

AGENDA BILL

**Beaverton City Council
Beaverton, Oregon**


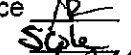
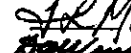


SUBJECT: Contract Award – Professional Engineering Services for Erickson Trunk Sewer and Water System Improvements (CIP #6006)

FOR AGENDA OF: 7-9-19 **BILL NO:** 19191

MAYOR'S APPROVAL: 

DEPARTMENT OF ORIGIN: Public Works 

DATE SUBMITTED: 07-03-19

CLEARANCES: City Attorney 
Mayor's Office 
Finance 
Purchasing 
Engineering 

PROCEEDING: CONSENT AGENDA
(CONTRACT REVIEW BOARD)

- EXHIBITS:**
1. Scope of Work
 2. Project Schedule
 3. Project Budget

BUDGET IMPACT

EXPENDITURE	AMOUNT	APPROPRIATION
REQUIRED \$567,601*	BUDGETED \$2,067,000**	REQUIRED \$0

* Account Number 502-75-3811-683 – Sewer Fund, Sewer Collection System, Sewer Capital Improvements Projects (CWS R110)

*This is the contract fee amount based on QBS contract negotiations. (Exhibit 3).

**The adopted FY 2019-20 Budget includes a total of \$2,067,000 for this project. There will be additional appropriation requests as needed for water system improvements in FY 20-21 once engineering design proceeds. The remaining balance of contract will extend to 6/30/21.

RECOMMENDED ACTION:

City Council, acting as the Contract Review Board, authorizes the Mayor to sign a contract with Cardno Engineering in the amount of \$567,601 to provide Professional Engineering Services for Erickson Trunk Sewer and Water System Improvements (CIP #6006), in a form approved by the City Attorney, and directs the Finance Director to include sufficient funds in Fiscal Year 2020-21 budget, needed to complete the project.

HISTORICAL PERSPECTIVE:

Sanitary Sewer:

The City's 2004 Sewer Master Plan and 2019 Draft Sewer Master Plan, and Clean Water Services (CWS) Master Plan have identified the Erickson sanitary sewer trunk pipeline between SW Allen Boulevard and SW 5th Street as undersized for current and future capacity and recommends that the trunk sewer line be upsized from 12 inches to 18 inches in diameter. Costs for replacement of existing sanitary sewer lines 12-inch diameter and less must be funded by the City. CWS approved funding for this project in 2019 to cover 100 percent of the sanitary sewer costs for the replacement 18-inch diameter sewer lines, as per the long-standing master IGA between CWS and the City. Under the IGA, CWS has cost responsibility for sewer lines greater than 12-inch diameter. A project IGA has been signed by the Mayor for funding of \$2,178,000 from CWS. Costing for sewer lines greater than 12 inch and sewerline less than 12 inch will be kept separate for accounting purposes.

INFORMATION FOR CONSIDERATION:

The proposed scope of work (Exhibit 1) by Cardno is to evaluate, design and prepare plans and specifications for bidding construction of the sanitary sewer, potable water replacement/enhancement and to evaluate and design storm drainage improvements, as needed. The design and construction will be difficult as the corridor is older single and multi-family densely developed residential neighborhood. The project will require construction very close to the residences. Easements for some but not all City utilities exist for this project and arrangements with property owners and home owners' associations will be needed for new or modified utility easements.

Water System Design:

There are numerous aging waterlines in the same project corridor that have been identified by City staff, some of which may require replacement. Water system improvements will be identified by the Cardno consultant team and added to the project design as needed to replace aging waterlines and to enhance neighborhood fire protection. In the area south of 6th Street and north of Allen Blvd, east of Erickson and west of Main Ave. Cardno Engineering will:

- investigate water system deficiencies including but not limited to; domestic flow for quality and volume (looping, etc.)
- Provide future requirements for domestic water supply and fire protection.
- Incorporate and optimize the location of all the fire hydrants within the project corridor.
- Coordinate with the Fire Marshall on the placement of all fire hydrants.
- Evaluate all lines and hydrants for fire flow adequacy.
- Insure required fire protection coverage in the placement of all fire hydrants.
- Provide required separation of water and sewer lines.
- Provide a design for water system improvements to remedy any deficiencies found in the system investigation.

Storm Drainage Evaluation:

Cardo will investigate and remediate the storm-water in-flow from the area south of SW 10th Street and east of SW Erickson Avenue.

Construction Services:

Cardno Engineering will provide construction management support during the construction phase of the project including but not limited to Request for Information (RFI), Submittals, Change Orders (CO), Daily Inspection Reports, weekly progress meetings and construction inspection.

Proposals:

Public Works Department, Engineering and Finance Department, purchasing staff issued a QBS Request for Proposals (RFP) for advertisement on March 29, 2019, seeking proposals from qualified professional engineering firms to form a team of consultants. The RFP requested proposals from a consultant team with demonstrated experience in: sanitary sewer, water system and storm drainage, evaluation and design, system analysis, cost estimating, design, and project and construction management.

A mandatory pre-proposal conference was held on April 11, 2019, and two proposals were received and opened on April 23, 2019, from: Cardno and from AKS Engineering and Forestry. An Evaluation Committee of four Public Works engineering and operations staff selected Cardno as the most qualified firm.

PROJECT UNDERSTANDING

The Erickson Sewer Trunk Line project will consist of improvements to Sanitary Sewer, Water System and stormwater improvements. The following section outlined the proposed work for the utility followed by a detailed scope of work for the project. The scope, budget and schedule were developed around bidding the project in the spring of 2020 and construction completed in the summer and fall of 2020.

