



City of Longview

1525 Broadway
Longview, WA 98632
www.ci.longview.wa.us

Agenda

Planning Commission

Wednesday, December 3,
2025

7:00 PM

City Hall

The City Hall is accessible for persons with disabilities. Special equipment to assist the hearing impaired is also available. Please contact the City Executive Offices at 360.442.5004 48 hours in advance if you require special accommodations to attend the meeting.

Please click the link below to join the webinar:

<https://us02web.zoom.us/j/82348037864>

Webinar ID: 823 4803 7864

Telephone Options (dial any of the following numbers):

1-253-215-8782	1-346-248-7799	1-408-638-0968
1-669-900-6833	1-301-715-8592	1-312-626-6799
1-646-876-9923		

International numbers available: <https://us02web.zoom.us/j/82348037864>

1. **ROLL CALL**
2. **APPROVAL OF MINUTES**
25-001071 PC Minutes of November 5, 2025
3. **AUDIENCE PARTICIPATION OR CORRESPONDENCE**
4. **DECLARATION OF EX-PARTE COMMUNICATIONS AND APPEARANCE OF FAIRNESS**
5. **PUBLIC HEARINGS**
25-001072 3505 and 3503 Oak St. Binding Site Plan
6. **NON-PUBLIC HEARING ITEMS**
25-001078 Comprehensive Plan review -
Chapter 6 - Energy and Telecommunications
Chapter 7 - Public Facilities, Utilities and Services
Chapter 8 - Transportation and Circulation
7. **OTHER BUSINESS**
8. **DIRECTOR'S REPORT**
9. **PLANNER'S REPORT**
10. **ADJOURNMENT**



City of Longview

1525 Broadway
Longview, WA 98632
www.ci.longview.wa.us

Minutes

Agenda

Planning Commission

Wednesday, November 5,
2025

7:00 PM

City Hall

The City Hall is accessible for persons with disabilities. Special equipment to assist the hearing impaired is also available. Please contact the City Executive Offices at 360.442.5004 48 hours in advance if you require special accommodations to attend the meeting.

1. **ROLL CALL**

Chairman Collins called the meeting to order at 7:00 p.m.

Present: Member Craig Collins, Member Trey Davis, Member Jeff Rauth, Member Ramona Leber, Member Jerry Stinger

Excused: Member Alison Moss

Absent: Member Randy Knox

Staff Present: Nick Little, Community Development Director; Sam Barham, City Engineer; Irene Rutikanga, Planner; Lisa Vertrees, Administrative Assistant

2. **APPROVAL OF MINUTES**

25-00997 PC Minutes of October 1, 2025

A motion was made by Member Jeff Rauth, seconded by Member Ramona Leber, to approve the regular meeting minutes of October 1, 2025. The motion passed unanimously.

3. **AUDIENCE PARTICIPATION OR CORRESPONDENCE**

None at this time.

4. **DECLARATION OF EX-PARTE COMMUNICATIONS AND APPEARANCE OF FAIRNESS**

Waived.

5. **PUBLIC HEARINGS**

25-00998 Shared Driveways - LMC 19.77 updates

Mr. Little gave the staff presentation.

A cross-section standard drawing was provided and added to the record.

Chairman Collins suggested adding the word "minimum" for compacted rock specifications.

Chairman Collins opened the public hearing.

The following citizens spoke:

Mike Wallin - Association of Realtors spoke in support of LMC 19.77

Hearing no other speakers, Chairman Collins closed the public hearing.

A motion was made by Member Jerry Stinger, seconded by Member Trey Davis, to forward a recommendation of approval for the proposed addition and amendments to LMC 19.09 and LMC 19.77, including the addition of Appendix B and supporting language, to City Council for their adoption. The motion passed unanimously.

6. **NON-PUBLIC HEARING ITEMS**

25-00999 Comprehensive Plan update Chapters 1, 5 and 9

Chapters 1 - Introduction

Mr. Little gave a presentation. The comprehensive plan is an official policy guide for Longview's growth and development.

Highlights:

- * Living document
- * Title 35A RCW for code cities
- * Planning Area Boundary
- * Implementation
- * City Vision
- * Discussion starters

Member Ramona Leber asked about an update on the planning process currently and the results of the four summits that were held.

Mr. Little will provide the results in upcoming meetings.

Member Ramona Leber also asked if the Planning Commission was being tasked to come up with a new vision for the City. Mr. Little said no. Chairman Collins said the Council initiatives should be tied to the vision in the comp plan.

Chapter 5 - Natural Environment

Mr. Rutikanga gave a presentation.

Highlights:

- * Critical Areas
- * Summary of existing conditions - wetlands, frequently flooded areas, aquifer recharge, wellhead protection
- * Fish and Wildlife habitat
- * Geologically hazardous areas
- * Shorelines of the State
- * Brownfields

Chairman Collins commented brownfields definitely need to be included.

Chapter 9 - Historic Preservation

Mr. Robinson gave a presentation.

Highlights:

- * Historic context
- * Maintenance and use of historic buildings

An addition will be included with what has been done to date such as the Shay Locomotive, JH Kelly light, the Elks building, Monticello Convention corner update.

Member Ramona Leber suggested exploring using demo fees for downtown improvements, along with reaching out to the Old Westside for input and maybe do an Education campaign - what is a historical building, how to get it designated, benefits to designation, etc. Member Jerry Stinger is involved in an Old Westside neighborhood group that could host such a campaign and will work with Mr. Little.

7. OTHER BUSINESS

Member Ramona Leber will update her December availability.

8. DIRECTOR'S REPORT

** Shared Driveways LMC update will now go to Council in December*

** Master fee schedule update*

** Ordinance updates*

9. PLANNER'S REPORT

** 46th/48th Avenue project approved by Council*

** Mint Valley mobile home park (Oak St.) is being reviewed*

Public Works

** Bid opening - Mint Valley irrigation*

** First ad for Cloney Park upgrade*

** Tennant Way signal improvements - 2-3 weeks to completion*

** Mt. Solo waterline update*

** Waterline replacement on 15th Ave. for LCC*

10. ADJOURNMENT

The next regular Planning Commission meeting is December 3, 2025 at 7 p.m.

With no further business to discuss, Chairman Collins adjourned the meeting at 8:28 p.m.

Lisa Vertrees, Recorder



3505 Oak Street Manufactured Home Park Staff Report

Staff Report Date:	November 26 th , 2025
Property Owner:	Columbia View Group
Applicant:	Kessi Engineering
Project Summary:	Proposal for a Type B binding site plan for a 71-lot manufactured home park development on an approximately 10.38 acres.
Project Location:	The 10.38 acres site is currently configured as two lots located on Oak Street. It comprises of parcel number 053180300(1.16 acres) and parcel 05319(9.22 acres). The project site is located on the south side of Oak Street, approximately 800 feet northwest of its intersection with 34th Avenue. The site is currently developed with a dilapidated structure and is bordered on three sides by CDID #1 drainage ditches.
Current Zoning:	R-1 Low Density Residential
Comprehensive Plan:	Low Density Residential
Existing Land Use:	Parcel 053180300 is vacant and parcel 05319 has a single-family residence with outbuildings.
Surrounding Land Use:	Single family residential.
Staff Recommendation:	Approval of preliminary binding site plan, with conditions

1. PROJECT DESCRIPTION

The applicant Kessi Engineering is proposing a type B Binding site plan to develop a 71-lot manufactured home park on approximately 10.38 acres single family residential (R-1) zoned property. The site is mostly flat and bordered on three sides by CDID ditch and to the east by Oak Street. It contains a dilapidated single-family home structure with several outbuildings on site, all of which will be removed as part of the proposed development. The site is currently composed of two parcels, primarily covered with grasses, blackberry bushes, and scattered coniferous and deciduous trees.

The original proposal was reviewed by the Planning Commission at the June 4th public hearing, where it was denied. The applicant has since resubmitted a new application that includes a secondary access via Jimmer Place and reduces the total number of lots from 72 to 71.

The project site will be accessed via Oak Street, a collector road, and Jimmer Place, a local access road. The lots in the manufactured home park will be accessed via a 24-foot-wide paved internal private road which will include a 5-foot striped walkway on one side and no on-street parking is proposed on either side. Full street improvements along the project frontage on Oak Street will be provided and will include construction of sidewalks on both sides of Oak Street.

Water and sewer services will be provided by the City of Longview, with extensions of existing water lines from Oak Street and Jimmer Place, and an extension of the existing sewer main from Oak Street. Each manufactured home will be individually sub-metered, with all utilities built to City standards but privately owned and maintained by the park owner or operator. Four fire hydrants will be installed throughout the development to ensure adequate fire protection in compliance with city standards.

Stormwater runoff from the development will be managed via onsite yard areas and through participation in the Consolidated Diking Improvement District No. 1 (CDID) regional detention program. Adequate off-street parking will be provided for each home, and each manufactured home site will include landscaped yards with drought-resistant trees. A 15-foot easement and a 12-foot gravel access road will be dedicated to the diking district for maintenance of the onsite ditch.

Physical development of the site has been proposed as a phased development. The applicant has proposed the project be completed in three phases as shown on the preliminary binding site plan.

Prior to final approval of the Binding Site Plan (BSP), a boundary line adjustment will be completed to consolidate the development site into a single parcel. The remaining parcel

(Parcel F) will be adjusted to the south and will not be part of the manufactured home park development.

2. PROCESS

The applicant is proposing a Type B Binding Site Plan with the manufactured home park property under a single overall ownership and sites provided for the placement of manufactured homes. Ownership of the real property will remain under a single entity unless a revised Binding Site Plan is recorded pursuant to LMC 19.90, or as hereafter amended. A note shall be placed on the final binding site plan to this effect.

The Preliminary Binding shall be approved or disapproved by the Planning Commission during a duly noticed public hearing pursuant to LMC 19.90.050 and -.060. Upon approval of the preliminary binding site plan, the applicant will complete the conditions of approval as applicable and submit for final binding site plan approval. The final binding site plan will be reviewed for compliance with conditions of approval and then forwarded on the planning commission for review during a regular meeting for final approval and signatures prior to recording.

All subsequent construction of improvements after recording of the final binding site plan shall be in accordance with the recorded final binding site plan. Any deviation from the recorded final site plan is considered an amendment and will require additional review and re-recording of the binding site plan in accordance with LMC 19.90.100.

3. CRITICAL AREAS

No mapped critical areas appear to be on the site. The project site is bordered by a CDID ditch on three sides. CDID drainage ditches are not considered “fish and wildlife habitat conservation areas” or streams pursuant to LMC 17.10.050 and -.070.

4. SEPA AND PUBLIC NOTICE

A combined SEPA and Public hearing was issued and noticed as part of the project review. The SEPA comment period ended November 26th, 2025 and the public hearing comment closes the day of the hearing on December 3rd 2025. A revised Determination of Non-Significance (DNS) was issued on November 12th, 2025. The comment period ended on November 26th, 2025. The following comments from agencies and the public were received during the SEPA comments period and are attached as Exhibit I:

Department of Ecology:

- Department of Ecology comment regarding clean fill material requirements for grading.

- Department of Ecology comment requiring a construction stormwater general permit (CSWGP)

Department of Washington Fish and Wildlife:

- Recommendation of 150 ft riparian buffer for a type F stream

Public Comments:

- **Larry and Karen Whyte:** Concerns project on the wildlife in the area
- **Mark Jewett:** Concerns regarding the increased traffic on Jimmer Place
- **Cherry Underwood:** Concerns of increased traffic and impacts to kids waking to school
- **Julia Van Steenberg:** Concerned of project impact on wildlife in the area, impact of project perimeter fencing on Ms. Steenberg property, questions of the traffic study lack of analysis of the intersection of Oak Street and 30th Avenue.
- **Monte & Carol Fulbright:** Concerns of the project traffic impacts on residents on Oak St, 34th St and Jimmer Place and surrounding streets.

5. LMC 19.28 STANDARDS FOR MANUFACTURED HOME PARKS

The zoning code provides standards for manufactured home parks in chapter 19.28 of the Longview Municipal Code. Consistency with the manufactured home standards are discussed below:

A. 19.28.040. Maximum Density and Minimum Park Size

(1) Density in a manufactured home park shall not exceed eight and one-half units per gross acre.

(2) Manufactured home parks shall be a minimum of one acre in size.

Staff Findings: The proposed manufactured home park will be on a site that is approximately 10.38 acres in size. For manufactured Home Parks, the allowed maximum density per gross acre is 8.5 units per acre and with a total gross acreage of 10.38 acres, the allowed maximum density is 88.2 units. The proposed manufactured home park is below the maximum density as it proposes a total of 71 lots and exceeds the required minimum manufactured home park size, therefore satisfying the maximum density and minimum park size standards.

B. 19.28.050 Lot Width, Depth, Frontage

(1) Interior lot, 40 feet wide at the front property line and building lines.

(2) Cul-de-sac lot, 30 feet wide as measured along the front property or site line;

(3) Corner lot, 50 feet wide at the building line, provided the intersection visibility clearance standard can be met

(4) Lot depth, 60 feet

(5) All sites shall front on interior streets within the park

Staff Findings: All of the lots in the proposed manufactured home park will have at least a lot depth of 60 feet and 40 feet of frontage on an interior street, except for lots 7, 8, and 37- 42 (8 total lots) which will have a reduced amount of frontage on the interior street. The applicant is proposing to utilize the shared driveway provisions provided in LMC 19.77 to reduce the required frontage. The 8 lots with reduced frontage will have a minimum 20-foot shared driveway access easement.

Lot Frontage Variance Request: The applicant is requesting a variance from the required 40 feet of lot frontage as outlined in LM19.28.050. For a variance to be granted it must meet criteria outline in LMC 19.12.140. the criteria are as follows:

(1) The variance will not constitute a grant of special privileges inconsistent with the limitation upon uses of other properties in the vicinity and zone in which the property on behalf of which the application was filed is located.

The requested variance does not constitute a special privilege granted only to the applicant. In requesting the reduction, the applicant has proposed the use of shared driveways meeting the standards contained in LMC 19.70 which allows for reduction to lot frontage. Other types of development would be allowed to use these provisions in their design, and the applicant is seeking the same consideration for the proposed manufactured home park.

(2) That such variance is necessary, because of special circumstances relating to the size, shape, topography, location, or surroundings of the subject property, to provide it with use rights and privileges permitted to other properties in the vicinity and in the zone in which the subject property is located.

The subject property is bordered on three sides by the Consolidated Diking Improvement District (CDID) drainage ditches, which significantly restrict the developable area and site layout. To efficiently utilize the site while still providing adequate infrastructure, open space, and recreational areas, several lots have been designed with reduced frontage along the internal private street. Each lot maintains sufficient width to accommodate off-street parking and ensures emergency vehicle access, which are among the primary purposes of lot frontage requirements.

Furthermore, all lots within the development comply with other applicable dimensional standards for manufactured home parks, including minimum setbacks from front, side, and rear property.

(3) That the granting of such variance will not be materially detrimental to the public welfare or injurious to the property or improvements in the vicinity and zone in which the subject property is situated;

Granting this variance will not be materially detrimental to the public welfare or injurious to nearby properties or improvements. Although the lot frontage is reduced, each lot is accessed via an internal private street and designed to meet all other dimensional standards, including minimum lot area, setbacks, and required off-street parking. The internal access road is entirely accessible to emergency services, pedestrians, and regular vehicles. Since the road is private, it will not impact public streets or impact the properties within the surrounding area. By following the shared driveway standards of LMC 19.70, the applicant has complied with the relevant LMC that already contemplates reduced frontage standards and their impact on the public welfare.

(4) The need for the variance is not the result of any action taken by the applicant.

The need for the variance is due to existing physical site constraints resulting from the site surrounding CDID drainage ditches and is not a result of any action taken by the applicant.

C. 19.28.060 Minimum Building Setbacks

(1) Front Setback. The minimum front yard setback for all buildings and structures shall be five feet from the front property line which abuts a private or public street within the park; provided, on corner lots, the intersection visibility clearance standard is met.

(2) Side Setback. The minimum side yard setback for manufactured homes and buildings including carports, garages and accessory buildings shall be five feet; provided, on corner lots, the intersection visibility clearance standard is met.

(3) Rear Setback. The minimum rear setback shall be 10 feet.

(4) Intersection Visibility Clearance. On a corner lot, nothing shall be erected, placed or allowed to grow in such a manner as to impede vision between a height of three and 10 feet above the centerline grades of the intersecting streets in the triangular area

bounded by the street lines of the corner lot and a line joining points on said street lines 20 feet from the corner.

Staff Findings: The building envelopes illustrated on the preliminary binding site plan satisfy the setback requirements for manufactured home parks as provided above. Review for consistency with the minimum setbacks requirements will be reviewed and approved during each individual manufactured home placement permit application.

D. 19.28.070 Manufactured Home Size, Building Height, Lot Coverage.

(1) Manufactured homes in parks shall be no less than 420 square feet in area.

(2) All buildings within a manufactured home park shall be no more than one and one-half story high or a maximum of 20 feet in height.

(3) Maximum lot coverage by homes, their carports or garages, and accessory buildings and uses shall be 50 percent

Staff Findings: Manufactured home size, building height and lot coverage will be reviewed with each individual placement permit application to ensure compliance with LMC 19.28.070 requirements. No permit will be issued for individual mobile home unless it demonstrates compliance these standards.

E. 19.28.080 Fences, Hedges.

(1) Fences and hedges on individual sites shall be no higher than three feet along front property lines and no higher than six feet along side and rear property lines on interior lots and interior lot lines of corner lots. On corner lots, fences and hedges shall be no higher than three feet along front and side street property lines.

Staff Findings: Individual sites fences and hedges will be reviewed and approved with each manufactured home park building permit application to ensure compliance with LMC 19.28.080 requirements. No permit will be issued for individual mobile home placement unless it demonstrates compliance these standards.

F. 19.28.090 Parking Provisions.

(1) Off-street parking shall meet the requirements of Chapter 19.78 LMC.

(2) In addition to the off-street parking requirements, there shall be provided at least one automobile parking space for every two home sites for use by guests, visitors, service, or delivery vehicles and shall be signed or designated as such. These spaces may be placed along the park's interior drives but shall be set back off the roadway proper and shall be within 100 feet of the lots to be served. This parking may be waived if on-street parking is provided on streets designed to accommodate side parking and two standard lanes of traffic.

Staff Findings: Each lot in the manufactured home park is proposed with two to three dedicated parking spaces, exceeding the minimum requirement of one parking space for manufactured homes under LMC 19.78. The project provides approximately 207 parking spaces and additional 11 parking spaces designated for guests located within Tract E and tract G. Overall, the project provides approximately 218 total off street parking spaces ensuring adequate parking residents and visitors.

G. 19.28.100 Screening and Landscaping.

(1) A sight-obscuring fence at least six feet high shall be constructed around the entire manufactured home development. The fence shall be appealing from inside and outside of the development. This may be accomplished by several alternatives: wood board fencing, chain link fencing with evergreen hedges of such species, height and placement so as to become an effective sight screen within two years of planting, or some similar form of ornamental fencing and landscaping combinations.

(2) Home sites and common areas shall be landscaped and maintained so as to enhance the livability, residential character, and aesthetics of the park. Such landscaping shall consist of substantial evergreen and deciduous trees mixed with shrubbery and ground covers, all installed concurrent with property development and prior to tenant or owner occupancy. Vegetated stormwater management facilities such as bioretention areas and planters, conveyance swales and dispersion areas can be used to satisfy this requirement.

(3) The applicant shall follow land preparation practices which will leave, as much as is feasible, existing trees, vegetation, and other natural features.

Staff Findings: A six-foot sight obscuring fence will be constructed around the perimeter of the entire site to provide visual screening and enhance privacy for both residents and neighboring properties. The requirement to construct a fence is not to be construed as an authorization to trespass during construction on adjacent landowners

property. Any construction activity for the perimeter fence shall take place on the applicant's property, unless authorized by adjacent landowners.

All home sites and recreational areas will be landscaped. As part of the application submittal, the applicant submitted a landscaping plan for home sites and recreational areas and facilities. The plan proposes landscaping for all home site to include grass, ground cover, and a diverse mix of evergreen and deciduous trees to enhance the visual appeal and livability of the development.

While the project will require grading and removal of some vegetation to accommodate infrastructure, internal roads, and home site development, the applicant has incorporated landscaping features to enhance the site's livability and character. Final clearing and grading will be reviewed with civil construction plans to ensure proper land preparation are being adhered to.

H. 19.28.110 Recreation Areas and Facilities.

(1) The following recreation areas and/or facilities shall be provided by home parks:

(a) An outdoor play area with a variety of playground equipment. A minimum of 100 square feet of play area will be provided per home lot or site. The play area shall be protected from all streets, driveways, and parking areas by a fence at least 30 inches in height. Access to the area will be safe and minimize conflicts between pedestrians and vehicle traffic.

(b) A heated indoor recreation facility combined with a portion of the outdoor play area described in subsection (1)(a) of this section, both with a variety of play equipment and areas for use by park residents. A minimum of 25 square feet of floor area per mobile home lot or site will be provided for the indoor facility, and a minimum of 50 square feet of ground area per unit will be provided for the outdoor play area.

(2) If the park does not accommodate children less than 14 years of age, an indoor facility with recreation and community equipment shall be provided for use by residents. A minimum of 20 square feet of floor area per lot or site will be provided for the building. Equipment installed or made available will be appropriate to the user population: pool, ping-pong, or card tables, a community kitchen with eating and entertaining facilities, swimming pool, sauna, and so forth.

Staff Findings: The park is designed to accommodate children under the age of 14 and includes common recreation space totaling 8,920 square feet over three open space tracts, exceeding the minimum requirement of 100 square feet per lot. The play area will feature a variety of playground equipment to support active recreation, and the area will be protected from all streets, house driveways, and parking areas by a fence at least 30 inches in height.

I. 19.28.150 Streets, Lighting, and Sidewalks.

(1) Manufactured home parks shall meet LMC 19.80.130 standards, except that streets and street lighting may be private. Public street pavement widths and sidewalks, if provided, need meet only local access standards of Chapter 12.50 LMC. Private streets with parking on one side shall have a minimum pavement width of 32 feet with a right-of-way width of 40 feet. Private street with no on-street parking shall have a minimum pavement width of 24 feet and a right-of-way width of 32 feet. Curbs and sidewalks are recommended, and their need and type will be determined during site plan review. At a minimum, a four-foot-wide walkway will be striped or similarly designated along at least one side of each street. All dedicated improvements, in any case, shall meet Chapter 19.80 LMC standard.

Staff Findings: Development with 30 lots or more are required to provide two points of ingress and egress. The project satisfies this requirement by proposing two points of access; one from Oak Street and a second from Jimmer Place.

Oak street functions as collector road connecting the neighborhoods in the city Longview. The project proposes full streets improvements along project frontage on Oak Street. These improvements include road widening, curb and gutter, and the installation of sidewalks on both sides of the street in accordance with city standards.

Jimmer Place functions as a local residential street serving homes on Jimmer Place and Jennifer Place. The project proposes to extend access to Jimmer Place by improving the existing dead-end cul-de-sac area. This second access from Jimmer Place will consist of a 24-foot-wide paved private road that will cross over the CDID drainage ditch, providing a continuous emergency and residential connection between the development and the surrounding neighborhood. According to the Washington Department of Fish and Wildlife, an HPA permit may be required prior to any in-water work occurring in the CDID ditch.

The lots within the manufactured home park will be accessed via a 24-foot private road that incorporates a five-foot striped walkway on one side of the road. No on-street parking is proposed within the development. “No Parking” signs will be installed throughout the internal roadway network to clearly indicate the parking restrictions.

J. 19.28160 Stormwater

Stormwater management shall conform to Chapter 17.80 LMC and all other applicable statutes.

Staff Findings: Stormwater runoff from the development will be managed via onsite yard areas and through participation in the consolidated diking district (CDID) detention program for stormwater runoff control. This program offers developers an alternative to constructing and maintaining individual on-site detention facilities by allowing them to purchase credits to use the diking district offsite detention facilities. Runoff from the development captured and treated in accordance with state and local regulations prior to delivery to the adjacent CDID ditch; no new discharge of stormwater to offsite properties is permissible. The participation in the CDID detention program complies with the stormwater management requirements of LMC chapter 17.80. Prior to final binding site plan recording, the applicant will be required to complete the appropriate agreement(s) with CDID.

K. 19.28.170 Utilities

All utilities shall be shown on the site plan, installed underground within the park, meet all applicable building, plumbing, electrical, health, and engineering codes and standards and be subject to approval by the city engineer and building official. Utilities at the home site shall have the ability to be capped when a home is not on site.

Staff Findings: A preliminary utility plan has been submitted and identifies the proposed utility connections for the project. The development will connect to an existing 6-inch public water line along Oak Street and install a new 8-inch water line extension from Jimmer Place to ensure adequate water service throughout the site. Additionally, the sanitary sewer main will be extended from Oak Street to serve all manufactured home lots within the development. Each manufactured home will be individually sub-metered for water usage. All utility infrastructure within the park will be constructed to City of Longview standards but will remain private and be owned and maintained by the park owner or operator. A Final engineering review and approval will be required to ensure all utility improvements are constructed in compliance with applicable City of Longview standards.

6. LMC 19.90.080 Binding Site Plan Approval Criteria

To grant approval of a preliminary binding site plan, the applicant must demonstrate compliance with all of the following criteria:

(1) Appropriate provisions to the extent necessary to mitigate an impact of the development have been made for transportation, water, storm drainage, erosion control and sanitary sewage disposal methods that are consistent with the city's current ordinances, standards and plans.

Staff Findings: The project proposes two points of Ingress and Egress from Oak Street and Jimmer Place, satisfying the city requirement for the development with over 30 lots to provide two points of access. A traffic study prepared by H. Lee & Associates, dated June 2025, has been completed by the applicant. The study reviewed potential traffic counts and potential impacts to five nearby intersections. The project is anticipated to generate a total of 506 daily trips with 28 AM peak hours and 41 PM peak hours trips, with those trips divided between the two proposed accesses. All study area intersections are projected to meet the level of service standards, and the study concluded that no off-site physical traffic mitigations are required.

The projects propose to extend existing public water lines from both Jimmer Place and Oak Street to serve the lots in the development. In addition, the project will extend existing public sewer main off Oak Street. All utilities will be constructed in accordance with the city of Longview standards and will be subject to review and approval by the city public works department.

The project will participate in the Consolidated Diking Improvement District (CDID) No. 1 regional detention program, which satisfies the City's stormwater management requirements for flow control. On-site stormwater conveyance improvements will be designed to meet the City's adopted stormwater standards. The applicant will also be required to submit a temporary erosion and sediment control plan at the time of civil plan review to manage runoff and prevent sediment release during construction.

2) Appropriate provisions have been made for but not limited to public health, safety and general welfare.

Staff Findings: The project will be served by public water and sanitary sewer systems operated by the City of Longview, ensuring safe and reliable access to potable water and wastewater disposal for all future homes. The internal street network includes a minimum of 24 feet of paved width, meeting fire department access and turnaround standards, and incorporates fire hydrant placement in accordance with Fire Code spacing requirements. Additionally, the development includes a dedicated recreational area to support the physical well-being of future residents.

The project proposes two points of access from Oak Street and Jimmer Place which satisfies code requirements and ensures adequate access during emergency responses.

(3) Appropriate provisions have been made for proposed streets, alleys and public ways, utilities and other improvements that are consistent with the city's current ordinances, standards and plans, and Department of Health and/or Washington State Department of Transportation standards and plans, where applicable.

Staff Findings: The appropriate provisions have been made for streets, utilities, and other required improvements to serve the proposed 71-lot manufactured home park. Internal access to all home sites will be via a 24-foot-wide paved private road, which will be designed to meet fire department access and turnaround requirements. The road section also incorporates a five-foot striped pedestrian walkway along one side and an overall 32-foot private right-of-way. This configuration satisfies the manufactured home park street development standards of LMC 19.80.130.

Additionally, the project proposes full street improvement along the project frontage on Oak Street. The improvements consist of construction of sidewalks on both side of Oak Street along the project frontage.

The project site is bordered on all three sides by the consolidated diking improvement district (CDID) cut of slough, appropriate easement for access and maintenance for CDID have been incorporated into the project development plans. All home sites will be served by public water and sanitary sewer systems operated by the City of Longview.

(4) Appropriate provisions to the extent necessary to mitigate an impact of the development have been made for open space, parks, schools, dedications, easements and reservations.

The project includes approximately 8,920 square feet of designated open space and recreational areas located within Tracts B, C, and D. These areas will be improved with playground equipment and enclosed with fencing, satisfying the minimum recreational space requirements outlined in LMC 19.28.

RCW 58.17 requires that new subdivision development address appropriate provisions for "...planning features that assure safe walking conditions for students who only walk to and from school..." The proposed development is within the Columbia Valley Garden School boundary which is approximately 1.4 miles from the development site. A safe walking route with sidewalks from the development site to the school exist for the student that will be walking. Students walking to Columbia Valley Garden Elementary will begin their route from Jimmer Place, continue onto Tori Lane, then travel along Ocean Beach Highway via Nebraska Street, and turn left onto 30th Avenue, which leads directly to the school. The entire street network along this route is developed with sidewalks, providing continuous and safe pedestrian conditions for students walking to and from the elementary school. Additionally, based on previous discussions with the Longview school district, Oak street is considered a safe walking route for students in the neighborhood based low number of accidents and low speed of the street in a residential neighborhood. The Longview School District was contacted for review of the

proposal and indicated no concerns or requested improvements related to school access or transportation.

All utilities will be constructed in accordance with City of Longview engineering standards however, they will remain private and will be owned and maintained by the park owner/developer, as a result, public utility easements are not required.

A 15-foot easement and a 12-foot-wide gravel access road will be dedicated to the Consolidated Diking Improvement District (CDID) to ensure continued access for maintenance of the adjacent drainage ditches that border the site on three sides. Additionally, a 5-foot right-of-way will be dedicated to the City along the project frontage, and the appropriate dedication process will be followed to record this dedication.

(5) The design of the proposed binding site plan has taken into consideration the physical features of the site, including but not limited to: topography, soil conditions, susceptibility to flooding, inundation or swamp conditions, steep slopes or unique natural features such as wildlife habitat or wetlands;

The physical characteristics of the site have been considered in the design of the proposed binding site plan. The subject property is predominantly flat and does not contain mapped critical areas, such as designated wildlife habitat or wetlands. The site is surrounded by Consolidated Diking Improvement District (CDID) drainage ditches on three sides. In order to mitigate potential impacts and maintain the functionality of the ditches, the site configuration has been designed with appropriate setbacks and easements for CDID maintenance. The CDID Regional Detention Program will be used to manage stormwater from the development, thereby ensuring that the development is consistent with stormwater discharge requirements and that flood risk is mitigated. An infiltration testing analysis was submitted with the application materials to evaluate the soil conditions on the project site. The findings of the report were used to inform and guide the project design, ensuring that appropriate measures were incorporated based on the identified soil conditions.

(6) Compliance with the following:

(a) State requirements including those set forth in Chapter 58.17 RCW;

Bindings site plans are an allowed alternative method of subdivision. The proposed binding site plan complies with Chapter 58.17 RCW by demonstrating orderly division of land for lease or sale and providing for necessary improvements including access, utilities, and fire protection.

(b) Longview parks and recreation plan;

The project proposes a recreational area consistent with the city standards for recreational facilities. The city parks department reviewed the proposed recreational area and expressed no concerns.

(c) Longview zoning ordinance, except when a variance, amendment, or waiver is approved by the city.

The proposed development is located within the Low-Density Residential District R-1, and is consistent with the uses and density and allowed in the zone along with satisfying the manufactured home park development standards.

(d) Cowlitz County shoreline master program.

The site is not located within a shoreline jurisdiction as defined by the Shoreline Management Act; therefore, no shoreline regulations apply.

(e) Other plans and programs as the city has adopted;

The project will comply with the International Fire Code, building code, and all other applicable local and state construction standards.

(f) The standards of this chapter and this title; the International Fire Code and other adopted codes; and

The project complies with the standards outlined in LMC 19.90. Upon construction of above-ground structures, each manufactured home will be reviewed for compliance with the International Building Code, fire code as well as other applicable codes adopted by the City.

(g) Plans and specifications adopted by the public works department including those set forth in Chapter LMC12.50

Public improvements, including water, sewer, and street sections, are designed in accordance with the City's adopted engineering standards and LMC Chapter 12.50. Utility extensions and full street frontage improvements are included in the civil plan set and will be reviewed for compliance with city standards prior to final approval.

7. COMPREHENSIVE PLAN POLICIES AND GOALS

The proposed Mint Valley Manufactured Home Park is located within the R-1 Residential District, which aligns with the Low-Density Residential designation in the City's Comprehensive Plan. The Low-Density Residential designation supports the development of manufactured home parks.

Relevant goals, objectives, and policies in the Comprehensive Plan highlight the importance of manufactured home parks as a strategy for promoting infill development and making efficient use of large residential parcels. These developments are recognized for their role in expanding housing options within existing urban areas and adding on to the city affordable housing stock.

The proposed 71-lot manufactured home park would significantly contribute toward meeting the city identified housing needs and directly aligns with the City's long-term planning goals.

Low Density Residential

The low-density residential classification designates areas intended primarily for single-family dwellings. Manufactured housing parks designed according to firm standards for screening, buffering, parking, recreational area, distance between units, and other matters may be appropriate when deemed compatible with adjacent property by the City or County planning commissions and local legislative bodies. Home occupations may be acceptable. The recommended density is up to six dwelling units per gross acre.

Goal LU-E Amend the Longview Municipal Code Title 19 – Zoning to provide regulations and standards that allow for a wide range of housing choices to meet the changing needs of the community.

Objective LU-E.1 Develop regulations to govern infill in residential areas with large lots.

Policy LU-D.3.3 Recognize the role of mobile and manufactured housing as an important component of Longview’s single-family housing stock by allowing for their continuation in zoning regulations and by providing flexible and effective development regulations that will allow the upgrading and modernizing of existing mobile home parks.

Policy HO A.6.1: Increase the supply of quality housing stock and encourage a range of housing options that meet the need for low, medium, and high-density

8. CONCLUSION

The proposed 71-lot Mint Valley Manufactured Home Park binding site plan largely satisfies the applicable requirements of the Longview Municipal Code (LMC), including zoning, manufactured home park standards, utilities, stormwater management, recreation, and site design. The project is consistent with the City Comprehensive Plan’s Low Density Residential designation and advances city of Longview housing goals outlined in the comprehensive plan by contributing to the needed supply of manufactured and affordable housing within the city. All necessary infrastructure will be provided, including water, sewer, fire protection, stormwater treatment via participation in the CDID regional detention program, and adequate off-street and guest parking. The project also includes provisions for open space, recreation, screening, landscaping, and pedestrian circulation intended to enhance neighborhood livability.

The development proposes to have two points of ingress and egress, one from Oak Street and the second from Jimmer Place, satisfying the city's requirements for proposed developments with more than 30 lots. The lots within the development will be served by 24-foot-wide paved road that incorporates a 5-foot striped walkway. Full street improvements along the project frontage on Oak Street will also be provided and comprise of construction of sidewalks on both side of Oak Street. The applicant will be required to submit final design(s) and complete all local and state permitting requirements prior to starting work or placing new homes.

Each individual manufactured home placed within the park will undergo review as part of the building permit process. During this review, City staff will ensure that the proposed home placement complies with applicable building codes, zoning regulations, and development standards, including but not limited to setbacks, utility connections, and fire safety access.

9. Recommendation

Variance Requests

Staff recommends approval of the following variances, subject to the findings and conclusions in this staff report:

1. Reduction of lot frontage requirements for Lots 7-8 and 37-42 as shown on the preliminary binding site plan.

Preliminary Binding Site Plan

Staff recommends approval of the Mint Valley Manufactured Home Park Type B Preliminary Binding Site Plan for the development of 71 manufactured home lots on approximately 10.38 acres located at 3505 Oak Street, subject to the findings, conclusions and conditions contained in this report, and subject to approval of the requested variances to lot frontage.

10. CONDITIONS OF APPROVAL

Based on the analysis of the issues and findings of fact, staff recommends approval of the Mint Valley Manufactured Home Park preliminary binding site plan, subject to the following conditions of approval:

1. The applicant shall complete all applicable conditions of approval and submit a Final Binding Site Plan for review. The Final Binding Site Plan shall be reviewed for compliance with the conditions of approval and forwarded to the Planning Commission for final review and approval at a regular meeting prior to recording. All construction and installation of improvements following recording of the Final Binding Site Plan shall conform to the recorded Final Binding Site Plan.

2. Approval of the BSP is limited to 71 lots. The new lots shall substantially conform to the lot sizes, dimensions, and layout shown on the approved preliminary BSP. Addresses will be assigned to the lots during final BSP review.
3. For each lot submitted for final BSP approval, a building envelope shall be delineated on the final BSP. No lot shall be final platted that does not contain a building site which can accommodate a reasonably sized house, parking area, building setbacks, and driveway access.
4. Prior to any construction activity, including filling, grading, or vegetation removal, an application shall be made to the City of Longview Community Development Department, City of Longview Public Works Department, and the Consolidated Diking Improvement District as necessary. The application shall include a complete set of engineered plans to include road and utility plans, grading and filling, drainage/stormwater facilities, and erosion/sedimentation controls for review and approval prior to construction and any improvements made thereafter. No grading, excavation, or construction shall be conducted until all construction plans have been approved and applicable permit(s) issued. All engineered plans shall be prepared and stamped by a licensed professional engineer registered in the State of Washington. Relevant CDID#1 Standard Details shall be included in the construction plan set and appropriate CDID approvals shall be obtained prior to construction.
5. The applicant shall coordinate with the Washington Department of Fish & Wildlife (WDFW) to determine whether the installation of the CDID ditch crossing will require a Hydraulic Project Approval (HPA). If required, the applicant will be required to obtain HPA approval prior to any in-water construction activity occurring. If a HPA is not required, the applicant shall provide written notification from WDFW prior to any in-water construction activity occurring.
6. The project is proposed to be developed in three phases. Each phase shall be constructed as a standalone unit of development and include all elements necessary for that phase to stand alone including completion of necessary road, utility, landscaping, and other improvements, provided that multiple phases may be constructed at once. No placement of any manufactured home in a phase shall be permitted until all elements of development have been reviewed, permitted, constructed, and granted final approval for the related phase. Additional temporary fire apparatus turnarounds will be required for Phases 1 and 2 to provide for emergency service needs, subject to Fire Marshal and City Engineer review and approval.

- 7.** The internal park streets, public road approaches, and proposed crossing of the CDID ditch shall be designed, reviewed, permits issued, and constructed to the applicable City of Longview design standards. Any necessary RoW and/or PIP permits for the approaches to Oak Street and/or Jimmer Place shall be obtained, as required, prior to any street or utility work occurring within City RoW. The secondary access from Jimmer Place shall be constructed prior to the completion of a second phase of development.
- 8.** A boundary line adjustment shall be completed prior to final binding site plan submittal consolidating the entirety of the park on a single parcel and excluding parcel F from the overall development as shown on the preliminary binding site plan.
- 9.** Covenants and private easements to ensure continued maintenance of park grounds, common areas, private roads and utilities shall be provided to the City prior to final binding site plan approval and recording. The developer shall create and record covenants, conditions & restrictions (CC&R) or a private maintenance agreement, subject to City review that clearly assigns responsibility for the ongoing maintenance, repair, and replacement of all private utilities, stormwater facilities, internal access roads, and/or common recreation areas prior to final BSP approval.
- 10.** All future manufactured home placement shall require a placement permit issued by the Community and Economic Development Department and shall be installed in accordance with the IBC/IRC and manufactured home parks standards outlined in LMC 19.28.130, including all applicable setback requirements. The applicant shall demonstrate the type and design for skirting at time of manufactured home placement application, Per LMC 19.28.130, (5) Skirting shall be securely attached between the home and the ground on all sides within 30 days of home installation. Skirting materials shall consist of materials which are compatible with design of the home and enhance its appearance.
- 11.** The proposed outdoor recreation areas shall contain a variety of playground equipment as outlined in LMC 19.28.10. A proposed playground layout, including proposed play structures, shall be identified on the final BSP prior to recording.
- 12.** The applicant shall consult with the Longview post office to determine the most appropriate location for mailboxes to serve the development. Proposed mailbox locations, size, and type shall be identified on the final BSP prior to recording.
- 13.** A minimum of four fire hydrants shall be installed in locations approved by the Fire Marshal and equally spaced not to exceed 500 feet as measured along fronting streets and fire apparatus access roadways, provided that additional hydrants may be necessitated to ensure adequate fire coverage is provided to all units in the park. The hydrant locations shall be approved by the City Fire Marshal and shown on the final binding site plan prior to final approval.

- 14.** No parking will be allowed on either side of the private roadway throughout the development. Signage denoting 'NO PARKING' is to be installed on both sides of the roadway throughout. A restriction shall be placed on the final binding site plan stating that no off-street parking is allowed at any time along either side of the internal street network. The signs shall be installed prior to final engineer sign off of each individual phase.
- 15.** Water lines and their interconnections to the existing City water system shall be constructed to City of Longview standards, including any necessary "looping" of the system to maintain pressure. All Fire hydrants shall be designed and constructed to meet minimum fire flow requirements. Verification of hydrant flow shall be required prior to final engineering sign-off for each individual phase, respectively.
- 16.** Individual water and sewer service lines throughout the development shall have proper horizontal separation per the IBC and Longview Building Code. Plumbing permits, as required, shall be obtained at the same time as future manufactured home placement permits.
- 17.** As required by the City Engineer, streets lighting shall be provided per LMC 19.28.150. All internal security or safety lighting shall be hooded and placed in a manner that does not cause light or glare to trespass onto any neighboring properties.
- 18.** The project will be utilizing the CDID #1 Regional Detention Program to satisfy stormwater requirements. Evidence of payment and acceptance by CDID #1 shall be provided prior to final binding site plan approval.
- 19.** The applicant shall obtain a Construction Stormwater General Permit (CSWGP) from the department of Ecology prior to any development and/or construction activity occurring on site.
- 20.** Any changes to the approved preliminary site plan or final binding site plan will require additional City review pursuant to Chapter 19.90.
- 21.** The following signature blocks shall be included on the final binding site plan:
 - a. Notary block and signature line for the landowner(s)
 - b. City of Longview Planning Commission Chairman
 - c. City of Longview Engineer
 - d. Surveyor's certificate
 - e. Auditor's certificate
- 22.** The following notes shall be placed on the final binding site plan:

- a. *"The purpose of this binding site plan is to establish a manufactured home park with sites for lease for the placement of manufactured home only pursuant to Type B binding site plan requirements of LMC 19.28 and 19.90. Ownership of the real property will remain under ownership by a single entity unless a revised binding site plan is recorded pursuant to LMC 19.90 or as amended."*
- b. *"No parking is allowed on the internal private street shown on the face of this binding site plan."*
- c. *"Park owners shall be responsible for the ongoing maintenance and operation of all private facilities including, utilities, private road, stormwater facility and/or stormwater transmission lines within this development."*

11.RECOMMENDATIONS

Variance Requests

Staff recommends approval of the following variances, subject to the findings and conclusions in this staff report:

2. Reduction of lot frontage requirements for Lots 7-8 and 37-42 as shown on the preliminary binding site plan.

Preliminary Binding Site Plan

Staff recommends approval of the Mint Valley Manufactured Home Park Type B Preliminary Binding Site Plan for the development of 71 manufactured home lots on approximately 10.38 acres located at 3505 Oak Street, subject to the findings, conclusions and conditions contained in this report, and subject to approval of the requested variances to lot frontage.

EXHIBITS:

- A. Preliminary Binding Site Plan
- B. Preliminary Landscaping plan
- C. Preliminary Engineering civil plan
- D. Stormwater report
- E. Traffic Study
- F. SEPA Cover sheet
- G. Department of Ecology SEPA comments
- H. WDFW SEPA comments
- I. Public SEPA comments

STREET & FIRE REQUIREMENTS FROM CITY FIRE & ENGINEERING

CITY FIRE AND CITY ENGINEERING AGREE (REFER TO MINT VALLEY EMAIL FROM JON DUNAWAY & KEN HASH, 10-12-2023 PER 6. BELOW) THAT THERE ARE PRACTICAL DIFFICULTIES AND TOPOGRAPHICAL LIMITATIONS IN DEVELOPING THIS LAND. IN THE INTEREST OF MAKING POSSIBLE THIS TYPE OF HOUSING TO BE DEVELOPED AT THIS LOCATION, THE CITY AGREED AND APPROVED THAT THE PROPOSED DEVELOPMENT WOULD BE ABLE TO BE CONSTRUCTED WITH ONE INGRESS / EGRESS POINT SUBJECT TO THE FOLLOWING:

1. THE MINIMUM PAVED ROADWAY WIDTH THROUGHOUT THE DEVELOPMENT IS 24 FEET, WIDER THAN THE REQUIRED 20' MIN. WIDTH AS OUTLINED PER LMC CHAPTER 18;
2. THERE WOULD BE NO PARKING ALLOWED ON EITHER SIDE OF THE ROADWAY THROUGHOUT THE DEVELOPMENT;
3. SIGNAGE DENOTING NO PARKING WOULD BE INSTALLED THROUGHOUT THE DEVELOPMENT ON BOTH SIDES OF THE ROADWAY;
4. FIRE HYDRANTS REQUIRED - SPECIFIC LOCATIONS TO BE DETERMINED DURING FINAL REVIEW;
5. FIRE FLOW IN THE AMOUNT OF 1,000 GALLONS PER MINUTE FOR 1 HOUR DURATION WILL BE REQUIRED AS PER LMC CHAPTER 18;
6. SEE PROJECT EXHIBITS FOR MORE INFO. (REFER TO MINT VALLEY EMAIL FROM JON DUNAWAY & KEN HASH, 10-12-2023)

DEVELOPMENT STANDARDS

19.28.150 STREETS, LIGHTING, AND WALKWAYS IN MHP

INTERNAL PRIVATE STREETS TO BE 24' WIDE PAVED STREET FIRE ACCESS WITH A PAINTED STRIPED 5' WIDE WALKWAY ON ONE SIDE. "NO PARKING" TO BE SIGNED ON BOTH SIDES OF ALL STREETS.

PRIVATE STREETS FIRE ACCESS

NO PARKING SIGNS TO BE POSTED ON BOTH SIDES OF ALL STREET TO PROVIDE 24' OF TOTAL FIRE ACCESS WIDTH. ADEQUATE AND REASONABLE FIRE ACCESS TO THE SITE IS PROVIDED. ALSO THE SITE IS UNUSUALLY TOPOGRAPHICALLY CONSTRAINED FOR ACCESS POINTS DUE TO THE DRAINAGE DITCH AROUND MUCH OF THE SITE. STANDARDS HAVE BEEN MET TO THE EXTENT POSSIBLE.

OFF STREET PARKING

EACH LOT WILL HAVE 3 PRIVATE OFF-STREET PARKING SPACES (WITH JUST FIVE LOTS WITH 2 SPACES) OFF-STREET PARKING SPACES AT THE FRONT OF EACH HOME.

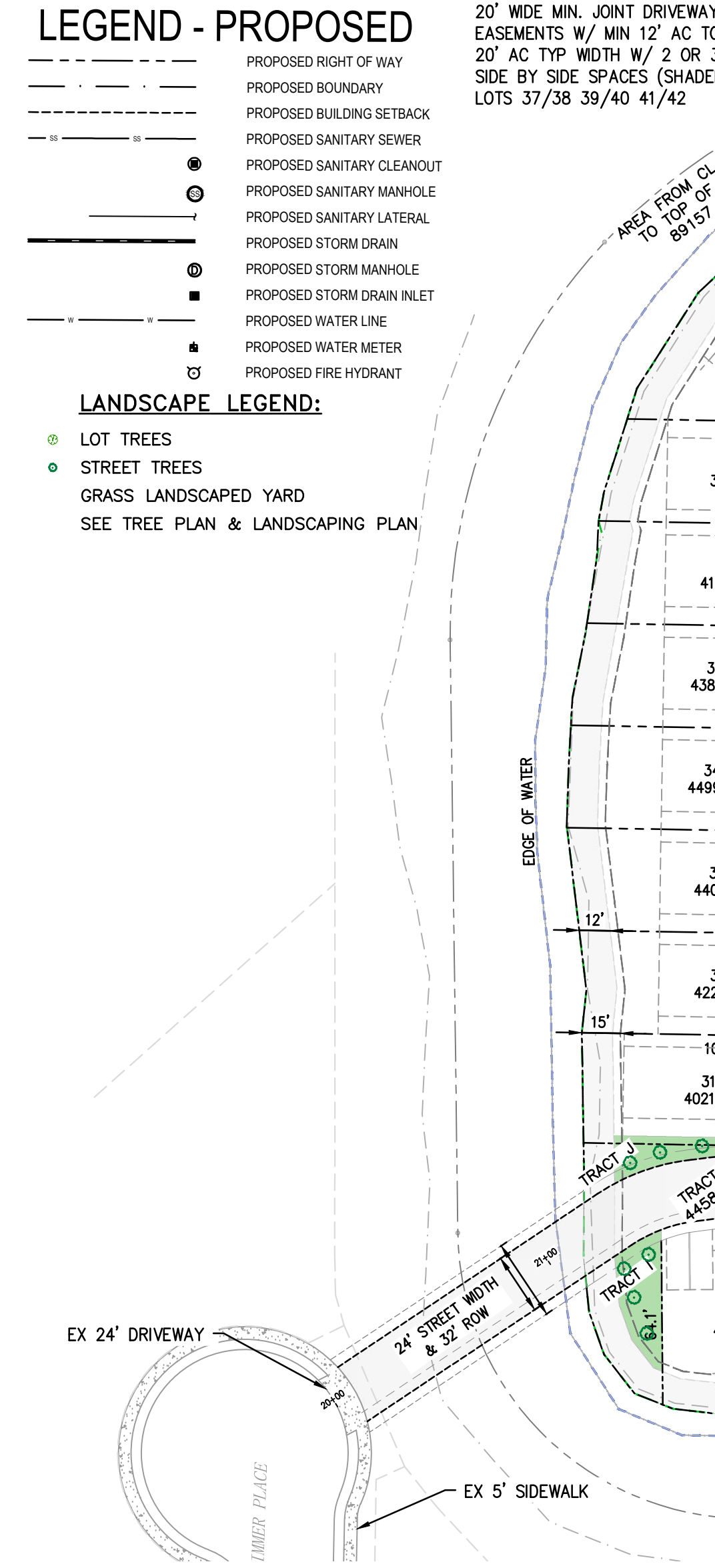
PROVIDED OFF STREET PARKING FAR EXCEEDS OFF STREET PARKING STANDARDS PER LMC 19.78(18) MANUFACTURED HOME PARKS WHICH REQUIRES ONE PARKING SPACE PER HOME. SINCE ONE OR TWO EXTRA ADDITIONAL PARKING SPACES ARE PROVIDED PER LOT, THE ADDITIONAL GUEST PARKING REQUIREMENT OF ONE SPACE FOR EVERY TWO HOMES IS MET AND CONSIDERED SATISFIED. IN ADDITION, ANOTHER 8 + 3 GUEST SPACES ARE PROVIDED ON TRACT E & G. SEE NARRATIVE FOR MORE SPECIFIC PARKING DETAILS AND

LEGEND - PROPOSED

- PROPOSED RIGHT OF WAY
- PROPOSED BOUNDARY
- PROPOSED BUILDING SETBACK
- PROPOSED SANITARY SEWER
- PROPOSED SANITARY CLEANOUT
- PROPOSED SANITARY MANHOLE
- PROPOSED SANITARY LATERAL
- PROPOSED STORM DRAIN
- PROPOSED STORM MANHOLE
- PROPOSED STORM DRAIN INLET
- PROPOSED WATER LINE
- PROPOSED WATER METER
- PROPOSED FIRE HYDRANT

LANDSCAPE LEGEND:

- LOT TREES
- STREET TREES
- GRASS LANDSCAPED YARD
- SEE TREE PLAN & LANDSCAPING PLAN



INFORMATION.

19.28.060 MINIMUM BUILDING SETBACKS - MANUFACTURED HOME PARKS.

ALL SETBACKS SHALL BE MEASURED FROM THE NEAREST CORNER OR WALL TO THE APPROPRIATE PROPERTY OR SITE LINE.

1. FRONT SETBACK. THE MINIMUM FRONT YARD SETBACK FOR ALL BUILDINGS AND STRUCTURES SHALL BE FIVE FEET FROM THE FRONT PROPERTY LINE. THIS IS MET AS SHOWN.
2. REAR SETBACK. THE MINIMUM REAR SETBACK SHALL BE 10 FEET TO THE REAR PROPERTY LINE.

19.90.010 PURPOSE.

THE PURPOSE OF A BINDING SITE PLAN IS TO PROVIDE AN ALTERNATIVE METHOD OF LAND DIVISION AS PROVIDED FOR IN ROW 58.17.035 FOR THE SALE OR LEASE OF COMMERCIAL AND INDUSTRIAL PROPERTIES, CONDOMINIUMS, AND MANUFACTURED HOME PARKS. A BINDING SITE PLAN INCLUDES A SURVEY TOGETHER WITH COVENANTS DETAILING THE PERFORMANCE OR NONPERFORMANCE OF CERTAIN ACTS OR THE USE OR NON-USE OF PROPERTY. THE OPTION TO SUBDIVIDE PROPERTY IN ACCORDANCE WITH STANDARD SUBDIVISION PROCEDURES PROVIDED IN CHAPTER 19.80 LMC IS ALSO AVAILABLE. (ORD. 3091 § 2, 2009).

"TYPE B BINDING SITE PLAN" MEANS A BINDING SITE PLAN PROPOSED FOR THE SALE OR LEASE OF RESIDENTIAL PROPERTY EITHER IN A MANUFACTURED HOME PARK, RECREATIONAL VEHICLE PARK OR CONDOMINIUMS. TYPE B BINDING SITE PLANS ARE APPROVED BY THE PLANNING COMMISSION AFTER AN OPEN-RECORD HEARING. (ORD. 3395 § 6, 2019; ORD. 3161 § 5, 2011; ORD. 3091 § 2, 2009).

PROJECT PHASING

THIS PROJECT WILL BE CONSTRUCTED IN EITHER ONE SINGLE PHASE, TWO PHASES OR UP TO THREE PHASES. PHASE 1 - THE FIRST SECTION OF PRIVATE STREET WITH A TEMPORARY HAMMERHEAD TURNAROUND AT THE END ON ADJACENT FUTURE LOTS 9 & 65. PHASE 2 - THE NEXT SECTION OF PRIVATE STREET FROM PH 1 UP TO TRACT D INCLUDING A HAMMERHEAD TURNAROUND AT TRACT D. PHASE 3 - ALL REMAINING LOTS AROUND THE LOOP. EACH PHASE WILL BE DESIGNED TO MEET REQUIRED STANDARDS FOR THAT PHASE. ALTERNATIVELY, THE PHASES 1+2 OR PHASES 1+2+3 MAY BE CONSTRUCTED CONCURRENTLY.

CONSTRUCTION TRAFFIC - ALL SITE CONSTRUCTION TRAFFIC ACCESS MUST USE ONLY 36TH AVE FOR CONSTRUCTION ACCESS ROUTE.

LMC SECTION 19.77.050 :DRIVEWAYS AND JOINT USAGE DRIVEWAYS. URBAN DRIVEWAYS AND JOINT USAGE DRIVEWAYS SERVING ONE OR TWO LOTS HAVE THE MINIMUM PAVED WIDTH OF 12 FEET WITHIN A MINIMUM 20 FOOT WIDE SHARED DRIVEWAY ACCESS EASEMENT. THE STANDARD ACCESS EASEMENT WIDTH IS 20 FEET FOR ONE OR SERVING ONE OR TWO LOTS. A MIN 12 FOOT WIDE PAVED AC DRIVEWAY WILL STILL BE PROVIDED FOR 1 OR 2 LOTS AS REQUIRED PER CODE. ALL LOTS HAVE FUNCTIONAL DRIVEWAY ACCESS AND AT LEAST 2 PARKING SPACES.

Mint Valley

BINDING SITE PLAN - TYPE B

LOCATED IN THE CITY OF LONGVIEW, WASHINGTON

MHP - MANUFACTURED HOME PARK

SITE DATA AND AREA SUMMARY

GROSS SITE TOTAL AREA =	452,225 SF,	10.38 AC
PROPOSED PRIVATE STREET TRACT A (PVT.) =	42,160 SF,	0.97 AC
TRACT B+C+D PARK RECREATION AREA =	8,920 SF,	0.20 AC
TRACT E EXTRA PARKING AREA =	1,893 SF,	0.04 AC
TRACT G EXTRA PARKING AREA =	1,292 SF,	0.03 AC
TRACT H PRIVATE STREET =	4,458 SF,	0.10 AC
TRACT I OPEN SPACE =	1,265 SF,	0.03 AC
TRACT J OPEN SPACE =	353 SF,	0.01 AC
BLA PARCEL F (BLA FROM EX PARCEL 05319) =	8,640 SF,	0.20 AC
TOTAL LOT AREA =	294,087 SF,	6.75 AC
AREA FROM CL OF DITCH TO TOP OF BANK =	89,157 SF,	2.05 AC

NUMBER OF NEW LOTS =	71
AVERAGE LOT AREA =	4,147 SF
ALLOWED MAX DENSITY 10.38 AC X 8.5 UNITS PER GROSS ACRE =	88 UNITS MAX

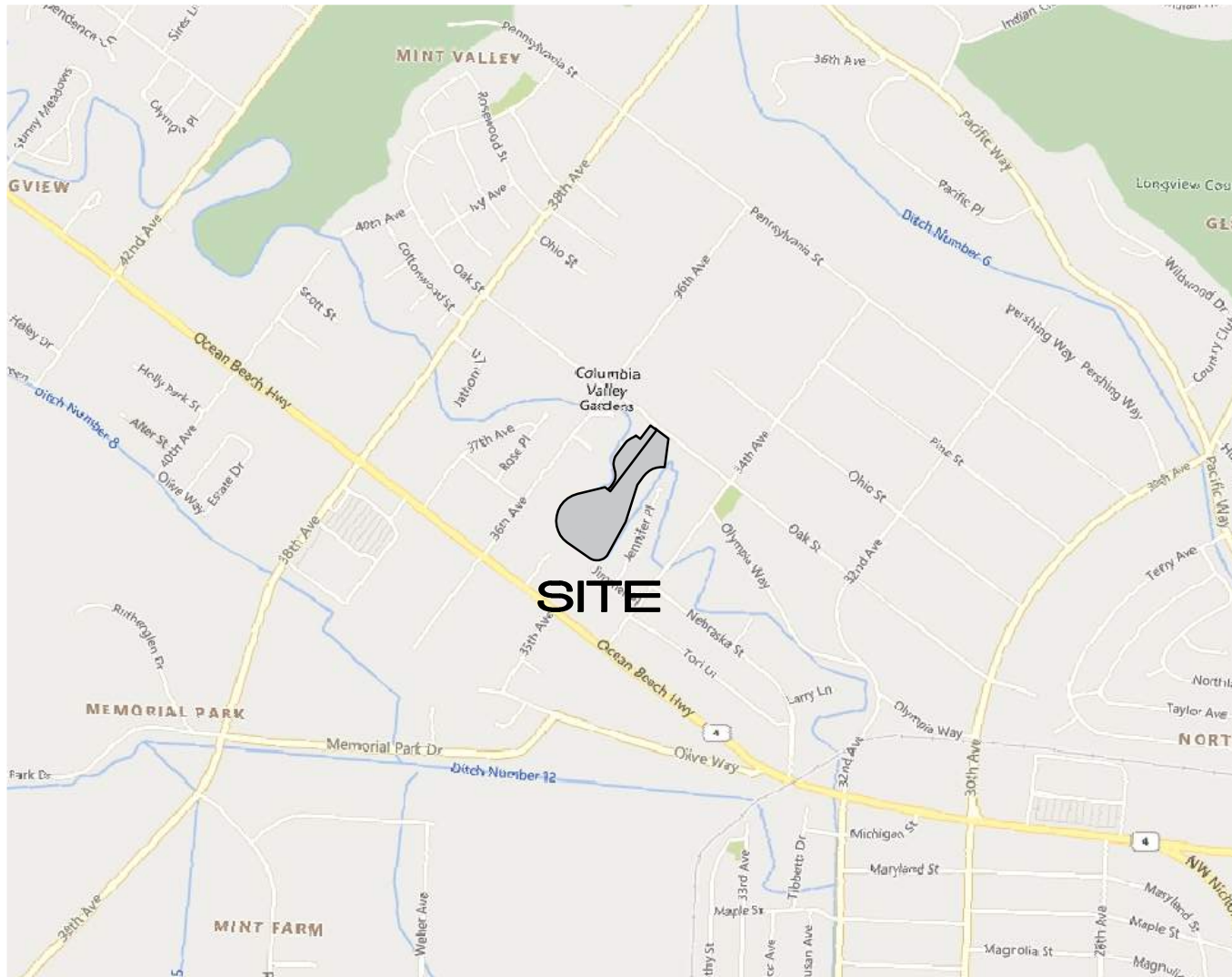
PARCEL NUMBERS:
05319: 50,947 SF, 1.16 ACRES
PARCEL-X: 11,359 SF, 0.26 ACRES
053180300: 401,308 SF, 9.22 ACRES. THIS EX. PARCEL 05139 TO BE BLA'D INTO PARCEL F. THE EX. 3503 HOUSE TO BE REPLACED, REMOVED OR RELOCATED ONTO THIS BLA PARCEL F (#05319). BLA TO BE DONE CONCURRENTLY & JUST PRIOR TO FINAL BSP APPROVAL.
TOTAL EXISTING AREA = 452,255 SF = 10.38 ACRES

SITE ADDRESS : 3503 & 3505 OAK STREET
LONGVIEW, WA 98632
EX 3503 HOUSE TO BE RELOCATED OR REMOVED & REPLACED WITH NEW HOUSE ON PARCEL F
TRACT E AND G TO BE ADDITIONAL PARKING OR OPEN SPACE
THE 24' ACCESS PRIVATE STREET WIDTH IS WITHIN A PRIVATE 32' ROW EASEMENT

SITE LOCATION:
LOCATED ON THE SOUTH SIDE OF OAK STREET
APPROXIMATELY 800' NORTHWEST OF THE INTERSECTION WITH 34TH AVENUE
LOCATED IN THE NE 1/4 OF SECTION 30, T8N, R2W, W.M. LONGVIEW, WA

RECREATION AREA TO BE OUTDOOR PLAY AREA (MIN 72 X 100 = 7200 SF) ON TRACTS B, C AND D TOTAL 8921 SF
CHILD PLAY STRUCTURE TO BE PROVIDED ON TRACT D. SEE NARRATIVE FOR DETAILS
A MINIMUM 30 INCH TALL FENCE WILL BE INSTALLED ALONG THE EXTERIOR BOUNDARIES OF OF TRACT C AND D TO PROVIDE SEPARATION FROM ALL STREETS, HOUSE DRIVEWAYS, AND PARKING AREAS .

CDID#1 NOTES ROAD #3 : FOR DITCH TOP OF BANK QCD DEDICATING ONE-HALF OF THE DITCH TO CDID#1 (OWNERSHIP), 15-FT EASEMENT FROM TOP OF THE BANK TO CDID#1 (EASEMENT), AND 12-FT GRAVEL ACCESS ROAD (SEE C-8)



VICINITY MAP

SCALE: NTS

TYPICAL LOT WIDTH:
40 FEET FOR INTERIOR STREET AT 20' FRONT SETBACK LINE, EXCEPT ON BENDS OR CORNERS OR AS NOTED.

TYPICAL LOT DEPTH:
60 FEET MIN. OR AS NOTED

SETBACKS:
MIN. FRONT SETBACK - 5 FEET
MIN. SIDE YARD SETBACK - 5 FEET
MIN FRONT PARKING SETBACK - 20 FEET FROM EDGE OF STREET
REAR YARD SETBACKS - 10 FEET

PRESENT USE:
THE SITE IS A SINGLE-FAMILY RESIDENTIAL HOUSE ON 3 EXISTING LEGAL LOTS OF RECORD.

EXISTING STREETS:
THE SITE WILL ACCESS FROM OAK AVENUE. THE PROPERTY IS BORDERED ON THREE SIDES BY THE CDID #1 DITCH. THE ADJACENT PROPERTIES ARE SINGLE FAMILY RESIDENCES.
PARCEL F DRIVEWAY TO HAVE FIRST 50' PAVED.

CIVIL ENGINEER & APPLICANT:

KESSI ENGINEERING & CONSULTING
JAMES KESSI, PE
6400 NE HWY 99 #G169
VANCOUVER, WA 98665
(360) 991-9300
james.kessi@gmail.com

OWNER

COLUMBIA VIEW GROUP LLC
6400 NE HIGHWAY 99 STE G169
VANCOUVER, WA 98665
999north@gmail.com
360-448-5633

SURVEYOR:

HAMPSTUR CORP.
PHIL GUSTIN, PLS
1813 BAKER WAY, KELSO, WA 98626
(360) 423-8166
pgust@hampstur.com

EXISTING ZONING:
R-1 RESIDENTIAL

SANITARY SEWER SERVICE:
CITY OF LONGVIEW

WATER SERVICE:
CITY OF LONGVIEW

ELECTRICAL SERVICE:
COWLITZ PUD

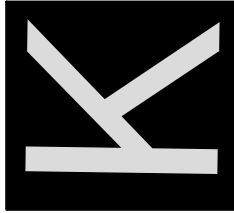
WELLS OR SEPTICS:
NONE KNOWN

WATER - MIN. 6" PRIVATE WATER MAIN WITH HYDRANTS EVERY 500' MIN.

4 HYDRANTS ARE SHOWN

LENGTH OF TOP OF BANK: 2700LF
LENGTH OF DITCH ALONG PARCEL F: 195LF
LENGTH OF DITCH ALONG 3507 OAK ST: 190LF

KESSI ENGINEERING



KESSI
ENGINEERING
& CONSULTING

REVISIONS

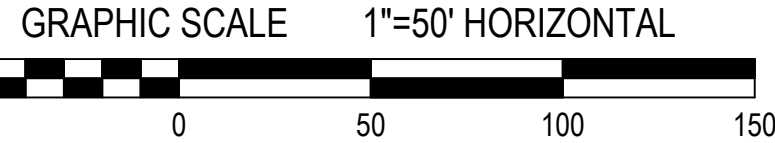
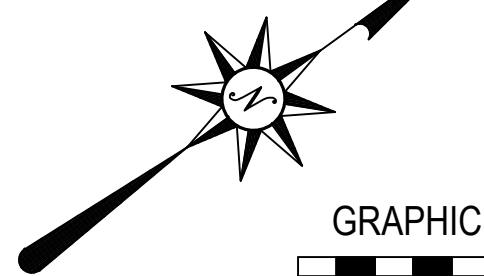
	1	2	3	4	5
DRAWN BY:	T.F.	J.K.	J.K.	J.K.	J.K.
DESIGNED BY:	J.K.	J.K.	J.K.	J.K.	J.K.
CHECKED BY:	J.K.	J.K.	J.K.	J.K.	J.K.

PROJECT
#155

DATE:
7/27/2025

MINT VALLEY
BINDING SITE PLAN

MV BSP



FOR SURVEY BOUNDARY AND BASIS OF BEARING SEE SEPARATE SURVEY BY HAMPSTUR CORP.

STREET & FIRE REQUIREMENTS FROM CITY FIRE & ENGINEERING

CITY FIRE AND CITY ENGINEERING AGREE (REFER TO MINT VALLEY EMAIL FROM JON DUNAWAY & KEN HASH, 10-12-2023 PER 6. BELOW) THAT THERE ARE PRACTICAL DIFFICULTIES AND TOPOGRAPHICAL LIMITATIONS IN DEVELOPING THIS LAND. IN THE INTEREST OF MAKING POSSIBLE THIS TYPE OF HOUSING TO BE DEVELOPED AT THIS LOCATION, THE CITY AGREED AND APPROVED THAT THE PROPOSED DEVELOPMENT WOULD BE ABLE TO BE CONSTRUCTED WITH ONE INGRESS / EGRESS POINT SUBJECT TO THE FOLLOWING:

1. THE MINIMUM PAVED ROADWAY WIDTH THROUGHOUT THE DEVELOPMENT IS 24 FEET, WIDER THAN THE REQUIRED 20' MIN. WIDTH AS OUTLINED PER LMC CHAPTER 18;
2. THERE WOULD BE NO PARKING ALLOWED ON EITHER SIDE OF THE ROADWAY THROUGHOUT THE DEVELOPMENT;
3. SIGNAGE DENOTING NO PARKING WOULD BE INSTALLED THROUGHOUT THE DEVELOPMENT ON BOTH SIDES OF THE ROADWAY;
4. FIRE HYDRANTS REQUIRED - SPECIFIC LOCATIONS TO BE DETERMINED DURING FINAL REVIEW;
5. FIRE FLOW IN THE AMOUNT OF 1,000 GALLONS PER MINUTE FOR 1 HOUR DURATION WILL BE REQUIRED AS PER LMC CHAPTER 18;
6. SEE PROJECT EXHIBITS FOR MORE INFO. (REFER TO MINT VALLEY EMAIL FROM JON DUNAWAY & KEN HASH, 10-12-2023)

DEVELOPMENT STANDARDS

19.28.150 STREETS, LIGHTING, AND WALKWAYS IN MHP

INTERNAL PRIVATE STREETS TO BE 24' WIDE PAVED STREET FIRE ACCESS WITH A PAINTED STRIPED 5' WIDE WALKWAY ON ONE SIDE. "NO PARKING" TO BE SIGNED ON BOTH SIDES OF ALL STREETS.

PRIVATE STREETS FIRE ACCESS

NO PARKING SIGNS TO BE POSTED ON BOTH SIDES OF ALL STREET TO PROVIDE 24' OF TOTAL FIRE ACCESS WIDTH. ADEQUATE AND REASONABLE FIRE ACCESS TO THE SITE IS PROVIDED. ALSO THE SITE IS UNUSUALLY TOPOGRAPHICALLY CONSTRAINED FOR ACCESS POINTS DUE TO THE DRAINAGE DITCH AROUND MUCH OF THE SITE. STANDARDS HAVE BEEN MET TO THE EXTENT POSSIBLE.

OFF STREET PARKING

EACH LOT WILL HAVE 3 PRIVATE OFF-STREET PARKING SPACES (WITH JUST FIVE LOTS WITH 2 SPACES) OFF-STREET PARKING SPACES AT THE FRONT OF EACH HOME.

PROVIDED OFF STREET PARKING FAR EXCEEDS OFF STREET PARKING STANDARDS PER LMC 19.78(18) MANUFACTURED HOME PARKS WHICH REQUIRES ONE PARKING SPACE PER HOME. SINCE ONE OR TWO EXTRA ADDITIONAL PARKING SPACES ARE PROVIDED PER LOT, THE ADDITIONAL GUEST PARKING REQUIREMENT OF ONE SPACE FOR EVERY TWO HOMES IS MET AND CONSIDERED SATISFIED. IN ADDITION, ANOTHER 8 + 3 GUEST SPACES ARE PROVIDED ON TRACT E & G.

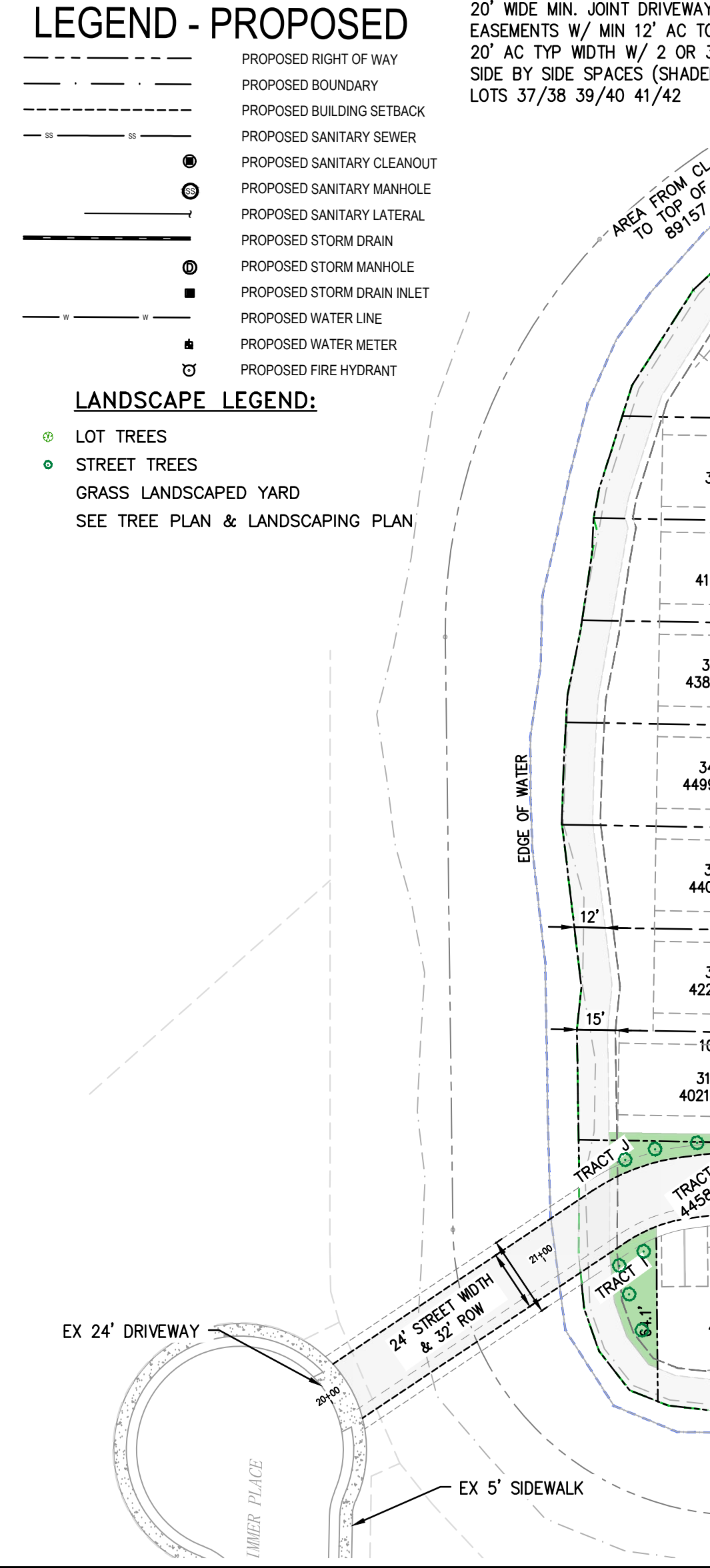
SEE NARRATIVE FOR MORE SPECIFIC PARKING DETAILS AND

LEGEND - PROPOSED

- PROPOSED RIGHT OF WAY
- PROPOSED BOUNDARY
- PROPOSED BUILDING SETBACK
- PROPOSED SANITARY SEWER
- PROPOSED SANITARY CLEANOUT
- PROPOSED SANITARY MANHOLE
- PROPOSED SANITARY LATERAL
- PROPOSED STORM DRAIN
- PROPOSED STORM MANHOLE
- PROPOSED STORM DRAIN INLET
- PROPOSED WATER LINE
- PROPOSED WATER METER
- PROPOSED FIRE HYDRANT

LANDSCAPE LEGEND:

- LOT TREES
- STREET TREES
- GRASS LANDSCAPED YARD
- SEE TREE PLAN & LANDSCAPING PLAN



INFORMATION.

19.28.060 MINIMUM BUILDING SETBACKS - MANUFACTURED HOME PARKS.

ALL SETBACKS SHALL BE MEASURED FROM THE NEAREST CORNER OR WALL TO THE APPROPRIATE PROPERTY OR SITE LINE.

1. FRONT SETBACK. THE MINIMUM FRONT YARD SETBACK FOR ALL BUILDINGS AND STRUCTURES SHALL BE FIVE FEET FROM THE FRONT PROPERTY LINE. THIS IS MET AS SHOWN.
2. REAR SETBACK. THE MINIMUM REAR SETBACK SHALL BE 10 FEET TO THE REAR PROPERTY LINE.

19.90.010 PURPOSE.

THE PURPOSE OF A BINDING SITE PLAN IS TO PROVIDE AN ALTERNATIVE METHOD OF LAND DIVISION AS PROVIDED FOR IN ROW 58.17.035 FOR THE SALE OR LEASE OF COMMERCIAL AND INDUSTRIAL PROPERTIES, CONDOMINIUMS, AND MANUFACTURED HOME PARKS. A BINDING SITE PLAN INCLUDES A SURVEY TOGETHER WITH COVENANTS DETAILING THE PERFORMANCE OR NONPERFORMANCE OF CERTAIN ACTS OR THE USE OR NON-USE OF PROPERTY. THE OPTION TO SUBDIVIDE PROPERTY IN ACCORDANCE WITH STANDARD SUBDIVISION PROCEDURES PROVIDED IN CHAPTER 19.80 LMC IS ALSO AVAILABLE. (ORD. 3091 § 2, 2009).

"TYPE B BINDING SITE PLAN" MEANS A BINDING SITE PLAN PROPOSED FOR THE SALE OR LEASE OF RESIDENTIAL PROPERTY EITHER IN A MANUFACTURED HOME PARK, RECREATIONAL VEHICLE PARK OR CONDOMINIUMS. TYPE B BINDING SITE PLANS ARE APPROVED BY THE PLANNING COMMISSION AFTER AN OPEN-RECORD HEARING. (ORD. 3395 § 6, 2019; ORD. 3161 § 5, 2011; ORD. 3091 § 2, 2009).

PROJECT PHASING

THIS PROJECT WILL BE CONSTRUCTED IN EITHER ONE SINGLE PHASE, TWO PHASES OR UP TO THREE PHASES. PHASE 1 - THE FIRST SECTION OF PRIVATE STREET WITH A TEMPORARY HAMMERHEAD TURNAROUND AT THE END ON ADJACENT FUTURE LOTS 9 & 65. PHASE 2 - THE NEXT SECTION OF PRIVATE STREET FROM PH 1 UP TO TRACT D INCLUDING A HAMMERHEAD TURNAROUND AT TRACT D. PHASE 3 - ALL REMAINING LOTS AROUND THE LOOP. EACH PHASE WILL BE DESIGNED TO MEET REQUIRED STANDARDS FOR THAT PHASE. ALTERNATIVELY, THE PHASES 1+2 OR PHASES 1+2+3 MAY BE CONSTRUCTED CONCURRENTLY.

CONSTRUCTION TRAFFIC - ALL SITE CONSTRUCTION TRAFFIC ACCESS MUST USE ONLY 36TH AVE FOR CONSTRUCTION ACCESS ROUTE.

LMC SECTION 19.77.050 :DRIVEWAYS AND JOINT USAGE DRIVEWAYS. URBAN DRIVEWAYS AND JOINT USAGE DRIVEWAYS SERVING ONE OR TWO LOTS HAVE THE MINIMUM PAVED WIDTH OF 12 FEET WITHIN A MINIMUM 20 FOOT WIDE SHARED DRIVEWAY ACCESS EASEMENT. THE STANDARD ACCESS EASEMENT WIDTH IS 20 FEET FOR ONE OR SERVING ONE OR TWO LOTS. A MIN 12 FOOT WIDE PAVED AC DRIVEWAY WILL STILL BE PROVIDED FOR 1 OR 2 LOTS AS REQUIRED PER CODE. ALL LOTS HAVE FUNCTIONAL DRIVEWAY ACCESS AND AT LEAST 2 PARKING SPACES.

Mint Valley

BINDING SITE PLAN - TYPE B

LOCATED IN THE CITY OF LONGVIEW, WASHINGTON

MHP - MANUFACTURED HOME PARK

SITE DATA AND AREA SUMMARY

GROSS SITE TOTAL AREA =	452,225 SF,	10.38 AC
PROPOSED PRIVATE STREET TRACT A (PVT.) =	42,160 SF,	0.97 AC
TRACT B+C+D PARK RECREATION AREA =	8,920 SF,	0.20 AC
TRACT E EXTRA PARKING AREA =	1,893 SF,	0.04 AC
TRACT G EXTRA PARKING AREA =	1,292 SF,	0.03 AC
TRACT H PRIVATE STREET =	4,458 SF,	0.10 AC
TRACT I OPEN SPACE =	1,265 SF,	0.03 AC
TRACT J OPEN SPACE =	353 SF,	0.01 AC
BLA PARCEL F (BLA FROM EX PARCEL 05319) =	8,640 SF,	0.20 AC
TOTAL LOT AREA =	294,087 SF,	6.75 AC
AREA FROM CL OF DITCH TO TOP OF BANK =	89,157 SF,	2.05 AC

NUMBER OF NEW LOTS =	71
AVERAGE LOT AREA =	4,147 SF
ALLOWED MAX DENSITY 10.38 AC X 8.5 UNITS PER GROSS ACRE =	88 UNITS MAX

PARCEL NUMBERS:

05319: 50,947 SF, 1.16 ACRES
PARCEL-X: 11,359 SF, 0.26 ACRES
053180300: 401,308 SF, 9.22 ACRES. THIS EX. PARCEL 05139 TO BE BLA'D INTO PARCEL F. THE EX. 3503 HOUSE TO BE REPLACED, REMOVED OR RELOCATED ONTO THIS BLA PARCEL F (#05319). BLA TO BE DONE CONCURRENTLY & JUST PRIOR TO FINAL BSP APPROVAL.
TOTAL EXISTING AREA = 452,255 SF = 10.38 ACRES

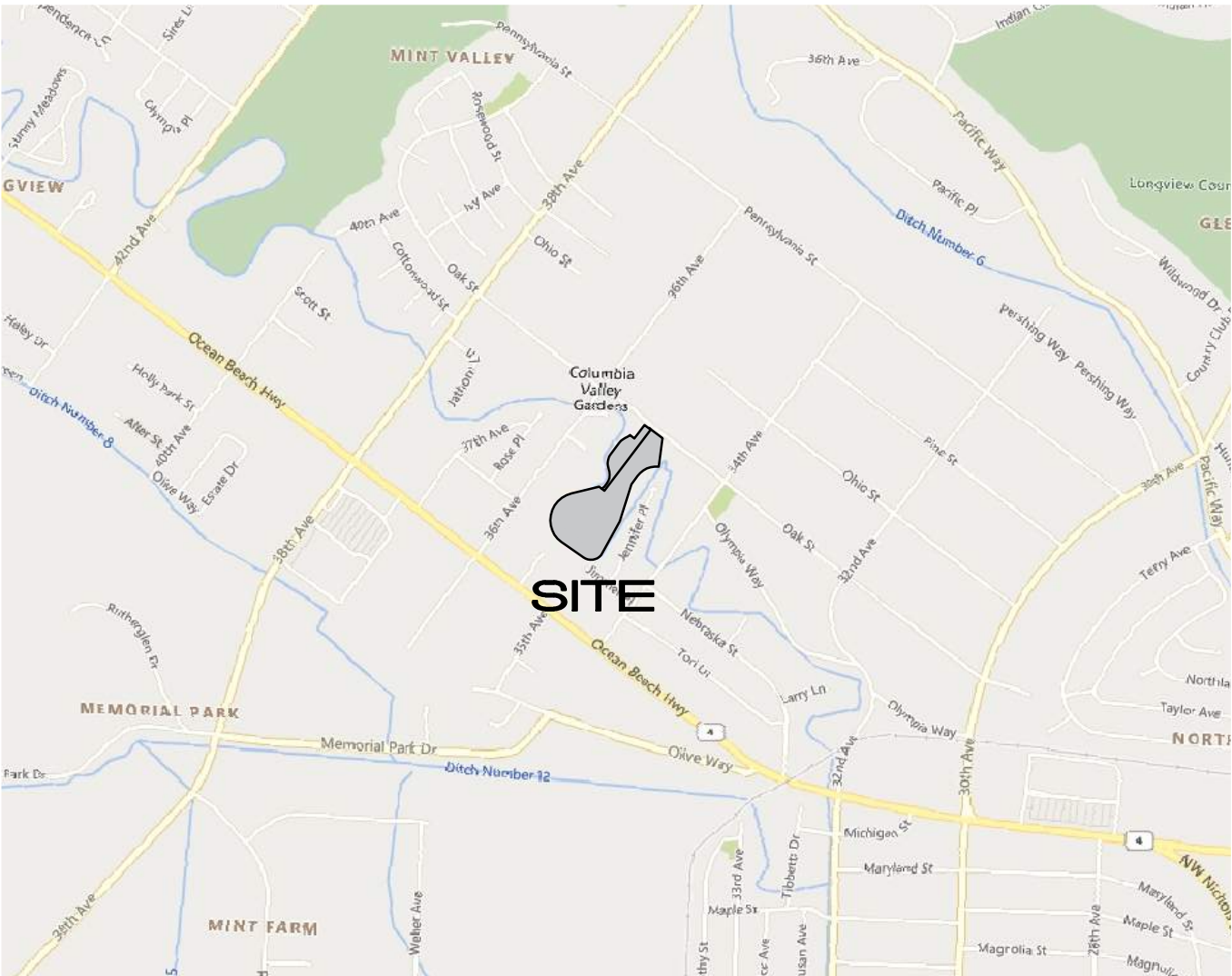
SITE ADDRESS : 3503 & 3505 OAK STREET
LONGVIEW, WA 98632
EX 3503 HOUSE TO BE RELOCATED OR REMOVED & REPLACED WITH NEW HOUSE ON PARCEL F
TRACT E AND G TO BE ADDITIONAL PARKING OR OPEN SPACE
THE 24' ACCESS PRIVATE STREET WIDTH IS WITHIN A PRIVATE 32' ROW EASEMENT

SITE LOCATION:

LOCATED ON THE SOUTH SIDE OF OAK STREET
APPROXIMATELY 800' NORTHWEST OF THE INTERSECTION WITH 34TH AVENUE
LOCATED IN THE NE 1/4 OF SECTION 30, T8N, R2W, W.M. LONGVIEW, WA

RECREATION AREA TO BE OUTDOOR PLAY AREA (MIN 72 X 100 = 7200 SF) ON TRACTS B, C AND D TOTAL 8921 SF
CHILD PLAY STRUCTURE TO BE PROVIDED ON TRACT D. SEE NARRATIVE FOR DETAILS
A MINIMUM 30 INCH TALL FENCE WILL BE INSTALLED ALONG THE EXTERIOR BOUNDARIES OF OF TRACT C AND D TO PROVIDE SEPARATION FROM ALL STREETS, HOUSE DRIVEWAYS, AND PARKING AREAS .

CDID#1 NOTES ROAD #3 : FOR DITCH TOP OF BANK QCD DEDICATING ONE-HALF OF THE DITCH TO CDID#1 (OWNERSHIP), 15-FT EASEMENT FROM TOP OF THE BANK TO CDID#1 (EASEMENT), AND 12-FT GRAVEL ACCESS ROAD (SEE C-8)



VICINITY MAP

SCALE: NTS

TYPICAL LOT WIDTH:

40 FEET FOR INTERIOR STREET AT 20' FRONT SETBACK LINE, EXCEPT ON BENDS OR CORNERS OR AS NOTED.

TYPICAL LOT DEPTH:

60 FEET MIN. OR AS NOTED

SETBACKS:

MIN. FRONT SETBACK - 5 FEET
MIN. SIDE YARD SETBACK - 5 FEET
MIN FRONT PARKING SETBACK - 20 FEET FROM EDGE OF STREET
REAR YARD SETBACKS - 10 FEET

PRESENT USE:

THE SITE IS A SINGLE-FAMILY RESIDENTIAL HOUSE ON 3 EXISTING LEGAL LOTS OF RECORD.

EXISTING STREETS:

THE SITE WILL ACCESS FROM OAK AVENUE. THE PROPERTY IS BORDERED ON THREE SIDES BY THE CDID #1 DITCH. THE ADJACENT PROPERTIES ARE SINGLE FAMILY RESIDENCES.
PARCEL F DRIVEWAY TO HAVE FIRST 50' PAVED.

CIVIL ENGINEER & APPLICANT:

KESSI ENGINEERING & CONSULTING
JAMES KESSI, PE
6400 NE HWY 99 #G169
VANCOUVER, WA 98665
(360) 991-9300
james.kessi@gmail.com

OWNER

COLUMBIA VIEW GROUP LLC
6400 NE HIGHWAY 99 STE G169
VANCOUVER, WA 98665
999north@gmail.com
360-448-5633

SURVEYOR:

HAMPSTUR CORP.
PHIL GUSTIN, PLS
1813 BAKER WAY, KELSO, WA 98626
(360) 423-8166
pgust@hampstur.com

EXISTING ZONING:

R-1 RESIDENTIAL

SANITARY SEWER SERVICE:

CITY OF LONGVIEW

WATER SERVICE:

CITY OF LONGVIEW

ELECTRICAL SERVICE:

COWLITZ PUD

WELLS OR SEPTICS:

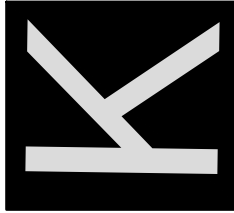
NONE KNOWN

WATER - MIN. 6" PRIVATE WATER MAIN WITH HYDRANTS EVERY 500' MIN.

4 HYDRANTS ARE SHOWN

LENGTH OF TOP OF BANK: 2700LF
LENGTH OF DITCH ALONG PARCEL F: 195LF
LENGTH OF DITCH ALONG 3507 OAK ST: 190LF

KESSI ENGINEERING



KESSI
ENGINEERING
& CONSULTING

REVISIONS

	1	2	3	4	5
DRAWN BY:	T.F.	J.K.	J.K.	J.K.	J.K.
DESIGNED BY:					
CHECKED BY:					

PROJECT
#155

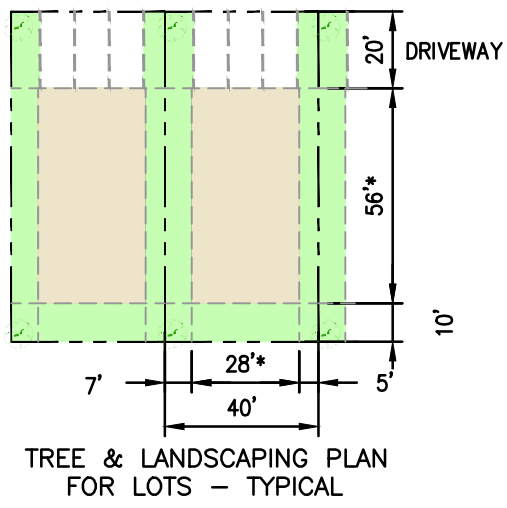
DATE:
7/27/2025

MINT VALLEY
BINDING SITE PLAN

MV BSP

Mint Valley

TREE AND LANDSCAPING PLAN LOCATED IN THE CITY OF LONGVIEW, WASHINGTON



LOT TREES LANDSCAPE NOTES:

1. PLANT TREES: IN PLANTER STRIP PLANT AT ONE TREE PER LOT IN FRONT AND ONE TREE IN REAR YARD AVERAGE. PLANT CLERODENDRUM TRICHOTOM, RUBUS CALYCINOIDES, OR ACER BUERGERANUM (TRIDENT MAPLE) OR EQUIVALENT DROUGHT RESISTANT VARIETIES FOR MAX 4' PLANTER AREA. USE BARE ROOT OR MIN 1" CALIPER.
2. USE DROUGHT RESISTANT TREE IN PLANTER STRIP AND PROVIDE POLY ROPYLENE WEED BARRIER UNDER ALL DECORATIVE ROCK AND TREE ROOT BARRIER, AT 0.08" OR 2MM THICK, ABUTTING SIDEWALK EDGES AND CURB NEAR TREE. IN LIMITED AREAS GROUNDCOVER MAY BE NATURAL DECORATIVE ROCK OR BARKCHIPS.
3. PLANT GRASS, LAWN, OR TURF OR OTHER APPROVED NATURAL GROUNDCOVER, BARK CHIPS, ROCK OR NATIVE PLANTS AND/OR SHRUBS AT THE DISCRETION OF THE DEVELOPER, IN PLANTER STRIP BETWEEN HOUSES AND IN YARDS.

