CITY OF ILWACO

PACIFIC COUNTY **WASHINGTON**

2013 WASTEWATER FACILITY PLAN UPDATE/ SAHALEE SUBDIVISION PRELIMINARY ENGINEERING REPORT

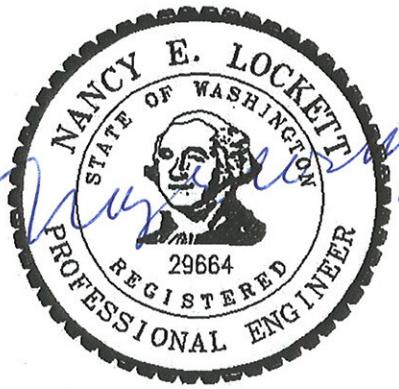
G&O #13441
NOVEMBER 2013

Gray & Osborne, Inc.
CONSULTING ENGINEERS

CITY OF ILWACO

PACIFIC COUNTY **WASHINGTON**

2013 WASTEWATER FACILITY PLAN UPDATE/ SAHALEE SUBDIVISION PRELIMINARY ENGINEERING REPORT



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EXECUTIVE SUMMARY

The *2013 Wastewater Facility Plan Amendment Sahalee Subdivision Preliminary Engineering Report* (2013 Facilities Plan) provides planning and environmental assessment for a new sewer conveyance and lift station for the Sahalee neighborhood. In addition, the Wastewater Facility Plan Amendment evaluates the current growth projections for the City of Ilwaco sewer service area, evaluates the performance of the Wastewater Treatment Plant (WWTP) since the installation of the 3rd SBR basin and aerobic digestion improvements in 2005 and forecasts wastewater flows and loads for the 20 year planning horizon. The last update to the City's *Wastewater Facilities Plan* was in 2002 prior to planning and construction of the 3rd SBR unit at the WWTP.

WASTEWATER FLOW AND LOADING PROJECTIONS

The projected 20-year (2033) population for the City of Ilwaco sewer service area and the entities that send wastewater to the City for treatment, including Cape Disappointment State Park, the US Coast Guard Station at Cape Disappointment and the Seaview Sewer District, is 7,940 which includes a population equivalent estimate for Cape Disappointment State Park and the US Coast Guard Station at Cape Disappointment of 3,368. This is an increase of 1,053 persons from the year 2020 population projection included in the *2002 Wastewater Facility Plan Update*. The City population projections are in concert with the population projections developed in the City's *2012 Water System Plan*. The population projections for the Seaview Sewer District are taken from the Seaview Sewer District *2009 Draft Comprehensive Sewer Plan Update*.

Current flow and loading criteria at the WWTP were developed based on WWTP records from 2005 to 2012. The residential per capita average day flow, maximum month flow, average day biological oxygen demand (BOD_5) and total suspended solids load (TSS) were developed. The flow and loading criteria are based on residential population. The wastewater flow and load for commercial, school, hospital and other non-residential dischargers in Ilwaco and the Seaview Sewer District service areas, Cape Disappointment State Park and the US Coast Guard Station are incorporated into the per capita design criteria based on the assumption that any growth in those areas would parallel the growth in population.

The year 2033 projected wastewater flow and load to the City of Ilwaco WWTP, based on the flow and load criteria and 2033 population projection, is shown in Table E-1.

TABLE E-1

Year 2033 Projected City of Ilwaco WWTP Flow and Loading(1)

Parameter	Projected 2033 Flow/Load	Limit/Design Values
Flow		
Average Annual	0.494 mgd	0.50 mgd
Maximum Month	0.958 mgd	1.01 mgd
Organic		
Average Day BOD_5	1,115 lb/day	1,600 lb/day
Maximum Month BOD_5	1,841 lb/day	1,600 lb/day
Average Day TSS	885 lb/day	1,600 lb/day
Maximum Month TSS	1,212 lb/day	1,600 lb/day

(1) 2033 population of Ilwaco and Seaview Sewer District = 4,572

Figures E-1 through E-3 show the projected average day and maximum month flows and loadings for the WWTP. Although the maximum month permitted design criteria flow will not be exceeded within the 20-year planning horizon Condition S.4 of the City's NPDES permit requires the City to prepare a plan and schedule to maintain adequate capacity when flows and loadings to the WWTP exceed 85 percent of design capacity. As shown in Figure E-1, 85 percent of the permitted maximum month flow is 0.86 mgd and the maximum month flow is projected to exceed this value in the year 2028. If growth occurs as projected in this report the maximum month flow limit of 1.01 mgd will not be exceeded until the year 2038.

Figures E-2 and E-3 show the projected maximum month BOD_5 and TSS loads for the WWTP assuming the population projections presented earlier. The maximum month TSS load discharged to the WWTP will not exceed 85 percent of the permit limit (1,360 lb/day) until the year 2043. Provided growth occurs as predicted in this report the maximum month BOD_5 load discharged to the WWTP will exceed 85 percent of the permit limit (1,360 lb/day) in the year 2019 and the permit limit would be exceeded in the year 2027. The City will periodically review the population projections and WWTP loading records to determine if the projected growth and loads approximate the population and load projections. When the maximum month BOD_5 load approaches 85 percent of the permit limit the City will evaluate the ability to treat additional organic load with the existing facilities. If treatment capacity is available the City will pursue re-rating of the WWTP. If additional organic treatment capacity is required the City will develop a plan to augment existing facilities to achieve higher treatment capacity.

FIGURE E-1

Projected Average Day and Maximum Month WWTP Flows

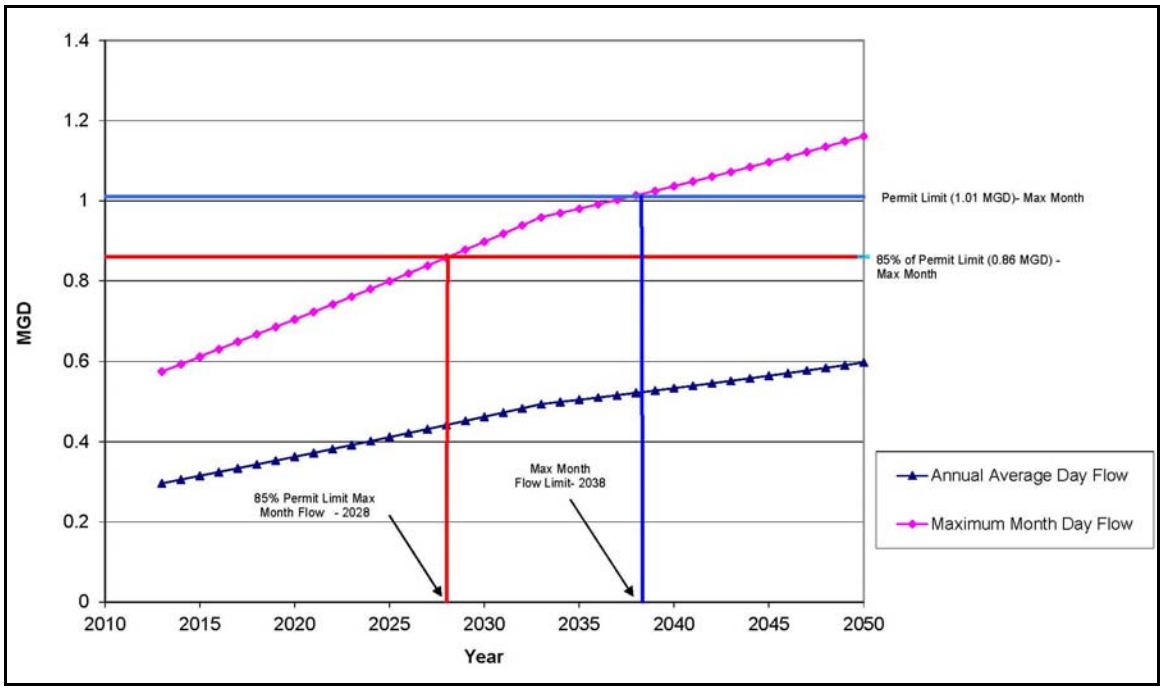


FIGURE E-2

Projected Average Day and Maximum Month WWTP BOD_5 Loading

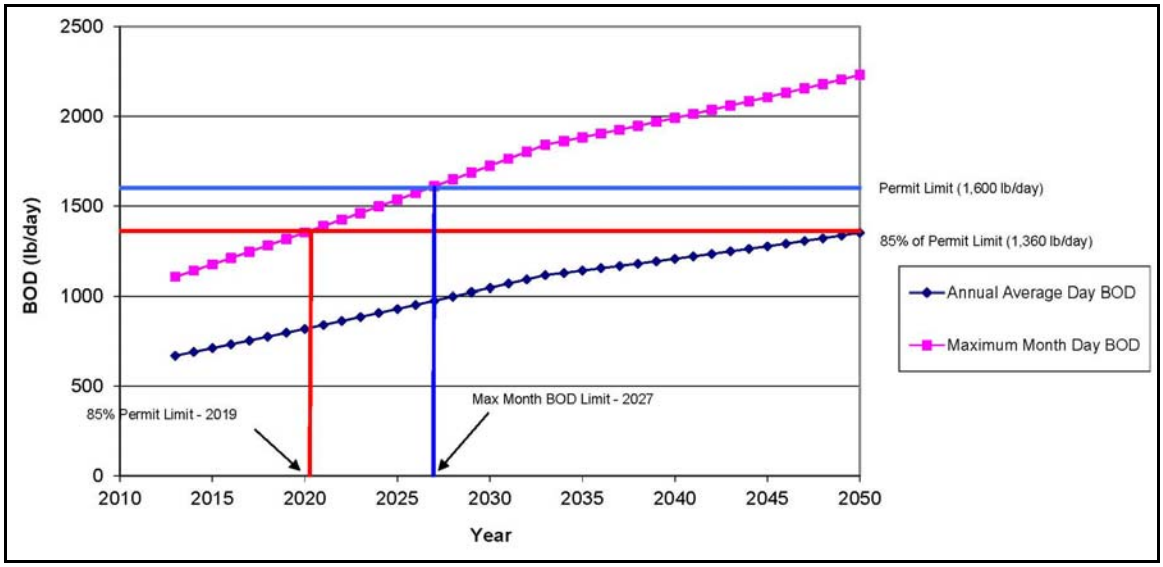
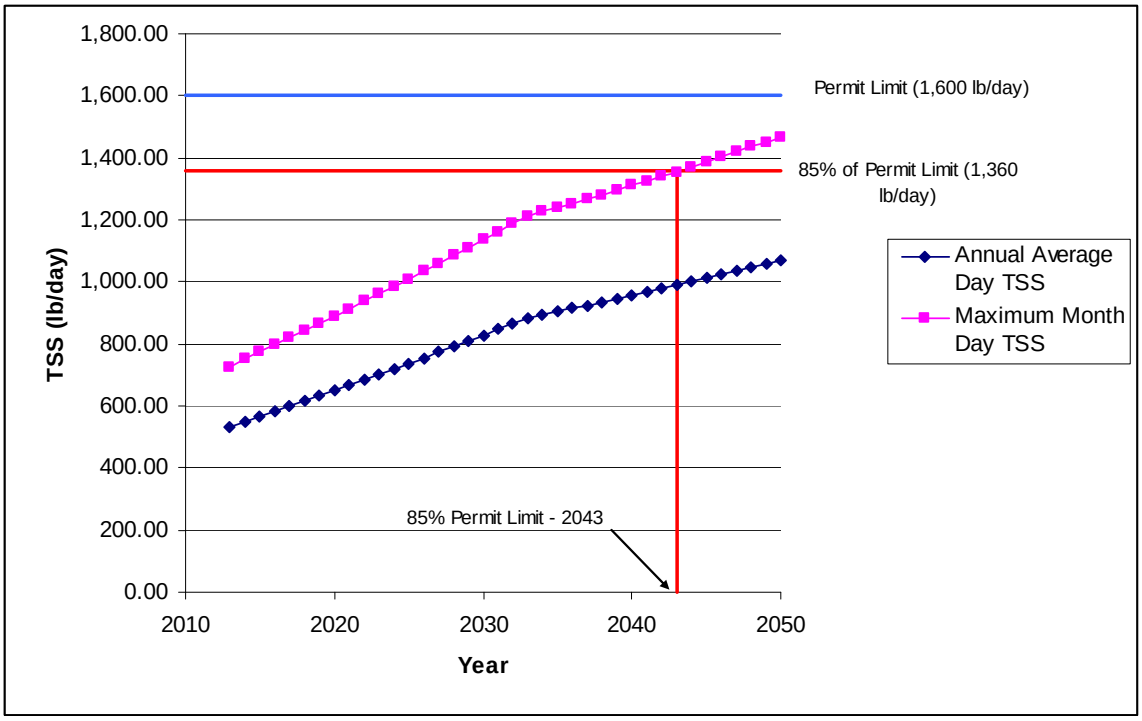


FIGURE E-3

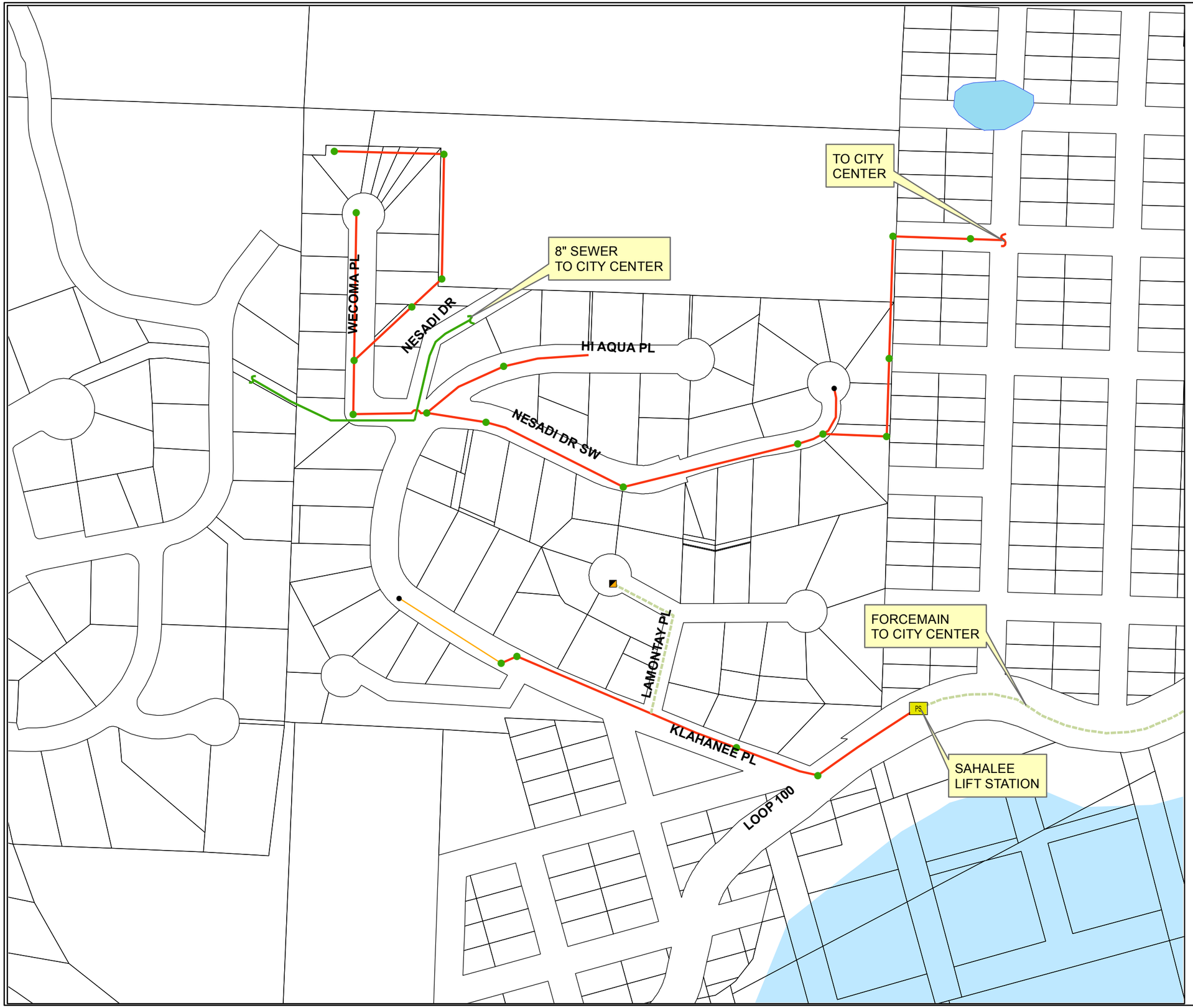
Projected Average Day and Maximum Month WWTP TSS Loading



SAHALEE SUBDIVISION SEWER SYSTEM IMPROVEMENTS

The initial sanitary sewer system in the Sahalee Subdivision was installed in the mid-1970s by the Baker Bay Development Corporation. The Sahalee Subdivision was in unincorporated Pacific County when it was constructed and was later incorporated into the City of Ilwaco through annexation. The City assumed ownership of the sanitary sewer system upon annexation. The existing sanitary sewer system is shown in Figure E-4. The portion of the system serving the upper elevations of the development include gravity sewers in west end of Hiaqua Place, Wecoma Place and Nesadi Drive and a sewer main that is located to the north and east of the nob of the hill at Wecoma Place. Residences on the east end of Hiaqua Place either discharge to the south to Nesadi Drive or through a shared side sewer from the east end of Hiaqua Place to the Nesadi Drive cul-de-sac.

The combined sewage from the upper portion of the subdivision flows by gravity approximately 1,400 lf through unimproved easements and right-of-way on the north side of the Sahalee hill to a point of connection with the sanitary sewer system at 2nd and Spring Streets. The City attempted to TV inspect this portion of the sewer in 2010; however, pulled joints and debris or broken pipe prevented TV inspection of the sewer.



N

0 100 200 400 Feet

LEGEND:

- GRINDER PUMP
- CLEANOUT
- MANHOLES
- PS LIFT STATION
- FORCEMAIN
- LESS THAN 6" PVC
- 6" ASBESTOS CONCRETE (AC)
- SEWER LINE INSTALLED IN 2003
- WATER BODY
- PARCELS

CITY OF ILWACO

SAHALEE SEWER PREDESIGN REPORT
FIGURE E4 - EXISTING SEWER FACILITIES

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It is assumed this sewer, which was also constructed in the 1970s has outlived its useful life.

The lower portion of the Sahalee Subdivision, which originally included only residences along Klahanee Place, is served by a gravity sewer in Klahanee Place which discharges to a lift station located adjacent to Robert Gray Drive approximately 200 lf northeast of Klahanee Place. More recently individual properties in the lower portion of the subdivision have connected to the Klahanee Place sewer via small diameter gravity or pressure lines from properties with individual grinder pumps.

The Sahalee lift station is a 1970s vintage wet pit/dry pit design with two self-priming centrifugal electric motor-driven sewage pumps (5 Hp, 125 gpm capacity). The self-priming mechanism on the pumps is easily clogged which leads to pump shutdown. The shallow wet well does not provide adequate storage in the event of pump failure which could lead to overflows from the lift station. On average the City utility crew respond to four pump failure alarm calls per month.

The steel reinforced wet well/dry well structure is corroding which allows infiltration to enter the lift station and presents the possibility that sewage would discharge from the station if the water level is high. The floor which separates the dry well from the wet well and which supports the pumps is badly corroded.

The force main from the Sahalee lift station is located in the south and east shoulders of Robert Gray Drive. Approximately 100 lf east of the lift station the road bed has shifted which has required repair of the sewer force main. In addition, a landslide occurred uphill of Robert Gray Drive, approximately 300 lf east of the lift station, in December 2012. The sewer force main was not damaged during the land slide however, the slope is not stable and future landslides may occur in this area.

The sewers in the Sahalee subdivision, with the exception of more recent small diameter PVC side sewer additions to the Klahanee Place collection system, are a combination of 4-inch and 6-inch diameter asbestos concrete (AC) pipe. The sewer main is nearing the end of its useful life and has been a maintenance issue for the City. The sewer in Nesadi Drive has been particularly problematic. This sewer conveys all of the wastewater collected from Wecoma Place, Hiaqua Place and Nesadi Drive to the main collection system in the downtown area. The sewer in Nesadi Drive is located in the south, downhill, shoulder of the road and at points the pipe is exposed. The road embankment drops off sharply to the south and movement in the road embankment has caused sewer breaks and pulled joints. Video inspection noted several offset joints. The City has repaired leaking joints in the sewer pipe in Nesadi Drive on three occasions since 2003. Raw sewage has discharged from the sewer prior to repair. The Department of Ecology has been notified each time there has been a discharge. The City has received a Public Works Trust Fund loan to move the sewer to the north side of the right-of-way into more stable soils.

The project area is located on a steep hillside adjacent to the saltwater estuary of Baker Bay. Sewage overflows or sewage discharged to groundwater will flow down gradient to Baker Bay presenting a potential water quality impact to Baker bay. The deteriorated condition of the sewers and wet well present a water quality risk due to the introduction of I/I during high ground water periods and the resultant impact on downstream facilities including the City's WWTP.

SAHALEE SUBDIVISION CONVEYANCE ALTERNATIVES

Alternatives for replacement of the sanitary sewers and lift station in the Sahalee subdivision were developed. The minimum size sewer main per the City of Ilwaco standards is 8 inches. No increase in pipe size above the minimum will be required to meet the potential buildout capacity in the Sahalee subdivision.

The goals for the replacement of the sanitary sewer system and lift station in the Sahalee Subdivision include the following:

1. Replace lift station with a lift station that is reliable and energy efficient, protects the health and safety of City staff and protects the environment.
2. Minimize future impact to sanitary sewers, force main and lift station from unstable conditions along Robert Gray Drive and Nesadi Drive.
3. Minimize I/I into the sanitary sewer system and lift station.

Alternatives for the upper zone are discussed separately from the alternatives for the lower zone since the sewer facilities in the two zones operate independently.

The alternatives considered include:

1. No Action

2. Upper Zone Alternatives

    a. Replace in kind.
    b. Wecoma/Hiaqua discharge to Discovery Heights main. Nesadi – replace in kind.
    c. Wecoma/Hiaqua discharge to Discovery Heights line. Install individual grinder pumps for the residences currently tributary to Nesadi Drive with discharge to Discovery Heights sewer main.
    d. Wecoma/Hiaqua discharge to Discovery Heights sewer main. Nesadi – replace gravity; install a submersible pump station with discharge to Discovery Heights sewer main.

3. Lower Zone

   a. Replace gravity sewer in kind. Install new submersible lift station at current location and continue discharge to force main in Robert Gray Drive.
   b. Replace gravity sewers in kind. Install new submersible lift station that discharges to Discovery Heights sewer main.
   c. Relocate lift station in vicinity of Ilahee Place; install grinder pumps for the residences below the lift station. Discharge to Discovery Heights sewer main.

ALTERNATIVE NO. 1: NO ACTION

Taking no action to replace the sanitary sewer system and Sahalee Lift Station would result in continued (and potentially increasing) leakage of raw sewage from off-set joints in sewer mains along Nesadi Drive and throughout the Sahalee Subdivision. It would also allow the less than reliable, deteriorating, Sahalee Lift Station to continue to be overwhelmed during high flow events, resulting in discharges of raw sewage into the environment and the public health threats the sewer overflows would cause. The leaking sewer lines are also a source of I/I.

There are no requirements for additional land/easements for Alternative No. 1 and no construction problems are anticipated.

There are no construction costs associated with Alternative No. 1. Potential non-construction costs include the expense of locating and repairing system leaks, responding to pump failure or high level alarms at the lift station, liability for landslides caused by leaking sewer pipes and fines for the Department of Ecology for discharges of raw sewage.

Alternative No. 1, No Action, does not meet the City of Ilwaco goals of operating the City utilities efficiently and in a manner that protects the environment and health of the citizens and staff. The City's current Capital Improvement Project (CIP) list includes the replacement of the Sahalee subdivision sewer collection and Sahalee Lift Station as a high priority project. This alternative is not in keeping with the City's adopted CIP list and does not satisfy public safety and environmental concerns.

UPPER ZONE ALTERNATIVE 2A: REPLACE EXISTING UPPER ZONE SEWERS IN KIND

This alternative, shown in Figure E-5 would replace the existing AC sanitary sewers in Wecoma Place (535 lf), the common sewer main to the north and east of the Wecoma Place hill (665 lf), Hiaqua Place (330 lf), and Nesadi Drive (1,030 lf) with polyvinyl chloride (PVC) or high density polyethylene (HDPE) sewers. The combined wastewater flow from the upper zone would continue to be discharged from Nesadi Drive to the east

and north to a point of connection with the sanitary sewer at 2nd and Spring Streets (1,400 lf). The sewer in Nesadi Drive would be relocated to the north side of the street (uphill) to minimize impact to the steep shoulder on the south side of the street.

The City does not have an easement for the sanitary sewer that has been located across several private properties on Nesadi Drive since the 1970s. The City will need to obtain easements on Parcels 73020005006 and 73020005005 for the replacement of the sewer main that is located on those parcels.

The estimated construction cost for this alternative is $1,125,180, including 20 percent construction contingencies. Non-construction costs such as design, survey, construction administration and inspection and project administration are estimated to be approximately $337,700. The project cost estimate is approximately $1,462,880. Detailed cost estimates are included in Appendix B.

UPPER ZONE ALTERNATIVE 2B: WECOMA AND HIAQUA SEWERS DISCHARGE TO DISCOVERY HEIGHTS MAIN, NESADI SEWER REPLACE IN KIND

This alternative, shown in Figure E-6, would replace the existing AC sanitary sewers in Wecoma Place (400 lf), the common sewer main to the north and east of the Wecoma Place hill (665 lf), Hiaqua Place (345 lf) with 8-inch PVC or HDPE sewer mains that would discharge into the existing Discovery Heights sewer main in the vicinity of the intersection of Wecoma Place and Hiaqua Place. The Nesadi Drive sewer main (1,030 lf) would be replaced. The wastewater flow from residences tributary to Nesadi Drive would continue to be discharged to the east and north to a point of connection with the sanitary sewer at 2nd and Spring Streets (1,400 lf) through a new sewer main located on private properties and an unopened right-of-way. The sewer in Nesadi Drive would be relocated to the north side of the street (uphill) to minimize impact to the steep shoulder on the south side of the street.

The City does not have an easement for the sanitary sewer that has been located across several private properties on Nesadi Drive since the 1970s. The City will need to obtain easements on Parcels 73020005006 and 73020005005 for the replacement of the sewer main that is located on those parcels.

The estimated construction cost for this alternative is $1,099,070, including 20 percent construction contingencies. Non-construction costs such as design, survey, construction administration and inspection and project administration are estimated to be approximately $329,900. The project cost estimate is approximately $1,428,970. Detailed cost estimates are included in Appendix B.

N

0 100 200 400 Feet

TO CITY CENTER

8" SEWER TO CITY CENTER

WECOMA PL

NESADI DR

HI AQUA PL

NESADI DR SW

LAMONTAY PL

FORCEMAIN TO CITY CENTER

KLAHANEE PL

LOOP 100

PS

SAHALEE LIFT STATION

LEGEND:

- CLEANOUT
- MANHOLES
- CLEANOUT - LOWER ZONE
- GRINDER PUMP - LOWER ZONE
- PS LIFT STATION - LOWER ZONE
- MANHOLES - LOWER ZONE
- NEW 8" PVC/HDPE
- SEWER LINE INSTALLED IN 2003
- SEWERLINES - LOWER ZONE
- FORCEMAIN - LOWER ZONE
- WATER BODY
- PARCELS

CITY OF ILWACO

SAHALEE SEWER PREDESIGN REPORT
FIGURE E5 - UPPER ZONE - ALTERNATIVE 2A
SEWER IMPROVEMENTS

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N

0 100 200 400 Feet

TO CITY CENTER

8" SEWER TO CITY CENTER

WECOMA PL

NESADI DR

HI AQUA PL

NESADI DR SW

LAMONTAY PL

KLAHANEE PL

LOOP 100

FORCEMAIN TO CITY CENTER

PS

SAHALEE LIFT STATION

LEGEND:

- CLEANOUT
- MANHOLES
- CLEANOUT - LOWER ZONE
- GRINDER PUMP - LOWER ZONE
- PS LIFT STATION - LOWER ZONE
- MANHOLES - LOWER ZONE
- NEW 8" PVC/HDPE
- SEWER LINE INSTALLED IN 2003
- SEWERLINES - LOWER ZONE
- FORCEMAIN - LOWER ZONE
- WATER BODY
- PARCELS

CITY OF ILWACO

SAHALEE SEWER PREDESIGN REPORT
FIGURE E6 - UPPER ZONE - ALTERNATIVE 2B
SEWER IMPROVEMENTS

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UPPER ZONE ALTERNATIVE 2C: WECOMA AND HIAQUA SEWERS DISCHARGE TO DISCOVERY HEIGHTS MAIN, GRINDER PUMPS ON NESADI WITH DISCHARGE TO DISCOVERY HEIGHTS MAIN

This alternative, shown in Figure E-7, would replace the existing AC sanitary sewers in Wecoma Place (400 lf), the common sewer main to the north and east of the Wecoma Place hill (665 lf), Hiaqua Place (345 lf) with 8-inch PVC or HDPE sewer mains that would discharge into the existing Discovery Heights sewer main in the vicinity of the intersection of Wecoma Place and Hiaqua Place. Grinder pump assemblies (13 each) would be installed at residences tributary to the Nesadi Drive sewer main (several properties on the south side of Nesadi Drive are already equipped with grinder pumps). The properties located at the east end of Hiaqua Place will discharge to the Hiaqua gravity sewer. The remaining grinder pumps would discharge to a small diameter PVC or HDPE pressure main (950 lf) located on the north side of Nesadi Drive. The pressure main would discharge to the Discovery Heights sewer main.

The City will need to obtain easements from individual property owners for installation of the grinder pump stations.

The estimated construction cost for this alternative is $869,380, including 20 percent construction contingencies. Non-construction costs such as design, survey, construction administration and inspection and project administration are estimated to be approximately $261,000. The project cost estimate is approximately $1,130,380. Detailed cost estimates are included in Appendix B.

ALTERNATIVE 2D: WECOMA AND HIAQUA SEWERS DISCHARGE TO DISCOVERY HEIGHTS MAIN, SUBMERSIBLE LIFT STATION ON NESADI WITH DISCHARGE TO DISCOVERY HEIGHTS MAIN

This alternative, shown in Figure E-8, would replace the existing AC sanitary sewers in Wecoma Place (400 lf), the common sewer main to the north and east of the Wecoma Place hill (665 lf), Hiaqua Place (345 lf) with 8-inch PVC or HDPE sewer mains that would discharge into the existing Discovery Heights sewer main in the vicinity of the intersection of Wecoma Place and Hiaqua Place. The Nesadi Drive sewer main (1.030 lf) would be replaced and relocated to the north side of the street (uphill) to minimize impact to the steep shoulder on the south side of the street. A submersible lift station, including two 15-hp, 3-phase pumps, would be located in the north shoulder of Nesadi Drive at the low point of the road. 3-phase power is not available in the area therefore a variable frequency drive (VFD) would be used to convert single-phase power to 3-phase power. An emergency generator would be provided. Three grinder pump installations will be required to provide service to one residence on Nesadi Drive and two residences on Hiaqua Place. A 4- or 6-inch-diameter PVC or HDPE force main from the lift station would discharge to the Discovery Heights sewer main.

The City may need to obtain property or easements for construction of the lift station on Nesadi Drive for this project. The City will need to obtain easements form individual property owners for installation of the grinder pump stations.

The estimated construction cost for this alternative is $1,573,600 including 20 percent construction contingencies. Non-construction costs such as design, survey, construction administration and inspection and project administration are estimated to be approximately $472,200. The project cost estimate is approximately $2,045,800. Detailed cost estimates are included in Appendix B.

LOWER ZONE ALTERNATIVE 3A: REPLACE GRAVITY SEWER AND LIFT STATION IN KIND

This alternative, shown in Figure E-9, would replace the existing AC sanitary sewers in Klahanee Place (1,650 lf) with 8-inch PVC or HDPE sewer in the existing alignment. The existing small diameter force main from a grinder pump located at a residence on Ilahee Place would remain in service. The existing lift station would be replaced in the same location with a 125 gpm submersible lift station, including two 10-hp, 3-phase pumps. 3-phase power is not available in the area therefore a VFD would be used to convert single-phase power to 3-phase power. An emergency generator would be provided. The new lift station would discharge to the existing 4-inch-diameter force main in Robert Gray Drive.

The existing lift station site is located immediately adjacent to Robert Gray Drive and there is very little room to install a new lift station while maintaining service through the existing station. The presence of construction activity in this location would disrupt traffic. In addition, immediately to the east of the lift station site is a known location of slope instability as evidenced by slope creep and buckling of Robert Gray Drive and a land slide that occurred in December 2013. While there are no adverse environmental consequences of replacing the sanitary sewers in the lower zone replacement of the lift station in the current location may present a risk to the station due to potential land movement. The continued use of the force main in Robert Gray Drive, portions of which traverse known slide areas, may result in future force main ruptures and the inadvertent discharge of untreated sewage.

The City may not need to obtain property or easements for this project.

The estimated construction cost for this alternative is $922,000 including 20 percent construction contingencies. Non-construction costs such as design, survey, construction administration and inspection and project administration are estimated to be approximately $276,600. The project cost estimate is approximately $1,198,600. Detailed cost estimates are included in Appendix B.

N

0 100 200 400 Feet

8" SEWER
TO CITY CENTER

WECOMA PL

NESADI DR

HI AQUA PL

NESADI DR SW

LAMONTAY PL

KLAHANEE PL

LOOP 100

FORCEMAIN
TO CITY CENTER

PS

SAHALEE
LIFT STATION

LEGEND:

- CLEANOUT
- MANHOLES
- GRINDER PUMP
- CLEANOUT - LOWER ZONE
- GRINDER PUMP - LOWER ZONE
- PS LIFT STATION - LOWER ZONE
- MANHOLES - LOWER ZONE
- NEW 8" PVC/HDPE
- SEWER LINE INSTALLED IN 2003
- SMALL DIAMETER PRESSURE MAIN
- SEWERLINES - LOWER ZONE
- FORCEMAIN - LOWER ZONE
- WATER BODY
- PARCELS

CITY OF ILWACO

SAHALEE SEWER PREDESIGN REPORT
FIGURE E7 - UPPER ZONE - ALTERNATIVE 2C
SEWER IMPROVEMENTS

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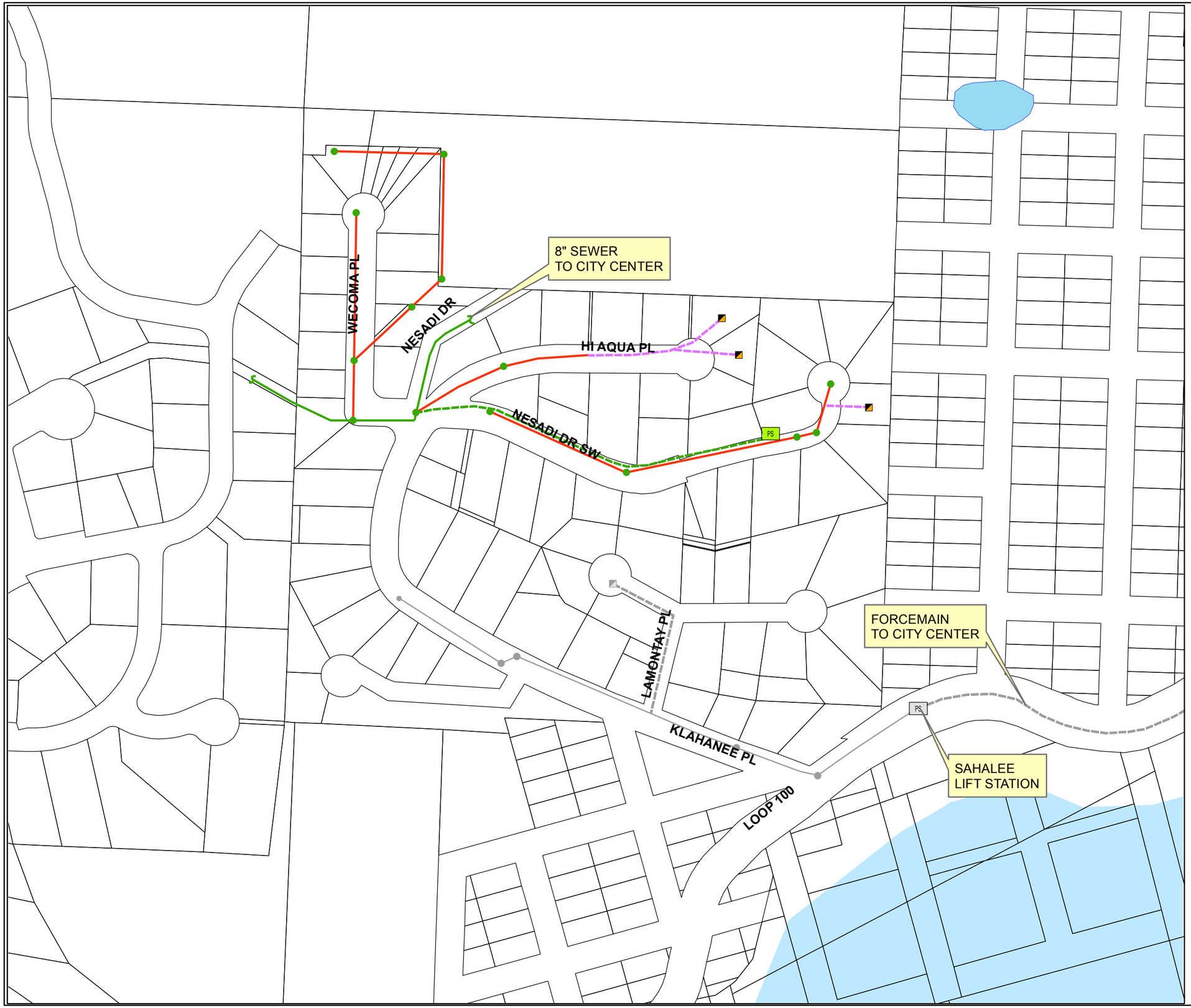

N

0 100 200 400 Feet

LEGEND:

- CLEANOUT
- MANHOLES
- GRINDER PUMP
- PS LIFT STATION
- CLEANOUT - LOWER ZONE
- GRINDER PUMP - LOWER ZONE
- PS LIFT STATION - LOWER ZONE
- MANHOLES - LOWER ZONE
- NEW 8" PVC/HDPE
- SEWER LINE INSTALLED IN 2003
- NEW FORCEMAIN
- SMALL DIAMETER PRESSURE MAIN
- SEWERLINES - LOWER ZONE
- FORCEMAIN - LOWER ZONE
- WATER BODY
- PARCELS

CITY OF ILWACO

SAHALEE SEWER PREDESIGN REPORT
FIGURE E8 - UPPER ZONE - ALTERNATIVE 2D
SEWER IMPROVEMENTS

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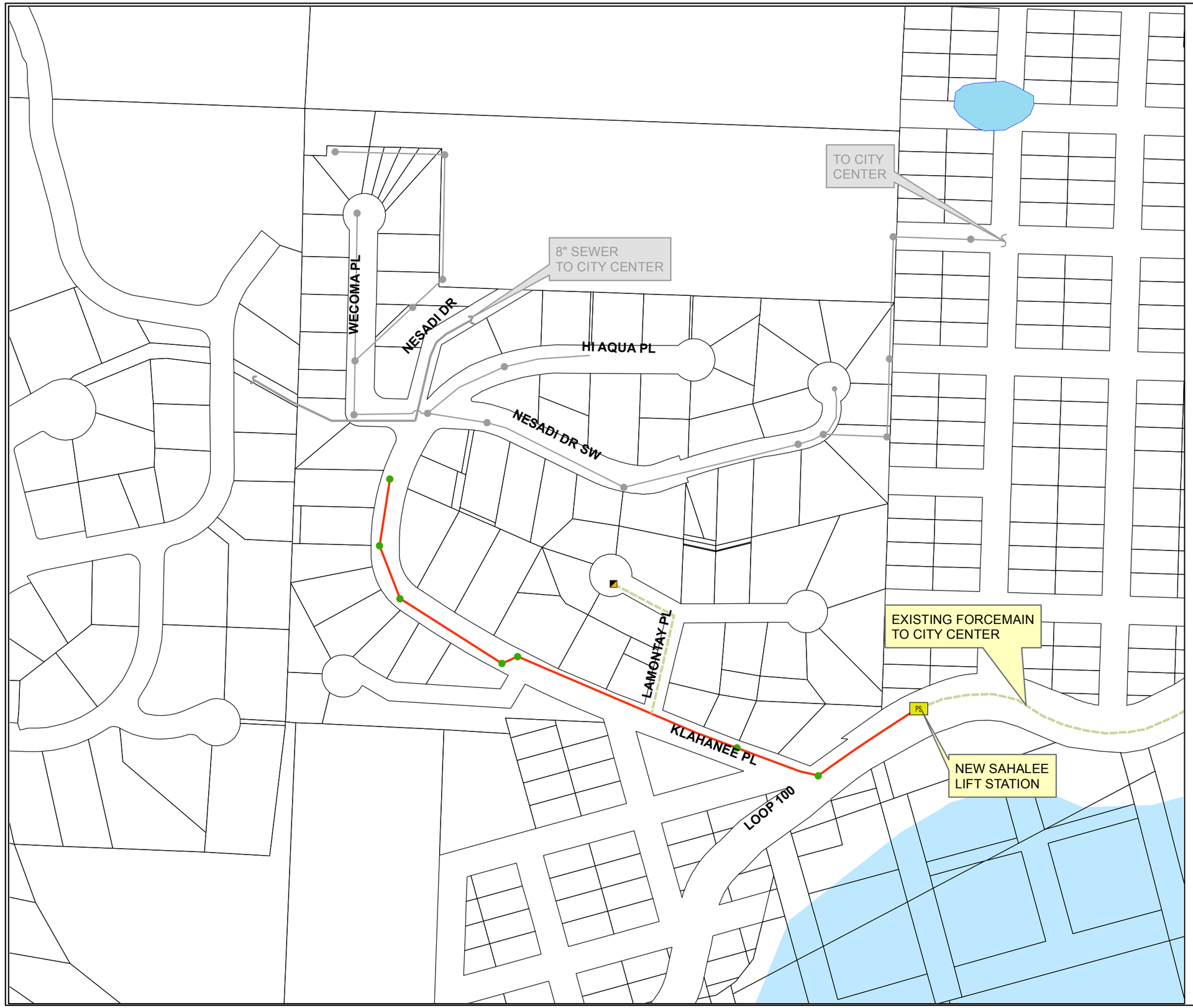

N

0 100 200 400 Feet

LEGEND:

- CLEANOUT
- MANHOLES
- PS LIFT STATION
- GRINDER PUMP
- MANHOLES - UPPER ZONE
- CLEANOUT - UPPER ZONE
- NEW 8" PVC/HDPE
- EXISTING FORCEMAIN
- SEWER LINE INSTALLED IN 2003 - UPPER ZONE
- 8" PVC/HDPE - UPPER ZONE
- WATER BODY
- PARCELS

CITY OF ILWACO

SAHALEE SEWER PREDESIGN REPORT
FIGURE E9 - LOWER ZONE - ALTERNATIVE 3A
SEWER IMPROVEMENTS

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LOWER ZONE ALTERNATIVE 3B: REPLACE GRAVITY SEWER, REPLACE LIFT STATION AT CURRENT SITE WITH DISCHARGE TO DISCOVERY HEIGHTS SEWER MAIN

This alternative, shown in Figure E-10, would replace the existing AC sanitary sewers in Klahanee Place (1,650 lf) with 8-inch PVC or HDPE sewers in the existing alignment. The existing small diameter pressure main from a grinder pump located at a residence on Ilahee Place would remain in service. The existing lift station would be replaced in the same location with a 125 gpm, high head (approximately 200-feet TDH), submersible lift station, including two 25-hp, 3-phase pumps. 3-phase power is not available in the area, therefore, a VFD would be used to convert single-phase power to 3-phase power. An emergency generator would be provided. Approximately 2,010 lf of 4- or 6-inch-diameter PVC or HDPE force main would be installed in the shoulder of Robert Gray Drive and Klahanee Place to the intersection of Wecoma Place and Hiaqua Place where the force main would discharge to the existing sewer main from Discovery Heights.

The existing lift station site is located immediately adjacent to Robert Gray Drive and there is very little room to install a new lift station while maintaining service through the existing station. The presence of construction activity in this location would disrupt traffic. In addition, immediately to the east of the lift station site is a known location of slope instability as evidenced by slope creep and buckling of Robert Gray Drive and a land slide that occurred in December 2013. While there are no adverse environmental consequences of replacing the sanitary sewers in the lower zone replacement of the lift station in the current location may present a risk to the station due to potential land movement. Rerouting the discharge from the lift station to the existing Discovery Heights sewer main eliminates the use of the force main in Robert Gray Drive through the known slide areas.

The City will not need to obtain property or easements for this project.

The estimated construction cost for this alternative is $1,150,400 including 20 percent construction contingencies. Non-construction costs such as design, survey, construction administration and inspection and project administration are estimated to be approximately $345,300. The project cost estimate is approximately $1,495,700. Detailed cost estimates are included in Appendix B.

LOWER ZONE ALTERNATIVE 3C: REPLACE GRAVITY SEWER, INSTALL NEW LIFT STATION IN THE VICINITY OF KLAHANEE PLACE AND ILAHEE PLACE WITH DISCHARGE TO DISCOVERY HEIGHTS SEWER MAIN

This alternative, shown in Figure E-11, would replace the existing AC sanitary sewers in Klahanee Place to approximately the intersection of Klahanee Place and Ilahee Place (580 lf) with 8-inch PVC or HDPE sewers in the existing alignment. Grinder pumps would be installed at the three existing residences on Klahanee Place below Ilahee Place

and the residence located immediately uphill of the existing lift station. Discharge from the grinder pump stations would be directed through a small diameter pressure main to the new lift station located near the intersection of Klahanee Place and Ilahee Place. The existing small diameter pressure main from a grinder pump located at a residence on Ilahee Place would also be directed to the new lift station. The new lift station would be a 125 gpm, high head (approximately 135-feet TDH), submersible lift station including two 15-hp, 3-phase pumps. 3-phase power is not available in the area therefore a VFD will be used to convert single-phase power to 3-phase power. An emergency generator would be provided. Approximately 900 lf of new 4- or 6-inch-diameter PVC or HDPE force main would be installed in Klahanee Place to the intersection of Wecoma Place and Hiaqua Place where the force main would discharge to the existing sewer main from Discovery Heights.

There are several environmental benefits of replacing the lift station at a location in the vicinity of Ilahee Place include eliminating the potential for slope instability impacts to the lift station and eliminating the use of the force main in Robert Gray Drive through the known slide areas.

The City may need to obtain property or easements for locating the lift station in this alternative as well as easements for installation of the grinder pumps on private property.

The estimated construction cost for this alternative is $1,080,600 including 20 percent construction contingencies. Non-construction costs such as design, survey, construction administration and inspection and project administration are estimated to be approximately $324,300. The project cost estimate is approximately $1,404,900. Detailed cost estimates are included in Appendix B.

COST SUMMARY

The project costs, O&M costs and 20-year life cycle cost for the Upper Zone alternatives are included in Table E-2.

TABLE E-2

Upper Zone Capital and O&M Cost Summary

Alternative	Project Cost	O&M Cost	20-year Life Cycle Cost
Upper Zone 2a	$1,462,880	$13,360	$1,730,080
Upper Zone 2b	$1,428,970	$13,360	$1,696,170
Upper Zone 2c	$1,130,380	$14,754	$1,425,460
Upper Zone 2d	$2,045,800	$34,891	$2,743,625

N

0 100 200 400 Feet

TO CITY CENTER

8" SEWER TO CITY CENTER

WECOMA PL

NESADI DR

HI AQUA PL

NESADI DR SW

LAMONTAY PL

KLAHANEE PL

LOOP 100

CAP EXISTING FORCEMAIN

PS

NEW SAHALEE LIFT STATION

LEGEND:

- CLEANOUT
- MANHOLES
- LIFT STATION
- GRINDER PUMP
- MANHOLES - UPPER ZONE
- CLEANOUT - UPPER ZONE
- NEW 8" PVC/HDPE
- NEW FORCEMAIN
- EXISTING FORCEMAIN
- SEWER LINE INSTALLED IN 2003 - UPPER ZONE
- 8" PVC/HDPE - UPPER ZONE
- WATER BODY
- PARCELS

CITY OF ILWACO

SAHALEE SEWER PREDESIGN REPORT
FIGURE E10 - LOWER ZONE - ALTERNATIVE 3B
SEWER IMPROVEMENTS

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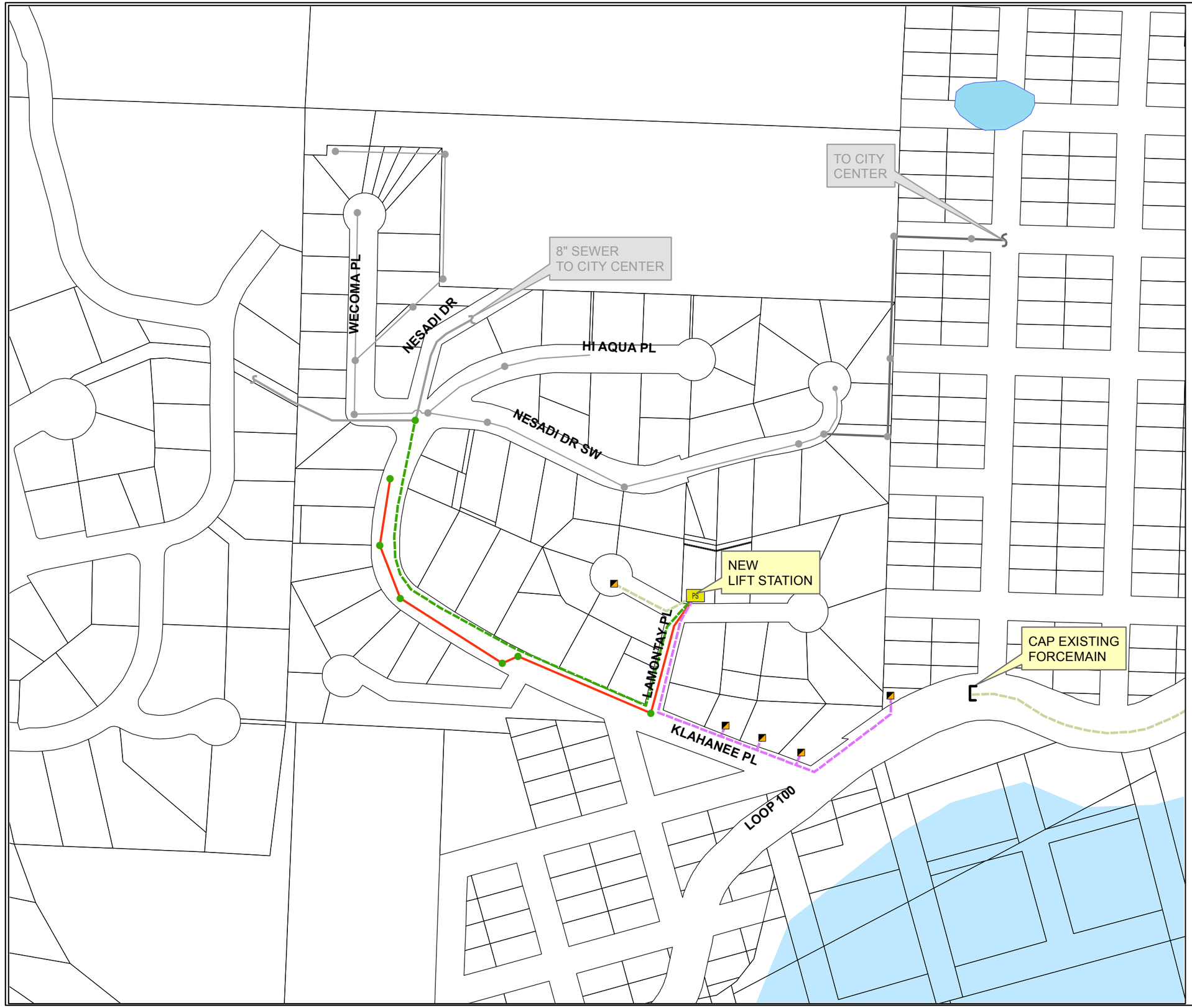

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0 100 200 400 Feet

LEGEND:

- CLEANOUT
- MANHOLES
- PS LIFT STATION
- GRINDER PUMP
- MANHOLES - UPPER ZONE
- CLEANOUT - UPPER ZONE
- NEW 8" PVC/HDPE
- NEW FORCEMAIN
- NEW SMALL DIAMETER PRESSURE MAIN
- EXISTING FORCEMAIN
- SEWER LINE INSTALLED IN 2003 - UPPER ZONE
- 8" PVC/HDPE - UPPER ZONE -BY DEVELOPER
- 8" PVC/HDPE - UPPER ZONE
- WATER BODY
- PARCELS

CITY OF ILWACO

SAHALEE SEWER PREDESIGN REPORT
FIGURE E11 - LOWER ZONE - ALTERNATIVE 3C
SEWER IMPROVEMENTS

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0 100 200 400 Feet

8" SEWER
TO CITY CENTER

WECOMA PL

NESADI DR

HI AQUA PL

NESADI DR SW

NEW
LIFT STATION

PS

LAMONTAY PL

CAP EXISTING
FORCEMAIN

KLAHANEE PL

LOOP 100

LEGEND:

- MANHOLES
- LIFT STATION
- GRINDER PUMP
- 8" PVC/HDPE INSTALLED BY DEVELOPER
- NEW 8" PVC/HDPE
- EXISTING FORCEMAIN
- NEW FORCEMAIN
- NEW SMALL DIAMETER PRESSURE MAIN
- SEWER LINE INSTALLED IN 2003 - UPPER ZONE
- WATER BODY
- PARCELS

CITY OF ILWACO

SAHALEE SEWER PREDESIGN REPORT
FIGURE E12 - RECOMMENDED
SEWER IMPROVEMENTS

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CONSULTING ENGINEERS

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O&M costs include the following:

- Routine sewer inspection and cleaning, assume 1/4 of the system per year;
- Labor and material allowance for sewer repairs;
- Routine inspection and maintenance of grinder pump stations and replacement of pump stator every 10 years;
- Routine inspection and maintenance of lift station;
- Lift station electrical costs.

The capital costs for installation of the grinder pumps in project 2C and 2D assume all property owners will allow the installation of the grinder pump stations and small diameter service laterals on their property. Furthermore the costs for project 2C and 2D assume that the power for the grinder pumps will be available from the homeowners existing electrical panels and the homeowners will pay the electrical costs associated with the grinder pump.

The project costs, O&M costs and 20-year life cycle cost for the Lower Zone alternatives are included in Table E-3.

TABLE E-3

Lower Zone Capital and O&M Cost Summary

Alternative	Project Cost	O&M Cost	20-year Life Cycle Cost
Lower Zone 3a	$1,198,600	$34,094	$1,880,479
Lower Zone 3b	$1,495,700	$34,873	$2,193,165
Lower Zone 3c	$1,404,900	$34,213	$2,089,152

The capital costs for installation of the grinder pumps in project 3c assume all property owners will allow the installation of the grinder pump stations and small diameter service laterals on their property. Furthermore the costs for project 3c assume that the power for the grinder pumps will be available from the homeowners existing electrical panels and the homeowners will pay the electrical costs associated with the grinder pump.

ENVIRONMENTAL REVIEW

The City completed a NEPA review of projects to replace the existing sanitary sewer system in the Sahalee subdivision, as well as the existing water distribution system, in 2012 in conjunction with a USDA Rural Development funding application. The sewer system improvements included in the NEPA document were similar to the alternatives discussed in this report.

The NEPA review concluded that taking no action to replace the sanitary sewer system and Sahalee Lift Station would result in continued (and potentially increasing) leakage of raw sewage from offset joints in sewer mains along Nesadi Drive and throughout the

Sahalee Subdivision. It would also allow the less-than reliable, deteriorating, Sahalee Lift Station to continue to be overwhelmed during high flow events, resulting in discharges of raw sewage into the environment and the public health threats the sewer overflows would cause. The leaking sewer lines are also a source of I/I.

Replacement of leaking sewer mains and the Sahalee Lift Station would eliminate (or significantly reduce) the potential for releases of untreated sewage throughout the Sahalee Subdivision and would protect human health and the local environment while having no adverse environmental impact.

PREFERRED ALTERNATIVE – DRAFT

The alternatives for the Upper Zone and Lower Zone sewer improvements were ranked based on 20-year life cycle cost, environment impact or benefit and impact to the public.

The most favorably ranked upper zone alternative is Upper Zone Alternative 2C, direct the Wecoma Place and Hiaqua Place sewers to the Discovery Heights Main, install grinder pumps at residences tributary to Nesadi Drive and connection of the Nesadi Drive small diameter pressure main to the Discovery Hights sewer main. This alternative will create short-term impacts during construction such as noise and dust but should not have long term environmental impacts for the area and will have long term benefits due to the minimization of impact to Nesadi Drive and elimination of the facility sewer from Nesadi Drive to 2nd and Spring Streets.

The most favorably ranked lower zone alternative is Lower Zone Alternative 3C which includes installation of new gravity sewers in Klahanee Drive to Ilahee Place, construction of a new lift station in the vicinity of Ilahee Place and Klahanee Drive, and installation of grinder pump stations at the four residences currently tributary to the sanitary sewer that are located downhill from the intersection of Klahanee Drive and Ilahee Place. The lift station will discharge to the Discovery Heights sanitary sewer located at the top of the Sahalee Subdivision. Although there will be additional O&M considerations due to the maintenance of the lift station and four grinder pump installations, there are maintenance benefits to locating the lift station off of Robert Gray Drive.

The preferred alternative for replacement of the Sahalee Subdivision sewer system includes Upper Zone Alternative 2C and Lower Zone Alternative 3C (Figure E-12). The estimated total project cost for the combined project is $2,535,280 and estimated annual O&M is $48,967. The Upper Zone and Lower Zone sewer improvements do not have to be done concurrently.

FINANCIAL ANALYSIS

The preferred alternative for replacement of the Sahalee Subdivision has an estimated project cost of $2,535,280. The City has secured a Public Works Trust Fund loan for

replacement of the Nesadi Drive Sanitary Sewer from Klahanee Place to the first manhole to the east of Nesadi Drive in the amount of $336,000. The estimated annual debt service on the 30 year, 0.5 percent interest PWTF loan is $11,300 per year. The PWTF scope of work will need to be revised to construct the Alternative 2C improvements. This project can proceed independently of the larger Sahalee Subdivision sewer project due to the need to relocate the sewer to a more secure location.

The estimated project cost of the preferred alternative minus the Public Works Trust Fund Loan for the Nesadi Sewer Replacement is $2,199,280. The City will need to apply for a low interest loan to fund the sewer and lift station replacement.

Funding alternatives available include the Department of Ecology State Revolving Fund (SRF) Loan program, the Public Works Trust Fund Loan program and the United State Department of Agricultural Rural Development Grant & Loan program. Given the uncertainty of availability of PWTF loans and the high interest rates of the USDA Rural Development loans the preferred funding source is the Department of Ecology State Revolving Fund Loan Program.

The current interest rate for the 20-year term SRF loan is 2.7 percent and the current interest rate for the 5-year term SRF loan is 1.4 percent. Design only loans have a 5-year term and construction loans have a 20-year term. Loan recipients are not required to provide matching funds for the project. Semi-annual loan repayment begins one year after the project completion date or initiation of operation date, whichever comes first. In addition, the loan recipient must establish a reserve equivalent to at least the average annual debt service on the loan. The reserve must be established during the first 5 years of the repayment period of the loan.

This report assumes the project is broken into a design phase and a construction phase. The design phase for the preferred alternative is approximately $325,000 and the construction phase, including construction management, is approximately $2,210,280. The annual debt service for a design loan of $325,000 is $69,600. The annual debt service for a construction loan in the amount of $1,874,280 ($2,210,280 – $336,000) is approximately $124,265. A reserve fund of $124,265 would need to be collected within the first 5 years of the loan.

The average monthly cost to the City of Ilwaco rate payer to repay the debt service for the design portion of the project is approximately $6.25/month/ERU for 5 years. The average monthly cost to the City of Ilwaco rate payer to repay the debt service for the future construction project, assuming 2.7 percent interest over the 20-year life of the $1,874,280 SRF loan is approximately $11.15/month/ERU. The debt service on the PWTF loan of $336,000 (30 year, 0.5 percent interest) is approximately $1.02/month/ERU. The total estimated debt service for the proposed project is $18.42/month/ERU.

SECTION 1 – PURPOSE OF THE PROJECT

INTRODUCTION

The Sahalee neighborhood was developed in the 1970s as part of unincorporated Pacific County. The City of Ilwaco annexed the area at a later date. The service area for the City of Ilwaco *Wastewater Facility Plan* (Facility Plan), dated April 1994, and the *Wastewater Facility Plan Update* (2002 Facility Plan Update), dated November 2002, includes the entirety of the City of Ilwaco, including the Sahalee neighborhood, as well as Cape Disappointment State Park and the U.S. Coast Guard Station at Cape Disappointment. In addition, the City of Ilwaco provides wastewater treatment and disposal for the Seaview Sewer District.

The sewers and lift station serving this area have reached the end of their useful lives. In a 2008 memorandum to the Department of Ecology the City identified the need to replace the failing sanitary sewer in Nesadi Drive and expressed concern regarding the condition of the remaining sanitary sewers in the Sahalee neighborhood and the lift station that serves the neighborhood. The City has repaired areas of the existing sanitary sewer in Nesadi Drive where the 6-inch asbestos concrete (AC) sewer has separated at the pipe joints causing discharge of sewage. The wet pit/dry pit lift station is a steel structure which is severely corroded allowing I/I to enter the station. The self-priming mechanism on the pumps is easily clogged which leads to pump shutdown. The shallow wet well does not provide adequate storage in the event of pump failure which could lead to overflows from the lift station.

The project area is located on a steep hillside adjacent to the saltwater estuary of Baker Bay (Figure 1). Sewage overflows or sewage discharged to groundwater will flow down gradient to Baker Bay impacting water quality in Baker Bay. The deteriorated condition of the sewers and wet well present a water quality risk due to the introduction of I/I during high ground water periods and the resultant impact on downstream facilities including the City's Wastewater Treatment Plant (WWTP). The condition of the sewers also presents the potential for exfiltration of sewage during periods of low ground water. In addition, due to the soil conditions and steep slopes in the project area exfiltration of sewage may saturate the slopes and exacerbate the inherent instability of the area.

This 2013 *Wastewater Facility Plan Amendment* (2013 Facilities Plan Amendment) will provide planning and environmental assessment for a new sewer conveyance and lift station for the Sahalee neighborhood. This 2013 Facility Plan Amendment will be organized similarly to the Facility Plan.

SECTION 2 – GENERAL DESCRIPTION

The Sahalee Subdivision is located in the southwest portion of the City of Ilwaco. Figure 1 shows the location of the Sahalee Subdivision in relation to the entire City of Ilwaco. The Sahalee Subdivision is located on the south and east facing slopes of the southern-most portion of the Long Beach peninsula. The Pacific Ocean lies to the west of the peninsula and the Baker Bay estuary and the Columbia River lie to the east and south of the peninsula.

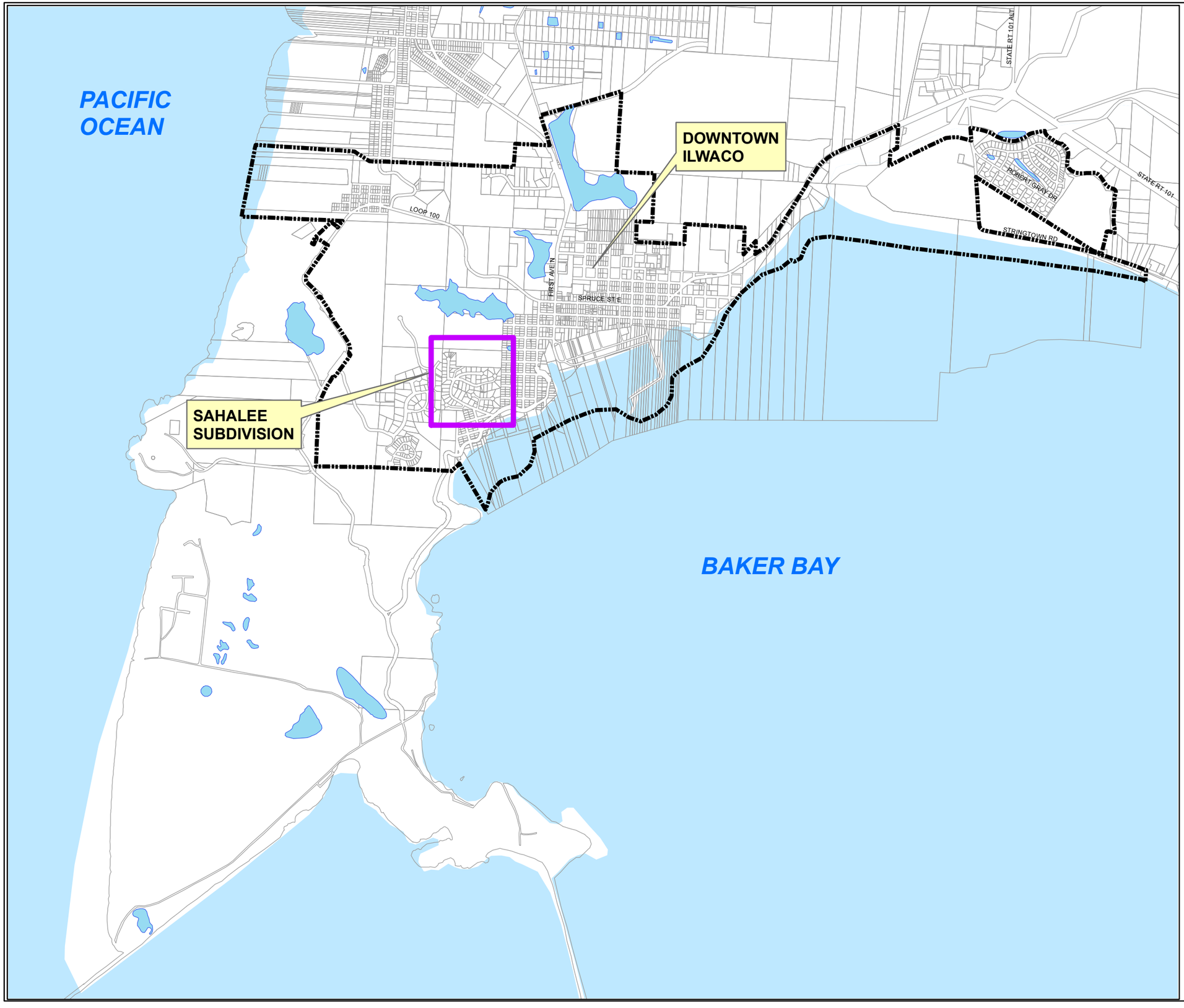
The Sahalee Subdivision was developed by the Baker Bay development company in the mid-1970s in what was unincorporated Pacific County. The initial subdivision included roads, a water distribution system including 55,000 gallon wood stave reservoir, sewer collection system and sewer lift station. Potable water and wastewater treatment were provided by the City of Ilwaco. The Sahalee Subdivision was annexed into the City in the late 1970s.

The topography of the Sahalee Subdivision ranges from approximately 100 feet to 275 feet above mean sea level. The project area is underlain by the Crescent Formation which is an Eocene-aged, pillowed, columnar-joined and massive basalt formation. Siltstone, consisting of dark gray, thin-bedded, laminated, indurated tuffaceous siltstone, and sandstone. Colluvium derived from the siltstone/sand is also found above the native siltstone/sandstone (PanGeo, 2013). Steep slopes in the subdivision may be prone to shallow slope instability and creep (PanGeo, 2013).

SECTION 3 – POPULATION AND LAND USE

Current development in the Sahalee Subdivision includes 38 single-family residences and four attached condominium units, a total of 42 equivalent residential units (ERU), and 34 potential building lots (Pacific County Assessor's Office website). Potential building lots were identified as vacant properties that were not owned by the owners of the adjacent developed property. The 2002 Facility Plan Update assumed an average growth rate for existing areas of the City of 1 percent per year; however, the 2010 *Pacific County Comprehensive Plan* projects a county-wide annual growth rate of 1.4 percent. The Pacific County projected growth rate will be used in this Plan. Assuming the average household size in Ilwaco is 2.11 persons/household (2010 US Census), the current population of the Sahalee Subdivision is 89 (42 x 2.11) and the projected 20-year population is 114 (89 x $(1.04)^{20}$) which would require an additional 12 residences to be constructed.

The 2010 US Census population for Ilwaco is 936. The projected 2020 City of Ilwaco population identified in the 2002 Facility Plan Update is 2,559 assuming 1 percent growth of the City and full build out of two large developments that were annexed into the City in the early 2000s. The substantial increase in population identified in the 2002 Facility Plan Update assumed that the recently annexed Discovery Heights (formerly known as the MSW) and Realvest developments located to the west of the Sahalee



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0 1,000 2,000 4,000 Feet

LEGEND:

- ILWACO CITY LIMITS / SEWER SERVICE AREA
- WATER BODY
- PARCELS

CITY OF ILWACO

SAHALEE SEWER PREDESIGN REPORT
FIGURE 1 - LOCATION MAP

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CONSULTING ENGINEERS

L:\Ilwaco\13441 Sahalee Sewer Predesign\GIS\LOC_MAP.mxd

Subdivision would be fully developed by 2012. The Discovery Heights development was assumed to include 500 homes, 100 hotel units, a restaurant and golf course proshop. The Realvest development was assumed to include 85 homes, 12 hotel units, and 50 cabins.

POPULATION PROJECTION

Since the City of Ilwaco WWTP service area includes the City of Ilwaco, Seaview Sewer District, Cape Disappointment State Park and the U.S. Coast Guard Station at Cape Disappointment, 20-year population projections for all of the entities were developed in the 2002 Facilities Plan Update.

The population projections provided in the 2002 Facilities Plan Update have been revised in this plan due to new census data for the City, changes in the development plans for the Realvest and Discovery Heights properties, and revised population estimates for the Seaview Sewer District.

The 2002 Facilities Plan Update estimated that the population of the City of Ilwaco in the year 2010 would be 2,452 based on 1 percent growth in the pre-annexation City limits and new connections in the west annexation area. In fact, the 2010 US Census population for Ilwaco is 936 and limited development has occurred in the west annexation areas. The Realvest property was sold to the Washington State Parks and Recreation Commission and the level of development predicted in the 2002 Facility Plan Update for the Realvest property will not occur. Development has not occurred as quickly as anticipated in the Discovery Heights development and development plans have been scaled back to 350 residential units. Currently there are six single-family and 46 condominium units in Discovery Heights. The City anticipates that the Discovery Heights Development may reach buildout at 350 residential units within the 20-year planning period. In addition, per the City of Ilwaco *2011 Water System Plan*, the City anticipates that within the next 10 to 20 years, properties northeast and east of the City center may also be developed, adding an additional 100 residential units to the sanitary sewer system.

The 2002 Facilities Plan Update projected that the Seaview Sewer District population in 2010 would be 870. The Seaview Sewer District 2009 Draft *Comprehensive Sewer Plan Update* estimated that the 2010 full-time population of Seaview was 1,016 and the seasonal population was 677. The conservative full-time and seasonal population estimates included in the Seaview Sewer District 2009 Draft *Comprehensive Sewer Plan Update* will be used for this analysis.

The 2002 Facilities Plan Update projected that the population growth in the City of Ilwaco and Seaview Sewer District would be 1 percent per year. This Plan will assume the 2010 Pacific County Comprehensive Plan projected county-wide annual growth rate of 1.4 percent. The effective growth rate in Ilwaco assuming buildout of 350 residential units in the Discovery Heights development within 20 years and development of an

additional 100 residential units to the northeast and east of the City would be approximately 6.5 percent.

The 2002 Facility Plan Update estimated the average number of daily visitors to Cape Disappointment State Park to be 3,243 and the average number of employees and permanent residents at the U.S. Coast Guard Station at Cape Disappointment to be 125. These estimates will be used in this report since there has not been an expansion of either facility and none is anticipated.

Table 1 presents the projected 20-year full-time population for the City of Ilwaco WWTP service area.

TABLE 1

Service Area Population Projections

Year	City of Ilwaco[(1)]	Seaview Sewer District[(2)]	US Coast Guard Equivalent Population	Cape Disappointment State Park Equivalent Population
2013	978	1765	125	3243
2018	1286	1892	125	3243
2023	1599	2028	125	3243
2028	1917	2174	125	3243
2033	2241	2331	125	3243

(1) 1.4 percent growth of existing City of Ilwaco population, buildout of Discovery Heights (350 residences) by 2033 and development of additional 100 residences in City limits by 2033.

(2) 1.4 percent growth of full-time and seasonal population from Seaview Sewer District 2009 Draft *Comprehensive Sewer Plan Update*.

The 20-year planning population (Year 2020) presented in the Facility Plan Update for the combined service area was 6,887. The 20-year planning population (Year 2033) from Table 2 is 7940 an increase of 1,053 people over the predicted 20-year population (Year 2020) in the 2002 Facilities Plan Update. The projected 2033 for the City of Ilwaco is 318 less than the predicted 2020 population included in the 2002 Facilities Plan Update while the projected 2033 population for the Seaview Sewer District is 1,371 greater than the 2020 population included in the 2002 Facilities Plan Update.

Based on the population analysis provided in the 2002 Facility Plan Update the City of Ilwaco installed a third Sequencing Batch Reactor (SBR) at the City's WWTP to provide adequate capacity for the projected growth in the City and full development of the annexed areas.

SECTION 4 – WASTEWATER CHARACTERISTICS

The City of Ilwaco WWTP was expanded in 2004-2005 to provide adequate treatment capacity for the wastewater flows and loading projected in the 2002 Facility Plan Update. The addition of a third SBR unit and aerobic digestion capacity upgrades were required to meet the expected demand on the system that would result from development in the two planned major development areas, the Realvest property and Discovery Heights, that had been recently annexed into the City. The 2002 Facility Plan Update assumed that approximately 35 percent of wastewater flow and 38 percent of the wastewater BOD and TSS loading in the year 2020 was projected to be contributed by the two large developments.

DESIGN CRITERIA

The City's NPDES permit No. WA 0023159 is attached as Appendix A. The City's current effluent permit limits and permitted design criteria are shown in Table 2 along with the average values for 2008 through 2012. Condition S.4 of the City's NPDES permit requires the City to prepare a plan and schedule to maintain adequate capacity when flows and loadings to the WWTP exceed 85 percent of design capacity.

TABLE 2

City of Ilwaco WWTP Design Criteria

Parameter	Permit Limits		Actual Values (2005-2012)	
	Average Monthly	Average Weekly	Average Monthly	Average Weekly
Effluent Limitations				
Biochemical Oxygen Demand (5 day)	30 mg/l,240 lbs/day 85% removal of influent BOD	45 mg/l,360 lbs/day	6.2 mg/l, 16 lb/day, 97.46 % removal	6.2 mg/l, 16 lb/day
Total Suspended Solids	30 mg/l,240 lbs/day 85% removal of influent BOD	45 mg/l,360 lbs/day	9.9 mg/l, 25 lb/day, 94.2 % removal	9.9 mg/l, 25 lb/day, 94.2 % removal
Fecal Coliform Bacteria	110 #/100 ml	370 #/100 ml	18.3/100 ml	
pH	Daily minimum is equal to or greater than 6.0 and the daily maximum is less than or equal to 9.0		6.56	
Design Criteria				
Flow:				
Average Annual[(1)]	0.5 mgd		0.296 mgd	
Average Flow for Maximum Month[(2)]	1.01 mgd		0.534 mgd	
Maximum Month (January 2006)	1.01 mgd		0.873 mgd	

TABLE 2 – (continued)

City of Ilwaco WWTP Design Criteria

Parameter	Permit Limits		Actual Values (2005-2012)	
	Average Monthly	Average Weekly	Average Monthly	Average Weekly
Design Criteria				
BOD_5 loading for maximum month	1,600 lb/day		1,052 lb/day	
TSS loading for maximum month	1,600 lb/day		727 lb/day	

(1) Average Annual Flow design criteria (2002 City of Ilwaco Wastewater Facility Plan).
(2) Maximum Month – Average of maximum month for each year.

