Tillamook County

DEPARTMENT OF COMMUNITY DEVELOPMENT
BUILDING, PLANNING & ON-SITE SANITATION SECTIONS

1510 – B Third Street
Tillamook, Oregon 97141
www.tillamook.or.us

Land of Cheese, Trees and Ocean Breeze

MEMO

Date: August 18, 2022
To: Tillamook County Planning Commission
From: Sarah Absher, CFM, Director
Subject: Riverview Meadows Phase 2 Subdivision Request #851-21-000415-PLNG

Applications for Riverview Meadows Phase 2 have been deemed complete at the Applicant's request. Review of the subdivision proposal and preliminary plats is ongoing by city and county staff, who continue to work together and also with the Applicants. Standards and criteria relevant to this subdivision request have been addressed in the accompanying staff report to the extent possible based upon the timeframe upon which information has been received by the Applicant.

Standards and criteria applicable to this request are contained within the City of Nehalem Comprehensive Plan, City of Nehalem Subdivision Ordinance and City of Nehalem Zoning Ordinance.

Included with this memorandum are full-size copies of plats furnished by the Applicant. Updated plat sheets will be provided at the August 25, 2022, public hearing to Planning Commission members present. Copies of the updated plat sheets will be mailed to Planning Commission members attending the hearing virtually following the conclusion of the August 25th hearing.

Complete street design review and stormwater infrastructure review by Tillamook County Public Works will resume once ownership concerns have been addressed and legal public use of the proposed access road has been confirmed.

Given the status of review of this request, staff requests a continuation of the August 25, 2022, hearing. Staff does not have an anticipated date/time certain for continuation of these hearing proceedings. Determination of date will largely depend on when the Applicants will be able to provide the additional information requested by the City of Nehalem and Tillamook County Public Works Department.

If you have any questions about the information received, please do not hesitate to contact me.

Thank You,

Sarah Absher

TILLAMOOK COUNTY PLANNING COMMISSION

LOCATION
Port of Tillamook Bay Conference Center
4000 Blimp Boulevard, Tillamook, OR 97141

HEARING DATE
August 25, 2022- Beginning at 7:00p.m.

VIRTUAL & TELECONFERENCE MEETING INFORMATION

For teleconference access the evening of the hearing, please call 971-254-3149. Conference ID: 887 242 77#. Virtual Meeting Access: https://www.co.tillamook.or.us/commdev. *Click on Virtual Teams Link. *Microsoft Teams Meeting Format.*

I. CALL TO ORDER

II. ROLL CALL

III. OLD BUSINESS: NONE

IV. NEW BUSINESS:

#851-21-000415-PLNG: Request for tentative subdivision plat approval of "Riverview Meadows Phase 2", a 38-lot subdivision proposed on a property located within the City of Nehalem Urban Growth Boundary together with Geologic Hazard Report for Riverview Meadows Phase 2, #851-21-000414-PLNG. The subject property is zoned Nehalem Medium-Density Residential (NH_R1) and Nehalem Residential Trailer (NH_Rt). The subject property is accessed via Riverview Meadows Lane, a private road, and designated as Tax Lot 3600 of Section 23B, Township 3 North, Range 10 West of the Willamette Meridian, Tillamook County, Oregon.

V. AUTHORIZATION FOR CHAIR TO SIGN APPROPRIATE ORDERS, IF NECESSARY

VI. ADMINISTRATIVE DECISIONS: Administrative Decisions are available for public review on the Tillamook County Department of Community Development website: https://www.co.tillamook.or.us/commdev/landuseapps

VII. HOUSING COMMISSION UPDATE

VIII. DEPARTMENT OF COMMUNITY DEVELOPMENT REPORT

IX. ADJOURNMENT

The Port of Tillamook Bay Conference Center is accessible to citizens with disabilities. If special accommodations are needed for persons with hearing, visual, or manual impairments that wish to participate in the meeting, please contact 1-800-488-8280x3423 at least 24 hours prior to the meeting in order that appropriate communications assistance can be arranged.

Tillamook County

DEPARTMENT OF COMMUNITY DEVELOPMENT
BUILDING, PLANNING & ON-SITE SANITATION SECTIONS

1510 – B Third Street
Tillamook, Oregon 97141
www.co.tillamook.or.us
Building (503) 842-3407
Sanitation (503) 842-3409
Planning (503) 842-3408
FAX (503) 842-1819
Toll Free 1(800) 488-8280

Land of Cheese, Trees and Ocean Breeze

PRELIMINARY SUBDIVISION PLAT REVIEW REQUEST "RIVERVIEW MEADOWS PHASE 2" #851-21-000415-PLNG TOGETHER WITH Geologic Hazard Report Review #851-21-000414-PLNG

Planning Commission Hearing Date: August 25, 2022
Staff Report Date: August 18, 2022

Staff Report Prepared by: Sarah Absher, CFM, Director

I. GENERAL INFORMATION:

Request: Request for tentative subdivision plat approval of "Riverview Meadows Phase 2", a 38-lot subdivision together with Geologic Hazard Report for Riverview Meadows Phase 2, #851-21-000414-PLNG (Exhibit B).

Location: Located on a property within the City of Nehalem Urban Growth Boundary, the subject property is accessed via Riverview Meadows Lane, a private road, and designated as Tax Lot 3600 of Section 23B, Township 3 North, Range 10 West of the Willamette Meridian, Tillamook County, Oregon. (Exhibit A).

Zone: Nehalem Medium-Density Residential (NH_R1) and Nehalem Residential Trailer (NH_Rt)

Applicant: Sheldon Development, Inc., P.O. Box 883, Fairview, OR 97024

Property Owner: Riverview Meadows Development, 23765 SE Highway 212, Damascus, OR 97089

II. Description of Site and Vicinity

The subject property is located within the northern region of the City of Nehalem Urban Growth Boundary (UGB) via Northfork Road, a County road and is accessed by Riverview Meadows Lane, a private road (Exhibit A). Subject property is approximately 21.88 acres in size and the southerly portion is intended for development as the second subdivision phase of the Riverview Meadows development. The northern portion of the subject property is intended to be developed as phase three of Riverview Meadows (Exhibit B).

The subject property is irregular in shape, located on a plateau east of the City of Nehalem, and contains steep, downsloped areas along the outer edges of the plateau as depicted on the preliminary plats included in "Exhibit B".

The subject property is accessed from two private roads part of the Riverview Meadows development road system: Sunnyview Drive and Vern's Place (Exhibits A & B).

Subject property is split zoned Nehalem Medium-Density Residential (NH_R1) and Nehalem Residential Trailer (NH_Rt) (Exhibit A). The subject property is bordered by Forest (F), NH_R1 and NH_Rt zoned property to the west and south, NH_Rt and Farm (F-1) zoned property to the east and Farm (F-1) zoned property to the north (Exhibit A).

Riverview Meadows Phase 1 residential properties wrap around and border the southern region of the subject property proposed for phase two development. An outer band of residential properties border phase one lots. Tax lot and ownership information is depicted on the plats included in the Applicant's submittal (Exhibit B). Properties surrounding the northern half of the subject property (that portion of the property intended to be a third phase of development) include a private landowner and Stimson Lumber Company. Lot layout, surrounding property ownership and a topographic depiction of the area are included on the plats made part of "Exhibit B" of this report.

Service providers include the City of Nehalem, Nehalem Bay Wastewater Agency, Tillamook PUD, Nehalem Bay Fire and Rescue District, Tillamook County Public Works Department and the Tillamook County Sheriff's Office. Responses to notice of this proposal from service providers and public agencies are included in "Exhibit B" and "Exhibit C" of this report.

A. Natural Features

1. **Topography:** The Geologic Hazard Report (GHR) is comprised of the Engineering Geologic Hazards Report dated February 25, 2020, prepared by R. Warren Krager, R.G., C.E.G., together with the Engineering Geologic Hazard Report for Road and Utility Development dated February 4, 2021, describes the property as a relatively level natural terrace approximately 130 feet above mean sea level, with steeper slopes located along the eastern region of the subject property (Exhibit B).

   Elevations within the proposed building areas vary from approximately 137 feet above sea level to approximately 113 feet. The subject property slopes gently to the southwest with slopes varying from nearly flat to over 5%. The eastern edge of the development slopes down steeply to the east, at roughly 50% (Exhibit B).

   Based upon DOGAMI Lidar, the eastern slope breaks abruptly downward at generally over 50% and as steep as 80% to 100% locally (Exhibit B).

2. **Soils:** Soils and geology of the site is discussed in the Geologic Hazard Report (GHR) dated February 25, 2020, prepared by R. Warren Krager, R.G., C.E.G., (Exhibit B). Soils identified by the Natural Resources Conservation Service (NCRS) include Chitwood-Hebo complex, 0 to 5% slopes. Sloped soils at the eastern margin of the subject property are mapped as Templeton-Ecola medial silt loams, 30% to 60% slopes (Exhibit B).

3. **Vegetation:** The subject property is covered in grasses and is regularly maintained (Exhibit B). Evergreen trees are located along the edges of the plateau. The eastern slope is heavily vegetated with blackberries, ferns, trees, and other species typical of a coastal forest (Exhibit B).

4. **Water Features:** The National Wetland Inventory Mapper (NWI) does not identify any wetlands within the area proposed for development as Riverview Meadows Phase 2, however Bob's Creek is an identified feature that runs adjacent to the eastern region of the subject property and is within the area proposed as an additional access to serve this second phase of development (Exhibit A). Drainage ways identified in the immediate area are also depicted on the NWI map (Exhibit A). The map is for general reference only and verification is generally completed through a wetland delineation review process with the Oregon Department of State Lands.

   The subject property is identified on Flood Insurance Rate Maps #41057C0207F dated September 28, 2018 and is located outside of Areas of Special Flood Hazard (Exhibit A).

B. City of Nehalem Vision Statement & Comprehensive Plan Policies

Nehalem's Vision Statement and Aspirations Vision Statement: *In 2040, Nehalem is a livable, economically sustainable, rural coastal community, a place where people know each other and celebrate its setting of natural beauty. Vision Aspirations The following aspirations have been identified as the path to achieve our City's vision: Housing • Housing is available to meet the diverse needs of Nehalem citizens, and reflects the rural, coastal character of the community. Social Support and Safety • Nehalem is noted for its livability for people of all ages, income levels and family sizes. It has many avenues for making connections among neighbors including local businesses, gardening, recreation, gathering places, and events. Economy • Nehalem has a strong four-season economy. Encouraging small businesses, vital goods and services, cottage industries, and home-based businesses to locate in Nehalem results in a vibrant year-round economy. Infrastructure • Nehalem's infrastructure of water, sewer, storm drains, streets and parks is developed to good standards for a rural community, well-maintained and renewed as needed from well-funded and well-managed reserve funds. Open Space, Parks and Recreation • Access to the outdoors is a key part of Nehalem's character and the community's experience of living. Open space, parks, and active and passive recreation are readily available to citizens and visitors. • Mitigation of our contributions to climate change and adaption to likely impacts are important in protecting the livability and quality of life for our citizens and visitors. Inclusive and Collaborative Community • Nehalem is an inclusive and collaborative community where local governments, not-for profit organizations, businesses, and residents work together to successfully address community issues and opportunities. The City actively promotes citizen involvement. A culture of trust and respect defines the community.*

City of Nehalem Comprehensive Plan Goal 1 and Goal 2 elements focus on prioritization of citizen involvement and development of a land use plan for the city. Review of this proposal is consistent with the goals, objectives and policies contained within these two elements- specifically public notification of hearing proceedings and opportunity for citizen input as well as applicable standards and criteria set forth in the City of Nehalem zoning and subdivision ordinances that apply to review of this proposal.

The farm and forest goal elements do not apply to properties within city limits and the city's urban growth boundary. It is important to note however that the city supports preservation and maintenance of agricultural and forest lands.

The Goal 5 element of the city's comprehensive plan contains goals, objectives and policies focused on the preservation of natural features, natural resources, scenic and historic areas and open spaces. The city's goal is to foster high-quality development consistent with the natural environment. To achieve this goal, objectives and policies include preserving riparian areas, clustering development, protection of scenic views and encouraging open space in developments.

The proposal is consistent with the allowable density levels permitted through the Nehalem Medium-Density Residential (NH_R1) and Nehalem Residential Trailer (NH_Rt) zoning districts and no increases in density are proposed. Riparian areas are limited to those areas within the western region of the development along Bob's Creek. Applicants are working with the Oregon Department of State Lands to identify any wetland or other areas containing natural features within the areas proposed for development. Conditions of Approval can be made to ensure policies related to erosion control and sedimentation control are upheld during construction. A Condition of Approval can also be made to ensure riparian buffers are protected and maintained where deemed appropriate both during and after construction.

The Goal 6 element highlights the importance of air, water and land resources, and contains goals, policies and objectives that ensure protection and improvement of these resources within the city and city's urban growth boundary. Policies require implementation of sedimentation and erosion control measures that are reflected in the city's subdivision ordinance. Policies include monitoring use of herbicides and includes a requirement for persons or organizations to notify the city prior to use. Use of herbicides in the City's watershed is prohibited and, in some instances, requires city approval.

Policies require the city to continue implementation of the City of Nehalem Master Water Plan, and that future development shall be designed in a manner to comply with applicable state or federal environmental quality statutes, rules and standards.

Comments from the City of Nehalem are included in "Exhibit C" and require development of a water system consistent with the policies mentioned above.

A Geologic Hazard Report (GHR) has been submitted in compliance with the goals, objectives and policies contained within the Goal 7: Areas Subject to Natural Hazards element of the city's comprehensive plan. The subject property is not located within an area of special flood hazard.

Applicable goals, objectives and policies contained within the Goal 8: Recreational Needs element of the city's comprehensive plan include a policy for creation of open space for new developments and encourages public pedestrian access. Proposed phase two includes an open space area on the preliminary plat (Exhibit B).

City of Nehalem Goal 9: Economic Development element largely focuses on improvement of the economic base of the community and contains policies for promotion, encouragement and continued support for growth of the city's business district. Given the nature of the goals, objectives and policies contained within this goal element, these goals, objectives and policies do not specifically apply to review of the proposed development.

The proposed development is consistent with the goals, objectives and policies outlined in the Goal 10: Housing element of the city's comprehensive plan. Specifically, the proposed development provides additional housing to help meet the needs of a variety of age and income groups.

City Comprehensive Plan Goal 11: Public Facilities and Services element requires the city to continue to plan and develop an orderly and efficient system of public facilities and services that support land uses and densities as well as necessary facility and system extensions throughout the city. Policies require land uses and densities within the city's urban growth boundary to be consistent with the capacity of existing public facilities or the long-range expansion plans for key public facilities such as sanitary sewers and water. Policies also require orderly and efficient manner of expansion of public facilities and services. Policies support development and maintenance of adequate storm drainage facilities.

Applicants continue to work with the city and county on facility design and construction plans for water and storm drainage facilities so that the goals, objectives and policies of the Goal 11 element can be met. City and county comments regarding public facilities are included in "Exhibit C" of this report.

The City's Goal 12: Transportation element of the Comprehensive Plan aim to provide "a safe, convenient, and economic transportation system", and asks for communities to address needs of the transportation disadvantaged". The city's objective is to support a safe, convenient, accessible and economic transportation system for all modes of transportation. Policies include standards for street development, promote multi-modal transportation facilities and restrict or limit opportunities for new road connectivity to Highway 101.

Applicants are working on compliance with requirement for a second access to the proposed development and have also submitted a transportation impact study at the request of the city and county engineers. This information remains under review. Study remains under review by city and county engineering staff at this time.

As reflected in the Goal 13: Energy Conservation element of the City's comprehensive plan, the city supports and will encourage efforts of energy conservation. Staff finds the proposed development is not in conflict with these goals, objective and policies.

Goal 14: Urbanization element requires the city to coordinate land-use, development and annexation strategies with Tillamook County. This goal element focuses on lands within the city's urban growth area and reflects roles and responsibilities also made part of the intergovernmental agreement between the two jurisdictions. Policy 4 includes a requirement for findings when reviewing conversion of undeveloped land for urban development, and requires findings be made by the city confirming existence of orderly and economic extension of public facilities and services. As mentioned throughout this report, conversations related to expansions of public services and facilities with city and

county engineering staff are ongoing. Comments received at the time of publication of this report are contained in "Exhibit C".

Coastal goal elements 16-19 of the city's comprehensive plan do not apply to this development proposal. Remaining articles within the city's comprehensive plan include implementation guidance, discussion of regulatory controls administered through the city's zoning ordinance, subdivision ordinance and street standards, building codes as well as information regarding the 2017 building lands inventory and 2019 housing needs analysis.

Applicable provisions within these articles are review through the city's zoning and subdivision ordinances in coordination with city staff and the Tillamook County Public Works Department.

III. APPLICABLE ORDINANCE PROVISIONS & ANALYSIS:

A. CITY OF NEHALEM ORDINANCES

1. **Chapter 157 Nehalem Medium-Density Residential (NH_R1).** The Medium-Density Residential Area, designated by the primary symbol "R1", is established to promote residential development in areas that have already been subdivided or where there are few physical constraints on development.

   Standards for creation of new lots and parcels in the NH_R1 zone include the following:

   (A) The minimum lot size shall be 7,500 square feet. Where public sewers are not available the County Sanitation may establish a minimum lot size greater than 7,500 square feet.

   (B) The minimum lot width shall be 75 feet.

   (C) The minimum lot depth shall be 85 feet.

   Findings: The preliminary plat confirms the proposed lots meet the minimum lot width and depth requirements for new lots located within the NH_R1 zone and meet or exceed the minimum lot size requirement (Exhibit B).

2. **Chapter 157 Nehalem Residential Trailer (NH_Rt)** The Residential Trailer Area, designated by the primary symbol "RT", is established to provide for mobile homes, as well as conventional housing, in areas where there are few constraints on development.

   Standards for creation of new lots and parcels in the NH-Rt zone include the following:

   (A) The minimum lot size shall be 5,000 square feet for a one-family dwelling, plus 2,500 square feet for each additional dwelling unit. Where public sewers are not available, the County Sanitarian may establish a minimum lot size greater than 5,000 square feet.

   (B) The minimum lot width shall be 60 feet; except on a corner lot, it shall be 65 feet.

   (C) The minimum lot depth shall be 85 feet.

Findings: The preliminary plat confirms the proposed lots meet the minimum lot width and depth requirements for new lots located within the NH_Rt zone and meet or exceed the minimum lot size requirement (Exhibit B).

3. **Chapter 157.261: Geologic Investigation.** The subject property is located within an area of geologic hazard (landslide topography) and a Geologic Hazard Report (GHR) is required as part of this development review process. As mentioned previously in this report, the Geologic Hazard Report (GHR) is comprised of the Engineering Geologic Hazards Report dated February 25, 2020, prepared by R. Warren Krager, R.G., C.E.G., together with the Engineering Geologic Hazard Report for Road and Utility Development dated February 4, 2021 (Exhibit B).

   Findings: The Geologic Hazard Report (GHR) includes an analysis of soils and bedrock types, slopes, soil depth, other relevant soils engineering data, water drainage patterns and a discussion of landslide activity in the recent area. Primary geologic hazards on this site relate to the steep eastern bank; drainage control; compressible surface soils; and regional seismicity. Mitigations of these hazards is discussed in the GHR (Exhibit B).

   Recommended development standards for design/construction of roads, locations of structures, as well as basic foundation design when lots are developed is also included in the GHR (Exhibit B). Given the area proposed for lot development is relatively flat, grading for roads and future homesites is expected to be minimal.

B. CITY OF NEHALEM SUBDIVISION OF LAND

1. Chapter 156.016: Preliminary Review.

This chapter specifies what general information is required for preparation of a report for submission to the Planning Commission. Report prepared by staff shall include information on the City's comprehensive plan, comprehensive plan background report, zoning, identification of surrounding streets and properties, utility infrastructure and any other data pertinent to review of the plan. Chapter also contains notification requirements and process for review of an expedited land division.

Findings: Staff confirmed with County Surveyor Michael Rice, PLS, that the proposed name, "Riverview Meadows Phase 2" does not duplicate the name of any other subdivision in the County. All of the other information required under this section is included on the preliminary plat or as supplemental information including a Geologic Hazard Report, service availability letters, existing and proposed streets, existing and proposed easements and locations of natural features (Exhibit B).

Information and findings regarding review the of the proposed development and the city's comprehensive plan is contained within this report. Zoning information is contained within the body of this report and also included in "Exhibit A".

Notice of public hearings was mailed to all property owners within 250-feet of the subject property and affected agencies on July 6, 2022. Notice of public hearing was also published in the Headlight Herald (newspaper of record) on July 5, 2022. Public and agency comments received to date are included in "Exhibit C" of this report.

Public comments raise concerns about traffic impacts, use of existing streets that may not be adequate for development and potential ownership issues for areas proposed for development. Staff is not prepared to speak to these issues at this time and will be prepared to further discuss concerns raised at the August 25, 2022 public hearing.

The proposed development may be considered an expedited land division as the criteria for location of property within the city's urban growth boundary, use of property for residential purposes only and prohibition of placement of dwellings and buildings within areas identified in Comprehensive Plan Goal elements 5 and 7 are met. Determination of compliance with criterion #4 cannot be confirmed at this time

as the transportation components of this proposal- specifically street right-of-way standards and the traffic impact study remain under review by city and county engineering staff.

2. **Chapter 156.017: Information in the Tentative Plan.**

This chapter specifies what general information is required to be included on a preliminary plat and information about existing conditions of the site.

Findings: The proposed lots depicted on the preliminary plats meet the applicable development standards of the Nehalem Medium-Density Residential (NH_R1) and Nehalem Residential Trailer (NH_Rt) zones (Exhibit B). All proposed lots abut a private street for at least 25-feet. Lot numbering may be adjusted upon final plat review.

Additional information has been requested regarding approximate location and character of all existing and proposed easements and public utility facilities including water and sewer lines in the subdivision or adjacent thereto, storm water drainage facilities and utility lines (Exhibit C). Additional information related to approximate location of all areas subject to inundation of storm water overflow and location, width, known high water elevation, flood flow and direction of flow of watercourses remains under review by city and county engineering staff.

3. **Chapter 156.018: Partial Development.**

This chapter allows the Planning Commission to request a tentative layout for streets in unsubdivided portions of a development.

Findings: Applicant has provided this information and the tentative layout for phase three is depicted on the plats included with the Applicant's submittal (Exhibit B).

4. **Chapter 156.019: Information in Statement.**

This chapter requires a general explanation of the improvements and public utilities, including water supply and sewage disposal proposed to be installed. Chapter also requires information about requested variances, public areas proposed, open space, restrictive covenants if any and information showing areas to be cut or filled.

Findings: The required information has been submitted in part by the Applicant (Exhibit B). Comments provided by the City of Nehalem indicate additional information related to water supply and stormwater infrastructure is needed (Exhibit C). Applicants have not requested a variance.

5. **Chapter 156.020: Supplemental Information.**

This chapter allows the Planning Commission to request supplemental information including additional street construction details, utility information, a geologic hazard report or other information deemed necessary.

Findings: A Geologic Hazard Report (GHR) comprised of the Engineering Geologic Hazards Report dated February 25, 2020, prepared by R. Warren Krager, R.G., C.E.G., together with the Engineering Geologic Hazard Report for Road and Utility Development dated February 4, 2021, has been submitted with this subdivision review request (Exhibit B). Street construction details and utility information is also included in the Applicant's submittal. As mentioned previously, the City of Nehalem and Tillamook County Public

Works Department have requested additional information pertaining to water and stormwater infrastructure (Exhibit C).

6. Chapter 156.021: Preliminary City Staff/Planning Commission Determination.

This chapter requires the Planning Commission to determine whether the tentative plan is in conformance with the provisions of the Comprehensive Plan and this chapter. Planning Commission may approve the submitted plat or modify the plat. Process for documentation of Planning Commission action is outlined in this chapter.

Findings: A request for continuation of hearing has been requested by the City of Nehalem (Exhibit C). Staff finds that the Planning Commission will need to determine whether the tentative plan is in conformance with the provisions of the Comprehensive Plan and this chapter and may be unable to do so until the additional requested information is received.

Stormwater management, drainage and grading plans are also subject to review and final approval by the Tillamook County Public Works Department at the time of construction plan review. Commentary from the Tillamook County Public Works Department is also included in "Exhibit C".

V. PUBLIC TESTIMONY:

Comments received to date include statements from the City of Nehalem, Tillamook County Public Works and comments from neighboring landowners. Comments are included as "Exhibit C".

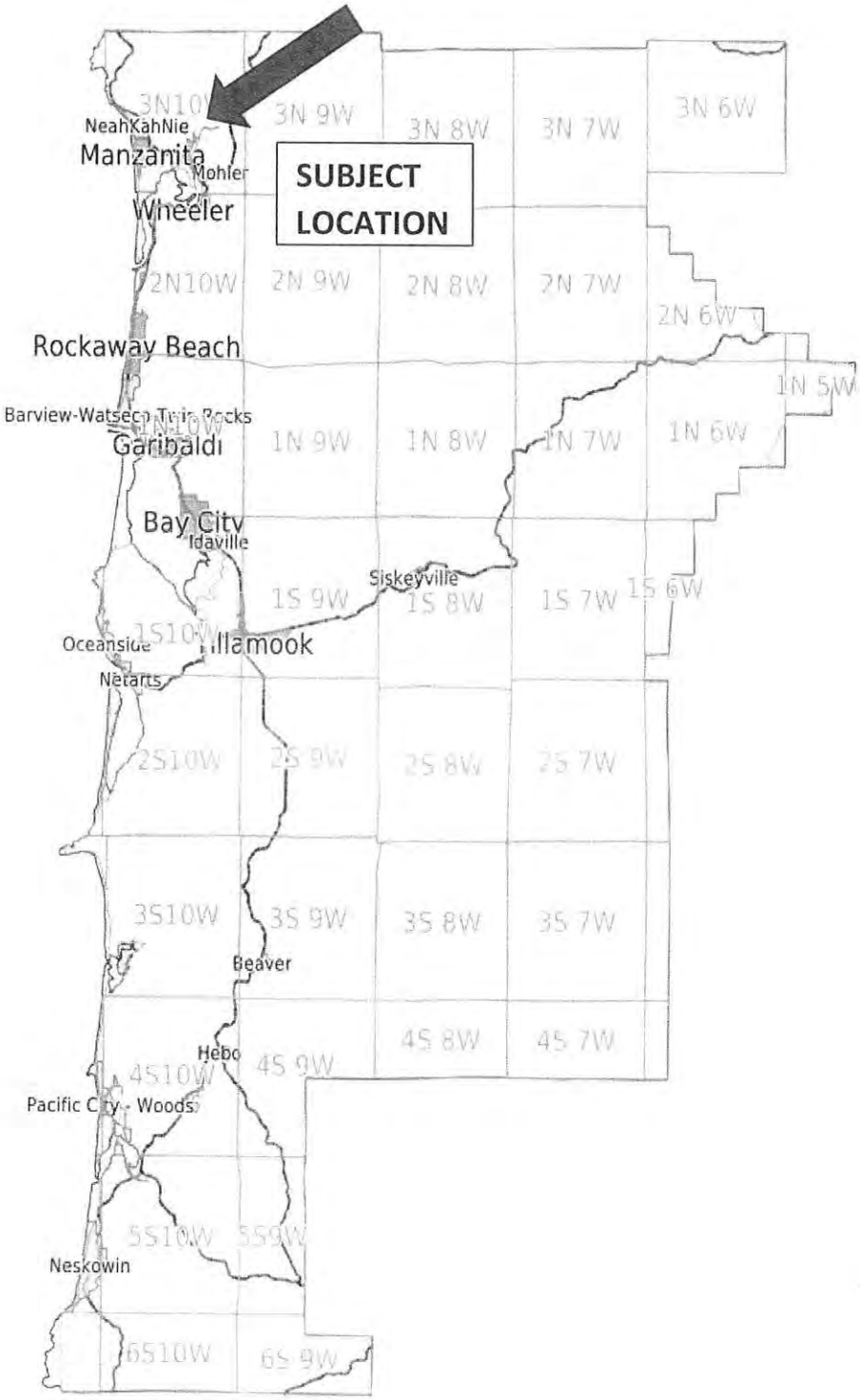
VII. EXHIBITS

A. Location map, Assessor map, Zoning map, FEMA FIRM, NWI Wetlands map & Assessment Summary
B. Subdivision Application, Preliminary Plat, Geologic Hazard Report and Supplemental Information
C. Public Comments
D. City of Nehalem Comprehensive Plan
E. City of Nehalem Subdivision Ordinance Chapter 156
F. City of Nehalem Zoning Ordinance Chapter 157: Supplementary Provisions

EXHIBIT

A

VICINITY MAP



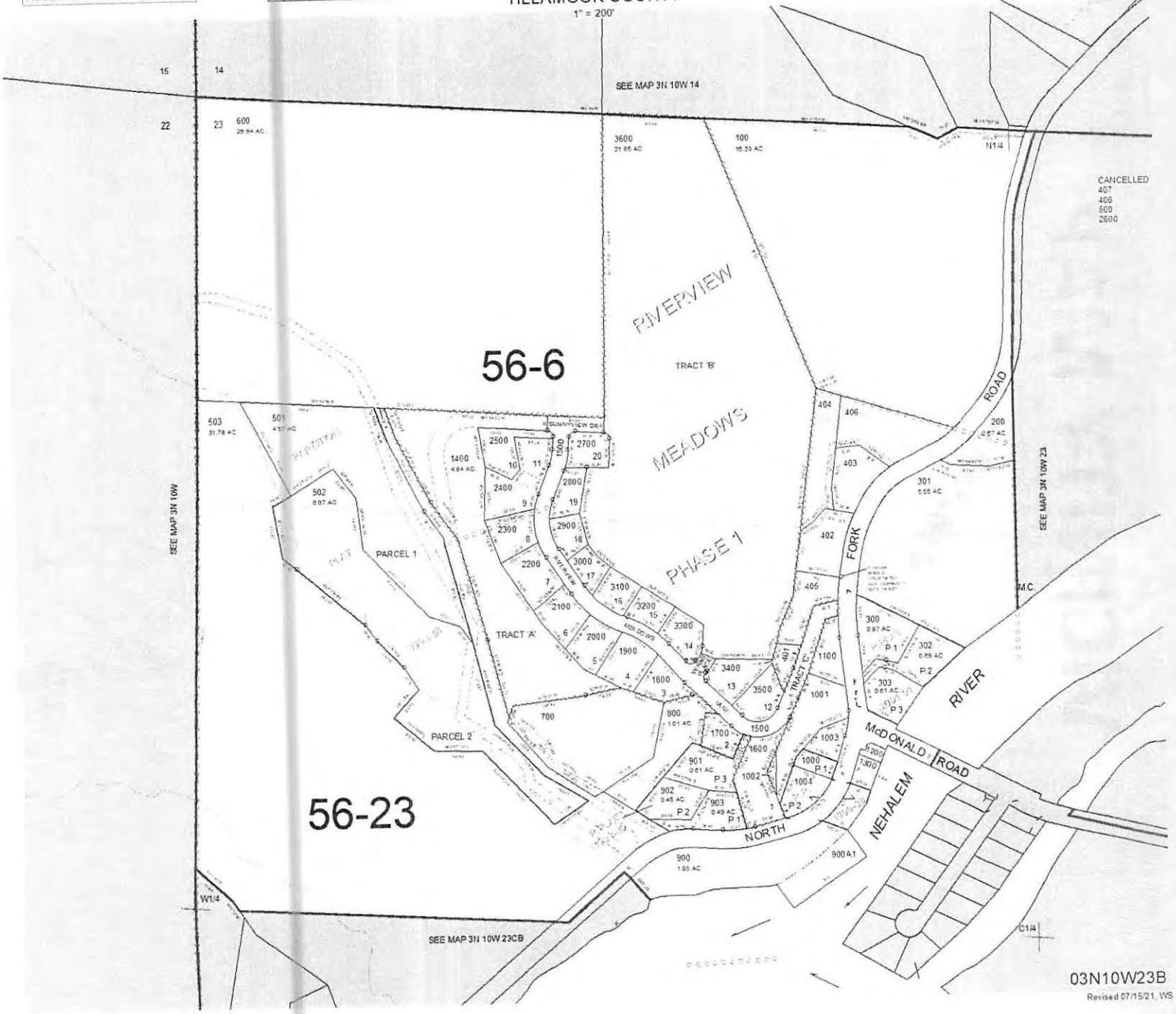
#851-21-000415-PLNG:

RIVERVIEW MEADOWS PHASE 2

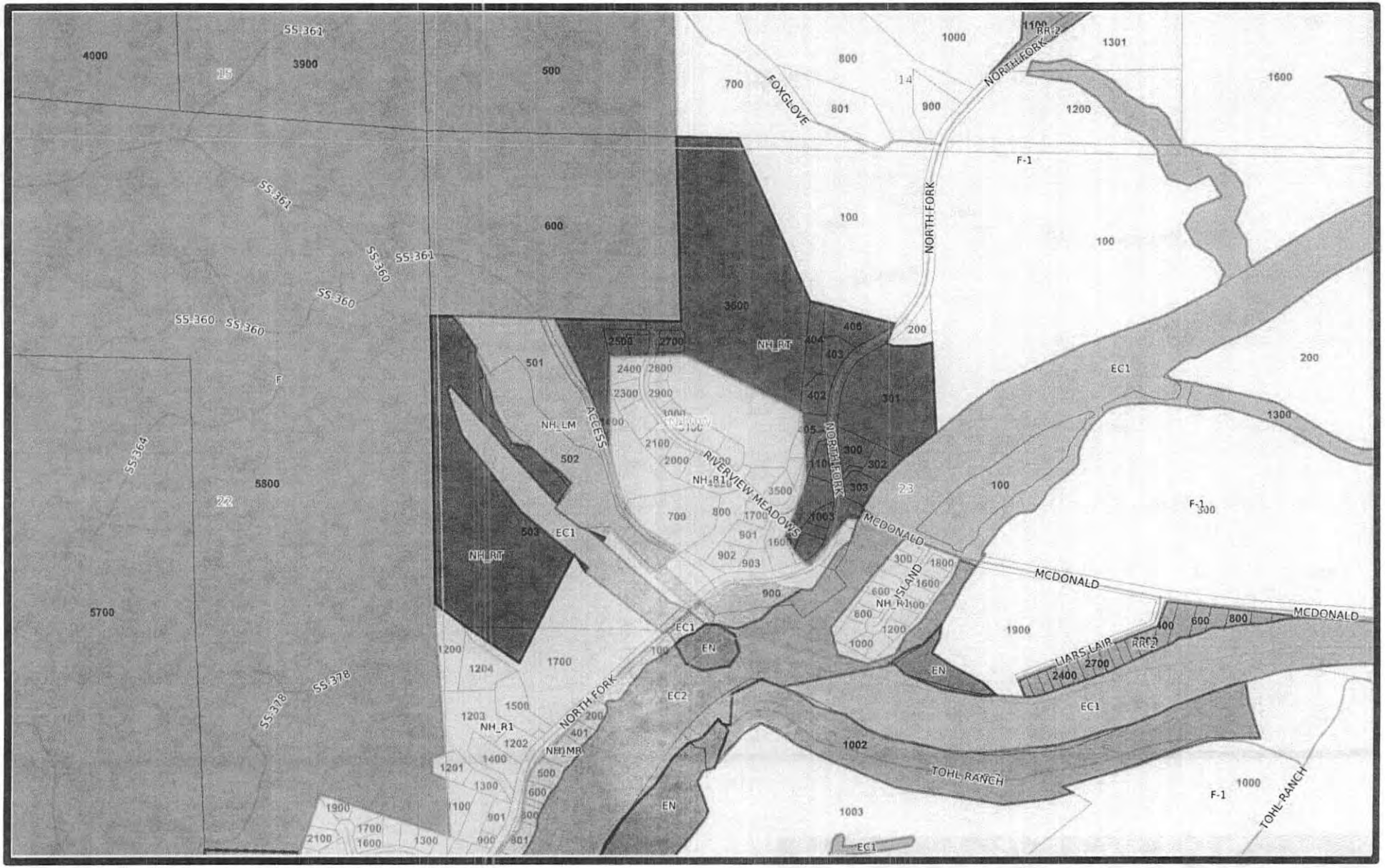
THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSE ONLY

N.W.1/4 SEC.23 T.3N. R.10W. W.M.
TILLAMOOK COUNTY
1" = 200'

03N10W23B



Map



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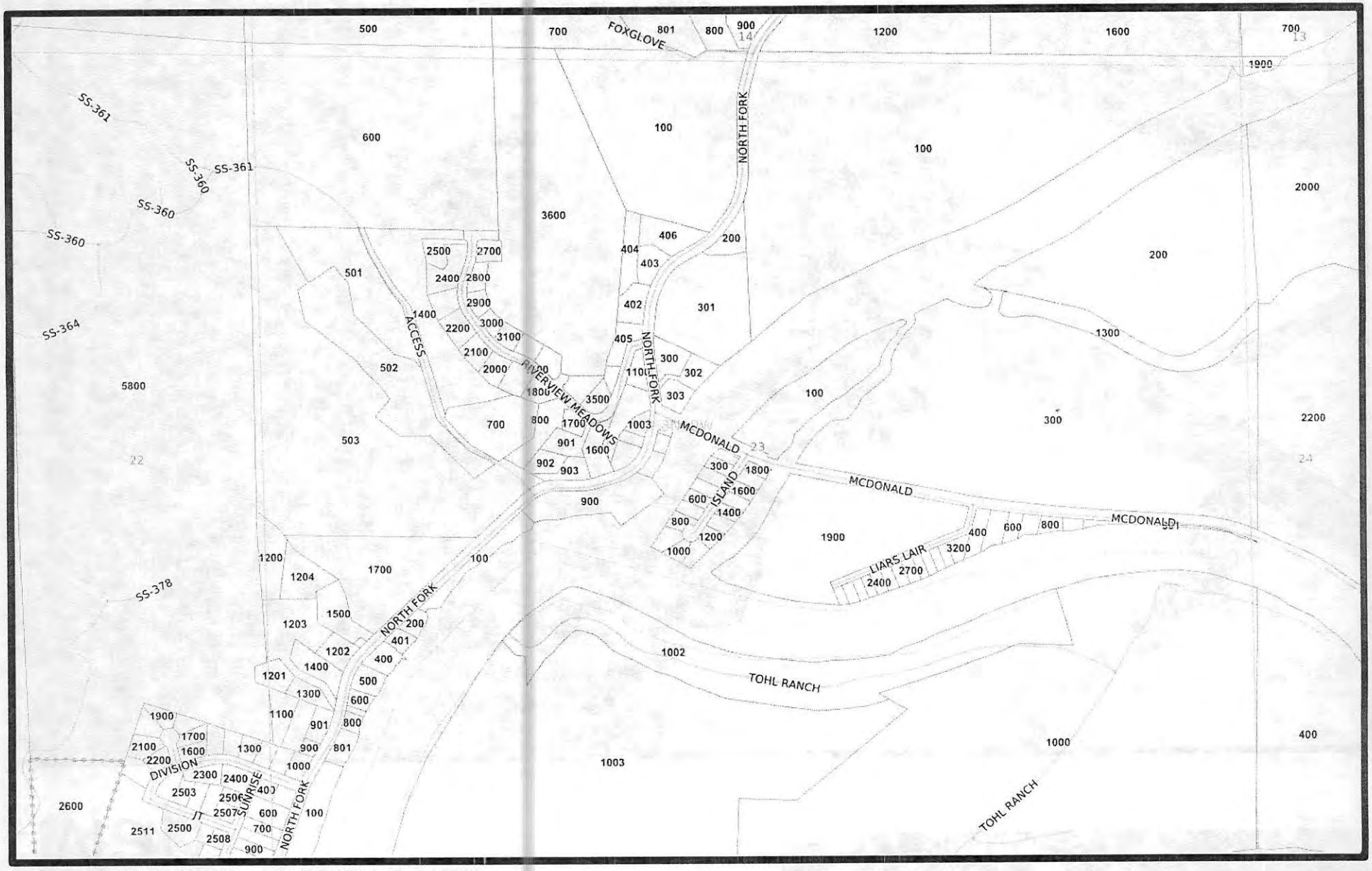
Map

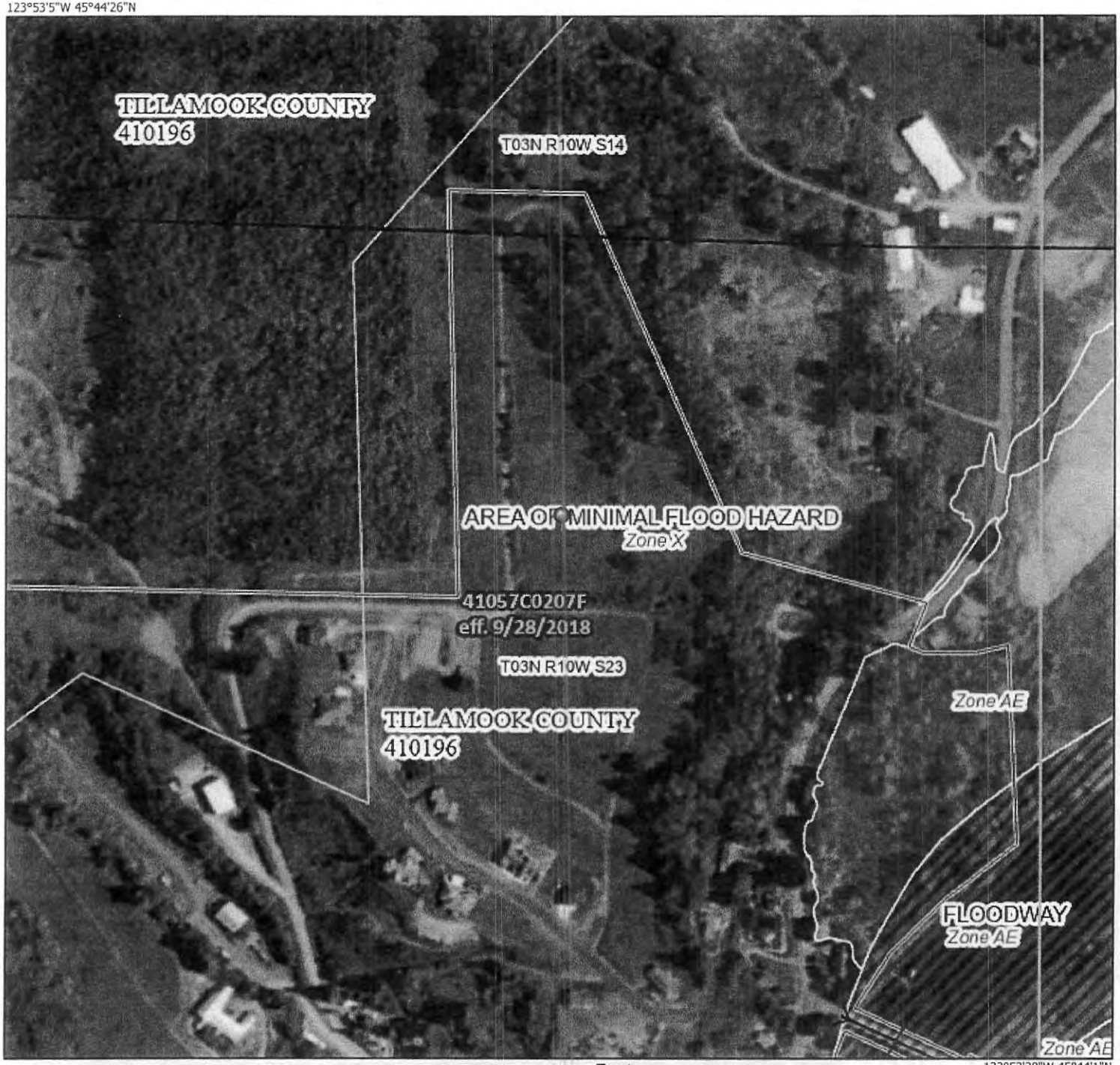


Generated with the GeoMOOSE Printing Utilities

National Flood Hazard Layer FIRMette

FEMA

123°53'5"W 45°44'26"N



123°52'28"W 45°44'1"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Area of 1% annual chance flood with average depth less than one foot or with drainag areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- B 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- 8 Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represe an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 8/18/2022 at 1:16 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

U.S. Fish and Wildlife Service

National Wetlands Inventory

Riverview Meadows Phase 2

August 18, 2022

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

TILLAMOOK County Assessor's Summary Report

Real Property Assessment Report

FOR ASSESSMENT YEAR 2021

August 18, 2022 2:09:23 pm

Account #	415243	Tax Status	ASSESSABLE
Map #	3N1023B003600	Acct Status	ACTIVE
Code - Tax #	5601-415243 5622-415244	Subtype	NORMAL
Legal Descr	RIVERVIEW MEADOWS PHASE I Lot - TRACT B		
Mailing Name	RIVERVIEW MEADOWS DEVELOPMENT LLC	Deed Reference #	2021-8657
Agent		Sales Date/Price	10-13-2021 / $1,300,000.00
In Care Of		Appraiser	WHITNEY HOPKES
Mailing Address	23765 SE HIGHWAY 212 DAMASCUS, OR 97089		

		MA	SA	NH	Unit
Prop Class	400				
RMV Class	400	02	AC	212	43752-1

Situs Address(s)	Situs City

Value Summary

Code Area		RMV	MAV	AV		RMV Exception	CPR %
5601	Land	97,170			Land	0	
	Impr.	0			Impr.	0	
Code Area Total		97,170	87,810	87,810		0	
5622	Land	99,870			Land	0	
	Impr.	0			Impr.	0	
Code Area Total		99,870	90,230	90,230		0	
Grand Total		197,040	178,040	178,040		0	

Land Breakdown

Code Area	ID#	RFPD	Ex	Plan Zone	Value Source	TD%	LS	Size	Land Class	Trended RMV
5601		☐		NH-RT	Market	103	A	10.79		97,170
					Code Area Total			10.79		97,170.00
5622		☐		NH-R1	Market	103	A	4.91		44,220
5622		☐		NH-RT	Market	103	A	6.18		55,650
					Code Area Total			11.09		99,870.00
					Grand Total			21.88		197,040

Improvement Breakdown

Code Area	ID#	Yr Built	Stat Class	Description	TD%	Total Sq. Ft.	Ex%	MS Acct #	Trended RMV
				Grand Total		0			0

Exemptions / Special Assessments / Potential Liability

Code Area 5601

FIRE PATROL:

■ FIRE PATROL NORTHWEST — Amount 26.12 — Acres 21.88 — Year 2021

Comments: Riverview Meadows Sub%.
08/11/10 New Lot, +10.82 acres to 56.01 & +11.06 acres to 56.22 from TL1400. Apportioned Values.ef 08/17/11 Brought land to market. Moved 0.03 acres from 56.01 to 56.22.ef 2/20/15 Reappraised land and tabled values. WH

EXHIBIT

B

Tillamook County Department of Community Development
1510-B Third Street. Tillamook, OR 97141 | Tel: 503-842-3408 Fax: 503-842-1819
www.co.tillamook.or.us

LAND DIVISION APPLICATION

OFFICE USE ONLY
Date Stamp
☐Approved ☐Denied
Received by:
Receipt #:
Fees:
Permit No: 851-___-_____-PLNG

Applicant ☒ *(Check Box if Same as Property Owner)*

Name: Sheldon Development, Inc. Phone: 503-805-8741

Address: P.O. Box 883

City: Fairview State: OR Zip: 97024

Email: careysheldon17@yahoo.com

Property Owner

Name: Phone:

Address:

City: State: Zip:

Email:

Location:

Site Address: Tract B Riverview Meadows Sub Phase 1, Document No. 2010-4288

Map Number:	3 North	10 West	23B	3600
	Township	Range	Section	Tax Lot(s)

Land Division Type: ☐**Partition (Two or Three Lots, Type II)** ☒**Subdivision (Four or More Lots, Type III)**
☐ **Preliminary Plat (Pages 1-2)** ☐ **Final Plat (Page 3)**

☒ **PRELIMINARY PLAT (LDO 060(1)(B))**

General Information

- ☐ For subdivisions, the proposed name.
- ☐ Date, north arrow, scale of drawing.
- ☐ Location of the development sufficient to development sufficient to define its location, boundaries, and a legal description of the site.
- ☐ Parcel zoning and overlays
- ☐ Title Block
- ☐ Clear identification of the drawing as "Preliminary Plat" and date of preparation
- ☐ Name and addresses of owner(s), developer, and engineer or surveyor
- ☐ Fifteen (15) legible "to scale" hard copies
- ☐ One digital copy

Existing Conditions

- ☐ Existing streets with names, right-of-way, pavement widths, access points.
- ☐ Width, location and purpose of existing easements
- ☐ The location and present use of all structures, and indication of any that will remain after platting.
- ☐ Location and identity of all utilities on and abutting the site. If water mains and sewers are not on site, show distance to the nearest one and how they will be brought to standards
- ☐ Location of all existing subsurface sewerage systems, including drainfields and associated easements
- ☐ Ground elevations shown by contour lines at 2-foot vertical interval. Such ground elevations shall be related to some established benchmark or other datum approved by the County Surveyor
- ☐ The location and elevation of the closest benchmark(s) within or adjacent to the site
- ☐ Natural features such as drainage ways, rock outcroppings, aquifer recharge areas, wetlands, marshes, beaches, dunes and tide flats
- ☐ For any plat that is 5 acres or larger, the Base Flood Elevation, per FEMA Flood Insurance Rate Maps
- ☐ Other information:

_____
_____
_____
_____
_____
_____

Proposed Development

- ☐ Proposed lots, streets, tracts, open space and park land (if any); location, names, right-of-way dimensions, approximate radius of street curves; and approximate finished street center line grades. All streets and tracts that are being held for private use and all reservations and restrictions relating to private tracts identified
- ☐ Location, width and purpose of all proposed easements
- ☐ Proposed deed restrictions, if any, in outline form
- ☐ Approximate dimensions, area calculation (in square feet), and identification numbers for all proposed lots and tracts
- ☐ Proposed uses of the property, including all areas proposed to be dedicated as public right-of-way or reserved as open space
- ☐ On slopes exceeding an average grade of 10%, as shown on a submitted topographic survey, the preliminary location of development on lots demonstrating that future development can meet minimum required setbacks and applicable engineering design standards
- ☐ Preliminary utility plans for sewer, water and storm drainage when these utilities are to be provided
- ☐ The approximate location and identity of other utilities, including the locations of street lighting fixtures, as applicable
- ☐ Evidence of compliance with applicable overlay zones, including but not limited to the Flood Hazard Overlay (FH) zone
- ☐ Evidence of contact with the applicable road authority for proposed new street connections
- ☐ Certificates or letters from utility companies or districts stating that they are capable of providing service to the proposed development

Additional Information Required for Subdivisions

- ☐ Preliminary street layout of undivided portion of lot
- ☐ Special studies of areas which appear to be hazardous due to local geologic conditions
- ☐ Where the plat includes natural features subject to the conditions or requirements contained in the County's Land Use Ordinance, materials shall be provided to demonstrate that those conditions and/or requirements can be met
- ☐ Approximate center line profiles of streets, including extensions for a reasonable distance beyond the limits of the proposed Subdivision, showing the proposed finished grades and the nature and extent of construction
- ☐ Profiles of proposed drainage ways
- ☐ In areas subject to flooding, materials shall be submitted to demonstrate that the requirements of the Flood Hazard Overlay (FHO) zone of the County's Land Use Ordinance will be met
- ☐ If lot areas are to be graded, a plan showing the nature of cuts and fills, and information on the character of the soil
- ☐ Proposed method of financing the construction of common improvements such as street, drainage ways, sewer lines and water supply lines

☐ **FINAL PLAT (LDO 090(1))**

- ☐ Date, scale, north arrow, legend, highways, and railroads contiguous to the plat perimeter
- ☐ Description of the plat perimeter
- ☐ The names and signatures of all interest holders in the land being platted, and the surveyor
- ☐ Monuments of existing surveys identified, related to the plat by distances and bearings, and referenced to a document of record
- ☐ Exact location and width of all streets, pedestrian ways, easements, and any other rights-of-way
- ☐ Easements shall be denoted by fine dotted lines, and clearly identified as to their purpose
- ☐ Provisions for access to and maintenance of off-right-of-way drainage
- ☐ Block and lot boundary lines, their bearings and lengths
- ☐ Block numbers
- ☐ Lot numbers
- ☐ The area, to the nearest hundredth of an acre, of each lot which is larger than one acre
- ☐ Identification of land parcels to be dedicated for any purpose, public or private, so as to be distinguishable from lots intended for sale

Certificates:

- ☐ Title interest & consent
- ☐ Dedication for public use
- ☐ Engineering/Survey
- ☐ Water
- ☐ Public Works

☐ Additional Information:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Authorization

This permit application does not assure permit approval. The applicant and/or property owner shall be responsible for obtaining any other necessary federal, state, and local permits. Within two (2) years of final review and approval, all final plats for land divisions shall be filed and recorded with the County Clerk, except as required otherwise for the filing of a plat to lawfully establish an unlawfully created unit of land. The applicant verifies that the information submitted is complete, accurate, and consistent with other information submitted with this application.

Carey M Shelldy — Carey M Shelldy — 10-25-21

Property Owner (*Required) — Date

Carey M Shelldy — Carey M. Shelldy — 10-25-21

Applicant Signature — Date

RIVERVIEW MEADOWS
PHASE 2 SUBDIVISION

I. Introduction

The proposed subdivision is part of the planned progression of land use planning for this area of Nehalem. The subject property in located within the urban growth boundary of the city of Nehalem but is currently outside the city limits. The applicant requests subdivision approval to construct a residential subdivision to include the following:

- 38 lots in Phase 2;
- Installation of underground public and franchise utilities;
- Platting a private tract and construction of a private outdoor recreation space.

A pre-application conference was held with Tillamook County to review the project on March 16, 2021.

II. General Project Description

The project site consists of a single parcel located at Township 3 North, Range 10 West, Section 23B, tax lot 3600. The property is Tract B of Riverview Meadows Subdivision Phase 1 recorded as Document No. 2010-4288. The site contains 21.88 acres and is vacant.

The property is zoned RT, Residential Trailer and the applicant proposes constructing single family detached dwellings on the proposed lots as permitted by this zone. Access to the proposed subdivision will be from Riverview Meadows Lane and an extension of existing street stubbed as part of Phase 1 improvements.

The applicant intends to record CC&R's with the subdivision final plat similar to this recorded with Phase 1.

II. Application Approval Requests

The applicant requests the following approvals with this application:

- Type II Preliminary Plat Subdivision Review

III. Items Submitted With This Application

Exhibit A - Land Use Application
Exhibit B - Project Narrative
Exhibit C - Civil Plans

- Sheet 1 - Tentative Plan - Phases 2 and 3
- Sheet 2 - Tentative Plan - Phase 2
- Sheet 3 - Utility Layout - Phase 2
- Sheet 4 - Phase 2 Profiles
- Sheet 5 - Tentative Plan - Phase 3
- Sheet 6 - Utility Layout - Phase 3
- Sheet 7 - Phase 3 Profiles

Exhibit D - Engineering Geologic Hazard Report

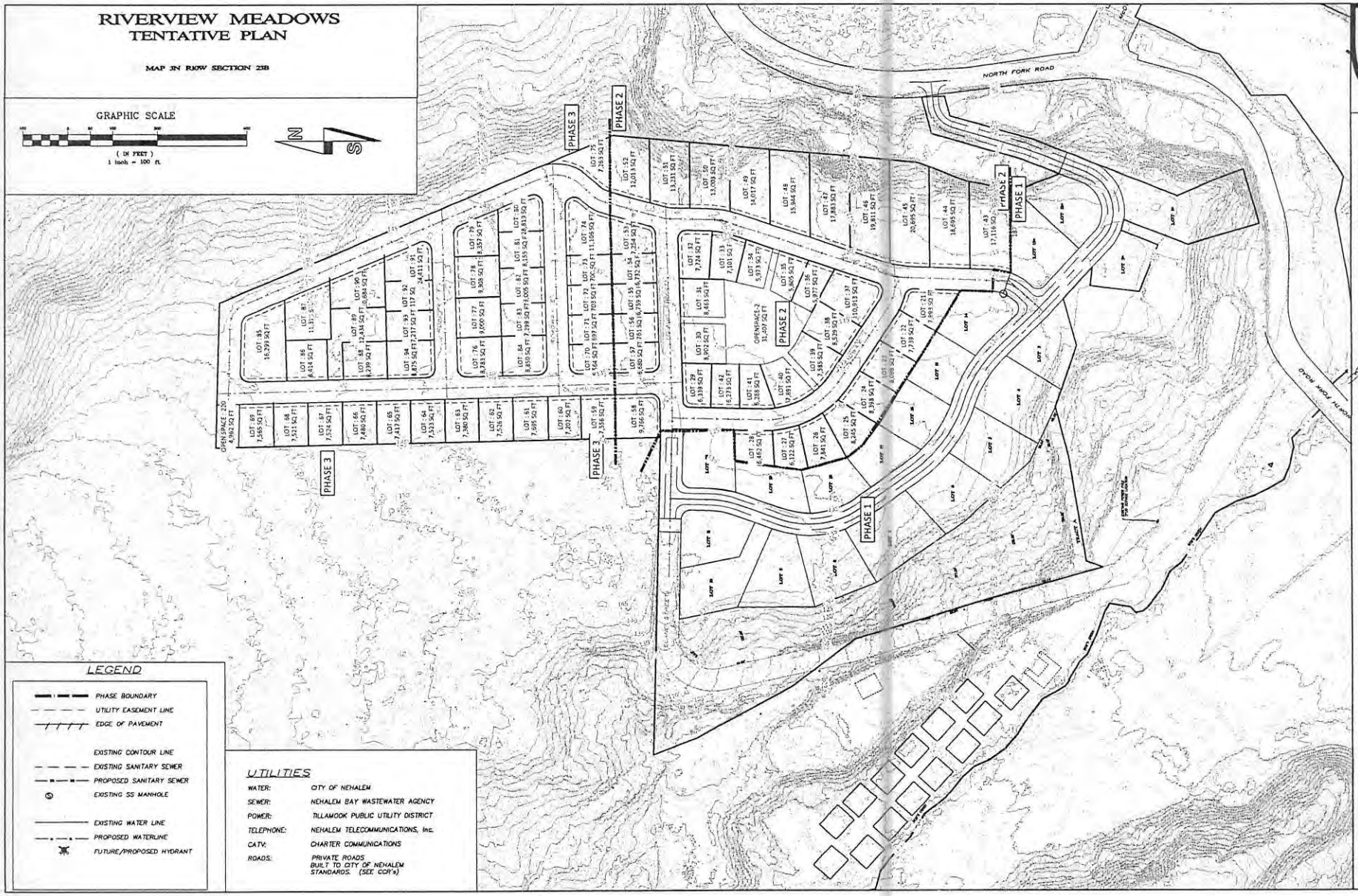
Exhibit E - Nehalem Bay Wastewater Agency
Exhibit G - Tillamook Peoples Utility District
Exhibit H - Nehalem Bay Fire

RIVERVIEW MEADOWS
TENTATIVE PLAN

MAP 3N R10W SECTION 23B

GRAPHIC SCALE

(IN FEET)
1 inch = 100 ft.



LEGEND

- PHASE BOUNDARY
- UTILITY EASEMENT LINE
- EDGE OF PAVEMENT
- EXISTING CONTOUR LINE
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- EXISTING SS MANHOLE
- EXISTING WATER LINE
- PROPOSED WATERLINE
- FUTURE/PROPOSED HYDRANT

UTILITIES

WATER:	CITY OF NEHALEM
SEWER:	NEHALEM BAY WASTEWATER AGENCY
POWER:	TILLAMOOK PUBLIC UTILITY DISTRICT
TELEPHONE:	NEHALEM TELECOMMUNICATIONS, Inc.
CATV:	CHARTER COMMUNICATIONS
ROADS:	PRIVATE ROADS BUILT TO CITY OF NEHALEM STANDARDS. (SEE CCR's)

MORGAN CIVIL ENGINEERING, INC.

PO BOX 358
MANZANITA, OR 97130
(503) 368-4003
www.morgancivil.com

• CIVIL ENGINEERING
• PROJECT MGT
• PLANNING

JOB NO. #19-23-PV
DATE: NOV. 18 2021

REGISTERED PROFESSIONAL ENGINEER 63055 OREGON JANUARY 14, 2014 JASON B. MORGAN

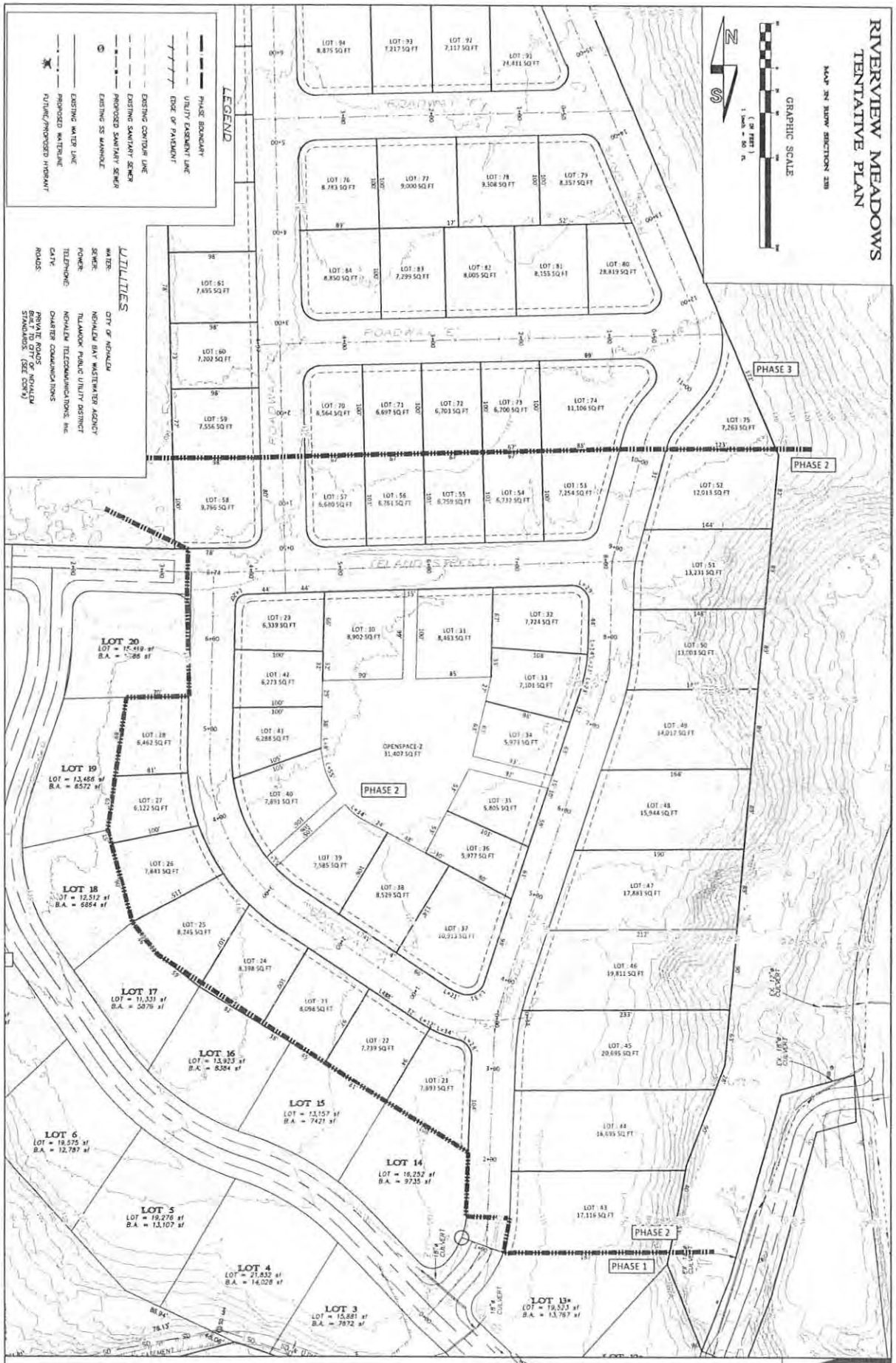
RENEWAL DATE: DECEMBER 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC

RIVERVIEW MEADOWS PHASE 2 & 3
TENTATIVE PLAN

NEHALEM, MAP 3N 10W 23B

SHEET 1 OF SEVEN



RIVERVIEW MEADOWS DEVELOPMENT, LLC

RIVERVIEW MEADOWS PHASE 2 & 3

TENTATIVE PLAN - PHASE 2

NEHALEM, MAP 3N 10W 23B

SHEET 2 OF SEVEN

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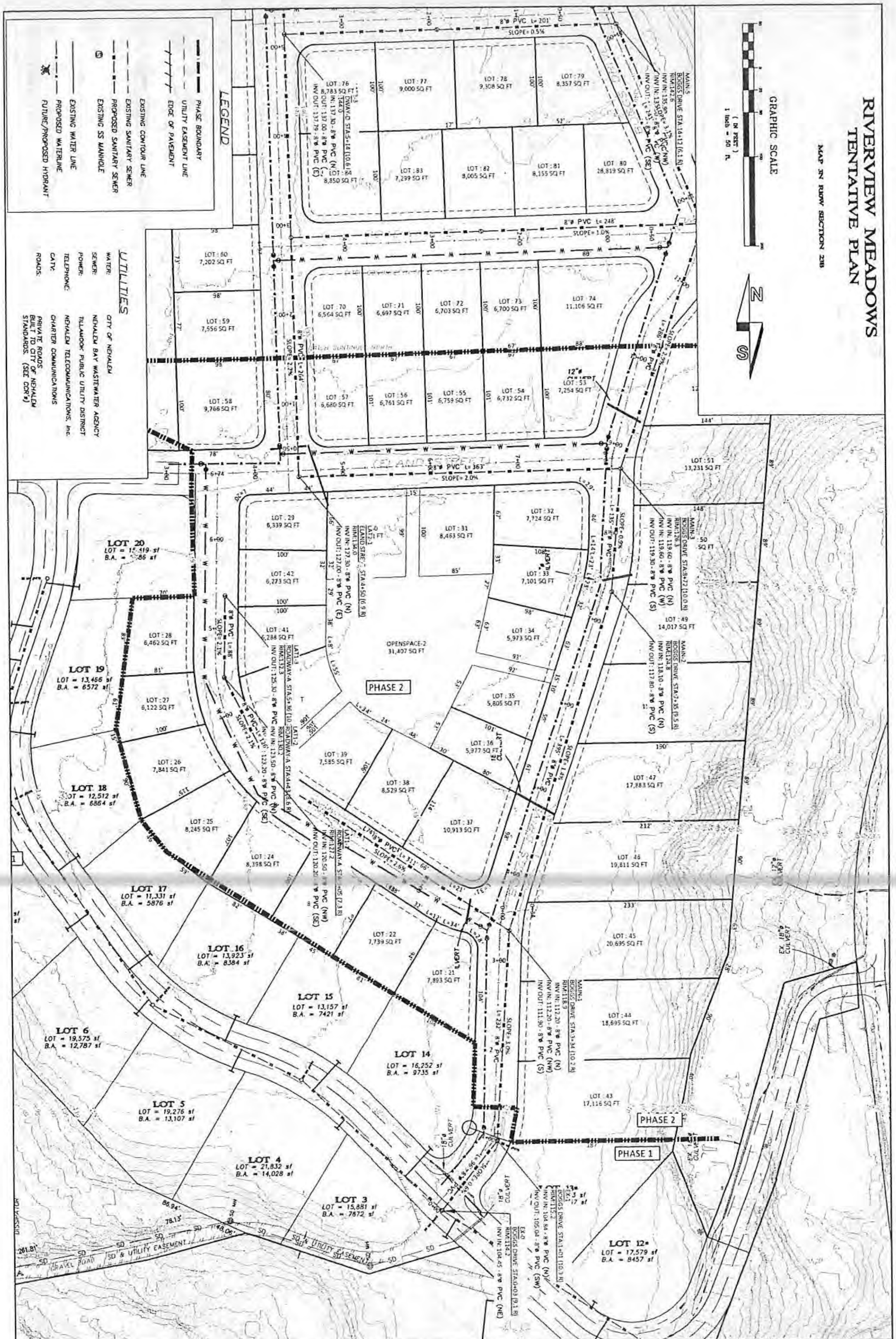
PO BOX 358
MANZANITA, OR 97130
(503) 801-8016
www.morgancivil.com

- CIVIL ENGINEERING
- INSPECTION
- PLANNING



RIVERVIEW MEADOWS DEVELOPMENT, LLC

RIVERVIEW MEADOWS PHASE 2 & 3

PHASE 2 - UTILITY LAYOUT

NECHALEM, MAP 3N 10W 23B

REGISTERED PROFESSIONAL ENGINEER
63055
OREGON
JASON R. MORGAN

JOB NO
#19-10-RIV
DATE
NOV. 10, 2021

MORGAN CIVIL
ENGINEERING, INC.

PO BOX 358
MANZANITA, OR 97130
(503) 801-6016
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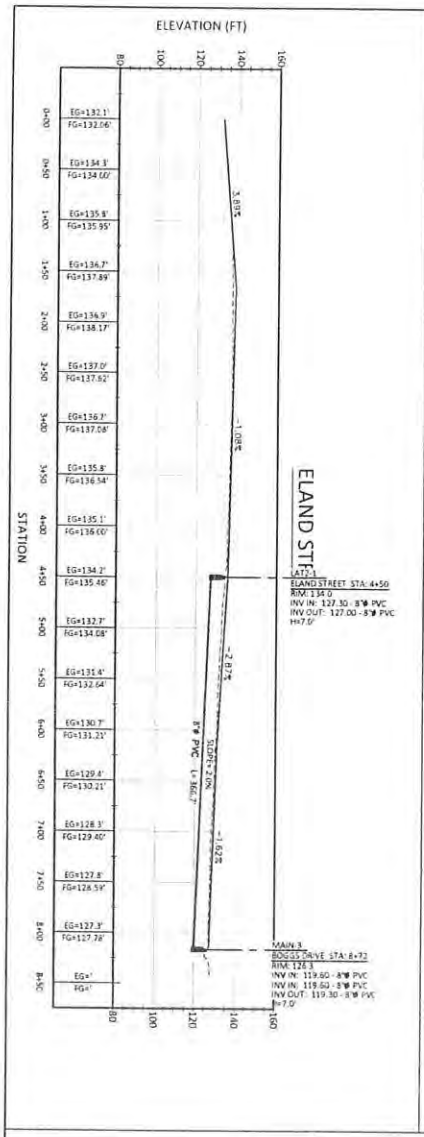
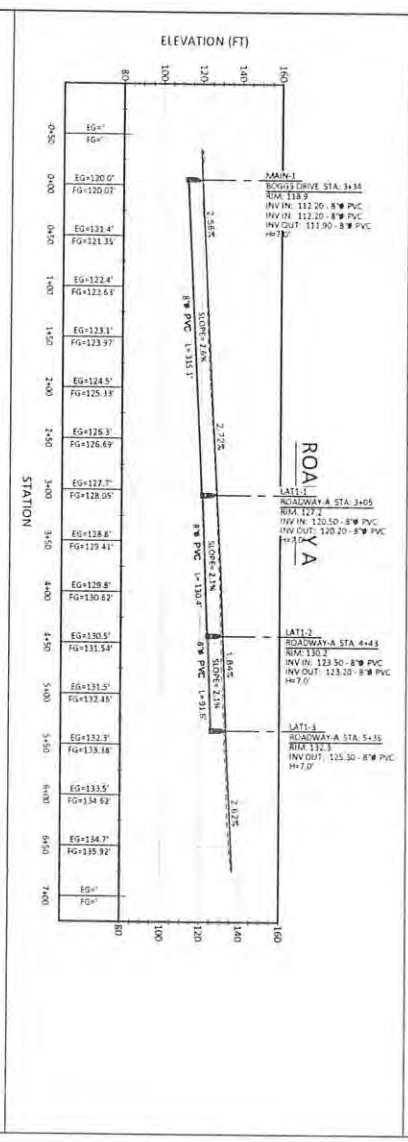
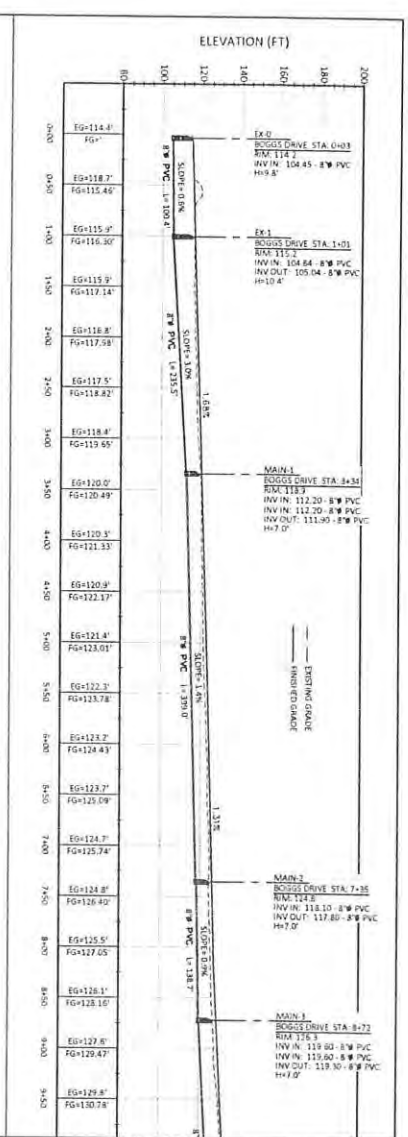
- INSPECTION
- PLANNING

SHEET
3
OF SEVEN







3/4 ELAND STREET PROFILE
SCALE: 1"=60' VERT: 1"=10'

2/4 ROADWAY A PROFILE
SCALE: 1"=60' VERT: 1"=10'

1/4 BOGGS DRIVE PROFILE
SCALE: 1"=60' VERT: 1"=10'

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2 & 3
PHASE 2 PROFILES
NECHALEM, MAP 3N 10W 23B

SHEET 4 OF SEVEN

REGISTERED PROFESSIONAL ENGINEER
OREGON
JOHN A. MORGAN
JOB NO 419-10-BV
DATE NOV 10, 2011

MORGAN CIVIL ENGINEERING, INC.
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RIVERVIEW MEADOWS DEVELOPMENT, LLC

RIVERVIEW MEADOWS PHASE 2 & 3

TENTATIVE PLAN - PHASE 3

NECHALEM, MAP 3N 10W 23B

SHEET 5 OF SEVEN

REGISTERED PROFESSIONAL ENGINEER
STEVEN R. MORGAN
OREGON

JOB NO. 419-19-MV
DATE NOV. 10, 2021

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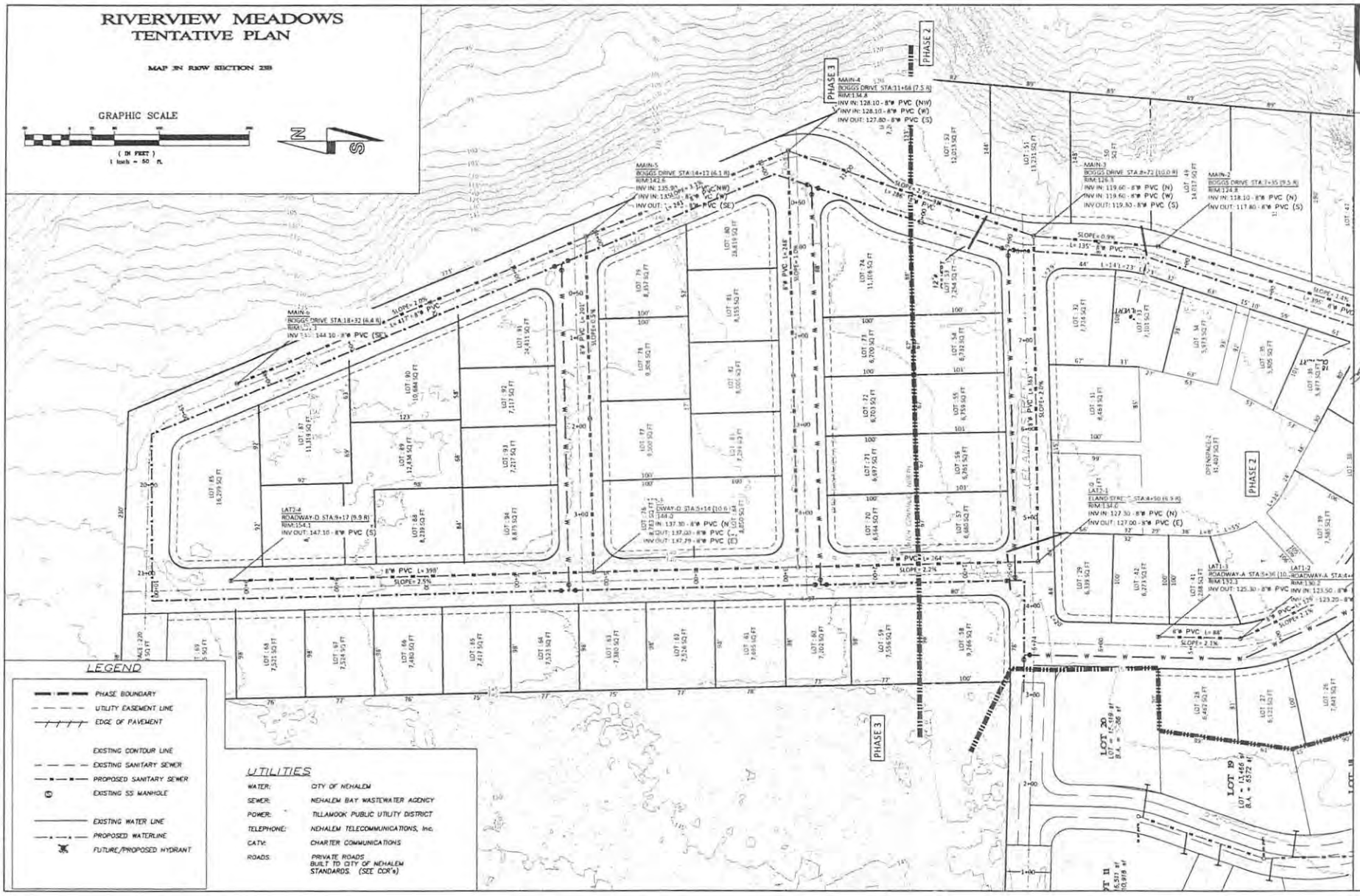
RIVERVIEW MEADOWS
TENTATIVE PLAN

MAP 3N R10W SECTION 23B

GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft.



LEGEND

- PHASE BOUNDARY
- UTILITY EASEMENT LINE
- EDGE OF PAVEMENT
- EXISTING CONTOUR LINE
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- EXISTING SS MANHOLE
- EXISTING WATER LINE
- PROPOSED WATERLINE
- FUTURE/PROPOSED HYDRANT

UTILITIES

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SEWER:	NEHALEM BAY WASTEWATER AGENCY
POWER:	TILLAMOOK PUBLIC UTILITY DISTRICT
TELEPHONE:	NEHALEM TELECOMMUNICATIONS, Inc.
CATV:	CHARTER COMMUNICATIONS
ROADS:	PRIVATE ROADS BUILT TO CITY OF NEHALEM STANDARDS. (SEE CCR's)

MORGAN CIVIL ENGINEERING, INC.

• CIVIL ENGINEERING
• INSPECTION
• PLANNING

PO BOX 1838
TILLAMOOK, OR 97141-30
(503) 601-5016
www.morgancivil.com

REGISTERED PROFESSIONAL ENGINEER
83065
OREGON
JANUARY 18, 1983
JASON A. MORGAN
RENEWAL DATE: DECEMBER 31, 2012

RIVERVIEW MEADOWS DEVELOPMENT, LLC

RIVERVIEW MEADOWS PHASE 2 & 3

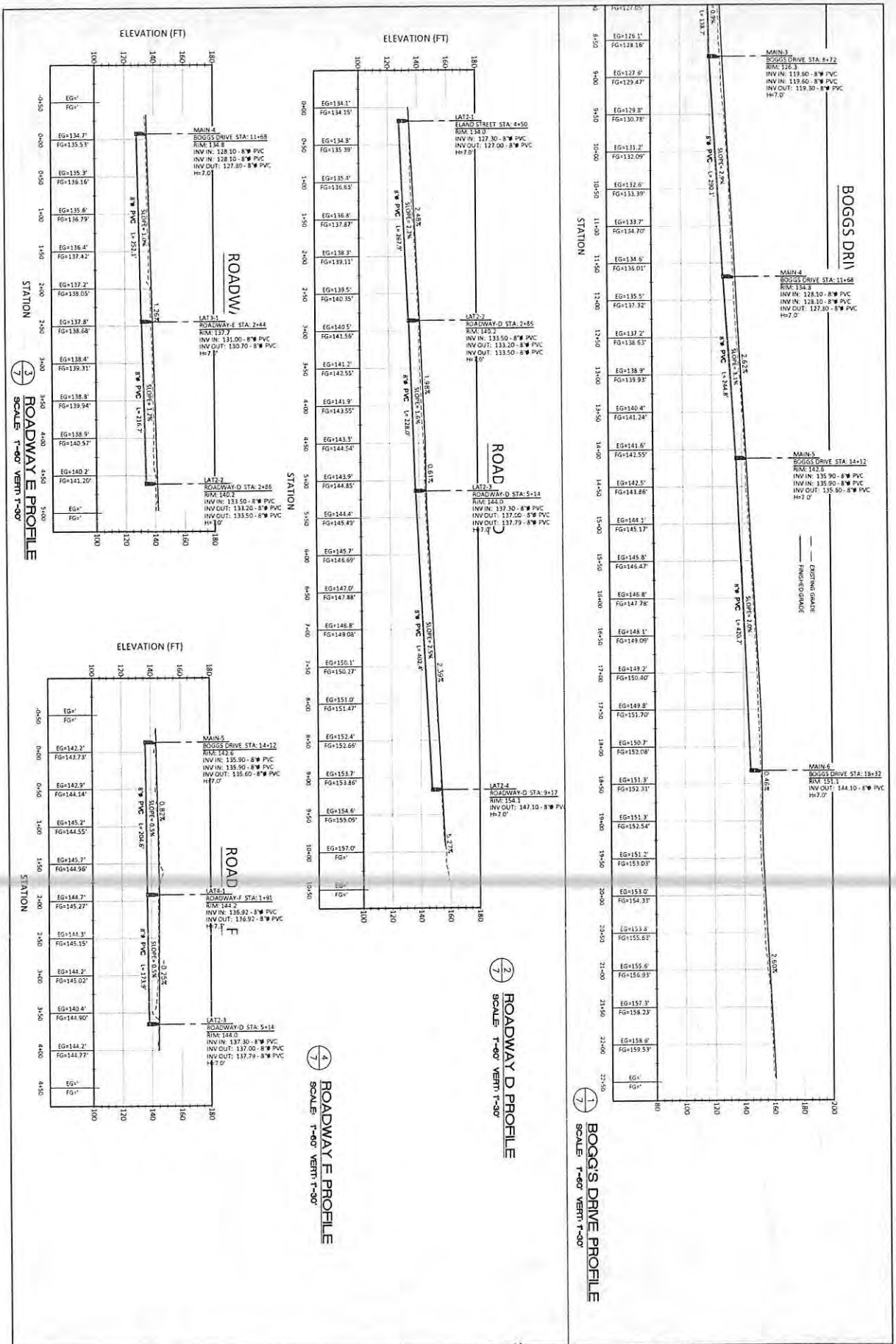
PHASE 3 - UTILITY LAYOUT

NEHALEM, MAP 3N-10W-23B

SHEET

6

of SEVEN



RIVERVIEW MEADOWS DEVELOPMENT, LLC

RIVERVIEW MEADOWS PHASE 2 & 3

PHASE 3 - PROFILES

NECHALEM, MAP 3N 10W 23B

JOB NO 419-10-RIV
DATE NOV. 10, 2021

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- INSPECTION
- PLANNING

SHEET 7 OF SEVEN

R. Warren Krager, R.G., C.E.G.
Consulting Engineering Geologist
Oregon CEG #E957
Washington LEG #314

February 25, 2020

Alex Reverman

In care of Morgan Civil Engineering, Inc.
Phone: 503-801-6016
Email: jason@morgancivil.com

Subject: Engineering Geologic Hazard Report
Tax Lot 3600 Map 3N 10 23B
Proposed Riverview Meadows Subdivision, Phase 2
Tillamook County, Oregon

Dear Mr. Reverman and Mr. Morgan:

As requested, I am pleased to submit my engineering geologic site investigation report for the proposed land division of Phase 2 of the Riverview Meadows residential subdivision. This geologic hazard report has been prepared in general accordance with the Tillamook County Land Use Ordinance (TCLUO) Section 4.130, Development Requirements for Geologic Hazard Areas. The property is mapped in inactive landslides, landslide topography and mass movement topography and has greater than 19 percent slope.

R. Warren Krager, R.G., C.E.G. (Oregon Licensed Engineering Geologist E-957) conducted the initial site visit with Jason Morgan, P.E. on Friday February 14, 2020. Approximately 2 hours was spent observing site conditions and discussing primarily the proposed building lots located on the break in slope along the eastern row of Lot 39 through 48. We discussed general slope setback considerations for home on lots, as well as allowances for specifically engineered foundation for homes that might use a daylight basement or other foundation system involving slopes. We observed exposed surface soils near slope crest areas and general drainage of existing manmade and natural soil drainage in internal roadway areas to be constructed to serve Phase 2 street access.

In preparing this report, available geologic hazard maps and reports, tax lot maps, design concept sketches and available topographic date and aerial photographic images were reviewed for detailed information pertinent to the subject property and vicinity. The following geologic reports, maps, aerial photos and other information were reviewed and used in preparation this report:

- Tillamook County Land Use Ordinance, Article 4, Section 4.130 Development Requirements for Geologic Hazard Areas.
- Environmental Geology of the Coastal Region of Tillamook and Clatsop Counties, Oregon, Oregon Department of Geology and Mineral Industries (DOGAMI), Bulletin 74, 1972.

- Evaluation of Coastal Erosion Hazard Zones Along Dune and Bluff Backed Shorelines in Tillamook County, Oregon: Cascade Head to Cape Falcon, Oregon Department of Geology and Mineral Industries (DOGAMI), Open File Report O-01-03, 2001.
- Geologic Map of the Tillamook Highlands, Northwest Oregon Coast Range (Nehalem, 15-minute Quadrangle), United States Geological Survey (USGS), Open File Report 94-21, 1994.
- Google Earth Aerial photographs of the Nehalem area, photo dates: September 3, 1994, July 29, 2000, June 15, 2003, June 29, 2005, December 12, 2005, August 1, 2011, July 6, 2012, July 30, 2014, August 23, 2016, and June 22, 2017.
- Topographic survey and tentative Lot Plan, Riverview Meadows Phase 2 and 3, prepared by Morgan Civil Engineering, Inc. for the Dorado Group, LLC.
- Oregon Department of Geology and Mineral Industries, DOGAMI LIDAR Viewer http://www.oregongeology.org/lidar/dataviewer/.

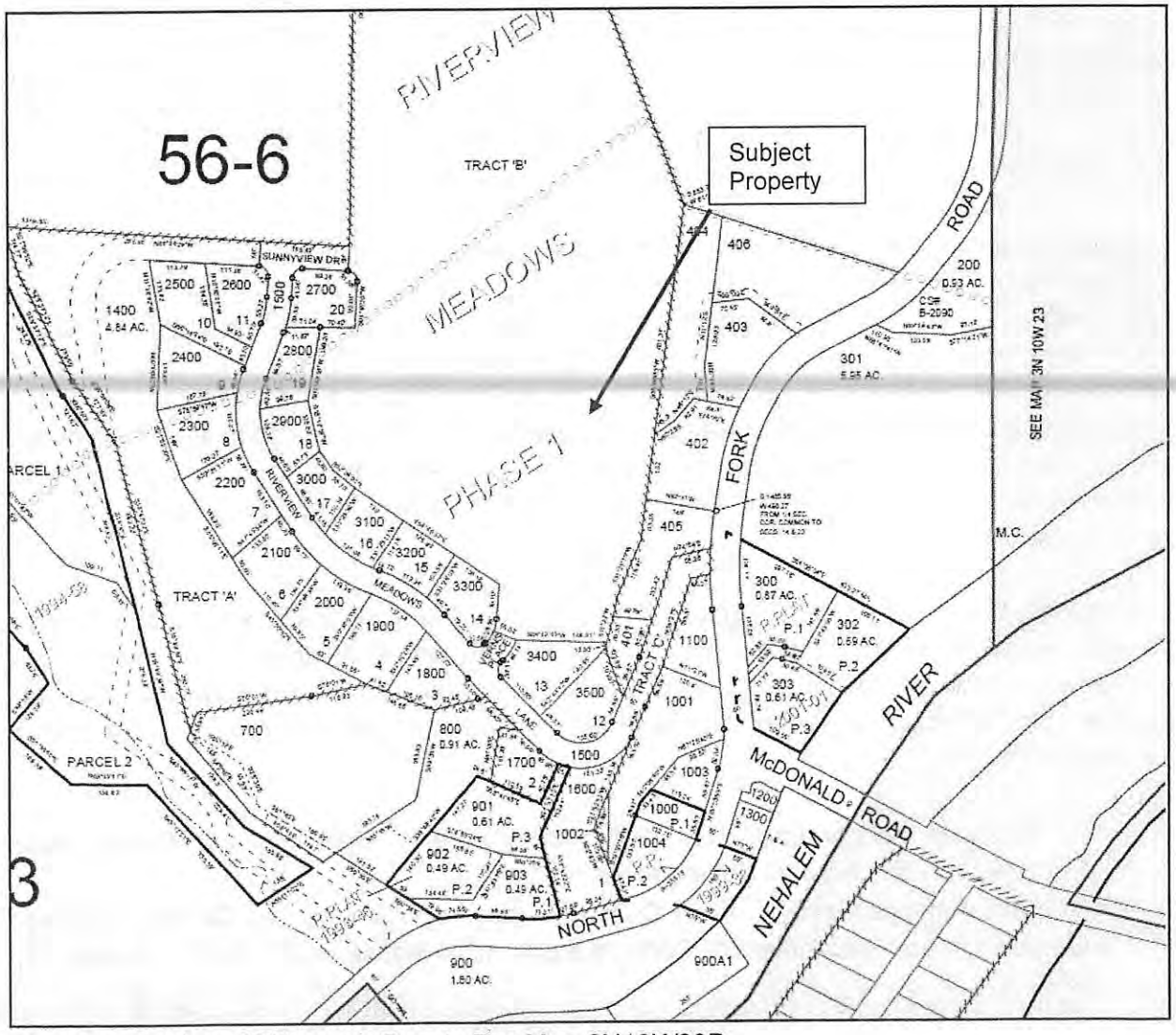


Figure 1- Portion of Tillamook County Tax Map 3N10W23B

Site Location and Project Description

The general location of the subject property is level-topped foothill located north of the confluence of main stem of the Nehalem River and the North Fork of the Nehalem River, east of in Tillamook County, Oregon. The subject property consists of Tract B, Lot 3600 of the Riverview Meadows Phase 1 Subdivision, Figure 1. It is my understanding that the vacant, undeveloped land in Tract B, will be further divided into approximately 33 new single-family residential building lots, ranging in size from about 8,000 to 14,000 square feet in area. The proposed land division will include construction of new paved streets and underground utilities.

Slope and Topography

Most of the proposed new phase of residential subdivision lies on a relatively level natural terrace at about 130 feet above mean sea level. Only along the eastern margins of proposed Lots 39 through 48 are slopes present that would create concern for slope instability or potential influence on home site location. Most of these proposed lots appear to have ample level area for conventional homes with shallow foundations to be placed well away from the crests of steep descending slopes. However, Lots 45, 46, and 47 are smaller and maybe limited in home footprint selection or foundation method because of steep slopes.

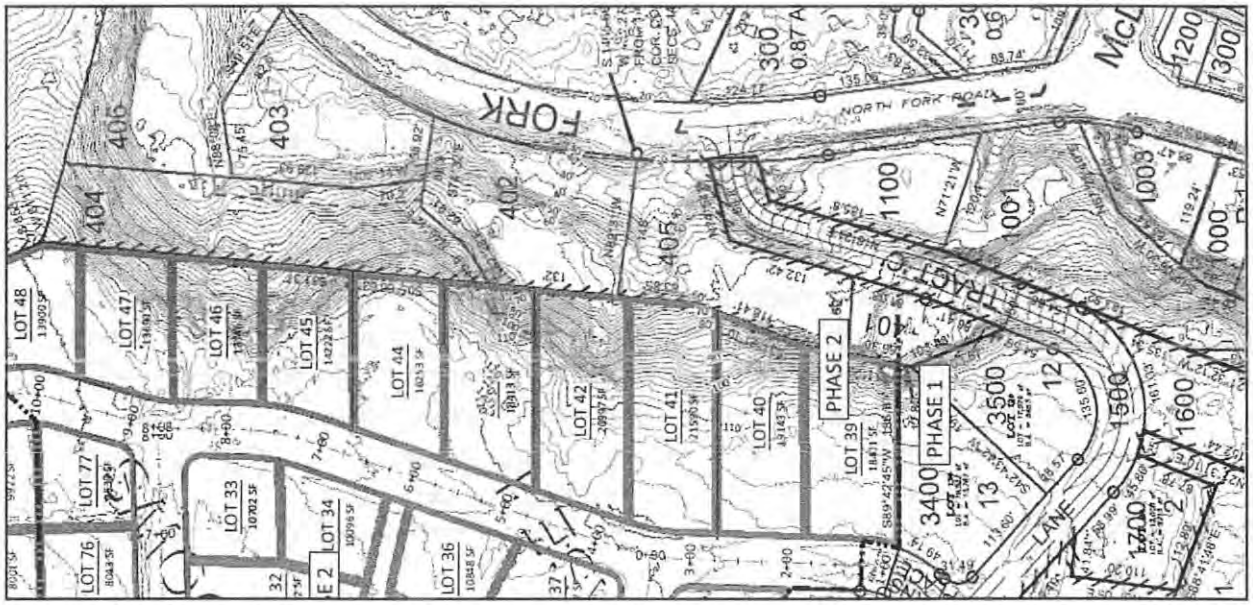


Figure 2 – North to left view, Sloped topography of proposed Riverview Meadows Phase 2 Subdivision. Site plan and LIDAR-based topography Provided by Morgan Civil Engineering, Inc.

From the level meadow, the eastern slope breaks abruptly downward at generally over 50 percent and as steep as 80 to 100 percent locally, based on the DOGAMI light detection and ranging (Lidar) derived topography, shown in Figure 2. The lowest elevations on the eastern margins of the lot are about 60 to 70 feet above sea level. The extremely steep slope gradients are generally at lower elevations. There appear to be several small block slide slope failures visible from near the crest of the slope. Trails from residences at the base of the steep slope to the upper level meadow follow slump block slope terrain. During our slope reconnaissance, we

could hear but could not locate what sounded like springs or cascading drainage issuing from near the base of the steepest slopes.

Soils and Geology

Surface soils in the near level portion of the project area are mapped by the USDA NRCS Web Soil Survey of Tillamook County, Oregon as Chitwood-Hebo complex, 0 to 5 percent slopes. This soil is derived from mixed alluvium and/or fluvio-marine deposits derived from sedimentary rock. The USDA describes the contact with underlaying bedrock at a depth of about 5 feet below the ground surface. The sloped soils at the eastern margin of the subject property are mapped as Templeton-Ecola medial silt loams, 30 to 60 percent slopes derived from colluvium and residuum of sedimentary rock.

Based on the DOGAMI geologic mapping, Figure 3, the subject property is located on a southern slope of coast range uplands composed of Tertiary age sedimentary deposits of Oligocene to Miocene age siltstone, geologic map symbol **Toms**. The blue triangle and stippled overprint pattern on the **Toms** geologic map unit indicates ancient landslide topography mapped by DOGAMI. The **Toms** tuffaceous siltstone geologic unit is typically highly weathered to decomposed and with closely spaced joints and fractures from the landsliding. Intact sedimentary bedding or bedrock dip angles are rarely observed in the hill slope colluvium. There were no apparent signs of sedimentary bedding in the hand auger explorations. In the landslide terrain it is unlikely that sedimentary bedding would be intact for any significant areal extent.

Younger Quaternary fluvial silt and clay deposits (**SC**) are present in embayments eroded into the older sedimentary rock at Bob's Creek, Anderson Creek and other drainages in the lower Nehalem Valley.

According to the USGS geologic mapping, Figure 4 , the project site lies in an area of Tertiary Alsea Formation (**Tal**) tuffaceous siltstone of Lower Miocene to Oligocene age. The upper part of this unit is generally massive but has thin feldspathic sandstone interbeds. The USGS does not map the project area as landslide terrain, but the sedimentary strike and dip symbols shown on the map vary substantially in orientation and dip angles, suggesting substantial disturbance of the originally horizontally bedded marine sedimentary deposit. As with the DOGAMI mapping, Nehalem River valley and tributary creeks are covered be younger Quaternary fluvial and estuarine (Qf) fine-grained sedimentary deposits.

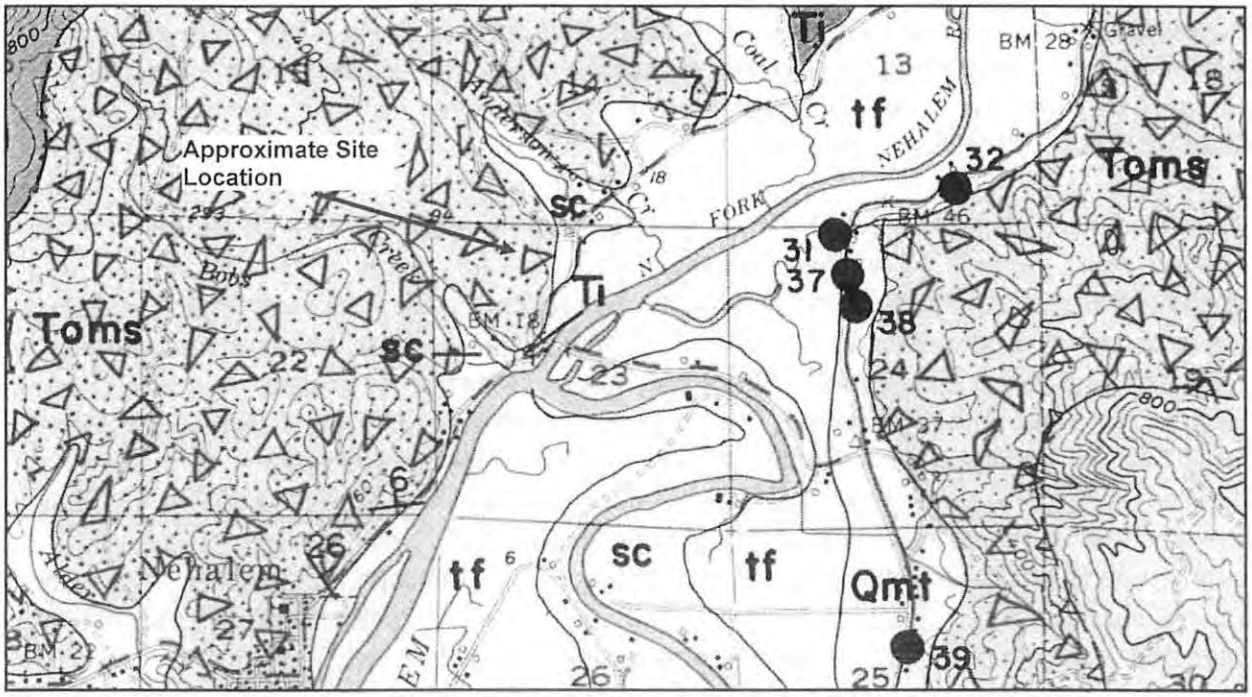


Figure 3- Portion of Geologic Map of Nehalem Quadrangle, DOGAMI Bulletin 74 (1972).

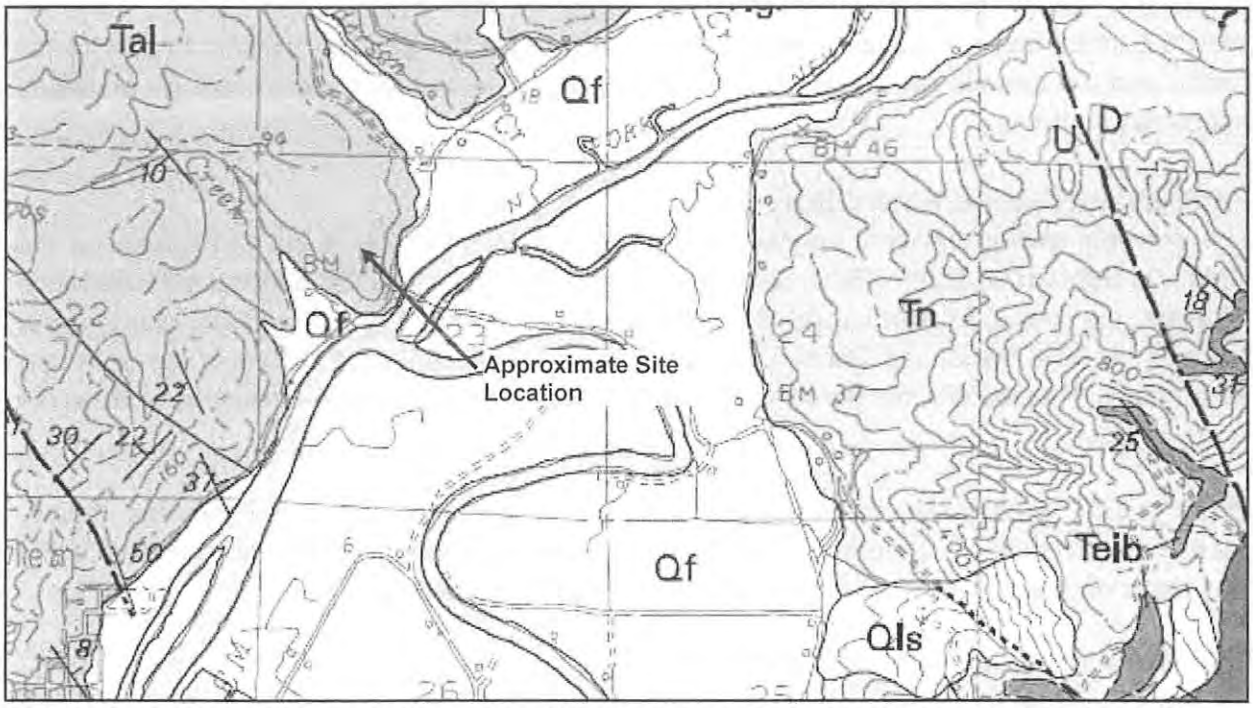


Figure 4 - Portion of Geologic Map of the Tillamook Highlands, Northwest Oregon Coast Range (Nehalem, 15-minute Quadrangle), United States Geological Survey (USGS), Open File Report 94-21, 1994.

Seismic Setting

The Oregon Coast is located near the western margin of the North American continental tectonic plate. The Pacific and Juan de Fuca Tectonic plates that form the ocean floor off the

northwest coast are converging and being subducted beneath the western edge of the North American Continental Plate. This zone of tectonic plate convergence, called the Cascadia Subduction Zone, has created a complex set of stress regimes that influence the tectonic and volcanic activity of the Pacific Northwest.

The Cascadia Subduction Zone, (CSZ), located approximately 50 miles to 60 miles off the Oregon coast, represents an immense thrust fault that has potential for earthquakes large enough to cause significant ground shaking throughout the Pacific Northwest Region. Geologic research over the past decades has shown that this offshore thrust fault zone has repeatedly produced large earthquakes every 300 to 700 years. Research of ancient Japanese tsunami records along with dendrochronology (tree ring dating techniques) have established that the last large CSZ earthquake occurred in January of 1700 AD. Although researchers do not agree on the likely magnitude of the next Cascadia Subduction Zone thrust fault earthquake, it is widely believed that earthquakes of moment magnitude (M_w) 8.5 to 9.5 are possible. The duration of strong ground shaking is estimated to be greater than 4 to 5 minutes, with minor shaking lasting several minutes longer. Possible aftershocks of magnitude 7 or greater may occur for hours or days after a major Cascadia Subduction Zone seismic rupture.

Other potential earthquake sources in this region include fault ruptures deep within the subducting oceanic plates and within the overlying continental crustal tectonic plate. However, the CSZ thrust fault earthquake mechanism is considered the greatest seismic hazard to the region and the seismic source which dictates building code design requirements for permitted habitable structures.

Geologic and Seismic Hazard Summary

The principal geologic hazard concern throughout western Oregon is an earthquake on the Cascadia Subduction Zone, CSZ. Based on the geologic record of CSZ Earthquake recurrence intervals, the next CSZ earthquake is potentially overdue and may occur within many of our lifetimes. In 2008 the United States Geologic Survey (USGS) released results of research that estimated 10% probability that a magnitude 8-9 Cascadia Subduction Zone earthquake would occur within 30 years.

During a CSZ earthquake, the local area will very likely experience a few minutes of very intense ground shaking. Steeper slopes on the eastern margin of the subdivision's Phase 2 lots may experience slope instability or landslides under seismic conditions.

Conclusions and Recommendations

It is our interpretation that the landslide topography likely formed many millennia ago when the lower Nehalem River Valley had greater topographic relief, steeper slopes and the river was actively eroding or cutting the base level. In general, the conditions that formed this mapped landslide topography are no longer active. However, in areas of steep slopes along the eastern margin of the project, the ancient landslide topography may be reactivated by heavy rainfall, changes in grading, drainage, or tree removal, or severe seismic ground motion.

Homes with shallow foundations should be designed with adequate slope setback for long-term slope stability and support of foundation soils. Any portions of proposed home footprints or site grading, including foundation backfill, on Lots 39 through 42 that extend east of the existing 110-foot elevation contour shown on Morgan Civil Engineering plans should be reviewed by an Engineering Geologist or Civil or Geotechnical Engineer for slope stability concerns. Similarly, any portions of proposed home sites on Lots 43 through 47 that extend east of the existing 120-foot elevation should be reviewed for slope stability concerns.

For home footprints that are designed specifically to extend east of the break in slope elevations noted above, it is expected that such homes would have either stepped or deep foundations and engineered retaining foundation walls. Release of storm water runoff from impermeable surface should be carefully managed such that concentrated stormwater does not flow over the crests of steep slopes.

In my opinion, firm, undisturbed silty clay soil or decomposed sedimentary bedrock is considered suitable for support of shallow spread foundations and retaining walls designed according to prescriptive building code methods outlined in the 2014 Oregon Structural Specialty Code (OSSC), Chapter 18 - Soils and Foundations. An allowable soil bearing capacity of 1,500 pounds per square foot would be appropriate for firm native undisturbed silty clay soil according to table 1806.2 of the OSSC. Any organic debris or fill should be removed from foundation areas.

Grading recommendations in accordance with OSSC Appendix J- Grading are considered generally appropriate for the general excavation and grading expected for construction on the generally level residential lots. The pertinent building code and sections should be referenced on final foundation construction plans for homes, noting assumed soil parameters used in the design.

For homes planned east of the 110-foot to 120-feet elevation contours slopes described above, It is recommended that the engineering geologist, civil engineer, or structural engineer be retained to observe and document foundation subgrade preparation, installation of drainage improvements, construction of engineered retaining walls, and structural fill placement and compaction.

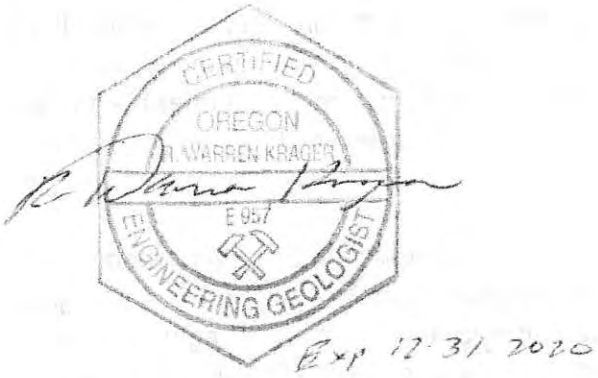
Limitations

The engineering geologic reconnaissance and geologic hazard review performed for the proposed residential land partition have been conducted with that level of care and skill ordinarily exercised by members of the profession currently practicing in this discipline and area under similar budget and time constraints. No warranty, expressed or implied, is made regarding the interpretations and conclusions of this report.

This report may be used only by the client and their authorized agents for the purposes stated, within a reasonable time from its issuance. Land use, site conditions (both on- and off-site), or other factors may change over time and could materially affect our findings. Therefore, this report should not be relied upon after 24 months from its date of issue. If the project is delayed

by more than 24 months from the date of this report, I would happy to review site and design conditions and revise this report if appropriate or provide detailed site investigation reports for future lots and proposed homes.

If you have any questions regarding the information presented in this report, please do not hesitate to contact me at 360-903-4861 or warrenkrager@gmail.com.
Sincerely,



R. Warren Krager, R.G., C.E.G.
Oregon Licensed Engineering Geologist E-957

MORGAN CIVIL ENGINEERING, INC.

PO Box 358, Manzanita, OR 97130
ph: 503-801-6016
www.morgancivil.com

February 4, 2021

The Dorado Group LLC
Alex Reverman areverman@gmail.com

RE: Engineering Portion of Geologic Hazard Report for Road and Utility Development of a portion of Tax Lot 3600, Map 03N 10W 23B, Nehalem, Tillamook County, Oregon (Riverview Meadows, Phase 2)
Project #19-10-Riv

Dear Mr. Reverman:

At your request, we have completed the investigation for construction on the subject property, referenced above. Available maps and previous reports of nearby properties were utilized in this investigation. This investigation also included an inspection of the property. Warren Krager, Certified Engineering Geologist, has investigated the site and addressed the geologic conditions of the site in his report. Morgan Civil Engineering, Inc. (MCE) has then developed the engineering recommendations related to construction on the site. These recommendations are prepared for use in the construction of the roadways and underground utilities on the property. The standards set forth herein should be incorporated into the development plans for that project.

This report is intended to address the overall adequacy of the site for residential development, as well as the construction of the required infrastructure (i.e., roads, utilities, etc.). The standards set forth herein should be incorporated into the final road and utility development plans. Recommendations for construction on the individual lots are also included.

MCE has prepared a detailed topographic map of the site, with 1-foot contours over the entire property. Site elevations noted in this report are based on the topographic information obtained from the Oregon Department of Geology and Mineral Industries (DOGAMI) LiDAR project. The LiDAR elevations are based on the NAVD88 datum, which is roughly sea level.

Plans

Preliminary parcel and road layout plans have been completed for this site. Rough grading for the roads has been completed. The preliminary site grading and parcel layout plans have been reviewed as part of this report.

At the time of individual lot construction, a Plot Plan and Foundation Plan should be developed for each property. The plans should be reviewed for compliance with this report and current construction requirements. For construction within 30 feet of a steep slope, an individual site-specific geologic hazard report should be prepared.

Recommendations for the development of individual lots are included in this report.

SITE CONDITIONS

The site and its geologic conditions are generally as described by the geologist in his report. Mr. Krager's 8-page report, dated February 25, 2020, is attached for your use.

The approximately 33-acre parcel is located on a plateau to the east of the incorporated City of Nehalem, but inside of the Urban Growth Boundary. The property is located to the north of the North Fork Road. The property borders residential properties to the west (Phase 1 of Riverview Meadows), south, and east, and undeveloped land to the north.

The overall area to be developed is roughly triangular, and measures about 700 feet east to west, and 700 feet north to south. The property narrows to the west. See the attached portion of the assessor's map for property orientation and dimensions.

The property is accessed from two temporary dead-end roads in Phase 1: Sunnyview Drive and Verns Place. Utilities are also located in each dead-end road.

Elevations in the building area vary from about 137 feet above sea level, at the northwestern corner, to about 113 feet, near the southeastern corner of the parcel. The property slopes gently to the southwest, with slopes varying from nearly flat to over 5 percent. Shallow ditches have been constructed along the rough graded roads in order to direct drainage off the site. The eastern edge of the development slopes down steeply to the east, at roughly 50 percent. At the southwestern property corner, the elevation is 120 feet.

Vegetation on the property is generally grass that is regularly maintained. Evergreen trees are located along the edges of the plateau. Throughout the property, there are occasional young trees, as well as blackberry vines and scotch broom. The eastern slope is heavily vegetated with blackberries, ferns, trees, and other species typical of a coastal forest.

The site is in a 135 miles per hour basic wind gust speed zone, setback from the ocean and bay winds (Exposure 'C' as per the 2017 State of Oregon Residential Specialty Code (ORSC)). Therefore, all buildings must be designed in order to withstand the minimum required lateral wind gust loads. In general, one- and two-story wood frame construction designed in order to withstand 135 miles per hour Exposure 'C' wind loading also will withstand even moderate earthquake loads.

FINDINGS AND HAZARDS ANALYSIS

The primary relevant geologic hazards on this site relate to: 1) steep eastern bank; 2) drainage control; 3) compressible surface soils, and; 4) regional seismicity.

Mitigation of these hazards is discussed in the Development Standards, addressed herein.

The North Oregon Coast is defined by the 2017 ORSC as lying within a D_2 Seismic Design Category. As such, structures built in this area must, at a minimum, comply with the structural requirements for the D_2 Seismic Design Category. Strong seismic acceleration will likely result in widespread landsliding. No slope can be considered immune from failure during these conditions.

LOCALIZED SLOPE INSTABILITY

The slope down to the east of the property will be subject to continued erosion. Construction should be avoided near this slope. The moderate and steep slopes in these areas will be subject to ongoing soil creep. Extra consideration should be taken when constructing in these areas.

SITE GRADING PLAN

The plans call for the final grading and construction of the existing roadways on the property. The flat property requires minimal grading for road construction or homes.

COMPRESSIBLE SOILS

The topsoil on the property consists of 1 to 2 feet of dark gray to black humic soils. This topsoil is compressible and should not be built upon. This soil has already been cleared from the roadways. This organic topsoil is not acceptable for backfill in engineered fills for the roadways nor is it acceptable for backfill behind retaining walls. This topsoil should be disposed of by hauling it off the site or using it on other portions of the property. The topsoil may be stockpiled temporarily and used for future landscaping.

Similarly, when constructing buildings on the individual parcels, this topsoil should be removed. The building footprint and driveway should have all organic soils excavated and removed before the foundation or road construction begins. Each homesite should be inspected by an engineer, or geologist, in order to ensure that adequate bearing soil is exposed for construction. Documentation of the inspection should be provided to the building official.

MANDATORY DEVELOPMENT STANDARDS

In addition to the required standards of Section 4.130 (2) of the Tillamook County Land Use Ordinance, the following site-specific standards should also be required:

A. Development Density – This property should be developed for uses consistent with current zoning (outright or conditional uses). All development should take place in conformance with all other requirements of the Tillamook County Land Use Ordinance or approved variances, as applicable.

The property is zoned as NH-RT, Residential Trailer. See Section 157.110 of the City Zoning Ordinance for more information.

B. Road Location and Road Base Support - Site access is proposed to take place from Verns Place and Sunnyview Drive. This is an acceptable layout.

The roadbed should rest on firm, silty clay soil. Any soft soils or clays will need to be excavated from the road or building area, and be replaced with engineered fill material. Use a loaded dump truck to conduct a proof-roll of the soil before beginning road construction. Remove all soft areas that are found.

C. Land Grading Practices - All excavations for road and utility construction should be done during reasonably dry weather (while it is not raining hard). All cut slopes should be retained using permanent means of stabilization. All excess excavated material should be used as non-structural fill by using it on flat areas, or disposed of by hauling it off the site. Native material will not be acceptable for use in engineered fills.