LANDSCAPE LEGEND:

- LOT TREES SEE NOTE 1
- STREET TREES SEE NOTE 1
- GRASS LANDSCAPED YARD

LANDSCAPING

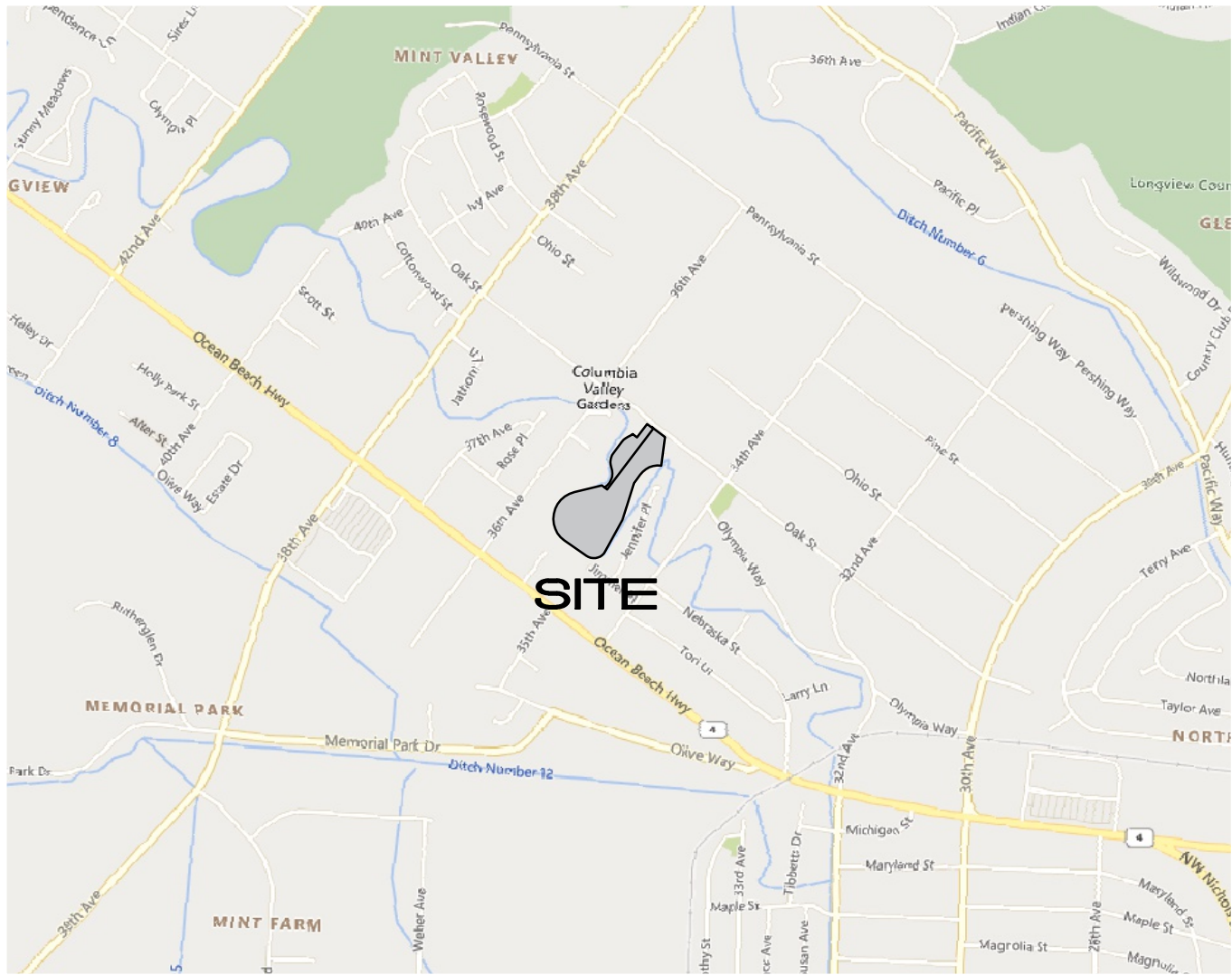
TREES -- DROUGHT RESISTANT TREES TO BE PLANTED IN TRACTS B, C, AND D AS SHOWN AT ABOUT 15' SPACING. AT LEAST ONE REPLACEMENT TREE WILL HAVE TO BE PLANTED FOR EACH TREE REMOVED ON THE SITE. THESE TRACTS ARE ALSO TO BE PLANTED WITH GRASS OR APPROVED EQUIVALENT.

A 6' TALL PERIMETER SCREENING FENCE WILL BE PROVIDED AROUND THE ENTIRE SITE ALONG THE EDGE OF THE 15' EASEMENT OR REAR PROPERTY LINES OF LOTS 68-71.

RECREATION AREA TO BE OUTDOOR PLAY AREA (MIN 72 X 100 = 7200 SF) ON TRACTS C AND D TOTAL 8921 SF

CHILD PLAY STRUCTURE TO BE PROVIDED ON TRACT D. SEE NARRATIVE FOR DETAILS

A MINIMUM 30 INCH TALL FENCE WILL BE INSTALLED ALONG THE EXTERIOR BOUNDARIES OF OF TRACT C AND D TO PROVIDE SEPARATION FROM ALL STREETS, HOUSE DRIVEWAYS, AND PARKING AREAS .



VICINITY MAP

SCALE: NTS

CIVIL ENGINEER & APPLICANT:
KESSI ENGINEERING & CONSULTING
JAMES KESSI, PE
6400 NE HWY 99 #G169
VANCOUVER, WA 98665
(360) 991-9300
james.kessi@gmail.com

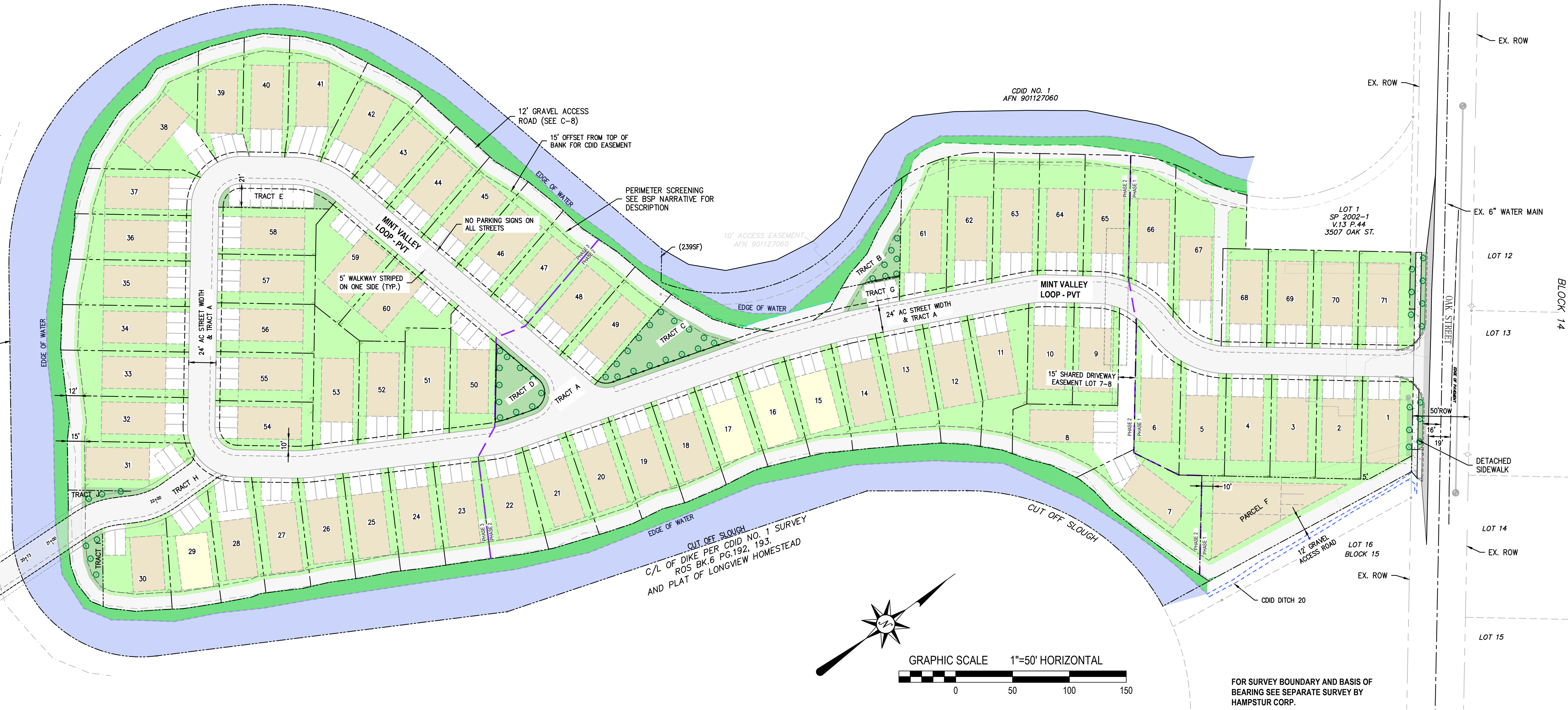
OWNER
COLUMBIA VIEW GROUP LLC
6400 NE HIGHWAY 99 STE G169
VANCOUVER, WA 98665
999north@gmail.com
360-448-5633

SURVEYOR:
HAMPSTUR CORP.
PHIL GUSTIN, PLS
1813 BAKER WAY, KELSO, WA 98626
(360) 423-8166
pgust@hampstur.com

LEGEND - PROPOSED

- PROPOSED RIGHT OF WAY
- PROPOSED BOUNDARY
- PROPOSED BUILDING SETBACK
- PROPOSED SANITARY SEWER
- PROPOSED SANITARY CLEANOUT
- PROPOSED SANITARY MANHOLE
- PROPOSED SANITARY LATERAL
- PROPOSED STORM DRAIN
- PROPOSED STORM MANHOLE
- PROPOSED STORM DRAIN INLET
- PROPOSED WATER LINE
- PROPOSED WATER METER
- PROPOSED FIRE HYDRANT

CCID ROAD #3. QCD DEDICATING ONE-HALF OF THE DITCH TO CCID#1 (OWNERSHIP), 15-FT EASEMENT FROM TOP OF THE BANK TO CCID#1 (EASEMENT), AND 12-FT GRAVEL ACCESS ROAD (SEE C-8)



KESSI ENGINEERING

CONSULTING
PROJECT MANAGEMENT

PLANNING
CIVIL ENGINEERING

KESSI ENGINEERING & CONSULTING

REVISIONS

DRAWN BY:	DESIGNED BY:	CHECKED BY:
T.F.	J.K.	J.K.

PROJECT
#155

DATE:
7/27/2025

MINT VALLEY TREE PLAN & LANDSCAPING PLAN

**MV TREE
& LS**

CIVIL ENGINEER & APPLICANT:

KESSI ENGINEERING & CONSULTING
JAMES KESSI, PE
6400 NE HWY 99 #G169
VANCOUVER, WA 98665
(360) 991-9300
james.kessi@gmail.com

OWNER

COLUMBIA VIEW GROUP LLC
6400 NE HIGHWAY 99 STE G169
VANCOUVER, WA 98665
999north@gmail.com
360-448-5633

SURVEYOR:

HAMPSTUR CORP.
PHIL GUSTIN, PLS
1813 BAKER WAY
KELSO, WA 98626
(360) 423-8166
pgust@hampstur.com

SITE ADDRESS :

3503 & 3505 OAK STREET
LONGVIEW, WA 98632

SITE LOCATION:

LOCATED ON THE SOUTH SIDE OF OAK STREET
APPROXIMATELY 800' NORTHWEST OF THE
INTERSECTION WITH 34TH AVENUE
LOCATED IN THE NE 1/4 OF SECTION 30, T8N, R2W,
W.M. LONGVIEW, WA

PARCEL NUMBERS:

05319: 50,947 SF, 1.16 ACRES

053180300: 401,308 SF, 9.22 ACRES

THIS EX. PARCEL 05139 TO BE BLA'D INTO PARCEL F.

THE EX. 3503 HOUSE TO BE REPLACED, REMOVED OR
RELOCATED ONTO THIS BLA PARCEL F (#05319).

TOTAL EXISTING AREA = 452,255 SF = 10.38 ACRES

Mint Valley

BINDING SITE PLAN - TYPE B

LOCATED IN THE CITY OF LONGVIEW, WASHINGTON

MHP - MANUFACTURED HOME PARK

GENERAL NOTES:

- THE CITY OF LONGVIEW HAS ADOPTED THESE STANDARD PLANS AND SPECIFICATIONS (HEREINAFTER REFERRED TO AS "CITY STANDARDS") TO ESTABLISH STANDARDS FOR DESIGN AND CONSTRUCTION OF PUBLIC IMPROVEMENTS. THESE CITY STANDARDS SHALL APPLY FOR THE DESIGN AND CONSTRUCTION OF ALL NEW AND UPGRADED FACILITIES IN CITY RIGHT-OF-WAY OR ON CITY-OWNED PARCELS, OR IN THE CASE OF DEVELOPMENT PROJECTS, WILL BECOME A CITY RIGHT-OF-WAY OR PARCEL UPON ACCEPTANCE OF THE FINAL PLAT OR DEVELOPMENT. FACILITIES GOVERNED BY THESE CITY STANDARDS INCLUDE, BUT ARE NOT LIMITED TO: STREETS, SIDEWALKS, AND OTHER TRANSPORTATION-RELATED FACILITIES, STORM DRAINAGE, WATER, AND SEWER FACILITIES, AND INCLUDES CITY FACILITIES SERVING CUSTOMERS OUTSIDE OF THE CITY LIMITS.
- THE CITY HAS ADOPTED THE LATEST EDITION OF WASHINGTON STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION AND ITS APWA SUPPLEMENT (HEREINAFTER REFERRED TO AS "STANDARD SPECIFICATIONS"). THESE CITY STANDARDS SUPPLEMENT THE STANDARD SPECIFICATIONS. THE CITY ENGINEER MAY REVISE THESE CITY STANDARDS TO INCORPORATE NEW TECHNOLOGY, APPLY NEW CITY POLICY, OR TO ACCOUNT FOR UNSATISFACTORY SERVICE OR OPERATING EXPERIENCE.
- THESE CITY STANDARDS ARE INTENDED TO REPRESENT THE MINIMUM DESIGN STANDARDS FOR CITY FACILITIES. COMPLIANCE WITH THESE CITY STANDARDS DOES NOT RELIEVE THE DESIGNER OR CONTRACTOR OF THEIR RESPONSIBILITY TO APPLY SOUND PROFESSIONAL JUDGMENT TO PROTECT THE HEALTH, SAFETY, AND WELFARE OF THE PUBLIC, AND TO PROVIDE QUALITY, DURABLE FACILITIES THAT OPERATE PROPERLY AND RELIABLY. SINCE THESE ARE THE REQUIRED MINIMUM STANDARDS, SPECIAL SITE CONDITIONS MAY REQUIRE A HIGHER LEVEL OF PROTECTION OR QUALITY THAN WOULD NORMALLY BE OBTAINED BY APPLICATION OF THESE CITY STANDARDS. THE CITY ENGINEER MAY REQUIRE PROJECT SPECIFIC MODIFICATIONS TO THE APPLICABLE STANDARDS, OR MAY REQUIRE A PROJECT SPECIFIC DESIGN.
- ALL DESIGNS FOR PUBLIC IMPROVEMENTS SHALL BE SUPERVISED AND STAMPED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED BY THE STATE OF WASHINGTON. CONSTRUCTION OF PUBLIC IMPROVEMENTS SHALL NOT COMMENCE PRIOR TO APPROVAL OF THE PROJECT PLANS AND SPECIFICATIONS BY THE CITY ENGINEER NOR PRIOR TO PAYMENT OF ALL ASSOCIATED FEES INCLUDING OBTAINING THE APPROPRIATE, REQUIRED PERMITS.
- ALL PLANS SHALL BE ON WASHINGTON SOUTH DATUM.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY THE LOCATION AND ELEVATIONS OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
- A MINIMUM OF 48 HOURS PRIOR TO BEGINNING OF CONSTRUCTION, THE CONTRACTOR WILL BE RESPONSIBLE TO NOTIFY LOCATING COUNCIL AT 1-800-424-5555 FOR MARK-UP OF ALL EXISTING UTILITIES.
- BENCH MARK: SEE SURVEY SHEET
- THIS PROJECT MEETS THE SITE DISTANCE REQUIREMENTS FOR CITY OF LONGVIEW.
- ALL SIGNS SHALL BE INSTALLED ACCORDING TO MUTCD STANDARDS.
- ALL CONSTRUCTION WITHIN PUBLIC RIGHT-OF-WAY SHALL HAVE AN APPROVED TRAFFIC CONTROL PLAN PRIOR TO ANY SITE CONSTRUCTION ACTIVITY.
- EXISTING PAVEMENT SHALL BE STRAIGHT CUT PRIOR TO PAVING, EXISTING PAVEMENT SHALL BE REMOVED AS NECESSARY TO PROVIDE A SMOOTH TRANSITION FOR BOTH RIDE & DRAINAGE.
- ANY ARCHAEOLOGICAL FINDINGS SHALL BE IMMEDIATELY REPORTED TO THE CITY/COUNTY INSPECTOR AND ANY STATE AGENCY REQUIRED BY WASHINGTON STATE LAW, AND WORK SHALL BE HALTED UNTIL THE FINDINGS CAN BE EVALUATED BY THE PROPER PROFESSIONALS.
- ANY SIGNIFICANT DEVIATIONS FROM THESE PLANS WILL REQUIRE REVIEW AND APPROVAL FROM CITY OF LONGVIEW.
- STORM PIPE BEDDING AND BACKFILL SHALL BE PER CITY OF LONGVIEW STANDARDS. BACKFILL MATERIAL SHALL BE COMPACTED TO 95% MAXIMUM RELATIVE DENSITY.
- THE DEVELOPER IS RESPONSIBLE FOR EROSION CONTROL DURING AND AFTER INSTALLATION OF ALL UTILITY WORK ASSOCIATED WITH UTILITY TRENCHING. AFTER CONSTRUCTION, CONTRACTOR TO COVER ALL BARE SOIL WITH MULCH OR HYDROSEED.
- STREET SWEEPING AND SHOVELING IS REQUIRED. WASHING THE STREET INTO THE STORM SYSTEM WILL NOT BE PERMITTED.
- IF THE CITY INSPECTOR OR ENGINEER HAS EVIDENCE OF POOR CONSTRUCTION PRACTICES OR EROSION CONTROL TECHNIQUES, A STOP WORK ORDER WILL BE ISSUED UNTIL PROPER MEASURES HAVE BEEN TAKEN AND APPROVED BY THE CITY ENGINEERING STAFF.
- THE CONTRACTOR SHALL PROVIDE 12" MINIMUM VERTICAL AND 5' MINIMUM HORIZONTAL CLEARANCE (OUTSIDE SURFACES) BETWEEN STORM DRAIN PIPES AND OTHER UTILITY PIPES AND CONDUITS. FOR CROSSING OF SANITARY SEWER LINES, WASHINGTON STATE DEPARTMENT OF ECOLOGY CRITERIA APPLY.
- EASEMENTS AND RIGHT-OF-WAY WILL BE DEDICATED TO THE CITY AFTER CONSTRUCTION IS COMPLETED AND PRIOR TO FINAL PLAT.
- A COPY OF THE APPROVED PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
- CONSTRUCTION NOISE SHALL BE LIMITED IN ACCORDANCE WITH THE NUISANCE ORDINANCE; NORMALLY, THIS IS 7 A.M. TO 8 P.M. DURING THE WEEKDAYS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE SAFEGUARDS, SAFETY DEVICES, PROTECTIVE EQUIPMENT, FLAGGERS, AND ANY OTHER NEEDED ACTIONS TO PROTECT LIFE, HEALTH, AND SAFETY OF THE PUBLIC, AND TO PROTECT PROPERTY IN CONNECTION WITH THE PERFORMANCE OF WORK COVERED BY THE CONTRACTOR, ANY WORK WITHIN THE TRAVELED RIGHT-OF-WAY THAT MAY INTERRUPT NORMAL TRAFFIC FLOW SHALL REQUIRE AT LEAST ONE FLAGGER FOR EACH LANE OF TRAFFIC AFFECTED. SECTION 1-07.23, "TRAFFIC CONTROL," OF THE WSDOT STANDARD SPECIFICATIONS SHALL APPLY IN ITS ENTIRETY.
- THE CONTRACTOR SHALL DEWATER ALL TRENCHES AS NEEDED.
- A CITY OF LONGVIEW INSPECTOR SHALL BE NOTIFIED OF TIME OF CONSTRUCTION. CONTACT TWO WORKING DAYS PRIOR TO COMMENCING WORK.

WATER UTILITY NOTES:

- ALL MATERIALS AND CONSTRUCTION WILL BE IN ACCORDANCE WITH CITY OF LONGVIEW STANDARDS.
- A CITY OF LONGVIEW INSPECTOR SHALL BE NOTIFIED OF TIME OF CONSTRUCTION TWO WORKING DAYS PRIOR TO COMMENCING WORK.
- CONTRACTOR SHALL CALL UTILITY LOCATES TWO WORKING DAYS PRIOR TO ANY CONSTRUCTION. PHONE 1-800-424-5555
- THE WATER FACILITIES SHALL BECOME PROPERTY OF THE CITY OF LONGVIEW UPON FINAL ACCEPTANCE OF THE PROJECT BY THE CITY. ALL MATERIALS AND WORKMANSHIP ARE SUBJECT TO A TWO (2) YEAR WARRANTY, COMMENCING AT FINAL ACCEPTANCE OF THE PROJECT, REPLACEMENT AND/OR REPAIRS OF DEFECTIVE MATERIALS SHALL BE THE DEVELOPER'S/OWNER'S RESPONSIBILITY.
- WORK WITHIN THE CITY RIGHT-OF-WAY SHALL CONFORM WITH CITY OF LONGVIEW PUBLIC WORKS PERMIT REQUIREMENTS.
- A MINIMUM OF 10 FEET HORIZONTAL SEPARATION AND 18 INCHES VERTICAL SEPARATION SHALL BE MAINTAINED BETWEEN ALL EXISTING AND PROPOSED WATER AND SEWER LINES.
- A TAPPING COMPANY APPROVED BY CITY OF LONGVIEW SHALL BE USED TO MAKE ALL TAPS.
- SEE THE DETAIL SHEET FOR STANDARD WATER CONNECTIONS.
- CONTRACTOR SHALL ABANDON OR TRANSFER EXISTING WATER SERVICES AS DIRECTED BY THE CITY OF LONGVIEW.
- ALL WATER METER BOXES AND LIDS SHALL BE TRAFFIC RATED.

SEWER UTILITY NOTES:

- SANITARY SEWER SERVICE IN THE CITY IS NOW PROVIDED BY CITY OF LONGVIEW AND THE CITY'S DESIGN STANDARDS MUST BE FOLLOWED. THE CITY STANDARDS CAN BE FOUND AT [HTTP://WWW.MYLONGVIEW.COM/427/SPECIAL-PROVISIONS-STANDARD-DRAWINGS](http://www.mylongview.com/427/SPECIAL-PROVISIONS-STANDARD-DRAWINGS). ANY REFERENCES TO SANITARY SEWER DESIGN STANDARDS SHOULD DEFAULT TO THE CITY'S STANDARDS.

CONSTRUCTION TRAFFIC ACCESS ROUTE:

- ALL SITE CONSTRUCTION TRAFFIC ACCESS MUST USE ONLY 36TH AVE FOR CONSTRUCTION ACCESS ROUTE.

ABBREVIATIONS LEGEND:

AC	ASPHALTIC CONCRETE	FLG	FLANGE	RT	RIGHT
BC	TOP BACK OF CURB	FT	FEET	R/W	OR ROW
BO	BLOWOFF ASSEMBLY	GV	GATE VALVE	S	SLOPE
BOW	BOTTOM OF WALL ELEVATION	HDPE	HIGH DENSITY POLY ETHYLENE	STM	STORM SEWER
BMP	BEST MANAGEMENT PRACTICE	HYD	FIRE HYDRANT	STM CO	STORM SEWER CLEANOUT
BVC	BEGIN VERTICAL CURVE	IE	INVERT ELEVATION	STM MH	STORM SEWER MANHOLE
CB	CATCHBASIN	JB	JUNCTION BOX	SAN	SANITARY SEWER
CCC	CLARK COUNTY CODE	L	LENGTH	SAN CO	SANITARY SEWER CLEANOUT
CL	CLASS	LF	LINEAL FEET	SAN MH	SANITARY SEWER MANHOLE
CMP	CORRUGATED METAL PIPE	LT	LEFT	STA	STATION
CO	CLEANOUT	MH	MANHOLE	ST	STREET
CONC	CONCRETE	MJ	MECHANICAL JOINT RESTRAINT	T	TANGENT
DWY	DRIVEWAY	MSL	MEAN SEA LEVEL	TO	TOP FACE OF CURB ELEVATION
DIP	DUCTILE IRON PIPE	PC	POINT OF CURVATURE	TOW	TOP OF WALL ELEVATION
DIA	DIAMETER	PL	PROPERTY LINE	TEL	TELEPHONE
EG	EXISTING GRADE	PT	POINT OF TANGENCY	TEMP	TEMPORARY
ELEV	ELEVATION	PP	POWER POLE	TYP	TYPICAL
EOG	EDGE OF GRAVEL	PVC	POLYVINYL CHLORIDE	VC	VERTICAL CURVE
EOP	EDGE OF PAVEMENT	PVI	POINT OF VERTICAL INTERSECTION	WAT	WATER
EX	EXISTING	R	RADIUS	WV	WATER VALVE
FG	FINISH GRADE	RCC	REINFORCED CONCRETE PIPE	WM	WATER METER
FGL	FINISH GRADE AT LEFT	RIM	RIM ELEVATION		

LEGEND - PROPOSED

---	PROPOSED RIGHT OF WAY
---	PROPOSED BOUNDARY
---	PROPOSED BUILDING SETBACK
---	PROPOSED SANITARY SEWER
---	PROPOSED SANITARY CLEANOUT
---	PROPOSED SANITARY MANHOLE
---	PROPOSED SANITARY LATERAL
---	PROPOSED STORM DRAIN
---	PROPOSED STORM MANHOLE
---	PROPOSED STORM DRAIN INLET
---	PROPOSED WATER LINE
---	PROPOSED WATER METER

LEGEND EXISTING

---	EXISTING RIGHT OF WAY
---	EXISTING BOUNDARY
---	EXISTING ADJOINING LOT LINE
---	EXISTING SANITARY SEWER
---	EXISTING WATER LINE
---	EXISTING STORM DRAIN
---	EXISTING ELECTRIC
---	EXISTING EDGE OF CONCRETE
---	EXISTING EDGE OF PAVEMENT
---	EXISTING GRAVEL
---	EXISTING FENCE
---	EXISTING SANITARY MANHOLE
---	EXISTING STORM DRAIN INLET
---	EXISTING MAILBOX
---	EXISTING WATER METER



CALL 48 HOURS
BEFORE YOU DIG!
1-800-424-5555

REVIEW AUTHORITY AND JURISDICTIONS:
STREETS AND STORM - CITY OF LONGVIEW
WATER AND SANITARY SEWER - CITY OF LONGVIEW
ELECTRIC - COWLITZ PUD



VICINITY MAP

SCALE: NTS

SHEET INDEX

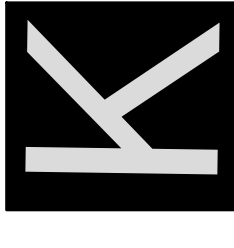
SHT No.	SHEET DESCRIPTION
MV 1	COVER SHEET
MV 2	GRADING & EROSION CONTROL
MV 3	COMPOSITE UTILITY PLAN
MV 4	STORMWATER PLAN
MV 5	RESERVED
MV 6	OAK STREET PLAN AND PROFILE
MV 7	MINT VALLEY LOOP (PRIVATE) PLAN AND PROFILE
MV 8	TRACT H - PRIVATE ACCESS PLAN & PROFILE
MV 9	SANITARY & WATER PLAN
MV 10	RESERVED
MV 11	SIGNAGE AND STRIPING PLAN
MV D1	GRADING & EROSION CONTROL DETAILS
MV D2	RESERVED
MV D3	STORM DETAILS
MV D4	SEWER DETAILS
MV D5	SEWER DETAILS
MV D6	WATER DETAILS
MV D7	WATER DETAILS
MV D8	STREET AND ADA RAMP DETAILS
MV D9	CDID#1 DETAILS
T-1	TOPOGRAPHIC AND EXISTING CONDITIONS SURVEY BY SURVEYOR

CITY OF LONGVIEW APPROVAL

PUBLIC WORKS

DATE

KESSI ENGINEERING



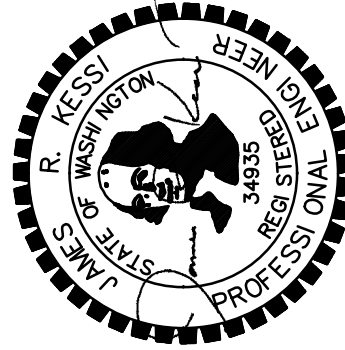
CONSULTING
PROJECT MANAGEMENT
PLANNING
CIVIL ENGINEERING

KESSI
ENGINEERING
& CONSULTING

6400 NE HWY 99 #G-169
(360)991-9300
Email: info@kessiconsulting.com
www.kessiconsulting.com

REVISIONS

	1	2	3	4	5
DRAWN BY:	T.F.	J.K.	J.K.	J.K.	J.K.
DESIGNED BY:					
CHECKED BY:					



PROJECT
#155

DATE:
7/27/2025

MINT VALLEY
COVER SHEET

MV 1

GRADING AND EROSION CONTROL NOTES:

1. ALL CONSTRUCTION, MATERIALS, WORKMANSHIP AND METHODS OF CONSTRUCTION SHALL CONFORM TO COWLITZ COUNTY ENGINEERING SERVICES GENERAL REQUIREMENTS AND DETAILS. EROSION CONTROL SHALL BE AS PER THE STANDARD DETAILS CONTAINED THEREIN.
2. ALL EROSION CONTROL METHODS SHALL CONFORM WITH COWLITZ COUNTY STANDARD NOTES AND DETAILS PER DETAILS SHEET.
3. THE CONTRACTOR SHALL MAINTAIN AN ON-SITE WRITTEN DAILY LOG OF EROSION CONTROL MAINTENANCE.
4. ALL EROSION CONTROL AND STORMWATER WORK SHALL CONFORM TO THE APPROVED SWPPP FOR THE SITE.
5. ALL EXPOSED AND UNWORKED SOILS SHALL BE STABILIZED BY THE APPROPRIATE BEST MANAGEMENT PRACTICES (BMPs). SEE EROSION PREVENTION & SEDIMENT CONTROL PLAN.
6. DURING CONSTRUCTION, ALL PROPOSED STORM SYSTEMS SHALL REMAIN OFF-LINE UNTIL THE SITE IS COMPLETELY STABILIZED AND SIDEWALK, PAVING AND OTHER SITE WORK IS COMPLETE AND ACCEPTED.
7. A WHEEL WASH WILL BE REQUIRED IF THE EROSION PROJECT ENGINEER OR CONTROL INSPECTOR DETERMINES IT TO BE NECESSARY TO PROTECT PUBLIC AND ADJACENT PROPERTIES FROM SEDIMENT, MUD AND DEBRIS BEING TRANSPORTED ONTO A ROAD SURFACE.
8. ALL AREAS TO BE GRADED SHALL BE CLEARED OF ALL VEGETATION DURING THE STRIPPING OF THE ORGANIC TOP SOIL LAYER.
9. ALL UNSUITABLE GROUND SUCH AS SOFT ORGANIC CLAY AND SILTS MUST BE REMOVED TO REDUCE EMBANKMENT SETTLEMENT.
10. ANY TREES THAT WILL BE REMOVED SHOULD BE INDIVIDUALLY REMOVED, TAKING CARE TO REMOVE ALL ROOTS. ROOT CAVITIES SHALL BE INDIVIDUALLY BACKFILLED AND COMPACTED PRIOR TO COMMENCEMENT OF FILLING OPERATIONS.
11. STRIPPED SURFACE SOIL SHALL BE STOCKPILED IN DESIGNATED AREAS.
12. FOR COMPACTION OF EARTH EMBANKMENTS, REFER TO THE GEOTECHNICAL REPORT BY PROJECT GEOTECHNICAL ENGINEER.
13. CUT AND FILL SLOPES SHALL NOT BE GREATER THAN 1 UNIT VERTICAL IN 2 UNITS HORIZONTAL (50%), EXCEPT AS PERMITTED BY THE CONSTRUCTION INSPECTOR. NO ROCK OR SIMILAR IRREDUCIBLE MATERIAL WITH A MAXIMUM DIMENSION GREATER THAN 12 INCHES SHALL BE BURIED OR PLACED IN FILLS.
14. BACKFILL FOR UTILITY TRENCHES SHALL BE SELECT NATIVE MATERIAL OR IMPORTED GRANULAR MATERIAL OR CDF WHERE REQUIRED AND AS APPROVED BY THE CONSTRUCTION INSPECTOR. BACKFILL MATERIAL SHALL BE COMPACTED TO 95% MAXIMUM DENSITY.
15. CONTRACTOR TO VERIFY WHICH ON-SITE TREES ARE TO BE REMOVED AND WHICH TREES ARE TO REMAIN WITH DEVELOPER PRIOR TO ANY TREE REMOVAL.
16. ALL LOTS TYPICAL SFR DOWNSPOUT SYSTEM PER DETAILS SHALL BE INSTALLED WITH HOME PRIOR TO OCCUPANCY.
17. CONTRACTOR TO HAVE DESIGNATED TEMPORARY SOILS STRIPPINGS STOCK PILE LOCATIONS ON THE PLAN. SUGGESTED AREAS SHOWN ARE FOR PLANNING PURPOSES, AND CONTRACTOR MAY USE ADDITIONAL AREAS IF NEEDED, PROVIDED THE LOCATIONS ARE PROPERLY STABILIZED AND DO NOT ALLOW SOIL TO LEAVE THE SITE.
18. CONTRACTOR TO VERIFY EXISTING SEPTIC LOCATION PRIOR TO GRADING AND DECOMMISSIONING.
19. SEPTIC SYSTEM TO BE ABANDONED AND DOCUMENTATION FROM CONTRACTOR TO BE PROVIDED TO HEALTH DISTRICT IMMEDIATELY AFTER.
20. EXISTING OUTBUILDINGS TO BE REMOVED. A COUNTY DEMOLITION PERMIT IS REQUIRED BEFORE REMOVAL.
21. CONTRACTOR TO FLAG AND VERIFY WITH OWNER WHICH TREES ARE TO REMAIN OR BE REMOVED PRIOR TO BEGINNING SITE WORK.
22. CONTRACTOR TO PROTECT ALL OPEN CUT AREAS THAT WILL BE UNWORKED WITH HYDRO-SEED, STRAW, WOOD FIBER MULCH, COMPOST OR EQUIVALENT.
23. ANY STATED CUT AND FILL QUANTITIES ARE APPROXIMATE ONLY. THE CONTRACTOR IS ADVISED TO DETERMINE HIS OWN TAKEOFF & QUANTITIES FOR BIDDING. ACTUAL EARTHWORK EASEMENTS FOR AGRICULTURAL QUANTITIES MAY VARY DEPENDING ON CONTRACTOR'S METHOD OF COMPACTION SHRINKAGE, STRIPPING DEPTHS, & ACCURACY OF THE EARTHWORK TAKEOFF. WHEN SIGNING THE PROJECT CONSTRUCTION CONTRACT, THE CONTRACTOR AGREES THAT HIS COST FOR CONSTRUCTION OF THE GRADING IMPROVEMENTS AND DISPOSAL OF EXCESS MATERIAL (IF NECESSARY) IS INCLUDED & THERE WILL BE NO ADDITIONAL CHARGE FOR THIS ITEM. STRUCTURAL MATERIAL ON THIS SITE IS INTENDED TO APPROXIMATELY BALANCE. GRADING DESIGN IS BASED ON SURVEY INFORMATION AND FINISH DESIGNED ROUGH GRADING ELEVATIONS. ALL EXISTING INCLUSIONS OF NON-STRUCTURAL OR ORGANIC SOILS AND STRIPPINGS SHALL BE OVER-EXCAVATED AS NECESSARY TO COMPETENT MATERIAL.

LEGEND

- FF130 FINISH FLOOR ELEVATION
- FINISHED GRAD FLOW ARROW
- SURFACE FLOW DIRECTION
- SILT FENCE
- INLET PROTECTION
- PROPOSED DRAINAGE BASIN

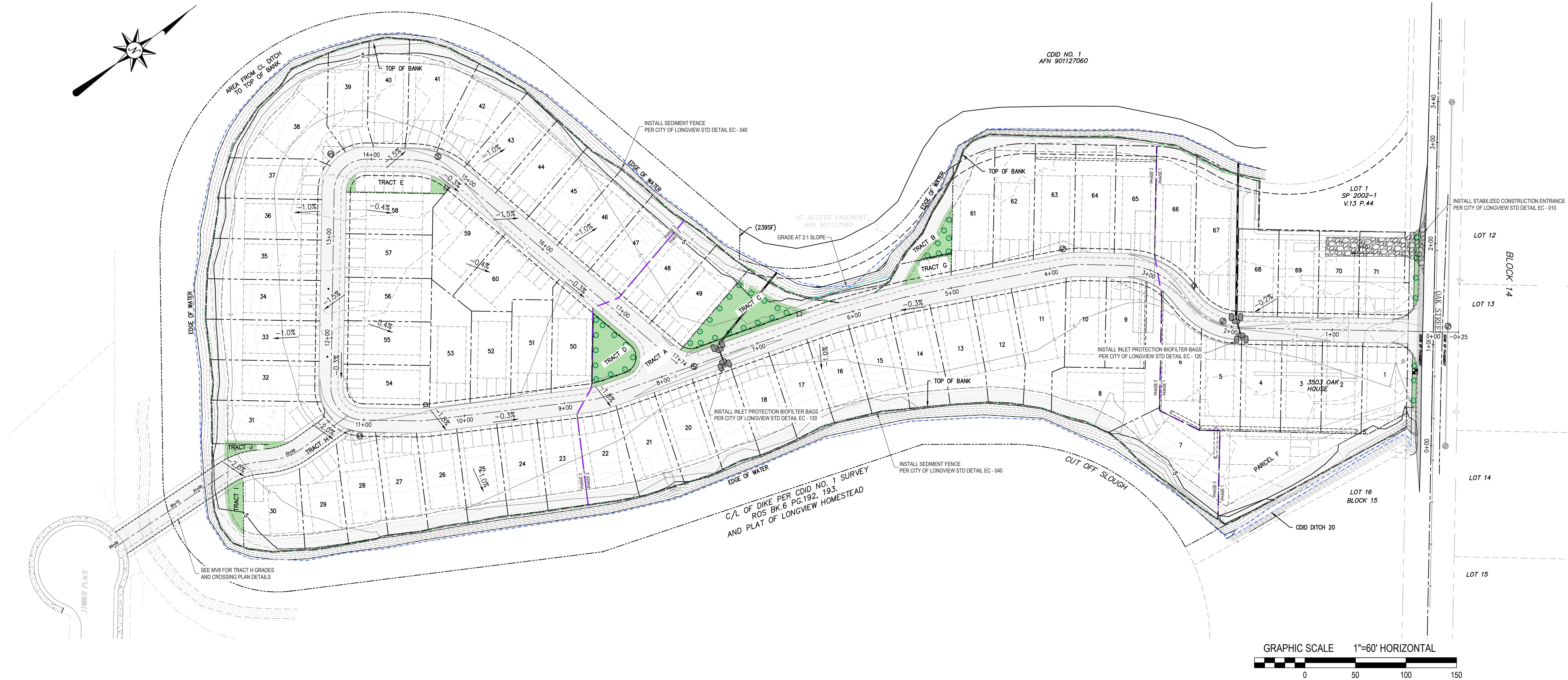
APPROXIMATE EARTHWORK QUANTITIES

CUT 6" STRIPPING OVER SITE: 7315 CY

CUT : 3445 CY
FILL : 10695 CY

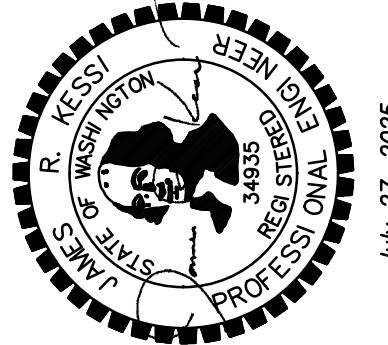
CONTRACTOR TO VERIFY THESE AMOUNTS
GRADING AND CUT FILL VOLUMES ARE FROM EXISTING
GRADE(EG) TO FINISH GRADE(FG). FINISH GRADE INCLUDES
TOP OF SOIL AND TOP OF HARD SURFACES (ASPHALT ROAD,
CURBS, SIDEWALKS, AND ANY SLAB ON GRADE
FOUNDATIONS)

THE MIN. UNIT FF (FINISHED FLOOR) IS ELEVATION 6.7.



REVISIONS

1	2	3	4	5
DRAWN BY:	T.F.	DESIGNED BY:	J.K.	CHECKED BY:
				J.K.



PROJECT #155
DATE: 7/27/2025

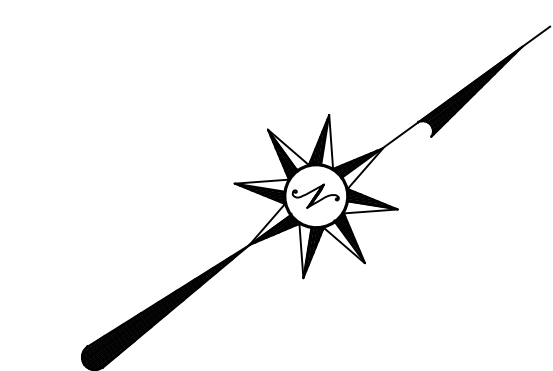
MINT VALLEY
GRADING AND
EROSION CONTROL PLAN

MV 2

K KESSI ENGINEERING & CONSULTING

PLANNING CONSULTING
CIVIL ENGINEERING PROJECT MANAGEMENT

6400 NE HWY 99 #G-169 VANCOUVER, WA 98665
(360)991-9300 Email: info@kessiconsulting.com
www.kessiconsulting.com



LEGEND - PROPOSED

- PROPOSED RIGHT OF WAY
- PROPOSED BOUNDARY
- PROPOSED BUILDING SETBACK
- PROPOSED SANITARY SEWER
- PROPOSED SANITARY CLEANOUT
- PROPOSED SANITARY MANHOLE
- PROPOSED SANITARY LATERAL
- PROPOSED STORM DRAIN
- PROPOSED STORM MANHOLE
- PROPOSED STORM DRAIN INLET
- PROPOSED WATER LINE
- PROPOSED WATER METER
- PROPOSED FIRE HYDRANT

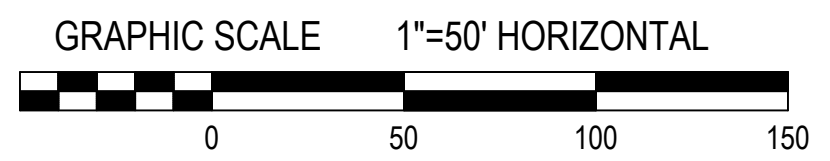
SANITARY SEWER SERVICE:
CITY OF LONGVIEW

WATER SERVICE:
CITY OF LONGVIEW

ELECTRICAL SERVICE:
COWLITZ PUD

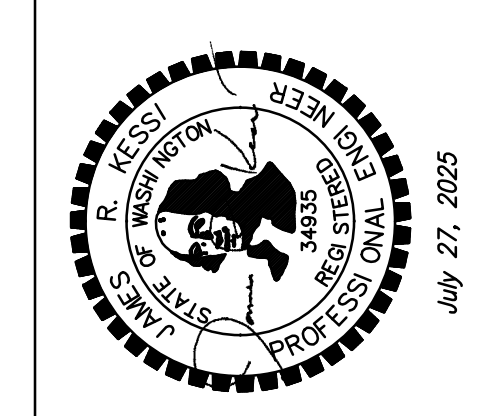
WELLS OR SEPTICS:
NONE KNOWN

WATER - MIN. 8" PRIVATE WATER MAIN
WITH HYDRANTS EVERY 500' MIN.



K KESSI ENGINEERING
CONSULTING
CIVIL ENGINEERING PROJECT MANAGEMENT
6400 NE HWY 99 #G-169 VANCOUVER, WA 98665
(360)991-9300 Email: info@kessiconsulting.com
www.kessiconsulting.com

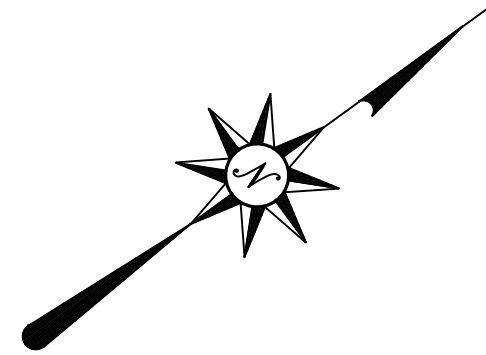
REVISIONS					
	1	2	3	4	5
DRAWN BY:	T.F.				
DESIGNED BY:	J.K.				
CHECKED BY:	J.K.				



PROJECT #155
DATE: 7/27/2025

MINT VALLEY
COMPOSITE UTILITY PLAN

MV 3



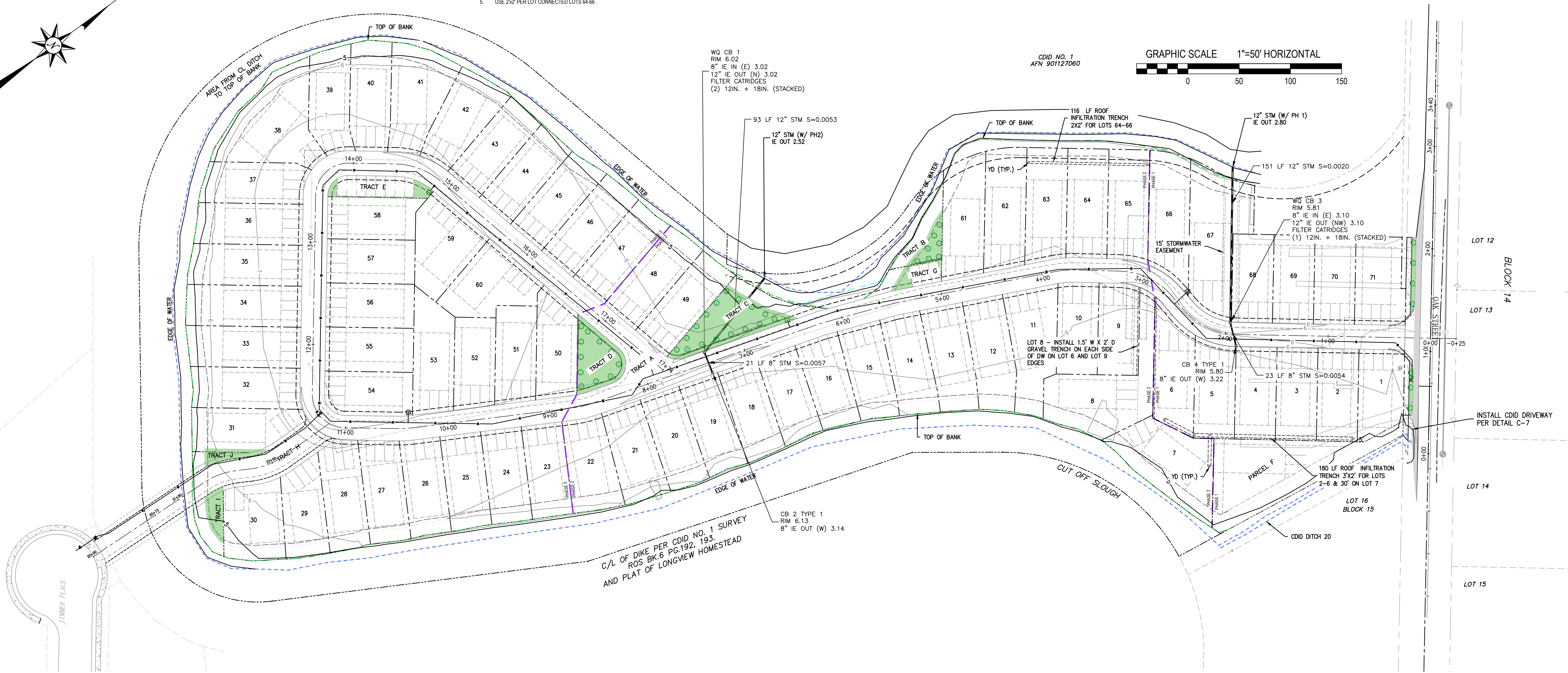
CCID 12' WIDE MAINTENANCE ROAD NOTE:
THE ROAD TO BE A MINIMUM 6" CRUSHED AGGREGATE WITH LAYER OF GEOTEXTILE BENEATH. ALL SUBBASE SOIL
ADDED STRUCTURAL AGGREGATE AND CONCRETE RUBBLE TO BE STRUCTURALLY COMPACTED AND ALL ORGANIC
MATERIALS REMOVED PRIOR TO TOP LIFT INSTALLATION. BANK TO BE STABILIZED WITH CONCRETE RUBBLE AS PER
TYPICAL CCID STANDARDS.

- ROOF DRAIN INFILTRATION NOTE FOR LOTS 2-7 AND 64-66:
1. INSTALL ROOF INFILTRATION TRENCH 2X2' WITH 6" PER PIPE FOR LOTS AS SHOWN
 2. YD-YARD DRAINS AT 6" TO BE PROVIDED AT EACH END AND AT ANGLE POINTS AS TYPICAL
 3. EACH PAIR OF THESE LOTS TO CONNECT SHARED MIN 4" ROOF DRAIN PIPE FROM HOUSE TO THE TRENCH
 4. USE 3X2' PER LOT CONNECTED LOTS 2-6 & 30.F ON LOT 7
 5. USE 2X2' PER LOT CONNECTED LOTS 64-66

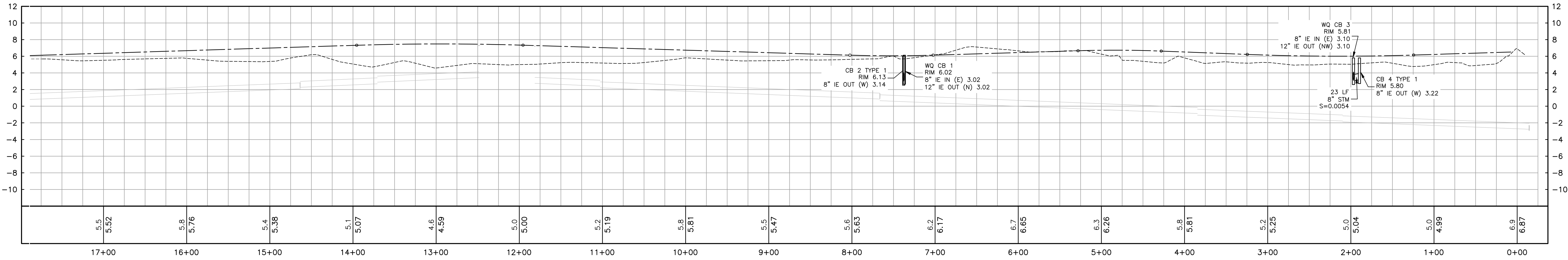
WO CB 1
RIM 6.02
8" IE IN (E) 3.02
12" IE OUT (N) 3.02
FILTER CATRIDGES
(2) 12IN. + 18IN. (STACKED)

CCID NO. 1
AFN 901127060

GRAPHIC SCALE 1"=50' HORIZONTAL



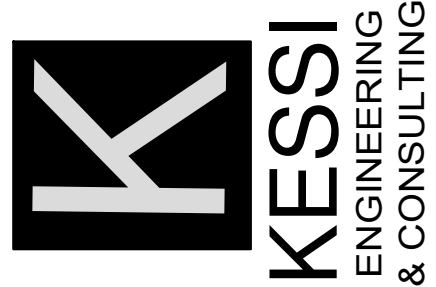
C/L OF DIKE PER CCID NO. 1 SURVEY
ROS BK.6 PG.192, 193.
AND PLAT OF LONGVIEW HOMESTEAD



MINT VALLEY LOOP PROFILE

GRAPHIC SCALE 1"=60' HORIZONTAL 1"=6' VERTICAL

KESSI ENGINEERING
CONSULTING
PROJECT MANAGEMENT
CIVIL ENGINEERING
6400 NE HWY 99 #G-169
VANCOUVER, WA 98665
Email: info@kessiconsulting.com
www.kessiconsulting.com



REVISIONS

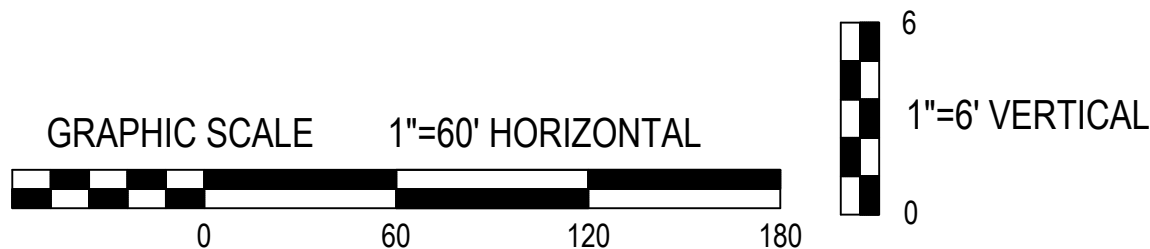
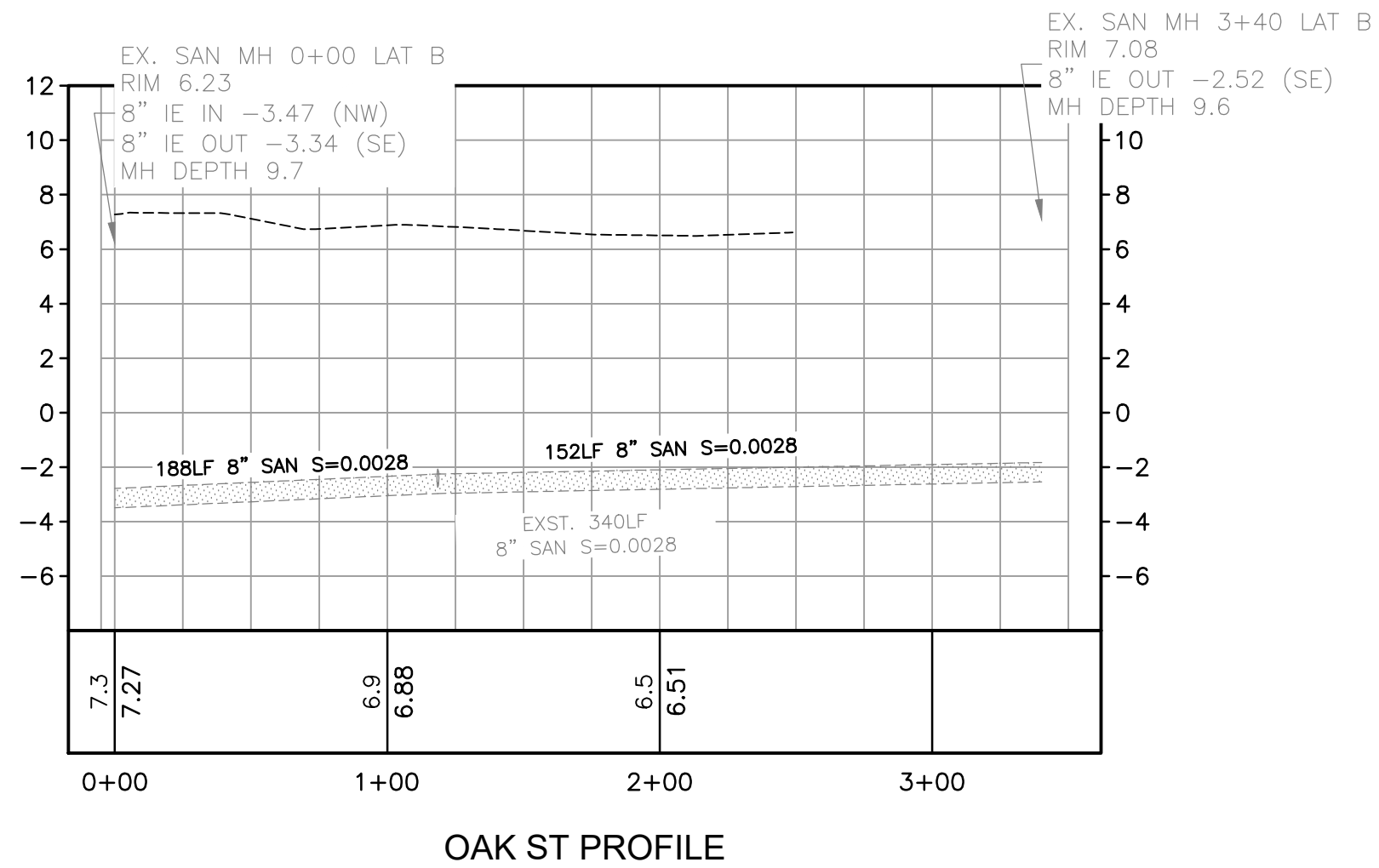
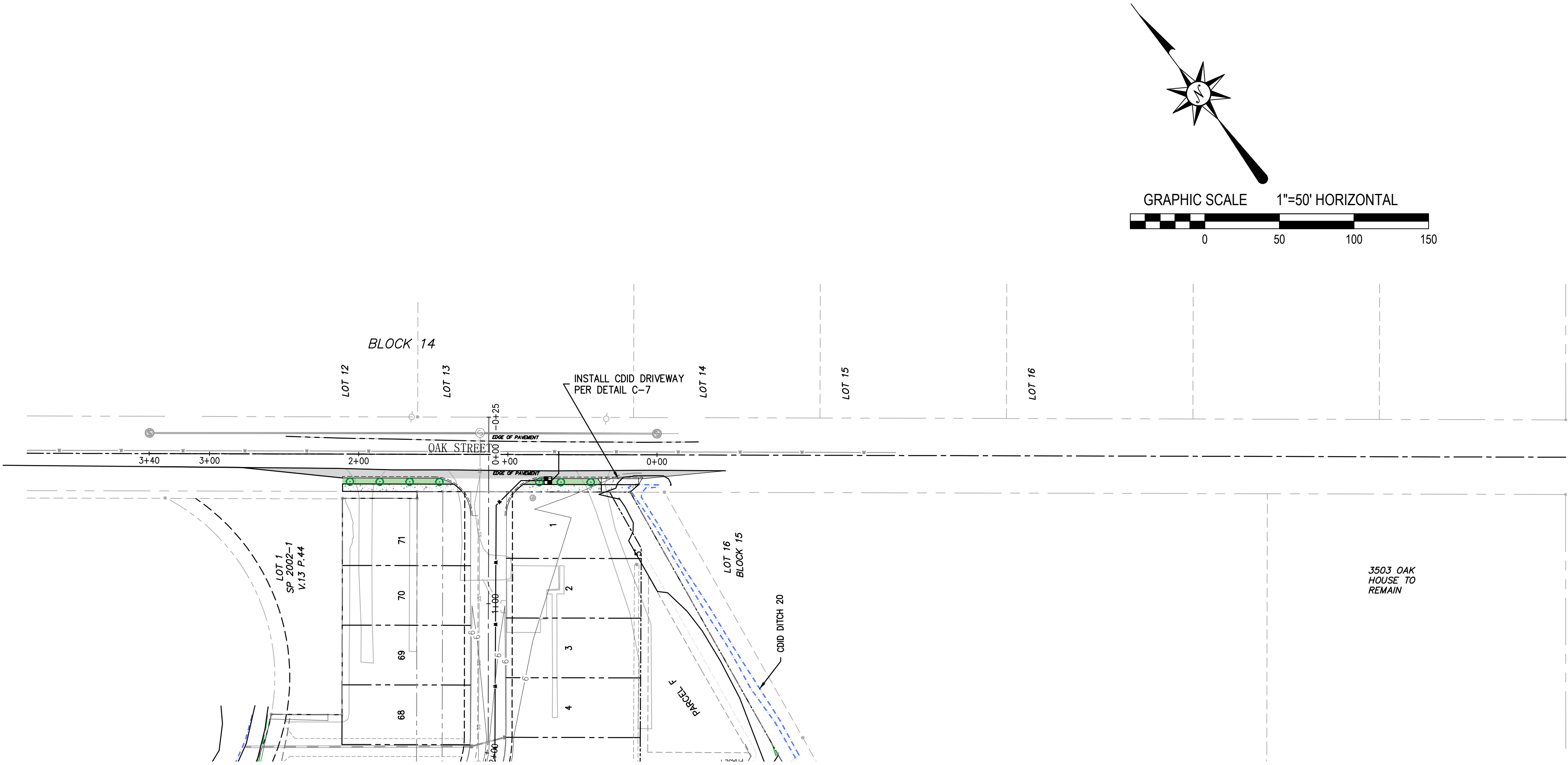
1	2	3	4	5
DRAWN BY:	T.F.	DESIGNED BY:	J.K.	CHECKED BY:
				J.K.



PROJECT
#155
DATE:
7/27/2025

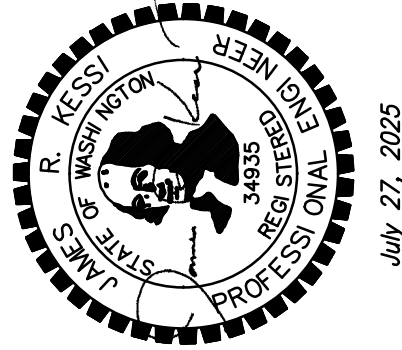
MINT VALLEY
STORMWATER PLAN
AND STREET PROFILE

MV 4



MINT VALLEY OAK STREET PLAN & PROFILE

MV 6



PROJECT
#155
DATE:
7/27/2025

REVISIONS

DRAWN BY:	DESIGNED BY:	CHECKED BY:
T.F.	J.K.	J.K.

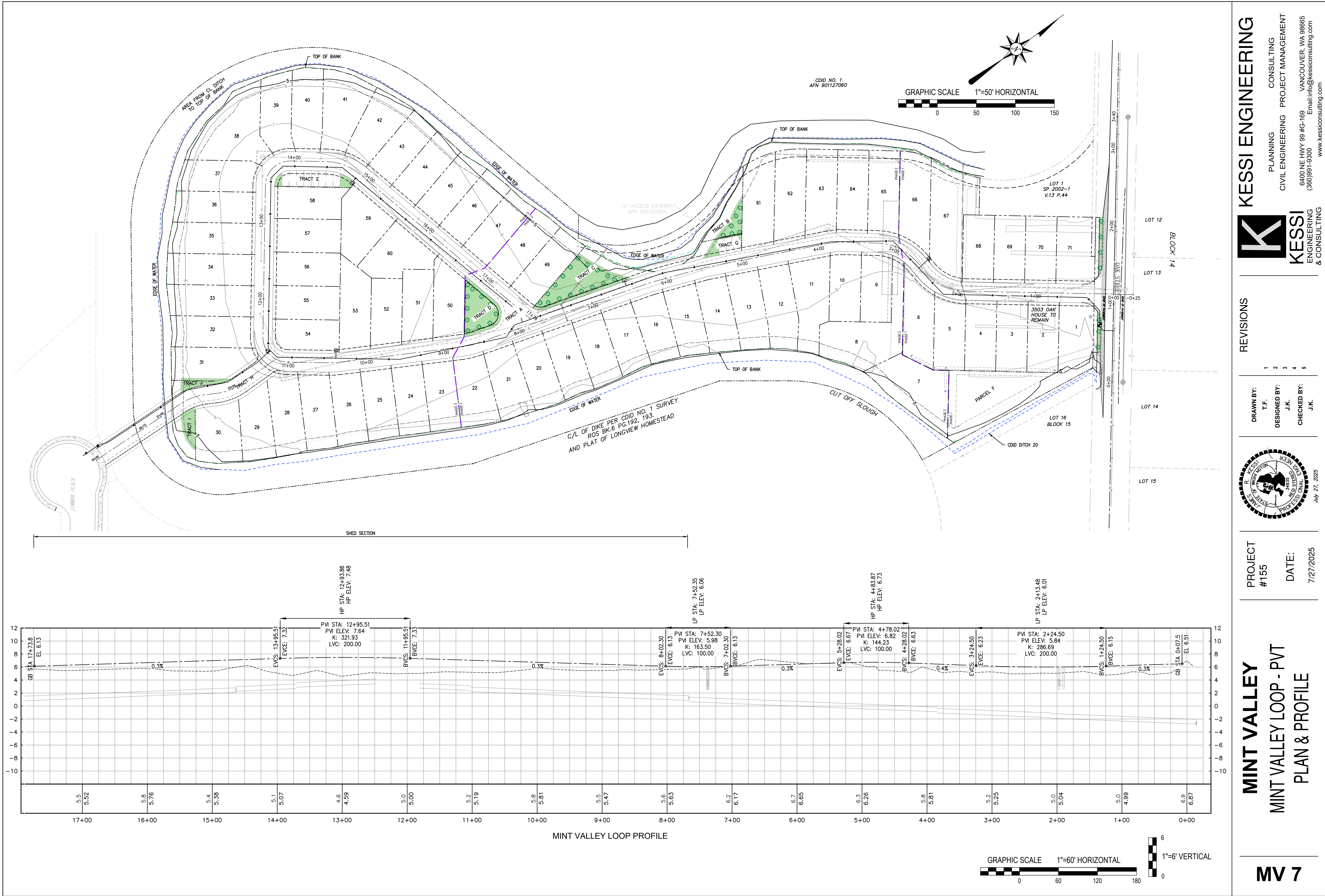


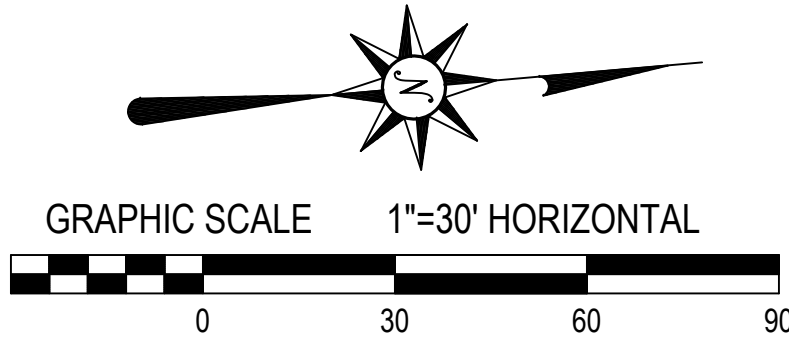
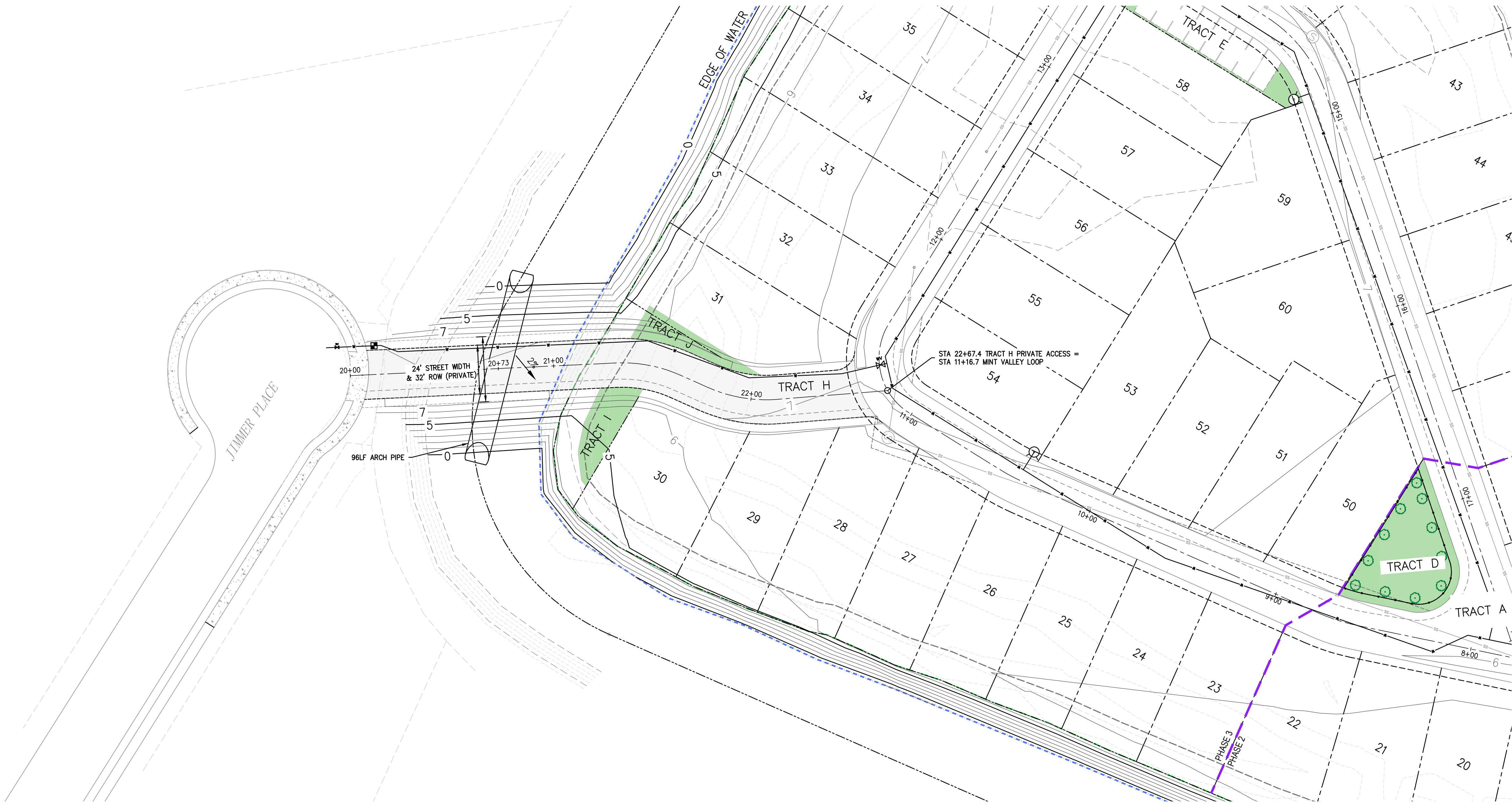
KESSI ENGINEERING & CONSULTING

PLANNING
CIVIL ENGINEERING
CONSULTING
PROJECT MANAGEMENT

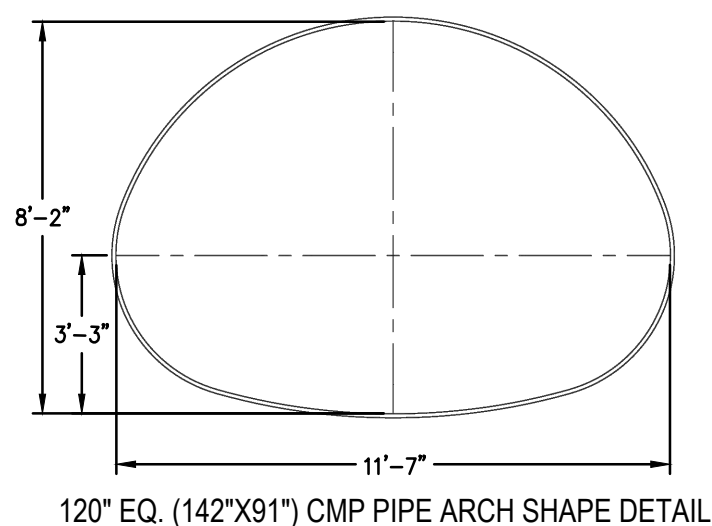
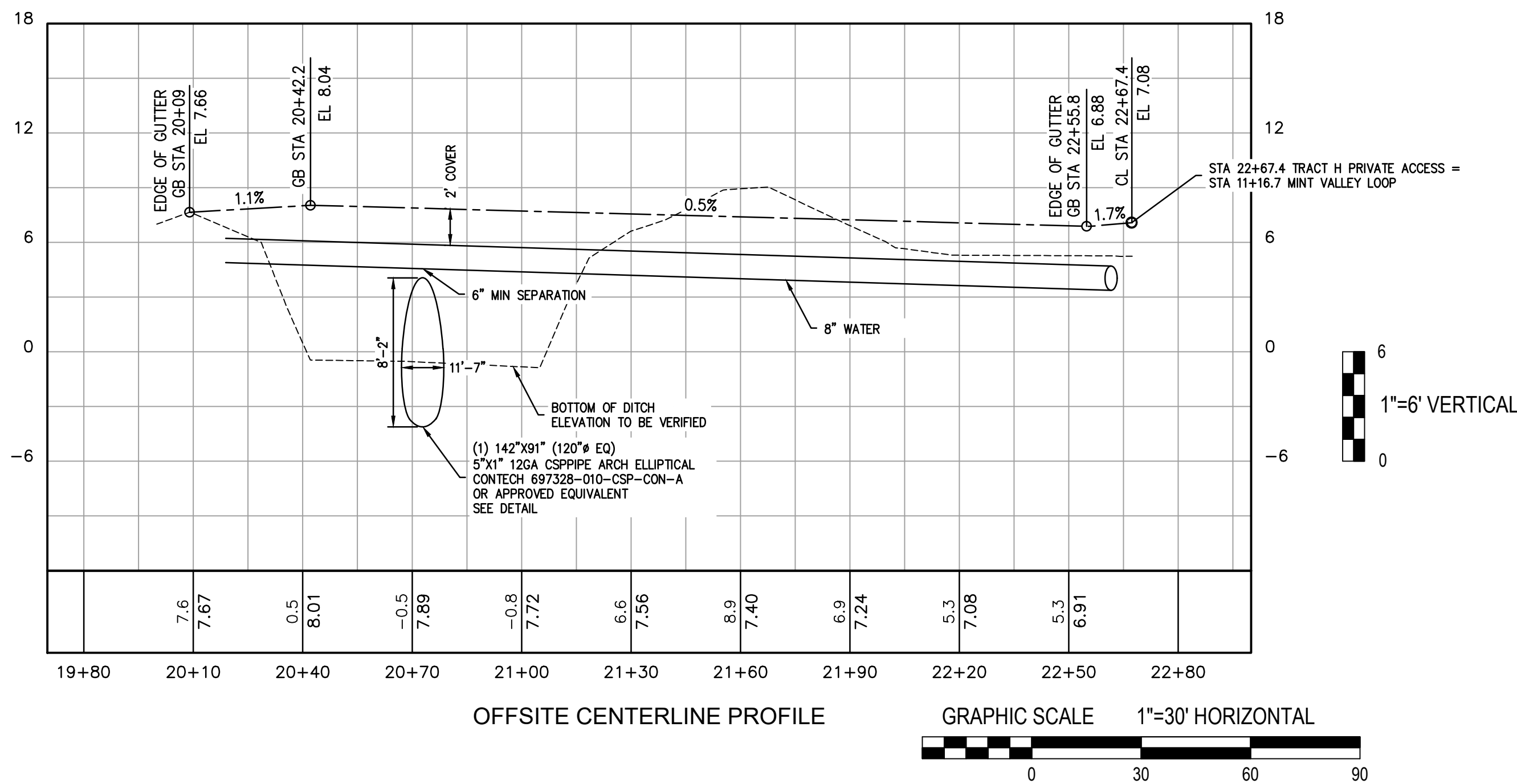
6400 NE HWY 99 #G-169
(360)991-9300
Email: info@kessiconsulting.com
www.kessiconsulting.com

VANCOUVER, WA 98665



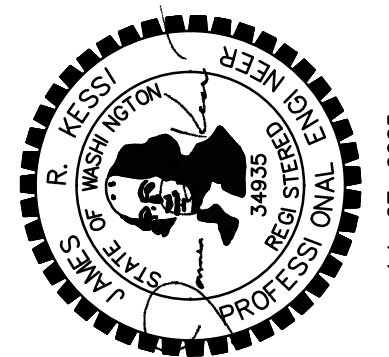


- CROSSING NOTES:
1. TRACT H CROSSING FINAL DESIGN TO BE APPROVED WITH FINAL ENGINEERING PLANS.
 2. CROSSING TO BE WITH 2:1 SIDE SLOPES OR OTHER APPROVED STRUCTURAL FILL OR WITH HEADWALLS TO BE FINALIZED WITH FINAL DESIGN.



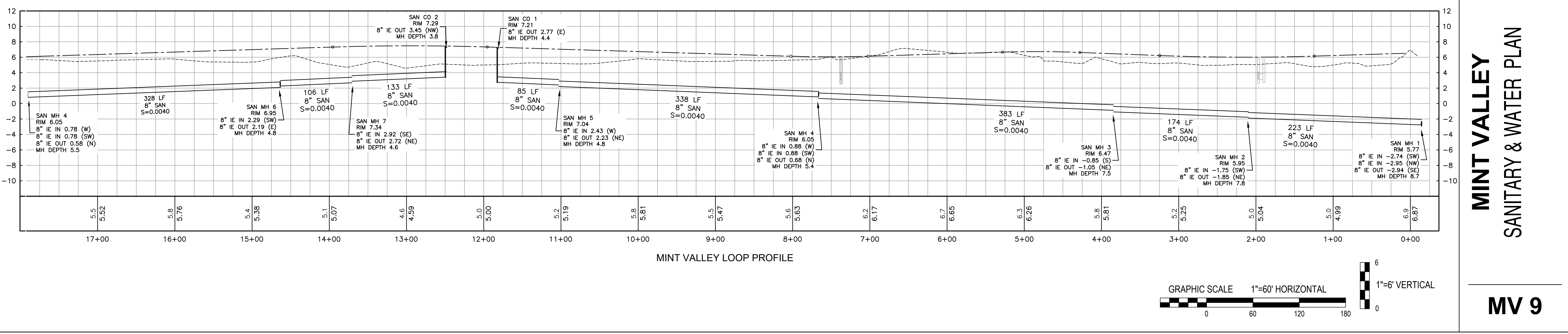
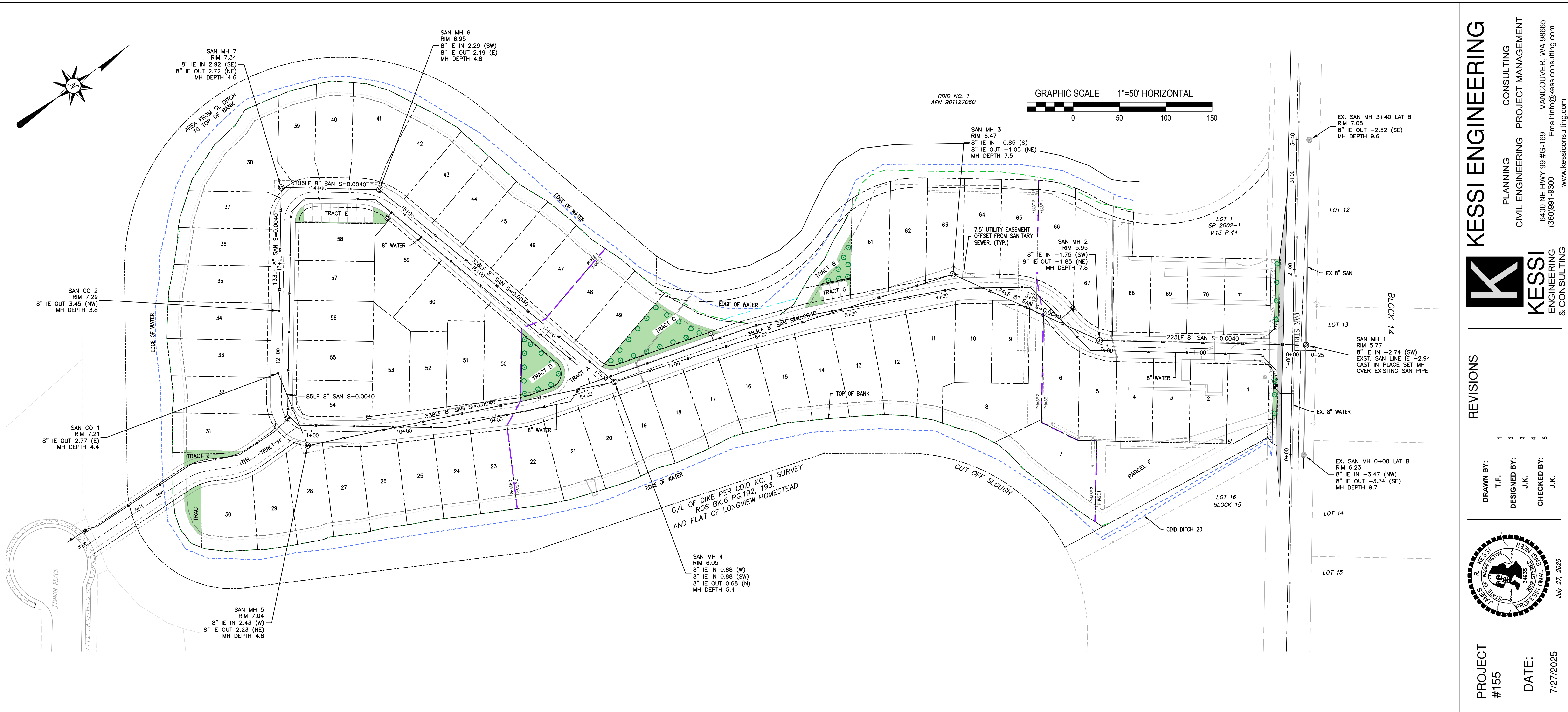
REVISIONS

DRAWN BY:	DESIGNED BY:	CHECKED BY:
T.F.	J.K.	J.K.



PROJECT #155
DATE: 7/27/2025

MINT VALLEY
TRACT H - PRIVATE ACCESS
PLAN & PROFILE



K**ESSI**
ENGINEERING
& CONSULTING

K**ESSI**
ENGINEERING
& CONSULTING

PLANNING
CONSULTING

CIVIL ENGINEERING
PROJECT MANAGEMENT

6400 NE HWY 99 #G-169
(360)991-9300
Email: info@kessiconsulting.com
VANCOUVER, WA 98665
www.kessiconsulting.com

REVISIONS

1	2	3	4	5
DRAWN BY:	T.F.	DESIGNED BY:	J.K.	CHECKED BY:
				J.K.

July 27, 2025

PROJECT
#155

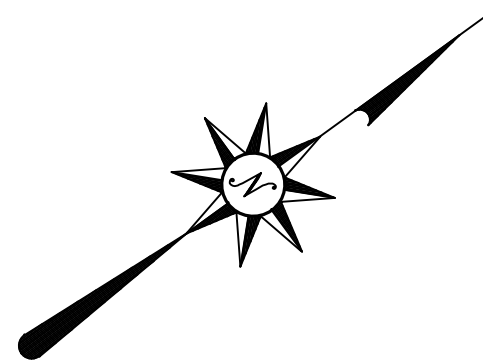
DATE:
7/27/2025

MINT VALLEY
SANITARY & WATER PLAN

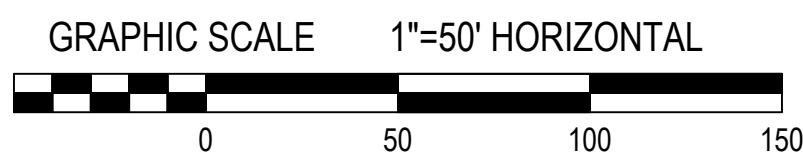
MV 9

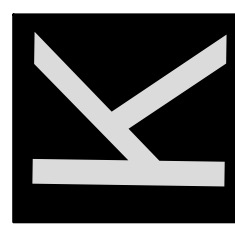
PROJECT PHASING

THIS PROJECT WILL BE CONSTRUCTED IN EITHER ONE SINGLE PHASE, TWO PHASES OR UP TO THREE PHASES.
PHASE 1 - THE FIRST 150' OF PRIVATE STREET WITH A TEMPORARY HAMMERHEAD TURNAROUND AT THE END ON ADJACENT FUTURE LOTS 5 & 68.
PHASE 2 - THE NEXT SECTION OF PRIVATE STREET FROM PH 1 UP TO TRACT D INCLUDING A HAMMERHEAD TURNAROUND AT TRACT D.
PHASE 3 - ALL REMAINING LOTS AROUND THE LOOP. EACH PHASE WILL BE DESIGNED TO MEET REQUIRED STANDARDS FOR THAT PHASE. ALTERNATIVELY, THE PHASES 1+2 OR PHASES 1+2+3 MAY BE CONSTRUCTED CONCURRENTLY.



NOTES
ALL SIGNAGE AND STRIPING SHALL BE IN ACORDANCE WITH MUTCD AND CITY OF LONGVIEW





KESSI

ENGINEERING & CONSULTING

PLANNING

CIVIL ENGINEERING

CONSULTING

PROJECT MANAGEMENT

6400 NE HWY 99 #G-169

(360)991-9300

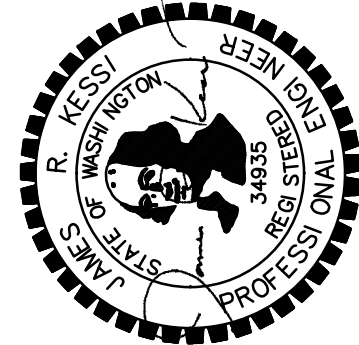
Vanouver, WA 98665

Email: info@kessiconsulting.com

www.kessiconsulting.com

REVISIONS

DRAWN BY:	DESIGNED BY:	CHECKED BY:
T.F.	J.K.	J.K.



PROJECT #155
DATE: 7/27/2025

MINT VALLEY
SIGNAGE AND STRIPING PLAN

MV 11

GENERAL NOTES FOR EROSION AND SEDIMENT CONTROL - PAGE 1

1. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE SITED, DESIGNED, CONSTRUCTED, AND MAINTAINED IN ACCORDANCE WITH THE MOST RECENT CITY OF LONGVIEW STANDARD PLANS AND SPECIFICATIONS, AND THE WASHINGTON STATE DEPARTMENT OF ECOLOGY STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON STATE.
2. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN PLACE AND IN WORKING CONDITION PRIOR TO ANY LAND DISTURBING ACTIVITY, INCLUDING BUT NOT LIMITED TO CLEARING, GRADING, FILLING, EXCAVATION, OR ANY CHANGE IN THE EXISTING SOIL COVER (BOTH VEGETATIVE AND NON-VEGETATIVE). EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED AND APPROVED BY THE CITY PRIOR TO COMMENCEMENT OF WORK. ADDITIONAL MEASURES MAY BE REQUIRED IF THE APPROVED MEASURES ARE INSUFFICIENT AS CONSTRUCTION PROGRESSES AND/OR SEASONAL CONDITIONS DICTATE.
3. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REGULARLY INSPECTED AND MAINTAINED TO ENSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION THROUGHOUT THE DURATION OF THE PROJECT. INSPECTIONS SHALL OCCUR DAILY ON ACTIVE SITES, ONCE PER WEEK ON INACTIVE SITES, AND WITHIN 24 HOURS FOLLOWING A 0.5 INCH RAIN EVENT. THE CONTRACTOR SHALL MAINTAIN A LOG OF EROSION AND SEDIMENT CONTROL MEASURE INSPECTIONS AND MAINTENANCE. THE CONTRACTOR SHALL PROVIDE A 24 HOUR CONTACT NUMBER FOR EMERGENCY MAINTENANCE AND REPAIR OF SITE MEASURES.
4. PRIOR TO ANY LAND DISTURBING ACTIVITIES, CLEARING AND WORK AREA LIMITS SHALL BE CLEARLY DELINEATED AND MARKED. ALL SENSITIVE AND CRITICAL AREAS (WETLANDS, STEEP SLOPES, WATERWAYS, TREES TO BE PRESERVED, ETC.) AND THEIR BUFFERS SHALL BE CLEARLY DELINEATED AND MARKED, AND PROTECTED WITH APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES.
5. PRIOR TO ANY LAND DISTURBING ACTIVITIES, STORM DRAIN INLETS WITHIN OR DOWNSLOPE OF THE PROJECT AREA SHALL BE PROTECTED. INLET PROTECTION SHALL BE CLEANED OR REPLACED AS NEEDED TO MAINTAIN DRAIN AND ENSURE CONTINUED PERFORMANCE. ALL INLET PROJECTION SHALL BE REMOVED PROMPTLY FOLLOWING COMPLETION OF THE PROJECT.
6. PRIOR TO ANY LAND DISTURBING ACTIVITIES, CONSTRUCTION ACCESS SHALL BE ESTABLISHED PER STANDARD PLAN EC-010 ALONG WITH OTHER EROSION AND SEDIMENT CONTROL MEASURES NECESSARY TO MINIMIZE TRACKING OF SEDIMENT ONTO PUBLIC STREETS AND ROADWAYS.
7. TO THE MAXIMUM EXTEND PRACTICABLE, MINIMIZE THE DISTURBANCE OF NATURAL VEGETATION, SOILS, AND SLOPES.
8. ALL RECENTLY UNWORKED DISTURBED AND EXPOSED SOILS SHALL BE STABILIZED BY THE APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES.
9. STOCKPILES SHALL BE STABILIZED BY IMPLEMENTING APPROPRIATE EROSION AND PERIMETER SEDIMENT CONTROL MEASURES, AND SHALL BE LOCATED AWAY FROM STORM DRAIN INLETS, DRAINAGE DITCHES, AND WATERWAYS.
10. SEDIMENT OR DEBRIS SHALL NOT BE ALLOWED TO ENTER NEWLY INSTALLED OR EXISTING STORMWATER INLETS, CATCH BASINS, PIPES, DRAINAGE DITCHES, OR PERMANENT STORMWATER MANAGEMENT FACILITIES THAT ARE ON-SITE OR ADJACENT TO THE PROJECT. IF THIS OCCURS, THE CONTRACTOR SHALL REMOVE ALL ACCUMULATED SEDIMENT AND MAKE APPROPRIATE REPAIRS.