FLOW PROJECTIONS

The design criteria used to develop the 20-year flows and loading projections is based on the following criteria developed from existing WWTP records. The maximum month flow (0.575 mgd) and loading (1104.6 lb/day BOD) is considered to have occurred in November 2009. The average monthly flow for January 2006 was 0.873 mgd; however, this number is most likely and outlier date point since it is 45 percent higher than other months that have experienced similar rainfall totals of approximately 25 inches. The average monthly BOD for October 2009 was 1,344 lbs/day. This number is considered an outlier since the daily average concentration of BOD was 502 mg/l which is approximately 40 percent higher than months with similar flows.

The flow and loading criteria are based on population. The populations and wastewater contribution from Cape Disappointment State Park and the U.S. Coast Guard Station and business is anticipated to grow at a rate that mirrors population growth to provide a conservative estimate of future flows and loadings. Therefore, the wastewater flow and load for commercial, school, hospital and other non-residential dischargers in Ilwaco and the Seaview Sewer District service areas, Cape Disappointment and the U.S. Coast Guard Station are incorporated into the per capita design criteria based on the assumption that any growth in those areas would parallel the growth in population.

TABLE 3

Flow and Loading Criteria

Item	Criteria
Average Day Flow/Capita[(1)]	108 gpd[(7)]
Maximum Month Flow/Capita	210 gpd[(2)]
Maximum Month/Average Day Flow	1.94[(4)]
Average Day BOD Load/Capita	0.24 lb/day[(5)]
Maximum Month BOD Load/Capita[(5)]	0.38 lb/day[(6)]
Average Day TSS Load/Capita	0.19 lb/day[(7)]
Maximum Month BOD Load/Capita	0.27 lb/day[(8)]

(1) Assumed 2013 population of Ilwaco and Seaview Sewer District = 2,743.
(2) 0.296 mgd/2,743.
(3) 0.575 mgd/2,743.
(4) 0.575 mgd/0.296 mgd.
(5) 668.8 lb/day/2,743.
(6) 1,104.6 lb/day/2,743.
(7) 530.98 lb/day/2,743.
(8) 727.3 lb/day/2,743.

On average Seaview Sewer District contributes 37 percent of the total wastewater flow, 45 percent of the total BOD_5 and 37 percent of the total TSS that is discharged to the WWTP.

Based on the flow and loading criteria provided in Table 3 the estimated flow and load tributary to the WWTP in 20 years (Year 2033) is shown in Table 4. The projected 2033 population of the City of Ilwaco and Seaview Sewer District is 4,572 (Table 2).

TABLE 4

Year 2033 Projected City of Ilwaco WWTP Flow and Loading[(1)]

Parameter	Projected 2033 Flow/Load	Limit/Design Values
Flow		
Average Annual	0.494 mgd	0.50 mgd
Maximum Month	0.958 mgd	1.01 mgd
Organic		
Average Day BOD_5	1,115 lb/day	1,600 lb/day
Maximum Month BOD_5	1,841 lb/day	1,600 lb/day
Average Day TSS	885 lb/day	1,600 lb/day
Maximum Month TSS	1,212 lb/day	1,600 lb/day

(1) 2033 population of Ilwaco and Seaview Sewer District = 4,572

Figures 2 through 4 show the projected average day and maximum month flows and loadings for the WWTP assuming the population projections presented earlier. Although the maximum month permit design criteria flow will not be exceeded within the 20-year planning horizon, the City will need to prepare a plan and schedule to maintain adequate capacity when flows and loadings to the WWTP exceed 85 percent of design capacity. As shown in Figure 2, 85 percent of the permitted maximum month flow (0.86 mgd) is projected to be exceeded in the year 2028. If growth occurs as projected in this report the maximum month flow limit of 1.01 mgd will not be exceeded until the year 2038. The City will periodically review the population projections and WWTP flow records to determine if the projected growth and flows approximate the projected population and flow increases

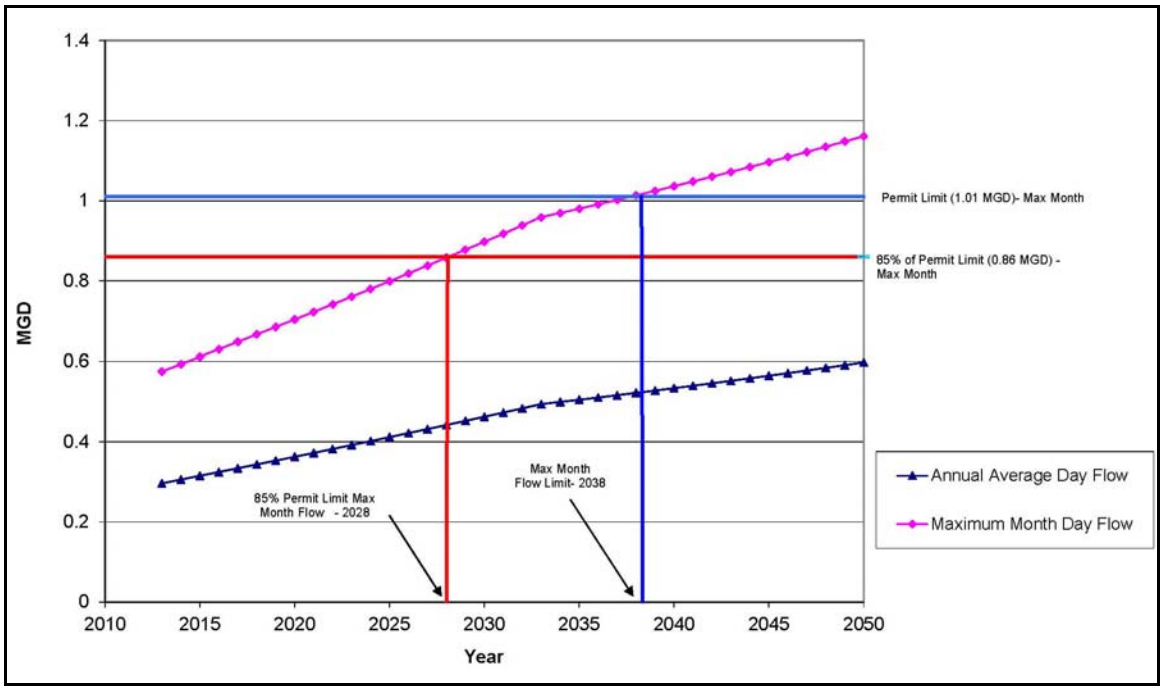


FIGURE 2

Projected Average Day and Maximum Month WWTP Flows

Figures 3 and 4 show the projected maximum month BOD5 and TSS loads for the WWTP assuming the population projections presented earlier. The maximum month TSS load discharged to the WWTP will not exceed 85 percent of the permit limit (1,360 lb/day) until the year 2043. Provided growth occurs as predicted in this report the maximum moth BOD_5 load discharged to the WWTP will exceed 85 percent of the permit limit (1,360 lb/day) in the year 2019 and the permit limit would be exceeded in the year 2027. The City will periodically review the population projections and WWTP loading records to determine if the projected growth and loads approximate the population and load projections. When the maximum month BOD_5 load approaches 85 percent of the permit limit the City will evaluate the ability to treat additional organic

load with the existing facilities. If treatment capacity is available the City will pursue rerating of the WWTP. If additional organic treatment capacity is required the City will develop a plan to augment existing facilities to achieve higher treatment capacity.

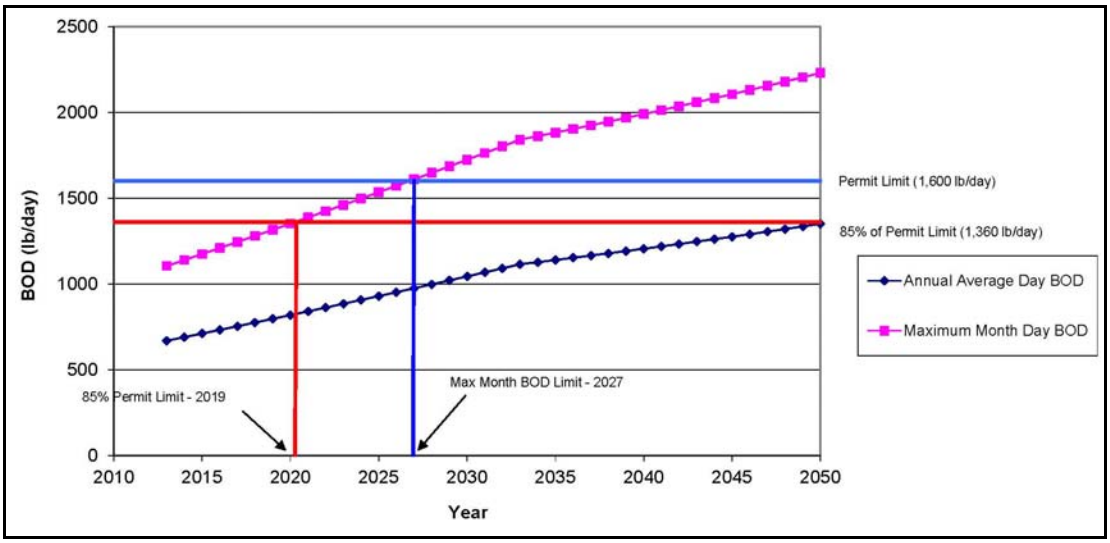


FIGURE 3

Projected Average Day and Maximum Month WWTP BOD_5 Loading

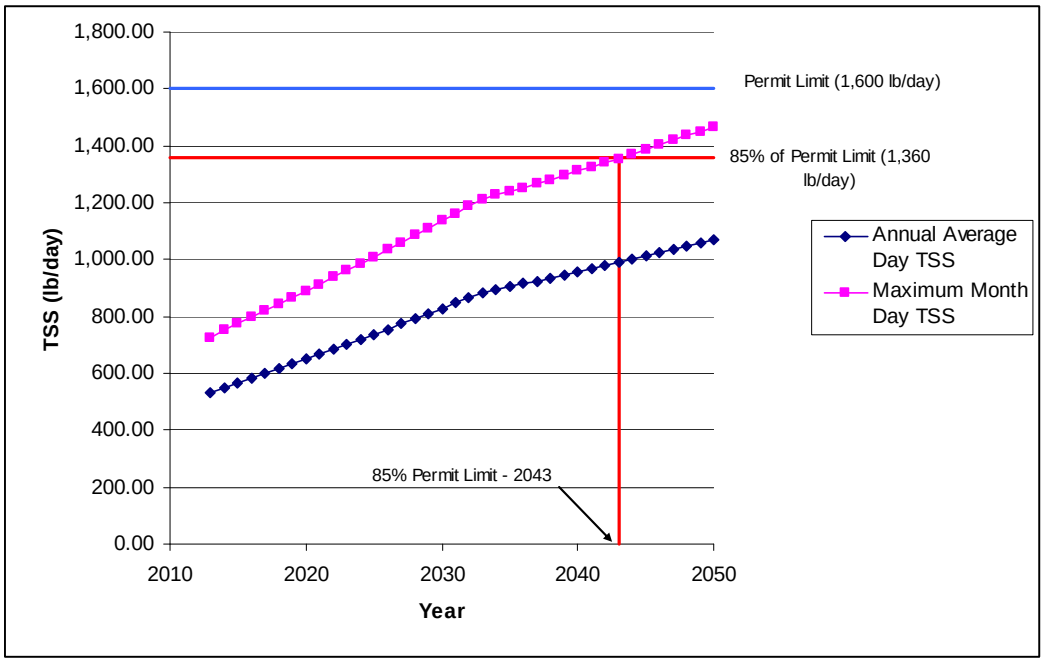


FIGURE 4

Projected Average Day and Maximum Month WWTP TSS Loading

SAHALEE WASTEWATER FLOWS AND LOADING

The current estimated maximum month wastewater flow for the City of Ilwaco is 443 gpd/ERU (210 gpd/capita x 2.11 persons/household = 228 gpd/ERU). Based on this value, the maximum month wastewater flow for the current residences in the Sahalee Subdivision is 18,606 gallons (42 ERU x 411 gpd/ERU). The projected 20-year maximum month wastewater flow for the Sahalee Subdivision is 23,922 gpd (54 ERU x 411 gpd/ERU) or approximately 2.2 percent of the permitted maximum month WWTP flow. No improvements to the WWTP will be required to treat the project flows from the Sahalee Subdivision.

The current average annual and maximum month Ilwaco WWTP BOD_5 loading per ERU is 0.51 lb/day BOD_5 (0.24 lb/day-capita x 2.11 persons/ERU) and 0.84 lb/day (0.40 lb/day-capita x 2.11 persons/ERU), respectively. The current average annual and maximum month TSS loading per ERU at the WWTP is 0.40 lb/day-ERU (0.19 lb/day-capita x 2.11 persons/ERU) and 0.57 lb/day (0.27 lb/day/capita x 2.11 persons/ERU), respectively. The projected 20-year maximum month BOD_5 load for the Sahalee Subdivision is projected to be 45.4 lb/day (54 ERU x 0.84 lb/day) and the maximum month TSS load is projected to be 30.8 lb/day (54 ERU x 0.27 lb/day). The projected BOD_5 and TSS load from the Sahalee subdivision in the year 2033 is approximately 2.7 percent and 1.9 percent of the design criteria for the WWTP, respectively. No improvements to the WWTP will be required to treat the projected loads from the Sahalee Subdivision.

NUMBER OF ERUS

The City of Ilwaco currently bills 522 residential and 116 commercial customers. The commercial customers are equivalent to 407 ERUs. The total number of ERUs in the City of Ilwaco is 929.

The population estimated for the US Coast Guard Station and Cape Disappointment State Park do not represent ERUs. Average annual water use at each of these facilities is used to estimate the number of ERUs attributable to the US Coast Guard and Cape Disappointment State Park. The average water use per ERU in the City is 142 gallons/capita/day (2013 Water System Plan). State Park average water use 4 MG/year (2003 – 2010) or approximately 11,000 gallons/day, which equals approximately 35 ERUs ((1,000 gallons/day)/(2.11 persons/ERU)/(142 gallons/person/day)). The average water use for the US Coast Guard Station is 2.6 MG/year (2003-2010) or approximately 7,100 gallons/day or 24 ERUs ((7,100 gallons/day)/(2.11 person/ERU)/(142 gallons/person/day)).

SECTION 5 – SAHALEE SUBDIVISION SANITARY SEWER SYSTEM

The initial sanitary sewer system in the Sahalee Subdivision was installed in the mid-1970s by the Baker Bay Development Corporation. The Sahalee Subdivision was in unincorporated Pacific County when it was constructed and was later incorporated into the City of Ilwaco through annexation. The City assumed ownership of the sanitary sewer system upon annexation. The existing sanitary sewer system is shown in Figure 5. The original system included two separate collection systems. The portion of the system serving the upper elevations of the development included gravity sewers in Hiaqua Place, Wecoma Place and Nesadi Drive and a sewer main that is located to the north and east of the nob of the hill at Wecoma Place. Residences on the east end of Hiaqua Place either discharge to the south to Nesadi Drive or through a shared side sewer from the east end of Hiaqua Place to the Nesadi Drive cul-de-sac.

The combined sewage from the upper portion of the subdivision flows by gravity approximately 1,400 lf through unimproved easements and right-of-way on the north side of the Sahalee hill to a point of connection with the sanitary sewer system at 2nd and Spring Streets. The City attempted to TV inspect this portion of the sewer in 2010; however, pulled joints and debris or broken pipe prevented TV inspection of the sewer. It is assumed this sewer, which was also constructed in the 1970s has outlived its useful life.

The lower portion of the Sahalee Subdivision, which originally included only residences along Klahanee Place, was served by a gravity sewer in Klahanee Place which discharged to a lift station located adjacent to Robert Gray Drive approximately 200 lf northeast of Klahanee Place. More recently individual properties in the lower portion of the subdivision have connected to the Klahanee Place sewer via small diameter gravity or pressure lines from properties with individual grinder pumps.

The sewer main carrying wastewater from the Discovery Heights subdivision, located immediately to the west of the Sahalee subdivision, and Cape Disappointment State Park/US Coast Guard Station traverses the upper portion of the Sahalee subdivision on Wecoma Place prior to heading north at the intersection of Wecoma Place, Hiaqua Place and Klahanee Drive.

The sewers in the Sahalee subdivision, with the exception of more recent small diameter PVC side sewer additions to the Klahanee Place collection system, are a combination of 4-inch and 6-inch diameter AC pipe. The sewer main is nearing the end of its useful life and has been a maintenance issue for the City. The sewer in Nesadi Drive has been particularly problematic. This sewer conveys all of the wastewater collected from Wecoma Place, Hiaqua Place and Nesadi Drive to the main collection system in the downtown area. The sewer in Nesadi Drive is located in the south, downhill, shoulder of the road and at points the pipe is exposed. The road embankment drops off sharply to the south and movement in the road embankment has caused sewer breaks and pulled joints.

Video inspection noted several offset joints. The City has repaired leaking joints in the sewer pipe in Nesadi Drive on three occasions since 2003. Raw sewage has discharged from the sewer prior to repair. The Department of Ecology has been notified each time there has been a discharge. The City has received a Public Works Trust Fund loan to move the sewer to the north side of the right-of-way into more stable soils.

The wastewater collected in the Klahanee Place gravity sewer flows to the Sahalee lift station. The Sahalee lift station is a 1970s vintage wet pit/dry pit design with two self-priming centrifugal electric motor-driven sewage pumps (5 hp, 125 gpm capacity). The wet pit is located beneath the dry pit. The dry pit consists of a partially below grade molded fiberglass and steel reinforced polyester resin riser that is bolted to the top of the steel wet well. Two 5-hp motors drive two self-priming centrifugal suction pumps. The self-priming mechanism on the pumps is easily clogged which leads to pump shutdown. The shallow wet well does not provide adequate storage in the event of pump failure which could lead to overflows from the lift station. On average the City utility crew responds to four pump failure alarm calls per month.

In addition, the pumps are being damaged by cavitation that is the result of poor design of the original pump station. In order to prevent cavitation, a sufficient depth of sewage must be maintained in the wet well to maintain a net positive suction head. The available storage capacity in the wet well is reduced in order to prevent cavitation. If the pumps fail due to loss of the self-priming system the station can overflow before the City utility crew is able to respond to a high level alarm.

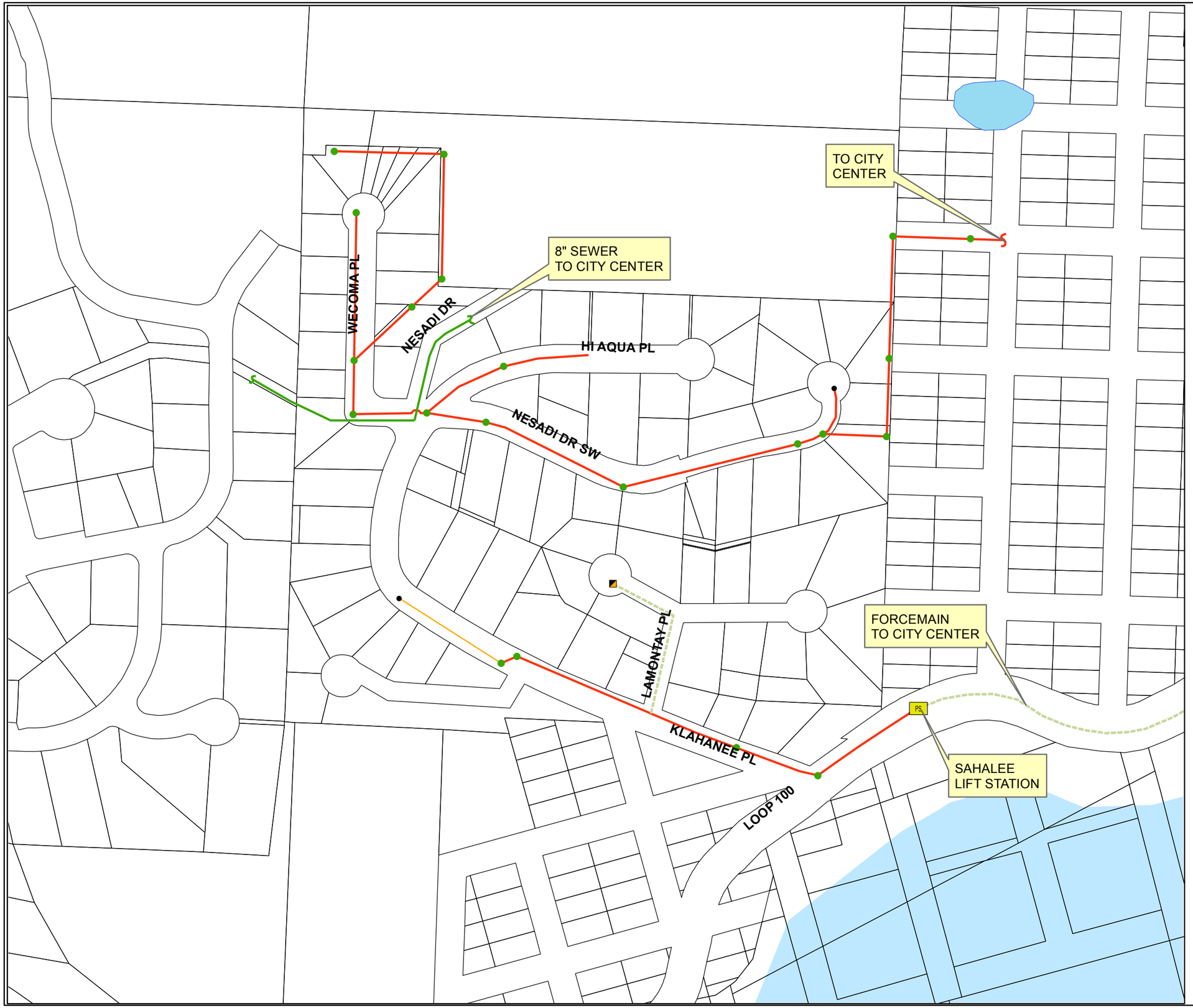
The steel reinforced wet well/dry well structure is corroding which allows infiltration to enter the lift station and presents the possibility that sewage would discharge from the station if the water level is high.

The floor which separates the dry well from the wet well and which supports the pumps is badly corroded. City crews must be careful not to fall through the floor into the wet well below. Structural failures of the station include:

- Delaminating floor from sever rust on the wet well side;
- Shifting of the pumps and strain on the pump piping; and
- Stress on the motor shaft due to shifting of the pumps.

Infiltration/Inflow into the sewer system and lift station is excessive. Average annual daily flow discharged from the Sahalee Lift Station was 2,430 gallons/day in 2012 and 1,452 gallons/day average flow for January through September 2013. Maximum day flow for September 2013 was 16,000 gpd which occurred during a 3-day period in which 6.6 inches of rain fell. Average day flow during wet weather months is approximately 8,000 gallons/day.

The force main from the Sahalee lift station is located in the south and east shoulders of Robert Gray Drive. Approximately 100 lf east of the lift station the road bed has shifted



N

0 100 200 400 Feet

LEGEND:

- GRINDER PUMP
- CLEANOUT
- MANHOLES
- PS LIFT STATION
- FORCEMAIN
- LESS THAN 6" PVC
- 6" ASBESTOS CONCRETE (AC)
- SEWER LINE INSTALLED IN 2003
- WATER BODY
- PARCELS

CITY OF ILWACO

SAHALEE SEWER PREDESIGN REPORT
FIGURE 5 - EXISTING SEWER FACILITIES

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which has required repair of the sewer force main. In addition, a landslide occurred uphill of Robert Gray Drive approximately 300 lf east of the lift station in December 2012. The sewer force main was not damaged during the land slide; however, the slope is not stable and future landslides may occur in this area.

The project area is located on a steep hillside adjacent to the saltwater estuary of Baker Bay. Sewage overflows or sewage discharged to groundwater will flow down gradient to Baker Bay presenting a water quality impact to Baker bay. The deteriorated condition of the sewers and wet well present a water quality risk due to the introduction of I/I during high ground water periods and the resultant impact on downstream facilities including the City's WWTP.

The sewer pipe in the Sahalee subdivision is over 40 years old, as evidenced by the leaking pipe which has been repaired several times over the past eight years on Nesadi Place, and is nearing the end of its useful life. The Sahalee lift station is also over 40 years old and in need of major repairs to provide a reliable and safe facility. The pipe and lift station should be replaced.

SECTION 6 – CONVEYANCE ALTERNATIVES

Alternatives for replacement of the sanitary sewers and lift station in the Sahalee subdivision are presented in this section. The minimum size sewer main per the City of Ilwaco standards is 8 inches. No increase in pipe size above the minimum will be required to meet the potential buildout capacity in the Sahalee subdivision.

The goals for the replacement of the sanitary sewer system and lift station in the Sahalee Subdivision include the following:

1. Replace lift station with one that is reliable and energy efficient, protects the health and safety of City staff and protects the environment.
2. Minimize future impact to sanitary sewers, force main and lift station from unstable conditions along Robert Gray Drive and Nesadi Drive.
3. Minimize I/I into the sanitary sewer system and lift station.

Alternatives for the upper zone are discussed separately from the alternatives for the lower zone since the sewer facilities in the two zones operate independently.

The alternatives considered include:

1. No Action

2. Upper Zone Alternatives

    a. Replace in kind.

b. Wecoma/Hiaqua discharge to Discovery Heights sewer main. Nesadi – replace in kind.
c. Wecoma/Hiaqua discharge to Discovery Heights sewer main. Install individual grinder pumps for the residences currently tributary to Nesadi Drive with discharge to Discovery Heights sewer main.
d. Wecoma/Hiaqua discharge to Discovery Heights main. Nesadi – replace gravity; install a submersible pump station on Nesadi Drive with discharge to Discovery Heights sewer main.

3. Lower Zone

a. Replace gravity sewer in kind. Install new submersible lift station at current location and continue discharge to force main in Robert Gray Drive.
b. Replace gravity sewers in kind. Install new submersible lift station that discharges to Discovery Heights sewer main. (200 feet static head – 236 feet to 30 feet).
c. Relocate lift station in vicinity of Ilahee Place and Klahanee Place intersection; install grinder pumps for the residences below the lift station. Discharge to Discovery Heights sewer main (136 feet static head – 100 feet to 236 feet).

ALTERNATIVE NO. 1: NO ACTION

Taking no action to replace the sanitary sewer system and Sahalee Lift Station would result in continued, and potentially increasing, leakage of raw sewage from off-set joints in sewer mains along Nesadi Drive and throughout the Sahalee Subdivision. It would also allow the less than reliable and deteriorating Sahalee Lift Station to continue to be overwhelmed during high flow events, resulting in discharges of raw sewage into the environment and the public health threats the sewer overflows would cause. The leaking sewer lines are also a source of I/I.

The condition of the Sahalee Lift Station would continue to deteriorate and present a health hazard to staff due to the condition of the floor of the dry well. In addition the lift station will continue to be a source of I/I due to the corrosion in the side of the wet well.

There are no requirements for additional land/easements for Alternative No. 1 and no construction problems are anticipated.

There are no construction costs associated with Alternative No. 1. Potential non-construction costs include the expense of locating and repairing system leaks, responding to pump failure or high level alarms at the lift station, liability for landslides caused by leaking sewer pipes and fines for the Department of Ecology for discharges of raw sewage.

The annual operation and maintenance of the sewer system will include sewer line TV inspection on a routine basis and daily, weekly and monthly scheduled inspections at the lift station. The cost of annual operation and maintenance of the sewer and lift station will not increase from the current level which is estimated to be $52,000. The O&M estimate assumes the City will hire a contractor every year to repair sewer leaks.

Alternative No. 1, No Action, does not meet the City of Ilwaco goals of operating the City utilities efficiently and in a manner that protects the environment and health of the citizens and staff. The City's current Capital Improvement Project (CIP) list includes the replacement of the Sahalee subdivision sewer collection and Sahalee Lift Station as a high priority project. This alternative is not in keeping with the City's adopted CIP list and does not satisfy public safety and environmental concerns.

UPPER ZONE ALTERNATIVE 2A: REPLACE EXISTING UPPER ZONE SEWERS IN KIND

This alternative, shown in Figure 6 would replace the existing AC sanitary sewers in Wecoma Place (535 lf), the sewer main to the north and east of the Wecoma Place hill (665 lf), Hiaqua Place (330 lf), and Nesadi Drive (1,030 lf) with polyvinyl chloride (PVC) or high density polyethylene (HDPE) sewers. The combined wastewater flow from the upper zone would continue to be discharged from Nesadi Drive to the east and north to a point of connection with the sanitary sewer at 2nd and Spring Streets (1,400 lf). The sewer in Nesadi Drive would be relocated to the north side of the street (uphill) to minimize impact to the steep shoulder on the south side of the street.

This alternative would impact the existing roadways and residents during construction of the new infrastructure. If, in the future, the City was able to replace the deteriorating water system in Wecoma Place, Hiaqua Place and Nesadi Drive the roadways and residents would be impacted by construction activities again. This alternative will impact the currently undeveloped areas adjacent to the final 1,400 lf of the pipeline since trees will be cut and forest undergrowth removed.

There are no adverse environmental consequences of replacing the sanitary sewers in the developed portions of the upper zone of the Sahalee Subdivision. The environmental benefits of replacing the sanitary sewers include eliminating the potential for landslides associated with ground saturation from leaking pipes and potential for contamination of ground and surface water from release of untreated sewage. The impact to currently undeveloped areas will include erosion due to vegetation removal and tree clearing in the currently heavily wooded area. This impact will be minimized by controlling the clearing limits and directing the contractor to install and maintain erosion control best management practices. There may be short-term impacts but no long-term detrimental effects to wildlife or vegetation which will result from this proposal.

The City does not have an easement for the sanitary sewer that has been located across several private properties on Nesadi Drive since the 1970s. The City will need to obtain easements on Parcels 73020005006 and 73020005005 for the replacement of the sewer main that is located on those parcels.

The estimated construction cost for this alternative is $1,125,180, including 20 percent construction contingencies. Non-construction costs such as design, survey, construction administration and inspection and project administration are estimated to be approximately $337,700. The project cost estimate is approximately $1,462,880. Detailed cost estimates are included in Appendix B.

The annual operation and maintenance of the sewer system includes sewer line TV inspection every 4 to 5 years. Replacement of the deteriorated sewer system will eliminate the need to hire a contractor to repair leaking sewers.

UPPER ZONE ALTERNATIVE 2B: WECOMA AND HIAQUA SEWERS DISCHARGE TO DISCOVERY HEIGHTS MAIN, NESADI SEWER REPLACE IN KIND

This alternative, shown in Figure 7, would replace the existing AC sanitary sewers in Wecoma Place (400 lf), the sewer main to the north and east of the Wecoma Place hill (665 lf), and Hiaqua Place (345 lf) with 8-inch PVC or HDPE sewer mains that would discharge into the existing Discovery Heights sewer main in the vicinity of the intersection of Wecoma Place and Hiaqua Place. This sanitary sewer was installed to provide sewer conveyance from the Discovery Heights development located adjacent to the Sahalee Subdivision, Cape Disappointment State Park and the US Coast Guard Station at Cape Disappointment to the City of Ilwaco. The Nesadi Drive sewer main (1,030 lf) would be replaced with 8-inch PVC and HDPE, and continue to be discharged to the east and north to a point of connection with the sanitary sewer at 2nd and Spring Streets (1,400 lf) through a new sewer main located on private properties and an unopened right-of-way. The sewer in Nesadi Drive would be relocated to the north side of the street (uphill) to minimize impact to the steep shoulder on the south side of the street.

This alternative would impact the existing roadways and residents during construction of the new infrastructure. If, in the future, the City was able to replace the deteriorating water system in Wecoma Place, Hiaqua Place and Nesadi Drive the roadways and residents would be impacted by construction activities again. This alternative will impact the currently undeveloped areas adjacent to the final 1,400 lf of the pipeline since trees will be cut and forest undergrowth removed.

There are no adverse environmental consequences of replacing the sanitary sewers in the developed portions of the upper zone of the Sahalee Subdivision. The environmental benefits of replacing the sanitary sewers include eliminating the potential for landslides associated with ground saturation from leaking pipes and potential for contamination of

N

0 100 200 400 Feet

TO CITY CENTER

8" SEWER TO CITY CENTER

WECOMA PL

NESADI DR

HI AQUA PL

NESADI DR SW

LAMONTAY PL

KLAHANEE PL

LOOP 100

FORCEMAIN TO CITY CENTER

PS

SAHALEE LIFT STATION

LEGEND:

- CLEANOUT
- MANHOLES
- CLEANOUT - LOWER ZONE
- GRINDER PUMP - LOWER ZONE
- PS LIFT STATION - LOWER ZONE
- MANHOLES - LOWER ZONE
- NEW 8" PVC/HDPE
- SEWER LINE INSTALLED IN 2003
- SEWERLINES - LOWER ZONE
- FORCEMAIN - LOWER ZONE
- WATER BODY
- PARCELS

CITY OF ILWACO

SAHALEE SEWER PREDESIGN REPORT
FIGURE 6 - UPPER ZONE - ALTERNATIVE 2A
SEWER IMPROVEMENTS

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N

0 100 200 400 Feet

TO CITY CENTER

8" SEWER TO CITY CENTER

WECOMA PL

NESADI DR

HI AQUA PL

NESADI DR SW

LAMONTAY PL

KLAHANEE PL

LOOP 100

FORCEMAIN TO CITY CENTER

PS

SAHALEE LIFT STATION

LEGEND:

- CLEANOUT
- MANHOLES
- CLEANOUT - LOWER ZONE
- GRINDER PUMP - LOWER ZONE
- PS LIFT STATION - LOWER ZONE
- MANHOLES - LOWER ZONE
- NEW 8" PVC/HDPE
- SEWER LINE INSTALLED IN 2003
- SEWERLINES - LOWER ZONE
- FORCEMAIN - LOWER ZONE
- WATER BODY
- PARCELS

CITY OF ILWACO

SAHALEE SEWER PREDESIGN REPORT
FIGURE 7 - UPPER ZONE - ALTERNATIVE 2B
SEWER IMPROVEMENTS

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ground and surface water from release of untreated sewage. The impact to currently undeveloped areas will include erosion due to vegetation removal and tree clearing in the currently heavily wooded area. This impact will be minimized by controlling the clearing limits and directing the contractor to install and maintain erosion control best management practices. There may be short-term impacts but no long-term detrimental effects to wildlife or vegetation which will result from this proposal.

The City does not have an easement for the sanitary sewer that has been located across several private properties on Nesadi Drive since the 1970s. The City will need to obtain easements on Parcels 73020005006 and 73020005005 for the replacement of the sewer main that is located on those parcels.

The estimated construction cost for this alternative is $1,099,070, including 20 percent construction contingencies. Non-construction costs such as design, survey, construction administration and inspection and project administration are estimated to be approximately $329,900. The project cost estimate is approximately $1,428,970. Detailed cost estimates are included in Appendix B.

The annual operation and maintenance of the sewer system includes sewer line TV inspection every 4 to 5 years. Replacement of the deteriorated sewer system will eliminate the need to hire a contractor to repair leaking sewers.

UPPER ZONE ALTERNATIVE 2C: WECOMA AND HIAQUA SEWERS DISCHARGE TO DISCOVERY HEIGHTS MAIN, GRINDER PUMPS ON NESADI WITH DISCHARGE TO DISCOVERY HEIGHTS MAIN

This alternative, shown in Figure 8, would replace the existing AC sanitary sewers in Wecoma Place (400 lf), the sewer main to the north and east of the Wecoma Place hill (665 lf), and Hiaqua Place (345 lf) with 8-inch PVC or HDPE sewer mains that would discharge into the existing Discovery Heights sewer main in the vicinity of the intersection of Wecoma Place and Hiaqua Place. Grinder pump assemblies (13 each) would be installed at residences tributary to the Nesadi Drive sewer main (several properties on the south side of Nesadi Drive are already equipped with grinder pumps). The grinder pumps would discharge to a small diameter PVC or HDPE pressure main (950 lf) located on the north side of Nesadi Drive. The pressure main would discharge to the Discovery Heights sewer main. The force main in Nesadi Drive would be located on the north side of the street to minimize impact to the steep shoulder on the south side of the street.

This alternative would impact the existing roadways and residents during construction of the new infrastructure. If, in the future, the City was able to replace the deteriorating water system in Wecoma Place, Hiaqua Place and Nesadi Drive the roadways and residents would be impacted by construction activities again. This alternative will impact the exterior landscaping of individual residences that require grinder pump assembly

installation. It is assumed the grinder pump assemblies will be run off of the electrical panels of each home.

There are no adverse environmental consequences of replacing the sanitary sewers in the upper zone of the Sahalee subdivision. The environmental benefits of replacing the sanitary sewers include eliminating the potential for landslides associated with ground saturation from leaking pipes and potential for contamination of ground and surface water from release of untreated sewage. The impact to currently undeveloped areas will be eliminated by directing the sewage from Wecoma Place, Hiaqua Place and Nesadi Drive to the existing 8-inch-diameter sewer main rather than replacing approximately 1,400 lf of sewer to the east of Nesadi Drive. There will be no long term detrimental effects to wildlife or vegetation which will result from this proposal.

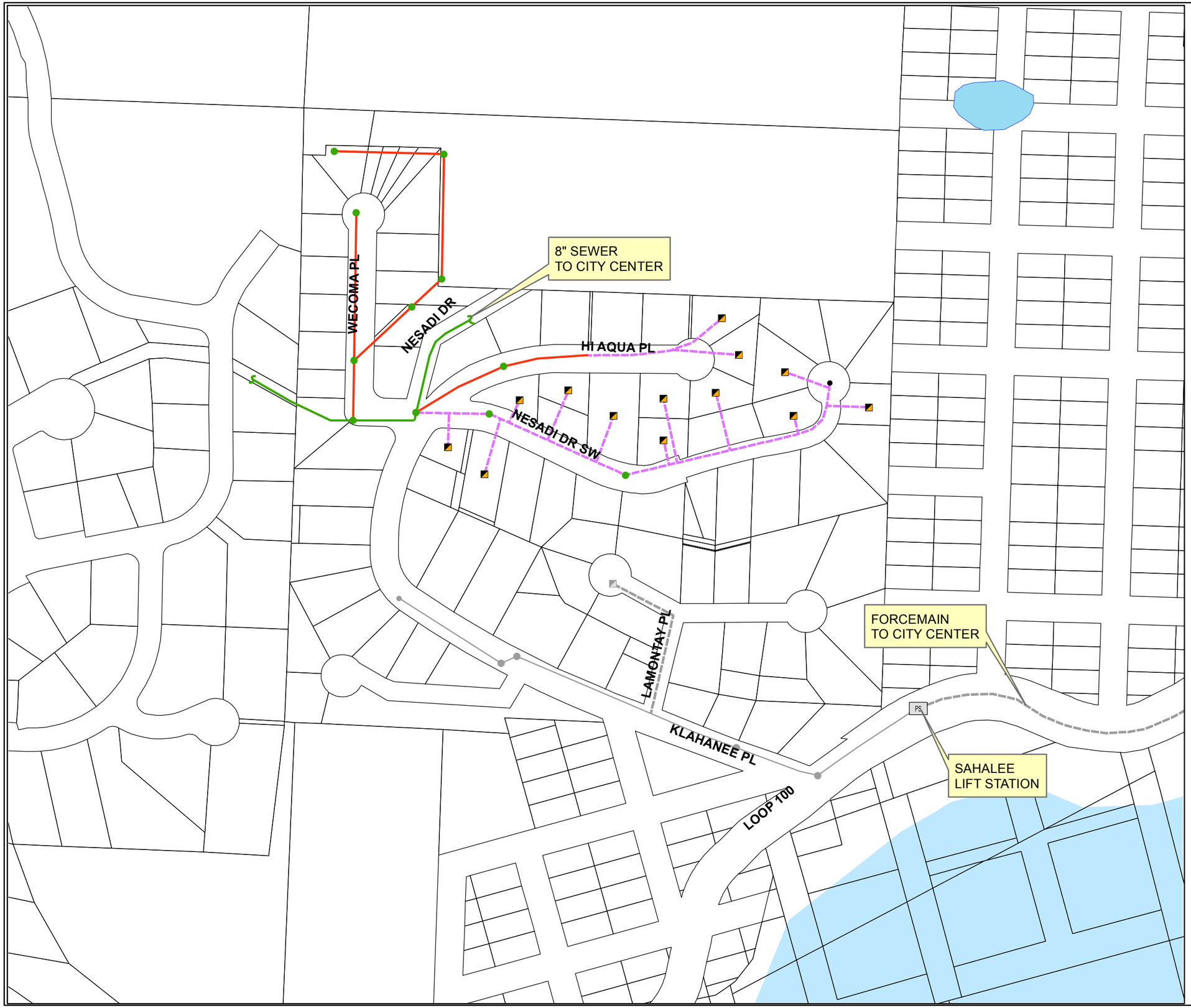
The City will need to obtain property or easements for siting the grinder pump stations.

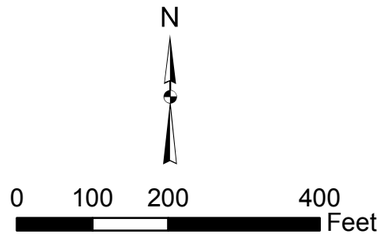
The estimated construction cost for this alternative is $869,300, including 20 percent construction contingencies. Non-construction costs such as design, survey, construction administration and inspection and project administration are estimated to be approximately $261,000. The project cost estimate is approximately $1,130,380. Detailed cost estimates are included in Appendix B.

The annual operation and maintenance of the sewer system includes sewer line TV inspection every 4 to 5 years, annual inspection of the grinder pump stations and replacement of the grinder pump stators every 10 years. Replacement of the deteriorated sewer system will eliminate the need to hire a contractor to repair leaking sewers.

ALTERNATIVE 2D: WECOMA AND HIAQUA SEWERS DISCHARGE TO DISCOVERY HEIGHTS MAIN, SUBMERSIBLE LIFT STATION ON NESADI WITH DISCHARGE TO DISCOVERY HEIGHTS MAIN

This alternative, shown in Figure 9, would replace the existing AC sanitary sewers in Wecoma Place (400 lf), the sewer main to the north and east of the Wecoma Place hill (665 lf), and Hiaqua Place (345 lf) with 8-inch PVC or HDPE sewer mains that would discharge into the existing Discovery Heights sewer main in the vicinity of the intersection of Wecoma Place and Hiaqua Place. The Nesadi Drive sewer main (950 lf) would be replaced with a gravity main that discharges to a new lift station. Three grinder pump stations will be required to provide service to one residence on Nesadi Drive and two residences on Hiaqua Place. A submersible lift station, including two 15-hp, 3-phase pumps, would be located in the north shoulder of Nesadi Drive at the low point of the road. 3-phase power is not available in the area therefore a variable frequency drive (VFD) would be used to convert single-phase power to 3-phase power. An emergency generator would be provided. A 4-or 6-inch-diameter PVC or HDPE force main from the lift station would discharge to the Discovery Heights sewer main. The sewer in Nesadi Drive and force main would be located to the north side of the street (uphill) to minimize impact to the steep shoulder on the south side of the street.





LEGEND:

- CLEANOUT
- MANHOLES
- GRINDER PUMP
- CLEANOUT - LOWER ZONE
- GRINDER PUMP - LOWER ZONE
- PS LIFT STATION - LOWER ZONE
- MANHOLES - LOWER ZONE
- NEW 8" PVC/HDPE
- SEWER LINE INSTALLED IN 2003
- SMALL DIAMETER PRESSURE MAIN
- SEWERLINES - LOWER ZONE
- FORCEMAIN - LOWER ZONE
- WATER BODY
- PARCELS

CITY OF ILWACO

SAHALEE SEWER PREDESIGN REPORT
FIGURE 8 - UPPER ZONE - ALTERNATIVE 2C
SEWER IMPROVEMENTS

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CONSULTING ENGINEERS

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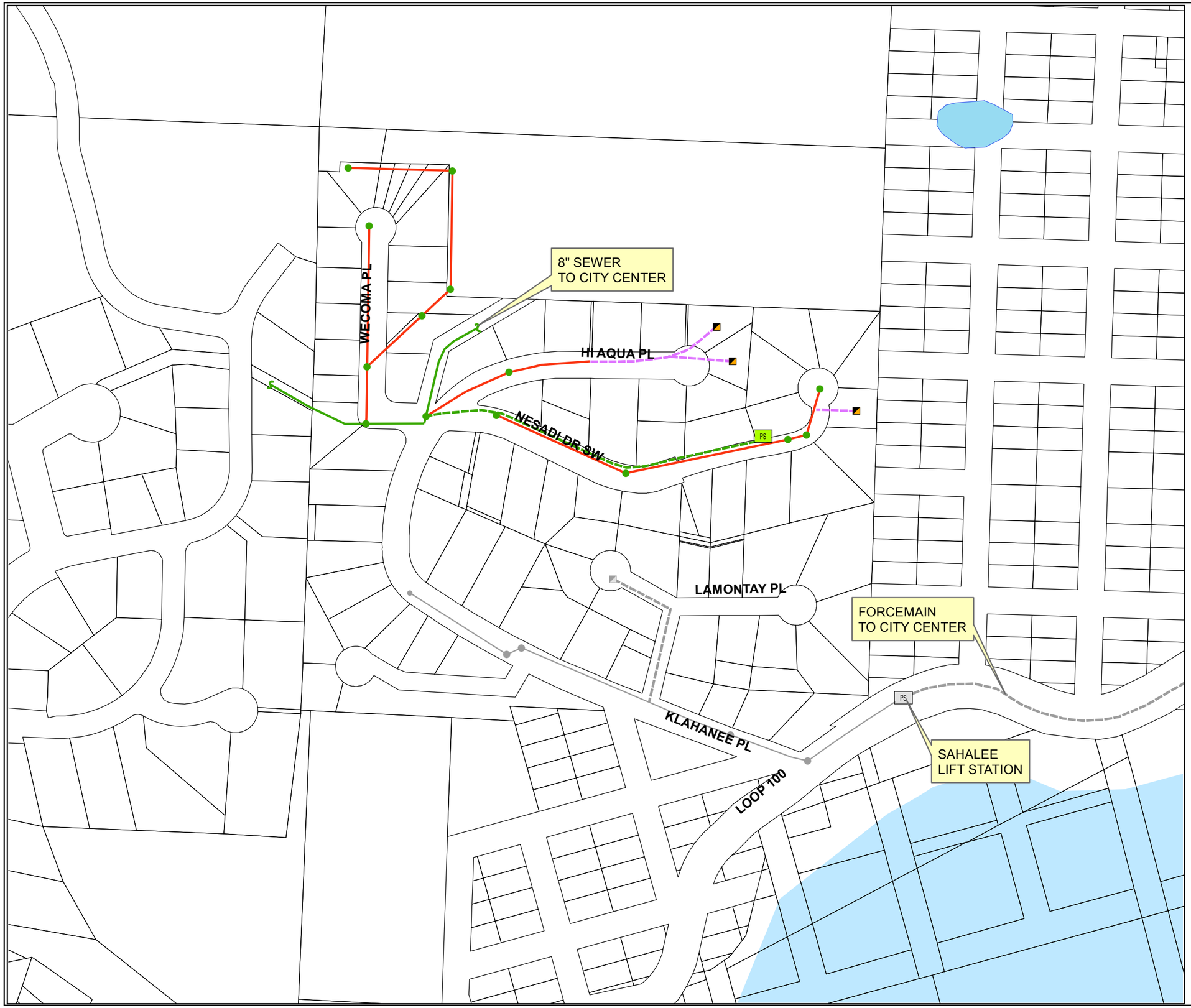

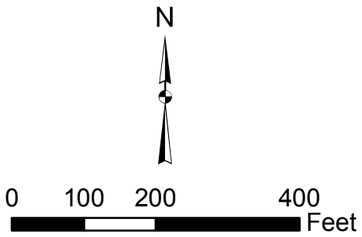

LEGEND:

- CLEANOUT
- MANHOLES
- GRINDER PUMP
- PS LIFT STATION
- CLEANOUT - LOWER ZONE
- GRINDER PUMP - LOWER ZONE
- PS LIFT STATION - LOWER ZONE
- MANHOLES - LOWER ZONE
- NEW 8" PVC/HDPE
- SEWER LINE INSTALLED IN 2003
- NEW FORCEMAIN
- SMALL DIAMETER PRESSURE MAIN
- SEWERLINES - LOWER ZONE
- FORCEMAIN - LOWER ZONE
- WATER BODY
- PARCELS

CITY OF ILWACO

SAHALEE SEWER PREDESIGN REPORT
FIGURE 9 - UPPER ZONE - ALTERNATIVE 2D
SEWER IMPROVEMENTS

Gray & Osborne, Inc.
CONSULTING ENGINEERS

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This alternative would impact the existing roadways and residents during construction of the new infrastructure. If, in the future, the City was able to replace the deteriorating water system in Wecoma Place, Hiaqua Place and Nesadi Drive the roadways and residents would be impacted by construction activities again.

There are no adverse environmental consequences of replacing the sanitary sewers in the upper zone of the Sahalee subdivision. The environmental benefits of replacing the sanitary sewers include eliminating the potential for landslides associated with ground saturation from leaking pipes and potential for contamination of ground and surface water from release of untreated sewage. The impact to currently undeveloped areas will be eliminated by directing the sewage from Wecoma Place, Hiaqua Place and Nesadi Drive to the existing 8-inch diameter sewer main rather than replacing approximately 1,400 lf of sewer to the east of Nesadi Drive. There will be no long term detrimental effects to wildlife or vegetation which will result from this proposal.

The City may need to obtain property or easements for siting the lift station.

The estimated construction cost for this alternative is $1,573,600 including 20 percent construction contingencies. Non-construction costs such as design, survey, construction administration and inspection and project administration are estimated to be approximately $472,200. The project cost estimate is approximately $2,045,800. Detailed cost estimates are included in Appendix B.

The annual operation and maintenance of the sewer system includes sewer line TV inspection every 4 to 5 years, annual inspection of the grinder pump stations and replacement of the grinder pump stators every 10 years. Replacement of the deteriorated sewer system will eliminate the need to hire a contractor to repair leaking sewers. Operation and maintenance of the submersible lift station includes daily and weekly inspection, quarterly and annual maintenance, weekly emergency generator exercising and annual maintenance.

LOWER ZONE ALTERNATIVE 3A: REPLACE GRAVITY SEWER AND LIFT STATION IN KIND

This alternative, shown in Figure 10, would replace the existing AC sanitary sewers in Klahanee Place (1,650 lf) with 8-inch PVC or HDPE in the existing alignment. The existing small diameter pressure main from a grinder pump located at a residence on Ilahee Place would remain in service. The existing lift station would be replaced in the same location with a 125 gpm submersible lift station, including two 10-hp, 3-phase pumps. 3-phase power is not available in the area therefore a VFD would be used to convert single-phase power to 3-phase power. An emergency generator would be provided. The new lift station would discharge to the existing 4-inch diameter force main in Robert Gray Drive.

This alternative would impact the existing roadways and residents during construction of the new infrastructure. If, in the future, the City was able to replace the deteriorating water system in Klahanee Place the roadways and residents would be impacted by construction activities again.

The existing lift station site is located immediately adjacent to Robert Gray Drive and there is very little room to install a new lift station while maintaining service through the existing station. The presence of construction activity in this location would disrupt traffic. In addition, immediately to the east of the lift station site is a known location of slope instability as evidenced by slope creep and buckling of Robert Gray Drive and a land slide that occurred in December 2013. While there are no adverse environmental consequences of replacing the sanitary sewers in the lower zone, replacement of the lift station in the current location may present a risk due to potential slope instability. The environmental benefits of replacing the sanitary sewers and lift station include eliminating the potential for contamination of ground and surface water from release of untreated sewage on at the existing deteriorated lift station and elimination of I/I into the system. However, the continued use of the force main in Robert Gray Drive, portions of which traverse known slide areas, may result in future force main ruptures and the inadvertent discharge of untreated sewage.

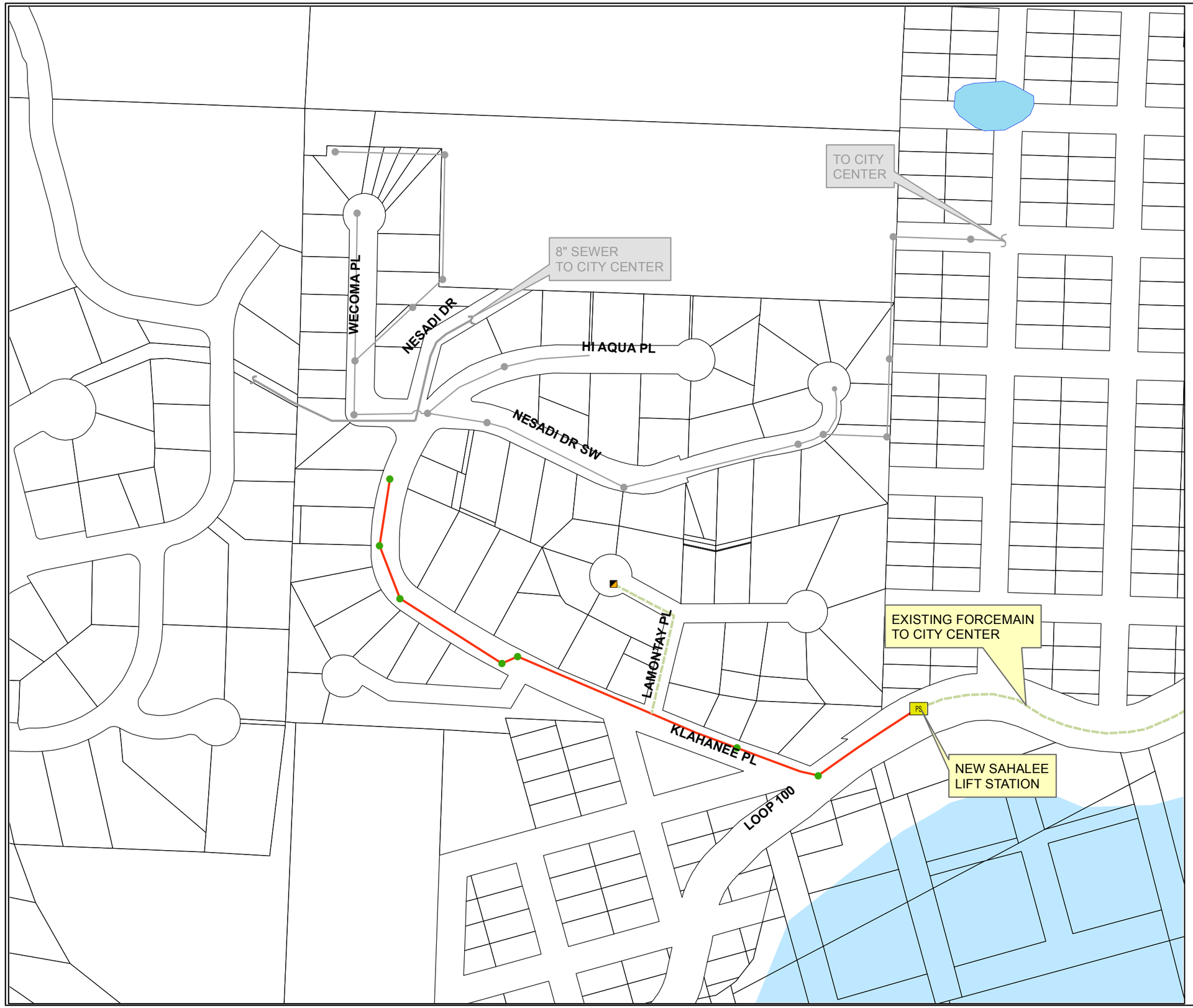
The City will not need to obtain property or easements for this project.

The estimated construction cost for this alternative is $922,000 including 20 percent construction contingencies. Non-construction costs such as design, survey, construction administration and inspection and project administration are estimated to be approximately $276,600. The project cost estimate is approximately $1,198,600. Detailed cost estimates are included in Appendix B.

The annual operation and maintenance of the sewer system includes sewer line TV inspection every 4 to 5 years. Replacement of the deteriorated sewer system will eliminate the need to hire a contractor to repair leaking sewers. Operation and maintenance of the submersible lift station includes daily and weekly inspection, quarterly and annual maintenance, weekly emergency generator exercising and annual maintenance.

LOWER ZONE ALTERNATIVE 3B: REPLACE GRAVITY SEWER, REPLACE LIFT STATION AT CURRENT SITE WITH DISCHARGE TO DISCOVERY HEIGHTS SEWER MAIN

This alternative, shown in Figure 11, would replace the existing AC sanitary sewers in Klahanee Place (1,650 lf) with 8-inch PVC or HDPE in the existing alignment. The existing small diameter pressure main from a grinder pump located at a residence on Ilahee Place would remain in service. The existing lift station would be replaced in the same location with a 125 gpm high head (approximately 200-feet TDH) submersible lift station, including two 25-hp, 3-phase pumps. 3-phase power is not available in the area



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0 100 200 400 Feet

LEGEND:

- CLEANOUT
- MANHOLES
- LIFT STATION
- GRINDER PUMP
- MANHOLES - UPPER ZONE
- CLEANOUT - UPPER ZONE
- NEW 8" PVC/HDPE
- EXISTING FORCEMAIN
- SEWER LINE INSTALLED IN 2003 - UPPER ZONE
- 8" PVC/HDPE - UPPER ZONE
- WATER BODY
- PARCELS

CITY OF ILWACO

SAHALEE SEWER PREDESIGN REPORT
FIGURE 10 - LOWER ZONE - ALTERNATIVE 3A
SEWER IMPROVEMENTS

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N

0 100 200 400 Feet

TO CITY CENTER

8" SEWER TO CITY CENTER

WECOMA PL

NESADI DR

HI AQUA PL

NESADI DR SW

LAMONTAY PL

KLAHANEE PL

LOOP 100

CAP EXISTING FORCEMAIN

PS

NEW SAHALEE LIFT STATION

LEGEND:

- CLEANOUT
- MANHOLES
- LIFT STATION
- GRINDER PUMP
- MANHOLES - UPPER ZONE
- CLEANOUT - UPPER ZONE
- NEW 8" PVC/HDPE
- NEW FORCEMAIN
- EXISTING FORCEMAIN
- SEWER LINE INSTALLED IN 2003 - UPPER ZONE
- 8" PVC/HDPE - UPPER ZONE
- WATER BODY
- PARCELS

CITY OF ILWACO

SAHALEE SEWER PREDESIGN REPORT
FIGURE 11 - LOWER ZONE - ALTERNATIVE 3B
SEWER IMPROVEMENTS

Gray & Osborne, Inc.
CONSULTING ENGINEERS

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therefore a VFD would be used to convert single-phase power to 3-phase power. An emergency generator would be provided. Approximately 2,010 lf of new 4- or 6-inch-diameter PVC or HDPE force main would be installed in the shoulder of Robert Gray Drive and Klahanee Place to the intersection of Wecoma Place and Hiaqua Place where the force main would discharge to the existing sewer main from Discovery Heights.

This alternative would impact the existing roadways and residents during construction of the new infrastructure. If, in the future, the City was able to replace the deteriorating water system in Klahanee Place the roadways and residents would be impacted by construction activities again.

The existing lift station site is located immediately adjacent to Robert Gray Drive and there is very little room to install a new lift station while maintaining service through the existing station. The presence of construction activity in this location would disrupt traffic. In addition, immediately to the east of the lift station site is a known location of slope instability as evidenced by slope creep and buckling of Robert Gray Drive and a land slide that occurred in December 2013. While there are no adverse environmental consequences of replacing the sanitary sewers in the lower zone replacement of the lift station in the current location may present a risk due to potential slope instability. The environmental benefits of replacing the sanitary sewers include eliminating the potential for contamination of ground and surface water from release of untreated sewage on at the existing deteriorated lift station and elimination of I/I into the system. Rerouting the discharge from the lift station to the existing Discovery Heights sewer main eliminates the use of the force main in Robert Gray Drive through the known slide areas.

The City will not need to obtain property or easements for this project.

The estimated construction cost for this alternative is $1,150,400 including 20 percent construction contingencies. Non-construction costs such as design, survey, construction administration and inspection and project administration are estimated to be approximately $345,200. The project cost estimate is approximately $1,495,700. Detailed cost estimates are included in Appendix B.

The annual operation and maintenance of the sewer system includes sewer line TV inspection every 4 to 5 years. Replacement of the deteriorated sewer system will eliminate the need to hire a contractor to repair leaking sewers. Operation and maintenance of the submersible lift station includes daily and weekly inspection, quarterly and annual maintenance, weekly emergency generator exercising and annual maintenance.

LOWER ZONE ALTERNATIVE 3C: REPLACE GRAVITY SEWER, INSTALL NEW LIFT STATION IN THE VICINITY OF KLAHANEE PLACE AND ILAHEE PLACE WITH DISCHARGE TO DISCOVERY HEIGHTS SEWER MAIN

This alternative, shown in Figure 12, would replace the existing AC sanitary sewers in Klahanee Place to approximately the intersection of Klahanee Place and Ilahee Place (580 lf) with 8-inch PVC or HDPE in the existing alignment. Grinder pumps would be installed at the three existing residences on Klahanee Place below Ilahee Place and the residence located immediately uphill of the existing lift station. Discharge from the grinder pump stations would be directed through a small diameter PVC or HDPE pressure main to the new lift station located near the intersection of Klahanee Place and Ilahee Place. The existing small diameter pressure main from a grinder pump located at a residence on Ilahee Place would also be directed to the new lift station. The new lift station would be a 125 gpm high head (approximately 135-feet TDH) submersible lift station including two 15-hp, 3-phase pumps. 3-phase power is not available in the area therefore a VFD will be used to convert single-phase power to 3-phase power. An emergency generator would be provided. Approximately 900 lf of new 4- or 6-inch-diameter PVC or HDPE force main would be installed in Klahanee Place to the intersection of Wecoma Place and Hiaqua Place where the force main would discharge to the existing sewer main from Discovery Heights.

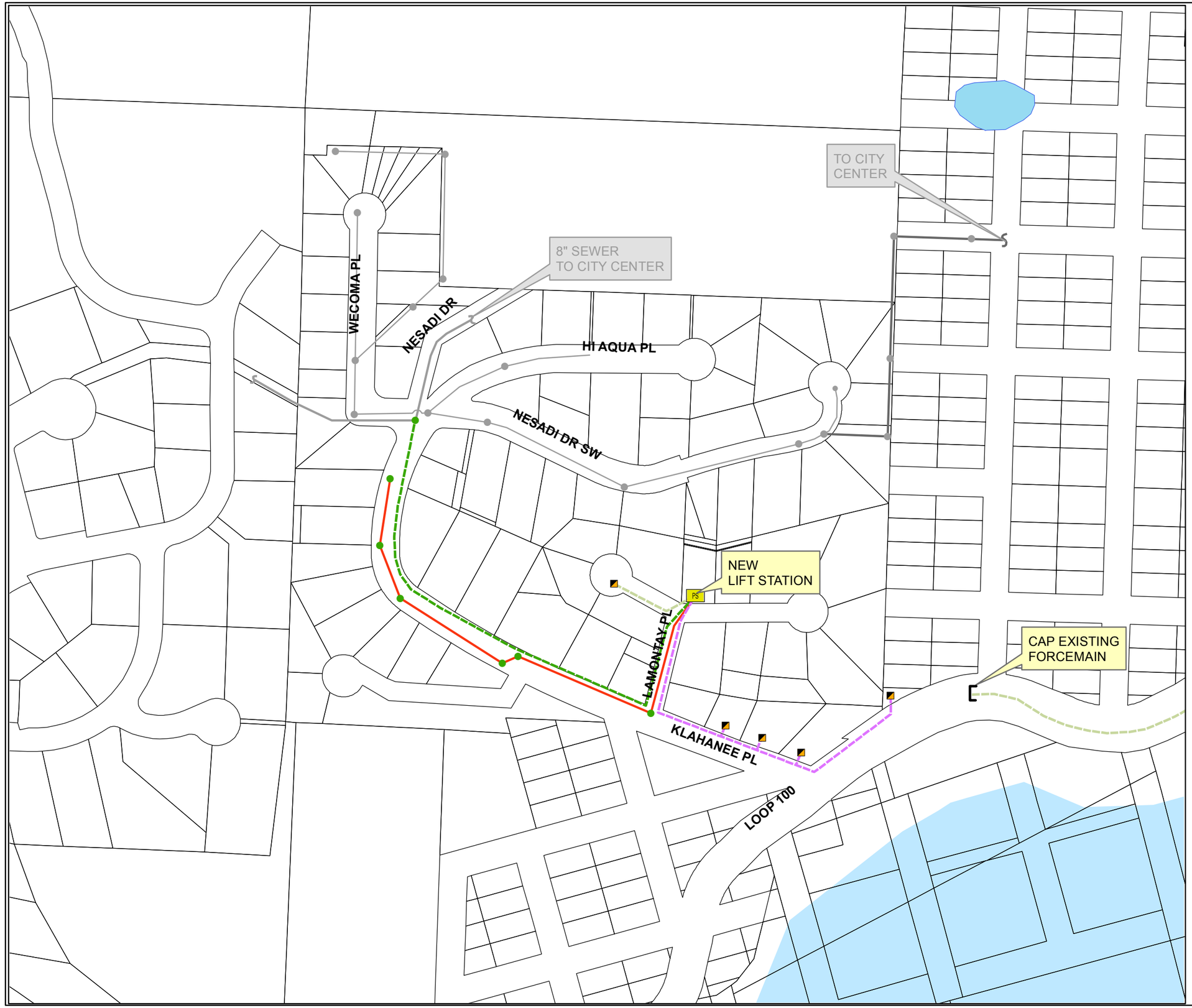
This alternative would impact the existing roadways and residents during construction of the new infrastructure. If, in the future, the City was able to replace the deteriorating water system in Klahanee Place the roadways and residents would be impacted by construction activities again.

There are no adverse environmental consequences of replacing the sanitary sewers serving the lower portion of the Sahalee subdivision. There are several environmental benefits of replacing the lift station at a location in the vicinity of Ilahee Place include eliminating the potential for slope instability impacts to the lift station and eliminating the use of the force main in Robert Gray Drive through the known slide areas.

The City may need to obtain property or easements for locating the lift station and grinder pump installations.

The estimated construction cost for this alternative is $1,080,600 including 20 percent construction contingencies. Non-construction costs such as design, survey, construction administration and inspection and project administration are estimated to be approximately $324,300. The project cost estimate is approximately $1,404,900. Detailed cost estimates are included in Appendix B.

The annual operation and maintenance of the sewer system includes sewer line TV inspection every 4 to 5 years, annual inspection of the grinder pump stations and replacement of the grinder pump stators every 10 years. Replacement of the deteriorated



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0 100 200 400 Feet

LEGEND:

- CLEANOUT
- MANHOLES
- PS LIFT STATION
- GRINDER PUMP
- MANHOLES - UPPER ZONE
- CLEANOUT - UPPER ZONE
- NEW 8" PVC/HDPE
- NEW FORCEMAIN
- NEW SMALL DIAMETER PRESSURE MAIN
- EXISTING FORCEMAIN
- SEWER LINE INSTALLED IN 2003 - UPPER ZONE
- 8" PVC/HDPE - UPPER ZONE - BY DEVELOPER
- 8" PVC/HDPE - UPPER ZONE
- WATER BODY
- PARCELS

CITY OF ILWACO

SAHALEE SEWER PREDESIGN REPORT
FIGURE 12 - LOWER ZONE - ALTERNATIVE 3C
SEWER IMPROVEMENTS

Gray & Osborne, Inc.
CONSULTING ENGINEERS

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sewer system will eliminate the need to hire a contractor to repair leaking sewers. Operation and maintenance of the submersible lift station includes daily and weekly inspection, quarterly and annual maintenance, weekly emergency generator exercising and annual maintenance.

COST SUMMARY

The alternatives for the Upper and Lower Zones of the Sahalee Subdivision will be evaluated separately. However, the complete project will include improvements in both zones.

The project costs, O&M costs and 20-year life cycle cost for the Upper Zone alternatives are included in Table 5.

TABLE 5

Upper Zone Capital and O&M Cost Summary

Alternative	Project Cost	O&M Cost	20-year Life Cycle Cost
Upper Zone 2a	$1,462,880	$13,360	$1,730,080
Upper Zone 2b	$1,428,970	$13,360	$1,696,170
Upper Zone 2c	$1,130,380	$14,754	$1,425,460
Upper Zone 2d	$2,045,800	$34,567	$2,743,625

O&M costs include the following:

- Routine sewer inspection and cleaning, assume 1/4 of the system per year;
- Labor and material allowance for sewer repairs;
- Routine inspection and maintenance of grinder pump stations and replacement of pump stator every 10 years;
- Routine inspection and maintenance of lift station;
- Lift station electrical costs.

The capital costs for installation of the grinder pumps in project 2C and 2D assume all property owners will allow the installation of the grinder pump stations and small diameter service laterals on their property. Furthermore the costs for project 2C and 2D assume that the power for the grinder pumps will be available from the homeowners existing electrical panels and the homeowners will pay the electrical costs associated with the grinder pump.

The project costs, O&M costs and 20-year life cycle cost for the Lower Zone alternatives are included in Table 6.

TABLE 6

Lower Zone Capital and O&M Cost Summary

Alternative	Project Cost	O&M Cost	20-year Life Cycle Cost
Lower Zone 3a	$1,198,600	$34,094	$1,880,479
Lower Zone 3b	$1,495,700	$34,873	$2,193,165
Lower Zone 3c	$1,404,900	$34,213	$2,089,152

O&M costs include the following:

- Routine sewer inspection and cleaning, assume 1/4 of the system per year;
- Labor and material allowance for sewer repairs;
- Routine inspection and maintenance of grinder pump stations and replacement of pump stator every 10 years;
- Routine inspection and maintenance of lift station;
- Lift station electrical costs.

The capital costs for installation of the grinder pumps in project 3C assume all property owners will allow the installation of the grinder pump stations and small diameter service laterals on their property. Furthermore the costs for project 3C assume that the power for the grinder pumps will be available from the homeowners existing electrical panels and the homeowners will pay the electrical costs associated with the grinder pump.

SECTION 7 – ENVIRONMENTAL REVIEW

The City completed a NEPA review of projects to replace the existing sanitary sewer system in the Sahalee subdivision, as well as the existing water distribution system, in 2012 in conjunction with a USDA Rural Development funding application. The sewer system improvements included in the NEPA document were similar to the alternatives discussed in this report. A summary of the environmental effects of the proposed project which were discussed in the NEPA documentation follows. A complete copy of the March 2012 *NEPA Environmental Report and Biological Assessment* prepared for the USDA Rural Development application are included in Appendix C. In addition the SEPA checklist for the sewer improvements included in this Facility Plan Update is included in Appendix D and the SERP Crosscutter Checklist is included in Appendix E.

The NEPA review concluded that taking no action to replace the sanitary sewer system and Sahalee Lift Station would result in continued (and potentially increasing) leakage of raw sewage from offset joints in sewer mains along Nesadi Drive and throughout the Sahalee Subdivision. It would also allow the less than reliable, deteriorating, Sahalee Lift Station to continue to be overwhelmed during high flow events, resulting in discharges of raw sewage into the environment and the public health threats the sewer overflows would cause. The leaking sewer lines would continue to be a source of I/I.

Replacement of leaking sewer mains and the Sahalee Lift Station would eliminate (or significantly reduce) the potential for releases of untreated sewage throughout the Sahalee Subdivision and would protect human health and the local environment.

The NEPA documentation reviewed the environmental consequences to the following:

- Clean Air Act
- Coastal Zone Management Act
- Endangered Species Act
- Environmental Justice
- Farmland Protection Policy Act
- Floodplain Management
- National Historic Preservation Act
- Safe Drinking Water Act
- Sustainable Fisheries Act
- Wetland Protection
- Wild and Scenic Rivers Act

The mitigation measures recommended in the NEPA documentation are summarized below.

- National Historic Preservation Act of 1966 (NHPA)

  Mr. Rob Freed of Archaeological Consulting Services conducted a Cultural Resources Survey of the proposed project area on March 19, 2012. Mr. Freed indicated that no buildings in the project area are eligible for either state or federal cultural resources registers. In addition Mr. Freed did not encounter archaeological material during the investigation and based on his report no further archaeological work was recommended. However, if the Washington Department of Archaeology and Historical Preservation, the Shoalwater Bay Tribe and the Confederated Tribes of the Chehalis Reservation requires archeological monitoring during construction, an Archaeological Investigation and Inadvertent Discovery Plan will be prepared to meet the provisions of the National Historic Preservation Act (NHPA) of 1966. The inadvertent Discovery Plan would set out the policies in the event that historical or archaeological artifacts or relics are uncovered during construction.

  In the event that materials of cultural, historical or archeological significance are discovered during excavation, all work at the site will be halted and representatives from DAHP; the Confederated Tribes of the Chehalis Reservation and the Shoalwater Bay Tribe will be consulted regarding recordation and final storage of these materials.

- After excavation and construction activities are complete, a vegetation restoration plan will be implemented.

- The Contractor will be required to provide a plan for dust suppression during construction. The control of fugitive dust may require the contractor to implement one or more of the following dust suppression measures:

  a. Use of a water truck or sprinkler to moisten soils;
  b. Minimize area of clearing and grubbing to a manageable size;
  c. Minimize time between dust creation to final coverage of piping materials;
  d. Avoid activity during high winds;
  e. Cover loads of fill;
  f. Brush off mud from wheels, wheel wells, running boards, and tail gates;
  g. Use street sweeper to remove soil tracking from paved roadways' or
  h. Limit height of dumping from truck.

- Piles of excavated materials will be covered in the event of rain to minimize the potential for turbid runoff leaving construction sites.

- Fire prevention measures will be incorporated into the specifications and bid documents. The Contractor will be required to provide a plan for fire prevention during construction.

- On-going environmental justice measures require the City of Ilwaco to continue to apply to state and federal agencies for grant and low-interest loan assistance to reduce the economic impact to rate payers on limited or fixed incomes. Potential funding sources include grants or low-interest loans from the Washington State Department of Ecology's Washington State Water Pollution Control Revolving Fund (SRF), HUD/CDBG, and PWTF.

- During the design phase, the City of Ilwaco ROW permit and Critical Areas review will be obtained.

SECTION 8 – PREFERRED ALTERNATIVE

The alternatives for the Upper Zone and Lower Zone sewer improvements are ranked based on 20-year life cycle cost, environment impact or benefit and impact to the public. The 20-year life cycle category is ranked 1 through 4 with 1 representing the least cost alternative. The O&M considerations ranking include the impacts to City staff for O&M of the system and complexity of the system. In this category a rank of 1 indicates the

least impact on City staff to maintain the system and a rank of 5 would indicate an unacceptable amount of impact on City staff. In the Environmental Impact/Benefit and Public Acceptance rankings, 1 represents beneficial environmental impact and 5 represents detrimental environmental impact and 1 represents minimal impact to the public and 5 represents potential significance impact to the public. If alternatives have equal ranking for environmental impact/benefit or public acceptance the alternatives will be ranked similarly.

UPPER ZONE ALTERNATIVE RANKINGS

The Upper Zone Alternative rankings are shown in Table 7.

