

DEVELOPMENT REVIEW APPLICATION

STATE CONTACT <i>Darrien Wyss</i>	PROJECT NO(S): <i>M1-15-09</i>	
NON-REFUNDABLE FEE(S)	REFUNDABLE DEPOSIT(S) <i>1050⁰⁰</i>	TOTAL <i>1050⁰⁰</i>

Type of Review (Please check all that apply):

- | | | |
|--|---|--|
| <input type="checkbox"/> Annexation (ANX) | <input type="checkbox"/> Historic Review | <input type="checkbox"/> Subdivision (SUB) |
| <input type="checkbox"/> Appeal and Review (AP) * | <input type="checkbox"/> Legislative Plan or Change | <input type="checkbox"/> Temporary Uses * |
| <input type="checkbox"/> Conditional Use (CLP) | <input type="checkbox"/> Lot Line Adjustment (LLA) */** | <input type="checkbox"/> Time Extension * |
| <input type="checkbox"/> Design Review (DR) | <input type="checkbox"/> Minor Partition (MIP) (Preliminary Plat or Plan) | <input type="checkbox"/> Variance (VAR) |
| <input type="checkbox"/> Easement Vacation | <input type="checkbox"/> Non-Conforming Lots, Uses & Structures | <input type="checkbox"/> Water Resource Area Protection/Single Lot (WAP) |
| <input type="checkbox"/> Extraterritorial Ext. of Utilities | <input type="checkbox"/> Planned Unit Development (PUD) | <input type="checkbox"/> Water Resource Area Protection/Wetland (WAP) |
| <input type="checkbox"/> Final Plat or Plan (FP) | <input type="checkbox"/> Pre-Application Conference (PA) */** | <input type="checkbox"/> Willamette & Tualatin River Greenway (WRG) |
| <input checked="" type="checkbox"/> Flood Management Area | <input type="checkbox"/> Street Vacation | <input type="checkbox"/> Zone Change |
| <input type="checkbox"/> Hillside Protection & Erosion Control | | |

Home Occupation, Pre-Application, Sidewalk Use, Sign Review Permit, and Temporary Sign Permit applications require different or additional application forms, available on the City website or at City Hall.

Site Location/Address: <i>5650 RIVER ST WEST LINN, OR. 97068</i>	Assessor's Map No.: <i>22E30AC01608</i>
	Tax Lot(s):
	Total Land Area: <i>.44 ACRES</i>

Brief Description of Proposal: ADDITIONS TO EXISTING RESIDENCE:
 1- 21 SQ.FT. ENTRY ADDITION (NORTH)
 2- 1,051 SQ. FT. REAR ADDITION (SOUTH)

Applicant Name: (please print) <i>David L. Alt / Ninth Street Studio</i>	Phone: <i>360-597-4499</i>
Address: <i>10317 NE 9th St.</i>	Email: <i>dalt@ninthstreetstudio.com</i>
City State Zip: <i>Vancouver, WA 98664</i>	

Owner Name (required): (please print) <i>TRENT & MI LYNN CROLLARD</i>	Phone: <i>503-896-6606</i>
Address: <i>5650 RIVER STREET</i>	Email: <i>trentcrollard@msn.com</i>
City State Zip: <i>WEST LINN, OR 97068</i>	

Consultant Name (please print) <i>Gary Buford</i>	Phone: <i>503-635-3511</i>
Address: <i>415 N. State Street</i>	Email: <i>Bufordassociates@gmail.com</i>
City State Zip: <i>Lake Oswego, OR 97034</i>	

1. All application fees are non-refundable (excluding deposit). Any overruns to deposit will result in additional billing.
2. The owner/applicant or their representative should be present at all public hearings.
3. A denial or approval may be reversed on appeal. No permit will be in effect until the appeal period has expired.
4. Three (3) complete hard-copy sets (single sided) of application materials must be submitted with this application.
 One (1) complete set of digital application materials must also be submitted on CD in PDF format.
 If large sets of plans are required in application please submit only two sets.

* No CD required / ** Only one hard-copy set needed

The undersigned property owner(s) hereby authorizes the filing of this application, and authorizes on site review by authorized staff. I hereby agree to comply with all code requirements applicable to my application. Acceptance of this application does not infer a complete submittal. All amendments to the Community Development Code and to other regulations adopted after the application is approved shall be enforced where applicable. Approved applications and subsequent development is not vested under the provisions in place at the time of the initial application.

	<i>8-4-15</i>		<i>8 4 15</i>
Applicant's signature	Date	Owner's signature (required)	Date

*8-4 given/not intake

AUG 20 2015



10317 ne 9th st Vancouver, WA 98664
p 360 597 4499 m 360 904 9663

July 23, 2015

Mr. Peter Spir
Associate Planner
22500 Salamo Rd
West Linn, OR 97068

Subject: Flood Management Area permit -
West Linn Community Development Code,
Ch 27, Flood Management Areas
Written responses to sections 27.060, 27.070 and 27.080

Applicant: Ninth Street Studio
10317 NE 9th St. Vancouver, WA 98664

Contact: David Alt II
360-597-4499
dalt@ninthstreetstudio.com

Property Owners: Trent & Mi Lynn Crollard
5650 River Street West Linn, OR 97068

Property: 5650 River Street West Linn, OR 97068

Project Description:

Proposed additions to the existing residence:

- A 21 sq.ft. addition at the front of the existing house (north) and below the existing roof overhang and over the existing outdoor entry area to facilitate a new entryway.
- A 1,051 sq.ft. addition at the rear of the existing house (south) to facilitate a new Master Bedroom, Master Bathroom, Office and Living Room.

