time of construction.
 - N. The minimum centerline finish grade shall be no less than 0.30 % and the maximum centerline finish grade shall be no more than 10.0 % for local streets.
 - O. The minimum centerline radius for local streets shall be 100-feet.
 - P. Any filling of low areas that may be required within the public Right of Way shall be compacted to City standards.
 - Q. A overall, composite utility plan shall be included in the submitted plan set if the project is phased. This comprehensive utility plan benefits all departments and maintenance groups involved in the review and inspection of the project.
 - R. A detailed grading plan shall be included in the submitted plan set.
 - S. For public utilities not located within public street rights-of-way the applicant shall provide maintenance access acceptable to the City and the applicant shall provide an exclusive 10-foot wide public utility easement (minimum) to be conveyed to the City of Richland.
 - T. Final design of the public improvements shall be approved at the time of the City's issuance of a Right-of-way Construction Permit for the proposed construction.
 - U. All public improvements shall comply with the State of Washington and City of Richland requirements, standards and codes.
 - V. All cul-de-sacs shall have a minimum radius of 45-feet to the face of curb to allow for adequate turning radius of fire trucks and solid waste collection vehicles.
 - W. Curb returns at minor intersections shall have a minimum radius of 25-feet. Curb returns at major intersections should have minimum radius of 30-feet but should be evaluated on a case by case basis.
 - X. All public streets shall meet design requirements for sight distance (horizontal, vertical and intersectional).
 - Y. COMMERCIAL ONLY: All intersections with public streets shall meet horizontal, vertical and intersectional design requirements for sight distance (A.K.A. the Vision Clearance Triangle).
 - Z. All driveways for commercial projects shall construct City standard commercial driveways. Radius-style driveways are not allowed.
 - AA. The final engineered construction plans shall identify locations for irrigation system, street lighting, gas service, power lines, telephone lines, cable television lines, street trees and mail boxes. All electrical appurtenances such as transformers, vaults, conduit routes, and street lights (including their circuit) need to be shown in the plan view.
 - BB. Construction plans shall provide or reference all standard drawings or special details that will be necessary to construct all public improvements which will be owned, operated, maintained by the City or used by the general public (Commercial Driveway, Curb, Gutter, Sidewalk, Water, Sewer, Storm, Street and Street lighting etc.).
 - CC. The contractor shall be responsible for any and all public infrastructure construction deficiencies for a period of one year from the date of the letter of acceptance by the City of Richland.
14. If the project will be built in phases the applicant shall submit a master plan for the sanitary sewer, domestic water, storm drainage, electrical, street lighting and irrigation system for the entire project prior to submitting plans for the first phase to assure constructability of the entire project. This includes the location and size of any storm retention ponds that may be required to handle runoff.
15. If the City Fire Marshal requires a secondary emergency vehicle access, it shall be included in the construction plan set and be designed to the following standards:
- A. 2-inches compacted gravel, minimum (temp. SEVA only).
 - B. 2% cross-slope, maximum.

- C. 5% slope, maximum. Any access road steeper than 5% shall be paved or be approved by the Fire Marshal.
- D. Be 20-feet in width.
- E. Have radii that are accommodating with those needed for City Fire apparatus.

Secondary emergency vehicles accesses (SEVA's) shall be 20-feet wide, as noted. Longer secondary accesses can be built to 12-feet wide with the approval of the City of Richland Fire Marshal, however turn-outs are required at a spacing acceptable to the Fire Dept. Temporary SEVA's shall be constructed with 2-inches of compacted gravel, at a minimum. Permanent SEVA's shall be paved with 2-inches of asphalt over 4-inches of gravel, at a minimum.

16. **SURVEY MONUMENT DESTRUCTION:**

All permanent survey monuments existing on the project site shall be protected. If any monuments are destroyed by the proposed construction, the applicant shall retain a professional land surveyor to replace the monuments and file a copy of the record survey with the City.

- A. No survey monument shall be removed or destroyed (*the physical disturbance or covering of a monument such that the survey point is no longer visible or readily accessible*) before a permit is obtained from the Department of Natural Resources (DNR). WAC 332-120-030(2) states "It shall be the responsibility of the governmental agency or others performing construction work or other activity (including road or street resurfacing projects) to adequately search the records and the physical area of the proposed construction work or other activity for the purpose of locating and referencing any known or existing survey monuments." (RCW 58.09.130).
- B. Any person, corporation, association, department, or subdivision of the state, county or municipality responsible for an activity that may cause a survey monument to be removed or destroyed shall be responsible for ensuring that the original survey point is perpetuated. (WAC 332-120-030(2)).
- C. Survey monuments are those monuments marking local control points, geodetic control points, and land boundary survey corners. (WAC 332-120-030(3)).

When a monument must be removed during an activity that might disturb or destroy it, a licensed Engineer or Land Surveyor must complete, sign, seal and file a permit with the DNR.

It shall be the responsibility of the designing Engineer to identify the affected monuments on the project plans and include a construction note directing them to the DNR permit.

Traffic & Streets:

- 17. The phase adjacent to and including the 60-foot wide strip of land extending north to Shockley Road labeled as "Parcel B" shall construct a full-width City street in Parcel B with typical frontage improvements on both sides at the time that this phase is constructed. This road shall be 34-feet wide and shall be dedicated as public Right-of-Way on the face of the final plat. Alternatively, if Parcel B is consolidated into one of the adjacent properties to the west or east of it, and the developer of Jolianna Heights can establish a future road alignment through the adjacent parcel to the west of Parcel B and obtain that property owner's consent to the road alignment, then the requirement to construct a road in Parcel B will be nullified. This road should extend northwest from "B Loop" making that a 4-way intersection. This will also remove the short road segment adjacent to lot 55.
- 18. Street access across the tract of land noted in condition #19 shall be provided to the property to the west, even if the street in Parcel B is constructed.
- 19. The tract of land along the west and south boundary of the pre-plat outside of the road Right-of-Way (Tract 4) needs to note an ownership and a purpose (open space, etc.).