Sanitary Sewer improvements:

The sewer improvements of the project consists of a detailed confirmation of the sewer improvement strategy proposed in the City of Beaverton Sanitary Sewer Master Plan by Tetra Tech/KCM and the Clean Water Services Sanitary Sewer Master Plan Update by West Yost, Associates for the Erickson trunk line. (Segment limits are shown below.) The ultimate goal is to prepare construction documents for the approved sewer improvements

Work related to the sanitary system will include:

- Design and verify feasibility of approximately 780 linear feet of new 18 inch sanitary sewer line from
 - MH #1462 to MH#1598. (Segment 1)
 - Upsize existing 15 inch sanitary sewer line from MH #1598 to MH #1454 to 18 inch sanitary sewer line. (Segment 2)
 - Upsize existing 15 inch sanitary sewer line from MH #1469 to MH #1462 to 18 inch sanitary sewer line. (Segment 3)
 - Downsize or rehab approximately 1083 linear feet of existing 15 inch sanitary sewer line from MH
 - #1462 to MH #1454 to 18 inch sanitary sewer line. (Segment 4)
 - Rehab or replace approximately 56 linear feet of existing 8 inch sanitary sewer line from MH #1458 to CO #0122. (Segment 5)
 - Abandon 8 inch sanitary sewer lines in SW Taralynn Ave. and connect all services to the new Clean Water Services sewer line. (Segment 6)

Water System Improvements:

In addition to the sewer improvements, the City also desires to have a comprehensive review of the existing water and system(s) within the project area to evaluate the condition of the existing systems and to identify and repair deficiencies. In general, the project area is fully developed and consists of residential single family homes, multifamily condominium and apartment buildings, and retirement/senior living facilities. A small creek that is mapped as a FEMA 100-year floodplain and floodway runs north/south through the middle of the project area, including wetland areas. According to City staff, the soil in the area is known to be corrosive and many of the waterlines are believed to be in poor condition. In addition, many of the waterlines are located outside of public rights-of-way, such as pipes running between buildings or across wetlands and drainage areas, and in areas that are not easily accessible for maintenance and repair.

Work related to the water system will include:

- Investigate water system deficiencies, including domestic flow for quality and volume (looping, etc.). Evaluate existing and future requirements for domestic water supply and fire protection, coordinate with fire marshal, and develop recommendations to address deficiencies related to domestic water supply and/or fire protection.

- Perform survey of soil corrosivity in the area and develop recommendations for cathodic protection.
- Evaluate condition and location of existing waterlines and develop recommendations for waterline replacement and relocation. Identify and assist City in obtaining necessary easements of rights-of-way.
- Prepare and coordinate design of water and storm improvements with sanitary sewer, and provide required separation of water and sewer lines.

Storm System improvements:

Finally, the City has also identified storm system issues related to stormwater inflow from the area south of SW 10th Street and east of Erickson Avenue near MH #1376.

Work related to the storm system will include:

- Evaluate condition of existing storm system within project limits.
- Address known issues related to stormwater inflow in the area south of SW 10th Street and east of Erickson Avenue near MH #1376.

SCOPE OF SERVICES

Task 1 Project Management

Consultant shall manage and coordinate the tasks included in this SOW. Consultant shall also coordinate with Agency on work tasks performed by others. Consultant shall provide Quality Control ("QC") such that deliverables submitted to Agency have been peer-reviewed prior to submittal.

1.1. Project Management & Coordination

Consultant shall schedule and coordinate Work Tasks within this SOW and shall maintain liaison and coordination with City. Consultant's Project Manager (PM) shall be Consultant's primary point of contact and shall communicate with City regarding the status of work being performed and to discuss issues or concerns that may impact the Project. This includes biweekly check-in phone calls and one in person between the Consultant PM and City PM. Consultant shall monitor the Project budget and expenditures to meet Project requirements and objectives.

Consultant shall maintain Project files including, but not limited to: engineering computations, assumptions, meeting agendas and minutes, drawings, progress reports, correspondence and memoranda. Compiling the Project files must be an ongoing task, commencing upon receipt of the notice to proceed ("NTP"), and incorporating documents as they are generated throughout the Services for this Project.

1.2. Progress Reports

Consultant shall prepare monthly progress reports throughout the duration of the Services for this Project. The monthly progress report must be in a format acceptable to Agency and must:

- Summarize the previous month's Consultant activities, the deliverables submitted, and identify who the deliverables were provided to.
- Show percent complete of each of the tasks/deliverables in progress, and the percent of overall services complete to date.
- Describe the planned activities for the next month.
- Identify any schedule or budget issues, other pending issues that need resolution, team personnel changes, unanticipated problems, any issues that may delay the delivery schedule, and other relevant events or information, as applicable.

1.3. Project Schedule and Schedule Updates

Consultant shall submit a detailed work element schedule to City using MS Project for Consultant's tasks.

1.4. Meetings

Consultant shall prepare for, lead and facilitate meetings as identified below. Meeting dates and locations will be collaboratively scheduled between Consultant and Agency PM.

For each meeting, Consultant shall prepare a meeting agenda and provide draft meeting notes, which must include draft action items and record of any decisions from the meetings. Agendas must be submitted to the agency 2 business days prior to each meeting. Consultant shall prepare and maintain a Project Action Item/Decision Log to track action items and decisions.

1.4.1. Kick-Off Meeting

Consultant shall facilitate 1 Project kick-off meeting within 5 business days of NTP. The Project kick-off meeting will be held at City of Beaverton. Consultant staff shall attend the meeting, which is estimated to be 2 hours in length excluding travel time.

1.4.2. Project Site Meeting

Consultant shall schedule and conduct 1 site visit meetings with City staff to identify existing conditions, strategies, and solutions. Three (3) Consultant staff (PM, sanitary & storm lead, water lead,) will attend the 4-hour Project site meetings, which excludes travel time.

1.4.3. Operation & Maintenance Staff Meeting

Consultant shall schedule and conduct one (1) meetings with City operations and maintenance staff to gain knowledge of the existing infrastructure within project limits. Three (3) Consultant staff (PM, sanitary & storm lead, water lead,) will attend the 2-hour Project site meetings, which excludes travel time.

1.4.4. Alignment Study Acceptance Workshop

Consultant shall conduct 1 Alignment Study Acceptance Workshop (ASAW) meeting to be held approximately 3 business days after submittal of the ASAW. The purpose of the ASAW is to reach acceptance of the proposed alignment for the Project. Five (5) Consultant staff shall attend the ASWA meeting, which is anticipated to be no more than 3 hours in length excluding travel time. The data collection and geotechnical investigation plan will also be finalized at this meeting.

1.4.5. Preliminary Plans Review Meeting

Following the development of the concept design and preliminary concept design report a preliminary design will be developed. This design and report will document all the field exploration and survey and will provide the basis for the design. Once the draft is submitted a meeting will be scheduled to review the preliminary design and make modifications to the draft report. Four (4) Consultant staff shall attend the meeting, which is anticipated to be no more than 2 hours in length excluding travel time.