Permit approvals sought by the applicant:

Flood Management Area Permit

Responses to:

West Linn Community Development Code,
Ch 27, Flood Management Areas
Sections 27.060, 27.070 and 27.080.

27.060 Approval Criteria

A. Development, excavation and fill shall be performed in a manner to maintain or increase flood storage and conveyance capacity and not increase design flood elevations.

Response: The proposed 21 sq.ft. (north) entryway addition and 1,051 sq.ft. (south) Master Bedroom/ Master Bathroom/ Office / Living Room addition are to be located at the existing first floor elevation which is at an elevation of 49.26' (per attached Buford Associates Survey of Elevations dated November 8, 2012) and greater than 1' above the BFE of 48.00 (per current FEMA map #41005C0276D dated June 17, 2008), both based on NAVD 1988 datum. The only excavation required is for the new perimeter footings required for the additions. There will be minor fill required to



reduce the crawl space as required (as shown on attached drawing 3). As verified with the Civil Engineer's submittal, the new development will not significantly increase design flood elevations.

- B. No net fill increase in any floodplain is allowed. All fill placed in a floodplain shall be balanced with an equal amount of soil material removal. Excavation areas shall not exceed fill areas by more than 50 percent of the square footage. Any excavation below bankful stage shall not count toward compensating for fill.

Response: Minor fill is required only to reduce the crawl space depth as required (as shown on attached drawing 3). The proposed 21 sq.ft. (north) entryway addition and 1,051 sq.ft. (south) Master Bedroom/ Master Bathroom/ Office / Living Room addition will be above existing grade. As verified with the Civil Engineer's submittal, the new development will not significantly increase design flood elevations.

- C. Excavation to balance a fill shall be located on the same parcel as the fill unless it is not reasonable or practicable to do so. In such cases, the excavation shall be located in the same drainage basin and as close as possible to the fill site, so long as the proposed excavation and fill will not increase flood impacts for surrounding properties as determined through hydrologic and hydraulic analysis.

Response: No work is required on any other parcels of land. The proposed additions are on a single family residential home and both additions will be above the existing grade. The minor excavation required for these foundations will not increase flood impacts for surrounding properties. The proposed 21 sq.ft. (north) entryway addition and 1,051 sq.ft. (south) Master Bedroom/ Master Bathroom/ Office / Living Room addition have no impact to the surrounding properties as verified with the Civil Engineer's submittal.

- D. Minimum finished floor elevations must be at least one foot above the design flood height or the highest flood of record, whichever is higher, for new habitable structures in the flood area.

Response: The residence located at 5650 River Street is an existing residence. The proposed additions do not create a new habitable structure. The proposed 21 sq.ft. (north) entryway addition and 1,051 sq.ft. (south) Master Bedroom/ Master Bathroom/ Office / Living Room addition shall remain at the existing 49.26' finish floor elevation, greater than 1' above the 48.00' BFE.

- E. Temporary fills permitted during construction shall be removed.

Response: No temporary fill is required during construction.

- F. Prohibit encroachments, including fill, new construction, substantial improvements, and other development in floodways unless certification by a professional civil engineer licensed to practice in the State of Oregon is provided demonstrating that encroachments shall not result in any increase in flood levels during the occurrence of the base flood discharge.

Response: The total footprint for the new additions is 1,072 sq.ft. Each of the areas meet all standard zoning requirements and will not encroach on any adjacent properties and not have an effect on flood levels during the occurrence of the base flood discharge.



- G. All proposed improvements to the floodplain or floodway which might impact the flood-carrying capacity of the river shall be designed by a professional civil engineer licensed to practice in the State of Oregon.

Response: No improvements are proposed to the floodplain or floodway other than minor fill as required to reduce the crawl space depth as required (as shown in attached drawing 3). As verified with the Civil Engineer's submittal, the new development will not significantly impact the flood-carrying capacity of the river.

- H. New culverts, stream crossings and transportation projects shall be designed as balanced cut and fill projects or designed not to significantly raise the design flood elevation. Such projects shall be designed to minimize the area of fill in flood management areas and to minimize erosive velocities. Stream crossings shall be as close to perpendicular to the stream as practicable. Bridges shall be used instead of culverts wherever practicable.

Response: No culverts, stream crossings or transportation projects are part of the scope of work with this proposal.

- I. Excavation and fill required for the construction of detention facilities or structures, and other facilities such as levees, specifically shall be designed to reduce or mitigate flood impacts and improve water quality. Levees shall not be used to create vacant buildable land.

Response: The project includes small additions to an existing single family residence. Detention facilities, levees, etc. are not required with the proposed scope of work.

