



Mason County Public Works Request for Proposal

Submittal Date: October 5, 2017

Mason County Public Works is requesting proposals for the following project:
Providing contract operations and maintenance of Mason County Solid Waste Facilities

Background

Mason County Public Works (the County) operates and maintains four solid waste facilities. These facilities are the Eells Hill Transfer Station and rural drop box stations at Belfair, Hoodspport, and Union. Total Solid Waste tonnage from all four facilities was 34,572 in 2016. The Belfair station averages around 27 tons a month, the Union station 23 tons a month, and the Hoodspport station around 13 tons a month. Current staffing includes a half time Deputy Director (other half utilities), Solid Waste Manager, 4 operators, 4 booth attendants, and 2 extra help booth attendants.

A certificated hauler, Mason County Garbage Co. Inc., provides curbside service throughout the County and City of Shelton. Mason County Garbage Co. Inc. also has a contract with the County to provide blue box recycling disposal services that expires in August of 2020. Republic Services provides long haul disposal services of solid waste from Eells Hill Transfer Station through contract. The long haul contract is set to expire in August of 2020. Both the blue box recycling and long haul contracts have extensions in them if the County chooses to continue service under those contracts beyond August 2020.

One recommendation of the 2017 Mason County Comprehensive Solid Waste Management Plan (CSWMP) is, *"Prior to the expiration of the hauling contract with Republic Services, the County should evaluate the potential benefits of having a private contractor take over operations of facilities as well as providing hauling services."*

Request for Proposal Goal

To determine if contracting out operations of County Solid Waste Facilities will provide the best level of service and value to the County and its residents for solid waste disposal, recycling, and HHW disposal.

Proposal Information

Mason County is issuing this RFP to receive responses from companies interested in providing contract operations of County Solid Waste Facilities. The County would retain ownership of the properties and facilities. Proposers must submit proposals for the baseline service option of providing contract operations with the same service levels (same days and hours of existing facilities) that the County currently provides.

The proposal can include an alternative contract service option to the baseline service operation. The alternative option would identify the service option the Proposer thinks would provide the best service and value to the County. This alternative should compare the cost differences and the pros and cons for the County between the alternative and baseline service options. Alternative options are not needed if a proposer feels the baseline service option is the best option. Possible alternative options include:

1. County facility operations with long haul disposal services starting in August of 2020.
2. County facility operations with long haul disposal services and blue box recycling services starting in August of 2020.
3. County facility operations with blue box recycling services starting in August of 2020.
4. Any other contract service alternative the proposer feels would be the best benefit to the County.

Based upon the proposal responses and subsequent interviews the County may elect to enter into a contract with a company for private operations of the facilities. If the contract includes long haul or blue box recycling services that part of the contract would not start until the existing contracts expire in August of 2020. The baseline service option contract length would be 25 years with two 5 year extension options. Different contract lengths could be proposed in the alternative service option. If the County decides not to pursue privatization after reviewing the RFP's and conducting interviews, the County may issue RFP's for a new long haul contract and blue box recycling contract to replace the ones expiring in August of 2020.

The County is currently in the design phase of improvements of the Eells Hill transfer station building. These improvements are scheduled for construction in early 2018 and include the following items:

1. Replace and extend transfer building top load chute with skirt.
2. Restore/upgrade transfer building wastewater and surface water drainage systems.
3. Install sidewalk/stairs between upper and lower level of transfer building.
4. Resurface transfer building asphalt tipping floor.

Proposers should assume these improvements will be completed in 2018, closely matching the 90% drawings provided with this RFP.

Attached to this RFP is a copy of the draft Comprehensive Solid Waste Management Plan (CSWMP) for the County that is currently being reviewed by the Department of Ecology. The Plan includes a 2016 Capital Investment Needs Report completed by Parametrix that documents improvements needed or recommended at the Solid Waste Facilities. The Plan also includes information on MSW and recycling tonnages the last several years as well as projected future tonnages.

If the County implements contract operations of the facilities, closure and post-closure activities of the landfill at Eells Hill will still be handled by Mason County. The County will be conducting quarterly groundwater monitoring and leachate gas testing through 2019. The County Solid Waste Manager will coordinate with the Contractor on landfill activities so as not to interfere with transfer station operations.

All information provided in proposals will be public information. Any proposals that identify information as proprietary or confidential will be rejected and not considered.

Proposal Content

Proposers are expected to review the information provided in the CSWMP, the existing drawings, the proposed improvements drawings, and information from site visits to determine the best solid waste system for the County moving forward. Alternative service options should identify the level of contract service the proposer thinks would be the best for Mason County, if different from existing service levels.

The proposal should address the following items:

1. The solid waste tonnage the County receives is close to the capacity of the existing transfer station. If the County selects a contract operator they would be required to construct a new transfer station facility (or modify the existing facility) during the contract period at Eells Hill. This facility would

need to be completed by 2025 and have a 40-year capacity. Please describe the size and components of the new transfer station the proposer would build based on the information provided to them as well as any site visits. Improvements would include Household Hazardous Waste (HHW) facilities. All improvements completed on County Property would be owned by the County once they are completed. *Do not provide engineering or architectural drawings as part of the proposal.*

2. The proposer should identify any other capital improvements at Eells Hill or other facilities they propose to complete within the life of a 25 year contract.
3. A description of how the proposer would receive and dispose of HHW material. The CSWMP attached with the RFP identifies the HHW items the County currently accepts at the different facilities. The proposer will need to continue to accept those items. The proposer should identify any additional HHW materials they propose accepting that the County currently does not accept.
4. A financial plan identifying how the proposer would charge residents and businesses. The financial plan should provide a proposed tipping fee/ton when the proposer takes over operations and explain how the proposer would adjust tipping fees after the initial year. The Contractor will pay all appropriate refuse taxes to the Washington Department of Revenue. The financial plan should identify how capital improvement costs would be built into the fee structure. *The final tipping fee/ton in the initial year in the contract may be different than the tipping fee in the proposal depending on the negotiations with the selected proposer.*
5. The County believes the existing properties owned by the County are sufficient in size to accommodate any necessary improvements needed to provide optimum levels of service to the County. If the proposer feels additional properties are needed then the size, general location, and purpose of these additional properties should be identified.
6. The contract operator would pay the County rent for the properties and a franchise fee to operate within the County. These funds would pay for a Solid Waste Manager to manage contracts and public outreach, and an Environmental Health Specialist position for enforcement and permitting activities. The proposer should identify the rent and franchise fee they feel is appropriate over the course of the contract. This can be identified as a set amount, a percentage of tipping fees, or some other method the proposer feels is appropriate.
7. In past years the County has paid for the blue box recycling program and HHW disposal through the Coordinated Prevention Grant (CPG) program. These funds were reduced in the 2015-2017 biennium and without a 2017 State Capital Budget the County is not including CPG dollars in the 2018 budget. Ecology is changing the name of this program to the Local Solid Waste Financial Assistance (LSWFA) Program. The proposal should describe how recycling and HHW programs will be paid for if LSWFA funds are not available in the future or insufficient to completely pay for these programs. It is expected the County would use any LSWFA funds it does receive to pay for recycling and HHW programs. LSWFA enforcement funds would also support the Environmental Health Specialist position.
8. Mason County does not have a flow control ordinance. The certificated hauler providing curbside service throughout the County takes the Municipal Solid Waste (MSW) they collect in the northern part of the County to the Kitsap County Transfer Station. This averages about 11% of the total MSW tonnage collected in the County. The certificated hauler takes solid waste from the rest of the County to the Eells Hill Transfer Station. There is also an unknown amount of self-haul MSW taken to neighboring counties. In your proposal please explain whether you support a flow control ordinance and the financial impacts on your proposal if a flow control ordinance is enacted.
9. Identify the level of staffing the proposer feels is appropriate for the solid waste facilities, before and after the improvements identified in Item 1 are completed. The proposal should also explain the opportunities existing County Solid Waste Staff would have in obtaining employment with the proposer if they take over operations.

10. The County understands that there would be some time required for a Contractor to staff up and take over operations from the time the Contract is signed. Please provide an estimated time in months the proposer would need between the signing of the Contract and actual taking over operations at the facilities.
11. The specific qualifications and experience of your company in solid waste handling.
12. References with contact information of other public/private contracts involving solid waste disposal in which the proposer is or may have been engaged in.
13. Specific conditions, covenants and restrictions you would like to see in a contract with the County.
14. A description of your anticipated environmental compliance program.
15. Other issues/alternatives the Proposer feels are important for the County to have a robust solid waste program. Alternative service options must explain the reasoning for changes in facility service hours or facility closures compared to the baseline service option.

Evaluation Scope

The County seeks a proposer experienced in the operations and maintenance of solid waste facilities. Experience with rural county facilities will be considered a plus.

The current schedule for RFP, subject to change, is as follows:

- March 6, 2018 at 4 PM – Proposals are due.
- April 18, 2018 – County completes selection of proposers to be interviewed.
- May - June 2018 – County interviews selected proposers.
- June - July 2018 – County selection team provides proposal and interview information to Board of Commissioners on merits of various proposals and options for service.
- August 2018 – Board approves either selection of proposer for contract operations or to continue County operations.
- November 2018 – County completes negotiations on contract with successful proposer (if selected).
- December 2018 – County and successful proposer sign contract (if selected) for private operations.

Information available to help complete proposals include:

- Proposers must register to receive RFP addendums. To register e-mail Bart Stepp at bstepp@co.mason.wa.us with your company name, contact name, address, phone number, and e-mail address to contact.
- Solid Waste Facilities Tour. To schedule a tour contact Bart Stepp at (360) 427-9670 x652 or bstepp@co.mason.wa.us by February 2, 2018.
- The 2017 Comprehensive Solid Waste Management Plan is included with the RFP.
- An electronic copy of the original drawings for the main transfer station facility and 90% drawings for the 2018 transfer station improvements are included with the RFP.

Contract operator selection will be based on the following factors:

- Answers to the fifteen items discussed in proposal content
- Relevant Experience of your firm in performing similar contract operations
- Key personnel that would be involved with contract operations with the County
- References of similar operations

Proposers shall submit 7 copies of the following items:

- Letter of Interest (1 Page Limit)
- Baseline Service Proposal (22 page limit, 8.5 x 11 max size for text, 11 x 17 max size for graphics)
- Alternative Service Option (6 page limit in addition to baseline service option 24 page limit)
- References (5 Page Limit)

Proposers shall also submit an electronic .pdf file of the submittal by providing a jump drive with the hard copy submittal or e-mailing a copy to Bart Stepp at bstepp@co.mason.wa.us. RFP's will be reviewed by County Staff and members of the County Solid Waste Advisory Committee (SWAC). The operator selection process will include interviews conducted by County Staff and SWAC members. SWAC members involved in the selection process will not be industry representatives. Questions regarding this RFP shall be sent via email to: bstepp@co.mason.wa.us. The deadline for questions is February 12, 2018. All answers to questions will be submitted to everybody on the roster list. Submittals must be received by Tuesday, March 6, 2018 at 4:00 PM.

Submit Proposals to:

Mason County Public Works
Attn: Bart Stepp
100 W Public Works Drive
Shelton, WA 98584

Mason County, in accordance with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42 U.S.C. 2000d to 2000d-4 and Title 49, Code of Federal Regulations, Department of Transportation, Subtitle A, Office of the Secretary, Part 21, nondiscrimination in federally assisted programs of the Department of Transportation issued pursuant to such Act, hereby notifies all bidders that it will affirmatively insure that in any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.



MASON COUNTY 2017 COMPREHENSIVE SOLID WASTE MANAGEMENT PLAN



By: Mason County Solid Waste Advisory Committee
Mason County Public Works
100 W. Public Works Drive
Shelton, WA 98584

PURPOSE OF DOCUMENT

This Comprehensive Solid Waste Management Plan meets the requirements of RCW 70.95 and the Washington Department of Ecology's requirements for a Solid Waste Management Plan.

ACKNOWLEDGEMENTS

Mason County Would Like to acknowledge the following people who assisted in the development and approval of the Comprehensive Solid Waste Management Plan:

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Eric Nelson, PE, District 1 Representative

Jeff Bickford, District 2 Representative

Cheryl Williams, District 3 Representative

Kevin Schmelzen, District 3 Representative

Jason Dose, City of Shelton Representative

Rik Frederickson, Mason County Garbage, Industry Representative

Delroy Cox, JDEL Consulting, Industry Representative

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EXECUTIVE SUMMARY

Background

This *2017 Mason County Consolidated Solid Waste Management Plan (CSWMP)* is a complete revision of, and supersedes, the *Mason County Solid Waste Management Plan 2006* and its *2011 Addendum*. The *Solid Waste Management Reduction and Recycling Act, Chapter 70.95* of the Revised Code of Washington (CH 70.95 RCW) requires a review/update of the Department of Ecology (Ecology) approved county solid waste management plans every five years to keep them current so timely update planning of the existing documents began in 2013. However progress on the document revision was extremely slow and due to turnover of Utilities and Waste Management Department personnel, along with budgetary constraints, it became evident that a revised document could not be produced using normal waste management plan development methods. Therefore a decision was made in May, 2015 that the Solid Waste Advisory Committee (SWAC), including the City of Shelton, would take primary responsibility for developing the updated/revised solid waste management plan. Following discussions during many preliminary planning and scoping meetings it became evident that the form and generic content of the existing documents were not suitable for updating so the SWAC decided that a new document would be produced.

This new CSWMP was developed using information contained in *“Guidelines for Development of Local Comprehensive Solid Waste Management Plans and Plan Revisions”* (Ecology Publication No. 10-07-005) and considering *“Moving Washington Beyond Waste and Toxics”* (Ecology Publication No. 15-04-019).

Organization

Chapter 1 describes the goals of this plan to reflect the desired outcomes for the waste stream, waste reduction, and recycling to achieve over the next twenty years (2037) with emphasis on the first six years (2023). Chapter 2 provides information about plan objectives and recommendations that implement its goals for solid waste management. Chapters 3 through 7 discuss the various elements of the solid waste management system in Mason County, and provide the information related to existing conditions along with specific recommendations where applicable. Chapter 8 provides a discussion of participant roles in the new plan development and Chapter 9 describes the relationship of this plan to other relevant Mason County planning documents along with a short discussion of solid waste handling facility permitting requirements. Chapter 10 is a status of how this plan continues to implement the unfulfilled recommendations of the previous plan. The Appendices contain supporting information for developing and understanding the CSWMP along with the resolution of comments received during the plan review and approval process (including the SEPA review).

Summaries of Chapters 3 through 7

While Chapters 1 and 2 summarize the goals, objectives, and activities developed further in subsequent chapters, it is worthwhile to emphasize some of the information contained in those chapters in this Executive Summary to provide Utilities and Waste Management personnel and the Mason County Board of County Commissioners (BOCC) with near-term planning considerations.

Chapter 3 – Solid Waste Handling Methods & Systems

The Eells Hill Transfer Station and Rural Drop Box facilities are described with a compilation of use statistics and current user fees. The current status of known landfills in Mason County is also discussed with a description of regulatory requirements that must be adhered to until these sites attain complete closure as authorized by Ecology.

Specific Needs and Opportunities identified are:

- Evaluate the physical and economic impacts of implementing flow control at Mason County solid waste facilities.
- For safety and operational considerations, implement suggested upgrades and improvements at the Eells Hill and rural drop box stations (Detailed in Appendix A).
- Prior to the expiration of the hauling contract with Republic Services, the County should evaluate the potential benefits of having a private contractor take over operations of facilities as well as providing hauling services and issue a RFP to explore privatization of the facilities and construction of a new transfer station at Eells Hill.

Chapter 4 – Waste Reduction, Reuse and Recycling

Details of existing waste reduction, recycling and composting practices, collectively known as “waste diversion” practices, are discussed and recycling statistics are presented. Useful waste diversion web sites are identified for public use along with a discussion of the waste audit program offered to businesses for their waste reduction use. Public Education and outreach programs related to waste diversion are also discussed.

Specific Needs and Opportunities identified are:

- The ability to quantify the results of waste reduction activities needs to be developed to allow measuring progress towards waste diversion goals
- Public awareness of recycling benefits must be increased.
- A usable food waste composting process would reduce landfill disposal volumes.
- Diversion of yard debris/wood waste volumes at drop box/transfer station should be increased.
- Increased Utilities and Waste Management Department presence in schools and at public events is needed to bring attention to waste diversion options and services available. The last known public solid waste survey was conducted in 2005.
- Unpaid internships could be used to conduct “special projects” (related to solid waste) for Utilities Waste Management personnel encumbered by other priorities.

Chapter 5 – Moderate Risk Waste Management

Moderate Risk Wastes (MRW) are household hazardous wastes that are exempted because they are generated by consumers in their homes or are hazardous wastes that are below the threshold quantity for regulation. Typical household use products are identified and disposal practices at the Eells Hill/rural drop box facilities are discussed. Deficiencies at the county facilities are referenced (Chapter 3 and Appendix A) and the most critical near-term items are identified. Mason County public education efforts are described along with employee health and safety requirements. Ecology’s database for hazardous waste generators and hazardous sites is referenced.

Specific MRW Needs and Opportunities identified are:

- Eells Hill immediate repair/upgrade needs
 1. Repair/replace and freeze protect emergency eyewash/shower stations
 2. Install a new pump in the wastewater holding tank
 3. Install a rain curtain in the waste oil handling bay
 4. Assess the HHW facility for relevant Code compliance and functional performance
 5. Assess fire risks and on-site response capabilities
- Drop Box Stations immediate repair/upgrade needs
 1. Install and/or repair perimeter fencing
 2. Install secondary containment for HHW sheds
 3. Install or repair damaged asphalt pavement around HHW collection areas
- Evaluate elimination of household hazardous waste (HHW) at Kitsap County solid waste facilities.

Chapter 6 – Characterization of the Waste Stream

Citing Environmental Protection Agency (EPA) and Ecology sources, it is noted that the Mason County municipal solid waste (MSW) per capita generation rate is 25% lower than the national average (0.6 tons versus 0.8 tons). The average percentage of total MSW volume being recycled from 2010 – 2015 is 8.78%. Statistics for MSW generated countywide (including the City of Shelton) are given for the years 2010 to 2015 along with 5-year increment projected generation rates for 2020 through 2040. Disposal of “special wastes” i.e., animal carcasses, asbestos, biomedical wastes, biosolids, septic tank sludge, construction & demolition wastes (C&D), disaster debris, electronic waste, and waste tires are discussed. No needs or opportunities have been identified for these special wastes when the identified methods are implemented.

Chapter 7 – Characterization of the Planning Area

The physical environment of Mason County is described and a map of the service area is presented with the location of all solid waste handling facilities. The past population data (1990 to 2015) is presented along with projected trends from 2015 to 2040. Accompanying the population information is a discussion of recent employment and economic data. The chapter ends with a brief discussion of land use trends. No needs or opportunities have been identified that include expansion of solid waste handling facilities beyond the areas already in use. Any expansion or new transfer station at Eells Hill can be built within the existing Eells Hill property that is already approved for solid waste use.

CHAPTER 1

GOALS FOR SOLID WASTE MANAGEMENT

Mason County has adopted the following goals for comprehensive solid waste management.

Planning Goals reflect the desired outcomes for the waste stream, waste reduction, and recycling to achieve over the next twenty years (2037) with an emphasis on the first six years (2023).

The goals of this plan are to describe the existing system and then lay the foundation for the proper management of solid waste systems in Mason County now and in the future. The standards by which programs will be developed and implemented are consistent with the requirements of the Revised Code of Washington (RCW), the Washington Administrative Code (WAC), and the Mason County Code of Ordinances. These goals have been developed in consultation with affected sections of the community. Each element of the Solid Waste Management Program must address the Plan's comprehensive goals, which are to:

1. Implement an economically sound solid waste management system, conforming to Federal, Washington State, regional, and local statutes and rules.
2. Seek a balance between public health requirements, environmental protection measures, and public expenditures.
3. Apply solid waste management priorities according to the state hierarchy.
4. Identify and consider implementation of emerging methods for improved management and handling of all waste.
5. Maintain an efficient and effective system of waste stream measurement and monitoring.
6. Maintain sufficient flexibility to allow adaptation of strategies in accordance with local resources and unanticipated changes, needs, and opportunities.
7. Foster cooperative and coordinated efforts among government agencies, citizens, and the private sector.
8. Ensure education and information elements are an integral part of all programs related to solid waste management and reduction.
9. Develop and implement a program evaluation and performance review schedule through the Solid Waste Advisory Committee (SWAC) and the solid waste staff.
10. Emphasize the development and implementation of the most efficient technologies for waste reduction, reuse, and recycling.
11. Consider waste reduction programs that will be a cooperative effort by the County and local municipalities to the greatest extent possible.

12. Evaluate public/private partnerships to consider if an arrangement can be made that benefits all participants.
13. Budget improvements and repairs to all transfer stations for safety, productivity, and maintenance improvements.
14. Enact and enforce a truck tarping ordinance in accordance with RCW 46.61 to reduce highway and road litter.
15. Encourage Mason County and City of Shelton to create and maintain "Adopt A Road" litter programs.
16. Enforce event recycling at all public and sporting events. RCW 70.93.093

CHAPTER 2

PLAN OBJECTIVES AND ACTIVITIES

Mason County has adopted a series of plan objectives and recommendations that implements its goals for Solid Waste Management. Work Plan Objectives are specific accomplishments to achieve over the next five years that show progress in achieving the plan's goals (2017-2022). Waste Reduction Activities are specific projects or actions to implement the Work Plan Objectives.

While each Work Plan Objective is important, five of them lead the way: waste reduction, recycling, composting, enforcement, and moderate-risk waste management. County and municipal solid waste management efforts will emphasize these objectives and their recommendations above the rest. As time, resources, and unique opportunities arise, the County will resume implementing the remaining ones. The Work Plan Objective for moderate-risk waste management follows separately in Chapter 5.

Each Work Plan Objective and its recommendations show the responsible party for implementation and the funding source. Implementation of these tasks is an ongoing process, with the Solid Waste Advisory Committee (SWAC) holding an annual review in April to determine progress.

2.1 Waste Reduction

Work Plan Objective: Explore and support incentives and programs that encourage waste reduction practices among citizens and within local governments, businesses, public institutions, and industry. Establish a base line volume for all Mason County solid waste facilities and provide timely reports showing diversion amounts and the annual amount of change for each facility and the system as a whole.

Waste Reduction Activities:

WR 1 Request technical assistance from the Washington State Department of Ecology (Ecology) to explore strategies for use by governments, institutions, businesses, and industry that encourage the use and purchase of products containing pre- and post-consumer recycled material content in the workplace.

- Solid Waste Program (SWP) staff to meet with Ecology to determine scope of assistance
- SWP staff to consult with SWAC in fall to determine scope of interest, topics
- Set the date to market a waste reduction workshop to interested groups, businesses
- Hold evening workshops(s)

Implementation: 2017

WR 2 Incorporate appropriate waste reduction strategies, including Product Stewardship programs, identified by the SWAC into existing educational outreach efforts.

Implementation: Ongoing

WR 3 Continue to support material reuse websites to encourage reuse of common household items among citizens.
Implementation: Ongoing

2.2 Recycling

Work Plan Objective: Reduce the County waste stream by 5% through an active recycling program.

Recycling Activities:

- R 1 The SWP and the solid waste contractor will continue to market countywide the co-mingled container recycling program.
Implementation: Ongoing
- R 2 The SWP will continue to fund recycling public education and information programs. The program will also explore new partnerships and techniques to deliver programs throughout the County.
Implementation: Ongoing
- R 3 The SWAC will continue to explore new ways to expand recycling opportunities and programs for the public. The SWAC will hold a solid waste review every April that will include analysis of recycling activities over the past year and potential improvements.
Implementation: Ongoing

Funding Source: CPG Grant, Solid Waste Plan Fund #402, Contractor Collection Rates

Responsibility: County, SWAC, Solid Waste Division, City of Shelton, Solid Waste Contractors

2.3 Organics

Work Plan Objective: Continue to expand services and educational outreach and opportunities for handling organics.

Organics Activities:

- O 1 The County will explore and / or consider working in cooperation with the Washington State University (WSU) Cooperative Extension, Master Gardener Program to promote backyard composter training, education, and sales to the public and school districts. The SWAC will support an outreach program.
Implementation: Ongoing
- O 2 The County will maintain and expand a yard and wood waste collection program through the Eells Hill Transfer Station. At the annual Solid Waste Review, the SWAC will discuss status of public interest and cost to establish a yard waste collection program at Eells Hill Transfer Station.
Implementation: 2018

O 3 Solid Waste Division staff will consult with SWAC annually during the Solid Waste Review to determine if there is a need for technical assistance
Implementation: Ongoing

O 4 Continue to identify and track existing and past sites; monitor for compliance.
Implementation: Ongoing

Funding Source: CPG Grant, Solid Waste Plan Fund #402, Solid Waste Enforcement Grant

Responsibility: County, City of Shelton, SWAC, Solid Waste Division, Solid Waste Contractors, Environmental Health Division, Ecology

2.4 Enforcement

Work Plan Objective: Create a coordinated and effective approach for all enforcement agencies to resolve illegal dumping and reduce littering.

Enforcement Activities:

E 1 Consider alternative enforcement methods to reduce illegal dumping on public and private property.
Implementation: Ongoing

E 2 Mason County and the municipalities will continue to seek funding within their annual budget for abatements and illegal dumping enforcement within their jurisdictions.
Implementation: Ongoing

E 3 Support volunteer litter control programs such as the County's "Adopt A Road" program and consider developing a fund for volunteer programs on public lands.
Implementation: Ongoing

E 4 Build public support to prevent dumping through education and outreach programs.
Implementation: Ongoing

E 5 The County may provide assistance for the removal of abandoned vehicles.
Implementation: Ongoing

E 6 Strengthen and review countywide litter control activities.
Implementation: Ongoing

Funding Source: Solid Waste Enforcement Grant, Solid Waste Plan Fund #402, CPG Grant

Responsibility: County, SWAC, Environmental Health Division, Solid Waste Division, Shelton

2.5 Wood Waste

Work Plan Objective: Support efforts to find beneficial uses for wood waste.

Wood Waste Activities:

WW 1 The SWAC and the SWP will monitor County or regional discussions or proposals regarding the study and/or siting of wood waste landfills.

Implementation: Ongoing

WW 2 The SWAC may request technical assistance from Ecology to learn about opportunities for wood waste reduction and reuse. SWP staff will consult with SWAC annually during the Solid Waste Review to determine if there is a need for technical assistance

Implementation: Ongoing

WW 3 Continue to identify and track existing and past sites; monitor for compliance.

Implementation: Ongoing

Funding Source: Solid Waste Enforcement Grant, Solid Waste Plan Fund #402

Responsibility: County, SWAC, Solid Waste Division, Environmental Health Division, Ecology

2.6 Biosolids

Work Plan Objective: Encourage wastewater treatment plants in Mason County to find cooperative solutions to managing and disposing of biosolids.

Bio-Solids Activities:

BS 1 The County currently defers the management of biosolids to Ecology.

Implementation: Ongoing

Funding Source: Ecology

Responsibility: Ecology

2.7 White Goods

Work Plan Objective: Support the continued reuse or recycling of white goods through the Eells Hill Transfer Station, rural transfer stations, and private businesses.

White Goods Activities:

WG 1 The County will maintain updated lists on its Solid Waste Program website of private firms that recycle or reuse white goods.

Implementation: Ongoing

WG 2 The County will continue to encourage the recycling and reuse of white goods through the educational component of the Waste Reduction and Recycling Plan (see Chapter 4).

Implementation: Ongoing

WG 3 The County will encourage private recycling events that include white goods collection.

Implementation: Ongoing

WG 4 The County may subsidize a refrigerant collection program.

Implementation: 2017

Funding Source: CPG Grant, Solid Waste Plan Fund #402

Responsibility: County, Solid Waste Division

2.8 Construction and Demolition (C&D) Waste

Work Plan Objective: Support private sector efforts that emphasize the reuse of construction, demolition, and land-clearing wastes over land-filling

Construction and Demolition (C&D) Debris Activities:

C&D 1 The County will maintain updated lists on its Solid Waste Program website of private firms that manage, reuse, and/or dispose of C&D wastes.

Implementation: Ongoing

C&D 2 The County will continue to encourage the reuse and proper disposal of C&D waste through educational component of waste reduction and recycling plan.

Implementation: Ongoing

C&D 3 The Solid Waste Program and the Environmental Health Division will continue to monitor private C&D waste disposal sites regarding their long-term capacity.

Implementation: Ongoing

C&D 4 The County may request technical assistance from local interested parties, the construction industry, and the DOE to improve practices for C&D waste reduction and reuse.

Implementation: Ongoing

Funding Source: CPG Grant, Solid Waste Enforcement Grant, Solid Waste Plan Fund #402

Responsibility: County, Solid Waste Division, Environmental Health Division, Ecology

2.9 Asbestos Contaminated Wastes

Work Plan Objective: Ensure asbestos wastes are disposed in accordance with best management practices.

Asbestos Contaminated Wastes Activities:

A 1 The County will maintain updated lists on its SWP website of private firms that manage, reuse, and/or dispose of asbestos waste.

Implementation: Ongoing

Funding Source: Contractor Disposal Fees

Responsibility: County, Solid Waste Contractor

2.10 Medical Wastes

Work Plan Objective: Require the proper collection and disposal of personal medical wastes.

Medical Wastes Activities:

MW 1 Support private haulers of medical waste collection by maintaining updated lists of firms on its Solid Waste Program website.

Implementation: Ongoing

MW 2 Support outreach programs aimed at educating the public about proper disposal of prescription medications and Sharps. Sharps are defined in Revised Code of Washington (RCW) 70.95K.010 as “all hypodermic needles, syringes with needles attached, intravenous (IV) tubing with needles attached, scalpel blades and lancets that have been removed from the original sterile packaging, and epipen or auto-injectors”.

Implementation: Ongoing

Funding Source: CPG Grant, Solid Waste Plan Fund #402

Responsibility: County, Solid Waste Division, Environmental Health Division, Mason County Sheriff’s Office.

2.11 Waste Tires

Work Plan Objective: Continue efforts that emphasize proper disposal methods for waste tires.

Waste Tires Activities:

WT 1 The County will incorporate proper waste tire handling into the waste reduction and recycling educational program.

Implementation: Ongoing

WT 2 The County encourages the use of the Ecology’s Waste Tire Removal Account for sites that contain more than 800 waste tires.

Implementation: Ongoing

WT 3 The County will allow the piling of waste tires only under permit from the Mason County Environmental Health Division. The County may require financial assurances to ensure post-closure clean-up.

Implementation: Ongoing

Funding Source: CPG Grant, Solid Waste Enforcement Grant, Solid Waste Plan Fund #402

Responsibility: County, Solid Waste Division, Environmental Health Division

2.12 Disaster Waste

Work Plan Objective: Establish and maintain an emergency management plan for handling wastes during and after disaster situations.

Disaster Waste Activities:

DW 1 The County may provide a system for transfer and disposal in the event of a disaster, i.e., earthquake or flood. In the past, if a disaster has caused waste that could be classified as a health

hazard, the Board of County Commissioners (BOCC) may pass a resolution on a case-by-case basis, waving the tipping fees at Eells Hill Transfer Station.

Implementation: Ongoing

DW 2 The County may make free disposal options available to the public during periods of declared emergency to ensure public health.

Implementation: Ongoing

DW 3 The County may contribute to County Disaster Planning as it relates to solid waste.

Implementation: Ongoing

Funding Source: Solid Waste Plan Fund #402, FEMA

Responsibility: County, Solid Waste Division, Solid Waste Contractors, Environmental Health Division, SWAC

2.13 Collection Activities

Work Plan Objective: The County and its service provider will maintain effective and efficient collection service that considers fairness, convenience, and accessibility of service for all County citizens.

Collection Activities:

CA 1 The County will ensure collection activities are consistent to evaluate success in meeting the Solid Waste Management Plan.

Implementation: Ongoing

Funding Source: Solid Waste Plan Fund #402

Responsibility: City of Shelton, County, SWAC, Solid Waste Division, Certificated Solid Waste Haulers and the Washington State Utilities and Transportation Commission.

2.14 Eells Hill Transfer Station and Rural Transfer Stations

Work Plan Objective: Maintain and operate Eells Hill Transfer Station and the system of satellite rural transfer stations that provides cost and operational efficiency, convenience to the public, and opportunities for recycling.

Eells Hill Transfer Station and Rural Transfer Stations Activities:

STS 1 The staff will conduct an annual operational review of the Eells Hill Transfer Station and its satellite system to evaluate whether the system continues to meet set objectives.

Implementation: Ongoing

STS 2 The Solid Waste Program and the contracted service provider will monitor the long-term transfer capacity of the system.

Implementation: Ongoing

STS 3 Operate the transfer stations as self-supporting enterprises in accordance with Washington Administrative Code (WAC) 173-350. Continue to structure user fees at the existing transfer stations to cover all costs.

Implementation: Ongoing

Funding Source: Solid Waste Plan Fund #402, Contractor Disposal Rates

Responsibility: County, Solid Waste Division, Solid Waste Contractor

2.15 Administration and Management

Work Plan Objective: Continue the present administrative and management structure to solid waste collection, transfer, and disposal.

Administration and Management Activities:

AM 1 Maintain staffing for the Solid Waste Program through the Department of Public Works to plan, administer contracts, and manage the solid waste and recycling system.

Implementation: Ongoing

AM 2 The SWAC and the Solid Waste Program will explore and implement partnerships with other local agencies and organizations for delivering of outreach and education programs.

Implementation: Ongoing

AM 3 Continue to monitor the contractual and management provisions in existing operating agreements and permits with all solid waste handling facility operators in the County.

Implementation: Ongoing

AM 4 The SWAC and the Solid Waste Program annually will evaluate its compliance with planning requirements under state law.

Implementation: Ongoing

AM 5 The municipalities shall monitor their solid waste programs to ensure compliance with the Solid Waste Management Plan.

Implementation: Ongoing

AM 6 Recruit memberships to the SWAC from each commissioner district, the Squaxin and Skokomish Indian Nations, the City of Shelton and commercial accounts.

Implementation: Ongoing

AM 7 Review and amend if necessary the SWAC by-laws.

Implementation: Ongoing

Funding Source: CPG Grant, Solid Waste Plan Fund #402, Municipal Budgets

Responsibility: County, SWAC, Solid Waste Division

CHAPTER 3 - SOLID WASTE HANDLING METHODS & SYSTEMS

3.1 Description of the Mason County Solid Waste System

The Mason County Solid Waste System (MCSWS) consists of a central waste transfer station at Eells Hill near Shelton, three rural drop box stations, and four known non-operating landfill areas. Figure 3.1 on the next page shows the location of the Eells Hill Transfer Station and the County's three drop box stations.

3.1.1 The Eells Hill Transfer Station

The purpose of the Mason County Eells Hill Transfer Station is to provide for the collection and transfer of wastes to an out-of-county disposal facility. The County built the transfer station in 1993 at the site of the former County landfill site which is located at 501 W. Eells Hill Road, Shelton, Washington.

The station is a full-service facility that accepts deliveries from private businesses, commercial collection route vehicles, commercial dropbox vehicles, County rural transfer stations, and the self-hauling public. The station has two covered unloading areas. The larger building allows for direct unloading onto a tipping floor for direct refuse unloading. A wheel-loader breaks down and places wastes into top-loading 100-cubic yard (CY) intermodal containers. A waste compaction or tamping arm compacts wastes. Ideally, well compacted trailers have an average weight of 27.5 tons. Mason County trailers typically average about 25 tons per trailer. Once loaded, trailers are hauled to a rail spur in Lewis County where they are loaded on to a train and shipped to the Roosevelt Regional Landfill in Klickitat County.

A scale house, office/storage building and limited household hazardous waste (HHW) collection area are also located at the Eells Hill Transfer Station. See Chapter 5 for a further discussion of HHW.

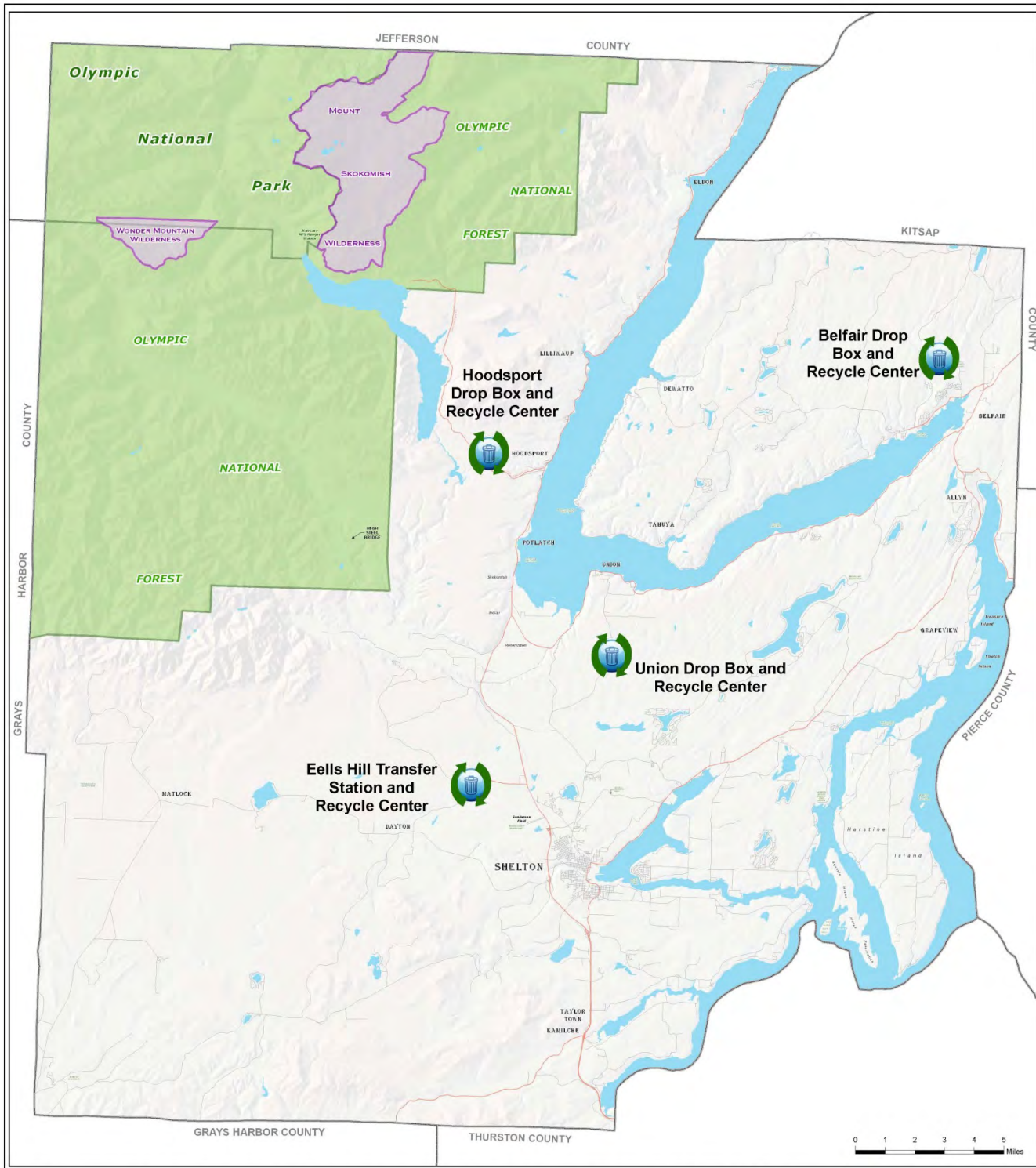
The design and operation of the facility complies with the State of Washington minimum Functional Standards for Solid Waste Handling (WAC173-350).

3.1.2 Rural drop box stations

The three rural drop-box stations are owned and operated by Mason County. The rural Sites accept most materials accepted at the Eells Hill Transfer Station, but cannot accept commercial or institutional municipal solid waste, and some types of moderate-risk waste. See Chapter 5 for further HHW details.

The rural stations are located in Belfair, Union and Hoodspport. Belfair has the greatest use followed by Union and then Hoodspport. All three rural stations are similar in design and operation and each consists of a covered steel building for unloading waste, recycle containers and an attendant's booth. 40-yard containers are placed below the unloading area floor elevation and the solid waste is dropped directly into the containers without compaction.

Figure 3.1 Mason County Solid Waste Handling Facilities



Mason County, Washington 2017 Solid Waste Facilities



3.1.3 Known Landfills Located In Mason County

The Eells Hill landfill is the only County-owned landfill which is closed and is currently undergoing the required 30-year post-closure surveillance and reporting program. Mason County has a contract with Parametrix to monitor the groundwater and complete the formal landfill closure documentation. To date the monitoring program has shown no indication of groundwater-leachate contamination. The monitoring information and results are available for public access on the County's website.

There are several other landfills within the County boundary that were owned/operated by private or commercial companies or the City of Shelton.

Shelton-Matlock Landfill

This landfill is located in the unincorporated Matlock area. It operated for an unknown period of time prior to its closure in 2001. While the landfill was open, it was receiving wood waste from nearby forest product operations. The landfill has a groundwater monitoring system in place and has been monitored since 1997. It is currently in post-closure stage and has continued to have groundwater monitoring as part of the post-closure agreement. As of early 2017, there is discussion on the potential for this landfill to end its post-closure care due to evidence that suggests the landfill has reached stability.

Simpson Dayton Landfill

This landfill is located in the unincorporated Dayton area. This landfill was also operated for an unknown period of time prior to its discontinued use in 2006. The material that was accepted at this site was mostly wood waste and an unlimited amount of wood ash. A groundwater monitoring system has been in place and monitored since 1997. In 2016, the closure process was completed and the application for a post-closure permit was submitted and officially accepted in early 2017. The landfill is now permitted for post-closure care.

City of Shelton – C Street Landfill

The C Street landfill is located on a 16.7 acre parcel located southwest of the intersection of West C Street and US Highway 101. The property was acquired by the City in 1928 for use as a municipal landfill. Landfilling operations occurred at the site between 1928 and 1974. After that time, municipal solid waste was sent to the Eells Hill facility to the northwest of Shelton. The City of Shelton has entered into an Agree Order (DE 12929) with the Washington State Department of Ecology and is working with the agency to conduct a Remedial Investigation and Cleanup Action Plan as well as to finalize closure of the facility.

The Owner or Operator of any landfill must provide post-closure activities to allow for continued facility maintenance and monitoring of air, land and water for as long as necessary for the landfill to stabilize to protect human health and the environment. For budgetary planning purposes, the Owner or Operator must plan for a minimum post-closure monitoring period of twenty years. The post-closure monitoring period may end when authorized by the Jurisdictional Health Department (JHD) and approved by the Director of the Department of Ecology.

3.1.4 Surveillance and Control

Mason County Public Works and its employee's operate the Eells Hill Transfer Station and all drop box facilities within the County. The Mason County Environmental Health Division (EHD) provides oversight and compliance inspections of all Mason County solid waste facilities. The landfill closure sampling and

monitoring program is performed by Parametrix Incorporated. Required periodic reports for the sampling and monitoring program are provided to Mason County Public Works and forwarded to the Washington State Department of Ecology (Ecology). The reports are also available electronically on the Mason County Utilities and Waste Management website.

3.2 Service Levels

The level of solid waste disposal services provided and the associated costs depend on the customer and waste source. As noted above, the Eells Hill Transfer Station is a full-service facility accepting deliveries from private businesses, commercial collection route vehicles, commercial dropbox vehicles, rural dropbox stations, and self-hauling public.

3.2.1 City Provided Services

Shelton is the only incorporated city in Mason County and Mason County Garbage Co. Inc. operates its garbage collection system that serves approximately 3,500 residential and business customers within the City limits. Waste and recycling collection in Shelton is mandatory and, while recycling is optional, a recycling fee is included in the garbage rate whether or not the customer elects to recycle. Garbage is collected five days a week using automated collection trucks to service the routes. This system is efficient and significantly reduces work-related injuries associated with waste collection.

Mason County Garbage Co. Inc. provides waste collection carts in a variety of sizes to residents and businesses at no charge. Residents place their carts at the curb or alley on their designated collection day. Mason County Garbage Co. Inc. offers weekly and biweekly service with extra pickups for an additional fee. All refuse collected in the City is hauled to the County’s Eells Hill Transfer Station for disposal.

3.2.2 Franchised Waste Collection Company

One private, franchised service provider, Mason County Garbage Company Co. Inc. provides residential refuse collection in all unincorporated parts of Mason County and to some City of Shelton businesses through agreements with the City. Mason County Garbage Co. Inc. also provides commercial garbage collection service to unincorporated county businesses and others requesting service as noted below.

National Forest Service and Olympic National Park

Mason County Garbage Co. Inc. collects refuse from Forest Service offices and Olympic National Park Staircase Park.

Squaxin Island and Skokomish Indian Tribes

The Squaxin Island and Skokomish Indian Tribes contract with Mason County Garbage Co. Inc. to provide garbage service on Tribal lands. Garbage collection is mandatory in Tribal housing for Squaxin and Skokomish residents. Skokomish residents outside of tribal housing voluntarily subscribe to Mason County Garbage Co. Inc. services or self-haul.

Washington State Patrol Academy

Refuse is collected by Mason County Garbage Co. Inc. and transported to the Eells Hill Transfer Station Facility for disposal.

For the unincorporated areas Mason County Garbage Co. Inc. collects five days a week using 15 trucks and drivers each day. Collection uses a combination of automated and manual collection for residential cans and carts and uses specialized trucks for commercial containers.

Waste collected by Mason County Garbage Co. Inc. is currently being disposed of in both Mason and Kitsap Counties. Waste collected in north Mason County is being disposed at the transfer station near Bremerton in Kitsap County while waste collected from areas elsewhere in the county is disposed of in the Eells Hill Transfer Station.

3.2.3 Self-haul

The waste generator is responsible for collecting and transporting refuse to one of the previously described drop box or central transfer stations. Besides the residents in the unincorporated areas of Mason County who do not use Mason County Garbage Co. Inc. services, self-haulers include:

National Forest Service & Olympic National Park

Forest Service and Park employees collect refuse within the National Forest or Park boundaries located within Mason County Garbage Co. Inc. service area and transport it to the Eells Hill Transfer Station for disposal. The amount of waste generated peaks during the summer when tourism increases.

Washington State Facilities

The State of Washington operates several facilities within Mason County. Besides the State Patrol Academy noted above, these include State Parks and the Washington Correction Center. Refuse from the Washington Correction Center and State parks is collected and self-hauled by State employees to the Eells Hill Transfer Station.

3.2.4 Construction and Demolition (C&D) Waste

Construction, Demolition, and Land Clearing Debris consists primarily of materials from building demolition or construction projects. Land clearing debris is currently recycled or disposed of at the Eells Hill Transfer Station and/or at private companies in the County.

3.2.5 Import/Export

Mason County does not operate a municipal solid waste landfill and therefore does not import any solid waste. All municipal solid waste generated in the county that is processed at the Eells Hill Transfer Station is trucked to Centralia, WA, where it is loaded on to a train and shipped to Klickitat County. The final disposal destination is the Roosevelt Regional Landfill, owned and operated by Republic Services, Inc.

3.3 Permits Required and Administration Methods

The operation of solid waste disposal methods, transfer stations, transfer of solid waste, and final solid waste disposal are governed by the regulations contained in Chapter 36.58 RCW. Mason County Public Works and the City of Shelton implement these regulations at the County- and City- owned facilities through departmental policies and procedures. The long-term contracts for collecting and hauling of solid waste from the County facilities or City of Shelton are governed by Chapter 81.77 RCW.

Mason County EHD is responsible for issuing permits and enforcing county and State regulations governing solid waste handling facilities. These regulations include, but are not limited to solid waste storage, collection, processing, and transfer and disposal requirements pursuant to Mason County Code Chapter 6.72, WAC 173-350, RCW 36.58, RCW 70.93, and RCW 70.95.

The Mason County Comprehensive Solid Waste Management Plan (CSWMP) is a “road map” to manage system-wide operations to meet State and County requirements and is also used to determine the need for additional or upgraded facilities. During its facility approval process, the Mason County EHD ensures any proposed new solid waste handling facility complies with the approved CSWMP prior to issuance of any permits.

3.4 Solid Waste Service Collection Rates

The County sets user fees at the Eells Hill Transfer Station and rural drop box stations. Solid waste operations are an enterprise funded service, and as such, these rates recover the full costs of operating the stations and disposal program. Additionally, rates are used to develop a replacement and repair recovery cost for future operations. No funds from taxes are used to support the solid waste program.

Mason County Garbage Co. Inc. has several service level options to meet the needs of their customers. In the County, options include a smaller can size, every-other week pick up, monthly and on-call services. In Shelton they offer weekly and every other week pickups. This allows those who generate less waste to have a lower cost option for collection services.

The Eells Hill Transfer Station is the only one of the four MCSWS facilities with scales to weigh incoming refuse loads. The weight of a load determines the disposal fee. At the Drop Box facilities, costs are based on volume which has been calculated based on a conversion from the per ton rate charged at the Transfer Station. The current (2017) cost for transfer and disposal of refuse is \$93.45 per ton (without tax). The actual fee charged to customers using the 4 facilities includes the costs of operations, transfer, disposal, administration, waste reduction and recycling programs, HHW collection and disposal, and solid waste enforcement. A discussion of the solid waste rates, fees and charges follows.

3.4.1 Mason County Garbage Co. Inc. rates for City of Shelton

The City offers weekly and biweekly service with extra pickups for an additional fee. Table 3.1 details the garbage services and rates for the City of Shelton.

*Table 3.1 Monthly Sanitation Service Charge for Residential Service**

Gallons	Pickup	2014	March 2015	August 2015	January 2016
35	Every other week	\$11.57	\$12.40	\$13.29	\$14.25
65	Every other week	\$16.47	\$17.66	\$18.93	\$20.29
65	Weekly	\$31.15	\$33.39	\$35.79	\$38.37
95	Every other week	\$24.38	\$26.14	\$28.02	\$30.04
95	Weekly	\$43.71	\$46.86	\$50.23	\$53.85
300	Weekly	\$95.84	\$102.74	\$110.14	\$118.07

*customer count includes single family, duplex and multifamily units

Table 3.2 Monthly Service Charges for Commercial Pickup based on Container Volume 1X per week pickup

Gallons	2014	March 2015	August 2015	January 2016
65	\$19.66	\$21.08	\$22.60	\$24.23
95	\$29.48	\$31.60	\$33.88	\$36.32
300	\$91.13	\$97.69	\$104.72	\$112.26

Mason County Garbage Co. Inc. also operates a voluntary yard waste recycling service in Shelton. For \$5.50 a month Shelton customers enjoy biweekly pick up of a 95-gallon container provided to the site. The program can accept nearly all common green waste (no food scraps). Extra pickups may be accommodated for \$5.50 per container. Currently the program has 600 customers.

3.4.2 Mason County Garbage Co. Inc. rates for Unincorporated Mason County

Table 3.3 details the garbage service levels and rates for Mason County Garbage Co. Inc. service in unincorporated areas of the County. These rates include recycling pickup. Rates do not reflect the recycling commodity credit which is \$ 0.61 effective November 1, 2016. For more information on the recycling commodity credit you can go to the UTC website www.utc.wa.gov.

Table 3.3 Current Mason County Garbage Service Level and Associated Rates

Number of Units or Type of Containers	Frequency of Service*	Garbage Service Rate/month	Recycle Service Rate/month	Garbage+Recycle Rate/month
1-32	W	\$15.61	\$9.16	\$24.77
2-32	W	\$23.33	\$9.16	\$32.49
3-32	W	\$31.47	\$9.16	\$40.63
4-32	W	\$40.36	\$9.16	\$49.52
5-32	W	\$48.28	\$9.16	\$57.44
6-32	W	\$56.07	\$9.16	\$65.23
1-45	W	\$20.99	\$9.16	\$30.15
1-32	EOW	\$8.94	\$9.16	\$18.10
2-32	EOW	\$14.36	\$9.16	\$23.52
1-32	MO	\$4.94	\$9.16	\$14.10
Mini	W	\$13.16	\$9.16	\$22.32
Recycling	EOW		\$9.81	
Automated Carts:				
35 Gallons	W	\$17.92	\$9.16	\$27.08
48 Gallons	W	\$22.75	\$9.16	\$31.91
64 Gallons	W	\$27.85	\$9.16	\$37.01
96 Gallons	W	\$34.62	\$9.16	\$43.78
35 Gallons	EOW	\$10.67	\$9.16	\$19.83
48 Gallons	EOW	\$14.12	\$9.16	\$23.28
64 Gallons	EOW	\$16.87	\$9.16	\$26.03
96 Gallons	EOW	\$21.08	\$9.16	\$30.24
35 Gallons	MO	\$6.36	\$9.16	\$15.52
48 Gallons	MO	\$7.97	\$9.16	\$17.13
64 Gallons	MO	\$9.42	\$9.16	\$18.58
96 Gallons	MO	\$11.59	\$9.16	20.75

* "W" indicates one service per week; "EOW" means every other week; "MO" means once per month.

Table 3.4 Mason County Customers whose Garbage is Disposed in Kitsap County

Number of Units or Type of Containers	Frequency of Service*	Garbage Service Rate/month	Recycle Service Rate/month	Garbage+Recycle Rate/month
1-32	W	\$14.50	\$9.16	\$23.66
2-32	W	\$21.34	\$9.16	\$30.50
3-32	W	\$28.36	\$9.16	\$37.52
4-32	W	\$36.13	\$9.16	\$45.29
5-32	W	\$43.14	\$9.16	\$52.30
6-32	W	\$49.90	\$9.16	\$59.06
1-45	W	\$19.03	\$9.16	\$28.19
1-32	EOW	\$8.38	\$9.16	\$17.54
2-32	EOW	\$13.37	\$9.16	\$22.53
1-32	MO	\$4.68	\$9.16	\$13.84
Mini	W	\$12.32	\$9.16	\$21.48
Recycling	EOW		\$9.81	
Automated Carts:				
35 Gallons	W	\$16.58	\$9.16	\$25.74
48 Gallons	W	\$20.68	\$9.16	\$29.84
64 Gallons	W	\$24.76	\$9.16	\$33.92
96 Gallons	W	\$31.18	\$9.16	\$40.34
35 Gallons	EOW	\$9.98	\$9.16	\$19.14
48 Gallons	EOW	\$13.15	\$9.16	\$22.31
64 Gallons	EOW	\$15.66	\$9.16	\$24.82
96 Gallons	EOW	\$19.48	\$9.16	\$28.64
35 Gallons	MO	\$6.04	\$9.16	\$15.20
48 Gallons	MO	\$7.56	\$9.16	\$16.72
64 Gallons	MO	\$8.90	\$9.16	\$18.06
96 Gallons	MO	\$10.87	\$9.16	\$20.03

* "W" indicates one service per week; "EOW" means every other week; "MO" means once per month.

3.4.3 Self-Haul Rates

Mason County residents and businesses can haul solid waste directly to the Eels Hill Transfer Station or the rural drop box facilities to dispose of the waste themselves. Table 3.5 lists the various costs for disposal of solid waste which is based on amount and type of waste. The disposal of recyclable materials at these locations is provided at no charge. Eells Hill has a scale which allows cost to be based on weight for heavy loads. The rural drop box stations do not have scales so the cost is based on volume instead.

Table 3.5 Mason County Solid Waste Facilities 2017 Self-Haul Disposal Rates

Item	Shelton Transfer Station:	Hoodsport, Belfair, & Union:
Solid Waste (per ton at Shelton, cy drop box)	\$93.45/ton	\$19.16/cy
Minimum Fee	\$15.16 (340 lbs)	\$19.16 (>6 bags)
1 Can/Bag (32 gal)	\$5.07	\$5.06
2 Cans/Bags (32 gal)	\$10.09	\$10.11
3 Cans/Bags (32 gal)	\$11.62	\$11.63
4 Cans/Bags (32 gal)	\$13.11	\$13.15
5 Cans/Bags (32 gal)		\$15.17
6 Cans/Bags (32 gal)		\$16.68
1 55-gal drum	\$93.45/ton	\$10.11
2 55-gal drums		\$13.65
3 55-gal drums		\$16.68
Misc. Large Bulky Items	\$5.07	\$19.16
Appliance w/Refrigerant	\$10.09	\$25.29
Tire with Rim (1 only)	\$5.07	\$17.59
Each additional Tire with Rim		\$5.06
Tire without Rim (1 only)	\$3.02	\$5.06
Each additional Tire without Rim		\$3.03
Auto Battery	\$1.54	\$1.54
Recyclable Scrap Metal	\$56.58/ton	\$5.06/32 gal
Yard Waste		\$16.16/cy
Construction Debris	\$93.45/ton	
Separated Clean Yard Trimmings	\$67.75/ton	

(Refuse Collection Tax is 3.6% of the untaxed rates)

3.5 Existing Operational Practices

3.5.1 Eells Hill Transfer Station Operations

Currently, Mason County is not openly accepting solid waste from outside of its county borders. However this is not actively monitored at the four waste handling facilities and non-resident, self-haul customers could be using the facilities, although this is not believed to be a significant source of refuse brought to the facilities.

In 1993, a competitive bidding process for final disposal services was conducted by Thurston, Lewis and Grays Harbor Counties with the provision that near-by counties could select to be included in the bidding process. Mason County took advantage of that process and Republic Services Inc. was selected to own, provide, and operate facilities to transport and dispose of waste for the Counties. Under the contract, solid waste is transported from the Eells Hill Transfer Station in transfer trailers by LeMay Inc., a subcontractor for Republic Services Inc., to Lewis County. It is then transferred to rail cars and taken to the Roosevelt Regional Landfill (owned and operated by Republic Services Inc.) in Klickitat County, Washington.

At contract award, Mason County negotiated a 5-year contract with Republic Services Inc. including options for automatic renewal up to 20 years. In 1994 the contract was modified to include the use of rail transportation. An addendum to the contract in 1997 extended the life of the contract through 2012. In 2012 the County executed a new contract extension to continue the operation until 2020. In 2015, 30,063 tons of solid waste was transferred for disposal by Republic Services.

Users of the Eells Hill Transfer Station have the ability to divert wastes from disposal by separating clean yard trimmings, scrap metal and household items such as cans, paper, cardboard, plastic and glass bottles for recycling. The Eells Hill Transfer Station also accepts used clothing and limited HHW. These programs are discussed in detail in Chapters 4 and 5 of this Plan.

3.5.2 Drop Box Station Operations

The operating schedule for drop box stations is currently as follows:

- Belfair Drop Box Tuesday – Saturday 9am – 4pm
- Union Drop Box Sunday, Monday 9am – 4pm
- Hoodspout Drop Box Friday, Saturday 9am – 4pm

Drop box stations are closed New Year’s Day, Martin Luther King’s Birthday, President’s Day, Memorial Day, Independence Day, Labor Day, Veteran’s Day, Thanksgiving and the day after, and Christmas.

Drop box stations are only available for residential and small business self-haul loads and do not accept large commercial loads of refuse or construction debris. Refuse is dumped into 40-yard lidded containers which minimize escaping airborne litter and entry by scavengers. Solid Waste from the rural drop box stations is hauled by County Solid Waste employees, or by contract with Mason County Garbage Co. Inc. to the Eells Hill Transfer Station.

3.6 Facilities Siting Review

RCW 70.95 states that each County or City siting a solid waste disposal facility shall review each potential site for conformance with identified standards. No new municipal solid waste disposal facility in the county is anticipated over the next twenty years but new or replacement of existing solid waste handling facilities may occur in the next twenty years. A new or replacement solid waste handling facility should be reviewed according to RCW 70.95.

3.7 Needs and Opportunities

- Flow control needs further evaluation to keep waste currently going to other counties in the Mason County system.
- Upgrades and improvements to the Eells Hill Transfer Station and the Drop Box Stations detailed in the Parametrix Inc. report (Appendix A) should be completed to assure user safety and maximize efficiencies of the existing facilities.
- Prior to the expiration of the hauling contract with Republic Services, the County should evaluate the potential benefits of having a private contractor take over operations of facilities as well as providing hauling services.

CHAPTER 4

WASTE REDUCTION, REUSE AND RECYCLING

This chapter provides more details for activities supporting Plan Objectives and Activities found in Chapter 2. Each section will describe the existing conditions and discuss possible needs and opportunities for improvement. The chapter is divided into Waste Reduction, Recycling, Composting, and Public Education and Outreach sections.

The first part of this section focuses on reducing the amount of waste being generated, while the sections on recycling and composting discuss methods that reduce the amount of solid waste being disposed. Collectively, these approaches (waste reduction, recycling, and composting) are known as “waste diversion” and play a vital role in solid waste management.

The State waste diversion requirements are based in the “Waste 2 Resources” Act, which are reflected in various sections of the Revised Code of Washington (RCW) and Washington Administrative Codes (WAC). RCW Chapter 70.95 requires that county and city governments assume the primary responsibility for solid waste management and implement effective waste reduction and recycling strategies.

4.1 Waste Reduction

Activities and practices that reduce the amount of wastes that are created are classified as “waste reduction.” Waste reduction differs from the other two waste diversion techniques (recycling and composting) because the other methods deal with wastes after the wastes have been generated.

Waste reduction is the highest priority for solid waste management and is preferred over recycling and composting because the social, environmental and economic costs are typically lower for waste reduction. All three methods avoid the cost of disposing the diverted materials as garbage, but recycling and composting frequently require significant additional expenses for collecting and processing the materials.

4.1.1 Existing Practices

Three waste reduction activities are currently conducted in Mason County.

Web Site Links: Mason County and the City of Shelton maintain web sites that provide links or references to government and non-government waste reduction services. Mason County links can be found on both the Utilities/Waste Management and Public Health web pages. Website references include 2good2toss, Habitat for Humanity, Offer up, Let Go, and Craig’s List. The Department of Ecology “Waste 2 Resources Program” provides options to help an individual figure out what he/she can do to reduce solid waste and safely manage what remains. If not managed wisely, solid wastes can contribute to air and water pollution, and pose a threat to human health. On-line references are preferred because they can be more frequently changed as services are added or deleted.

Waste Audits: Free technical assistance is available to businesses that are looking to reduce the amount of waste they generate through their daily operations. The potential exists to find a waste stream component

that can be easily identified and handled in an alternative manner, reducing waste, making a reusable material available to an end user, or connecting the business with a recycling outlet for the given material. This assistance is provided by Mason County Garbage Co. Inc. and is available to any requesting entity.

Environmentally Preferably Purchasing: Environmentally Preferable Purchasing (EPP) involves purchasing products or services that have reduced negative effects on human health and the environment when compared with competing products or services that serve the same purpose. They include products that have recycled content, reduce waste, use less energy, are less toxic, and are more durable. Both Mason County and the City of Shelton comply with the State-mandated EPP requirements.

4.1.2 Needs and Opportunities

A significant need in this area is the ability to measure the results of waste reduction activities. Residential and commercial efforts in waste reduction cover a broad range and are not well documented. Waste reduction could be shown to be handling significantly more waste if the residential and commercial efforts could be measured more completely. Therefore, a method to quantify waste reduction is needed.

4.2 Recycling

The basic Mason County recycling objectives derived from the Solid Waste Management program goals are to:

- Support private efforts in waste recycling in Mason County.
- Achieve an increase in waste recycling throughout Mason County.
- Provide recycling opportunities at drop box/transfer station facilities

The County and City of Shelton websites should be checked for up-to-date recycling information.

4.2.1 Existing Practices

City of Shelton

The City of Shelton has operated a residential single-family curbside recycling program within the City limits since September 1994. The City expanded the residential program to include multifamily facilities in 2009. The cost of recycling is based on the size of the customer’s waste cart and is incorporated into their overall solid waste fee, whether they use the service or not. The curbside program uses two lidded carts for collection; a green cart for mixed paper, newspaper, magazines, and cardboard; and a blue cart for glass bottles, jars, plastic bottles, aluminum and steel cans, plastic milk jugs, etc.

In cooperation with the Washington State Department of Ecology, the City of Shelton purchased several reusable event recycling containers in 2010 and established a free event (sporting events, public events, etc.) recycling program. The City offers the containers, free of charge, to event organizers and, in limited circumstances, directly recycles events. All special event permits issued by the City of Shelton include information about the program as well as contact information encouraging organizers to take advantage of the program.

Table 4.1 City of Shelton recycling collections (tons)

Material	2009	2010	2011	2012	2013	2014	2015
Containers*	205	200	186	272	279	304	319
Mixed Waste Paper	389	356	330	370	322	333	350
TOTALS	594	556	516	642	601	637	669

* Containers = glass, plastic, aluminum, etc.

Mason County

The County began its self-haul recycling program in 1993. Over the years the number of recycling drop off sites has fluctuated, but has now stabilized at four which includes the three rural drop box stations and the main (Eells Hills) transfer station. Each site has at least five “blue boxes” (compartmentalized drop boxes used to facilitate source separated collection) that collect corrugated cardboard, glass bottles and jars, plastic bottles and jugs, aluminum and steel cans, and mixed waste paper. Recycling of metal and white goods is also accepted at the Belfair Drop Box and Eells Hill Transfer Station.

The collection and transportation of recyclable materials from single-family and multifamily residences is regulated under RCW 81.77 and RCW 36.58. Under these statutes, counties have the authority to directly regulate the collection of source-separated recyclable materials. In an effort to expand recycling opportunities for all county residents in unincorporated areas, Mason County Utilities and Waste management, Mason County Garbage Co. Inc., and the SWAC membership sought an ordinance to provide curbside recycling for all residential solid waste customers of Mason County Garbage Co. Inc. The Mason County Board of Commissioners passed County Ordinance 147-08 in December of 2008 which was revised in 2009 by Ordinance 68-09. Under this ordinance, all subscribers pay for garbage and recycling collection, whether both services are utilized or not. Curbside service began in late 2009. Customers may also choose recycling only services.

Table 4.2 shows the materials collected for the blue box program since 2009. Table 4.3 shows the materials collected from residential curbside recycling since 2009.

Table 4.2 Mason County Blue Box Collections (Tons)

Material	2009	2010	2011	2012	2013	2014	2015
ONP*	192.56	89.21	94.81	103.63	88.18	81.56	80.09
OCC*	301.80	156.50	159.37	145.16	143.94	148.44	154.14
MWP*	284.97	198.96	176.54	163.99	179.78	199.25	200.70
Plastics	40.32	59.20	46.70	26.95	59.21	68.78	59.10
Tin	17.56	24.47	22.06	22.89	26.78	25.99	28.06
Glass	300.00	204.00	204.00	204.00	204.00	204.72	264.00
Aluminum	22.14	13.71	9.08	9.6	9.98	9.6	8.99
TOTALS	1,159.35	746.05	712.56	676.22	711.87	738.34	795.08

* ONP = Old News Print, OCC = Corrugated Cardboard, MWP = Mixed Waste Paper

Table 4.3 Mason County Residential Curbside Recycling

Material	2009	2010	2011	2012	2013	2014	2015
ONP*	128.12	311.74	316.04	326.82	316.02	276.58	273.19
OCC*	311.06	878.87	891.00	921.39	890.93	948.26	936.65
MWP*	113.97	341.53	346.24	358.05	346.22	491.32	485.30
Plastics	80.77	136.04	137.92	142.62	137.91	138.59	136.60
Tin	25.39	41.93	42.51	43.96	42.51	59.27	58.54
Aluminum	14.27	15.75	15.97	16.51	15.96	22.32	22.05
TOTALS	674.13	1725.86	1749.69	1809.37	1749.56	1936.03	1912.33

4.2.2 Needs and Opportunities

City of Shelton

The City's curbside recycling program has enjoyed an increase in participation primarily beginning with the implementation of a dual stream recycling system in 2007 and changing to every-other-week trash pickup in 2009. With an increased local interest in recycling, the City of Shelton could see additional reductions in landfill tonnages.

Mason County

The collection and transportation of recyclable materials from single-family and multifamily residences is regulated under Chapter 81.77 RCW and Chapter 36.58 RCW. Under these statutes, counties have the authority to directly regulate the collection of source-separated recyclable materials.

County residents who do not use the services of Mason County Garbage may instead self-haul their solid waste. This option presents the most severe challenge to recycling rates because there is no incentive for source separation. Unless self-haul County residents become more aware of the economics of volume-reducing their solid waste, i.e. separating recyclables from trash, recycle amounts won't change appreciably.

4.3 Composting

Composting is a form of recycling, transforming waste materials into usable or marketable materials for use other than landfill disposal. Composting can be an effective tool in managing certain waste materials, because it offers a means to generate a useful product while diverting significant amounts of organic materials away from landfills.

Previous to the development of the CSWMP, there have been no solid waste planning goals for Mason County in the area of composting and yard waste diversion. One of the initiatives of the "Moving Washington Beyond Waste and Toxics Plan" is to increase recycling of organic materials. Burning of organic materials is also common practice; however, with bans on burning and statewide changes in organics handling, composting becomes increasingly attractive for organics. The County and City of Shelton websites should be consulted for up-to-date information on composting.

4.3.1 Existing Practices

City of Shelton

The City of Shelton Public Works Department collects Christmas trees at curbside during the first week of January at no charge from City utility customers. The trees are chipped and used at City facilities.

In 2009 the City initiated an optional residential yard waste composting service. The service provides customers with a brown 95-gallon rolling cart that is picked up bi-weekly during recycling weeks. The materials are brought to a local wood recycling facility that composts the materials. As of September 2016, the City has over 500 yard waste customers.

Mason County

The County also accepts Christmas trees from residents at no charge during the first couple of weeks in January and accepts yard waste year round at its Eells Hill Transfer Station at a reduced rate from its regular solid waste rate schedule.

4.3.2 Needs and Opportunities

City of Shelton

Although the City has implemented a residential yard waste collection service, the inability to allow for food scraps to be included in the cart is seen as the largest impediment to expanding the service. If a viable way to include food waste in the program is identified, it is anticipated that use of the service would expand greatly.

Mason County

The rural nature of the county lends itself to household onsite recycling. Yard debris does arrive at the transfer station for recycling—both from landscape businesses and individual residents. Currently, if yard wastes reach the drop box/transfer station facility they are separated out from the MSW stream, in the same way that scrap metal and tires are diverted, and periodically sent to a wood recycler. There are wood recyclers available within 10 miles of both solid waste facilities in Shelton and Belfair. Mason County could provide outreach to utilize other wood recyclers in the area to increase diversion of wood waste.

4.4 Public Education and Outreach

To achieve the goals of the Solid Waste Management Program in the area of waste diversion, it will be necessary to explore and implement partnerships with other government agencies and private organizations to implement outreach and education programs. The focal points of these programs should be to:

- Educate and inform the public regarding waste reduction techniques.
- Educate and inform the public regarding existing and planned methods for recycling.
- Develop a sense of environmental responsibility in the public.
- Inform the public regarding community progress and to gain feedback on agency progress or needs.

4.4.1 Existing Practices

City of Shelton

The City of Shelton utilizes many different methods of outreach. They include utility billing mailers, provision of multilingual (English and Spanish) outreach materials available on the City's website and at the Utility Billing counter, and regular appearances on the City's weekly radio show (Focus on Shelton) to discuss recycling. Utility drivers also carry correction tags and recycle guides in their trucks and monitor collected materials as they are dumped. If they see non-program materials in a container they will fill out a correction tag and, oftentimes, leave a recycle guide as well informing the customer of allowed and non-allowed materials. If problems persist the drivers forward the customers' address to the recycling coordinator who will make a personal visit to the site and discuss correct recycling practices with the resident.

Mason County

Mason County’s outreach efforts primarily rely on local newspapers (primarily the Shelton-Mason County Journal) and radio stations, both in paid advertising and press releases and public service announcements. Each October Mason County Garbage Co. Inc. sends recycling information in all customer statements coupled with a recycling calendar in January. In addition, all new customers are mailed the same information when they sign up for service.

4.4.2 Needs and Opportunities

City of Shelton

The City of Shelton would benefit from a larger presence in schools and at public events to bring attention to local recycling options and services available.

Mason County

There have not been any solid waste surveys conducted since the 2005 Mason County Fair which showed that the majority of Mason County residents were unaware of the various services available to them through the recycling and solid waste programs. Outside of the periodic information provided by Mason County Garbage Co. Inc. there have been no programs since that time to change that reality. A Solid Waste Program Manager, who could be present at a few annual events, would be able to reach a broader audience in communities outside of the greater Shelton area—Allyn, Belfair, and Hoodsport in particular—by participating in the various local community events (i.e. Allyn Days, Grapeview Day, Tahuya Day, and Celebrate Hoodsport). A larger presence in schools is also needed with regard to recycling technical assistance and education. The County also needs to address the communication needs of the increasing bilingual population, and produce outreach materials in English and Spanish.

College Interns—City of Shelton and Mason County

Given the proximity to four colleges—Olympic College, The Evergreen State College, South Puget Sound Community College, and Saint Martin’s University —Mason County could employ one to two student interns to work on special projects throughout the year.

Advantages: Unpaid interns may be available or those under a work-study program, creating little or no expense for the County. Interns could focus on special projects that staff currently has not had the time to work on.

Disadvantages: Unpaid interns are difficult to attract, especially those based in Olympia. Staff has been unsuccessful over the last two years at attracting any applicants. Time spent to manage interns, if recruited, is also a consideration.

CHAPTER 5

MODERATE RISK WASTE MANAGEMENT

5.1 Overview

Moderate-risk waste means (a) any household wastes which are generated from the disposal of substances identified by Ecology as hazardous household substances, and (b) any waste that exhibits any of the properties of hazardous waste but is exempt from regulation under this chapter solely because the waste is generated in quantities below the threshold for regulation.

5.1.1 Household Hazardous Waste (HHW)

While most hazardous wastes that are ignitable, reactive, corrosive or toxic are regulated in the United States under Subtitle C of the Resource Conservation and Recovery Act (RCRA), Congress developed an exclusion for household waste. Under this exclusion, found in Title 40 of the Code of Federal Regulations Part 261.4(b)(1), wastes generated by normal household activities (e.g., routine house and yard maintenance) are excluded from the definition of hazardous waste. This exemption also applies to Household hazardous waste (HHW) collected during a HHW collection program. Specifically, wastes covered by the HHW exclusion must satisfy two criteria:

1. The waste must be generated by individuals on the premise of a temporary or permanent residence, and
2. The waste stream must be composed primarily of materials found in wastes generated by consumers in their homes.

Household waste, including HHW, is subject to regulation under EPA Subtitle D of RCRA governing the disposal of any solid waste described by "Criteria for Classification of Solid Waste Disposal Facilities and Practices" (40 CFR Part 257). These regulations are general environmental performance standards that are implemented in Washington by RCW Chapters 36.58 (Solid Waste Disposal) and 70.95 (Solid Waste Management – Reduction and Recycling).

Table 5.1: Hazardous Household Material Groups

Group Name	Examples
Repair and Remodeling	Adhesives, oil-based paint, thinner, epoxy, paint stripper, latex paint*
Cleaning Agents	Oven cleaners, deck cleaners, degreasers, toilet cleaners
Pesticides & Fertilizers	Wood preservatives, mole killer, herbicides, pesticides
Auto, Boat & Equipment	Batteries, paint, gasoline, oil, antifreeze, solvents
Hobby and Recreation	Photo and pool chemicals, glaze, paint, white gas
Miscellaneous*	Ammunition, fireworks, asbestos, alkaline batteries, medicines

* Not accepted at Eells Hill Transfer Station

5.1.2 Commercial Hazardous Waste

The second category of moderate risk wastes are those produced by small quantity generators (SQG). Per WAC 173-303, these are non-residential wastes produced at a rate of less than 220 pounds per month or per batch (or 2.2 pounds per month or per batch of extremely hazardous waste) and accumulate less than 2,200 pounds of hazardous waste onsite (or 22 pounds of extremely hazardous waste). Ecology has 20 hazardous waste generators in Mason County in their database. These businesses pay a Hazardous Waste Generation Fee to Ecology.

When household wastes are mixed with hazardous wastes from small quantity generators, this resulting mixture is subject to the small quantity generator rules in 40 CFR Part 261.5 (and subsequently WAC 173-303). For this reason, the Mason County HHW collection programs limit the participation in the HHW program to households to avoid the possibility of receiving regulated hazardous wastes from commercial or industrial sources and triggering all or some of the Subtitle C controls on this waste.

5.2 Household and Small Business Collection

5.2.1 Existing Practices

The County operates the HHW Facility at the Eells Hill Transfer Station to collect moderate risk waste from households. This facility collects moderate risk wastes free of charge from county residents every Friday and Saturday. There were 564 drop-off visits in 2014, 474 in 2015, and 394 in 2016. The County does not accept wastes from business or small quantity generators. Kitsap County will also accept HHW from Mason County residences. This is for residents in the north and east part of the County. In 2015 there were 918 visits by Mason County residents to the Kitsap County HHW Facility in Port Orchard.

The physical layout of the Eells Hill Facility currently consists of an open-aired building over a concrete surface. Materials accepted at the facility include oil-based paints and stains, automotive products, fluorescent tubes and bulbs, flammable liquids like gasoline and solvents, household cleaners, aerosols, pesticides and herbicides, pool and spa supplies, antifreeze, small propane bottles, lithium and NiCad batteries, and used motor oil. The County currently contracts with Stericycle to dispose of these collected wastes.

The County also has used motor oil and antifreeze collection containers at our Belfair, Union, and Hoodspoint drop-off facilities. Auto and marine batteries are also accepted at all four facilities for \$1.50 each. Table 5.2 summarizes quantities of moderate risk waste collected at the Household Hazardous Waste Facility from 2013 through 2015.