1.4.6. 30% Package Review Meeting

Using the Concept design report a 30% design package will be developed. This design will be submitted to the City for review. Following review a meeting will be held to review design issues, construction and bidding schedule and a preliminary construction cost estimate. Four (4) Consultant staff shall attend the meeting, which is anticipated to be no more than 2 hours in length excluding travel time.

1.4.7. 60% Package Review Meeting

Following the 30% review meeting a 60% design package will be developed. This design will be submitted to the City for review. This submittal will include a revised cost estimate and a Table of Contents of the specification. Following review a meeting will be held to review design issues, construction and bidding schedule and a preliminary construction cost estimate. Four (4) Consultant staff shall attend the meeting, which is anticipated to be no more than 2 hours in length excluding travel time

1.4.8. 90% Package Review Meeting

Following the 60% review meeting a 90% design package will be developed. This design will be submitted to the City for review. This submittal will include a revised cost estimate and full project specification. Following review a meeting will be held to review design issues, construction and bidding schedule and a preliminary construction cost estimate. The 60% design package would have been used for environmental permits so any comments from agencies will be included in the 90% design package. Four (4) Consultant staff shall attend the meeting, which is anticipated to be no more than 2 hours in length excluding travel time

1.5. Quality Assurance/Quality Control

Consultant shall perform QC reviews prior to submittal of plans, design revisions and computations, estimates, and other deliverables. Consultant shall coordinate between design disciplines so that the design is in conformance with applicable City design standards (in place at time of Project), and that prior review comments have been incorporated into the design. Consultant shall maintain a comment log noting review comments received from City, Consultant's response to each of the comments as well as the final resolution of the issue.

Deliverables: Consultant shall provide the following deliverables:

- Project files.
- Biweekly check-in phone call.
- Scheduled monthly in person meetings
- Monthly progress reports submitted via email to City PM
- Baseline Microsoft Project Schedule submitted within 2 weeks after the written NTP (1 electronic copy and 1 paper copy).
- Monthly Project Schedule updates as needed

- Consultant shall maintain completed comment log and QC checklist
- Checklist will be available to City upon request.
- Provide meeting agenda 2 business days prior to the meeting (1 electronic copy).
- Provide alignment map with key scope and issues (2 print and 1 .pdf versions)
- Provide draft summary notes (including action item / decision log) within 5 business days of meeting (1 electronic copy).
- Attend and conduct the meeting as required by Agency;
- Provide final summary meeting notes within 5 business days of receipt of all Agency comments and meetings (1 electronic copy)

Task 2 Preliminary Investigation and Alignment Study

2.1. Information Gathering

Consultant shall gather and review existing background information about the project including:

- As-built record drawings.
- Existing TV inspection logs and video, if available.
- Existing fire hydrant flow tests, if available.
- Utility company contact names and maps.
- Meet with City engineering and water operations staff to identify know issues.

2.2. Obtain and Review CCTV Video Inspections

The City will provide CCTV inspection of sanitary and storm sewer. Consultant shall review CCTV footage and identify deficiencies and lateral locations, and prepare a comprehensive report.

2.3. Water System Condition Assessment

2.3.1. Existing System Review

Consultant shall review as-built (record) drawings from the City to confirm water line size and material within project area. Consultant shall contact the fire marshal and coordinate with the City to confirm domestic water supply and fire protection requirements. Consultant shall coordinate with City staff and facilitate discussions with the condominium homeowner associations (HOA) and senior living units within the project area on any known water system issues within their properties. Consultant shall perform soil resistivity survey of the project area. Consultant shall pothole as necessary to confirm depths, location and condition. Consultant shall coordinate with local fire marshal to confirm fire flow requirements for the existing buildings.

2.3.2. Meeting with City Staff

Consultant shall meet with City engineering and water operations staff to:

- Confirm which water system improvements have the highest priority and available funding.
- Identify areas of known issues, problems and deficiencies, including attending site meeting to gain knowledge of existing infrastructure within project limits.

- Confirm with City Engineering and Water Operations staff if there are additional water system areas to be addressed in the project area and priority level.

2.3.3. Fire Hydrant Testing

Consultant shall obtain and review existing fire hydrant flow tests data from the City. Consultant shall coordinate with City to obtain and/or perform additional fire hydrant flow rate tests as needed.

2.3.4. Water System Modeling

Consultant shall model the existing water system using the City provided water model and include any necessary revisions to the model. Task include:

- Review the City's existing water system hydraulic model within the Project area and update with known water system appurtenances and materials, as appropriate.
- Perform hydraulic analysis of the existing water system to determine the anticipated effect on fire flow and water quality of isolating and abandoning the two (2) City-identified creek crossings. Based on model results, develop conceptual alternatives to address deficiencies.
- Coordinate with the City to temporarily isolate the two (2) sections of water main that are proposed to be isolated by closing existing water valves, and conduct flow testing at four (4) fire hydrant locations to verify water model results and to confirm actual flow rates.
- Meet and discuss model results with City and Cardno, including looping isolated creek crossing water main sections to address water quality, redundant supply, and fire flow. This work will be conducted in conjunction with the Project Meetings identified in subtask 1.2.
- Prepare a technical memorandum summarizing the water system condition assessment and recommended improvements.

2.3.5. Preliminary Water System Alternatives

Based on model results, develop conceptual alternatives to address deficiencies. City Engineering have indicated two public water main crossings under Erickson Creek that are inaccessible and should be removed from service. Consultant shall coordinate with City Engineering and Water Operations staff and develop plan to abandon existing creek crossings in place to avoid environmental permitting.

2.3.6. Cost Estimate

Prepare costs estimates and establish a schedule with the City for prioritized improvements.

2.4 Sewer Alignment Study

Consultant shall review routing alignment that was outlined in RFP. Consultant shall develop up to three (3) routing alignment alternatives. Consultant shall identify potential issues associated with each routing alternative, including easement acquisition requirements, utility impacts, power line corridor impacts, wetland impacts, creek/stream crossings, and road impacts,

including traffic control. Consultant shall prepare a 10% schematic alignment for City review. The 10% submission will include following:

- Overall plan view showing general horizontal alignment and impacted properties. This will be based on existing mapping data bases.
- Sheet index showing conceptual layout of plan set
- Preliminary construction cost estimate

Deliverables: Consultant shall provide the following deliverables:

- Draft and Final electronic copy of the Water System Analysis/Alternatives memorandum
- Draft and Final electronic copy of the Sewer Alignment memorandum

Task 3 Survey and Base Maps

Consultant understands that the City of Beaverton has contracted with AKS prior to issuance of this contract to conduct survey of sanitary sewer main within project limits. The sewer survey data that is be generated by AKS Engineering will be used for design of this project along with additional data that will be collected as a part of this contract. Consultant shall integrate two sets of data.