- J. The applicant shall provide evidence that all necessary permits have been obtained from those Federal, State or local governmental agencies from which prior approval is required. (Ord. 1522, 2005; Ord. 1635 § 15, 2014; Ord. 1636 § 25, 2014)

Response: The only other permit required is a building permit to be issued by the City of West Linn. No state or federal review is required for this project.

27.070 Construction Materials and Methods

- A. All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage using methods and practices that minimize flood damage.

Response: The existing main floor is more than 1' above the BFE of 48.00' which is based on the NAVD 1988 datum. All new construction below an elevation of 48.00' shall meet flood damage resistant material requirements including but not limited to pressure treated lumber and exterior grade plywood sheathing.

- B. Electrical, heating ventilation, plumbing and air conditioning equipment and other service facilities shall be designed and/or otherwise elevated or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

Response: All electrical and mechanical equipment will be either located above BFE, or designed and installed to prevent water from entering or accumulating within



the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to the design flood elevation in compliance with the flood-resistant construction requirements of the building code. All new mechanical ductwork will be provided above the ceilings in the attic spaces, above the BFE.

- C. New and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system.

Response: The existing residence utilizes the public utility system. No on-site supply systems are part of the proposed scope of work. Improvements to the existing water supply system shall be installed so that floodwaters do not enter or accumulate within system components and to additionally ensure that floodwater does not contaminate the potable water supply system. Those systems shall be water tight. All new faucets, hose bibs, etc. shall be located above the BFE or utilize a backflow system to eliminate contamination of the potable water system.

- D. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharge from the systems into flood waters.

Response: The existing residence utilizes the public sewer system. No on-site sewer systems are part of the proposed scope of work. Two existing bathroom toilets, two existing bathroom sinks, One existing bath/shower and an existing kitchen sink will be re-located within the existing footprint to remain within the existing footprint. One new bathroom sink, one new bar sink, and one new laundry sink will be added within the existing residence. One new toilet, two new bathroom sinks, one new shower and one new tub will be added within the new (south) addition. All new sanitary sewage improvements will be installed to minimize or eliminate infiltration of floodwaters into the system and discharge into flood waters as required.

- E. On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

Response: The existing residence utilizes the public sewer system. No on-site sewer systems are part of the proposed scope of work.

- F. All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure.

Response: All new walls at the proposed additions shall be anchored to the new foundations with hold downs to prevent foundation, collapse, or lateral movement of the structure. An Oregon licensed Structural Engineer shall determine all anchoring requirements.

27.080 Residential Construction

- A. New construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated to at least one foot above the base flood elevation.

Response: The residence located at 5650 River Street is an existing residence and is already located more than 1' above the base flood elevation (BFE = 48.00', existing



floor elevation is at 49.26') The proposed 21 sq.ft. (north) entryway addition and 1,051 sq.ft. (south) Master Bedroom/ Master Bathroom/ Office / Living Room addition must all remain at the same height as the existing floor elevation to allow for a functional layout. All new living space additions shall match the existing finish floor elevation of 49.26' which is greater than 1' above the BFE.

- B. Fully enclosed areas below the lowest floor that are subject to flooding are prohibited, or shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must be certified by either a professional civil engineer or an architect licensed to practice in the State of Oregon, and must meet or exceed the following minimum criteria:

Response: Gary Buford, Professional Civil Engineer licensed to practice in the State of Oregon has certified the proposed design per his attached letter.

1. A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided.

Response: All new crawlspaces below the additions will meet or exceed the opening requirement with foundation vents in addition to vented crawl space access points.

2. The bottom of all openings shall be no higher than one foot above grade.

Response: The foundation vents will be located more than 1' above grade. (as shown in attached drawing 3).

3. Openings may be equipped with screens, louvers, or other coverings or devices; provided, that they permit the automatic entry and exit of floodwaters.

Response: The foundation vents and vented crawl space access points will have screens to code to prevent rodents, etc. from entering but will not prevent the flow of water from the crawlspace area.

4. Fully enclosed areas below the base flood elevation shall only be used for parking, access and limited storage.

Response: No new enclosed areas other than crawlspaces are part of the proposed scope of work, and will only be used for crawl space access.

5. Service equipment (e.g. furnaces, water heaters, washer/dryers, etc.) is not permitted below the base flood elevation.

Response: Existing furnace and water heater will be upgraded as necessary to handle the new proposed work. There is an existing washer & dryer. All new service equipment will be located above the base flood elevation of 48.00' as required.



6. All walls, floors and ceiling materials located below the base flood elevation must be unfinished and constructed of materials resistant to flood damage.

Response: The residence at 5650 River Street is an existing residence. The proposed 21 sq.ft. (north) entryway addition and 1,051 sq.ft. (south) Master Bedroom/ Master Bathroom/ Office / Living Room addition must all remain at the same height as the existing floor elevation for a functional layout. All new structural materials and finish materials required at the proposed additions below the BFE elevation of 48.00' shall meet the FEMA Flood damage resistant material requirements.

- C. Crawlspaces. Crawlspaces are a commonly used method of elevating buildings in special flood hazard areas (SFHAs) to or above the base flood elevation (BFE), and are allowed subject to the following requirements:

1. The building is subject to the Flood-Resistant Construction provisions of the Oregon Residential specialty Code.

Response: All parts of section 322, Flood Resistant Construction of the ORSSC shall be met at the proposed additions.