The site is flat so minimal grading for roads and homes is expected. Retaining walls will not be needed. No grading of the site, beyond that required for construction, should take place.

Foundation drains should be installed on the uphill side of all retaining walls and foundation footings. The use of a fabric covered, perforated drainage pipe, such as ADS DrainGuard®, or an equivalent , is recommended. The backfill around and above the foundation drains should be clean, washed, drain rock or angular ballast rock in order, to ensure good drainage. All drains should discharge toward the lowest point along the wall. All roof and surface area drainage piping should be separate from the foundation drainage.

SUMMARY FINDINGS AND CONCLUSIONS

1. The proposed use is infrastructure construction for future single-family residential parcels. There are no immediate adverse effects on adjacent properties from future house construction. Future development may result in increased stormwater runoff or decreased runoff quality on adjacent properties.

2. Hazards to life, public and private property, and the natural environment, which may be caused by the proposed use, are discussed herein and addressed in each of the Development Standards.

3. The methods for protecting the surrounding area from the adverse effects of the proposed development are set forth in each of the Development Standards.

4. Temporary and permanent stabilization programs and maintenance of new and existing vegetation are discussed in Development Standards "C' and "D".

5. The proposed development of this property according to the Mandatory Standards set out herein will result in the new parcels and future developments being adequately protected from the above described reasonably foreseeable ordinary hazards, although not necessarily from major earthquake, the possibility of which is discussed herein.

6. The proposed development of this property, according to the recommended standards, is designed to minimize the adverse environmental effects.

LIMITATION

This engineering report is based on site inspections of the property and vicinity and a review of the site topography. The engineering conclusions and recommendations in this engineering portion of the report are based upon the geologic conclusions presented in the geologic report prepared by Mr. Krager. The engineering conclusions and recommendations presented herein are believed to represent the site and are offered as professional opinions derived according to current standards of professional practice for a report of this nature. No warranty is expressed or implied.

Should you have any questions regarding my recommendations or this report, please contact me.

Sincerely,

MORGAN CIVIL ENGINEERING, INC.

Jason R. Morgan, PE
Professional Engineer

REGISTERED PROFESSIONAL ENGINEER 63055 OREGON JANUARY 15, 2002 JASON R. MORGAN

RENEWAL DATE: DECEMBER 31, 2022

JRM/st

cc: Project File #19-10-Riv

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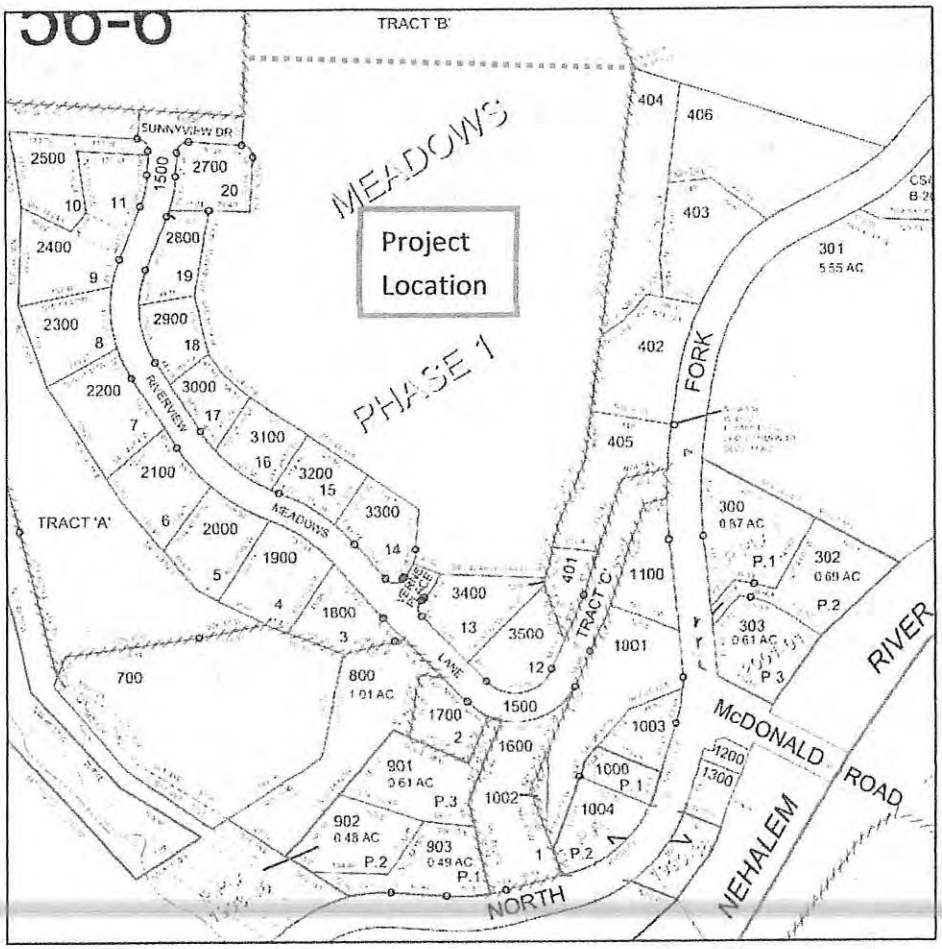
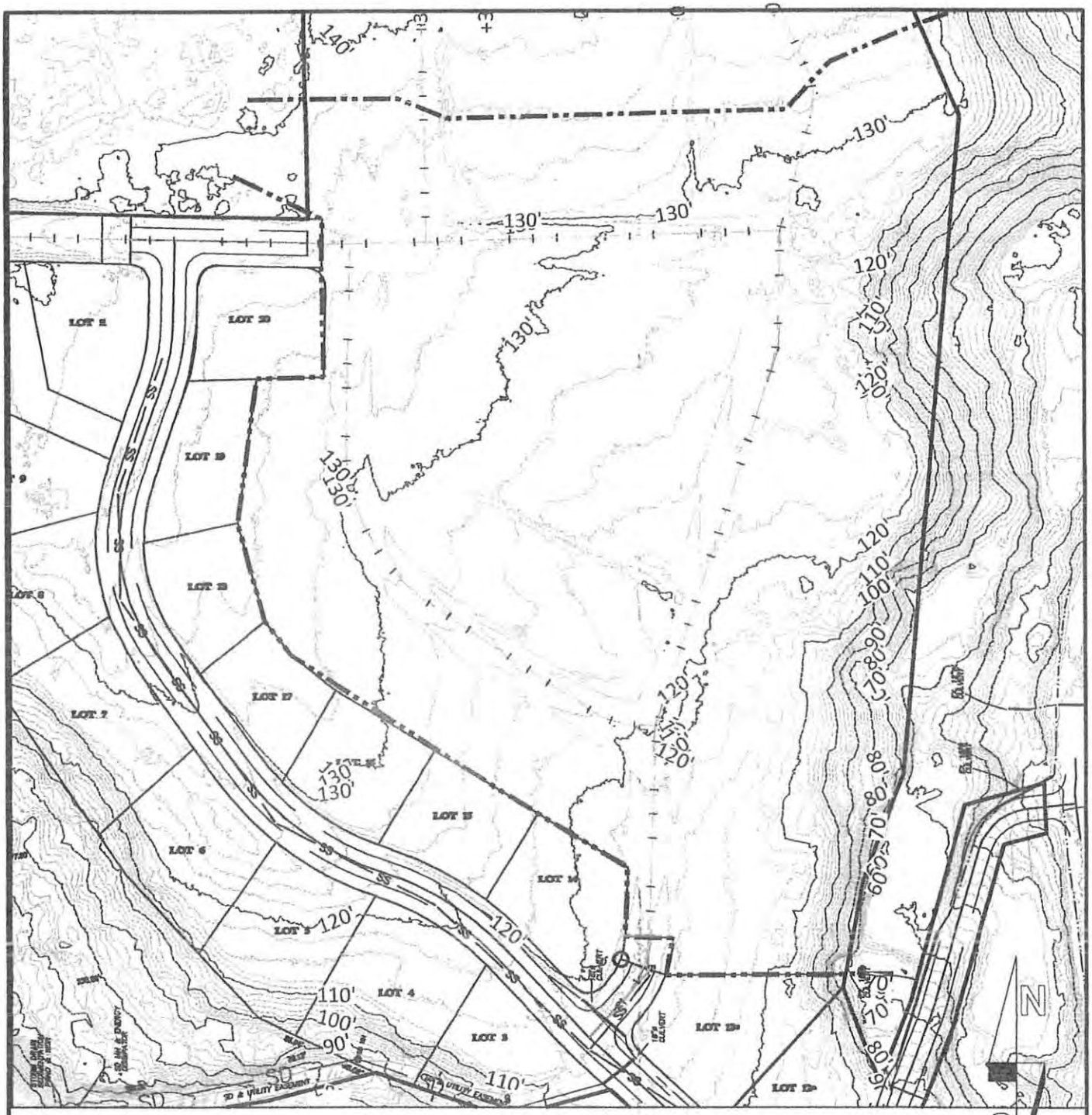


Tax Lot 3600, Map 03N 10W 23B
Nehalem, Tillamook County, Oregon
(Riverview Meadows, Phase 2)



SCALE

0 75 150 300

1 inch = 150 ft.

FEB. 4, 2021

THE DORADO GROUP

RIVERVIEW MEADOWS
PHASE 2 - TL 3600
LIDAR TOPOGRAPHY

NEHAELM

MORGAN CIVIL ENGINEERING, INC.

PO BOX 358
MANZANITA, OR 97130
(503) 801-6016
www.morgancivil.com

- CIVIL ENGINEERING
- INSPECTION
- PLANNING

Nehalem Bay Wastewater Agency
SEWER AVAILABILITY

Date: February 18, 2021
To: Tillamook County Building Department (Fax#503-842-1819)

From: Nehalem Bay Wastewater Agency
RE: Sewer Availability

As an Agent of Nehalem Bay Wastewater Agency, I confirm that sewer is available to the following lot within our service area boundary:

3N 10W 23B TL 3600
*Sewer Extension will be required.

Owner of Record: Vern Scovell
Project Information: Sub Division

This letter shall not create a liability on the part of Nehalem Bay Wastewater Agency, or by an agent, or employee thereof, for the services described above.

Keri Scott, Executive Assistant
Nehalem Bay Wastewater Agency

35755 Seventh/PO Box 219 Nehalem Oregon 97131 p(503)368-5125 f(503)368-7211

Nehalem Bay Wastewater Agency

NBWA

Date: October 8, 2019

To: Tillamook County Building Department (Fax# 503-842-1819)

From: Nehalem Bay Wastewater Agency

Re: Sewer Availability

I confirm that sewer is available to the following lot within our district:

3N 10 23B Tax Lot # Riverview Meadows Phase II - Lowe 1/2 TL 3600

Owner of Record (If Known): Vern Stovel

Other Information: Single Family/Duplex/Other - Explain 25 LOTS

This letter shall not create a liability on the part of Nehalem Bay Wastewater Agency, or by an officer, or employee thereof, for the services described above.

Ken Scott, NBWA

Signature of Authorized Representative

Office Manager

Title and Phone Number

35755 Seventh PO Box 219 Nehalem Oregon 97131-0219 (503) 368-5125 FAX 368-7211

Subject: Booster Pump Sizing

Vern,

Good talking to you. Please send me a sketch of your development with the preferred location for your booster pump so we can give Bruce a preliminary size/selection. Thanks!

Aaron Wozniak, PE
Branch Manager
Jackola Web Site
360-852-8746 Office
360-852-8514 Fax
Click here to securely send me files

Pump Performance Datasheet

Customer	:	Quote Number / ID	: 1324655
Customer ref. / PO	:	Model	: Hydro MPC-E 3CRE 32-1 3x460V 60Hz
Tag Number	: BP-1 AS DESIGNED BY HURLEY ENGINEERING	Part Number	: 99863892
Service	: DOMESTIC WATER	Stages	: 1
Quantity	: 1	Based on curve number	: RC10452
Quantity of pumps	: 3 active + 0 standby	Date last saved	: 02/05/2021 12:55 PM

Operating Conditions

System flowrate	: 500.0 USgpm
Flowrate per pump	: 166.7 USgpm
Differential head / pressure, rated (requested)	: 60.08 ft
Differential head / pressure, rated (actual)	: 60.09 ft
Suction pressure, min / max	: 80.00 / 80.00 psi.g
NPSH available, rated	: Ample
Site Supply Frequency	: 60 Hz
Power Supply	: 3ph 460V

Performance

Speed, rated	: 3505 rpm
Speed, maximum	: 3599 rpm
Speed, minimum	: 904 rpm
Pump efficiency	: 69.17 %
NPSH required / margin required	: 11.70 / 0.00 ft
nq (imp. eye flow) / S (imp. eye flow)	: 33 / 194 Metric units
Head maximum, rated speed	: 90.13 ft
Head rise to shutoff	: 50.01 %
Flow, best eff. point	: 137.5 USgpm
Flow ratio, rated / BEP	: 121.18 %
Speed ratio (rated / max)	: 97.39 %
Head ratio (rated speed / max speed)	: 91.84 %
Cq/Ch/Ce/Cn [ANSI/HI 9.6.7-2010]	: 1.00 / 1.00 / 1.00 / 1.00
Selection status	: Near miss

Energy Indexes

PEI (VL)	: 0.40
ER (VL)	: 60

Liquid

Liquid type	: Cold Water
Additional liquid description	:
Temperature, max	: 68.00 deg F
Fluid density, rated / max	: 1.000 / 1.000 SG
Viscosity, rated	: 1.00 cP
Vapor pressure, rated	: 0.34 psi.a

Material

Material selected	: Standard - Cast Iron / 304 Stainless Steel

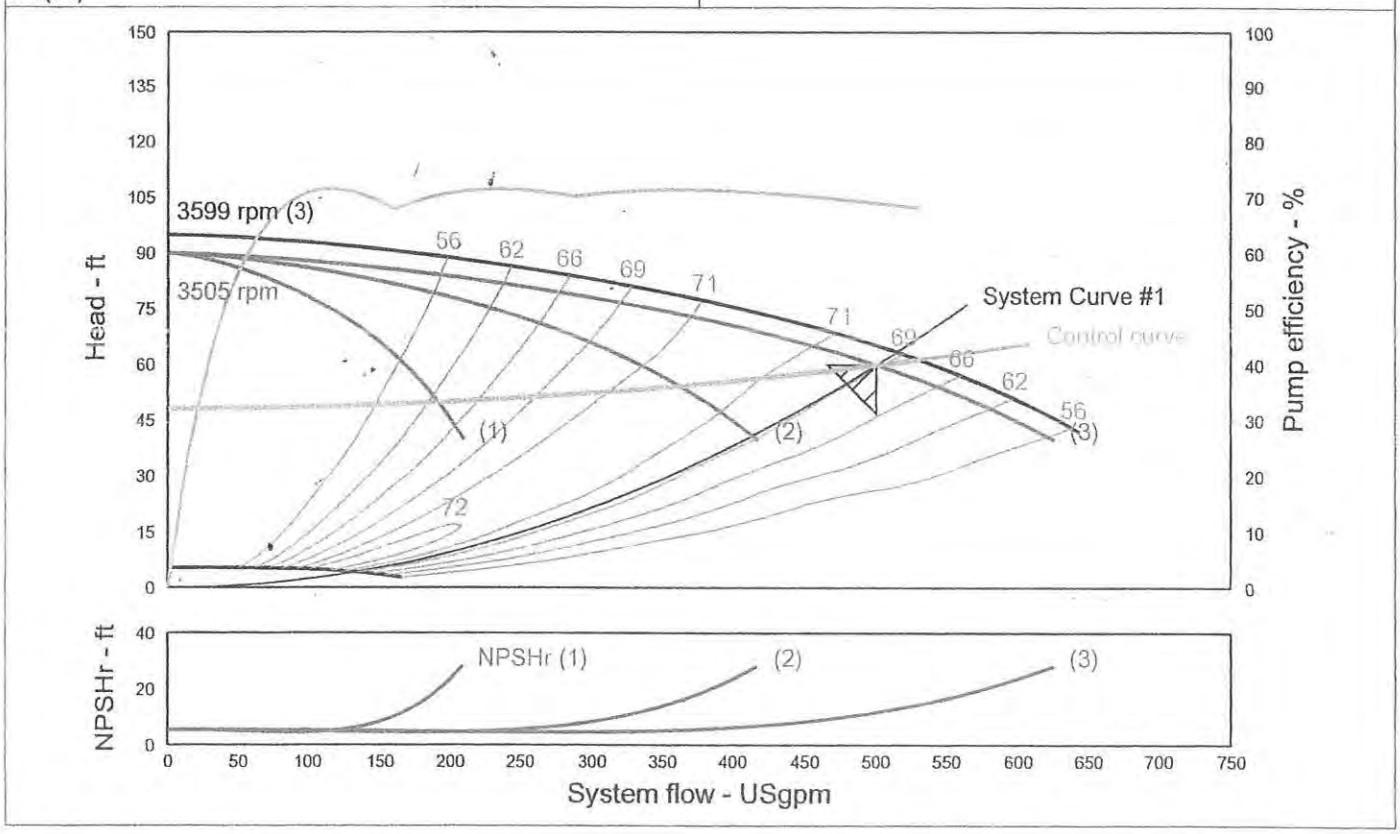
Pressure Data

Pump shut off pressure	: 119.0 psi.g
Maximum allowable suction pressure	: 58.00 psi.g

Driver & Power Data (@Max density)

Motor sizing specification	: Max power (non-overloading)
Margin over specification	: 0.00 %
Service factor	: 1.15
Rated power (based on duty point)	: 3 x 3.65 hp
Max power (non-overloading)	: 3 x 3.81 hp
Nameplate motor rating	: 3 x 5.00 hp / 3.73 kW (Fixed)
Panel Max FLA *	: 20.6 A

* addition of pilot pump, up-sizing HP, or 3x575V will affect System FLA



Tillamook People's Utility District

Directors
Harry E. Hewitt
David Burt
Doug Olson
Mike Gardner
Barbara A. Trout

A Customer-Owned Electric Utility Office: 503.842.2535 • Toll-free: 800.422.2535 • Fax: 503.842.4161 www.tpud.org

Todd Simmons
GENERAL MANAGER

January 25, 2021

Vern Scovell
Alex Reverman
PO Box 151
Nehalem, OR 97131

RE: Work Order No. 151514
Property Located at Riverview Meadows Subdivision, Phases 1 and 2

Dear Mr. Scovell and Mr. Reverman:

This letter is to certify that the Tillamook People's Utility District will extend electrical service to the above referenced facility in accordance with PUD Policy 4-2 which is in effect at the time service is extended.

Sincerely,

TILLAMOOK PEOPLE'S UTILITY DISTRICT

Tony MacDonald

Tony MacDonald
Engineering Field Representative
503-815-8629

TM:ja

Enclosure

From: "Chris Beswick" <c.beswick@nbfrd.org>
To: <nrd@nehalemtel.net>
Sent: Wednesday, February 03, 2021 9:40 AM
Subject: Riverview Meadows water pressure

Mr. Scovell,

I apologize for the delay in getting back to you regarding the water pressure solutions for Riverview Meadows. You had asked me to determine what size water tank would be appropriate to boost the existing water system.

This is not my area of expertise, so I reached out to some other resources. The short answer is that any kind of boosting system needs to be designed by an engineer and approved by the city of Nehalem, and I am not qualified to give any sort of advice regarding this issue.

One expert I spoke with did suggest that researching a pumping system down at North Fork would be a much simpler and cost-effective solution than a water tower. He felt that it would not need to be a very large or elaborate pumping system.

I hope this helps you.

Thanks.

Chris Beswick
Fire Chief
Nehalem Bay Fire & Rescue
36375 Hwy 101 N
Nehalem, OR 97131
Phone (503) 368-7590

VERN SCOVELL

From: "Frank Knight" <f.knight@nbfrd.org>
To: <nrd@nehalemtel.net>
Sent: Monday, January 25, 2021 2:11 PM
Subject: Building Sign Off Form 2020.pdf

Vern,

You called this afternoon asking about minimum water need at a fire hydrant to build a new development in Riverview Meadows. The minimum volume in 250 gallons per minute (GPM). The attached link is the form we use to inform the county of compliance regarding access and water supply.

I hope this information is helpful.

You can view "Building Sign Off Form 2020.pdf" at:
https://documentcloud.adobe.com/link/track?uri=urn:aaid:scds:US:5aba79fa-da86-494f-ae47-f17b296fb619

Respectfully,

Frank E. Knight III
Captain/EMT
Nehalem Bay Fire & Rescue
36375 HWY 101 N
Nehalem, OR 97131
f.knight@nbfrd.org
Office 503-368-7590
Fax 503-368-7580
https://nehalembayfirerescue.org/

Nehalem Bay Fire & Rescue District
36375 Hwy 101 N.
Nehalem, OR 97131
(503) 368-7590 Bus.
(503) 368-7580 Fax
www.nehalembayfirerescue.org

March 19, 2019

Re: Riverview Meadows Phase II

Dear Sarah Absher,

This letter is to acknowledge that I have reviewed the secondary access road for the proposed phase II development of Riverview Meadows and find it adequate for emergency access needs.

The water system is serviced by the City of Nehalem; however, prior to final plan approval the District would like to have input on the final placement of fire hydrants and any other emergency access requirements.

If you have any questions, please don't hesitate to call me.

Sincerely,

Chris Beswick
Fire Chief

Hydrant N-81

LOCATION
Hwy 53 & Fire Substation 37115 53 HWY Nehalem, OR 97131

LATITUDE	LONGITUDE	MAP PAGE	NATIONAL GRID	PARCEL NUMBER
45.725503799999998	-123.85360900000001			

ZONE	DISTRICT	STATION
R3	Nehalem	

Flow Tests for Hydrant N-81

Start Time	End Time	Static Pressure	Residual Pressure	Desired Pressure	Volume at Desired Pressure	Tested By
2020-08-04 10:52:25	2020-08-04 10:55:12	80.0	20.0	20.0	349.0	Knight III, Frankie
2015-11-10 16:33:06	2015-11-10 16:33:33	80.0	14.0	20.0	331.0	Walsh , Jesse H

Work Orders for Hydrant N-81

Title	Requested By	Assigned To	Complete
Annual Inspection	Walsh , Jesse H		No

Title	Requested By	Assigned To	Complete
Annual Inspection	Walsh , Jesse H		No

Title	Requested By	Assigned To	Complete
Annual Inspection	Walsh , Jesse H		No

EMERGENCY REPORTING

CITY OF NEHALEM

Date: 05/23/2022

To: TILLAMOOK COUNTY BUILDING DEPARTMENT

Re: WATER SERVICE AVAILABILITY

Attn: Building Department

I confirm that the property listed below is within the City's water service area, and may be served water through the City's Water System under the Terms and Conditions governed by the latest version of the City's Water Ordinance. Please note: This Water Service Availability letter does not certify, approve or acknowledge any specific development plans, water or other utility installations that may be necessary for the subject property to actually physically connect to the City's water system to receive service. This letter only certifies that the subject property may receive (or may already receive) water from the City's Water System.

TOWNSHIP 3N RANGE 10 SECTION 23B TAX LOT(S) 03600

~~SITUS ADDRESS~~: Tract B of Riverview Meadows Subdivision Phase 1

NAME: Riverview Meadows Development LLC PHONE: 503.453.5599

MAILING ADDRESS: 23765 SE HWY 212

Damascus, OR 97089

Single Family ☐ Duplex/Multi-Family ☐ Other ☑

Comments: SUBJECT TO ANY NECESSARY IMPROVEMENTS

Signed: Melissa Thompson Kuja City Manager

Name Title

CITY OF NEHALEM

35900 8TH STREET · P.O. BOX 143
NEHALEM, OR 97131
PH. (503) 368-5627
FX. (503) 368-4175

October 17, 2019

Vern Scovell
PO Box 151
Nehalem, OR 97131

Dear Mr. Scovell

With regard to Riverview Meadows Phase 2:

Due to flow and pressure issues in the City water system that would serve this new development, the City of Nehalem will not be able to supply any water to the proposed development until after we have completed an upgrade to our water system.

I spoke with our engineer and he is hoping to have the new line completed by the end of April 2020. However, that is only an estimate and not a hard date.

In addition, as the developer you will be responsible for additional upgrades to the City's system as discussed when you talked with Don Davidson.

Also, after consulting with the Chief of the Nehalem Bay Fire & Rescue District and the City Engineer, any new construction will need a booster pump and in addition a fire sprinkler suppression system, which is required by Oregon Fire Code, as the road grade accessing Riverview Meadows exceeds 12%.

If you have any further questions please call me.

Sincerely,

Dale Shafer

Dale Shafer
City Manager

28

City of Nehalem
35900 8th Street - P.O. Box 143
Nehalem, OR 97131
Tel. (503) 368-5627
Fax. (503) 368-4175

April 8th, 2010

Tillamook County
Community Development
201 Laurel Avenue
Tillamook ,OR 97141

Re: Approval of Riverview Meadows Water Lines

This letter is to inform you that the City of Nehalem has accepted in full, the installation of all main water lines and all related work performed for the Riverview Meadows subdivision. The City confirms that all main water line extensions successfully passed the required pressure and bacteriological testing.

If you have any questions, please call me at (503) 368-5627 at your earliest convenience. Thank you.

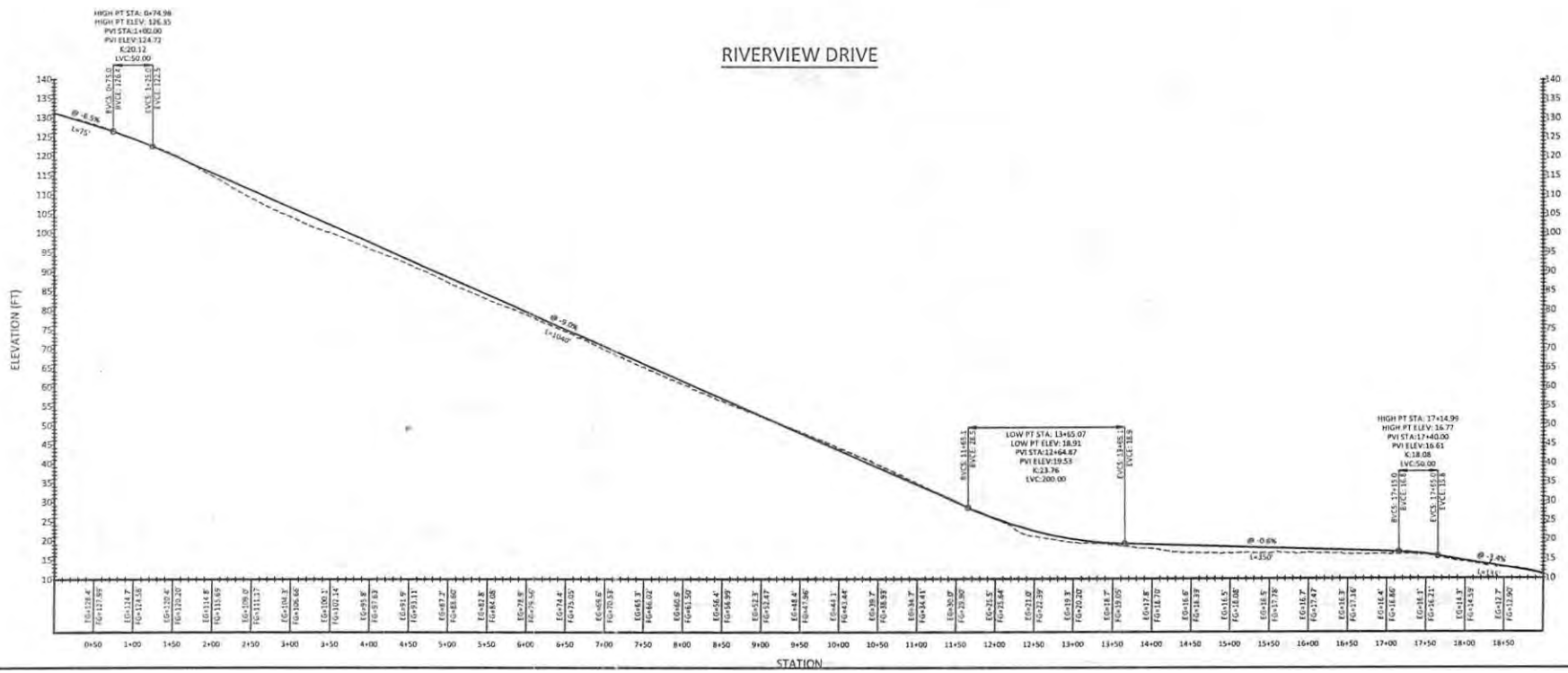
Sincerely,

Michael A. Nitzsche,
City Manager

c.c. Mr. Vern Scovell

RIVERVIEW MEADOWS
PHASE 2
74 LOT SUBDIVISION
TENTATIVE PLAN
MAP 3N 10W SECTION 23B

20B **ENTRANCE ROAD PROFILE**
SCALE: 1"=70' VERT: 1"=14' (5 X EXAGGERATION)



MORGAN CIVIL ENGINEERING, INC.
PO BOX 358
MANZANITA, OR 97130
(503) 801-6016
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• INSPECTION
• PLANNING

FOR NO
DRAWN BY
DATE
AUGUST 11, 2022

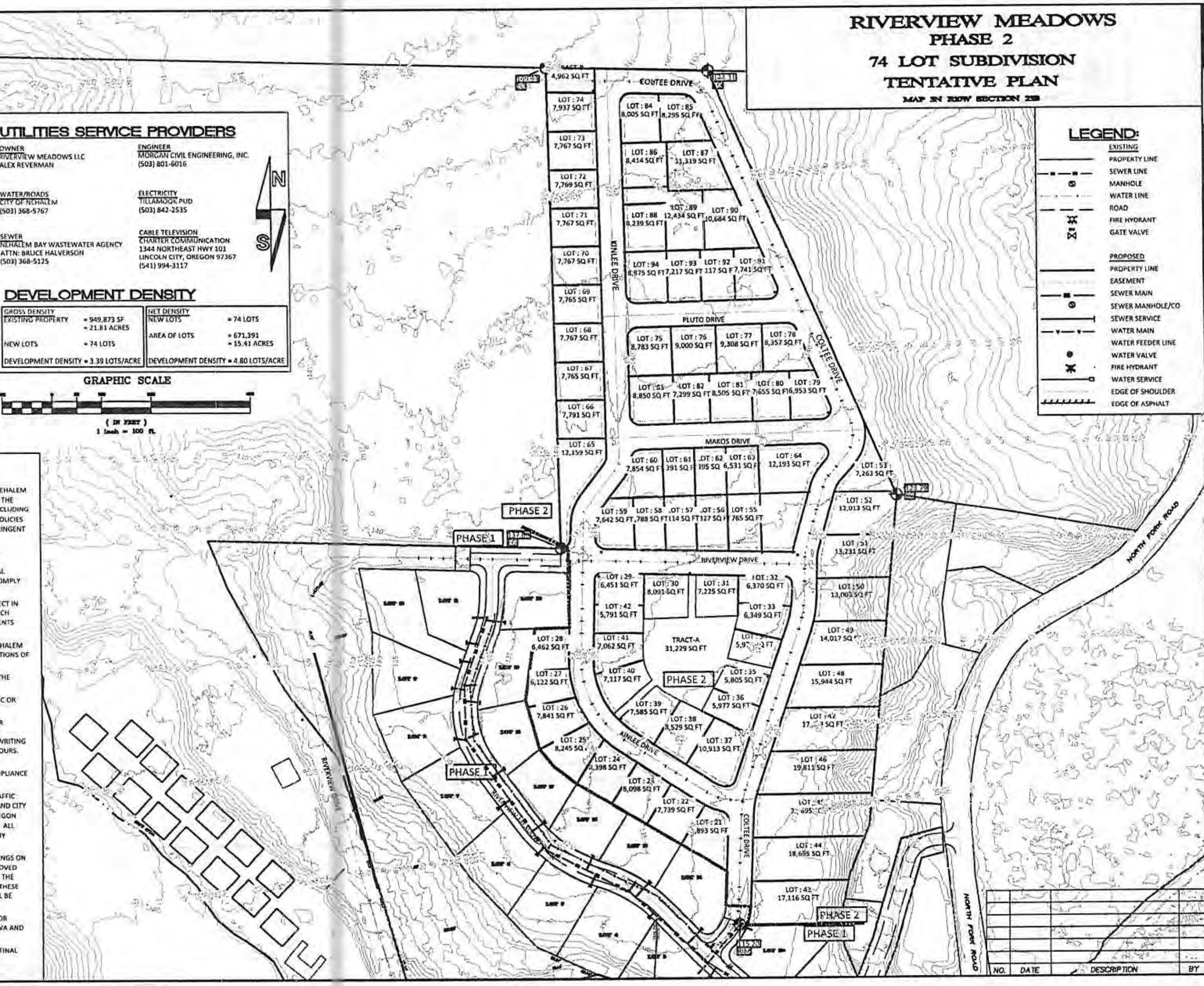
REGISTERED PROFESSIONAL ENGINEER
KNUT NECO
8-30055
OREGON
JANUARY 19, 1982
JASON S. MORGAN

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
ENTRANCE ROAD PROFILE
NE¼ SEC. 23, T3N, R10W, W.M.

SHEET
20b
OF 23

RIVERVIEW MEADOWS
PHASE 2
74 LOT SUBDIVISION
TENTATIVE PLAN

MAP 2N 10W SECTION 23B



UTILITY LOCATE ONE CALL
(1-800-332-2344) or (8-1-1)

ATTENTION: OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH OAR 952-001-0090. YOU MAY OBTAIN COPIES OF THE RULES BY CALLING THE CENTER. (NOTE: THE TELEPHONE NUMBER FOR THE OREGON UTILITY NOTIFICATION CENTER IS (503) 232-1987).

PROJECT IS AT RIVERVIEW MEADOWS, IN NEHALEM.
TAX LOT 3600, MAP 2N 10W 23B.

SCOPE OF WORK

SEWER	
CONCRETE MANHOLES	14 EA
8"Ø PVC SEWER	4280 LF
8"Ø CLEANOUT	1 EA
SERVICE LATERAL ASSEMBLY	74 EA
WATER	
6"Ø WATER MAIN	4290 LF
6"Ø GATE VALVE	EA
6"Ø TEE	EA
WATER SERVICE ASSEMBLY	74 EA
STORM DRAINAGE	
18" CULVERT (±40 FT)	12 EA
ROAD	
FABRIC	SY
BASE ROCK	CY
LEVELING ROCK	CY
ASPHALT	TON

SHEET INDEX

UTILITIES SERVICE PROVIDERS

OWNER
RIVERVIEW MEADOWS LLC
ALEX REVERMAN

ENGINEER
MORGAN CIVIL ENGINEERING, INC.
(503) 801-6016

WATER/ROADS
CITY OF NEHALEM
(503) 368-5767

ELECTRICITY
TILLAMOOK PUD
(503) 842-2535

SEWER
NEHALEM BAY WASTEWATER AGENCY
ATTN: BRUCE HALVERSON
(503) 368-5125

CABLE TELEVISION
CHARTER COMMUNICATION
1344 NORTHEAST HWY 101
LINCOLN CITY, OREGON 97367
(541) 994-3117

N
S

DEVELOPMENT DENSITY

GROSS DENSITY		NET DENSITY	
EXISTING PROPERTY	= 949,873 SF = 21.81 ACRES	NEW LOTS	= 74 LOTS
NEW LOTS	= 74 LOTS	AREA OF LOTS	= 671,391 = 15.41 ACRES
DEVELOPMENT DENSITY	= 3.39 LOTS/ACRE	DEVELOPMENT DENSITY	= 4.80 LOTS/ACRE

GRAPHIC SCALE

(IN FEET)
1 inch = 100 ft.

GENERAL NOTES:

1. ALL WORK AND MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF THE NEHALEM PUBLIC WORKS (NPW), THE NEHALEM BAY WASTEWATER AGENCY (NBWA) AND THE 2021 APWA STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION INCLUDING SUPPLEMENTS. IN THE EVENT OF A CONFLICT BETWEEN NBWA AND/OR NPW POLICIES AND REGULATIONS AND THE APWA STANDARD SPECIFICATIONS, THE MORE STRINGENT SHALL CONTROL UNLESS OTHERWISE DIRECTED BY NBWA OR NPW.
2. CONTRACTOR SHALL NOTIFY NBWA, NPW, CITY AND ALL UTILITY COMPANIES A MINIMUM OF 72 BUSINESS HOURS (3 BUSINESS DAYS) PRIOR TO THE START OF CONSTRUCTION OR RESUMING WORK AFTER SHUTDOWNS EXCEPT FOR NORMAL RESUMPTION OF WORK AFTER SUNDAYS OR HOLIDAYS. CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS OF ORS 757.541 TO 757.571.
3. CONTRACTOR SHALL PERFORM ALL WORK NECESSARY TO COMPLETE THE PROJECT IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DRAWINGS INCLUDING SUCH INCIDENTALS AS MAY BE NECESSARY TO MEET APPLICABLE AGENCY REQUIREMENTS AND PROVIDE A COMPLETED PROJECT
4. CONTRACTOR SHALL PROCURE A RIGHT-OF-WAY PERMIT FROM THE CITY OF NEHALEM FOR ALL WORK WITHIN THE CITY RIGHT-OF-WAY AND CONFORM TO ALL CONDITIONS OF THE PERMIT.
5. CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS AND LICENSES PRIOR TO THE START OF CONSTRUCTION.
6. CONTRACTOR SHALL PROVIDE ALL BONDS AND INSURANCE REQUIRED BY PUBLIC OR PRIVATE AGENCIES HAVING JURISDICTION, INCLUDING NBWA AND NEHALEM.
7. UNLESS OTHERWISE APPROVED BY NBWA, CONSTRUCTION OF SANITARY SEWER IMPROVEMENTS SHALL BE DONE BETWEEN 7:00 A.M. AND 6:00 P.M., MONDAY THROUGH SATURDAY. WORK OUTSIDE THESE HOURS SHALL BE APPROVED IN WRITING BY NBWA PRIOR TO THE START OF CONSTRUCTION OUTSIDE NORMAL WORK HOURS.
8. ANY INSPECTION BY NBWA OR NPW SHALL NOT, IN ANY WAY, RELIEVE THE CONTRACTOR FROM ANY OBLIGATION TO PERFORM THE WORK IN STRICT COMPLIANCE WITH THE APPLICABLE CODES AND AGENCY REQUIREMENTS.
9. CONTRACTOR SHALL ERECT AND MAINTAIN BARRICADES, WARNING SIGNS, TRAFFIC CONES (AND ALL OTHER TRAFFIC CONTROL DEVICES REQUIRED) PER DISTRICT AND CITY REQUIREMENTS IN ACCORDANCE WITH THE CURRENT MUTCD (INCLUDING OREGON AMENDMENTS). ACCESS TO DRIVEWAYS SHALL BE MAINTAINED AT ALL TIMES. ALL TRAFFIC CONTROL MEASURES SHALL BE APPROVED AND IN PLACE PRIOR TO ANY CONSTRUCTION ACTIVITY.
10. THE CONTRACTOR SHALL MAINTAIN ONE COMPLETE SET OF APPROVED DRAWINGS ON THE CONSTRUCTION SITE AT ALL TIMES WHEREON HE WILL RECORD ANY APPROVED DEVIATIONS IN CONSTRUCTION FROM THE APPROVED DRAWINGS, AS WELL AS THE STATION LOCATIONS AND DEPTHS OF ALL EXISTING UTILITIES ENCOUNTERED. THESE FIELD RECORD DRAWINGS SHALL BE KEPT UP TO DATE AT ALL TIMES AND SHALL BE AVAILABLE FOR INSPECTION BY THE UTILITY DISTRICTS UPON REQUEST
11. SUBMITTALS SHALL BE PROVIDED BY THE CONTRACTOR TO NBWA AND NPW FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION IN ACCORDANCE WITH NBWA AND NPW REQUIREMENTS.
12. THE CONTRACTOR SHALL SUBMIT A SUITABLE MAINTENANCE BOND PRIOR TO FINAL PAYMENT WHERE REQUIRED BY PUBLIC AND/OR PRIVATE AGENCIES HAVING JURISDICTION.

LEGEND:

EXISTING

—·■—·■—	PROPERTY LINE
—■—■—	SEWER LINE
⊗	MANHOLE
·—·—·	WATER LINE
— — —	ROAD
⌧	FIRE HYDRANT
⌧	GATE VALVE

PROPOSED

——	PROPERTY LINE
······	EASEMENT
—■—	SEWER MAIN
⊗	SEWER MANHOLE/CO
——┤	SEWER SERVICE
—▾—▾—	WATER MAIN
	WATER FEEDER LINE
●	WATER VALVE
✱	FIRE HYDRANT
——□	WATER SERVICE
······	EDGE OF SHOULDER
┴┴┴┴┴	EDGE OF ASPHALT

MORGAN CIVIL ENGINEERING, INC.

PO BOX 358
MANZANITA, OR 97130
(503) 801-6016
www.morgancivil.com

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JOB NO. #15-10-RV
DATE AUGUST 12, 2022

REGISTERED PROFESSIONAL ENGINEER
63056
OREGON
JANUARY 15, 1987
JASON R. MORGAN
RENEWAL DATE DECEMBER 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
TENTATIVE PLAN
NEHALEM, MAP 2N 10W 23B

NO.	DATE	DESCRIPTION	BY

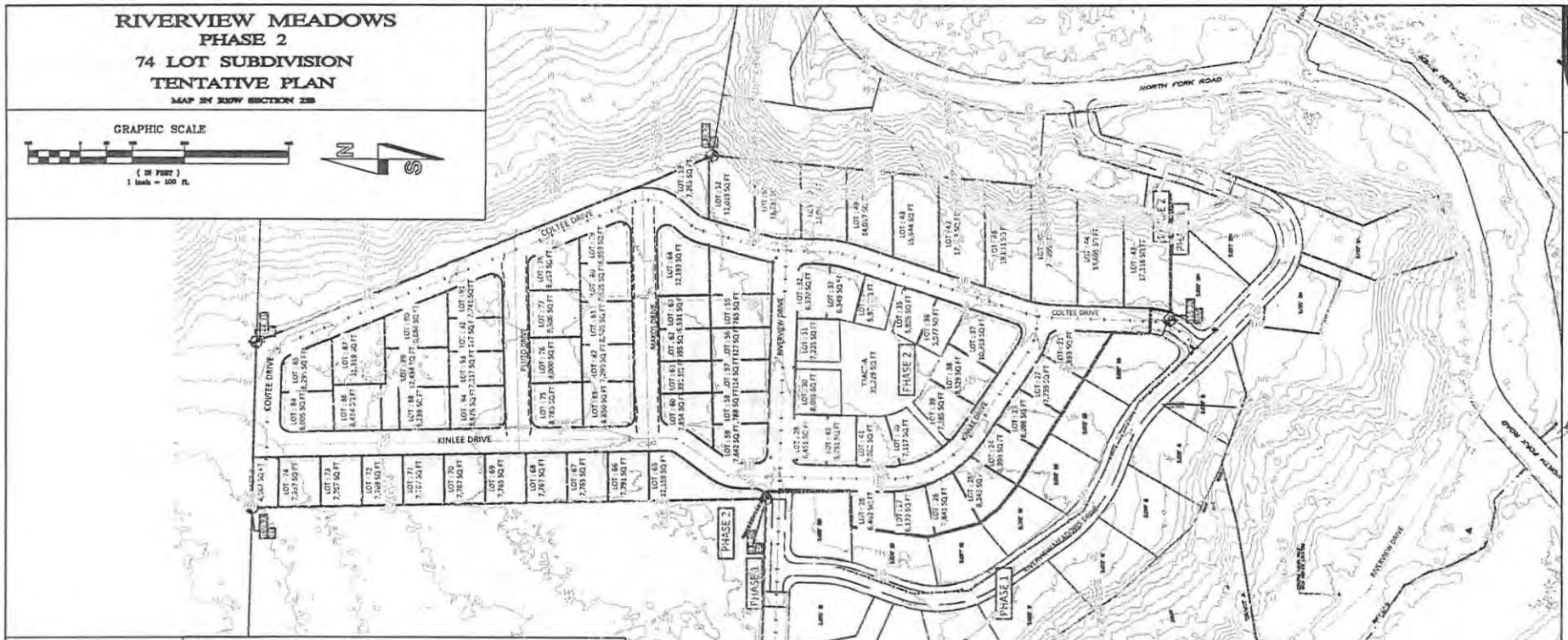
SHEET
1
OF 23

RIVERVIEW MEADOWS
PHASE 2
74 LOT SUBDIVISION
TENTATIVE PLAN

MAP 3N R3W SECTION 23B

GRAPHIC SCALE

(IN FEET)
1 inch = 100 ft.



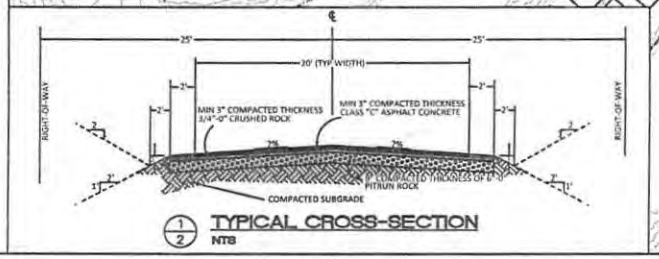
LEGEND:

EXISTING
- PROPERTY LINE
- SEWER LINE
- MANHOLE
- WATER LINE
- ROAD
- FIRE HYDRANT
- GATE VALVE

PROPOSED
- PROPERTY LINE
- EASEMENT
- SEWER MAIN
- SEWER MANHOLE/CO
- SEWER SERVICE
- WATER MAIN
- WATER FEEDER LINE
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- EDGE OF SHOULDER
- EDGE OF ASPHALT

EXISTING UTILITIES AND FACILITIES:

1. CONTRACTOR SHALL LOCATE AND MARK ALL EXISTING PROPERTY AND STREET MONUMENTS PRIOR TO CONSTRUCTION. ANY MONUMENTS DISTURBED DURING CONSTRUCTION OF THE SANITARY SEWERAGE IMPROVEMENTS SHALL BE REPLACED BY A REGISTERED LAND SURVEYOR AT THE CONTRACTOR'S EXPENSE. THE MONUMENTS SHALL BE REPLACED WITHIN A MAXIMUM OF 90 DAYS, AND THE CITY SURVEYOR SHALL BE NOTIFIED IN WRITING AS REQUIRED BY ORS 209.150.
2. THE LOCATION AND DESCRIPTION OF EXISTING NBWA AND NPW FACILITIES SHOWN ON THE DRAWINGS ARE COMPILED FROM AVAILABLE RECORDS AND/OR FIELD SURVEYS. NBWA AND NPW DO NOT GUARANTEE THE ACCURACY OR THE COMPLETENESS OF SUCH RECORDS. CONTRACTOR SHALL FIELD VERIFY SIZES AND LOCATIONS OF ALL EXISTING NBWA FACILITIES PRIOR TO CONSTRUCTION.
3. ATTENTION: OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH OAR 952-0010090. YOU MAY OBTAIN COPIES OF THE RULES BY CALLING THE CENTER. (NOTE: THE TELEPHONE NUMBER FOR THE OREGON UTILITY NOTIFICATION CENTER IS (503) 232-1987).
4. CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES -WHERE NEW FACILITIES CROSS OR ARE CLOSELY PARALLEL TO THE EXISTING FACILITIES. ALL UTILITY CROSSINGS MARKED OR SHOWN ON THE DRAWINGS SHALL BE POTHOLED USING HAND TOOLS OR OTHER NON-INVASIVE METHODS PRIOR TO EXCAVATING OR BORING. CONTRACTOR SHALL BE RESPONSIBLE FOR EXPOSING POTENTIAL UTILITY CONFLICTS FAR ENOUGH AHEAD OF CONSTRUCTION TO MAKE NECESSARY GRADE MODIFICATIONS WITHOUT DELAYING THE WORK. IF GRADE MODIFICATION IS NECESSARY, CONTRACTOR SHALL NOTIFY THE DEVELOPER'S ENGINEER, AND THE DEVELOPER'S ENGINEER SHALL OBTAIN APPROVAL FROM NBWA AND/OR NPW PRIOR TO CONSTRUCTION. ALL UTILITY CROSSINGS SHALL BE POTHOLED AS NECESSARY PRIOR TO EXCAVATING OR BORING TO ALLOW THE CONTRACTOR TO PREVENT GRADE OR ALIGNMENT CONFLICTS.
5. ALL EXISTING NBWA AND NPW FACILITIES SHALL BE MAINTAINED IN-PLACE BY THE CONTRACTOR UNLESS OTHERWISE SHOWN OR DIRECTED BY NBWA OR NPW. CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO SUPPORT, MAINTAIN OR OTHERWISE PROTECT EXISTING FACILITIES AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHALL LEAVE EXISTING FACILITIES IN AN EQUAL OR BETTER-THAN-ORIGINAL CONDITION AND TO THE SATISFACTION OF NBWA AND/OR NPW.
6. NBWA OR NPW UTILITIES, OR INTERFERING PORTIONS OF NBWA OR NPW FACILITIES, THAT ARE ABANDONED IN PLACE SHALL BE REMOVED BY THE CONTRACTOR TO THE EXTENT NECESSARY TO ACCOMPLISH THE WORK. THE CONTRACTOR SHALL PLUG THE REMAINING EXPOSED ENDS OF THE ABANDONED UTILITIES.



1/2 TYPICAL CROSS-SECTION
NTS

NO.	DATE	DESCRIPTION	BY

MORGAN CIVIL ENGINEERING, INC.
PO BOX 558
MANZANITA, OR 97130
(503) 801-6016
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• INSPECTION
• PLANNING

REGISTERED PROFESSIONAL ENGINEER 63052 OREGON JANUARY 19, 2021 JASON R. MORGAN

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
TENTATIVE PLAN

NEHALEM, MAP 3N R3W 23B

SHEET 2 OF 23

RIVERVIEW MEADOWS
PHASE 2
74 LOT SUBDIVISION
TENTATIVE PLAN

MAP 3N 3EW SECTION 23B

GRAPHIC SCALE

(IN FEET)
1 inch = 60 ft.

N S

EXISTING DITCH LINE

PROPOSED DITCH LINE

PROPOSED CULVERT

FLOW DIRECTION

STORMWATER NARRATIVE

STORMWATER FROM THE SOUTHERN HALF AND NORTHEASTERN PORTION OF THE SITE TO BE CONVEYED IN DITCHES TO VERN'S PLACE FOR OFF-SITE DISPOSAL WITH WATER FROM PHASE 1. DRAIN PIPES ARE IN PLACE IN EASEMENT ON THE BACK SIDE OF LOTS 3 AND 4. CULVERTS TO BE USED IN ORDER TO CROSS ROADS AND DRIVEWAYS.

STORMWATER RUN-OFF FROM THE NORTHWESTERN PORTION OF SITE TO BE CONVEYED IN EXISTING DITCHES WESTWARD ON SUNNYVIEW LANE WITH ROADWAY RUN-OFF.

MORGAN CIVIL ENGINEERING, INC.

PO BOX 358
MANZANITA, OR 97130
(503) 801-6016
www.morgancivil.com

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• INSPECTION
• PLANNING

JOB NO. 910-10-AV
DATE: AUGUST 12, 2022

REGISTERED PROFESSIONAL ENGINEER
53055
OREGON
JULY 15, 1986
JASON R. MORGAN

RENEWAL DATE: DECEMBER 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC

RIVERVIEW MEADOWS PHASE 2

DRAINAGE LAYOUT

NEHALEM, MAP 3N 3EW 23B

RIVERVIEW MEADOWS
PHASE 2
74 LOT SUBDIVISION
TENTATIVE PLAN

MAP IN SW SECTION 23B

GRAPHIC SCALE

(IN FEET)
1 inch = 60 ft.

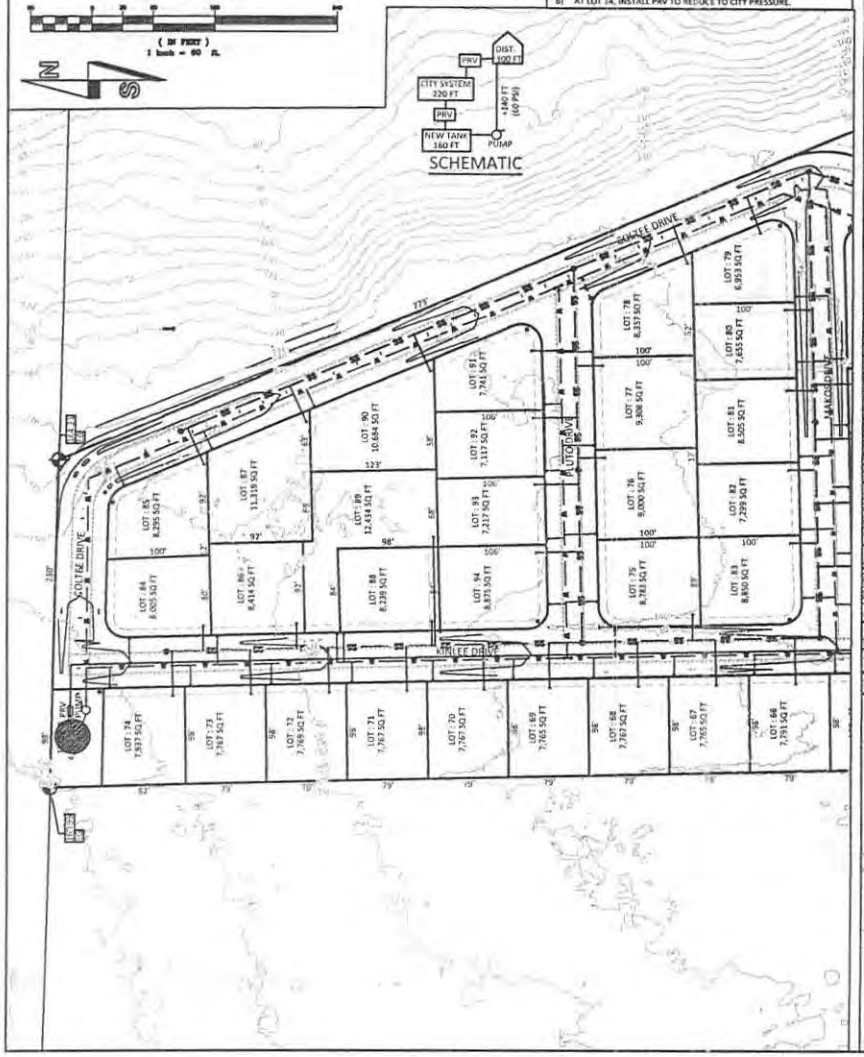
ELEVATIONS:

CITY TANK - 220 FT
PROPOSED TANK - 160 FT
LOT 75 - 155 FT
LOT 1 - 120 FT

USE PUMP AT ~300 FT EQ
(ADD 140 FEET = 60 PSI)

WATERLINE:

1) INSTALL NEW TEE ON MAINLINE AT LOT 14.
2) INSTALL FEEDER PIPE TO TANK SITE, L=2100 FT. EXTEND DOWN RIVERVIEW LANE TO NORTH FORK ROAD.
3) INSTALL PRESSURE REDUCING VALVE.
4) STORE WATER IN TANK. MIN 80,000-GALLON.
5) DISCHARGE THROUGH PUMP STATION. ADD ±60 PSI. CONNECT TO NORTH END OF RIVERVIEW MEADOWS DRIVE (PHASE 1)
6) AT LOT 14, INSTALL PRV TO REDUCE TO CITY PRESSURE.



LEGEND:

EXISTING
- PROPERTY LINE
- SEWER LINE
- MANHOLE
- WATER LINE
- ROAD
- FIRE HYDRANT
- GATE VALVE

PROPOSED
- PROPERTY LINE
- EASEMENT
- SEWER MAIN
- SEWER MANHOLE/CO
- SEWER SERVICE
- WATER MAIN
- WATER FEEDER LINE
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- EDGE OF SHOULDER
- EDGE OF ASPHALT

NO.	DATE	DESCRIPTION	BY
1	07/24/2022	ADD WL FEEDER, TANK, PUMP, PRVS	JRM

MORGAN CIVIL ENGINEERING, INC.
PO BOX 258
MANZANITA, OR 97130
(503) 801-6016
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JOB NO. 119-19-NV
DATE AUGUST 12, 2022

REGISTERED PROFESSIONAL ENGINEER
OREGON
JASON E. MORGAN

RENEWAL DATE: DECEMBER 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
UTILITY LAYOUT

NEHALEM, MAP IN SW 23B

SHEET 4 OF 23

RIVERVIEW MEADOWS
PHASE 2
74 LOT SUBDIVISION
TENTATIVE PLAN

MAP 3N R1W SECTION 23B

LEGEND:

EXISTING
- PROPERTY LINE
- SEWER LINE
- MANHOLE
- WATER LINE
- ROAD
- FIRE HYDRANT
- GATE VALVE

PROPOSED
- PROPERTY LINE
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- SEWER MAIN
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- SEWER SERVICE
- WATER MAIN
- WATER FEEDER LINE
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- EDGE OF SHOULDER
- EDGE OF ASPHALT

WATER UTILITIES:

1. BEDDING AND BACKFILL. ALL PIPES SHALL BE BEDDED WITH MINIMUM 6-INCHES OF 3/4" MINUS CRUSHED ROCK BEDDING AND BACKFILLED WITH COMPACTED 3/4" MINUS CRUSHED ROCK IN THE PIPE ZONE (CRUSHED ROCK SHALL EXTEND A MINIMUM OF 12-INCHES OVER THE TOP OF THE PIPE IN ALL CASES). CRUSHED ROCK TRENCH BACKFILL SHALL BE USED UNDER ALL IMPROVED AREAS, INCLUDING SIDEWALKS.
2. COMPACTION REQUIREMENTS.
   A. TRENCH BACKFILL IN THE PIPE ZONE SHALL BE ACHIEVED BY MECHANICAL MEANS IN HORIZONTAL LIFTS TO NINETY PERCENT (90%) OF THE MAXIMUM DRY DENSITY PER AASHTO T-180 TEST METHOD.
   B. COMPACTION IN THE BACKFILL ZONE (MORE THAN 12" ABOVE THE TOP OF PIPE) AND WITHIN THE STREET RIGHT OF WAY SHALL BE ACHIEVED BY MECHANICAL MEANS IN HORIZONTAL LIFTS TO NINETY-TWO PERCENT (92%) OF THE MAXIMUM DRY DENSITY PER AASHTO T-180 TEST METHOD UNLESS A GREATER DEGREE OF COMPACTION IS REQUIRED BY ANOTHER AGENCY WITH JURISDICTION.
   C. COMPACTION IN THE BACKFILL ZONE (MORE THAN 12" ABOVE THE TOP OF PIPE) AND OUTSIDE THE STREET RIGHT OF WAY SHALL BE ACHIEVED BY MECHANICAL MEANS IN HORIZONTAL LIFTS TO NINETY PERCENT (90%) OF THE MAXIMUM DRY DENSITY PER AASHTO T-180 TEST METHOD UNLESS A GREATER DEGREE OF COMPACTION IS REQUIRED BY ANOTHER AGENCY WITH JURISDICTION.
3. CRUSHED ROCK SHALL CONFORM TO THE REQUIREMENTS OF SECTION 02630 (BASE AGGREGATE) OSHD STANDARD SPECIFICATIONS.
4. CONTRACTOR SHALL PROVIDE ALL MATERIALS, EQUIPMENT AND FACILITIES REQUIRED FOR TESTING ALL UTILITY PIPING IN ACCORDANCE WITH NWD CONSTRUCTION SPECIFICATIONS.
5. TRACER WIRE. ALL WATER PIPING SHALL HAVE AN ELECTRICALLY CONDUCTIVE INSULATED 12 GAUGE COPPER TRACER WIRE THE FULL LENGTH OF THE INSTALLED PIPE USING BLUE WIRE FOR WATER PIPING. TRACER WIRE SHALL BE EXTENDED UP INTO ALL VALVE BOXES.
6. NWD STAFF TO OPERATE ALL VALVES, INCLUDING FIRE HYDRANTS, ON EXISTING PUBLIC MAINS.
7. ALL WATER MAINS SHALL BE ASTM D-2241 CLASS 200, C-905 PVC. ALL FITTINGS 4-INCHES THROUGH 24-INCHES IN DIAMETER SHALL BE DUCTILE IRON FITTINGS IN CONFORMANCE WITH AWWA C-153 OR AWWA C-110. THE MINIMUM WORKING PRESSURE FOR ALL MJ CAST IRON OR DUCTILE IRON FITTINGS 4-INCHES THROUGH 24-INCH IN DIAMETER SHALL BE 350 PSI FOR M3 FITTINGS AND 250 PSI FOR FLANGED FITTINGS.
8. ALL VALVES SHALL BE FLANGE CONNECTED TO ADJACENT TEES OR CROSSES.
9. THE WORK SHALL BE PERFORMED IN A MANNER DESIGNATED TO MAINTAIN WATER SERVICE TO BUILDINGS SUPPLIED FROM THE EXISTING WATERLINES. IN NO CASE SHALL SERVICE TO ANY MAIN LINE OR BUILDING BE INTERRUPTED FORM MORE THAN FOUR (4) HOURS IN ANY ONE DAY. CONTRACTOR SHALL NOTIFY THE NWD AND ALL AFFECTED RESIDENTS AND BUSINESSES A MINIMUM OF 24 BUSINESS HOURS (1 BUSINESS DAY) PRIOR TO ANY INTERRUPTION OF SERVICE.
10. ALL WATERLINE SEGMENTS SUBJECT TO PRESSURE TESTING AND BACTERIOLOGICAL BEFORE BEING ACCEPTED BY NWD. COORDINATE WITH NWD.
11. PRESSURE TEST: 2 HOURS MINIMUM. 150 PSI MINIMUM STARTING PRESSURE - MAXIMUM DROP OF 10 PSI OVER DURATION OF TEST.

SEWER NARRATIVE:

CONNECT NEW SEWER COLLECTION SYSTEM EXTENSION TO THE EXISTING MANHOLE AT VERN'S PLACE.
EXTEND THE GRAVITY SYSTEM TO THE NORTH WITH LATERAL PIPES TO SERVE EACH NEW LOT ON EACH ROADWAY. USE ALL PVC PIPE AND CONCRETE MANHOLES.

GRADING NARRATIVE:

SITE GRADING WILL BE LIMITED TO ROADWAYS. ROADS TO THE SOUTH OF ELAND STREET HAVE ALREADY BEEN CORED. JUST NEED ROAD BASE. ROADS NORTH OF ELAND NEED CORING AND ROAD BASE.

NO GRADING OUTSIDE OF RIGHT-OF-WAY IS PLANNED OR NEEDED.

WATER NARRATIVE:

CONNECT THE NEW WATER DISTRIBUTION EXTENSION TO THE EXISTING SYSTEM AT VERN'S PLACE AND THE NORTH END OF RIVERVIEW MEADOWS LANE.
PIPES WILL BE EXTENDED ON EACH CROSS STREET IN ORDER TO SERVE ALL PROPERTIES.
THE PIPES WILL BE LOOPED ON EACH CROSS STREET. NO DEAD ENDS WILL BE CREATED.

PUMP STATION AND PRESSURE VALVES WILL BE INSTALLED IN EASEMENT AT LOT 1. TO BE DESIGNED.

NO.	DATE	DESCRIPTION	BY

MORGAN CIVIL ENGINEERING, INC.
PO BOX 358
MANZANITA, OR 97130
(503) 801-6018
www.morgancivil.com
• CIVIL ENGINEERING
• INSPECTION
• PLANNING

JOB NO. 19-10-RPV
DATE AUGUST 12, 2022

REGISTERED PROFESSIONAL ENGINEER 83085 OREGON JANUARY 19, 1983 JASON R. MORGAN

RENEWAL DATE: DECEMBER 31, 2023

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
TENTATIVE PLAN - SOUTHERN PORTION

NEHALEM, MAP 3N 10W 23B

SANITARY SEWAGE FACILITIES:

1. UNLESS OTHERWISE NOTED, MATERIALS AND WORKMANSHIP FOR SANITARY SEWER SHALL CONFORM TO OSSC (ODOT/APWA) SPECIFICATIONS, 2021 EDITION.
2. THE CONTRACTOR SHALL HAVE APPROPRIATE EQUIPMENT ON SITE TO PRODUCE A FIRM, SMOOTH, UNDISTURBED SUBGRADE AT THE TRENCH BOTTOM, TRUE TO GRADE. THE BOTTOM OF THE TRENCH EXCAVATION SHALL BE SHALL BE SMOOTH, FREE OF LOOSE MATERIALS OR TOOTH GROOVES FOR THE ENTIRE WIDTH OF THE TRENCH PRIOR TO PLACING THE GRANULAR BEDDING MATERIAL.
3. BEDDING AND BACKFILL. ALL SANITARY SEWER PIPES SHALL BE BEDDED WITH A MINIMUM OF 4-INCHES OF 3/4" MINUS CRUSHED ROCK BEDDING AND BACKFILLED WITH COMPACTED 3/4" MINUS CRUSHED ROCK IN THE PIPE ZONE (CRUSHED ROCK SHALL EXTEND A MINIMUM OF 12-INCHES OVER THE TOP OF THE PIPE IN ALL CASES). CRUSHED ROCK TRENCH BACKFILL SHALL BE USED UNDER ALL IMPROVED AREAS, INCLUDING SIDEWALKS.
4. TRENCH BACKFILL IN THE PIPE ZONE SHALL BE ACHIEVED BY MECHANICAL MEANS IN HORIZONTAL LIFTS TO NINETY PERCENT (90%) OF THE MAXIMUM DRY DENSITY PER AASHTO T-180 TEST METHOD.
5. COMPACTION IN THE BACKFILL ZONE (MORE THAN 12" ABOVE THE TOP OF PIPE) AND WITHIN THE STREET RIGHT OF WAY SHALL BE ACHIEVED BY MECHANICAL MEANS IN HORIZONTAL LIFTS TO NINETY-TWO PERCENT (92%) OF THE MAXIMUM DRY DENSITY PER AASHTO T-180 TEST METHOD UNLESS A GREATER DEGREE OF COMPACTION IS REQUIRED BY ANOTHER AGENCY WITH JURISDICTION.
6. COMPACTION IN THE BACKFILL ZONE (MORE THAN 12" ABOVE THE TOP OF PIPE) AND OUTSIDE THE STREET RIGHT OF WAY SHALL BE ACHIEVED BY MECHANICAL MEANS IN HORIZONTAL LIFTS TO NINETY PERCENT (90%) OF THE MAXIMUM DRY DENSITY PER AASHTO T-180 TEST METHOD UNLESS A GREATER DEGREE OF COMPACTION IS REQUIRED BY ANOTHER AGENCY WITH JURISDICTION.
7. CRUSHED ROCK SHALL CONFORM TO THE REQUIREMENTS OF OSSC (2021 ODOT/APWA) 02630.10 (DENSE GRADED BASE AGGREGATE).
8. ALL CITY OF NEHALEM PIPED FACILITIES ABANDONED IN PLACE SHALL HAVE ALL OPENINGS CLOSED WITH CONCRETE PLUGS WITH A MINIMUM LENGTH EQUAL TO TWO (2) TIMES THE DIAMETER OF THE ABANDONED PIPE.
9. THE END OF ALL UTILITY STUBS SHALL BE MARKED WITH A PAINTED 2x4, EXTENDING 2 FEET MINIMUM ABOVE FINISH GRADE, AND WIRED TO PIPE STUB (PAINTED WHITE FOR SANITARY SEWER). TYPE OF UTILITY (IE, SEWER) AND DEPTH BELOW GRADE TO PIPE INVERT SHALL BE CLEARLY & PERMANENTLY LABELED ON THE MARKER POST.
10. NO TRENCHES IN ROADS OR DRIVEWAYS SHALL BE LEFT IN AN OPEN CONDITION OVERNIGHT. ALL SUCH TRENCHES SHALL BE CLOSED BEFORE THE END OF EACH WORK DAY AND NORMAL TRAFFIC FLOWS RESTORED.
11. SANITARY SEWER & WATERLINE CROSSINGS. WHERE SANITARY SEWER LINES CROSS ABOVE OR WITHIN 18-INCHES OF VERTICAL SEPARATION BELOW A WATERLINE, SEWER MAINS AND/OR LATERALS SHALL BE REPLACED WITH DUCTILE IRON PIPE AT THE CROSSING. CENTER ONE FULL LENGTH OF CLASS 50 DUCTILE IRON PIPE CONFORMING TO AWWA C-151 AND C-104 AT POINT OF CROSSING. CONNECT TO EXISTING SEWER LINES WITH APPROVED RUBBER COUPLINGS.
12. PER DEQ REQUIREMENTS, DEVELOPER/CONTRACTOR SHALL HAVE SANITARY SEWERAGE FACILITIES INSPECTED, TESTED PER APWA PROCEDURES AND CERTIFIED BY A LICENSED ENGINEER.
13. UNLESS OTHERWISE SPECIFIED, SANITARY SEWER PIPE SHALL BE PVC IN CONFORMANCE WITH ASTM D3034, SDR 35. MINIMUM STIFFNESS SHALL BE 46 PSI PER ASTM D-2412 AND JOINT TYPE SHALL BE ELASTOMERIC GASKET CONFORMING TO ASTM D-3212. ALL OTHER APPURTENANCES AND INSTALLATION SHALL CONFORM TO CITY OF NEHALEM REQUIREMENTS.
14. SANITARY SEWER MANHOLES SHALL HAVE PRECAST BASE SECTIONS OF MONOLITHIC CONSTRUCTION AND SHALL BE MANUFACTURED SUCH THAT THE BASE SECTION IS INTEGRAL WITH THE BASE SLAB. THE MINIMUM BASE THICKNESS SHALL BE 6-INCHES. MANHOLE BASES SHALL HAVE CORE DRILLED OPENINGS AND FLEXIBLE MANHOLE TO PIPE CONNECTORS FOR THE CONNECTIONS TO PIPE STUB OUTS. FLEXIBLE JOINTS FOR PIPE OPENINGS SHALL BE "RES-SEAL" AS MANUFACTURED BY PRICE BROTHERS CO., "KOR-N-SEAL" AS MANUFACTURED BY NATIONAL POLLUTION CONTROL SYSTEMS, INC. OR CITY OF NEHALEM APPROVED EQUAL.
15. MANHOLE PRECAST SECTIONS SHALL MEET OR EXCEED ASTM C-478 AND SHALL HAVE WATERTIGHT O-RING OR MASTIC KEYLOCK JOINT.
16. MANHOLES SHALL BE INSTALLED WITH STEPS. STEPS TO BE FACTORY INSTALLED POLYPROPYLENE PLASTIC WITH GRADE 60 REINFORCING ROD.
17. FLAT TOP MANHOLES SHALL BE USED FOR ALL MANHOLES LESS THAN 6 FEET RIM TO INVERT.
18. OPENINGS FOR CONNECTIONS TO EXISTING MANHOLES SHALL BE MADE BY CORE-DRILLING THE EXISTING MANHOLE STRUCTURE AND INSTALLING A RUBBER BOOT. CONNECTIONS TO BE WATERTIGHT AND SHALL PROVIDE A SMOOTH FLOW INTO AND THROUGH THE MANHOLE. SMALL CHIPPING HAMMERS OR SIMILAR LIGHT TOOLS WHICH WILL NOT DAMAGE OR CRACK THE MANHOLE BASE MAY BE USED TO SHAPE CHANNELS. USE OF LARGE PNEUMATIC JACKHAMMERS SHALL BE PROHIBITED. UNLESS OTHERWISE APPROVED IN WRITING BY THE DISTRICT ENGINEER, MANHOLE STEPS SHALL BE INSTALLED IN ANY MANHOLE TAPPED WHICH DOES NOT HAVE EXISTING STEPS.
19. SANITARY SEWER TESTING. SANITARY SEWERS AND RELATED APPURTENANCES SHALL BE TESTED IN ACCORDANCE WITH THE OSSC (ODOT/APWA) SPECIFICATIONS, 2021 EDITION UNLESS OTHERWISE REQUIRED BY CITY OF NEHALEM. THE COST OF ALL TESTING AND ANY CORRECTIVE WORK ARE THE RESPONSIBILITY OF THE DEVELOPER.
20. SANITARY PIPE CLEANING. PRIOR TO MANDREL OR AIR TESTING, FLUSH AND CLEAN ALL SEWERS TO REMOVE ALL FOREIGN MATERIALS FROM MAINLINES AND MANHOLES. FAILURE TO CLEAN ALL DIRT AND DEBRIS FROM PIPELINES PRIOR TO TV INSPECTION WILL RESULT IN THE NEED TO RE-CLEAN AND RE-TV THE LINES.
21. SEWER PIPE AIR TESTING. CONFORM TO OSSC (ODOT/APWA) 00455.72.C AND THE PROCEDURE LISTED ON THE TEST FORM IN PWDS APPENDIX A. ALL SANITARY SEWER MAINS, SERVICES AND APPURTENANCES SHALL BE TESTED FOR LEAKAGE. LEAKAGE TESTS SHALL INCLUDE AN AIR TEST OF ALL SEWER MAINS AND LATERALS PRIOR TO PAVING, AND A SEPARATE AIR TEST OF ALL SEWER MAINS AND LATERALS FOLLOWING EXCAVATION AND BACKFILLING OF ANY FRANCHISE UTILITY TRENCHES OR OTHER UTILITY WORK THAT CROSSES SANITARY SEWER LATERALS.
22. SEWER PIPE DEFLECTION TESTING. CONFORM TO OSSC (ODOT/APWA) 00445.75. CONTRACTOR SHALL CONDUCT DEFLECTION TEST OF FLEXIBLE SANITARY SEWER PIPES BY PULLING AN APPROVED MANDREL THROUGH ALL COMPLETED SEWER MAINS FOLLOWING TRENCH COMPACTION. THE DIAMETER OF THE MANDREL SHALL BE 95% OF THE INITIAL PIPE DIAMETER.
23. TV INSPECTION OF SANITARY SEWERS. UPON COMPLETION OF ALL SEWER CONSTRUCTION, TESTING AND REPAIR, THE CONTRACTOR SHALL CONDUCT A COLOR TV ACCEPTANCE INSPECTION OF ALL MAINLINES IN ACCORDANCE WITH OSSC (ODOT/APWA) 445.74 TO DETERMINE COMPLIANCE WITH GRADE REQUIREMENTS OF OSSC (ODOT/APWA) 445.40.B. THE TV INSPECTION SHALL BE CONDUCTED BY AN APPROVED TECHNICAL SERVICE WHICH IS EQUIPPED TO MAKE AUDIO-VISUAL RECORDINGS OF THE TV INSPECTIONS ON DVD (VHS VIDEO TAPE ACCEPTABLE ONLY UPON PRIOR WRITTEN APPROVAL BY CITY OF NEHALEM). UNLESS OTHERWISE APPROVED IN WRITING BY THE DISTRICT ENGINEER, A STANDARD 3-INCH DIAMETER BALL SHALL BE SUSPENDED IN FRONT OF THE CAMERA DURING THE INSPECTION TO DETERMINE THE DEPTH OF ANY STANDING WATER. SUFFICIENT WATER TO REVEAL LOW AREAS OR REVERSE GRADES SHALL BE DISCHARGED INTO THE PIPE IMMEDIATELY PRIOR TO INITIATION OF THE TV INSPECTION. THE DVD AND WRITTEN REPORT SHALL BE DELIVERED TO THE DISTRICT ENGINEER.
24. MANHOLE TESTING. CONFORM TO SECTION OSSC (ODOT/APWA) 00471.B OR CITY OF NEHALEM APPROVED VACUUM TEST PROCEDURE. ALL MANHOLES SHALL BE VACUUM TESTED FOLLOWING COMPLETION OF PAVING OR FINAL SURFACE RESTORATION.
25. RE-INSPECTION OF THE SANITARY SEWER SYSTEM USING TV INSPECTION PLUS ANY OR ALL OF THE ABOVE TEST METHODS SHALL BE PERFORMED AS REQUIRED BY CITY OF NEHALEM NEAR THE COMPLETION OF THE 18 MONTH WARRANTY PERIOD. THE RESULTS OF THESE TESTS) WILL BE USED BY CITY OF NEHALEM TO DETERMINE IF FINAL ACCEPTANCE OF THE SYSTEM IS WARRANTED AND WHAT CORRECTIVE WORK IS REQUIRED PRIOR TO FINAL ACCEPTANCE. THE COST OF THESE RE-INSPECTIONS AND ANY CORRECTIVE WORK ARE THE RESPONSIBILITY OF THE DEVELOPER.
26. PRIOR TO OR CONCURRENT WITH CONNECTION TO A SANITARY SEWER LATERAL, IT SHALL BE DEMONSTRATED TO THE DISTRICT THAT THE SEWER LATERAL IS NOT OBSTRUCTED. THIS SHALL BE ACCOMPLISHED BY "SNAKING" THE SERVICE LATERAL DOWNSTREAM OF THE CONNECTION POINT TO THE MAINLINE, OR SIMILAR METHOD ACCEPTABLE TO THE DISTRICT. DISTRICT PERSONNEL OR AUTHORIZED AGENT SHALL BE PRESENT DURING THE "SNAKING" OR OTHER DEMONSTRATION METHOD.
27. THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT ALL REQUIRED OR NECESSARY INSPECTIONS ARE COMPLETED BY AUTHORIZED INSPECTORS PRIOR TO PROCEEDING WITH SUBSEQUENT WORK WHICH COVERS OR THAT IS DEPENDENT ON THE WORK TO BE INSPECTED. FAILURE TO OBTAIN NECESSARY INSPECTION(S) AND APPROVAL(S) SHALL RESULT IN THE CONTRACTOR BEING FULLY RESPONSIBLE FOR ALL PROBLEMS AND/OR CORRECTIVE MEASURES ARISING FROM UNINSPECTED WORK.

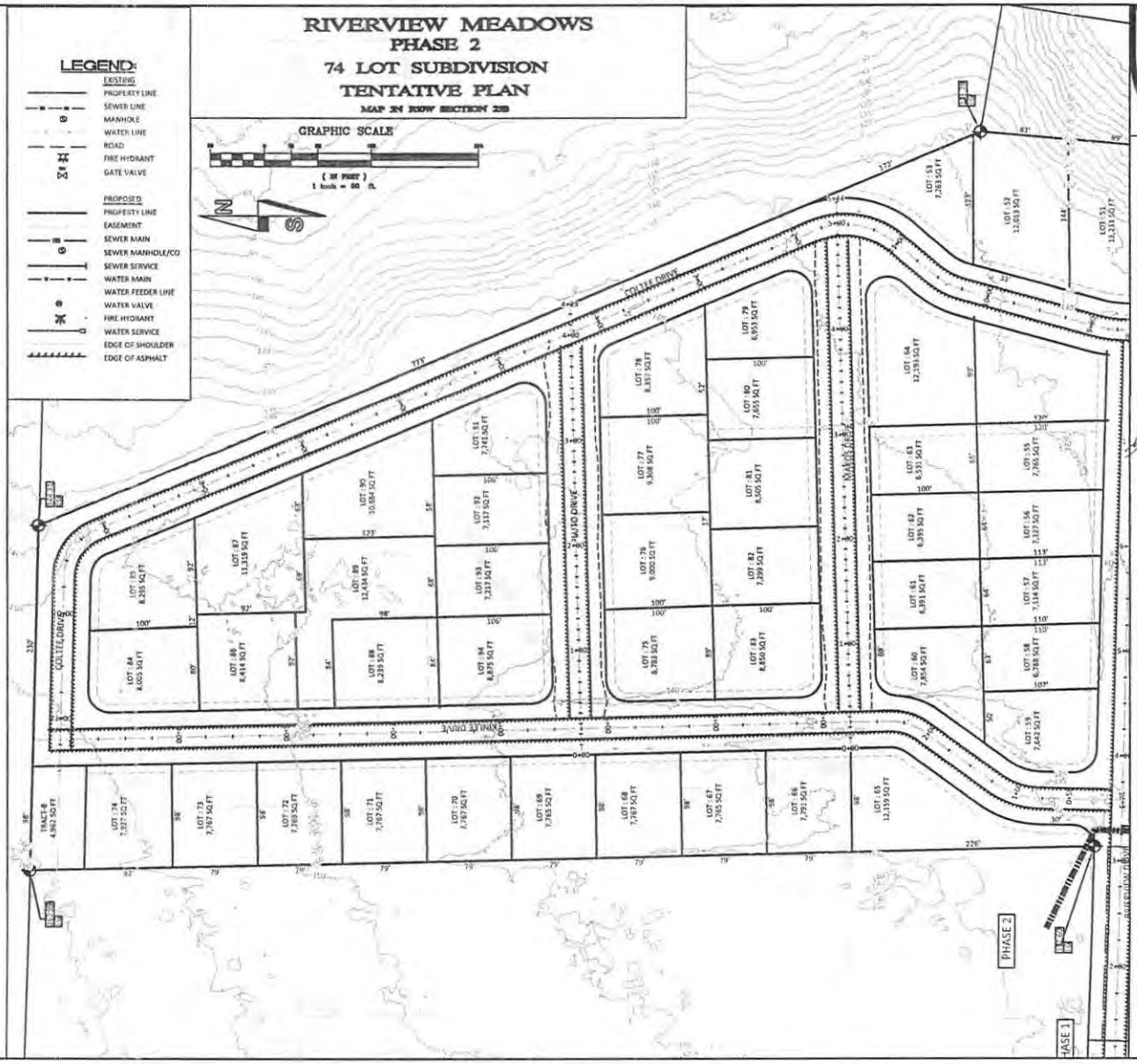
RIVERVIEW MEADOWS
PHASE 2
74 LOT SUBDIVISION
TENTATIVE PLAN
MAP 2N 10W SECTION 23B

LEGEND:

EXISTING
- PROPERTY LINE
- SEWER LINE
- MANHOLE
- WATER LINE
- ROAD
- FIRE HYDRANT
- GATE VALVE

PROPOSED
- PROPERTY LINE
- EASEMENT
- SEWER MAIN
- SEWER MANHOLE/CO
- SEWER SERVICE
- WATER MAIN
- WATER FEEDER LINE
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- EDGE OF SHOULDER
- EDGE OF ASPHALT

GRAPHIC SCALE
(IN FEET)
1 inch = 50 ft.



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◆ SURVEYING
◆ PLANNING

JOB NO. 19-10-RV
DATE AUGUST 12, 2021

REGISTERED PROFESSIONAL ENGINEER 93080 OREGON

RENEWAL DATE DECEMBER 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
TENTATIVE PLAN - NORTHERN PORTION

NEHALEM, MAP 2N 10W 23B

SHEET 6 OF 23

SEWER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH NBWA.

101 CONNECT TO EXISTING STUB
102 INSTALL NEW MANHOLE
103 INSTALL NEW 8" SEWER PIPE
104 INSTALL NEW SEWER SERVICE ASSEMBLY
105 INSTALL NEW END OF LINE CLEANOUT

DEFLECTION TESTING, PRESSURE TESTING, AND VIDEO INSPECTION REQUIRED.

WATER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH CITY OF NEHALEM. 36" COVER OVER PIPES. 18" MIN VERTICAL SEPARATION FROM SEWER LINE AT CROSSINGS.

201 CONNECT TO EXISTING WATER
202 INSTALL 6" TEE WITH GATE VALVES
203 INSTALL 6" PVC PIPE
204 INSTALL FIRE HYDRANT ASSEMBLY
205 INSTALL D.I. BENDS, AS NEEDED
206 INSTALL WATER SERVICE ASSEMBLY

PRESSURE TESTING, AND BACTERIOLOGICAL TESTING REQUIRED.

STORM NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH COUNTY PUBLIC WORKS.

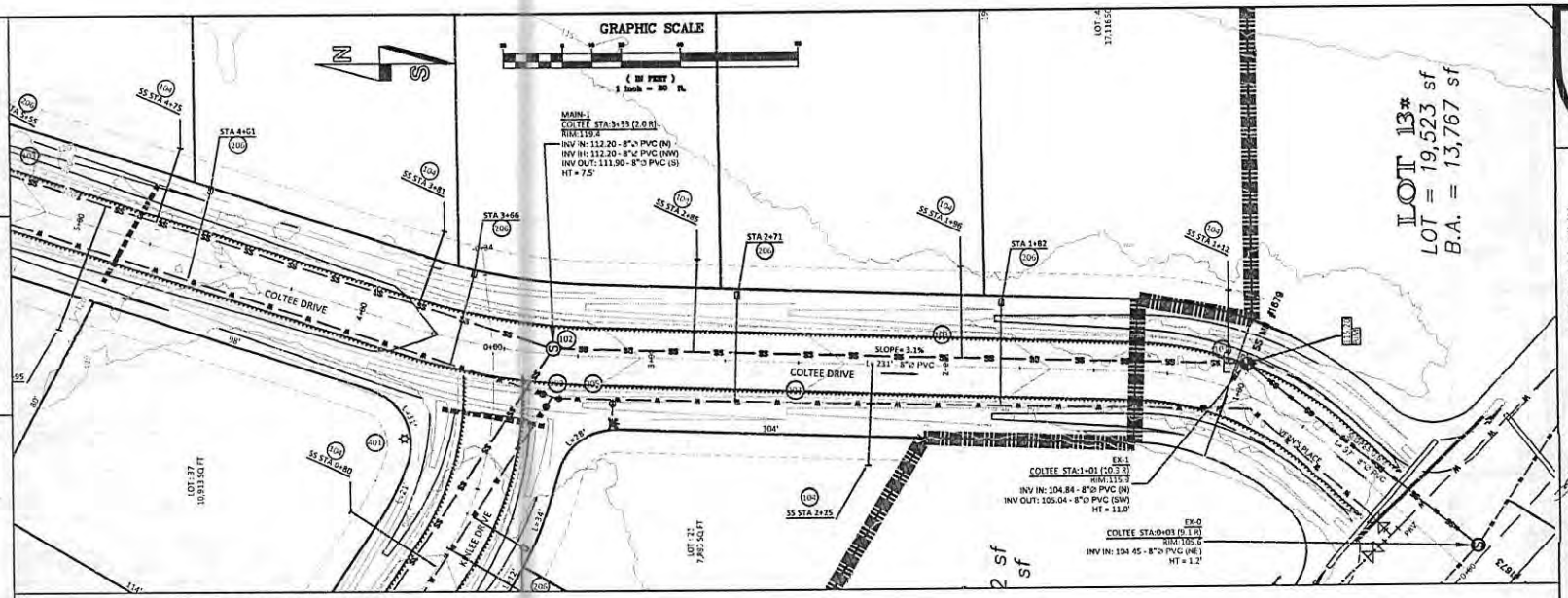
301 ROADSIDE DITCH
302 18" CULVERT

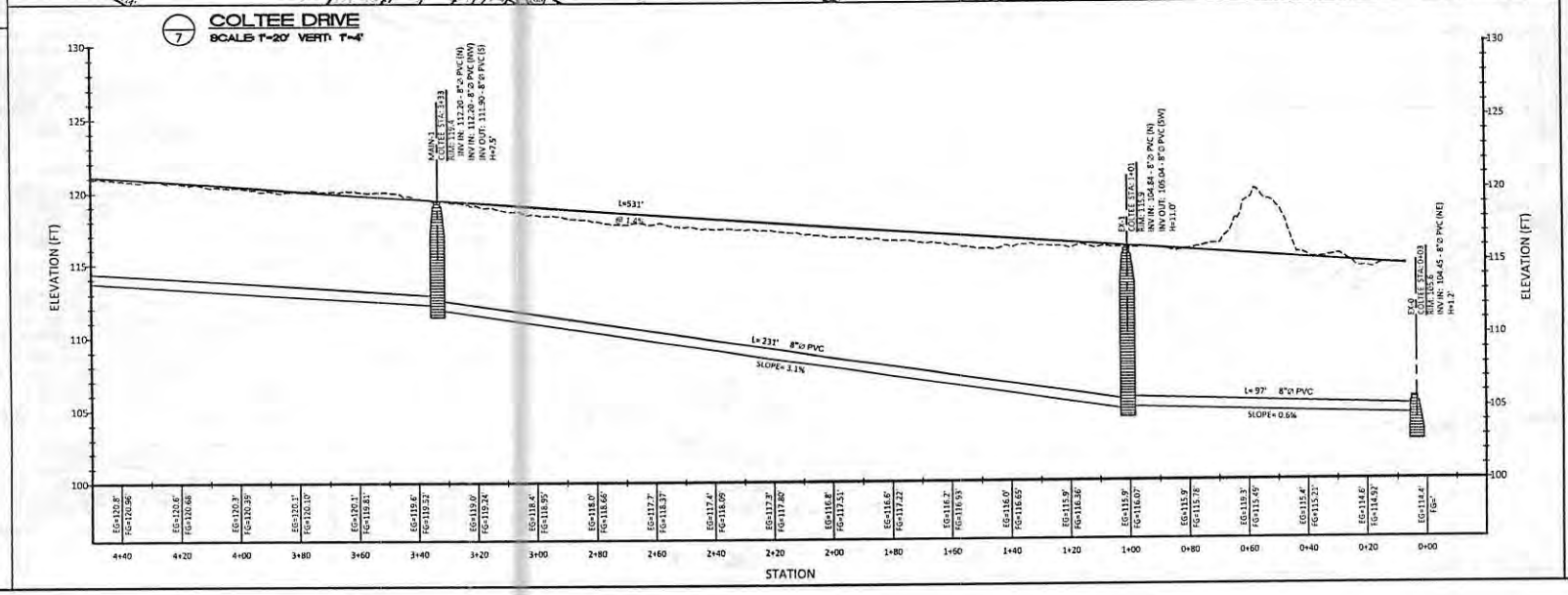
LEGEND:

EXISTING
- PROPERTY LINE
- SEWER LINE
- MANHOLE
- WATER LINE
- ROAD
- FIRE HYDRANT
- GATE VALVE

PROPOSED
- PROPERTY LINE
- EASEMENT
- SEWER MAIN
- SEWER MANHOLE/CO
- SEWER SERVICE
- WATER MAIN
- WATER FEEDER LINE
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- EDGE OF SHOULDER
- EDGE OF ASPHALT

PROFILE
- EXISTING GRADE
- FINISHED GRADE





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JOB NO. 21-31-NV
DATE AUGUST 12, 2022

REGISTERED PROFESSIONAL ENGINEER 83055 OREGON JULY 15, 1983 JASON R. MORGAN

RENEWAL DATE: DECEMBER 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
UTILITY LAYOUT - COLTEE DRIVE

NEHALEM, MAP 3N 10W 23B

SEWER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH NBWA.

101 CONNECT TO EXISTING STUB
102 INSTALL NEW MANHOLE
103 INSTALL NEW 8" SEWER PIPE
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WATER NOTES:

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205 INSTALL D.I. BENDS, AS NEEDED
206 INSTALL WATER SERVICE ASSEMBLY

PRESSURE TESTING, AND BACTERIOLOGICAL TESTING REQUIRED.

STORM NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH COUNTY PUBLIC WORKS.

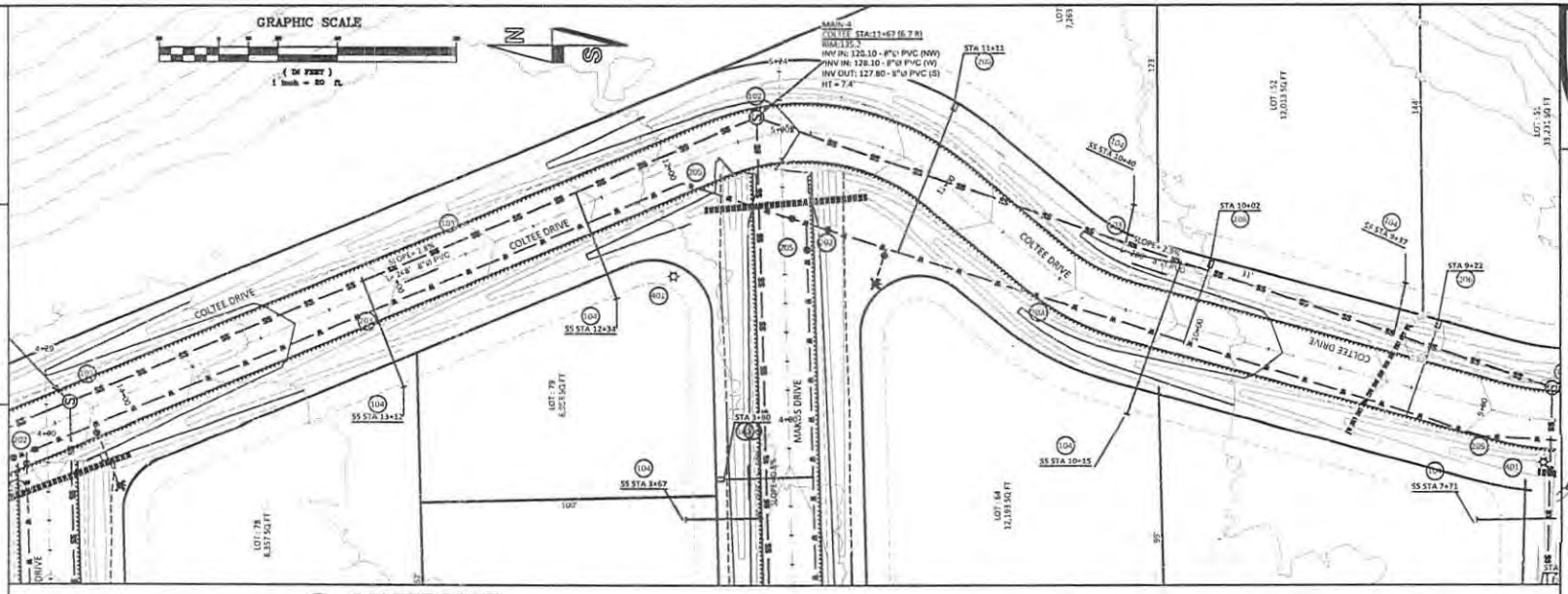
301 ROADSIDE DITCH
302 18" CULVERT

LEGEND:

EXISTING
- PROPERTY LINE
- SEWER LINE
- MANHOLE
- WATER LINE
- ROAD
- FIRE HYDRANT
- GATE VALVE

PROPOSED
- PROPERTY LINE
- EASEMENT
- SEWER MAIN
- SEWER MANHOLE/CO
- SEWER SERVICE
- WATER MAIN
- WATER FEEDER LINE
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- EDGE OF SHOULDER
- EDGE OF ASPHALT

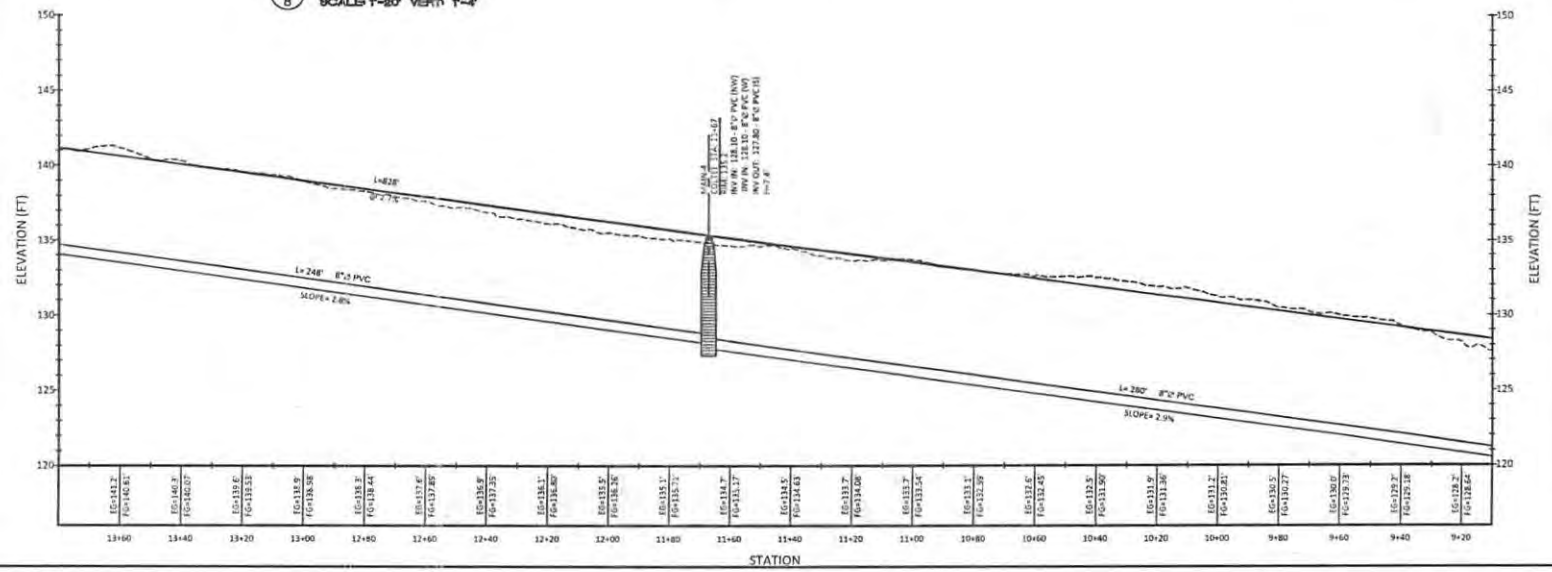
PROFILE
- EXISTING GRADE
- FINISHED GRADE



COLTEE DRIVE

8

SCALE: 1"=20' VERT. 1"=4'



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JOB NO. 19-10-HV
DATE AUGUST 11, 2021

REGISTERED PROFESSIONAL ENGINEER
83050
OREGON
JASON A. MORGAN

RENEWAL DATE: JANUARY 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC

RIVERVIEW MEADOWS PHASE 2
UTILITY LAYOUT - COLTEE DRIVE

INTERLOCK MAP 3N 10W 23B

SHEET 8 OF 23

SEWER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH NBWA.

101 CONNECT TO EXISTING STUB
102 INSTALL NEW MANHOLE
103 INSTALL NEW 8" SEWER PIPE
104 INSTALL NEW SEWER SERVICE ASSEMBLY
105 INSTALL NEW END OF LINE CLEANOUT

DEFLECTION TESTING, PRESSURE TESTING, AND VIDEO INSPECTION REQUIRED.

WATER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH CITY OF NEHALEM. 36" COVER OVER PIPES. 18" MIN VERTICAL SEPARATION FROM SEWER LINE AT CROSSINGS.

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202 INSTALL 6" TEE WITH GATE VALVES
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PRESSURE TESTING, AND BACTERIOLOGICAL TESTING REQUIRED.

STORM NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH COUNTY PUBLIC WORKS.

301 ROADSIDE DITCH
302 18" CULVERT

LEGEND:

EXISTING
- PROPERTY LINE
- SEWER LINE
- MANHOLE
- WATER LINE
- ROAD
- FIRE HYDRANT
- GATE VALVE

PROPOSED
- PROPERTY LINE
- EASEMENT
- SEWER MAIN
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- WATER MAIN
- WATER FEEDER LINE
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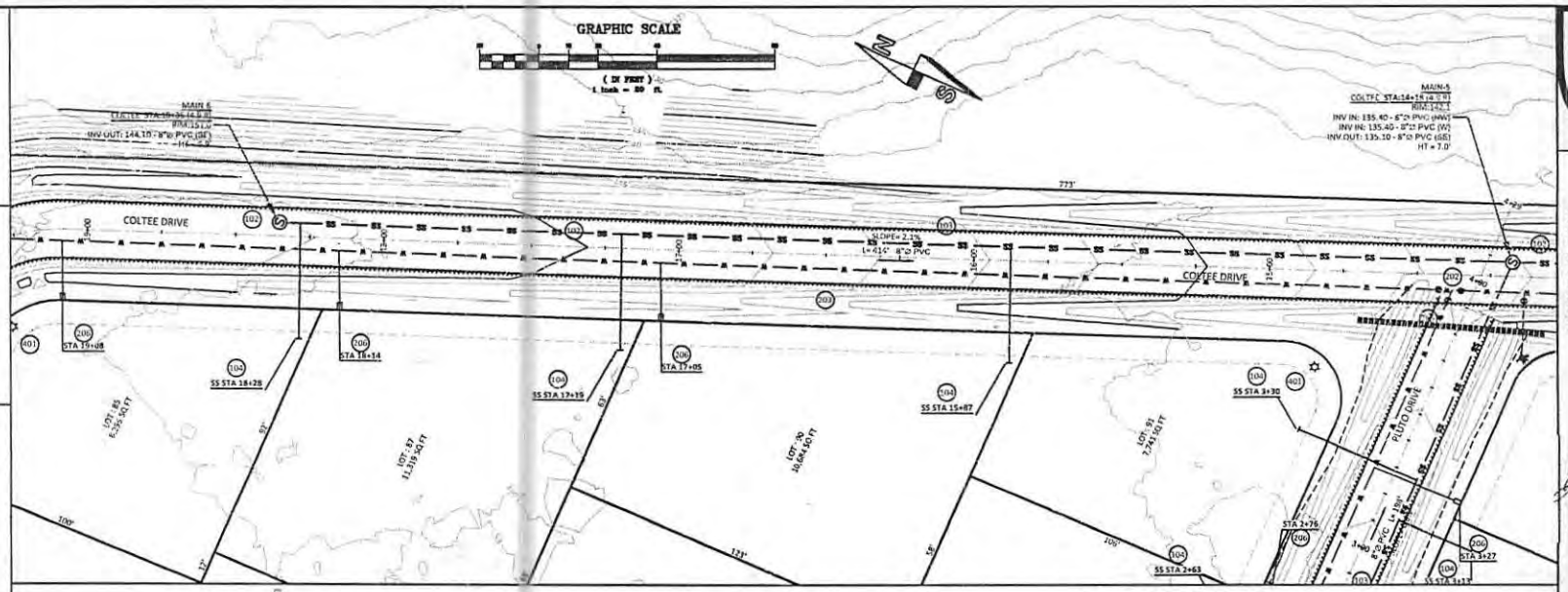
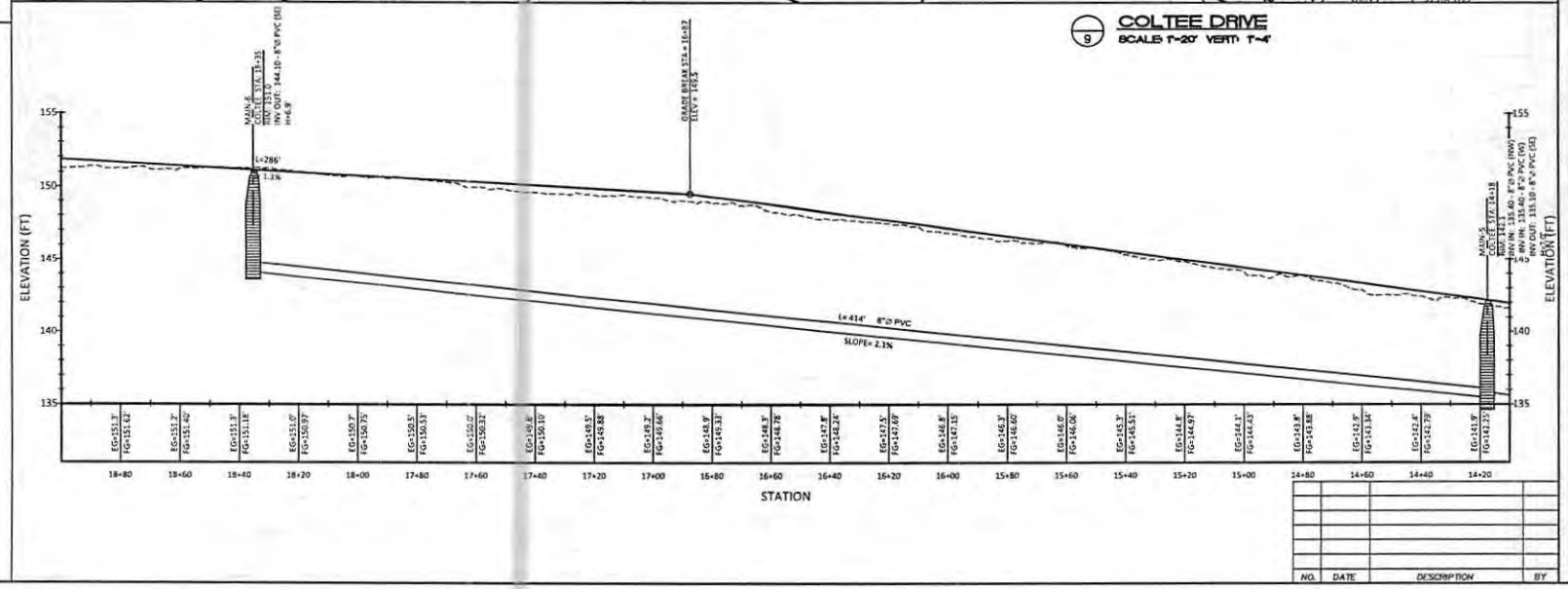
- FIRE HYDRANT
- WATER SERVICE
- EDGE OF SHOULDER
- EDGE OF ASPHALT

PROFILE
- EXISTING GRADE
- FINISHED GRADE





NO.	DATE	DESCRIPTION	BY

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• PLANNING

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(503) 801-6016
www.morganciv.com

JOB NO. 21-107-MV
DATE AUGUST 11, 2021

REGISTERED PROFESSIONAL ENGINEER 83055 OREGON JANUARY 19, 1983 JASON R. MORGAN

RENEWAL DATE: DECEMBER 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC

RIVERVIEW MEADOWS PHASE 2

UTILITY LAYOUT - COLTEE DRIVE

NEHALEM, MAP 3N 10W 23B

SHEET 9 OF 23

SEWER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH NBWA.

101 CONNECT TO EXISTING STUB
102 INSTALL NEW MANHOLE
103 INSTALL NEW 8" SEWER PIPE
104 INSTALL NEW SEWER SERVICE ASSEMBLY
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DEFLECTION TESTING, PRESSURE TESTING, AND VIDEO INSPECTION REQUIRED.

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COORDINATE WORK WITH CITY OF NEHALEM. 36" COVER OVER PIPES. 18" MIN VERTICAL SEPARATION FROM SEWER LINE AT CROSSINGS.

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PRESSURE TESTING, AND BACTERIOLOGICAL TESTING REQUIRED.

STORM NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH COUNTY PUBLIC WORKS.

301 ROADSIDE DITCH
302 18" CULVERT

LEGEND:

EXISTING
- PROPERTY LINE
- SEWER LINE
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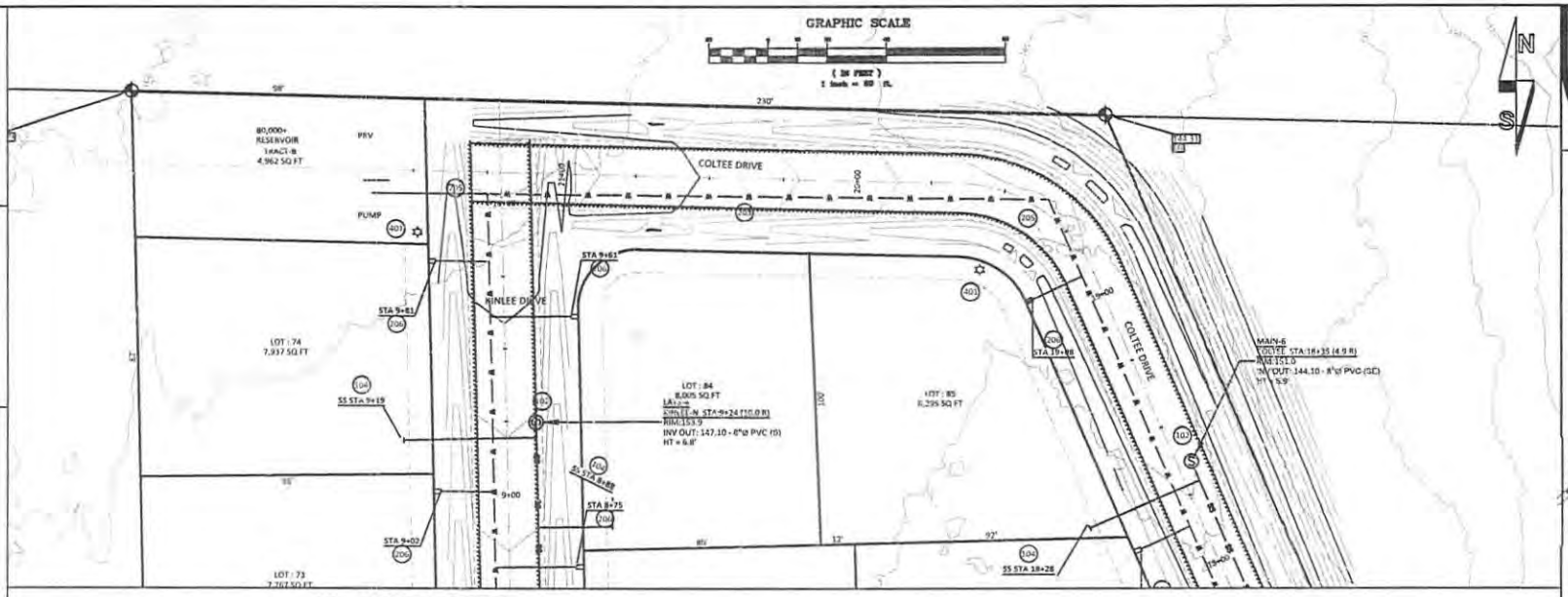
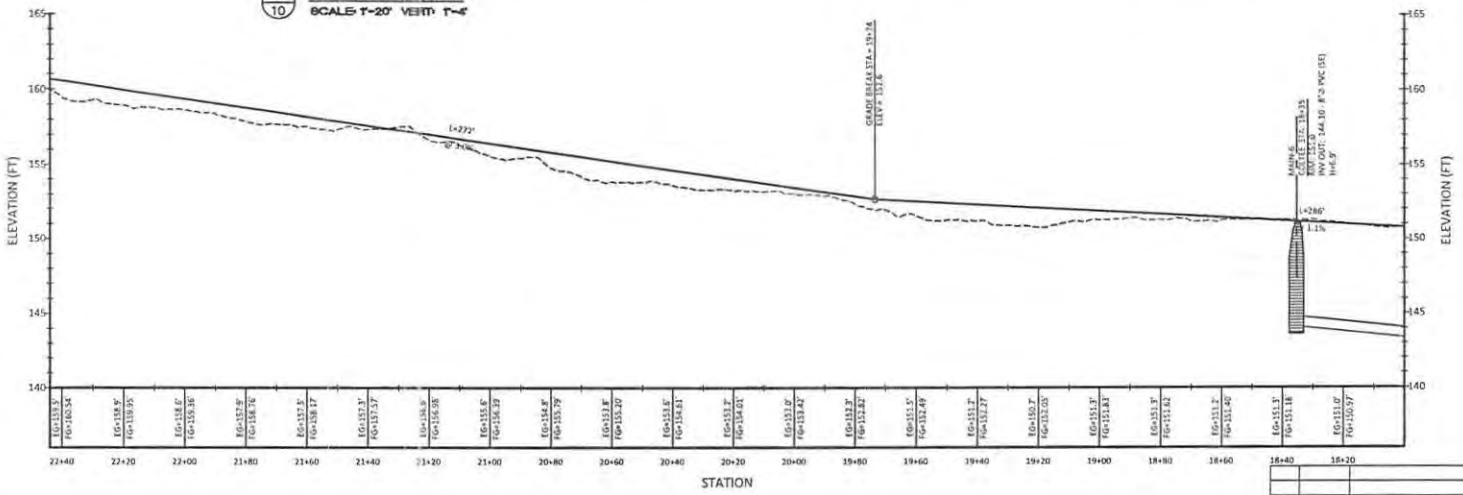


10 COLTEE DRIVE

SCALE: 1"=20' VERT: 1"=4'



NO.	DATE	DESCRIPTION	BY

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• CIVIL ENGINEERING
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• PLANNING

JOB NO. 19-19-HV
DATE AUGUST 11, 2022

REGISTERED PROFESSIONAL ENGINEER
JASON K. MORGAN
OREGON

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
UTILITY LAYOUT - COLTEE DRIVE

NEHALEM MAP 1N 10W 23B

SHEET 10 OF 23

SEWER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH NBWA.

101 CONNECT TO EXISTING STUB
102 INSTALL NEW MANHOLE
103 INSTALL NEW 8" SEWER PIPE
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105 INSTALL NEW END OF LINE CLEANOUT

DEFLECTION TESTING, PRESSURE TESTING, AND VIDEO INSPECTION REQUIRED.

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STORM NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH COUNTY PUBLIC WORKS.