20. There is a 1-foot wide strip of property with a “No Access” easement on it at the S.E.V.A. location shown on sheet 2 (“Tract A” on the plat of Apple Valley Ranch). This project is proposing a secondary emergency access onto Apple Cider Court at that location. Access likely isn’t needed from here as secondary emergency access could be obtained off of Shockley Road. Permission from the property owner of Tract A will have to be obtained prior to constructing the emergency access.
21. Sidewalks shall be installed along all public Right of Way frontages that building lots do not front on during construction of those phases (e.g., storm drainage ponds, parks, etc.).
22. The Jolianna Heights preliminary plat lies within the boundary of the South Richland Collector Street Financing Plan (RMC 12.03). This plat shall therefore be subject to the fees administered by the finance plan for any phase submitted for approval. Since this property is included within the Financing Plan, it is exempt from the SEPA-related traffic study requirement (TIA).
23. The Westcliffe Blvd. frontage shall be completed to City standards at the time that the phase which constructs the lots adjacent to Westcliffe is developed. The road section (curb, gutter and sidewalk) shall be built with the face of curb at 18-feet off of centerline. A fence may be needed at the back of sidewalk, dependent upon the slope constructed adjacent to it. A ten-foot public utility easement along the Westcliffe frontage shall be provided on the face of the final plat.
24. There is an existing Bureau of Reclamation easement and an irrigation drain pipe along the South boundary of the pre-plat that will have to be addressed at the time of phase 1 construction. Please contact the City of Richland Public Works Dept. for more information.
25. A note will be shown on the face of the final plat stating that Westcliffe Blvd. is classified as an “Arterial Collector street”. Subsequently, no driveways accessing single family lots will be allowed onto Westcliffe.
26. All proposed Right of Ways that are narrower than 54-feet shall have parking restricted, as per City standards. Street signs indicating restricted parking shall be installed prior to final platting at the developers expense. The restricted parking areas shall be indicated on the construction plans and the final plat.
27. If the project is to be constructed in phases, all dead-end streets longer than 150-feet that will be continued later need to have temporary turn-arounds built at the end of them. The radius of these turn-arounds shall be 45-feet minimum, and shall be constructed of 2-inches of compacted top course gravel for slopes less than 5%, or of 2-inches of asphalt atop 2-inches of gravel for slopes greater than 5%. If the temporary turn around is not located within the final plat an easement with a 50-foot radius will be required.

Domestic Water:

28. The proposed preliminary plat is located within the Tapteal 2 water pressure zone. The closest Tapteal 2 watermain is located in Westcliffe Blvd. to the south, and Shockley Road to the north. It shall be the responsibility of the developer to extend a watermain to this property to serve domestic water at the time of plat construction.
29. In accordance with the City’s comprehensive water plan, a portion of the 10-inch “Tapteal 2” water distribution main is designed to run in a north-south direction through this plat. This water main shall be extended to connect the existing main in Shockley Road to the existing main in Westcliffe Blvd. This watermain shall follow the alignment of the road that is extended north to Shockley Road, whether it be in Parcel B or through the neighboring property to the west as outlined in condition #17 above.

30. The developer will be required to demonstrate that all phases are capable of delivering adequate fire flows prior to construction plans being accepted for review. This may require looping of the watermain from off-site locations, or oversizing of the main where needed.
31. The fire hydrant layout shall be approved by the City Fire Marshal.

Sanitary Sewer:

32. The closest sanitary sewer available for this development is located in Shockley Road to the north and also in Apple Cider Court to the east. It shall be the responsibility of the developer to extend a sewer main to this property to serve sanitary sewer at the time of plat construction. Any easements or permissions required to cross private property shall be the responsibility of the developer to obtain.
33. A 10-foot wide exclusive sanitary sewer easement shall be provided for any sewer main that is outside of the public Right-of-Way. Wider easements are required for mains that are buried deeper than 10-feet. If any manholes are located outside of the public Right-of-Way, maintenance truck access to said structure may be required.
34. Per municipal code, sanitary sewer shall be extended to the adjoining properties adjacent to the plat.

Ground Water:

35. Groundwater may be present on this site. Given the amount of groundwater encountered in this area (in both developed and undeveloped areas), the possibility of an underdrain system being required exists. Please have test pits and/or bore-holes dug by a geotech engineer, and an evaluation from said engineer prior to permitting. If an underdrain system is not required, the geohydrology report needs to state so. The requested report also needs to address any potential groundwater impacts to existing properties downslope of the proposed preliminary plat. Also, if groundwater is encountered within 5-feet of finished grade during plat construction, an underdrain system will be required.

Storm Water:

36. This project may require coverage under the Washington State General NPDES Permit for Construction projects. The Developer shall be responsible for compliance with the permit conditions. The City has adopted revised standards affecting the construction of new stormwater facilities in order to comply with conditions of its NPDES General Stormwater Permit program. This project, and each phase thereof, shall comply with the requirements of the City's stormwater program in place at the time each phase is engineered. The project will require detailed erosion control plans.
37. All storm drainage systems shall be designed following the core elements defined in the latest edition of the Stormwater Management Manual for Eastern Washington. The Hydrologic Analysis and Design shall be completed based on the following criteria: Washington, Region 2, Benton County; SCS Type 1A – 24 Hour storm for storm volume. The applicant's design shall provide runoff protection to downstream property owners.
38. The flow-rate of the public storm drainage system shall be designed using the 2-Year, 3-Hour short duration Eastern Washington storm for pipe and inlet sizing using SCS or Santa Barbara method; no modifying or adding time of concentration; no surcharge allowed. Calculations shall be stamped by a registered professional engineer and shall include a profile of the system showing the hydraulic grade line. The calculations should include a 50-foot wide strip behind each right of way line to represent drainage from private property into the City system. Of that area, 50% shall be considered pervious and 50% impervious. Calculations shall include a profile for the

design showing the hydraulic grade line for the system. Passing the storm downhill to an existing system will require a downstream storm system capable of accepting the water without being overwhelmed.