3.1. Surveying and Mapping

Consultant shall adhere to the standards stipulated by Oregon Revised Statute ("ORS") 672.047, subsections (1) through (7). Consultant's Professional Land Surveyor, registered in the State of Oregon, shall review and stamp as "Approved" all survey related deliverables and shall perform all land surveying Services under this SOW in conformance with all state statutes pertaining to survey and land boundary laws. These include, but are not limited to, the following state statutes: ORS Chapters 92, 93, 209 and 672.

Limits of Consultant Survey

The limits of Survey shall be the 3,200 foot alignment of the proposed 18" Sanitary line, running from SW 5th Street to SW Allen Blvd. The width of survey shall be approximately 40-50 feet; generally from to back of sidewalk along roadways and to buildings and other limiting features along private properties/roads.

Limits of Agency Survey

The City has previously engaged another consultant to survey It is assumed that the City will provide the survey control for that project in order for Horizontal datum and vertical datum of this survey scope will match.

3.2. Topographic Data and Basemap

Consultant shall collect the existing topographic features and create a base map used to design this Project. Consultant shall collect topographical data to accurately represent the surface of the ground to be included in the Digital Terrain Model. Consultant shall collect topographic data of constructed and natural features within the Project limits using City approved methods and standards, including all file naming and coding formats. Two-dimensional features, if needed,

must be mapped according to City standards. Consultant shall make field ties of all utility features including, but not limited to underground utilities (per Utility Notification Center one-call marks) and overhead utility.

3.3.Digital Terrain Model (“DTM”)

Consultant shall create a three-dimensional digital terrain surface using topographical data collected within the areas described in this SOW.

3.4.Boundary

The proposed alignment largely passes through private roadway and private properties. Consultant will perform boundary survey to compute and map final/surveyed boundary lines in these areas. For sections of the alignment running down public right-of-way, consultant will perform survey to compute and map final/surveyed right-of-way and centerline of public ways.

Deliverables: Consultant shall provide the following deliverables:

- 1 electronic copy, in .pdf format, of the original field notes.
- Text file containing the following information in this order: o Point Number, Northing, Easting, Elevation, Alpha Code (PNEEC) with suffix "ST" if point is the beginning of a line, and any additional feature information collected.

- Utility Request Documentation (.pdf), including Oregon Utility Notification tickets
- Provide any correspondence from the utility including emails or phone call logs.
- Base Map in AutoCad containing all the tied topographic features

Task 4 Utilities

4.1. Utility Location and Coordination

Consultant shall perform utility coordination and liaison activities with utility owners/operators for the Project. Consultant shall comply with the current version of the Utility coordination policy requirements as described in the Oregon Utility Relocation Manual. This work includes reviewing utilities that may be in conflict with the Project work and utility relocation coordination with the utility owners to resolve those potential conflicts. Additionally, Consultant shall obtain system mapping from utilities located within the Project limits. Consultant shall use this information to confirm the survey map as developed under Task 2.2, Surveying & Mapping.

4.2. Utility Report

Consultant shall prepare a draft and final “Utility Report” for those utilities located within the Project limits. The “Utility Report” should include as many of the following items that are known and applicable:

- Description of utilities located within the Project limits
- Utility facility’s structure dimension
- Probable buried depth of cover or aerial lowest height of wire
- General description of utility facility structure material
- Reliance upon other utilities in the vicinity (joint use facility)
- Description of the means used to verify facility location and limits of conflict (test hole data a.k.a. “pothole” verification)
- Proposed Project construction requirements

- Potential utility conflicts identified on utility conflict matrix
- Probable conflict resolution (relocation or adjustment concept)

4.3. Utility Investigation & Utility Detection Survey

A subsurface utility investigation will be performed to locate existing utilities, both horizontally and vertically within the project limits. The vertical (depth) locations will be based on electromagnetic methods and are approximate only. They will give a good idea if additional exploratory potholing will be required (see later task for potholing). This information will be accurately shown on the drawings in plan and profile. Cardno will adhere to ASCE 38 standards for the collection and depiction of utilities and will show each utility at its achieved ASCE 38 Quality Level. We will attempt to achieve Quality Level B on utilities within the project area unless there is reasonable to justification to depict at a lesser quality level. The utility report (2.3.2) will explain the achieved quality levels. The following utilities will be located:

- QLB: Gas, water, electric, fiber, telecom.
- QLC: Sewer and storm drain

Cardno will additionally make an attempt to locate undocumented utilities within the project area and depict as "unknown" on the plan set.

4.4. Utility Relocations

Consultant shall coordinate the efforts of the utility agencies in developing and executing a plan for relocating utilities to resolve conflicts with the Project design. As part of that effort,

Consultant shall complete the following:

- Preparation of Project Notification Letter(s)/Utility Conflict Notices
- Preparation of Utility Constraint Notice
- Review of Utility Relocation Plans and Preparation of Relocation Time Requirement Letters

Task 5 Environmental Clearances & Permitting

Activities associated with the proposed project may require work below the ordinary high water of Erickson Creek (a jurisdictional water of the U.S. and state), and/or within adjacent wetlands and vegetated corridors. As such, permits and approvals may be required from the U.S. Army Corps of Engineers (Corps), National Marine Fisheries Service (NMFS), Oregon Department of State Lands (DSL), Oregon Department of Fish and Wildlife (ODFW), Oregon Department of Environmental Quality (DEQ), and Clean Water Services (CWS). Obtaining these permits and approvals will require a wetland/waters delineation, and may require preparation and submittal of a Wetland Delineation Report (WDR), a Joint Permit Application (JPA), and a Natural Resource Assessment (NRA), depending on potential project impacts to jurisdictional natural resources (i.e., wetlands, waters, and/or vegetated corridors).