EROSION CONTROL GENERAL NOTES - PAGE 1 OF 2

STANDARD PLAN: EC - 000	CITY ENGINEER APPROVAL: Samuel B. Barham
DATE: JUNE 2024	DRAWN BY: Camryn LaChaine

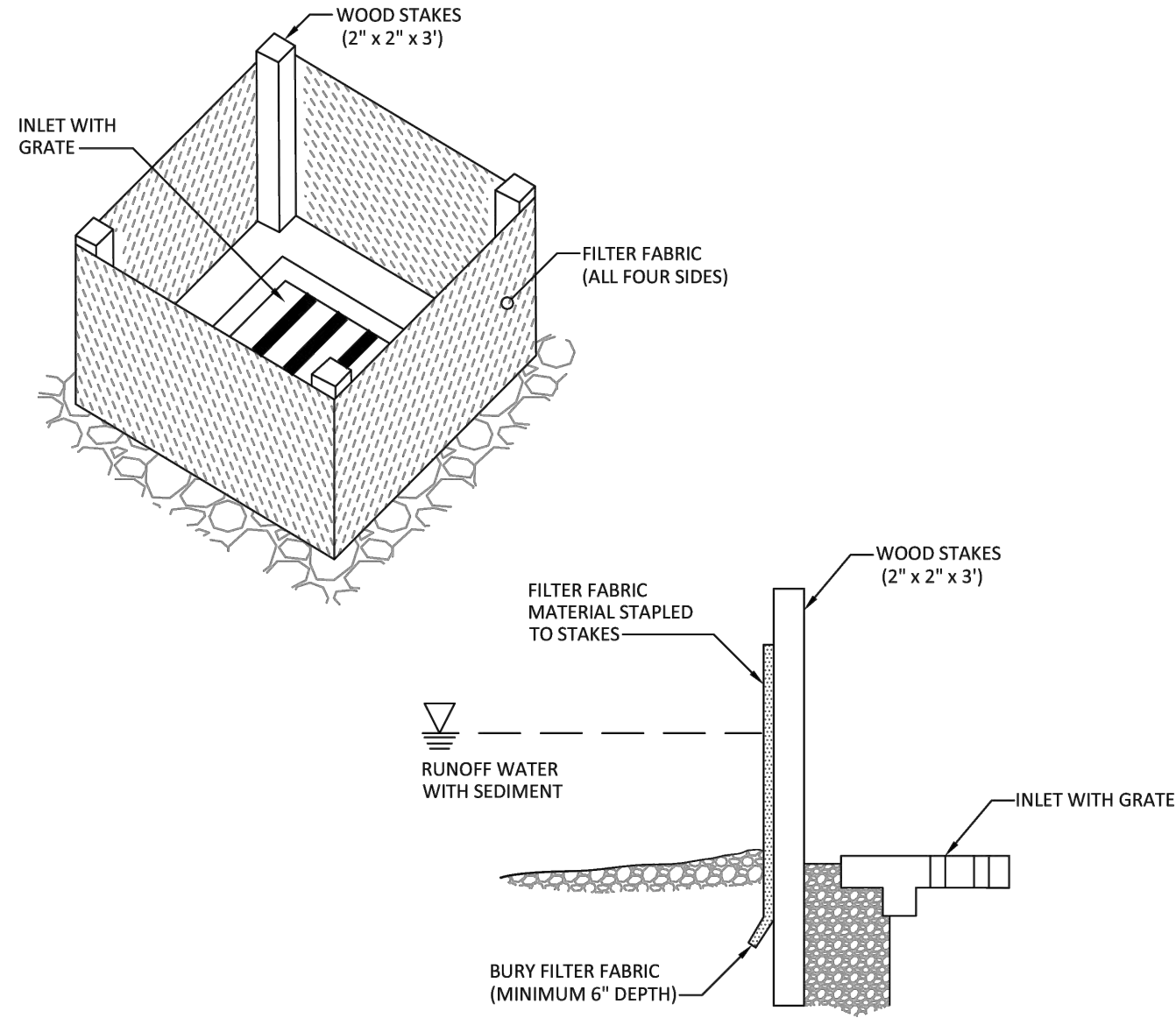
GENERAL NOTES FOR EROSION AND SEDIMENT CONTROL - PAGE 2

11. ANY SOIL, SEDIMENT, OR DEBRIS TRANSPORTED ONTO ROADWAYS, SIDEWALKS, OR ANY PUBLIC RIGHT-OF-WAY SHALL BE REMOVED IMMEDIATELY BY SHOVELING AND/OR SWEEPING. WASHING SHALL NOT BE UTILIZED UNLESS SPECIFICALLY APPROVED IN WRITING BY THE CITY.
12. STRAW MULCH USED FOR TEMPORARY EROSION CONTROL SHALL BE CERTIFIED AS WEED FREE UNLESS APPROVED BY THE CITY IN WRITING. SEED MIX USED IN THE PUBLIC RIGHT-OF-WAY SHALL ALSO BE PRE-APPROVED BY THE CITY IN WRITING PRIOR TO USE.
13. DEWATERING PLANS NEED TO BE SUBMITTED TO THE CITY FOR REVIEW AND APPROVAL A MINIMUM OF ONE WEEK PRIOR TO PLANNED USE. DEWATERING DISCHARGE SHALL HAVE AN APPROVED POINT OF DISCHARGE OR MEANS OF PROPER DISPOSAL.
14. DURING DRY WEATHER CONSTRUCTION PERIODS, THE CONTRACTOR SHALL IMPLEMENT DUST CONTROL MEASURES WHICH SHALL BE MAINTAINED UNTIL ALL DISTURBED AREAS ARE STABILIZED.
15. DISTURBED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE OR GIVEN A PERMANENT COVER TREATMENT WITHIN 30 DAYS OF THE EXPOSURE SHALL HAVE AN APPROVED TEMPORARY SEEDING MIXTURE APPLIED AT A MINIMUM OF 180 LBS/ACRE OR APPLY MULCH PLACED TO STABILIZED AND REDUCE EROSION.
16. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER SITE STABILIZATION IS ACHIEVED OR AFTER MEASURES ARE NO LONGER NEEDED.
17. CONSTRUCTION SHALL NOT BE CONSIDERED COMPLETE AND ACCEPTABLE UNTIL ALL DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED. FOLLOWING STABILIZATION AND PRIOR TO COMPLETION AND/OR OCCUPANCY, THE PERMANENT STORMWATER DRAINAGE SYSTEM SHALL BE CLEANED WITH A VACTOR SYSTEM (WITH NO DISCHARGE TO THE MUNICIPAL SYSTEM) OR OTHER METHOD AS APPROVED BY THE CITY.



EROSION CONTROL GENERAL NOTES - PAGE 2 OF 2

STANDARD PLAN: EC - 001	CITY ENGINEER APPROVAL: Samuel B. Barham
DATE: JUNE 2024	DRAWN BY: Camryn LaChaine



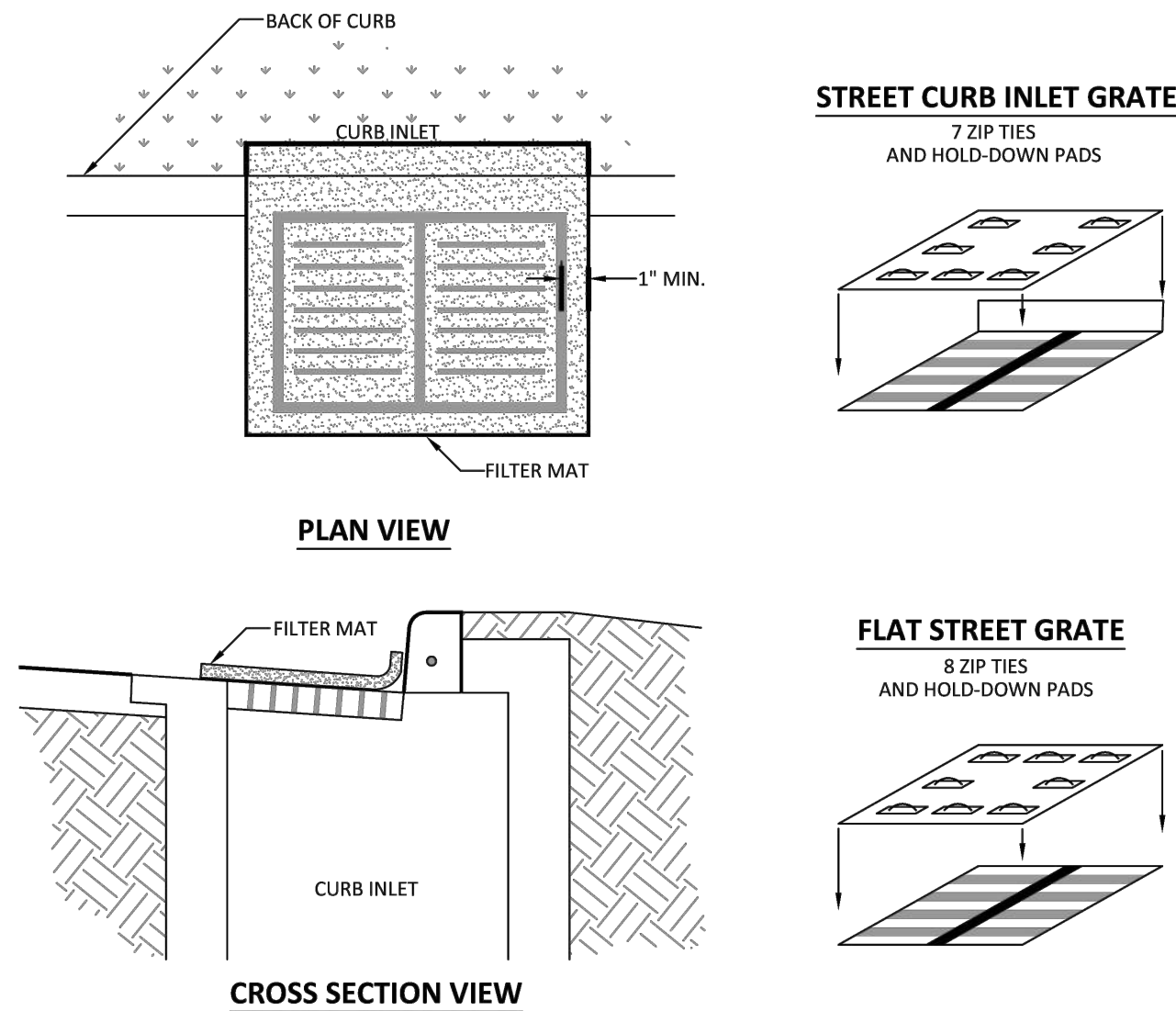
NOTES:

1. FOR USE ON DROP INLETS LOCATED IN UNSTABILIZED AREAS.
2. ATTACH FILTER FABRIC TO WOOD STAKES LOCATED AT FOUR CORNERS SURROUNDING INLET.
3. BURY FILTER FABRIC TO MINIMUM 6 INCH DEPTH.
4. INSPECT ONCE PER WEEK AND WITHIN 24 HOURS FOLLOWING A 0.5 INCH RAIN EVENT.
5. REMOVE SEDIMENT FROM BEHIND BARRIERS, AS NEEDED AND AFTER EACH SIGNIFICANT RAIN EVENT.
6. REPAIR OR REPLACE MATERIALS AS NEEDED TO ENSURE PROPER FUNCTION.



FILTER FABRIC INLET BARRIER

STANDARD PLAN: EC - 090	CITY ENGINEER APPROVAL: Samuel B. Barham
DATE: JUNE 2024	DRAWN BY: Camryn LaChaine



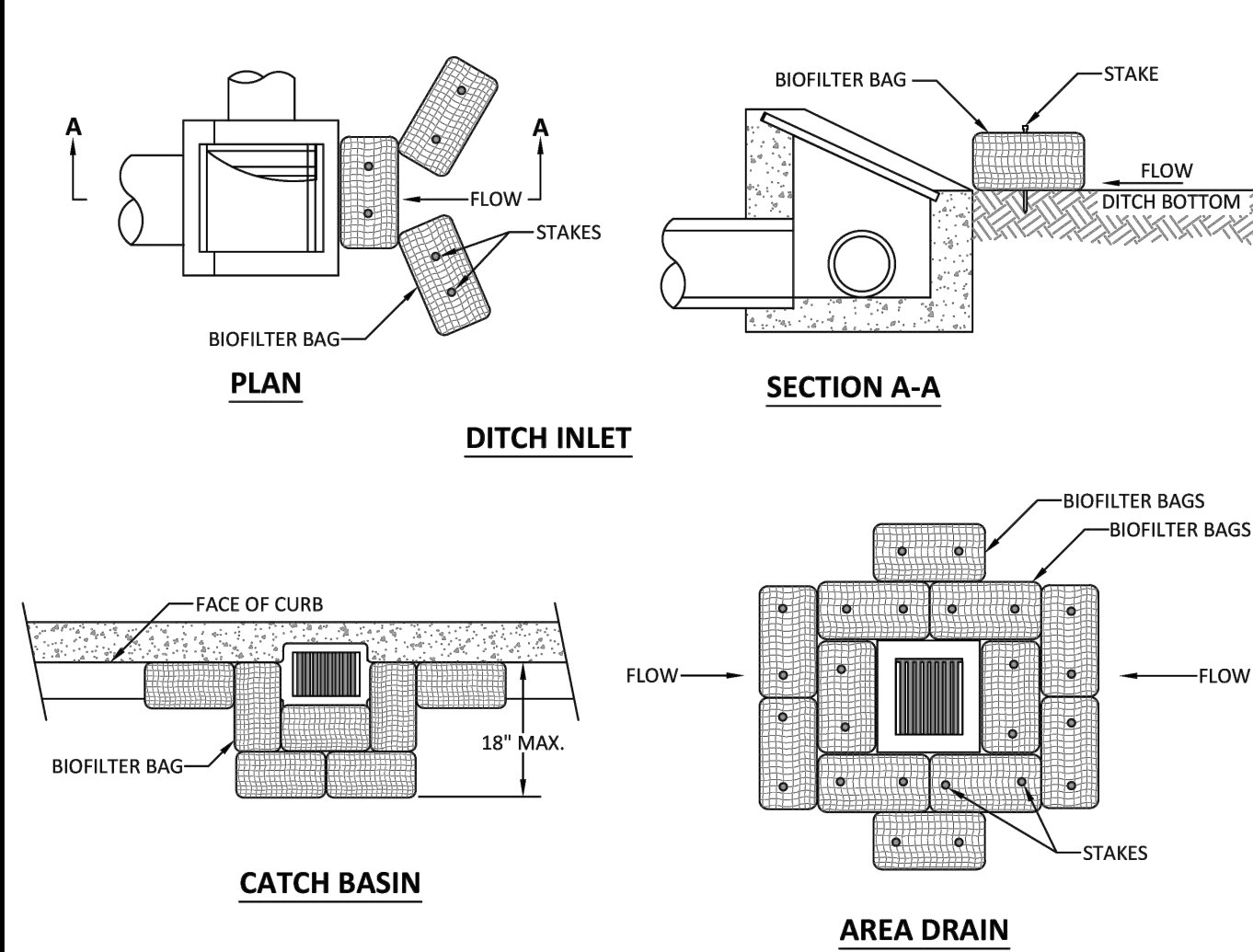
NOTES:

1. FOR USE ON DROP INLETS AND CURB INLETS IN PAVED AREAS.
2. POSITION FILTER MAT ON INLET GRATE WITH MINIMUM 1 INCH OVERLAP ON EACH SIDE.
3. ATTACH WITH CABLE TIES. USE A MINIMUM OF 7 TIES FOR CURB INLET GRATES AND 8 FOR FLAT INLET GRATE.
4. INSPECT ONCE PER WEEK AND WITHIN 24 HOURS FOLLOWING A 0.5 INCH RAIN EVENT.
5. REMOVE DEBRIS AND SEDIMENT BUILDUP FROM BEHIND AND TOP OF MAT.
6. REPLACE WITH NEW FILTER MAT AS NEEDED TO ENSURE PROPER FUNCTION.



INLET PROTECTION FILTER MAT

STANDARD PLAN: EC - 095	CITY ENGINEER APPROVAL: Samuel B. Barham
DATE: JUNE 2024	DRAWN BY: Camryn LaChaine



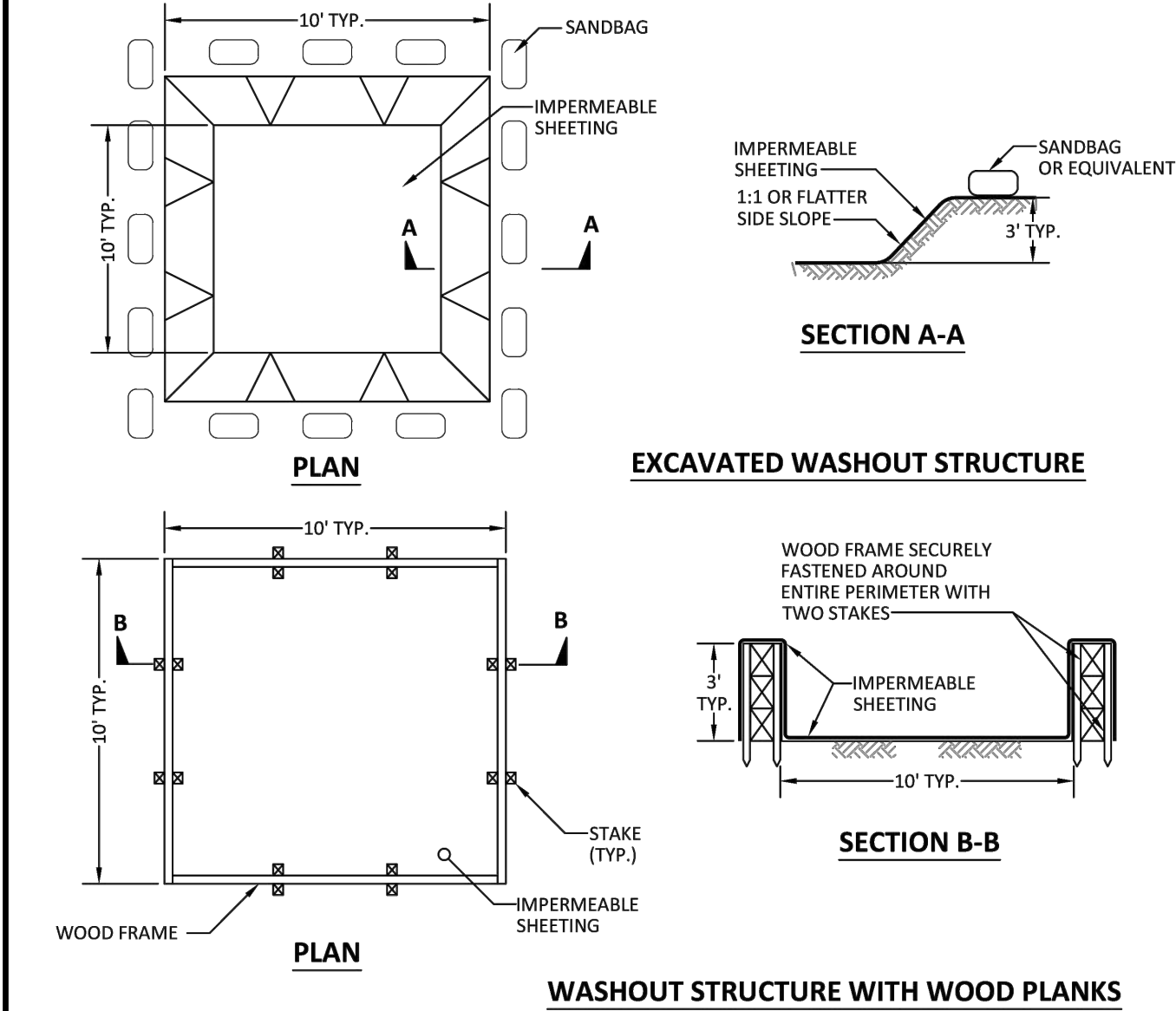
NOTES:

1. FOR USE ON DROP INLETS IN BOTH UNSTABILIZED AND PAVED AREAS.
2. NOT ALLOWED IN THE PUBLIC RIGHT OF WAY OR IN AREAS WITH MOVING TRAFFIC.
3. OVERLAP ALL BAG JOINTS 6 INCHES.
4. USE 2 STAKES PER BAG. BAGS ON PAVEMENT SHALL BE SECURED BY ALTERNATE MEANS TO PREVENT MOVEMENT DURING RAIN EVENTS.
5. INSPECT ONCE PER WEEK AND WITHIN 24 HOURS FOLLOWING A 0.5 INCH RAIN EVENT.
6. REMOVE DEBRIS AND SEDIMENT BUILDUP FROM BEHIND BAGS.
7. REPLACE WITH NEW BAGS AS NEEDED TO ENSURE PROPER FUNCTION.



INLET PROTECTION BIOFILTER BAGS

STANDARD PLAN: EC - 120	CITY ENGINEER APPROVAL: Samuel B. Barham
DATE: JUNE 2024	DRAWN BY: Camryn LaChaine



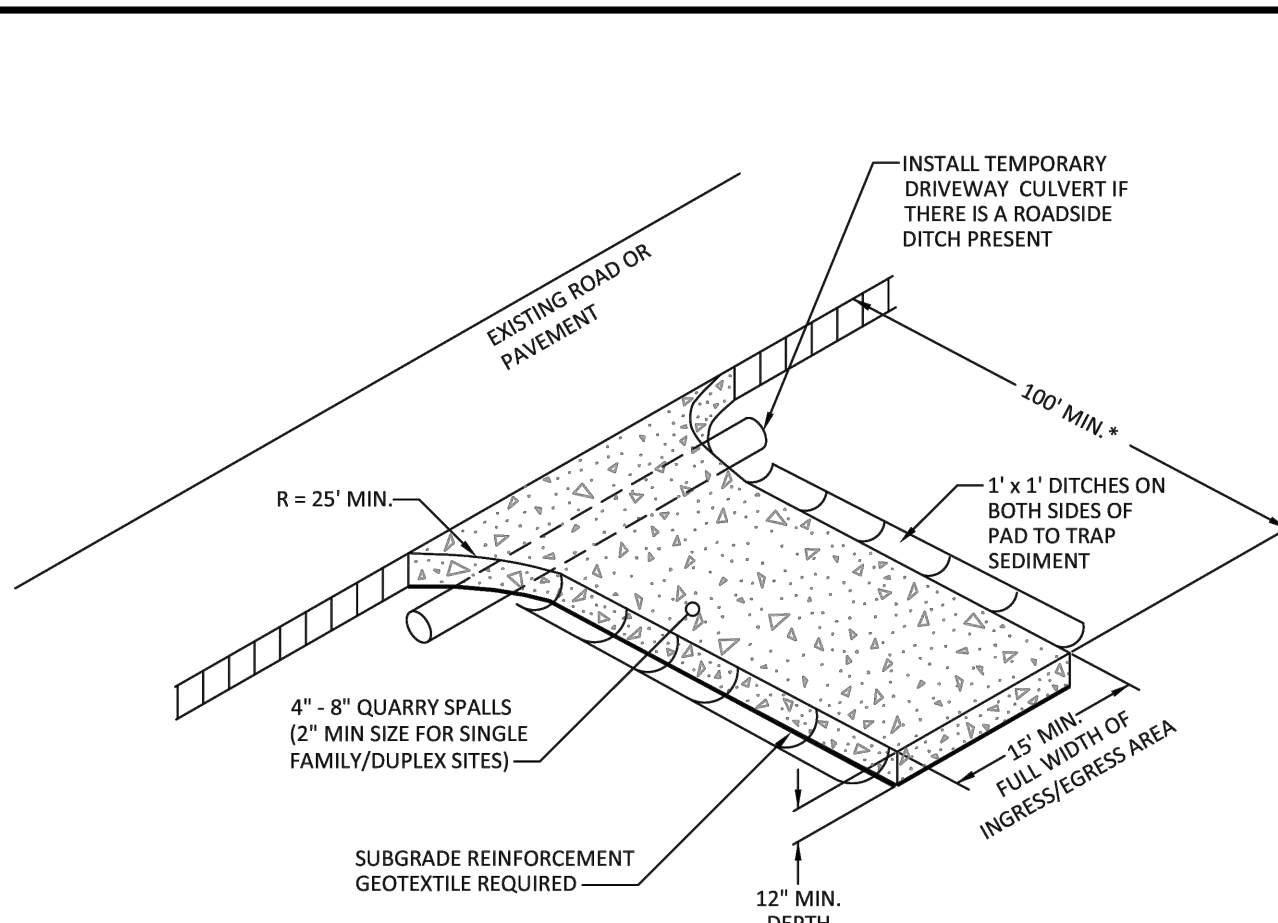
NOTES:

1. LOCATE CONCRETE WASHOUT STRUCTURE A MINIMUM OF 50 FEET AWAY FROM STORM DRAIN INLETS, STORMWATER CONVEYANCES, DITCHES AND WATERCOURSES AND WETLANDS.
2. PROVIDE A SIGN IDENTIFYING THE CONCRETE WASHOUT IN CLOSE PROXIMITY TO THE FACILITY.
3. USE PLASTIC OR OTHER IMPERMEABLE SHEETING FOR EASE OF MAINTENANCE. REPLACE SHEETING IF DAMAGED.
4. EMPTY OR REPLACE A STRUCTURE THAT IS 75% FULL AND DISPOSE OF MATERIAL APPROPRIATELY.
5. REFER TO BMP C154 IN VOLUME II OF THE STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON FOR MORE INFORMATION.



CONCRETE WASHOUT

STANDARD PLAN: EC - 200	CITY ENGINEER APPROVAL: Samuel B. Barham
DATE: JUNE 2024	DRAWN BY: Camryn LaChaine



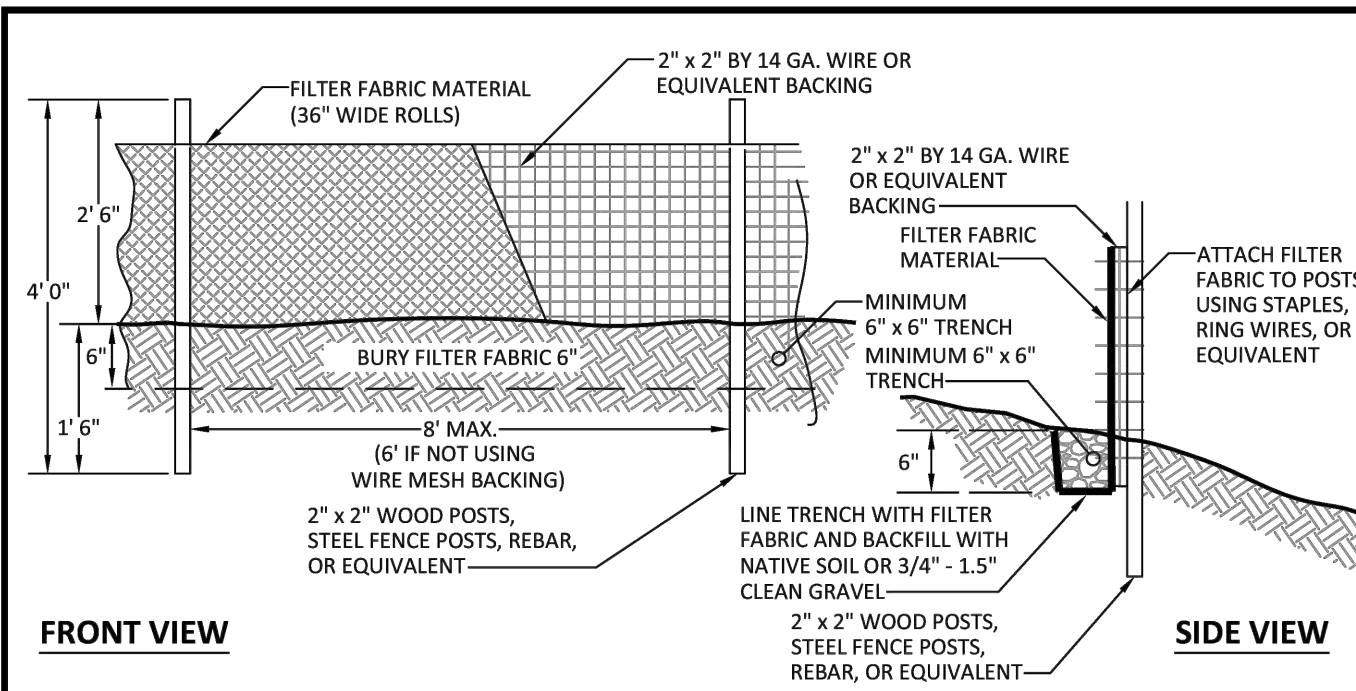
NOTES:

1. INSTALL WOVEN GEOTEXTILE FABRIC TO PREVENT SUB-SOIL PUMPING.
2. THE CITY INSPECTOR MAY REQUIRE THE ENTRANCE TO BE PAVED TO THE EDGE OF THE RIGHT-OF-WAY PRIOR TO THE INSTALLATION OF THE CONSTRUCTION ENTRANCE TO AVOID DAMAGE TO THE EXISTING ROADWAY.
3. TOP DRESS THE PAD WITH CLEAN 3" ROCK WHEN THE CONSTRUCTION ENTRANCE BECOMES CLOGGED WITH SEDIMENT.
4. ANY SEDIMENT TRACKED FROM THE SITE ONTO THE STREET SHALL BE CLEANED IMMEDIATELY. PRESSURE WASHING NOT ALLOWED. SWEEPING IS THE PREFERRED METHOD.
5. REFER TO BMP C105 IN VOLUME II OF THE STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON FOR MORE INFORMATION.
- * 50' MINIMUM PAD LENGTH FOR SITES WITH LESS THAN 1 ACRE OF LAND DISTURBANCE. A 20' MINIMUM PAD LENGTH AND 8" MINIMUM PAD DEPTH MAY BE ACCEPTABLE AS APPROVED FOR SINGLE FAMILY & DUPLEX RESIDENCES.



STABILIZED CONSTRUCTION ENTRANCE

STANDARD PLAN: EC - 010	CITY ENGINEER APPROVAL: Samuel B. Barham
DATE: JUNE 2024	DRAWN BY: Camryn LaChaine



NOTES:

1. SEDIMENT FENCE SHALL BE INSTALLED TO FOLLOW CONTOURS WHERE FEASIBLE.
2. FENCE POSTS SHALL BE SPACED A MAXIMUM OF 8 FEET APART (6 FEET IF NOT USING WIRE SUPPORT BACKING) AND DRIVEN SECURELY INTO THE GROUND A MINIMUM OF 18 INCHES.
3. PREPARE A 6" x 6" TRENCH ON THE UPHILL SIDE OF THE POSTS FOR STAPLED FENCING AND ON THE DOWNHILL SIDE OF THE POSTS FOR FENCING WITH STITCHED LOOP.
4. LINE TRENCH WITH FILTER FABRIC AND BACKFILL WITH NATIVE SOIL OR 3/4" TO 1.5" CLEAN GRAVEL AND COMPACT SO THAT THE FILTER FABRIC LIES 6" VERTICALLY BELOW FINISHED GRADE.
5. WHEN STANDARD STRENGTH FILTER FABRIC IS USED, A 2" x 2" BY 14 GA WIRE SUPPORT BACKING (OR EQUIVALENT) SHALL BE USED. WHEN EXTRA-STRENGTH FILTER FABRIC AND CLOSER POST SPACING ARE USED, THE WIRE BACKING MAY BE ELIMINATED.
6. FASTEN FILTER FABRIC AND BACKING SECURELY TO THE POSTS USING HEAVY-DUTY WIRE STAPLES AT LEAST 1 INCH LONG, RING WIRES OR EQUIVALENT. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.
7. WHEN JOINTS ARE NECESSARY, FILTER FABRIC SHALL BE SPICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6-INCH OVERLAP, AND BOTH ENDS SECURELY FASTENED TO THE POST.
8. SEDIMENT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. SEDIMENT DEPOSITS MUST BE REMOVED WHEN THEY REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE FENCE. DAMAGED FENCE SHALL BE REMOVED AND REPLACED PROMPTLY.
9. SEDIMENT FENCES SHALL ONLY BE REMOVED WHEN THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.
10. REFER TO BMP C233 IN VOLUME II OF THE STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON FOR MORE INFORMATION.



SEDIMENT FENCE

STANDARD PLAN: EC - 040	CITY ENGINEER APPROVAL: Samuel B. Barham
DATE: JUNE 2024	DRAWN BY: Camryn LaChaine

REVISIONS

1	2	3	4	5
DRAWN BY:	T.F.	DESIGNED BY:	J.K.	CHECKED BY:
				J.K.

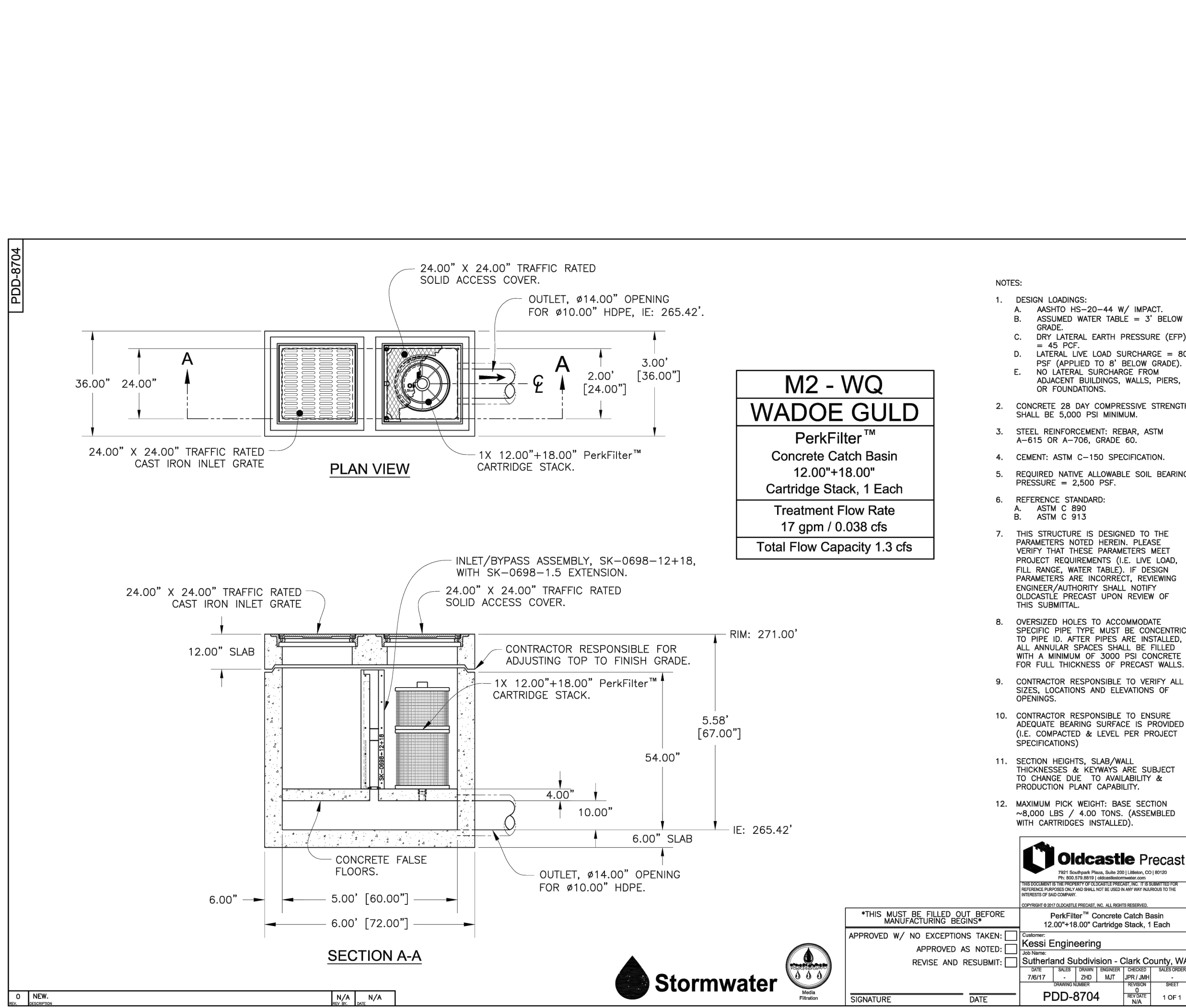
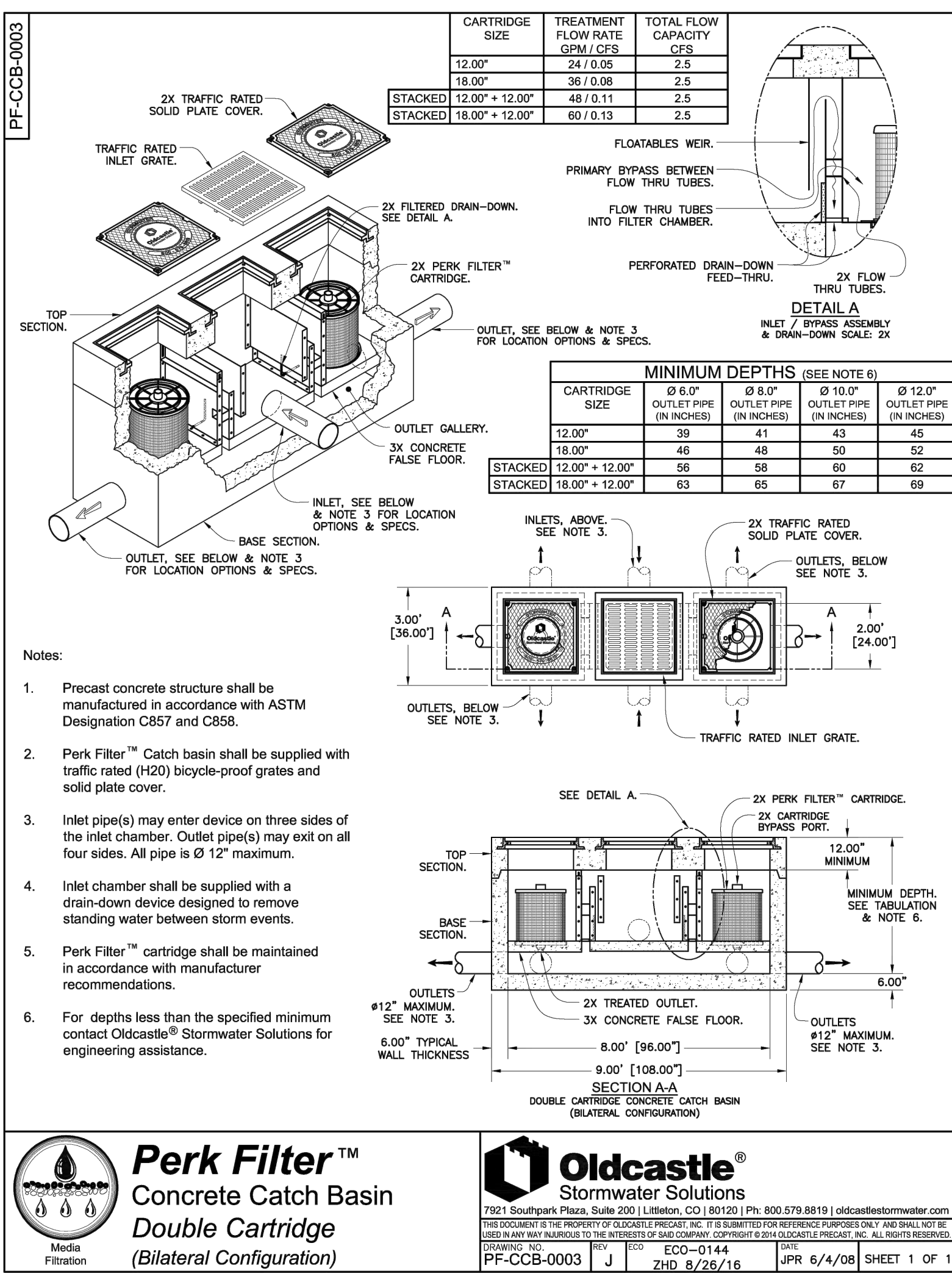
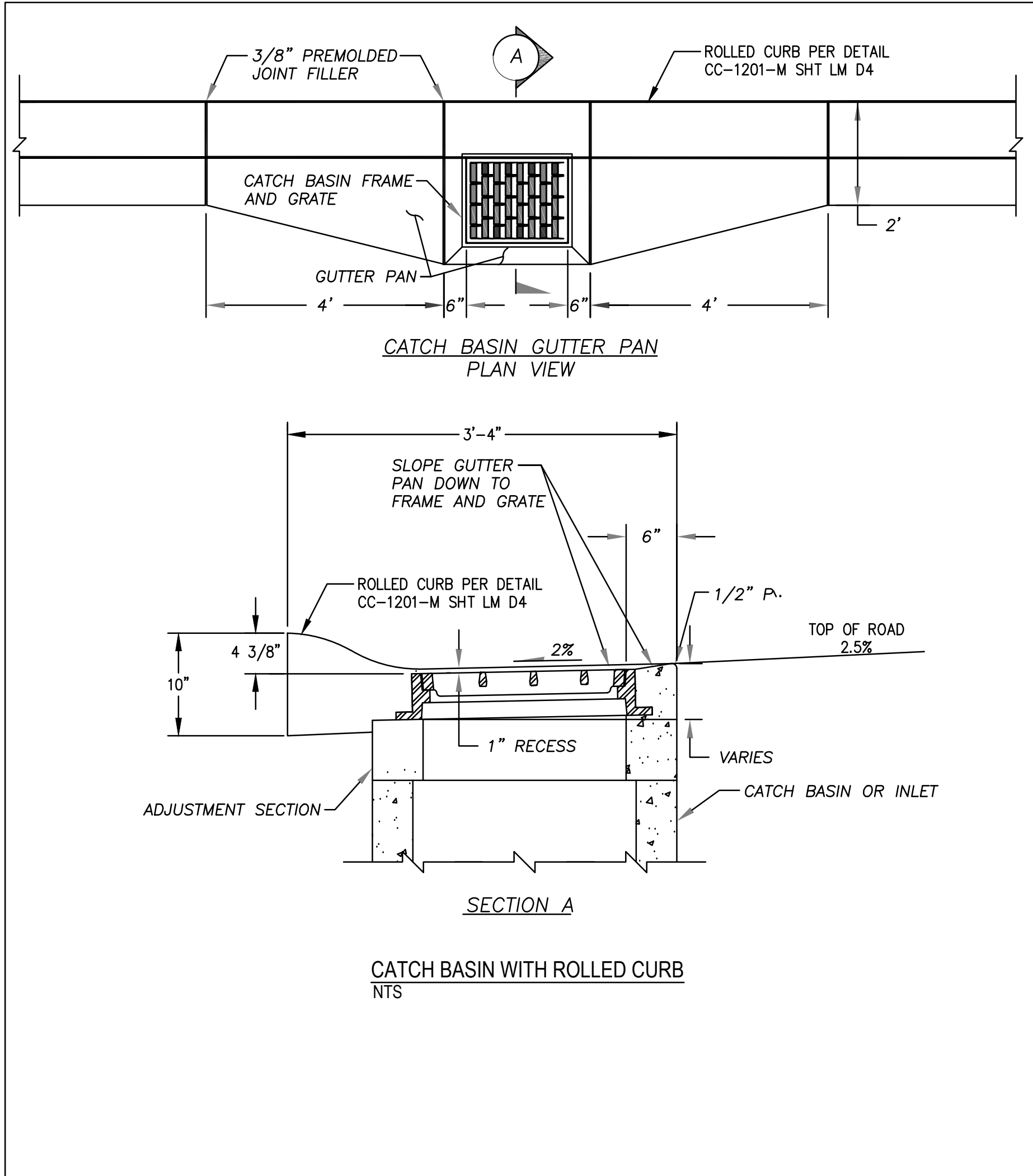
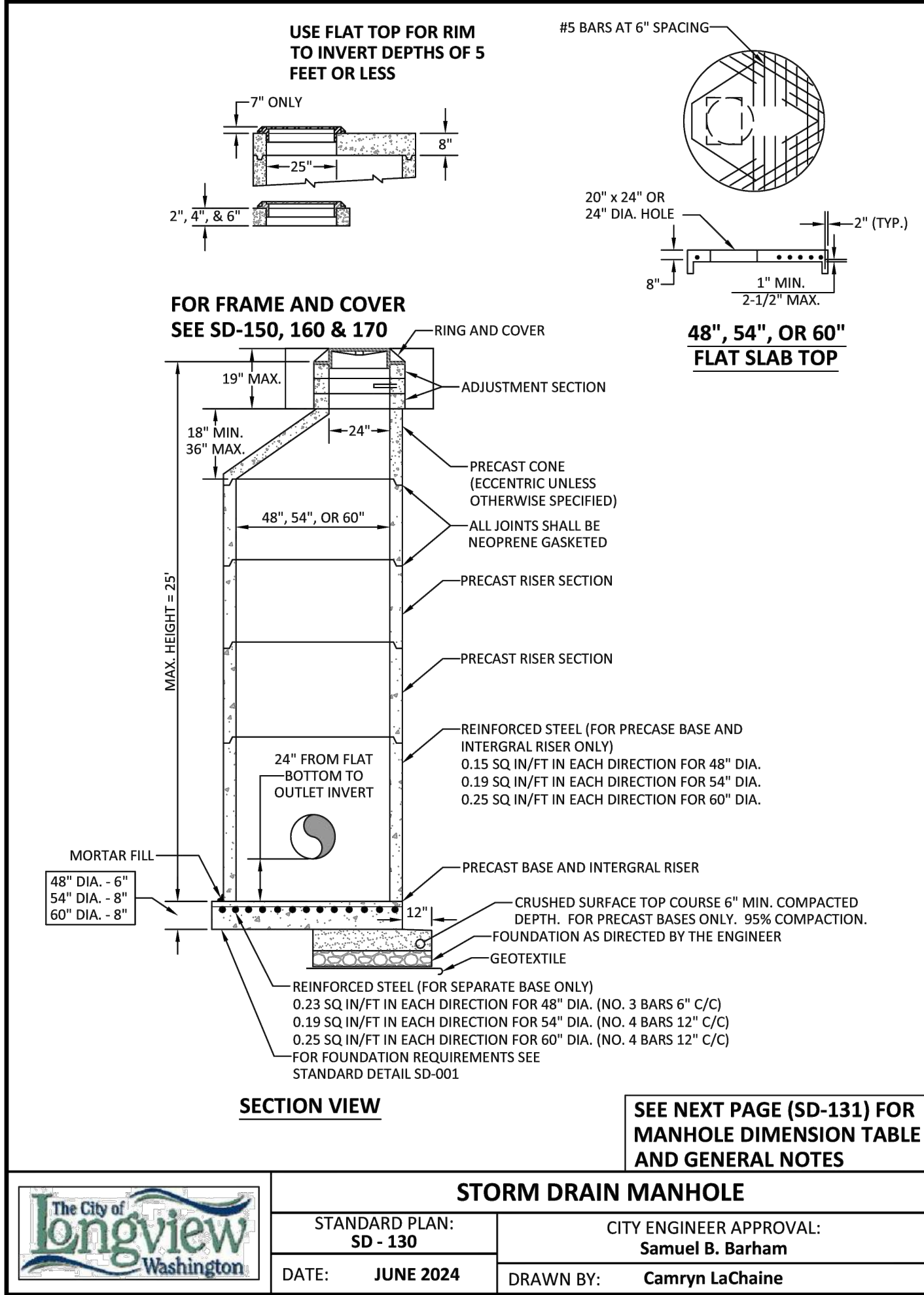
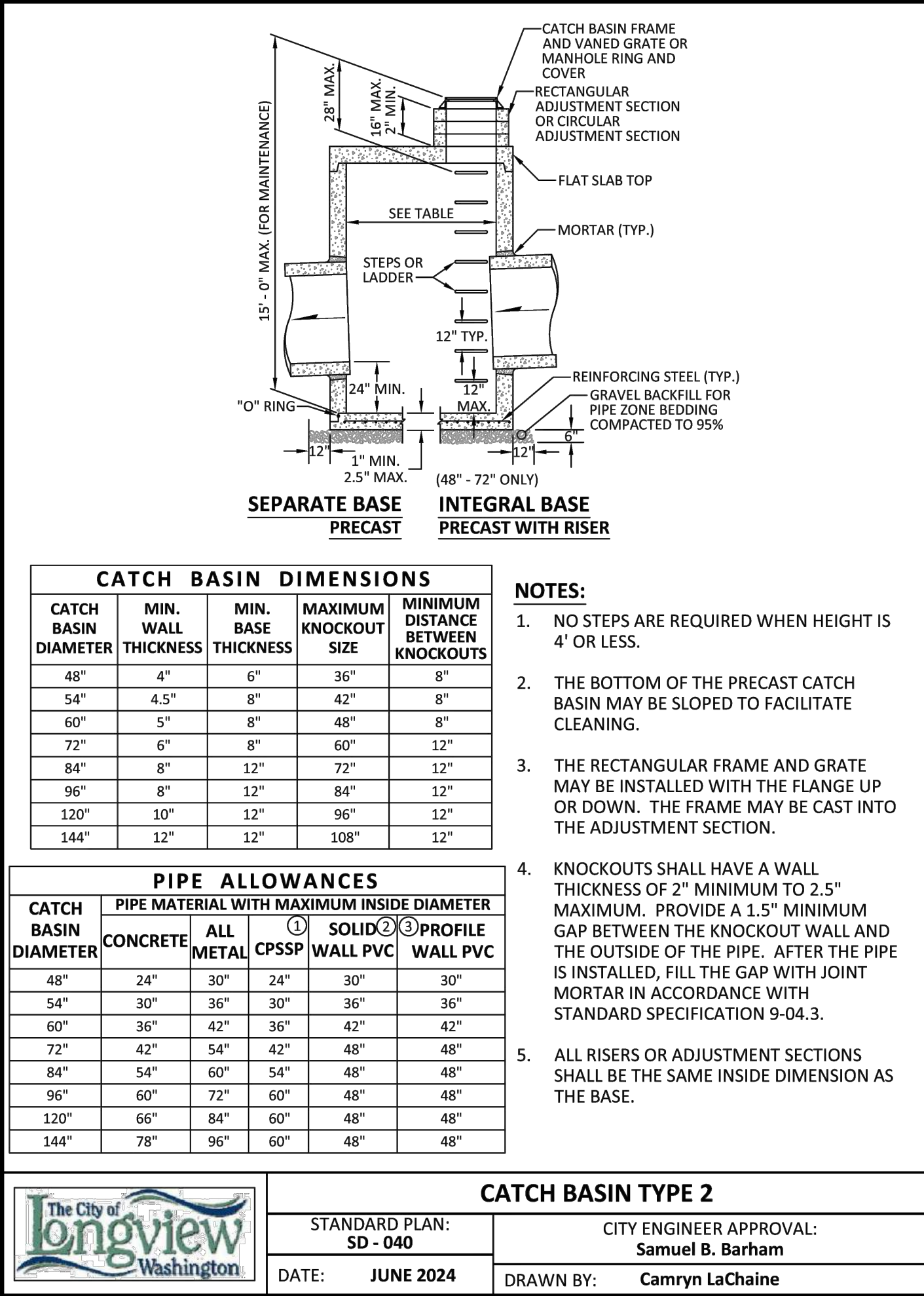
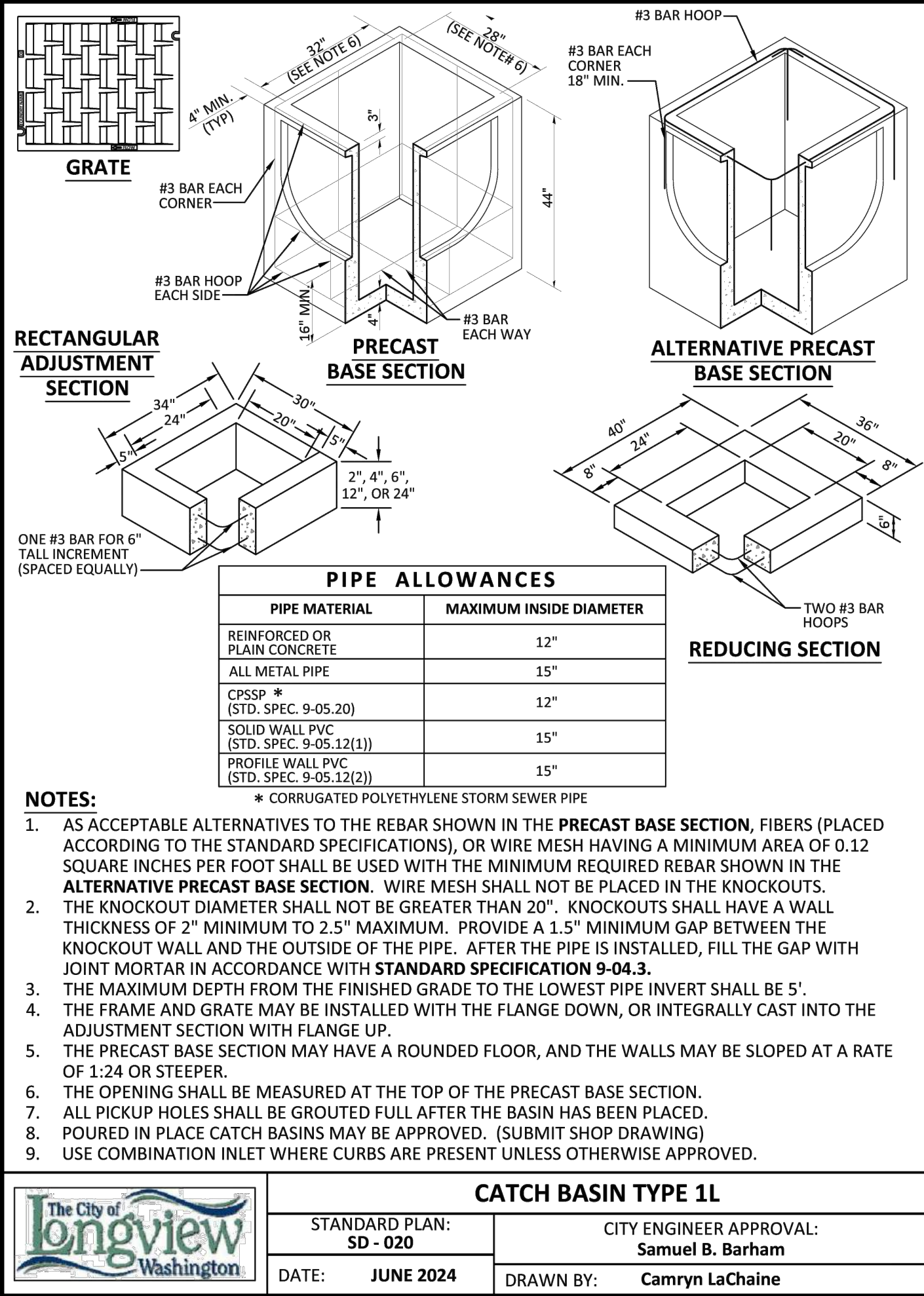
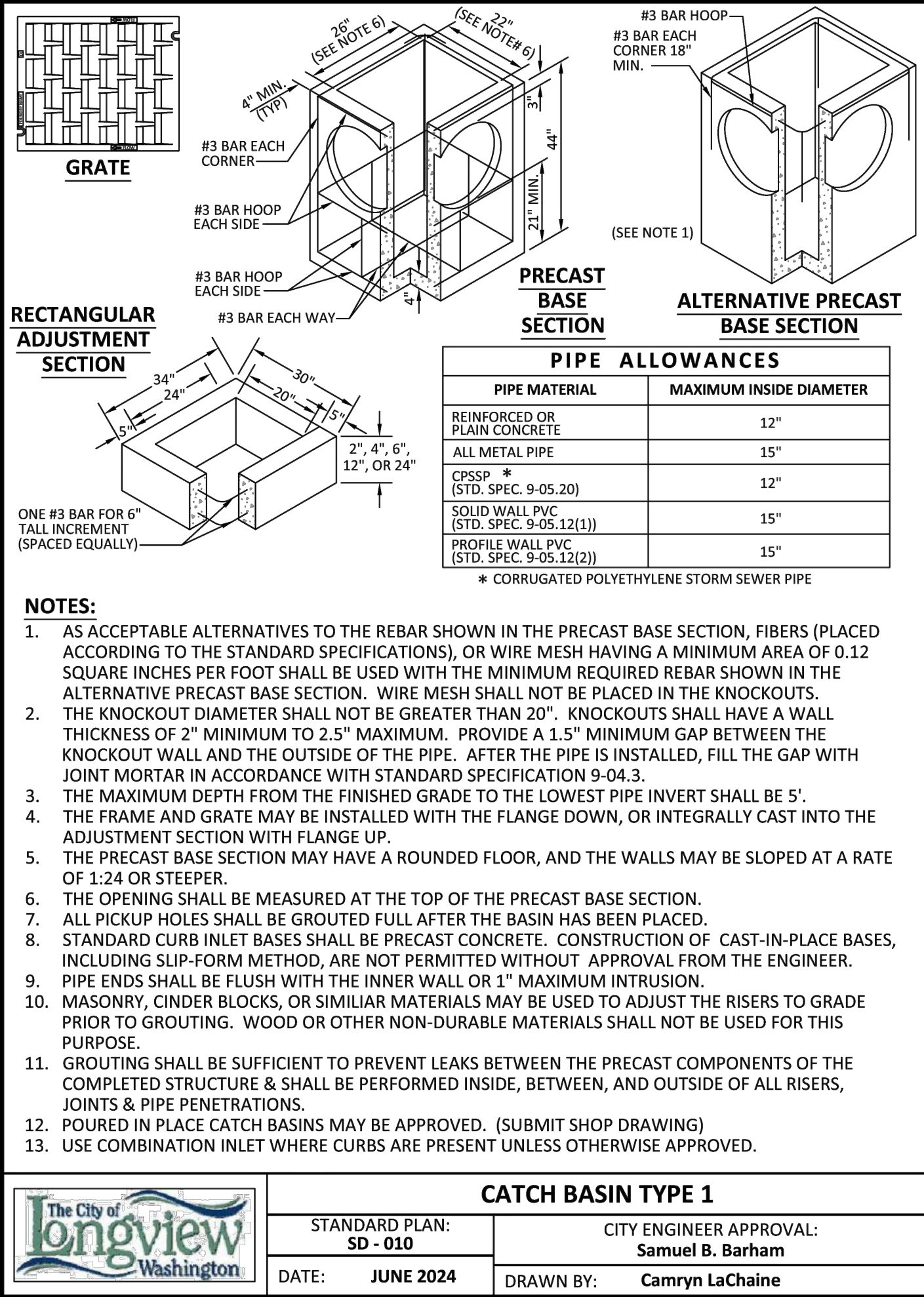


PROJECT #155
DATE: 7/27/2025

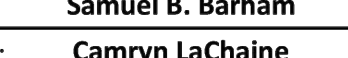
MINT VALLEY
GRADING AND EROSION
CONTROL DETAILS

MV D1

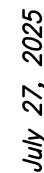
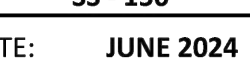
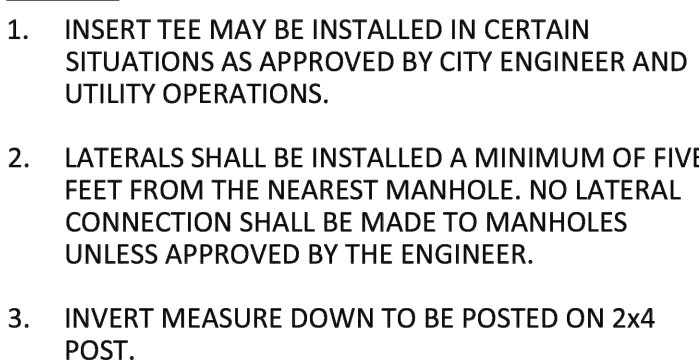
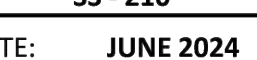
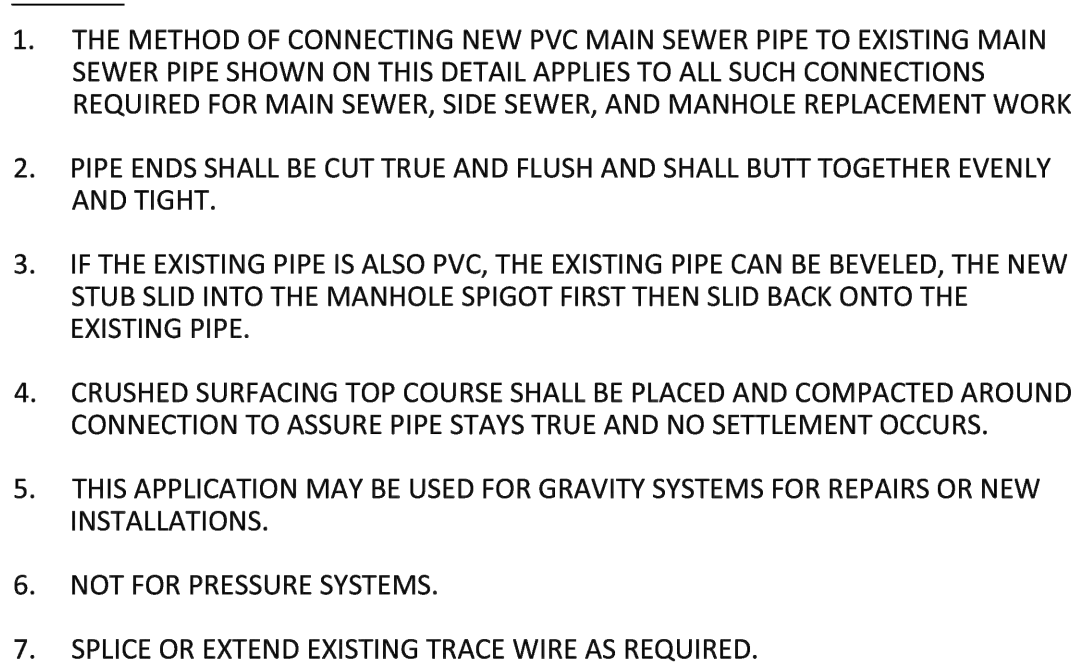
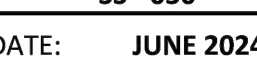
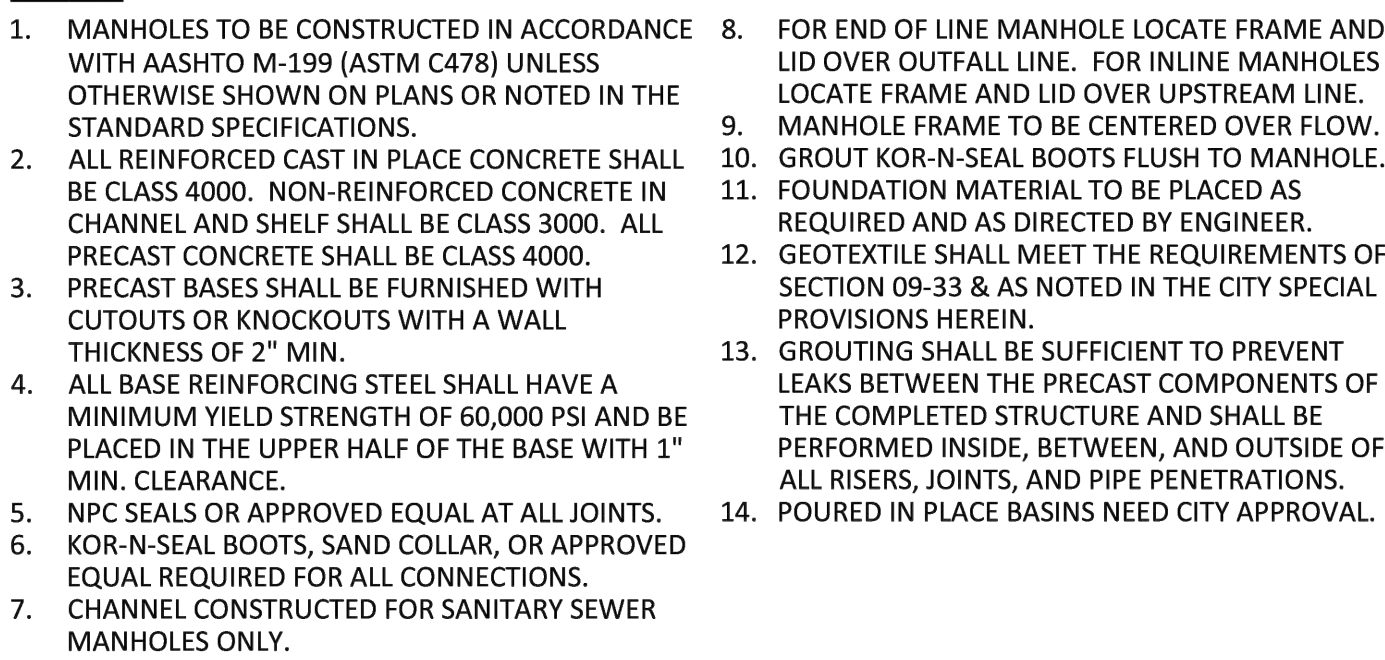
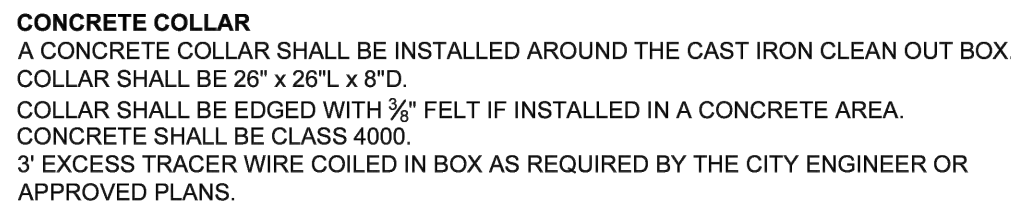
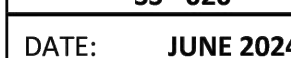
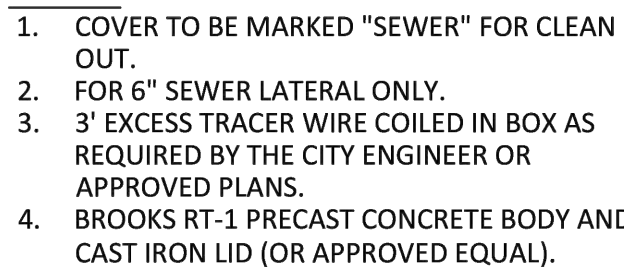
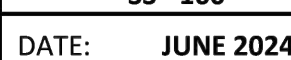
KESSI ENGINEERING
CONSULTING
PROJECT MANAGEMENT
PLANNING
CIVIL ENGINEERING
6400 NE HWY 99 #G-169
VANCOUVER, WA 98665
Email: info@kessiconsulting.com
(360)991-9300
www.kessiconsulting.com



1. ALL PUBLIC SANITARY SEWER SYSTEMS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION AND THE CITY OF LONGVIEW STANDARD PLANS AND SPECIFICATIONS.
2. ALL PUBLIC SANITARY SEWER SYSTEM CONSTRUCTION IS SUBJECT TO INSPECTION AND APPROVAL BY THE CITY DEPARTMENT OF PUBLIC WORKS AND UTILITY OPERATIONS. THE CONTRACTOR SHALL NOTIFY THE CITY A MINIMUM OF TWO FULL WORKING DAYS PRIOR TO THE START OF ANY CONSTRUCTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO THE START OF CONSTRUCTION/EXCAVATION AND SHALL NOTIFY THE ENGINEER OF ANY POTENTIAL CONFLICTS. THE CONTRACTOR IS REQUIRED TO CONTACT THE NORTHWEST UTILITY NOTIFICATION CENTER A MINIMUM OF TWO FULL BUSINESS DAYS PRIOR TO THE START OF CONSTRUCTION AND/OR ANY EXCAVATION AT 811 OR WWW.CALLBEFOREYOU.DIG.ORG.
4. TRACER WIRE SHALL BE INSTALLED WITH ALL NON-CONDUCTIVE PIPES IN ONE CONTINUOUS STRAND. TRACER WIRE SHALL BE MINIMUM #12 AWG SOFT DRAWN COPPER WIRE. UTILITY LOCATE TEST OF TRACER WIRE IS REQUIRED. THE INSULATION COLOR SHALL BE GREEN AND ITS MATERIAL SHALL BE A MINIMUM 30 MIL COMPOSED OF HIGH DENSITY POLYETHYLENE (HDPE) OR HIGH MOLECULAR WEIGHT POLYETHYLENE (HMWPE). SECURE THE WIRE ON THE PIPE WITH TAPE EVERY 8-10 FEET AS NEEDED TO KEEP THE WIRE STRAIGHT AND ON TOP OF THE PIPE. INSTALL A GREEN WARNING TAPE 12-18 INCHES ABOVE THE PIPE IN THE SAME ORIENTATION TO THE INSTALLED PIPE. SEE SS-260 FOR LOCATOR BOX DETAIL AND REQUIREMENTS.
5. THE EXISTING SANITARY SEWER SYSTEM SHALL STAY ISOLATED FROM THE NEW SYSTEM VIA MECHANICAL PLUG UNTIL THE NEW SYSTEM IS CLEANED, TESTED, VIDEO INSPECTED AND APPROVED FOR USE.
6. SANITARY SEWER PIPE SHALL BE CLEANED BY USE OF HIGH PRESSURE NOZZLE AND VACUUM TRUCK PRIOR TO VIDEO INSPECTION OF TESTING. VIDEO INSPECTION SHALL BE PERFORMED IN AN OPERATIONAL AND SEQUENTIAL ORDER AS APPROVED BY THE CITY ENGINEER PER WSDOT SPECIFICATION 7-17.3(2)(J). ALL VIDEO WORK SHALL BE COMPLETED WITH NO PIECEMEAL OR SKIPPING AROUND THE SYSTEM. VIDEO RECORDINGS SHALL BE SUBMITTED BY ELECTRONIC MEDIA APPROVED AND ACCEPTED BY THE CITY. THERE SHALL BE NO DEBRIS IN THE LINES OR FURTHER CLEANING WILL BE REQUIRED PRIOR TO ACCEPTANCE.
7. ALL SANITARY SEWER PIPE SHALL BE TESTED FOR DEFLECTION. SANITARY SEWER CONSTRUCTED OF STANDARD PIPE (E.G. THERMOPLASTIC PIPE) SHALL BE TESTED IN ACCORDANCE WITH 7-17.3(2)(J) OF THE FLUIDITY SPECIFICATIONS.
8. BELLIES SHALL NOT EXCEED 0.03 FEET ACCORDING TO WSDOT STANDARDS.
9. ALL SANITARY SEWER PIPE WHICH CROSSES WATER PIPE SHALL BE IN ACCORDANCE WITH STANDARD PLANS W-290, W-295, OR W-300 AS APPLICABLE TO THE SITUATION AND APPROVED BY THE ENGINEER.



1. A CONCRETE COLLAR OR APPROVED EQUAL SHALL BE INSTALLED AROUND THE CAST IRON CLEAN OUT BOX.
2. COLLAR SHALL BE EDGED WITH 3/8" FELT IF INSTALLED IN A CONCRETE AREA. CONCRETE SHALL BE CLASS 4000.
3. 3" EXCESS TRACER WIRE COILED IN BOX AS REQUIRED BY THE CITY ENGINEER OR APPROVED PLANS.
4. OLYMPIC FOUNDRY, INC. 11" x 4" FLANGE DOWN FRAME AND COVER PART NO.MHS (OR APPROVED EQUAL).



DATE: 7/27/2025

MINT VALLEY
CITY OF LONGVIEW
SEWER DETAILS

MV D4

1	2	3	4	5
DRAWN BY:				
T.F.				
DESIGNED BY:				
J.K.				
CHECKED BY:				
J.K.				



KESSI

ENGINEERING
& CONSULTING

PLANNING

CIVIL ENGINEERING

CONSULTING

PROJECT MANAGEMENT

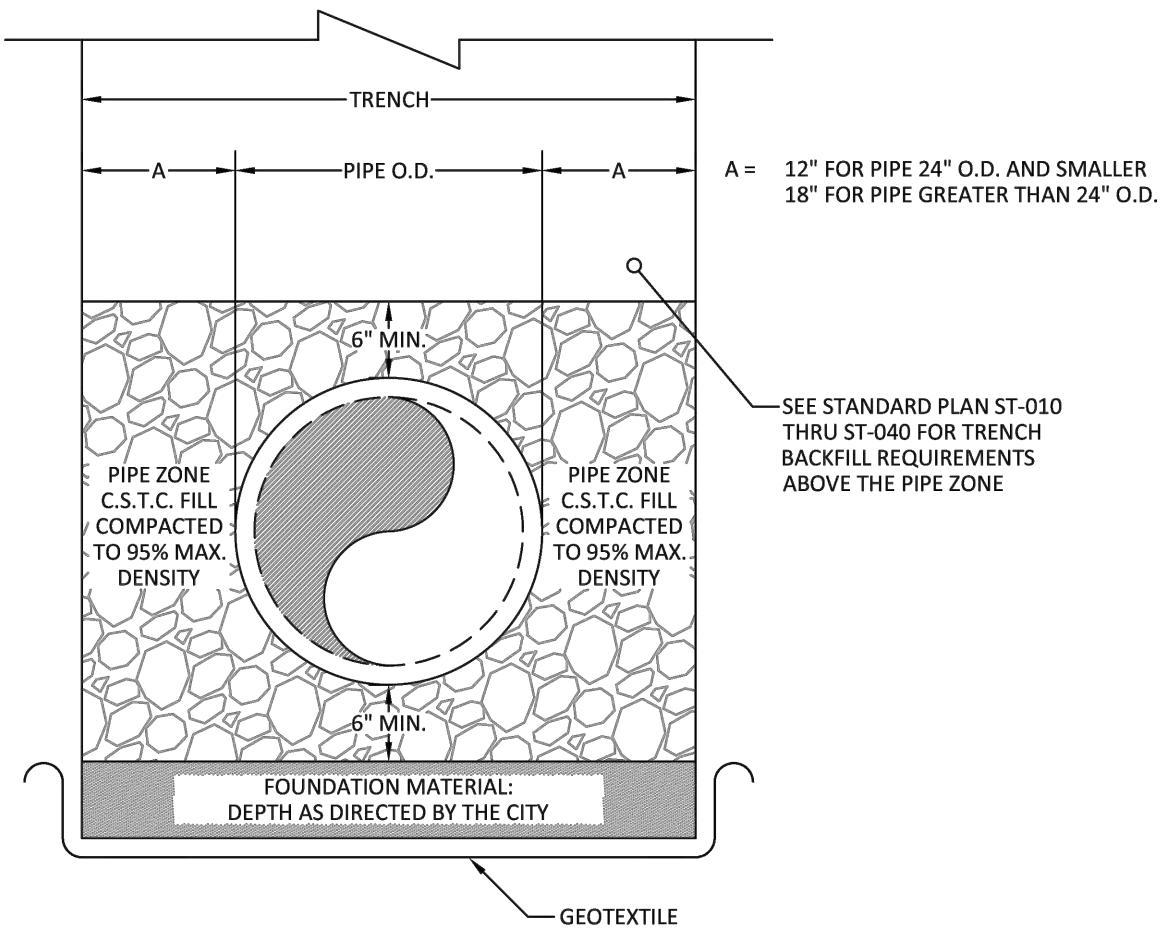
6400 NE HWY 99 #G-169

(360)991-9300

VANCOUVER, WA 98665

Email: info@kessiconsulting.com

www.kessiconsulting.com

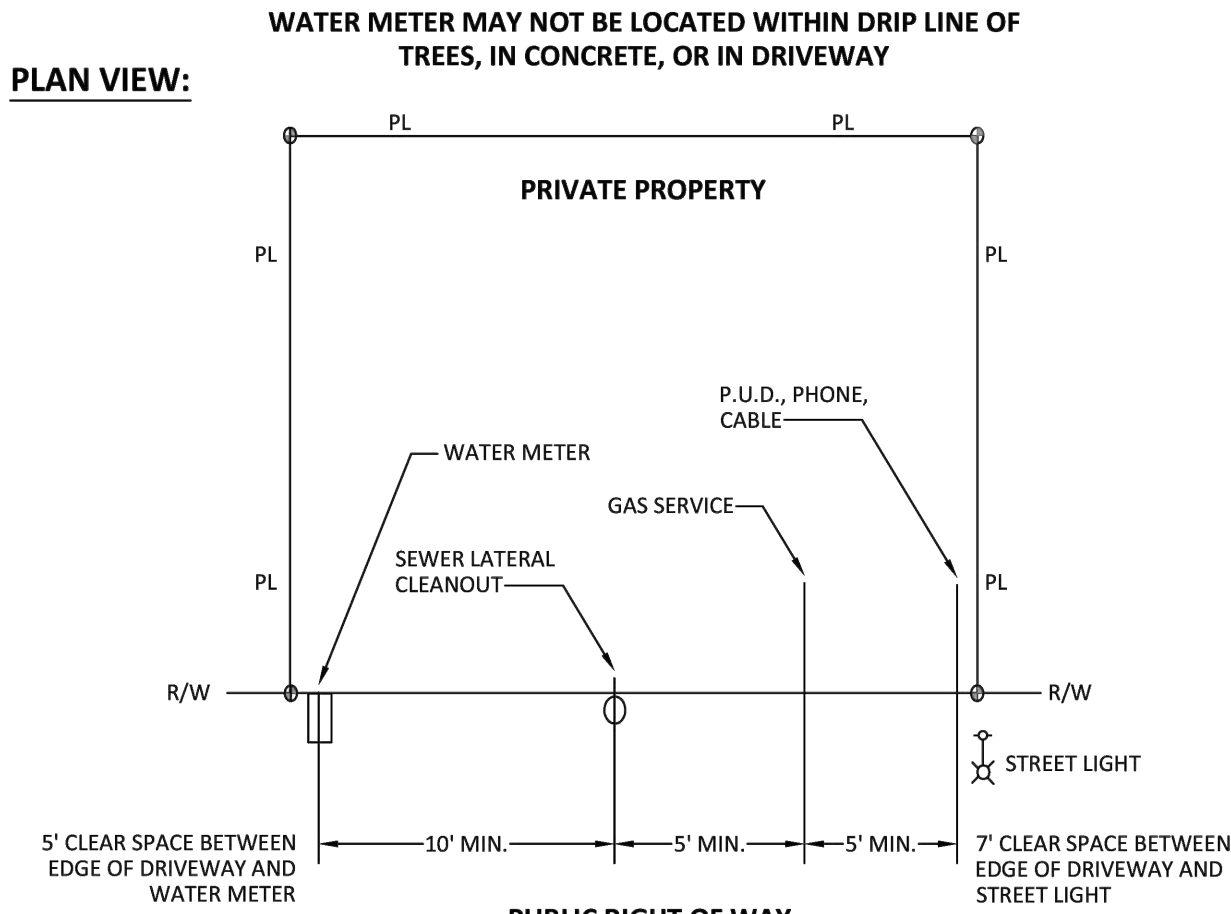


NOTE:
GEOTEXTILE SHALL MEET THE REQUIREMENTS OF SECTION 9-33 & AS NOTED IN THE CITY SPECIAL PROVISIONS. AS APPROVED BY THE CITY.



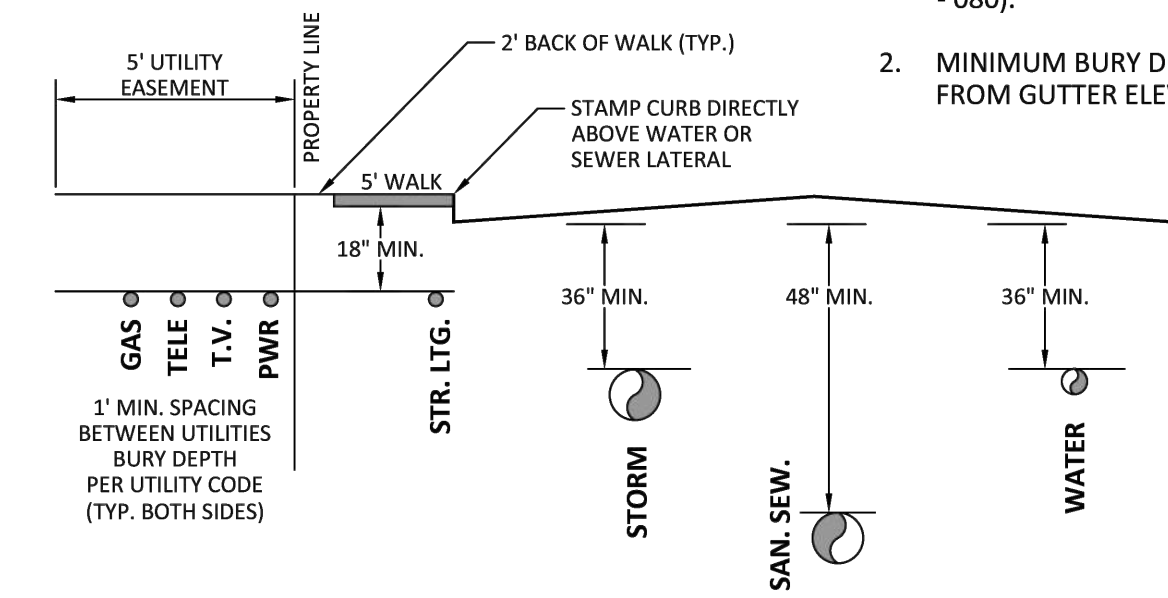
PIPE BEDDING

STANDARD PLAN: SS - 240		CITY ENGINEER APPROVAL: Samuel B. Barham
DATE: JUNE 2024	DRAWN BY: Camryn LaChaine	



SECTION VIEW:

PRIVATE PROPERTY



NOTES:

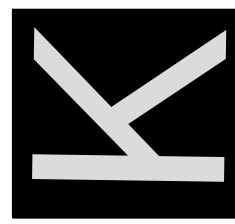
1. SIDEWALK WITH OR WITHOUT PLANTER STRIP (SEE DETAIL ST - 080).
2. MINIMUM BURY DEPTHS ARE FROM GUTTER ELEVATIONS.