39. All construction projects that don't meet the exemption requirements outlined in Richland Municipal Code, Section 16.06 shall comply with the requirements of the Washington State Department of Ecology issued Eastern Washington NPDES Phase II Municipal Stormwater Permit. All construction activities subject to this title shall be required to comply with the standards and requirements set forth in the Stormwater Management Manual for Eastern Washington (SWMMEW) and prepare a Stormwater Site Plan. In addition a Stormwater Pollution Prevention Plan (SWPPP) or submission of a completed erosivity waiver certification is required at the time of plan submittal.
40. If any existing storm drainage or ground water seepage drains onto the proposed site, or if an on-site underdrain system contributes flow to the property's storm drain system, said storm drainage shall be considered an existing condition, and it shall be the responsibility of the property developer to design a system to contain or treat and release the off-site storm drainage.
41. If there are any natural drainage ways across the proposed pre-plat, the engineered construction plans shall address it in accordance with Richland Municipal code 24.16.170 ("Easements-watercourses").
42. Prior to or concurrent with the submittal of the first phase the developer shall provide a Geotechnical report including the percolation rate of the soils in the area of any storm retention ponds. If the project constructs a storm retention pond then the engineer will need to demonstrate that the pond will drain itself within 24 hours after the end of a storm event, and not have standing water in it longer than that. Engineering solutions are available for retention ponds that do not perk within 24 hours.
43. If the storm drain pond slopes are greater than 25% or deeper than 4-feet, then a 6-foot fence will be required around the perimeter of the pond with a minimum 12-foot wide gate for maintenance vehicles. A maintenance road from the public Right of Way to the bottom of the pond is also needed (2-inches of compacted gravel, minimum). The City's maintenance of the pond in the future will consist of trimming weeds to maintain compliance with fire and nuisance codes, and maintaining the pond for functionality.
44. The developer shall be responsible for landscaping the storm pond and for its maintenance through the one-year infrastructure warranty period. At a minimum the landscaping plan should be consistent with the City's intended maintenance standard as described above. If the developer wishes for the pond to be landscaped and visually appealing, then the homeowners association should be considered for maintenance responsibilities. This will require an irrigation meter and sprinkler system (including a power source), and responsibility for maintaining the landscaping.
45. The developer of record shall maintain the public storm drainage system for one year from the date of final acceptance by The City of Richland (as determined by the issuance of the "Letter of Final Acceptance"). Said developer shall also thoroughly clean the entire system, including structures, pipelines and basins prior to the City warranty inspection, conducted 11 months after the Letter of Final Acceptance.

Final Platting / Project Acceptance Requirements:

46. When the construction is substantially complete a paper set of "record drawings" shall be prepared by a licensed surveyor and include all changes and deviations. Please reference the Public Works document "RECORD DRAWING REQUIREMENTS & PROCEDURES" for a complete description of

the record drawing process. After approval by the City of the paper copy, a mylar copy of the record drawings shall be submitted along with a CAD copy of them. The electronic as-built record drawings shall be submitted in a AutoCAD format compatible with the City's standard CAD software. All final punchlist items shall be completed or financially guaranteed prior to recording of the final plat.

47. Public utility infrastructure located on private property will require recording of a City standard form easement prior to acceptance of the infrastructure and release of a certificate of occupancy. The City requires preparation of the easement legal description by the developer two weeks prior to the scheduled date of occupancy. Once received, the City will prepare the easement document and provide it to the developer. The developer shall record the easement at the Benton County Assessor and return a recorded original document to the City prior to application for final occupancy.
48. Any off-site easements or permits necessary for this project shall be obtained and secured by the applicant and supplied to the City at the time of plat construction and prior to final plat acceptance by the City.
49. Ten-foot wide public utility easements will be required on the final plat along both sides of all Right-of-Ways within the proposed plat.
50. All landscaped areas within the plat that are in the public Right of Way shall be the responsibility of the homeowners to maintain.
51. A one-foot "No access / screening easement" will be required along the Westcliffe Blvd. Right of Way, except at the intersection of the proposed street.
52. The intended use and ownership of all tracts within the plat shall be noted on the final plat.
53. Property with an unpaid L.I.D. assessment towards it must be paid in full or segregated per Richland Municipal Code 3.12.095.
54. Any restricted parking areas shall be indicated on the final plats.

From: Simon, Rick
Sent: Thursday, November 03, 2016 9:46 AM
To: 'Laurie Gerboth'
Subject: RE: Notice of Application and Public Hearing (S2016-102)

One of the City's development standards is to require improvement to existing streets that abut a development site. In this case, that means that the narrow portion of Westcliffe Road would be widened and curb, gutter and sidewalk would be installed.

When the Apple Valley Ranch subdivision, which includes Apple Cider Court was approved by the City, it was with the condition that Apple Cider Court would not provide access to this property. The rationale was that Apple Cider Court was intended to serve as a small cul-de-sac street that carried traffic from only a few lots and was not intended to carry traffic generated from other properties.

Rick Simon
Development Services Manager
City of Richland
509-942-7596
rsimon@ci.richland.wa.us

From: Laurie Gerboth [mailto:Laurie_Gerboth@hotmail.com]
Sent: Thursday, November 03, 2016 8:54 AM
To: Simon, Rick
Subject: Re: Notice of Application and Public Hearing (S2016-102)

Mr. Simon,

Thank you for your prompt answers to my questions. I have a couple of follow-on questions.

- The Westcliff road adjacent to the planned development does not have a sidewalk and the road narrows at this point. Will a sidewalk be installed? If a sidewalk is installed will the road width remain the same?
- Why is no access being provided via Apple Cider Court? It appears that an access could easily be added.

My concern is traffic on Westcliff Road which is narrow and missing sidewalks on the west side.

Sincerely,

Laurie Gerboth
1423 Badger Mountain Loop
Richland, Washington 99352

(509)554-9727

Laurie_Gerboth@hotmail.com

From: Simon, Rick <RSimon@CI.RICHLAND.WA.US>
Sent: Tuesday, November 1, 2016 1:34 PM
To: 'Laurie Gerboth'
Subject: RE: Notice of Application and Public Hearing (S2016-102)

Ms. Gerboth,

I have attached a copy of the proposed plat for your information. The two access points to the subdivision would be along the southerly boundary of the property, from Westcliffe Boulevard and from a roadway that would be extended south from Shockley Road, along the alignment of an existing private road that currently serves the existing cherry orchard. Apple Cider Court abuts the proposed development along its eastern boundary, but no vehicular access is planned at that location.

Rick Simon
Development Services Manager
City of Richland
509-942-7596
rsimon@ci.richland.wa.us

From: Laurie Gerboth [mailto:Laurie_Gerboth@hotmail.com]
Sent: Tuesday, November 01, 2016 1:26 PM
To: Simon, Rick; Mark Gerboth
Subject: Notice of Application and Public Hearing (S2016-102)

Mr. Simon,

I received the letter containing the City of Richland Notice of Application and Public Hearing (2016-102) regarding the request from Wes Hodges to subdivide the 28.4 acre site into 55 single family residential lots (Preliminary Plat of Jolianna Heights). My questions are regarding access for the 55 homes:

- What roads will provide access to the homes?
- Are there plans to revise existing roads to provide access?