TABLE 7

Upper Zone Alternatives Ranking

Alternative	20-year Life Cycle Cost	O&M Considerations	Environmental Impact/Benefit	Public Acceptance	Total Ranking
Upper Zone 2A	3	1	5	2	11
Upper Zone 2B	2	2	4	2	10
Upper Zone 2C	1	3	1	4	9
Upper Zone 2D	4	2	3	4	13

The most favorably ranked upper zone alternative is Upper Zone Alternative 2C, direct the Wecoma Place and Hiaqua Place sewers to the Discovery Heights sewer main, install individual grinder pump stations at residences tributary to Nesadi Drive, install a small diameter pressure main in the uphill shoulder of Nesadi Drive with discharge to the Discovery Heights sewer main. This alternative has the lowest 20-year life cycle cost ($1,425,460). The use of the grinder pumps will have an impact on City staff for pump call-outs and replacement. This alternative will create short-term impacts during construction such as noise and dust but should not have long term environmental impacts for the area due to the elimination of 1,400 lf of gravity sewer in a heavily wooded area and the limited construction impact of installing a shallow small diameter pressure main in a more secure location on the north (uphill) side of Nesadi Drive. Public acceptance of this alternative is expected to be less favorable than the other alternatives due to the installation of grinder pumps on private property.

The environmental impact/benefit of the Upper Zone Alternatives 2B and 2D are ranked lower than Alternative 2C due to the need to install gravity sewers on Nesadi Drive which in locations would be approximately 15 feet below grade, install new gravity sewers in the heavily wooded unopened right-of-way and the use electrical energy to power the lift station. Upper Zone Alternative 2D is given an O&M consideration rank of 2 due to the added City staff attention required to properly operate and maintain a lift station. Public acceptance of the Upper Zone Alternative 2D was given a rank of 3 due to

the visual and audible impact of a lift station and emergency generator on Nesadi Drive and the installation of three grinder pumps.

LOWER ZONE ALTERNATIVE RANKINGS

The Lower Zone Alternative rankings are shown in Table 8.

TABLE 8

Lower Zone Alternatives

Alternative	20-year Life Cycle Cost	O&M Considerations	Environmental Impact/Benefit	Public Acceptance	Total Ranking
Lower Zone 3A	1	5	5	3	14
Lower Zone 3B	3	4	4	3	14
Lower Zone 3C	2	3	3	4	12

The most favorably ranked alternative is Lower Zone Alternative 3C which includes installation of new gravity sewers in Klahanee Drive to Ilahee Place, construction of a new lift station in the vicinity of the Klahanee Place and Ilahee Place intersection, and installation of grinder pump stations at the four residences currently tributary to the sanitary sewer that are located downhill from the intersection of Klahanee Drive and Ilahee Place. The lift station will discharge to the Discovery Heights sanitary sewer located at the top of the Sahalee Subdivision. Although there will be addition O&M considerations due to the maintenance of the lift station and four grinder pump installation, there are maintenance benefits to locating the lift station off of Robert Gray Drive. The environmental impact/benefit of this alternative is given a rank of 3 due to the need to use electrical energy to power the lift station and grinder pump installations. However, this alternative was given a more favorable environmental ranking over the Lower Zone Alternatives 3A and 3B because this alternative will eliminate the location of the lift station in the potential slope stability problem area along Robert Gray Drive and eliminate the force main through the know slide area along Robert Gray Drive. The public acceptance ranking for this alternative is given a 4 due to the visual and audible impact of the lift station and the need to install grinder pumps on existing properties however, credit for installation of the lift station off out of the potential slide area and off the major road was given.

The preferred alternative for replacement of the Sahalee Subdivision sewer system includes Upper Zone Alternative 2C and Lower Zone Alternative 3C (Figure 13). The estimated total project of this project is $2,535,280 and estimated annual O&M is $48,967.

N

0 100 200 400 Feet

8" SEWER
TO CITY CENTER

WECOMA PL

NESADI DR

HI AQUA PL

NESADI DR SW

NEW
LIFT STATION

PS

LAMONTAY PL

CAP EXISTING
FORCEMAIN

KLAHANEE PL

LOOP 100

LEGEND:

- CLEANOUT
- MANHOLES
- PS LIFT STATION
- GRINDER PUMP
- 8" PVC/HDPE INSTALLED BY DEVELOPER
- NEW 8" PVC/HDPE
- EXISTING FORCEMAIN
- NEW FORCEMAIN
- NEW SMALL DIAMETER PRESSURE MAIN
- SEWER LINE INSTALLED IN 2003 - UPPER ZONE
- WATER BODY
- PARCELS

CITY OF ILWACO

SAHALEE SEWER PREDESIGN REPORT
FIGURE 13 - RECOMMENDED
SEWER IMPROVEMENTS

Gray & Osborne, Inc.
CONSULTING ENGINEERS

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SECTION 9 – FINANCIAL ANALYSIS

The preferred alternative for replacement of the Sahalee Subdivision has an estimated project cost of $2,535,280. The City has secured a Public Works Trust Fund (PWTF) loan for replacement of the Nesadi Drive Sanitary Sewer from Klahanee Place to the first manhole to the east of Nesadi Drive in the amount of $336,000. This scope of work was developed several years ago before the replacement of the entire system of contemplated. The scope of the PWTF loan would need to be revised to construct the preferred alternative. This project can proceed independently of the larger Sahalee Subdivision sewer project due to the need to relocate the sewer to a more secure location. Relocation of the sewer on Nesadi Drive will not impact the design and construction of the remainder of the project.

The estimated project cost of the preferred alternative, minus the PWTF loan for the Nesadi Sewer Replacement, is $2,199,280. The City will need to apply for a low interest loan to fund the sewer and lift station replacement.

The debt service required on the $336,000 PWTF loan (30-year term, 0.5 percent interest) is approximately $11,300 per year.

Funding alternatives available include the Department of Ecology State Revolving Fund Loan program, the Public Works Trust Fund Loan program and the United States Department of Agricultural Rural Development Grant & Loan program.

DEPARTMENT OF ECOLOGY STATE REVOLVING FUND LOAN PROGRAM

The Department of Ecology State Revolving Fund (SRF) Loan Program is available for the construction of wastewater collection facilities. The current interest rate for the 20-year term of the loan is 2.7 percent and 1.4 percent for 5-year planning or design phase loans. Loan recipients are not required to provide matching funds for the project. Semi-annual loan repayment begins one year after the project completion date or initiation of operation date, whichever comes first. In addition the loan recipient must establish a reserve equivalent to at least the average annual debt service on the loan. The reserve must be established during the first 5 years of the repayment period of the loan.

If the City were to obtain as SRF loan for design and construction of the preferred alternative project in the amount of $2,199,280 (project cost less than PWTF loan) the annual payment, would be approximately $145,800. A reserve fund of $145,800 would need to be collected within the first 5 years of the loan. If the City were to separate design and construction, the annual debt service on a design only loan for $325,000, assuming a 5-year term at 1.4 percent interest would be $69,600 and a construction loan for $1,874,280 (project cost less design costs and the PWTF loan) would be approximately $124,265.

PUBLIC WORKS TRUST FUND

The Public Works Trust Fund (PWTF) program is in the process of modifying the threshold requirements for funding under this program. Future funding application to PWTF may only be accepted if an application for the proposed project had previously been submitted to the Department of Ecology for funding and the project was ranked below the Ecology funding line or ineligible. At this time the loan terms for PWTF loans has not been published however, the Legislature's intent is to increase PWTF loan rates from the current levels of 0.5 percent to 2 percent (based on amount of applicant match) to rates closer to market rates, 3 percent to 4 percent. Based on the potential loan terms of 4 percent interest for the 20-year life of the loan, and assuming 10 percent match, the annual payment for a loan in the amount of $2,199,280 (project cost less secured PWTF loan) would be approximately $183,400 in the first year and lower to approximately $108,500 in the 20th year. The local match would be $219,930.

USDA RURAL DEVELOPMENT WATER/SEWER INFRASTRUCTURE LOAN/GRANT PROGRAM

The USDA Rural Development Water and Environmental Programs provides loans, grants and loan guarantees for drinking water, sanitary sewer, solid waste and storm drainage facilities in rural areas and cities and towns of 10,000 or less. The current loan terms for USDA Rural Development loans is 40-year term at 4.5 percent interest. The City applied to USDA Rural Development in 2012 for funding for water and sewer improvements in the Sahalee Subdivsion and was only offered loan funding. The annual debt service for this project assuming a 40-year loan at 4.5 percent interest is approximately $120,150. The total cost to the rate payers of Ilwaco over the life of the loan would be approximately $4,784,850.

FUNDING SUMMARY

Table 9 shows the cost per ERU for the three funding alternatives discussed assuming all debt service is charged to rate payers. The City currently has 929 ERUs including residential and commercial customers. The DOE/SRF, the PWTF and the USDA Rural Development loan amounts assume the total project cost less the secured PWTF loan amount is financed.

TABLE 9

Financing Alternatives Cost per ERU

Funding Agency	Amount Financed	Funding Terms	Cost per ERU/ Month	Lifetime Cost per ERU
DOE/SRF – Construction	$1,874,280	20-year, 2.7% interest	$11.15	$2,668.80
DOE/SRF – Design	$325,000	5-year, 1.4% interest	$6.25	$375
DOE/SRF – Design and Construction	$2,199,280	20-year, 2.7% interest	$13.08	$3,139
PWTP (Secured)	$336,000	30-year, 0.5%, 15% down	$1.02	$3,552
PWTF	$1,979,350(1)	20-year, 4% interest	$12.60(2)	$3,024
USDA Rural Development	$2,199,280	40-year, 4.5% interest	$10.73	$5,150

(1) Assumes 10 percent City match.
(2) Average over the 20-year loan. The interest rate on the principal balance decreases as principal decreases.

The financing option assuming a single DOE/SRF design and construction loan in the amount of $2,199,280 and the PWTF loan in the amount of $336,000 is the preferred funding alternative. The estimated monthly debt service per ERU for the DOE/SRF loan is $13.08/month/ERU and $1.02/month/ERU for the PWTF loan. The total payment per ERU over the lift of the loans is $3,497.20.

Table 10 identifies the City's current outstanding sewer debt. Several loan obligations will be retired in 2014 through 2019 decreasing the current debt service obligation to the rate payers. Current City of Ilwaco rates include $387/ERU/year for debt service.

The debt service will increase in 2015 by approximately $70/ERU/year for the SRF loan that funded the First Avenue Sewer Project.

TABLE 10

Outstanding Sewer Debt

Funding Agency	Project	Outstanding Principal	End Date	Notes
PWTF	Sewer Replacement	$ 65,591	July 2017	
PWTF	Sewer Replacement	$ 526,772	July 2025	
SRF	WWTP Improvements	$ 730,155	July 2019	Shared with Seaview Sewer District Reserve requirement $104,308
PWTF	Sewer Replacement	$35,909	July 2024	
PWTF	Baker Bay LS	$175,826	July 2026	
PWTF	First Ave Sewer Preconstruction	$19,909	July 2014	

TABLE 10 – (continued)

Outstanding Sewer Debt

Funding Agency	Project	Outstanding Principal	End Date	Notes
SRF	Refinance of WWTP USDA	$3,212,911	October 2031	Shared with Seaview Sewer District Reserve requirement $215,666
SRF	Sahalee pre-design	$22,250	2018	
SRF	First Avenue Sewer Project	$960,242	December 2033	Reserve requirement $64,604
PWTF	Nesadi Sewer Line	$336,000	2042	
Bank of Pacific	Baker Bay LS	$315,844	January 2028	Reserve requirement $29,646
Total		$ 6,401,409		

SECTION 10 – CONCLUSION

The preferred alternative to replace the deteriorating sanitary sewers and lift station serving the Sahalee Subdivision is to replace the existing gravity sewers on Wecoma Place, Hiaqua Place and Klahanee Place, install grinder pumps at the existing residences tributary to Nesadi Place and residences located downhill from the intersection of Klahanee Place and Ilahee Place and relocate the lift station serving the lower portion of the subdivision to an upland location in the vicinity of the intersection of Klahanee Place and Ilahee Place. All wastewater generated in the Sahalee Subdivision would discharge to the existing Discovery Heights sewer main.

The preferred alternative will eliminate several existing environmental hazards that have the potential to cause the discharge of raw sewage to the ground or surface including the location of the existing sewer main in the downhill shoulder of Nesadi Drive, the existing deteriorated sewer through 1,400 lf of unopened, heavily wooded right-of-way and private property, and the location of the existing lift station in a known area of slope instability.

The project cost of the preferred alternative is $2,535,280. The City has secured a PWTF loan in the amount of $336,000 that could be used for the Nesadi Drive sewer portion. The recommend funding alternative for the remainder of the project cost ($2,199,280) is a DOE SRF loan. The cost per ERU for debt service on the SRF loan (20-year, 2.7% interest) loan is estimated to be $13.08/month and the cost per ERU for debt service on the PWTF loan (30-year, 0.5% interest) is $1.02/month for a total debt service obligation per ERU of $14.10/month.

APPENDIX A

NPDES PERMIT, WA0023159

DEPARTMENT OF ECOLOGY
State of Washington

Issuance Date: April 18, 2011
Effective Date: May 1, 2011
Expiration Date: April 30, 2016

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
WASTE DISCHARGE PERMIT NO. WA0023159

State of Washington
DEPARTMENT OF ECOLOGY
Olympia, Washington 98504-7775

In compliance with the provisions of
The State of Washington Water Pollution Control Law
Chapter 90.48 Revised Code of Washington
and
The Federal Water Pollution Control Act
(The Clean Water Act)
Title 33 United States Code, Section 1251 et seq.

The City of Ilwaco
P.O. Box 548
Ilwaco, WA 98624
For the City's Wastewater Treatment Plant and Sewage Collection System
and
Seaview Sewer District
P.O. Box 51
Seaview, WA 98664-0051
For it's Sewage Collection System

Plant Location: 336 Elizabeth Avenue SE Ilwaco, Washington	Receiving Water: Baker Bay (Columbia River Mouth)
Water Body I.D. No.: 1220169456238	Discharge Location: Latitude: 46.30484 Longitude: -124.03140
Plant Type: Sequencing Batch Reactors (SBRs) and UV disinfection	

is authorized to discharge in accordance with the special and general conditions that follow.

Steven G. Eberl, P.E.
Acting Southwest Regional Manager
Water Quality Program
Washington State Department of Ecology

TABLE OF CONTENTS

SPECIAL CONDITIONS

GENERAL CONDITIONS

SUMMARY OF PERMIT REPORT SUBMITTALS

Refer to the Special and General Conditions of this permit for additional submittal requirements.

City of Ilwaco:

Permit Section	Submittal	Frequency	First Submittal Date
S3.	Discharge Monitoring Report	Monthly	June 15, 2011
S3.E	Reporting Permit Violations	As necessary	
S3.F	Other Reporting	As necessary	
S4.B.	Plans for Maintaining Adequate Capacity	As necessary	
S4.D.	Notification of New or Altered Sources	As necessary	
S4.E.	Infiltration and Inflow Evaluation	Annually	February 15, 2012
S4.F.	Wasteload Assessment	Annually	February 15, 2012
S5.G.	O&M Manual Update	As necessary	
S6.D.	Industrial User Survey	1/permit cycle	October 15, 2014
G1.	Notice of Change in Authorization	As necessary	
G4.	Reporting Planned Changes	As necessary	
G5.	Engineering Report for Construction or Modification Activities	As necessary	
G7.	Application for Permit Renewal	1/permit cycle	November 1, 2015
G21	Reporting Anticipated Non-compliance	As necessary	

Seaview Sewer District:

Permit Section	Submittal	Frequency	First Submittal Date
S3.E	Reporting Permit Violations	As necessary	
S3.F.	Other Reporting	As necessary	
S4.D.	Notification of New or Altered Sources	As necessary	
S4.E.	Infiltration and Inflow Evaluation	Annually	February 15, 2012
S6.D.	Industrial User Survey	1/permit cycle	October 15, 2014
G4.	Reporting Planned Changes	As necessary	
G5.	Engineering Report for Construction or Modification Activities	As necessary	
G21	Reporting Anticipated Non-compliance	As necessary	

SPECIAL CONDITIONS

The term "Permittee" applies to each of the entities named on the cover of this permit, with the following clarification:

The **city of Ilwaco** is an owner and operator of a treatment plant serving the city of Ilwaco and the Seaview Sewer District. As such, this **Permittee** is responsible for compliance with all terms and conditions of this permit for collection, conveyance and treatment facilities under its ownership and control.

The **Seaview Sewer District** is an owner and operator of a sewage collection and conveyance system which discharges to the city of Ilwaco Wastewater Treatment Plant. As such, this **Permittee** is responsible for all permit conditions related to the operation, maintenance, monitoring, and reporting for the wastewater collection and conveyance system under its ownership and control. Specifically, the permit conditions for which this Permittee has responsibility include: S3.E, S3.F, S3.G, S4.C, S4.D, S4.E, S5.B, S5.C, S5.D, S5.E, S5.F, and S6 in its entirety and all General Conditions.

For the purposes of compliance with this permit, each of the Permittees named on the permit will be held separately and independently responsible for compliance with the relevant conditions and requirements of this permit. However, the Permittees are encouraged to coordinate permit submittals as appropriate under this permit.

S1. DISCHARGE LIMITATIONS

A. Effluent Limitations

All discharges and activities authorized by this permit shall be consistent with the terms and conditions of this permit. The discharge of any of the following pollutants more frequently than, or at a level in excess of, that identified and authorized by this permit shall constitute a violation of the terms and conditions of this permit.

Beginning on the effective date of this permit and lasting through the expiration date the Permittee is authorized to discharge municipal wastewater at the permitted location subject to complying with the following limitations:

EFFLUENT LIMITATIONS[a]: OUTFALL # 001		
Parameter	**Average Monthly**	**Average Weekly**
Biochemical Oxygen Demand (5 day)	30 mg/L, 240 lbs/day 85% removal of influent BOD	45 mg/L, 360 lbs/day
Total Suspended Solids	30 mg/L, 240 lbs/day 85% removal of influent TSS	45 mg/L, 360 lbs/day
Fecal Coliform Bacteria	110 #/100 ml	370 #/100 ml
pH[b]	Daily minimum is equal to or greater than 6.0 and the daily maximum is less than or equal to 9.0	

[a]The average monthly and weekly effluent limitations are based on the arithmetic mean of the samples taken with the exception of fecal coliform, which is based on the geometric mean.

[b]The maximum daily effluent limitation is defined as the highest allowable daily discharge. The daily discharge means the discharge of a pollutant measured during a calendar day. For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For other units of measurement, the daily discharge is the average measurement of the pollutant over the day. The fecal coliform daily limit is to be monitored as shown in Section S2 as two times a week; therefore, each sample shall be used to determine the compliance with the daily limit.

B. Mixing Zone Descriptions

The maximum boundaries of the mixing zones are defined as follows:

An acute mixing zone is not allowed. The dilution ratio is therefore 1:1.

A chronic mixing zone is limited to a distance of not more than 202 feet in any one direction from the discharge ports. The chronic dilution ratio is 9:1.

S2. MONITORING REQUIREMENTS

A. Monitoring Schedule

The Permittee shall monitor in accordance with the following schedule:

Category	Parameter	Units	Sample Point	Minimum Sampling Frequency	Sample Type[d]
Wastewater Influent[c]	BOD_5	mg/L lbs/day	headworks	2/week	24-hour composite
Wastewater Influent[c]	TSS	mg/L lbs/day	headworks	2/week	24-hour composite
Wastewater Influent[c]	Flow	MGD	headworks	Continuous[a]	Recording
Wastewater Effluent	Flow	MGD	After disinfection	Continuous	Recording
Wastewater Effluent	BOD_5	mg/L	After disinfection	2/week	24-hour composite
		lbs/day	After disinfection	2/week	24-hour composite
		% removal	After disinfection	2/week	calculation

Category	Parameter	Units	Sample Point	Minimum Sampling Frequency	Sample Type[d]
Wastewater Effluent	TSS	mg/L	After disinfection	2/week	24-hour composite
		lbs/day	After disinfection	2/week	24-hour composite
		% removal	After disinfection	2/week	calculation
Wastewater Effluent	pH	Standard Units	After disinfection	5/week[b]	Grab
Wastewater Effluent	Temperature	°C	After disinfection	5/week[b]	Grab
Wastewater Effluent	Fecal Coliform	Org./100 ml	After disinfection	2/week	Grab
Wastewater Effluent	Total ammonia	mg/L	After disinfection	2/month	Grab
Wastewater Effluent	Dissolved Oxygen	mg/L	After disinfection	1/week	Grab
	Rainfall	inches/day		Daily	Measurement

[a] Continuous means uninterrupted except for brief lengths of time for calibration, for power failure, or for unanticipated equipment repair or maintenance. Sampling shall be taken twice daily when continuous monitoring is not possible.

[b] Except for holidays recognized by the city of Ilwaco.

[c] Wastewater Influent means the raw sewage flow and shall be sampled at the headworks of the treatment plant excluding any side stream returns from inside the plant.

[d] 24-hour composite means a series of individual samples collected over a 24-hour period into a single container, and analyzed as one sample.

B. Sampling and Analytical Procedures

Samples and measurements taken to meet the requirements of this permit shall be representative of the volume and nature of the monitored parameters, including representative sampling of any unusual discharge or discharge condition, including bypasses, upsets and maintenance-related conditions affecting effluent quality.

Sampling and analytical methods used to meet the monitoring requirements specified in this permit shall conform to the latest revision of the *Guidelines Establishing Test Procedures for the Analysis of Pollutants* contained in 40 Code of Federal Regulations (CFR) Part 136 or to the latest revision of *Standard Methods for the Examination of Water and Wastewater* (APHA), unless otherwise specified in this permit or approved in writing by the Department of Ecology (Ecology).

C. Flow Measurement

Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the quantity of monitored flows. The devices shall be installed, calibrated, and maintained to ensure that the accuracy of the measurements are consistent with the accepted industry standard for that type of device. Frequency of calibration shall be in conformance with manufacturer's recommendations and at a minimum frequency of at least one calibration per year. Calibration records shall be maintained for at least three years.

D. Laboratory Accreditation

All monitoring data required by Ecology shall be prepared by a laboratory registered or accredited under the provisions of, *Accreditation of Environmental Laboratories*, Chapter 173-50 Washington Administrative Code (WAC). Flow, temperature, settleable solids, conductivity, pH, and internal process control parameters are exempt from this requirement. Conductivity and pH shall be accredited if the laboratory must otherwise be registered or accredited. Ecology exempts crops, soils, and hazardous waste data from this requirement pending accreditation of laboratories for analysis of these media.

S3. REPORTING AND RECORDKEEPING REQUIREMENTS

The Permittee must monitor and report in accordance with the following conditions. Falsification of information submitted to Ecology is a violation of the terms and conditions of this permit.

A. Reporting

The first monitoring period begins on the effective date of the permit. The Permittee must:

1. Submit monitoring results each month.

2. Summarize, report, and submit monitoring data obtained during each monitoring period on a Discharge Monitoring Report (DMR) form provided, or otherwise approved, by Ecology.

3. Submit DMR forms monthly whether or not the facility was discharging. If the facility did not discharge during a given monitoring period, submit the form as required with the words "NO DISCHARGE" entered in place of the monitoring results.

4. Ensure that DMR forms are postmarked or received by Ecology no later than the 15^{th} day of the month following the completed monitoring period, unless otherwise specified in this permit.

5. Send report(s) to Ecology at:

Water Quality Permit Coordinator
Department of Ecology
Southwest Regional Office

P.O. Box 47775
Olympia, WA 98504-7775

All laboratory reports providing data for organic and metal parameters must include the following information: sampling date, sample location, date of analysis, parameter name, CAS number, analytical method/number, method detection limit (MDL), laboratory practical quantitation limit (PQL), reporting units, and concentration detected. Analytical results from samples sent to a contract laboratory must include information on the chain of custody, the analytical method, QA/QC results, and documentation of accreditation for the parameter.

B. Records Retention

The Permittee must retain records of all monitoring information for a minimum of three years. Such information must include all calibration and maintenance records and all original recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit. The Permittee must extend this period of retention during the course of any unresolved litigation regarding the discharge of pollutants by the Permittee or when requested by Ecology.

C. Recording of Results

For each measurement or sample taken, the Permittee must record the following information:

1. The date, exact place, method, and time of sampling or measurement.

2. The individual who performed the sampling or measurement.

3. The dates the analyses were performed.

4. The individual who performed the analyses.

5. The analytical techniques or methods used.

6. The results of all analyses.

D. Additional Monitoring by the Permittee

If the Permittee monitors any pollutant more frequently than required by Condition S2 of this permit, then the Permittee must include the results of such monitoring in the calculation and reporting of the data submitted in the Permittee's DMR.

E. Reporting Permit Violations

The Permittee must take the following actions when it violates or is unable to comply with any permit condition:

- Immediately take action to stop, contain, and cleanup unauthorized discharges or otherwise stop the noncompliance and correct the problem.

- If applicable, immediately repeat sampling and analysis. Submit the results of any repeat sampling to Ecology within 30 days of sampling.

1. Immediate Reporting

The Permittee must report any failure of the disinfection system immediately to the Department of Ecology's Regional Office 24-hour number listed below:

Southwest Regional Office 360-407-6300

The Permittee must report any failure of the disinfection system, any collection system overflows which may reach surface waters or any plant bypass discharging to a shellfish area immediately to the Department of Ecology and the Department of Health, Shellfish Program at the numbers listed below:

Southwest Regional Office	360-407-6300
Department of Health, Shellfish Program	360-236-3330 (business hours) 360-786-4183 (24 hours)

2. Twenty-Four (24)-Hour Reporting

The Permittee must report the following occurrences of noncompliance by telephone, to Ecology at 360-407-6300, within 24 hours from the time the Permittee becomes aware of any of the following circumstances:

a. Any noncompliance that may endanger health or the environment, unless previously reported under subpart 1, above.

b. Any unanticipated **bypass** that exceeds any effluent limitation in the permit (See Part S4.B., "Bypass Procedures").

c. Any **upset** that exceeds any effluent limitation in the permit (See G.15, "Upset").

d. Any violation of a maximum daily or instantaneous maximum discharge limitation for any of the pollutants in Section S1.A of this permit.

e. Any overflow prior to the treatment works, whether or not such overflow endangers health or the environment or exceeds any effluent limitation in the permit.

3. Report Within Five Days

The Permittee must also provide a written submission within five days of the time that the Permittee becomes aware of any event required to be reported under subparts 1 or 2, above. The written submission must contain:

a. A description of the noncompliance and its cause.

b. The period of noncompliance, including exact dates and times.

c. The estimated time noncompliance is expected to continue if it has not been corrected.

d. Steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

e. If the noncompliance involves an overflow prior to the treatment works, an estimate of the quantity (in gallons) of untreated overflow.

4. Waiver of Written Reports

Ecology may waive the written report required in subpart 3, above, on a case-by-case basis upon request if a timely oral report has been received.

5. All Other Permit Violation Reporting

The Permittee must report all permit violations, which do not require immediate or within 24 hours reporting, when it submits monitoring reports for S3.A ("Reporting"). The reports must contain the information listed in paragraph E.3, above. Compliance with these requirements does not relieve the Permittee from responsibility to maintain continuous compliance with the terms and conditions of this permit or the resulting liability for failure to comply.

6. Report Submittal

The Permittee must submit reports to the address listed in S3.

F. Other Reporting

The Permittee must report a spill of oil or hazardous materials in accordance with the requirements of RCW 90.56.280 and chapter 173-303-145. You can obtain further instructions at the following website:
http://www.ecy.wa.gov/programs/spills/other/reportaspill.htm.

Where the Permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application, or in any report to Ecology, it must submit such facts or information promptly.

The Permittee must submit a new application or supplement at least 180 days prior to commencement of discharges, resulting from the activities listed below, which may result in permit violations. These activities include: any facility expansions, production increases, or other planned changes, such as process modifications, in the permitted facility.

G. Maintaining a Copy of This Permit

The Permittee must keep a copy of this permit at the facility and make it available upon request to Ecology inspectors.

S4. FACILITY LOADING

A. Design Criteria

Flows or waste loadings of the following design criteria for the permitted treatment facility shall not be exceeded:

Average flow for the maximum month:	1.01 mgd
BOD_5 loading for maximum month:	1,600 lbs/day
TSS loading for maximum month:	1,600 lbs/day

The facility was also designed to handle other loading factors which are described in the fact sheet accompanying this permit.

B. Plans for Maintaining Adequate Capacity

The Permittee shall submit to Ecology a plan and a schedule for continuing to maintain capacity when:

1. The actual flow or waste load reaches 85 percent of any one of the design criteria in S4.A for three consecutive months; or

2. when the projected increase would reach design capacity within five years,

whichever occurs first. If such a plan is required, it shall contain a plan and schedule for continuing to maintain capacity. The capacity as outlined in this plan must be sufficient to achieve the effluent limitations and other conditions of this permit. This plan shall address any of the following actions or any others necessary to meet the objective of maintaining capacity.

3. Analysis of the present design including the introduction of any process modifications that would establish the ability of the existing facility to achieve the effluent limits and other requirements of this permit at specific levels in excess of the existing design criteria specified in paragraph A above.

4. Reduction or elimination of excessive infiltration and inflow of uncontaminated ground and surface water into the sewer system.

5. Limitation on future sewer extensions or connections or additional waste loads.

6. Modification or expansion of facilities necessary to accommodate increased flow or waste load.

7. Reduction of industrial or commercial flows or waste loads to allow for increasing sanitary flow or waste load.

Engineering documents associated with the plan must meet the requirements of WAC 173-240-060, "Engineering Report," and be approved by Ecology prior to any

construction. If the Permittee intends to apply for state or federal funding for the design or construction of a facility project, the plan must also meet the requirements of a "Facility Plan" as described in 40 CFR 35.2030. The plan shall specify any contracts, ordinances, methods for financing, or other arrangements necessary to achieve this objective.

C. Duty to Mitigate

The Permittee is required to take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment

D. Notification of New or Altered Sources

The Permittee shall submit written notice to Ecology whenever any new discharge or a substantial change in volume or character of an existing discharge into the Publicly Owned Treatment Works (POTW) is proposed which: (1) would interfere with the operation of, or exceed the design capacity of, any portion of the POTW; (2) is not part of an approved general sewer plan or approved plans and specifications; or (3*)* would be subject to pretreatment standards under 40 CFR Part 403 and Section 307(b) of the Clean Water Act. This notice shall include an evaluation of the POTWs ability to adequately transport and treat the added flow and/or waste load, the quality and volume of effluent to be discharged to the POTW, and the anticipated impact on the Permittee's effluent [40 CFR 122.42(b)].

E. Infiltration and Inflow Evaluation

1. The Permittee shall conduct an infiltration and inflow evaluation. Refer to the U.S. EPA publication, *I/I Analysis and Project Certification*, available as Publication No. 97-03 at: Publications Office, Department of Ecology, P.O. Box 47600, Olympia, Washington 98504-7600. Plant monitoring records may be used to assess measurable infiltration and inflow.

2. A report shall be prepared which summarizes any measurable infiltration and inflow. If infiltration and inflow have increased by more than 15 percent from that found in the last report based on equivalent rainfall, the report shall contain a plan and a schedule for: (1) locating the sources of infiltration and inflow; and (2) correcting the problem.

3. The report shall be submitted by **February 15, 2012,** and **annually** thereafter.

F. Wasteload Assessment

The Permittee shall conduct an annual assessment of their flow and wasteload and submit a report to Ecology by **February 15, 2012,** and **annually** thereafter. The report shall contain the following: an indication of compliance or noncompliance with the permit effluent limitations; a comparison between the existing and design monthly average dry weather and wet weather flows, peak flows, BOD, and total suspended solids loadings; and the percentage increase in these parameters since the last annual report. The report shall also state the present and design population or population equivalent, projected population growth rate, and the estimated date upon which the design capacity is

projected to be reached, according to the most restrictive of the parameters above. The interval for review and reporting may be modified if Ecology determines that a different frequency is sufficient.

S5. OPERATION AND MAINTENANCE

The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems, which are installed by a Permittee only when the operation is necessary to achieve compliance with the conditions of this permit.

A. Certified Operator

An operator certified for at least a Class II plant by the state of Washington shall be in responsible charge of the day-to-day operation of the wastewater treatment plant. An operator certified for at least a Class I plant shall be in charge during all regularly scheduled shifts.

The operator in charge of any wastewater treatment plant must be certified at least at a level equal to or higher than the classification of the plant. When the plant is operated on more than one daily shift, the operator in charge of each shift must be certified at a level not lower than one level below the classification of the plant.

For city of Ilwaco:

- An operator certified for at least a Class II plant by the state of Washington shall be routinely on-site and in direct responsible charge of the overall operation of the wastewater treatment plant at all times.

- When the plant is operated on more than one daily shift, the operator in charge of each shift must be certified at least the Class 1 level.

If the normal responsible charge operator is absent or unavailable long enough to risk compromising the proper operation and performance of the treatment plant, another Class II or higher operator must be available to fulfill the requirements of the operator in responsible charge of the plant.

B. O & M Program

The Permittee shall institute an adequate operation and maintenance program for the entire sewage system. Maintenance records shall be maintained on all major electrical and mechanical components of the treatment plant, as well as the sewage system and pumping stations. Such records shall clearly specify the frequency and type of maintenance recommended by the manufacturer and shall show the frequency and type of maintenance performed. These maintenance records shall be available for inspection at all times.

C. Short-term Reduction

If a Permittee contemplates a reduction in the level of treatment that would cause a violation of permit discharge limitations on a short-term basis for any reason, and such reduction cannot be avoided, the Permittee shall give written notification to Ecology, if possible, 30 days prior to such activities, detailing the reasons for, length of time of, and the potential effects of the reduced level of treatment. This notification does not relieve the Permittee of its obligations under this permit.

D. Electrical Power Failure

The Permittee is responsible for maintaining adequate safeguards to prevent the discharge of untreated wastes or wastes not treated in accordance with the requirements of this permit during electrical power failure at the treatment plant and/or sewage lift stations either by means of alternate power sources, standby generator, or retention of inadequately treated wastes.

The Permittee shall maintain Reliability Class II (EPA 430/9-74-001) at the wastewater treatment plant, which requires a backup power source sufficient to operate all vital components and critical lighting and ventilation during peak wastewater flow conditions, except vital components used to support the secondary processes (i.e., mechanical aerators or aeration basin air compressors) need not be operable to full levels of treatment, but shall be sufficient to maintain the biota.

E. Prevent Connection of Inflow

The Permittee shall strictly enforce their sewer ordinances and not allow the connection of inflow (roof drains, foundation drains, etc.) to the sanitary sewer system.

F. Bypass Procedures

Bypass, which is the intentional diversion of waste streams from any portion of a treatment facility, is prohibited, and Ecology may take enforcement action against a Permittee for bypass unless one of the following circumstances (1, 2, or 3) is applicable.

1. Bypass for essential maintenance without the potential to cause violation of permit limits or conditions.

   Bypass is authorized if it is for essential maintenance and does not have the potential to cause violations of limitations or other conditions of this permit, or adversely impact public health as determined by Ecology prior to the bypass. The Permittee shall submit prior notice, if possible at least 10 days before the date of the bypass.

2. Bypass which is unavoidable, unanticipated and results in noncompliance of this permit.

   This bypass is permitted only if:

   a. Bypass is unavoidable to prevent loss of life, personal injury, or severe property damage. "Severe property damage" means substantial physical

damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass.

b. There are no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, stopping production, maintenance during normal periods of equipment downtime (but not if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance), or transport of untreated wastes to another treatment facility.

c. Ecology is properly notified of the bypass as required in Condition S3E of this permit.

3. Bypass which is anticipated and has the potential to result in noncompliance of this permit.

The Permittee shall notify Ecology at least 30 days before the planned date of bypass. The notice shall contain: (1) a description of the bypass and its cause; (2) an analysis of all known alternatives which would eliminate, reduce, or mitigate the need for bypassing; (3) a cost-effectiveness analysis of alternatives including comparative resource damage assessment; (4) the minimum and maximum duration of bypass under each alternative; (5) a recommendation as to the preferred alternative for conducting the bypass; (6) the projected date of bypass initiation; (7) a statement of compliance with State Environmental Policy Act (SEPA); (8) a request for modification of water quality standards as provided for in WAC 173-201A-110, if an exceedance of any water quality standard is anticipated; and (9) steps taken or planned to reduce, eliminate, and prevent reoccurrence of the bypass.

For probable construction bypasses, the need to bypass is to be identified as early in the planning process as possible. The analysis required above shall be considered during preparation of the engineering report or facilities plan and plans and specifications and shall be included to the extent practical. In cases where the probable need to bypass is determined early, continued analysis is necessary up to and including the construction period in an effort to minimize or eliminate the bypass.

Ecology will consider the following prior to issuing an administrative order for this type bypass:

a. If the bypass is necessary to perform construction or maintenance-related activities essential to meet the requirements of this permit.

b. If there are feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, stopping production, maintenance during normal periods of equipment down time, or transport of untreated wastes to another treatment facility.

c. If the bypass is planned and scheduled to minimize adverse effects on the public and the environment.

After consideration of the above and the adverse effects of the proposed bypass and any other relevant factors, Ecology will approve or deny the request. The public shall be notified and given an opportunity to comment on bypass incidents of significant duration, to the extent feasible. Approval of a request to bypass will be by administrative order issued by Ecology under Revised Code of Washington (RCW) 90.48.120.

G. Operations and Maintenance Manual

The approved Operations and Maintenance Manual shall be kept available at the treatment plant and all operators shall follow the instructions and procedures of this manual.

S6. PRETREATMENT

A. General Requirements

The Permittee shall work with Ecology to ensure that all commercial and industrial users of the POTW are in compliance with the pretreatment regulations promulgated in 40 CFR Part 403 and any additional regulations that may be promulgated under Section 307(b) (pretreatment) and 308 (reporting) of the Federal Clean Water Act.

B. Wastewater Discharge Permit Required

The Permittee shall not allow significant industrial users (SIUs) to discharge wastewater to the Permittee's sewerage system until such user has received a wastewater discharge permit from Ecology in accordance with Chapter 90.48 RCW and Chapter 173-216 WAC, as amended.

C. Identification and Reporting of Existing, New, and Proposed Industrial Users

1. The Permittee shall take continuous, routine measures to identify all existing, new, and proposed SIUs and potential significant industrial users (PSIUs) discharging or proposing to discharge to the Permittee's sewerage system (see Appendix B of Fact Sheet for definitions).

2. Within 30 days of becoming aware of an unpermitted existing, new, or proposed industrial user who may be an SIU, the Permittee shall notify such user by registered mail that, if classified as an SIU, they shall be required to apply to Ecology and obtain a State Waste Discharge Permit. A copy of this notification letter shall also be sent to Ecology within this same 30-day period.

3. The Permittee shall also notify all PSIUs, as they are identified, that if their classification should change to an SIU, they shall be required to apply to Ecology for a State Waste Discharge Permit within 30 days of such change.

D. Industrial User Survey

The Permittee shall complete and submit to Ecology an Industrial User Survey listing all SIUs and PSIUs discharging to the POTW. The survey shall be received once during the permit by Ecology by **October 15, 2014**. At a minimum, the list of SIUs and PSIUs shall be developed by means of a telephone book search, a water utility billing records search, and a physical reconnaissance of the service area. Information on PSIUs shall at least include: the business name, telephone number, address, description of the industrial process(es), and the known wastewater volumes and characteristics. For assistance with the development of the Industrial User Survey, the Permittee shall refer to Ecology's guidance document entitled "Performing an Industrial User Survey."

E. Duty to Enforce Discharge Prohibitions

1. In accordance with 40 CFR 403.5(a), the Permittee shall not authorize or knowingly allow the discharge of any pollutants into its POTW which cause pass through or interference, or which otherwise violates general or specific discharge prohibitions contained in 40 CFR Part 403.5 or WAC-173-216-060.

2. The Permittee shall not authorize or knowingly allow the introduction of any of the following into their treatment works:

   a. Pollutants which create a fire or explosion hazard in the POTW (including, but not limited to waste streams with a closed cup flashpoint of less than 140 degrees Fahrenheit or 60 degrees Centigrade using the test methods specified in 40 CFR 261.21).

   b. Pollutants which will cause corrosive structural damage to the POTW, but in no case discharges with pH lower than 5.0, or greater than 11.0 standard units, unless the works are specifically designed to accommodate such discharges.

   c. Solid or viscous pollutants in amounts that could cause obstruction to the flow in sewers or otherwise interfere with the operation of the POTW.

   d. Any pollutant, including oxygen demanding pollutants, (BOD, etc.) released in a discharge at a flow rate and/or pollutant concentration which will cause interference with the POTW.

   e. Petroleum oil, nonbiodegradable cutting oil, or products of mineral origin in amounts that will cause interference or pass through.

   f. Pollutants which result in the presence of toxic gases, vapors, or fumes within the POTW in a quantity which may cause acute worker health and safety problems.

   g. Heat in amounts that will inhibit biological activity in the POTW resulting in interference but in no case heat in such quantities such that the temperature at the POTW headworks exceeds 40ºC (104ºF) unless Ecology, upon request of the Permittee, approves, in writing, alternate temperature limits.

h. Any trucked or hauled pollutants, except at discharge points designated by the Permittee.

i. Wastewaters prohibited to be discharged to the POTW by the Dangerous Waste Regulations (Chapter 173-303 WAC), unless authorized under the Domestic Sewage Exclusion (WAC 173-303-071).

3. All of the following are prohibited from discharge to the POTW unless approved in writing by Ecology under extraordinary circumstances (such as a lack of direct discharge alternatives due to combined sewer service or the need to augment sewage flows due to septic conditions):

a. Noncontact cooling water in significant volumes.

b. Stormwater, and other direct inflow sources.

c. Wastewaters significantly affecting system hydraulic loading, which do not require treatment, or would not be afforded a significant degree of treatment by the system.

4. The Permittee shall notify Ecology if any industrial user violates the prohibitions listed in this section.

S7. RESIDUAL SOLIDS

Residual solids include screenings, grit, scum, primary sludge, waste activated sludge, and other solid waste. The Permittee shall store and handle all residual solids in such a manner so as to prevent their entry into state ground or surface waters. The Permittee shall not discharge leachate from residual solids to state surface or ground waters. The Permittee shall comply with WAC 173-308 and any associated order for handling biosolids.

GENERAL CONDITIONS

G1. SIGNATORY REQUIREMENTS

All applications, reports, or information submitted to Ecology shall be signed and certified.

A. All permit applications shall be signed by either a principal executive officer or a ranking elected official.

B. All reports required by this permit and other information requested by Ecology shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

1. The authorization is made in writing by a person described above and submitted to Ecology.

2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

C. Changes to authorization. If an authorization under paragraph B.2 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph B.2 above must be submitted to Ecology prior to or together with any reports, information, or applications to be signed by an authorized representative.

D. Certification. Any person signing a document under this section shall make the following certification:

> I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

G2. RIGHT OF INSPECTION AND ENTRY

The Permittee shall allow an authorized representative of Ecology, upon the presentation of credentials and such other documents as may be required by law:

A. To enter upon the premises where a discharge is located or where any records must be kept under the terms and conditions of this permit.

B. To have access to and copy - at reasonable times and at reasonable cost - any records required to be kept under the terms and conditions of this permit.

C. To inspect - at reasonable times - any facilities, equipment (including monitoring and control equipment), practices, methods, or operations regulated or required under this permit.

D. To sample or monitor - at reasonable times - any substances or parameters at any location for purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act.

G3. PERMIT ACTIONS

This permit may be modified, revoked and reissued, or terminated either at the request of any interested person (including the Permittee) or upon Ecology's initiative. However, the permit may only be modified, revoked and reissued, or terminated for the reasons specified in 40 CFR 122.62, 122.64 or WAC 173-220-150 according to the procedures of 40 CFR 124.5.

A. The following are causes for terminating this permit during its term, or for denying a permit renewal application:

1. Violation of any permit term or condition.

2. Obtaining a permit by misrepresentation or failure to disclose all relevant facts.

3. A material change in quantity or type of waste disposal.

4. A determination that the permitted activity endangers human health or the environment, or contributes to water quality standards violations and can only be regulated to acceptable levels by permit modification or termination [40 CFR Part 122.64(3)].

5. A change in any condition that requires either a temporary or permanent reduction, or elimination of any discharge or sludge use or disposal practice controlled by the permit [40 CFR Part 122.64(4)].

6. Nonpayment of fees assessed pursuant to RCW 90.48.465.

7. Failure or refusal of the Permittee to allow entry as required in RCW 90.48.090.

B. The following are causes for modification but not revocation and reissuance except when the Permittee requests or agrees:

1. A material change in the condition of the waters of the state.

2. New information not available at the time of permit issuance that would have justified the application of different permit conditions.

3. Material and substantial alterations or additions to the permitted facility or activities which occurred after this permit issuance.

4. Promulgation of new or amended standards or regulations having a direct bearing upon permit conditions, or requiring permit revision.

5. The Permittee has requested a modification based on other rationale meeting the criteria of 40 CFR Part 122.62.

6. Ecology has determined that good cause exists for modification of a compliance schedule, and the modification will not violate statutory deadlines.

7. Incorporation of an approved local pretreatment program into a municipality's permit.

C. The following are causes for modification or alternatively revocation and reissuance:

1. Cause exists for termination for reasons listed in A1 through A7 of this section, and Ecology determines that modification or revocation and reissuance is appropriate.

2. Ecology has received notification of a proposed transfer of the permit. A permit may also be modified to reflect a transfer after the effective date of an automatic transfer (General Condition G8) but will not be revoked and reissued after the effective date of the transfer except upon the request of the new Permittee.

G4. REPORTING PLANNED CHANGES

The Permittee shall, as soon as possible, but no later than 60 days prior to the proposed changes, give notice to Ecology of planned physical alterations or additions to the permitted facility, production increases, or process modification which will result in: 1) the permitted facility being determined to be a new source pursuant to 40 CFR 122.29(b); 2) a significant change in the nature or an increase in quantity of pollutants discharged; or 3) a significant change in the Permittee's sludge use or disposal practices. Following such notice, and the submittal of a new application or supplement to the existing application, along with required engineering plans and reports, this permit may be modified, or revoked and reissued pursuant to 40 CFR 122.62(a) to specify and limit any pollutants not previously limited. Until such modification is effective, any new or increased discharge in excess of permit limits or not specifically authorized by this permit constitutes a violation of the terms and conditions of this permit.

G5. PLAN REVIEW REQUIRED

Prior to constructing or modifying any wastewater control facilities, an engineering report and detailed plans and specifications shall be submitted to Ecology for approval in accordance with Chapter 173-240 WAC. Engineering reports, plans, and specifications shall be submitted at least 180 days prior to the planned start of construction unless a shorter time is approved by Ecology. Facilities shall be constructed and operated in accordance with the approved plans.

G6. COMPLIANCE WITH OTHER LAWS AND STATUTES

Nothing in this permit shall be construed as excusing the Permittee from compliance with any applicable federal, state, or local statutes, ordinances, or regulations.

G7. DUTY TO REAPPLY

The Permittee shall apply for permit renewal by **November 1, 2015**.

G8. TRANSFER OF THIS PERMIT

In the event of any change in control or ownership of facilities from which the authorized discharge emanate, the Permittee shall notify the succeeding owner or controller of the existence of this permit by letter, a copy of which shall be forwarded to Ecology.

A. Transfers by Modification

Except as provided in paragraph (B) below, this permit may be transferred by the Permittee to a new owner or operator only if this permit has been modified or revoked and reissued under 40 CFR 122.62(b)(2), or a minor modification made under 40 CFR 122.63(d), to identify the new Permittee and incorporate such other requirements as may be necessary under the Clean Water Act.

B. Automatic Transfers

This permit may be automatically transferred to a new Permittee if:

1. The Permittee notifies Ecology at least 30 days in advance of the proposed transfer date.

2. The notice includes a written agreement between the existing and new Permittees containing a specific date transfer of permit responsibility, coverage, and liability between them.

3. Ecology does not notify the existing Permittee and the proposed new Permittee of its intent to modify or revoke and reissue this permit. A modification under this subparagraph may also be minor modification under 40 CFR 122.63. If this notice is not received, the transfer is effective on the date specified in the written agreement.

G9. REDUCED PRODUCTION FOR COMPLIANCE

The Permittee, in order to maintain compliance with its permit, shall control production and/or all discharges upon reduction, loss, failure, or bypass of the treatment facility until the facility is restored or an alternative method of treatment is provided. This requirement applies in the situation where, among other things, the primary source of power of the treatment facility is reduced, lost, or fails.

G10. REMOVED SUBSTANCES

Collected screenings, grit, solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall not be resuspended or reintroduced to the final effluent stream for discharge to state waters.

G11. DUTY TO PROVIDE INFORMATION

The Permittee shall submit to Ecology, within a reasonable time, all information which Ecology may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The Permittee shall also submit to Ecology upon request, copies of records required to be kept by this permit.

G12. OTHER REQUIREMENTS OF 40 CFR

All other requirements of 40 CFR 122.41 and 122.42 are incorporated in this permit by reference.

G13. ADDITIONAL MONITORING

Ecology may establish specific monitoring requirements in addition to those contained in this permit by administrative order or permit modification.

G14. PAYMENT OF FEES

The Permittee shall submit payment of fees associated with this permit as assessed by Ecology.

G15. PENALTIES FOR VIOLATING PERMIT CONDITIONS

Any person who is found guilty of willfully violating the terms and conditions of this permit shall be deemed guilty of a crime, and upon conviction thereof shall be punished by a fine of up to $10,000 and costs of prosecution, or by imprisonment in the discretion of the court. Each day upon which a willful violation occurs may be deemed a separate and additional violation.

Any person who violates the terms and conditions of a waste discharge permit shall incur, in addition to any other penalty as provided by law, a civil penalty in the amount of up to $10,000 for every such violation. Each and every such violation shall be a separate and distinct offense, and in case of a continuing violation, every day's continuance shall be deemed to be a separate and distinct violation.

G16. UPSET

Definition – "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of the following paragraph are met.

A Permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that: 1) an upset occurred and that the Permittee can identify the cause(s) of the upset; 2) the permitted facility was being properly operated at the time of the upset; 3) the Permittee submitted notice of the upset as required in Condition S3.E; and 4) the Permittee complied with any remedial measures required under S4.C of this permit.

In any enforcement preceding the Permittee seeking to establish the occurrence of an upset has the burden of proof.

G17. PROPERTY RIGHTS

This permit does not convey any property rights of any sort, or any exclusive privilege.

G18. DUTY TO COMPLY

The Permittee shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

G19. TOXIC POLLUTANTS

The Permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if this permit has not yet been modified to incorporate the requirement.

G20. PENALTIES FOR TAMPERING

The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than two years per violation, or by both. If a conviction of a person is for a violation committed after a first conviction of such person under this Condition, punishment shall be a fine of not more than $20,000 per day of violation, or by imprisonment of not more than four years, or by both.

G21. REPORTING ANTICIPATED NON-COMPLIANCE

The Permittee shall give advance notice to Ecology by submission of a new application or supplement thereto at least 180 days prior to commencement of such discharges, of any facility expansions, production increases, or other planned changes, such as process modifications, in the permitted facility or activity which may result in noncompliance with permit limits or conditions. Any maintenance of facilities, which might necessitate unavoidable interruption of operation and degradation of effluent quality, shall be scheduled during noncritical water quality periods and carried out in a manner approved by Ecology.

G22. REPORTING OTHER INFORMATION

Where the Permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application, or in any report to Ecology, it shall promptly submit such facts or information.

G23. COMPLIANCE SCHEDULES

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.

APPENDIX A

EFFLUENT CHARACTERIZATION FOR POLLUTANTS
THIS LIST INCLUDES EPA REQUIRED POLLUTANTS (PRIORITY POLLUTANTS) AND SOME ECOLOGY PRIORITY TOXIC CHEMICALS (PBTs)

The following table specifies analytical methods and levels to be used for effluent characterization in NPDES and State waste discharge permits. This appendix specifies effluent characterization requirements of the Department of Ecology unless other methods are specified in the body of this permit.

This permit specifies the compounds and groups of compounds to be analyzed. Ecology may require additional pollutants to be analyzed within a group. The objective of this appendix is to reduce the number of analytical "non-detects" in permit-required monitoring and to measure effluent concentrations near or below criteria values where possible at a reasonable cost. If a Permittee knows that an alternate, less sensitive method (higher DL and QL) from 40 CFR Part 136 is sufficient to produce measurable results in their effluent, that method may be used for analysis.

Pollutant & CAS No. ***(if available)***	**Recommended Analytical Protocol**	**Detection (DL)**[1] ***µg/L unless specified***	**Quantitation Level (QL)** [2] ***µg/L unless specified***
CONVENTIONALS			
Biochemical Oxygen Demand	SM5210-B		2 mg/L
Chemical Oxygen Demand	SM5220-D		10 mg/L
Total Organic Carbon	SM5310-B/C/D		1 mg/L
Total Suspended Solids	SM2540-D		5 mg/L
Total Ammonia (as N)	SM4500-NH3-GH		0.3 mg/L
Flow	Calibrated device		
Dissolved oxygen	4500-OC/OG		0.2 mg/L
Temperature (max. 7-day avg.)	Analog recorder or Use micro-recording devices known as thermistors		0.2º C
pH	SM4500-H^+ B	N/A	N/A
NONCONVENTIONALS			
Total Alkalinity	SM2320-B		5 mg/L as CaCo3
Chlorine, Total Residual	4500 Cl G		50.0
Color	SM2120 B/C/E		10 color unit
Fecal Coliform	SM 9221D/E,9222	N/A	N/A
Fluoride (16984-48-8)	SM4500-F E	25	100
Nitrate-Nitrite (as N)	4500-NO3-E/F/H		100
Nitrogen, Total Kjeldahl (as N)	4500-NH3-C/E/FG		300

Pollutant & CAS No. ***(if available)***	**Recommended Analytical Protocol**	**Detection (DL)**[1] ***µg/L unless specified***	**Quantitation Level (QL)** [2] ***µg/L unless specified***
Ortho-Phosphate (PO_4 as P)	4500- PE/PF	3	10
Phosphorus, Total (as P)	4500-PE/PF	3	10
Oil and Grease (HEM)	1664A	1,400	5,000
Salinity	SM2520-B		3 PSS
Settleable Solids	SM2540 -F		100
Sulfate (as mg/L SO_4)	SM4110-B		200
Sulfide (as mg/L S)	4500-S^2F/D/E/G		200
Sulfite (as mg/L SO_3)	SM4500-SO3B		2000
Total dissolved solids	SM2540 C		20 mg/L
Total Hardness	2340B		200 as CaCO3
Aluminum, Total (7429-90-5)	200.8	2.0	10
Barium Total (7440-39-3)	200.8	0.5	2.0
Boron Total (7440-42-8)	200.8	2.0	10.0
Cobalt, Total (7440-48-4)	200.8	0.05	0.25
Iron, Total (7439-89-6)	200.7	12.5	50
Magnesium, Total (7439-95-4)	200.7	10	50
Molybdenum, Total (7439-98-7)	200.8	0.1	0.5
Manganese, Total (7439-96-5)	200.8	0.1	0.5
Tin, Total (7440-31-5)	200.8	0.3	1.5
METALS, CYANIDE & TOTAL PHENOLS			
Antimony, Total (7440-36-0)	200.8	0.3	1.0
Arsenic, Total (7440-38-2)	200.8	0.1	0.5
Beryllium, Total (7440-41-7)	200.8	0.1	0.5
Cadmium, Total (7440-43-9)	200.8	0.05	0.25
Chromium (hex) dissolved (18540-29-9)	SM3500-Cr EC	0.3	1.2
Chromium, Total (7440-47-3)	200.8	0.2	1.0
Copper, Total (7440-50-8)	200.8	0.4	2.0
Lead, Total (7439-92-1)	200.8	0.1	0.5
Mercury, Total (7439-97-6)	1631E	0.0002	0.0005
Nickel, Total (7440-02-0)	200.8	0.1	0.5
Selenium, Total (7782-49-2)	200.8	1.0	1.0
Silver, Total (7440-22-4)	200.8	0.04	0.2
Thallium, Total (7440-28-0)	200.8	0.09	0.36
Zinc, Total (7440-66-6)	200.8	0.5	2.5
Cyanide, Total (57-12-5)	335.4	2	10
Cyanide, Weak Acid Dissociable	SM4500-CN I	2	10
Phenols, Total	EPA 420.1		50
DIOXIN			
2,3,7,8-Tetra-Chlorodibenzo-P-Dioxin (176-40-16)	1613B	1.3 pg/L	5 pg/L
VOLATILE COMPOUNDS			

Pollutant & CAS No. ***(if available)***	**Recommended Analytical Protocol**	**Detection (DL)**[1] ***µg/L unless specified***	**Quantitation Level (QL)** [2] ***µg/L unless specified***
Acrolein (107-02-8)	624	5	10
Acrylonitrile (107-13-1)	624	1.0	2.0
Benzene (71-43-2)	624	1.0	2.0
Bromoform (75-25-2)	624	1.0	2.0
Carbon tetrachloride (56-23-5)	624/601 or SM6230B	1.0	2.0
Chlorobenzene (108-90-7)	624	1.0	2.0
Chloroethane (75-00-3)	624/601	1.0	2.0
2-Chloroethylvinyl Ether (110-75-8)	624	1.0	2.0
Chloroform (67-66-3)	624 or SM6210B	1.0	2.0
Dibromochloromethane (124-48-1)	624	1.0	2.0
1,2-Dichlorobenzene (95-50-1)	624	1.9	7.6
1,3-Dichlorobenzene (541-73-1)	624	1.9	7.6
1,4-Dichlorobenzene (106-46-7)	624	4.4	17.6
Dichlorobromomethane (75-27-4)	624	1.0	2.0
1,1-Dichloroethane (75-34-3)	624	1.0	2.0
1,2-Dichloroethane (107-06-2)	624	1.0	2.0
1,1-Dichloroethylene (75-35-4)	624	1.0	2.0
1,2-Dichloropropane (78-87-5)	624	1.0	2.0
1,3-dichloropropylene (mixed isomers) (542-75-6)	624	1.0	2.0
Ethylbenzene (100-41-4)	624	1.0	2.0
Methyl bromide (74-83-9) (Bromomethane)	624/601	5.0	10.0
Methyl chloride (74-87-3) (Chloromethane)	624	1.0	2.0
Methylene chloride (75-09-2)	624	5.0	10.0
1,1,2,2-Tetrachloroethane (79-34-5)	624	1.9	2.0
Tetrachloroethylene (127-18-4)	624	1.0	2.0
Toulene (108-88-3)	624	1.0	2.0
1,2-Trans-Dichloroethylene (156-60-5) (Ethylene dichloride)	624	1.0	2.0
1,1,1-Trichloroethane (71-55-6)	624	1.0	2.0
1,1,2-Trichloroethane (79-00-5)	624	1.0	2.0
Trichloroethylene (79-01-6)	624	1.0	2.0
Vinyl chloride (75-01-4)	624/SM6200B	1.0	2.0
ACID COMPOUNDS			

Pollutant & CAS No. ***(if available)***	**Recommended Analytical Protocol**	**Detection (DL)**[1] ***µg/L unless specified***	**Quantitation Level (QL)** [2] ***µg/L unless specified***
2-Chlorophenol (95-57-8)	625	1.0	2.0
2,4-Dichlorophenol (120-83-2)	625	0.5	1.0
2,4-Dimethylphenol (105-67-9)	625	0.5	1.0
4,6-dinitro-o-cresol (534-52-1) (2-methyl-4,6,-dinitrophenol)	625/1625B	1.0	2.0
2,4 dinitrophenol (51-28-5)	625	1.0	2.0
2-Nitrophenol (88-75-5)	625	0.5	1.0
4-nitrophenol (100-02-7)	625	0.5	1.0
Parachlorometa cresol (59-50-7) (4-chloro-3-methylphenol)	625	1.0	2.0
Pentachlorophenol (87-86-5)	625	0.5	1.0
Phenol (108-95-2)	625	2.0	4.0
2,4,6-Trichlorophenol (88-06-2)	625	2.0	4.0
BASE/NEUTRAL COMPOUNDS (compounds in bold are Ecology PBTs)			
Acenaphthene (83-32-9)	625	0.2	0.4
Acenaphthylene (208-96-8)	625	0.3	0.6
Anthracene (120-12-7)	625	0.3	0.6
Benzidine (92-87-5)	625	12	24
Benzyl butyl phthalate (85-68-7)	625	0.3	0.6
Benzo(*a*)anthracene (56-55-3)	625	0.3	0.6
Benzo(j)fluoranthene (205-82-3)	625	0.5	1.0
Benzo(r,s,t)pentaphene (189-55-9)	625	0.5	1.0
Benzo(*a*)pyrene (50-32-8)	610/625	0.5	1.0
3,4-benzofluoranthene (Benzo(b)fluoranthene) (205-99-2)	610/625	0.8	1.6
11,12-benzofluoranthene (Benzo(k)fluoranthene) (207-08-9)	610/625	0.8	1.6
Benzo(*ghi*)Perylene (191-24-2)	610/625	0.5	1.0
Bis(*2-chloroethoxy)*methane (111-91-1)	625	5.3	21.2
Bis(*2-chloroethyl*)ether (111-44-4)	611/625	0.3	1.0
Bis(*2-chloroisopropyl*)ether (39638-32-9)	625	0.3	0.6
Bis(*2-ethylhexyl*)phthalate (117-81-7)	625	0.1	0.5
4-Bromophenyl phenyl ether (101-55-3)	625	0.2	0.4

Pollutant & CAS No. ***(if available)***	**Recommended Analytical Protocol**	**Detection (DL)**[1] ***µg/L unless specified***	**Quantitation Level (QL)** [2] ***µg/L unless specified***
2-Chloronaphthalene (91-58-7)	625	0.3	0.6
4-Chlorophenyl phenyl ether (7005-72-3)	625	0.3	0.5
Chrysene (218-01-9)	610/625	0.3	0.6
Dibenzo (a,j)acridine (224-42-0)	610M/625M	2.5	10.0
Dibenzo (a,h)acridine (226-36-8)	610M/625M	2.5	10.0
Dibenzo(a-*h*)anthracene (53-70-3)(1,2,5,6-dibenzanthracene)	625	0.8	1.6
Dibenzo(a,e)pyrene (192-65-4)	610M/625M	2.5	10.0
Dibenzo(a,h)pyrene (189-64-0)	625M	2.5	10.0
3,3-Dichlorobenzidine (91-94-1)	605/625	0.5	1.0
Diethyl phthalate (84-66-2)	625	1.9	7.6
Dimethyl phthalate (131-11-3)	625	1.6	6.4
Di-n-butyl phthalate (84-74-2)	625	0.5	1.0
2,4-dinitrotoluene (121-14-2)	609/625	0.2	0.4
2,6-dinitrotoluene (606-20-2)	609/625	0.2	0.4
Di-n-octyl phthalate (117-84-0)	625	0.3	0.6
1,2-Diphenylhydrazine (*as Azobenzene*) (122-66-7)	1625B	5.0	20
Fluoranthene (206-44-0)	625	0.3	0.6
Fluorene (86-73-7)	625	0.3	0.6
Hexachlorobenzene (118-74-1)	612/625	0.3	0.6
Hexachlorobutadiene (87-68-3)	625	0.5	1.0
Hexachlorocyclopentadiene (77-47-4)	1625B/625	0.5	1.0
Hexachloroethane (67-72-1)	625	0.5	1.0
Indeno(*1,2,3-cd*)Pyrene (193-39-5)	610/625	0.5	1.0
Isophorone (78-59-1)	625	0.5	1.0
3-Methyl cholanthrene (56-49-5)	625	2.0	8.0
Naphthalene (91-20-3)	625	0.3	0.6
Nitrobenzene (98-95-3)	625	0.5	1.0
N-Nitrosodimethylamine (62-75-9)	607/625	2.0	4.0
N-Nitrosodi-n-propylamine (621-64-7)	607/625	0.5	1.0
N-Nitrosodiphenylamine (86-30-6)	625	0.5	1.0
Perylene (198-55-0)	625	1.9	7.6

Pollutant & CAS No. ***(if available)***	**Recommended Analytical Protocol**	**Detection (DL)**[1] ***µg/L unless specified***	**Quantitation Level (QL)** [2] ***µg/L unless specified***
Phenanthrene (85-01-8)	625	0.3	0.6
Pyrene (129-00-0)	625	0.3	0.6
1,2,4-Trichlorobenzene (120-82-1)	625	0.3	0.6
PESTICIDES/PCBs			
Aldrin (309-00-2)	608	0.025	0.05
alpha-BHC (319-84-6)	608	0.025	0.05
beta-BHC (319-85-7)	608	0.025	0.05
gamma-BHC (58-89-9)	608	0.025	0.05
delta-BHC (319-86-8)	608	0.025	0.05
Chlordane (57-74-9)	608	0.025	0.05
4,4'-DDT (50-29-3)	608	0.025	0.05
4,4'-DDE (72-55-9)	608	0.025	0.05[10]
4,4' DDD (72-54-8)	608	0.025	0.05
Dieldrin (60-57-1)	608	0.025	0.05
alpha-Endosulfan (959-98-8)	608	0.025	0.05
beta-Endosulfan (33213-65-9)	608	0.025	0.05
Endosulfan Sulfate (1031-07-8)	608	0.025	0.05
Endrin (72-20-8)	608	0.025	0.05
Endrin Aldehyde (7421-93-4)	608	0.025	0.05
Heptachlor (76-44-8)	608	0.025	0.05
Heptachlor Epoxide (1024-57-3)	608	0.025	0.05
PCB-1242 (53469-21-9)	608	0.25	0.5
PCB-1254 (11097-69-1)	608	0.25	0.5
PCB-1221 (11104-28-2)	608	0.25	0.5
PCB-1232 (11141-16-5)	608	0.25	0.5
PCB-1248 (12672-29-6)	608	0.25	0.5
PCB-1260 (11096-82-5)	608	0.13	0.5
PCB-1016 (12674-11-2)	608	0.13	0.5
Toxaphene (8001-35-2)	608	0.24	0.5

1. Detection level (DL) or detection limit means the minimum concentration of an analyte (substance) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero as determined by the procedure given in 40 CFR part 136, Appendix B.
2. Quantitation Level (QL) is equivalent to EPA's Minimum Level (ML) which is defined in 40 CFR Part 136 as the minimum level at which the entire GC/MS system must give recognizable mass spectra (background corrected) and acceptable calibration points. These levels were published as proposed in the Federal Register on March 28, 1997.