5.1 Wetland/Waters Delineation Fieldwork

Consultant shall conduct wetland/waters delineation fieldwork to identify the jurisdictional boundaries of wetlands and other waters (i.e., Erickson Creek) that occur within the project study area. The boundaries of wetlands shall be determined based on the presence of wetland hydrology, hydric soils, and hydrophytic vegetation, in accordance with the "Routine On-site" determination methodologies of the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0). The

boundaries of waters (i.e., Erickson Creek) will be delineated based on ordinary high water (OHW) elevation in accordance with Corps and DSL guidelines. All wetland and waters boundaries shall be flagged in the field so they are clearly identifiable to the Client's surveyors. Following completion of the fieldwork, Consultant shall provide the Client with a sketch map of the boundary flagging.

Assumptions:

- Prior to conducting fieldwork, Client shall provide Consultant with a map identifying the limits of the project study area.
- Client shall provide all right-of-way access, as necessary to survey properties within the project study area.
- This task does not include land survey services or preparation of a formal WDR (Task 2).

5.2 Wetland Delineation Report

Following completion of the wetland/waters delineation fieldwork, if it is determined that the proposed project may impact jurisdictional natural resources, Consultant shall prepare WDR describing the delineation methodology and results of the fieldwork for submittal to the DSL for jurisdictional concurrence. The WDR shall meet current DSL and Corps guidelines, and shall include data collected on the soils, hydrology, and vegetation within the project study area. Graphics shall depict the topography, soil mapping, National Wetland Inventory (NWI) mapping, aerial and ground level photographs, and the locations of the surveyed wetland boundaries.

Assumptions:

- Client shall provide a copy of the land survey and CAD figures depicting all delineated wetlands and waters, as necessary for preparation of the WDR.
- Submittal of the WDR shall require a fee submittal to the DSL for review. The fee shall be provided by the Client.

5.3 Joint Permit Application

If it is determined that the proposed project may impact jurisdictional natural resources (i.e., wetlands and/or waters) Consultant shall prepare a JPA for submittal to the Corps and DSL to authorize work (i.e., removal/fill) within jurisdictional wetlands and waters. The JPA shall be prepared in accordance with Corps and DSL guidelines and shall include all necessary supporting documentation addressing potential impacts to waters and endangered species, and proposed mitigation. Consultant shall coordinate with Agency representatives to confirm permitting requirements and application procedures. This coordination shall include pre-application correspondence in the form of telephone calls and emails. If necessary, Consultant shall arrange for an Agency pre-application meeting at the project site to review project design and assess initial Agency concerns. Following submission of the JPA, Consultant shall respond to any questions or comments received from the Agencies during their review of the JPA, as necessary to facilitate issuance of the required permits.

The project's potential need to obtain a Section 404 Permit from the Corps to authorize project related fill within Erickson Creek and/or adjacent wetlands provides a federal nexus requiring the project to comply with Section 7 of the Endangered Species Act (ESA). As such, it is anticipated that any potential downstream impacts to Erickson Creek (or other connecting waterbodies [i.e., Beaverton Creek]) associated with potential post-project stormwater runoff

from increased impervious surface, reconstruction of pavement, or change in stormwater conveyance shall require Section 7 consultation with NMFS through compliance with the terms and conditions of the 2014 programmatic opinion for Revisions to Standard Local Operating Procedures for Endangered Species to Administer Maintenance or Improvement of Stormwater, Transportation or Utility Actions Authorized or Carried Out by the U.S. Army Corps of Engineers in Oregon (SLOPES V for Stormwater, Transportation or Utilities).

Consultant shall coordinate with representatives of the Corps and NMFS to confirm project compliance with the SLOPES V programmatic. This coordination shall include pre-consultation correspondence in the form of telephone calls, emails, and/or memorandums. Formal programmatic approval shall be requested through submittal of a SLOPES V Stormwater Information Form.

The ODFW-preferred in-water work window (IWWW) for Erickson Creek is July 15 – September 30. Project design and construction will need to be carried out in a manner that allows for any proposed construction below the OHW of Erickson Creek to be completed during the preferred or other Agency-approved IWWW.

In the event that the proposed project requires mitigation for impacts to Erickson Creek and/or adjacent wetlands, Consultant shall coordinate with the Applicant and appropriate Agencies to identify potential mitigation opportunities. It is anticipated that any potential impacts to Erickson Creek would be temporary and self-mitigating (with restoration), and any potential wetland impacts would be mitigated at a wetland mitigation bank. As such, this Scope of Work does not include preparation of a Compensatory Mitigation Plan (CMP). If it is determined that a CMP will be required, Consultant shall submit a revised Scope of Work for those services.

Assumptions:

- Client shall provide all construction plans and project description information, as necessary to quantify and document project impacts.
- If necessary, Client shall complete the Stormwater Information Form for submittal with the JPA.
- If required, a pre-application meeting with the Agencies shall be limited to one (1) onsite meeting.
- Client shall provide CAD figures depicting removal/fill impacts with wetlands and waters, as necessary for preparation of the JPA.
- Consultant shall submit the JPA to the Corps and DSL. Submittal of the JPA shall require fee submittals to the DSL and DEQ for review. The fees shall be provided by the Client.
- This task does not include preparation of a Biological Assessment.
- This task does not include preparation of a Cultural Resources Report, Stormwater Management Plan, or an Erosion and Sediment Control Plan. Those documents shall be provided by the Client, if necessary, for submittal with the JPA.

5.4 Natural Resource Assessment

Consultant shall conduct a site assessment and identify sensitive areas and vegetated corridors within the vicinity of the project study area. Following this assessment, Consultant shall prepare and submit an NRA report and Sensitive Areas Certification form to CWS in application for a Service Provider Letter (SPL). The NRA shall include a discussion of sensitive areas, the quality of associated vegetated corridors, an assessment of potential project-related impacts, an alternatives analysis, and a description of proposed mitigation.

Consultant shall coordinate with CWS representatives to confirm site assessment requirements, application procedures, and mitigation measures. This coordination shall include pre-application correspondence in the form of telephone calls and emails. If necessary, Consultant shall arrange for a pre-application meeting with CWS to review project design, potential impacts, and proposed mitigation. Following submission of the NRA, Consultant shall respond to any questions or comments received from CWS during their review, as necessary to facilitate issuance of the SPL.