Thank you in advance for answers to the questions above.

Laurie Gerboth
1423 Badger Mountain Loop
Richland, Washington 99352

(509)554-9727

Laurie_Gerboth@hotmail.com

Dear Mr. Simon,

We plan to attend the Public Hearing regarding the application for preliminary plat approval on the proposed development contained in S2016-102, and are sending this email just in case we are unable to do so.

According to the map provided with the notice we will border the proposed development along Westcliffe Boulevard. We have a couple of questions/comments and are interested in being notified of any decisions pertaining to this application.

1. The proposed application states the plat will be subdivided for 55 homes. This could mean, at least, 110 additional cars. What considerations will be made to limit the impact on the already heavy traffic issue at the intersections of Shockley/Keene, Keene/Queensgate and Queensgate/I-182?

As it is now, between 7am and 9am, traffic trying to enter I-182 backs up on Queensgate all the way to Keene and beyond (as well as on Queensgate to Duportail). This translates to an additional 10-15 minutes just to make it onto the freeway, due to the heavy traffic. Even if the City's proposal to lengthen Queensgate up into the Westcliffe neighborhood is completed (west of the Keene/Queensgate intersection) all traffic will still funnel into the same area in order to access I-182.

2. Will the City make changes to Westcliffe Boulevard if/when the proposed development proceeds? Specifically, the removal of the small section of overhead power lines and widening of the road along that section of the plat that borders Westcliffe Boulevard?

3. What is the proposed market value of the 55 homes that are being considered for this development? Will they be comparable in value to the surrounding developments?

Thank you.

Jeffrey Leuze

Jan Stack-Leuze

1419 Badger Mountain Loop

Richland, WA 99352

From: Simon, Rick
Sent: Tuesday, November 01, 2016 12:16 PM
To: 'desert99301'
Subject: RE: Richland Public Hearing S2016-102

Good morning,

Your comments will be forwarded to the Hearing Examiner. At this time, I can provide the following responses to your questions:

1. Several improvements are planned to accommodate future growth in South Richland. WSDOT will be replacing the signal at the eastbound I-182 ramp terminals with a roundabout in 2017 which will add a second lane onto the eastbound on-ramp. This should allow more cars through and help to relieve the backup that currently exists. Plans are also underway to add a right-turn lane on Keene Road at Queensgate and add lanes to Queensgate Drive between Keene Road and I-182. This work is dependent on acquiring the necessary funding. Part of the City's requirements for new development is the payment of traffic impact fees. The proposed subdivision would be required to pay fees that would be used to help pay for projects like these.

2. The City development regulations require that a developer improve the street frontage along their project site. That would involve widening of the street and installation of curb, gutter and sidewalk. Typically, this does not involve the undergrounding of existing power lines. We are in the process of gathering comments from the departments and agencies that will be responsible for serving this proposed project and have yet to receive comments from the electrical utility, so cannot comment with certainty concerning the existing power lines. That will be an item that is addressed when the staff report is prepared for the Hearing Examiner, which will be ready about 10 days from now. If you check back with us then, we can forward a copy to you.

3. The City does not regulate the value/size of homes in any particular neighborhood. In the application materials submitted by Wes Hodges, he characterized the homes that would be built within the subdivision as "high income".

Thank you for your comments. If you have further questions, please don't hesitate to contact me.

Rick Simon
Development Services Manager
City of Richland
509-942-7596
rsimon@ci.richland.wa.us

-----Original Message-----

From: desert99301 [mailto:desert99301@gmail.com]
Sent: Monday, October 31, 2016 9:33 AM
To: Simon, Rick
Subject: Richland Public Hearing S2016-102

Rick Simon
Development Services Manager
840 Northgate Drive, PO Box 190
Richland, WA 9352

Mr. Rick Simon
Development Services Manager
City of Richland, Washington

665 Shockley
Richland, WA 99352
October 31, 2016

Dear Mr Simon:

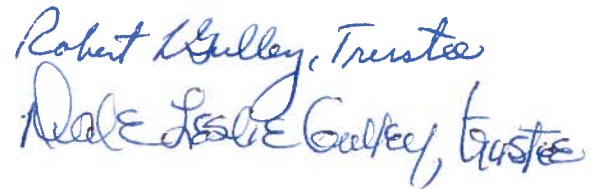
My wife Dale and I have one request regarding the Preliminary Plat of Jolianna Heights which is to be reviewed on Thursday November 17, 2016, at 6:00 p.m. in the Richland City Hall Council Chambers:

If development of the 60 ft wide by 541 ft long easement road that bounds the west side of our property will include the higher pressure of the two domestic water lines currently in Shockley Road, we would appreciate being considered for a water service connection to the higher pressure water line. We are currently drawing domestic water from a well located on the subject plat. The parcel number for the property which includes this easement road and the well is: 127982000009000

The parcel number for the property we wish to eventually service with the high pressure water line is:
127982000002002

Thank you for your consideration.

Sincerely yours,

Handwritten signatures of Robert and Dale Gulley in blue ink. The signature of Robert Gulley is on top, and the signature of Dale Gulley is below it. Both signatures are written in a cursive style.

Robert and Dale Gulley Trustees
for The Gulley Living Trust
Dated July 02, 1996

The map shows a residential area with a central 'Project Site' outlined in red. The site is located between Shockey Rd to the north and a red boundary line to the east. To the west of the site is Riebling St. The map includes various other streets such as Whitehall Dr, Shockey Rd, Riebling St, and others. A compass rose in the bottom left corner indicates North (N), South (S), East (E), and West (W). The map also shows numerous residential lots with house icons and a network of streets including Whitehall Dr, Shockey Rd, Riebling St, and others.

**RICHLAND PLANNING COMMISSION
TECHNICAL ADVISORY COMMITTEE REPORT (S2015-100)
NOVEMBER 10, 2016**

APPLICANT: WES HODGES

REQUEST: PRELIMINARY PLAT APPROVAL TO SUBDIVIDE
28 ACRES INTO 55 RESIDENTIAL LOTS, (JOLIANNA
HEIGHTS).

LOCATION: SOUTH OF SHOCKLEY ROAD, WEST OF APPLE CIDER
COURT AND NORTH OF WESTCLIFFE BOULEVARD.