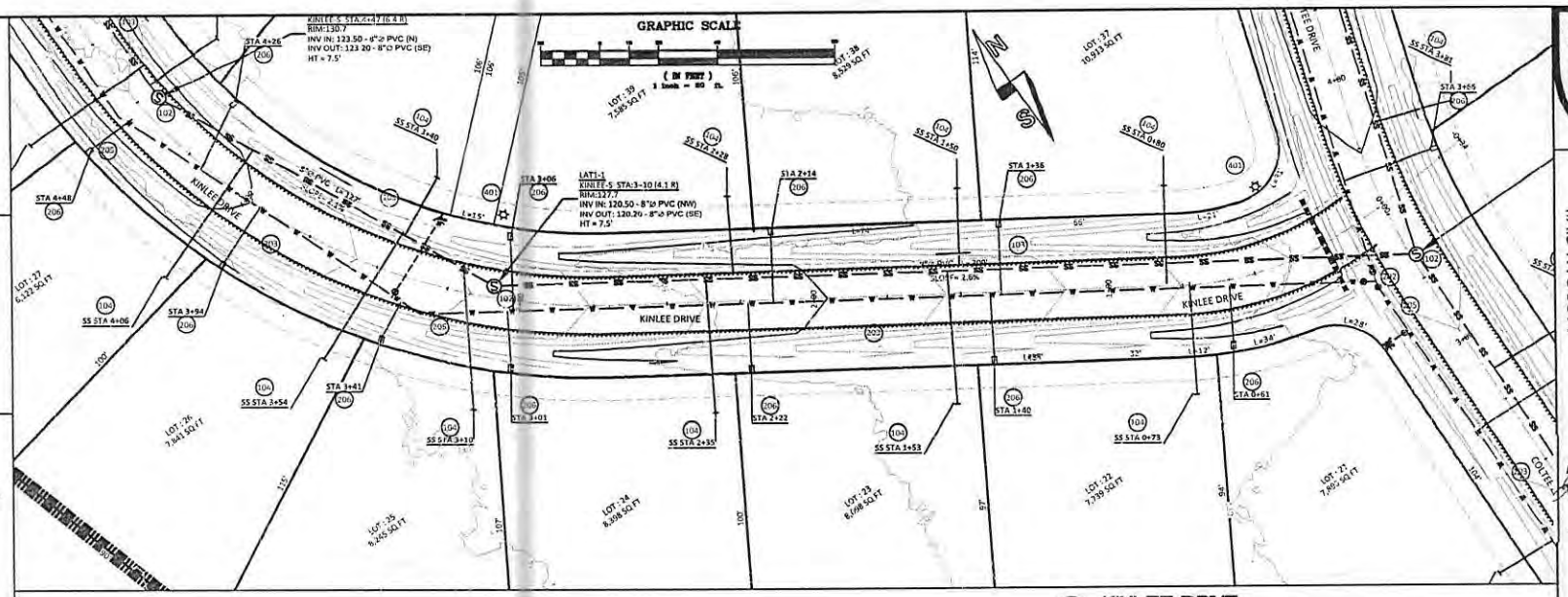
301 ROADSIDE DITCH
302 18" CULVERT

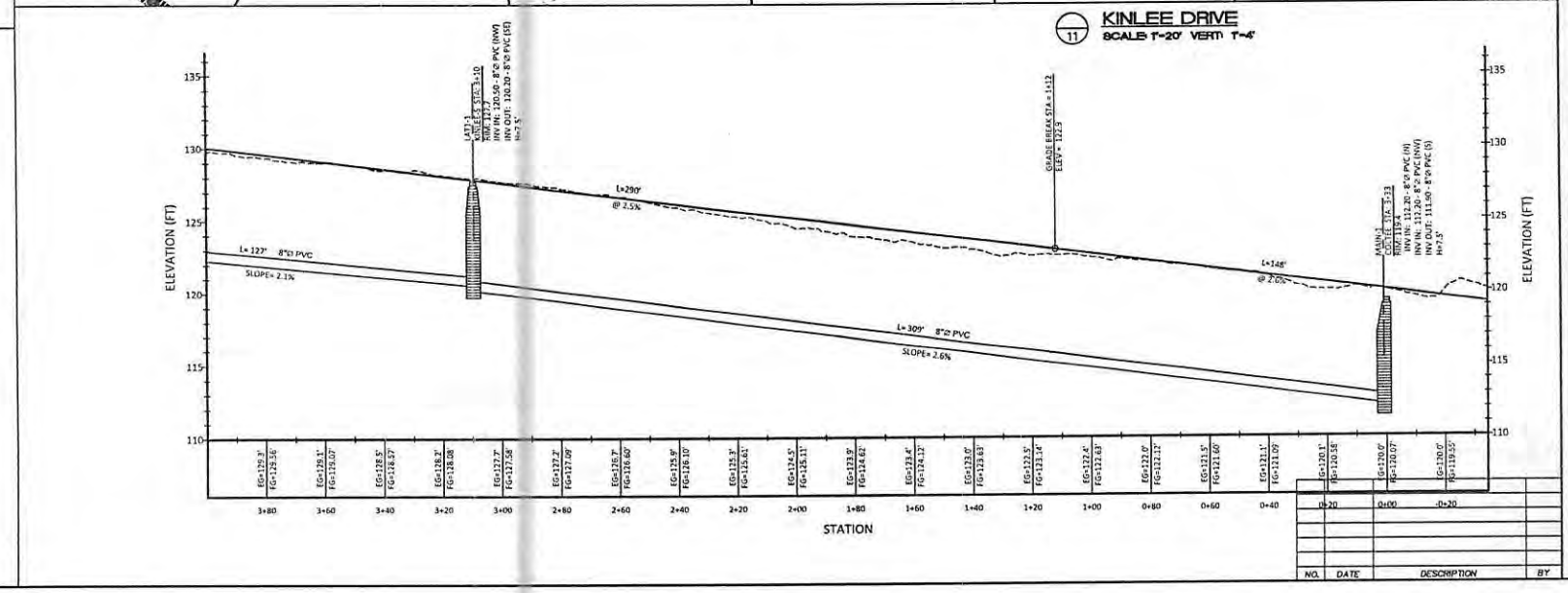
LEGEND:

EXISTING
- PROPERTY LINE
- SEWER LINE
- MANHOLE
- WATER LINE
- ROAD
- FIRE HYDRANT
- GATE VALVE

PROPOSED
- PROPERTY LINE
- EASEMENT
- SEWER MAIN
- SEWER MANHOLE/CO
- SEWER SERVICE
- WATER MAIN
- WATER FEEDER LINE
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- EDGE OF SHOULDER
- EDGE OF ASPHALT

PROFILE
- EXISTING GRADE
- FINISHED GRADE





NO.	DATE	DESCRIPTION	BY

MORGAN CIVIL ENGINEERING, INC.
PO BOX 358
MANZANITA, OR 97130
(503) 801-0016
www.morgancivil.com
• CIVIL ENGINEERING
• INSPECTION
• PLANNING

JOB NO. PEE-19-MV
DATE: AUGUST 12, 2022

REGISTERED PROFESSIONAL ENGINEER 83050 OREGON JANUARY 15, 2021 JASON R. MORGAN
RENEWAL DATE: JANUARY 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
UTILITY LAYOUT - KINLEE DRIVE

NEHALEM, MAP 3N 10W 23B

SEWER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH NBWA.

101 CONNECT TO EXISTING STUB
102 INSTALL NEW MANHOLE
103 INSTALL NEW 8" SEWER PIPE
104 INSTALL NEW SEWER SERVICE ASSEMBLY
105 INSTALL NEW END OF LINE CLEANOUT

DEFLECTION TESTING, PRESSURE TESTING, AND VIDEO INSPECTION REQUIRED.

WATER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH CITY OF NEHALEM. 36" COVER OVER PIPES. 18" MIN VERTICAL SEPARATION FROM SEWER LINE AT CROSSINGS.

201 CONNECT TO EXISTING WATER
202 INSTALL 6" TEE WITH GATE VALVES
203 INSTALL 6" PVC PIPE
204 INSTALL FIRE HYDRANT ASSEMBLY
205 INSTALL D.I. BENDS, AS NEEDED
206 INSTALL WATER SERVICE ASSEMBLY

PRESSURE TESTING, AND BACTERIOLOGICAL TESTING REQUIRED.

STORM NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH COUNTY PUBLIC WORKS

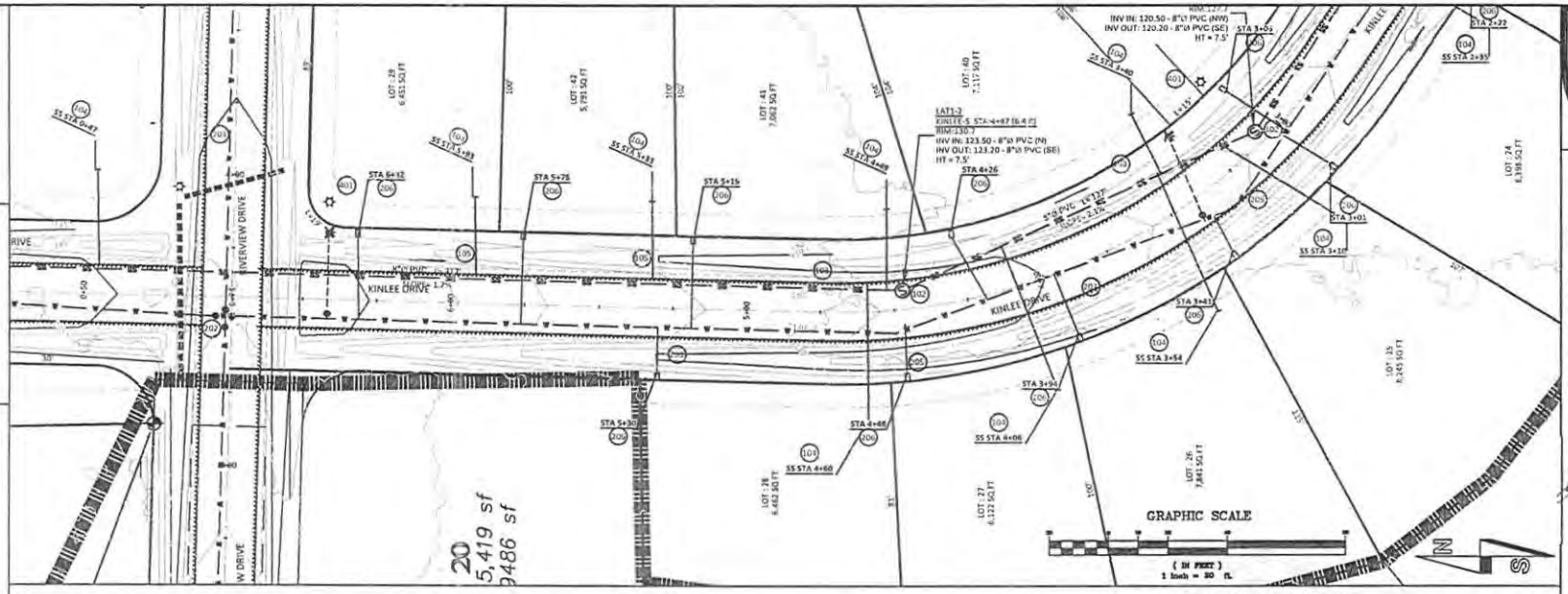
301 ROADSIDE DITCH
302 18" CULVERT

LEGEND:

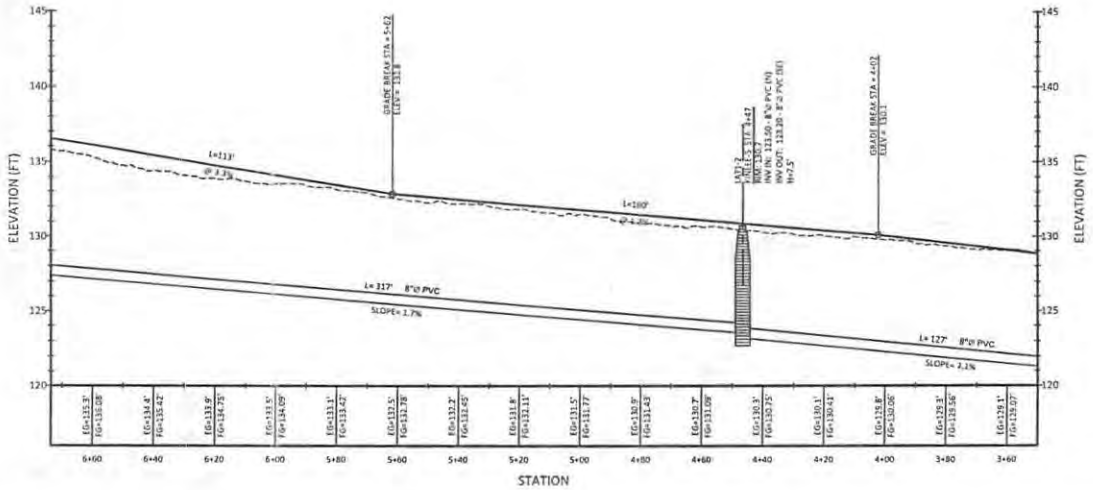
EXISTING
- PROPERTY LINE
- SEWER LINE
- MANHOLE
- WATER LINE
- ROAD
- FIRE HYDRANT
- GATE VALVE

PROPOSED
- PROPERTY LINE
- EASEMENT
- SEWER MAIN
- SEWER MANHOLE/CO
- SEWER SERVICE
- WATER MAIN
- WATER FEEDER LINE
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- EDGE OF SHOULDER
- EDGE OF ASPHALT

PROFILE
- EXISTING GRADE
- FINISHED GRADE



12 KINLEE DRIVE
SCALE: 1"=20' VERT: 1"=4'



NO.	DATE	DESCRIPTION	BY

MORGAN CIVIL ENGINEERING, INC.
• CIVIL ENGINEERING
• INSPECTION
• PLANNING
PO BOX 358
MANZANITA, OR 97130
(503) 801-6018
www.morganciviel.com

JOB NO. 4-0-0-19-04
DATE AUGUST 31, 2022

REGISTERED PROFESSIONAL ENGINEER
OREGON
JEFFREY A. MORGAN

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
UTILITY LAYOUT - KINLEE DRIVE
NEHALEM, MAP 3N 10W 23B

SHEET 12 OF 23

SEWER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH NBWA.

101 CONNECT TO EXISTING STUB
102 INSTALL NEW MANHOLE
103 INSTALL NEW 8" SEWER PIPE
104 INSTALL NEW SEWER SERVICE ASSEMBLY
105 INSTALL NEW END OF LINE CLEANOUT

DEFLECTION TESTING, PRESSURE TESTING, AND VIDEO INSPECTION REQUIRED.

WATER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH CITY OF NEHALEM. 36" COVER OVER PIPES. 18" MIN VERTICAL SEPARATION FROM SEWER LINE AT CROSSINGS.

201 CONNECT TO EXISTING WATER
202 INSTALL 6" TEE WITH GATE VALVES
203 INSTALL 6" PVC PIPE
204 INSTALL FIRE HYDRANT ASSEMBLY
205 INSTALL D.I. BENDS, AS NEEDED
206 INSTALL WATER SERVICE ASSEMBLY

PRESSURE TESTING, AND BACTERIOLOGICAL TESTING REQUIRED.

STORM NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH COUNTY PUBLIC WORKS.

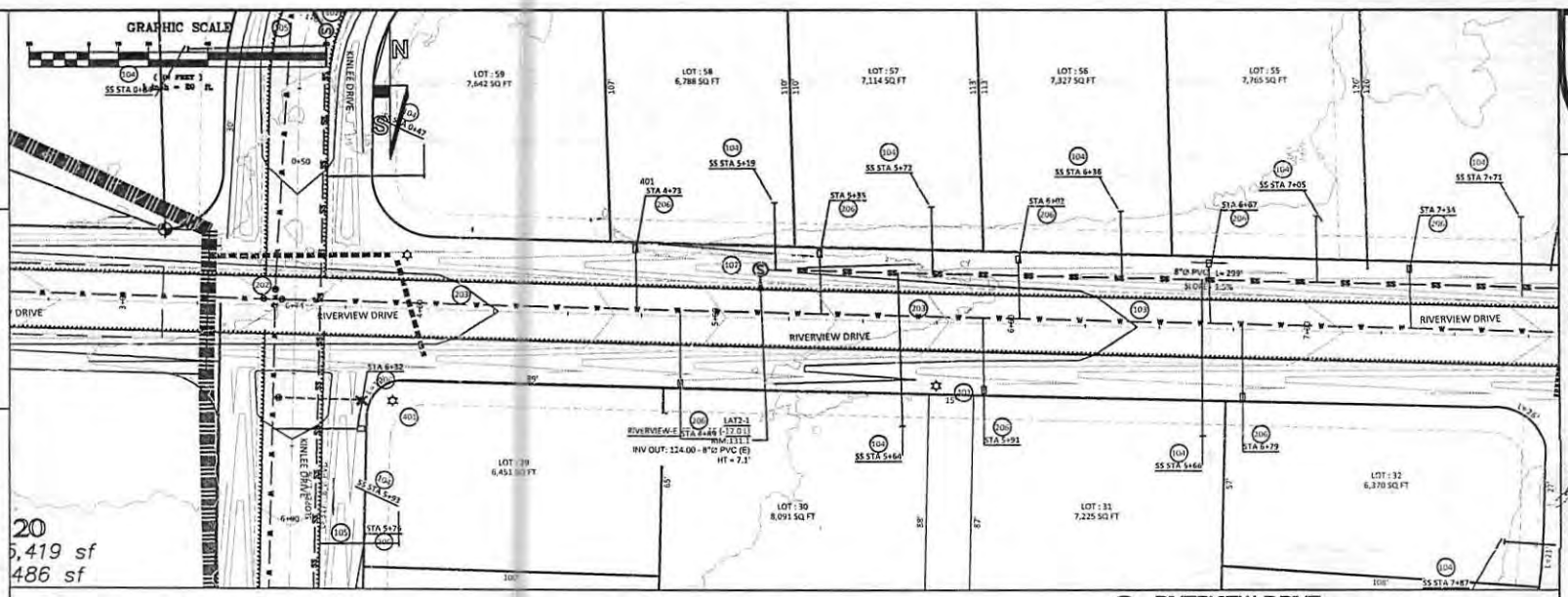
301 ROADSIDE DITCH
302 18" CULVERT

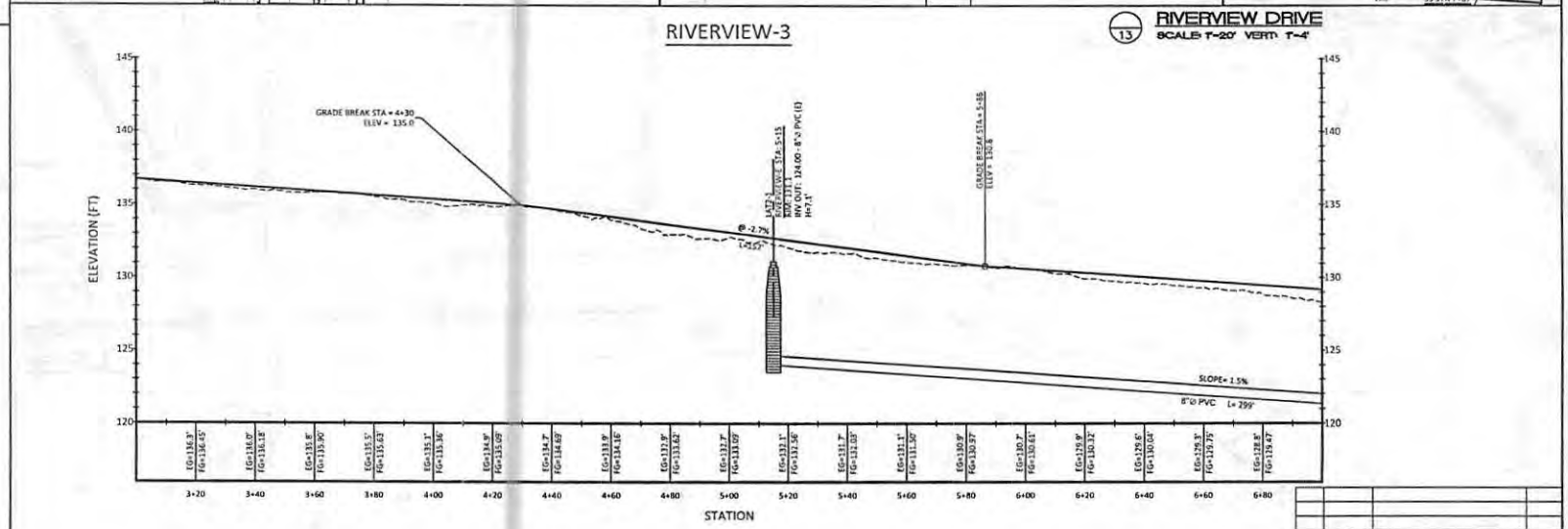
LEGEND:

EXISTING
- PROPERTY LINE
- SEWER LINE
- MANHOLE
- WATER LINE
- ROAD
- FIRE HYDRANT
- GATE VALVE

PROPOSED
- PROPERTY LINE
- EASEMENT
- SEWER MAIN
- SEWER MANHOLE/CO
- SEWER SERVICE
- WATER MAIN
- WATER FEEDER LINE
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- EDGE OF SHOULDER
- EDGE OF ASPHALT

PROFILE
- EXISTING GRADE
- FINISHED GRADE





NO.	DATE	DESCRIPTION	BY

MORGAN CIVIL ENGINEERING, INC.

• CIVIL ENGINEERING
• INSPECTION
• PLANNING

PO BOX 358
MANZANITA, OR 97130
(503) 801-6016
www.morgancivil.com

JOB NO. 419-10-RV
DATE: AUGUST 22, 2022

REGISTERED PROFESSIONAL ENGINEER 93055 OREGON JANUARY 19, 1993 JASON R. MORGAN

RENEWAL DATE: DECEMBER 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
UTILITY LAYOUT - RIVERVIEW DRIVE

NEHALEM, MAP 3N 10W 21B

SHEET 13 OF 23

SEWER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH NBWA.

101 CONNECT TO EXISTING STUB
102 INSTALL NEW MANHOLE
103 INSTALL NEW 8" SEWER PIPE
104 INSTALL NEW SEWER SERVICE ASSEMBLY
105 INSTALL NEW END OF LINE CLEANOUT

DEFLECTION TESTING, PRESSURE TESTING, AND VIDEO INSPECTION REQUIRED.

WATER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH CITY OF NEHALEM. 36" COVER OVER PIPES. 18" MIN VERTICAL SEPARATION FROM SEWER LINE AT CROSSINGS.

201 CONNECT TO EXISTING WATER
202 INSTALL 6" TEE WITH GATE VALVES
203 INSTALL 6" PVC PIPE
204 INSTALL FIRE HYDRANT ASSEMBLY
205 INSTALL D.I. BENDS, AS NEEDED
206 INSTALL WATER SERVICE ASSEMBLY

PRESSURE TESTING, AND BACTERIOLOGICAL TESTING REQUIRED.

STORM NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH COUNTY PUBLIC WORKS.

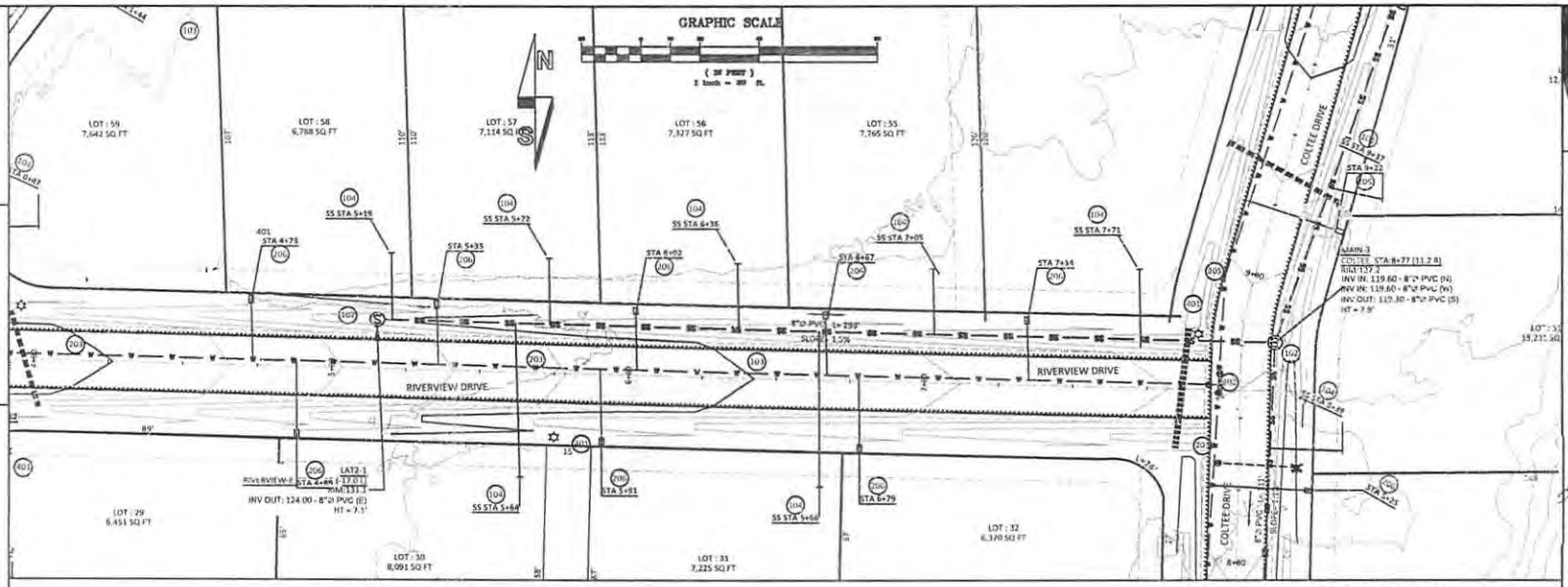
301 ROADSIDE DITCH
302 18" CULVERT

LEGEND:

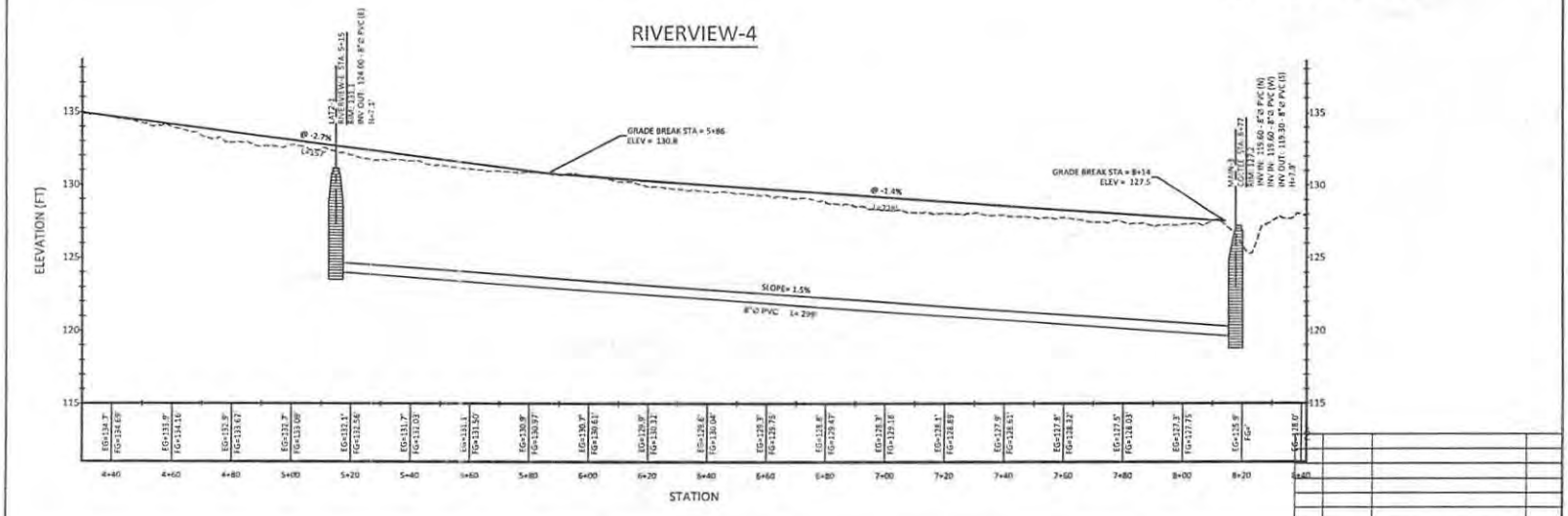
EXISTING
- PROPERTY LINE
- SEWER LINE
- MANHOLE
- WATER LINE
- ROAD
- FIRE HYDRANT
- GATE VALVE

PROPOSED
- PROPERTY LINE
- EASEMENT
- SEWER MAIN
- SEWER MANHOLE/CO
- SEWER SERVICE
- WATER MAIN
- WATER FEEDER LINE
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- EDGE OF SHOULDER
- EDGE OF ASPHALT

PROFILE
- EXISTING GRADE
- FINISHED GRADE



14 RIVERVIEW DRIVE
SCALE: 1"=20' VERT: 1"=4'



NO.	DATE	DESCRIPTION	BY

MORGAN CIVIL ENGINEERING, INC.
• CIVIL ENGINEERING
• INSPECTION
• PLANNING
PO BOX 358
MANZANITA, OR 97130
(503) 801-6216
www.morgancivil.com

JOB NO. 21-03-01
DATE AUGUST 11, 2022

REGISTERED PROFESSIONAL ENGINEER
83050
OREGON
JANUARY 19, 1983
JASON R. MORGAN
RENEWAL DATE: JANUARY 31, 2023

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
UTILITY LAYOUT - RIVERVIEW DRIVE

NEHALEM, MAP 1N 10W 23B

SEWER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL 92% COMPACTION.

COORDINATE WORK WITH NBWA.

101 CONNECT TO EXISTING STUB
102 INSTALL NEW MANHOLE
103 INSTALL NEW 8" SEWER PIPE
104 INSTALL NEW SEWER SERVICE ASSEMBLY
105 INSTALL NEW END OF LINE CLEANOUT

DEFLECTION TESTING, PRESSURE TESTING, AND VIDEO INSPECTION REQUIRED.

WATER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL 92% COMPACTION.

COORDINATE WORK WITH CITY OF NEHALEM. 36" COVER OVER PIPES. 18" MIN VERTICAL SEPARATION FROM SEWER LINE AT CROSSINGS.

201 CONNECT TO EXISTING WATER
202 INSTALL 6" TEE WITH GATE VALVES
203 INSTALL 6" PVC PIPE
204 INSTALL FIRE HYDRANT ASSEMBLY
205 INSTALL D.I. BENDS, AS-NEEDED
206 INSTALL WATER SERVICE ASSEMBLY

PRESSURE TESTING, AND BACTERIOLOGICAL TESTING REQUIRED.

STORM NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL 92% COMPACTION.

COORDINATE WORK WITH COUNTY PUBLIC WORKS.

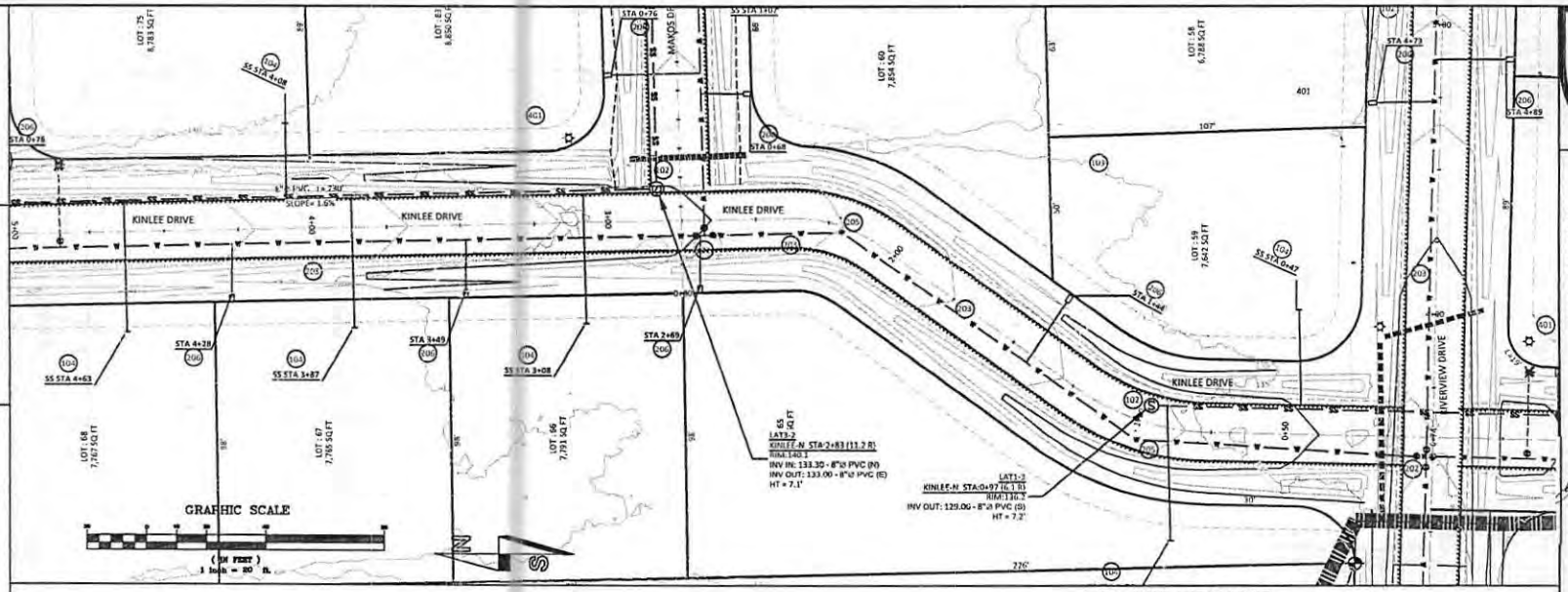
301 ROADSIDE DITCH
302 18" CULVERT

LEGEND:

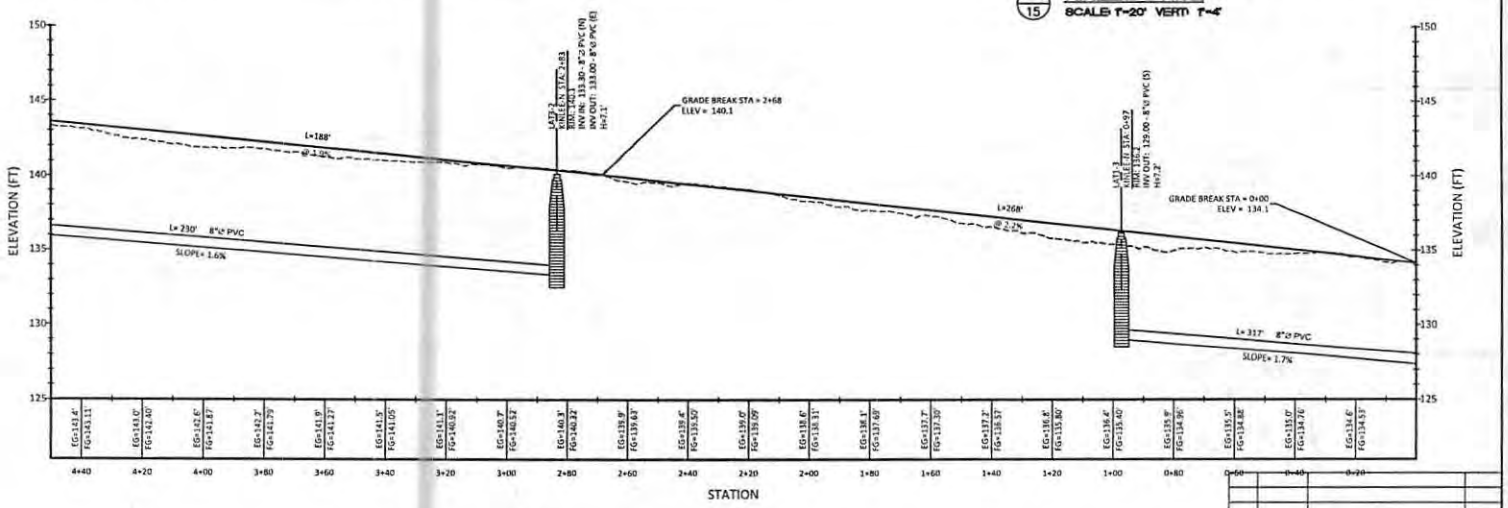
EXISTING
- PROPERTY LINE
- SEWER LINE
- MANHOLE
- WATER LINE
- ROAD
- FIRE HYDRANT
- GATE VALVE

PROPOSED
- PROPERTY LINE
- EASEMENT
- SEWER MAIN
- SEWER MANHOLE/CO
- SEWER SERVICE
- WATER MAIN
- WATER FEEDER LINE
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- EDGE OF SHOULDER
- EDGE OF ASPHALT

PROFILE
- EXISTING GRADE
- FINISHED GRADE



15 KINLEE DRIVE
SCALE 1"=20' VERT: 1"=4'



NO.	DATE	DESCRIPTION	BY

MORGAN CIVIL ENGINEERING, INC.
PO BOX 358
MANZANITA, OR 97130
(503) 368-6616
www.morgancivil.com
• CIVIL ENGINEERING
• SURVEYING
• PLANNING

JOB NO. PES-16-04
DATE AUGUST 12, 2022

REGISTERED PROFESSIONAL ENGINEER
63058
OREGON
JANUARY 19, 1982
JASON R. MORGAN
RENEWAL DATE: DECEMBER 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
UTILITY LAYOUT - KINLEE DRIVE

NEHALEM, MAP 3N 10W 23B

SHEET 15 OF 23

SEWER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL 92% COMPACTION.

COORDINATE WORK WITH NEWA.

101 CONNECT TO EXISTING STUB
102 INSTALL NEW MANHOLE
103 INSTALL NEW 8" SEWER PIPE
104 INSTALL NEW SEWER SERVICE ASSEMBLY
105 INSTALL NEW END OF LINE CLEANOUT

DEFLECTION TESTING, PRESSURE TESTING, AND VIDEO INSPECTION REQUIRED.

WATER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL 92% COMPACTION.

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201 CONNECT TO EXISTING WATER
202 INSTALL 6" TEE WITH GATE VALVES
203 INSTALL 6" PVC PIPE
204 INSTALL FIRE HYDRANT ASSEMBLY
205 INSTALL D.I. BENDS, AS NEEDED
206 INSTALL WATER SERVICE ASSEMBLY

PRESSURE TESTING, AND BACTERIOLOGICAL TESTING REQUIRED.

STORM NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL 92% COMPACTION.

COORDINATE WORK WITH COUNTY PUBLIC WORKS.

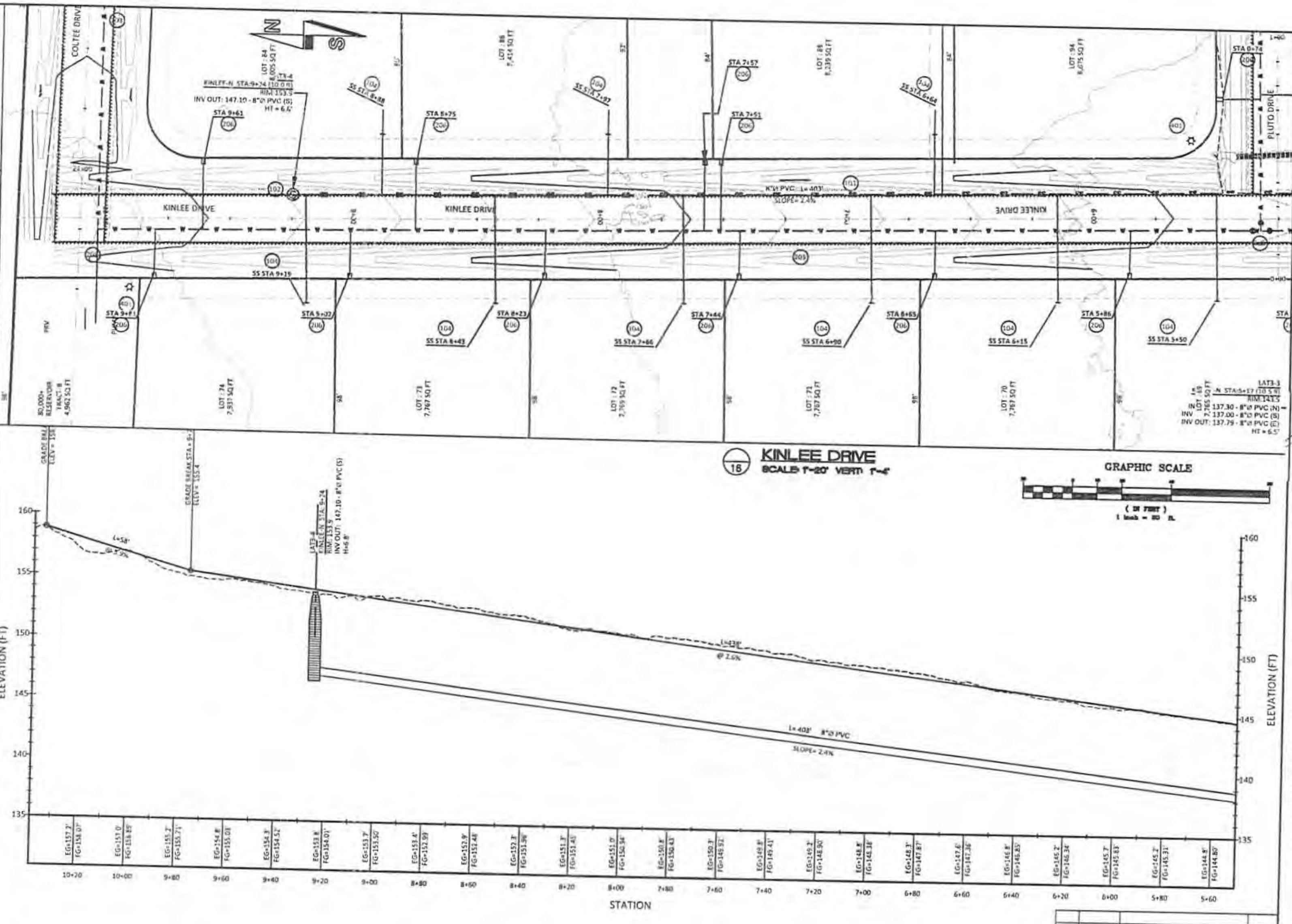
301 ROADSIDE DITCH
302 18" CULVERT

LEGEND:

EXISTING
- PROPERTY LINE
- SEWER LINE
- MANHOLE
- WATER LINE
- ROAD
- FIRE HYDRANT
- GATE VALVE

PROPOSED
- PROPERTY LINE
- EASEMENT
- SEWER MAIN
- SEWER MANHOLE/CO
- SEWER SERVICE
- WATER MAIN
- WATER FEEDER LINE
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- EDGE OF SHOULDER
- EDGE OF ASPHALT

PROFILE
- EXISTING GRADE
- FINISHED GRADE



18 KINLEE DRIVE
SCALE: 1"=20' VERT: 1"=4'

NO.	DATE	DESCRIPTION	BY

MORGAN CIVIL ENGINEERING, INC.

PO BOX 358
MANZANITA, OR 97130
(503) 801-6016
www.morgancivil.com

- CIVIL ENGINEERING
- INSPECTION
- PLANNING

JOB NO. #15 10 NV
DATE AUGUST 11, 2023

REGISTERED PROFESSIONAL ENGINEER
83053
OREGON
JASON R. MORGAN

Jason R. Morgan

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
UTILITY LAYOUT - KINLEE DRIVE

NEHALEM, MAP 3N 10W 23B

SHEET
16
OF 23

SEWER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH NBWA.

101 CONNECT TO EXISTING STUB
102 INSTALL NEW MANHOLE
103 INSTALL NEW 8" SEWER PIPE
104 INSTALL NEW SEWER SERVICE ASSEMBLY
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204 INSTALL FIRE HYDRANT ASSEMBLY
205 INSTALL D.I. BENDS, AS NEEDED
206 INSTALL WATER SERVICE ASSEMBLY

PRESSURE TESTING, AND BACTERIOLOGICAL TESTING REQUIRED.

STORM NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH COUNTY PUBLIC WORKS.

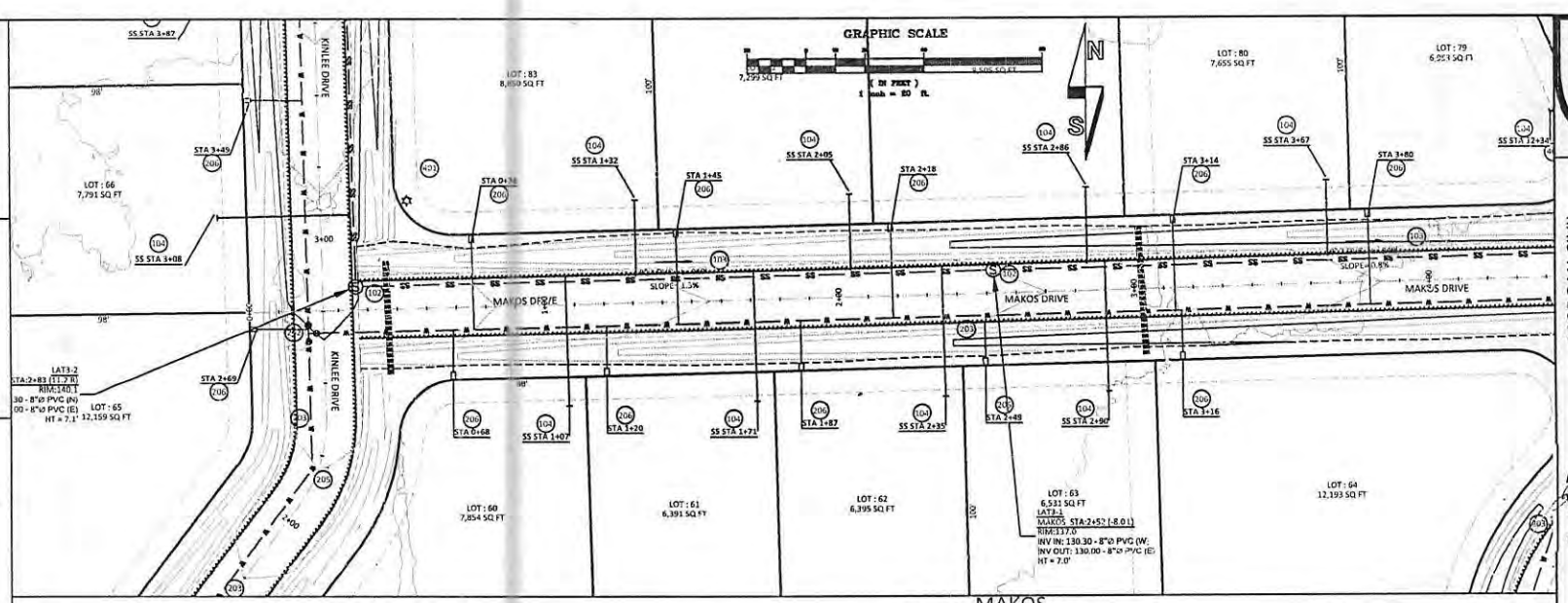
301 ROADSIDE DITCH
302 18" CULVERT

LEGEND:

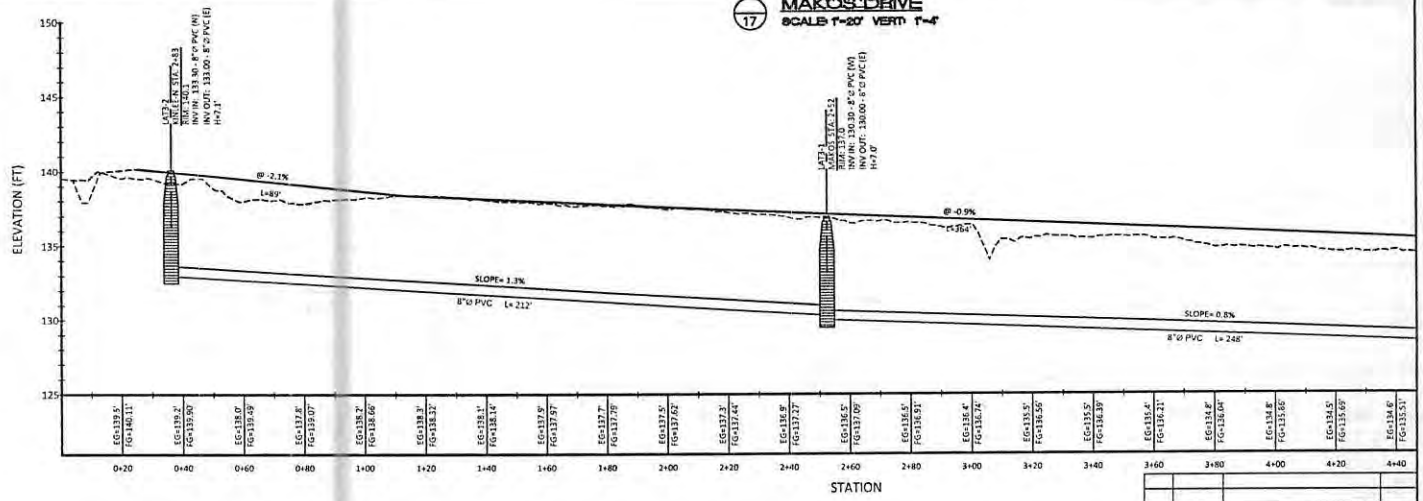
EXISTING
- PROPERTY LINE
- SEWER LINE
- MANHOLE
- WATER LINE
- ROAD
- FIRE HYDRANT
- GATE VALVE

PROPOSED
- PROPERTY LINE
- EASEMENT
- SEWER MAIN
- SEWER MANHOLE/CO
- SEWER SERVICE
- WATER MAIN
- WATER FEEDER LINE
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- EDGE OF SHOULDER
- EDGE OF ASPHALT

PROFILE
- EXISTING GRADE
- FINISHED GRADE



17 MAKOS DRIVE
SCALE: 1"=20' VERT: 1"=4'



NO.	DATE	DESCRIPTION	BY

MORGAN CIVIL ENGINEERING, INC.

PO BOX 358
MANZANITA, OR 97130
(503) 801-8016
www.morgancivil.com

• CIVIL ENGINEERING
• INSPECTION
• SURVEYING
• PLANNING

JOB NO. 21-01-R.RV
DATE AUGUST 12, 2022

REGISTERED PROFESSIONAL ENGINEER 63052 OREGON JULY 15, 1986 JASON R. MORGAN
RENEWAL DATE DECEMBER 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC

RIVERVIEW MEADOWS PHASE 2
UTILITY LAYOUT - MAKOS DRIVE

NEHALEM MAP 3N 10W 23B

SHEET 17 OF 23

SEWER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH NBWA.

101 CONNECT TO EXISTING STUB
102 INSTALL NEW MANHOLE
103 INSTALL NEW 8" SEWER PIPE
104 INSTALL NEW SEWER SERVICE ASSEMBLY
105 INSTALL NEW END OF LINE CLEANOUT

DEFLECTION TESTING, PRESSURE TESTING, AND VIDEO INSPECTION REQUIRED.

WATER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH CITY OF NEHALEM. 36" COVER OVER PIPES. 18" MIN VERTICAL SEPARATION FROM SEWER LINE AT CROSSINGS.

201 CONNECT TO EXISTING WATER
202 INSTALL 6" TEE WITH GATE VALVES
203 INSTALL 6" PVC PIPE
204 INSTALL FIRE HYDRANT ASSEMBLY
205 INSTALL D.I. BENDS, AS NEEDED
206 INSTALL WATER SERVICE ASSEMBLY

PRESSURE TESTING, AND BACTERIOLOGICAL TESTING REQUIRED.

STORM NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH COUNTY PUBLIC WORKS.

301 ROADSIDE DITCH
302 18" CULVERT

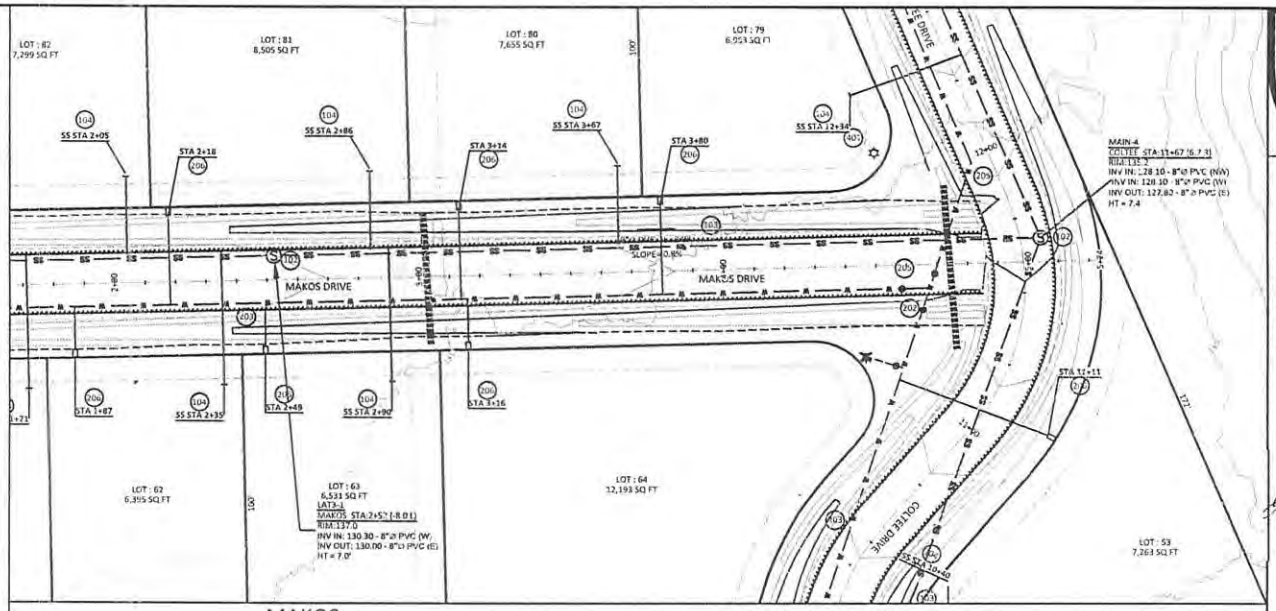
LEGEND:

EXISTING
- PROPERTY LINE
- SEWER LINE
- MANHOLE
- WATER LINE
- ROAD
- FIRE HYDRANT
- GATE VALVE

PROPOSED
- PROPERTY LINE
- EASEMENT
- SEWER MAIN
- SEWER MANHOLE/CO
- SEWER SERVICE
- WATER MAIN
- WATER FEEDER LINE
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- EDGE OF SHOULDER
- EDGE OF ASPHALT

PROFILE
- EXISTING GRADE
- FINISHED GRADE

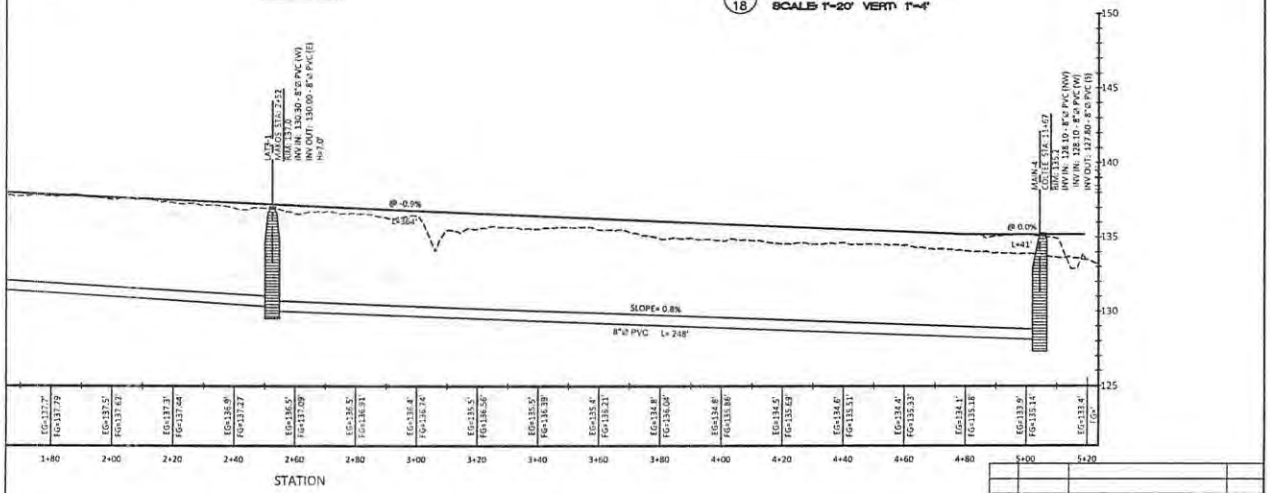
GRAPHIC SCALE
(IN FEET)
1 inch = 80 ft.



MAKOS

18 MAKOS DRIVE

SCALE: 1"=20' VERT: 1"=4'



NO.	DATE	DESCRIPTION	BY

MORGAN CIVIL ENGINEERING, INC.
PO BOX 318
MANZANITA, OR 97130
(503) 801-6016
www.morgancivil.com
• CIVIL ENGINEERING
• INSPECTION
• PLANNING

JOB NO. 19-110-RV
DATE: AUGUST 12, 2022

REGISTERED PROFESSIONAL ENGINEER 63053 OREGON JANUARY 19, 2021 JASON R. MORGAN

RENEWAL DATE: DECEMBER 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
UTILITY LAYOUT - MAKOS DRIVE

NEHALEM, MAP 3N 10W 23B

SHEET 18 OF 23

SEWER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH NBWA.

101 CONNECT TO EXISTING STUB
102 INSTALL NEW MANHOLE
103 INSTALL NEW 8" SEWER PIPE
104 INSTALL NEW SEWER SERVICE ASSEMBLY
105 INSTALL NEW END OF LINE CLEANOUT

DEFLECTION TESTING, PRESSURE TESTING, AND VIDEO INSPECTION REQUIRED.

WATER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH CITY OF NEHALEM. 36" COVER OVER PIPES. 18" MIN VERTICAL SEPARATION FROM SEWER LINE AT CROSSINGS.

201 CONNECT TO EXISTING WATER
202 INSTALL 6" TEE WITH GATE VALVES
203 INSTALL 6" PVC PIPE
204 INSTALL FIRE HYDRANT ASSEMBLY
205 INSTALL D.I. BENDS, AS NEEDED
206 INSTALL WATER SERVICE ASSEMBLY

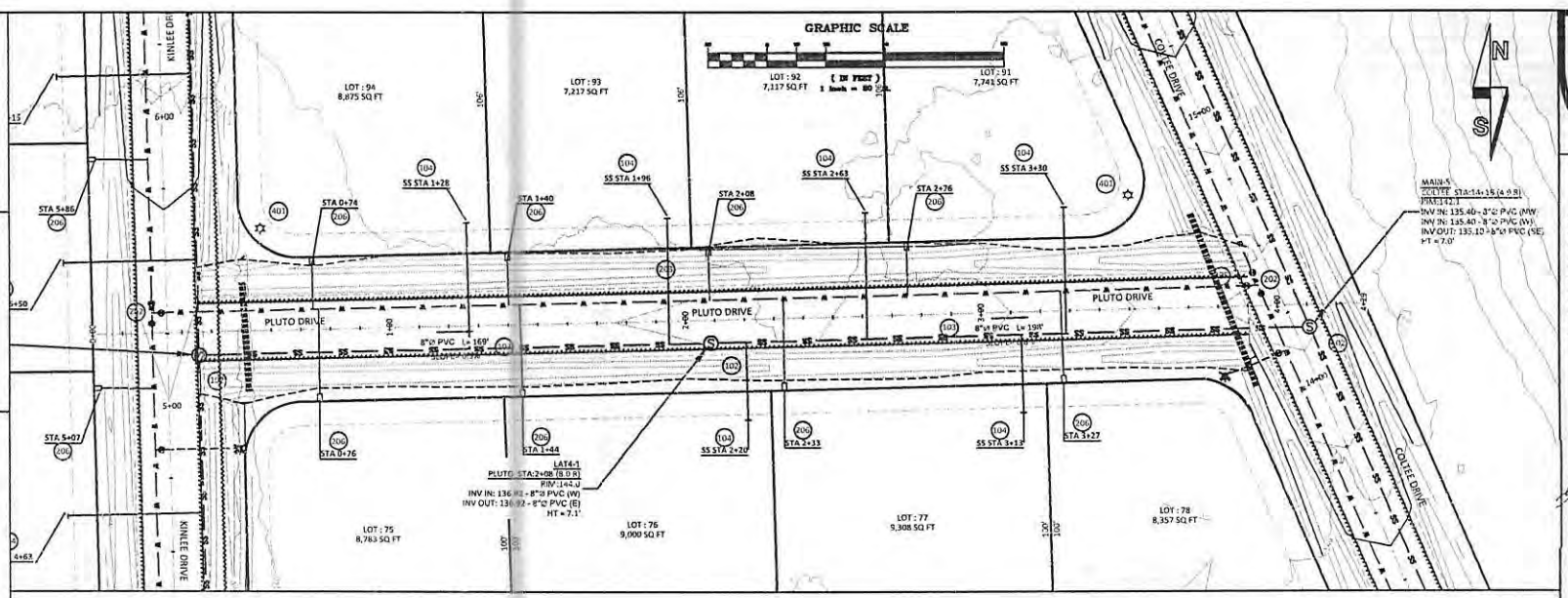
PRESSURE TESTING, AND BACTERIOLOGICAL TESTING REQUIRED.

STORM NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH COUNTY PUBLIC WORKS.

301 ROADSIDE DITCH
302 18" CULVERT



LEGEND:

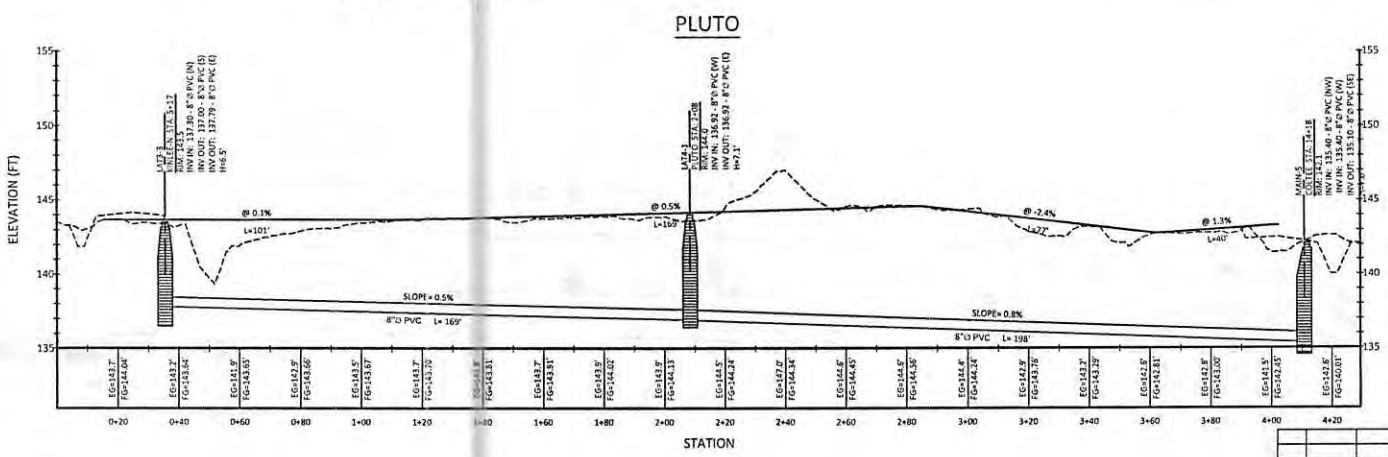
EXISTING
- PROPERTY LINE
- SEWER LINE
- MANHOLE
- WATER LINE
- ROAD
- FIRE HYDRANT
- GATE VALVE

PROPOSED
- PROPERTY LINE
- EASEMENT
- SEWER MAIN
- SEWER MANHOLE/CO
- SEWER SERVICE
- WATER MAIN
- WATER FEEDER LINE
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- EDGE OF SHOULDER
- EDGE OF ASPHALT

PROFILE
- EXISTING GRADE
- FINISHED GRADE

19 PLUTO DRIVE

SCALE: 1"=20' VERT: 1"=4'



NO.	DATE	DESCRIPTION	BY

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JOB NO. 19-10-RV
DATE AUGUST 12, 2022

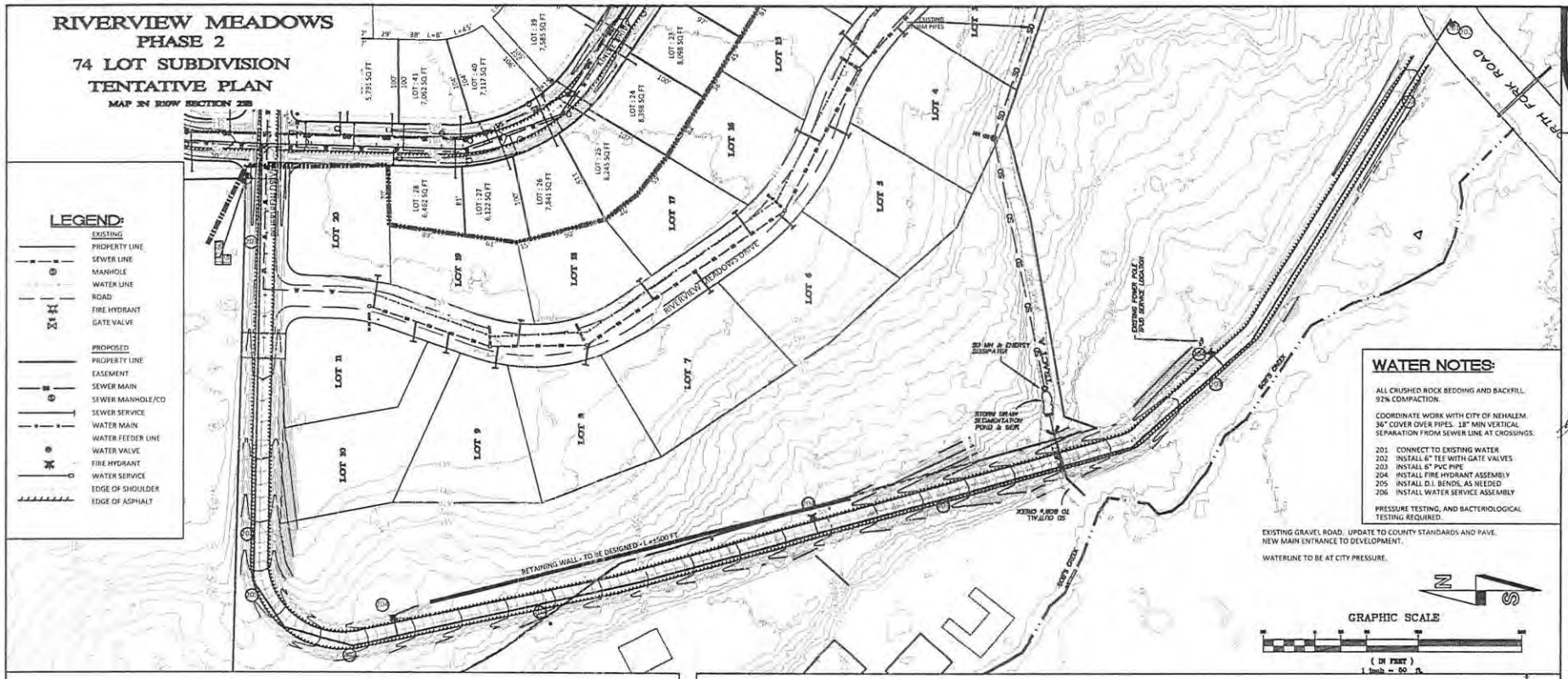
REGISTERED PROFESSIONAL ENGINEER 63055 OREGON JANUARY 18, 1983 JASON R. MORGAN
RENEWAL DATE DECEMBER 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
UTILITY LAYOUT - PLUTO DRIVE
NEHALEM, MAP 3N 10W 23B

SHEET 19 OF 23

RIVERVIEW MEADOWS
PHASE 2
74 LOT SUBDIVISION
TENTATIVE PLAN

MAP 3N 10W SECTION 23B



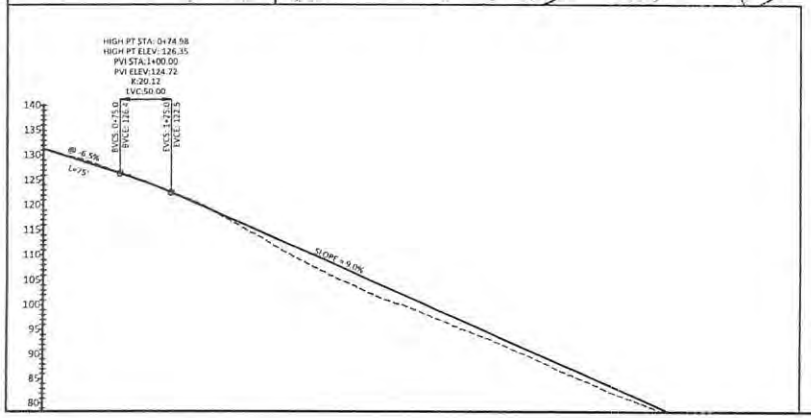
WATER NOTES:

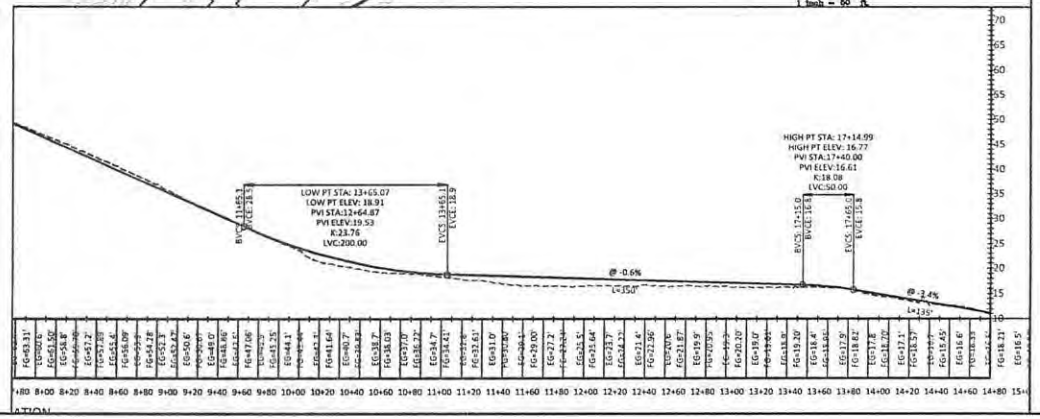
ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH CITY OF NEHALEM. 36" COVER OVER PIPES. 18" MIN VERTICAL SEPARATION FROM SEWER LINE AT CROSSINGS.

201	CONNECT TO EXISTING WATER
202	INSTALL 6" TEE WITH GATE VALVES
203	INSTALL 6" PVC PIPE
204	INSTALL FIRE HYDRANT ASSEMBLY
205	INSTALL D.I. BENDS, AS NEEDED
206	INSTALL WATER SERVICE ASSEMBLY

PRESSURE TESTING, AND BACTERIOLOGICAL TESTING REQUIRED.





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JOB NO 419.20 RPV
DATE AUGUST 12, 2022

REGISTERED PROFESSIONAL ENGINEER 83055 OREGON JANUARY 14, 2020 JASON A. MORGAN

RENEWAL DATE: OCTOBER 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
ENTRANCE ROAD

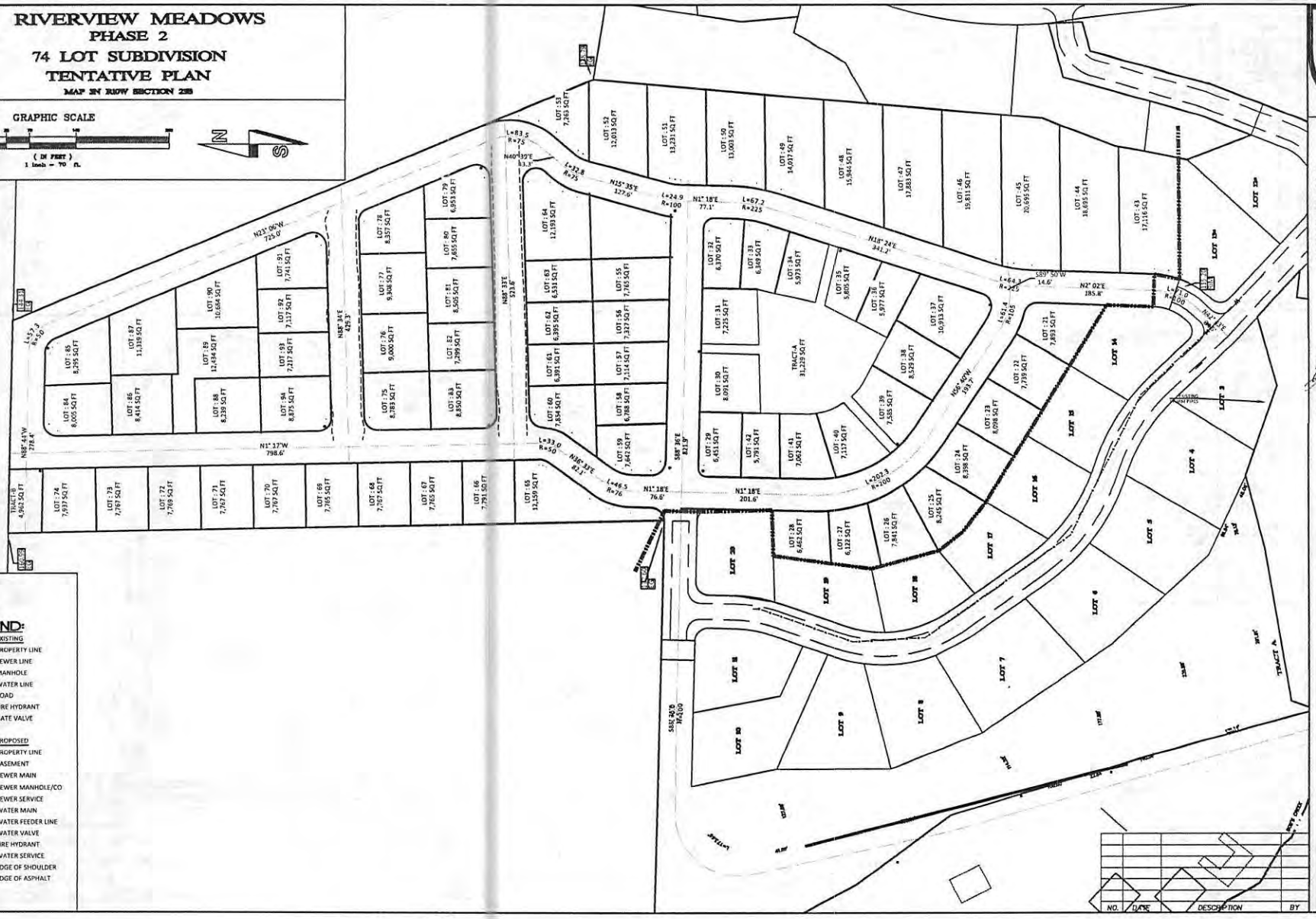
NEHALEM, MAP 3N 10W 23B

RIVERVIEW MEADOWS
PHASE 2
74 LOT SUBDIVISION
TENTATIVE PLAN

MAP 3N R10W SECTION 23B

GRAPHIC SCALE

(IN FEET)
1 inch = 70 ft.



LEGEND:

EXISTING
- PROPERTY LINE
- SEWER LINE
- MANHOLE
- WATER LINE
- ROAD
- FIRE HYDRANT
- GATE VALVE

PROPOSED
- PROPERTY LINE
- EASEMENT
- SEWER MAIN
- SEWER MANHOLE/CO
- SEWER SERVICE
- WATER MAIN
- WATER FEEDER LINE
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- EDGE OF SHOULDER
- EDGE OF ASPHALT

NO.	DATE	DESCRIPTION	BY

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JOB NO. 1-18-09
DRAWN BY
DATE AUGUST 13, 2021

REGISTERED PROFESSIONAL ENGINEER 83052 OREGON JANUARY 19, 2021 JASON R. MORGAN

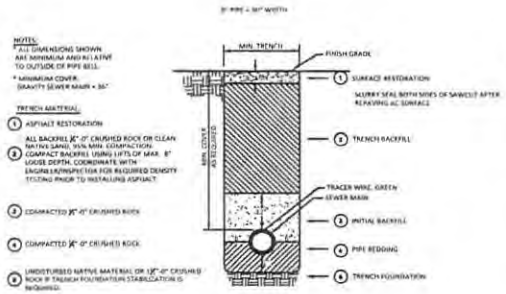
RENEWAL DATE: SEPTEMBER 30, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC

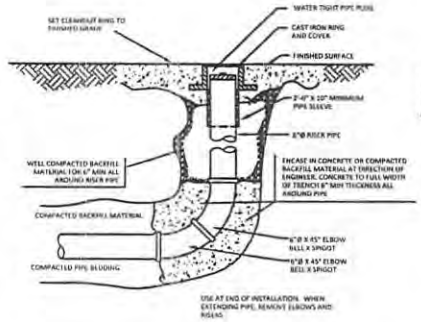
RIVERVIEW MEADOWS PHASE 2

ROAD ALIGNMENTS

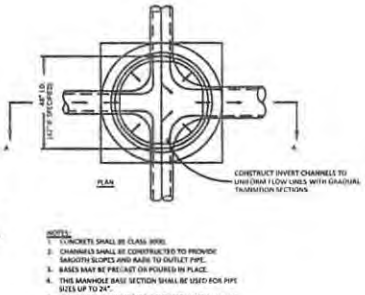
NEHALEM, MAP 3N 10W 23B



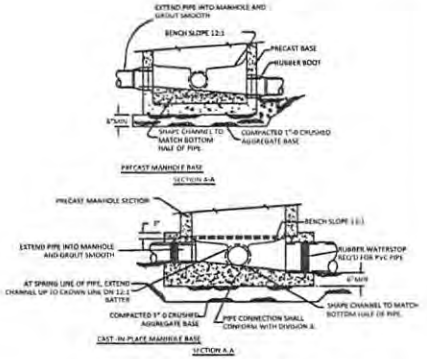
1/22 SEWER MAIN TRENCH DETAIL
NO SCALE



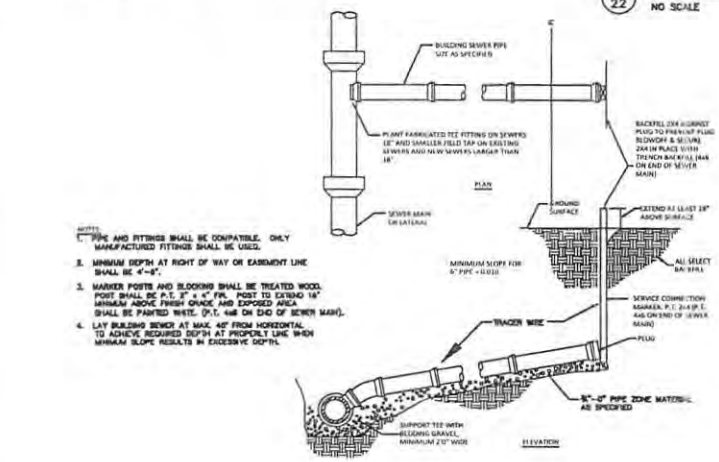
2/22 END OF LINE CLEANOUT
NO SCALE



3/22 MANHOLE BASE PLAN
NO SCALE

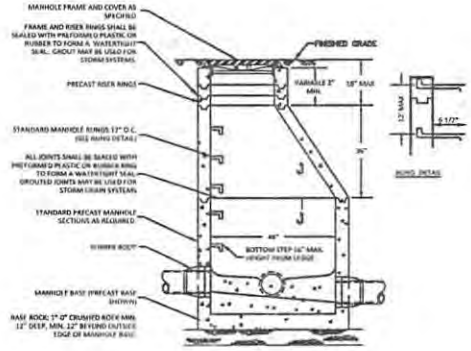


4/22 MANHOLE BASE SECTION
NO SCALE



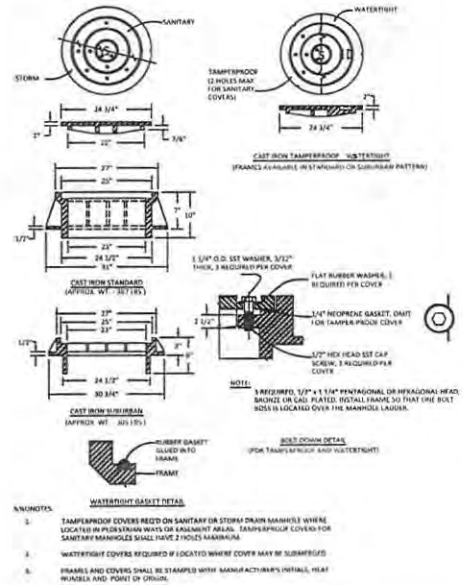
NOTES:
1. PIPE AND FITTINGS SHALL BE COMPATIBLE. ONLY MANUFACTURED FITTINGS SHALL BE USED.
2. MINIMUM DEPTH AT RIGHT OF WAY OR EASEMENT LINE SHALL BE 4'-6".
3. MARKER POSTS AND BLOCKING SHALL BE TREATED WOOD. POST SHALL BE P.T. 3" x 4" PIR. POST TO EXTEND 18" MINIMUM ABOVE FINISH GRADE AND EXPOSED AREA SHALL BE PAINTED WHITE. (P.T. 4x6 ON END OF SEWER MAIN).
4. LAY BUILDING SEWER AT MAX. 45° FROM HORIZONTAL TO ACHIEVE REQUIRED DEPTH AT PROPERTY LINE WHEN MINIMUM SLOPE RESULTS IN EXCESSIVE DEPTH.

5/22 SANITARY SEWER SERVICE CONNECTION
NO SCALE



NOTES:
1. STANDARD PRECAST MANHOLE SECTION DIAMETER SHALL BE 48".
2. ALL CONNECTING PIPES SHALL HAVE A FLEXIBLE RUBBER BOOT AT THE PIPE / MANHOLE WALL CONNECTION. BOOTS MAY BE KOR-N-SEAL OR EQUIVALENT.
3. SEE MANHOLE BASE SECTION DRAWING FOR BASE DETAILS.
4. MANHOLE STEPS SHALL BE PROVIDED AS SPECIFIED.

6/22 STANDARD SANITARY SEWER MANHOLE
NO SCALE



NOTES:
1. TAMPERPROOF COVERS REQ'D ON SANITARY OR STORM DRAIN MANHOLE WHERE LOCATED IN PEDESTRIAN WAYS OR EASEMENT AREAS. TAMPERPROOF COVERS FOR SANITARY MANHOLES SHALL HAVE 2 HOLES MAXIMUM.
2. WATERTIGHT COVERS REQUIRED IF LOCATED WHERE COVER MAY BE SUBMERGED
3. FRAMES AND COVERS SHALL BE STAMPED WITH MANUFACTURER'S INITIALS, HEAT NUMBER AND POINT OF ORIGIN.

7/22 MANHOLE COVER AND FRAME DETAIL
NO SCALE

NO.	DATE	DESCRIPTION	BY

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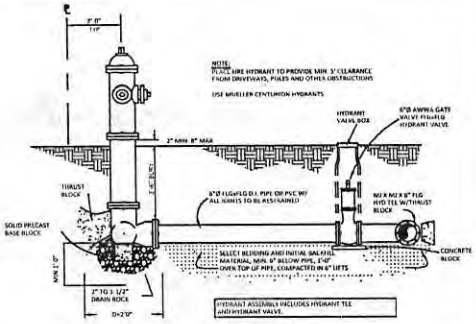
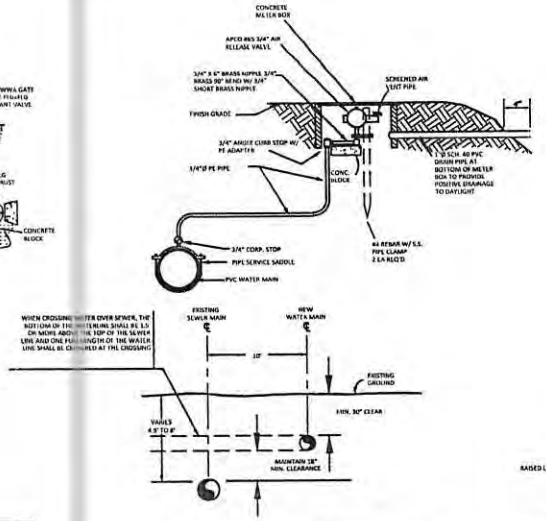
OREGON
JASON R. MORGAN

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
SEWER SYSTEM DETAILS

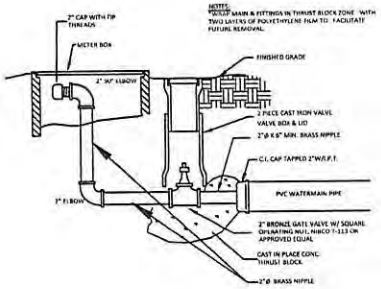
NEHALEM, MAP 3N 10W 23B



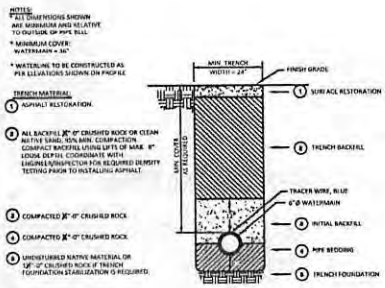
1/23 FIRE HYDRANT ASSEMBLY
NO SCALE



2/23 WATER LINE - SEWER LINE SEPARATION
NO SCALE



3/23 WATER BLOWOFF DETAIL
NO SCALE



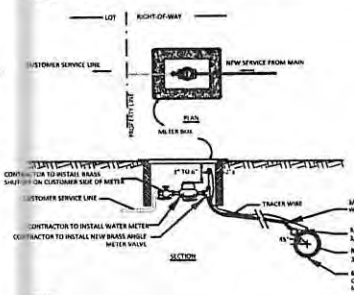
4/23 WATERMAIN TRENCH DETAIL
NO SCALE

(HORIZONTAL) BEARING AREA OF THRUST BLOCKS IN SQUARE FEET							
FITTING SIZE	TEE, WYE, DEAD END AND HYDRANT	STRADDLE BLOCK	90° BEND PLUGGED CROSS	TEE PLUGGED ON RUN A-1	TEE PLUGGED ON RUN A-2	45° BEND	22-1/2° BEND	11-1/4° BEND
4	2.0	3.2	2.8	2.8	2.8	2.0	---	---
6	4.2	7.4	6.0	4.5	6.0	4.2	2.0	---

NOTES:
1. ABOVE BEARING AREAS BASED ON TEST PRESSURE OF 150 PSI AND AN ALLOWABLE SOIL BEARING STRESS OF 1000 POUNDS PER SQUARE FOOT. TO COMPUTE BEARING AREAS FOR DIFFERENT TEST PRESSURES AND SOIL BEARING STRESSES, USE THE FOLLOWING EQUATION:
BEARING AREA = (TEST PRESSURE / 150) x (1000 / SOIL BEARING STRESS) x (TABLE VALUE)
2. ABOVE VOLUMES BASED ON TEST PRESSURE OF 150 PSI AND THE WEIGHT OF CONCRETE = 4050 POUNDS PER CUBIC YARD. TO COMPUTE FOR DIFFERENT TEST PRESSURES, USE THE FOLLOWING EQUATION:
VOLUME = (TEST PRESSURE / 150) x (TABLE VALUE)

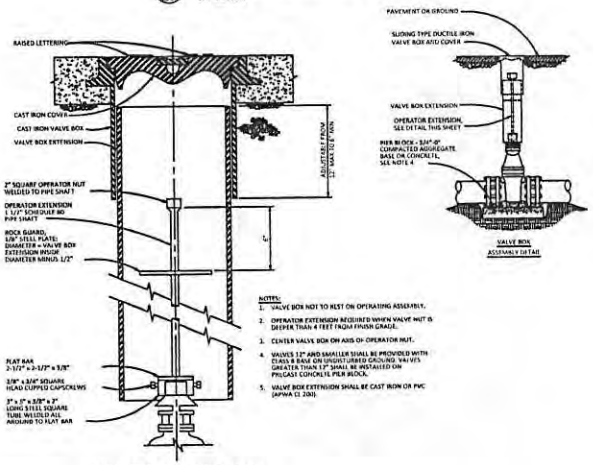
NOTES:
1. CONCRETE BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH.
2. ALL CONCRETE TO BE CLASS 2400 MINIMUM.
3. INSTALL ISOLATION MATERIAL BETWEEN PIPE AND FITTINGS BEFORE POURING CONCRETE BLOCKING.
4. CONCRETE SHALL BE KEPT CLEAR OF ALL JOINTS AND ACCESSORIES.
5. TIE RODS SHALL BE DEFORMED GALVANIZED COLD ROLLED STEEL, 40000 PSI TENSILE STRENGTH.

5/23 THRUST BLOCKING
NO SCALE



NOTES:
1. SUBSTITUTES FOR ANY MATERIALS SHOWN SHALL BE APPROVED BY ENGINEER AND/OR NEHALEM WATER DISTRICT, PRIOR TO ORDERING MATERIALS.
2. ALL PIPE AND STRUCTURE ZONES SHALL BE BACKFILLED USING 3/4"-0" CRUSHED ROCK AND COMPACTED TO 95% MAX. DENS. AS DETERMINED BY AASHTO T-180.

6/23 WATER SERVICE DETAIL
NO SCALE



NOTES:
1. VALVE BOX NOT TO REST ON OPERATING ASSEMBLY.
2. OPERATOR EXTENSION REQUIRED WHEN VALVE NUT IS DEEPER THAN 4 FEET FROM FINISH GRADE.
3. CENTER VALVE BOX ON AXIS OF OPERATOR NUT.
4. VALVES 12" AND SMALLER SHALL BE PROVIDED WITH CLASS B BASE ON UNDISTURBED GROUND. VALVES GREATER THAN 12" SHALL BE INSTALLED ON PRECAST CONCRETE PIER BLOCK.
5. VALVE BOX EXTENSION SHALL BE CAST IRON OR PVC (APWA CI 200).

7/23 TYPICAL VALVE
NO SCALE

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JOB NO. 19-10-RV
DATE: AUG/01.12.2022

REGISTERED PROFESSIONAL ENGINEER 63050 OREGON JANUARY 13, 1981 JASON R. MORGAN

RENEWAL DATE: DECEMBER 31, 2022

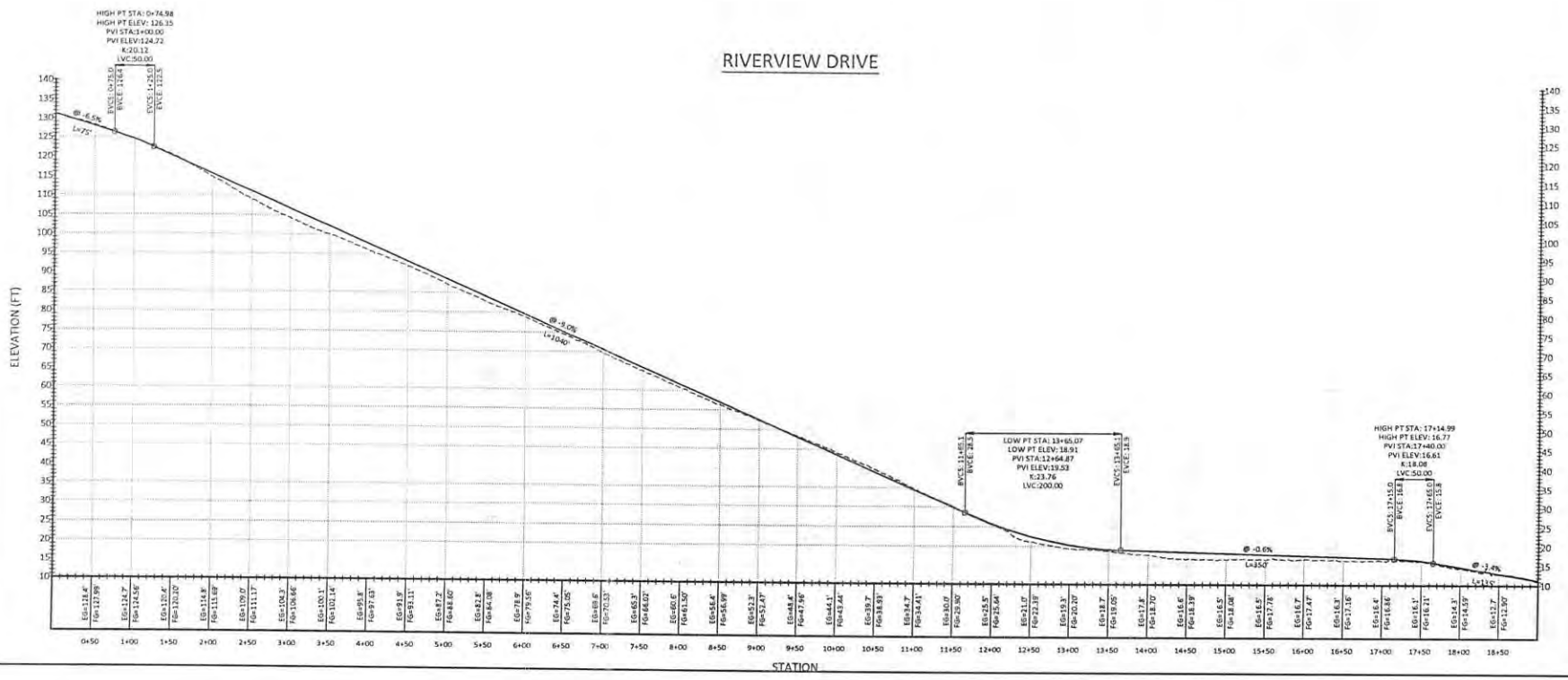
RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
WATER SYSTEM DETAILS

NEHALEM MAP: EN 10W 23B

SHEET 23 OF 23

RIVERVIEW MEADOWS
PHASE 2
74 LOT SUBDIVISION
TENTATIVE PLAN
MAP 2N 1E0W SECTION 23B

20B **ENTRANCE ROAD PROFILE**
SCALE: 1"=70' VERT: 1"=14' (5 X EXAGGERATION)



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JOB NO. 19-14-AV
DATE AUGUST 12, 2022

REGISTERED PROFESSIONAL ENGINEER
OREGON
JANUARY 14, 2020
JASON R. MORGAN

RENEWAL DATE: DECEMBER 31, 2020

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
ENTRANCE ROAD PROFILE

NEHALEM, MAP 1N 10W 23B

SHEET
20b
OF 23

MORGAN CIVIL ENGINEERING, INC.

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ph: 503-801-6016

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Drainage Calculations for

Riverview Meadows Phase 2
Tax Lot 3600, Map 3N 10W 23B
Nehalem, Tillamook County, Oregon

August 12, 2022

REGISTERED PROFESSIONAL ENGINEER 63055 OREGON JANUARY 15, 2002 JASON R. MORGAN

RENEWAL DATE: DECEMBER 31, 2022

Table of Contents

Design Criteria

Drainage Run-off – Rational Method

Intensity

Rainfall Intensity-Duration-Recurrence Interval Curves

ODOT Hydraulics Manual, Zone 2

Rational Method - Run-off Coefficients

Residential (Normal – 4.8 units/acre)	0.50

Manning's Equation - Coefficients

n – (HDPE pipe)	0.012
n – (rock lined ditch, jagged)	0.040

Narrative of Engineering Analysis

These calculations have been prepared to address the stormwater run-off from the proposed development on the subject property. This property is nearly flat and is undeveloped other than some graded roadways and ditches. Phase 1 of the development has been developed and most of the twenty lots are developed with homes.

These calculations determine the rate of stormwater run-off from the site, with roughly two-thirds of the new development running to an existing culvert and one-third flowing to an existing ditch. Water run-off from Phase 1 also flows to the existing culvert.

The proposed development will consist of 74 new single-family homes, and roadways to serve them. The average development density is 4.8 units per acre. The property is sloped down to the south at roughly 2 percent. The planned drainage system is shown to safely convey the run-off from a 100-year storm event.

The property consists of a layer of organic topsoil over a dense silty clay. There are currently vegetated ditches on the property that direct water to the south and west, off the property and through Phase 1 of the development.

Sheet 3 of the plans shows the drainage paths.

Phase 1 Drainage – Existing

The collected stormwater from Phase 1 of Riverview Meadows flows into roadside ditches and southward to a culvert system behind Lot 3. The water runs in the culvert to the base of the hill to the west. At that point, there is an energy dissipater and sediment pond, before the water flows under the roadway to Bob's Creek.

Southern Drainage Area - Planned

Water from the roads and house in the eastern and southern portions of the property will flow southward through roadside ditches and culverts to near Lot 3. The water will combine with water run-off from Phase 1 and flow down a culvert to the entrance road, as described above. Several of these ditches are already in place along with the rough graded roadways.

The roadside ditches will be standard V-shaped ditches that are 4 feet wide and 2 feet deep, or larger.

The attached calculations show the run-off from the eastern area and Phase 1, and the capacities of the pipes down to Bob's Creek. The Manning Equation was used to verify that the existing pipes are adequate for the total proposed flow.

Northern Drainage Area - Planned

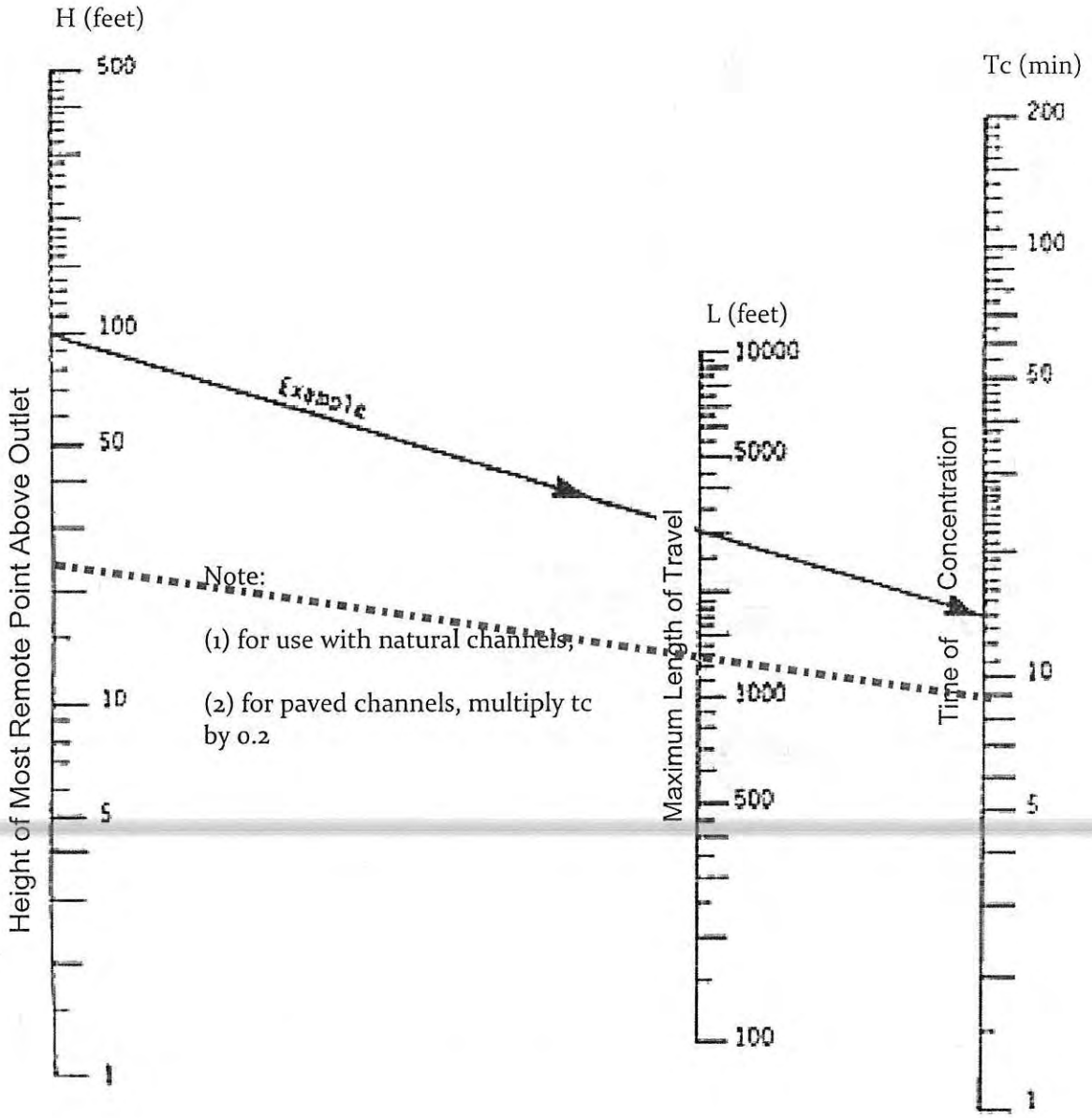
The existing ditches in the northern portion of the property currently flows westward, to the roadway north of Lot 20. The water runs down the roadside ditch to the west and into Bob's Creek. The development of the roads and lots in this area will increase the short-term rate of water run-off.

The attached calculations show the expected rate of flow and the capacity of the ditch. As shown, a ditch with a 2 percent slope is adequate for the run-off. The existing gravel roadway has a slope of 9 percent.

<V:\19-10-Riv\Reports\Riverview Stormwater.docx>

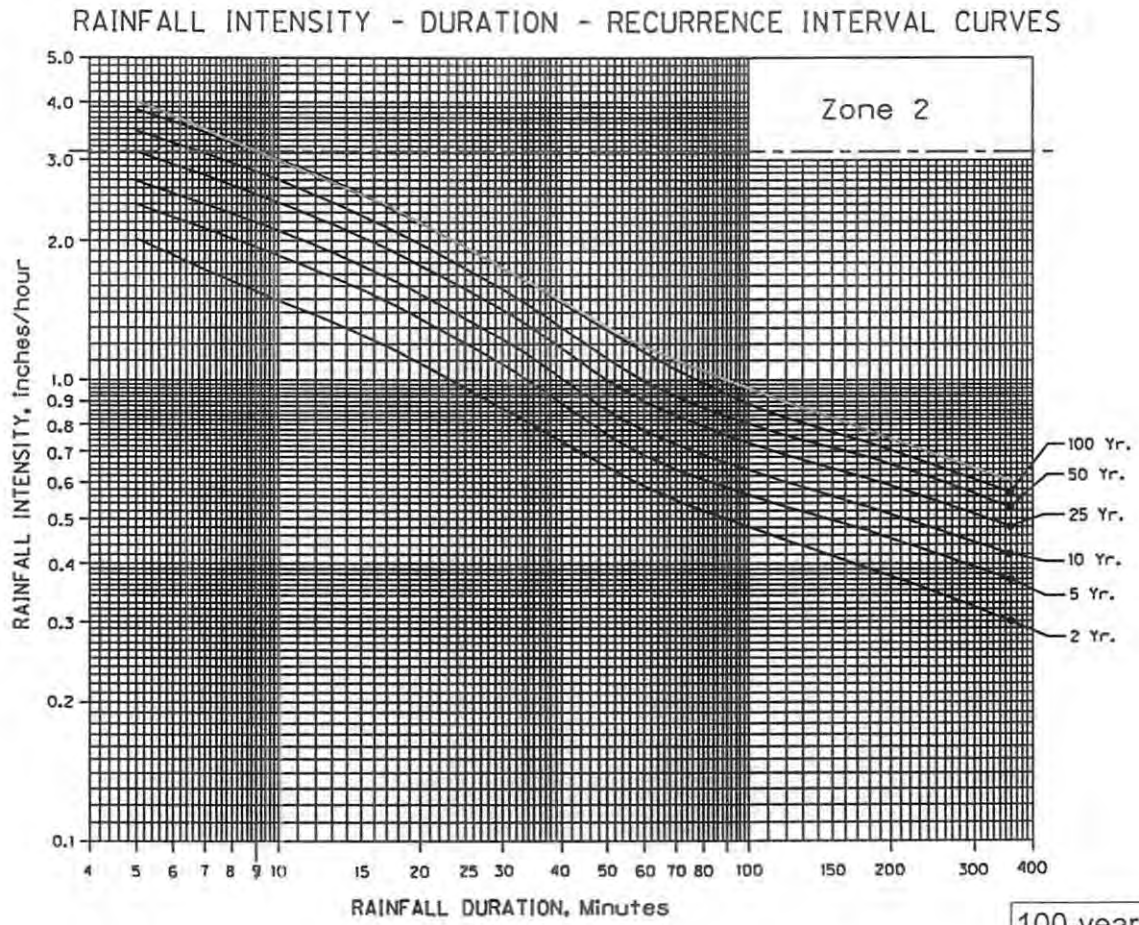
Riverview Meadows Phase 2									
Drainage System									
	South		**North**	**Phase 1**					
	Drains to culvert		Drains to ditch	drains to culvert					
AREA	455,820	sf	318,151	310,000					
	10.46	acres	7.30	7.12					
Drainage Route									
Length	2050	ft	1266	1070					
Fall	42	ft	21	24					
Slope	2.05%	%	1.66%	2.24%					
ZONE 2, Tillamook									
Time of Concentration	9	minutes	9	9	Kirpich Chart				
100-year storm intens	3.1	in/hr	3.1	3.1					
Development Density	4.8	units/acre	(NORMAL RESIDENTIAL - table 1)						
C=	0.5		0.5	0.5					
Rational Method, run-off							**Ditch**	V-Shape	
Q=CiA	**16.2**	**cfs**	**11.3**	**11.0**			top	4	ft
							bottom	0	ft
Ditch sizing		King county Surface Water Design Manual					depth	2	ft
manning, N		rock lined, jagged and irregular, page 4-62					area	4	sf
	0.04	N	0.04				wetted perimeter	5.66	ft
							hydraulic radius	0.71	
Q=V/A									
ditch velocity									
Flow Regime	Distance	Fall	Slope, S	Coefficent	V=(1.49/n	area	Flow	toc	
	feet	feet			Velocity, V	sf	CFS		
Ditch flow	2050	42	2.05%	0.04	4.24	4.00	16.97	8.055055136	
Run-off						**east area**	16.2		
						phase 1	11.0		
					Culvert	TOTAL	27.3	cfs	
Pipe Flow									
	Down slope		Across entrance roadway						
Pipe Size	12	inch	16						
Length	570		80						
Fall	70	ft	13						
Slope	0.12	%	0.16						
X-section Area	0.79	sf	1.40						
Rh (full)	3.00		4.00						
Manning, n	0.01		0.01						
Velocity=	89.85	ft/sec	124.97						
Flow, Q=	70.60	cfs	174.56						
Run-off rate	27.3		27.3						
	OK		OK						

TRAVEL TIME FOR CHANNEL FLOW
(Kirpich Chart)



Time of Concentration of Small Drainage Basins

Sta 6+78



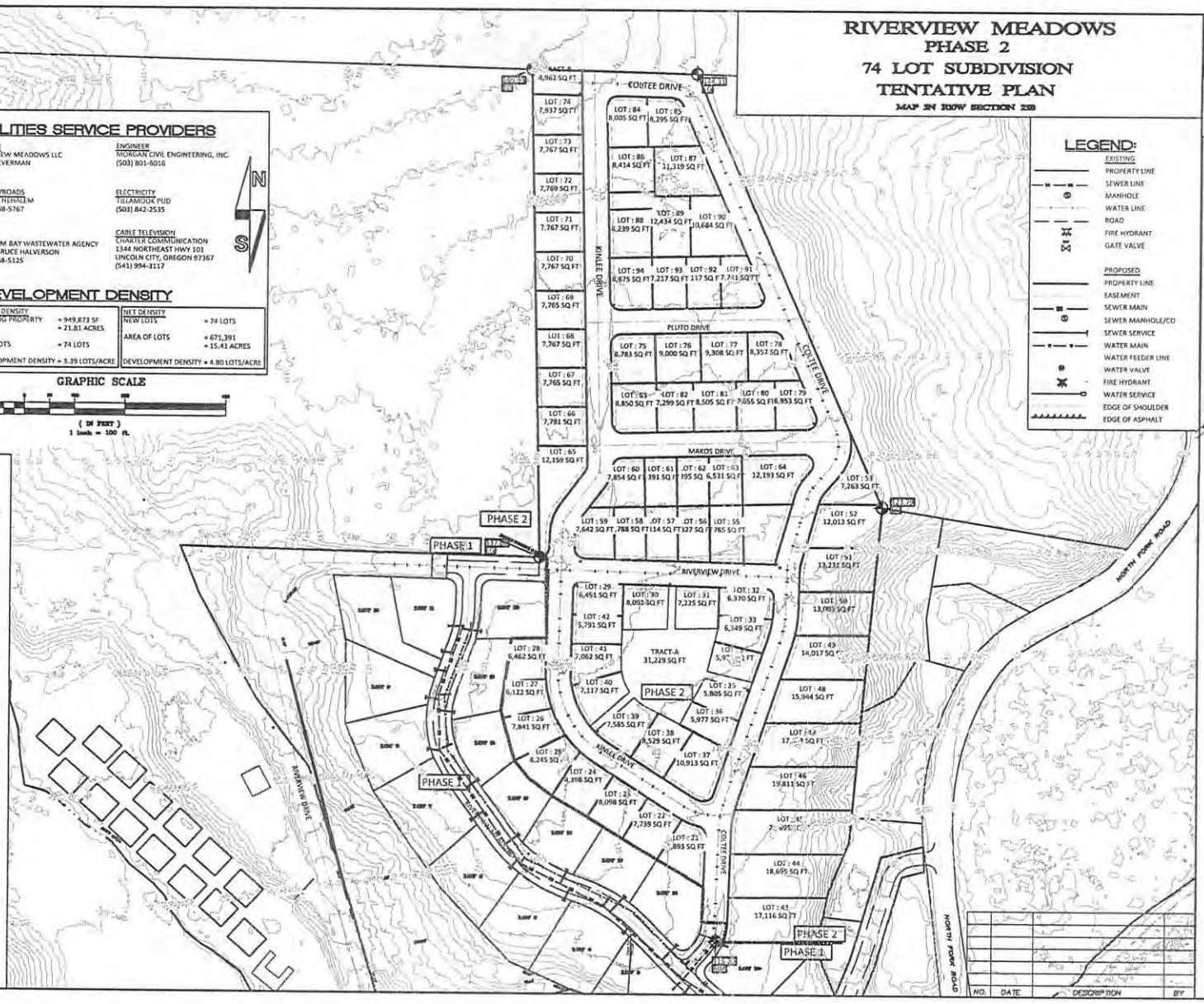
100-year storm
9 min duration
Intensity = 3.1 in/hr

TABLE 4.4.1.B VALUES OF ROUGHNESS COEFFICIENT "*n*" FOR OPEN CHANNELS

Type of Channel and Description	Manning's "*n*"* (Normal)
A. Constructed Channels	
a. Earth, straight and uniform	
1. Clean, recently completed	0.018
2. Gravel, uniform section, clean	0.025
3. With short grass, few weeds	0.027
b. Earth, winding and sluggish	
1. No vegetation	0.025
2. Grass, some weeds	0.030
3. Dense weeds or aquatic plants in deep channels	0.035
4. Earth bottom and rubble sides	0.030
5. Stony bottom and weedy banks	0.035
6. Cobble bottom and clean sides	0.040
c. Rock lined	
1. Smooth and uniform	0.035
2. Jagged and irregular	0.040
d. Channels not maintained, weeds and brush uncut	
1. Dense weeds, high as flow depth	0.080
2. Clean bottom, brush on sides	0.050
3. Same as #2, highest stage of flow	0.070
4. Dense brush, high stage	0.100
B. Natural Streams	
B-1 Minor streams (top width at flood stage < 100 ft.)	
a. Streams on plain	
1. Clean, straight, full stage no rifts or deep pools	0.030
2. Same as #1, but more stones and weeds	0.035
3. Clean, winding, some pools and shoals	0.040
4. Same as #3, but some weeds	0.040
5. Same as #4, but more stones	0.050
6. Sluggish reaches, weedy deep pools	0.070
7. Very weedy reaches, deep pools, or floodways with heavy stand of timber and underbrush	0.100
b. Mountain streams, no vegetation in channel, banks usually steep, trees and brush along banks submerged at high stages	
1. Bottom: gravel, cobbles, and few boulders	0.040
2. Bottom: cobbles with large boulders	0.050
B-2 Floodplains	
a. Pasture, no brush	
1. Short grass	0.030
2. High grass	0.035
b. Cultivated areas	
1. No crop	0.030
2. Mature row crops	0.035
3. Mature field crops	0.040
c. Brush	
1. Scattered brush, heavy weeds	0.050
2. Light brush and trees	0.060
3. Medium to dense brush	0.070
4. Heavy, dense brush	0.100
d. Trees	
1. Dense willows, straight	0.150
2. Cleared land with tree stumps, no sprouts	0.040
3. Same as #2, but with heavy growth of sprouts	0.060
4. Heavy stand of timber, a few down trees, little undergrowth, flood stage below branches	0.100
5. Same as #4, but with flood stage reaching branches	0.120

* *Note: These "n" values are "normal" values for use in analysis of channels. For conservative design of channel capacity, the maximum values listed in other references should be considered. For channel bank stability, the minimum values should be considered.*

RIVERVIEW MEADOWS
PHASE 2
74 LOT SUBDIVISION
TENTATIVE PLAN
MAP 3N 10W SECTION 23D



UTILITY LOCATE ONE CALL
(1-800-332-2344) or (8-1-1)

ATTENTION: OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH OAR 952-001-0090. YOU MAY OBTAIN COPIES OF THE RULES BY CALLING THE CENTER. (NOTE: THE TELEPHONE NUMBER FOR THE OREGON UTILITY NOTIFICATION CENTER IS (503) 232-1987).

PROJECT IS AT RIVERVIEW MEADOWS, IN NEHALEM.
TAX LOT 3600, MAP 2N 10W 23B.

SCOPE OF WORK

SEWER	
CONCRETE MANHOLES	14 EA
8"Ø PVC SEWER	4280 LF
8"Ø CLEANOUT	1 EA
SERVICE LATERAL ASSEMBLY	74 EA
WATER	
6"Ø WATER MAIN	4290 LF
6"Ø GATE VALVE	EA
6"Ø TEE	EA
WATER SERVICE ASSEMBLY	74 EA
STORM DRAINAGE	
18" CULVERT (±40 FT)	12 EA
ROAD	
FABRIC	SY
BASE ROCK	CY
LEVELING ROCK	CY
ASPHALT	TON

SHEET INDEX

UTILITIES SERVICE PROVIDERS

OWNER RIVERVIEW MEADOWS LLC ALEX REVERMAN	ENGINEER MORGAN CIVIL ENGINEERING, INC. (503) 801-6016
WATER/ROADS CITY OF NEHALEM (503) 368-5767	ELECTRICITY TILLAMOOK PUD (503) 842-2535
SEWER NEHALEM BAY WASTEWATER AGENCY ATTN: BRUCE HALVERSON (503) 368-5125	CABLE TELEVISION CHARTER COMMUNICATION 1344 NORTHEAST HWY 101 LINCOLN CITY, OREGON 97367 (541) 994-3117

DEVELOPMENT DENSITY

GROSS DENSITY		NET DENSITY	
EXISTING PROPERTY	= 949,873 SF = 21.81 ACRES	NEW LOTS	= 74 LOTS
NEW LOTS	= 74 LOTS	AREA OF LOTS	= 671,391 = 15.41 ACRES
DEVELOPMENT DENSITY = 3.39 LOTS/ACRE		DEVELOPMENT DENSITY = 4.80 LOTS/ACRE	

GRAPHIC SCALE

(IN FEET)
1 inch = 100 ft.

LEGEND:

EXISTING
- PROPERTY LINE
- SEWER LINE
- MANHOLE
- WATER LINE
- ROAD
- FIRE HYDRANT
- GATE VALVE

PROPOSED
- PROPERTY LINE
- EASEMENT
- SEWER MAIN
- SEWER MANHOLE/CO
- SEWER SERVICE
- WATER MAIN
- WATER FEEDER LINE
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- EDGE OF SHOULDER
- EDGE OF ASPHALT

GENERAL NOTES:

1. ALL WORK AND MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF THE NEHALEM PUBLIC WORKS (NPW), THE NEHALEM BAY WASTEWATER AGENCY (NBWA) AND THE 2021 APWA STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION INCLUDING SUPPLEMENTS. IN THE EVENT OF A CONFLICT BETWEEN NBWA AND/OR NPW POLICIES AND REGULATIONS AND THE APWA STANDARD SPECIFICATIONS, THE MORE STRINGENT SHALL CONTROL UNLESS OTHERWISE DIRECTED BY NBWA OR NPW.
2. CONTRACTOR SHALL NOTIFY NBWA, NPW, CITY AND ALL UTILITY COMPANIES A MINIMUM OF 72 BUSINESS HOURS (3 BUSINESS DAYS) PRIOR TO THE START OF CONSTRUCTION OR RESUMING WORK AFTER SHUTDOWNS EXCEPT FOR NORMAL RESUMPTION OF WORK AFTER SUNDAYS OR HOLIDAYS. CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS OF ORS 757.541 TO 757.571.
3. CONTRACTOR SHALL PERFORM ALL WORK NECESSARY TO COMPLETE THE PROJECT IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DRAWINGS INCLUDING SUCH INCIDENTALS AS MAY BE NECESSARY TO MEET APPLICABLE AGENCY REQUIREMENTS AND PROVIDE A COMPLETED PROJECT
4. CONTRACTOR SHALL PROCURE A RIGHT-OF-WAY PERMIT FROM THE CITY OF NEHALEM FOR ALL WORK WITHIN THE CITY RIGHT-OF-WAY AND CONFORM TO ALL CONDITIONS OF THE PERMIT.
5. CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS AND LICENSES PRIOR TO THE START OF CONSTRUCTION.
6. CONTRACTOR SHALL PROVIDE ALL BONDS AND INSURANCE REQUIRED BY PUBLIC OR PRIVATE AGENCIES HAVING JURISDICTION, INCLUDING NBWA AND NEHALEM.
7. UNLESS OTHERWISE APPROVED BY NBWA, CONSTRUCTION OF SANITARY SEWER IMPROVEMENTS SHALL BE DONE BETWEEN 7:00 A.M. AND 6:00 P.M., MONDAY THROUGH SATURDAY. WORK OUTSIDE THESE HOURS SHALL BE APPROVED IN WRITING BY NBWA PRIOR TO THE START OF CONSTRUCTION OUTSIDE NORMAL WORK HOURS.
8. ANY INSPECTION BY NBWA OR NPW SHALL NOT, IN ANY WAY, RELIEVE THE CONTRACTOR FROM ANY OBLIGATION TO PERFORM THE WORK IN STRICT COMPLIANCE WITH THE APPLICABLE CODES AND AGENCY REQUIREMENTS.
9. CONTRACTOR SHALL ERECT AND MAINTAIN BARRICADES, WARNING SIGNS, TRAFFIC CONES (AND ALL OTHER TRAFFIC CONTROL DEVICES REQUIRED) PER DISTRICT AND CITY REQUIREMENTS IN ACCORDANCE WITH THE CURRENT MUTCD (INCLUDING OREGON AMENDMENTS). ACCESS TO DRIVEWAYS SHALL BE MAINTAINED AT ALL TIMES. ALL TRAFFIC CONTROL MEASURES SHALL BE APPROVED AND IN PLACE PRIOR TO ANY CONSTRUCTION ACTIVITY.
10. THE CONTRACTOR SHALL MAINTAIN ONE COMPLETE SET OF APPROVED DRAWINGS ON THE CONSTRUCTION SITE AT ALL TIMES WHEREON HE WILL RECORD ANY APPROVED DEVIATIONS IN CONSTRUCTION FROM THE APPROVED DRAWINGS, AS WELL AS THE STATION LOCATIONS AND DEPTHS OF ALL EXISTING UTILITIES ENCOUNTERED. THESE FIELD RECORD DRAWINGS SHALL BE KEPT UP TO DATE AT ALL TIMES AND SHALL BE AVAILABLE FOR INSPECTION BY THE UTILITY DISTRICTS UPON REQUEST
11. SUBMITTALS SHALL BE PROVIDED BY THE CONTRACTOR TO NBWA AND NPW FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION IN ACCORDANCE WITH NBWA AND NPW REQUIREMENTS.
12. THE CONTRACTOR SHALL SUBMIT A SUITABLE MAINTENANCE BOND PRIOR TO FINAL PAYMENT WHERE REQUIRED BY PUBLIC AND/OR PRIVATE AGENCIES HAVING JURISDICTION.