2. They shall be designed by a professional engineer or architect licensed to practice in the State of Oregon to meet the standards contained in the most current Federal Emergency Management Agency's (FEMA) Technical Bulletin.

Response: An Oregon licensed Structural Engineer Licensed to practice in the State of Oregon shall design to meet the standards contained in the most current Federal Emergency Management Agency's (FEMA) Technical Bulletin.

3. The building must be designed and adequately anchored to resist flotation, collapse, and lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of bouncy.

Response: All new walls at the proposed additions shall be anchored to the new foundations with hold downs to resist flotation, collapse, and lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effect of bouncy. An Oregon licensed Structural Engineer shall determine all anchoring requirements.

4. Flood vent openings shall be provided on at least two sides that equalize hydrostatic pressures by allowing for the automatic entry and exit of floodwaters. The total area of the flood vent openings must be no less than one square inch for each square foot of enclosed area. The bottom of each flood opening can be no more than one foot above the lowest adjacent exterior grade. For guidance on flood openings, see FEMA Technical Bulletin 1-93, Openings in Foundation Walls.

Response: All new crawlspaces below the additions will meet or exceed the opening size requirement with foundation vents in addition to vented crawl



space access points. The foundation vents and vented crawl space access points will not be more than 1' above the lowest exterior adjacent grade (as shown in attached drawing 3).

5. Portions of the building below the BFE must be constructed with materials resistant to flood damage. This includes not only the foundation walls (studs and sheathings), but also any joists, insulation, or other materials that extend below the BFE. For more detailed guidance on flood-resistant materials see FEMA Technical Bulletin 2-93, Flood-Resistant Materials Requirements.

Response: All new structural materials and finish materials required at the proposed additions below the BFE 48.00' shall meet the FEMA Flood damage resistant material requirements through the use of concrete at foundations, pressure treated lumber and exterior grade plywood at framing and non-paper faced gypsum wall board, and all other Flood damage material requirements.

6. Utility systems within the crawlspace must be elevated above BFE or designed so that floodwaters cannot enter or accumulate within the system components during flood conditions. Ductwork, in particular, must either be placed above the BFE or sealed from floodwaters. For further guidance on the placement of building utility systems in crawlspaces, see FEMA 348, Protecting Building Utilities From Flood Damage. Flood-resistant materials and utilities, access and ventilation openings in crawlspaces are further addressed in this bulletin.

Response: No utility systems are required in any of the crawlspaces in the proposed additions, nor will be placed below the BFE. FEMA requirements shall be met.

7. The interior grade of a crawlspace below the BFE must not be more than two feet below the lowest adjacent exterior grade (LAG).

Response: No part of the interior grade within the proposed new crawlspace will be more than 2' below the adjacent exterior grade.

8. The height of the below-grade crawlspace, measured from the interior grade of the crawlspace to the top of the crawlspace foundation wall, must not exceed four feet at any point. This limitation will also prevent these crawlspaces from being converted into habitable spaces.

Response: The height of the below-grade crawlspace, measured from the interior grade of the crawlspace to the top of the foundation wall will not exceed four feet at any point (as shown in attached drawing 3).

9. There must be an adequate drainage system that removes floodwaters from the interior area of the crawlspace. Possible options include natural drainage through porous, well-drained soils and drainage systems such as low-point drains, perforated pipes, drainage tiles, or gravel or crushed stone drainage by gravity.



Response: New proposed crawl spaces require minor fill to meet the max. crawl space requirement. This places the vents below the interior crawl space grade thereby allowing the crawl space to naturally drain by gravity (as shown in attached drawing 3). A minimum of (2) Foundation vents will also be provided at all proposed crawlspaces which are fully enclosed.

10. The velocity of floodwaters at the site should not exceed five feet per second for any crawlspace. For velocities in excess of five feet per second, other foundation types should be used.

Response: The crawlspaces below the proposed additions shall be concrete stem walls over concrete spread footings. Those foundations systems shall meet the requirements of ch. 4 of the ORSC as required by R322.2.3 – foundation design and construction of the Flood Resistant Construction section of the ORSC and shall be designed by an Oregon licensed Structural Engineer Licensed to practice in the State of Oregon to resist the expected velocities at the site.

11. For more detailed information, refer to FEMA Technical Bulletin 11-01 or the most current edition.

Response: The FEMA technical bulletin 11-01 has been reviewed and its requirements will be provided on the permit documents. All parts of the proposed additions below the BFE 48.00' shall meet those requirements.

12. The use of below-grade crawlspaces to elevate the building to one foot above the BFE may cause an increase in flood insurance premiums, which are beyond the control of the City.

Response: No crawl spaces are proposed to be below grade. The home owners currently have flood insurance and shall coordinate directly with their provider when necessary.

- D. A poured slab placed over fill can be used to elevate the lowest floor of a structure above the base flood elevation. However, when a building site is filled, it is still in the floodplain and no basements are permitted.

Response: No basements are part of the scope of work.