ENGINEER: SPINK ENGINEERING

TECHNICAL ADVISORY COMMITTEE RECOMMENDATIONS

The Technical Advisory Committee conducted a review of the request and recommends that if the preliminary plat is approved, such approval be subject to the following conditions:

1. Prior to final plat approval, complete engineering plans indicating street design and grading, utility plans including water and sewer, electrical, street lighting, telephone, television cable, natural gas, and irrigation system shall be approved by the Richland Civil and Utility Engineering Division and shall be consistent with the requirements of the responsible departments or companies.
2. The street addresses shall be finalized at time of final plat submittal and review. Street addressing shall be in conformance to RMC Chapter 12.01. The following note shall be placed on the final plat(s): **“Address numbers [noted in brackets] are subject to change by the City of Richland at time of building permit issuance.”**
3. A Centralized Delivery Unit (CBU) mailbox shall be installed that meets the standards of the United States Postal Service.
4. Park fees as required by Richland Municipal Code (RMC) Chapter 22.12 shall be paid prior to the City’s performance of a final inspection for any new home within the plat boundaries. The following note shall be placed on the final plat: **“Park fees as required by Richland Municipal Code Chapter 22.12 shall be paid by the property owner prior to the time that a final building inspection is performed by the City for any home on any lot within this subdivision.”**
5. Transportation impact fees as required by Richland Municipal Code (RMC) Chapter 12.03 shall be paid prior to the City’s performance of a final inspection for any new home within the plat boundaries. The following note shall be placed

on the final plat: **“Transportation impact fees as required by Richland Municipal Code Chapter 12.03 shall be paid by the property owner prior to the time that a final building inspection is performed by the City for any home on any lot within this subdivision.”**

6. If a Secondary Emergency Vehicle Access (SEVA) road shall is constructed from the end of the cul-de-sac in the southeast corner of the project site onto Apple Cider Court. This SEVA road shall be blocked with bollards or gated in a manner that is acceptable to the Richland Fire Department and that would prevent non-emergency access from the project site onto Apple Cider Court. The SEVA shall be designed to provide for pedestrian access.
7. The project shall proceed in conformance with the Geotechnical Investigation Report for Jolianna Heights prepared by White Shield, Inc dated September 26, 2016, including recommendations for review of final site grading and construction plans and engineering observation of soil pretreatment, soil placement and compaction, soil testing, engineering observation of slope construction process, geotechnical engineering approval of final site grading, soil compaction and monitoring of groundwater conditions.
8. Stormwater control measures shall be implemented during construction activities, utilizing best management practices in accordance with the Storm Water Control Manual for Eastern Washington as identified by permit conditions issued by the City of Richland and/or the Washington State Department of Ecology.
9. An erosion control plan shall be prepared by the applicant and submitted to the City of Richland for review and approval at the time that engineered plans are submitted for project construction. The plan shall be designed to prevent erosion for occurring within the site and to prevent erosion or deposition onto adjacent properties. Erosion control measures shall be maintained throughout the construction of the project.
10. A dust control plan shall be prepared by the applicant and approved by the Benton Clean Air Authority prior to the commencement of earth moving or construction activities on-site. Said dust control plan shall be implemented throughout the duration of project construction.
11. No grading and excavation work shall be permitted on-site without the issuance of a valid grading permit by the City of Richland. No final plat shall be recorded prior to the time that the City has completed its final inspection approval of all grading activities and the geotechnical engineer has submitted the final field observation report to the City.
12. The applicant shall comply with City and state noise standards throughout the construction of the project.

13. If during grading and construction activities archeological or paleontological resources are uncovered, the developer shall suspend work in that particular area and contract the Washington State Office of Archeology and Historic Preservation to determine a plan for mitigation of the disturbance to the resource.
14. The final plat(s) shall include a note identifying the intended use, ownership and maintenance of all non-residential tracts within the plat boundaries.
15. If construction of the plat requires the abandonment of the existing domestic well that currently serves adjacent properties, then the applicant shall provide connections to the City water system for all existing users of that domestic well.
16. The applicant is responsible for compliance with all standards and conditions contained in the Kennewick Irrigation District correspondence dated November 1, 2016.
17. The final plat shall clearly identify the location of the United States Bureau of Reclamation Right of Way that exists on or adjacent to the subject property.
18. As the Kennewick Irrigation District requires review and approval of all plat construction plans, the applicant is responsible for providing construction plans to the District concurrent with submittal of said plans to the City.
19. All final plans for public improvements shall be submitted prior to pre-con on a 24" x 36" hardcopy format and also electronically in .dwg format compatible with the City's standard CAD software. Addendums are not allowed, all information shall be supplied in the specified 24 x 36 (and electronic) format. When construction of the infrastructure has been substantially completed, the applicant shall provide paper, mylar and electronic record drawings in accordance with the City's "Record Drawing Requirements". The electronic as-built record drawings shall be submitted in a AutoCAD format compatible with the City's standard CAD software. Electronic copies of the construction plans are required prior to the pre-con meeting, along with the multiple sets of paper drawings. The mylar record drawings (including street lights) shall be submitted and approved by the City before the final punchlist inspection will be performed. All final punchlist items shall be completed or financially guaranteed prior to recording of the final plat.
20. Any and all necessary permits that may be required by jurisdictional entities outside of the City of Richland shall be the responsibility of the developer to obtain.
21. A copy of the construction drawings shall be submitted for review to the appropriate jurisdictions by the developer and his engineer. All required comments / conditions from all appropriate reviewing jurisdictions (e.g.: Benton County, any appropriate irrigation districts, other utilities, etc.) shall be

incorporated into one comprehensive set of drawings and resubmitted (if necessary) for final permit review and issuance.