TYPICAL UTILITY PLACEMENT LOCATIONS

STANDARD PLAN: SS - 300		CITY ENGINEER APPROVAL: Samuel B. Barham
DATE: JUNE 2024	DRAWN BY: Camryn LaChaine	

KESSI ENGINEERING

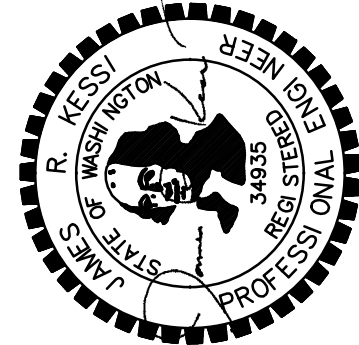


PLANNING CONSULTING
CIVIL ENGINEERING PROJECT MANAGEMENT
6400 NE HWY 99 #G-169 VANCOUVER, WA 98665
(360)991-9300 Email:info@kessiconsulting.com
www.kessiconsulting.com

KESSI
ENGINEERING
& CONSULTING

REVISIONS

DRAWN BY: T.F.	1
	2
DESIGNED BY: J.K.	3
	4
CHECKED BY: J.K.	5

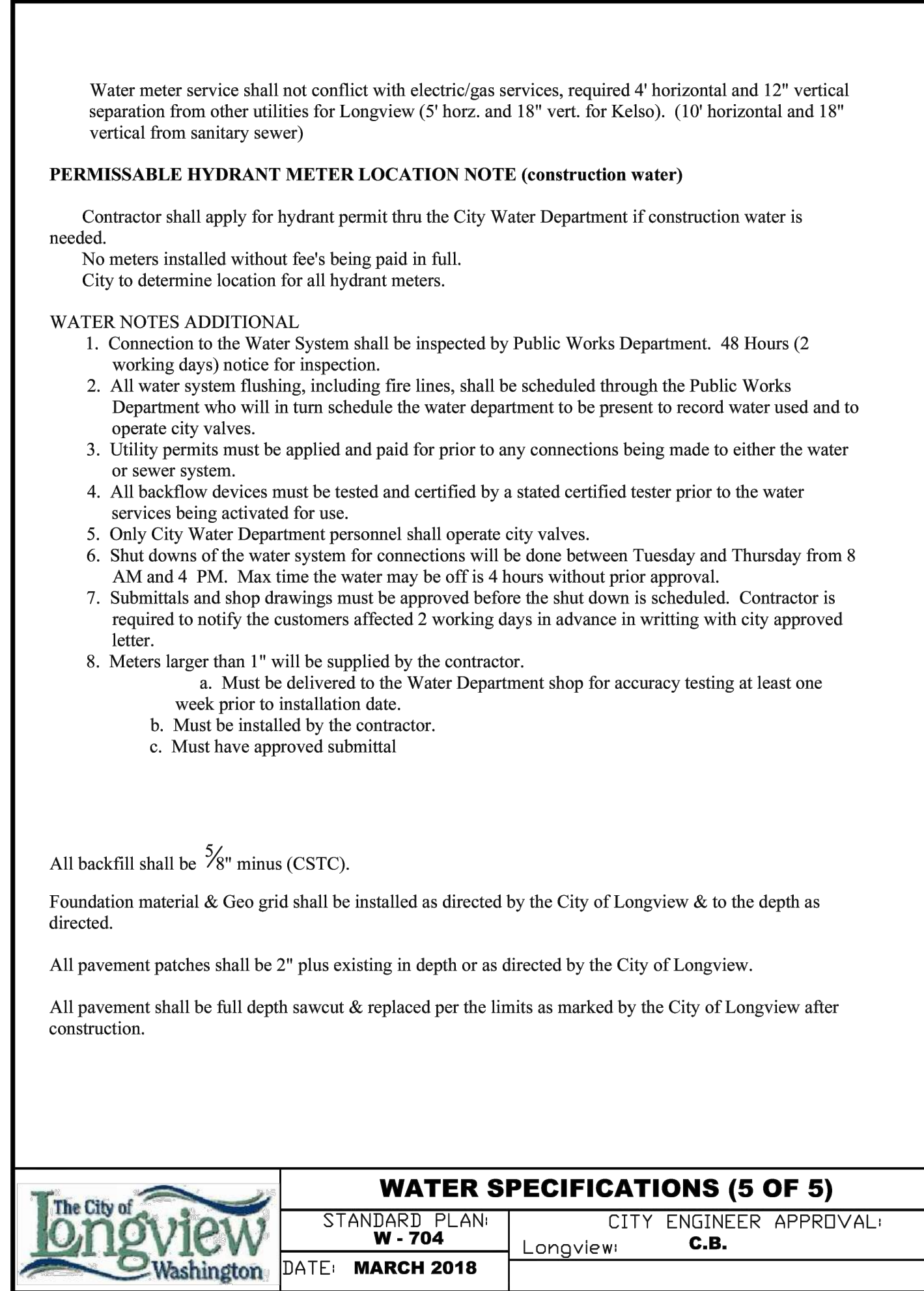
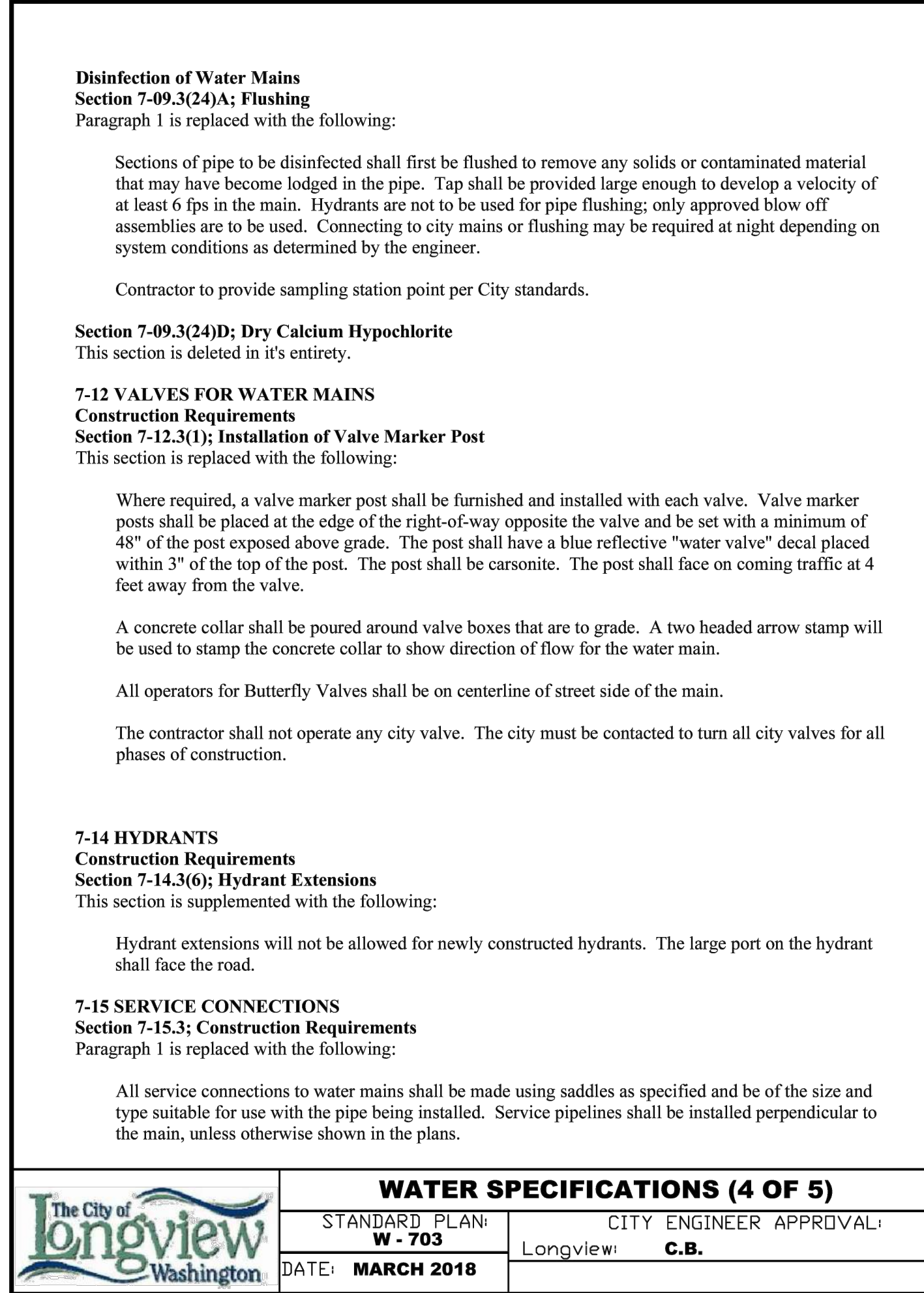
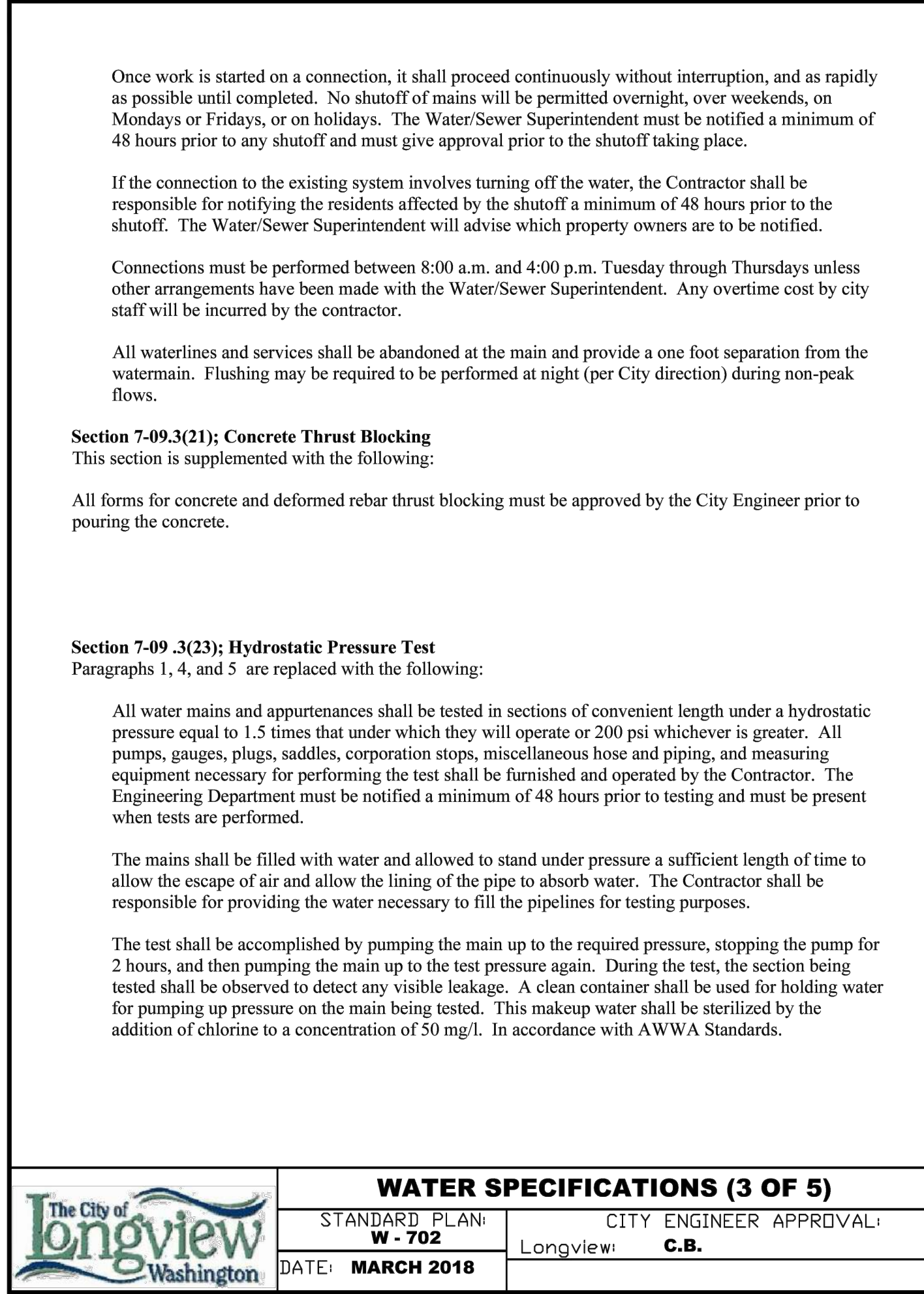


PROJECT
#155

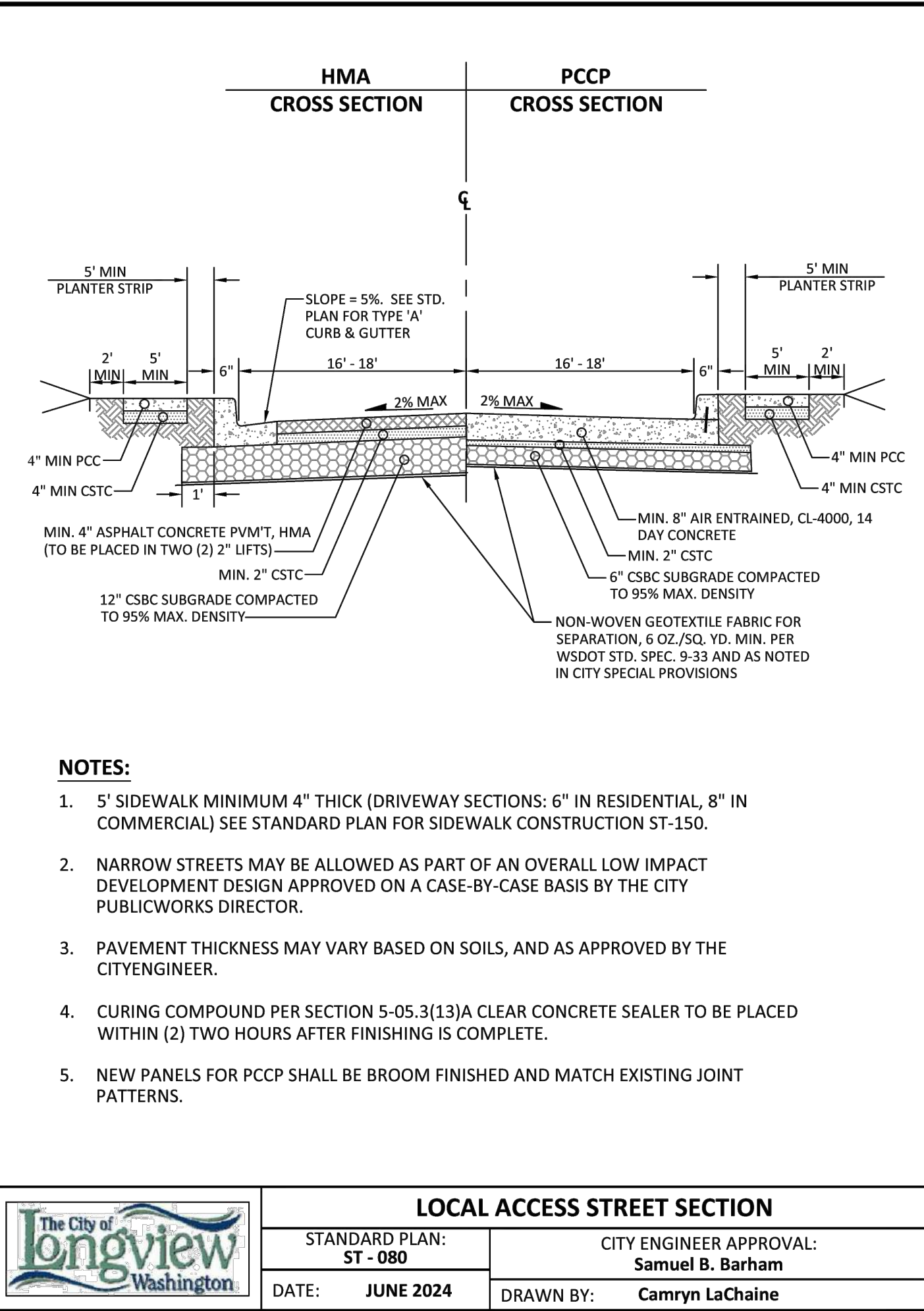
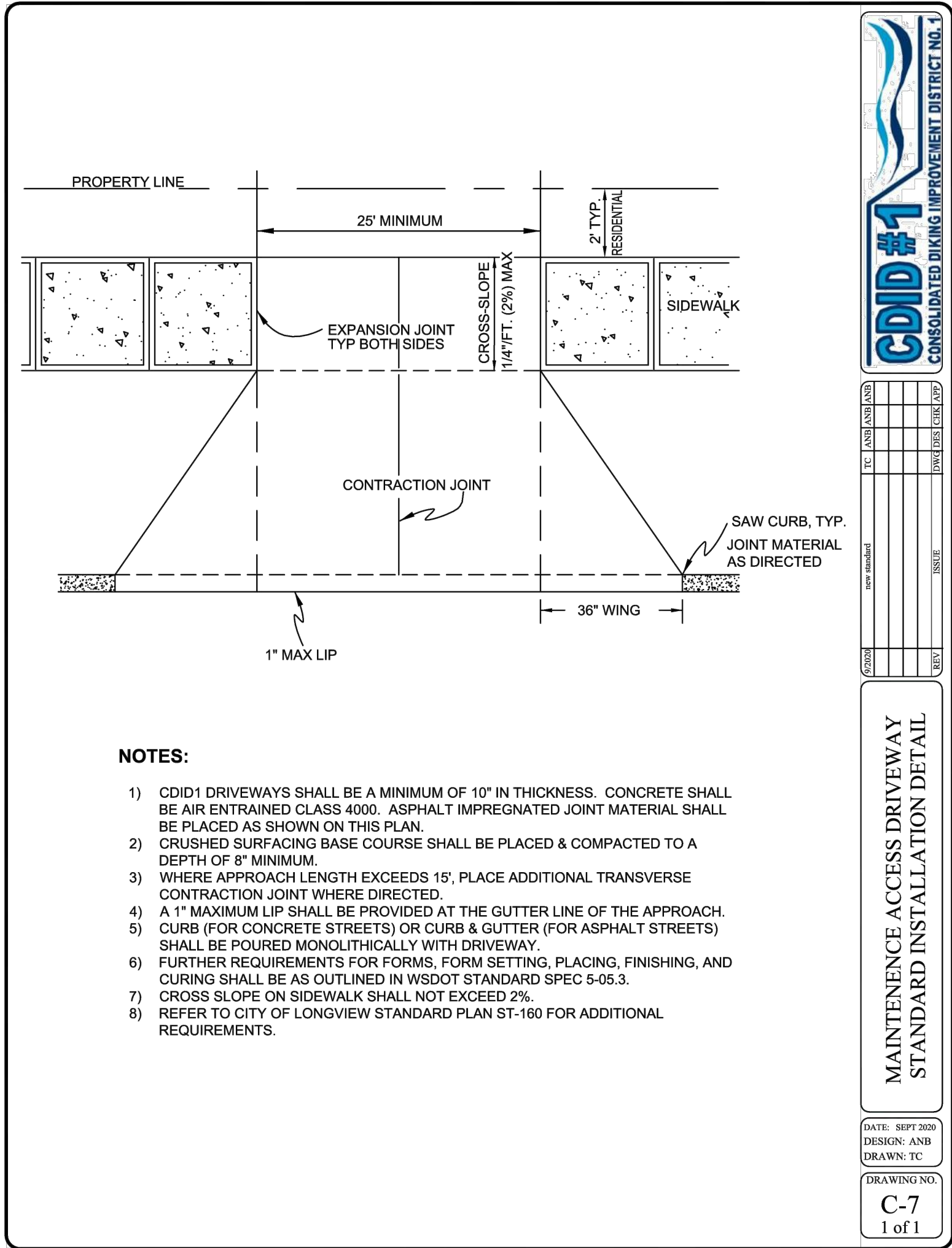
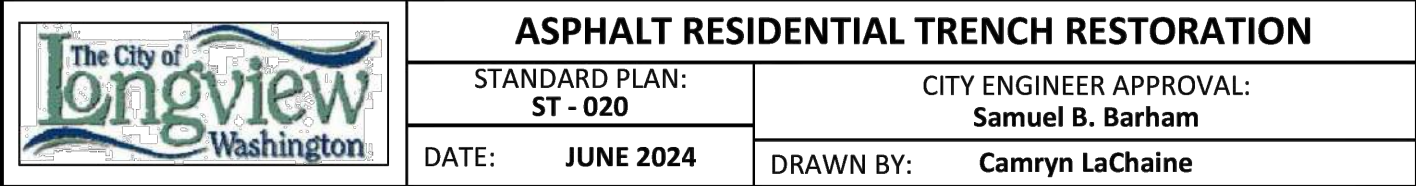
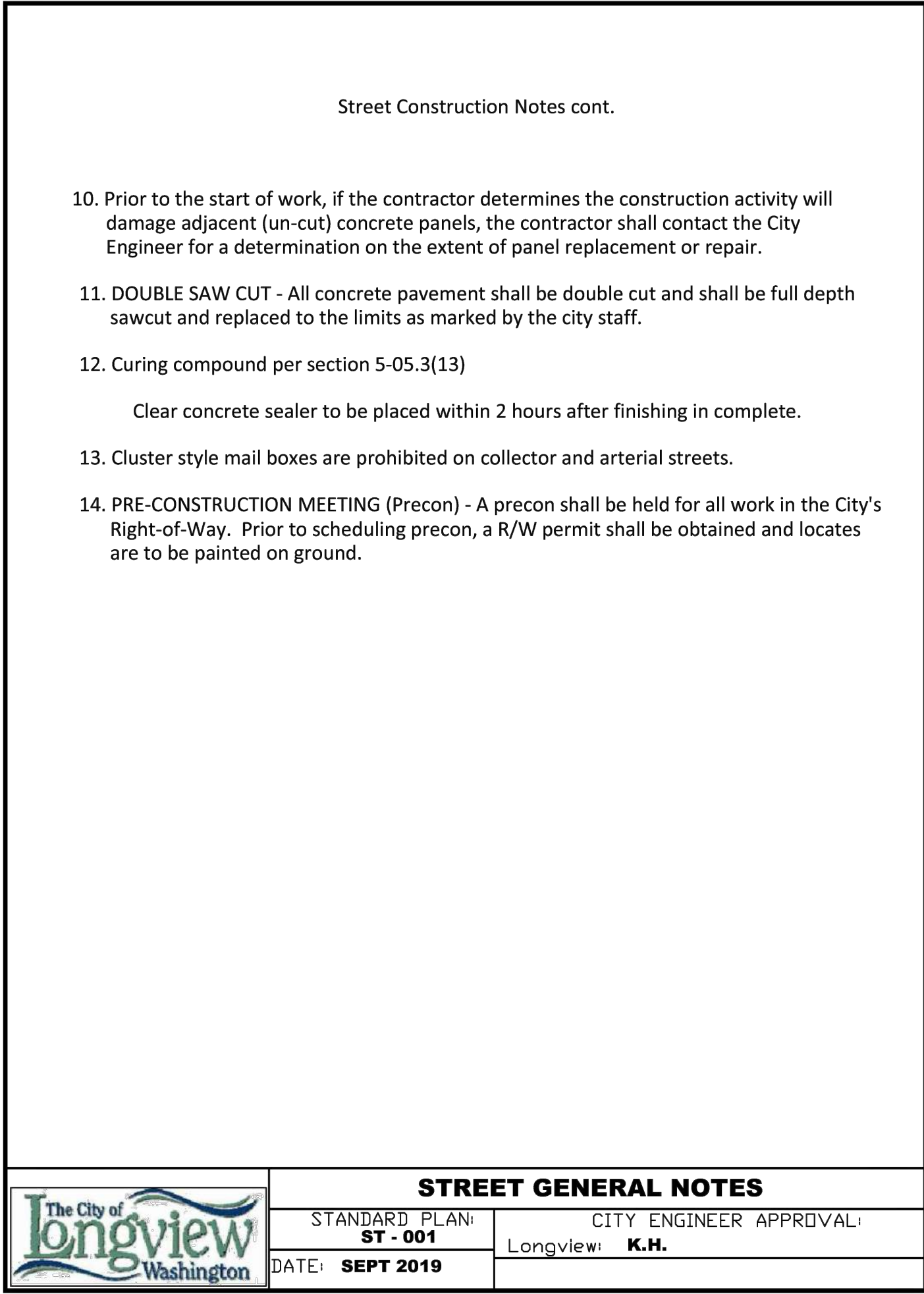
DATE:
7/27/2025

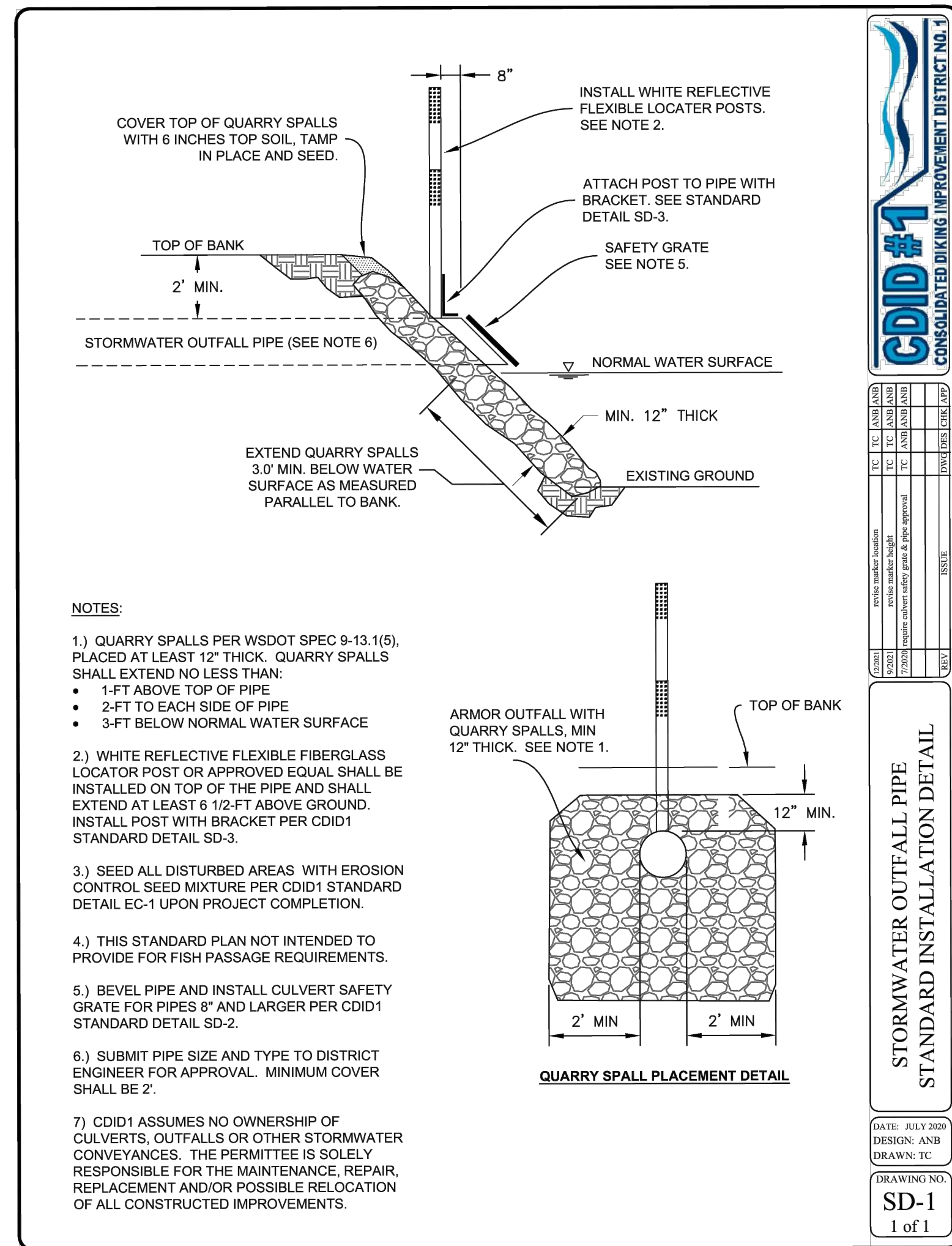
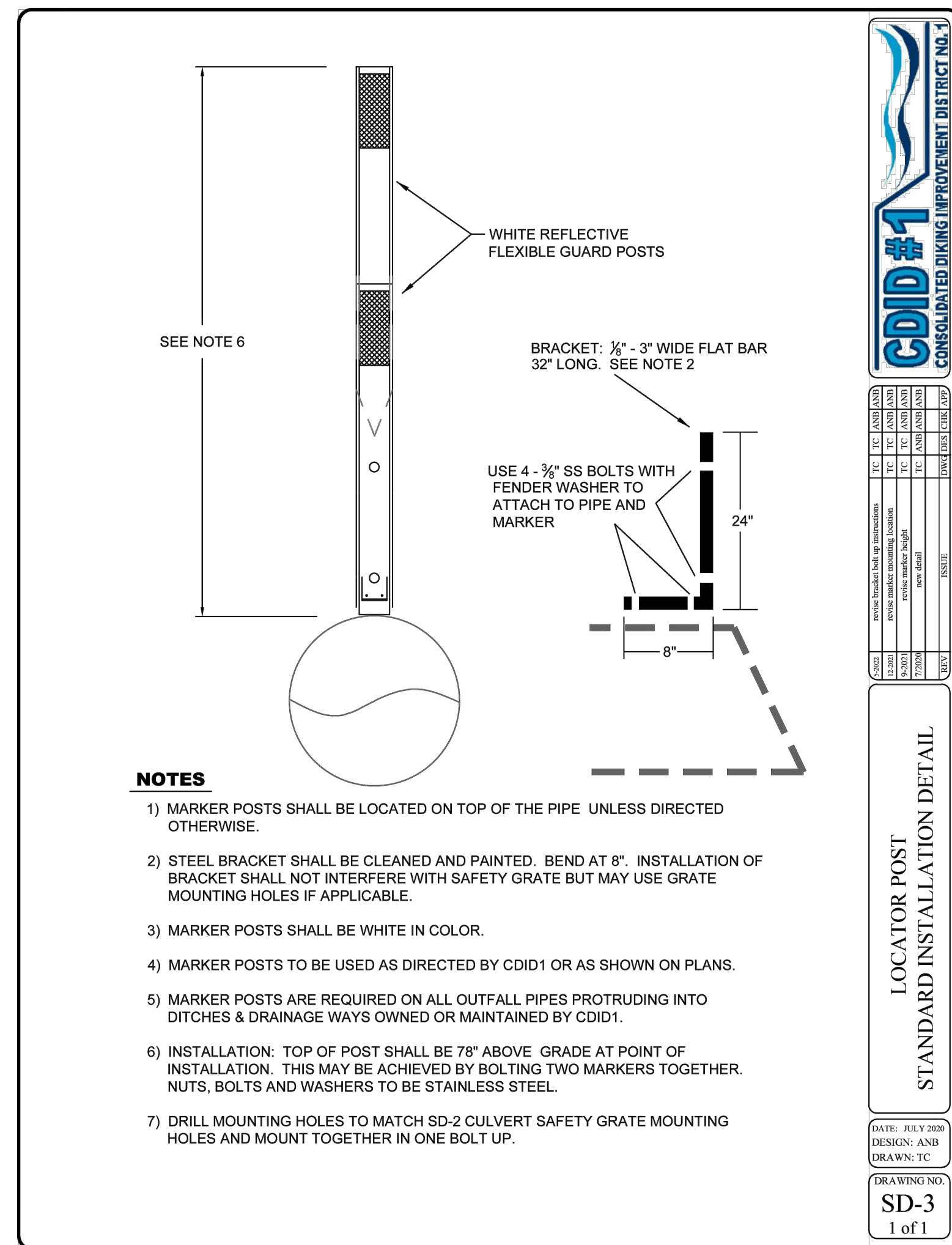
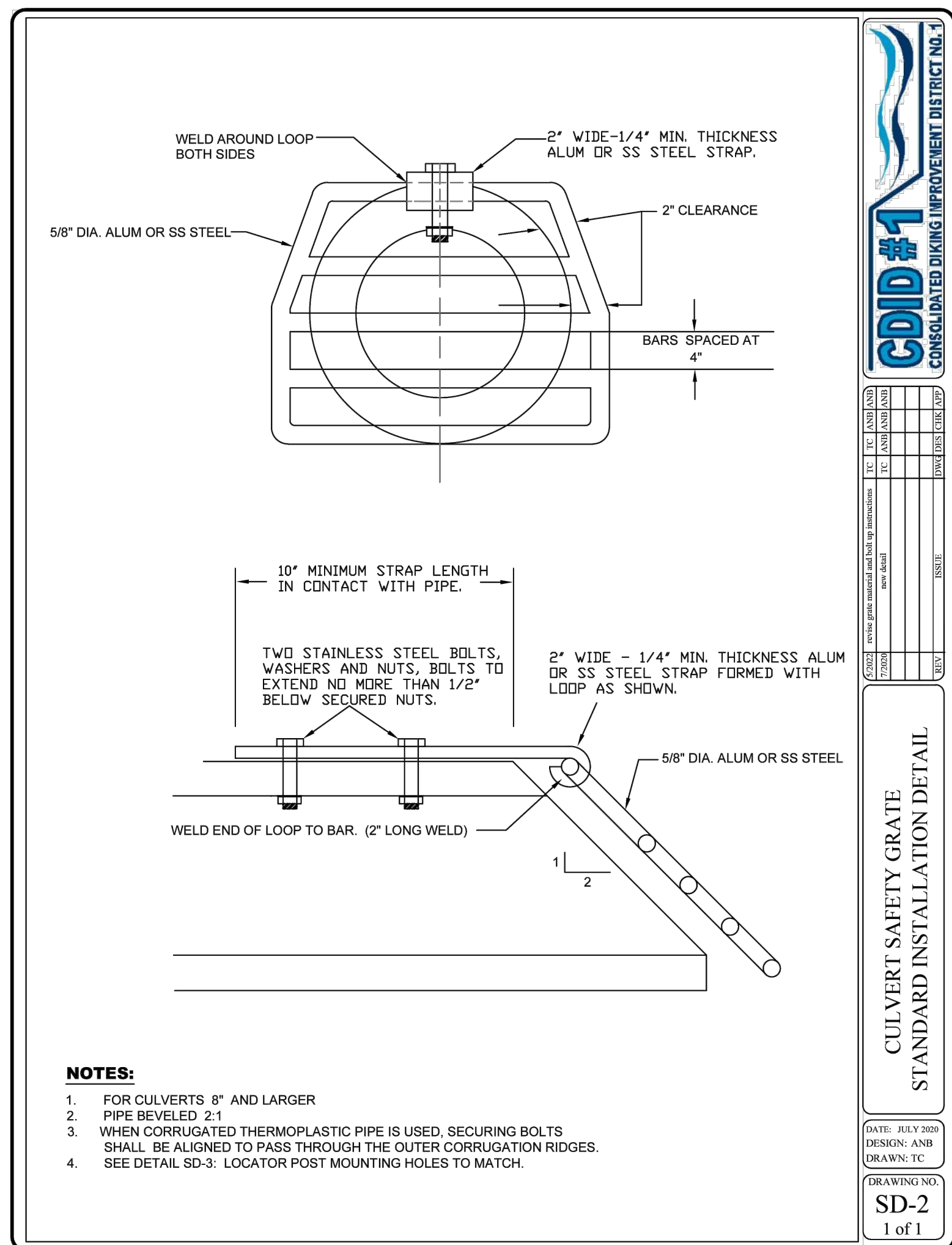
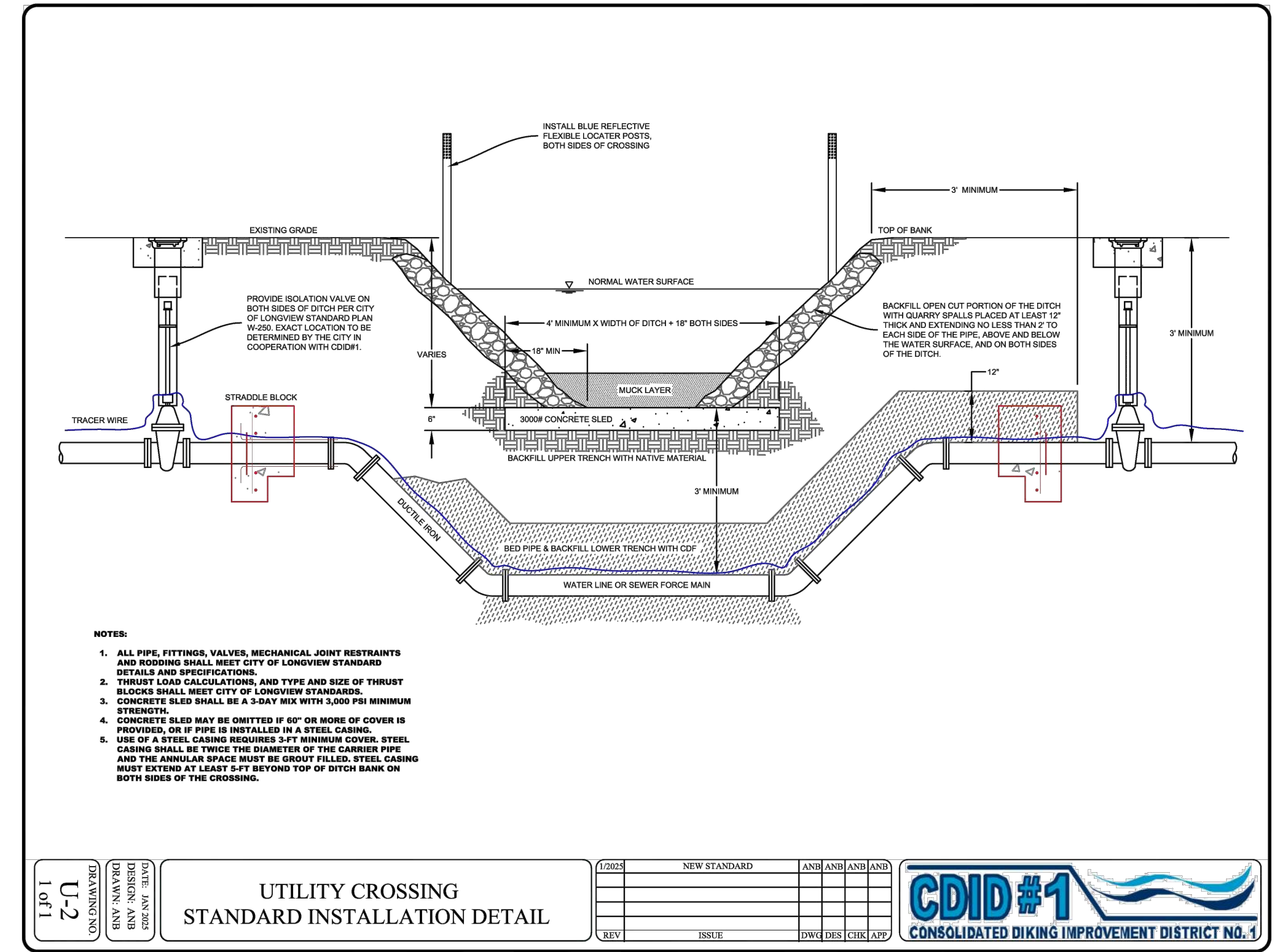
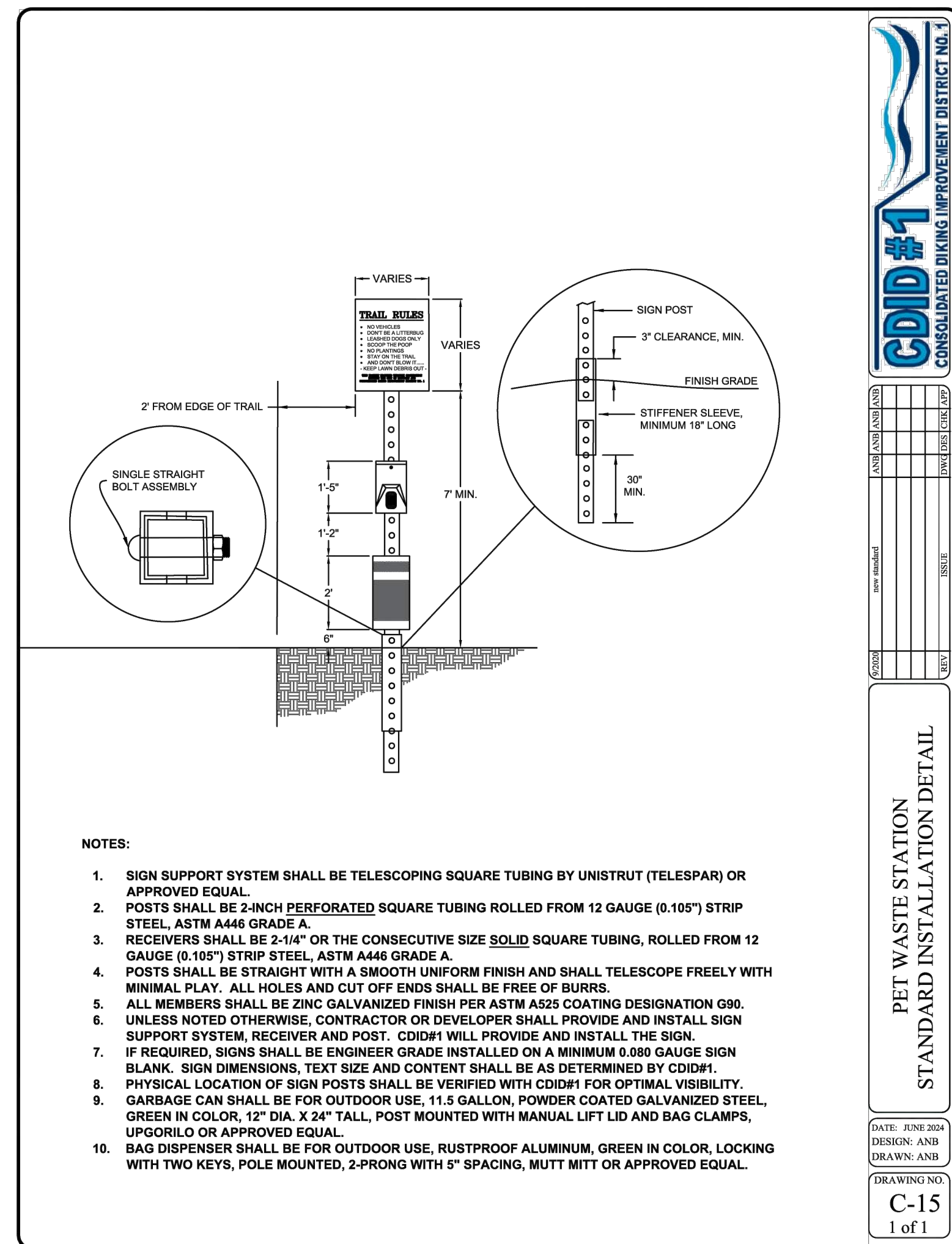
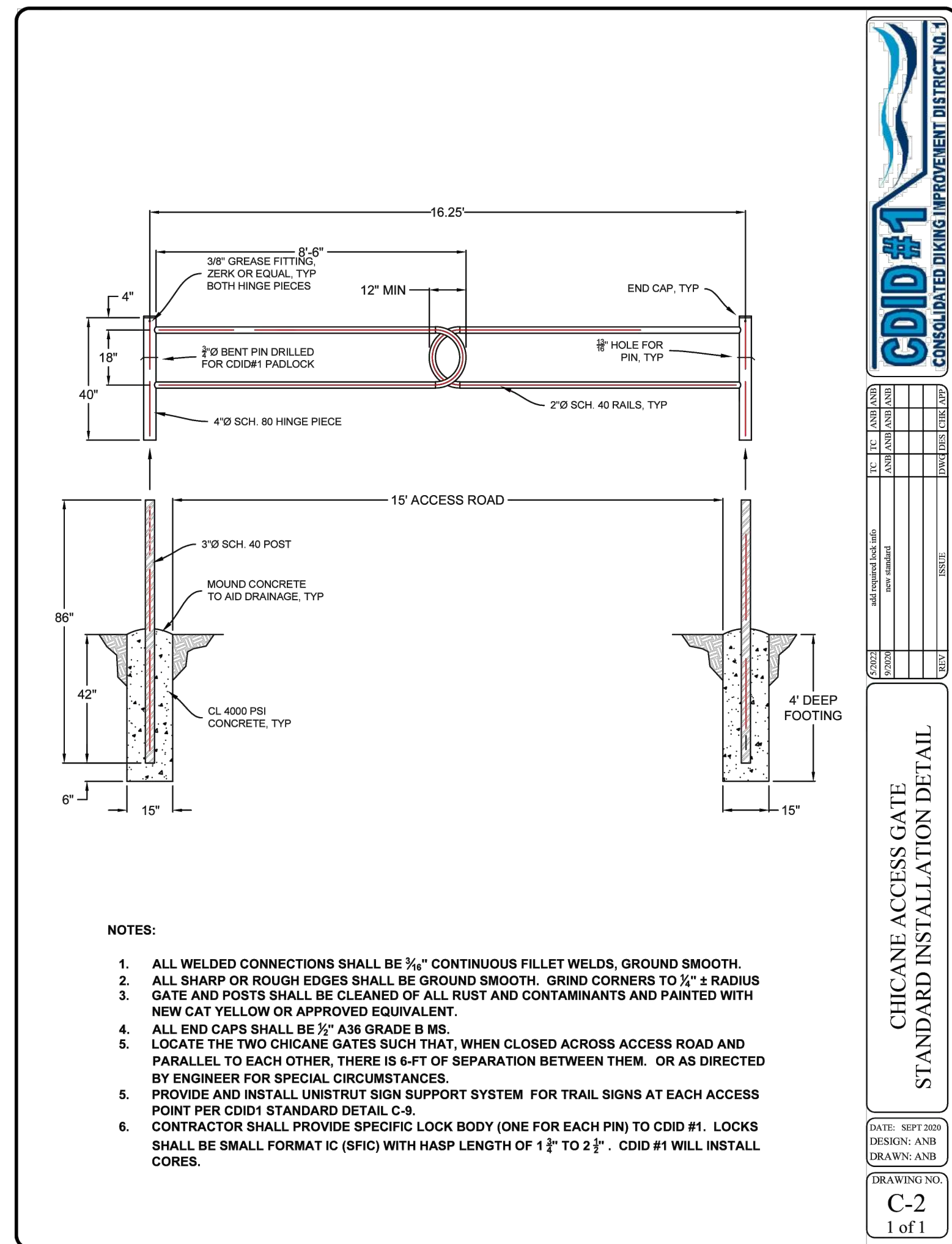
MINT VALLEY
CITY OF LONGVIEW
SEWER DETAILS

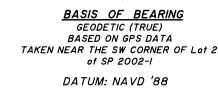
MV D5



STREET GENERAL NOTES			
1.	ALL	PUBLIC STREETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION AND THE CITY OF LONGVIEW STANDARD PLANS AND SPECIFICATIONS.	
2.	A PERMIT MUST BE OBTAINED FROM THE PUBLIC WORKS DEPARTMENT PRIOR TO CONSTRUCTION IN THE CITY RIGHT OF WAY (R/W). THE ENGINEERS OFFICE MUST BE NOTIFIED PRIOR TO BEGINNING CONSTRUCTION.		
3.	MATERIAL IN SOFT SPOTS WITHIN THE ROADWAY SHALL BE REMOVE TO THE DEPTH REQUIRED TO PROVIDE A FIRM FOUNDATION AND SHALL BE THOROUGHLY COMPACTED TO A RELATIVE DENSITY OF 95% OF OPTIMUM. THE MAXIMUM ALLOWABLE ROCK SIZE IS 4 INCHES. WORK SHALL BE CONSISTENT WITH THE STANDARD SPECIFICATIONS SECTION 2-06. GEOTEXTILE MAY BE UTILIZED TO ACHIEVE STABILITY.		
4.	NEW CURBS SHALL BE MARKED WITH "S" FOR SEWER, "W" FOR WATER, AND "D" FOR STORM SEWER DRAIN WHEREVER A WATER, SEWER, OR STORM CROSSES UNDER THE CURB.		
5.	ALL PUBLIC STREET CONSTRUCTION IS SUBJECT TO INSPECTION AND APPROVAL BY THE CITY DEPARTMENT OF PUBLIC WORKS. THE CONTRACTOR SHALL NOTIFY THE CITY A MINIMUM OF TWO FULL WORKING DAYS PRIOR TO THE START OF ANY CONSTRUCTION.		
6.	THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO THE START OF CONSTRUCTION/EXCAVATION AND SHALL NOTIFY THE ENGINEER OF ANY POTENTIAL CONFLICTS. THE CONTRACTOR IS REQUIRED TO CONTACT THE NORTHWEST UTILITY NOTIFICATION CENTER A MINIMUM OF TWO FULL BUSINESS DAYS BEFORE TO THE START OF CONSTRUCTION AND/OR ANY EXCAVATION AT 811 OR WWW.CALLBEFOREYOU.DIG.ORG .		
7.	AS-BUILT DRAWINGS SHALL BE SUBMITTED AND APPROVED PRIOR TO PROJECT ACCEPTANCE.		
8.	ANY CONTRACTOR CAUSED DAMAGE TO CITY STREETS, ALLEYS, SIDEWALKS, OR CITY INFRASTRUCTURE SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE CITY AT THE SOLE EXPENSE OF THE CONTRACTOR.		
9.	ALL CONCRETE STREET AND/OR ALLEY PANELS THAT ARE SAWN OR OTHERWISE IMPACTED BY THE CONTRACTOR'S WORK SHALL BE FULL PANEL REPLACEMENT (TO NEAREST JOINT CONNECTION).		
10.	PRIOR TO THE START OF WORK, IF THE CONTRACTOR DETERMINES THE CONSTRUCTION ACTIVITY WILL DAMAGE ADJACENT (UN-CUT) CONCRETE PANELS, THE CONTRACTOR SHALL CONTACT THE CITY ENGINEER FOR A DETERMINATION ON THE EXTENT OF PANEL REPLACEMENT OR REPAIR.		
11.	DOUBLE SAW CUT: ALL CONCRETE PAVEMENT SHALL BE DOUBLE CUT AND SHALL BE FULL DEPTH SAWCUT AND REPLACED TO THE LIMITS AS MARKED BY THE CITY STAFF.		
12.	CURING COMPOUND PER SECTION 5-05.3(13). CLEAR CONCRETE SEALER TO BE PLACED WITHIN 2 HOURS AFTER FINISHING IN COMPLETE.		
13.	CLUSTER STYLE MAIL BOXES ARE PROHIBITED ON COLLECTOR AND ARTERIAL STREETS.		
14.	PRE-CONSTRUCTION MEETING (PRECON): A PRECON SHALL BE HELD FOR ALL WORK IN THE CITY'S RIGHT-OF-WAY. PRIOR TO SCHEDULING PRECON, A R/W PERMIT SHALL BE OBTAINED AND LOCATES ARE TO BE PAINTED ON GROUND.		

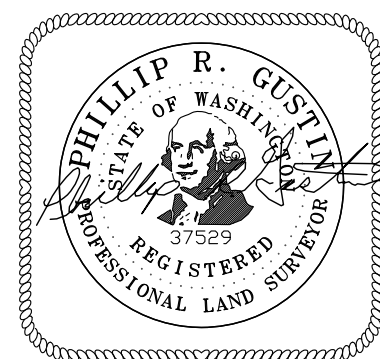
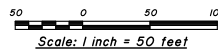






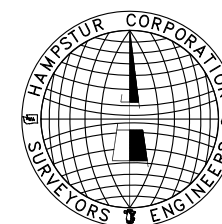
LEGEND

- CORNER FOUND AND TIED
- CALCULATED POSITION
- () RECORD DATA
- SANITARY SEWER MANHOLE
- WATER METER
- ♂ UTILITY POLE (WITHIN 1.0')
- TREE
- *—*—* EXISTING FENCE LINE



DIGITAL SIGNATURE: 4/10/2023

HAMPSTUR CORPORATION



Calculated by : *TLG*

Checked by : PRG

Drawn by : TLG

Completion date : 5/20/21

Field Book no. :

Drawing No. : 21-620.DWG

HAMPSTUR JOB no. : 21-620

P.O. Box 368
Kelso, Washington 98626
Phone: (360) 423-8166

4/10/23	1	ADDED TBM, DATUM, BORDER & STAMP FOR DISTRIBUTION	TLC
Date	No	Revision	By

STORMWATER TECHNICAL INFORMATION REPORT - TIR

For MINT VALLEY BSP

FOR A BINDING SITE PLAN &
MANUFACTURED HOME PARK
3503 & 3505 OAK STREET, LONGVIEW, WA



DATE: 05-21-2025

PREPARED BY
Kessi Engineering & Consulting – James Kessi P.E.
6400 NE Hwy 99# G169, Vancouver, WA 98665
james.kessi@gmail.com
360-991-9300

November 17, 2024
April 15, 2024
Revised May 21, 2025

TABLE OF CONTENTS

<i>SECTION A - PROJECT OVERVIEW</i>	<i>1</i>
Site Information	1
Applicable Minimum Requirements	1
 <i>SECTION B - MINIMUM REQUIREMENTS</i>	 <i>2</i>
Minimum Requirement #1 - Preparation of Stormwater Site Plans	2
Minimum Requirement #2 - Construction Stormwater Pollution Prevention	3
Minimum Requirement #3 - Source Control of Pollution	3
Minimum Requirement #4 - Preservation of Natural Drainage Systems and Outfalls	4
Minimum Requirement #5 - On-Site Stormwater Management	4
Minimum Requirement #6 - Runoff Treatment Analysis and Design	5
Minimum Requirement #7 - Flow Control Analysis and Design	7
Minimum Requirement #8 - Wetlands Protection	10
Minimum Requirement #9 - Operation and Maintenance	10
 <i>SECTION C - CONVEYANCE SYSTEMS ANALYSIS AND DESIGN</i>	 <i>10</i>
 <i>SECTION D - ADDITIONAL REQUIREMENTS</i>	 <i>10</i>
Off-Site Analysis	10
Closed Depression Analysis	10
Other Permits	10
Special Reports and Studies	10

APPENDICES

MAPS AND SITE DATA App. A

- A-1 VICINITY LOCATION MAP
- A-2 AERIAL MAP WITH PARCEL DATA
- A-3 DIKING DISTRICT MAP
- A-4 CONTOUR MAP - SURVEY
- A-5 SOIL TYPE MAP AND DATA
- A-6 RAINFALL FREQUENCY DEPTH DATA
- A-7 SCS CN (RCN) TABLE

STORMWATER BASIN MAPS..... App. B

STORMWATER HYDROLOGY/HYDRAULICS CALCULATIONS..... App. C

GEOTECH INFILTRATION TESTING REPORT APP. D

REFERENCES

“Longview Stormwater Management Ordinance” (Ord. 3349 § 1, 2017)

2019 edition of the Stormwater Management Manual for Western Washington.

SECTION A - PROJECT OVERVIEW

Site Information:

The property presently consists of two lots, parcel numbers 05319, and 053180300 and is located in a portion of the NE ¼ of Section 30, Township 8 North, Range 2 West of the Willamette Meridian, Cowlitz County, Washington. Site address: 3503 Oak Street, Longview, WA 98632.

The property is currently developed as a single residential lot with one residence and several outbuildings. The site topography is generally flat and generally slopes east and west to the CDID#1 Upper Slough. There are no areas of runoff onto this site from the adjoining property to the west. There is however, a small amount of runoff onto this site from the Oak St. right of way along the site frontage that is also being included in the site design for WQ treatment.

There are no existing storm systems onsite and there are no known drain tiles for agricultural purposes on this property. If any tiles are found, they will be routed to the proposed storm system for conveyance. There are also no critical areas known to exist on the site.

Present Condition

Presently, most site runoff moves slowly as sheet flow and infiltrates for the majority of the storm events or slowly sheet flows and eventually makes its way into CDID#1 Upper Slough.

Developed Condition

For the developed condition, there will be 73 lots. The private driveways will be graded to slope toward the lots. Each lot area (in between units) will be graded and in lawn to allow shallow sheet surface flow slope toward the rear of the lots and 15 ft easement where applicable. The stripped topsoil will allow exposure of suitable soils to allow infiltration to occur into the soils under the yard lawn areas. Modeling indicates that flow from the site roofs, grass yards, and driveways, will initially absorb mostly into the grass lawn yard areas surface areas. The yards grass surface areas has capacity to absorb infiltrate most of the site runoff from both the lawn areas and up to 30% of the impervious lot area (private parking driveways and some roof areas) from about 2.717 acres. Several lots (Lots 1-6 and half of 7 and Lots 67-69) will also have and utilize additional full infiltration in roof/yard rock trenches and allow runoff from the driveways, walks, and grass yard areas to infiltrate directly.

The 15 ft easement with the 12 ft wide gravel maintenance road are modeled as lawn at HSG C designation and as CN98 (impervious) for the gravel portion and this area is not needed or used for lot or yard area infiltration.

Remaining Areas (roofs, driveways, and lawn surfaces)

The proposed yard lawn areas on the existing excavated soil surface for each lot yard area will provide significant initial abstraction (which includes some infiltration) for the driveways, walks, roofs, and yards. The approach of sloping the driveways to sheet flow across the lawn area will provide WQ treatment for driveways, due to the high cation exchange capacity of the site soils.

Applicable Minimum Requirements:

According to "Longview Stormwater Management Ordinance" (Ord. 3349 § 1, 2017), Minimum Requirements (1-9) apply.

The Mint Valley Manufactured Home Park proposal does contain one threshold discharge area

(TDA) as defined by DOE as there is proposed surface runoff to offsite from onsite. The project site is subject to meeting Minimum Requirements 1 – 9 due to the amount of new impervious surfaces proposed for development of the site.

Summary

Water Quality Treatment - For water quality treatment, a standard mechanical cartridge system like a PerkFilter or Contech StormFilter will be used and sizing documentation has been provided.

Infiltration Testing - There is a site Geotech and Soils Infiltration Testing Report with four test locations across at varying depths with results ranging from 5 inches per hour to 22 inches per hour for infiltration on the site. Infiltration is the method for stormwater disposal from the lots on the site. Groundwater levels were found to be about 56 inches and high groundwater depths (with mottling) were observed at 48 inches (4 ft) below ground surface. These depths relate to 0.33 ft and 1.0 ft. The lowest infiltration base level is 5.0 ft which is 4 ft above the high groundwater stage. See the infiltration testing report in Appendix D for detailed information.

Flow Control met with Infiltration – Flow control and Minimum Requirement #7 is met through initial abstraction (which includes infiltration of site runoff water).

Lawn Area (ac)	Walk, Drive, and Roof Portion (30% of whole impervious per lot) (ac)	Remaining Impervious Roof Area (ac)
2.287	1.2564	2.5815

The first two columns are modeled as “unconnected impervious” per SCS methodology. As much as 30% of the impervious area (roofs and private driveways) sheet flowing across a pervious surface reduces the runoff rate and volume compared to the “directly connected” condition. SCS provides a chart base on a formula that determines a composite CN value for the area modeled as opposed to a weighted value of the impervious and pervious CN values. For this site, the lot areas have a $2.2870 + 1.2564 = 3.5434$ ac. surface area that can be modeled at a composite CN value. The remaining impervious area (2.5815 ac.) also may flow across some of the pervious area but any flow reduction credit is not being accounted for, i.e. it is modeled at CN 98 with the resulting rate and volume for the full amount accounted for in the discharge summary. Several of the lots allow for rear yard rock trench infiltration and the trenches are located in the rear yards 10 ft from the units. The rock trenches will fully infiltrate the roof area runoff only from these specific lots (0.349 acres to direct infiltration in the rock trenches).

Surface water from the private street traffic surfaces will also be collected and treated in Water Quality Catch basins to meet water quality treatment standards at several WQ Catch Basins with cartridges at the street low points prior to release to one of the two specific outfalls to the existing CDID ditch.

The 100-yr runoff volume from the site is 1,220 cu ft above the runoff volume for the present condition analysis for the site. The portion of the site area comparison is essentially to the top of bank along the CDID#1 channel. The channel bank portion is not included in the runoff area as it will ultimately be restored to similar or the same condition when developed. In addition, if the runoff from Oak Street frontage improvements is included for WQ treatment. The total runoff volume excess is a slight increase of 1,263 cu ft.

Instead, due to the slight increase in runoff volume, CDID#1 regional detention is necessary, and the fee-in-lieu process has been applied for. See App C-4.

Clarification:

CDID#1 Items: The CDID#1 12 foot wide CDID gravel maintenance road area is not included for the design as an infiltration area for the yards or roof areas. The gravel maintenance access is being constructed for CDID#1 access and maintenance is not being used to meet detention requirements, i.e., is not used or needed for infiltration purposes or for flow control via infiltration. However, it is still modeled and accounted for in the overall pre-volume versus post-volume comparison.

Since the design utilizes the onsite yard areas for sufficient runoff reduction, there are no additional areas needed for detention ponds or needed for onsite detention for the stormwater plan. **Instead, due to the slight increase in runoff volume, CDID#1 regional detention is necessary, and the fee-in-lieu process has been applied for. See App C-4.**

SECTION B - MINIMUM REQUIREMENTS

According to Table B.1 below and the Longview Municipal Code 17.80, Minimum Requirements 1-6 & 8-9 apply.

Table B.1 - Summary of Land Disturbing Activities

The defined existing total site boundary area is 10.38 acres (2 acres of this is CDID#1 slough and bank areas)

❖ About 2.0 ac is part of the existing CDID#1 slough and bank areas

1. Amount of Existing Impervious surface	3,081 sf (Oak St.) 6,602 sf (site)
2. Amount of New Impervious surface	193,575 SF plus 32,539 SF gravel in 15' Easement
3. Amount of Replaced Impervious surface	Approx. 1,300 sf
4. Amount of Native Vegetation converted to lawn or landscaping	None
5. Amount of Native Vegetation converted to pasture	None
6. Amount of Native Vegetation converted to pervious access area	None
7. Amount of pervious area (lawn or landscaping)	PERVIOUS AREA (SF): 99,624 SF plus 8,015 SF in 15' Easement
8.. Total amount of land-disturbing activity	Approx. 8.38 acres

Minimum Requirement #1 - Preparation of Stormwater Site Plans

This report and the Final Engineering Plans will contain adequate detail to construct the proposed stormwater facilities, and all information required for compliance with the 2019 Stormwater Management Manual for Western Washington (DOE 2019 SMMWW).

Minimum Requirement #2 - Construction Stormwater Pollution Prevention

A detailed erosion control plan will be included in the Final Engineering plans, and a Stormwater Pollution Prevention Plan will be submitted with the Final TIR (as a separate document).

Minimum Requirement #3 - Source Control of Pollution

In conformance with the requirements of City of Longview “Longview Stormwater Management Ordinance” (Ord. 3349 § 1, 2017), no prohibited discharges are planned to be released from the site. Best Management Practices (BMPs) will be designed and called out on the SWPPP and the Erosion Control Plans and Details to control sediment-laden runoff from leaving the site and impacting any neighboring properties and City of Longview storm systems, including State waters. In addition, BMPs will be implemented as necessary to prevent pollutants from coming into contact with stormwater during construction.

The proposed development does not include any of the activities listed in Volume IV, II 3.2. Construction Source Control BMPs (DOE 2019 SMMWW). There are no long-term pollution risks associated with the project that necessitate a separate source control plan.

The BMPs that may apply to land disturbance would be BMPs for Dust Control at Disturbed Land Areas and Unpaved Roadways and Parking Lots and BMPs for Urban Streets.

However, the City of Longview also requires source control BMPs for the development after the development has been stabilized and occupied. Typically, this is presented in the separate Maintenance and Operations Manual for the site, but this portion is addressed in the TIR as well.

Source Control Measures to Reduce Pollution after Site is Stabilized and Occupied

The most effective way to maintain a water quality facility is to prevent the pollutants from entering the facility in the first place. Common pollutants include sediment, trash and debris, chemicals, petwastes, runoff from stored materials, illicit discharges into the storm drainage system and many others. A comprehensive maintenance program will include measures to address these potential contaminants, and will save money and time in the long run. Key points to consider in a maintenance program include:

- Educate property owners/residents to be aware of how their actions might impact water quality, and how they can help reduce maintenance costs.
- Keep properties, streets and parking lots (driveways) free from trash and debris.
- Ensure the proper disposal of hazardous wastes and chemicals.
- Plan lot care to minimize the use of chemicals and pesticides.
- Sweep paved surfaces and put the sweepings in a compost pile – not back on the drive or other lot areas
- Be aware of automobiles leaking fluids. Use absorbents, such as cat litter, to soak up drippings – dispose of properly.
- Replace disturbed and bare areas to maintain gravel layer thickness and stabilization.
- Clean out the upstream components of the storm drainage system, including inlets, storm sewers and outfalls. Maintain WQ filter systems.
- Do not store materials outdoors (including landscaping materials) unless they are properly protected from stormwater runoff.

Minimum Requirement #4 - Preservation of Natural Drainage Systems and Outfalls

The present site does not have any natural drainage systems or outfalls of significance as the runoff is generally runoff from overland sheet flow that mostly infiltrates on the site. The development proposes to treat runoff with WQ Treatment Cartridges from traffic bearing pollutant sources of the private streets. Private driveways on each lot will flow toward the yard areas for water quality treatment and for infiltration. Surface infiltration will occur into the soils throughout the site graveled yard areas.

Minimum Requirement #5 - On-Site Stormwater Management

Compliance is typically met with the List #3 Approach as follows:

Surface Type: Lawn Yard Lawn Areas and Landscaped Areas within several tracts

There are only a few proposed landscaped areas (Tracts B, C, D, and E). Each lot will be landscaped. Runoff reduction is accomplished by exposing the soil below the topsoil layer. The present surface soil is classified as HSG C for runoff analysis at CN 85 (wet condition). The exposed soil with some organic mix will provide a runoff surface that reduces the runoff rate significantly. The 'best' HSG classification for soils with runoff is HSG A for runoff analysis at CN 68 (wet condition). SCS states that this classification relates to soil with a surface infiltration rate >0.3 in/hr. The site soils tested at >5 in/hr for the saturated condition. We have provided the analysis based on CN 68, but also realize the actual runoff condition will relate to a much lower value. So much so, that the lawn surface would possibly have no runoff volume for even the 100-yr event.

The topsoil will be removed at all lot and Tract areas down to the determined subsurface layer with the tested rate and then filled with soils from other site areas with the higher rate, i.e., 22 in/hr. If additional fill soil is required in the fill areas, some of the cut from the 5 to 6 in/hr rate soil will be applied. Addition of permeable sand to any fill areas may also be applied if the fill balance is lacking to provide a suitable rate for infiltration (mixed at 50/50). Only the yard areas need gravel layer over the soils was used in for the design to accommodate the infiltration.

Surface Type: Roofs

BMP T5.10A: Downspout Full Infiltration

- ❖ This BMP has been determined to be **feasible** for lots. The downspouts will release directly to rock infiltration trenches on designated lots.
- ❖ This BMP has been determined to be feasible. The downspouts will also release to the lawn surface for other remaining lots.

BMP T5.10B: Downspout Dispersion Systems

- ❖ This BMP has been determined to be **infeasible** in particular due to the area for disposal is serving to infiltrate direct rainfall on the surface.

BMP T5.10C: Perforated Stub-out Systems

- ❖ This BMP has been determined to be **infeasible** since reduction in flow rates and volumes are a design requirement.

Surface Type: Other Hard Surfaces

BMP T5.12: Sheet Flow Dispersion or

BMP T5.11: Concentrated Flow Dispersion

- ❖ These BMPs have been determined to be **infeasible** since they are for impervious areas with steeper slopes than this proposed site.

The following BMP is being utilized for the design:

BMP T5.10A: Downspout Full Infiltration

Application of this design approach along with improving the reduction in runoff rate and volume provides a net release runoff volume reduction for the developed site that will more closely meet CDID#1 volume requirements. Application of This BMP also meets some goals related to BMP T5.21 – Better Site Design.

Minimum Requirement #6 - Runoff Treatment Analysis and Design

Basic treatment is required for all stormwater runoff from pollution generating surfaces. These surfaces are the proposed private street and any runoff onto it from the lots, parcels, or private driveways serving several lots. The Oak Street frontage improvements, which will also include existing pavement to the centerline of Oak Street, will also be collected and conveyed for WQ treatment.

The following BMP is proposed - PerkFilter™ V-10 Manufactured Treatment Device

GENERAL USE LEVEL DESIGNATION FOR BASIC AND PHOSPHORUS TREATMENT For Oldcastle Infrastructure PerkFilter™ (with ZPC Filter Media)

Ecology's Decision: Based on Oldcastle's application submissions, including the Technical Evaluation Report, dated April 2010, Ecology hereby issues the following use level designations:

1. General use level designation (GULD) for the PerkFilter™ for basic treatment:
 - Using a zeolite-perlite-carbon (ZPC) filter media as specified by Oldcastle.
 - Sized at hydraulic loading rate of no more than 1.5 gpm/ft² of media surface area, per Table 1.

Table 1. Design Flowrate per Cartridge

Effective Cartridge Height (inches) = 12 and 6.8 Cartridge Flowrate (gpm/cartridge

Effective Cartridge Height (inches) = 18 and 10.2 Cartridge Flowrate (gpm/cartridge

2. General use level designation (GULD) for the PerkFilter™ for phosphorus treatment:

- Using a zeolite-perlite-carbon (ZPC) filter media as specified by Oldcastle.
- Sized at hydraulic loading rate of no more than 1.5 gpm/ft² of media surface area, per Table 1.

3. Ecology approves PerkFilter™ units for treatment at the hydraulic loading rates shown in Table 1, **and sized based on the water quality design flow rate for an off-line system.** The internal weir in the inlet chamber functions as a bypass to route flow in excess of the water quality design flow rate around the treatment chamber. Calculate the water quality design flow rate using the following procedures: ‘

- Western Washington: For treatment installed upstream of detention or retention, the water quality design flow rate is the peak 15-minute flow rate as calculated using the latest version of the Western Washington Hydrology Model or other Ecology approved continuous runoff model.

From Table1 the equivalent cfs treatment flow rates are 0.015 cfs for 6.8 gpm and 0.23 cfs for 10.2 gpm. The following table is based on these cfs rates.

Oldcastle Perk Filter™				
Cartridge Size Height (in)	1 Unit Allowable Rate (cfs)	2 Unit Allowable Rate (cfs)	3 Unit Allowable Rate (cfs)	4 Unit Allowable Rate (cfs)
12"	0.015	0.030	0.045	0.061
18"	0.023	0.045	0.068	0.091
12" + 12"	0.030	0.061	0.091	0.121
18" + 12"	0.038	0.076	0.114	0.152

Areas Requiring Water Quality Treatment:

Private Street (subbasin areas N-1, N-2, S-1, and S-2)

The private street has two low points and each will collect the runoff from the street and sidewalk areas for treatment

Oak Street frontage (subbasin areas F-1 and F-2)

Generally, the only change to the frontage will be widening and installation of curb and gutter along the site frontage and extending to each end for the transition back to existing pavement width. The majority of this half street runoff will be conveyed by gutter flow to onsite piping leading to water quality media filter systems noted above prior to release to the slough.

Proposed (WQ) Water Quality Systems – using PerkFilter

The offline WQ rate for CB#1 is 0.065 cfs
– requires 1- (18" + 12") stack height (0.076 cfs capacity)

The offline WQ rate for CB#3 is 0.035 cfs
– requires 1-18" cartridge (0.045 cfs capacity)

See Appendix C-6 for WQ flow rates (per MGSFlood analysis).

See Appendix B Post-development Basin Map – WQ Treatment

Remaining Areas (roofs, driveways, and lawn surfaces)

The proposed yard lawn areas on the existing excavated soil surface for each lot yard area will provide significant initial abstraction (which includes some infiltration) for the driveways, walks, roofs, and yards. The approach of sloping the driveways to sheet flow across the lawn area will provide WQ treatment for driveways, due to the high cation exchange capacity of the site soils.

Minimum Requirement #7 – Flow Control

The depth to groundwater was stated as 56 inches below the ground level at TP-4. This deduced groundwater elevation is about 0.33 ft. However, soils were mottled starting at 4 ft below the surface, so peak groundwater elevation could be at about 1.0 ft or four feet below the lowest infiltration surface area at elev. 5.0.

The depth to groundwater was stated as 56 inches below the ground level at TP-4. This deduced groundwater elevation is about 0.33 ft. However, soils were rusty starting at 4 ft below the surface, so peak groundwater elevation could be at about 1.0 ft or four feet below the lowest infiltration surface area at elev. 5.0.

BMP T5.10B: Downspout Full Infiltration – Infiltration Trenches

A few lots will be designed with roof runoff being conveyed to rock trench infiltration systems. These rock trenches meet the required 10 ft setback from the units. These Lots are 2-6 and ½ of Lot 7 and roofs from Lots 64-66. Also, a 2 foot wide French drains will be provided along both sides the access driveway to Lot 7.

A runoff volume analysis was performed to see whether or not the runoff from the site would require a fee in lieu for detention in CDID#1.

The CDID 12 foot wide CDID gravel maintenance road are is not included in these areas above and is not needed for infiltration design purposes or for flow control via infiltration. Even though the areas under the individual units may also have surface rock thickness added and will provide some additional infiltration by default, these areas under the units are not needed or counted as areas for the infiltration design.

Utilizing the onsite infiltration, but no areas are need for ponds or needed for onsite detention for the stormwater plan. The limited use gravel maintenance path being constructed for CDID#1 access and maintenance is not being used to meet detention requirements. Only the lot graveled yards are being used for infiltration design purposes.

Table B-2 Compare 100-yr pre-runoff volume and post 100-yr runoff volume for HCAD 24-Hour Single Event Model:

HCAD SUMMARY RESULTS (24-hr time span - but runoff from event extends beyond 24-hr period)

Description	Total Area (ac)	Peak Runoff Volume (ac-ft)	Remarks
100-yr Existing Pre Condition	8.524	3.043 at 24 hrs 3.201 at 37 hrs	Both pre & post conditions include runoff from frontage
100-yr Post Developed Site Condition	8.1747*	3.207 at 24 hrs 3.230 at 26 hrs	Post peak runoff volume = Increase of 1,263 cu ft or 0.029 ac-ft

*less area due to roof infiltration for 8.5 roofs and infiltration along an access drive.

These results indicate that the net released runoff for the 100-yr Post Developed Condition volume does increase slightly (Post peak runoff volume = Increase of 1,263 cu ft or 0.029 ac-ft) **due to development after accounting for volume losses from runoff across the yards. Therefore, the site developed post condition does not meet the CDID#1 requirement for matching the 100-yr runoff volume. A fee in-lieu charge for detention is required.**

Minimum Requirement #8 - Wetlands Protection

There are no wetlands onsite, so this MR does not apply.

Minimum Requirement #9 - Operation and Maintenance

The site property owner and the MHP will provide maintenance for private collection, treatment, and infiltration systems that serve the site as well as any water that drains to the site from public sources. Any public storm facilities located within the public right of way will be owned and maintained by the City.

A Stormwater Facility System Operations and Maintenance Manual will be included in an Appendix with the Final TIR.

SECTION C - CONVEYANCE SYSTEMS ANALYSIS AND DESIGN

The only proposed main piping conveyance systems are at the interior private street to intercept and convey runoff from the two low points to water quality treatment structures and then after treatment, convey the treated water to the two stormwater outfall locations.

See Minimum Requirement #7 Flow Control above and App C-5 for the 100-yr event summary for flow release from these two storm systems.

SECTION D - ADDITIONAL REQUIREMENTS

Off-Site Analysis

The project site will have two discharge outfall points from the site to the slough and will comply with CDID Outfall standard details. An off-site analysis is not warranted since the two stormwater discharges outfalls are into the CDID#1 upper slough and there is no net increase in site runoff volume in the developed condition compared to the pre-developed condition.

Closed Depression Analysis

Not applicable.

Other Permits

The following permits will be required for the project:

- Underground Injection Control (UIC) registration is not required since there are no proposed underground perforated pipe systems that distribute and release runoff for infiltration. Individual lot roof infiltration trenches are exempt from UIC.
- A General Stormwater Permit is required, since there is proposed runoff from the site. A SWPPP will be provided with the final plans and TIR.
- If necessary, CDID#1 Encroachment Permits for two stormwater pipe discharge locations will be obtained.

Special Reports and Studies

Geotech Report related to onsite soils and soil infiltration rate testing. See Appendix D.

APPENDIX A

MISCELLANEOUS SUPPORT DATA

MINT VALLEY

A-1 VICINITY LOCATION MAP

A-2 AERIAL MAP WITH PARCEL DATA

A-3 DIKING DISTRICT MAP

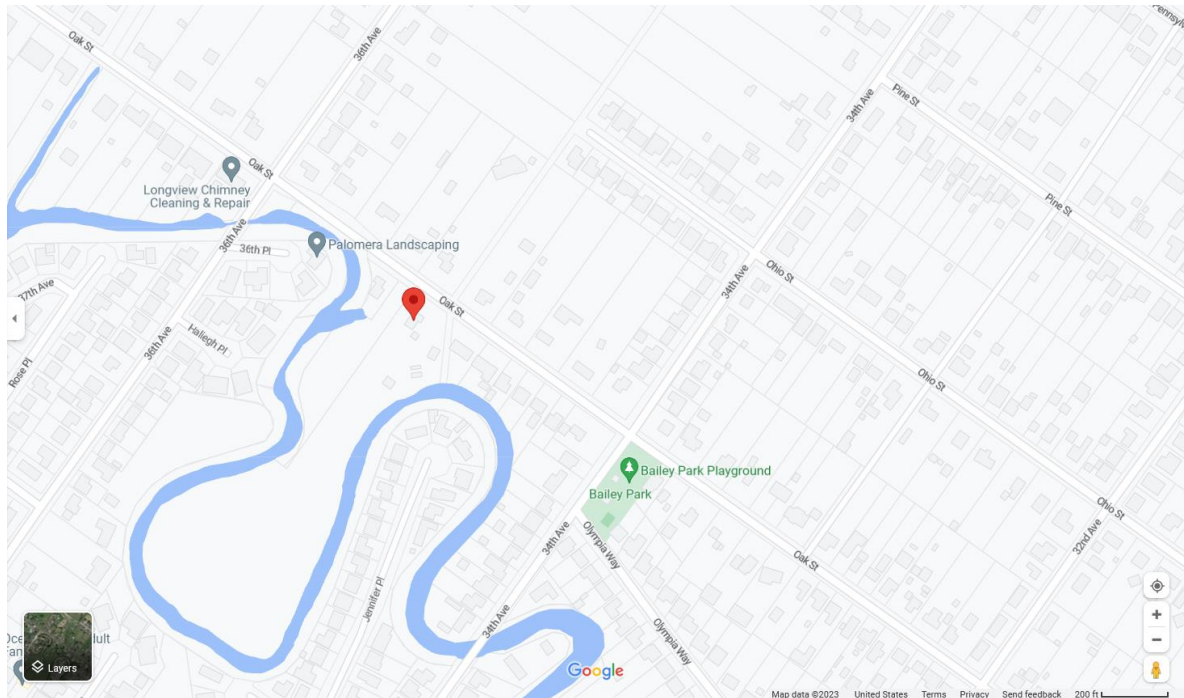
A-4 CONTOUR MAP - SURVEY

A-5 SOIL TYPE MAP AND DATA

A-6 RAINFALL DEPTH DATA

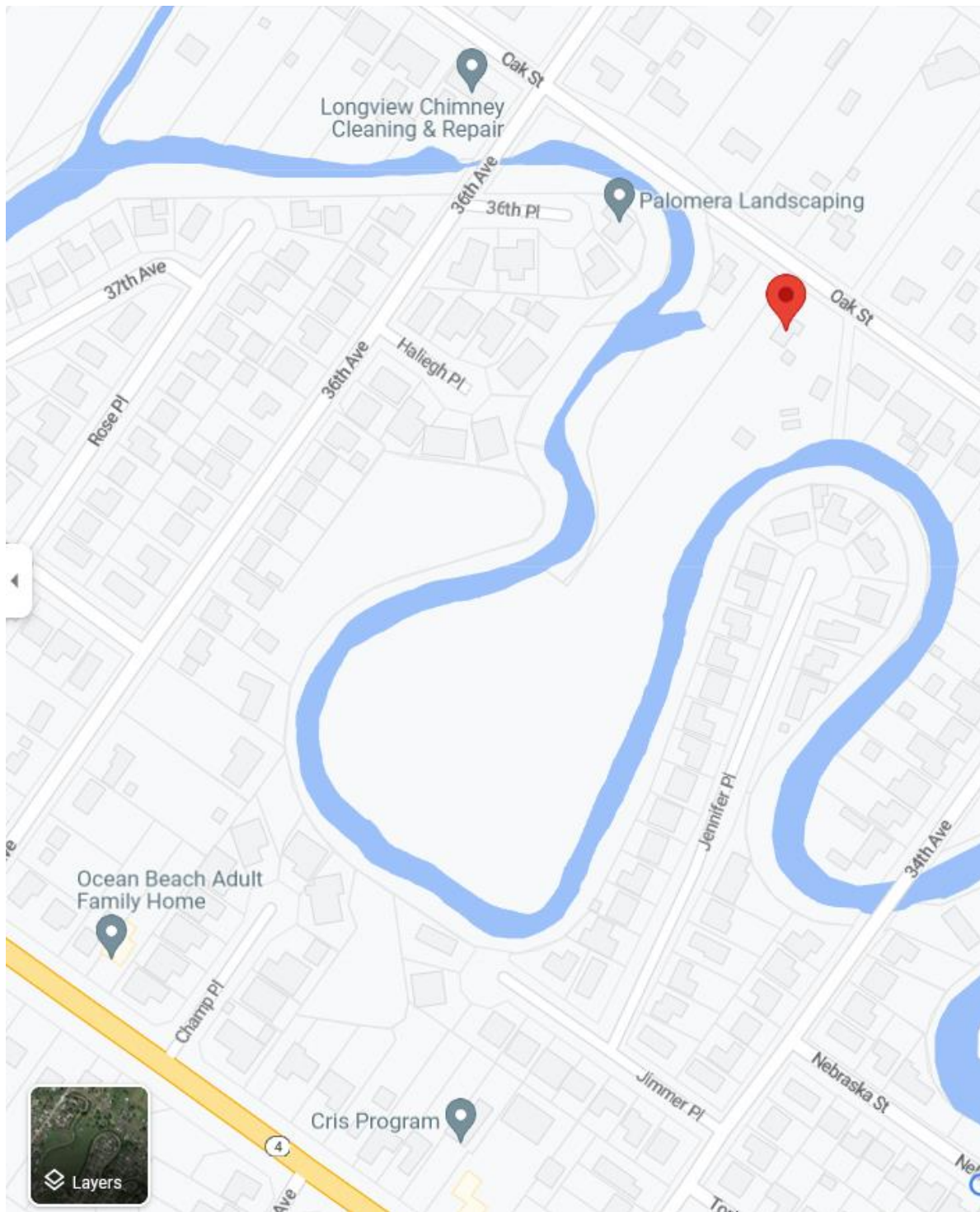
A-7 CN OR RCN SELECTION

3503 Oak St

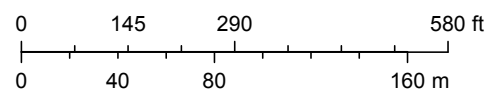


LOCATION MAP

3503 Oak St.



1:4,514



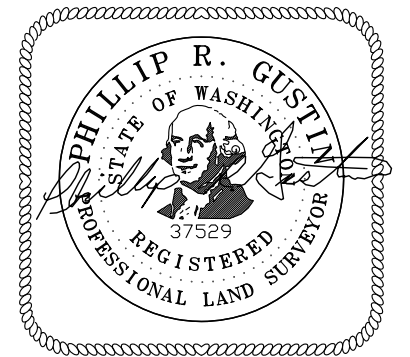
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, City of Longview, WA - GIS Section, Esri, HERE, Garmin, (c) OpenStreetMap contributors, City of Longview, GIS Sectoin, Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN,



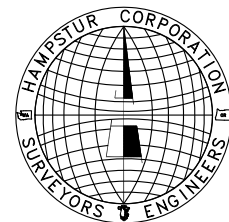

BASIS OF BEARING
GEODETIC (TRUE)
BASED ON GPS DATA
TAKEN NEAR THE SW CORNER OF Lot 2
of SP 2002-1
DATUM: NAVD '88

LEGEND
● CORNER FOUND AND TIED
○ CALCULATED POSITION
() RECORD DATA
● SANITARY SEWER MANHOLE
● WATER METER
□ UTILITY POLE (WITHIN 1.0')
○ TREE
--- EXISTING FENCE LINE

50 0 50 100
Scale: 1 inch = 50 feet



DIGITAL SIGNATURE: 4/10/2023

HAMPSTUR CORPORATION	
	Calculated by : TLG
	Checked by : PRG
	Drawn by : TLG
	Completion date : 5/20/21
	Field Book no. :
	Drawing No. : 21-620.DWG
HAMPSTUR JOB no. : 21-620	

P.O. Box 368
Kelso, Washington 98626
Phone: (360) 423-8166

4/10/23	1	ADDED TBM, DATUM, BORDER & STAMP FOR DISTRIBUTION	TLG
Date	No	Revsion	By

Web Soil Survey



Map Unit Legend			
Cowlitz County, Washington (WA015)			
Cowlitz County, Washington (WA015)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
17	Caples silty clay loam, 0 to 3 percent slopes	12.5	77.8%
199	Snohomish silty clay loam, 0 to 1 percent slopes	3.6	22.2%
Totals for Area of Interest		16.1	100.0%

CAPLES SERIES

The Caples series consists of very deep, somewhat poorly drained soils formed in alluvium. Caples soils are on nearly level floodplains and low terraces. The average annual precipitation is about 45 inches and the average annual temperature is about 52 F.

TAXONOMIC CLASS: Fine, mixed, superactive, nonacid, mesic Fluvaquentic Endoaquepts

TYPICAL PEDON: Caples silty clay loam - pasture. (Colors are for moist soil unless otherwise noted.)

Ap1--0 to 4 inches; dark brown (10YR 3/3) silty clay loam, grayish brown (10YR 5/2) dry; moderate fine granular and subangular blocky structure; hard, friable, slightly sticky and slightly plastic; many fine and medium and few coarse roots; many worm casts; moderately acid; abrupt smooth boundary.

Ap2--4 to 9 inches; dark brown (10YR 3/3) light silty clay loam, grayish brown (10YR 5/2) dry; many moderate distinct strong brown (7.5YR 5/8) and gray (10YR 6/1) redox concentrations and depletions, strong brown (7.5YR 5/8) and light brownish gray (10YR 6/2) dry; strong fine subangular blocky and moderate fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many fine and medium and few coarse roots; few medium and coarse tubular pores; moderately acid; abrupt smooth boundary. (The A horizon has a combined thickness of 7 to 9 inches.)

Bg1--9 to 25 inches; gray (5Y 5/1) silty clay loam, gray (5Y 6/1) dry; many fine prominent yellowish red (5YR 5/6) and dark reddish brown (2.5YR 3/4) redox concentrations, strong brown (7.5YR 5/6) and dark reddish brown (2.5YR 3/4) dry; moderate coarse prismatic and moderate medium and moderate fine subangular blocky structure; hard, firm, slightly sticky and slightly plastic; many fine and medium roots; common medium tubular pores; moderately acid; clear smooth boundary.

Bg2--25 to 39 inches; grayish brown (2.5Y 5/2) silty clay loam, light brownish gray (2.5Y 6/2) dry; many medium prominent dark reddish brown (5YR 3/2), reddish brown (5YR 4/4) and strong brown (7.5YR 5/6) redox concentrations, dark reddish brown (5YR 2/2), yellowish red (5YR 5/6) and reddish yellow (5YR 6/6) dry; moderate coarse prismatic and weak thick platy structure; very hard, firm, moderately sticky and moderately plastic; common fine and medium roots; few medium, fine and coarse tubular pores; moderately acid; abrupt smooth boundary. (Combined thickness of the Bg horizon is 24 to 35 inches)

Cg1--39 to 44 inches; dark gray (5Y 4/1) silty clay loam, gray (5Y6/1) dry; few fine prominent brown (7.5YR 4/4) redox concentrations along old root channels, reddish yellow (7.5YR 6/8) dry; massive; very hard, firm, moderately sticky and moderately plastic; few fine roots; common coarse tubular pores; moderately acid; clear smooth boundary. (4 to 7 inches thick)

Cg2--44 to 77 inches; gray (N5/) silty clay loam, gray (5Y 6/1) dry; few fine prominent brown (7.5YR 4/4) redox concentrations along old root channels; strong brown (7.5YR 5/8) dry; massive; very hard, firm, very sticky and moderately plastic; few fine roots; common coarse tubular pores; moderately acid.

TYPE LOCATION: Cowlitz County, Washington; approximately 5 miles west of Longview in Willow Grove on the Gordon Enbusk farm; 500 feet north of Willow Grove Road and 170 feet west of silo; 1,500 feet west and 1,060 feet north of the southeast corner, sec. 16, T. 8 N. R.3 W.

RANGE IN CHARACTERISTICS: The mean annual soil temperature is 50 to 53 degrees F. The solum is 30 to 40 inches thick. The particle-size control section averages 35 to 45 percent clay and 0 to 5 percent coarse fragments. The soils are slightly acid to strongly acid throughout.

The A horizon has value of 2 or 3 moist, value of 4 or 5 dry, and chroma of 1 to 3 moist and dry.

The Bg horizon has hue of 10YR, 2.5Y or 5Y; value of 4 or 5 moist; and chroma of 1 or 2 moist and dry. Texture is silty clay or silty clay loam.

The Cg horizon has hue of 2.5Y, 5Y, or neutral, value of 4 through 6 moist, 5 through 7 dry, and chroma of 0 through 2 moist and dry. Texture is silty clay or silty clay loam. In some pedons, the C horizon has lenses of sandy loam, loamy sand, or sand 1/2 to 3 inches thick and is sandy loam or loamy sand below depths of 40 inches.

COMPETING SERIES: These are the [Godfrey](#), [Occidental](#) and [Wunabuna](#) soils. Godfrey soils have surface colors value of 3 to 5 moist and 5 to 7 dry. Occidental soils have a mean annual soil temperature of 54 to 59 degrees F. Wunabuna soils have buried organic material at depths of 16 to 40 inches.

GEOGRAPHIC SETTING: Caples soils are on flood plains and low terraces at elevations of less than 40 feet. Slopes are 0 to 3 percent. The soils formed in alluvium from mixed basic material. The climate is characterized by warm dry summers and cool wet winters. The average January temperature is 38 degrees F, and in July it is 65 degrees F. The average annual temperature is 52 degrees F. The average frost-free season is 165 to 195 days. The average annual precipitation is 38 to 50 inches.

GEOGRAPHICALLY ASSOCIATED SOILS: These are the [Cloquato](#), [Newberg](#), and [Snohomish](#) soils which have less than 35 percent clay in the particle-size control section.

DRAINAGE AND PERMEABILITY: Somewhat poorly drained; slow and very slow runoff; slow permeability. Depth to a seasonal high water table is at a depth of 1.5 to 2.5 feet from November to April.

USE AND VEGETATION: When drained, it is used for row crops, small grain, hay, pasture, bulbs, strawberries, and cane fruit. Native vegetation is western redcedar, red alder, black cottonwood, and bigleaf maple, with an understory of Douglas spirea, vine maple, and willow.

DISTRIBUTION AND EXTENT: Southwestern Washington. Caples soils are of small extent.

MLRA SOIL SURVEY REGIONAL OFFICE (MO) RESPONSIBLE: Portland, Oregon

SERIES ESTABLISHED: Cowlitz County, Washington, 1971.

REMARKS: Diagnostic horizons and features recognized in this pedon are: ochric epipedon and a cambic horizon from 9 to 39 inches.

National Cooperative Soil Survey
U.S.A.

24-hour Design Storms for the
Cowlitz County Urbanized Area

2-year 2.54"
5-year 3.10"
10-year 3.60"
25-year 4.37"
50-year 5.17"
100-year 6.17"

A-7 CN OR RCN SELECTION

STORMWATER MANAGEMENT MANUAL FOR THE PUGET SOUND BASIN

Table III-1.3 SCS Western Washington Runoff Curve Numbers
(Published by SCS in 1982) Runoff curve numbers for selected agricultural, suburban and urban land use for Type 1A rainfall distribution, 24-hour storm duration.

LAND USE DESCRIPTION		CURVE NUMBERS BY HYDROLOGIC SOIL GROUP			
		A	B	C	D
Cultivated land(1):	winter condition	86	91	94	95
Mountain open areas:	low growing brush & grasslands	74	82	89	92
Meadow or pasture:	used for all pervious for present condition & channel slope for Pre and Post	65	78	85	89
Wood or forest land:	undisturbed	42	64	76	81
Wood or forest land:	young second growth or brush	55	72	81	86
Orchard:	with cover crop	81	88	92	94
Open spaces, lawns, parks, golf courses, cemeteries, landscaping.		Lots 1-3 (ammended soil)			
Good condition:	grass cover on $\geq 75\%$ of the area	68	80	86	90
Fair condition:	grass cover on 50-75% of the area	77	85	90	92
Gravel roads & parking lots:		76	85	89	91
Dirt roads & parking lots:		72	82	87	89
Impervious surfaces, pavement, roofs etc.		98	98	98	98
Open water bodies:		100	100	100	100
Single family residential(2):		Separate curve number shall be selected for pervious & impervious portions of the site or basin			
Dwelling Unit/Gross Acre	%Impervious(3)				
1.0 DU/GA	15				
1.5 DU/GA	20				
2.0 DU/GA	25				
2.5 DU/GA	30				
3.0 DU/GA	34				
3.5 DU/GA	38				
4.0 DU/GA	42				
4.5 DU/GA	46				
5.0 DU/GA	48				
5.5 DU/GA	50				
6.0 DU/GA	52				
6.5 DU/GA	54				
7.0 DU/GA	56				
PUD's, condos, apartments, commercial businesses & industrial areas		%impervious must be computed			

- (1) For a more detailed description of agricultural land use curve numbers refer to National Engineering Handbook, Sec. 4, Hydrology, Chapter 9, August 1972.
- (2) Assumes roof and driveway runoff is directed into street/storm system.
- (3) The remaining pervious areas (lawn) are considered to be in good condition for these curve numbers.