Assumption(s):

- Client shall provide all construction plans and project description information, as necessary to quantify and document project impacts.
- Consultant shall attend one (1) meeting with CWS to discuss potential impacts and mitigation measures.
- This Scope of Work does not include preparation of a CMP. If it is determined that a CMP will be required, Consultant shall submit a revised scope for those services.
- Client shall provide CAD figures as necessary for preparation of the NRA report.
- Consultant shall submit the NRA report and certification form to CWS. Site certification and assessment will require a fee submittal to CWS. The fee will be paid by the Client.

5.5 CWS Mitigation Fieldwork (Contingency)

If it is determined that project impacts to CWS vegetated corridors cannot be fully mitigated within the project study area or through the CWS' Payment to Provide (PTP) fee structure, the Consultant shall conduct additional fieldwork to help identify areas outside the project study area that may be used for mitigation and/or vegetated corridor enhancement. This information will then be incorporated into the NRA (4.4).

Assumption(s):

- Client shall provide all right-of-way access, as necessary to survey properties located outside the project study area.
- Client shall provide revised CAD figures, as necessary for preparation of the NRA report.

5.6 Arborist Field Work and Plan

Arborist Field Evaluation: Provide a certified arborist to perform a visual evaluation of all trees shown on the provided existing conditions plan provided by Cardno. The visual evaluation will include tree diameter at breast height (DBH), species, health rating, structure rating, and comments on overall condition. The existing conditions plan shall include the tree diameter at breast height (DBH) and general species and each tree shall be tagged with an aluminum tag and corresponding survey number by the project surveyor. Cardno will facilitate a meeting between RH2 and the project surveyor prior to beginning survey field work to confirm that the required information is collected in a manner consistent with the needs of the arborist. Prepare a Detailed Tree Inventory Spreadsheet that includes the tree survey number and all information described above for each tree.

Preliminary Tree Preservation and Removal Plan: Prepare for and participate in design discussions regarding tree preservation and removal following tree inventory and review of proposed design. Prepare a Preliminary Tree Preservation and Removal Plan based on the

proposed site plan. The plan will show trees to be removed, trees to be preserved, protection measures for trees to be preserved, and the detailed tree inventory spreadsheet described above, as well as the number of mitigation trees required by the City for trees to be removed. Submit draft Plan to Cardno and City for review and participate in one (1) followup meeting.

Assumption(s):

- Arborist services provided under this scope are limited to preparing a tree inventory and preparing a preliminary tree preservation and removal plan based on the preliminary design alignment. Arborist services to support the final design and/or construction may be amended to this contract once the scope of services and level of impact is better understood following the preliminary design.

Deliverables: Consultant shall provide the following deliverables:

- One (1) electronic copy (.pdf) of a sketch map showing the flagged boundaries of all wetlands and waters identified within the project study area
- One (1) electronic copy (.docx) of the draft WDR for review.
- One (1) electronic copy (.pdf) of the final WDR, and one (1) hardcopy for submittal to the DSL.
- One (1) electronic copy (.docx) of the draft JPA for review.
- One (1) electronic copy (.pdf) of the final JPA, and one (1) hardcopy for submittal to the Agencies
- One (1) electronic copy (.docx) of the draft NRA.
- One (1) electronic copy (.pdf) and one (1) hardcopy of the final NRA for submittal.

Task 6 Geotechnical Engineering

Consultant shall completed geotechnical services in accordance latest Federal, State, and Local regulations. The findings must be summarized in a Geotechnical Technical Report. Consultant shall perform the following subtasks for the foundation investigation.

Perform select number of borings to 5-feet below sewer/storm drain inverts, lab testing, and analysis. A report will confirm the proposed construction methods, groundwater, shoring and all other soil design parameters required.

6.1 Site Reconnaissance, Exploration and Testing Work Plan

Consultant shall perform site reconnaissance. The site reconnaissance must include, but is not limited to, the following work:

- Observe surface conditions indicative of subsurface conditions.
- Identify site constraints and staging concerns (for exploration and construction).
- Identify potential exploration locations.
- Meetings with City or other parties to discuss, review, and ascertain site conditions relevant to the geotechnical Project work.

The site reconnaissance will facilitate understanding of the site constraints for field explorations, construction, and traffic staging. Proposed boring locations must be staked or painted on the ground. Consultant shall prepare a Subsurface Exploration Plan ("SEP") showing the proposed drilling locations, outlining the drilling and sampling procedures, and the traffic control plan prior

to beginning the work. No fieldwork is to be performed, other than initial site reconnaissance before review and approval of the SEP by City.

Consultant shall develop a Traffic Control Plan ("TCP") for submittal to City prior to the start of work. The traffic control plan must be prepared by a flagging company licensed to work in the State of Oregon. The TCP must address a minor road encroachment as well as a single lane closure for activities associated with drilling exploratory borings from the roadway surface and pavement restoration. Consultant shall review the as-built drawings of all storm water drainage pipes and bridges provided by City, and use the One Call Utility Locating System to locate all utilities.

6.2 Field Exploration and Laboratory Testing

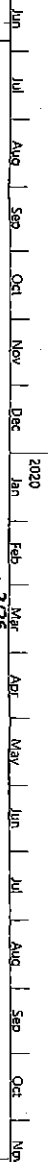
Consultant shall perform the geotechnical explorations and reconnaissance along existing and proposed sanitary sewer trunkline to evaluate subsurface conditions and develop geotechnical recommendations for excavation, dewatering, boring, and pipe bursting as shown in the following table. **UTILITY**