22. Any work within the public right-of-way or easements or involving public infrastructure will require the applicant to obtain a right-of-way permit prior to construction. A plan review and inspection fee in the amount equal to 5% of the construction costs of the work within the right-of-way or easement will be collected at the time the permit is issued. A stamped, itemized Engineers estimate (Opinion of probable cost) and a copy of the material submittals shall be submitted along with the final plan submittal.
23. When the construction is substantially complete a paper set of “record drawings” shall be prepared by a licensed surveyor and include all changes and deviations. Please reference the Public Works document “RECORD DRAWING REQUIREMENTS & PROCEDURES” for a complete description of the record drawing process. After approval by the City of the paper copy, a mylar copy of the record drawings shall be submitted along with a CAD copy of them. The electronic as-built record drawings shall be submitted in a AutoCAD format compatible with the City’s standard CAD software. All final punchlist items shall be completed or financially guaranteed prior to recording of the final plat.
24. Public utility infrastructure located on private property will require recording of a City standard form easement prior to acceptance of the infrastructure and release of the final plat. The City requires preparation of the easement legal description by the developer two weeks prior to the scheduled date of acceptance. Once received, the City will prepare the easement document and provide it to the developer. The developer shall record the easement at the Benton County Assessor and return a recorded original document to the City prior to application for acceptance.
25. A pre-construction conference will be required prior to the start of any work within the public right-of-way or easement. Contact the Civil and Environmental Engineering Division at 942-7500 to schedule a pre-construction conference.
26. Site plan drawings which involve the construction of public infrastructure shall be drawn on a standard 24” x 36” drawing format to a scale which shall not be less than 1”= 40’.
27. All plan sheets involving construction of public infrastructure shall have the stamp of a current Washington State licensed professional engineer.
28. All construction plan sheets shall include the note “CALL TWO WORKING DAYS BEFORE YOU DIG 1-800-424-5555 (or “811”).” Or: <http://www.call811.com/>
29. An irrigation source and distribution system, entirely separate from the City’s domestic water system, shall be provided for this development. *Construction plans*

will not be accepted for review until adequate and viable proof of an irrigation source is made available by the developer. The designing Engineer shall submit plans for the proposed irrigation system to the Irrigation District with jurisdiction over the property at the same time that they are submitted to the City for construction review. Plans shall be reviewed and accepted by said irrigation district prior to issuance of a Right-of-Way permit by the City. Easements shall be provided on the final plat for this system where needed.

30. A copy of the preliminary plat shall be supplied to the Post Office and all locations of future mailbox clusters approved prior to final platting.
31. Public improvement design shall follow the following general format:
 - A. Sanitary sewer shall be aligned on the north and west side of street centerlines.
 - B. Storm sewer shall be aligned on the south and east side of street centerlines.
 - C. Any sewer or storm manholes that are installed outside of public Right of Way shall have an acceptable 12-foot wide gravel access road (minimum) provided from a public street for maintenance vehicles.
 - D. 10-foot horizontal spacing shall be maintained between domestic water and sanitary sewer mainlines and service lines.
 - E. Water lines shall be aligned on the south and east side of street centerlines.
 - F. Watermains larger than 8-inches in diameter shall be ductile iron.
 - G. Watermains installed outside of the City Right of Way or in very rocky native material, shall be ductile iron and may need restrained joints.
 - H. All watermains outside areas zoned R1 shall be ductile iron.
 - I. Fire hydrant location shall be reviewed and approved by the City Fire Marshal.
 - J. Sewer mains over 15-feet deep shall be constructed out of SDR26 PVC, C900 PVC or ductile iron. The entire main from manhole to manhole shall be the same material. Private sewer service lines over 15-feet deep shall also be constructed of the same material, then transition to regular sewer piping above 15-feet.
 - K. Water valves and manholes installed on private property shall be placed so as to avoid parked cars whenever feasible.
 - L. Trash compactors (high capacity dumpsters) shall be plumbed to the sanitary sewer system.
 - M. All utilities shall be extended to the adjacent property (properties) at the time of construction.
 - N. The minimum centerline finish grade shall be no less than 0.30 % and the maximum centerline finish grade shall be no more than 10.0 % for local streets.
 - O. The minimum centerline radius for local streets shall be 100-feet.
 - P. Any filling of low areas that may be required within the public Right of Way shall be compacted to City standards.

- Q. A overall, composite utility plan shall be included in the submitted plan set if the project is phased. This comprehensive utility plan benefits all departments and maintenance groups involved in the review and inspection of the project.
 - R. A detailed grading plan shall be included in the submitted plan set.
 - S. For public utilities not located within public street rights-of-way the applicant shall provide maintenance access acceptable to the City and the applicant shall provide an exclusive 10-foot wide public utility easement (minimum) to be conveyed to the City of Richland.
 - T. Final design of the public improvements shall be approved at the time of the City's issuance of a Right-of-way Construction Permit for the proposed construction.
 - U. All public improvements shall comply with the State of Washington and City of Richland requirements, standards and codes.
 - V. All cul-de-sacs shall have a minimum radius of 45-feet to the face of curb to allow for adequate turning radius of fire trucks and solid waste collection vehicles.
 - W. Curb returns at minor intersections shall have a minimum radius of 25-feet. Curb returns at major intersections should have minimum radius of 30-feet but should be evaluated on a case by case basis.
 - X. All public streets shall meet design requirements for sight distance (horizontal, vertical and intersectional).
 - Y. COMMERCIAL ONLY: All intersections with public streets shall meet horizontal, vertical and intersectional design requirements for sight distance (A.K.A. the Vision Clearance Triangle).
 - Z. All driveways for commercial projects shall construct City standard commercial driveways. Radius-style driveways are not allowed.
 - AA. The final engineered construction plans shall identify locations for irrigation system, street lighting, gas service, power lines, telephone lines, cable television lines, street trees and mail boxes. All electrical appurtenances such as transformers, vaults, conduit routes, and street lights (including their circuit) need to be shown in the plan view.
 - BB. Construction plans shall provide or reference all standard drawings or special details that will be necessary to construct all public improvements which will be owned, operated, maintained by the City or used by the general public (Commercial Driveway, Curb, Gutter, Sidewalk, Water, Sewer, Storm, Street and Street lighting etc.).
 - CC. The contractor shall be responsible for any and all public infrastructure construction deficiencies for a period of one year from the date of the letter of acceptance by the City of Richland.
32. If the project will be built in phases the applicant shall submit a master plan for the sanitary sewer, domestic water, storm drainage, electrical, street lighting and irrigation system for the entire project prior to submitting plans for the first phase to assure constructability of the entire project. This includes the location and size of any storm retention ponds that may be required to handle runoff.

33. If the City Fire Marshal requires a secondary emergency vehicle access, it shall be included in the construction plan set and be designed to the following standards:
- A. 2-inches compacted gravel, minimum (temp. SEVA only).
 - B. 2% cross-slope, maximum.
 - C. 5% slope, maximum. Any access road steeper than 5% shall be paved or be approved by the Fire Marshal.
 - D. Be 20-feet in width.
 - E. Have radii that are accommodating with those needed for City Fire apparatus.