5.2.2 Needs and Opportunities

As noted in Chapter 3, all the County solid waste handling facilities need varying amounts of repair or upgrades as identified in the Parametrix “Solid Waste System Capital Investment Needs” report (Parametrix 553-1682-043, October 5, 2016; see Appendix A). To meet the six year planning window

required by Ecology (Guidelines for Development of Local Comprehensive Solid Waste Management Plans and Plan Revisions; Ecology Publication 10-07-005, February, 2010) and allow for an easy budget planning reference, the “Immediate” (1 year) and “Mid-term” (6 year) deficiency items relative to HHW at Eells Hill and the drop box stations have been extracted from the report and are listed below:

Eells Hill Transfer Station

1. Repair or replace and freeze protect the emergency eyewash and shower units (immediate)
2. Install a new sump pump and wastewater holding tank (immediate)
3. Install a loading dock rain curtain at the waste oil handling bay (immediate)
4. Assess the HHW facility for relevant Code compliance and functional performance (immediate)
5. Assess fire hazard risks and on-site response capabilities (immediate)
6. Rehabilitate or replace the HHW facility to meet relevant Codes and performance requirements based on assessment results (Mid-term)
7. Upgrade on-site fire response capabilities (Mid-term)
8. Prepare a stormwater management assessment and plan (Mid-term)
9. Implement stormwater management improvements (Mid-term)

Drop Box Stations

1. Install and/or repair perimeter fencing (immediate)
2. Install secondary containment for MRW sheds (immediate)
3. Install or repair damaged asphalt pavement around the MRW collection areas (immediate)

Evaluate eliminating the option of disposing HHW in Kitsap County to reduce the operational cost to the MCSWS. The evaluation should include a method to collect, transport and deliver HHW to the Eells Hill Transfer Station for disposal with other HHW collected materials.

Another opportunity would be to provide HHW service to small businesses in addition to HHW.

5.3 Public Education and Technical Assistance

5.3.1 Existing Practices

Mason County website, www.co.mason.wa.us/utilities_waste/solid_waste/hazardous_waste.php, provides the public with general information about HHW, disposal programs, and product alternatives. The County also keeps flyers available for customers at Eells Hill or the rural drop box stations. The County in partnership with Mason County Garbage Company, Inc. also sends out annually HHW flyers with information on how to dispose of HHW to Mason County Garbage customers through their annual customer calendar mailing and HHW flyers are sent out to all new customers.

5.3.2 Needs and Opportunities

Mason County could provide HHW education and technical assistance through other venues besides what is already provided.

Table 5.2: Moderate Risk Quantities Collected through the HHW Facility

Waste Type	2013 HHW		2014 HHW		2015 HHW	
	DM	lbs.	DM	lbs.	DM	lbs.
Antifreeze			R	2,881	R	4,514
Oil non-contaminated			R	1,043	R	44,060
Aerosols	H	200	H	392	H	900
Acids	H	250				
Batteries (Auto Lead Acid)			R	1,520	R	1,379
Batteries (Household Dry Cell)			H	8.8		
Flammable Liquids	E	200	E	2,598	E	1,600
Flammable Liquid – Poison	E	1,750	E	1,368	E	5,000
Flammable Gas – Poison	E	1,600				
Paint – Latex			H	4,230		
Paint – Oil Based	H	500	H	9,370	H	10,250
Paint Related Materials	H	3200				
Pesticide/ Poison Liquid			H	990	H	750
Pesticide/Poison Solids	H	750				
PCB Containing Light Ballasts	R	2100				
Non-PCB Containing Light Ballasts					H	1
Fire Extinguishers			R	27	R	27
Mercury – Fluorescent Tubes and CFL’s			H	6,554	H	17,352
Non – Regulated Liquids (Soaps, Cleaners)			H	1,409		

Notes:

- 1) Differences in what was reported from 2013 to 2014 due to change in vendor.
- 2) Latex paint is no longer accepted at Eells Hill. Instead customers are instructed to dry the paint and put it in with normal solid waste.
- 3) Pharmaceuticals are accepted at the Sheriff’s office in Shelton and Belfair.
- 4) Energy recovery materials go to the Covanta Facility in Marion County, Oregon

DM = Disposal Method Key: H – Hazardous Waste Facility, R – Recycled, E – Energy Recovery

5.4 Household Hazardous Waste Training, Health, and Safety

Existing Practices

WAC 173-303-330 spells out personnel training required for all employees working with hazardous waste. To meet this in Mason County all employees working in hazardous waste have a minimum of 40 hours training in hazardous waste operations and emergency response. Furthermore, employees attend an annual eight-hour refresher course. The County waste disposal vendor is required to use employees with additional training for packaging and shipping in accordance with US Department of Transportation standards that remove and dispose of HHW from Mason County Facilities.

5.5 Hazardous Waste Generators

Existing Practices

Counties are required to include an inventory provided by Ecology of generators of dangerous waste generators and facilities, remedial action sites, list of hazardous waste transporters which service businesses within the jurisdiction, and zones designated for hazardous waste treatments, storage, and disposal (TSD).

Hazardous waste generators are businesses in the County that have an EPA/State identification number issued under Chapter 173-303 WAC. Ecology records identify 20 businesses and institutions in Mason County are registered as hazardous waste generators as of January 2017. These include 5 governmental agency properties, 4 lumber sites, and the rest commercial businesses. Database information can be found at www.ecy.wa.gov/fs/.

5.6 Remedial Action Sites

Existing Practices

Ecology conducts Site Hazard Assessments for suspected contaminated properties and includes those confirmed as a potential threat on its Hazardous Sites List. This list also ranks each property in relation to the level of threat present at other sites in the state. A rank of one represents the highest level of concern and a rank of five the lowest. There are two sites within Mason County on Ecology's website identified on the remedial action program list. Database information can be found at www.ecy.wa.gov/fs/.

5.7 Hazardous Waste Transporters and Facilities

Existing Practices

There are no Mason County-based companies registered with Ecology that transport or recycle, treat, store, and/or dispose of hazardous wastes. Mason County contracts with vendors outside the county to transport and dispose of hazardous wastes.

CHAPTER 6

CHARACTERIZATION OF THE WASTE STREAM

6.1 Municipal Solid Waste

WAC 173-350-100 defines municipal solid waste (MSW) as a subset of solid waste that includes unsegregated garbage, refuse, and similar solid waste material discarded from residential, commercial, institutional, and industrial sources and community activities. The term also includes residual material after the separation of recyclables. MSW does not include:

- Dangerous wastes other than wastes excluded from the requirements of chapter 173-303 WAC, Dangerous waste regulations and in WAC 173-303-071 such as household hazardous wastes;
- Any solid waste, including contaminated soil and debris, resulting from response action taken under section 104 or 106 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (42 U.S.C 9601), chapter 70.105D RCW, Hazardous waste cleanup – Model Toxics Control Act, chapter 173-340 WAC, the Model Toxics Control Act cleanup regulation or a remedial action taken under those rules; or
- Mixed or segregated recyclable material that has been source-separated from garbage, refuse and similar solid waste.

6.1.1 MSW Composition

EPA estimated in its *Advancing Sustainable Materials Management: 2014 Fact Sheet* that residential waste comprised 55 to 65 percent of total MSW generated across the country. Wastes from commercial businesses and institutions, such as schools and hospitals, made up the remaining 35 to 45 percent of MSW.

Organic materials make up nearly 55 percent of MSW quantities by weight. These materials include paper and paperboard products, yard trimmings, and food scraps. Plastics are the next largest single waste product, followed by rubber, leather, and textiles, metals, wood, glass, and other.

Table 6.1 Estimate of Total Municipal Solid Waste Stream, Percent of Total Tons

Type of Municipal Solid Waste (MSW)	Percent
Paper and paperboard products	26.6%
Food Scraps	14.9%
Yard Trimmings	13.3%
Plastics	12.9%
Rubber, leather and textiles	9.5%
Metals	9.0%
Wood	6.2%
Glass	4.4%
Other	3.2%

A study among Washington counties prepared by Ecology in 2016 found similar results as shown in Table 6.2.

Table 6.2 Overall statewide disposed waste stream composition by material class

Type of MSW	Percent
Organics	28.5%
Wood Debris	12.3%
Construction Materials	12.2%
Plastic	10.2%
Paper Products	7.7%
Consumer Products	7.3%
Metal	5.8%
Paper Packaging	5.7%
Residues	5.5%
Glass	2.3%
Hazardous/Special Wastes	1.1%

6.1.2 MSW Per Capita Generation Nationwide

The 2014 EPA publication *Advancing Sustainable Materials Management: 2014 Fact Sheet* provides nationwide estimates for MSW generation. The average US per capita generation of MSW in 2014 was 4.4 pounds per day, or 0.80 tons per year. Recycling and composting removed 1.52 pounds per capita per day, or 0.28 tons per year. Combustion with energy recovery removes 0.48 pounds per day, or 0.08 tons per year. The remaining 2.40 pounds per day, or 0.44 tons per year, goes into landfills. Nationwide, 52.6% of the waste stream ended up in landfills. Of the remainder, recycling and composting removed 34.6% and combustion with energy recovery removed 12.8%.

6.1.3 MSW Generation in Mason County

Mason County maintains records of total tonnage of MSW brought to the Eells Hill Transfer Station for export and recycling. Mason County Garbage Co. Inc. records tonnage that they dispose of in Kitsap County at the Olympic View Transfer Station and also records their curbside recycling tonnage. The City of Shelton records their recycling tonnage through their curbside program. The table below accounts for the total county MSW for the years 2010 through 2015 from these three sources and uses Washington Office of Financial Management (OFM) populations to determine per capita tonnage.

Table 6.3 reports both total and per capita tonnage generated in Mason County. The average per capita generation rates of waste going to land disposal in the County is 0.531 tons. The recycling rate averages 8.78% of waste and is far below the nationwide estimate. The approximately 0.6 tons generated per capita is 25% lower than the nationwide average.

Table 6.3 MSW Total and Per Capita Tonnage for Mason County as reported, 2010-2015

Total Tonnage	2010	2011	2012	2013	2014	2015
Exported for land disposal	33,474	31,484	31,447	32,340	33,558	33,779
Collected through recycling	3,028	2,978	3,128	3,062	3,311	3,376
Total Tons generated	36,502	34,462	34,575	35,402	36,869	37,155
Per Capita Annual Tonnage	2010	2011	2012	2013	2014	2015
OFM Population for Mason County	60,699	61,100	61,450	61,800	62,000	62,200
Exported for land disposal	0.551	0.515	0.512	0.523	0.541	0.543
Collected through recycling	0.050	0.049	0.051	0.050	0.053	0.054
Total tons generated per capita	0.601	0.564	0.563	0.573	0.595	0.597

Table 6.4 compares MSW generation rates between the City of Shelton and unincorporated areas in Mason County. This table assumes everything coming into Eells Hill not from City of Shelton trucks is from unincorporated areas. So Shelton residents and businesses that take loads directly to Eells Hill are counted as coming from unincorporated areas, skewing the number higher for unincorporated waste. Taking that into consideration waste generation between the Shelton and the unincorporated County is pretty close to the same on a per capita basis.

Table 6.4 City of Shelton and Unincorporated Area Waste Generation Comparison, 2010 - 2015

Area	Population	Total Annual Tons			Per Capita Tons Generated
		Generated	Recycled	Disposed	
Mason County (Total) – 2010	60,699	36,502	3,028	33,474	0.60
Unincorporated – 2010	50,865	31,370	2,472	28,898	0.62
City of Shelton – 2010	9,834	5,132	556	4,576	0.52
Mason County (Total) – 2011	61,100	34,462	2,978	31,484	0.56
Unincorporated – 2011	51,245	29,333	2,462	26,871	0.57
City of Shelton – 2011	9,855	5,129	516	4,613	0.52
Mason County (Total) – 2012	61,450	34,575	3,128	31,447	0.56
Unincorporated – 2012	51,580	29,275	2,486	26,789	0.57
City of Shelton – 2012	9,870	5,300	642	4,658	0.54
Mason County (Total) – 2013	61,800	35,402	3,062	32,340	0.57
Unincorporated – 2013	51,825	30,036	2,461	27,575	0.58
City of Shelton – 2013	9,975	5,366	601	4,765	0.54
Mason County (Total) – 2014	62,000	36,869	3,311	33,558	0.59
Unincorporated – 2014	52,005	31,464	2,674	28,790	0.61
City of Shelton – 2014	9,995	5,405	637	4,768	0.54
Mason County (Total) – 2015	62,200	37,155	3,376	33,779	0.59
Unincorporated – 2015	52,130	31,673	2,707	28,966	0.61
City of Shelton – 2015	10,070	5,482	669	4,813	0.54

6.1.4 Countywide Trends

Table 6.5 estimates the future total tonnage of the waste stream using the OFM Growth Management projections assuming Mason County continues to generate 0.6 tons of solid waste per person. In terms of population and waste stream tonnage, Mason County has been following the mid-range growth rate.

Table 6.5 Low, Intermediate, and High Projections for Total Waste Stream, 2020 to 2040

Year	2020	2025	2030	2035	2040
High Range Population	76,239	82,618	89,093	95,472	101,583
High-Range Tonnage	45,743	49,571	53,456	57,283	60,950
Mid-Range Population	67,545	71,929	76,401	80,784	84,919
Mid-Range Tonnage	40,527	43,157	45,841	48,470	50,951
Low Range Population	58,741	61,075	63,489	65,821	67,925
Low Range Tonnage	35,245	36,645	38,093	39,493	40,755

6.2 Special Wastes

Special wastes include those wastes that fall outside the category of MSW because they require separate handling and/or disposal. Special wastes of particular interest to Mason County include: Animal Carcasses, Asbestos, Biomedical Waste, Biosolids, Construction and Demolition (C&D) Wastes, Disaster Debris, Electronic Waste, Tires, and Wood Waste.

6.2.1 Animal Carcasses

The rural nature of Mason County and the presence of salmon-bearing waterways create the need for planning for disposal of animal carcasses to protect the public health and the State's surface and ground waters. Existing disposal methods currently include burial, cremation through, or at, local veterinary clinics, use of a rendering service, composting, landfill disposal, or another method approved by the local Health Department in accordance with general sanitation practices as stated in WAC 246-203-121.

Existing Practices

- Small animals (including household pets) may be buried on private property as long as distance to property lines, depth of burial, total weight, distance to wells, and location of flood plains /high ground water levels are considered. The local Health Department should be contacted for specific requirements. Small animals may also be cremated or accepted at the transfer stations as long as they are triple bagged.
- Livestock that have died because of disease or an unknown cause must be disposed of in accordance with WAC 16-25 "Disposal of Dead Livestock."
- Wildlife found dead on personal property is the responsibility of the property owner. Disposal options are the same as noted in 6.2.1.1. Dead wildlife along roads and highways are the responsibility of the owning jurisdiction, i.e., Washington State Department of Transportation for state highways, Mason County Public Works for county roads, and City of Shelton for city streets. The location of the dead wildlife should be reported to the owning jurisdiction. Dead wildlife may also be harvested for food – contact the Washington Department of Fish and Wildlife for specific requirements.

6.2.2 Asbestos

Asbestos is a fibrous mineral that was considered to be useful for many different applications, especially in fireproofing and thermal insulation, until it was discovered that the fibers cause lung cancer and other respiratory ailments. The fibers are "friable", or crumble easily into very small particles, that become airborne and lodge in the lungs after being inhaled.

Existing Practices

Asbestos-containing waste must be disposed within 10 days of removal at a disposal site authorized to accept asbestos waste. For disposal the waste owner must follow specific waste tracking guidelines established by the Olympic Region Clean Air Authority (ORCAA). These guidelines may be found at www.orcaa.org/services . If a building or residence is used for commercial purposes and a contractor, other workers (besides the owner), or volunteers are used for work that disturbs asbestos containing materials, the asbestos removal requirements of the Washington Department of Labor and Industries (L&I) also apply. See the L&I website for additional information or contact the Mason County Solid Waste Program Manager.

Asbestos is not currently accepted at Mason County solid waste facilities unless it is in amounts sufficient to fill an entire container so that it can remain segregated and shipped separately as a single load. For large load coordination contact the Mason County Solid Waste Program Manager.

6.2.3 Biomedical Waste

Biomedical wastes are the potential infectious and injurious wastes from medical, veterinary, or intermediate care facilities, as well as “sharps” (syringes) from residential sources.

Existing Practices

Medical facilities have the responsibility to determine which medical wastes are considered biomedical, and then arrange for the proper handling and disposal of these wastes. These wastes should be placed in special bags or rigid plastic containers and then removed by licensed biomedical waste collectors. All biomedical wastes generated by medical facilities are disposed of by private contractors.

Incidental medical wastes generated by households, businesses, and government agencies may be disposed of in the solid waste stream. These wastes should be properly prepared to prevent unintentional human contact by solid waste employees through the use of sharps containers and red bio-medical bags when appropriate.

“Residential sharps” should be disposed of in sharps containers or in capped plastic 1 liter beverage (PET) bottles and disposed of with MSW.

6.2.4 Biosolids

Biosolids are defined by WAC 173-308-080 as “municipal sewage sludge that is a primarily organic, semisolid product resulting from the wastewater treatment process that can be beneficially recycled and meets all applicable requirements under this chapter. This type of material is specifically excluded from the definition of solid waste, although other wastes from the wastewater treatment process (such as grit, screenings, sludge and ash) are still classified as solid waste.

Existing Practices

Mason County and City of Shelton Treatment Facilities

Mason County operates one wastewater treatment plant and two water reclamation facilities. Biosolids from these plants are collected by a private hauler and transported to the City of Shelton Wastewater Treatment Plant as of December 2016. The City of Shelton has a press and dryer that turn biosolids into a dry Class A product that can be put to beneficial use as fertilizer. All biosolids that enter the City of Shelton sewage treatment plant are converted into this Class A product. No monitoring is required for placement of this product after it has been created. Other wastewater plants like Alderbrook and the Squaxin Tribe facilities are also sending their biosolids to Shelton in addition to Mason County facilities.

Needs and Opportunities

All biosolids applications within Mason County are subject to review by County Environmental Health and the requirements established by Ecology and the Environmental Protection Agency. County regulations on the permitting of biosolids sites are found in MCC 6.72.030.

6.2.5 Septic Tank Sludge

Existing Practices

Approximately 1,300,000 tons of septic sludge is generated in Mason County every year. Currently, septage wastes are disposed of mainly at the Bio-Recycling Webb Hill Facility. The LOTT (Lacey, Olympia, Tumwater, and Thurston County) wastewater plant in Olympia and the Central Kitsap PUD Plan also accept septage and at least one hauler has its own disposal facility. It is unknown what percentage of septic sludge is disposed of at the different locations.

Wastewater from homes and businesses may be collected in on-site disposal systems or by a sewerage system connected to a sewage treatment facility. The on-site treatment systems must comply with WAC 246-272A (On-Site Sewage Systems) which requires periodic pumping of the sludge product. The sludge must be pumped and land applied at a permitted facility, trucked to a sewage treatment facility for processing as a biosolid in accordance with WAC 173-308 (Biosolids Management), or disposed of in a solid waste landfill that meets the requirements of WAC 173-351 (Criteria for Municipal Landfills)."

Needs and Opportunities

The County needs to continue to support the Mason County Department of Health in their efforts to provide education and help homeowners to fix failing septic systems. In addition, the county should support efforts to field test new septic system technologies.

6.2.6 Construction and Demolition (C&D) Wastes

Construction and demolition wastes are defined simply as the wastes that are generated from construction and demolition activities. These wastes consist of wood, concrete, gypsum, roofing, glass, carpet and pad, metals, asphalt, bricks, and porcelain. Land clearing wastes, including soil, stumps and brush, are also sometimes included in this category, but these materials are rarely treated as waste.

A category closely related to C&D is "inert wastes." Inert wastes (wastes that will not burn, or create harmful leachate or gases, etc.) are defined to include some types of C&D wastes, such as concrete and asphalt, but specifically exclude sheetrock, wood, roofing and demolition wastes. The State rules adopted in February 2003 (Ch. 173-350 WAC) provide a more lenient regulatory status for inert wastes than C&D wastes, with disposal requirements that are less strict.

Existing Practices

The production of C&D wastes peak during the spring and summer when most construction and remodeling activities occur. C&D wastes that are brought to the Solid Waste Facility are currently exported along with other MSW generated within the County. The County does not keep track of C&D Waste tonnage separately from other MSW. There are a number of private facilities in the County that accept some types of C&D wastes for end-uses as compost or hog fuel: Mason County Wood Recyclers, North Mason Fiber, Peninsula Topsoil, and Bill McTurnal Enterprises.

All known C&D dump sites are permitted by County Environmental Health. If County Environmental Health becomes aware of any illegal sites, they work with the owners to bring them into compliance. These sites contain C&D wastes, wood wastes, and other materials that may or may not include MSW.

Needs and Opportunities

With growth occurring and predicted into the future in the City of Shelton and unincorporated Mason County, C&D wastes will continue to be a prominent special wastes issue. Mason County has the opportunity to reach much higher diversion rates of C&D wastes than previously attained. Currently, if C&D wastes reach the Solid Waste Facility they are not separated out of the from the MSW stream in the way that scrap metal and tires are diverted.

6.2.7 Disaster Debris

Existing Practices

The contracted Eells Hill Transfer Station Long Hauler is contractually obligated to haul, without charge, three days of disaster debris.

Needs and Opportunities

Planning needs for disaster debris, including large numbers of animal carcasses, should be part of the Mason County Emergency Management Plan. Staff and citizens should look to that plan for dealing with disaster debris.

6.2.8 Electronic Waste

For the purposes of this Plan, electronic waste—or “e-waste” as it is known in the solid waste industry—refers to discarded computers, monitors, and televisions.

Washington State’s legislature passed the Electronic Product Recycling Law (SB 6428) in 2006 requiring computer and television manufacturers to provide free recycling of their products throughout the state. The rules for this law are codified in Chapter 70.95N RCW and WAC 173-900. This service became available to households, small governments, small businesses and charities on January 1, 2009, and Ecology oversees this program. Electronic products that are covered include televisions, computers, computer monitors, portable or laptop computers, tablet computers, e-readers, and portable DVD players. Computer peripherals such as keyboards, mice, and printers are not included in this program. To find more information on this law go to www.ecy.wa.gov/programs/swfa/eproductrecycle/index.html.

Existing Practices

There are facilities in Mason County and neighboring counties that are designated E-Cycle Washington sites that collect e-waste for free. To find a list of sites and which site is closest to you go to <https://fortress.wa.gov/ecy/recycle/UISearch/ServiceSearch.aspx>. This site not only includes e-waste sites but recycling locations for Appliances, Automotive, Batteries, Household Hazardous Waste, E-Waste, Business Hazardous Waste, Light Bulbs, Glass Containers, Metals, Plastic, Paper and Yard Waste, and Miscellaneous Items. The County does not operate an E-Cycle Washington site.

Needs and Opportunities

With the implementation of the state program run by Ecology, there is not a need for the County to be involved with the collection or recycling of e-waste other than directing residents to the appropriate information and sites if asked.

6.2.9 Waste Tires

Waste tires present several issues for storage and disposal:

- a. Waste tires provide an ideal breeding ground for mosquitoes which can then transmit life-threatening diseases.
- b. Waste tire stockpiles can catch fire as a result of lightning strikes, handling equipment malfunctions, or arson.
- c. Waste tire disposal at landfill facilities can hamper proper compaction of waste layers and, once covered, can eventually “float” to the surface because of their shape and tendency to hold air.

Existing Practices

Requirements for waste tire collection, storage and transport are contained within WAC 173-350 which pertains to facilities accumulating more than 800 automobile tires or 8 tons of all type tires. Currently, waste tires are only accepted at the Eells Hill Transfer Station and the Belfair Sand Hill drop box facility where they are segregated in temporary storage piles until they are transported off-site by licensed waste tire transporters for eventual recycling. In 2015, 1,479 waste tires were collected at the Eells Hill and the Belfair sites.

Needs and Opportunities

No planning needs exist for the current method of handling and disposing of waste tires in Mason County. Additional information on waste tire recycling can be found on Ecology’s web site under the “Waste 2 Resources” program.

CHAPTER 7

CHARACTERIZATION OF THE PLANNING AREA

7.1 Physical Description

An understanding of the general physical description of Mason County is important because it provides a frame of reference for discussions of existing solid waste handling facilities and practices. Specific physical requirements for these facilities are found in WAC 173-304 *Minimum Functional Standards for Solid Waste Handling* and WAC 173-350 *Solid Waste Handling Standards*.

Mason County has one landfill currently in a closure process and its specific physical characteristics can be found in the Parametrix report *2015 Annual Groundwater Monitoring Report Mason County Landfill* available through the Mason County Utilities and Waste home page. A location specific physical description of the City of Shelton C Street Landfill will be developed as its closure process is implemented.

7.1.1 Geology

Mason County occupies about 970 square miles of land area (See Figure 3.1). The northwestern part of the County lies in the Olympic Mountains and the remainder lies in the Puget Sound Lowland. Elevations within the County range from sea level to 6,612 feet (Mt. Stone).

Rocks exposed within the County consist of both volcanic rocks, with some consolidated sedimentary rocks, and a thick sequence of unconsolidated glacial and non-glacial deposits. The volcanic and consolidated sedimentary rocks are exposed within the Olympic Mountains. Most of the County is underlain by the unconsolidated deposits.

Although there are no specific geologic requirements for solid waste handling facilities, local terrain features and nearby slope stability have been considered during siting to allow easy all weather road access and good traffic flow patterns. Consideration of geologic conditions was used to establish the potential for groundwater or surface water pollution caused by the 24 hour, 25 year storm resulting in excessive precipitation run-on problems.

7.1.2 Hydrology and Hydrogeology

The major source of groundwater recharge in Mason County is precipitation. Part of this precipitation percolates downward into the soil, part drains off as surface runoff, and part returns to the atmosphere by evaporation and transpiration from plants. The Olympics rise to elevations over 6,000 feet, and that portion of the County experiences an average annual rainfall of 200 inches. On the other hand, at its eastern most edge, along the Puget Sound, the County receives an average annual precipitation of 50 inches. The extent to which precipitation infiltrates the surface varies from place to place, depending on the character of the subsurface materials. Essentially, all groundwater tapped in Mason County is from aquifers within the more permeable materials of the various glacial drift deposits. Most groundwater

discharge is to streams, lakes and surrounding marine waters. The movement of groundwater toward discharge points is typically in the direction of the land surface slope.

In most places, the main water table is within 50 feet of the land surface. In general, the water table rises away from marine waterways and major stream valleys, and has a configuration similar to the rising land surface. Deeper aquifers also occur within the coarser phases of the various glacial deposits.

Groundwater quality monitoring is a waste handling facility permitting requirement and during operation inspection of leachate collection systems is performed along with gauging the effectiveness of run-on and run-off prevention during storms.

7.1.3 Climate

Mason County has a mid-latitude west coast marine climatic regime typical of the Puget Sound. The climate is influenced by the Pacific Ocean and Puget Sound water bodies as well as the Olympic and Cascade Mountains. Generally, moderate temperatures are experienced year round and the climate is mild with wet winters and dry summers. Rainfall is typically gentle precipitation with overcast and foggy winter days. Except for higher mountain elevations, winter snowfall is intermittent and melts quickly.

Due to the terrain variations, bodies of water, and weather patterns the amount of precipitation deposited varies considerably across Mason County. These variations were considered in establishing the 24 hour, 25 year interval storm precipitation amounts to be expected at each waste handling facility location.

7.1.4 Air Quality

Air is an essential resource that must be protected from harmful levels of pollution including dust and odors generated at waste handling facilities. Improving air quality is a matter of statewide concern and is in the public interest so Chapter 70.94 RCW "Washington Clean Air Act" was developed to secure and maintain levels of air quality that protect human health and safety, including the most sensitive members of the population, to comply with the requirements of the Federal Clean Air Act, to prevent injury to plant, animal life, and property, to foster the comfort and convenience of Washington's inhabitants, to promote the economic and social development of the state, and to facilitate the enjoyment of the natural attractions of the state.

Further the intent of the RCW is to protect the public welfare, to preserve visibility, to protect scenic, aesthetic, historic, and cultural values, and to prevent air pollution problems that interfere with the enjoyment of life, property, or natural attractions.

To achieve the above goals the Olympic Region Clean Air Agency (ORCAA) is the local agency charged with regulatory and enforcement authority for air quality issues in Clallam, Grays Harbor, Jefferson, Mason, Pacific, and Thurston counties.

There are occasional seasonal problems from slash burning and wildfires that occur in the summer months. Slash burning is used to clear debris following clear cutting of timber areas and results in the production of airborne particulates.

7.2 Population

Population data for incorporated and unincorporated Mason County are provided in Table 7.1. Mason County is the 20th most populous County in Washington State. About 16% of the County's population is concentrated in the City of Shelton, the only incorporated city within Mason County. Overall, the County population has grown by 26% since 2000.

Table 7.1: Mason County Population 1990 to 2015

Area	1990	2000	2010	2015	Annual Increase
Mason County (Total)	38,341	49,405	60,699	62,200	2.5%
Unincorporated (Total)	31,100	40,963	50,865	52,130	2.7%
City of Shelton (Total)	7,241	8,442	9,834	10,070	1.6%

The Office of Financial Management (OFM) developed 25-year population projections for each County in 2012 for planning under the Growth Management Act. The low, medium, and high projections prepared for Mason County show negative to modest growth rates compared to most other Western Washington Counties.

Table 7.2: Mason County Population Projections, 2015 to 2040

Projection	2015	2020	2025	2030	2035	2040	Annual Increase
Low	56,447	58,741	61,075	63,489	65,821	67,925	0.8%
Medium	63,203	67,545	71,929	76,401	80,784	84,919	1.4%
High	69,904	76,239	82,618	89,093	95,472	101,583	1.8%

Comparing the 2015 projections in 2012 with the OFM estimate of 62,200 in 2015 the County population is tracking the medium growth projection the closest. This 1.4% growth is slower than the 2.5% growth experienced by the County from 1990 – 2015.

7.3 Employment and Economic Statistics

7.3.1 General Trends

Regional context

The county now known as Mason was first established as Sawamish County in 1854. Carved out of Thurston County, it extended westward to the Pacific Ocean. In 1864, it was renamed Mason County in honor of Charles H. Mason, first Secretary of Washington Territory. Mason County encompasses the southern part of Hood Canal and many bays and inlets of south Puget Sound. The indigenous peoples include the Coast Salish. In the 1840s, American settlers arrived and began farming.

Local economy

Forest products quickly became the largest industry in the county, and expanded greatly when the railroads made it possible to feed the various mills in the area. Work on creating a terminus for the transcontinental railroad in Union came to an abrupt halt with the Panic of 1893, the most serious economic crisis in the nation's history. In response, banker Alfred Anderson partnered with local loggers to get them back to work and then with Sol Simpson to create the Simpson Logging Company, which became the largest employer in the state. The last few decades of the twentieth century saw a significant decline in the number of timber industry jobs due to mechanization, endangered species protection, and diversification of the Washington and United States economies, with this trend continuing into the present.

The corrections facilities in Shelton and Belfair added hundreds of beds beginning the 1980s, helping to offset job losses in the forest industry. Recreation-based industries, as well as oyster and seafood production and processing, have also increased in importance, and Mason County has become a bedroom community for employees in Thurston, Pierce, and Kitsap counties. In 2014, 52.3 percent of earned income came from residents working outside the county.

7.3.2 Labor Force and Unemployment Rates

Outlook

Mason County has reduced its unemployment rate levels to those last seen in 2008. However, the return to pre-recession employment totals in some industries will be slow. Manufacturing had over 1,900 jobs as recently as 2006 compared to an average of 1,320 so far in 2015. Construction also showed a decline of over 37.0 percent. The only area showing growth since that time is the services sector, particularly in retail trade, professional and business services and state and local government. These trends appear likely to continue in 2016.

Labor force and unemployment

Current labor force and unemployment statistics are available on the employment security department website (www.esd.wa.gov). The last 29 months of data have shown Mason County in single digit unemployment, compared to the January 2010 high of 13.9 percent. The November 2015 rate was 6.9 percent, down from 8.4 percent in November 2014.

The labor force has declined on an annual average basis since 2008, when it stood at 25,400. In the first eleven months of 2015 it has averaged 23,225. Some of the drop in unemployment rates results from this declining labor force. That is a situation that has been seen throughout the state and country as more people dropped out of active job searches or retired. Some of it can also be credited with steady strength in the local job market and a return to more favorable labor market conditions.

Industry employment

Nonfarm industry employment in Mason County has been steadily improving since 2013. There have been gains in most industries since the sharp declines beginning in 2009.

The November 2015 total of 14,700 jobs is 230 more jobs than in November 2014. The largest industries in the Mason County economy remain government (5,560) and trade, transportation and utilities (2,320). The manufacturing industry in November accounted for 1,380 jobs, but saw a loss of 200 jobs over the year. The 2015 industry employment represents a small increase in total nonfarm employment compared to the first eleven months of 2014. This trend will likely be the norm heading into 2016 although manufacturing will face significant headwinds.

Table 7.3: Mason County Unemployment versus Statewide Unemployment

Year	Civilian Labor Force	Employment	Percent Unemployment	
			Mason County	Statewide
2014	23,817	21,934	7.9	6.0
2015	24,099	22,373	7.2	5.7
2016	24,181	22,400	7.4	5.2

Source: Washington Employment Security Department

7.3.3 Median Household Income

The United States Census Bureau estimates the 2015 County annual median household income as \$50,406. The state median income is estimated at \$61,062 resulting in the Mason County median income as 82.5% of the statewide income.

Land Use Changes in the Dynamics of the Planning Area

Mason County has experienced 26% growth in population since 1990 which results in an annual growth rate of 2.5%. Current economic conditions may slow growth throughout the County, however, as growth over the next 25 years is projected at 1.4% growth.

Forestry-related activities, followed by agriculture, remain the dominate land uses in Mason County. Denser residential zoning districts ranging from three to six dwelling units per acre typically lie in urban growth areas.

Outside of the City of Shelton, the County remains primarily rural in its development patterns except for unincorporated communities of Belfair, Allyn, Union, and Hoodspert.

Current development patterns in the unincorporated areas of the County show growth focused primarily along the Puget Sound waterways, Hood Canal, Shelton, and the Belfair area.

Comprehensive plans and zoning codes in the county and Shelton do not specifically address the location of municipal solid waste management facilities as permitted uses. The Eells Hill Transfer Station is in a Rural Residential 20 District while the County Rural Transfer Stations lie in varying zoning districts. Mason County Code requires a special use permit for any essential public facility. Due to a lack of demand for expansion of solid waste management facilities, the County has not focused on siting these facilities in their comprehensive plan.

CHAPTER 8

PARTICIPANT ROLES IN PLAN DEVELOPMENT

8.1 Overview

The development and update of the Mason County Comprehensive Solid Waste Management Plan (CSWMP) is a public process that involves the Solid Waste Advisory Committee, County staff from the Public Works and Community Services, City of Shelton, Squaxin Island Tribe, Skokomish Tribe, citizens, and the Board of County Commissioners (BOCC).

8.2 Participating Jurisdictions

RCW 70.95 delegates the authority and responsibility for the development of solid waste management plans to counties. Other governing bodies (cities, tribes, state, and federal agencies) may participate in the County's planning process or develop their own plans. State law allows cities to fulfill their solid waste management planning responsibilities in one of three ways:

- By preparing their own plan for integration into the county's plan,
- By participating with the county in preparing a joint plan, or
- By authorizing the county to prepare a plan that includes the city.

The City of Shelton is the only incorporated municipality in Mason County. As in years past, they have agreed to participate in the plan that the County prepares. In addition, because this CSWMP may impact their current and future solid waste management options, careful review of this plan is recommended for the Skokomish Tribe and the Squaxin Island Tribe.

8.3 Role of the Solid Waste Advisory Committee

The Solid Waste Advisory Committee (SWAC) acts as the representatives of the public to provide guidance to the County and municipalities regarding the most environmentally safe and economically responsible methods for waste reduction, recovery, and disposal. State law, [RCW 70.95.165](#), requires each County to appoint a SWAC with a minimum of nine members that represent a balance of interests: citizens, public interest groups, business, the waste management industry, and local elected officials. The Board of County Commissioners (BOCC) appoints members to the committee. The SWAC is an advisory committee only to the BOCC and all actions must be taken by the BOCC.

The SWAC plays an instrumental role in developing and updating the CSWMP. With staff assistance, the SWAC stays informed on all aspects of solid waste management in the County. During the plan preparation process, the SWAC reviews current conditions and makes recommendations for future policies and programs. The current membership (as of February 2017) and affiliations of the SWAC members are shown below in Table 8.1 on the next page.

Table 8.1 – Membership of the Mason County SWAC

Name	Representing
Eric Nelson	Citizen District 1
Vacant	Citizen District 1
Vacant	Citizen District 2
Vacant	Citizen District 2
Cheryl Williams	Citizen District 3
Kevin Schmelzen	Citizen District 3
Jason Dose	City of Shelton
Vacant	Special Groups – Tribes
Rik Frederickson	Special Groups – Waste Industry, Mason County
Delroy Cox	Special Groups – Waste Industry, JDEL Consulting
Vacant	Agriculture and Aquaculture

8.4 Role of Staff

Staff members from the Public Works Department and the Community Services Department, Environmental Health Division support and provide comment to the SWAC about solid waste management activities within the County. They play an active role during the plan development process by providing analysis and making recommendations regarding goals, objectives, and recommendations.

8.5 Role of Citizens

As ratepayers, citizens also share their opinions in the plan development and update process. Once the SWAC prepares a draft document, the (BOCC) will hold one or more public hearings to allow citizens to comment. The BOCC may choose to remand citizen comments back to the SWAC or take action themselves.

8.6 Washington State Laws and Administrative Codes

The State of Washington, through the Revised Code of Washington (RCW), the Washington Administrative Code (WAC), and the Department of Ecology, establishes requirements and guidelines for development of the CSWMP. The Department of Ecology reviews and comments on the draft CSWMP and must approve or deny the final plan. The Utilities and Transportation Commission and Department of Agriculture will also review and comment on the draft CSWMP.

8.7 Board of County Commissioners

The BOCC is the final point of local approval for the CSWMP and any subsequent updates. Their subsequent role in budget development and approval is instrumental to the long-term implementation of the plan.

8.8 Solid Waste Administration

The solid waste planning goal for administration is to ensure that Mason County Public Works, the Environmental Health Division of the Mason County Community Services Department, and the City of Shelton

Public Works Department are adequately staffed, trained, and managed for coordination and implementation of solid waste activities.

8.8.1 Existing Practices

Mason County Public Works

The County's solid waste utility is housed under the Utilities and Waste Management Division of the Public Works Department. The Deputy Director for Utilities and Waste Management is responsible for managing the solid waste, water, and sewer systems for the County. The solid waste services for the County are funded through fees collected at the solid waste facility, drop box stations, and a solid waste grant funded by Ecology. Solid waste staffing consists of the Public Works Director, Deputy Director, Solid Waste Program Manager, six transfer station attendants, and four operators who work on the transfer station tipping floor.

Mason County Community Services Department

The County's Solid Waste Program is part of the Environmental Health Division (EHD). The Environmental Health Specialist for this program is responsible for the monitoring and enforcement of regulations at solid waste handling facilities and sites, as well as, providing technical assistance for review and issuance of solid waste permits. Other duties include the investigation, education, and enforcement of solid waste regulations throughout Mason County. This program is funded by Ecology's Waste 2 Resources Coordinated Prevention Grant Program (CPG) and solid waste permitting fees. This program currently funds the position of one Environmental Health Specialist.

City of Shelton

The City's solid waste utility is included with other functions of the City's Public Works Department. The Director of Public Works is responsible for garbage service, roads, water, sewer, and storm utilities for the City. The solid waste programs for the City of Shelton are a separate utility and funded through garbage collection fees as well as a grant funded by Ecology (CPG). The Department of Public Works consists of a Director, City Engineer, Associate City Engineer, part-time projects engineer, CAD technician, Engineering technician, Superintendent of Public Works, Administrative Assistant, and 21 employees/operators who work on the division crews (water, sewer, garbage, and roads). The solid waste utility has a total of three full time operators who handle all day to day operations. In February of 2017 the Shelton City Commission voted to privatize its solid waste utility functions. It is anticipated that a formal contract/agreement will be reached with a private hauler in the summer of 2017.

8.8.2 Needs and Opportunities

As noted in Table 8.1 vacancies continue to exist in SWAC membership despite advertising the vacancies in the local newspaper and posting application information on the Mason County Solid Waste web Homepage. In addition to a lack of volunteers to serve as a SWAC member, public participation in SWAC meetings is essentially "zero". The SWAC members and BOCC need to continue researching for a new method(s) to improve citizen participation in Solid Waste activities.

CHAPTER 9

RELATIONSHIP TO OTHER PLANS AND PERMITTING OF SOLID WASTE FACILITIES

9.1 State Solid and Hazardous Waste Plan

Chapter 70.95 and Chapter 70.105 RCW require Ecology to develop a state solid and hazardous waste plan and update it on a regular (5 year) basis. In 2004 the state plan was called the Beyond Waste Plan which had five initiatives focused on waste reduction as the highest priority followed by recycling and then safe disposal. The Beyond Waste Plan was Washington's statewide policy guidance document for local governments to follow in developing their individual solid waste management plans to reduce wastes and toxic substances. The Beyond Waste Plan stated that local solid waste plans had to be consistent with the state plan in order to receive grant funds through the Coordinated Prevention Grant (CPG) program. The plan was updated in 2009 and provided state-wide progress toward achieving the three main priorities.

The most recent state plan update (published in June 2015) is renamed the Moving Washington Beyond Waste and Toxics (Ecology publication 15-04-019) and was developed by incorporating the sustainable materials management (SMM) approach initiated by the U.S. Environmental Protection Agency (EPA) and also implemented by the Oregon Department of Environmental Quality. In this new approach, the state plan has shifted from five initiatives and two current issues to five sections. Each section contains goals and actions for the next five years:

1. Managing Hazardous Waste and Materials – addresses regulated hazardous waste generators, pollution prevention plans, and moderate risk waste.
2. Managing Solid Waste and Materials – deals with the scope of solid waste and materials work, including organic materials.
3. Reducing Impacts of Materials and Products – focuses on improving materials that eventually become components of products or waste, by focusing on what is used and produced.
4. Measuring progress – addresses data needed for measuring progress.
5. Providing Outreach and Information.

Many of the goals and actions of the new Moving Washington Beyond Waste and Toxics Plan reflect changing priorities and implementing large-scale state and national policies and regulations that are beyond the resources or capacity of a local government the size of Mason County. However, there are modest objectives and activities within this revised Consolidated Solid Waste Management Plan (CSWMP) that correlate to the new state plan and these are identified in Chapters 1 and 2.

9.2 Previous County Solid Waste Planning

Other plans that are in effect or being developed in Mason County may interact with the requirements of this Plan. Each is discussed separately below.

9.2.1 Previous Solid Waste Management Plans

The most recently adopted Consolidated Solid Waste Management Plan (CSWMP) amendments were approved in 2011. These amendments were to a plan that was adopted in 2008. This 2017 plan has been developed in part to continue and expand upon actions to emphasize waste reduction, reuse and recycling.

9.2.2 Moderate Risk Waste Management Plan

The County's Moderate Risk Waste Management Plan of 1991 addresses the need to remove moderate risk wastes (MRW) from traditional solid waste handling and disposal paths. This plan was integrated into the 2011 Revision of the CSWMP and is now part of this CSWMP.

9.3 Resource Lands and Critical Areas Designations

While Mason County does not fully plan under the Growth Management Act (GMA), it has designated resource lands and critical areas, as well as adopted development regulations that protect critical areas as required by RCW 36.70A. Title 17 of the Mason County Code contains provisions for protecting resource lands in the County. The County does recognize the importance of comprehensive planning and continues to participate in countywide long range planning efforts that incorporate those aspects of the GMA that are relevant to local needs and circumstances.

Overall, the concerns that prompted development of the GMA, such as urban growth, sprawl, congestion, and the loss of open space, are not generally applicable to Mason County. No changes to existing Mason County Code regarding resource lands or critical areas are recommended in this plan.

9.4 Economic Development Plan

The latest Overall Economic Development Strategy for the Columbia-Pacific Region (CEDS) was completed in 2014-2015. The CEDS serves as a comprehensive statement of plans for district-wide economic growth and development over the next twenty years in Mason, Grays Harbor, Thurston, and Pacific Counties. More locally, the Economic Development Council of Mason County is working through a strategic planning process that focuses on the industries of tourism, value-added agriculture, advanced manufacturing, career and technical education, information and communications technology, forest products, and healthcare.

9.5 Other County Plans

All County Plans must be in compliance with the County Comprehensive Plan. The last approved County Comprehensive Plan was in 2005 and the County is currently in the process of updating it. An updated 2017-2022 Capital Facilities Plan was approved by the BOCC in 2016. The development of any new or expanding waste handling facility must be in accordance with Mason County Code Title 17 - Zoning. The Shorelines Master Program regulates development in shoreline areas and is currently being updated. The last approved Shorelines Master Program is from 2005.

9.6 Permitting of Solid Waste Facilities

WAC 173-350 requires that no solid waste storage, treatment, processing, handling or disposal facility shall be maintained, established, substantially altered, expanded or improved until the person operating or owning such site has obtained a permit or permit deferral from EHD or a beneficial use exemption from Ecology.

EHD is the local enforcement agency for County, state and federal regulations regarding solid waste activities. EHD is the responsible local authority (RCW 70.95.160) for issuing permits for solid waste facilities and enforcing against illegal solid waste handling or disposal activities. Mason County code 6.72 empowers EHD to issue operating permits, conduct inspections, and carry out enforcement related to solid waste facilities such as landfills, transfer stations, moderate risk waste and recycling facilities. Authority to investigate complaints of illegal garbage dumping is also defined in this local law.

Codes applying to environmental health issues such as Air and Water quality, SEPA requirements, and other threats to human health or the environment include 90.48 RCW, 70.95 RCW, 70.105 RCW, 70.94 RCW, WAC 173-350, WAC 173-200, and WAC 197-11.

CHAPTER 10

OVERVIEW OF PLANNING TO DATE

10.1 Previous Solid Waste Plans

Washington State enacted RCW 70.95 (requiring counties to develop solid waste plans) in 1969, and Mason County adopted their first plan in 1971. The original plan was revised in 1992, with updates in 1998, 2008, and 2011. Table 10.1 shows the status of the recommendations from the most recent plan (2011). The Chapters listed below correspond to the 2011 CSWMP, not the current CSWMP.

Table 10.1 Status of Recommendations from the Previous Plan (2011)

Chapter 3 Waste Reduction		Current Status
3.1	Outreach improvements—Improve and regularly update the information available on Mason County’s web site. Bilingual information to include signage at blue-box sites and web page information. Prepare for direct mailing to all County residents an annual summary of the County’s solid waste and recycling programs.	Ongoing
3.2	Continue to evaluate the Blue-Box Recycling Program to improve opportunities and improve site access. Consider adding sites on available public properties and develop an incentive for private site owners to continue to provide land for siting the boxes.	Expansion of curbside recycling eliminated the need for implementation
3.3	Local governments should develop and expand electronic billing options to reduce paper mailings.	Implemented
3.4	Offer businesses and schools waste audits and education designed to reduce their waste stream and disposal costs.	Implemented by Private Company
3.5	Improve recycling options for employees at local government facilities.	Limited Activity
3.6	Support the efforts of the private sector to implement and expand curbside-recycling program in Mason County.	Ongoing
3.7	Diversion of organics at county owned solid waste facilities for composting or other beneficial use.	Yard waste diverted, other organics are not.
3.8	Support local efforts to expand recycling options for common products, such as electronics, Styrofoam, additional plastics and other materials.	Ongoing
Chapter 4 Solid Waste Collection, Transfer and Disposal		Current Status
4.1	Develop separate organic waste and construction and demolition waste tipping areas at the Eells Hill Transfer Station Facility where materials collected could either be processed onsite or transferred to an existing private composting operation in Mason County.	Yard waste is diverted at Eells Hill. C&D and other organics are not diverted.
4.2	Continue to review and evaluate operational procedures at all of the solid waste collection facilities to reduce waiting times during peak-use periods.	Ongoing
4.3	Explore new opportunities for public/private partnerships dealing with improving solid and special waste collection, processing, transport, and disposal.	Ongoing

Table 10.1 Status of Recommendations from the Previous Plan (2011)(continued)

Chapter 5 Solid Waste Administration and Enforcement		Current Status
5.1	Explore additional abatement and public property cleanup funding alternatives.	Ongoing
5.2	Assist local regulatory and law enforcement agencies with the implementation and enforcement of new and existing laws and solid waste regulations.	Ongoing
Chapter 6 Special Waste Streams		Current Status
6.1	Explore alternatives to the disposal of large animals infected with contagious diseases and provide education to farmers.	Department of Agriculture Function
6.2	Participate in discussions and provide assistance where necessary to assist with evaluations of proposed methods for handling salmon carcasses.	Function of State Agencies
6.3	BioMedical Waste Public Education Campaign	Not Implemented
6.4	Septic Tank Sludge disposal alternatives.	Ongoing by private companies
6.5	Facility Diversion at Eells Hill Transfer Station (C&D)	C&D Diversion not Implemented
6.6	Public Education of private C&D Recycling Facilities	Ongoing
6.7	Disposal Ban at County Facilities (C&D)	Not Implemented
6.7	State Plan Support by County and City (E-waste)	Ongoing
6.8	County-operated Collection Site (E-waste)	Implemented by private parties, not County
6.9	Annual or seasonal e-waste collection events	Implemented by private parties
6.10	Landfill Ban on E-Waste	Implemented
6.11	Wood Waste Facility Diversion at Eells Hill	Implemented
6.12	Public Education of private wood waste recycling facilities	Ongoing
6.13	Disposal Ban of wood waste at Eells Hill within Municipal Solid Waste	Not Implemented
Chapter 7 Household Hazardous Wastes		Current Status
7.1	Hazardous Waste Education	Ongoing
7.2	Collection of Household Hazardous Waste	Ongoing
7.3	Business Technical Assistance and collection	Not Implemented
7.4	Enforcement and Compliance	Ongoing
7.5	Used Oil Recycling Program at County sites	Ongoing
7.6	Health and Safety of operating staff.	Ongoing

10.2 Jurisdictional Involvement

In accordance with RCW 70.95, the Mason County CSWMP is a collaborative effort between the County and the City of Shelton. City of Shelton Resolution 892-0506 passed on June 11, 2006 authorizes Mason County to include the City of Shelton in its CSWMP pursuant to RCW 70.95.080.

10.3 Plan Review

10.3.1 Annual Review

The SWAC will review the CSWMP annually, on the anniversary of BOCC approval of the CSWMP, to track the status of recommended actions and their efficacy in achieving the plan goals.

10.3.2 Five-Year Review: 2022

Every five years, Mason County Public Works will undertake a comprehensive review of the plan to determine its overall performance. RCW 70.95 outlines the requirements for maintenance of plans. The SWAC will assist in this process and generally advise the County of overall concerns and potential revisions. Based on this input, the County may need a plan amendment or a plan revision.

10.4 Plan Amendment

Plan amendments constitute additions to an existing program or changes that implement a program. Plan amendments do not require the same extensive level of review and adoption as required of a plan revision, which often focuses on establishing a new overall vision or approach for solid waste management within the County. The type of changes that prompt a plan amendment includes: updating the 6- and 20-year projects that are in the same scope and scale as the current approved plan, adding an interim program to provide an equivalent service because of an implementation delay of a full program, making minor changes in the scope of the program, such as identifying the number of permitted facilities or the addition of new target audiences for education, and inventorying actions and non-actions implemented from the original plan.

The amendment process entails the following steps:

1. County staff consultation with the SWAC
2. Development of a draft amended plan and forwarded to the Board of County Commissioners, participating jurisdictions, and the regional Department of Ecology solid waste planner
3. Receipt of letters of concurrence from all participating jurisdictions and comments from the Department of Ecology on the draft amended plan
4. Adjustment of the draft amended plan, if necessary
5. Public hearing on the draft amended plan held before the Board of County Commissioners.
6. Action by the Board of County Commissioners and forward adopted amended plan to the Department of Ecology.

10.5 Plan Revision

A plan revision may include redefining the vision for solid waste management within the County and updating each component of the plan to make it current. Examples of plan revision involve:

1. Major shifts in the level of service in a program that is not specified in the plan.
2. Closure of a local landfill and a transition to long-haul.
3. Development of a new private transfer or disposal facility.
4. Regionalization between previously independent planning entities

Plan revisions require the same adoption process as adoption of a new plan. The Department of Ecology publication *Guidelines for the Development of Local Solid Waste Management Plans and Plan Revisions* provides further detail on plan amendments and plan revisions.

10.6 Solid Waste Financial Plan

Mason County Solid Waste Fund #402 is an enterprise fund. All solid waste revenues are used for expenditures within Fund #402. Budgets are set annually so that revenues from tipping fees, CPG grants, and other revenues equal or exceed the expenditures annually. Revenues and expenditures are tallied and reviewed on a monthly basis.

In 2017 total budgeted expenditures are \$4,101,137. 2017 expenditures include \$423,000 for transfer station improvements and \$130,000 for a Grizzly Crane Replacement. 2015 expenditures totaled \$2,916,325 and 2016 expenditures totaled \$3,417,892. These annual expenditures include payments to Republic Services for long haul solid waste disposal of \$1,480,356 in 2015, \$1,953,099 in 2016, and a budget of \$1,800,000 in 2017.

In accordance with Ecology guidelines Mason County has developed a six-year capital improvement program as shown in Table 10.2. The improvements listed come from the Capital Investment Needs Report completed by Parametrix in 2016 and included as Appendix A in the CSWMP.

Table 10.2: Mason County Six-Year Solid Waste Capital Improvement Program

Project	2017	2018	2019	2020	2021	2022	Funding Source
1) Replace Grizzly Crane	\$123,000						Tipping Fees
2) Main Transfer Station Bldg. Improvements	\$423,000						Tipping Fees
3) HHW Improvements		\$250,000					Tipping Fees, CPG Grant
4) Replace self-haul transfer building			\$275,000				Tipping Fees
5) Upgrade Diesel Fueling Facility					\$25,000		Tipping Fees

The projects identified in Table 10.2 are discussed briefly below.

- 1) Replace Grizzly Crane – In February of 2017 the existing Grizzly Crane that is used to compact solid waste into the long haul containers was replaced with a refurbished crane of the same model.
- 2) Main Transfer Station Building Improvements – This is a collection of improvements identified in the Parametrix Report focused on the Main Transfer Station Building. The County has hired a consultant to complete the design for these improvements and the County intends to go out to bid for construction in 2017 although construction may be completed in 2018. The scope of work includes:
 - a. Replace and extend transfer building topload chute with skirt.
 - b. Upgrade transfer building storm water and leachate drainage systems.
 - c. Install code compliant stairs between upper and lower level of transfer building.
 - d. Overlay transfer building asphalt tipping floor.
 - e. Overlay lower level of transfer building floor and install directional curbing.
- 3) HHW Improvements – The Parametrix report identified a potential cost of over \$1 Million to replace the existing Household Hazardous Waste Facility and create a code compliant facility. This is a very large cost for our solid waste program. Because the amount of HHW that we collect is fairly limited the County has looked into other alternatives. One option the County found might be more cost effective is a pre-fabricated self-contained Hazmat Building. There are sizes available that meet or exceed the amount of space we currently use for HHW. We have an existing concrete pad we could place one of these units on next to our existing HHW facility so no site preparation is needed. We would just need to hook up power and water to the unit. An estimated cost for this is \$250,000.
- 4) Replace Self-Haul Transfer building – The self-haul transfer building is in need of replacement. The Parametrix Report provided an estimated cost of \$157,000 - \$241,000. A cost of \$275,000 is listed in our plan to account for inflation between 2016 and 2019.
- 5) Upgrade Diesel Fueling Facility – Upgrades to the fueling facility to resolve code compliance issues.

Improvements at the Rural Drop Box Stations will be done under maintenance projects and are not included in this capital improvement program.

Beyond six-years the County should consider options for constructing a new or expanded transfer station at the Eells Hill location. The existing facility is nearing its capacity to handle the amount of waste it receives. Table 10.3 provides projections of population, tonnage, and annual expenditures over the next 20 years for the Mason County Solid Waste System assuming continued public operation of the facilities.

Table 10.3 Long Term Financial Projections for Solid Waste System, 2020 to 2040

Year	2015	2020	2025	2030	2035	2040
Population	62,200	67,545	71,929	76,401	80,784	84,919
Total Tonnage	37,155	40,527	43,157	45,841	48,470	50,951
Tipping Fee/Ton	\$91.25	\$96.85	\$102.81	\$109.13	\$115.83	\$122.95
Expenditures/Ton	\$78.49	\$83.31	\$88.43	\$93.87	\$99.63	\$105.76
O&M Expenditures	\$2,916,325	\$3,376,300	\$3,816,400	\$4,303,100	\$4,829,100	\$5,388,600

Tipping fees and expenditures per ton in Table 10.3 are based on an annual CPI increase of 1.2%, the average increase from 2015 – 2017. The population and tonnage projections are from Table 6.5.

APPENDIX A

Solid Waste System Capital Investment Needs

Prepared for

Mason County Public Works

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Shelton, Washington 98584

Prepared by

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CITATION

Parametrix. 2016. Solid Waste System Capital Investment Needs.
Prepared by Parametrix, Seattle, WA. October 5, 2016.

CERTIFICATION

The technical material and data contained in this document were prepared under the supervision and direction of the undersigned, whose seal, as a professional engineer licensed to practice as such, is affixed below.



Prepared by Karl R Hufnagel, PE



Checked by Ian Sutton, PE



Approved by Jenifer Young

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ACRONYMS AND ABBREVIATIONS

County	Mason County Public Works
CSWMP	Comprehensive Solid Waste Management Plan
HHW	Household Hazardous Waste
RCW	Revised Code of Washington

1. INTRODUCTION

Mason County Public Works (County) is in the process of revising its Comprehensive Solid Waste Management Plan (CSWMP) in accordance with the Revised Code of Washington (RCW) 70.95. As required by RCW 70.95, the CSWMP must include, at a minimum, in addition to other items:

- An inventory of any deficiencies in meeting current solid waste handling needs
- Long-range needs for solid waste handling facilities projected 20 years into the future
- A 6-year construction and capital acquisition program for solid waste handling facilities

Parametrix was retained to develop a prioritized list of facility recommendations for the County's solid waste facilities for inclusion in the CSWMP.

The County's four solid waste facilities include:

- Shelton transfer station and recycling facilities, 501 W Eells Hill Road
- Belfair drop box station, 1611 NE Sand Hill Road
- Union drop box station, 1391 E McReavy Road
- Hoodspout drop box station, 260 N Foothills Park Road

In accordance with the scope of work of the professional services agreement, number 16-002, executed June 27, 2016, this assessment focuses on the following key areas of the facilities:

- Facility configuration, design and condition, including traffic circulation, materials receiving, storage, and load-out areas
- Facility maintenance practices
- Equipment type, usage, and maintenance
- Customer and employee safety
- Operating procedures and practices, including hauling activities
- Customer service standards
- Staffing requirements, deployment, and training

The four facilities were inspected by a team consisting of the following Parametrix solid waste professionals and County public works staff on July 12, 2016:

- Karl Hufnagel – Parametrix
- Ian Sutton – Parametrix
- Melissa McFadden – Mason County
- Sarah Grice – Mason County
- Zach Foster – Mason County

The purpose of the site inspection was to gather firsthand information regarding the condition and functionality of the facilities in the key areas listed above.

2. FINDINGS AND RECOMMENDATIONS

2.1 Findings

All four facilities are over 20 years old, and while generally they are in full serviceable condition, each facility exhibits substantial amounts of deferred maintenance. Each facility is in need of routine minor repair and, in some cases, major rehabilitation and/or improvement to continue to meet current operational needs.

In assessing the facilities, the Parametrix-led team considered improvements that would deliver benefits to the County in one or more of the following areas:

- Safety
- Operational efficiency and/or operating cost reduction
- Improved functionality
- Improved customer service
- Environmental enhancement
- Code compliance
- Staff welfare
- Routine facility maintenance and upkeep
- Major renewal and replacement (of equipment)

In addition to physical condition and possible code non-compliance issues, the team noted a number of operational aspects that may benefit from improvements and/or changes to the facilities.

A total of 13 deficient conditions and/or areas of possible improvement were observed at the three drop box stations, which are summarized in Table 2-1.

A total of 43 deficiencies and/or areas for possible improvement were observed at the Shelton transfer station, which are summarized in Table 2-2.

Tables 2-1 and 2-2 also include a brief description of the deficiency and/or possible improvement, an indication of whether the item will require outside assistance to address the issue, a list of interdependent deficiencies or improvements, the primary and secondary benefits (see list above) from addressing the item, a preliminary estimated order of magnitude cost to address the item, and, a suggested time frame for addressing the item (Immediate, Mid-Term, and Long Term). Assignment of the timing categories takes into account the apparent urgency of the corrective action.

Table 2-2 also includes suggested groupings of certain improvement items that are recommended for implementation in the near term, which require similar skills and expertise to address, or may be interdependent and best addressed in concert with each other. These improvements are likely most efficiently accomplished by grouping and completing as a comprehensive effort. More specifically, there are two suggested groupings as follows, listed by improvement number as shown in Table 2-2:

Transfer Station Improvements Group 1:

- 1. Restore and/or upgrade transfer building wastewater and surface water drainage systems
- 3. Replace failing self-haul tipping building superstructure
- 6. Replace and extend transfer building topload chute with skirt
- 7. Install transfer trailer scale in topload bay or elsewhere on site
- 8. Install sidewalk/stairs between upper and lower level of transfer building

- 35. Resurface transfer building asphalt tipping floor
- 37. Evaluate use of wheel stops for commercial stalls in transfer building

In addition, this group could also include drop box station improvement 12, Evaluate roof framing for snow load capacity, listed in Table 2-1.

Code Compliance Assessments Group 2:

- 15. Assess Household Hazardous Waste (HHW) facility code compliance and functional performance
- 26. Assess on-site equipment diesel fueling facility code compliance
- 28. Assess liquid fuel receiving facility code compliance
- 30. Assess fire hazard risks and on-site response capabilities

In consultation with County staff, Parametrix identified a selected group of priority improvements and developed planning level cost estimate ranges for these items. The total cost range for each of these estimates is included in the far right-hand column in Tables 2-1 and 2-2. The backup estimates for the cost ranges are included in Appendix A.

2.2 Recommendations

Based on the findings of this assessment, Parametrix recommends that Mason County initiate steps to implement all improvements categorized as “Immediate,” and begin planning for longer range items categorized as “Mid-Term.” If simultaneous undertaking of all the “Immediate” improvements exceeds the County’s capacity, it is recommended that these improvements be prioritized and action taken on the highest priority items.

Table 2-1. MASON COUNTY SOLID WASTE CAPITAL IMPROVEMENT ASSESSMENT
UNION, BELFAIR, AND HOODSPORT DROP BOX STATIONS

October 5, 2016

Improvement No.	Related or Dependent Improvement	Requires Outside Consultant or Contractor	Improvement	Benefit ¹		Cost ²			Timing			Planning Level Cost Estimate	Relevant Codes & Standards ³	
				Primary	Secondary	Low	Medium	High	Immediate (1 Year)	Mid Term (6 Years)	Long Term (20 Years)			
13		No	Secure site perimeter with fencing at secondary gate - Union Drop Box Station	S		X				X			\$2,000 - \$3,000	
4	2, 3	No	Restripe pavements throughout site as needed	RM		X				X				
5		No	Install wide "Red" safety zone paint along edge of all potential customer/employee fall areas, and update safety signage	S		X				X				
7	1	No	Clean roof and gutter of drop box shelter (before repainting)	RM		X				X				
12		Yes	Evaluate roof framing for snow load capacity	S		X				X			\$7,000 - \$9,000	
6	1	No	Restore missing downspouts and broken gutter at Union Drop Box Station	RM		X				X				
1	6, 7	Yes	Repair damaged siding/framing and repaint exterior siding and trim of drop box shelter (items 6 and 7 shall be conducted prior to item 1)	RM			X			X			\$27,000 - \$36,000	
11		No	Install metals disposal box at Belfair Drop Box Station	OE	CC	X				X				A, H
10		No	Install secondary containment in MRW sheds for fuel reservoirs	EE		X				X			\$9,000 - \$12,000	
2	3	No	Repair damaged and missing asphalt pavement	RM			X			X				
8		No	Repair/replace damaged fencing at Belfair Drop Box Station	RM		X					X			
3	2	No	Overlay pavements	RM			X				X			
9		No	Evaluate improved movable topload chutes	OE		X					X			

1 Benefit Categories:

- S - Safety
- OE - Operational Efficiency/Operating Cost Reduction
- IF - Improved Functionality
- CS - Customer Service
- EE - Environmental Enhancement
- CC - Code Compliance
- RM - Routine Maintenance
- SW - Staff Welfare

2 Cost Ranges Per Drop Box Site

- Low: < \$10,000
- Medium: \$10,000 - \$50,000
- High: >\$50,000

3 Relevant Codes & Standards

- A - Mason County Code of Ordinances, Chapter 14.48 Stormwater Management & Department of Ecology Stormwater Management Manual for Puget Sound Basin
- B - International Building Code (IBC) as amended
- C - International Fire Code (IFC) as amended
- D - International Mechanical Code (IMC) as amended
- E - Uniform Plumbing Code (UPC) as amended
- F - Occupational Safety and Health Administration (OSHA) Regulations
- G - National Fire Protection Association (NFPA) Standards including, but not limited to:
 - NFPA 30, Flammable and Combustible Liquids Code
 - NFPA 70, National Electrical Code
 - NFPA 101, Life Safety Code
 - NFPA 395, Standard for the Storage of Flammable and Combustible Liquids at Farms and Isolated Sites
 - NFPA 497, Classification of Flammable Liquids, Gases or Vapors and of Hazardous (Classified) Locations for Electrical Installation in Chemical Process Areas
- H - Washington Administrative Code Title 173, Chapter 350, Section 360
Moderate risk waste handling
- I - Washington Administrative Code Title 173, Chapter 350, Section 310
Intermediate solid waste handling facilities

Table 2-2. MASON COUNTY SOLID WASTE CAPITAL IMPROVEMENT ASSESSMENT
SHELTON TRANSFER STATION
October 5, 2016

Improvement No.	Requires Outside Consultant or Contractor Assistance	Improvement	Benefit ¹		Cost ²			Timing			Planning Level Cost Estimate	Relevant Codes & Standards ³	
			Primary	Secondary	Low	Medium	High	Immediate (1 Year)	Mid Term (6 Years)	Long Term (20 Years)			
Main Transfer Building	25	No	Install wide "Red" safety zone paint along edge of all potential customer/employee fall areas, and update safety signage	S		X			X			\$1,400 - \$1,800	
	37	Yes	Evaluate use of wheel stops for commercial stalls in transfer building	S		X			X			\$1,300 - \$1,800	
	6	Yes	Replace and extend transfer building topload chute with skirt	OE	EE, S			X	X			\$179,000 - \$278,000	
	1	Yes	Restore/Upgrade transfer building wastewater and surface water drainage systems	EE, CC	RM		X		X			\$94,000 - \$135,000	A, I
	38	No	Replace Grizzly Crane	OE, RR				X		X		\$266,000-\$344,000	
	35	No	Resurface transfer building asphalt tipping floor	RM	S		X		X			\$34,000 - \$53,000	
	7	Yes	Install transfer trailer scale in topload bay or elsewhere on site	OE				X	X			\$154,000 - \$238,000	
	34	No	Clean/clear transfer building gutters	RM		X			X				
	33	Yes	Install energy efficient lighting in transfer building	OE	S		X			X			
	32	No	Recoat transfer building primary framing	RM			X		X				
Self-Haul Transfer Building	8	No	Install sidewalk/stairs between upper and lower level of transfer building	S	SW		X		X			\$24,000 - \$35,000	
	3	Yes	Replace failing self-haul tipping building superstructure	S	CC			X	X			\$157,000 - \$241,000	B, F
	4	Yes	Replace entire self-haul tipping building and relocate to existing transfer building	S, OE	CC			X		X			B, F
	5	Yes	Construct self-haul tipping building wastewater collection system	EE			X		X				
Household Hazardous Waste	2	Yes	Construct topload station for yardwaste material	OE	IF, CS			X		X			
	16	No	Repair and freeze-protect HHW facility emergency eyewash and shower unit	SW, CC		X			X			\$5,000 - \$7,000	E, F, H
	17	No	Replace HHW facility emergency eyewash and shower unit with freeze protected unit (instead of repairing existing unit)	SW, CC		X			X			\$10,000 - \$15,000	E, F, H
	42	Yes	Modify HHW facility sump with pump to new wastewater holding tank	CC	EE	X			X				A, B, C, E, G, H
	43	No	Install loading dock door type rain curtain at HHW facility oil handling bay	CC	EE	X			X				A, B, C, E, G, H
	15	Yes	Assess HHW facility code compliance and functional performance	CC, OE, SW, S, CS, EE		X			X			\$21,000 - \$27,000	B, C, D, E, F, G, H
	18	Yes	Replace existing HHW facility with new facility designed to current standards and needs in accordance with facility assessment results	CC, OE, SW, EE, S, CS				X		X		\$1,052,000 - \$1,599,000	B, C, D, E, F, G, H
Fueling Facility	19	Yes	Rehabilitate existing HHW facility to current standards and needs in accordance with facility assessment results	CC, OE, SW, EE, S, CS				X		X			B, C, D, E, F, G, H
	26	Yes	Assess on-site equipment diesel fueling facility code compliance	CC	S	X			X			\$7,000 - \$9,000	B, C, D, F, G
	28	Yes	Assess liquid fuel receiving facility code compliance	CC	S	X			X			Included with Item 26	B, C, D, F, G
	27	Yes	Upgrade on-site equipment diesel fueling facility to meet code as required	CC	S		X		X				B, C, D, F, G
Recycling Station	29	Yes	Upgrade liquid fuel receiving facility to meet code as required	CC	S		X		X				B, C, D, F, G
	12	No	Install new primary site access for self-haul recycle area	OE	CS			X		X			
Scale House and Support Buildings	20	No	Pave self-haul recycling area	CS, OE			X			X			
	13	No	Study cashiering methods in use at other counties to identify procedures that could reduce transaction times and increase scale facility throughout	OE	CS	X			X				
	21	No	Rehabilitate two existing employee support buildings and Scale House	SW, CC			X			X			B, C, D, E, F
	22	Yes	Construct new central employee support building in lieu of rehabilitating existing support buildings	SW, CC			X	X		X			B, C, D, E, F
	11	Yes	Install third (outbound) scale and second scale house and convert existing outbound scale to bi-directional use	OE	CS			X		X			

Improvement No.	Requires Outside Consultant or Contractor Assistance	Improvement	Benefit ¹		Cost ²			Timing			Planning Level Cost Estimate	Relevant Codes & Standards ³	
			Primary	Secondary	Low	Medium	High	Immediate (1 Year)	Mid Term (6 Years)	Long Term (20 Years)			
Site-wide	9	No	Repair failing/failed pavements throughout site	RM	S		X		X				
	10	No	Overlay pavements	RM				X		X			
	36	No	Restripe pavements throughout site	RM	S	X			X				
	30	Yes	Assess fire hazard risks and on-site response capabilities	S		X			X			\$8,000 - \$11,000	
	31	Yes	Upgrade on-site fire response capabilities as required	S				X		X			
	23	Yes	Prepare site stormwater management plan	CC, EE			X			X			A, I
	24	Yes	Implement improvements covered by new stormwater management plan	CC, EE			X			X			A, I
	14	Yes	Prepare transfer station site master plan that addresses long range transfer, recycling and HHW needs including handling of scrap metals, tires, organics, hazardous materials, traffic circulation, operational efficiency, customer convenience, safety, staff welfare, surface water management, on-site fire protection, etc.	OE, SW, S, IF, CS, EE, CC			X			X		\$78,000 - \$101,000	A, B, C, D, E, F, G, H, I
Equipment	41	No	Replace 2007 Volvo L45 Loader (keep old as spare)	RR				X		X			
	40	No	Replace 1999 Sterling Roll-Off Truck (keep old as spare)	RR				X		X			
	39	No	Replace 2000 Ottawa Yard Tractor	RR				X		X			

1 Benefit Categories:

S - Safety
 OE - Operational Efficiency/Operating Cost Reduction
 IF - Improved Functionality
 CS - Customer Service
 EE - Environmental Enhancement
 CC - Code Compliance
 RM - Routine Maintenance
 SW - Staff Welfare
 RR - Renewal and Replacement

2 Cost Ranges

Low: < \$10,000
 Medium: \$10,000 - \$50,000
 High: >\$50,000

3 Relevant Codes & Standards

A - Mason County Code of Ordinances, Chapter 14.48 Stormwater Management & Department of Ecology Stormwater Management Manual for Puget Sound Basin
 B - International Building Code (IBC) as amended
 C - International Fire Code (IFC) as amended
 D - International Mechanical Code (IMC) as amended
 E - Uniform Plumbing Code (UPC) as amended
 F - Occupational Safety and Health Administration (OSHA) Regulations
 G - National Fire Protection Association (NFPA) Standards including, but not limited to:
 NFPA 30, Flammable and Combustible Liquids Code
 NFPA 70, National Electrical Code
 NFPA 101, Life Safety Code
 NFPA 395, Standard for the Storage of Flammable and Combustible Liquids at Farms and Isolated Sites
 NFPA 497, Classification of Flammable Liquids, Gases or Vapors and of Hazardous (Classified) Locations for Electrical Installation in Chemical Process Areas

Certain improvements require similar skills and expertise and/or may be interdependent. These improvements may be most efficiently accomplished by grouping and completing as a composite effort.