APPENDIX B

MINT VALLEY

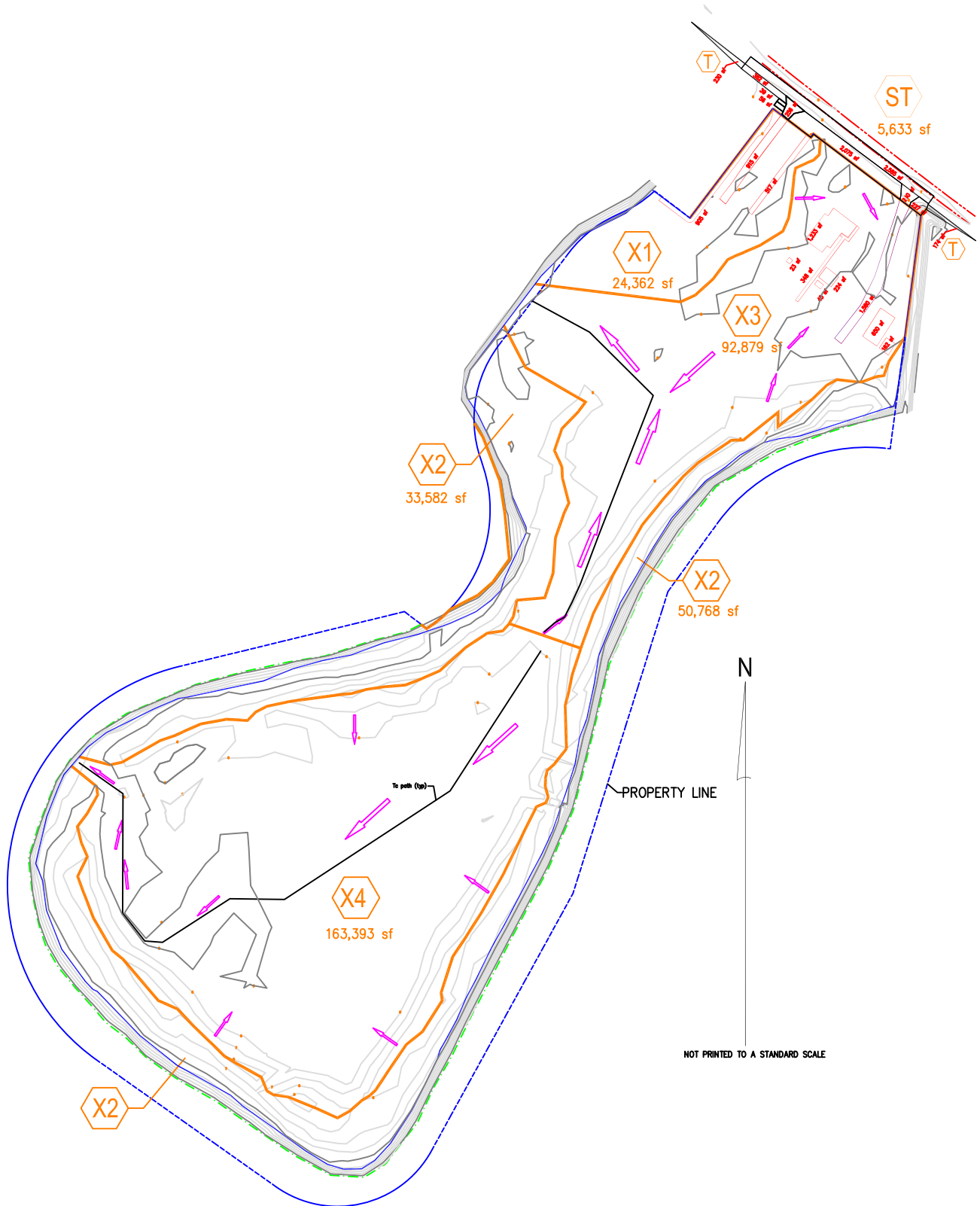
BASIN AREA MAPS

B-1 PRESENT CONDITIONS BASIN MAP

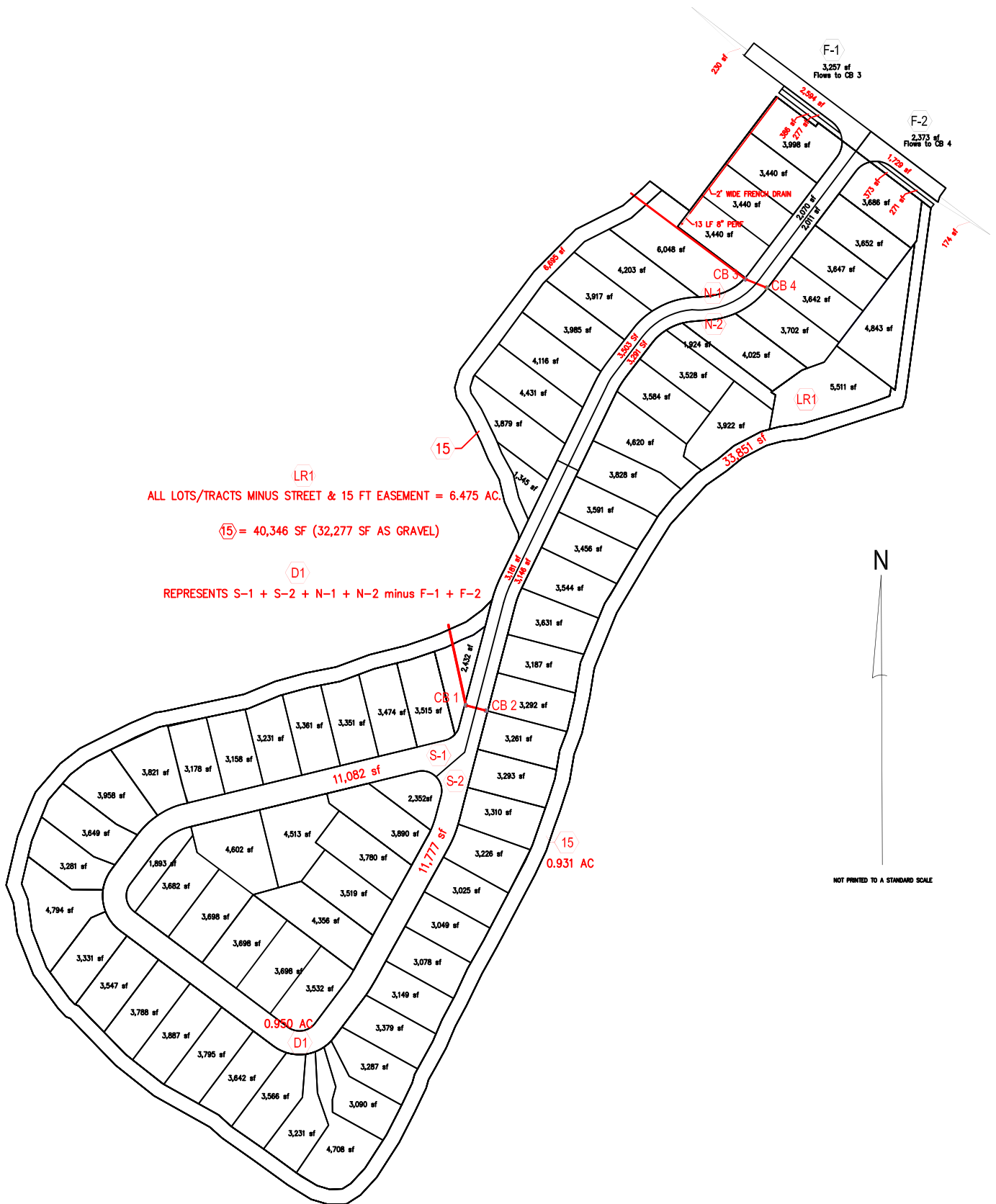
B-2 POST-DEVELOPMENT BASIN MAP

B-3 POST-DEVELOPMENT SUBBASIN AREAS MAP (WQ & STORM SYSTEM)

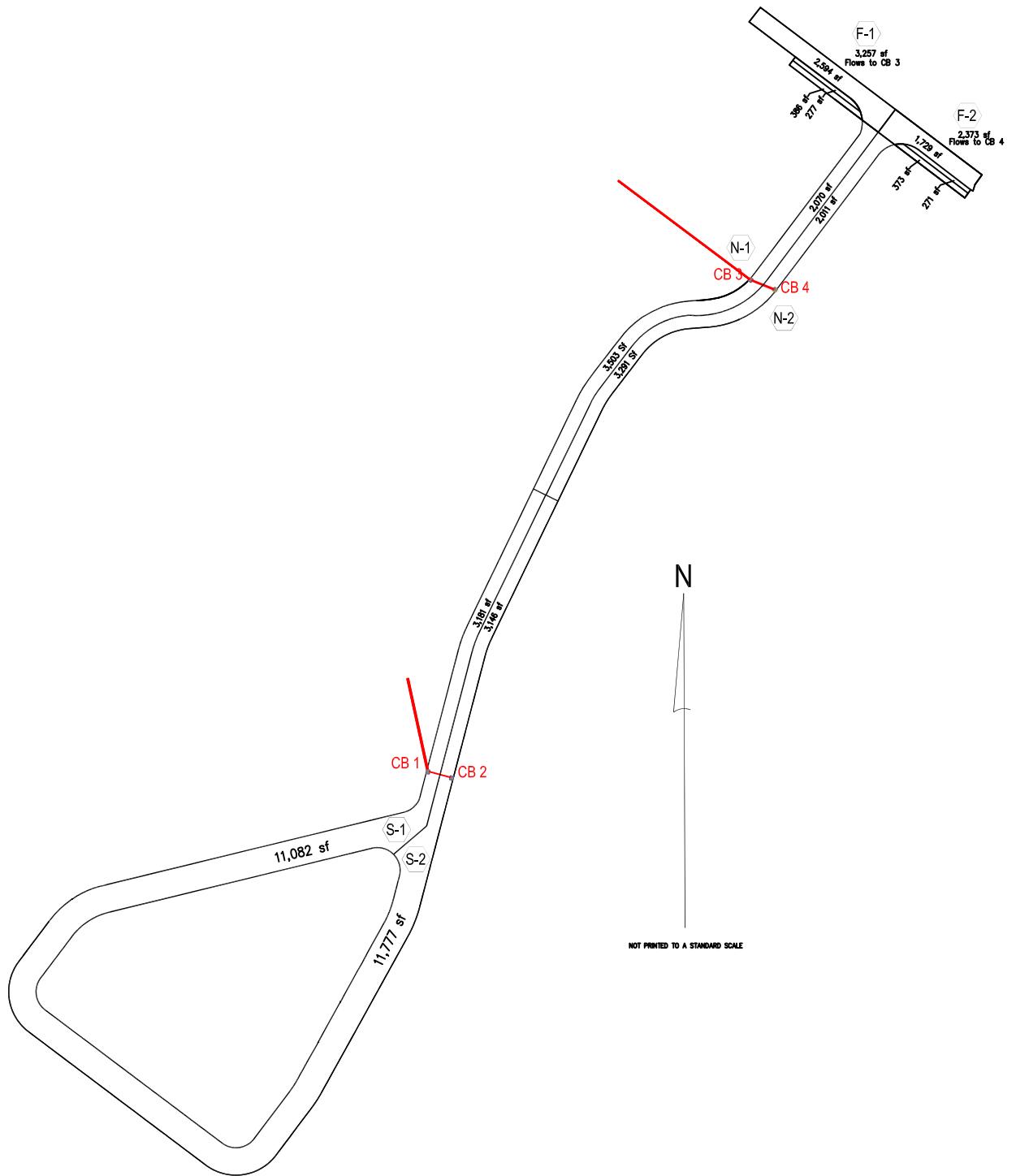
- **LOT GRADING MAP (SPOT ELEVS)**
- **LOT GRADING MAP (SPOT ELEVS) WITH EXTG CONTOURS**



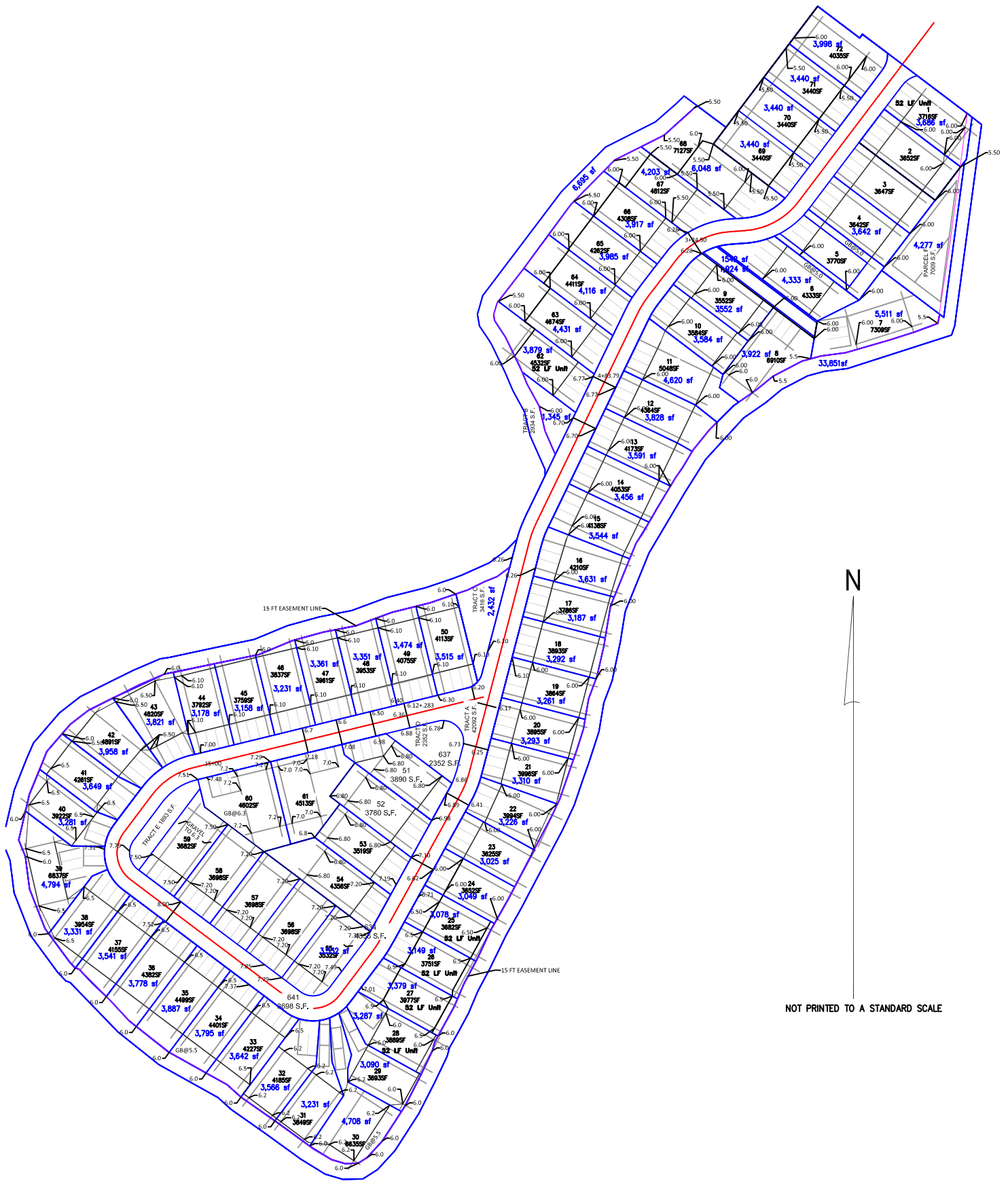
PRE-DEVELOPMENT BASIN MAP



POST-DEVELOPMENT MAP

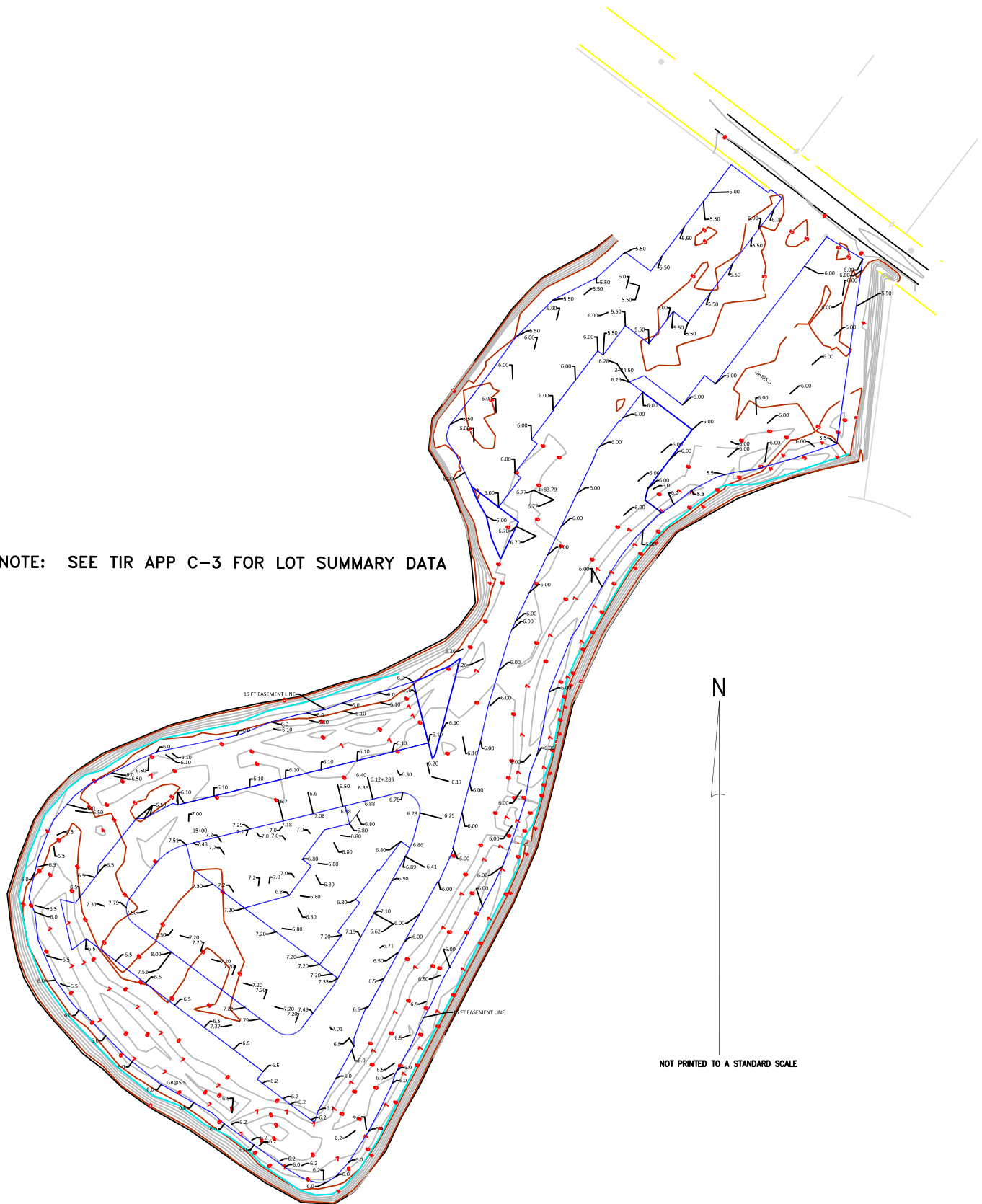


POST-DEVELOPMENT MAP WQ TREATMENT SUBBASINS



GRADING FOR INDIVIDUAL LOT AREAS

NOTE: SEE TIR APP C-3 FOR LOT SUMMARY DATA



EXISTING CONTOURS AND PROPOSED FINISH GRADE

APPENDIX C HYDROLOGY/HYDRAULICS

MINT VALLEY – OAK STREET

C-1 SOIL INFORMATION AND SURFACE INFILTRATION

C-2 INITIAL ABSTRACTION AND UNCONNECTED CONDITION

C-3a LOT AREA SUMMARIES

C-3b NON-LOT AREA SUMMARIES

C-4 DETERMINE COMPOSITE CN FOR UNCONNECTED CONDITION

C-5 DETERMINE RUNOFF VOLUMES FOR PRE VS. POST

C-6 CDID#1 EVALUATION SUMMARY WITH COST

C-7 GUTTER FLOW ANALYSIS FOR SPREAD CHECK

❖ 100-yr HydroCAD for Storm System Analysis

C-8 WATER QUALITY FLOW RATES

❖ MGSFlood Report

C-9 HydroCAD Report Portions – info for runoff volume for each scenario



HydroCAD Diagram
for Site Runoff.pdf



HydroCAD Diagram
less Oak Street.pdf



HydroCAD Report
(24-hr)_ without Oak



HydroCAD Report
(24-hr) site plus Oak :



HydroCAD Report
(40-hr)_ without Oak



HydroCAD Report
(40-hr) site plus Oak :

APPENDIX C HYDROLOGY/HYDRAULICS
MINT VALLEY
C-1 SOIL INFORMATION AND SURFACE INFILTRATION

Reference: TR-55, Second Ed., June 1986

Soils are classified into hydrological soil groups (HSG's) to indicate the minimum rate of infiltration obtained for bare soils after prolonged wetting.

Definition of SCS Hydrologic Soil Groups

SCS Soil Group	Description	Range of Loss Rates (in/hr)
A	Sands or gravels	greater than 0.3 in./hr
B	Shallow loess, sandy loam	0.15 - 0.30
C	Clay loams, shallow sandy loam, soils low in organic content, and soils usually high in clay	0.05 - 0.15
D	Soils that swell significantly when wet, heavy plastic clays, and certain saline soils	0.00 – 0.05

Definition of SCS Hydrologic Soil Groups

Group A

Group A soils have low runoff potential and high infiltration rates even when thoroughly wetted. They consist chiefly of deep, well to excessively drained sands or gravels and have a high rate of water transmission (greater than 0.30 in./hr.).

Group B

Group B soils have moderate infiltration rates when thoroughly wetted and consist chiefly of moderately deep to deep, moderately well to well drained soils with moderately fine to moderately coarse textures. These soils have a moderate rate of water transmission (0.15 to 0.30 in./hr.).

Group C (Caples for this site)

Group C soils have low infiltration rates when thoroughly wetted and consist chiefly of soils with a layer that impedes downward movement of water and soils with moderately coarse textures. These soils have a moderate rate of water transmission (0.05-0.15 in./hr.).

APPENDIX C HYDROLOGY/HYDRAULICS

MINT VALLEY

C-1 SOIL INFORMATION AND SURFACE INFILTRATION

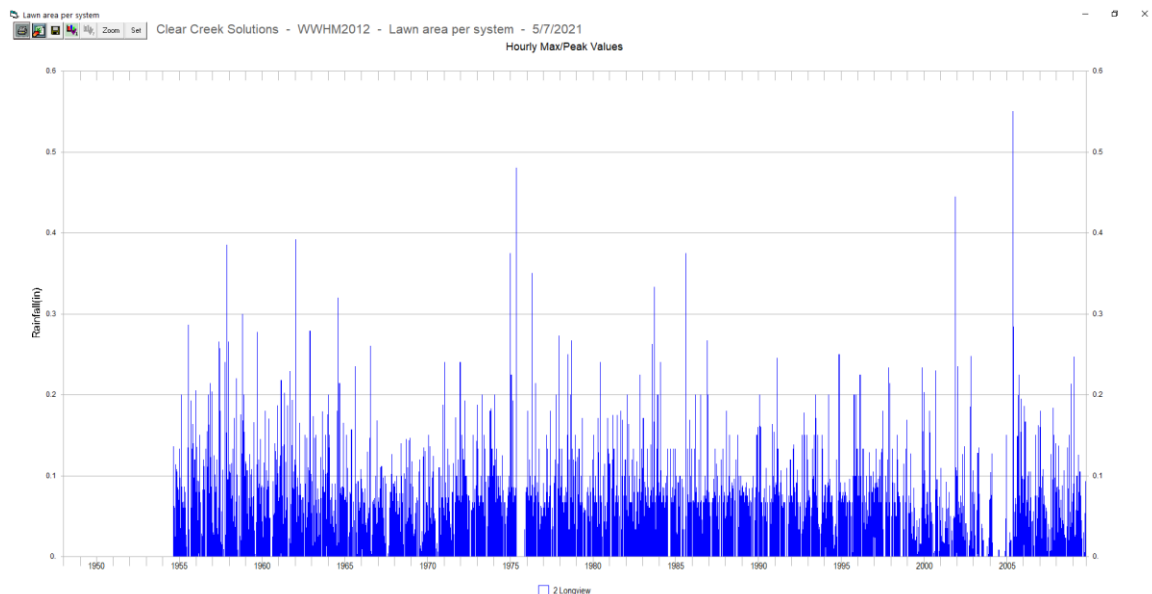
Group D

Group D soils have high runoff potential. They have very low infiltration rates when thoroughly wetted and consist chiefly of clay soils with a high swelling potential, soils with a permanent high water table, soils with a claypan or clay layer at or near the surface, and shallow soils over nearly impervious material. These soils have a very low rate of water transmission (0.00 to 0.05 in./hr.).

TR-55 provides an extensive table detailing different land uses, soil types and their associated CN values.

METHOD FOR POST-DEVELOPMENT RUNOFF

1. The lots are all graded away from the street curb. The slopes are mostly flat along the units and some do have a steeper slope toward the 15 ft easement.
 - ❖ The rainfall that falls directly on the proposed grass surface have significant runoff volume reduction due to the 'unconnected' runoff condition.
 - ❖ Find the largest rainfall depth of 0.55 inches in one hour (WWHM2012).



Values arranged from highest to lowest

	Event Date	2 Longview
1	4/29/2005	0.550
2	5/2/1975	0.481

APPENDIX C HYDROLOGY/HYDRAULICS
MINT VALLEY
C-1 SOIL INFORMATION AND SURFACE INFILTRATION

However, each lot will have a driveway, roof, and walk that is impervious. When this impervious area runoff flows over the lawn surface, some additional runoff from these surfaces will be absorbed.

A full analysis is provided in App C-4.

APPENDIX C HYDROLOGY/HYDRAULICS

MINT VALLEY – OAK STREET

APP C-2 UNCONNECTED IMPERVIOUS AREAS

Urban Hydrology for Small Watersheds TR-55

Unconnected impervious areas — Runoff from these areas is spread over a pervious area as sheet flow. To determine CN when all or part of the impervious area is not directly connected to the drainage system, (1) use figure 2-4 if total impervious area is less than 30 percent or (2) use figure 2-3 if the total impervious area is equal to or greater than 30 percent, because the absorptive capacity of the remaining pervious areas will not significantly affect runoff.

When impervious area is less than 30 percent, obtain the composite CN by entering the right half of figure 2-4 with the percentage of total impervious area and the ratio of total unconnected impervious area to total impervious area. Then move left to the appropriate pervious CN and read down to find the composite CN. For example, for a 1/2-acre lot with 20 percent total impervious area (75 percent of which is unconnected) and pervious CN of 61, the composite CN from figure 2-4 is 66. If all of the impervious area is connected, the resulting CN (from figure 2-3) would be 68.

I_a = initial abstraction (in)

Initial abstraction (I_a) is all losses before runoff begins. It includes water retained in surface depressions, water intercepted by vegetation, evaporation, and infiltration. I_a is highly variable but generally is correlated with soil and cover parameters. Through studies of many small agricultural watersheds, I_a was found to be approximated by the following empirical equation:

$$I_a = 0.2S \text{ [eq. 2-2]}$$

S is related to the soil and cover conditions of the watershed through the CN. CN has a range of 0 to 100, and S is related to CN by:

$$S = \frac{1000}{10} - \text{CN} \quad \text{[eq. 2-4]}$$

Table 5-1 I_a values for runoff curve numbers

Curve number	I_a (in)	Curve number	I_a (in)
40	3.000	70	0.857
41	2.878	71	0.817
42	2.762	72	0.778
		72.5	0.759
43	2.651	73	0.740
44	2.545	74	0.703
45	2.444	75	0.667
46	2.348	76	0.632
47	2.255	77	0.597
48	2.167	78	0.564
49	2.082	79	0.532
50	2.000	80	0.500

APPENDIX C HYDROLOGY/HYDRAULICS
MINT VALLEY – OAK STREET
APP C-2 UNCONNECTED IMPERVIOUS AREAS

51	1.922	81	0.469
52	1.846	82	0.439
53	1.774	83	0.410
54	1.704	84	0.381
55	1.636	85	0.353
56	1.571	86	0.326
57	1.509	87	0.299
58	1.448	88	0.273
59	1.390	89	0.247
60	1.333	90	0.222
61	1.279	91	0.198
62	1.226	92	0.174
63	1.175	93	0.151
64	1.125	94	0.128
65	1.077	95	0.105
66	1.030	96	0.083
67	0.985	97	0.062
68	0.941	98	0.041
69	0.899		

APPENDIX C HYDROLOGY/HYDRAULICS

MINT VALLEY – OAK STREET

APP C-2 UNCONNECTED IMPERVIOUS AREAS

Figure 2-3 Composite CN with connected impervious area.

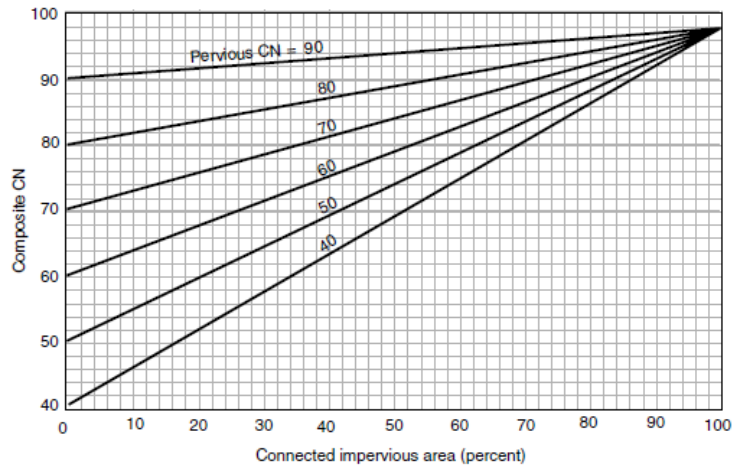
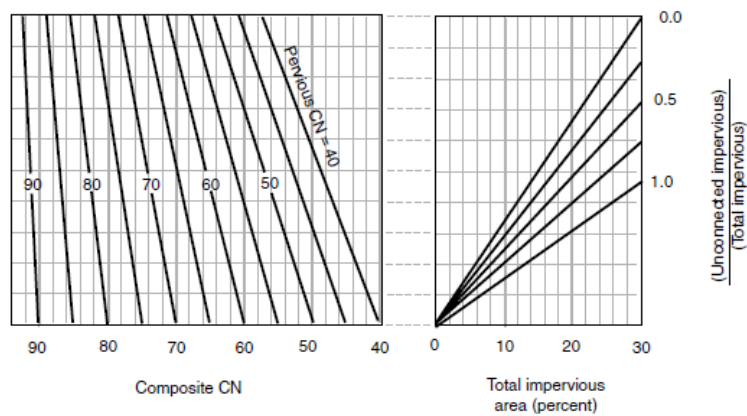


Figure 2-4 Composite CN with unconnected impervious areas and total impervious area less than 30%.



APPENDIX C HYDROLOGY/HYDRAULICS
MINT VALLEY
C-3a POST-DEVELOPMENT BASIN AREA SUMMARY

Lot #	Lot Area (sf)	Drive (sf)	Roof (sf)	Walk (sf)	Total Impervious (sf)	Lawn (sf)	Lot Area Check (sf)
1	3,455	559	1,456	100	2,115	1340	3,455
2	3,652	559	1,568	100	2,227	1425	3,652
3	3,647	557	1,568	100	2,225	1422	3,647
4	3,642	557	1,568	100	2,225	1417	3,642
5	4,025	896	1,568	100	2,564	1461	4,025
6	4,333	924	1,568	100	2,592	1741	4,333
Drive	1,924	1,542	0	0	1,542	382	1,924
Parcel F	4,277	460	1458	100	2,018	2259	4,277
7	5,511	1,279	1,568	100	2,947	2564	5,511
8	3,922	586	1,568	100	2,254	1668	3,922
9	3,552	600	1,568	100	2,268	1284	3,552
10	3,584	818	1,568	100	2,486	1098	3,584
11	4,620	1047	1,568	100	2,715	1905	4,620
12	3,832	798	1,568	100	2,466	1366	3,832
13	3,591	783	1,568	100	2,451	1140	3,591
14	3,456	799	1,568	100	2,467	989	3,456
15	3,544	901	1,568	100	2,569	975	3,544
16	3,613	566	1,568	100	2,234	1379	3,613
17	3,187	560	1,568	100	2,228	959	3,187
18	3,292	560	1,568	100	2,228	1064	3,292
19	3,261	560	1,568	100	2,228	1033	3,261
20	3,293	560	1,568	100	2,228	1065	3,293
21	3,310	783	1,568	100	2,451	859	3,310
22	3,226	770	1,456	100	2,326	900	3,226

APPENDIX C HYDROLOGY/HYDRAULICS
MINT VALLEY
C-3a POST-DEVELOPMENT BASIN AREA SUMMARY

23	3,025	789	1,568	100	2,457	568	3,025
24	3,049	795	1,568	100	2,463	586	3,049
25	3,078	558	1,456	100	2,114	964	3,078
26	3,149	560	1,456	100	2,116	1033	3,149
27	3,379	621	1,568	100	2,289	1090	3,379
28	3,287	670	1,456	100	2,226	1061	3,287
29	3,090	620	1,568	100	2,288	802	3,090
30	4,708	753	1,568	100	2,421	2287	4,708
31	3,231	908	1,568	100	2,576	655	3,231
32	3,566	831	1,568	100	2,499	1067	3,566
33	3,642	813	1,568	100	2,481	1161	3,642
34	3,795	800	1,568	100	2,468	1327	3,795
35	3,887	794	1,568	100	2,462	1425	3,887
36	3,778	804	1,568	100	2,472	1306	3,778
37	3,541	808	1,568	100	2,476	1065	3,541
38	3,331	876	1,568	100	2,544	787	3,331
39	4,794	1604	1,568	100	3,272	1522	4,794
40	3,281	778	1,568	100	2,446	835	3,281
41	3,649	942	1,568	100	2,610	1039	3,649
42	3,958	876	1,568	100	2,544	1414	3,958
43	3,821	770	1,568	100	2,438	1383	3,821
44	3,178	766	1,568	100	2,434	744	3,178
45	3,158	801	1,568	100	2,469	689	3,158
46	3,231	796	1,568	100	2,464	767	3,231
47	3,361	806	1,568	100	2,474	887	3,361
48	3,351	801	1,568	100	2,469	882	3,351
49	3,474	804	1,568	100	2,472	1002	3,474
50	3,515	843	1,568	100	2,511	1004	3,515

APPENDIX C HYDROLOGY/HYDRAULICS

MINT VALLEY

C-3a POST-DEVELOPMENT BASIN AREA SUMMARY

Tract C	2,432	1173	0	0	1,173	1259	2,432
Tract D	2,352	1080	0	0	1,080	1272	2,352
51	3,890	566	1,568	100	2,234	1656	3,890
52	3,780	614	1,568	100	2,282	1498	3,780
53	3,519	611	1,568	100	2,279	1240	3,519
54	4,356	617	1,568	100	2,285	2071	4,356
55	3,532	761	1,568	100	2,429	1103	3,532
56	3,698	860	1,568	100	2,528	1170	3,698
57	3,698	860	1,568	100	2,528	1170	3,698
58	3,698	860	1,568	100	2,528	1170	3,698
59	3,682	838	1,568	100	2,506	1176	3,682
Tract E	1,893	1467	0	0	1,467	426	1,893
60	4,602	568	1,568	100	2,236	2366	4,602
61	4,513	560	1,568	100	2,228	2285	4,513
Tract B	1,345	1,345	0	0	1,345	0	1,345
62	3,879	913	1,456	100	2,469	1410	3,879
63	4,431	920	1,568	100	2,588	1843	4,431
64	4,226	1025	1,568	100	2,693	1533	4,226
65	3,985	802	1,568	100	2,470	1515	3,985
66	3,917	582	1,568	100	2,250	1667	3,917
67	4,203	810	1,568	100	2,478	1725	4,203
68	6,048	864	1,568	100	2,532	3516	6,048
69	3,440	560	1,568	100	2,228	1212	3,440
70	3,440	560	1,568	100	2,228	1212	3,440
71	3,440	560	1,568	100	2,228	1212	3,440
72	3,998	560	1,568	100	2,228	1770	3,998
Total sf	282,053	61,547	113,682	7,300	182,529	99,524	282,053
Total ac.	6.4750	1.4129	2.6098	0.1676	4.1903	2.2848	6.4750
Lot #	Lot Area (sf)	Drive (sf)	Roof (sf)	Walk (sf)	Total Impervious (sf)	Lawn (sf)	Lot Area Check (sf)

Note: assume 100 sf impervious for walks, etc. as impervious onto lawn

APPENDIX C HYDROLOGY/HYDRAULICS

MINT VALLEY

C-3a POST-DEVELOPMENT BASIN AREA SUMMARY

Roofs from Lots 2-6 and 1/2 Lot 7 will be fully infiltrated in rock trenches

Roofs from Lots 64-67 will be fully infiltrated in rock trenches

The access drive from the street to Lot 7 will be infiltrated in gravel trench on each side

Revised Surface Area Summary for Runoff from Lots

Lot #	Lot Area (sf)	Drive (sf)	Roof (sf)	Walk (sf)	Total Impervious (sf)	Lawn (sf)	
Total sf	282,053	61,547	113,682	7,300	182,529	99,524	282,053
Total ac.	6.4750	1.4129	2.6098	0.1676	4.1903	2.2848	6.4750

2			1,568			
3			1,568			
4			1,568			
5			1,568			
6			1,568			
7			728			
Access		1,542				382
64			1,568			
65			1,568			
66			1,568			

1,542	13,272		382
60,005	100,410	7,300	167,715
1.3775	2.3051	0.1676	3.8502
			99,142
			2.2760

Find 30% (sf)	50,314.5
Find 30% (ac)	1.1551

APPENDIX C HYDROLOGY/HYDRAULICS
MINT VALLEY
C-3a POST-DEVELOPMENT BASIN AREA SUMMARY

Determine area to be modeled at composite CN for 'unconnected' condition

30% Imperv.	Lawn	Total
50,314.5 sf	99,142 sf	149,457 sf
1.1551 ac	2.2760 ac	3.4310 ac

Remaining at CN98
117,401 sf
2.6951 ac

Revised Total Area = **6.1262 ac**

APPENDIX C HYDROLOGY/HYDRAULICS

MINT VALLEY - OAK STREET

APP C-4 RUNOFF VOLUME COMPARISON ANALYSIS

Compare Pre/Post 100-yr Runoff Volumes

Determine CN input for the pre-development or existing condition.

Another project with Caples soils was reviewed with the following info from the Preliminary Report:

The pre-developed condition for the proposed development activity area is assumed to be fields and meadows with a $CN = 89$ for HSG D.

BUT, the Web Soil Survey lists Caples soils rated as C/D, i.e., HSG C for a well drained condition. Therefore, we are applying CN 85 (HSG C) for the Mint Valley Site.

The runoff for the developed site is significantly different. Infiltration testing for the saturated vertical rate determined values of 5.9 in/hr, 6 in/hr, 5 in/hr and 22 in/hr.

The site will be graded with considerable cut into the soil layer with these rates and the fill areas will also be graded to finish grade with some of these soils. The intent is to mix some of the topsoil with the 22 in/hr (saturated rate) soils.

This approach to grading provides a runoff condition that will result in runoff rates less than the typical rates reported applying an HSG A input (CN 68). TR-55 methodology lists HSG A soils as having a bare surface infiltration rate of 0.3 in/hr or greater. Actual TR-55 analysis appears to apply a loss in runoff volume through initial abstraction that equates to an infiltration rate of 0.15 in/hr

Conclusion: The following analysis is **very** conservative. The actual runoff for the post-development will likely be much less and could actually be less than the existing runoff volume.

Existing Condition

100-yr, 24-hr event	Modeled Area (ac)	Runoff Volume (ac-ft)	Runoff Volume (cu ft)	Comment	HSG Selection
Extg. Site Area*	8.379	3.135	136,561	see below	Pervious at CN85
Extg. Site Area**	8.524	3.201	139,436	see below	Pervious at CN85

Note: If existing site is considered HSG D with CN 89 input, the runoff volume would be 5.503 ac or 152,591 cu ft

* The gross site area per survey is 10.38 ac. (2.04 ac is extg channel and bank sideslopes) with approximately 8.34 ac remaining from top of bank (modeled as 8.379 ac.).

**8.524 ac with frontage area added

APPENDIX C HYDROLOGY/HYDRAULICS **MINT VALLEY - OAK STREET** **APP C-4 RUNOFF VOLUME COMPARISON ANALYSIS**

Post-Development

The lawn areas are being modeled as an HSG A soil due the cut or fill with soils with tested rates (sturated condition) of >5 in/hr. The CN value assoiciated with HSG A soils is CN 68. However, when runoff from impervious areas sheet flow across this type of runoff surface, some or all of the added runoff volume is absorbed. This is refered to as the **unconnected** condition. SCS developed a chart to determine a method to account for this added volume loss from the combined pervious and impervious runoff areas. SCS TR-55 provides a chart for this type of solution (also the formula for the basis of the chart elements). Typically, the pervious and impervious areas would be input in a single subassin input element and the program would determine a weighted CN value. The runoff volume in SCS TR-55 methodolgy is determined directly from the CN value. In the unconnected evaluation, the pervious CN value increases to a compsite value so that the volume loss from the pervious and impervious area can be acounted for. See the chart and calculation following the summarized data below.

Composite CN (unconnected w/<30% impervious)

$$CN_c = CN_p + (P_{imp}/100)(98-CN_p)(1-0.5R)$$

CN _p	P _{imp} /100	98-CN _p	(1- 0.5R)	CN _c
68	0.30	30	0.5	72.5

Where

CN_c= composite runoff curve number

CN_p= pervious runoff curve number

P_{imp}= percent impervious

Where

R= ratio of unconnected impervious area to total impervious area

APPENDIX C HYDROLOGY/HYDRAULICS
MINT VALLEY - OAK STREET
APP C-4 RUNOFF VOLUME COMPARISON ANALYSIS

100-yr, 24-hr event	Modeled Area *** (ac)	Runoff Volume (ac-ft)	Runoff Volume (cu ft)	Runoff Volume Difference (cu ft)	Value at \$3.19 per cu ft	HSG Selection
Prop. Site Area*	8.0362	3.163	137,780	1,220	\$3,890.78	CN 72.5
Prop. Site Area**	8.1747	3.23	140,699	1,263	\$4,029.74	CN 72.5

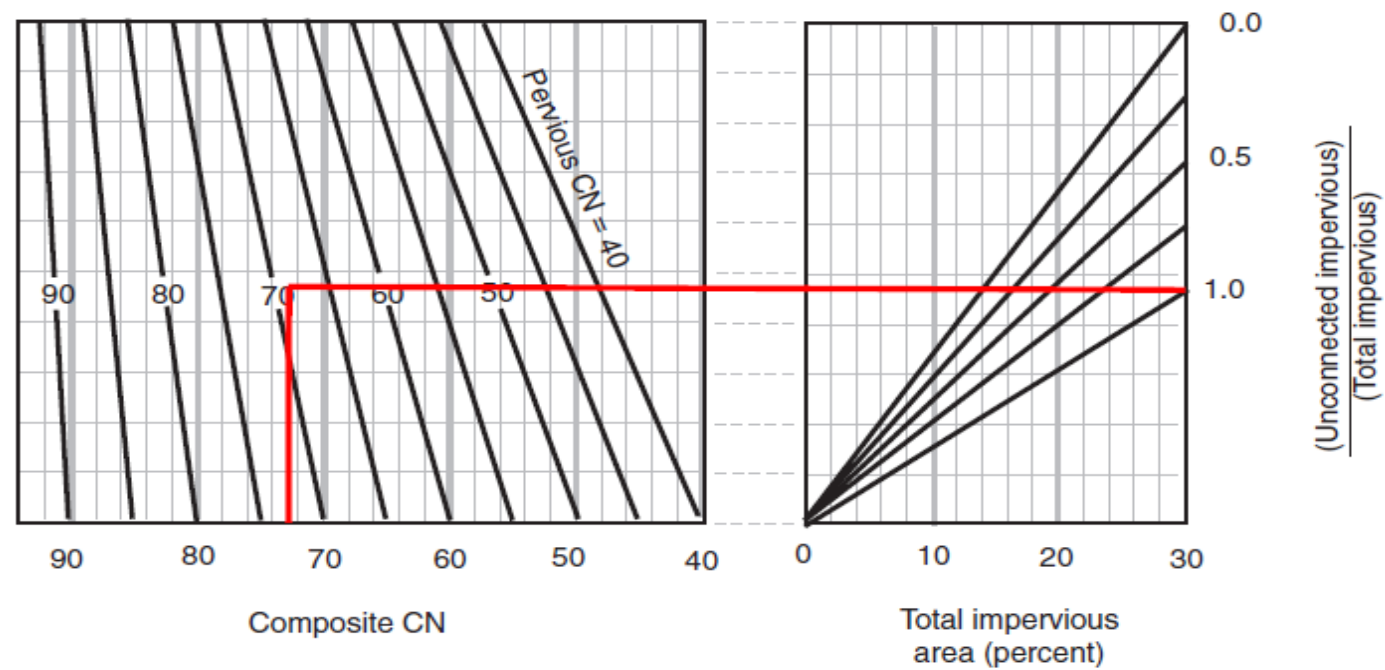
*site area to top of bank less some roof areas

a wt'd CN is 75.6

**site area (disturbed) less some roof areas plus Oak Street

(Lots 2-6 and 1/2 of 7 plus common drive and 64-66)

Figure 2-4 Composite CN with unconnected impervious areas and total impervious area less than 30%



APPENDIX C HYDROLOGY/HYDRAULICS
MINT VALLEY - OAK STREET
APP C-3b NON-LOT SUBBASIN AREAS

Site (street), Channel Bank, and Street Frontage Runoff

Subcat ID	Street CN98 (sf)	Sidewalk CN98 (sf)	Gravel (12 ft) CN98 (sf)	Landscap e CN85 (sf)	Channel Bank CN85 (sf)	Subcat Totals (sf)
F-1	2,594	386		277		0
F-2	1,729	373		271		0
Taper (direct)	404					0
S-1	14,263					3,257
S-2	14,923					2,373
N-1	5,572					404
N-2	5,302					14,263
15			32,277	8,069		14,923
	44,787	759	32,277	8,617	0	5,572
	1.028	0.017	0.741	0.198	0	
Total						5302.000

Note: The following area (channel bank -CS) is the same for both pre and poat and is not included in modeling

CS					34,202	5,302
----	--	--	--	--	--------	-------

Runoff to CB System

Subcat N-1 CB-3	Street (sf)	Sidewalk (sf)	Pervious (sf)	Totals
O-1	2,594	386	277	3,257
N-1 (from N)	2,070			2,070
N-1 (from S)	3,502			3,502
	8,166	386	277	8,829
	0.1875 ac	0.0089 ac	0.0064 ac	0.203 ac

APPENDIX C HYDROLOGY/HYDRAULICS

MINT VALLEY

C-5 GUTTER FLOW ANALYSIS REPORTS

FHWA - Hydraulic Toolbox program

Runoff to CB 2 – vertical curb analysis

Curb and Gutter Analysis

Gutter

Longitudinal Slope of Road: (ft/ft)

Cross-slope of Pavement: (ft/ft)

☐ Define Cross-slope of Gutter (ft/ft)

Manning's Roughness:

Gutter Width: (ft)

Enter one of the following:

☒ Design Flow: (cfs)

☐ Width of Spread: (ft)

Gutter Depression: (in)

Area of Flow: (ft²)

E_o (Gutter Flow to Total Flow):

Depth at Curb: (in)

Inlet

Inlet Location

Percent Clogging: (%)

Inlet Types

Grate Types

Grate Width: (ft)

Grate Length: (ft)

Length of Inlet: (ft)

Curb Opening Height: (in)

Local Depression: (in)

Parameter	Value	Units
Perimeter	5.340	ft
Effective Perimeter	5.340	ft
Area	1.169	ft ²
Effective Area	1.169	ft ²
Depth at center of grate	0.099	ft
Computed Width of Spread at Sag	5.791	ft
Flow type	Weir Flow	
Efficiency	1.000	

Notes: For vertical curb

- 1) $Q_{100} = 0.50$ cfs for total flow from both sides of the inlet.
- 2) Width of spread – not correct because this would only relate to 0.50 cfs which is total flow from both sides.
- 3) Actual spread is 5.791 ft at grate. BUT, see below for rolled curb.
- 4) The flow to the other side at CB-1 is almost the same – so 5.79 spread on that side of street also = $24 - 11.58 = 12.42$ ft open pavement travel width.

APPENDIX C HYDROLOGY/HYDRAULICS

MINT VALLEY

C-5 GUTTER FLOW ANALYSIS REPORTS

Notes: For rolled curb

- 1) The grate now has inflow from all sides – therefore, double the length to have the program determine the correct perimeter and effective perimeter of 7.34 instead of 5.34.

Find that spread at grate changes from 5.79 to 4.844 ft.

Runoff to CB 2 – rolled curb analysis

Curb and Gutter Analysis CB-2 rolled curb

Gutter

Longitudinal Slope of Road: (ft/ft)

Cross-slope of Pavement: (ft/ft)

☐ Define Cross-slope of Gutter (ft/ft)

Manning's Roughness:

Gutter Width: (ft)

Enter one of the following:

☒ Design Flow: (cfs)

☐ Width of Spread: (ft)

Gutter Depression: (in)

Area of Flow: (ft²)

E_o (Gutter Flow to Total Flow):

Depth at Curb: (in)

Inlet

Inlet Location:

Percent Clogging: (%)

Inlet Types:

Grate Types:

Grate Width: (ft)

Grate Length: (ft)

Length of Inlet: (ft)

Curb Opening Height: (in)

Local Depression: (in)

Parameter	Value	Units
Perimeter	7.340	ft
Effective Perimeter	7.340	ft
Area	2.338	ft ²
Effective Area	2.338	ft ²
Depth at center of grate	0.080	ft
Computed Width of Spread at Sag	4.844	ft
Flow type	Weir Flow	
Efficiency	1.000	

Now determine 50% clogged result.

APPENDIX C HYDROLOGY/HYDRAULICS

MINT VALLEY

C-5 GUTTER FLOW ANALYSIS REPORTS

Curb and Gutter Analysis CB-2 rolled curb -50%

Gutter

Longitudinal Slope of Road: 0.003 (ft/ft)

Cross-slope of Pavement: 0.020 (ft/ft)

☐ Define Cross-slope of Gutter 0.020 (ft/ft)

Manning's Roughness: 0.015

Gutter Width: 1.000 (ft)

Enter one of the following:

☒ Design Flow: 0.500 (cfs)

☐ Width of Spread: 6.799 (ft)

Compute unknown

Gutter Depression: 0.000 (in)

Area of Flow: 0.462 (ft²)

E_o (Gutter Flow to Total Flow): 0.346

Depth at Curb: 1.632 (in)

Inlet

Inlet Location: Inlet in sag

Percent Clogging: 50.000 (%)

Inlet Types: Grate

Grate Types: Curved vane

Grate Width: 1.670 (ft)

Grate Length: 4.000 (ft)

Length of Inlet: 0.000 (ft)

Curb Opening Height: 0.000 (in)

Local Depression: 1.000 (in)

Compute Inlet Data

Parameter	Value	Units
Perimeter	7.340	ft
Effective Perimeter	3.670	ft
Area	2.338	ft ²
Effective Area	1.169	ft ²
Depth at center of grate	0.127	ft
Computed Width of Spread at Sag	7.199	ft
Flow type	Weir Flow	
Efficiency	1.000	

OK Cancel

Find result = 7.2 ft

The flow to the other side at CB-1 is almost the same – so 7.2 spread on that side also = 24-14.4 = 9.6 ft open pavement travel width. This is more than adequate.

The analysis for CB 3 and CB 4 was not evaluated since the flows are nearly half as much as for C 2 and C 1.

APPENDIX C HYDROLOGY/HYDRAULICS
MINT VALLEY
C-6 WQ DESIGN RATE – REQ'D FILTERS

South WQ System (CB 1)

☐ Compute Water Quality 15-Minute Design Discharge for Link Inflow	
On-Line Facility Design Discharge Rate (cfs):	0.118
Off-Line Facility Design Discharge Rate (cfs):	0.065

Requires 2 - (18" + 12") stack height (0.076 cfs capacity) - PerkFilter

Alternate*: 2-27" Phosphosorb Cartridges (0.084 cfs WQ capacity) - Contech

***requires lower invert**

North WQ System (CB 4)

☐ Compute Water Quality 15-Minute Design Discharge for Link Inflow	
On-Line Facility Design Discharge Rate (cfs):	0.064
Off-Line Facility Design Discharge Rate (cfs):	0.035

Requires 1- (18"+12") Cartridge (0.045 cfs capacity) - Perkfilter

Alternate*: 1-27" Phosphosorb Cartridge (0.042 WQ cfs capacity) - Contech

***requires lower invert**

**MGS FLOOD
PROJECT REPORT**

Program Version: MGSFlood 4.58
Program License Number: 201610013
Project Simulation Performed on: 04/01/2024 1:49 PM
Report Generation Date: 04/02/2024 11:39 AM

Input File Name: WQ Flows-update-Longview.fld
Project Name: Mint Vally
Analysis Title: Runoff to Low Point Systems
Comments: Determine WQ flow

PRECIPITATION INPUT

Computational Time Step (Minutes): 15

APPENDIX C HYDROLOGY/HYDRAULICS

MINT VALLEY

C-6 WQ DESIGN RATE – REQ'D FILTERS

Precipitation Station Data Selected

Full Period of Record Available used for Routing

Climatic Region Number: 15
 Precipitation Station : 454769 Longview 10/01/1954-10/01/2009
 Evaporation Station : 456803 Puyallup
 At Site 25-Year, 24-Hour Precipitation (inches): 4.21
 Gage 25-Year, 24-Hour Precipitation (inches) : 4.21
 Precipitation Scale Factor : 1.000

Evaporation Scale Factor : 0.750

HSPF Parameter Region Number: 1
 HSPF Parameter Region Name : Ecology Default

***** Default HSPF Parameters Used (Not Modified by User) *****

***** WATERSHED DEFINITION *****

Predevelopment/Post Development Tributary Area Summary

	Predeveloped	Post Developed
Total Subbasin Area (acres)	0.670	0.380
Area of Links that Include Precip/Evap (acres)	0.000	0.000
Total (acres)	0.670	0.380

-----SCENARIO: PREDEVELOPED

Number of Subbasins: 1

----- Subbasin : South Filter -----

-----Area (Acres) -----

ROADS/FLAT 0.670

 Subbasin Total 0.670

-----SCENARIO: POSTDEVELOPED

Number of Subbasins: 1

----- Subbasin : North Filter -----

-----Area (Acres) -----

C, Lawn, Flat 0.013

ROADS/FLAT 0.367

 Subbasin Total 0.380

***** LINK DATA *****

APPENDIX C HYDROLOGY/HYDRAULICS

MINT VALLEY

C-6 WQ DESIGN RATE – REQ'D FILTERS

-----SCENARIO: PREDEVELOPED

Number of Links: 1

Link Name: Result for S Filter

Link Type: Copy

Downstream Link: None

***** LINK DATA *****

-----SCENARIO: POSTDEVELOPED

Number of Links: 1

Link Name: Result for N filter

Link Type: Copy

Downstream Link: None

*****FLOOD FREQUENCY AND DURATION STATISTICS*****

-----SCENARIO: PREDEVELOPED

Number of Subbasins: 1

Number of Links: 1

***** Link: Result for S Filter

***** Link Outflow 1 Frequency Stats

Flood Frequency Data(cfs)

(Recurrence Interval Computed Using Gringorten Plotting Position)

Tr (yrs) Flood Peak (cfs)

=====

2-Year 0.300

5-Year 0.412

10-Year 0.457

25-Year 0.638

50-Year 0.932

100-Year **

200-Year **

500-Year **

** Record too Short to Compute Peak Discharge for These Recurrence Intervals

-----SCENARIO: POSTDEVELOPED

Number of Subbasins: 1

Number of Links: 1

***** Link: Result for N filter

***** Link Outflow 1 Frequency Stats

APPENDIX C HYDROLOGY/HYDRAULICS

MINT VALLEY

C-6 WQ DESIGN RATE – REQ'D FILTERS

Flood Frequency Data(cfs)
(Recurrence Interval Computed Using Gringorten Plotting Position)
Tr (yrs) Flood Peak (cfs)

2-Year	0.166
5-Year	0.228
10-Year	0.255
25-Year	0.353
50-Year	0.521
100-Year	**
200-Year	**
500-Year	**

** Record too Short to Compute Peak Discharge for These Recurrence Intervals

*****Groundwater Recharge Summary*****

Recharge is computed as input to Perind Groundwater Plus Infiltration in Structures

Total Predeveloped Recharge During Simulation	
Model Element	Recharge Amount (ac-ft)

Subbasin: South Filter	0.000
Link: Result for S Filter	0.000

Total:	0.000

Total Post Developed Recharge During Simulation	
Model Element	Recharge Amount (ac-ft)

Subbasin: North Filter	0.400
Link: Result for N filter	0.000

Total:	0.400

Total Predevelopment Recharge is Less than Post Developed
Average Recharge Per Year, (Number of Years= 55)
Predeveloped: 0.000 ac-ft/year, Post Developed: 0.007 ac-ft/year

*****Water Quality Facility Data*****

-----SCENARIO: PREDEVELOPED

Number of Links: 1

***** Link: Result for S Filter

2-Year Discharge Rate : 0.300 cfs

15-Minute Timestep, Water Quality Treatment Design Discharge

On-line Design Discharge Rate (91% Exceedance): 0.12 cfs

Off-line Design Discharge Rate (91% Exceedance): 0.06 cfs (0.065 on WQ Data program direct calc.)

APPENDIX C HYDROLOGY/HYDRAULICS

MINT VALLEY

C-6 WQ DESIGN RATE – REQ'D FILTERS

Infiltration/Filtration Statistics-----

Inflow Volume (ac-ft): 108.10
Inflow Volume Including PPT-Evap (ac-ft): 108.10
Total Runoff Infiltrated (ac-ft): 0.00, 0.00%
Total Runoff Filtered (ac-ft): 0.00, 0.00%
Primary Outflow To Downstream System (ac-ft): 108.10
Secondary Outflow To Downstream System (ac-ft): 0.00
Volume Lost to ET (ac-ft): 0.00
Percent Treated (Infiltrated+Filtered+ET)/Total Volume: 0.00%

-----SCENARIO: POSTDEVELOPED

Number of Links: 1

***** Link: Result for N filter

2-Year Discharge Rate : 0.166 cfs

15-Minute Timestep, Water Quality Treatment Design Discharge

On-line Design Discharge Rate (91% Exceedance): 0.06 cfs

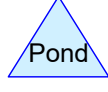
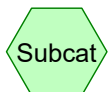
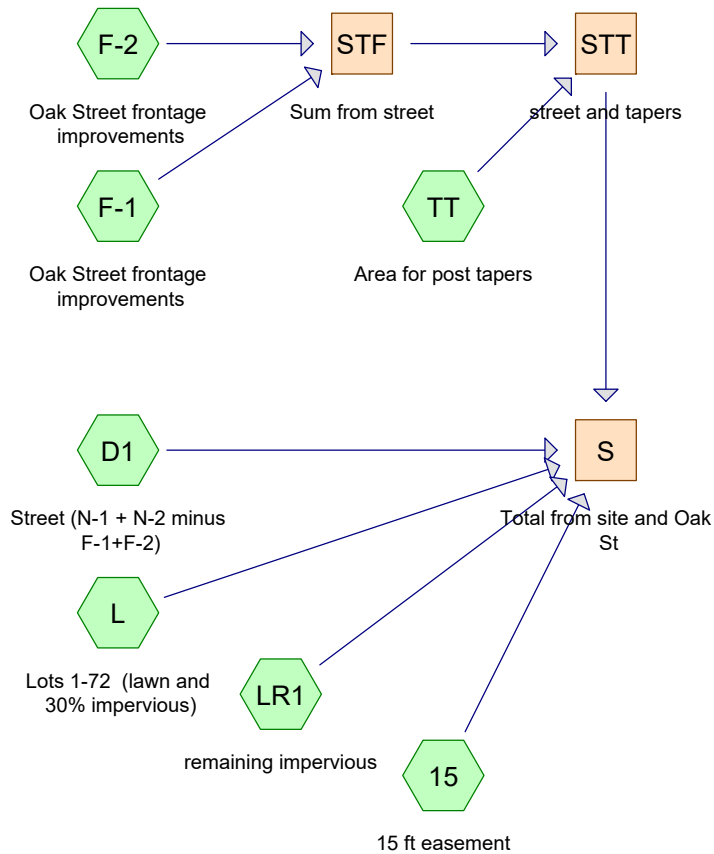
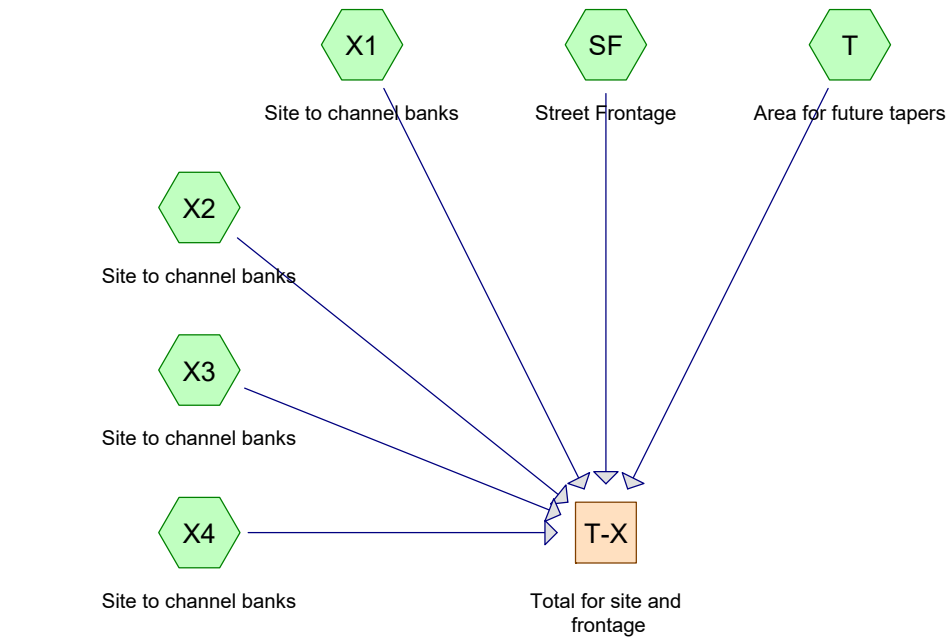
Off-line Design Discharge Rate (91% Exceedance): 0.04 cfs (0.038 on WQ Data program direct calc.)

Infiltration/Filtration Statistics-----

Inflow Volume (ac-ft): 60.43
Inflow Volume Including PPT-Evap (ac-ft): 60.43
Total Runoff Infiltrated (ac-ft): 0.00, 0.00%
Total Runoff Filtered (ac-ft): 0.00, 0.00%
Primary Outflow To Downstream System (ac-ft): 60.43
Secondary Outflow To Downstream System (ac-ft): 0.00
Volume Lost to ET (ac-ft): 0.00
Percent Treated (Infiltrated+Filtered+ET)/Total Volume: 0.00%

*****Compliance Point Results *****

This section removed – not a compliance point analysis – for WQ results only



Routing Diagram for MV- Pre (CN85)_Post (CN 72.5)_F (30%) - 8.5 roofs +drive (1992 pre
 Prepared by GME Drainage Consultant, Printed 5/15/2025
 HydroCAD® 10.20-2h s/n 08107 © 2024 HydroCAD Software Solutions LLC

MV- Pre (CN85)_Post (CN 72.5)_F (30%) - 8.5 roofs +drive (1992 pre)

Prepared by GME Drainage Consultant

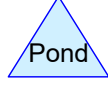
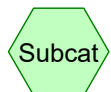
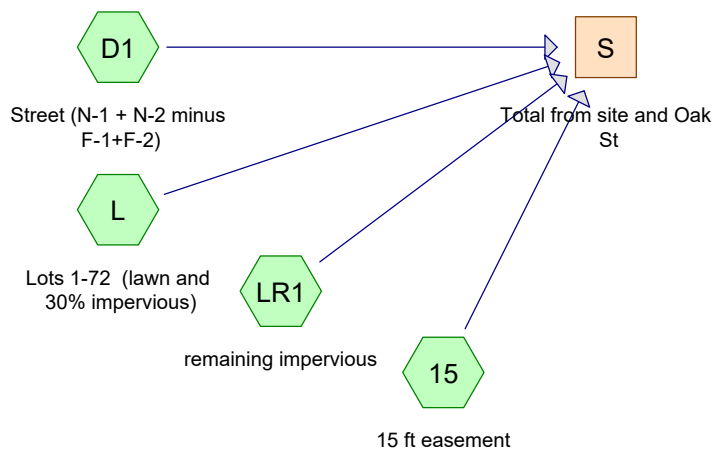
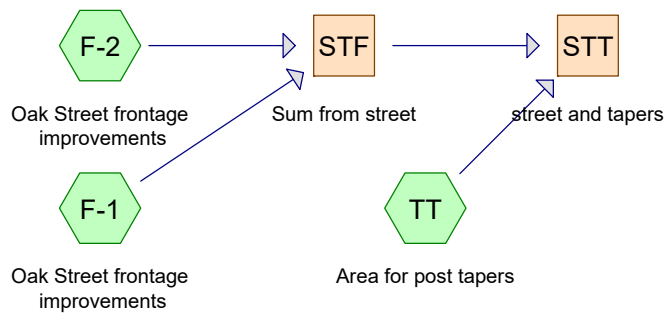
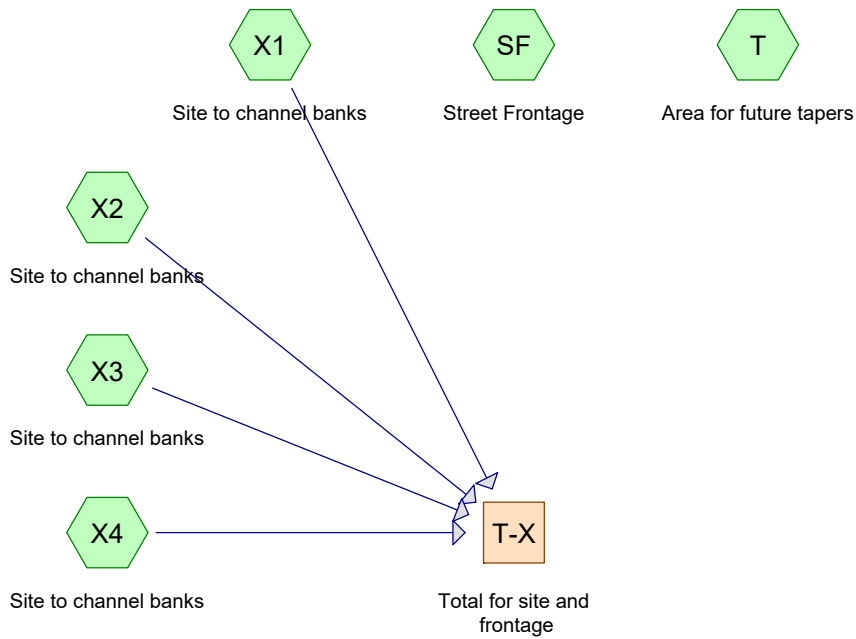
Printed 5/15/2025

HydroCAD® 10.20-2h s/n 08107 © 2024 HydroCAD Software Solutions LLC

Page 2

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	100-yr-county	Type IA 24-hr		Default	24.00	1	6.17	2



Routing Diagram for MV- Pre (CN85)_Post (CN 72.5)_F (30%) - 8.5 roofs +drive (1992 pre
Prepared by GME Drainage Consultant, Printed 5/15/2025
HydroCAD® 10.20-2h s/n 08107 © 2024 HydroCAD Software Solutions LLC

MV- Pre (CN85)_Post (CN 72.5)_F (30%) - 8.5 roofs +drive (1992 pre)

Prepared by GME Drainage Consultant

Printed 5/15/2025

HydroCAD® 10.20-2h s/n 08107 © 2024 HydroCAD Software Solutions LLC

Page 2

Rainfall Events Listing (selected events)

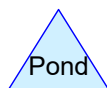
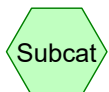
Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	100-yr-county	Type IA 24-hr		Default	24.00	1	6.17	2

T-X

Total for site and
frontage

S

Total from site and Oak
St



Routing Diagram for MV- Pre (CN85)_Post (CN 72.5)_F (30%) - 8.5 roofs +drive (1992 pre
Prepared by GME Drainage Consultant, Printed 5/15/2025
HydroCAD® 10.20-2h s/n 08107 © 2024 HydroCAD Software Solutions LLC

MV- Pre (CN85)_Post (CN 72.5)_F (30%) - 8.5 roofs +drive (1992 pre)

Prepared by GME Drainage Consultant

Printed 5/15/2025

HydroCAD® 10.20-2h s/n 08107 © 2024 HydroCAD Software Solutions LLC

Page 2

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	100-yr-county	Type IA 24-hr		Default	24.00	1	6.17	2

Summary for Reach S: Total from site and Oak St

Inflow Area = 8.1747 ac, 55.62% Impervious, Inflow Depth > 4.72" for 100-yr-county event
 Inflow = 8.70 cfs @ 7.99 hrs, Volume= 3.216 af
 Outflow = 8.70 cfs @ 7.99 hrs, Volume= 3.216 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach T-X: Total for site and frontage

Inflow Area = 8.5244 ac, 2.99% Impervious, Inflow Depth > 4.28" for 100-yr-county event
 Inflow = 4.84 cfs @ 7.99 hrs, Volume= 3.043 af
 Outflow = 4.84 cfs @ 7.99 hrs, Volume= 3.043 af, Atten= 0%, Lag= 0.0 min

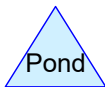
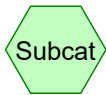
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

T-X

Total for site and
frontage

S

Total from site and Oak
St



Routing Diagram for MV- Pre (CN85)_Post (CN 72.5)_F (30%) - 8.5 roofs +drive (1992 pre
Prepared by GME Drainage Consultant, Printed 5/15/2025
HydroCAD® 10.20-2h s/n 08107 © 2024 HydroCAD Software Solutions LLC

MV- Pre (CN85)_Post (CN 72.5)_F (30%) - 8.5 roofs +drive (1992 pre)

Prepared by GME Drainage Consultant

Printed 5/15/2025

HydroCAD® 10.20-2h s/n 08107 © 2024 HydroCAD Software Solutions LLC

Page 2

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	100-yr-county	Type IA 24-hr		Default	24.00	1	6.17	2

Summary for Reach S: Total from site and Oak St

Inflow Area = 8.0362 ac, 55.01% Impervious, Inflow Depth > 4.70" for 100-yr-county event
 Inflow = 8.52 cfs @ 7.99 hrs, Volume= 3.149 af
 Outflow = 8.52 cfs @ 7.99 hrs, Volume= 3.149 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Summary for Reach T-X: Total for site and frontage

Inflow Area = 8.3789 ac, 1.81% Impervious, Inflow Depth > 4.26" for 100-yr-county event
 Inflow = 4.73 cfs @ 7.99 hrs, Volume= 2.978 af
 Outflow = 4.73 cfs @ 7.99 hrs, Volume= 2.978 af, Atten= 0%, Lag= 0.0 min

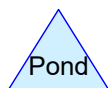
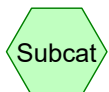
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

T-X

Total for site and
frontage

S

Total from site and Oak
St



Routing Diagram for MV- Pre (CN85)_Post (CN 72.5)_F (30%) - 8.5 roofs +drive (1992 pre
Prepared by GME Drainage Consultant, Printed 5/15/2025
HydroCAD® 10.20-2h s/n 08107 © 2024 HydroCAD Software Solutions LLC

MV- Pre (CN85)_Post (CN 72.5)_F (30%) - 8.5 roofs +drive (1992 pre)

Prepared by GME Drainage Consultant

Printed 5/15/2025

HydroCAD® 10.20-2h s/n 08107 © 2024 HydroCAD Software Solutions LLC

Page 2

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	100-yr-county	Type IA 24-hr		Default	24.00	1	6.17	2

Summary for Reach S: Total from site and Oak St

Inflow Area = 8.1747 ac, 55.62% Impervious, Inflow Depth = 4.74" for 100-yr-county event
 Inflow = 8.70 cfs @ 7.99 hrs, Volume= 3.230 af
 Outflow = 8.70 cfs @ 7.99 hrs, Volume= 3.230 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs / 3

Summary for Reach T-X: Total for site and frontage

Inflow Area = 8.5244 ac, 2.99% Impervious, Inflow Depth > 4.51" for 100-yr-county event
 Inflow = 4.84 cfs @ 7.99 hrs, Volume= 3.201 af
 Outflow = 4.84 cfs @ 7.99 hrs, Volume= 3.201 af, Atten= 0%, Lag= 0.0 min

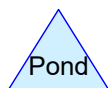
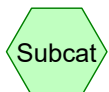
Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs / 3

T-X

Total for site and
frontage

S

Total from site and Oak
St



Routing Diagram for MV- Pre (CN85)_Post (CN 72.5)_F (30%) - 8.5 roofs +drive (1992 pre
Prepared by GME Drainage Consultant, Printed 5/15/2025
HydroCAD® 10.20-2h s/n 08107 © 2024 HydroCAD Software Solutions LLC

MV- Pre (CN85)_Post (CN 72.5)_F (30%) - 8.5 roofs +drive (1992 pre)

Prepared by GME Drainage Consultant

Printed 5/15/2025

HydroCAD® 10.20-2h s/n 08107 © 2024 HydroCAD Software Solutions LLC

Page 2

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	100-yr-county	Type IA 24-hr		Default	24.00	1	6.17	2

Summary for Reach S: Total from site and Oak St

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 8.0362 ac, 55.01% Impervious, Inflow Depth = 4.72" for 100-yr-county event
 Inflow = 8.52 cfs @ 7.99 hrs, Volume= 3.163 af
 Outflow = 8.52 cfs @ 7.99 hrs, Volume= 3.163 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs / 3

Summary for Reach T-X: Total for site and frontage

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 8.3789 ac, 1.81% Impervious, Inflow Depth > 4.49" for 100-yr-county event
 Inflow = 4.73 cfs @ 7.99 hrs, Volume= 3.135 af
 Outflow = 4.73 cfs @ 7.99 hrs, Volume= 3.135 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs / 3

APPENDIX C HYDROLOGY/HYDRAULICS
MINT VALLEY - OAK STREET
APP C-3b NON-LOT SUBBASIN AREAS

Subcat N-2 CB-4	Street (sf)	Sidewalk (sf)	Pervious (sf)	Totals
O-2	1,729	373	271	2,373
N-2 (from N)	2,011			2,011
N-2 (from S)	3,291			3,291

193,303

7,031 373 271 7,675
0.1614 ac 0.0086 ac 0.0062 ac 0.176 ac

Subcat S-1 CB-1	Street (sf)	Sidewalk (sf)	Pervious (sf)	Totals
S-1 (from S)	11,082			
S-1 (from N)	3,181			

14,263 0 0 0
0.3274 ac 0 0 0.3274 ac

Subcat S-2 CB-2	Street (sf)	Sidewalk (sf)	Pervious (sf)	Totals
S-2 (from S)	11,777			
S-2 (from N)	3,146			

14,923 0 0 0
0.3426 ac 0 0 0.3426 ac

Totals 1.0189 ac 0.0174 ac 0.0126 ac 1.0489 ac

APPENDIX D

Geotech Report

MINT VALLEY – OAK STREET

D-1 Geotech Report – Infiltration Testing

James Kessi PE
Kessi Engineering and Consulting
360-991-9300
james.kessi@gmail.com

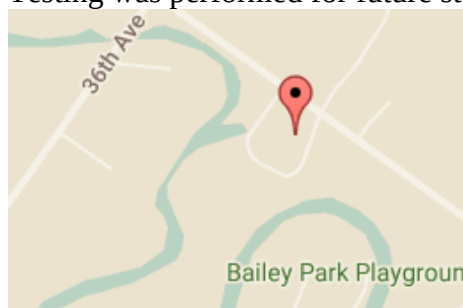
22 October 2024

Re: Infiltration testing for 3503 Oak Street, Longview, WA

Dear Mr. Kessi,

Field Investigation:

Rapid Soil Solutions (RSS) has performed a total of four (4) infiltration tests at the above-mentioned site. Figure 1 shows the project site location. RSS found fine-grained Alluvial Deposits, Qal, such as silt. Testing was performed for future storm water design.



Infiltration Testing and ground water depth

Infiltration testing was performed as per the City of Longview Storm Water Manual 2016. Testing took place in four hand auger borings. The test was run a total of three times. A summary of the results with the testing depths is shown below. Ground water is found around 56in measured near TP #4.

Location	Depth (ft)	Rate (in/hr.)
TP # 1	2	5.875
TP #2	2	6
TP #3	1.5	5
TP #4	1.5	22

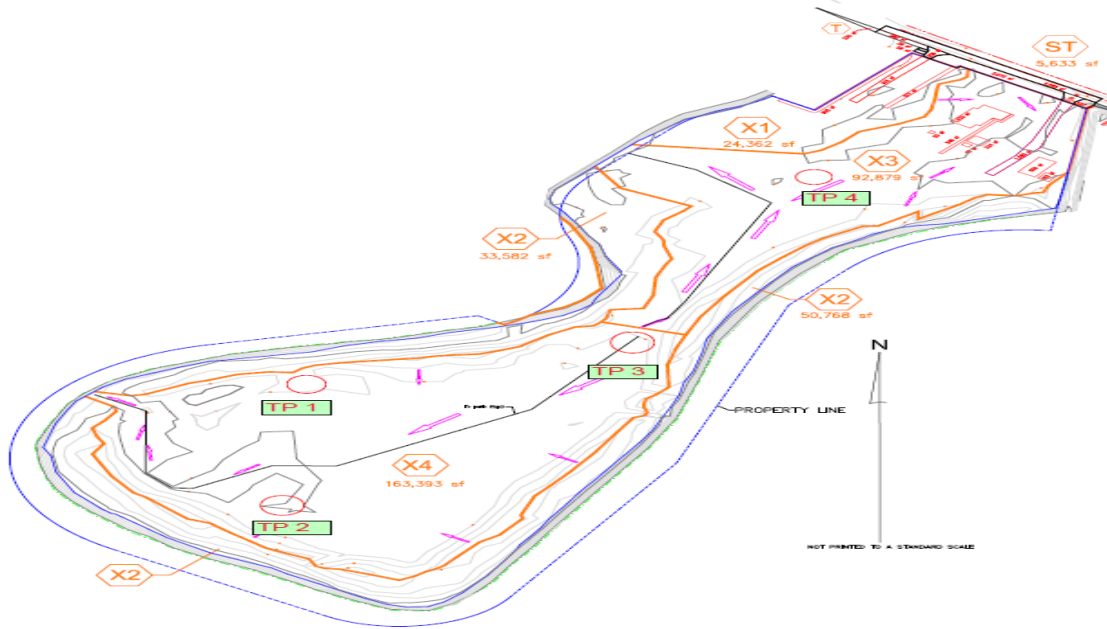
The analysis, conclusions and recommendations contained in this report are based on site conditions as they existed at the time of explorations. Any questions regarding this report please contact me at the below number or email.

Sincerely,



Mia Mahedy, PE GE.

Rapid Soil Solutions Infiltration Test Results



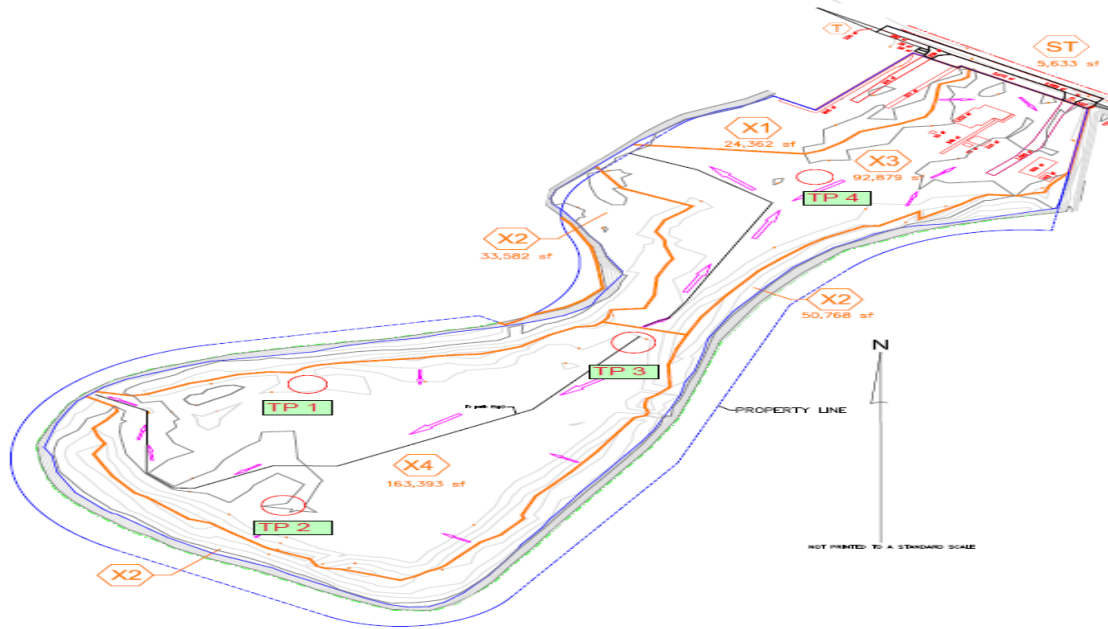
Preliminary Information

Location:	3503 Oak St, Longview, WA.	Performed By: (Supervised by Mia Mahedy, PE, GE)	Rick Sands
Date & Time:	10-18-24	Instrument Used:	3 inch hand auger
Weather:	55, showers	Depth:	2 ft

TP 1

6 inches	Topsoil		
6 inches-2ft	Dry to damp, tan, grey, light orange, clayey silt, medium stiffness		
Time	Measurement (inches)	Level Refilled To (inches)	Rate (inches/hour)
10:15	13 5/8		
10:35	9.5		
10:55	8 3/8		
11:15	7 7/8	13.75	
11:35	9 5/8		
11:55	8 5/8		
12:15	6 5/8	13 1/8	
12:35	9 7/8		
12:55	7 7/8		
1:15	7		
Site Infiltration Rate (inches/hour)			5.875 in/hr.

Rapid Soil Solutions Infiltration Test Results



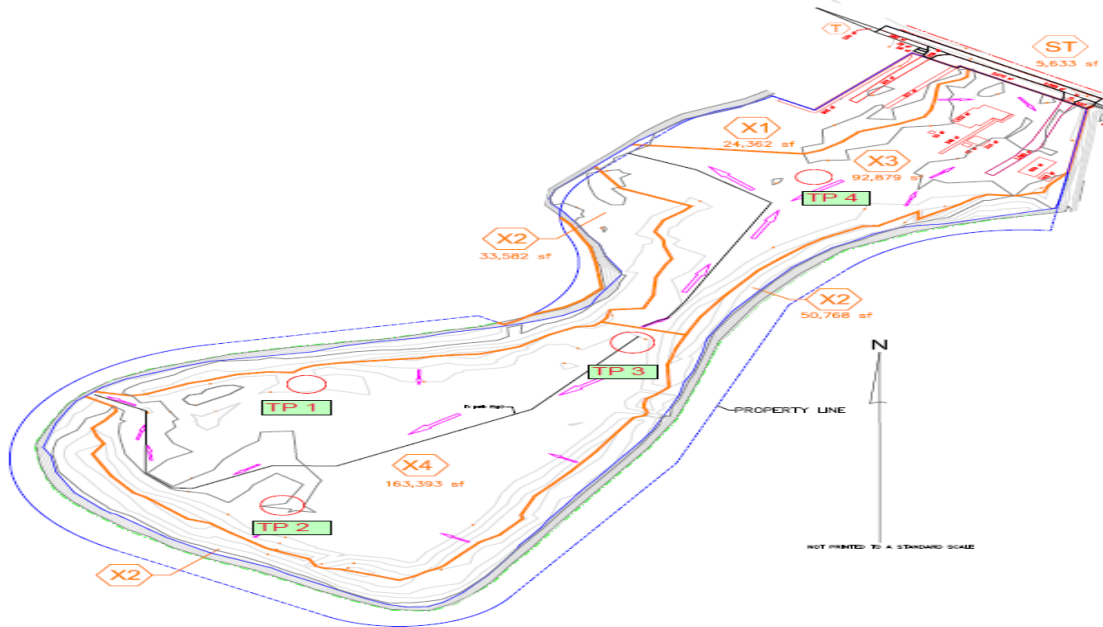
Preliminary Information

Location:	3503 Oak St, Longview, WA.	Performed By: (Supervised by Mia Mahedy, PE, GE)	Rick Sands
Date & Time:	10-18-24	Instrument Used:	3 inch hand auger
Weather:	55, showers	Depth:	2 ft

TP 2

6 inches	Topsoil		
6 inches-2ft	Dry to damp, tan, grey, light orange, clayey silt, medium stiffness		
Time	Measurement (inches)	Level Refilled To (inches)	Rate (inches/hour)
10:15	13.25		
10:35	10		
10:55	8.25		
11:15	7	14.25	
11:35	10		
11:55	8.75		
12:15	7 5/8	13	
12:35	9 3/8		
12:55	7.75		
1:15	7		
Site Infiltration Rate (inches/hour)			6 in/hr.

Rapid Soil Solutions Infiltration Test Results



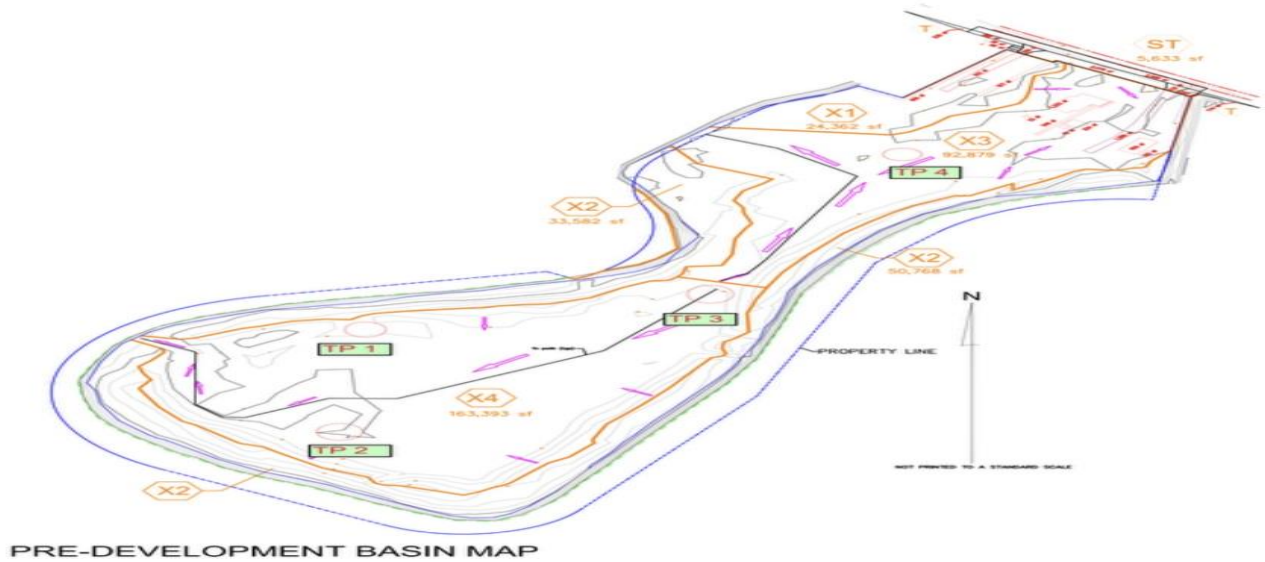
Preliminary Information

Location:	3503 Oak St, Longview, WA.	Performed By: (Supervised by Mia Mahedy, PE, GE)	Rick Sands
Date & Time:	10-16-24	Instrument Used:	3-inch hand auger
Weather:	62, cloudy	Depth:	1.5 ft

TP 3

12 inches	Topsoil		
12 inches-1.5ft	Dry to damp, tan, grey, light orange, clayey silt, medium stiffness		
Time	Measurement (inches)	Level Refilled To (inches)	Rate (inches/hour)
12:45	13.75		
1:05	8 5/8		
1:25	7.75		
1:45	6.25	15 3/8	
2:05	12.5		
2:25	10.75		
2:45	8 7/8	15 1/8	
3:05	11 7/8		
3:25	11.25		
3:45	10 1/8		
Site Infiltration Rate (inches/hour)			5 in/hr.

Rapid Soil Solutions Infiltration Test Results



Preliminary Information

Location:	3503 Oak St, Longview, WA.	Performed By: (Supervised by Mia Mahedy, PE, GE)	Rick Sands
Date & Time:	10-16-24	Instrument Used:	3 inch hand auger
Weather:	62, cloudy	Depth:	2 ft
TP 4			
6 inches	Topsoil		
6 inches-2ft	Dry to damp, tan, grey, light orange, clayey silt, medium stiffness		
Time	Measurement (inches)	Level Refilled To (inches)	Rate (inches/hour)
12:45	12 3/8		
1:05	1.25		
1:25	0	14.25	
1:45	1.75		
2:05	0	13.25	
2:25	3 7/8		
2:45	0		
Site Infiltration Rate (inches/hour)			22 in/hr.

----- Forwarded message -----

From: **Mia Mahedy** <mia@rapidsoilsolutions.com>

Date: Fri, Oct 25, 2024 at 10:36 AM

Subject: Re: Oak St Mint Valley Longview Infiltration & Soils Report and invoice 10-22-2024

To: James Kessi <james.kessi@gmail.com>

James, we went back this morning. Water is at 56in. Also it may come up as to 48in the soils were rusty starting at 4ft.

REPORT

Mint Valley Mobile Park Traffic Impact Study

July 28, 2025

H. Lee & Associates, PLLC

MINT VALLEY MOBILE PARK TRAFFIC IMPACT STUDY



Prepared for:

James Kessi, P.E.
Kessi Engineering & Consulting
6400 NE Highway 99, #G-169
Vancouver, WA 98665

Prepared by:

H. Lee & Associates, PLLC
P.O. Box 1849
Vancouver, WA 98668
(360) 727-3119

July 28, 2025

TABLE OF CONTENTS

SECTION 1 - STUDY SUMMARY	1
Introduction	1
Summary of Findings.....	2
 SECTION 2 - EXISTING CONDITIONS	5
Site Condition and Adjacent Land Use	5
Transportation Facilities	5
Existing Traffic Volumes.....	6
Existing Levels of Service	6
Accident History	9
Existing Public Transit Service.....	10
Non-Motorized Transportation.....	10
Planned Transportation Improvements.....	10
 SECTION 3 - TRAFFIC IMPACT ANALYSIS.....	11
Analysis Methodology	11
2030 “Without Project” Traffic Volumes and Levels of Service.....	11
Development Plans	13
Trip Generation.....	13
Trip Distribution and Assignment	14
2030 “With Project” Traffic Volumes and Levels of Service.....	16
Site Access Corner Sight Distance	18
Lane Warrant Analysis	18
Preliminary Signal Warrant Analysis	18
Conclusions	19
 APPENDIX A	Traffic Counts
APPENDIX B	Existing Level of Service
APPENDIX C	Accident Data
APPENDIX D	In-Process
APPENDIX E	2030 “Without Project” Levels of Service
APPENDIX F	2030 “With Project” Levels of Service

LIST OF FIGURES

Figure 1. Site Vicinity Map	3
Figure 2. Site Plan	4
Figure 3. Existing Lane Configuration and Traffic Control	7
Figure 4. Existing Weekday A.M and P.M. Peak Hour Traffic Volumes.....	8
Figure 5. 2030 “Without Project” Traffic Volumes.....	12
Figure 6. Trip Distribution and Assignment	15
Figure 7. 2030 “With Project” Traffic Volumes.....	17

LIST OF TABLES

Table 1. Existing Levels of Service.....	9
Table 2. Summary of Traffic Accident History in Study Area.....	10
Table 3. 2030 “Without Project” Levels of Service.....	13
Table 4. Trip Generation for Mint Valley Mobile Park.....	14
Table 5. 2030 "With Project" Levels of Service	16

SECTION I STUDY SUMMARY

INTRODUCTION

This traffic impact analysis has been prepared to assess transportation impacts related to the proposed Mint Valley Mobile Park in Longview, Washington. The project site is located at 3503 and 3505 Oak Street and is comprised of parcels 053180300 and 05319. Figure 1 shows the project vicinity.

Project Description

The proposed project is the development of a 71-unit mobile home park. Access to the project site will be from newly constructed roadway onto Oak Street and a connection to Jimmer Place to the south. One single-family detached home exists on-site and will be retained on-site. Figure 2 shows the project site plan.

Scope of Traffic Impact Study

The scope of the traffic impact study was developed based known traffic impact study requirements and correspondence with City of Longview staff. From this information, the following intersections were determined to require analysis:

- 36th Avenue/Oak Street
- 34th Avenue/Oak Street
- 36th Avenue/Ocean Beach Highway (SR-4)
- 34th Avenue/Ocean Beach Highway (SR-4)
- Oak Street/Project Access

The remainder of this report presents the following analysis:

- Existing A.M. and P.M. peak hour traffic conditions in the project study area.
- The 2030 “Without Project” condition was analyzed to establish the future baseline condition for the City of Longview. The 2030 “Without Project” condition traffic volumes were derived by using a two (2) percent compounded, annual growth factor and adding traffic generated by “in process” developments. The “in-process” traffic volumes were obtained from the city staff.
- Trip generation estimates for the proposed development were developed from rates published in Trip Generation, 11th Edition” (Institute of Transportation Engineers, 2021).
- Trip distribution and assignment of project-generated trips.

- The 2030 “With Project” condition was analyzed to determine the project traffic impacts for the City of Longview.

SUMMARY OF FINDINGS

The following are the findings and recommendations from the traffic analysis:

Findings

The following are the findings from the traffic analysis:

- The proposed development is expected to generate 506 daily, 28 A.M. peak hour (6 in, 22 out), and 41 P.M. peak hour (25 in, 16 out) net new trips.
- All of the study area intersections are projected to meet level of service standards for the 2030 “Without Project” and 2030 “With Project” conditions.
- Based on field measurements conducted by H. Lee & Associates, PLLC (HLA), the Oak Street/Project Access intersection should be able to meet the sight distance requirements as long as any existing vegetation within the sight distance triangles are properly maintained after construction and no obstructions are placed within the sight distance triangles that could impede a driver’s vision. Because the northbound project access approach has not been designed or constructed yet, the corner sight distance should be reconfirmed at the final engineering/construction stage of development to assure that any design/construction element does not preclude the necessary corner sight distance requirement.
- Turn lane warrants at the project access intersection were not conducted due to low traffic volumes, good levels of service, and acceptable accident rates in the 2030 “With Project” condition.
- Preliminary signal warrants are not met for the 8-hour, 4-hour, or peak hour conditions at any of the study area intersections in the 2030 “With Project” condition.

Recommendations

- Based on the traffic impact analysis documented in this report, no physical, off-site mitigation would be needed.

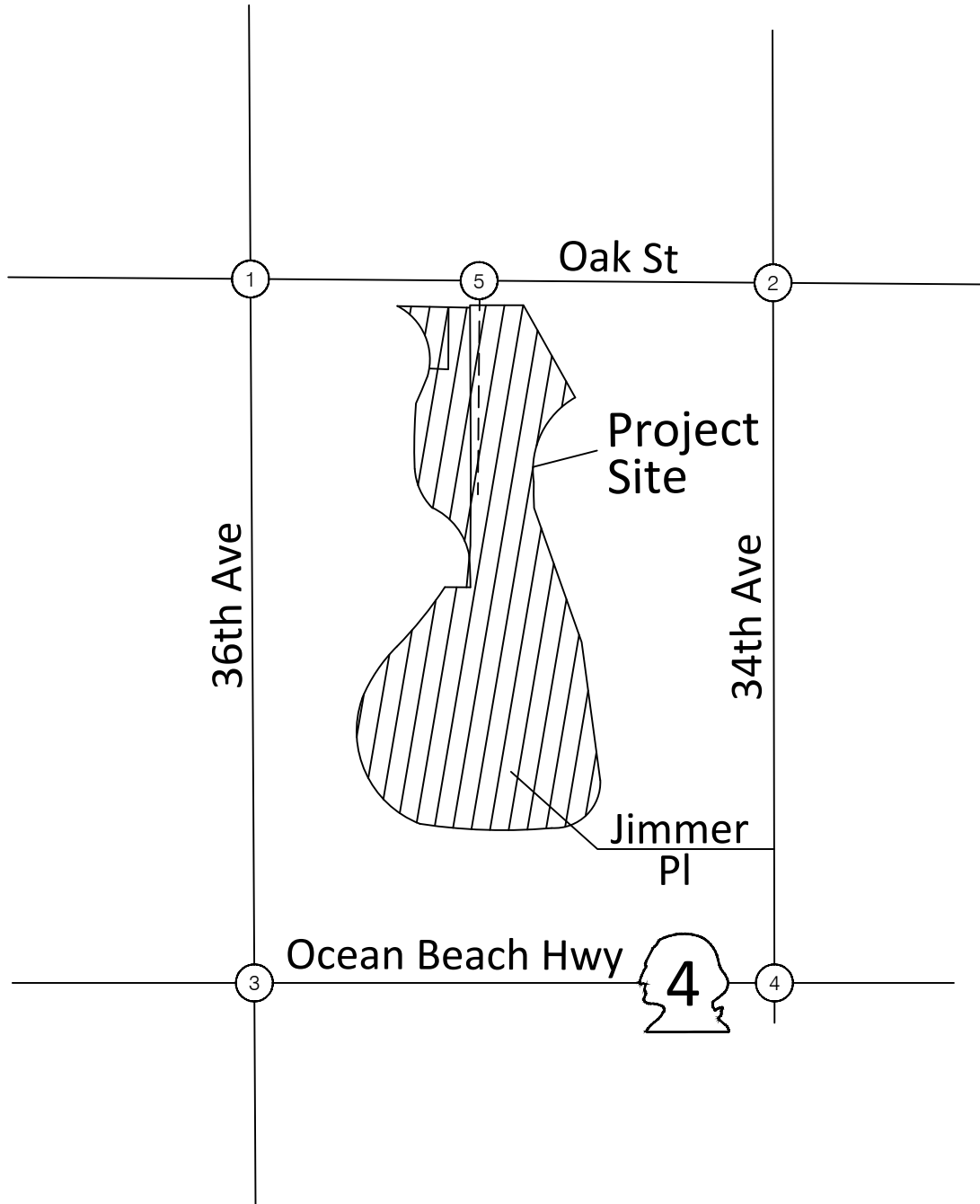


FIGURE 1
Site Vicinity Map



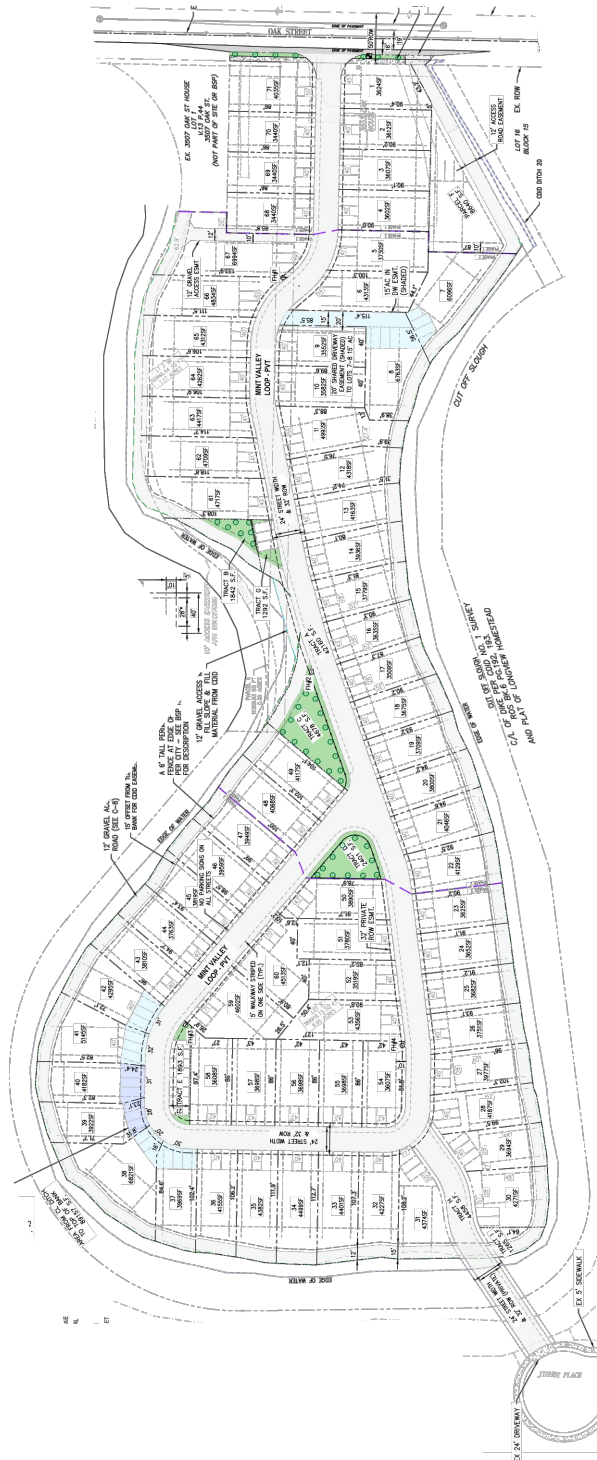


FIGURE 1
Site Plan

SECTION II EXISTING CONDITIONS

SITE CONDITION AND ADJACENT LAND USE

One single-family detached home exists on-site and will be retained on-site. Residential uses surround the project site.

TRANSPORTATION FACILITIES

The following provides a description of the existing street system in the study area including a description of street classifications and characteristics.

Jimmer Place: Jimmer Place is a two-lane local roadway. Sidewalks exist along both sides of the roadway. There is no posted speed limit but is assumed to be 25 mph.

Oak Street: Oak Street is a two-lane urban collector roadway. The posted speed limit is 25 mph.