Secondary emergency vehicles accesses (SEVA's) shall be 20-feet wide, as noted. Longer secondary accesses can be built to 12-feet wide with the approval of the City of Richland Fire Marshal, however turn-outs are required at a spacing acceptable to the Fire Dept. Temporary SEVA's shall be constructed with 2-inches of compacted gravel, at a minimum. Permanent SEVA's shall be paved with 2-inches of asphalt over 4-inches of gravel, at a minimum.

34. All permanent survey monuments existing on the project site shall be protected. If any monuments are destroyed by the proposed construction, the applicant shall retain a professional land surveyor to replace the monuments and file a copy of the record survey with the City.
- A. No survey monument shall be removed or destroyed (*the physical disturbance or covering of a monument such that the survey point is no longer visible or readily accessible*) before a permit is obtained from the Department of Natural Resources (DNR). WAC 332-120-030(2) states "It shall be the responsibility of the governmental agency or others performing construction work or other activity (including road or street resurfacing projects) to adequately search the records and the physical area of the proposed construction work or other activity for the purpose of locating and referencing any known or existing survey monuments." (RCW 58.09.130).
 - B. Any person, corporation, association, department, or subdivision of the state, county or municipality responsible for an activity that may cause a survey monument to be removed or destroyed shall be responsible for ensuring that the original survey point is perpetuated. (WAC 332-120-030(2)).
 - C. Survey monuments are those monuments marking local control points, geodetic control points, and land boundary survey corners. (WAC 332-120-030(3)).

When a monument must be removed during an activity that might disturb or destroy it, a licensed Engineer or Land Surveyor must complete, sign, seal and the file a permit with the DNR.

It shall be the responsibility of the designing Engineer to identify the affected monuments on the project plans and include a construction note directing them to the DNR permit.

35. The phase adjacent to and including the 60-foot wide strip of land extending north to Shockley Road labeled as “Parcel B” shall construct a full-width City street in Parcel B with typical frontage improvements on both sides at the time that this phase is constructed. This road shall be 34-feet wide and shall be dedicated as public Right-of-Way on the face of the final plat. Alternatively, if Parcel B is consolidated into one of the adjacent properties to the west or east of it, and the developer of Jolianna Heights can establish a future road alignment through the adjacent parcel to the west of Parcel B and obtain that property owner’s consent to the road alignment, then the requirement to construct a road in Parcel B will be nullified. This road should extend northwest from “B Loop” making that a 4-way intersection. This will also remove the short road segment adjacent to lot 55.
36. Street access across the tract of land noted in condition #19 shall be provided to the property to the west, even if the street in Parcel B is constructed.
37. The tract of land along the west and south boundary of the pre-plat outside of the road Right-of-Way (Tract 4) needs to note an ownership and a purpose (open space, etc.).
38. There is a 1-foot wide strip of property with a “No Access” easement on it at the S.E.V.A. location shown on sheet 2 (“Tract A” on the plat of Apple Valley Ranch). This project is proposing a secondary emergency access onto Apple Cider Court at that location. Access likely isn’t needed from here as secondary emergency access could be obtained off of Shockley Road. Permission from the property owner of Tract A will have to be obtained prior to constructing the emergency access.
39. Sidewalks shall be installed along all public Right of Way frontages that building lots do not front on during construction of those phases (e.g., storm drainage ponds, parks, etc.).
40. The Jolianna Heights preliminary plat lies within the boundary of the South Richland Collector Street Financing Plan (RMC 12.03). This plat shall therefore be subject to the fees administered by the finance plan for any phase submitted for approval. Since this property is included within the Financing Plan, it is exempt from the SEPA-related traffic study requirement (TIA).
41. The Westcliffe Blvd. frontage shall be completed to City standards at the time that the phase which constructs the lots adjacent to Westcliffe is developed. The road section (curb, gutter and sidewalk) shall be built with the face of curb at 18-feet off of centerline. A fence may be needed at the back of sidewalk, dependent upon the slope constructed adjacent to it. A ten-foot public utility easement along the Westcliffe frontage shall be provided on the face of the final plat.
42. There is an existing Bureau of Reclamation easement and an irrigation drain pipe along the South boundary of the pre-plat that will have to be addressed at the time

of phase 1 construction. Please contact the City of Richland Public Works Dept. for more information.

43. A note will be shown on the face of the final plat stating that Westcliffe Blvd. is classified as an "Arterial Collector street". Subsequently, no driveways accessing single family lots will be allowed onto Westcliffe.
44. All proposed Right of Ways that are narrower than 54-feet shall have parking restricted, as per City standards. Street signs indicating restricted parking shall be installed prior to final platting at the developers expense. The restricted parking areas shall be indicated on the construction plans and the final plat.
45. If the project is to be constructed in phases, all dead-end streets longer than 150-feet that will be continued later need to have temporary turn-arounds built at the end of them. The radius of these turn-arounds shall be 45-feet minimum, and shall be constructed of 2-inches of compacted top course gravel for slopes less than 5%, or of 2-inches of asphalt atop 2-inches of gravel for slopes greater than 5%. If the temporary turn around is not located within the final plat an easement with a 50-foot radius will be required.
46. The proposed preliminary plat is located within the Tapteal 2 water pressure zone. The closest Tapteal 2 watermain is located in Westcliffe Blvd. to the south, and Shockley Road to the north. It shall be the responsibility of the developer to extend a watermain to this property to serve domestic water at the time of plat construction.
47. In accordance with the City's comprehensive water plan, a portion of the 10-inch "Tapteal 2" water distribution main is designed to run in a north-south direction through this plat. This water main shall be extended to connect the existing main in Shockley Road to the existing main in Westcliffe Blvd. This watermain shall follow the alignment of the road that is extended north to Shockley Road, whether it be in Parcel B or through the neighboring property to the west as outlined in condition #17 above.
48. The developer will be required to demonstrate that all phases are capable of delivering adequate fire flows prior to construction plans being accepted for review. This may require looping of the watermain from off-site locations, or oversizing of the main where needed.
49. The fire hydrant layout shall be approved by the City Fire Marshal.
50. The closest sanitary sewer available for this development is located in Shockley Road to the north and also in Apple Cider Court to the east. It shall be the responsibility of the developer to extend a sewer main to this property to serve sanitary sewer at the time of plat construction. Any easements or permissions

required to cross private property shall be the responsibility of the developer to obtain.