Proposed Improvement Group 1 - Transfer Station Improvements: Improvements 1, 3, 6, 7, 8, 35, 37

Proposed Improvement Group 2 - Code Compliance Assessments: Improvements 15, 26, 28, 30

H - Washington Administrative Code Title 173, Chapter 350, Section 360
 Moderate risk waste handling
 I - Washington Administrative Code Title 173, Chapter 350, Section 310
 Intermediate solid waste handling facilities

Appendix A

Cost Estimates

Mason County Solid Waste System Capital Improvement Assessment

Shelton Transfer Station Site

Cost Estimates

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Shelton Transfer Station

Item	Sub-item	Unit	Qty	Unit Price	Price
1. Restore/upgrade transfer building wastewater and surface water drainage systems					
CONSTRUCTION:					
Replace trench drains	Demolish old drains	LF	170	\$25.00	\$4,250
	Install larger, prefab, pre-sloped drains set in concrete	LF	170	\$200.00	\$34,000
Scope and jet clean wastewater piping		LS	LS	LS	\$5,000
Cleanout wastewater holding tank		LS	LS	LS	\$1,000
Scope and vacuum clean 8" stormwater infiltration line and catch basins		LS	LS	LS	\$5,000
Test pit infiltration pipe location and assess		LS	LS	LS	\$1,000
Pipe issue allowance		LS	LS	LS	\$2,000
Wastewater holding tank rehab allowance		LS	LS	LS	\$2,000
Construction Subtotal:					\$54,250
General Conditions/Profit 25%					\$13,563
Construction Total					\$67,813
Design/Bid Documents	Outside consultant	HRS	100	\$150.00	\$15,000
Total Improvement 1					\$82,813
Cost Range:					
	Low -20%				\$66,250
	High +30%				\$107,656
Other County costs					
	Relocation of waste transfer operations during construction	Weeks	2	\$3,000.00	\$6,000
	Procurement and Admin for design	LS	LS	LS	\$5,000
	Procurement and Admin for construction	LS	LS	LS	\$5,000
	Consultant construction oversight and shop drawing review	HRS	40	\$150.00	\$6,000
	Permits	N/A			\$0
	WSST of Construction, 8.5%				\$5,764
	Total Other County Costs				\$27,764
High/Low Cost Range		High	Low		
		\$135,420	\$94,014		
Round		\$135,000	\$94,000		

Shelton Transfer Station Item	Sub-item	Unit	Qty	Unit Price	Price
3. Replace self-haul building superstructure					
CONSTRUCTION					
Demolish existing structure and dispose		LS	LS	LS	\$5,000
Concrete foundation improvements		LS	LS	LS	\$5,000
Construct new steel framed structure with metal siding/roofing and daylight roof panels		SF	1750	\$40.00	\$70,000
Lighting with power feed		SF	1750	\$10.00	\$17,500
Construction Subtotal					\$97,500
General Conditions/Profit 25%					\$24,375
Construction Total					\$121,875
Design/Bid Documents	Outside consultant	HRS	250	\$180.00	\$45,000
Total Improvement 3					\$166,875
Cost Range:					
	Low -20%				\$133,500
	High +30%				\$216,938
Other County costs					
	Relocation of waste transfer operations during construction	Weeks	2	\$1,000.00	\$2,000
	Procurement and Admin for design and construction	LS	LS	LS	\$0 *
	Consultant construction oversight and shop drawing review	HRS	60	\$150.00	\$9,000
	Permits, 2% of Construction Cost	LS	LS	LS	\$2,438
	WSST of Construction, 8.5%				\$10,359
	Total Other County Costs				\$23,797
	* procurement and admin included with other improvement items				
High/Low Cost Range		High	Low		
		\$240,734	\$157,297		
Round		\$241,000	\$157,000		

Shelton Transfer Station						
Item	Sub-item	Unit	Qty	Unit Price	Price	
6. Replace and extend transfer building topload chute with skirt						
CONSTRUCTION						
Demolish existing chute and recycle steel		LS	LS	LS	\$5,000	
Concrete repair allowance		LS	LS	LS	\$4,000	
Construct new chute with rubber belt skirt		LB	40000	\$3.00	\$120,000	
Construction Subtotal					\$129,000	
General Conditions/Profit 25%					\$32,250	
Construction Total					\$161,250	
Design/Bid Documents	Outside consultant	HRS	200	\$180.00	\$36,000	
Total Improvement 6					\$197,250	
Cost Range:						
	Low -20%				\$157,800	
	High +30%				\$256,425	
Other County costs						
	Relocation of waste transfer operations during construction	Weeks			\$0 *	
	Procurement and Admin for design and construction	LS	LS	LS	\$0 **	
	Consultant construction oversight and shop drawing review	HRS	30	\$150.00	\$4,500	
	Permits, 2% of Construction Cost	LS	LS	LS	\$3,225	
	WSST of Construction, 8.5%				\$13,706	
	Total Other County Costs				\$21,431	
	* relocation cost covered in other related improvements that will be done simultaneously					
	** procurement and admin included with other improvement items					
High/Low Cost Range		High	Low			
		\$277,856	\$179,231			
Round		\$278,000	\$179,000			

Shelton Transfer Station

Item	Sub-item	Unit	Qty	Unit Price	Price
7. Install 70' above grade transfer trailer scale in topload bay or elsewhere on site (see Note 1)					
CONSTRUCTION					
Site Grading/Earthwork		LS	LS	LS	\$10,000
Construct scale foundations/approach slabs		CY	50	\$400.00	\$20,000
Install scale		LS	LS	LS	\$55,000
Install peripheral equipment (card reader, digital display, ticket printer)		LS	LS	LS	\$8,000
Bring electrical power to scale, grounding		LS	LS	LS	\$15,000
Test and certify scale equipment		LS	LS	LS	\$5,000
Construction Subtotal					\$113,000
General Conditions/Profit 25%					\$28,250
Construction Total					\$141,250
Design/Bid Documents	Outside consultant	HRS	150	\$180.00	\$27,000
Total Improvement 7					\$168,250
Cost Range:					
	Low -20%				\$134,600
	High +30%				\$218,725
Other County costs					
	Impact on operations	Weeks			\$0 *
	Procurement and Admin for design and construction	LS	LS	LS	\$0 **
	Consultant construction oversight and shop drawing review	HRS	30	\$150.00	\$4,500
	Permits, 2% of Construction Cost	LS	LS	LS	\$2,825
	WSST of Construction, 8.5%				\$12,006
	Total Other County Costs				\$19,331
	* no operational relocation required				
	** procurement and admin included with other improvement items				

Note 1: For this estimate it is assumed that the scale will be located outside the transfer building topload bay due to structural complications

High/Low Cost Range	High	Low
	\$238,056	\$153,931
Round	\$238,000	\$154,000

Shelton Transfer Station

Item	Sub-item	Unit	Qty	Unit Price	Price
8. Install sidewalk and stairs between upper and lower levels of the transfer building (one side)					
CONSTRUCTION					
Site Grading/Earthwork		LS	LS	LS	\$1,000
Construct concrete side walks and stairs		CY	20	\$400.00	\$8,000
Install galvanized steel pipe handrail		LF	60	\$60.00	\$3,600
Coat handrail		LS	LS	LS	\$500
Construction Subtotal					\$13,100
General Conditions/Profit 25%					\$3,275
Construction Total					\$16,375
Design/Bid Documents	Outside consultant	HRS	30	\$180.00	\$5,400
Total Improvement 8					\$21,775
Cost Range:	Low -20%				\$17,420
	High +30%				\$28,308
Other County costs	Impact on operations	Weeks			\$0 *
	Procurement and Admin for design and construction	LS	LS	LS	\$0 **
	Consultant construction oversight and shop drawing review	HRS	30	\$150.00	\$4,500
	Permits, 2% of Construction Cost	LS	LS	LS	\$328
	WSST of Construction, 8.5%				\$1,392
	Total Other County Costs				\$6,219
	* no operational relocation required				
	** procurement and admin included with other improvement items				
High/Low Cost Range		High	Low		
		\$34,527	\$23,639		
Round		\$35,000	\$24,000		

Shelton Transfer Station

Item	Sub-item	Unit	Qty	Unit Price	Price
14. Prepare transfer station site master plan					
Prepare master plan documents	Outside consultant	HRS	200	\$175.00	\$35,000
		HRS	150	\$200.00	\$30,000
		HRS	60	\$125.00	\$7,500
		HRS	30	\$110.00	\$3,300
Total Improvement 14					\$75,800
Cost Range:					
Low -10%					\$68,220
High +20%					\$90,960
Other County costs					
Procurement and Admin for consultant		LS	LS	LS	\$10,000
Total Other County Costs					\$10,000
High/Low Cost Range					
		High	Low		
		\$100,960	\$78,220		
Round					
		\$101,000	\$78,000		

Shelton Transfer Station						
Item	Sub-item	Unit	Qty	Unit Price	Price	
15. Assess HHW facility code compliance and functional performance						
Prepare HHW facility assessment report	Outside consultant	HRS	80	\$150.00	\$12,000	
		HRS	20	\$200.00	\$4,000	
		HRS	10	\$110.00	\$1,100	
Total Improvement 15					\$17,100	
Cost Range:						
	Low -10%				\$15,390	
	High +20%				\$20,520	
Other County costs						
	Procurement and Admin for consultant	LS	LS	LS	\$6,000	
	Total Other County Costs				\$6,000	
High/Low Cost Range						
		High	Low			
		\$26,520	\$21,390			
Round		\$27,000	\$21,000			

Shelton Transfer Station		Unit	Qty	Unit Price	Price
Item	Sub-item				
16. Repair and freeze protect HHW facility emergency eyewash and shower					
CONSTRUCTION					
Repair piping		LS	LS	LS	\$1,000
Install self-regulating electrical heat tracing and insulate unit		LS	LS	LS	\$1,000
Install 10 gallon hotwater tank heater to provide tempered water to eyewash and shower unit with dedicated 120V electrical circuit		LS	LS	LS	\$2,000
Construction Subtotal					\$4,000
General Conditions/Profit 25%					\$1,000
Construction Total					\$5,000
Design/Bid Documents	Outside consultant	N/A			\$0
Total Improvement 16					\$5,000
Cost Range:	Low -20%				\$4,000
	High +30%				\$6,500
Other County costs	Impact on operations	Weeks			\$0 *
	Procurement and Admin for construction	LS	LS	LS	\$500
	Permits, 2% of Construction Cost	NA			
	WSST of Construction, 8.5%				\$425
	Total Other County Costs				\$925
	* no operational relocation required				
High/Low Cost Range		High	Low		
		\$7,425	\$4,925		
Round		\$7,000	\$5,000		

Shelton Transfer Station		Unit	Qty	Unit Price	Price
Item	Sub-item				
17. Replace existing emergency eyewash and shower in the HHW facility with a freeze-protected unit					
CONSTRUCTION					
Repair piping		LS	LS	LS	\$1,000
Install eyewash and shower similar to HAWS model 8317CTFP on 220V dedicated electrical circuit		LS	LS	LS	\$5,500
Install 10 gallon hotwater tank heater to provide tempered water to eyewash and shower unit with dedicated 120V electrical circuit		LS	LS	LS	\$2,000
Construction Subtotal					\$8,500
General Conditions/Profit 25%					\$2,125
Construction Total					\$10,625
Design/Bid Documents	Outside consultant	N/A			\$0
Total Improvement 17					\$10,625
Cost Range:					
	Low -20%				\$8,500
	High +30%				\$13,813
Other County costs					
	Impact on operations	Weeks			\$0 *
	Procurement and Admin for construction	LS	LS	LS	\$500
	Permits, 2% of Construction Cost	NA			
	WSST of Construction, 8.5%				\$903
Total Other County Costs					\$1,403
* no operational relocation required					
High/Low Cost Range		High	Low		
		\$15,216	\$9,903		
Round		\$15,000	\$10,000		

Shelton Transfer Station

Item	Sub-item	Unit	Qty	Unit Price	Price
18. Replace existing HHW facility with new facility designed to current standards and needs					
CONSTRUCTION					
Processing area		SF	2500	\$75.00	\$187,500
Receiving area		SF	1800	\$45.00	\$81,000
Storage area		SF	2100	\$65.00	\$136,500
Civil work		LS	LS	LS	\$50,000
Electrical work		LS	LS	LS	\$125,000
Mechanical work		LS	LS	LS	\$125,000
Construction Subtotal					\$705,000
General Conditions/Profit 25%					\$176,250
Construction Total					\$881,250
Design/Bid Documents	Outside consultant	HRS	200	\$200.00	\$40,000
		HRS	300	\$180.00	\$54,000
		HRS	500	\$145.00	\$72,500
		HRS	100	\$125.00	\$12,500
		HRS	300	\$110.00	\$33,000
Total Improvement 18					\$1,093,250
Cost Range:					
	Low -20%				\$874,600
	High +30%				\$1,421,225
Other County costs					
	Impact on operations	Weeks			\$0 *
	Procurement and Admin for design and construction	LS	LS	LS	\$10,000
	Consultant construction oversight and shop drawing review	HRS	500	\$150.00	\$75,000
	Permits, 2% of Construction Cost	LS	LS	LS	\$17,625
	WSST of Construction, 8.5%				\$74,906
	Total Other County Costs				\$177,531
* no impacts on operations if new facility located in undeveloped area					
High/Low Cost Range		High	Low		
		\$1,598,756	\$1,052,131		
Round		\$1,599,000	\$1,052,000		

Shelton Transfer Station

Item	Sub-item	Unit	Qty	Unit Price	Price
25. Install wide "Red" safety zone coating along edge of all potential customer/employee fall areas (done by County labor)					
Pressure wash and prepare surfaces		LS	LS	LS	\$500
Apply coating		LS	LS	LS	\$1,000
Total Improvement 25					\$1,500
Cost Range:					
	Low -10%				\$1,350
	High +20%				\$1,800
Other County costs					
	None				
	Total Other County Costs				\$0
High/Low Cost Range					
		High	Low		
		\$1,800	\$1,350		
Round		\$1,800	\$1,400		

Shelton Transfer Station						
Item	Sub-item	Unit	Qty	Unit Price	Price	
26 and 28. Assess equipment diesel fueling and liquid fuel receiving facility code compliance						
Assess code compliance	Outside consultant	HRS	30	\$150.00	\$4,500	
		HRS	4	\$200.00	\$800	
		HRS	4	\$110.00	\$440	
Total Improvements 26 and 28					\$5,740	
Cost Range:						
	Low -10%				\$5,166	
	High +20%				\$6,888	
Other County costs						
	Procurement and Admin for consultant	LS	LS	LS	\$2,000	
	Total Other County Costs				\$2,000	
High/Low Cost Range						
		High	Low			
		\$8,888	\$7,166			
Round		\$9,000	\$7,000			

Shelton Transfer Station

Item	Sub-item	Unit	Qty	Unit Price	Price
30. Assess fire hazard risks and on-site fire response capabilities					
Assess fire hazard risks and capabilities	Outside consultant	HRS	40	\$150.00	\$6,000
		HRS	4	\$200.00	\$800
		HRS	4	\$110.00	\$440
Total Improvement 30					\$7,240
Cost Range:					
	Low -10%				\$6,516
	High +20%				\$8,688
Other County costs					
	Procurement and Admin for consultant	LS	LS	LS	\$2,000
	Total Other County Costs				\$2,000
High/Low Cost Range					
		High	Low		
		\$10,688	\$8,516		
Round					
		\$11,000	\$8,000		

Shelton Transfer Station						
Item	Sub-item	Unit	Qty	Unit Price	Price	
35. Resurface repair transfer building tipping floor surface						
CONSTRUCTION						
Scarify top 6 inches of floor/recycle material		SF	3240	\$3.00	\$9,720	
Subgrade preparation allowance		LS	LS	LS	\$5,000	
Place new 6 inch lift of Class B asphalt concrete		Ton	115	\$100.00	\$11,500	
Construction Subtotal					\$26,220	
General Conditions/Profit 25%					\$6,555	
Construction Total					\$32,775	
Design/Bid Documents	Outside consultant	HRS	12	\$180.00	\$2,160	
			24	\$125.00	\$3,000	
Total Improvement 35					\$37,935	
Cost Range:						
	Low -20%				\$30,348	
	High +30%				\$49,316	
Other County costs						
	Relocation of waste transfer operations during construction	Weeks			\$0 *	
	Procurement and Admin for design and construction	LS	LS	LS	\$0 **	
	Consultant construction oversight and shop drawing review	HRS	4	\$150.00	\$600	
	Permits, 2% of Construction Cost	LS	LS	LS	\$656	
	WSST of Construction, 8.5%				\$2,786	
	Total Other County Costs				\$4,041	
	* relocation cost covered in other related improvements that will be done simultaneously					
	** procurement and admin included with other improvement items					
High/Low Cost Range		High	Low			
		\$53,357	\$34,389			
Round		\$53,000	\$34,000			

Shelton Transfer Station

Item	Sub-item	Unit	Qty	Unit Price	Price
37. Evaluate use of wheel stops for commercial unloading stalls in transfer building (assume results in no change)					
Evaluate wheel stop options	Outside consultant	HRS	4	\$150.00	\$600
		HRS	4	\$200.00	\$800
		HRS	1	\$90.00	\$90
Total Improvements 37					\$1,490
Cost Range:					
	Low -10%				\$1,341
	High +20%				\$1,788
Other County costs					
	Procurement and Admin for consultant	LS	LS	LS	\$0 *
Total Other County Costs					\$0
* procurement and admin included with other improvement items					
High/Low Cost Range		High	Low		
		\$1,788	\$1,341		
Round		\$1,800	\$1,300		

Shelton Transfer Station						
Item	Sub-item	Unit	Qty	Unit Price	Price	
38. Replace Grizzly refuse crane (see Note 1)						
CONSTRUCTION						
Remove existing crane equipment/salvage to contractor		LS	LS	LS	\$5,000	
Modify foundation anchor bolts		LS	LS	LS	\$5,000	
Install crane and hydraulic power unit		LS	LS	LS	\$195,000	
Modifications to electrical supply to HPU		LS	LS	LS	\$5,000	
Test and certify crane equipment		LS	LS	LS	\$5,000	
Construction Subtotal					\$215,000	
General Conditions/Profit 15%					\$32,250	
Construction Total					\$247,250	
Design/Bid Documents	Outside consultant	HRS	80	\$180.00	\$14,400	
Total Improvement 38					\$261,650	
Cost Range:						
	Low -10%					\$235,485
	High +20%					\$313,980
Other County costs						
	Impact on operations	Weeks				\$0 *
	Procurement and Admin for design and construction	LS	LS	LS	\$0 **	
	Consultant construction oversight and shop drawing review	HRS	30	\$150.00	\$4,500	
	Permits, 2% of Construction Cost	LS	LS	LS	\$4,945	
	WSST of Construction, 8.5%					\$21,016
	Total Other County Costs					\$30,461
* no operational relocation required						
** procurement and admin included with other improvement items						

Note 1: For this estimate it is assumed that the new crane will be similar geometrically and in terms of electrical power demand to existing crane but require modification of foundation bolts

High/Low Cost Range	High	Low
	\$344,441	\$265,946
Round	\$344,000	\$266,000

August 3, 2016

Mason County Solid Waste System Capital Improvement Assessment

Union, Belfair and Hoodsport Drop Box Stations

Cost Estimates

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Sheet 2	1. Repair damaged siding/framing and repaint exterior siding and trip of drop box shelter (cost is for one station; work required at all three stations)
Sheet 3	10. Install secondary containment in MRW sheds for fuel reservoirs (cost is for one station; work required at all three stations)
Sheet 4	12. Evaluate roof framing for snow load capacity (station drop box shelters are identical but work will be based on Union station)
Sheet 5	13. Secure site perimeter with fencing at secondary gate at Union station

Union, Belfair and Hoodsport Drop Box Stations

Item	Sub-item	Unit	Qty	Unit Price	Price
1. Repair damaged siding/framing and repaint exterior siding and trip of drop box shelter (cost is for one station; work required at all three stations)					
CONSTRUCTION:					
Repair framing		LS	LS	LS	\$1,000
Replace damaged siding		LS	LS	LS	\$1,000
Paint exterior wall surfaces (2 coats)		LS	LS	LS	\$2,000
Construction Subtotal:					\$4,000
General Conditions/Profit 25%					\$1,000
Construction Total					\$5,000
Design/Bid Documents	Outside consultant	HRS	0	\$0.00	\$0
Total Improvement 1 (per station)					\$5,000
Cost Range:					
Low -20%					\$4,000
High +30%					\$6,500
Other County costs					
Procurement and Admin for construction		LS	LS	LS	\$5,000
Permits		N/A			\$0
WSST of Construction, 8.5%					\$425
Total Other County Costs					\$5,425
High/Low Cost Range (per station)		High	Low		
		\$11,925	\$9,425		
Round		\$12,000	\$9,000		

Union, Belfair and Hoodsport Drop Box Stations

Item	Sub-item	Unit	Qty	Unit Price	Price
10. Install secondary containment in MRW sheds for fuel reservoirs (cost is for one station: work required at all three stations)					
Work performed by County staff					
CONSTRUCTION:					
Fabricate custom containment pan or procure prefab units		LS	LS	LS	\$1,000
Install containment plan		LS	LS	LS	\$1,000
Installation Subtotal:					\$2,000
Total Improvement 1 (per station)					\$2,000
Cost Range:					
	Low -20%				\$1,600
	High +30%				\$2,600
Other County costs					
	Administration	LS	LS	LS	\$1,000
	Permits	N/A			\$0
	WSST of Construction, 8.5%	N/A			\$0
	Total Other County Costs				\$1,000
High/Low Cost Range (per station)		High	Low		
		\$3,600	\$2,600		
Round		\$4,000	\$3,000		

Union, Belfair and Hoodsport Drop Box Stations

Item	Sub-item	Unit	Qty	Unit Price	Price
12. Evaluate roof framing for snow load capacity (station drop box shelters are identical but work will be based on Union station)					

Assess structural code compliance and load capacity

Outside consultant	HRS	30	\$180.00	\$5,400
	HRS	8	\$200.00	\$1,600
	HRS	4	\$90.00	\$360

Total Improvement 12 \$7,360

Cost Range:

Low -10%	\$6,624
High +20%	\$8,832

Other County costs

Procurement and Admin for consultant	LS	LS	LS	\$0 *
Total Other County Costs				\$0

* Procurement and admin included with improvements for Shelton transfer station

High/Low Cost Range

High	Low
\$8,832	\$6,624

Round

\$9,000	\$7,000
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Union, Belfair and Hoodsport Drop Box Stations

Item	Sub-item	Unit	Qty	Unit Price	Price
13. Secure site perimeter with fencing at secondary gate at Union station					
CONSTRUCTION:					
Install short sections of fencing at gate		LS	LS	LS	1,500
Construction Subtotal:					1,500
General Conditions/Profit 25%					375
Construction Total					1,875
Cost Range:					
	Low -20%				1,500
	High +30%				2,438
Other County costs					
	Administration	LS	LS	LS	500
	Permits	N/A			0
	WSST of Construction, 8.5%	N/A			159
	Total Other County Costs				659
High/Low Cost Range (per station)		High	Low		
		\$3,097	\$2,159		
Round		\$3,000	\$2,000		

APPENDIX B – REGULATORY OVERVIEW

The basis for the Mason County Comprehensive Solid Waste Management Plan (CSWMP) is a “flowdown” of federal regulations to the state and county level.

Federal Regulations

The Resource Conservation and Recovery Act — commonly referred to as RCRA — is our nation’s primary law governing the disposal of solid and hazardous waste. Congress passed RCRA on October 21, 1976 to address the increasing problems the nation faced from our growing volume of municipal and industrial waste. RCRA, which amended the Solid Waste Disposal Act of 1965, set national goals for:

- Protecting human health and the environment from the potential hazards of waste disposal.
- Conserving energy and natural resources.
- Reducing the amount of waste generated.
- Ensuring that wastes are managed in an environmentally-sound manner.

To achieve these goals, RCRA established three distinct, yet interrelated, programs:

- The hazardous waste program, under RCRA Subtitle C, establishes a system for controlling hazardous waste from the time it is generated until its ultimate disposal — in effect, from “cradle to grave.”
- The solid waste program, under RCRA Subtitle D, encourages states to develop comprehensive plans to manage nonhazardous industrial solid waste and municipal solid waste, sets criteria for municipal solid waste landfills and other solid waste disposal facilities, and prohibits the open dumping of solid waste.
- The underground storage tank (UST) program, under RCRA Subtitle I, regulates underground storage tanks containing hazardous substances and petroleum products.

The requirements to implement RCRA programs are found in Title 40 of the Code of Federal Regulations (40CFR) Parts 239 - 282. Title 40 arranges mainly environmental regulations that were promulgated by the [US Environmental Protection Agency](#) (EPA), based on the provisions of United States laws (statutes of the [U.S. Federal Code](#)).

Under subtitle C the EPA has primary responsibility for permitting hazardous waste treatment, storage, and disposal (TSD) facilities until a state submits its own hazardous waste program application and it is approved by the EPA. The Washington State program has been approved by the EPA and the responsibility for implementing the program requirements was delegated to the Washington Department of Ecology.

In contrast to the hazardous wastes under subtitle C, Congress intended that non-hazardous wastes covered by subtitle D would be an individual state responsibility. Under subtitle D the state and local governments are the primary entities responsible for planning, permitting, regulating, implementing and establishing enforcement agencies for the management and disposal of non-hazardous solid wastes. However the EPA establishes minimum technical design and operating criteria for disposal facilities which must be included in the state regulations.

Important CFR sections for reference:

- 40CFR256 – Guidelines for Development and Implementation of State Solid Waste Management Plans
- 40CFR257 – Guidelines for Classification of Solid waste Disposal Facilities and Practices
- 40CFR258 – Criteria for Municipal Waste Landfills

Washington State Regulations

Similar to federal regulations, laws for waste disposal are established in the Revised Code of Washington (RCW) and implemented through the Washington Administrative Code (WAC). The laws related to solid waste are found in several sections which include:

- Title 36 Counties - establishes all County authorities and responsibilities
- Title 70 Public Health and Safety – establishes programs and responsibilities for public health and safety
- Title 80 Public Utilities – establishes the Public Utilities and Transportation Commission with its authorities and responsibilities
- Title 81 Transportation – establishes laws relative transportation activities such as motor transport, ferries, pipelines, railroads and air transport

Within these titles specific chapters of interest are:

Chapter 36.58 Solid Waste Disposal – provides the legislative authority of a county to develop ordinances to establish a system or systems of solid waste handling for all unincorporated areas of a county or portions thereof.

Chapter 70.05 Local Health Departments, Boards, Officers – Regulations – In part, the local Board of Health shall have supervision over all matters pertaining to the preservation of the life and health of the people within its jurisdiction and shall:

- (1) Enforce through the local health officer or the administrative officer appointed under RCW [70.05.040](#), if any, the public health statutes of the state and rules promulgated by the state board of health and the secretary of health;

(2) Supervise the maintenance of all health and sanitary measures for the protection of the public health within its jurisdiction;

(3) Enact such local rules and regulations as are necessary in order to preserve, promote and improve the public health and provide for the enforcement thereof

Chapter 70.93 Waste reduction, recycling, and model litter control act.

Chapter 70.95 Solid waste management – Reduction and recycling

Chapter 70.95A Pollution control – Municipal bonding authority

Chapter 70.95D Solid waste incinerator and landfill operators

Chapter 70.95I Used oil recycling

Chapter 70.95M Mercury

Chapter 70.95N Electronic product recycling

Chapter 81.77 Solid waste collection companies

The Washington Administrative Code (WAC) codifies the regulations established by the RCWs and arranges them by subject or the agency responsible for implementation.

Title 173 Department of Ecology – through its regulations implements the applicable portions of the RCWs noted above.

WAC 173-304 Minimum Functional Standards for Waste Handling: This regulation is promulgated under the authority of chapter [70.95](#) RCW to protect public health, to prevent land, air, and water pollution, and conserve the state's natural, economic, and energy resources by:

(1) Setting minimum functional performance standards for the proper handling of all solid waste materials originating from residences, commercial, agricultural and industrial operations and other sources;

(2) Identifying those functions necessary to assure effective solid waste handling programs at both the state and local level;

(3) Following the direction set by the legislature for the management of solid waste in order of descending priority as applicable:

- (a) Waste reduction;
- (b) Waste recycling;
- (c) Energy recovery or incineration;
- (d) Landfill.

(4) Describing the responsibility of persons, municipalities, regional agencies, state and local government under existing laws and regulations related to solid waste;

(5) Requiring use of the best available technology for siting, and all known available and reasonable methods for designing, constructing, operating and closing solid waste handling facilities; and

(6) Establishing these standards as minimum standards for solid waste handling to provide a statewide consistency and expectation as to the level at which solid waste is managed throughout the state. Local ordinances setting standards for solid waste handling shall not be less stringent than these minimum standards, and shall be adopted not later than one year after the effective date of this regulation. Local ordinances need not adopt WAC [173-304-011](#), County planning requirements, but shall otherwise comply with the requirements of WAC [173-304-011](#). Solid waste regulations or ordinances adopted by counties, cities, or jurisdictional boards of health shall be filed with the department ninety days following adoption.

WAC 173-331 Vehicle Battery Recycling: The department of ecology has been authorized under RCW [70.95.670](#) to implement and enforce a vehicle battery recycling program. The purpose of this chapter is to establish procedures for implementation and enforcement of RCW [70.95.610](#) through [70.95.660](#), which is designed to accomplish the recycling of used vehicle batteries through a system of exchanging batteries at the point of sale.

WAC 173-345 Recyclable Materials – Transporter and Facility Requirements: The purpose of this chapter is to establish minimum standards for the transportation of recyclable materials; establish notice and reporting standards for recycling facilities and material recovery facilities (MRFs); ensure that recyclable materials are not delivered for disposal; establish penalties for transporters of recyclable materials, recycling facilities, and material recovery facilities (MRFs) that do not meet the standards of this chapter.

WAC 173-350 Solid Waste Handling Standards: This chapter is adopted under the authority of chapter [70.95](#) RCW, Solid waste management—Reduction and recycling, to protect public health, to prevent land, air, and water pollution, and conserve the state's natural, economic, and energy resources by:

- (1) Setting minimum functional performance standards for the proper handling and disposal of solid waste originating from residences, commercial, agricultural and industrial operations and other sources;
- (2) Identifying those functions necessary to assure effective solid waste handling programs at both the state and local level;
- (3) Following the priorities for the management of solid waste as set by the legislature in chapter [70.95](#) RCW, Solid waste management—Reduction and recycling.
- (4) Describing the responsibility of persons, municipalities, regional agencies, state and local government related to solid waste;

- (5) Requiring solid waste handling facilities to be located, designed, constructed, operated and closed in accordance with this chapter;
- (6) Promoting regulatory consistency by establishing statewide minimum standards for solid waste handling; and
- (7) Encouraging the development and operation of waste recycling facilities and activities needed to accomplish the management priority of waste recycling

WAC 173-900 Electronic Products Recycling Plan: 1) The Washington state legislature has required that a convenient, safe, and environmentally sound system for the collection, transportation, and recycling of covered electronic products (CEPs) be established throughout Washington state. The legislature determined that such a system must encourage the design of electronic products that are less toxic and more recyclable and that the responsibility for this system must be shared among all stakeholders, with manufacturers financing the collection, transportation, and recycling system.

- (2) This chapter implements the Electronic Product Recycling Act, chapter [70.95N](#) RCW. This chapter:
 - (a) Defines the administrative and enforcement responsibilities delegated to the department of ecology; and
 - (b) Describes the processes and procedures that ecology will use to carry out those responsibilities.

WAC 173-910 Mercury-Containing Lights Product Stewardship Program: 1) Washington state law requires establishment of a convenient and environmentally sound product stewardship program for mercury-containing lights throughout Washington state by January 1, 2013. Every producer of mercury-containing lights sold in or into Washington State for residential use must fully finance and participate in the product stewardship program. Such a system is essential to collect spent mercury lighting from covered entities which, when improperly disposed, releases mercury that threatens human health and the environment.

- (2) This chapter implements Mercury-containing lights—proper disposal, chapter [70.275](#) RCW.
- (3) Washington state law established a statewide goal of recycling all end-of-life mercury-containing lights by 2020 through expanded public education, a uniform statewide requirement to recycle all mercury-containing lights, and the development of a comprehensive, safe, and convenient collection system that includes use of residential curbside collection programs, mail-back containers, increased support for household hazardous waste facilities, and a network of additional collection locations.

Title 197 Department of Ecology (Council on Environmental Policy)

WAC 197-11 establishes uniform rules for each agency to comply with the State Environmental Policy Act (SEPA)

Title 480 Utilities and Transportation Commission

WAC 480-70 Solid Waste and/or Refuse Collection Companies: The legislature has declared that operating as a solid waste collection company in the state of Washington is a business affected with a public interest and that such companies should be regulated. The purpose of these rules is to administer and enforce Chapter [81.77](#) RCW by establishing standards for:

- Public safety;
- Fair practices;
- Just and reasonable charges;
- Nondiscriminatory application of rates;
- Adequate and dependable service;
- Consumer protection; and
- Compliance with statutes, rules and commission orders

Mason County Code

Title 6.0 –Sanitary Code of the Mason County District Board of Health:

Chapter 6.72 Solid Waste and Biosolids Handling and Facilities Regulations: Pursuant to RCW Chapter 70.95, the primary responsibility for managing solid waste is assigned to local government. The Mason County health department is authorized, by this regulation and by WAC 173-350 as adopted in this chapter, to regulate residential, commercial/business solid waste and biosolids handling activities through use permit requirements, site approval criteria and may require limited purpose permits or agreements between the health department and any person, company, corporation, trust or other business entity not required to obtain a permit. The criteria for permits are contained in WAC 173-350-700.

Title 8.0 – Environmental Policy – Adopts the SEPA requirements of WAC 197-11

Title 13 – Utilities:

Chapter 13.30 Minimum Levels of Service for Residential Recycling Collection: The purpose of this chapter is to define minimum levels of service for curbside recycling collection, which shall be provided to households serviced by the solid waste collection company operating in the urban and rural areas of Mason County

APPENDIX C – GLOSSARY

"Air quality standard" means a standard set for maximum allowable contamination in ambient air as set forth in Chapter [173-400](#)WAC, General regulations for air pollution sources.

"Aquifer" means a geologic formation, group of formations, or part of a formation capable of yielding a significant amount of groundwater to wells or springs.

"Asbestos" is the commercial term for a group of highly fibrous minerals that readily separate into long thin microscopic fibers. The fibers are heat resistant and chemically inert and possess a high electric thermal insulation quality. The fibers are considered a carcinogenic air pollutant, when inhaled, and most uses were banned in 1991.

"Biosolids" means municipal sewage sludge that is a primarily organic, semisolid product resulting from the wastewater treatment process, that can be beneficially recycled and meets all applicable requirements under Chapter [173-308](#) WAC, Biosolids management. Biosolids includes a material derived from biosolids and septic tank sludge, also known as septage, that can be beneficially recycled and meets all applicable requirements under Chapter [173-308](#) WAC, Biosolids management.

"Closure" means those actions taken by the owner or operator of a solid waste handling facility to cease disposal operations or other solid waste handling activities, to ensure that all such facilities are closed in conformance with applicable regulations at the time of such closures and to prepare the site for the post-closure period.

"Closure plan" means a written plan developed by an owner or operator of a facility detailing how a facility is to close at the end of its active life.

"Composting" means the controlled degradation of organic solid waste yielding a product for use as a soil conditioner

"Conditionally exempt small quantity generator (CESQG)" means a dangerous waste generator whose dangerous wastes are not subject to regulation under Chapter [70.105](#) RCW, Hazardous waste management, solely because the waste is generated or accumulated in quantities below the threshold for regulation and meets the conditions prescribed in WAC [173-303-070](#) (8)(b).

"Container" means a device used for the collection, storage, and/or transportation of solid waste including but not limited to reusable containers, disposable containers, detachable containers and tanks, fixed or detachable.

"Dangerous wastes" means any solid waste designated as dangerous waste by the department under Chapter [173-303](#)WAC

"Construction and Demolition (C&D) Waste" means solid waste, largely inert waste, resulting from the demolition or razing of buildings, roads and other man-made structures. Demolition waste consists of, but is not limited to, concrete, brick, bituminous concrete, wood and masonry, composition roofing and roofing

paper, steel, and minor amounts of other metals like copper. Plaster (i.e., sheet rock or plaster board) or any other material, other than wood, that is likely to produce gases or a leachate during the decomposition process and asbestos wastes are not considered to be demolition waste for the purposes of Chapter 173-304 WAC.

"Disaster Waste" refers to debris created as a result of a natural or man-made disaster such as an earthquake, flooding, or fires.

"Disposal" or "deposition" means the discharge, deposit, injection, dumping, leaking, or placing of any solid waste into or on any land or water.

"Drop box facility" means a facility used for the placement of a detachable container including the area adjacent for necessary entrance and exit roads, unloading and turn-around areas. Drop box facilities normally serve the general public with loose loads and receive waste from offsite.

"Ecology" Washington State Department of Ecology

"Facility" means all contiguous land (including buffer zones) and structures, other appurtenances, and improvements on the land used for solid waste handling

"Facility structures" means buildings, sheds, utility lines, and drainage pipes on the facility.

"Garbage" means unwanted animal and vegetable wastes and animal and vegetable wastes resulting from the handling, preparation, cooking and consumption of food, swill and carcasses of dead animals, and of such a character and proportion as to be capable of attracting or providing food for vectors, except sewage and sewage sludge

"Groundwater" means that part of the subsurface water that is in the zone of saturation.

"Landfill" means a disposal facility or part of a facility at which solid waste is permanently placed in or on land including facilities that use solid waste as a component of fill.

"Leachate" means water or other liquid that has been contaminated by dissolved or suspended materials due to contact with solid waste or gases there from.

"Medical waste" (or Biomedical Waste) means all the infectious and injurious waste originating from a medical, veterinary, or intermediate care facility

"Moderate risk waste (MRW)" means solid waste that is limited to conditionally exempt small quantity generator (CESQG) waste and household hazardous waste (HHW) as defined in Chapter 173-350 WAC.

"Municipal solid waste (MSW)" means a subset of solid waste which includes unsegregated garbage, refuse and similar solid waste material discarded from residential, commercial, institutional and industrial sources and community activities, including residue after recyclables have been separated. Solid waste that has been segregated by source and characteristic may qualify for management as a non-MSW solid waste, at a facility designed and operated to address the waste's characteristics and potential environmental impacts. The term MSW does not include:

- Dangerous wastes other than wastes excluded from the requirements of chapter 173-303 WAC, Dangerous waste regulations, in WAC 173-303-071 such as household hazardous wastes;

- Any solid waste, including contaminated soil and debris, resulting from response action taken under section 104 or 106 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (42 U.S.C. 9601), Chapter 70.105D RCW, Hazardous waste cleanup—Model Toxics Control Act, Chapter 173-340 WAC, the Model Toxics Control Act cleanup regulation or a remedial action taken under those rules; nor

- Mixed or segregated recyclable material that has been source-separated from garbage, refuse and similar solid waste. The residual from source separated recyclables is MSW.

“Organics” refers to carbon-based materials that include food, yard debris, manures, and other agricultural residues.

“Parametrix” means an engineering consulting firm with offices in Washington that completed the Capital Investment Needs Report included as Appendix A.

"Septage" or **"domestic septage"** is liquid or solid material removed from septic tanks, cess pools, portable toilets, type III marine sanitation devices, vault toilets, pit toilets, RV holding tanks, or similar systems that receive only domestic sewage. Septage may also include commercial or industrial septage mixed with domestic septage if approved in accordance with the provisions in WAC [173-308-020\(3\)\(g\)](#).

"Sewage sludge" means solid, semisolid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes, but is not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment processes; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screenings generated.

"Solid waste" or **"wastes"** means all putrescible and nonputrescible solid and semisolid wastes including, but not limited to, garbage, rubbish, ashes, industrial wastes, swill, sewage sludge, demolition and construction wastes, abandoned vehicles or parts thereof, contaminated soils and contaminated dredged material, and recyclable materials.

"Solid waste handling" means the management, storage, collection, transportation, treatment, use, processing or final disposal of solid wastes, including the recovery and recycling of materials from solid wastes, the recovery of energy resources from such wastes or the conversion of the energy in such wastes to more useful forms or combinations thereof.

"Solid waste handling unit" means discrete areas of land, sealed surfaces, liner systems, excavations, facility structures, or other appurtenances within a facility used for solid waste handling.

"Source separation" means the separation of different kinds of solid waste at the place where the waste originates.

"Storage" means the holding of solid waste materials for a temporary period.

"Surface water" means all lakes, rivers, ponds, wetlands, streams, inland waters, salt waters and all other surface water and surface water courses within the jurisdiction of the state of Washington

"Twenty-five-year storm" means a storm of twenty-four hours duration and of such intensity that it has a four percent probability of being equaled or exceeded each year.

"Waste recycling" means reusing waste materials and extracting valuable materials from a waste stream.

"Waste reduction" means altering practices to reduce the amount of waste going into the waste stream.

"Waste tires" means any tires that are no longer suitable for their original intended purpose because of wear, damage or defect. Used tires, which were originally intended for use on public highways that are considered unsafe in accordance with RCW [46.37.425](#), are waste tires. Waste tires also include quantities of used tires that may be suitable for their original intended purpose when mixed with tires considered unsafe per RCW [46.37.425](#).

"White Goods" is defined as appliances, such as washing machines, water heaters, clothes dryers, stoves, refrigerators and freezers. White goods are easily recycled for their metal value after an appliance has been stripped of insulation, plastic, glass, non-ferrous metals, lubricants, refrigerants, and other contaminants. Most of the materials in white goods are recyclable, but environmentally threatening components, such as PCB-contaminated capacitors in older appliances, mercury-containing switches and oil-filled compressors, or refrigerants in refrigerators, freezers or air conditioners can cause environmental contamination when damaged.

"Wood waste" means solid waste consisting of wood pieces or particles generated as a by-product or waste from the manufacturing of wood products, construction, demolition, handling and storage of raw materials, trees and stumps. This includes, but is not limited to, sawdust, chips, shavings, bark, pulp, hogged fuel, and log sort yard waste, but does not include wood pieces or particles containing paint, laminates, bonding agents or chemical preservatives such as creosote, pentachlorophenol, or copper-chrome-arsenate.

"Yard debris" means plant material commonly created in the course of maintaining yards and gardens and through horticulture, gardening, landscaping or similar activities. Yard debris includes, but is not limited to, grass clippings, leaves, branches, brush, weeds, flowers, roots, windfall fruit, and vegetable garden debris.

"Zone of saturation" means that part of a geologic formation in which soil pores are filled with water and the pressure of that water is equal to or greater than atmospheric pressure

APPENDIX D – ACRONYMS

BOCC – (Mason County) Board of County Commissioners

C&D – Construction and Demolition Waste

CAD – Computer aided design

CFR – Code of Federal Regulations

CESQG - Conditionally exempt small quantity generator

CPG – Coordinated Prevention Grant (Administered by Ecology)

CSWMP – Comprehensive Solid Waste Management Plan

CY – Cubic Yard

DOE – Washington State Department of Ecology (commonly referred to as Ecology)

EHD – (Mason County) Environmental Health Division

EPA – Environmental Protection Agency

EPP – Environmentally Preferable Purchasing

FEMA – Federal Emergency Management Agency

GMA – Growth Management Act

HHW – Household hazardous waste

JHD – Jurisdictional Health Department

L&I – Washington Department of Labor and Industries

LOTT – Wastewater Agency in Thurston County for Lacey, Olympia, Tumwater, and Thurston County

MCC – Mason County Code

MCSWS – Mason County Solid Waste System

MRW–Moderate Risk Waste

MSW – Municipal Solid Waste

ORCAA – Olympic Region Clean Air Authority

PCB – Polychlorinated biphenyls

PET – Polyethylene Terephthalate (common use is for beverage bottles)

RCRA – Resource Conservation and Recovery Act

RCW – Revised Code of Washington

SEPA – State Environmental Protection Act

SQG – Small quantity generator

SMM – Sustainable Materials Management

SWAC – Solid Waste Advisory Committee

SWP – Solid Waste Program

WAC – Washington Administrative Code

WFM – Washington Office of Financial Management

WSDOT – Washington State Department of Transportation

WSU – Washington State University

WUTC – Washington Utilities and Transportation Commission

APPENDIX E – UTC COST ASSESSMENT QUESTIONNAIRE

Please provide the information requested below:

PLAN PREPARED FOR THE COUNTY OF: Mason

PLAN PREPARED FOR THE CITY OF: Shelton

PREPARED BY: Bart Stepp, Deputy Director/Utilities and Waste Management, Mason County

CONTACT TELEPHONE: 360 – 427 – 9670 x652 **DATE:** July 5, 2017

DEFINITIONS

Please provide these definitions as used in the Solid Waste Management Plan and the Cost Assessment Questionnaire.

Throughout this document:

YR.1 shall refer to **2018**.

YR.3 shall refer to **2020**.

YR.6 shall refer to **2023**.

Year refers to **calendar** (Jan 01 - Dec 31)

1. **DEMOGRAPHICS:** To assess the generation, recycling and disposal rates of an area, it is necessary to have population data. This information is available from many sources (e.g., the State Data Book, County Business Patterns, or the State Office of Finance and Management).

1.1 Population

1.1.1 What is the **total** population of your County?

YR.1 - **65,407** YR.3 - **67,545** YR.6 - **70,176**

1.1.2 For counties, what is the population of the area **under your jurisdiction?** (Exclude cities choosing to develop their own solid waste management system.) – **Not Applicable**

YR.1 _____ YR.3 _____ YR.6 _____

1.2 References and Assumptions

2. **WASTE STREAM GENERATION:** The following questions ask for total tons recycled and total tons disposed. Total tons disposed are those tons disposed of at a landfill, incinerator, transfer station or any other form of disposal you may be using. If other please identify.

2.1 Tonnage Recycled

2.1.1 Please provide the total tonnage **recycled** in the base year, and projections for years three and six.

YR.1 – **3,440** YR.3 – **3,558** YR.6 – **3,697**

2.2 Tonnage Disposed

2.2.1 Please provide the total tonnage **disposed** in the base year, and projections for years three and six.

YR.1 – **35,738** YR.3 – **36,969** YR.6 – **38,408**

2.3 References and Assumptions

3. **SYSTEM COMPONENT COSTS:** This section asks questions specifically related to the types of programs currently in use and those recommended to be started. For each component (i.e., waste reduction, landfill, composting, etc.) please describe the anticipated costs of the program(s), the assumptions used in estimating the costs and the funding mechanisms to be used to pay for it. The heart of deriving a rate impact is to know what programs will be passed through to the collection rates, as opposed to being paid for through grants, bonds, taxes and the like.

3.1 Waste Reduction Programs – Page 21 of Plan

3.1.1 Please list the solid waste programs which have been implemented and those programs which are proposed. If these programs are defined in the SWM plan please provide the page number. (Attach additional sheets as necessary.)

<u>IMPLEMENTED</u>	<u>PROPOSED</u>
<u>Web site links to reuse sites</u>	<u>Method to quantify waste reduction</u>
<u>Waste audits for businesses</u>	_____
<u>Environmentally Preferable Purchasing</u>	

3.1.2 What are the costs, capital costs and operating costs for waste reduction programs implemented and proposed?

IMPLEMENTED

YR.1 \$0 YR.3 \$0 YR.6 \$0

PROPOSED

YR.1 \$0 YR.3 \$0 YR.6 \$0

3.1.3 Please describe the funding mechanism(s) that will pay the cost of the programs in 3.1.2.
Not Applicable

IMPLEMENTED

YR.1 _____ YR.3 _____ YR.6 _____

PROPOSED

YR.1 _____ YR.3 _____ YR.6 _____

3.2 Recycling Programs – Page 22 of Plan

3.2.1 Please list the proposed or implemented recycling program(s) and, their costs, and proposed funding mechanism or provide the page number in the draft plan on which it is discussed. (Attach additional sheets as necessary.)

IMPLEMENTED

PROGRAM	COST	FUNDING
<u>Blue Box Self-Haul Program</u>	<u>\$27,000/year</u>	<u>CPG Grant</u>
<u>County Curbside Program</u>	<u>\$0 to County</u>	<u>Customer Rates</u>
<u>Shelton Curbside Program</u>	<u>\$0 to County</u>	<u>User Rates</u>

PROPOSED

PROGRAM	COST	FUNDING
<u>None proposed</u>		

3.3 Solid Waste Collection Programs – Page 14 of Plan

3.3.1 Regulated Solid Waste Collection Programs

Fill in the table below for each **WUTC regulated** solid waste collection entity in your jurisdiction. (Make additional copies of this section as necessary to record all such entities in your jurisdiction.)

WUTC Regulated Hauler Name Mason County Garbage Co. Inc.
G-permit # G-00088

	<u>YR. 3</u>	<u>YR. 6</u>
RESIDENTIAL (projected)		
- # of Customers	11,594	12,051
- Tonnage Collected	9,918	10,309
COMMERCIAL (projected)		
- # of Customers	933	970
- Tonnage Collected	10,931	11,362

3.4 Energy Recovery & Incineration (ER&I) Programs – Not Applicable
 (If you have more than one facility of this type, please copy this section to report them.)

3.5 Land Disposal Program – Not Applicable
 (If you have more than one facility of this type, please copy this section to report them.)

3.6 Administration Program – Page 19 of Plan

3.6.1 What is the budgeted cost for administering the solid waste and recycling programs and what are the major funding sources?

Budgeted Cost

YR.1 \$4.3 Million YR.3 \$5.0 Million YR.6 \$6.0 Million

Funding Source

YR.1 Tipping Fees and CPG YR.3 Fees and CPG YR.6 Fees and CPG

3.6.2 Which cost components are included in these estimates?

MSW disposal costs, recycling, HHW system, staffing, operations and maintenance expenses, and minor capital improvements are included in these estimates.

3.6.3 Please describe the funding mechanism(s) that will recover the cost of each component.

Tipping fees and rates for Mason County support all operations. No general fund monies are used. CPG funds are used to support the recycling and HHW programs in the County.

3.7 Other Programs – Page 47 of Plan

For each program in effect or planned which does not readily fall into one of the previously described categories please answer the following questions. (Make additional copies of this section as necessary.)

3.7.1 Describe the program, or provide a page number reference to the plan.

Mason County Community Services, Environmental Health Division, provides permitting and enforcement of solid waste facilities within Mason County. This includes enforcement of illegal dumping and littering on private property (Pages 47 and 49)

3.7.2 Owner/Operator: Mason County

3.7.3 Is WUTC Regulation Involved? If so, please explain the extent of involvement in section 3.8.

3.7.4 Please estimate the anticipated costs for this program, including capital and operating expenses.

YR.1 \$75,000 YR.3 \$80,000 YR.6 \$90,000

3.7.5 Please describe the funding mechanism(s) that will recover the cost of this component.

This program is funded through the CPG Enforcement funding and permit fees associated with permitting or review of solid waste facilities.

3.8 References and Assumptions (attach additional sheets as necessary)

4. FUNDING MECHANISMS: This section relates specifically to the funding mechanisms currently in use and the ones which will be implemented to incorporate the recommended programs in the draft plan. Because the way a program is funded directly relates to the costs a resident or commercial customer will have to pay, this section is crucial to the cost assessment process. Please fill in each of the following tables as completely as possible.

Table 4.1.1 Facility Inventory (2016)

Facility Name	Type of Facility	Tip Fee per Ton	Transfer Cost**	Transfer Station Location	Final Disposal Location	Total Tons Disposed	Total Revenue Generated (Tip Fee x Tons)
Belfair Drop Box	Drop Box	\$126.00	\$40.34/ton	Eells Hill	Roosevelt		
Union Drop Box	Drop Box	\$126.00	\$29.01/ton	Eells Hill	Roosevelt		
Hoodsport Drop Box	Drop Box	\$126.00	\$29.01/ton	Eells Hill	Roosevelt		
Eells Hill Transfer Sta.	Transfer Station	\$92.16			Roosevelt	34,572.16 (from all 4 facilities)	\$3,402,083.92

Table 4.1.2 Tip Fee Components
 Tip fees have not been broken out into components

Tip Fee by Facility	Surcharge	City Tax	County Tax	Transportation Cost	Operational Cost	Administration Cost	Closure Costs

Table 4.1.3 Funding Mechanism

Name of Program Funding Mechanism will defray costs	Bond Name	Total Bond Debt	Bond Rate	Bond Due Date	Grant Name	Grant Amount	Tip Fee	Taxes	Other	Surcharge
CPG Grant 2015-2017					CPG	\$156,094				
CPG Grant 2017-2019					CPG	\$111,000 (est.)				

Table 4.1.4 Tip Fee Forecast

Tip Fee per Ton by Facility	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
All Drop Box Stations	128.52	131.09	133.71	136.39	139.11	141.90
Eells Hill Transfer Sta.	94.00	95.88	97.80	99.76	101.75	103.79

Tip fee forecast assumes CPI adjustment of 2% every year starting in 2018.

4.2 **Funding Mechanisms** summary by percentage: In the following tables, please summarize the way programs will be funded in the key years. For each component, provide the expected percentage of the total cost met by each funding mechanism. (e.g. Waste Reduction may rely on tip fees, grants, and collection rates for funding). You would provide the estimated responsibility in the table as follows: Tip fees=10%; Grants=50%; Collection Rates=40%. The mechanisms must total 100%. If components can be classified as “other,” please note the programs and their appropriate mechanisms. Provide attachments as necessary.

Table 4.2.1 Funding Mechanism by Percentage						
Year One						
Component	Tip Fee %	Grant %	Bond %	Collection Tax Rates %	Other %	Total
Waste Reduction	100					100%
Recycling	50	50				100%
Collection	100					100%
ER&I	100					100%
Transfer	100					100%
Land Disposal	100					100%
Administration	100					100%
Other	100					100%

Table 4.2.2 Funding Mechanism by Percentage						
Year Three						
Component	Tip Fee %	Grant %	Bond %	Collection Tax Rates %	Other %	Total
Waste Reduction	100					100%
Recycling	50	50				100%
Collection	100					100%
ER&I	100					100%
Transfer	100					100%
Land Disposal	100					100%
Administration	100					100%
Other	100					100%

Table 4.2.3 Funding Mechanism by Percentage						
Year Six						
Component	Tip Fee %	Grant %	Bond %	Collection Tax Rates %	Other %	Total
Waste Reduction	100					100%
Recycling	50	50				100%
Collection	100					100%
ER&I	100					100%
Transfer	100					100%
Land Disposal	100					100%
Administration	100					100%
Other	100					100%

4.3 References and Assumptions

The 2017 solid waste budget is attached to this document.

4.4 Surplus Funds

There is a solid waste reserve fund for capital improvements that has a balance of \$511,000.

2017 MASON COUNTY SOLID WASTE UTILITY BUDGET

ACCOUNT	ACCOUNT DESCRIPTION	REVENUE BUDGET
402.000000.000.000.308.80.300000.0000.00.	BEGIN FUND BAL UNRESERVED	985,376.00
402.000000.000.000.334.03.324005.0000.00.	DEPT OF ECOLOGY	64,367.00
402.000000.000.000.343.70.300000.0000.00.	GARBAGE/SOLID WASTE FEES/CHGS	3,180,000.00
402.000000.000.000.361.11.300000.0000.00.	INVESTMENT INTEREST	1,250.00
402.000000.000.000.369.10.300000.0000.00.	SALE OF SCRAP AND JUNK	6,000.00
402.000000.000.000.369.81.300000.0000.00.	CASHIER'S OVERAGES AND SHORTAG	50.00
402.000000.000.000.386.00.307000.0000.03.	REFUSE TAX-SHELTON	60,000.00
402.000000.000.000.397.00.300406.0000.00.	TRANS IN FROM 406	25,276.00
	Total 402 Solid Waste Revenue	4,322,319.00
ACCOUNT	ACCOUNT DESCRIPTION	EXPENDITURE BUDGET
402.000000.000.000.508.80.500000.0000.00.	END FUND BAL UNRESERVED	221,182.00
	Total 10 SALARIES & WAGES	607,315.00
	Total 20 PERSONNEL BENEFITS	335,583.00
402.000000.000.000.537.80.531030.0000.00.	OPERATING SUPPLIES	13,000.00
402.000000.000.000.537.80.532010.0000.00.	FUEL	9,000.00
402.000000.000.000.537.80.535010.0000.00.	SMALL TOOLS & MINOR EQUIPMENT	10,000.00
402.000000.000.000.537.81.531030.0000.00.	OPERATION SUPPLIES/GIVEAWAYS/P	2,500.00
402.000000.000.000.538.10.531010.0000.00.	ADMIN SUPPLIES	2,650.00
402.000000.000.000.538.10.535010.0000.00.	SMALL TOOLS & MINOR EQUIPMENT	795.00
	Total 30 SUPPLIES	37,945.00
402.000000.000.000.537.80.541017.0000.00.	COUNTY WIDE WASTE-HEALTH DEPT	48,000.00
402.000000.000.000.537.80.541040.0000.00.	GROUNDWATER MONITOR/CONSULT	0.00
402.000000.000.000.537.80.541070.0000.00.	MISC CONTRACTED PROF SVCS	25,000.00
402.000000.000.000.537.80.541080.0000.00.	ADVERTISING	1,500.00
402.000000.000.000.537.80.542010.0000.00.	PHONES	3,000.00
402.000000.000.000.537.80.543010.0000.00.	TRAVEL	750.00
402.000000.000.000.537.80.545020.0000.00.	OPERATING RENTALS AND LEASES	22,000.00
402.000000.000.000.537.80.546010.0000.00.	INSURANCE	20,000.00
402.000000.000.000.537.80.547010.0000.00.	UTILITIES	10,000.00
402.000000.000.000.537.80.547030.0000.00.	MISC DISPOSAL (LEACHATE, TIRES	10,000.00
402.000000.000.000.537.80.547040.0000.00.	LONGHAUL SOLID WASTE DISPOSAL	1,800,000.00
402.000000.000.000.537.80.548020.0000.00.	REPAIRS AND MAINT/STRUT & EQUI	45,000.00
402.000000.000.000.537.80.549010.0000.00.	SCALE PERMIT RENEWAL	500.00
402.000000.000.000.537.80.549020.0000.00.	SOLID WASTE DROP BOX CONTRACT	40,000.00
402.000000.000.000.537.81.541010.0000.00.	HHW DISPOSAL	30,000.00
402.000000.000.000.537.81.541020.0000.00.	ADVERTISING	500.00
402.000000.000.000.537.81.541050.0000.00.	SCALE INSPECTION SERVICES	5,000.00

ACCOUNT	ACCOUNT DESCRIPTION	EXPENDITURE BUDGET
402.000000.000.000.537.81.543010.0000.00.	TRAVEL	500.00
402.000000.000.000.537.81.549010.0000.00.	DUES/REGISTRATION/MEMBERSHIPS	1,000.00
402.000000.000.000.537.81.549020.0000.00.	PRINTING/BINDING/SIGNAGE	1,200.00
402.000000.000.000.537.81.549050.0000.00.	RECYCLE DROP BOX CONTRACT	111,065.00
402.000000.000.000.538.10.541030.0000.00.	ADVERTISING	265.00
402.000000.000.000.538.10.541040.0000.00.	PROFESSIONAL SERVICES	1,961.00
402.000000.000.000.538.10.542010.0000.00.	TELEPHONES/COMMUNICATIONS	3,975.00
402.000000.000.000.538.10.542020.0000.00.	POSTAGE/SHIPPING	7,420.00
402.000000.000.000.538.10.543010.0000.00.	TRAVEL/MILEAGE	1,153.00
402.000000.000.000.538.10.545010.0000.00.	ADMIN RENTALS & LEASES	1,590.00
402.000000.000.000.538.10.546010.0000.00.	INSURANCE	5,035.00
402.000000.000.000.538.10.548010.0000.00.	REPAIRS & MAINTENANCE	530.00
402.000000.000.000.538.10.549010.0000.00.	DUES/TRAINING	1,709.00
	Total 40 SERVICES	2,198,653.00
402.000000.000.000.537.10.553010.0000.00.	EXCISE TAX	60,000.00
402.000000.000.000.537.80.551010.0000.00.	PERMIT FEES	2,000.00
402.000000.000.000.537.80.551030.0000.00.	STATE AUDIT CHARGES	3,369.00
402.000000.000.000.537.81.551010.0000.00.	KITSAP HHW CONTRACT	52,350.00
402.000000.000.000.538.10.551010.0000.00.	STATE AUDIT CHARGES	3,489.00
	Total 50 INTERGOVERNMENTAL	121,208.00
402.000000.000.000.594.37.563031.0000.00.	MINOR FACILITY IMPROV SW-04-00	423,000.00
	Total 60 CAPITAL OUTLAYS	423,000.00
402.000000.000.000.537.80.531093.0000.00.	INTERFUND SUPPLIES	2,500.00
402.000000.000.000.537.80.541019.0000.00.	INDIRECT COSTS	65,981.00
402.000000.000.000.537.80.541501.0000.00.	RESERVE FOR TECHNOLOGY	2,850.00
402.000000.000.000.537.80.545951.0000.00.	ER&R VEHICLES	254,791.00
402.000000.000.000.537.80.546096.0000.00.	UNEMPLOYMENT	2,000.00
402.000000.000.000.537.80.548098.0000.00.	INTERFUND REPAIRS/MAINT	6,000.00
402.000000.000.000.538.10.531093.0000.00.	INTERFUND SUPPLIES	530.00
402.000000.000.000.538.10.541019.0000.00.	INDIRECT COSTS	29,283.00
402.000000.000.000.538.10.541501.0000.00.	RESERVE FOR TECHNOLOGY	733.00
402.000000.000.000.538.10.542092.0000.00.	IT PHONES	1,173.00
402.000000.000.000.538.10.545952.0000.00.	IT COMPUTERS	9,160.00
402.000000.000.000.538.10.545953.0000.00.	BUILDING RENTAL	1,918.00
402.000000.000.000.538.10.546096.0000.00.	UNEMPLOYMENT ALLOCATION	514.00
	Total 90 INTERNAL SERVICES	377,433.00
	Total 402 Solid Waste Expenditures	4,322,319.00

APPENDIX F – SEPA CHECKLIST

SEPA Environmental Checklist: *Non-Project*

- Single Family DNS: \$385
- Other DNS: 0 to 9.99 acres: \$630
 10 to 20 acres: \$755
 Over 20 acres: \$945

- DS / EIS: \$2,525 + 70 Per hr

Mason County Permit Center Use:

SEP _____ - _____

Date Rcvd: _____

SEPA ENVIRONMENTAL CHECKLIST

Purpose of checklist:

Governmental agencies use this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully, to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions. You may use “Not Applicable” or “does not apply” only when you can explain why it does not apply and not when the answer is unknown. You may also attach or incorporate by reference additional studies reports. Complete and accurate answers to these questions often avoid delays with the SEPA process as well as later in the decision-making process.

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.

Instructions for Lead Agencies:

Please adjust the format of this template as needed. Additional information may be necessary to evaluate the existing environment, all interrelated aspects of the proposal and an analysis of adverse impacts. The checklist is considered the first but not necessarily the only source of information needed to make an adequate threshold determination. Once a threshold determination is made, the lead agency is responsible for the completeness and accuracy of the checklist and other supporting documents.

Use of checklist for nonproject proposals: [\[help\]](#)

For nonproject proposals (such as ordinances, regulations, plans and programs), complete the applicable parts of sections A and B plus the [SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS \(part D\)](#). Please completely answer all questions that apply and note that the words "project," "applicant," and "property or site" should be read as "proposal," "proponent," and "affected geographic area," respectively. The lead agency may exclude (for non-projects) questions in Part B - Environmental Elements –that do not contribute meaningfully to the analysis of the proposal.

A. Background [\[help\]](#)

1. Name of proposed project, if applicable: [\[help\]](#)
Mason County Comprehensive Solid Waste Management Plan
2. Name of applicant: [\[help\]](#)
Mason County Public Works
3. Address and phone number of applicant and contact person: [\[help\]](#)
Mason County Public Works
100 W. Public Works Drive

Shelton, WA 98584

Attn: Bart Stepp, PE, Deputy Director/Utilities & Waste Management

(360) 427-9670 x652
4. Date checklist prepared: [\[help\]](#)
07/21/17
5. Agency requesting checklist: [\[help\]](#)
Washington Department of Ecology
6. Proposed timing or schedule (including phasing, if applicable): [\[help\]](#)
July 2017 – Submit SEPA to Mason County Community Development for approval
August/September 2017 – BOCC public hearing on plan and SEPA DNS issuance

September 2017 – Submit plan to Ecology

December 2017 – Received Ecology and WUTC comments on plan

February 2018 – Respond to and incorporate Ecology and WUTC comments into plan

March 2018 – Adoption of plan by County and City of Shelton

April 2018 – Submit adopted plan to Ecology for 45 day review.

June 2018 – Plan approved by Ecology
7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain. [\[help\]](#)
This SEPA covers the County’s Comprehensive Solid Waste Management Plan (CSWMP). It provides recommendations for future operations of the County’s Solid Waste System and identifies capital improvements needed within the Solid Waste system. This plan identifies improvements needed at the existing Eells Hill transfer station and rural drop box stations to maintain adequate facilities and improve safety issues at the facilities. As a non-project SEPA, most of the questions in the application do not apply and are answered Not Applicable.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal. [\[help\]](#)

Not Applicable

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. [\[help\]](#)

No

10. List any government approvals or permits that will be needed for your proposal, if known. [\[help\]](#)

The Department of Ecology will approve the CSWMP. The Department of Ecology requires the County to complete the SEPA process and to adopt the plan before Ecology will approve the plan. Approval of the CSWMP by Ecology will make the County eligible for some funding opportunities at the state level.

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.) [\[help\]](#)

The CSWMP identified the existing conditions of the County Solid Waste system and provides recommendations on improvements in facilities and operations. It also provides goals and objectives of the solid waste system. This proposal is just for the CSWMP. Any infrastructure improvements identified in the CSWMP would go through their own permitting process when they are implemented. Identified infrastructure improvements are focused on the existing transfer station and drop box facilities.

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. [\[help\]](#)

The CSWMP is a county wide planning document. It not only identifies improvements at County Solid Waste Facilities, but discusses permitting of private facilities throughout the County and enforcement illegal dumping sites.

B. ENVIRONMENTAL ELEMENTS [\[help\]](#)

1. Earth [\[help\]](#)

a. General description of the site: [\[help\]](#)

(circle one): Flat, rolling, hilly, steep slopes, mountainous, other **All – County Wide Proposal**

b. What is the steepest slope on the site (approximate percent slope)? [\[help\]](#)
Not Applicable

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 agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils. [\[help\]](#)
Not Applicable

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe. [\[help\]](#)
[Not Applicable](#)

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill. [\[help\]](#)
Not Applicable

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe. [\[help\]](#)
NOT APPLICABLE

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)? [\[help\]](#)
NOT APPLICABLE

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any: [\[help\]](#)
NOT APPLICABLE

2. Air [\[help\]](#)

a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known. [\[help\]](#)
NOT APPLICABLE

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe. [\[help\]](#)
NOT APPLICABLE

c. Proposed measures to reduce or control emissions or other impacts to air, if any: [\[help\]](#)
NOT APPLICABLE

3. Water [\[help\]](#)

a. Surface Water:

- 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. [\[help\]](#)
NOT APPLICABLE

- 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. [\[help\]](#)
NOT APPLICABLE

- 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. [\[help\]](#)
NOT APPLICABLE

- 4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known. [\[help\]](#)
No

- 5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan. [\[help\]](#)
NOT APPLICABLE

- 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. [\[help\]](#)
NOT APPLICABLE

b. Ground Water:

- 1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known. [\[help\]](#)
NOT APPLICABLE

- 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. [\[help\]](#)
NOT APPLICABLE

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. [\[help\]](#)
NOT APPLICABLE

2) Could waste materials enter ground or surface waters? If so, generally describe. [\[help\]](#)
NOT APPLICABLE

3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe. [\[help\]](#)
NOT APPLICABLE

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any: [\[help\]](#)
None

4. Plants [\[help\]](#)

a. Check the types of vegetation found on the site: [\[help\]](#)

- deciduous tree: alder, maple, aspen, other
- evergreen tree: fir, cedar, pine, other
- shrubs
- grass
- pasture
- crop or grain
- Orchards, vineyards or other permanent crops.
- 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? [\[help\]](#)
NOT APPLICABLE

c. List threatened and endangered species known to be on or near the site. [\[help\]](#)
NOT APPLICABLE

d. Proposed landscaping, use of Native plants, or other measures to preserve or enhance vegetation on the site, if any: [\[help\]](#)
Not Applicable

e. List all noxious weeds and invasive species known to be on or near the site. [\[help\]](#)
Not Applicable

5. Animals [\[help\]](#)

a. List any birds and other animals which have been observed on or near the site or are known to be on or near the site. [\[help\]](#)

Examples include:

- birds: hawk, heron, eagle, songbirds, other:
- mammals: deer, bear, elk, beaver, other:

fish: bass, salmon, trout, herring, shellfish, other _____

b. List any threatened and endangered species known to be on or near the site. [\[help\]](#)
NOT APPLICABLE

c. Is the site part of a migration route? If so, explain. [\[help\]](#)
The County is part of the Pacific Flyway.

d. Proposed measures to preserve or enhance wildlife, if any: [\[help\]](#)
None

e. List any invasive animal species known to be on or near the site. [\[help\]](#)
NOT APPLICABLE

6. Energy and Natural Resources [\[help\]](#)

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. [\[help\]](#)
NOT APPLICABLE

b. Would your project affect the potential use of solar energy by adjacent properties?
If so, generally describe. [\[help\]](#)
No

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: [\[help\]](#)
NOT APPLICABLE

7. Environmental Health [\[help\]](#)

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. [\[help\]](#)

A Household Hazardous Waste (HHW) Plan is part of the CSWMP. The County solid waste facilities accept some types of HHW for free. By accepting HHW Mason County reduces the amount of HHW that might be illegally dumped in the County. The HHW received by the County is sent to hazardous waste disposal facilities for proper disposal.

1) Describe any known or possible contamination at the site from present or past uses.

[\[help\]](#)

[None known](#)

2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity. [\[help\]](#)
NOT APPLICABLE

- 3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project. [\[help\]](#)
Household hazardous waste is stored at County Solid Waste Facilities.
- 4) Describe special emergency services that might be required. [\[help\]](#)
NOT APPLICABLE
- 5) Proposed measures to reduce or control environmental health hazards, if any: [\[help\]](#)
NOT APPLICABLE

b. Noise [\[help\]](#)

- 1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)? [\[help\]](#)
NOT APPLICABLE
- 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. [\[help\]](#)
NOT APPLICABLE
- 3) Proposed measures to reduce or control noise impacts, if any: [\[help\]](#)
NOT APPLICABLE

8. **Land and Shoreline Use** [\[help\]](#)

- a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe. [\[help\]](#)
NOT APPLICABLE
- b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use? [\[help\]](#)
NOT APPLICABLE
 - 1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how: [\[help\]](#)
NOT APPLICABLE
- c. Describe any structures on the site. [\[help\]](#)
NOT APPLICABLE
- d. Will any structures be demolished? If so, what? [\[help\]](#)
NOT APPLICABLE

- e. What is the current zoning classification of the site? [\[help\]](#)
NOT APPLICABLE
- f. What is the current comprehensive plan designation of the site? [\[help\]](#)
NOT APPLICABLE
- g. If applicable, what is the current shoreline master program designation of the site? [\[help\]](#)
NOT APPLICABLE
- h. Has any part of the site been classified as a critical area by the city or county? If so, specify. [\[help\]](#)
NOT APPLICABLE
- i. Approximately how many people would reside or work in the completed project? [\[help\]](#)
NOT APPLICABLE
- j. Approximately how many people would the completed project displace? [\[help\]](#)
Zero
- k. Proposed measures to avoid or reduce displacement impacts, if any: [\[help\]](#)
None needed
- l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any: [\[help\]](#)
NOT APPLICABLE
- m. Proposed measures to reduce or control impacts to agricultural and forest lands of long-term commercial significance, if any: [\[help\]](#)
NOT APPLICABLE

9. Housing [\[help\]](#)

- a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing. [\[help\]](#)
Zero
- b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing. [\[help\]](#)
Zero
- c. Proposed measures to reduce or control housing impacts, if any: [\[help\]](#)
None needed

10. Aesthetics [\[help\]](#)

- a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed? [\[help\]](#)

NOT APPLICABLE

- b. What views in the immediate vicinity would be altered or obstructed? [\[help\]](#)

NOT APPLICABLE

- b. Proposed measures to reduce or control aesthetic impacts, if any: [\[help\]](#)

NOT APPLICABLE

11. Light and Glare [\[help\]](#)

- a. What type of light or glare will the proposal produce? What time of day would it mainly occur? [\[help\]](#)

NOT APPLICABLE

- b. Could light or glare from the finished project be a safety hazard or interfere with views?

[\[help\]](#)

NOT APPLICABLE

- c. What existing off-site sources of light or glare may affect your proposal? [\[help\]](#)

None

- d. Proposed measures to reduce or control light and glare impacts, if any: [\[help\]](#)

None

12. Recreation [\[help\]](#)

- a. What designated and informal recreational opportunities are in the immediate vicinity?

[\[help\]](#)

NOT APPLICABLE

- b. Would the proposed project displace any existing recreational uses? If so, describe. [\[help\]](#)

No

- c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any: [\[help\]](#)

None

13. Historic and cultural preservation [\[help\]](#)

- a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers? If so, specifically describe. [\[help\]](#)

NOT APPLICABLE

- b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources. [\[help\]](#)

NOT APPLICABLE

- c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc. [\[help\]](#)

NOT APPLICABLE

- d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required. [\[help\]](#)

NOT APPLICABLE

14. Transportation [\[help\]](#)

- a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any. [\[help\]](#)

NOT APPLICABLE

- b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop? [\[help\]](#)

NOT APPLICABLE

- c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate? [\[help\]](#)

This proposal would not create or destroy any parking spaces.

- d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private). [\[help\]](#)

The proposal would not require any improvements to transportation facilities.

- e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe. [\[help\]](#)

NOT APPLICABLE

- f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates? [\[help\]](#)

NOT APPLICABLE

- g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe. [\[help\]](#)

NOT APPLICABLE

- h. Proposed measures to reduce or control transportation impacts, if any: [\[help\]](#)

None needed.

15. **Public Services** [\[help\]](#)

a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe. [\[help\]](#)

No

b. Proposed measures to reduce or control direct impacts on public services, if any. [\[help\]](#)

None needed

16. **Utilities** [\[help\]](#)

a. Circle utilities currently available at the site: [\[help\]](#)
electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system,
other NOT APPLICABLE

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. [\[help\]](#)

NOT APPLICABLE

C. Signature [\[help\]](#)

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: Bart Stepp

Name of signee Bart Stepp

Position and Agency/Organization Deputy Director/Utilities and Waste Management for
Mason County Public Works

Date Submitted: 7/24/17

D. supplemental sheet for nonproject actions [\[help\]](#)

(IT IS NOT NECESSARY to 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?

Improvements to solid waste facilities that increase their capacity would lead to an increase of emissions or storage, production of noise, or storage of hazardous substances. This would be due to increased use by the public but this is expected over the next 20 years due to an increase in County population.

Proposed measures to avoid or reduce such increases are:

All facility improvements will be designed to comply with all State and County regulations. Specific projects will go through their own SEPA approval as part of the County Site Plan Approval process. The treatment and storage of stormwater runoff will comply with the Western Washington Manual for Stormwater by the Department of Ecology.

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

Improving the Solid Waste Facilities should better protect natural resources by improving the receiving and hauling of waste from the County. The CSWMP does not propose any new solid waste facility sites, only improvements on existing sites. The identified solid waste facility improvements would improve protections of land and groundwater so they should not affect plants, animals, fish, or marine life.

Proposed measures to protect or conserve plants, animals, fish, or marine life are:

Comply with Department of Ecology regulations and County Site Plan Approval requirements for all facility improvements identified in the CSWMP.

3. How would the proposal be likely to deplete energy or natural resources?

The CSWMP does not deplete energy or natural resources. Improvements identified in the CSWMP that are completed should reduce the degradation of natural resources.

Proposed measures to protect or conserve energy and natural resources are:

Infrastructure improvements in the CSWMP 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?

All of the improvements identified in the CSWMP are located within existing facilities that are already permitted for solid waste use. The CSWMP also discusses cleaning up of illegal dump sites. The cleaning up of these dump sites could improve environmentally sensitive areas.

Proposed measures to protect such resources or to avoid or reduce impacts are:

All proposed improvements would be outside of sensitive areas. Cleanup of dump sites in sensitive areas would help protect the resource.

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?
None of the proposed improvements in the CSWMP are within any shorelines and the existing facilities are located outside shoreline areas.

Proposed measures to avoid or reduce shoreline and land use impacts are:

Cleaning up illegal dump sites in shoreline areas will reduce shoreline impacts.

6. How would the proposal be likely to increase demands on transportation or public services and utilities?
The improvements identified in the CSWMP would not increase transportation demands. Traffic is expected to increase to Solid Waste Facilities as the population grows. The improvements proposed in the CSWMP would assist the County in serving the growing population but the improvements would not create additional traffic.

Proposed measures to reduce or respond to such demand(s) are:

None

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

This proposal does not conflict with local, state, or federal laws. The County is required to have a CSWMP by state law. The CSWMP assists in protecting the environment by setting goals and objectives to improve solid waste facilities and identifying specific projects needed to improve the facilities.

APPENDIX G - CITY OF SHELTON DOCUMENTATION **COPY**

RESOLUTION NO. 892-0506

A RESOLUTION OF THE CITY OF SHELTON, WASHINGTON AUTHORIZING MASON COUNTY TO INCLUDE THE CITY OF SHELTON IN THE MASON COUNTY COMPREHENSIVE SOLID WASTE MANANGEMENT PLAN.

WHEREAS, under the provisions of RCW Chapter 70.95, Mason County is responsible for preparation, adoption, and implementation of a comprehensive solid waste management plan, and

WHEREAS, under the provisions of RCW 70.95 the comprehensive solid waste management plan must be maintained in current and applicable condition through periodic review and revision, and

WHEREAS, the existing Mason County Comprehensive Solid Waste Management Plan is dated October 1998 and requires a complete revision, and

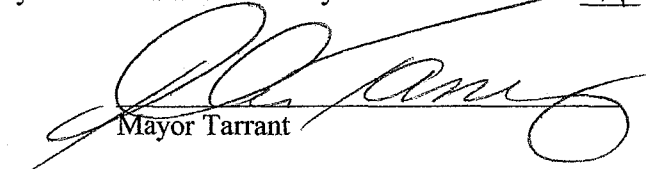
WHEREAS, under the provisions of RCW 70.95.080 the City of Shelton chooses to authorize the County to include the City's plans for solid waste management in the Mason County Comprehensive Solid Waste Management Plan;

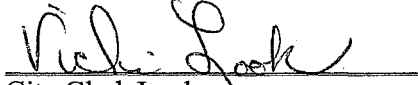
NOW, THEREFORE BE IT RESOLVED, by the City Commission of the City of Shelton, Washington, as follows:

Pursuant to RCW 70.95.080, Mason County is hereby authorized to include the City of Shelton in its preparation of a comprehensive solid waste management plan.

INTRODUCED AND PASSED by the City Commission of the City of Shelton on this 19 day of June, 2006.

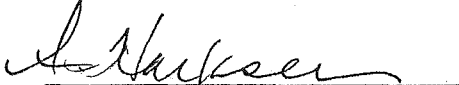
ATTEST:

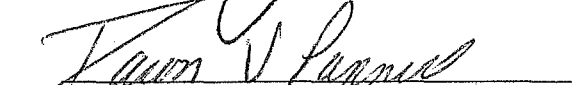

Mayor Tarrant


City Clerk Look


Commissioner Taylor

APPROVED AS TO FORM:


City Attorney Harksen


Commissioner Pannell

APPENDIX H - PUBLIC OUTREACH DOCUMENTATION



MASON COUNTY
DEPARTMENT OF PUBLIC WORKS
100 W Public Works Dr, Shelton, WA 98584
(360)427-9670

DETERMINATION OF NONSIGNIFICANCE
(WAC 197-11-340)

SEP2017-00044

Description of Proposal: COUNTY WIDE: MASON COUNTY 2017 COMPREHENSIVE
SOLID WASTE MANAGEMENT PLAN

Proponent: MASON COUNTY PUBLIC WORKS

Location of Proposal: 100 W PUBLIC WORKS DR SHELTON

Parcel Number: 420021000010

Legal Description: PCL 2 OF BLA #06-72 PTN OF W1/2 NE

Directions to Site:

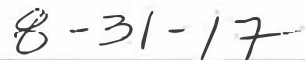
Lead Agency: Mason County

The Lead Agency for this proposal has determined that it does not have a probable significant adverse impact on the environment. An Environmental Impact Statement (EIS) is not required under RCW 43.21C.030(2)(c). This decision was made after review of a completed Environmental Checklist and other information on file with the Lead Agency. This information is available to the public upon request.

Please contact Paula Reeves at ext. 360-427-9670x286 with any questions. This MDNS is issued under WAC 197-11-340(2). The Lead Agency will not act on this proposal for 14 days from the date shown below, when the determination is final. Comments must be submitted to Dept. of Public Works, 100 W Public Works DR, Shelton WA 98584 by 8/31/2017. Appeal of this determination must be filed within a 14-day period following this final determination date, per Mason County Code Chapter 15.11 Appeals.



Authorized Local Government Official



Date

From: Paula Reeves
To: Stepp, Bart
Date: 9/18/2017 12:10 PM
Subject: Re: SEP2017-00044_MC Solid Waste Plan

No - none. Thanks.

Paula Reeves, AICP CTP
Mason County Planning Manager
615 W Alder Street, Building #8
Shelton, WA 98584
P: 360-427-9670 x286
E: PReeves@co.mason.wa.us

>>> Bart Stepp 9/15/2017 3:06 PM >>>

Did Community Services receive any comments on the Comprehensive Solid Waste Management Plan during the SEPA comment period which closed 9/13/17?

Thanks,

Bart

Bart Stepp, PE
Mason County
Deputy Director Public Works - Utilities and Waste Division
100 Public Works Drive
Shelton, WA 98584
(360) 427-9670 x652
BStepp@co.mason.wa.us

>>> Marissa Watson 8/31/2017 12:54 PM >>>

Please use the Mason County ftp site to access applicant's SEPA and related documents.

<ftp://216.235.103.242>

User Name: DCD

Password: 1Plan*ning!

Find the directory named "**Mason County 2017 Comprehensive Solid Waste Management Plan**", 2 pdf. files are within.

Please access these files soon as you receive this email. If you are unable to open files, please let us know in a timely manner. Site may not be accessible on hand held devices.

Thank you,

Marissa L. Watson
Community Services - Planning Clerical
615 W Alder St.
Shelton, Wa 98584
360.427.9670 ext. 367

Email: mwatson@co.mason.wa.us

8/28/17 CSWMP PAC MEETING NOTES

INTRODUCTION

On August 28, 2017 I gave a short presentation to the Mason County Planning Advisory Commission (PAC) about the draft Comprehensive Solid Waste Management Plan. I then answered questions from the PAC about the Plan and how to comment. I indicated if they provided comments within the next couple of weeks that would fit within my timeline for submitting to the Department of Ecology.