APPENDIX B

COST ESTIMATES

Ciy of Ilwaco
Cost Estimate
Upper Zone 2a: Upper Zone Replace As-is
25-Nov-13

	Item	Quantity		Unit Cost	Amount
1	Minor Changes (S.P. 1-04.4)	1	CALC	$ 5,000	$ 5,000
2	Survey (S.P. 1-05.4(2))	1	LS	$ 10,000	$ 10,000
3	Spill Prevention, Control and Countermeasures Plan (S.P. 1-07.15(1))	1	LS	$ 500	$ 500
4	Mobilization, Cleanup, and Demobilization (S.P. 1-09.7)	1	LS	$ 79,100	$ 79,100
5	Project Temporary Traffic Control (1-10.4(1))	1	LS	$ 5,000	$ 5,000
6	Clearing and Grubbing (S.P. 2-01.5)	1	LS	$ 15,000	$ 15,000
7	Sawcutting (S.P. 2-02.5)	15,840	LF	$ 2	$ 31,680
8	Removal of Structure and Obstruction (S.P. 2-02.5)	1	LS	$ 3,000	$ 3,000
9	Unsuitable Foundation Excavation (2-03.5)	440	CY	$ 30	$ 13,200
10	Locate Existing Utilities (S.P. 2-09.5)	1	LS	$ 2,000	$ 2,000
11	Gravel Backfill for Foundation (S.P. 2-09.5)	450	CY	$ 25	$ 11,250
12	Crushed Surfacing Top Course (S.P. 4-04.5)	420	TN	$ 30	$ 12,600
13	HMA Cl. 1/2" PG 58-22 (S.P. 5-04.5)	360	TN	$ 150	$ 54,000
14	PVC Drain Pipe 4-In. Diam. (S.P. 7-01.5)	1,030	LF	$ 10	$ 10,300
15	Level Spreader (S.P. 7-01.5)	1	LS	$ 1,000	$ 1,000
16	Manhole 48 In. Diam. (S.P. 7-05.5)	22	EA	$ 3,500	$ 77,000
17	Abandon Existing Manhole (S.P. 7-05.5)	0	EA	$ 1,000	$ -
18	Import Material for Trench Backfill (S.P. 7-08.5)	5,960	CY	$ 20	$ 119,200
19	Removal of Unsuitable Material (Trench) (S.P. 7-08.5)	1,200	CY	$ 35	$ 42,000
20	Controlled Density Fill (S.P. 7-08.5)	10	CY	$ 200	$ 2,000
21	Temporary Bypass Pumping (S.P. 7-08.5)	1	LS	$ 8,000	$ 8,000
22	Trench Excavation Safety Systems (S.P. 7-08.5)	1	LS	$ 5,000	$ 5,000
23	Plug Existing Pipe (S.P. 7-08.5)	10	EA	$ 200	$ 2,000
24	Sanitary Sewer PVC Pipe, 8 In. Diam. (S.P. 7-17.5)	3,960	LF	$ 65	$ 257,400
25	Sanitary Sewer DI Pipe, 8 In. Diam. (S.P. 7-17.5)	0	LF	$ 65	$ -
26	Side Sewer Pipe, 6 In. Diam. (S.P. 7-18.5)	1,710	LF	$ 45	$ 76,950
27	HPDE Small Diameter Force Main (S.P. 7-18.5)	0	LF	$ 25	$ -
28	Erosion/Water Pollution Control (S.P. 8-01.5)	1	LS	$ 5,000	$ 5,000
29	Seeding, Fertilizing, and Mulching (S.P. 8-01.5)	4,000	SY	$ 5	$ 20,000
30	Project Documentation (S.P. 8-27.3)	1	LS	$ 1,500	$ 1,500
	Subtotal (Base Bid):				$ 869,680
	Sales Tax (7.8%):				$ 67,900
	Total Construction Cost:				**$ 937,580**
	20% Construction Contingencies:				$ 187,600
	Total Construction Cost w/ Contingencies (Rounded):				**$ 1,125,180**
	Administration (5%):				$56,300
	Engineering (15%):				$168,800
	Construction Management (10%):				$112,600
	TOTAL PROJECT COST (ROUNDED):				**$ 1,462,880**

Ciy of Ilwaco
Cost Estimate
Upper Zone 2b: Wecoma/Hiqua to Discovery Heights, Nesadi As-Is
25-Nov-13

	Item	Quantity		Unit Cost	Amount
1	Minor Changes (S.P. 1-04.4)	1	CALC	$ 5,000	$ 5,000
2	Survey (S.P. 1-05.4(2))	1	LS	$ 10,000	$ 10,000
3	Spill Prevention, Control and Countermeasures Plan (S.P. 1-07.15(1))	1	LS	$ 500	$ 500
4	Mobilization, Cleanup, and Demobilization (S.P. 1-09.7)	1	LS	$ 77,300	$ 77,300
5	Project Temporary Traffic Control (1-10.4(1))	1	LS	$ 5,000	$ 5,000
6	Clearing and Grubbing (S.P. 2-01.5)	1	LS	$ 15,000	$ 15,000
7	Sawcutting (S.P. 2-02.5)	15,360	LF	$ 2	$ 30,720
8	Removal of Structure and Obstruction (S.P. 2-02.5)	1	LS	$ 3,000	$ 3,000
9	Unsuitable Foundation Excavation (2-03.5)	430	CY	$ 30	$ 12,900
10	Locate Existing Utilities (S.P. 2-09.5)	1	LS	$ 2,000	$ 2,000
11	Gravel Backfill for Foundation (S.P. 2-09.5)	430	CY	$ 25	$ 10,750
12	Crushed Surfacing Top Course (S.P. 4-04.5)	400	TN	$ 30	$ 12,000
13	HMA Cl. 1/2" PG 58-22 (S.P. 5-04.5)	340	TN	$ 150	$ 51,000
14	PVC Drain Pipe 4-In. Diam. (S.P. 7-01.5)	1,030	LF	$ 10	$ 10,300
15	Level Spreader (S.P. 7-01.5)	1	LS	$ 1,000	$ 1,000
16	Manhole 48 In. Diam. (S.P. 7-05.5)	21	EA	$ 3,500	$ 73,500
17	Abandon Existing Manhole (S.P. 7-05.5)	2	EA	$ 1,000	$ 2,000
18	Import Material for Trench Backfill (S.P. 7-08.5)	5,830	CY	$ 20	$ 116,600
19	Removal of Unsuitable Material (Trench) (S.P. 7-08.5)	1,170	CY	$ 35	$ 40,950
20	Controlled Density Fill (S.P. 7-08.5)	10	CY	$ 200	$ 2,000
21	Temporary Bypass Pumping (S.P. 7-08.5)	1	LS	$ 8,000	$ 8,000
22	Trench Excavation Safety Systems (S.P. 7-08.5)	1	LS	$ 5,000	$ 5,000
23	Plug Existing Pipe (S.P. 7-08.5)	10	EA	$ 200	$ 2,000
24	Sanitary Sewer PVC Pipe, 8 In. Diam. (S.P. 7-17.5)	3,840	LF	$ 65	$ 249,600
25	Sanitary Sewer DI Pipe, 8 In. Diam. (S.P. 7-17.5)	0	LF	$ 65	$ -
26	Side Sewer Pipe, 6 In. Diam. (S.P. 7-18.5)	1,710	LF	$ 45	$ 76,950
27	HPDE Small Diameter Force Main (S.P. 7-18.5)	0	LF	$ 25	$ -
28	Erosion/Water Pollution Control (S.P. 8-01.5)	1	LS	$ 5,000	$ 5,000
29	Seeding, Fertilizing, and Mulching (S.P. 8-01.5)	4,000	SY	$ 5	$ 20,000
30	Project Documentation (S.P. 8-27.3)	1	LS	$ 1,500	$ 1,500
	Subtotal (Base Bid):				$ 849,570
	Sales Tax (7.8%):				$ 66,300
	Total Construction Cost:				**$ 915,870**
	20% Construction Contingencies:				$ 183,200
	Total Construction Cost w/ Contingencies (Rounded):				**$ 1,099,070**
	Administration (5%):				$55,000
	Engineering (15%):				$164,900
	Construction Management (10%):				$110,000
	TOTAL PROJECT COST (ROUNDED):				**$ 1,428,970**

Ciy of Ilwaco
Cost Estimate
Upper Zone 2c: Wecoma/Hiqua to Discovery Heights, Nesadi Grinder Pumps
25-Nov-13

	Item	Quantity		Unit Cost	Amount
1	Minor Changes (S.P. 1-04.4)	1	CALC	$ 5,000	$ 5,000
2	Survey (S.P. 1-05.4(2))	1	LS	$ 10,000	$ 10,000
3	Spill Prevention, Control and Countermeasures Plan (S.P. 1-07.15(1))	1	LS	$ 500	$ 500
4	Mobilization, Cleanup, and Demobilization (S.P. 1-09.7)	1	LS	$ 61,100	$ 61,100
5	Project Temporary Traffic Control (1-10.4(1))	1	LS	$ 5,000	$ 5,000
6	Clearing and Grubbing (S.P. 2-01.5)	1	LS	$ 15,000	$ 15,000
7	Sawcutting (S.P. 2-02.5)	18,440	LF	$ 2	$ 36,880
8	Removal of Structure and Obstruction (S.P. 2-02.5)	1	LS	$ 3,000	$ 3,000
9	Unsuitable Foundation Excavation (2-03.5)	160	CY	$ 30	$ 4,800
10	Locate Existing Utilities (S.P. 2-09.5)	1	LS	$ 2,000	$ 2,000
11	Gravel Backfill for Foundation (S.P. 2-09.5)	160	CY	$ 25	$ 4,000
12	Crushed Surfacing Top Course (S.P. 4-04.5)	240	TN	$ 30	$ 7,200
13	HMA Cl. 1/2" PG 58-22 (S.P. 5-04.5)	570	TN	$ 150	$ 85,500
14	PVC Drain Pipe 4-In. Diam. (S.P. 7-01.5)	0	LF	$ 10	$ -
15	Level Spreader (S.P. 7-01.5)	0	LS	$ 1,000	$ -
16	Manhole 48 In. Diam. (S.P. 7-05.5)	7	EA	$ 3,500	$ 24,500
17	Abandon Existing Manhole (S.P. 7-05.5)	2	EA	$ 1,000	$ 2,000
18	Import Material for Trench Backfill (S.P. 7-08.5)	2,230	CY	$ 20	$ 44,600
19	Removal of Unsuitable Material (Trench) (S.P. 7-08.5)	450	CY	$ 35	$ 15,750
20	Controlled Density Fill (S.P. 7-08.5)	10	CY	$ 200	$ 2,000
21	Temporary Bypass Pumping (S.P. 7-08.5)	1	LS	$ 8,000	$ 8,000
22	Trench Excavation Safety Systems (S.P. 7-08.5)	1	LS	$ 5,000	$ 5,000
23	Plug Existing Pipe (S.P. 7-08.5)	10	EA	$ 200	$ 2,000
24	Sanitary Sewer PVC Pipe, 8 In. Diam. (S.P. 7-17.5)	1,410	LF	$ 65	$ 91,650
25	Sanitary Sewer DI Pipe, 8 In. Diam. (S.P. 7-17.5)	0	LF	$ 65	$ -
26	Side Sewer Pipe, 6 In. Diam. (S.P. 7-18.5)	0	LF	$ 45	$ -
27	Force Main , 4 In. Diam. (S.P. 7-17.5)	0	LF	$ 45	$ -
28	HPDE Small Diameter Force Main (S.P. 7-18.5)	3,200	LF	$ 25	$ 80,000
29	Grinder Pump Assembly	13	EA	$ 10,000	$ 130,000
30	Erosion/Water Pollution Control (S.P. 8-01.5)	1	LS	$ 5,000	$ 5,000
31	Seeding, Fertilizing, and Mulching (S.P. 8-01.5)	4,000	SY	$ 5	$ 20,000
32	Project Documentation (S.P. 8-27.3)	1	LS	$ 1,500	$ 1,500
	Subtotal (Base Bid):				$ 671,980
	Sales Tax (7.8%):				$ 52,500
	Total Construction Cost:				**$ 724,480**
	20% Construction Contingencies:				$ 144,900
	Total Construction Cost w/ Contingencies (Rounded):				**$ 869,380**
	Administration (5%):				$43,500
	Engineering (15%):				$130,500
	Construction Management (10%):				$87,000
	TOTAL PROJECT COST (ROUNDED):				**$ 1,130,380**

Ciy of Ilwaco
Cost Estimate
Upper Zone 2d: Wecoma/Hiqua to Discovery Heights, Nesadi Lift Station
25-Nov-13

	Item	Quantity		Unit Cost	Amount
1	Minor Changes (S.P. 1-04.4)	1	CALC	$ 5,000	$ 5,000
2	Survey (S.P. 1-05.4(2))	1	LS	$ 10,000	$ 10,000
3	Spill Prevention, Control and Countermeasures Plan (S.P. 1-07.15(1))	1	LS	$ 500	$ 500
4	Mobilization, Cleanup, and Demobilization (S.P. 1-09.7)	1	LS	$ 110,600	$ 110,600
5	Project Temporary Traffic Control (1-10.4(1))	1	LS	$ 5,000	$ 5,000
6	Clearing and Grubbing (S.P. 2-01.5)	1	LS	$ 15,000	$ 15,000
7	Sawcutting (S.P. 2-02.5)	22,160	LF	$ 2	$ 44,320
8	Removal of Structure and Obstruction (S.P. 2-02.5)	1	LS	$ 3,000	$ 3,000
9	Unsuitable Foundation Excavation (2-03.5)	270	CY	$ 30	$ 8,100
10	Locate Existing Utilities (S.P. 2-09.5)	1	LS	$ 2,000	$ 2,000
11	Gravel Backfill for Foundation (S.P. 2-09.5)	340	CY	$ 25	$ 8,500
12	Crushed Surfacing Top Course (S.P. 4-04.5)	470	TN	$ 30	$ 14,100
13	HMA Cl. 1/2" PG 58-22 (S.P. 5-04.5)	830	TN	$ 150	$ 124,500
14	PVC Drain Pipe 4-In. Diam. (S.P. 7-01.5)	1,030	LF	$ 10	$ 10,300
15	Level Spreader (S.P. 7-01.5)	1	LS	$ 1,000	$ 1,000
16	Manhole 48 In. Diam. (S.P. 7-05.5)	21	EA	$ 3,500	$ 73,500
17	Abandon Existing Manhole (S.P. 7-05.5)	2	EA	$ 1,000	$ 2,000
18	Import Material for Trench Backfill (S.P. 7-08.5)	4,620	CY	$ 20	$ 92,400
19	Removal of Unsuitable Material (Trench) (S.P. 7-08.5)	930	CY	$ 35	$ 32,550
20	Controlled Density Fill (S.P. 7-08.5)	10	CY	$ 200	$ 2,000
21	Temporary Bypass Pumping (S.P. 7-08.5)	1	LS	$ 8,000	$ 8,000
22	Trench Excavation Safety Systems (S.P. 7-08.5)	1	LS	$ 5,000	$ 5,000
23	Plug Existing Pipe (S.P. 7-08.5)	10	EA	$ 200	$ 2,000
24	Sanitary Sewer PVC Pipe, 8 In. Diam. (S.P. 7-17.5)	2,360	LF	$ 65	$ 153,400
25	Sanitary Sewer DI Pipe, 8 In. Diam. (S.P. 7-17.5)	0	LF	$ 65	$ -
26	Side Sewer Pipe, 6 In. Diam. (S.P. 7-18.5)	1,710	LF	$ 45	$ 76,950
27	Force Main , 4 In. Diam. (S.P. 7-17.5)	670	LF	$ 45	$ 30,150
28	HPDE Small Diameter Force Main (S.P. 7-18.5)	800	LF	$ 25	$ 20,000
29	Grinder Pump Assembly	3	EA	$ 10,000	$ 30,000
30	Lift Station & Auxilliary Generator	1	EA	$ 300,000	$ 300,000
31	Erosion/Water Pollution Control (S.P. 8-01.5)	1	LS	$ 5,000	$ 5,000
32	Seeding, Fertilizing, and Mulching (S.P. 8-01.5)	4,000	SY	$ 5	$ 20,000
33	Project Documentation (S.P. 8-27.3)	1	LS	$ 1,500	$ 1,500
	Subtotal (Base Bid):				$ 1,216,370
	Sales Tax (7.8%):				$ 94,900
	Total Construction Cost:				**$ 1,311,270**
	20% Construction Contingencies:				$ 262,300
	Total Construction Cost w/ Contingencies (Rounded):				**$ 1,573,600**
	Administration (5%):				$78,700
	Engineering (15%):				$236,100
	Construction Management (10%):				$157,400
	TOTAL PROJECT COST (ROUNDED):				**$ 2,045,800**

Ciy of Ilwaco
Cost Estimate
Lower Zone 3a: Replace As-Is
25-Nov-13

	Item	Quantity		Unit Cost	Amount
1	Minor Changes (S.P. 1-04.4)	1	CALC	$ 5,000	$ 5,000
2	Survey (S.P. 1-05.4(2))	1	LS	$ 5,000	$ 5,000
3	Spill Prevention, Control and Countermeasures Plan (S.P. 1-07.15(1))	1	LS	$ 500	$ 500
4	Mobilization, Cleanup, and Demobilization (S.P. 1-09.7)	1	LS	$ 64,800	$ 64,800
5	Project Temporary Traffic Control (1-10.4(1))	1	LS	$ 15,000	$ 15,000
6	Clearing and Grubbing (S.P. 2-01.5)	1	LS	$ 5,000	$ 5,000
7	Sawcutting (S.P. 2-02.5)	8,160	LF	$ 2	$ 16,320
8	Removal of Structure and Obstruction (S.P. 2-02.5)	1	LS	$ 3,000	$ 3,000
9	Unsuitable Foundation Excavation (2-03.5)	190	CY	$ 30	$ 5,700
10	Locate Existing Utilities (S.P. 2-09.5)	1	LS	$ 2,000	$ 2,000
11	Gravel Backfill for Foundation (S.P. 2-09.5)	190	CY	$ 25	$ 4,750
12	Crushed Surfacing Top Course (S.P. 4-04.5)	190	TN	$ 30	$ 5,700
13	HMA Cl. 1/2" PG 58-22 (S.P. 5-04.5)	230	TN	$ 150	$ 34,500
14	PVC Drain Pipe 4-In. Diam. (S.P. 7-01.5)	0	LF	$ 10	$ -
15	Level Spreader (S.P. 7-01.5)	1	LS	$ 1,000	$ 1,000
16	Manhole 48 In. Diam. (S.P. 7-05.5)	8	EA	$ 3,500	$ 28,000
17	Abandon Existing Manhole (S.P. 7-05.5)	0	EA	$ 1,000	$ -
18	Import Material for Trench Backfill (S.P. 7-08.5)	2,150	CY	$ 20	$ 43,000
19	Removal of Unsuitable Material (Trench) (S.P. 7-08.5)	430	CY	$ 35	$ 15,050
20	Controlled Density Fill (S.P. 7-08.5)	10	CY	$ 200	$ 2,000
21	Temporary Bypass Pumping (S.P. 7-08.5)	1	LS	$ 8,000	$ 8,000
22	Trench Excavation Safety Systems (S.P. 7-08.5)	1	LS	$ 5,000	$ 5,000
23	Plug Existing Pipe (S.P. 7-08.5)	10	EA	$ 200	$ 2,000
24	Sanitary Sewer PVC Pipe, 8 In. Diam. (S.P. 7-17.5)	1,650	LF	$ 65	$ 107,250
25	Sanitary Sewer DI Pipe, 8 In. Diam. (S.P. 7-17.5)	0	LF	$ 65	$ -
26	Side Sewer Pipe, 6 In. Diam. (S.P. 7-18.5)	390	LF	$ 45	$ 17,550
27	Force Main , 4 In. Diam. (S.P. 7-17.5)	0	LF	$ 45	$ -
28	HPDE Small Diameter Force Main (S.P. 7-18.5)	0	LF	$ 25	$ -
29	Grinder Pump Assembly	0	EA	$ 10,000	$ -
30	Lift Station and Emergency Generator	1	EA	$ 300,000	$ 300,000
31	Erosion/Water Pollution Control (S.P. 8-01.5)	1	LS	$ 5,000	$ 5,000
32	Seeding, Fertilizing, and Mulching (S.P. 8-01.5)	2,000	SY	$ 5	$ 10,000
33	Project Documentation (S.P. 8-27.3)	1	LS	$ 1,500	$ 1,500
	Subtotal (Base Bid):				$ 712,620
	Sales Tax (7.8%):				$ 55,600
	Total Construction Cost:				**$ 768,220**
	20% Construction Contingencies:				$ 153,700
	Total Construction Cost w/ Contingencies (Rounded):				**$ 922,000**
	Administration (5%):				$46,100
	Engineering (15%):				$138,300
	Construction Management (10%):				$92,200
	TOTAL PROJECT COST (ROUNDED):				**$ 1,198,600**

Ciy of Ilwaco
Cost Estimate
Lower Zone 3b: Replace Sewer As-Is, LS discharge to Discovery Heights
25-Nov-13

	Item	Quantity		Unit Cost	Amount
1	Minor Changes (S.P. 1-04.4)	1	CALC	$ 5,000	$ 5,000
2	Survey (S.P. 1-05.4(2))	1	LS	$ 5,000	$ 5,000
3	Spill Prevention, Control and Countermeasures Plan (S.P. 1-07.15(1))	1	LS	$ 500	$ 500
4	Mobilization, Cleanup, and Demobilization (S.P. 1-09.7)	1	LS	$ 80,900	$ 80,900
5	Project Temporary Traffic Control (1-10.4(1))	1	LS	$ 15,000	$ 15,000
6	Clearing and Grubbing (S.P. 2-01.5)	1	LS	$ 5,000	$ 5,000
7	Sawcutting (S.P. 2-02.5)	16,200	LF	$ 2	$ 32,400
8	Removal of Structure and Obstruction (S.P. 2-02.5)	1	LS	$ 3,000	$ 3,000
9	Unsuitable Foundation Excavation (2-03.5)	190	CY	$ 30	$ 5,700
10	Locate Existing Utilities (S.P. 2-09.5)	1	LS	$ 2,000	$ 2,000
11	Gravel Backfill for Foundation (S.P. 2-09.5)	190	CY	$ 25	$ 4,750
12	Crushed Surfacing Top Course (S.P. 4-04.5)	190	TN	$ 30	$ 5,700
13	HMA Cl. 1/2" PG 58-22 (S.P. 5-04.5)	170	TN	$ 150	$ 25,500
14	PVC Drain Pipe 4-In. Diam. (S.P. 7-01.5)	0	LF	$ 10	$ -
15	Level Spreader (S.P. 7-01.5)	1	LS	$ 1,000	$ 1,000
16	Manhole 48 In. Diam. (S.P. 7-05.5)	8	EA	$ 3,500	$ 28,000
17	Abandon Existing Manhole (S.P. 7-05.5)	0	EA	$ 1,000	$ -
18	Import Material for Trench Backfill (S.P. 7-08.5)	2,620	CY	$ 20	$ 52,400
19	Removal of Unsuitable Material (Trench) (S.P. 7-08.5)	530	CY	$ 35	$ 18,550
20	Controlled Density Fill (S.P. 7-08.5)	10	CY	$ 200	$ 2,000
21	Temporary Bypass Pumping (S.P. 7-08.5)	1	LS	$ 8,000	$ 8,000
22	Trench Excavation Safety Systems (S.P. 7-08.5)	1	LS	$ 5,000	$ 5,000
23	Plug Existing Pipe (S.P. 7-08.5)	10	EA	$ 200	$ 2,000
24	Sanitary Sewer PVC Pipe, 8 In. Diam. (S.P. 7-17.5)	1,650	LF	$ 65	$ 107,250
25	Sanitary Sewer DI Pipe, 8 In. Diam. (S.P. 7-17.5)	0	LF	$ 65	$ -
26	Side Sewer Pipe, 6 In. Diam. (S.P. 7-18.5)	390	LF	$ 45	$ 17,550
27	Force Main , 4 In. Diam. (S.P. 7-17.5)	2,010	LF	$ 45	$ 90,450
28	HPDE Small Diameter Force Main (S.P. 7-18.5)	0	LF	$ 25	$ -
29	Grinder Pump Assembly	0	EA	$ 10,000	$ -
30	Lift Station & Emergency Generator	1	EA	$ 350,000	$ 350,000
31	Erosion/Water Pollution Control (S.P. 8-01.5)	1	LS	$ 5,000	$ 5,000
32	Seeding, Fertilizing, and Mulching (S.P. 8-01.5)	2,000	SY	$ 5	$ 10,000
33	Project Documentation (S.P. 8-27.3)	1	LS	$ 1,500	$ 1,500
	Subtotal (Base Bid):				$ 889,150
	Sales Tax (7.8%):				$ 69,400
	Total Construction Cost:				**$ 958,550**
	20% Construction Contingencies:				$ 191,800
	Total Construction Cost w/ Contingencies (Rounded):				**$ 1,150,400**
	Administration (5%):				$57,600
	Engineering (15%):				$172,600
	Construction Management (10%):				$115,100
	TOTAL PROJECT COST (ROUNDED):				**$ 1,495,700**

Ciy of Ilwaco
Cost Estimate
Lower Zone 3c: Iinstall LS at approximately Klahanee and Ilahee, LS discharge to Discovery Heights
25-Nov-13

	Item	Quantity		Unit Cost	Amount
1	Minor Changes (S.P. 1-04.4)	1	CALC	$ 5,000	$ 5,000
2	Survey (S.P. 1-05.4(2))	1	LS	$ 5,000	$ 5,000
3	Spill Prevention, Control and Countermeasures Plan (S.P. 1-07.15(1))	1	LS	$ 500	$ 500
4	Mobilization, Cleanup, and Demobilization (S.P. 1-09.7)	1	LS	$ 76,000	$ 76,000
5	Project Temporary Traffic Control (1-10.4(1))	1	LS	$ 5,000	$ 5,000
6	Clearing and Grubbing (S.P. 2-01.5)	1	LS	$ 5,000	$ 5,000
7	Sawcutting (S.P. 2-02.5)	14,400	LF	$ 2	$ 28,800
8	Removal of Structure and Obstruction (S.P. 2-02.5)	1	LS	$ 3,000	$ 3,000
9	Unsuitable Foundation Excavation (2-03.5)	70	CY	$ 30	$ 2,100
10	Locate Existing Utilities (S.P. 2-09.5)	1	LS	$ 2,000	$ 2,000
11	Gravel Backfill for Foundation (S.P. 2-09.5)	70	CY	$ 25	$ 1,750
12	Crushed Surfacing Top Course (S.P. 4-04.5)	190	TN	$ 30	$ 5,700
13	HMA Cl. 1/2" PG 58-22 (S.P. 5-04.5)	310	TN	$ 150	$ 46,500
14	PVC Drain Pipe 4-In. Diam. (S.P. 7-01.5)	0	LF	$ 10	$ -
15	Level Spreader (S.P. 7-01.5)	1	LS	$ 1,000	$ 1,000
16	Manhole 48 In. Diam. (S.P. 7-05.5)	7	EA	$ 3,500	$ 24,500
17	Abandon Existing Manhole (S.P. 7-05.5)	2	EA	$ 1,000	$ 2,000
18	Import Material for Trench Backfill (S.P. 7-08.5)	1,640	CY	$ 20	$ 32,800
19	Removal of Unsuitable Material (Trench) (S.P. 7-08.5)	330	CY	$ 35	$ 11,550
20	Controlled Density Fill (S.P. 7-08.5)	10	CY	$ 200	$ 2,000
21	Temporary Bypass Pumping (S.P. 7-08.5)	1	LS	$ 8,000	$ 8,000
22	Trench Excavation Safety Systems (S.P. 7-08.5)	1	LS	$ 5,000	$ 5,000
23	Plug Existing Pipe (S.P. 7-08.5)	10	EA	$ 200	$ 2,000
24	Sanitary Sewer PVC Pipe, 8 In. Diam. (S.P. 7-17.5)	580	LF	$ 65	$ 37,700
25	Sanitary Sewer DI Pipe, 8 In. Diam. (S.P. 7-17.5)	0	LF	$ 65	$ -
26	Side Sewer Pipe, 6 In. Diam. (S.P. 7-18.5)	390	LF	$ 45	$ 17,550
27	Force Main , 4 In. Diam. (S.P. 7-17.5)	1,630	LF	$ 45	$ 73,350
28	HPDE Small Diameter Force Main (S.P. 7-18.5)	1,000	LF	$ 25	$ 25,000
29	Grinder Pump Assembly	4	EA	$ 10,000	$ 40,000
30	Lift Station &Emergency Generator	1	EA	$ 350,000	$ 350,000
31	Erosion/Water Pollution Control (S.P. 8-01.5)	1	LS	$ 5,000	$ 5,000
32	Seeding, Fertilizing, and Mulching (S.P. 8-01.5)	2,000	SY	$ 5	$ 10,000
33	Project Documentation (S.P. 8-27.3)	1	LS	$ 1,500	$ 1,500
	Subtotal (Base Bid):				$ 835,300
	Sales Tax (7.8%):				$ 65,200
	Total Construction Cost:				**$ 900,500**
	20% Construction Contingencies:				$ 180,100
	Total Construction Cost w/ Contingencies (Rounded):				**$ 1,080,600**
	Administration (5%):				$54,100
	Engineering (15%):				$162,100
	Construction Management (10%):				$108,100
	TOTAL PROJECT COST (ROUNDED):				**$ 1,404,900**

APPENDIX C

NEPA ENVIRONMENTAL REPORT AND BIOLOGICAL ASSESSMENT

CITY OF ILWACO

PACIFIC COUNTY **WASHINGTON**

SAHALEE SUBDIVISION WATER, SEWER AND PUMP STATION REPLACEMENT PROJECT

NEPA ENVIRONMENTAL REPORT

PREPARED FOR COMPLIANCE WITH THE NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) FOR THE USDA RURAL DEVELOPMENT ADMINISTRATION

G&O #20124.61
MARCH 2012

Gray & Osborne, Inc.
CONSULTING ENGINEERS

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INTRODUCTION

The City of Ilwaco, located in Pacific County at the mouth of the Columbia River in Washington State is an applicant for federal financial assistance from the USDA Rural Development Administration Water and Waste Disposal Program. This program is supported by federal funds and requires the development of this National Environmental Policy Act (NEPA) Environmental Report. The total cost of the project is projected to be $2,800,000. The project-funding package will include:

- A loan from the USDA Rural Development Administration.
- A grant from the USDA Rural Development Administration.
- Remaining costs will be covered by local funds from:
    - Monthly rates: Sewer – $64.50 (Single Family, 2012), Water - $49.22 (Single-Family, 800 cf/month, 2012). Accounts outside City limits – 50 percent surcharge.
    - General Facilities Charge (GFC): Sewer – $6,200, Water - $2,500. Connections outside City limits: 50 percent surcharge.

Gray & Osborne, Inc. is providing engineering services to the City of Ilwaco for the proposed Sahalee Subdivision Water, Sewer and Pump Station Replacement Project. The existing facilities to be replaced are located in City of Ilwaco rights-of-way in the Sahalee Subdivision in the City of Ilwaco, Washington. The proposed Sahalee Water, Sewer and Pump Station Replacement Project will take place within Section 33 of Township 10 North, Range 11 West.

I. PURPOSE AND NEED FOR PROJECT

The purpose of this project is to replace failing water and sewer infrastructure in the Sahalee Subdivision. The Sahalee subdivision was constructed in the early 1970s by the Baker Bay Development Company. The development was subsequently annexed into the City.

Approximately 2,600 lf of the original asbestos concrete (AC) water main pipe is still in service. The AC pipe is over 40 years old and is nearing the end of its useful life. The City is continually making repairs to these waterlines. The AC water pipe should be replaced with 8-inch PVC water main.

The sanitary sewer system in the Sahalee area is the original 1970s system and includes approximately 5,000 lf of failing sewer mains. The sanitary sewer system is nearing the end of its useful life. The majority of the sewage from the subdivision flows by gravity through an unopened right-of-way to connect to one of the City's main sewer trunks. The

remainder of the wastewater from the subdivision flows to the Sahalee Lift Station. This lift station is a wet pit/dry pit design with two self-priming centrifugal electric motor-driven sewage pumps. The self-priming feature of the pumps at this lift station is not reliable. Currently, the pump casing must be manually filled with water to maintain prime on the pump. Water from the wet well is pulled through a small-diameter tube into the pump casing. The operator's experience has been that solids and floatables in the wet-well easily block the small-diameter priming tube. If the pumps are not primed, they will not run causing sewage to collect and overwhelm the station's shallow wet-well, which leads to sewer over-flows and the associated public health threat. The steel wet well/dry well has corroded, resulting in excessive infiltration/inflow discharged to the lift station. The sanitary sewer system should be replaced with 8-inch PVC sewer mains and the Sahalee Lift Station should be replaced with a submersible lift station.

PROJECT DESCRIPTION AND PROJECT ACTION

The proposed project would replace approximately 5,000 lf of failing sewer lines with 4,200 lf of new 8-inch PVC sanitary sewers, 10 grinder pumps and 1,000 feet of small diameter force main. It would also replace approximately 2,600 lf of leaking water mains with new 8-inch PVC water mains; associated fire hydrants and gate valves. Pavement and landscaping restoration would also be included in the project scope. Finally, the existing Sahalee Sewage Lift Station would be replaced with a new submersible pump station in approximately the same location, which will eliminate the potential for sewage overflows and provide approximately 20-years of reliable service to the Sahalee Subdivision. This work would occur in existing City of Ilwaco ROW and developed sites more than 1,000 feet from critical habitat for salmon in Baker Bay and the Columbia River protected under the Endangered Species Act.

The project would replace the existing sanitary sewers in Wecoma Place, Hiaqua Place SW, Nesadi Drive, Klahanee Place, with 8-inch gravity sewers and install 8-inch sewer on Lamontay Place. The sewer in Nesadi Drive would be replaced by small diameter force main and individual grinder pumps would be installed at each of the residences tributary to the Nesadi Drive sewer. In addition, two grinder pumps will be installed at two residences on Wecoma Place that currently discharge sewage to a common side sewer located on the downhill side of the properties. The grinder pumps will discharge to the new 8-inch PVC sewer in Wecoma Place. The sanitary sewers located on Wecoma Place, Hiaqua Place and Nesadi Drive will discharge into an existing sanitary sewer main installed in 2002 at the intersection of Wecoma Place, Hiaqua Place and Nesadi Drive. This sanitary sewer was installed to provide sewer conveyance from the Discovery Heights development located adjacent to the Sahalee Subdivision, Cape Disappointment State Park and the US Coast Guard Station at Cape Disappointment to the City of Ilwaco. This alternative would also replace the existing Sahalee Lift Station duplex package, 5-hp pumps, and wet well/dry well lift station with a submersible lift station containing two 3-hp submersible pumps. The sanitary sewers and lift station would be designed in compliance with the City of Ilwaco design standards and the Department of Ecology *Criteria for Sewage Works Design Manual*.

This alternative would replace the 6-inch AC water mains in Wecoma Place, Hiaqua Place and Nesadi Drive with 8-inch PVC water mains, valves, and fire hydrants. The waterlines will be designed per City and Department of Health standards. As with the sewer line replacement project above, all proposed work will occur more than 1,000 feet from critical habitat for listed salmonids and 3,000 feet from marbled murrelet nests.

II. EVALUATION OF ALTERNATIVES

ALTERNATIVE 1: NO ACTION

Taking no action to replace the sanitary sewer system and Sahalee Lift Station would result in continued (and potentially increasing) leakage of raw sewage from off-set joints in sewer mains along Nesadi Drive and throughout the Sahalee Subdivision. It would also allow the less-than reliable, deteriorating, Sahalee Lift Station to continue to be overwhelmed during high flow events, resulting in discharges of raw sewage into the environment and the public health threats the sewer overflows would cause. These leaking sewer lines are also a source of infiltration and inflow (I/I).

Taking no action to replace the water mains in Hiaqua Place, Nesadi Drive and Wecoma Place would result in continued (and potentially increasing) leakage of treated water. Loss of treated water represents a source of lost revenue due pumping and treatment costs that are not recouped, as well as removal of water from the City water impoundment that is not being put to consumptive use.

ALTERNATIVE 2: UPGRADE SAHALEE SUBDIVISION SEWER SYSTEM ONLY

Replacement of leaking sewer mains and the Sahalee Lift Station would eliminate (or significantly reduce) the potential for releases of untreated sewage throughout the Sahalee Subdivision and at the Sahalee Lift Station. This alternative would not address leaking water distribution infrastructure and the lost revenue due to the cost of treatment and pumping water not sold to the consumer.

ALTERNATIVE 3: UPGRADE SAHALEE SUBDIVISION SEWER AND WATER SYSTEMS (PREFERRED ALTERNATIVE)

The proposed project would replace approximately 5,000 lf of failing sewer lines with 4,200 lf of new 8-inch PVC sanitary sewers, 10 grinder pumps and 1,000 feet of small diameter force main. It would also replace approximately 2,600 lf of leaking water mains with new 8-inch PVC water mains; associated fire hydrants and gate valves. Pavement and landscaping restoration would also be included in the project scope. Finally, the existing Sahalee Sewage Lift Station would be replaced with a new submersible pump station in approximately the same location, which will eliminate the potential for sewage overflows and provide approximately 20-years of reliable service to the Sahalee

Subdivision. This work would occur in existing City of Ilwaco ROW and developed sites more than 1,000 feet from critical habitat for salmon in Baker Bay and the Columbia River, and approximately 3,000 feet from marbled murrelet nests, protecting these birds, which are listed as threatened under the authority of the Endangered Species Act.

ALTERNATIVES ELIMINATED FROM FURTHER DISCUSSION

Water and sewer system improvements discussed in this report are identified as priority projects in the City of Ilwaco 6-Year Capital Facilities Plan for the Period 2012-2017. See City of Ilwaco Resolution adopting the 6-Year Capital Facilities Plan in Appendix B.

One alternative considered in the Preliminary Engineering Report involved replacement of the sewer main that extends from the east end of the Sahalee Subdivision cross-country to the City's collection system near the intersection of Spring Street and Second Street. Implementation of this alternative would require extensive disturbance of steep areas along the route and will not be discussed further in this report.

III. PROJECT IMPACTS

ALTERNATIVE 1: "NO ACTION"

If no action were taken to replace the failing sewer mains in the Sahalee Subdivision or upgrade the Sahalee Lift Station, leakage and overflows of untreated sewage into the environment would eventually occur, which could result in public health threats and potential contamination of critical habitat for listed salmonids present in Baker Bay and the Columbia River. Leaking water mains would continue to require additional treatment and pumping, which would increase costs to rate payers in Ilwaco. Infiltration and inflow to the sewer system would continue to increase loading to the Ilwaco WWTP, which would necessitate upgrading this facility earlier than would be required if either of the action alternatives were implemented.

DIRECT IMPACTS

Direct impacts that would result from the replacement of the sewer and water mains in the Sahalee Subdivision and replacement of the Sahalee Lift Station are discussed in detail in Section 4 and are summarized here, including:

- Excavation of approximately 5,200 lf of 3-foot x 6-foot trenches to install new 8-inch PVC sewer mains throughout the Sahalee Subdivision.

- Excavation of approximately 2,600 lf of 3-foot x 4-foot trenches to install new 8-inch PVC water mains.

- Excavation associated with installation of these sewer and water mains would be accomplished using track hoes and disturbed areas would be

replanted or repaved in-kind, once the new water and sewer mains are installed.

- Excavation for the new water and sewer mains will result in the disturbance of an area approximately 5- to 10-feet wide.

- Excavation of approximately 650 square feet of Ilwaco City ROW adjacent to the existing Sahalee Lift Station for the installation of the new submersible lift station.

- Installation of the proposed water and sewer mains and replacement of the Sahalee Lift Station will not require crossings of known streams or other sensitive areas, as the project area is approximately 1,000 feet from Baker Bay and the Columbia River and there are no significant surface waters connecting the Sahalee Subdivision to these water bodies.

- Construction activities will generate small amounts of air pollution associated with exhaust from construction equipment and cause minor traffic disruptions over the course of construction.

- Noise generated by the proposed project may disturb wildlife temporarily during construction. Animals displaced by construction activity will likely return to the project area once work is completed. Limiting noise-generating work to the period within daytime hours will help to minimize disturbance of noise-sensitive wildlife.

- Leakage from sewer mains in the Sahalee Subdivision and potential overflows of raw sewage at the Sahalee Lift Station will be eliminated, along with the associated public health threats.

- Water quality and aquatic habitat in Baker Bay would potentially be improved, especially during high flow events.

- No work in or near critical habitat for listed salmonids, eulachon or green sturgeon in Baker Bay or Columbia River will be required.

IRREVERSIBLE OR IRRETRIEVABLE COMMITMENTS OF RESOURCES

The Council on Environmental Quality NEPA guidelines (40 CFR 1050.16) requires discussion of any irreversible or irretrievable commitments of resources associated with the proposed project and its alternatives.

The environmental effects of the proposed Sahalee Subdivision Water, Sewer and Lift Station Replacement Project will be largely reversible with the following exceptions:

1. Traffic disturbances during excavation of the existing water and sewer mains, and installation of the new 8-inch PVC sewer and waterlines.

2. Clearing of the low growing foliage around the site for the new lift station adjacent to the existing Sahalee Lift Station.

3. Consumption of fossil fuels in construction equipment and the commitment of steel, concrete and other non-renewable materials during the construction phase.

Impacts associated with construction of the pipelines throughout the Sahalee Subdivision would be largely reversible, as any areas disturbed along the route will be repaved or replanted in-kind.

IV. AFFECTED ENVIRONMENT/ENVIRONMENTAL CONSEQUENCES FOR ACTION ALTERNATIVES CONSIDERED

This NEPA Environmental Report reviews environmental resources including land use, geologic hazards, floodplains, wetlands, cultural resources, biological resources, water quality, coastal resources, socio-economic/environmental justice, air quality, transportation, and noise. Tribal, local, state, and federal agencies were contacted to review and comment on the project impacts relating to the natural resources of the area. Correspondence with these entities can be found in Appendix B.

GENERAL LAND USE/IMPORTANT FARMLAND AND RANGELAND/FORMALLY CLASSIFIED LAND

Affected Environment

<u>General Land Use</u>

The Sahalee Subdivision is zoned by the City of Ilwaco as single-family residential. Water and sewer system improvements discussed in this report are identified as priority projects in the City of Ilwaco 6-Year Capital Facilities Plan for the Period 2012-2017. See City of Ilwaco Resolution adopting the 6-Year Capital Facilities Plan in Appendix B.

<u>Prime Farm and Forest Lands</u>

As the Sahalee Subdivision is zoned as single-family residential, it is not regarded as prime farm or forest land. According to the National Resources Conservation Service (NRCS) *Soil Survey for Grays Harbor County Area, Pacific and Wahkiakum Counties,* a

survey last updated December 2007, the entire Sahalee Subdivision site is a developed residential neighborhood and all areas proposed for soil disturbance are in existing road ROW, and are therefore not regarded as farmland of statewide importance.

Soils

The NRCS report's area of interest report classifies soils throughout the Sahalee Subdivision as **Palix silt loam, cool, 8 to 30 percent slopes.** The soils map from the Soil Survey can be found in Appendix B.

Formally Classified Lands

Formally classified lands in the vicinity include:

- Cape Disappointment State Park and Light House approximately 2 miles to the west;
- Fort Columbia State Park approximately 5 miles east;
- Pacific Point State Park approximately 10 miles north;
- Lewis & Clark National Historic Park approximately 15 miles southeast in Oregon

Additionally, the lower portion of Klahanee Drive is located within the boundaries of the Cape Disappointment Historic District, which extends from Baker Bay to the Pacific Ocean to the west. There are several historic structures eligible for State & Federal Historic Registers in Ilwaco.

Wild and Scenic Rivers

The nearest stream to the Sahalee Subdivision designated as a Wild and Scenic River is the White Salmon, which flows into the Columbia River approximately 100 miles upstream of Ilwaco.

Environmental Consequences

Alternative 1: No Action

Taking no action to repair or replace sewer mains in the Sahalee Subdivision in Ilwaco would result in continued releases of untreated sewage at leaks in the existing pipes and contamination of soils and surface waters in the neighborhood. This could result in closures of contaminated areas to protect public health. Not replacing leaking waterlines could contribute to erosion and slope failures in the steeper portions of the subdivision. Overflows of wastewater from the Sahalee Lift Station could result in contamination of

surface waters with the potential to reach Baker Bay and the Columbia River, which could result in threats to public health and restrictions on swimming and shellfish harvesting in these areas.

Taking no action would have no impact to the Washington State Parks near Ilwaco and the Lewis & Clark National Historic Park across the Columbia River in Oregon or other structures eligible for state or federal historic registers; further, it would not impact the Wild & Scenic White Salmon River 100-miles upstream.

Taking no action to upgrade water and wastewater infrastructure in Ilwaco's Sahalee Subdivision could result in an increased potential for damaging landslides and soil slumps/subsidence.

Alternative 2: Upgrade Sahalee Subdivision Sewer System Only

Replacing the proposed sewer mains in the Sahalee Subdivision and replacement of the Sahalee Lift Station with a new submersible pump station would eliminate leakage of raw sewage from the collection system and overflows of raw sewage at the lift station and the associated health threats these deficiencies cause. Elimination of these health threats would preclude the need to restrict public access throughout the neighborhood. Eliminating leakage from the sewer lines in the Sahalee Subdivision would reduce ground saturation in steep areas and the associated risk of soil slumps and slides.

Not replacing leaking water conveyance infrastructure in the Sahalee Subdivision would allow leaking water mains to continue wasting water, which requires the water system to pump and treat additional flows. Leaking water mains could continue to saturate soils, potentially contributing to soil instability and landslides in steeper areas and associated road closures and land use restrictions required until leaking pipes and downstream areas can be repaired.

It should be noted that the Palix soils present in the Sahalee Subdivision were formed from colluvium of siltstone (loose material collected at the bottom of a hill) and that the soil forming processes that created this soil are likely on-going. Not replacing or repairing leaking water mains could contribute to on-going soil slumps and slides. Soils in the Sahalee Subdivision, while suitable for silviculture, are not regarded as prime farmland due to their steepness and the current level of residential development.

Implementation of this alternative would involve no impact to the Washington State Parks and the Lewis & Clark National Historic Park across the Columbia River in Oregon, nor would it impact structures in Ilwaco that are on, or eligible for state and federal historic registers. While a portion of the sewer main to be replaced in Klahanee Drive will be located within the Cape Disappointment Historic District, this work will have no impact on historically significant structures, materials or landmarks. Further, implementation of this alternative would have no effect on formally designated Wild and Scenic Rivers.

Alternative 3: Upgrade Sahalee Subdivision Sewer and Water Systems (Preferred Alternative)

As with Alternative 2, replacing leaking sewage conveyance infrastructure and the Sahalee Lift Station would eliminate public health threats and land use restrictions required to protect public health. Replacing both leaking water and sewer mains will reduce soil saturation and the potential for landslides that could damage roadways and other public infrastructure in the Sahalee Subdivision, and that would require road closures and other land use restrictions.

Implementation of the proposed alternative will improve infrastructure and reduce the loads on the Ilwaco Wastewater Treatment Plant and the City's Water Treatment and conveyance system, which will minimize the need to construct additional wastewater or water treatment capacity for future growth in the City.

Implementation of this alternative would have no impact to the Washington State Parks and the Lewis & Clark National Historic Park across the Columbia River in Oregon, nor would it impact structures in Ilwaco that are on, or eligible for, state and federal historic registers. Further, it would have no effect on formally designated Wild and Scenic White Salmon and Klickitat Rivers upstream on the Columbia. As the project area has been developed as a residential subdivision, it is no longer regarded as prime forest land, despite having suitable soils for silviculture.

Mitigation

1. Construction Erosion and Sediment Control BMPs will be implemented during all ground disturbing construction activities.

2. Following the completion of excavation, installation, and construction activities, disturbed areas will be replanted with native species to prevent erosion and invasion by noxious plants or weeds, or repaved in-kind.

3. Erosion and sediment controls to be implemented during construction of the proposed water system and sewer system conveyance improvements will be designed in accordance with the Washington State Department of Ecology's 2005 Stormwater Manual for Western Washington or its equivalent.

GEOLOGIC HAZARDS

The City of Ilwaco in Pacific County lies at the extreme western edge of the southern Washington portion of the Columbia River Basalt formation, which extends south as far as Newport, Oregon. This dark columnar lava forms many prominent capes and headlands along the northern coast of Oregon and the base of the Willapa Hills. This

lava poured from volcanoes and long fissures in the earth (McKee, University of Washington 1972).

Geologic hazards were identified in the Agency's *National Resource Management Guide for Washington* (guidelines). The guidelines state the following: Washington State, by virtue of its proximity to the Cascade Mountains and the Cascadia Subduction Zone, is particularly prone to geological hazards and constraints, which could impact infrastructure improvement projects. The Washington State Department of Natural Resource (DNR) website (as recommended in the guidelines) listed geologic hazards including volcanoes, earthquakes, and landslides. Each of these hazards is discussed as follows:

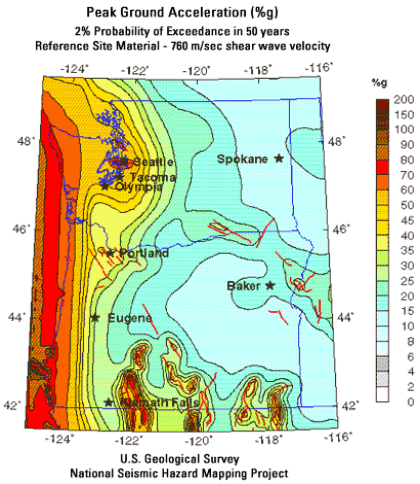
Volcanic Activity

Volcanic activity in southern Washington and northern Oregon occurs exclusively within the Cascade Mountain Range. Mount St. Helens is the most recent active volcano in the continental United States with a catastrophic eruption on May 18, 1980 and intermittent, on-going dome building eruptions. Other volcanoes within the Cascade mountain range that are in various states of activity and are located near the City of Ilwaco include Mount Adams, Mount Hood, Goat Rocks, and Mount Rainier. The locations and status of these volcanoes are listed below:

Volcanoes of the Cascade Mountain Range

Volcano	Status	Location
Mount St Helens	Active, cataclysmic event in 1980	50 miles NE of Portland, Gifford Pinchot National Forest
Mount Rainier	Active, steam emissions at summit; last eruption in 1820s	60 miles SE of Seattle, Mount Rainier National Park
Mount Adams	Active, fumaroles at summit	75 miles NE of Portland, Gifford Pinchot National Forest
Goat Rocks	Extinct	90 miles SSE of Seattle, Gifford Pinchot National Forest
Mount Hood	Active, last eruption 1865	50 miles ESE of Portland, Mount Hood National Forest
Mount Jefferson	Dormant/extinct	70 miles SE of Portland, Willamette National Forest

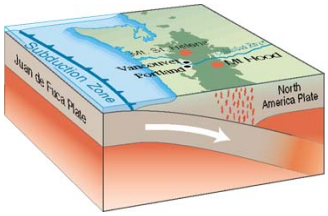
Source: Amar Andalkar's Ski Mountaineering and Climbing Site, "Skiing the Cascade Volcanoes," http://www.skimountaineer.com/CascadeSki/CascadeSki.html



These volcanoes are all located on the west side of the Cascade Mountains. While the project area may have been impacted by volcanic lava flows in the distant past, it is more likely to be dusted by volcanic ash from an eruption of Mt. St. Helens during a period of easterly winds down the Columbia Gorge.

Seismic Activity

Seismic activity in Washington State results when the eastward-moving Juan de Fuca Plate meets the westward-moving North American Plate at the Cascadia Subduction Zone. Seismicity in southwestern Washington is considered moderate and may be the result of plate and fault activity, or be associated with major eruptions of nearby volcanoes.



Most earthquakes in Washington are associated with activity around the Puget Sound Basin, usually within the North Whidbey Island fault, South Whidbey Island fault, and Seattle Fault. However, the largest earthquake in Washington State history is thought to be the 1872 earthquake near Lake Chelan with a magnitude 7.0. This earthquake was felt from British Columbia to Oregon and from the Pacific Ocean to Montana. Geological evidence indicates that a larger quake approaching a magnitude 9.0 occurred off the Washington Coast in the early 1600s. Quakes of this magnitude are thought to occur in this area between every 350 to 1,000 years.

The USGS Peak Ground Acceleration Map indicates Peak Ground Acceleration with a 2 percent probability of exceedances of various ground acceleration levels over 50 years. The southern part of Western Washington exhibits an intermediate probability for earthquake hazards.

LANDSLIDES

Affected Environment

Southwestern Washington experiences moderate frequencies of earthquake activity. Although the Sahalee Subdivision is moderately sloped, Palix silt loam soils in the area are generally stable. However, the soils in steep portions of the area formed from colluvium, indicating that the potential for landslides exists.

Environmental Consequences

Alternative 1: No Action

Taking no action to replace water or wastewater conveyance infrastructure in the Sahalee Subdivision of Ilwaco would allow the existing sewer and water mains in the area to continue leaking, which would contribute to ground saturation, slumping and potentially to landslides in steep areas. As structures on saturated soils are generally more susceptible to damage during earth movements, the potential for damage would be increased if water and sewer mains were allowed to continue leaking, which would be the case if the proposed projects are not implemented.

Alternative 2: Upgrade Sahalee Subdivision Sewer System Only

Replacing leaking sewer main and the lift station serving the Sahalee Subdivision would reduce ground saturation, which may reduce the potential for slumping and landslides in the project area and down slope. Not replacing or repairing leaking water mains would leave some areas susceptible to soil saturation and slope movements.

Alternative 3: Upgrade Sahalee Subdivision Sewer and Water Systems (Preferred Alternative)

Implementation of the proposed sewer and water main repairs/replacements in the Sahalee Subdivision will likely reduce soil saturation and the potential for landslides or damage during earthquakes associated with saturated soils. Adverse impacts associated with geological hazards occurring as a result of the WWTP relocation are unlikely, provided the new pipelines, and lift station are designed and built to appropriate codes.

Mitigation

1. Construction BMPs for the control of sedimentation and erosion will be implemented during project construction.

2. Proposed pipelines will be routed to avoid steep and sensitive areas and all new infrastructures will be built to meet local codes to ensure that it is not vulnerable to geologic hazards.

FLOODPLAINS

Affected Environment

Flood Insurance Rate Maps (FIRM) for Ilwaco and the surrounding portion of Pacific County are found in Appendix A. FIRM Panel No 530127 0001B, City of Ilwaco; Pacific County, Washington (February 1, 1979) indicates that the entire project area including Sahalee Subdivision and the lift station is located outside of the 100-year floodplain of the Columbia River. See Appendix A.

Environmental Consequences

Alternative 1: No Action

Taking no action to repair or replace water and wastewater conveyance infrastructure in the Sahalee Subdivision would allow existing leaking pipes to contribute to saturation of soils that could contribute to soil saturation and landslides that would have a minimal potential to reach the 100-year floodplain of the Columbia River.

Alternative 2: Upgrade Sahalee Subdivision Sewer System Only

Any new wastewater conveyance infrastructure installed in the Sahalee Subdivision would be located above the 100-year floodplain of the Columbia River and Baker Bay. Installation of water tight conveyance pipelines would reduce the potential for ground saturation and associated landslides that could result in minor filling (and damage to structures) in the 100-year floodplain.

Alternative 3: Upgrade Sahalee Subdivision Sewer and Water Systems (Preferred Alternative)

All new water and wastewater conveyance infrastructure installed to replace the existing leaking infrastructure would be installed above the 100-year flood elevation, as in Alternative 2. Replacing leaking water conveyance lines would further reduce the potential for ground saturation and landslides that have a remote potential for filling a portion of the 100-year floodplain and damaging structures there.

Mitigation

1. Mitigation measures designed to protect water quality and fisheries habitat will be implemented during construction.

2. Disturbed areas will be replanted or repaved in-kind.

WETLANDS

Affected Environment

The US Fish & Wildlife Service Wetlands Mapper/National Wetland Inventory Map for Ilwaco and the Sahalee Subdivision indicated that there are no mapped wetlands in the immediate project area, but that there are wetlands to the north near Holman Lake and to the south along the Columbia River. See National Wetlands Inventory Map in Appendix A.

Environmental Consequences

Alternative 1: No Action

The Sahalee Subdivision is located on a hill with soils that drain well, so the National Wetland Inventory Map for the area does not identify any jurisdictional wetlands. It is possible that small areas of wetlands may exist in the project area, but reconnaissance by trained wetland professionals would be required to determine the locations and extent of any wetlands present. Taking no action to replace leaking sewer or water mains in the Sahalee Subdivision would have no impact on any small wetland areas that may be present in the project area. Wetlands formed by leaking water and sewer mains would remain undisturbed.

Alternative 2: Upgrade Sahalee Subdivision Sewer System Only

Replacement of leaking sewer mains, installation of grinder pumps and replacement of the Sahalee Lift Station serving the Sahalee Subdivision would have the potential to dry up of any small, unmapped wetlands that may have formed due to the presence of the leaking sewer lines. Direct impacts to wetlands associated with the proposed sewer main replacements are unlikely, as most of the infrastructure to be replaced is located within existing City of Ilwaco Street ROW. Any small wetland areas supported exclusively by leaking water mains in the project area would remain undisturbed.

Alternative 3: Upgrade Sahalee Subdivision Sewer and Water Systems (Preferred Alternative)

Replacement of both leaking water and sewer mains in the Sahalee Subdivision would have the potential to dry up small unmapped wetland areas dependent upon the leaks throughout the project area. As with Alternative 2, direct wetland impacts associated with installation of the proposed water and sewer lines is unlikely, as most, if not all, water and sewer lines to be replaced are located within existing City of Ilwaco Street ROW.

Mitigation

1. A surface restoration plan will be provided as part of the design and bid documents.

2. Disturbed areas will be replanted with native vegetation or repaved in-kind.

3. Any disturbed wetland or wetland buffer areas will be replanted with native vegetation and restored to previous conditions following the completion of the project.

CULTURAL RESOURCES

Affected Environment

National Historic Preservation Act of 1966 (NHPA)

The NHPA, as amended (16 U.S.C. § 470 *et seq*.) and the Advisory Council on Historic Preservation's (ACHP) implementing regulations, 36 CFR Part 800 (Section 106 regulations), require Federal agencies to take into account the effect their actions may have on historic properties that are within the proposed project's area of potential effect. Historic properties are defined as including, at a minimum, prehistoric or historic districts, sites, buildings, structures, objects, artifacts, records, and human remains. The Sahalee Subdivision was constructed in the 1970s and the lower portion of Klahanee Place lies within the Cape Disappointment Historic District. The National Native American Graves Protection and Repatriation Act (NAGPRA) Online Databases were accessed on February 24, 2012 to obtain contact information for Native American Tribes with interests in project activities in Pacific County. The Shoalwater Bay Tribe of the Shoalwater Bay Reservation and the Confederated Tribes of the Chehalis Reservation were the two federally recognized tribes listed.

Mr. Rob Freed of Archaeological Consulting Services conducted a Cultural Resources Survey of the proposed project area on March 19, 2012. Mr. Freed indicated that no buildings in the project area are eligible for either state or federal cultural resources registers in an email to Nancy Lockett (March 23, 2012). NHPA Consultation Letters and the Cultural Resources Report prepared by Mr. Freed of Archaeological Consulting Services will be forwarded to representatives of the Confederated Tribes of the Chehalis Reservation and the Shoalwater Bay Tribe of the Shoalwater Indian Reservation to initiate the NHPA, Section 106 consultation process. This report will also be forwarded to Dr. Rob Whitlam, State Archeologist.

Environmental Consequences

Alternative 1: No Action

Taking no action to replace failing water and sewer infrastructure in the Sahalee Subdivision in Ilwaco would require no ground disturbing activity and would have no effect on materials of cultural, historic, or archaeological significance, unless leaking infrastructure caused a slope failure that caused materials of cultural or historic value to be damaged or disturbed.

Alternative 2: Upgrade Sahalee Subdivision Sewer System Only

Replacement of failing sewer lines, installation of grinder pumps and replacement of the Sahalee Lift Station would require excavation in existing road rights-of-way in the Subdivision. The Department of Archaeological Preservation and the concerned Tribes required that the route of the proposed sewer mains and the site of the proposed Lift Station upgrades be inspected by a professional archaeologist prior to ground disturbance. It is also likely that an Inadvertent Discovery Plan will be required.

Alternative 3: Upgrade Sahalee Subdivision Sewer and Water Systems (Preferred Alternative)

Excavation of trenches for the proposed water and sewer main replacements and reconstruction of the Sahalee Lift Station have the potential to disturb or uncover materials of historic, cultural, or archaeological significance. As with Alternative 2, the Department of Archaeology and Historic Preservation requested that the routes of the proposed water and sewer mains and the site of the proposed Lift Station be inspected by a professional Archaeologist and that concerned Tribes be contacted regarding any concerns associated with the project in compliance with Section 106 of the National Historic Preservation Act. Mr. Rob Freed of Archaeological Consulting Services has conducted the required survey and is in the process of completing a cultural resources report. His preliminary indications in an email to Nancy Lockett, P.E., indicated that the archaeological investigation did not identify any evidence of prehistoric or historic archaeological remains. The proposed excavation for replacement of water and sewer mains and the Sahalee Lift Station would appear to have a relatively low probability for the disturbance of archaeological remains due to the project area terrain. The alignment for the sewer and water mains will be excavated into the asphalt surfaces, which have been previously disturbed. Consequently, in view of the findings, no further archaeological investigations are recommended.

In the unlikely event that construction does expose buried cultural material that was not detected during the archaeological investigation, Washington state laws are explicit about the protection of prehistoric and historic sites (RCW 25.53.060-Archeological Sites and Resources) and Indian burials (RCW 27.4.020- Indian Graves and Records). In the event that such cultural resources are encountered, the DAHP must be promptly notified. Work

in the immediate vicinity of the find should be halted until the significance of the discovery can be evaluated by a professional archaeologist, and a course of action determined and implemented in consultation with the appropriate Tribes and DAHP Archaeologist."

Mitigation

In the event that archaeological or historic materials are encountered during project activity, work in the immediate area (initially allowing for a 100-foot buffer; this number may vary by circumstance) must stop and the following actions taken:

- Implement reasonable measures to protect the discovery site, including any appropriate stabilization or covering;
- Take reasonable steps to ensure the confidentiality of the discovery site; and
- Take reasonable steps to restrict access to the site of discovery.

The project proponent will notify the concerned Tribes and all appropriate county, state, and federal agencies, including the USDA Rural Development Administration and the Department of Archaeology and Historic Preservation. The agencies and Tribe(s) will discuss possible measures to remove or avoid cultural material, and will reach an agreement with the project proponent regarding actions to be taken and disposition of material.

If human remains are uncovered, appropriate law enforcement agencies shall be notified first, and the above steps followed. If the remains are determined to be Native, consultation with the affected Tribes will take place in order to mitigate the final disposition of said remains.

See the Revised Code of Washington, Chapter 27.53, "Archaeological Sites and Resources," for applicable state laws and statutes. See also Washington State Executive Order 05-05, "Archaeological and Cultural Resources." Additional state and federal law(s) may also apply.

BIOLOGICAL RESOURCES

Affected Environment

Threatened and Endangered Species

Fish species protected under the authority of the Endangered Species Act of 1973 (ESA) present in the Lower Columbia River near Ilwaco will be presented in this section. Further, the species of federally protected plants and upland animal species will also be

reviewed. The Washington Natural Heritage Program's Natural Heritage Information System database keeps information on rare plants and high quality native wetland and terrestrial ecosystems. The US Fish and Wildlife Service (USFWS) is responsible for managing upland plants and wildlife, and aquatic species that spend the majority of their life cycle in fresh water. The NOAA's National Marine Fisheries Service (NMFS) is responsible for marine mammals and fish species like anadromous salmon that spend the majority of their life cycles in marine waters. Critical Habitat (ESA) and Essential Fisheries Habitat (Magnuson Stevens Act) for commercially important fisheries are also managed by the NMFS and will be discussed in this section.

Federally Listed Threatened Species in Pacific County Under the Jurisdiction of the National Marine Fisheries Service/NOAA Fisheries (from the NMFS Northwest Region Webpage, last updated June 15, 2007)

Lower Columbia River Steelhead, O. mykiss, Threatened

The Lower Columbia River steelhead distinct population segment (DPS) was listed as Threatened on March 19, 1998, with this status being reaffirmed on August 15, 2011. The Lower Columbia River supports five summer steelhead stocks and eighteen winter steelhead stocks. Run timing for these stocks extends from May through October for summer steelhead and from December through April for winter steelhead stocks. Various life stages of Lower Columbia River steelhead may be present in the Columbia River near Ilwaco year-round. Critical Habitat for steelhead was designated on September 2, 2005. The Lower Columbia River Corridor was designated as Critical Habitat by the National Marine Fisheries Service on January 2, 2006 establishing Baker Bay as Critical Habitat for steelhead as well.

Lower Columbia River Coho, O. kisutch, Threatened

Lower Columbia River coho were identified as a separate ESU and listed as Threatened on June 28, 2005. This listing was re-affirmed by the National Marine Fisheries Service on August 15, 2011. This ESU includes all naturally spawned populations of coho salmon in the Lower Columbia River and its tributaries, from its mouth to the Big White Salmon and Hood Rivers, and 25 artificial propagation programs in the area. Critical Habitat for Lower Columbia River coho is still under development.

Lower Columbia River Chinook, Oncorhynchus tshawytscha, Threatened

Lower Columbia River chinook were listed as Threatened on March 24, 1999; this status reaffirmed on August 15, 2011. The Lower Columbia River chinook ESU includes all naturally spawned populations of chinook salmon from the Columbia River and its tributaries, from its mouth at the Pacific Ocean, up to and including the White Salmon and Hood Rivers, and also includes chinook from seventeen artificial propagation programs within Washington and Oregon. Migrating chinook salmon return to the lower Columbia from August through November, and spawn between October and November.

City of Ilwaco and the Sahalee Subdivision is located near the mouth of the Columbia River. Final Critical Habitat designation for chinook was finalized on January 2, 2006 and included this section of the Columbia River and Baker Bay.

Columbia River Chum, O. keta, Threatened

Columbia River chum were once widespread in the Lower Columbia River. They were first listed as threatened on March 25, 1999 and had that status reaffirmed on June 28, 2005. Today, Columbia River chum are concentrated in the Grays River system near the mouth of the Columbia and near Bonneville Dam in Hardy and Hamilton Creeks. Fall run chum salmon return to the Columbia River from mid-October through November, but apparently do not reach the Grays River, 19-miles downstream from the project area, until late October-early December. Spawning occurs in the Grays River from early November to late December. Critical Habitat for the Columbia River chum salmon was finalized on January 2, 2006 and includes the lower Columbia River and Baker Bay near Ilwaco.

Critical Habitat for Listed Anadromous Fishes

The Lower Columbia River has been designated as Critical Habitat for Lower Columbia River steelhead and chinook, and Columbia River chum. Critical Habitat for these listed salmonids includes the Lower Columbia River Corridor and the Lower Columbia River's tributary streams below long-standing natural barriers. Lower Columbia River coho Critical Habitat is under development. The Lower Columbia River Corridor is also listed as Critical Habitat for many other ESUs and DPSs of anadromous fishes. The portion of the Columbia River offshore of Ilwaco has been designated as part of the rearing and migration corridor for the following ESUs and DPSs:

ESU or DPS	**ESA Listing Status**
Chinook ESUs	
Upper Columbia River Spring-run	Endangered – 6/28/05
Upper Willamette River	Threatened – 6/28/05
Steelhead DPSs	
Upper Columbia River	Endangered – 6/13/07
Snake River Basin	Threatened – 1/5/06
Middle Columbia River	Threatened – 1/5/06
Upper Willamette River	Threatened – 1/5/06

These populations have only minimal potential to be affected by the proposed project, as they only pass Ilwaco on their way to and from the Pacific Ocean. They will not be discussed further in this report.

North American Green Sturgeon

The National Marine Fisheries Service listed the Southern Distinct Population Segment of the North American Green Sturgeon was listed as "Threatened" on April 7, 2006. On October 9, 2009 NOAA Fisheries Service designated final Endangered Species Act critical habitat for the threatened southern distinct population segment (DPS) of the North American green sturgeon. Critical habitat was established for the Lower Columbia River that includes the mainstem from where it meets the Pacific Ocean, upstream to Bonneville Dam (NMFS, Federal Register, October 9, 2009). Adult and sub-adult green sturgeon from this DPS utilize the Lower Columbia and the lower reaches of tributary rivers for over-summer foraging during coastal migrations (Gail Kreitman, NOAA Fisheries, February 2010). While green sturgeon are known to be present throughout the Lower Columbia River, which is designated as critical habitat for this species, they would not be present within the Sahalee Subdivision Project Area, which is located on the side of a hill with no significant streams flowing into the Columbia River where green sturgeon may be present.

Eulachon

The National Marine Fisheries Service proposed to list the Southern Distinct Population Segment of Eulachon for protection under the Endangered Species Act on March 13, 2009. Eulachon, or Columbia River smelt, range from northern California to southwest Alaska along the west coast of North America. The Southern Distinct Population Segment (DPS) of eulachon extends from the Canadian Border south to the Mad River in California. Eulachon spawn in fresh water, including the Lower Columbia River and its tributary streams near the project area, between December and March and generally leave rivers within 10 days of spawning (Bill Rehe, WDFW Habitat Biologist February 2010). While eulachon are known to be present throughout the Lower Columbia River and its tributaries, which are designated critical habitat for this species, they would not be present within the Sahalee Subdivision Project Area, which is located on the side of a hill with no significant streams flowing into the Columbia.

Essential Fish Habitat

Commercially important salmonids present in the Lower Columbia River system include chinook salmon, coho salmon, and a small population of pink salmon; all of which pass by Ilwaco approximately 1,000 feet from the project area during annual migrations. These species use the Lower Columbia River and some of its tributaries for spawning, transportation, and rearing. According to the SalmonScape application on the WDFW website, pink salmon presence has been documented throughout the Lower Columbia River. SalmonScape indicates that there is no known habitat for these species in the Sahalee Subdivision project area.

Listed Threatened Species in Pacific County Under US Fish & Wildlife Service Jurisdiction (From the USFWS Western Washington Office Species List for Pacific County last revised August 26, 2010)

Bull Trout, Salvelinus confluentus, Threatened

The Columbia River bull trout was listed as threatened on June 10, 1998. According to SalmonScape on the WDFW website, bull trout presence has been documented in the Lower Columbia River and Baker Bay. Bull trout have not been documented in any stream in the immediate vicinity of the Sahalee Subdivision.

Bull trout Critical Habitat for many locations in the Columbia River and its tributaries was proposed on November 29, 2002 and finalized October 6, 2004. However, according to the final Critical Habitat designation for bull trout, the nearest designated critical habitat for bull trout to Ilwaco is on the Lewis River, which flows into the Columbia approximately 80-miles upstream of the project area. Critical habitat for bull trout is generally restricted to spawning areas in upper watersheds above 3,000 feet elevation; in comparison Ilwaco and the Sahalee project area is only a few feet above sea level near the mouth of the Columbia River.

Marbled Murrelet, Brachyramphus marmoratus, Threatened

According to the Priority Habitats and Species Map provided for this project area by the WDFW on March 1, 2012, the nearest marbled murrelet nests to the project area occur approximately 3,000 feet to the southwest of the Sahalee Subdivision. Critical habitat for marbled murrelets is generally limited to the area within 0.25 mile of known nesting sites meaning that the project area is not potential Critical Habitat for the murrelets. The project area is east of these nesting sites, so that the project will not adversely impact marbled murrelets nesting to the southwest during their daily feeding migrations to the Pacific Ocean. Marbled murrelets nesting to the east, within 60 miles of the Pacific Ocean would be most likely to utilize the Columbia River corridor, rather than pass through the Sahalee Subdivision during their daily feeding migrations to the Pacific Ocean.

Northern Spotted Owl, Strix occidentalis caurina, Threatened

The USFWS Species List for Pacific County indicated that northern spotted owls are present in the County. However, according to the Habitats and Species Map prepared by the WDFW on March 1, 2012, there are no northern spotted owl management areas within the mapped area, which extends approximately 2 miles from the project area.

Oregon silverspot butterfly, Speyeria zeren hippolyta, Threatened

The US Fish and Wildlife Service Species List for Pacific County indicate that the Oregon silverspot butterfly may be present in or around the county. According to the *Federal Notice for the Availability of a Revised Recovery Plan for the Oregon Silverspot Butterfly* (FR Volume 66, No. 231, November 2001), this butterfly is distributed in six small areas along the Pacific Coast, including a small population on the Long Beach Peninsula in Pacific County. This population may be extirpated, due to lack of suitable grassland habitat. According to an email from Amy Iverson (March 25, 2008) and confirmed in a personal communication on February 28, 2012), and the March 1, 2012 Priority Habitats and Species Map prepared by WDFW, there have been no reports of Oregon silverspot butterflies near the project area. A small population was once present near Leadbetter Point on the Long Beach Peninsula, 15 miles northwest of the project area. Mr. Charlie Stenvall from the USFWS Willapa Bay Wildlife Refuge noted that the last records of Oregon Silverspot butterflies in the area were from the late '90s and the population is now presumed extirpated (email March 14, 2008).

Short-tailed albatross, Phoebastria albatrus, Endangered

The US Fish and Wildlife Service Species List for Pacific County indicate that the short-tailed albatross may be found on the outer coast of the County. According to the *Short-tailed Albatross Draft Recovery Plan* (USFWS 2005), the short-tailed albatross is a large pelagic bird that was nearly hunted to extinction in the early 20th Century. It has no known breeding habitat on the Washington Coast. However, individuals may be present offshore of Pacific County on rare occasions. The WDFW Priority Habitats and Species Map and its accompanying report (March 1, 2012) indicates that there have been no sightings of short-tailed albatross in the project area or adjacent TRS sections. Amy Spoon of WDFW (Personal communication 2-28-2012) confirmed that the short-tailed albatross is more likely to be found well offshore of the coast west of Ilwaco than on the hillside west of Ilwaco where the Sahalee Subdivision is located. The short-tailed albatross was originally proposed for ESA listing in 1980, and was more recently proposed on November 2, 1998 (63 FR 58692). According to the Final Rule, published in the July 31, 2000 Federal Register, short-tailed albatross breeding colonies are limited to two Japanese islands and can also be found on Midway Atoll, part of the Hawaiian Islands. The continental United States is only part of the historic range of the short-tailed albatross. In 2000, when the Final Rule designation was released there were only believed to be 600 short-tailed albatross in the world. If a short-tailed albatross were to be present near Pacific County it would most likely be well offshore of the project area.

Western snowy plover, Charadrius alexandrinus nivosus, Threatened

The snowy plover was proposed for designation as Threatened on January 14, 1992 (57 FR 1443) and was established by the final rule published in the Federal Register March 5, 1993 (58 FR 12864). *The Western Snowy Plover Pacific Coast Draft Recovery Plan* (US Fish & Wildlife Service 2001) indicates that snow plovers breed along the west

coast of the United States from southern Washington to the Mexican border and beyond. In Pacific County, snowy plovers nest on Ledbetter Point at the north end of the Long Beach Peninsula, approximately 15 miles northwest of the project area. These birds nest in grasslands adjacent to the outer coastal shoreline, but have been known to occasionally fly significant distances inland in Oregon and California. According Amy Spoon, WDFW Habitat Biologist for the Pacific County (personal communication 2-28-2012), and the Priority Habitats and Species Map provided for this project area by the WDFW (March 1, 2012) there have been no western snowy plover sightings recorded near the project area or in adjacent TRS sections.

Streaked Horned Lark, Eremophila alpestris strigata, Candidate

The streaked horned lark is listed as a candidate species in Pacific County by the USFWS. The streaked horned lark has estimated populations in Washington and Oregon of 330 and 400 breeding birds, respectively. In Washington, the streaked horned lark is found in the Puget lowlands, coastal areas, and on Columbia River islands. The USFWS Species Assessment for the Streaked Horned Lark (2007) reports that 13 breeding sites are found in Grays Harbor, Mason, Pierce, Thurston, Pacific, and Wahkiakum Counties in Washington State. A report by WDFW, published in September 2005, shows that there are current streaked horned lark breeding sites within the Lower Columbia River corridor, although these lark breeding sites are typically in sparsely vegetated expanses of sand adjacent to the ocean or Columbia River; therefore, these birds would be unlikely to utilize the developed forested hillside habitat in the project area.

Fish and Shellfish

In addition to the Threatened and Endangered fish species discussed above, shad, bass, perch, sturgeon (both white and green), Pacific lamprey, herring and a variety of marine fish that may swim up the Columbia River in the saltwater lens. Dungeness crabs are known to be present in the Columbia River near the mouth.

Wildlife

Large game animals present in the vicinity of Ilwaco are likely to include Roosevelt elk, black-tailed deer and black bear. Smaller common mammals include beaver, coyote, raccoons, mountain beaver, snowshoe hare, brush rabbit, purple marten striped skunk, opossum, river otter, mink, weasels and red squirrels. Less common mammals include cougar, bobcat, muskrat, flying squirrel and porcupine. Various species of shrews, rodents and bats are also common.

Waterfowl in the vicinity of the WWTP includes mallards, wood ducks, common merganser, great blue heron, green heron, belted kingfisher and the American dipper. Many species of migrating ducks, geese and swans also migrate past Ilwaco. Birds of prey include the goshawk, Cooper's hawk, sharp shinned hawk, osprey red-tailed hawk, kestrel and northern harrier. Owls that may be present in the vicinity include the great

horned owl, western screech owl, northern sawhet and northern pygmy owl. The Sahalee Subdivision lies within the range of the northern spotted owl, but no "northern spotted owl centers" were indicated on the Habitats and Species Map prepared for the vicinity of **Township 10 north, Range 11 west and Section 33** (WDFW March 1, 2012)**.**

A wide variety of upland birds may be present in the vicinity of Ilwaco. Species of concern to the US Fish & Wildlife Service include Peregrine falcon *(Falco peregrinus)* and the olive-sided flycatcher *(Contopus cooperi)*. Other common birds present may include Steller's jay, American crows and a variety of woodpeckers, swallows, nuthatches, wrens, sparrows, vireos and finches. There are six bald eagle nesting sites approximately one half mile southwest of the project area.

The only snake species common to the project area is the northwestern garter snake. It is unlikely that turtles would be found in the vicinity of the Sahalee Subdivision on the hillside above the Columbia River. The lizard most likely to be present is the American alligator lizard. Species of Concern to the USFWS include the long-eared myotis *(Myotis evotis)*, long-legged myotis *(Myotis volans)*, western toad *(Bufo boreas)* (Mathews 1999).

Vegetation

The Ilwaco area was originally forested with wetlands and marsh areas along the Columbia River east of the Sahalee Subdivision Project Area. Most of the hillsides in the Ilwaco area have been logged at least once. Common tree species in order of prominence include: Douglas-fir *(Pseudotsuga menziesii)*, red alder *(Alnus rubra)*, big-leaf maple *Acer macrophyllum)*, and black cottonwood *(Populus trichocarpa)*. Other species found in the area include Grand fir *(Abies grandis)*, Oregon white oak *(Quercus garryana)*, Western red cedar *(Thuja plicata)* and Oregon ash *(Fraxinus latifiola)*. Various species of undergrowth include salal, several varieties of berries, innumerable species of brush, sword ferns, honeysuckle, vine maple and others. Grasses consist of bentgrass, brome, cheat and other local grasses.

Environmental Consequences

Threatened and Endangered Species

Alternative 1: No Action

Taking no action to replace failing water and sewer mains and the Sahalee Lift Station could result in an increased potential for landslides and contamination of surface water by untreated sewage from the Sahalee Subdivision, which could adversely impact water quality in the Columbia River during high flow events, which could adversely impact listed salmonid species, green sturgeon and eulachon present. Marbled murrelet and northern spotted owl populations could also be adversely impacted by an increase in nutrient and bacterial loading to the Columbia River.

Alternative 2: Upgrade Sahalee Sewer System Only

Replacement of leaking sewer lines and the Lift Station for the Sahalee Subdivision and installation of grinder pumps would eliminate contamination of surface waters by untreated sewage and reduce the potential for landslides associated with ground saturation from the leaking pipes. Eliminating leakage of untreated wastewater would improve water quality and fish habitat in the Columbia River during high flow events that would have the potential to flush untreated wastewater as far as the Columbia River shoreline. Marbled murrelets and northern spotted owls nesting and/or migrating along the Columbia River would benefit from improved water quality resulting from replacement of failing sewer infrastructure in the Sahalee Subdivision.

Alternative 3: Upgrade Sahalee Subdivision Sewer and Water Systems (Preferred Alternative)

Replacement of leaking water mains in addition to the proposed improvements to the Sahalee Subdivision sewer system would reduce the potential for landslides and associated damage to water and sewer infrastructure that could release untreated wastewater into the environment adjacent to the Columbia River. Implementation of these improvements could potentially benefit listed fish and bird species present in the vicinity of the Sahalee Subdivision and Baker Bay and the Columbia River down slope from the project area.

Fish and Shellfish

Alternative 1: No Action

There would be no direct adverse impacts to fish and shellfish in the Columbia River in the event that no action were taken to replace aging water and sewer mains and the Sahalee Lift Station, as no construction-related ground disturbance would occur. However, continued leakage of water and untreated sewage in steep areas of the Sahalee Subdivision could result in landslides and potential contamination of surface waters that could eventually reach Baker Bay and the Columbia River. This could necessitate restrictions on harvest of fish and shellfish from this portion of the Lower Columbia River.

Alternatives 2 and 3: Upgrading Sahalee Water and Sewer Conveyance Systems

Due to the limited scope of the proposed sewer main, water main and sewer lift station replacement projects, and their distance from the Columbia River, construction of either of the proposed action alternatives would have little potential to adversely impact fish and shellfish populations in the Columbia River near Ilwaco. Operation of the new sewer lift station, sewage conveyance lines and water mains would reduce leakage potential in these systems and reduce the occurrence of slumps and landslides that would have a

minimal potential to reach the waters of the Columbia River and any fish or shellfish population present.

Wildlife

Alternative 1: No Action

Taking no action to replace failing water and sewer lines and the Sahalee Sewer Lift Station would have little potential to impact wildlife in the Sahalee Subdivision, as no noise would be generated by construction activities and leaking water and sewer mains would remain un-repaired. Wildlife present in the vicinity of leaking water mains could continue to use this source of water.

Alternatives 2 and 3: Upgrading Sahalee Water and Sewer Conveyance Systems

Construction of either alternative would require operation of construction and excavation equipment within the project area for a period of approximately 4 months. In the event that the existing pavement must be broken and removed, noise associated with pavement breaking would likely drive noise-sensitive wildlife away from the area for the period of a few hours a day. This work could cause sensitive bird, small mammal and amphibian species to temporarily leave the project area during construction. These temporarily displaced species would all be likely to return to habitat adjacent to the project area once construction is complete, as the operation of the new water and sewer mains would not generate any new noise and the new lift station is likely to be quieter than the existing Lift Station. A few small birds and other vertebrates currently occupying the site of the new Lift Station would be permanently displaced into similar adjacent habitat.

Vegetation

Protected Plant Species Near the Project Area

The Natural Heritage Information System is a database used by the Washington Natural Heritage Program to identify rare plants and high quality native wetland and terrestrial ecosystems in the vicinity of a project. This database was reviewed on March 1, 2012. According to the list of protected plants for Pacific County, there are no federally protected Endangered or Threatened plant species in the County or the project area. There are three Federal Plant Species of Concern in Pacific County, none of which are likely to be present within the City of Ilwaco rights-of-way or adjacent to the site of the Sahalee Lift Station.

Alternative 1: No Action:

Taking no action to replace water and sewer infrastructure in the Sahalee Subdivision would result in no significant construction-related disturbance to vegetation. Not repairing existing leaks in water and sewer mains would allow leaks to grow worse,

which could cause landslides that could damage existing vegetation in the project area and down slope.

Alternatives 2 and 3: Upgrading Sahalee Water and Sewer Conveyance Systems

Replacement of water mains, sewer mains and the Sahalee Lift Station and installation of grinder pumps would require excavation of trenches in existing road rights-of-way throughout the Sahalee Subdivision, which should involve little potential to impact existing adjacent vegetation. A 650 square foot area adjacent to the Sahalee Lift Station would be cleared as necessary to allow construction of the new lift station. Disturbed areas on the site would be stabilized by hydroseeding with grass and/or replanted with appropriate native vegetation in accordance with City of Ilwaco landscaping requirements.

Impacts to Listed Fish Species

The DPS of Lower Columbia River steelhead and ESUs of EFH for Lower Columbia River chinook and coho, and Columbia River chum are listed as threatened by the NMFS. The Lower Columbia River Corridor, adjacent to the City of Ilwaco, has been designated as Critical Habitat for the Lower Columbia River steelhead DPS and for green sturgeon and eulachon. Water mains, sewer mains and the Sahalee Lift Station are all located approximately 1,000 feet north and west of Baker Bay and no in-water work will be required.

Although listed salmonids, green sturgeon and eulachon could be present in Baker Bay near the project area, no in-water work will be necessary and the potential for adverse impacts to steelhead habitat will be minimal. These species would all benefit from elimination of surface water contamination from leaking sewer mains, should runoff from the project area reach Baker Bay.