MORGAN CIVIL ENGINEERING, INC.
PO BOX 358
MANZANITA, OR 97130
(503) 801-6016
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• INSPECTION
• PLANNING

CIR NO. 839-10 REV
DATE: AUGUST 12, 2022

REGISTERED PROFESSIONAL ENGINEER 83055 OREGON JANUARY 13, 1981 JASON R. MORGAN

NEWBERG, DATE: TUESDAY, 8, 2021

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
TENTATIVE PLAN
NEHALEM, MAP 3N 10W 23B

NO.	DATE	DESCRIPTION	BY

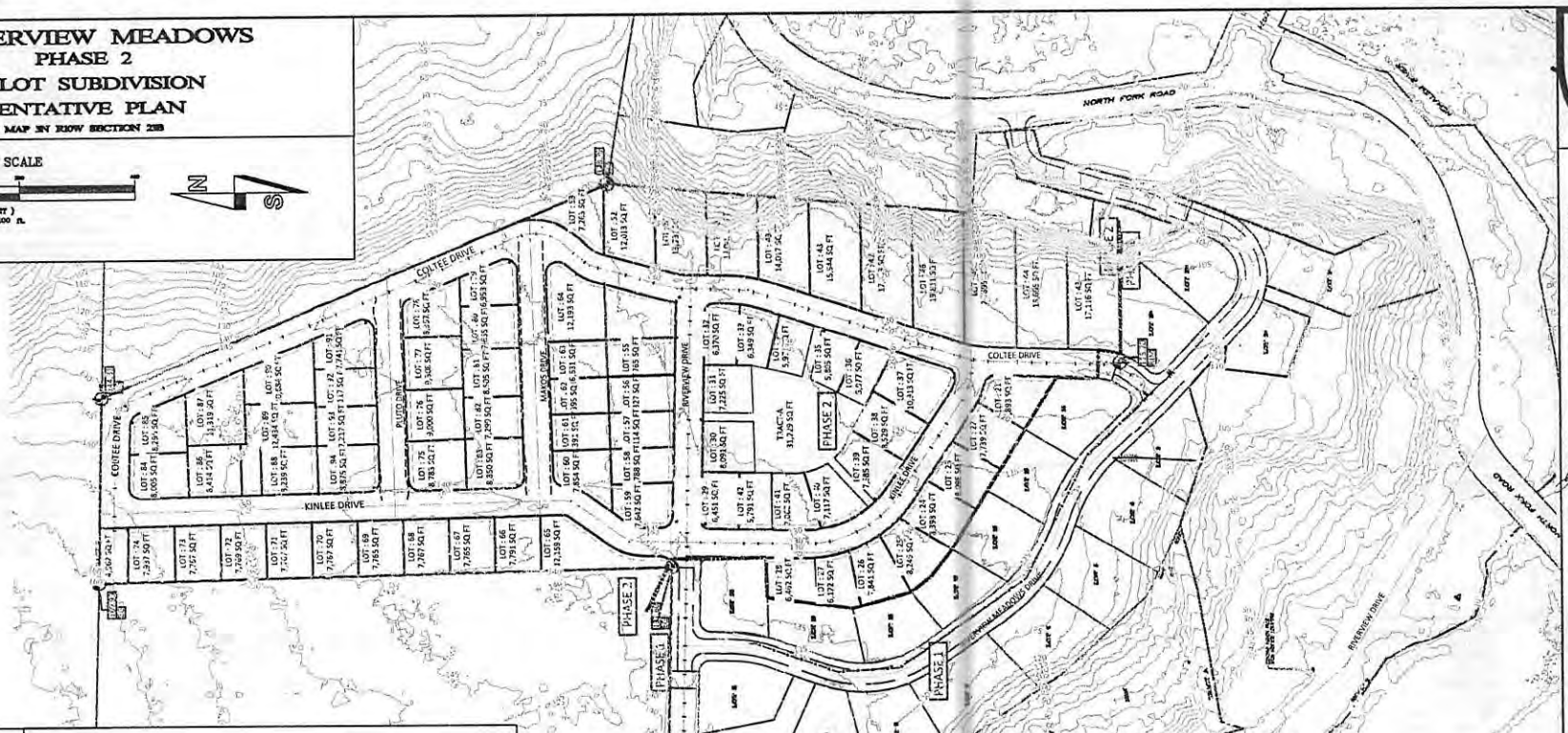
SHEET 1 OF 23

RIVERVIEW MEADOWS
PHASE 2
74 LOT SUBDIVISION
TENTATIVE PLAN

MAP 3N R1W SECTION 23B

GRAPHIC SCALE

(IN FEET)
1 inch = 100 ft.



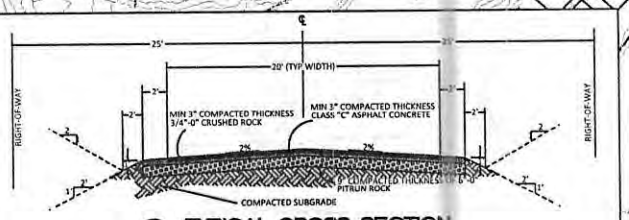
LEGEND:

EXISTING
- PROPERTY LINE
- SEWER LINE
- MANHOLE
- WATER LINE
- ROAD
- FIRE HYDRANT
- GATE VALVE

PROPOSED
- PROPERTY LINE
- EASEMENT
- SEWER MAIN
- SEWER MANHOLE/CO
- SEWER SERVICE
- WATER MAIN
- WATER FEEDER LINE
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- EDGE OF SHOULDER
- EDGE OF ASPHALT

EXISTING UTILITIES AND FACILITIES:

1. CONTRACTOR SHALL LOCATE AND MARK ALL EXISTING PROPERTY AND STREET MONUMENTS PRIOR TO CONSTRUCTION. ANY MONUMENTS DISTURBED DURING CONSTRUCTION OF THE SANITARY SEWERAGE IMPROVEMENTS SHALL BE REPLACED BY A REGISTERED LAND SURVEYOR AT THE CONTRACTOR'S EXPENSE. THE MONUMENTS SHALL BE REPLACED WITHIN A MAXIMUM OF 90 DAYS, AND THE CITY SURVEYOR SHALL BE NOTIFIED IN WRITING AS REQUIRED BY ORS 209.150.
2. THE LOCATION AND DESCRIPTION OF EXISTING NBWA AND NPW FACILITIES SHOWN ON THE DRAWINGS ARE COMPILED FROM AVAILABLE RECORDS AND/OR FIELD SURVEYS. NBWA AND NPW DO NOT GUARANTEE THE ACCURACY OR THE COMPLETENESS OF SUCH RECORDS. CONTRACTOR SHALL FIELD VERIFY SIZES AND LOCATIONS OF ALL EXISTING NBWA FACILITIES PRIOR TO CONSTRUCTION.
3. ATTENTION: OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH OAR 952-0010090. YOU MAY OBTAIN COPIES OF THE RULES BY CALLING THE CENTER. (NOTE: THE TELEPHONE NUMBER FOR THE OREGON UTILITY NOTIFICATION CENTER IS (503) 232-1987).
4. CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES -WHERE NEW FACILITIES CROSS OR ARE CLOSELY PARALLEL TO THE EXISTING FACILITIES. ALL UTILITY CROSSINGS MARKED OR SHOWN ON THE DRAWINGS SHALL BE POTHOLED USING HAND TOOLS OR OTHER NON-INVASIVE METHODS PRIOR TO EXCAVATING OR BORING. CONTRACTOR SHALL BE RESPONSIBLE FOR EXPOSING POTENTIAL UTILITY CONFLICTS FAR ENOUGH AHEAD OF CONSTRUCTION TO MAKE NECESSARY GRADE MODIFICATIONS WITHOUT DELAYING THE WORK. IF GRADE MODIFICATION IS NECESSARY, CONTRACTOR SHALL NOTIFY THE DEVELOPER'S ENGINEER, AND THE DEVELOPER'S ENGINEER SHALL OBTAIN APPROVAL FROM NBWA AND/OR NPW PRIOR TO CONSTRUCTION. ALL UTILITY CROSSINGS SHALL BE POTHOLED AS NECESSARY PRIOR TO EXCAVATING OR BORING TO ALLOW THE CONTRACTOR TO PREVENT GRADE OR ALIGNMENT CONFLICTS.
5. ALL EXISTING NBWA AND NPW FACILITIES SHALL BE MAINTAINED IN-PLACE BY THE CONTRACTOR UNLESS OTHERWISE SHOWN OR DIRECTED BY NBWA OR NPW. CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO SUPPORT, MAINTAIN OR OTHERWISE PROTECT EXISTING FACILITIES AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHALL LEAVE EXISTING FACILITIES IN AN EQUAL OR BETTER-THAN-ORIGINAL CONDITION AND TO THE SATISFACTION OF NBWA AND/OR NPW.
6. NBWA OR NPW UTILITIES, OR INTERFERING PORTIONS OF NBWA OR NPW FACILITIES, THAT ARE ABANDONED IN PLACE SHALL BE REMOVED BY THE CONTRACTOR TO THE EXTENT NECESSARY TO ACCOMPLISH THE WORK. THE CONTRACTOR SHALL PLUG THE REMAINING EXPOSED ENDS OF THE ABANDONED UTILITIES.



1/2 TYPICAL CROSS-SECTION
NTS

NO.	DATE	DESCRIPTION	BY

MORGAN CIVIL ENGINEERING, INC.
PO BOX 158
MANZANITA, OR 97130
(503) 803-6016
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• CIVIL ENGINEERING
• INSPECTION
• PLANNING

JOB NO. 819-19-Rp
DATE AUGUST 12, 2022

REGISTERED PROFESSIONAL ENGINEER
E-63055
OREGON
JANUARY 18, 2022
JASON R. MORGAN

RENEWAL DATE DECEMBER 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
TENTATIVE PLAN

NE¼&E¼, MAP 3N 1DW 23B

SHEET 2 OF 23

RIVERVIEW MEADOWS
PHASE 2
74 LOT SUBDIVISION
TENTATIVE PLAN

MAP 3N 1E30W SECTION 23B

GRAPHIC SCALE

(IN FEET)
1 inch = 60 ft.

N

EXISTING DITCH LINE

PROPOSED DITCH LINE

PROPOSED CULVERT

FLOW DIRECTION

STORMWATER NARRATIVE

STORMWATER FROM THE SOUTHERN HALF AND NORTHEASTERN PORTION OF THE SITE TO BE CONVEYED IN DITCHES TO VERN'S PLACE FOR OFF-SITE DISPOSAL WITH WATER FROM PHASE 1. DRAIN PIPES ARE IN PLACE IN EASEMENT ON THE BACK SIDE OF LOTS 3 AND 4. CULVERTS TO BE USED IN ORDER TO CROSS ROADS AND DRIVEWAYS.

STORMWATER RUN-OFF FROM THE NORTHWESTERN PORTION OF SITE TO BE CONVEYED IN EXISTING DITCHES WESTWARD ON SUNNYVIEW LANE WITH ROADWAY RUN-OFF.

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503.368.5193
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• SURVEYING
• PLANNING

JOB NO. R19-10-PV
DATE AUGUST 12, 2022

REGISTERED PROFESSIONAL ENGINEER
OREGON
JANUARY 15, 1987
JASON R. MORGAN

RENEWAL DATE: DECEMBER 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC

RIVERVIEW MEADOWS PHASE 2
DRAINAGE LAYOUT

NEHALEM MAP 3N 1E30 23B

RIVERVIEW MEADOWS
PHASE 2
74 LOT SUBDIVISION
TENTATIVE PLAN

MAP 2N 1E0W SECTION 23B

GRAPHIC SCALE

(IN FEET)
1 inch = 60 ft.

N

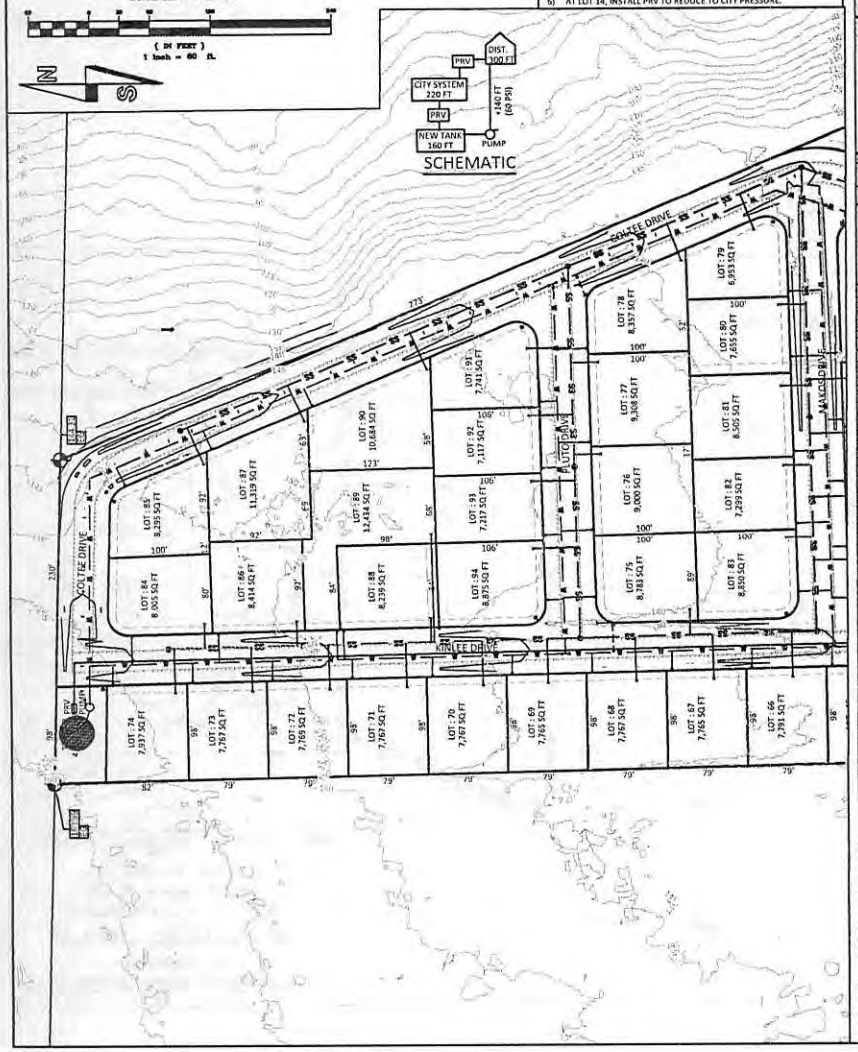
ELEVATIONS:

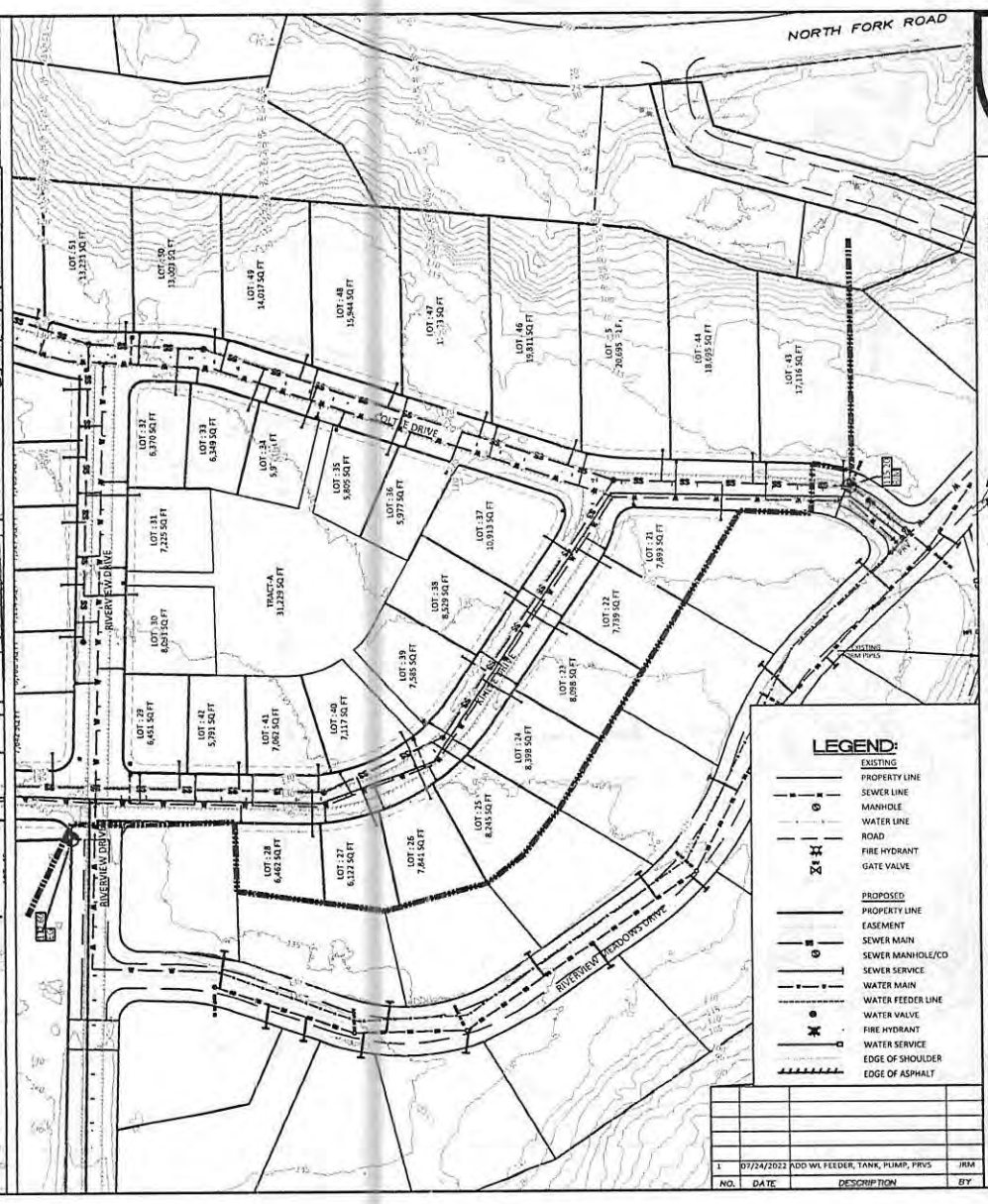
CITY TANK - 220 FT
PROPOSED TANK - 160 FT
LOT 75 - 155 FT
LOT 3 - 120 FT

USE PUMP AT ~300 FT EQ.
(ADD 140 FEET = 60 PSI)

WATERLINE:

1) INSTALL NEW TEE ON MAINLINE AT LOT 14.
2) INSTALL FEEDER PIPE TO TANK SITE. L=2100 FT. EXTEND DOWN RIVERVIEW LANE TO NORTH FORK ROAD.
3) INSTALL PRESSURE REDUCING VALVE.
4) STORE WATER IN TANK. MIN 80,000-GALLON.
5) DISCHARGE THROUGH PUMP STATION. ADD ±60 PSI. CONNECT TO NORTH END OF RIVERVIEW MEADOWS DRIVE (PHASE 1)
6) AT LOT 14, INSTALL PRV TO REDUCE TO CITY PRESSURE.





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- MANHOLE
- WATER LINE
- ROAD
- FIRE HYDRANT
- GATE VALVE

PROPOSED
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- SEWER MANHOLE/CO
- SEWER SERVICE
- WATER MAIN
- WATER FEEDER LINE
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- EDGE OF SHOULDER
- EDGE OF ASPHALT

NO.	DATE	DESCRIPTION	BY
1	07/24/2022	ADD WL FEEDER, TANK, PUMP, PRVS	JRM

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PO BOX 235
MANZANITA, OR 97130
(503) 801-6016
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• CIVIL ENGINEERING
• INSPECTION
• PLANNING

JOB NO. 619 19-KV
DATE AUGUST 12, 2022

REGISTERED PROFESSIONAL ENGINEER
83065
OREGON
JANUARY 19, 2021
JASON P. MORGAN

RENEWAL DATE: DECEMBER 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
UTILITY LAYOUT

NEHALEM, MAP 2N 10W 23B

SHEET 4 OF 23

RIVERVIEW MEADOWS
PHASE 2
74 LOT SUBDIVISION
TENTATIVE PLAN

MAP 3N R2W SECTION 23B

LEGEND:

EXISTING
- PROPERTY LINE
- SEWER LINE
- MANHOLE
- WATER LINE
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- WATER MAIN
- WATER FEEDER LINE
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- EDGE OF SHOULDER
- EDGE OF ASPHALT

WATER UTILITIES:

1. BEDDING AND BACKFILL. ALL PIPES SHALL BE BEDDED WITH MINIMUM 6-INCHES OF 3/4" MINUS CRUSHED ROCK BEDDING AND BACKFILLED WITH COMPACTED 3/4" MINUS CRUSHED ROCK IN THE PIPE ZONE (CRUSHED ROCK SHALL EXTEND A MINIMUM OF 12-INCHES OVER THE TOP OF THE PIPE IN ALL CASES). CRUSHED ROCK TRENCH BACKFILL SHALL BE USED UNDER ALL IMPROVED AREAS, INCLUDING SIDEWALKS.
2. COMPACTION REQUIREMENTS.
   A. TRENCH BACKFILL IN THE PIPE ZONE SHALL BE ACHIEVED BY MECHANICAL MEANS IN HORIZONTAL LIFTS TO NINETY PERCENT (90%) OF THE MAXIMUM DRY DENSITY PER AASHTO 1-180 TEST METHOD.
   B. COMPACTION IN THE BACKFILL ZONE (MORE THAN 12" ABOVE THE TOP OF PIPE) AND WITHIN THE STREET RIGHT OF WAY SHALL BE ACHIEVED BY MECHANICAL MEANS IN HORIZONTAL LIFTS TO NINETY-TWO PERCENT (92%) OF THE MAXIMUM DRY DENSITY PER AASHTO T-180 TEST METHOD UNLESS A GREATER DEGREE OF COMPACTION IS REQUIRED BY ANOTHER AGENCY WITH JURISDICTION.
   C. COMPACTION IN THE BACKFILL ZONE (MORE THAN 12" ABOVE THE TOP OF PIPE) AND OUTSIDE THE STREET RIGHT OF WAY SHALL BE ACHIEVED BY MECHANICAL MEANS IN HORIZONTAL LIFTS TO NINETY PERCENT (90%) OF THE MAXIMUM DRY DENSITY PER AASHTO T-180 TEST METHOD UNLESS A GREATER DEGREE OF COMPACTION IS REQUIRED BY ANOTHER AGENCY WITH JURISDICTION.
3. CRUSHED ROCK SHALL CONFORM TO THE REQUIREMENTS OF SECTION 02630 (BASE AGGREGATE) OSHD STANDARD SPECIFICATIONS.
4. CONTRACTOR SHALL PROVIDE ALL MATERIALS, EQUIPMENT AND FACILITIES REQUIRED FOR TESTING ALL UTILITY PIPING IN ACCORDANCE WITH NWD CONSTRUCTION SPECIFICATIONS.
5. TRACER WIRE. ALL WATER PIPING SHALL HAVE AN ELECTRICALLY CONDUCTIVE INSULATED 12 GAUGE COPPER TRACER WIRE THE FULL LENGTH OF THE INSTALLED PIPE USING BLUE WIRE FOR WATER PIPING. TRACER WIRE SHALL BE EXTENDED UP INTO ALL VALVE BOXES.
6. NWD STAFF TO OPERATE ALL VALVES, INCLUDING FIRE HYDRANTS, ON EXISTING PUBLIC MAINS.
7. ALL WATER MAINS SHALL BE ASTM D-2241 CLASS 200, C-905 PVC. ALL FITTINGS 4-INCHES THROUGH 24-INCHES IN DIAMETER SHALL BE DUCTILE IRON FITTINGS IN CONFORMANCE WITH AWWA C-153 OR AWWA C-110. THE MINIMUM WORKING PRESSURE FOR ALL MJ CAST IRON OR DUCTILE IRON FITTINGS 4-INCHES THROUGH 24-INCH IN DIAMETER SHALL BE 350 PSI FOR MJ FITTINGS AND 250 PSI FOR FLANGED FITTINGS.
8. ALL VALVES SHALL BE FLANGE CONNECTED TO ADJACENT TEES OR CROSSES.
9. THE WORK SHALL BE PERFORMED IN A MANNER DESIGNATED TO MAINTAIN WATER SERVICE TO BUILDINGS SUPPLIED FROM THE EXISTING WATERLINES. IN NO CASE SHALL SERVICE TO ANY MAIN LINE OR BUILDING BE INTERRUPTED FORM MORE THAN FOUR (4) HOURS IN ANY ONE DAY. CONTRACTOR SHALL NOTIFY THE NWD AND ALL AFFECTED RESIDENTS AND BUSINESSES A MINIMUM OF 24 BUSINESS HOURS (1 BUSINESS DAY) PRIOR TO ANY INTERRUPTION OF SERVICE.
10. ALL WATERLINE SEGMENTS SUBJECT TO PRESSURE TESTING AND BACTERIOLOGICAL BEFORE BEING ACCEPTED BY NWD. COORDINATE WITH NWD.
11. PRESSURE TEST: 2 HOURS MINIMUM. 150 PSI MINIMUM STARTING PRESSURE - MAXIMUM DROP OF 10 PSI OVER DURATION OF TEST.

SEWER NARRATIVE:

CONNECT NEW SEWER COLLECTION SYSTEM EXTENSION TO THE EXISTING MANHOLE AT VERN'S PLACE.
EXTEND THE GRAVITY SYSTEM TO THE NORTH WITH LATERAL PIPES TO SERVE EACH NEW LOT ON EACH ROADWAY. USE ALL PVC PIPE AND CONCRETE MANHOLES.

GRADING NARRATIVE:

SITE GRADING WILL BE LIMITED TO ROADWAYS. ROADS TO THE SOUTH OF ELAND STREET HAVE ALREADY BEEN CORED. JUST NEED ROAD BASE. ROADS NORTH OF ELAND NEED CORING AND ROAD BASE.

NO GRADING OUTSIDE OF RIGHT-OF-WAY IS PLANNED OR NEEDED.

WATER NARRATIVE:

CONNECT THE NEW WATER DISTRIBUTION EXTENSION TO THE EXISTING SYSTEM AT VERN'S PLACE AND THE NORTH END OF RIVERVIEW MEADOWS LANE.
PIPES WILL BE EXTENDED ON EACH CROSS STREET IN ORDER TO SERVE ALL PROPERTIES.
THE PIPES WILL BE LOOPED ON EACH CROSS STREET. NO DEAD ENDS WILL BE CREATED

PUMP STATION AND PRESSURE VALVES WILL BE INSTALLED IN EASEMENT AT LOT 1. TO BE DESIGNED.

NO.	DATE	DESCRIPTION	BY

MORGAN CIVIL ENGINEERING, INC.
PO BOX 358
MANZANITA, OR 97130
(503) 812-0016
www.morgancivil.com
• CIVIL ENGINEERING
• INSPECTION
• PLANNING

JOB NO. 418-20-MV
DATE AUGUST 12, 2021

REGISTERED PROFESSIONAL ENGINEER
63060
OREGON
JANUARY 14, 2003
JASON D. MORGAN

RENEWAL DATE: DECEMBER 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
TENTATIVE PLAN - SOUTHERN PORTION

NEHALEM MAP 3N R2W 23B

SANITARY SEWAGE FACILITIES:

1. UNLESS OTHERWISE NOTED, MATERIALS AND WORKMANSHIP FOR SANITARY SEWER SHALL CONFORM TO OSSC (ODOT/APWA) SPECIFICATIONS, 2021 EDITION.
2. THE CONTRACTOR SHALL HAVE APPROPRIATE EQUIPMENT ON SITE TO PRODUCE A FIRM, SMOOTH, UNDISTURBED SUBGRADE AT THE TRENCH BOTTOM, TRUE TO GRADE. THE BOTTOM OF THE TRENCH EXCAVATION SHALL BE SHALL BE SMOOTH, FREE OF LOOSE MATERIALS OR TOOTH GROOVES FOR THE ENTIRE WIDTH OF THE TRENCH PRIOR TO PLACING THE GRANULAR BEDDING MATERIAL.
3. BEDDING AND BACKFILL. ALL SANITARY SEWER PIPES SHALL BE BEDDED WITH A MINIMUM OF 4-INCHES OF 3/4" MINUS CRUSHED ROCK BEDDING AND BACKFILLED WITH COMPACTED 3/4" MINUS CRUSHED ROCK IN THE PIPE ZONE (CRUSHED ROCK SHALL EXTEND A MINIMUM OF 12-INCHES OVER THE TOP OF THE PIPE IN ALL CASES). CRUSHED ROCK TRENCH BACKFILL SHALL BE USED UNDER ALL IMPROVED AREAS, INCLUDING SIDEWALKS
4. TRENCH BACKFILL IN THE PIPE ZONE SHALL BE ACHIEVED BY MECHANICAL MEANS IN HORIZONTAL LIFTS TO NINETY PERCENT (90%) OF THE MAXIMUM DRY DENSITY PER AASHTO T-180 TEST METHOD.
5. COMPACTION IN THE BACKFILL ZONE (MORE THAN 12" ABOVE THE TOP OF PIPE) AND WITHIN THE STREET RIGHT OF WAY SHALL BE ACHIEVED BY MECHANICAL MEANS IN HORIZONTAL LIFTS TO NINETY-TWO PERCENT (92%) OF THE MAXIMUM DRY DENSITY PER AASHTO T-180 TEST METHOD UNLESS A GREATER DEGREE OF COMPACTION IS REQUIRED BY ANOTHER AGENCY WITH JURISDICTION.
6. COMPACTION IN THE BACKFILL ZONE (MORE THAN 12" ABOVE THE TOP OF PIPE) AND OUTSIDE THE STREET RIGHT OF WAY SHALL BE ACHIEVED BY MECHANICAL MEANS IN HORIZONTAL LIFTS TO NINETY PERCENT (90%) OF THE MAXIMUM DRY DENSITY PER AASHTO T-180 TEST METHOD UNLESS A GREATER DEGREE OF COMPACTION IS REQUIRED BY ANOTHER AGENCY WITH JURISDICTION.
7. CRUSHED ROCK SHALL CONFORM TO THE REQUIREMENTS OF OSSC (2021 ODOT/APWA) 02630.10 (DENSE GRADED BASE AGGREGATE).
8. ALL CITY OF NEHALEM PIPED FACILITIES ABANDONED IN PLACE SHALL HAVE ALL OPENINGS CLOSED WITH CONCRETE PLUGS WITH A MINIMUM LENGTH EQUAL TO TWO (2) TIMES THE DIAMETER OF THE ABANDONED PIPE.
9. THE END OF ALL UTILITY STUBS SHALL BE MARKED WITH A PAINTED 2x4, EXTENDING 2 FEET MINIMUM ABOVE FINISH GRADE, AND WIRED TO PIPE STUB (PAINTED WHITE FOR SANITARY SEWER). TYPE OF UTILITY (IE. SEWER) AND DEPTH BELOW GRADE TO PIPE INVERT SHALL BE CLEARLY & PERMANENTLY LABELED ON THE MARKER POST.
10. NO TRENCHES IN ROADS OR DRIVEWAYS SHALL BE LEFT IN AN OPEN CONDITION OVERNIGHT. ALL SUCH TRENCHES SHALL BE CLOSED BEFORE THE END OF EACH WORK DAY AND NORMAL TRAFFIC FLOWS RESTORED.
11. SANITARY SEWER & WATERLINE CROSSINGS. WHERE SANITARY SEWER LINES CROSS ABOVE OR WITHIN 18-INCHES OF VERTICAL SEPARATION BELOW A WATERLINE, SEWER MAINS AND/OR LATERALS SHALL BE REPLACED WITH DUCTILE IRON PIPE AT THE CROSSING, CENTER ONE FULL LENGTH OF CLASS 50 DUCTILE IRON PIPE CONFORMING TO AWWA C-151 AND C-104 AT POINT OF CROSSING. CONNECT TO EXISTING SEWER LINES WITH APPROVED RUBBER COUPLINGS.
12. PER DEQ REQUIREMENTS, DEVELOPER/CONTRACTOR SHALL HAVE SANITARY SEWERAGE FACILITIES INSPECTED, TESTED PER APWA PROCEDURES AND CERTIFIED BY A LICENSED ENGINEER.
13. UNLESS OTHERWISE SPECIFIED, SANITARY SEWER PIPE SHALL BE PVC IN CONFORMANCE WITH ASTM D3034, SDR 35. MINIMUM STIFFNESS SHALL BE 46 PSI PER ASTM D-2412 AND JOINT TYPE SHALL BE ELASTOMERIC GASKET CONFORMING TO ASTM D-3212. ALL OTHER APPURTENANCES AND INSTALLATION SHALL CONFORM TO CITY OF NEHALEM REQUIREMENTS.
14. SANITARY SEWER MANHOLES SHALL HAVE PRECAST BASE SECTIONS OF MONOLITHIC CONSTRUCTION AND SHALL BE MANUFACTURED SUCH THAT THE BASE SECTION IS INTEGRAL WITH THE BASE SLAB. THE MINIMUM BASE THICKNESS SHALL BE 6-INCHES. MANHOLE BASES SHALL HAVE CORE DRILLED OPENINGS AND FLEXIBLE MANHOLE TO PIPE CONNECTORS FOR THE CONNECTIONS TO PIPE STUB OUTS. FLEXIBLE JOINTS FOR PIPE OPENINGS SHALL BE "RES-SEAL" AS MANUFACTURED BY PRICE BROTHERS CO., "KOR-N-SEAL" AS MANUFACTURED BY NATIONAL POLLUTION CONTROL SYSTEMS, INC. OR CITY OF NEHALEM APPROVED EQUAL.
15. MANHOLE PRECAST SECTIONS SHALL MEET OR EXCEED ASTM C-478 AND SHALL HAVE WATERTIGHT O-RING OR MASTIC KEYLOCK JOINT.
16. MANHOLES SHALL BE INSTALLED WITH STEPS. STEPS TO BE FACTORY INSTALLED POLYPROPYLENE PLASTIC WITH GRADE 60 REINFORCING ROD.
17. FLAT TOP MANHOLES SHALL BE USED FOR ALL MANHOLES LESS THAN 6 FEET RIM TO INVERT.
18. OPENINGS FOR CONNECTIONS TO EXISTING MANHOLES SHALL BE MADE BY CORE-DRILLING THE EXISTING MANHOLE STRUCTURE AND INSTALLING A RUBBER BOOT. CONNECTIONS TO BE WATERTIGHT AND SHALL PROVIDE A SMOOTH FLOW INTO AND THROUGH THE MANHOLE. SMALL CHIPPING HAMMERS OR SIMILAR LIGHT TOOLS WHICH WILL NOT DAMAGE OR CRACK THE MANHOLE BASE MAY BE USED TO SHAPE CHANNELS. USE OF LARGE PNEUMATIC JACKHAMMERS SHALL BE PROHIBITED, UNLESS OTHERWISE APPROVED IN WRITING BY THE DISTRICT ENGINEER. MANHOLE STEPS SHALL BE INSTALLED IN ANY MANHOLE TAPPED WHICH DOES NOT HAVE EXISTING STEPS.
19. SANITARY SEWER TESTING. SANITARY SEWERS AND RELATED APPURTENANCES SHALL BE TESTED IN ACCORDANCE WITH THE OSSC (ODOT/APWA) SPECIFICATIONS, 2021 EDITION UNLESS OTHERWISE REQUIRED BY CITY OF NEHALEM. THE COST OF ALL TESTING AND ANY CORRECTIVE WORK ARE THE RESPONSIBILITY OF THE DEVELOPER.
20. SANITARY PIPE CLEANING. PRIOR TO MANDREL OR AIR TESTING, FLUSH AND CLEAN ALL SEWERS TO REMOVE ALL FOREIGN MATERIALS FROM MAINLINES AND MANHOLES. FAILURE TO CLEAN ALL DIRT AND DEBRIS FROM PIPELINES PRIOR TO TV INSPECTION WILL RESULT IN THE NEED TO RE-CLEAN AND RE-TV THE LINES.
21. SEWER PIPE AIR TESTING. CONFORM TO OSSC (ODOT/APWA) 00455.72.C AND THE PROCEDURE LISTED ON THE TEST FORM IN PWDS APPENDIX A. ALL SANITARY SEWER MAINS, SERVICES AND APPURTENANCES SHALL BE TESTED FOR LEAKAGE. LEAKAGE TESTS SHALL INCLUDE AN AIR TEST OF ALL SEWER MAINS AND LATERALS PRIOR TO PAVING, AND A SEPARATE AIR TEST OF ALL SEWER MAINS AND LATERALS FOLLOWING EXCAVATION AND BACKFILLING OF ANY FRANCHISE UTILITY TRENCHES OR OTHER UTILITY WORK THAT CROSSES SANITARY SEWER LATERALS.
22. SEWER PIPE DEFLECTION TESTING. CONFORM TO OSSC (ODOT/APWA) 00445.73. CONTRACTOR SHALL CONDUCT DEFLECTION TEST OF FLEXIBLE SANITARY SEWER PIPES BY PULLING AN APPROVED MANDREL THROUGH ALL COMPLETED SEWER MAINS FOLLOWING TRENCH COMPACTION. THE DIAMETER OF THE MANDREL SHALL BE 95% OF THE INITIAL PIPE DIAMETER.
23. TV INSPECTION OF SANITARY SEWERS. UPON COMPLETION OF ALL SEWER CONSTRUCTION, TESTING AND REPAIR, THE CONTRACTOR SHALL CONDUCT A COLOR TV ACCEPTANCE INSPECTION OF ALL MAINLINES IN ACCORDANCE WITH OSSC (ODOT/APWA) 445.74 TO DETERMINE COMPLIANCE WITH GRADE REQUIREMENTS OF OSSC (ODOT/APWA) 445.40.B. THE TV INSPECTION SHALL BE CONDUCTED BY AN APPROVED TECHNICAL SERVICE WHICH IS EQUIPPED TO MAKE AUDIO-VISUAL RECORDINGS OF THE TV INSPECTIONS ON DVD (VHS VIDEO TAPE ACCEPTABLE ONLY UPON PRIOR WRITTEN APPROVAL BY CITY OF NEHALEM). UNLESS OTHERWISE APPROVED IN WRITING BY THE DISTRICT ENGINEER, A STANDARD 1-INCH DIAMETER BALL SHALL BE SUSPENDED IN FRONT OF THE CAMERA DURING THE INSPECTION TO DETERMINE THE DEPTH OF ANY STANDING WATER. SUFFICIENT WATER TO REVEAL LOW AREAS OR REVERSE GRADES SHALL BE DISCHARGED INTO THE PIPE IMMEDIATELY PRIOR TO INITIATION OF THE TV INSPECTION. THE DVD AND WRITTEN REPORT SHALL BE DELIVERED TO THE DISTRICT ENGINEER.
24. MANHOLE TESTING. CONFORM TO SECTION OSSC (ODOT/APWA) 00471.B OR CITY OF NEHALEM APPROVED VACUUM TEST PROCEDURE. ALL MANHOLES SHALL BE VACUUM TESTED FOLLOWING COMPLETION OF PAVING OR FINAL SURFACE RESTORATION.
25. RE-INSPECTION OF THE SANITARY SEWER SYSTEM USING TV INSPECTION PLUS ANY OR ALL OF THE ABOVE TEST METHODS SHALL BE PERFORMED AS REQUIRED BY CITY OF NEHALEM NEAR THE COMPLETION OF THE 18 MONTH WARRANTY PERIOD. THE RESULTS OF THESE TEST(S) WILL BE USED BY CITY OF NEHALEM TO DETERMINE IF FINAL ACCEPTANCE OF THE SYSTEM IS WARRANTED AND WHAT CORRECTIVE WORK IS REQUIRED PRIOR TO FINAL ACCEPTANCE. THE COST OF THESE RE-INSPECTIONS AND ANY CORRECTIVE WORK ARE THE RESPONSIBILITY OF THE DEVELOPER.
26. PRIOR TO OR CONCURRENT WITH CONNECTION TO A SANITARY SEWER LATERAL, IT SHALL BE DEMONSTRATED TO THE DISTRICT THAT THE SEWER LATERAL IS NOT OBSTRUCTED. THIS SHALL BE ACCOMPLISHED BY "SNAKING" THE SERVICE LATERAL DOWNSTREAM OF THE CONNECTION POINT TO THE MAINLINE, OR SIMILAR METHOD ACCEPTABLE TO THE DISTRICT. DISTRICT PERSONNEL OR AUTHORIZED AGENT SHALL BE PRESENT DURING THE "SNAKING" OR OTHER DEMONSTRATION METHOD.
27. THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT ALL REQUIRED OR NECESSARY INSPECTIONS ARE COMPLETED BY AUTHORIZED INSPECTORS PRIOR TO PROCEEDING WITH SUBSEQUENT WORK WHICH COVERS OR THAT IS DEPENDENT ON THE WORK TO BE INSPECTED. FAILURE TO OBTAIN NECESSARY INSPECTION(S) AND APPROVAL(S) SHALL RESULT IN THE CONTRACTOR BEING FULLY RESPONSIBLE FOR ALL PROBLEMS AND/OR CORRECTIVE MEASURES ARISING FROM UNINSPECTED WORK.

RIVERVIEW MEADOWS
PHASE 2
74 LOT SUBDIVISION
TENTATIVE PLAN

MAP 3N R10W SECTION 23B

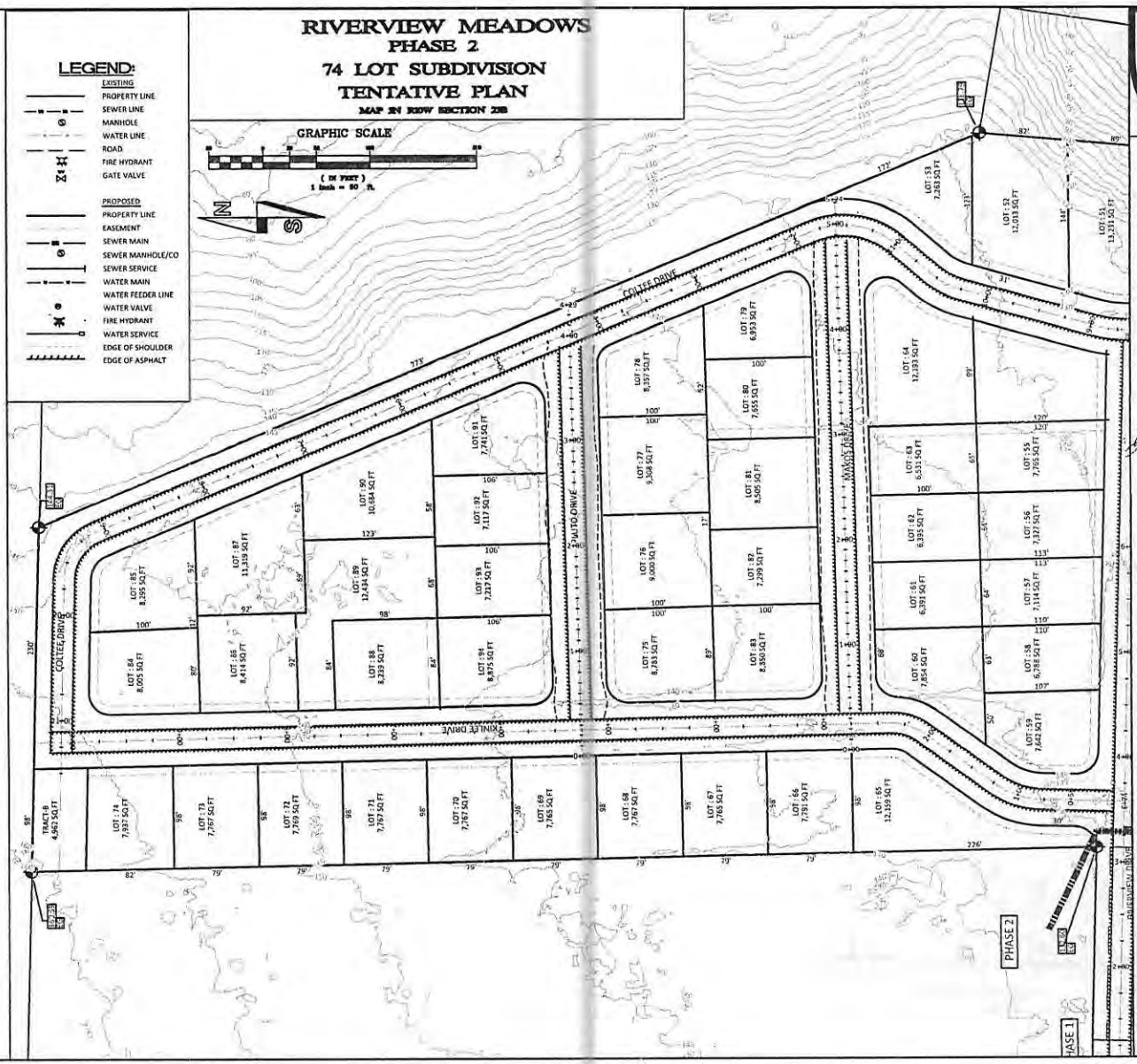
LEGEND:

EXISTING
- PROPERTY LINE
- SEWER LINE
- MANHOLE
- WATER LINE
- ROAD
- FIRE HYDRANT
- GATE VALVE

PROPOSED
- PROPERTY LINE
- EASEMENT
- SEWER MAIN
- SEWER MANHOLE/CO
- SEWER SERVICE
- WATER MAIN
- WATER FEEDER LINE
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- EDGE OF SHOULDER
- EDGE OF ASPHALT

GRAPHIC SCALE

(IN FEET)
1 inch = 80 ft.



MORGAN CIVIL ENGINEERING, INC.
PO BOX 356
MANZANITA, OR 97130
(503) 801-6016
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• INSPECTION
• PLANNING

JOB NO.
REV 10 REV
DATE
AUGUST 16, 2022

REGISTERED PROFESSIONAL ENGINEER
83085
OREGON
JANUARY 18, 1983
JASON R. MORGAN

RENEWAL DATE: DECEMBER 31, 2023

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
TENTATIVE PLAN - NORTHERN PORTION

NEHALEM, MAP 3N 10W 23B

SHEET
6
OF 23

SEWER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH NBWA.

101 CONNECT TO EXISTING STUB
102 INSTALL NEW MANHOLE
103 INSTALL NEW 8" SEWER PIPE
104 INSTALL NEW SEWER SERVICE ASSEMBLY
105 INSTALL NEW END OF LINE CLEANOUT

DEFLECTION TESTING, PRESSURE TESTING, AND VIDEO INSPECTION REQUIRED.

WATER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH CITY OF NEWALEM. 36" COVER OVER PIPES. 18" MIN VERTICAL SEPARATION FROM SEWER LINE AT CROSSINGS.

201 CONNECT TO EXISTING WATER
202 INSTALL 6" TEE WITH GATE VALVES
203 INSTALL 6" PVC PIPE
204 INSTALL FIRE HYDRANT ASSEMBLY
205 INSTALL D.I. BENDS, AS NEEDED
206 INSTALL WATER SERVICE ASSEMBLY

PRESSURE TESTING, AND BACTERIOLOGICAL TESTING REQUIRED.

STORM NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH COUNTY PUBLIC WORKS.

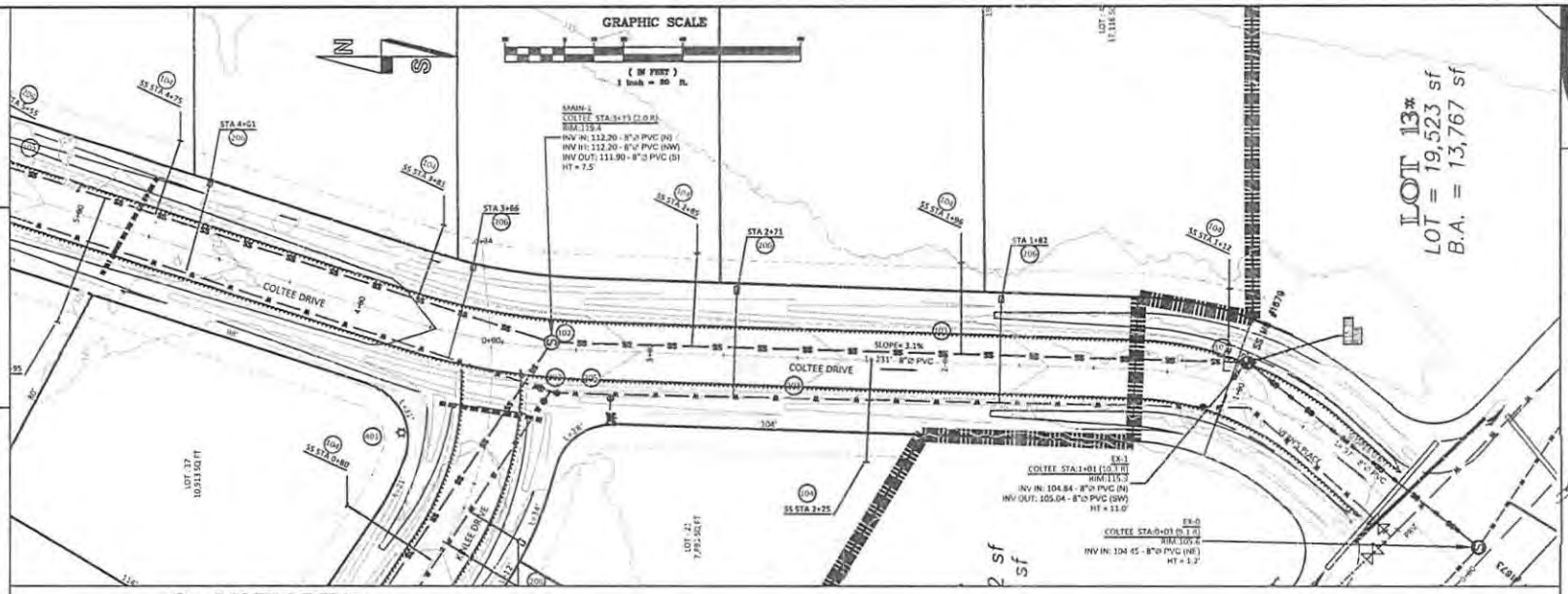
301 ROADSIDE DITCH
302 18" CULVERT

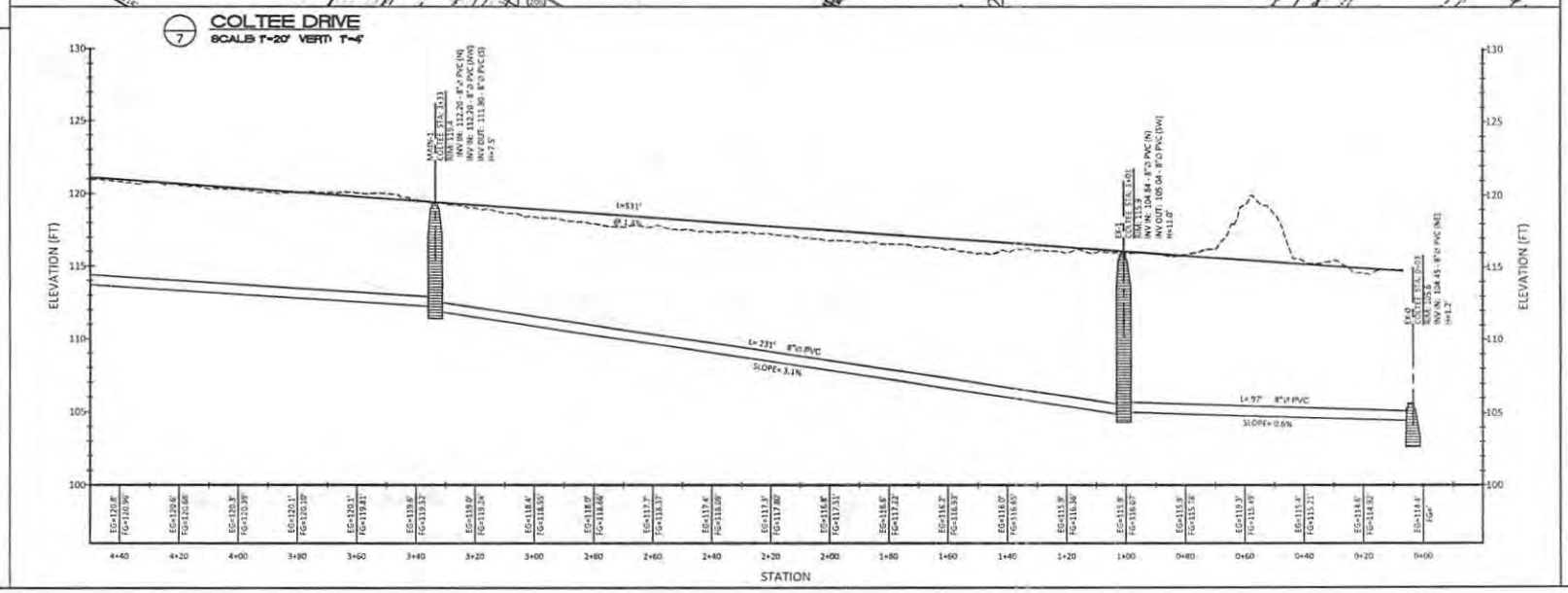
LEGEND:

EXISTING
- PROPERTY LINE
- SEWER LINE
- MANHOLE
- WATER LINE
- ROAD
- FIRE HYDRANT
- GATE VALVE

PROPOSED
- PROPERTY LINE
- EASEMENT
- SEWER MAIN
- SEWER MANHOLE/CO
- SEWER SERVICE
- WATER MAIN
- WATER FEEDER LINE
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- EDGE OF SHOULDER
- EDGE OF ASPHALT

PROFILE
- EXISTING GRADE
- FINISHED GRADE





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OCE NO.
RFP 19-04
24-Mar-20
AUGUST 12, 2022

REGISTERED PROFESSIONAL ENGINEER
83055
OREGON
JULY 31, 1981
JASON R. MORGAN

RENEWAL DATE: DECEMBER 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
UTILITY LAYOUT - COLTEE DRIVE

NEWALEM, MAP 3N 10W 23B

SHEET
7
OF 23

SEWER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH NBWA.

101 CONNECT TO EXISTING STUB
102 INSTALL NEW MANHOLE
103 INSTALL NEW 8" SEWER PIPE
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105 INSTALL NEW END OF LINE CLEANOUT

DEFLECTION TESTING, PRESSURE TESTING, AND VIDEO INSPECTION REQUIRED.

WATER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH CITY OF NEHALEM. 36" COVER OVER PIPES. 18" MIN VERTICAL SEPARATION FROM SEWER LINE AT CROSSINGS.

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206 INSTALL WATER SERVICE ASSEMBLY

PRESSURE TESTING, AND BACTERIOLOGICAL TESTING REQUIRED.

STORM NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH COUNTY PUBLIC WORKS.

301 ROADSIDE DITCH
302 18" CULVERT

LEGEND:

EXISTING
- PROPERTY LINE
- SEWER LINE
- MANHOLE
- WATER LINE
- ROAD
- FIRE HYDRANT
- GATE VALVE

PROPOSED
- PROPERTY LINE
- EASEMENT
- SEWER MAIN
- SEWER MANHOLE/CO
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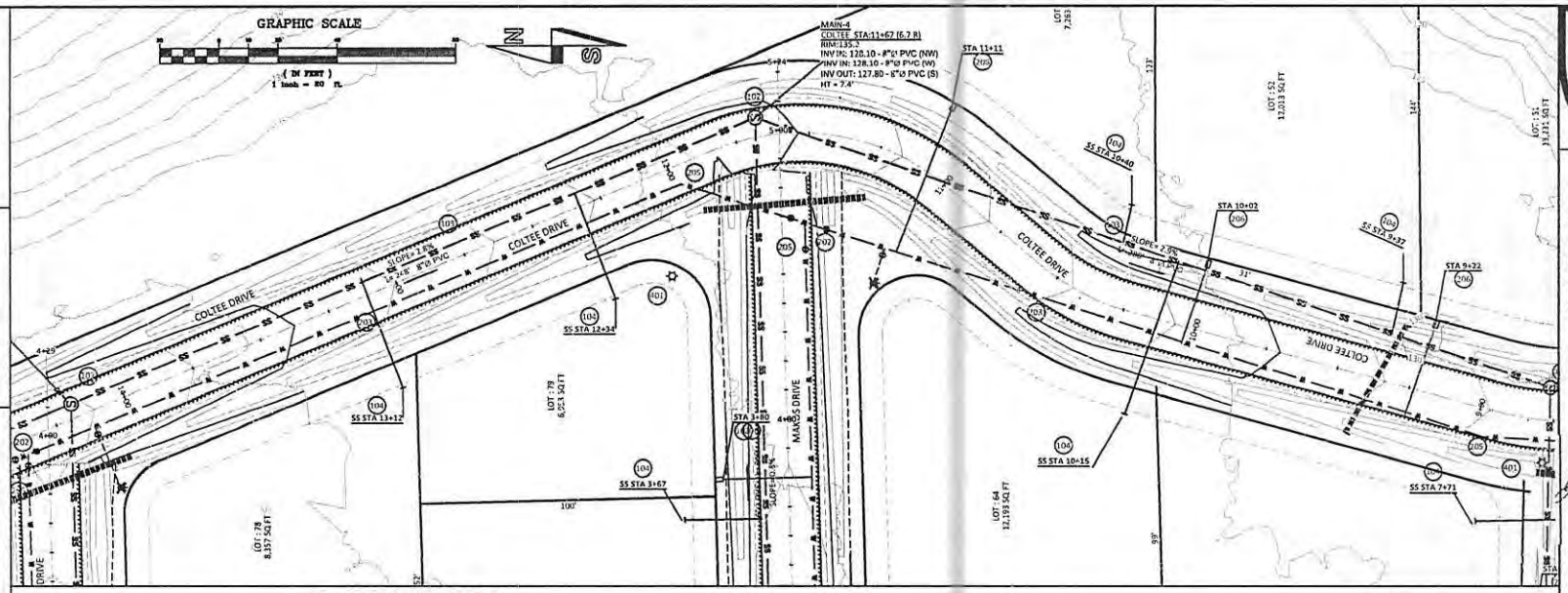
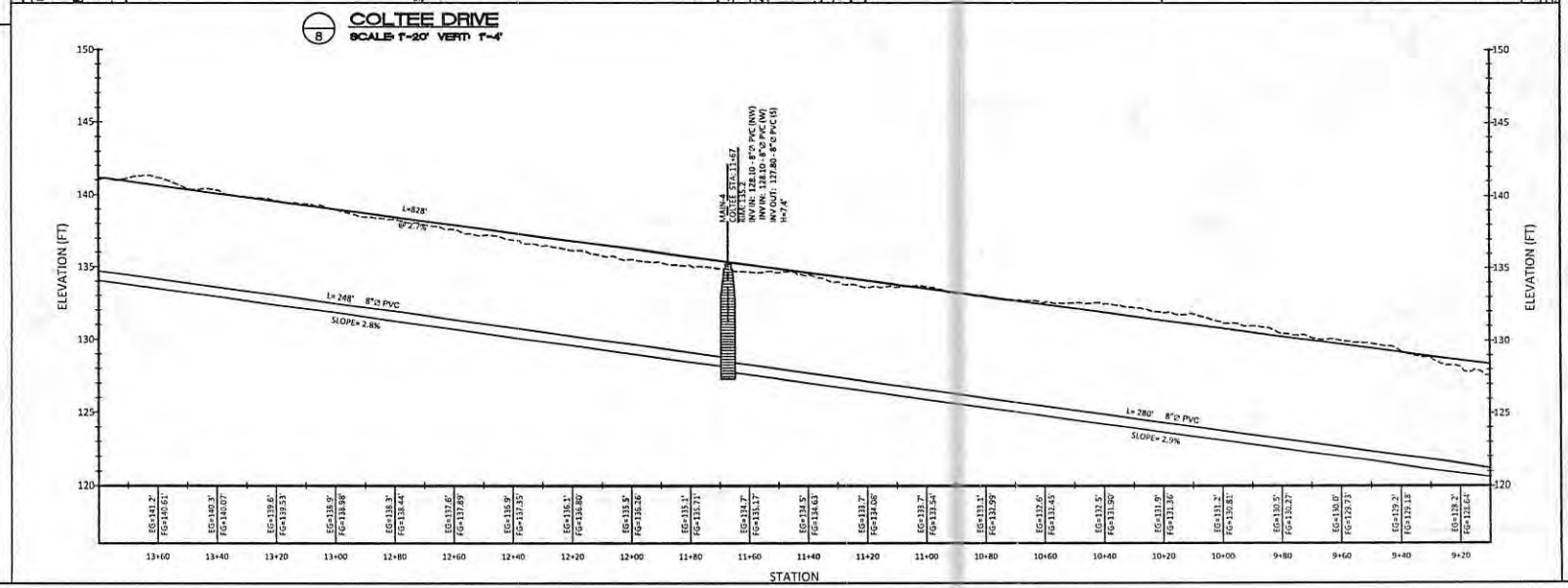
- WATER FEEDER LINE
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- EDGE OF SHOULDER
- EDGE OF ASPHALT

PROFILE
- EXISTING GRADE
- FINISHED GRADE





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JOB NO. 21-07-01
DRAWN BY: JRV
DATE: AUGUST 12, 2022

REGISTERED PROFESSIONAL ENGINEER 63055 OREGON JANUARY 19, 1982 JASON R. VORGER

RENEWAL DATE: DECEMBER 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
UTILITY LAYOUT - COLTEE DRIVE

NEHALEM, MAP 3N 10W 23B

SHEET 8 OF 23

SEWER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL 92% COMPACTION.

COORDINATE WORK WITH NBWA.

101 CONNECT TO EXISTING STUB
102 INSTALL NEW MANHOLE
103 INSTALL NEW 8" SEWER PIPE
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PRESSURE TESTING, AND BACTERIOLOGICAL TESTING REQUIRED.

STORM NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL 92% COMPACTION.

COORDINATE WORK WITH COUNTY PUBLIC WORKS.

301 ROADSIDE DITCH
302 18" CULVERT

LEGEND:

EXISTING
- PROPERTY LINE
- SEWER LINE
- MANHOLE
- WATER LINE
- ROAD
- FIRE HYDRANT
- GATE VALVE

PROPOSED
- PROPERTY LINE
- EASEMENT
- SEWER MAIN
- SEWER MANHOLE/CO
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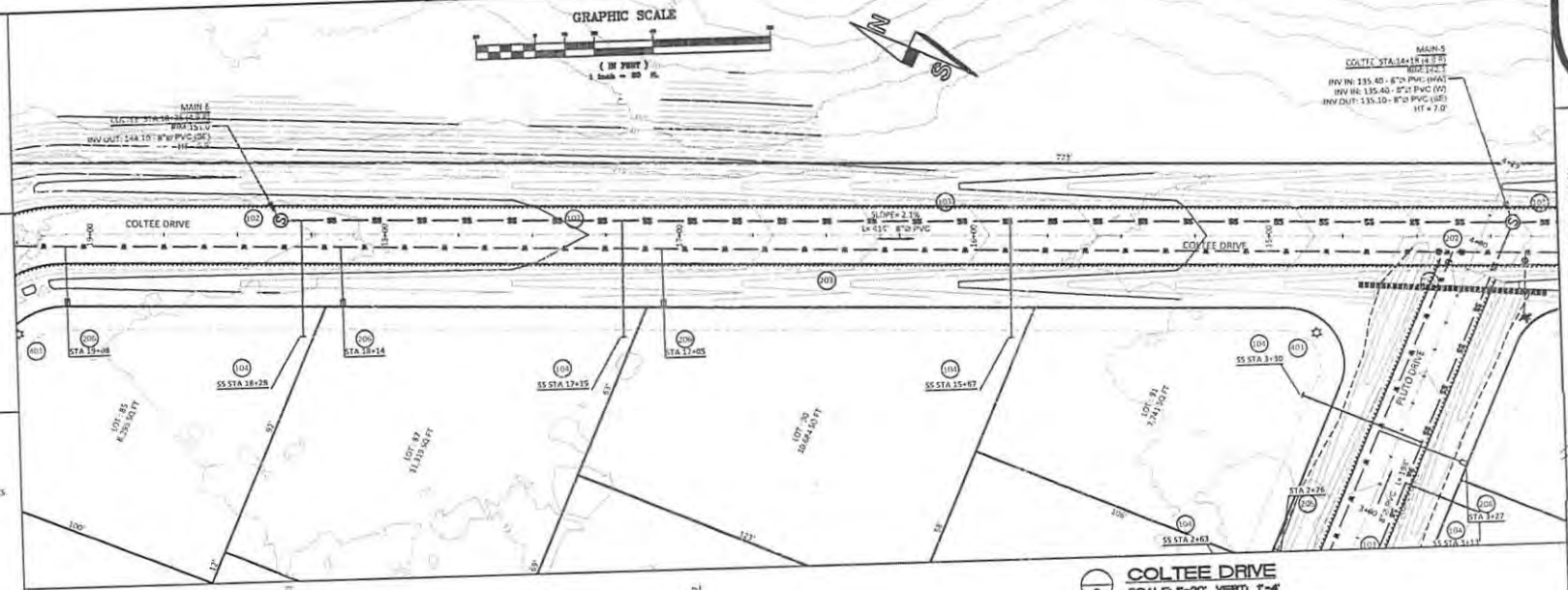
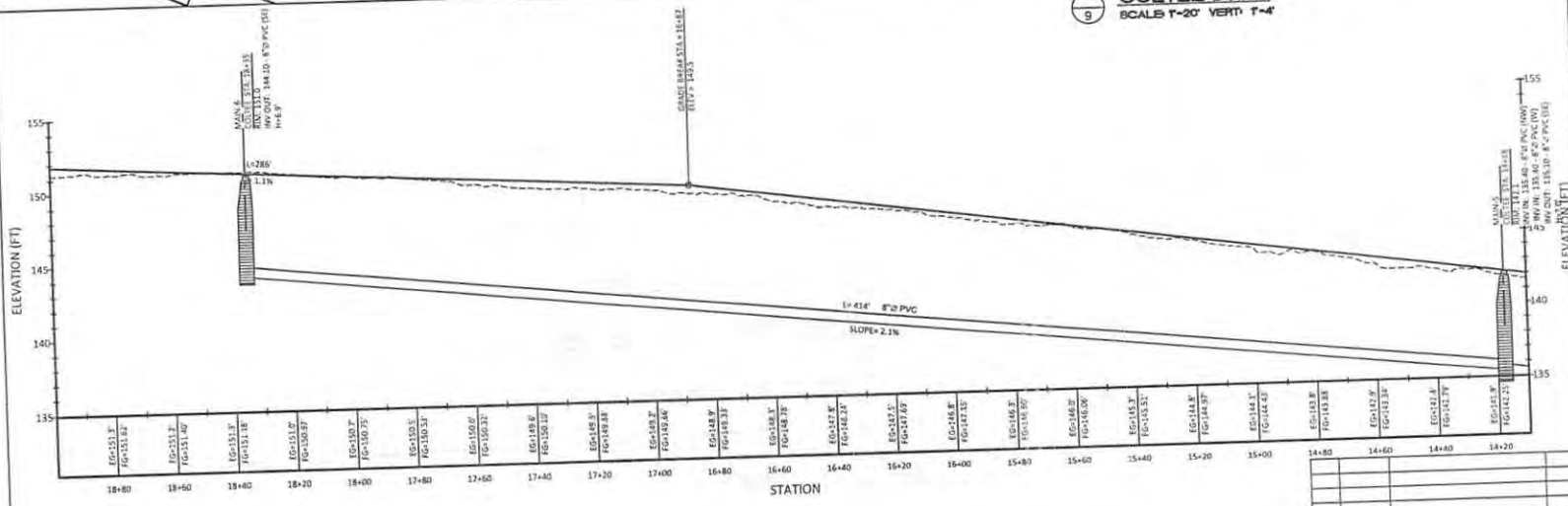
- WATER MAIN
- WATER FEEDER LINE
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- EDGE OF SHOULDER
- EDGE OF ASPHALT

PROFILE
- EXISTING GRADE
- FINISHED GRADE



9 COLTEE DRIVE
SCALE 1"=20' VERT: 1"=4'



NO.	DATE	DESCRIPTION	BY

MORGAN CIVIL ENGINEERING, INC.
• CIVIL ENGINEERING
• INSPECTION
• PLANNING
PO BOX 138
MANZANITA, OR 97130
(503) 801-6616
www.morgancivil.com

JOB NO. 19-10-04
DATE AUGUST 18, 2022

REGISTERED PROFESSIONAL ENGINEER
JASON R. MORGAN

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
UTILITY LAYOUT - COLTEE DRIVE

SHEET 9 OF 23

SEWER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH NBWA.

101 CONNECT TO EXISTING STUB
102 INSTALL NEW MANHOLE
103 INSTALL NEW 8" SEWER PIPE
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WATER NOTES:

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205 INSTALL D.I. BENDS, AS NEEDED
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PRESSURE TESTING, AND BACTERIOLOGICAL TESTING REQUIRED.

STORM NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH COUNTY PUBLIC WORKS.

301 ROADSIDE DITCH
302 18" CULVERT

LEGEND:

EXISTING
- PROPERTY LINE
- SEWER LINE
- MANHOLE
- WATER LINE
- ROAD
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- GATE VALVE

PROPOSED
- PROPERTY LINE
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- EDGE OF ASPHALT

PROFILE
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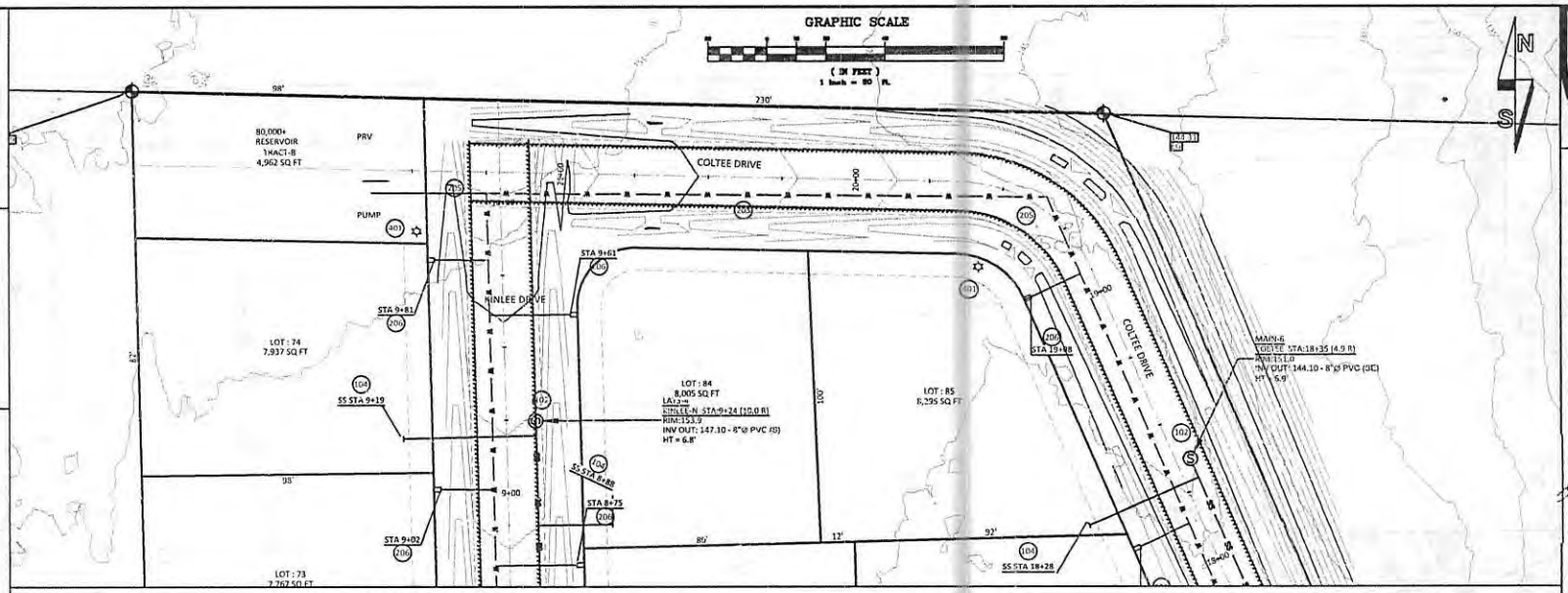
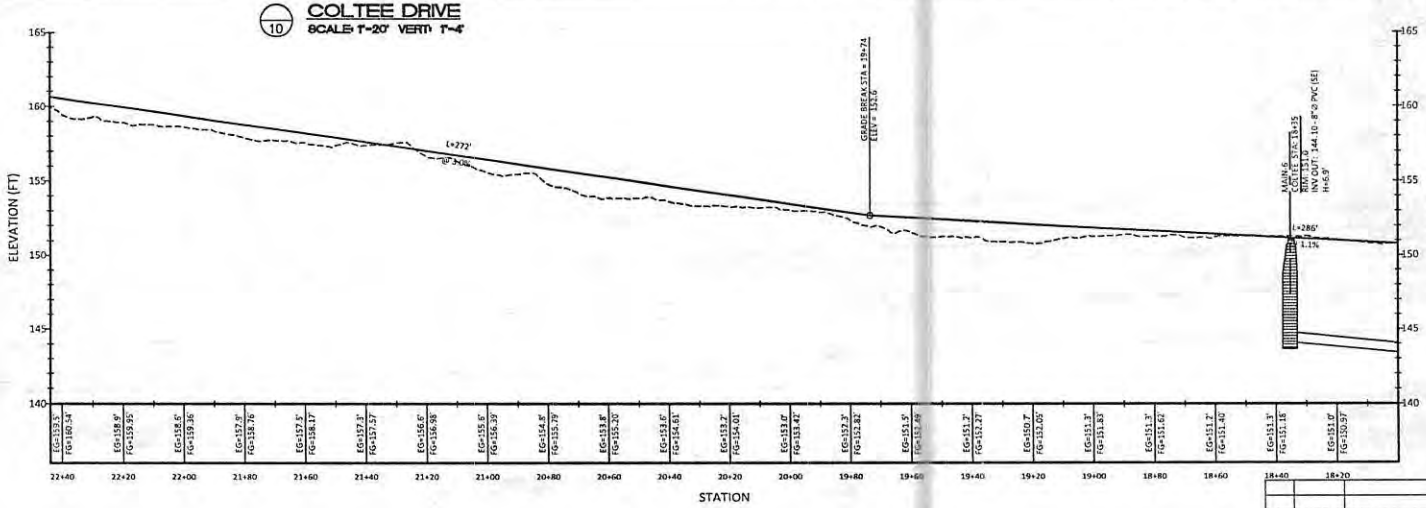
- FINISHED GRADE



10 COLTEE DRIVE

SCALE: 1"=20' VERT: 1"=4'



NO.	DATE	DESCRIPTION	BY

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(503) 801-0016
www.morgancivil.com

• CIVIL ENGINEERING
• SURVEYING
• PLANNING

JOB NO. #19-10 REV
DATE AUGUST 12, 2023

REGISTERED PROFESSIONAL ENGINEER 83055 OREGON JANUARY 25, 1983 JASON R. MORGAN
RENEWAL DATE: DECEMBER 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
UTILITY LAYOUT - COLTEE DRIVE

NEHALEM, MAP 5N 10W 21B

SHEET 10 OF 23

SEWER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH NBWA.

101 CONNECT TO EXISTING STUB
102 INSTALL NEW MANHOLE
103 INSTALL NEW 8" SEWER PIPE
104 INSTALL NEW SEWER SERVICE ASSEMBLY
105 INSTALL NEW END OF LINE CLEANOUT

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PRESSURE TESTING, AND BACTERIOLOGICAL TESTING REQUIRED.

STORM NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH COUNTY PUBLIC WORKS.

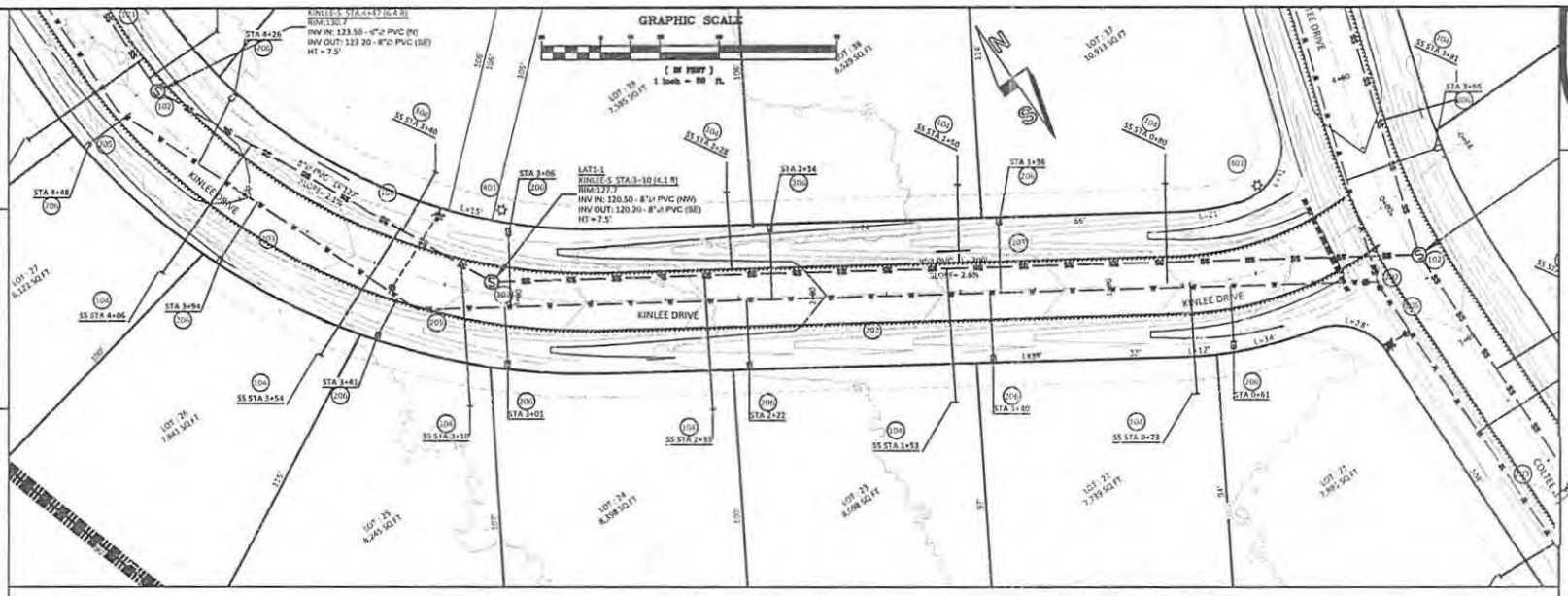
301 ROADSIDE DITCH
302 18" CULVERT

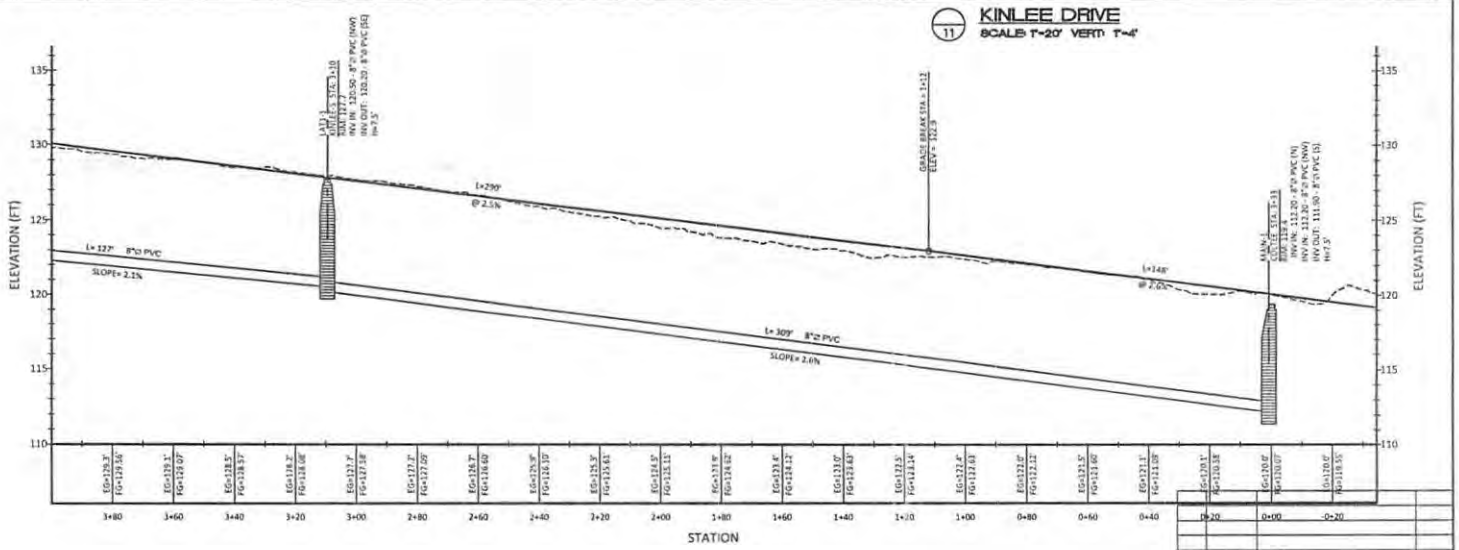
LEGEND:

EXISTING
- PROPERTY LINE
- SEWER LINE
- MANHOLE
- WATER LINE
- ROAD
- FIRE HYDRANT
- GATE VALVE

PROPOSED
- PROPERTY LINE
- EASEMENT
- SEWER MAIN
- SEWER MANHOLE/CO
- SEWER SERVICE
- WATER MAIN
- WATER FEEDER LINE
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- EDGE OF SHOULDER
- EDGE OF ASPHALT

PROFILE
- EXISTING GRADE
- FINISHED GRADE





NO.	DATE	DESCRIPTION	BY

MORGAN CIVIL ENGINEERING, INC.

PO BOX 358
MANZANITA, OR 97130
(503) 801-0618
www.morgancivil.com

CIVIL ENGINEERING
INSPECTION
PLANNING

REGISTERED PROFESSIONAL ENGINEER
63055
OREGON
JANUARY 14, 1983
JASON B. MORGAN

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
UTILITY LAYOUT - KINLEE DRIVE

NEHALEM, MAP 4N 10W 23B

SHEET 11 OF 23

SEWER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH NBWA.

101 CONNECT TO EXISTING STUB
102 INSTALL NEW MANHOLE
103 INSTALL NEW 8" SEWER PIPE
104 INSTALL NEW SEWER SERVICE ASSEMBLY
105 INSTALL NEW END OF LINE CLEANOUT

DEFLECTION TESTING, PRESSURE TESTING, AND VIDEO INSPECTION REQUIRED.

WATER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH CITY OF NEHALEM. 36" COVER OVER PIPES. 18" MIN VERTICAL SEPARATION FROM SEWER LINE AT CROSSINGS.

201 CONNECT TO EXISTING WATER
202 INSTALL 6" TEE WITH GATE VALVES
203 INSTALL 6" PVC PIPE
204 INSTALL FIRE HYDRANT ASSEMBLY
205 INSTALL D.I. BENDS, AS NEEDED
206 INSTALL WATER SERVICE ASSEMBLY

PRESSURE TESTING, AND BACTERIOLOGICAL TESTING REQUIRED.

STORM NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH COUNTY PUBLIC WORKS.

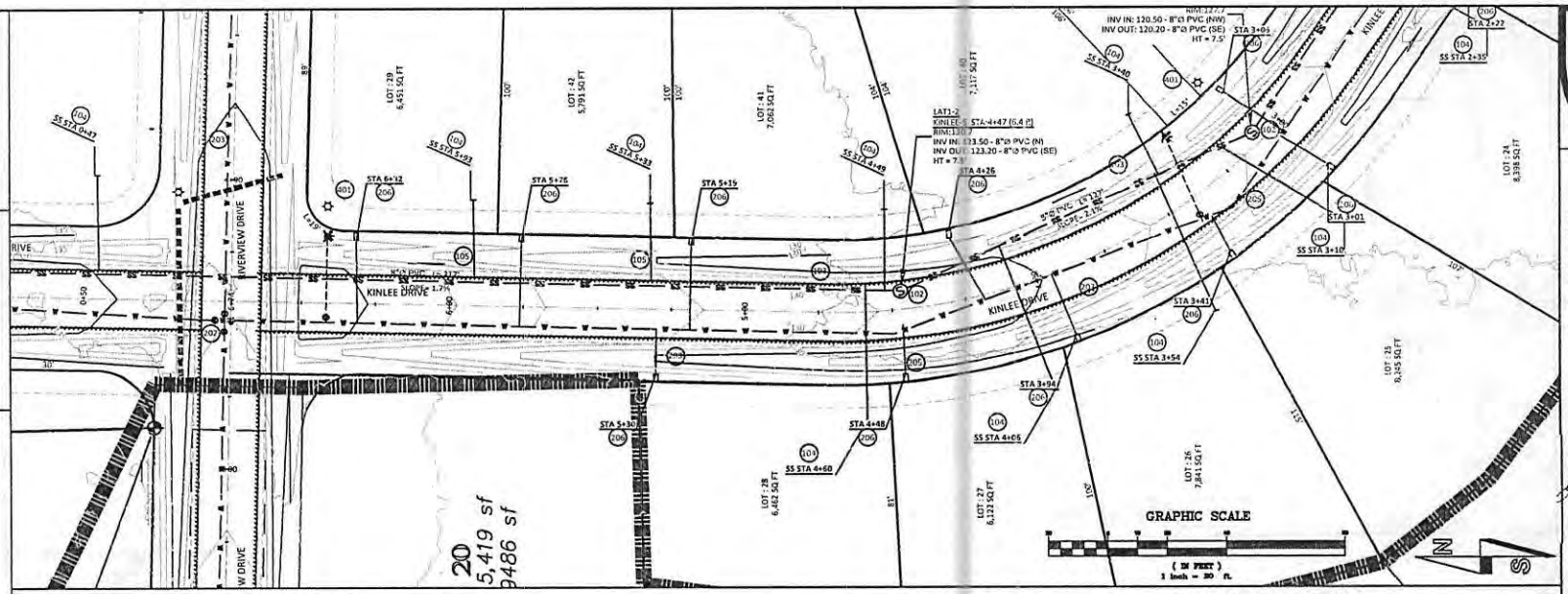
301 ROADSIDE DITCH
302 18" CULVERT

LEGEND:

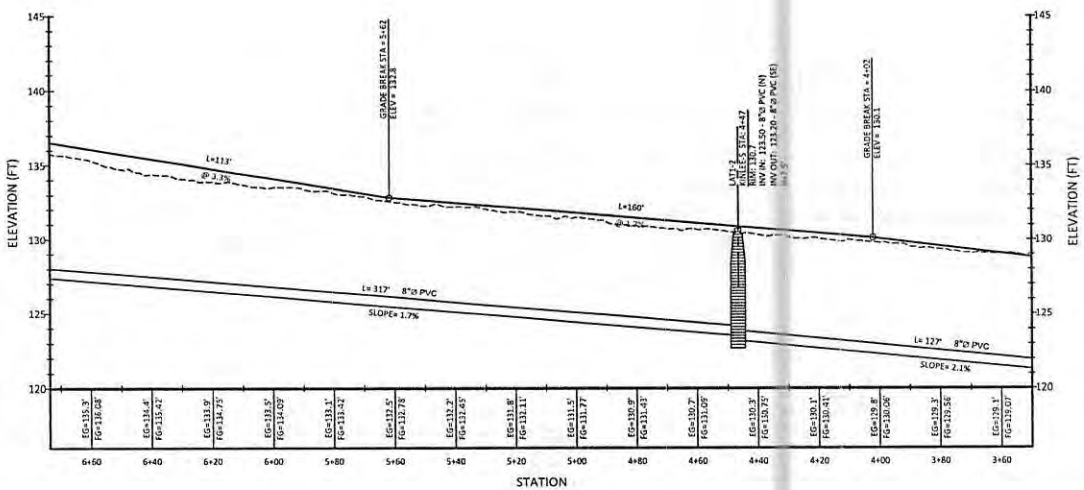
EXISTING
- PROPERTY LINE
- SEWER LINE
- MANHOLE
- WATER LINE
- ROAD
- FIRE HYDRANT
- GATE VALVE

PROPOSED
- PROPERTY LINE
- EASEMENT
- SEWER MAIN
- SEWER MANHOLE/CO
- SEWER SERVICE
- WATER MAIN
- WATER FEEDER LINE
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- EDGE OF SHOULDER
- EDGE OF ASPHALT

PROFILE
- EXISTING GRADE
- FINISHED GRADE



12 KINLEE DRIVE
SCALE: 1"=20' VERT: 1"=4'



NO.	DATE	DESCRIPTION	BY

MORGAN CIVIL ENGINEERING, INC.

PO BOX 358
MANZANITA, OR 97130
(503) 801-6016
www.morgancivil.com

• CIVIL ENGINEERING
• INSPECTION
• PLANNING

JOB NO. 819-10-RV
DATE: AUGUST 11, 2022

REGISTERED PROFESSIONAL ENGINEER 83053 OREGON JANUARY 18, 1983 JASON R. MORGAN

RENEWAL DATE: DECEMBER 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
UTILITY LAYOUT - KINLEE DRIVE

NEHALEM, MAP 3N 10W 23B

SHEET 12 OF 23

SEWER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL 92% COMPACTION.

COORDINATE WORK WITH NBWA.

101 CONNECT TO EXISTING STUB
102 INSTALL NEW MANHOLE
103 INSTALL NEW 8" SEWER PIPE
104 INSTALL NEW SEWER SERVICE ASSEMBLY
105 INSTALL NEW END OF LINE CLEANOUT

DEFLECTION TESTING, PRESSURE TESTING, AND VIDEO INSPECTION REQUIRED.

WATER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL 92% COMPACTION.

COORDINATE WORK WITH CITY OF NEHALEM. 36" COVER OVER PIPES. 18" MIN VERTICAL SEPARATION FROM SEWER LINE AT CROSSINGS.

201 CONNECT TO EXISTING WATER
202 INSTALL 6" TEE WITH GATE VALVES
203 INSTALL 6" PVC PIPE
204 INSTALL FIRE HYDRANT ASSEMBLY
205 INSTALL D.I. BENDS, AS NEEDED
206 INSTALL WATER SERVICE ASSEMBLY

PRESSURE TESTING, AND BACTERIOLOGICAL TESTING REQUIRED.

STORM NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL 92% COMPACTION.

COORDINATE WORK WITH COUNTY PUBLIC WORKS.

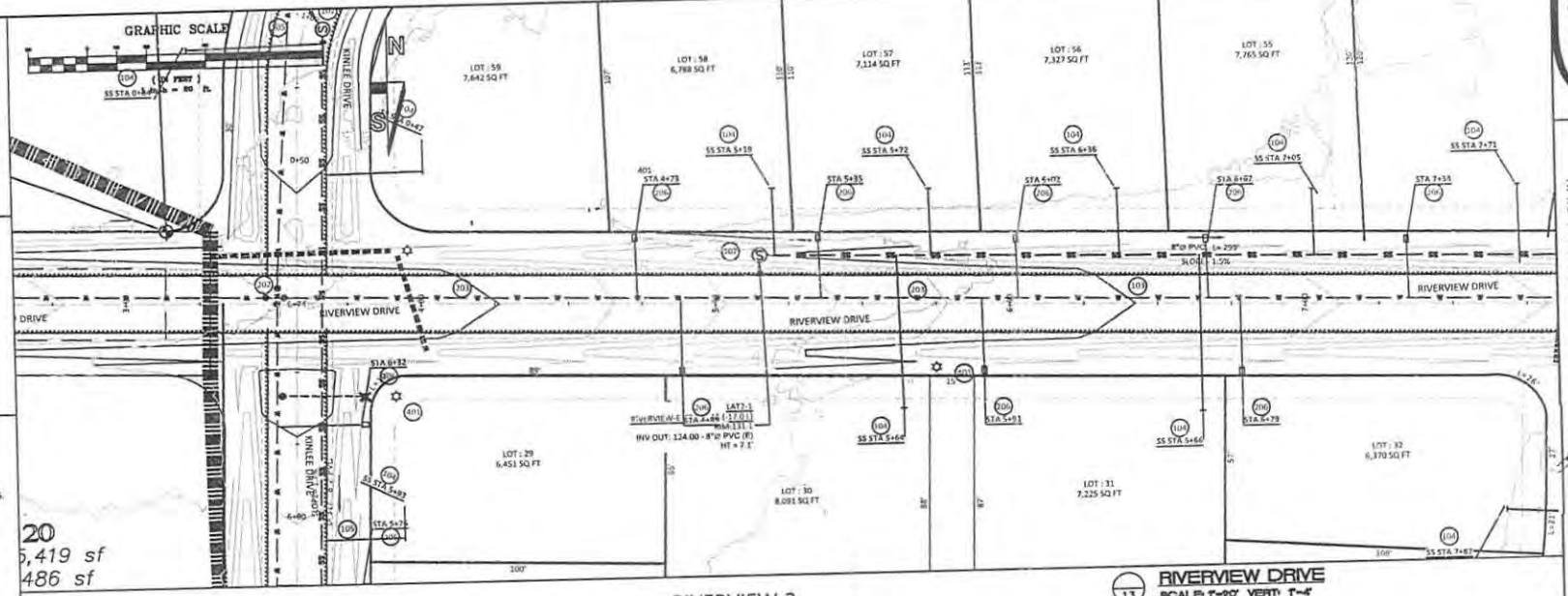
301 ROADSIDE DITCH
302 18" CULVERT

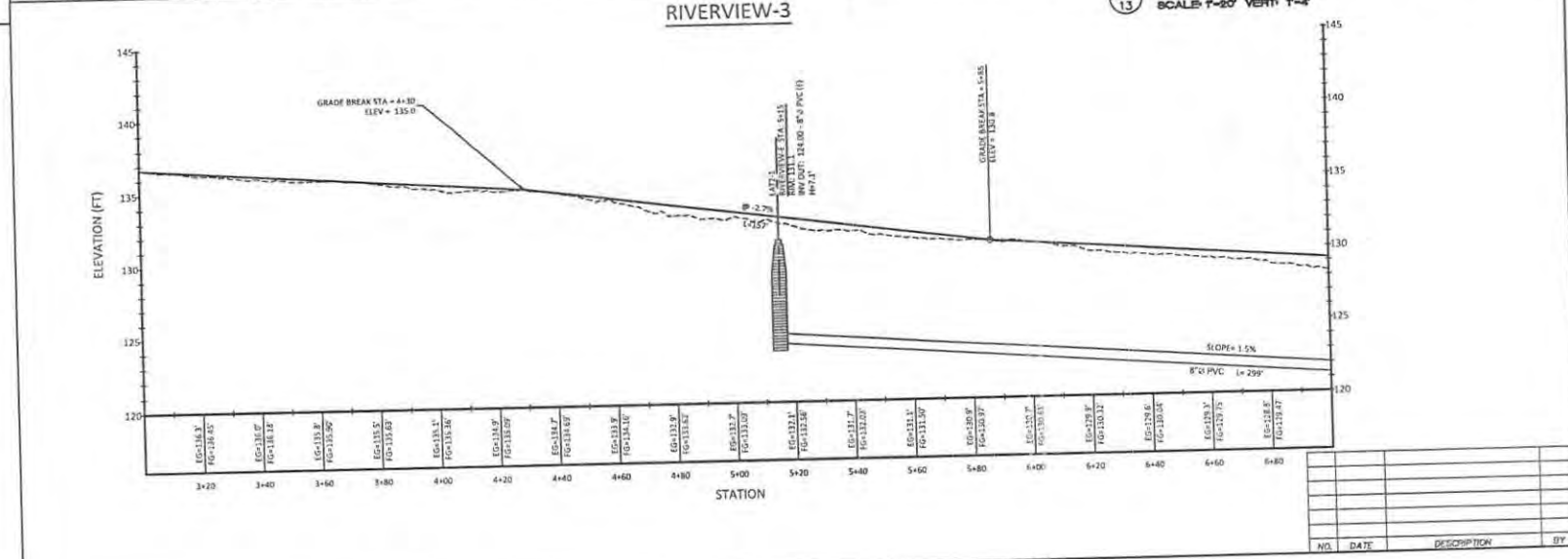
LEGEND:

EXISTING
- PROPERTY LINE
- SEWER LINE
- MANHOLE
- WATER LINE
- ROAD
- FIRE HYDRANT
- GATE VALVE

PROPOSED
- PROPERTY LINE
- EASEMENT
- SEWER MAIN
- SEWER MANHOLE/CO
- SEWER SERVICE
- WATER MAIN
- WATER FEEDER LINE
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- EDGE OF SHOULDER
- EDGE OF ASPHALT

PROFILE
- EXISTING GRADE
- FINISHED GRADE





NO.	DATE	DESCRIPTION	BY

MORGAN CIVIL ENGINEERING, INC.

• CIVIL ENGINEERING
• INSPECTION
• PLANNING

PO BOX 158
MANZANITA, OR 97130
(503) 801-6016
www.morgancivil.com

JOB NO. 858-19 rev
DATE: JUNE 12, 2022

REGISTERED PROFESSIONAL ENGINEER
JASON R. MORGAN
OREGON

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
UTILITY LAYOUT - RIVERVIEW DRIVE

NEHALEM, MAP 3N 10W 21B

SHEET 13 OF 23

SEWER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH NBWA.

101 CONNECT TO EXISTING STUB
102 INSTALL NEW MANHOLE
103 INSTALL NEW 8" SEWER PIPE
104 INSTALL NEW SEWER SERVICE ASSEMBLY
105 INSTALL NEW END OF LINE CLEANOUT

DEFLECTION TESTING, PRESSURE TESTING, AND VIDEO INSPECTION REQUIRED.

WATER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH CITY OF NEHALEM. 36" COVER OVER PIPES. 18" MIN VERTICAL SEPARATION FROM SEWER LINE AT CROSSINGS.

201 CONNECT TO EXISTING WATER
202 INSTALL 6" TEE WITH GATE VALVES
203 INSTALL 6" PVC PIPE
204 INSTALL FIRE HYDRANT ASSEMBLY
205 INSTALL D.I. BENDS, AS NEEDED
206 INSTALL WATER SERVICE ASSEMBLY

PRESSURE TESTING, AND BACTERIOLOGICAL TESTING REQUIRED.

STORM NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH COUNTY PUBLIC WORKS.

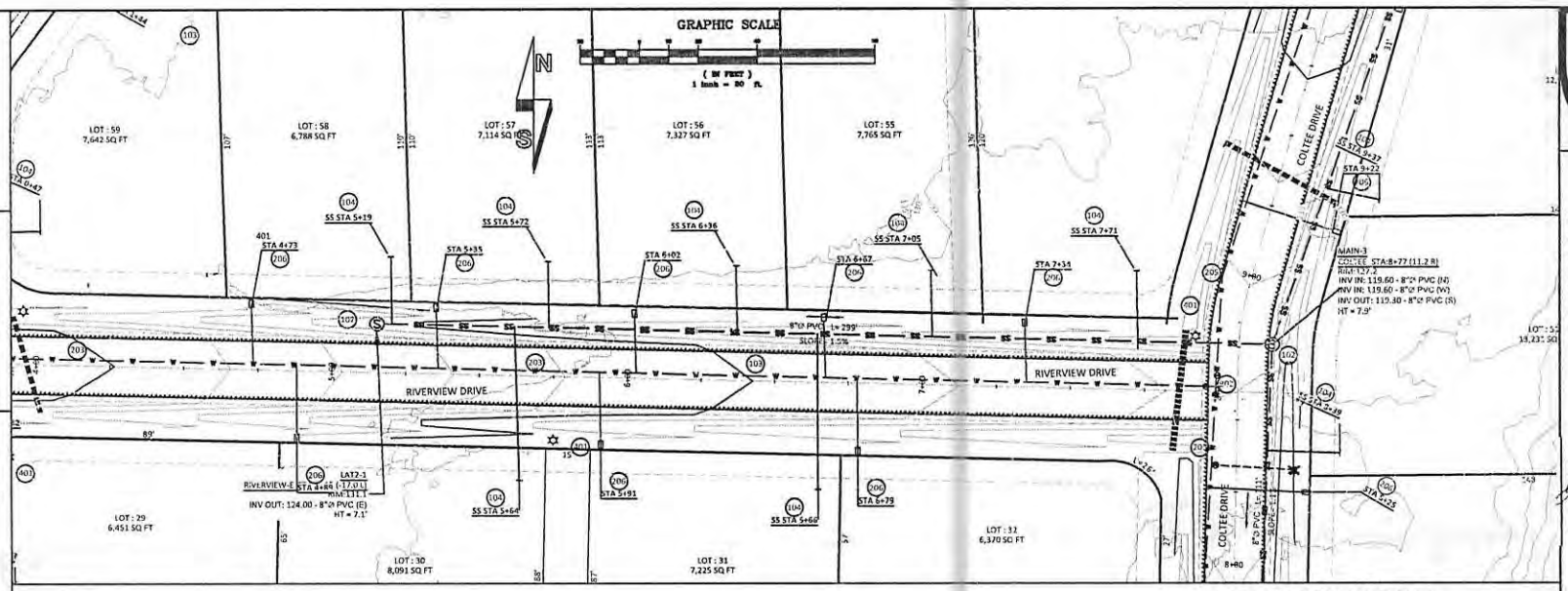
301 ROADSIDE DITCH
302 18" CULVERT

LEGEND:

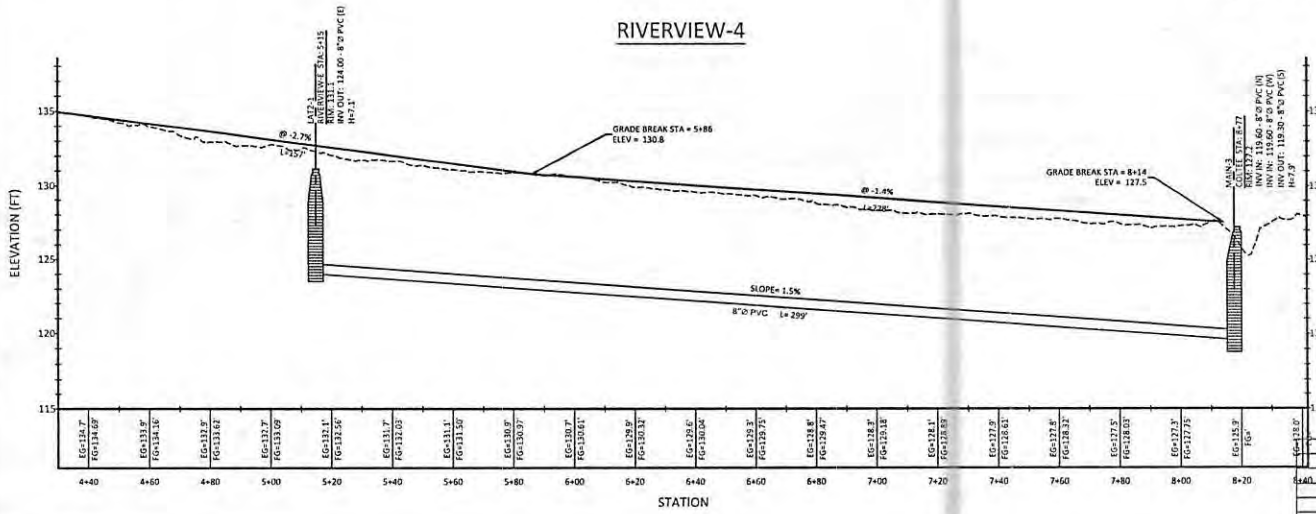
EXISTING
- PROPERTY LINE
- SEWER LINE
- MANHOLE
- WATER LINE
- ROAD
- FIRE HYDRANT
- GATE VALVE

PROPOSED
- PROPERTY LINE
- EASEMENT
- SEWER MAIN
- SEWER MANHOLE/CO
- SEWER SERVICE
- WATER MAIN
- WATER FEEDER LINE
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- EDGE OF SHOULDER
- EDGE OF ASPHALT

PROFILE
- EXISTING GRADE
- FINISHED GRADE



14 RIVERVIEW DRIVE
SCALE: 1"=20' VERT: 1"=4'



NO.	DATE	DESCRIPTION	BY

MORGAN CIVIL ENGINEERING, INC.
PO BOX 358
MANZANITA, OR 97130
(503) 801-0015
www.morganinc.com
• CIVIL ENGINEERING
• INSPECTION
• PLANNING

JOB NO. 21-01-ANY
DATE AUGUST 12, 2022

REGISTERED PROFESSIONAL ENGINEER 83065 OREGON JANUARY 19, 1983 JASON R. MORGAN
RENEWAL DATE - DECEMBER 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
UTILITY LAYOUT - RIVERVIEW DRIVE

NEHALEM, MAP 3N 10W 23B

SHEET 14 OF 23

SEWER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL: 92% COMPACTION.

COORDINATE WORK WITH NBWA.

101 CONNECT TO EXISTING STUB
102 INSTALL NEW MANHOLE
103 INSTALL NEW 8" SEWER PIPE
104 INSTALL NEW SEWER SERVICE ASSEMBLY
105 INSTALL NEW END OF LINE CLEANOUT

DEFLECTION TESTING, PRESSURE TESTING, AND VIDEO INSPECTION REQUIRED.

WATER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH CITY OF NEHALEM. 36" COVER OVER PIPES. 18" MIN VERTICAL SEPARATION FROM SEWER LINE AT CROSSINGS.

201 CONNECT TO EXISTING WATER
202 INSTALL 6" TEE WITH GATE VALVES
203 INSTALL 6" PVC PIPE
204 INSTALL FIRE HYDRANT ASSEMBLY
205 INSTALL D.I. BENDS, AS NEEDED
206 INSTALL WATER SERVICE ASSEMBLY

PRESSURE TESTING, AND BACTERIOLOGICAL TESTING REQUIRED.

STORM NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH COUNTY PUBLIC WORKS.

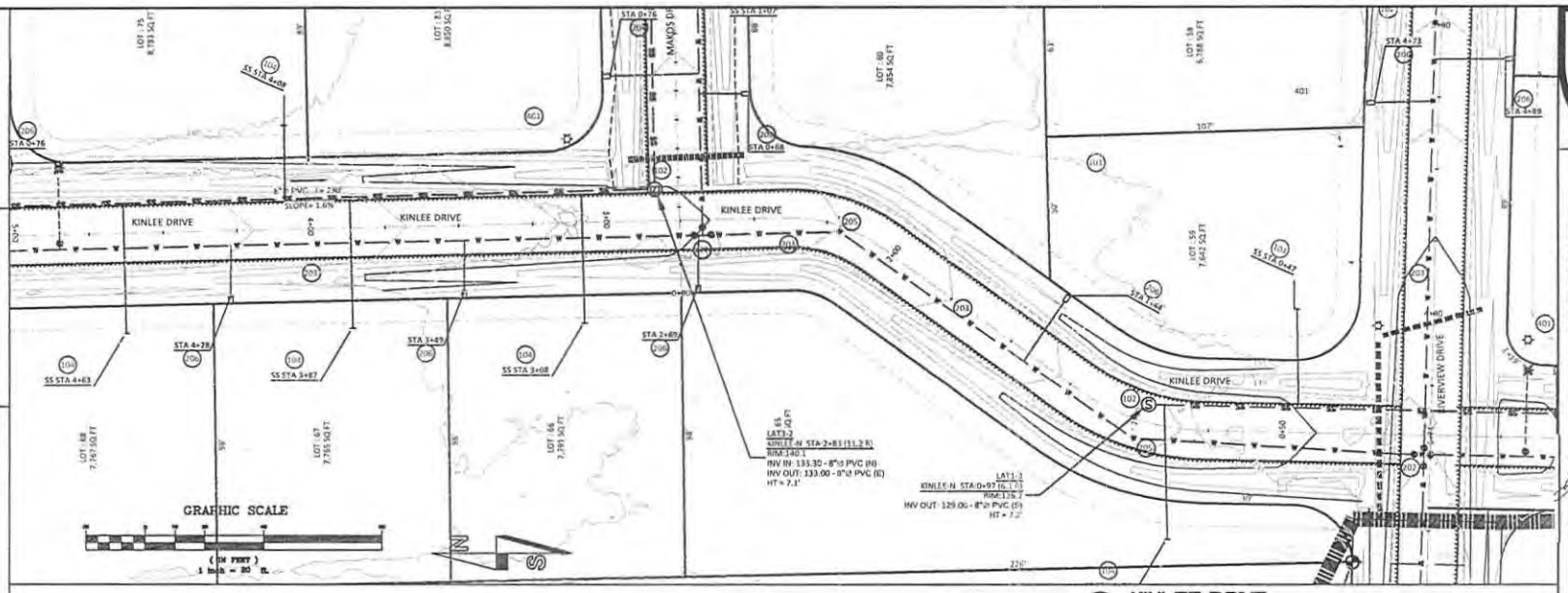
301 ROADSIDE DITCH
302 18" CULVERT

LEGEND:

EXISTING
- PROPERTY LINE
- SEWER LINE
- MANHOLE
- WATER LINE
- ROAD
- FIRE HYDRANT
- GATE VALVE

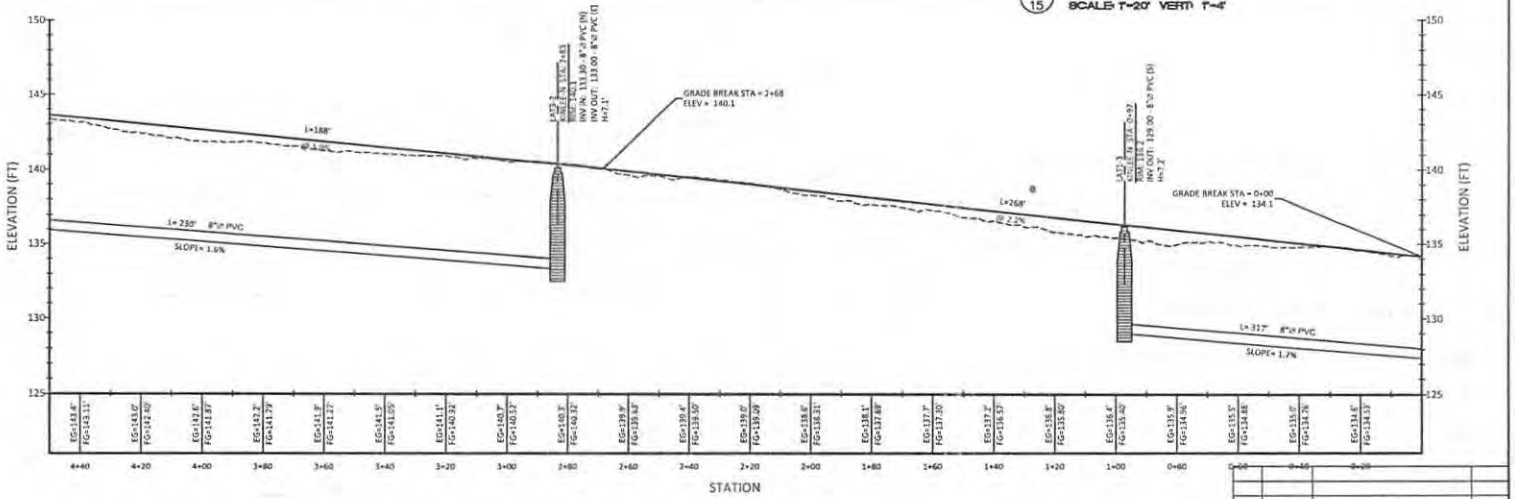
PROPOSED
- PROPERTY LINE
- EASEMENT
- SEWER MAIN
- SEWER MANHOLE/CO
- SEWER SERVICE
- WATER MAIN
- WATER FEEDER LINE
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- EDGE OF SHOULDER
- EDGE OF ASPHALT

PROFILE
- EXISTING GRADE
- FINISHED GRADE



15 KINLEE DRIVE

SCALE: 1"=20' VERT: 1"=4'



NO.	DATE	DESCRIPTION	BY

MORGAN CIVIL ENGINEERING, INC.
PO BOX 358
MANZANITA, OR 97130
(503) 801-6019
www.morgancivil.com
• CIVIL ENGINEERING
• INSPECTION
• PLANNING

REGISTERED PROFESSIONAL ENGINEER
83055
OREGON
JASON R. MORGAN

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
UTILITY LAYOUT - KINLEE DRIVE

NEHALEM, MAP 5N 10W 21B

SHEET 15 OF 23

SEWER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH NBWA.

101 CONNECT TO EXISTING STUB
102 INSTALL NEW MANHOLE
103 INSTALL NEW 8" SEWER PIPE
104 INSTALL NEW SEWER SERVICE ASSEMBLY
105 INSTALL NEW END OF LINE CLEANOUT

DEFLECTION TESTING, PRESSURE TESTING, AND VIDEO INSPECTION REQUIRED.

WATER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH CITY OF NEHALEM. 36" COVER OVER PIPES. 18" MIN VERTICAL SEPARATION FROM SEWER LINE AT CROSSINGS.

201 CONNECT TO EXISTING WATER
202 INSTALL 6" TEE WITH GATE VALVES
203 INSTALL 6" PVC PIPE
204 INSTALL FIRE HYDRANT ASSEMBLY
205 INSTALL D.I. BENDS, AS NEEDED
206 INSTALL WATER SERVICE ASSEMBLY

PRESSURE TESTING, AND BACTERIOLOGICAL TESTING REQUIRED.

STORM NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH COUNTY PUBLIC WORKS.