SWAC MEMBERS AT MEETING

Cheryl Williams and Delroy Cox.

FEEDBACK AT MEETING

Beyond their questions about the solid waste system and the plan a few comments came up.

GLASS RECYCLING WITHIN THE COUNTY

One commissioner asked about Mason County Garbage providing glass recycling service within the County and not just the City. Delroy Cox with the SWAC and I explained that the curbside service with Mason County Garbage is regulated by the UTC and not the County. The recycling contract we have with Mason County Garbage is for the Blue Box Recycling at our stations, not curbside service. In addition the glass Mason County Garbage collects does not come to the County so we have no role as a County in regulating what they do with it.

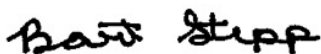
LITTER CONTROL ON ROADSIDES

One commissioner asked what role Solid Waste plays in roadside litter control. I explained that the Sheriff does apply for litter grants that pay for roadside cleanup. Environmental Health also does enforcement of dump sites with assistance from the Sheriff. The commissioner expressed interest in this becoming a part of the solid waste program by charging a fee for users of the station to pay for it. I told her that is something that has not been done in the past and is not typical of other solid waste systems but that it might be possible that it could be done.

FOOD COMPOSTING

One commissioner asked about starting a food composting program. This is discussed in the plan but I told her it is a very labor intensive program. Delroy Cox also mentioned that he felt in order for that type of program to work it needs to be regional with multiple counties to make it work.

Sincerely,



Bart Stepp, PE

Deputy Director/Utilities and Waste Management



Mason County Comprehensive Solid Waste Plan

8/28/17 MASON COUNTY PLANING ADVISORY COMMISSION

SHELTON, WA

BART STEPP, PE, DEPUTY DIRECTOR

County System Basics



- Mason County owns and operates the Eells Hill Transfer Station and rural drop box stations at Belfair, Union, and Hoodspport.
- Mason County provides solid waste, recycling, and household hazardous (HHW) services.
- Mason County Garbage provides curbside services throughout the County and City of Shelton. Mason County Garbage is a private company and is the only certificated hauler in Mason County.
- Republic Services disposes of solid waste Mason County collects at their Roosevelt Landfill in Klickitat County in Eastern Washington.

Consolidated Solid Waste Management Plan Basics

- An approved CSWMP is required by the State (Department of Ecology is the approval agency).
- An approved CSWMP makes County eligible for state funding (CPG and Public Works Trust Fund).
- Mason County and the City of Shelton need to approve it in addition to the Department of Ecology and UTC for the plan to be approved.
- Plan supposed to identify needs of the solid waste system and how the system will grow over the next 20 years.
- Solid Waste Advisory Committee (SWAC) and County Staff have been working on the new plan for 2 years.



Capital Needs Priorities



- Repair tipping floor, waste chute, and transfer station building drainage system. These repairs are currently under design by a consultant.
- Improve Household Hazardous Waste (HHW) facilities to meet code related requirements.
- Improve capacity of Eells Hill Transfer Station.
- General maintenance at drop box stations.
- A secondary access at Eells Hill for recycling only would improve service at the transfer station.

Financial



- 2017 tipping fee of \$93.45/TON
- Revenues from tipping fees and CPG (Coordinated Prevention Grant) funding pays for operation and maintenance of system. No current expense funds are used.
- Annual O&M Budget of \$3.5 Million in 2017.
- The landfill reserve fund (~\$500,000) is intended solely for activities related to the landfill closure.
- Improvements in 2017 and 2018 will be paid solely through solid waste revenues.
- No CPG funding is budgeted for 2018 due to a lack of a state capital budget.

Operational Status



- Currently staffed with 4 full time operators, 4 full time booth attendants, 2 extra help attendants, and a solid waste manager.
- Long haul contract with Republic Services and recycling contract with Mason County Garbage expires in August of 2020.
- The CSWMP recommends the County evaluate the potential for privatization of the utility prior to the expiration of the long haul contract.
- If a private company took over operations they would upgrade or build a new transfer station at Eells Hill.

9/05/17 BOCC PUBLIC HEARING NOTES

INTRODUCTION

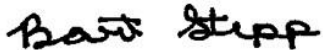
On September 5, 2017 I gave a short presentation to the Mason County Board of County Commissioners (BOCC) about the draft Comprehensive Solid Waste Management Plan. The public was then invited to make comments on the Plan to the BOCC. No comments were made by the public or the BOCC.

The Plan will be presented to the board again after Ecology has reviewed and provided comments and the SWAC has addressed Ecology's comments into the Plan.

SWAC MEMBERS AT MEETING

Cheryl Williams, Delroy Cox, and Rik Fredrickson.

Sincerely,

A handwritten signature in black ink that reads "Bart Stepp". The signature is written in a cursive, slightly slanted style.

Bart Stepp, PE
Deputy Director/Utilities and Waste Management

NOTICE OF HEARING

NOTICE IS HEREBY GIVEN that the Board of Mason County Commissioners will hold a public hearing at the Mason County Courthouse Building I, Commission Chambers, 411 North Fifth Street, Shelton, WA 98584 on Tuesday, September 5, 2017 at 9:30am.

SAID HEARING will be to present and take public comments on the draft 2017 Mason County Comprehensive Solid Waste Management Plan (CSWMP), requirements of RCW 70.95 and the Washington Department of Ecology. This is a complete revision of, and supersedes, the Mason County Solid Waste Management Plan 2006 and its 2011 Addendum. The hearing is not to approve, just to take in public comment; another hearing will be set at a later date for the adoption of the plan.

Copies of the plans are available on the County website at: www.co.mason.wa.us on the Utilities Waste Management Solid Waste homepage under "News and Links".

If special accommodations are needed, please contact the Commissioners' office, (360) 427-9670 (Shelton), (360) 482-5269 (Elma) or (360) 275-4467 (Belfair), Ext. 419 or any questions contact Bart Stepp, 360-427-9670, Ext. 652.

DATED this 15th day of August, 2017.

DEPARTMENT OF PUBLIC WORKS
MASON COUNTY, WASHINGTON

Melissa Drewry, Clerk of the Board

Cc: Auditor
Clerk of the Board
Public Works
Applicant
Journal - Publ 2t: 8/24/17 & 8/31/17 (not less than 5 days prior to hearing)
Post: 3 public places 15 days before hearing – No later than August 28, 2017
(Bill Public Works – 100 W Public Works, Shelton, WA 98584)

MASON COUNTY
PUBLIC WORKS DIRECTOR/COUNTY ENGINEER
SHELTON, WASHINGTON

INTER-DEPARTMENTAL COMMUNICATION

August 17, 2017

TO: BART STEPP, DEPUTY DIRECTOR/ U&W MANAGER

FROM: KELLE MEDCALF, OFFICE MANAGER

SUBJ: County Comprehensive Solid Waste Management Plan CSWMP--
Notice Posting

Attached is a Notice of Hearing to present the draft 2017 CSWMP and take public comments. The hearing is not to approve, just take public comment.

Please post the attached laminated "Notice of hearing" copies in three (3) public places before August 28, 2017, 2017 and return the IDC with the bottom information completed.

Thank you,

Kelle Medcalf
Office Manager

I, BART STEPP, do hereby certify that I posted copies of the attached in 3 public places (as shown below) on AUGUST 23, 2017.

- 1 at EELLS HILL TRANSFER STATION - 501 W. EELLS HILL RD, SHELTON
- 1 at BELFAIR DROP BOX STATION - 1611 NE SANDHILL RD, BELFAIR, WA
- 1 at UNION DROP BOX STATION - 1341 E. MURPHY RD. UNION, WA

Signature: Bart Stepp

**MASON COUNTY
BRIEFING ITEM SUMMARY FORM**

TO: BOARD OF MASON COUNTY COMMISSIONERS	
FROM: Bart Stepp, Deputy Director/ Utilities and Waste Management	
DEPARTMENT: Public Works	EXT: 652
BRIEFING DATE: August 7, 2017	

ITEM: Set Hearing: Comprehensive Solid Waste Management Plan

EXECUTIVE SUMMARY: Since 2015 the Solid Waste Advisory Committee for the County has been working on a revision of the Comprehensive Solid Waste Management Plan (CSWMP). Mason County is required to have a CSWMP under RCW 70.95.080.

The approval process of the CSWMP requires several steps. This includes SEPA determination, holding a public hearing, review by state agencies and implementation of their comments, approval by County and the City of Shelton, and then final approval by Ecology. The CSWMP was submitted to the Department of Community Development for SEPA review on July 24, 2017. I will also be briefing the Planning Commission on the CSWMP on August 28th and incorporating their comments.

This briefing is to provide the initial presentation of the CSWMP to the Board and to schedule a public hearing on the CSWMP to receive comments. The Board would not approve the CSWMP after the hearing, just take in comments. After the CSWMP is reviewed by Ecology and all public comments are incorporated into it then the CSWMP would come back to the Board for approval. That will probably be in early 2018.

Cost Impact to the County: This Plan was completed by the SWAC with the help of County Staff using existing resources except for the Capital Investment Needs report (Appendix A of the CSWMP) which was completed by a consultant in 2016.

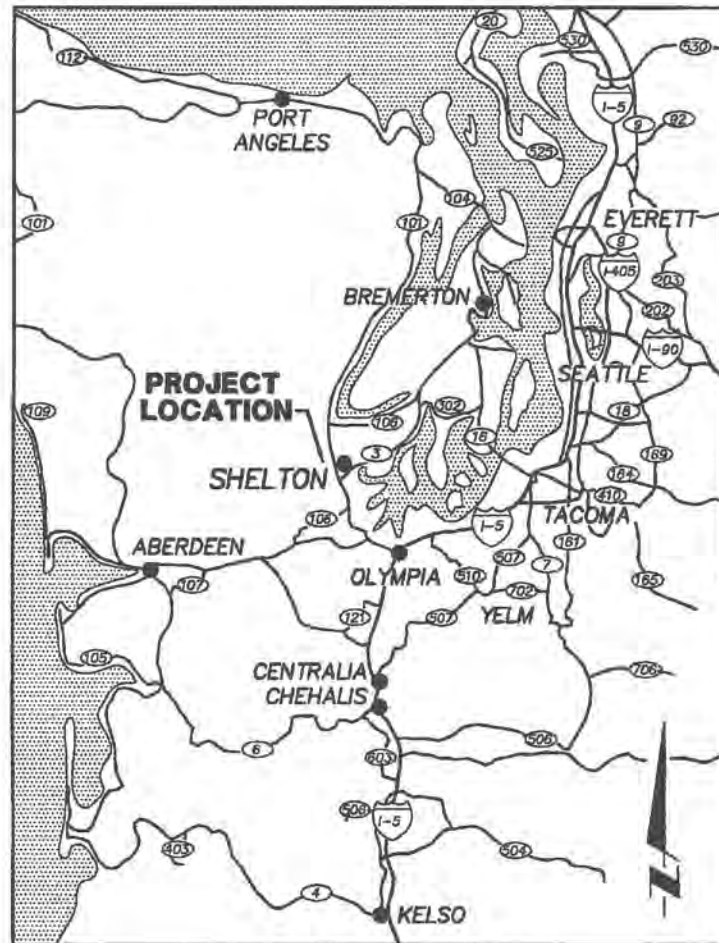
RECOMMENDED OR REQUESTED ACTION: Recommend the Board of Commissioners set a public hearing on September 5th to take public comment on the Comprehensive Solid Waste Management Plan.

Attachment

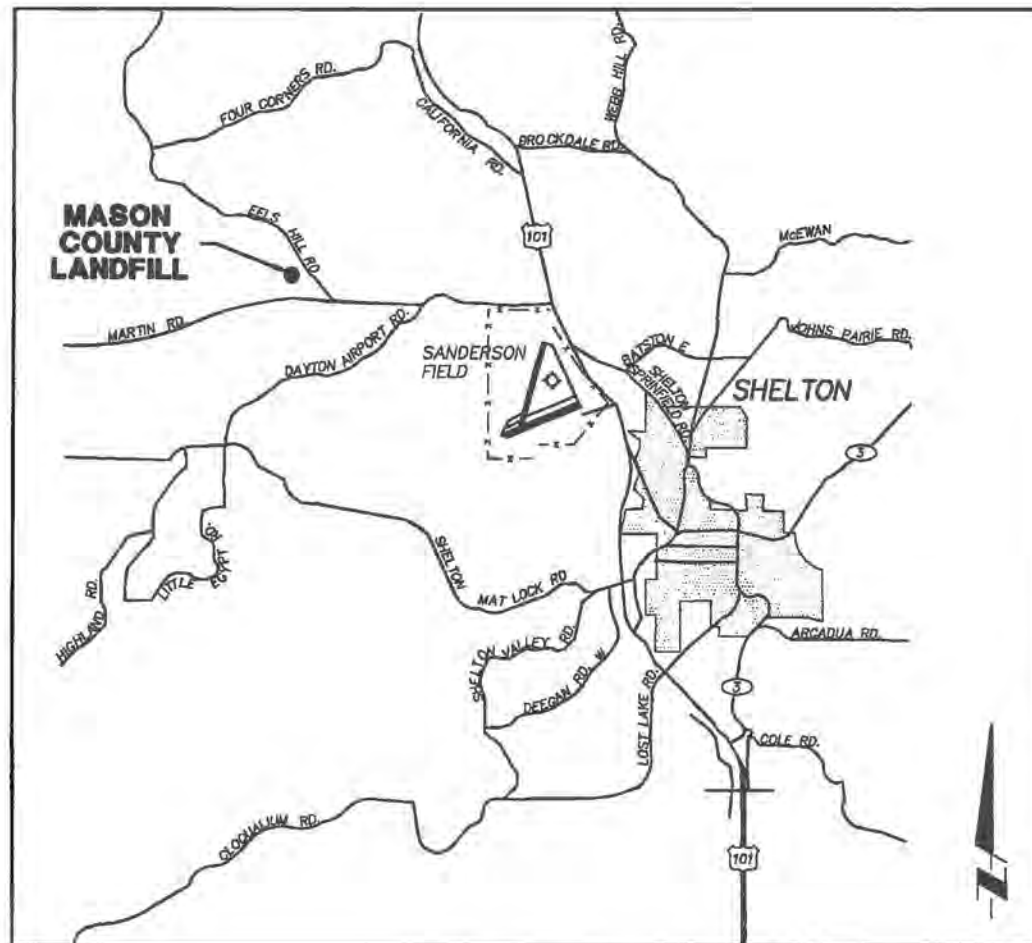
- 2017 Comprehensive Solid Waste Management Plan
- Notice



MASON COUNTY DEPARTMENT OF COMMUNITY DEVELOPMENT WASTE EXPORT TRANSFER STATION



VICINITY MAP



LOCATION MAP

COMMISSIONERS:
MARVIN L. FAUGHENDER
WILLIAM O. HUNTER
LAURA E. PORTER

PROJECT OFFICIALS:
GARY YANDO, DIRECTOR
DEPARTMENT OF COMMUNITY
DEVELOPMENT

COUNTY OFFICIALS

NO.	REVISIONS	DATE	BY	DESIGNED
				R. MADDOX
				M. WILLIAMS

0	1"	2"
TWO INCHES AT FULL SCALE IF NOT SCALE ACCORDINGLY		
SCALE NO SCALE		
DATE MAY 1993		



Parametrix, Inc.

WASHINGTON Sumner Bremerton Kirkland	OREGON Portland HAWAII Honolulu
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PROJECT NAME MASON COUNTY DEPARTMENT OF COMMUNITY DEVELOPMENT MASON COUNTY LANDFILL CLOSURE MASON COUNTY, WASHINGTON	
JOB NO. 21-1682-13	FILE NAME 16821301

COVER SHEET

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2.	SHEET INDEX, LEGEND, ABBREVIATIONS AND GENERAL NOTES
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5.	SITE AND UTILITY PLAN
6.	GRADING AND DRAINAGE PLAN
7.	TYPICAL SECTIONS/DETAILS
8.	TYPICAL SECTIONS/DETAILS
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9.	FOUNDATION AND FRAMING PLANS
10.	TYPICAL BUILDING SECTIONS
11.	STRUCTURAL DETAILS
12.	PROFILES
13.	PROFILES
14.	ELECTRICAL/LIGHTING PLAN

LEGEND

DESCRIPTION	PROPOSED	EXISTING
CONTOURS		
FENCE		
WASTEWATER LINE (WWL)		
STORM WATER LINE		
WATER		
POWER		
LIMITS OF CONSTRUCTION		
SPOT ELEVATION		
MANHOLE		
VERTICAL DATUM		
EARTH		
GRAVEL		
CONCRETE		
ASPHALT		
SHRUBBERY		

ABBREVIATIONS

AC	ASPHALT CONCRETE	MIN	MINIMUM
BLDG	BUILDING	MH	MANHOLE
CJ	CONSTRUCTION JOINT	N	NORTH
CL	CHAIN LINK	OGF	ONSITE GRANULAR FILL
CONC	CONCRETE	PP	POWER POLE
DIA	DIAMETER	PVC	POLYVINYL CHLORIDE
E	EAST	PWR	POWER
EA	EACH	R	RADIUS
EL	ELEVATION	S	SOUTH
EP	EDGE OF PAVEMENT	SBF	SELECT BACKFILL
EXIST	EXISTING	SIM	SIMILAR
HDPE	HIGH DENSITY POLYETHYLENE	TYP	TYPICAL
HGT	HEIGHT	UNO	UNLESS NOTED OTHERWISE
ID	INSIDE DIAMETER	W	WEST
IE	INVERT ELEVATION	WDG	WASHED DRAIN GRAVEL
LF	LINEAR FOOT		
MAX	MAXIMUM		

GENERAL NOTES

GENERAL
CONTRACTOR(S) SHALL COORDINATE WORK WITH CONTRACTOR(S) AND MASON COUNTY CREWS ON OTHER PARTS OF THE PROJECT AND OTHER PROJECT SCHEDULES.

CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE RULES AND REGULATIONS OF OSHA AND WISHA ALONG WITH ALL OTHER LOCAL, STATE, AND FEDERAL SAFETY REGULATIONS.

CONTRACTOR SHALL LOCATE AND PROTECT ALL EXISTING SURVEY MONUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACEMENT OF ANY AND ALL SURVEY MONUMENTS WHICH ARE AFFECTED BY THE CONSTRUCTION. ALL MONUMENTS WILL BE RESET BY A LICENSED LAND SURVEYOR.

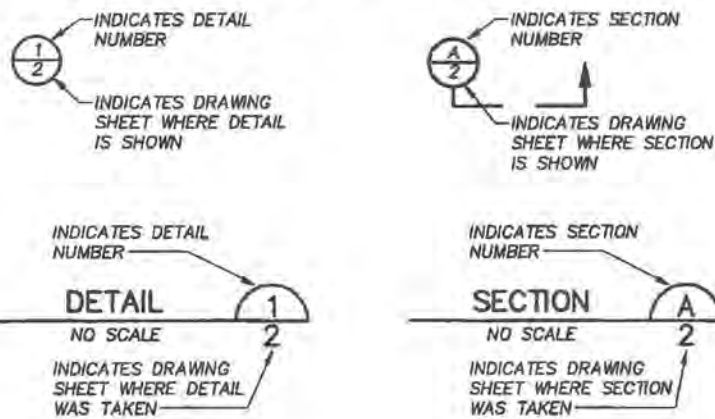
VERTICAL ALIGNMENT FOR THE PROJECT SHALL BE AS SHOWN ON THE CONTRACT DOCUMENTS. CONTRACTOR SHALL VERIFY ELEVATIONS SHOWN WITH COMPETENT PERSONNEL BY CONVENTIONAL METHODS. VERTICAL DATUMS FOR THE PROJECT SITE ARE AS SHOWN ON THE CONTRACT PLANS.

THE CONTRACTOR SHALL NOTIFY ALL AFFECTED UTILITY COMPANIES FOR LOCATIONS OF MAINLINE AND SERVICE LINE LOCATIONS PRIOR TO DIGGING. UTILITIES WHICH ARE DAMAGED THAT WERE MARKED PROPERLY WILL BE REPAIRED BY THE CONTRACTOR AT HIS COST. UTILITIES WHICH ARE DAMAGED BY THE CONTRACTOR THAT WERE UNMARKED OR IMPROPERLY MARKED WILL BE PAID FOR BY THE OWNER OF THE AFFECTED UTILITY. IT IS CRITICAL THAT A "UTILITY LOCATE" BE REQUESTED TO VERIFY THE TYPE AND LOCATION OF SERVICE LINES.

THE KNOWN EXISTING UNDERGROUND UTILITY LINES ARE SHOWN ON THE DRAWINGS IN THEIR APPROXIMATE LOCATION. THERE IS NO GUARANTEE, EXPRESSED OR IMPLIED, THAT ALL UTILITY LINES ARE SHOWN OR THAT LOCATIONS ARE ACCURATE. SERVICES TO INDIVIDUAL STRUCTURES OR PARCELS ARE NOT SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL UNCOVER ALL INDICATED PIPING WHERE CROSSINGS, INTERFERENCE, OR CONNECTIONS OCCUR, PRIOR TO TRENCHING OR EXCAVATING FOR ANY NEW PIPE OR STRUCTURES TO DETERMINE ACTUAL LOCATIONS AND SHALL MAKE THE APPROPRIATE PROVISIONS TO PROTECT SAID FACILITIES FROM DAMAGE. THE CONTRACTOR SHALL NOTIFY THE UTILITY AGENCIES AND ARRANGE FOR FIELD LOCATION OF THEIR FACILITIES BEFORE CONSTRUCTION.

IN THE EVENT MORE THAN ONE STANDARD IS REFERENCED IN THE CONTRACT DOCUMENTS, THE MORE STRINGENT SHALL APPLY.

DETAIL AND SECTION DESIGNATIONS



NO.	REVISIONS	DATE	BY

DESIGNED R. MADDOX
DRAWN M. WILLIAMS
CHECKED <i>[Signature]</i>
DATE MAY 1993



Parametrix, Inc.

WASHINGTON: Sumner, Branterton, Kirkland

OREGON: Portland

HAWAII: Honolulu

PROJECT NAME MASON COUNTY DEPARTMENT OF COMMUNITY DEVELOPMENT MASON COUNTY LANDFILL CLOSURE SHELTON, WASHINGTON
JOB NO. 21-1682-13
FILE NAME: 16821302

SHEET INDEX, ABBREVIATIONS, LEGEND
AND GENERAL NOTES

SHEET NO. 2 14

GENERAL STRUCTURAL NOTES

DESIGN CRITERIA

UNIFORM BUILDING CODE, UBC 1988 EDITION, EXCEPT WHERE OTHER CODES ARE MORE RESTRICTIVE.

LIVE LOADS
 ROOF 25psf
 SNOW DRIFT PER ANSI 58.1

WIND LOADS
 BASIC WIND SPEED 80 MPH
 EXPOSURE C
 IMPORTANCE FACTOR, I 1.0
 WIND PRESSURE q_s 20 psf

SEISMIC LOADS
 Z = 0.3 (ZONE 3)
 I = 1.0 (OCCUPANCY CATEGORY III)
 S = 1.0 (SOIL PROFILE TYPE S1)
 R_w = PER UBC SEE FACILITY NOTE
 BASE SHEAR, $V = \frac{ZIC}{R_w} W$

FOUNDATION

DESIGN SOIL BEARING PRESSURES
 SPREAD FOOTING AND MAT ON FIRM UNDISTURBED EARTH 3500 (UBC)

ALL SLABS ON GRADE SHALL BEAR ON COMPACTED GRANULAR FILL AS SPECIFIED, MINIMUM THICKNESS 6 INCHES.
 DEPTH OF FOOTING BELOW FINISHED GRADE - 18 INCHES MINIMUM.

DESIGN SOIL LATERAL PRESSURES
 WATER TABLE, ESTIMATED BETWEEN EL 270 AND EL 280

NON-YIELDING WALL
 DRAINED CONDITION
 ACTIVE PRESSURE 35 H psf

PROVIDE ADEQUATE SUPPORT TO WALLS AGAINST BACKFILL PLACEMENT AND MAINTAIN SUPPORTS UNTIL ADJOINING FLOOR SYSTEMS HAVE BEEN INSTALLED.
 SHORE ALL EXCAVATIONS AS REQUIRED.

CONCRETE

ALL DETAILING, FABRICATION AND ERECTION OF REINFORCING BARS, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES ACI 315, LATEST EDITION. CONCRETE CONSTRUCTION SHALL CONFORM TO ACI 318 BUILDING CODE, LATEST EDITION.

DESIGN STRENGTH
 CAST-IN-PLACE CONCRETE, UNLESS OTHERWISE NOTED
 $f'_c = 4000$ psi AT 28 DAYS

REINFORCED STEEL SHALL BE IN ACCORDANCE WITH ASTM A615, GRADE 60. WELDED WIRE FABRIC SHALL BE IN ACCORDANCE WITH ASTM A185, $f_y = 65$ ksi, FURNISHED IN FLAT SHEETS.

CONCRETE COVER
 CONCRETE COVER FOR REINFORCING BARS SHALL BE AS FOLLOWS, BUT NOT LESS THAN ONE BAR DIAMETER.

FOOTINGS AND MATS	3"
CONCRETE IN CONTACT WITH SOIL, WEATHER OR SEWERAGE	2"
CONCRETE NOT EXPOSED TO SOIL, WEATHER OR SEWERAGE	1 1/2"

BEAMS AND COLUMNS (TO STIRRUPS)
 WALLS, SLABS AND JOISTS

SLAB ON GRADE
 UNDER 6" THICK AT SLAB CENTER
 6" AND OVER 2" FROM TOP OF SLAB

MINIMUM WALL REINFORCEMENT

WALL THICKNESS	BAR SIZE AND SPACING, EACH WAY
6"	#4 @ 12" ON WALL CENTERLINE
8"	#5 @ 12" ON WALL CENTERLINE
10"	#4 @ 12" EACH FACE
12"	#5 @ 12" EACH FACE
14" AND 16"	#6 @ 12" EACH FACE
18" AND GREATER	#7 @ 12" EACH FACE

SLAB REINFORCEMENT

SLAB THICKNESS	SLAB THICKNESS
8" AND LESS	#4 @ 12" TOP AND BOTTOM
> 8"	#5 @ 12" TOP AND BOTTOM

DOWELS AND CORNER BARS

ALL HORIZONTAL BARS SHALL BE CONTINUOUS AROUND CORNERS AND THROUGH COLUMN PILASTERS. PROVIDE DOWELS AND CORNER BARS FOR ALL COLUMN AND WALL REINFORCEMENT, AT LEAST THE SAME SIZE AND SPACING AS BARS WITH WHICH THEY ARE LAPPED. LAP SPLICES AND EMBEDMENT SHALL BE PER ACI 318, OR AS NOTED.
 PROVIDE TWO #5 VERTICAL BARS AT ALL WALL INTERSECTIONS AND AT ALL WALL ENDS.

BAR SPLICES

LAP REINFORCING STEEL BAR WITH A CLASS B SPLICE. THE LENGTH OF LAP SPLICE OF BARS OF DIFFERENT DIAMETER SHALL BE BASED ON THE LARGER DIAMETER. BAR SPLICES MAY ALSO BE MADE BY WELDING IN ACCORDANCE WITH THE DETAILS FOR REINFORCING STEEL SPLICE AND WITH AWS SPECIFICATION D12.1 WELDING CODE. IN CASES WHERE REINFORCING BARS CANNOT BE EXTENDED AS FAR AS REQUIRED DUE TO THE LIMITED EXTENT OF THE ADJACENT CONCRETE STRUCTURE, THE BARS SHALL EXTEND AS FAR AS POSSIBLE AND END IN STANDARD HOOKS.
 LAP WELDED WIRE 1 1/2" MESH MINIMUM.

ANCHOR BOLTS

ANCHOR BOLTS SHALL CONFORM TO PRE-ENGINEERED BUILDING MANUFACTURERS SPECIFICATIONS.

STEEL

MATERIAL
 ALL STEEL SHALL CONFORM TO ASTM A36, $f_y = 36$ ksi.
 HIGH STRENGTH BOLTS SHALL CONFORM TO ASTM A325, BEARING TYPE FOR ALL BOLTED CONNECTIONS. TENSION HIGH STRENGTH BOLTS BY TURN-OF-THE-NUT METHOD.
 HEADED SHEAR STUDS SHALL BE "NELSON STUDS" BY TRW, INC., OR APPROVED EQUAL.

WELDING

ALL WELDING SHALL CONFORM TO AWS D1.1 WELDING CODE. MINIMUM SIZE WELDS 3/16" CONTINUOUS FILLET. WELDING SHALL BE CONDUCTED BY WABO CERTIFIED WELDER.

PAINTING

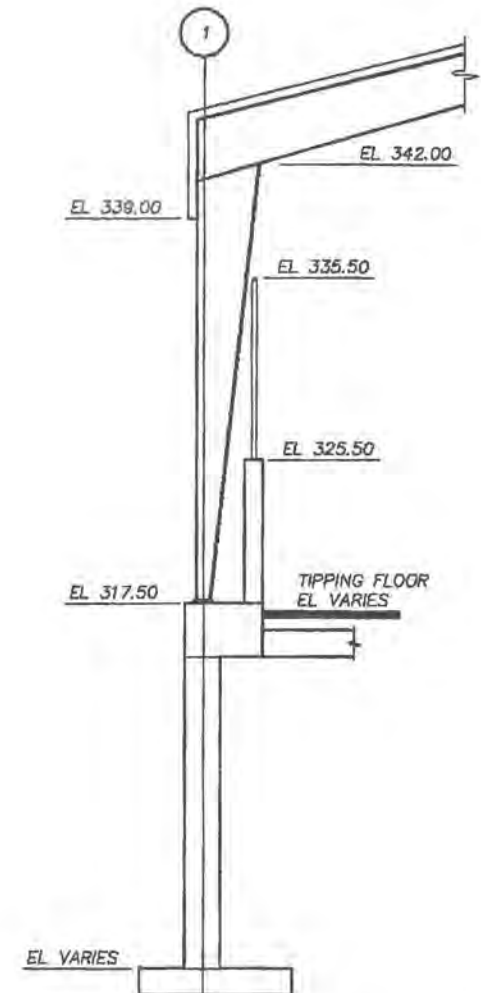
STRUCTURAL STEEL SHALL BE PAINTED IN CONFORMANCE WITH SPECIFICATIONS.

STAINLESS STEEL

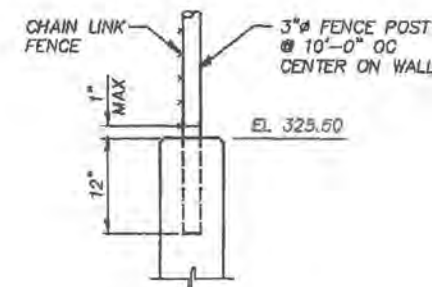
MATERIAL
 STAINLESS STEEL CONSTRUCTION SHALL BE IN ACCORDANCE WITH AISI SPECIFICATIONS. STAINLESS STEEL BOLTS AND NUTS SHALL CONFORM TO ASTM A193 AND A194.

MISCELLANEOUS

SUBMIT ALL REQUIRED SHOP DRAWINGS AND RECEIVE THEIR SATISFACTORY REVIEW FROM THE ENGINEER, PRIOR TO FABRICATION. COORDINATE AND VERIFY ALL DIMENSIONS AND CONDITIONS AT THE PROJECT SITE PRIOR TO STARTING WORK AND NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
 STRUCTURAL SYSTEM HAS BEEN DESIGNED FOR OPERATIONAL LOADS ON THE COMPLETED STRUCTURE. PROVIDE TEMPORARY ERECTION BRACING AND SHORING AS REQUIRED FOR STABILITY OF THE STRUCTURE AND ADJACENT STRUCTURES, DURING ALL PHASES OF CONSTRUCTION.
 REFER TO SPECIFICATIONS AND INFORMATION NOT CONTAINED IN THESE GENERAL NOTES.

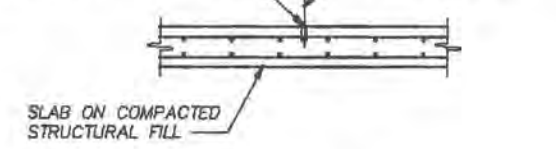


TYPICAL WALL SECTION
NTS



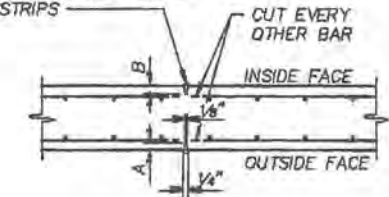
FENCE POST
DETAIL
NTS

SAWCUT CONTROL JOINT 3/8"x1 1/2" DEEP WITH 1/2" BACKER ROD AND 3/8" WIDE x 1/4" DEEP BEAD OF SEALANT IN A STRAIGHT LINE
 CUT EVERY OTHER REINF AT JOINT



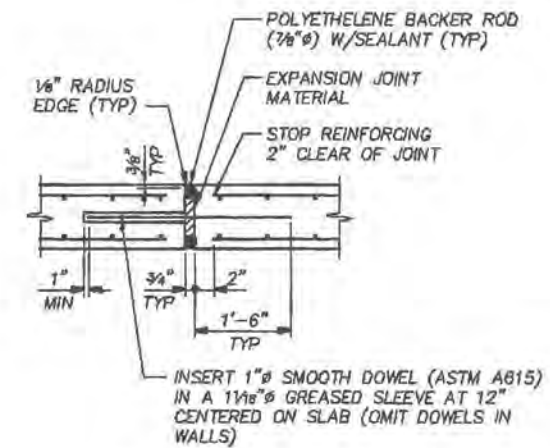
SLAB CONTROL JOINT
SECTION A
NTS

PREMOLDED JOINT STRIP REMOVE AND CAULK JOINT, ALIGN INSIDE AND OUTSIDE JOINT STRIPS



WALL THICKNESS	
B" OR LESS	> B"
A	1 1/2" 3/4"
B	2 1/2" 1 1/4"

WALL CONTROL JOINT (WCJ)
NTS



EXPANSION JOINT (EJ)
NTS

NO.	REVISIONS	DATE	BY	DESIGNED	DRAWN	CHECKED	APPROVED
				R. MADDOX	M. WILLIAMS		

DESIGNED BY: R. MADDOX
 DRAWN BY: M. WILLIAMS
 CHECKED BY: [Signature]
 APPROVED BY: [Signature]

DATE: MAY 1993
 EXPIRES: 4-18-95

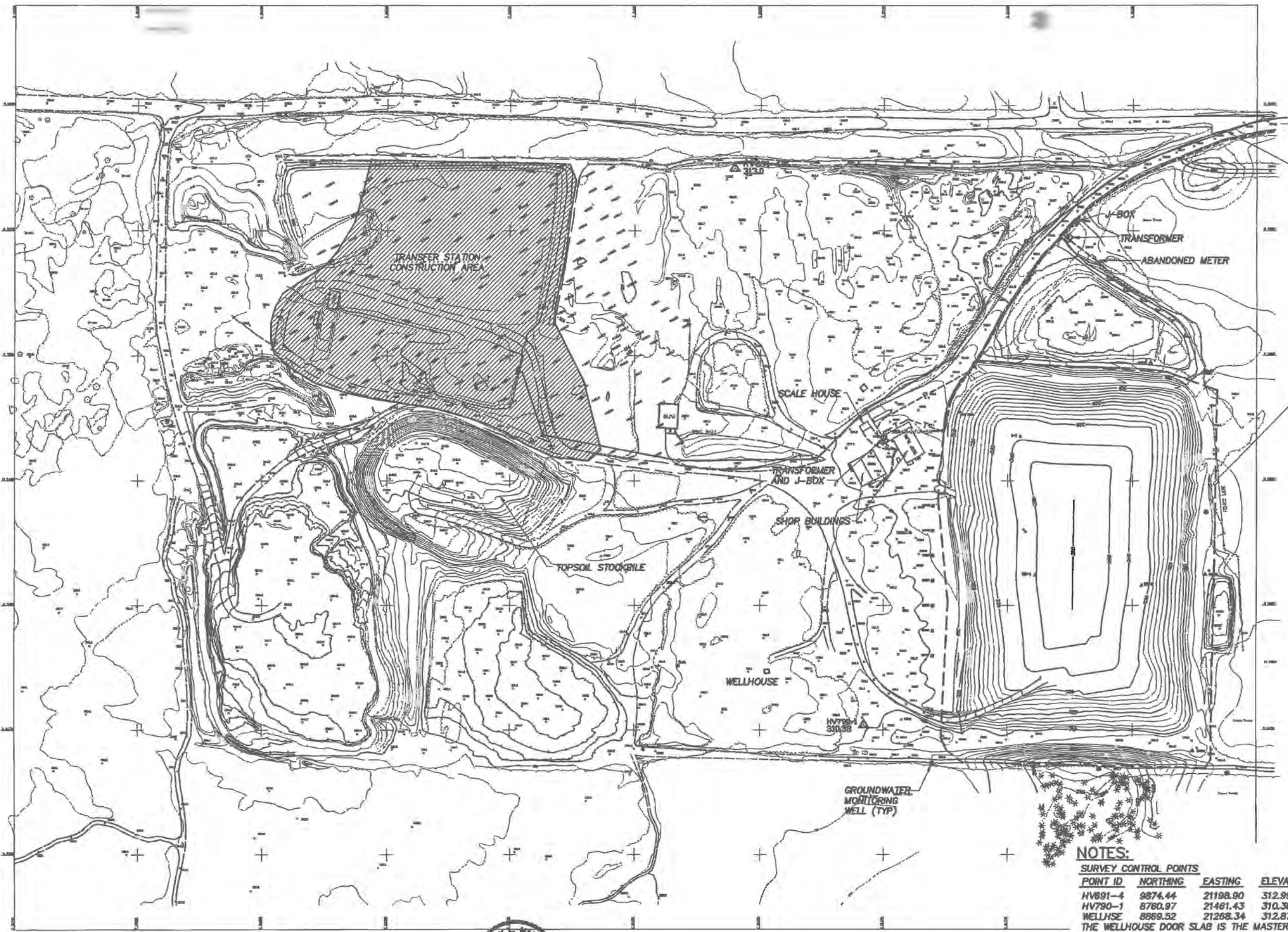
Parametrix, Inc.
 WASHINGTON: Sumner, Bremerton, Kirkland
 OREGON: Portland
 HAWAII: Honolulu

PROJECT NAME: MASON COUNTY DEPARTMENT OF COMMUNITY DEVELOPMENT
 MASON COUNTY LANDFILL CLOSURE
 SHELTON, WASHINGTON

JOB NO. 21-1682-13
 FILE NAME: 16821301

GENERAL STRUCTURAL NOTES

3
14



TO EELLS HILL ROAD

OVERHEAD 3 PHASE POWER TO BE INSTALLED BY OTHERS

J-BOX

TRANSFORMER

ABANDONED METER

APPROXIMATE LIMIT OF LANDFILL FINAL COVER SYSTEM BY OTHERS

NOTES:

SURVEY CONTROL POINTS				
POINT ID	NORTHING	EASTING	ELEVATION	DESCRIPTOR
HV691-4	9874.44	21188.90	312.99	R/CAP-IN BRUSH S OF ROAD
HV790-1	8760.97	21481.43	310.38	HUB/TARGET-200' SE OF WELLS
WELLS	8869.52	21268.34	312.87	90' CEN DOOR-E SIDE SLAB

THE WELLS DOOR SLAB IS THE MASTER TEMPORARY BENCHMARK FOR THIS SITE.

NO.	REVISIONS	DATE	BY	DESIGNED	DRAWN	CHECKED	APPROVED
				G. ARNDT	M. WILLIAMS		

SCALE
1"=100'
DATE
MAY 1993



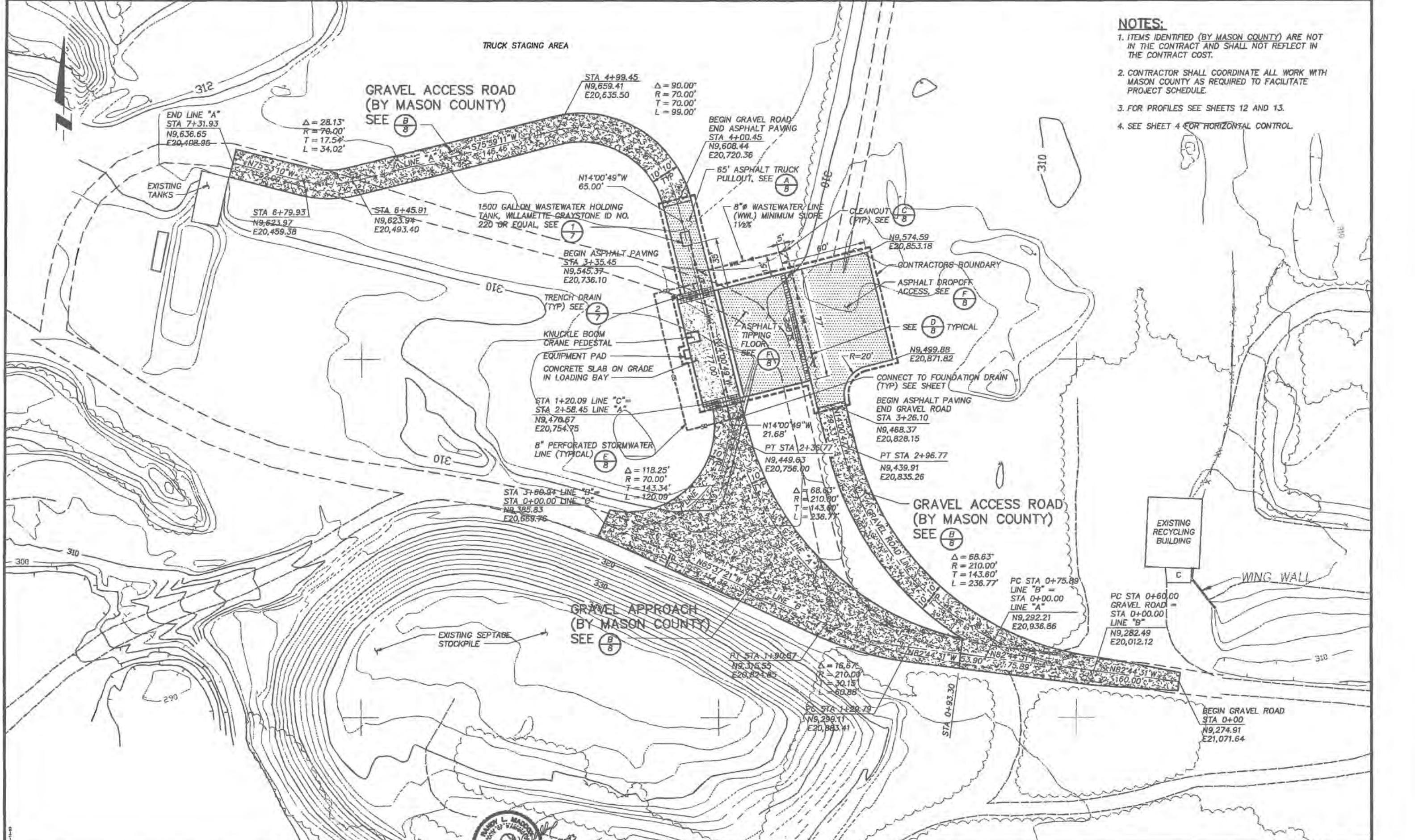
Parametrix, Inc.
WASHINGTON: Sumner, Bremerton, Kirkland
OREGON: Portland
HAWAII: Honolulu

PROJECT NAME
MASON COUNTY DEPARTMENT OF COMMUNITY DEVELOPMENT
MASON COUNTY LANDFILL CLOSURE
SHELTON, WASHINGTON

JOB NO. 21-1682-13 FILE NAME 16821304

OVERALL SITE PLAN

SHEET NO.
4
14



- NOTES:**
1. ITEMS IDENTIFIED (BY MASON COUNTY) ARE NOT IN THE CONTRACT AND SHALL NOT REFLECT IN THE CONTRACT COST.
 2. CONTRACTOR SHALL COORDINATE ALL WORK WITH MASON COUNTY AS REQUIRED TO FACILITATE PROJECT SCHEDULE.
 3. FOR PROFILES SEE SHEETS 12 AND 13.
 4. SEE SHEET 4 FOR HORIZONTAL CONTROL.

NO.	REVISIONS	DATE	BY	DESIGNED
				K. DOUR
				M. WILLIAMS
				<i>[Signature]</i>
				<i>[Signature]</i>

SCALE
1" = 30'-0"
DATE
MAY 1993



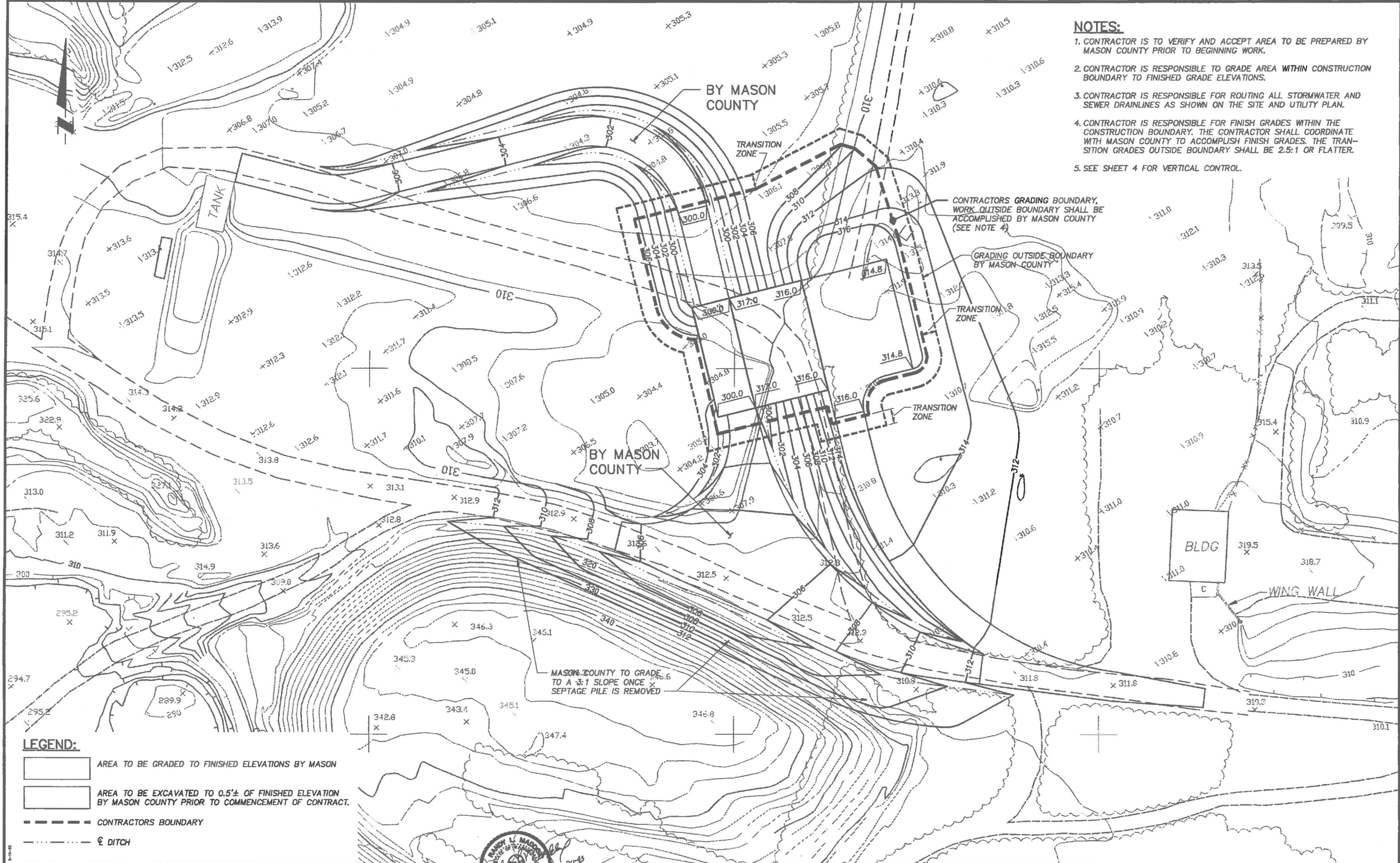
Parametrix, Inc.

WASHINGTON Sumner Bremerton Kirkland	OREGON Portland HAWAII Honolulu
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PROJECT NAME
**MASON COUNTY DEPARTMENT OF COMMUNITY DEVELOPMENT
MASON COUNTY LANDFILL CLOSURE
SHELTON, WASHINGTON**

JOB NO. 21-1682-13 FILE NAME 16821305

SITE AND UTILITY PLAN

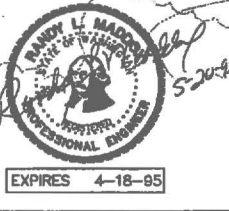


- NOTES:**
1. CONTRACTOR IS TO VERIFY AND ACCEPT AREA TO BE PREPARED BY MASON COUNTY PRIOR TO BEGINNING WORK.
 2. CONTRACTOR IS RESPONSIBLE TO GRADE AREA WITHIN CONSTRUCTION BOUNDARY TO FINISHED GRADE ELEVATIONS.
 3. CONTRACTOR IS RESPONSIBLE FOR ROUTING ALL STORMWATER AND SEWER DRAINLINES AS SHOWN ON THE SITE AND UTILITY PLAN.
 4. CONTRACTOR IS RESPONSIBLE FOR FINISH GRADES WITHIN THE CONSTRUCTION BOUNDARY. THE CONTRACTOR SHALL COORDINATE WITH MASON COUNTY TO ACCOMPLISH FINISH GRADES. THE TRANSITION GRADES OUTSIDE BOUNDARY SHALL BE 2.5:1 OR FLATTER.
 5. SEE SHEET 4 FOR VERTICAL CONTROL.

- LEGEND:**
- AREA TO BE GRADED TO FINISHED ELEVATIONS BY MASON
 - AREA TO BE EXCAVATED TO 0.5'± OF FINISHED ELEVATION BY MASON COUNTY PRIOR TO COMMENCEMENT OF CONTRACT.
 - CONTRACTORS BOUNDARY
 - DITCH

NO.	REVISIONS	DATE	BY	DESIGNED
				K. DOUR
				M. WILLIAMS

TWO INCHES AT FULL SCALE
 IF NOT SCALE ACCORDINGLY
 SCALE
 1" = 30'-0"
 DATE
 MAY 1993

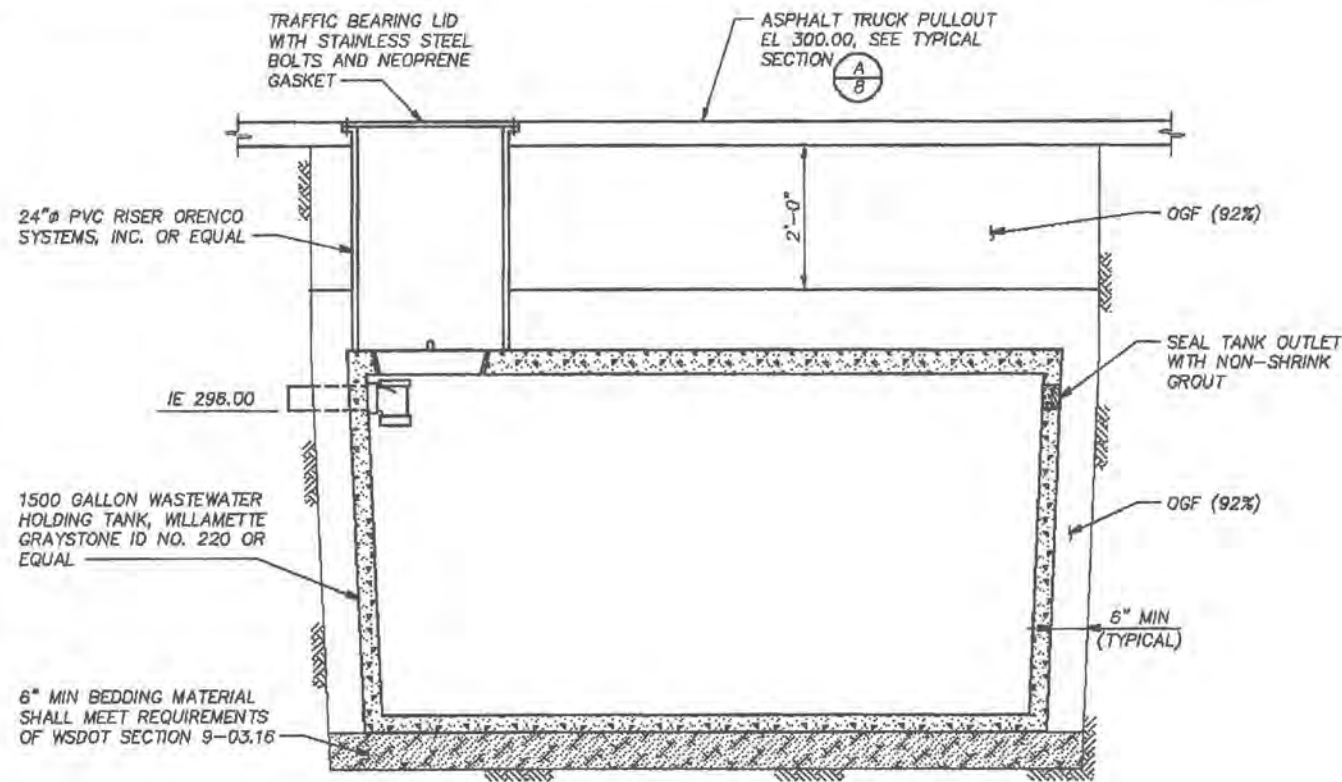


Parametrix, Inc.

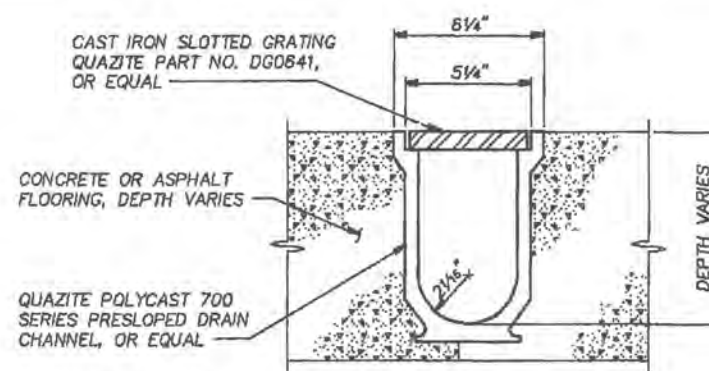
WASHINGTON	OREGON
Sumner	Portland
Bremerton	HAWAII
Kirkland	Honolulu

PROJECT NAME
 MASON COUNTY DEPARTMENT OF
 COMMUNITY DEVELOPMENT
 MASON COUNTY LANDFILL CLOSURE
 SHELTON, WASHINGTON
 JOB NO. 21-1682-13 FILE NAME: 18821306

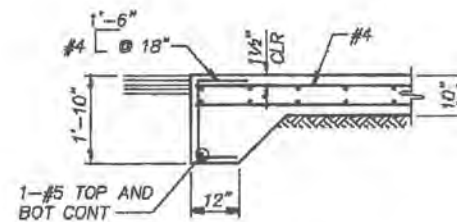
GRADING AND DRAINAGE PLAN



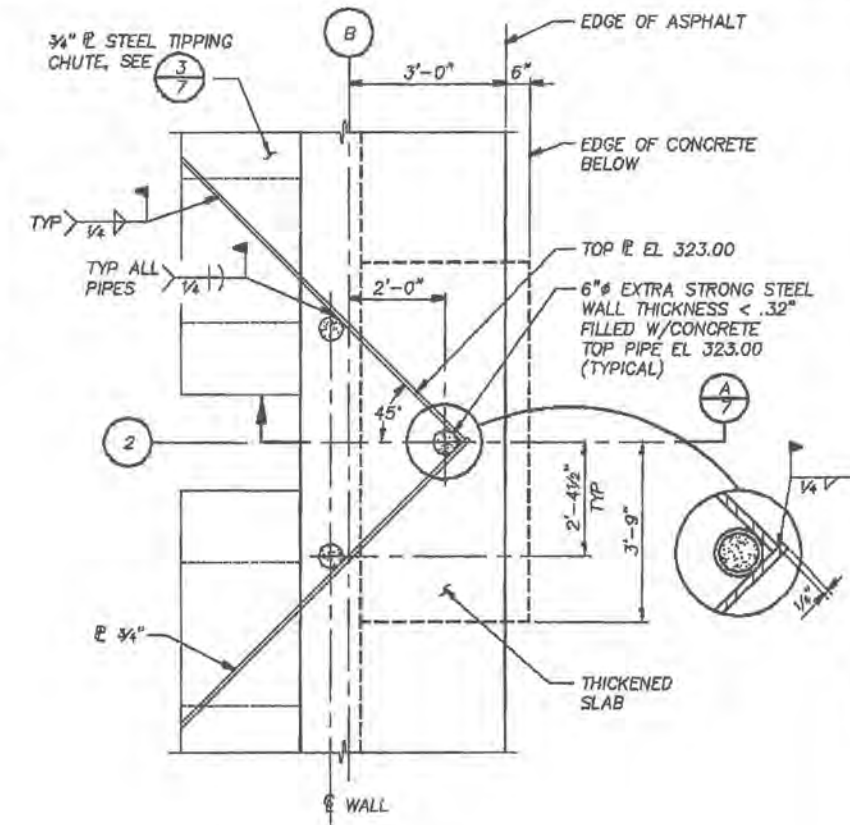
CONCRETE WASTEWATER HOLDING TANK
DETAIL 1
 3/4" = 1'-0"



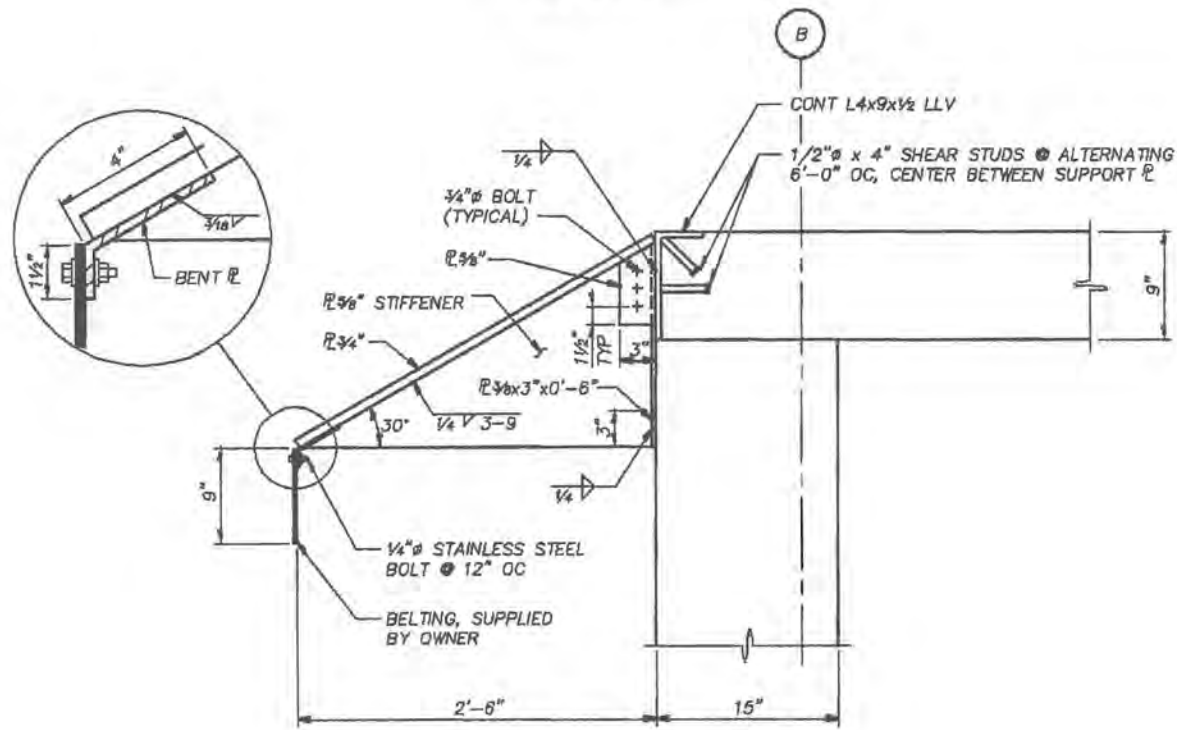
TYPICAL TRENCH DRAIN
DETAIL 2
 3" = 1'-0"



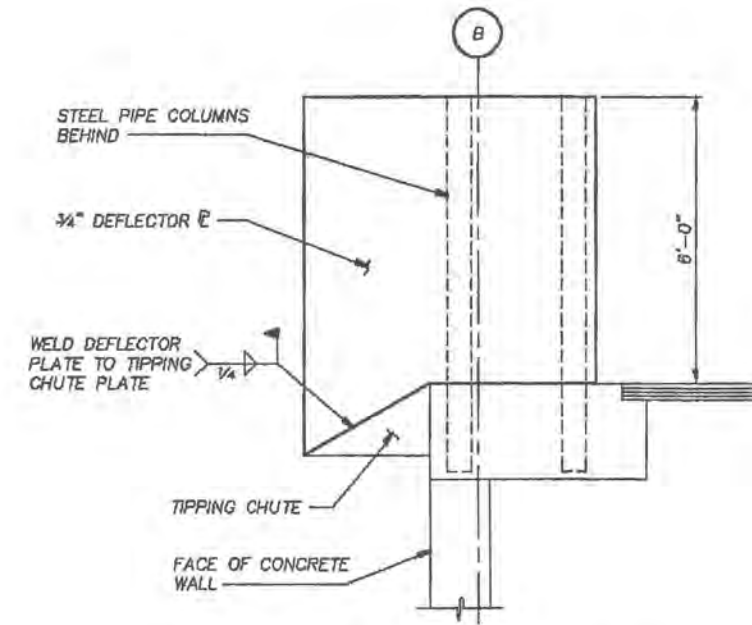
SLAB EDGE SECTION B
 1/2" = 1'-0"



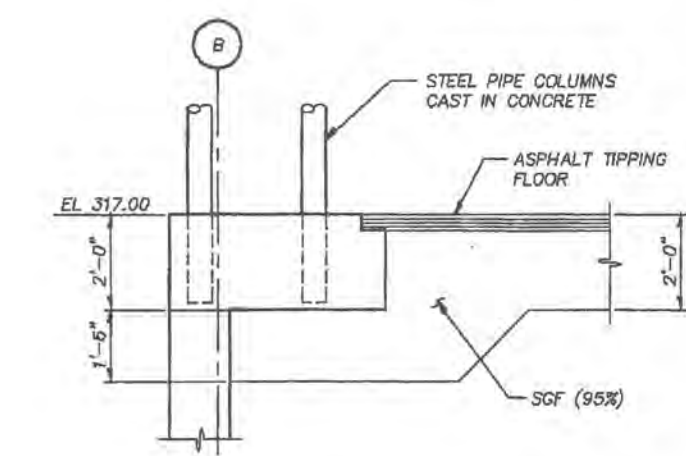
DEFLECTOR PLATE
DETAIL 4
 1/2" = 1'-0"



TIPPING CHUTE
DETAIL 3
 1 1/2" = 1'-0"



ELEVATION ALONG DEFLECTOR PLATE
 1/2" = 1'-0"



SECTION A
 1/2" = 1'-0"

NO.	REVISIONS	DATE	BY	DESIGNED	DRAWN	CHECKED	APPROVED
				K. DOUR	M. WILLIAMS		

SCALE	AS NOTED
DATE	MAY 1993

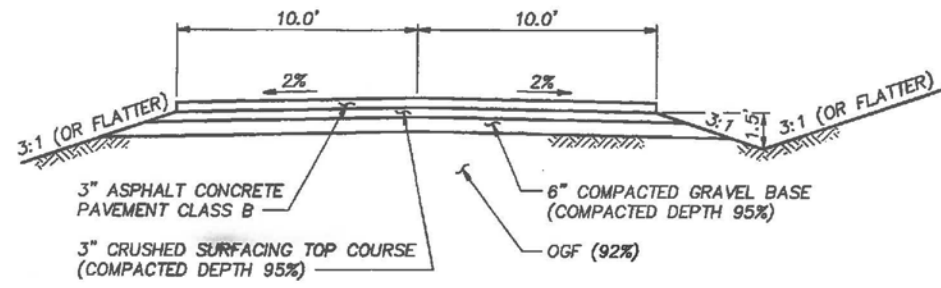


Parsonnet, Inc.
 WASHINGTON: Sumner, Bremerton, Kirkland
 OREGON: Portland
 HAWAII: Honolulu

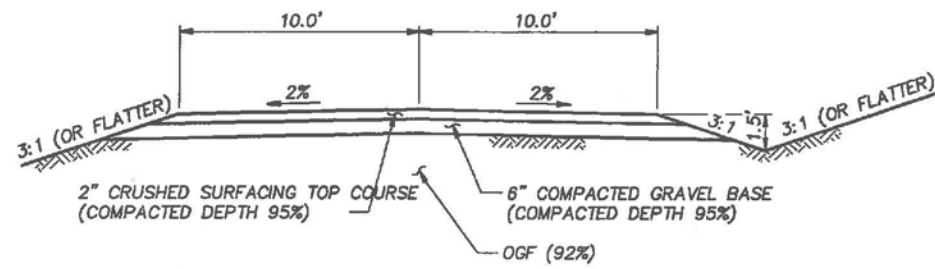
PROJECT NAME: MASON COUNTY DEPARTMENT OF COMMUNITY DEVELOPMENT MASON COUNTY LANDFILL CLOSURE SHELTON, WASHINGTON
 JOB NO. 21-1862-13 FILE NAME: 18621309

DETAILS AND SECTIONS

SHEET NO. 7 OF 14

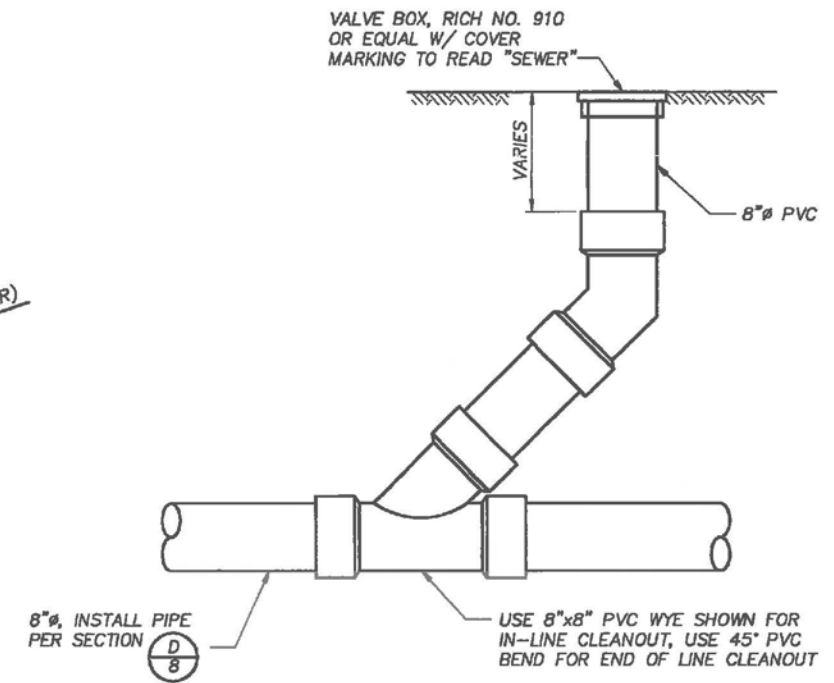


TYPICAL ASPHALT ROADWAY
SECTION **A**
NO SCALE

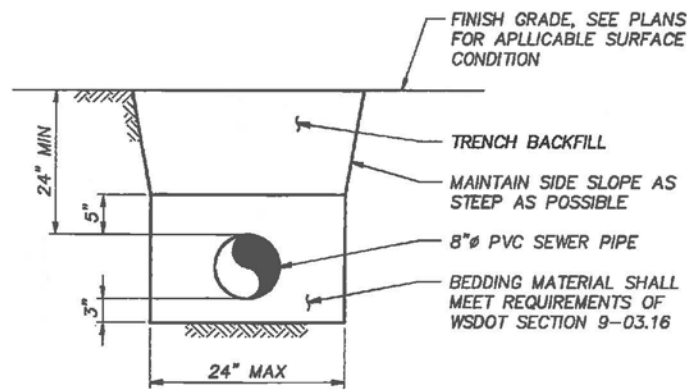


TYPICAL GRAVEL ROADWAY
SECTION **B**
NO SCALE

N.I.C-BY MASON COUNTY

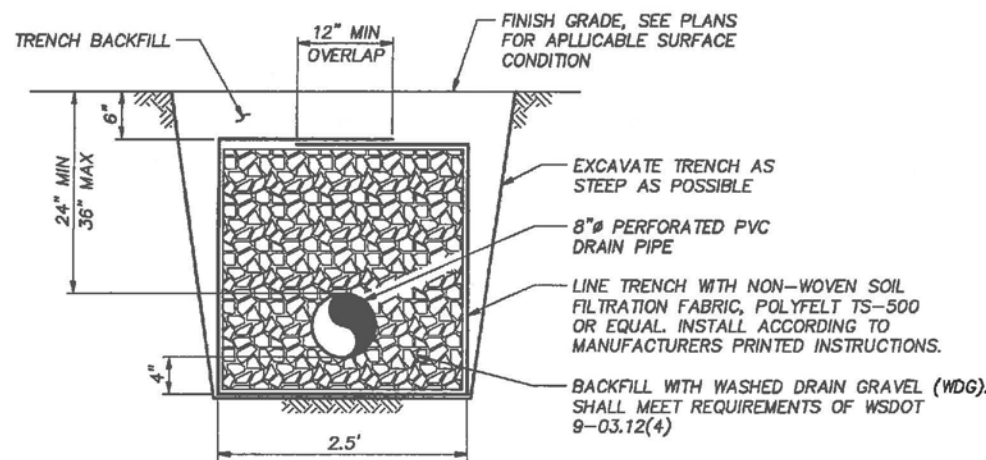


TYPICAL WASTEWATER SEWER CLEANOUT
SECTION **C**
NO SCALE

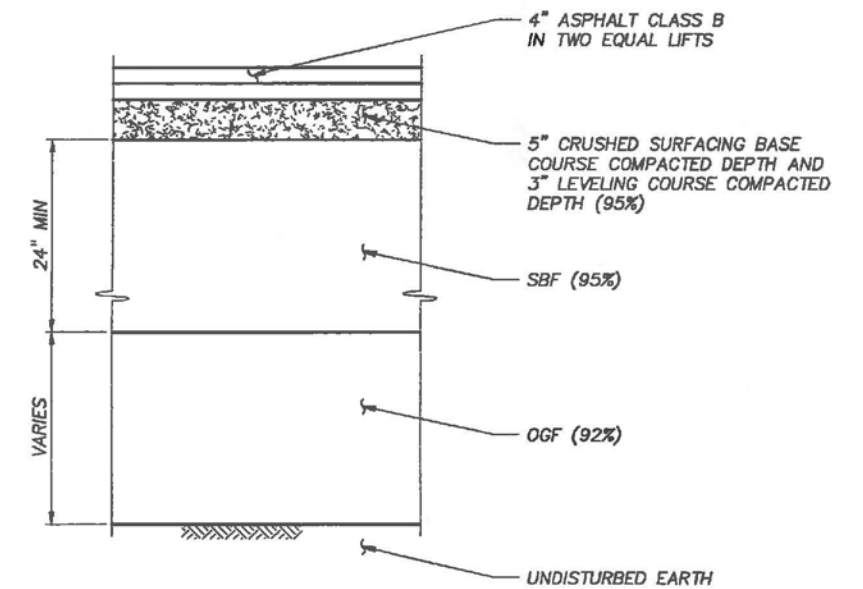


NOTE:
MINIMUM SLOPE OF 1 1/2%
SHALL BE MAINTAINED.

TYPICAL WASTEWATER LINE TRENCH
SECTION **D**
NO SCALE



TYPICAL STORMWATER DRAIN TRENCH
SECTION **E**
NO SCALE



ASPHALT TIPPING FLOOR
SECTION **F**
NO SCALE

NO.	REVISIONS	DATE	BY	DESIGNED
				K. DOUR
				M. WILLIAMS

SCALE	AS NOTED
DATE	MAY 1993



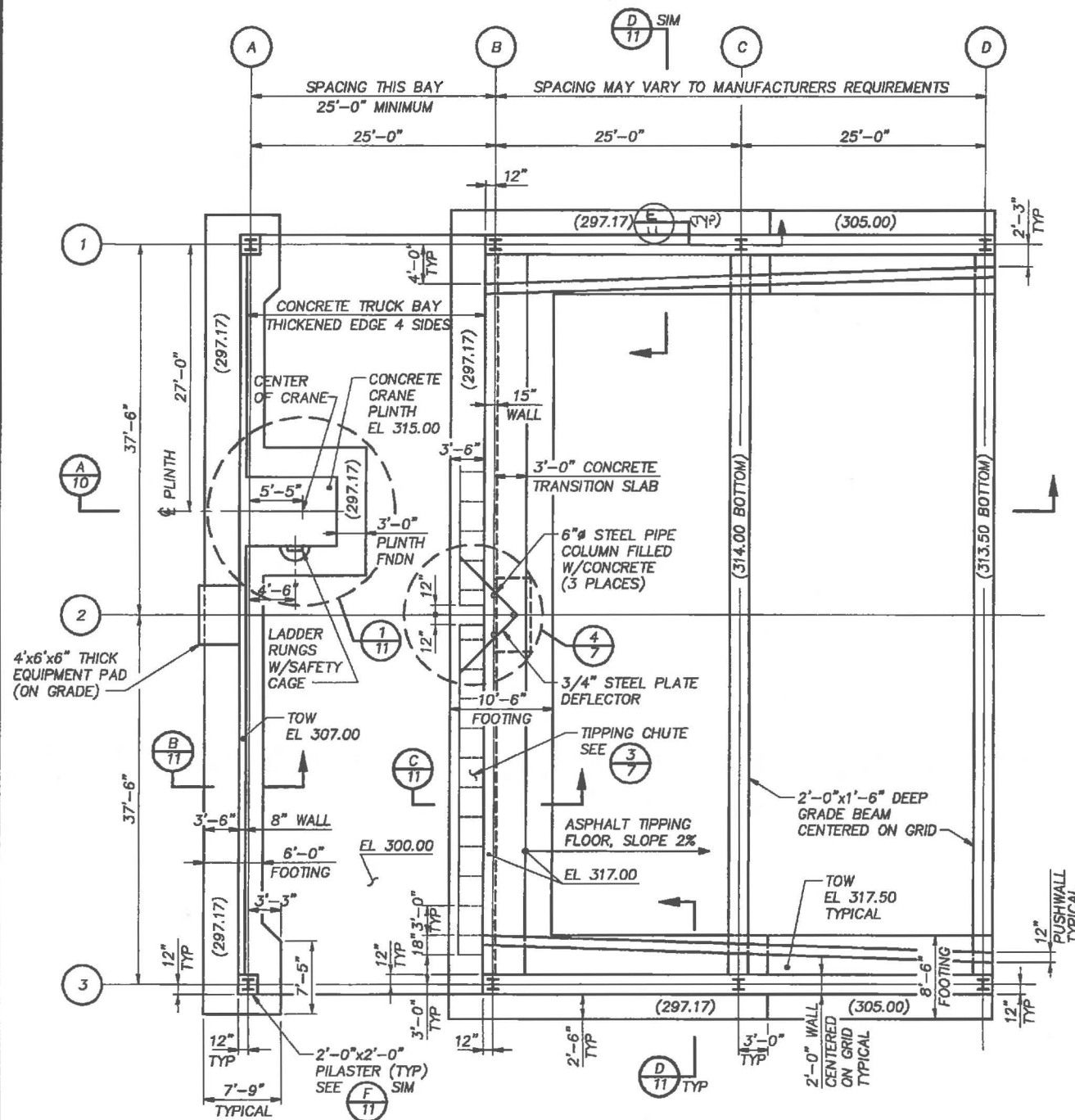
Parametrix, Inc.