Ocean Beach Highway (SR-4): Ocean Beach Highway (SR-4) is a four-to-five lane principal arterial and state route. Sidewalks exist along both sides of the roadway. East of 32nd Avenue the posted speed limit is 35 mph. West of 32nd Avenue the posted speed limit is 40 mph.

34th Avenue: 36th Avenue is a two-lane urban local access roadway. The posted speed limit is 25 mph.

36th Avenue: 36th Avenue is a two-lane urban local access roadway. The posted speed limit is 25 mph.

As part of this study, levels of service analyses were performed for the following intersections:

- 36th Avenue/Oak Street
- 34th Avenue/Oak Street
- 36th Avenue/Ocean Beach Highway (SR-4)
- 34th Avenue/Ocean Beach Highway (SR-4)
- Oak Street/Project Access

All of the study area intersections are unsignalized and stop sign controlled. Figure 3 shows the lane configuration and traffic control at the study area intersections.

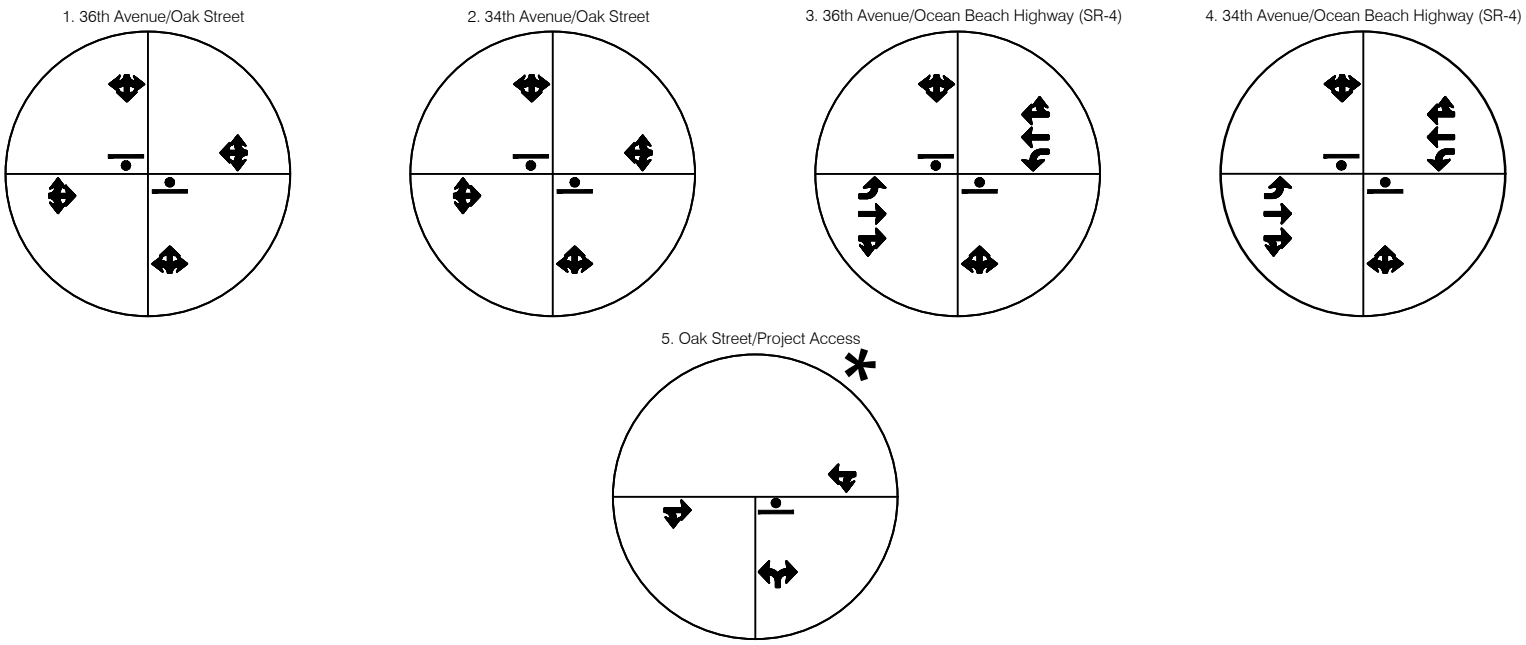
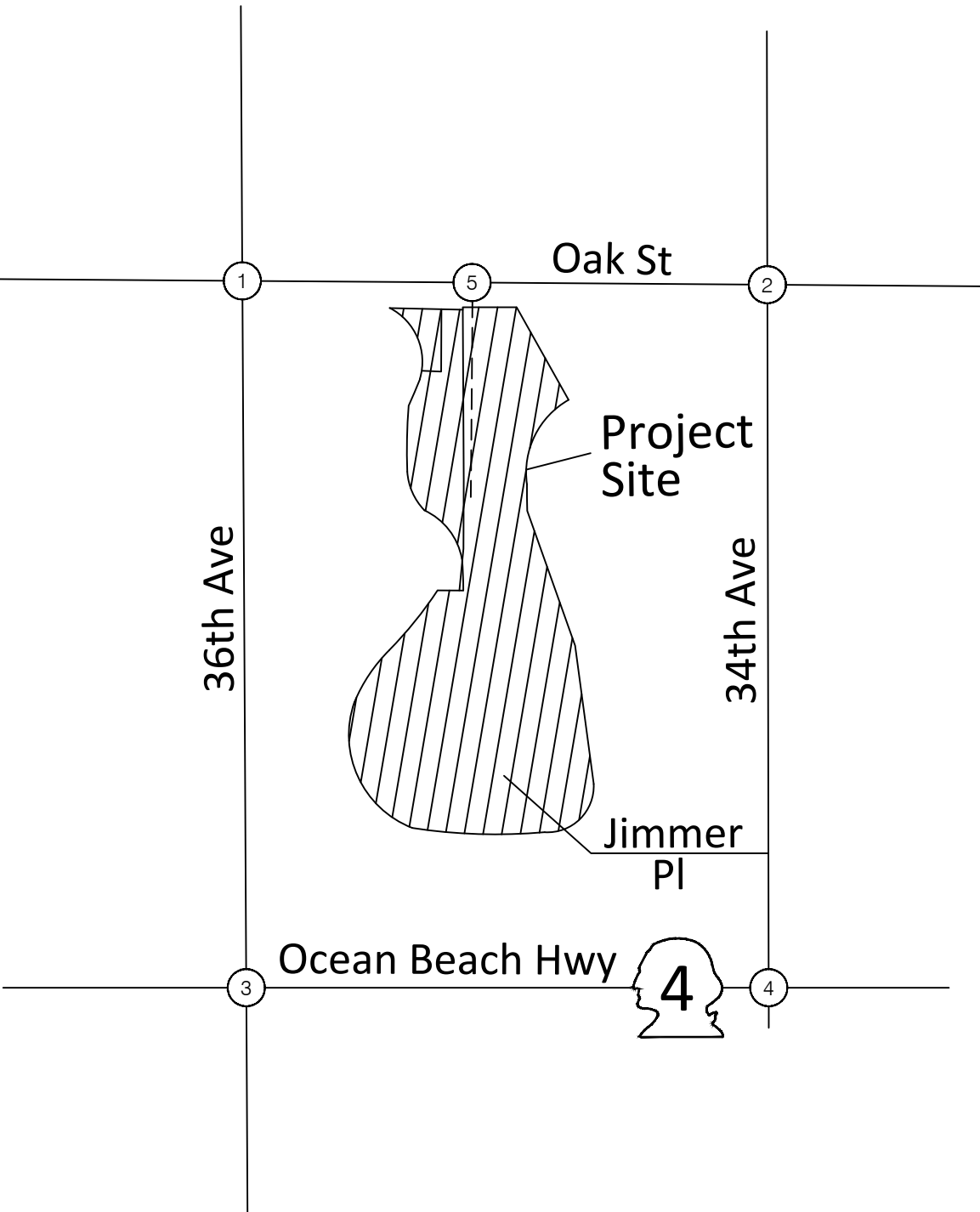
EXISTING TRAFFIC VOLUMES

A.M. and P.M. peak hour traffic counts were obtained at the study area intersections by HLA in March 2025. Per the HCM, peak 15-minute traffic volumes were multiplied by four (4) to arrive at the peak hour traffic volumes. With this methodology of developing peak hour traffic volumes, the peak hour factor (PHF) is set to 1.00 because the peaking has already occurred by multiplying the peak 15-minute traffic volume by four (4). The existing condition traffic volumes are presented in Figure 4. The existing traffic counts can be referenced in Appendix A.

EXISTING LEVELS OF SERVICE

Based on the traffic volumes in Figure 4 and the existing lane configurations presented in Figure 3, peak hour traffic operations were analyzed at the study area intersections using the methodologies outlined in the Highway Capacity Manual (HCM) 7th Edition. According to the HCM, there are six levels of service (LOS) by which the operational performance of an intersection may be described. These levels of service range between LOS "A" which indicates a relatively free-flowing condition and LOS "F" which indicates operational breakdown.

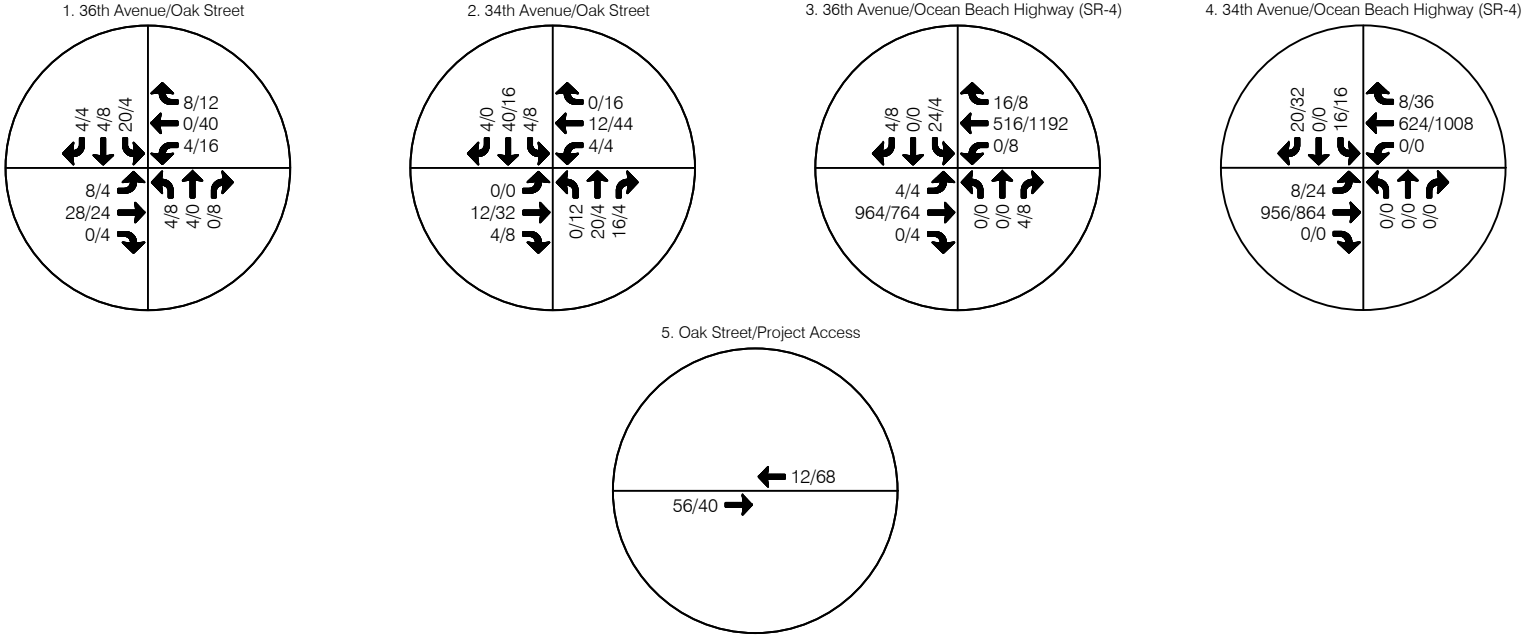
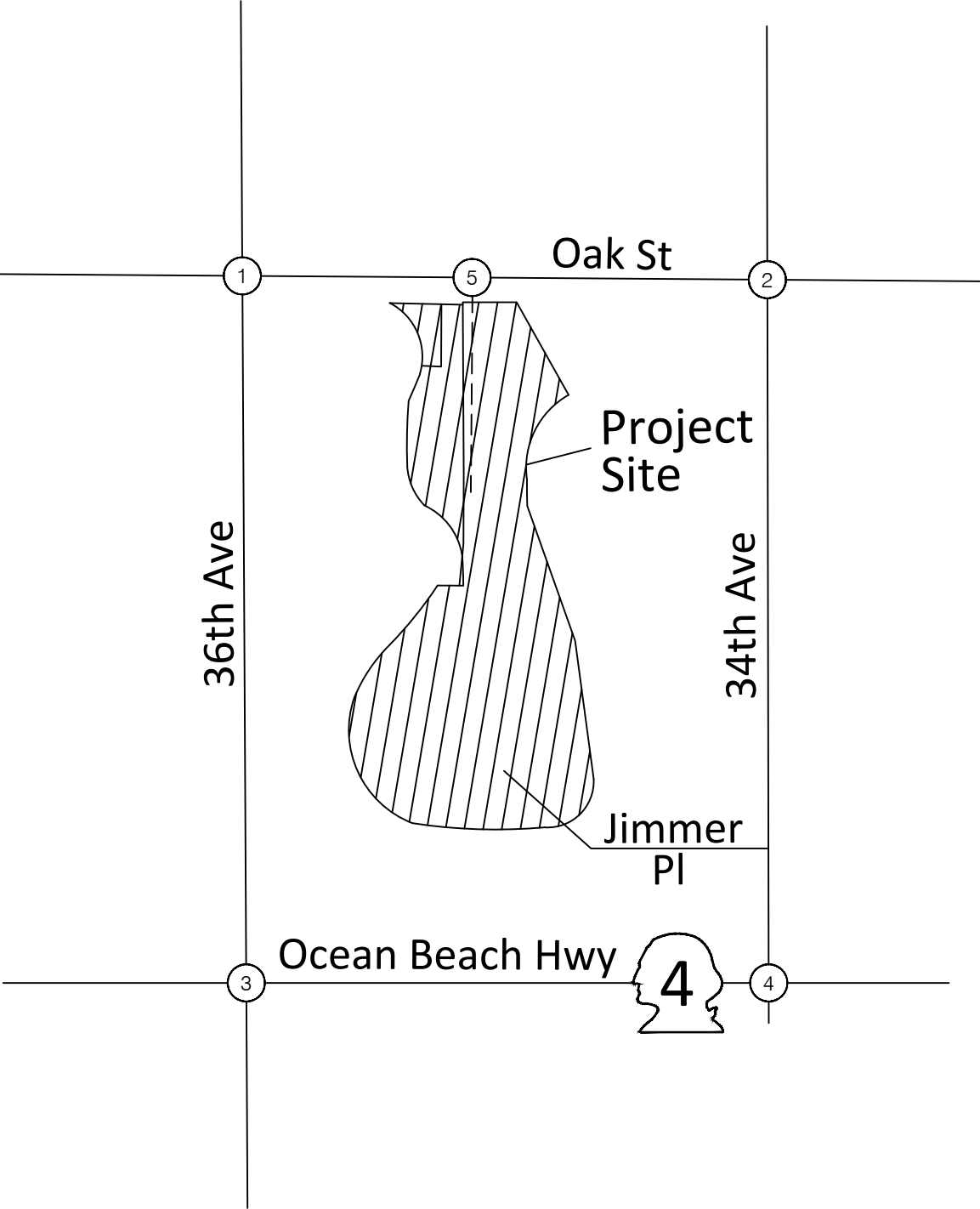
Typically for signalized intersections the LOS standard is LOS D or better. Typically for unsignalized intersections the LOS standard is LOS E or better, unless signal warrants are met. If signal warrants are met, then the standard is LOS D or better. For unsignalized intersections, the level of service and delay reported is by approach or conflicting movement.



LEGEND

- Lane Usage
- Traffic Signal
- Stop Sign
- 2030 "With Project" Lane Configuration and Traffic Control

FIGURE 3
Existing Lane Configuration and Traffic Control



LEGEND

128/200 A.M./P.M. Peak Hour
Traffic Volume

FIGURE 4
Existing A.M. and P.M.
Peak Hour Traffic Volumes

Existing A.M. and P.M. peak hour levels of service at the study area intersections are summarized in Table 1. As shown in Table 1, all of the study area intersections are operating at acceptable levels of service of LOS C or better in the existing condition. Appendix B contains the level of service worksheets for the existing conditions.

Table 1. Existing Levels of Service

Unsignalized Intersection	A.M. Peak Hour		P.M. Peak Hour	
	LOS	Average Delay (sec)	LOS	Average Delay (sec)
36 th Avenue/Oak Street				
Northbound Approach	A	9.2	A	8.9
Southbound Approach	A	9.1	A	9.4
Eastbound Left	A	7.3	A	7.3
Westbound Left	A	7.3	A	7.3
34 th Avenue/Oak Street				
Northbound Approach	A	9.0	A	9.2
Southbound Approach	A	9.4	A	9.5
Eastbound Left	A	0.0	A	0.0
Westbound Left	A	7.2	A	7.3
36 th Avenue/Ocean Beach Highway (SR-4)				
Northbound Approach	B	11.8	B	10.9
Southbound Approach	C	17.0	C	18.7
Eastbound Left	A	8.5	A	11.2
Westbound Left	A	0.0	A	9.3
34 th Avenue/Ocean Beach Highway (SR-4)				
Northbound Approach	A	0.0	A	0.0
Southbound Approach	B	14.2	C	18.1
Eastbound Left	A	8.8	B	10.5
Westbound Left	A	0.0	A	0.0

ACCIDENT HISTORY

Accident data was obtained from the Washington State Department of Transportation (WSDOT) for the five-year, eleven-month, and twenty-day period between January 1, 2019 and December 20, 2024. The data includes total crashes and crashes by severity (i.e., fatality, injury, or property damage only). The accident analysis is summarized in Table 2 for the study area intersections. Appendix C contains the accident data.

Generally, an accident rate of less than 1.00 accidents per million entering vehicles is considered acceptable and no further analysis is necessary. As shown in Table 2, all of the accident rates at the study area intersections are below 1.00 accidents per million entering vehicles, so no further analysis was conducted.

Table 2. Summary of Traffic Accident History at Intersections in the Study Area

Intersection	Average Annual Accidents				acc/mev ²
	PDO ¹	Injury	Fatal	Total	
36 th Avenue/Oak Street	0.0	0.0	0.0	0.0	0.00
34 th Avenue/Oak Street	0.5	0.0	0.0	0.5	0.74
36 th Avenue/Ocean Beach Highway (SR-4)	0.7	0.0	0.0	0.7	0.08
34 th Avenue/Ocean Beach Highway (SR-4)	1.2	0.3	0.0	1.5	0.16
36 th Avenue/Oak Street	0.0	0.0	0.0	0.0	0.00
Oak Street/Project Access	0.0	0.0	0.0	0.0	0.00

¹ PDO = property damage only

² acc/mev = accidents per million entering vehicles

EXISTING PUBLIC TRANSIT SERVICE

RiverCities Transit provides public transit service in Kelso and Longview, WA. Currently there are no routes that provide service adjacent to the project site. The closest route to the project site is Route #33, which provides service approximately 0.35 miles southwest of the project site at the 38th Avenue/Ocean Beach Highway intersection.

NON-MOTORIZED TRANSPORTATION

Sidewalks exist along both sides of Jimmer Place where a connection is being proposed.

PLANNED TRANSPORTATION IMPROVEMENTS

A review of the City of Longview's Transportation Improvement Plan, 2022-2027, revealed that there are no funded projects in the study area.

A review of the Cowlitz County's Six-Year Transportation Improvement Program (TIP), 2025-2030, revealed that there are no funded projects in the study area.

SECTION III TRAFFIC IMPACT ANALYSIS

ANALYSIS METHODOLOGY

The A.M. and P.M. peak hour traffic impacts generated by the proposed Mint Valley Mobile Park were analyzed as follows:

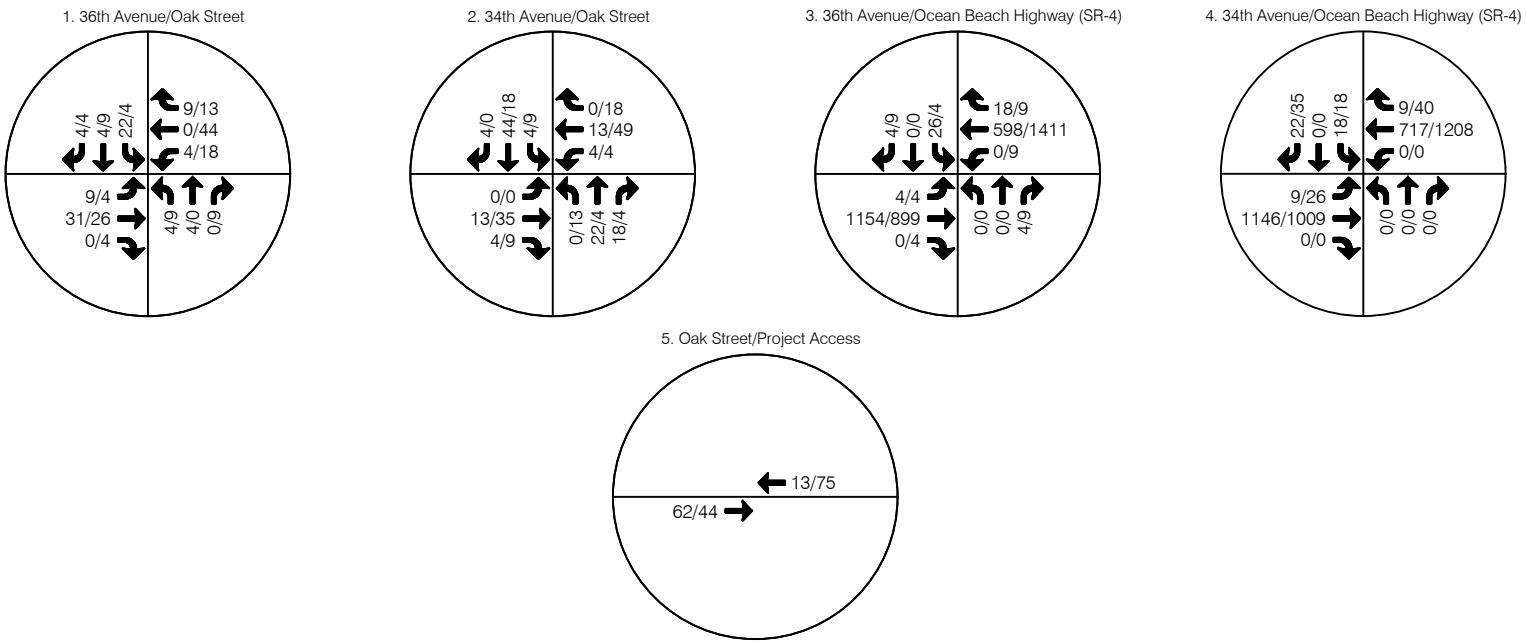
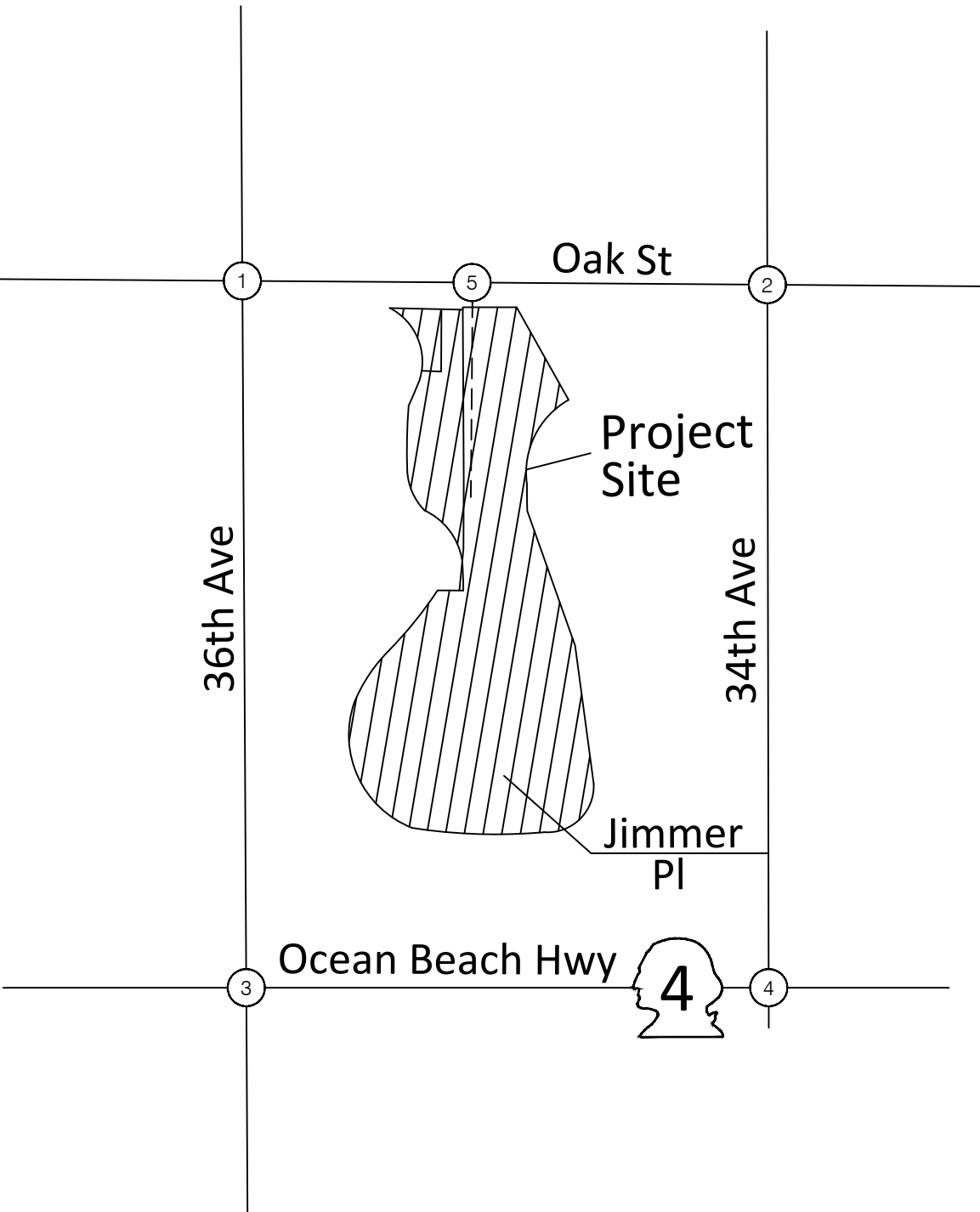
- The 2030 “Without Project” condition was analyzed to establish the future baseline condition for the City of Longview. The 2030 “Without Project” condition traffic volumes were derived by using a two (2) percent compounded, annual growth factor and adding traffic generated by “in process” developments. The “in-process” traffic volumes were obtained from the city staff.
- Trip generation estimates for the proposed development were developed from rates published in Trip Generation, 11th Edition” (Institute of Transportation Engineers, 2021).
- Trip distribution and assignment of project-generated trips.
- The 2030 “With Project” condition was analyzed to determine the project traffic impacts for the City of Longview.

The remainder of this section contains a detailed discussion of the methodology summarized above and the analysis results.

2030 “WITHOUT PROJECT” TRAFFIC VOLUMES AND LEVELS OF SERVICE

The 2030 “Without Project” condition was analyzed to establish the baseline for the concurrency analysis and to define a baseline by which project impacts could be determined. The 2030 “Without Project” condition traffic volumes were derived by using a two (2) percent compounded, annual growth factor and adding traffic generated by “in process” developments. The “in-process” traffic volumes were obtained from the city staff. Appendix D contains the “in-process” worksheets. Figure 5 shows the 2030 “Without Project” traffic volumes.

Levels of service were calculated at the study area intersections with the 2030 “Without Project” traffic volumes shown in Figure 5 and the lane configurations shown earlier in Figure 3. Appendix E contains the level of service worksheets for the 2030 “Without Project” condition.



LEGEND

128/200 A.M./P.M. Peak Hour
Traffic Volume

FIGURE 5
2030 "Without Project"
A.M. and P.M. Peak Hour Traffic Volumes



The 2030 “Without Project” A.M. and P.M. peak hour levels of service at the study area intersections are summarized in Table 3. As shown in Table 3, all of the study area intersections are projected to operate at acceptable levels of service of LOS C or better in the 2030 “Without Project” condition.

Table 3. 2030 “Without Project” Levels of Service

Unsignalized Intersection	A.M. Peak Hour		P.M. Peak Hour	
	LOS	Average Delay (sec)	LOS	Average Delay (sec)
36 th Avenue/Oak Street				
Northbound Approach	A	9.2	A	9.0
Southbound Approach	A	9.2	A	9.5
Eastbound Left	A	7.3	A	7.3
Westbound Left	A	7.3	A	7.3
34 th Avenue/Oak Street				
Northbound Approach	A	9.0	A	9.3
Southbound Approach	A	9.5	A	9.6
Eastbound Left	A	0.0	A	0.0
Westbound Left	A	7.2	A	7.3
36 th Avenue/Ocean Beach Highway (SR-4)				
Northbound Approach	B	12.8	B	11.5
Southbound Approach	C	19.7	C	22.3
Eastbound Left	A	8.7	B	12.6
Westbound Left	A	0.0	A	9.8
34 th Avenue/Ocean Beach Highway (SR-4)				
Northbound Approach	A	0.0	A	0.0
Southbound Approach	C	15.9	C	22.7
Eastbound Left	A	9.1	B	11.7
Westbound Left	A	0.0	A	0.0

DEVELOPMENT PLANS

As previously stated, the project is the development of a 71-unit mobile home park. Access to the project site will be from newly constructed roadway onto Oak Street and a connection to Jimmer Place to the south. One single-family detached home exists on-site and will be retained on-site. As previously shown, Figure 2 shows the project site plan.

TRIP GENERATION

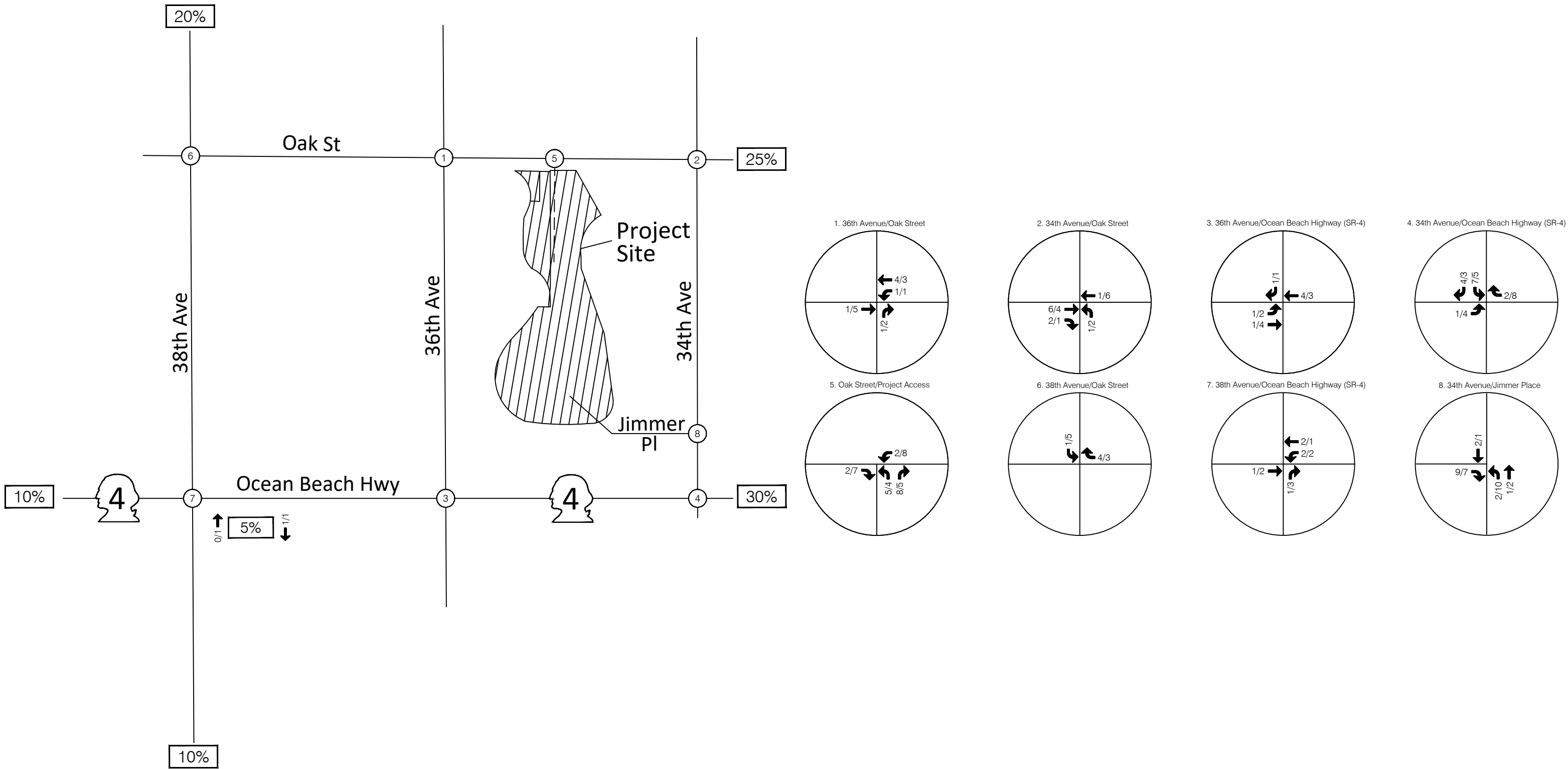
Estimates of daily, A.M. peak hour, and P.M. peak hour trips generated by the proposed project were developed from rates published in “Trip Generation, 11th Edition” (Institute of Transportation Engineers, 2021). The proposed development is expected to generate 506 daily, 28 A.M. peak hour (6 in, 22 out), and 41 P.M. peak hour (25 in, 16 out) net new trips. Table 4 summarizes the trip generation.

Table 4. Trip Generation for Mint Valley Mobile Park

	Amount	Average Daily	A.M. Peak			P.M. Peak		
			In	Out	Total	In	Out	Total
Mobile Home Park (ITE Code 240)								
Rate per dwelling unit		7.12	0.08	0.31	0.39	0.36	0.22	0.58
Trips	71 units	506	6	22	28	25	16	41

TRIP DISTRIBUTION AND ASSIGNMENT

A generalized trip distribution for the A.M. and P.M. peak hours was developed from the existing traffic counts, locations of employment areas, commercial/shopping centers, locations of schools, and logical travel paths to and from major travel corridors. Figure 6 shows the resulting trip distribution pattern and assignment of the net project-generated trips.



LEGEND

128/200 A.M./P.M. Peak Hour
Traffic Volume

10% Peak Hour Trip Distribution

FIGURE 2
Trip Distribution and Assignment
Traffic Volumes

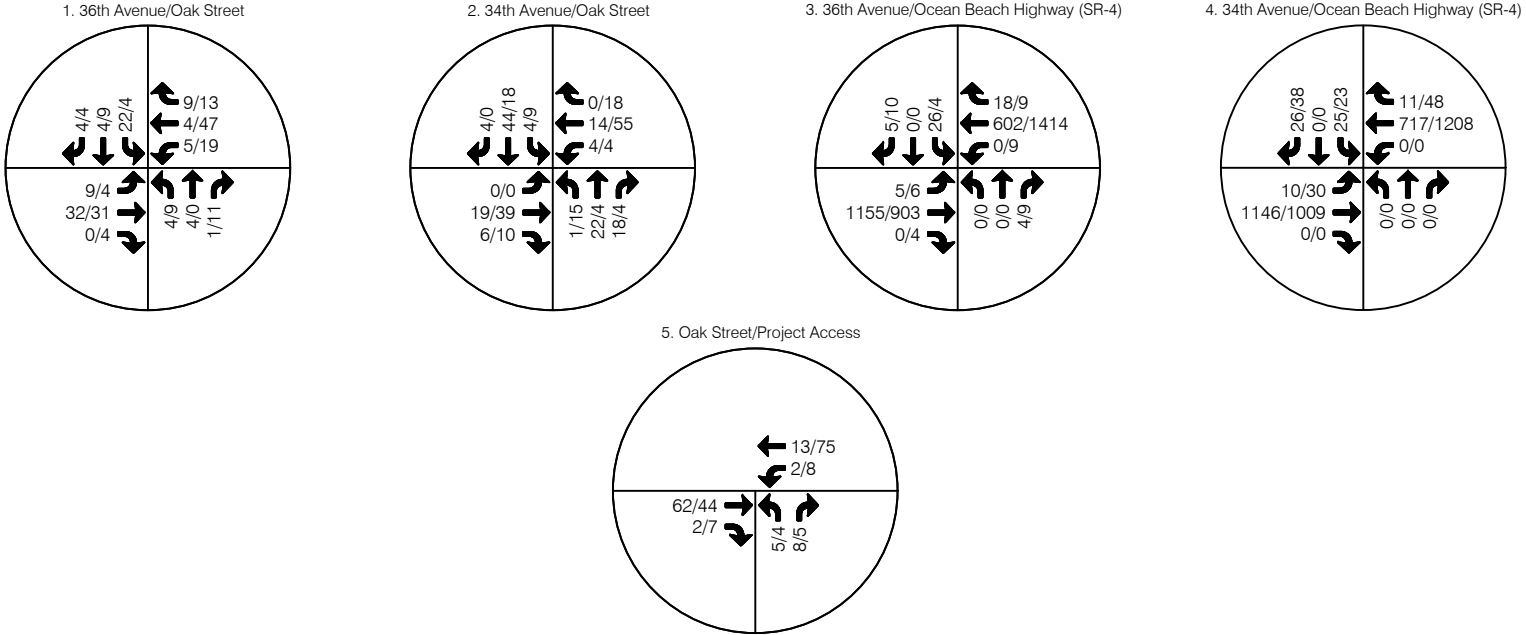
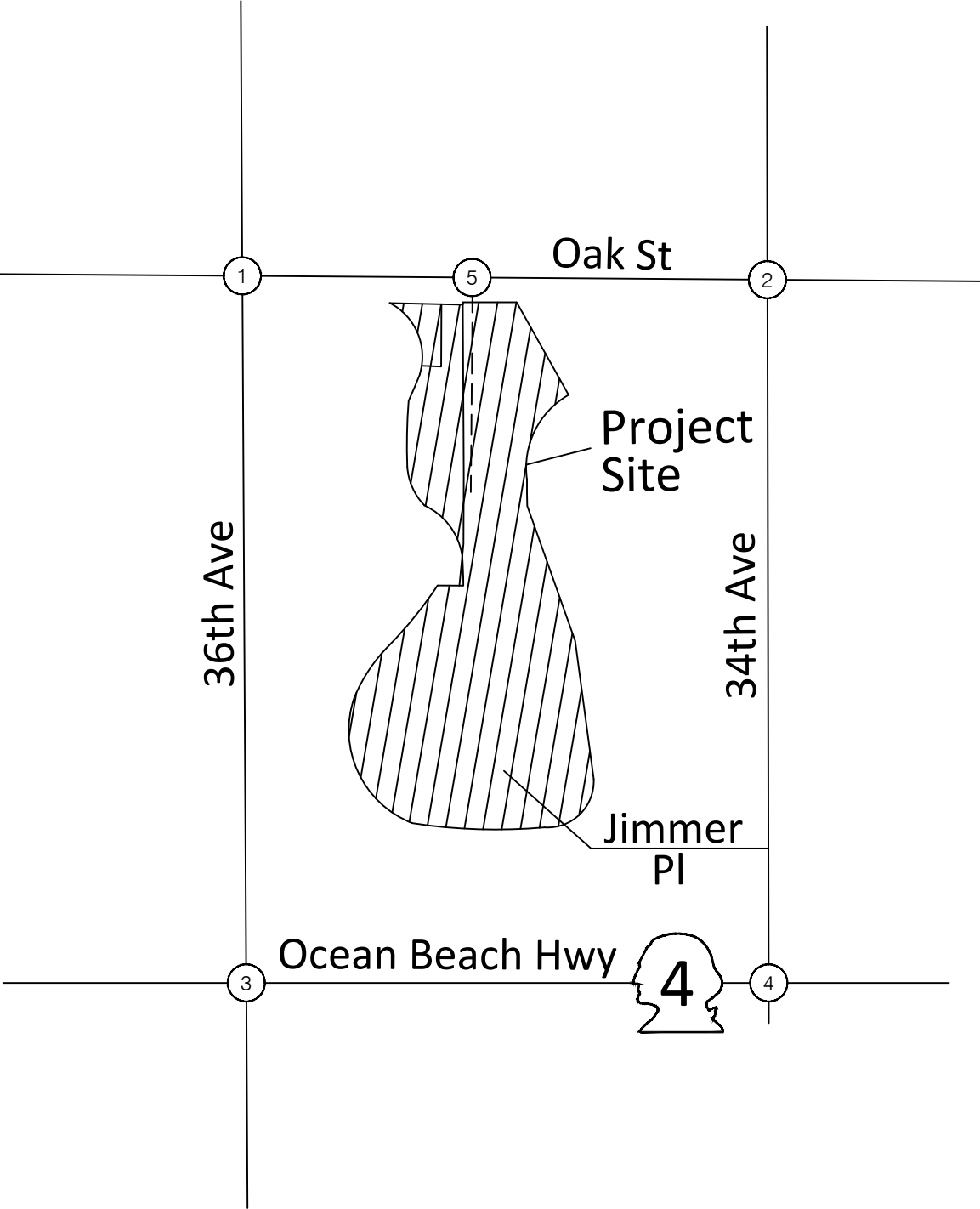
2030 “WITH PROJECT” TRAFFIC VOLUMES AND LEVELS OF SERVICE

The traffic volumes shown in Figures 5 and 6 were combined to arrive at the 2030 “With Project” A.M. and P.M. peak hour traffic volumes. Figure 7 shows the 2030 “With Project” traffic volumes. Levels of service were calculated at the study area intersections with the 2030 “With Project” traffic volumes shown in Figure 7 and the lane configurations shown earlier in Figure 3. Appendix F contains the level of service worksheets for the 2030 “With Project” condition.

The 2030 “With Project” A.M. and P.M. peak hour levels of service at the study area intersections are summarized in Table 5. As shown in Table 5, all of the study area intersections are projected to operate at acceptable levels of service of LOS C or better in the 2030 “With Project” condition.

Table 5. 2030 “With Project” Levels of Service

Unsignalized Intersection	A.M. Peak Hour		P.M. Peak Hour	
	LOS	Average Delay (sec)	LOS	Average Delay (sec)
36 th Avenue/Oak Street				
Northbound Approach	A	9.2	A	9.0
Southbound Approach	A	9.2	A	9.5
Eastbound Left	A	7.3	A	7.3
Westbound Left	A	7.3	A	7.3
34 th Avenue/Oak Street				
Northbound Approach	A	9.0	A	9.4
Southbound Approach	A	9.5	A	9.7
Eastbound Left	A	0.0	A	0.0
Westbound Left	A	7.3	A	7.3
36 th Avenue/Ocean Beach Highway (SR-4)				
Northbound Approach	B	12.8	B	11.5
Southbound Approach	C	19.5	C	21.9
Eastbound Left	A	8.8	B	12.6
Westbound Left	A	0.0	A	9.8
34 th Avenue/Ocean Beach Highway (SR-4)				
Northbound Approach	A	0.0	A	0.0
Southbound Approach	C	18.7	C	24.8
Eastbound Left	A	9.3	B	11.8
Westbound Left	A	0.0	A	0.0
Oak Street/Project Access				
Northbound Approach	A	8.7	A	8.9
Westbound Left	A	7.3	A	7.3



LEGEND

128/200 A.M./P.M. Peak Hour
Traffic Volume

FIGURE 7
2030 "With Project"
A.M. and P.M. Peak Hour Traffic Volumes

SITE ACCESS CORNER SIGHT DISTANCE

The minimum corner sight distance was analyzed at the proposed Oak Street/Project Access intersection based on the current “A Policy on Geometric Design of Highways and Streets,” as published by AASHTO (American Association of State Highway and Transportation Officials.” The most recent edition of this reference is the 2018 – 7th Edition. From AASHTO, the following intersection sight distances are relevant to the project’s site access intersection:

- Case B1 – left turn from minor road
- Case B2 – right turn from minor road
- Case F – left from major road

The required sight distance for Case B1 based on a posted speed limit of 25 mph along Oak Street is 280 feet. This requirement can be found in Table 9-7 of the “A Policy on Geometric Design of Highways and Streets,” page 9-46.

The required sight distance for Case B2 based on a posted speed limit of 25 mph along Oak Street is 240 feet. This requirement can be found in Table 9-9 of the “A Policy on Geometric Design of Highways and Streets,” page 9-48.

The required sight distance for Case F based on a posted speed limit of 25 mph along the Oak Street is 205 feet. This requirement can be found in Table 9-17 of the “A Policy on Geometric Design of Highways and Streets,” page 9-57.

Based on field measurements conducted by H. Lee & Associates, PLLC (HLA), the project access intersection should be able to meet the sight distance requirements as long as any existing vegetation within the sight distance triangle are properly maintained after construction and no obstructions are placed within the sight distance triangle that could impede a driver’s vision. Because the access into the project site is not built yet, the sight distance should be re-verified in the final engineering/construction stages of development.

LANE WARRANT ANALYSIS

Turn lane warrants at the Oak Street/Project Access intersection were not conducted due to low traffic volumes, good levels of service, and acceptable accident rates in the 2030 “With Project” condition.

PRELIMINARY SIGNAL WARRANT ANALYSIS

PTV Vistro provides a preliminary signal warrant analysis tool based on MUTCD signal warrant standards within their levels of service software. HLA conducted preliminary signal warrant analyses at the study area intersections for the 2030 “With Project” condition per the PTV Vistro software. Preliminary signal warrants are not met for the 8-hour, 4-hour, or peak hour conditions at any of the study area intersections. Appendix F contains the preliminary signal warrant analysis worksheets from PTV Vistro for the 2030 “With Project” condition.

CONCLUSIONS

The following are the findings and recommendations from the traffic analysis:

Findings

The following are the findings from the traffic analysis:

- The proposed development is expected to generate 506 daily, 28 A.M. peak hour (6 in, 22 out), and 41 P.M. peak hour (25 in, 16 out) net new trips.
- All of the study area intersections are projected to meet level of service standards for the 2030 “Without Project” and 2030 “With Project” conditions.
- Based on field measurements conducted by H. Lee & Associates, PLLC (HLA), the Oak Street/Project Access intersection should be able to meet the sight distance requirements as long as any existing vegetation within the sight distance triangles are properly maintained after construction and no obstructions are placed within the sight distance triangles that could impede a driver’s vision. Because the northbound project access approach has not been designed or constructed yet, the corner sight distance should be reconfirmed at the final engineering/construction stage of development to assure that any design/construction element does not preclude the necessary corner sight distance requirement.
- Turn lane warrants at the project access intersection were not conducted due to low traffic volumes, good levels of service, and acceptable accident rates in the 2030 “With Project” condition.
- Preliminary signal warrants are not met for the 8-hour, 4-hour, or peak hour conditions at any of the study area intersections in the 2030 “With Project” condition.

Recommendations

- Based on the traffic impact analysis documented in this report, no physical, off-site mitigation would be needed.

APPENDIX A
TRAFFIC COUNTS

Intersection: 36th Avenue/Oak Street
AM Peak Hour Turning Movement Volumes

Date: 03/13/25

Time	SB				WB				NB				EB				Total													
	SBR	SBT	SBL	Trucks	WBR	WBT	WBL	Trucks	NBR	NBT	NBL	Trucks	EBR	EBT	EBL	Trucks														
<u>15 Minute Totals</u>																														
7:00 - 7:15 AM	0	1	0	0	1	1	2	0	1	0	0	0	0	1	0	0	7													
7:15 - 7:30 AM	0	4	0	1	0	1	0	0	5	4	1	1	0	4	0	0	19													
7:30 - 7:45 AM	1	1	5	1	2	0	1	0	0	1	1	0	0	7	2	1	21													
7:45 - 8:00 AM	0	1	3	0	2	1	0	1	3	0	0	0	0	4	0	0	14													
8:00 - 8:15 AM	1	1	1	0	0	1	2	0	2	2	0	0	0	2	1	0	13													
8:15 - 8:30 AM	0	2	1	0	0	1	0	0	0	2	1	0	0	5	0	0	12													
8:30 - 8:45 AM	0	3	1	0	0	0	1	0	0	3	2	1	2	3	0	0	15													
8:45 - 9:00 AM	1	1	0	0	0	5	1	0	1	2	0	0	0	6	1	0	18													
<u>Peak 15 Minutes</u>																														
7:30 - 7:45 AM	1	1	5	1	2	0	1	0	0	1	1	0	0	7	2	1	21													
<u>Hourly Total by 15 minutes</u>																														
7:00 - 8:00 AM	1	7	8	2	5	3	3	1	9	5	2	1	0	16	2	1	61													
7:15 - 8:15 AM	2	7	9	2	4	3	3	1	10	7	2	1	0	17	3	1	67													
7:30 - 8:30 AM	2	5	10	1	4	3	3	1	5	5	2	0	0	18	3	1	60													
7:45 - 8:45 AM	1	7	6	0	2	3	3	1	5	7	3	1	2	14	1	0	54													
8:00 - 9:00 AM	2	7	3	0	0	7	4	0	3	9	3	1	2	16	2	0	58													
<u>Peak Hour Based On Peak 15 Minute</u>																														
	4	4	20	4	8	0	4	0	0	4	4	0	0	28	8	4	84													
Peak Hour Factor																		1.00												
Peak 15 Min % Trucks																		14%	0%				0%				11%			

Intersection: 36th Avenue/Oak Street
PM Peak Hour Turning Movement Volumes

Date: 03/13/25

Time	SB				WB				NB				EB				Total				
	SBR	SBT	SBL	Trucks	WBR	WBT	WBL	Trucks	NBR	NBT	NBL	Trucks	EBR	EBT	EBL	Trucks					
<u>15 Minute Totals</u>																					
4:00 - 4:15 PM	0	0	0	0	1	6	3	0	2	3	0	0	2	8	1	0	26				
4:15 - 4:30 PM	0	5	2	0	2	6	0	0	1	3	1	0	0	7	1	0	28				
4:30 - 4:45 PM	0	0	1	0	2	5	3	0	3	1	0	0	0	6	2	0	23				
4:45 - 5:00 PM	1	2	1	0	3	10	4	0	2	0	2	0	1	6	1	0	33				
5:00 - 5:15 PM	1	0	0	0	2	3	0	0	1	1	0	0	1	3	1	0	13				
5:15 - 5:30 PM	0	0	1	0	2	8	2	0	0	1	0	0	0	3	0	0	17				
5:30 - 5:45 PM	0	2	2	0	0	5	0	0	0	0	1	0	3	2	2	0	17				
5:45 - 6:00 PM	0	1	1	0	0	1	3	0	2	2	0	0	0	3	0	0	13				
<u>Peak 15 Minutes</u>																					
4:45 - 5:00 PM	1	2	1	0	3	10	4	0	2	0	2	0	1	6	1	0	33				
<u>Hourly Total by 15 minutes</u>																					
4:00 - 5:00 PM	1	7	4	0	8	27	10	0	8	7	3	0	3	27	5	0	110				
4:15 - 5:15 PM	2	7	4	0	9	24	7	0	7	5	3	0	2	22	5	0	97				
4:30 - 5:30 PM	2	2	3	0	9	26	9	0	6	3	2	0	2	18	4	0	86				
4:45 - 5:45 PM	2	4	4	0	7	26	6	0	3	2	3	0	5	14	4	0	80				
5:00 - 6:00 PM	1	3	4	0	4	17	5	0	3	4	1	0	4	11	3	0	60				
<u>Peak Hour Based On Peak 15 Minute</u>																					
	4	8	4	0	12	40	16	0	8	0	8	0	4	24	4	0	132				
Peak Hour Factor																		1.00			
Peak 15 Min % Trucks																		0%	0%	0%	0%

Intersection: 34th Avenue/Oak Street
AM Peak Hour Turning Movement Volumes

Date: 03/13/25

Time	SB				WB				NB				EB				Total													
	SBR	SBT	SBL	Trucks	WBR	WBT	WBL	Trucks	NBR	NBT	NBL	Trucks	EBR	EBT	EBL	Trucks														
<u>15 Minute Totals</u>																														
7:00 - 7:15 AM	0	0	2	0	0	2	1	0	2	3	1	1	1	1	0	0	13													
7:15 - 7:30 AM	0	1	0	0	0	1	2	0	3	5	0	0	1	8	1	1	22													
7:30 - 7:45 AM	0	1	2	1	0	3	0	0	0	1	0	0	0	14	0	0	21													
7:45 - 8:00 AM	0	4	1	0	1	2	0	0	1	4	0	0	1	9	1	1	24													
8:00 - 8:15 AM	0	4	0	2	2	3	1	1	2	2	0	1	0	6	1	0	21													
8:15 - 8:30 AM	1	3	1	0	0	0	0	0	3	4	0	0	0	7	0	0	19													
8:30 - 8:45 AM	1	10	1	1	0	3	1	0	4	5	0	0	1	3	0	0	29													
8:45 - 9:00 AM	0	2	0	0	0	3	0	0	1	4	1	0	2	4	1	0	18													
<u>Peak 15 Minutes</u>																														
8:30 - 8:45 AM	1	10	1	1	0	3	1	0	4	5	0	0	1	3	0	0	29													
<u>Hourly Total by 15 minutes</u>																														
7:00 - 8:00 AM	0	6	5	1	1	8	3	0	6	13	1	1	3	32	2	2	80													
7:15 - 8:15 AM	0	10	3	3	3	9	3	1	6	12	0	1	2	37	3	2	88													
7:30 - 8:30 AM	1	12	4	3	3	8	1	1	6	11	0	1	1	36	2	1	85													
7:45 - 8:45 AM	2	21	3	3	3	8	2	1	10	15	0	1	2	25	2	1	93													
8:00 - 9:00 AM	2	19	2	3	2	9	2	1	10	15	1	1	3	20	2	0	87													
<u>Peak Hour Based On Peak 15 Minute</u>																														
	4	40	4	4	0	12	4	0	16	20	0	0	4	12	0	0	116													
Peak Hour Factor																		1.00												
Peak 15 Min % Trucks																		8%	0%				0%				0%			

Intersection: 34th Avenue/Oak Street
PM Peak Hour Turning Movement Volumes

Date: 03/13/25

Time	SB				WB				NB				EB				Total				
	SBR	SBT	SBL	Trucks	WBR	WBT	WBL	Trucks	NBR	NBT	NBL	Trucks	EBR	EBT	EBL	Trucks					
<u>15 Minute Totals</u>																					
4:00 - 4:15 PM	2	2	0	0	1	9	2	0	4	4	1	0	1	6	2	0	34				
4:15 - 4:30 PM	3	0	2	0	1	9	1	0	1	1	0	0	2	7	1	0	28				
4:30 - 4:45 PM	2	4	1	0	1	9	1	0	0	2	0	0	2	9	1	0	32				
4:45 - 5:00 PM	0	4	2	0	4	11	1	0	1	1	3	0	2	8	0	0	37				
5:00 - 5:15 PM	0	3	0	0	0	7	0	0	1	2	0	0	1	4	1	0	19				
5:15 - 5:30 PM	0	3	0	0	0	13	2	0	0	2	2	0	0	4	0	0	26				
5:30 - 5:45 PM	0	2	0	0	0	7	1	0	2	2	0	0	0	5	0	0	19				
5:45 - 6:00 PM	0	3	2	0	0	5	2	0	1	0	0	0	0	4	3	0	20				
<u>Peak 15 Minutes</u>																					
4:45 - 5:00 PM	0	4	2	0	4	11	1	0	1	1	3	0	2	8	0	0	37				
<u>Hourly Total by 15 minutes</u>																					
4:00 - 5:00 PM	7	10	5	0	7	38	5	0	6	8	4	0	7	30	4	0	131				
4:15 - 5:15 PM	5	11	5	0	6	36	3	0	3	6	3	0	7	28	3	0	116				
4:30 - 5:30 PM	2	14	3	0	5	40	4	0	2	7	5	0	5	25	2	0	114				
4:45 - 5:45 PM	0	12	2	0	4	38	4	0	4	7	5	0	3	21	1	0	101				
5:00 - 6:00 PM	0	11	2	0	0	32	5	0	4	6	2	0	1	17	4	0	84				
<u>Peak Hour Based On Peak 15 Minute</u>																					
	0	16	8	0	16	44	4	0	4	4	12	0	8	32	0	0	148				
Peak Hour Factor																		1.00			
Peak 15 Min % Trucks																		0%	0%	0%	0%

Intersection: 36th Avenue/Ocean Beach Highway (SR-4)
 AM Peak Hour Turning Movement Volumes

Date: 03/13/25

Time	SB				WB				NB				EB				Total				
	SBR	SBT	SBL	Trucks	WBR	WBT	WBL	Trucks	NBR	NBT	NBL	Trucks	EBR	EBT	EBL	Trucks					
<u>15 Minute Totals</u>																					
7:00 - 7:15 AM	1	0	2	0	0	49	0	3	1	0	1	0	0	161	2	11	217				
7:15 - 7:30 AM	2	0	10	1	3	70	1	7	1	0	0	0	1	216	2	8	306				
7:30 - 7:45 AM	1	0	11	0	2	95	0	7	0	0	1	0	0	269	3	3	382				
7:45 - 8:00 AM	0	0	3	0	1	126	0	2	1	0	1	0	0	193	3	4	328				
8:00 - 8:15 AM	3	0	2	1	1	106	0	5	1	0	0	0	1	184	3	3	301				
8:15 - 8:30 AM	0	0	5	0	1	116	0	4	0	0	0	0	0	181	2	3	305				
8:30 - 8:45 AM	1	0	6	1	4	129	0	16	1	0	0	0	0	241	1	3	383				
8:45 - 9:00 AM	3	0	3	1	3	116	0	3	0	0	0	0	1	199	1	3	326				
<u>Peak 15 Minutes</u>																					
8:30 - 8:45 AM	1	0	6	1	4	129	0	16	1	0	0	0	0	241	1	3	383				
<u>Hourly Total by 15 minutes</u>																					
7:00 - 8:00 AM	4	0	26	1	6	340	1	19	3	0	3	0	1	839	10	26	1,233				
7:15 - 8:15 AM	6	0	26	2	7	397	1	21	3	0	2	0	2	862	11	18	1,317				
7:30 - 8:30 AM	4	0	21	1	5	443	0	18	2	0	2	0	1	827	11	13	1,316				
7:45 - 8:45 AM	4	0	16	2	7	477	0	27	3	0	1	0	1	799	9	13	1,317				
8:00 - 9:00 AM	7	0	16	3	9	467	0	28	2	0	0	0	2	805	7	12	1,315				
<u>Peak Hour Based On Peak 15 Minute</u>																					
	4	0	24	4	16	516	0	64	4	0	0	0	0	964	4	12	1,532				
Peak Hour Factor																		1.00			
Peak 15 Min % Trucks																		14%	12%	0%	1%

Intersection: 36th Avenue/Ocean Beach Highway (SR-4)
PM Peak Hour Turning Movement Volumes

Date: 03/13/25

Time	SB				WB				NB				EB				Total				
	SBR	SBT	SBL	Trucks	WBR	WBT	WBL	Trucks	NBR	NBT	NBL	Trucks	EBR	EBT	EBL	Trucks					
<u>15 Minute Totals</u>																					
4:00 - 4:15 PM	1	0	4	0	5	258	0	1	1	0	0	0	2	206	4	2	481				
4:15 - 4:30 PM	2	0	5	0	5	245	0	0	0	1	0	0	0	198	5	1	461				
4:30 - 4:45 PM	3	0	3	0	3	220	0	3	0	0	0	0	1	182	3	3	415				
4:45 - 5:00 PM	2	0	1	0	2	221	0	1	1	0	0	0	1	195	4	1	427				
5:00 - 5:15 PM	1	0	2	0	2	272	1	0	4	0	0	0	1	166	10	1	459				
5:15 - 5:30 PM	2	0	1	0	2	298	2	1	2	0	0	0	1	191	1	1	500				
5:30 - 5:45 PM	1	0	3	0	5	238	3	1	3	0	0	0	0	206	1	2	460				
5:45 - 6:00 PM	4	0	3	0	5	245	2	0	2	0	0	0	0	172	3	2	436				
<u>Peak 15 Minutes</u>																					
5:15 - 5:30 PM	2	0	1	0	2	298	2	1	2	0	0	0	1	191	1	1	500				
<u>Hourly Total by 15 minutes</u>																					
4:00 - 5:00 PM	8	0	13	0	15	944	0	5	2	1	0	0	4	781	16	7	1,784				
4:15 - 5:15 PM	8	0	11	0	12	958	1	4	5	1	0	0	3	741	22	6	1,762				
4:30 - 5:30 PM	8	0	7	0	9	1,011	3	5	7	0	0	0	4	734	18	6	1,801				
4:45 - 5:45 PM	6	0	7	0	11	1,029	6	3	10	0	0	0	3	758	16	5	1,846				
5:00 - 6:00 PM	8	0	9	0	14	1,053	8	2	11	0	0	0	2	735	15	6	1,855				
<u>Peak Hour Based On Peak 15 Minute</u>																					
	8	0	4	0	8	1192	8	4	8	0	0	0	4	764	4	4	2,000				
Peak Hour Factor																		1.00			
Peak 15 Min % Trucks																		0%	0%	0%	1%

Intersection: 34th Avenue/Ocean Beach Highway (SR-4)
AM Peak Hour Turning Movement Volumes

Date: 03/18/25

Time	SB				WB				NB				EB				Total													
	SBR	SBT	SBL	Trucks	WBR	WBT	WBL	Trucks	NBR	NBT	NBL	Trucks	EBR	EBT	EBL	Trucks														
<u>15 Minute Totals</u>																														
7:00 - 7:15 AM	1	0	8	0	2	55	0	2	0	0	0	0	0	165	3	8	234													
7:15 - 7:30 AM	1	0	5	0	4	79	1	9	0	0	0	0	0	244	0	9	334													
7:30 - 7:45 AM	5	0	7	0	1	101	0	10	0	0	0	0	0	289	3	3	406													
7:45 - 8:00 AM	0	0	2	0	3	119	0	4	1	0	0	0	0	256	5	5	386													
8:00 - 8:15 AM	3	0	8	1	2	104	0	3	0	0	0	0	1	196	4	7	318													
8:15 - 8:30 AM	4	0	3	1	3	117	0	13	0	0	0	0	0	169	1	5	297													
8:30 - 8:45 AM	4	0	7	0	4	123	0	6	0	0	0	0	0	205	1	3	344													
8:45 - 9:00 AM	5	0	4	2	2	156	0	8	0	0	0	0	0	239	2	11	408													
<u>Peak 15 Minutes</u>																														
8:45 - 9:00 AM	5	0	4	2	2	156	0	8	0	0	0	0	0	239	2	11	408													
<u>Hourly Total by 15 minutes</u>																														
7:00 - 8:00 AM	7	0	22	0	10	354	1	25	1	0	0	0	0	954	11	25	1,360													
7:15 - 8:15 AM	9	0	22	1	10	403	1	26	1	0	0	0	1	985	12	24	1,444													
7:30 - 8:30 AM	12	0	20	2	9	441	0	30	1	0	0	0	1	910	13	20	1,407													
7:45 - 8:45 AM	11	0	20	2	12	463	0	26	1	0	0	0	1	826	11	20	1,345													
8:00 - 9:00 AM	16	0	22	4	11	500	0	30	0	0	0	0	1	809	8	26	1,367													
<u>Peak Hour Based On Peak 15 Minute</u>																														
	20	0	16	8	8	624	0	32	0	0	0	0	0	956	8	44	1,632													
Peak Hour Factor																		1.00												
Peak 15 Min % Trucks																		22%	5%				0%				5%			

Intersection: 34th Avenue/Ocean Beach Highway (SR-4)
 PM Peak Hour Turning Movement Volumes

Date: 03/18/25

Time	SB				WB				NB				EB				Total
	SBR	SBT	SBL	Trucks	WBR	WBT	WBL	Trucks	NBR	NBT	NBL	Trucks	EBR	EBT	EBL	Trucks	
<u>15 Minute Totals</u>																	
4:00 - 4:15 PM	5	0	4	1	5	256	0	6	0	0	0	0	0	194	3	4	467
4:15 - 4:30 PM	7	0	3	0	5	270	0	5	0	0	0	0	0	195	5	1	485
4:30 - 4:45 PM	4	0	3	0	5	249	0	4	0	0	0	0	0	218	6	2	485
4:45 - 5:00 PM	9	0	5	0	6	269	0	0	0	0	0	0	0	188	2	3	479
5:00 - 5:15 PM	10	0	5	0	3	269	1	0	0	0	0	0	0	183	4	0	475
5:15 - 5:30 PM	8	0	4	0	9	252	0	0	0	0	0	0	0	216	6	1	495
5:30 - 5:45 PM	2	0	7	0	4	241	0	3	0	0	0	0	0	189	3	2	446
5:45 - 6:00 PM	4	0	1	0	2	254	0	0	0	0	0	0	0	148	7	1	416
<u>Peak 15 Minutes</u>																	
5:15 - 5:30 PM	8	0	4	0	9	252	0	0	0	0	0	0	0	216	6	1	495
<u>Hourly Total by 15 minutes</u>																	
4:00 - 5:00 PM	25	0	15	1	21	1,044	0	15	0	0	0	0	0	795	16	10	1,916
4:15 - 5:15 PM	30	0	16	0	19	1,057	1	9	0	0	0	0	0	784	17	6	1,924
4:30 - 5:30 PM	31	0	17	0	23	1,039	1	4	0	0	0	0	0	805	18	6	1,934
4:45 - 5:45 PM	29	0	21	0	22	1,031	1	3	0	0	0	0	0	776	15	6	1,895
5:00 - 6:00 PM	24	0	17	0	18	1,016	1	3	0	0	0	0	0	736	20	4	1,832
<u>Peak Hour Based On Peak 15 Minute</u>																	
	32	0	16	0	36	1008	0	0	0	0	0	0	0	864	24	4	1,980
Peak Hour Factor																	1.00
<u>Peak 15 Min % Trucks</u>																	
	0%				0%				0%				0%				

Intersection: Oak Street/Project Access
AM Peak Hour Turning Movement Volumes

Date: 03/13/25

Time	SB				WB				NB				EB				Total				
	SBR	SBT	SBL	Trucks	WBR	WBT	WBL	Trucks	NBR	NBT	NBL	Trucks	EBR	EBT	EBL	Trucks					
<u>15 Minute Totals</u>																					
7:00 - 7:15 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	2	0	0	6				
7:15 - 7:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	10	0	1	11				
7:30 - 7:45 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	14	0	0	17				
7:45 - 8:00 AM	0	0	0	0	0	3	0	1	0	0	0	0	0	11	0	1	14				
8:00 - 8:15 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	7	0	0	10				
8:15 - 8:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	7	0	0	8				
8:30 - 8:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	4	0	0	5				
8:45 - 9:00 AM	0	0	0	0	0	6	0	0	0	0	0	0	0	7	0	0	13				
<u>Peak 15 Minutes</u>																					
7:30 - 7:45 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	14	0	0	17				
<u>Hourly Total by 15 minutes</u>																					
7:00 - 8:00 AM	0	0	0	0	0	11	0	1	0	0	0	0	0	37	0	2	48				
7:15 - 8:15 AM	0	0	0	0	0	10	0	1	0	0	0	0	0	42	0	2	52				
7:30 - 8:30 AM	0	0	0	0	0	10	0	1	0	0	0	0	0	39	0	1	49				
7:45 - 8:45 AM	0	0	0	0	0	8	0	1	0	0	0	0	0	29	0	1	37				
8:00 - 9:00 AM	0	0	0	0	0	11	0	0	0	0	0	0	0	25	0	0	36				
<u>Peak Hour Based On Peak 15 Minute</u>																					
	0	0	0	0	0	12	0	0	0	0	0	0	0	56	0	0	68				
Peak Hour Factor																		1.00			
Peak 15 Min % Trucks																		0%	0%	0%	0%

Intersection: Oak Street/Project Access
PM Peak Hour Turning Movement Volumes

Date: 03/13/25

Time	SB				WB				NB				EB				Total				
	SBR	SBT	SBL	Trucks	WBR	WBT	WBL	Trucks	NBR	NBT	NBL	Trucks	EBR	EBT	EBL	Trucks					
<u>15 Minute Totals</u>																					
4:00 - 4:15 PM	0	0	0	0	0	10	0	0	0	0	0	0	0	9	0	0	19				
4:15 - 4:30 PM	0	0	0	0	0	8	0	0	0	0	0	0	0	10	0	0	18				
4:30 - 4:45 PM	0	0	0	0	0	10	0	0	0	0	0	0	0	12	0	0	22				
4:45 - 5:00 PM	0	0	0	0	0	17	0	0	0	0	0	0	0	10	0	0	27				
5:00 - 5:15 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	6	0	0	11				
5:15 - 5:30 PM	0	0	0	0	0	12	0	0	0	0	0	0	0	4	0	0	16				
5:30 - 5:45 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	5	0	0	10				
5:45 - 6:00 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	7	0	0	11				
<u>Peak 15 Minutes</u>																					
4:45 - 5:00 PM	0	0	0	0	0	17	0	0	0	0	0	0	0	10	0	0	27				
<u>Hourly Total by 15 minutes</u>																					
4:00 - 5:00 PM	0	0	0	0	0	45	0	0	0	0	0	0	0	41	0	0	86				
4:15 - 5:15 PM	0	0	0	0	0	40	0	0	0	0	0	0	0	38	0	0	78				
4:30 - 5:30 PM	0	0	0	0	0	44	0	0	0	0	0	0	0	32	0	0	76				
4:45 - 5:45 PM	0	0	0	0	0	39	0	0	0	0	0	0	0	25	0	0	64				
5:00 - 6:00 PM	0	0	0	0	0	26	0	0	0	0	0	0	0	22	0	0	48				
<u>Peak Hour Based On Peak 15 Minute</u>																					
	0	0	0	0	0	68	0	0	0	0	0	0	0	40	0	0	108				
Peak Hour Factor																		1.00			
Peak 15 Min % Trucks																		0%	0%	0%	0%

APPENDIX B

EXISTING LEVELS OF SERVICE

Intersection Level Of Service Report
Intersection 1: 36th Avenue/Oak Street

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 9.6
Level Of Service: A
Volume to Capacity (v/c): 0.005

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	4	4	0	20	4	4	8	28	0	4	0	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	14.00	14.00	14.00	11.00	11.00	11.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	4	0	20	4	4	8	28	0	4	0	8
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	0	5	1	1	2	7	0	1	0	2
Total Analysis Volume [veh/h]	4	4	0	20	4	4	8	28	0	4	0	8
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.93	9.38	8.46	9.14	9.59	8.57	7.32	0.00	0.00	7.26	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.03	0.03	0.03	0.10	0.10	0.10	0.01	0.01	0.01	0.01	0.01	0.01
95th-Percentile Queue Length [ft/ln]	0.69	0.69	0.69	2.40	2.40	2.40	0.33	0.33	0.33	0.20	0.20	0.20
d_A, Approach Delay [s/veh]	9.16			9.12			1.63			2.42		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	4.96											
Intersection LOS	A											

Intersection Level Of Service Report
Intersection 2: 34th Avenue/Oak Street

Control Type:	Two-way stop	Delay (sec / veh):	9.5
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.047

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	20	16	4	40	4	0	12	4	4	12	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	8.00	8.00	8.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	20	16	4	40	4	0	12	4	4	12	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	5	4	1	10	1	0	3	1	1	3	0
Total Analysis Volume [veh/h]	0	20	16	4	40	4	0	12	4	4	12	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.02	0.01	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.17	9.34	8.51	9.27	9.52	8.67	7.22	0.00	0.00	7.23	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.12	0.12	0.12	0.18	0.18	0.18	0.00	0.00	0.00	0.01	0.01	0.01
95th-Percentile Queue Length [ft/ln]	2.97	2.97	2.97	4.42	4.42	4.42	0.00	0.00	0.00	0.17	0.17	0.17
d_A, Approach Delay [s/veh]	8.97			9.43			0.00			1.81		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	6.93											
Intersection LOS	A											

Intersection Level Of Service Report
Intersection 3: 36th Avenue/Ocean Beach Highway (SR-4)

Control Type:	Two-way stop	Delay (sec / veh):	18.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.080

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	4	24	0	4	4	964	0	0	516	16
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	14.00	14.00	14.00	1.00	1.00	1.00	12.00	12.00	12.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	4	24	0	4	4	964	0	0	516	16
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	1	6	0	1	1	241	0	0	129	4
Total Analysis Volume [veh/h]	0	0	4	24	0	4	4	964	0	0	516	16
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	Yes		
Number of Storage Spaces in Median	0	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.08	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	31.78	34.54	11.77	18.01	22.60	11.19	8.48	0.00	0.00	10.52	0.00	0.00
Movement LOS	D	D	B	C	C	B	A	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.02	0.28	0.28	0.28	0.01	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.56	0.56	0.56	6.97	6.97	6.97	0.29	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	11.77			17.04			0.04			0.00		
Approach LOS	B			C			A			A		
d_I, Intersection Delay [s/veh]	0.36											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 4: 34th Avenue/Ocean Beach Highway (SR-4)

Control Type:	Two-way stop	Delay (sec / veh):	18.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.055

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	16	0	20	8	956	0	0	624	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	16	0	20	8	956	0	0	624	8
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	4	0	5	2	239	0	0	156	2
Total Analysis Volume [veh/h]	0	0	0	16	0	20	8	956	0	0	624	8
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	Yes		
Number of Storage Spaces in Median	0	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.05	0.00	0.03	0.01	0.01	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	35.13	39.08	11.68	18.08	21.78	11.02	8.78	0.00	0.00	9.95	0.00	0.00
Movement LOS	E	E	B	C	C	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.27	0.27	0.27	0.03	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	6.83	6.83	6.83	0.63	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	28.63			14.16			0.07			0.00		
Approach LOS	D			B			A			A		
d_I, Intersection Delay [s/veh]	0.36											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 1: 36th Avenue/Oak Street

Control Type:	Two-way stop	Delay (sec / veh):	9.8
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.010

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	8	0	8	4	8	4	4	24	4	16	40	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	0	8	4	8	4	4	24	4	16	40	12
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	0	2	1	2	1	1	6	1	4	10	3
Total Analysis Volume [veh/h]	8	0	8	4	8	4	4	24	4	16	40	12
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	9.36	9.77	8.48	9.33	9.76	8.58	7.30	0.00	0.00	7.27	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.05	0.05	0.05	0.06	0.06	0.06	0.01	0.01	0.01	0.03	0.03	0.03
95th-Percentile Queue Length [ft/ln]	1.30	1.30	1.30	1.45	1.45	1.45	0.17	0.17	0.17	0.70	0.70	0.70
d_A, Approach Delay [s/veh]	8.92			9.36			0.91			1.71		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	3.32											
Intersection LOS	A											

Intersection Level Of Service Report
Intersection 2: 34th Avenue/Oak Street

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 9.7
Level Of Service: A
Volume to Capacity (v/c): 0.020

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	12	4	4	8	16	0	0	32	8	4	44	16
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	4	4	8	16	0	0	32	8	4	44	16
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	1	1	2	4	0	0	8	2	1	11	4
Total Analysis Volume [veh/h]	12	4	4	8	16	0	0	32	8	4	44	16
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.28	9.67	8.55	9.24	9.68	8.66	7.31	0.00	0.00	7.28	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.07	0.07	0.07	0.09	0.09	0.09	0.00	0.00	0.00	0.01	0.01	0.01
95th-Percentile Queue Length [ft/ln]	1.75	1.75	1.75	2.26	2.26	2.26	0.00	0.00	0.00	0.18	0.18	0.18
d_A, Approach Delay [s/veh]	9.21			9.53			0.00			0.45		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	2.99											
Intersection LOS	A											

Intersection Level Of Service Report
Intersection 3: 36th Avenue/Ocean Beach Highway (SR-4)

Control Type:	Two-way stop	Delay (sec / veh):	28.7
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.026

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	8	4	0	8	4	764	4	8	1192	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	8	4	0	8	4	764	4	8	1192	8
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	2	1	0	2	1	191	1	2	298	2
Total Analysis Volume [veh/h]	0	0	8	4	0	8	4	764	4	8	1192	8
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	Yes		
Number of Storage Spaces in Median	0	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.03	0.00	0.02	0.01	0.01	0.00	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	40.78	64.58	10.88	28.73	27.02	13.61	11.22	0.00	0.00	9.25	0.00	0.00
Movement LOS	E	F	B	D	D	B	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.04	0.04	0.04	0.14	0.14	0.14	0.02	0.00	0.00	0.03	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.98	0.98	0.98	3.40	3.40	3.40	0.52	0.00	0.00	0.71	0.00	0.00
d_A, Approach Delay [s/veh]	10.88			18.65			0.06			0.06		
Approach LOS	B			C			A			A		
d_I, Intersection Delay [s/veh]	0.21											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 4: 34th Avenue/Ocean Beach Highway (SR-4)

Control Type:	Two-way stop	Delay (sec / veh):	26.1
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.085

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	16	0	32	24	864	0	0	1008	36
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	16	0	32	24	864	0	0	1008	36
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	4	0	8	6	216	0	0	252	9
Total Analysis Volume [veh/h]	0	0	0	16	0	32	24	864	0	0	1008	36
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	Yes		
Number of Storage Spaces in Median	0	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.09	0.00	0.06	0.04	0.01	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	45.20	62.81	11.24	26.06	27.06	14.06	10.54	0.00	0.00	9.57	0.00	0.00
Movement LOS	E	F	B	D	D	B	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.52	0.52	0.52	0.11	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	12.88	12.88	12.88	2.77	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	39.75			18.06			0.28			0.00		
Approach LOS	E			C			A			A		
d_I, Intersection Delay [s/veh]	0.57											
Intersection LOS	D											

APPENDIX C
ACCIDENT DATA

CITY STREETS

34TH AVE @ OAK ST

36TH AVE @ OAK ST - *No Reported Crashes*

OAK ST FROM 34TH AVE TO 36TH AVE

STATE ROUTES

SR 4 (aka Ocean Beach Hwy, MP 58.23 - 58.27) @ 34TH AVE

SR 4 (aka Ocean Beach Hwy, MP 57.98 - 58.02) @ 36TH AVE

OFFICER REPORTED CRASHES THAT OCCURREDat OR in the vicinity of MULTIPLE INTERSECTIONS & ROAD SEGMENT IN LONGVIEW
01/01/2019 - available 2024

Under 23 U.S. Code § 148 and 23 U.S. Code § 407, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

JURISDICTION	COUNTY	CITY	PRIMARY TRAFFICWAY	BLOCK NUMBER	INTERSECTING TRAFFICWAY	DIST FROM REF POINT	MILEPOST	SR ONLY HISTORY / SUSPENSE	REPORT NUMBER	DATE	TIME	MOST SEVERE INJURY TYPE	# I N J U R I E S	# F A T A L I T I E S	VEHICLE 1 TYPE	VEHICLE 2 TYPE	JUNCTION RELATIONSHIP	WEATHER	ROADWAY SURFACE CONDITION	LIGHTING CONDITION	FIRST COLLISION TYPE / OBJECT STRUCK	VEHICLE 1 ACTION	VEHICLE 2 ACTION	VEHICLE 1 COMPASS DIRECTION FROM	VEHICLE 1 COMPASS DIRECTION TO	VEHICLE 2 COMPASS DIRECTION FROM	VEHICLE 2 COMPASS DIRECTION TO	MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 2 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 3 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 2)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 2 (UNIT 2)	FIRST IMPACT LOCATION (City, County & Misc Trafficways - 2010 forward)	WA STATE PLANE SOUTH - X 2010 - FORWARD	WA STATE PLANE SOUTH - Y 2010 - FORWARD		
City Street	Cowlitz	Longview	34TH AVE	2400		202		No	EF22573	#####	05:40	No Apparent Injury	0	0	2	0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	Not at Intersection and Not Related	Clear	Dry	Dark-Street Lights Off	One parked--one moving	Going Straight Ahead	Legally Parked, Unoccupie d	North	South			Other Contributing Circ Not Listed			None		Past the Outside Shoulder of Primary Trafficway	1014521.49	309711.27
City Street	Cowlitz	Longview	34TH AVE	2400		204		No	EA04057	#####	13:08	No Apparent Injury	0	0	2	0	Pickup,Panel Truck or Vanette under 10,000 lb	Passenger Car	Not at Intersection and Not Related	Overcast	Wet	Daylight	From same direction - both going straight - both moving - rear-end	Going Straight Ahead	Slowing	South	North	South	North	Other Contributing Circ Not Listed	Racing		Other Contributing Circ Not Listed	Racing	Lane of Primary Trafficway	1014522.81	309713.01
City Street	Cowlitz	Longview	36TH AVE	2200		274		No	E890490	#####	08:50	No Apparent Injury	0	0	2	0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000 lb	Not at Intersection and Not Related	Clear or Partly Cloudy	Dry	Daylight	One parked--one moving	Going Straight Ahead	Legally Parked, Unoccupie d	West	East			Inattention			None		Outside Shoulder of Primary Trafficway	1012437.07	309140.65
City Street	Cowlitz	Longview	OAK ST	3300		49		No	EC97080	#####	15:10	No Apparent Injury	0	0	1	0	Truck & Trailer		Not at Intersection and Not Related	Clear	Dry	Daylight	Over Roadway Power Lines	Going Straight Ahead		East	West			Other Contributing Circ Not Listed				Lane of Primary Trafficway	1014438.48	309521.25	
State Route	Cowlitz	Longview	004				57.99	No	EA79164	#####	16:19	No Apparent Injury	0	0	2	0	Passenger Car	Passenger Car	Not at Intersection and Not Related	Raining	Wet	Daylight	From same direction - both going straight - both moving - rear-end	Going Straight Ahead	Slowing	West	East	West	East	None			None		Lane 2 Increasing Milepost	1012212.86	308969.39
State Route	Cowlitz	Longview	004				58.00	No	ED16397	#####	22:31	No Apparent Injury	0	0	2	0	Passenger Car	Passenger Car	At Intersection and Related	Clear	Dry	Dark-Street Lights On	From opposite direction - one left turn - one straight	Going Straight Ahead	Making Left Turn	East	West	West	North	Other Contributing Circ Not Listed			None		Lane 2 Decreasing Milepost	1012274.65	308926.35
State Route	Cowlitz	Longview	004				58.01	No	EA24667	#####	21:07	No Apparent Injury	0	0	2	0	Pickup,Panel Truck or Vanette under 10,000 lb	Passenger Car	At Intersection and Related	Clear or Partly Cloudy	Dry	Dark-Street Lights On	Entering at angle	Stopped at Signal or Stop Sign	Making Right Turn	Vehicle Stopped	Vehicle Stopped	West	South	None			Operating Defective Equipment	Exceeding Reas. Safe Speed	Intersecting Road Increasing Milepost	1012276.72	308921.04
State Route	Cowlitz	Longview	004				58.23	No	EC76262	#####	20:37	No Apparent Injury	0	0	1	0	Passenger Car		Not at Intersection and Not Related	Clear	Dry	Dark-Street Lights Off	Linear Curb	Going Straight Ahead		East	West			Under Influence of Alcohol					Right Shoulder Decreasing Milepost	1013243.7	308188.93
State Route	Cowlitz	Longview	004				58.25	No	ED68427	#####	16:49	No Apparent Injury	0	0	2	0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Clear or Partly Cloudy	Dry	Daylight	Entering at angle	Making Left Turn	Going Straight Ahead	North	East	West	East	Did Not Grant RW to Vehicle			None		Lane 1 Increasing Milepost	1013323.61	308129.13
State Route	Cowlitz	Longview	004				58.25	No	ED20569	#####	15:20	No Apparent Injury	0	0	1	0	Pickup,Panel Truck or Vanette under 10,000 lb		At Intersection and Not Related	Sleet or Hail or Freezing Rain	Ice	Dusk	Utility Box	Going Straight Ahead		East	West			Exceeding Reas. Safe Speed	Unknown Distraction				Past Right Shoulder Decreasing Milepost	1013327.19	308133.54
State Route	Cowlitz	Longview	004				58.25	No	ED12067	#####	15:58	Unknown	0	0	2	0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Raining	Wet	Daylight	Entering at angle	Making Left Turn	Going Straight Ahead	North	East	East	West	Improper Turn/Merge			None		Lane 2 Decreasing Milepost	1013327.19	308133.54
State Route	Cowlitz	Longview	004				58.25	No	ED83027	#####	00:51	Possible Injury	1	0	2	0	Pickup,Panel Truck or Vanette under 10,000 lb	Pickup,Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Clear	Dry	Dark-Street Lights On	From same direction - one right turn - one straight	Going Straight Ahead	Making Right Turn	East	West	East	North	Follow Too Closely			None		Lane 1 Decreasing Milepost	1013327.19	308133.54
State Route	Cowlitz	Longview	004				58.25	No	ED82549	#####	11:36	Possible Injury	1	0	2	0	Passenger Car	Passenger Car	At Intersection and Related	Clear or Partly Cloudy	Dry	Daylight	Entering at angle	Making Left Turn	Going Straight Ahead	North	East	East	West	Improper Turn/Merge	Did Not Grant RW to Vehicle		None		Lane 2 Decreasing Milepost	1013327.19	308133.54
State Route	Cowlitz	Longview	004				58.26	No	ED16396	#####	11:22	No Apparent Injury	0	0	1	0	Pickup,Panel Truck or Vanette under 10,000 lb		Not at Intersection and Not Related	Overcast	Wet	Daylight	Vehicle Strikes Deer	Going Straight Ahead		West	East			None					Lane 2 Increasing Milepost	1013340.53	308098.89
State Route	Cowlitz	Longview	004				58.26	No	ED53055	#####	16:14	No Apparent Injury	0	0	2	0	Pickup,Panel Truck or Vanette under 10,000 lb	School Bus	Not at Intersection and Not Related	Overcast	Dry	Daylight	From opposite direction - all others	Changing Lanes	Going Straight Ahead	West	East	East	West	Under Influence of Alcohol	Exceeding Reas. Safe Speed	Operating Recklessly or Aggressively	None		Lane 2 Decreasing Milepost	1013360.42	308100.41
State Route	Cowlitz	Longview	004				58.27	No	3122737	#####	10:19	No Apparent Injury	0	0	3	0	Passenger Car	Pickup,Panel Truck or Vanette under 10,000 lb	Not at Intersection and Not Related	Clear	Dry	Daylight	Fence	Going Straight Ahead	Legally Parked, Unoccupie d	West	East	Vehicle Stopped		Under Influence of Alcohol	Inattention		None		Past Right Shoulder Increasing Milepost	1013403.57	308068.19

0

APPENDIX D

2030 “WITHOUT PROJECT” LEVELS OF SERVICE







APPENDIX E

IN-PROCESS

Intersection Level Of Service Report
Intersection 1: 36th Avenue/Oak Street

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 9.6
Level Of Service: A
Volume to Capacity (v/c): 0.005

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	4	4	0	22	4	4	9	31	0	4	0	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	14.00	14.00	14.00	11.00	11.00	11.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	4	0	22	4	4	9	31	0	4	0	9
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	0	6	1	1	2	8	0	1	0	2
Total Analysis Volume [veh/h]	4	4	0	22	4	4	9	31	0	4	0	9
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.02	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.96	9.42	8.47	9.18	9.64	8.59	7.33	0.00	0.00	7.26	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.03	0.03	0.03	0.10	0.10	0.10	0.02	0.02	0.02	0.01	0.01	0.01
95th-Percentile Queue Length [ft/ln]	0.70	0.70	0.70	2.60	2.60	2.60	0.38	0.38	0.38	0.20	0.20	0.20
d_A, Approach Delay [s/veh]	9.19			9.16			1.65			2.24		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	4.87											
Intersection LOS	A											

Intersection Level Of Service Report
Intersection 2: 34th Avenue/Oak Street

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 9.6
Level Of Service: A
Volume to Capacity (v/c): 0.052

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	22	18	4	44	4	0	13	4	4	13	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	8.00	8.00	8.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	22	18	4	44	4	0	13	4	4	13	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	6	5	1	11	1	0	3	1	1	3	0
Total Analysis Volume [veh/h]	0	22	18	4	44	4	0	13	4	4	13	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.03	0.02	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.23	9.36	8.53	9.34	9.55	8.70	7.22	0.00	0.00	7.24	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.13	0.13	0.13	0.19	0.19	0.19	0.00	0.00	0.00	0.01	0.01	0.01
95th-Percentile Queue Length [ft/ln]	3.32	3.32	3.32	4.84	4.84	4.84	0.00	0.00	0.00	0.17	0.17	0.17
d_A, Approach Delay [s/veh]	8.99			9.47			0.00			1.70		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	6.99											
Intersection LOS	A											

Intersection Level Of Service Report
Intersection 3: 36th Avenue/Ocean Beach Highway (SR-4)

Control Type:	Two-way stop	Delay (sec / veh):	20.8
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.103

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	4	26	0	4	4	1154	0	0	598	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	14.00	14.00	14.00	1.00	1.00	1.00	12.00	12.00	12.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	4	26	0	4	4	1154	0	0	598	18
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	1	7	0	1	1	289	0	0	150	5
Total Analysis Volume [veh/h]	0	0	4	26	0	4	4	1154	0	0	598	18
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	Yes		
Number of Storage Spaces in Median	0	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.10	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	44.69	48.47	12.81	20.84	27.30	12.10	8.74	0.00	0.00	11.58	0.00	0.00
Movement LOS	E	E	B	C	D	B	A	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	0.03	0.03	0.03	0.36	0.36	0.36	0.01	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.65	0.65	0.65	9.07	9.07	9.07	0.31	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.81			19.68			0.03			0.00		
Approach LOS	B			C			A			A		
d_I, Intersection Delay [s/veh]	0.37											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 4: 34th Avenue/Ocean Beach Highway (SR-4)

Control Type:	Two-way stop	Delay (sec / veh):	20.8
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.073

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	18	0	22	9	1146	0	0	717	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	18	0	22	9	1146	0	0	717	9
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	5	0	6	2	287	0	0	179	2
Total Analysis Volume [veh/h]	0	0	0	18	0	22	9	1146	0	0	717	9
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	Yes		
Number of Storage Spaces in Median	0	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.07	0.00	0.03	0.01	0.01	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	50.58	56.24	12.70	20.84	26.01	11.80	9.10	0.00	0.00	10.83	0.00	0.00
Movement LOS	F	F	B	C	D	B	A	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.36	0.36	0.36	0.03	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	8.98	8.98	8.98	0.77	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	39.84			15.87			0.07			0.00		
Approach LOS	E			C			A			A		
d_I, Intersection Delay [s/veh]	0.37											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 1: 36th Avenue/Oak Street

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 9.8
Level Of Service: A
Volume to Capacity (v/c): 0.012

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	9	0	9	4	9	4	4	26	4	18	44	13
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	0	9	4	9	4	4	26	4	18	44	13
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	0	2	1	2	1	1	7	1	5	11	3
Total Analysis Volume [veh/h]	9	0	9	4	9	4	4	26	4	18	44	13
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	9.45	9.85	8.50	9.42	9.84	8.61	7.31	0.00	0.00	7.28	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.06	0.06	0.06	0.06	0.06	0.06	0.01	0.01	0.01	0.03	0.03	0.03
95th-Percentile Queue Length [ft/ln]	1.49	1.49	1.49	1.57	1.57	1.57	0.17	0.17	0.17	0.79	0.79	0.79
d_A, Approach Delay [s/veh]	8.97			9.45			0.86			1.75		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	3.35											
Intersection LOS	A											

Intersection Level Of Service Report
Intersection 2: 34th Avenue/Oak Street

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 9.8
Level Of Service: A
Volume to Capacity (v/c): 0.023