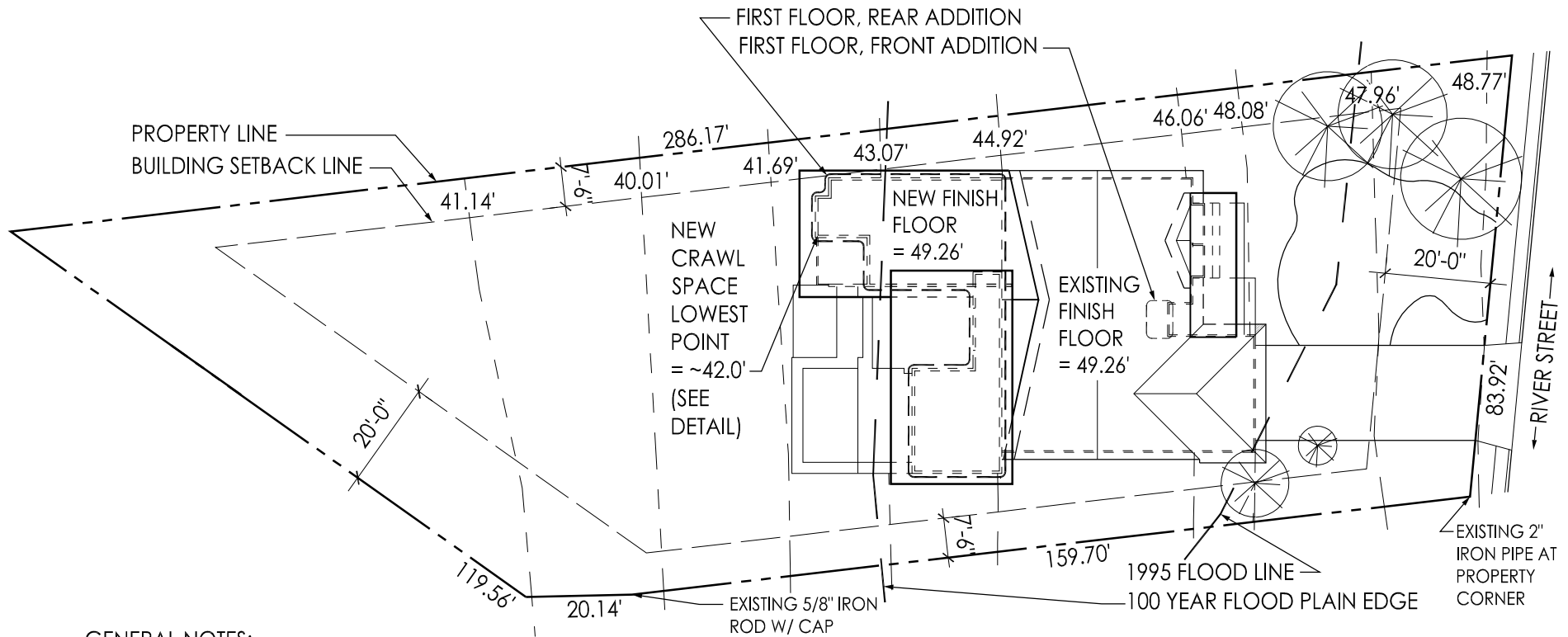
- E. Placing a structure on piers, piles and posts is allowed provided supporting members are designed to resist hydrostatic and hydrodynamic forces. (Ord. 1565, 2008)

Response: Perimeter concrete spread footings shall be used at the proposed additions. -- end --

Thank you!

Sincerely,

David Alt II
Principal



GENERAL NOTES:

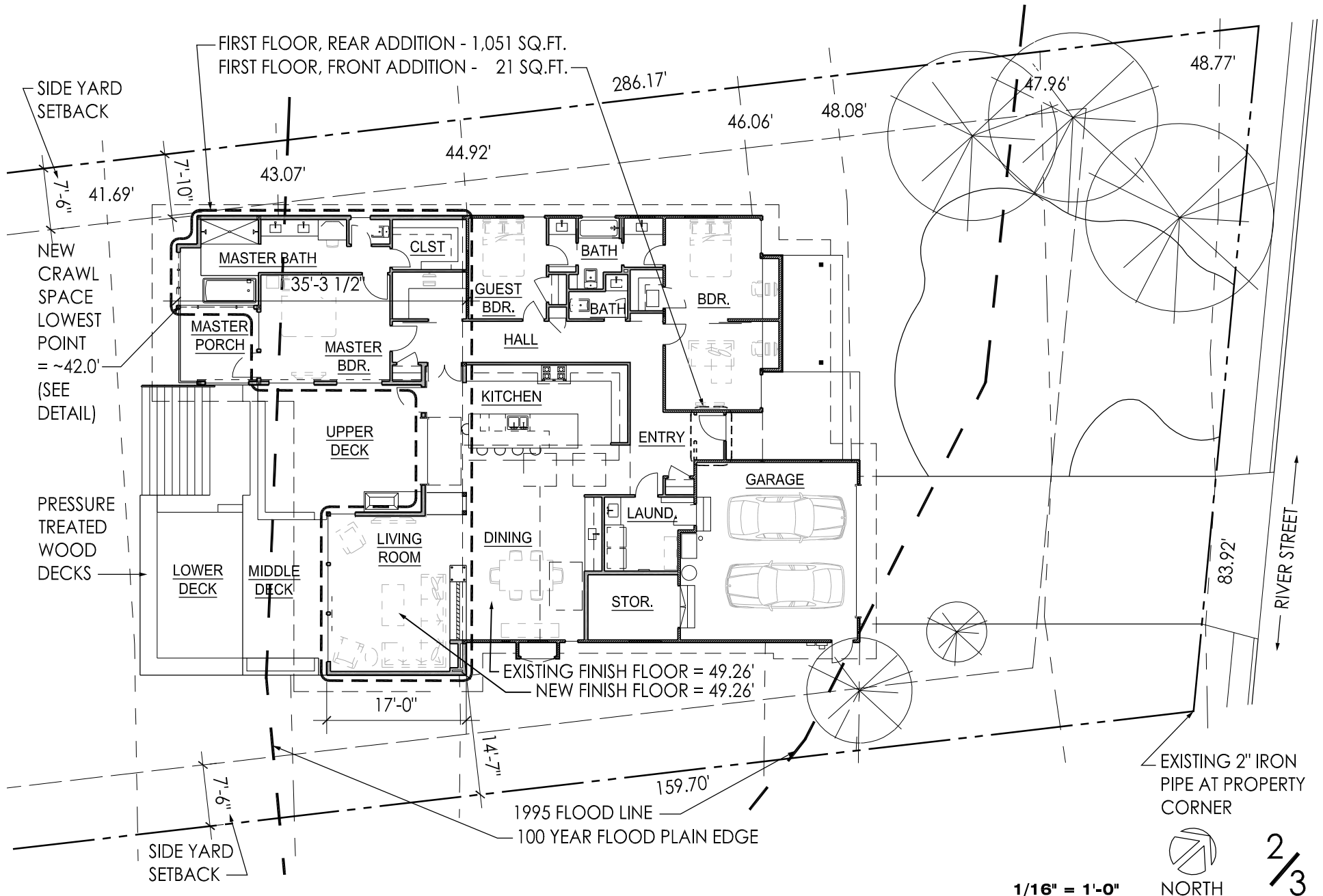
1. THE 100 YEAR FLOODPLAIN ELEVATION AT THE EXISTING SITE LOCATED AT 5650 RIVER STREET IS 48.00' PER NAVD 1988.
2. THIS ELEVATION IS BASED ON THE FEMA FLOOD INSURANCE RATE MAP, MAP NUMBER 41005C0276D DATED JUNE 17, 2008.
3. THE EXISTING FIRST FLOOR FINISH ELEVATION AT THE EXISTING RESIDENCE IS 49.26' PER NAVD (1988).
4. THE EXISTING GARAGE SLAB ELEVATION AT THE EXISTING RESIDENCE IS 48.09'.
5. ALL NEW CONSTRUCTION FOR THE PROPOSED ADDITIONS BELOW AN ELEVATION OF 49.00' SHALL MEET FLOOD DAMAGE RESISTANT MATERIAL REQUIREMENTS.
6. ALL ELEVATIONS NOTED ON THIS SITE PLAN ARE BASED ON NAVD 1988 DATUM