WASHINGTON	OREGON
Sumner	Portland
Bremerton	HAWAII
Kirkland	Honolulu

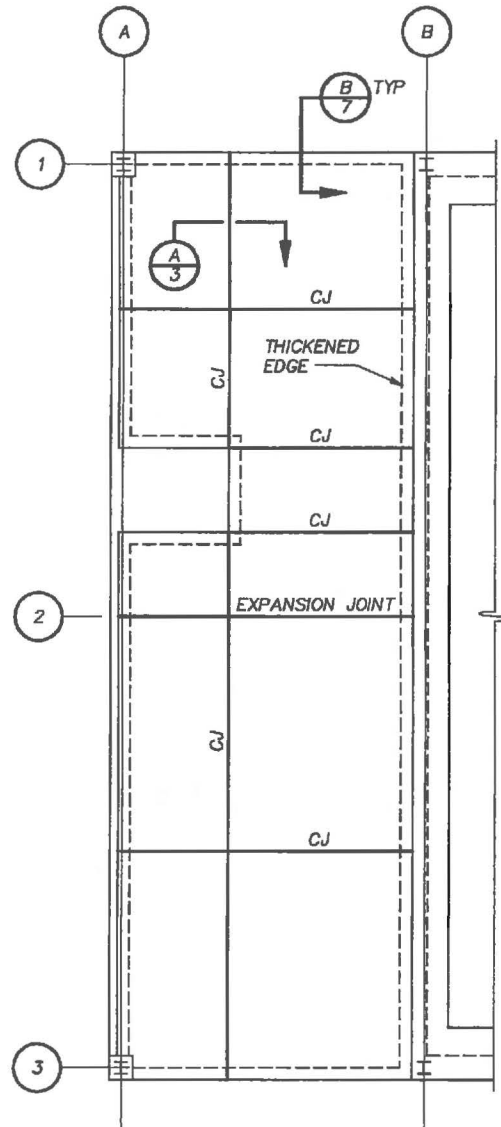
PROJECT NAME
**MASON COUNTY DEPARTMENT OF
COMMUNITY DEVELOPMENT
MASON COUNTY LANDFILL CLOSURE**
SHELTON, WASHINGTON

JOB NO. 21-1862-13 FILE NAME 18621310

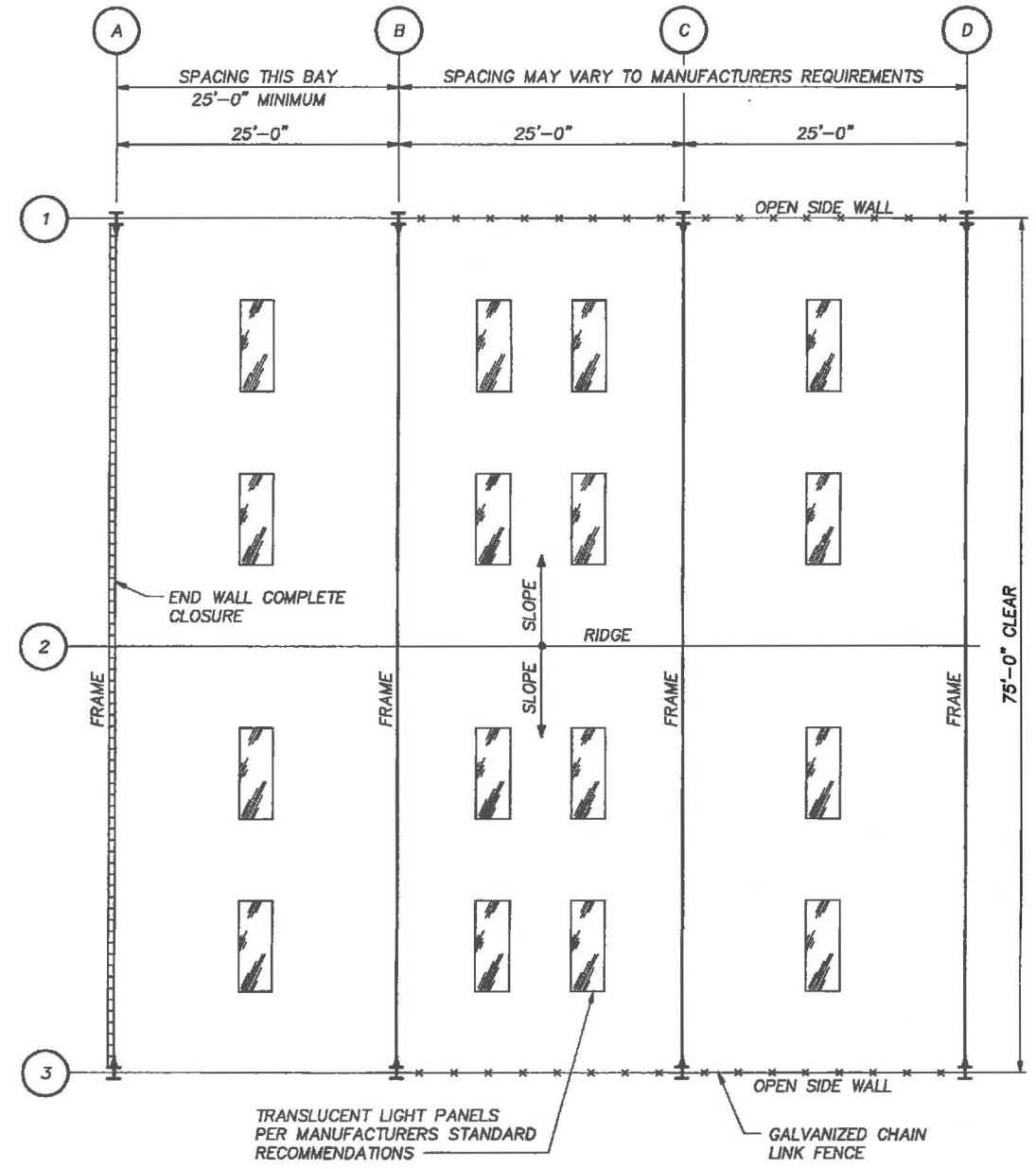
TYPICAL SECTIONS



FOUNDATION PLAN
 1/8" = 1'-0"
 (XXX.XX) INDICATES TOP OF FOOTING ELEVATION



PARTIAL PLAN AT EL 300.00
 1/8" = 1'-0"

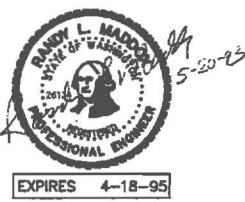


DIMENSIONAL FRAMING PLAN FOR PRE-ENGINEERED BUILDING
 1/8" = 1'-0"

- DESIGN CRITERIA FOR PRE-ENGINEERED BUILDING**
1. WIND - 80 MPH EXPOSURE "C"
 ROOF LIVE LOAD - 25 PSF
 SEISMIC - ZONE 3
 2. MANUFACTURER TO PROVIDE ANCHOR BOLT LAYOUT AND TEMPLATE TO FOUNDATION CONTRACTOR.
 3. ENGINEER SHALL BE NOTIFIED 2 DAYS IN ADVANCE OF POUR TO VERIFY ANCHOR BOLT PATTERN.

NO.	REVISIONS	DATE	BY	DESIGNED
				R. MADDOX
				M. WILLIAMS

SCALE
 TWO INCHES AT FULL SCALE
 IF NOT SCALE ACCORDINGLY
 AS NOTED
 DATE MAY 1993

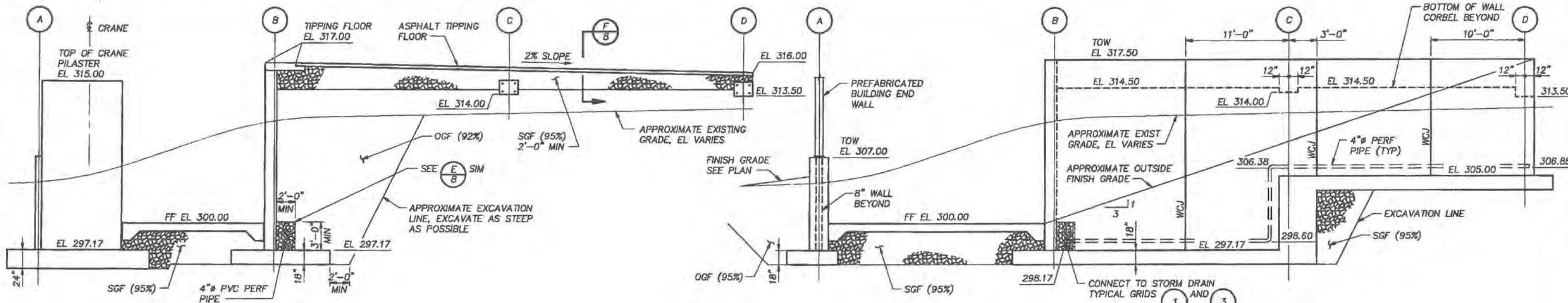


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 OREGON: Portland
 HAWAII: Honolulu

PROJECT NAME
**MASON COUNTY DEPARTMENT OF COMMUNITY DEVELOPMENT
 MASON COUNTY LANDFILL CLOSURE**
 JOB NO. 21-1682-13 FILE NAME: 16821307

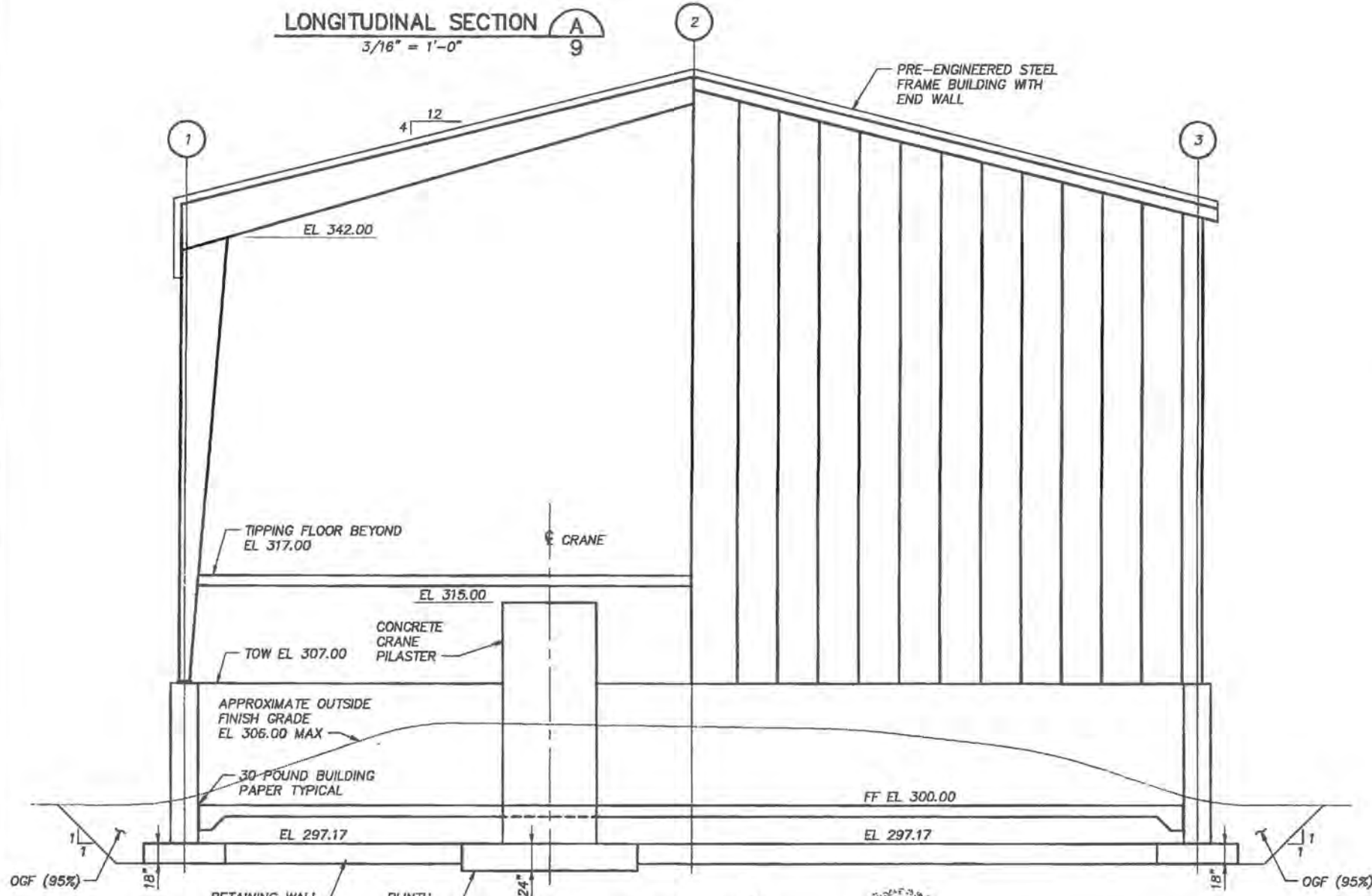
FOUNDATION AND FRAMING PLANS

SHEET NO.
 9 / 14

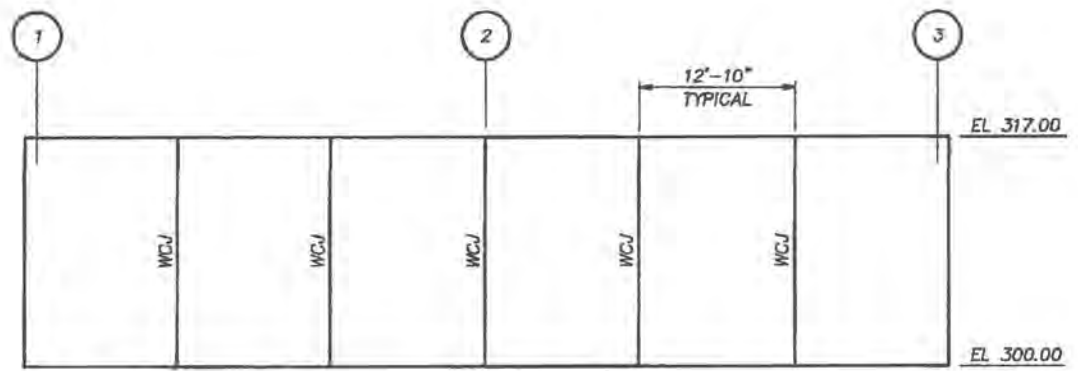


LONGITUDINAL SECTION
 $3/16" = 1'-0"$

ELEVATION AT GRID 1, 3 SIMILAR
 $3/16" = 1'-0"$



ELEVATION AT GRID A
 $3/16" = 1'-0"$



ELEVATION AT GRID B
 $1/8" = 1'-0"$

NO.	REVISIONS	DATE	BY	DESIGNED
				R. MADDOX
				M. WILLIAMS
				A.S.

SCALE	AS NOTED
DATE	MAY 1993

Randy M. Madox
 4-18-95

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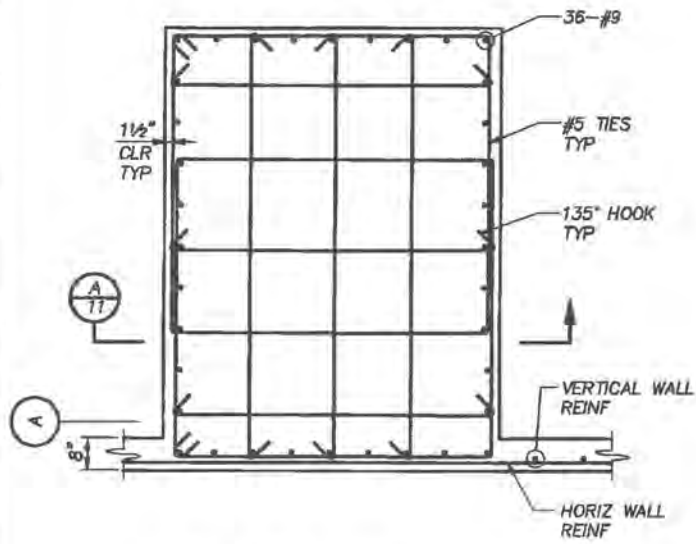
WASHINGTON Sumner Bremerton Kirkland	OREGON Portland HAWAII Honolulu
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PROJECT NAME
**MASON COUNTY DEPARTMENT OF
 COMMUNITY DEVELOPMENT
 MASON COUNTY LANDFILL CLOSURE**

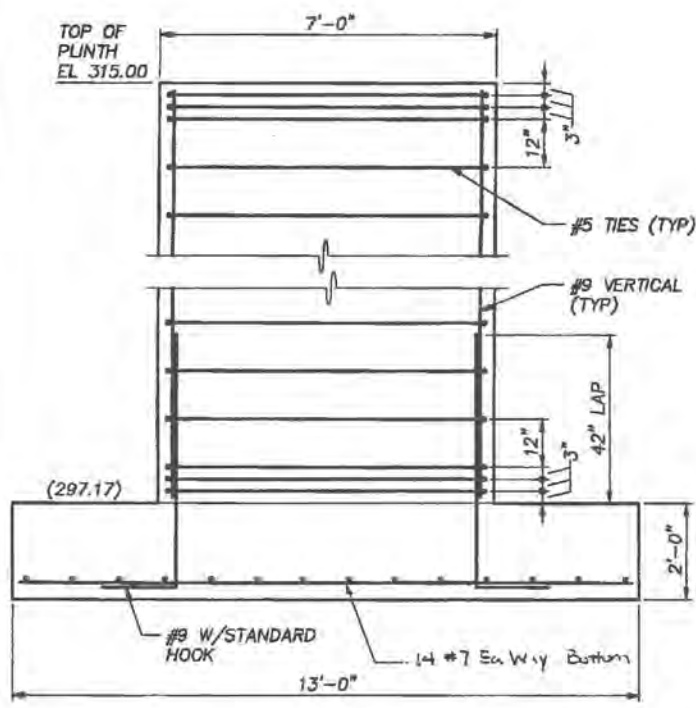
JOB NO. 21-1862-13 FILE NAME: 18821308

**TYPICAL BUILDING
 SECTIONS AND ELEVATION**

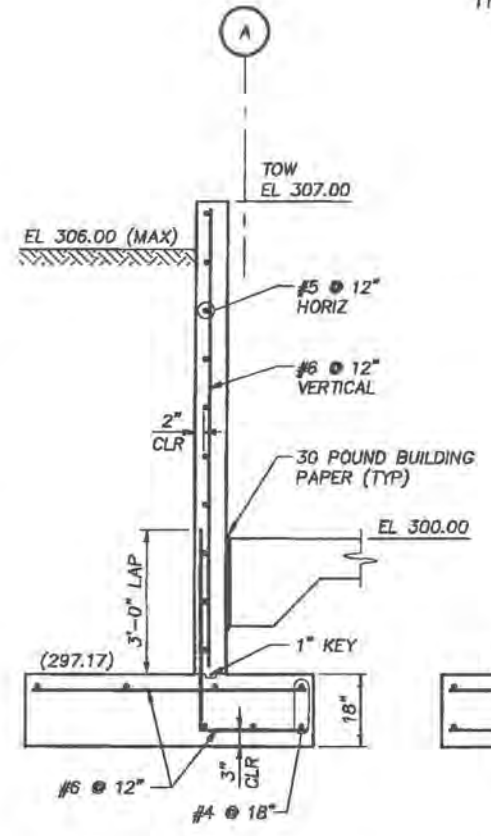
SHEET NO.	10
	14



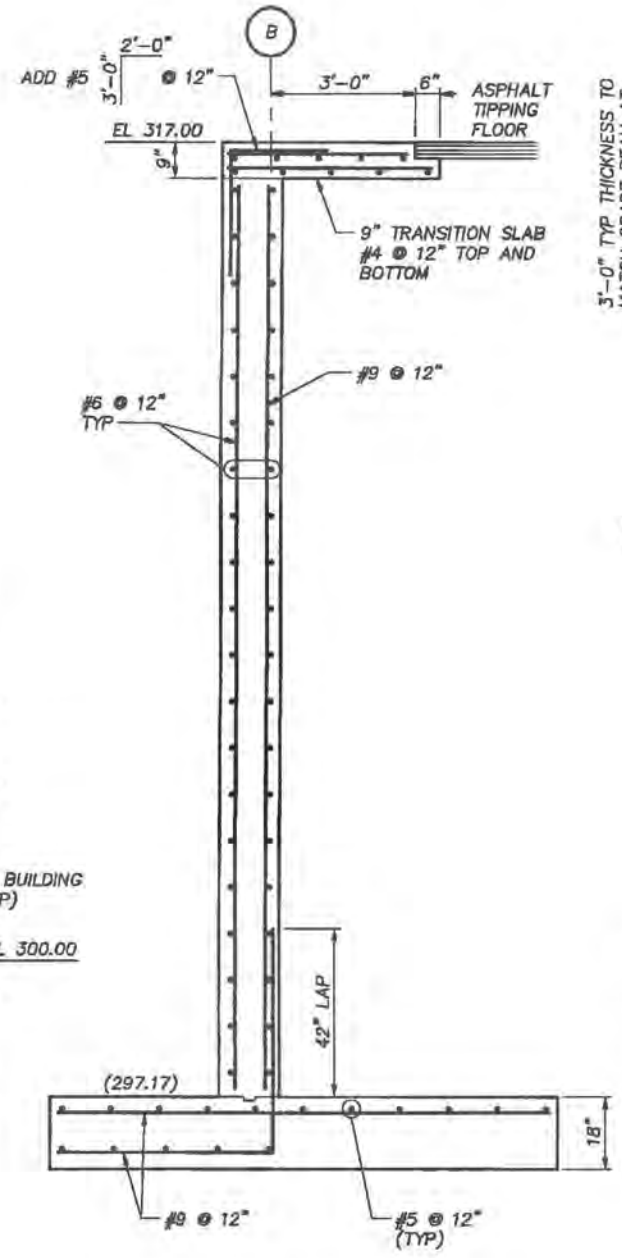
**CRANE PLINTH
DETAIL**
1/2" = 1'-0" 1/9



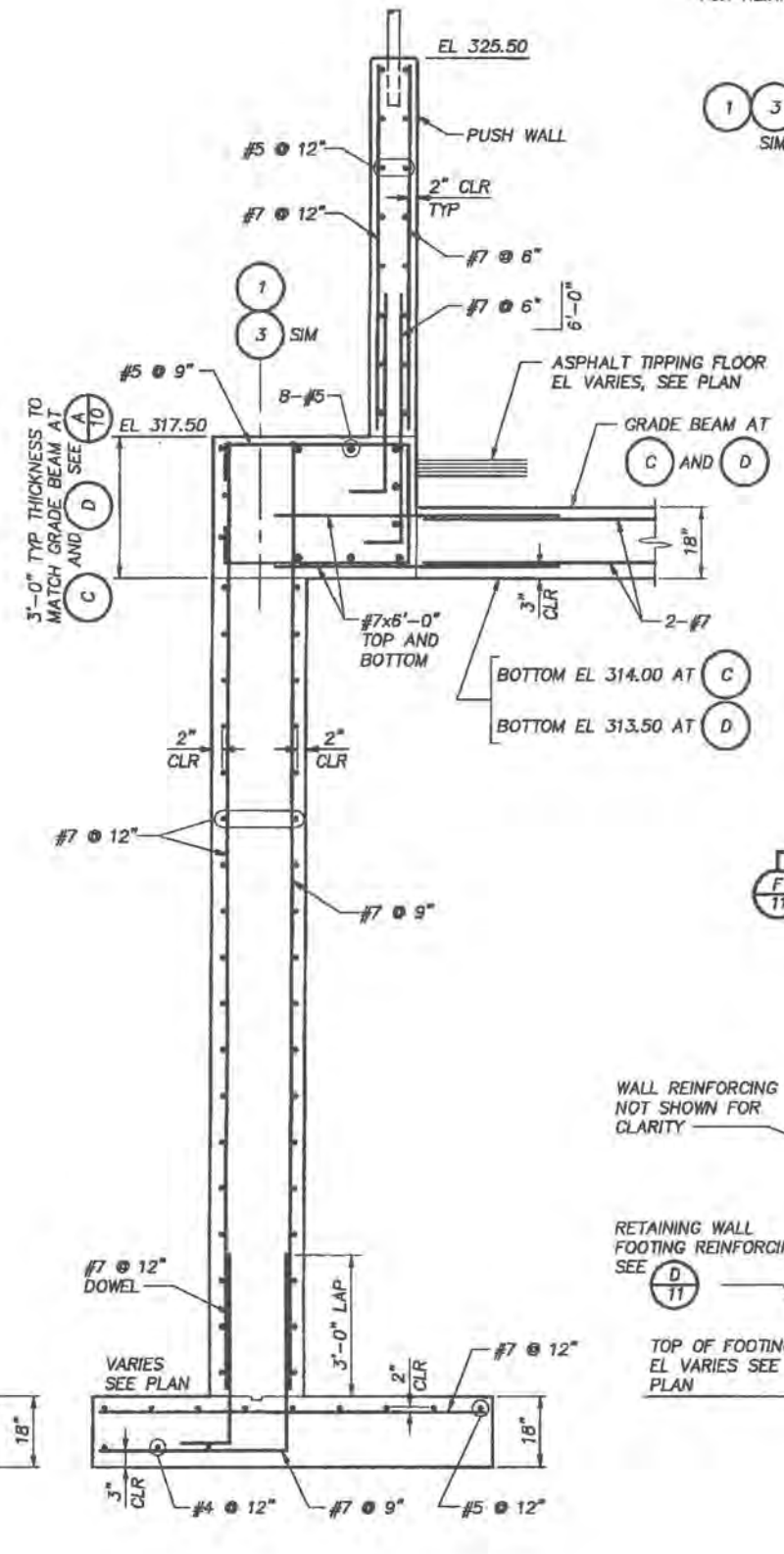
SECTION A
1/2" = 1'-0" 1/9



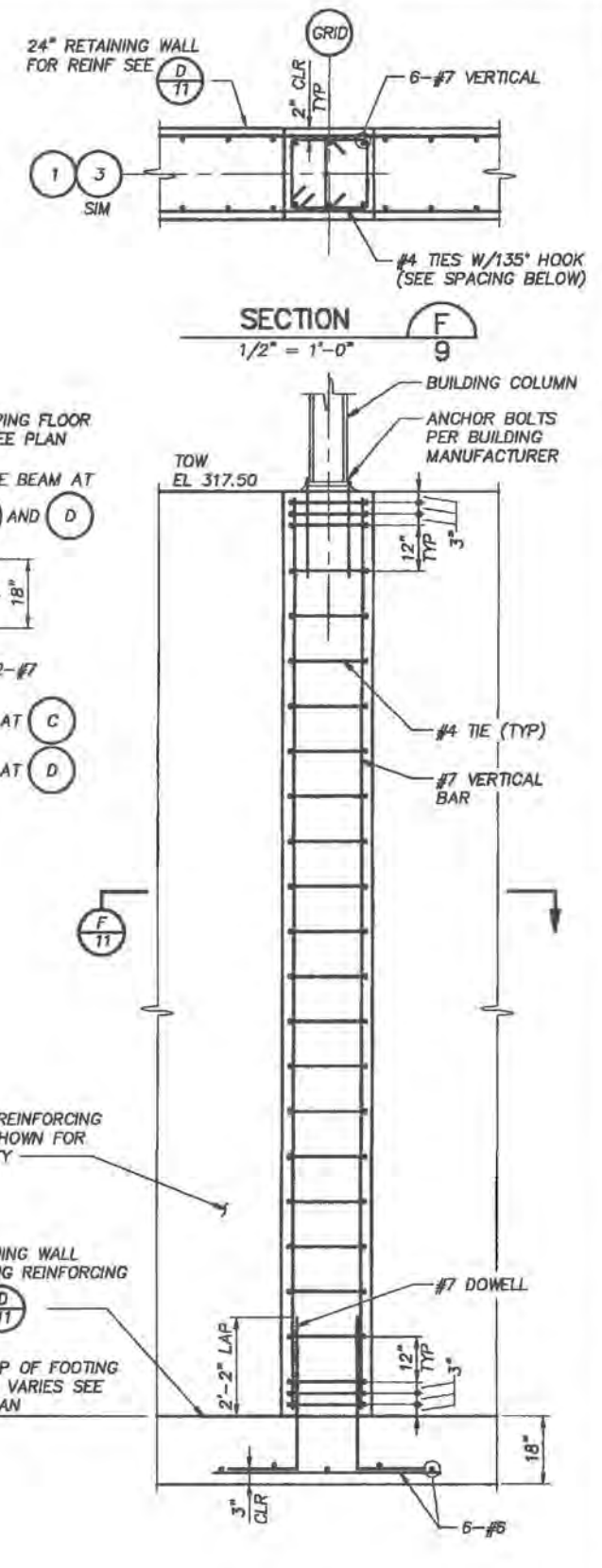
SECTION B
1/2" = 1'-0" 1/9



SECTION C
1/2" = 1'-0" 1/9



SECTION D
1/2" = 1'-0" 1/9



SECTION E
1/2" = 1'-0" 1/9

NO.	REVISIONS	DATE	BY
DESIGNED	R. MADDOX		
DRAWN	M. WILLIAMS		
CHECKED			
APPROVED			

SCALE	AS NOTED
DATE	MAY 1993

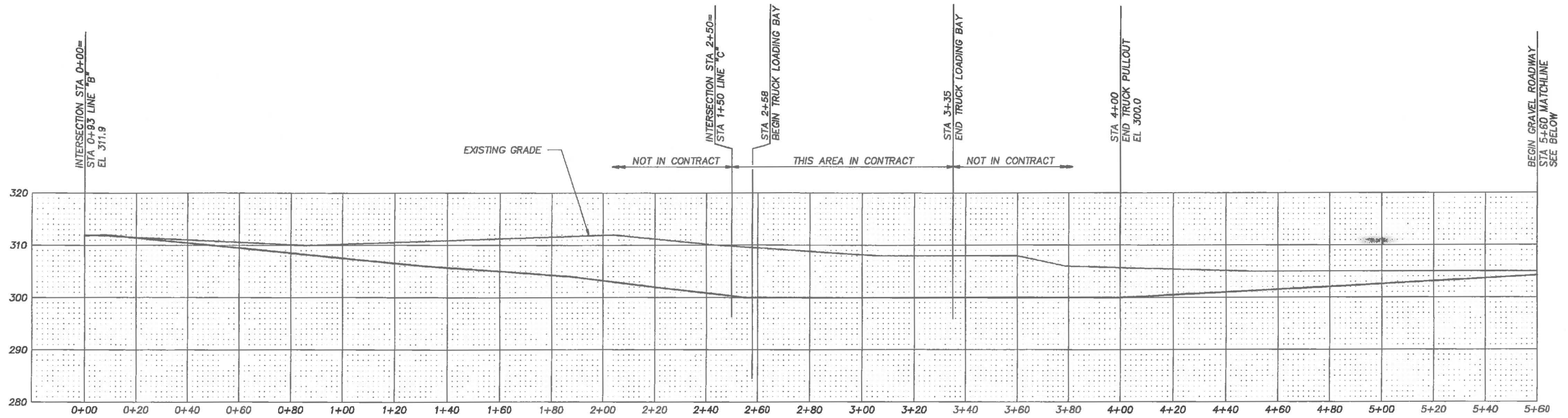


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 WASHINGTON: Sumner, Bremerton, Kirkland
 OREGON: Portland
 HAWAII: Honolulu

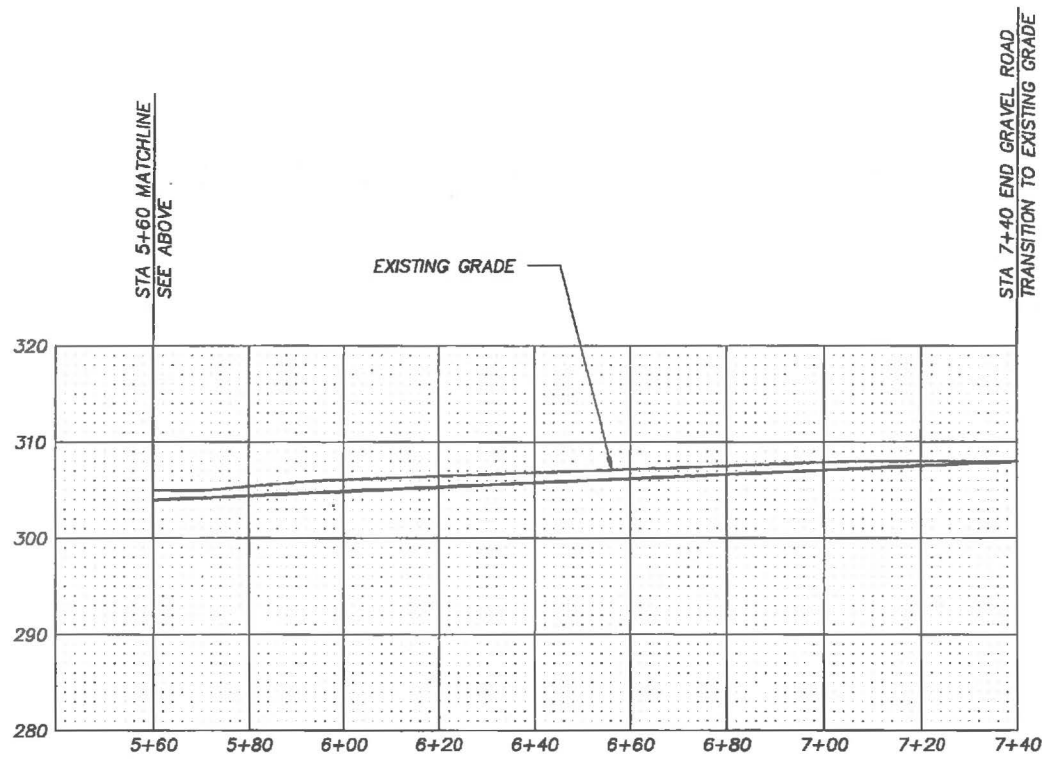
PROJECT NAME: MASON COUNTY DEPARTMENT OF COMMUNITY DEVELOPMENT
 MASON COUNTY LANDFILL CLOSURE
 SHELTON, WASHINGTON
 JOB NO. 21-1862-13 FILE NAME: 18621314

STRUCTURAL DETAILS

SHEET NO. 11/14



LINE "A"

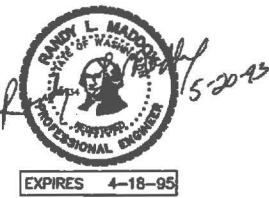


LINE "A"

NO.	REVISIONS	DATE	BY

DESIGNED
R. MADDOX
DRAWN
M. WILLIAMS
CHECKED
[Signature]
APPROVED
[Signature]

SCALE HORIZ: 1"=20'
VERT: 1"=10'
DATE
MAY 1993



Parametrix, Inc.

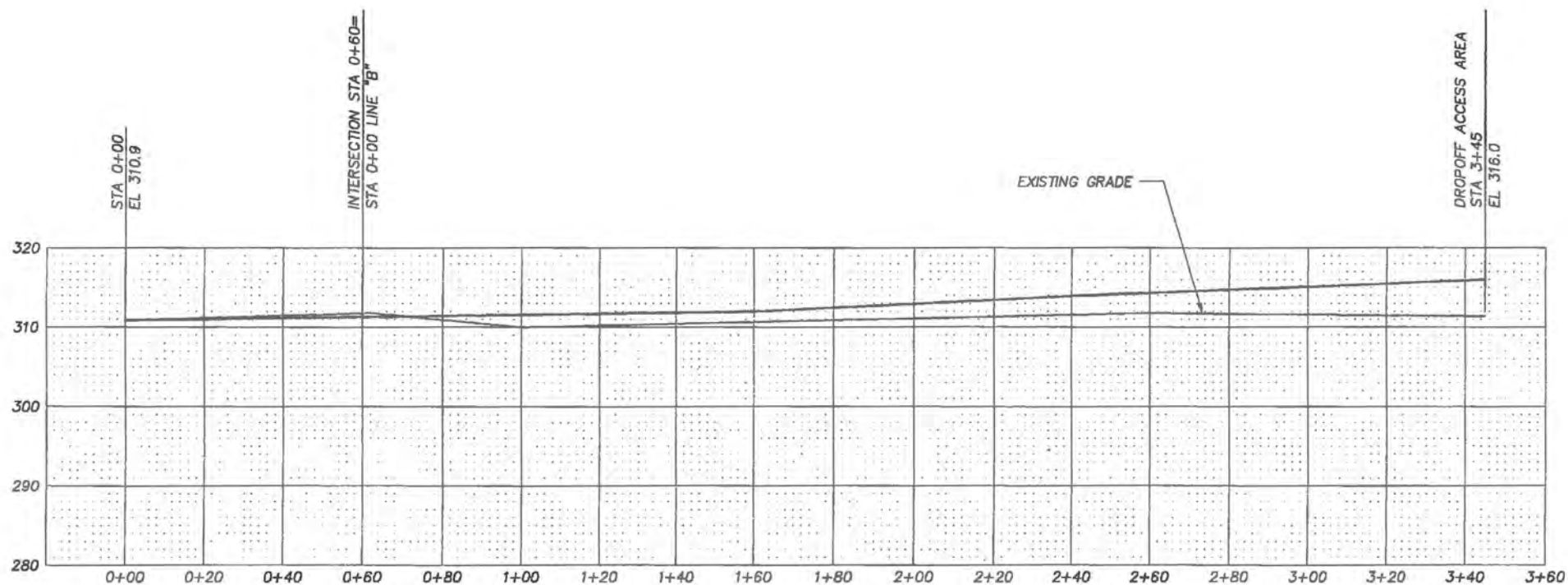
WASHINGTON Sumner Bremerton Kirkland	OREGON Portland HAWAII Honolulu
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PROJECT NAME
MASON COUNTY DEPARTMENT OF
COMMUNITY DEVELOPMENT
MASON COUNTY LANDFILL CLOSURE
SHELTON, WASHINGTON

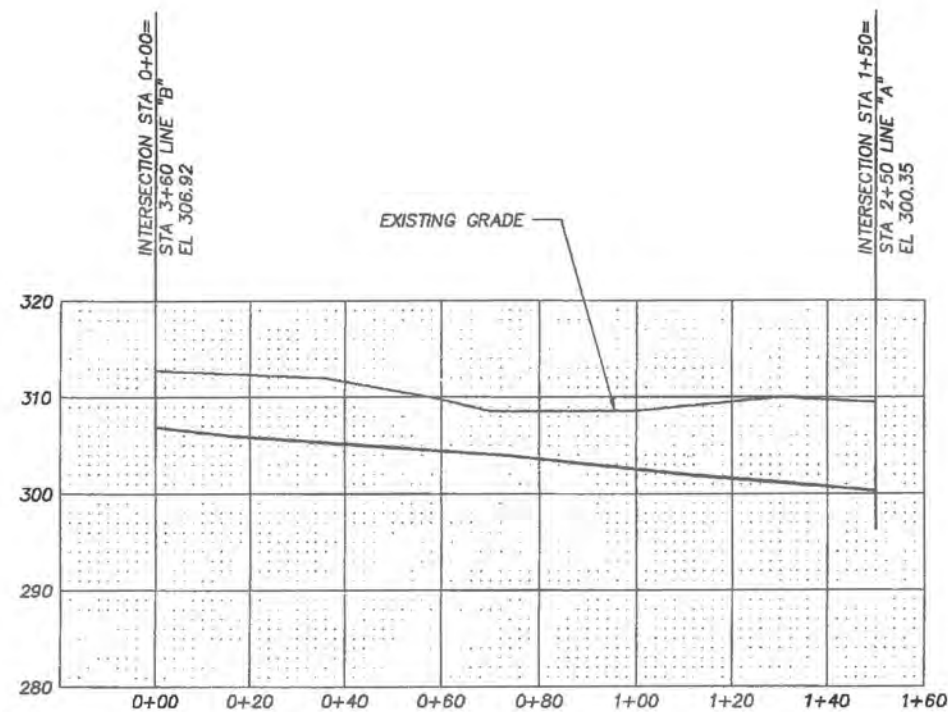
JOB NO. 21-1682-13 FILE NAME: 18821311

PROFILE
LINE "A"

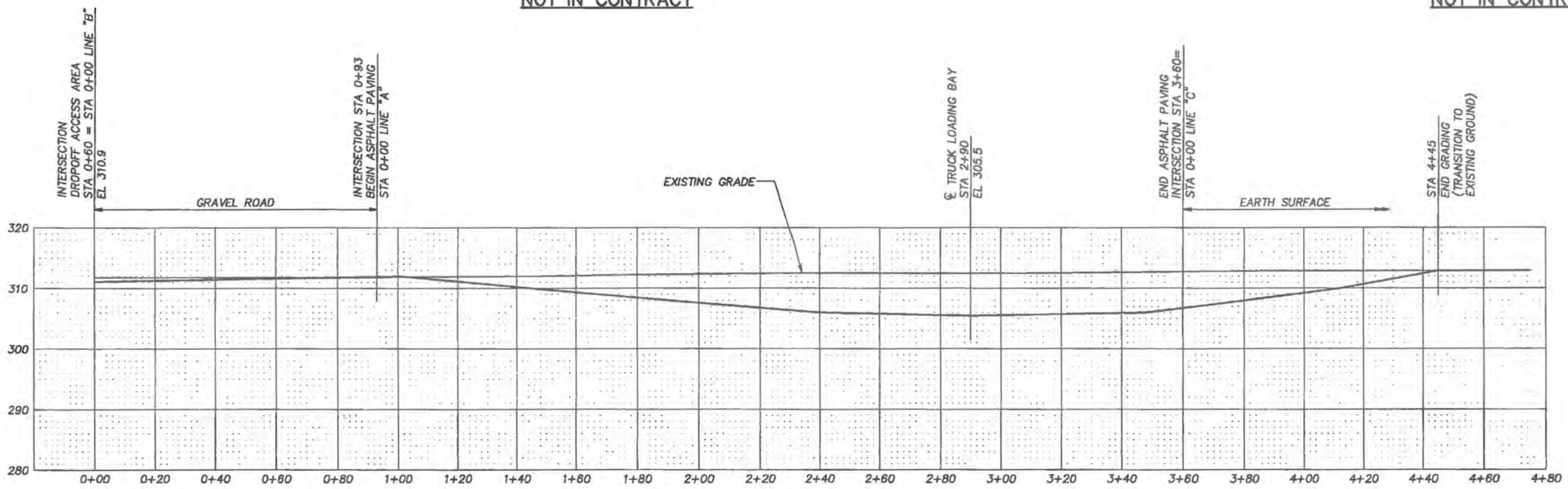
SHEET NO.
12 / 14



GRAVEL DROPOFF ACCESS ROAD
NOT IN CONTRACT



LINE "C"
NOT IN CONTRACT

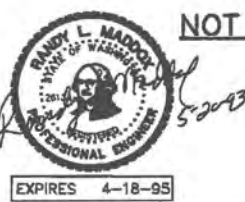


LINE "B"
NOT IN CONTRACT

NO.	REVISIONS	DATE	BY
	DESIGNED R. MADDOX		
	DRAWN M. WILLIAMS		
	CHECKED <i>[Signature]</i>		
	APPROVED <i>[Signature]</i>		

SCALE HORIZ: 1"=20'
VERT: 1"=10'

DATE MAY 1993



Parametrix, Inc.

WASHINGTON: Sumner, Bremerton, Kirkland
OREGON: Portland
HAWAII: Honolulu

PROJECT NAME
MASON COUNTY DEPARTMENT OF
COMMUNITY DEVELOPMENT
MASON COUNTY LANDFILL CLOSURE
SHELTON, WASHINGTON

JOB NO. 21-1682-13 FILE NAME: 16821312

PROFILES
GRAVEL ROAD, LINE "C" AND LINE "B"

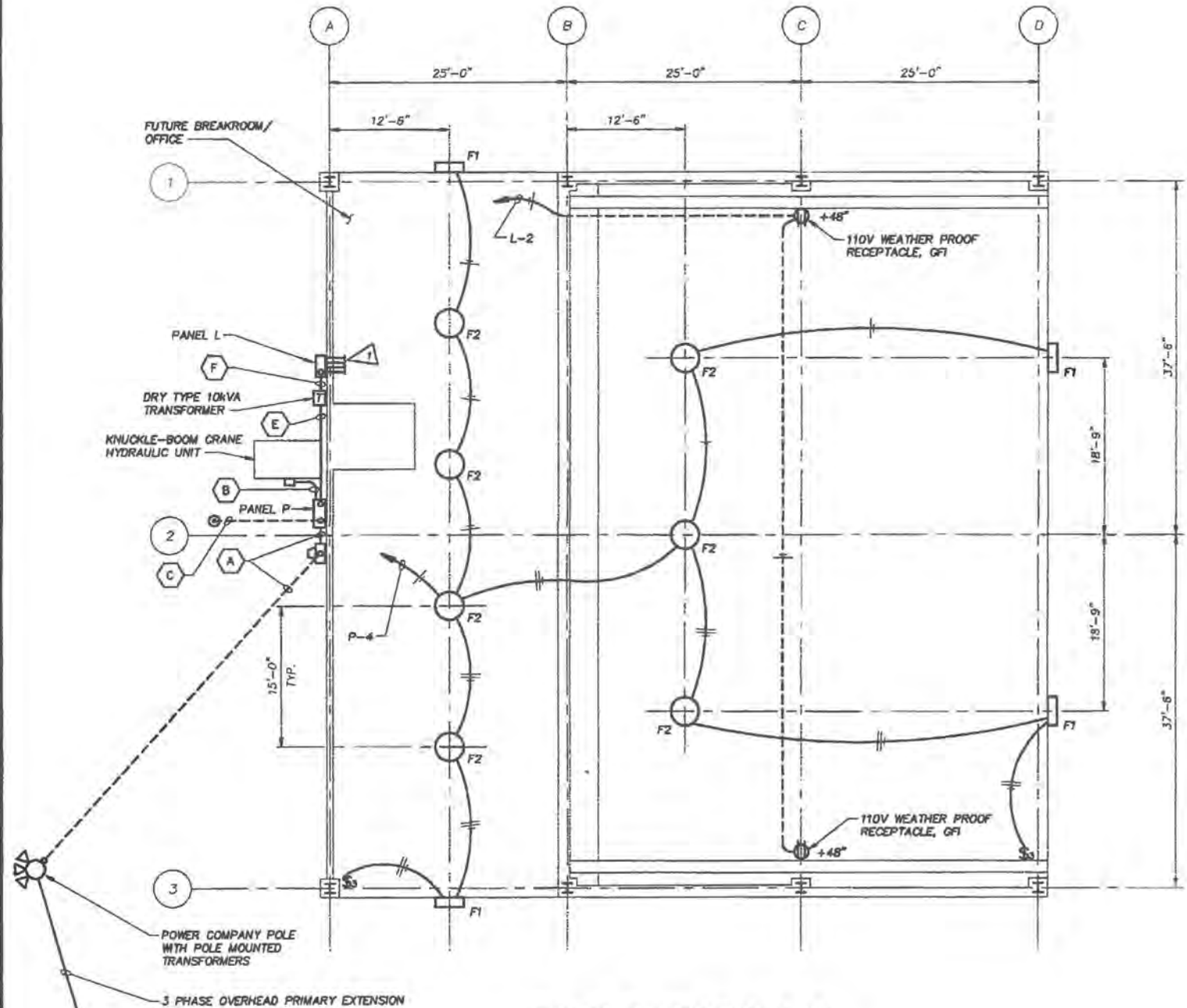
SHEET NO.
13 / 14

LEGEND

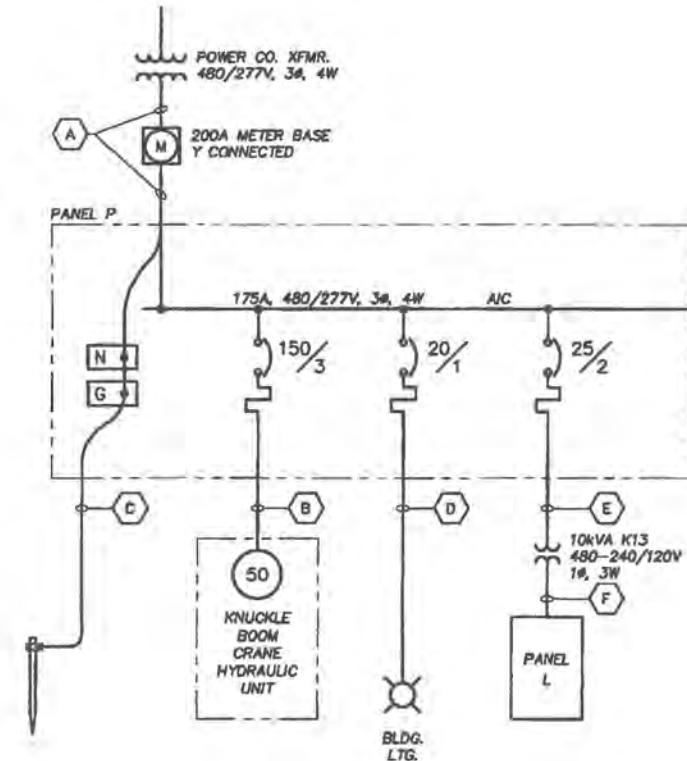
	LIGHTING FIXTURE - F1 INDICATES TYPE SPECIFIED
	CONDUIT HOME-RUN, 3/4" C, 3#12 UNLESS OTHERWISE SHOWN
	CONDUIT - EXPOSED
	CONDUIT - EMBEDDED
	DUPLEX RECEPTACLE
	SWITCH - 3 INDICATES 3 WAY

NOTES:

STUB 4-1" GRS CONDUITS THRU WALL & CAP FOR FUTURE EXTENSION.



POWER & LIGHTING PLAN
1/8" = 1'-0"



TRANSFER STATION ONE LINE DIAGRAM

- A 2" C, 4#2/0
- B 1-1/4" C, 3#4 & 1#8G
- C 1/2" PVC, 1#4G
- D 3/4" C, 2#12 & 1#12G
- E 3/4" C, 2#10 & 1#10G
- F 1" C, 3#8 & 1#10G

LOAD	HP	KVA	DF	KVA
CRANE	50	52	1.25	65
LIGHTING		4	1.25	5
MISC		10	1	10
TOTAL				80

AMPS @ 480V, 3φ = 96 AMPS

NO. L	LOCATION: TRANSFER STATION SERVING: LIGHTING & RECEPTACLES	240/120 VOLTS 1 PHASE 3 WIRE 100 AMP WITH MAIN BREAKER	NO. L	LOAD DESCRIPTION	NO. L
1	SPARE	20	2	TIPPING FLOOR RECEPTS.	2
3	SPARE	20	4	BREAK RM HEATING (F)	4
5	SPARE	15	6	BREAK RM HEATING (F)	6
7	SPARE	15	8	BREAK RM LIGHTING (F)	8
9	SPACE	20	10	BREAK RM RECEPTS. (F)	10
11	SPACE	20	12	SPACE	12
13	SPACE	20	14	SPACE	14
15	SPACE	20	16	SPACE	16
17	SPACE	20	18	SPACE	18
19	SPACE	20	20	SPACE	20

REMARKS (F) - FOR FUTURE USE-LOADS SHOWN
SPARE - ESTIMATED LOAD BKW

CONNECTED LOAD 5.2 KVA 21.7 AMPS
DEMAND LOAD KVA AMPS



NO.	REVISIONS	DATE	BY	DESIGNED	DRAWN	CHECKED	APPROVED
				KLA	TMC	RJC	

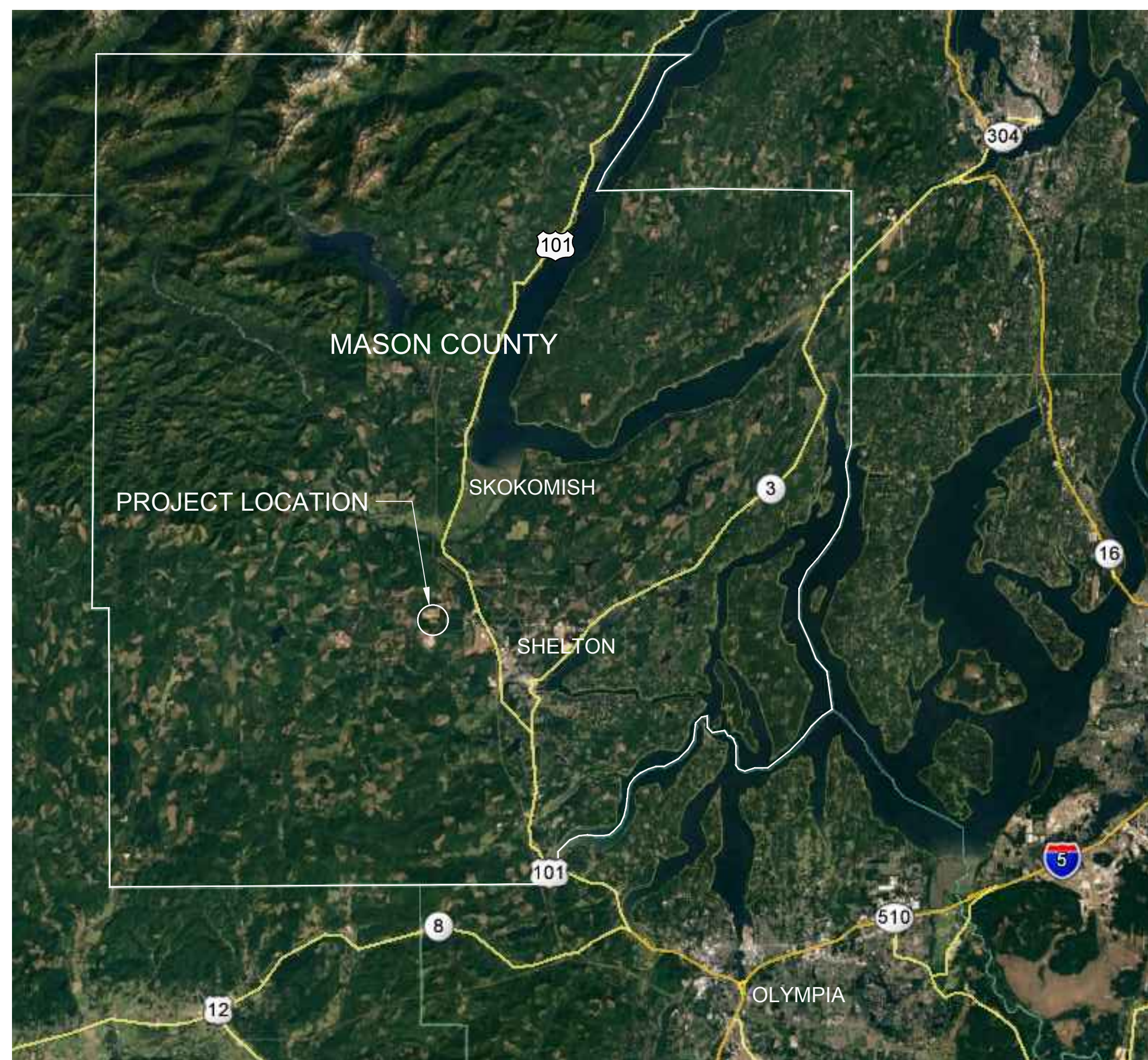
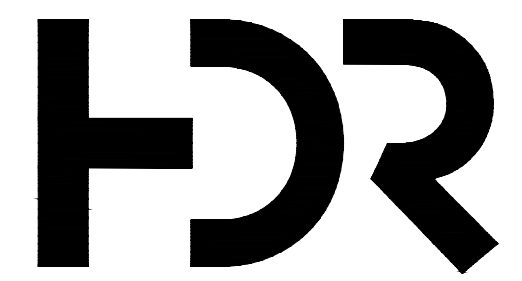
SCALE: AS NOTED
DATE: MAY 1993

CASNE ENGINEERING, INC.
PO BOX 7207 BELLEVUE, WA 98008 (206) 484-3559

Parametrix, Inc.
WASHINGTON: Sumner, Bremerton, Kirkland
OREGON: Portland
HAWAII: Honolulu

PROJECT NAME: MASON COUNTY SOLID WASTE DEPARTMENT WASTE EXPORT TRANSFER STATION
JOB NO. 21-1862-13 FILE NAME: 18621313

ELECTRICAL POWER & LIGHTING PLAN



Contract Drawings For

Mason County Transfer Station

Eells Hill Transfer Station Improvements

90% Submittal

Project No.
10059970

Shelton, Mason County, Washington
August, 2017

INDEX OF DRAWINGS

GENERAL

G-001 COVER SHEET
G-002 GENERAL NOTES

CIVIL

C-001 EXISTING CONDITIONS AND DEMOLITION PLAN
C-002 PROPOSED UTILITIES AND PAVING PLAN
C-003 DETAILS

STRUCTURAL

S-001 TRANSFER STATION - EXISTING CONDITIONS AND DEMOLITION, PLAN
S-002 TRANSFER STATION - EXISTING CONDITIONS AND DEMOLITION, SECTION AND DETAILS
S-003 TRANSFER STATION - LOADING BAY AND TIPPING FLOOR IMPROVEMENTS PLAN
S-004 TRANSFER STATION - LOADING BAY WASTE CHUTE, PLAN AND SECTION
S-005 TRANSFER STATION - LOADING BAY WASTE CHUTE, SECTION
S-006 TRANSFER STATION - LOADING BAY WASTE CHUTE, SECTIONS, VIEWS AND DETAILS
S-007 TRANSFER STATION - LOADING BAY STAIRCASE REWORK, PLAN, VIEW AND DETAIL
S-008 TRANSFER STATION - OUTDOOR STAIRCASE AND WALKWAY, PLAN, SECTION AND DETAILS
S-009 DETAILS

STRUCTURAL

GENERAL

UNLESS NOTED OTHERWISE (UNO):

- G1. **SCOPE**
THE NOTES ON THIS SHEET AND THE STANDARD STRUCTURAL DETAILS ARE GENERAL AND APPLY TO THE ENTIRE PROJECT WHETHER SPECIFICALLY CALLED OUT OR NOT, EXCEPT WHERE THERE ARE SPECIFIC INDICATIONS TO THE CONTRARY ON STRUCTURAL SHEETS. IF THERE ARE QUESTIONS, THEY SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER AND ANSWERED IN WRITING PRIOR TO CONSTRUCTION.
- G2. **APPLICABLE SPECIFICATIONS AND CODES**
 - A. 2015 INTERNATIONAL BUILDING CODE (IBC)
 - B. ASCE 7-10, MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES
 - C. ACI 318-14, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
 - D. AISC STEEL CONSTRUCTION MANUAL, 14TH EDITION
 - E. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, CUSTOMARY U.S. UNITS, 7TH EDITION, WITH 2015 AND 2016 INTERIM REVISIONS
- 3. **SAFETY**
SAFETY AND STRUCTURE STABILITY DURING CONSTRUCTION ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. STRUCTURES HAVE BEEN DESIGNED TO RESIST THE DESIGN LOADS ONLY AS A COMPLETED STRUCTURE.
- 4. **OPENINGS**
OPENINGS FOR PIPES, DUCTS, CONDUITS, ETC. ARE NOT ALL SHOWN ON THE STRUCTURAL DRAWINGS. COORDINATE AND PROVIDE OPENINGS AS REQUIRED TO ACCOMMODATE ALL WORK SHOWN OR SPECIFIED IN THE CONTRACT DOCUMENTS AND OTHERWISE REQUIRED FOR THE FURNISHING OF A FUNCTIONALLY COMPLETE PROJECT. REINFORCE AROUND OPENINGS PER STANDARD STRUCTURAL DETAILS UNLESS OTHERWISE SHOWN.
- 5. **DIMENSIONS**
STRUCTURAL DIMENSIONS CONTROLLED BY OR RELATED TO MECHANICAL OR ELECTRICAL EQUIPMENT SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
- 6. **PROVISIONS FOR EQUIPMENT**
MECHANICAL AND ELECTRICAL EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, RECESSES AND REVEALS NOT SHOWN ON THE STRUCTURAL DRAWINGS BUT REQUIRED BY OTHER CONTRACT DOCUMENTS SHALL BE PROVIDED PRIOR TO CASTING CONCRETE.
- 7. **CONSTRUCTION JOINTS**
UNLESS OTHERWISE SHOWN, LOCATION OF ALL CONSTRUCTION JOINTS SHALL HAVE THE APPROVAL OF THE ENGINEER.
- 8. **STANDARD DETAILS**
THE STANDARD DETAILS DEPICT TYPICAL DETAILING TO BE USED ON THIS PROJECT. IF CONDITIONS ARE NOT EXPLICITLY SHOWN ON THE DRAWINGS THEY SHALL BE MADE SIMILAR TO THE STANDARD DETAILS. OBTAIN APPROVAL OF ENGINEER IN WRITING FOR SIMILAR CONDITIONS PRIOR TO CONSTRUCTION.
- 9. **EXISTING CONSTRUCTION**
THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS OF EXISTING CONSTRUCTION AS REQUIRED TO COORDINATE NEW CONSTRUCTION. SUBMIT REQUIRED CHANGES FOR APPROVAL.
- 10. **EQUIPMENT LOADING**
CONTRACTOR TO SUBMIT FOR REVIEW ALL EQUIPMENT SIZES, OPERATING WEIGHTS, VIBRATION FORCES, SUPPORT LOCATIONS, ALONG WITH ANY FLOOR OPENINGS, NOTCHES, AND RECESSES REQUIRED BY SUCH EQUIPMENT. CONCRETE SUPPORT PADS AND/OR FRAMING REQUIRED TO SUPPORT SAID EQUIPMENT SHALL NOT BE FABRICATED AND PLACED UNTIL THE CONCRETE SUPPORT PADS AND/OR FRAMING IS APPROVED TO SUPPORT THE EQUIPMENT.
- 11. **CONFLICTS**
IF THERE ARE CONFLICTS IN THE CONTRACT DOCUMENTS, THE MOST STRINGENT REQUIREMENTS SHALL CONTROL FOR BID PURPOSES. SUBMIT QUESTIONS IN WRITING TO ENGINEER FOR CLARIFICATION PRIOR TO CONSTRUCTION.

CONCRETE

UNLESS NOTED OTHERWISE:

- C1. **DESIGN STRENGTHS:**
F_c = 4,500 PSI
F_y = 60,000 PSI
- C2. **CONCRETE COVER:**
UNLESS OTHERWISE NOTED, PROVIDE CONCRETE COVER FOR REINFORCING AS FOLLOWS:
CONCRETE DEPOSITED AGAINST EARTH: 3"
TIE REINFORCING AT COLS: 1 1/2"
ALL OTHER: 2"
SEE DRAWINGS FOR EXCEPTIONS
- C3. ALL DETAILING, FABRICATION, AND ERECTION OF REINFORCING BARS, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE ACI MANUAL OF STANDARD PRACTICE. SEE SPECIFICATIONS FOR ADDITIONAL REINFORCING PLACEMENT REQUIREMENTS.
- C4. REFER TO OTHER DISCIPLINE DRAWINGS PRIOR TO CONSTRUCTION FOR EMBEDDED ITEMS AND PENETRATIONS NOT SHOWN ON STRUCTURAL DRAWINGS, AS REQUIRED TO ACCOMMODATE ALL WORK SHOWN OR SPECIFIED IN THE CONTRACT DOCUMENTS AND OTHERWISE REQUIRED FOR THE FURNISHING OF A FUNCTIONALLY COMPLETE PROJECT. REINFORCE AROUND OPENINGS PER STANDARD STRUCTURAL DETAILS UNLESS OTHERWISE SHOWN.
- C5. PROVIDE 3/4" CHAMFERS AT ALL EXPOSED EDGES AND 1/2" CHAMFERS AT JOINTS AS SHOWN. NOT ALL CHAMFERS MAY BE SHOWN ON DRAWINGS.
- C6. FIELD ADJUST REINFORCING AT OPENINGS AND EMBEDDED ITEMS AS INDICATED.
- C7. ANCHOR BOLTS NOT SPECIFIED BY ENGINEER SHALL BE DESIGNED AND CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER, RETAINED BY THE CONTRACTOR, IN ACCORDANCE WITH APPLICABLE PROJECT AND CODE REQUIREMENTS. SUBMIT AS A SHOP DRAWING FOR REVIEW AND APPROVAL BY THE ENGINEER. COORDINATE LOCATION, SIZE AND EMBEDMENT PRIOR TO CASTING CONCRETE.

CONCRETE

(CONTINUED)

- C8. CONTINUOUS WATERSTOP SHALL BE INSTALLED IN ALL JOINTS SUBJECT TO STATIC WATER PRESSURE AND IN ALL JOINTS BELOW GRADE SUBJECT TO GROUND WATER PRESSURE.
- C9. ABSOLUTELY NO WELDING OF REINFORCING BARS OR TORCHING TO BEND REINFORCING BARS SHALL BE ALLOWED WITHOUT SPECIFIC APPROVAL FROM THE STRUCTURAL ENGINEER.
- C10. CONTRACTOR SHALL SUBMIT A CONCRETE PLACEMENT PLAN PER SPECIFICATIONS IDENTIFYING JOINT TYPES, JOINT LOCATIONS AND CONCRETE PLACEMENT SEQUENCE.
- C11. ALL CAST-IN-PLACE AND POST-INSTALLED ANCHORS INDICATED IN THE STRUCTURAL DOCUMENTS SHALL COMPLY WITH CHAPTER 17 OF ACI 318 AND CHAPTER 19 OF THE IBC. ALL EXPANSION AND ADHESIVE ANCHORS SHALL HAVE AN ICC REPORT SHOWING EQUIVALENT LOAD CAPACITY. SUBMIT AND INSTALL PER THE ICC EVALUATION REPORT. ICC REPORT SHALL MEET REQUIREMENTS OF IBC 2015 FOR "CRACKED CONCRETE."

STEEL

UNLESS NOTED OTHERWISE:

- S1. **DESIGN STRENGTHS:**
 - WIDE FLANGE AND TEES: F_y=50 KSI
 - HSS SECTIONS: F_y=46 KSI
 - STAINLESS STEEL: F_y=33 KSI
 - ALL OTHER PLATES AND SHAPES: F_y=36 KSI
- S2. **DIMENSIONS:**
TO CENTERLINES OF COLUMNS AND BEAMS, TOP SURFACES OF BEAMS AND TUBES AND BACKS OF CHANNELS AND ANGLES.
- S3. **ELEVATIONS:**
TOP OF STEEL REFERS TO TOP SURFACE OF MEMBER OR FLANGE, UNO.
- S4. WELDING SHALL CONFORM TO AWS CODE FOR ARC AND GAS WELDING IN BUILDING CONSTRUCTION. WELDER SHALL BE CERTIFIED. WELDING ELECTRODE SHALL BE E70XX.
- S5. WHEN FILLET WELD SIZE IS NOT INDICATED, PROVIDE MAXIMUM WELD SIZE BASED ON MATERIAL THICKNESS IN ACCORDANCE WITH AISC SPECIFICATIONS.
- S6. BOLTS FOR STRUCTURAL STEEL CONNECTIONS SHALL BE HIGH STRENGTH CONFORMING TO ASTM A325. UNLESS OTHERWISE NOTED, INSTALLATION OF BOLTS SHALL CONFORM TO AISC SPECIFICATIONS FOR STRUCTURAL JOINTS, USING A325 BOLTS.
- S7. ALL BOLTED STRUCTURAL CONNECTIONS ARE BEARING TYPE CONNECTIONS UNLESS OTHERWISE SPECIFIED TO BE SLIP-CRITICAL. PROVIDE LOAD INDICATING WASHERS AT SLIP-CRITICAL CONNECTIONS.
- S8. CONFORM TO AISC 360, STEEL CONSTRUCTION MANUAL AND AISC 341, SEISMIC DESIGN MANUAL.
- S9. STEEL EXPOSED TO MOIST OR CORROSIVE ATMOSPHERES SHALL BE GALVANIZED. THESE STEEL APPLICATIONS INCLUDE BUT ARE NOT LIMITED TO STEEL FABRICATIONS WITHIN THE VAULT STRUCTURE AND EXPOSED TO WEATHER.
- S10. ALL STEEL BEAMS SHALL RECEIVE STANDARD CAMBER PER THE SPECIFICATIONS UNLESS NOTED OTHERWISE ON THE PLANS. BEAMS REQUIRING SPECIAL CAMBER ARE DENOTED ON THE BEAMS SHOWN ON THE FRAMING PLANS. EXAMPLE: (+1/2") INDICATES 1/2".
- S11. WELDED SHEAR STUDS SHALL BE MADE FROM COLD DRAWN BAR STOCK CONFORMING TO THE REQUIREMENTS OF AASHTO M 169, GRADES 1010 THROUGH 1020, INCLUSIVE, EITHER SEMI-KILLED OR KILLED DEOXIDATION. THE MATERIAL SHALL CONFORM TO THE FOLLOWING MECHANICAL PROPERTIES:

TENSILE STRENGTH 60,000 PSI MIN
YIELD STRENGTH 50,000 PSI MIN
ELONGATION 20% MIN
REDUCTION OF AREA 50%

MECHANICAL PROPERTIES SHALL BE DETERMINED IN ACCORDANCE WITH AASHTO METHODS AND DEFINITIONS T244. AT THE MANUFACTURER'S OPTION, MECHANICAL PROPERTIES OF THE STUDS SHALL BE DETERMINED BY TESTING EITHER THE STEEL AFTER COLD FINISHING, OR THE FULL DIAMETER FINISHED STUDS.

CIVIL



ISSUE	DATE	DESCRIPTION	PROJECT NUMBER	10059970

PRELIMINARY
NOT FOR
CONSTRUCTION



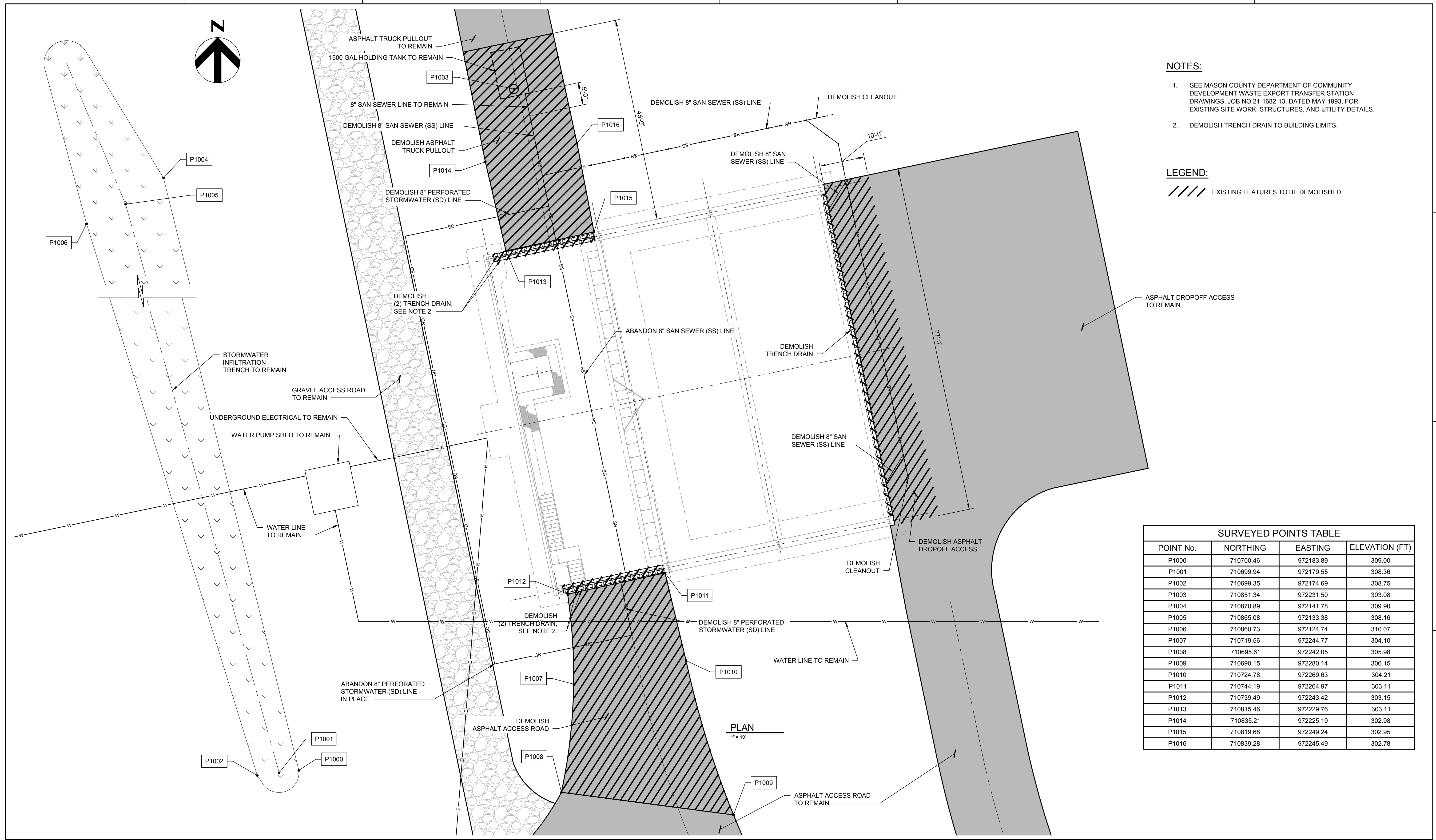
MASON COUNTY SOLID WASTE DEPT.
EELLS HILL TRANSFER STATION IMPROVEMENTS
SHELTON, WASHINGTON



GENERAL NOTES

FILENAME | G-001.dwg
SCALE | N/A

SHEET
G-001

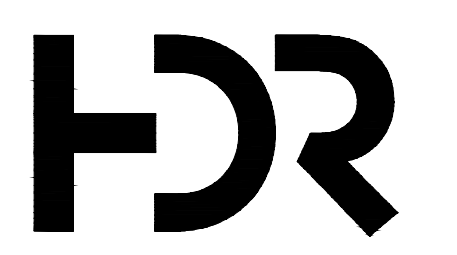


- NOTES:**
- SEE MASON COUNTY DEPARTMENT OF COMMUNITY DEVELOPMENT WASTE EXPORT TRANSFER STATION DRAWINGS, JOB NO 21-1682-13, DATED MAY 1993, FOR EXISTING SITE WORK, STRUCTURES, AND UTILITY DETAILS.
 - DEMOLISH TRENCH DRAIN TO BUILDING LIMITS.

LEGEND:
 \\\\ EXISTING FEATURES TO BE DEMOLISHED.

SURVEYED POINTS TABLE			
POINT No.	NORTHING	EASTING	ELEVATION (FT)
P1000	710700.46	972183.89	309.00
P1001	710699.94	972179.55	308.36
P1002	710699.35	972174.69	308.75
P1003	710851.34	972231.50	303.08
P1004	710870.89	972141.78	309.90
P1005	710865.08	972133.38	308.16
P1006	710860.73	972124.74	310.07
P1007	710719.56	972244.77	304.10
P1008	710695.61	972242.05	305.98
P1009	710690.15	972280.14	306.15
P1010	710724.78	972269.63	304.21
P1011	710744.19	972264.97	303.11
P1012	710739.49	972243.42	303.15
P1013	710815.46	972229.76	303.11
P1014	710835.21	972225.19	302.98
P1015	710819.68	972249.24	302.95
P1016	710839.28	972245.49	302.78

PROJECT MANAGER OLIVIA WILLIAMS



ISSUE	DATE	DESCRIPTION

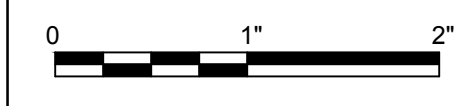
PROJECT NUMBER 10059970

PRELIMINARY
NOT FOR
CONSTRUCTION



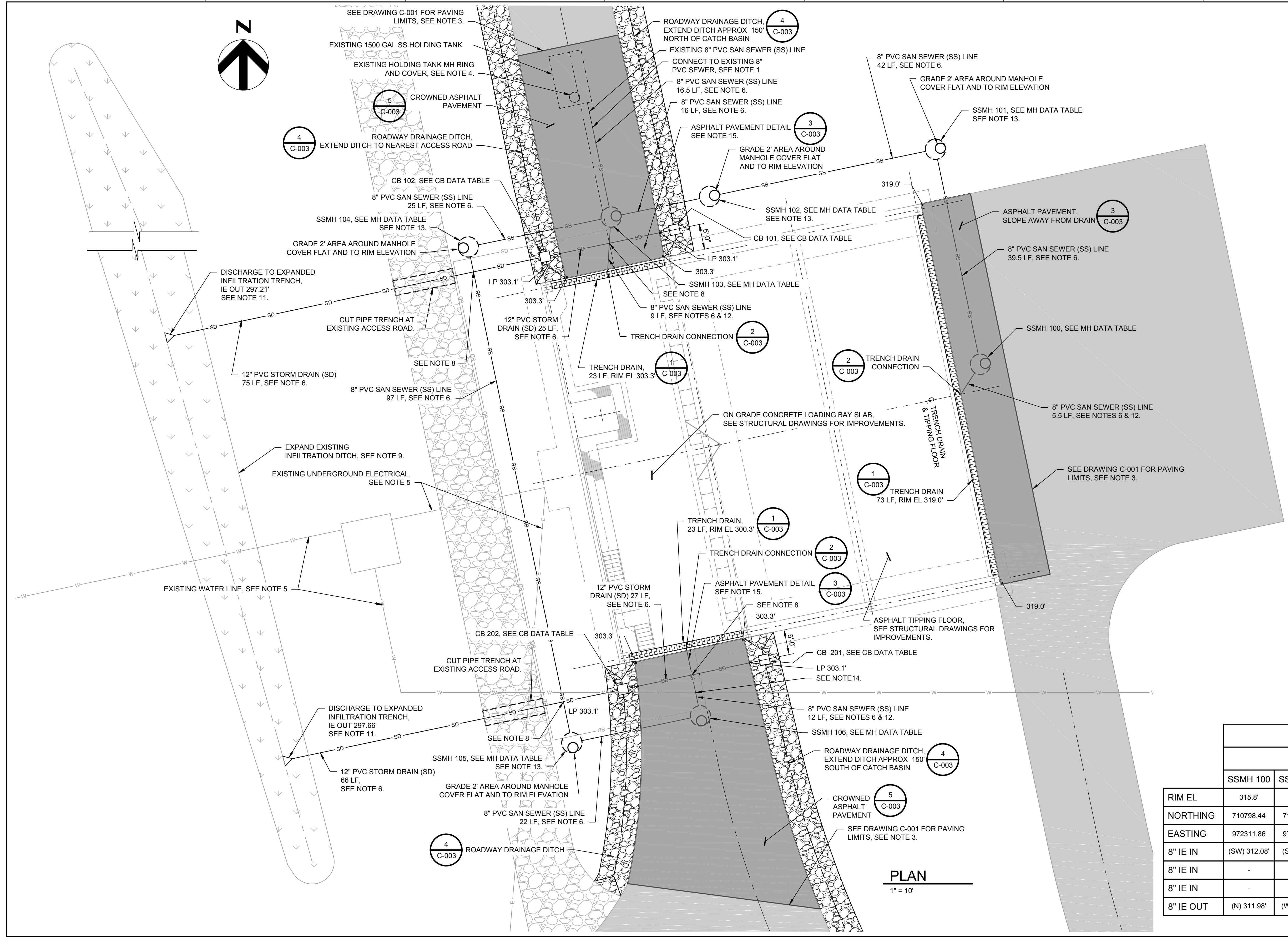
**MASON COUNTY SOLID WASTE DEPT.
 EELLS HILL TRANSFER STATION IMPROVEMENTS
 SHELTON, WASHINGTON**

**CIVIL
 EXISTING CONDITIONS AND DEMOLITION
 PLAN**



FILENAME C-001.dwg
 SCALE 1" = 10'

SHEET
C-001

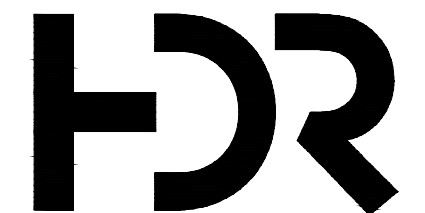


- NOTES:**
- CONTRACTOR SHALL FIELD VERIFY DEPTH, LOCATION, AND OUTSIDE DIAMETER PRIOR TO CONNECTING TO EXISTING PIPE. THE CONNECTION SHALL BE MADE WITH A FLEXIBLE COUPLING.
 - ASPHALT FINAL ELEVATIONS BASED ON SURVEY PROVIDED BY MASON COUNTY. LIMITS OF PROPOSED PAVING SHALL MATCH EXISTING ASPHALT GRADES.
 - LIMITS OF PROPOSED PAVING SHALL MATCH EXISTING ASPHALT GRADES.
 - RESET EXISTING HOLDING TANK MH RING AND COVER AT FINISHED ASPHALT GRADE.
 - LOCATION OF EXISTING WATER LINE AND UNDERGROUND ELECTRICAL IS APPROXIMATE. CONTRACTOR TO FIELD VERIFY LOCATION AND PROTECT IN PLACE PRIOR TO INSTALLATION OF UTILITIES.
 - PIPE ZONE BEDDING AND BACKFILL PER WSDOT STANDARD PLAN B-55.20-00.
 - SET RIM AT EXISTING GRADE.
 - CONTRACTOR TO MAINTAIN MINIMUM 1.0 FOOT VERTICAL SEPARATION BETWEEN SEWER AND STORMWATER UTILITIES.
 - MAINTAIN EASTERN EDGE OF EXISTING INFILTRATION DITCH. FROM EASTERN LIMIT, EXCAVATE AT 2:1 SLOPE TO MINIMUM OF 11.5 FEET WIDTH & BELOW EXISTING FLOWLINE AT MINIMUM SLOPE OF 0.5% TOWARDS THE NORTH END OF THE INFILTRATION DITCH. NORTH AND SOUTH ENDS OF INFILTRATION DITCH SHOULD HAVE 3:1 SLOPE FOR MAINTENANCE ACCESS. BASE OF TRAPEZOIDAL TRENCH SHOULD BE 6 FEET WIDE. ADD 3 INCHES TOP SOIL TO SIDE SLOPES AND BOTTOM, AND HYDROSEED ALL SURFACES. DITCH SHOULD BE A MINIMUM OF 200 FEET LONG.
 - NOT USED.
 - BEVELED END SECTION PER WSDOT STANDARD PLANS B-70.20-00.
 - MINIMUM SLOPE FOR 8" PVC SEWER LINE FROM TRENCH DRAIN CONNECTION SHALL BE .005 FT/FT.
 - GRADE 2' AREA AROUND MANHOLE LID FLAT AND TO RIM ELEVATION.
 - CONTRACTOR TO MAINTAIN MINIMUM 1.0 FOOT VERTICAL SEPARATION BETWEEN SEWER AND WATER UTILITIES.
 - ASPHALT PAVEMENT CROWN SHALL START 5 FEET SOUTH OF THE TRENCH DRAIN ON THE SOUTH END OF THE LOADING BAY AND 5 FEET NORTH OF THE TRENCH DRAIN ON THE NORTH END OF THE LOADING BAY.