EST # OF BORINGS

ESTIMATED BORING DEPTH

Sanitary Sewer	10	10
Water	5	5

ID	Task Name	Duration	Start	Finish
34	Meeting #7	0 days	Wed 2/26/20	Wed 2/26/20
35	Quality Assurance/Quality Control	99 days	Thu 10/24/19	Tue 9/10/20
36	30% Design Package Submittal	2 days	Thu 10/24/19	Fri 10/25/19
37	60% Design Package Submittal	2 days	Wed 12/11/19	Thu 12/12/19
38	90% Design Package Submittal	2 days	Tue 1/28/20	Wed 1/29/20
39	Final Package Submittal	2 days	Mon 3/9/20	Tue 3/10/20
40	Task 2.0 Preliminary Investigation	15 days	Tue 8/20/19	Mon 9/9/19
41	Information Gathering	10 days	Tue 8/20/19	Mon 9/2/19
42	Obtain and Review CCTV Video Inspections	5 days	Fri 8/23/19	Thu 8/29/19
43	Water System Condition Assessment	10 days	Tue 8/20/19	Mon 9/2/19
44	Sewer Alignment Study	5 days	Tue 9/24/19	Mon 9/29/19
45	Task 3.0 Survey and Base Maps	23 days	Mon 8/19/19	Wed 9/18/19
46	Surveying and Mapping	15 days	Mon 8/19/19	Fri 9/6/19
47	Topographic Data and Basemaps	5 days	Tue 9/3/19	Mon 9/9/19
48	Digital Terrain Model (DTM)	3 days	Fri 9/6/19	Tue 9/10/19
49	Boundary Survey	15 days	Thu 8/29/19	Wed 9/18/19
50	Task 4.0 Utilities	32 days	Thu 8/22/19	Fri 10/4/19
51	Utility Location and Coordination	10 days	Thu 8/22/19	Wed 9/4/19
52	Utility Report	5 days	Mon 9/2/19	Fri 9/6/19
53	Utility Investigation & Utility Detection Survey	5 days	Thu 8/29/19	Wed 9/4/19
54	Utility Relocations	20 days	Mon 9/9/19	Fri 10/4/19
55	Task 5.0 Environmental Clearances & Permitting	159 days	Thu 8/22/19	Tue 9/3/1/20
56	Wetland/Waters Delimitation Fieldwork	5 days	Thu 8/22/19	Wed 8/28/19
57	Wetland Delimitation Report	5 days	Thu 8/29/19	Wed 9/4/19
58	Joint Permit Application	10 days	Wed 11/13/19	Tue 1/12/20
59	Permitting	90 days	Wed 11/27/19	Tue 9/3/1/20
60	Natural Resource Assessment	10 days	Wed 12/4/19	Tue 12/17/19
61	CWS Mitigation Fieldwork (Contingency)	5 days	Wed 12/11/19	Tue 12/17/19
62	Task 6.0 Geotechnical Engineering	30 days	Tue 9/10/19	Mon 10/21/19
63	Site Reconnaissance, Exploration and Testing Work Plan	5 days	Tue 9/10/19	Mon 9/16/19
64	Field Exploration and Laboratory Testing	15 days	Tue 9/17/19	Mon 10/7/19
65	Geotechnical Analysis	10 days	Tue 10/1/19	Mon 10/14/19
66	Geotechnical Report	10 days	Tue 10/9/19	Mon 10/21/19



Project Project Schedule 06-25
Date: Wed 6/26/19

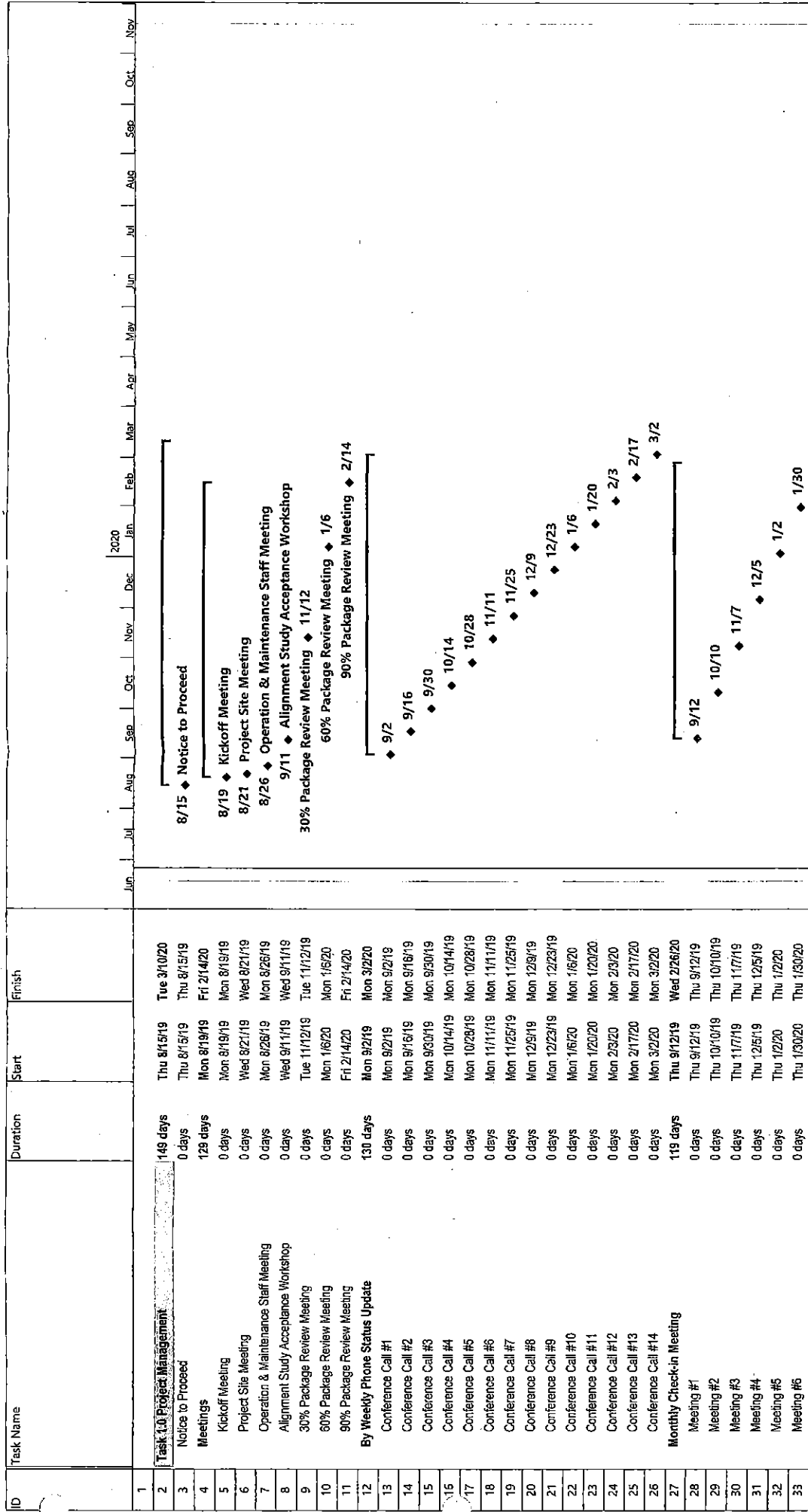
Task Summary: Inactive Task, Inactive Milestone