1" = 30'-0"  NORTH 1/3



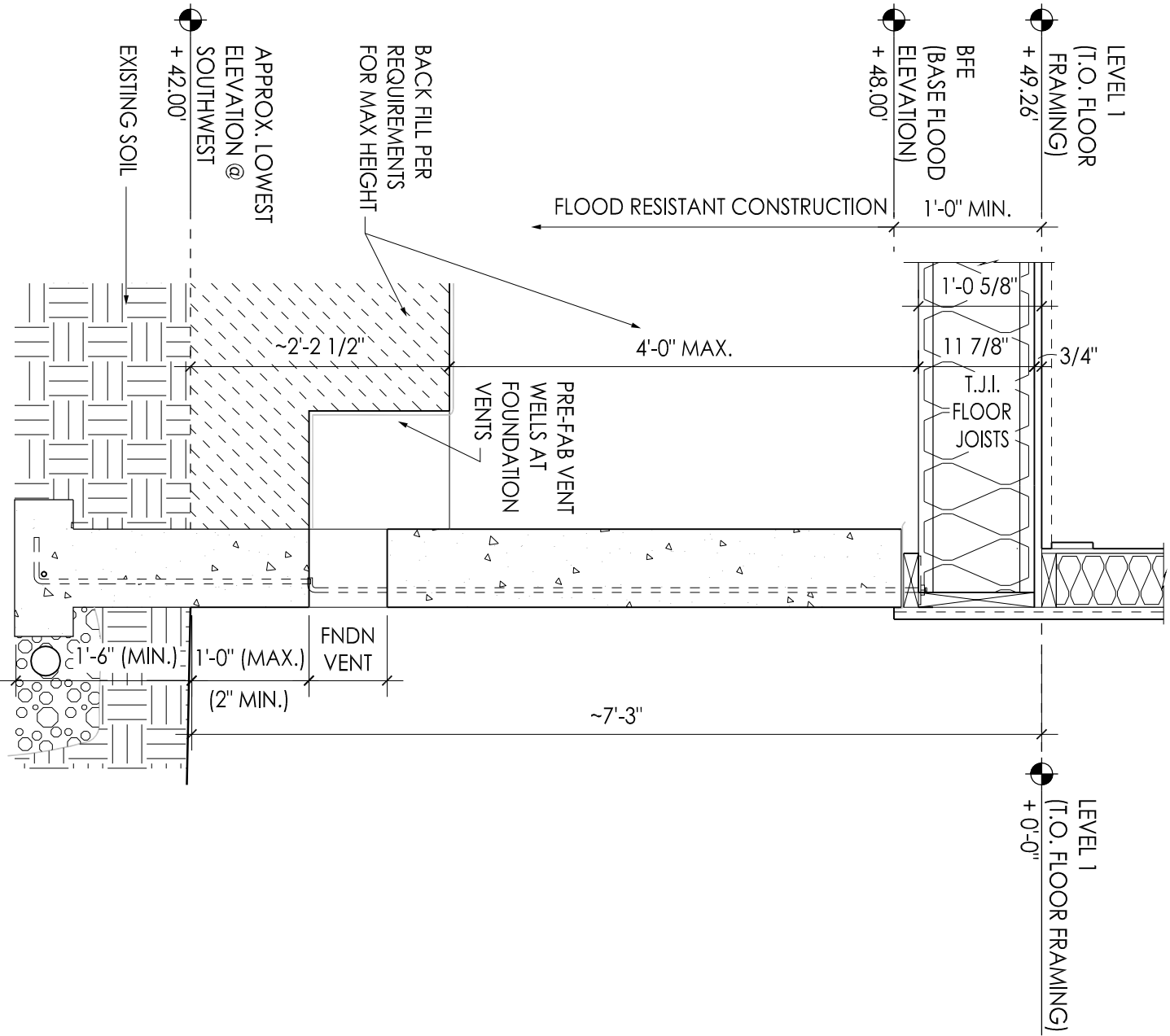
CROLLARD - FLOOD MANAGEMENT PERMIT APP.

DATE: **JULY 23, 2015**
 PROJECT #: 15-003.CROLLARD
 dalt@ninthstreetstudio.com



CROLLARD - FLOOD MANAGEMENT PERMIT APP.

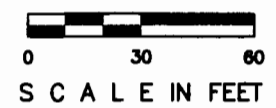
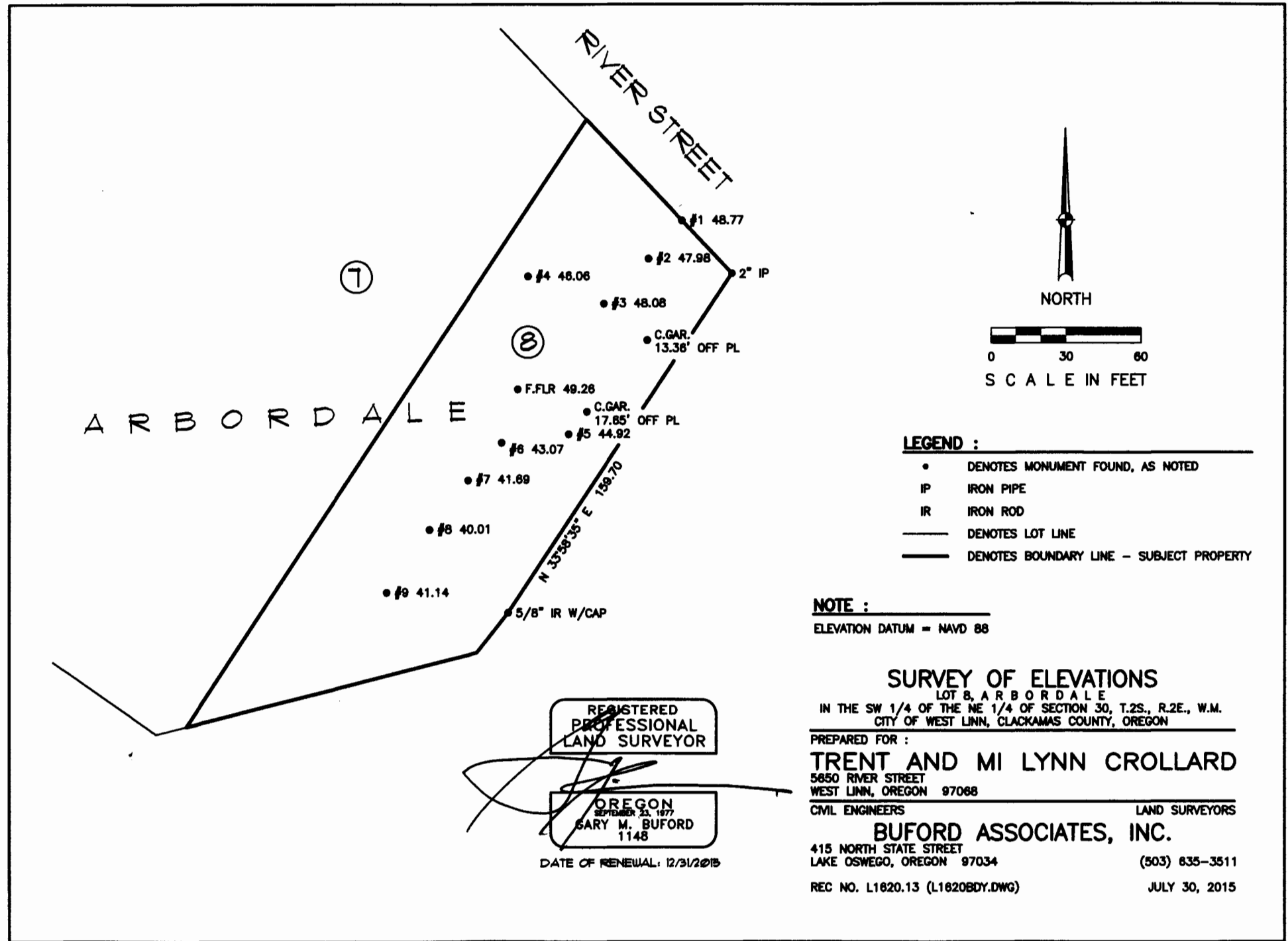
DATE: **JULY 23, 2015**
 PROJECT #: 15-003.CROLLARD
 dalt@ninthstreetstudio.com