CATCH BASIN DATA				
ALL CATCH BASINS TO BE TYPE 2, 24" PVC PER WSDOT STD PLAN DS-1				
	CB 101	CB 102	CB 201	CB 202
RIM EL	301.6'	301.6'	301.6'	301.6'
NORTHING	710825.11	710819.75	710739.95	710734.09
EASTING	972251.28	972225.67	972269.09	972241.06
12" IE IN	-	(E) 298.06'	-	(E) 298.23'
12" IE OUT	(W) 298.2'	(W) 297.56'	(W) 297.37'	(W) 297.98'

MANHOLE DATA							
ALL MANHOLES TO BE 48" AND PER WSDOT STD PLAN B-15.60-01							
	SSMH 100	SSMH 101	SSMH 102	SSMH 103	SSMH 104	SSMH 105	SSMH 106
RIM EL	315.8'	319.0'	303.5'	303.0'	SEE NOTE 7	SEE NOTE 7	303.54'
NORTHING	710798.44	710841.02	710831.67	710827.60	710821.68	710723.52	710728.84
EASTING	972311.86	972302.95	972258.24	972238.76	972210.45	972230.98	972256.43
8" IE IN	(SW) 312.08'	(S) 309.18'	(E) 299.4'	(E) 299.19'	(S) 299.47'	(E) 300.05'	(N) 300.3'
8" IE IN	-	-	-	(SW) 299.19'	-	-	-
8" IE IN	-	-	-	(W) 299.19'	-	-	-
8" IE OUT	(N) 311.98'	(W) 309.08'	(W) 299.3'	(N) 299.09'	(E) 299.37'	(N) 299.95'	(W) 300.2'

PLAN
1" = 10'



ISSUE	DATE	DESCRIPTION

PROJECT NUMBER 10059970

PRELIMINARY
NOT FOR
CONSTRUCTION



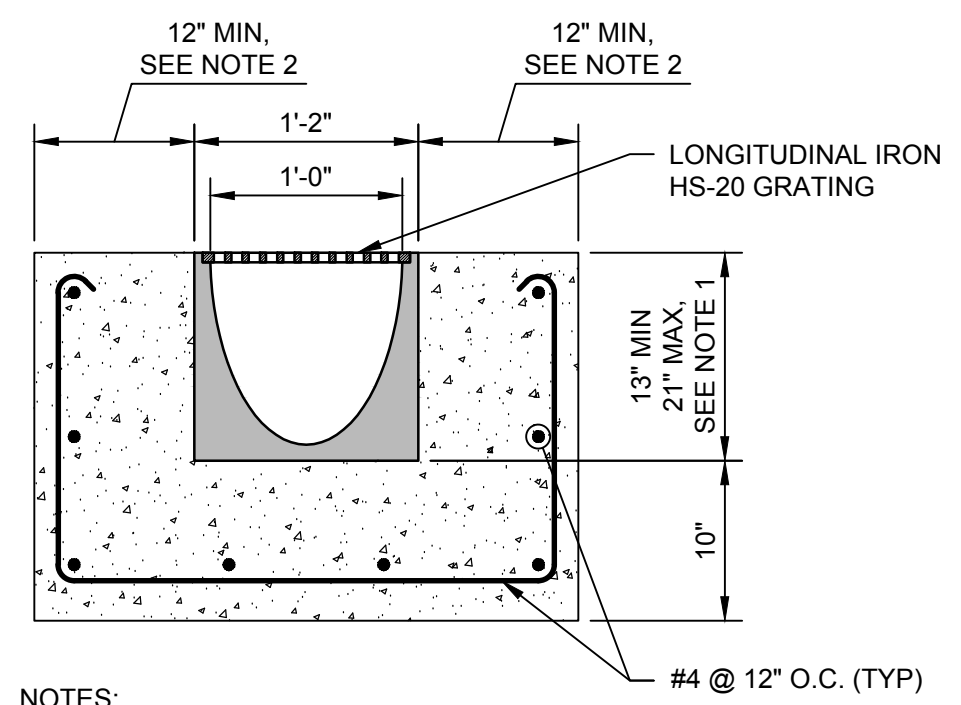
MASON COUNTY SOLID WASTE DEPT.
EELLS HILL TRANSFER STATION IMPROVEMENTS
SHELTON, WASHINGTON



CIVIL
PROPOSED UTILITIES AND PAVING
PLAN

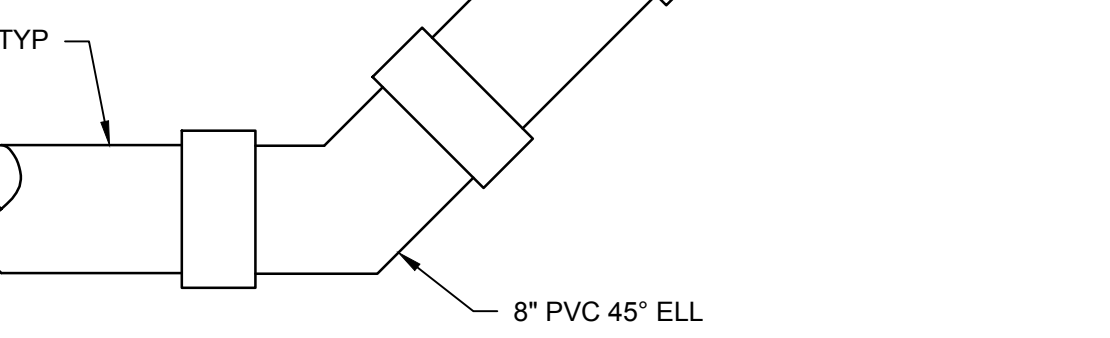
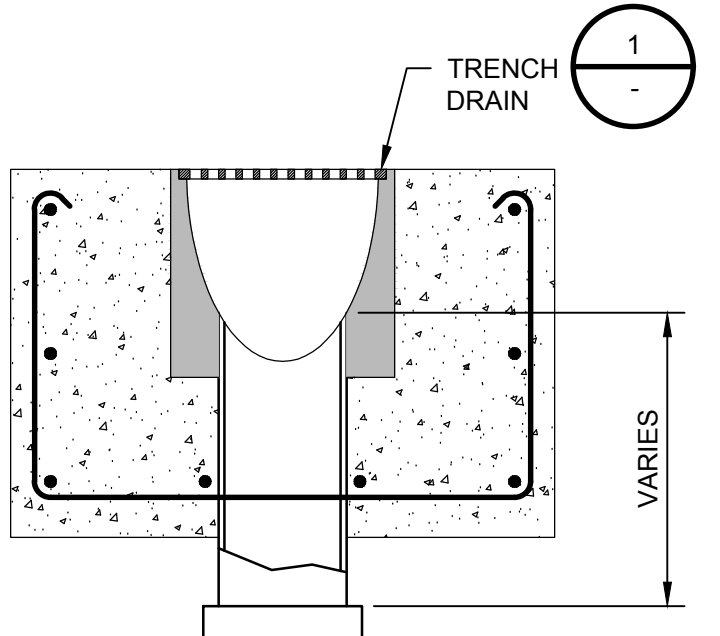
FILENAME C-002.dwg
SCALE 1" = 10'

SHEET
C-002

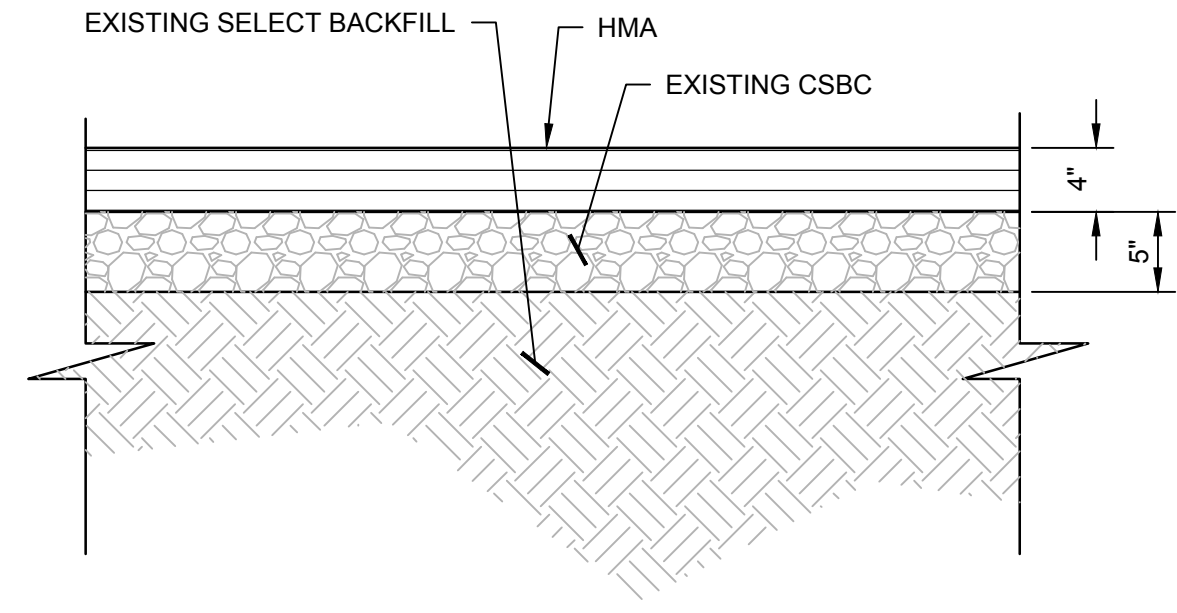


- NOTES:
- TRENCH DRAIN TO SLOPE TO CENTER.
 - INSTALL PER MANUFACTURER'S INSTRUCTIONS.

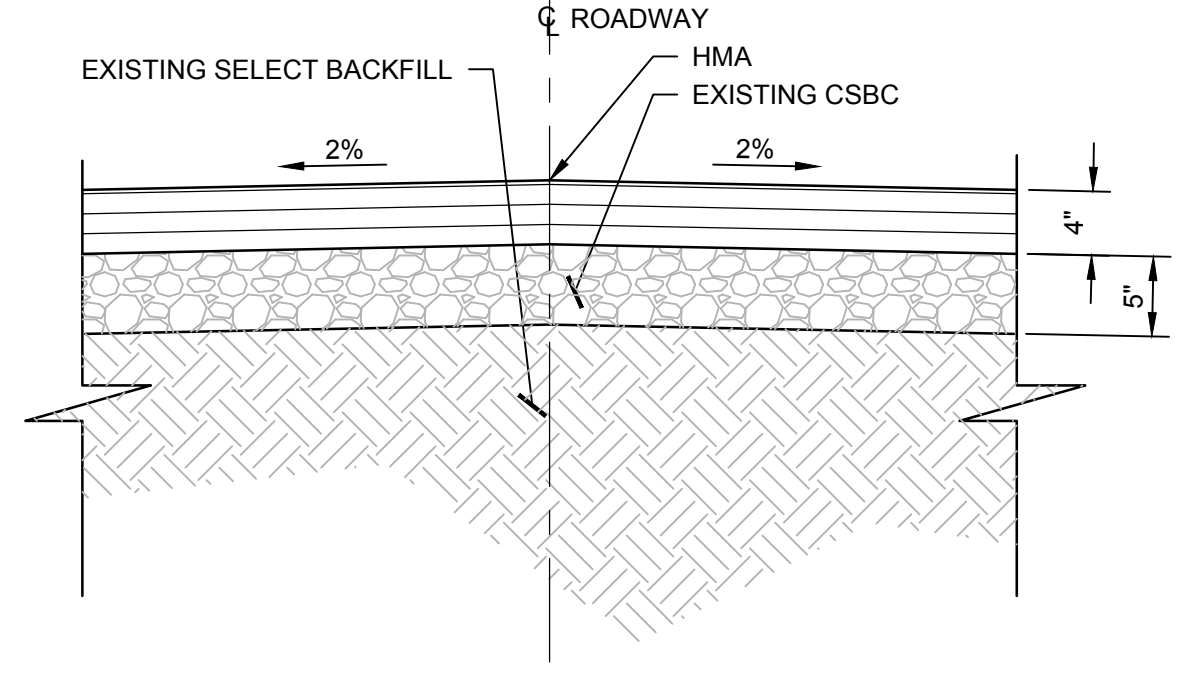
1
C-002
TRENCH DRAIN DETAIL
1" = 1'-0"



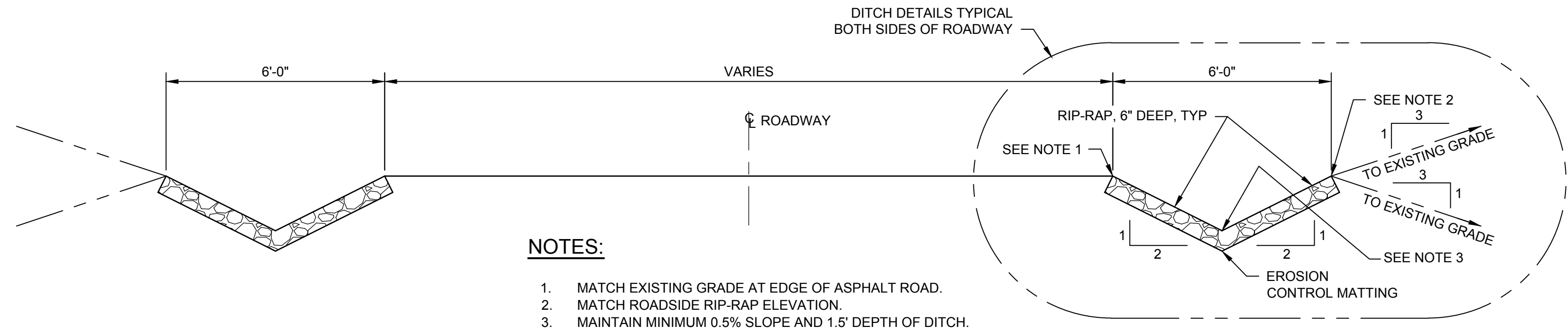
2
C-002
TRENCH DRAIN CONNECTION DETAIL
N.T.S.



3
C-002
ASPHALT PAVEMENT SECTION DETAIL
N.T.S.

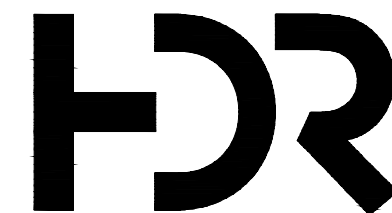


5
C-002
CROWNED ASPHALT PAVEMENT SECTION DETAIL
N.T.S.



- NOTES:
- MATCH EXISTING GRADE AT EDGE OF ASPHALT ROAD.
 - MATCH ROADSIDE RIP-RAP ELEVATION.
 - MAINTAIN MINIMUM 0.5% SLOPE AND 1.5' DEPTH OF DITCH.

4
C-002
ROADWAY DRAINAGE DITCH SECTION DETAIL
N.T.S.



ISSUE	DATE	DESCRIPTION

PROJECT MANAGER OLIVIA WILLIAMS	
PROJECT NUMBER	10059970

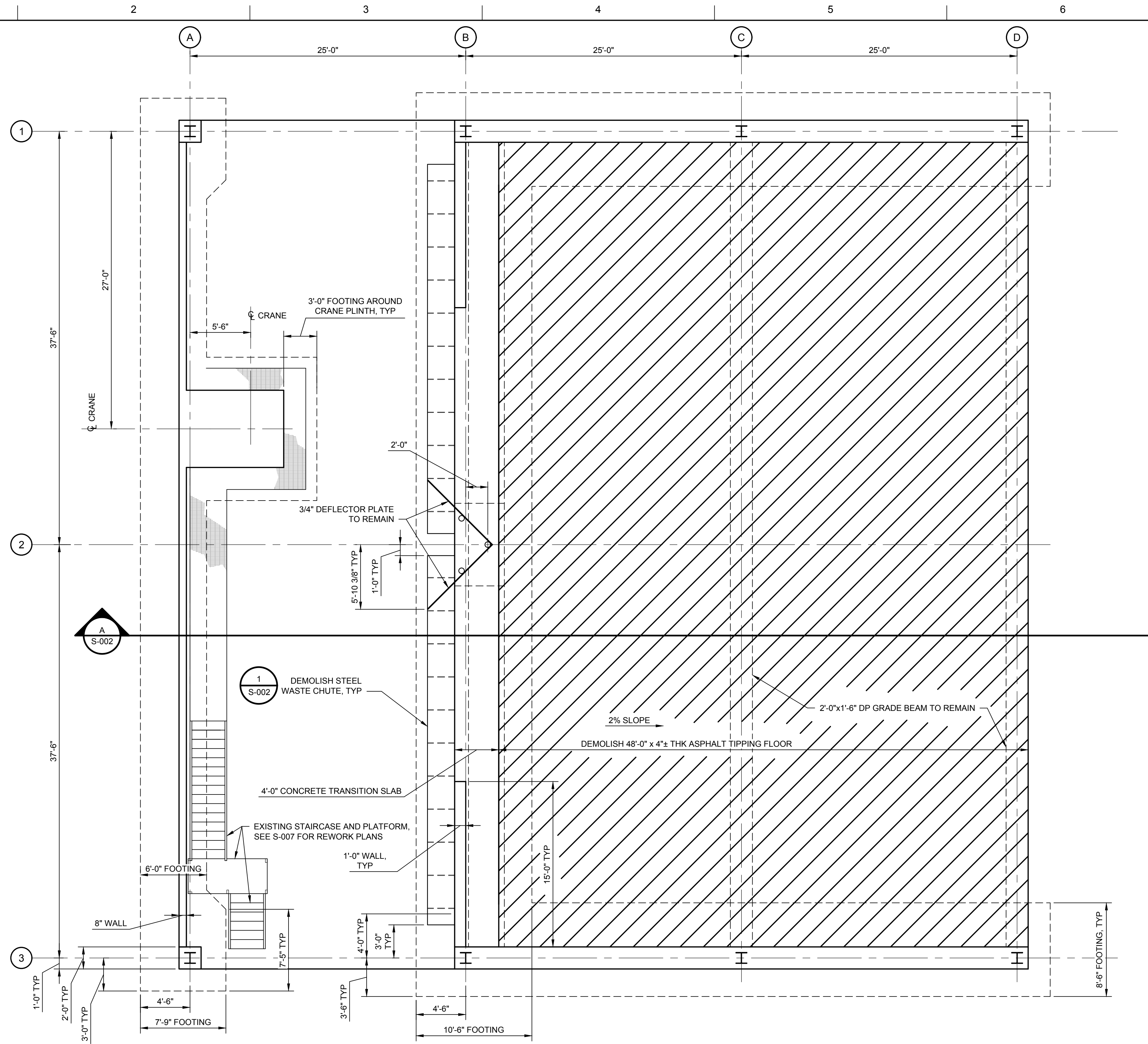
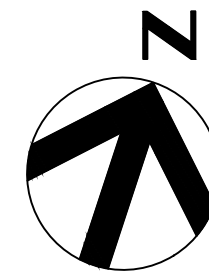
PRELIMINARY
NOT FOR
CONSTRUCTION

MASON COUNTY SOLID WASTE DEPT.
EELLS HILL TRANSFER STATION IMPROVEMENTS
SHELTON, WASHINGTON



CIVIL
DETAILS

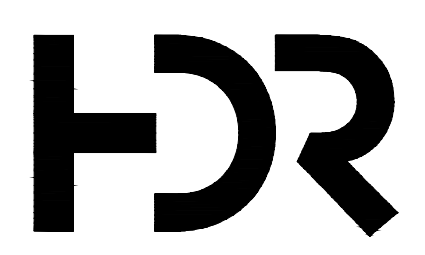
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SCALE NOTED



PLAN
3/16" = 1'-0"

NOTES:

1. SEE G-001 FOR STRUCTURAL GENERAL NOTES.
2. SEE DRAWING S-003 FOR TIPPING FLOOR RESURFACING AND FOR LOADING BAY SLAB TOPPING.
2. ALL NOTED DIMENSIONS ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY PRIOR TO DEMOLITION.



ISSUE	DATE	DESCRIPTION


PROJECT MANAGER	OLIVIA WILLIAMS
PROJECT NUMBER	10059970

PRELIMINARY
 NOT FOR
 CONSTRUCTION



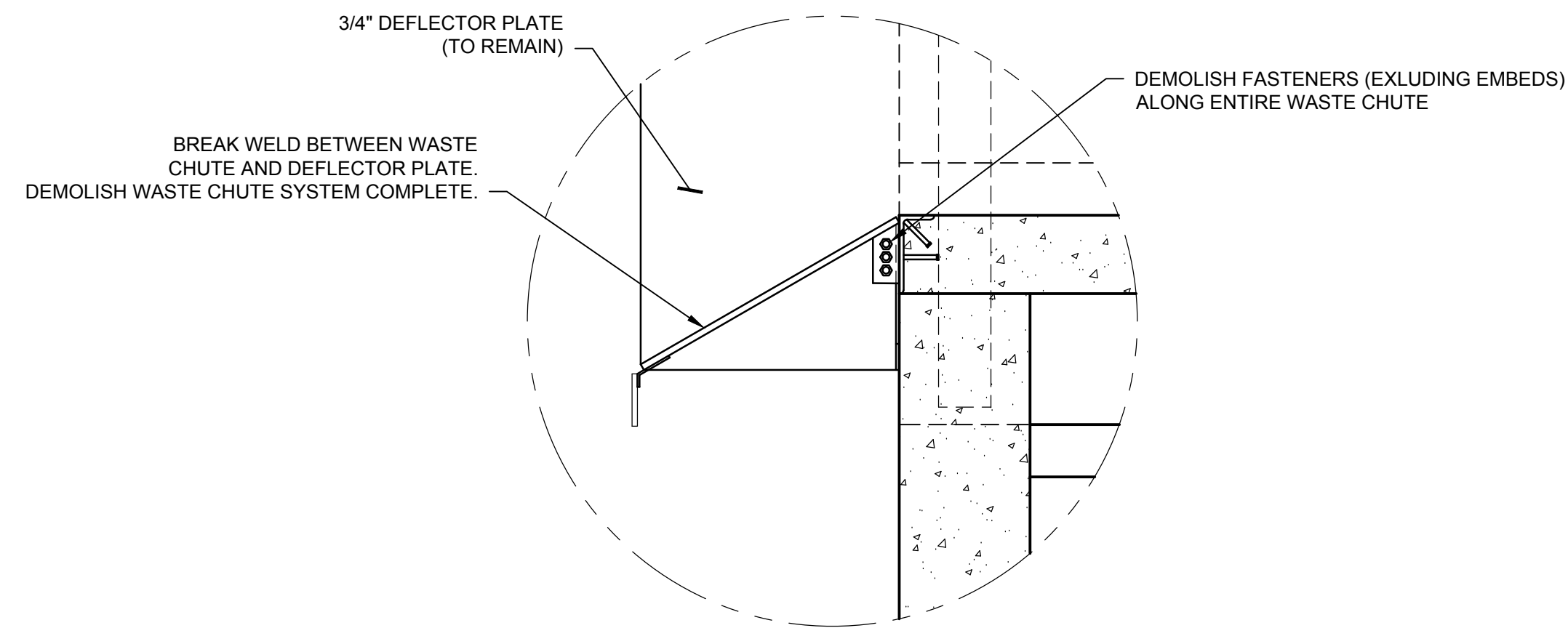
MASON COUNTY SOLID WASTE DEPT.
EELLS HILL TRANSFER STATION IMPROVEMENTS
SHELTON, WASHINGTON

**STRUCTURAL
TRANSFER STATION
EXISTING CONDITIONS AND DEMOLITION
PLAN**



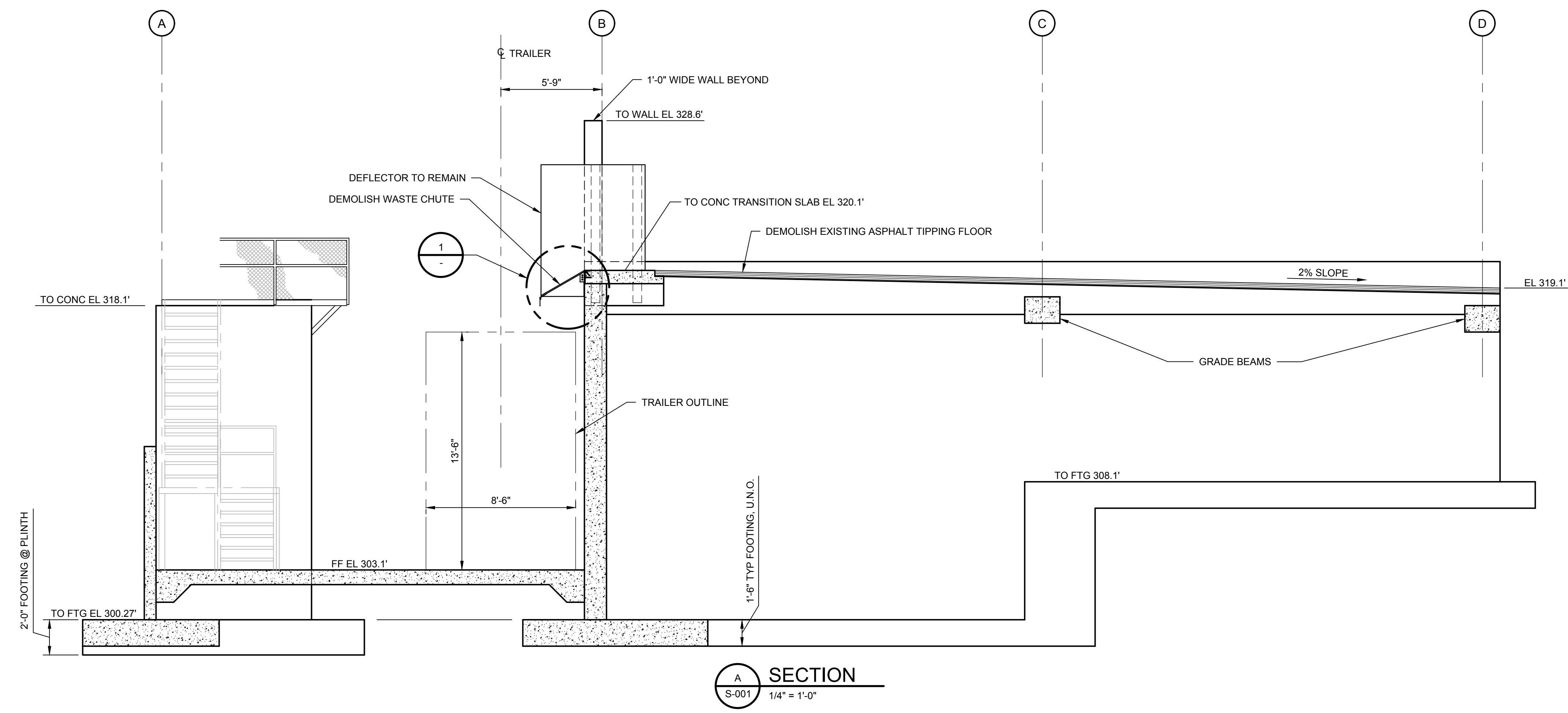
FILENAME | S-001.dwg
SCALE | NOTED

SHEET | **S-001**

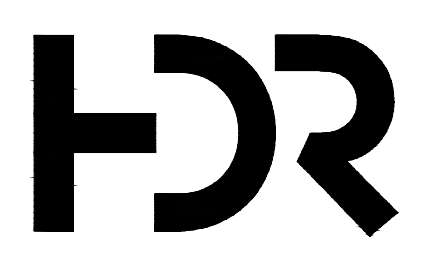


**WASTE CHUTE DEMOLITION
DETAIL**
1
3/4" = 1'-0"

- NOTES:**
- SEE G-001 FOR STRUCTURAL GENERAL NOTES.
 - SEE DRAWING S-003 FOR TIPPING FLOOR RESURFACING AND FOR LOADING BAY SLAB TOPPING.
 - ALL NOTED DIMENSIONS ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY PRIOR TO DEMOLITION.



SECTION A
S-001
1/4" = 1'-0"



ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	OLIVIA WILLIAMS
PROJECT NUMBER	10059970

PRELIMINARY
NOT FOR
CONSTRUCTION

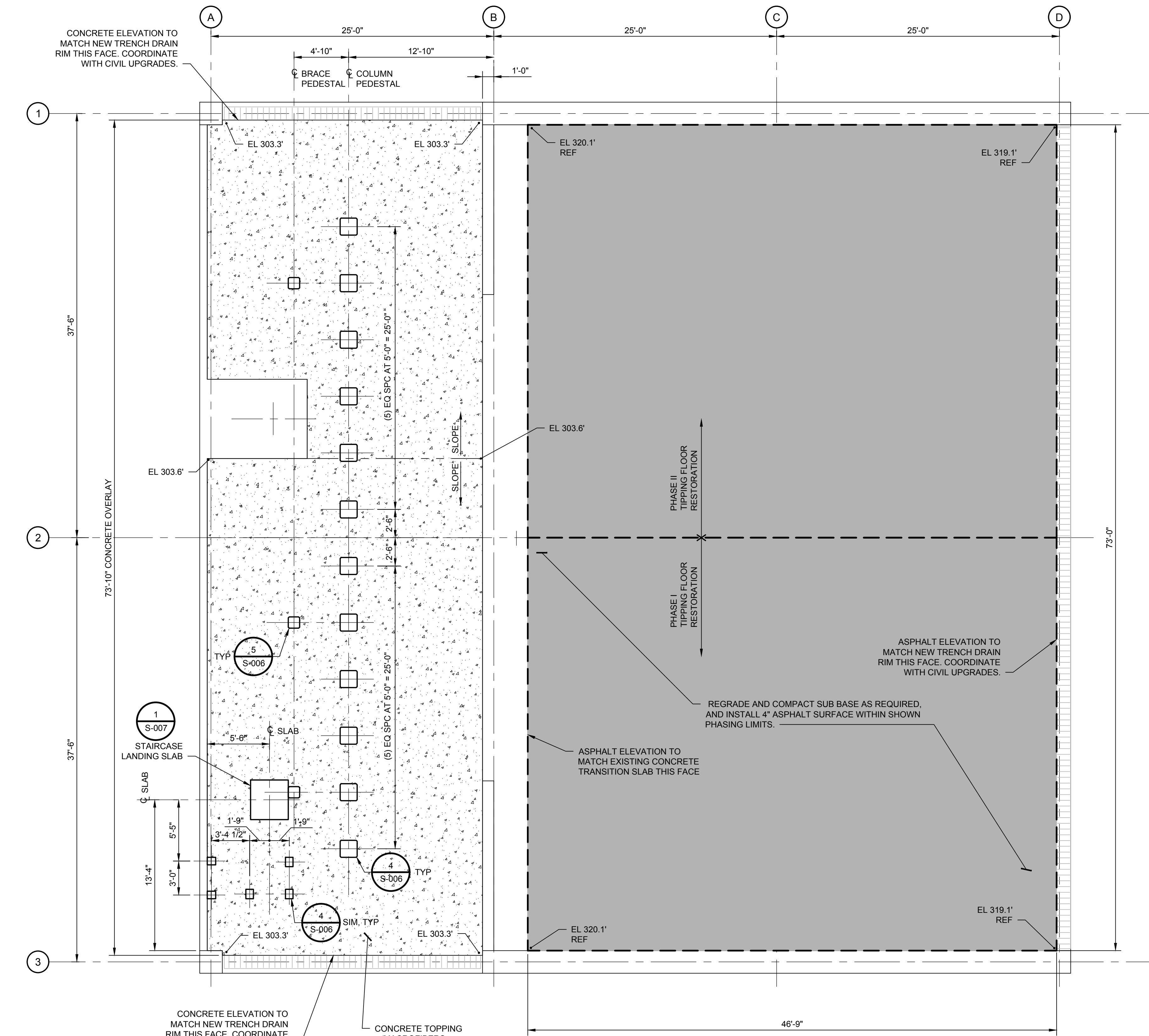
MASON COUNTY SOLID WASTE DEPT.
EELLS HILL TRANSFER STATION IMPROVEMENTS
SHELTON, WASHINGTON

**STRUCTURAL
TRANSFER STATION
EXISTING CONDITIONS AND DEMOLITION
SECTION AND DETAILS**

0 1" 2"
SCALE NOTED

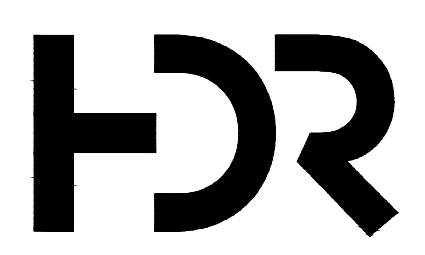
FILENAME S-002.dwg
SCALE NOTED

SHEET
S-002



NOTES:
 1. SEE G-001 FOR STRUCTURAL GENERAL NOTES.

PLAN
 3/16" = 1'-0"



ISSUE	DATE	DESCRIPTION

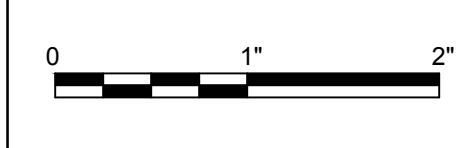
PROJECT MANAGER	OLIVIA WILLIAMS
PROJECT NUMBER	10059970

PRELIMINARY
 NOT FOR
 CONSTRUCTION



MASON COUNTY SOLID WASTE DEPT.
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SHELTON, WASHINGTON

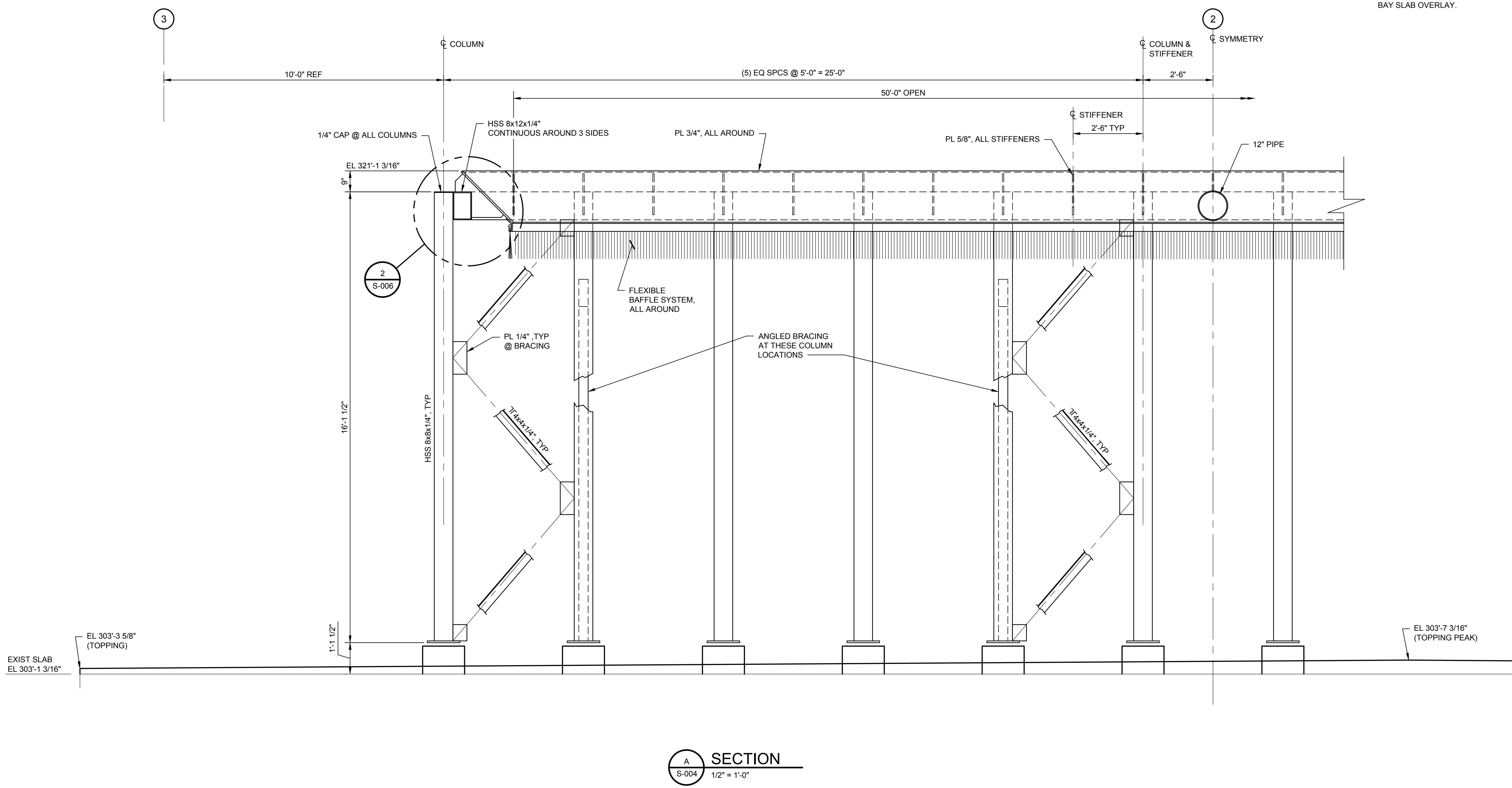
STRUCTURAL
TRANSFER STATION
LOADING BAY AND TIPPING FLOOR IMPROVEMENTS
PLAN



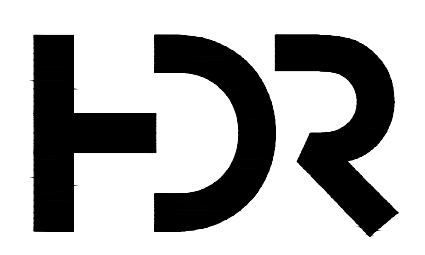
FILENAME | S-003.dwg
 SCALE | 3/16" = 1'-0"

SHEET
S-003

- NOTES:**
- SEE DRAWING G-001 FOR STRUCTURAL GENERAL NOTES.
 - SEE DRAWING S-004 FOR TIPPING FLOOR RESURFACING AND FOR LOADING BAY SLAB OVERLAY.



A SECTION
S-004 1/2" = 1'-0"



ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	OLIVIA WILLIAMS
PROJECT NUMBER	10059970

PRELIMINARY
NOT FOR
CONSTRUCTION

MASON COUNTY SOLID WASTE DEPT.
EELLS HILL TRANSFER STATION IMPROVEMENTS
SHELTON, WASHINGTON

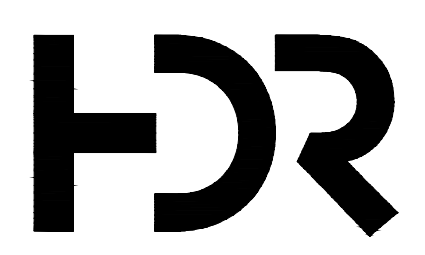
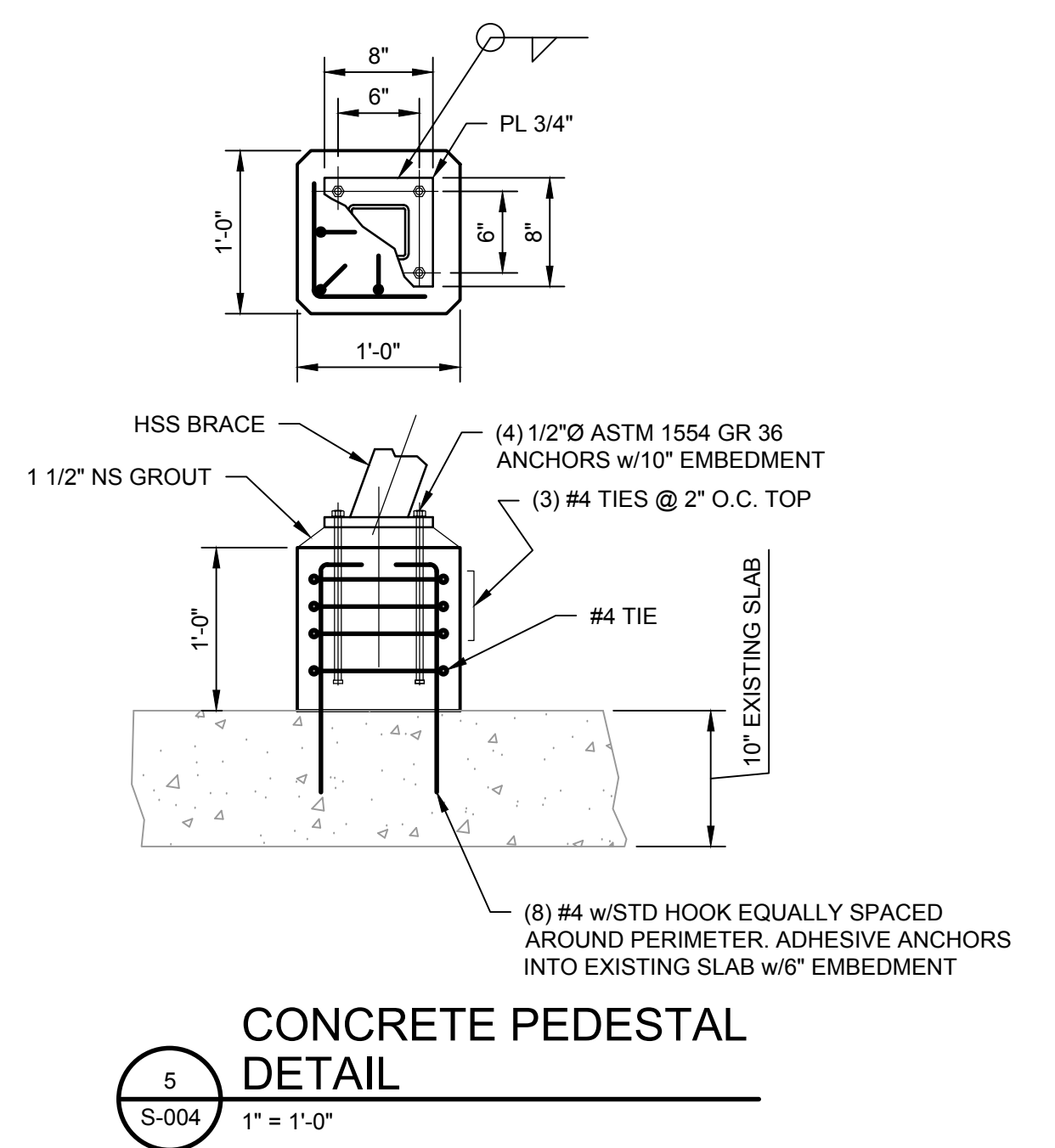
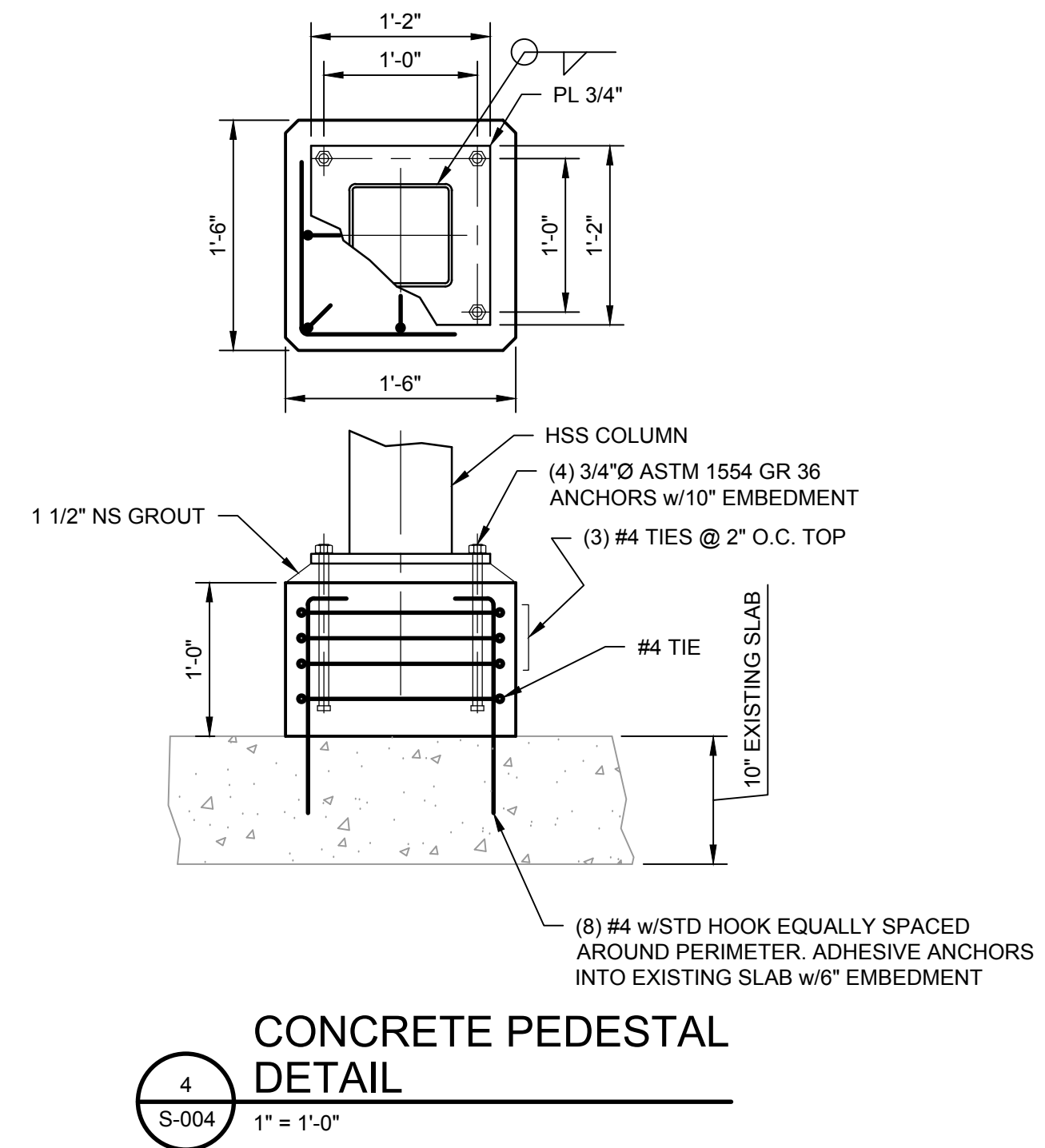
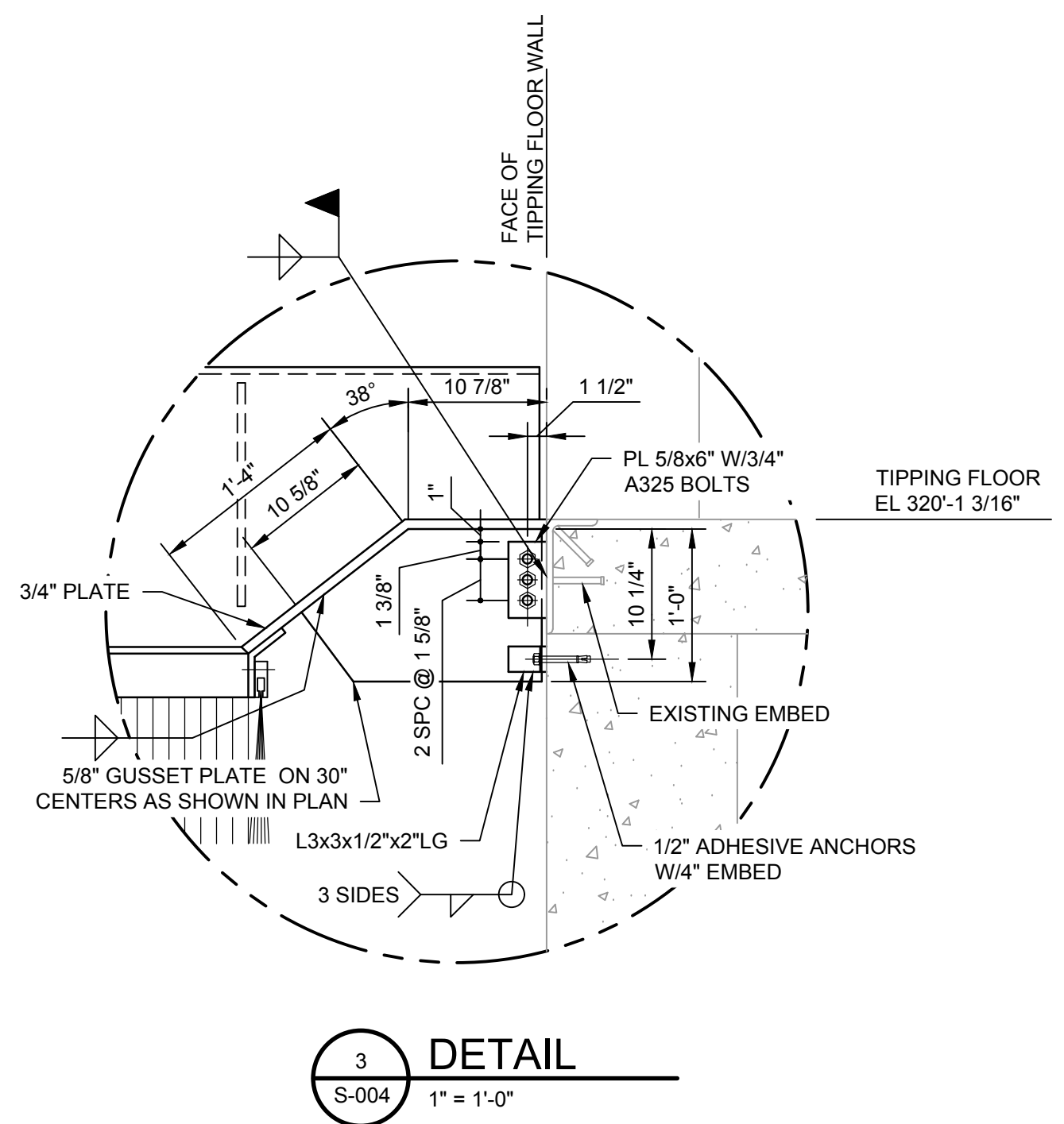
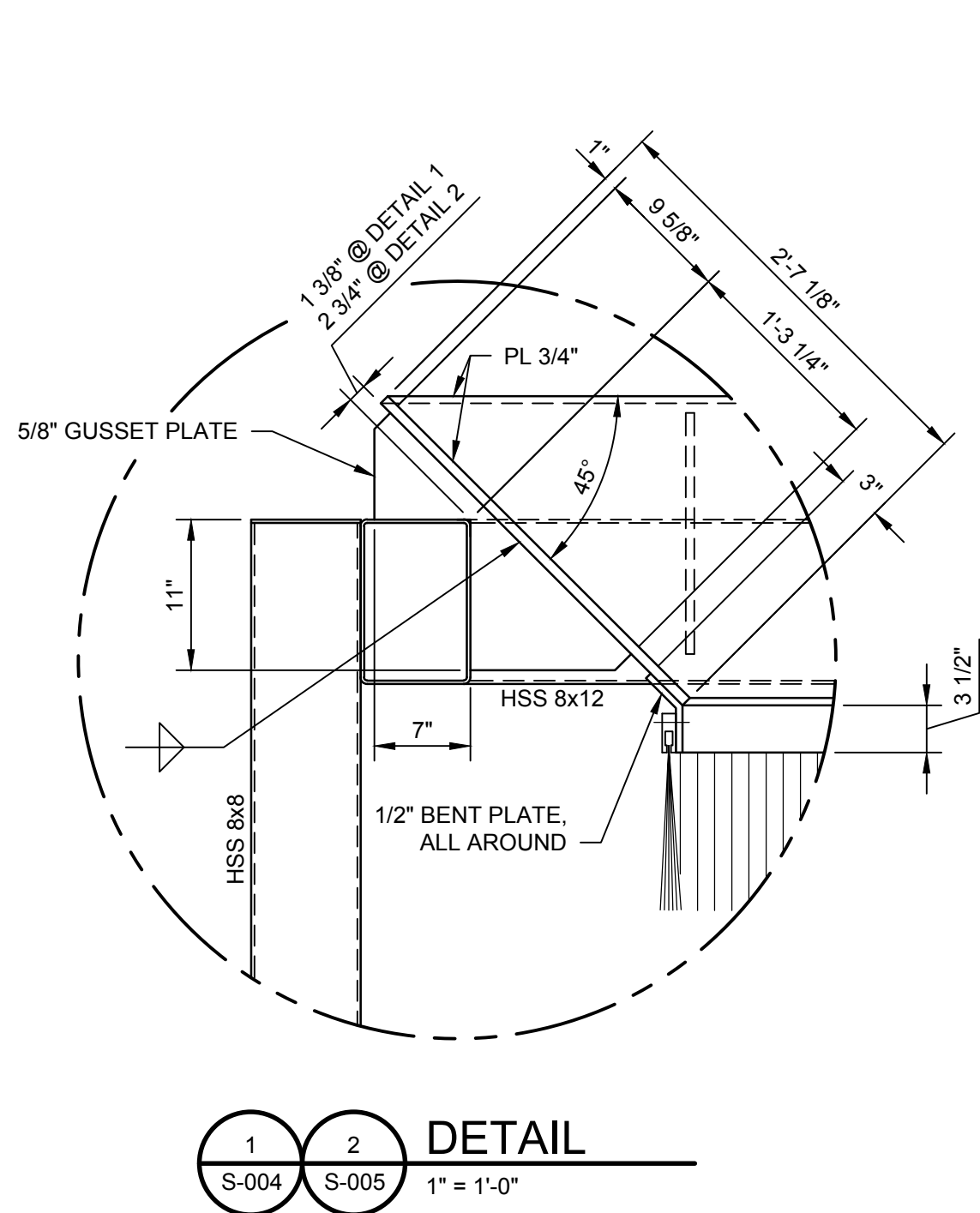
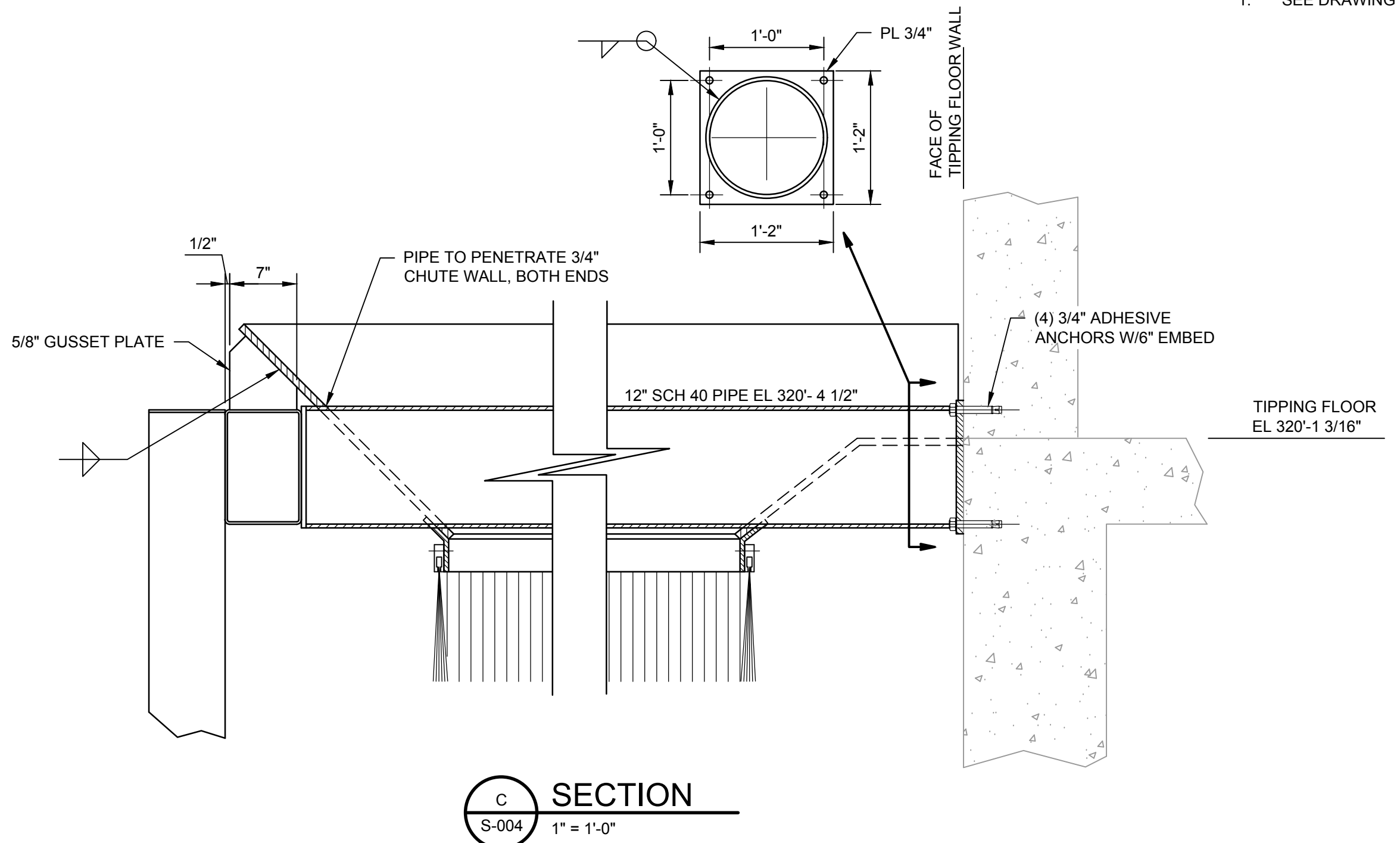
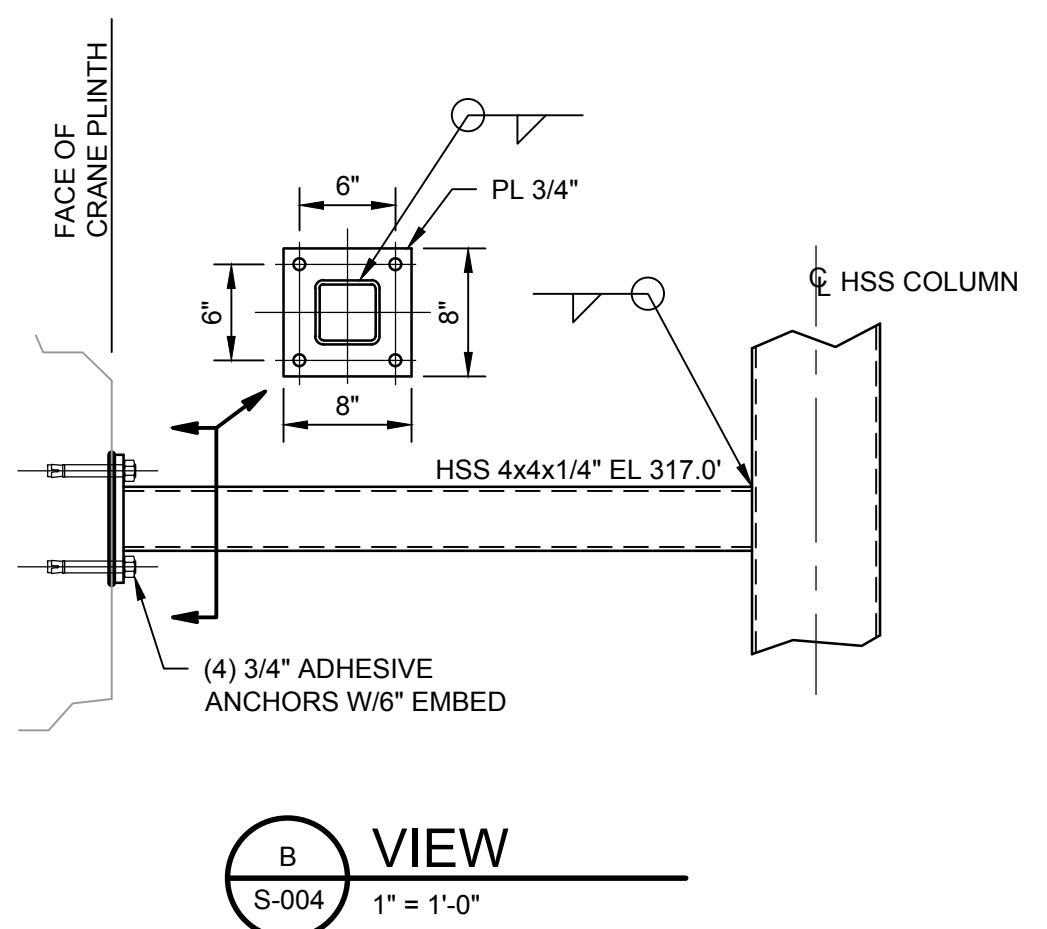
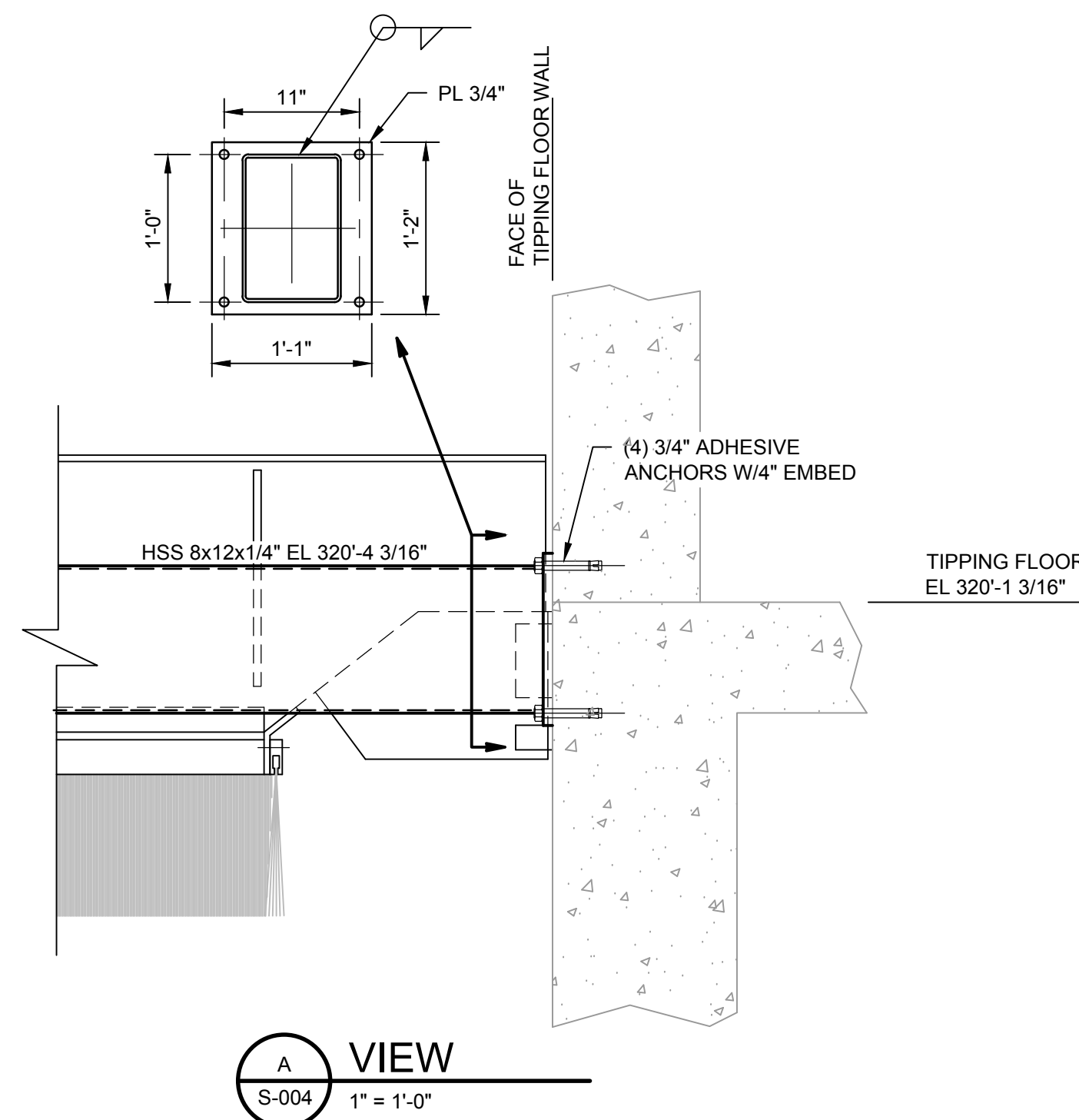


STRUCTURAL
TRANSFER STATION
LOADING BAY WASTE CHUTE
SECTION

FILENAME | S-005.dwg
SCALE | NOTED

SHEET
S-005

NOTES:
 1. SEE DRAWING G-001 FOR STRUCTURAL GENERAL NOTES.



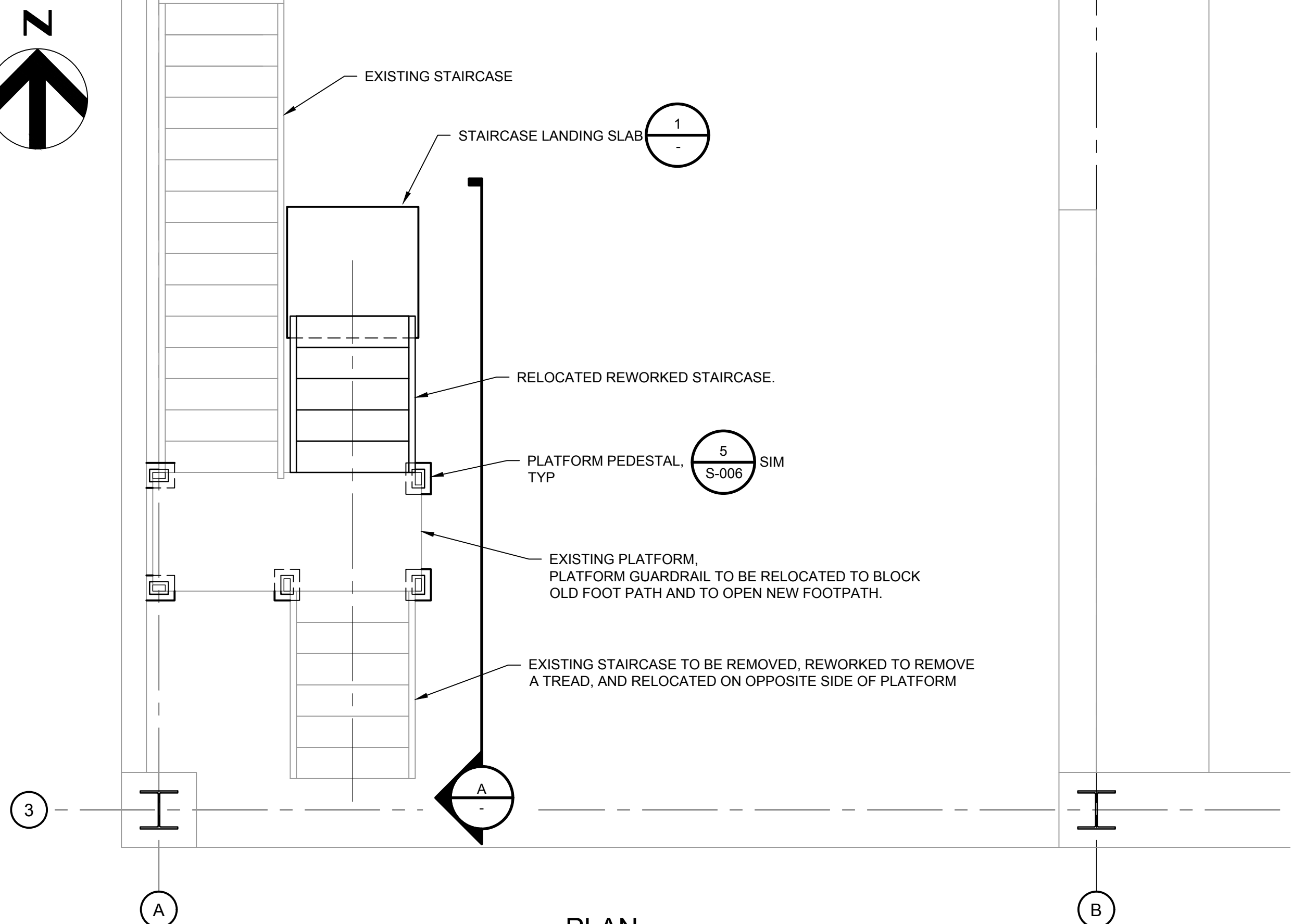
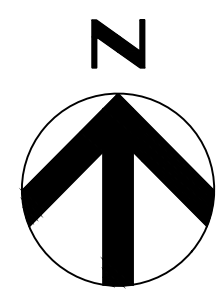
ISSUE	DATE	DESCRIPTION	PROJECT NUMBER	10059970

PRELIMINARY
 NOT FOR CONSTRUCTION

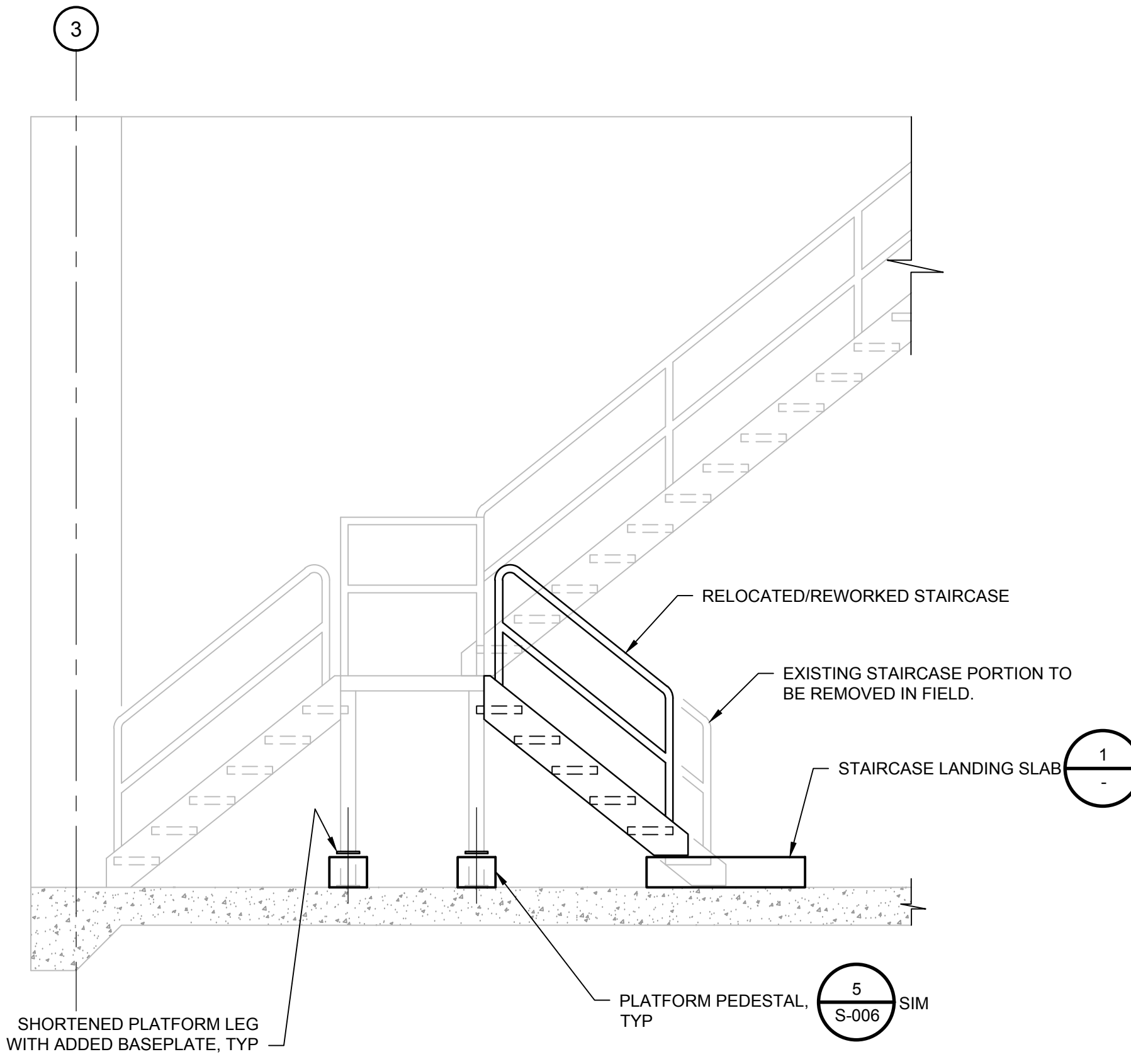
MASON COUNTY
MASON COUNTY SOLID WASTE DEPT.
EELLS HILL TRANSFER STATION IMPROVEMENTS
SHELTON, WASHINGTON

STRUCTURAL TRANSFER STATION LOADING BAY WASTE CHUTE SECTIONS, VIEWS, AND DETAILS

0 1" 2"
 FILENAME S-006.dwg
 SCALE NOTED
 SHEET **S-006**

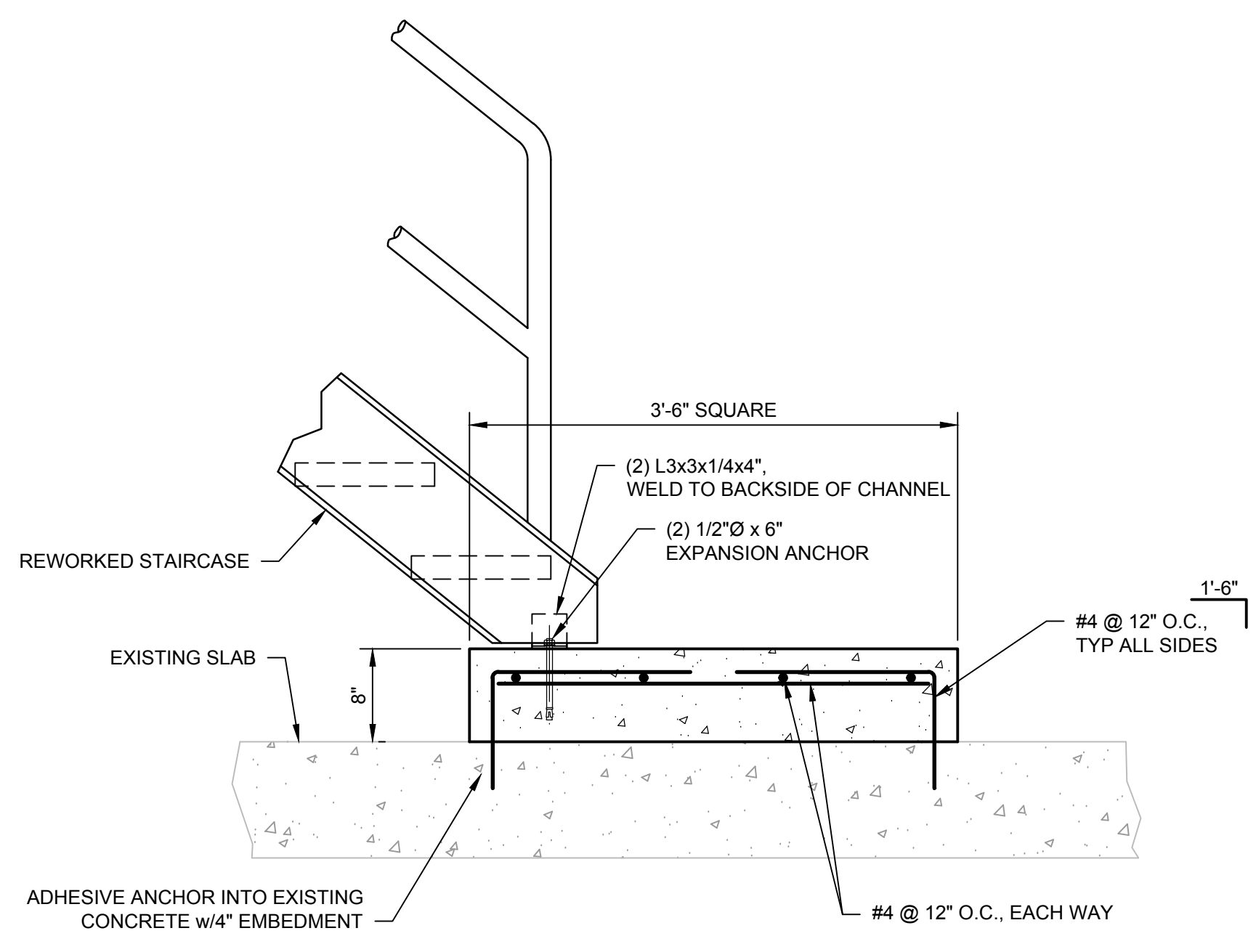


PLAN
3/8" = 1'-0"

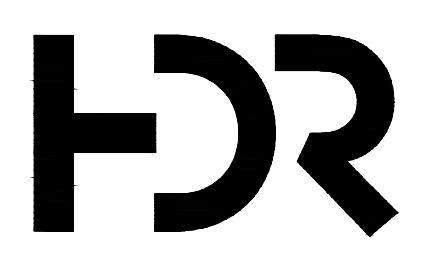


VIEW
3/8" = 1'-0"

NOTES:
1. SEE G-001 FOR GENERAL STRUCTURAL NOTES.