Impacts to Essential Fish Habitat

Chinook, coho, and a small population of pink salmon are found in the Lower Columbia River system. All of these species use the Lower Columbia River and its tributaries for spawning, transportation, and rearing. SalmonScape indicates that chinook coho, chum and steelhead are found in the Lower Columbia River, offshore of the project area. Construction impacts to Essential Fish Habitat for chinook, coho and pink salmon associated with construction of the proposed project will be minimal because no in-water work will be necessary and there are no significant surface waters draining to the Columbia River from the project area. Operation of the proposed water and sewer system improvements will eliminate releases of untreated wastewater and leakage of treated drinking water, which will reduce ground saturation in the project area and the potential for landslides that could generate runoff with the potential to contaminate Baker Bay and the Columbia River. Replacement of leaking sewer lines and upgrading the Sahalee Lift

Station would reduce contamination of surface waters that could eventually reach Baker Bay and the Columbia River, which should improve EFH.

- Impacts to Bull Trout

  The US Fish & Wildlife Service did not establish Critical Habitat for Columbia River bull trout in Pacific County in the final bull trout Critical Habitat designation (September 26, 2005), although bull trout are known to be present in the Columbia River. Since there will be no in-water work done in association with the project, impacts to any potential migratory bull trout habitat in the project area will be minimal and would be positive, as operation of the new water mains, sewer mains and the new Sahalee Lift Station will eliminate the potential for untreated wastewater to reach storm drains draining to Baker Bay. The Priority Habitats and Species Map from March 1, 2012 indicated that no streams draining directly to Baker Bay include bull trout habitat.

- Impacts to the Marbled Murrelet

  The Priority Habitats and Species Map for the area indicate that marbled murrelets nest approximately 3,000 feet southwest of the project area. It is unlikely that these nesting birds will be impacted by the project, as the nests are located west of the project area, and marbled murrelets generally fly directly from their nests west to the Pacific Ocean during daily feeding migrations. Marbled murrelets nesting to the east of Ilwaco are unlikely to be impacted by the project, because the Columbia River Corridor is three miles wide in the project area, allowing marbled murrelets flying past the project area en route to the Pacific Ocean to easily avoid any proposed project activities that are particularly noisy. Construction timing restrictions to protect marbled murrelets are restricted to activities occurring within 0.25 mile of the occupied nests.

- Impacts to the Northern Spotted Owl

  According to the Priority Habitats and Species Map prepared for the proposed project on March 1, 2012, there are no Northern Spotted Owl Management Circles within 2 miles of the proposed project area. This indicates that there is no known northern spotted owl presence within the foraging range of nesting owls (generally thought to be approximately one half mile from nests) and that the project will have no effect on the northern spotted owl.

- Impacts to the Streaked Horned Lark

  The streaked horned lark is found in the Lower Columbia River and its islands, mostly upstream of the City of Ilwaco. The September 2005, "Range-wide Streaked Horned Lark (*Eremophila alpestris strigata)* Assessment and Preliminary Conservation Strategy" report from WDFW, indicates that lark breeding sites are typically located in sparsely vegetated expanses of sand adjacent to the Columbia River, or on islands in the river. There are no potential breeding sites for streaked horned larks in the immediate vicinity of the Sahalee project area, although the larks may breed in areas adjacent to Ilwaco on some of the islands in the Columbia. Therefore, the project would not be expected to impact streaked horned larks.

Mitigation

Mitigation measures designed to minimize potential impacts associated with the implementation of the water and sewer infrastructure replacement project include:

1. To minimize the potential for accidents resulting in direct effects to listed fish species, construction equipment will be fitted with emergency spill kits and construction crews will be trained in their use.

2. Areas excavated for the installation of conveyance system infrastructure will be replanted or repaved in-kind in accordance with an approved planting plan.

3. Any water pumped from the project area for dewatering purposes will be conveyed to an area where it can fully infiltrate into the ground, preventing sediment and other pollutants from returning to the Columbia River.

4. Plant material will be maintained for one year or until plants and soils are stabilized and self-supporting. Dead plants will be removed and replaced.

5. The contractor will properly install and maintain Construction Erosion and Sediment Control BMPs to prevent pollutants from entering waterways in the area. The project will be conducted in a manner that complies with the provisions of the Washington Department of Ecology Water Quality Certification and the CWA Section 404 Permit, if required.

WATER QUALITY

Affected Environment

Baker Bay and the Lower Columbia River are on the Clean Water Act Section 303(d) List for fecal coliform contamination. This listing has been carried forward from the 2004 List, which was based on excursions beyond water quality criteria from 1992. The City of Ilwaco WWTF, which discharges to Baker Bay near the marina sampling point, has been upgraded since 1992. Any surface water contamination resulting from failing sewer lines in the Sahalee Subdivision has the potential to reach Baker Bay and contribute to bacterial and nutrient contamination.

Environmental Consequences

Alternative 1: No Action

Sewer and water mains in the Sahalee Subdivision have reached the end of their useful lives. If no action occurs to repair or replace them and the population in the area continues to grow, leakage of water and untreated wastewater will increase the potential for contamination of local surface waters, Baker Bay and the Lower Columbia River.

Alternative 2: Upgrade Sahalee Sewer System Only

Replacement of leaking sewer lines, installation of grinder pumps and the replacement of the Sahalee Lift Station will eliminate leakage of raw wastewater from the Subdivision into surface waters that eventually flow to Baker Bay and the Lower Columbia River. Implementation of this alternative would also reduce ground saturation in the project area and the potential for landslides that could further contribute to contamination of surface waters.

Construction of new sewer mains in existing rights-of-way and replacement of the Sahalee Lift Station would require short-term ground surface disturbance. Construction BMPs for the control of sedimentation and erosion will be implemented during construction. No new impervious surfaces will be created associated with the proposed sewer and water main replacements, as disturbed areas will be repaved or replanted in-kind. Approximately 650 square feet of new impervious surface would be created at the Sahalee Lift Station; however, the existing lift station would be demolished to the ground and revegetated in accordance with Ilwaco City Code to partially off-set this increase.

Alternative 3: Upgrade Sahalee Subdivision Sewer and Water Systems (Preferred Alternative)

Replacement of leaking water mains in the Sahalee Subdivision in addition to the sewer conveyance improvements discussed under Alternative 2 would require additional

short-term surface disturbances in the project area. However, replacement of leaking water mains would reduce water consumption in Ilwaco, and eliminate ground saturation near existing water main leaks, which should reduce the potential for landslides and slumps and associated surface water contamination down slope from the Sahalee Subdivision. Potential for contamination of Baker Bay and the Lower Columbia River would be reduced.

Mitigation

- Construction equipment will be fueled, maintained and stored off-site, away from Baker Bay and the Columbia River, to minimize the potential for spills of hazardous materials, including fuels, lubricants and coolants.

- Construction equipment will be fitted with emergency spill kits and construction crews will be trained in their use.

- No in-water work will be necessary to complete the proposed water and sewer system improvements.

- Work that requires soil disturbance will occur during the summer dry season to minimize the potential for sedimentation and erosion, and other associated disturbances to the area. Trench dewatering may be required in some parts of the project area. If dewatering is necessary, groundwater will be discharged to the ground for infiltration.

- Use of Best Management Practices (BMPs) for erosion and sediment control such as silt fences and straw bales will be implemented during construction to minimize potential water quality impacts Baker Bay and the Lower Columbia River.

- Disturbed areas will be repaved or revegetated in accordance with City of Ilwaco Landscaping Code.

COASTAL RESOURCES

Coastal resources are located in counties that border Puget Sound and the Pacific Ocean. Pacific County is one of 15 counties in Washington State that the Department of Ecology has designated a "Coastal County." The new water and sewer mains will be replaced within existing City of Ilwaco ROW to minimize potential impacts to sensitive vegetation and wildlife habitat. No work associated with the Sahalee Subdivision Water Main and Sewer System Improvement Project will require work within 200 feet of Baker Bay. Completion and submittal of a Coastal Zone Consistency Form to the Department of Ecology may be required. However, as no work will occur within 200 feet of the Columbia River shoreline, no Shoreline Substantial Development Permit will be required.

SOCIO-ECONOMIC/ENVIRONMENTAL JUSTICE

Affected Environment

According to the Engineering Report prepared for this project, water rates for a typical single-family home in Ilwaco are $39.26 per month and sewer rates are 64.50 per month.

Race, Age, Disability, and Household Income

Environmental justice includes socio-economic groups and factors such as disabilities, race, age, and household incomes. The 2010 US Census provided demographic data for the City of Ilwaco. The following tables reflect the number and percent of disabled persons, races, age groups, and income levels within the City.

Disability

City of Ilwaco, Disability Status from the 2010 Census

	Ilwaco city, Washington
Total disabilities tallied:	355
Total disabilities tallied for people 5 to 15 years:	4
Sensory disability	2
Physical disability	0
Mental disability	2
Self-care disability	0
Total disabilities tallied for people 16 to 64 years:	211
Sensory disability	13
Physical disability	54
Mental disability	30
Self-care disability	18
Go-outside-home disability	23
Employment disability	73
Total disabilities tallied for people 65 years and over:	140
Sensory disability	23
Physical disability	58
Mental disability	8
Self-care disability	16
Go-outside-home disability	35

Race

Race	City of Ilwaco	
	#	%
White	841	89.9
Black or African American	3	0.3
American Indian and Alaska Native	20	2.1
Asian	5	0.5
Native Hawaiian and Other Pacific Islander	0	0.0
Hispanic or Latino	53	5.7
Some other race	34	3.6
Two or more races	3	0.3
Total Population	**936**	

Income

	Ilwaco
Median household income	$48,636
Median family income	$66,250
% families living below poverty level	4.3%
% individuals living below poverty level	8.0%

Data from the US Census Bureau's American Fact Finder 2010.

Environmental Consequences

Costs of the proposed water and sewer system replacement projects in the Sahalee Subdivision relocation and construction of a new WWTF and installation of conveyance infrastructure could require the City of Ilwaco to raise utility rates. Assuming the project is funded entirely by a USDA RD Loan, Implementation of the proposed water system improvements would raise water rates for a typical single-family residence by $2.21 per month, and sewer rates would be increased by approximately $7.49 per month. These rate increases have the potential to constitute a disproportionate adverse impact to minority and low-income rate payers in Ilwaco. Grants and low-interest loans will be sought from the Public Works Trust Fund, Washington State Revolving Fund, US Environmental Protection Agency and the USDA Rural Development Administration to reduce the financial burden on ratepayers in Ilwaco. With the help of grants and low-interest loans the Town hopes to keep the combined monthly water and sewer rate in the $110/month range. Population growth within the service area will spread the costs of paying for the new infrastructure across a larger base of ratepayers, potentially reducing future rate increases.

Mitigation

The current project budget for the Water, Sewer and Lift Station Replacement Project is approximately $2.8 million. The acquisition of grants or low-interest loans will help to reduce the economic impact to the minority and low-income residents of Ilwaco.

AIR QUALITY

Affected Environment

According to Mark Goodin, Air Quality Engineer for the Olympic Region Clean Air Agency, Ilwaco is located in an "Unclassified Area" for air quality, which holds the same legal status as being "in attainment" for all monitored air pollutants. The City of Ilwaco is located on the lower Columbia River where breezes off the ocean and winds down the Columbia River Gorge generally dissipate any concentration of air pollutants rapidly, should one develop. As there is little air polluting industry in Ilwaco, the only pollutants generated in the project area that have the potential to impact air quality include dust and emissions from construction machinery, and smoke from fires associated with site clearing. These emissions would have only short-term, localized impacts to air quality in Ilwaco. The leaking sewer lines in the Sahalee Subdivision and overflows of untreated sewage at the Sahalee Lift Station generate localized offensive odors, especially during high flow conditions.

Environmental Consequences

<u>Alternative 1: No Action</u>

Taking no action to repair leaking water and sewer conveyance infrastructure in the Sahalee Subdivision in Ilwaco would allow existing sewer line leaks and overflows from the Ilwaco Lift Station to continue generating offensive odors, especially during high flow conditions. Taking no action would preclude generation of construction machinery exhaust and fugitive dust that would otherwise be generated during construction of new sewer and water conveyance infrastructure

<u>Alternative 2: Upgrade Sahalee Sewer System Only</u>

Dust and emissions from construction vehicles and equipment should only temporarily affect air quality in the Sahalee Subdivision and immediate surroundings. Dust emissions would be controlled by the application of dust control measures (primarily watering of disturbed areas). Exhaust emissions would be controlled by proper maintenance and operation of construction vehicles and equipment. Replacing leaking sewer mains and the Sahalee Lift Station would eliminate objectionable odors caused by leakage and spills of raw sewage.

Alternative 3: Upgrade Sahalee Subdivision Sewer and Water Systems (Preferred Alternative)

Replacement of failing water and sewer conveyance infrastructure in the Sahalee Subdivision has the potential to generate minor amounts of exhaust emissions from construction equipment and fugitive dust, for a longer period than replacing the failing sewer lines and the Sahalee Lift Station alone. However, replacement of leaking water mains at the same time will reduce ground saturation and the potential for landslides and slumps that would require longer-term operation of construction equipment to repair, and the associated air quality impacts. As with Alternative 2, elimination of leaking sewer lines and overflows from the Sahalee Lift Station would significantly reduce or eliminate objectionable odors in the project area.

Mitigation

The control of fugitive dusts may require the use of one or more of the following dust suppression measures:

- Use of a water truck or sprinkler to moisten soils;
- Minimize area of clearing and grubbing to a manageable size;
- Minimize time between dust creation to final coverage of piping materials;
- Avoid activity during high winds;
- Cover loads of fill;
- Brush off mud from wheels, wheel wells, running boards, and tailgates;
- Use a street sweeper to remove soil tracking from paved roadways; and
- Limit height of dumping from trucks.

TRANSPORTATION

Affected Environment

The Sahalee Water and Sewer Main and Lift Station Replacement Project Area is located along City of Ilwaco rights-of-way on a hillside west of downtown Ilwaco, Washington. All new sewer mains will be installed within the existing road ROW, though some will be routed to the opposite side of the roadway to avoid unstable slopes and potential slumping or exposure due to ground movements in steep areas. Sewer lines will be replaced in Nesadi Drive, Hiaqua Place, Wecoma Place and Klahanee Place en route to the Sahalee Lift Station Site. The water mains proposed for replacement are located in

Hiaqua Place, Nesadi Drive and Wecoma Place. The replacement of the waterlines is a priority project due to the potential for water main leaks and the resultant loss of treated water.

Environmental Consequences

Alternative 1: No Action

Taking no action to upgrade or relocate the water and sewer infrastructure in the Sahalee Subdivision west of Ilwaco would have no direct effect on transportation in the project area. It is possible that additional emergency construction would be required during efforts to repair damage caused by landslides resulting from leaking water and sewer mains. The presence of emergency road repair machinery involved with emergency repairs could adversely impact traffic in the Sahalee Subdivision on occasion.

Alternative 2: Upgrade Sahalee Sewer System Only

Repair and/or replacement of leaking sewer mains, installation of grinder pumps and replacement of the Sahalee Lift Station would require the presence of construction vehicles and equipment along the residential streets in the Sahalee Subdivision over a period of four months during the summer/fall of 2012. Detours and flagging would be necessary to maintain access to this residential neighborhood.

In the event that un-repaired water system leaks caused slope failures and road damage, emergency repair of landslides could be more disruptive to traffic than planned water, sewer and roadway repairs under the proposed alternative.

Alternative 3: Upgrade Sahalee Subdivision Sewer and Water Systems (Preferred Alternative)

Repairing both failing water and sewer mains in the Sahalee Subdivision would require disturbance of traffic in this residential neighborhood for a longer period than repairing failed sewer mains alone. However, repair of the leaking water mains would reduce the potential for ground saturation and landslides in steep areas that would not be addressed if only sewer mains were replaced. Once the proposed water and sewer system repairs are completed, traffic in the Sahalee Subdivision would return to preconstruction conditions and the potential for slope failures and roadway damage associated with leaking conveyance infrastructure would be reduced/eliminated.

Mitigation

Construction activities will be limited to daytime, weekday hours, to minimize adverse impacts to traffic flow and commerce. Delivery of equipment and materials to the construction site will be timed to coincide with low-traffic periods in Ilwaco and the Sahalee Subdivision.

NOISE

Affected Environment

The project area is generally quiet with the exception of noise associated with traffic on US 101 en route to the Ilwaco Marina and shipping traffic on the Columbia River. The existing Sahalee Lift Station is far enough from residential areas in Ilwaco and Sahalee that noise generated by treatment equipment is generally not audible from the residential area. Ilwaco Municipal Code Section 8.18.050 (H) Exempts noises associated with public works projects. Section I exempts Public Works project construction noise between 7:00 a.m. and 6:30 p.m.

Environmental Consequences

Alternative 1: No Action

Taking no action to repair leaking water and sewer mains and the Sahalee Lift Station would avoid noise generated by construction equipment during these infrastructure replacements. Unusually loud noises could result in the event that leaking water and sewer mains saturate the ground in steep areas and cause major landslides. Construction equipment used to repair landslide damage would be in addition to the machinery used to replace the existing water and sewer mains under either of the action alternatives discussed below. However, the duration of construction noise may be longer than would be required for the planned infrastructure replacements discussed under either Alternative 2 or 3 below.

Alternative 2: Upgrade Sahalee Sewer System Only

Replacement of leaking sewer mains throughout the Sahalee Subdivision would generate noise during daytime hours for a period of four months during the summer construction season of 2012. Noise levels would be louder than the typical residential traffic present in the Sahalee Subdivision, but would only be present during daytime hours in accordance with the City of Ilwaco's noise ordinance. Noise associated with replacement of the Sahalee Lift Station would be generated in addition to the noise associated with operation of pumps at the Lift Station over the course of 4 months, which could cause noise-sensitive wildlife to temporarily leave the project area. Operational noise levels at the new Lift Station would be lower than the existing station, as most of the pumps and other noise-generating machinery would be located underground or in soundproof enclosures.

Noise associated with construction and operation of public works facilities is exempt from noise restrictions of the Ilwaco Noise Ordinance, Section 8.18.050, Sections E and H).

Alternative 3: Upgrade Sahalee Subdivision Sewer and Water Systems (Preferred Alternative)

Short-term increases in noise from construction vehicles and equipment will occur as a result of construction activities. It would be unlikely for protected birds or other wildlife to be present in the project area during the day when construction would occur, as most birds and wildlife are relatively cautious and tend to stay away from more developed areas and within areas of greater tree cover whenever possible. Construction is unlikely to adversely affect northern spotted owls as there are no known nests or Northern Spotted Owl Management Circles within one half mile of the project area. Marbled murrelets would be unlikely to be affected by construction noise, as murrelets nesting southwest of the project area would fly to the west early in the morning to feed on the Pacific Ocean, returning near dark after construction activities have ceased for the day.

The completed water and wastewater pipelines will be located underground and will produce no noise during operation. Installation of the conveyance pipes within the Sahalee Subdivision will likely cause short-term adverse impacts to residences along the route in addition to noise associated with Alternative 2; coordination of construction of water and wastewater pipe replacements will likely result in efficiencies that could reduce the overall construction period for replacement of both water and wastewater lines, as opposed to replacing them separately/sequentially. The new Lift Station will not be as loud as the existing Lift Station as pumps will be located underground or in soundproof enclosures.

Mitigation

Construction activities will be limited to daytime, weekday hours to minimize adverse noise impacts to noise-sensitive wildlife from the operation of heavy equipment and machinery and to comply with Ilwaco Municipal Code, Sections 8.18.050 (H and I). New equipment will generally be installed in soundproof buildings or underground enclosures, which will help to reduce or eliminate noise impacts. Implementation of Alternative 3, replacing both water and sewer lines at the same time, would reduce the length of time construction noise would occur compared to replacing water and sewer lines on separate occasions.

ENERGY

Affected Environment

The existing Sahalee sewer collection system operates largely by gravity. The existing Sahalee sewer lift station is nearing the end of its useful life and is being operated by pumps and motors designed in the 1970s. The Sahalee water conveyance system leaks significantly, which requires more energy to treat and pump product water to the homes in the Subdivision than a more modern, water-tight system would.

Alternative 1: No Action

Taking no action to upgrade the water and sewer infrastructure serving the Sahalee Subdivision west of Ilwaco would have no direct impact on energy usage, as no construction vehicles or machinery would be mobilized. Continued operation of the aging water mains serving the subdivision would require additional water treatment and pumping as leaks in the conveyance system continue. While no mechanical energy would be utilized if the existing Sahalee Lift Station were left in operation, it would require more energy to operate than a new more modern lift station.

Alternative 2: Upgrade Sahalee Sewer System Only

Replacement of leaking sewer mains and the Sahalee Lift Station would require use of mechanical energy associated with construction vehicles and equipment. Operation of the new sewer lift station would utilize less energy than continued operation of the existing lift station. Operation of the existing water conveyance pipes would require additional pumping and water treatment as the system continues to deteriorate. Replacement of water and sewer infrastructure in the Sahalee Subdivision at separate times would require more mechanical energy associated with operation of construction equipment, than replacing both water and sewer infrastructure concurrently.

Alternative 3: Upgrade Sahalee Subdivision Sewer and Water Systems (Preferred Alternative)

Replacing aging water and sewer mains in the Sahalee Subdivision concurrently would reduce the amount of excavation required and the amount of mechanical energy used by construction equipment compared to replacement of water and sewer infrastructure separately. Replacement of leaking waterlines in addition to sewer system upgrades proposed under Alternative 2 would reduce the amount of water the City of Ilwaco would be required to pump and treat, which would reduce electrical energy consumption.

VISUAL IMPACTS

Affected Environment

The water and sewer mains in the Sahalee Subdivision are located within existing City of Ilwaco street rights-of-way and the Sahalee Lift Station is located in a forested area east of the subdivision.

Alternative 1: No Action

Taking no action to upgrade the aging water and wastewater conveyance lines and the Lift Station in the Sahalee Subdivision would result in no direct visual impacts. In the event that the aging and leaking water and sewer mains are left in place, the potential for

ground saturation and subsequent slumps and landslides would increase, along with the potential for adverse visual impacts.

Alternative 2: Upgrade Sahalee Sewer System Only

Replacement of failing sewer mains and the aging Sahalee Lift Station would require excavation within City of Ilwaco rights-of-way and clearing of a site adjacent to the existing lift station. Visual impacts associated with construction would be short-term, as disturbed areas, except for the site of the new Lift Station, would be replanted or repaved in-kind once construction is complete. The new lift station would be located underground adjacent to the existing lift station site. The existing lift station structures would be cutoff at ground level, filled with sand and replanted with native vegetation. The new underground lift station would have an above-ground control panel on a concrete base, which would be painted to blend into the surrounding area. The lift station site would be revegetated in accordance with Ilwaco City Codes. In the event that the City of Ilwaco decided to replace leaking water mains at a later date, additional similar visual impacts would occur.

Alternative 3: Upgrade Sahalee Subdivision Sewer and Water Systems (Preferred Alternative)

Replacement of leaking water mains the Sahalee Subdivision in addition to replacing failing sewer lines and the Sahalee Lift Station would require a slightly larger area of disturbance along City of Ilwaco rights-of-way than replacing sewer mains alone. However, the visual disturbance associated with implementation of this alternative would be shorter-lived than replacing sewer infrastructure and waterlines sequentially, as would be the case if Alternative 2 were implemented and water mains in the Sahalee Subdivision were replaced at a later date. As with Alternative 2, any disturbed areas along water and sewer mains replaced under this alternative will repaved or replanted in accordance with Ilwaco City Codes.

RECREATION

Affected Environment

Recreational opportunities in and around Ilwaco include boating, fishing, hunting, hiking, bird watching and wind surfing. Fort Canby/Cape Disappointment State Park is located approximately two miles to the west. There are no formal recreational activities associated with the Sahalee Subdivision, but hiking, cycling and bird watching could occur nearby. Roadways downhill of the Sahalee Subdivision provide access to the State Parks and recreational areas along the Pacific Coast.

Alternative 1: No Action

Taking no action to replace leaking water and sewer mains and the Sahalee Lift Station would have no direct impact on recreational activities nearby. However, failure to replace leaking water and sewer mains would allow them to continue to saturate soils in the project area, which could lead to landslides that could disrupt recreational traffic en route to Cape Disappointment State Park.

Alternative 2: Upgrade Sahalee Sewer System Only

Construction associated with replacement of leaking sewer mains within the Sahalee Subdivision is unlikely to disrupt recreational traffic, as none of the sewer mains to be replaced are located on major recreational roadways. Replacement of leaking sewer mains could reduce the potential for landslides that could have a minor potential for disturbing recreational traffic en route to Cape Disappointment State Park. Replacement of the Sahalee Lift Station will occur adjacent to the main road to Cape Disappointment State Park and construction activities would have the potential to disrupt recreational traffic for several months during construction. All construction activities would be properly flagged and scheduled to minimize disturbance of recreational traffic.

Alternative 3: Upgrade Sahalee Subdivision Sewer and Water Systems (Preferred Alternative)

Replacement of leaking water mains in the Sahalee Subdivision in addition to the sewer system improvements discussed under Alternative 2 would have similar, minimal potential to disrupt recreational traffic in the vicinity of Ilwaco and Cape Disappointment State Park. Replacement of leaking water and sewer lines would reduce the amount of water the City of Ilwaco would be required to treat and pump; which would reduce utility system costs and potentially reduce utility rates, which could make Ilwaco a more attractive recreational destination.

Indirect Impacts

Replacement of sewer mains in the Sahalee Subdivision has the potential to reduce bacterial and nutrient loading to Baker Bay, which is designated critical habitat for salmonids, green sturgeon and eulachon.

Eliminating leaking water and sewer mains will reduce the amount of energy the City must use to pump water and wastewater, which may reduce water and sewer charges to Ilwaco rate payers, including minority and low-income residents.

Eliminating leaking water and sewer mains will reduce saturation of soils in the Sahalee Subdivision, which could reduce the frequency and severity of slumps and landslides in the project area and areas down slope.

Replacing aging water and sewer infrastructure in the Sahalee Subdivision may allow for somewhat denser residential development in the neighborhood in the future.

Cumulative Impacts

In the event that replacement of water and sewer infrastructure in the Sahalee Subdivision allows construction of additional homes in the area, a larger population in the area will lead to increased traffic and would put more pressure on schools, medical facilities, transportation infrastructure, and other public services. Although wastewater treatment and conveyance costs to the Town could increase as a result of project construction loans, the City would need to treat and pump less water and wastewater if either of the construction alternatives were implemented. This could help to lower water and sewer rates; further, system costs could be partially off-set by larger rate payer-base.

Stormwater impacts associated with the proposed Ilwaco Water, Sewer and Lift Station Improvement Projects will be treated and detained in accordance with the 2005 Stormwater Manual for Western Washington or its equivalent.

Use of a USDA Rural Development grant and loan package will help to limit cost increases associated with project implementation and mitigate rate increases and potential disproportionate adverse impacts to minority and low-income households.

V. SUMMARY OF MITIGATION

- The Washington Department of Archaeology and Historical Preservation, the Shoalwater Bay Tribe and the Confederated Tribes of the Chehalis Reservation will be consulted regarding any Tribal concerns associated with the proposed project to comply with Section 106 of the National Historic Protection Act. An Archaeological Investigation and Inadvertent Discovery Plan will be prepared to meet the provisions of the National Historic Preservation Act (NHPA) of 1966, as amended by 16 U.S.C. § 470 *et seq*. and the Advisory Council on Historic Preservation's (ACHP) implementing regulations; 36 CFR Part 800 (Section 106) regulations (See Appendix B). The Inadvertent Discovery Plan sets out the policies in the event that historical or archaeological artifacts or relics are uncovered during construction.

- In the event that materials of cultural, historical, or archaeological significance are discovered during excavation, all work at the site will be halted and representatives from DAHP; the Confederated Tribes of the Chehalis Reservation and the Shoalwater Bay Tribe and the USDA Rural Development Administration will be consulted regarding recordation and final storage of these materials.

- After excavation and construction activities are complete, a vegetation restoration plan will be implemented.

- The contractor will be required to provide a plan for dust suppression during construction. The control of fugitive dust may require the contractor to implement one or more of the following dust suppression measures:

    - Use of a water truck or sprinkler to moisten soils;

    - Minimize area of clearing and grubbing to a manageable size;

    - Minimize time between dust creation to final coverage of piping materials;

    - Avoid activity during high winds;

    - Cover loads of fill;

    - Brush off mud from wheels, wheel wells, running boards, and tail gates;

    - Use street sweeper to remove soil tracking from paved roadways; or

    - Limit height of dumping from truck.

- Piles of excavated materials will be covered in the event of rain to minimize the potential for turbid runoff leaving construction sites.

- Fire prevention measures will be incorporated into the specifications and bid documents. The Contractor will be required to provide a plan for fire prevention during construction.

- Concerning environmental justice, the City of Ilwaco will continue to apply to state and federal agencies for grant and low-interest loan assistance to reduce the economic impact to rate payers on limited or fixed incomes. Potential funding sources include grants or low-interest loans from the Washington State Department of Ecology's Washington State Water Pollution Control Revolving Fund (SRF), HUD/CDBG, and PWTF.

- During the design phase, City of Ilwaco fill and grading permits, ROW Permits and Critical Areas review will be obtained.

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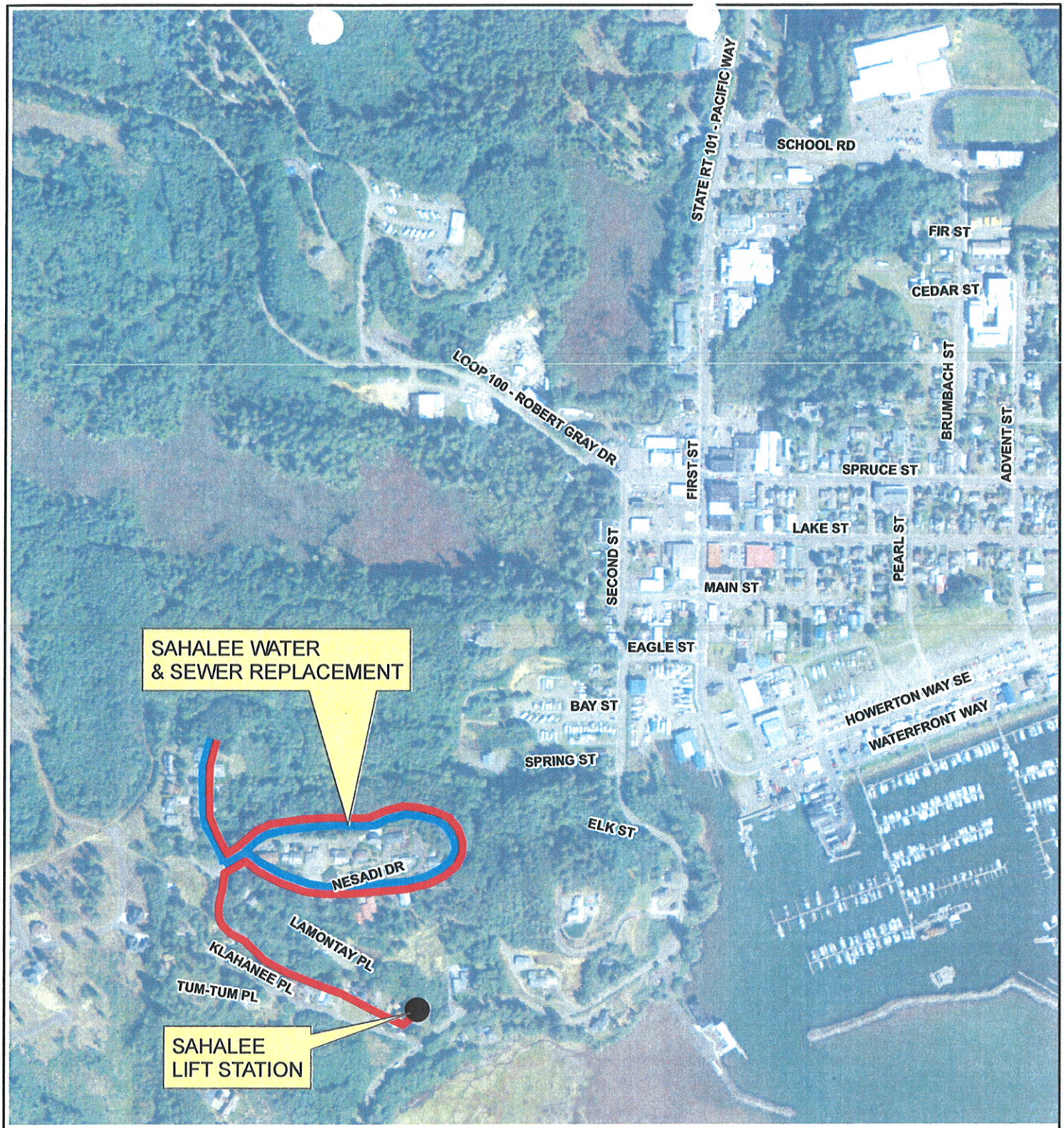
APPENDIX A

MAPS AND FIGURES



REPLACEMENT TYPE:

- SEWER
- WATER

N

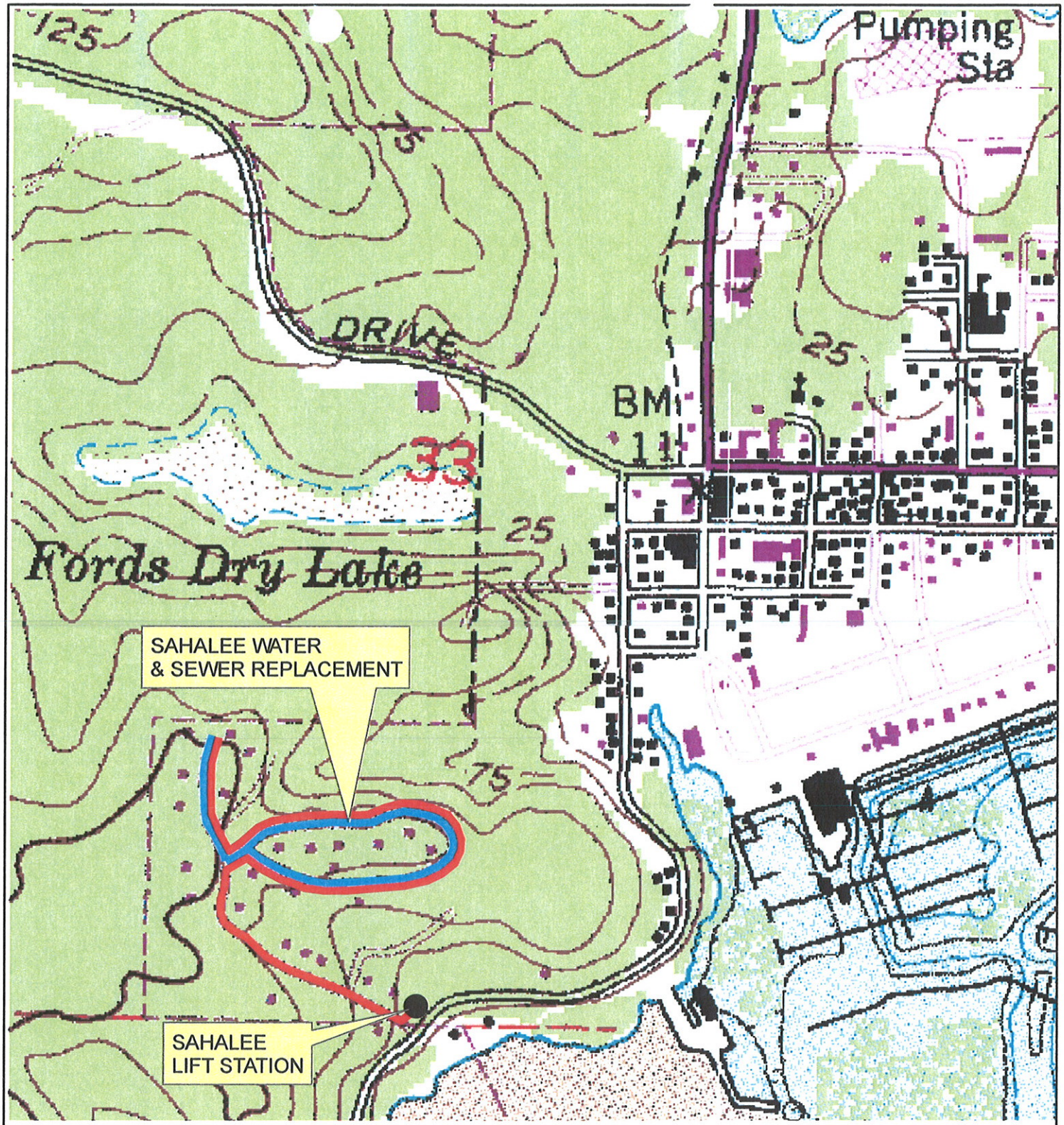
0 300 600 1,200 Feet

CITY OF ILWACO

SAHALEE WATER & SEWER REPLACEMENT PROJECT

Gray & Osborne, Inc.
CONSULTING ENGINEERS

I:\Ilwaco\20124.31 Sahalee RD Application\GIS\FIG1-ORTHO.mxd



REPLACEMENT TYPE:

- SEWER
- WATER

N

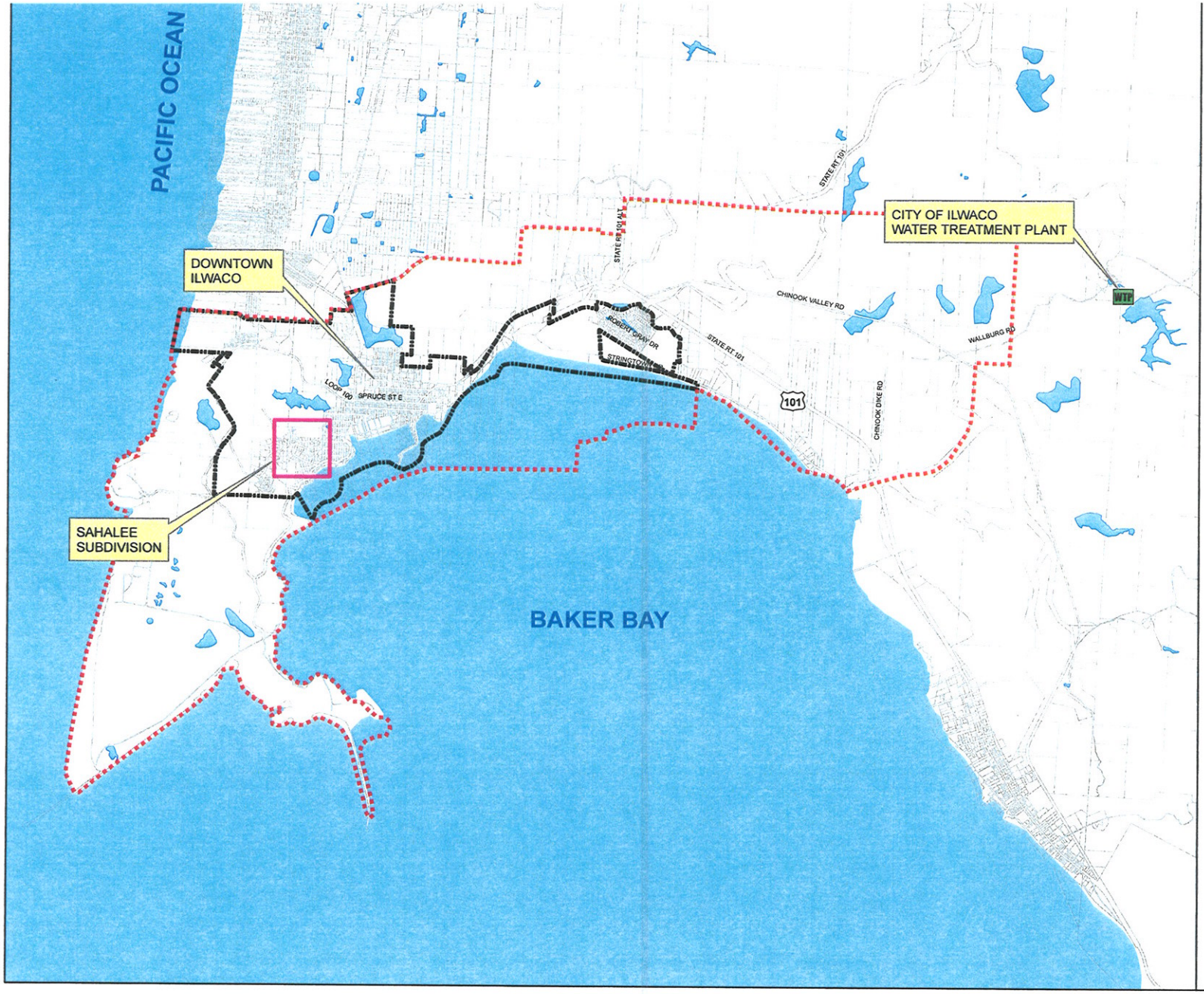
0 300 600 1,200 Feet

CITY OF ILWACO

SAHALEE WATER & SEWER REPLACEMENT PROJECT

Gray & Osborne, Inc.
CONSULTING ENGINEERS

L:\Ilwaco\20124.61 Sahallee RD Application\GIS\FIG1.mxd



N

0 1,750 3,500 7,000 Feet

LEGEND:

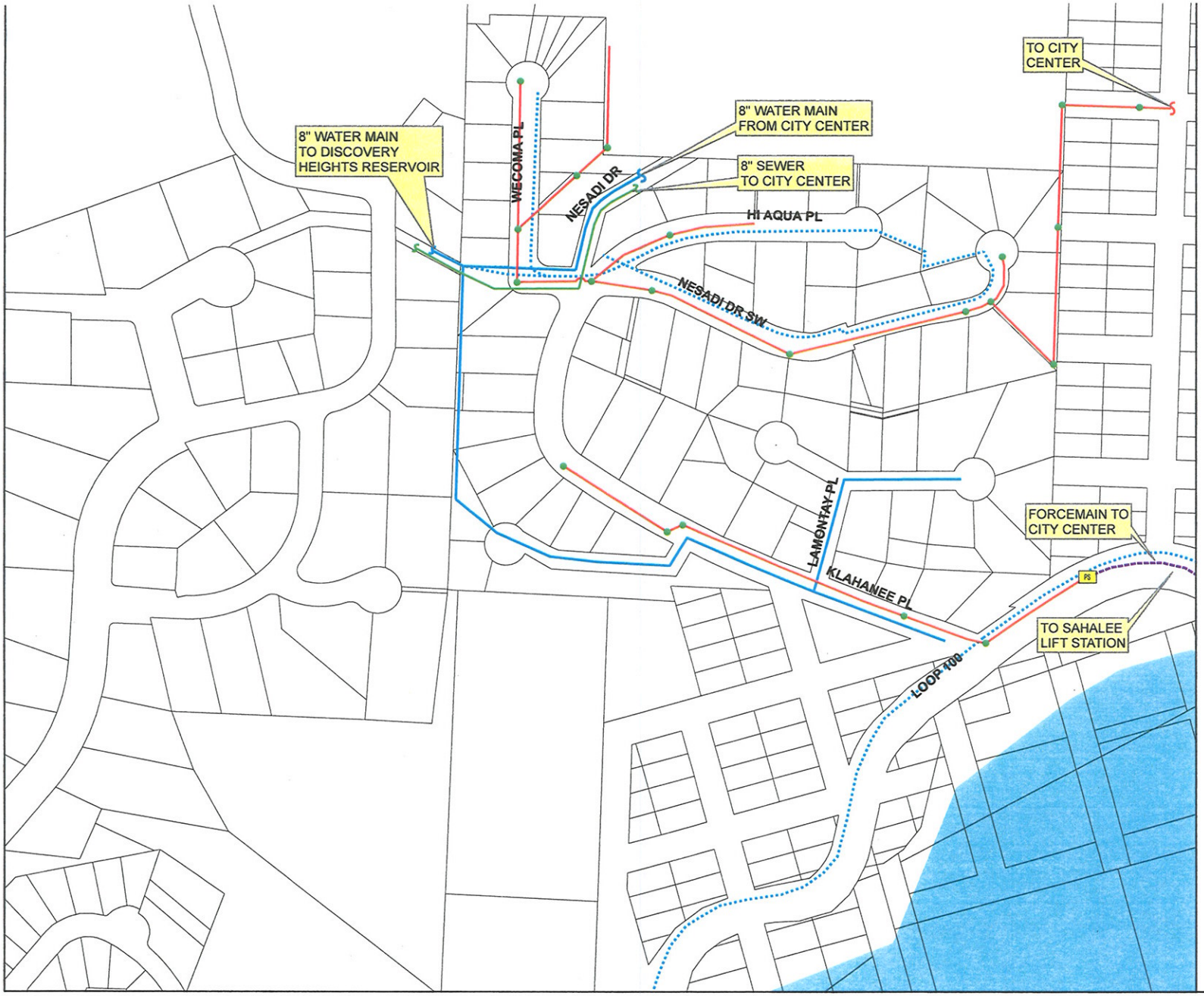
- WATER SERVICE AREA
- ILWACO CITY LIMITS / SEWER SERVICE AREA
- WATER BODY
- PARCELS

CITY OF ILWACO

SAHALEE SUBDIVISION
WATER & SEWER IMPROVEMENTS
FIGURE 1 - LOCATION MAP

Gray & Osborne, Inc.
CONSULTING ENGINEERS

L:\Ilwaco\20124 61 Sahallee RD Application\GIS\FIGURE1.mxd



N

0 100 200 400 Feet

LEGEND:

- MANHOLES
- PS LIFT STATION

SEWERLINES:

- FORCEMAIN
- SEWER LINE
- SEWER LINE INSTALLED IN 2003

WATERLINES:

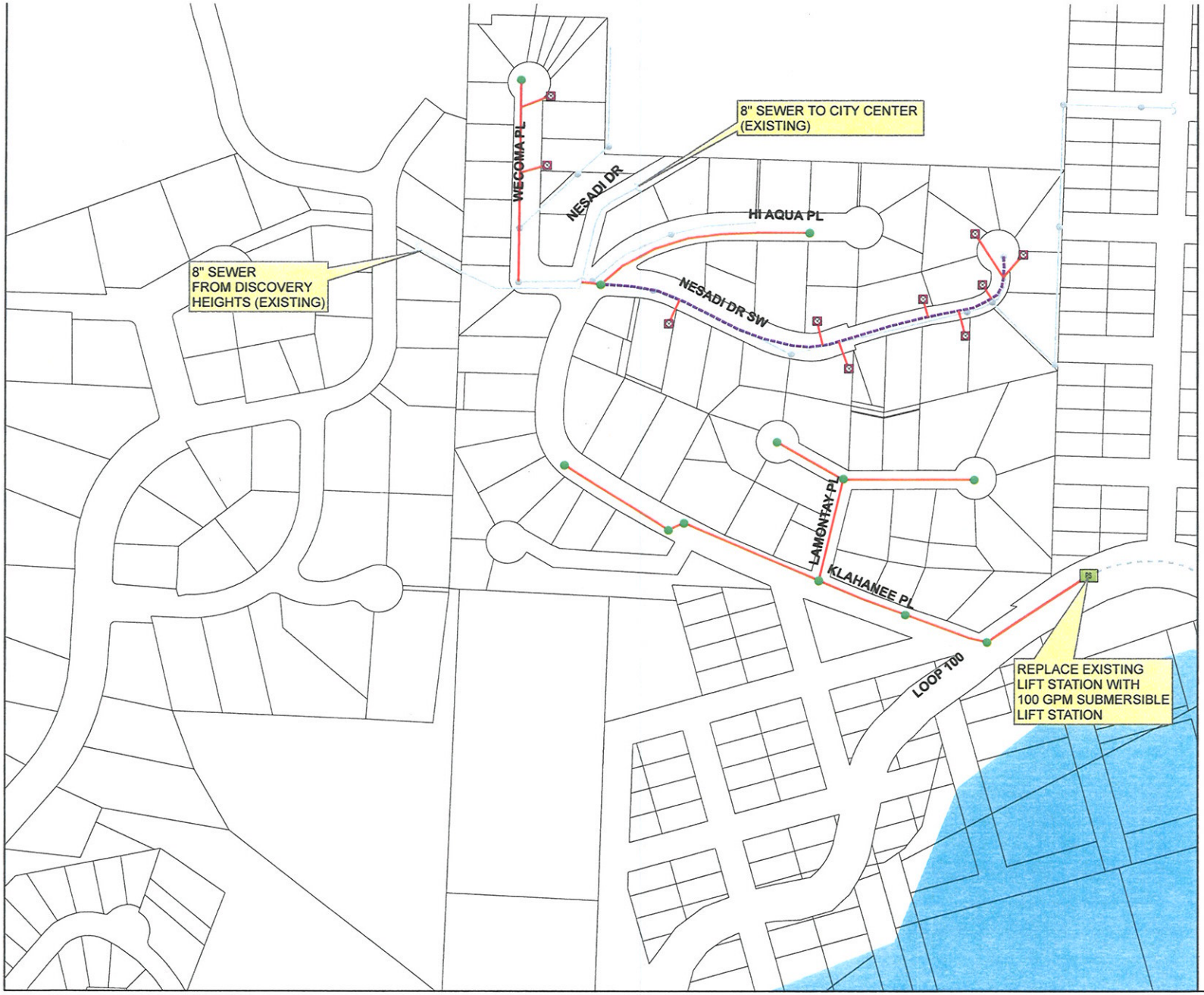
- WATER (1970 AC MAIN)
- WATER REPLACED AFTER 1995
- WATER SERVICE AREA
- ILWACO CITY LIMITS
- WATER BODY
- PARCELS

CITY OF ILWACO

SAHALEE SUBDIVISION
WATER & SEWER IMPROVEMENTS
FIGURE 2 -EXISTING WATER & SEWER FACILITIES

Gray & Osborne, Inc.
CONSULTING ENGINEERS

L:\Ilwaco\20124 61 Sahalee RD Application\GIS\FIGURE2.mxd



N

0 100 200 400 Feet

LEGEND:

PROPOSED MANHOLES
- GRINDER PUMP
- MANHOLE
- LIFT STATION
- NEW 8" PVC SEWERLINE
- SMALL DIAMETER FORCEMAIN
- MANHOLES

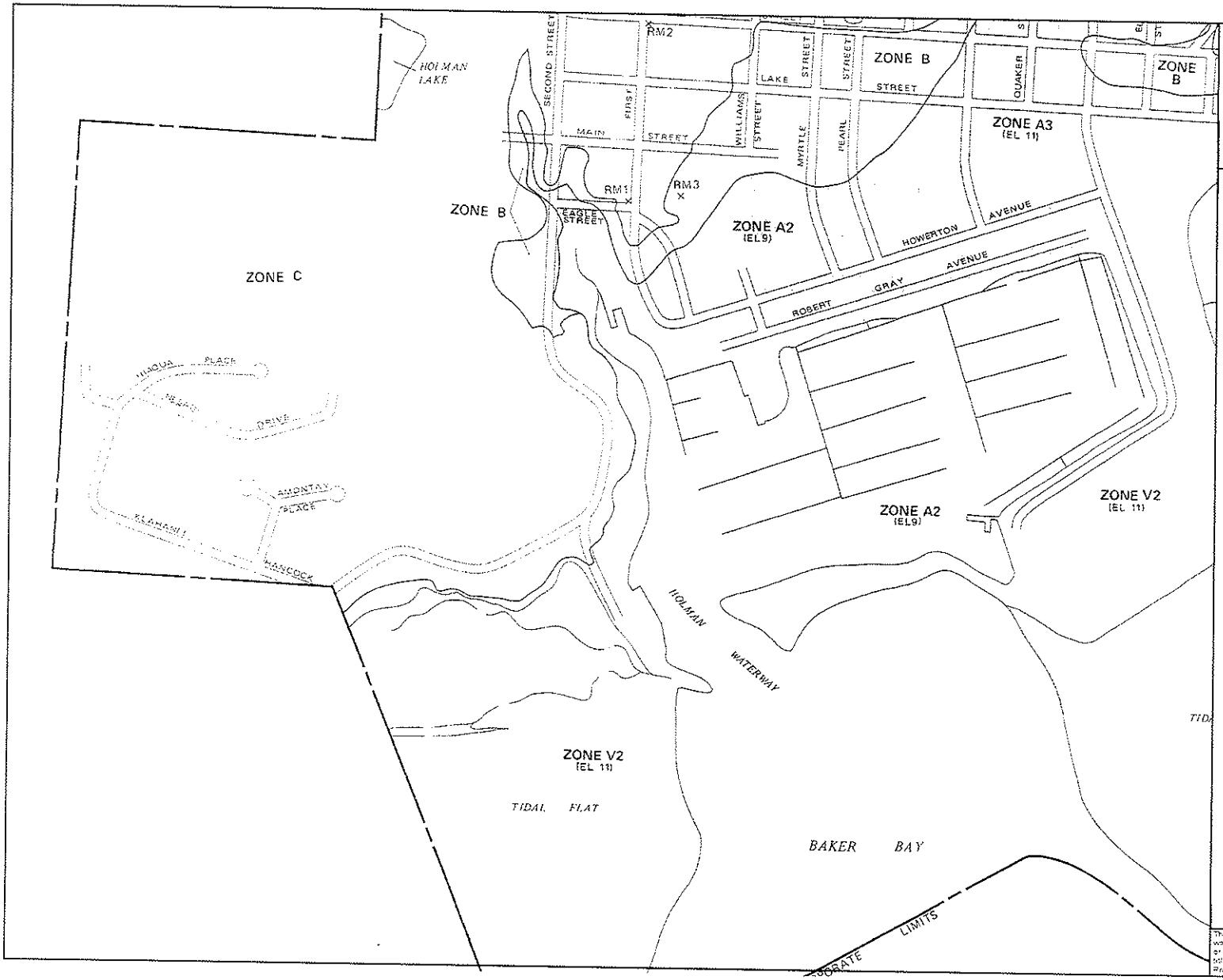
SEWERLINES:
- EXISTING SEWER LINE
- EXISTING FORCEMAIN
- WATER SERVICE AREA
- ILWACO CITY LIMITS
- WATER BODY
- PARCELS

CITY OF ILWACO

SAHALEE SUBDIVISION
WATER & SEWER IMPROVEMENTS
FIGURE 3 - ALTERNATIVE 2

Gray & Osborne, Inc.
CONSULTING ENGINEERS

L:\Ilwaco\20124 61 Sahallee RD Application\GIS\FIGURE3.mxd



APPROXIMATE SCALE

400 0 400 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

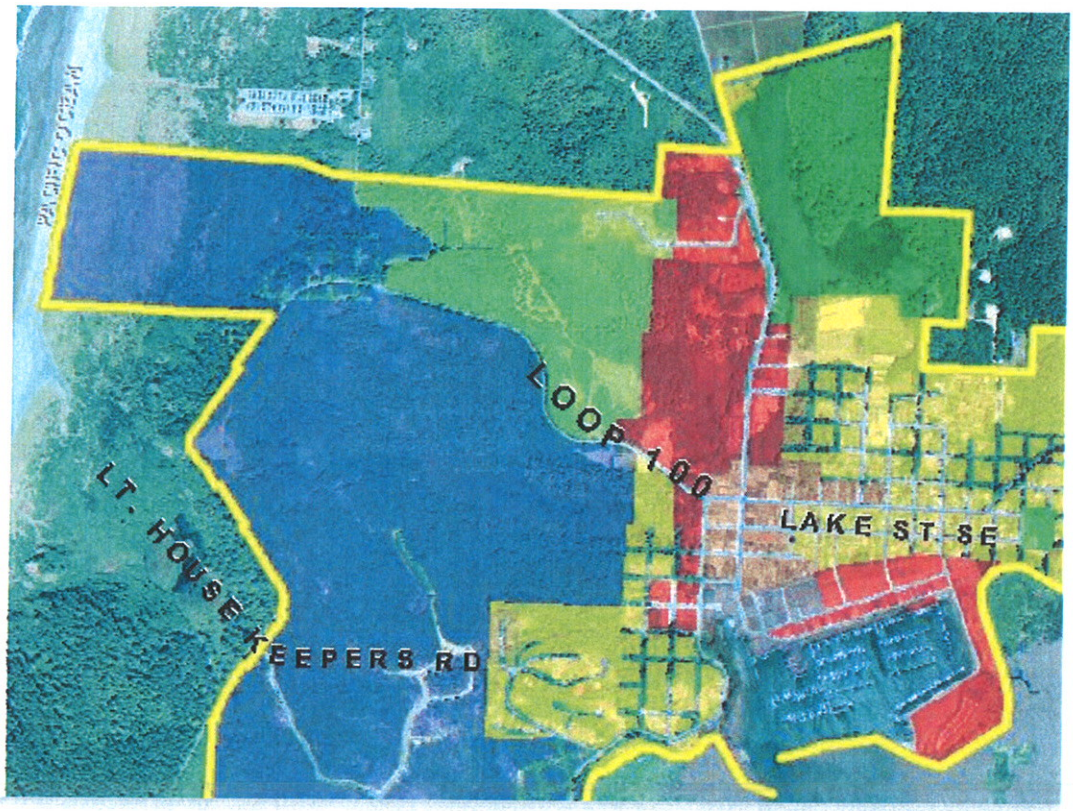
TOWN OF
ILWACO, WASHINGTON
PACIFIC COUNTY

ONLY PANEL PRINTED

COMMUNITY-PANEL NUMBER
530127 0001 B

EFFECTIVE DATE:
FEBRUARY 1, 1979

U.S. DEPARTMENT OF HOUSING
AND URBAN DEVELOPMENT
FEDERAL INSURANCE ADMINISTRATION



Advanced search Overview map Legend Lists Print Helpful Tips

Subject Project Area & Zones Single Family Residential

114—Palix silt loam, cool, 8 to 30 percent slopes. This deep, well drained soil is on slumps of uplands. It formed in colluvium derived from siltstone. Drainageways generally are 1,000 to 1,500 feet apart. The native vegetation is mainly conifers. Elevation is sea level to 1,100 feet. The average annual precipitation is 80 to 100 inches, the average annual air temperature is about 46 degrees F, and the average growing season (at 28 degrees) is 180 to 220 days. This soil is subject to strong coastal winds and prolonged seasonal fog cover.

Typically, the surface is covered with a mat of needles and twigs about 1 inch thick. The surface layer is very dark grayish brown silt loam about 18 inches thick. The subsoil is dark yellowish brown, strong brown, and yellowish brown silty clay loam about 40 inches thick. Partly consolidated siltstone is at a depth of about 58 inches. Depth to weathered bedrock ranges from 40 to 60 inches or more.

Included in this unit are about 5 percent Ilwaco, cool, soils and Lebam, cool, soils; 1 percent Vesta, cool, soils; 2 percent Swem soils; and 1 percent Stimson soils. Also included in some mapped areas are as much as 5 percent Palix, cool, soils that have slopes of more than 30 percent and 10 percent soils that are less than 40 inches deep to consolidated siltstone.

Permeability of this Palix soil is moderate. Available water capacity is high. Effective rooting depth is 40 to 60 inches or more. Runoff is slow, and the hazard of water erosion is slight. This soil is subject to slippage.

This unit is used as woodland.

Western hemlock and Sitka spruce are the principal forest species on this unit. Trees of limited extent include western redcedar, red alder, and Pacific silver fir. On the basis of a 100-year site curve, the mean site index for western hemlock is about 147, and on the basis of a 50-year site curve, the mean site index is about 105. Yield tables indicate that the mean annual increment at culmination (CMAI) for western hemlock at age 50 is about 232 cubic feet per acre per year.

The main limitation for harvesting timber is muddiness when the soil is wet. Using wheeled or tracked equipment when the soil is wet causes ruts, soil compaction, and damage to tree roots. When wet, unsurfaced roads are soft and generally are impassable. Logging roads require suitable surfacing for year-round use. Rock for road construction is not readily available in areas of this unit. Slumping and road failure can occur in clear-cut areas. Careful use of wheeled or tracked equipment reduces disturbance of the protective layer of duff.

Seedling establishment is the main concern in producing timber. Reforestation in cutover areas can be accomplished by hand planting western hemlock and Douglas-fir seedlings. If seed trees are present, natural reforestation by western hemlock occurs readily and by Sitka spruce it occurs periodically. If openings are made in the canopy, invading brushy plants can prevent establishment of Douglas-fir seedlings and can delay reforestation by western hemlock and Sitka spruce.

Common forest understory species include salal, red huckleberry, vine maple, western swordfern, and western brackenfern.

This map unit is in capability subclass IVe.

115—Palix silt loam, cool, 30 to 65 percent slopes. This deep, well drained soil is on slumps of uplands. It formed in colluvium derived from siltstone. Drainageways generally are less than 1,000 feet apart. The native vegetation is mainly conifers. Elevation is sea level to 1,100 feet. The average annual precipitation is 80 to 100 inches, the average annual air temperature is about 46 degrees F, and the average growing season (at 28 degrees) is 180 to 220 days. This soil is subject to strong coastal winds and prolonged seasonal fog cover.

Typically, the surface is covered with a mat of needles and twigs about 1 inch thick. The surface layer is very dark grayish brown silt loam about 14 inches thick. The subsoil is dark yellowish brown, strong brown, and yellowish brown silty clay loam about 32 inches thick. Partly consolidated siltstone is at a depth of about 46 inches. Depth to weathered bedrock ranges from 40 to 60 inches or more.

Included in this unit are about 5 percent Ilwaco, cool, soils and Lebam, cool, soils; 1 percent Vesta, cool, soils; and 2 percent Swem soils. Also included in some mapped areas are as much as 5 percent Palix, cool, soils that have slopes of less than 30 percent or more than 65 percent and 10 percent soils that are less than 40 inches deep to consolidated siltstone.

Permeability of this Palix soil is moderate. Available water capacity is high. Effective rooting depth is 40 to 60 inches or more. Runoff is medium, and the hazard of water erosion is moderate. This soil is subject to slippage.

This unit is used as woodland.

Western hemlock and Sitka spruce are the principal forest species on this unit. Trees of limited extent include western redcedar, red alder, and Pacific silver fir. On the basis of a 100-year site curve, the mean site index for western hemlock is about 147, and on the basis of a 50-year site curve, the mean site index is about 105. Yield tables indicate that the mean annual increment at culmination (CMAI) for western hemlock at age 50 is about 232 cubic feet per acre per year.

The main limitation for harvesting timber is steepness of slope. Slope limits the use of wheeled or tracked equipment during harvesting; cable yarding systems are safer and disturb the soil less. Using wheeled or tracked equipment when the soil is wet causes ruts, soil compaction, and damage to tree roots. When wet, unsurfaced roads are soft and generally are impassable. Logging roads require suitable surfacing for year-round use. Rock for road construction is not readily available in areas of this unit. Steep cuts and fills erode readily

Final Critical Habitat for the Southern DPS of Eulachon

Northern Oregon & Washington

Legend

- Designated Critical Habitat for Southern DPS of Eulachon
- State Boundary
- Cities and Towns

This map is intended to serve the public as a general depiction of the proposed critical habitat designation for southern DPS eulachon. Every attempt has been made to ensure the accuracy of the information depicted; however this map DOES NOT constitute a legal description of critical habitat. For exact legal descriptions of the areas designated as critical habitat (as well as the specific areas excluded from designation) please see the *Federal Register* notice in the Northwest Region's *Federal Register* Notices index.

City of Ilwaco
Preliminary Project Cost Estimate
Sahalee Subdivision Water, Sewer and Pump Station Replacement
Dec-11

	Item	Quantity		Unit Cost	Total
1	Mobilization/Demobilization	1	LS	$ 112,000	$ 112,000
2	Surveying, Staking and As-Built Dwgs	1	LS	$ 23,000	$ 23,000
3	Environmental Controls	1	LS	$ 12,000	$ 12,000
4	Trench Excavation Safety Systems	1	LS	$ 12,000	$ 12,000
5	Dewatering	1	LS	$ 23,000	$ 23,000
6	Temporary Bypass Pumping	1	LS	$ 57,000	$ 57,000
7	Traffic Control	1	LS	$ 53,000	$ 53,000
8	Locate Existing Utilities	1	LS	$ 12,000	$ 12,000
9	Removal of Structures and Obstructions	1	LS	$ 61,000	$ 61,000
10	8" PVC Sanitary Sewer (Including bedding)	5,500	LF	$ 70	$ 385,000
11	in ROW	4,700	LF		
12	in easmnt	800	LF		
13	8" PVC Water Main (Including fittings, bedding)	4,800	LF	$ 50	$ 240,000
14	in ROW	4,800	LF		
15	in easmnt	0	LF		
16	6" side sewer	1,050	LF	$ 30	$ 31,500
17	48" Precast Manhole (Basic to 8')	21	EA	$ 3,500	$ 73,500
18	48" Precast Manhole (Height Over 8')	0	VF	$ 200	$ -
19	Connection to Existing Manhole	2	EA	$ 2,500	$ 5,000
20	AdditionalPipe Fittings	2,400	LB	$ 4	$ 8,400
21	8-inch Gate Valves	20	EA	$ 1,200	$ 24,000
22	Fire Hydrants	11	EA	$ 4,000	$ 44,000
23	Connection to Existing Water System	2	EA	$ 2,000	$ 4,000
24	3/4" Service Connections, complete	35	EA	$ 500	$ 17,500
25	Special Excavation of Unsuitable Material	130	CY	$ 35	$ 4,550
26	Foundation Gravel	870	TN	$ 20	$ 17,400
27	Gravel Backfill	6,300	TN	$ 20	$ 126,000
28	Crushed Surfacing Top Course	1,170	TN	$ 20	$ 23,400
29	HMA Cl. 1/2 PG 58-22	420	TN	$ 170	$ 71,400
30	Sawcutting	21,110	LF	$ 3	$ 63,330
31	Planing Bituminous Pavement	0	SY	$ 4	$ -
32	Hot Mix Asphalt	0	TN	$ 100	$ -
33	Hydroseeding	2,300	SY	$ 3	$ 6,900
34	Sahalee Pump Station	1	LS	$ 350,000	$ 350,000

Subtotal	$ 1,860,880
Contingency (20%)	$ 372,176
Subtotal	$ 2,233,056
Sales Tax (7.8%)	$ 174,178
Total	$ 2,407,234
Total Construction Cost (Rounded)	**$ 2,410,000**
Engineering (25%)	$601,808.50
Project Cost	$3,011,808.50

City of Ilwaco
Preliminary Project Cost Estimate
Sahalee Subdivision Water, Sewer and Pump Station Replacement
Dec-11

	Item	Quantity		Unit Cost	Total
1	Mobilization/Demobilization	1	LS	$ 112,000	$ 112,000
2	Surveying, Staking and As-Built Dwgs	1	LS	$ 23,000	$ 23,000
3	Environmental Controls	1	LS	$ 12,000	$ 12,000
4	Trench Excavation Safety Systems	1	LS	$ 12,000	$ 12,000
5	Dewatering	1	LS	$ 23,000	$ 23,000
6	Temporary Bypass Pumping	1	LS	$ 57,000	$ 57,000
7	Traffic Control	1	LS	$ 53,000	$ 53,000
8	Locate Existing Utilities	1	LS	$ 12,000	$ 12,000
9	Removal of Structures and Obstructions	1	LS	$ 61,000	$ 61,000
10	8" PVC Sanitary Sewer (Including bedding)	5,500	LF	$ 70	$ 385,000
11	in ROW	4,700	LF		
12	in easmnt	800	LF		
13	8" PVC Water Main (Including fittings, bedding)	4,800	LF	$ 50	$ 240,000
14	in ROW	4,800	LF		
15	in easmnt	0	LF		
16	6" side sewer	1,050	LF	$ 30	$ 31,500
17	48" Precast Manhole (Basic to 8')	21	EA	$ 3,500	$ 73,500
18	48" Precast Manhole (Height Over 8')	0	VF	$ 200	$ -
19	Connection to Existing Manhole	2	EA	$ 2,500	$ 5,000
20	AdditionalPipe Fittings	2,400	LB	$ 4	$ 8,400
21	8-inch Gate Valves	20	EA	$ 1,200	$ 24,000
22	Fire Hydrants	11	EA	$ 4,000	$ 44,000
23	Connection to Existing Water System	2	EA	$ 2,000	$ 4,000
24	3/4" Service Connections, complete	35	EA	$ 500	$ 17,500
25	Special Excavation of Unsuitable Material	130	CY	$ 35	$ 4,550
26	Foundation Gravel	870	TN	$ 20	$ 17,400
27	Gravel Backfill	6,300	TN	$ 20	$ 126,000
28	Crushed Surfacing Top Course	1,170	TN	$ 20	$ 23,400
29	HMA Cl. 1/2 PG 58-22	420	TN	$ 170	$ 71,400
30	Sawcutting	21,110	LF	$ 3	$ 63,330
31	Planing Bituminous Pavement	0	SY	$ 4	$ -
32	Hot Mix Asphalt	0	TN	$ 100	$ -
33	Hydroseeding	2,300	SY	$ 3	$ 6,900
34	Sahalee Pump Station	1	LS	$ 350,000	$ 350,000

Subtotal	$ 1,860,880
Contingency (20%)	$ 372,176
Subtotal	$ 2,233,056
Sales Tax (7.8%)	$ 174,178
Total	$ 2,407,234
Total Construction Cost (Rounded)	**$ 2,410,000**
Engineering (25%)	$601,808.50
Project Cost	$3,011,808.50

APPENDIX B

CORRESPONDENCE

CERTIFICATION OF CONSISTENCY WITH WASHINGTON'S COASTAL ZONE MANAGEMENT PROGRAM FOR ACTIVITIES FUNDED BY RURAL DEVELOPMENT (USDA/RD)

Federal Application Number: _____

Applicant: City of Ilwaco

Project Description: Sahalee Water Sewer & Lift Station Replacements in T 10N, R11W,S33.

(attach site plans, location (county/city), and proximity to waterbody (name)) or JARPA Application

This action under CZMA§307(c)(3) is for a project, which will take place within Washington's coastal zone, or which will affect a land use, water use, or natural resource of the coastal zone. *(The coastal zone includes Clallam, Grays Harbor, Island, Jefferson, King, Kitsap, Mason, Pacific, Pierce, San Juan, Skagit, Snohomish, Thurston, Wahkiakum and Whatcom counties.)*

The project complies with the following enforceable policies of the Coastal Zone Management Program:

1. Shoreline Management Act:
   - Is outside of SMA jurisdiction (X)
   - Applied for shoreline permit ( )# _____ being reviewed by _____
   - Has a valid shoreline permit ( )# _____ issued by _____ on _____
   - Has received an SMA Exemption ( )# _____ issued by _____ on _____

2. State Water Quality Requirements:
   - Does not require water quality permits (X)
   - Applied for water quality certification ( )
   - Has received water quality certification ( )# _____ issued on _____
   - Applied for stormwater permit ( )# _____ issued on _____
   - Has received stormwater permit ( )# _____ issued on _____

3. State Air Quality Requirements:
   - Does not require air quality permits (X)
   - Applied for Air Quality permit ( )# _____ being reviewed by _____
   - Has an Air Quality permit ( )# _____ issued by _____ on _____

4. State Environmental Policy Act:
   - SEPA Lead Agency is: City of Ilwaco
   - Project is exempt from SEPA ( )
   - SEPA checklist submitted ( ) date _____
   - SEPA decision issued/adopted ( )DNS ( )MDNS ( )EIS ( )Other _____ date _____
   - NEPA decision adopted by ( )SEPA # _____ date _____
   - Lead agency to satisfy SEPA

SEPA Checklist to be submitted to the City.

Public Notice for this proposed project was provided through:

( )notice mailed to interested parties using _____ mailing list on _____(date)
( )publication in _____(newspaper) on _____(dates)
( )other (include dates) _____

Therefore, I certify that this project complies with the enforceable policies of Washington's approved coastal zone management program and will be conducted in a manner consistent with such program.

(Signature) _____ Date _____

USDA, Rural Development concludes this action is consistent to the maximum extent practicable with Washington's Coastal Zone Management Program.

Funds will not be released until all State Agency requirements have been met.

(Signature) _____ Date _____

If you require this publication in an alternate format, please contact the Shorelands and Environmental Assistance Program at 360-407-6096, or TTY (for the speech or hearing impaired) 711 or 800-833-6388.

ECY 070-131

MEMORANDUM

TO: Nancy Lockett, Janice Roderick, Debbie Harper
FROM: Jim Dougherty
DATE: 3-14-2012
SUBJECT: Summary of Environmental Resources in the vicinity of the Sahalee Water, Sewer and Lift Station Replacement Project in Ilwaco, Washington

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The Sahalee Subdivision is located on a hill (outside the 100-year floodplain) west of downtown Ilwaco, Washington is Section 33 of Township 10 north, Range 11 West, approximately one half mile west of Baker Bay & the Columbia River and 1.5 miles east of the Pacific Ocean. All work will occur within City of Ilwaco rights-of-way (ROW) in Nesadi Drive, Hiaqua Place, Wecoma Place and Klahanee Place and along Klahanee Place to the Sahalee Lift Station Site. The lower few hundred feet of Klahanee Drive and the Sahalee Lift Station are located within the Cape Disappointment Historic District, but according to Rob Freed of Archaeological Consulting Services there are no records of cultural or historic resources in the project area.

According to the National Resources Conservation Service (NRCS) *Soil Survey for Grays Harbor County Area, Pacific and Wahkiakum Counties*, a survey last updated December 2007, the entire Sahalee Subdivision site is a developed residential neighborhood and all areas proposed for soil disturbance are in existing road ROW, and are therefore not regarded as farmland of statewide importance. Soils throughout the Sahalee Subdivision are classified as Palix silt loam, cool, with 8 to 30 percent slopes.

According to the US Fish & Wildlife Service website, animal species protected under the authority of the Endangered Species Act in Pacific County include bull trout, marbled murrelets, northern spotted owls, the Oregon silverspot butterfly, the western snowy plover and the short-tailed albatross. According to the WDFW Priority Habitat & Species Map for the area, of these species, only the marbled murrelet and bull trout are likely to occur near the project site; the marbled murrelet nests in old growth forest approximately 1,000 yards southwest of the project area and the bull trout is potentially present in the Columbia River approximately 1,000 yards to the south and east. Columbia River chum salmon, Lower Columbia River steelhead, chinook and coho salmon, eulachon and green

sturgeon are all ESA-protected species occurring in the Lower Columbia River off-shore of the project area. Upper Columbia River Spring chinook salmon, Upper Willamette chinook salmon, Upper Columbia River steelhead, Snake River steelhead Mid-Columbia River steelhead and Upper Willamette steelhead all pass through the Lower Columbia River and Baker Bay en route to the Pacific Ocean as juveniles and to upstream spawning areas upon return from the ocean. The Columbia River provides Essential Fish Habitat for commercially important populations of chinook, coho and a small population of pink salmon. In addition to the Threatened and Endangered fish species discussed above, shad, bass, perch, sturgeon (both white and green), Pacific lamprey, herring and a variety of marine fish that may swim up the Columbia River in the saltwater lens. Dungeness crabs are known to be present in the Columbia River near the mouth.

The Ilwaco area was originally forested with wetlands and marsh areas along the Columbia River east of the Sahalee Subdivision Project Area. Most of the hillsides in the Ilwaco area have been logged at least once. Common tree species in order of prominence include: Douglas-fir *(Pseudotsuga menziesii)*, red alder *(Alnus rubra)*, big-leaf maple *Acer macrophyllum)*, and black cottonwood *(Populus trichocarpa).* Other species found in the area include Grand fir *(Abies grandis)*, Oregon white oak *(Quercus garryana)*, Western red cedar *(Thuja plicata)* and Oregon ash *(Fraxinus latifiola).* Various species of undergrowth include salal, several varieties of berries, innumerable species of brush, sword ferns, honeysuckle, vine maple and others. Grasses consist of bentgrass, brome, cheat and other local grasses.

March 1, 2012

Jim Dougherty,
Gray & Osborne Inc - Seattle
701 Dexter Ave N
Suite 200
Seattle WA 98109

SUBJECT: Sahalee Subdivision (T10N R11W S33)

We've searched the Natural Heritage Information System for information on significant natural features in your project area. Currently, we have no records for rare plants or high quality native ecosystems in S33 T10N R11W.

The information provided by the Washington Natural Heritage Program is based solely on existing information in the database. In the absence of field inventories, we cannot state whether or not a given site contains high quality ecosystems or rare plant species; there may be significant natural features in your study area of which we are not aware.