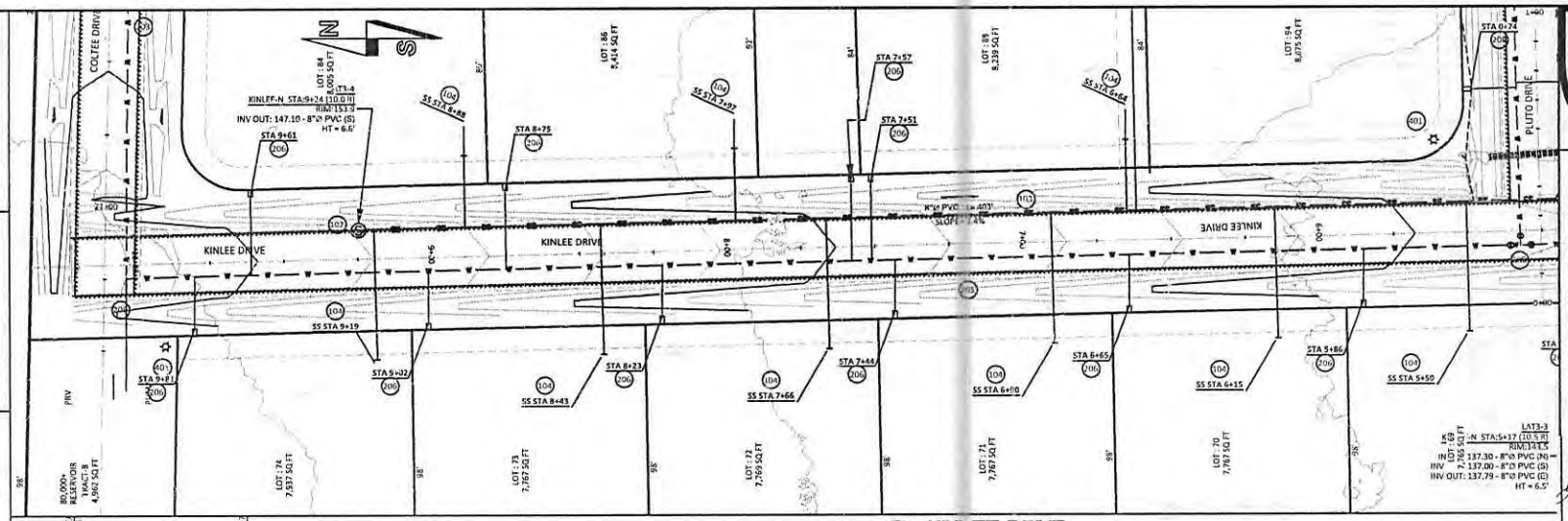
301 ROADSIDE DITCH
302 18" CULVERT

LEGEND:

EXISTING
- PROPERTY LINE
- SEWER LINE
- MANHOLE
- WATER LINE
- ROAD
- FIRE HYDRANT
- GATE VALVE

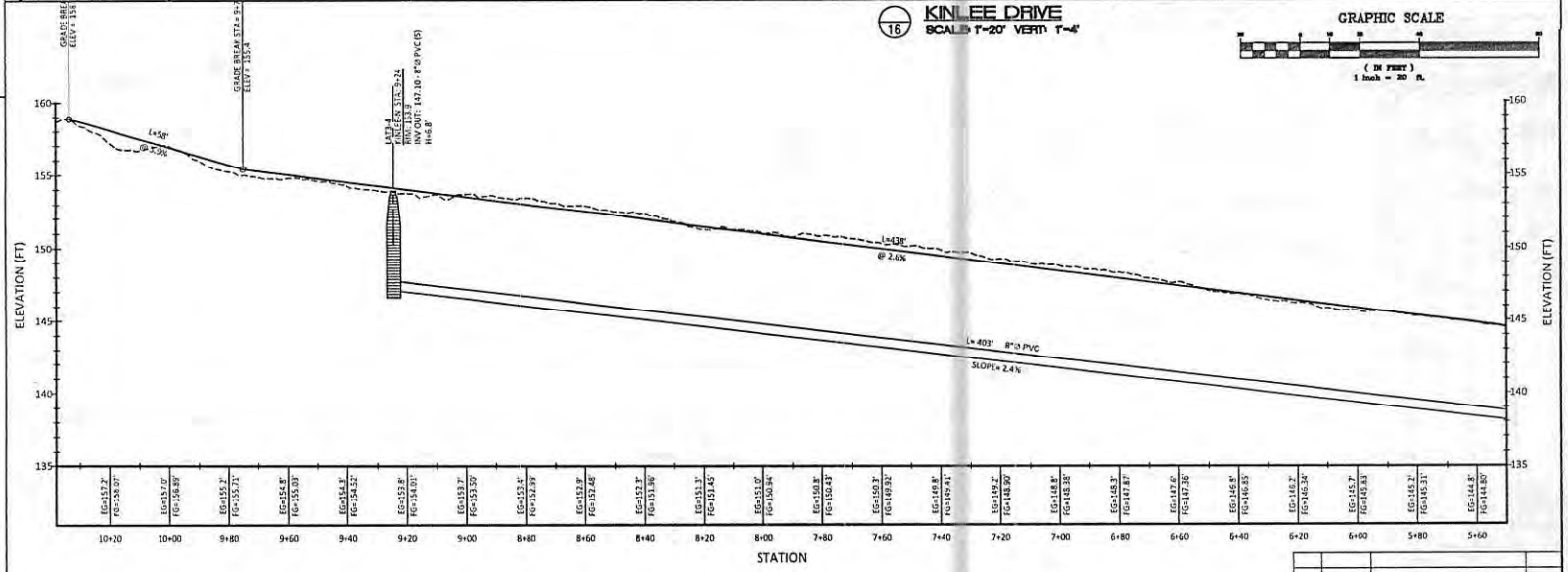
PROPOSED
- PROPERTY LINE
- EASEMENT
- SEWER MAIN
- SEWER MANHOLE/CO
- SEWER SERVICE
- WATER MAIN
- WATER FEEDER LINE
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- EDGE OF SHOULDER
- EDGE OF ASPHALT

PROFILE
- EXISTING GRADE
- FINISHED GRADE



16 KINLEE DRIVE
SCALE: 1"=20' VERT: 1"=4'

GRAPHIC SCALE
(IN FEET)
1 inch = 20 ft.



NO.	DATE	DESCRIPTION	BY

MORGAN CIVIL ENGINEERING, INC.
PO BOX 238
MANZANITA, OR 97130
(503) 801-6016
www.morgancivil.com
• CIVIL ENGINEERING
• INSPECTION
• PLANNING

JOB NO. 838.10 REV
DATE AUGUST 12, 2022

REGISTERED PROFESSIONAL ENGINEER 83058 OREGON JANUARY 25, 1983 JASON K. MORGAN

RENEWAL DATE DECEMBER 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
UTILITY LAYOUT - KINLEE DRIVE

NEHALEM, MAP 3N 10W 21B

SHEET 16 OF 23

SEWER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH NBWA.

101 CONNECT TO EXISTING STUB
102 INSTALL NEW MANHOLE
103 INSTALL NEW 8" SEWER PIPE
104 INSTALL NEW SEWER SERVICE ASSEMBLY
105 INSTALL NEW END OF LINE CLEANOUT

DEFLECTION TESTING, PRESSURE TESTING, AND VIDEO INSPECTION REQUIRED.

WATER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH CITY OF NEHALEM. 36" COVER OVER PIPES. 18" MIN VERTICAL SEPARATION FROM SEWER LINE AT CROSSINGS.

201 CONNECT TO EXISTING WATER
202 INSTALL 6" TEE WITH GATE VALVES
203 INSTALL 6" PVC PIPE
204 INSTALL FIRE HYDRANT ASSEMBLY
205 INSTALL D.I. BENDS, AS NEEDED
206 INSTALL WATER SERVICE ASSEMBLY

PRESSURE TESTING, AND BACTERIOLOGICAL TESTING REQUIRED.

STORM NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH COUNTY PUBLIC WORKS.

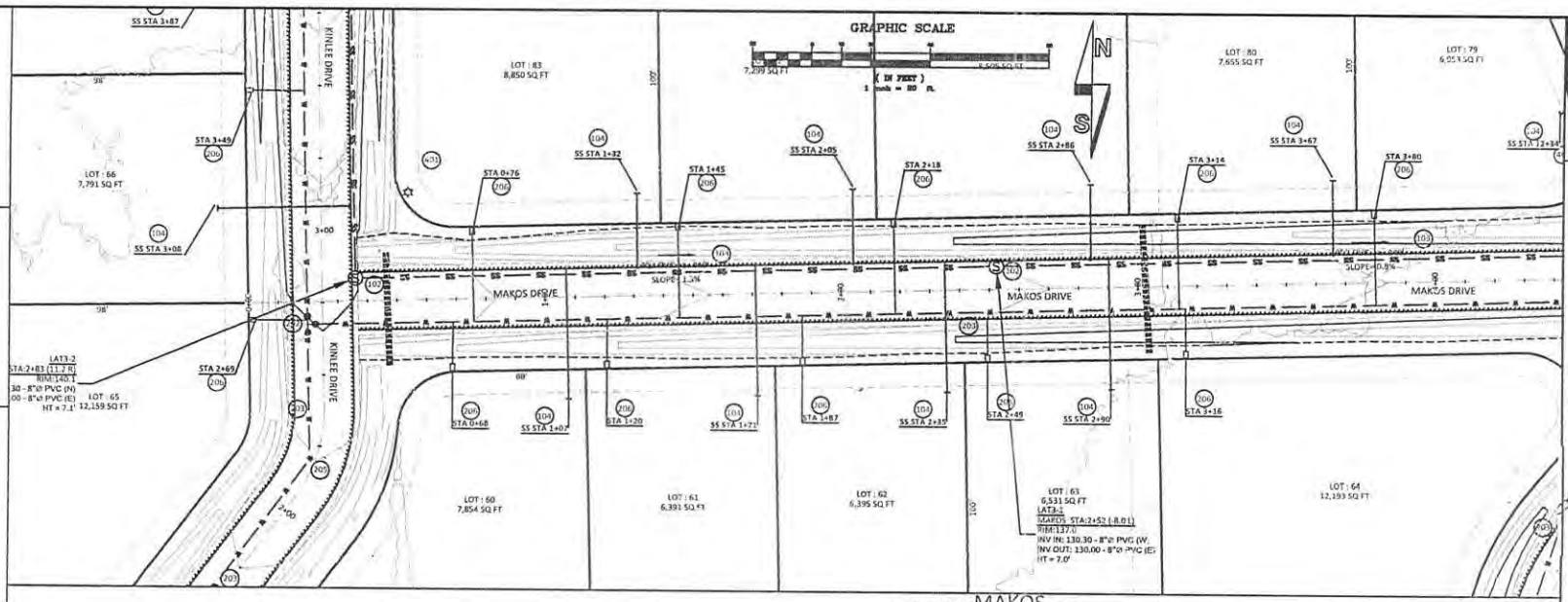
301 ROADSIDE DITCH
302 18" CULVERT

LEGEND:

EXISTING
- PROPERTY LINE
- SEWER LINE
- MANHOLE
- WATER LINE
- ROAD
- FIRE HYDRANT
- GATE VALVE

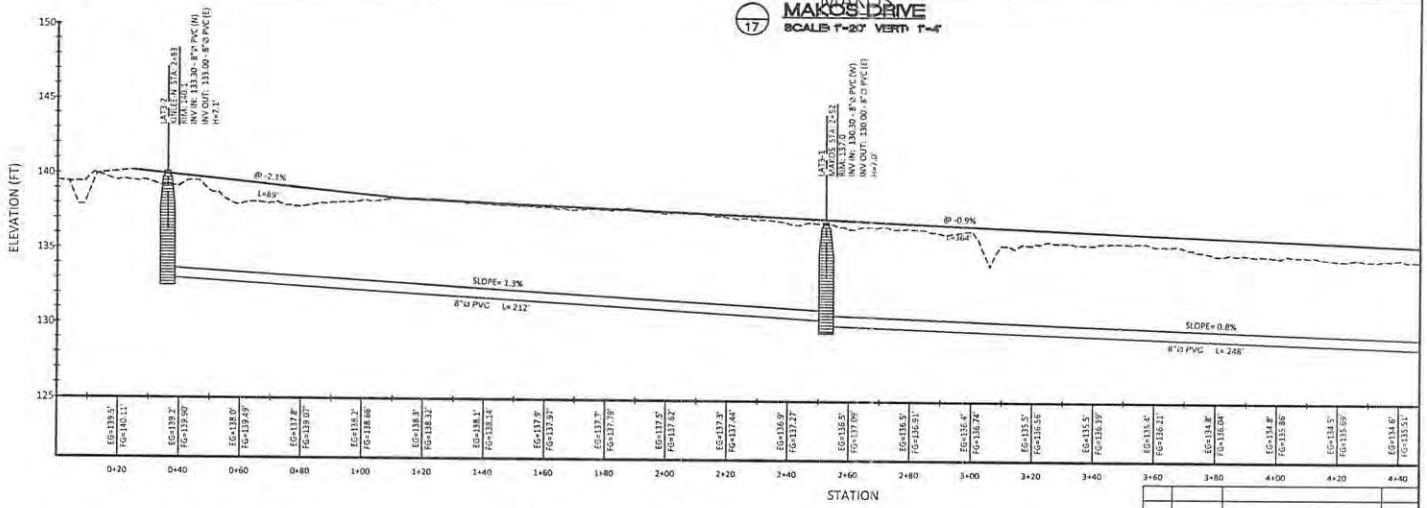
PROPOSED
- PROPERTY LINE
- EASEMENT
- SEWER MAIN
- SEWER MANHOLE/CO
- SEWER SERVICE
- WATER MAIN
- WATER FEEDER LINE
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- EDGE OF SHOULDER
- EDGE OF ASPHALT

PROFILE
- EXISTING GRADE
- FINISHED GRADE



17 MAKOS DRIVE

SCALE: 1"=20' VERT 1"=4'



NO.	DATE	DESCRIPTION	BY

MORGAN CIVIL ENGINEERING, INC.

PO BOX 358
MANZANITA, OR 97130
(503) 801-0115
www.morganpdx@aol.com

• CIVIL ENGINEERING
• INSPECTION
• SURVEYING
• PLANNING

JOB NO. 19-10.Rev
DATE 12-12-2022
REVISED 03-12-2022

REGISTERED PROFESSIONAL ENGINEER 63055 OREGON JANUARY 19, 1981 JASON R. MORGAN

RENEWAL DATE: DECEMBER 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
UTILITY LAYOUT - MAKOS DRIVE

NEHALEM, MAP 3N 10W 23B

SHEET 17 OF 23

SEWER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH NBWA.

101 CONNECT TO EXISTING STUB
102 INSTALL NEW MANHOLE
103 INSTALL NEW 8" SEWER PIPE
104 INSTALL NEW SEWER SERVICE ASSEMBLY
105 INSTALL NEW END OF LINE CLEANOUT

DEFLECTION TESTING, PRESSURE TESTING, AND VIDEO INSPECTION REQUIRED.

WATER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH CITY OF NEHALEM. 36" COVER OVER PIPES. 18" MIN VERTICAL SEPARATION FROM SEWER LINE AT CROSSINGS.

201 CONNECT TO EXISTING WATER
202 INSTALL 6" TEE WITH GATE VALVES
203 INSTALL 6" PVC PIPE
204 INSTALL FIRE HYDRANT ASSEMBLY
205 INSTALL D.I. BENDS, AS NEEDED
206 INSTALL WATER SERVICE ASSEMBLY

PRESSURE TESTING, AND BACTERIOLOGICAL TESTING REQUIRED.

STORM NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH COUNTY PUBLIC WORKS.

301 ROADSIDE DITCH
302 18" CULVERT

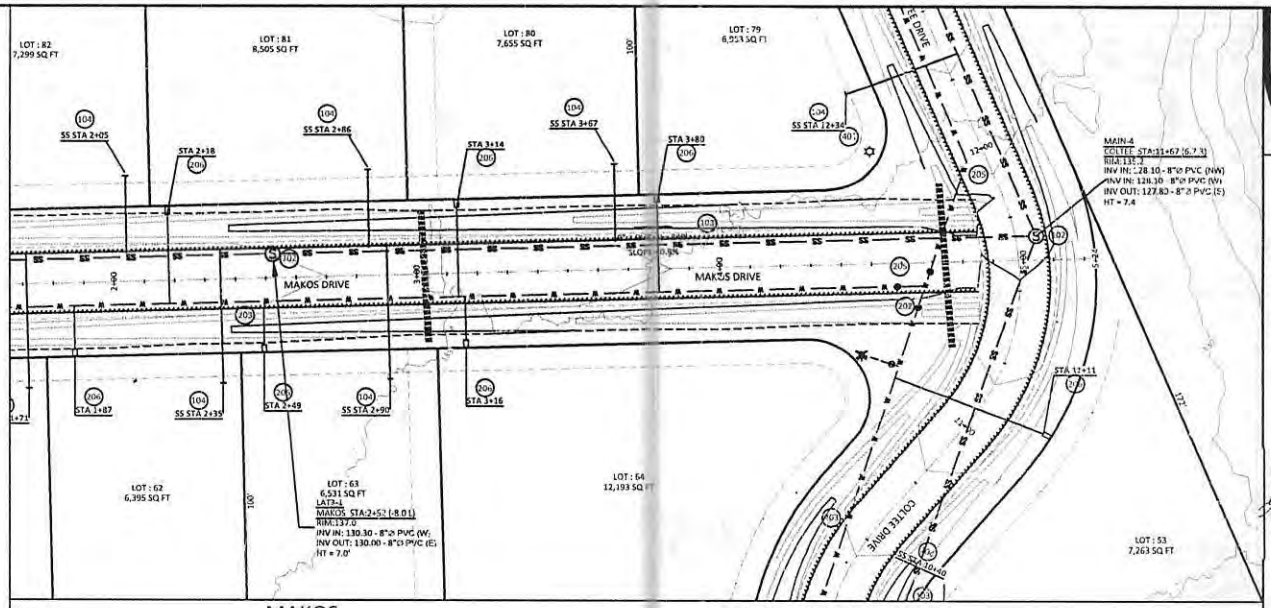
LEGEND:

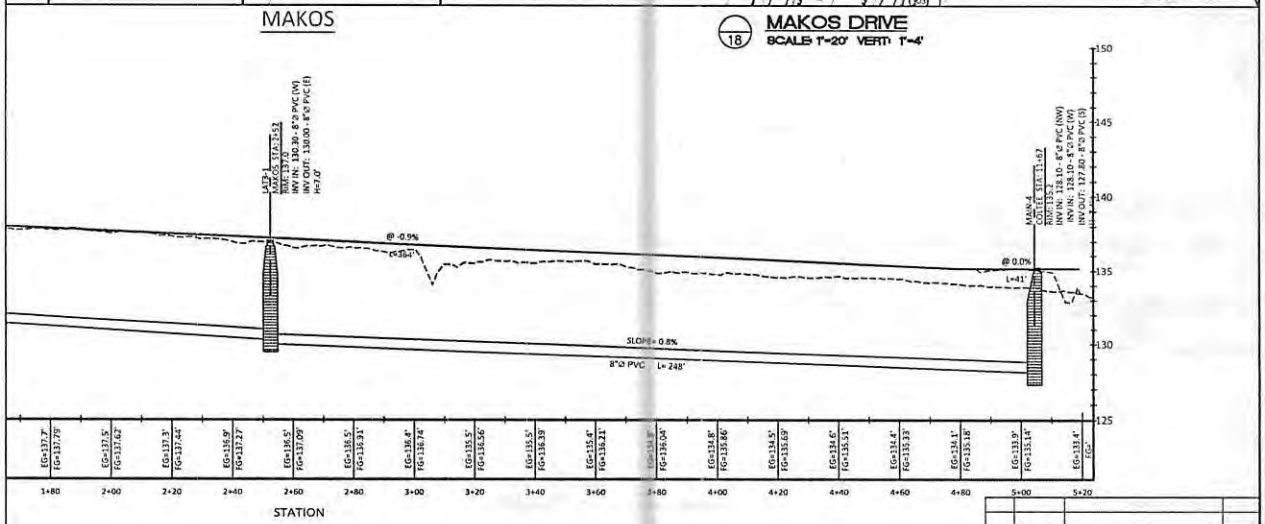
EXISTING
- PROPERTY LINE
- SEWER LINE
- MANHOLE
- WATER LINE
- ROAD
- FIRE HYDRANT
- GATE VALVE

PROPOSED
- PROPERTY LINE
- EASEMENT
- SEWER MAIN
- SEWER MANHOLE/CO
- SEWER SERVICE
- WATER MAIN
- WATER FEEDER LINE
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- EDGE OF SHOULDER
- EDGE OF ASPHALT

PROFILE
- EXISTING GRADE
- FINISHED GRADE

GRAPHIC SCALE
(IN FEET)
1 inch = 20 ft.





NO.	DATE	DESCRIPTION	BY

MORGAN CIVIL ENGINEERING, INC.
PO BOX 338
MANZANITA, OR 97130
(503) 801-6016
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• CIVIL ENGINEERING • SURVEYING • PLANNING

FOR NO. 19-10 REV
DATE: AUGUST 12, 2022

REGISTERED PROFESSIONAL ENGINEER 83055 OREGON JANUARY 19, 1984 JASON R. MORGAN
RENEWAL DATE: JULY/JANUARY 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
UTILITY LAYOUT - MAKOS DRIVE
NEHALEM, MAP 3N 10W 23B

SHEET 18 OF 23

SEWER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH NRWA.

101 CONNECT TO EXISTING STUB
102 INSTALL NEW MANHOLE
103 INSTALL NEW 8" SEWER PIPE
104 INSTALL NEW SEWER SERVICE ASSEMBLY
105 INSTALL NEW END OF LINE CLEANOUT

DEFLECTION TESTING, PRESSURE TESTING, AND VIDEO INSPECTION REQUIRED.

WATER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH CITY OF NEHALEM. 36" COVER OVER PIPES. 18" MIN VERTICAL SEPARATION FROM SEWER LINE AT CROSSINGS.

201 CONNECT TO EXISTING WATER
202 INSTALL 6" TEE WITH GATE VALVES
203 INSTALL 6" PVC PIPE
204 INSTALL FIRE HYDRANT ASSEMBLY
205 INSTALL D.I. BENDS, AS NEEDED
206 INSTALL WATER SERVICE ASSEMBLY

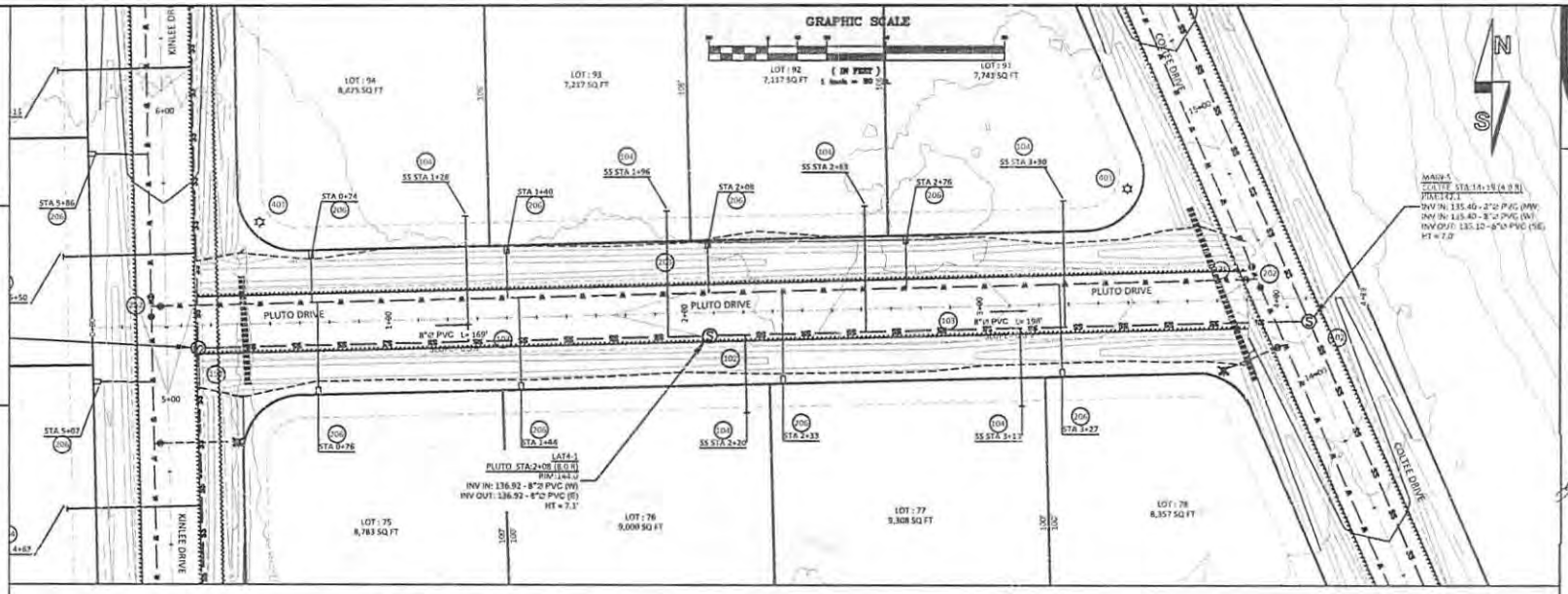
PRESSURE TESTING, AND BACTERIOLOGICAL TESTING REQUIRED.

STORM NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

COORDINATE WORK WITH COUNTY PUBLIC WORKS.

301 ROADSIDE DITCH
302 18" CULVERT



LEGEND:

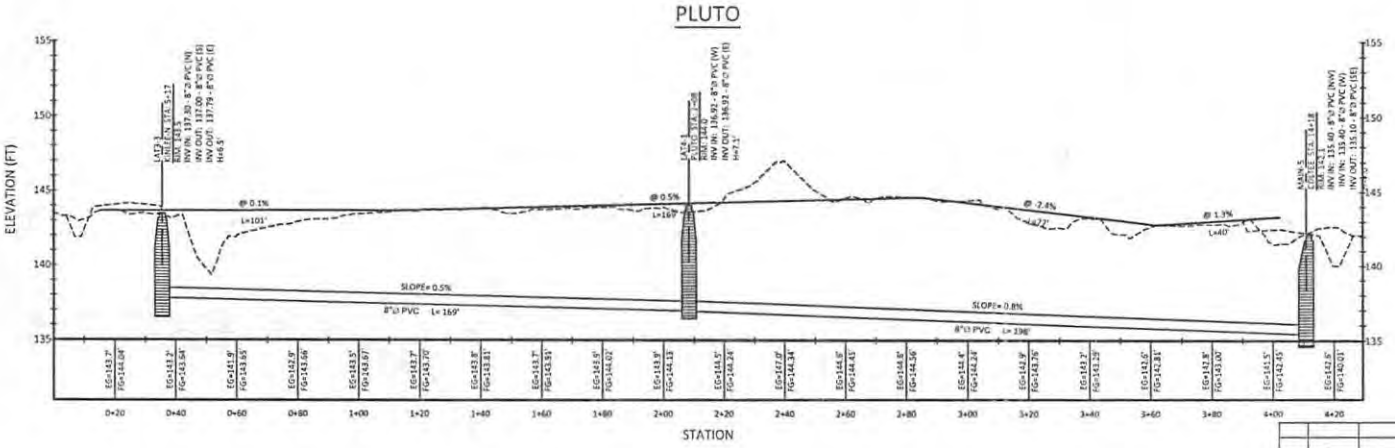
EXISTING
- PROPERTY LINE
- SEWER LINE
- MANHOLE
- WATER LINE
- ROAD
- FIRE HYDRANT
- GATE VALVE

PROPOSED
- PROPERTY LINE
- EASEMENT
- SEWER MAIN
- SEWER MANHOLE/CO
- SEWER SERVICE
- WATER MAIN
- WATER FEEDER LINE
- WATER VALVE
- FIRE HYDRANT
- WATER SERVICE
- EDGE OF SHOULDER
- EDGE OF ASPHALT

PROFILE
- EXISTING GRADE
- FINISHED GRADE

19 PLUTO DRIVE

SCALE: 1"=20' VERT: 1"=4'



NO.	DATE	DESCRIPTION	BY

MORGAN CIVIL ENGINEERING, INC.
PO BOX 318
MANZANITA, OR 97130
(503) 801-6018
www.morgancive.com
• CIVIL ENGINEERING
• INSPECTION
• PLANNING

JOB NO.
DWG NO. 19 OF 19
DATE AUGUST 11, 2022

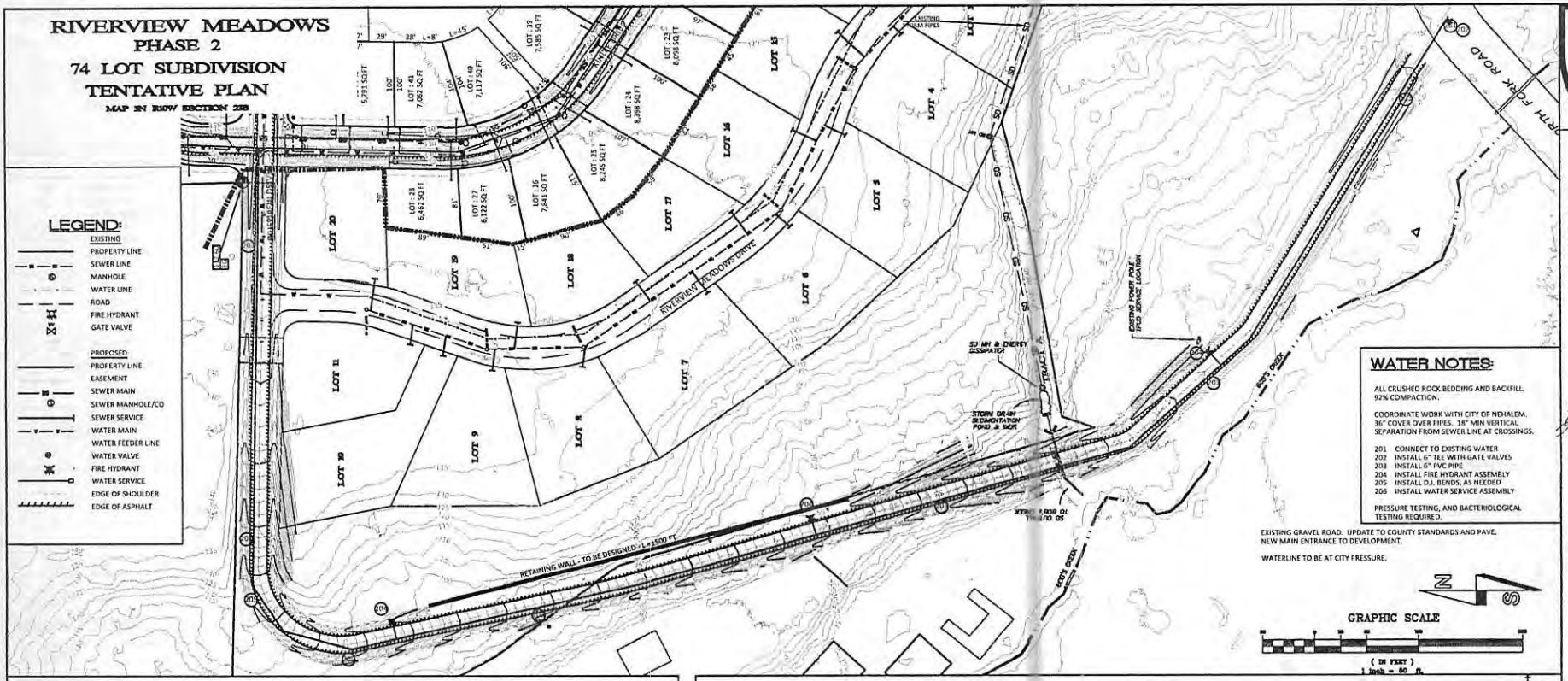
REGISTERED PROFESSIONAL ENGINEER
OREGON

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
UTILITY LAYOUT - PLUTO DRIVE
NEHALEM, MAP 3N 10W 23B

SHEET 19 OF 23

RIVERVIEW MEADOWS
PHASE 2
74 LOT SUBDIVISION
TENTATIVE PLAN

MAP 3N 1EW SECTION 23B



WATER NOTES:

ALL CRUSHED ROCK BEDDING AND BACKFILL. 92% COMPACTION.

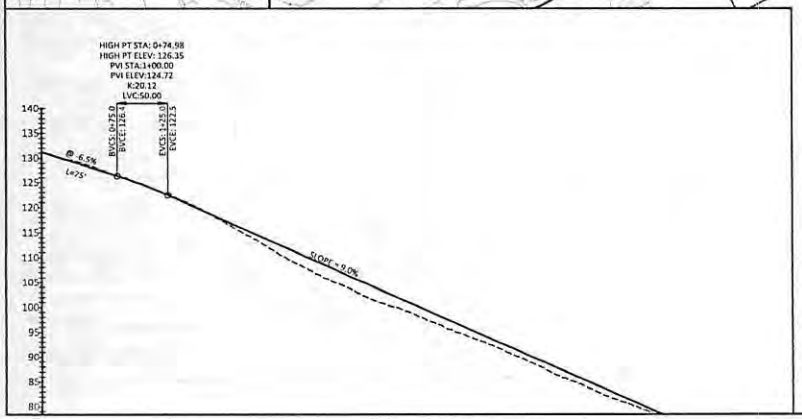
COORDINATE WORK WITH CITY OF NEHALEM. 36" COVER OVER PIPES. 18" MIN VERTICAL SEPARATION FROM SEWER LINE AT CROSSINGS.

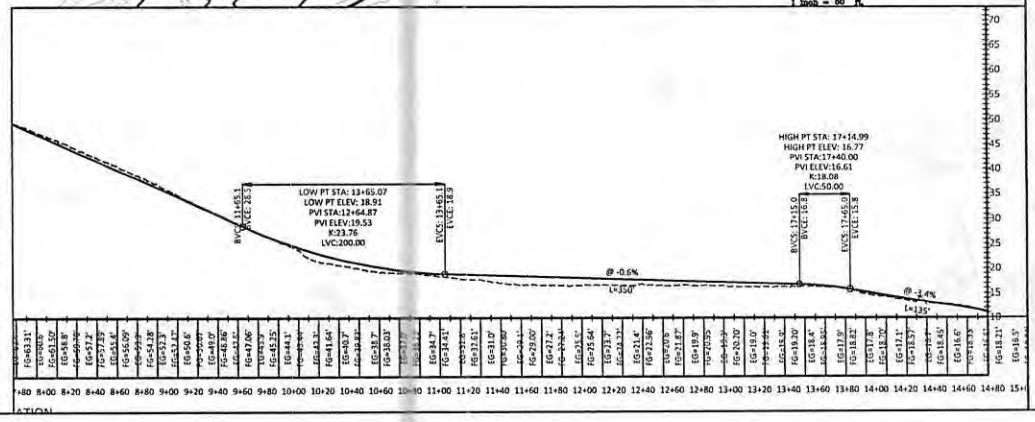
201	CONNECT TO EXISTING WATER
202	INSTALL 6" TEE WITH GATE VALVES
203	INSTALL 6" PVC PIPE
204	INSTALL FIRE HYDRANT ASSEMBLY
205	INSTALL D.I. BENDS, AS NEEDED
206	INSTALL WATER SERVICE ASSEMBLY

PRESSURE TESTING, AND BACTERIOLOGICAL TESTING REQUIRED.

EXISTING GRAVEL ROAD. UPDATE TO COUNTY STANDARDS AND PAVE. NEW MAIN ENTRANCE TO DEVELOPMENT.

WATERLINE TO BE AT CITY PRESSURE.





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DATE: AUGUST 12, 2022

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OREGON
JANUARY 19, 2021
JASON R. MORGAN

RENEWAL DATE: OCTOBER 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
ENTRANCE ROAD

NEHALEM, MAP 3N 1EW 23B

RIVERVIEW MEADOWS DEVELOPMENT, LLC

RIVERVIEW MEADOWS PHASE 2
ROAD ALIGNMENTS

NEHALEM, MAP 3N 10W 23B

REGISTERED PROFESSIONAL ENGINEER
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AUGUST 12, 2022

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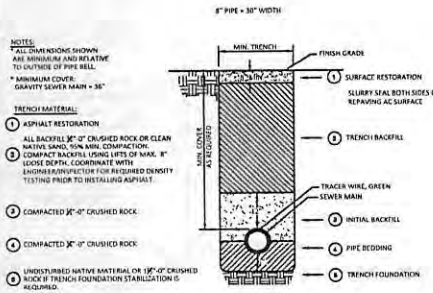
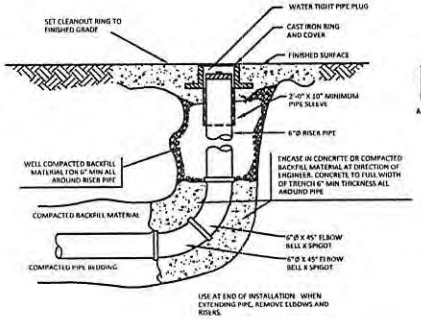


1/22 SEWER MAIN TRENCH DETAIL
NO SCALE



2/22 END OF LINE CLEANOUT
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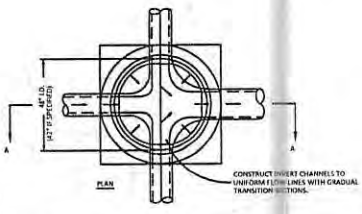
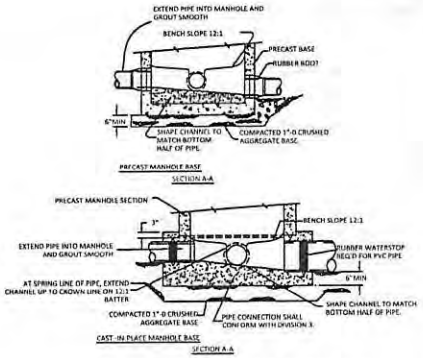
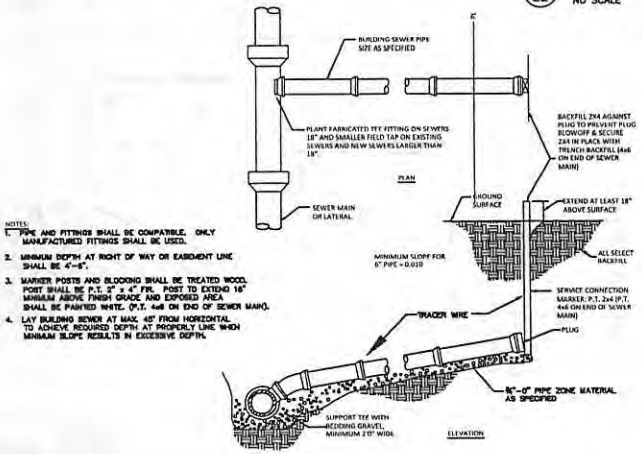


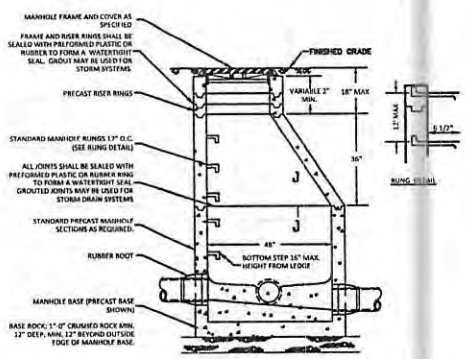
3/22 MANHOLE BASE PLAN
NO SCALE



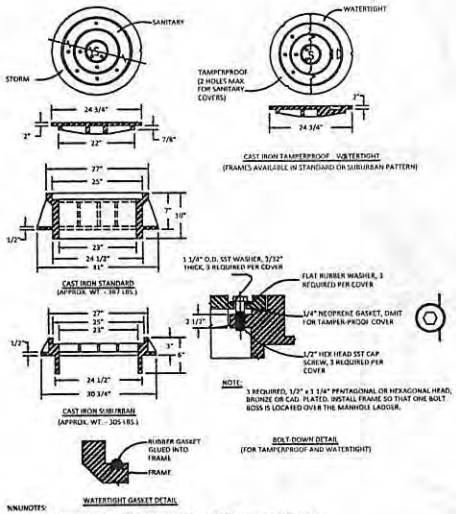
4/22 MANHOLE BASE SECTION
NO SCALE



5/22 SANITARY SEWER SERVICE CONNECTION
NO SCALE



6/22 STANDARD SANITARY SEWER MANHOLE
NO SCALE



7/22 MANHOLE COVER AND FRAME DETAIL
NO SCALE

NO.	DATE	DESCRIPTION	BY

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JOB NO. 418
REV DATE: AUGUST 12, 2022

REGISTERED PROFESSIONAL ENGINEER 63055 OREGON JANUARY 15, 1981 JASON R. MORGAN
RENEWAL DATE: DECEMBER 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
SEWER SYSTEM DETAILS

NEHALEM, MAP 3N 10W 23B

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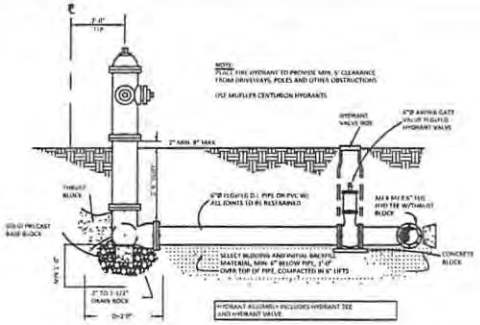
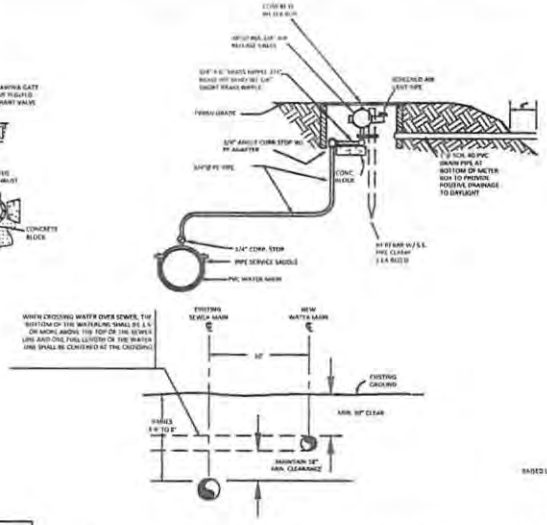
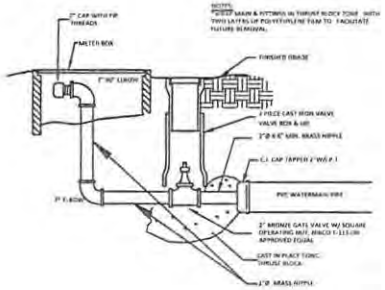


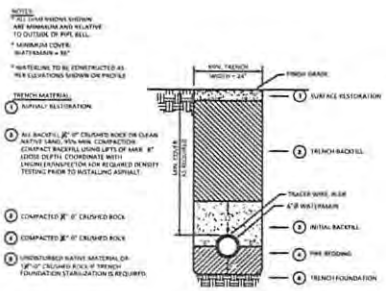
1/23 FIRE HYDRANT ASSEMBLY
NO SCALE



2/23 WATER LINE - SEWER LINE SEPARATION
NO SCALE



3/23 WATER BLOWOFF DETAIL
NO SCALE

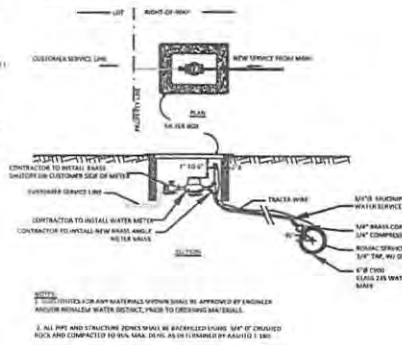


4/23 WATERMAIN TRENCH DETAIL
NO SCALE

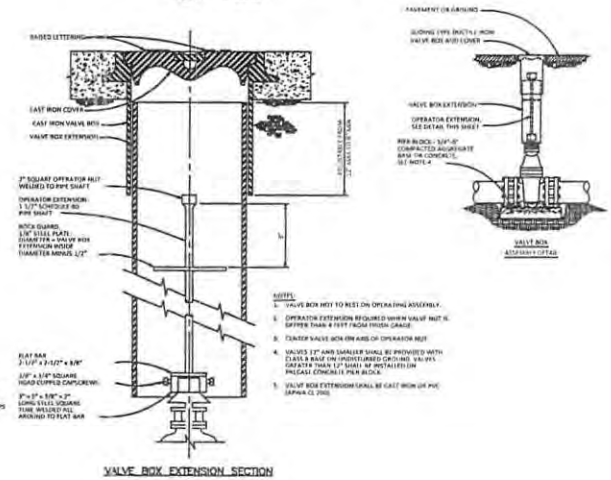
(INCLUDES ALL BEARING AREA OF THRUST BLOCKS IN SQUARE FEET								
FITTING SIZE	TEE, WYE, DEAD END AND HYDRANT	STRADDLE BLOCK	90° BEND PLUGGED CROSS	11¼ PLUGGED ON SIDE		45° BEND	22-1/2° BEND	11-1/4° BEND
				6-1	6-2			
4	2.9	5.2	2.9	3.8	2.8	2.0	—	—
6	4.2	7.4	6.0	8.4	6.0	3.7	2.0	—

NOTES:
1. USE BEARING AREAS BASED ON TEST PRESSURE OF 150 PSI AND AN ALLOWABLE SOIL BEARING STRESS OF 1000 POUNDS PER SQUARE FOOT. TO COMPUTE BEARING AREAS FOR DIFFERENT TEST PRESSURES AND SOIL BEARING STRESSES, USE THE FOLLOWING EQUATION:
   BEARING AREA = (TEST PRESSURE / 150) x (1000 / SOIL BEARING STRESS) x (TABLE VALUE)
2. ABOVE VOLUMES BASED ON TEST PRESSURE OF 150 PSI AND THE WEIGHT OF CONCRETE = 4050 POUNDS PER CUBIC YARD. TO COMPUTE FOR DIFFERENT TEST PRESSURES, USE THE FOLLOWING EQUATION:
   VOLUME = (TEST PRESSURE / 150) x (TABLE VALUE)

5/23 THRUST BLOCKING
NO SCALE



6/23 WATER SERVICE DETAIL
NO SCALE



VALVE BOX EXTENSION SECTION

7/23 TYPICAL VALVE
NO SCALE

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OREGON
JANUARY 15, 1997
JASON R. MORGAN

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
WATER SYSTEM DETAILS

NEHALEM MAP 2N 10W 25B

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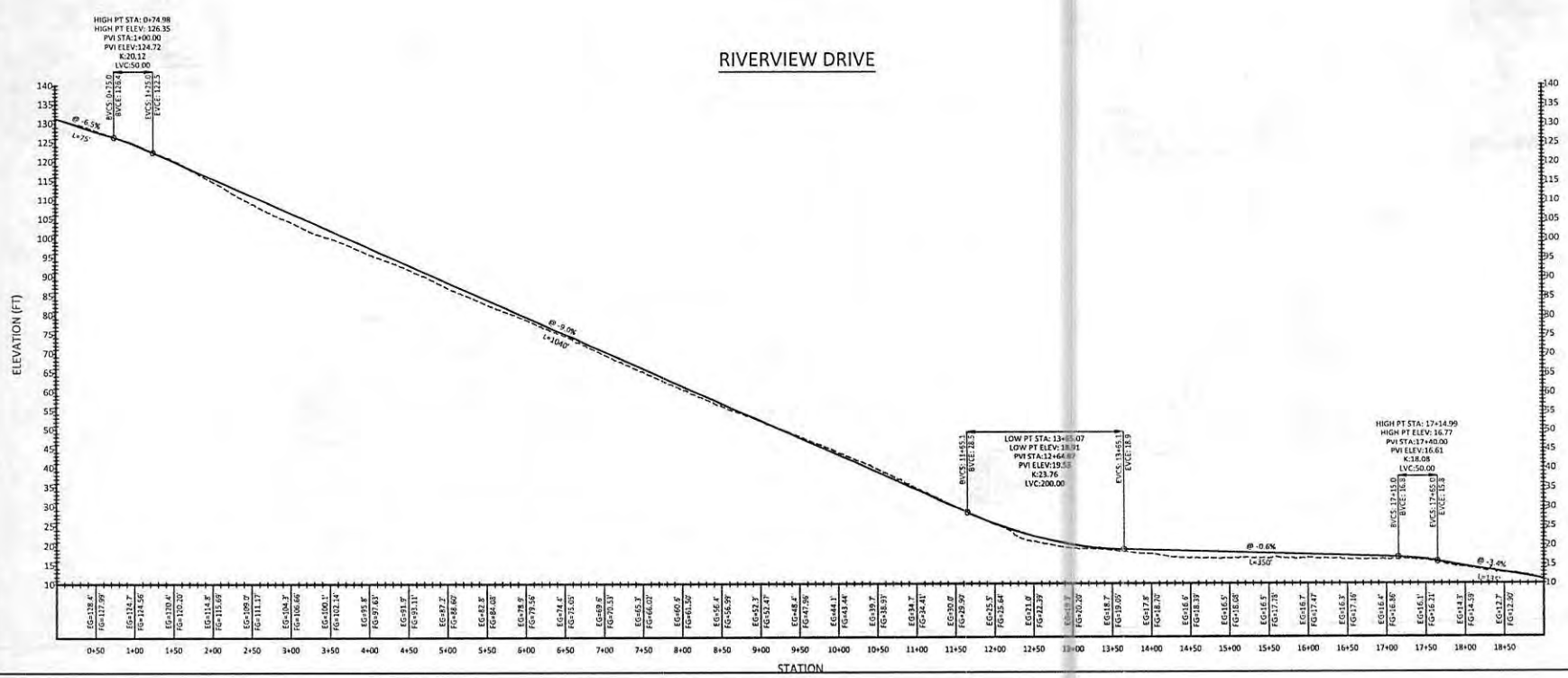
RIVERVIEW MEADOWS
PHASE 2
74 LOT SUBDIVISION
TENTATIVE PLAN
MAP 3N 1E0W SECTION 23B

20B **ENTRANCE ROAD PROFILE**
SCALE: 1"=70' VERT: 1"=14' (5 X EXAGGERATION)



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PREPARED BY: JEB
REVISED: 12-REV
DATE: AUGUST 12, 2022

REGISTERED PROFESSIONAL ENGINEER 83055 OREGON JANUARY 19, 2021 JASON B. MORGAN

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
ENTRANCE ROAD PROFILE

NEHALEM, MAP 3N 10W 23B

SHEET
20b
OF 23

MORGAN CIVIL ENGINEERING, INC.

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Drainage Calculations for

Riverview Meadows Phase 2
Tax Lot 3600, Map 3N 10W 23B
Nehalem, Tillamook County, Oregon

August 12, 2022

REGISTERED PROFESSIONAL ENGINEER 63055 OREGON JANUARY 15, 2002 JASON R. MORGAN

RENEWAL DATE: DECEMBER 31, 2022

Table of Contents

Design Criteria

Drainage Run-off – Rational Method

Intensity

Rainfall Intensity-Duration-Recurrence Interval Curves
ODOT Hydraulics Manual, Zone 2

Rational Method - Run-off Coefficients

Residential (Normal – 4.8 units/acre)	0.50

Manning's Equation - Coefficients

n – (HDPE pipe)	0.012
n – (rock lined ditch, jagged)	0.040

Narrative of Engineering Analysis

These calculations have been prepared to address the stormwater run-off from the proposed development on the subject property. This property is nearly flat and is undeveloped other than some graded roadways and ditches. Phase 1 of the development has been developed and most of the twenty lots are developed with homes.

These calculations determine the rate of stormwater run-off from the site, with roughly two-thirds of the new development running to an existing culvert and one-third flowing to an existing ditch. Water run-off from Phase 1 also flows to the existing culvert.

The proposed development will consist of 74 new single-family homes, and roadways to serve them. The average development density is 4.8 units per acre. The property is sloped down to the south at roughly 2 percent. The planned drainage system is shown to safely convey the run-off from a 100-year storm event.

The property consists of a layer of organic topsoil over a dense silty clay. There are currently vegetated ditches on the property that direct water to the south and west, off the property and through Phase 1 of the development.

Sheet 3 of the plans shows the drainage paths.

Phase 1 Drainage – Existing

The collected stormwater from Phase 1 of Riverview Meadows flows into roadside ditches and southward to a culvert system behind Lot 3. The water runs in the culvert to the base of the hill to the west. At that point, there is an energy dissipater and sediment pond, before the water flows under the roadway to Bob's Creek.

Southern Drainage Area - Planned

Water from the roads and house in the eastern and southern portions of the property will flow southward through roadside ditches and culverts to near Lot 3. The water will combine with water run-off from Phase 1 and flow down a culvert to the entrance road, as described above. Several of these ditches are already in place along with the rough graded roadways.

The roadside ditches will be standard V-shaped ditches that are 4 feet wide and 2 feet deep, or larger.

The attached calculations show the run-off from the eastern area and Phase 1, and the capacities of the pipes down to Bob's Creek. The Manning Equation was used to verify that the existing pipes are adequate for the total proposed flow.

Northern Drainage Area - Planned

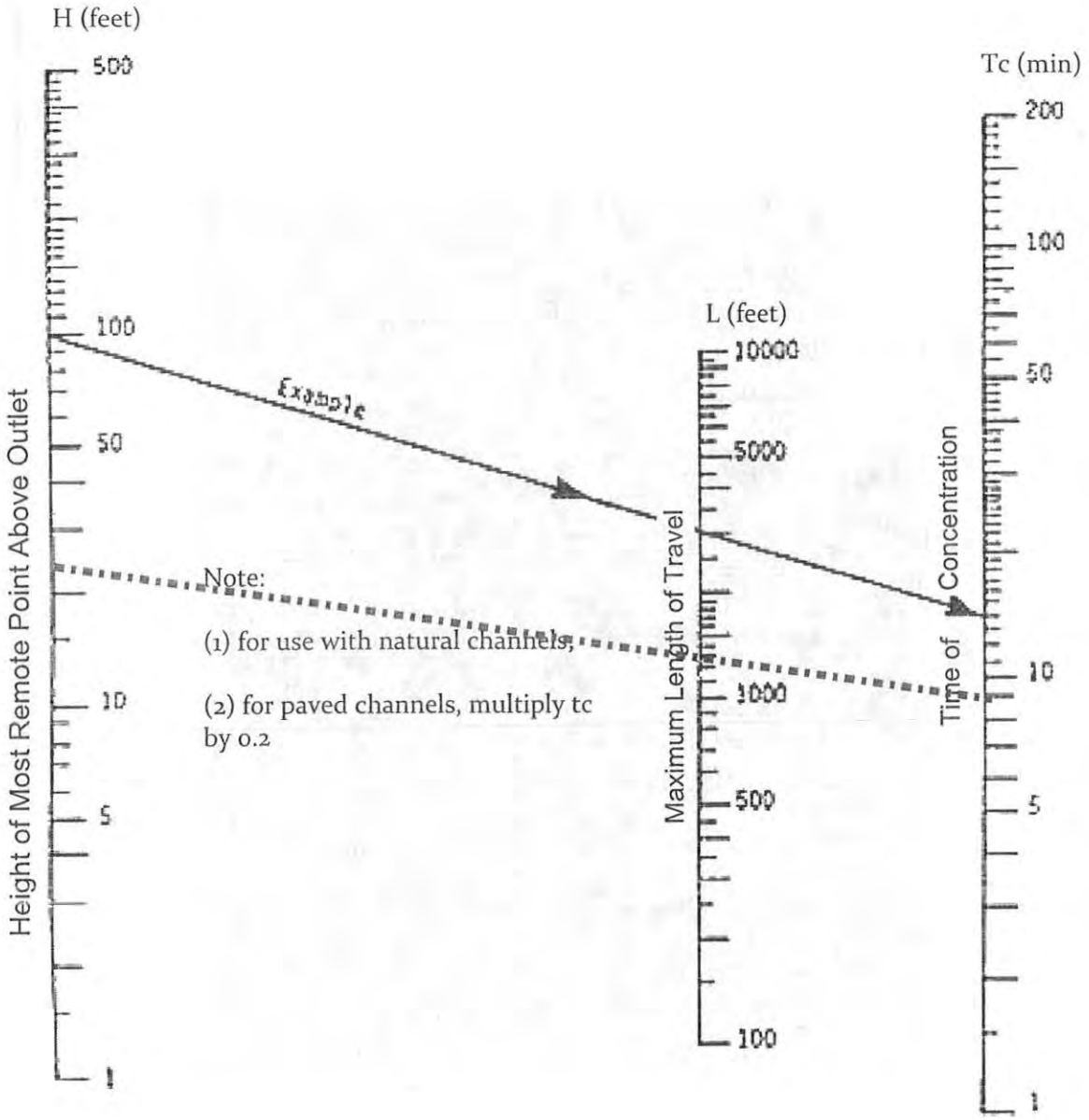
The existing ditches in the northern portion of the property currently flows westward, to the roadway north of Lot 20. The water runs down the roadside ditch to the west and into Bob's Creek. The development of the roads and lots in this area will increase the short-term rate of water run-off.

The attached calculations show the expected rate of flow and the capacity of the ditch. As shown, a ditch with a 2 percent slope is adequate for the run-off. The existing gravel roadway has a slope of 9 percent.

<V:\19-10-Riv\Reports\Riverview Stormwater.docx>

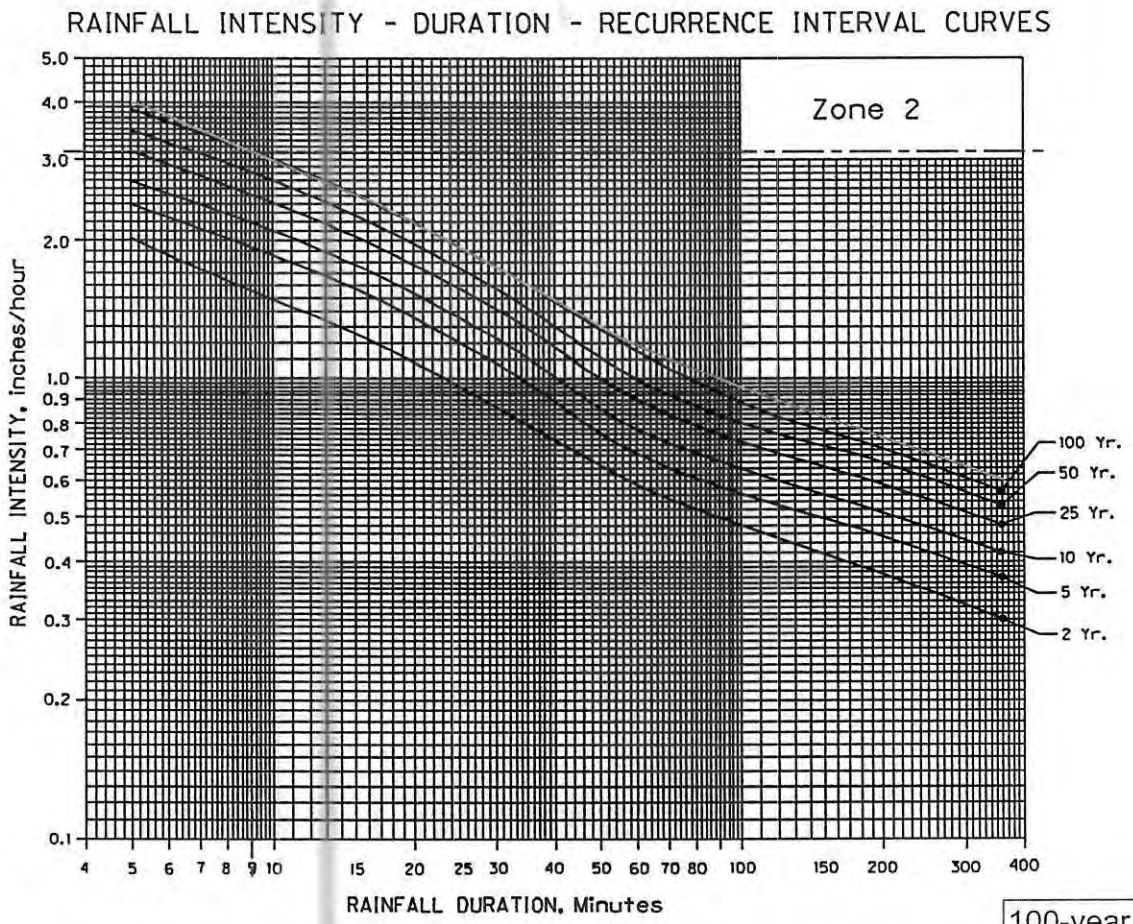
Riverview Meadows Phase 2									
Drainage System									
	South		**North**	**Phase 1**					
	Drains to culvert		Drains to ditch	drains to culvert					
AREA	455,820	sf	318,151	310,000					
	10.46	acres	7.30	7.12					
Drainage Route									
Length	2050	ft	1266	1070					
Fall	42	ft	21	24					
Slope	2.05%	%	1.66%	2.24%					
ZONE 2, Tillamook									
Time of Concentration	9	minutes	9	9	Kirpich Chart				
100-year storm intens	3.1	in/hr	3.1	3.1					
Development Density	4.8	units/acre	(NORMAL RESIDENTIAL - table 1)						
C=	0.5		0.5	0.5					
Rational Method, run-off							**Ditch**	V-Shape	
Q=CiA	**16.2**	**cfs**	**11.3**	**11.0**			top	4	**ft**
							bottom	0	ft
Ditch sizing		King county Surface Water Design Manual					depth	2	ft
manning, N		rock lined, jagged and irregular, page 4-62					area	4	sf
	0.04	N	0.04				wetted perimeter	5.66	ft
							hydraulic radius	0.71	
Q=V/A									
ditch velocity									
Flow Regime	Distance	Fall	Slope, S	Coefficent	V=(1.49/n	area	Flow	toc	
	feet	feet			Velocity, V	sf	CFS		
Ditch flow	2050	42	2.05%	0.04	4.24	4.00	16.97	8.055055136	
Run-off						**east area**	16.2		
						phase 1	11.0		
					Culvert	TOTAL	27.3	cfs	
Pipe Flow									
	Down slope		Across entrance roadway						
Pipe Size	12	inch	16						
Length	570		80						
Fall	70	ft	13						
Slope	0.12	%	0.16						
X-section Area	0.79	sf	1.40						
Rh (full)	3.00		4.00						
Manning, n	0.01		0.01						
Velocity=	89.85	ft/sec	124.97						
Flow, Q=	70.60	cfs	174.56						
Run-off rate	27.3		27.3						
	OK		OK						

TRAVEL TIME FOR CHANNEL FLOW
(Kirpich Chart)



Time of Concentration of Small Drainage Basins

Sta 6+78



100-year storm
9 min duration
Intensity = 3.1 in/hr

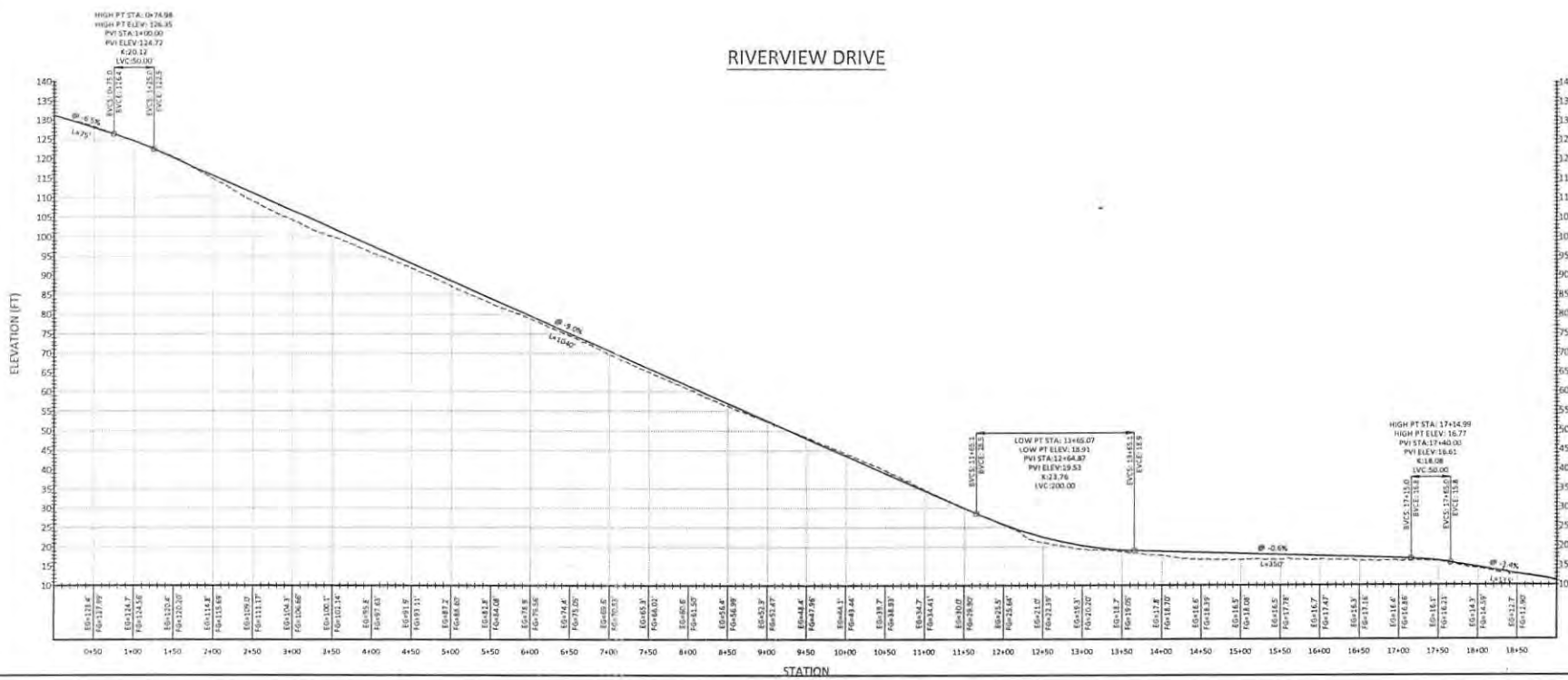
TABLE 4.4.1.B VALUES OF ROUGHNESS COEFFICIENT "*n*" FOR OPEN CHANNELS

Type of Channel and Description	Manning's "*n*"* (Normal)
A. Constructed Channels	
a. Earth, straight and uniform	
1. Clean, recently completed	0.018
2. Gravel, uniform section, clean	0.025
3. With short grass, few weeds	0.027
b. Earth, winding and sluggish	
1. No vegetation	0.025
2. Grass, some weeds	0.030
3. Dense weeds or aquatic plants in deep channels	0.035
4. Earth bottom and rubble sides	0.030
5. Stony bottom and weedy banks	0.035
6. Cobble bottom and clean sides	0.040
c. Rock lined	
1. Smooth and uniform	0.035
2. Jagged and irregular	0.040
d. Channels not maintained, weeds and brush uncut	
1. Dense weeds, high as flow depth	0.080
2. Clean bottom, brush on sides	0.050
3. Same as #2, highest stage of flow	0.070
4. Dense brush, high stage	0.100
B. Natural Streams	
B-1 Minor streams (top width at flood stage < 100 ft.)	
a. Streams on plain	0.030
1. Clean, straight, full stage no rifts or deep pools	0.035
2. Same as #1, but more stones and weeds	0.040
3. Clean, winding, some pools and shoals	0.040
4. Same as #3, but some weeds	0.050
5. Same as #4, but more stones	
6. Sluggish reaches, weedy deep pools	0.070
7. Very weedy reaches, deep pools, or floodways with heavy stand of timber and underbrush	0.100
b. Mountain streams, no vegetation in channel, banks usually steep, trees and brush along banks submerged at high stages	
1. Bottom: gravel, cobbles, and few boulders	0.040
2. Bottom: cobbles with large boulders	0.050
B-2 Floodplains	
a. Pasture, no brush	
1. Short grass	0.030
2. High grass	0.035
b. Cultivated areas	
1. No crop	0.030
2. Mature row crops	0.035
3. Mature field crops	0.040
c. Brush	
1. Scattered brush, heavy weeds	0.050
2. Light brush and trees	0.060
3. Medium to dense brush	0.070
4. Heavy, dense brush	0.100
d. Trees	
1. Dense willows, straight	0.150
2. Cleared land with tree stumps, no sprouts	0.040
3. Same as #2, but with heavy growth of sprouts	0.060
4. Heavy stand of timber, a few down trees, little undergrowth, flood stage below branches	0.100
5. Same as #4, but with flood stage reaching branches	0.120

* *Note: These "n" values are "normal" values for use in analysis of channels. For conservative design of channel capacity, the maximum values listed in other references should be considered. For channel bank stability, the minimum values should be considered.*

RIVERVIEW MEADOWS
PHASE 2
74 LOT SUBDIVISION
TENTATIVE PLAN
MAP 3N R1W SECTION 23B

20B **ENTRANCE ROAD PROFILE**
SCALES: 1"=70' VERT: 1"=14' (5 X EXAGGERATION)



MORGAN CIVIL ENGINEERING, INC.

RIVERVIEW MEADOWS DEVELOPMENT, LLC
RIVERVIEW MEADOWS PHASE 2
ENTRANCE ROAD PROFILE

SHEET
20b
OF 23

RIVERVIEW MEADOWS
TRAFFIC IMPACT STUDY

TILLAMOOK COUNTY, OREGON

REGISTERED PROFESSIONAL ENGINEER
54983PE
DIGITALLY SIGNED
JULY 10, 2002
MICHAEL T. ARD
RENEWS: 12/31/2023

PREPARED FOR:
Riverview Meadows, LLC

PREPARED BY:
Michael Ard, PE
Ard Engineering

DATE:
August 12, 2022

21370 SW Langer Farms Parkway, Suite 142, Sherwood, OR 97140 - (503)862-6960

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EXECUTIVE SUMMARY

1. A residential development is proposed on the west side of Nehalem River Road near McDonald Road in Tillamook County, Oregon. The previously approved phase 1 development within the site consists of 20 homes on the subject property. This analysis addresses the potential transportation impacts resulting from adding 72 additional single-family homes in phases 2 and 3 of the development. The subject property currently takes access via River View Meadows Lane. With the proposed expansion, a second access is proposed which will intersect McDonald Road at an existing access driveway located approximately 900 feet south of McDonald Road.

2. Upon completion of proposed development, the subject property is projected to generate 50 new site trips during the morning peak hour, 68 trips during the evening peak hour, and 678 new daily site trips.

3. Based on the operational analysis, the study intersections currently operate acceptably and are projected to continue to operate acceptably under year 2025 traffic conditions either with or without the addition of site trips from the proposed development.

4. The most recent five years of crash history on Northfork Road showed no crashes at the study intersections. No significant safety hazards are evident based on the crash history.

5. Based on the detailed warrant analysis, no new traffic signals or turn lanes are recommended in conjunction with the proposed development.

6. Although intersection sight distances are limited by horizontal curves in the vicinity of the site access locations, a detailed analysis shows that the available sight distances are adequate to ensure safe operation of the area intersections, and the delays to through traffic that slows to avoid conflicts will be negligible. Accordingly, no sight distance improvements are necessary or recommended in conjunction with the proposed development.

7. Based on the analysis of River View Meadows Lane's road width and geometry, large vehicles may have difficulty navigating the roadway and require both travel lanes to negotiate the curves in the vicinity of Northfork Road. Very large trucks may also trailer off the roadway surface. However, the road width is sufficient to approximately 1,000 passenger vehicles per day despite the narrow width, similar to the capacity of a residential queuing street. The projected future traffic volumes on this roadway are within this effective roadway capacity. Planned monumentation and improvements to the new south site access roadway may help further reduce traffic volumes on River View Meadows Lane. It is recommended that large trucks be directed to use the new south site access roadway.

PROJECT DESCRIPTION & LOCATION

INTRODUCTION

A residential development is proposed on the west side of Nehalem River Road near McDonald Road in Tillamook County, Oregon.

The previously approved phase 1 development within the site consists of 20 homes on the subject property. Under the current proposal, 72 additional single-family homes would be constructed as part of phases 2 and 3 of the development.

The subject property currently takes access via River View Meadows Lane. With the proposed expansion, a second access is proposed which will intersect McDonald Road at an existing access driveway located approximately 900 feet south of McDonald Road.

This report addresses the impacts of the proposed development on the surrounding street system. The purpose of this analysis is to determine whether the surrounding transportation system is capable of safely and efficiently supporting the proposed use and to identify any necessary improvements and mitigations.

SITE LOCATION AND STUDY AREA DESCRIPTION

The subject property is surrounded by existing residential and agricultural land uses. Phase 1 development is currently underway within the site and will conclude with completion of the 20 previously approved homes within the phase limits.

Northfork Nehalem River Road has a two-lane cross-section with one through lane in each direction. It has a posted speed limit of 45 mph in the site vicinity; however, curve warning signs are also posted in the vicinity with recommended speeds of 25 to 30 mph for the curves.

McDonald Dike Road also has a two-lane cross-section with one through lane in each direction. It has a posted speed limit of 35 mph in the vicinity of Nehalem River Road.

River View Meadows Lane is a local street which provides access to the subject property and some surrounding parcels. It has a paved width of 18 feet in the vicinity of Nehalem River Road. The roadway is subject to Oregon's statutory residential speed limit of 25 mph.

EXISTING CONDITIONS

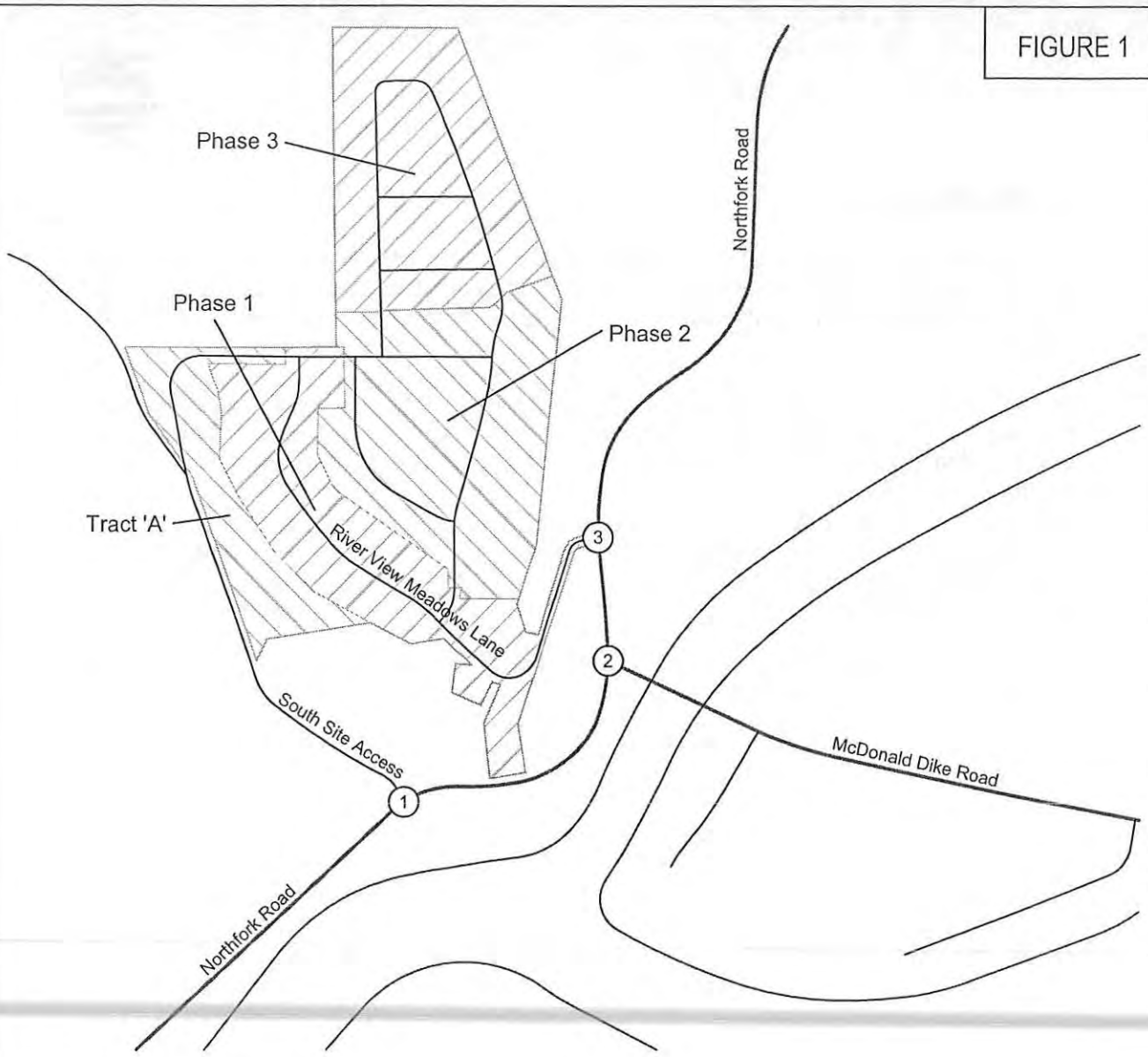
The intersection of Northfork Nehalem River Road at River View Meadows Lane is a T-intersection controlled by a stop sign on the eastbound River View Meadows Lane approach. Each approach has a single, shared lane for all turning movements. Through traffic traveling along Northfork Road does not stop.

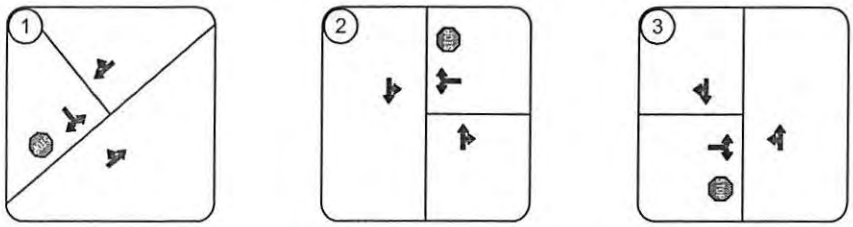
The intersection of Northfork Nehalem River Road at McDonald Dike Road is also a T-intersection. It is controlled by a stop sign on the westbound McDonald Road approach. Again, through traffic traveling along Northfork Road does not stop, and each approach has a single, shared lane for all turning movements.

The intersection of Northfork Nehalem River Road at the proposed south site access is a T-intersection controlled by a stop sign on the eastbound approach to Northfork Road. Through traffic on Northfork Road does not stop.

A vicinity map displaying the project site, vicinity streets, and the study intersections including lane configurations is provided in Figure 1 on page 6.

FIGURE 1





LEGEND

(#) Study Intersection #

STOP Stop Sign

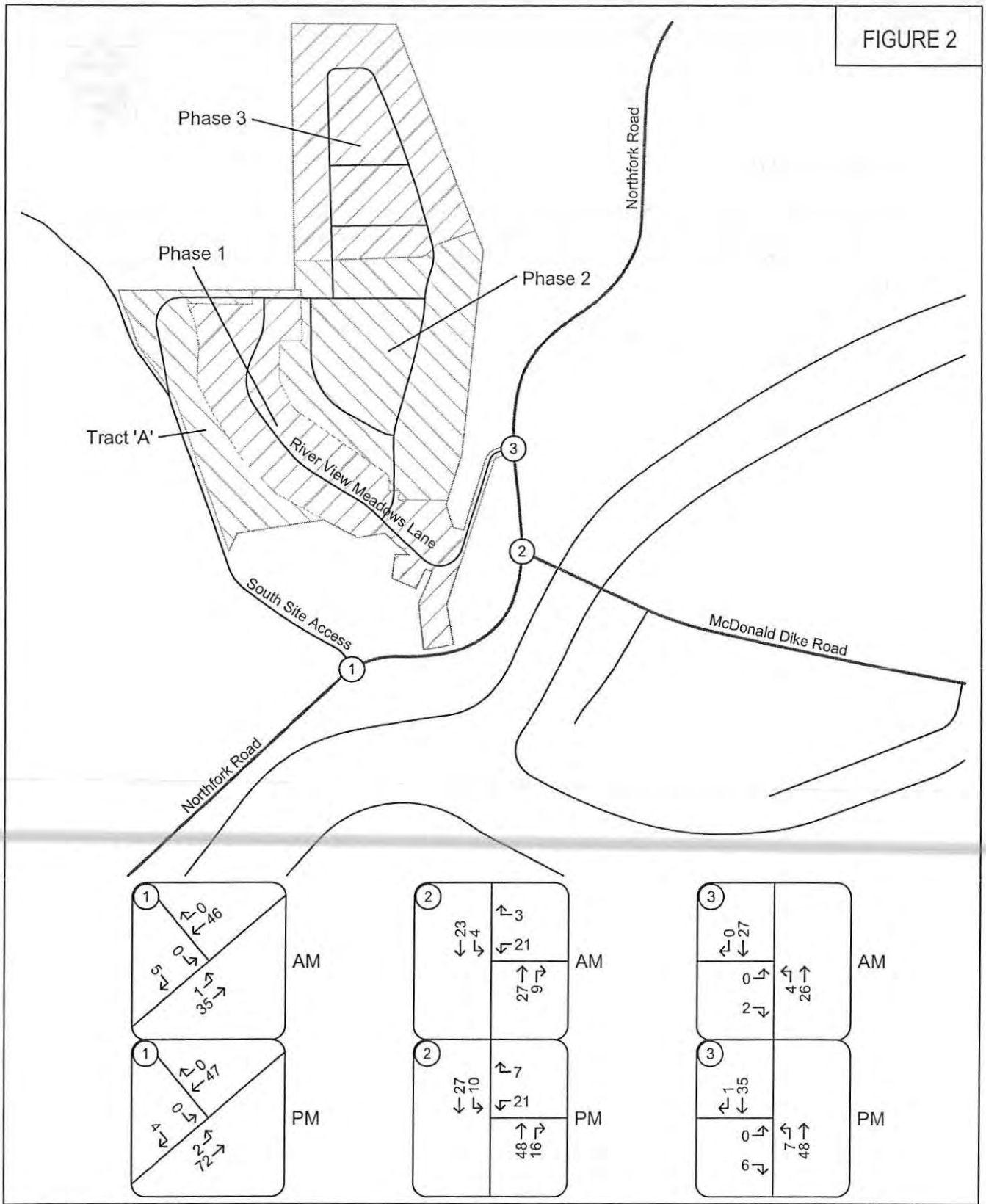
VICINITY MAP
Study Intersections
Lane Configurations and Traffic Control

TRAFFIC COUNT DATA

Turning movement counts were conducted at the three study intersections from 4:00 to 6:00 PM on Tuesday August 9, 2022, and from 7:00 to 9:00 AM on Wednesday August 10, 2022. These count periods correspond to the typical morning and evening peak commute periods and are therefore used to represent traffic conditions typical of the study intersections.

Figure 2 on page 8 shows the existing year 2022 traffic volumes for the morning and evening peak hours at the study intersections.

FIGURE 2



TURNING MOVEMENT VOLUMES
2022 Existing Conditions
Morning and Evening Peak Hours

OPERATIONAL ANALYSIS

An operational analysis was conducted for the study intersections using Synchro 10 software, with outputs calculated based on the *HIGHWAY CAPACITY MANUAL, 6th Edition.* The analysis was conducted for the weekday morning and evening peak hours.

The purpose of the existing conditions analysis is to establish how the study area intersections operate currently and allow for calibration of the operational analysis if required.

The results of the operational analysis are reported based on delay, Level of Service (LOS), and volume-to-capacity ratio (v/c). Delays are reported in seconds. Level of service is reported as a letter grade and can range from A to F, with level of service A representing nearly free-flow conditions and level of service F representing high delays and severe congestion. A report of level of service D generally indicates moderately high but tolerable delays, and typically occurs prior to reaching intersection capacity. For unsignalized intersections, the v/c represents the portion of the available intersection capacity that is being utilized on the worst intersection approach. A v/c ratio of 1.0 would indicate that the approach is operating at capacity.

A summary of the existing conditions operational analysis is provided in Table 1 below. The reported delays and levels-of-service represent the approach lane which experiences the highest delays, while the reported v/c ratios represent the highest ratio for the major-street and minor-street movements.

Based on the analysis, the study intersections are currently operating acceptably. Detailed capacity analysis worksheets are provided in the technical appendix.

Table 1 - Operational Analysis Summary: 2022 Existing Peak Hour Conditions

Intersection	AM Peak Hour			PM Peak Hour		
	Delay	LOS	v/c	Delay	LOS	v/c
Northfork Rd at West Site Access	8.9	A	0.01	8.6	A	0.01
Northfork Rd at McDonald Dike Rd	9.1	A	0.03	9.1	A	0.03
Northfork Rd at Riverview Meadows Ln	8.7	A	0.01	8.5	A	0.01

SITE TRIPS

Proposed Development

The proposed new development will consist of 72 additional single-family homes. To estimate the number of trips that will be generated by the proposed development, trip rates from the *TRIP GENERATION MANUAL, 10th EDITION* were used. Data from land-use code 210, *Single-Family Detached Housing*, were used. The trip estimates are based on the number of dwelling units.

A summary of the trip generation calculations is provided in Table 2 below. A detailed trip generation worksheet is also included in the technical appendix.

Table 2 - Proposed Development Trip Generation Summary

	AM Peak Hour			PM Peak Hour			Daily
	In	Out	Total	In	Out	Total	Total
72 Single-Family Homes	13	37	50	43	25	68	678

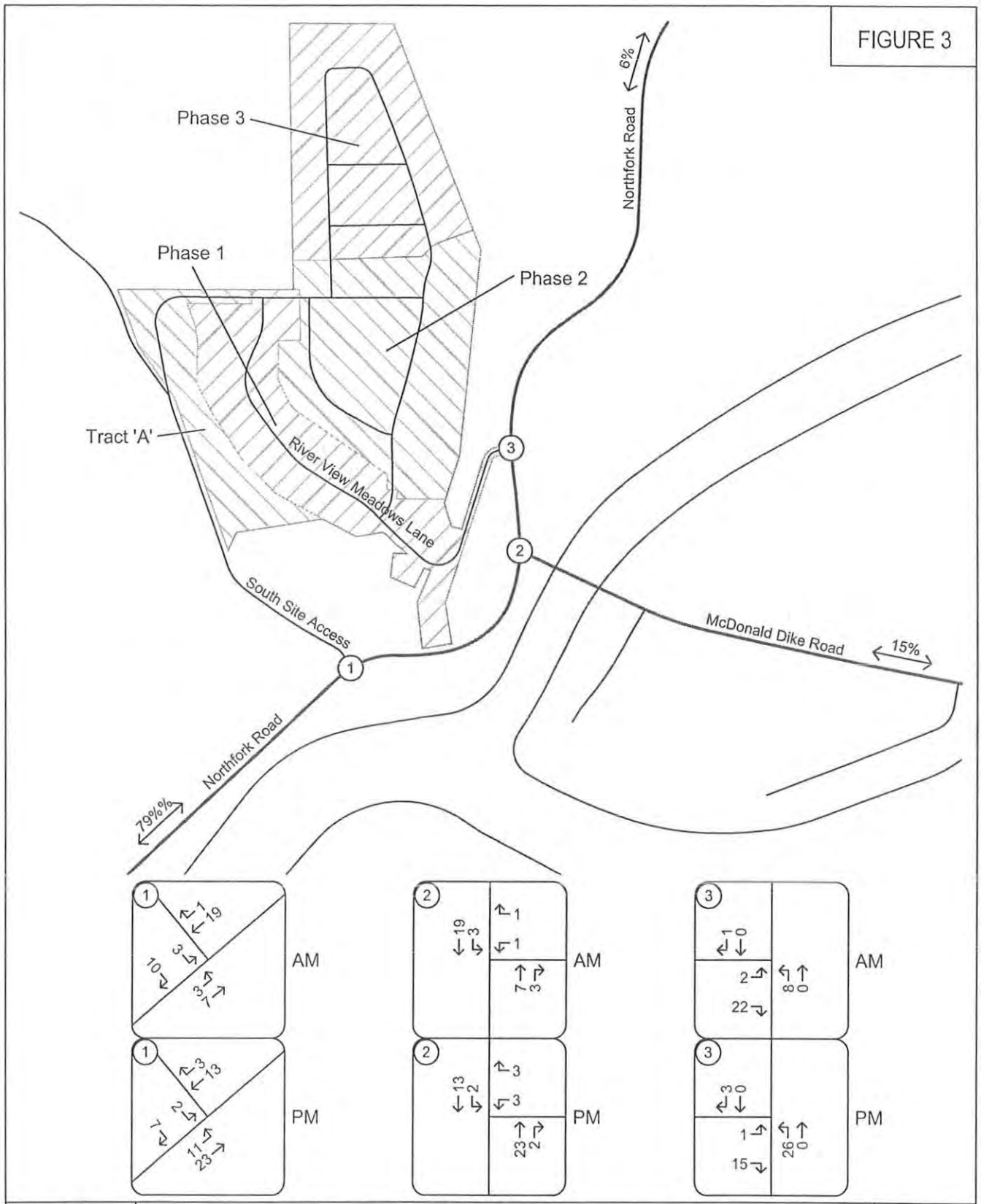
TRIP DISTRIBUTION

The directional distribution of site trips to and from the project site was estimated based the existing travel patterns in the site vicinity, as well as the locations of likely trip destinations and major transportation routes. Overall, 79 percent of the anticipated site trips are projected to travel to and from the south on Northfork Nehalem River Road, 15 percent are projected to travel to and from the east on McDonald Dike Road, and 6 percent are projected to travel to and from the north on Northfork Nehalem River Road.

Based on the layout of the site and the alignments of the respective access roads, it is expected that approximately two thirds of future site trips will utilize the existing River View Meadows Lane alignment to access the site. A more detailed discussion of traffic volumes and operations on this access roadway is provided in the safety analysis section of this report on page 19.

The trip distribution percentages and trip assignment for the proposed development are shown in Figure 3 on page 11.

FIGURE 3



TURNING MOVEMENT VOLUMES
Proposed Development - Site Trips
Morning and Evening Peak Hours

FUTURE CONDITIONS ANALYSIS

BACKGROUND VOLUMES

In order to determine the expected impact of site trips on the study area intersections, it is necessary to compare traffic conditions both with and without the addition of the projected traffic from the proposed development. Since the proposed use cannot be constructed and occupied immediately, the comparison is made for future traffic conditions at the time of project completion. It is anticipated that the proposed use will be completed and occupied by 2025. Accordingly, the analysis was conducted for year 2025 traffic conditions.

Some general traffic growth is expected to occur in the vicinity as a result of development outside the project area that nevertheless travels through the site vicinity while moving to and from farther destinations. To account for this background growth, the observed year 2022 traffic volumes were increased by 2 percent per year over a period of three years to estimate the year 2025 traffic volumes.

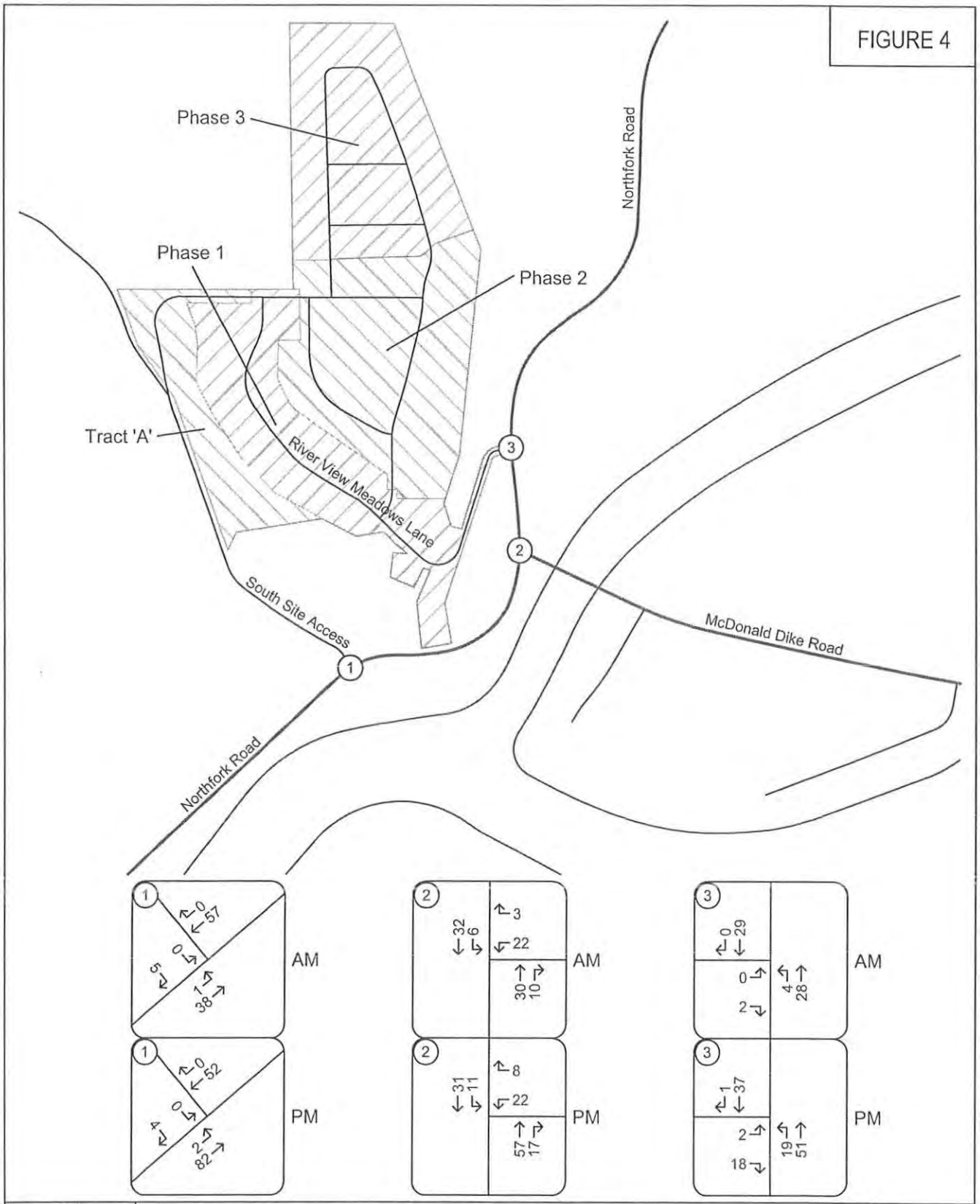
In addition to anticipated growth in the area, it was noted that the phase 1 development is not yet complete within the existing approved subdivision. Accordingly, the expected future site trips associated with completion of the current subdivision were also added to the background traffic volumes. These added "in-process" trips are shown in Figure 6 in the attached technical appendix.

Figure 4 on page 13 shows the projected year 2025 background traffic volumes at the study intersections during the morning and evening peak hours.

BACKGROUND VOLUMES PLUS SITE TRIPS

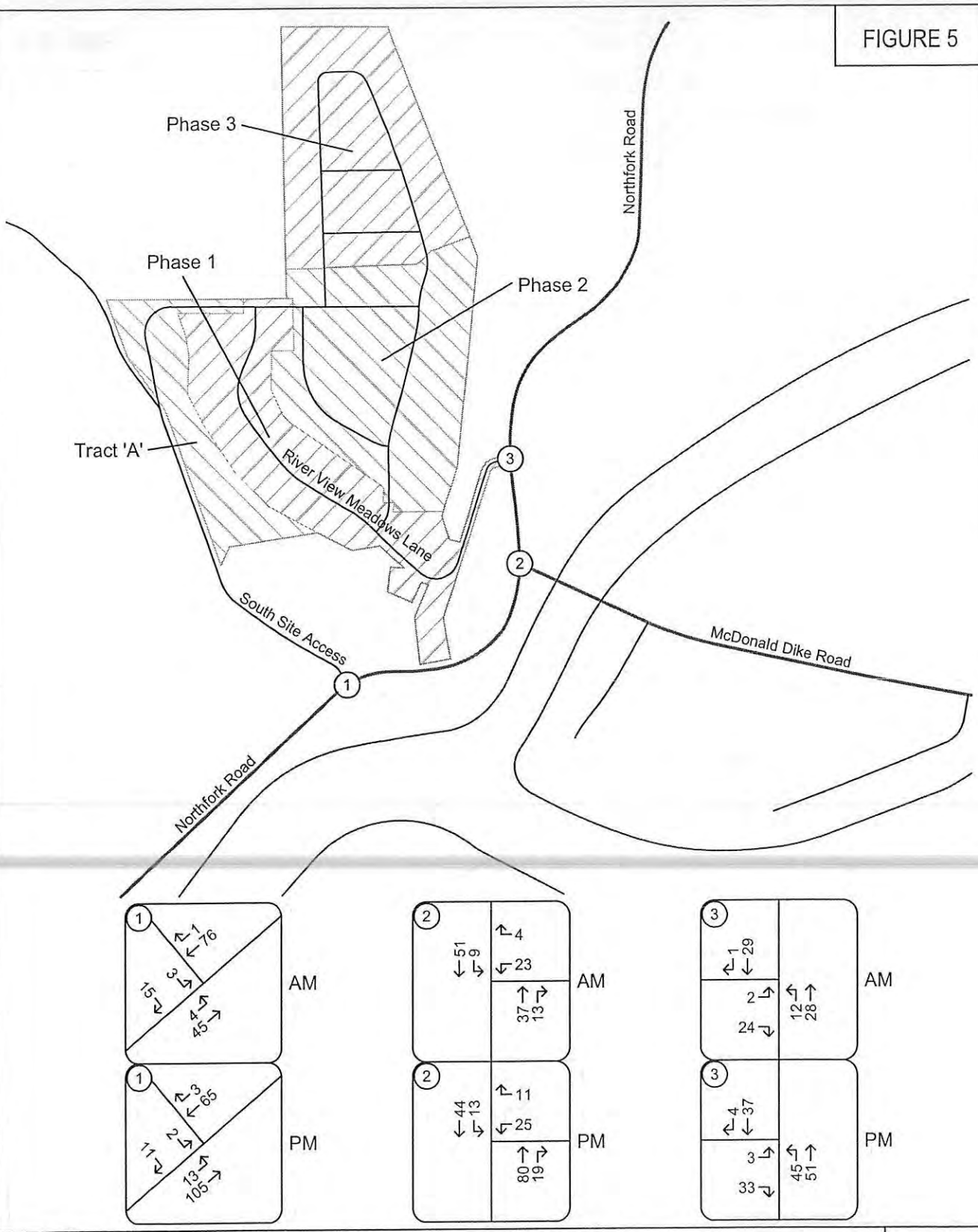
Peak hour trips calculated to be generated by the proposed development were added to the projected year 2023 background traffic volumes to obtain the year 2023 total traffic volumes following completion of the proposed residential development. The resulting total traffic volumes are shown in figure 5 on page 14.

FIGURE 4



TURNING MOVEMENT VOLUMES
2025 Background Traffic Volumes
Morning and Evening Peak Hours

FIGURE 5



TURNING MOVEMENT VOLUMES
2025 Background plus Site Trips
Morning and Evening Peak Hours

OPERATIONAL ANALYSIS

The operational analysis for future traffic conditions was again conducted using Synchro analysis software, with outputs based on the analysis methodologies contained in the *HIGHWAY CAPACITY MANUAL, 6th Edition*. The analysis was prepared for the intersections' morning and evening peak hours.

The results of the operational analysis are summarized in Table 3 below. Detailed analysis worksheets are also included in the technical appendix.

Table 3 - Operational Analysis Summary: Year 2023 Future Conditions

Intersection	AM Peak Hour			PM Peak Hour		
	Delay	LOS	v/c	Delay	LOS	v/c
Northfork Rd at South Site Access						
2025 Background Conditions	8.9	A	0.01	8.6	A	0.01
2025 Background plus Site	9.2	A	0.02	8.9	A	0.02
Northfork Rd at McDonald Dike Rd						
2025 Background Conditions	9.2	A	0.03	9.2	A	0.04
2025 Background Plus Site	9.4	A	0.04	9.5	A	0.05
Northfork Rd at Riverview Meadows Ln						
2025 Background Conditions	8.7	A	0.01	8.7	A	0.03
2025 Background plus Site	8.9	A	0.03	8.8	A	0.04

Based on the results of the operational analysis, the study intersections are projected to operate acceptably either with or without the addition of site trips from the proposed development. No operational mitigations are necessary or recommended in conjunction with the proposed development.

SAFETY ANALYSIS

CRASH DATA ANALYSIS

Using data obtained from the Oregon Department of Transportation, a review of the five most recent years of available crash history (from January 2016 through December 2020) was performed. The crash data showed a total of five crashes along Northfork Road during the five-year analysis period. These included four fixed-object (run-off-road) collisions and one animal collision. None of the reported crashes were intersection-related, and none occurred at the study area intersections.

Based on the crash data, no significant existing safety hazards were identified in the site vicinity.

WARRANT ANALYSIS

Traffic signal and turn-lane warrants were examined for the study intersections.

Based on the projected side-street traffic volumes, traffic signal warrants are not projected to be met at any of the unsignalized study intersections under any of the analysis scenarios. Additionally, the intersections are projected to operate at level of service "A" through project completion while retaining the existing stop control. Accordingly, no new traffic signals are recommended in conjunction with the proposed development.

Left-turn lane warrants were examined for the major-street approaches to the unsignalized study intersections. Left-turn lane warrants are intended to evaluate whether a meaningful safety benefit may be expected if the turning vehicles are provided with turn lane within the street, allowing left-turning drivers to move out of the through travel lane so that following vehicles may pass without conflicts. The left-turn lane warrant analysis methodology utilizes the number of travel lanes in conjunction with the volume of advancing and opposing traffic to determine the minimum number of left-turning vehicles which would result in a meaningful safety benefit.

Based on the analysis, even when conservatively using the posted 45 mph speed limit for design rather than the lower actual traffic speeds which are limited by horizontal curves in the site vicinity, the projected turning movement volumes at the time of project completion are too low to warrant installation of left-turn lanes at the study area intersections.

Right-turn lane warrants were also examined for the major-street approaches to the unsignalized study intersections. Right-turn lanes reduce the likelihood of rear-end collisions as vehicles slow or stop to turn right from a free-flowing through travel lane.

Again, based on the analysis and conservatively using the posted 45 mph speed limit for design, the projected turning movement volumes at the time of project completion are too low to warrant installation of dedicated right-turn lanes at the study area intersections.

Based on the detailed warrant analysis, no new traffic signals or turn lanes are recommended in conjunction with the proposed development.

INTERSECTION SIGHT DISTANCE

Based on the posted speed limit of 45 mph on Northfork Nehalem River Road, a minimum of 500 feet of intersection sight distance is generally desired in each direction for each point of access. However, horizontal curves in the site vicinity limit both the available sight lines and the approach speeds of vehicles at the limits of sight distance. Because sight lines are generally less than 500 feet, a detailed discussion and analysis of actual approach speeds and sight distances is appropriate.

In accordance with the procedures described in *A Policy on Geometric Design of Highways and Streets*, published by the American Association of State Highway and Transportation Officials, intersection sight distance was measured from a driver's eye position within the minor street approach 14.5 feet behind the edge of the traveled way and 3.5 feet above the driveway surface. The available intersection sight distances in each direction were measured to the oncoming driver's eye position within the oncoming travel lane 3.5 feet above the roadway surface.

At the proposed south site access location on Northfork Road, intersection sight distance was measured to be well in excess of 500 feet to the south and 451 feet to the north. The available intersection sight distance to the north was limited by vegetation and an embankment within the inside of a horizontal curve.

Speed data was collected for vehicles approaching the proposed south site access location along Northfork Road to determine an appropriate design speed. Typically, the 85th percentile speed is used for design. This is the speed at or below which 85 percent of drivers were travelling. It is generally assumed that 85 percent of drivers travel at a "reasonable and prudent" speed, and that enforcement should be used to encourage better driving habits among the 15 percent of fastest drivers. For this location, the 85th percentile speed was determined to be 39 mph, resulting in a desired intersection sight distance of 430 feet. Since the available intersection sight distance is in excess of this minimum, the proposed south site access is projected to operate safely and efficiently.

For the existing site access on River View Meadows Lane, the available intersection sight distance was measured to be 428 feet to the north and 378 feet to the south. Again, these distances were less than the 500 feet of sight distance desired for a design speed of 45 mph, and again speed data was collected to determine an appropriate design speed.

For the southbound Northfork Road approach to River View Meadows Lane, the 85th percentile speed was determined to be 41 mph. Based on this design speed, the desired intersection sight distance was calculated to be 452 feet. In this instance, the available intersection sight distance was less than the desired intersection sight distance.

For the northbound Northfork Road approach to River View Meadows Lane, the 85th percentile speed was determined to be 40 mph. Based on this design speed, the desired intersection sight distance was calculated to be 441 feet. Again, the available intersection sight distance was less than the desired intersection sight distance.

Since sight lines at the existing site access on River View Meadows Lane are less than the full desired sight lines, a detailed operational and safety analysis was undertaken to determine what impacts might be expected as a result of the limited sight lines at the intersection.

According to "*A Policy on Geometric Design of Highways and Streets*" published by the American Association of State Highway and Transportation Officials,

> "*Stopping sight distance is providing continuously along each roadway so that drivers have a view of the roadway ahead that is sufficient to allow drivers to stop. The provision of stopping sight distance at all locations along each roadway, including intersection approaches, is fundamental to intersection operation.*" (p. 9-35)

It further states,

> "*If the available sight distance for an entering or crossing vehicle is at least equal to the appropriate stopping sight distance for the major road, then drivers have sufficient sight distance to anticipate and avoid collisions. However, in some cases, a major-road vehicle may need to slow or stop to accommodate the maneuver by a minor-road vehicle. To enhance traffic operations, intersection sight distances that exceed stopping sight distances are desirable along the major road.*" (p. 9-35)

Since the minimum intersection sight distance needed for safety is based on stopping sight distance, the measured design speeds were used to calculate the required stopping sight distance for each approach direction. For southbound traffic approaching River View Meadows Lane, the 41-mph 85th percentile design speed requires a minimum of 315 feet of stopping sight distance. Since the actual intersection sight distance available is 428 feet to the north, the available sight distance is adequate for safe operation of the intersection. Similarly, for northbound traffic approaching River View Meadows Lane, the 40-mph 85th percentile design speed requires a minimum of 305 feet of stopping sight distance. Since the actual intersection sight distance available is 378 feet to the north, the available sight distance is again adequate for safe operation of the intersection.

Having determined that the intersection can operate safely, albeit with some potential for interruptions to the flow of through traffic along Northfork Road, it is appropriate to determine the likely impacts on operation if the intersection continues to operate with limited sight distances in each direction.

Induced delays to through traffic would occur when a driver turns from River View Meadows Lane onto Northfork Road while an approaching vehicle is closer than the desired intersection stopping sight distance, but farther than the available sight distance. The amount of delay to through traffic can be calculated as the time required to traverse the distance between the desired intersection sight distance and the actual location of the approaching vehicle. Since the maximum such distance is 63 feet traversed at a speed of 40 mph, the maximum induced delay would be 1.07 seconds per vehicle when a conflict occurs.

Based on the volume of traffic entering Northfork Road from River View Meadows Lane as well as the traffic volumes on Northfork Road, the expected total induced delay per day would be approximately 3 seconds per day. The total induced delays are very low because the amount of induced delay per vehicle is low (between 0.0 and 1.07 seconds) and because the odds of a conflict occurring with a vehicle just beyond the limits of the available sight distance are also low

(approximately 1.5 percent of exiting vehicles would be expected to turn onto Northfork Road while a vehicle is approaching and may be subject to delay.

Based on the negligible calculated induced delays of 3 seconds per day, any requirement for mitigation for the limited sight distance would be expected to result in costs exceeding the resulting benefits. Accordingly, the available intersection sight distance is adequate for the River View Meadows Lane approach to Northfork Road and no operational or safety mitigations are recommended.

RIVER VIEW MEADOWS LANE - ROADWAY GEOMETRY

In addition to examination of sight distance for the intersection of Northfork Nehalem River Road at River View Meadows Lane, the roadway geometry was evaluated to determine how the narrow cross-section and steep grades may impact operation and capacity of the roadway and intersection.

River View Meadows Lane has an initial width of approximately 20 feet in the immediate vicinity of Northfork Road; however, it narrows to a width of approximately 18 feet as it extends up the hill. Roadway grades on River View Meadows Lane were measured to be up to 17 percent in the immediate vicinity of the intersection.

A 20-foot width is commonly used as a minimum width for roadways, primarily in response to fire code requirements. Although a roadway can function with lesser width, the carrying capacity of the roadway is reduced both for passenger cars and for larger vehicles.

In particular, tractor-trailer vehicles and large trucks may have difficulty navigating the roadway and are likely to need to cross the roadway centerline on curves. Based on an AutoTurn analysis, large interstate trucks (WB-67) would not be expected to be able to stay within the paved roadway width even when taking both travel lanes. These vehicles would be expected to trailer outside the road surface, crossing through the area where a stop sign is located. Evidence that such trailering has previously occurred was present at the intersection upon our site visit, since the stop sign post was snapped off and a temporary stop sign on an A-frame stand was deployed at the intersection.

An analysis of other vehicle types also demonstrated that:

1) WB-40 tractor-trailer trucks, SU-40 single-unit trucks, garbage trucks and fire apparatus can stay within the paved road surface area, but require the full width of River View Meadows Lane for maneuvering in the vicinity of Northfork Road;
2) The roadway width can accommodate continuous two-way travel of passenger vehicles provided that the drivers pull to the side and drive slowly.

Diagrams showing the swept path of these vehicles are included in the technical appendix.

It should be noted that due to the narrow width of the roadway, it is expected to function in a manner similar to a residential queuing street. These streets generally have a width of up to 28 feet but are narrowed by on-street parking on one or both sides. Where drivers must pass parked vehicles, the roadway only has sufficient width for one travel direction at a time, so drivers must proceed with caution and yield to oncoming traffic. Although passenger vehicles can continuously travel in both

directions, the narrow width of this roadway may require similar slowing and yielding behavior at times. Accordingly, the carrying capacity of this roadway is expected to be similar to that of a residential queuing street, at approximately 1,000 vehicles per day. With completion of the proposed development, it is projected that the roadway will carry approximately 850 vehicles per day, which is within the capacity of the roadway.

It is anticipated that the new south access roadway will be constructed in a manner intended to attract site trips in lieu of River View Meadows Lane through the use of monumentation signage and a wider, more accommodating road design. This may reduce the traffic levels on River View Meadows Lane. Regardless, larger trucks should be directed to use the new south site access roadway.

CONCLUSIONS

Based on the operational analysis, the study intersections currently operate acceptably and are projected to continue to operate acceptably under year 2025 traffic conditions either with or without the addition of site trips from the proposed development.

The most recent five years of crash history on Northfork Road showed no crashes at the study intersections. No significant safety hazards are evident based on the crash history.

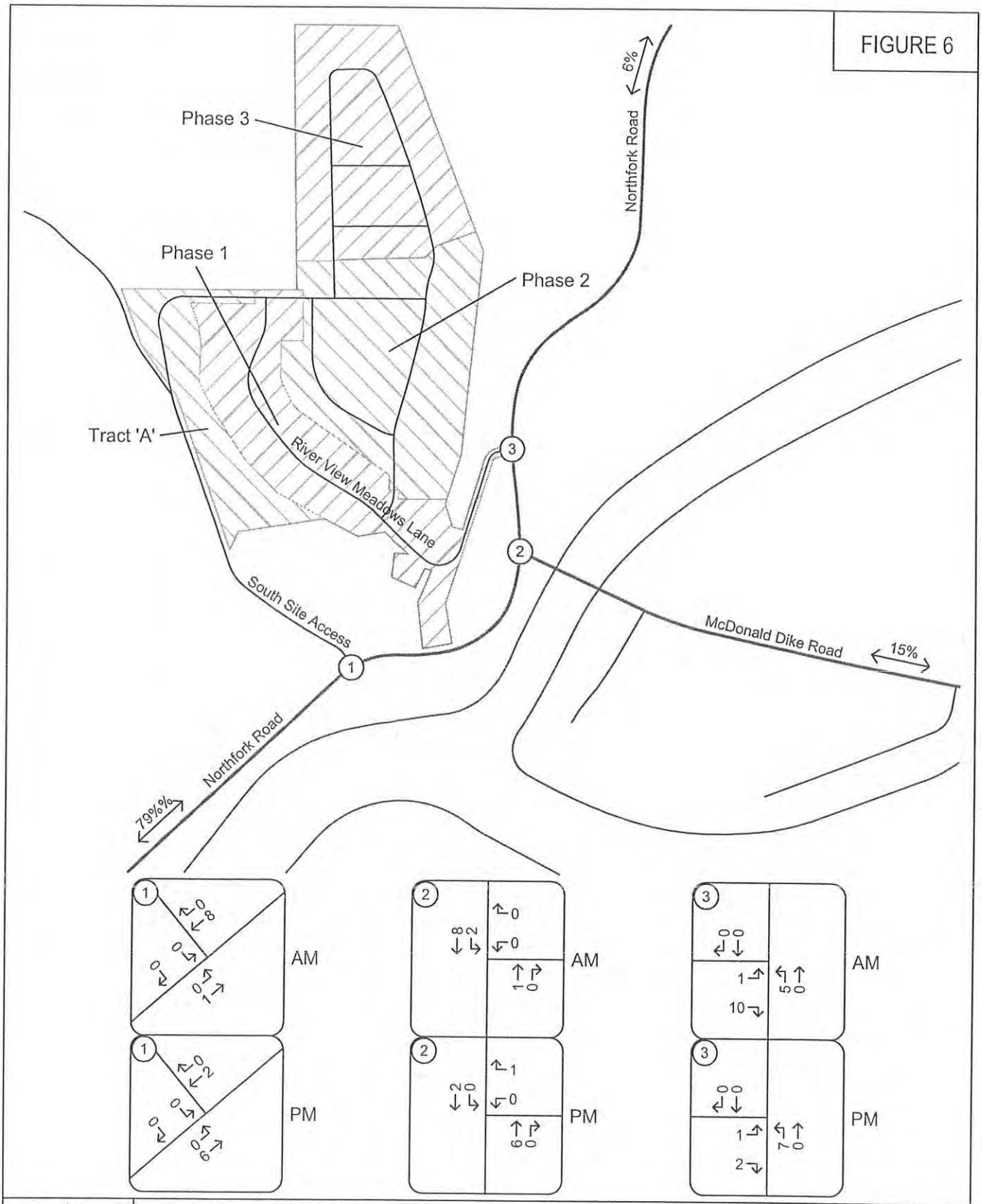
Based on the detailed warrant analysis, no new traffic signals or turn lanes are recommended in conjunction with the proposed development.

Although intersection sight distances are limited by horizontal curves in the vicinity of the site access locations, a detailed analysis shows that the available sight distances are adequate to ensure safe operation of the area intersections, and the delays to through traffic that slows to avoid conflicts will be negligible. Accordingly, no sight distance improvements are necessary or recommended in conjunction with the proposed development.

Based on the analysis of River View Meadows Lane's road width and geometry, large vehicles may have difficulty navigating the roadway and require both travel lanes to negotiate the curves in the vicinity of Northfork Road. Very large trucks may also trailer off the roadway surface. However, the road width is sufficient to approximately 1,000 passenger vehicles per day despite the narrow width, similar to the capacity of a residential queuing street. The projected future traffic volumes on this roadway are within this effective roadway capacity. Planned monumentation and improvements to the new south site access roadway may help further reduce traffic volumes on River View Meadows Lane. It is recommended that large trucks be directed to use the new south site access roadway.