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	13	4	4	9	18	0	0	35	9	4	49	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	4	4	9	18	0	0	35	9	4	49	18
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	1	1	2	5	0	0	9	2	1	12	5
Total Analysis Volume [veh/h]	13	4	4	9	18	0	0	35	9	4	49	18
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.01	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.36	9.74	8.57	9.32	9.76	8.71	7.33	0.00	0.00	7.29	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.07	0.07	0.07	0.10	0.10	0.10	0.00	0.00	0.00	0.01	0.01	0.01
95th-Percentile Queue Length [ft/ln]	1.87	1.87	1.87	2.59	2.59	2.59	0.00	0.00	0.00	0.18	0.18	0.18
d_A, Approach Delay [s/veh]	9.28			9.61			0.00			0.41		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	2.97											
Intersection LOS	A											

Intersection Level Of Service Report
Intersection 3: 36th Avenue/Ocean Beach Highway (SR-4)

Control Type:	Two-way stop	Delay (sec / veh):	37.6
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.035

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			TTL			TTL		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	0	9	4	0	9	4	899	4	9	1411	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	9	4	0	9	4	899	4	9	1411	9
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	2	1	0	2	1	225	1	2	353	2
Total Analysis Volume [veh/h]	0	0	9	4	0	9	4	899	4	9	1411	9
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	Yes		
Number of Storage Spaces in Median	0	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.02	0.04	0.00	0.02	0.01	0.01	0.00	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	60.10	105.50	11.53	37.59	33.68	15.47	12.55	0.00	0.00	9.79	0.00	0.00
Movement LOS	F	F	B	E	D	C	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.05	0.05	0.05	0.19	0.19	0.19	0.03	0.00	0.00	0.04	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.22	1.22	1.22	4.65	4.65	4.65	0.63	0.00	0.00	0.90	0.00	0.00
d_A, Approach Delay [s/veh]	11.53			22.28			0.06			0.06		
Approach LOS	B			C			A			A		
d_I, Intersection Delay [s/veh]	0.23											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 4: 34th Avenue/Ocean Beach Highway (SR-4)

Control Type:	Two-way stop	Delay (sec / veh):	34.0
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.127

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	18	0	35	26	1009	0	0	1208	40
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	18	0	35	26	1009	0	0	1208	40
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	5	0	9	7	252	0	0	302	10
Total Analysis Volume [veh/h]	0	0	0	18	0	35	26	1009	0	0	1208	40
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	Yes		
Number of Storage Spaces in Median	0	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.13	0.00	0.08	0.05	0.01	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	68.46	102.54	11.95	33.96	34.30	16.96	11.68	0.00	0.00	10.18	0.00	0.00
Movement LOS	F	F	B	D	D	C	B	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.76	0.76	0.76	0.14	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	19.05	19.05	19.05	3.61	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	60.98			22.73			0.29			0.00		
Approach LOS	F			C			A			A		
d_I, Intersection Delay [s/veh]	0.65											
Intersection LOS	D											

APPENDIX F

2030 “WITH PROJECT” LEVELS OF SERVICE

Intersection Level Of Service Report
Intersection 1: 36th Avenue/Oak Street

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 9.7
Level Of Service: A
Volume to Capacity (v/c): 0.005

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	4	4	1	22	4	4	9	32	0	5	4	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	14.00	14.00	14.00	11.00	11.00	11.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	4	1	22	4	4	9	32	0	5	4	9
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	0	6	1	1	2	8	0	1	1	2
Total Analysis Volume [veh/h]	4	4	1	22	4	4	9	32	0	5	4	9
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.03	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.01	9.47	8.48	9.24	9.69	8.61	7.33	0.00	0.00	7.27	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.03	0.03	0.03	0.11	0.11	0.11	0.02	0.02	0.02	0.01	0.01	0.01
95th-Percentile Queue Length [ft/ln]	0.78	0.78	0.78	2.63	2.63	2.63	0.38	0.38	0.38	0.24	0.24	0.24
d_A, Approach Delay [s/veh]	9.15			9.22			1.61			2.02		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	4.71											
Intersection LOS	A											

Intersection Level Of Service Report
Intersection 2: 34th Avenue/Oak Street

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 9.6
Level Of Service: A
Volume to Capacity (v/c): 0.053

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	1	22	18	4	44	4	0	19	6	4	14	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	8.00	8.00	8.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	22	18	4	44	4	0	19	6	4	14	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	6	5	1	11	1	0	5	2	1	4	0
Total Analysis Volume [veh/h]	1	22	18	4	44	4	0	19	6	4	14	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.03	0.02	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.29	9.42	8.57	9.39	9.61	8.71	7.23	0.00	0.00	7.25	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.14	0.14	0.14	0.20	0.20	0.20	0.00	0.00	0.00	0.01	0.01	0.01
95th-Percentile Queue Length [ft/ln]	3.45	3.45	3.45	4.89	4.89	4.89	0.00	0.00	0.00	0.17	0.17	0.17
d_A, Approach Delay [s/veh]	9.04			9.52			0.00			1.61		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	6.58											
Intersection LOS	A											

Intersection Level Of Service Report
Intersection 3: 36th Avenue/Ocean Beach Highway (SR-4)

Control Type:	Two-way stop	Delay (sec / veh):	21.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.104

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	4	26	0	5	5	1155	0	0	602	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	14.00	14.00	14.00	1.00	1.00	1.00	12.00	12.00	12.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	4	26	0	5	5	1155	0	0	602	18
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	1	7	0	1	1	289	0	0	151	5
Total Analysis Volume [veh/h]	0	0	4	26	0	5	5	1155	0	0	602	18
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	Yes		
Number of Storage Spaces in Median	0	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.10	0.00	0.01	0.01	0.01	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	45.13	48.95	12.82	20.96	27.43	12.14	8.76	0.00	0.00	11.59	0.00	0.00
Movement LOS	E	E	B	C	D	B	A	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	0.03	0.03	0.03	0.37	0.37	0.37	0.02	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.65	0.65	0.65	9.28	9.28	9.28	0.39	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.82			19.53			0.04			0.00		
Approach LOS	B			C			A			A		
d_I, Intersection Delay [s/veh]	0.39											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 4: 34th Avenue/Ocean Beach Highway (SR-4)

Control Type:	Two-way stop	Delay (sec / veh):	24.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.117

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			TTL			TTL		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	25	0	26	10	1146	0	0	717	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	22.00	22.00	22.00	5.00	5.00	5.00	5.00	5.00	5.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	25	0	26	10	1146	0	0	717	11
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	6	0	7	3	287	0	0	179	3
Total Analysis Volume [veh/h]	0	0	0	25	0	26	10	1146	0	0	717	11
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	Yes		
Number of Storage Spaces in Median	0	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.12	0.00	0.04	0.01	0.01	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	51.31	56.61	12.70	24.11	30.76	13.43	9.28	0.00	0.00	11.12	0.00	0.00
Movement LOS	F	F	B	C	D	B	A	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.57	0.57	0.57	0.04	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	14.29	14.29	14.29	0.89	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	40.21			18.67			0.08			0.00		
Approach LOS	E			C			A			A		
d_I, Intersection Delay [s/veh]	0.54											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 5: Oak Street/Project Access

Control Type:	Two-way stop	Delay (sec / veh):	8.9
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	5	8	62	2	2	13
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	8	62	2	2	13
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	2	16	1	1	3
Total Analysis Volume [veh/h]	5	8	62	2	2	13
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.94	8.62	0.00	0.00	7.32	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.04	0.04	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.01	1.01	0.00	0.00	0.08	0.08
d_A, Approach Delay [s/veh]	8.74		0.00		0.98	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.39					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 1: 36th Avenue/Oak Street

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 9.9
Level Of Service: A
Volume to Capacity (v/c): 0.012

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	9	0	11	4	9	4	4	31	4	19	47	13
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	0	11	4	9	4	4	31	4	19	47	13
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	0	3	1	2	1	1	8	1	5	12	3
Total Analysis Volume [veh/h]	9	0	11	4	9	4	4	31	4	19	47	13
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	9.53	9.92	8.53	9.51	9.90	8.63	7.32	0.00	0.00	7.29	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.07	0.07	0.07	0.06	0.06	0.06	0.01	0.01	0.01	0.03	0.03	0.03
95th-Percentile Queue Length [ft/ln]	1.66	1.66	1.66	1.60	1.60	1.60	0.17	0.17	0.17	0.84	0.84	0.84
d_A, Approach Delay [s/veh]	8.98			9.51			0.75			1.75		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	3.28											
Intersection LOS	A											

Intersection Level Of Service Report
Intersection 2: 34th Avenue/Oak Street

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 9.8
Level Of Service: A
Volume to Capacity (v/c): 0.023

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name												
Base Volume Input [veh/h]	15	4	4	9	18	0	0	39	10	4	55	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	4	4	9	18	0	0	39	10	4	55	18
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	1	1	2	5	0	0	10	3	1	14	5
Total Analysis Volume [veh/h]	15	4	4	9	18	0	0	39	10	4	55	18
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.01	0.00	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.45	9.81	8.61	9.39	9.83	8.74	7.34	0.00	0.00	7.30	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.08	0.08	0.08	0.11	0.11	0.11	0.00	0.00	0.00	0.01	0.01	0.01
95th-Percentile Queue Length [ft/ln]	2.09	2.09	2.09	2.63	2.63	2.63	0.00	0.00	0.00	0.18	0.18	0.18
d_A, Approach Delay [s/veh]	9.36			9.68			0.00			0.38		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	2.88											
Intersection LOS	A											

Intersection Level Of Service Report
Intersection 3: 36th Avenue/Ocean Beach Highway (SR-4)

Control Type:	Two-way stop	Delay (sec / veh):	37.8
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.035

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	9	4	0	10	6	903	4	9	1414	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	9	4	0	10	6	903	4	9	1414	9
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	2	1	0	3	2	226	1	2	354	2
Total Analysis Volume [veh/h]	0	0	9	4	0	10	6	903	4	9	1414	9
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	Yes		
Number of Storage Spaces in Median	0	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.02	0.04	0.00	0.03	0.01	0.01	0.00	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	61.40	107.57	11.54	37.83	33.93	15.52	12.61	0.00	0.00	9.80	0.00	0.00
Movement LOS	F	F	B	E	D	C	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.05	0.05	0.05	0.20	0.20	0.20	0.04	0.00	0.00	0.04	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.23	1.23	1.23	4.89	4.89	4.89	0.95	0.00	0.00	0.90	0.00	0.00
d_A, Approach Delay [s/veh]	11.54			21.89			0.08			0.06		
Approach LOS	B			C			A			A		
d_I, Intersection Delay [s/veh]	0.24											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 4: 34th Avenue/Ocean Beach Highway (SR-4)

Control Type:	Two-way stop	Delay (sec / veh):	35.5
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.163

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

Volumes

Name												
Base Volume Input [veh/h]	0	0	0	23	0	38	30	1009	0	0	1208	48
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	23	0	38	30	1009	0	0	1208	48
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	6	0	10	8	252	0	0	302	12
Total Analysis Volume [veh/h]	0	0	0	23	0	38	30	1009	0	0	1208	48
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	Yes		
Number of Storage Spaces in Median	0	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.16	0.00	0.09	0.05	0.01	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	70.38	105.64	11.95	35.52	35.89	18.29	11.78	0.00	0.00	10.18	0.00	0.00
Movement LOS	F	F	B	E	E	C	B	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.97	0.97	0.97	0.17	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	24.20	24.20	24.20	4.23	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	62.66			24.78			0.34			0.00		
Approach LOS	F			C			A			A		
d_I, Intersection Delay [s/veh]	0.79											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 5: Oak Street/Project Access

Control Type:	Two-way stop	Delay (sec / veh):	9.2
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	4	5	44	7	8	75
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	5	44	7	8	75
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	11	2	2	19
Total Analysis Volume [veh/h]	4	5	44	7	8	75
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	9.25	8.54	0.00	0.00	7.30	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.03	0.03	0.00	0.00	0.01	0.01
95th-Percentile Queue Length [ft/ln]	0.72	0.72	0.00	0.00	0.33	0.33
d_A, Approach Delay [s/veh]	8.86		0.00		0.70	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.97					
Intersection LOS	A					

Signal Warrants Report For Intersection 1: 36th Avenue/Oak Street

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N, S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	N	S
1	18	41	30	9
2	17	40	29	9
3	17	39	29	9
4	16	36	27	8
5	14	32	24	7
6	14	32	23	7
7	14	32	23	7
8	13	29	21	6
9	12	28	21	6
10	12	28	20	6
11	11	24	18	5
12	10	23	17	5
13	10	22	16	5
14	7	16	12	4
15	7	16	12	4
16	5	11	8	3
17	3	7	5	1
18	3	7	5	1
19	2	4	3	1
20	1	2	2	0
21	1	1	1	0
22	0	0	0	0
23	0	0	0	0
24	0	0	0	0

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	1	59	1	30	No	No	No	No	No	No	No	No	No	No
2	1	57	1	29	No	No	No	No	No	No	No	No	No	No
3	1	56	1	29	No	No	No	No	No	No	No	No	No	No
4	1	52	1	27	No	No	No	No	No	No	No	No	No	No
5	1	46	1	24	No	No	No	No	No	No	No	No	No	No
6	1	46	1	23	No	No	No	No	No	No	No	No	No	No
7	1	46	1	23	No	No	No	No	No	No	No	No	No	No
8	1	42	1	21	No	No	No	No	No	No	No	No	No	No
9	1	40	1	21	No	No	No	No	No	No	No	No	No	No
10	1	40	1	20	No	No	No	No	No	No	No	No	No	No
11	1	35	1	18	No	No	No	No	No	No	No	No	No	No
12	1	33	1	17	No	No	No	No	No	No	No	No	No	No
13	1	32	1	16	No	No	No	No	No	No	No	No	No	No
14	1	23	1	12	No	No	No	No	No	No	No	No	No	No
15	1	23	1	12	No	No	No	No	No	No	No	No	No	No
16	1	16	1	8	No	No	No	No	No	No	No	No	No	No
17	1	10	1	5	No	No	No	No	No	No	No	No	No	No
18	1	10	1	5	No	No	No	No	No	No	No	No	No	No
19	1	6	1	3	No	No	No	No	No	No	No	No	No	No
20	1	3	1	2	No	No	No	No	No	No	No	No	No	No
21	1	2	1	1	No	No	No	No	No	No	No	No	No	No
22	1	0	1	0	No	No	No	No	No	No	No	No	No	No
23	1	0	1	0	No	No	No	No	No	No	No	No	No	No
24	1	0	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	N	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.2	9.2
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach (h:mm)	0:04	0:01
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	30	9
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	98	98
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 2: 34th Avenue/Oak Street

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N, S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	N	S
1	18	25	52	41
2	17	24	50	40
3	17	24	49	39
4	16	22	46	36
5	14	20	41	32
6	14	20	41	32
7	14	19	40	32
8	13	18	36	29
9	12	17	36	28
10	12	17	35	28
11	11	15	31	24
12	10	14	29	23
13	10	14	28	22
14	7	10	21	16
15	7	10	21	16
16	5	7	15	11
17	3	4	8	7
18	3	4	8	7
19	2	2	5	4
20	1	1	3	2
21	1	1	2	1
22	0	0	1	0
23	0	0	1	0
24	0	0	1	0

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	1	43	1	52	No	No	No	No	No	No	No	No	No	No
2	1	41	1	50	No	No	No	No	No	No	No	No	No	No
3	1	41	1	49	No	No	No	No	No	No	No	No	No	No
4	1	38	1	46	No	No	No	No	No	No	No	No	No	No
5	1	34	1	41	No	No	No	No	No	No	No	No	No	No
6	1	34	1	41	No	No	No	No	No	No	No	No	No	No
7	1	33	1	40	No	No	No	No	No	No	No	No	No	No
8	1	31	1	36	No	No	No	No	No	No	No	No	No	No
9	1	29	1	36	No	No	No	No	No	No	No	No	No	No
10	1	29	1	35	No	No	No	No	No	No	No	No	No	No
11	1	26	1	31	No	No	No	No	No	No	No	No	No	No
12	1	24	1	29	No	No	No	No	No	No	No	No	No	No
13	1	24	1	28	No	No	No	No	No	No	No	No	No	No
14	1	17	1	21	No	No	No	No	No	No	No	No	No	No
15	1	17	1	21	No	No	No	No	No	No	No	No	No	No
16	1	12	1	15	No	No	No	No	No	No	No	No	No	No
17	1	7	1	8	No	No	No	No	No	No	No	No	No	No
18	1	7	1	8	No	No	No	No	No	No	No	No	No	No
19	1	4	1	5	No	No	No	No	No	No	No	No	No	No
20	1	2	1	3	No	No	No	No	No	No	No	No	No	No
21	1	2	1	2	No	No	No	No	No	No	No	No	No	No
22	1	0	1	1	No	No	No	No	No	No	No	No	No	No
23	1	0	1	1	No	No	No	No	No	No	No	No	No	No
24	1	0	1	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	N	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.5	9
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach (h:mm)	0:08	0:06
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	52	41
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	136	136
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 3: 36th Avenue/Ocean Beach Highway (SR-4)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	620	1160	4	31
2	601	1125	4	30
3	589	1102	4	29
4	552	1032	4	28
5	490	916	3	24
6	484	905	3	24
7	477	893	3	24
8	434	812	3	22
9	428	800	3	21
10	422	789	3	21
11	366	684	2	18
12	341	638	2	17
13	335	626	2	17
14	248	464	2	12
15	248	464	2	12
16	174	325	1	9
17	99	186	1	5
18	99	186	1	5
19	56	104	0	3
20	31	58	0	2
21	19	35	0	1
22	6	12	0	0
23	6	12	0	0
24	6	12	0	0

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	1780	1	31	No	No	No	No	No	No	No	No	No	No
2	3	1726	1	30	No	No	No	No	No	No	No	No	No	No
3	3	1691	1	29	No	No	No	No	No	No	No	No	No	No
4	3	1584	1	28	No	No	No	No	No	No	No	No	No	No
5	3	1406	1	24	No	No	No	No	No	No	No	No	No	No
6	3	1389	1	24	No	No	No	No	No	No	No	No	No	No
7	3	1370	1	24	No	No	No	No	No	No	No	No	No	No
8	3	1246	1	22	No	No	No	No	No	No	No	No	No	No
9	3	1228	1	21	No	No	No	No	No	No	No	No	No	No
10	3	1211	1	21	No	No	No	No	No	No	No	No	No	No
11	3	1050	1	18	No	No	No	No	No	No	No	No	No	No
12	3	979	1	17	No	No	No	No	No	No	No	No	No	No
13	3	961	1	17	No	No	No	No	No	No	No	No	No	No
14	3	712	1	12	No	No	No	No	No	No	No	No	No	No
15	3	712	1	12	No	No	No	No	No	No	No	No	No	No
16	3	499	1	9	No	No	No	No	No	No	No	No	No	No
17	3	285	1	5	No	No	No	No	No	No	No	No	No	No
18	3	285	1	5	No	No	No	No	No	No	No	No	No	No
19	3	160	1	3	No	No	No	No	No	No	No	No	No	No
20	3	89	1	2	No	No	No	No	No	No	No	No	No	No
21	3	54	1	1	No	No	No	No	No	No	No	No	No	No
22	3	18	1	0	No	No	No	No	No	No	No	No	No	No
23	3	18	1	0	No	No	No	No	No	No	No	No	No	No
24	3	18	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	12.8	19.5
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach (h:mm)	0:00	0:10
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	4	31
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	1815	1815
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 4: 34th Avenue/Ocean Beach Highway (SR-4)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	728	1156	0	51
2	706	1121	0	49
3	692	1098	0	48
4	648	1029	0	45
5	575	913	0	40
6	568	902	0	40
7	561	890	0	39
8	510	809	0	36
9	502	798	0	35
10	495	786	0	35
11	430	682	0	30
12	400	636	0	28
13	393	624	0	28
14	291	462	0	20
15	291	462	0	20
16	204	324	0	14
17	116	185	0	8
18	116	185	0	8
19	66	104	0	5
20	36	58	0	3
21	22	35	0	2
22	7	12	0	1
23	7	12	0	1
24	7	12	0	1

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	1884	1	51	No	No	No	No	No	No	No	Yes	No	No
2	3	1827	1	49	No	No	No	No	No	No	No	Yes	No	No
3	3	1790	1	48	No	No	No	No	No	No	No	Yes	No	No
4	3	1677	1	45	No	No	No	No	No	No	No	Yes	No	No
5	3	1488	1	40	No	No	No	No	No	No	No	No	No	No
6	3	1470	1	40	No	No	No	No	No	No	No	No	No	No
7	3	1451	1	39	No	No	No	No	No	No	No	No	No	No
8	3	1319	1	36	No	No	No	No	No	No	No	No	No	No
9	3	1300	1	35	No	No	No	No	No	No	No	No	No	No
10	3	1281	1	35	No	No	No	No	No	No	No	No	No	No
11	3	1112	1	30	No	No	No	No	No	No	No	No	No	No
12	3	1036	1	28	No	No	No	No	No	No	No	No	No	No
13	3	1017	1	28	No	No	No	No	No	No	No	No	No	No
14	3	753	1	20	No	No	No	No	No	No	No	No	No	No
15	3	753	1	20	No	No	No	No	No	No	No	No	No	No
16	3	528	1	14	No	No	No	No	No	No	No	No	No	No
17	3	301	1	8	No	No	No	No	No	No	No	No	No	No
18	3	301	1	8	No	No	No	No	No	No	No	No	No	No
19	3	170	1	5	No	No	No	No	No	No	No	No	No	No
20	3	94	1	3	No	No	No	No	No	No	No	No	No	No
21	3	57	1	2	No	No	No	No	No	No	No	No	No	No
22	3	19	1	1	No	No	No	No	No	No	No	No	No	No
23	3	19	1	1	No	No	No	No	No	No	No	No	No	No
24	3	19	1	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	4	0	0

Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	40.2	18.7
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach (h:mm)	0:00	0:15
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	0	51
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	1935	1935
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 5: Oak Street/Project Access

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	S
1	15	64	13
2	15	62	13
3	14	61	12
4	13	57	12
5	12	51	10
6	12	50	10
7	12	49	10
8	11	45	9
9	10	44	9
10	10	44	9
11	9	38	8
12	8	35	7
13	8	35	7
14	6	26	5
15	6	26	5
16	4	18	4
17	2	10	2
18	2	10	2
19	1	6	1
20	1	3	1
21	0	2	0
22	0	1	0
23	0	1	0
24	0	1	0

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	1	79	1	13	No	No	No	No	No	No	No	No	No	No
2	1	77	1	13	No	No	No	No	No	No	No	No	No	No
3	1	75	1	12	No	No	No	No	No	No	No	No	No	No
4	1	70	1	12	No	No	No	No	No	No	No	No	No	No
5	1	63	1	10	No	No	No	No	No	No	No	No	No	No
6	1	62	1	10	No	No	No	No	No	No	No	No	No	No
7	1	61	1	10	No	No	No	No	No	No	No	No	No	No
8	1	56	1	9	No	No	No	No	No	No	No	No	No	No
9	1	54	1	9	No	No	No	No	No	No	No	No	No	No
10	1	54	1	9	No	No	No	No	No	No	No	No	No	No
11	1	47	1	8	No	No	No	No	No	No	No	No	No	No
12	1	43	1	7	No	No	No	No	No	No	No	No	No	No
13	1	43	1	7	No	No	No	No	No	No	No	No	No	No
14	1	32	1	5	No	No	No	No	No	No	No	No	No	No
15	1	32	1	5	No	No	No	No	No	No	No	No	No	No
16	1	22	1	4	No	No	No	No	No	No	No	No	No	No
17	1	12	1	2	No	No	No	No	No	No	No	No	No	No
18	1	12	1	2	No	No	No	No	No	No	No	No	No	No
19	1	7	1	1	No	No	No	No	No	No	No	No	No	No
20	1	4	1	1	No	No	No	No	No	No	No	No	No	No
21	1	2	1	0	No	No	No	No	No	No	No	No	No	No
22	1	1	1	0	No	No	No	No	No	No	No	No	No	No
23	1	1	1	0	No	No	No	No	No	No	No	No	No	No
24	1	1	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.7
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach (h:mm)	0:01
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	13
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	92
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	No

Signal Warrants Report For Intersection 1: 36th Avenue/Oak Street

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N, S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	N	S
1	79	39	17	20
2	77	38	16	19
3	75	37	16	19
4	70	35	15	18
5	62	31	13	16
6	62	30	13	16
7	61	30	13	15
8	55	27	12	14
9	55	27	12	14
10	54	27	12	14
11	47	23	10	12
12	43	21	9	11
13	43	21	9	11
14	32	16	7	8
15	32	16	7	8
16	22	11	5	6
17	13	6	3	3
18	13	6	3	3
19	7	4	2	2
20	4	2	1	1
21	2	1	1	1
22	1	0	0	0
23	1	0	0	0
24	1	0	0	0

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	1	118	1	20	No	No	No	No	No	No	No	No	No	No
2	1	115	1	19	No	No	No	No	No	No	No	No	No	No
3	1	112	1	19	No	No	No	No	No	No	No	No	No	No
4	1	105	1	18	No	No	No	No	No	No	No	No	No	No
5	1	93	1	16	No	No	No	No	No	No	No	No	No	No
6	1	92	1	16	No	No	No	No	No	No	No	No	No	No
7	1	91	1	15	No	No	No	No	No	No	No	No	No	No
8	1	82	1	14	No	No	No	No	No	No	No	No	No	No
9	1	82	1	14	No	No	No	No	No	No	No	No	No	No
10	1	81	1	14	No	No	No	No	No	No	No	No	No	No
11	1	70	1	12	No	No	No	No	No	No	No	No	No	No
12	1	64	1	11	No	No	No	No	No	No	No	No	No	No
13	1	64	1	11	No	No	No	No	No	No	No	No	No	No
14	1	48	1	8	No	No	No	No	No	No	No	No	No	No
15	1	48	1	8	No	No	No	No	No	No	No	No	No	No
16	1	33	1	6	No	No	No	No	No	No	No	No	No	No
17	1	19	1	3	No	No	No	No	No	No	No	No	No	No
18	1	19	1	3	No	No	No	No	No	No	No	No	No	No
19	1	11	1	2	No	No	No	No	No	No	No	No	No	No
20	1	6	1	1	No	No	No	No	No	No	No	No	No	No
21	1	3	1	1	No	No	No	No	No	No	No	No	No	No
22	1	1	1	0	No	No	No	No	No	No	No	No	No	No
23	1	1	1	0	No	No	No	No	No	No	No	No	No	No
24	1	1	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	N	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.5	9
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach (h:mm)	0:02	0:02
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	17	20
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	155	155
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 2: 34th Avenue/Oak Street

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N, S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	N	S
1	77	49	27	23
2	75	48	26	22
3	73	47	26	22
4	69	44	24	20
5	61	39	21	18
6	60	38	21	18
7	59	38	21	18
8	54	34	19	16
9	53	34	19	16
10	52	33	18	16
11	45	29	16	14
12	42	27	15	13
13	42	26	15	12
14	31	20	11	9
15	31	20	11	9
16	22	14	8	6
17	12	8	4	4
18	12	8	4	4
19	7	4	2	2
20	4	2	1	1
21	2	1	1	1
22	1	0	0	0
23	1	0	0	0
24	1	0	0	0

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	1	126	1	27	No	No	No	No	No	No	No	No	No	No
2	1	123	1	26	No	No	No	No	No	No	No	No	No	No
3	1	120	1	26	No	No	No	No	No	No	No	No	No	No
4	1	113	1	24	No	No	No	No	No	No	No	No	No	No
5	1	100	1	21	No	No	No	No	No	No	No	No	No	No
6	1	98	1	21	No	No	No	No	No	No	No	No	No	No
7	1	97	1	21	No	No	No	No	No	No	No	No	No	No
8	1	88	1	19	No	No	No	No	No	No	No	No	No	No
9	1	87	1	19	No	No	No	No	No	No	No	No	No	No
10	1	85	1	18	No	No	No	No	No	No	No	No	No	No
11	1	74	1	16	No	No	No	No	No	No	No	No	No	No
12	1	69	1	15	No	No	No	No	No	No	No	No	No	No
13	1	68	1	15	No	No	No	No	No	No	No	No	No	No
14	1	51	1	11	No	No	No	No	No	No	No	No	No	No
15	1	51	1	11	No	No	No	No	No	No	No	No	No	No
16	1	36	1	8	No	No	No	No	No	No	No	No	No	No
17	1	20	1	4	No	No	No	No	No	No	No	No	No	No
18	1	20	1	4	No	No	No	No	No	No	No	No	No	No
19	1	11	1	2	No	No	No	No	No	No	No	No	No	No
20	1	6	1	1	No	No	No	No	No	No	No	No	No	No
21	1	3	1	1	No	No	No	No	No	No	No	No	No	No
22	1	1	1	0	No	No	No	No	No	No	No	No	No	No
23	1	1	1	0	No	No	No	No	No	No	No	No	No	No
24	1	1	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	N	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.7	9.4
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach (h:mm)	0:04	0:03
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	27	23
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	176	176
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 3: 36th Avenue/Ocean Beach Highway (SR-4)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	1432	913	9	14
2	1389	886	9	14
3	1360	867	9	13
4	1274	813	8	12
5	1131	721	7	11
6	1117	712	7	11
7	1103	703	7	11
8	1002	639	6	10
9	988	630	6	10
10	974	621	6	10
11	845	539	5	8
12	788	502	5	8
13	773	493	5	8
14	573	365	4	6
15	573	365	4	6
16	401	256	3	4
17	229	146	1	2
18	229	146	1	2
19	129	82	1	1
20	72	46	0	1
21	43	27	0	0
22	14	9	0	0
23	14	9	0	0
24	14	9	0	0

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	2345	1	14	No	No	No	No	No	No	No	No	No	No
2	3	2275	1	14	No	No	No	No	No	No	No	No	No	No
3	3	2227	1	13	No	No	No	No	No	No	No	No	No	No
4	3	2087	1	12	No	No	No	No	No	No	No	No	No	No
5	3	1852	1	11	No	No	No	No	No	No	No	No	No	No
6	3	1829	1	11	No	No	No	No	No	No	No	No	No	No
7	3	1806	1	11	No	No	No	No	No	No	No	No	No	No
8	3	1641	1	10	No	No	No	No	No	No	No	No	No	No
9	3	1618	1	10	No	No	No	No	No	No	No	No	No	No
10	3	1595	1	10	No	No	No	No	No	No	No	No	No	No
11	3	1384	1	8	No	No	No	No	No	No	No	No	No	No
12	3	1290	1	8	No	No	No	No	No	No	No	No	No	No
13	3	1266	1	8	No	No	No	No	No	No	No	No	No	No
14	3	938	1	6	No	No	No	No	No	No	No	No	No	No
15	3	938	1	6	No	No	No	No	No	No	No	No	No	No
16	3	657	1	4	No	No	No	No	No	No	No	No	No	No
17	3	375	1	2	No	No	No	No	No	No	No	No	No	No
18	3	375	1	2	No	No	No	No	No	No	No	No	No	No
19	3	211	1	1	No	No	No	No	No	No	No	No	No	No
20	3	118	1	1	No	No	No	No	No	No	No	No	No	No
21	3	70	1	0	No	No	No	No	No	No	No	No	No	No
22	3	23	1	0	No	No	No	No	No	No	No	No	No	No
23	3	23	1	0	No	No	No	No	No	No	No	No	No	No
24	3	23	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	11.5	21.9
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach (h:mm)	0:01	0:05
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	9	14
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	2368	2368
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 4: 34th Avenue/Ocean Beach Highway (SR-4)

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S, N
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	S	N
1	1256	1039	0	61
2	1218	1008	0	59
3	1193	987	0	58
4	1118	925	0	54
5	992	821	0	48
6	980	810	0	48
7	967	800	0	47
8	879	727	0	43
9	867	717	0	42
10	854	707	0	41
11	741	613	0	36
12	691	571	0	34
13	678	561	0	33
14	502	416	0	24
15	502	416	0	24
16	352	291	0	17
17	201	166	0	10
18	201	166	0	10
19	113	94	0	5
20	63	52	0	3
21	38	31	0	2
22	13	10	0	1
23	13	10	0	1
24	13	10	0	1

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	2295	1	61	No	No	No	No	No	Yes	Yes	Yes	No	No
2	3	2226	1	59	No	No	No	No	No	No	Yes	Yes	No	No
3	3	2180	1	58	No	No	No	No	No	No	Yes	Yes	No	No
4	3	2043	1	54	No	No	No	No	No	No	Yes	Yes	No	No
5	3	1813	1	48	No	No	No	No	No	No	No	Yes	No	No
6	3	1790	1	48	No	No	No	No	No	No	No	Yes	No	No
7	3	1767	1	47	No	No	No	No	No	No	No	Yes	No	No
8	3	1606	1	43	No	No	No	No	No	No	No	Yes	No	No
9	3	1584	1	42	No	No	No	No	No	No	No	Yes	No	No
10	3	1561	1	41	No	No	No	No	No	No	No	No	No	No
11	3	1354	1	36	No	No	No	No	No	No	No	No	No	No
12	3	1262	1	34	No	No	No	No	No	No	No	No	No	No
13	3	1239	1	33	No	No	No	No	No	No	No	No	No	No
14	3	918	1	24	No	No	No	No	No	No	No	No	No	No
15	3	918	1	24	No	No	No	No	No	No	No	No	No	No
16	3	643	1	17	No	No	No	No	No	No	No	No	No	No
17	3	367	1	10	No	No	No	No	No	No	No	No	No	No
18	3	367	1	10	No	No	No	No	No	No	No	No	No	No
19	3	207	1	5	No	No	No	No	No	No	No	No	No	No
20	3	115	1	3	No	No	No	No	No	No	No	No	No	No
21	3	69	1	2	No	No	No	No	No	No	No	No	No	No
22	3	23	1	1	No	No	No	No	No	No	No	No	No	No
23	3	23	1	1	No	No	No	No	No	No	No	No	No	No
24	3	23	1	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	1	4	9	0	0

Warrant 3 Condition A

Orientation	S	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	62.7	24.8
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach (h:mm)	0:00	0:25
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	0	61
High Minor Volume Condition Met	No	No
Total Entering Volume on All Approaches During Same Hour	2356	2356
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	No	

Signal Warrants Report For Intersection 5: Oak Street/Project Access

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	S
1	83	51	9
2	81	49	9
3	79	48	9
4	74	45	8
5	66	40	7
6	65	40	7
7	64	39	7
8	58	36	6
9	57	35	6
10	56	35	6
11	49	30	5
12	46	28	5
13	45	28	5
14	33	20	4
15	33	20	4
16	23	14	3
17	13	8	1
18	13	8	1
19	7	5	1
20	4	3	0
21	2	2	0
22	1	1	0
23	1	1	0
24	1	1	0

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	1	134	1	9	No	No	No	No	No	No	No	No	No	No
2	1	130	1	9	No	No	No	No	No	No	No	No	No	No
3	1	127	1	9	No	No	No	No	No	No	No	No	No	No
4	1	119	1	8	No	No	No	No	No	No	No	No	No	No
5	1	106	1	7	No	No	No	No	No	No	No	No	No	No
6	1	105	1	7	No	No	No	No	No	No	No	No	No	No
7	1	103	1	7	No	No	No	No	No	No	No	No	No	No
8	1	94	1	6	No	No	No	No	No	No	No	No	No	No
9	1	92	1	6	No	No	No	No	No	No	No	No	No	No
10	1	91	1	6	No	No	No	No	No	No	No	No	No	No
11	1	79	1	5	No	No	No	No	No	No	No	No	No	No
12	1	74	1	5	No	No	No	No	No	No	No	No	No	No
13	1	73	1	5	No	No	No	No	No	No	No	No	No	No
14	1	53	1	4	No	No	No	No	No	No	No	No	No	No
15	1	53	1	4	No	No	No	No	No	No	No	No	No	No
16	1	37	1	3	No	No	No	No	No	No	No	No	No	No
17	1	21	1	1	No	No	No	No	No	No	No	No	No	No
18	1	21	1	1	No	No	No	No	No	No	No	No	No	No
19	1	12	1	1	No	No	No	No	No	No	No	No	No	No
20	1	7	1	0	No	No	No	No	No	No	No	No	No	No
21	1	4	1	0	No	No	No	No	No	No	No	No	No	No
22	1	2	1	0	No	No	No	No	No	No	No	No	No	No
23	1	2	1	0	No	No	No	No	No	No	No	No	No	No
24	1	2	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	8.9
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach (h:mm)	0:01
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	9
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	143
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	No



Community & Economic Development Department

1525 Broadway, Longview WA 98632

SEPA REVISED DETERMINATION OF NON-SIGNIFICANCE

Associated Permit # LUA2025-0068

Project Name:

Mint Valley Manufactured Home Park Development

Description of Proposal (Original):

The applicant is proposing a subdivision with a Binding Site Plan and Manufactured Home Park development on the site totaling approximately 10.38 acres across ~~three~~ two parcels at 3505 Oak St and 3503 Oak St. These parcels will be subdivided with the Binding Site Plan to serve the proposed layout. The project proposes up to ~~72~~ 1 single-family manufactured home residential lots and will extend streets and utilities as needed to serve these proposed lots. The site is bordered on all sides by the consolidated diking district improvement district (CDID) cut-of slough, which is exempt from critical areas regulation by city of Longview code. The site will be accessed from Oak Street and Jimmer Place. The lots in the development will be accessed via a 32-foot private road with 24 feet of pavement width. Full street improvements along the Oak Street project frontage will include widening of the roadway and installing sidewalks on both sides of the street. The project will also include planned and landscaped open-space recreation areas. The site is zoned R-1 Residential District.

Proponent(s):

Kessi Engineering
604 NE Hwy 99 #G169
Vancouver, WA 98665
Phone: 360-991-9300

Location of Proposal:

3505 Oak St, 3503 Oak St. Parcel: 053180300, 05319

Lead Agency:

The City Of Longview has revised its SEPA threshold DNS issued January 27th, 2025 as indicated in underline/strikethrough format above in consideration of changes to the previous project application.

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

☐
☐

There is no comment period for this DNS

This DNS is issued after using the option DNS process in WAC 197-11-355. There is no further comment period on this DNS



This DNS is issued under WAC 197-11-340(2); the lead agency will not act on this proposal for 14 days from the date below. Comments must be submitted by **6:00 PM on Novmeber 26th 2025.**

Staff Contact Person: Irene Rutikanga, City Planner

Phone: (360) 442-5083

Email: irene.rutikanga@ci.longview.wa.us

Address: PO Box 128, Longview, WA 98632

Responsible Official

Nick Little, Community Development Director

Date: November 12th, 2025

Attachments:

SEPA Cover Sheet
SEPA Checklist
Traffic Study
Preliminary Binding Site Plan
SEPA Cover Sheet
Storm Report

Cc:

Department of Ecology., Environmental Review Section
Washington State Department of Fish and Wildlife
Jeremy Huff - Fire Chief Cowlitz 2 Fire & Rescue
Cowlitz County PUD – Right of Way
Clint Matthews, Cascade Natural Gas
Tim Schultz, Longview Utilities Engineer
Jon Dunaway, Longview Fire Marshal
Eric Byman, Commercial Building Inspector
Willapa Hills Audubon Society, Permit Reviews
City of Longview Community Development website
Sam Barham, City of Longview Engineer
Russ Hover, Department of Natural Resources
Cowlitz Tribe
Amy Blain- Consolidated Diking Improvement District
Waste Control



**STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY**

Southwest Region Office
PO Box 47775, Olympia, WA 98504-7775 • 360-407-6300

November 25, 2025

Irene RUTIKANGA, City Planner
City of Longview
Community Development Department
PO Box 128
Longview, WA 98632

Dear Irene RUTIKANGA:

Thank you for the opportunity to comment on the determination of non-significance for the Mint Valley Manufactured Home Park Project (E2025-20) located at 3505 Oak Street as proposed by Kessi Engineering. The Department of Ecology (Ecology) reviewed the environmental checklist and has the following comment(s):

HAZARDOUS WASTE & TOXICS REDUCTION: Garret Peck (564) 669-0836

The applicant proposes to demolish an existing structure(s). In addition to any required asbestos abatement procedures, the applicant should ensure that any other potentially dangerous or hazardous materials present, such as PCB-containing lamp ballasts, fluorescent lamps, and wall thermostats containing mercury, are removed prior to demolition. It is important that these materials and wastes are removed and appropriately managed prior to demolition. It is equally important that demolition debris is also safely managed, especially if it contains painted wood or concrete, treated wood, or other possibly dangerous materials.

Please review the "Dangerous Waste Rules for Demolition, Construction, and Renovation Wastes," posted at Ecology's website, <https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Dangerous-waste-guidance/Common-dangerous-waste/Construction-and-demolition>. The applicant may also contact Katy Harvey of Ecology's Hazardous Waste and Toxics Reduction Program at katy.harvey@ecy.wa.gov for more information about safely handling dangerous wastes and demolition debris.

SOLID WASTE MANAGEMENT: Derek Rockett (360) 995-3176

All grading and filling of land must utilize only clean fill. All other materials may be considered solid waste and permit approval may be required from your local jurisdictional health department prior to filling. All removed debris resulting from this project must be disposed of at an approved site. Contact the local jurisdictional health department or Department of Ecology for proper management of these materials.

WATER QUALITY/General Permit Unit:
Tullee Stanford (360) 624-5741

This project would require a Construction Stormwater General Permit (CSWGP), as it proposes to disturb more than 1 acre and is near surface waters of the state.

CSWGP S1.B.1:

"B. Operators Required to Seek Coverage Under this General Permit

1. Operators of the following construction activities are required to seek coverage under this CSWGP:

a. Clearing, grading, excavation, construction support activity and other soil disturbing activity (S1.B.1.a.ii.) that results in the disturbance of one or more acres (including off-site disturbance acreage related to construction-support activity as authorized in S1.C.2) and discharges stormwater to surface waters of the State; and clearing, grading and/or excavation on sites smaller than one acre that are part of a larger common plan of development or sale, if the common plan of development or sale will ultimately disturb one acre or more and discharge stormwater to surface waters of the State."

Ecology's comments are based upon information provided by the lead agency. As such, they may not constitute an exhaustive list of the various authorizations that must be obtained or legal requirements that must be fulfilled in order to carry out the proposed action.

If you have any questions or would like to respond to these comments, please contact the appropriate reviewing staff listed above.

Department of Ecology
Southwest Regional Office

(JKT:202504736)

cc: Garret Peck, HWTR
Derek Rockett, SWM
Tullee Stanford, WQ



State of Washington
DEPARTMENT OF FISH AND WILDLIFE
Southwest Region 5 • 5525 South 11th Street, Ridgefield, WA 98642
Telephone: (360) 696-6211

February 10, 2025

City of Longview
1525 Broadway
Longview, WA 98632

Dear Irene Rutikanga:

Thank you for the opportunity to comment on the proposed **Mint Valley BSP & MHP** project. The Washington Department of Fish and Wildlife (WDFW) has reviewed this proposal and offers the following comments for your consideration.

Our primary concern is the impact to the critical areas on site. WDFW is aware that there is a feature labeled as "CDID#1 drainage ditch" that surrounds the project area and the City of Longview considers these water features exempt from their Critical Areas Ordinance. However, per Department of Natural Resource's water typing maps, this feature is identified as a **Type F (fish bearing) stream**. Typed waters would typically constitute waters of the state that would carry protected riparian areas in accordance with [LMC Table 17.10.120-2](#), and as seen in this instance, could have surface connection to other fish-bearing waters such as the Columbia River. **WDFW suggests that a riparian management zone (RMZ) be added to the site plan, with the appropriate buffer of 150 ft for a Type F stream >5 ft wide.**

Site Potential Tree Height (SPTH200)

In 2020, WDFW published updated riparian ecosystem management recommendations, [Riparian Ecosystems, Volume 1: Science Synthesis and Management Implications](#) (Quinn et al. 2020) and [Riparian Ecosystems, Volume 2: Management Recommendations](#) (Rentz et al. 2020). WDFW recommends that riparian buffers be sized based on the metric Site Potential Tree Height of 200 years (SPTH200) to ensure that riparian ecosystems can maintain high functionality. Ecological functions of riparian habitats include, but are not limited to: stream morphology, erosion and sedimentation processes, fish and wildlife habitat production, wood recruitment, stream temperature stabilization, shading, pollutant removal, and nutrient cycling. For this parcel, **SPTH200 is 100 ft**, corresponding to the height of mature Red Alder. A buffer width of 100 feet could be expected to achieve the target of 95% pollution removal for most pollutants. **For this reason, WDFW does not support riparian buffers narrower than 100 ft, as it would compromise the pollutant removal function of the riparian area and therefore compromise the water quality of the stream.** In conclusion, for this site, WDFW recommends that riparian buffers be 150 ft per Longview Municipal Code, and 100 ft wide at minimum.

Again, we thank you for the opportunity to provide input. Please contact me should you have any questions or need additional information.

Sincerely,

A handwritten signature in black ink, appearing to read "George Fornes", is written over a light blue horizontal line.

George Fornes, Habitat Biologist
Washington Department of Fish & Wildlife

Julia Van Steenberg

My name is Julia E. Van Steenberg and I live at 3507 Oak St in Longview, and after reviewing the submitted files on the Washington State Department of Ecology's page I have a few comments and concerns along with some questions.

First, when reading through the SEPA cover sheet, it reads as though just the immediate area of Oak St by the development will have road improvements and sidewalks added, is this correct? And if so is there a plan for the rest of Oak st, or will there only be a stretch of 50-100' with sidewalks?

Moving on to the SEPA checklist itself, there are a few errors that incorrectly state the number of units and project timeline, this along with the date of 6/26/25 on the signature line leads me to believe that this is a resubmission without major updates from the first application. Regardless, the species listed section 5 is woefully short and appears to be a best guess and not due to any observation of the site. In less than 6 months I have personally observed the following in and around the lots in question from my own property(in addition to common song birds such as finches and sparrows):

- Deer (at least one doe with a pair of fawns, and 3 bucks, unsure of species)
- Owls (Unable to positively ID species)
- Frogs (Nocturnal, unable to positively ID species)
- Cormorants
- Greater Egret
- Ring-necked Snake (tentative ID)
- River Otters
- Grebes
- Ducks (including mallards and buffleheads(tentative ID))
- Jays (Scrub and Stellar)
- Hawks (unable to positively ID)

Additionally, based on the stated description of the lot(s) and the fact that the area has been left largely untouched outside of grazing for goats for close to a century, there is a

distinct possibility of bat colonies, or ground nesting birds (ex. Killdeer) in the proposed build site. Given a number of the observed animals above do have species that are either federally protected, or are part of the Washington State Action Plan an actual ecological survey of the area would likely be in the best interest of the applicant and the community to prevent any potential fines or delays in construction due to lack of due diligence at the planning phase. Finally, on this point, monoculture lawns and parks with landscaped gardens do not provide an adequate substitute of habitat for the vast majority of species, especially when taking an undeveloped area of this size and subdividing it as proposed.

Moving on to the Preliminary Binding Site Plan I do have direct concerns with how the fence that is along the property line of my house and the lots (#68-71, possibly 67?) surrounding me on the Northwest of the development is supposed to be maintained without trespassing on to my property. Based on my understanding of the City code the fence must be maintained and the listed examples are not ones that could be fully maintained from just one side of the fence and in some instances would require frequent maintenance. The applicant does not have permission, nor has sought permission to access any part of my property, nor will this permission be granted. As far as I can tell, the PBSP as currently depicted has no way for City Ordinances to be followed in regards to the required fencing and its maintenance without trespassing. In a similar theme as my property is directly between a few of the lots and the slough, I wish to know how run-off will be managed so that it will not impact my property. In regards to the access road for CDID, I have talked with them in late July during a site visit and, based on my understanding, building out into the slough to accommodate the access road running past/on my property was required as there is only a 10' wide easement that is insufficient for a 12' wide road. I am making the assumption that this is not accounted for in the PBSP and that a more detailed plan will be provided prior to any approval of the PBSP.

Finally, the traffic study does not fully investigate the potential impacts of the development as it neglects to look at the Oak St and 30th Ave intersection with a possible follow-up of the 30th and Ocean Beach Hwy intersection. During a site visit to my property in late July I brought this up with one of the City's engineers, Sam, and he commented on the fact that during the time there he personally observed vehicles driving from West of 36th down Oak St or turning on Oak St from 36th and traveling down to 30th before turning. Neither 36th nor 34th have a traffic light where they meet Ocean Beach, meaning for anyone trying to travel into town or to I-5 they have to make a jump across two lanes of traffic into a shared left turn lane in the median before merging into East bound traffic (or just hope for a lucky

gap). The closest street that has a traffic light would be on 32nd, but the road is narrower and less direct, making 30th the primary choice for most people leaving the neighborhood. Add into this that both Safeway and Fred Meyer's are on the Northern half of the Ocean Beach and 30th intersection and Columbia Valley Gardens Elementary is roughly 2-3 blocks North along 30th, from Oak St and it is obvious that this set of interactions are going to see the brunt of the traffic. It may also be of note that Oak St has a stop sign at the intersection with 30th and due to the narrowness of the road, one car getting unlucky traffic while trying to turn left could easily turn into a backup with no easy solution for any vehicles wishing to turn right. The Oak St and 38th Ave intersection may also be worth investigating as it would be the primary route to the nearby Walmart, along with the Industrial area of Longview and Rainier.

Based on the previous submission that was on the June 2025 agenda I do have other concerns; however, they would be premature at this time and will wait until a full review and submission is done before any further comments.

Thank you for your time,

Julia

Larry and Karen Whyte

Larry and Karen Whyte have lived at 2319 Jennifer Pl, Longview, WA 98632 for 26 years and have seen many wildlife animals in this area eagles , deer ,fox and other animals as well. This is a concer that might devalue our property in the area .we have concerns about possible crime because of the thur traffic please consider our concern about this project

Thank you

Mark Jewett

I am against this proposal because there is not enough room for the amount of vehicles that this development will put through Jimmer Pl. We bought our house in this neighborhood because it was a quiet dead end streets. I live on Jennifer pl. When vehicles that park on the streets there isn't enough room for 2 cars to pass without 1 of them yielding. With extra vehicles for this development that would be a huge safety concern.

Cherly Underwood

I have written to you before but it sounds like there's going to be another town meeting for the planning for this again after it's kind of been voted down twice. Are they going to keep doing it until they push through even though the whole neighborhood is in and outcry against it.?

Again I will tell you we already have a slopey road that is hard to even walk on, there are no sidewalks and there are no street lights to speak of very sporadic, so I don't want to add more traffic, more kids that are trying to walk back and forth safely to school or catch a bus, and just general congestion. I live at 3407 Oak Street, I've been here since 2009 and we all love the neighborhood we have that is quiet mostly except for a few speeding young people, please listen to us, listen to me these are my retirement years and I'm not alone in that department here, I think we deserve a little respect as far as where we have settled our homes for over a decade for me and I know the next doors have been here for a lot longer than that.

Please bring to the attention of the developers. tell me if any of the developers is going to live in this manufactured home park that they are building....

Nov 19, 2025

City of Longview Community Development Department
Attn: Irene Rutikanga

Opposition to Proposed Manufactured Home Park on Oak Street in Longview

Where in our residential areas within the city limits do you have a manufactured home development of this size.

This would have such a negative affect on the current residents on Oak, 34th, and Jimmer and surrounding city streets, the traffic, ascetics, and property values would be greatly impacted.

The street lights and noise within the development, traffic congestion etc will be very disturbing to those who live close to this proposed development.

We have talked to so many people that feel the same way but their opinion is that it won't matter if we attend the meeting or write any comments because it's already been approved. Our question is, how would you feel if this type of development was basically in your neighborhood and your backyard?

We hope the city will consider the consequences of this proposal for the near by residents and community and not just look at the financial gain for the city.

Monte & Carol Fulbright

Chapter 6.

Energy and Telecommunications

Introduction

This chapter reviews energy and telecommunication providers that serve Longview and includes policies designed to ensure that Longview supports and makes adequate provisions for energy and telecommunications infrastructure in the city. In turn, this infrastructure will support economic growth and public safety, and it will also provide other essential communications services in a manner that is compatible with adjacent and nearby land uses.

Utility Regulation

The state Utilities and Transportation Commission (UTC) is a standalone agency whose mission is to protect consumers by ensuring that utility and transportation services are fairly priced, available, reliable, and safe. Regulated utilities include electric, telecommunications, natural gas, and water. State law requires that utility and transportation rates must be reasonable to customers, giving regulated companies a chance to cover costs and earn a profit within certain bounds.

The UTC regulates investor-owned energy utilities. Cascade Natural Gas, which serves Cowlitz County, is subject to UTC regulation. The commission has substantial authority over natural gas distribution companies, including geographic territories, safety, and rate-setting. Meanwhile, public power providers such as Public Utility District No. 1 of Cowlitz County (Cowlitz PUD) are *not* regulated by the UTC.

The commission also has broad authority over the telecommunications industry in Washington State and monitors state and federal regulations that tend to be constantly in flux due to rapid changes in technology and purveyors.

Electricity

Cowlitz PUD builds, operates, and maintains the electrical system serving Longview, its planning area, and Cowlitz County as a whole. The PUD is a municipal corporation (special purpose district) of the State of Washington that serves nearly 50,000 residential, commercial, industrial, and street light customers countywide.

Cowlitz PUD buys over 90 percent of its wholesale power from the Bonneville Power Administration (BPA). About 85 percent of the BPA power comes from the Columbia River system hydroelectric projects, with lesser sources including nuclear, wind, coal, natural gas, and other generators. Major power lines bisect Longview and its planning area, which provide an opportunity for siting recreation and trails.

Cowlitz PUD is required, under state law, to develop “a comprehensive resource plan that explains the mix of generation and demand-side resources it plans to use to meet its customers’ electricity needs in both the long term and the short term.” Every four years, it must produce a full plan that addresses specific items, with an intermediate update every two years. The PUD’s Integrated Resource Plan (IRP) was last produced in 2016. It lays out a strategy for meeting its energy needs,

capacity demand, and Washington State’s renewable portfolio standard obligations over a 20-year planning horizon (2017 through 2036). The IRP’s goal is to provide a framework for evaluating a wide array of supply resources, conservation, and renewable energy credits; and to guide strategies that will provide reliable, low-cost electricity to the PUD’s ratepayers at a reasonable level of risk.

The IRP grapples with demand issues. The 2016 energy load forecast, excluding new industrial loads, predicts a five-year average annual rate of growth of just under one percent. By the year 2021, this would result in an increase of 25 megawatts (MW) over the 2016 projected load of 578 MW. While the PUD can meet its annual average load obligations, there are certain times during the year when fluctuations in hourly loads exceed its generating capacity. Maximum power demand usually occurs winter mornings and evenings when electric heating loads are highest. The PUD has current capacity to serve these peak load periods; however, the surplus winter capacity is diminishing and is expected to be exhausted by the end of 2017. If peak load continues to grow each year, then a capacity deficit is forecasted to occur and to grow by two to three MW per year.

The PUD has modeled different growth scenarios and strategies, and its preferred strategy is to continue its current practice of relying on market purchases for any short-term capacity deficit. This offers the ability to target the parts of the year that present the most challenges (winter) while avoiding carrying costs of physical assets during “lower risk” parts of the year (spring and fall). By 2026, this means that the PUD will rely on the renewable energy credit market to meet its obligations.

At the same time, the IRP notes that the unknown is always a factor when looking ten years into the future, regardless of the effort put into modeling and forecasting. Additional uncertainties are introduced when considering the PUD’s heavy concentration of large industrial loads. Hundreds of MW of load can be gained or lost with the introduction or exit of a single industrial customer.

Increased population and industrial growth in Longview and throughout the county will obviously impact electric consumption. The City will need to coordinate with Cowlitz PUD to address growth projections and energy needs. This seems particularly important when considering industrial loads.

Natural Gas

Cascade Natural Gas Corporation (“Cascade”) builds, operates, and maintains natural gas facilities serving Longview and its planning area, which are a part of the company’s Northwest operational region. Acquired by the more diversified MDR Resources in 2007, Cascade is the natural gas provider for more than 282,000 customers in 96 Washington and Oregon communities. Cascade’s territory covers more than 32,000 square miles and 700 highway miles from one end of the system to the other.

While natural gas is not considered a utility that is essential to urban development, it is an important alternative energy source that helps to reduce reliance on electricity. Over the past 20 years, natural gas has become more prominent in federal “clean energy” policies. Cascade is one of the fastest growing natural gas utilities in the nation, serving a diverse area. Interstate pipelines transmit Cascade’s natural gas from production areas in the Rocky Mountains and Western Canada. Since 2000, Cascade’s customer base grew at a pace of three to five percent, which is more than double the national average. This high level of growth is the result of overall population growth in the company’s service area and low market saturation for natural gas in the Northwest.

Telecommunications

In general, the telecommunications (cable/phone/internet) industry has changed considerably in recent decades, due to both federal deregulation and technological advancements. The Federal Telecommunications Act of 1996 was key in responding to rapid evolution of internet, phone, and television technologies with deregulation. Telecommunications providers have proliferated since the AT&T breakup and emergence of “Baby Bells” in the 1980s and industry competition that has evolved since then. This offers a framework for not only the telecommunications utilities available in Longview but throughout communities nationwide. Where, in the past, a comprehensive plan might have listed individual providers, consumers now have a myriad of choices that has only expanded with cloud-based technology.

Many telecommunications providers now focus on “bundling” in their marketing to entice customers to obtain their phone, internet, and television (many including digital recording and on-demand/pay per view) access through a single purveyor. Comcast Xfinity, DirecTV, and DISH Network are common examples. At least one provider is incorporating home security monitoring into its program as well. Some customers might use broadband data plans for internet and TV as well as phone service. As a result of earlier deregulation, the wealth of providers and service options available, and the diversity of consumer preferences, telecommunications services available within Longview are not assumed to be limited to a single or most prominent purveyor.

Land-use changes are likely to be forthcoming relative to cellular towers. As opposed to large cell tower siting in the past, new technology is pointing to “small cell” structures intended to augment capacity for data traffic in dense areas (primarily downtown cores and residential neighborhoods). Small cells are typically 25-45 feet in height, rather than tall macro towers that extend beyond 75 feet. A small cell contains radios and often multiple antennas, and it requires power and fiber in order to transmit cellular phone and data signals. Typically, small cells are attached to utility poles or light/traffic poles within public rights of way.

The Municipal Research and Services Center (MRSC) reports that in 2017, the wireless industry targeted local regulation for preemption in filings before the Federal Communications Commission and orchestrated a national effort in state legislatures, including Washington. Though new legislation was not passed in 2017, MRSC cautions that the industry is likely to continue its efforts, and deployment of small cells will intensify. It has recommended that cities evaluate their approach to small cell deployment and associated permit processing.

Energy and Telecommunications Goals, Objectives, and Policies

- Goal ET-A** Promote and support energy conservation.
- Objective ET-A.1** Review and update codes as necessary regarding State Energy Code requirements, solar energy, and other alternative energy sources. Conduct the periodic review in conjunction with comprehensive plan review at least every seven years, or more frequently based upon state code updates.
- Policy ET-A.1.1** Support and encourage residents and businesses to participate in energy conservation and renewable resource development activities and programs established by Cowlitz County PUD.
- Policy ET-A.1.2** Encourage commercial and industrial sectors in efforts to investigate and apply energy efficient technologies and methods, such as cogeneration plants.
- Policy ET-A.1.3** Encourage homebuilders and residents in efforts to weatherize houses and apply energy-efficient home building, heating, and cooling techniques.
- Policy ET-A.1.4** Encourage state-of-the-art telecommunication services as a means of mitigating the transportation impact of development and growth.
- Policy ET-A.1.5** Provide information concerning techniques for energy efficient land development, subdivision, and building design to developers, builders, and others.
- Policy ET-A.1.6** Encourage site planning and subdivision designs that take advantage of solar radiation, climatic conditions, and natural features of the land.
- Policy ET-A.1.7** Evaluate increasing the use of renewable energy sources.
- Goal ET-B** Ensure that energy and telecommunication providers make efficient use of facilities, improve service and aesthetic qualities of facilities, and accommodate growth in a timely manner.
- Objective ET-B.1** Furnish updates of population, employment, and development projections to energy and telecommunication utilities and service providers to ensure that appropriate services will be available as needed. Provide projection updates in conjunction with the review of the comprehensive plan as provided in Objective LU-A.1, no less frequently than every seven years.
- Policy ET-B.1.1** Ensure that City regulations allow for improvements and additions to electric, natural gas, and telecommunication facilities as needed to accommodate growth and provide reliable service.
- Policy ET-B.1.2** Require franchise agreements where necessary for utility use of City rights of way.

- Policy ET-B.1.3 Coordinate with other jurisdictions in the implementation of multi-jurisdictional electric facility additions and improvements.
- Policy ET-B.1.4 Promote, when reasonably feasible, collocation of new public and private utility distribution facilities in shared trenches and coordination of construction timing to minimize construction-related disruptions to the public and reduce the cost of utility delivery to the public.
- Policy ET-B.1.5 To the extent feasible, require underground utility networks in new developments in the city.
- Policy ET-B.1.6 Where significant work in existing rights of way will occur, investigate with service providers the possibility of buried lines where existing overhead lines are presently located.
- Policy ET-B.1.7 Require communication facilities and poles, including cell or radio towers, to consider existing sites and collocation prior to establishing new sites.
- Policy ET-B.1.8 Monitor the implications of changes in state and federal telecommunications regulations upon local codes, and modify local codes as needed to adequately address such changes.

Chapter 7. Public Facilities, Utilities, and Services

Introduction

Publicly owned facilities include local roads, parks, library, water and sewer lines, police and fire facilities, administrative buildings, and maintenance facilities. In addition to facilities owned and managed by the City of Longview, there are a number of publicly owned facilities managed by special purpose districts that provide important public facilities and services. These include such things as schools and water supply, sewage treatment, and solid waste facilities.

Power and telecommunications facilities (electrical, natural gas, cable, and telephone) serving Longview are addressed in the Energy and Telecommunications chapter.

Relationship Between Land Use and Capital Facilities

One aspect of managing growth in the City of Longview is ensuring that needed public facilities, infrastructure, and services are available when growth occurs. Developing and implementing a well-founded plan for public facilities, utilities, and services will help Longview realize its vision. Realization of the City's land-use plan is contingent on timely and orderly infrastructure development.

Levels of Service and Future Needs Forecasting

Level of service (LOS) refers to an adopted standard used to measure the adequacy of services being provided. (In this sense, "services" can broadly mean facilities and infrastructure as well as literal service provision.) The adequacy of services, or LOS, relates to the types of services rendered. It can range from a precise measurement, such as the amount of time it takes for a fire truck to reach the scene of a fire, to as imprecise a measurement as a community's perception of how much and what type of open space is needed. LOS measures for each facility type provide a clue as to what, how much, and when new capital facilities are or may be needed.

LOS standards are established through a process that includes such factors as a community's population and its economic and fiscal resources. Population growth drives the type, amount, and location of services; economics determines the amount of funding available to meet those service needs.

When an LOS standard has been established, the performance of a capital facility or service can be measured. A capital facility operating at or above the established LOS indicates no need for expansion or new facilities, while one operating below established LOS is an indication that there may be such a need. If funding is not available to meet an established LOS, the City may choose to reexamine the LOS to determine if it is adequate, or the land-use plan and growth targets could be adjusted.

Capital Facilities Funding

The provision of capital facilities contributes to the quality of life of Longview's residents. Parks, utilities, fire stations, and other community and regional facilities are a physical reflection of the community's values. Longview plans to provide a full array of services for its projected growth in households and jobs over the next 20 years, so needed capital facilities will include maintaining existing LOS through ongoing maintenance of facilities and expanding or adding facilities to meet additional demand as growth occurs.

Longview's Capital Improvement Program (CIP) is a five-year plan for capital facilities expenditures that is incorporated into the City's biennial budget. This enables the City, through official adoption by the City Council, to prioritize and lay out a plan for capital investments. Since this is done in conjunction with the budget cycle, there is constantly a "rolling" horizon for implementation that allows new projects to be included in the prioritization process. It also enables projects to be phased and to roll forward through one or more succeeding budget cycles if subsequent-phase funding is not readily available.

Capital facilities also encompass technology installations and upgrades, which are continually being implemented to improve service delivery, efficiency, convenience, and security. Hard- and software, controls, and energy solutions can be costly and are also included in the CIP.

Besides immediate budget sources, the City may seek and use other funding sources, including external funding, where appropriate to the type of facility and community needs. A range of options is available, some requiring County or voter approval. Additional capital financing sources include, but are not limited to, the following:

- Special purpose districts
- Obligations such as bonds and lease-purchase arrangements
- Grants from federal or state agencies
- Grants or donations from private sources (individuals, memorials, non-profits, etc.)
- Conservation area real estate excise tax
- Conservation Futures property tax
- Land dedication or fees in lieu of dedication for open space, parks, and/or conservation
- Local option sales tax for criminal justice

More specific to utilities, the City funds improvements through a combination of resources. The City includes depreciation funding in its utility rates to build reserves for replacing equipment. Developer financing is used for capital improvements that are installed by developers as mitigation of impacts to the City water system. Developer financing may include full or partial funding for reservoirs, pump stations, and water mains that serve a particular development. Major capital improvements may be financed by issuance of revenue bonds. Revenue bond debt service is paid from monthly utility rates. Utility Local Improvement Districts (ULIDs) are used when property owners want to install water mains in areas where there is no service. In these instances, ULID bonds are paid off by assessments levied against all properties that benefit from the improvements. Fees are assessed for new water service based upon meter size. These charges recover the cost of connecting the new customer to the utility and are sometimes referred to as connection charges. Public Works Board loans – Public Works Trust Fund and Drinking Water State Revolving Fund —have been used in recent history to

finance large capital improvement projects such as the Mint Farm Regional Water Treatment Plant (MFRWTP) project.

The City currently maintains a rate model that is updated at least annually and will continue to evaluate its rates and capital recovery fees on an annual basis to account for any changes due to growth and development and system deterioration.

Impact fees, authorized under the GMA, offer a formulaic fee schedule that specifies an amount to be imposed on new development for each type of system improvement for which impact fees are assessed. Because Cowlitz County is not “fully planning” under the GMA, Longview cannot establish impact fees per se. At the time of the 2006 comprehensive plan update, the City had planned to establish preset State Environmental Policy Act (SEPA) mitigation fees so as to parallel impact fees.

Cities can impose mitigation fees on individual developments under SEPA as long as they first adopt local SEPA policies authorizing the exercise of SEPA substantive authority. Longview has already done so in LMC 17.20.210 and .220, which in part adopts by reference WAC 197-11-660 (substantive authority and mitigation). This gives the City the ability to apply case-specific financial mitigation to projects as a part of SEPA review.

However, the state Supreme Court has ruled that SEPA does not authorize the use of uniform charges similar to impact fees when applying SEPA mitigation. Instead, SEPA mitigation fees must be based on an individualized assessment of a given development's expected impact on each type of improvement. They must be rationally related to impacts identified in threshold determination documents (primarily environmental checklists) or environmental impact statements. This case law, whose timing overlapped the last plan update, precludes the City from establishing predetermined mitigation fees akin to impact fees. At the same time, if a given development project will have an identified impact on a public facility, utility, and/or service that would demand an upgrade or addition, then fees could be assessed via the SEPA mitigation process.

Inventory (Summary of Existing Conditions) Facilities, Utilities, and Services

Public Buildings

The City of Longview maintains and/or utilizes a number of capital facilities and buildings in order to perform its necessary administrative functions. The City is responsible for the maintenance and operation of an approximate total of 297,436 square feet of buildings. Table 7-1 lists City-owned buildings. This excludes other types of facilities such as roadways, streetscape improvements, stormwater systems, etc. – although all are incorporated into the CIP. The current-year CIP should be consulted for planned improvements to City facilities of all types.

Table 7-1. Public Buildings Inventory

Facility	Location	Size (sq. ft.)
Longview City Hall	1525 Commerce Avenue	32,000
Street, Traffic, Transit and Fleet Divisions	254 Oregon Way	9,318
Transit Center	1135 12 th Avenue	900
Utilities Operations Division	1460 Industrial Way	24,768
Utilities Operations Expansion	1440 Industrial Way	3,570
Regional Water Treatment Plant	101 Fishers Lane	12,000
Stormwater Division Office	Adjacent to City Hall	756
Sign Masters	Adjacent to City Hall	4,000
Cowlitz County Chaplaincy	Adjacent to City Hall	1,725
Longview Police Department	1351 Hudson Street	34,000
Highlands Police Satellite Office	201 30 th Avenue	2,211
Longview Fire Department – Station 81	740 Commerce	14,868
Longview Fire Department – Station 82	2355 38 th Avenue	4,800
Longview Public Library	1600 Louisiana Street	33,000
Columbia Theatre for the Performing Arts	1231 Vandercook	18,000
Parks Division	706 30 th Avenue	3,700
	Auto parking garage	5,400
	Garage	462
Recreation Office	2920 Douglas Street	4,516
Mint Valley Golf Course and Facilities Maintenance	4002 Pennsylvania	
	Pro Shop	3,716
	Warehouse/Maintenance	4,500
	Golf Cart Storage Shed	2,420
	2 nd Golf Cart Storage Shed	2,880
Mint Valley Racquet and Fitness Complex	4004 Pennsylvania	33,920
Senior Center	1111 Commerce	4,500
McClelland Arts Center	951 Delaware	11,000
Women's Club Building	835 21 st Avenue	3,800
Elks Memorial Building	2121 Kessler	2,010
Mint Farm Regional Water Plant	1155 Weber Avenue	23,166
TOTAL SQUARE FOOTAGE		297,436

City Library

Dedicated April 26, 1926, the Longview Public Library is among the City's oldest assets. It was donated to the community by R.A. Long personally and is a part of the Longview Civic Center Historic District. The library was extensively remodeled in 1953, expanded and enlarged in 1967-68, and underwent an exterior restoration in 2001.

Besides a large print and non-print collection, a wide variety of resources, services, and activities are available through the library. Examples include the Microsoft Imagine Academy, family movie nights, computers/WiFi, drop-in technology help, public meeting rooms, media equipment, the Koth Art Gallery, external services assistance (AARP tax help, Medicare), adult literacy (Project Read), and teen and senior programs.

A building modernization study is underway at the time of the 2018 comprehensive plan update to identify needed system (such as electrical) and technological improvements that will then be incorporated into the library's future capital requests.

Public Safety

Fire Suppression and Emergency Medical Services (EMS) Provided by City

Within the city limits, fire suppression, EMS, and associated capital facilities are managed and maintained by the Longview Fire Department (LFD). Primary assets consist of two fire stations that house support apparatus including engine companies, an aerial ladder truck, and a number of other specialty vehicles and equipment. Department staffing includes 43 firefighters, six interns, three battalion chiefs, a fire marshal, an administrative assistant, and the fire chief. Thirty-five of the department's personnel are emergency medical technicians, and 11 are paramedic trained.

Built in 1975, the main station, Station 81, is located at 740 Commerce Avenue. At least six firefighters and one battalion chief are on duty 24/7. The Fire Marshal also works part time out of this facility and part time at the Community Development Department, located in City Hall.

The second station, Station 82, was built in 1979. It is located at 2355 38th Avenue and houses Engine 82 together with a minimum three-person engine company, which responds primarily to emergency calls in Longview's west end. To enable the fastest possible response, the station closest to a call is dispatched, while the stations back up one another. Calls for structural fires require all units from both stations to respond in order to staff and perform all on-scene rescue and fire control measures. An ambulance is also housed at Station 82 and, when staffing levels permit, is staffed with at least two personnel.

Figure 7-1. Fire Suppression and Emergency Medical Service Boundaries



Source: City of Longview 2006 Comprehensive Plan

The Cowlitz County 911 Center currently dispatches emergency calls. Longview's average response time to fire and emergency medical calls in 2016 was 6 minutes, 5 seconds, in response to 4,900 calls for service. In 2016, LFD responded to emergency calls in or under 5 minutes 30 seconds 68 percent of the time. Since 1990-2009, fire and emergency medical calls have increased at a rate of six percent per year. Starting in 2010, LFD stopped responding to non-emergent medical incidents, but since then, LFD's call volume has continued to increase at about the same rate, which is greater than the rate of population growth. Possible causes for the call rate increase could include an increase in calls for emergencies involving controlled substances abuse and an increasing portion of the local population who use the pre-hospital system and emergency response as their primary healthcare services. This phenomenon was part of the reason that LFD adjusted response to only emergent EMS incidents. If there is a surge in new construction growth in the city, an increase demand for fire prevention services, including review of new building permits, site inspections for code compliance during the construction phase, and continued annual site prevention inspections may be expected.

LFD participates in a mutual aid agreement with all Cowlitz County fire agencies in order to provide overlapping emergency response. It also contracts with 14 entities outside of the city limits to provide fire protection service at industrial sites such as Weyerhaeuser, Westrock (KapStone), EGT,

Specialty Minerals, and Axiall. In conjunction with these efforts, LFD provides confined space rescue services and has frequent interaction with other fire agencies, especially Cowlitz 2 Fire and Rescue as it is a partner in the industrial site agreements.

Level of Service (LOS) Standards

RCW 35.103.030 requires that Washington cities and towns maintain a written statement or policy addressing fire service delivery objectives, including turnout and response times for specified events. At the same time, the chapter intent is clear that it does not “in any way modify or limit the authority of cities and towns to set LOSs.

Longview has adopted a Standard of Cover (or LOS level of service) that indicates a response time of six minutes or less 90 percent of the time for the first unit to arrive. At an average of 5 minutes, 30 seconds 69 percent of the time, the current response time for emergent incidents in Longview falls short of meeting the LOS.

Longview LOS Standards

- 1. Respond to all medical emergencies to provide Basic Life Support (BLS) service:**
 - a. Council adopted measure (six minutes or less, 90 percent of the time)
 - b. National Fire Protection Association (NFPA) measure (five minutes or less, 90 percent of the time)
- 2. Respond to all Advanced Life Support (ALS) medical emergencies:**
 - a. Council adopted measure (eight minutes or less, 90 percent of the time)
 - b. NFPA measure (same)
- 3. Respond to structure fires:**
 - a. Council adopted measure (six minutes or less, 90 percent of the time)
 - b. NFPA measure (five minutes or less, 90 percent of the time)
- 4. Full alarm response arrival to structure fires:**
 - a. Council adopted measure (six minutes or less, 90 percent of the time)
 - b. NFPA measure (five minutes or less, 90 percent of the time)
- 5. Respond to all technical rescue emergencies:**
 - a. Council adopted measure (eight minutes or less, 90 percent of the time)
 - b. NFPA measure (five minutes or less, 90 percent of the time)

TABLE 7-2.

SUMMARY: 2016 Incident Responses			
Response Standard No.	Response Type	Number of Incidents	Percent meeting Standard
1	Respond to BLS EMS in 6 min or less 90% of time	1207	49%
2	Respond to ALS EMS in 8 min or less 90% of time	1762	73%
3	Respond to structure fires in 6 min or less 90% of time	39	41%
4	Full assignment arrives to structure fires in 9 min or less 90% of time	39	62%
	Respond to technical rescues in 8 min or less 90% of time	9	78%
n/a	Responses not measured	1913	
	Total Responses	4930	

Source: Longview Fire Department

AMR American Medical LOS

AMR provides the ALS level of care and ambulance transport through a service agreement with the City. As back-up transport service, the City has an interlocal agreement with Cowlitz 2 Fire and Rescue. AMR's service agreement includes this single performance measure:

1. **AMR Respond to all medical emergencies to provide ALS level of care:**
 - a. Agreement compliance measure (eight minutes or less, 90 percent of the time)

TABLE 7-3.

AMR SUMMARY: 2016 EMS Incident Responses			
Response Standard No.	Response Type	Number of Incidents	Percent Meeting Standard
1	Respond to ALL EMS in 8 min. or less 90% of time	3025	93%

Source: Longview Fire Department

Planned Improvements

The Fire Department is continuing to develop plans for a new station on the city's west side in addition to Stations 81 and 82. The City owns two parcels of land adjacent and to the east of Lowe's at 2782 and 2790 Ocean Beach Highway. The City will complete a site development plan with construction following over the short term.

Planning continues for addressing chronic EMS usage for non-emergent patients, through Community Paramedicine programs and coordination with social services agencies within the service delivery area.

Police

The Longview Police Department (LPD) is a full-service police agency that is currently structured into three specialized units with functions as described below.

The Investigations Division is led by a police captain and includes the Criminal Investigations Unit (CIU), Property and Evidence, an administrative/background sergeant, and the Street Crimes Unit (SCU). The CIU is responsible for follow-up investigation on all reported incidents of hate crime, most felonies, crimes with substantial leads, and offenses that may jeopardize the safety of the community or are in the public interest to investigate. It also performs crime scene investigations. Most misdemeanor cases with leads are returned to patrol for follow-up investigation. The sex offender registration program for Longview sex offenders is also part of the CIU. The SCU has been an effective team in arresting offenders and providing additional enforcement activities in areas of the city most in need of police presence. The unit has the flexibility in work hours, days, and deployment strategies (uniformed and plain clothes), which is an asset to LPD's crime rate goals.

The Patrol Division, also led by a police captain, includes three patrol shifts (day/swing/graveyard) and the Community Services Unit (CSU). The CSU is comprised of a sergeant and a corporal who are stationed at the Police Satellite Office located in the Highlands neighborhood. This unit is also responsible for supervising the school officer program; training for all police employees; the field training program for new officers; community policing; and all of LPD's volunteer programs including police reserves, a citizen patrol unit (Alley Gators), satellite office volunteers, and the police cadet program.

An administrative manager (civilian position) leads the Administration Division, which includes financial management, grant administration, clerical support to the public and all other divisions in the department, parking enforcement, crime analysis, information technology support for the police department, and public disclosure.

Capital Improvements

LPD is currently remodeling space that was previously vacant in the main police station located at 1351 Hudson Street. The remodeled space will house the CIU and the SCU. Moving the CIU upstairs will allow for more downstairs space for patrol officers to write reports and to use as a meeting space.

The police department needs a location to conduct firearms training as the land once used for this training is owned by a private company that will no longer lease the property to be used as a gun range. LPD is evaluating different options for either an indoor or an outdoor range. This will likely be a budget enhancement request in an upcoming budget cycle.

Staffing Level of Service (LOS)

LPD is currently staffed by 59 commissioned officers (plus one over-hire position for a total of 60 commissioned officers), four reserve officers, 13 full-time civilians, and one part-time civilian. For 2017, this staffing level equates to one commissioned officer per 625 population⁴⁰, or 1.6 commissioned officers per thousand capita. LPD has been gradually working toward increasing staffing in keeping with the 2009 Police Executive Research Forum (PERF) report developed for the department, which recommended 64 commissioned officers and 19 civilian staff.

Community Oriented Policing

The PERF report also identified high levels of patrol calls for service response, which unfortunately limits the amount of time that LPD patrol officers have available to conduct proactive, self-initiated activities such as car and pedestrian checks. By building in time for community policing, officers can work with residents and businesses to solve the problems underlying crime, violence, and disorder, disrupting potential criminal activity like burglaries, thefts, and illegal drugs. When this self-initiated time is appropriately directed, a result can be a reduction in calls for service, as the conditions causing the problems that residents call about are improved.

The PERF report identified the following common themes, contributing to a key recommendation of implementing community-oriented policing:

- Community members generally expressed frustration with incident follow-up, often attributed to a shortage of police officers.
- Patrol officers spend relatively high percentages of time responding to calls for service, with little remaining time available for self-initiated activities, which are part of the community-oriented policing approach.
- A desire for greater collaboration with community members and stakeholder groups was expressed.

As police gain experience with and effectively use community policing and problem-solving strategies, crime may be reduced. Ancillary effects may also include fewer repeat calls for service; a safer living environment and working environment for community members; more time for officers to spend working with the community to further solve crime and disorder problems; and improved communication, relationship, and familiarity between the police and community, where each may link the other to resources for their mutual benefit.

⁴⁰ Based on OFM's 2017 "official population" (April 1 estimate) of 37,510

Additional community-oriented policing recommendations included:

- Hold all members of the department accountable for utilizing community policing and problem-solving strategies in delivering service to the community. Institutionalize this philosophical approach through incorporating community policing and problem-solving skills and knowledge into performance evaluations, selection of specialized assignments, and the promotional process.
- Continue to enhance crime analysis capabilities. Information should be reliable and provided in a timely manner and accessible for use by members throughout the agency.
- Enhance collaboration with the community and public, private, and non-profit partners to prevent and control crime and disorder and to develop effective problem-solving strategies.
- Develop problem-solving assessment strategies and report back to the appropriate community.
- Improve department communication vertically and horizontally regarding crime and disorder problems and community concerns.

Crime Trends

The Federal Bureau of Investigation runs the Uniform Crime Reporting (UCR) Program, which compiles nationwide crime data in its National Incident-Based Reporting System (NIBRS). In Washington, the Washington Association of Sheriffs and Police Chiefs (WASPC) compiles and reports data for police agencies statewide, using the NIBRS offense categories and types.

Table 7-5 includes the most recent five years' worth (2012-2016) of "Group A" offenses for Longview with year-to-year comparisons of change. A negative percentage – expressed as (XX.X) – indicates a reduction in crime within a given category over a two-year period. Percentage changes may look very large but should be considered in context of the overall number of offenses. If only one incident occurred in a prior year but not in the second (comparison) year, it would show a hundred percent improvement; in reality, this may reflect a fairly minor improvement compared to categories with higher rates of crime.

TABLE 7-4. CRIME INCIDENTS and YEAR-TO-YEAR CHANGE

“Group A” Offenses ^[1]	2012	2013	12-13 % chg	2014	13-14 % chg	2015	14-15 % chg	2016	15-16 % chg
Crimes Against Persons									
Murder	1	1	0.0	0	(100.0)	1	100.0	0	(100.0)
Manslaughter	0	0	---	0	---	0	---	0	---
Rape	29	38	31.0	29	(23.7)	31	6.9	38	22.6
Sodomy	3	1	(66.7)	1	0.0	0	(100.0)	2	200.0
Sexual Assault w/ Object	0	0	---	0	---	0	---	1	100.0
Fondling	10	8	(20.0)	16	100.0	21	31.3	14	(33.3)
Aggravated Assault	74	85	14.9	79	(7.1)	79	0.0	62	(21.5)
Simple Assault	531	547	3.0	473	(13.5)	465	(1.7)	427	(8.2)
Intimidation	129	154	19.4	139	(9.7)	129	(7.2)	105	(18.6)
Kidnapping	5	9	80.0	5	(44.4)	13	160.0	7	(46.2)
Incest	0	3	---	0	(100.0)	1	---	0	(100.0)
Statutory Rape	1	0	(100.0)	0	---	0	---	0	---
Human Trafficking Offenses	0	0	---	0	---	0	---	0	---
Violation of No Contact/ Protection	108	135	25.0	140	3.7	151	7.9	109	(27.8)
Crimes Against Property									
Robbery	55	47	(14.6)	27	(42.6)	35	29.6	40	14.3
Burglary	462	517	11.9	502	(2.9)	364	(27.5)	415	14.0
Larceny – Theft Offenses	1667	1804	8.2	1698	(5.9)	1428	(15.9)	1327	(7.1)
Motor Vehicle Theft	148	177	19.6	146	(17.5)	147	0.7	211	43.5
Arson	37	15	(59.5)	16	6.7	20	25.0	22	10.0

^[1] From WASPC yearly *Crime in Washington* publications. Some NIBRS category names have changed over time. Table includes current category names and the most recent individual year data.

Destruction of Property	682	786	15.3	614	(21.8)	570	(7.2)	497	(12.8)
Counterfeiting/ Forgery	53	58	9.4	47	(18.9)	66	40.4	42	(36.4)
Fraud Offenses	146	145	(0.7)	201	38.6	177	(11.9)	130	(26.6)
Embezzlement	2	1	(50.0)	6	500.0	2	(66.7)	1	(50.0)
Extortion/ Blackmail	1	1	0.0	1	0.0	0	(100.0)	1	100.0
Bribery	0	0	---	0	---	0	---	0	---
Stolen Property Offenses	50	77	54.0	60	(22.1)	54	(10.0)	47	(13.0)
Crimes Against Society									
Animal Cruelty ^[2]	n/a	n/a	n/a	n/a	n/a	0	n/a	0	---
Drug/ Narcotic Violations	401	438	9.2	513	17.1	434	(15.4)	414	(4.6)
Drug Equipment Violations	38	27	(29.0)	22	(18.5)	19	(13.6)	10	(47.4)
Gambling Offenses	0	0	---	0	---	0	---	0	---
Pornography	7	6	(14.3)	1	(83.3)	13	1200.0	4	(69.2)
Prostitution Offenses	4	3	(25.0)	3	0.0	1	(66.7)	21	2000.0
Weapon Law Violations	59	115	94.9	54	(53.0)	49	9.3	43	(12.2)
Grand Total	4,703	5,198	10.5	4,793	(7.8)	4,270	(10.9)	3,990	(6.6)

In addition, “Group B” offenses include bad checks, curfew/loitering/vagrancy violations, disorderly conduct, driving under the influence, drunkenness, nonviolent family offenses, liquor law violations, peeping Toms, trespassing, and all other offenses^[3]. The same level of information is not collected for Group A and B offenses; for the latter, only arrest information is reported.

From among these years, 2013 showed the highest number of Group A incidents (5,198) and overall increase in all Group A crimes (10.5 percent) over the previous year. Both the number of incidents and year-to-year change have decreased since then. The year 2016 brought in 1,208 fewer incidents than the 2013 level, but the greatest year-to-year reduction (10.9 percent) is seen between 2014 and 2015.

In terms of individual categories, a significant reduction in robberies of more than 42 percent occurred from 2013-14, but since then the rate and number of incidents have been creeping back up.

^[2] This UCR category added in 2015; no data available prior to that time.

^[3] Runaways are also included under Group B, although the FBI discontinued data collection for them in 2011.

The number and rate of frauds and embezzlements leapt up in 2013-14 but have since returned to pre-2013 levels.

Drug/narcotic violations have remained relatively flat, with a low of 401 incidents in 2012 and a high of 513 in 2014; meanwhile, drug equipment violations have been on the downswing. At just 43 incidents in 2016, weapons violations were at less than half of the 2013 high (115). The single largest increase, both in terms of the number of incidents (21) and year-to-year change (2,000 percent, 2015-16) was in prostitution offenses.

Parks and Open Space

The City of Longview maintains over 435 acres of park and open space land that offer active and passive recreational opportunities to residents and preserve natural areas of the community. Realistically, Longview residents may also use other parks and recreation facilities throughout the region, including lands belonging to the Port, County, other cities, and the state or federal government. Facilities owned and operated by Longview include 3,600 feet of shoreline access, 48 acres of surface water, and 5.6 miles of trails. Most of the existing trail miles are located around Lake Sacajawea.

Separate and apart from a general comprehensive plan, the state Recreation and Conservation Office sets forth content and public participation requirements for parks and recreation planning that are tied to eligibility for specific state funding. This is why Longview, like most communities in Washington, conducts parks and recreation planning discretely and maintains a separate planning document. The City updated its comprehensive plan for parks and recreation in 2016, which includes a complete listing of park and recreation facilities categorized by facility classification, together with a brief description of each facility.

Based on current park LOS standards, the City already has a deficiency of parkland and trail mileage. This deficiency will continue to increase as population growth occurs. The plan sets LOSs for three categories of recreational facilities, but not all. These include neighborhood parks (Class II facility), community parks (Class IV facility), and trails (Class VII facility). As indicated in Table 7.6, there is a current deficiency of 173 acres of neighborhood parkland, three acres of community parkland, and 27.6 trail miles. This grows to a deficiency of 207 and 18 acres, respectively, and 31 miles by 2022 if no further acquisition is made.

It should be noted that projections were based on the assumed growth rate of one percent per year included in the 2006 comprehensive plan. With this plan update, a lesser growth rate is assumed (see discussion in Housing chapter). This does not demand reworking these numbers immediately, but the degree of deficiency should be reevaluated and adjusted accordingly in the next parks and recreation comprehensive plan update.

Geographically, West Longview and the northern area in the hills tend to be underserved by neighborhood parks. In the future, Longview should pursue acquisition of undeveloped parcels in areas where development is likely to occur in order to protect natural areas and environmentally sensitive sites and serve as the location for future parks and recreation facilities.

The 2016 parks and recreation plan prioritizes most highly those projects that meet one or more of the criteria below. As with other capital projects, they are integrated into the biennial CIP.

- Projects that enhance safety
- Upgrading existing parks
- Maintenance and replacement of parks, facilities, and amenities (asset protection)
- Trail development (including installation, extensions, and connections)
- Park land acquisition
- Urgency (emergency repairs)

Table 7-5

PARK LEVEL OF SERVICE					
Class	Level of Service	Existing Demand (2010) 36,648	Projected Demand (2022) >41,505*	Current Supply	
I (Neighborhood Play Lot)	No numerical standard	-	-	2.5 acres	
II (Neighborhood Park)	7 acres/1,000 population	257 acres	291 acres	84 acres	
III (Neighborhood Passive Area)	No numerical standard	-	-	159	
IV (Community Park)	3 acres/1,000 population	110 acres	125 acres	107 acres	
V (Regional Park)	No numerical standard	-	-	-	
VI (Special Use Facilities)	No numerical standard	-	-	-	
VII (Trails)	1 mile/1,000 population	37 miles	42 miles	12 miles	
* Based on annual increase rate of 1% stated in the City of Longview Comprehensive Plan 2-6					
PARK LEVEL OF SERVICE STANDARDS					
Grade*	A (<10%)	B (11 - 20%)	C (21-30%)	D (31-40%)	F (>41%)
*Grade is percent difference between existing and demand					
Class	Deficiency (2010/2022)			Current/Future Grade	
I (Neighborhood Play Lot)	-			-	
II (Neighborhood Park)	173 acres/207acres			F / F	
III (Neighborhood Passive Area)	-			-	
IV (Community Park)	3 acres /18 acres			A / B	
V (Regional Park)	-			-	
VI (Special Use Facilities)	-			-	
VII (Trails)	27.6 miles /31 miles			F / F	

Source: City of Longview 2016 Park and Recreation Comprehensive Plan

Water System

The MFRWTP was put into operation in January 2013 when the City transitioned from the Cowlitz River to a groundwater source for its municipal drinking water supply. The system also serves the Beacon Hill Water and Sewer District (BHWSO).

Approximately 58 percent of the total annual water demand is from residential customers (52 percent single-family and six percent multi-family). Commercial demand accounts for approximately 31 percent, industrial for six percent, and irrigation for five percent of the total annual demand. The southern side of the service area is heavily industrialized. Most of the existing industries receive potable water from the City but also obtain process water from on-site wells or the Columbia rivers.

Between 2005 and 2010, the City realized a 4.2 percent reduction in average day demand and a 17.4 percent reduction in maximum day demand through its leak detection and meter replacement programs, improved data collection, rate increases, and by promoting water conservation measures during peak usage months. The City's current Water System Plan promotes a more modest but realistic one to three percent conservation goal.

The MFRWTP consistently produces water that meets or exceeds all state and federal drinking water standards, but a 2014 survey found that 82 percent of water customers were dissatisfied with their water. Survey results prompted a detailed examination of the City's drinking water, and a Customer Advisory Committee (CAC) was convened to address aesthetic water quality issues focusing on offensive taste and odors and white spotting due to moderate hardness and dissolved silica. Based on the CAC's recommendation, the City investigated options to return its source of drinking water to the Cowlitz River using horizontal collector wells in lieu of a traditional surface water intake.

Disappointing water quality testing results caused this approach to be removed from consideration in July 2016, and focus shifted to optimizing treatment at the MFRWTP. Meanwhile, the City also investigated interim improvements to mitigate taste and odor complaints and long-term treatment processes to remove silica. The City and BHWSO chose not to pursue silica removal at this time. Following additional work in 2017, the City awarded a construction contract to install an air injection system at the MFRWTP to increase the level of dissolved oxygen. Aeration appears likely to remedy some of the taste and odor issues and, once implemented, the long-term goal is to reduce the amount of chlorine needed in the water treatment process and to maintain a stable distribution system.

Longview has 240 miles of pipeline. The majority of the system is cast iron (163 miles) and ductile iron (64 miles), with smaller lengths of asbestos cement, steel, polyvinyl chloride, and high-density polyethylene pipe. The City also has eight water storage facility sites. Capacities of the facilities range from 150,000 to 11 million gallons. All facilities are covered and vents screened to protect water quality. The City strives to maintain reservoir levels within one to two feet of overflow during periods of peak demand, operating six booster pump stations, all of which pump to reservoirs. All pump stations are controlled by reservoir level sensing, which starts and stops pump operation. There are eight pressure-reducing stations located throughout the service area.