The Washington Natural Heritage Program is responsible for information on the states rare plants as well as high quality ecosystems. For information on animal species of concern, please contact Priority Habitats and Species, Washington Department of Fish and Wildlife, 600 Capitol Way N, Olympia WA 98501-1091, or by phone (360) 902-2543.

For more information on the Natural Heritage Program, please visit our website at http://www.dnr.wa.gov/ResearchScience/Topics/NaturalHeritage/Pages/amp_nh.aspx. Species lists and fact sheets, as well as rare plant survey guidelines are available for download from the site. For the self-service system, please follow the Reference Desk link to Location Search. Please feel free to e-mail us at natural_heritage_program@dnr.wa.gov if you have any questions.

Sincerely,

Jasa Holt, Data Specialist
Washington Natural Heritage Program

Forest Resources & Conservation Division, PO Box 47016, Olympia WA 98504-7016

From: Jim Dougherty [mailto:jdougherty@g-o.com]
Sent: Wednesday, February 29, 2012 4:05 PM
To: DNR RE Natural Heritage Program
Subject: Wetlands and Rare Plants present in T 10 North, Range 11 West, Section 33

Dear NHP

I am working on NEPA documentation and a biological evaluation for a water and sewer main replacement project in the Sahalee Subdivision west of Ilwaco in Pacific County in Township 10 North, Range 11 West, Section 33 and need any information you may have regarding sightings of rare plants or wetlands in the vicinity. Please let me know if you have data specific to this Section.

Thanks,

Jim Dougherty
Gray & Osborne, Inc.
701 Dexter Ave N. Suite 200
Seattle WA, 98109

Ph(206)284-0860
Fx(206)283-3206

Electronic File Transfer-

Note that these electronic files are provided as a courtesy only. Gray & Osborne, Inc. in no way guarantees the accuracy or completeness of the digital data contained within these files. Furthermore, Gray & Osborne, Inc. assumes no liability for any errors or omissions in the digital

Washington Natural Heritage Information System
List of Known Occurrences of Rare Plants in Washington
November 2010
Pacific County

A key to status fields appears below. If a scientific name is underlined you may click on it to go to a field guide page (pdf format, average size 300 kb) for that taxon.

Scientific Name	Common Name	State Status	Federal Status	H R
Abronia umbellata var. breviflora	pink sand-verbena	E	SC	
Baccharis pilularis ssp. consanguinea	coyotebush	T		
Boschniakia hookeri	Vancouver ground-cone	R1		
Dodecatheon austrofrigidum	frigid shootingstar	E	SC	
Erigeron aliceae	Alice's fleabane	S		
Erythronium revolutum	pink fawn-lily	S		
Euonymus occidentalis var. occidentalis	western wahoo	T		
Filipendula occidentalis	queen-of-the-forest	T	SC	
Lycopodiella inundata	bog clubmoss	S		
Parnassia palustris var. neogaea	northern grass-of-parnassus	S		
Poa laxiflora	loose-flowered bluegrass	S		
Poa unilateralis ssp. pachypholis	ocean-bluff bluegrass	T		
Polemonium carneum	great polemonium	T		H
Sanicula arctopoides	bear's-foot sanicle	E	SC	

Description of Codes

Historic Record:

H indicates most recent sighting in the county is before 1977.

State Status

State Status of plant species is determined by the Washington Natural Heritage Program. Factors considered include abundance, occurrence patterns, vulnerability, threats, existing protection, and taxonomic distinctness.
Values include:
E = Endangered. In danger of becoming extinct or extirpated from Washington.
T = Threatened. Likely to become Endangered in Washington.
S = Sensitive. Vulnerable or declining and could become Endangered or Threatened in the state.
X = Possibly extinct or Extirpated from Washington.
R1 = Review group 1. Of potential concern but needs more field work to assign another rank.
R2 = Review group 2. Of potential concern but with unresolved taxonomic questions.

Federal Status

Federal Status under the U.S. Endangered Species Act(USESA) as published in the Federal Register:
LE = Listed Endangered. In danger of extinction.
LT = Listed Threatened. Likely to become endangered.
PE = Proposed Endangered.
PT = Proposed Threatened.
C = Candidate species. Sufficient information exists to support listing as Endangered or Threatened.
SC = Species of Concern. An unofficial status, the species appears to be in jeopardy, but insufficient information to support listing.

Listing ID:	6685		
Water Body Name:	COLUMBIA RIVER (BAKER BAY)		
Water Body Type:	Gridded Lake		
Parameter:	Fecal Coliform	**2008 CATEGORY:**	5
Sample Medium:	Water	**2004 Category:**	5
WRIA:	24 - Willapa	**1998 303(d) List?:**	Y
		1996 303(d) List?:	Y
County:	Pacific		
Grid Cell:	46124D0A3		
Latitude:	46.305	**Longitude:**	124.035
LLID:	1240483462464		
WASWIS:	NN57SG		
WBID:	WA-24-1010		

2008 Basis

*** 2008 Basis Statement (carried forward from 2004) ***

Hallock and Ehinger, 1993., excursions beyond criteria at Ilwaco Marina, from 9/92 to 12/92.;

Remarks

Data is only available in hardcopy format. The water segment is listed as Category 5 based on the 1998 assessment.

GRAY & OSBORNE, INC.
TELEPHONE/MEETING CONVERSATION RECORD

☒ **Telephone Conversation**

☐ **Meeting**

Location of Phone Conversation: GRAY & OSBORNE INC.
Place of Meeting:

Date:	February 28, 2012			1530
Discussion with:	Amy Spoon			
Firm/City with:	WDFW Montesano			
Phone Number:	360 249-1228			
Gray & Osborne Personnel:	Jim Dougherty			
Project:	Sahalee Subdivision Water Sewer & Lift Station Replacement			
Subject:	ESA discussion re listed animals near the project area.			
G&O Job Number:	20124.61			

REMARKS:

I called Amy Spoon to discuss the potential for listed species in the Sahalee Subdivision project area. Amy confirmed that the Oregon silverspot butterfly and the snowy plover would be more likely to be present in grassy areas in the dunes nearer the coast, than in the hilly forested area around the Sahalee Subdivision west of Ilwaco. She also confirmed that it would be unlikely to encounter a short-tailed albatross in the project area, as they are very few in number and found most often well off-shore of the coast of the United States. Finally, Amy agreed that streaked-horned larks are more likely to be found in lowland areas along the Columbia River, rather than on the forested hillside in the Sahalee Subdivision west of Ilwaco.

We briefly discussed the mitigation requirements for the Willapa Regional WWTF Project and I gave her a bit of project history regarding the proposed use of LWD for mitigation of the construction and operational effects associated with the new outfall. I told Ms. Spoon that the current plan is to restore a disturbed area of approximately 4,000 square feet of riparian vegetation near the outfall to off-set the 2,000 square feet of temporary benthic disturbance associated with the outfall installation. I noted that if the Corps requires mitigation at a 4:1 ratio, an additional 2,000 square feet of riparian vegetation could be planted in the side channel north of the WWTF site. She said that she would consider DNR's concerns and the change in mitigation project scope in her project review, should it come up.

LISTED AND PROPOSED ENDANGERED AND THREATENED SPECIES AND CRITICAL HABITAT; CANDIDATE SPECIES; AND SPECIES OF CONCERN IN **PACIFIC COUNTY** AS PREPARED BY THE U.S. FISH AND WILDLIFE SERVICE WASHINGTON FISH AND WILDLIFE OFFICE

(Revised August 26, 2010)

LISTED

Bull trout (*Salvelinus confluentus*) – Coastal-Puget Sound DPS
Marbled murrelet (*Brachyramphus marmoratus*)
Northern spotted owl (*Strix occidentalis caurina*)
Oregon silverspot butterfly (*Speyeria zerene hippolyta*)
Short-tailed albatross (*Phoebastria albatrus*) [outer coast]
Western snowy plover (*Charadrius alexandrinus nivosus*)

Major concerns that should be addressed in your Biological Assessment of project impacts to listed species include:

1. Level of use of the project area by listed species.

2. Effect of the project on listed species' primary food stocks, prey species, and foraging areas in all areas influenced by the project.

3. Impacts from project activities and implementation (e.g., increased noise levels, increased human activity and/or access, loss or degradation of habitat) that may result in disturbance to listed species and/or their avoidance of the project area.

DESIGNATED

Critical habitat for the marbled murrelet
Critical habitat for the western snowy plover

PROPOSED

None

CANDIDATE

Streaked horned lark (*Eremophila alpestris strigata*)

SPECIES OF CONCERN

Bald eagle (*Haliaeetus leucocephalus*)
Brown pelican (*Pelecanus occidentalis*) [outer coast]
Coastal cutthroat trout (*Oncorhynchus clarki clarki*) [southwest Washington DPS]
Columbia torrent salamander (*Rhyacotriton kezeri*)
Long-eared myotis (*Myotis evotis*)
Long-legged myotis (*Myotis volans*)
Makah's copper (butterfly) (*Lycaena mariposa charlottensis*) [historic]
Newcomb's littorine snail (*Algamorda newcombiana*)
Northern goshawk (*Accipiter gentilis*)
Northern sea otter (*Enhydra lutris kenyoni*)
Olive-sided flycatcher (*Contopus cooperi*)
Pacific lamprey (*Lampetra tridentata*)
Pacific Townsend's big-eared bat (*Corynorhinus townsendii townsendii*)
Peregrine falcon (*Falco peregrinus*)
River lamprey (*Lampetra ayresi*)
Tailed frog (*Ascaphus truei*)
Van Dyke's salamander (*Plethodon vandykei*)
Western toad (*Bufo boreas*)
Abronia umbellata ssp. *acutalata* (pink sandverbena)
Dodecatheon austrofrigidum (frigid shootingstar)
Filipendula occidentalis (queen of the forest)
Sanicula arctopoides (footsteps of spring; bear's-foot sanicle)

WASHINGTON STATE DEPARTMENT OF Natural Resources

Return to Washington Natural Heritage Program

Washington Natural Heritage Program

Reference Desk

Reference Desk | Location Search | Rare Plants | Rare Animals | Communities
GIS | Field Guides | Publications | Natural Heritage Plan

Washington Natural Heritage Information System
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Boschniakia hookeri	Vancouver ground-cone	R1		
Dodecatheon austrofrigidum	frigid shootingstar	E	SC	
Erigeron aliceae	Alice's fleabane	S		
Erythronium revolutum	pink fawn-lily	S		
Euonymus occidentalis var. occidentalis	western wahoo	T		
Filipendula occidentalis	queen-of-the-forest	T	SC	
Lycopodiella inundata	bog clubmoss	S		
Parnassia palustris var. neogaea	northern grass-of-parnassus	S		
Poa laxiflora	loose-flowered bluegrass	S		
Poa unilateralis ssp. pachypholis	ocean-bluff bluegrass	T		
Polemonium carneum	great polemonium	T		H
Sanicula arctopoides	bear's-foot sanicle	E	SC	

Description of Codes

Historic Record:

H indicates most recent sighting in the county is before 1977

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Washington Department of Fish and Wildlife
Mailing Address: 600 Capitol Way N • Olympia, WA 98501-1091 **Main Office Location:** Natural Resources Building • 1111 Washington Street SE •Olympia, WA

FISH AND WILDLIFE ORDER FORM

HABITATS AND SPECIES INFORMATION

INSTRUCTIONS

Please complete this order form to request maps and/or digital data on locations of species and habitats. For descriptions of standard products and prices see the *Ordering Habitats and Species Information* sheet which accompanies this form or visit our web site at wdfw.wa.gov/hab/release.htm. **Mail completed form to: Washington Department of Fish and Wildlife, Priority Habitats and Species, 600 Capitol Way N., Olympia WA 98501-1091 or fax to (360) 902-2946**. You will receive an invoice itemizing the costs for your request and instructions for submitting payment. ***Sorry, we do not accept payments by credit card.*** For questions call (360) 902-2543. For information on state listed plants contact the Washington Department of Natural Resources at dnr.wa.gov/nhp.

Name: Jen Dougherty

Agency/Organization: Gray & Osborne, Inc. for City of Normandy

Address: 701 Dexter Avenue North, Suite 200

City: Seattle State: WA Zip Code: 98109

Phone Number: 206 284-0860 Date of Request: 2-17-2012

Does your agency/organization have a Release Agreement, which includes you as a contact, on file with the Washington Department of Fish and Wildlife regarding the confidentiality of sensitive information? ☐ Yes ☐ No ☐ Don't Know

Identify yourself as one of the following:

☐ Owner of land covered by this request ☐ Government agency ☐ Tribe ☐ Utility ☐ Conservation organization

☑ Consultant representing (**please circle one:**) Landowner Government agency Tribe Utility Conservation organization

☐ Researcher with a university ☑ Other (please specify) Consultant to City of Normandy

REQUESTER READ AND SIGN

By receiving fish and wildlife information from the Washington Department of Fish and Wildlife (WDFW), you incur an obligation to use it in a way that does not cause undue harm to our public fish and wildlife resources.

All fish and wildlife species are vulnerable to harm from human activities. Harm can occur directly (e.g., an animal is harassed or injured) or indirectly (e.g., a nest tree is felled or a wetland is drained). Harm can occur unintentionally, even by those who value the fish and wildlife resources (e.g., repeated visits to a heron rookery which flushes birds from the nest and exposes eggs to cold weather and predators). The most serious threats to fish and wildlife, rather than being direct and malicious acts, are indirect human actions where harm to fish and wildlife was unintentional.

The Washington State constitution confers fish and wildlife ownership to all citizens of the state. WDFW is mandated to safeguard this ownership by preserving, protecting and perpetuating fish and wildlife resources. The public has a crucial role in fulfilling this mandate, for two reasons. First, the statewide distribution of fish and wildlife species and habitat is beyond the monitoring capability of any single agency. Second, the state's constitution gives to the people ownership of fish and wildlife but not of the habitat on which fish and wildlife's survival ultimately depends. Property owners are also habitat owners and their collective actions have a profound effect on the state's fish and wildlife.

WDFW provides information on the location of many of Washington's most sensitive and vulnerable fish and wildlife resources. Use of this information must be commensurate with the vulnerability of fish and wildlife resources and with the conditions outlined in WDFW Releasing Sensitive Fish and Wildlife Information Policy 5210.

Fish and wildlife species are protected through specific legislation. Regulations most applicable to users of WDFW information include RCW 77.16.120 (taking of protected fish and wildlife), WAC 232-12-292 (Bald Eagle protection rules), WAC 232-12-064 (live fish and wildlife) and RCW 42.17.310 (exempting of sensitive fish and wildlife information from public inspection and copying).

I have read and understand the information above and certify that this form is filled out accurately and completely to the best of my knowledge. I understand that I will receive an invoice itemizing the costs for this request and instructions for submitting payment.

REQUESTER'S SIGNATURE X Jennifer A. Dougherty

Project Name/Number: Seattle Lift Station Replacement & Sewer Line Repairs Project No. 20124.61

Project Description/Use of Requested Information: Preparation of a Biological Evaluation and other permitting documents for USDA Planning Package Environmental Review.

Washington Department of Fish and Wildlife
Mailing Address: 600 Capitol Way N • Olympia, WA 98501-1091 Main Office Location: Natural Resources Building • 1111 Washington Street SE •Olympia, WA

FISH AND WILDLIFE ORDER FORM

HABITATS AND SPECIES INFORMATION

Project Location of Request [If you are requesting a detailed map or digital data, please specify by township, range and section and include a project vicinity map; format options for other maps include US Geological Survey (USGS) 7.5-minute quadrangle map name, USGS 1:100,000 map name, or county name]. List here or attach listing:
THE SCHALLER SUBSTATION RELOCATION PROJECT WILL OCCUR IN TOWNSHIP 10 NORTH, RANGE 11 WEST, SECTION 33 IN KLICKITAT, WA.

Special Requests: WE NEED THE STANDARD PHS INFORMATION FOR DETERMINATION OF A BIOLOGICAL EVALUATION FOR ESA CONSULTATION.

STANDARD PRODUCTS

Indicate desired products by checking appropriate blank box:
(For descriptions of standard products and prices see the *Ordering Habitats and Species Information* sheet which accompanies this form or visit our web site at wdfw.wa.gov/hab/release.htm.)

MAP PRODUCTS		
1.	Detailed 1:24,000 Scale Habitats and Species Map (Detailed information on known locations of important fish, wildlife and habitats; a report accompanies this map.)	✓
2.	Single Species or Habitat Distribution Map (Please specify desired single species or single habitat type in the special requests section of this form; map displays one species per map or one habitat type per map.)	
3.	Habitats and Species Summary Map by County (Summary information of habitat and species sites and areas.)	
4.	Marine Resource Map (Generalized information of marine fish and shellfish; if you are requesting the detailed Habitat and Species map this information is included.)	
5.	Old Growth Map (Information from 1988/1989; available for Western Washington only.)	
DIGITAL DATA PRODUCTS		
6.	Priority Habitats and Species Polygon, Wildlife Heritage, Spotted Owl, and Marbled Murrelet Points Databases (Information in these databases are updated on a regular basis.)	
7.	Washington Lakes and Rivers Information System (WLRIS) Fish Distribution Database (Selected fish species information are updated on a regular basis.)	
8.	Marine Resources, Seabird Colonies and Seal/Sea Lion Haulout Databases (Information in these databases are rarely updated.)	
9.	Old Growth Database (Information from 1988/1989; no anticipated updates.)	
10.	National Wetlands Inventory Database (Information from US Fish and Wildlife Service; no anticipated updates.)	

Standard Map Options (check relevant options)

☑ Provide map(s) on paper
☐ Provide map(s) on mylar film

Include documentation for map(s)
☐ Yes ☐ No

Standard Digital Data Options (check relevant options)
Digital data is for use with Geographic Information Software (GIS); it is not an image of a map.

☐ Provide as ESRI export file format
☐ Provide as ESRI shape file format

☐ Provide on Compact Disk (CD)
☐ Provide on Iomega Zip Disk

☐ Transfer data via ftp
Please provide the following for your site:
address: _____
login: _____
password: _____
directory path: _____

Include printed digital documentation
☑ Yes ☐ No

Provide as State Plane South Projection:
☐ NAD 1927 **or** ☐ NAD 1983 (1991 adjustment)

Sahalee Sewer Background

Nesadi Drive: Nesadi Drive is located in the Sahalee subdivision. This area was in unincorporated Pacific County when it was developed in the early 1970s. The area was annexed into the City at a later date and the City took ownership of the sanitary sewer system. The sewer in Nesadi Drive is located in the south shoulder of the road. The road embankment drops off sharply to the south. Several years ago sewage was leaking out of the south side of the embankment. The City used a video camera to inspect the condition of the line and noted several offset joints. The pipe is also exposed in places along the embankment. The primary option for replacement is to move the sewer to the north side of the street.

Sahalee Subdivision sewer system: In addition to the offset joints in the sewer main on Nesadi Drive the City is concerned about the condition of the sanitary sewers in the Sahalee subdivision. The majority of the sewage flow from the subdivision flows by gravity through 6-inch PVC that was installed in the early 1970s. The remainder of the wastewater from the subdivision flows to the Sahalee lift station. The Sahalee lift station is a wet pit/dry pit design with two self-priming centrifugal electric motor-driven sewage pumps. The self-priming feature of the stations is not reliable. The pump casing must be filled with water to maintain prime on the pump. Water from the wet well is pulled through a small diameter tube into the pump casing. Ilwaco's experience has been that solids and floatables in the wet well easily block the priming tube. If the pumps are not primed they will not run. The pumps will need to be replaced within the next year. Replacement cost is approximately $5,000/pump. The wet well is shallow and overflows are possible if the pumps are not operating properly. The City would like to replace this station with a submersible station and replace the sewer mains in the subdivision.

The repair or replacement of the sewer mains in Maryann Avenue, Eliza Avenue, First Avenue – north of Spruce Street, Nesadi Drive and the Baker Bay force main are priority projects based on potential for sewer overflows and estimated contribution of I/I flow.

APPENDIX C

INFORMAL ESA CONSULTATION/BIOLOGICAL ASSESSMENT

Informal ESA Consultation

For Impacts to Listed Species from

Sahalee Subdivision Water, Sewer and Lift Station Replacement Project

March 21, 2012

City of Ilwaco, Pacific County

Gray & Osborne Project #20124.61

Introduction:

The City of Ilwaco, located in Pacific County at the mouth of the Columbia River in Washington State is an applicant for federal financial assistance from the USDA Rural Development Administration of the US Department of Agriculture. This program is supported by federal funds and requires the development of this National Environmental Policy Act (NEPA) Environmental Report. The total cost of the project is projected to be $2,800,000. The project-funding package will include:

- A loan from the USDA Rural Development Administration.
- A grant from the USDA Rural Development Administration.
- Remaining costs will be covered by local funds from:
  - Monthly rates: Sewer: $64.50 (Single Family, 2012), Water: $49.22 (Single Family, 800 cf/month, 2012). Accounts outside City limits: 50% surcharge.
  - General Facilities Charge (GFC): Sewer: $6,200, Water: $2,500. Connections outside City limits: 50% surcharge.

Gray & Osborne, Inc. is providing engineering services to the City of Ilwaco for the proposed Sahalee Subdivision Water, Sewer and Pump Station Replacement Project. The existing facilities to be replaced are located in City of Ilwaco rights-of-way in the Sahalee Subdivision in the City of Ilwaco, Washington; in Pacific County, Washington. The proposed Sahalee Water, Sewer and Pump Station Replacement Project will take place within Section 33 of Township 10 North, Range 11 West in the City of Ilwaco, Pacific County, Washington.

Purpose:

The purpose of this project is to replace failing water and sewer infrastructure in the Sahalee Subdivision. The Sahalee subdivision was constructed in the early 1970's by the Baker Bay Development Company. The development was subsequently annexed into the City.

Approximately 3,000 lf of the original asbestos concrete (AC) pipe is still in service. The AC pipe is over 40 years old and is nearing the end of its useful life. The City is continually making repairs to the water lines. The AC water pipe should be replaced with 8-inch PVC water main.

The sanitary sewer system in the Sahalee area is the original 1970s system and includes approximately 7,300 lf of 6-inch AC and PVC pipe. The sanitary sewer system is nearing the end of its useful life. The majority of the sewage from the subdivision flows by gravity through an unopened right-of-way to connect to one of the City's main sewer trunks. The remainder of the wastewater from the subdivision flows to the Sahalee Lift Station. This lift station is a wet pit/dry pit design with two self-priming centrifugal electric motor-driven sewage pumps. The self-priming feature of the pumps at this lift station is not reliable. Currently, the pump casing must be manually filled with water to maintain prime on the pump. Water from the wet well is pulled through a small-diameter tube into the pump casing. The operator's experience has been that solids and floatables in the wet-well easily block the small-diameter priming tube. If the pumps are not primed, they will not run causing sewage to collect and overwhelm the station's shallow wet-well, which leads to sewer over-flows and the associated public health threat. The steel wet well/dry well is corroding resulting in excessive infiltration/inflow discharged to the lift station. The sanitary sewer system should be replaced with 8-inch PVC sewer mains and the Sahalee Lift Station should be replaced with a submersible lift station adjacent to the existing Lift Station, which will be dismantled to ground level and landscaped per City of Ilwaco Code.

1. **Proposed Activities**

2. **Drawings:**
   See Attached

3. **Date:**
   March 21, 2012

4. **Applicant:**
   City of Ilwaco

5. **Agent:**
   Nancy Lockett, PE, Gray & Osborne, Inc.
   701 Dexter Avenue North, Suite 200
   Seattle, WA *98109*

6. Project Name:

City of Ilwaco, Washington: Sahalee Subdivision Water, Sewer and Lift Station Replacement Project

7. Location:

The Sahalee Subdivision is located on a hill west of downtown Ilwaco, Washington is Section 33 of Township 10 north, Range 11 West, approximately one half mile west of Baker Bay & the Columbia River and 1.5 miles east of the Pacific Ocean. All work will occur within City of Ilwaco rights-of-way (ROW) in Nesadi Drive, Hiaqua Place, Wecoma Place and Klahanee Place en route to the Sahalee Lift Station Site.

8. Description of Work:

The fourth, and preferred, alternative would be to replace approximately 5,000 linear feet of failing sewer lines with 4,200 lf of new 8-inch PVC sanitary sewers, 10 grinder pumps and 1,000 ft. of small diameter force main. It would also replace approximately 2,600 linear feet of leaking water mains with new 8-inch PVC water mains; associated fire hydrants and gate valves. Pavement and landscaping restoration would also be included in the project scope. Finally, the existing Sahalee Sewage Lift Station would be replaced with a new submersible pump station in approximately the same location, which will eliminate the potential for sewage overflows and provide approximately 20-years of reliable service to the Sahalee Subdivision. This work would occur in existing City of Ilwaco ROW and developed sites more than 1,000 feet from critical habitat for salmon in Baker Bay and the Columbia River protected under the Endangered Species Act.

This alternative would replace the existing sanitary sewers in Wecoma Place, Hiaqua Place SW, Nesadi Drive, Klahanee Place, with 8-inch gravity sewers and install 8-inch sewer on Lamontay Place. The sewer in Nesadi Drive would be replaced by small diameter force main and individual grinder pumps would be installed at each of the residences tributary to the Nesadi Drive sewer. In addition, two grinder pumps will be installed at two residences on Wecoma Place that currently discharge sewage to a common side sewer located on the downhill side of the properties. The grinder pumps will discharge to the new 8-inch PVC sewer in Wecoma Place. The sanitary sewers located on Wecoma Place, Hiaqua Place and Nesadi Drive will discharge into an existing sanitary sewer main installed in 2002 at the intersection of Wecoma Place, Hiaqua Place and Nesadi Drive. This sanitary sewer was installed to provide sewer conveyance from the Discovery Heights development located adjacent to the Sahalee Subdivision, Cape Disappointment State Park and the US Coast Guard Station at Cape Disappointment to the City of Ilwaco. This alternative would also replace the existing Sahalee Lift Station duplex package, 5 Hp pumps, wet well/dry well lift station with a submersible lift station containing two 3 Hp submersible pumps. The sanitary sewers and lift station would be designed in compliance with the City of Ilwaco design standards and the Department of Ecology *Criteria for Sewage Works Design Manual*.

This alternative would replace the 6-inch AC water mains in Wecoma Place, Hiaqua Place and Nesadi Drive with 8-inch PVC water mains, valves, and fire hydrants. The water lines will be designed per City and Department of Health standards. As with the sewer line replacement project above, all proposed work will occur more than 1,000 feet from critical habitat for listed salmonids and 3,000 feet from marbled murrelet nests.

9. Construction Techniques:

Conveyance Infrastructure

Water and sewer mains will be replaced along the same alignments as existing pipes, except when the existing pipes are located in areas subject to ground movement, slumping and landslides. Trenches will be backfilled with native material as much as possible, but where necessary, fill will be imported from a local source approved by the project engineer.

Trenching will occur during dry conditions to minimize the potential for sedimentation and erosion. Excavating the trenches during dry conditions will minimize adverse impacts associated with disturbances to native and landscaped vegetation along pipeline routes and adjacent to the Sahalee Lift Station. Dewatering could be necessary in some places along the route of the conveyance pipeline trench and at the new Lift Station site. Groundwater will be conveyed to open areas for infiltration or diverted to existing drainage channels.

Lift Station

Construction of the new Sahalee Lift Station will occur on approximately 400 square feet adjacent to the existing lift station, which will be demolished to ground level, once the new lift station is operational. The Lift Station site will be replanted in accordance with City of Ilwaco Code. No work associated with this project is located within the 100-year floodplain of the Columbia River, and no known wetlands will be disturbed.

Machinery (types)

- Large front-end loader
- Large backhoe or excavator
- Dump truck
- Cement truck

10. Permit Authorization Requested:

- Clean Water Act, Section 401 Water Quality Certification (Ecology)
- SEPA Determination of Non-Significance (City of Ilwaco);
- Clearing & Grading Permit for new Lift Station (City of Ilwaco)
- Right-of-Way Permit for pipeline replacements (City of Ilwaco)
- Critical Permitting (City of Ilwaco); if required for Lift Station Site.

11. Listed Fish Species Present:

Listed Species in Pacific County under the jurisdiction of National Marine Fisheries Service (from NMFS webpage updated August 15, 2011):

Lower Columbia River Chinook, *Oncorhynchus tshawytscha*, Threatened

Lower Columbia River chinook were listed as Threatened on March 24, 1999; this status was reaffirmed on June 28, 2005 and a Five Year Listing Status Review completed August 15, 2011 maintained the current listing. The Lower Columbia River chinook ESU includes all naturally spawned populations of chinook salmon from the Columbia River and its tributaries, from its mouth at the Pacific Ocean, up to and including the White Salmon and Hood Rivers, and also includes chinook from seventeen artificial propagation programs within Washington and Oregon. Migrating chinook return to the lower Columbia from August through November, and spawn between October and November. The City of Ilwaco lies within the Lower Columbia River Corridor, the 100-mile section of the Columbia between its mouth and the confluence of the Columbia with the Washougal and Sandy Rivers. Final Critical Habitat designation for chinook was established on September 2, 2005 and included this section of the Columbia.

While Lower Columbia River chinook salmon are present in Baker Bay and the Columbia River approximately 1,000 feet south and west of the project area, there is no surface water stream in the project area that would support chinook salmon.

Lower Columbia River Coho, *O. kisutch*, Threatened

Originally part of a larger Lower Columbia River/Southwest Washington evolutionarily significant unit (ESU), the Lower Columbia River coho were identified as a separate ESU and listed as Threatened on June 28, 2005 and the Five Year Listing Status Review completed on August 15, 2011 re-affirmed this listing. This ESU includes all naturally spawned populations of coho salmon in the Lower Columbia River and its tributaries, from its mouth to the Big White Salmon and Hood Rivers, and 25 artificial propagation programs in the area. Critical Habitat for Lower Columbia River coho is still being developed. *While Lower Columbia River coho salmon are present in Baker Bay and the Columbia River approximately 1,000 feet south and west of the project area, there is no surface water stream in the project area that would support coho salmon.*

Columbia River Chum, *O. keta*, Threatened

Columbia River chum were once widespread in the Lower Columbia River. They were first listed as Threatened on March 25, 1999 and had that status reaffirmed on June 28, 2005; the Five Year Listing Status Review completed on August 15, 2011 maintained the current listing. Today, Columbia River chum are concentrated in the Grays River system near the mouth of the Columbia and near Bonneville Dam in Hardy and Hamilton Creeks. Fall run chum salmon return to the Columbia River from mid-October through November, but apparently do not reach the Grays River, 25 miles upstream from the project area, until late October-early December. Spawning occurs in the Grays River from early November to late December.

Critical Habitat for the Columbia River chum salmon was designated on September 2, 2005. Ilwaco lies at the mouth of the Columbia River, making Baker Bay Critical Habitat as established by the September 2, 2005 Federal Register. *Columbia River chum salmon migrate past Ilwaco in the Columbia River and Baker Bay, but there are no surface water streams in the Sahalee Subdivision project area that could support chum salmon.*

Lower Columbia River Steelhead, *O. mykiss*, Threatened

The Lower Columbia River steelhead distinct population segment (DPS) was listed as Threatened on March 19, 1998, with this status being reaffirmed on January 5, 2006 and the current listings were maintained as a result of the Five Year Listing Status Review completed on August 15, 2011. The Lower Columbia River supports five summer steelhead stocks and eighteen winter steelhead stocks. Run timing for these stocks extends from May through October for summer steelhead and from December through April for winter steelhead stocks. Various life stages of Lower Columbia River steelhead may be present in the Columbia River near the City of Ilwaco year-round.

Critical Habitat for Listed Anadromous Fishes

The Lower Columbia River has been designated as Critical Habitat for Lower Columbia River steelhead and chinook, and Columbia River chum. Critical Habitat for these listed salmonids includes the Lower Columbia River Corridor and the Lower Columbia River's tributary streams below long-standing natural barriers. Lower Columbia River coho Critical Habitat is under development. The Lower Columbia River Corridor is also listed as Critical Habitat for many other ESUs and DPSs of anadromous fishes. The portion of the Columbia River offshore of Ilwaco has been designated as part of the rearing and migration corridor for the following ESUs and DPSs:

ESU or DPS	ESA Listing Status
Chinook ESUs	
Upper Columbia River Spring-run	Endangered – 6/28/05
Upper Willamette River	Threatened – 6/28/05
Steelhead DPSs	
Upper Columbia River	Endangered – 6/13/07
Snake River Basin	Threatened – 1/5/06
Middle Columbia River	Threatened – 1/5/06
Upper Willamette River	Threatened – 1/5/06

It is quite unlikely that any of these species would be affected by the project, as they only pass through the Lower Columbia and Baker Bay on their way to and from the Pacific Ocean. They will not be discussed further in this document.

Essential Fish Habitat (EFH)

Commercially important salmonids present in the Lower Columbia River system include chinook salmon, coho salmon, and a small population of pink salmon; all of which are present in Baker Bay offshore of the Sahalee Subdivision. These species use the Lower Columbia River and some of its tributaries for spawning, transportation, and rearing.

Listed Non-Salmonid Fish Species Present in the Lower Columbia River under the Jurisdiction of the National Marine Fisheries Service:

Green sturgeon, *Acipenser medirostris*, Threatened

The green sturgeon was recently listed as "Threatened." According to Steve West, WDFW Habitat Biologist, green sturgeon are present in the Lower Columbia River, primarily in reaches under the influence of saltwater, possibly extending as far upstream as Bonneville Dam (Personal communication 11-17-2010). Replacement of water mains, sewer mains and the Sahalee Lift Station will have no impact on this species, as it is restricted to the main channel of the Columbia River more than 1,000 feet from the project area.

Eulachon, *Thaleichthys pacificus* (Columbia River smelt), Threatened

The southern distinct population segment (DPS) of Eulachon was listed as "Threatened" by the National Marine Fisheries Service on March 16, 2010. This listing was necessitated by precipitous declines in abundance over the past decade, possibly due to changes in ocean conditions associated with global warming.

According to Mr. West, eulachon spawn during the later winter through mid-spring in the Columbia River and its larger tributaries. Eulachon are not likely to be impacted by the proposed improvements to water and wastewater infrastructure in the Sahalee Subdivision, as there is no surface water connection between the Columbia River and the project area, which is located approximately 1,000 feet north and west of Baker Bay and the Columbia River.

Listed Species in Pacific County under the jurisdiction of the US Fish and Wildlife Service (revised August 26, 2010):

Bull Trout, *Salvelinus confluentus*, Threatened

The Columbia River bull trout was listed as Threatened on June 10, 1998. According to SalmonScape on the WDFW website, bull trout presence has been documented in the Lower Columbia River. Out-migrating anadromous *Bull trout migrate past Ilwaco en route to the Pacific Ocean and on their return to high altitude spawning and rearing areas required by this species.*

Bull trout Critical Habitat for many locations in the Columbia River and its tributaries was proposed on November 29, 2002 and recently updated in 2010. However, according to the final Critical Habitat designation for bull trout, published September 26, 2005 in the Federal Register, *there is no bull trout Critical Habitat in Pacific County.* Critical habitat for bull trout is generally restricted to spawning areas in upper watersheds above 3,000 feet elevation, in comparison the proposed Sahalee Subdivision is located at approximately 35 feet above sea level near the mouth of the Columbia River. There is no surface water connection between the Sahalee Subdivision project area and Baker Bay and the Columbia River, which lie approximately 1,000 feet east and south of the project area respectively.

12. Listed Non-Fish Species Present:

Listed Species in Pacific County under the jurisdiction of the US Fish and Wildlife Service (revised August 26, 2010):

Marbled Murrelet, *Brachyramphus marmoratus*, Threatened

According to the Priority Habitats and Species Map provided for this project area by the WDFW on March 1, 2012, the nearest marbled murrelet nests to the project area occur approximately 3,000 feet to the west of the Sahalee Subdivision. Critical habitat for marbled murrelets is generally limited to the area within 0.25 mile of known nesting sites meaning that the project area is not potential Critical Habitat for the murrelets. The project area is east of these nesting sites, so that the project will not adversely impact marbled murrelets nesting to the southwest. Marbled murrelets nesting to the east, but within 60 miles of the Pacific Ocean are also within the daily migration range for marbled murrelets; however migrating murrelets are more likely to utilize the Columbia River corridor than to fly through the Ilwaco Subdivision project area.

Northern Spotted Owl, *Strix occidentalis caurina*, Threatened

The USFWS Species List for Pacific County indicated that northern spotted owls are present in the County. However, according to the Habitats and Species Map prepared by the WDFW on March 1, 2012, there are no northern spotted owl management areas within the extents of the map (2 miles in all directions from the project area).

Oregon silverspot butterfly, *Speyeria zeren hippolyta*, Threatened

The US Fish and Wildlife Service Species List for Pacific County indicates that the Oregon silverspot butterfly may be present in the County. According to the *Federal Notice for the Availability of a Revised Recovery Plan for the Oregon Silverspot Butterfly* (FR Volume 66, No. 231, November 2001), this butterfly is distributed in six small areas along the Pacific Coast, including a small population on the Long Beach Peninsula in Pacific County. This population may be extirpated, due to lack of suitable grassland habitat. According to an email from Amy Iverson (March 25, 2008 and confirmed in a personal communication on February 28, 2012), and the March 1, 2012 Priority Habitats and Species Map prepared by WDFW, there have not been no reports of Oregon silverspot butterflies near the project area. A small population was once present near Leadbetter Point on the Long Beach Peninsula, 15 miles northwest of the project area. Mr. Charlie Stenvall also mentioned that the last records of Oregon Silverspot butterflies in the area were from the late '90s and the population is now presumed extirpated (email March 14, 2008).

Short-tailed albatross, *Phoebastria albatrus*, Endangered

The US Fish and Wildlife Service Species List indicates that the short-tailed albatross may be found on the outer coast of Pacific County. According to the *Short-tailed Albatross Draft Recovery Plan* (USFWS 2005), the short-tailed albatross is a large pelagic bird that was nearly hunted to extinction in the early 20th Century. It has no known breeding habitat on the Washington Coast. However, individuals may be present offshore of Pacific County on rare occasions. The WDFW Priority Habitats and Species Map and its accompanying report (March 1, 2012) indicates that there have been no sightings of short-tailed albatross in the project area or adjacent TRS sections. Amy Spoon of WDFW (Personal communication 2-28-2012) confirmed that the short-tailed albatross is more likely to be found well off-shore of the coast west of Ilwaco than on the hillside west of Ilwaco. The short-tailed albatross was originally proposed for ESA listing in 1980, and was more recently proposed on November 2, 1998 (63 FR 58692). According to the Final Rule, published in the July 31, 2000 Federal Register, short-tailed albatross breeding colonies are limited to two Japanese islands and can also be found on Midway Atoll, part of the Hawaiian Islands. The continental United States is only part of the historic range of the short-tailed albatross. In 2000, when the Final Rule designation was released there were only believed to be 600 short-tailed albatross in the world. If a short-tailed albatross were to be present near Pacific County it would most likely be well off-shore of the project area.

Western snowy plover, *Charadrius alexandrinus nivosus*, Threatened

The snowy plover was proposed for designation as Threatened on January 14, 1992 (57 FR 1443) and was established by the final rule published in the Federal Register March 5, 1993 (58 FR 12864). *The Western Snowy Plover Pacific Coast Draft Recovery Plan* (US Fish & Wildlife Service 2001) indicates that snow plovers breed along the west coast of the United States. Snowy plovers nest on Ledbetter Point at the north end of the Long Beach Peninsula, approximately 15 miles northwest of the project area. These birds nest in grasslands adjacent to the outer coastal shoreline, but have been known to occasionally fly significant distances inland in Oregon and California. According Amy Spoon, WDFW Habitat Biologist for the Pacific County (personal communication 2-28-2012), and the Priority Habitats and Species Map provided for this project area by the WDFW (March 1, 2012) there have been no western snowy plover sightings recorded near the project area or in adjacent TRS sections.

Streaked Horned Lark, *Eremophila alpestris strigata*, Candidate

The streaked horned lark is listed as a candidate species in Pacific County by the USFWS. The streaked horned lark has estimated populations in Washington and Oregon of 330 and 400 breeding birds, respectively. In Washington, the streaked horned lark is found in the Puget lowlands, coastal areas, and on Columbia River islands. The USFWS Species Assessment (2007) reports that thirteen breeding sites are found in Grays Harbor, Mason, Pierce, Thurston, Pacific, and Wahkiakum Counties across Washington State. A report by WDFW, published in September 2005, shows that there are current streaked horned lark breeding sites within the Lower Columbia River corridor, although these lark breeding sites are typically in sparsely vegetated expanses of sand adjacent to the ocean or Columbia River; therefore, these birds would be unlikely to utilize the developed forested hillside habitat in the project area.

13. Analysis of Effects

Potential for Impacts to Lower Columbia River Chinook, Coho, Steelhead and Columbia River Chum Salmon, Eulachon and Green Sturgeon.

The proposed water main, sewer main and lift station replacement projects in the Sahalee Subdivision will occur in City of Ilwaco ROW on a forested hillside in a low-density housing area that was developed in the 1970s. The project area is more than 1,000 feet from Baker Bay and the Columbia River with no surface water connection large enough to support any of these listed species. Project impacts will be limited to the immediate area around construction and, as there is no surface water connection to habitat for any of these species in the Columbia River, the proposed water and sewer infrastructure improvements in the Sahalee Subdivision will have no effect on these listed aquatic species or their critical habitat.

CHINOOK, CHUM, AND STEELHEAD PROPOSED CRITICAL HABITAT PRIMARY CONSTITUENT ELEMENTS

(I.e. physical and biological features) essential to the conservation of chinook, chum, and steelhead, and discussion of potential project impacts:

1. Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation, and larval development.
The Sahalee Subdivision water and sewer infrastructure replacements will occur within City of Ilwaco street ROW and will have no impact on water quantity, quality or substrate conditions supporting spawning, incubation or larval development of any of the listed fish species present in the Columbia River off-shore of the project area.

2. Freshwater migration corridors free of obstruction, freshwater rearing sites with water quantity and floodplain connectivity to form and maintain physical habitat conditions that support juvenile growth and mobility; water quality and forage supporting juvenile development; and natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks.
Construction and operation of the proposed water and sewer infrastructure replacement projects in the Sahalee Subdivision will occur more than 1,000 feet from Baker Bay and the Columbia River and will have no effect on the Columbia River migration corridor, as there is no surface water connection between the project area and the Columbia.

3. In-water habitat with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival.

Construction and operation of the proposed infrastructure replacement projects in the Sahalee Subdivision will be limited to City of Ilwaco ROW and a small area next to the existing Sahalee Lift Station where the new lift station would be installed underground more than 1,000 feet from Baker Bay. The project will have no effect on in-water habitat, water quality or natural stream cover. The proposed project would reduce water wasting associated with the existing leaking water and localized surface water contamination associated with leaking sewer mains. Implementation of the proposed project will reduce the amount of water the City of Ilwaco must pump and treat to serve the Subdivision, which will allow more groundwater to be available for supplementation of in-stream flows.

4. Estuarine areas free of obstruction with water quality, water quantity, and salinity conditions supporting juvenile and adult physiological transitions between freshwater and saltwater; natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, and side channels; and juvenile and adult forage, including aquatic invertebrates and fishes, supporting growth and maturation:

The proposed Sahalee Subdivision water and sewer infrastructure replacements will occur more than 1,000 feet from Baker Bay and the Columbia River estuary. The project should not result in any quantifiable effects to the water quality, quantity, or salinity of the Columbia River estuary, which extends from Ilwaco, upstream to a point approximately 15 miles near Cathlamet under most flow conditions.

5. Nearshore marine areas free of obstruction with water quality and quantity conditions and forage, including aquatic invertebrates and fishes, supporting growth and maturation; and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, and side channels:

The proposed Sahalee Subdivision water and sewer infrastructure replacement project will have no quantifiable effect on the water quantity or quality conditions, foraging areas, natural cover, or side channels of nearshore marine areas, as the project is more than 1,000 feet upland from Baker Bay and the mouth of the Columbia River. There are no significant side channels between Baker Bay and the Sahalee Subdivision project area. To minimize potential for sedimentation or erosion of soils in the project area, work will occur during the drier summer months. As no streams will be impacted by the project, no Hydraulic Project Approval from the Washington Department of Fish & Wildlife is required.

6. Offshore marine areas with water quality conditions and forage, including aquatic invertebrates and fishes, supporting growth and maturation:

The proposed project will have no effect on water quality or foraging conditions in offshore marine areas, as the project area is more than 1,000 feet upland of the Columbia River with no surface water connection. There will be no in-water work associated with the proposed project.

Essential Fish Habitat (EFH)

Chinook, coho, and a small population of pink salmon are found in the Lower Columbia River system. All of these species use the Lower Columbia River and its tributaries for spawning, transportation, and rearing. SalmonScape indicates that all of these species pass through Baker Bay and the Lower Columbia off-shore of the project area during annual migrations. As all work will occur more than 1,000 feet upland of the Columbia River in an area with no significant surface water connection to EFH in the Columbia River, the proposed water and sewer system improvements will have No Effect on EFH

Potential for Impacts to Bull Trout

The US Fish & Wildlife Service did not establish Critical Habitat for Columbia River bull trout in Wahkiakum County in the final bull trout Critical Habitat designation (September 26, 2005), although bull trout are known to be present in the Columbia River, the Sahalee Subdivision water and sewer systems to be replaced are located more than 1,000 feet from the Columbia River with no significant surface water connection, so impacts to bull trout are unlikely.

Potential for Impacts to Marbled Murrelets

The Priority Habitats and Species Map for the area on March 1, 2012 indicates that marbled murrelets nest approximately 3,000 feet to the southwest of the project area in Fort Canby State Park. As these birds migrate between their nests and the Pacific Ocean to feed, it is unlikely that they would fly through the Sahalee Subdivision on their daily feeding migrations. Murrelets nesting to the east of Ilwaco fly down the Columbia River corridor en route to feeding areas on the open ocean and would not be likely to fly through the forested project area inland from the Columbia. Because the Columbia River Corridor is more than three miles wide in the project area, marbled murrelets flying past the project area en route to the Pacific Ocean will easily avoid any areas of the proposed project that are particularly noisy.

Potential for Impacts to the Northern Spotted Owl

According to the Priority Habitats and Species Map prepared for the proposed project on March 1, 2012, there are no Northern Spotted Owl Management Circles within 2 miles of the proposed project area. This indicates that there is no known northern spotted owl presence within the project area; therefore, the project will have no effect on the northern spotted owl.

Potential for Impacts to the Oregon silverspot butterfly

The potential for the Sahalee Subdivision water and sewer system improvements to impact the Oregon silverspot butterfly is extremely low, as the nearest historic population to the project area was located at Ledbetter Point approximately 15 miles north of the project area, and this population is thought to be extirpated. Therefore, the proposed project will have no effect on the Oregon silverspot butterfly.

Potential for Impacts to the short-tailed albatross

The world population of short-tailed albatross is thought to be only a few thousand birds that are pelagic in habit and concentrated on the western side of the Pacific Ocean near Japan. As the closest this species is likely to get to the Sahalee Subdivision is several miles off shore in the Pacific Ocean, the proposed project will have no effect on the short-tailed albatross.

Potential for Impacts to the western snowy plover

The nearest known breeding concentration of snowy plovers to the project area is located in the dunes at Ledbetter State Park approximately 15 miles north of Ilwaco. Therefore, the proposed water, sewer and lift station improvements in the Sahalee Subdivision will have no effect on the western snowy plover.

Potential for Impacts to the Streaked Horned Lark

The streaked horned lark is found in the Lower Columbia River and its islands, mostly downstream of the Town of Cathlamet. The September 2005, "Range-wide Streaked Horned Lark (*Eremophila alpestris strigata)* Assessment and Preliminary Conservation Strategy" report from WDFW, indicated that lark breeding sites are typically located in sparsely vegetated expanses of sand adjacent to the Columbia River. There are no potential breeding sites for streaked horned larks in the immediate Sahalee Subdivision project area, although the larks may breed on islands off-shore of Ilwaco approximately one mile or more from the project area.. The project would not be expected to impact streaked horned larks.

Indirect Effects

Replacing leaking sewer mains with modern PVC pipes will eliminate leakage of untreated sewage from the Sahalee wastewater conveyance system, and eliminating leaks from the water conveyance system will reduce the amount of water the City of Ilwaco must pump and treat, surface water quality near the project area will be improved and the amount of energy the City must use to provide water in the Sahalee Subdivision will be reduced. While the cleaner surface water and the quantity of water saved will be small compared to Columbia River flows, cleaner and more plentiful surface and groundwater will also encourage recreational activities in the area, which could discourage presence of sensitive wildlife during heavy summer use periods.

Construction activities increase the potential for spills of fuels, coolants, and lubricants onto the ground and into surface and groundwater in the area west of the Baker Bay Marina.

Construction equipment will be fitted with spill kits and operators will be trained in their use. Construction equipment will be stored and serviced at sites away from Baker Bay and the Columbia River and any other sensitive areas that may occur adjacent to the project area.

Determination of Impacts to Species Protected Under the Endangered Species Act:

As all work associated with the Sahalee Subdivision Water, Sewer and Lift Station Replacement Project will occur more than 1,000 feet upland of the Columbia River in an area with no significant surface water connection, and ground disturbance associated with construction will be limited to existing City of Ilwaco ROW, the proposed project will have **no effect** on the following ESA-listed Threatened Species present offshore in the Columbia River:

- Lower Columbia River chinook salmon
- Lower Columbia River coho salmon
- Lower Columbia River steelhead
- Columbia River chum salmon
- Columbia River bull trout
- Eulachon
- Green sturgeon

Determination of Impacts to Essential Fish Habitat (EFH)

The proposed improvements to water and wastewater infrastructure in the Sahalee Subdivision will occur more than 1,000 feet from EFH for chinook salmon, coho salmon and pink salmon in the Columbia River. Work will be confined to existing City of Ilwaco Street rights-of-way and releases of contaminated water from leaking sewer lines and overflows from the Sahalee Lift Station will be eliminated. Surface water quality in the Sahalee Subdivision will be improved by the completed project, and the amount of water the City of Ilwaco is required to pump and treat to serve the subdivision will be reduced. Therefore, the project will have **no effect** on EFH for chinook, coho, or pink salmon.

Determination of Impacts to Listed Non-Fish Species under the jurisdiction of the US Fish & Wildlife Service:

As all work associated with the proposed water, sewer and lift station replacement projects in the Sahalee Subdivision will be conducted remote from important habitat for ESA-listed species, the proposed project will have **no effect** on the following species:

- Marbled murrelet
- Northern spotted owl
- Oregon silverspot butterfly
- Short-tailed albatross

- Western snowy plover

Determination of Impacts to the Streaked Horned Lark (candidate)

There are no streaked horned larks present in the City of Ilwaco or the project area, as the streaked horned larks require sparsely vegetated open areas like prairies, beaches, or grassland and the project area has none of these. The nearest suitable habitat is likely off-shore on islands in the Columbia River more than a mile from the project area. Therefore, proposed improvements to water and wastewater conveyance infrastructure in the Sahalee Subdivision will **not jeopardize the continued existence of** the streaked horned lark.

14. Work Window for Construction:

Trenching for replacement of water and sewer mains in the Sahalee Subdivision will occur during the drier summer months to minimize potential for sedimentation and erosion. No in-water work is proposed, so no formal work windows have been determined.

15. Conservation Measures

- Work near wetlands and stream channels will be limited to the drier summer months to minimize potential for adverse impacts to surface and groundwater quality.
- To minimize the potential for accidents resulting in direct effects to protected species, construction equipment will be fitted with emergency spill kits and construction crews will be trained in their use.
- Areas excavated for the installation of conveyance system infrastructure will be replanted or repaved in-kind in accordance with an approved planting plan consistent with City of Ilwaco Codes.
- Any water pumped from the project area for dewatering purposes will be conveyed to an area where it can fully infiltrate into the ground, preventing sediment and other pollutants from reaching the Baker Bay and the Columbia River.
- The contractor will properly install and maintain Construction Erosion and Sediment Control BMPs to prevent pollutants from entering waterways in the area. The project will be conducted in a manner that complies with the provisions of the Washington Department of Ecology Water Quality Certification and any CWA Section 404 Permit, if required.

16. References

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Jim Dougherty

From: Bell, Gary W (DFW) [Gary.Bell@dfw.wa.gov]
Sent: Thursday, March 22, 2012 8:11 AM
To: jdougherty@g-o.com;Rogers, Gloria S (DFW);Desimone, Steven M (DFW)
Cc: Spoon, Amy K (DFW)
Subject: RE: Marbled Murrelets

Hi All –

The nesting season and timing restrictions/disturbance avoidance for marbled murrelets are defined under WAC 222-16-010. The ***Critical Nesting Season*** for murrelets is from April 1 – August 31. During this timeframe, activities (harvest, road construction, heavy equipment operations, hauling, etc.) within 0.25 miles of occupied murrelet habitat are restricted during the ***Daily Peak Activity*** period which is one (1) hour before official sunrise to two (2) hours after official sunrise and one (1) hour before official sunset to one (1) hour after official sunset.

Hope this helps,
Gary

Gary Bell, Wildlife Biologist
WDFW Habitat Program
Protection Division - Forest Habitats
600 Capitol Way North
Olympia, WA 98501
360.902.2412 Office
360.628.0728 Cell
gary.bell@dfw.wa.gov

From: Jim Dougherty [mailto:jdougherty@g-o.com]
Sent: Wednesday, March 21, 2012 12:27 PM
To: Rogers, Gloria S (DFW); Desimone, Steven M (DFW)
Cc: Spoon, Amy K (DFW); Bell, Gary W (DFW)
Subject: RE: Marbled Murrelets

Greetings All!

As the marbled murrelet nesting period is exactly when construction is likely to occur to minimize sedimentation and erosion problems associated with ground disturbance, are there accepted diurnal construction timing limitations. From projects I worked on way back 15 years ago, I seem to remember not running equipment or making loud noises within a quarter mile of marbled murrelet nests for two hours after sun rise and after 2 hours prior to sunset. These restrictions were for habitat enhancement projects associated with FEMA mitigation projects in Oregon. I have reviewed most of the critical habitat literature on-line, but haven't found any timing restrictions presented in an obvious manner.

Any help would be appreciated.

Thanks,

Jim Dougherty
206 2084-0/60

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

From: Rogers, Gloria S (DFW) [mailto:Gloria.Rogers@dfw.wa.gov]
Sent: Wednesday, March 21, 2012 11:30 AM
To: Desimone, Steven M (DFW)
Cc: Spoon, Amy K (DFW);jdougherty@g-o.com;Bell, Gary W (DFW)
Subject: Marbled Murrelets

Hello Steve,

Jim Dougherty called (206-284-0860) for Gray and Osborne. They will be installing 7,500 feet of sewer line and 3,000 feet of water main just west of Ilwaco in a development called Sahali. They will be working primarily in the right-of-way but clearing around 400 sq ft for a pump station in a brushy area. Work is being done about 1,000 feet from designated MM habitat.

There will be several months of activity such as pavement breaking and heavy equipment operation which may disturb nesting. He would like to know about timing restrictions. It's been awhile since I've been involved with MM. Is 4/1 – 9/15 the nesting period when work should be restricted. Any other concerns?

Please let me know or please contact Jim. Thanks!!

Gloria Rogers
Washington Department of Fish and Wildlife
48 Devonshire Rd
Montesano, WA 98563
360-249-1293

Jim Dougherty

From: Desimone, Steven M (DFW) [Steven.Desimone@dfw.wa.gov]
Sent: Wednesday, March 21, 2012 12:23 PM
To: Rogers, Gloria S (DFW)
Cc: Spoon, Amy K (DFW);jdougherty@g-o.com;Jenkerson, Jane A (DFW)
Subject: RE: Marbled Murrelets

Hi Gloria-

If it is a Status 1, 2, or 3 site (occupied), then there is a 300 foot managed buffer around it (WAC 222-16-080 (j)) and there are seasonal timing restrictions for noise disturbance within 0.25 mile (1320 feet) of the occupied habitat during the peak activity periods within the critical nesting season (WACs 222-24-030 (11); 222-30-050 (6); 222-30-060 (7); 222-30-065 (2); 222-30-070 (11); 222-30-100 (7)).

If you need further help, please contact Gary Bell, or Jane Jenkerson for site status and location information, as I will not be in the office for the next 2 days.

Thanks,
Steve

From: Rogers, Gloria S (DFW)
Sent: Wednesday, March 21, 2012 11:29 AM
To: Desimone, Steven M (DFW)
Cc: Spoon, Amy K (DFW); jdougherty@g-o.com; Bell, Gary W (DFW)
Subject: Marbled Murrelets

Hello Steve,

Jim Dougherty called (206-284-0860) for Gray and Osborne. They will be installing 7,500 feet of sewer line and 3,000 feet of water main just west of Ilwaco in a development called Sahali. They will be working primarily in the right-of-way but clearing around 400 sq ft for a pump station in a brushy area. Work is being done about 1,000 feet from designated MM habitat.

There will be several months of activity such as pavement breaking and heavy equipment operation which may disturb nesting. He would like to know about timing restrictions. It's been awhile since I've been involved with MM. Is 4/1 – 9/15 the nesting period when work should be restricted. Any other concerns?

Please let me know or please contact Jim. Thanks!!

Gloria Rogers
Washington Department of Fish and Wildlife
48 Devonshire Rd
Montesano, WA 98563
360-249-1293

March 1, 2012

Jim Dougherty,
Gray & Osborne Inc - Seattle
701 Dexter Ave N
Suite 200
Seattle WA 98109

SUBJECT: Sahalee Subdivision (T10N R11W S33)

We've searched the Natural Heritage Information System for information on significant natural features in your project area Currently, we have no records for rare plants or high quality native ecosystems in S33 T10N R11W

The information provided by the Washington Natural Heritage Program is based solely on existing information in the database In the absence of field inventories, we cannot state whether or not a given site contains high quality ecosystems or rare plant species, there may be significant natural features in your study area of which we are not aware.

The Washington Natural Heritage Program is responsible for information on the states rare plants as well as high quality ecosystems For information on animal species of concern, please contact Priority Habitats and Species, Washington Department of Fish and Wildlife, 600 Capitol Way N, Olympia WA 98501-1091, or by phone (360) 902-2543.

For more information on the Natural Heritage Program, please visit our website at http://www.dnr.wa.gov/ResearchScience/Topics/NaturalHeritage/Pages/amp_nh.aspx. Species lists and fact sheets, as well as rare plant survey guidelines are available for download from the site. For the self-service system, please follow the Reference Desk link to Location Search. Please feel free to e-mail us at natural_heritage_program@dnr.wa.gov if you have any questions

Sincerely,

Jasa Holt, Data Specialist
Washington Natural Heritage Program

Forest Resources & Conservation Division, PO Box 47016, Olympia WA 98504-7016

From: Jim Dougherty [mailto:jdougherty@g-o.com]
Sent: Wednesday, February 29, 2012 4:05 PM
To: DNR RE Natural Heritage Program
Subject: Wetlands and Rare Plants present in T 10 North, Range 11 West, Section 33

Dear NHP

I am working on NEPA documentation and a biological evaluation for a water and sewer main replacement project in the Sahalee Subdivision west of Ilwaco in Pacific County in Township 10 North, Range 11 West, Section 33 and need any information you may have regarding sightings of rare plants or wetlands in the vicinity. Please let me know if you have data specific to this Section.

Thanks,

Jim Dougherty
Gray & Osborne, Inc.
701 Dexter Ave N. Suite 200
Seattle WA, 98109

Ph(206)284-0860
Fx(206)283-3206

Electronic File Transfer-

Note that these electronic files are provided as a courtesy only. Gray & Osborne, Inc. in no way guarantees the accuracy or completeness of the digital data contained within these files. Furthermore, Gray & Osborne, Inc. assumes no liability for any errors or omissions in the digital

Washington Natural Heritage Information System
List of Known Occurrences of Rare Plants in Washington
November 2010
Pacific County

A key to status fields appears below. If a scientific name is underlined you may click on it to go to a field guide page (pdf format, average size 300 kb) for that taxon.

Scientific Name	Common Name	State Status	Federal Status	H R
Abronia umbellata var. breviflora	pink sand-verbena	E	SC	
Baccharis pilularis ssp. consanguinea	coyotebush	T		
Boschniakia hookeri	Vancouver ground-cone	R1		
Dodecatheon austrofrigidum	frigid shootingstar	E	SC	
Erigeron aliceae	Alice's fleabane	S		
Erythronium revolutum	pink fawn-lily	S		
Euonymus occidentalis var. occidentalis	western wahoo	T		
Filipendula occidentalis	queen-of-the-forest	T	SC	
Lycopodiella inundata	bog clubmoss	S		
Parnassia palustris var. neogaea	northern grass-of-parnassus	S		
Poa laxiflora	loose-flowered bluegrass	S		
Poa unilateralis ssp. pachypholis	ocean-bluff bluegrass	T		
Polemonium carneum	great polemonium	T		H
Sanicula arctopoides	bear's-foot sanicle	E	SC	

Description of Codes

Historic Record:

H indicates most recent sighting in the county is before 1977.

State Status

State Status of plant species is determined by the Washington Natural Heritage Program. Factors considered include abundance, occurrence patterns, vulnerability, threats, existing protection, and taxonomic distinctness.
Values include:
E = Endangered. In danger of becoming extinct or extirpated from Washington.
T = Threatened. Likely to become Endangered in Washington.
S = Sensitive. Vulnerable or declining and could become Endangered or Threatened in the state.
X = Possibly extinct or Extirpated from Washington.
R1 = Review group 1. Of potential concern but needs more field work to assign another rank.
R2 = Review group 2. Of potential concern but with unresolved taxonomic questions.

Federal Status

Federal Status under the U.S. Endangered Species Act(USESA) as published in the Federal Register:
LE = Listed Endangered. In danger of extinction.
LT = Listed Threatened. Likely to become endangered.
PE = Proposed Endangered.
PT = Proposed Threatened.
C = Candidate species. Sufficient information exists to support listing as Endangered or Threatened.
SC = Species of Concern. An unofficial status, the species appears to be in jeopardy, but insufficient information to support listing.

Listing ID:	6685
Water Body Name:	COLUMBIA RIVER (BAKER BAY)
Water Body Type:	Gridded Lake
Parameter:	Fecal Coliform
Sample Medium:	Water
WRIA:	24 - Willapa
County:	Pacific
Grid Cell:	46124D0A3
Latitude:	46.305
LLID:	1240483462464
WASWIS:	NN57SG
WBID:	WA-24-1010

2008 CATEGORY: 5
2004 Category: 5
1998 303(d) List?: Y
1996 303(d) List?: Y

Longitude: 124.035

2008 Basis

*** 2008 Basis Statement (carried forward from 2004) ***

Hallock and Ehinger, 1993., excursions beyond criteria at Ilwaco Marina, from 9/92 to 12/92.;

Remarks

Data is only available in hardcopy format. The water segment is listed as Category 5 based on the 1998 assessment.

GRAY & OSBORNE, INC.
TELEPHONE/MEETING CONVERSATION RECORD

☒ Telephone Conversation

☐ Meeting

Location of Phone Conversation: GRAY & OSBORNE INC.
Place of Meeting:

Date:	February 28, 2012			1530
Discussion with:	Amy Spoon			
Firm/City with:	WDFW Montesano			
Phone Number:	360 249-1228			
Gray & Osborne Personnel:	Jim Dougherty			
Project:	Sahalee Subdivision Water Sewer & Lift Station Replacement			
Subject:	ESA discussion re listed animals near the project area.			
G&O Job Number:	20124.61			

REMARKS:

I called Amy Spoon to discuss the potential for listed species in the Sahalee Subdivision project area. Amy confirmed that the Oregon silverspot butterfly and the snowy plover would be more likely to be present in grassy areas in the dunes nearer the coast, than in the hilly forested area around the Sahalee Subdivision west of Hwaco. She also confirmed that it would be unlikely to encounter a short-tailed albatross in the project area, as they are very few in number and found most often well off-shore of the coast of the United States. Finally, Amy agreed that streaked-horned larks are more likely to be found in lowland areas along the Columbia River, rather than on the forested hillside in the Sahalee Subdivision west of Hwaco.

We briefly discussed the mitigation requirements for the Willapa Regional WWTF Project and I gave her a bit of project history regarding the proposed use of LWD for mitigation of the construction and operational effects associated with the new outfall. I told Ms. Spoon that the current plan is to restore a disturbed area of approximately 4,000 square feet of riparian vegetation near the outfall to off-set the 2,000 square feet of temporary benthic disturbance associated with the outfall installation. I noted that if the Corps requires mitigation at a 4:1 ratio, an additional 2,000 square feet of riparian vegetation could be planted in the side channel north of the WWTF site. She said that she would consider DNR's concerns and the change in mitigation project scope in her project review, should it come up.

LISTED AND PROPOSED ENDANGERED AND THREATENED SPECIES AND CRITICAL HABITAT; CANDIDATE SPECIES; AND SPECIES OF CONCERN IN **PACIFIC COUNTY**

AS PREPARED BY
THE U.S. FISH AND WILDLIFE SERVICE
WASHINGTON FISH AND WILDLIFE OFFICE

(Revised August 26, 2010)

LISTED

Bull trout (*Salvelinus confluentus*) – Coastal-Puget Sound DPS
Marbled murrelet (*Brachyramphus marmoratus*)
Northern spotted owl (*Strix occidentalis caurina*)
Oregon silverspot butterfly (*Speyeria zerene hippolyta*)
Short-tailed albatross (*Phoebastria albatrus*) [outer coast]
Western snowy plover (*Charadrius alexandrinus nivosus*)

Major concerns that should be addressed in your Biological Assessment of project impacts to listed species include:

1. Level of use of the project area by listed species.

2. Effect of the project on listed species' primary food stocks, prey species, and foraging areas in all areas influenced by the project.

3. Impacts from project activities and implementation (e.g., increased noise levels, increased human activity and/or access, loss or degradation of habitat) that may result in disturbance to listed species and/or their avoidance of the project area.

DESIGNATED

Critical habitat for the marbled murrelet
Critical habitat for the western snowy plover

PROPOSED

None

CANDIDATE

Streaked horned lark (*Eremophila alpestris strigata*)

SPECIES OF CONCERN

Bald eagle (*Haliaeetus leucocephalus*)
Brown pelican (*Pelecanus occidentalis*) [outer coast]
Coastal cutthroat trout (*Oncorhynchus clarki clarki*) [southwest Washington DPS]
Columbia torrent salamander (*Rhyacotriton kezeri*)
Long-eared myotis (*Myotis evotis*)
Long-legged myotis (*Myotis volans*)
Makah's copper (butterfly) (*Lycaena mariposa charlottensis*) [historic]
Newcomb's littorine snail (*Algamorda newcombiana*)
Northern goshawk (*Accipiter gentilis*)
Northern sea otter (*Enhydra lutris kenyoni*)
Olive-sided flycatcher (*Contopus cooperi*)
Pacific lamprey (*Lampetra tridentata*)
Pacific Townsend's big-eared bat (*Corynorhinus townsendii townsendii*)
Peregrine falcon (*Falco peregrinus*)
River lamprey (*Lampetra ayresi*)
Tailed frog (*Ascaphus truei*)
Van Dyke's salamander (*Plethodon vandykei*)
Western toad (*Bufo boreas*)
Abronia umbellata ssp. *acutalata* (pink sandverbena)
Dodecatheon austrofrigidum (frigid shootingstar)
Filipendula occidentalis (queen of the forest)
Sanicula arctopoides (footsteps of spring; bear's-foot sanicle)

WASHINGTON STATE DEPARTMENT OF Natural Resources

Return to Washington Natural Heritage Program

Washington Natural Heritage Program

Reference Desk

Reference Desk | Location Search | Rare Plants | Rare Animals | Communities
GIS | Field Guides | Publications | Natural Heritage Plan

Washington Natural Heritage Information System
List of Known Occurrences of Rare Plants in Washington
November 2010
Pacific County

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Baccharis pilularis ssp. consanguinea	coyotebush	T		
Boschniakia hookeri	Vancouver ground-cone	R1		
Dodecatheon austrofrigidum	frigid shootingstar	E	SC	
Erigeron aliceae	Alice's fleabane	S		
Erythronium revolutum	pink fawn-lily	S		
Euonymus occidentalis var. occidentalis	western wahoo	T		
Filipendula occidentalis	queen-of-the-forest	T	SC	
Lycopodiella inundata	bog clubmoss	S		
Parnassia palustris var. neogaea	northern grass-of-parnassus	S		
Poa laxiflora	loose-flowered bluegrass	S		
Poa unilateralis ssp. pachypholis	ocean-bluff bluegrass	T		
Polemonium carneum	great polemonium	T		H
Sanicula arctopoides	bear's-foot sanicle	E	SC	

Description of Codes

Historic Record:

H indicates most recent sighting in the county is before 1977

State Status

State Status of plant species is determined by the Washington Natural Heritage Program. Factors considered include abundance, occurrence patterns, vulnerability, threats, existing protection, and taxonomic distinctness.
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Federal Status under the U.S. Endangered Species Act(USESA) as published in the Federal Register
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Washington Department of Fish and Wildlife
Mailing Address: 600 Capitol Way N • Olympia, WA 98501-1091 Main Office Location: Natural Resources Building • 1111 Washington Street SE • Olympia, WA

FISH AND WILDLIFE ORDER FORM

HABITATS AND SPECIES INFORMATION

INSTRUCTIONS

Please complete this order form to request maps and/or digital data on locations of species and habitats. For descriptions of standard products and prices see the *Ordering Habitats and Species Information* sheet which accompanies this form or visit our web site at wdfw.wa.gov/hab/release.htm. **Mail completed form to: Washington Department of Fish and Wildlife, Priority Habitats and Species, 600 Capitol Way N., Olympia WA 98501-1091 or fax to (360) 902-2946**. You will receive an invoice itemizing the costs for your request and instructions for submitting payment. *Sorry, we do not accept payments by credit card.* For questions call (360) 902-2543. For information on state listed plants contact the Washington Department of Natural Resources at dnr.wa.gov/nhp.

Name: Jen Dougherty

Agency/Organization: Gray & Osborne, Inc. for City of Kenmore

Address: 701 Dexter Avenue North, Suite 200

City: Seattle State: WA Zip Code: 98109

Phone Number: 206 284-0565 Date of Request: 2-17-2012

Does your agency/organization have a Release Agreement, which includes you as a contact, on file with the Washington Department of Fish and Wildlife regarding the confidentiality of sensitive information? ☐ Yes ☐ No ☐ Don't Know

Identify yourself as one of the following:

☐ Owner of land covered by this request ☐ Government agency ☐ Tribe ☐ Utility ☐ Conservation organization

☑ Consultant representing (**please circle one:**) Landowner Government agency Tribe Utility Conservation organization

☐ Researcher with a university ☑ Other (please specify) Consultant to City of Kenmore

REQUESTER READ AND SIGN

By receiving fish and wildlife information from the Washington Department of Fish and Wildlife (WDFW), you incur an obligation to use it in a way that does not cause undue harm to our public fish and wildlife resources.

All fish and wildlife species are vulnerable to harm from human activities. Harm can occur directly (e.g., an animal is harassed or injured) or indirectly (e.g., a nest tree is felled or a wetland is drained). Harm can occur unintentionally, even by those who value the fish and wildlife resources (e.g., repeated visits to a heron rookery which flushes birds from the nest and exposes eggs to cold weather and predators). The most serious threats to fish and wildlife, rather than being direct and malicious acts, are indirect human actions where harm to fish and wildlife was unintentional.

The Washington State constitution confers fish and wildlife ownership to all citizens of the state. WDFW is mandated to safeguard this ownership by preserving, protecting and perpetuating fish and wildlife resources. The public has a crucial role in fulfilling this mandate, for two reasons. First, the statewide distribution of fish and wildlife species and habitat is beyond the monitoring capability of any single agency. Second, the state's constitution gives to the people ownership of fish and wildlife but not of the habitat on which fish and wildlife's survival ultimately depends. Property owners are also habitat owners and their collective actions have a profound effect on the state's fish and wildlife.

WDFW provides information on the location of many of Washington's most sensitive and vulnerable fish and wildlife resources. Use of this information must be commensurate with the vulnerability of fish and wildlife resources and with the conditions outlined in WDFW Releasing Sensitive Fish and Wildlife Information Policy 5210.

Fish and wildlife species are protected through specific legislation. Regulations most applicable to users of WDFW information include RCW 77.16.120 (taking of protected fish and wildlife), WAC 232-12-292 (Bald Eagle protection rules), WAC 232-12-064 (live fish and wildlife) and RCW 42.17.310 (exempting of sensitive fish and wildlife information from public inspection and copying).

I have read and understand the information above and certify that this form is filled out accurately and completely to the best of my knowledge. I understand that I will receive an invoice itemizing the costs for this request and instructions for submitting payment.

REQUESTER'S SIGNATURE X Jennifer M Dougherty

Project Name/Number: Sewage Lift Station Replacement & Sewer Line Repairs Project No. 20124.61

Project Description/Use of Requested Information: Preparation of a biological evaluation and other permitting documents for USDA funding package environmental review.

Washington Department of Fish and Wildlife
Mailing Address: 600 Capitol Way N • Olympia, WA 98501-1091 Main Office Location: Natural Resources Building • 1111 Washington Street SE •Olympia, WA

Washington Department of Fish and Wildlife

FISH AND WILDLIFE ORDER FORM

HABITATS AND SPECIES INFORMATION

Project Location of Request [If you are requesting a detailed map or digital data, please specify by township, range and section and include a project vicinity map; format options for other maps include US Geological Survey (USGS) 7.5-minute quadrangle map name, USGS 1:100,000 map name, or county name]. List here or attach listing:

THE SCHADE STREET LINE · PUMP STATION REPLACEMENT PROJECT WILL OCCUR IN TOWNSHIP 16 NORTH, RANGE 11 WEST, SECTION 33 IN ILWACO, WA.

Special Requests: WE NEED THE STANDARD PHS INFORMATION FOR PREPARATION OF A BIOLOGICAL EVALUATION FOR ESA CONSULTATION.

STANDARD PRODUCTS

Indicate desired products by checking appropriate blank box:

(For descriptions of standard products and prices see the *Ordering Habitats and Species Information* sheet which accompanies this form or visit our web site at wdfw.wa.gov/hab/release.htm.)

MAP PRODUCTS		
1.	Detailed 1:24,000 Scale Habitats and Species Map (Detailed information on known locations of important fish, wildlife and habitats, a report accompanies this map.)	✓
2.	Single Species or Habitat Distribution Map (Please specify desired single species or single habitat type in the special requests section of this form, map displays one species per map or one habitat type per map.)	
3.	Habitats and Species Summary Map by County (Summary information of habitat and species sites and areas)	
4.	Marine Resource Map (Generalized information of marine fish and shellfish, if you are requesting the detailed Habitat and Species map this information is included.)	
5.	Old Growth Map (Information from 1988/1989, available for Western Washington only)	
DIGITAL DATA PRODUCTS		
6.	Priority Habitats and Species Polygon, Wildlife Heritage, Spotted Owl, and Marbled Murrelet Points Databases (Information in these databases are updated on a regular basis.)	
7.	Washington Lakes and Rivers Information System (WLRIS) Fish Distribution Database (Selected fish species information are updated on a regular basis.)	
8.	Marine Resources, Seabird Colonies and Seal/Sea Lion Haulout Databases (Information in these databases are rarely updated.)	
9.	Old Growth Database (Information from 1988/1989, no anticipated updates.)	
10.	National Wetlands Inventory Database (Information from US Fish and Wildlife Service; no anticipated updates.)	

Standard Map Options (check relevant options)

- [x] Provide map(s) on paper
- [ ] Provide map(s) on mylar film

Include documentation for map(s)
- [ ] Yes [ ] No

Standard Digital Data Options (check relevant options)

Digital data is for use with Geographic Information Software (GIS); it is not an image of a map.