APPENDIX

FIGURE 6



TRAFFIC VOLUMES
In-Process Trips
Morning and Evening Peak Hours

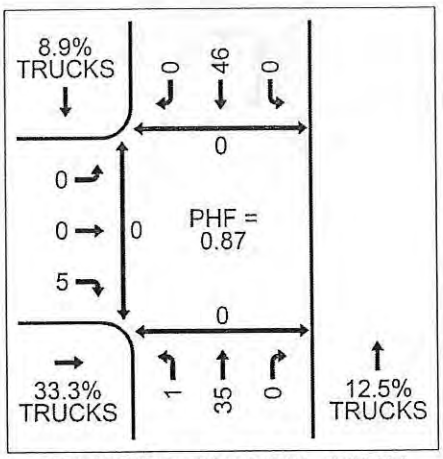
Intersection Count Summary (2-Hour Count)

Ard Engineering, LLC

Intersection: Nehalem River Road at Proposed South Access

Date: 8/10/2022 Time: 7:00 AM to 9:00 AM

Weather: Overcast



PEAK HOUR DIAGRAM: 8:00 - 9:00 AM

Count Data: 5-Minute Intervals

Start Time	Northbound Nehalem River Rd				Southbound Nehalem River Rd				Eastbound South Site Access				Westbound South Site Access				Interval Total	Pedestrian Crossings			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:05 AM	1	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0
7:10 AM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
7:15 AM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
7:20 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
7:25 AM	1	2	0	0	0	11	0	0	0	0	0	0	0	0	0	0	14	0	0	0	0
7:30 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0
7:35 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
7:40 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
7:45 AM	0	3	0	0	0	4	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0
7:50 AM	1	5	0	0	0	2	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0
7:55 AM	0	2	0	0	0	3	1	0	1	0	0	0	0	0	0	0	7	0	0	0	0
8:00 AM	0	8	0	0	0	2	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0
8:05 AM	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0
8:10 AM	0	2	0	0	0	4	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0
8:15 AM	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
8:20 AM	0	0	0	0	0	4	0	0	0	0	2	0	0	0	0	0	6	0	0	0	0
8:25 AM	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0
8:30 AM	0	2	0	0	0	5	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0
8:35 AM	1	3	0	0	0	4	0	0	0	0	1	0	0	0	0	0	9	0	0	0	0
8:40 AM	0	3	0	0	0	2	0	0	0	0	1	0	0	0	0	0	6	0	0	0	0
8:45 AM	0	2	0	0	0	4	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0
8:50 AM	0	6	0	0	0	5	0	0	0	0	1	0	0	0	0	0	12	0	0	0	0
8:55 AM	0	2	0	0	0	5	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0
Total	4	52	0	0	0	78	1	0	1	0	5	0	0	0	0	0	141	0	0	0	0

Peak Hour Summary: 8:00-9:00 AM PHF = 0.87

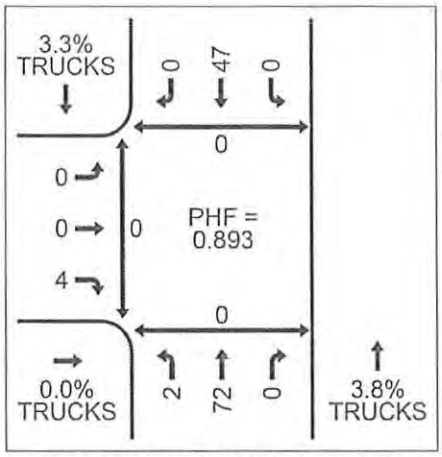
	Northbound Nehalem River Rd				Southbound Nehalem River Rd				Eastbound South Site Access				Westbound South Site Access				Interval Total	Pedestrians			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
Peak Hour	1	35	0	0	0	46	0	0	0	0	5	0	0	0	0	0	87	0	0	0	0
% Trucks	12.5%				8.9%				33.3%				#DIV/0!								

Intersection Count Summary (2-Hour Count)
Ard Engineering, LLC

Intersection: Nehalem River Road at Proposed South Access

Date: 8/9/2022 Time: 4:00 PM to 6:00 PM

Weather: Clear and Dry



PEAK HOUR DIAGRAM: 4:25 - 5:25 PM

Count Data: 5-Minute Intervals

Start Time	Northbound Nehalem River Rd				Southbound Nehalem River Rd				Eastbound South Site Access				Westbound South Site Access				Interval Total	Pedestrian Crossings			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0
4:05 PM	0	4	0	0	0	2	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0
4:10 PM	1	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0
4:15 PM	0	1	0	0	0	5	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0
4:20 PM	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0
4:25 PM	0	10	0	0	0	5	0	0	0	0	1	0	0	0	0	0	16	0	0	0	0
4:30 PM	0	5	0	0	0	2	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0
4:35 PM	0	2	0	0	0	6	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0
4:40 PM	0	8	0	0	0	7	0	0	0	0	1	0	0	0	0	0	16	0	0	0	0
4:45 PM	0	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0
4:50 PM	0	3	0	0	0	5	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0
4:55 PM	0	2	0	0	0	3	0	1	0	0	0	0	0	0	0	0	5	0	0	0	0
5:00 PM	0	7	0	0	0	4	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0
5:05 PM	1	8	0	0	0	2	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0
5:10 PM	1	7	0	0	0	2	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0
5:15 PM	0	7	0	0	0	4	0	0	0	0	1	0	0	0	0	0	12	0	0	0	0
5:20 PM	0	8	0	0	0	4	0	0	0	0	1	0	0	0	0	0	13	0	0	0	0
5:25 PM	0	7	0	0	0	3	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0
5:30 PM	0	1	0	0	0	6	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0
5:35 PM	0	6	0	0	0	4	0	0	0	0	1	0	0	0	0	0	11	0	0	0	0
5:40 PM	0	6	0	0	0	3	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0
5:45 PM	1	9	0	0	0	5	0	0	0	0	0	0	0	0	0	0	15	0	0	0	0
5:50 PM	0	6	0	0	0	3	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0
5:55 PM	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
Total	4	127	0	0	0	91	0	1	0	0	5	0	0	0	0	0	227	0	0	0	0

Peak Hour Summary: 4:25-5:25 PM PHF = 0.893

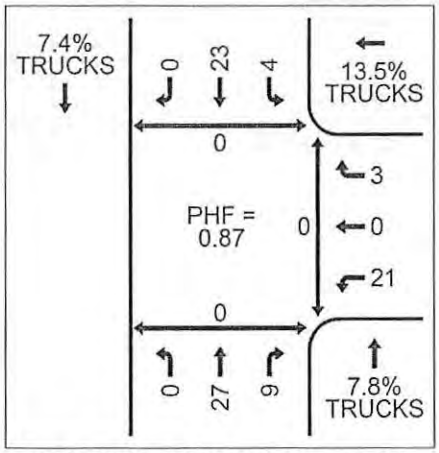
	Northbound Nehalem River Rd				Southbound Nehalem River Rd				Eastbound South Site Access				Westbound South Site Access				Interval Total	Pedestrians			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
Peak Hour	2	72	0	0	0	47	0	1	0	0	4	0	0	0	0	0	125	0	0	0	0
% Trucks	3.8%				3.3%				0.0%				#DIV/0!								

Intersection Count Summary (2-Hour Count)
Ard Engineering, LLC

Intersection: Nehalem River Road at McDonald Road

Date: 8/10/2022 Time: 7:00 AM to 9:00 AM

Weather: Overcast



PEAK HOUR DIAGRAM: 8:00 - 9:00 AM

Count Data: 5-Minute Intervals

Start Time	Northbound Nehalem River Rd				Southbound Nehalem River Rd				Eastbound McDonald Road				Westbound McDonald Road				Interval Total	Pedestrian Crossings			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:05 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	2	0	4	0	0	0	0
7:10 AM	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0	0	0	0
7:15 AM	0	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0
7:20 AM	0	2	0	0	1	1	0	0	0	0	0	0	0	0	1	0	5	0	0	0	0
7:25 AM	0	1	0	0	0	10	0	0	0	0	0	0	1	0	0	0	12	0	0	0	0
7:30 AM	0	0	0	0	0	3	0	0	0	0	0	0	2	0	0	0	5	0	0	0	0
7:35 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
7:40 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0
7:45 AM	0	2	1	0	0	3	0	0	0	0	0	0	1	0	0	0	7	0	0	0	0
7:50 AM	0	3	0	0	0	1	0	0	0	0	0	0	2	0	0	0	6	0	0	0	0
7:55 AM	0	2	0	0	0	3	0	0	0	0	0	0	1	0	0	0	6	0	0	0	0
8:00 AM	0	4	1	0	1	1	0	0	0	0	0	0	2	0	0	0	9	0	0	0	0
8:05 AM	0	3	0	0	0	2	0	0	0	0	0	0	6	0	0	0	11	0	0	0	0
8:10 AM	0	1	0	0	0	1	0	0	0	0	0	0	1	0	1	0	4	0	0	0	0
8:15 AM	0	5	1	0	0	0	0	0	0	0	0	0	1	0	0	0	7	0	0	0	0
8:20 AM	0	0	0	0	0	2	0	0	0	0	0	0	2	0	0	0	4	0	0	0	0
8:25 AM	0	2	1	0	1	2	0	0	0	0	0	0	1	0	0	0	7	0	0	0	0
8:30 AM	0	1	1	0	1	3	0	0	0	0	0	0	2	0	0	0	8	0	0	0	0
8:35 AM	0	2	1	0	0	3	0	0	0	0	0	0	1	0	0	0	7	0	0	0	0
8:40 AM	0	2	1	0	0	1	0	0	0	0	0	0	1	0	0	0	5	0	0	0	0
8:45 AM	0	1	0	0	0	1	0	0	0	0	0	0	2	0	1	0	5	0	0	0	0
8:50 AM	0	5	2	0	0	4	0	0	0	0	0	0	2	0	0	0	13	0	0	0	0
8:55 AM	0	1	1	0	1	3	0	0	0	0	0	0	0	0	1	0	7	0	0	0	0
Total	0	39	12	0	7	47	0	0	0	0	0	0	31	0	6	0	142	0	0	0	0

Peak Hour Summary: 8:00-9:00 AM PHF = 0.87

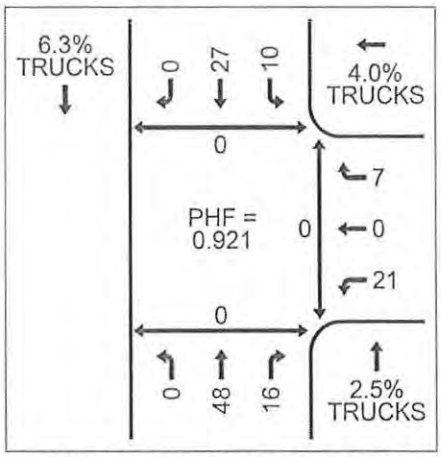
	Northbound Nehalem River Rd				Southbound Nehalem River Rd				Eastbound McDonald Road				Westbound McDonald Road				Interval Total	Pedestrians			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
Peak Hour	0	27	9	0	4	23	0	0	0	0	0	0	21	0	3	0	87	0	0	0	0
% Trucks	7.8%				7.4%				#DIV/0!				13.5%								

Intersection Count Summary (2-Hour Count)
Ard Engineering, LLC

Intersection: Nehalem River Road at McDonald Road

Date: 8/9/2022 Time: 4:00 PM to 6:00 PM

Weather: Clear and Dry



PEAK HOUR DIAGRAM: 4:20 - 5:20 PM

Count Data: 5-Minute Intervals

Start Time	Northbound Nehalem River Rd				Southbound Nehalem River Rd				Eastbound McDonald Road				Westbound McDonald Road				Interval Total	Pedestrian Crossings			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	1	2	0	0	1	0	0	0	0	0	0	2	0	1	0	7	0	0	0	0
4:05 PM	0	1	4	0	1	1	0	0	0	0	0	0	0	0	1	0	8	0	0	0	0
4:10 PM	0	2	1	0	0	1	0	0	0	0	0	0	1	0	0	0	5	0	0	0	0
4:15 PM	0	1	0	0	0	2	0	0	0	0	0	0	4	0	1	0	8	0	0	0	0
4:20 PM	0	4	1	0	1	4	0	0	0	0	0	0	3	0	1	0	14	0	0	0	0
4:25 PM	0	5	2	0	1	1	0	0	0	0	0	0	3	0	0	0	12	0	0	0	0
4:30 PM	0	3	1	0	0	1	0	0	0	0	0	0	1	0	1	0	7	0	0	0	0
4:35 PM	0	2	0	0	0	1	0	0	0	0	0	0	4	0	1	0	8	0	0	0	0
4:40 PM	0	4	3	0	1	4	0	0	0	0	0	0	3	0	1	0	16	0	0	0	0
4:45 PM	0	3	1	0	1	1	0	0	0	0	0	0	2	0	0	0	8	0	0	0	0
4:50 PM	0	4	1	0	2	1	0	0	0	0	0	0	1	0	2	0	11	0	0	0	0
4:55 PM	0	1	0	0	1	3	0	1	0	0	0	0	0	0	1	0	6	0	0	0	0
5:00 PM	0	6	1	0	2	3	0	0	0	0	0	0	1	0	0	0	13	0	0	0	0
5:05 PM	0	5	2	0	0	1	0	0	0	0	0	0	1	0	0	0	9	0	0	0	0
5:10 PM	0	4	4	0	1	2	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0
5:15 PM	0	7	0	0	0	5	0	0	0	0	0	0	2	0	0	0	14	0	0	0	0
5:20 PM	0	5	1	0	1	3	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0
5:25 PM	0	6	2	0	0	2	0	0	0	0	0	0	1	0	1	0	12	0	0	0	0
5:30 PM	0	1	0	0	1	5	0	0	0	0	0	0	1	0	0	0	8	0	0	0	0
5:35 PM	0	3	1	0	1	0	0	0	0	0	0	0	1	0	1	0	7	0	0	0	0
5:40 PM	0	2	3	0	0	2	0	0	0	0	0	0	2	0	1	0	10	0	0	0	0
5:45 PM	0	4	4	0	0	1	0	0	0	0	0	0	3	0	0	0	12	0	0	0	0
5:50 PM	0	3	4	0	1	4	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0
5:55 PM	0	1	2	0	0	0	0	0	0	0	0	0	1	0	0	0	4	0	0	0	0
Total	0	78	40	0	15	49	0	1	0	0	0	0	37	0	13	0	232	0	0	0	0

Peak Hour Summary: 4:20-5:20 PM PHF = 0.921

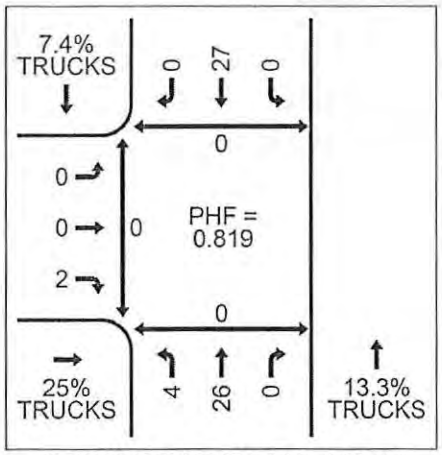
	Northbound Nehalem River Rd				Southbound Nehalem River Rd				Eastbound McDonald Road				Westbound McDonald Road				Interval Total	Pedestrians			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
Peak Hour	0	48	16	0	10	27	0	1	0	0	0	0	21	0	7	0	129	0	0	0	0
% Trucks	2.5%				6.3%				0.0%				4.0%								

Intersection Count Summary (2-Hour Count)
Ard Engineering, LLC

Intersection: Nehalem River Road at River View Meadows Lane

Date: 8/10/2022 Time: 7:00 AM to 9:00 AM

Weather: Overcast



PEAK HOUR DIAGRAM: 8:00 - 9:00 AM

Count Data: 5-Minute Intervals

Start Time	Northbound Nehalem River Rd				Southbound Nehalem River Rd				Eastbound River View Meadows Ln				Westbound River View Meadows Ln				Interval Total	Pedestrian Crossings			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:05 AM	1	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0
7:10 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	1	0	0	0	0	3	0	0	1	0	0	0	0	0	0	0	5	0	0	0	0
7:20 AM	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
7:25 AM	0	1	0	0	0	10	0	0	0	0	1	0	0	0	0	0	12	0	0	0	0
7:30 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
7:35 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
7:40 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
7:50 AM	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0
7:55 AM	2	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
8:00 AM	0	4	0	0	0	2	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0
8:05 AM	1	2	0	0	0	2	0	0	0	0	1	0	0	0	0	0	6	0	0	0	0
8:10 AM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
8:15 AM	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
8:20 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
8:25 AM	1	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
8:30 AM	0	1	0	0	0	4	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
8:35 AM	0	2	0	0	0	3	0	0	0	0	1	0	0	0	0	0	6	0	0	0	0
8:40 AM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
8:45 AM	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
8:50 AM	1	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0
8:55 AM	0	2	0	0	0	4	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0
Total	8	37	0	0	0	54	0	0	1	0	3	0	0	0	0	0	103	0	0	0	0

Peak Hour Summary: 8:00-9:00 AM PHF = 0.819

	Northbound Nehalem River Rd				Southbound Nehalem River Rd				Eastbound River View Meadows Ln				Westbound River View Meadows				Interval Total	Pedestrians			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
Peak Hour	4	26	0	0	0	27	0	0	0	0	2	0	0	0	0	0	59	0	0	0	0
% Trucks	13.3%				7.4%				25.0%				#DIV/0!								

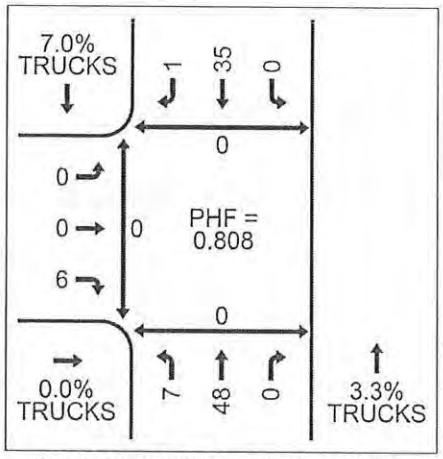
Intersection Count Summary (2-Hour Count)

Ard Engineering, LLC

Intersection: Nehalem River Road at River View Meadows Lane

Date: 8/9/2022 Time: 4:00 PM to 6:00 PM

Weather: Clear and Dry



PEAK HOUR DIAGRAM: 4:40 - 5:40 PM

Count Data: 5-Minute Intervals

Start Time	Northbound Nehalem River Rd				Southbound Nehalem River Rd				Eastbound RiverView Meadows Ln				Westbound RiverView Meadows Ln				Interval Total	Pedestrian Crossings			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	4	0	0	0	0
4:05 PM	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0
4:10 PM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
4:15 PM	1	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0
4:20 PM	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0
4:25 PM	1	4	0	0	0	2	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0
4:30 PM	2	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
4:35 PM	1	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0
4:40 PM	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0
4:45 PM	1	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
4:50 PM	1	5	0	0	0	3	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0
4:55 PM	0	2	0	0	0	4	1	1	0	0	0	0	0	0	0	0	7	0	0	0	0
5:00 PM	1	5	0	0	0	2	0	0	0	0	3	0	0	0	0	0	11	0	0	0	0
5:05 PM	0	5	0	0	0	1	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0
5:10 PM	0	4	0	0	0	2	0	0	0	0	1	0	0	0	0	0	7	0	0	0	0
5:15 PM	1	6	0	0	0	5	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0
5:20 PM	1	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0
5:25 PM	1	6	0	0	0	2	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0
5:30 PM	0	1	0	0	0	4	0	0	0	0	2	0	0	0	0	0	7	0	0	0	0
5:35 PM	1	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
5:40 PM	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
5:45 PM	0	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
5:50 PM	0	3	0	0	0	4	0	0	0	0	1	0	0	0	0	0	8	0	0	0	0
5:55 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Total	12	79	0	0	0	56	1	1	0	0	9	0	0	0	0	0	157	0	0	0	0

Peak Hour Summary: 4:40-5:40 PM PHF = 0.808

	Northbound Nehalem River Rd				Southbound Nehalem River Rd				Eastbound RiverView Meadows Ln				Westbound RiverView Meadows Ln				Interval Total	Pedestrians			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
Peak Hour	7	48	0	0	0	35	1	1	0	0	6	0	0	0	0	0	93	0	0	0	0
% Trucks	3.3%				7.0%				0.0%				#DIV/0!								

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	5	1	35	46	0
Future Vol, veh/h	0	5	1	35	46	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	33	33	13	13	9	9
Mvmt Flow	0	6	1	40	53	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	95	53	53	0	-	0
Stage 1	53	-	-	-	-	-
Stage 2	42	-	-	-	-	-
Critical Hdwy	6.73	6.53	4.23	-	-	-
Critical Hdwy Stg 1	5.73	-	-	-	-	-
Critical Hdwy Stg 2	5.73	-	-	-	-	-
Follow-up Hdwy	3.797	3.597	2.317	-	-	-
Pot Cap-1 Maneuver	834	933	1485	-	-	-
Stage 1	896	-	-	-	-	-
Stage 2	907	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	833	933	1485	-	-	-
Mov Cap-2 Maneuver	833	-	-	-	-	-
Stage 1	895	-	-	-	-	-
Stage 2	907	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	0.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1485	-	933	-	-
HCM Lane V/C Ratio	0.001	-	0.006	-	-
HCM Control Delay (s)	7.4	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	2.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	21	3	27	9	4	23
Future Vol, veh/h	21	3	27	9	4	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	14	14	8	8	7	7
Mvmt Flow	24	3	31	10	5	26

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	72	36	0	0	41	0
Stage 1	36	-	-	-	-	-
Stage 2	36	-	-	-	-	-
Critical Hdwy	6.54	6.34	-	-	4.17	-
Critical Hdwy Stg 1	5.54	-	-	-	-	-
Critical Hdwy Stg 2	5.54	-	-	-	-	-
Follow-up Hdwy	3.626	3.426	-	-	2.263	-
Pot Cap-1 Maneuver	903	1003	-	-	1537	-
Stage 1	956	-	-	-	-	-
Stage 2	956	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	900	1003	-	-	1537	-
Mov Cap-2 Maneuver	900	-	-	-	-	-
Stage 1	956	-	-	-	-	-
Stage 2	953	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	1.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	912	1537	-
HCM Lane V/C Ratio	-	-	0.03	0.003	-
HCM Control Delay (s)	-	-	9.1	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	2	4	26	27	0
Future Vol, veh/h	0	2	4	26	27	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	25	25	13	13	7	7
Mvmt Flow	0	2	5	32	33	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	75	33	33	0	-	0
Stage 1	33	-	-	-	-	-
Stage 2	42	-	-	-	-	-
Critical Hdwy	6.65	6.45	4.23	-	-	-
Critical Hdwy Stg 1	5.65	-	-	-	-	-
Critical Hdwy Stg 2	5.65	-	-	-	-	-
Follow-up Hdwy	3.725	3.525	2.317	-	-	-
Pot Cap-1 Maneuver	874	978	1511	-	-	-
Stage 1	933	-	-	-	-	-
Stage 2	925	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	871	978	1511	-	-	-
Mov Cap-2 Maneuver	871	-	-	-	-	-
Stage 1	930	-	-	-	-	-
Stage 2	925	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1511	-	978	-	-
HCM Lane V/C Ratio	0.003	-	0.002	-	-
HCM Control Delay (s)	7.4	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	4	2	72	47	0
Future Vol, veh/h	0	4	2	72	47	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	4	4	3	3
Mvmt Flow	0	4	2	81	53	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	138	53	53	0	-	0
Stage 1	53	-	-	-	-	-
Stage 2	85	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.14	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.236	-	-	-
Pot Cap-1 Maneuver	855	1014	1540	-	-	-
Stage 1	970	-	-	-	-	-
Stage 2	938	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	854	1014	1540	-	-	-
Mov Cap-2 Maneuver	854	-	-	-	-	-
Stage 1	969	-	-	-	-	-
Stage 2	938	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	0.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1540	-	1014	-	-
HCM Lane V/C Ratio	0.001	-	0.004	-	-
HCM Control Delay (s)	7.3	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	21	7	48	16	10	27
Future Vol, veh/h	21	7	48	16	10	27
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	3	3	6	6
Mvmt Flow	23	8	52	17	11	29

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	112	61	0	0	69	0
Stage 1	61	-	-	-	-	-
Stage 2	51	-	-	-	-	-
Critical Hdwy	6.44	6.24	-	-	4.16	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	-	-	2.254	-
Pot Cap-1 Maneuver	880	999	-	-	1507	-
Stage 1	957	-	-	-	-	-
Stage 2	966	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	874	999	-	-	1507	-
Mov Cap-2 Maneuver	874	-	-	-	-	-
Stage 1	957	-	-	-	-	-
Stage 2	959	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	902	1507	-
HCM Lane V/C Ratio	-	-	0.034	0.007	-
HCM Control Delay (s)	-	-	9.1	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	6	7	48	35	1
Future Vol, veh/h	0	6	7	48	35	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	2	3	3	7	7
Mvmt Flow	0	7	9	59	43	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	121	44	44	0	-	0
Stage 1	44	-	-	-	-	-
Stage 2	77	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.13	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.227	-	-	-
Pot Cap-1 Maneuver	874	1026	1558	-	-	-
Stage 1	978	-	-	-	-	-
Stage 2	946	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	869	1026	1558	-	-	-
Mov Cap-2 Maneuver	869	-	-	-	-	-
Stage 1	972	-	-	-	-	-
Stage 2	946	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	0.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1558	-	1026	-	-
HCM Lane V/C Ratio	0.006	-	0.007	-	-
HCM Control Delay (s)	7.3	0	8.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Trip Generation Calculation Worksheet

Land Use Description: Single-Family Detached Housing
ITE Land Use Code: 210
Independent Variable: Dwelling Units
Quantity: 72 Dwelling Units
Setting: General Urban/Suburban and Rural

Summary of ITE Trip Generation Data

AM Peak Hour of Adjacent Street Traffic

Trip Rate: 0.70 trips per dwelling unit
Directional Distribution: 26% Entering 74% Exiting

PM Peak Hour of Adjacent Street Traffic

Trip Rate: 0.94 trips per dwelling unit
Directional Distribution: 63% Entering 37% Exiting

Total Weekday Traffic

Trip Rate: 9.43 trips per dwelling unit
Directional Distribution: 50% Entering 50% Exiting

Site Trip Generation Calculations

72 Dwelling Units

	Entering	Exiting	Total
AM Peak Hour	13	37	50
PM Peak Hour	43	25	68
Weekday	339	339	678

Data Source: *Trip Generation Manual, 11th Edition*, Institute of Transportation Engineers, 2021

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	5	1	38	57	0
Future Vol, veh/h	0	5	1	38	57	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	33	33	13	13	9	9
Mvmt Flow	0	6	1	44	66	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	112	66	66	0	-	0
Stage 1	66	-	-	-	-	-
Stage 2	46	-	-	-	-	-
Critical Hdwy	6.73	6.53	4.23	-	-	-
Critical Hdwy Stg 1	5.73	-	-	-	-	-
Critical Hdwy Stg 2	5.73	-	-	-	-	-
Follow-up Hdwy	3.797	3.597	2.317	-	-	-
Pot Cap-1 Maneuver	815	918	1469	-	-	-
Stage 1	884	-	-	-	-	-
Stage 2	903	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	814	918	1469	-	-	-
Mov Cap-2 Maneuver	814	-	-	-	-	-
Stage 1	883	-	-	-	-	-
Stage 2	903	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	0.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1469	-	918	-	-
HCM Lane V/C Ratio	0.001	-	0.006	-	-
HCM Control Delay (s)	7.5	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	2.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	22	3	30	10	6	32
Future Vol, veh/h	22	3	30	10	6	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	14	14	8	8	7	7
Mvmt Flow	25	3	34	11	7	37

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	91	40	0	0	45	0
Stage 1	40	-	-	-	-	-
Stage 2	51	-	-	-	-	-
Critical Hdwy	6.54	6.34	-	-	4.17	-
Critical Hdwy Stg 1	5.54	-	-	-	-	-
Critical Hdwy Stg 2	5.54	-	-	-	-	-
Follow-up Hdwy	3.626	3.426	-	-	2.263	-
Pot Cap-1 Maneuver	881	998	-	-	1531	-
Stage 1	952	-	-	-	-	-
Stage 2	942	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	877	998	-	-	1531	-
Mov Cap-2 Maneuver	877	-	-	-	-	-
Stage 1	952	-	-	-	-	-
Stage 2	937	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	1.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	890	1531	-
HCM Lane V/C Ratio	-	-	0.032	0.005	-
HCM Control Delay (s)	-	-	9.2	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	2	4	28	29	0
Future Vol, veh/h	0	2	4	28	29	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	25	25	13	13	7	7
Mvmt Flow	0	2	5	34	35	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	79	35	35	0	-	0
Stage 1	35	-	-	-	-	-
Stage 2	44	-	-	-	-	-
Critical Hdwy	6.65	6.45	4.23	-	-	-
Critical Hdwy Stg 1	5.65	-	-	-	-	-
Critical Hdwy Stg 2	5.65	-	-	-	-	-
Follow-up Hdwy	3.725	3.525	2.317	-	-	-
Pot Cap-1 Maneuver	870	976	1508	-	-	-
Stage 1	931	-	-	-	-	-
Stage 2	923	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	867	976	1508	-	-	-
Mov Cap-2 Maneuver	867	-	-	-	-	-
Stage 1	928	-	-	-	-	-
Stage 2	923	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	0.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1508	-	976	-	-
HCM Lane V/C Ratio	0.003	-	0.002	-	-
HCM Control Delay (s)	7.4	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	4	2	82	52	0
Future Vol, veh/h	0	4	2	82	52	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	4	4	3	3
Mvmt Flow	0	4	2	92	58	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	154	58	58	0	-	0
Stage 1	58	-	-	-	-	-
Stage 2	96	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.14	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.236	-	-	-
Pot Cap-1 Maneuver	838	1008	1533	-	-	-
Stage 1	965	-	-	-	-	-
Stage 2	928	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	837	1008	1533	-	-	-
Mov Cap-2 Maneuver	837	-	-	-	-	-
Stage 1	964	-	-	-	-	-
Stage 2	928	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	0.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1533	-	1008	-	-
HCM Lane V/C Ratio	0.001	-	0.004	-	-
HCM Control Delay (s)	7.4	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	22	8	57	17	11	31
Future Vol, veh/h	22	8	57	17	11	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	3	3	6	6
Mvmt Flow	24	9	62	18	12	34

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	129	71	0	0	80	0
Stage 1	71	-	-	-	-	-
Stage 2	58	-	-	-	-	-
Critical Hdwy	6.44	6.24	-	-	4.16	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	-	-	2.254	-
Pot Cap-1 Maneuver	861	986	-	-	1493	-
Stage 1	947	-	-	-	-	-
Stage 2	959	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	854	986	-	-	1493	-
Mov Cap-2 Maneuver	854	-	-	-	-	-
Stage 1	947	-	-	-	-	-
Stage 2	951	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	1.9
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	886	1493	-
HCM Lane V/C Ratio	-	-	0.037	0.008	-
HCM Control Delay (s)	-	-	9.2	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	18	19	51	37	1
Future Vol, veh/h	2	18	19	51	37	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	2	3	3	7	7
Mvmt Flow	2	22	23	63	46	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	156	47	47	0	-	0
Stage 1	47	-	-	-	-	-
Stage 2	109	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.13	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.227	-	-	-
Pot Cap-1 Maneuver	835	1022	1554	-	-	-
Stage 1	975	-	-	-	-	-
Stage 2	916	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	822	1022	1554	-	-	-
Mov Cap-2 Maneuver	822	-	-	-	-	-
Stage 1	960	-	-	-	-	-
Stage 2	916	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1554	-	998	-	-
HCM Lane V/C Ratio	0.015	-	0.025	-	-
HCM Control Delay (s)	7.4	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	15	4	45	76	1
Future Vol, veh/h	3	15	4	45	76	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	33	33	13	13	9	9
Mvmt Flow	3	17	5	52	87	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	150	88	88	0	-	0
Stage 1	88	-	-	-	-	-
Stage 2	62	-	-	-	-	-
Critical Hdwy	6.73	6.53	4.23	-	-	-
Critical Hdwy Stg 1	5.73	-	-	-	-	-
Critical Hdwy Stg 2	5.73	-	-	-	-	-
Follow-up Hdwy	3.797	3.597	2.317	-	-	-
Pot Cap-1 Maneuver	774	891	1441	-	-	-
Stage 1	863	-	-	-	-	-
Stage 2	887	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	771	891	1441	-	-	-
Mov Cap-2 Maneuver	771	-	-	-	-	-
Stage 1	860	-	-	-	-	-
Stage 2	887	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.2	0.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1441	-	868	-	-
HCM Lane V/C Ratio	0.003	-	0.024	-	-
HCM Control Delay (s)	7.5	0	9.2	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	4	37	13	9	51
Future Vol, veh/h	23	4	37	13	9	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	14	14	8	8	7	7
Mvmt Flow	26	5	43	15	10	59

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	130	51	0	0	58	0
Stage 1	51	-	-	-	-	-
Stage 2	79	-	-	-	-	-
Critical Hdwy	6.54	6.34	-	-	4.17	-
Critical Hdwy Stg 1	5.54	-	-	-	-	-
Critical Hdwy Stg 2	5.54	-	-	-	-	-
Follow-up Hdwy	3.626	3.426	-	-	2.263	-
Pot Cap-1 Maneuver	836	984	-	-	1515	-
Stage 1	942	-	-	-	-	-
Stage 2	915	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	830	984	-	-	1515	-
Mov Cap-2 Maneuver	830	-	-	-	-	-
Stage 1	942	-	-	-	-	-
Stage 2	909	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	1.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	850	1515	-
HCM Lane V/C Ratio	-	-	0.037	0.007	-
HCM Control Delay (s)	-	-	9.4	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	24	12	28	29	1
Future Vol, veh/h	2	24	12	28	29	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	25	25	13	13	7	7
Mvmt Flow	2	29	15	34	35	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	100	36	36	0	-	0
Stage 1	36	-	-	-	-	-
Stage 2	64	-	-	-	-	-
Critical Hdwy	6.65	6.45	4.23	-	-	-
Critical Hdwy Stg 1	5.65	-	-	-	-	-
Critical Hdwy Stg 2	5.65	-	-	-	-	-
Follow-up Hdwy	3.725	3.525	2.317	-	-	-
Pot Cap-1 Maneuver	846	974	1507	-	-	-
Stage 1	930	-	-	-	-	-
Stage 2	903	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	838	974	1507	-	-	-
Mov Cap-2 Maneuver	838	-	-	-	-	-
Stage 1	921	-	-	-	-	-
Stage 2	903	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	2.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1507	-	962	-	-
HCM Lane V/C Ratio	0.01	-	0.033	-	-
HCM Control Delay (s)	7.4	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	11	13	105	65	3
Future Vol, veh/h	2	11	13	105	65	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	4	4	3	3
Mvmt Flow	2	12	15	118	73	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	223	75	76	0	-	0
Stage 1	75	-	-	-	-	-
Stage 2	148	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.14	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.236	-	-	-
Pot Cap-1 Maneuver	765	986	1510	-	-	-
Stage 1	948	-	-	-	-	-
Stage 2	880	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	757	986	1510	-	-	-
Mov Cap-2 Maneuver	757	-	-	-	-	-
Stage 1	938	-	-	-	-	-
Stage 2	880	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	0.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1510	-	942	-	-
HCM Lane V/C Ratio	0.01	-	0.016	-	-
HCM Control Delay (s)	7.4	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	11	80	19	13	44
Future Vol, veh/h	25	11	80	19	13	44
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	3	3	6	6
Mvmt Flow	27	12	87	21	14	48

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	174	98	0	0	108	0
Stage 1	98	-	-	-	-	-
Stage 2	76	-	-	-	-	-
Critical Hdwy	6.44	6.24	-	-	4.16	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	-	-	2.254	-
Pot Cap-1 Maneuver	811	953	-	-	1458	-
Stage 1	921	-	-	-	-	-
Stage 2	942	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	803	953	-	-	1458	-
Mov Cap-2 Maneuver	803	-	-	-	-	-
Stage 1	921	-	-	-	-	-
Stage 2	933	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	1.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	844	1458	-
HCM Lane V/C Ratio	-	-	0.046	0.01	-
HCM Control Delay (s)	-	-	9.5	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	33	45	51	29	1
Future Vol, veh/h	3	33	45	51	29	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	2	3	3	7	7
Mvmt Flow	4	41	56	63	36	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	212	37	37	0	-	0
Stage 1	37	-	-	-	-	-
Stage 2	175	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.13	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.227	-	-	-
Pot Cap-1 Maneuver	776	1035	1567	-	-	-
Stage 1	985	-	-	-	-	-
Stage 2	855	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	747	1035	1567	-	-	-
Mov Cap-2 Maneuver	747	-	-	-	-	-
Stage 1	949	-	-	-	-	-
Stage 2	855	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.8	3.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1567	-	1003	-	-
HCM Lane V/C Ratio	0.035	-	0.044	-	-
HCM Control Delay (s)	7.4	0	8.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

SER# / INVEST / RD DPT / UNLOC?	S P E D	D A L C	M R U G S	J U N V	I H L	C R K	W	DATE / DAY / TIME / LAT	MILEPNT / DIST FROM / INTERSECT / LONG	COUNTY ROADS / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	VH	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	PH	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / PES	PED LOC	ERROR	ACT	EVENT	CAUSE
00050	N	N	N					02/20/2020	0.32	NORTH FORK NEHLM RD	STRGHT		N	N	CLR	ANIMAL	01	NONE 3	STRGHT										035	12
COUNTY								TH			UN	(NONE)	NONE	N	DRY	OTH		N/A	E -W								000		00
N								10A			03			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK	000	000		00
N								45 43 23.18	-123 53 38.22			(02)													UNK				
00110	N	N	N		N	N		04/17/2019	1.44	NORTH FORK NEHLM RD	CURVE		N	Y	RAIN	FIX OBJ	01	NONE 9	STRGHT										045,091	10
COUNTY								WE			UN	(NONE)	NONE	N	WET	FIX		N/A	S -N								000		00
Y								10A			06			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK	000	000		00
N								45 44 1.16	-123 52 38.33			(02)													UNK				
00183	N	Y	N		N	N		06/20/2018	1.66	NORTH FORK NEHLM RD	CURVE		N	Y	CLR	FIX OBJ	01	NONE 0	STRGHT										035,079,091	32
COUNTY								WE			UN	(NONE)	NONE	N	DRY	FIX		PRVTE	N -S								007	079,091	00
Y								2A			07			N	DARK	INJ		PSNGR CAR		01	DRVR	INJB	28	F	N-VAL	082,080,081	088		32
N								45 44 11.32	-123 52 34.03			(02)													OR<25				
00136	Y	N	N		N	N		05/11/2019	2.30	NORTH FORK NEHLM RD	CURVE		N	Y	UNK	FIX OBJ	01	NONE 0	STRGHT										058,010	01
COUNTY								SA			UN	(NONE)	CURVE	N	DRY	FIX		PRVTE	UN-UN								000	058,010	00
Y								12A			07			N	DARK	INJ		PSNGR CAR		01	DRVR	INJC	20	F	OR-Y	047,080,081	017		01
N								45 44 53.16	-123 51 26.61			(02)													OR<25				
00055	N	N	N		N	N		03/07/2018	3.47	NORTH FORK NEHLM RD	CURVE		N	Y	CLR	FIX OBJ	01	NONE 0	STRGHT										092,079,010	26
COUNTY								WE			UN	(NONE)	NONE	N	DRY	FIX		PRVTE	S -N								007	092,079,010	26
Y								4P			01			N	DAY	INJ		PSNGR CAR		01	DRVR	INJC	48	M	OR-Y	080,081	000		00
N								45 45 8.25	-123 50 56.18			(02)													OR>25				

Preliminary Traffic Signal Warrant Analysis

Project Name: Riverview Meadows
Intersection: Northfork Road at South Site Access
Scenario: 2025 Background Plus Site Trips

Number of Major Street Lanes: 1 — PM Peak Hour Volume 186 (sum of both approaches)
Number of Minor Street Lanes 1 — PM Peak Hour Volume 10 (highest-volume approach)[a]
Posted or 85th percentile speed > 40 mph: Yes
Isolated Population Less than 10,000: Yes

Warrant 1, Eight-Hour Vehicular Volume

Condition A - Minimum Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on minor street (total of both approaches)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	500	400	350	280	150	120	105	84
2 or more	1	600	480	420	336	150	120	105	84
2 or more	2 or more	600	480	420	336	200	160	140	112
1	2 or more	500	400	350	280	200	160	140	112

Condition B - Interruption of Continuous Traffic

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on minor street (total of both approaches)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	750	600	525	420	75	60	53	42
2 or more	1	900	720	630	504	75	60	53	42
2 or more	2 or more	900	720	630	504	100	80	70	56
1	2 or more	750	600	525	420	100	80	70	56

Warrant Anaylsis Calculations	8th Highest Hour[b]	Minimum Volume	Warrant Satisfied?
Condition A - Minimum Vehicular Volume			
Major Street Volume	105	350	
Minor Street Volume	6	105	**No**
Condition B - Interruption of Continuous Traffic			
Major Street Volume	105	525	
Minor Street Volume	6	53	**No**
Combination Warrant[c]			
Major Street Volume	105	420	
Minor Street Volume	6	84	**No**

[a] Minor-Street right turn volumes are reduced to account for the impact of right-turns on red.
[b] Eighth-highest hour volumes are calculated as 5.65 percent of the expected daily traffic volume.
[c] This warrant should be used only after adequate trial of other alternatives has failed to solve traffic problems.

Preliminary Traffic Signal Warrant Analysis

Project Name: Riverview Meadows
Intersection: Northfork Road at McDonald Dike Road
Scenario: 2025 Background Plus Site Trips
Number of Major Street Lanes: 1 PM Peak Hour Volume 156 (sum of both approaches)
Number of Minor Street Lanes 1 PM Peak Hour Volume 33 (highest-volume approach)[a]
Posted or 85th percentile speed > 40 mph: Yes
Isolated Population Less than 10,000: Yes

Warrant 1, Eight-Hour Vehicular Volume

Condition A - Minimum Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on minor street (total of both approaches)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	500	400	350	280	150	120	105	84
2 or more	1	600	480	420	336	150	120	105	84
2 or more	2 or more	600	480	420	336	200	160	140	112
1	2 or more	500	400	350	280	200	160	140	112

Condition B - Interruption of Continuous Traffic

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on minor street (total of both approaches)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	750	600	525	420	75	60	53	42
2 or more	1	900	720	630	504	75	60	53	42
2 or more	2 or more	900	720	630	504	100	80	70	56
1	2 or more	750	600	525	420	100	80	70	56

Warrant Anaylsis Calculations	8th Highest Hour[b]	Minimum Volume	Warrant Satisfied?
Condition A - Minimum Vehicular Volume			
Major Street Volume	88	350	
Minor Street Volume	19	105	**No**
Condition B - Interruption of Continuous Traffic			
Major Street Volume	88	525	
Minor Street Volume	19	53	**No**
Combination Warrant[c]			
Major Street Volume	88	420	
Minor Street Volume	19	84	**No**

[a] Minor-Street right turn volumes are reduced to account for the impact of right-turns on red.

[b] Eighth-highest hour volumes are calculated as 5.65 percent of the expected daily traffic volume.

[c] This warrant should be used only after adequate trial of other alternatives has failed to solve traffic problems.

Preliminary Traffic Signal Warrant Analysis

Project Name: Riverview Meadows
Intersection: Northfork Road at River View Meadows Lane
Scenario: 2025 Background Plus Site Trips

Number of Major Street Lanes: 1 — PM Peak Hour Volume 137 (sum of both approaches)
Number of Minor Street Lanes 1 — PM Peak Hour Volume 28 (highest-volume approach)[a]
Posted or 85th percentile speed > 40 mph: Yes
Isolated Population Less than 10,000: Yes

Warrant 1, Eight-Hour Vehicular Volume

Condition A - Minimum Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on minor street (total of both approaches)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	500	400	350	280	150	120	105	84
2 or more	1	600	480	420	336	150	120	105	84
2 or more	2 or more	600	480	420	336	200	160	140	112
1	2 or more	500	400	350	280	200	160	140	112

Condition B - Interruption of Continuous Traffic

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on minor street (total of both approaches)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	750	600	525	420	75	60	53	42
2 or more	1	900	720	630	504	75	60	53	42
2 or more	2 or more	900	720	630	504	100	80	70	56
1	2 or more	750	600	525	420	100	80	70	56

Warrant Anaylsis Calculations	8th Highest Hour[b]	Minimum Volume	Warrant Satisfied?
Condition A - Minimum Vehicular Volume			
Major Street Volume	77	350	
Minor Street Volume	16	105	**No**
Condition B - Interruption of Continuous Traffic			
Major Street Volume	77	525	
Minor Street Volume	16	53	**No**
Combination Warrant[c]			
Major Street Volume	77	420	
Minor Street Volume	16	84	**No**

[a] Minor-Street right turn volumes are reduced to account for the impact of right-turns on red.
[b] Eighth-highest hour volumes are calculated as 5.65 percent of the expected daily traffic volume.
[c] This warrant should be used only after adequate trial of other alternatives has failed to solve traffic problems.

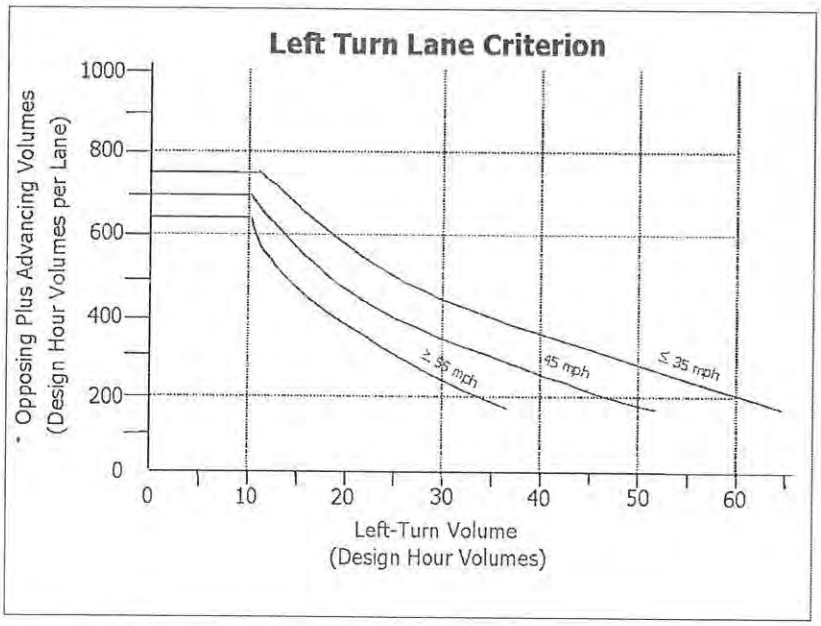
Left-Turn Lane Warrant Analysis (ODOT Methodology)

Project Name: Riverview Meadows
Approach: Northbound Northfork Road at South Site Access
Scenario: 2025 Background Plus Site Trips

Number of Advancing Lanes: 1
Number of Opposing Lanes: 1
Major-Street Design Speed: 45 mph

	AM Volume	PM Volume
Advancing Volume for Design Hour:	49	118
Opposing Volume for Design Hour:	77	68
Design Hour Volume Per Lane:	126	186
Number of Left Turns per Hour:	4	13
Left-turn lane warrants satisfied?	**NO**	**NO**

Exhibit 7-1 Left Turn Lane Criterion (TTI)



*(Advancing Volume/Number of Advancing Through Lanes) + (Opposing Volume/Number of Opposing Through Lanes)

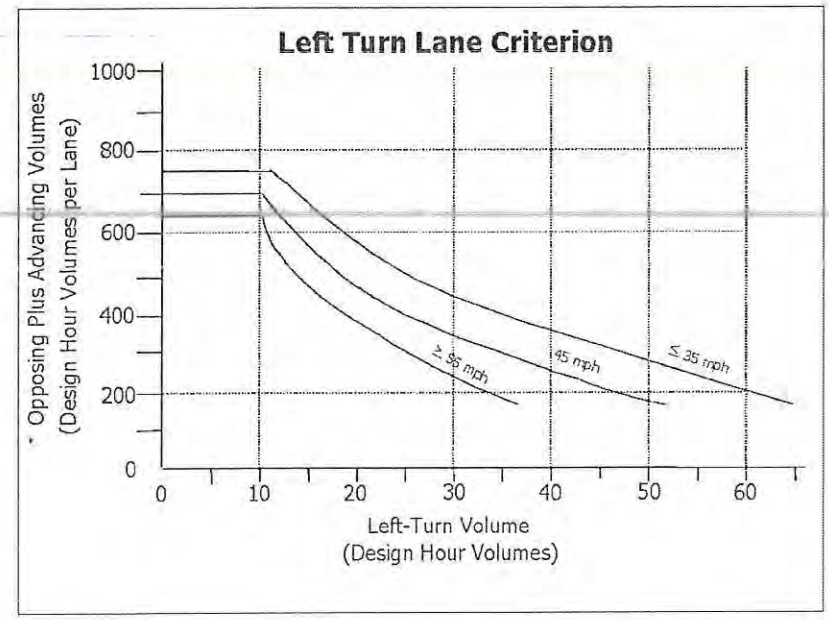
Left-Turn Lane Warrant Analysis (ODOT Methodology)

Project Name: Riverview Meadows
Approach: Sourthbound Northfork Road at McDonald Dike Road
Scenario: 2025 Background Plus Site Trips

Number of Advancing Lanes: 1
Number of Opposing Lanes: 1
Major-Street Design Speed: 45 mph

	AM Volume	PM Volume
Advancing Volume for Design Hour:	60	57
Opposing Volume for Design Hour:	50	99
Design Hour Volume Per Lane:	110	156
Number of Left Turns per Hour:	9	13
Left-turn lane warrants satisfied?	**NO**	**NO**

Exhibit 7-1 Left Turn Lane Criterion (TTI)



*(Advancing Volume/Number of Advancing Through Lanes) + (Opposing Volume/Number of Opposing Through Lanes)

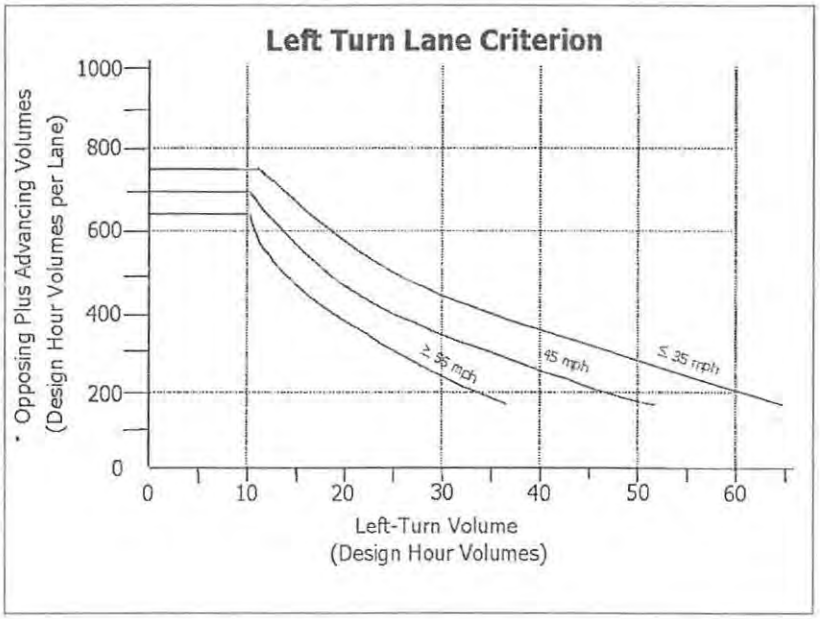
Left-Turn Lane Warrant Analysis (ODOT Methodology)

Project Name: Riverview Meadows
Approach: Northbound Northfork Road at River View Meadows Lane
Scenario: 2025 Background Plus Site Trips

Number of Advancing Lanes: 1
Number of Opposing Lanes: 1
Major-Street Design Speed: 45 mph

	AM Volume	PM Volume
Advancing Volume for Design Hour:	40	96
Opposing Volume for Design Hour:	30	41
Design Hour Volume Per Lane:	70	137
Number of Left Turns per Hour:	12	45
Left-turn lane warrants satisfied?	**NO**	**NO**

Exhibit 7-1 Left Turn Lane Criterion (TTI)



*(Advancing Volume/Number of Advancing Through Lanes) + (Opposing Volume/Number of Opposing Through Lanes)

Right-Turn Lane Warrant Analysis (ODOT Methodology)

Project Name: Riverview Meadows
Approach: Southbound Northfork Road at South Site Access
Scenario: 2025 Background plus Site Trips

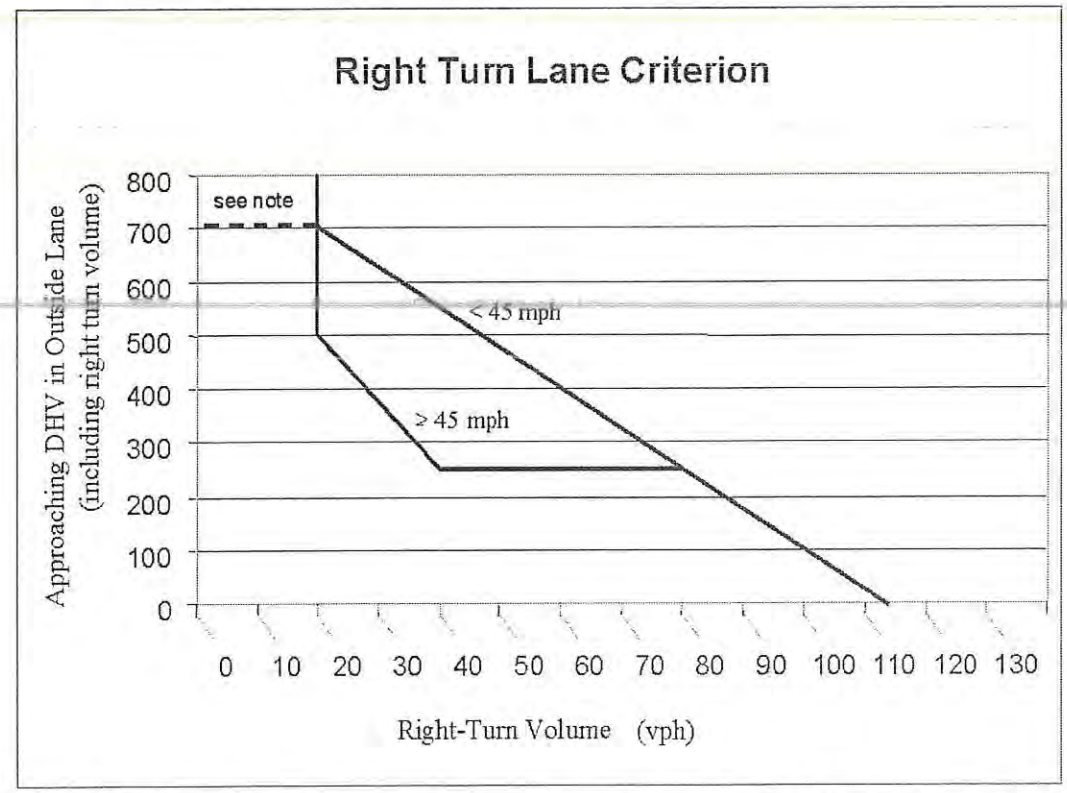
Major-Street Design Speed: 45 mph

	AM Volume	PM Volume
Number of Right Turns per Hour:	1	3
Approaching DVH in Outside Lane:	77	68
Calculated Turn Volume Threshold:	103	104
Right Turn Volume Exceeds Threshold?	**NO**	**NO**

Criterion 1: Vehicular Volume

The vehicular volume criterion is intended for application where the volume of intersecting traffic is the principal reason for considering installation of a right turn lane. The vehicular volume criteria are determined using the curve in Exhibit 7-2.

Exhibit 7-2 Right Turn Lane Criterion



Note: If there is no right turn lane, a shoulder needs to be provided. If this intersection is in a rural area and is a connection to a public street, a right turn lane is needed.

Right-Turn Lane Warrant Analysis (ODOT Methodology)

Project Name: Riverview Meadows
Approach: Northbound Northfork Road at McDonald Dike Road
Scenario: 2025 Background plus Site Trips

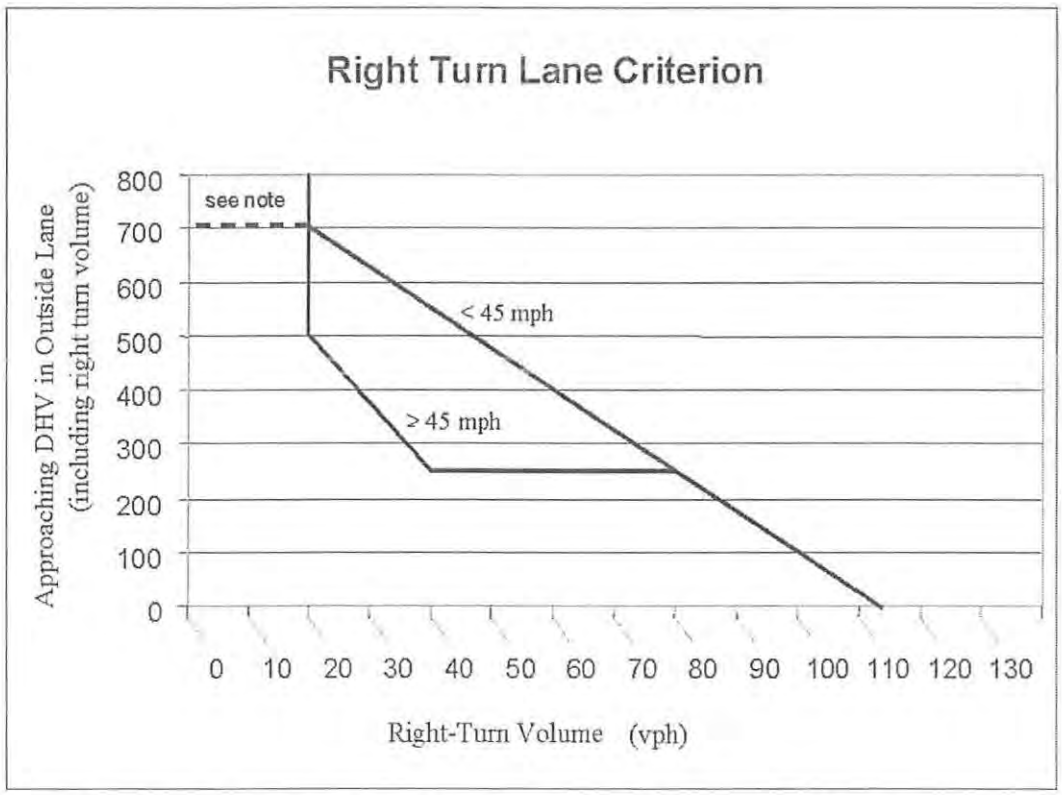
Major-Street Design Speed: 45 mph

	AM Volume	PM Volume
Number of Right Turns per Hour:	13	19
Approaching DVH in Outside Lane:	50	99
Calculated Turn Volume Threshold:	106	100
Right Turn Volume Exceeds Threshold?	**NO**	**NO**

Criterion 1: Vehicular Volume

The vehicular volume criterion is intended for application where the volume of intersecting traffic is the principal reason for considering installation of a right turn lane. The vehicular volume criteria are determined using the curve in Exhibit 7-2.

Exhibit 7-2 Right Turn Lane Criterion



Note: If there is no right turn lane, a shoulder needs to be provided. If this intersection is in a rural area and is a connection to a public street, a right turn lane is needed.

Right-Turn Lane Warrant Analysis (ODOT Methodology)

Project Name: Riverview Meadows
Approach: Southbound Northfork Road at River View Meadows Lane
Scenario: 2025 Background plus Site Trips

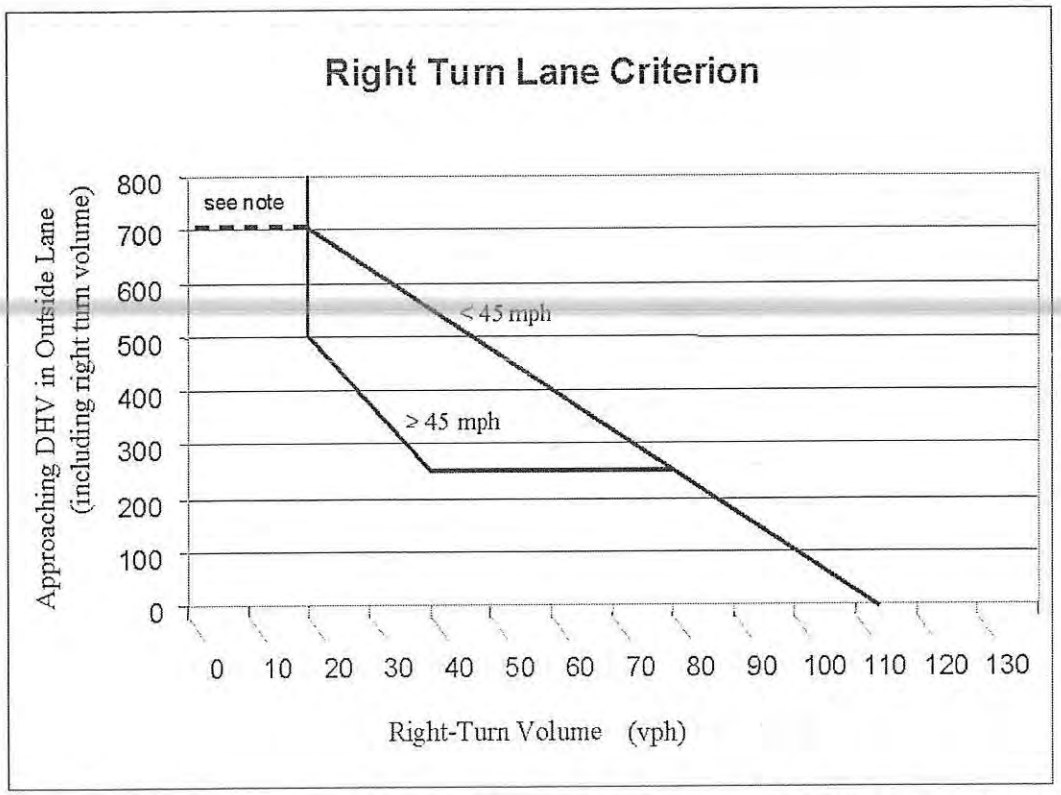
Major-Street Design Speed: 45 mph

	AM Volume	PM Volume
Number of Right Turns per Hour:	1	4
Approaching DVH in Outside Lane:	30	41
Calculated Turn Volume Threshold:	109	108
Right Turn Volume Exceeds Threshold?	**NO**	**NO**

Criterion 1: Vehicular Volume

The vehicular volume criterion is intended for application where the volume of intersecting traffic is the principal reason for considering installation of a right turn lane. The vehicular volume criteria are determined using the curve in Exhibit 7-2.

Exhibit 7-2 Right Turn Lane Criterion



Note: If there is no right turn lane, a shoulder needs to be provided. If this intersection is in a rural area and is a connection to a public street, a right turn lane is needed.

Speed Study Summary - Radar Data

Location: Northfork Nehalem River Road at South Site Access
Direction: Southbound
Date: August 10, 2022
Time: 7:00 AM
Weather: Overcast
Notes: None

85th Percentile Speed **39 mph**
Average Speed: 34 mph

Recorded Speeds:*

1 mph ------- 0	26 mph ------- 0	51 mph ------- 0
2 mph ------- 0	27 mph ------- 2	52 mph ------- 0
3 mph ------- 0	28 mph ------- 0	53 mph ------- 0
4 mph ------- 0	29 mph ------- 1	54 mph ------- 0
5 mph ------- 0	30 mph ------- 2	55 mph ------- 0
6 mph ------- 0	31 mph ------- 4	56 mph ------- 0
7 mph ------- 0	32 mph ------- 8	57 mph ------- 0
8 mph ------- 0	33 mph ------- 10	58 mph ------- 0
9 mph ------- 0	34 mph ------- 10	59 mph ------- 0
10 mph ------- 0	35 mph ------- 7	60 mph ------- 0
11 mph ------- 0	36 mph ------- 14	61 mph ------- 0
12 mph ------- 0	37 mph ------- 4	62 mph ------- 0
13 mph ------- 0	38 mph ------- 2	63 mph ------- 0
14 mph ------- 0	39 mph ------- 2	64 mph ------- 0
15 mph ------- 0	40 mph ------- 1	65 mph ------- 0
16 mph ------- 0	41 mph ------- 1	66 mph ------- 0
17 mph ------- 0	42 mph ------- 0	67 mph ------- 0
18 mph ------- 0	43 mph ------- 6	68 mph ------- 0
19 mph ------- 2	44 mph ------- 0	69 mph ------- 0
20 mph ------- 0	45 mph ------- 0	70 mph ------- 0
21 mph ------- 0	46 mph ------- 2	71 mph ------- 0
22 mph ------- 0	47 mph ------- 0	72 mph ------- 0
23 mph ------- 2	48 mph ------- 0	73 mph ------- 0
24 mph ------- 0	49 mph ------- 0	74 mph ------- 0
25 mph ------- 0	50 mph ------- 0	75+ mph ------- 0

* Speed data observations include free-flowing traffic only (i.e. no following vehicles)

Speed Study Summary - Radar Data

Location: Northfork Road at River View Meadows Lane
Direction: Southbound
Date: August 9, 2022
Time: 4:00 PM
Weather: Clear/Dry
Notes: None

85th Percentile Speed **41 mph**
Average Speed: 36 mph

Recorded Speeds:*

1 mph ------- 0	26 mph ------- 2	51 mph ------- 0
2 mph ------- 0	27 mph ------- 0	52 mph ------- 0
3 mph ------- 0	28 mph ------- 1	53 mph ------- 0
4 mph ------- 0	29 mph ------- 0	54 mph ------- 0
5 mph ------- 0	30 mph ------- 4	55 mph ------- 0
6 mph ------- 0	31 mph ------- 0	56 mph ------- 0
7 mph ------- 0	32 mph ------- 1	57 mph ------- 0
8 mph ------- 0	33 mph ------- 4	58 mph ------- 0
9 mph ------- 0	34 mph ------- 10	59 mph ------- 0
10 mph ------- 0	35 mph ------- 10	60 mph ------- 0
11 mph ------- 0	36 mph ------- 12	61 mph ------- 0
12 mph ------- 0	37 mph ------- 3	62 mph ------- 0
13 mph ------- 0	38 mph ------- 4	63 mph ------- 0
14 mph ------- 0	39 mph ------- 8	64 mph ------- 0
15 mph ------- 0	40 mph ------- 2	65 mph ------- 0
16 mph ------- 0	41 mph ------- 8	66 mph ------- 0
17 mph ------- 0	42 mph ------- 2	67 mph ------- 0
18 mph ------- 0	43 mph ------- 3	68 mph ------- 0
19 mph ------- 0	44 mph ------- 1	69 mph ------- 0
20 mph ------- 0	45 mph ------- 2	70 mph ------- 0
21 mph ------- 0	46 mph ------- 0	71 mph ------- 0
22 mph ------- 0	47 mph ------- 0	72 mph ------- 0
23 mph ------- 0	48 mph ------- 0	73 mph ------- 0
24 mph ------- 3	49 mph ------- 0	74 mph ------- 0
25 mph ------- 0	50 mph ------- 0	75+ mph ------- 0

* Speed data observations include free-flowing traffic only (i.e. no following vehicles)

Speed Study Summary - Radar Data

Location: Northfork Road at River View Meadows Lane
Direction: Northbound
Date: August 9, 2022
Time: 4:00 PM
Weather: Clear/Dry
Notes: None

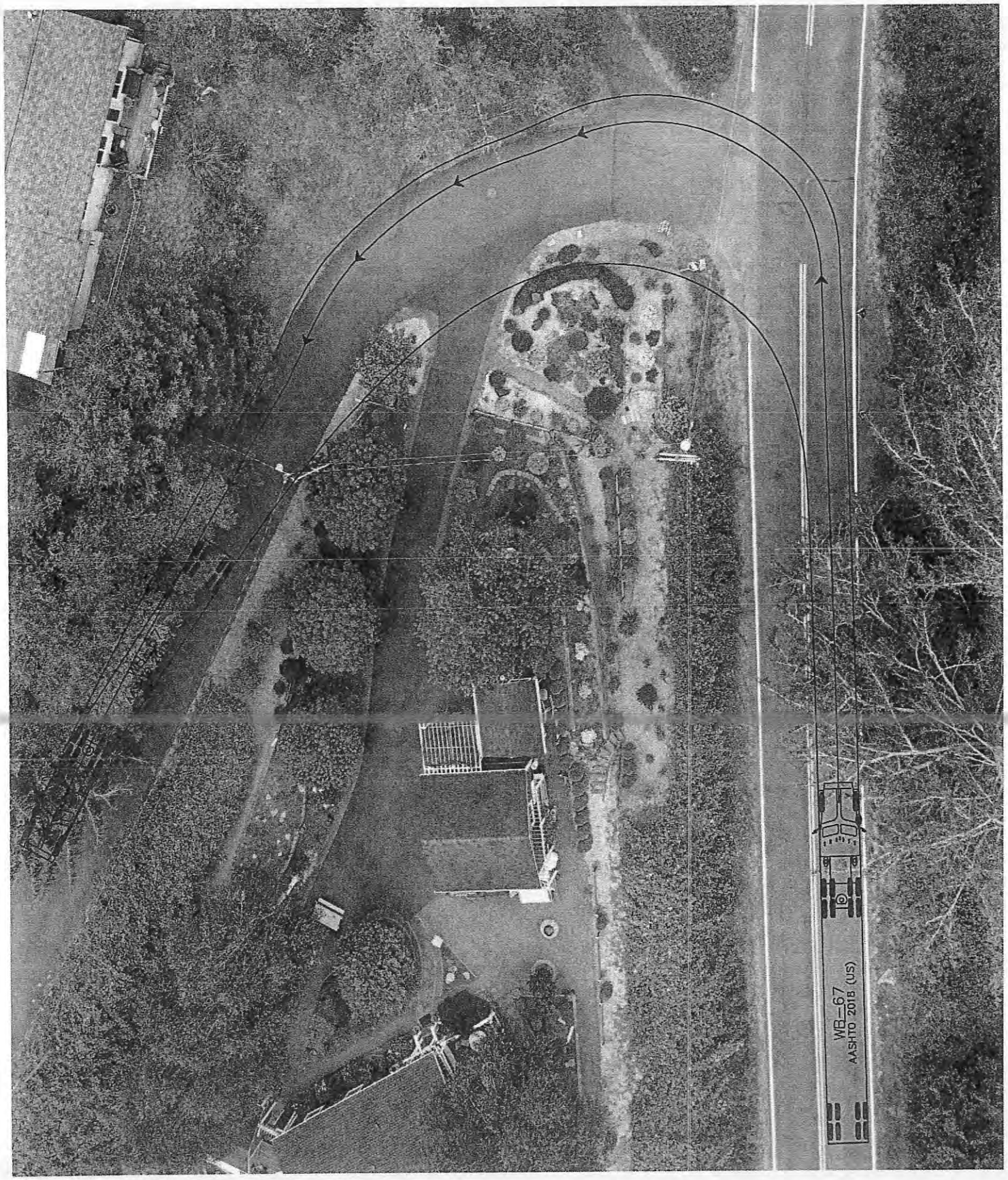
85th Percentile Speed **40 mph**
Average Speed: 35 mph

Recorded Speeds:*

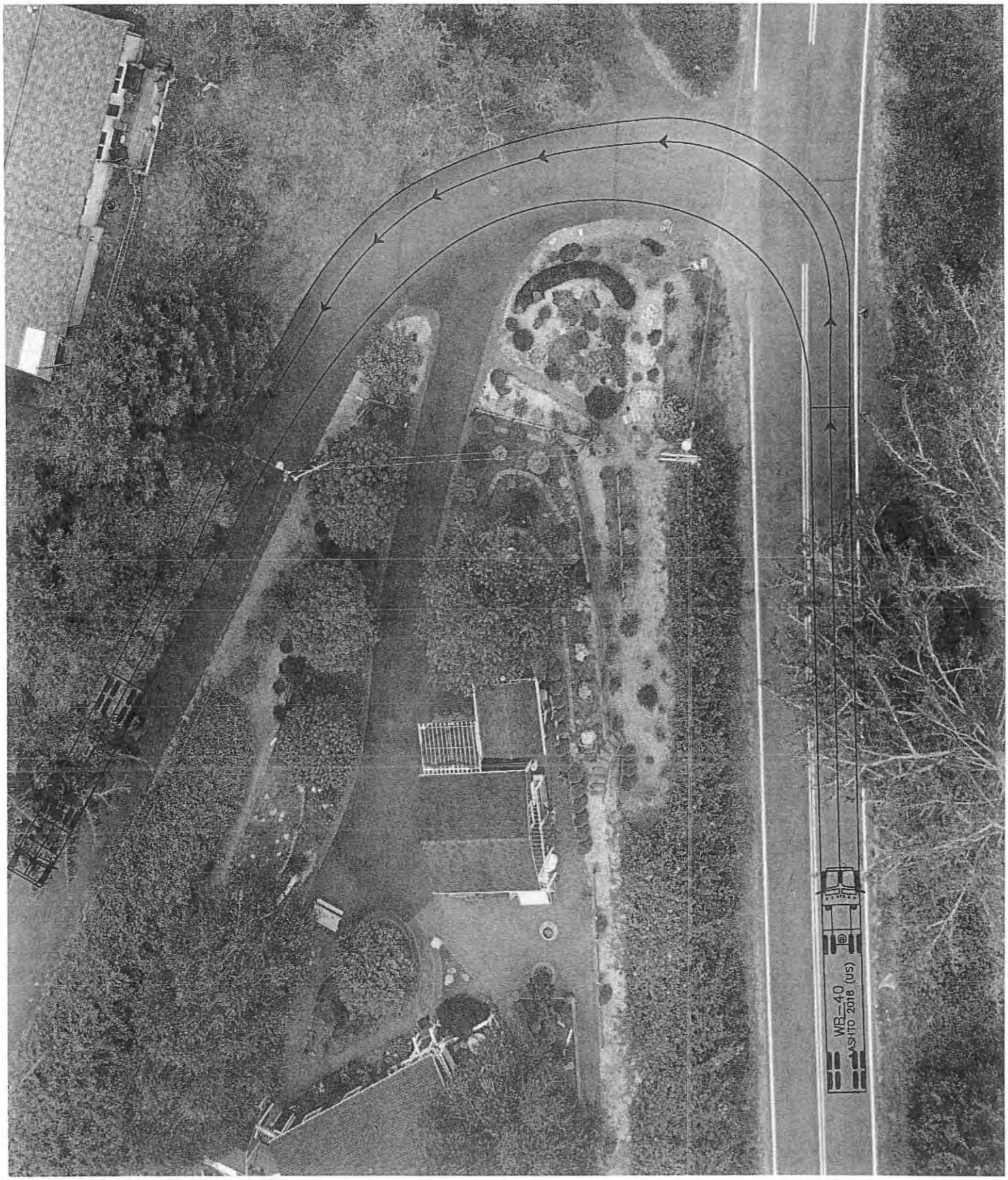
1 mph ------- 0	26 mph ------- 1	51 mph ------- 0
2 mph ------- 0	27 mph ------- 0	52 mph ------- 0
3 mph ------- 0	28 mph ------- 1	53 mph ------- 0
4 mph ------- 0	29 mph ------- 3	54 mph ------- 0
5 mph ------- 0	30 mph ------- 8	55 mph ------- 0
6 mph ------- 0	31 mph ------- 7	56 mph ------- 0
7 mph ------- 0	32 mph ------- 7	57 mph ------- 0
8 mph ------- 0	33 mph ------- 6	58 mph ------- 0
9 mph ------- 0	34 mph ------- 10	59 mph ------- 0
10 mph ------- 0	35 mph ------- 6	60 mph ------- 0
11 mph ------- 0	36 mph ------- 3	61 mph ------- 0
12 mph ------- 0	37 mph ------- 0	62 mph ------- 0
13 mph ------- 0	38 mph ------- 5	63 mph ------- 0
14 mph ------- 0	39 mph ------- 7	64 mph ------- 0
15 mph ------- 0	40 mph ------- 4	65 mph ------- 0
16 mph ------- 0	41 mph ------- 2	66 mph ------- 0
17 mph ------- 0	42 mph ------- 2	67 mph ------- 0
18 mph ------- 0	43 mph ------- 2	68 mph ------- 0
19 mph ------- 0	44 mph ------- 1	69 mph ------- 0
20 mph ------- 0	45 mph ------- 0	70 mph ------- 0
21 mph ------- 0	46 mph ------- 0	71 mph ------- 0
22 mph ------- 0	47 mph ------- 4	72 mph ------- 0
23 mph ------- 1	48 mph ------- 0	73 mph ------- 0
24 mph ------- 0	49 mph ------- 0	74 mph ------- 0
25 mph ------- 0	50 mph ------- 0	75+ mph ------- 0

* Speed data observations include free-flowing traffic only (i.e. no following vehicles)

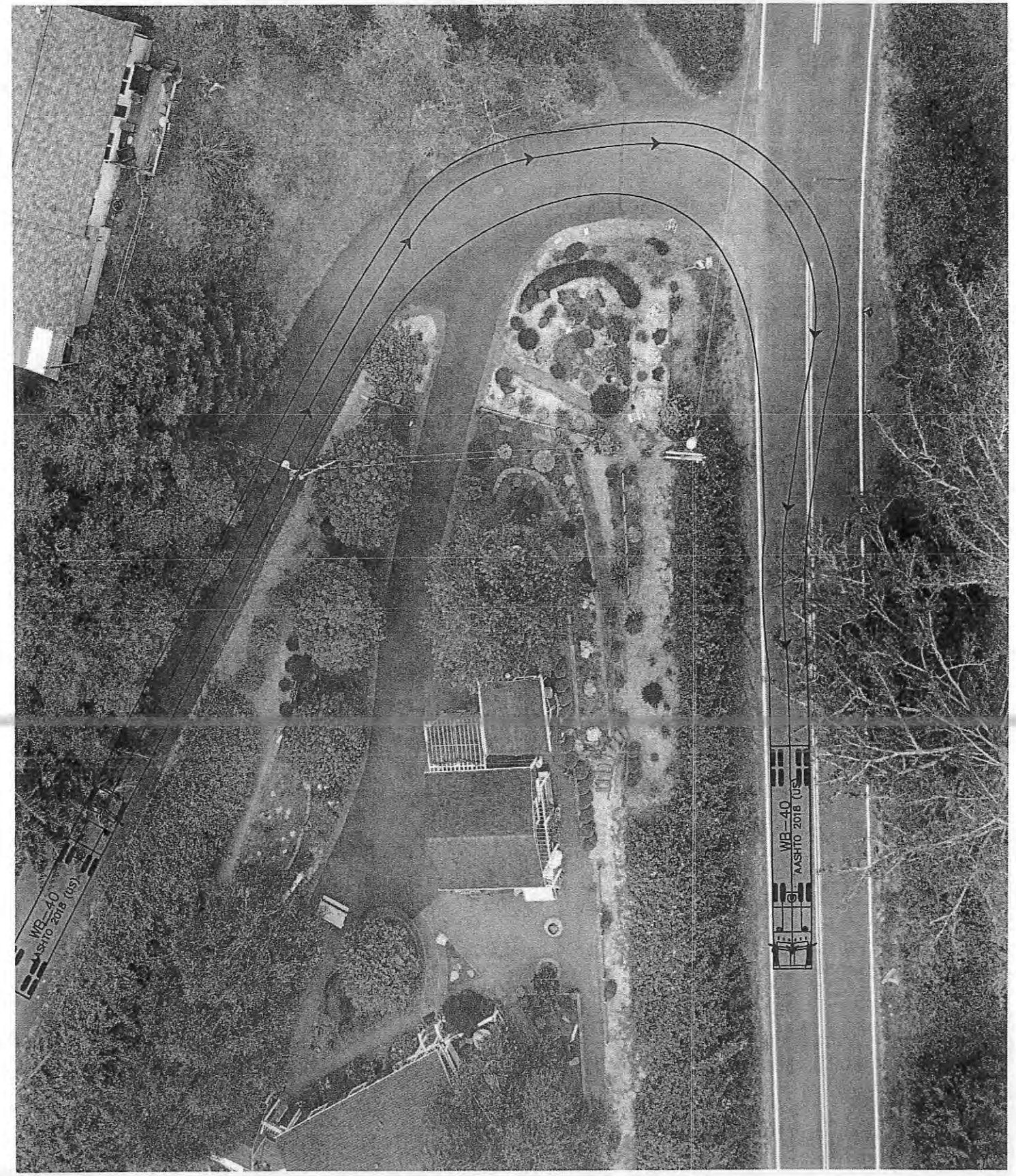
WB-67 Interstate Truck Offtracking (Uphill)



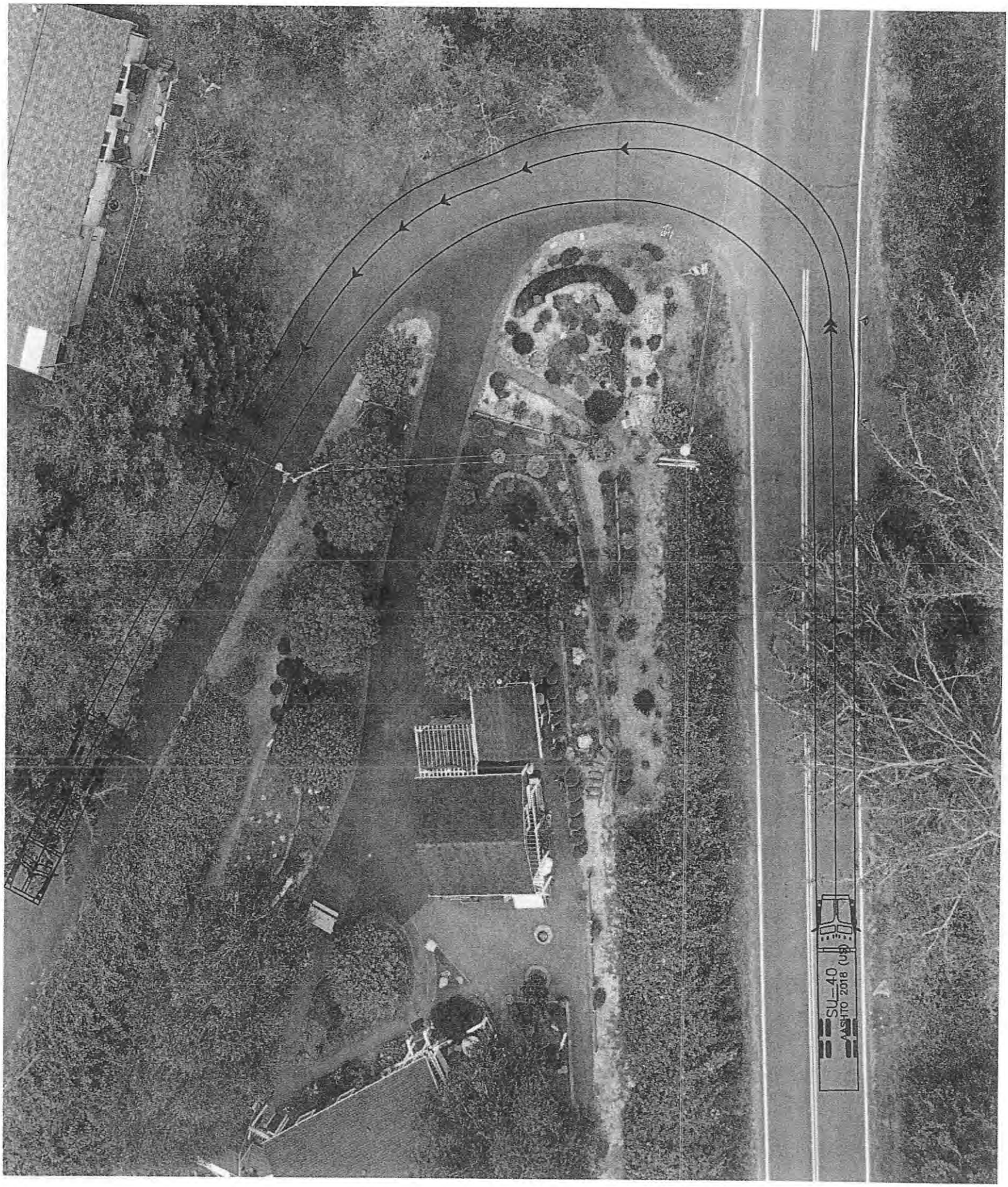
WB-40 Tractor Trailer Using Both Travel Lanes (Uphill)



WB-40 Tractor Trailer Using Both Lanes (Downhill)

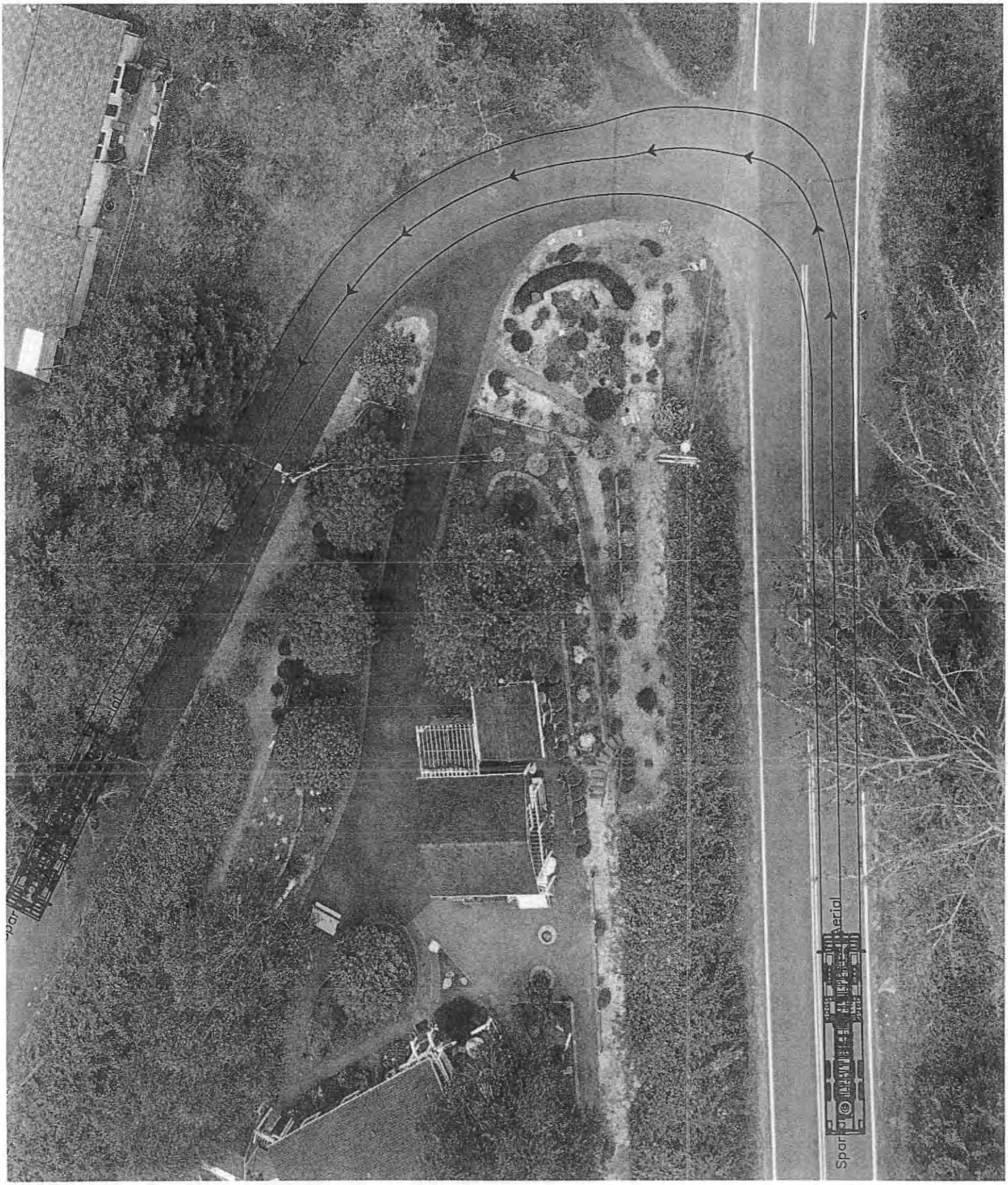


SU-40 Single-Unit Truck Using Both Lanes (Uphill)

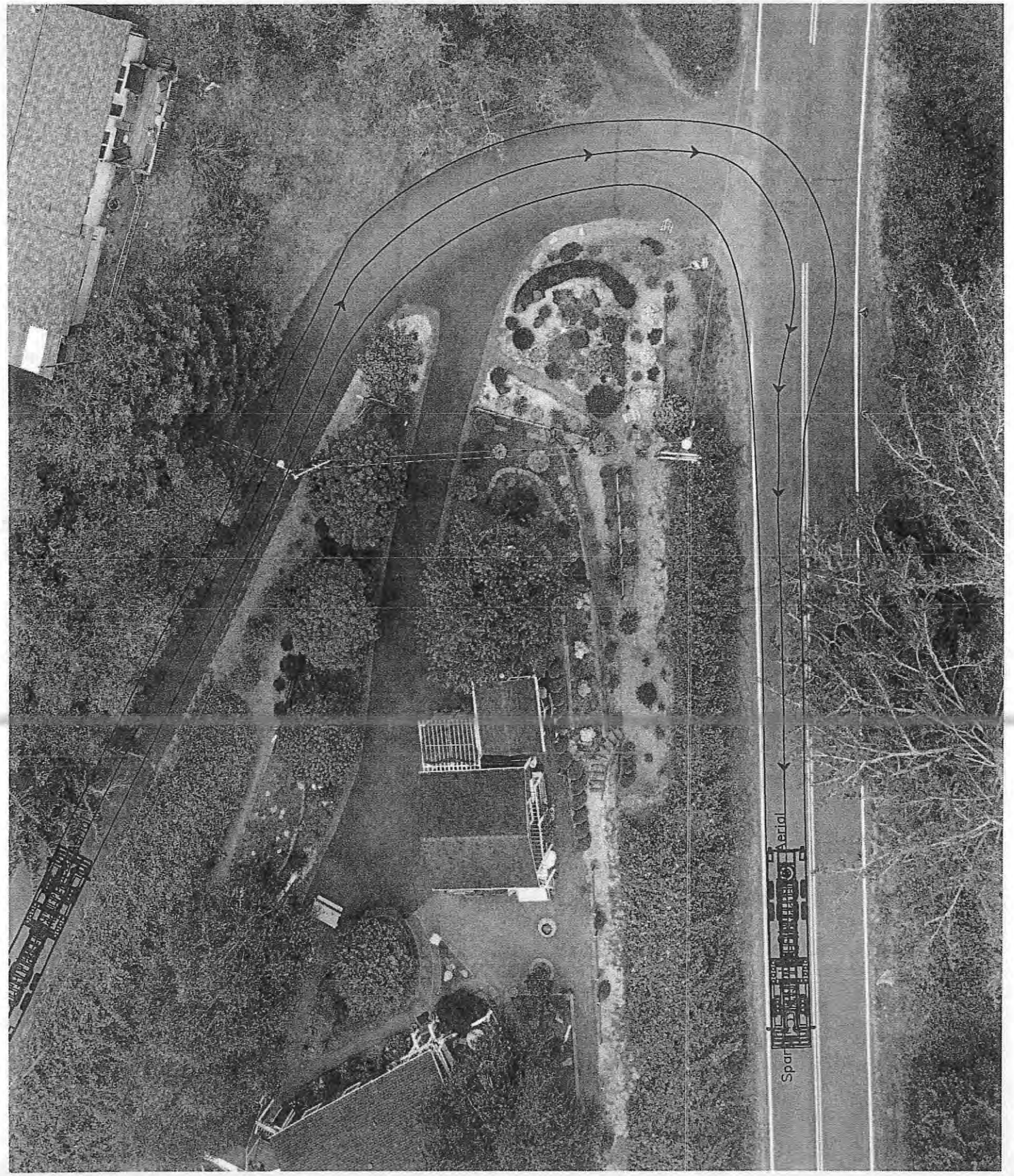


SU-40 Single-Unit Truck Using Both Lanes (Downhill)

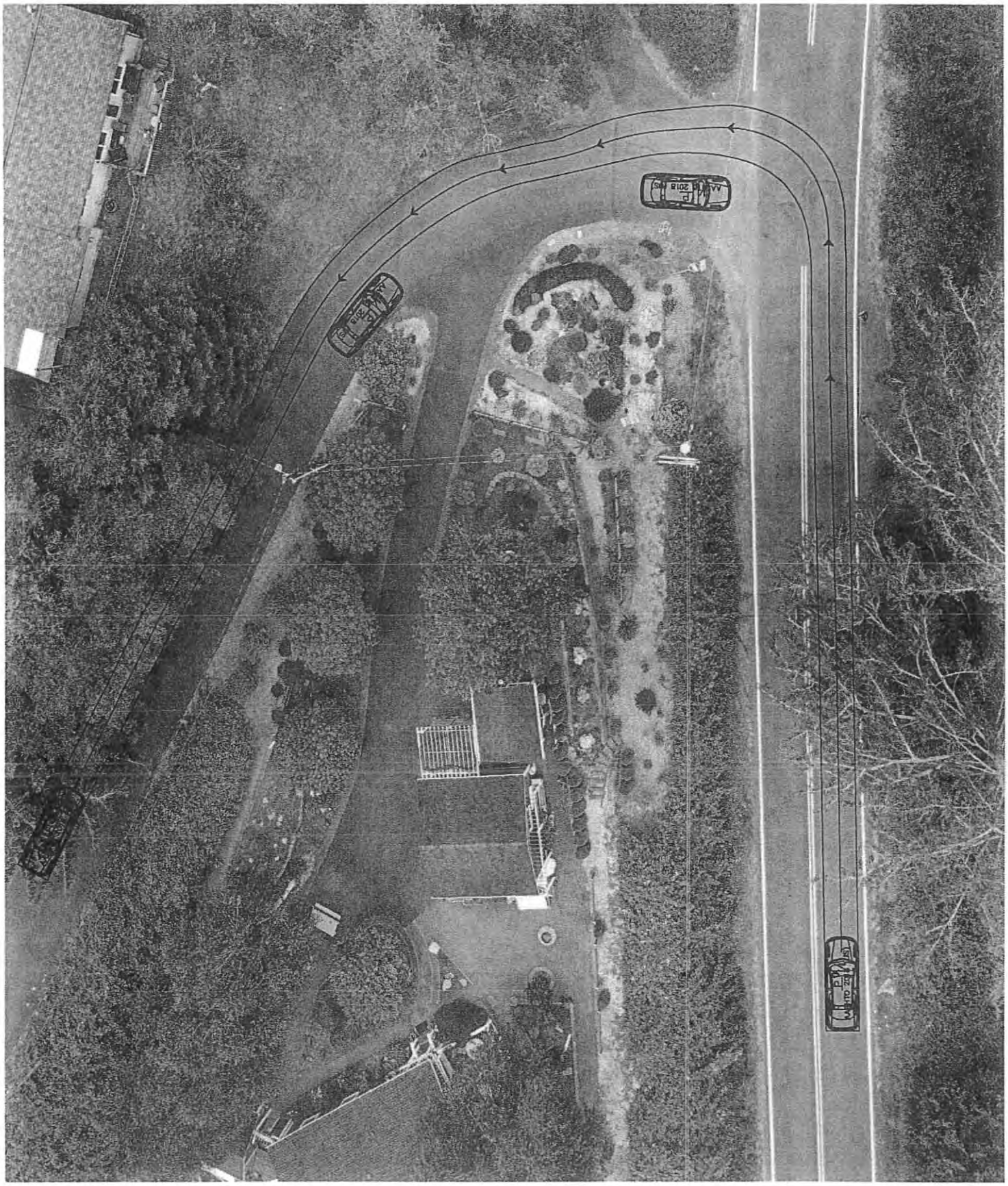
Fire Apparatus Using Both Lanes (Uphill)



Fire Apparatus Using Both Lanes (Downhill)



Passenger Cars with Two-Way Traffic



RIVERVIEW MEADOWS
TENTATIVE PLAN

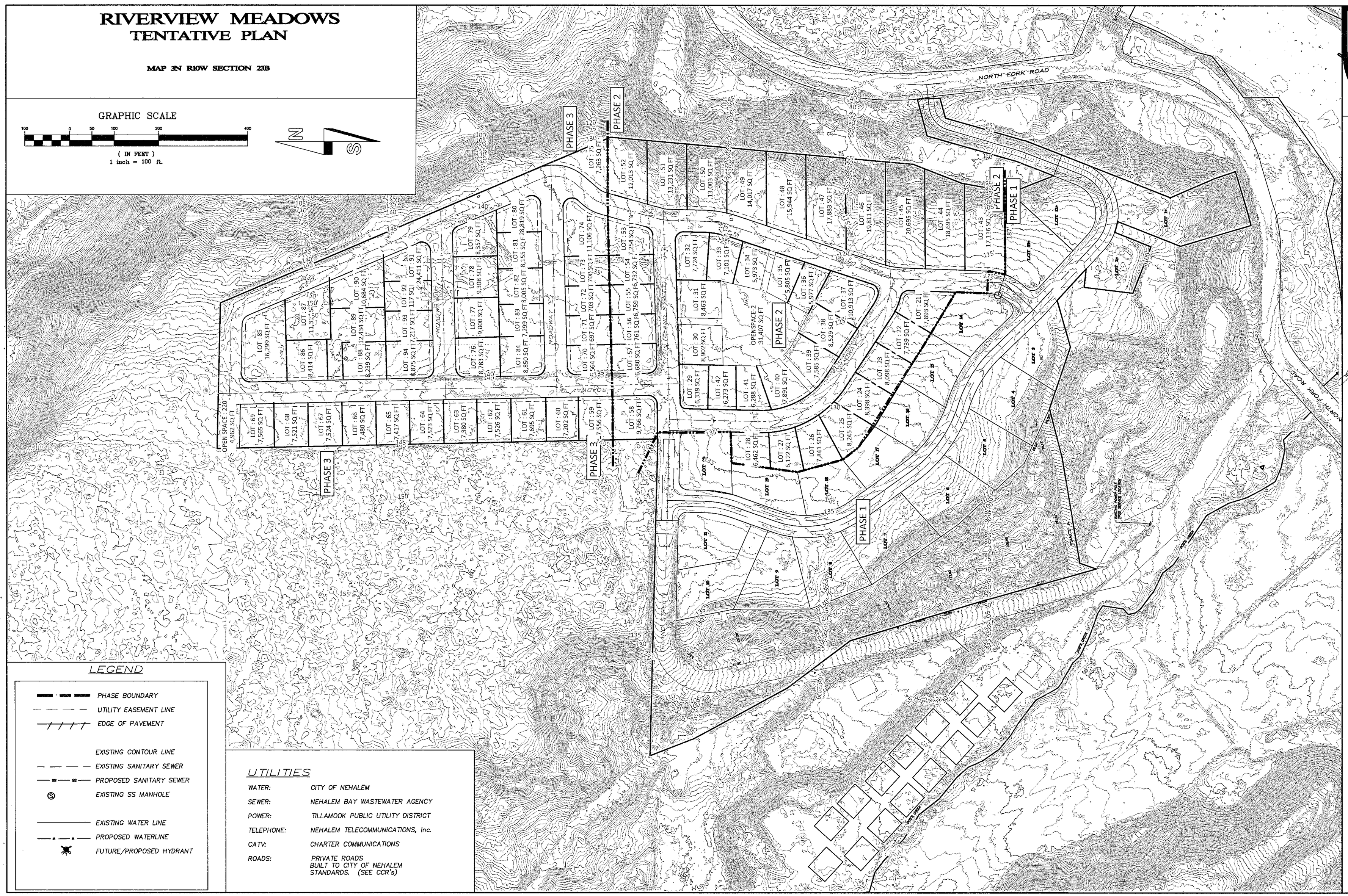
MAP 3N R10W SECTION 23B

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

N S



LEGEND

- PHASE BOUNDARY
- UTILITY EASEMENT LINE
- EDGE OF PAVEMENT
- EXISTING CONTOUR LINE
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- EXISTING SS MANHOLE
- EXISTING WATER LINE
- PROPOSED WATERLINE
- FUTURE/PROPOSED HYDRANT

UTILITIES

WATER:	CITY OF NEHALEM
SEWER:	NEHALEM BAY WASTEWATER AGENCY
POWER:	TILLAMOOK PUBLIC UTILITY DISTRICT
TELEPHONE:	NEHALEM TELECOMMUNICATIONS, Inc.
CATV:	CHARTER COMMUNICATIONS
ROADS:	PRIVATE ROADS BUILT TO CITY OF NEHALEM STANDARDS. (SEE CCR's)

MORGAN CIVIL ENGINEERING, INC.

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MANZANITA, OR 97130
(503) 801-6016
www.morgancivil.com

• CIVIL ENGINEERING
• INSPECTION
• PLANNING

JOB NO. #19-10-RV
DATE: NOV. 10, 2021

REGISTERED PROFESSIONAL ENGINEER 63055 OREGON JANUARY 14, 2022 JASON R. MORGAN

RENEWAL DATE: DECEMBER 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC

RIVERVIEW MEADOWS PHASE 2 & 3
TENTATIVE PLAN

NECHALEM, MAP 3N 10W 23B

RIVERVIEW MEADOWS
TENTATIVE PLAN

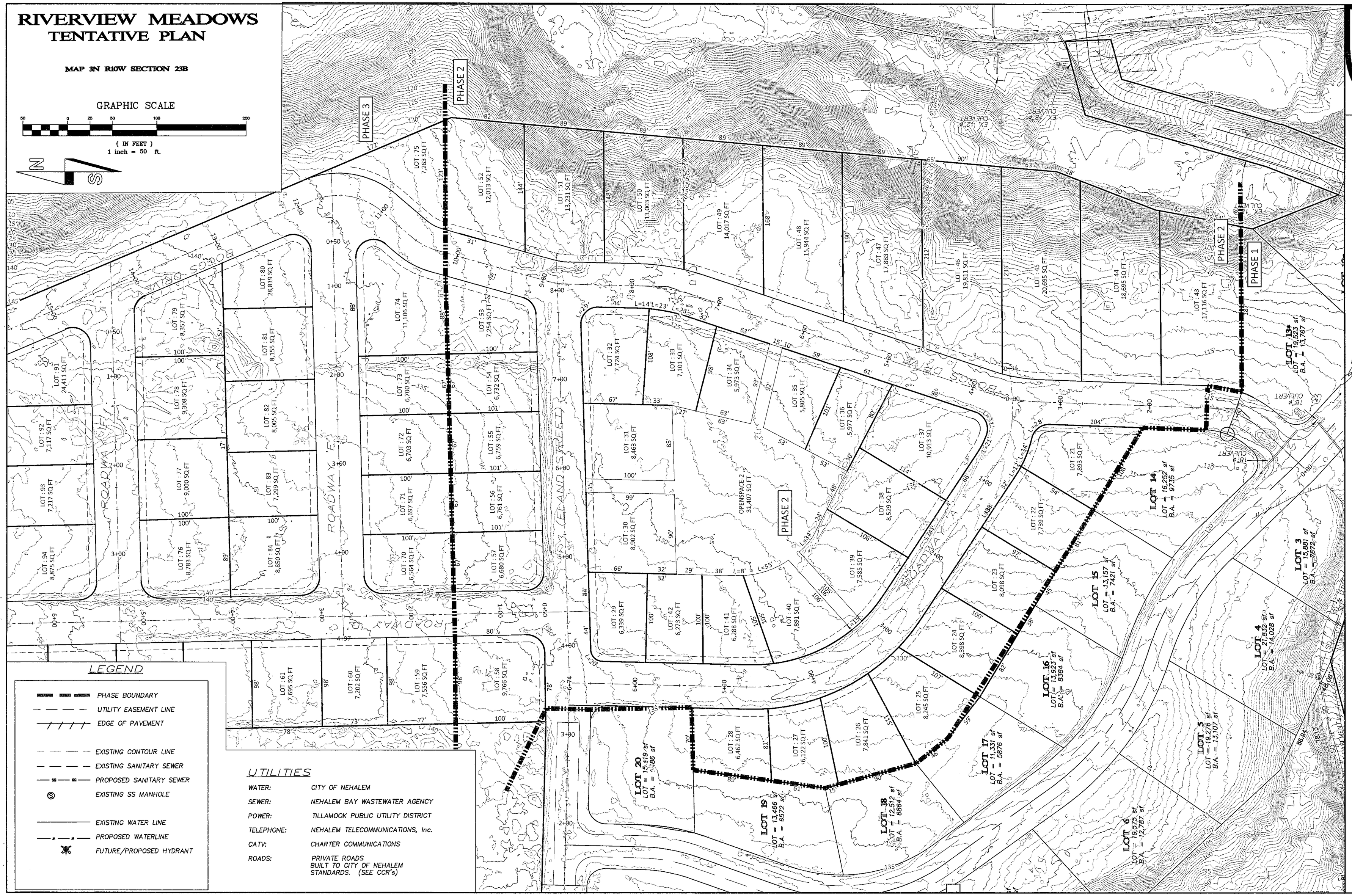
MAP 3N R10W SECTION 23B

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

N S



LEGEND

- PHASE BOUNDARY
- UTILITY EASEMENT LINE
- EDGE OF PAVEMENT
- EXISTING CONTOUR LINE
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- EXISTING SS MANHOLE
- EXISTING WATER LINE
- PROPOSED WATERLINE
- FUTURE/PROPOSED HYDRANT

UTILITIES

WATER:	CITY OF NEHALEM
SEWER:	NEHALEM BAY WASTEWATER AGENCY
POWER:	TILLAMOOK PUBLIC UTILITY DISTRICT
TELEPHONE:	NEHALEM TELECOMMUNICATIONS, Inc.
CATV:	CHARTER COMMUNICATIONS
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JOB NO. #19-10-RIV
DATE: DECEMBER 31, 2019
NOV. 10, 2021

REGISTERED PROFESSIONAL ENGINEER 63055 OREGON JANUARY 15, 2002 JASON R. MORGAN

RENEWAL DATE: DECEMBER 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC

RIVERVIEW MEADOWS PHASE 2 & 3
TENTATIVE PLAN - PHASE 2

NECHALEM, MAP 3N 10W 23B

SHEET 2 OF SEVEN

RIVERVIEW MEADOWS
TENTATIVE PLAN

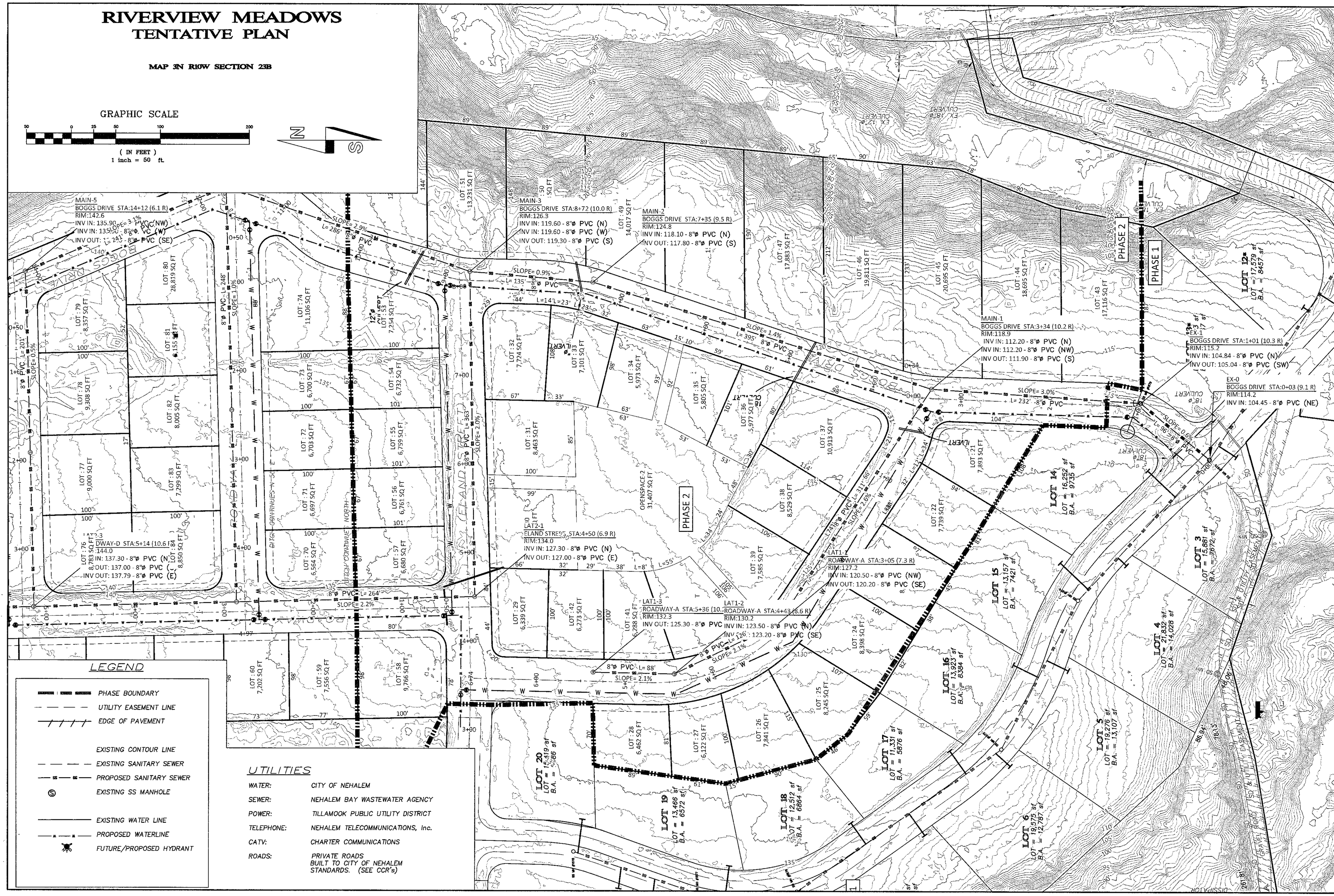
MAP 3N R10W SECTION 23B

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

N S



LEGEND

- PHASE BOUNDARY
- UTILITY EASEMENT LINE
- EDGE OF PAVEMENT
- EXISTING CONTOUR LINE
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- EXISTING SS MANHOLE
- EXISTING WATER LINE
- PROPOSED WATERLINE
- FUTURE/PROPOSED HYDRANT

UTILITIES

WATER:	CITY OF NEHALEM
SEWER:	NEHALEM BAY WASTEWATER AGENCY
POWER:	TILLAMOOK PUBLIC UTILITY DISTRICT
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CATV:	CHARTER COMMUNICATIONS
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• PLANNING

JOB NO. #19-10-RIV
DATE NOV. 10, 2021

REGISTERED PROFESSIONAL ENGINEER 63055 OREGON JANUARY 15, 2002 JASON R. MORGAN

RENEWAL DATE: DECEMBER 31, 2022

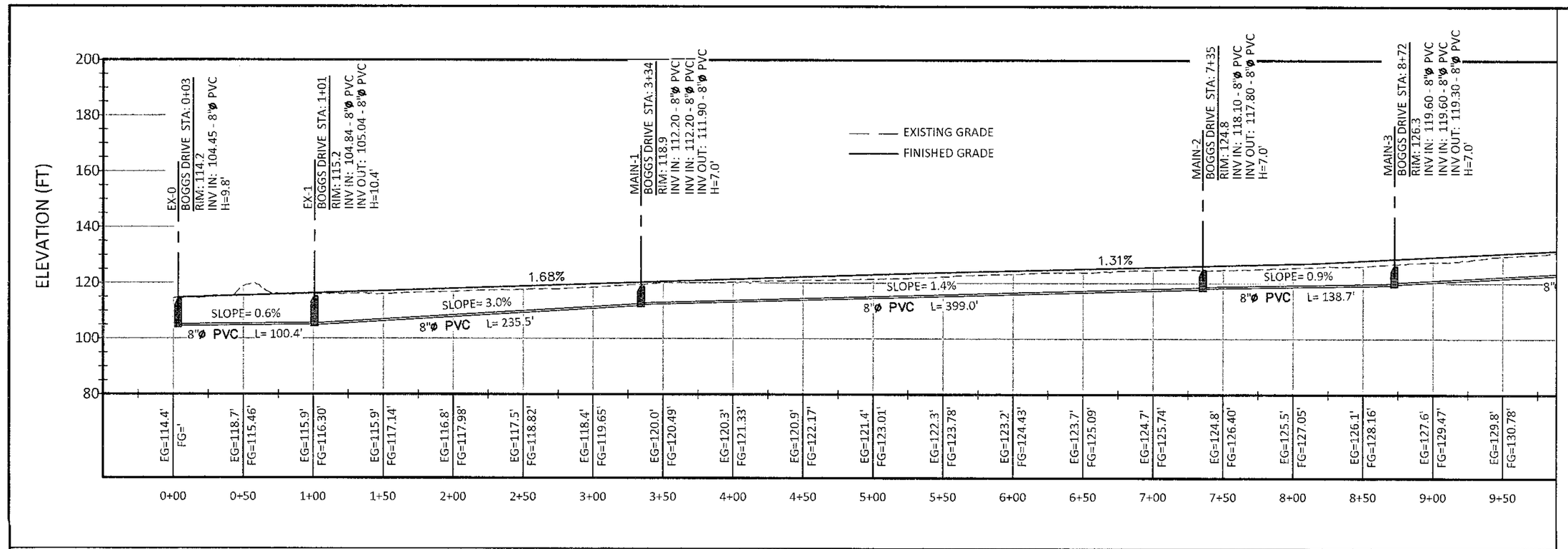
RIVERVIEW MEADOWS DEVELOPMENT, LLC

RIVERVIEW MEADOWS PHASE 2 & 3

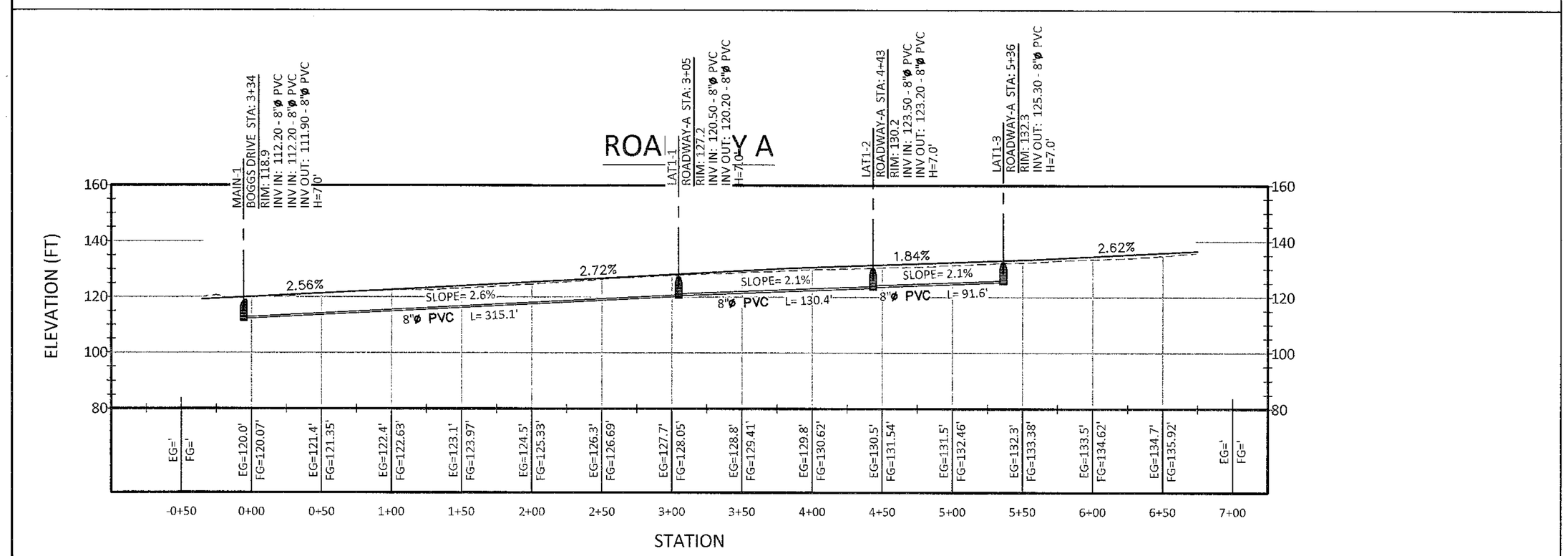
PHASE 2 - UTILITY LAYOUT

NECHALEM, MAP 3N 10W 23B

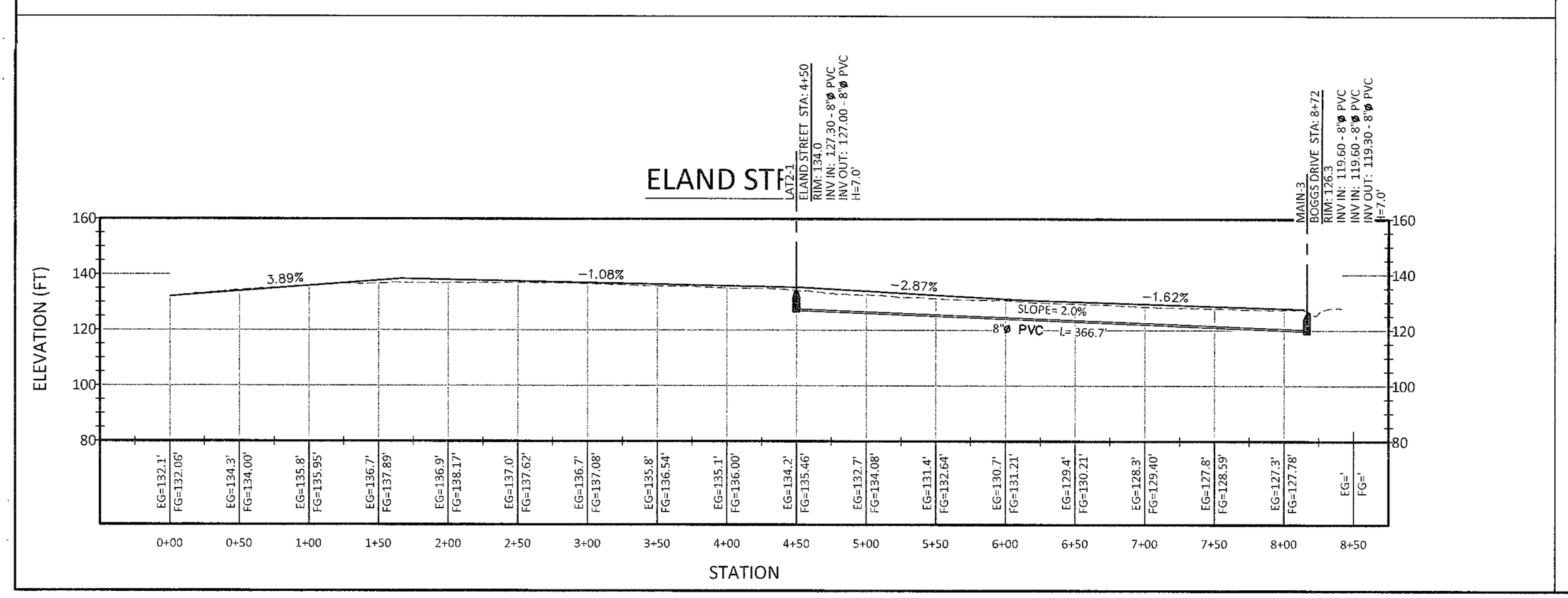
SHEET 3 OF SEVEN



1/4 **BOGG'S DRIVE PROFILE**
SCALE: 1"=60' VERT: 1"=30'



2/4 **ROADWAY A PROFILE**
SCALE: 1"=60' VERT: 1"=30'



3/4 **ELAND STREET PROFILE**
SCALE: 1"=60' VERT: 1"=30'

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• INSPECTION
• PLANNING

JOB NO. #19-10-RV
DATE NOV. 19, 2021

REGISTERED PROFESSIONAL ENGINEER 63055 OREGON JANUARY 15, 2002 JASON R. MORGAN
RENEWAL DATE: DECEMBER 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC

RIVERVIEW MEADOWS PHASE 2 & 3
PHASE 2 PROFILES

NECHALEM, MAP 3N 10W 23B

SHEET
4
OF SEVEN

RIVERVIEW MEADOWS
TENTATIVE PLAN

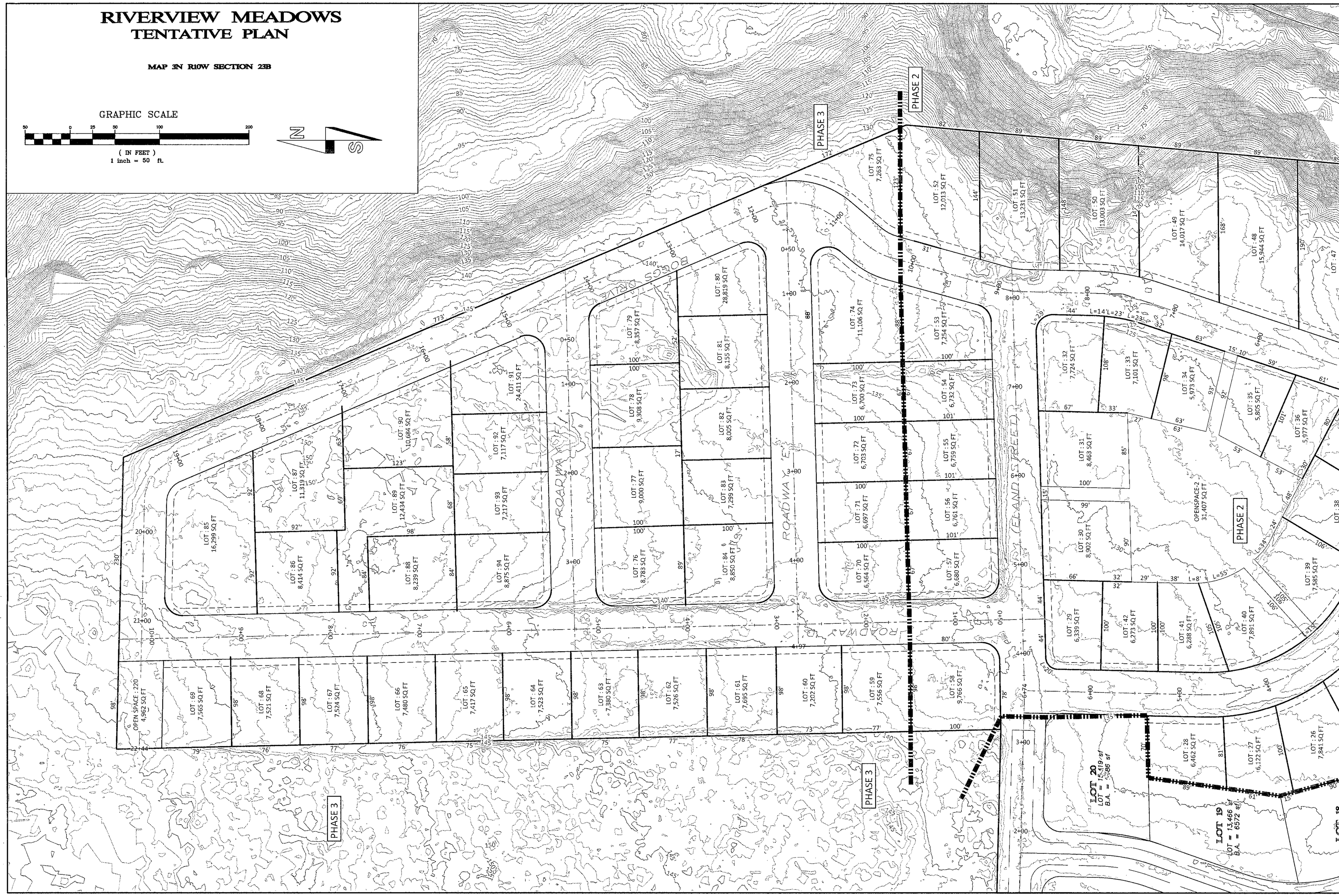
MAP 3N R10W SECTION 23B

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

N S



MORGAN CIVIL ENGINEERING, INC.