Local water purveyors (Longview, Kelso, and BHWSD) have long term, contractual “wheeling” arrangements whereby they can share each other's facilities when necessary. This agreement provides backup resources in case of emergency, natural disaster, and for scheduled maintenance outages. After Mount St. Helens erupted in 1980, Longview and Weyerhaeuser installed an emergency line connecting the City to the Weyerhaeuser water system, which comes from the Columbia River, to provide an alternate source of (non-potable) water to the City and the BHWSD. A spool piece of the emergency piping is removed to prevent inadvertent introduction of non-potable water to the distribution system, but can be quickly re-installed during a water emergency. Additionally, a second water main crossing of the Cowlitz River was constructed with the new Allen Street Bridge in 2000, increasing capacity and providing redundancy for the water main crossings connecting the Longview and Kelso systems.

Four interties exist with BHWSD to deliver water under the water wheeling agreement. A two-way intertie was constructed on Curtis Drive near Sunset Drive. This improvement serves BHWSD’s Lone Oak service zone via Longview’s Columbia View service zone.

The City is considering joining the Washington Water/Wastewater Agency Response Network (WAWARN) that allows water and wastewater systems to receive rapid mutual aid and assistance from other systems during an emergency. Utilities that sign the WAWARN standard agreement can share resources with other Washington systems that have also entered into the agreement.

Accommodating Growth

The Report of Examination completed by the state Department of Ecology in October 2010 determined that the City’s future water needs were projected to reach 13,500 acre-feet per year (ac-ft/year) by the year 2059, which was less than the currently held surface water rights of 14,659 ac-ft/year. The new groundwater permit for MFRWTP was issued based on the projected needs of 13,500 ac-ft/year. The City was not required to relinquish its existing municipal surface water rights, which are now designated as secondary water rights. The total municipal water withdrawals for the City and BHWSD may not exceed 14,679 ac-ft/year (the sum of the currently held surface water rights). From a water rights standpoint, the City will continue to be allowed to withdraw municipal water from the Cowlitz River, if necessary, to supplement the new groundwater source; provided that the combined withdrawals do not exceed 14,679 ac-ft/year. The City perfected its recreational surface water right for Lake Sacajawea flushing in September 2008, and no additional water rights will be required for the next 20-year planning period.

The MFRTP has a finished water capacity of 17.4 million gallons per day (mgd) with a buildout capacity of 25.3 mgd. If current growth trends continue, the plant will have sufficient capacity to meet maximum day demand until after 2032. The MFRWTP is designed to allow expansion and addition of two wells, two pressure filters, and a third backwash storage tank. The current excess capacity and future addition of two wells and pressure filters will provide the City with the ability to attract potential industrial customers to support the City’s economic stability. Long-term options for providing sufficient water in the future to meet the City’s 50-year demand forecast include:

- Expanding the plant to its build out capacity of 25.3 mgd
- Implementing water conservation measures
- Increasing treatment plant operating hours to 24 hours per day

The results of a pump station analysis show that all pump stations have sufficient capacity to meet demand through 2032. The Main zone's pumping capacity is the capacity of the well pumps at the MFRWTP, which are able to meet both the City's and Beacon Hill's demands through 2032.

The Indian Creek service zone requires an additional 39,000 gallons of storage to meet fire flow storage needs. There are also other operational considerations for the Indian Creek zone. The Longview Country Club and Golf Course has a high peak demand during periods when they are irrigating and can rapidly deplete the storage supply in the Indian Creek zone. During periods of irrigation, the City and golf course need to coordinate operations, so the City is able to provide the necessary level of service to this zone. Analysis shows that even with the additional 84,000 gallons added to the standby storage requirement, the fire flow demand is still the greater demand. It is recommended that the City provide a minimum of 50,000 of additional gallons for storage for the Indian Creek zone. This capital improvement is identified in the CIP.

The City has continued to make improvements to the distribution system since completion of the 2012 Water System Plan, dedicating \$1.5 million or more annually toward replacing undersized and deteriorated distribution mains and intending to continue budgeting a similar annual amount for the foreseeable future.

Replacement of undersized distribution and transmission mains within potentially high growth portions of the service area may be delayed until the growth actually occurs. This delay will allow costs associated with the required improvements to be shared with the project proponents and thus represents better planning and financial consideration for current ratepayers. Implementing improvements before future needs are known may result in undersized utilities.

Figure 7-2. Summary of System Deficiencies and Recommendations

Location	Deficiency	Planning Period	Recommendation
Treatment:			
	None Identified	6 and 20 Years	
Distribution/ Transmission:			
2-, 4-, and 6-inch transmission mains	Required fire flow cannot be met in portions of the distribution system	6 and 20 Years	Continue annual pipe replacement program to address deteriorating and undersized mains.
Storage:			
	Indian Creek Reservoir	6 and 20 Years	Refer to storage analysis in this section for recommendations.
Pumping:			
	None Identified by model	6 and 20 Years	Refer to pump analysis in this section for recommendations.

Source: 2012 Longview Comprehensive Water System Plan

Water Reuse

The City encourages water reuse where possible. Several industrial users have implemented on-site reuse programs that have dramatically reduced their potable water demands. Many industrial users also have on-site alternative sources for process water demands. Two of the City's largest customers, Weyerhaeuser and WestRock (KapStone), use only City water for potable uses (drinking, eye washes, shower, etc.). Millennium Bulk Terminal is another large customer that only utilizes City water for potable uses. The MFRWTP includes a backwash recovery system whereby approximately 90 percent of the process backwash water is recycled to the head of the treatment process for reuse. This system is estimated to conserve around 51.8 million gallons of water in the year 2018. Other reuse opportunities are evaluated on a case-by-case basis.

Capital Improvements

As with other City facilities, water system projects are included in the CIP as part of the budget process. Improvements are categorized as transmission or distribution projects, and are further broken down by capacity expansion and repair and replacement projects. These include booster pump stations and storage facilities related concerns such as reliability, capacity to meet regulatory and health standards, and general improvements.

The majority of the transmission and distribution CIP projects are development driven. All of the transmission main projects fall into the 20-year planning window and are all dependent upon further development in the identified areas.

Additionally, there are a number of planning, controls, and general system improvements incorporated into the CIP, such as projects to address deteriorating valves, emergency power upgrades, improved meter reading capabilities and data processing, and long-range planning.

Solid Waste

Since 1992, solid waste disposal within Longview has increased by annual average rate of 0.8 percent. Between 2015 and 2016, the disposal tonnage increased by 3.5 percent.

Longview contracts its recycling collection and sorting services to Waste Control, Inc. Weekly recycling collection is mandatory for all residents. Commercial recycling is not mandatory, but for an additional fee billed directly by Waste Control, commercial customers may request recycling service for selected commodities.

Over time, the curbside recycling program has suffered from significant contamination. Over 40 percent of the recycled materials were found to be contaminated in 2005, the highest contamination period recorded since the program began in 1992. Since then, recycling in Longview has decreased by an annual average rate of 9.5 percent, which has been attributed to less non-recyclable material being placed in the recycling containers.

Because of the high recycling contamination, a public outreach campaign was developed to educate customers about the proper guidelines for recycling. These efforts have taken positive strides towards reducing recycling contamination, dropping the residual rate by 53 percent from 2005 to 2016. In addition, the number of tons collected of the curbside recycling material also reduced by approximately 44.1 percent, from 4,171 tons in 2005 to 2,330 tons in 2016.

The City continues to evaluate the feasibility of implementing a voluntary yard waste program, but it will likely be a few more years out before the program is brought before the City Council for consideration.

Longview has participated in a joint Solid Waste Management Plan (SWMP) with Cowlitz County since 1972. The SWMP is periodically update, most recently in 2011. The current SWMP reflects changes to the County's capacity to manage solid waste resulting from its 2011 acquisition of the Weyerhaeuser Headquarters landfill, which created 44 million cubic yards of new landfill disposal capacity.

Waste Control constructed a solid waste transfer station 1150 Third Avenue in Longview, which became operational in July 2009. Solid waste throughout Longview is initially collected by Waste Control, sent to the transfer station, and eventually delivered to the Headquarters landfill. Subject to limitations, customers can also take certain types of waste directly to the transfer station, including:

- Self-hauled waste (residential/commercial)
- Drop-off recycling and buy-back recycling
- Automobile, appliance, and electronics recycling
- Tire disposal
- Asbestos disposal (residential/commercial)
- Household hazardous waste drop-off
- Wet Vector® waste collection
- Wood and concrete recycling
- Demolition waste
- Small quantity hazardous waste

Waste Control also maintains remote recycling drop-off facilities and periodically conducts mobile events.

Sewer System

The City of Longview collects residential, commercial, and industrial wastewater within the city limits and portions of urbanized Cowlitz County adjacent to the city. The sewage is then conveyed to the Three Rivers Regional Wastewater Treatment Plant (TRRWTP) for treatment and discharge to the Columbia River. The TRRWTP is owned and operated by the Three Rivers Regional Wastewater Authority (TRRWA), a joint municipal utility services agency whose members include Longview, Kelso, Beacon Hill Water and Sewer District, and Cowlitz County.

Some residential properties within Longview and its planning area continue to use residential on-site disposal systems, which should be phased out as development proceeds and sewer collection facilities become available adjacent to those properties. Major industries along the Columbia River (e.g., WestRock (KapStone), Nippon Dynawave, and Millennium Bulk Terminals) operate their own collection and treatment systems to treat their industrial wastes.

The sanitary sewer collection system is comprised of approximately 157 miles of sewer line ranging in size from six to 36 inches in diameter, and 43 lift/pump stations. The *City of Longview General Sewer and Facilities Plan* (May 2008) contains more detailed information on the wastewater treatment and collection system serving Longview. Many of the improvements identified in the general sewer plan have been completed, and Longview continues to plan and budget for system improvement and replacement. As with other capital facilities, current sewer system capital improvement projects are included in the CIP adopted in the City's budget.

In addition to long-term sewer planning and upgrades, the City adopted and enforces pretreatment regulations to comply with the National Pollutant Discharge Elimination System (NPDES) permit issued to the TRRWA and its member agencies. The pretreatment regulations address discharges of fats, oils, and grease into the wastewater collection and treatment system by sources such as restaurants; and other pollutants discharged by various commercial and industrial customers. These regulations are intended to protect water quality and the environment, as well as the sewer collection and treatment facilities.

Stormwater System

Longview is located on a broad, flat floodplain at the confluence of the Columbia and Cowlitz rivers. Over the years, an extensive series of dikes has been constructed along the banks of both rivers to prevent flooding of developed areas. Today, Longview's stormwater drainage system consists of urban stormwater infrastructure such as curb inlets, storm pipes, and detention basins, as well as both natural and constructed drainageways and facilities that store and convey runoff by gravity flow or pumping. Most stormwater runoff in Longview within the diked areas must be eventually pumped to the Cowlitz and Columbia rivers.

Consolidated Diking Improvement District No. 1 (CDID) is responsible for operating and maintaining the system of dikes and related drainage ditches and pump stations serving Longview. The CDID's boundaries encompass the valley lowlands of Longview, West Kelso, and adjacent unincorporated areas, but not the upland hillside areas of the watershed. Residential developments in the hillside areas typically drain to existing intermittent or perennial stream channels, eventually flowing to an interceptor CDID ditch (ditch #6) along the northern boundary of the District's diked portion.

Longview faces a continuing need to maintain and improve the drainage facilities to accommodate existing and new development. The conversion of ditches into culverts is a regular drainage capacity issue as culverts lower the capacity of ditches to retain stormwater, thereby necessitating greater pumping capacity or increasing flooding potential in the vicinity of the culvert. Culverts should be constructed only when necessary and as part of a coordinated plan for additional pumping capacity or the provision of storage capacity elsewhere.

Segments of the CDID's drainage ditches have been identified by the state Department of Ecology as "impaired" water bodies because they have one or more pollutants exceeding state water quality standards. The state must conduct a total maximum daily load (TMDL) study of the impaired ditches to determine the amount of pollutants the ditches may receive and still meet water quality standards. The TMDL may result in regulations to implement a cleanup plan that may further restrict or control the volume and water quality of runoff, as well as other activities that increase pollutants in the ditches.

Since February 2007, discharges from the City's storm sewers (MS4) have been permitted by the Western Washington Phase II Municipal Stormwater NPDES Permit. This permit requires that some 99 cities and 11 counties statewide implement a Stormwater Management Program (SWMP) structured around the following:

- Educating, engaging, and involving the public
- Controlling runoff from development, redevelopment, and stormwater facilities
- Identifying and removing illicit discharges
- Reducing contaminated runoff from municipal operations

The City's stormwater regulations have been revised periodically to implement NPDES permit requirements. The most recent revision, in July 2017, incorporated updated permit requirements to adopt and use of the Department of Ecology's *Stormwater Management Manual for Western Washington* for all projects adding or replacing 2,000 square feet of hard surfaces.

New development projects and redevelopment projects are affected by the NPDES and City stormwater regulations and must address stormwater drainage and water quality issues and requirements based on the specific characteristics and design of the development or redevelopment project. The new regulations require that development and redevelopment projects use low-impact development (LID) techniques to manage stormwater runoff quantity and quality, to the maximum extent feasible.

Roadway congestion, urban sprawl, and water resource degradation is rooted in land-consumptive development practices that are often embedded in local codes. Communities are hoping to avoid these outcomes in the future by employing concepts like compact development, redevelopment, green infrastructure, and linking land use to a more varied transportation network. LID is a natural complement for community planning. It is a versatile development and stormwater runoff management approach that works to create a hydrologically functional site that mimics predevelopment conditions. This is achieved by using design techniques that infiltrate, filter, evaporate, and store runoff close to its source. Rather than relying on costly large-scale conveyance and treatment systems, LID addresses stormwater through a variety of smaller, cost-effective structural or landscape features located on site.

In recent years, the City has begun to implement stormwater LID practices in its public infrastructure projects. Examples include Tennant Way Corridor improvements and the Downtown Corridor Streetscape project, which feature street trees and plantings, biofiltration planters, and pervious concrete and pavers.

In addition to updating its stormwater regulations, the City performed a comprehensive review and revision of its other building and planning codes and policies in 2017 to make LID the preferred and most commonly used approach to site development. The revisions include provisions and incentives designed to minimize impervious surfaces, native vegetation loss, and encourage the use of LID

practices in a variety of development situations. The changes also provide some flexibility in street standards (width and sidewalks), as well as encouraging native vegetation and preservation of open space.

Public Education

Longview School District No. 122 (“Longview Public Schools”) serves most school age Longview residents – over 6,800 in 2017⁴¹. The District owns and operates eight elementary schools, three middle schools and two high schools, along with administration, maintenance, and operations facilities. With the exception of one elementary school (Robert Gray), all of these facilities are located within the Longview city limits.

School districts are discretely separate from municipal government under the State Constitution and statute. As such, Longview Public Schools is responsible for conducting its own capital facilities and services planning independently of the City of Longview. The District’s Facility Advisory Committee embarked on developing a long-range facility plan in early 2015. The District retained Construction Services Group, a division of Educational Service District No. 112 in Vancouver, as the consultant for this project; the School Board adopted the resultant facility master plan in early 2017. The approach and basis for school facility planning is considerably different from that used in a citywide comprehensive plan. Besides school addition/replacement and remodeling, based on long-term enrollment projections as well as expected utility, the plan also addresses such aspects as individual school boundaries and security needs.

In addition, the District employs an overarching five-year strategic plan, called “Design for Excellence.” This plan involves actions at both the districtwide level and at individual schools which are focused on increasing student achievement and strengthening traits that typify highly successful schools.

School district funding mechanisms also differ from city government. In November 2017, the District’s bond measure, at 57.77 percent “yes” votes, fell short of reaching the 60 percent supermajority requirement. The measure would have solidified tax dollars to replace three aging elementary schools, renovate the preschool program building, and add safety enhancements in the district. The district is currently in the process of gathering public feedback on the measure.

⁴¹ Office of the Superintendent of Public Instruction Washington State Report Card (May 2017)

The Lower Columbia College (LCC) campus includes 27 buildings located on over 38 acres, generally situated at the intersection of 15th Avenue and Washington Way. Originally established in 1934 under the name Lower Columbia Junior College, LCC is one of the oldest community colleges in the state. Classes were held in various downtown buildings and the public library until the College acquired 26 acres in its present location; construction of its first campus building began in 1950. The vast majority of LCC students are from the college's official service district, Cowlitz and Wahkiakum counties, although LCC also serves many students from outside its official district (from Oregon and elsewhere in Washington, including Clark County).

As with Longview Public Schools, LCC is responsible for conducting its own capital facilities and services planning independently of the City of Longview. Its most recent facilities master plan (FMP) dates to early 2015. The FMP acknowledges that LCC struggles with aging facilities and outmoded infrastructure such as its steam plant. The campus is in a liquefaction zone; its buildings constructed prior to 2000 were not designed to address the liquefaction risk. In addition to the structural deficiencies, these buildings lack fire sprinkler systems, and their mechanical systems are reaching the end of their useful life. There are also functional deficiencies associated with older buildings that were originally designed with small classrooms, which limits today's instructional approaches. The FMP finds that due to these deficiencies, the oldest buildings that are in their final five to 15 years of life should be replaced. The FMP is broken down into two time frames, a 15-year horizon addressing these older structures and a longer-range plan that addresses buildings expected to reach the end of their useful life in 20-30 years.

"Minor works" are also included. In addition, the FMP is thorough in considering such development aspects as parking, pedestrian access, open space/landscaping, telecommunications needs, stormwater management, and other utilities.

In Washington, community college capital funding requests are funneled through the state Board for Community and Technical Colleges (SBCTC). The SBCTC's Capital Budget Office consolidates the requests for community and technical colleges statewide into a single capital request to the state legislature, which becomes a part of the capital budget. In turn, the SBCTC allocates the appropriated capital funds back to the colleges.

The City of Longview receives permit fees for school district and LCC capital projects, which can sometimes be considerable in the case of major facilities. These fees defray the cost of review/permitting and inspections.

Public Facilities, Utilities, and Services Goals, Objectives, and Policies

Goal PF-A

Ensure that public facilities and services are provided, operated, and maintained in an effective and efficient manner.

General Government

Objective PF-A.1

Conduct long-range capital improvement programming and financing through individual plans for land use, parks, and utilities to ensure that facilities and services are available to meet future needs and that existing facilities and services are maintained and improved. Regularly update these plans. Implement long-range plans through the annual capital improvement program (CIP) and the biennial budget processes.

- Policy PF-A.1.1 Design and construct public facilities and services to handle the anticipated growth of the city and planning area and to minimize future maintenance and repair costs.
- Policy PF-A.1.2 Evaluate the impact of proposed new development on public facilities and services during the land-use and environmental permitting processes and apply mitigation accordingly.
- Policy PF-A.1.3 Monitor implementation of the CIP against the rate of growth and development to determine whether adequate public facilities are being provided. If adequate facilities and services are not available, then the land-use chapter, transportation levels of service, or revenue sources may be adjusted accordingly.
- Policy PF-A.1.4 Consider how the timing and location of new facilities and improvements to existing facilities will impact future development and land-use patterns.
- Policy PF-A.1.5 Continue to remove barriers to public facilities for persons with disabilities to meet Americans with Disabilities Act requirements.
- Policy PF-A.1.6 Continue to play a strong role in the regional community and advance intergovernmental coordination, planning, and sharing of public facilities and services.
- Policy PF-A.1.7 Closely coordinate planning with special purpose districts and other service providers for the siting and improvement of sewer, water, road, educational and other public facilities not within the City's immediate authority.
- Policy PF-A.1.8 Continue to evaluate projects considered for the CIP based on community need, efficiency and durability, health and safety concerns, and availability of funding sources, including the opportunity for grants/loans.
- Policy PF-A.1.9 Finance the CIP within the City's financial capacity to achieve a balance between available revenue and needed public facilities. If the projected funding is inadequate to finance needed public facilities based on adopted

level of service standards and forecasted growth, the City could do one or more of the following:

- lower the transportation LOS standard,
- change the land-use chapter,
- increase the amount of revenue from existing sources, and/or
- adopt new sources of revenue.

Policy PF-A.1.10 Continue to apply for all available state and federal grants and other funds to assist development and improvement of public facilities and services.

Policy PF-A.1.11 Ensure that the ongoing operating and maintenance costs of a public facility are financially feasible prior to its incorporation into the CIP.

Parks

Objective PF-A.2 Maintain and update as necessary the Parks and Recreation Comprehensive Plan so that the City remains eligible and competitive for state funding that is based, in part, on the plan's currency.

Objective PF-A.3 Adopt the Parks and Recreation Comprehensive Plan by reference as a part of the current comprehensive plan update.

Public Safety

Objective PF-A.4 Match the level of police services to the public safety needs and conditions of the Longview community. As part of the biennial budget, work toward achieving a police level of service at the U.S. average ratio of one officer per 565 citizens.

Policy PF-A.4.1 Expand police services and facilities in conjunction with new growth and/or changes in crime rates and community needs. Priority areas include, but are not limited to West Longview and Highlands.

Policy PF-A.4.2 Provide proactive response and investigation to reported crimes or other such requests for police services.

Policy PF-A.4.3 Continue to enhance the levels of police and fire protection and to meet the needs identified by these departments.

Policy PF-A.4.4 Maintain mutual aid agreements with other cities and counties in the region and respond accordingly to requests.

Policy PF-A.4.5 Participate in the regional emergency management programs.

Objective PF-A.5 Support crime prevention and the City's efforts to incorporate crime prevention through environmental design (CPTED) components in new development.

Policy PF-A.5.1 Ensure appropriate training for public safety and/or planning personnel to implement CPTED guidelines/regulations.

- Policy PF-A.5.2 Encourage crime prevention and education programs or activities that stimulate neighborhood cohesiveness such as Neighborhood Watch programs, community clubs, and others. Provide speakers or demonstrations as requested by community groups.
- Policy PF-A.5.3 Provide special programs, such as officers in the schools, to respond to community needs.
- Objective PF-A.6 Establish and maintain levels of service that meet the fire suppression and emergency medical needs of the Longview Community. Implement a level of service equal to a six-minute response time 90 percent of the time. Measure the level of service periodically as part of the Fire Department's annual reports and consider service and facility needs at the time of the biennial budget.
- Policy PF-A.6.1 Provide and maintain fire suppression and medical response services that meet Longview community needs.
- Policy PF-A.6.2 Provide public education and fire prevention programs to reduce risk of fire and need for emergency medical response.
- Objective PF-A.7 Evaluate the need for fire suppression and EMS services and facilities in West Longview. Implement plan recommendations for the City of Longview Fire Department through the biennial budget.
- Policy PF-A.7.1 Work with other fire and rescue jurisdictions to coordinate fire related activities such as training, hazardous spill response, inspections and plan review as feasible, particularly in the City's Planning Area.

Education

- Objective PF-A.8** Support Longview School District and Lower Columbia College master plans and capital improvement and education programs. As the City's comprehensive plan is updated, provide updated growth projections to the Longview School District and Lower Columbia College to assist in their planning needs.
- Policy PF-A.8.1** Coordinate with Longview School District staff as the District prepares its capital improvement programs and to apply case-specific SEPA mitigation fees to address the likely impacts of proposed development on schools.
- Policy PF-A.8.2** Promote convenient and safe access to public schools, through transportation capital improvements in developed areas and through review of new development for transportation and education impacts.
- Policy PF-A.8.3** Work with the Longview School District and Lower Columbia College to foster a well-trained and -educated work force, such as attracting additional four-year college programs to Longview.

Library

- Objective PF-A.9** Strive to achieve and maintain a library level of service at the Washington State average for similar sized libraries, which uses a staff-to-population ratio of one staff person per 2,000 population in the service area. Assess the level of service with the biennial budget.
- Policy PF-A.9.1** Provide a high level of public library services adequate to meet the needs of a growing community and changing technology.
- Objective PF-A.10** Maintain and expand library capital facilities as needed based on community needs and growth. Capital facility needs and costs should be included in the annual CIP and addressed in the biennial budget. Expansion projects may include:
- Add a branch library in the Highlands vicinity. Make efficient use of existing or future facilities, such as collocation with the Highlands Neighborhood Association Community Center.
 - Study the need for an expanded library facility or branch facility in West Longview.
 - Expand the main branch based on population growth.

Resilience

- Goal PF-B** Improve environmental performance and disaster resiliency of facilities.
- Objective PF-B.1** Consider resource conservation and environmental quality as public facilities are designed and constructed.
- Policy PF-B.1.1** Apply energy conservation measures in constructing or remodeling public facilities.
 - Policy PF-B.1.2** Maintain, rehabilitate, or replace the City’s facilities and infrastructure as necessary to extend the useful life of existing facilities and ensure continued efficiency and conservation of energy and resources.
- Objective PF-B.2** Address disaster resilience as a core aspect of public buildings and other facilities.
- Policy PF-B.2.1** Consider seismic requirements and oversight for design and construction/upgrades of public buildings and facilities,
 - Policy PF-B.2.2** Develop a plan establishing restoration priorities for public facilities and services in case of natural disaster.
 - Policy PF-B.2.3** Monitor state emergency management activities that involve seismic code improvements, seeking opportunities to meaningfully incorporate them into public facility design.

Utilities

- Goal PF-C** Monitor and, where necessary, improve the standard of sewer and water service, storm drainage, recycling, and solid waste collection in the City.
- Policy PF-C.1.1** Provide sufficient potable water in the future for peak day demand. Measures to provide sufficient water treatment capacity include expanding the plant, implementing water conservation measures, and increasing treatment plant operating hours.
 - Policy PF-C.1.2** Ensure system additions are built to standards in anticipation of future growth.
 - Policy PF-C.1.3** Plan for capital facility expansion and improvements to increase fire flow as development occurs on the hillside areas.
 - Policy PF-C.1.4** Continue the Water Service Area Agreement between Longview, PUD, and Kelso whereby the three agencies can share each other’s facilities when necessary.

Sewer

- Policy PF-C.1.5 Ensure that developers are responsible for providing sewer lines and related facilities needed to serve new development or, in some cases, provided through a local improvement district.
- Policy PF-C.1.6 Continue rehabilitating sewage collection systems to reduce inflow and infiltration as recommended by the General Sewer Plan to ensure that wastewater treatment systems are used efficiently and their design lives extended.

Storm Drainage

- Policy PF-C.1.7 Continue to closely coordinate with Consolidated Diking District No. 1 on drainage, water quality, and flood protection policies and issues.
- Policy PF-C.1.8 Continue efforts to establish an urban area drainage district, in order for upland areas to assist lowland areas in the cost of surface drainage management.
- Policy PF-C.1.9 Fund stormwater maintenance activities and manage the City's compliance with stormwater regulations.
- Policy PF-C.1.10 Require developers to consider aesthetics as well as functional requirements in designing surface water facilities. Encourage developers to include multiple-use surface water facilities in their developments. Consider recreational, habitat, educational, cultural, open space, and aesthetic opportunities.
- Policy PF-C.1.11 Emphasize the proper installation and maintenance of erosion control measures in association with all construction activities.
- Policy PF-C.1.12 Maintain and update as necessary City stormwater management ordinances to address the impacts of new development and redevelopment as well as the requirements of the City's NPDES municipal stormwater permit.

- Policy PF-C.1.13 Promote low-impact development (LID) as the preferred and commonly used approach to site development, including the use of LID principles in site design and the selection and use of on-site stormwater management LID practices and best management practices where appropriate. Consider regional surface water management facilities to support infill development where LID is not practicable.
- Policy PF-C.1.14 Protect and enhance existing flood storage and conveyance functions and ecological values of floodplains, wetlands, and riparian corridors.
- Policy PF-C.1.15 Where feasible, retrofit existing roadways with facilities to enhance water quality and reduce peak flows as roadway improvement projects are completed.

Solid Waste

- Objective PF-C.2 Continue the City/County partnership in the joint Comprehensive Solid Waste Management Plan. Participate in the periodic Solid Waste Master Plan update.
- Policy PF-C.2.1 Continue to provide efficient solid waste collection and to participate in efforts to improve the regional solid waste management system.
- Policy PF-C.2.2 Promote recycling by residents and businesses through a curbside recycling program and recycling centers.
- Policy PF-C.2.3 Ensure that new, reclaimed, or continuing solid waste facilities located in the City minimize potential environmental impacts to air quality, water, and other natural systems, and provide for reclamation plans.

Chapter 8. Transportation and Circulation

Introduction

Transportation has been a prominent issue and priority in the City of Longview since its founding as a “planned city” in the 1920s by Robert A. Long. The transportation system in Longview is comprised of state highways, city streets, public transit, freight rail, and a marine port. All of these components of the transportation system are critical for economic development and community livability.

This chapter outlines the community’s priorities as related to transportation, as well as inventorying the existing transportation system, providing forecasts for the future, and discussing how future system improvements may be funded.

Planning Requirements

Given its location within a county that is not fully planning under the state Growth Management Act, Longview’s transportation planning requirements are set forth in the portion of state law that applies to code cities.

The City must integrate its transportation and land-use plans within its comprehensive plan. “Every code city, by ordinance, shall direct the planning agency to prepare a comprehensive plan for anticipating and influencing the orderly and coordinated development of land and building uses of the code city and its environs. The comprehensive plan may be prepared as a whole or in successive parts. The plan should integrate transportation and land use planning.” (RCW 35A.63.060 - emphasis added)

Circulation (as opposed to transportation) is one of the two basic elements that must be included in Longview’s comprehensive plan, described as “the general location, alignment, and extent of existing and proposed major thoroughfares, major transportation routes, and major terminal facilities, all of which shall be correlated with the land-use element of the comprehensive plan.” (RCW 35A.63.061) This circulation requirement is differentiated from a full “transportation element showing a comprehensive system of surface, air, and water transportation routes and facilities,” which is deemed to be *optional*. (RCW 35A.63.062)

RCW 35.77.010 requires that cities’ six-year transportation improvement programs (TIPs) be consistent with their adopted comprehensive plans. TIPs must also include:

- Any applicable changes that promote nonmotorized transit (RCW 35.77.010)
- Expenditure information for nonmotorized transportation purposes (RCW 35.77.010)
- How the City will preserve railroad right-of-way in the event the railroad ceases to operate (RCW 35.77.010)
- Provisions for bicycle paths, lanes, routes, roadways, and improvements where “reasonably practicable” and where the cost of establishing it would be not be “excessively disproportionate to the need or probable use” (RCW 35.77.015)

Additionally, TIPs must also “specifically set forth those projects and programs of regional significance for inclusion in the [regional TIP].” For Longview, the regional plan is promulgated by the Cowlitz-Wahkiakum Council of Governments (CWCOG) as the Longview-Kelso-Rainier Metropolitan Planning Organization (MPO).

In practice, prioritization of projects within the City TIP is influenced by available funding and the priorities of funders. More robust transportation planning can help City projects to be better integrated within the local and regional plans and to score more favorably when considered for funding opportunities.

Existing Transportation System Overview

Regional Linkages

Longview’s regional connections either directly or indirectly include several state/federal routes as well as Interstate 5 (I-5), whose accessibility is critical to the city’s residents and economy. I-5 is not within the Longview city limits but is accessible through Kelso at exits 36, 39, 40, and 42.

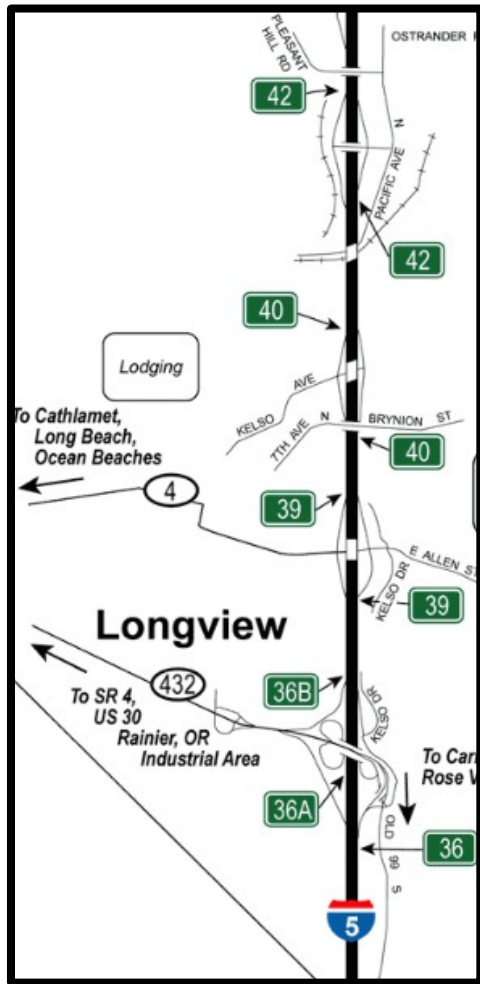


Figure 8-1. I-5 Connections Serving Longview

Source: WSDOT

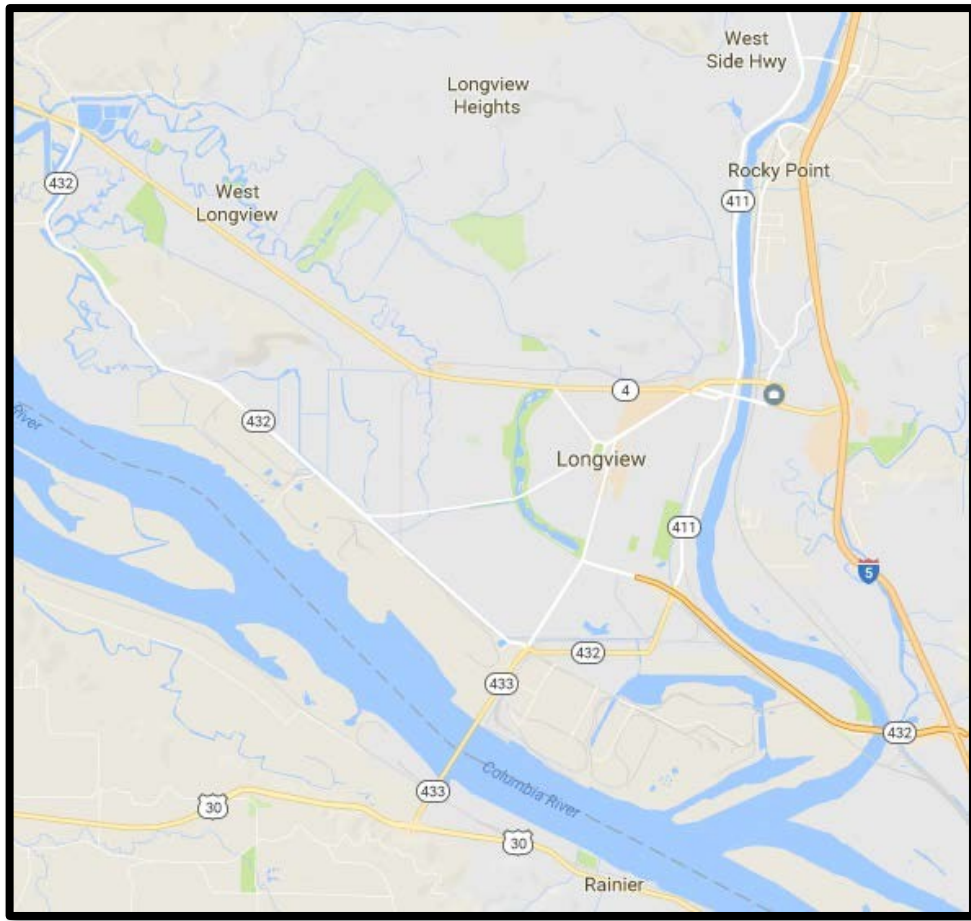
<http://www.wsdot.wa.gov/Traffic/InterstateGuide/i5/I5_WinlockToKelsoLong.htm> Accessed November 8, 2017.

State Route (SR) 4 – Ocean Beach Highway is the primary east-west roadway through the city. It connects to Longview’s two northern access points to Interstate 5 (I-5) and primarily serves the commercial and residential areas, especially the fast-growing West Longview area, and continues into Wahkiakum County.

SR 432, also known as Industrial Way, connects the southern end of the city to I-5, directly accessing the Port of Longview, and the large industrial complexes in the area, as well as the City’s Mint Farm Industrial Park. SR 432 also connects to SR 433, the Lewis and Clark Bridge into Rainier, Oregon, which in turn connects to US 30 that runs east-west along the Oregon side of the Columbia River.

SR 411 (“Westside Highway”) provides a north-south corridor through the eastern portion of the city. Its southern terminus connects to SR 432, providing a direct connection into the industrial area and serving as a commuter route for local residents accessing the employment centers. At the northern end, it turns east into Castle Rock. Although not a part of the state route, Westside Highway continues north of Castle Rock and becomes old Military Road in Lewis County. Its northernmost end is at Koontz Road, near Napavine.

Figure 8-2. Regional Highway Connections



Source: Google Maps

State Routes 4, 432, and 433 are classified as principal (functional) arterials in the City's hierarchical system of street classifications (see Figure 8-4 at the conclusion of this chapter).

The City is responsible for the local street system throughout the city and works closely with the Washington State Department of Transportation (WSDOT) to manage access and traffic movement for both SR 432 and SR 4. The Washington side of the Lewis and Clark Bridge and both the north- and southbound ramps at I-5/SR 432 are equipped with WSDOT traffic cameras.

The City works through CWCOC on regional issues within the Longview-Kelso-Rainier Metropolitan Planning Area (MPA). Within the MPA, the City also works closely with The City of Kelso, Cowlitz County and the Port of Longview regarding transportation network improvements along both SR 4 and SR 432.

In addition, the Columbia River is classified as a freight waterway, whose lower reach is reported by the U.S. Army Corps of Engineers to carry more than 250 million tons of freight annually. The deep draft marine terminal facilities at the Port of Longview, Weyerhaeuser, and other industrial properties generate a tremendous amount of truck and rail activity, primarily along the SR 432 corridor. Pending opportunities including the redevelopment of the former aluminum plant facility and of the Port's Barlow Point. These future developments will need to undergo thorough planning to facilitate development and maintain freight and general mobility. In addition to the marine operations, Longview rail facilities also transport considerable freight through the industrial areas.



Freight Rail Corridors

- R1 - Greater than 5 million tons per year
- R2 - 1 million to 5 million tons per year
- R3 - 5 hundred thousand to 1 million tons per year
- R4 - 1 hundred thousand to 5 hundred thousand tons per year
- R5 - Less than 1 hundred thousand tons

Figure 8-3. Freight Rail Corridor

Source: WSDOT <

<http://www.wsdot.wa.gov/NR/rdonlyres/FA479C47-322A-4095-AF09-5DC5DED2FA1F/0/2015FreightRailCorridorsinWA.pdf>> Accessed November 8, 2017.

Local Roadways

The hierarchical street classification system defines function. Volume, land use, and functional classification typically determine access. Safe access for pedestrian and bicycles is also taken into consideration when street improvements are made as arterials and connectors.

There are three classifications of streets in Longview. Besides the state highways, principal (functional) arterials include limited access facilities such as Tennant Way, Washington Way, 15th, and Oregon Way. The arterials provide circulation and access, as well as a link with highways. The arterials are the widest streets and are designed to carry heavy volumes of traffic.

Minor arterials provide movement within subareas of the city and distribute trips from neighborhood connectors and principal arterials. Minor arterials serve through traffic and can provide direct access to commercial, industrial, and multi-family development, but they generally do not provide direct access for residential properties.

Collectors (neighborhood connectors) distribute local traffic from arterials and local access streets and provide direct access for abutting properties. Typically, connector streets are not continuous for any great length, nor do they form a connected network by themselves.

Local access streets serve to distribute neighborhood traffic from arterials and connectors and provide direct access for abutting properties. Business access streets distribute traffic from arterials to serve dense commercial activities. Direct access is provided to abutting commercial or multi-family properties. Industrial access streets serve the unique needs of an industrial area, distributing traffic from arterial streets and providing direct access to the abutting industrial properties.

The outline of the remainder of the Transportation and Circulation Element is as follows.

1. Goals, Objectives, and Policies
2. Existing Transportation System Conditions
 - a. Street and Highway Facilities
 - b. Freight Facilities
 - c. Transit
 - d. Non-Motorized Facilities
3. Transportation System Forecasts
 - a. 2025 Projected Traffic Volumes and Congestion
 - b. 2050 Projected Traffic Volumes and Congestion
4. Financial Plan
 - a. Funding Sources
 - b. Six-Year Transportation Improvement Program
5. Transportation and Circulation Element Maps

Existing Transportation System Conditions

This next section of the Transportation and Circulation Element provides a deeper discussion on the existing conditions of the City's Transportation System. Specifically, the section will provide additional information on street and highway facilities; freight facilities; transit; and non-motorized facilities.

Streets and Highway Facilities

Street Classifications

As mentioned earlier, streets and highways in the City of Longview are organized in a hierarchical classification system. There are six levels of the street classification system: principal arterials, minor arterials, major collectors, collectors, local access streets/roads, and private streets/roads. The specific state highways and streets classified at the principal arterial level were mentioned previously. Specific streets and highways classified as minor arterials are listed below.

Table 8-1.

City of Longview Minor Arterials	
• Beech Street	• California Way
• Hudson Street	• Kessler Boulevard
• Nichols Boulevard	• Olympia Way
• Pacific Way	• Vandercook Way
• 1 st /3 rd Avenues	• 12 th Avenue
• 14 th Avenue	• 30 th Avenue
• 38 th Avenue	

Please refer to Figure 8-4 at the end of the chapter to find specific streets classified lower than minor arterials. Within the City's Planning Area Boundary (PAB), there are about 47.8 miles of principal or minor arterials, 30.2 miles of collectors, and 128.2 miles of local access or private roads/streets. The table below lists the number of miles of each street classification within the PAB.

Table 8-2.

Street Classification	Total Miles in PAB
Principal Arterial	25.7
Minor Arterial	22.1
Major Collector	1.4
Collector	28.8
Local Access Road	114.6
Private Road	13.6
Ramp	2.4
Total (All Street Classifications)	208.6

Traffic Volumes and Congestion

One way of measuring existing conditions of streets and highways is to look at the volume (amount) of traffic and how much delay/congestion is experienced by motorists along a street segment or at an intersection. The amount of delay and congestion can be looked at by comparing traffic volumes with traffic capacity for a particular street segment or intersection. This comparison results in a volume-to-capacity ratio (or percentage). The closer the ratio is to 1 (or 100%) the more delay and congestion a driver is probably experiences. A volume-to-capacity ratio can also be viewed as a qualitative measure known as Level of Service (LOS). LOS is reported on a scale of “A” through “F”. A LOS A describes the highest level of performance (least congestion) and LOS F describes the lowest level of performance (most congestion). Generally, a roadway’s capacity is considered acceptable if it operated at a LOS between A through C.

The table below provides a general description of each LOS classification at the intersection level and how it compares to a volume/capacity ratio. These descriptions could be modified to be applied to street segments as well

Table 8-3.

Level of Service (LOS)	Interpretation	V/C Ratio
A	Uncongested operations; all queues clear in a single signal cycle.	Less Than 0.60
B	Very light congestion; an occasional approach phase is fully utilized.	0.60 to 0.69
C	Light congestion; occasional backups on critical approaches.	0.70 to 0.79
D	Significant congestion on critical approaches, but intersection functional. Cars required to wait through more than one cycle during short peaks. No long-standing queues formed.	0.80 to 0.89
E	Severe congestion with some long-standing queues on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements. Traffic queue may block nearby intersections(s) upstream of critical approach(es).	0.90 to 0.99
F	Total breakdown, stop-and-go operation.	1.00 and Greater

Source: Transportation Research Board Circular 212 Table B-6

A variety of factors are used to determine volume-to-capacity ratios and LOS, including traffic volume, number of lanes, lane width, percentage of truck traffic, and average travel speed. The CWCOC maintains a Regional Travel Demand Model the City is able to use to determine estimated traffic volumes and amount of congestion. Figures 8-5 and 8-6 at the end of the chapter display the estimated Maximum PM Peak Hour Volume/Capacity and LOS for streets and intersections using the 2017 CWCOC model. The current street segments with volume/capacity at 70% (LOS C) or worse are the following.

- State Route 411 (Westside Highway) from City of Kelso city limits heading north towards Castle Rock is LOS D.
- 1st Avenue from City of Kelso city limits to Hudson Street is LOS C.
- State Route 432 on-ramp from Industrial Way is LOS D.
- State Route 433 (Lewis and Clark Bridge) is LOS E.
- Nichols Boulevard from Tennant Way to Washington Way is LOS C and some portions north of Washington Way are LOS C as well.

From the standpoint of signalized arterial intersections, the following 2 intersections have significant congestion according to the regional travel demand model.

- State Route 432/433 is LOS D. It should be noted that the model does not account for at-grade railroad crossing delays. If the model did account for at-grade crossing delays, this intersection might display more congestion in model results and have a higher volume/capacity ratio.
- Washington Way and Ocean Beach Highway are LOS F.

Traffic Safety

Another way of measuring existing conditions on streets and highways in the City of Longview is by looking at traffic safety. For this comprehensive plan update, the database of all traffic accidents on city streets in Longview from 2010 to 2016 was obtained from WSDOT. From 2010 to 2016, there were 9 fatal and 52 serious injury accidents out of a total of 3,946. There have been fatal accidents in every year except 2013. The most recent year, 2016, was the worst year for serious injury accidents with 13. The following table shows the annual number of fatal, serious injury, and total accidents over this six-year period.

Table 8-4.

	2010	2011	2012	2013	2014	2015	2016	2010-2016
Total Accidents	622	551	545	526	509	563	630	3,946
Suspected Serious Injury Accidents	6	3	9	8	7	6	13	52
Fatal Accidents	2	1	1	0	1	2	2	9
Accidents Involving Pedestrians	16	6	11	11	17	10	13	84
Accidents Involving Bicyclists	11	10	15	10	19	10	14	89
Total Injuries (any level of severity)	269	234	263	189	276	242	331	1,804
Total Fatalities	2	1	1	0	1	2	2	9

Source: WSDOT Crash Data and Reporting Branch

Figure 8-7 at the end of the chapter shows the locations of the fatal and serious injury accidents. The fatal accidents that also involved a pedestrian or bicyclist are shown with a separate symbol.

Freight Facilities

In addition to freight rail and waterway corridors as mentioned earlier, Longview also has several truck freight facilities (corridors). Figure 8-8 at the end of the chapter illustrates the streets and highways considered truck freight corridors and displays T-1, T-2, and T-3 truck freight routes in the city. Truck freight corridors are classified by WSDOT in the Freight and Goods Transportation System by the amount of annual gross tonnages carried on a particular corridor. Any freight corridors carrying more than 10 million gross tons per year is classified as a T-1 freight route. State Route 432 between Interstate 5 and State Route 433 is the only freight route with more than 10 million gross tons being transported on an annual basis. A portion of State Route 432 (Industrial Way) northwest of the State Route 432/433 intersection carries between 4 and 10 million gross tons annually to be rated a T-2 freight route. Part of Fibre Way and 15th Avenue are also T-2 freight routes. All of the remaining freight routes in the city carry between 300,000 and 4 million gross tons per year.

Transit

Cowlitz Transit Authority (CTA), operating as RiverCities Transit, provides fixed route and paratransit transit (bus) services within the city. The service area extends beyond the Longview city limits into Kelso. CTA is a taxing authority only with no direct staff. The CTA contracts with the City of Longview all transit operations, maintenance, and capital improvements and the City of Longview then subcontracts the complementary paratransit service.

Currently, RiverCities Transit operates 7 fixed routes Monday through Saturday. There is no service available on Sunday. Depending on the route, service frequency is 30 to 60 minutes. A downtown transit center located on 12th Avenue between Hemlock and Florida Streets is a central transfer location where all routes originate. At the transit center, RiverCities Transit buses connect with services operated by other fixed route providers (CC Rider, Lower Columbia CAP, and Wahkiakum on the Move). In West Longview, RiverCities Transit also provides service to an existing park and ride lot at Ocean Beach Highway and Coal Creek Road. Figure 8-9 shows all the streets in the city served by fixed route transit service as well as the location of the downtown transit center and Coal Creek Park and Ride.

Non-Motorized Facilities

There are existing non-motorized facilities for use of pedestrians, bicyclists, or both in the City of Longview. The most notable facility are the trails around the perimeter of Lake Sacajawea. Other facilities include the Highland Trail along State Route 432 (Industrial Way) and the Dike Trail that roughly parallels Pacific Way. There are also established bicycle lanes along Washington Way, Pacific Way, and 38th Avenue. A map of existing bicycle and/or pedestrian facilities from the Bike/Ped Assessment GIS database maintained by the CWCOCG is included at the end of the chapter (Figure 8-10).

Transportation System Forecasts

This next section of the Transportation and Circulation Element provides forecasts of traffic volume and congestion on streets and highways in the city for the future years of 2025 and 2050. These forecasts are based on a no-build alternative (an assumption that no new streets or highways are built to expand traffic capacity). The forecasts are from the CWCOCG Regional Travel Demand Model.

2025 Projected Traffic Volumes and Congestion

Figures 8-11 and 8-12 at the end of the chapter display the forecasted Maximum PM Peak Hour Volume/Capacity and LOS for streets and intersections for 2025. The street segments forecasted to have a volume/capacity of 70% (LOS C) or worse in 2025 are the following.

- State Route 411 (Westside Highway) from City of Kelso city limits heading north towards Castle Rock remains at LOS D.
- 1st Avenue from City of Kelso city limits to Hudson Street remains at LOS C.
- State Route 432 on-ramp from Industrial Way increases from LOS D to LOS E.
- State Route 433 (Lewis and Clark Bridge) remains at LOS E.
- Nichols Boulevard from Tennant Way to Washington Way increases from LOS C to LOS D and all portions north of Washington Way increase to at least LOS C.

- Portions of Fibre Way and a small part of Industrial Way will increase to LOS C.
- Most of Ocean Beach Highway between 24th and 32nd Avenues will increase to LOS C.
- Pacific Avenue between Ocean Beach Highway and 30th Avenue will increase to LOS C or D.

From the standpoint of signalized arterial intersections, the following 3 intersections are forecasted to have significant congestion.

- State Route 432/433 will increase from LOS D to LOS E. It should be noted that the model does not account for at-grade railroad crossing delays. If the model did account for at-grade crossing delays, this intersection might display more congestion in model results and have a higher volume/capacity ratio.
- Washington Way and Ocean Beach Highway will remain at LOS F.
- Washington Way and Nichols Boulevard will increase to LOS C.

2050 Projected Traffic Volumes and Congestion

Figures 8-13 and 8-14 at the end of the chapter display the forecasted Maximum PM Peak Hour Volume/Capacity and LOS for streets and intersections for 2050. The street segments forecasted to have a volume/capacity of 70% (LOS C) or worse in 2050 are the following.

- State Route 411 (Westside Highway) from City of Kelso city limits heading north towards Castle Rock increases to LOS E.
- 1st Avenue from City of Kelso city limits to Hudson Street remains at LOS C, but portions increase to LOS D.
- State Route 432 on-ramp from Industrial Way increases from LOS E to LOS F.
- Most of State Route 432 (Industrial Way) increase to LOS C.
- State Route 432 (Tennant Way) increase to LOS C or LOS E depending on travel direction.
- Most of Tennant Way between State Route 432 and Nichols Boulevard increase to LOS D or LOS E.
- State Route 433 (Lewis and Clark Bridge) remains at LOS E.
- Nichols Boulevard from Tennant Way to Washington Way remains at LOS D and most portions north of Washington Way increase to LOS D.
- Portions of Fibre Way will increase to LOS D.
- Most of Ocean Beach Highway between Triangle Mall and west of 40th Avenue will increase to LOS C, LOS D, or LOS E.
- Pacific Avenue between Ocean Beach Highway and near 36th Avenue will increase to LOS D or E.
- Glenwood and Virginia Streets between Pacific Avenue and Columbia Heights Boulevard will increase to LOS C or LOS D.
- Several portions of Columbia Heights Boulevard will increase to LOS C or LOS D.
- Cascade Way, north of Ocean Beach Highway, will increase to LOS C or LOS D.

From the standpoint of signalized arterial intersections, the following 4 intersections are forecasted to have significant congestion.

- State Route 432/433 will increase from LOS E to LOS F. It should be noted that the model does not account for at-grade railroad crossing delays. If the model did account for at-grade crossing delays, this intersection might display more congestion in model results and have a

- higher volume/capacity ratio.
- Washington Way and Ocean Beach Highway will remain at LOS F.
- Washington Way and Nichols Boulevard will increase to LOS D.
- Tennant Way and Nichols Boulevard will increase to LOS C.

Financial Plan

Funding Sources

There are many improvements that will be made to the City of Longview's transportation system in the future. Several funding sources are available to finance needed transportation projects. Possible funding sources exist at the local, state, and federal government level. Every funding source has its own requirements for how it can be used; thus, not every source is available for every project. Below are descriptions of possible funding sources organized by level of government.

City of Longview (local sources)

Three primary types of funding exist at the local level: property, sales, and gas taxes, and the recently established Transportation Benefit District.

Property and sales taxes primarily provide revenue for the City's General Fund to be used for services in most departments. These two types of taxes could possibly be used for transportation projects. The share of the state gas tax shared with local governments is intended to fund transportation improvements and is a critical source of transportation revenue.

The newest funding source of revenue was established by the City of Longview in 2016, the Transportation Benefit District. The Transportation Benefit District is an independent taxing authority authorized in Washington State statutes (RCW 36.73) that can collect revenue to be used to fund specific transportation projects. In Longview the Transportation Benefit District is funded by a \$20.00 vehicle license fee paid by all residents. The license fee is collected by the Washington State Department of Licensing when people register, or renew, their vehicle license plate tabs (stickers).

State of Washington (state sources)

There are several discretionary funding sources that are available, most through a competitive application process, from Washington State. A legislative approved earmark for a specific transportation project would not typically be through a discretionary application process. The Washington State Department of Transportation (WSDOT) oversees most discretionary funding opportunities. WSDOT may approve funding for transportation projects from its internal funds or through discretionary grants such as the Pedestrian/Bicycle or Safe Routes to School programs. Other state agencies that provide discretionary funding for cities are the Transportation Improvement Board (TIB), Freight Mobility Strategic Investment Board (FMSIB), or the Washington Traffic Safety Commission.

Federal Government (federal sources)

Several federal government grant programs are available to fund transportation projects. Each program has its own set of eligibility criteria. Below is a list of various federal grant programs.

- National Highway Preservation Program (NHPP)
- Highway Safety Improvement Program (HSIP)
- Surface Transportation Block Grant Program – Bridge Set-Aside (STP-BR)
- Surface Transportation Block Grant Program – Regional (STP)
- Surface Transportation Block Grant Program – Set-Aside [formerly Transportation Alternatives] (TA)

The NHPP, HSIP, and STP-BR programs are managed by WSDOT. The STP and TA programs are managed by the CWCOC and projects are selected for funding based on a competitive ranking and prioritization process. CWCOC manages the STP program for Cowlitz County and the TA program for the Southwest Washington Regional Transportation Planning Organization (SWRTPO). The RTPO is comprised of five counties: Cowlitz, Grays Harbor, Lewis, Pacific, and Wahkiakum.

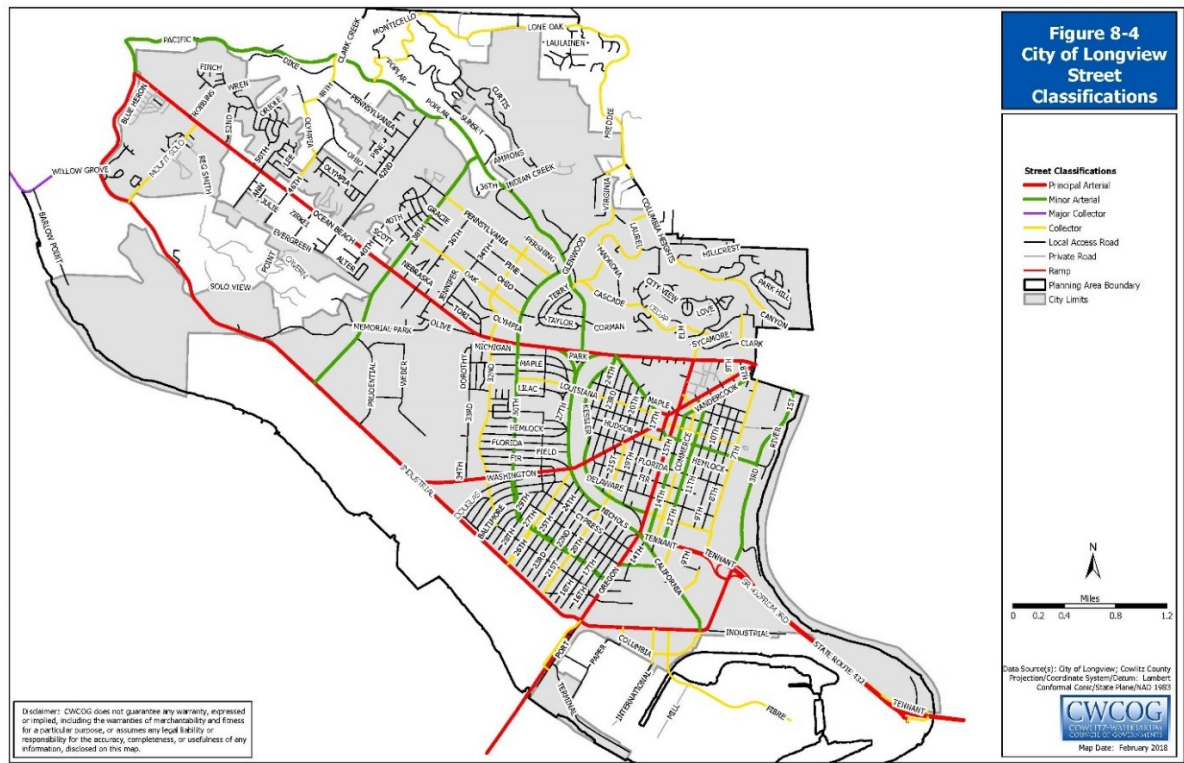
Six-Year Transportation Improvement Program

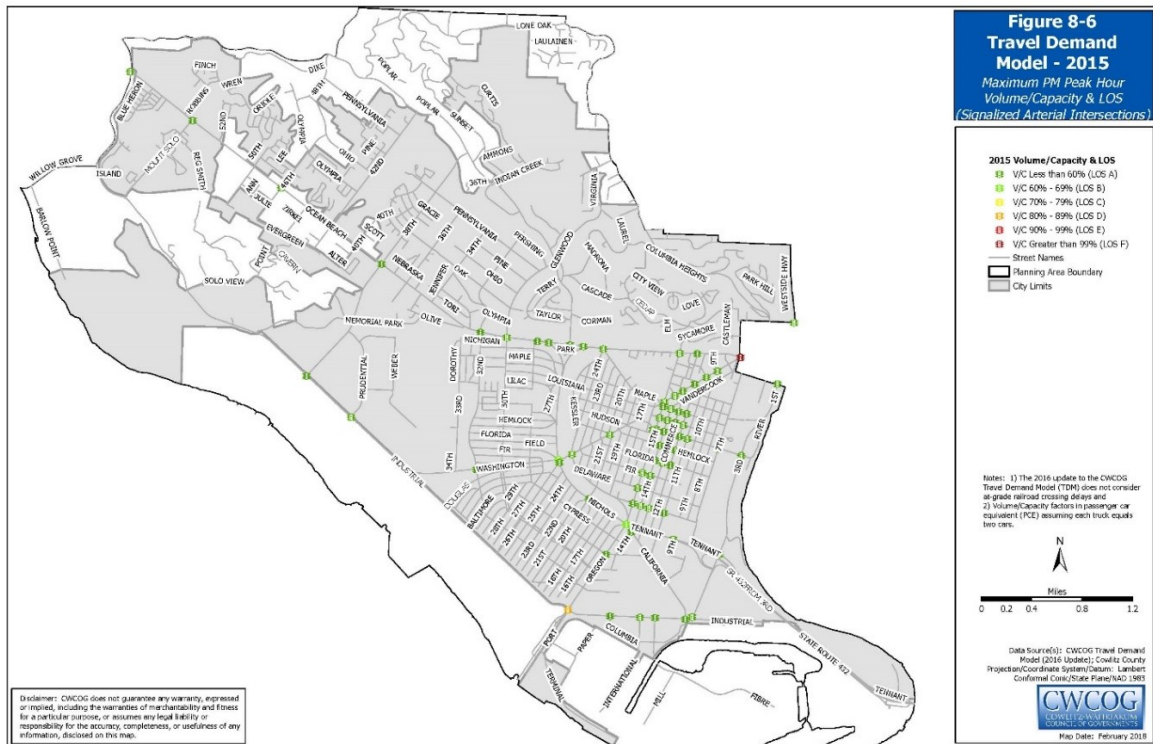
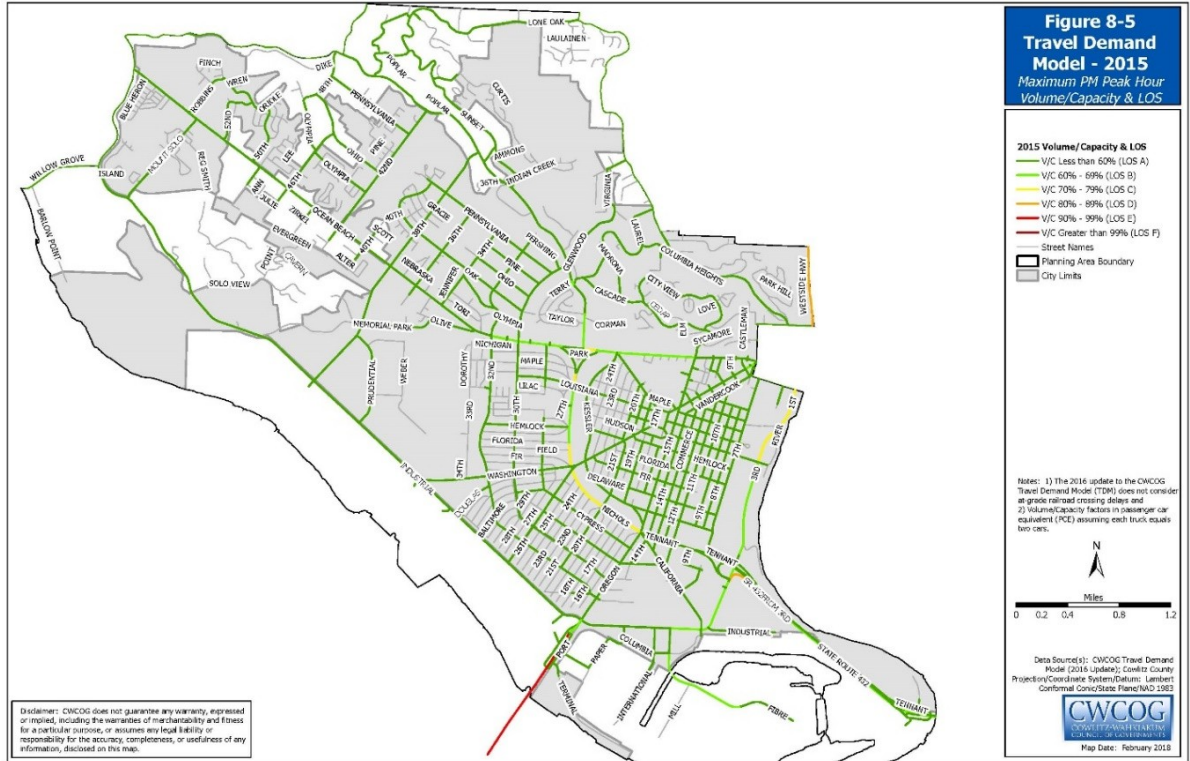
Once a funding source(s) has been identified for a transportation project it should be incorporated into the City's Six-Year Transportation Improvement Program (TIP). The TIP prioritizes all multi-modal transportation projects with secured or planned funding. As stated earlier, RCW 35.77.010 requires that cities' TIPs be consistent with their adopted comprehensive plans. The requirements for projects that should be listed in the TIP were included earlier under the 'Planning Requirements' section.

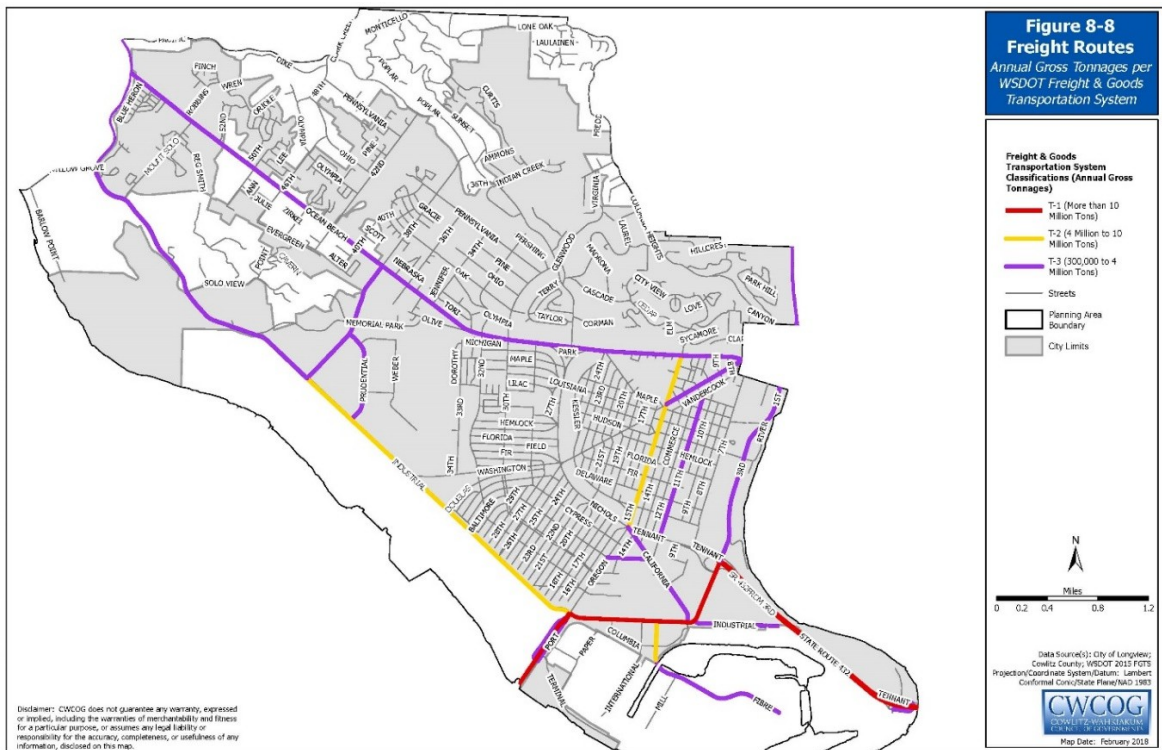
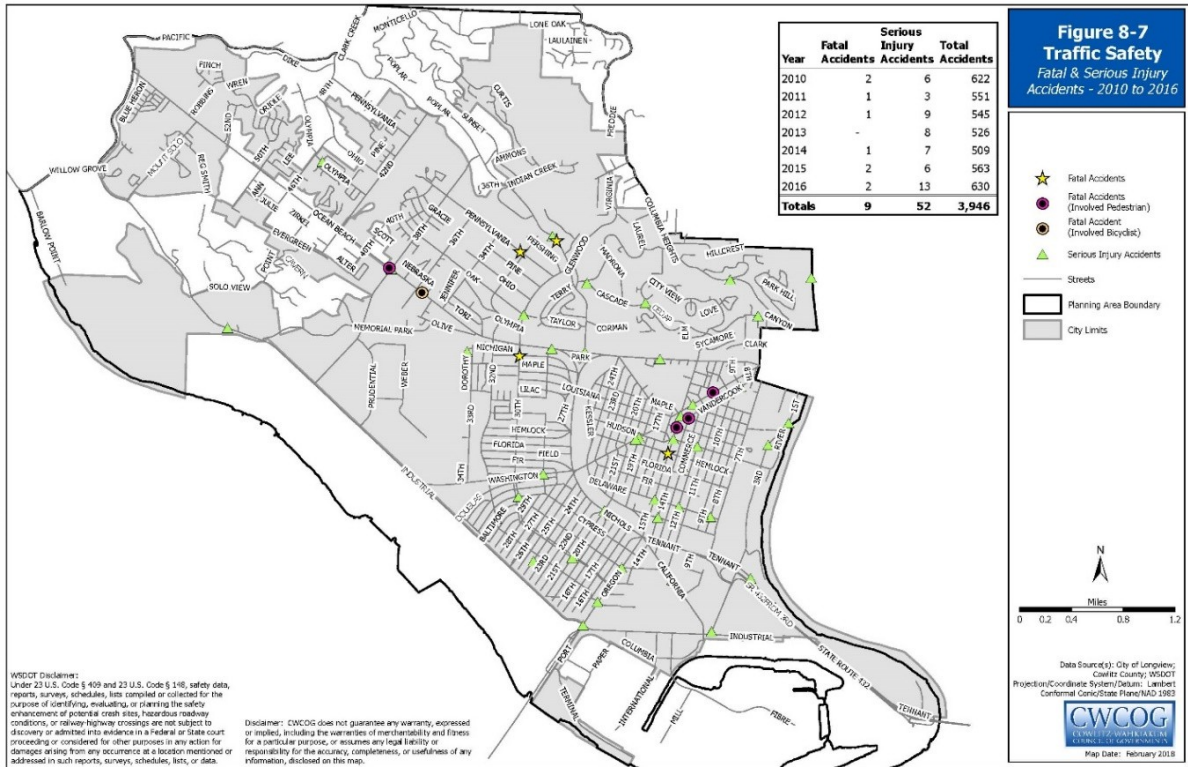
The State of Washington has an online database on the Secure Access Washington (SAW) website that allows cities or other local agencies to input and manage all projects on their six-year TIP. This online database also provides an easy way to forward federally funded and/or regionally significant projects with secured funds to CWCOC for approval on the Longview-Kelso-Rainier MPO Metropolitan Transportation Improvement Program (MTIP) and then to be forwarded to WSDOT for inclusion on the Statewide Transportation Improvement Program (STIP).

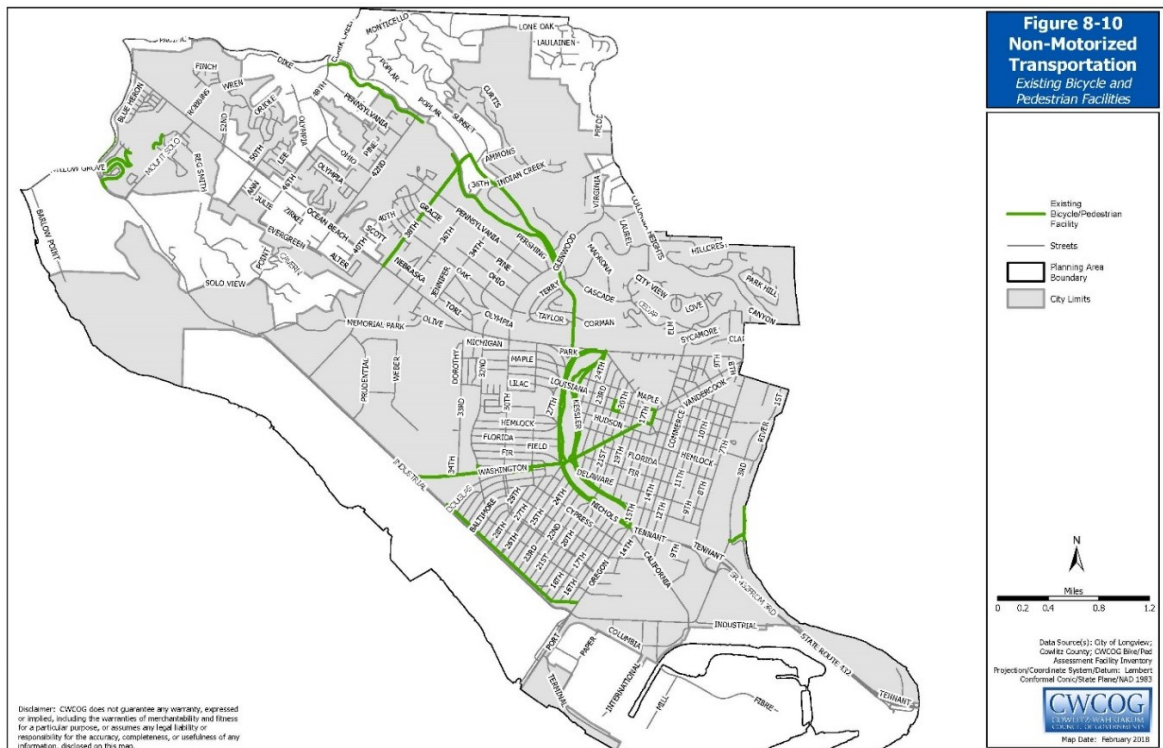
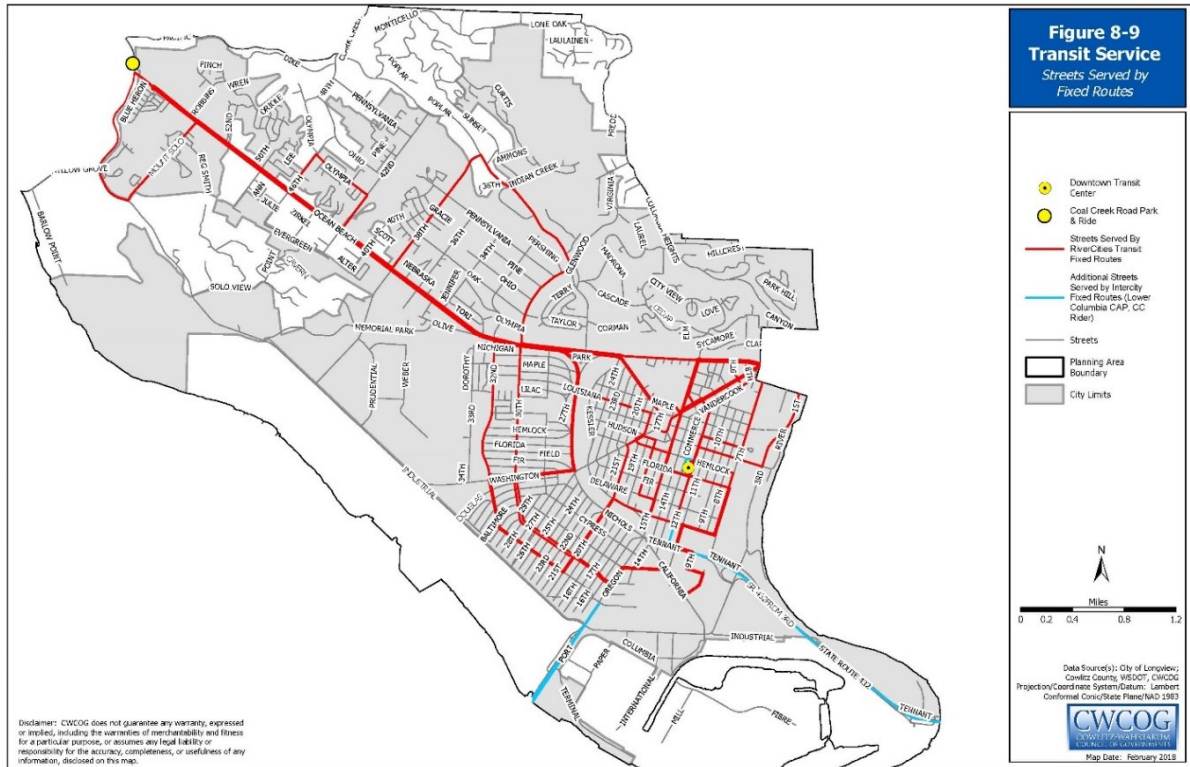
Transportation and Circulation Element Maps

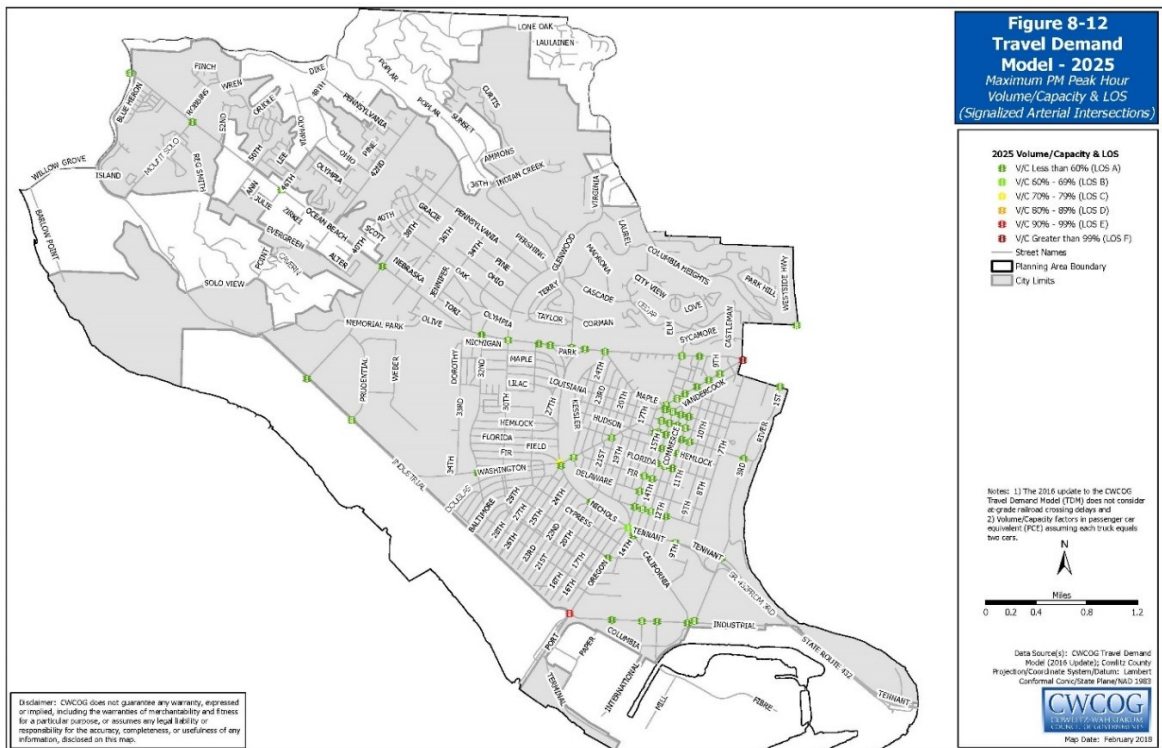
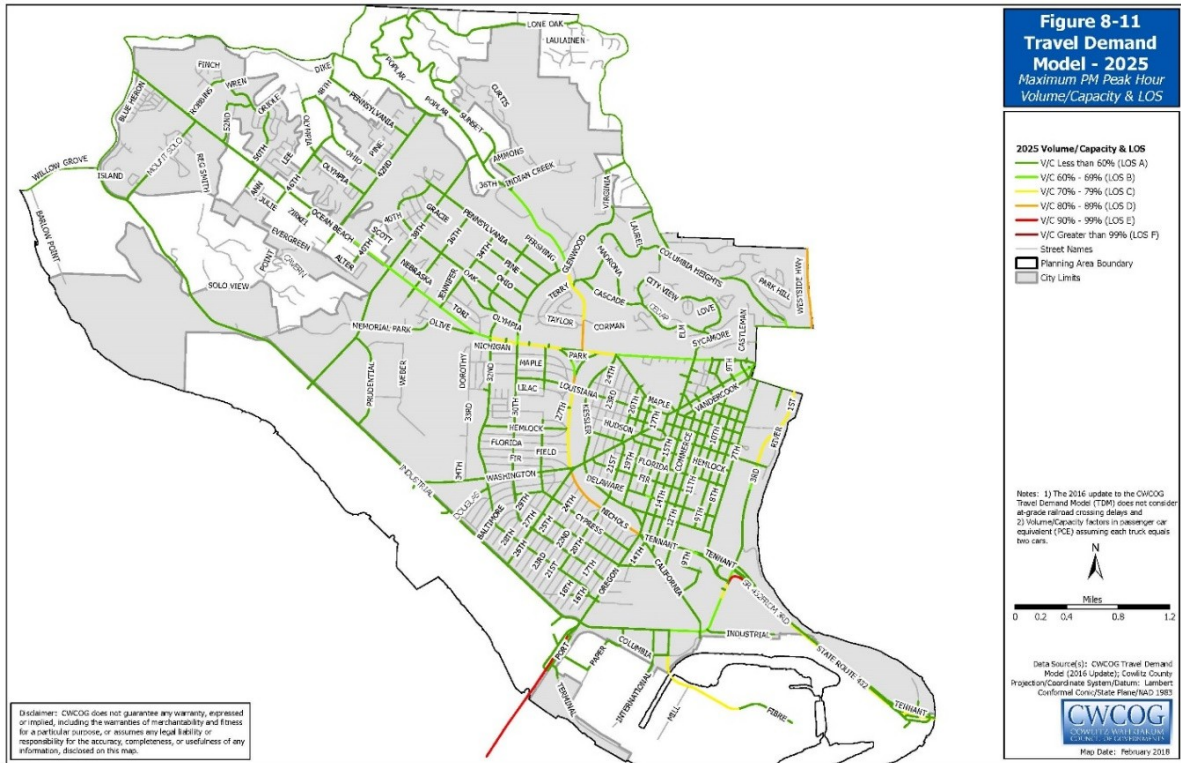
On the following pages are Figures 8-4 through 8-14, maps showing various components of the City of Longview’s Transportation System, as referenced during the discussion on the preceding pages.

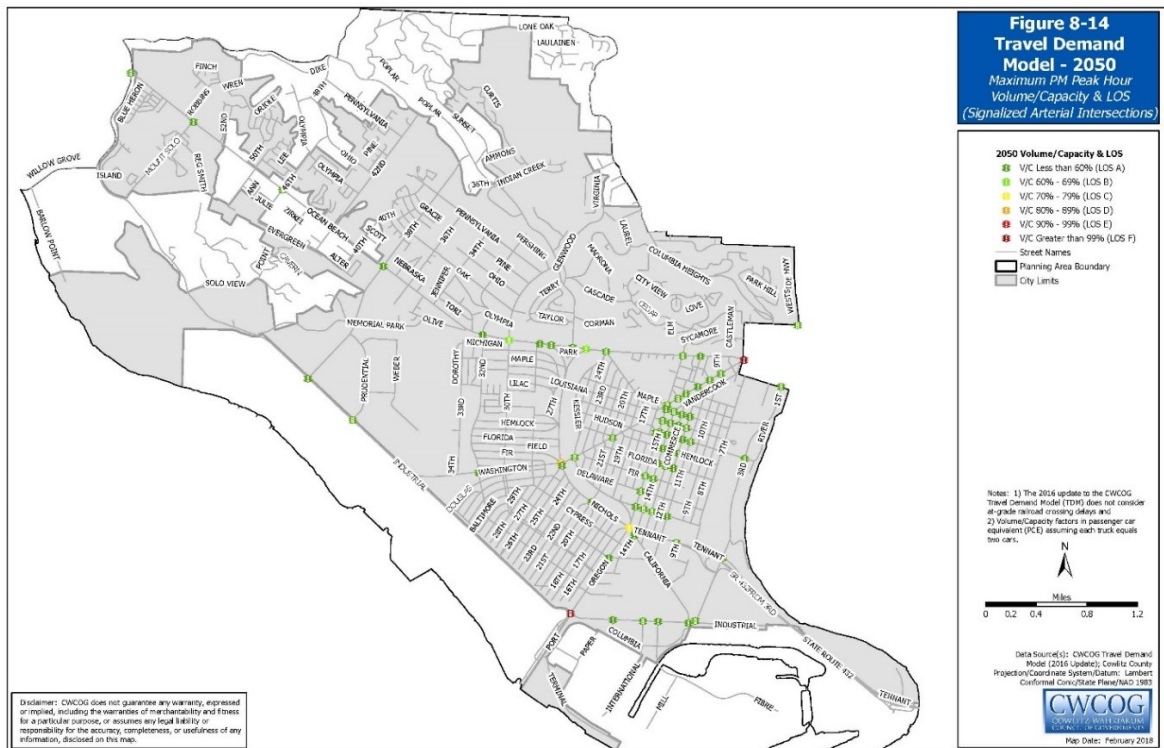












Transportation Goals, Objectives, and Policies

Overall

- Goal TR-A** Provide a convenient, safe, and efficient multi-modal transportation system that promotes the mobility of people and goods within and through Longview.

Multi-Modal Transportation

- Goal TR-B** Provide a multi-modal transportation network that supports the planned land-use classifications.

- Objective TR-B.1** By the end of 2021, consistent with Objective LU-B.2, evaluate and amend, as needed, development regulations to ensure that planning project approval is consistent with transportation goals, objectives, and policies.

- Objective TR-B.2** Identify long-term deficiencies for inclusion in the Metropolitan Planning Organization's Metropolitan Transportation Plan.

- Policy TR-B.2.1** Provide connectivity for convenient multi-modal access.
- Policy TR-B.2.2** Develop neighborhood and local connections to provide adequate circulation into and out of neighborhoods.
- Policy TR-B.2.3** Develop an east-west alternative route to relieve congestion on Ocean Beach Highway.
- Policy TR-B.2.4** Provide a safe and accessible pedestrian and bicycle system that includes shared roadways, multi-modal pathways, and sidewalks.
- Policy TR-B.2.5** Continue to work closely with the Cowlitz Transit Authority to improve River Cities Transit service.
- Policy TR-B.2.6** Improve pedestrian links to transit stops and urban area activity centers.
- Policy TR-B.2.7** Remove barriers to transportation by supporting safe access to transit.
- Policy TR-B.2.8** Encourage growth in areas with existing or planned transportation infrastructure capacity.
- Policy TR-B.2.9** Enhance policies allowing new development to support multiple modes of transportation such as public transit, pedestrians, and bicyclists.
- Policy TR-B.2.10** Consider development of park-and-ride facilities for area commuters.
- Policy TR-B.2.11** Incorporate transit-supportive and pedestrian-friendly design features in new development through the permit review process.

- Policy TR-B.2.12 Integrate land-use and transportation decisions through City permitting and environmental review processes to ensure that the transportation network supports the land-use vision.

Freight and Goods Movement

Goal TR-C Provide for the efficient movement of goods and services.

Objective TR-C.1 Develop a citywide truck route network that best serves the needs of industrial and commercial users as well as the comprehensive plan land-use designations associated with future growth.

Policy TR-C.1.1 Work closely with Port of Longview, local industry, and rail operators to expand truck and rail service as appropriate to support continuing economic development activities.

Policy TR-C.1.2 Support an integrated freight transportation network and promote connectivity between the highway, rail, and marine modes.

Policy TR-C.1.3 Treat existing rail and air transportation facilities as regional resources and allow for their needs in land-use decisions.

Policy TR-C.1.4 Seek to eliminate congestion conflicts caused by at-grade rail crossings, especially along SR 432 and Oregon Way.

Safety and Livability

Goal TR-D Design and construct safe transportation facilities that enhance the livability of Longview.

Objective TR-D.1 By 2022 develop boulevard plans for Washington Way and 15th Avenue.

Policy TR-D.1.1 Develop traffic calming design standards that encourage appropriate traffic volumes and speeds, and pedestrian safety.

Policy TR-D.1.2 Encourage neighborhood/community involvement in localized transportation planning decisions such as boulevard plans, traffic calming, and local street standards.

Objective TR-D.2 Improve traffic safety through a comprehensive program of engineering, education, and enforcement.

Policy TR-D.2.1 Identify specific safety priorities through the biennial budget process including, but not limited to, the following: addressing high-collision locations within the city; working cooperatively with police and fire departments to create a traffic calming program, including designating and periodically updating primary and secondary emergency response routes; and coordinating with schools and the community to designate pedestrian and bicycle routes between residential areas, schools, neighborhood centers, and public facilities such as parks and playfields.

- Policy TR-D.2.2 Maintain a functional classification system that manages access in a way that supports designated land uses.
- Policy TR-D.2.3 Ensure that adequate access for emergency services vehicles is provided throughout the city.
- Policy TR-D.2.4 Maintain the transportation network at a level that preserves user safety, facility aesthetics, and the overall integrity of the network.
- Policy TR-D.2.5 Maintain the livability of Longview through proper locations and design of transportation facilities.
- Policy TR-D.2.6 Consider issues that impact access, safety, and livability in the design, and reconstruction of arterial streets adjacent to residential development.
- Policy TR-D.2.7 Protect neighborhoods from excessive through traffic and travel speeds, to the extent possible, while providing adequate access to and from residential areas.
- Policy TR-D.2.8 Ensure that new commercial and industrial developments identify traffic plans for residential streets where increased cut-through traffic may occur due to proposed development.
- Policy TR-D.2.9 Continue to develop trail systems that provide connectivity and easy access for attractive alternatives for pedestrians and bicyclists to access work, shopping and needed services as opposed to high-speed, high-volume vehicle corridors.
- Policy TR-D.2.10 Look for opportunities to locate multi-modal paths where they can be safely designed to address pedestrian and bicycle safety.
- Policy TR-D.2.11 Pursue grant opportunities for pedestrian, bicycle, and trail enhancement.
- Policy TR-D.2.12 Provide for Americans with Disabilities Act (ADA) upgrades and future design requirements that remove barriers to mobility.

Performance and Coordination

- Goal TR-E Create an efficient regional and local transportation system that supports planned land uses and manages congestion.
- Objective TR-E.1 Update City regulations by December 2020 to include level of service standards.
 - Policy TR-E.1.1 Strive to maintain an overall LOS consistent with the MPO area standard of LOS D or better for urban area arterials.
- Objective TR-E.2 Support using technology upgrades to maximize the efficiency of the transportation system

- Policy TR-E.2.1 As needed to support adequate circulation and within legal bounds, secure new public rights of way via property dedication as part of the development permit process.
- Policy TR-E.2.2 Work within the MPO to maintain and support ITS Architecture to support efficient freight and other vehicle movement.

Environmental

Goal TR-F Minimize the impacts of the transportation system on the environment.

- Policy TR-F.1.1 Plan for combinations of land uses that strategically reduce impacts to the environment by decreasing dependency on automobiles and increasing the opportunity for use of alternative transportation modes.
- Policy TR-F.1.2 Locate and design transportation facilities to have the lowest level of impact on the environment and the highest level of mobility and connectivity for public use.
- Policy TR-F.1.3 Implement best management practices to ensure that maintenance practices are sensitive to the environment.

Regional Coordination

Goal TR-G Participate in and influence planning priorities and decisions in the metropolitan and regional transportation planning regions.

Objective TR-G.1 Through ongoing membership in the Cowlitz-Wahkiakum Council of Governments (CWCOG) MPO, coordinate with the City of Kelso, Cowlitz County, Port of Longview, Cowlitz Transit Authority, and Washington State Department of Transportation (WSDOT) in planning regional transportation network improvements for all modes.

Goal TR-H Coordinate transportation projects and policy issues with all affected governmental units, including such things as:

- Work with urban area agencies to encourage adequate funding of transportation facilities supported in the Metropolitan Transportation Plan.
- Participate in regional technical committees as appropriate.
- Where appropriate, support cooperative approaches between area agencies to realize cost efficiencies.

Financing

Goal TR-I

Leverage local and private sector transportation-related revenue to maximize state and federal programs that fund transportation improvements.

- Policy TR-I.1.1 Fund capacity travel reliability and safety improvements through a variety of funding sources.
- Policy TR-I.1.2 Maintain a Six-Year Transportation Improvement Program (TIP) and Capital Improvement Plan (CIP).
- Policy TR-I.1.3 Update the transportation budget no less frequently than biennially in conjunction with the City's budget.
- Policy TR-I.1.4 Provide for maintenance of the capital investment in transportation facilities through continuation of the pavement management system to ensure cost-effective maintenance of transportation facilities and efficient use of public funds.
- Policy TR-I.1.5 Continue using the local improvement district (LID) program to fund improvements to the remaining unpaved alleys in the city.
- Policy TR-I.1.6 Ensure that the cost of any transportation infrastructure necessary to serve or mitigate the impacts of new development are borne by the developer.
- Policy TR-I.1.7 Seek out state and federal grant opportunities for projects.