TYPICAL FOUNDATION SECTION
@ LOWEST SITE GRADE

3/4" = 1'-0"

3/3



- LEGEND :**
- DENOTES MONUMENT FOUND, AS NOTED
 - IP IRON PIPE
 - IR IRON ROD
 - DENOTES LOT LINE
 - DENOTES BOUNDARY LINE - SUBJECT PROPERTY

NOTE :
ELEVATION DATUM = NAVD 88

SURVEY OF ELEVATIONS

LOT 8, ARBORDALE
IN THE SW 1/4 OF THE NE 1/4 OF SECTION 30, T.2S., R.2E., W.M.
CITY OF WEST LINN, CLACKAMAS COUNTY, OREGON

PREPARED FOR :
TRENT AND MI LYNN CROLLARD
5650 RIVER STREET
WEST LINN, OREGON 97068
CIVIL ENGINEERS LAND SURVEYORS

BUFORD ASSOCIATES, INC.

415 NORTH STATE STREET
LAKE OSWEGO, OREGON 97034 (503) 635-3511

REC NO. L1820.13 (L1820BDY.DWG) JULY 30, 2015

REGISTERED
PROFESSIONAL
LAND SURVEYOR

OREGON
SEPTEMBER 23, 1977
GARY M. BUFORD
1148

DATE OF RENEWAL: 12/31/2015

BUFORD ASSOCIATES, INC.

415 NORTH STATE STREET - LAKE OSWEGO, OR 97034

- civil engineers / land surveyors

- Phone (503) 635-3511

August 3, 2015

Rec No. L1620.17

File: L1620 WL Planning

Mr. Peter Spir, Associate Planner
CITY OF WEST LINN
22500 Salamo Road
West Linn, OR 97068

RE: FLOOD MANAGEMENT
Crollard Residence
5650 River Street
West Linn, OR 97068

Dear Mr. Spir:

The purpose of this letter is to provide a Registered Professional Civil Engineer opinion as to impact on the flood plain elevation which might be caused by additions to the subject residence as proposed by David Alt, Ninth Street Studio in Vancouver, Washington. I have reviewed the Flood Management Area Permit submittal of David Alt, dated July 23, 2015, which addresses Sections 27.060, 27.070 and 27.080, Chapter 27 of the West Linn Community Development Code relevant Flood Management.

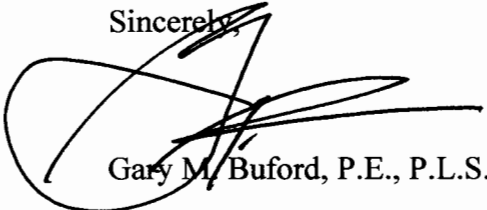
Pertaining to items F and G, Section 27.060 of Chapter 27, there is no significant encroachment by the proposed residential improvements within the floodway or active flood fringe of the flood plain. Also, pertaining to item B.1 of Section 27.080, David Alt has stated that the "opening requirement for foundation vents" will be met or exceeded.

The part of the subject property fronting River Street is generally above the 100-year flood plain elevation; however, the ground slopes downward in a southwesterly direction from the street, see drawing titled "Survey of Elevations, Lot 8, Arbordale. Accordingly, much of the property away from the street is below flood plain elevation; and, FEMA mapping appears to indicate that flood waters may enter and exit the property from the north, within a drainage swale near the back line of the property.

The volume of the proposed improvements of Ninth Street Studio within the flood plain are minuscule in comparison to the total volume of the floodway and flood fringe in the cross-section of the river at the subject property. Calculations are not necessary to say that there will be no increase in flood plain elevation as a result of the proposed residential improvements.

As a Registered Professional Engineer in the State of Oregon, this letter serves to certify that the base flood (100-year) elevation will not be affected by the proposed residential improvements. Accordingly, I trust this will be adequate certification for the City of West Linn.

Sincerely,



Gary M. Buford, P.E., P.L.S.

Date of Renewal:
12/31/2015