PO BOX 358
MANZANITA, OR 97130
(503) 821-6016
www.morgancivil.com

• CIVIL ENGINEERING
• INSPECTION
• PLANNING

JOB NO. #19-10-RIV
DATE: NOV. 10, 2021

REGISTERED PROFESSIONAL ENGINEER 63055 OREGON JANUARY 15, 2009 JASON R. MORGAN

RENEWAL DATE: DECEMBER 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC

RIVERVIEW MEADOWS PHASE 2 & 3
TENTATIVE PLAN - PHASE 3

NECHALEM, MAP 3N 10W 23B

SHEET 5 OF SEVEN

RIVERVIEW MEADOWS
TENTATIVE PLAN

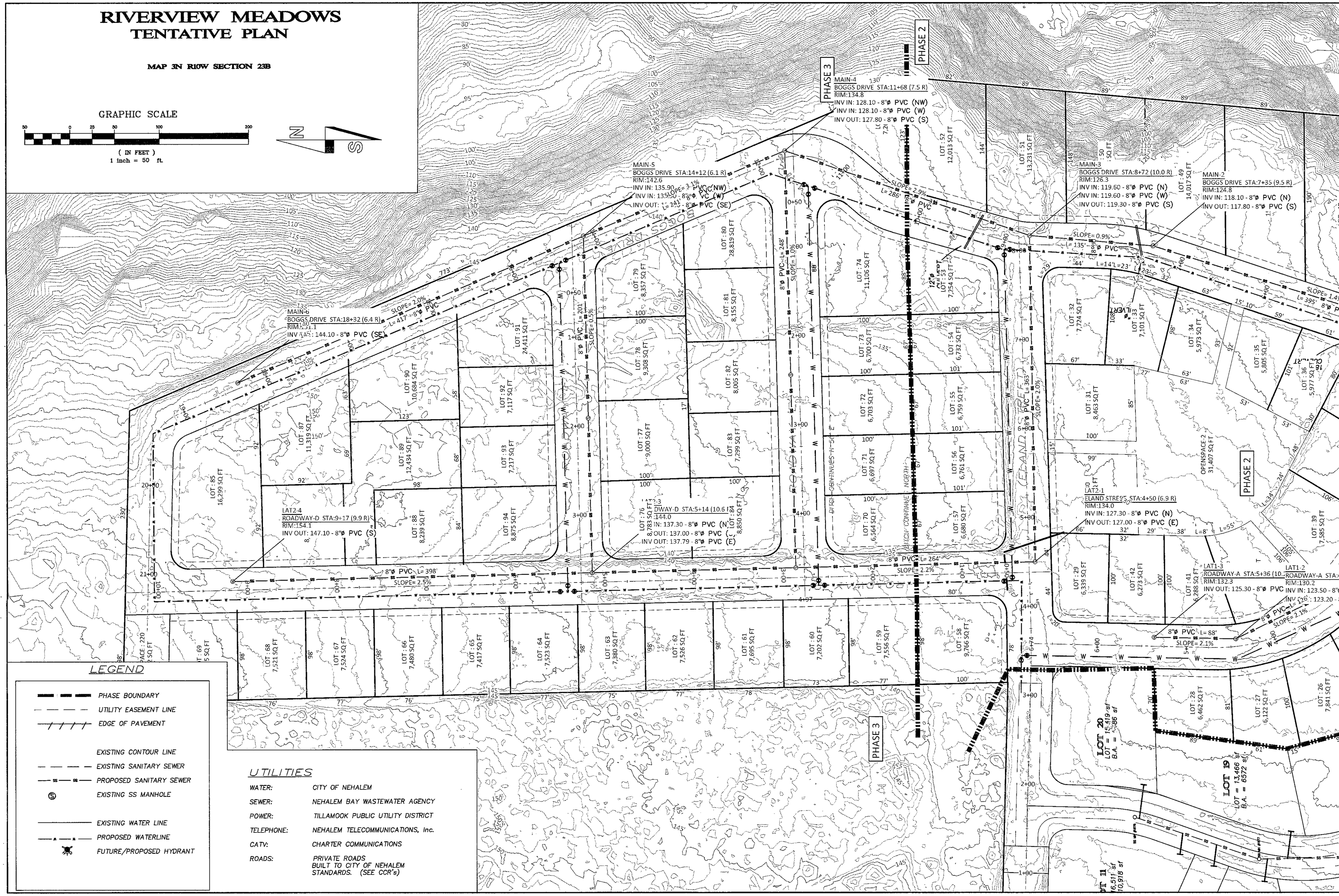
MAP 3N R10W SECTION 23B

GRAPHIC SCALE

50 0 25 50 100 200

(IN FEET)
1 inch = 50 ft.

N S



LEGEND

- PHASE BOUNDARY
- UTILITY EASEMENT LINE
- EDGE OF PAVEMENT
- EXISTING CONTOUR LINE
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- EXISTING SS MANHOLE
- EXISTING WATER LINE
- PROPOSED WATERLINE
- FUTURE/PROPOSED HYDRANT

UTILITIES

WATER:	CITY OF NEHALEM
SEWER:	NEHALEM BAY WASTEWATER AGENCY
POWER:	TILLAMOOK PUBLIC UTILITY DISTRICT
TELEPHONE:	NEHALEM TELECOMMUNICATIONS, Inc.
CATV:	CHARTER COMMUNICATIONS
ROADS:	PRIVATE ROADS BUILT TO CITY OF NEHALEM STANDARDS. (SEE CCR's)

MORGAN CIVIL ENGINEERING, INC.

PO BOX 358
MANZANITA, OR 97130
(503) 801-6016
www.morgancivil.com

• CIVIL ENGINEERING
• INSPECTION
• PLANNING

JOB NO. #19-10-RIV
DATE: OCT. 10, 2021

REGISTERED PROFESSIONAL ENGINEER 63055 OREGON JANUARY 14, 2003 JASON R. MORGAN

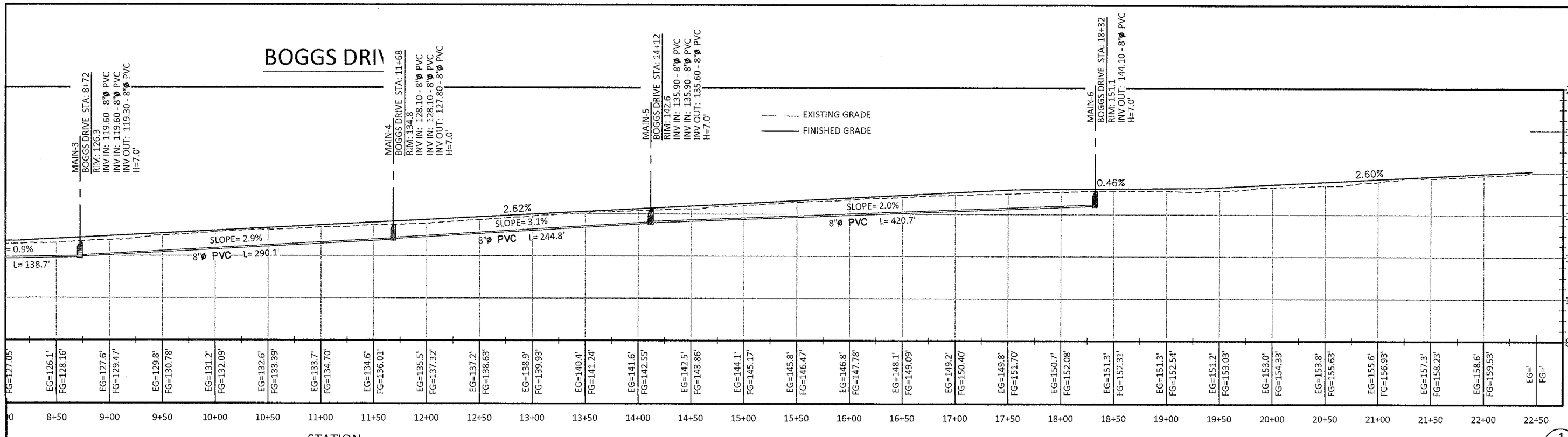
RENEWAL DATE: DECEMBER 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC

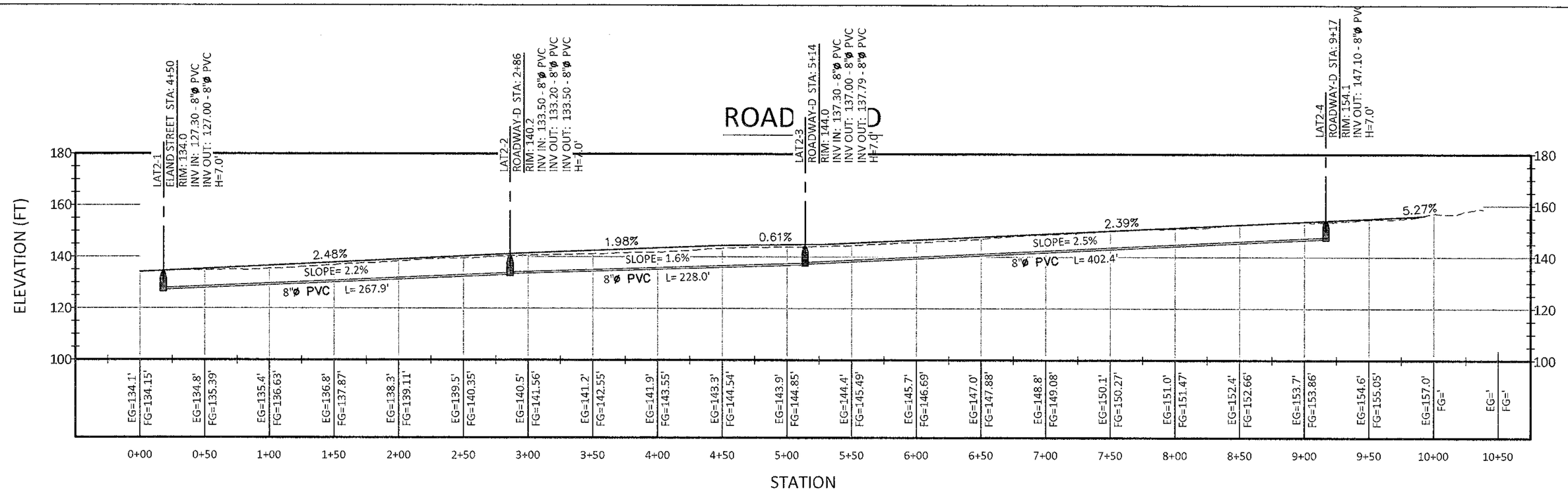
RIVERVIEW MEADOWS PHASE 2 & 3

PHASE 3 - UTILITY LAYOUT

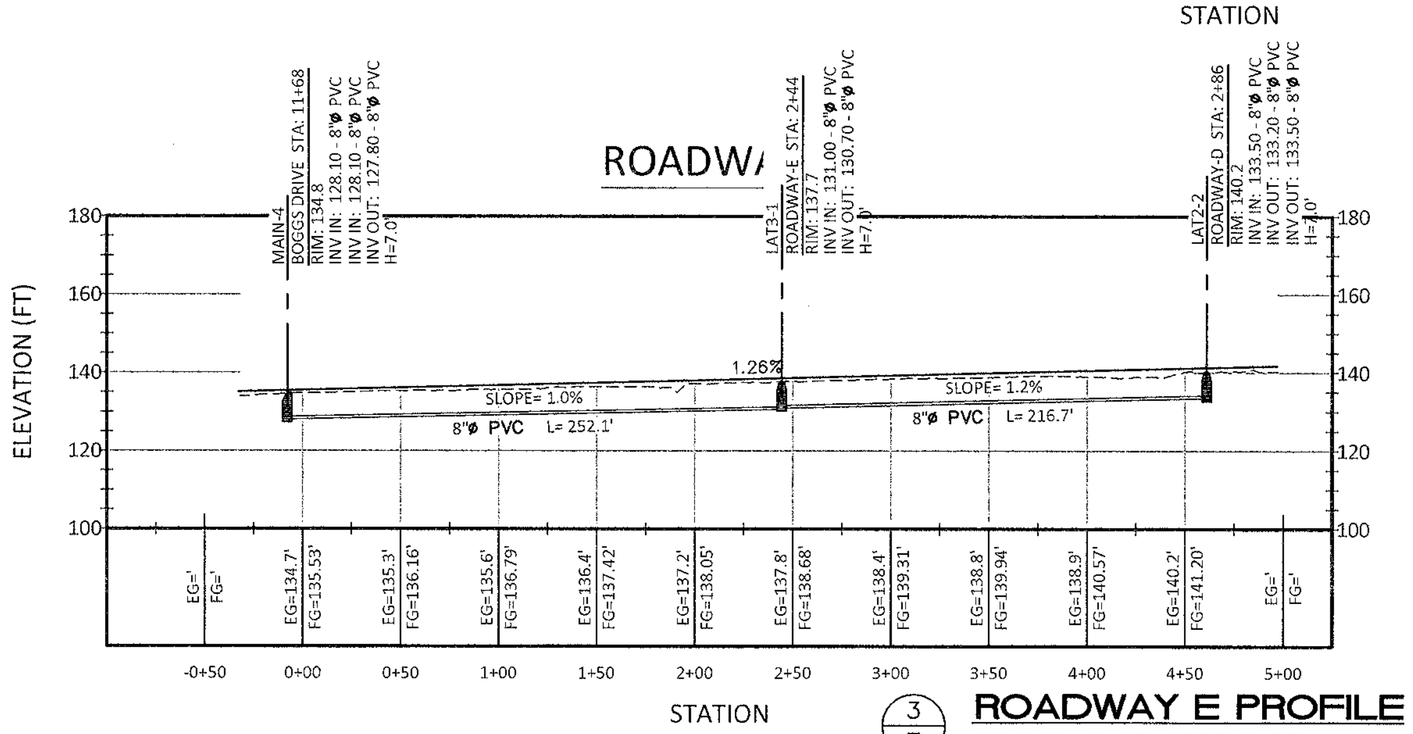
NEHALEM, MAP 3N 10W 23B



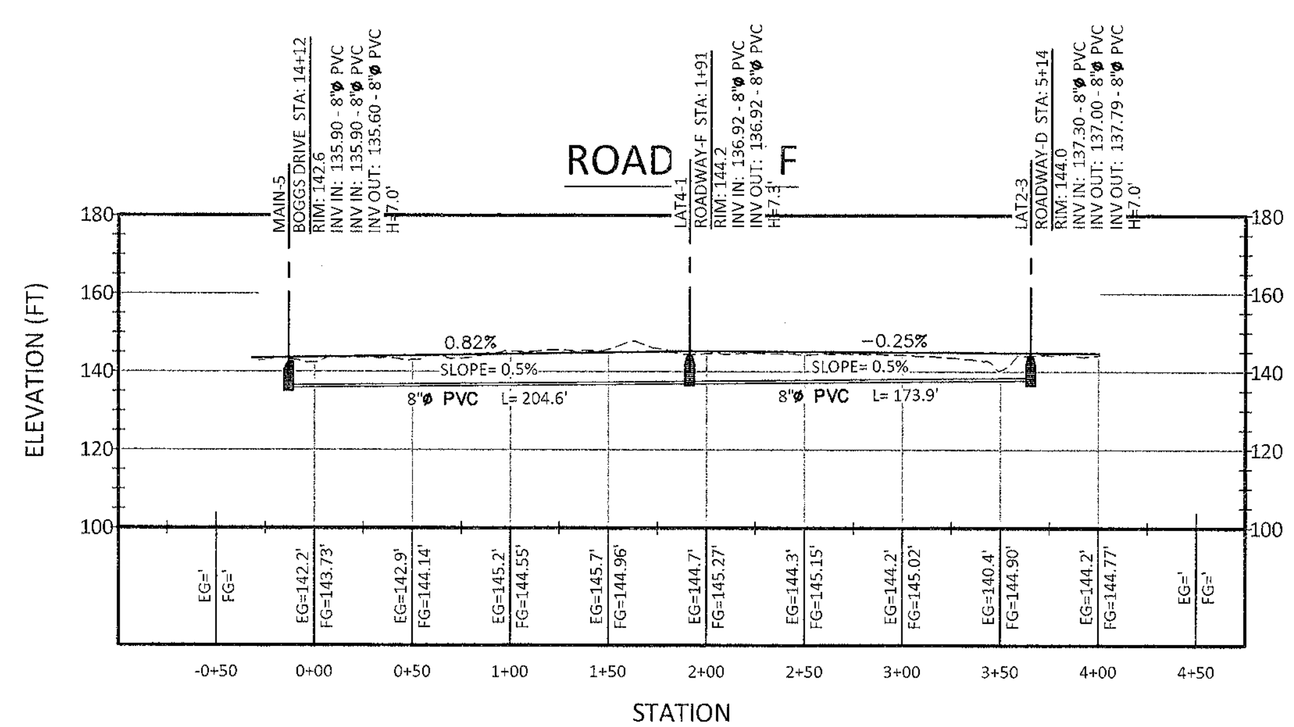
1/7 **BOGG'S DRIVE PROFILE**
SCALE: 1"=60' VERT: 1"=30'



2/7 **ROADWAY D PROFILE**
SCALE: 1"=60' VERT: 1"=30'



3/7 **ROADWAY E PROFILE**
SCALE: 1"=60' VERT: 1"=30'



4/7 **ROADWAY F PROFILE**
SCALE: 1"=60' VERT: 1"=30'

MORGAN CIVIL ENGINEERING, INC.
PO BOX 358
MANZANITA, OR 97130
(503) 801-6016
www.morgancivil.com
• CIVIL ENGINEERING
• INSPECTION
• PLANNING

JOB NO. #19-10-RIV
DATE: NOV. 10, 2021

REGISTERED PROFESSIONAL ENGINEER 63055 OREGON JANUARY 15, 2002 JASON R. MORGAN
RENEWAL DATE: DECEMBER 31, 2022

RIVERVIEW MEADOWS DEVELOPMENT, LLC

RIVERVIEW MEADOWS PHASE 2 & 3
PHASE 3 - PROFILES

NECHALEM, MAP 3N 10W 23B

SHEET 7 OF SEVEN

EXHIBIT

C

Lynn Tone

From: Sarah Absher
Sent: Thursday, August 18, 2022 2:48 PM
To: Lynn Tone
Subject: FW: Riverview Meadows - Emergency/Secondary Access
Attachments: 2009-003657.pdf; INST 2019-001811 - SCOVEL TO DILLARD.pdf; C-0582 - PHASE 1.pdf

Please include email with attachments in "Exhibit C".

Thank You,

Sarah Absher, CBO, CFM, Director
TILLAMOOK COUNTY | Community Development
1510-B Third Street
Tillamook, OR 97141
Phone (503) 842-3408 x3317
sabsher@co.tillamook.or.us

From: Chris Laity <claity@co.tillamook.or.us>
Sent: Wednesday, August 17, 2022 6:16 PM
To: alex@travallygroup.us; prinilee@trevallygroup.us
Cc: Sarah Absher <sabsher@co.tillamook.or.us>; Ron Newton <rnewton@co.tillamook.or.us>
Subject: Riverview Meadows - Emergency/Secondary Access

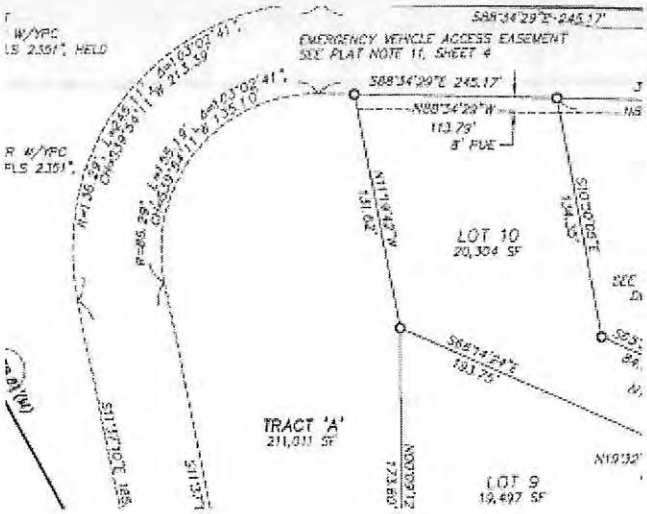
Alex & Prini,

I have not yet received anything that indicates that a legal secondary access is provided to Riverview Meadows other than the emergency access road. Public Works pulled some of the deeds to determine if the road could be used by the public.

The attached 2009-003657 "Emergency Access Easement Agreement" states:

> 2) This easement shall be strictly for emergency vehicular access (described as access by fire, ambulance, and other emergency response vehicles) to Grantees' real property described in Exhibit B. This easement is not intended to grant any rights to Grantees for the purposes of non-emergency ingress and egress to Grantees' property.

The Sheriff's Deed 2019-01811 (attached) transfers Tracts A,B, and C of Phase 1 to Dillard. C-0585 (attached) Sheet 3 of 4 identifies an "Emergency Vehicle Access Easement". This does not imply that it is available for general public use.



The TIS identifies the need to use this road for sight distance and for truck turning movements.

Do you have legal documents conveying the emergency road for public use?

Chris Laity, P.E. | Director
TILLAMOOK COUNTY | Public Works
503 Marolf Loop Road
Tillamook, OR 97141
Phone (503) 842-3419
claity@co.tillamook.or.us

Tillamook County, Oregon
05/21/2009 02:32:25 PM
DEED-ESMAT
$35.00 $11.00 $10.00 - Total = $56.00
2009-003657
00085232200900036570070077
I hereby certify that the within instrument was received for record and recorded in the County of Tillamook, State of Oregon.
Tassi O'Neil, Tillamook County Clerk

AFTER RECORDING, RETURN TO:
Vern Scovell
P.O. Box 151
Nehalem, OR 97131

EMERGENCY ACCESS EASEMENT AGREEMENT

PARTIES: VERN SCOVELL, Grantor; and

VERN SCOVELL and RIVERVIEW MEADOWS, LLC, an Oregon Limited Liability Company, Grantees;

DATE: 5-20, 2009.

RECITALS:

Grantor is the owner of that certain real property located in Tillamook County, Oregon, described in the attached Exhibit A;

Grantees are the owners of that certain real property located in Tillamook County, Oregon, described in the attached Exhibit B;

Grantees desire to be granted an easement by Grantor as more fully set forth herein, and Grantor is willing to grant said easement.

NOW THEREFORE, in consideration of the mutual promises and covenants contained herein:

1) Grantor hereby grants to Grantees a perpetual non-exclusive access easement over and across that portion of Grantor's property described and diagramed in the attached Exhibit A, subject to the provisions and conditions set forth herein.

2) This easement shall be strictly for emergency vehicular access (described as access by fire, ambulance, and other emergency response vehicles) to Grantees' real property described in Exhibit B. This easement is not intended to grant any rights to Grantees for the purposes of non-emergency ingress and egress to Grantees' property.

3) This easement is for the benefit of, shall run with, and shall be appurtenant to Grantees' property described in Exhibit B, and shall be binding upon, and inure to, the parties and their respective heirs, representatives, lessees, and successors and assigns.

4) Grantees shall save and hold harmless Grantor and Grantor's successors and assigns, from any liability for damages arising as a result of Grantees' negligence in connection with their activities in the easement area.

5) In the event suit, action, or arbitration is instituted to enforce or interpret this easement agreement, the prevailing party shall be entitled to recover its reasonable attorney fees and costs incurred therein and upon any appeal therefrom.

GRANTOR:

VERN SCOVELL

GRANTEES:

VERN SCOVELL

RIVERVIEW MEADOWS, LLC, an Oregon Limited Liability Company

By: Vern Scovell, Member

STATE OF OREGON)
) ss.
County of Tillamook)

May 20th, 2009. Personally appeared Vern Scovell and acknowledged the foregoing instrument. Before me:

OFFICIAL SEAL
LISA M HOOLEY
NOTARY PUBLIC-OREGON
COMMISSION NO. 426711
MY COMMISSION EXPIRES MARCH 9, 2012

Notary Public for Oregon

STATE OF OREGON)
) ss.
County of Tillamook)

May 20th, 2009. Personally appeared Vern Scovell, Member of Riverview Meadows, LLC, an Oregon Limited Liability Company and acknowledged the foregoing instrument. Before me:

OFFICIAL SEAL
LISA M HOOLEY
NOTARY PUBLIC-OREGON
COMMISSION NO. 426711
MY COMMISSION EXPIRES MARCH 9, 2012

Notary Public for Oregon

EXHIBIT A

Vern Scovell
April 10, 2009
TNA Job No. 7014

EASEMENT SITUATED IN THE NORTHWEST ONE-QUARTER OF SECTION 23, TOWNSHIP 3 NORTH, RANGE 10 WEST, OF THE WILLAMETTE MERIDIAN, CITY OF NEHALEM, TILLAMOOK COUNTY, OREGON;

BEGINNING AT THE MOST EASTERLY SOUTHEAST CORNER OF PARCEL 2, PARTITION PLAT NO. 1994-58, TILLAMOOK COUNTY PLAT RECORDS; THENCE NORTH 61°24'25" WEST ALONG THE EAST LINE OF SAID PARTITION PLAT NO. 1994-58, A DISTANCE OF 165.96 FEET; THENCE NORTH 45°07'05" WEST CONTINUING ALONG SAID EAST LINE, A DISTANCE OF 228.41 FEET; THENCE NORTH 15°49'59" WEST CONTINUING ALONG SAID EAST LINE, A DISTANCE OF 275.39 FEET; THENCE NORTH 16°45'30" WEST CONTINUING ALONG SAID EAST LINE, A DISTANCE OF 338.59 FEET; THENCE NORTH 11°37'10" WEST CONTINUING ALONG A PORTION OF SAID EAST LINE, A DISTANCE OF 89.07 FEET TO THE WEST LINE OF THAT PROPERTY DESCRIBED IN DOCUMENT NO. 2005-011393, TILLAMOOK COUNTY DEED RECORDS; THENCE SOUTH 36°55'01" EAST ALONG THE WEST LINE OF SAID DOCUMENT NO. 2005-011393, A DISTANCE OF 121.94 FEET; THENCE SOUTH 16°45'30" EAST ALONG SAID WEST LINE OF DOCUMENT NO. 2005-011393, A DISTANCE OF 313.23 FEET; THENCE SOUTH 15°49'59" EAST ALONG SAID WEST LINE OF DOCUMENT NO. 2005-011393, A DISTANCE OF 262.73 FEET TO THE MOST WESTERLY CORNER OF THAT PROPERTY DESCRIBED IN BOOK 614, PAGE 807, TILLAMOOK COUNTY DEED RECORDS; THENCE SOUTH 45°07'05" EAST ALONG THE SOUTHWESTERLY LINE OF SAID PROPERTY DESCRIBED IN BOOK 614, PAGE 807, A DISTANCE OF 208.19 FEET; THENCE SOUTH 61°24'25" EAST CONTINUING ALONG SAID SOUTHWESTERLY LINE OF PROPERTY DESCRIBED IN BOOK 614, PAGE 807, A DISTANCE OF 183.79 FEET TO THE MOST SOUTHWESTERLY CORNER OF THAT PROPERTY DESCRIBED IN BOOK 211, PAGE 52, TILLAMOOK COUNTY DEED RECORDS; THENCE SOUTH 60°03'55" EAST ALONG THE SOUTHWESTERLY LINE OF SAID PROPERTY DESCRIBED IN BOOK 211, PAGE 52, A DISTANCE OF 120.81 FEET TO THE MOST WESTERLY CORNER OF PARTITION PLAT NO. 1993-46, TILLAMOOK COUNTY PLAT RECORDS; THENCE SOUTH 59°58'05" EAST ALONG THE SOUTHERLY LINE OF SAID PARTITION PLAT NO. 1993-46, A DISTANCE OF 130.92 FEET TO THE WEST RIGHT-OF-WAY LINE FOR NORTH FORK COUNTY ROAD; THENCE ALONG 250.37 FOOT RADIUS NON-TANGENT CURVE TO THE LEFT, THROUGH A CENTRAL ANGLE OF 14°32'27", A LENGTH OF 63.54 FEET, THE LONG CHORD OF WHICH BEARS SOUTH 67°12'31" WEST 63.37 FEET; THENCE NORTH 60°03'55" WEST, A DISTANCE OF 237.03 FEET TO THE POINT OF BEGINNING

EMERGENCY VEHICLE ACCESS EASEMENT EXHIBIT

SITUATED IN THE N.W. 1/4 OF SEC. 23, T.3N, R.10W, W.M.
CITY OF NEHALEM, TILLAMOOK COUNTY, OREGON

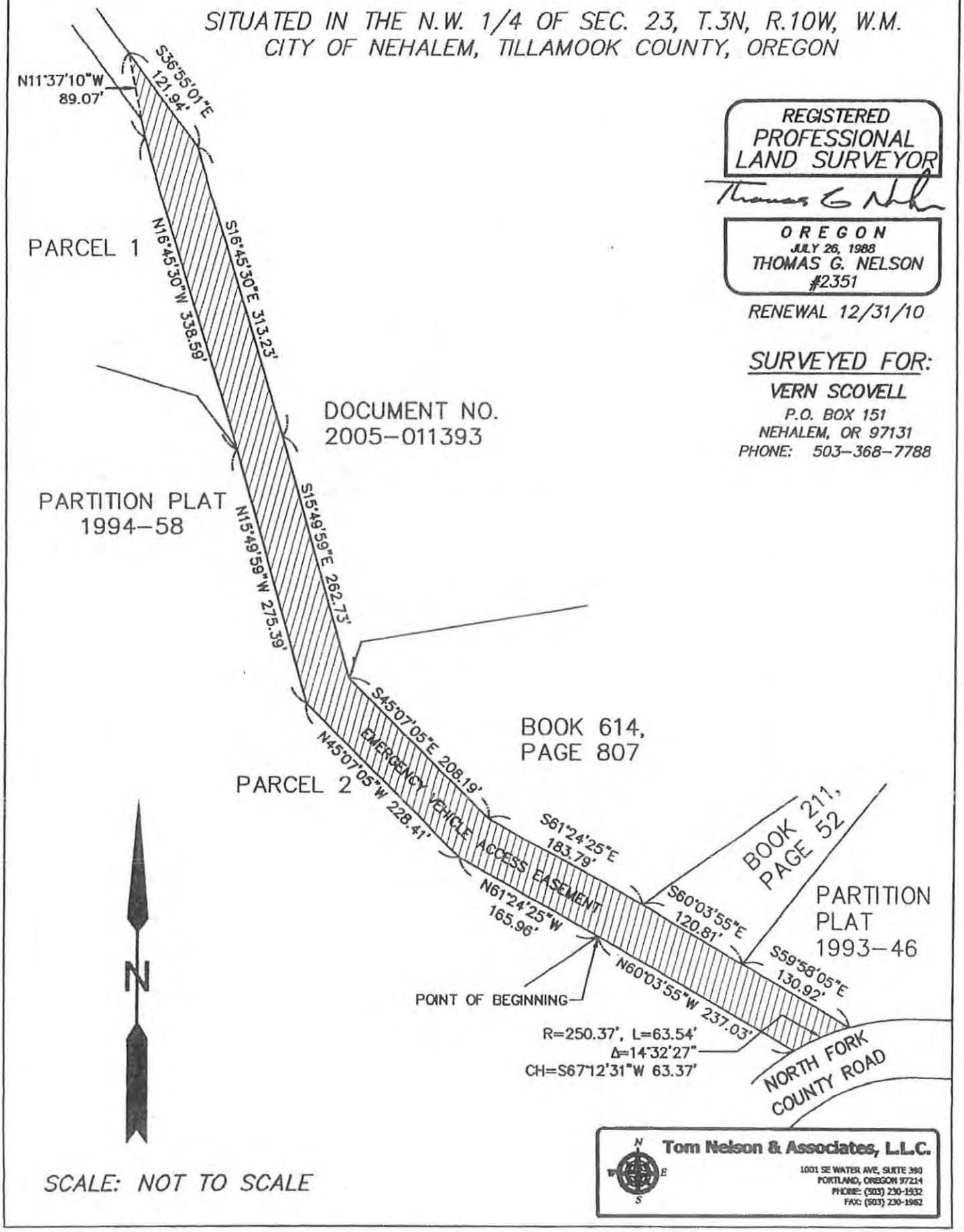


EXHIBIT B

All that portion of a tract of land lying in the Northwest one-quarter of Section 23, Township 3 North, Range 10 West, of the Willamette Meridian, Tillamook County, Oregon, lying Northerly and Easterly of the following described line:

Commencing at a point which is South 1004.76 feet and East 591.12 feet from the Section Corner common to Sections 14, 15, 22 and 23, Township 3 North, Range 10 West of the Willamette Meridian. Said point being also the Northeasterly corner of Parcel 1, Partition Plat 1994-58, in Plat Cabinet B, Tillamook County Partition Plat Records;

Thence South 88° 34' 38" East 32.48 feet along the extension of the North line of said Parcel 1 to a point that is 30 feet distance as measured perpendicular to the Easterly line of Parcel 1 said point being the TRUE POINT OF BEGINNING;

Thence South 21° 06' 52" East of 104.77 feet parallel to the Easterly line of said Parcel 1;

Thence South 28° 37' 12" East 239.60 feet parallel to the Easterly line of said Parcel 1;

Thence South 36° 59' 08" East 177.93 feet parallel to the Easterly line of said Parcel 1 to a point that is 50 feet distant as measured perpendicular to the Easterly line of Parcel 1;

Thence South 16° 47' 00" East 313.22 feet parallel to the Easterly line of said Parcel 1;

Thence South 15° 49' 38" East 263.05 feet parallel to the Easterly line of Parcel 2 of Partition Plat 1994-58;

Thence North 18° 27' 39" East 39.96 feet to a ¾ inch iron pipe shown as point #423 on Partition Plat 1994-58;

Thence North 80° 21' 26" East 238.43 feet along the boundary as shown on said partition plat to a ½ inch iron pipe;

Thence North 76° 17' 51" East 116.76 feet along the boundary as shown on said partition plat to a ½ inch iron pipe;

Thence South 71° 23' 00" East 146.59 feet along the boundary as shown on said partition plat to a ½ inch iron pipe;

Thence North 74° 20' 30" East 93.19 feet along the boundary as shown on said partition plat to a ½ inch iron pipe;

Thence North 74° 20' 30" East 16.29 feet along the boundary as shown on said partition plat to a 5/8 inch rebar with plastic cap stamped "HLB INC";

Thence South 47° 16' 42" East 44.88 feet along the boundary as shown on said partition plat to a ½ inch iron pipe;

Thence South 47° 16' 42" East 51.52 feet along the boundary as shown on said partition plat to a 5/8 inch rebar with plastic cap stamped "HLB INC";

Thence North 82° 53' 14" West 41.89 feet along the boundary as shown on said partition plat to a 5/8 inch rebar with plastic cap stamped "HLB INC";

Thence South 07° 06' 46" West 110.49 feet along the boundary as shown on said partition plat to a ½ inch iron pipe;

Thence South 68° 41' 48" East 113.05 feet along the boundary as shown on said partition plat to a 5/8 inch rebar with plastic cap stamped "HLB INC";

Thence North 21° 31' 10" East 87.78 feet along the boundary as shown on said partition plat to a 5/8 inch rebar with plastic cap stamped "HLB INC";

Thence 25.24 feet along the arc of a curve to the left with a central angle of 12° 02' 58" and long chord which bears South 47° 44' 47" East 25.19 feet along the boundary as shown on said partition plat to a 5/8 inch rebar with plastic cap stamped 'HLB INC";

EXHIBIT B

Thence South 21° 31' 10" West 152.01 feet along the boundary as shown on said partition plat to a 5/8 inch rebar with plastic cap stamped "HLB INC";

Thence South 16° 27' 10" East 165.17 feet along the boundary as shown on said partition plat to a 5/8 inch rebar with plastic cap stamped "HLB INC" and the Northerly Right-of-Way line of North Fork County Road.

SHERIFF'S DEED

Grantor:

TILLAMOOK COUNTY SHERIFF'S OFFICE
5995 LONG PRAIRIE ROAD
TILLAMOOK, OREGON 97141

Grantee:

WILLIAM L. DILLARD; AND VICTORIA S. DILLARD
C/O MOBERG & RUST, ATTORNEYS AT LAW, P.C.
842 BROADWAY
SEASIDE, OR 97138

After recording return to:
Moberg & Rust, Attorneys at Law, P.C.
842 Broadway
Seaside, OR 97138

Until requested otherwise send all tax statements to:
William L. Dillard and Victoria S. Dillard
14025 Riverview Meadows Lane
Nehalem, OR 97131

Tillamook County, Oregon
04/05/2019 12:13:01 PM **2019-01811**
DEED-DSHER
$10.00 $11.00 $10.00 $61.00 - Total =$92.00
I hereby certify that the within instrument was received for record and recorded in the County of Tillamook, State of Oregon.
Tassi O'Neil, Tillamook County Clerk

SPACE RESERVED
FOR
RECORDER'S USE

THIS INDENTURE, Made this April 2, 2019, by and between Andy Long, Sheriff of Tillamook County, Oregon, hereinafter called the grantor, and WILLIAM L. DILLARD; and VICTORIA S. DILLARD, hereinafter called the grantee; WITNESSETH:

RECITALS: In a suit in the Circuit Court of the State of Oregon for Tillamook County, Court Case Number 16CV29208, in which WILLIAM L. DILLARD; and VICTORIA S. DILLARD was plaintiff(s) and RIVERVIEW MEADOWS, LLC; VERN SCOVELL; HIBBS FAMILY TRUST; TERESA HIBBS; BENEDICT SARNAKER; SANDRA CHRISTHILF; RICHARD PARK; KATHLEEN PARK; FRANK JOSEPH BALDEN; GAIL BALDEN; and CONSOLIDATED PRODUCTS INTERNATIONAL, INC, an Oregon Corporation was defendant(s), in which a Writ of Execution, which was issued on June 15, 2018, directing the sale of that real property, pursuant to which, on September 18, 2018 the real property was sold, subject to redemption, in the manner provided by law, for the sum of $600,000.00, the true and actual consideration of the sale, to WILLIAM L. DILLARD; and VICTORIA S. DILLARD, who was the highest and best bidder, that sum being the highest and best sum bid therefore. At the time of the sale, the purchaser paid the amount bid for the property to the grantor or grantor's predecessor in office. After Grantor received funds in the amount bid at the sale, a certificate of sale, as required by law, was duly executed and delivered to the purchaser.

The real property has not been redeemed from the sale, and the time for so doing has now expired. The grantee herein is the owner and holder of the Certificate of Sale and has delivered the certificate to grantor.

NOW, THEREFORE, by virtue of said Writ of Execution, and in consideration of the sum paid for the real property at the sale, the grantor has granted, bargained, sold and conveyed and by these presents does grant, bargain, sell and convey unto the grantee, grantee's heirs, successors, and assigns, that certain real property situated in Tillamook County, Oregon, described as follows, to-wit:

PARCEL NO. 1:

Lots 1, 4, 13, 16, 18, and 19, RIVERVIEW MEADOWS PHASE I, in the County of Tillamook, State of Oregon, recorded July 26, 2010 in Plat Cabinet B1142-0, Tillamook County Records.

PARCEL NO. 2:

Tracts A, B, and C, RIVERVIEW MEADOWS PHASE I, in Tillamook County, Oregon, as recorded July 26, 2010, in Plat Cabinet B1142-0, Plat Records in Tillamook County, Oregon.

Map Nos.: 3N10 23B0 01400, 3N10 23B0 01500, 3N10 23B0 01600, 3N10 23B0 01900, 3N10 23B0 02800, 3N10 23B0 02900, 3N10 23B0 03100, 3N10 23B0 03400, 3N10 23B0 03600

Tax Account Nos.: 54915, 407380, 415219, 415220, 415221, 415224, 415234, 415235, 415236, 415238, 415241, 415243, 415244

The property is commonly known as: Parcel One and Parcel Two

TILLAMOOK COUNTY, OREGON

Together with all of the tenements, hereditaments and appurtenances thereunto belonging or in anywise appertaining and all of the interest of the defendant(s) (and each of them) in and to the real property;

TO HAVE AND TO HOLD the same unto the grantee and grantee's heirs, successors, and assigns forever.

The true and actual consideration paid for this transfer, stated in terms of dollars, is $50.00.

IN WITNESS WHEREOF, the grantor has executed this instrument.

THE PARTIES SIGNING THIS DOCUMENT REPRESENT EACH TO THE OTHER TO HAVE THE ACTUAL AND/OR APPARENT AUTHORITY TO BIND THEIR RESPECTIVE ORGANIZATIONS TO THE TERMS OF THIS DOCUMENT. EACH PARTY HAS READ THIS DOCUMENT AND AGREES TO ITS TERMS.

BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON TRANSFERRING FEE TITLE SHOULD INQUIRE ABOUT THE PERSON'S RIGHTS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009 AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010. THIS INSTRUMENT DOES NOT ALLOW USE OF THE PROPERTY DESCRIBED IN THIS INSTRUMENT IN VIOLATION OF APPLICABLE LAND USE LAWS AND REGULATIONS. BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON ACQUIRING FEE TITLE TO THE PROPERTY SHOULD CHECK WITH THE APPROPRIATE CITY OR COUNTY PLANNING DEPARTMENT TO VERIFY THAT THE UNIT OF LAND BEING TRANSFERRED IS A LAWFULLY ESTABLISHED LOT OR PARCEL, AS DEFINED IN ORS 92.010 OR 215.010, TO VERIFY THE APPROVED USES OF THE LOT OR PARCEL, TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST FARMING OR FOREST PRACTICES, AS DEFINED IN ORS 30.930, AND TO INQUIRE ABOUT THE RIGHTS OF NEIGHBORING PROPERTY OWNERS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, AND SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8 OREGON LAWS 2010.

STATE OF OREGON)
) ss
County of Tillamook)

ANDY LONG, Sheriff of Tillamook County, Oregon

Deputy LINDSEY GANN

This instrument was acknowledged before me on 4/2/19

by Lindsey Gann, Deputy for Andy Long, as Sheriff of Tillamook County.

Rhonda Lee Ann Silveira
Notary Public for State of Oregon

Nov 11, 2019
My Commission expires on

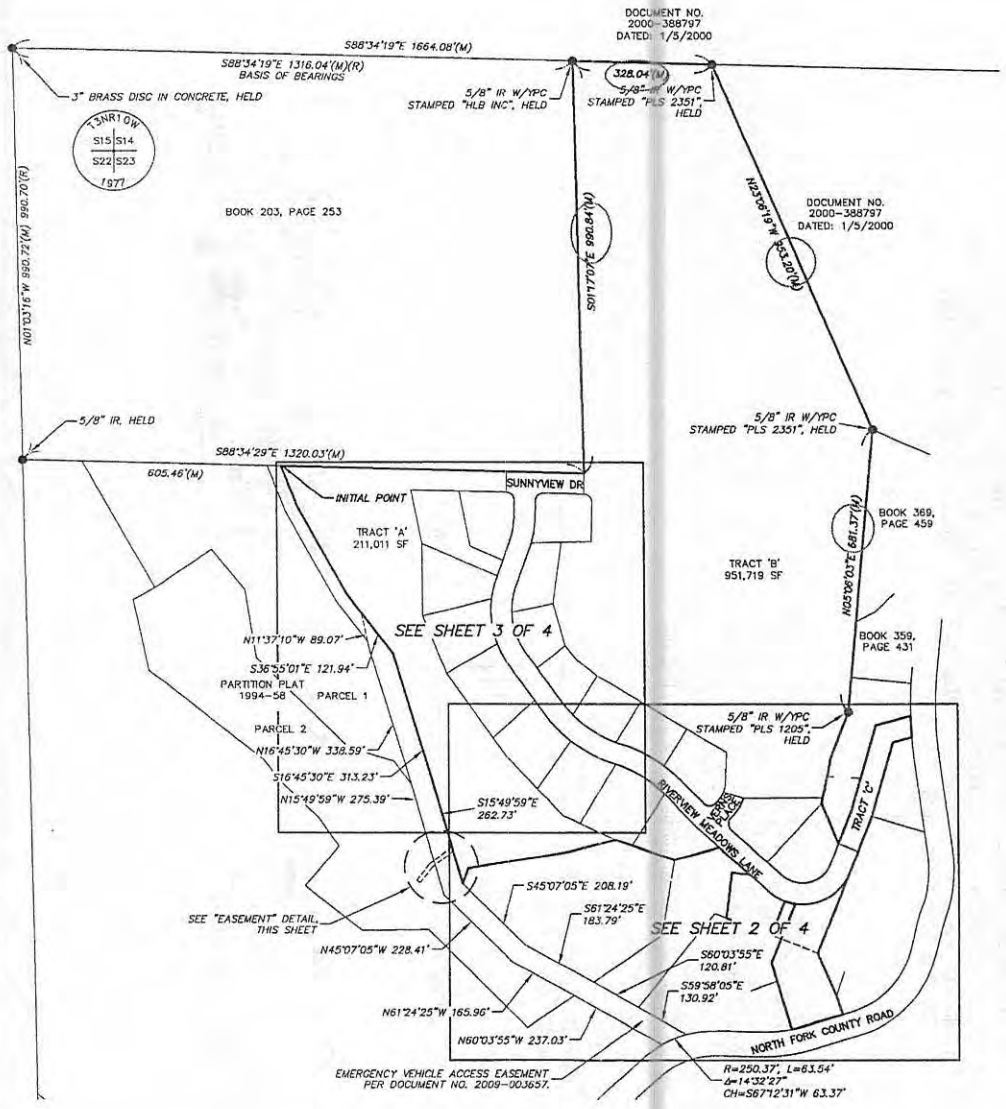
OFFICIAL STAMP
RHONDA LEE ANN SILVEIRA
NOTARY PUBLIC-OREGON
COMMISSION NO. 944685
MY COMMISSION EXPIRES NOVEMBER 11, 2019

RECORDED AS DOCUMENT NO. 2010-4288

RIVERVIEW MEADOWS PHASE 1

SITUATED IN THE N.W. 1/4 OF SEC. 23, T.3N, R.10W, W.M.
CITY OF NEHALEM, TILLAMOOK COUNTY, OREGON

INDEX:

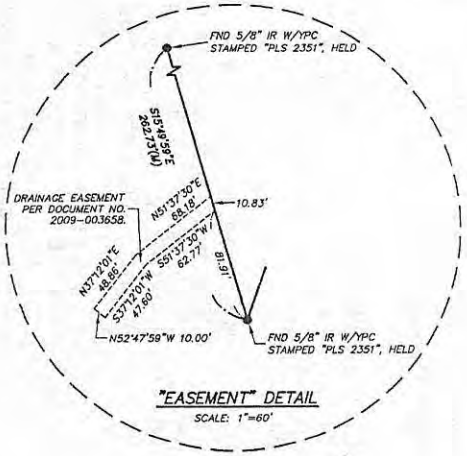


N

SCALE: 1"= 200'

LEGEND:

●	FOUND MONUMENT AS NOTED
(M)	MEASURED DATA
IR	IRON ROD
W/YPC	WITH YELLOW PLASTIC CAP
SF	SQUARE FEET
(R)	MAP B-1707, TILLAMOOK COUNTY SURVEY RECORD



"EASEMENT" DETAIL
SCALE: 1"=60'

REGISTERED PROFESSIONAL LAND SURVEYOR
Thomas G Nelson
OREGON JULY 26, 1988 THOMAS G. NELSON #2351
RENEWAL 12/31/10

SURVEYED FOR:
VERN SCOVELL
P.O. BOX 151
NEHALEM, OR 97131
PHONE: 503-368-7788

TILLAMOOK COUNTY SURVEYOR'S OFFICE JUL 26 2010

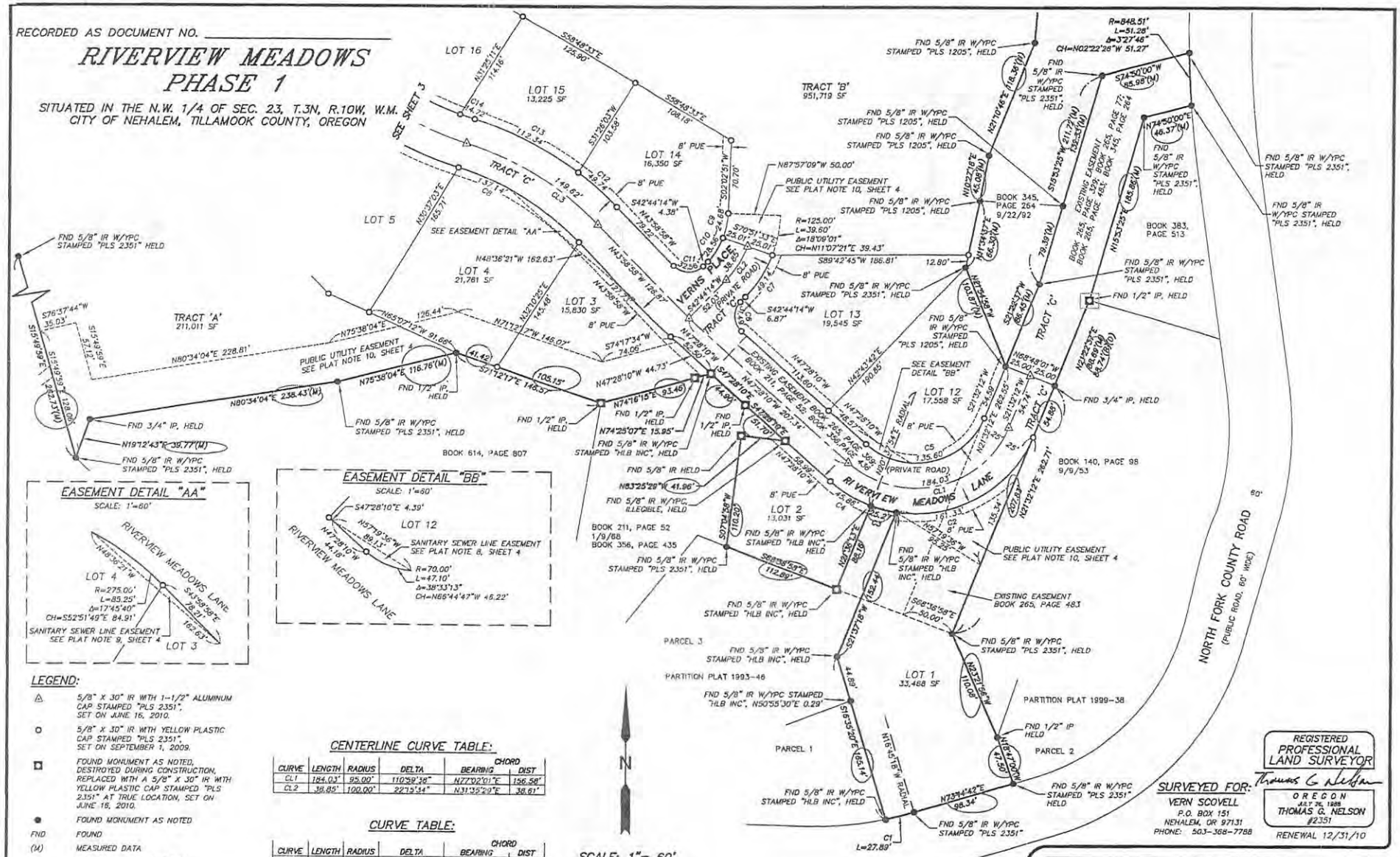
Tom Nelson & Associates, L.L.C.
1001 SE WATER AVE, SUITE 390
PORTLAND, OREGON 97214
PHONE: (503) 230-1932
FAX: (503) 230-1962

DATE: JUNE 17, 2010	FILE: 8008/7014SUB.dwg
DRAWN BY: SRZ	SHEET: 1 OF 4

RECORDED AS DOCUMENT NO. _____

RIVERVIEW MEADOWS PHASE 1

SITUATED IN THE N.W. 1/4 OF SEC. 23, T.3N, R.10W, W.M.
CITY OF NEHALEM, TILLAMOOK COUNTY, OREGON



EASEMENT DETAIL "AA"

SCALE: 1"=60'

EASEMENT DETAIL "BB"

SCALE: 1"=60'

LEGEND:

△	5/8" X 30" IR WITH 1-1/2" ALUMINUM CAP STAMPED "PLS 2351", SET ON JUNE 16, 2010.
○	5/8" X 30" IR WITH YELLOW PLASTIC CAP STAMPED "PLS 2351", SET ON SEPTEMBER 1, 2009.
□	FOUND MONUMENT AS NOTED, DESTROYED DURING CONSTRUCTION, REPLACED WITH A 5/8" X 30" IR WITH YELLOW PLASTIC CAP STAMPED "PLS 2351" AT TRUE LOCATION, SET ON JUNE 16, 2010.
●	FOUND MONUMENT AS NOTED
FND	FOUND
(M)	MEASURED DATA
IP	IRON PIPE, INSIDE DIAMETER
IR	IRON ROD
W/YPC	WITH YELLOW PLASTIC CAP
SF	SQUARE FEET
PUE	PUBLIC UTILITY EASEMENT
(R)	MAP B-1707, TILLAMOOK COUNTY SURVEY RECORD
(D)	DOCUMENT NO. 2005-011393, TILLAMOOK COUNTY DEED RECORD

CENTERLINE CURVE TABLE:

CURVE	LENGTH	RADIUS	DELTA	CHORD BEARING	CHORD DIST
CL1	184.03'	95.00'	110°59'38"	N27°02'01"E	156.58'
CL2	38.85'	100.00'	22°13'44"	N31°35'29"E	38.61'

CURVE TABLE:

CURVE	LENGTH	RADIUS	DELTA	CHORD BEARING	CHORD DIST
C1	27.89'	328.10'	4°52'13"	N75°40'49"E	27.88'
C2	161.33'	120.00'	77°01'50"	N60°03'07"E	149.45'
C3	25.27'	120.00'	12°03'52"	S75°24'02"E	25.22'
C4	45.86'	120.00'	21°53'56"	S58°25'08"E	45.59'
C5	135.60'	70.00'	110°59'38"	N27°02'01"E	115.37'
C6	31.49'	20.00'	90°12'23"	S02°21'58"E	28.34'
C7	49.14'	125.00'	22°31'29"	N31°27'34"E	48.82'
C8	137.14'	275.00'	28°34'22"	N58°16'10"W	135.72'
C9	24.68'	75.00'	18°51'18"	N11°28'29"E	24.57'
C10	28.56'	75.00'	21°49'08"	N31°48'42"E	28.39'
C11	32.56'	20.00'	93°16'48"	N89°22'30"E	29.08'
C12	49.74'	325.00'	8°46'08"	N48°20'59"W	49.69'

REGISTERED PROFESSIONAL LAND SURVEYOR

OREGON JULY 26, 1988 THOMAS G. NELSON #2351

RENEWAL 12/31/10

SURVEYED FOR:
VERN SCOVELL
P.O. BOX 151
NEHALEM, OR 97131
PHONE: 503-368-7788

TILLAMOOK COUNTY SURVEYOR'S OFFICE JUL 26 2010

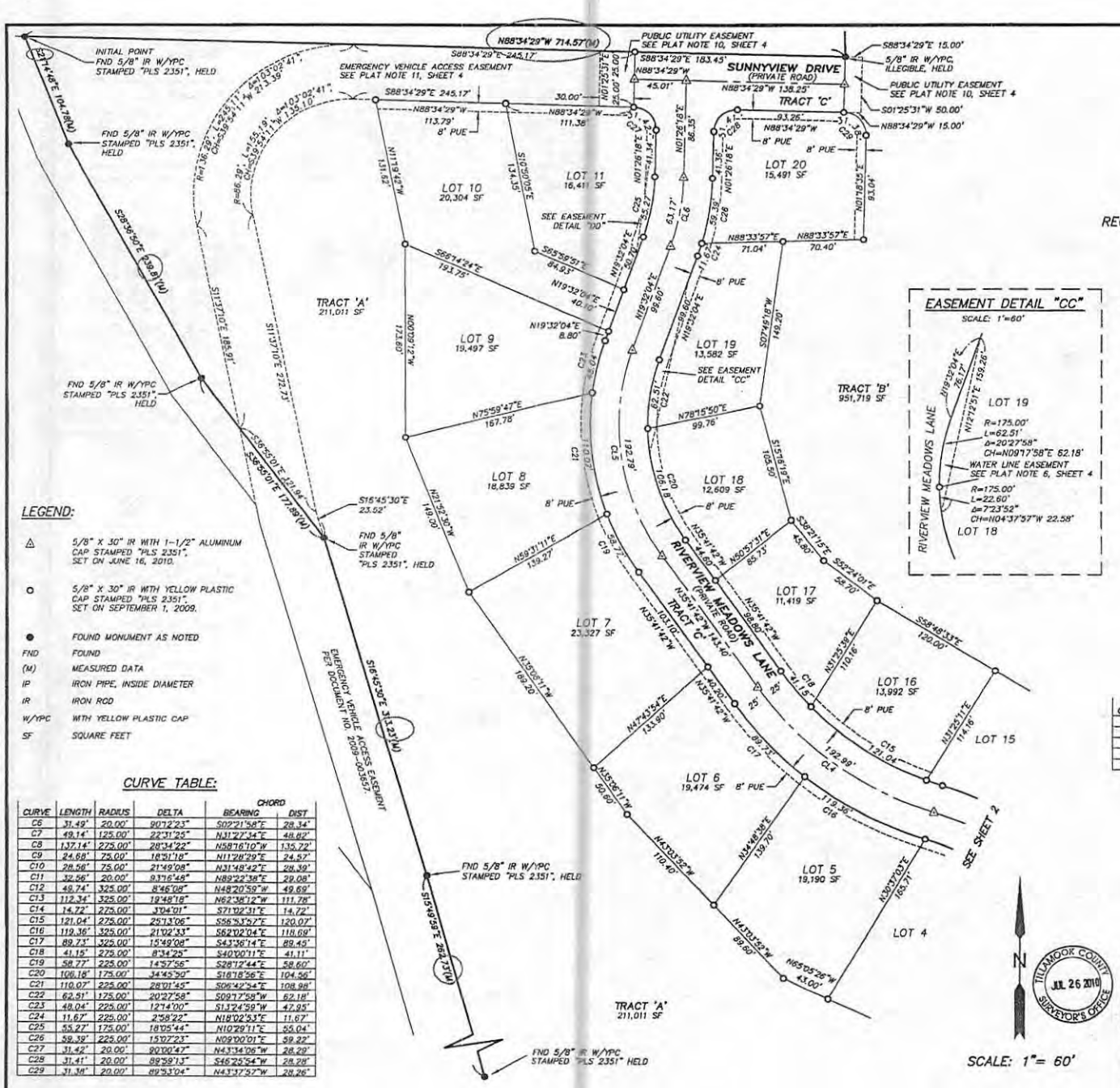
Tom Nelson & Associates, L.L.C.
1001 SE WATER AVE, SUITE 390
PORTLAND, OREGON 97214
PHONE: (503) 230-1932
FAX: (503) 230-1962

DATE: JUNE 17, 2010	FILE: 8008/7014SUB.dwg
DRAWN BY: SRZ	SHEET: 2 OF 4

RECORDED AS DOCUMENT NO. 2010-4288

RIVERVIEW MEADOWS PHASE 1

SITUATED IN THE N.W. 1/4 OF SEC. 23, T.3N, R.10W, W.M.
CITY OF NEHALEM, TILLAMOOK COUNTY, OREGON



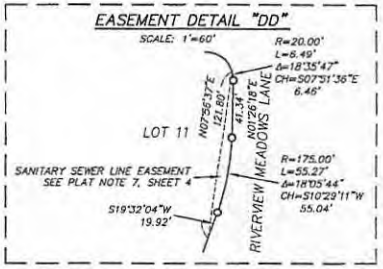
SCALE: 1"= 60'

EASEMENT DETAIL "CC"

SCALE: 1"=60'

EASEMENT DETAIL "DD"

SCALE: 1"=60'



LEGEND:

- △ 5/8" X 30" IR WITH 1-1/2" ALUMINUM CAP STAMPED "PLS 2351", SET ON JUNE 16, 2010.
- ○ 5/8" X 30" IR WITH YELLOW PLASTIC CAP STAMPED "PLS 2351", SET ON SEPTEMBER 1, 2009.
- ● FOUND MONUMENT AS NOTED
- FND FOUND
- (M) MEASURED DATA
- IP IRON PIPE, INSIDE DIAMETER
- IR IRON ROD
- W/YPC WITH YELLOW PLASTIC CAP
- SF SQUARE FEET

CURVE TABLE:

CURVE	LENGTH	RADIUS	DELTA	CHORD BEARING	CHORD DIST
C6	31.49'	20.00'	90°12'23"	S09°21'58"E	28.34'
C7	49.14'	125.00'	22°31'25"	N31°22'34"E	48.82'
C8	137.14'	275.00'	28°34'22"	N58°16'10"W	135.72'
C9	24.88'	75.00'	18°51'18"	N11°28'29"E	24.57'
C10	28.56'	75.00'	21°49'08"	N31°48'42"E	28.39'
C11	32.56'	20.00'	93°16'48"	N89°22'38"E	29.08'
C12	49.74'	325.00'	8°46'08"	N48°20'59"W	49.69'
C13	112.34'	325.00'	19°48'18"	N62°38'12"W	111.78'
C14	14.72'	275.00'	3°04'01"	S71°02'31"E	14.72'
C15	121.04'	275.00'	25°13'06"	S56°53'57"E	120.07'
C16	119.36'	325.00'	21°02'33"	S62°02'04"E	118.69'
C17	89.73'	325.00'	15°49'08"	S43°36'14"E	89.45'
C18	41.15'	275.00'	8°34'25"	S40°00'11"E	41.11'
C19	58.77'	225.00'	14°57'56"	S28°12'44"E	58.60'
C20	106.18'	175.00'	34°45'50"	S16°18'56"E	104.56'
C21	110.07'	225.00'	28°01'45"	S06°42'54"E	108.98'
C22	62.51'	175.00'	20°27'58"	S09°17'58"W	62.18'
C23	48.04'	225.00'	12°14'00"	S13°24'59"W	47.95'
C24	11.67'	225.00'	2°58'22"	N18°02'53"E	11.67'
C25	55.27'	175.00'	18°05'44"	N10°29'11"E	55.04'
C26	59.39'	225.00'	15°07'23"	N09°00'01"E	59.22'
C27	31.42'	20.00'	90°00'47"	N43°34'06"W	28.28'
C28	31.41'	20.00'	89°59'13"	S46°25'54"W	28.28'
C29	31.38'	20.00'	89°53'04"	N43°37'57"W	28.26'

CENTERLINE CURVE TABLE:

CURVE	LENGTH	RADIUS	DELTA	CHORD BEARING	CHORD DIST
CL2	38.85'	100.00'	22°15'34"	N31°35'29"E	38.61'
CL3	149.62'	300.00'	28°34'31"	N58°15'06"W	148.07'
CL4	192.99'	300.00'	36°51'26"	S54°06'36"E	189.68'
CL5	192.79'	200.00'	55°13'48"	S08°04'56"E	185.41'
CL6	63.17'	200.00'	18°05'44"	N10°29'11"E	62.90'

SURVEYED FOR:
VERN SCOVELL
P.O. BOX 151
NEHALEM, OR 97131
PHONE: 503-368-7788

REGISTERED PROFESSIONAL LAND SURVEYOR
Thomas G. Nelson
OREGON JULY 26, 1988 THOMAS G. NELSON #2351
RENEWAL 12/31/10

TILLAMOOK COUNTY SURVEYOR'S OFFICE JUL 26 2010

Tom Nelson & Associates, L.L.C.
1001 SE WATER AVE, SUITE 390
PORTLAND, OREGON 97214
PHONE: (503) 230-1932
FAX: (503) 230-1962

DATE: JUNE 17, 2010	FILE: 8008/7014SUB.dwg
DRAWN BY: SRZ	SHEET: 3 OF 4

RECORDED AS DOCUMENT NO. _____

RIVERVIEW MEADOWS PHASE 1

SITUATED IN THE N.W. 1/4 OF SEC. 23, T.3N, R.10W, W.M.
CITY OF NEHALEM, TILLAMOOK COUNTY, OREGON

DECLARATION:

KNOW ALL PEOPLE BY THESE PRESENTS THAT RIVERVIEW MEADOWS LLC, AN OREGON LIMITED LIABILITY COMPANY, OWNER OF THE LAND DEPICTED HEREON, DO HEREBY MAKE, ESTABLISH AND DECLARE THE ANNEXED PLAT OF "RIVERVIEW MEADOWS PHASE 1" AS DESCRIBED IN THE ACCOMPANYING SURVEYOR'S CERTIFICATE TO BE A TRUE AND CORRECT MAP AND PLAT THEREOF, LOTS 1–20 AND TRACTS 'A', 'B', AND 'C' BEING OF THE DIMENSIONS SHOWN HEREON AND ALL STREETS OF THE WIDTHS THEREON SET FORTH, AND DOES HEREBY CREATE AND ESTABLISH PRIVATE EASEMENTS AS SHOWN, NOTED, OR STATED ON SAID MAP FOR THE USES INDICATED, AND DOES HEREBY GRANT ALL PUBLIC EASEMENTS AS SHOWN, NOTED, OR STATED ON SAID MAP. THE DECLARANT DOES FURTHER STATE THAT THE PROPERTY PLATTED HEREIN IS SUBJECT TO PLAT RESTRICTIONS AS NOTED, ALL IN ACCORDANCE WITH THE PROVISIONS OF CHAPTER 92 OF THE OREGON REVISED STATUTES.

Vern Scovell

VERN SCOVELL
PRESIDENT, RIVERVIEW MEADOWS LLC,
AN OREGON LIMITED LIABILITY COMPANY.

ACKNOWLEDGMENT:

STATE OF OREGON
COUNTY OF TILLAMOOK } SS

THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME ON June 22nd, 2010
BY VERN SCOVELL AS PRESIDENT OF RIVERVIEW MEADOWS LLC, AN OREGON LIMITED LIABILITY COMPANY.

Lisa M Hodley 6/22/2010
NOTARY SIGNATURE DATE

Lisa M Hodley
PRINTED NAME, NOTARY PUBLIC - OREGON
COMMISSION NO: 426711
MY COMMISSION EXPIRES: March 09, 2012
FULL MONTH, 2 DIGIT DAY, COMPLETE YEAR

CONSENT AFFIDAVIT:

A SUBDIVISION PLAT CONSENT AFFIDAVIT FROM DAVID H. HASS, A TRUST DEED BENEFICIARY PER INSTRUMENT NO. 2005–002577, HAS BEEN RECORDED AS DOCUMENT NO. 2010–000376.

CONSENT AFFIDAVIT:

A SUBDIVISION PLAT CONSENT AFFIDAVIT FROM WILLIAM LEE DILLARD AND VICTORIA S. DILLARD, HUSBAND AND WIFE, AND TRUST DEED BENEFICIARY PER INSTRUMENT NO. 2006–004851, HAS BEEN RECORDED AS DOCUMENT NO. 2010–000377.

NARRATIVE:

THE PURPOSE OF THIS SURVEY IS TO SUBDIVIDE THE TRACTS OF LAND DESCRIBED IN DOCUMENT NUMBER 2005–011393, TILLAMOOK COUNTY DEED RECORDS, EXCEPTING THAT TRACT OF LAND DESCRIBED IN BOOK 345, PAGE 264, TILLAMOOK COUNTY DEED RECORDS, AND EXCEPTING THAT TRACT OF LAND DESCRIBED AS PARCEL 2 IN BOOK 261, PAGE 590, TILLAMOOK COUNTY DEED RECORDS, EXCEPTING THOSE TRACTS OF LAND DESCRIBED IN BOOK 226, PAGE 9, BOOK 254, PAGE 858, BOOK 254, PAGE 860, BOOK 345, PAGE 264, AND BOOK 383, PAGE 513, TILLAMOOK COUNTY DEED RECORDS, INTO LOTS AND TRACTS AS SHOWN.

THE BASIS OF BEARING AND BOUNDARY RESOLUTION FOR THIS SUBDIVISION WAS PER SURVEY NUMBER B–3284, TILLAMOOK COUNTY SURVEY RECORDS.

SURVEYOR'S CERTIFICATE:

I, THOMAS G. NELSON, DO HEREBY CERTIFY THAT I HAVE CORRECTLY SURVEYED AND MARKED WITH PROPER MONUMENTS THE LAND REPRESENTED ON THE ANNEXED MAP OF "RIVERVIEW MEADOWS PHASE 1", SITUATED IN THE NORTHWEST ONE–QUARTER OF SECTION 23, TOWNSHIP 3 NORTH, RANGE 10 WEST, OF THE WILLAMETTE MERIDIAN, CITY OF NEHALEM, TILLAMOOK COUNTY, OREGON:

COMMENCING AT A FOUND THREE INCH BRASS DISC COMMON TO SECTIONS 14, 15, 22 AND 23, TOWNSHIP 3 NORTH, RANGE 10 WEST OF THE WILLAMETTE MERIDIAN; THENCE, SOUTH 01°03'16" EAST ALONG THE WEST LINE OF SAID NORTHWEST ONE–QUARTER OF SECTION 23 ALSO THE WEST LINE OF THAT TRACT OF LAND FOUND IN BOOK 203, PAGE 253, TILLAMOOK COUNTY DEED RECORDS, A DISTANCE OF 990.72 FEET TO A FOUND 5/8 INCH IRON ROD AT THE SOUTHWEST CORNER OF SAID TRACT OF LAND FOUND IN BOOK 203, PAGE 253; THENCE, SOUTH 88°34'29" EAST ALONG THE SOUTH LINE OF SAID TRACT OF LAND FOUND IN BOOK 203, PAGE 253, A DISTANCE OF 605.46 FEET TO A FOUND 5/8 INCH IRON ROD WITH A YELLOW PLASTIC CAP STAMPED "PLS 2351", SAID POINT BEING THE INITIAL POINT AND THE POINT OF BEGINNING; THENCE, SOUTH 21°14'48" EAST, A DISTANCE OF 104.78 FEET TO A FOUND 5/8 INCH IRON ROD WITH A YELLOW PLASTIC CAP STAMPED "PLS 2351"; THENCE SOUTH 28°36'50" EAST, A DISTANCE OF 239.81 FEET TO A FOUND 5/8 INCH IRON ROD WITH A YELLOW PLASTIC CAP STAMPED "PLS 2351"; THENCE SOUTH 36°55'01" EAST, A DISTANCE OF 177.89 FEET TO A FOUND 5/8 INCH IRON ROD WITH A YELLOW PLASTIC CAP STAMPED "PLS 2351"; THENCE, SOUTH 16°45'30" EAST, A DISTANCE OF 313.23 FEET TO A FOUND 5/8 INCH IRON ROD WITH A YELLOW PLASTIC CAP STAMPED "PLS 2351"; THENCE, SOUTH 15°49'59" EAST, A DISTANCE OF 262.73 FEET TO A FOUND 5/8 INCH IRON ROD WITH A YELLOW PLASTIC CAP STAMPED "PLS 2351" AT THE MOST WESTERLY CORNER OF THAT TRACT OF LAND FOUND IN BOOK 814, PAGE 807, TILLAMOOK COUNTY DEED RECORDS; THENCE, NORTH 19°12'43" EAST ALONG THE NORTH LINE OF SAID BOOK 814, PAGE 807, A DISTANCE OF 39.77 FEET TO A FOUND 3/4 INCH IRON PIPE; THENCE, NORTH 80°34'04" EAST ALONG SAID NORTH LINE, A DISTANCE OF 238.43 FEET TO A FOUND 5/8 INCH IRON ROD WITH A YELLOW PLASTIC CAP STAMPED "PLS 2351"; THENCE, NORTH 75°38'04" EAST ALONG SAID NORTH LINE A DISTANCE OF 116.78 FEET TO A FOUND 1/2 INCH IRON PIPE; THENCE, SOUTH 71°12'17" EAST ALONG SAID NORTH LINE, A DISTANCE OF 146.57 FEET TO A FOUND 1/2 INCH IRON PIPE AT THE NORTHEAST CORNER OF SAID BOOK 814, PAGE 807, ALSO THE NORTHWEST CORNER OF A TRACT OF LAND FOUND IN BOOK 356, PAGE 435, TILLAMOOK COUNTY DEED RECORDS; THENCE, NORTH 74°16'15" EAST ALONG THE NORTH LINE OF SAID BOOK 356, PAGE 435, A DISTANCE OF 93.46 FEET TO A FOUND 1/2 INCH IRON PIPE; THENCE, NORTH 74°25'07" EAST ALONG SAID NORTH LINE, A DISTANCE OF 15.95 FEET TO A FOUND 5/8 INCH IRON ROD WITH YELLOW PLASTIC CAP STAMPED "HLB INC"; THENCE, SOUTH 47°28'10" EAST ALONG SAID NORTH LINE, A DISTANCE OF 44.90 FEET TO A FOUND 1/2 INCH IRON PIPE; THENCE, SOUTH 47°28'10" EAST ALONG SAID NORTH LINE, A DISTANCE OF 51.70 FEET TO A FOUND 5/8 INCH IRON ROD WITH AN ILLEGIBLE YELLOW PLASTIC CAP; THENCE, NORTH 83°25'29" WEST ALONG SAID NORTH LINE, A DISTANCE OF 41.95 FEET TO A FOUND 5/8 INCH IRON ROD; THENCE, SOUTH 07°04'58" WEST ALONG SAID NORTH LINE, A DISTANCE OF 110.20 FEET TO A FOUND 5/8 INCH IRON ROD WITH YELLOW PLASTIC CAP STAMPED "PLS 2351" ON THE NORTH LINE OF PARCEL 3, PARTITION PLAT 1993–46, TILLAMOOK COUNTY PLAT RECORDS; THENCE, SOUTH 88°16'58" EAST ALONG SAID NORTH LINE, A DISTANCE OF 112.89 FEET TO A FOUND 5/8 INCH IRON ROD WITH YELLOW PLASTIC CAP STAMPED "HLB INC"; THENCE, NORTH 21°36'13" EAST ALONG SAID NORTH LINE, A DISTANCE OF 88.18 FEET TO A NON–TANGENT 120.00 FOOT RADIUS CURVE TO THE LEFT; THENCE, 25.27 FEET ALONG SAID NON–TANGENT CURVE, THROUGH AN INTERNAL ANGLE OF 12°03'52", THE CHORD OF WHICH BEARS SOUTH 75°24'03" EAST 25.22 FEET; THENCE, SOUTH 21°37'18" WEST ALONG THE EAST LINE OF SAID PARTITION PLAT, A DISTANCE OF 152.44 FEET TO A FOUND 5/8 INCH IRON ROD WITH A YELLOW PLASTIC CAP STAMPED "HLB INC"; THENCE, SOUTH 16°35'20" EAST ALONG SAID EAST LINE, A DISTANCE OF 165.14 FEET TO THE NORTH LINE OF NORTH FORK COUNTY ROAD AND THE SOUTHEAST CORNER OF PARCEL 1 OF SAID PARTITION PLAT; THENCE, ALONG A 328.10 FOOT RADIUS NON–TANGENT CURVE TO THE LEFT, THROUGH AN INTERNAL ANGLE OF 4°52'13", THE LONG CHORD OF WHICH BEARS NORTH 75°40'49" EAST 27.89 FEET, A LENGTH OF 27.89 FEET ALONG THE NORTH LINE OF SAID NORTH FORK COUNTY ROAD; THENCE, NORTH 73°14'42" EAST ALONG SAID NORTH LINE OF NORTH FORK COUNTY ROAD, A DISTANCE OF 98.34 FEET TO A FOUND 5/8 INCH IRON ROD WITH A YELLOW PLASTIC CAP STAMPED "PLS 2351" AT THE SOUTH CORNER OF PARCEL 2 OF PARTITION PLAT 1999–38, TILLAMOOK COUNTY PLAT RECORDS; THENCE, NORTH 18°47'00" WEST ALONG THE WEST LINE OF SAID PARCEL 2, A DISTANCE OF 47.50 FEET TO A FOUND 1/2 INCH IRON PIPE; THENCE, NORTH 23°21'56" WEST ALONG THE WEST LINE OF THAT TRACT OF LAND FOUND IN BOOK 140, PAGE 98, TILLAMOOK COUNTY DEED RECORDS, A DISTANCE OF 110.88 FEET TO A FOUND 5/8 INCH IRON ROD WITH A YELLOW PLASTIC CAP STAMPED "PLS 2351"; THENCE, NORTH 21°32'12" EAST ALONG SAID WEST LINE, A DISTANCE OF 262.71 FEET TO A FOUND 3/4 INCH IRON PIPE; THENCE, NORTH 21°22'37" EAST ALONG SAID WEST LINE, A DISTANCE OF 88.69 FEET TO A FOUND 1/2 INCH IRON PIPE AT THE NORTHWEST CORNER OF SAID TRACT OF LAND FOUND IN BOOK 140, PAGE 98, ALSO THE SOUTHWEST CORNER OF THAT TRACT OF LAND FOUND IN BOOK 383, PAGE 513, TILLAMOOK COUNTY DEED RECORDS; THENCE, NORTH 15°53'25" EAST ALONG THE WEST LINE OF SAID BOOK 383, PAGE 513, A DISTANCE OF 185.86 FEET TO A FOUND 5/8 INCH IRON ROD WITH A YELLOW PLASTIC STAMPED "PLS 2351"; THENCE, NORTH 74°50'00" EAST ALONG SAID WEST LINE, A DISTANCE OF 46.37 FEET TO A FOUND 5/8 INCH IRON PIPE WITH A YELLOW PLASTIC CAP STAMPED "PLS 2351" ON THE WEST LINE OF SAID NORTH FORK COUNTY ROAD AND AN 848.51 FOOT RADIUS CURVE; THENCE, 51.28 FEET ALONG SAID CURVE TO THE RIGHT, WITH AN INTERNAL ANGLE OF 3°27'46", THE CHORD OF WHICH BEARS NORTH 02°22'26" WEST 51.27 FEET TO A FOUND 5/8 INCH IRON ROD WITH A YELLOW PLASTIC CAP STAMPED "PLS 2351"; THENCE, SOUTH 74°50'00" WEST, A DISTANCE OF 85.98 FEET TO A FOUND 5/8 INCH IRON ROD WITH A YELLOW PLASTIC CAP STAMPED "PLS 2351"; THENCE, SOUTH 15°53'25" WEST ALONG THE EAST LINE OF THAT TRACT OF LAND FOUND IN BOOK 345, PAGE 264, TILAMOOK COUNTY DEED RECORDS, A DISTANCE OF 211.72 FEET TO A FOUND 5/8 INCH IRON ROD WITH A YELLOW PLASTIC CAP STAMPED "PLS 2351"; THENCE, SOUTH 21°22'37" WEST ALONG SAID EAST LINE, A DISTANCE OF 86.45 FEET TO A 5/8 INCH IRON ROD WITH A YELLOW PLASTIC CAP STAMPED "PLS 1205"; THENCE, NORTH 21°54'58" WEST ALONG THE WEST LINE OF SAID TRACT OF LAND FOUND IN BOOK 345, PAGE 264, A DISTANCE OF 103.87 FEET TO A FOUND 5/8 INCH IRON ROD WITH A YELLOW PLASTIC CAP STAMPED "PLS 2351"; THENCE, NORTH 11°34'37" EAST ALONG SAID WEST LINE, A DISTANCE OF 86.30 FEET TO A FOUND 5/8 INCH IRON ROD WITH A YELLOW PLASTIC CAP STAMPED "PLS 1205"; THENCE, NORTH 10°27'18" EAST ALONG SAID WEST LINE, A DISTANCE OF 45.08 FEET TO A FOUND 5/8 INCH IRON ROD WITH A YELLOW PLASTIC CAP STAMPED "PLS 1205"; THENCE, NORTH 21°10'46" EAST ALONG SAID WEST LINE, A DISTANCE OF 118.38 FEET TO A FOUND 5/8 INCH IRON ROD WITH A YELLOW PLASTIC CAP STAMPED "PLS 1205"; THENCE, NORTH 05°06'03" EAST ALONG THE WEST LINE OF THOSE TRACTS OF LAND FOUND IN BOOK 359, PAGE 431, TILLAMOOK COUNTY DEED RECORDS, AND BOOK 369, PAGE 459, TILLAMOOK COUNTY DEED RECORDS, A DISTANCE OF 681.37 FEET TO A FOUND 5/8 INCH IRON ROD WITH A YELLOW PLASTIC CAP STAMPED "PLS 2351"; THENCE, NORTH 21°06'19" WEST ALONG THE WEST LINE OF THAT TRACT OF LAND FOUND IN INSTRUMENT NUMBER 2003–008797, TILLAMOOK COUNTY DEED RECORDS, A DISTANCE OF 953.20 FEET TO A FOUND 5/8" IRON ROD WITH A YELLOW PLASTIC CAP STAMPED "PLS 2351"; THENCE, NORTH 88°34'19" WEST ALONG THE SOUTH LINE OF SAID INSTRUMENT, ALSO BEING THE NORTH LINE OF SAID SECTION 23, A DISTANCE OF 328.04 FEET TO A 5/8 INCH IRON ROD WITH A YELLOW PLASTIC CAP STAMPED "HLB INC"; THENCE SOUTH 01°17'07" EAST ALONG THE EAST LINE OF THAT TRACT OF LAND FOUND IN BOOK 203, PAGE 253, TILLAMOOK COUNTY DEED RECORDS, A DISTANCE OF 990.84 FEET TO A 5/8 INCH IRON ROD WITH AN ILLEGIBLE YELLOW PLASTIC CAP; THENCE, NORTH 88°34'29" WEST ALONG THE SOUTH LINE OF SAID TRACT OF LAND FOUND IN BOOK 203, PAGE 253, A DISTANCE OF 714.57 FEET TO THE INITIAL POINT AND THE POINT OF BEGINNING.

CONTAINS 1,621,846 SQUARE FEET, 8.14 ACRES, MORE OR LESS.

TILLAMOOK COUNTY JUL 26 2010 SURVEYOR'S OFFICE

PLAT NOTES AND RESTRICTIONS:

1. THIS PLAT IS SUBJECT TO THE CONDITIONS IMPOSED BY TILLAMOOK COUNTY IN FILE NO. PC–05–15.
2. TRACTS 'A', 'B', AND 'C' SHALL BE OWNED AND MAINTAINED BY THE DECLARANT.
3. LOTS 1–20 ARE SUBJECT TO THE DECLARATION OF RESTRICTIVE COVENANTS RECORDED AS INSTRUMENT NO. 2010–000375, TILLAMOOK COUNTY RECORDS.
4. AN 8' WIDE PUBLIC UTILITY EASEMENT SHALL EXIST ALONG THE FRONTAGE OF ALL LOTS ABUTTING BOTH PUBLIC AND PRIVATE STREETS.
5. TRACT 'C' CONSISTS OF ALL OF THE PRIVATE ROADWAYS WITHIN THIS SUBDIVISION, AND SHALL BE SUBJECT TO THE FOLLOWING VARYING WIDTH EASEMENTS: AN ACCESS EASEMENT FOR THE BENEFIT OF LOTS 1–20 AND TRACTS 'A' AND 'B' WITHIN THIS SUBDIVISION; A PUBLIC UTILITY EASEMENT FOR THE BENEFIT OF FRANCHISED PUBLIC UTILITY PROVIDERS, WHICH EASEMENT MAY BE USED FOR THE INSTALLATION, CONSTRUCTION, RENEWAL, OPERATION, AND MAINTENANCE OF THE FRANCHISED FACILITIES; AN EASEMENT PERMITTING ACCESS TO EMERGENCY SERVICE PROVIDERS AND THEIR VEHICLES; A SANITARY SEWER EASEMENT FOR THE BENEFIT OF NEHALEM BAY WASTEWATER AGENCY, ITS SUCCESSORS OR ASSIGNS, WHICH EASEMENT PERMITS THE INSTALLATION, CONSTRUCTION, RENEWAL, OPERATION, AND MAINTENANCE OF SANITARY SEWERS AND THEIR APPURTENANCES; A WATER LINE EASEMENT FOR THE BENEFIT OF THE CITY OF NEHALEM, ITS SUCCESSORS OR ASSIGNS, WHICH EASEMENT PERMITS THE INSTALLATION, CONSTRUCTION, RENEWAL, OPERATION, AND MAINTENANCE OF WATER LINES AND THEIR APPURTENANCES.
6. LOTS 18 AND 19 ARE SUBJECT TO A WATER LINE EASEMENT, SHOWN ON SHEET 3, FOR THE BENEFIT OF THE CITY OF NEHALEM, ITS SUCCESSORS OR ASSIGNS, WHICH EASEMENT PERMITS THE INSTALLATION, CONSTRUCTION, RENEWAL, OPERATION, AND MAINTENANCE OF WATER LINES AND THEIR APPURTENANCES.
7. LOT 11 IS SUBJECT TO A SANITARY SEWER LINE EASEMENT, SHOWN ON SHEET 3, FOR THE BENEFIT OF NEHALEM BAY WASTEWATER AGENCY, ITS SUCCESSORS OR ASSIGNS, WHICH EASEMENT PERMITS THE INSTALLATION, CONSTRUCTION, RENEWAL, OPERATION, AND MAINTENANCE OF SANITARY SEWERS AND THEIR APPURTENANCES.
8. LOT 12 IS SUBJECT TO A SANITARY SEWER LINE EASEMENT, SHOWN ON SHEET 2, FOR THE BENEFIT OF NEHALEM BAY WASTEWATER AGENCY, ITS SUCCESSORS OR ASSIGNS, WHICH EASEMENT PERMITS THE INSTALLATION, CONSTRUCTION, RENEWAL, OPERATION, AND MAINTENANCE OF SANITARY SEWERS AND THEIR APPURTENANCES.
9. LOTS 3, AND 4 ARE SUBJECT TO A SANITARY SEWER LINE EASEMENT, SHOWN ON SHEET 2, FOR THE BENEFIT OF NEHALEM BAY WASTEWATER AGENCY, ITS SUCCESSORS OR ASSIGNS, WHICH EASEMENT PERMITS THE INSTALLATION, CONSTRUCTION, RENEWAL, OPERATION, AND MAINTENANCE OF SANITARY SEWERS AND THEIR APPURTENANCES.
10. LOTS 1, 3, AND 4 ALONG WITH TRACT 'A', AND TRACT 'B' ARE SUBJECT TO PUBLIC UTILITY EASEMENTS FOR THE BENEFIT OF: (A) FRANCHISED PUBLIC UTILITY PROVIDERS, WHICH EASEMENT MAY BE USED FOR THE INSTALLATION, CONSTRUCTION, RENEWAL, OPERATION, AND MAINTENANCE OF THE FRANCHISED FACILITIES; (B) NEHALEM BAY WASTEWATER AGENCY, ITS SUCCESSORS OR ASSIGNS, WHICH EASEMENT PERMITS THE INSTALLATION, CONSTRUCTION, RENEWAL, OPERATION, AND MAINTENANCE OF SANITARY SEWERS AND THEIR APPURTENANCES; AND (C) CITY OF NEHALEM, ITS SUCCESSORS OR ASSIGNS, WHICH EASEMENT PERMITS THE INSTALLATION, CONSTRUCTION, RENEWAL, OPERATION, AND MAINTENANCE OF WATER LINES AND THEIR APPURTENANCES. AS SHOWN ON SHEETS 2 AND 3.
11. TRACT 'A' IS SUBJECT TO EMERGENCY VEHICLE ACCESS EASEMENT, AS SHOWN ON SHEETS 3.
12. LOT 3 AND TRACT 'C' IS SUBJECT TO ENCROACHMENT EASEMENT, AS SHOWN ON SHEETS 2.
13. TRACT 'A' IS SUBJECT TO ACCESS ENCROACHMENT EASEMENT, AS SHOWN ON SHEETS 1.

REGISTERED PROFESSIONAL LAND SURVEYOR
Thomas G Nelson
OREGON JULY 26, 1988 THOMAS G. NELSON #2351
RENEWAL 12/31/10

SURVEYED FOR:
VERN SCOVELL
P.O. BOX 151
NEHALEM, OR 97131
PHONE: 503–368–7788

APPROVALS:

STATE OF OREGON
COUNTY OF TILLAMOOK } SS

EXAMINED AND APPROVED BY THE FOLLOWING:

Danny R Mc Nutt JULY 22, 2010
TILLAMOOK COUNTY SURVEYOR DATE

Laura K Archer Deputy 7-9-2010
TILLAMOOK COUNTY ASSESSOR DATE

TAXES HAVE BEEN PAID IN FULL TO 6/30/ 2011 2010 PAID

Laura K Archer Deputy 7-9-2010
TILLAMOOK COUNTY TAX COLLECTOR DATE

Mark Labhart 7-13-10
TILLAMOOK COUNTY COMMISSIONER DATE

Charles D. Hartman 7-14-10
TILLAMOOK COUNTY COMMISSIONER DATE

Tim Jai 7-13-10
TILLAMOOK COUNTY COMMISSIONER DATE

Scott W. Stalhut 6-23-2010
TILLAMOOK COUNTY PLANNING ~~DIRECTOR~~ COMMISSION DATE

CERTIFICATE OF COUNTY CLERK:

STATE OF OREGON)
COUNTY OF TILLAMOOK)SS

I, DO HEREBY CERTIFY THAT I AM THE QUALIFIED CLERK OF TILLAMOOK COUNTY, OREGON AND THAT THIS SUBDIVISION PLAT IS THE FULL, COMPLETE AND TRUE COPY OF THE ORIGINAL PLAT OF SAME, AS RECORDED IN PLAT CABINET B 1142-0 OF PLAT RECORDS OF TILLAMOOK COUNTY, OREGON, RECORDED 7-26-2010 2010, AT 10:49am O'CLOCK, AS INSTRUMENT NO. 2010-4288

Teresa V Marshall Deputy
TASSI O'NEIL, COUNTY CLERK

I, THOMAS G. NELSON DO HEREBY CERTIFY THAT THIS IS A FULL, COMPLETE AND TRUE COPY OF THE ORIGINAL PLAT AS REFERENCED ABOVE

Thomas G Nelson
THOMAS G. NELSON, PLS 2351

Tom Nelson & Associates, L.L.C.
1001 SE WATER AVE, SUITE 390
PORTLAND, OREGON 97214
PHONE: (503) 230-1932
FAX: (503) 230-1962

DATE: JUNE 17, 2010	FILE: 8008/7014SUB.dwg
DRAWN BY: SRZ	SHEET: 4 OF 4

August 17, 2022

To: Tillamook County Community Development Department
Sarah Absher, CFM, Director

Re: Riverview Meadows Phase 2 – County File #851-21-000414 PLNG and #851-21-000415 PLNG

Dear Ms. Absher:

I am submitting these comments on behalf of the City of Nehalem. Please include them in the record as part of the proceedings. As you are aware, the proposed Riverview Meadows Phase 2 subdivision is located outside of the City limits but within the City's Urban Growth Boundary. The 2019 intergovernmental agreement between the City and the County provides that within these areas, the County "will determine whether or not the land use application meets all requirements of the City's land use ordinance, its comprehensive plan and all development standards." IGA 6.2.4. The City is to assist by "providing the County with information and interpretation of the City's standards." IGA 6.1.1. These written comments are offered, coupled with the attached letter from the City's contract engineer, Kyle Ayers, PE of North Coast Civil Design, in order to identify and assist in this effort.

The City's primary concern is that the application does not adequately explain how domestic water service and stormwater removal to serve the proposed 38-lot subdivision will be provided. The City of Nehalem's Subdivision Ordinance requires that all land division applications include the following:

> "A general explanation of the improvements and public utilities, including water supply and sewage disposal proposed to be installed;" Chapter 156.019(A)

And:

> "A plan for domestic water service lines and related water service facilities;"
>
> "Approval for sewage disposal, storm water drainage or flood control;" Chapter 156.020(B) and (C)

Although the application does include a letter from Jason Morgan of Morgan Civil Engineering Inc, dated February 4, 2021, purporting to address utility service, it does not reference domestic water supply or stormwater removal.

On August 9, 2022, the City received a letter from Mr. Morgan setting forth a preliminary design for a water distribution system. You were copied on this letter and so it is presumed that the intent was to include this as part of the application submittal. The City is still in the process of reviewing this proposal to determine how the creation of a new pressure zone will impact the remainder of the city's system.

As you may be aware, as a water supplier, the City is responsible for "maintaining a pressure of at least 20 pounds per square inch (psi) at all service connections at all times." OAR 333-061-0025. It is likely that the proposed installation of a storage tank, water booster pump and pressure reducing valves may be adequate but the placement of the pressure reducing valves is not clear from the proposal.

Another standard requires that fire flow for new single-family dwellings meet or exceed 1000 gallons per minute. 2019 Oregon Fire Code, Appendix B; NCC 51.10(F)(1); Water Master Plan. Mr. Ayers' comments identify the need for additional hydraulic analysis to determine if the overall storage required for the reservoir and the pump size will produce these necessary flows.

Mr. Morgan's more recent letter closes with the statement that: "There is a gap in the map in order to show both ends of the new system. Further design of these improvements will be necessary before construction." The significance of this "gap" is not clear. What is clear is that before the County can approve this application, the applicant must design a complete water system, including evidence and analysis necessary to conclude "adequacy of the [water] system for existing and future customers." Nehalem City Code (NCC) 51.04(A). As such, the applicant must do more than design that portion of the water system located within the subject property but NCC 51.09(B) provides that: "The developer of a subdivision shall pay for all off-site costs required to provide adequate service to the subdivision."

In order to approve this application, even with the use of conditions of approval, the applicant must provide adequate evidence on which to determine that it is possible, likely and reasonable to conclude that the water distribution to existing and future homes will be adequate. Therefore, the City requests that at the conclusion of the hearing on August 25, the Planning Commission continue the proceedings to a date certain in order for the applicant to provide the additional information identified in the Morgan and Ayers letters and for the City to have adequate time to review and respond to these new materials.

Thank you in advance for consideration of these comments.

Sincerely,

Melissa Thompson-Kiefer

Melissa Thompson-Kiefer
City Manager

August 17, 2022

NORTH COAST
CIVIL DESIGN

City of Nehalem, OR
P.O. Box 143
Nehalem, OR 97131

Attn: City Manager, Melissa Thompson-Kiefer

Re: Response to Riverview Meadow Phase 2 – Preliminary Plat Subdivision Application

Dear Melissa,

The City of Nehalem has requested a brief review of the submitted application and supplemental information provided by Jason Morgan, PE and Riverview Meadows, LLC. This is not a compliance review. The purpose of this letter is to continue the conversations and general requirements that need to be addressed prior to and continuing through the subdivision application and permitting process.

The following General Comments are not all-inclusive. It is the responsibility of the developer and their consultant to meet the City, County and State requirements set forth for this development.

GENERAL COMMENTS

1) Water System
   a) Existing Water Pressure
      i) Current water pressure up on Riverview Meadows Phase 1 is very low, with static pressure averaging 35-40 psi. During high flow events along North Fork Road, water pressure drops into negative pressures. The City is required to keep the water pressure at a minimum of 20 psi, at all times.
   b) Existing Water Flow
      i) Due to the low pressures available in the existing subdivision, the available flow for fire protection is under 100 gpm.
   c) Proposed Water Pressure
      i) Based upon new information submitted by the applicant, the new water system will include a water reservoir and a water booster pump to increase the static line pressures to approximately 60 psi within the new Phase 2 and also in the existing Phase 1. This design appears to contain the components necessary to accomplish the requirements for extending the City's water system to the new subdivision. However, further analysis will need to be conducted to determine the best locations for the pressure reducing valves, which will create a new pressure zone within the City's system.
   d) Proposed Water Flow
      i) Based upon new information submitted by the applicant, the new water system will include a water reservoir and a water booster pump to increase the fire flow available within the new subdivision. The proposed system states that it will deliver 1000 gpm at each available fire hydrant within the subdivision, as required by the Oregon Fire Code. Again, further hydraulic analysis must be completed to determine the overall storage required for the reservoir and the pump size to produce the adequate flows.
2) Storm System
   a) Based upon initial plans, no storm drainage analysis or storm system was shown. The most recent plan, submitted today 8/15/22, includes a storm analysis and onsite storm system. No time has yet been spent reviewing the information and will need to be compared to City/County standards for storm water management. Based upon initial observations, it appears that the storm system will contain open ditches with connecting culverts, draining to an existing piped system and conveyed offsite through these existing pipes. No storm detention, retention or storm treatment appears to be proposed. Without knowing more about the downstream components that this system will be connecting into, it is difficult to understand or estimate the possible impact to

downstream properties. Downstream components need to be included and analyzed in the storm drainage analysis for capacity, storage and velocities during the stated design storm events.

3) Erosion & Sedimentation Control Plan
   a) The new subdivision shows 74 new lots which covers 15.41 acres. Any disturbance over 1 AC will require an NPDES 1200-C permit through Department of Environmental Quality (DEQ).
   b) The 1200-C permit will cover many different components, from storm drainage, to temporary and permanent planting of disturbed soils, to necessary inspection from a CECSL certified inspector after significant rainfall events. The DEQ 1200-C permit may also place restrictions on the storm water quality of the storm water leaving the site, due to the downstream environmental conditions and fish habitat.
4) Access & Subdivision Roads - Per Chris Laity's email, the road access and road design require the following items:
   a) A secondary access is provided. Refer to LDO Section 160 (4): Street Improvements, Dead End Streets.
   b) A Traffic Impact Study is submitted including, but not limited to, geometric reviews of the intersections with Northfork Road, and AM/PM peak hour LOS at subdivision road intersections with Northfork Road and the intersection of McDonald Dike Road and Northfork Road
   c) Road designs are submitted; horizontal (curve callouts), vertical (curves) & typical sections.
5) Topographical Survey Data
   a) A topographic survey must be completed by a Licensed Oregon Surveyor.
   b) DOGAMI Lidar can only be used for schematic analysis and cannot be used for final designs.
   c) Road corridors and general road grading shows new cut/fill slope contours daylighting to the existing Lidar surface. New topographic survey data must be acquired for all road corridor and/or grading designs that connect to or daylight at the EG surface.

Please feel free to call North Coast Civil Design, Kyle Ayers, @ (503) 368-3732 with questions regarding this review.

Sincerely,
North Coast Civil Design, LLC

Kyle Ayers

Kyle Ayers, PE
Principle in Charge

SEASIDE ATTORNEYS

Jeremy Rust
jrust@seasideattorneys.com

Catriona Penfield
cmpenfield@seasideattorneys.com

Robert C. Moberg
Retired

July 20, 2022

Via US Mail, Email, and Facsimile

Tillamook County Planning Commission
1510 – B Third Street
Tillamook, Oregon 97141
Fax No.: (503) 842-1819
Email: ltone@co.tillamook.or.us

RE: Riverview Meadows Phase 2
851-21-000415-PLNG

Dear Commissioners:

We represent property owners Lee and Victoria Dillard of 14025 Riverview Meadows Lane, Nehalem. This letter is intended to serve as written testimony concerning the above-referenced request for subdivision plat approval of "Riverview Meadows Phase 2."

The Dillards' first concern is that Map #2 enclosed with the Notice of Public Hearings includes property owned by others than the applicant. A copy of Map #2 is enclosed here for reference. Specifically, the Dillards own Tract A of Riverview Meadows Phase I, also known as Tax Lot 1400. Further, the applicant does not own Tax Lots 2500 or 2700 – both indicated on Map #2 as "Subject Property."

The Dillards' second concern is the road, Riverview Meadows Lane, was only approved for traffic for approximately the original twenty (20) lots. The Dillards do not believe the road can support traffic for any additional lots and believe the applicant should do a road study and/or provide alternate access.

Lastly, as the Commission is aware, the water system in the area is not able to support the current demand. This is a major concern from a fire and life safety aspect, as well as continued service for existing customers.

Thank you for your consideration of these issues.

Very truly yours,

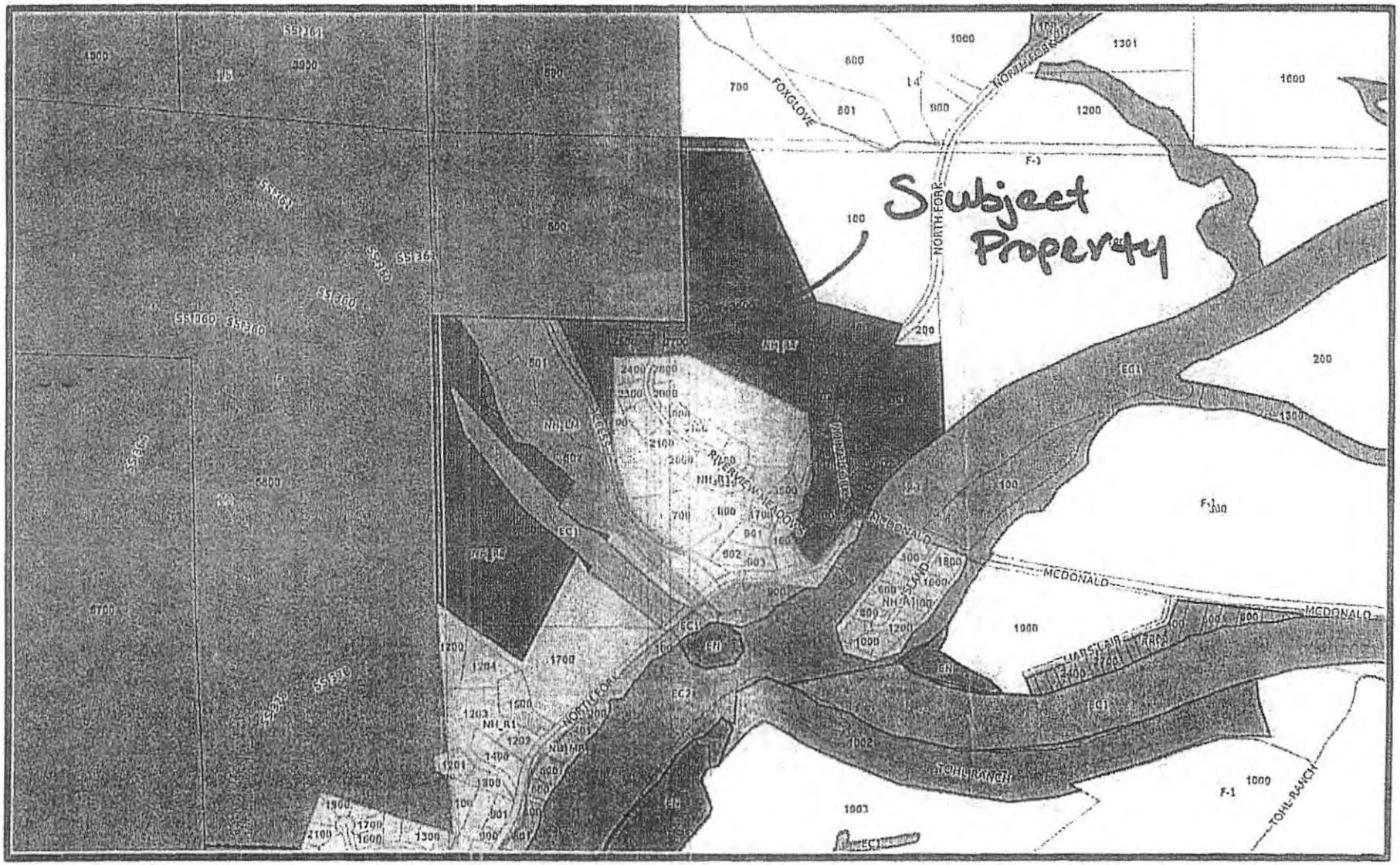
Jeremy Rust
Attorney at Law

enclosure
CC: Clients (via email only)

842 Broadway, Seaside, OR 97138 Phone: (503) 738-6380 Fax: (503) 738-6325 https://seasideattorneys.com

Map #2

MOOSEMAPPING



Generated with the GeoMOOSE Printing Utilities

Lynn Tone

From: Nancy Bond/Dan Koniuck <hapa3838@nehalemtel.net>
Sent: Sunday, July 17, 2022 6:37 PM
To: Lynn Tone
Subject: EXTERNAL: Response to #851-21-000415-PLNG

[**NOTICE:** This message originated outside of Tillamook County -- **DO NOT CLICK** on **links** or open **attachments** unless you are sure the content is safe.]

Hi Lynn! We are sending you a preview of what we will be sending to you via mail. Also, another e-mail will contain the respective photos that will be attached. If any questions, you can call us at 503-368-5853 (landline) 04 503645-5841 (cell) in Nehalem, Or. Please acknowledge the receipt of mail. Thank you in advance. Daniel Koniuck and Nancy L Bond

July 15, 2022

Tillamook County Department of Community Development
Building, Planning & On-Site Sanitation Sections
1510-B Third Street
Tillamook, Oregon 97141

Dear Chairperson and Planning Commission,

We, Daniel Koniuck and Nancy Bond, are writing in response to your notification of #851-21-000415-PLNG dated July 6, 2022. We would request that this letter is recorded into the minutes of the meetings planned for Thursday July 28, 2022 at 7:PM and August 25, 2022 at 7:00PM.

We own in full and reside at 14145 Riverview Meadows Lane, TL 1100 for 25 years. Our location was formerly 38380 North Fork Road between the years 1997-2018. The change in address was required by the county due to the development of Riverview Meadows.

The concerns listed below include density of population, access and quality of this development, plus changes in our environment. Our response includes, but is not limited to, Riverview Meadows Lane. Please see the description in this proposal stating that the "subject property is accessed via Riverview Meadows Lane..." We believe the description of this road's quality and access speaks to the lack of quality associated with Riverview Meadows development.

RIVERVIEW MEADOWS

Existing homes in Phase 1 and date built:

TL 2400-2011	TL 2800-2019
TL 2100-2014	TL 2900-2020
TL 3000-2016	TL 2700-2020
TL 2500-2016	TL 1800-in progress
TL 3500-2018	TL 3100-in progress
TL 3200-2019	

Two other homes on Riverview Meadows are not part of the development:
TL 901 in 1998 and TL 800 in 2015

As far as we know, there are an additional 9 sold vacant lots in Phase 1 of this development (see Tillamook Map 56-23 dated 9/21). 80% of owners are Senior Citizens. Three owners have one vehicle; others have 2 or more. Many have RV's and boats.

The infrastructure of this development has buried utilities. There are no sidewalks or streetlights. There are no guardrails or speed bumps on Riverview Meadows Lane despite its' elevation. Water pressure has become a major issue for all homes in and around this development. As you may know, there is a moratorium on building on the remaining sold lots (9) due to poor water pressure (25psi). While an additional 38 lots are requested, how will this problem be resolved? (See minutes at: nehalem.gov,Nehalem City Council Meeting May 9, 2022.) Photo #1.

With the inadequate water pressure, fire safety becomes a major concern. With poor water obtainment for residents, how can there be sufficient quantities for future fire concerns. This area is surrounded by Stimson timber property. As our temperatures have increased, wild fires are now a reality. Can water be accessed to provide needed resources to protect the present homes, let alone 38 additional ones? Photo #2.