Manual Task Summary: Manual Summary

Start-only: Manual Summary, External Milestone

Deadline: Manual Progress

Exhibit 2



Project: Project Schedule 06-25
 Date: Wed 8/26/19

Legend:
 Manual Task (solid bar)
 Duration-only (dashed bar)
 Manual Summary Rollup (thick bar)
 Manual Summary (thin bar)
 Inactive Task (light gray bar)
 Inactive Milestone (light gray diamond)
 Inactive Summary (light gray bar)
 Start-only (arrow pointing right)
 Finish-only (arrow pointing left)
 External Task (diamond with dot)
 External Milestone (diamond with dot)

Page 1

ID	Task Name	Duration	Start	Finish
67	Corrosive Soils Assessment and Cathodic Protection	8 days	Tue 10/21/19	Thu 10/31/19
68	Task #20 Preliminary Design (Up to 30%)	37 days	Thu 9/19/19	Fri 11/8/19
69	30% Preliminary Design	20 days	Thu 9/19/19	Wed 10/7/19
70	Opinion of Probable Construction Costs	3 days	Thu 10/15/19	Thu 10/17/19
71	Preliminary Design Report	5 days	Thu 10/17/19	Wed 10/23/19
72	30% Package Submittal	0 days	Fri 10/25/19	Fri 10/25/19
73	City Review	10 days	Mon 10/28/19	Fri 11/8/19
74	Task #20 Final Design Phase (From 30% to 100% Complete)	85 days	Wed 11/13/19	Tue 3/10/20
75	60% Design Package	37 days	Wed 11/13/19	Thu 12/20
76	Construction Plans	20 days	Wed 11/13/19	Tue 12/10/19
77	Specifications	3 days	Fri 12/6/19	Tue 12/10/19
78	Construction Estimate	3 days	Fri 12/6/19	Tue 12/10/19
79	60% Design Package Submittal	0 days	Thu 12/12/19	Thu 12/12/19
80	City Review	15 days	Fri 12/13/19	Thu 12/20
81	90% Design Package	27 days	Tue 11/17/20	Wed 2/12/20
82	Construction Plans	15 days	Tue 11/17/20	Mon 1/27/20
83	Specifications	3 days	Thu 1/23/20	Mon 1/27/20
84	Construction Estimate	3 days	Thu 1/23/20	Mon 1/27/20
85	90% Design Package Submittal	0 days	Wed 1/29/20	Wed 1/29/20
86	City Review	10 days	Thu 1/30/20	Wed 2/12/20
87	Final Design Package	17 days	Mon 2/17/20	Tue 3/10/20
88	Construction Plans	15 days	Mon 2/17/20	Fri 3/6/20
89	Specifications	3 days	Wed 3/4/20	Fri 3/6/20
90	Construction Estimate	3 days	Wed 3/4/20	Fri 3/6/20
91	100% Design Package Submittal	0 days	Tue 3/10/20	Tue 3/10/20
92	Right-Of-Way Legal Descriptions & Maps	15 days	Tue 1/14/20	Mon 2/3/20
93	Utility Plotting	10 days	Tue 1/17/20	Mon 1/20/20
94	Tree Removal and Retention Assessment	5 days	Fri 12/13/19	Thu 12/19/19
95	Task #30 Public Involvement	141 days	Tue 8/27/19	Thu 3/10/20
96	Public Involvement/Communications Plan	5 days	Tue 8/27/19	Mon 9/2/19
97	Public Involvement Meeting #1 (30% Design Package)	0 days	Tue 11/12/19	Tue 11/12/19
98	Public Involvement Meeting #2 (60% Design Package)	0 days	Mon 1/6/20	Mon 1/6/20
99	Public Involvement Meeting #3 (100% Design Package)	0 days	Tue 3/10/20	Tue 3/10/20

Project Project Schedule 06-25
Date: Wed 6/26/19

Task Summary
Milestone
Summary

Project Summary
Inactive Task
Inactive Milestone
Summary

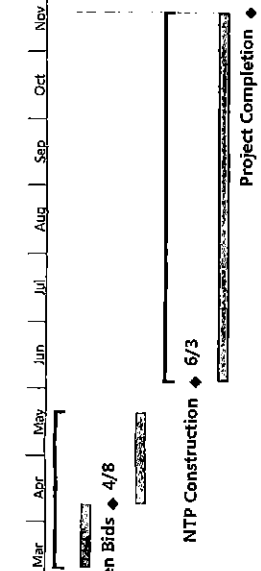
Manual Task
Duration-only
Manual Summary Rollup
Manual Summary

Start-only
Finish-only
External Tasks
External Milestone

Deadline
Progress
Manual Progress

11/12 ♦ Public Involvement Meeting #1 (30% Design Package)
1/6 ♦ Public Involvement Meeting #2 (60% Design Package)
3/10 ♦ Public Involvement Meeting #3 (100% Design Package)

ID	Task Name	Duration	Start	Finish
100	Task 10.0 Bid And Award Assistance	51 days	Wed 3/11/20	Wed 5/20/20
101	Advertise	21 days	Wed 4/8/20	Wed 4/8/20
102	Open Bids	0 days	Wed 4/8/20	Wed 4/8/20
103	Award/Contracting	1.5 mons	Thu 4/9/20	Wed 5/20/20
104	Task 11.0 Construction Administration Assistance	120 days	Wed 6/3/20	Wed 11/18/20
105	NTP Construction	0 days	Wed 6/3/20	Wed 6/3/20
106	Construction	6 mons	Thu 6/4/20	Wed 11/18/20
107	Project Completion	0 days	Wed 11/18/20	Wed 11/18/20



Project: Project Schedule 06-25
Date: Wed 6/26/19

Task Split Milestone Summary

Project Summary Inactive Task Inactive Milestone Inactive Summary

Manual Task Duration-only Manual Summary Rollup Manual Summary

Start-only Finish-only External Tasks External Milestone

Deadline Progress Manual Progress