- [ ] Provide as ESRI export file format
- [ ] Provide as ESRI shape file format

Include printed digital documentation
- [x] Yes [ ] No

- [ ] Provide on Compact Disk (CD)
- [ ] Provide on Iomega Zip Disk

Provide as State Plane South Projection:
- [ ] NAD 1927 or [ ] NAD 1983 (1991 adjustment)

- [ ] Transfer data via ftp

Please provide the following for your site:
address: ______
login: ______
password: ______
directory path: ______

LOWER COLUMBIA RIVER COHO ESU
THREATENED

ESA LISTING STATUS: Originally part of a larger lower Columbia River/southwest Washington ESU, Lower Columbia coho were identified as a separate ESU and listed as threatened on June 28, 2005. NOAA Fisheries issued results of a five-year review on Aug. 15, 2011 *(PDF 176KB)*, and concluded that this species should remain listed as threatened.

DESCRIPTION: The ESU includes all naturally spawned populations of coho salmon in the Columbia River and its tributaries in Washington and Oregon, from the mouth of the Columbia up to and including the Big White Salmon and Hood Rivers, and includes the Willamette River to Willamette Falls, Oregon, as well as twenty-five artificial propagation programs: the Grays River, Sea Resources Hatchery, Peterson Coho Project, Big Creek Hatchery, Astoria High School (STEP) Coho Program, Warrenton High School (STEP) Coho Program, Elochoman Type-S Coho Program, Elochoman Type-N Coho Program, Cathlamet High School FFA Type-N Coho Program, Cowlitz Type-N Coho Program in the Upper and Lower Cowlitz Rivers, Cowlitz Game and Anglers Coho Program, Friends of the Cowlitz Coho Program, North Fork Toutle River Hatchery, Kalama River Type-N Coho Program, Kalama River Type-S Coho Program, Washougal Hatchery Type-N Coho Program, Lewis River Type-N Coho Program, Lewis River Type-S Coho Program, Fish First Wild Coho Program, Fish First Type-N Coho Program, Syverson Project Type-N Coho Program, Eagle Creek National Fish Hatchery, Sandy Hatchery, and the Bonneville/Cascade/Oxbow complex coho hatchery programs.

CRITICAL HABITAT STATUS: Not yet proposed for designation.

PROTECTIVE REGULATIONS: Final revised protective regulations were issued for this ESU on June 28, 2005.

STATUS REVIEWS & UPDATES: **Click here to view a list.**

FEDERAL REGISTER NOTICES: **Click here to view a list.**

MAPS & GIS DATA: **Click here to view.**

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Regional Receptionist: 503-230-5400
Email: Content Manager

Page last updated: August 15, 2011

LOWER COLUMBIA RIVER STEELHEAD DPS
THREATENED

ESA LISTING STATUS: Listed as threatened on Mar. 19, 1998; threatened status reaffirmed on Jan. 5, 2006. NOAA Fisheries issued results of a five-year review on Aug. 15, 2011 *(PDF 176KB)*, and concluded that this species should remain listed as threatened.

DESCRIPTION: The DPS includes all naturally spawned anadromous *O. mykiss* (steelhead) populations below natural and manmade impassable barriers in streams and tributaries to the Columbia River between the Cowlitz and Wind Rivers, Washington (inclusive), and the Willamette and Hood Rivers, Oregon (inclusive), as well as ten artificial propagation programs: the Cowlitz Trout Hatchery (in the Cispus, Upper Cowlitz, Lower Cowlitz, and Tilton Rivers), Kalama River Wild (winter- and summer-run), Clackamas Hatchery, Sandy Hatchery, and Hood River (winter- and summer-run) steelhead hatchery programs. Excluded are O. mykiss populations in the upper Willamette River Basin above Willamette Falls, Oregon, and from the Little and Big White Salmon Rivers, Washington.

CRITICAL HABITAT STATUS: A final designation was published on Sept. 2, 2005 (9.7 Mb PDF), with an effective date of Jan. 2, 2006.

PROTECTIVE REGULATIONS: Final revised protective regulations were issued for this DPS on June 28, 2005.

STATUS REVIEWS & UPDATES: **Click here to view a list.**

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Page last updated: August 15, 2011

North American Green Sturgeon

NOAA Fisheries received a petition in June 2001 from several environmental organizations requesting that the agency list the north American green sturgeon (*Acipenser medirostris*) under the Endangered Species Act.

June 2, 2010: NOAA Fisheries published final Endangered Species Act protective regulations (ESA 4(d) rule) for the southern distinct population segment of North American green sturgeon, and released a final environmental assessment analyzing the environmental impacts of these ESA Section 4(d) rules. This population is under the jurisdiction of the NOAA Fisheries Southwest Region, and this information is on its Website.

Oct. 9, 2009: NOAA Fisheries designated final Endangered Species Act critical habitat for the southern distinct population segment of North American green sturgeon. This population is under the jurisdiction of the NOAA Fisheries Southwest Region, and most of the information on critical habitat links to its Website.

- New release *(PDF 71KB)*
- *Federal Register* notice *(PDF 982KB)*
- GIS Data

Apr. 7, 2006: NOAA Fisheries listed the southern distinct population segment, or DPS, of north American green sturgeon as threatened under the Endangered Species Act. This population is under the jurisdiction of the NOAA Fisheries Southwest Region, and most of the information on this final listing links to its Website.

- *Federal Register* notice *(PDF 100KB)*
- References for *Federal Register* notice *(PDF 87KB)*
- General Green Sturgeon Questions & Answers *(PDF 93KB)*
- Final Listing Questions & Answers *(PDF 119KB)*

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Page last updated: September 7, 2011

Eulachon (Columbia River Smelt)

Eulachon, also known as Columbia River smelt, candlefish or hooligan, are found in the eastern north Pacific Ocean. They range from northern California to southwest Alaska and into the southeastern Bering Sea. Smelt typically spend three to five years in saltwater before returning to freshwater to spawn in late winter through mid spring.

Oct. 20, 2011: We designated final critical habitat for the southern distinct population segment (DPS) of Pacific eulachon. The designation will take effect on Dec. 19, 2011.

- News release *(PDF 63KB)*
- *Federal Register notice* *(PDF 812KB)*
- Questions & Answers on eulachon critical habitat
- Eulachon critical habitat overview maps *(PDF 301KB)*
- Biological Report *(PDF 1.3MB)*
- Economic Analysis *(PDF 1.7MB)*
- ESA Section 4(b)(2) Report *(PDF 502KB)*
- References for eulachon critical habitat *(PDF 30KB)*

March 16, 2010: We announced that we're listing the southern distinct population segment (DPS) of Pacific eulachon as threatened under the Endangered Species Act. The listing became effective on May 17, 2010.

- News release *(PDF 64KB)*
- Mar. 18, 2010, *Federal Register* notice *(PDF 103KB)*
- Citations for eulachon ESA listing *(PDF 52KB)*
- Questions & Answers on eulachon ESA listing *(PDF 50KB)*
- Updated status review of eulachon *(PDF 3.5MB)*

Contacts: Marc Romano, 503-231-2200, for the Northwest;
and Jim Simondet, 707-825-5171, for California.

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Page last updated: March 19, 2012

LOWER COLUMBIA RIVER CHINOOK ESU
THREATENED

ESA LISTING STATUS : Listed as threatened on Mar. 24, 1999; threatened status reaffirmed on June 28, 2005. NOAA Fisheries issued results of a five-year review on Aug. 15, 2011 *(PDF 176KB)*, and concluded that this species should remain listed as threatened.

DESCRIPTION: The ESU includes all naturally spawned populations of Chinook salmon from the Columbia River and its tributaries from its mouth at the Pacific Ocean upstream to a transitional point between Washington and Oregon east of the Hood River and the White Salmon River, and includes the Willamette River to Willamette Falls, Oregon, exclusive of spring-run Chinook salmon in the Clackamas River, as well as seventeen artificial propagation programs: the Sea Resources Tule Chinook Program, Big Creek Tule Chinook Program, Astoria High School (STEP) Tule Chinook Program, Warrenton High School (STEP) Tule Chinook Program, Elochoman River Tule Chinook Program, Cowlitz Tule Chinook Program, North Fork Toutle Tule Chinook Program, Kalama Tule Chinook Program, Washougal River Tule Chinook Program, Spring Creek NFH Tule Chinook Program, Cowlitz spring Chinook Program in the Upper Cowlitz River and the Cispus River, Friends of the Cowlitz spring Chinook Program, Kalama River spring Chinook Program, Lewis River spring Chinook Program, Fish First spring Chinook Program, and the Sandy River Hatchery (ODFW stock #11) Chinook hatchery programs.

CRITICAL HABITAT STATUS: A final designation was published on Sept. 2, 2005 (9.7 Mb PDF), with an effective date of Jan. 2, 2006.

PROTECTIVE REGULATIONS: Final revised protective regulations were issued for this ESU on June 28, 2005.

STATUS REVIEWS & UPDATES: **Click here to view a list.**

FEDERAL REGISTER NOTICES: **Click here to view a list.**

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Page last updated: August 15, 2011

COLUMBIA RIVER CHUM ESU

THREATENED

- **ESA Listing Status:** Listed as threatened on Mar. 25, 1999 *(PDF 80KB)*; threatened status reaffirmed on June 28, 2005. *(PDF 295KB)* NOAA Fisheries issued results of a five-year review on Aug. 15, 2011 *(PDF 176KB)*, and concluded that this species should remain listed as threatened.
- **Description:** This ESU includes all naturally spawned populations of chum salmon in the Columbia River and its tributaries in Washington and Oregon, as well as three artificial propagation programs: the Chinook River (Sea Resources Hatchery), Grays River, and Washougal River/Duncan Creek chum hatchery programs.
- **Critical Habitat:** Final designation published Sept. 2, 2005 *(PDF 822KB)*, with effective date of Jan. 2, 2006.
- **Protective Regulations:** Final revised protective regulations issued June 28, 2005. *(PDF 295KB)*
- Chum Salmon Status Reviews & Updates
- Chum Salmon Federal Register Notices
- Chum Salmon Maps & GIS Data

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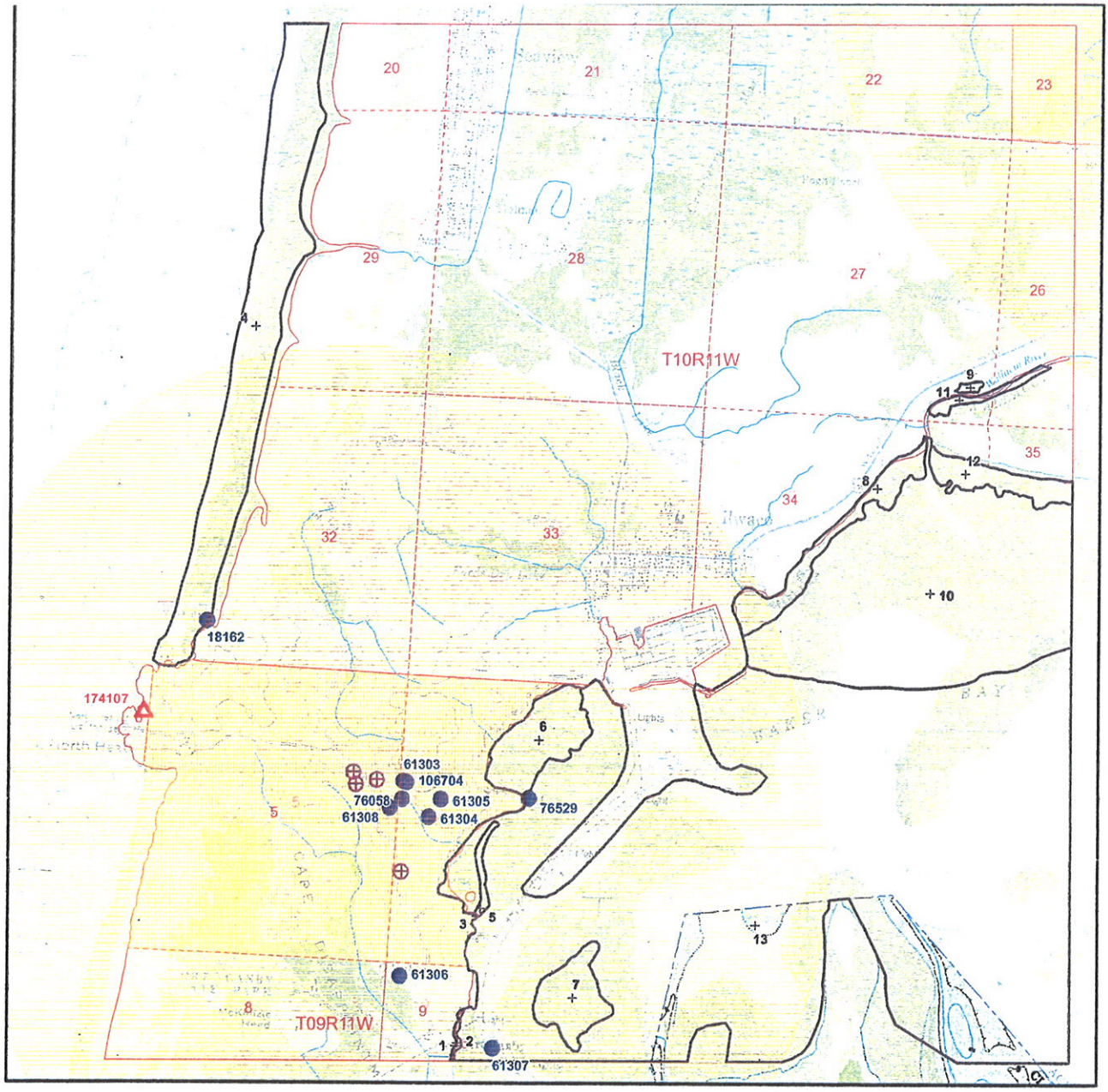


Washington Department of Fish and Wildlife

HABITATS AND SPECIES MAP

IN THE VICINITY OF T10R11W SECTION 33

Map Scale 1:24,000 - Production Date: Mar 01, 2012
Coordinate System - State Plane South Zone 5626 (NAD83 HPGN)
Map Designed by WDFW Information Technology Services GIS

PLEASE NOTE

This map and the accompanying reports are not for general distribution. Washington State Law (RCW 42 56 430(2)) exempts Sensitive Fish and Wildlife information from public inspection and copying

Washington Department of Fish and Wildlife (WDFW) considers sensitive species and habitat locations displayed on this map and accompanying reports to be confidential. WDFW is the exclusive owner of the Sensitive Fish and Wildlife Information and locations shall in all respects be treated as proprietary information in accordance with all procedures reasonably necessary to protect WDFW's proprietary rights therein

DISCLAIMER

This map and the accompanying reports only include information that the Washington Department of Fish and Wildlife (WDFW) maintains in a central computer database. It is not an attempt to provide you with an official agency response as to the impacts of your project on fish and wildlife. This information only documents the location of fish and wildlife resources to the best of our knowledge. It is not a complete inventory and it is important to note that fish and wildlife resources may occur in areas not currently known to WDFW biologists, or in areas for which comprehensive surveys have not been conducted. Site specific surveys are frequently necessary to rule out the presence of priority resources.

Locations of mapped wildlife and habitat features are generally within a quarter mile of the locations displayed on this map. Locations of fish and wildlife resources are subject to variation caused by disturbance, changes in season and weather, and other factors. WDFW does not recommend using maps more than six months old and information should not be used for future projects.

For questions about how the information may apply to a specific project or site, contact the WDFW Regional Office for your region at:
http://wdfw.wa.gov/about/regions

MAIN DATA SOURCES

Priority Habitats and Species polygon, Habitat point, Klickitat County Oak, Wildlife Survey Data Management polygon/point, Spotted Owls, Seal /Sea Lion Haulouts, 1:24K streams and fish presence data: Wa. Dept. of Fish and Wildlife.
Seabird Colony data: US National Oceanic and Atmospheric Administration.
Kelp Bed, Oak Stand, Eelgrass, Turf Algae and Township/Section data: Wa. Dept. of Natural Resources.
Wetland data: US Fish and Wildlife Service, National Wetlands Inventory.
1:24K Quadrangle Image: US Geological Survey.

Map Legend

Priority Habitats/Species:

- Priority Habitats and Species (PHS) Polygon Borders
- Priority Wildlife Areas (WSDM)
- Priority Wildlife Sites (WSDM)
- Priority Habitat Sites
- Marbled Murrelet Occupancy Sites
- Spotted Owl Sites - Status 1-3
- Spotted Owl Sites - Status 4
- Priority Seabird Colonies
- Priority Seal/Sea Lion Haulouts
- Priority Fish Presence
- National Wetlands Inventory
- Oak Stands
- Kelp Beds
- Eelgrass
- Turf Algae

Other Habitats/Species:

- Other Seabird Colonies
- Other Seal/Sea Lion Haulouts
- Spotted Owl Management Circles Established Territory
- Spotted Owl Management Circles Insufficient Evidence to Establish Territory
- Marbled Murrelet Detection Sections (WDFWSTAT 1 through 4)
- Marbled Murrelet 1.5 Mile Buffers (Status 1 through 3)

Other Symbols:

- Rivers and Streams
- Section Lines
- Township Lines

Washington Department of FISH and WILDLIFE

Area Location Map

0 0.5 1
Miles

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE
PRIORITY HABITATS AND SPECIES POLYGON CROSS REFERENCE REPORT
IN THE VICINITY OF T10R11W SECTION 33

Report Date: March 01, 2012

Priority Habitats and Species (PHS) polygons are labeled, on the map, with a unique number (PHS Poly#) and "+" symbol, roughly in the center of the polygo
This PHS Poly# refers to a list of form numbers (Form#) contained in the PHS Polygon Cross Reference Report, listed below. The Form#'s refer to the attach
Priority Habitats and Species Polygon Report. This report details each species or habitat depicted as a polygon on the map.

There will be some polygons, on the map, without PHS Poly# labels. These areas are "no data" or "donuts" created by surrounding polygons. These polygon
indicate that the species or habitat information is unkonwn or the area was not mapped.

PHS Polygon Cross Refernce Report

PHS Poly#	Form#
1	904451
2	902356-904451
3	904451
4	920120
5	902356-904451
6	902356-904451
7	902356-904451
8	904452-902356-904451
9	904451
10	904452-902356
11	904451
12	904452-902356-904451
13	902356

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE
PRIORITY HABITATS AND SPECIES POLYGON REPORT
IN THE VICINITY OF T10R11W SECTION 33

Report Date: March 01, 2012

Information About Priority Habitats and Polygon Report

Priority Habitats and Species (PHS) polygons are labeled, on the map, with a unique number (PHS Poly#) and "+" symbol, roughly in the center of the polygon This PHS Poly# refers to a list of polygon numbers and form numbers (Form#) contained in the PHS Polygon Cross Reference Report. The Form#'s refer to the PHS Polygon Report, listed below. This report details each species or habitat depicted as a polygon on the map.

Priority Habitats and Species Polygon Summary List

This report and the accompanying maps contain species and habitats that are considered to be priorities for conservation and management by Washington Department of Fish and Wildlife (WDFW). The most current Priority Habitat and Species List is available on our web site at http://wdfw.wa.gov/conservation/phs/list. YES or Y under the **"Priority"** column in the Summary List below indicates the species or habitat occurrence is on WDFW's Priority Habitats and Species List (PHS). The occurrence has been refined to match the priority area listed for the species or habitat on the PHS List (e.g., any occurrence, breeding areas, regular concentrations). NULL or Blank under the **"Priority"** column indicates the species or habitat occurrence is not on WDFW's PHS List.

Priority	State Status	PHS Code	Common Name	Species Use Criteria
YES		SHBI	SHOREBIRD CONCENTRATIONS	REGULAR CONCENTRATION
YES		WAFO	WATERFOWL CONCENTRATIONS	REGULAR CONCENTRATION
YES		WET	WETLANDS	

PHS Polygon Report

Form#: 902356 **PHS Code:** WAFO **Scientific Name:**
Season: W **Common Name:** WATERFOWL CONCENTRATIONS
Species Use Criteria: REGULAR CONCENTRATION **Accurracy:** ACCURATE WITHIN A QUARTER MILE
Priority: YES **State Status:** **Federal Status:**
Site Name: BAKER BAY
General Description: WATERFOWL WINTERING CONCENTRATION AREA.

Source Date: 12 90 **Source:** WILLAPA NAT. WILDLIFE REFUGE WINTER SURVEYS
Source Code: WTRAN **Synopsis:** CANVASBACKS OCCUR ON OPEN WATER,SCOTER CONCEN. THROUGHOUT BAKER BAY, PINTAIL AND MALLARDS ALONG SHORELINES. OTHER DIVING DUCKS PRESENT.

Form#: 904451 **PHS Code:** WET **Scientific Name:**
Season: **Common Name:** WETLANDS
Species Use Criteria: **Accurracy:** ACCURATE WITHIN A QUARTER MILE
Priority: YES **State Status:** **Federal Status:**
Site Name: REGION 6 SALTWATER WETLANDS
General Description: COASTAL SALT MARSHES SALT MEADOWS AND BRACKISH MARSHES

Source Date: 11 **Source:** 2011 NAIP DIGITAL COLOR ORTHOPHOTOS
Source Code: ORTHO **Synopsis:** USED TO DELINEATE AREA BOUNDARIES. 1 METER RESOLUTION.

Source Date: 04 78 **Source:** WASHINGTON STATE COASTAL ZONE ATLAS D.O.E., 1979
Source Code: CZA **Synopsis:** D.O.E. SPONSORED MAPPING OF COASTAL FEATURES

Form#: 904452 **PHS Code:** SHBI **Scientific Name:**
Season: WS F **Common Name:** SHOREBIRD CONCENTRATIONS
Species Use Criteria: REGULAR CONCENTRATION **Accurracy:**
Priority: YES **State Status:** **Federal Status:**
Site Name: BAKER BAY
General Description: SHOREBIRD, RLC

Source Date: 03 92 **Source:** SKRILETZ, JEFF WDW
Source Code: PROF **Synopsis:** ANNUAL LARGE POPULATIONS OF WESTERN SANDPIPER, DUNCIN, BLACK-BELLIED PLOVER, GRE ATER YELLOWLEGS, ETC, ETC. VIRTUALLY ACL INTERTIDAL ARCAS OF BAKER BAY ARE USED.

Form#: 920120 **PHS Code:** SHBI **Scientific Name:**
Season: W **Common Name:** SHOREBIRD CONCENTRATIONS
Species Use Criteria: REGULAR CONCENTRATION **Accurracy:** ACCURATE WITHIN A QUARTER MILE
Priority: YES **State Status:** **Federal Status:**
Site Name: LONG BEACH PENINSULA
General Description: COASTAL BEACH PROVIDES WINTERING HABITAT FOR SHOREBIRDS. DUNLINS, SANDERLINGS, A ND BLACK-BELIED PLOVERS WERE THE MOST NUMEROUS SHOREBIRDS. WESTERN SANDPIPERS WE RE ALSO PRESENT.

Source Date: 90 **Source:** BUCHANAN, JOE WDFW WILDLIFE BIOLOGIST
Source Code: SURV **Synopsis:** WINTER SHOREBIRD CENSUS CONDUCTED FROM 1982 TO 1990.

Source Date: 92 **Source:** BUCHANAN, JOE WDFW WILDLIFE BIOLOGIST
Source Code: LIT **Synopsis:** WINTER ABUNDANCE OF SHOREBIRDS AT COASTAL BEACHES OF WASHINGTON, WASHINGTON BIRD S, 2:12-19, 1992

Codes Used In Priority Habitat and Species Polygon Report

Form#: Unique number that links the information in the reports to features on the map.

PHS Code: This contains a code that identifies the fish and wildlife species found in the area or the habitat that occurs there. The field Common Name contains the description of this code.

Scientific Name: Scientific name of the species.

Season: Season of species use. Use is indicated by the presence of a non-blank character in one or more postions or sub-strings of the field position.
Position 1: W = Winter use. Position 2 : S = Spring use.
Position 3: U = Summer use. Position 4: F = Fall use.
Position 5: S = Severe winter use.

Common Name: Common name of the species or habitat.

Species Use Criteria: Criteria that identifies how the area is used by the indicated species. This field is not used if a habitat is described.

Accuracy: Mapping accuracy of the line delineation as determined by the mapper.

Priority: Species and habitats that are considered to be priorities for conservation and management by Washington Department of Fish and Wildlife (WDFW). The most current Priority Habitat and Species List is available on our web site at http://wdfw.wa.gov/conservation/phs/list.
YES or Y = Indicates the species or habitat occurrence is on WDFW's Priority Habitats and Species List (PHS). The occurrence has been refined to match the priority area listed for the species or habitat on the PHS List (e.g., any occurrence, breeding areas, regular concentrations).
NULL or Blank = Indicates the species or habitat occurrence is not on WDFW's PHS List.

State Status: State listing status of species.

Federal Status: Federal listing status of species.

Site Name: Name assigned to the area based generally on a local place name.

General Description: Description about the area, including how is is used and why it is important.

Source Date: Date of source of information.

Source Code: Code identifying the source of information.

Source: Identifies and describes the source responsible for the information described on the form or drawn on the map. Single or multiple sources may be cited.

Synopsis: Brief narrative describing content of source of information.

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE
WILDLIFE POINTS AND AREAS FROM THE WILDLIFE SURVEY DATA MANAGEMENT (WSDM) DATABASE
IN THE VICINITY OF T10R11W SECTION 33

Report Date: March 01, 2012

Information About Wildlife Points and Areas

Wildlife points and areas on the map can be referenced to this report by noting the occurpointid or occurpolyid number where they occur on the map, and then looking up the information listed below. This report is sorted by the occurpointid and occurpolyid and provides details on each species on the map. The information displayed on the map and in the reports, from the Wildlife Survey Data Management Database, only includes species that are considered to be priorities for conservation and management by Washington Department of Fish and Wildlife. Priority species include state Endangered, Threatened, Sensitive and Candidate; vulnerable aggregations of species; and species of recreational, commercial and/or tribal importance that are vulnerable, all other species from this database have been excluded.

Wildlife Species Point Summary List

This report and the accompanying maps contain species or habitats that are considered to be priorities for conservation and management by Washington Department of Fish and Wildlife (WDFW). The most current Priority Habitat and Species List is available on our web site at http://wdfw.wa.gov/conservation.phs/list. YES or Y indicates the species or habitat is on WDFW's Priority Habitats and Species (PHS) List. You will need to consult the List itself to verifty whether a specific occurrence of the species or habitat is considered a priority; the List defines specific priority areas for some species (e.g., Western Washington only, breeding areas or migration corridors only). Null or Blank indicates the species or habitat occurrence is not on WDFW's PHS List.

Priority	State Status	Species Code	Common Name	Occur Type	Occur Class
	ENDANGERED	DECO	LEATHERBACK SEA TURTLE	BIOTIC DETECTION	NA
YES	SENSITIVE	HALE	BALD EAGLE	NEST	BREEDING

Wildlife Species Points

OccurpointID: 18162 **Species Code:** DECO **Scientific Name:** Dermochelys coriacea
Priority: **Verify Status:** Verified **Common Name:** Leatherback sea turtle
Occur Type: Biotic detection **Occur Class:** NA **State Status:** Endangered
Effort Date: 09/21/1993 **Effort Date Accurate To:** Day **Federal Status:** Endangered
Township-Range-Section: T10-0N R11-0W U01 **Site Name:**
Occurrence#: **Sequence#:** **Location Accuracy:** 1/4 mile (Quarter Section)
Occur Notes: FT CANBY : DEAD ON BEACH

OccurpointID: 61303 **Species Code:** HALE **Scientific Name:** Haliaeetus leucocephalus
Priority: YES **Verify Status:** Verified **Common Name:** Bald eagle
Occur Type: Nest **Occur Class:** Breeding **State Status:** Sensitive
Effort Date: 04/02/2008 **Effort Date Accurate To:** Day **Federal Status:** Fed Spp Concern
Township-Range-Section: T9-0N R11-0W S04 **Site Name:** CAPE DISAPPOINTMENT
Occurrence#: 144 **Sequence#:** 1 **Location Accuracy:** 1/4 mile (Quarter Section)
Occur Notes: CAPE DISAPOINTMENT TERR, NEST ON LATERAL BRANCH NEAR TOP OF DOMINANT SPRUCE. MAPPED LOCATION PG 2025080.

OccurpointID: 61304 **Species Code:** HALE **Scientific Name:** Haliaeetus leucocephalus
Priority: YES **Verify Status:** Verified **Common Name:** Bald eagle
Occur Type: Nest **Occur Class:** Breeding **State Status:** Sensitive
Effort Date: 04/06/2005 **Effort Date Accurate To:** Day **Federal Status:** Fed Spp Concern
Township-Range-Section: T9-0N R11-0W S04 **Site Name:** CAPE DISAPPOINTMENT
Occurrence#: 144 **Sequence#:** 2 **Location Accuracy:** 1/4 mile (Quarter Section)
Occur Notes: CAPE DISAPPOINTMENT TERR, EAST NEST.

OccurpointID: 61305 **Species Code:** HALE **Scientific Name:** Haliaeetus leucocephalus
Priority: YES **Verify Status:** Verified **Common Name:** Bald eagle
Occur Type: Nest **Occur Class:** Breeding **State Status:** Sensitive
Effort Date: 04/06/2005 **Effort Date Accurate To:** Day **Federal Status:** Fed Spp Concern
Township-Range-Section: T9-0N R11-0W S04 **Site Name:** CAPE DISAPPOINTMENT
Occurrence#: 144 **Sequence#:** 3 **Location Accuracy:** 1/4 mile (Quarter Section)
Occur Notes: CAPE DISAPPPOINTMENT TERR, NEST ABOUT 30-50 YDS NORTH AND EAST OF NEST 2.

OccurpointID: 61306 **Species Code:** HALE **Scientific Name:** Haliaeetus leucocephalus
Priority: YES **Verify Status:** Verified **Common Name:** Bald eagle
Occur Type: Nest **Occur Class:** Breeding **State Status:** Sensitive
Effort Date: 04/06/2005 **Effort Date Accurate To:** Day **Federal Status:** Fed Spp Concern
Township-Range-Section: T9-0N R11-0W S09 **Site Name:** CAPE DISAPPOINTMENT
Occurrence#: 144 **Sequence#:** 4 **Location Accuracy:** 1/4 mile (Quarter Section)
Occur Notes: BALD EAGLE NEST

OccurpointID: 61307 **Species Code:** HALE **Scientific Name:** Haliaeetus leucocephalus
Priority: YES **Verify Status:** Verified **Common Name:** Bald eagle
Occur Type: Nest **Occur Class:** Breeding **State Status:** Sensitive
Effort Date: 04/06/2005 **Effort Date Accurate To:** Day **Federal Status:** Fed Spp Concern
Township-Range-Section: T9-0N R11-0W U01 **Site Name:** CAPE DISAPPOINTMENT
Occurrence#: 144 **Sequence#:** 5 **Location Accuracy:** 1/4 mile (Quarter Section)
Occur Notes: BALD EAGLE NEST. AIR GPS (WGS 84) 46 17.731 N 124 03.520 W

OccurpointID: 61308 **Species Code:** HALE **Scientific Name:** Haliaeetus leucocephalus
Priority: YES **Verify Status:** Verified **Common Name:** Bald eagle
Occur Type: Nest **Occur Class:** Breeding **State Status:** Sensitive
Effort Date: 06/15/2005 **Effort Date Accurate To:** Day **Federal Status:** Fed Spp Concern
Township-Range-Section: T9-0N R11-0W S05 **Site Name:** CAPE DISAPPOINTMENT
Occurrence#: 144 **Sequence#:** 6 **Location Accuracy:** 1/4 mile (Quarter Section)
Occur Notes: BALD EAGLE NEST. AIR GPS (WGS 84) 46 17.731 N 124 03.520 W

OccurpointID: 76058 **Species Code:** HALE **Scientific Name:** Haliaeetus leucocephalus
Priority: YES **Verify Status:** Verified **Common Name:** Bald eagle
Occur Type: Nest **Occur Class:** Breeding **State Status:** Sensitive
Effort Date: 03/25/2009 **Effort Date Accurate To:** Day **Federal Status:** Fed Spp Concern
Township-Range-Section: T9-0N R11-0W S04 **Site Name:** CAPE DISAPPOINTMENT
Occurrence#: 144 **Sequence#:** 7 **Location Accuracy:** GPS
Occur Notes: BALD EAGLE NEST.

OccurpointID: 76529 **Species Code:** HALE **Scientific Name:** Haliaeetus leucocephalus
Priority: YES **Verify Status:** Verified **Common Name:** Bald eagle
Occur Type: Nest **Occur Class:** Breeding **State Status:** Sensitive
Effort Date: 03/25/2009 **Effort Date Accurate To:** Day **Federal Status:** Fed Spp Concern
Township-Range-Section: T9-0N R11-0W U01 **Site Name:** CAPE DISAPPOINTMENT
Occurrence#: 144 **Sequence#:** 8 **Location Accuracy:** GPS
Occur Notes: BALD EAGLE NEST ON LAGOON SIDE OF POINT.

OccurpointID: 106704 **Species Code:** HALE **Scientific Name:** Haliaeetus leucocephalus
Priority: YES **Verify Status:** Verified **Common Name:** Bald eagle
Occur Type: Nest **Occur Class:** Breeding **State Status:** Sensitive
Effort Date: 03/25/2009 **Effort Date Accurate To:** Day **Federal Status:** Fed Spp Concern
Township-Range-Section: T9-0N R11-0W S04 **Site Name:** CAPE DISAPPOINTMENT
Occurrence#: 144 **Sequence#:** 9 **Location Accuracy:** GPS
Occur Notes: BALD EAGLE NEST IN CONIFER.

Wildlife Species Areas Summary List

This report and the accompanying maps contain species or habitats that are considered to be priorities for conservation and management by Washington Department of Fish and Wildlife (WDFW). The most current Priority Habitat and Species List is available on our web site at http://wdfw.wa.gov/conservation/phs/list. YES or Y indicates the species or habitat is on WDFW's Priority Habitats and Species (PHS) List. You will need to consult the List itself to verifty whether a specific occurrence of the species or habitat is considered a priority; the List defines specific priority areas for some species (e.g., Western Washington only, breeding areas or migration corridors only). Null or Blank indicates the species or habitat occurrence is not on WDFW's PHS List.

Priority	State Status	Species Code	Common Name	Occur Type	Occur Class

Codes Used In Wildlife Points and Areas Report

OccurpointID/OccurpointpolyID: A unique identifier for each record.

Species Code: Alphanumeric code which identifies the species by using Washington Department of Fish and Wildlife's standard species codes derived fro genus and species. The field Common Name contains the description of this code.

Scientific Name: Scientific name of the species.

Priority: Species and habitats that are considered to be priorities for conservation and management by Washington Department of Fish and Wildlife (WDFW). The most current Priority Habitats and Species List is available on our web site at http://wdfw.wa.gov/conservation/phs/list.
YES or Y = Indicates that the species or habitat is on WDFW's Priority Habitats and Species (PHS) List. You will need to consult the List itself to verify whether a specific occurrence of the species or habitat is considered a priority; the List defines specific priority areas for some species (e.g., Western Washington only, breeding areas or migration corridors only).
NULL or Blank = Indicates the species or habitat occurrence is not on WDFW's PHS List.

Verify Status: Reliability of information.

Common Name: Common name of the species.

Occur Type: The biological entity that is being observed (nest, communal roost etc.).

Occur Class: Biological classification of the occurence.

State Status: State listing status of the species.

Effort Date: Date an effort was conducted.

Effort Date Accurate To: The accuracy of the date.

Federal Status: Federal listing staus of the species.

Township-Range-Section: The legal description of the species occurrence by township, range, meridian, section; quarter, and quarter/quarter section.

Site Name: Name of the site based on location. Generally, the nearest definable geographic place.

Occurrence#: Number assigned sequentally to occurrences. The number is unique by species.

Sequence#: Number assinged sequentally to subgroups for a given occurrence/occurno.

Location Accurracy: Locational accuracy of the data as it was observed.

Occur Notes: Occurence notes.

SEABIRD COLONY REPORT
From the CATALOG OF WASHINGTON SEABIRD COLONIES by Steven Speich et al., 1989
IN THE VICINITY OF T10R11W SECTION 33
Report Date: March 01, 2012

Information About the Seabird Colony Report

Information in this report was taken from the Catalog of Washington Seabird Colonies by Steven M. Speich et al., published in 1989 by National Oceanic Atmospheric Administration (NOAA). Population numbers by species reflect counts of breeding individuals based upon the most recent or best estimates as indicated in the publication. If observations were not classed as most recent or best estimates at the time of the survey, then population numbers were not provided. Please note this information is dated. For more recent information, contact the Washington Department of Fish and Wildlife (WDFW) biologist for your project area.

State status information is not available in the seabird database for these species. Please see WDFW Species of Concern List for current status. For a copy of the list, contact WDFW Endangered Species Section at (360) 902-2515, or it is available on our web site at http://wdfw.wa.gov/conservation/endangered.

Seabird Colony Report

Colony ID: 174107 **NOAA_Flag** 1 **Class of Breeding Species:** Alcids - may inlcude others.

Colony Name: NORTH HEAD

The following fields identify the number of breeding individuals by species for the colony:

Species	Population	Priority
Storm Petrel	0	Yes
Fork Tailed Storm Peterel	0	Yes
Leachs Storm Petrel	0	Yes
Cormorant	0	Yes
Double Crested Cormorant	0	Yes
Brandts Cormorant	0	Yes
Pelagic Cormorant	0	Yes
Black Oystercatcher	2	Yes
Ring Billed Gull	0	No
Western Gull	0	No
Glauccous Winged Gull	0	No
Caspian Tern	0	Yes
Arctic Tern	0	Yes
Common Murre	0	Yes
Pigeon Guillemot	30	Yes
Cassins Auklet	0	Yes
Rhinoceros Auklet	0	Yes
Tufted Puffin	0	Yes
Total Population	**32**	

Codes Used In The Seabird Colony Report

Colony ID: Colony number composed of area and site.

NOAA Flag: If equal to 1, indicates location is included in the NOAA seabird colony database.

Class of Breeding Species: A "blank" indicates no breeding observed or no information.

Colony Name: Name of colony.

Population: Number of breeding individuals by species.

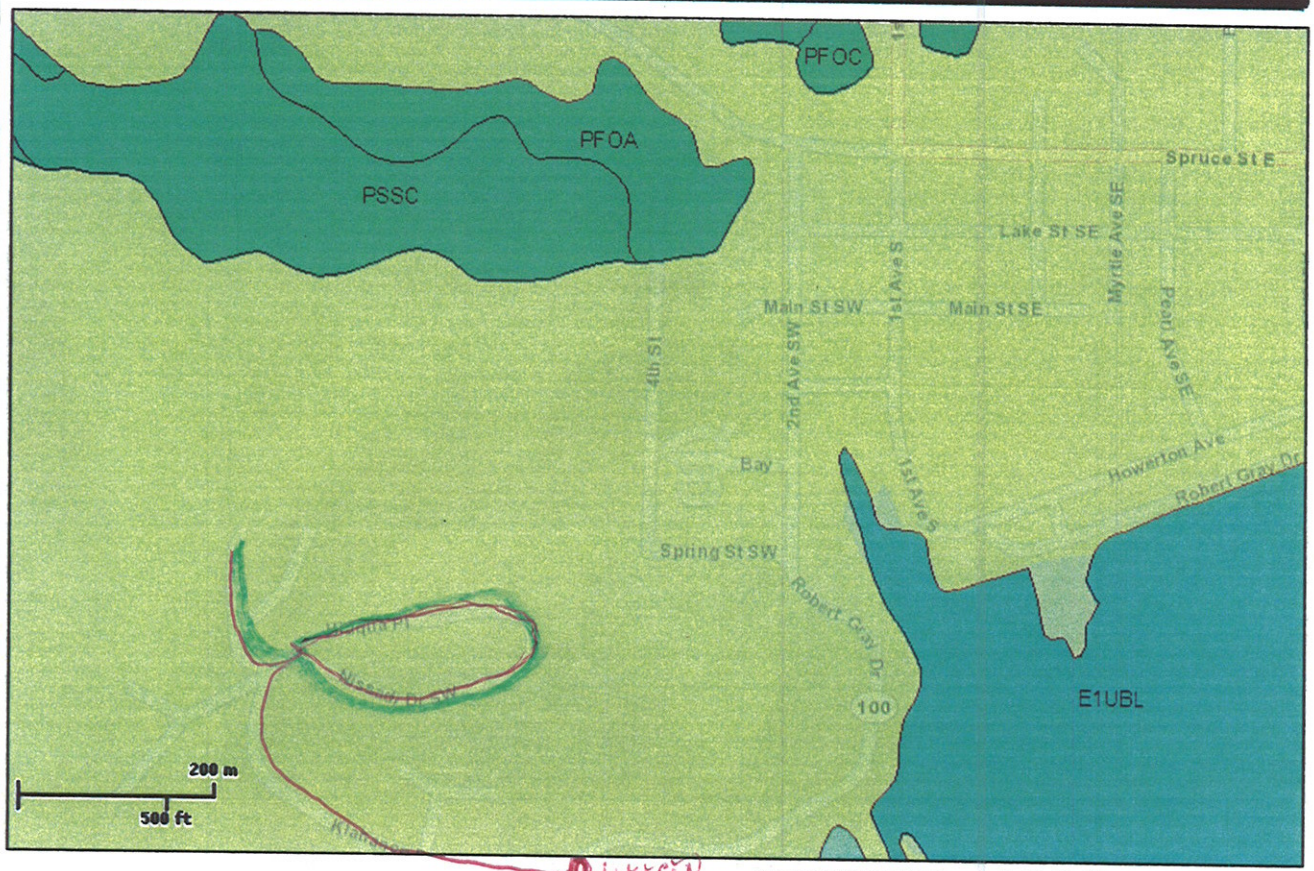
Priority: Species and habitats that are considered to be priorities for conservation and management by Washington Department of Fish and Wildlife (WDFW). The most current Priority Habitats and Species (PHS) List is available on our web site at http://wdfw.wa.gov/conservation/phs/list.
YES or Y = Indicates that the species or habitat occurrence is on WDFW's Priority Habitats and Species (PHS) List. The occurrence has been refined to match the priority area listed for the species or habitat on the PHS List (e.g., any occurrence, breeding areas, regular concentrations).
NULL or Blank = Indicates the species or habitat occurrence is not on WDFW's PHS List.

U.S. Fish and Wildlife Service

National Wetlands Inventory

Ilwaco Wetland Map

Feb 18, 2012



Wetlands

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

Status

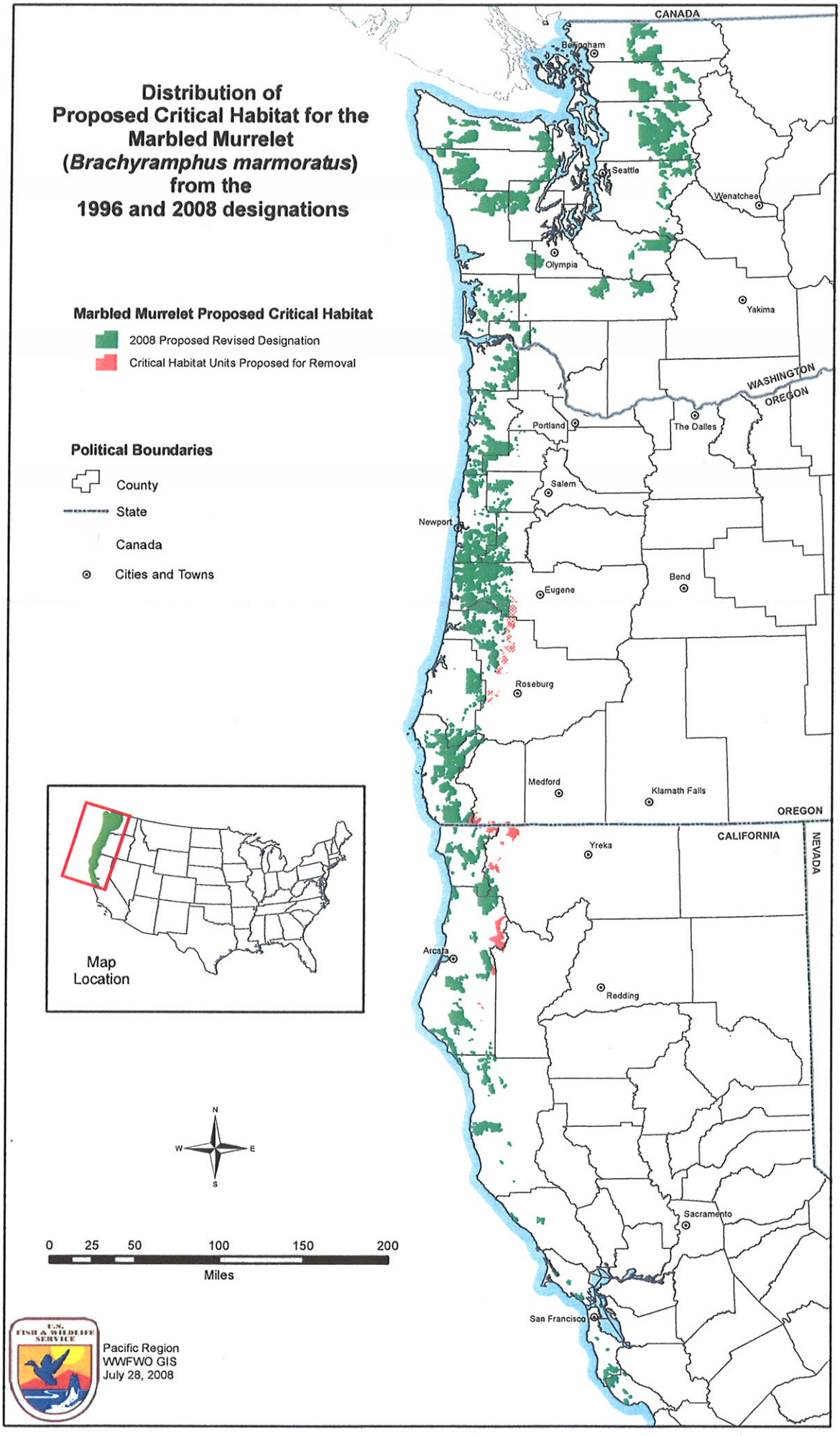
- Digital
- Scan
- Non-Digital
- No Data

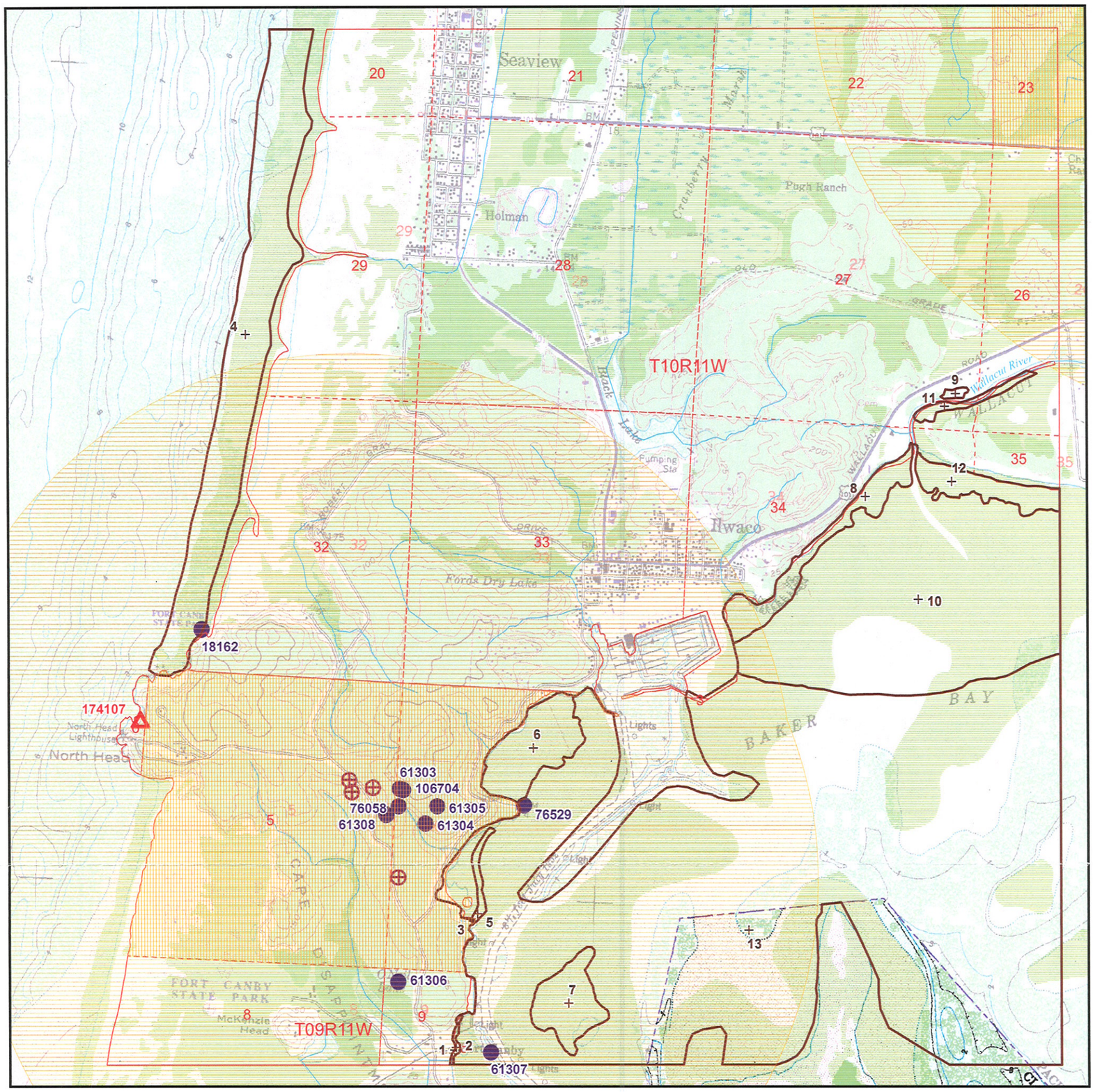
This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

User Remarks:

Sahalee Subdivision Wetland Map

Distribution of Proposed Critical Habitat for the Marbled Murrelet (*Brachyramphus marmoratus*) from the 1996 and 2008 designations





Washington Department of Fish and Wildlife

HABITATS AND SPECIES MAP

IN THE VICINITY OF T10R11W SECTION 33

Map Scale 1:24,000 - Production Date: Mar 01, 2012
Coordinate System - State Plane South Zone 5626 (NAD83 HPGN)
Map Designed by WDFW Information Technology Services GIS

PLEASE NOTE

This map and the accompanying reports are not for general distribution. Washington State Law (RCW 42.56.430(2)) exempts Sensitive Fish and Wildlife information from public inspection and copying.

Washington Department of Fish and Wildlife (WDFW) considers sensitive species and habitat locations displayed on this map and accompanying reports to be confidential. WDFW is the exclusive owner of the Sensitive Fish and Wildlife Information and locations shall in all respects be treated as proprietary information in accordance with all procedures reasonably necessary to protect WDFW's proprietary rights therein.

DISCLAIMER

This map and the accompanying reports only includle information that the Washington Department of Fish and Wildlife (WDFW) maintains in a central computer database. It is not an attempt to provide you with an official agency response as to the impacts of your project on fish and wildlife. This information only documents the location of fish and wildlife resources to the best of our knowledge. It is not a complete inventory and it is important to note that fish and wildlife resources may occur in areas not currently known to WDFW biologists, or in areas for which comprehensive surveys have not been conducted. Site specific surveys are frequently necessary to rule out the presence of priority resources.

Locations of mapped wildlife and habitat features are generally within a quarter mile of the locations displayed on this map. Locations of fish and wildlife resources are subject to variation caused by disturbance, changes in season and weather, and other factors. WDFW does not recommend using maps more than six months old and information should not be used for future projects.

For questions about how the information may apply to a specific project or site, contact the WDFW Regional Office for your region at:
http://wdfw.wa.gov/about/regions

MAIN DATA SOURCES

Priority Habitats and Species polygon, Habitat point, Klickitat County Oak, Wildlife Survey Data Management polygon/point, Spotted Owls, Seal /Sea Lion Haulouts, 1:24K streams and fish presence data: Wa. Dept. of Fish and Wildlife.
Seabird Colony data: US National Oceanic and Atmospheric Administration.
Kelp Bed, Oak Stand, Eelgrass, Turf Algae and Township/Section data: Wa. Dept. of Natural Resources.
Wetland data: US Fish and Wildlife Service, National Wetlands Inventory.
1:24K Quadrangle Image: US Geological Survey.

Map Legend

Priority Habitats/Species:

- Priority Habitats and Species (PHS) Polygon Borders
- Priority Wildlife Areas (WSDM)
- Priority Wildlife Sites (WSDM)
- Priority Habitat Sites
- Marbled Murrelet Occupancy Sites
- Spotted Owl Sites - Status 1-3
- Spotted Owl Sites - Status 4
- Priority Seabird Colonies
- Priority Seal/Sea Lion Haulouts
- Priority Fish Presence
- National Wetlands Inventory
- Oak Stands
- Kelp Beds
- Eelgrass
- Turf Algae

Other Habitats/Species:

- Other Seabird Colonies
- Other Seal/Sea Lion Haulouts
- Spotted Owl Management Circles Established Territory
- Spotted Owl Management Circles Insufficient Evidence to Establish Territory
- Marbled Murrelet Detection Sections (WDFWSTAT 1 through 4)
- Marbled Murrelet 1.5 Mile Buffers (Status 1 through 3)

Other Symbols:

- Rivers and Streams
- Section Lines
- Township Lines

Washington Department of FISH and WILDLIFE

Area Location Map

0 0.5 1
Miles

APPENDIX D

NHPA SECTION 106 CONSULTATION, ARCHAEOLOGICAL INVESTIGATION, INADVERTENT DISCOVERY PLAN

State of Washington
Department of Fish and Wildlife

Mailing Address: 600 Capitol Way N, Olympia WA 98501-1091, (360) 902-2200, TDD (360) 902-2207
Main Office Location: Natural Resources Building, 1111 Washington Street SE, Olympia WA

Date: March 2, 2012

Dear Habitats and Species Requester:

Enclosed are the habitats and species products you requested from the Washington Department of Fish and Wildlife (WDFW). This package may also contain documentation to help you understand and use these products.

These products only include information that WDFW maintains in a computer database. They are not an attempt to provide you with an official agency response as to the impacts of your project on fish and wildlife, nor are they designed to provide you with guidance on interpreting this information and determining how to proceed in consideration of fish and wildlife. These products only document the location of important fish and wildlife resources to the best of our knowledge. It is important to note that habitats or species may occur on the ground in areas not currently known to WDFW biologists, or in areas for which comprehensive surveys have not been conducted. Site-specific surveys are frequently necessary to rule out the presence of priority habitats or species.

Your project may require further field inspection or you may need to contact our field biologists or others in WDFW to assist you in interpreting and applying this information. Generally, for assistance on a specific project, you should contact the WDFW Habitat Program Manager for your county and ask for the area habitat biologist for your project area. Refer to the enclosed directory for those contacts. Contact information is also available on line at: *http://wdfw.wa.gov/about/regions*.

Please note that map and data products are designed for users external to the forest practice permit process and as such, may not reflect all the information pertinent to forest practice review.

WDFW updates this information as additional data become available. Because fish and wildlife species are mobile and because habitats and species information changes, project reviews for fish and wildlife should not rest solely on mapped or digital information. Instead, they should also consider new information gathered from current field investigations. Remember, habitats and species information can only show that a species or habitat type is present, they cannot show that a species or habitat type is not present. These products should not be used for future projects. Please obtain updates rather than use outdated information.

Because of the high volume of requests for information that WDFW receives, we need to charge for these products to recover some of our costs. Enclosed is an invoice itemizing the costs for your request and instructions for submitting payment.

Please note that sensitive (e.g., "confidential") fish and wildlife location information may be included in this request. These species are vulnerable to disturbances and harassment. In order to protect the viability of these species we request that you not disseminate the information as to their whereabouts. Please refer to these species presence in general terms. For example: "A Peregrine Falcon is located within two miles of the project area".

WDFW's Releasing Sensitive Fish and Wildlife Information Policy – 5210 defines sensitive (e.g., "confidential") information. If your request required a Sensitive Fish and Wildlife Information Release Agreement and you or your organization has one on file, please refer to those documents for conditions regarding release of this information.

For more information on WDFW you may visit our web site *http://wdfw.wa.gov* or visit the Priority Habitats and Species site at *http://wdfw.wa.gov/conservation/phs*.

For information on the state's endangered, threatened, and sensitive plants as well as high quality wetland and terrestrial ecosystems, please contact the Washington Department of Natural Resources, Natural Heritage Program at PO Box 47014, Olympia Washington 98504-7014, by phone (360) 902-1667 or visit the web site at:
http://dnr.wa.gov/ResearchScience/Topics/NaturalHeritage/Pages/amp_nh.aspx

If you have any questions or problems with the information you received please call me at (360) 902-2543, fax (360) 902-2946 or e-mail *phsproducts@dfw.wa.gov*.

Sincerely,

Lori L Guggenmos

Lori Guggenmos, PHS Data Release Manager
Priority Habitats and Species

Enclosures

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE
REGIONAL CONTACTS

For assistance with Priority Habitats and Species information, contact the appropriate regional office, listed below.

County...	Contact...
Asotin, Columbia, Ferry, Garfield, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman	Eastern Office – Region 1 2315 North Discovery Place Spokane Valley, WA 99216-1566 Phone: (509) 892-1001 E-mail: *TeamSpokane@dfw.wa.gov*
Adams, Chelan, Douglas, Grant Okanogan	North Central Office – Region 2 1550 Alder Street NW Ephrata, WA 98823-9699 Phone: (509) 754-4624 E-mail: *TeamEphrata@dfw.wa.gov*
Benton, Franklin, Kittitas, Yakima	South Central Office – Region 3 1701 South 24th Avenue Yakima, WA 98902-5720 Phone: (509) 575-2740 E-mail: *TeamYakima@dfw.wa.gov*
Island, King, San Juan, Skagit, Snohomish, Whatcom	North Puget Sound Office – Region 4 16018 Mill Creek Boulevard Mill Creek, WA 98012-1296 Phone: (206) 775-1311 E-mail: *TeamMillCreek@dfw.wa.gov*
Clark, Cowlitz, Klickitat, Lewis, Skamania, Wahiakum	Southwest Office – Region 5 2108 Grand Boulevard Vancouver, WA 98661 Phone: (360) 696-6211 E-mail: *TeamVancouver@dfw.wa.gov*
Clallam, Grays Harbor, Jefferson, Kitsap, Mason, Pacific, Pierce, Thurston	Coastal Office – Region 6 48 Deveonshire Road Montesano, WA 98563-9618 Phone: (360) 249-4628 E-mail: *TeamMontesano@dfw.wa.gov*

TO: Mr. Jim Dougherty
Gray & Osborne, Inc.
701 Dexter Avenue N., Suite 200
Seattle, WA 98109

FROM: Robert A. Freed, MA
Archaeologist/Project Manager
Archaeological Consulting Services
1515 NW 136th Street
Vancouver, WA 98685

DATE: March 23, 2012

ACS Letter Report No. 182:

Archaeological Investigation for the Sahalee Water & Sewer Improvement Project in Ilwaco, Pacific County, Washington

This letter report presents the results of an archaeological investigation conducted for the proposed Sahalee Water and Sewer Improvement Project in Ilwaco, Pacific County, Washington. The archaeological study was conducted in support of Gray & Osborne's, Inc., planning, design, and engineering efforts for the City of Ilwaco. Because federal funds from the US Department of Agriculture (Rural Development) are being used, the report was prepared to satisfy archaeological requirements pursuant to Section 106 of the National Historic Preservation Act (as amended) of 1966.

The field work was conducted by Archaeologist/Project Manager, Robert A. Freed, on March 19, 2012. *No archaeological material was recorded during the investigation, and no further archaeological work is recommended.*

Project Location, Setting, and Description

The project is located in SW 1/4, Section 33, T10N, R11W, in Pacific County on the Cape Disappointment, WA, USGS Quadrangle map (Figure 1). The project area is located in the Sahalee Subdivision, 0.5 miles southwest of the Ilwaco city center, and several hundred feet north of the Columbia River and Baker Bay (Figure 2). The residential neighborhood, constructed in the 1970s, is set within a steep hillside from an elevation of 45 feet above mean sea level (amsl) where Klahanee Drive and Loop 100/Robert Gray Drive intersect on the south to an elevation of 265 feet amsl at the north end of Wecoma Place. The residential lots have been graded to accommodate siting of the structures with steep slopes present on most of the remaining portion of the parcel. The land between Ilwaco and Cape Disappointment, several miles to the southwest, is characterized by sheer, basaltic headlands plunging down to the Pacific Ocean and steeply sided landforms created by ancient basalt flows. The area's abundant precipitation supports a typical Pacific Northwest Coast forest consisting of Douglas fir, red cedar, Sitka spruce, and alder with a dense understory comprised of salal, fern, salmonberry, elderberry, and Oregon grape.

The project consists of replacing the aging sewer and water lines under the existing streets in the subdivision (Figure 3). All work will be conducted within the asphalt-surfaced streets which are 18 to 20 feet wide and lack shoulders. The existing water and sewer lines are composed of asbestos concrete pipe with six-inch diameters, are buried three and five feet deep (respectively), and will be abandoned in place. The new eight-inch-diameter lines will be installed at the same depth with three-foot-wide trenches needing to be excavated within the streets. Sewer line construction will affect Wecoma Place, Nesadi Drive, Hiaqua Place, Klahanee Drive, and Loop 100 for 3,255 linear feet and the water line construction will affect Wecoma, Hiaqua, and Nesadi for a total of 2,345 linear feet. Because the water and sewer lines don't completely overlap, the total length of streets being affected is 3,715 linear feet. An additional 2,000 linear feet of lines are being abandoned in place in the subdivision without any further construction or ground disturbance. These lines were not examined.

The second component of the project consists of replacing an existing lift station adjacent to Loop 100 about 240 feet east of Klahanee Drive. Construction will include installing a wet well and meter vault ten feet below grade adjacent to the existing station and also erecting an electrical panel attached to support poles set in a concrete pad. The existing lift station is set 10-12 feet below the ground surface. A portion of the facility will be removed by excavating two feet into the ground and filling the remainder of the site with sand. The entire lift station area measures 30 by 20 feet.

The Area of Potential Effect (APE) measures 3,715 feet long by 20 wide (i.e., 74,300 square feet) to account for the water and sewer line construction and 600 square feet for the pump station. The total area to be affected is 1.7 acres.

Records & Background Research

The Department of Archaeology and Historic Preservation (DAHP)–the agency that houses the official archaeological site forms and records for the State of Washington–was consulted for information regarding the presence of known cultural resources and previous investigations in the project area and vicinity. This data base was accessed via WISAARD..

No portion of the project area has previously been examined, nor have archaeological sites previously been recorded in the project area. A portion of the project area–the lower 600 feet of Klahanee Place and the lift station location–lie within the Cape Disappointment Historic District, a property that was placed on the National Register of Historic Places (NRHP) in 1975. According to the nomination form and Hussey (1957), the historic district is the site of Fort Canby which operated from 1862 to 1947. The district's significance is derived from the site's defensive fortifications that protected the mouth of the Columbia River and the navigational importance of the Cape Disappointment area as it relates to waterway transportation along the Columbia River. Numerous historic structures, including the Cape Disappointment (45PC59) and North Head lighthouses (45PC58), are present within the district. The north jetty area has also achieved engineering significance for its role in facilitating river transportation.

The ownership of the district is currently shared by Washington State and Federal governmental agencies (i.e., the US Bureau of Land Management, US Coast Guard, US Army Corps of Engineers, and Washington State Parks & Recreational Commission), although the northeast corner (including the portion of the Sahalee subdivision located within the current project area) is privately owned. The main fort area is located two miles to the west and south of the subdivision. The nomination form contains no explanation for the delineation of the District's north boundary which has been drawn as a straight line due east from the north side of North Head on the Pacific Ocean to the Columbia River. This boundary line may have been drawn arbitrarily as no previous Federal involvement is known in the northeast portion of the district and no historic features have been identified. Historic district related activities most likely occurred further to the southwest. The north boundary line for the Military Reservation indicated on 19th century Government Land Office (GLO) maps is parallel to the Historic District boundary but 2,200 feet further south.

The closest recorded historic features are between 0.5-1 mile to the southwest. These resources include a pump station foundation (45PC112), a segment of a Coast Guard road (45PC113), and the remains of dynamite storage sheds (45PC114) (Smith and Fagan 2003a). The most extensive study in Fort Canby State Park was also conducted by Smith and Fagan (2003b) who investigated high archaeological probability areas in preparation of the park's master plan. Two prehistoric archaeological sites (45PC116-117) and four historic archaeological sites (45PC115 & 118-120) were recorded; furthermore, no evaluation of the sites was conducted. These resources are located 1.5-2 miles west and south of the project area.

Other archaeological investigations conducted in the general area include Luttrell's study (2010) for the Washington State Park & Recreation Commission's (WSPRC) Gateway Center

Development Project 0.5 mile to the northwest. Several other archaeological investigations that were conducted in Cape Disappointment State Park (formerly known as Fort Canby State Park) include Kelley (2005); Pullen (2001); and Stilson (1987) with no resources being identified.

The location of the closest recorded prehistoric archaeological site (45PC1) is believed to be 0.3 mile east of the current project area. As reported by an informant in 1948, Hudziak and Smith recorded the site as a Chinook village and burial area which had been located on a spit of land reaching out onto the Columbia's tidal flats. The informant indicated the site had undergone extensive looting and now exists under a developed portion of Ilwaco. Hudziak and Smith also recorded site 45PC2 which was located 1.5 miles to the east on the tidal flats of the Columbia River at the mouth of the Wallacut River. Informants suggested the site was a seasonal fishing village and flooding had recently deposited eight feet of fill on the site prior to its recording. Neither site was visited by the recorders.

In 1848 Captain James Johnson filed the first land claim in the Ilwaco area and later sold it to Issac Whealdon in 1859 (Williams 1930). An early transportation route developed between Shoalwater Bay (now known as Wilapa Bay) to the north and Baker Bay, on which Ilwaco is situated. This route was by way of Johnson's Lake (now known as Black Lake and just north of downtown Ilwaco), at the south end of which a dock was constructed to haul oysters and freight to Baker Bay. Ilwaco developed as a port for the early steamer run between the town and Astoria, Oregon (Williams 1930). Originally established as Unity by Whealdon in 1868 to commemorate the end of the Civil War, Ilwaco later developed from a transportation hub to an important salmon fishing port and was renamed to honor the Chinook Indian subchief, El-wah-ko or Elowahka Jim who was the son-in-law of Chief Concomly (Phillips 1971; Kirk & Alexander 1990). James Holman subsequently platted the town with the name of Ilwaco in the mid-1870s (Weathers 1989).

Nearby historic sites in the downtown Ilwaco area include the Colbert House at Quaker and Kale streets. Constructed in 1872 in Chinookville several miles to the east, the house was moved in 1883 and placed on the NRHP in 1977. The nomination form refers to the house as "....vernacular architecture at its best...." The house was built by Fred Colbert, one of the earliest trap fisherman on the lower Columbia. The house is now owned by the WSPRC, and the garage is the only surviving outbuilding.

The Ilwaco Railroad Freight Depot is also located in downtown Ilwaco at 127 Lake Street after having been moved from First Street, according to the Washington State Historic Property Inventory. Now part of the Columbia Pacific Heritage Museum complex, the depot was the southern station for the Ilwaco Railway & Navigation Company's (IRNC) narrow-gauge line, known as the *Clamshell Railway*, that terminated at Nahcotta 14 miles to the north. The line, which transported passengers and freight from the steamships to Nahcotta, was unusual in that it did not connect with other rail lines. Also at the museum is the IRNC's passenger car, the *Nahcotta*, which was manufactured by the Pullman Palace Car Company in 1889 and placed on the NRHP in 2010. The car is thought to be one of the last remaining narrow-gauge, Pullman passenger coaches in the country.

The GLO (1859-188) maps for T10N/R11W and T9N/R11W were examined. The 1859 GLO indicated the J. D. Holman Donation Land Claim (DLC) No. 117 had been filed in the northwest quarter of Section 33. The only other features noted were Black Lake and a small lake on the western edge of present-day downtown Ilwaco. The latter is variously referred to on other maps–such as the Sanborn series–as Holman, Fords, or Fords Dry lake. The latter name is used on present-day USGS maps which also show Holman as the name given to a small community 1.5 miles to the north-northwest of Ilwaco. In 1859 a Military Reservation boundary was established from the south side of North Head due east to the Columbia River and about 2,200 feet south of the current project area. A lighthouse reservation is present at the very southern tip of Cape Disappointment which was referred to as Cape Hancock at the time. The 1859 GLO indicates James W. Cameron held DLC No.38 which included the current project area but was later revoked in 1874.

The Ilwaco Sanborn Fire Insurance Maps (1909, 1929, & updated 1929) were also reviewed, but the series does not extend its coverage to the project area.

Field Investigation

The field investigation was conducted on March 19, 2012. The entire length of the water and sewer line replacement project was examined by walking transects along the edge of all streets in both directions. The purpose of the visual examination was to examine all ground surface exposures and identify areas that may potentially contain cultural resources. The entire project area is covered with asphalt and/or compacted gravel with no soil surface exposures of the construction areas available for inspection. Buried utility lines (i.e., electrical, telephone, cable, etc.) are present along the streets for virtually the entire length of the project, and numerous above-ground utility vaults are present adjacent to the street throughout the neighborhood. Sewer main manholes are also present in the asphalted surface. Visual examination of all ground surface exposures adjacent to the streets was conducted, where available.

Both water and sewer lines will be installed in 560-foot-long Wecoma Place (Figure 4). Six residences and one apartment building are present along the street which ends in a cul de sac. Grass lawns and landscaped gardens directly border the street in several areas. Driveways accessing the structures are composed of either asphalt or compacted gravel. The only surface exposures consisted of a couple of roadcuts and tire ruts remaining in the soil at the edge of the pavement. A segment of the street is built on fill over a drainage where a culvert is present.

All four streets meet near the middle of the project area. This intersection has been graded level and gravel deposited and compacted on the east side. Hiaqua Place heads east from this intersection along a ridge to a cul de sac (Figure 5). About 410 feet of sewer line and 590 feet of water line will be installed. The latter continues through a residential lot at the cul de sac to join Nesadi Drive behind it. Nine residences are located along Hiaqua, all with gravel or asphalt-surfaced driveways. A grassy strip was present along the north side where a steep hillside is located and a gravel strip along the south side.

From the four-way intersection, Nesadi Drive proceeds to the southeast, dips down along the steep hillside, and then regains elevation where it also ends in a cul de sac (Figure 6). About 965 feet of sewer line and 1,245 feet of water line are to be constructed. Seven residences are present, also with either gravel or asphalt-surfaced driveways. A portion of the hillside above the street recently had trees and vegetation removed; consequently, ground surface exposures were available for inspection. In another location, landscaping timbers were eroding from the hillside exposing a sandy, loamy fill.

The 1,080-foot-long sewer line in Klahanee Place begins 100 feet downhill from the four-way intersection on road fill over another drainage and culvert (Figure 7). Eight residences are present along this very steep hillside with house sites having been excavated into the slopes. Several exposed roadcuts on the south or west side of the street were available for examination. Some soil exposures were present from tire ruts adjacent to the street. A couple of the lots on the north or east side have their slopes covered with rock riprap. A 200-foot-long strip on this side was covered with either gravel or asphalt. Gravel-surfaced Ilahee Place intersects with Klahanee on the latter's north side midway up the slope.

At the bottom of the hill, Klahanee Place joins Loop 100/Robert Gray Drive which is the main thoroughfare between Ilwaco and Cape Disappointment State Park. A 240-foot-long sewer line segment will be constructed between Klahanee and the lift station to the east. A drainage passes through a culvert under the road halfway between the lift station and Klahanee. The lift station location has been excavated into the hillside where a residential driveway meets Loop 100 (Figure 8). The entire surface is covered with compacted gravel. Dense vegetation prevented an inspection of the hillside cut.

No shovel probes were excavated since the entire project area was covered by an impenetrable surface of either asphalt or compacted gravel. In addition, buried utility lines are present adjacent to both sides of the streets for virtually the entire route, thereby precluding subsurface probing.

Summary and Recommendations

The archaeological investigation did not identify any evidence of prehistoric or historic archaeological remains. Very little ground surface was available for examination, as most of the project area is covered by asphalt and/or compacted gravel (including the lift station location). Shovel probing was not possible within the streets because of the asphalt and compacted gravel surfaces or along the edges of the streets due to the presence of buried utility lines. The currently proposed water and sewer line replacement project most likely will not affect areas that have not been previously disturbed; consequently, it is highly unlikely that construction would encounter intact cultural materials. In view of the findings, no further archaeological work is recommended.

In the unlikely event that construction does expose buried cultural material that was not detected during the archaeological investigation, Washington state laws are explicit about the protection of prehistoric and historic sites (RCW 25.53.060–Archeological Sites and Resources) and Indian burials (RCW 27.4.020–Indian Graves and Records). In the event that such cultural resources are encountered, the DAHP must be promptly notified. Work in the immediate vicinity of the find should be halted until the significance of the discovery can be evaluated by a professional archaeologist, and a course of action determined and implemented in consultation with the appropriate Tribes and DAHP archaeologist.

References

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1987 *Cultural Resource Assessment of A Hyper-fix Navigational Beacon Antenna Near the U. S. Coast Guard Lighthouse at North Head, Pacific County, Washington.* Peak & Associates, Inc.

Weathers, Larry J.
1989 *Place Names of Pacific County.* The Sou'wester 24(1-4): 19-20.

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1930 *Our Pacific County.* Published by the Raymond Herald.