RIVERVIEW MEADOWS LANE TL 1500

Our property borders this road from North Fork Road, up a 12% incline for approximately 250 feet of a 500 foot distance before it levels off to a width of 24'. This road is a private, undivided, 18 foot wide, asphalt road without guard rails or speed bumps. As you may know the county requirement for the width of a private road is 20 feet (Road Approach Ordinance Nov 30, 2011). When a development homeowner or building supply truck drives from the top of the hill, they are on a 24' wide road. That road then curves to the left at the top as the driver comes to a narrowing of 18' with a 12% downgrade. (This road begins at the north end of North Fork Road, exiting south on a curve to another road named North Fork Road.) Photos #3, 4, 9, & 14.

With this steep grade, this road was never intended to be the primary access to Riverview Meadows. The southern North Fork Road is graveled. As this access can slow traffic; private, construction, and delivery vehicles speed down Riverview Meadows Lane. Some vehicles 'bottom out' at North Fork Road. We have called Tillamook County road maintenance four times since 2011. We have asked them to assess and repair the scrapping and potholes to the crown of this north entrance onto North Fork Road. The last call was just this July 12, 2022. Photos #4, 5, & 8.

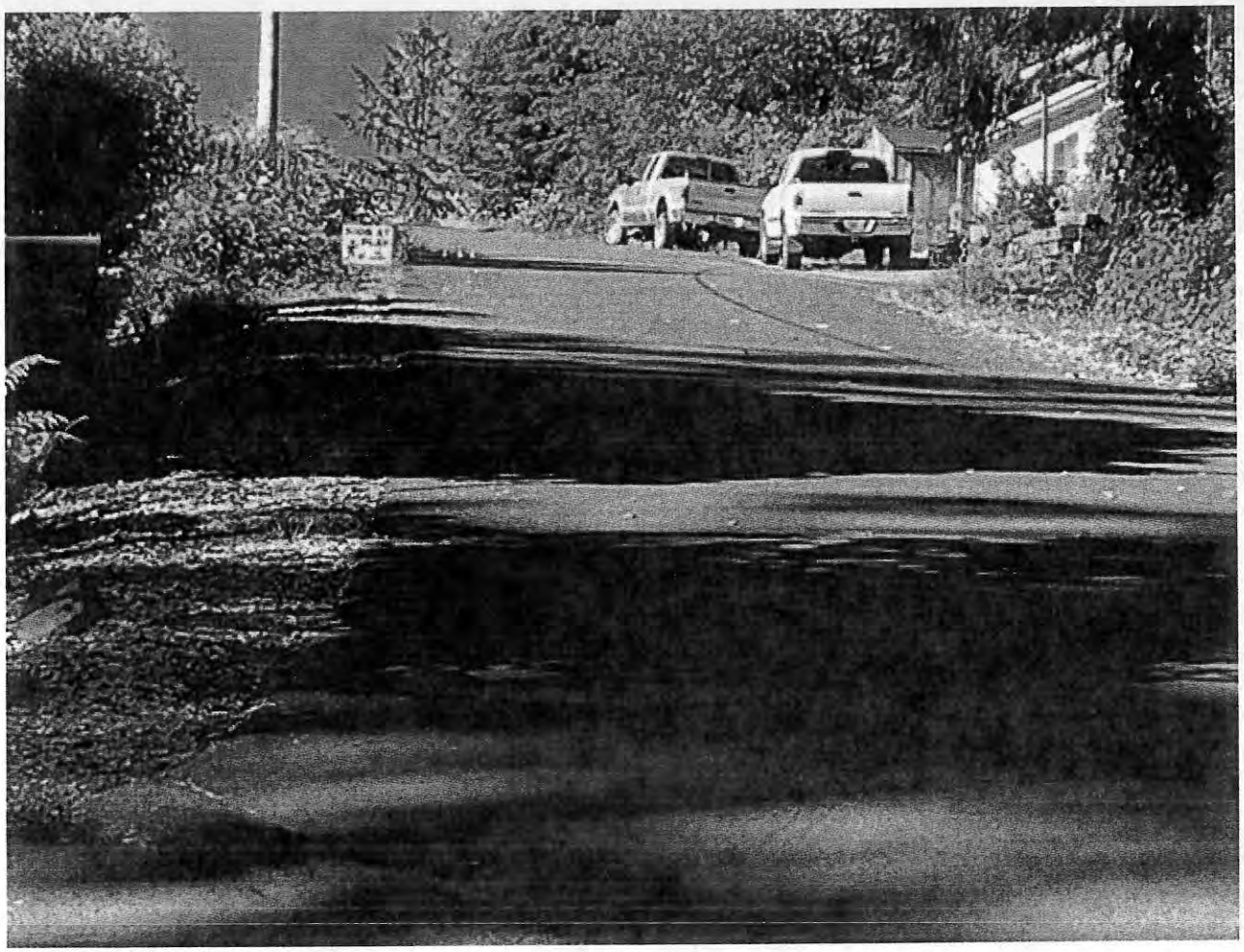
On July 12, 2022, as owner Dan Koniuck was landscaping near our border with Riverview Meadows Lane, he heard a truck coming down the hill. Dan heard the tail end of a 50 foot flatbed truck/trailer scraping the bottom of the roadway and hitting something. He investigated further to see the truck turning left, stopping approximately 500' down North Fork Road. The driver got out of his truck, checking the back of the trailer. Dan then saw, that the end of this trailer hit our retaining wall and dragged 5 of our railroad ties, plus the "STOP" and street signs, which were then laying on the ground. Dan made eye contact with the driver, who then got into his truck and drove off. Dan went up to Riverview Meadows and deduced which of the lots under construction might be related to the accident. He found the home owner of TL 3100. The owner immediately called the truck driver, instructing him to come back to the site of the accident. The truck driver did that, apologizing to Nancy Bond for taking off and the damage done. Tillamook County sheriff was called with Manzanita officer John Garcia responding. Tillamook County was notified of the sign damage and a request for replacement was made. Our neighbor, Ken Lund, recorded the incident as part of a regular security camera check of the area. Photos #7, 12, & 13.

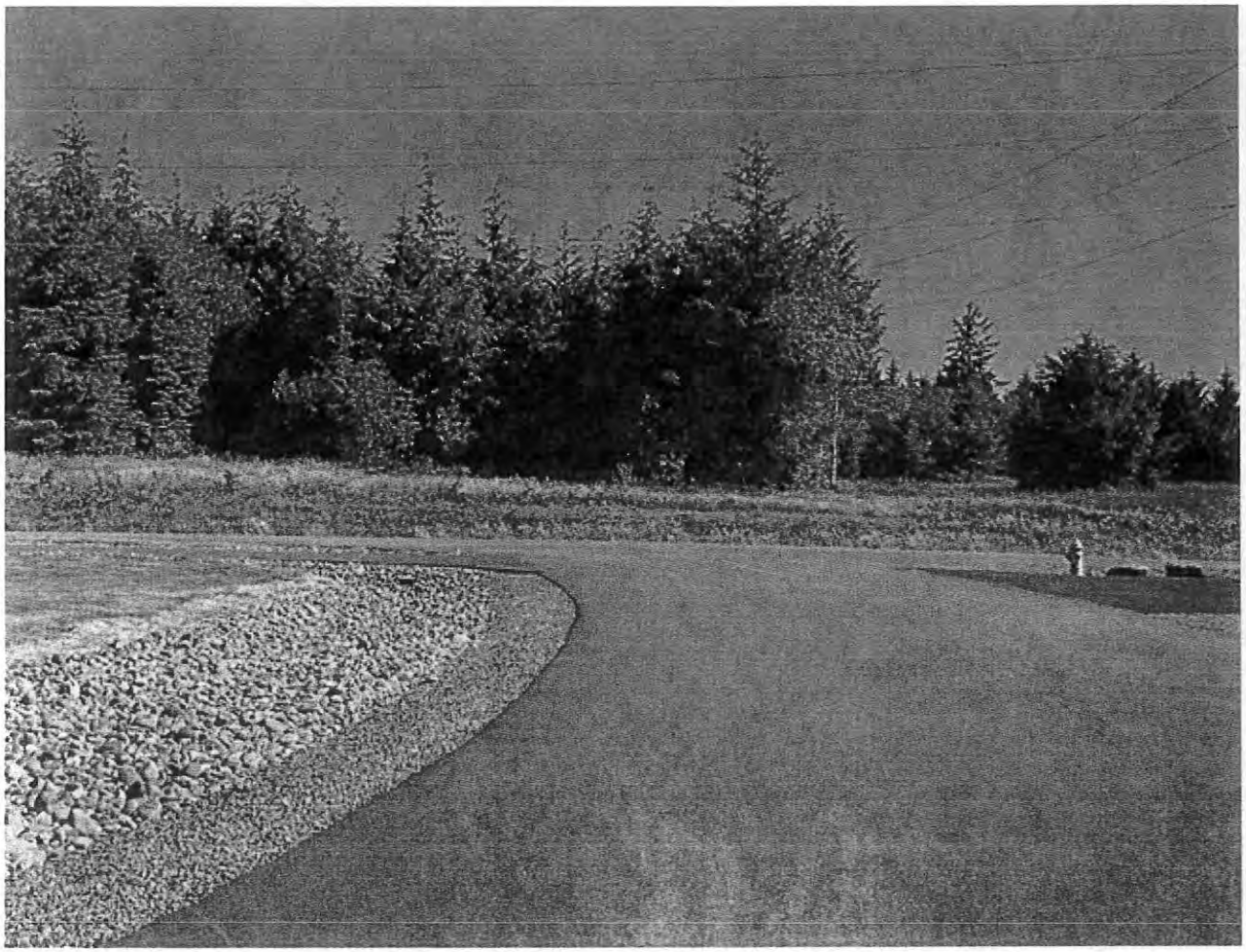
The other "North Fork Road" entering on the south end of Riverview Meadows Lane, (see county map 56-23), is wide with an incline of approximately 6%. It runs adjacent to TL 1400, Tract "A" and TL 700. This road was intended to be the main entrance to Riverview Meadows development with a favorable low incline for emergency and county traffic. With this width and length, we believe it became more expensive to pave this road. We believe TL 1500 was asphalted because it was cheaper for the developer. Photo #5 & 9.

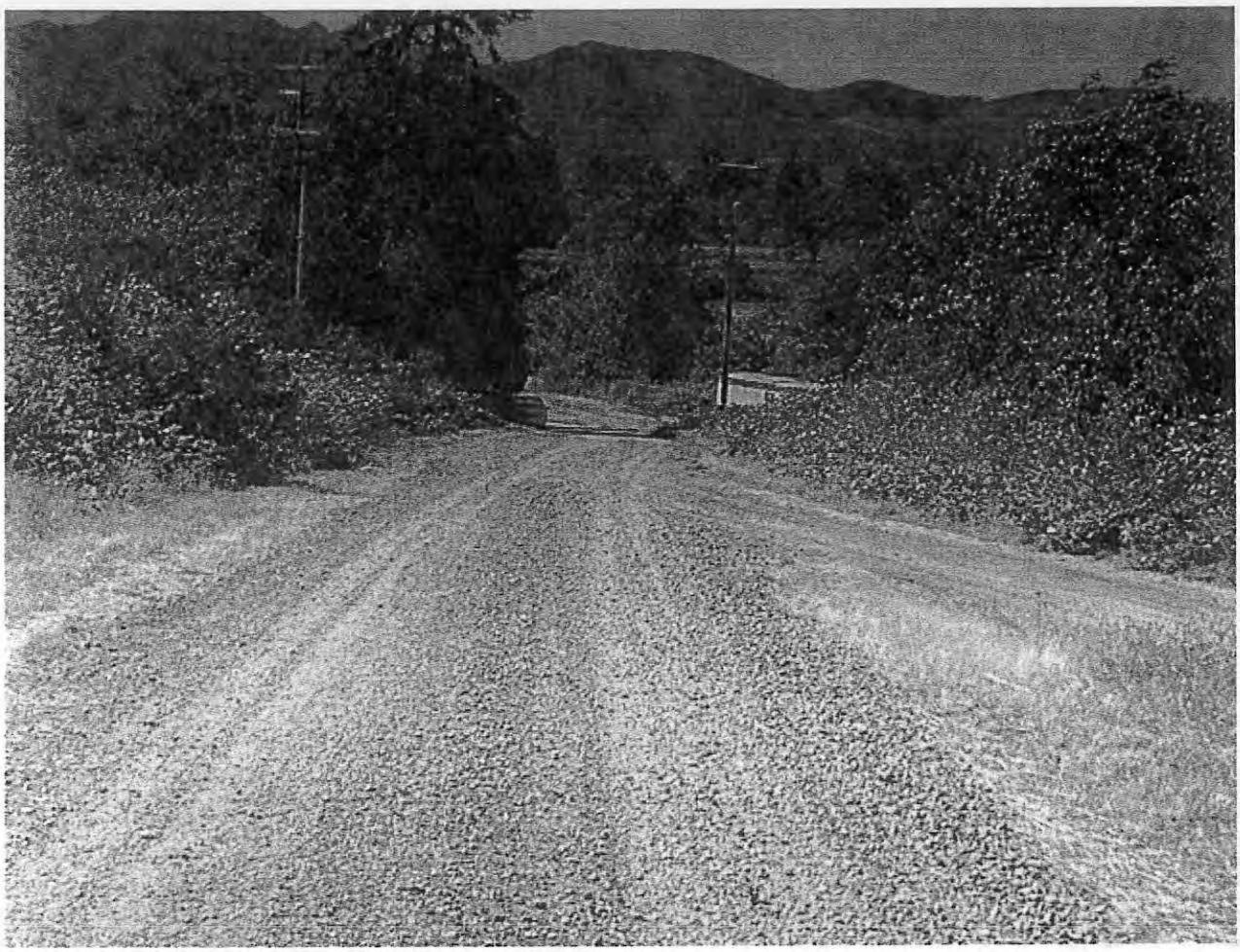
The north side of Riverview Meadows Lane, while a cheaper option, is a narrow, steep access, causing the county money for repairs. The vehicles coming down the hill at unsafe speeds has a cost to our neighborhood as well. As all traffic increases so does carbon emissions from the gas/diesel powered two-way traffic. These vehicles edge noisily up and down this part of the road. Sadly, In the last 25 years, we have seen a steady increase in traffic noise, deforestation, pollution and the disappearance of wildlife. This road has also been designated a Tsunami Route. How can this road accommodate that kind of heavy traffic? Photos #8, 11, & 13.

In conclusion, we thank the Department of Community Development for sending out notification of this request for tentative subdivision plat approval.
We appreciate the opportunity to write our concerns to the Planning Commission. We believe that increase development of Riverview Meadows will be an on-going detriment to the quality of life to our neighborhood and the county as a whole. Water access is insufficient for fire safety and daily usage. The noise and pollution caused by the speeding of two-way delivery traffic up and down this steep, narrow Riverview Meadows Lane has increased pollution, and ironically county maintenance. We also expressed concern for the lack of rail guards and speed bumps. We provided a very recent example of our concerns by the recent accident on July 12, 2022 of a 50 foot flatbed trailer truck hitting our retaining wall, displacing our railroad ties and the county signage. As you can imagine, we are very grateful that Dan wasn't closer to the accident site when this occurred!

Please find the enclosed photos. Any further questions, please contact us at 503-368-5853. See additional photos #6, 10, & 14.





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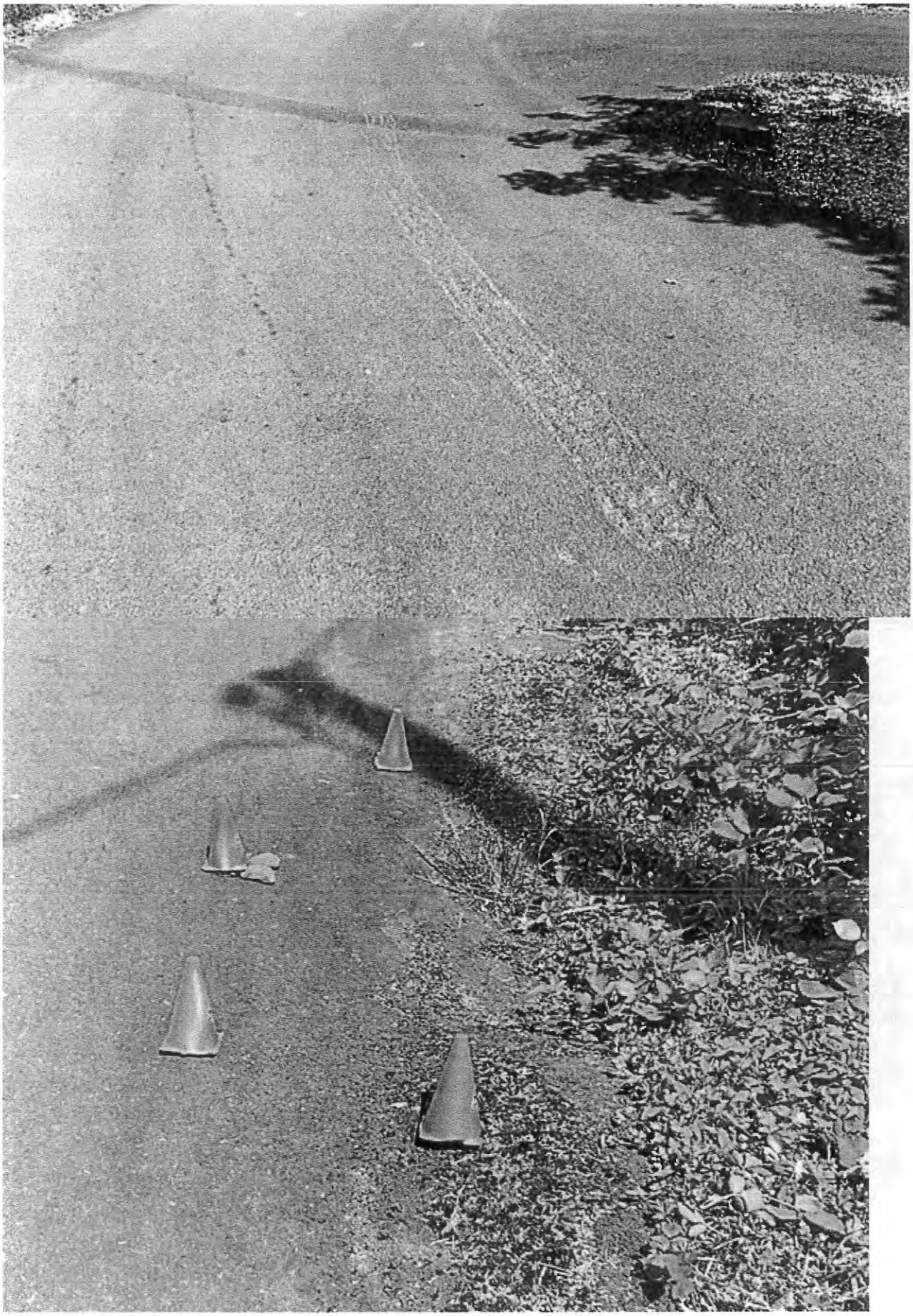
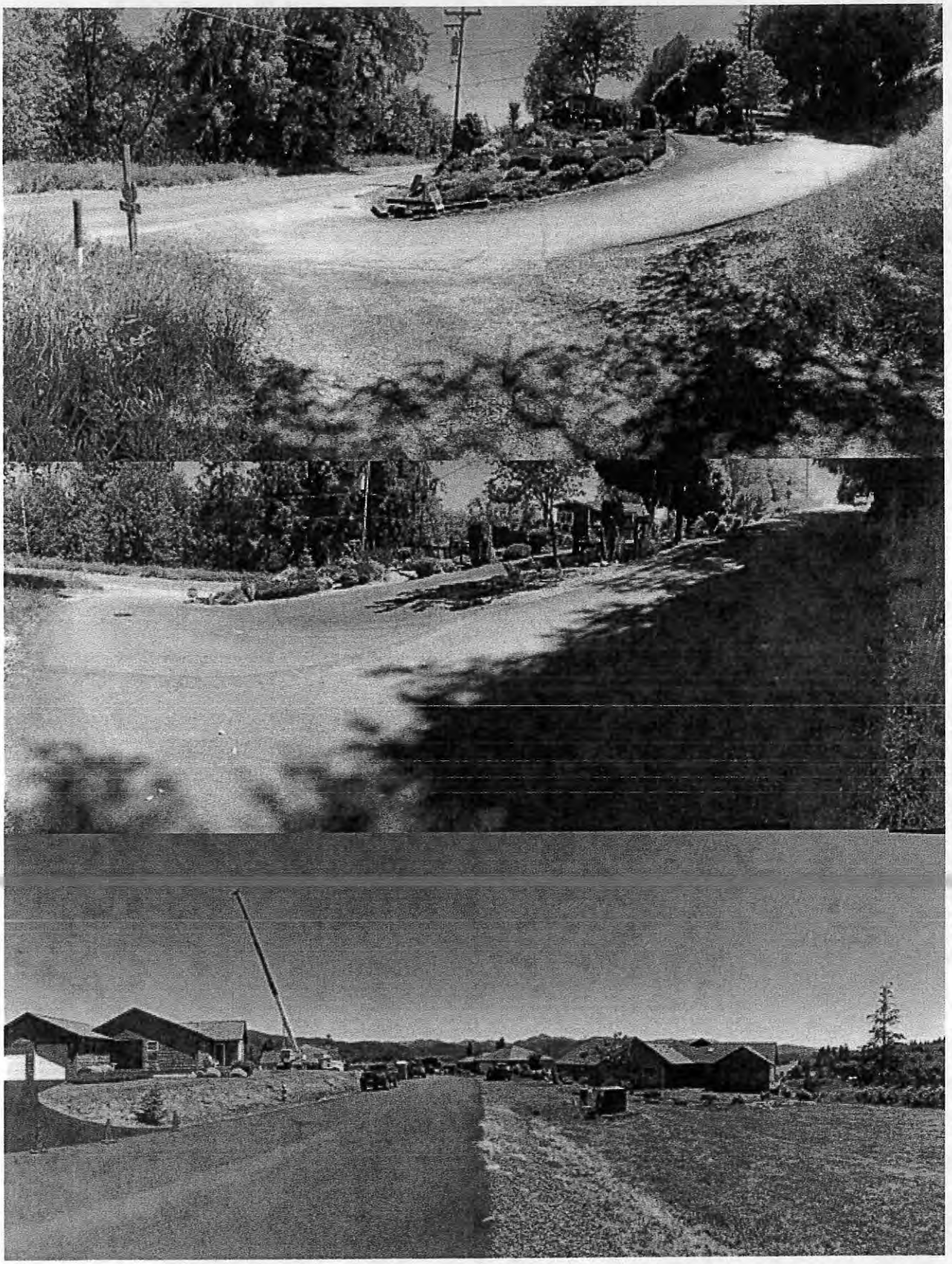
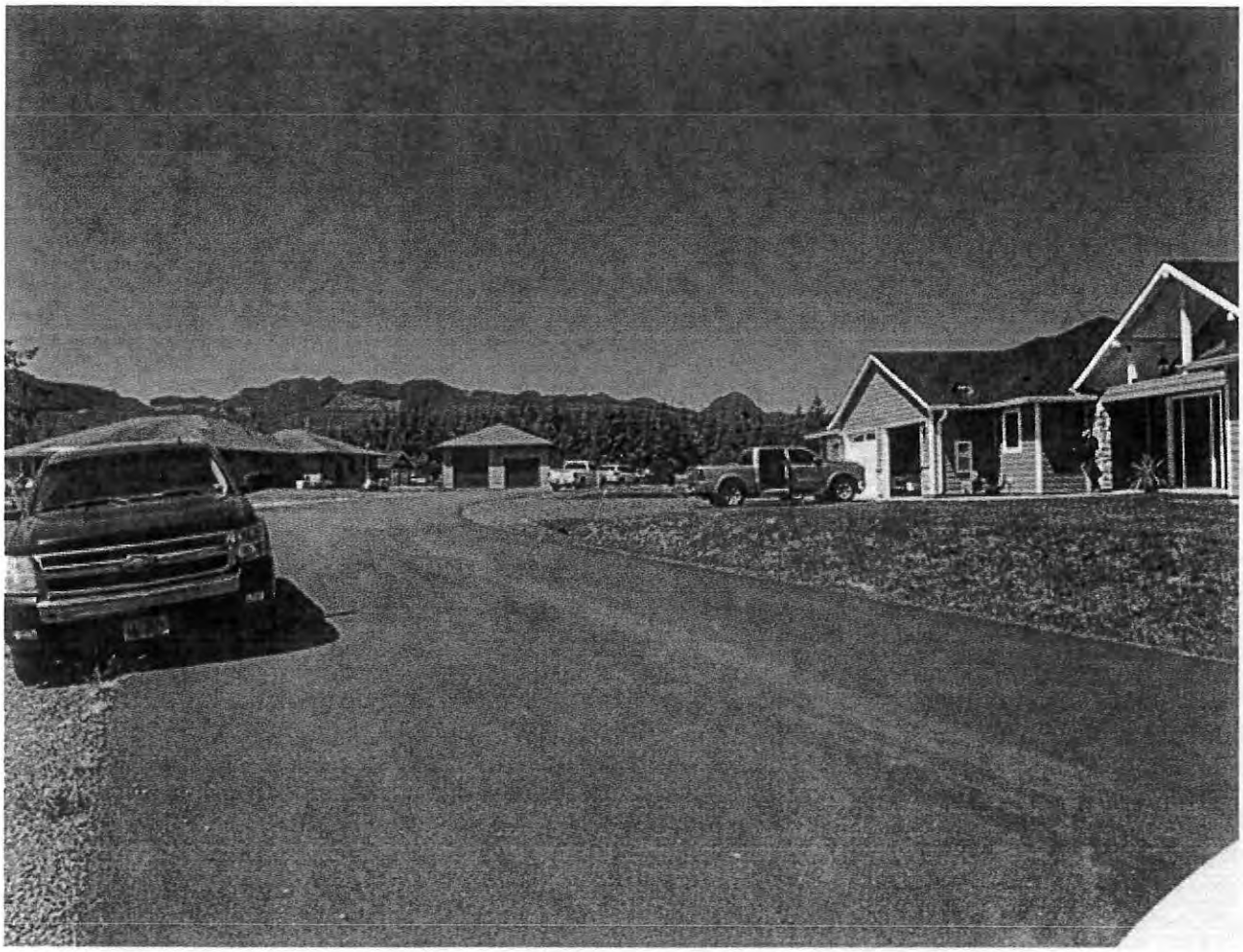







Riverview Meadows Ln
Riverview Meadows Ln
RiverWatch Design
Temporarily closed
Northfork Rd
Google

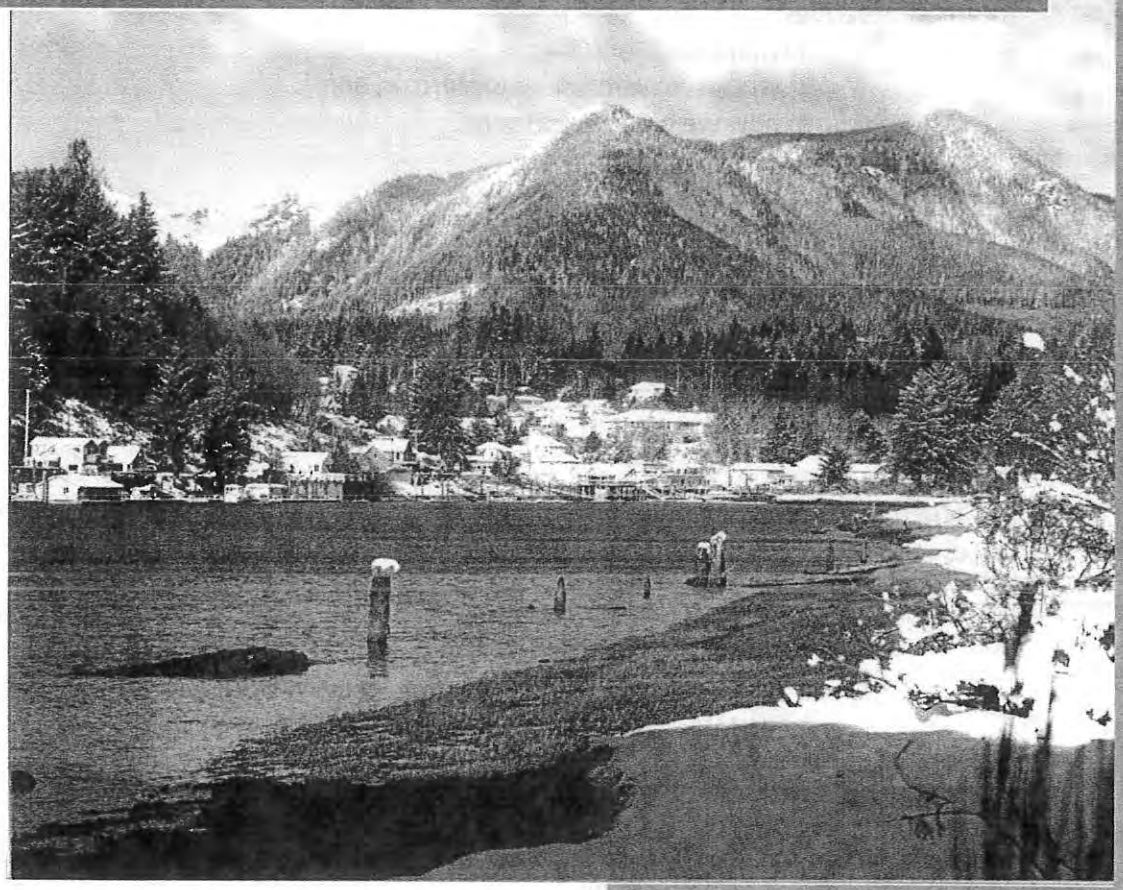
EXHIBIT

D

Ordinance 2019-03
"Exhibit A"

CITY OF NEHALEM

City of Nehalem Comprehensive Plan



December 9, 2019

THE CITY OF NEHALEM, OREGON COMPREHENSIVE PLAN

Article I Introduction

This is the City of Nehalem's Comprehensive Plan. Think of it as our community's map to the future. It describes:

1) where we are today,
2) where we want to be tomorrow, and
3) how we plan to get there.

A plan of many parts

As the term "Comprehensive" suggests, this Plan covers a wide variety of topics:

Citizen Involvement and Visioning	Housing
Natural and Historic Resources	Economic Development
Natural Hazards	Urban Growth
Public Facilities	Land Use
Population	Climate Change

Although they may seem quite different, these topics all share one thing in common: they are forces and factors that determine how our community will grow and develop.

The area covered by the Nehalem Comprehensive Plan is approximately 861 acres and includes:

a. the Nehalem city limits; and
b. land within the Nehalem Urban Growth Boundary (the Urban Growth Area (UGA)) outside the Nehalem city limits.

The Nehalem Comprehensive Plan consists of two parts:

1. The Goals, Objectives and Policies to meet each state goal; and
2. The Background Report consists of inventories, reports, and factual data that describe the resources and features of Nehalem.

The City of Nehalem Comprehensive Plan can influence these forces and factors to shape the community the citizens want, and thereby can grow efficiently and effectively. The City can plan and zone land for new businesses, and new residential growth, in areas free from conflicts with other land uses, other overlay districts, with good access and suitable public services like sewers and water. The City can prepare for growth and development in our community through this Plan.

In doing such planning, the City makes policy choices. It can choose to encourage new businesses in the City. It can choose to direct new businesses toward certain areas in the City. It can choose to provide appropriate infrastructure in those areas. Such choices mean the Plan is a statement of what the community wants, not a prediction or forecast of what must be but what it may potentially become. The Plan is based on the assumption that we can shape our future in relationship to the community's visions and future predictions.

"The future" covered by the City Comprehensive Plan is the period from 2020 to 2040. In this Plan certain accommodations for the future, future growth and development, are made. For example, the Urban Growth Boundary established by this Plan is designed to contain enough vacant land to accommodate the residential, commercial, and industrial development Nehalem expects over the next two decades.

It's the Law

The Comprehensive Plan was adopted as an ordinance by the City. It thus is a law, with the same force and effect as other City ordinances. It prevails and guides other ordinances like zoning ordinances.

It's more than a map

Many people think of a city's plan as just a map showing areas where *different types* of development may occur in the future. The Plan states Nehalem's general policies on land use, visioning, citizen involvement, community growth and development. Nehalem's Comprehensive Plan contains such a map, but there's a lot more to the plan than that. The Plan map shows how various parts of the city are designated for residential, commercial, industrial and public use. It also shows the location of the City Limits, the Urban Growth Boundary and of urbanized lands where future annexations and urban development are expected to occur. The *crucial* details are found in the text and policies of the plan. It therefore is essential to consider both the Comprehensive Plan Map and the Comprehensive Plan Text when making decisions about growth and development in the City of Nehalem.

Article II of the Plan reflect each of the applicable state goals. They contain several sets of statements after a narrative description, identifying the relationship of the state goal to the City's vision, and the requirements for each state goal as described by the state. Following these sets of statements is the City's goal, objectives and policies.

A goal is the broad statement of the community need, here based on each chapter. This is followed by a set of statements containing one or more "Objectives". Objectives are more specific expressions that break down the community's goals so the goals are more detailed for the subject addressed and are steps the City can take to realize its goals in that chapter. Objectives are designed to complement the next set of statements; policies. The third set of statements for each of the objectives, contains "Policies" or "Implementing Policies". These policies are specific measures for achieving each of the chapter's goals and objectives. Sometimes these are the "implementing" policies because they are the last set identified to accomplish the objectives and meet the goal. However, a fourth set, if necessary, after, each policy, contains implementing procedures or recommended actions, which describe how the City will carry out and can achieve each of the policies. The goal, objectives, implementing policies, and implementing procedures are located at the end of each chapter.

The local Comprehensive Plan's link to the state

Every city in Oregon has a comprehensive plan. State law requires it. And the state sets broad standards for those plans in the form of 19 statewide planning goals and various administrative rules and statutes. All local plans, including this one, are reviewed under those state standards by Oregon's Land Conservation and Development Commission (LCDC) or the commission's staff, the Department of Land Conservation and Development (DLCD). Nehalem's plan thus is the product of a state-local partnership. It reflects both local and state interests.

After a plan has been reviewed and found to meet state standards, it is said to be "acknowledged," or "in compliance with Oregon's statewide planning goals." Acknowledgment is important, because it means Nehalem's acknowledged Comprehensive Plan - not state law - is the controlling document for all land use decisions made within the City's jurisdiction. The answers to land use questions are determined by the provisions of Nehalem's acknowledged Comprehensive Plan and the implementing ordinances of the plan, such as the Zoning Ordinance. All actions such as zoning, subdivisions, public facility extensions, and annexations must be in conformance with the plan. The comprehensive plan guides a community's land use, conservation of natural resources, economic development, and public facilities.

In the process of updating the Nehalem City Comprehensive Plan each State goal was analyzed as to its applicability to the community. The goals represent State laws, which are flexible in nature to the extent that a community must interpret their validity to the local situation. These relevant statewide goals include the following: 1) Citizen Involvement, 2) Land Use Planning, 3) Agricultural Lands, 4) Forest Lands, 5) Natural Resources, Scenic and Historic Areas, and Open Spaces, 6) Air, Water, and Land Resources Quality, 7) Areas subject to Natural Disasters and Hazards, 8) Recreational Needs, 9) Economic Development, 10) Housing, 11) Public Facilities, 12) Transportation, 13) Energy Conservation, 14) Urbanization, and 16) Estuarine Resources, and 17) Coastal Shorelands , 18) Beaches and Dunes, and 19) Ocean Resources. The City has exercised the local right to prioritize the goals in order to guide the City of Nehalem in those broad land use propositions that make a good Oregon community. Adoption of the Plan commits the City to carry out each recommendation or policy statement. It further puts the City on record as having recognized the validity of the recommendations of and the decisions or actions they imply. In each section of this Plan, the pertinent State Goals shall be identified.

How plans are revised

Communities change, and as they change, their plans change, too. A plan can be changed a little or a lot, with a "plan amendment." Plan amendments can involve changes for only a few properties or one or two strategies in the plan or a major reevaluation and update - an overhaul of the entire plan. There's no set schedule for making plan amendments: they're proposed as needed. Sometimes reviews are done every five to fifteen years in a schedule determined jointly by the state Department of Land Conservation and Development and the local government.

If a reevaluation and update of this Plan is needed, a post-acknowledged plan amendment (PAPA) is required. This post-acknowledged plan amendment ensures that the City's Comprehensive Plan is kept up-to-date and consistent with the State Goals.

Plan amendments are very public processes. Citizens must be notified of any proposal to change the Plan; they must have an opportunity to comment on such a proposal in a public hearing; and the State's Department of Land Conservation and Development must be notified, as well.

As part of a public process, in 2018, the City of Nehalem adopted the Nehalem Vision Statement and Aspirations (hereinafter the Vision, as is shown below). The result of the Vision is a reorganized Comprehensive Plan.

Nehalem's Vision Statement and Aspirations

Vision Statement

In 2040, Nehalem is a livable, economically sustainable, rural coastal community, a place where people know each other and celebrate its setting of natural beauty.

Vision Aspirations

The following aspirations have been identified as the path to achieve our City's vision:

Housing

- Housing is available to meet the diverse needs of Nehalem citizens, and reflects the rural, coastal character of the community.

Social Support and Safety

- Nehalem is noted for its livability for people of all ages, income levels and family sizes. It has many avenues for making connections among neighbors including local businesses, gardening, recreation, gathering places, and events.

Economy

- Nehalem has a strong four-season economy. Encouraging small businesses, vital goods and services, cottage industries, and home-based businesses to locate in Nehalem results in a vibrant year-round economy.

Infrastructure

- Nehalem's infrastructure of water, sewer, storm drains, streets and parks is developed to good standards for a rural community, well-maintained and renewed as needed from well-funded and well-managed reserve funds.

Open Space, Parks and Recreation

- Access to the outdoors is a key part of Nehalem's character and the community's experience of living. Open space, parks, and active and passive recreation are readily available to citizens and visitors.
- Mitigation of our contributions to climate change and adaption to likely impacts are important in protecting the livability and quality of life for our citizens and visitors.

Inclusive and Collaborative Community

- Nehalem is an inclusive and collaborative community where local governments, not-for-profit organizations, businesses, and residents work together to successfully address community issues and opportunities. The City actively promotes citizen involvement. A culture of trust and respect defines the community.

Each Aspiration is integrated into the appropriate section of the Plan, so that the goals, objectives and policies set under each section reflect the City Vision.

Purpose

With updates, amendments, and other adjustments, the purpose of the Nehalem Comprehensive Plan is to manage future growth and development within the City Limits and Urban Growth Boundary in a way that will support the City's vision and preserve the quality of natural amenities and livability that have attracted people to Nehalem. The Plan's goals and

policies will provide the guidance to both public agencies and private individuals when making decisions about the future development of the City.

The area outside the Nehalem City Limits but inside the Urban Growth Boundary is within the jurisdiction of Tillamook County. Tillamook County shall retain responsibility for land use decisions in this area, subject to Nehalem's Comprehensive Plan and Land Use Ordinances.

The entire plan should be considered as (1) a body of technical information about the City of Nehalem Area, our assessment of that and findings of fact to support what we feel from that data analysis and prioritizing of goals, (2) a statement of desired goals, objectives and policies of the Nehalem residents, and (3) a set of recommended actions to reach the goals and resolve issues and problems uncovered by the analysis, and, (4) an appendix of supporting documents.

Those who must make decisions affecting the people of Nehalem shall use the Comprehensive Plan as a basic reference and guideline.

Article II THE PLAN

GOAL 1: CITIZEN INVOLVEMENT

City Vision (Inclusive and Collaborative Community)

Nehalem is an inclusive and collaborative community where local governments, not-for-profit organizations, businesses, and residents work together to successfully address community issues and opportunities. Awareness of social and environmental justice is integral to ensuring that decisions are made that don't disproportionally affect or make more people and communities more vulnerable. Reviewing decisions around issues such as zoning, uses, hazard, and climate change adaptation through these lenses is necessary and requires transparent and open citizen involvement processes.

The City actively promotes citizen involvement. A culture of trust and respect defines the community.

State Requirements for Goal 1, Citizen Involvement:

Goal 1 calls for "the opportunity for citizens to be involved in all phases of the planning process." It requires each city and county to have a citizen involvement program containing six components specified in the goal. It also requires local governments to have a committee for citizen involvement (CCI) to monitor and encourage public participation in planning.

Nehalem's Planning Commission and City Council are guided by the principle that citizen participation in planning and land use issues is essential. The single most important factor influencing the effectiveness of this Plan is the extent of citizen participation in its development.

Nehalem's Citizen Involvement Goal

1. To provide all city and Urban Growth Area residents an opportunity to be involved in all phases of the planning process.

Objectives

1. All people of the community shall be represented.
2. Hearings and changes to plans and codes shall be properly noticed.
3. Citizens shall be informed of meetings and heard.

Policies

1. The Planning Commission shall represent the people in the community and shall be chosen in a fair, well-publicized manner.
2. City Meetings shall be well publicized. Minutes of the meetings shall be made available upon request.
3. The Comprehensive Plan, Zoning Ordinance, Subdivision Ordinance, and other City Ordinances shall be available at City Hall at a nominal cost.
4. The City Council and Planning Commission shall respond to citizens' concerns and comments through direct response at meetings, by letter, or through the meeting minutes.
5. Comprehensive Plan Changes shall be made only after adequate public discussion and notifications, of interested and affected districts and agencies such as the Nehalem Bay Wastewater Agency, Neah-Kah-Nie School District, and Tillamook County.
6. Plan changes will only be adopted after well-advertised public hearings have been held by the Planning Commission and City Council.
7. The Planning Commission is the citizen involvement committee for the community.

GOAL 2: LAND USE PLANNING

History of Land Use in the City of Nehalem

Nehalem was named for the Nehalem Indians.

First Incorporated by an Act of the Legislature in 1899, the City "...where the people live..." sits on the western bank of the Nehalem River and along the Nehalem Bay in Tillamook County. It is equal distance from both the Cities of Tillamook and Seaside, and 70 miles from the Portland metro area. Each year thousands of visitors discover what long-time residents have always known - Nehalem is the place to live, work and play.

Nehalem was once a thriving logging community. The city used to stretch over the river on log planks, where a lumber mill cut logs that came down a railroad track on the Nehalem River. Wood pilings that held up this track can be found in the North Fork Nehalem River.

Existing Land Use in the City of Nehalem

One of the most important pieces in planning for future land use is identifying the amount, type, and location of existing land use. The location of existing residential, commercial, industrial, public, and open space areas provides a basis for understanding present conditions and for making projections for future land use patterns. The Comprehensive Plan Map and Zoning Map for the City of Nehalem reflect zones and planned land uses within the City's Urban Growth Boundary. In this chapter, each land use will be discussed with a description of the goals, objectives and policies for the different uses after each.

Land Use Designated Areas

The City of Nehalem Comprehensive Plan and Zoning Map shows the zone designations for land in the City and the Urban Growth Boundary (UGB), including residentially zoned areas of both low and medium density, commercial areas, industrial areas, public lands, agriculture, forestry and recreation areas. The Map shows how land use in Nehalem will look as the goals, objectives, policies and recommendations are implemented.

State Requirements for State Goal 2, Land Use Planning:

Goal 2 outlines the basic procedures of Oregon's statewide planning program. It says that land use decisions are to be made in accordance with a comprehensive plan and that suitable "implementation ordinances" to put the plan's policies into effect must be adopted. It requires that plans be based on "factual information"; that local plans are coordinated with those of other jurisdictions and agencies; and that plans be reviewed periodically and amended as needed. Goal 2 also contains standards for taking exceptions to statewide goals. An exception may be taken when a statewide goal cannot or should not be applied to a particular area or situation.

Nehalem's Land Use Goal:

To establish a land use planning process and policy framework as a basis for all decisions and actions related to use of land and to assure an adequate factual base for such decisions and actions; to encourage development outside of natural hazard areas including climate-related hazards; and to encourage the use of construction materials and standards that limit greenhouse gas emissions during building use.

Residential

Residential uses include lands used for single-family, duplex and multi-family development. There are essentially two levels of residential development: lower-density development and medium-density development.

(1) Low-Density Residential

Intent/Objective

1. To provide for low-intensity urban residential development in areas that have physical limitations or unique natural values.

Policies

1. The density of low-density residential development shall not include Marsh and tideland areas in calculating the land area of a parcel of land.
2. Cluster or planned-unit developments are strongly encouraged.
3. Special policies for development of Nehalem Point.
   a. Use of developable land within the UGB above ten-foot elevation.
      i. These land above ten-foot elevation may be developed for uses consistent with the Low-Density Residential zoning and any additional uses allowed by the planned- development provision.
      ii. Structures on Nehalem Point shall be designed and sited to maintain the visual integrity of the Nehalem Point skyline and its shore lands.
   b. Use of land outside the Urban Growth Boundary below ten (10) foot elevation.
      i. Lands below ten (10) feet in elevation which are within the estuary boundary are designated "EN" (Estuary Natural).
      ii. Other lands below ten (10) feet in elevation are designated as "RM" (Recreation Management).
         1. These lands shall be reserved for uses such as mitigation for new estuary development projects, estuary enhancement or restoration, outdoor recreation without intensive development and open space in conjunction with planned development uses.

(2) Medium Density Residential

Intent/Objective

1. To provide for moderate intensity residential development in areas that have already been subdivided or where there are few physical constraints on development.

Policies

1. The permitted density may be reduced where a site investigation report by a qualified expert indicates that such a density reduction is required to ensure creation of build able sites.

(3) Marine Residential

Intent/Objective

1. To provide for a mixture of residential and marine commercial uses.

Policies

1. New marinas or an expansion of existing facilities are an appropriate use where it can be shown that the proposal is:
   a. Consistent with the City's Estuarine Resources policies; and
   b. Compatible with adjacent residential uses.
2. New individual, single purpose piers and mooring facilities shall be discouraged in favor of public or private community facilities, while the maintenance of existing individual piers and moorage facilities is strongly supported.

(4) Commercial

The lands currently in commercial use and designated for commercial use are identified in commercial areas on the zoning map and is categorized by the designation of downtown (Town Center), highway-oriented (Other), and neighborhood uses.

(5) Town Center Commercial

Intent/Objective

1. To provide for a wide range of retail and personal service uses to serve both City residents and tourists, and Multi-family dwellings.

Policies

1. The City will continue to work with the City merchants to achieve an equitable long-term solution to the problem of flooding in the Downtown.
2. Commercial uses which are consistent with the development of a compact, land-intensive City Center that facilitates pedestrian movement are encouraged.
3. Multi-family housing is encouraged.
   a. Housing, in conjunction with a commercial use shall also be encouraged.
4. The existing vegetative cover on Deer Island should be maintained.

(6) Other Commercial

Policies

1. Commercial development between Nehalem and Manzanita should be clustered.

(7) Industrial Land

The industrial uses in the City include the area in the northeast area of the UGA, as designated on the Map.

(8) Public Areas

Public areas include lands designed for public buildings, public utilities, schools, playgrounds, churches, meeting halls, and other similar uses which are considered public facilities. The purpose of the public district is to recognize existing public facility land use and areas for those uses, which generate large public gatherings, and to provide for the development of public facility services and other public-oriented uses.

Intent/Objective

1. Recognize certain lands to be designated for public use and recreational activities.

(9) Overlay Zones

The City of Nehalem has a number of overlay zones as described in the Zoning Ordinance that are located in special areas of the City and are applicable in addition to the underlying base zone districts. Properties within the overlay zones are subject to the requirements of the underlying base zone district and additionally the overlay zone district.

Additional Policies:

1. In conjunction with affected regional, state, and federal agencies, the City agrees to assume cooperative responsibility for land use planning
2. The City shall cooperate with the school district to ensure that growth of the City does not outstrip the district's ability to provide facilities. Subdivisions or other major developments that could generate large enrollment increases shall be permitted only after consideration of their impact on schools.

GOAL 3: AGRICULTURAL LANDS

Nehalem does not include agricultural lands but supports the community's need to provide food for itself. Supporting local and sustainable agriculture in the region is strongly encouraged by the community and will continue to be a priority into the foreseeable future.

State Goal 3, "To preserve and maintain agricultural lands."

State Requirements for Goal 3:
Oregon Statewide Planning Goal 3 Agricultural Lands does not apply within the Urban Growth Boundary and Nehalem does not have agricultural zoned lands within its boundaries.

Nehalem City Goal: Although this State Goal does not apply to the City, the City supports preservation and maintenance of the agricultural lands.

GOAL 4: FOREST LANDS

The City supports efforts to preserve forest lands with the City's Forest Management Plan approved by the State of Oregon.

State Goal 4, "To conserve forest lands by maintaining the forest land base and to protect the state's forest economy by making possible economically efficient forest practices that assure the continuous growing and harvesting of forest tree species as the leading use on forest land consistent with sound management of soil, air, water, and fish and wildlife resources and to provide for recreational opportunities and agriculture."

State Requirements for Goal 4, Forest Lands:
Oregon Statewide Planning Goal 4 Forest Lands does not apply within the Urban Growth Boundary.

Nehalem City Goal: Although this State Goal does not apply to the City, the City supports preservation and maintenance of forest lands.

GOAL 5: NATURAL FEATURES, NATURAL RESOURCES, SCENIC AND HISTORIC AREAS, AND OPEN SPACES

The City of Nehalem is surrounded by active and passive recreational areas and natural resources that include the downtown waterfront and shoreland, wetlands, estuaries, flood plains, agricultural lands, and forestlands on the surrounding hillsides. A rich geographic setting of natural resources therefore surrounds the urbanized area of the City.

With recognized climate change, the temperature of the earth's surface is warming, and a changing environment is occurring inside and outside of the city. Snowpack is declining, summer stream flow is lowering, wildfire activity is increasing, sea level is rising, and coastal waters are acidifying. The consequences of these climate change are expected to continue for decades to come. This places an impact on natural features, natural resources, and makes it more important to preserve scenic and historic areas, open spaces, and the natural environment.

The City is aware that climate change may greatly affect the community, and the natural features and the natural resources in the community.

Maintaining and providing access to this natural environment that surrounds the City is important. Therefore, minimizing the adverse impacts and protecting the natural environment are important in the growth and development of Nehalem.

City Vision (Open Space, Parks and Recreation)
Access to the outdoors is a key part of Nehalem's character and the community's experience of living. Open space, parks, and active and passive recreation are readily available to citizens and visitors.

State Requirements for Goal 5, Open Spaces, Scenic and Historic Areas and Natural Resources: Goal 5 covers more than a dozen natural and cultural resources such as wildlife habitats and wetlands. It establishes a process for each resource to be inventoried and evaluated. If a resource or site is found to be significant, a local government has three policy choices: preserve the resource, allow proposed uses that conflict with it, or strike some sort of balance between the resource and the uses that would conflict with it.

Nehalem City Goal

1. To foster high-quality development consistent with the natural environment.

Objectives

1. It is the intent of the City to monitor development to minimize adverse impacts to the natural environment.
2. It is the intent of the City to monitor cluster development to protect the natural environment.
3. Riparian areas shall be preserved.
4. Scenic views are an important part of the City's environment.
5. It is the intent of the City to encourage the idea of Deer Island as a park or land trust, if the island becomes available for purchase.
6. The City encourages open space in developments.

Policies

1. The density of development in a planned-unit development or a cluster subdivision shall be consistent with the density permitted in the zone in which it is developed.
   a. Increases in density may be permitted where the development provides facilities or areas which help meet community objectives.
   b. Any density increase shall be compatible with the site and adjacent areas.
2. Land-use management practices and non-structural solutions to problems of erosion are preferred to structural solutions.
   a. Where shown to be necessary, erosion control structures must be approved by the State and shall be designed to minimize adverse impacts on water currents, erosion and accretion patterns, and on adjacent property.
3. Riparian vegetation shall be maintained, and where appropriate, restored and enhanced consistent with water-dependent uses.
4. Scenic views should be used and protected in the development of land.
5. Developments shall include measures to control erosion and minimize sedimentation during construction.
6. Developments, especially those adjacent to the Nehalem River and Bay, where permitted by FEMA, shall consider the impact on wildlife resources.
   a. Projects shall be designed to minimize their impact on areas identified as having riparian vegetation.
7. Climate change has the potential to change natural features and as a result the City intends to embrace opportunities to reduce emissions of greenhouse gases, foster sequestration of carbon, and adapt to unavoidable changes.
8. The City recognizes that climate change stresses the forested watersheds upon which the City depends, and that human activity in these watersheds exacerbates these stresses by increasing the potential for wildfire, introduction of pathogens, and spread of invasive species. Furthermore, mature forests are more resilient to climate induces stress. The City intends to manage its watersheds to minimize forest stress due to climate change and will continue to not allow public access to the watershed.

GOAL 6: AIR, WATER AND LAND RESOURCES QUALITY

Air, water and land resources are important factors in the City of Nehalem.

Air quality within the planning area is generally very good. Air pollution from automobiles is not a significant problem even with high volumes of summer tourist traffic going through town. A prevailing wind usually blows in Nehalem and clears the air quickly. Water quality within the area is generally excellent. Rains and tidal actions constantly change the level and velocity of the Nehalem River.

The City recognizes climate change as an issue that may greatly affect air and water quality as well as land resources.

The City of Nehalem vigilantly safeguards its water supply to provide safe drinking water for our community. The City owns 90% of our watershed, with the remaining portion owned by one private timber company.

The Lower Nehalem Watershed Council, while not affiliated with the City of Nehalem's watershed, works on preservation and enhancement of the lower Nehalem River. The Watershed Council is dedicated to the protection, preservation, and enhancement of the lower Nehalem watershed through leadership, cooperation and education.

Significant Water Quality within the UGB depends in part on protecting designated significant wetlands and riparian corridors. The City will ensure that future development occur in a manner that protects all significant wetlands and riparian corridors within the Nehalem UGB.

State Requirements for Goal 6, Air, Water and Land Resources Quality:
This goal requires local comprehensive plans and implementing measures to be consistent with state and federal regulations on matters such as ground water pollution.

City Goal

1. To maintain, and where necessary, improve the City's air and water resources.

Objectives

1. To ensure the continued quality of air, water and land resources within the City and the UGB.

Policies

1. The City will ensure that the actions it takes are consistent with appropriate state and federal environmental quality standards, statutes, programs and policies, including those for water quality, air quality and noise.
2. The City will control sedimentation and erosion resulting from urban development through its Subdivision Ordinance.
3. The State Department of Forestry should monitor the use of herbicides in the Nehalem area, particularly around the City's Watershed.
   a. Persons or organizations using herbicides shall notify the City and public prior to use, and in no instances shall herbicides be used in the City's Watershed. Or on land affecting the City's Watershed, without City approval.
4. The City will encourage actions that limit emission of greenhouse gases.
5. The City will continue implementing the City of Nehalem Master Water Plan.

6. All waste and process discharges from future development is not to violate applicable state or federal environmental quality statutes, rules and standards.

GOAL 7: AREAS SUBJECT TO NATURAL HAZARDS

The most significant natural hazards in Nehalem are landslides and flooding. In addition, climate change has the potential to make these natural hazards more frequent and severe, and to bring new natural hazards, identified in the Oregon Natural Hazards Mitigation Plan, that haven't typically been experienced.

Landslides occur on steep slopes. Flooding is a condition of partial to complete inundation of normally dry areas from the overflow of inland or tidal water and/or the unusual and rapid accumulation of runoff or surface waters from any source. The city of Nehalem lies within the geomorphic floodplain of the Nehalem River. In Nehalem, there are two types of areas where flooding generally occurs – the floodplain and the floodway – both are part of the Flood Hazard Area.

The floodplain is the area adjoining a stream, river, or lake that is subject to regional flooding. It represents the largest flood which has a one percent chance of occurring in any one year in an area because of periods of higher than normal rainfall or stream flows, high winds, rapid snow melt, natural stream blockages, or combinations thereof.

The Floodway is the channel of a watercourse that must be kept free of any encroachments so that the 1% annual chance flood can be discharged without cumulatively or substantially increasing the water surface elevation and flood height. Generally, the City's Floodway matches the location of the Nehalem River, and includes the island north of the City.

State Requirements for Goal 7, Areas Subject to Natural Disasters and Hazards:
Goal 7 deals with development in places subject to natural hazards such as floods and landslides. It requires that jurisdictions apply "appropriate safeguards" (floodplain zoning, for example) when planning for development there.

City Goal

To reduce risk to people and property from natural hazards

Objectives

1. The City intends to protect people and property from harm caused by natural hazards.

Policies

1. The City shall adopt maps, plans, inventories, policies, and implementing measures that reduce risk to people and property from natural hazards.
2. The City shall give special attention to emergency access and evacuation when making development decisions.
3. The City shall seek to devote natural hazard areas as open space or other low intensity uses in so far as such measures will mitigate natural hazards and will maintain public safety and welfare.
4. The City shall maintain and coordinate their local Natural Hazard Mitigation Plan with local, state, and federal agencies.

5. The City shall coordinate with regional planning efforts for emergency preparedness, response, recovery and mitigation.
6. The City shall respond to new hazard inventory information within 36 months if notified to take such action by the Oregon Department of Land Conservation and Development (DLCD) unless such time to respond is extended by DLCD.
7. The physical capabilities and limitations of the land shall be utilized in establishing the type and density of development that can occur.
8. Flexible development approaches such as planned-unit developments and cluster subdivisions are encouraged, particularly in areas where development constraints such as flood hazards or steep slopes exist.
9. Developers of large properties with varied terrain are encouraged to cluster structures on the least steep portions of the site and to leave steep slope areas undisturbed.

Geologic Hazard Policies

10. For the purpose of identifying and mitigating geologic hazards the City shall require geologic site investigation reports prepared by appropriately qualified professionals that evaluate the risk to the site as well as the risk the proposed development may pose to other properties.
11. Site-specific geologic studies and investigations by a qualified expert may be required in areas suspected of being subject to landslide hazard when appropriate to assure safe development consistent with local, state, and federal criteria:
    a. For all proposals for divisions of land;
    b. When required by the building official;
    c. When required by the City to assure public safety and welfare;
    d. For grading, excavation, and/or the placement of fill in the development of streets and public rights-of-way;
    e. For the construction of utilities;
    f. Where ground disturbing activities are proposed; and
    g. As required in the current Nehalem Zoning Ordinance.

    When a site report is required, construction shall occur only if the investigation indicates that development is feasible, and construction shall be in conformance with the site report. Where necessary, an engineer approved foundation may also be required.
12. When a geologic site investigation report is required, the report shall be prepared at the subject property owner's expense by an appropriately qualified professional engineer and certified engineering geologist licensed to work in the State of Oregon.
13. The geologic site investigation report shall be provided prior to permit approvals and prior to project commencement and shall be required as a condition of approval for public hearings where a geologic site investigation report will be required for the project.
14. The geologic site investigation report shall provide stormwater drainage management recommendations consistent with the current Nehalem Storm Water Drainage Master Plan.
15. The density of development allowed by the City within a zone shall be supported by the recommendations of the geologic site investigation report.
16. The City encourages site design which utilizes the natural topography and vegetation including but not limited to the following techniques:
    a. Flexible development approaches such as planned developments; and

b. Efforts shall be made to maintain streams in their natural state; and
c. Access roads and driveways should follow natural slopes and contours and need not be constructed in block patterns; and
d. In cases of undeveloped platted lands, the City supports property line adjustments and the replotting of existing lot lines and/or public right-of-way consistent with natural features.

17. Grading should be minimized in areas with a slope greater than 15%.

Flood Hazard Policies

18. Within the Nehalem Special Flood Hazard Area (SFHA) designated by the National Flood Insurance Program (NFIP) Flood Insurance Rate Maps (FIRM):
    a. The City shall ensure that all development is documented by the property owner as consistent with the requirements of the NFIP; and
    b. The property owner shall submit with any development application evidence that the proposed development will not increase flood hazards on adjacent property or create any adverse impacts to adjacent property.
19. All development inside the City Limits shall be consistent with the City's Flood Hazard Overlay Zone requirements.
    a. All development inside the Urban Growth Boundary but outside the City's Limits shall be consistent with the City's Flood Hazard Overlay Zone requirements.

Other Natural Hazard Policies

20. The City identifies and plans for its natural hazards such as windstorms, winter storms, coastal and riverine floods, landslides, earthquakes and earthquake related hazards, tsunami, erosion, and wildfires. The City may identify and plan for additional hazards.
21. The City plans for resilience, response, and recovery regarding hazards including and not limited to the anticipated and historically cyclical Tsunami Hazard initiated by a Cascadia Subduction Zone earthquake.
22. The City is aware that climate change may affect the natural hazards in the community and encourages mitigation measures to deal with these and increasing occurrence of natural hazards.
23. The City intends that staff are sufficiently trained to take advantage of Federal and State natural hazard mitigation programs.
24. The City shall utilize the best available information about climate related hazards from the Oregon State Climate Change Research Institute and other related resources.

GOAL 8: RECREATIONAL NEEDS

Nehalem's Urban Growth Boundary is surrounded by forest, estuarine and river areas, and rolling hills. Nehalem Bay State Park, at 34600 Garey Street, is located to the south of town and Oswald West State Park and Short Sands Beach are located to the north of town. Although Nehalem is a small community, it has an abundant amount of recreational opportunities. Maintaining and providing access to this natural environment that surrounds the City and the downtown waterfront and shoreland of the Nehalem River, is important.

Trails

Trails support access to parks, through parks and other recreational opportunities. Nehalem has the opportunity to become the 'connecting hub' between the Oregon Coast Trail and Salmonberry Trail. A water trail along the Nehalem River, the Tillamook County Water Trail, is a nationally recognized recreation trail.

Parks and other Recreational Amenities

The City boasts public parks and boat docks that offer excellent views of the City and a chance to take in the natural beauty of the surrounding area. The Port of Nehalem provides areas alongside the river for fishing.

The parks and recreational areas in the City of Nehalem consists of the following.

Nehalem City Park

Nehalem City Park, at 12705 Hugo Street, offers residents and visitors alike unique views of the Nehalem Bay and the inter-coastal mountain range. The tranquil and natural setting has hosted many family gatherings, community picnics and even weddings. The park boasts excellent playground equipment for ages 2 through 12, several picnic tables and barbeques, along with a restroom facility.

Neil M. Walker Veteran's Park

The Neil M. Walker VFW Veteran's Park, at 35005 Riverside Drive, welcomes travelers along Highway 101 as they head north off from the Nehalem River Bridge. This Memorial Park offers unsurpassed views of the Nehalem River, Valley and Coastal Mountain range, and serves as a reminder of the many sacrifices made by so many for their service to our Country.

Nehalem Boat Docks

The City's two public docks, both located in downtown Nehalem, allow direct access to the Nehalem River. The Lower Dock is located at the end of Tohls Street in Harwood Square, while the Upper Dock is located at the end of H Street, just one block north. Both docks are open to the public and are free to use.

While the Lower Dock is best suited for transient tie-up by the myriad of fishermen and women that take advantage of the excellent steelhead and chinook fishing, the Upper Dock is the best place to launch a kayak from in order to truly explore the natural beauty of the Nehalem River and Bay.

North County Recreation District

The North County Recreation District (NCRD), at 36155 9th Street, offers many activities for people of all ages - from youth programs to senior services, NCRD boasts many amenities including an indoor heated pool, fitness center, skate ramp and a performing arts center.

Parks and recreation areas encourage passive and active recreational activities and preserve open space, wildlife habitat, and historical and cultural resources. Parks serve aesthetic purposes and create gathering spaces for public activities and events. Parks and recreation areas also provide a number of health and psychological benefits to residents of a community.

Parks are spaces where people can participate in active, outdoor, recreational pursuits, which encourage increased movement and can help reduce the risks of health problems. The trees and plants in the park help clean the air and soil of environmental contaminants, decreasing potential harm to residents. A well-designed park encourages people to leave the solitude of their homes and make more social connections.

Parks provide opportunities for residents of different generations and social classes to mix, strengthening community bonds. Preservation of open space has been shown to enhance a community's livability and character.

Parks can also improve property values. Studies have shown that there is a statistically significant link between location of parks and property values. In summary, parks provide a broad range of community benefits.

City Vision

Open Space, Parks and Recreation
Access to the outdoors is a key part of Nehalem's character and the community's experience of living. Open space, parks, and active and passive recreation are readily available to citizens and visitors.

State Requirements for Goal 8, Recreational Needs:
This goal calls for each community to evaluate its areas and facilities for recreation and develop plans to deal with the projected demand for them. It also sets forth detailed standards for expedited siting of destination resorts.

To satisfy park and recreational needs and demands, with input from residents, City employees and other stakeholders, the City will need to implement the following:

City Goal

1. To provide for park facilities and open space.

Objectives

1. Open space, parks, and active and passive recreation are readily available to citizens and visitors.

Policies

1. Subdivisions and planned developments shall, where appropriate, make provisions for a suitable amount of open space or park and recreation facilities.
2. The involvement of local individuals and groups in the donation of land, labor, funds or equipment for the improvements of recreation facilities is encouraged.
3. Improved public access to the river and bay is encouraged, provided that private property rights, public safety and the shoreline are not adversely affected.
4. Subdivisions or planned-unit developments are encouraged to provide public pedestrian access.
5. Remaining Publicly owned street ends which abut the shoreline shall be retained.
    a. When appropriate, parks, or trails and public access, should be developed to facilitate public shoreline recreational use.
6. Development along year-round streams, the Nehalem River and Nehalem Bay are required to preserve natural stream bank vegetation or provide appropriate replanting.
7. The City and County will continue working with the State Department of Forestry to encourage strict enforcement of the Oregon Forest Practices Act to reduce erosion resulting from logging practices in the vicinity of the City's Watershed.
8. The City will coordinate its parks and recreation planning with appropriate local state and federal agencies and the private sector.

Recommendations

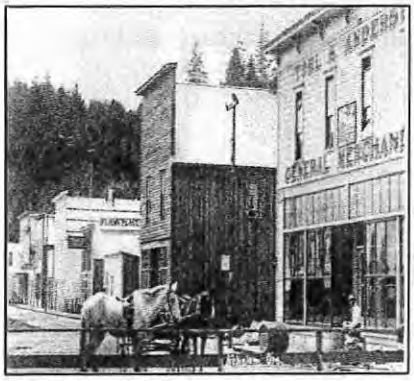
1. The City might consider the establishment of a park and recreation reserve fund to accumulate matching funds for state or federal programs.
2. To reduce conflicts with bicycle and pedestrian use, the State Department of Transportation should continue to improve the Coastal Bike Route along Highway 101 by widening the Highway's shoulders, or where feasible, constructing separate bike lanes.

GOAL 9: ECONOMIC DEVELOPMENT

The City of Nehalem was the first center of culture, commerce and politics in the lower Nehalem River Valley. The Native Americans – the Nehalem People - occupied the region until the mid-1800's. The Nehalem people were reliant on fish trapping in estuaries, hunting, and shellfish gathering. They also devoted time and energy to the development of fine arts and crafts and to religious and social ceremonies.

In the Age of Discovery, in the late 16th century, Sir Francis Drake made a landing in Nehalem Bay. Nehalem Indian tales recount strangers and the discovery of items uncommon to the Pacific Coast. At that time, the Nehalem Tribe welcomed the arrival of Europeans, for the increased trading opportunities.

As time progressed, Nehalem became a commercial and social center with homesteaders who focused on dairies and other agricultural pursuits. Farmers used boats to bring milk to the cheese and butter factories.



When the City was chartered in 1899 by an Act of the State Legislature, it already had a post office, church, general store, school, sawmill and tavern. During the first ten years of the 20th Century it added a bank, high school, telephone exchange, fish cannery and hotel.

The new railroad across the river brought tourists and supplies from Portland and took local produce to distant markets. Boosters had asked the Army Corps of Engineers for jetties at the end of the Nehalem Bay since 1876. In 1909, local leaders formed the Port of Nehalem, then persuaded federal officials to pay half the cost of the construction of the two jetties.

With Nehalem's ideal location, coupled with the rapid development of nearby areas, the economy flourished. The city used to stretch over the river on log planks, where a lumber mill cut logs that came down a railroad track on the Nehalem River. Wood pilings that held up this track can be found in the North Fork Nehalem River.

In the 1920s, the community built a new elementary and high school. They convinced county officials to build a bridge and causeway across the Nehalem River to provide road access to the railroad. During that period of time, the automobile transformed the local economy.

A movie theater, dance hall and restaurant attracted the area's loggers, dairymen, fishermen and families from all of the surrounding hills and valleys. However, as the once-thriving logging industry slowed during the mid-twentieth century, the city's economy also cooled.

Prior to the dedication and construction of Highway 101, State officials saw the highway route through Wheeler and Nehalem as only temporary. The plan, at that time, for the highway was to move it along the Nehalem Spit, offering a longer view of Nehalem Bay and the Pacific Ocean. In the late 1960s the backlash from the two towns was so intense that officials decided to leave the highway in its existing layout.

In the 1990s, leadership from the City helped create a new Recreational District based in the old elementary school that had closed in 1986. Keeping Highway 101 as the City's "main street" and maintaining the community activities and services offered in the old elementary school preserved the City's place as the center of north Tillamook County.

As identified in the 2018 Visioning meetings, Nehalem wants to continue to 'Encourage Small Business & Craft Industry and Stability'.

City Vision

Nehalem has a strong four-season economy. Encouraging small businesses, vital goods and services, cottage industries, and home-based businesses to locate in Nehalem results in a vibrant year-round economy.

State Requirements for Goal 9, Economic Resources:
Goal 9 calls for diversification and improvement of the economy. It asks communities to inventory commercial and industrial lands, project future needs for such lands, and to plan and zone enough lands to meet those needs.

City Goal 1 for Economic Development

1. Improve the Economic Base of the Community

Objectives

1. Develop efforts to improve the economic base of the community and support local businesses and regional economic development organizations.

Policies

1. Support efforts to improve the economy of the area, including the maintenance of a viable agriculture industry.
2. Encourage commercial outdoor recreational opportunities that develop a sense of stewardship for the area.
3. Support the restoration economy that impacts infrastructure, clean water, and healthy fish and wildlife populations.
4. Actively participate in the region's key economic development activities and organizations.
5. Participate in and support regional economic development plans/programs.
6. Seek the input of local businesses and carefully consider the economic impacts of proposed programs, regulations and decisions related to implementing the community's Comprehensive Plan.
7. Maintain active working relationships with key economic development players including Col-Pac, EDD, Nehalem Bay Merchants, Nehalem Bay Watershed Council, North Coast Recreation District, NW Oregon Economic Alliance, NW Oregon Regional Partnership, Port of Nehalem, Tillamook Estuaries Partnership (TEP); and attend partnership/stakeholder meetings as often as possible.

City Goal 2 for Economic Development

2. Encourage Successful Home-Based Businesses

Objective

1. It is the intent of the City to allow for home-based businesses.

Policies

1. Allow home-based businesses that are low impact and don't disrupt residential neighborhood character.

City Goal 3 for Economic Development

3. Retain, Strengthen and Expand the Existing Business Base.

Objective

1. To support and provide areas for the growth of a diversity of new and existing businesses.

Policies

1. Zoning for commercial uses should provide areas large enough to accommodate future growth requirements, but not so large as to substantially affect adjacent residential properties.
2. Encourage new and existing businesses and encourage family-wage jobs.

City Goal 4 for Economic Development

4. Strengthen and Enhance a Strong Commercial Core or Downtown Business District within Nehalem.

Objective

1. To support business development and improving the downtown environment.

Policies

1. Maintain and enhance all public infrastructure to create a pleasant and convenient business environment (from signage and pocket parks to sidewalks and parking lots).
2. Encourage small business and infill development in the core and not on the edges of the community.
3. Promote upper story/high-density housing in the downtown.
4. Protect historic resources such as downtown buildings to maintain local character and attract visitors.

GOAL 10: HOUSING

Nehalem's Current Supply of Housing

This chapter's information on current housing stock comes from the 2019 Nehalem Housing Needs Analysis.

Nehalem is a small community marked by a population of small households with incomes above the county average. The household size and composition show that households in Nehalem, at 2.1 persons per household, are smaller than Tillamook County's average household size and the statewide average. About 33% of these households in Nehalem have children. The median income of Nehalem residents is higher than the Tillamook County average but lower than the state average. In Nehalem housing prices are generally consistent with affordability for both rent-paying and mortgage paying households. This relatively prosperous situation creates stability and helps define directions for the future.

Trends in Nehalem's Housing Mix

- Nehalem's Housing stock is predominantly single-family detached housing;
- Nehalem's housing mix focuses on owner-occupied dwellings;
- Single-family detached and attached housing have accounted for the new housing growth in Nehalem between 2000 and 2017.

The housing types that Nehalem has a relatively low inventory of include:

- Apartment,
- Duplexes,
- Tri- and quad-plexes,
- Manufactured housing, and
- Smaller single-family detached and attached housing.

Nehalem's official forecast and projections for population growth show that the City will grow by 326 new residents over the next 20 years. This new population will result in a need for 162 new dwelling units over the 20-year planning period.

The mix of projected new housing needed include:

- About 80% will be single-family detached housing with 130 new detached single-family homes needed;
- Nearly 15% will be single-family attached housing with 24 additional townhouses needed;
- About 5% will be multi-family housing with 8 dwellings in multi-family structures needed.

After reviewing the city's existing land base and zoning, the City will be able to accommodate all needed residential growth based on the projected population increases and housing needs in the City's current urban growth boundary.

City Vision

Housing is available to meet the diverse needs of Nehalem citizens, and reflects the rural, coastal character of the community.

State Requirements for Goal 10, Housing:

This goal specifies that each city must plan for and accommodate needed housing types, such as multifamily and manufactured housing. It requires each city to inventory its buildable residential lands, project future needs for such lands, and plan and zone enough buildable land to meet those needs. It also prohibits local plans from discriminating against needed housing types.

City Goal for Housing

1. To provide for housing which will meet the needs of a variety of age and income groups.

Objectives

To support housing development that meets the needs of the City's residents.

Policies

1. The City recognizes and supports identified future housing needs for a broad range of housing types, including single-family attached and detached homes, manufactured homes, duplexes and multi-family dwellings.
2. The City supports the efforts of the Oregon Housing Authority and the Northwest Oregon Housing Association and other mechanisms that help reduce the cost of or leverage other monies to provide affordable low and moderate income housing for area residents, and continues to provide opportunities for development of the housing needs identified in the Housing Needs Analysis.
3. The City supports the efficient development of housing and land to minimize environmental impacts and provide public services in a cost-effective manner.
4. The City recommends the use of sustainable development and building materials including the use of energy efficient materials and design principles.
5. The City will allow for and encourage and support the development of housing units in conjunction with commercial development (e.g., housing located above commercial uses) with mixed use buildings to provide diversity and security in commercial areas and a range of housing options.
6. The City will ensure compliance with federal and state fair housing laws which affirm access to housing opportunities for all people in Nehalem.
7. The City may allow for accessory dwelling units (ADU's) in certain residential zones.
8. The City's inventory of buildable land and the City's housing needs analysis should be regularly updated as needed and used to both identify housing development opportunities and assess the ability to meet future housing needs.
9. The Housing Needs Analysis shall be adopted as part of the Comprehensive Plan.

GOAL 11: PUBLIC FACILITIES AND SERVICES

A full range of urban services are provided within the City of Nehalem. These services include water, sanitary sewer, storm sewer, solid waste collection, fire protection, and police protection. This section summarizes those services and lists the city's objectives, policies and implementing procedures for maintaining and improving them.

City Vision

Nehalem's infrastructure of water, storm drains, streets and parks is developed to good standards for a rural community, well-maintained and renewed as needed from well-funded and well-managed reserve funds.

Nehalem Bay Wastewater provides sewer for Nehalem and is a separate Taxing District.

State Requirements for Goal 11, Public Utilities and Services:
Goal 11 calls for efficient planning of public services such as sewers, water, law enforcement, and fire protection. The goal's central concept is that public services should be planned in accordance with a community's needs and capacities rather than be forced to respond to development as it occurs.

City Goal

1. Continue to plan and develop orderly and efficient system of public facilities and services.

Objectives

The City should maintain an adequate, orderly and efficient system of public facilities that supports the land uses and densities and necessary extensions throughout the city.

Policies

1. Land uses and densities in the Urban Growth Boundary area shall be consistent with the capacity of existing public facilities or the long-range expansion plans for key public facilities, such as sanitary sewers and water.
2. Public facilities and services shall be extended in an orderly and efficient manner.
3. The cost of public services or facilities shall be distributed equitably among those residents or land developments creating a need for such services.
4. Adequate storm drainage facilities shall be part of all subdivisions, planned-unit developments or other developments which may impact storm drainage patterns.
    a. Developers shall also make adequate provisions for handling the storm water that leaves their site.
5. The policies of the Nehalem Bay Wastewater Agency shall apply to sewer installations in their Urban Service Area.
6. The City of Nehalem has adopted a system development charge capable of maintaining and improving the water since 2010.
    a. Review and update system development charges on a regular basis to keep pace with costs.
7. Large developments or heavy water users should make equitable contributions to the improvement of the water system and shall pay all costs associated with the extension of water lines.

8. Water lines within a proposed development shall be adequately sized to meet future needs at the projected density or usage, including fire flow requirements.
9. Fire hydrants shall be installed by developers to the satisfaction of the City of Nehalem and the Nehalem Bay Fire & Rescue District.
10. The City of Nehalem cooperates with Tillamook County in establishing a solid waste program for Tillamook County that meets the Department of Environmental Quality's standards.
11. The City of Nehalem will continue to provide water service to areas and developments outside its Urban Growth Boundary, consistent with its ability to provide such service.

a. The density of new developments for which water service is provided shall be at rural density to be established by the City of Nehalem.

12. School District #56 should coordinate its facility planning activities with the City of Nehalem.

GOAL 12: TRANSPORTATION

Streets, roads, and highways have profound effects on land use. Many forms of development, for example, need to be easy to find, readily seen from a car, and convenient to reach by foot or automobile. A fundamental relationship in planning is land use affecting streets, and streets affecting land use. That relationship is a subject of importance in this chapter of the Comprehensive Plan. The City has addressed that subject by adopting the Nehalem Downtown Transportation Plan.

The three cities of Nehalem, Manzanita and Wheeler may work together to develop a regional transportation system plan (TSP).

The Plan's goals are:

- Improve mobility, safety and accessibility for all travel modes
- Improve pedestrian and bicycle circulation and facilities
- Provide for improvements that can be implemented and comply with applicable standards

Beyond Nehalem's limits lie the Salmonberry Trail to the east and the Oregon Coast Trail to the west. The Tillamook County Water Trail lies along the Nehalem River. Nehalem has the opportunity to become the 'connecting hub' between the Oregon Coast Trail and Salmonberry Trail. Nehalem has the potential to provide the linkage between these trails.

City Vision

Nehalem's infrastructure of water, sewer, storm drains, streets and parks is developed to good standards for a rural community, well-maintained and renewed as needed from well-funded and well-managed reserved funds.

State Requirements for Goal 12, Transportation:
The goal aims to provide "a safe, convenient, and economic transportation system." It asks for communities to address the needs of the "transportation disadvantaged."

City Goal

1. To provide and encourage a safe, convenient and economic transportation system.

Objectives

The City shall support a safe, convenient, accessible and economic transportation system for all modes of transportation.

Policies

1. Street patterns shall minimize the need for cutting and filling.
2. The City may permit narrower street widths in steep slope areas consistent with traffic safety and emergency vehicle access.
3. The City shall accept private streets as public streets only after they have been improved to City standards.
4. The City, County, and the State Department of Transportation shall discourage new access points onto Highway 101.

a. Wherever possible, new residential development shall not have a direct access to Highway 101.
b. New commercial and multi-family uses should be clustered with access being provided by a consolidated access point, preferably not directly onto Highway 101.

5. Alternative uses of City rights-of-way should be considered where they are not needed as streets.
   a. These uses may include trails, small parks or natural areas.
6. The City shall be notified prior to the installation of any underground utility in a City right- of-way.
   a. The City will require reasonable efforts to improve or restore the road after construction.
7. The City supports efforts such as bus service, to provide transportation for people with limited transportation opportunity, and supports the Tillamook County Transit District to maintain bus stops and shelters as described in the Downtown Transportation Plan.
8. The City will work to incorporate (as resources allow) streetscape elements for pedestrian and bicycle friendly street design as illustrated in the Downtown Transportation Plan.
9. The City will encourage (as resources allow) an interpretive trail that provides access to the wetlands and river.
10. Street design standards are contained within the City's Subdivision Ordinance.
11. The City will work with ODOT to improve the design and safety of the U.S. 101/7th Street intersection.
12. The City will work with ODOT to provide pedestrian safety improvements and traffic calming measures and safe routes to school and encourage all types of transportation that limit greenhouse gas emissions.
13. The City recognizes the importance of and encourages a link between the Oregon Coast Trail and the Salmonberry Trail, and the Tillamook County Water Trail.

GOAL 13: ENERGY CONSERVATION

Protecting the environment, livability, and natural beauty of Nehalem is an important piece of the City's Comprehensive Plan. Therefore, encouragement of energy conservation and use of alternative sources of energy in the long-term planning for development is important.

State Requirements for Goal 13, Energy Conservation:
Goal 13 declared that "land and uses developed on the land shall be managed and controlled so as to maximize the conservation of all forms of energy, based upon sound economic principles."

City Goal

1. To conserve energy.

Objective

The City supports and will encourage efforts of energy conservation.

Policies

1. The City will encourage the use of domestic energy conservation efforts as applicable.
2. The City will encourage energy conservation in building construction.
3. The City supports the efforts of organizations, such as the Area Agency on Aging, to weatherize and insulate homes of low-income persons, particularly the elderly.

GOAL 14: URBANIZATION
URBAN GROWTH BOUNDARY AND URBAN GROWTH AREA

City Limits

The City Limits is the boundary line that defines the City of Nehalem proper. Within these limits the properties receive all City services (water, sewer, police). The City Limits can be expanded through the process of annexations of land within the Urban Growth Boundary.

City Urban Growth Boundary and Urban Growth Area

The Urban Growth Boundary (also known as the UGB) is the boundary line beyond the City Limits that indicates the outermost limit of the City of Nehalem's planned expansion. The boundary is designed to indicate the planned extent of Nehalem's growth over a period of time. The Urban Growth Area (also known as the UGA) includes the land that is inside the UGB but outside the City Limits. It is the area for future urban development and growth, served by urban services.

In both the City Limits and the Urban Growth Area, a majority of the land is zoned for residential uses. About ¼ of the land is zoned for commercial uses, and even smaller proportions are zoned for industrial, public and open space. A portion of this area is used for the streets and rights-of-ways with the City Limits and Urban Growth Boundary.

The area within the Nehalem Urban Growth Boundary is committed to urban development. The Nehalem Bay Wastewater Agency has the ability to expand its system to meet the anticipated growth within Nehalem. The Urban Growth Boundary generally coincides with the boundary of the Nehalem Bay Wastewater Agency. However, several small areas are included in the Urban Growth Boundary are outside the Wastewater Agency's boundary.

The following are distinct areas in the City's Urban Growth Area, outside the City Limits.

A. Bayside Gardens

This area contains 192 parcels of which 171 are in separate ownerships, with almost all the parcels less than 5 acres in size. The area is committed to urban development because of the nature of existing development and parcel sizes and is served by sewer and water. It is directly abutted on the west by the Urban Growth Boundary of the City of Manzanita.

Alder Creek Farm owned by The Lower Nehalem Community Trust, will require buffering to separate urban uses from agricultural uses and provide an enhanced degree of compatibility with the agricultural activity on the Lower Nehalem Community Trust property.

B. Nehalem Point

The northern portion of Nehalem Point abuts a major Wastewater Agency trunk line. It is an isolated parcel with no other forest production lands adjacent to it. The City requires that any development on Nehalem Point be a Planned-Unit Development that is designed to maintain the visual character of the Point.

C. North Fork Nehalem River

This property is surrounded by County zoned farmland.

State Requirements for Goal 14, Urbanization:

This goal requires cities to estimate future growth and needs for land and then plan and zone enough land to meet those needs. It calls for each city to establish an "urban growth boundary" (UGB) to "identify and separate urban land from rural land." It specifies seven factors that must be considered in drawing up a UGB. It also lists four criteria to be applied when undeveloped land within a UGB is to be converted to urban uses.

City Goal

1. Coordinate land-use, development and annexation strategies with Tillamook County.

Policies

1. The lands within the Nehalem Urban Growth Area, but outside the Nehalem City Limits, are within the jurisdiction of Tillamook County. However, the City of Nehalem's Comprehensive Plan, Zoning Ordinance and Subdivision Ordinance must be followed by the County.
   a. It shall be the responsibility of the agency or jurisdiction initiating the action to notify and involve the other jurisdictions conforming to the City of Nehalem's Subdivision Ordinance.
2. The extension of water service shall be consistent with the City's Master Water Plan.
3. Changes in the Urban Growth Boundary shall be carried out with the knowledge and participation of Tillamook County, Nehalem Bay Wastewater Agency, State of Oregon and affected property owners.
   a. Changes in the Urban Growth Boundary shall be based on adequate findings of fact and in full compliance of all state laws and procedures.
4. Undeveloped land within the Urban Growth Boundary shall be converted to urban purposes only where a finding is made by the City that there exists:
   a. Orderly and economic extension of public facilities and services,
   b. A need for land for various uses, and
   c. Encouragement of development within urban areas before conversion of undeveloped areas,
   d. Compatibility with State Goals and the City's acknowledged Comprehensive Plan.
5. Annexations within the Urban Growth Boundary and development of land in the City and within the Boundary shall be based on findings of fact which state that:
   a. The annexation or development represents an orderly, logical extension of public services; and
   b. Development is encouraged within or adjacent to urban areas prior to development of more remote land.
6. The remainder of the Urban Growth Area abutting the north and west sides of the Lower Nehalem Community Trust, will require buffering to separate urban from agricultural uses.
7. Continued development on Nehalem Point will be a Planned-Unit Development that is designed to maintain the visual character of the Point.

GOAL 15: WILLAMETTE RIVER GREENWAY

State Requirements for Goal 15, Willamette River Greenway:
Oregon Statewide Planning Goal 15 does not apply within the Urban Growth Boundary since Nehalem is not adjacent to the Greenway within its boundaries.

The City supports efforts to implement policies consistent with Oregon Statewide Planning Goal 15.

GOAL 16: ESTUARINE RESOURCES

Nehalem is surrounded by active and passive recreational areas and natural resources that include wetlands, estuaries, flood plains, agricultural lands, and forestlands on the surrounding hillsides. The Nehalem Bay area also has a rich and diverse estuarine environment and its protection is prioritized. This rich geographic setting of natural resources surrounds the urbanized area of the City.

For some of these areas, possible effects of climate change, are sea level rise along with increasing extreme storms. These forces can be a detriment to estuarine resources.

Tillamook County, in co-operation with Nehalem, Wheeler, the Port of Nehalem and state and federal agencies, has prepared and adopted a management plan for the Nehalem River Estuary as part of the Tillamook County Comprehensive Plan. Nehalem adopted the Tillamook County Estuary Management Plan and Policies as they apply to estuary management units and zones within the City of Nehalem's City Limits and Urban Growth Boundary.

State Requirements for Goal 16, Estuarine Resources:
This goal requires local governments to classify Oregon's 22 major estuaries into four categories: natural, conservation, shallow-draft development, and deep-draft development. It then describes types of land uses and activities that are permissible in those "management units".

Nehalem City Goal
To conserve, protect the unique environmental, economic and social values of local estuarine resources, where appropriate, recognizing their value for the protection and maintenance of water quality, fish and wildlife habitat, and water dependent uses.

Objective
To recognize, protect, and maintain, the unique environmental, economic and social values of the designated estuaries.

Policies
1. Within the "EC-1" Zone and management unit, the City of Nehalem, individual site-specific determinations as to existing non-estuarine portions of that zone which may be developed in accordance with the regulations of the "MR" Zone north of "B" Street and the "C" Zone south of "B" Street.
2. The City recommends that State and federal agencies should use their management authority to improve water quality and reduce man-induced sedimentation in estuaries.
3. The City intends to work with Tillamook County and other partners to preserve estuarine and shoreline migration zones.
4. The City intends to adhere to Statewide Planning Goal 16 and all applicable buffers that manage development within those areas.

GOAL 17: COASTAL SHORELANDS

The State Coastal Shorelands goal manages the resources and benefits of all coastal shorelands. It recognizes the protection and maintenance of water quality, fish and wildlife habitat, water-dependent uses, economic resources, recreation and aesthetics.

The management of these shoreland areas must remain compatible with the characteristics of the adjacent coastal waters and reduce the hazard to human life, property. And carefully manage the adverse effects upon water quality, fish and wildlife habitat, resulting from the use and enjoyment of these coastal shorelands. It also specifies how certain types of land and resources in the shorelands are to be managed.

The City is aware that climate change may affect the community, and the surrounding shorelands

Nehalem is surrounded by natural resources that include wetlands, estuaries and tidal marshes with a rich and diverse estuarine environment in the Nehalem Bay area that is protected. The North Waterfront area, located along the Nehalem River between C Street and H Street, is an important estuary and shoreland. The Area provides access to the Nehalem River and Bay.

State Requirements for Goal 17, Coastal Shorelands:
Land use plans, implementing actions and permit reviews in the Coastal Shoreland Area shall include consideration of the critical relationships between coastal shorelands and resources of coastal waters, and of the geologic and hydrologic hazards associated with coastal shorelands. Local, state and federal agencies shall within the limit of their authorities maintain the diverse environmental, economic, and social values of coastal shorelands and water quality in coastal waters. Within those limits, they shall also minimize man-induced sedimentation in estuaries, near shore ocean waters, and coastal lakes.

Nehalem City Goal
The City of Nehalem recognizes the interdependence of shoreland and estuarine uses.

Objective
To protect shorelands and estuarine uses.

Policies

1. Areas identified by the U.S. Army Corps of Engineers (ACOE) Dredge Material Management and Disposal Plan for Nehalem Bay shall be protected from uses or activities which would prevent their ultimate use for dredge material disposal, through coordination with ACOE.
2. Areas identified to fulfill the mitigation requirement of the Estuarine Resources Goal shall be protected from uses and activities which would prevent their ultimate restoration or addition to the estuary as stated in the Nehalem Zoning Ordinance.
3. The City recognizes there may be impacts on the shorelands that are a result of climate change and will adhere to the Goal 17 buffers in addition to preserving where possible, landward migration zones.

GOAL 18: BEACHES AND DUNES

State Requirements for Goal 18, Beaches and Dunes:
Oregon Statewide Planning Goal 18 identifies planning standards for development on various types of dunes and therefore does not apply within the Urban Growth Boundary since Nehalem is not adjacent to the Beaches and Dunes within its boundaries.

The City supports efforts to implement policies consistent with Oregon Statewide Planning Goal 18.

GOAL 19: OCEAN RESOURCES

State Requirements for Goal 19, Ocean Resources:
Oregon Statewide Planning Goal 19 deals with matters such as dumping of dredge spoils and discharging of waste products into the open sea, with its main requirements for state agencies rather than cities, and therefore does not apply within the Urban Growth Boundary since Nehalem is not adjacent to the Ocean Resources within its boundaries.

The City supports efforts to implement policies consistent with Oregon Statewide Planning Goal 19, "to conserve the long-term values, benefits, and natural resources of the near shore ocean and the continental shelf."

Article III Plan Implementation.

Implementation

The Comprehensive Plan revision is only an initial step in implementing a planning process in Nehalem. Specific actions must be undertaken to realize the plan. The Comprehensive Plan sets forth goals, policies, proposals and recommendations to guide the physical development of the community. This section describes ways in which the Comprehensive Plan may be implemented.

The means by which community plans are implemented are many and varied.

Advice and consultation on the part of the Planning Commission, City staff and other City officials can be a very effective tool of implementation. In the course of conducting day-to-day business, individuals can be made aware of the importance of the comprehensive plan and a number of alternatives presented to guide development.

The city implements the Comprehensive Plan through regulatory controls such as zoning and subdivision ordinances, through the timely placement of public facilities and establishment of public programs.

Regulatory Controls

Zoning:

Zoning is the cornerstone of the effectiveness of the Comprehensive Plan. It implements the land use part of the Comprehensive Plan. Zoning divides the community into residential, commercial, industrial and other use types in conformance with the Comprehensive Plan. Those zones are shown on the City Comprehensive Plan and Zoning Map.

State laws and some Oregon Supreme Court decisions have given better definition to the role of zoning and comprehensive plans. Oregon Law (ORS Chapter 197) not only requires cities and counties to adopt comprehensive plans, it also requires that their zoning ordinance conform to the comprehensive plan. This requirement is further amplified by the "Baker vs. City of Milwaukie" court decision. In this decision, the court ruled that in the event of a conflict between a City's zoning ordinance and comprehensive plan, the comprehensive plan shall be the guiding document. Therefore, when the City has adopted its comprehensive plan it must provide, within a reasonable time, amendments to its zoning ordinance to conform to the comprehensive plan. Furthermore, another court decision, "Fasano vs. Washington County", has ruled among other things that all zone changes must conform to the comprehensive plan. Thus, once the City has amended its zoning ordinance to conform to the adopted City Comprehensive Plan, any subsequent zone change in non-conformity with the Comprehensive Plan Map must first be preceded by a change to the City Comprehensive Plan. Changes to the City Comprehensive Plan should be based on special studies or other factual information, which establish public need and justify the particular change.

The City Zoning Ordinance establishes uniform regulations within each zone as to use, maximum building height, lot size, setbacks and other similar requirements. The Zoning Ordinance also establishes the criteria and requirements for the City's overlay districts, site and general development, partitioning, signs, off-street parking and loading, conditional uses, special uses, non-conforming uses, and variances to the criteria.

Subdivision Ordinance and Streets Standards:
The subdivision ordinance provides standards for the development of vacant land. It establishes minimum standards for street, block and lot size and lists improvements to be provided by the land developer. It enables the City to insure the provision of adequate rights-of-way, street improvements and water facilities. Close coordination between the City and Tillamook County is necessary to ensure the extension of logical street and utility systems when subdivision occurs outside city limits.

Building Codes:
The Building codes are managed at the County level. Building construction codes establish minimum standards for new buildings, additions, rehabilitation and changes of use. These codes include fire and life safety, plumbing, mechanical, and electrical and are extensions of national or state uniform standards. These codes help to ensure the safety and welfare of the public, but have little effect in preventing or reversing blight in built-up older neighborhoods.

Article IV City of Nehalem Community Growth Management Report

Urban Growth Management and Urban Service Area Policies and Implementation Guidelines
The unincorporated land within the Urban Growth Boundary requires a coordinated set of policies between the City and the County. These policies relate to zone management and urbanization.

Article V City of Nehalem Buildable Lands Inventory and Housing Needs Analysis

Buildable Lands Inventory Adoption.
The 2017 Buildable Lands Inventory is adopted and made a part of Article V, hereto.

Housing Needs Analysis Adoption.
The 2019 Housing Needs Analysis is adopted and made a part of Article V, hereto.

In compliance with state land-use law, the City will update this inventory of buildable land and housing needs every Twenty Years and use it to both identify housing development opportunities and assess the ability to meet future housing needs within the City's Urban Growth Boundary.

Summary and Conclusion of the Buildable Lands Inventory Report and Housing Needs Analysis
In summary of the 2017 Buildable Lands Inventory Report and the 2019 Housing Needs Analysis, the forecast population and the household size for Nehalem has been identified to reflect the number of households needed to accommodate growth over the next 20 years.

The forecast in the 2017 Report shows projected growth for the Nehalem UGB of 326 new residents, from a current population of 1,240 to a forecast population of 1,566. Using the average household size of 2.1 (based on Figure 14 in the 2017 Report), the 326 new residents will require 162 new housing units.

There is a total of 261 total buildable lots in the UGB. Those 261 buildable lots exceed the required 162 buildable lots needed, meaning that there is enough land for residential development over the next 18 years. There may be enough land within the Nehalem Urban Growth Boundary (UGB) to accommodate 20 years of residential growth.

The goals, policies and strategies contained within the 2017 Buildable Lands Inventory, as adopted, shall replace any other goals, policies and strategies adopted in the past Buildable Lands Inventory.

In summary of 2019 Housing Needs Analysis, the household size and composition show that the household size in Nehalem, at 2.1 persons per household, is smaller than Tillamook County's average household size and the statewide average.

Nehalem's current housing stock is predominantly single-family detached housing, with a relatively low inventory of apartment, duplexes, tri- and quad-plexes, manufactured housing, and smaller single-family detached and attached housing.

Nehalem's official forecast and projections for population growth show that the City will grow by 326 new residents over the next 20 years. This new population will result in a need for 162 new dwelling units over the 20-year planning period.

New housing needed in Nehalem include:

- 130 new detached single-family homes needed;
- 24 additional townhouses needed; and
- 8 dwellings in multi-family structures needed.

After reviewing the city's existing land base and zoning, the City will be able to accommodate all needed residential growth based on the projected population increases and housing needs.

The goals, policies and strategies contained within the 2019 Housing Needs Analysis, as adopted, shall replace the goals, policies and strategies relating to Housing Needs.

EXHIBIT

E

Subdivision of Land

156.015
Initial submission.

Ten copies of a tentative plan consistent with §§ 156.018 through 156.021 of this chapter shall be submitted to the City Manager/Recorder at least 30 days prior to the meeting of the City Planning Commission or formal declaration of applicability of expedited land division process; together with a fee in the amount as listed in the city's most up-to-date schedule of fees, charges and monetary penalties. (Ord. 80-3, passed 04/12/2004)

156.016
Preliminary review.

(A) Upon receipt of a completed application accompanied with filing fees, the City Manager/ Recorder shall transmit copies of the tentative plan to the City Planning Commission, City Council and other agencies such as the county and affected special districts.

(B) (1) The City Manager/Recorder shall prepare a report on the plan for submission to the City Planning Commission.

(2) The report shall include:

(a) Information on the Comprehensive Plan;

(b) Comprehensive Plan background report;

(c) Zoning;

(d) Adjoining streets and property;

(e) Existing sewers, water mains, culverts, electric conduits and other community facilities in addition to features of the proposal; together with

(f) Any other data pertinent to the review of the plan.

(C) The City Manager/Recorder shall provide adequate public notice of at least ten days in advance of the public hearing.

(1) Individual notices shall be mailed to all owners of parcels of land within 250 feet of the subdivision.

(2) In addition, at least ten days in advance of a public hearing a notice of the public hearing shall be published in a newspaper of general circulation within the affected area.

(D) In the event of a request for an expedited land division, the City Manager/Recorder of his or her designate shall review the application by the following criteria:

(1) Be within the urban growth boundary;

(2) Be used solely for residential purposes; including recreational or open space used accessory to residential uses;

(3) Not allow dwellings or accessory buildings to be located on land that is specially mapped and designated in the Comprehensive Plan and land use regulations for hill or partial protection of open spaces, scenic and historic areas and natural resources; or the Willamette River greenway, coastal shorelands or beaches and dunes; and

(4) Satisfy minimum street or other right-of-way standards established by the acknowledged land use plan or, if such standards are not contained in the applicable regulations, as required by the statewide planning goals; and propose development at a density equal to at least 80% of the maximum density permitted by the zoning designation of the site, if the proposal will create four or more parcels. (This density requirement does not apply to proposals that will create three or fewer parcels.) (Ord. 80-3, passed 04/12/2004)

156.017
Information in the tentative plan.

The tentative plan shall contain the following information:

(A) Proposed name, date, north-point and scale of drawing;

(B) Tentative plans shall be to a scale of one inch equals 50 feet or better, except tracts over ten acres which may be to a scale of one inch equals 100 feet and shall be clearly and legibly produced;

(C) Location of the subdivision sufficient to define its location and boundaries, and a legal description as well;

(D) Name and address of the owner and/or authorized agent;

(E) Appropriate identification of the drawing as a tentative plan;

(F) Names, business address and number of the registered engineer and licensed surveyor who prepared the plan of the proposed subdivision;

(G) Location of natural features; such as streams, trees and rock outcroppings;

(H) Contour lines at 20-foot contour intervals;

(I) The locations, names, widths, approximate radii of the curves and grades of all existing and proposed streets and easements in the proposed subdivision and along the boundaries thereof, and the names of adjoining platted subdivisions and portions of the subdivisions as shall be necessary to show the alignment of the streets and alleys therein with the streets and alleys in the proposed subdivision;

(J) Names of the record owners of all contiguous land;

(K) The approximate location and character of all existing and proposed easements and public utility facilities including water and sewer lines in the subdivision or adjacent thereto, storm water drainage facilities and utility lines;

(L) The location and approximate dimensions of each lot, with each lot numbered;

(M) The outline of any existing buildings and their use showing those that will remain;

(N) The location of at least one temporary benchmark within the subdivision boundaries;

(O) City boundary lines crossing or bounding the subdivision;

(P) Approximate location of all areas subject to inundation of storm water overflow and location, width, known high water elevation, flood flow and direction of flow of watercourses;

(Q) If impracticable to show on the tentative plan, a key map showing the location of the tract in relationship to section and township lines and to adjacent property and major physical features such as streets, railroads and watercourses; and

(R) The net density of the subdivision, the total acreage of land, square footage of each lot and square footage of open areas or common open space. (Ord. 80-3, passed 04/12/2004)

156.018
Partial development.

If the subdivision proposal pertains to only part of the tract owned or controlled by the subdivider, the Planning Commission may require a sketch of a tentative layout for streets in the unsubdivided portion. (Ord. 80-3, passed 04/12/2004)

156.019
Information in statement.

(A) A general explanation of the improvements and public utilities, including water supply and sewage disposal proposed to be installed;

(B) Requested variances;

(C) Public areas proposed;

(D) Open space, landscaped areas, tree planting proposed and means of maintaining such improvements;

(E) A preliminary draft of restrictive covenants proposed, if any; and

(F) Information showing areas to be cut or filled. (Ord. 80-3, passed 04/12/2004)

156.020
Supplemental information.

Any of the following may be required by the Planning Commission to supplement the plan of subdivision:

(A) Approximate centerline profiles with extensions for a reasonable distance beyond the limits of the proposed subdivision showing the finished grade of streets and the nature and extent of street construction;

(B) A plan for domestic water service lines and related water service facilities;

(C) Approval for sewage disposal, storm water drainage or flood control;

(D) Proposals for other improvements such as electric utilities and sidewalks, fire hydrants and street lights;

(E) An engineering geologist or soils engineering report of the stability of slopes when the average slope of created parcels is 20% or greater; and

(F) Other information as necessary. (Ord. 80-3, passed 04/12/2004)

156.021
Preliminary city staff/planning commission determination.

(A) The city staff shall determine whether the tentative plan, under an expedited land division process, is in conformity with the provisions of the Comprehensive Plan and this chapter. In the event of a quasi-judicial process application, the City Planning Commission shall determine whether the tentative plan is in conformity with the provisions of the Comprehensive Plan and this chapter.

(B) The Planning Commission may approve the tentative plan as submitted or as it may be modified. If the Planning Commission does not approve the plan, it shall state the reasons for denial.

(C) The action of the Planning Commission shall be noted on two copies of the tentative plan, including any conditions attached thereto. The Planning Commission shall retain one copy and the other returned to the subdivider.

(D) An appeal to the City Council of a Planning Commission decision may be made consistent with § 156.028 of this chapter. (Ord. 80-3, passed 04/12/2004)

156.022
Submission of final plat.

(A) Within one year after approval of the tentative plan, the subdivider or expedited land divider shall cause the proposed subdivision, or any part thereof, to be surveyed and a plat thereof prepared in conformance with the tentative plan as approved or conditionally approved; unless an extension is requested in writing and granted by the Planning Commission. A request for extension must be submitted prior to the expiration of one year.

(B) An original reproducible drawing and five blue-line or black-line prints of the plat shall be submitted to the City Manager/Recorder. (Ord. 80-3, passed 04/12/2004)

156.023
Information in the final plat.

The final plat, in addition to other information required by O.R.S. Ch. 92, shall show the following:

(A) The date, scale, north-point (generally pointing up), legend and topography;

(B) Reference points of existing surveys identified, related to the plat by distances and bearings and referenced to a field book or map as follows:

(1) All stakes, monuments or other evidence found on the ground and used to establish the initial point of the subdivision boundary and to otherwise determine the boundaries of the subdivision;

(2) Adjoining corners of all adjoining subdivisions;

(3) Whenever there has been established or adopted a system of coordinates ties into this system but in the absence of such a system, township and section and donation land claim lines within or adjacent to the plat;

(4) Whenever the city has established the centerline of a street adjacent to or within

the proposed subdivision, the location of this line and monuments found or reset; and

(5) All other monuments found or established in making the survey of the subdivision or required to be installed by the provisions of this chapter.

(C) Tract boundary lines, right-of-way lines and centerlines of streets; and lot and block lines with dimensions, bearings or deflection angles and radii, arcs, points of curvature and tangent bearings.

(1) Tract boundary and street bearings shall be shown to the nearest ten seconds with basis of bearings.

(2) All distances shall be shown to the nearest one-hundredths of a foot.

(3) Error of closure shall be within the limit of one foot in 10,000 feet.

(D) The location of additional monuments that are to be set upon completion of improvements;

(E) The centerlines and sidelines of all streets, the width of the portion being dedicated, the width of existing rights-of-way and widths each side of the centerline.

(1) For streets on curvature, all curve data shall be based on the street centerline indicating thereon the radius and central angle.

(2) Block corner curb data is to be shown separately.

(F) All easements are to be clearly labeled and identified and, if already of record, the recorded reference.

(1) If any easement is not definitely located of record, a statement of the easement.

(2) Easements shall be denoted by fine dotted lines.

(3) The widths of the easements and the lengths and bearings of the lines thereof, and sufficient ties thereto, to definitely locate the easement with respect to the subdivision must be shown.

(4) If the map is dedicating the easement, it shall be properly referenced in the owner's certification of dedication.

(G) Lot numbers beginning with the number "1" in each block and numbered consecutively in a clockwise direction, unless in conflict with adjoining subdivisions;

(H) Block numbers beginning with the number "1" and continuing consecutively without omission or duplication throughout the subdivision.

(1) The numbers shall be solid and of sufficient size and thickness to stand out and shall be so placed as to not obliterate any figure.

(2) Block numbers in an addition to a subdivision of the same name shall be a continuation of the numbering in the original subdivision.

(I) Appropriate words, symbols or legends distinguishing lots intended for sale from land parcels dedicated for any purpose, public or private; with all dimensions, boundaries and courses clearly shown and defined in every case;

(J) A certificate signed and acknowledged by all parties having any record title interest in the land subdivided, consenting to the preparation and recordation of the plat;

(K) A certificate signed and acknowledged by the engineer or surveyor responsible for the survey and plat. The signature of such engineer or surveyor is to be accompanied by his or her seal; and

(L) An additional certificates or information required by O.R.S. Ch. 92. (Ord. 80-3, passed 04/12/2004)

156.024
Information in statement.

At the time of the submission of the final plat, the subdivider shall also submit the following:

(A) A preliminary title report issued by a recognized title insurance company in the name of the owner of the land showing all parties whose consent is necessary and their interest in the premises;

(B) Sheets and drawings showing the following:

(1) Traverse data indicating the coordinates of the boundary of the subdivision and ties to section corners, donation land claim corners, if any, or triangulation systems and showing the error of closure, if any;

(2) The computation of all distances, angles and courses shown on the final plat;

(3) Ties to existing monuments, proposed monuments, adjacent subdivisions, street corners and state highway stationing; and

(4) Coordinates of all block corners and all street center points.

(C) A copy of any deed restrictions applicable to the subdivision; and

(D) A list of all taxes and assessments on the tract that have become a lien on the tract. (Ord. 80-3, passed 04/12/2004)

156.025
Technical review.

(A) Upon receipt of the final plat and accompanying data, the City Manager/Recorder shall review the plat and documents to determine that it conforms to the proposed tentative plan and that there has been compliance with provisions of the way and with this chapter.

(B) An engineer or surveyor may examine the plat for compliance with requirements for accuracy and completeness and shall collect such fees as are provided by state law.

(1) He or she may make checks in the field to verify that the map is sufficiently correct on the ground, and he or she may enter the property for this purpose.

(2) If he or she determines that there has not been full conformity, he or she shall advise the subdivider of the changes or additions that must be made and afford the subdivider an opportunity to make such changes or additions.

(C) If the engineer determines that full conformity has been made, he or she shall so certify and transmit the plat to the Planning Commission. (Ord. 80-3, passed 04/12/2004)

156.026
Final approval of city planning commission.

(A) The City Planning Commission under quasi-judicial review, or the city staff under expedited land division, shall examine the plat to determine whether it conforms with the tentative plan and with all changes permitted and all requirements imposed as a condition of its acceptance.

(1) If the Planning Commission or the city staff does not approve the plat, they shall advise the subdivider of the changes or additions that must be made for this purpose and shall afford him or her the opportunity to make the same.

(2) (a) If the Planning Commission or the city staff determines that the plat conforms to all requirements, it shall approve the same; but before certifying its approval thereon, it shall require the subdivider to file the agreement and bond or make the deposit required herein.

(b) When the agreement and bond have been filed as approved and prescribed, the City Planning Commission or city staff approval shall be endorsed upon the plat by execution of the appropriate certificate as prescribed by law.

(B) The approval of the plat does not constitute or effect an acceptance by the public of the dedication of any street or other easement shown on the plat. (Ord. 80-3, passed 04/12/2004)

156.027
Filing of final plat.

(A) A subdivider shall, without delay, submit the plat for signatures of other public officials required by law.

(B) Approval of the plat shall be null and void if the plat is not recorded within 90 days after the date that the last required approving signature has been obtained. (Ord. 80-3, passed 04/12/2004)

156.028
Appeal.

(A) A person may appeal to the City Council a decision or requirement of the Planning Commission.

(1) Written notice of the appeal must be filed with the city within ten days after the decision or requirement is made.

(2) The notice of appeal shall state the nature of the decision or requirement and the grounds for the appeal.

(B) The City Council shall hold a public hearing on the appeal within 40 days from the time the appeal is filed.

(1) The city may continue the hearing for good cause.

(2) The Council may uphold, modify or overrule the decision of by Planning Commission.

(C) In the event of an appeal of an expedited land division decision, the city shall direct the hearings referee to review the application and report on the matter within 43 days. (Ord. 80-3, passed 04/12/2004)

The Nehalem City Code is current through Ordinance 2021-01, passed January 11, 2021.

Disclaimer: The City Recorder's Office has the official version of the Nehalem City Code. Users should contact the City Recorder's Office for ordinances passed subsequent to the ordinance cited above.

City Website: www.nehalem.gov

Code Publishing Company

EXHIBIT

F

Supplementary Provisions

157.260
Intent.

The purpose of this subchapter is to provide for general zoning rules including suitable access parking and sign control; as well as to make provisions for geologic investigations, home occupations and criteria for approval of mobile home parks and accessory uses/structures. (Ord. 80-2, passed 06/14/2010)

157.261
Geologic investigation.

(A) The following are geologic hazard areas to which the standards of this section apply:

(1) Active landslides identified in State Department of Geology and Mineral Industries (DOGMI) Bulletins 74 and 79;

(2) Inactive landslides, landslide topography and mass movement topography, identified in DOGMI Bulletins 74 and 79 where slopes are greater than 20%;

(3) Areas prone to mudflows identified in DOGMI Bulletin 79;

(4) Brallier peat soils identified in Soil Survey, Tillamook Area, Oregon (USDA, Soil Conservation Service, 1964) and the unpublished Soil Conservation Service soils survey for coastal Tillamook County; or

(5) Other locally known areas of geologic hazard based on evidence of past occurrences.

(B) All development within geologic hazard areas shall comply with the following standards.

(1) Vegetation removal shall be the minimum necessary to accommodate the use.

(2) Temporary measures shall be taken to control runoff and erosion of soils during construction. Such measures include temporary stabilization (mulching or sodding), sediment basins or other performance equivalent structures required by the city.

(3) Exposed areas shall be planted in permanent cover as soon as possible after construction.

(4) Storm water shall be directed into drainages with adequate capacity so as not to flood adjacent downstream properties. Finished grades should preferably be designed to direct water flows along natural drainage courses.

(5) Additional requirements contained in a geologic report required by this section shall be followed

(C) A geologic hazard report is required prior to approval of planned developments, subdivisions and partitions governed by Ch. 156 of this code of ordinances, building permits, manufactured home permits, mining and excavation occurring in areas identified in division (A) above.

(D) A report prepared for a subdivision, planned development or partition pursuant to the requirements of this section, may be used to satisfy these requirements for subsequent building, mobile home or manufactured home permits; providing that, the original report provided recommendations on building placement and construction and that these recommendations are followed.

(E) The geologic hazard report shall be prepared by a geologist, engineer, engineering geologist or other person having professional experience analyzing the relevant geologic hazards.

(1) Structural recommendations must be stamped by a registered professional engineer.

(2) The boundaries of the study area shall be determined by the city.

(3) It shall be prepared in a format easily understood by a "lay-person" and shall include plan and sectional diagrams of the area showing property boundaries and the geographic information required by division (F) below.

(F) The geologic hazard analysis shall include the following:

(1) In landslide areas (divisions (A)(1) and (A)(2) above):

(a) Soils and bedrock type;

(b) Slope;

(c) Orientation of bedding planes in relation to the dip of the surface slope;

(d) Soil depth;

(e) Other relevant soils engineering data;

(f) Water drainage patterns; and

(g) Identification of visible landslide activity in the immediate area.

(2) In areas prone to mudflow (division (A)(3) above):

(a) History of mud or debris flow; and

(b) Areas likely to be affected by future mudflow.

(3) In Brallier peat soils (division (A)(4) above):

(a) Boring log or other similar measure;

(b) Bearing capacity; and

(c) Drainage patterns.

(G) The geologic hazards report shall recommend development standards that will protect development on the property and surrounding properties. These should include standards for:

(1) Development density (when more than one use is possible);

(2) Locations for structures and roads;

(3) Land grading practices, including standards for cuts and fills;

(4) Vegetation removal and re-vegetation practices;

(5) Foundation design (if special design is necessary);

(6) Road design (if applicable); and

(7) Management of storm water runoff during and after construction.

(H) The geologic hazard report shall include the following summary findings and conclusions:

(1) The type of use proposed and the adverse effects it might have on adjacent areas;

(2) Hazards to life, public and private property, and the natural environment which may be caused by the proposed use;

(3) Methods for protecting the surrounding area from any adverse effects of the development;

(4) Temporary and permanent stabilization programs and the planned maintenance of new and existing vegetation;

(5) The proposed development is adequately protected from any reasonably foreseeable hazards including, but not limited to, geologic hazards, wind erosion, undercutting and flooding; and

(6) The proposed development is designed to minimize adverse environmental effects. (Ord. 80-2, passed 06/14/2010)

157.262
Manufactured homes on individual lots.

(A) When a manufactured home is installed it shall comply with state installation standards. A manufactured home on an individual lot shall comply with the following additional provisions.

(1) The manufactured home shall have a state insignia of compliance as provided by state law. With a date not previous to 6-16-1976, no reconstruction or equipment installation shall have been made to the mobile home unless it has been state approved as evidenced by an appropriate insignia.

(2) The manufactured home shall be connected to the required sanitary facility and potable water supply.

(3) Except for a structure which conforms to the state definition of a manufactured home accessory structure, no extension shall be attached to a manufactured home unless it meets the Uniform Building Code.

(4) Cabanas and awnings of like design to the manufactured home are permitted.

(5) Two off-street parking spaces shall be provided for each manufactured home.

(6) The manufactured home shall be multi-sectional and enclose a space of not less than 1,000 square feet.

(7) The manufactured home shall be placed on an excavated and back-filled foundation and enclosed at the perimeter (fire resistant skirting) such that the manufactured home is located not less than 12 inches above grade.

(8) The manufactured home shall have a nominal pitched roof of at least three in 12 feet, although four in 12 feet is preferred.

(9) The manufactured home shall have exterior siding and roofing, which in color