**CONCRETE LANDING SLAB
DETAIL**
1" = 1'-0"



ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	OLIVIA WILLIAMS
PROJECT NUMBER	10059970

PRELIMINARY
NOT FOR
CONSTRUCTION



MASON COUNTY SOLID WASTE DEPT.
EELLS HILL TRANSFER STATION IMPROVEMENTS
SHELTON, WASHINGTON

**STRUCTURAL
TRANSFER STATION
LOADING BAY STAIRCASE AND PLATFORM REWORK
PLAN, VIEW AND DETAIL**

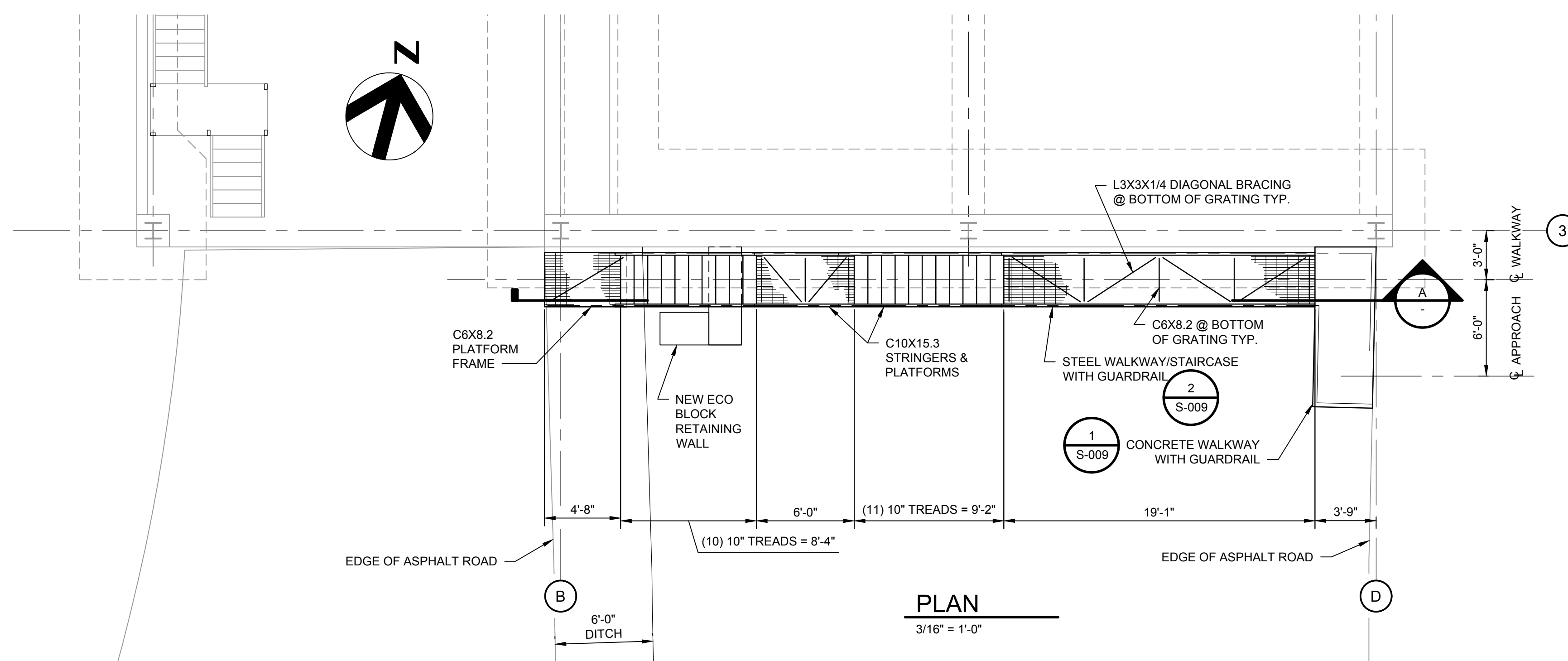
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FILENAME | S-007.dwg
SCALE | NOTED

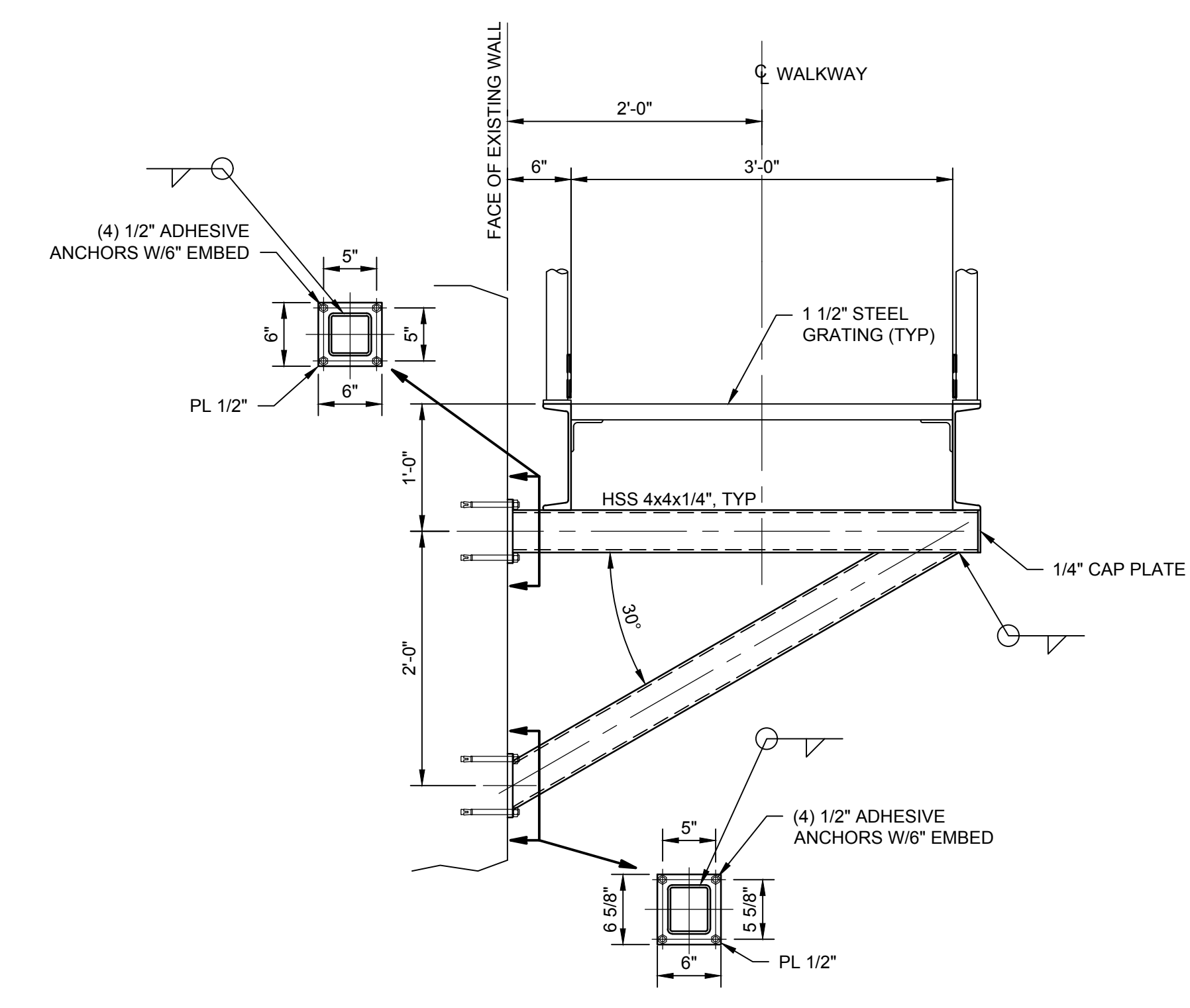
SHEET
S-007

NOTES:

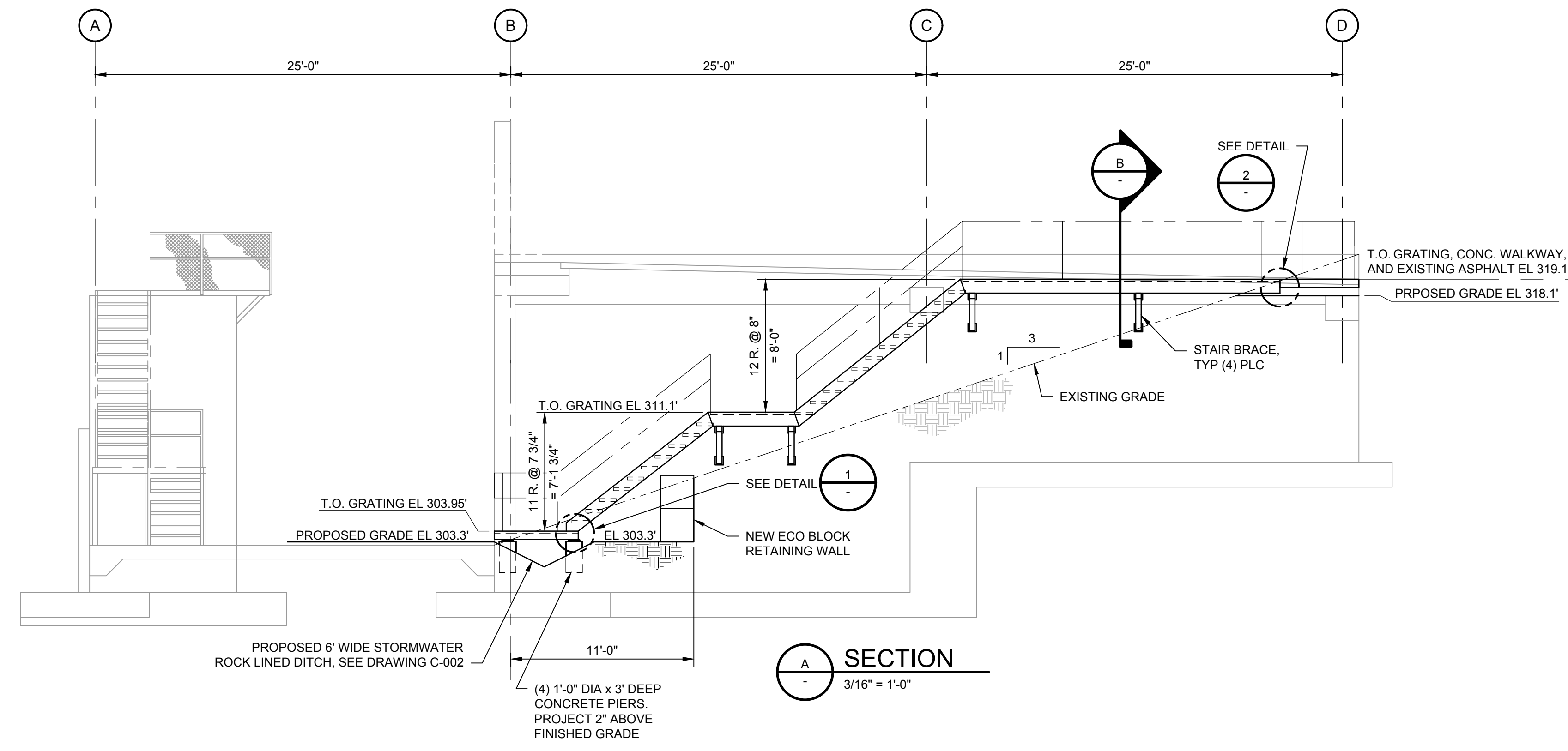
1. SEE G-001 FOR GENERAL STRUCTURAL NOTES.



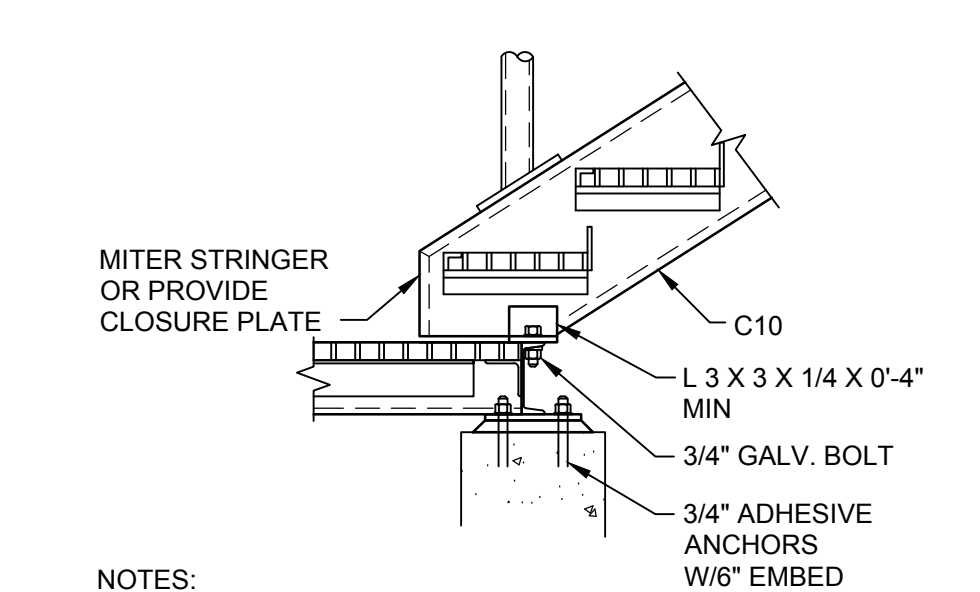
PLAN
3/16" = 1'-0"



TYP STAIR BRACE SECTION
1" = 1'-0"

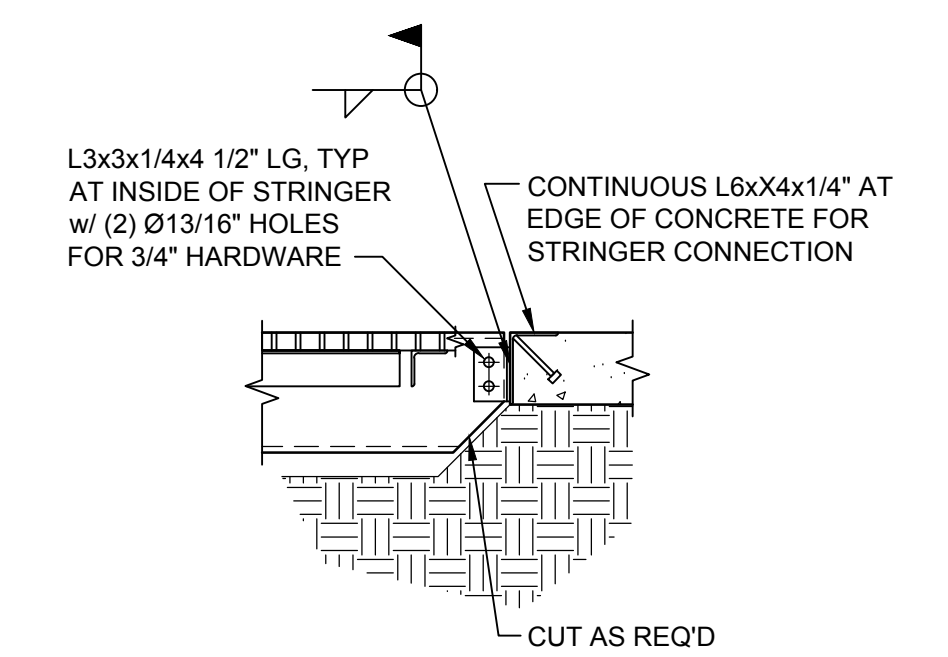


SECTION
3/16" = 1'-0"



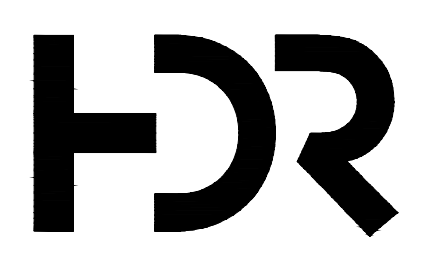
STAIR BOTTOM CONNECTION DETAIL
3/4" = 1'-0"

NOTES:
1. ALL STAIRS AND APPURTENANT ITEMS SHOWN ON DRAWINGS SHALL BE GALVANIZED STEEL UNLESS SHOWN AS CONCRETE STAIRS ON DRAWINGS. ALL FASTENERS SHALL BE GALVANIZED.



STAIR TOP CONNECTION DETAIL
3/4" = 1'-0"

NOTES:
1. SEE SPECS AND DRAWINGS FOR MATERIAL TYPE.
2. FASTENER MATERIAL SHALL MATCH STAIR MATERIAL TYPE.
3. SEE SPECIFICATIONS FOR DESIGN REQUIREMENTS.

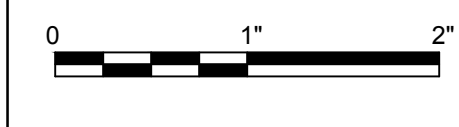


ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	OLIVIA WILLIAMS
PROJECT NUMBER	10059970

PRELIMINARY
NOT FOR
CONSTRUCTION

MASON COUNTY SOLID WASTE DEPT.
EELLS HILL TRANSFER STATION IMPROVEMENTS
SHELTON, WASHINGTON



FILENAME | S-008.dwg
SCALE | NOTED

SHEET
S-008

STRUCTURAL
TRANSFER STATION
OUTDOOR STAIRCASE AND WALKWAY
PLAN, SECTION AND DETAILS



DATE: DECEMBER 29, 2017

PROJECT: CONTRACT OPERATIONS AND MAINTENANCE OF MASON COUNTY SOLID WASTE FACILITIES

SUBJECT: ADDENDUM #1 TO REQUEST FOR PROPOSAL

THIS ADDENDUM, INCLUDING ATTACHMENTS, MODIFIES THE REQUEST FOR PROPOSAL:

REVISION NO. 1 – Attached for your information are the final drawings and specifications for the Eells Hill Transfer Station Improvements Project. Bids for this project are due January 19, 2018.

REVISION NO. 2 – Attached for your information is the 2018 solid waste budget. The Excel file also includes information on the 2013 – 2016 budgets. This information was requested by a proposer.

REVISION NO. 3 – A proposer asked whether the County permits would be issued to the operator or the County. This was discussed with the County Health Department and they did not have a preference. The current Eells Hill Permit includes the transfer station and the landfill. As the County would retain responsibility of the landfill and would still own the property, the Permit would need to be split in two if the operator was issued the transfer station permit. Public Works feels it would be simpler for the County to remain the permittee and that the operations contract would have a section requiring the operator to comply with any conditions of the permit issued by County Health that is the operator's responsibility. If a proposer thinks it would be better for them to hold the permit then the proposer should explain their reasoning in their proposal.

REVISION NO. 4 – On page 4 of the RFP it states the Alternative Service Option has a 6 page limit in addition to the baseline service option 24 page limit, but on the line above it says the baseline service option says there is a 22 page limit. The correct baseline service option limit is 22 pages with an additional 6 pages for the alternative service option for a total page limit of 28 for the baseline and alternative service option information.

This information does not change the proposal due date of March 6, 2018 at 4 PM.

Sincerely,

A handwritten signature in black ink that reads "Bart Stepp".

Bart Stepp, PE
Mason County
Deputy Director/Utilities & Waste Management

Solid Waste													Notes		
Fund #	Dept	Program	MUNIS BARS # XXX.XX.XXXXX	Name / Description	2019 Preliminary Budget	2018 Final Budget	Increase (Decrease)	2017 Budget	1/1-'6/30/17 Actual	2016 Budget	2016 Actual	2015 Actual	2014 Actual	2013 Actual	Notes
Beginning Fund Balance:															
402	000	000	308.10.300000	BEGINNING FUND RESERVED	319,832	504,676	(480,700)	985,376	819,528	544,898	754,312	320,075	277,216	246,348	
Total Beginning Fund Balance					319,832	504,676	(480,700)	985,376	819,528	544,898	754,312	320,075	277,216	246,348	
Intergovernmental Revenue:															
402	000	000	334.03.324004	DOE CPG RECYCLE GRANT '15-'16	45,000		(31,812)	31,812		22,161		50,601	42,286	64,269	No CPG in 2018 due to State not passing Capital Budget
402	000	000	334.03.324005	DOE CPG HHW GRANT '15-'16	45,000		(32,555)	32,555	72,632	36,375		38,188	30,007	51,352	
Total Intergovernmental Revenue					90,000	0	(64,367)	64,367	72,632	58,536	0	88,789	72,293	115,621	
Charges for Goods and Services:															
402	000	000	343.70.300000	SOLID WASTE FEE & SVC CHGS	3,400,000	3,400,000	220,000	3,180,000	1,544,730	2,580,200	3,402,084	3,029,148	2,740,119	2,586,295	Budget \$3.4M per Bart due to comparison w/2016 actuals
Total Charges for Goods and Services					3,400,000	3,400,000	220,000	3,180,000	1,544,730	2,580,200	3,402,084	3,029,148	2,740,119	2,586,295	
Miscellaneous Revenues:															
402	000	000	361.11.300000	INVESTMENT INTEREST	1,000	1,000	(250)	1,250	1,119	200	1,421	143	56	1	Average investment balance of \$500k x .2% interest
402	000	000	361.19.300000	INVESTMENT SVC FEES/TREAS CHGS			0		0	0	0	(33)	(49)	(27)	
402	000	000	369.10.300000	SALE OF SCRAP/RECYCLEABLE METALS	6,000	6,000	0	6,000	3,837	11,700	8,623	14,176	1,798	24,188	
402	000	000	369.81.300000	CASHIER OVERAGES/SHORTAGES	1	1	(49)	50	(35)	50	(198)	(156)	(274)	(74)	Kerry told to put something in this line by Auditors
402	000	000	369.92.300000	OTHER MISC REVENUE/ALLIED WASTE			0	833		0	1,680	1,680	84	180	
402	000	000	379.00.300000	CAPITAL CONTRIBUTIONS			0					150,000			
Total Miscellaneous Revenues					7,001	7,001	(299)	7,300	5,754	11,950	11,526	165,810	1,615	24,268	
Non Revenue Items:															
402	000	000	386.00.307000	REFUSE TAX	65,000	65,000	5,000	60,000	30,385		60,165	47,732			3.6% of SW charges excluding City of Shelton & MC Garbage
402	000	000	389.10.300000	NON REVENUE REIMBURSE			0		0	500			0	764	
Total Non Revenue Items					65,000	65,000	5,000	60,000	30,385	500	60,165	47,732	0	764	
Transfers In:															
402	000	000	397.00.300406	TRANSFER IN COMBINED UTILITIES ADMIN			(25,276)	25,276							Trf in from fund balance of 406 - admin charges pd directly in 2017
402	000	000	397.00.300428	TRANSFER IN LANDFILL RESERVE			0		0	15,000			2,975	17,181	Trf in pay post closure liability costs- 2017 costs pd directly from 428
402	000	000	397.00.300501	TRANSFER IN LANDFILL RESERVE			0				21,003		2,975	17,181	Trf in from ER&R due to 2013 audit finding of inequitable rates
Total Transfers In					0	0	(25,276)	25,276	0	15,000	21,003	0	5,951	34,362	
Total Revenue					3,562,001	3,472,001	135,058	3,336,943	1,653,500	2,666,186	3,494,778	3,331,479	2,819,978	2,761,311	
Total Revenue with Beginning Fund Balance					3,881,833	3,976,677	(144,644)	4,322,319	2,473,028	3,211,084	4,249,091	3,651,554	3,097,194	3,007,659	
Budgeted Ending Fund Balance:															
402	000	000	508.10.500000	ENDING FUND RESERVED	346,364	319,832	98,648	221,184	893,441	144,300	831,199	735,229	320,075	277,216	
Total Budgeted Ending Fund Balance:					346,364	319,832	98,648	221,184	893,441	144,300	831,199	735,229	320,075	277,216	
Operating Expenditures:															
Operating Salaries:															
402	000	000	537.80.510025	SOLID WASTE ATTENDANT I			0		4,292						
402	000	000	537.80.510035	SOLID WASTE ATTENDANT I	29,766	29,182	1,156	28,026	13,173	26,450	27,748	25,537	20,909	19,417	Montalto, Lisa
402	000	000	537.80.510036	SOLID WASTE ATTENDANT III	47,352	46,423	(2,545)	48,968	16,899	42,036	47,184	31,968	39,561	41,238	Guiosa, Kevin
402	000	000	537.80.510040	SOLID WASTE ATTENDANT I	31,496	30,879	1,616	29,263	13,604	27,614	29,233	23,836	21,263	23,789	Adler-Hunley Donna
402	000	000	537.80.510070	SOLID WASTE ATTENDANT II	40,104	39,317	2,074	37,243	17,197	35,115	33,212	35,417	39,517	50,963	Myers, Teri
402	000	000	537.80.510075	SOLID WASTE ATTENDANT III	47,352	46,423	1,827	44,596	20,028	42,036	40,381	40,203	41,623	25,287	Trejo Lopez, Jose Jesus
402	000	000	537.80.510090	SOLID WASTE ATTENDANT III	47,352	46,423	1,827	44,596	20,665	42,036	44,244	42,519	38,477	20,099	Smith, Teresa
402	000	000	537.80.510095	SOLID WASTE ATTENDANT III	47,352	46,423	1,827	44,596	19,221	44,000	26,456	44,030	44,379	46,750	Smith, Robert
402	000	000	537.80.510100	SOLID WASTE ATTENDANT I	29,766	29,182	1,156	28,026	7,831	34,596	22,213		0	0	Michaelis, Kelsey
402	000	000	537.80.510600	EXTRA HELP ON-GOING	40,710	39,911	13,391	26,520	11,029	26,000	14,889	32,501	50,085	28,228	Earles, Carolyn. Murphy, Pamela, Wright, Sherrell
402	000	000	537.80.512000	OVERTIME	12,240	12,000	0	12,000	12,070	5,000	19,564	11,794	12,528	5,284	
402	000	000	537.80.10.0999	SICK & VACATION PAY-OUTS	5,513	5,513	(640)	6,153		12,413	42,353		0	0	
402	000	000	537.81.510995	PROGRAM MANAGER I	58,915	58,915	(15,789)	74,704	7,633	56,000			47,869	30,168	Foster, Zach
Total Operating Expenditures					437,917	430,594	5,903	424,691	163,642	393,296	347,475	287,806	356,210	291,222	

Fund #	Dept	Program	MUNIS BARS # xxx.xx.xxxxxx	Name / Description	2019	2018 Final	Increase	1/1-6/30/17					Notes		
					Preliminary Budget	Budget	(Decrease)	2017 Budget	Actual	2016 Budget	2016 Actual	2015 Actual		2014 Actual	2013 Actual
				Other Pays:											
				Total Operating Salaries & Wages	437,917	430,594	5,903	424,691	163,642	393,296	347,475	287,806	356,210	291,222	
				Operating Personnel Benefits:											
402	000	000	537.80.520010	INDUSTRIAL INSURANCE	30,838	30,233	3,178	27,055	8,609	20,077	19,922	16,521	15,448	13,135	
402	000	000	537.80.520020	SOCIAL SECURITY	33,501	32,940	382	32,558	12,309	25,803	25,953	20,669	22,127	19,225	
402	000	000	537.80.520030	STATE RETIREMENT	55,615	54,685	7,104	47,581	17,887	37,710	33,515	27,646	32,621	19,676	
402	000	000	537.80.520035	TEAMSTERS PENSION	8,320	8,320	(1,040)	9,360	3,847	8,320	8,165	7,254	7,756	6,610	
402	000	000	537.80.520040	MEDICAL/DENTAL	132,792	130,188	(13,932)	144,120	62,135	100,800	104,024	83,008	83,083	80,630	
402	000	000	537.80.520991	ANNUAL CLOTHING ALLOWANCE	800	800	(100)	900							Payable by July 25th paycheck each year
402	000	000	537.81.520010	INDUSTRIAL INSURANCE			0			258		0	1,369	1,009	
402	000	000	537.81.520020	SOCIAL SECURITY			0			4,284		0	3,664	2,308	
402	000	000	537.81.520030	STATE RETIREMENT			0			6,261		0	4,377	2,750	
402	000	000	537.81.520040	MEDICAL/DENTAL			0			8,916		0	5,511	4,104	
				Total Operating Personnel Benefits	261,866	257,167	(4,407)	261,574	104,786	212,429	191,579	155,096	175,956	149,447	
				Total Operating Salaries & Benefits	699,783	687,761	1,496	686,265	268,428	605,725	539,054	442,903	532,166	440,669	
				Operating Supplies:											
402	000	000	537.80.531030	OPERATING SUPPLIES	15,000	15,000	2,000	13,000	5,737	13,825	8,526	11,995	16,591	7,472	
402	000	000	537.80.532010	FUEL CONSUMED	9,000	9,000	0	9,000	4,106	10,000	6,223	7,729	10,626	13,727	
402	000	000	537.80.535010	SMALL TOOLS	5,000	5,000	(5,000)	10,000		5,000	14,196	9,903	5,525	2,788	Purchases under \$5000 here
402	000	000	537.80.535099	TRACKABLE TOOLS & MINOR EQUIPMENT	5,000	5,000	5,000		887						Purchases under \$5000 here that are inventoried
402	000	000	537.81.531030	OPER. SUPPLIES/GIVEAWAYS/PROMO			(2,500)	2,500		2,500	2,682	935	0	1,079	
				Total Operating Supplies	34,000	34,000	(500)	34,500	10,730	31,325	31,628	30,563	32,743	25,066	
				Other Operating Services & Charges:											
402	000	000	537.80.541010	WIN-CAMS SYSTEM A/R & A/P			0	0	103	0		3,228	255,697	0	Admin cost- moved to BASUB 538
402	000	000	537.80.541017	HEALTH DEPT-COUNTY WIDE WASTE	51,000	51,000	3,000	48,000	12,008	40,000	40,187	20,273	31,473	45,135	\$1.50 per ton pd to Health Dept for permitting/code enforcmt
402	000	000	537.80.541020	WATER LABORATORY			0		38	4,000	286	2,205	50	4,023	Post closure costs 2017 pd directly from Fund 428
402	000	000	537.80.541040	GROUNDWATER MONITORING	5,000	5,000	5,000		1,611	5,000	1,215	20,059	6,300	15,928	
402	000	000	537.81.541050	SCALE INSPECTION SERVICE	5,000	5,000	0	5,000		3,000	1,271	3,978	9,398	4,800	
402	000	000	537.80.541070	MISC. CONTRACTED PROFESSIONAL SERV.	25,000	25,000	0	25,000	6,166	18,000	25,742	24,651	17,039	14,332	
402	000	000	537.80.541080	ADVERTISING	1,000	1,000	(500)	1,500	369	500	1,185	1,202	293	108	
402	000	000	537.80.542010	TELEPHONE	3,300	3,300	300	3,000	1,672	2,500	2,948	2,518	2,989	1,794	
402	000	000	537.80.543010	TRAVEL/MILEAGE/MEALS	1,500	1,500	750	750	249	1,500	345	567	0	0	
402	000	000	537.80.545020	OPERATING RENTALS AND LEASES	22,000	22,000	0	22,000	40,590	18,000	78,857	21,563	18,071	13,074	High in 2016 & 2017 due to excavator rental
402	000	000	537.80.546010	INSURANCE	20,000	20,000	0	20,000		15,700	11,464	19,956	13,410	13,547	Annual Liability/Cyber/Property Ins paid to WA Counties Risk Pool
402	000	000	537.80.547010	UTILITIES	12,000	12,000	2,000	10,000	5,892	8,600	8,894	8,446	8,958	7,027	PUD service to transfer stations
402	000	000	537.80.547030	MISC DISP/LEACHATE, TIRES, BRUSH	10,000	10,000	0	10,000	3,829	10,000	9,051	10,368	9,082	14,143	Wood recycling, tires, oil, etc.
402	000	000	537.80.547040	LONGHAUL SOLID WASTE DISPOSAL CONT.	1,800,000	1,800,000	0	1,800,000	831,785	1,300,000	1,953,099	1,626,228	1,268,676	1,609,044	Double check contract
402	000	000	537.80.548020	REPAIRS & MAINT/STRUT & EQUIPMENT	45,000	45,000	0	45,000	6,884	15,000	8,466	12,826	2,090	9,152	Repairs at Dropbox stations \$30k, all other mnt \$15k
402	000	000	537.80.549010	SCALE PERMIT RENEWAL/MISC DUES/FEES	1,100	1,100	600	500	1,031	1,600	558	409	811	18,900	
402	000	000	537.80.549020	SOLID WASTE DROP BOX CONTRACT	40,000	40,000	0	40,000	11,929	40,000	40,701	38,770	40,599	40,426	
402	000	000	537.81.541010	HHW DISPOSAL	30,000	30,000	0	30,000	12,356	40,000	21,810	45,776	(74)	16,267	
402	000	000	537.81.541020	ADVERTISING	500	500	0	500		500	45		0	455	
402	000	000	537.81.543010	TRAVEL/MILEAGE/MEALS	750	750	250	500		500			141	204	
402	000	000	537.81.549010	MISC DUES/TRAINING/SUBSCRIPTIONS	1,750	1,750	750	1,000	750	1,000	781	49	0	205	SW Training per Bart's requested classes & seminars
402	000	000	537.81.549020	PRINTING/BINDING/SIGNAGE	1,000	1,000	(200)	1,200		2,500	3,729	3,659	0	837	
402	000	000	537.81.549050	RECYCLE DROP BOX CONTRACT 50% INC	110,000	110,000	(1,065)	111,065	46,580	111,065	130,500	94,100	73,683	58,086	
				Total Operating Other Services & Charges	2,185,900	2,185,900	10,885	2,175,015	983,842	1,638,965	2,341,135	1,960,829	1,758,686	1,887,488	
				Operating Intergovernmental Charges:											
402	000	000	537.10.553010	EXCISE TAX	65,000	65,000	5,000	60,000	42,515	75,000	104,756	87,491	77,871	41,992	Refuse tax 3.6% pd to DOR
402	000	000	537.80.551010	PERMIT FEES	3,000	3,000	1,000	2,000	1,705	2,000	1,660		29,190	1,564	
402	000	000	537.80.551030	STATE AUDIT CHARGES			(3,369)	3,369		3,369		1,418	545	4,234	Moved to admin charges
402	000	000	537.80.552010	PASS THRU FUNDS: D.O.E. TO D.O.			0	0		0		36,100	0	0	
402	000	000	537.81.551010	KITSASP HHW CONTRACT	35,000	35,000	(17,350)	52,350	6,500	52,530	34,200		22,260	46,560	
				Total Operating Intergovernmental Charges	103,000	103,000	(14,719)	117,719	50,720	132,899	140,616	125,009	129,866	94,350	

Fund #	Dept	Program	MUNIS BARS # xxx.xx.xxxxxx	Name / Description	2019	2018 Final	Increase (Decrease)	1/1~6/30/17					Notes		
					Preliminary Budget			Budget	2017 Budget	Actual	2016 Budget	2016 Actual		2015 Actual	2014 Actual
Operating Internal Services Charges:															
402	000	000	537.80.531093	INTERFUND SUPPLIES	2,000	2,000	(500)	2,500	378	1,000	2,433	1,595	57,714	2,394	Increase due to vehicle maint shop doing store service
402	000	000	537.80.541019	INDIRECT COSTS	175,539	175,539	109,558	65,981		50,803	50,803	51,237	57,714	45,138	Used 2017 rate - Sum of Salaries & Wages x 16.23%
402	000	000	537.80.541091	INTERFUND PROFESSIONAL SERVICE			0		4,401		10,654				
402	000	000	537.80.541501	RESERVE FOR TECHNOLOGY	2,993	2,993	143	2,850	2,223	2,223	2,223	2,223	2,223	2,223	
402	000	000	537.80.542092	IT PHONES			0			1,022	1,026	1,034	937	734	Under admin charges, BARS 538.10.542092
402	000	000	537.80.545951	ER&R VEHICLES	87,206	87,206	(167,585)	254,791	23,649	56,785	61,256	61,434	67,635	78,778	
402	000	000	537.80.545952	IT COMPUTERS			0			6,609	6,609	6,609	27,842	2,400	Under admin charges, BARS 538.10.542092
402	000	000	537.80.546096	UNEMPLOYMENT	2,100	2,100	100	2,000	2,000	1,600	1,600	1,600	1,510	1,560	
402	000	000	537.80.548098	INTERFUND REPAIRS/MAINTENANCE	6,000	6,000	0	6,000	820	6,000	7,028	9,461	5,292	5,863	
Total Operating Internal Services Charges					275,838	275,838	(58,284)	334,122	34,097	126,042	143,632	135,193	220,867	139,090	
Total Operating Expenditures					3,298,520	3,286,498	(61,123)	3,347,621	1,347,817	2,534,956	3,196,064	2,694,497	2,674,328	2,586,662	
Administrative Expenditures:															
Administrative Salaries:															
402	000	000	538.10.510010	PUBLIC WORKS DIRECTOR	35,072	34,385	2,506	31,879	13,074						Hauth, Jerry
402	000	000	538.10.510030	FINANCE MANAGER	12,741	12,491	613	11,878	4,984						Beierle, Jennifer
402	000	000	538.10.510070	OFFICE MANAGER	4,873	4,778	3,264	1,514	1,162						Medcalf, Kelle
402	000	000	538.10.510120	DEPUTY DIRECTOR UTILITIES	55,527	54,438	51	54,387	16,853						Stepp, Bart
402	000	000	538.10.510150	PROGRAM SUPPORT TECH	35,640	34,941	1,948	32,993	8,150						Schufenhauer, Kerry
402	000	000	538.10.510160	SENIOR ACCOUNTING TECH	28,060	27,510	1,575	25,935	12,408						Creed, Britta
402	000	000	538.10.510180	CLERICAL III	26,257	25,742	3,903	21,839	5,566						Arndt, Dawnell
402	000	000	538.10.510600	EXTRA HELP	0	0	0	0	3,865						Morris, Michele
402	000	000	538.10.510999	SICK & VACATION PAY-OUTS	5,561	5,561	3,892	1,669							
402	000	000	538.10.512000	OVERTIME	540	540	10	530							
Other Pays:					204,272	200,386	17,762	182,624	66,062	0	0	0	0	0	
							3								
Total Administrative Salaries & Wages					204,272	200,386	17,765	182,624	66,062	0	0	0	0	0	
Administrative Personnel Benefits:															
402	000	000	538.10.520010	INDUSTRIAL INSURANCE	1,032	1,012	280	732	238						
402	000	000	538.10.520020	SOCIAL SECURITY	15,627	15,330	1,347	13,983	4,966						
402	000	000	538.10.520030	STATE RETIREMENT	25,943	25,449	5,014	20,435	11,368						
402	000	000	538.10.520035	TEAMSTERS PENSION	1,685	1,685	31	1,654	691						
402	000	000	538.10.520040	MEDICAL/DENTAL	38,599	37,842	796	37,046	11,614						
402	000	000	538.10.520991	ANNUAL CLOTHING ALLOWANCE	162	162	3	159							Payable by July 25th paycheck each year
Total Administrative Personnel Benefits					83,047	81,479	7,470	74,009	28,877	0	0	0	0	0	
Total Administrative Salaries & Benefits					287,319	281,866	25,236	256,633	94,939	0	0	0	0	0	
Administrative Supplies:															
402	000	000	538.10.531030	ADMIN SUPPLIES	5,400	5,400	2,750	2,650	3,747						
402	000	000	538.10.535010	SMALL TOOLS/MINOR EQUIP	0	0	(795)	795							Purchases for equipment less than \$5000
402	000	000	538.10.535099	TRACKABLE TOOLS/EQUIPMENT	0	0	0								Purchases for equipment less than \$5000
Total Administrative Supplies					5,400	5,400	1,955	3,445	3,747	0	0	0	0	0	
Administrative Other Services & Charges:															
402	000	000	538.10.541030	ADVERTISING	1,620	1,620	1,355	265	712						
402	000	000	538.10.541040	PROFESSIONAL SVCS	2,700	2,700	739	1,961							Includes CAMS software mnt
402	000	000	538.10.542010	COMMUNICATIONS/TELEPHONE	3,240	3,240	(735)	3,975	280						
402	000	000	538.10.542020	POSTAGE/SHIPPING	1,120	1,120	(6,300)	7,420	529						
402	000	000	538.10.543010	TRAVEL/MILEAGE	1,350	1,350	197	1,153	89						
402	000	000	538.10.545010	ADMIN RENTALS & LEASES	1,620	1,620	30	1,590	246						
402	000	000	538.10.546010	INSURANCE	4,860	4,860	(175)	5,035							
402	000	000	538.10.548010	REPAIRS OFFICE EQUIP	540	540	10	530							
402	000	000	538.10.549010	MISC DUES/TRAINING	2,700	2,700	991	1,709	1,062						
Total Administrative Other Services & Charge					19,750	19,750	(3,888)	23,637	2,918	0	0	0	0	0	

Fund #	Dept	Program	MUNIS BARS # XXX.XX.XXXXXX	Name / Description	2019	2018 Final	Increase	1/1-6/30/17					Notes		
					Preliminary Budget			Budget	(Decrease)	2017 Budget	Actual	2016 Budget		2016 Actual	2015 Actual
Administrative Intergovernmental Charges:															
402	000	000	538.10.551010	STATE AUDIT CHARGES	3,510	3,510	21	3,489							
Total Admin Intergovernmental Charges					3,510	3,510	21	3,489	0	0	0	0	0	0	
Administrative Internal Services Charges:															
402	000	000	538.10.531093	INTERFUND SUPPLIES	1,080	1,080	550	530							
402	000	000	538.10.541019	INDIRECT COSTS	31,532	31,532	2,249	29,283							
402	000	000	538.10.541501	RESERVE FOR TECHNOLOGY	762	762	29	733	733						
402	000	000	538.10.542092	IT PHONES	1,194	1,194	21	1,173							
402	000	000	538.10.545951	ER&R VEHICLE RENTAL	0	0	0	5,495							
402	000	000	538.10.545952	IT COMPUTERS	9,333	9,333	173	9,160							
402	000	000	538.10.545953	BUILDING RENT	3,978	3,978	2,060	1,918							
402	000	000	538.10.546096	UNEMPLOYMENT ALLOCATION	535	535	21	514	514						
Total Admin Internal Services Charges					48,414	48,415	5,104	43,310	6,742	0	0	0	0	0	
Total Administrative Expenditures:					364,393	358,940	28,427	330,514	108,346	0	0	0	0	0	
Capital Expenditures:															
402	000	000	594.37.564000	CAPITAL EXPENDITURE		125,000	125,000	0	113,755	150,000			0	0	HHZW Storage Sheds
402	000	000	594.37.564020	EQUIPMENT			0	0	9,669	15,000			0	0	
402	000	000	594.37.563010	OTHER CAPITAL IMPROVE (ROAD IMPR)			0	0		75,000			0	6,727	
402	000	000	594.37.563031	MINOR FACILITY IMPROVEMENTS			(423,000)	423,000		70,000			0	0	
Total Capital Expenditures					0	125,000	(298,000)	423,000	123,424	310,000	0	0	0	6,727	
Operating Transfers Out															
402	000	000	597.00.500406	UTILITIES ADMIN TRANSFER			0			221,828	221,828	221,828	102,791	137,054	
Total Operating Transfers Out					0	0	0	0	0	221,828	221,828	221,828	102,791	137,054	
Total Expenditures excluding salary & benefits					2,675,812	2,800,812	(357,427)	3,158,237	1,216,220	2,461,059	2,878,838	2,473,422	2,244,952	2,289,774	
Total Expenditures					3,662,913	3,770,439	(330,695)	4,101,135	1,579,587	3,066,784	3,417,892	2,916,325	2,777,118	2,730,443	
Total Expenditures with Ending Fund Balance					4,009,277	4,090,271	(232,047)	4,322,319	2,473,028	3,211,084	4,249,091	3,651,554	3,097,193	3,007,659	
Revenues less Expenditures					(100,912)	(298,438)	465,753	(764,192)	73,913	(400,598)	76,887	415,154	42,860	30,868	
Revenues less Expenditures including Beginning and Ending Fund Balance					(127,444)	(113,594)	(113,595)	0	(0)	0	0	0	0	1	(0)



CONTRACT DOCUMENTS

FOR

**MASON COUNTY PUBLIC WORKS
EELLS HILL TRANSFER STATION IMPROVEMENTS PROJECT
UTILITIES/WASTE PROJECT CAP 18-01**

December 14, 2017

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**MASON COUNTY
PUBLIC WORKS DEPARTMENT
INVITATION TO BID
EELLS HILL TRANSFER STATION IMPROVEMENTS**

Submittal Date: December 14, 2017

Project Background and Scope

Mason County is currently requesting bids for completing improvements to the Eells Hill Transfer Station Building. Facility improvements include: replacement of the tipping floor surfacing, installation of a steel load-out chute and associated modifications to the load-out tunnel, installation of an exterior metal staircase, repair of the rail for the tamping crane platform, and replacement of infrastructure for the sanitary sewer and storm water utility systems including piping, catch basins, cleanouts, a holding tank, and an infiltration pond. The Eells Hill Transfer Station is located at 501 W Eells Hill Road, Shelton, WA 98584.

The County reserves the right to choose the lowest responsive, responsible bid or reject all bids. This bid request does not commit Mason County to reimburse Contractors for bid submission costs.

Bid Requirements

The bid must be submitted to Public Works in a sealed envelope by 2:00 p.m. on Friday January 19, 2018 and clearly marked: Eells Hill Transfer Station Improvements. Bids should be delivered to:

Mason County Public Works
Attn: Bart Stepp, PE, Deputy Director/Utilities & Waste
100 W Public Works Drive, Bldg 1
Shelton, WA 98584

Bids received after the deadline will not be considered. Any Bid received, after the scheduled closing time, shall be returned to the vendor unopened. Bids may be sent by mail or turned in personally; however, if sent by mail, the responsibility for delivering a Bid to the County before the deadline is wholly upon the vendor. Bids will not be accepted via facsimile or electronic mail. Bids will be publicly opened at 2 PM at 100 W Public Works Drive in the Building 1 conference room. A vendor may not withdraw its Bid after it is formally opened by a representative from the County. A contract will be awarded or all bids rejected within 45 days after the bid opening.

There will be a pre-bid walkthrough for the project on Wednesday January 8th, 2018 at 8 AM at the Eells Hill Transfer Station. Work shall be completed within 90 calendar days after the notice to proceed is signed by the Contractor and County. State Sales Taxes -- the provisions of Section 1-07.2(1) - Rule 171 -- apply to this project. The Contractor shall include Washington State B&O and Use taxes in the unit bid prices for the materials, equipment, and supplies purchased for this project. Retail sales tax will be added for the entire contract amount and included as part of the total bid amount.

All construction and material, unless otherwise specified, shall be in accordance with the 2016 Standard Specifications and Standard Plans for Road, Bridge and Municipal Construction as prepared by the Washington State Department of Transportation and as amended under Amendments to the Standard Specifications, and the American Public Works Association, and Mason County Engineering Standards.

Costs

Those submitting Bids do so entirely at their expense. There is no expressed or implied obligation by the Mason County to reimburse any individual or firm for any costs incurred in preparing or submitting Bids, providing additional information when requested by the Mason County, or for participating in any selection interviews.

Requesting Bid Documents or Inquiries

To receive a set of bid documents contact Bart Stepp at (360) 427-9670, ext. 652, or by email at bstepp@co.mason.wa.us. Bid documents will be e-mailed to Contractors for free. Mr. Stepp will also respond to questions regarding the bid documents up to five (5) working days prior to the bid due date.

PART I- BIDDING DOCUMENTS
INSTRUCTIONS TO BIDDERS

1. Intent of Plans and Specifications

It is the intention of these specifications to provide for careful, thorough, and workmanlike construction procedures in the installation of materials and equipment and in the manufacture and delivery of such materials and equipment. The bidder to whom the contract is awarded shall furnish all the material and labor necessary to complete said contract in accordance with all of its terms and conditions.

The plans and specifications shall be considered and used together. Anything appearing as a requirement of either shall be accepted as applicable to both even though not so stated therein or shown. The Engineer may furnish supplemental plans and specifications to define more clearly any requirement of the original documents; these shall be accepted by the Contractor as of the same force and effect as though they had been included among the listed drawings and in case of any conflict between the listed and the supplemental drawings, the latter shall govern. The Contractor shall not be entitled to extra payment because of his compliance with the requirements of such supplemental drawings unless they contain new requirements involving costs, which clearly could not have been anticipated by an experienced contractor in his examination of the original listed drawings or could not reasonably be inferred there from the requirements of the contract.

All specifications and notes appearing on the plans shall have the same force and effect as though they were repeated herein and by this reference are incorporated herein.

2. Ownership and Use of Drawings, Specifications, and Other Instruments of Service

The Owner and the Owner's consultants shall be deemed the authors of their respective instruments of service, including the Drawings and Specifications. The Owner will own the documents and will retain all common law, statutory and other reserved rights, including copyrights. The Contractor, subcontractors, sub-subcontractors, and material or equipment suppliers shall not own or claim a copyright in the instruments of service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Owner or Owner's consultants' reserved rights.

3. Examination of the Contract Documents

Each bidder shall thoroughly examine and be familiar with legal and procedural documents, general conditions, special provisions, specifications, drawings, and addenda (if any). The submission of a proposal shall constitute an acknowledgment that the bidder has thoroughly examined and is familiar with the contract documents. The failure or neglect of a bidder to receive or examine any of the contract documents shall in no way relieve him from any obligations with respect to his proposal or to the contract. No claim for additional compensation will be allowed which is based upon a lack of knowledge of any contract document, and the Owner will in no case be responsible for any loss or for unanticipated costs that may be suffered by the Contractor as a result of conditions pertaining to the work.

4. Examination of Site and Conditions

Before making a proposal, the bidder shall examine the site of the work and ascertain for himself all the physical conditions in relation thereto. Failure to take this precaution shall not release him from his obligation as implied by the proposal he submits nor excuse him from performing the work in strict accordance with the requirements of the contract documents.

No statement made by any officer, agent, or employee of the Owner pertaining to the site of the work or the conditions under which the work must be performed will be binding on the Owner.

5. Inclement Weather

Mason County is subject to inclement weather through the winter and spring months. Severe rain and windstorms may occur in addition to snow and ice. The Contractor should be aware of the potential for inclement weather and plan the project accordingly.

6. Addenda and Interpretations of Documents

No interpretation of meaning of the plans, specifications, or other pre-bid documents will be made to any bidder orally. Every request for such interpretation shall be submitted in writing, addressed to Mason County, and to be given consideration, shall be received at least five working days prior to date fixed for opening bids. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the specifications, which, if issued, will be mailed, faxed, or otherwise delivered to each prospective bidder. Failure of any bidder to receive any such addendum shall not relieve such bidder from any obligation under his bid as submitted. All addenda so issued shall become a part of the contract documents. Where changes to plans, specifications or both or supplemental information of significant importance, additional bid time will be provided.

7. Preparation of Proposal

Bids must be submitted by filling in with ink (or typing), on the Form headed "Bid Proposal," each and every blank on each bid schedule. If the bidder is required to provide a special form appropriate to the nature of his bid, then such form shall be complete in all respects as required by the specifications if it is to merit consideration by the Owner.

All bid prices must be equal to the Bidders estimated cost to perform the work. Prices, which are weighted and disproportionate to the actual cost, as may be compared to other Bidders and evaluation by the Engineer, may be considered non-responsive and their bid rejected. If the proposal is made by a partnership, it should contain the name of each partner and should be signed in the firm name, followed by the signature of partner or that of a person duly authorized to act for and on behalf of such partnership. If made by a corporation, the proposal should be signed with the name of the corporation and the state in which incorporated, followed by the written signature of the qualified officer and the designation of the office he holds in the corporation. The address of the person, firm, or corporation in whose behalf the proposal is submitted shall be given. The bidder shall comply with all other specific requirements of the proposal form.

8. Alteration of Documents Prohibited

Except as may be provided otherwise herein, proposals which are incomplete, conditioned in any way which the plans or specifications do not authorize, contain unverified erasures or alterations, include items not named in the proposal form or which are unlawful, may be rejected as non-responsive.

9. Submission of Proposal

Each proposal shall be sealed in a package addressed as required by the Invitation to Bid, marked with the name of the bidder and the title of the project, and must be delivered to Mason County Public Works, Attn: Bart Stepp, Deputy Director/Utilities & Waste, 100 W. Public Works Drive, Shelton, WA 98584, at or before 2:00 P.M. on January 19, 2018. If forwarded by mail, the sealed envelope containing the proposal shall be enclosed in another envelope addressed to Mason County Public Works, Attn: Bart Stepp, Deputy Director/Utilities & Waste, 100 W. Public Works Drive, Shelton, WA 98584.

10. Modification of Proposal

Change in a proposal already delivered will be permitted only if a request for the privilege of making such modification is made in writing signed by the bidder and the specific modification is stated prior to the bid opening on January 19, 2018.

11. Substitutions

Approval of materials to be used on the project and possible substitutions thereof shall not be addressed during the bidding process. Materials shall meet the specifications and the bids shall be based on specified items.

12. Withdrawal of Proposal

A proposal may be withdrawn at any time prior to bid opening upon written authorization by the proposer.

13. Opening Bids

All bids will be opened at 2:00 p.m. on January 19, 2018, at the Mason County Public Works Building, 100 W. Public Works Drive, Shelton, WA 98584. All bid proposals received prior to the scheduled closing time and which are not withdrawn as above provided, will be publicly opened and read aloud even though there may be irregularities or informalities therein, except that any form required as part of the proposal (see Bidder's Checklist below) which is not signed, said proposal will not be read and consequently, will be rejected without consideration.

14. Award of Contract

The owner will make award determination no later than February 6, 2018.

15. Basis of Award

If the owner awards the contract, the award will be given to a responsive, responsible, qualified Bidder submitting the lowest Bid Proposal acceptable to the Owner.

16. Tied Bids

Tied bids will be resolved per the procedure in the 2016 Standard Specifications and Standard Plans for Road, Bridge, and Municipal Construction as prepared by the Washington State Department of Transportation.

17. Rejection of Bids

The Owner reserves the right before or after opening to reject any or all bids or to waive any informality therein if it is believed that the best interest of the Owner will be served thereby.

18. Bidder's Risk

The submission of bid shall constitute an acknowledgment that the bidder has thoroughly examined and is familiar with the contract documents, and has reviewed and inspected all applicable statutes, regulations, ordinances, and resolutions dealing with or related to the service to be provided herein. The failure or neglect of a bidder to examine such documents, statutes, regulations, ordinances or resolutions shall in no way relieve the bidder from any obligations with respect to the bidder's bid or to the contract. No claim for additional compensation will be allowed which is based upon a lack of knowledge of any contract documents, statutes, regulations, ordinances, or resolutions.

19. Indemnification

Indemnification by Contractor: To the fullest extent permitted by law, Contractor agrees to indemnify, defend and hold Owner and its departments, elected and appointed officials, employees, agents and volunteers, harmless from and against any and all claims, damages, losses and expenses, including but not limited to court costs, attorney's fees and alternative dispute resolution costs, for any personal injury, for any bodily injury, sickness, disease or death and for any damage to or destruction of any property (including the loss of use resulting therefrom) which 1) are caused in whole or in part by any act or omission, negligent or otherwise, of the Contractor, its employees, agents or volunteers or Contractor 's subcontractors and their employees, agents or volunteers; or 2) are directly or indirectly arising out of, resulting from, or in connection with performance of this Contract; or 3) are based upon Contractor's or its subcontractors' use of, presence upon or proximity to the property of Owner. This indemnification obligation of Contractor shall not apply in the limited circumstance where the claim, damage, loss or expense is caused by the sole negligence of Owner. This indemnification obligation of the Contractor shall not be limited in any way by the Washington State Industrial Insurance Act, RCW Title 51, or by application of any other workmen's compensation act, disability benefit act or other employee benefit act, and the Contractor hereby expressly waives any immunity afforded by such acts. The foregoing indemnification obligations of the Contractor are a material inducement to Owner to enter into this Contract, are reflected in Contractor's compensation, and have been mutually negotiated by the parties.

20. Governing Law

In the event that any litigation should arise concerning the construction or interpretation of any of the terms of this Contract, the venue of such action of litigation shall be in the courts of the State of Washington and Mason County. Unless otherwise specified herein, this Contract shall be governed by the laws of Mason County and the State of Washington.

21. Conflict of Interest

If at any time prior to commencement of, or during the term of this Contract, Contractor or any of its employees involved in the performance of this Contract shall have or develop an interest in the subject matter of this Contract that is potentially in conflict with the Owner s interest, then Contractor shall immediately notify Owner of the same. The notification of Owner shall be made with sufficient specificity to enable Owner to make an informed judgment as to whether or not Owner's interest may

be compromised in any manner by the existence of the conflict, actual or potential. Thereafter, Owner may require Contractor to take reasonable steps to remove the conflict of interest. Owner may also terminate this Contract according to the provisions herein for termination.

22. Non-Discrimination in Employment

Owner's policy is to provide equal opportunity in all terms, conditions and privileges of employment for all qualified applicants and employees without regard to race, color, creed, religion, national origin, sex, sexual orientation, age, marital status, disability, or veteran status. Contractor shall comply with all laws prohibiting discrimination against any employee or applicant for employment on the grounds of race, color, creed, religion, national origin, sex, sexual orientation, age, marital status, disability, or veteran status, except where such constitutes a bona fide occupational qualification.

Furthermore, in those cases in which Contractor is governed by such laws, Contractor shall take affirmative action to insure that applicants are employed, and treated during employment, without regard to their race, color, creed, religion, national origin, sex, age, marital status, sexual orientation, disability, or veteran status, except where such constitutes a bona fide occupational qualification. Such action shall include, but not be limited to: advertising, hiring, promotions, layoffs or terminations, rate of pay or other forms of compensation benefits, selection for training including apprenticeship, and participation in recreational and educational activities. In all solicitations or advertisements for employees placed by them or on their behalf, Contractor shall state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex or national origin.

The foregoing provisions shall also be binding upon any sub-contractor, provided that the foregoing provision shall not apply to contracts or sub-contractors for standard commercial supplies or raw materials, or to sole proprietorships with no employees.

23. Right to Review

This Contract is subject to review by any Federal, State or Owner auditor. Owner or its designee shall have the right to review and monitor the financial and service components of this program by whatever means are deemed expedient by the Owners Representative or by Owner's Auditor's Office. Such review may occur with or without notice and may include, but is not limited to, on-site inspection by Owner agents or employees, inspection of all records or other materials which Owner deems pertinent to the Contract and its performance, and any and all communications with or evaluations by service recipients under this Contract. Contractor shall preserve and maintain all financial records and records relating to the performance of work under this Contract for six (6) years after Contract termination, and shall make them available for such review, within Mason County, State of Washington, upon request. Contractor also agrees to notify the Owner's Representative in advance of any inspections, audits, or program review by any individual, agency, or governmental unit whose purpose is to review the services provided within the terms of this Contract. If no advance notice is given to Contractor, then Contractor agrees to notify the Administrative Officer as soon as it is practical.

24. Employment Security Department Certificate of Coverage

Contractors must supply prior to contract award a Contractor Bid Letter from the Employment Security Department that states they are eligible to bid on this project. To obtain a letter e-mail publicworks@esd.wa.gov requesting a Contractor Bid Letter and supply the Employment Security Department number, UBI number, and business name of your company in the e-mail.

25. E-Verify Affidavit

The E-Verify contractor program for Mason County applies to contracts of \$100,000 or more and subcontracts for \$25,000 or more if the primary contract is for \$100,000 or more. CONTRACTOR represents and warrants that it will, for at least the duration of this CONTRACT, register and participate in the status verification system for all newly hired employees. The term "employee" as used herein means any person that is hired to perform work for Mason County. As used herein, "status verification system" means the Illegal Immigration Reform and Immigration Responsibility Act of 1996 that is operated by the United States Department of Homeland Security, also known as the E-Verify Program, or any other successor electronic verification system replacing the E-Verify Program. CONTRACTOR agrees to maintain records of such compliance and, upon request of the COUNTY, to provide a copy of each such verification to the COUNTY. CONTRACTOR further represents and warrants that any person assigned to perform services hereunder meets the employment eligibility requirements of all immigration laws of the State of Washington. CONTRACTOR understands and agrees that any breach of these warranties may subject CONTRACTOR to the following: (a) termination of this CONTRACT and ineligibility for any Mason County Contract for up to three (3) years, with notice of such cancellation/termination being made public. In the event of such termination/cancellation, CONTRACTOR would also be liable for any additional costs incurred by the COUNTY due to contract cancellation or loss of license or permit." CONTRACTOR will review and enroll in the E-Verify program through this website: www.uscis.gov.

26. Wage Law Intents and Affidavits

If awarded the project, the contractor and each subcontractor shall complete or have on file a current "Statement of Intent to Pay Prevailing Wages" (Form L&I Number F700-029-000) before payment will be made for work performed. An "Affidavit of Wages Paid" (Form L&I Number F700-007-000) shall be required upon final acceptance of the public works project by the County. These forms are available from Washington State Department of Labor & Industries and can be filed electronically at:

<http://www.lni.wa.gov/TradesLicensing/PrevWage/IntentAffidavits/GettingStarted/default.asp>

The applicable prevailing wages for this project have an effective date of **January 19, 2018** and are available electronically from the Washington State Department of Labor & Industries and can be found at:

<https://fortress.wa.gov/lni/wagelookup/prvWagelookup.aspx>

27. Bidder Requirement

By signing the Bid Proposal Form, the contractor declares that before preparing their bid, they read carefully the specifications and requirements for bidders and that their bid is made with the full knowledge of the kind, quality and quantity of services and equipment to be furnished, and their said bid is as stated on these pages.

28. Bidder's Checklist

Bidder shall complete the following forms and shall submit them with the Bid Proposal:

- 1) Bid Proposal Form**
- 2) Bid Bond**

- 3) Bidder Qualifications**

BID PROPOSAL FORM

TO: Mason County Public Works
100 W. Public Works Drive
Shelton, Washington 98584

FROM: Bidder _____
Address _____

Telephone _____
E-Mail _____

The undersigned, as bidder, declares that we have examined all of the contract documents and that we will contract with Mason County to do everything necessary to complete the work as outlined on the plans and specifications for the Eells Hill Transfer Station Improvements.

We acknowledge that addenda numbers _____ to _____ have been delivered to us and have been examined as part of the contract documents. We agree that the Bidder Qualifications form shall be a part of this proposal.

If our BID is accepted, we agree to sign the contract form and the required evidences of insurance within ten (10) calendar days after receiving written notice of the award of contract.

We further agree, if our BID is accepted and a contract for performance of work is entered into with Mason County, to so plan the work and to prosecute it with such diligence that all of the work shall be completed within the time period stated in the contract. We understand that Mason County reserves the right to reject any or all bids and to determine which proposal is, in the judgment of Mason County, the lowest responsible bid, and which proposal, if any, should be accepted in the best interests of Mason County and that Mason County also reserves the right to waive any informalities in any proposal or bid.

We further state that we have not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with such contract.

Bidder agrees that the work will be completed within ninety (90) calendar days after the date when the bidder commences work.

Notes:

- (1) See Special Provisions and the Standard Specifications for State sales tax requirements.
- (2) The County reserves the right to adjust the scope of this work to match available funds.
- (3) The County reserves the right to reject any or all bids.
- (4) The table on the next page provides a list of items required to complete the project. It is the contractor’s responsibility to complete the project scope to all required standards and specifications.

We propose to perform the work at the prices listed in the following bid schedule(s):

BID SCHEDULE – EELLS HILL TRANSFER STATION IMPROVEMENTS

Item	Section	Material Description	Quantity	Unit Cost	Bid Price
1	General	Mobilization, H&S, TESC, survey	1 LS		
2	General	Special Inspections and Testing	1 LS		
3	Site Demolition	8" Sanitary Sewer Line	140 LF		
4	Site Demolition	Cleanouts	2 EA		
5	Site Demolition	Asphalt Truck Pullout	900 SF		
6	Site Demolition	Trench Drain	165 LF		
7	Site Demolition	Asphalt Dropoff Access	540 SF		
8	Site Demolition	Perforated Stormwater Line	50 LF		
9	Site Demolition	Catch Basins	2 EA		
10	Site Demolition	Asphalt Access Road	2268 SF		
11	Site Demolition	Sawcut and remove concrete slab	135 SF		
12	Site Demolition	Sawcut Pavement	195 LF		
13	Utilities and Paving	WSDOT Catch Basin Type 1L	3 EA		
14	Utilities and Paving	Sewer Holding Tank	1 EA		
15	Utilities and Paving	Stormwater Runoff Control Ditch	460 LF		
16	Utilities and Paving	CB Type 1, WSDOT B-5.20-2	4 EA		
17	Utilities and Paving	12" PVC Storm Drain	184 LF		
18	Utilities and Paving	Infiltration Trench Excavation	2,829 CY		
19	Utilities and Paving	3" Top Soil	472 SY		
20	Utilities and Paving	Hydroseeding	1.20 AC		
21	Utilities and Paving	Cut/restore access road for stormwater crossing	48 LF		
22	Utilities and Paving	CDF Backfill at trench drains	8 CY		
23	Utilities and Paving	Reinforced concrete around trench drains / CB/ slab	30 CY		
24	Utilities and Paving	6" PVC Sanitary Sewer	12 LF		
25	Utilities and Paving	8" PVC Sanitary Sewer	100 LF		
26	Utilities and Paving	CDF for Abandoned SS Pipe	2.0 CY		
27	Utilities and Paving	8" PVC Sewer Flexible Coupling	2 EA		
28	Utilities and Paving	Trench Drain (tip floor & loading bay)	119 LF		
29	Utilities and Paving	Trench Drain Catch Basin	3 EA		

30	Utilities and Paving	CSBC	40.0 CY		
31	Utilities and Paving	Draining Vaults	1.0 LS		
32	Utilities and Paving	Asphalt Pavement	75 TONS		
33	Tipping Floor Demo	Tipping Floor	3,505 SF		
34	Tipping Floor Demo	Demolish Fasteners	36 EA		
35	Tipping Floor Demo	Remove and Dispose of Waste Chute	1 LS		
36	Tipping Floor	Asphalt Overlay	178 TONS		
37	Exterior Stairway	Structural Steel stringers, knee braces, bracing	2,250 LB		
38	Exterior Stairway	Knee brace post installed anchors	44 EA		
39	Exterior Stairway	Steel handrail	160 LF		
40	Exterior Stairway	Grating	155 SF		
41	Exterior Stairway	Concrete Foundations	2 CY		
42	Exterior Stairway	8" diameter bollard	2 EA		
43	Loading Bay Waste Chute	Flexible Baffle	144 LF		
44	Loading Bay Waste Chute	Bracing - HSS 8x8x1/4"	10970 LB		
45	Loading Bay Waste Chute	Bracing - HSS 8x12x1/4"	2350 LB		
46	Loading Bay Waste Chute	Bracing - HSS 4x4x1/4" (Laterals)	720 LB		
47	Loading Bay Waste Chute	1/2" Steel Plate	1823 LB		
48	Loading Bay Waste Chute	3/4" Steel Plate	20828 LB		
49	Loading Bay Waste Chute	5/8" Steel Plate (Gusset)	2904 LB		
50	Loading Bay Waste Chute	12" Schedule 40 Steel Pipe @ 12.5'	663 LB		
51	Loading Bay Waste Chute	Crane rail damage repair	1 LS		
52	Loading Bay	Concrete footings epoxied into base slab	1.5 CY		
53	Loading Bay	Concrete overlay with macrofibers	1,730 SF		
				Subtotal of Work	
				Sales Tax @ 8.5%	
				Grand Total Eells Hill Transfer Station Improvements (Subtotal + Sales Tax)	

The grand total written out in words is:

_____ Dollars and _____ Cents.

BIDDER acknowledges receipt of the following ADDENDUM:

<u>Addendum No.</u>	<u>Addendum Receipt Date</u>	<u>Signed Acknowledgment</u>
<u>1</u>	_____	_____
<u>2</u>	_____	_____

WASHINGTON STATE AND LOCAL SALES TAX. Sales Tax (8.5%) shall be added to full contract price.

BIDDER'S ADDRESS. Notice of Acceptance of this bid or requests for additional information should be addressed to the undersigned at the address stated below.

NON-COLLUSION DECLARATION

I, by signing the proposal, hereby declare, under penalty of perjury under the laws of the United States that the following statements are true and correct:

1. That the undersigned person(s), firm, association or corporation has (have) not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with the project or which this proposal is submitted.
2. That by signing the signature page of this proposal, I am deemed to have signed and have agreed to the provisions of this declaration.

CERTIFICATION OF COMPLIANCE WITH WAGE PAYMENT STATUTES

The bidder hereby certifies that, within the three-year period immediately preceding the bid solicitation date 10/10/17, the bidder is not a "willful" violator, as defined in RCW 49.48.082, of any provision of chapters 49.46, 49.48, or 49.52 RCW, as determined by a final and binding citation and notice of assessment issued by the Department of Labor and Industries or through a civil judgment entered by a court of limited or general jurisdiction.

I certify under penalty of perjury under the laws of the State of Washington that the foregoing is true and correct.

NOTES:

1. This proposal form is not transferable and any alteration of the firm's name entered hereon without prior permission from the Deputy Director will be cause for considering the proposal irregular and subsequent rejection of the bid.

Bidder's Business Name

Signature of Authorized Official*

Printed Name

Title

Date

City

State

Check One:

Sole Proprietorship Partnership Joint Venture Corporation

State of Incorporation, or if not a corporation, State where business entity was formed:

If a co-partnership, give firm name under which business is transacted:

** If a corporation, proposal must be executed in the corporate name by the president or vice-president (or any other corporate officer accompanied by evidence of authority to sign). If a co-partnership, proposal must be executed by a partner.*

Contractor's License No.:

By: _____

Address

City

State

Zip

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, _____

of _____ as Principal, and the _____

a corporation duly organized under the laws of the State of _____, and authorized to do business in the State of Washington, as surety, are held and firmly bound unto Mason County, Washington in the full and penal sum of five (5) percent of the total amount of the bid proposal of said principal for the work hereinafter described, for the payment of which, well and truly to be made, we bind our heirs, executors, administrators and assigns, and successors and assigns, firmly by these presents.

The condition of this bond is such, that whereas the principal herein is herewith submitting his or its sealed proposal for the following public work, to wit:

Eells Hill Transfer Station Improvements to include: replacement of the tipping floor surfacing, installation of a steel load-out chute and associated modifications to the load-out tunnel, installation of an exterior metal staircase, repair of the rail for the tamping crane platform, and replacement of infrastructure for the sanitary sewer and storm water utility systems including piping, manholes, catch basins, cleanouts, a holding tank, and an infiltration pond. The Eells Hill Transfer Station is located at 501 W Eells Hill Road, Shelton, WA 98584.

Said bid and proposal, by reference thereto, being made a part hereof.

NOW, THEREFORE, If the said proposal bid by said principal be accepted, and the contract be awarded to said principal, and if said principal shall duly make and enter into and execute said contract and shall furnish bond as required by Mason County within a period of twenty (20) days from and after said award, exclusive of the day of such award, then this obligation shall be null and void, otherwise it shall remain and be in full force and effect.

IN TESTIMONY WHEREOF, The principal and surety have caused these presents to be signed and

sealed this _____ day of _____, 2018.

Principal

Surety

Attorney-in-fact

BIDDER QUALIFICATIONS

Project: EELLS HILL TRANSFER STATION IMPROVEMENTS

If the above contract is awarded to our company, the following persons will be authorized to sign change orders, progress payments, and similar documents for the company: (names and positions)

The contractor's superintendent at the job site per Article 1-05.13 of the Standard Specifications will be (give full name): _____

The last three projects completed or substantially completed by our company involving similar construction work are as follows:

1. Project Name: _____

Dollar amount of Contract: \$ _____

Owner: _____

Owner's Representative: _____ Phone No.: _____

Contractor's Superintendent on this Project: _____

Brief Description of Project Scope: _____

2. Project Name: _____

Dollar amount of Contract: \$ _____

Owner: _____

Owner's Representative: _____ Phone No.: _____

Contractor's Superintendent on this Project: _____

Brief Description of Project Scope: _____

3. Project Name: _____

Dollar amount of Contract: \$_____

Owner: _____

Owner's Representative: _____ Phone No.: _____

Contractor's Superintendent on this Project: _____

Brief Description of Project Scope: _____

Name/Title of Person Completing Form: _____

Signature: _____ Date: _____

Phone No.: _____

PART II- CONTRACT FORMS

AGREEMENT

THIS AGREEMENT, made this _____ day of _____, 2018 by and between Mason County, Washington, hereinafter called "Owner," and of _____, doing business as (an individual) or (a partnership) or (a corporation), hereinafter called "Contractor."

WITNESSETH: that for and in consideration of the payments and agreements hereafter mentioned:

The Contractor will furnish all of the material, supplies, tools, equipment, labor, and other services necessary for the completion of the project described herein.

EELLS HILL TRANSFER STATION IMPROVEMENTS

PROJECT DESCRIPTION: Improvements include: replacement of the tipping floor surfacing, installation of a steel load-out chute and associated modifications to the load-out tunnel, installation of an exterior metal staircase, repair of the rail for the tamping crane platform, and replacement of infrastructure for the sanitary sewer and storm water utility systems including piping, manholes, catch basins, cleanouts, a holding tank, and an infiltration pond. The Eells Hill Transfer Station is located at 501 W Eells Hill Road, Shelton, WA 98584.

All work required by the Contract Documents will be completed within ninety (90) calendar days of issuance of the Notice to Proceed unless the period for completion is extended otherwise by the Contract Documents.

The Contractor agrees to perform all of the work described in the Contract Documents and comply with the terms therein for the total price of _____.

The term "Contract Documents" means and includes the following:

Invitation to Bid	Performance Bond
Instructions to Bidders	Mason County Special Provisions
Bid Proposal	Contract Bid Items
Bid Bond	Project Drawings
Bidder Qualifications	Project Specifications
Agreement	Addendums
Payment Bond	All items included within these Contract Documents.

The Owner will pay to the Contractor in the manner and at such times as set forth in the General Conditions such amounts as required by the Contract Documents.

This Agreement shall be binding upon all parties hereto and their respective heir, executors, administrators, successors, and assigns.

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, this Agreement in duplicate, each of which shall be deemed an original, on the date first above written.

OWNER:

By: _____

Typed Name: _____

Title: _____

ATTEST:

Typed Name: _____

Title: _____

CONTRACTOR:

By: _____

Typed Name: _____

Title: _____

Address: _____

ATTEST:

Typed Name: _____

Title: _____

NOTICE OF AWARD

DATE: _____, 2018

TO: _____

PROJECT NAME: EELLS HILL TRANSFER STATION IMPROVEMENTS

The Owner has considered the Bid submitted by you for the above described work in response to its invitation to bid, and Contract Documents.

You are hereby notified that your bid has been accepted for items in the amount of _____ (\$ _____).

You are required by the Bidding Documents to execute the Agreement and furnish the required Contractor's Performance Bond, Payment Bond, and Certificates of Insurance (including complete insurance coverage for the Owner Mason County) within ten (10) calendar days from the date of this notice to you.

Intent to pay prevailing wages shall be demonstrated before Notice to Proceed is executed.

If you fail to execute said Agreement and to furnish said Bonds within ten (10) calendar days from the date of this notice, said Owner will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this Notice of Award to the

Owner. Dated this ___ day of _____, 2018.

_____ Mason County Public Works, Owner

By: _____

Title: _____

ACCEPTANCE OF NOTICE

Receipt of the above **NOTICE TO AWARD** is hereby acknowledged.

Firm: _____, this _____ day of _____, 2018.

By: _____

Title: _____

**PERFORMANCE BOND
TO MASON COUNTY, WA**

BOND No. _____

Mason County, Washington has awarded to _____
_____ (Principal), a contract for the construction of the project designated as Eells Hill Transfer Station Improvements, Project No. CAP 18-01, in Shelton, Washington, and said principal is required to furnish a bond for performance of all obligations under the Contract.

The Principal, and _____ (Surety), a corporation, organized under the laws of the State of _____ and licensed to do business in the State of Washington as surety and named in the current list of "Surety Companies Acceptable in Federal Bonds" as published in the Federal Register by the Audit Staff Bureau of Accounts, U.S. Treasury Dept., are jointly and severally held and firmly bound to Mason County, in the sum of _____
_____ US Dollars (\$ _____) Total Contract Amount, subject to the provisions herein.