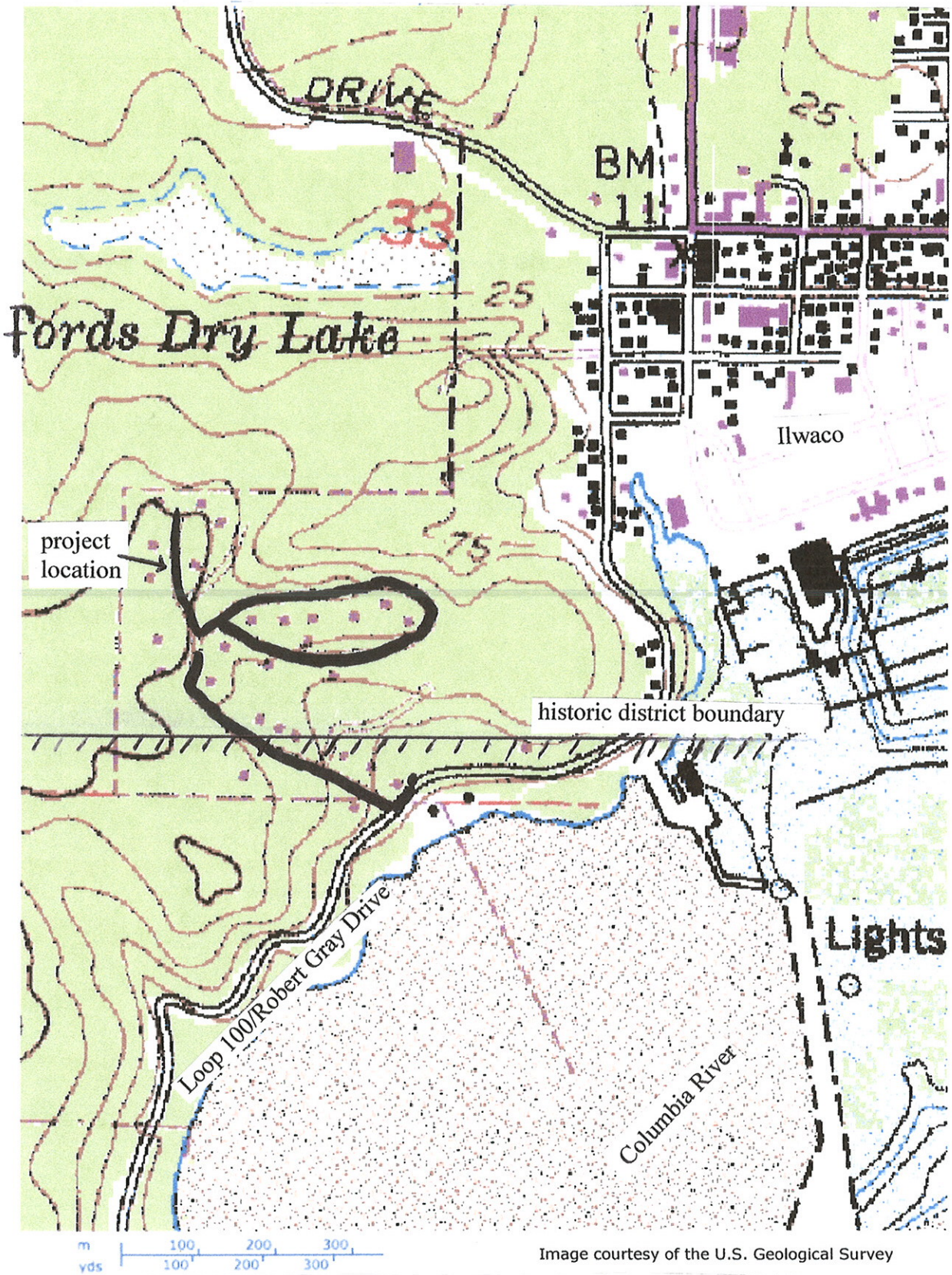
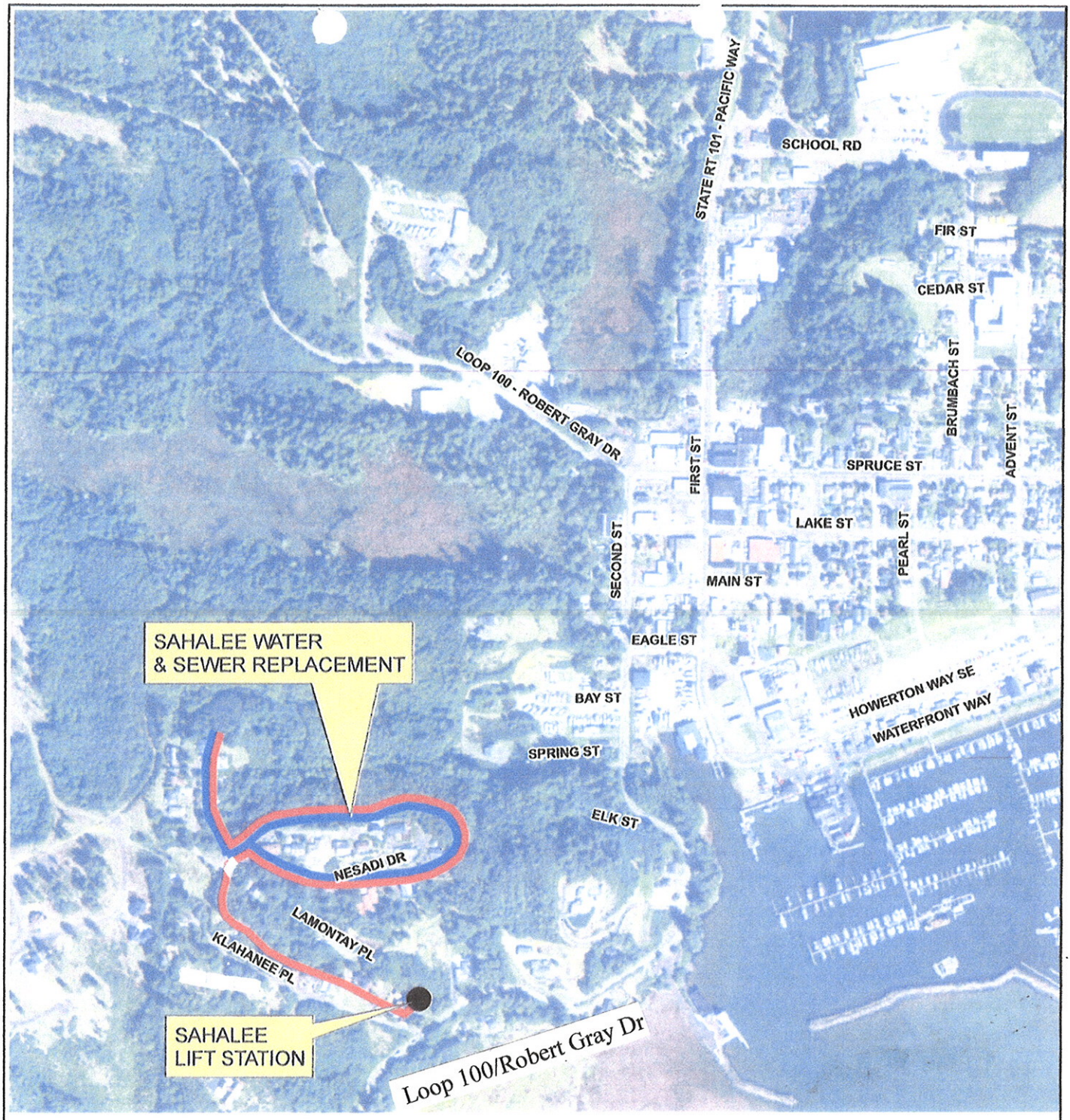


FIGURE 1. PROJECT LOCATION
CAPE DISAPPOINTMENT, WA, USGS QUADRANGLE MAP



REPLACEMENT TYPE:

- SEWER
- WATER

N

0 300 600 1,200 Feet

CITY OF ILWACO

SAHALEE WATER & SEWER REPLACEMENT PROJECT

FIGURE 2. Project Area

Gray & Osborne, Inc.
CONSULTING ENGINEERS

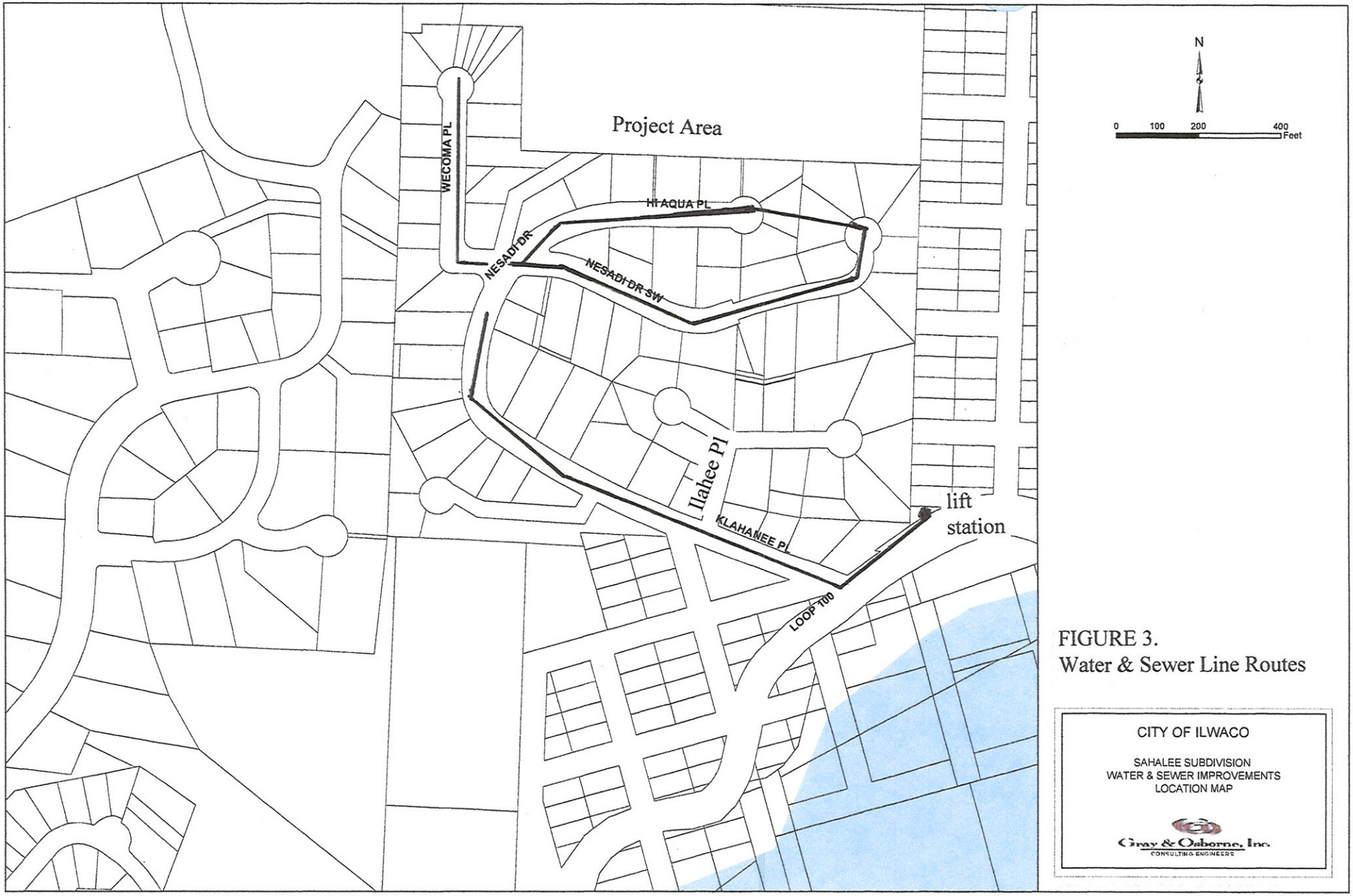


FIGURE 3.
Water & Sewer Line Routes

CITY OF ILWACO

SAHALEE SUBDIVISION
WATER & SEWER IMPROVEMENTS
LOCATION MAP

Gray & Osborne, Inc.
CONSULTING ENGINEERS

FIGURE 4. View of the Wecoma Place alignment looking to the north. Drainage and culvert are under the road in the middle of the photo between the grassy areas.

FIGURE 5. View of the Hiaqua Place alignment looking to the east. The street ends in the cul de sac in the background.

FIGURE 6. View of the Nesadi Drive alignment looking to the west. Note sewer manhole at the lower left.

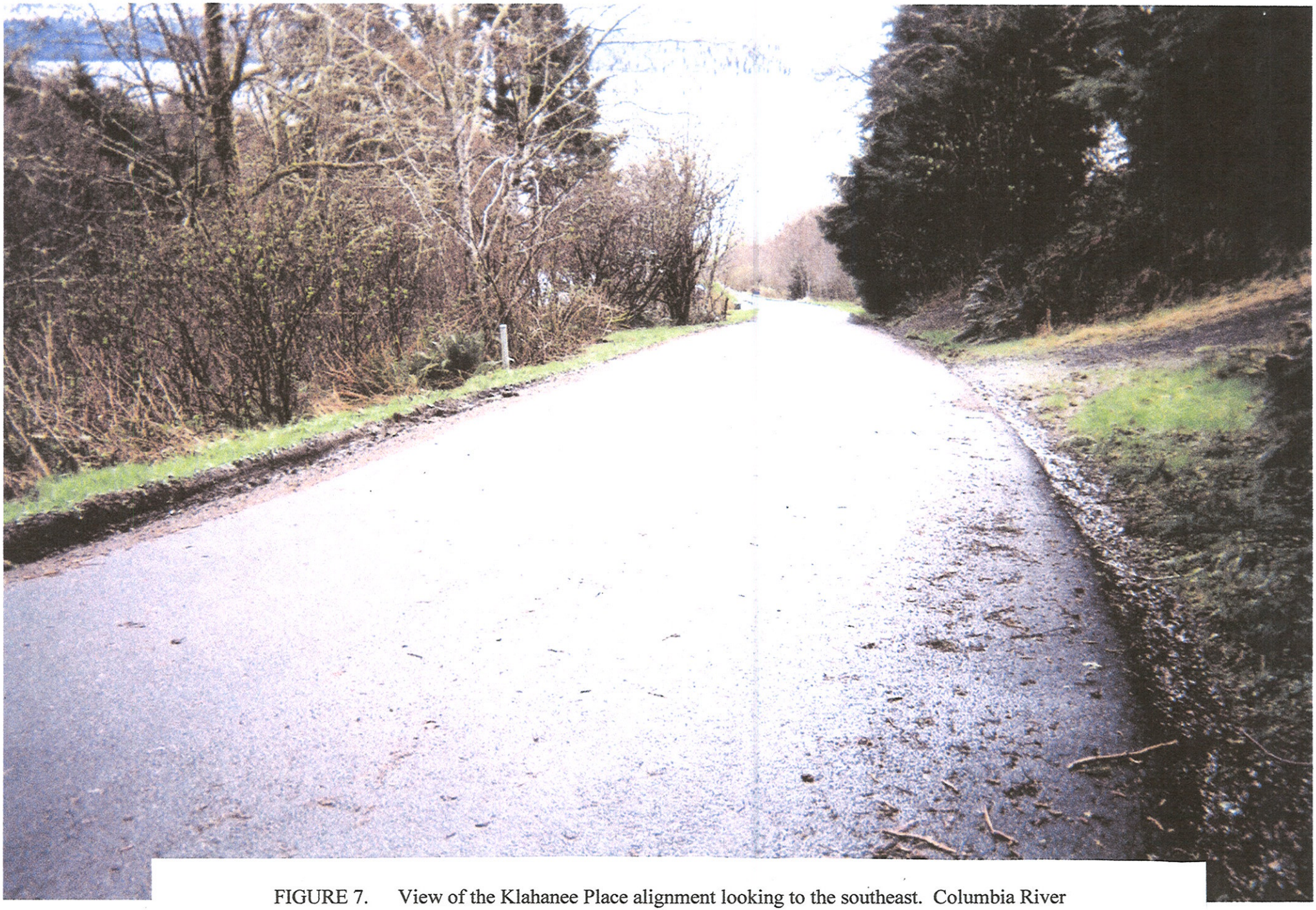


FIGURE 7. View of the Klahanee Place alignment looking to the southeast. Columbia River is in the background.

FIGURE 8. View of the Sahalee Lift Station looking to the north. Loop 100/Robert Gray Drive is in the foreground and a residential driveway on the left.

Jim Dougherty

From: Nancy Lockett [nlockett@g-o.com]
Sent: Friday, March 23, 2012 11:58 AM
To: jdougherty@g-o.com
Subject: FW: FW: Sahalee pdf

Nancy Lockett, P.E.
Gray & Osborne, Inc.
701 Dexter Ave N. Suite 200
Seattle WA, 98109

Ph(206)284-0860
Fx(206)283-3206

Electronic File Transfer-

-----Original Message-----
From: Robert Freed [mailto:robarbara@earthlink.net]
Sent: Tuesday, March 20, 2012 6:12 PM
To: Nancy Lockett
Subject: RE: FW: Sahalee pdf

Hi Nancy:

I got back this afternoon from the trip. Everything went well; didn't find anything or have any problems. Yesterday was a reasonably fair weather day....just snow flakes in the early morning.

I printed the pdf. The street names are very small and barely readable. Also the lines of the streets and parcels are very faint and not very discernible. Is there a way to enhance these?

Thanks,

Rob

> ----- Original Message -----
> **From:** Nancy Lockett
> **To:** robarbara@earthlink.net
> **Sent:** 3/20/2012 2:50:42 PM
> **Subject:** FW: Sahalee pdf
>
> Bob,
>
> Here is a figure for you to use for your report.
>
> Nancy
>
> Nancy Lockett, P.E.
> Gray & Osborne, Inc.
> 701 Dexter Ave N. Suite 200

Seattle WA, 98109

Ph(206)284-0860
Fx(206)283-3206

Electronic File Transfer-

-----Original Message-----
From: Mike Seidel [mailto:mseidel@g-o.com]
Sent: Tuesday, March 20, 2012 1:59 PM
To: nlockett@grayandosborne.com
Subject: Sahalee pdf

Nancy,

Sending pdf, see attached.

Michael

The Cultural Resources Report for the Sahalee Water, Sewer & Lift Station Replacement Project being prepared by Rob Freed of Archaeological Consulting Services will be forwarded to Janice Roderick & Debbie Harper upon receipt.

Jim Dougherty

From: Jim Dougherty [jdougherty@g-o.com]
Sent: Tuesday, March 13, 2012 10:55 AM
To: 'robarbara@earthlink.net'
Cc: 'nlockett@g-o.com';'Harper, Debbie - RD, Olympia, WA';'Roderick, Janice - RD, Olympia, WA'
Subject: FW: Ilwaco Sahalee H20 & Sewer Line Project cultural resources Report background information

Sahalee Water & Sewer _001.pdf...

Hi Rob!

The City of Ilwaco is applying for USDA Rural Development funding to replace aging water and sewer infrastructure in the Sahalee Subdivision west of downtown Ilwaco. Infrastructure to be replaced includes:

1, The Sahalee Lift Station, which would be replaced with a submersible station near the existing structure.

2. Sewer mains would be eplaced throughout the Sahalee Subdivision. The repair or replacement of sewer mains in is a priority project based on the potential for sewer breaks and leaks and the poor reliability of the Sahalee Lift Station. All new sewer mains will be installed within the existing road ROW, though some new lines will be routed to the opposite side of the roadway to avoid unstable slopes and potential slumping or exposure due to ground movements in steep areas. Sewer lines will be replaced in Nesadi Drive, Hiaqua Place, Wecoma Place and Klahanee Place en route to the Sahalee Lift Station Site; depth of excavation will be approximately five feet for the sewer mains and approximately ten feet for the new lift station.

3. Water mains will be replaced in Nesadi Drive, Hiaqua Place and Wecoma Place and the depth of excavation will be approximately three feet.

4. The total length of water & sewer main replacements will be approximately 3,000 feet.

NOTE: The lower/southern portion of Klahanee Place and the Sahalee Lift Station are located within the Cape Disappointment Historic District.

Plese provide me with a scope of work and budget for preparation of an Archaeological/Historic/Cultural Resources Report suitable for National Historic Preservation Act, Section 106, consultation with the Washington Department of Archaeology and Historic Preservation and any concerned Tribes. The City of Ilwaco has budgeted $3,000 to $4,000 for this work.

USDA must complete obligation of the funding for which the City is applying by April 1, 2012, so this work should be completed as soon as possible.

Please call either Nancy Lockett, PE, or me at the number below with any questions.

Thanks,

Jim Dougherty
206 284-0860

-----Original Message-----
From: attachment(s) from G&O [mailto:grayosborne@g-o.com]
Sent: Tuesday, March 13, 2012 10:23 AM
To: Dougherty, J
Subject: Ilwaco Sahalee H20 & Sewer Line Project

Sewer & water mains and lift station to be replaced in Ilwaco's Sahalee Subdivision

GRAY & OSBORNE, INC.
TELEPHONE/MEETING CONVERSATION RECORD

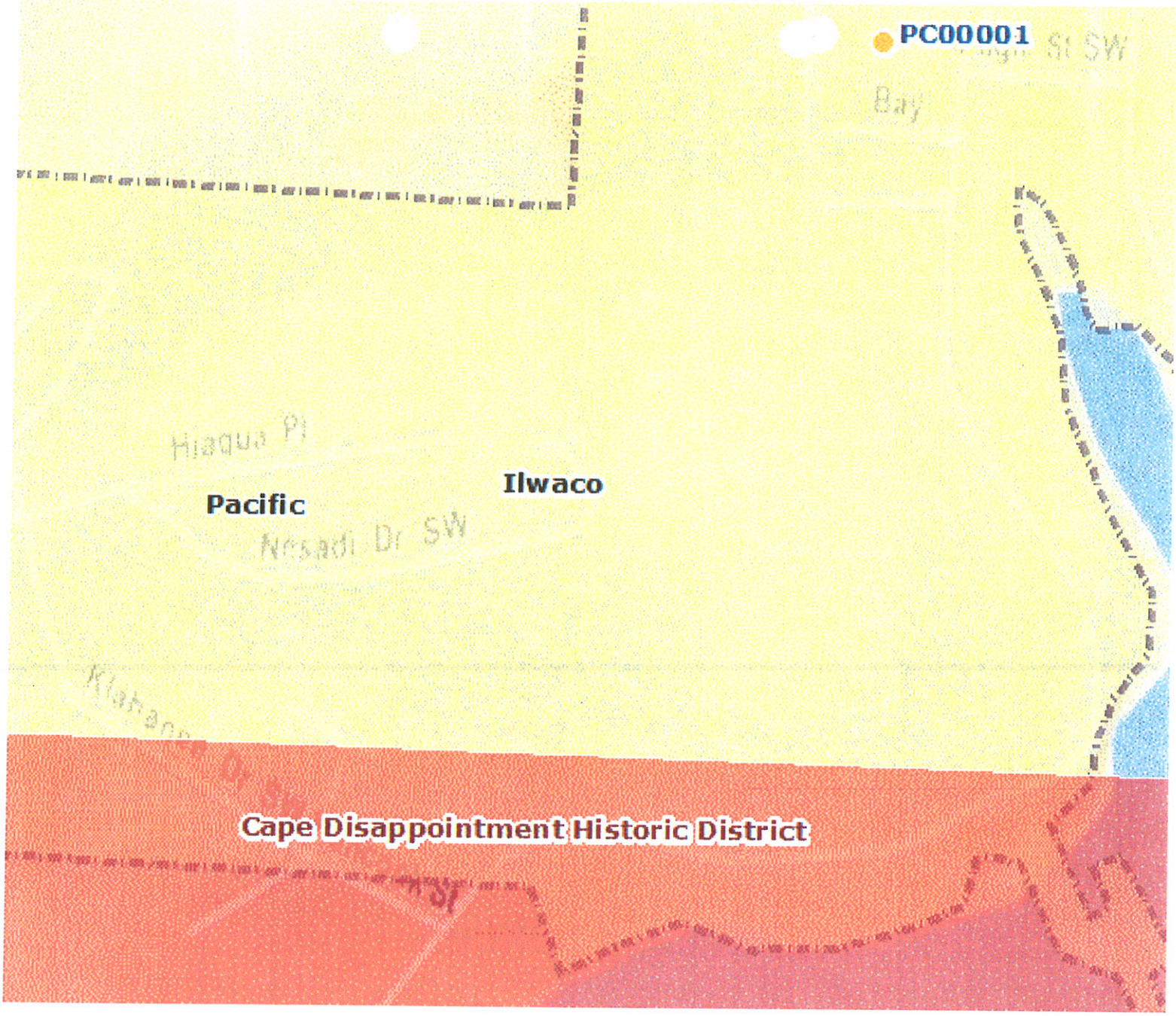
☒ **Telephone Conversation**	**Location of Phone Conversation:** GRAY & OSBORNE INC.
☐ **Meeting**	**Place of Meeting:**

Date:	3-7-2012		0800	
Discussion with:	Rob Whitlam			
Firm/City with:	Washington DAHP			
Phone Number:	360 586-3080			
Gray & Osborne Personnel:	Jim Dougherty			
Project:	Sahalee RD Application			
Subject:	Cape Disappointment Historic District			
G&O Job Number:	20124.61			

REMARKS:

I called Rob Whitlam, State Archaeologist, for his take on the issues associated with the Cape Disappointment Historic District and its potential impact on the Environmental Report for the City of Ilwaco's application for RD funding for replacement of sewer mains in Klahanee Drive SW in the Sahalee Subdivision. He said that the Historic District boundaries were established in 1975 and that it would take a long time to modify them. He recommended having a cultural resources specialist walk the site, research the historic district and prepare a report. He was thinking that the worst that could happen is that an Archaeologist would need to be hired to observe excavation in the portion of Klahanee Drive SW that lies within the historic district.

I did explain that the roadway, sewer lines to be replaced and the entire Sahalee Subdivision were all installed in the 1970s. Rob said he didn't think that the cultural resources survey and report would slow down the RD Environmental Review much if the City got started right away.

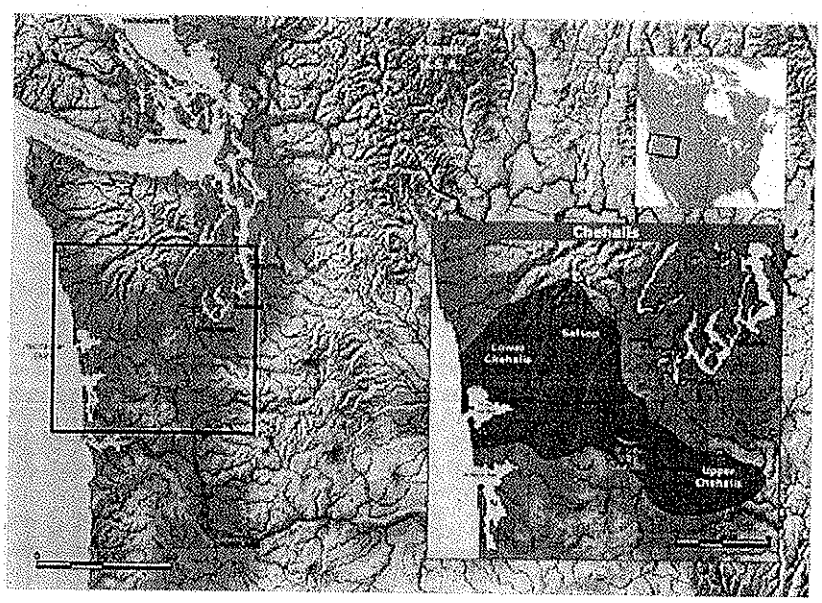

PC00001
Ilwaco
Pacific
Cape Disappointment Historic District

Chehalis people

From Wikipedia, the free encyclopedia
(Redirected from Confederated Tribes of the Chehalis Reservation, Washington)

The **Chehalis people** are a native people of western Washington state in the United States. They should not be confused with the similarly named Chehalis First Nation of the Harrison River in the Fraser Valley area of British Columbia.

The Chehalis of Washington consists of two divisions: The **Upper Chehalis** and the **Lower Chehalis**. Within these were several tribes: the Copalis, Wynoochee and Humptulips people were part of the Lower Chehalis, while the Satsop people were part of the Upper Chehalis. The boundary between the two groups was the confluence of the Chehalis River and Satsop River.



Chehalis (tribe)

The Chehalis language belongs to the Coast Salish family of languages among Northwest Coast indigenous peoples.

Like many Northwest Coast natives, the Chehalis relied on fishing from local rivers for food and built plank houses (longhouses) to protect themselves from the harsh, wet winters west of the Cascade Mountains.

The Chehalis people settled on their current **Chehalis Indian Reservation** along the Chehalis River in 1860. The reservation has a land area of 18.188 km² (7.022 sq mi) in southeastern Grays Harbor and southwestern Thurston Counties. As of the 2000 census its resident population was 691 persons. The major communities within the reservation are Chehalis Village and part of the city of Oakville.

References

- Chehalis Reservation, Washington (http://factfinder.census.gov/servlet/DTTable?_bm=y&-context=dt&-ds_name=DEC_2000_SF1_U&-CHECK_SEARCH_RESULTS=N&-CONTEXT=dt&-mt_name=DEC_2000_SF1_U_P001&-mt_name=DEC_2000_SF1_U_P003&-tree_id=4001&-all_geo_types=Y&-redoLog=false&-transpose=N&-_caller=geoselect&-geo_id=25000US0575&-geo_id=27300US0575530279228811568&-geo_id=27300US0575530279228850430&-search_results=ALL&-format=&-fully_or_partially=N&-_lang=en&-show_geoid=Y) United States Census Bureau

National Park Service
U.S. Department of the Interior

National NAGPRA Online Databases

NACD Query Results

Full Data Report

Query input:

State = Washington
County = Pacific

The following 2 records for Federally recognized Indian tribe(s), Native Hawaiian organization(s), Alaska Native corporation(s), and/or their designated NAGPRA contact(s) have been identified:

- Confederated Tribes of the Chehalis Reservation, Washington
- Shoalwater Bay Tribe of the Shoalwater Bay Indian Reservation, Washington

The following 7 related records have been identified:

- Chehalis Tribe
- Chinook Tribe and Bands of Indians
- Hoquiam Tribe
- Humptulip Tribe
- Lower Chehalis Tribe
- Satsop Tribe
- Upper Chehalis Tribe

There are 9 total records

Full Data Report

Confederated Tribes of the Chehalis Reservation, Washington

Federally Approved NAGPRA Entity: Yes

Entity Type(s):

- Federally Recognized Indian Tribe
- Plaintiff in Land Claims Case

Authority:

- BIA Recognized Indian Entities, Federal Register, Nov. 25, 2005
- Indian Claims Commission

Last Update To Information: 05/12/2011

Contact(s)	**Authority**
Ms. Elaine Sutterlict Confederated Tribes of the Chehalis Reservation P.O. Box 536 Oakville, WA 98568 360-273-5911 360-273-5914 FAX	
NAGPRA Contact	Letter From Tribal Official

Contact(s)	**Authority**
Mr. David Burnett Confederated Tribes of the Chehalis Reservation P.O. Box 536 Oakville, WA 98568 360-273-5911 360-273-5914 FAX chairman@chehalistribe.org	
Chairperson	BIA Tribal Leaders Directory, Spring 2011

Related Tribes/Villages:

Used For Upper Chehalis (Also Known As)
Used For Lower Chehalis (Also Known As)
Used For Upper Chehalis Tribe (Also Known As; Plaintiff in Land Claims Case)
Used For Lower Chehalis Tribe (Also Known As; Plaintiff in Land Claims Case)
Used For Chehalis Tribe (Also Known As; Plaintiff in Land Claims Case)
Used For Satsop Tribe (Also Known As; Plaintiff in Land Claims Case)
Used For Humptulip Tribe (Also Known As; Plaintiff in Land Claims Case)
Used For Hoquiam Tribe (Also Known As; Plaintiff in Land Claims Case)

Reservation Name(s):

State	County	Reservation Name
WA	Grays Harbor	Chehalis Indian Reservation
WA	Lewis	

State(s) and County(ies) Inhabited:

State	County

Land Area Claims:

St	County	Land Claim Authority	Map ID
WA	Grays Harbor	Indian Claims Commission decision	Land Claims Map ID # 173
WA	Mason		
WA	Pacific		
WA	Grays Harbor	Indian Claims Commission decision	Land Claims Map ID # 174
WA	Lewis		
WA	Mason		
WA	Pacific		
WA	Thurston		

Identified by Tribe as Being of Particular Interest
Not provided

Full Data Report

Shoalwater Bay Tribe of the Shoalwater Bay Indian Reservation, Washington

Federally Approved NAGPRA Entity: **Yes**

Entity Type(s):

- Federally Recognized Indian Tribe

Authority:

- BIA Recognized Indian Entities, Federal Register, Nov. 25, 2005

Last Update To Information: 04/11/2006

Contact(s)	Authority
Ms. Charlene Nelson Shoalwater Bay Tribe of the Shoalwater Bay Indian Reservation, Washington P.O. Box 130 Tokeland, WA 98590 360-267-6766 360-267-6778 FAX cnelson@shoalwaterbay-nsn.gov No Date Chairperson	BIA Tribal Leaders Directory, Spring 2011

Related Tribes/Villages:
Used For Chinook (Also Known As)
Used For Clatsop (Also Known As)
Used For Chinook Tribe and Bands of Indians (Also Known As; Plaintiff in Land Claims Case)

Reservation Name(s):

State	County	Reservation Name
WA	Pacific	Shoalwater Bay Indian Reservation

State(s) and County(ies) Inhabited:

State	County

Land Area Claims:

St	County	Land Claim Authority	Map ID
OR	Clatsop	Indian Claims Commission decision	Land Claims Map ID # 105
WA	Pacific	Indian Claims Commission decision	Land Claims Map ID # 176

Identified by Tribe as Being of Particular Interest
Not provided

Full Data Report

Chehalis Tribe

Federally Approved NAGPRA Entity: **No**

Entity Type(s):

- Also Known As
- Plaintiff in Land Claims Case

Authority:

- Indian Claims Commission

Last Update To Information: 04/15/1997

Related Tribes/Villages:

Use Confederated Tribes of the Chehalis Reservation, Washington (Federally Recognized Indian Tribe; Plaintiff in Land Claims Case)

Reservation Name(s):

State	County	Reservation Name

State(s) and County(ies) Inhabited:

State	County

Land Area Claims:

St	County	Land Claim Authority	Map ID
WA	Grays Harbor	Indian Claims Commission decision	Land Claims Map ID # 173
WA	Mason		
WA	Pacific		
WA	Grays Harbor	Indian Claims Commission decision	Land Claims Map ID # 174
WA	Lewis		
WA	Mason		
WA	Pacific		
WA	Thurston		

Identified by Tribe as Being of Particular Interest

Not provided

Full Data Report

Chinook Tribe and Bands of Indians

Federally Approved NAGPRA Entity: **No**

Entity Type(s):

- Also Known As
- Plaintiff in Land Claims Case

Authority:

- Indian Claims Commission

Last Update To Information: 10/06/1997

Related Tribes/Villages:
Use Shoalwater Bay Tribe of the Shoalwater Bay Indian Reservation, Washington (Federally Recognized Indian Tribe)

Reservation Name(s):

State	County	Reservation Name

State(s) and County(ies) Inhabited:

State	County

Land Area Claims:

St	County	Land Claim Authority	Map ID
OR	Clatsop	Indian Claims Commission decision	Land Claims Map ID # 105
WA	Pacific	Indian Claims Commission decision	Land Claims Map ID # 176

Identified by Tribe as Being of Particular Interest
Not provided

Full Data Report

Hoquiam Tribe

Federally Approved NAGPRA Entity: **No**

Entity Type(s):

- Also Known As
- Plaintiff in Land Claims Case

Authority:

- Indian Claims Commission

Last Update To Information: 04/18/1997

Related Tribes/Villages:
Use Confederated Tribes of the Chehalis Reservation, Washington (Federally Recognized Indian Tribe; Plaintiff in Land Claims Case)

Reservation Name(s):

State	County	Reservation Name

State(s) and County(ies) Inhabited:

State	County

Land Area Claims:

St	County	Land Claim Authority	Map ID
WA	Grays Harbor	Indian Claims Commission decision	Land Claims Map ID # 174
WA	Lewis		
WA	Mason		
WA	Pacific		
WA	Thurston		

Identified by Tribe as Being of Particular Interest

Not provided

Full Data Report

Humptulip Tribe

Federally Approved NAGPRA Entity: **No**

Entity Type(s):

- Also Known As
- Plaintiff in Land Claims Case

Authority:

- Indian Claims Commission

Last Update To Information: 10/27/1995

Related Tribes/Villages:

Use Confederated Tribes of the Chehalis Reservation, Washington (Federally Recognized Indian Tribe; Plaintiff in Land Claims Case)

Reservation Name(s):

State	County	Reservation Name

State(s) and County(ies) Inhabited:

State	County

Land Area Claims:

St	County	Land Claim Authority	Map ID
WA	Grays Harbor	Indian Claims Commission decision	Land Claims Map ID # 173
WA	Mason		
WA	Pacific		

Identified by Tribe as Being of Particular Interest

Not provided

Full Data Report

Lower Chehalis Tribe

Federally Approved NAGPRA Entity: **No**

Entity Type(s):

- Also Known As
- Plaintiff in Land Claims Case

Authority:

- Indian Claims Commission

Last Update To Information: 04/20/1997

Related Tribes/Villages:
Use Confederated Tribes of the Chehalis Reservation, Washington (Federally Recognized Indian Tribe; Plaintiff in Land Claims Case)

Reservation Name(s):

State	County	Reservation Name

State(s) and County(ies) Inhabited:

State	County

Land Area Claims:

St	County	Land Claim Authority	Map ID
WA	Grays Harbor	Indian Claims Commission decision	Land Claims Map ID # 173
WA	Mason		
WA	Pacific		

Identified by Tribe as Being of Particular Interest
Not provided

Full Data Report

Satsop Tribe

Federally Approved NAGPRA Entity: **No**

Entity Type(s):

- Also Known As
- Plaintiff in Land Claims Case

Authority:

- Indian Claims Commission

Last Update To Information: 05/13/1997

Related Tribes/Villages:

Use Confederated Tribes of the Chehalis Reservation, Washington (Federally Recognized Indian Tribe; Plaintiff in Land Claims Case)

Reservation Name(s):

State	County	Reservation Name

State(s) and County(ies) Inhabited:

State	County

Land Area Claims:

St	County	Land Claim Authority	Map ID
WA	Grays Harbor	Indian Claims Commission decision	Land Claims Map ID # 173
WA	Mason		
WA	Pacific		

Identified by Tribe as Being of Particular Interest

Not provided

Full Data Report

Upper Chehalis Tribe

Federally Approved NAGPRA Entity: **No**

Entity Type(s):

- Also Known As
- Plaintiff in Land Claims Case

Authority:

- Indian Claims Commission

Last Update To Information: 05/13/1997

Related Tribes/Villages:

Use Confederated Tribes of the Chehalis Reservation, Washington (Federally Recognized Indian Tribe; Plaintiff in Land Claims Case)

Reservation Name(s):

State	County	Reservation Name

State(s) and County(ies) Inhabited:

State	County

Land Area Claims:

St	County	Land Claim Authority	Map ID
WA	Grays Harbor	Indian Claims Commission decision	Land Claims Map ID # 174
WA	Lewis		
WA	Mason		
WA	Pacific		
WA	Thurston		

Identified by Tribe as Being of Particular Interest

Not provided

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APPENDIX E

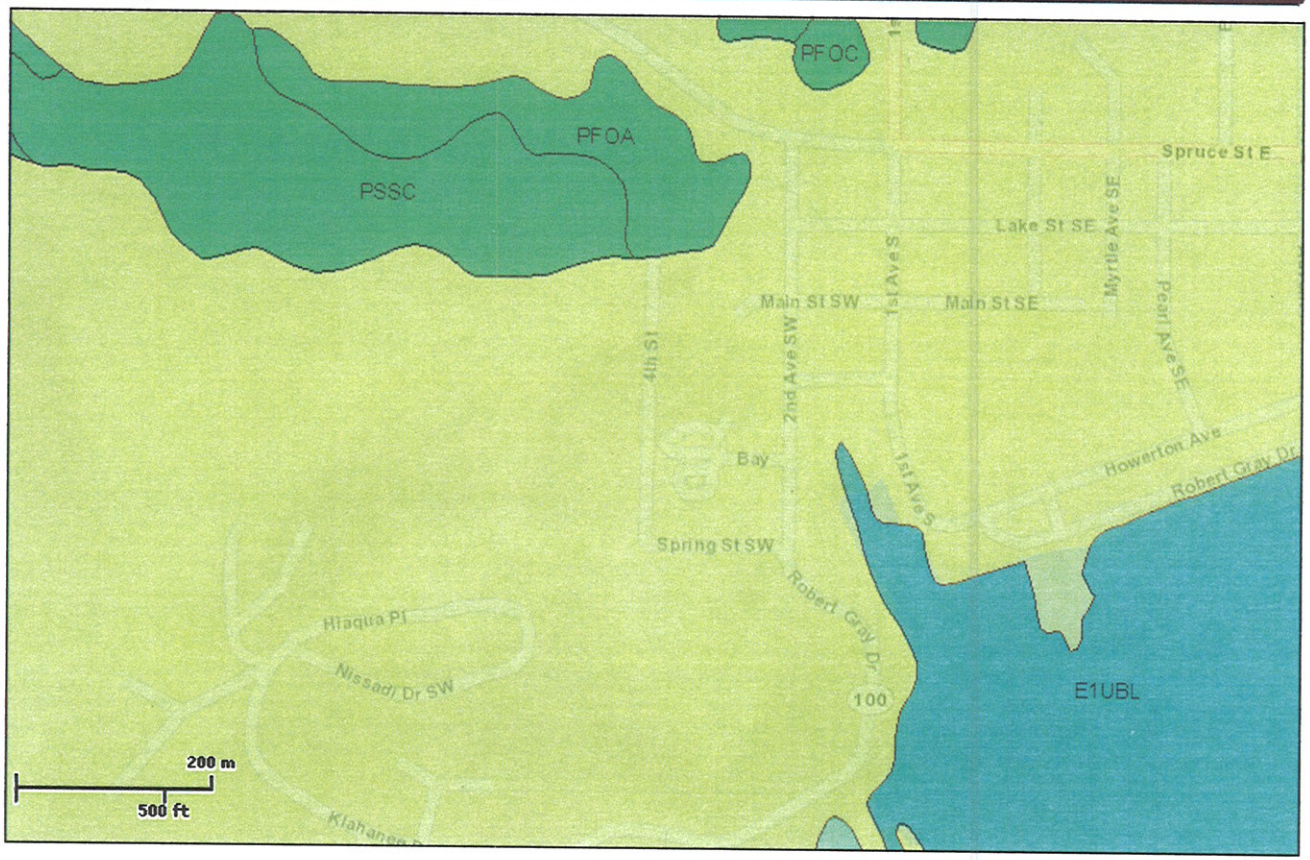
WETLANDS DELINEATION AND ASSESSMENT

U.S. Fish and Wildlife Service

National Wetlands Inventory

Ilwaco Wetland Map

Feb 18, 2012



Wetlands

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

Status

- Digital
- Scan
- Non-Digital
- No Data

User Remarks:

Sahalee Subdivision Wetland Map

APPENDIX D

SEPA CHECKLIST

WAC 197-11-960 **Environmental checklist.**

ENVIRONMENTAL CHECKLIST

Purpose of checklist:

The State Environmental Policy Act (SEPA), chapter 43.21C RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the agency identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the agency decide whether an EIS is required.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Governmental agencies use this checklist to determine whether the environmental impacts of your proposal are significant, requiring preparation of an EIS. Answer the questions briefly, with the most precise information known, or give the best description you can.

You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer, or if a question does not apply to your proposal, write "do not know" or "does not apply." Complete answers to the questions now may avoid unnecessary delays later.

Some questions ask about governmental regulations, such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the governmental agencies can assist you.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Use of checklist for nonproject proposals:

Complete this checklist for nonproject proposals, even though questions may be answered "does not apply." IN ADDITION, complete the SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (part D).

For nonproject actions, the references in the checklist to the words "project," "applicant," and "property or site" should be read as "proposal," "proposer," and "affected geographic area," respectively.

A. BACKGROUND

1. Name of proposed project, if applicable:
City of Ilwaco, 2013 Wastewater Facility Plan Update (Sahalee Subdivision Sewer Improvements)

2. Name of applicant: **City of Ilwaco**

3. Address and phone number of applicant and contact person:

120 First Avenue/PO Box 548, Ilwaco, WA 98624

360 642-3145

4. Date checklist prepared: **November 5, 2013**
5. Agency requesting checklist: **City of Ilwaco**
6. Proposed timing or schedule (including phasing, if applicable):

Submit Wastewater Facility Plan Update to Department of Ecology, November 2013

Apply to funding agencies for design funding December 2013

Design 2014

Construction date dependent upon funding.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

Future development could connect to the replaced sewer line.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

Archeological Investigation for the Sahalee Water & Sewer Improvement Project in Ilwaco, Pacific County, Washington (March 2012)
Sahalee Subdivision Water, Sewer and Pump Station Replacement Project, NEPA Environmental Report, (March 2012)
Informal ESA Consultation/Biological Assessment (March 2012)
Geotechnical Report, Nesadi Sanitary Sewer Replacement, (July 2013)

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

None at this time.

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

- **City ROW Utility Use Permit**
- **Pacific County Building Permit (Lift Station)**

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)
This SEPA checklist covers the update to the City of Ilwaco Wastewater Facility Plan specifically to addresses the need to replace the existing sanitary sewer collection system in the Sahalee Subdivision. The proposed plan to replace the existing sanitary sewers and lift station includes installation of approximately 4,500 LF of 8-inch diameter gravity sewer, 900 lf of 4-inch diameter forcemain, 4 grinder pump station including 730 lf of small diameter forcemain and one submersible lift station.

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

The City of Ilwaco is located in Pacific County at the mouth of the Columbia River in Washington State.

The Sahalee Subdivision is located in southwest portion of the City of Ilwaco. The Sahalee Subdivision is located in Township 10 North, Range 11 West, Sections 33 approximately one half mile west of Baker Bay & the Columbia River and 1.5 miles east of the Pacific Ocean. The new sewers will replace existing sewers in Wecoma Place, Hiaqua Place, Nesadi Drive, an unopened easement and right-of-way to the east and north of Nesadi Drive, Klahanee Place and Robert Gray Drive. The original sewers and lift station were installed in the mid 1970s.

B. ENVIRONMENTAL ELEMENTS

1. **Earth**

a. General description of the site (circle one): Flat, rolling, hilly, steep slopes, mountainous, other . . . . . .
The project area is located on the south east facing slope of the Sahalee hill. The topography of the Sahalee Subdivision ranges from approximately 100 feet to 275 feet above mean sea level. The downhill slope is steep however Hiaqua Place, Nesadi Drive and Robert Gray Drive run across the face of the hill and are rolling.

b. What is the steepest slope on the site (approximate percent slope)?
Approximately 15% slope on Klahance Place.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.

The project area is underlain by the Crescent Formation which is an Eocene-aged, pillowed, columnar-joined and massive basalt. Siltstone, consisting of dark gray, thin-bedded, laminated, indurated tuffaceous siltstone, and sandstone. Colluvium derived from the siltstone/sand is also found above the native siltstone/sandstone (PanGeo, 2013). Steep slopes in the subdivision may be prone to shallow slope instability and creep (PanGeo, 2013).

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

Yes. Robert Gray Drive has experienced slope creep and shallow instability to the east of the Lift Station and there is evidence of slope creep and shallow instability along Nesadi Drive.

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.

Installation of the sanitary sewer will not require filling or grading other than trench backfill with import material if the native material is not suitable. Preparation of the lift station site may require minor grading (approximately 30 CY).

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

Erosion during construction could occur if disturbed soils are left uncovered during heavy rains. The construction plans will include complete erosion and sediment control plans and specifications to assure that erosion is minimized.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

No new impervious surfaces are planned or anticipated associated with the proposed sewer installations. Disturbed areas will be replanted or repaved in-kind.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

Construction BMPs for control of sedimentation and erosion will be implemented during construction.

2. **Air**

a. What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.

Minor amounts of exhaust from construction equipment and vehicles will be emitted during construction.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

No

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

Emissions control devices on construction equipment will be properly operated and maintained.

3. **Water**

a. Surface:

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

Baker Bay, an estuary of the Columbia River, is located approximately ½ mile to the southeast of the Sahalee Subdivision.

2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

No work will be done within 200 feet of any critical surface water body.

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

None.

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

No withdrawals or diversions are anticipated.

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

No.

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

No.

b. Ground:

1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.

Trenches excavated for sewer mains may encounter ground water, which will be filtered as necessary and then pumped to suitable infiltration areas as necessary.

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

None.

c. Water runoff (including stormwater):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

Ground disturbing activities associated with the proposed sewer main installation will occur during the drier summer months to minimize potential for stormwater runoff. Stormwater runoff will be allowed to

infiltrate into the porous soils. However, if the project extends into the wet season, appropriate Best Management Practices will be utilized per City and DOE Standards.

2) Could waste materials enter ground or surface waters? If so, generally describe.

The project will involve excavation of trenches for installation of sewer mains and a deeper excavation for the installation of the lift station. Waste materials will not be discharged to the excavations, therefore, the potential for waste materials entering surface or groundwater is low.

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

Construction BMPs for control of sedimentation and erosion (e.g. silt fences and straw bales) will be implemented during construction.

4. **Plants**

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

_____x_____ deciduous tree: alder, maple, aspen, other

_____x_____ evergreen tree: fir, cedar, pine, other

_____x_____ shrubs

_____x_____ grass

_____ pasture

_____ crop or grain

_____ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other

_____ water plants: water lily, eelgrass, milfoil, other

_____ other types of vegetation

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

Minimal disturbance to existing vegetation may occur during installation of the individual grinder pump stations on private property and during construction of the sewer lift station. Disturbed vegetation will be restored in-kind.

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

There are no federally protected Endangered or Threatened plant species in the County or the project areas. There are three Federal Plant Species of Concern in Pacific County, none of which are likely to be present within the City of Ilwaco rights-of-way or adjacent to the site of the Sahalee Lift Station.

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

If disturbed, areas along the proposed sewer main alignment will be revegetated or repaved in-kind.

5. **Animals**

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

birds: hawk, heron, eagle, songbirds, other:
mammals: deer, bear, elk, beaver, other:
fish: bass, salmon, trout, herring, shellfish, other:

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

Listed fish species that may be present in Baker Bay and the Columbia River, approximately ½ mile from the project site, include:

Lower Columbia River Chinook, *Oncorhynchus tshawytscha,* Threatened
Lower Columbia River Coho, *Oncorhynchus kisutch,* Threatened
Columbia River Chum, *Oncorhynchus keta*, Threatened
Lower Columbia River Steelhead, *Oncorhynchus mykiss*, Threatened
Green sturgeon, *Acipenser medirostris*, Threatened
Eulachon, *Thaleichthys pacificus* (Columbia River smelt), Threatened
Bull Trout, *Salvelinus confluentus*, Threatened

Listed bird species that may move through the site include:
Marbled Murrelet, *Brachyramphus marmoratus*, Threatened
Northern Spotted Owl, *Strix occidentalis caurina*, Threatened
Oregon silverspot butterfly, *Speyeria zeren hippolyta*, Threatened
Short-tailed albatross, *Phoebastria albatrus*, Endangered
Western snowy plover, *Charadrius alexandrinum nivosus*, Threatened
Streaked Horned lark, *Eremophila alpestris strigata*, Candidate

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

The site may be part of a daily or seasonal migration route for birds but transit time through the site would be minimal.

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

Construction activities will occur during normal business hours, which will minimize disturbance of bird species that may migrate through the project area.

6. **Energy and natural resources**

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

Installation of the new sewer main will require use of mechanical energy generated by gas and diesel engines. Operation of the lift station will require electrical energy to pump sewage to the gravity collection system.

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

No, all new sewer mains will be installed underground and the lift station, with the exception of the emergency generator and electrical panels will be located underground.

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

The lift station will be equipped with energy efficient motors.

7. **Environmental health**

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

No.

1) Describe special emergency services that might be required.

None.

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

Construction activities associated with the proposed project will be properly flagged to minimize the potential for traffic accidents and associated spills of hazardous materials. The Contractor will submit a Spill Prevention, Control and Countermeasure (SPCC) Plan as well.

b. Noise

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

None.

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

Construction equipment associated with the proposed sewer main installation project would generate noise comparable to that created by traffic already present. Operation of backhoes, graders and dump trucks is unlikely to generate noise significantly louder than background conditions. Once construction activities are complete, noise generated by the sewer system would be limited to the noise created by the emergency generator during weekly exercising and during emergency use. The generator will be enclosed in a sound dampening enclosure.

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

Mufflers and noise-abatement equipment on construction machinery and vehicles will be properly operated and maintained. Work associated with the sewer main installation will occur during normal business hours to avoid the early morning and evening hours that are important to noise-sensitive wildlife. The generator will be enclosed in a sound dampening enclosure.

8. Land and shoreline use

a. What is the current use of the site and adjacent properties?

The project site is a residential subdivision. Homes in the subdivision were constructed between the mid-1970s and present day. The sewer mains to be replaced are located in existing roads, unopened rights-of-way and easements. The sewers will be relocated in approximately the same location. The existing lift station site along Robert Gray Drive will be abandoned. The lift station will be located in the vicinity of Ilahee Place and Klahanee Place on City owned property.

b. Has the site been used for agriculture? If so, describe.

No.

c. Describe any structures on the site.

The new sewer main will be installed in an existing paved road, unopened right-of-way or easement.

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

Portions of roadway pavement will be demolished to allow trenching for installation of sewer mains. The existing lift station will be abandoned.

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

City Zoning in the project area is R-1, Single family residential.

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

Residential.

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

N/A

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.

Portions of the Sahalee hillside are classified as erosion and landslide hazard areas.

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

None

j. Approximately how many people would the completed project displace?

None

k. Proposed measures to avoid or reduce displacement impacts, if any:

None required.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

Installation of the sewer main will not change existing land uses and will not change projected land use or plans for the City.

9. **Housing**

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

None.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

None.

c. Proposed measures to reduce or control housing impacts, if any:

None required.

10. **Aesthetics**

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

The sewer line to be installed will be underground. The maximum height of the Lift Station control panels and emergency generator enclosure would be approximately 6 feet.

b. What views in the immediate vicinity would be altered or obstructed?

None. Disturbed areas will be replanted or repaved in-kind. The lift station electrical panels and emergency generator enclosure will not obstruct views.

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

Disturbed areas will be repaved or revegetated in-kind.

11. **Light and glare**

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

None. New pipes will be underground and lift station electrical panels and generator enclosure will not create glare.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

No.

c. What existing off-site sources of light or glare may affect your proposal?

None.

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

None required.

12. **Recreation**

a. What designated and informal recreational opportunities are in the immediate vicinity?

Boating on Baker Bay and the Columbia River, bicycling/walking on Robert Gray Drive.

b. Would the proposed project displace any existing recreational uses? If so, describe.

No.

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

None required.

13. **Historic and cultural preservation**

a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.

There are no known historic places immediately adjacent to the project site.

b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.

There are no landmarks or evidence of historic, archaeological, scientific or cultural materials or artifacts in the project area. The proposed sewer main will occur in an existing roadway where the potential for disturbance of any historic, archaeological, scientific or cultural materials is low.

c. Proposed measures to reduce or control impacts, if any:

The proposed sewer main will occur in an existing roadway where the potential for disturbance of any historic, archaeological, scientific or cultural materials is low.

14. **Transportation**

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.

Robert Gray Drive, Klahanee Place, Nesadi Drive, Hiaqua Place and Wecoma Place. Access will be maintained to the subdivision however there may be limited traffic delays during construction.

b. Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

Pacific County Transit provides bus service from the Port of Ilwaco along Hwy 101. Nearest stop is approximately 2 miles to the north.

c. How many parking spaces would the completed project have? How many would the project eliminate?

No parking spaces will be created or eliminated.

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).

The proposed sewer main will be installed in a public, paved street right-of-way, unopened right-of-way and easements.

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

The proposed sewer main installation will occur on existing roadways.

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

N/A.

g. Proposed measures to reduce or control transportation impacts, if any:

The sewer main installation along public rights-of-way will be adequately flagged to facilitate traffic flow during construction.

15. **Public services**

a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.

No.

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

Construction activities will be properly flagged and detoured to minimize impacts on transportation.

16. **Utilities**

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

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

The City of Ilwaco provides water and sewer service throughout its service area. Pacific County PUD provides electrical service. CenturyLink provides cable services.

C. SIGNATURE

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

Signature: .....

Date Submitted: 11/6/2013

TO BE COMPLETED BY APPLICANT

EVALUATION FOR AGENCY USE ONLY

D. SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS

(do not use this sheet for project actions)

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?

The proposal will not increase discharge to water, emissions to air, production, storage, or release of toxic or hazardous substances. The proposal may increase production of noise during the weekly exercising of the emergency generator or use of the emergency generator during power outages. The emergency generator will be housed in a sound dampening enclosure.

Proposed measures to avoid or reduce such increases are:

Installation of the emergency generator in a sound dampening enclosure.

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

There are no federally listed plant species in Pacific County. Listed species of fish may be present in Baker Bay which is approximately ½ mile away from the project site. Listed aquatic species will not be affected by the proposal. Several species of listed birds may pass through the project site on daily or annual migration but the site is not home to nesting listed species and transit time through the site would be minimal. Bird species will most likely not be affected by the proposed project.

Proposed measures to protect or conserve plants, animals, fish, or marine life are:

Vegetation disturbed during construction will be restored. It is very unlikely construction activities will impact aquatic resources in Baker Bay which is located approximately ½ mile from the project site. Erosion and sediment control BMPs will be followed during construction to prevent release of sediment to all adjacent areas. Construction activities will take place during daylight hours and nocturnal foraging animals will most likely not be affected by construction and there will be no impact once construction is complete. Construction activities and normal operation of the sewer system will not prevent bird migration through the site. The proposed project will eliminate the location of the lift station along Robert Gray Drive, the closest point to Baker Bay, and the discharge into the forcemain on Robert Gray Drive thereby eliminating the potential for sewage discharge to the surface in event of a lift station malfunction or break in the force main.

3. How would the proposal be likely to deplete energy or natural resources?

The existing lift station (2- 5 horsepower pumps) is powered by electrical energy. The proposed lift station (2 – 15 horsepower pumps) will employ larger horsepower pumps to pump sewage to the top of the Sahalee hill. The new pumps will be energy efficient and the increase in power consumption will be slight.

Proposed measures to protect or conserve energy and natural resources are:

The new pumps will be energy efficient.

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains. or prime farmlands?

The proposed project will not affect areas designated for governmental protection. The proposed project will relocate the existing lift station away from a known area with the potential for landslides.

Proposed measures to protect such resources or to avoid or reduce impacts are:

The proposed project will relocate the existing lift station away from a known area with the potential for landslides.

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

The project will not affect existing land or shoreline uses.

Proposed measures to avoid or reduce shoreline and land use impacts are:

None required.

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

The proposal will not increase demands on transportation or public services and utilities.

Proposed measures to reduce or respond to such demand(s) are:

None required.

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

The proposal will not conflict with local, state or federal laws or requirements for the protection of the environment.

APPENDIX E

SERP COVER SHEET

DEPARTMENT OF ECOLOGY
State of Washington

State Environmental Review Process (SERP) Coversheet for SRF Applicants and Recipients

Applicant and Project Information	
Applicant Name (Agency): City of Ilwaco	
Project Title: Sahalee Subdivision Sanitary Sewer Improvements	
Project Contact Person: Elaine McMillian	Telephone: 360-642-3145
Address: P.O. Box 548, Ilwaco, WA 98624	
Email: treasurer@ilwaco.wa.gov	
Brief Project Description: Replacement of existing 40+ year old sanitary sewers and lift station serving the Sahalee Subdivision.	

Please submit all SERP documentation listed below together with this form to Ecology's Regional Engineer or Manager and the SERP Coordinator for review and approval.

Check the boxes below to indicate that the SERP Packet includes the documentation for the items listed and complies with Ecology guidance and procedures. Provide comments for additional information when needed.

Detailed SERP guidance can be found on the internet:
http://www.ecy.wa.gov/programs/wq/funding/GrantLoanMgmtDocs/Eng/GrantLoanMgmtEngRes.html

1. SEPA review documentation:
   a. ☒ SEPA checklist. — Appendix D
   b. ☒ The signed SEPA determination.
   c. ☒ Documentation that the lead agency solicited public comments (affidavit of publication or similar).
   d. ☐ Any comments received by the lead agency.
      ☐ No comments received.
   e. ☐ Categorical exemption. (*Provide documentation of the review and determination that the project qualified for categorical exemption.*)

   Comments: SEPA DNS will be published in the Chinook Observer on November 27, 2013

2. Cost effectiveness analysis documentation: — SEE 2013 Facilities Plan Amendment
   (*Required for projects that are categorically exempt from SEPA. Not all boxes have to be checked to meet this requirement. Not required for nonpoint projects that are also considered facilities.*)
   a. ☒ A complete description of the alternatives that were considered.
   b. ☒ Documentation that all appropriate alternatives were considered (regional approaches, reclaimed water, alternative technologies, I/I correction, etc.)
   c. ☒ Comparison of monetary costs/benefits of each alternative.

i. ☒ Consideration of capital, operation, maintenance, replacement costs (20 year present value).

ii. ☒ Estimate of sewer rates using different financing alternatives.

iii. ☒ Data for hardship analysis (if appropriate).

d. ☒ Comparison of non-monetary costs/benefits of each alternative, including environmental impact, energy impacts, growth impacts, and community priorities.

e. ☒ Information supports that selected alternative represents the cost effective alternative.

Comments:

3. Documentation of public participation in the selection process:
   a. ☒ Public meeting announcement.
   b. ☒ Meeting agenda listing discussion of environmental impacts.
   c. ☒ Meeting agenda listing discussion of alternatives, costs, and rate impacts.
   d. ☐ Public meeting not required due to SEPA categorical exemption.

   Comments:

If you need this document in a format for the visually impaired, call the Water Quality Program at 360-407-6600. Persons with hearing loss, call 711 for Washington Relay Service. Persons with a speech disability, call 877-833-6341.

CITY OF ILWACO

120 First Avenue North
PO Box 548 • Ilwaco, WA 98624
Phone: 360.642.3145
Fax: 360.642.3155
info@ilwaco-wa.gov
www.ilwaco-wa.gov

November 20, 2013

TO: All Persons (See Mailing List)

FROM: Ryan E. Crater, City of Ilwaco – Planner

SUBJECT: SEPA lead agency and Determination of Non-Significance

This is to advise any agency that the City of Ilwaco has assumed lead agency status for the following non-project proposal:

2013 Wastewater Facility Plan Update.

Please notify the City of Ilwaco if you do not concur with this lead agency determination.

Enclosed are the following documents: Determination of Non-Significance Notice and Environmental Checklist to include Supplemental Sheet for Non-Project Actions. The City of Ilwaco will consider all comments received by December 4, 2013 by 4:00 pm.

Sincerely,

Ryan E. Crater
City of Ilwaco - Planner

120 First Avenue North
PO Box 548 • Ilwaco, WA 98624
Phone: 360.642.3145
Fax: 360.642.3155
info@ilwaco-wa.gov
www.ilwaco-wa.gov

CITY OF ILWACO

NOTICE OF APPLICATION AND SEPA THRESHOLD DETERMINATION

WAC 197-11-970 Determination of Non-Significance (DNS)

PROJECT NAME: 2013 Wastewater Facility Plan Update

PROJECT DESCRIPTION: The purpose of this non-project action is to update the City of Ilwaco 2013 Wastewater Facility Plan. The purpose of the update is to discuss alternatives for replacing the sanitary sewer and lift station in the Sahalee subdivision. The update includes a review of population and flow projections and impacts to the Waste Water Treatment Plant.

APPLICANT: City of Ilwaco

LOCATION OF PROPOSAL: Non-project action

DATE OF APPLICATION: November 6, 2013

DATE OF COMPLETENESS: November 20, 2013

DATE OF NOTICE: November 27, 2013

LEAD AGENCY: City of Ilwaco

SEPA DETERMINATION: Notice is hereby given that the City of Ilwaco has issued a Determination of Nonsignificance under WAC 197-11-340(2) for the above project. The lead agency for this proposal has determined that the non-project action 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 review of a complete environmental checklist and other information on file with the lead agency. This information is available to the public upon request.

COMMENT PERIOD: 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 of issuance. Comments must be submitted by December 10, 2013 at 4:00 pm.

APPEAL: This determination may be appealed by submitting a written notice of appeal filed with the city council. Such an appeal would need to be submitted by December 10, 2013 at 4:00 pm. Appeals must include a specific reason(s) why the appellant asserts that this decision was made in error. Please see Title 15.08.150(C) of the City of Ilwaco Development Regulations for specific appeal procedures.

RESPONSIBLE OFFICIAL: Ryan E. Crater, City Planner

ADDRESS: City of Ilwaco
P.O. Box 97
Ilwaco, WA 98624

DATE: 11-20-13 SIGNATURE:

Nancy Lockett

From: City Clerk [clerk@ilwaco-wa.gov]

Sent: Thursday, November 07, 2013 11:48 AM

To: 'Amy Huntley';Ann Saari;'Chinook Observer';Clint Carter;Daryl Gardner;Dave Johnson;Dave McKee;'Dewitt, Bob';'Doug Ross';Elaine McMillan;'Eric Marotzke';Flint Wright;Gary Kobes;Helen Bell;'Jim and Della Wilson ';'Jimmie Walden';'KMUN';'Linda Marsh';'Mark Hottowe';Nancy Lockett;Natalie St. John;'Nickolas Haldeman';PJ Kezele;'Rebecca Hart';Rich Marshall;Rick Gray;'Scot McGrew';thomason209@yahoo.com;Skyler Walker;Terry Dawn;'Theodore Vanden Bosch';Tom Freel;Tom Williams;Warren Hazen;Councilmember Chambreau;Councilmember Marshall;david jensen;Gary Forner;Mike Cassinelli (Beacon);Mike Cassinelli;Vinessa Mulinix;'Danielle Wilkie';Jon Ducharme;Nick Haldeman;Rick Schimelpfenig;Cheri Diehl;Ed Ahlers;'Holly Beller'

Subject: CITY OF ILWACO UPCOMING PUBLIC MEETINGS

CITY OF ILWACO UPCOMING PUBLIC MEETINGS

Please contact City Hall should you need special accommodations. The public is invited and encouraged to attend.
Ilwaco Community Building: 158 First Avenue North • Ilwaco Fire Hall: 301 Spruce Street • Ilwaco WA 98624

COUNCIL/COMMISSION	PURPOSE	DAY	DATE	TIME	LOCATION
City Council	Regular Meeting	Tuesday Monday	11/12/13 11/25/13	6:00 p.m.	Community Building
City Council	Workshop: Sahalee Sewer Improvements	Monday	11/18/13	4:00 p.m.	Community Building
Parks & Rec. Commission	Regular Meeting	Friday	11/08/13	4:30 p.m.	Community Building
Planning Commission	Regular Meeting	Tuesday	11/19/13	6:00 p.m.	Community Building
Port/City Council Meeting	Regular Meeting	Wednesday	11/13/13	6:00 p.m.	Port Meeting Room

PUBLIC HEARING NOTICE: 2014 PROPERTY TAX LEVY

NOTICE IS HEREBY GIVEN that the Ilwaco City Council will hold a public hearing regarding an **ordinance for the 2014 Property Tax Levy**. Hearing to take place at the regular City Council meeting on **November 12, 2013**, at or about 6:00 p.m., in the Ilwaco Community Building Meeting Room at 158 N. First Ave. N., Ilwaco, WA 98624. All written and oral comment will be considered. Please contact City Hall, 360-642-3145, should you need special accommodations. The public is invited and encouraged to attend.

PUBLIC HEARING NOTICE: 2014 BUDGET

NOTICE IS HEREBY GIVEN that the Ilwaco City Council will hold a public hearing regarding an **ordinance for the 2014 Budget**. Hearing to take place at the regular City Council meeting on **November 25, 2013**, at or about 6:00 p.m., in the Ilwaco Community Building Meeting Room at 158 N. First Ave. N., Ilwaco, WA 98624. All written and oral comment will be considered. A copy of the draft budget will be available by Noon on November 18, 2013, at Ilwaco City Hall, 120 First Ave. N., Ilwaco WA. Please contact City Hall, 360-642-3145, should you need special accommodations. The public is invited and encouraged to attend.

Nancy Lockett

From: City Clerk [clerk@ilwaco-wa.gov]

Sent: Wednesday, November 06, 2013 11:53 AM

To: 'Amy Huntley';Ann Saari;'Chinook Observer';Clint Carter;Daryl Gardner;Dave Johnson;Dave McKee;'Dewitt, Bob';'Doug Ross';Elaine McMillan;'Eric Marotzke';Flint Wright;Gary Kobes;Helen Bell;'Jim and Della Wilson ';'Jimmie Walden';'KMUN';'Linda Marsh';'Mark Hottowe';Nancy Lockett;Natalie St. John;'Nickolas Haldeman';PJ Kezele;'Rebecca Hart';Rich Marshall;Rick Gray;'Scot McGrew';thomason209@yahoo.com;Skyler Walker;Terry Dawn;'Theodore Vanden Bosch';Tom Freel;Tom Williams;Warren Hazen;Councilmember Chambreau;Councilmember Marshall;david jensen;Gary Forner;Mike Cassinelli (Beacon);Mike Cassinelli;Vinessa Mulinix;'Danielle Wilkie';Jon Ducharme;Nick Haldeman;Rick Schimelpfenig;Cheri Diehl;Ed Ahlers;'Holly Beller'

Subject: CITY OF ILWACO UPCOMING PUBLIC MEETINGS

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PUBLIC HEARING NOTICE: 2014 PROPERTY TAX LEVY

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PUBLIC HEARING NOTICE: LOAN APPLICATION FOR SAHALEE SEWER IMPROVEMENTS

NOTICE IS HEREBY GIVEN that the Ilwaco City Council will hold a public hearing regarding an **application with the Washington State Department of Ecology, State Revolving Fund Loan Program for funding of a proposed project, which generally consists of replacement of the existing sanitary sewer collection system and lift station serving the Sahalee Subdivision**. Public hearing to take place at the regular City Council meeting on November 12, 2013, at or about 6:00 p.m., in Ilwaco Community Building Meeting Room at 158 N. First Avenue N., Ilwaco, WA 98624. All written and oral comments will be considered. Please contact City Hall, 360-642-3145, should you need special accommodations. The public is invited and encouraged to attend.

PUBLIC HEARING NOTICE: 2014 BUDGET

NOTICE IS HEREBY GIVEN that the Ilwaco City Council will hold a public hearing regarding an **ordinance for the 2014 Budget**. Hearing to take place at the regular City Council meeting on **November 25, 2013**, at or about 6:00 p.m., in the Ilwaco Community Building Meeting Room at 158 N. First Ave. N., Ilwaco, WA 98624. All written and oral comment will be considered. A copy of the draft budget will be available by Noon on November 18, 2013, at Ilwaco City Hall, 120 First Ave. N., Ilwaco WA. Please contact City Hall, 360-642-3145, should you need special accommodations. The public is invited and encouraged to attend.

Meetings are held at the
Ilwaco Community Building Meeting Room
158 First Ave North in Ilwaco, WA

CITY OF ILWACO
CITY COUNCIL MEETING

Tuesday, November 12, 2013

6:00 p.m. REGULAR COUNCIL MEETING
AGENDA

A. Call to order

B. Flag Salute

C. Roll Call

D. Approval of Agenda

E. Consent Agenda

All matters, which are listed within the consent section of the agenda, have been distributed or made available for review to each member of the council prior to the meeting. Items listed are considered routine and will be enacted with one motion unless a council member specifically requests it to be removed from the Consent Agenda to be considered separately. The staff recommends the approval of the following items:

1. Approval of Minutes (TAB 1)
   a. October 25, 2014, Special Meeting: Grant application for Transportation Alternatives Program
   b. October 28, 2013, Budget Workshop
   c. October 28, 2013, Regular Meeting
   d. October 29, 2013, Water System Discussion

2. Claims & Vouchers (TAB 2)

a.	Checks: 35910 to 35918 + Electronic	$ 30,897.92
b.	Checks: 35920 to 35966	$ 555,841.47
	GRAND TOTAL:	$ 586,739.39

F. Reports

1. Staff Reports (TAB 3)
   a. Police chief's report for October 2013
2. Council Reports
3. Mayor's Report

G. Comments of Citizens and Guests Present

At this time, the mayor will call for any comments from the public on any subject not on the agenda. Please limit your comments to five (5) minutes. The City Council does not take any action or make any decisions during public comment. To request an item be added to a future agenda, please contact the city clerk for the council rules of procedure for agenda items.

H. Public Hearing

1. 2013 Property Tax Levy
2. ~~Application for DOE Revolving Fund Loan Agreement for Sahalee Sewer Improvement—*Cassinelli*~~ *Cancelled. Public meeting deferred to workshop at 4:00 p.m. on November 18, 2013.*

I. Business

1. Ordinance establishing 2014 Property Tax Levy and Certification—Cassinelli (TAB 4)
2. Ordinance establishing 2014 Pay Table—*Cassinelli* (TAB 5)
3. Contract for technical services with EDC—*Cassinelli* (TAB 6)
4. Change order for City Center Reservoir—*Cassinelli* (TAB 7)
5. Ordinance adopting moratorium prohibiting the production, processing and retail sales of recreational marijuana—*Forner* (TAB 8)

J. Discussion

1. Shoreline Master Program Grant Agreement—*Cassinelli* (TAB (9)
2. Resolution amending the fee schedule for the 2014 utility rates and connection charges—*Cassinelli* (TAB 10)
3. 2014 Budget Ordinance—*Cassinelli* (TAB 11)
4. 2013 Second Budget Amendment Ordinance—*Cassinelli* (TAB 12)
5. Contract completion watershed culvert project—*Cassinelli* (TAB 13)

K. **Correspondence and Written Reports** (TAB 14)

1. Parks and Recreation Commission Workshop Minutes for October 29, 2013

L. Future Discussion/Agendas

1. Restriping Brumbach Avenue—*Jensen/Forner*
2. Amended Procedures Ordinance—*City Planner*

N. Adjournment

O. Upcoming Meetings

COUNCIL/COMMISSION	PURPOSE	DAY	DATE	TIME	LOCATION
City Council	Regular Meeting	Tuesday Monday	11/12/13 11/25/13	6:00 p.m.	Community Building
City Council	Workshop: Sahalee sewer improvements	Monday	11/18/13	4:00 p.m.	Community Building
Parks & Rec. Commission	Regular Meeting	Friday	11/08/13	4:30 p.m.	Community Building
Planning Commission	Regular Meeting *(meetings subject to cancellation if there is no business to transact)*	Tuesday	11/19/13	6:00 p.m.	Community Building
Port/City Council Meeting	Regular Meeting	Wednesday	11/13/13	6:00 p.m.	Port Meeting Room

CITY OF ILWACO
PUBLIC/COUNCIL WORKSHOP

NOVEMBER 18, 2013
4 PM

SAHALEE SUBDIVISION SANITARY SEWER IMPROVEMENTS

- REVIEW OF EXISTING SEWER COLLECTION SYSTEM IN SAHALEE

- REVIEW OF EXISTING ENVIRONMENTAL CONCERNS THAT ARE DRIVING THE REPLACEMENT OF THE SYSTEM
    - SLOPE STABILITY
    - FAILING PIPES

- DISCUSSION OF SEWER ALTERNATIVES (POWER POINT PRESENTATION OF ALTERNATIVES)
    - ALTERNATIVE ALIGNMENT
    - COST OF ALTERNATIVE
    - IMPACT TO RESIDENTS
    - ENVIRONMENT CONSEQUENCES

- SELECTION OF PREFERRED ALTERNATIVE

CITY OF ILWACO
Sahalee Sewer Discussion
Monday, November 18, 2013

A. Call to Order
Mayor Cassinelli called the workshop to order at 4:08 p.m.

B. Present: Councilmembers: David Jensen, Gary Forner, Vinessa Mulinix, and Jon Chambreau; City Engineer Nancy Lockett, Gray & Osborne; Waster Water Plant (WWP) Supervisor Warren Hazen, and Treasurer Elaine McMillan.

C. Discussion
Treasurer Elaine McMillan explained the different financing options with the Department of Ecology state revolving fund. Nancy Lockett reviewed the various upper and lower zone options to improve the sewer lines. The council discussed the potential of installing grinder pumps and whether they would be turned over to the property owner or maintained by the city. WWP Supervisor Warren Hazen expressed his concern with the city maintaining grinder pumps and that the PUD may be interested in updating the power lines in the Sahalee area. Most council members spoke in favor of utilizing the line that serves Discovery Heights for the upper zone, but there was a disarray of whether the upper zone would be served by a lift station, grinder pumps or duplex sized grinder pumps. For the lower zone, most felt that a lift station half way up Klahanee was appropriate that would pump sewage up to the line that serves Discovery Heights. The council was made aware that the application due date for Department of Ecology loan funds is December 4th.

D. Adjournment
Mayor Cassinelli adjourned the workshop at 6:00 p.m.

_____
Mike Cassinelli, Mayor

_____
Elaine McMillan, Treasurer

Nancy Lockett

From: Ryan Crater [rcrater@columbiaestuary.org]
Sent: Wednesday, November 20, 2013 3:28 PM
To: clerk@ilwaco-wa.gov
Cc: nlockett@g-o.com
Subject: SEPA for Wastewater Facility Plan Update

PJ,

Will you please post the Notice of Application and SEPA Threshold Determination in the local paper to be published in next week's Chinook Observer. I will post the SEPA documents to the SEPA server.

Should the city receive any comments regarding the project, please send them to Nancy for review...unless she states otherwise.

Once the 14 day comment period is up...we can review any comments received and then issues a Notice of Final Decision.

If you need additional assistance ... let me know ☺

Regards,

Ryan E. Crater

Coastal Planner
Columbia River Estuary Study Taskforce
Office (503) 325-0435 ext. 213
Cell (509) 942-9309
http://www.columbiaestuary.org/