51. A 10-foot wide exclusive sanitary sewer easement shall be provided for any sewer main that is outside of the public Right-of-Way. Wider easements are required for mains that are buried deeper than 10-feet. If any manholes are located outside of the public Right-of-Way, maintenance truck access to said structure may be required.
52. Per municipal code, sanitary sewer shall be extended to the adjoining properties adjacent to the plat.
53. Groundwater may be present on this site. Given the amount of groundwater encountered in this area (in both developed and undeveloped areas), the possibility of an underdrain system being required exists. Please have test pits and/or bore-holes dug by a geotech engineer, and an evaluation from said engineer prior to permitting. If an underdrain system is not required, the geohydrology report needs to state so. The requested report also needs to address any potential groundwater impacts to existing properties downslope of the proposed preliminary plat. Also, if groundwater is encountered within 5-feet of finished grade during plat construction, an underdrain system will be required.
54. This project may require coverage under the Washington State General NPDES Permit for Construction projects. The Developer shall be responsible for compliance with the permit conditions. The City has adopted revised standards affecting the construction of new stormwater facilities in order to comply with conditions of its NPDES General Stormwater Permit program. This project, and each phase thereof, shall comply with the requirements of the City's stormwater program in place at the time each phase is engineered. The project will require detailed erosion control plans.
55. All storm drainage systems shall be designed following the core elements defined in the latest edition of the Stormwater Management Manual for Eastern Washington. The Hydrologic Analysis and Design shall be completed based on the following criteria: Washington, Region 2, Benton County; SCS Type 1A – 24 Hour storm for storm volume. The applicant's design shall provide runoff protection to downstream property owners.
56. The flow-rate of the public storm drainage system shall be designed using the 2-Year, 3-Hour short duration Eastern Washington storm for pipe and inlet sizing using SCS or Santa Barbara method; no modifying or adding time of concentration; no surcharge allowed. Calculations shall be stamped by a registered professional engineer and shall include a profile of the system showing the hydraulic grade line. The calculations should include a 50-foot wide strip behind each right of way line to represent drainage from private property into the City system. Of that area, 50% shall be considered pervious and 50%

impervious. Calculations shall include a profile for the design showing the hydraulic grade line for the system. Passing the storm downhill to an existing system will require a downstream storm system capable of accepting the water without being overwhelmed.

57. All construction projects that don't meet the exemption requirements outlined in Richland Municipal Code, Section 16.06 shall comply with the requirements of the Washington State Department of Ecology issued Eastern Washington NPDES Phase II Municipal Stormwater Permit. All construction activities subject to this title shall be required to comply with the standards and requirements set forth in the Stormwater Management Manual for Eastern Washington (SWMMEW) and prepare a Stormwater Site Plan. In addition a Stormwater Pollution Prevention Plan (SWPPP) or submission of a completed erosivity waiver certification is required at the time of plan submittal.
58. If any existing storm drainage or ground water seepage drains onto the proposed site, or if an on-site underdrain system contributes flow to the property's storm drain system, said storm drainage shall be considered an existing condition, and it shall be the responsibility of the property developer to design a system to contain or treat and release the off-site storm drainage.
59. If there are any natural drainage ways across the proposed pre-plat, the engineered construction plans shall address it in accordance with Richland Municipal code 24.16.170 ("Easements-watercourses").
60. Prior to or concurrent with the submittal of the first phase the developer shall provide a Geotechnical report including the percolation rate of the soils in the area of any storm retention ponds. If the project constructs a storm retention pond then the engineer will need to demonstrate that the pond will drain itself within 24 hours after the end of a storm event, and not have standing water in it longer than that. Engineering solutions are available for retention ponds that do not perk within 24 hours.
61. If the storm drain pond slopes are greater than 25% or deeper than 4-feet, then a 6-foot fence will be required around the perimeter of the pond with a minimum 12-foot wide gate for maintenance vehicles. A maintenance road from the public Right of Way to the bottom of the pond is also needed (2-inches of compacted gravel, minimum). The City's maintenance of the pond in the future will consist of trimming weeds to maintain compliance with fire and nuisance codes, and maintaining the pond for functionality.
62. The developer shall be responsible for landscaping the storm pond and for its maintenance through the one-year infrastructure warranty period. At a minimum the landscaping plan should be consistent with the City's intended maintenance standard as described above. If the developer wishes for the pond to be landscaped and visually appealing, then the homeowners association should be

considered for maintenance responsibilities. This will require an irrigation meter and sprinkler system (including a power source), and responsibility for maintaining the landscaping.

63. The developer of record shall maintain the public storm drainage system for one year from the date of final acceptance by The City of Richland (as determined by the issuance of the "Letter of Final Acceptance"). Said developer shall also thoroughly clean the entire system, including structures, pipelines and basins prior to the City warranty inspection, conducted 11 months after the Letter of Final Acceptance.
64. When the construction is substantially complete a paper set of "record drawings" shall be prepared by a licensed surveyor and include all changes and deviations. Please reference the Public Works document "RECORD DRAWING REQUIREMENTS & PROCEDURES" for a complete description of the record drawing process. After approval by the City of the paper copy, a mylar copy of the record drawings shall be submitted along with a CAD copy of them. The electronic as-built record drawings shall be submitted in a AutoCAD format compatible with the City's standard CAD software. All final punchlist items shall be completed or financially guaranteed prior to recording of the final plat.
65. Public utility infrastructure located on private property will require recording of a City standard form easement prior to acceptance of the infrastructure and release of a certificate of occupancy. The City requires preparation of the easement legal description by the developer two weeks prior to the scheduled date of occupancy. Once received, the City will prepare the easement document and provide it to the developer. The developer shall record the easement at the Benton County Assessor and return a recorded original document to the City prior to application for final occupancy.
66. Any off-site easements or permits necessary for this project shall be obtained and secured by the applicant and supplied to the City at the time of plat construction and prior to final plat acceptance by the City.
67. Ten-foot wide public utility easements will be required on the final plat along both sides of all Right-of-Ways within the proposed plat.
68. All landscaped areas within the plat that are in the public Right of Way shall be the responsibility of the homeowners to maintain.
69. A one-foot "No access / screening easement" will be required along the Westcliffe Blvd. Right of Way, except at the intersection of the proposed street.
70. The intended use and ownership of all tracts within the plat shall be noted on the final plat.

71. Property with an unpaid L.I.D. assessment towards it must be paid in full or segregated per Richland Municipal Code 3.12.095.
72. Any restricted parking areas shall be indicated on the final plats.