This statutory performance bond shall become null and void, if and when the Principal, its heirs, executors, administrators, successors, or assigns shall well and faithfully perform all of the Principal's obligations under the Contract and fulfill all terms and conditions of all duly authorized modifications, additions, and changes to said Contract that may hereafter be made, at the time and in the manner therein specified; and if such performance obligations have not been fulfilled, this bond shall remain in force and effect.

The Surety for value received agrees that no change, extension of time, alteration or addition to the terms of the Contract, the specifications accompanying the Contract, or to the work to be performed under the Contract shall in any way affect its obligation on this bond, and waives notice of any change, extension of time, alteration or addition to the terms of the Contract or the work performed. The Surety agrees that modifications and changes to the terms and conditions of the Contract that increase the total amount to be paid to the Principal shall automatically increase the obligation of the Surety on this bond and notice to Surety is not required for such increased obligation.

This bond may be executed in two (2) original counterparts, and shall be signed by the parties' duly authorized officers. This bond will only be accepted if it is accompanied by a fully executed and original power of attorney for the office executing on behalf of the surety.

PRINCIPAL

SURETY

Principal Signature Date

Surety Signature Date

Printed Name Date

Printed Name Date

Title

Title

Name, address, and telephone of local office/agent of Surety Company is:

**PUBLIC WORKS PAYMENT BOND
TO MASON COUNTY, WA**

BOND No. _____

Mason County, Washington has awarded to _____
_____ (Principal), a contract for the construction of the project designated as Eells Hill Transfer Station Improvements, Project No. CAP 18-01, in Shelton, Washington, and said principal is required under the terms of that Contract to furnish a payment bond in accord with Title 39.08 Revised Code of Washington (RCW) and (where applicable) 60.28 RCW.

The Principal, and _____ (Surety), a corporation, organized under the laws of the State of _____ and licensed to do business in the State of Washington as surety and named in the current list of "Surety Companies Acceptable in Federal Bonds" as published in the Federal Register by the Audit Staff Bureau of Accounts, U.S. Treasury Dept., are jointly and severally held and firmly bound to Mason County, in the sum of _____
_____ US Dollars (\$ _____) Total Contract Amount, subject to the provisions herein.

This statutory payment bond shall become null and void, if and when the Principal, its heirs, executors, administrators, successors, or assigns shall pay all persons in accordance with RCW 39.08, 39.12, and 60.28 including all workers, laborers, mechanics, subcontractors, and materialmen, and all person who shall supply such contractor or subcontractor with provisions and supplies for the carrying on of such work, and all taxes incurred on said Contract under Titles 50 and 51 RCW and all taxes imposed on the Principal under Title 82 RCW; and if such payment obligations have not been fulfilled, this bond shall remain in full force and effect.

The Surety for value received agrees that no change, extension of time, alteration or addition to the terms of the Contract, the specifications accompanying the Contract, or to the work to be performed under the Contract shall in any way affect its obligation on this bond, and waives notice of any change, extension of time, alteration or addition to the terms of the Contract or the work performed. The Surety agrees that modifications and changes to the terms and conditions of the Contract that increase the total amount to be paid to the Principal shall automatically increase the obligation of the Surety on this bond and notice to Surety is not required for such increased obligation.

This bond may be executed in two (2) original counterparts, and shall be signed by the parties' duly authorized officers. This bond will only be accepted if it is accompanied by a fully executed and original power of attorney for the office executing on behalf of the surety.

PRINCIPAL

SURETY

Principal Signature Date

Surety Signature Date

Printed Name Date

Printed Name Date

Title

Title

Name, address, and telephone of local office/agent of Surety Company is:

NOTICE TO PROCEED

TO: _____

PROJECT NAME: EELLS HILL TRANSFER STATION IMPROVEMENTS

You are hereby notified to commence work in accordance with the Agreement dated _____, 2018, within twenty (20) calendar days of the date of this notice, or _____, 2018, and you are to complete the work within ninety (90) calendar days of this notice. The latest date of completion is therefore, _____, 2018.

Mason County Public Works

Owner

By: _____

Title: _____

ACCEPTANCE OF NOTICE

Receipt of the above **NOTICE TO PROCEED** is hereby acknowledged.

Firm: _____, this the ____ day of _____, 2018.

By: _____

Title: _____

CHANGE ORDER

Change Order No.: 1

Date: _____, 2018

Agreement Date: _____, 2018

NAME OF PROJECT:

Eells Hill Transfer Station Improvements

OWNER:

Mason County

CONTRACTOR:

The following changes are hereby made to the Contract:

Justification: _____

Original Contract Price was: \$ _____

Previously Approved Change Order(s): \$ _____

Contract Price prior to this Change Order: \$ _____

Contract Price for this Change Order will be *increased / decreased* by: \$ _____

New Contract Price including this Change Order will be: \$ _____

The Contract Time will be (circle one) *increased / decreased / unchanged* by (_____) calendar days. The date for substantial completion as of the date of this Change Order, therefore, is _____ (Date).

To be effective, this Order must be approved by the Contractor and Owner, or as may otherwise be required by the Special Provisions.

Requested by: _____

Recommended by: _____

Ordered by: _____

Accepted by: _____

PART III-CONDITIONS OF THE CONTRACT

MASON COUNTY SPECIAL PROVISIONS

**MASON COUNTY
SPECIAL PROVISIONS**

STANDARD SPECIFICATIONS

The Standard Specifications for this project shall be the "2016 Standard Specifications for Road, Bridge, and Municipal Construction as prepared by the Washington State Department of Transportation and the Washington State Chapter of the American Public Works Association, and as amended under Amendments to the Standard Specifications.

All modifications made in these Special Provisions shall take precedence over the Standard Specifications and the Amendments to the Standard Specifications. The reference made herein shall only mean the inclusion of the specific technical section referenced, and shall include any amendments made, if applicable.

All number references in these Special Provisions shall be understood to refer to the section or subsection of the Standard Specifications bearing like numbers.

It should be understood that all references to state officers in the Standard Specifications shall mean the corresponding Mason County officers for the purpose of this contract. For example, all references to the Washington State Transportation Commission shall mean Mason County Board of Commissioners and all references to the Director of Highway shall mean the County's Deputy Director/Utilities and Waste Management, etc. Also, any references to Thurston County shall be understood to mean Mason County.

A copy of the Standard Specifications is available for review at the office of the Engineer.

1-01 DEFINITIONS AND TERMS

1-01.3 Definitions

Amend as follows:

Engineer. Mason County Deputy Director/Utilities and Waste Management or his designated representatives.

Owner. Mason County Board of Commissioners as represented by its authorized officers, employees, or agents.

All references to "State Materials Laboratory" shall be revised to read "Contracting Agency designated location".

1-03 AWARD AND EXECUTION OF CONTRACT

1-03.2 Award of Contract

Add the following paragraphs:

“The award of the contract shall be made only to responsible contractors that possess the potential ability to perform successfully under the terms and conditions of the Agreement. Consideration shall be given to contractor integrity, compliance with public policy, record of past performance, and financial and technical resources. Any and all bids may be rejected when there are sound documented reasons for doing so. The Owner reserves the right to make these judgments. The Owner will award the contract within forty-five (45) days after the Bid Opening.

The “lowest responsible Bidder” shall be determined from the Contract Unit Bid Prices and Bid Proposal if selected by the Owner.”

1-04 SCOPE OF WORK

Add the following paragraph:

Improvements include: replacement of the tipping floor surfacing, installation of a steel load-out chute and associated modifications to the load-out tunnel, installation of an exterior metal staircase, repair of the rail for the tamping crane platform, and replacement of infrastructure for the sanitary sewer and storm water utility systems including piping, manholes, catch basins, cleanouts, a holding tank, and an infiltration pond. The Eells Hill Transfer Station is located at 501 W Eells Hill Road, Shelton, WA 98584.

1-04.10 Use of Materials Found on the Project

Add the following paragraph:

“All excavated clean soils will be disposed of on-site at a location determined by the County. No hauling of materials will be required by the County. The Contractor may choose to haul away construction debris to be re-used at another site but any hauling and disposal costs for material the Contractor hauls away will be incidental to the Contract and not paid for by the County.”

1-04.11 Final Cleanup

Add the following paragraph:

“The County will provide a roll-off container the Contractor can use to dispose of all project waste created during the project. When the container is full County staff will empty it into the transfer station container and put it back in its place. The County will not charge the Contractor for this service.”

1-05 CONTROL OF WORK

1-05.6 Inspection of Work and Materials

Add the following paragraph:

"The County will provide general construction inspection services of the project and provide project administration services. The County will not provide any special inspections services for the project.

The Contractor will provide all special inspection services for soil, asphalt, concrete, steel, and any other special testing needed to ensure the project is completed satisfactorily. All costs for these special inspections will be paid for by Bid Item 2, Special Inspections and Testing. Special inspectors will meet the qualifications identified in Section 01 45 33 (Special Inspections and Testing Program) of the project specifications. Special inspectors will provide all testing results to the County at the same time results are provided to the Contractor."

1-05.10(1) Guarantees

Add the following paragraph:

"The Contractor shall guarantee all work for a period of one year from and after the date of acceptance of the work by the Owner."

1-05.12 Final Acceptance

Add the following paragraphs: "Prior to substantial completion, the County, with the approval of the Contractor, may use any completed or substantially completed portions of the work. Such use shall not constitute an acceptance of such portions of the work.

The acceptance by the Contractor of final payment shall be and shall operate as a release to all claims and all liability to the Contract other than claims in stated amounts as may be specifically excepted by the Contractor in writing prior to the request for final payment for all things done or furnished in connection with this work and for every act and neglect of the County and its agents and others relating to or arising out of this work. However, any payment, final or otherwise, or any acceptance, shall not release the Contractor or it's sureties from any obligations under the Contract Documents or the Performance and Payment Bonds or diminishes the County's rights under the guaranty provisions."

1-07 LEGAL RELATIONS AND RESPONSIBILITIES TO THE PUBLIC

1-07.2 State Taxes

Add the following paragraph:

"Sales Tax will be added to the full contract price."

1-07.18 Public Liability and Property Damage Insurance

Delete this section in its entirety, and replace it with the following:

A. MINIMUM Insurance Requirements:

1. Commercial General Liability Insurance using Insurance Services Office “Commercial General Liability” policy form CG 00 01, with an edition date prior to 2004, or the exact equivalent. Coverage for an additional insured shall not be limited to its vicarious liability. Defense costs must be paid in addition to limits. Limits shall be no less than \$1,000,000 per occurrence for all covered losses and no less than \$2,000,000 general aggregate, for bodily injury, personal injury, and property damage, including without limitation, blanket contractual liability.

2. Workers’ Compensation on a state-approved policy form providing statutory benefits as required by law with employer’s liability limits for CONTRACTOR’s, with two (2) or more employees and/or volunteers, no less than \$1,000,000 per accident for all covered losses.

3. Business Auto Coverage on ISO Business Auto Coverage form CA 00 01 including owned, non-owned and hired autos, or the exact equivalent. Limits shall be no less than \$1,000,000 per accident, combined single limit. If CONTRACTOR owns no vehicles, this requirement may be satisfied by a non-owned auto endorsement to the general liability policy described above. If CONTRACTOR or CONTRACTOR’s employees will use personal autos in any way on this project, CONTRACTOR shall obtain evidence of personal auto liability coverage for each such person.

4. Excess or Umbrella Liability Insurance (Over Primary) if used to meet limit requirements, shall provide coverage at least as broad as specified for the underlying coverages. Such policy or policies shall include as insureds those covered by the underlying policies, including additional insureds. Coverage shall be “pay on behalf”, with defense costs payable in addition to policy limits. There shall be no cross liability exclusion precluding coverage for claims or suits by one insured against another. Coverage shall be applicable to COUNTY for injury to employees of CONTRACTOR, subcontractors or others involved in the Work. The scope of coverage provided is subject to approval of COUNTY following receipt of proof of insurance as required herein.

B. Certificate of Insurance:

A Certificate of Insurance naming COUNTY as the Certificate Holder must be provided to COUNTY within five (5) days of CONTRACT execution.

C. Basic Stipulations:

1. CONTRACTOR agrees to endorse third party liability coverage required herein to include as additional insureds COUNTY, its officials, employees and agents, using ISO endorsement CG 20 10 with an edition date prior to 2004. CONTRACTOR also agrees to require all subcontractors, and anyone else involved in this CONTRACT on behalf of the CONTRACTOR (hereinafter “indemnifying parties”) to comply with these provisions.

2. CONTRACTOR agrees to waive rights of recovery against COUNTY regardless of the applicability of any insurance proceeds, and to require all indemnifying parties to do likewise.

3. All insurance coverage maintained or procured by CONTRACTOR or required of others by CONTRACTOR pursuant to this CONTRACT shall be endorsed to delete the subrogation condition as to COUNTY, or must specifically allow the named insured to waive subrogation prior to a loss.

4. All coverage types and limits required are subject to approval, modification and additional requirements by COUNTY. CONTRACTOR shall not make any reductions in scope or limits of coverage that may affect COUNTY's protection without COUNTY's prior written consent.

5 CONTRACTOR agrees upon request by COUNTY to provide complete, certified copies of any policies required within 10 days of such request. COUNTY has the right, but not the duty, to obtain any insurance it deems necessary to protect its interests. Any premium so paid by COUNTY shall be charged to and promptly paid by CONTRACTOR or deducted from sums due CONTRACTOR. Any actual or alleged failure on the part of COUNTY or any other additional insured under these requirements to obtain proof of insurance required under this CONTRACT in no way waives any right or remedy of COUNTY or any additional insured, in this or in any other regard.

6. It is acknowledged by the parties of this CONTRACT that all insurance coverage required to be provided by CONTRACTOR or indemnifying party, is intended to apply first and on a primary non-contributing basis in relation to any other insurance or self-insurance available to COUNTY.

7. CONTRACTOR agrees not to self-insure or to use any self-insured retentions on any portion of the insurance required herein and further agrees that it will not allow any indemnifying party to self-insure its obligations to COUNTY. If CONTRACTOR's existing coverage includes a self-insured retention, the self-insured retention must be declared to the COUNTY. The COUNTY may review options with CONTRACTOR, which may include reduction or elimination of the self-insured retention, substitution of other coverage, or other solutions.

8. CONTRACTOR will renew the required coverage annually as long as COUNTY, or its employees or agents face an exposure from operations of any type pursuant to this CONTRACT. This obligation applies whether or not the CONTRACT is canceled or terminated for any reason. Termination of this obligation is not effective until COUNTY executes a written statement to that effect.

9. The limits of insurance as described above shall be considered as minimum requirements. Should any coverage carried by CONTRACTOR or a subcontractor of any tier maintain insurance with limits of liability that exceed the required limits or coverage that is broader than as outlined above, those higher limits and broader coverage shall be deemed to apply for the benefit of any person or organization included as an additional insured and those limits shall become the required minimum limits of insurance in all Paragraphs and Sections of this CONTRACT.

10. None of the policies required herein shall be in compliance with these requirements if they include any limiting endorsement that has not been first submitted to COUNTY and approved of in writing.

11. The requirements in this Exhibit supersede all other sections and provisions of this CONTRACT to the extent that any other section or provision conflicts with or impairs the provisions of this Exhibit.

12. Unless otherwise approved by COUNTY, insurance provided pursuant to these requirements shall be by insurers authorized to do business in Washington and with a minimum A.M. Best rating of A-:VII.

13. All insurance coverage and limits provided by CONTRACTOR and available or applicable to this CONTRACT are intended to apply to the full extent of the policies. Nothing contained in this CONTRACT limits the application of such insurance coverage.

14. CONTRACTOR agrees to provide prompt notice to COUNTY of any notice of cancellation of any required policy or of any material alteration or non-renewal of any such policy, other than for non-payment of premium. CONTRACTOR shall assure that this provision also applies to any of its employees, agents or subcontractors engaged by or on behalf of CONTRACTOR in relation to this CONTRACT.

15. COUNTY reserves the right at any time during the term of the CONTRACT to change the amounts and types of insurance required by giving the CONTRACTOR ninety (90) days advance written notice of such change. If such change results in substantial additional cost to the CONTRACTOR, the COUNTY and CONTRACTOR may renegotiate CONTRACTOR's compensation.

16. Requirements of specific coverage features are not intended as limitation on other requirements or as waiver of any coverage normally provided by any given policy. Specific reference to a coverage feature is for purposes of clarification only as it pertains to a given issue and is not intended by any party or insured to be all-inclusive.

17. CONTRACTOR agrees to provide immediate notice to COUNTY of any claim or loss against CONTRACTOR arising out of the work performed under this CONTRACT. COUNTY assumes no obligation or liability by such notice, but has the right (but not the duty) to monitor the handling of any such claim or claims if they are likely to involve COUNTY.

1-08 PROSECUTION AND PROGRESS

1-08.3 Progress Schedule

Add the following paragraph:

"The County needs to keep the transfer station open during the week to maintain solid waste operations. The transfer station will be normally open Monday – Saturday from 8 AM – 5 PM except for Holidays. To accommodate this requirement and the need to proceed with construction safely for the Contractor, County Employees, and transfer station customers the County will allow for the following scheduling options:

- 1) Contractor will be allowed to work 7 days a week. If the Contractor works on a Saturday or Sunday they will not need to pay for overtime for County employees inspecting the work. Any overtime costs by special inspection or testing companies shall be included in bid item 2, Special Inspections and Testing.
- 2) The County can close the transfer station on Saturdays all day and on Mondays from 8 AM – 1 PM, allowing the Contractor to conduct work on the entire project on those days and times without interference by customers or staff. The Contractor will need to identify the Saturdays and Mondays they want closed on the initial progress schedule they submit to the County so that the County can provide sufficient notice to customers and the public prior to the closures.
- 3) The project has been designed so that certain portions of the project can be split in half allowing for the Contractor to work on one portion of the project while the County uses another portion to provide service operations. The initial progress schedule will need to identify days that the Contractor will be working on a part of the project that needs to be out of service so the County can plan their operations accordingly.
- 4) Allowed Contractor hours are 7 AM – 8 PM. Electrical lighting at the Transfer Station is limited. Any supplemental lighting costs needed by the Contractor to work evening hours will be incidental to the Contract."

1-08.5 Time For Completion

Add the following paragraph:

"The project shall be completed within ninety calendar days (90) after the notice to proceed is issued. Any and all language relating to working days does not apply to this project."

PART IV- HDR PROJECT SPECIFICATIONS



**EELLS HILL TRANSFER STATION
IMPROVEMENTS DESIGN
MASON COUNTY**

Project Manual

OCTOBER 2017



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MASON COUNTY, WA

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**MASON COUNTY, WA
EELLS HILL TRANSFER STATION IMPROVEMENTS DESIGN**

PROFESSIONAL SEALS

Division 0 has been prepared by Mason County.

Division 1 and the technical specifications, Divisions 2 through 33, have been prepared by the engineering consultant registered engineers listed below. Professional Seals affixed below include a description of the portions of this specification manual prepared by each discipline engineer.

<p>Olivia Williams, PE HDR Engineering 601 Union Street, Suite 700 Seattle, WA 98101</p> <hr/> <p>Responsible for sections included under Divisions 1, 2, 31, 32, and sections included under Division 33 as presented on the Drawings sealed by the same individual.</p>	
<p>Karstin Jacobson, PE HDR Engineering 500 108th Avenue, NE #1200 Bellevue, WA 98004</p> <hr/> <p>Responsible for sections included under Division 33 as presented on the Drawings sealed by the same individual.</p>	
<p>Chad Gipson, PE HDR Engineering 700 Washington St., Suite 405 Vancouver, WA 98660</p> <hr/> <p>Responsible for sections included under Divisions 3 and 5 as presented on the Drawings sealed by the same individual.</p>	

SECTION 01 11 00
SUMMARY OF WORK

PART 1 - GENERAL

1.1 DESCRIPTION

A. General:

1. Furnish all labor, materials, tools, equipment and services as indicated in accord with provisions of Contract Documents.
2. It is the intent of the Contract Documents to describe a functionally complete project. Furnish and install all supplementary or miscellaneous items, appurtenances, and devices incidental to or necessary for a sound, secure, complete, and functional installation.

1.2 DEFINITIONS

- A. Throughout these Specifications certain terms are capitalized. Capitalized terms have the definitions assigned to them in the Specifications. Definitions of terms will be found throughout these Specifications. There is no one central location for defined terms.
- B. Engineer: In general, the Engineer is responsible for development of design documents, interpretation of design intent, and for responding to requests for information and reviewing submittals.
- C. Owner: Mason County, WA or designated representative.

1.3 PROJECT DESCRIPTION

1.4 WORK COVERED BY CONTRACT

A. General:

1. The descriptions in this Section are not intended to provide or be construed as a complete summary of the Contract Documents. The following only identifies in broad terms the general nature of the Work to be performed by the Contractor and its Subcontractors.
2. Contractor shall perform and complete all Work in accordance with the requirements set forth in the Contract Documents.
 - a. This Section is not suitable for use in determining measurement and payment.
3. Specifications should be read as if "Provide and Install" were included at the front of sentences, as applicable.
 - a. Responsibility for the providing and the installing of every element of the Work is borne by the Contractor, unless otherwise noted.

B. The Work of this Contract generally includes the following:

Conducting infrastructure improvements to the existing Eells Hill Transfer Station facility. Facility improvements include: replacement of the tipping floor surfacing, installation of a steel load-out chute and associated modifications to the load-out tunnel, installation of an exterior metal staircase, repair of the rail for the tamping crane platform, and replacement of infrastructure for the sanitary sewer and storm water utility systems including piping, manholes, catch basins, cleanouts, a holding tank, and an infiltration pond.

1.5 WORK BY OTHERS

- A. Work performed under permits must be inspected by the authority having jurisdiction prior to being considered part of the Work.
1. Provide for special inspections and observations for all requirements.

- B. The Contractor shall coordinate the construction with the communication utilities and shall provide adequate notice to the utilities of any work required in advance or requiring presence of their personnel.

1.6 WORK SEQUENCE

- A. The Contractor shall organize and plan the construction activities to assure the safety and reliability of existing infrastructure and utilities required for ongoing facility operation and to minimize the interruption to all other utilities.
- B. The proposed Work sequence shall be submitted in the Baseline Schedule.
- C. The Owner will provide written Notices to Proceed before commencement of work noted below.

1.7 OUTAGES

- A. Commercial traffic at the transfer building must be maintained Monday through Friday. Any impacts to typical commercial traffic or unloading activities must be approved by Owner. Contractor may request for Owner to arrange to close the main transfer building on Saturdays. Contractor may work in the entire transfer building on Sundays upon approval by the Owner.
- B. The Contractor shall organize and plan the construction activities so that the number and length of any required outages shall be minimized.
- C. An outage shall require specific approval of the Owner. The Owner reserves the right to reject any request for an outage.
- D. In some cases it may be necessary, at Contractor's expense, to either install temporary facilities for service or schedule the Work during a period when the outage would have minimal impact on the Owner.
- E. The Contractor shall provide the Owner at least 48 HRS notice in advance of any requested outage so that the Owner may advise and coordinate the outage.

1.8 OWNER-FURNISHED PRODUCTS

- 1. None.

1.9 CONTRACTOR-FURNISHED PRODUCTS

- A. Contractor shall furnish all products, other than Owner-furnished products designated above.
- B. Components required to be supplied in quantity within a Specification Section shall all be the same and shall be interchangeable.

1.10 PERMITS AND LICENSES

- A. Contractor shall obtain, at his expense, all other permits and licenses necessary for the construction of the Work.

1.11 PHASING

- A. The Contractor shall be responsible for determining phasing of the Work and ensuring that the phasing of the Work is correct and meets Owner requirements for ongoing operations.

PART 2 - PRODUCTS - (NOT APPLICABLE TO THIS SPECIFICATION SECTION)

PART 3 - EXECUTION - (NOT APPLICABLE TO THIS SPECIFICATION SECTION)

END OF SECTION

SECTION 01 11 20
JOB CONDITIONS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Job conditions.
 - 2. Work prohibitions and restrictions.
 - 3. Prescribed work hours.
 - 4. Staging and work areas.
 - 5. Protection of existing facilities.

1.2 REFERENCES

- A. Revised Code of Washington (RCW) – Chapter 70.107 – Noise Control.
- B. Washington Administrative Code (WAC) 173-60 – Maximum environmental noise levels.
- C. WAC 296-24-960 – Working on or near exposed energized parts.

1.3 DEFINITIONS

- A. Limits of Construction:
 - 1. The boundary beyond which no construction is allowed.
 - 2. The Limits of Construction are as indicated on the Drawings.
- B. Staging Areas: Those areas where the Contractor and its subcontractors and suppliers shall store and stage all equipment, offices, parking, materials and supplies to perform and complete the Work under this Contract.

1.4 PROJECT CONDITIONS

- A. Prior to installation of material, equipment and other work, verify with subcontractors, material or equipment manufacturers, and installers that the substrate or surface to which those materials attach is acceptable for installation of those materials or equipment. (Substrate is defined as building surfaces to which materials or equipment is attached to i.e., floors, walls, ceilings, etc.).
- B. Correct unacceptable substrate until acceptable for installation of equipment or materials.

1.5 MAINTAINING FACILITY OPERATIONS:

- A. Contractor responsibilities include not disrupting or interfering with concurrent operations of portion of transfer facility available for operation:
 - 1. The existing solid waste facilities will remain open to transfer operations through completion of work.
 - 2. Commercial traffic at the transfer building must be maintained Monday through Friday. Any impacts to typical commercial traffic or unloading activities must be approved by Owner. Contractor may request for Owner to arrange to close the main transfer building on Saturdays. Contractor may work in the entire transfer building on Sundays upon approval by the Owner.
 - 3. Contractor is to allow for one portion of the transfer building to remain operational for the public and County staff while the other portion of the building is being repaired per the Drawings.
 - 4. Once the first load out chute is complete and the tipping floor has been repaired, customers and operations traffic will shift to the improved portion of the building and the Contractor can complete remaining Work.
- B. Limit vehicle speed to ten (10) MPH on the Site.

- C. The Contractor is prohibited from disposing of construction debris and land clearing debris at the Site without prior Owner approval.

1.6 WORK PROHIBITIONS AND RESTRICTIONS

- A. Noise Production:
 - 1. Comply with State of Washington statutory prohibitions and rules regarding construction-generated noise production including but not limited to Chapter 70.107 RCW, and WAC 173-60.
 - 2. Review noise production conditions with the Owner periodically to make necessary adjustments to mitigate noise impacts.

1.7 PRESCRIBED WORK HOURS:

- A. Within the Construction Limit Areas indicated on the Drawings:
 - 1. Daily hours of 7:00 AM to 6:00 PM weekdays and 9:00 AM to 6:00 PM on Saturday, providing the work complies with all ordinances and permits.
 - a. Eight (8) HRS shall constitute a standard work day. Five days, Monday through Friday, shall constitute a standard work week. Standard shift workday shall be worked between the hours of 7:00 AM to 6:00 PM Monday through Friday for first shift with one-half hour unpaid lunch period. If a Saturday shift is required, work performed shall be between the hours of 9:00 AM to 6:00 PM at the applicable overtime rate. The Contractor may vary the start time to take advantage of daylight hours, weather conditions or shifts, to permit an even and manageable flow of workers to the jobsite. Nothing herein shall be construed as guaranteeing any employee eight (8) HRS per day or forty (40) HRS per week.
 - b. A Contractor may elect to work a four ten-hour day schedule ("4/10"), Monday through Thursday or Tuesday through Friday. Ten (10) HRS, between 7:00 AM and 6:00 PM, shall constitute a workday on a 4/10 schedule. Any 4/10 schedule must be worked for a minimum of two (2) weeks.
 - c. The Contractor and its Subcontractors will schedule an unpaid meal period of not more than one-half (1/2) HR duration at the work location approximately at the midpoint of the scheduled work shift.
 - 2. Provide the Owner two (2) weeks advance written notice of Contractor's intended work areas and/or change in work hours. Owner requires this information to schedule the Construction Manager's field activities and to alert the permitting agencies to the planned hours of construction activity.
 - 3. Work activities that require inspection by any agencies other than the Owner, shall be scheduled and coordinated through the Owner for the hours between 8:00 AM to 4:00 PM on weekdays, unless prior approval from the affected agency is obtained in advance.
 - 4. Work outside the daily hours of 7:00 AM to 6:00 PM weekdays and work on Saturday and Sunday shall be coordinated with the Owner at least two (2) weeks in advance to allow coordination of inspection coverage of the work.

1.8 STAGING AND WORK AREAS

- A. Staging Areas:
 - 1. The Contractor is responsible to identify the staging areas within the Limits of Construction or other areas onsite.
 - 2. Staging areas are for the Contractor's own use in staging equipment, trucks, work trailers and supplies and other work.
- B. Parking:
 - 1. The Contractor may park onsite so as to not disrupt or interfere with access or construction.

2. Failure of the Contractor to abide by the requirements on site parking may result in Contractor and subcontractor vehicles being immediately towed, refused access in the future, or otherwise restricted access as determined appropriate by the Owner; the Contractor shall not be entitled to additional compensation on the basis of vehicle removal and exclusion restrictions imposed by the Owner.

1.9 PROTECTION OF EXISTING FACILITIES:

- A. Take all necessary steps to plan and execute work so as not to damage or disrupt existing facilities and utilities.
- B. Report any damage to existing facilities and utilities caused by Contractor's operations immediately to the Owner.
- C. Repair, restore or replace any facilities damaged by Contractor's operations to the satisfaction of the Owner at no cost to the Owner.

PART 2 - PRODUCTS - (NOT APPLICABLE TO THIS SPECIFICATION SECTION)

PART 3 - EXECUTION - (NOT APPLICABLE TO THIS SPECIFICATION SECTION)

END OF SECTION

SECTION 01 22 00
MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Defines how work items are measured and paid for on Unit Price Contracts. These items include unit price, lump sum price, and allowance payment items.
 2. In the case of conflict between this Section and the measurement methods specified in the individual Technical Specification Sections, the measurement methods in Technical Specification Sections shall govern.
 3. The Contractor shall receive payment for work after it is installed. Payment for material on hand can only be paid for if allowed by the Agreement, the General and/or Special Conditions.
 4. Partial payment may be requested for items partially installed when agreed to by the Owner.
 5. Liquidated Damages.
 6. Applications for payment and supporting materials.
 7. Resubmittal of applications for payment.
 8. Conditions necessary for payment.

1.2 DEFINITIONS

- A. Schedule of Values: Meaning in accordance with General Terms and Conditions.

1.3 SCHEDULE OF VALUES

- A. Submit the Schedule of Values not later than two (2) weeks following issuance of Notice to Proceed.
- B. Software: Microsoft Excel 2010 or more recent; no other software will be permitted.
- C. Format:
1. Develop a Schedule of Values format acceptable to the Owner and provides an effective tool for establishing monthly payment amounts.
 2. Allocate costs to the Schedule of Values items consistent with the scope of work associated with the line item.
 - a. Breakdown costs, itemized by Specification Section and trade, and distribute cost to individual applicable Cost Items.
 - b. Where structures, units, equipment or other components are identified by a specific series or, identification number, utilize said designation throughout.
- D. Prorate overhead and profit to the activities:
1. Each item in the Schedule of Values, and Applications for Payment, are to be complete, including its proportional share of supervision, general overhead and profit margin.
 2. Do not include state retail sales tax. Washington State Sales Tax will be calculated by the Owner.
- E. Round activity values to the nearest hundred dollars (\$100).
- F. Updates of the Schedule of Values:
1. Provide coordinated Schedule of Values, including approved Changes, for review and approval by the Owner.
 2. Show Change Orders as individual line items.
 3. Show the calculation to obtain the total, incorporating the authorized Change Order(s).

1.4 UNIT PRICE ITEMS

- A. Quantity and measurement estimates stated in the Bid Form are estimates for bidding purposes only. Actual payments shall be based on actual quantities installed, in-place, as measured and/or verified by the Engineer.
- B. Unless otherwise stated in the Contract Documents, the bid unit prices shall be in effect throughout the contract duration. When the variance between the estimated quantities and the actual installed quantities is more than 25 percent, the Contractor or the Owner may negotiate a change to the Unit Price. That change will be made in accordance with the Change Order process as defined in the Contract Documents.
- C. Except as defined above, the Contractor shall make no claim, nor receive any compensation, for anticipated profits, loss of profit, damages, or any extra payment due to any difference between the amounts of work actually completed, or materials or equipment furnished, and the estimated quantities.
- D. The Owner can only pay for quantities that exceed the estimated quantities so long as the total payments to the Contractor do not exceed the Contract Price. If the added quantities will result in payments that exceed the Contract Price, a Change Order will need to be executed before payment can be made for the added quantities.
- E. Contractor shall assist Engineer by providing necessary equipment, workers, and survey personnel as required to measure quantities.
- F. Unless stated in the Contract Documents, measured quantities shall be rounded to the nearest whole integer.
- G. Measurement:
 - 1. Measurement for progress payment shall be made by, or approved by, the Engineer based on the actual quantities installed. The actual quantities installed can be adjusted for corrections to previous calculations, incomplete elements or components if agreed to in advance and in writing by the Engineer.
 - 2. Unless otherwise provided for in the Contract Documents, unit price items are all inclusive of all related work, direct and indirect costs, to provide a complete and functional item.
 - 3. The final measurement shall be based on actual installed quantities, jointly measured and agreed to by the Contractor and the Engineer. Quantities can be adjusted (increased or decreased) based on a final calculation of quantities by the Engineer and Contractor.
- H. Payment:
 - 1. Progress payments shall be in accordance with the Contract Documents based on estimated quantities installed paid at the bid unit price.
 - 2. The final payment shall be based on actual quantities, fully installed, tested and placed into service, paid at the bid unit price.

1.5 LUMP SUM ITEMS

- A. Progress payments for Lump Sum items in the Bid Schedule will be based on the breakdown prepared by the Contractor and approved by the Engineer and Owner before acceptance of the Application for Payment for the Lump Sum item.
- B. Lump Sum payment will be for the entire item as specified and as indicated in the Contract Documents. Payment for all bid items indicated as Lump Sums shall include the cost of all labor, materials, equipment and incidentals necessary to furnish, install, clean, test, and place each bid item into operation; including permitting, general conditions, overhead and profit.

1.6 ALLOWANCES

- A. Allowances indicated in the Bid Schedule are defined in the Contract Documents. No work may be performed under an allowance item without prior written approval of the Owner.

- B. Allowance is for exclusive use of Owner for changes as a result of changed conditions, design refinements, and unanticipated design issues. Not for use by Contractor as Contractor's construction contingency.
- C. Owner approval of adjustment required prior to authorization of progress payments from Contingency Allowance. Adjustments will include either:
 - 1. Contractor's lump sum or unit price measured quantity amount.
 - 2. Contractor's related costs, and reasonable overhead and profit as stipulated in Contract Documents when Work is performed on the Cost of the Work basis.
- D. Any unused balance of the allowances shall revert to the Owner upon completion of the project. Prior to final payment, the original amount provided for allowances shall be adjusted to actual costs by deductive Change Order, adjusting the contract price, accordingly.
- E. The Contractor shall make no claim, nor receive any compensation, for anticipated profits, loss of profit, damages, or any extra payment due to any unexpended portion of the allowances.
- F. The Contractor is to include time for allowance work in the construction schedule. No adjustment of Contract Time shall be allowed for any work performed under allowance items.
- G. The measurable and allowable costs for work performed under an allowance item(s) shall be limited to the actual costs associated with that allowance item unless otherwise stated in the specific measurement and payment provisions under allowance items.
- H. Allowance work shall be paid for on a time and materials basis.
 - 1. Time and materials sheets shall be signed daily by the Engineer or its representative to confirm labor hours worked, equipment hours worked, and materials incorporated into the Work.
 - 2. Labor hours worked shall be recorded daily for each person. The labor will be classified by craft. Actual labor rates will be supported by certified payroll or other payroll documentation agreed to by the Engineer.
 - 3. Equipment hours worked shall be recorded daily for each piece of equipment used to perform the work. Equipment rates shall be as defined in the General or Supplemental Conditions.
 - 4. Material shall be identified with the costs supported by invoice.
 - 5. Profit and overhead shall be compensated for in accordance with the Contractor's Fee as defined in the General Conditions.
 - 6. Labor and equipment rates used in pricing out the work shall be as defined in the General Conditions.

1.7 APPLICATION FOR PAYMENT AND SUPPORTING MATERIALS

- A. Provide a Summary Sheets and breakdown sheets equivalent to those of EJCDC document C-620, Contractor's Application for Payment forms.
- B. Include the Following Types of Information:
 - 1. Current Schedule of Values.
 - 2. Hours worked and workforce identification, together with any staffing codes, and experience or pay grade levels.
 - 3. Updated Monthly Production Reports.
 - 4. Paid equipment lists and rental agreements.
 - 5. Paid receipts to support payment for materials on hand.
 - 6. Materials orders.
 - 7. Projection of monthly progress payment amounts for the duration of the Work.
 - 8. Work Purchased but not Installed:
 - a. Provide separate line items on the Application for Payment.
 - b. Identify the location, and disposition of materials, products, fabrications, and equipment as of the date of the Application for Payment.
 - c. Provide invoices and receipts.

- d. Provide an insurance certificate or a copy of the bond from the bonded warehouse storing the material.
- e. Provide photograph documentation.
- f. Identify exact material; include quantity and measurement unit.

PART 2 - PRODUCTS - (NOT APPLICABLE TO THIS SPECIFICATION SECTION)

PART 3 - EXECUTION - (NOT APPLICABLE TO THIS SPECIFICATION SECTION)

END OF SECTION

SECTION 01 25 13
PRODUCT SUBSTITUTIONS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. The procedure for requesting the approval of substitution of a product that is not equivalent to a product which is specified by descriptive or performance criteria or defined by reference to one or more of the following:
 - a. Name of manufacturer.
 - b. Name of vendor.
 - c. Trade name.
 - d. Catalog number.
 - 2. Substitutions are not "or-equals."
- B. Request for Substitution - General:
 - 1. Base all bids on materials, equipment, and procedures specified.
 - 2. Certain types of equipment and kinds of material are described in specifications by means of references to names of manufacturers and vendors, trade names, or catalog numbers.
 - a. When this method of specifying is used, it is not intended to exclude from consideration other products bearing other manufacturer's or vendor's names, trade names, or catalog numbers, provided said products are "or-equals," as determined by Engineer.
 - 3. Other types of equipment and kinds of material may be acceptable substitutions under the following conditions:
 - a. Or-equals are unavailable due to strike, discontinued production of products meeting specified requirements, or other factors beyond control of Contractor; or,
 - b. Contractor proposes a cost and/or time reduction incentive to the Owner.

1.2 QUALITY ASSURANCE

- A. In making request for substitution or in using an approved product, Contractor represents they:
 - 1. Have investigated proposed product, and have determined that it is adequate or superior in all respects to that specified, and that it will perform function for which it is intended.
 - 2. Will provide same guarantee for substitute item as for product specified.
 - 3. Will coordinate installation of accepted substitution into Work, to include building modifications if necessary, making such changes as may be required for Work to be complete in all respects.
 - 4. Waives all claims for additional costs related to substitution which subsequently arise.

1.3 DEFINITIONS

- A. Approved Equal or Approved Alternate: A material, product, equipment, or process proposed by the Contractor that has the same function, quality, durability, appearance, strength, and design characteristics equal to or better than those originally specified in the Contract Documents; and shall be compatible with all other systems, parts or components of the Project and Work under the Contract.
- B. Assembly: Two or more products, materials or components that are utilized together to produce a composite application satisfying a set of requirements.
 - 1. Examples of Assemblies in these Contract Documents are metal wall panels and skylights.
- C. Equal To: A material, product, equipment, or process proposed by the Contractor being the same, or identical in value, and having no variance in proportion, structure, quantity, measure, or nature than those originally specified in the Contract Documents.

- D. **Manufacturer:** The entity or firm that produces, manufactures or assembles a material, product or item of equipment incorporated in the Work. "Vendor" and "Supplier" are used interchangeably with Manufacturer.
 - 1. Manufacturers specifically named in Division 02 through 33 Specification Sections are believed to have the capability of producing products, assemblies and systems meeting the requirements of the Contract Documents. Proposing a product, assembly or system produced by one of the named Manufacturers does not relieve the Contractor of the responsibility to demonstrate the proposed product, assembly or system meets the requirements of the Contractor Documents.
- E. **Manufacturer's Technical Representative:** The person or persons designated by the Manufacturer as its representative(s) and technical authority(s) who is/are knowledgeable about and able to answer technical questions about the Manufacturer's products, equipment and services.
- F. **Manufacturer's Instructions:** Written instructions and recommendations provided by the product Manufacturer regarding the use, installation, preparation of Work to receive the product, or similar written guidance to be followed by the installer and provided as part of the product submittal or by the Manufacturer's field representative.
 - 1. Manufacturer's Instructions provided by the Manufacturer's field representative are subject to review and approval of the Project Representative.
- G. **Product:** Manufactured material or equipment.
- H. **Qualified Professional Engineer:** A Professional Engineer who is legally authorized to practice in Washington State (licensed) and who is experienced in providing engineering services related to a specific system, assembly or product proposed by the Contractor to meet the requirements of the Contract Documents.
 - 1. For systems, assemblies, or products structural in nature and performance, the Qualified Professional Engineer shall be a Licensed Structural Engineer.
- I. **System:** Equipment of an electrical and/or mechanical nature that requires some form of energy input to operate and produce a useful result.
 - 1. Examples of Systems in these Contract Documents are HVAC equipment and the dust suppression system.

1.4 PROCEDURE FOR REQUESTING SUBSTITUTION

- A. Substitution shall be considered only:
 - 1. After Award of Contract.
 - 2. Under the conditions stated herein.
- B. Written request through Contractor only.
- C. **Transmittal Mechanics:**
 - 1. Follow the transmittal mechanics prescribed for Shop Drawings in Specification Section 01 33 00.
 - a. Product substitution will be treated in a manner similar to "deviations," as described in Specification Section 01 33 00.
 - b. List the letter describing the deviation and justifications on the transmittal form in the space provided under the column with the heading DESCRIPTION.
 - 1) Include in the transmittal letter, either directly or as a clearly marked attachment, the items listed in Paragraph D below.
- D. **Transmittal Contents:**
 - 1. **Product identification:**
 - a. Manufacturer's name.
 - b. Telephone number and representative contact name.
 - c. Specification Section or Drawing reference of originally specified product, including discrete name or tag number assigned to original product in the Contract Documents.

2. Manufacturer's literature clearly marked to show compliance of proposed product with Contract Documents.
3. Itemized comparison of original and proposed product addressing product characteristics including but not necessarily limited to:
 - a. Size.
 - b. Composition or materials of construction.
 - c. Weight.
 - d. Electrical or mechanical requirements.
4. Product experience:
 - a. Location of past projects utilizing product.
 - b. Name and telephone number of persons associated with referenced projects knowledgeable concerning proposed product.
 - c. Available field data and reports associated with proposed product.
5. Data relating to changes in construction schedule.
6. Data relating to changes in cost.
7. Samples:
 - a. At request of Engineer.
 - b. Full size if requested by Engineer.
 - c. Held until substantial completion.
 - d. Engineer not responsible for loss or damage to samples.

1.5 APPROVAL OR REJECTION

- A. Written approval or rejection of substitution given by the Engineer.
- B. Engineer reserves the right to require proposed product to comply with color and pattern of specified product if necessary to secure design intent.
- C. In the event the substitution is approved, the resulting cost and/or time reduction will be documented by Change Order in accordance with the General Conditions.
- D. Substitution will be rejected if:
 1. Submittal is not through the Contractor with his stamp of approval.
 2. Request is not made in accordance with this Specification Section.
 3. In the Engineer's opinion, acceptance will require substantial revision of the original design.
 4. In the Engineer's opinion, substitution will not perform adequately the function consistent with the design intent.
- E. Contractor shall reimburse Owner for the cost of Engineer's evaluation whether or not substitution is approved.

PART 2 - PRODUCTS - (NOT APPLICABLE TO THIS SPECIFICATION SECTION)

PART 3 - EXECUTION - (NOT APPLICABLE TO THIS SPECIFICATION SECTION)

END OF SECTION



EXHIBIT A Substitution Request Form (One Item per each Form)

Project:		Date:
Substitution Requestor:		
Contractor:		
Specification Section No:	Paragraph No. (i.e. 2.1.A.1.c):	Specified Item:
Proposed Substitution:		
Provide Product Data Sheets, Manufacturer's written installation instructions, drawings, diagrams, or any other information as an attached to this Form that will demonstrate the proposed substitution is an Approved Equal.		
In the lines provided state differences between proposed substitutions and specified item. Differences include but are not limited to interrelationship with other items; materials, equipment, function, utility, life cycle costs, applied finished, appearances, and quality.		
_____ _____ _____		
In the lines provided demonstrate how the proposed substitution is compatible with or modifies other systems, parts, equipment or components of the Project and Work under the Contract		
: _____ _____ _____		
In the lines provided, describe what effect the proposed substitution has on dimensions indicated on the Drawings and previously reviewed Shop Drawings?		
_____ _____ _____		
In the lines provided, describe what effect the proposed substitution has on the Construction Schedule and Contract Time.		
_____ _____ _____		
In the lines provided, describe what effect the proposed substitution has on the Contract Price. This includes all direct, indirect, impact and delay costs.		
_____ _____ _____		
Manufacturer's guarantees of the proposed and specified items are:		
<input type="checkbox"/> Same <input type="checkbox"/> Different (explain on attachment)		
The undersigned state that the function, utility, life cycle costs, applied finishes, appearance and quality of the proposed substitution are equal or superior to those of the specified item.		
For use by Project Representative:		
<input type="checkbox"/> Accepted	<input type="checkbox"/> Accepted as Noted	_____
<input type="checkbox"/> Not Accepted	<input type="checkbox"/> Received Too Late	_____
_____		_____
(Date)		(Contractor's Signature)
_____		_____
(Telephone)		(Contractor's Firm)

		(Firms Address)

Comments:

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SECTION 01 30 00
SPECIAL CONDITIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Administrative and procedural requirements for:
 - a. Preconstruction Conference.
 - b. Contractor's Superintendent's Field Office.
 - c. Engineer's Field Office.
 - d. Drawings and Contract Documents for Contractor use.
 - e. Project photographs.
 - f. Testing and Special Inspections.
 - g. Schedule of Values.
 - h. Project meetings.
 - i. Special considerations related to adjacent facility operations.
 - j. Historical and archaeological finds.
 - k. Administrative procedures.

1.2 QUALITY ASSURANCE

Referenced Standards:

1. Building Code:
 - a. International Code Council (ICC):
 - 1) International Building Code and associated standards, 2015 Edition including all amendments, referred to herein as Building Code.
2. 2016 Washington Department of Transportation (WSDOT) Standard Specifications for Road, Bridge, and Municipal Construction.

1.3 PROJECT COORDINATION

A. General: Coordinate construction activities to assure efficient and orderly performance of the Work and avoidance of interference with Owner's transfer station operations.

B. Coordinate crews and work areas to reduce and eliminate lost time.

C. Coordinate construction activities with utility service providers required for performance of the Work.

D. Be responsible for completion, and administration of required forms.

1. The Owner will provide required and suggested forms and formats during and after the Preconstruction Meeting.

E. Forms not prescribed by the Owner and in the Construction Administration Plan may be of the Contractor's own design, subject to the following:

1. Contractor-designed forms shall use Arial typeface, eleven (11) point type size, and shall be double-sided printed.
2. Submit draft forms for review and approval by the Owner.

1.4 PRECONSTRUCTION CONFERENCE

A preconstruction conference shall be held at the Mason County Public Works Department after Award of Contract.

1. Owner will notify the Contractor as to the date and time of the conference two (2) weeks in advance of the proposed date.
 - a. The Preconstruction Meeting is anticipated to be held within fourteen (14) calendar days of Contract Execution.

- b. Notice to Proceed is anticipated within ten (10) calendar days following the Contract Execution.
2. Purpose:
 - a. Establish lines of communication at the project working level.
 - b. Discuss and review administrative requirements of the Contract.
 - c. Review forms required to be used by the Contractor in administration of the Work.
 - d. Review and discuss design intent, user and concurrent operations issues, and permitting issues including requirements of authorities having jurisdiction.
 - e. Definition of and interpretation of roles, and responsibilities in performance of the Contract.
 - f. Discuss requirements for the Baseline Schedule.
 - g. Review and discuss facility and site access, traffic control activities, security, and procedural issues.
 - h. Discuss administration, and performance of sign-in and sign-out responsibilities.
 - i. Coordinate safety activities, including performance of the required Contractor's Health and Safety Plan.
 - j. Coordinate mobilization activities.
 - k. Discuss construction meetings, specifically timing, attendees, and meeting minute distribution.
 3. Required Attendees:
 - a. Owner Representatives.
 - b. Contractor, including its project manager, superintendent, project engineer and the safety officer.
 - c. Significant subcontractors pertinent to the agenda.
 4. Meeting Minutes: The Owner will prepare and distribute the minutes from the Preconstruction Meeting.
 5. Authorities having jurisdiction may require their own preconstruction meeting with the Contractor and the Owner.
 - a. Refer to individual permits for preconstruction meeting requirements.
 - b. Contractor is responsible for arranging for these meetings.

1.5 TEMPORARY UTILITIES

- A. The Contractor shall be responsible to arrange and pay all monthly utility charges in conjunction with their temporary facilities and the Owner's construction office trailer.
- B. The Contractor shall be responsible to coordinate with utility service providers and pay all connection charges associated with the Contractor's needs, including Owner construction office trailers, for utility services.
- C. Electrical Power and Lighting:
 1. Contractor is responsible for design and construction of the temporary electrical power distribution system which needs to provide electrical power for construction and for operation of temporary systems.
 2. Contractor may use a metered service from the existing Public Works electrical power service for the temporary construction offices provided that Contractor pays for the energy and connection costs and provided that such use does not interfere in any way with Owner's on going operations.
 3. Notify the Project Representative two (2) calendar days in advance of any planned outages regardless of when these might occur, and regardless of whether such outages may affect the progress of the Work.
 4. Do not interfere with, disrupt, damage or destroy power and lighting at the Public Works facilities.
- D. Water:
 1. Provide water, and water distribution for performance of the Work, including but not limited to the following activities:
 - a. Dust control.

- b. Concrete placement.
- c. Compaction activities.
- d. Street sweeping.
- e. Potable water to temporary construction offices.
- 2. Do not disrupt water service to the existing Public Works facilities at any time during operating hours.
- 3. Contractor's Wastewater Collection, Handling, Hauling and Disposal Activities:
 - a. The Contractor shall be responsible for the collection, handling, hauling, discharge and disposal of Wastewater and Contaminated Sediment, as defined in this Section, generated within the Construction Limits and running on to the Site.
 - b. Collect, treat if necessary to meet discharge permit requirements, temporarily store, haul and discharge Wastewater and Contaminated Sediment generated within the Construction Limits to offsite facilities approved by the Washington State Department of Ecology, local Department of Public Health, and in accordance with applicable rules and regulations.
 - 1) The Contractor will be responsible for payment of applicable local fees associated with each of the approved discharge locations.
 - 2) The Contractor shall meter all Wastewater during the filling of tanker trucks.
 - 3) Written records shall be provided to the Owner each working day with volume, date and time of each discharge into the sanitary system.
 - c. Design and provide Contaminated Sediment collection areas and Wastewater storage tanks for the purposes of removal of Wastewater and sediment from the Limits of Construction.
 - 1) Contaminated Sediment collection areas shall be continuously accessible by the Contractor's equipment in all weather conditions.
 - 2) Locations of Contaminated Sediment collection areas must be reviewed by the Owner prior to installation and relocation.
 - 3) The Contractor shall, at its expense, maintain the Contaminated Sediment collection areas and remove, handle, haul and dispose of Contaminated Sediment to an approved solid waste disposal facility approved by the Washington State Department of Ecology, local Department of Public Health, and in accordance with applicable rules and regulations.
 - d. The Contractor shall provide its own Wastewater storage tanks, if necessary, of sufficient capacity within the Limits of Construction.
- 4. Surface Water Controls:
 - a. Refer to Section 31 25 00 – Soil Erosion and Sediment Control.

E. Regulatory Agency Sign(s):

- 1. Provide OSHA and WISHA accident prevention and warning signs in prominent locations per those regulations.

F. Signs which identify the Contractor organization and security services at the site are permissible.

- 1. Advertising signs are not permitted at the site.
- 2. Coordinate sign location(s) with Owner.

G. Signs not listed in this Specification Section permitted only upon approval of Owner.

1.6 CONTRACTOR'S SUPERINTENDENT'S FIELD OFFICE

- A. Establishment of a Contractor's office at the Site is optional. Alternately, Contractor may arrange to have meetings at County offices onsite.
- B. Maintain complete field file of Shop Drawings, Contract Documents, other files of field operations including provisions for maintaining "As Recorded Drawings" onsite.
- C. If used, remove field office from site upon acceptance of the entire work by the Owner.

1.7 OWNER'S FIELD OFFICE

- A. Not used.

1.8 DRAWINGS AND CONTRACT DOCUMENTS FOR CONTRACTOR USE

- A. Refer to General Conditions.
- B. Transfer station design drawings: "Mason County Department of Community Development Waste Export Transfer Station" (Parametrix, 1993); PDF format.
- C. Contractor shall pick up all "no-charge" documents within 10 days from date of Notice to Proceed.

1.9 PROJECT PHOTOGRAPHS

- A. At least once each month during construction of the Work, provide progress pictures as directed by Owner.
 - 1. Pictures shall be digital and provided on USB with thumbnail index.
 - 2. Provide number of photographs as follows:
 - a. Twenty-four (24) ground level color photos per month.
 - 3. Photographically impose a site plan key map on each photograph in the upper right hand corner and show by arrow the subject and the direction from which the photograph was taken.
 - a. Date all photographs.

1.10 PROJECT MEETINGS

- A. Construction Meetings:
 - 1. The Owner will conduct construction meetings involving:
 - a. Contractor's project manager.
 - b. Contractor's project superintendent.
 - c. Owner's designated representative(s).
 - d. Contractor's subcontractors as appropriate to the Work in progress.
 - e. Subcontractors and vendors pertinent to the agenda.
 - f. Representatives of authorities having jurisdiction, as needed.
 - 2. Meetings will be conducted every week.
 - 3. The Owner will take meeting minutes and submit copies of meeting minutes to participants and designated recipients identified at the Preconstruction Conference.
 - a. Corrections, additions or deletions to the minutes shall be noted and addressed at the following meeting.
 - 4. The Owner will schedule meetings for most convenient time frame as identified at the Preconstruction Conference.
 - 5. The Owner will have available at each meeting full chronological files of previous meeting minutes.
 - 6. The Contractor shall have available at each meeting up-to-date Record Drawings.
 - 7. Purpose:
 - a. Maintain and improve lines of communication.
 - b. Demonstrate performance of administrative requirements of the Contract.
 - c. Complete and maintain forms required to be used by the Contractor in administration of the Work.
 - d. Review and discuss the Weekly Look Ahead Schedule.
 - e. Review and discuss design intent, user and concurrent operations issues, work quality issues, and permitting issues including requirements of Authorities Having Jurisdiction.
 - f. Review and discuss specific Contract Documents including Drawings, and Specifications.
 - g. Maintain and improve facility and site access, traffic control activities, security, and procedural issues.
 - h. Review and improve ongoing safety activities including performance of the required Health and Safety Plan.
 - 8. Follow the direction of the Owner in preparation for weekly meetings, including:
 - a. Ensure the Contractor's project manager, superintendent, safety officer, representatives of subcontractors, and others are present in accordance with provisions of this Section.

- b. Ensure required attendees are prepared, and familiar with the Project and the Project Schedule.
 - c. Coordinate the time and place of the weekly meetings with the Owner.
 - d. Ensure the Owner has been consulted in advance of the meeting with respect to the proposed attendees, and their relationship to the Project.
 - e. Submit the Look Ahead Schedule at least twenty-four (24) HRS in advance of the meeting.
9. Agenda:
- a. Review and approve minutes or record of previous meeting.
 - b. Safety Report by the Contractor-designated safety representative.
 - c. Weekend or extended hours work request, if any is requested by the Contractor for the coming week.
 - d. Review work progress during the preceding two weeks.
 - e. Note field observations, problems and decisions.
 - f. Identify problems that impede planned progress.
 - g. Coordinate activities to the Owner's satisfaction, to permit the Project Schedule to be maintained, or improved.
 - h. Review off-site fabrication processes, and status.
 - i. Develop corrective measures, and procedures to maintain or improve the Project Schedule.
 - j. Discuss progress of preparation and maintenance of administrative documents required in accordance with this Section.
 - k. Discuss updates to the Monthly Update Schedule in accordance with Section 01 32 16 – Construction Progress Schedule.
 - l. Review planned work identified in the Look Ahead Schedule in accordance with Section 01 32 16 – Construction Progress Schedule.
 - m. Review impacts of Changes on the Project Schedule.
 - n. Discuss status, and action related to Changes.
 - o. Discuss additional scope, costs, schedule impacts, deviations, substitutions and other Changes.
 - p. Review safety measures, including compliance with the required Health and Safety Plan, and cooperation with agencies, and authorities having jurisdiction.
 - q. Maintenance and improvement of quality, work standards, and competence.
 - r. Resolution of construction non-conformities.
 - s. Review of status logs of submittals, RFIs, and Change Orders.

B. Pre-Installation Conferences:

- 1. Coordinate and schedule with Owner and Engineer for each material, product or system specified.
 - a. Conferences to be held prior to initiating installation, but not more than two (2) weeks before scheduled initiation of installation.
 - b. Conferences may be combined if installation schedule of multiple components occurs within the same two (2) week interval.
 - c. Review manufacturers recommendations and Contract Documents Specification Sections.
- 2. Contractor's Superintendent and individual who will actually act as foreman of the installation crew (installer), if other than the Superintendent, shall attend.

1.11 SPECIAL CONSIDERATIONS RELATED TO ADJACENT FACILITY OPERATIONS

A. Contractor shall be responsible for negotiations of any waivers or alternate arrangements required to enable transportation of materials to the site.

B. Access and Traffic Control:

- 1. Maintain conditions of access road to site such that access is not hindered as the result of construction related deterioration.

2. Do not permit driving across or transporting materials or equipment across areas outside the Limits of Construction shown on the Drawings.
3. Provide traffic control devices and personnel necessary to ensure a safe interface of construction traffic with public and operations traffic.
4. Provide access routes for emergency vehicles at all times.
5. Provide daily sweeping of hard-surface roadways to remove soils tracked onto roadway.

1.12 HISTORICAL AND ARCHAEOLOGICAL

A. If during the course of construction, evidence of deposits of historical or archeological interest is found, the Contractor shall cease operations affecting the find and shall notify Owner.

1. No further disturbance of the deposits shall ensue until the Contractor has been notified by Owner that Contractor may proceed.
2. Owner will issue a notice to proceed after appropriate authorities have surveyed the find and made a determination to Owner.
3. Compensation to the Contractor, if any, for lost time or changes in construction resulting from the find, shall be determined in accordance with changed or extra work provisions of the Contract Documents.
4. The site has been previously investigated and has no known history of historical or archaeological finds.

PART 2 - PRODUCTS - (NOT APPLICABLE TO THIS SPECIFICATION SECTION)

PART 3 - EXECUTION - (NOT APPLICABLE TO THIS SPECIFICATION SECTION)

END OF SECTION

SECTION 01 32 16
CONSTRUCTION PROGRESS SCHEDULE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Specific requirements for the preparation, submittal, updating, and status reporting of the construction Progress Schedule.
- B. Review of the Critical Path Method (CPM) Schedule:
 - 1. In so far as the Contractor is solely responsible for its means and methods and the CPM schedule represents in part its means and methods, the review of the CPM schedules (preliminary, baseline, updates, revisions, etc.) is for compliance with the requirements as defined in the Contract Documents.
 - 2. The review of the CPM schedule is not intended to be complete or exhaustive or check every activity and its relation to the work.
 - 3. The Owner will provide comments on the CPM schedule compliance with those contract requirements and anomalies that might appear to the Owner.
 - 4. If the Contractor fails to include contract requirements (e.g. specified cure times, commissioning periods) in the CPM schedule, or the Owner fails to notify the Contractor of anomalies the Contractor is not relieved of the contract requirements.
 - 5. Acceptance of the CPM schedule does not imply that the Owner has approved or accepted the Contractor's means and methods or sequence for performing the work to construct the project.
 - 6. If the Contractor has questions or concerns about comments, the Contractor and Owner shall meet to resolve those issues prior to issuance of future updates or revisions.

1.2 QUALITY ASSURANCE

- A. The person preparing, updating and revising the construction Progress Schedule shall be experienced in the preparation of schedules of similar complexity.

1.3 DEFINITIONS

- A. The following definitions shall apply to this Specification Section:
 - 1. EXECUTION OF THE CONTRACT: The date the contract is signed by the last party, either the Owner or the Contractor.
 - 2. WORKING DAYS: Monday through Friday except holidays as directed by the Owner.
 - 3. PRELIMINARY SCHEDULE: A schedule showing detailed activity for the first 90 days of the Project, and a general work plan for construction activity from the 91st day until the Contractual Completion Date.
 - 4. BASELINE SCHEDULE: The initial detailed Progress Schedule prepared by the Contractor defining its plan for constructing the Project in accordance with the Contract Documents.
 - 5. SCHEDULE UPDATE: The initially accepted Baseline Schedule, or subsequently approved Revised Baseline Schedules, updated each month to reflect actual start and finish dates of each schedule activity and the remaining duration of activities that began during the period.
 - 6. REVISED BASELINE SCHEDULE: The initially accepted Baseline Schedule revised to reflect approved contract change orders and modifications.
 - 7. RECOVERY SCHEDULE:
 - a. A schedule indicating the Contractor's plan for recovering lost time.

- b. A recovery schedule will be requested when the Contractor is forecasting at least 10 working days or more delays in meeting a contract milestone or the contract completion date.
- 8. SHORT INTERVAL SCHEDULE:
 - a. Schedule prepared by the Contractor reflecting the work planned for the coming weeks.
 - b. This is also known as a look ahead schedule.
- 9. RESOURCES: Manpower, materials, permanent equipment, and construction equipment needed to construct the work.

1.4 SUBMITTALS

- A. Preliminary Schedule:
 - 1. Submittal and review:
 - a. Submit within 10 days after Execution of the Contract or the effective date of the contract, whichever is earlier.
 - b. The Owner will review and provide comments to the Contractor within ten (10) working days after receipt of the schedule.
 - c. The Contractor will review and modify the preliminary schedule and return the schedule within five (5) working days. If there are concerns about the comments provided, the Owner and Contractor will meet to review and resolve those concerns.
 - 2. Submittal package:
 - a. Provide a detailed plan for the first ninety (90) days of the project and summary activities of the work to achieve the project milestones.
 - b. CPM time-scaled network diagram:
 - 1) A printed logic diagram and PDF that include the following information:
 - a) Unique activity number/identifier; numeric, alpha or combination of numeric/alpha.
 - b) Activity description.
 - c) Activity duration.
 - d) Predecessor activities.
 - e) Successor activities.
 - 2) The activities will be sorted by area, trades, and subcontractors as agreed on with the Owner.
 - 3) Print the CPM time-scaled network diagram on minimum sheet size of 11 IN x 17 IN.
- B. Baseline Schedule and Narrative Report:
 - 1. Submittal and review:
 - a. Submit within 30 days after Execution of the Contract.
 - b. The Owner shall review the baseline schedule and provide comments to the Contractor within twenty (20) working days after receipt of the schedule.
 - c. After receiving comments, the Contractor and Owner shall meet to review the comments within five (5) working days.
 - d. After the meeting, the Contractor will modify the schedule as agreed and resubmit the baseline schedule within 5 working days.
 - e. After the Owner confirms that the Contractor has made the changes as agreed, the schedule will become the baseline schedule.
 - 2. Submittal package:
 - a. CPM time-scaled network diagram:
 - 1) A printed logic diagram and PDF that include the following information:
 - a) Unique activity number/identifier; numeric, alpha or combination of numeric/alpha.
 - b) Activity description.
 - c) Activity duration.
 - d) Predecessor activities.
 - e) Successor activities.

- f) Cost/budget to complete the work in the activity.
 - g) Resources needed to complete the activity.
 - 2) Print the CPM time-scaled network diagram on minimum sheet size of 11 IN x 17 IN.
- C. Schedule Updates Including:
 - 1. Submittal and Review:
 - a. The Contractor shall provide a Schedule Update with each Application for Payment after the Baseline Schedule is completed.
 - b. The Owner shall provide comments to the Contractor on the Schedule Update.
 - c. The Contractor shall incorporate the Owner comments into the next Schedule Update.
 - 2. Narrative Schedule Report identifying the following:
 - a. Provide a narrative report with each Schedule Update detailing the work completed during the month, any changes to the schedule logic, any changes to activity durations, any changes to the critical path, and any changes to its assumptions for constructing the Work, including assumed constraints included in the schedule as defined by the Contract Documents, permits, or the Contractor.
 - b. Indicate the reasons the Contractor made the changes to logic, durations, and the critical path.
- D. Revised Baseline Schedule:
 - 1. Submittal and Review:
 - a. Provide a Revised Baseline Schedule to reflect approved Change Orders as requested by the Owner.
 - 1) Submit with ten (10) working days
 - b. Activities will be added or the durations modified to reflect the work approved in change orders.
 - c. The Owner will review and provide comments to the Contractor on the Revised Baseline Schedule within five (5) working days.
 - d. Incorporate the Owner comments into the Revised Baseline Schedule.
 - e. After acceptance by the Owner, the Revised Baseline Schedule, use for future Schedule Updates.
- E. Recovery Schedule:
 - 1. When the activities on the critical path or the completion milestones appear to be fifteen (15) working days beyond the contract time, the Owner may request and the Contractor shall provide a Recovery Schedule demonstrating how the Contractor will recover the lost time so that the Work will be completed within the Contract Time.
 - 2. Provide the Recovery schedule within ten (10) working days after requested by the Owner.
 - 3. Activities will be added or the durations modified to reflect the changes to the work.
 - 4. The Owner will review and provide comments to the Contractor on the Recovery Schedule within five (5) working days.
 - 5. Incorporate the Owner comments into the Recovery Schedule.
 - 6. After acceptance by the Owner, the Recovery Schedule use for future Schedule Updates.
- F. Short Interval Schedule:
 - 1. Provide a four (4) week schedule each week during the Contract Time. This schedule can be reviewed at each progress meeting.
 - a. Provide an accurate representation of the work performed the previous week and work planned for the current week and subsequent three (3) weeks.
 - 2. Identify inspection hold points including special inspections needed before the Contractor can move forward with the work.
 - 3. Identify the day materials provided by the Owner or others needed on site.
 - 4. Identify utility tie-ins and traffic changes including road and/or lane closures.

1.5 GENERAL REQUIREMENTS

- A. Prepare and submit construction progress schedules as specified herein.

1. Develop and maintain Baseline, Updates and Recovery schedules.
 2. Include the following information:
 - a. Construction start dates (Award date, Notice to Proceed date).
 - b. Procurement activities.
 - c. Preparation of key submittals for materials and equipment.
 - d. Engineers review and approval of key submittals.
 - e. Material and equipment fabrication lead times.
 - f. Material and equipment deliveries for Contractor, Owner and third parties.
 - g. Water curing of concrete after placement for all structures.
 - h. Shutdowns.
 - i. Utility tie-ins.
 - j. Traffic changes and closers.
 - k. Inspections and hold points.
 - l. Commissioning.
 - m. Contract milestones:
 - 1) Intermediate milestones.
 - 2) Substantial Completion Date.
 - 3) Physical Completion Date.
 - n. Costs for each activity.
 3. Do not utilize any float suppression techniques or other software features that effect the pure mathematical model calculating the critical path.
- B. The number of activities shall be sufficient to assure adequate planning of the project, to permit monitoring and evaluation of progress, and to do an analysis of time impacts.
- C. Plan working durations to incorporate the effects of normal weather impacts.
- D. Float:
1. The project owns the float, therefore neither the Owner nor the Contractor has exclusive use of the float; the float can be used by either party.
 2. Once float is used, liability for delay of the project completion date rests with the party actually causing delay to the project completion date.

1.6 START-UP, DEMONSTRATION, TRAINING, AND FINAL COMPLETION

- A. The Baseline Schedule must include broad-based activities for start-up and final completion.
1. The Baseline Schedule may not necessarily contain sufficient detail on all activities listed in Specification Section 01 75 00 for Start-Up and demonstration.
 2. Submit a detailed schedule in conformance with the requirements of Specification Section 01 75 00:
 - a. Identify task for the substantial completion notification.
 - b. Pre-demonstration period:
 - 1) Complete submission of all required submittals.
 - c. Demonstration period: Identify for each project classified system.

PART 2 - PRODUCTS - (NOT APPLICABLE TO THIS SPECIFICATION SECTION)

PART 3 - EXECUTION - (NOT APPLICABLE TO THIS SPECIFICATION SECTION)

END OF SECTION

SECTION 01 33 00

SUBMITTALS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Mechanics and administration of the submittal process for:
 - a. Product Data.
 - b. Shop Drawings.
 - c. Samples.
 - d. Informational submittals.
 - 2. General content requirements for Submittals.
 - 3. Construction Progress Schedule submittal requirements are specified in Specification Section 01 32 16.
 - 4. Technical Specification Sections identifying required submittals.

1.2 DEFINITIONS

- A. Submittals include Shop Drawings, Setting and Erection Drawings, schedules of materials, product data, samples, certificates and other information prepared for the Work by the Contractor or a Subcontractor as set forth in the Technical Specifications ("Submittals"). The Contractor shall perform no portion of the Work requiring Submittals until the Submittals have been reviewed and returned with one of the following annotations: (1) no exceptions taken or (2) note corrections.
- B. Informational Submittals:
 - 1. Submittals other than Shop Drawings, product data, and samples required by the Contract Documents that do not require review and/or approval by the Engineer.
 - 2. Representative types of informational submittal items include but are not limited to:
 - a. Concrete compressive strength and in-place moisture density soil test reports.
 - b. Manufacturer's installation certification letters.
 - c. Warranties.
 - d. Service agreements.
 - e. Construction photographs.
 - f. Survey data.
 - g. Health and safety plans.
 - h. Work plans.
 - i. Delegated designs per performance specification requirements.
 - 3. For-Information-Only submittals upon which the Engineer is not expected to conduct review or take responsive action may be so identified in the Technical Specification Sections.

1.3 SUBMITTAL SCHEDULE

- A. Schedule of Submittals:
 - 1. Submitted within 15 calendar days of receipt of Notice to Proceed.
 - 2. Account for multiple transmittals under any specification section where partial submittals will be transmitted.
 - 3. Plan on Informational Submittals such as reports and installation certifications submitted within one (1) week of conducting testing or examination.
- B. Prepare a Submittal Schedule, which provides columns for the following information in tabular format as a minimum:
 - 1. Unique submittal number, numbered sequentially.
 - 2. Submittal description.

3. Applicable Section and Article.
 4. Planned submittal date.
 5. Actual submittal date.
 6. Required submittal approval date.
 7. Actual submittal return date.
 8. Disposition.
 9. Notes or comments.
- C. Provide an electronic copy of the Submittal Schedule in Microsoft Excel format.
- D. Submittals requiring further action or re-submittal will be added to the register and tracked by the Contractor. Resubmittals are to have the original number with an alphabetic suffix.
- E. Submit an updated Submittal Schedule monthly with each Application for Payment.
- F. In the event of a discrepancy between the Contract Documents and the Submittal Schedule, the Contract Documents shall take precedence.

1.4 PREPARATION OF SUBMITTALS

- A. General:
1. All submittals and all pages of all copies of a submittal shall be completely legible.
 2. Submittals which, in the Engineer's sole opinion, are illegible will be returned without review.
 3. Minimize extraneous information for equipment and products not relevant to the submittal.
 4. Contractors or vendors written comments on the Submittal Drawings shall be in green
- B. Shop Drawings, Product Data, and Samples:
1. Scope of any submittal and letter of transmittal:
 - a. Limited to one (1) Specification Section.
 - b. Submittals with more than one Specification section included will be rejected.
 - c. Do not submit under any Specification Section entitled (in part) "Basic Requirements" unless the product or material submitted is specified, in total, in a "Basic Requirements" Specification Section.
 2. Numbering letter of transmittal:
 - a. Include as prefix the Specification Section number followed by a series number, "-xx", beginning with "01" and increasing sequentially with each additional transmittal for that Specification Section.
 - b. If more than one (1) submittal under any Specification Section, assign consecutive series numbers to subsequent transmittal letters.
 3. Describing transmittal contents:
 - a. Provide listing of each component or item in submittal capable of receiving an independent review action.
 - b. Identify for each item:
 - 1) Manufacturer and Manufacturer's Drawing or data number.
 - 2) Contract Document tag number(s).
 - 3) Contract Drawing Section or detail number if appropriate.
 - 4) Specification Section Article/Paragraph number if appropriate.
 - 5) Unique page numbers for each page of each separate item.
 - c. When submitting "or-equal" items that are not the products of named manufacturers, include the words "or-equal" in the item description.
 4. Contractor certification of review and approval:
 - a. Contractor shall execute Exhibit AA, Contractor's Submittal Certification form, to indicate Contractor has reviewed and approved the submittal contents.
 - 1) Clearly identify the person who reviewed the submittal and the date it was reviewed."

- b. Submittals containing multiple independent items shall be prepared with each item listed on the letter of transmittal or on an index sheet for all items listing the discrete page numbers for each page of each item, which shall be stamped with the Contractor's review and approval stamp.
 - 1) Each independent item shall have a cover sheet with the transmittal number and item number recorded.
 - a) Provide clear space of 3 IN SQ for Engineer stamping.
 - 2) Individual pages or sheets of independent items shall be numbered in a manner that permits the entire contents of a particular item to be readily recognized and associated with Contractor's certification.
- 5. Resubmittals:
 - a. Number with original Specification Section and series number with a suffix letter starting with "A" on a (new) duplicate transmittal form.
 - b. Do not increase the scope of any prior transmittal.
 - c. Provide cover letter indicating how each "B", "C", or "D" Action from previous submittal was addressed and where the correction is found in the resubmittal.
 - d. Account for all components of prior transmittal.
 - 1) If items in prior transmittal received "A" or "B" Action code, list them and indicate "A" or "B" as appropriate.
 - a) Do not include submittal information for items listed with prior "A" or "B" Action in resubmittal.
 - 2) Indicate "Outstanding-To Be Resubmitted At a Later Date" for any prior "C" or "D" Action item not included in resubmittal.
 - a) Obtain Engineer's approval to exclude items.
- 6. For 8-1/2 x 11 IN, 8-1/2 x 14 IN, and 11 x 17 IN size sheets, provide three (3) copies of each submittal.
 - a. All other size sheets:
 - 1) Submit one (1) reproducible transparency or high resolution print and one (1) additional print of each Drawing until approval is obtained.
 - 2) Utilize mailing tube; do not fold.
 - 3) The Engineer will mark and return the reproducible to the Contractor for reproduction and distribution.
- 7. Contractor shall not use red color for marks on transmittals.
 - a. Duplicate all marks on all copies transmitted, and ensure marks are photocopy reproducible.
 - b. Engineer will use red marks or enclose marks in a cloud.
- 8. Transmittal contents:
 - a. Coordinate and identify Submittal contents so that all items can be easily verified by the Engineer.
 - b. Provide submittal information or marks defining specific equipment or materials utilized on the Project.
 - 1) Generalized product information, not clearly defining specific equipment or materials to be provided, will be rejected.
 - c. Identify equipment or material project use, tag number, Drawing detail reference, weight, and other Project specific information.
 - d. Provide sufficient information together with technical cuts and technical data to allow an evaluation to be made to determine that the item submitted is in compliance with the Contract Documents.
 - e. Do not modify the manufacturer's documentation or data except as specified herein.
 - f. Submit items such as equipment brochures, cuts of fixtures, product data sheets or catalog sheets not exceeding 11 x 17 IN pages.
 - 1) Indicate exact item or model and all options proposed by arrow and leader.

- g. When a Shop Drawing is called for in any Specification Section, include as appropriate, scaled details, sizes, dimensions, performance characteristics, capacities, test data, anchoring details, installation instructions, storage and handling instructions, color charts, layout Drawings, rough-in diagrams, wiring diagrams, controls, weights and other pertinent data in addition to information specifically stipulated in the Specification Section.
 - 1) Arrange data and performance information in format similar to that provided in Contract Documents.
 - 2) Provide, at minimum, the detail specified in the Contract Documents.
 - h. If proposed equipment or materials deviate from the Contract Drawings or Specifications in any way, clearly note the deviation and justify the said deviation in detail in a separate letter immediately following transmittal sheet. Any deviation from plans or specifications not depicted in the submittal or included but not clearly noted by the Contractor may not have been reviewed. Review by the Engineer shall not serve to relieve the Contractor of the contractual responsibility for any error or deviation from contract requirements.
9. Samples:
- a. Identification:
 - 1) Identify sample as to transmittal number, manufacturer, item, use, type, project designation, tag number, Specification Section or Drawing detail reference, color, range, texture, finish and other pertinent data.
 - 2) If identifying information cannot be marked directly on sample without defacing or adversely altering samples, provide a durable tag with identifying information securely attached to the sample.
 - b. Include application specific brochures, and installation instructions.
 - c. Provide Contractor's review and approval certification stamp or Contractor's Submittal Certification form as indication of Contractor's checking and verification of dimensions and coordination with interrelated work.
 - d. Resubmit revised samples of rejected items.
- C. Informational Submittals:
- 1. Prepare in the format and detail specified in Specification requiring the informational submittal.

1.5 TRANSMITTAL OF SUBMITTALS

A. Transmit all submittals to:

Mason County Public Works - Utilities and Waste Division
 100 Public Works Drive
 Shelton, WA 98584
 Attn: Bart Stepp, PE

- 1. Utilize two (2) copies of attached Exhibit A to transmit all submittals which cannot be electronically transmitted.
- 2. All submittals must be from Contractor.
 - a. Submittals will not be received from or returned to subcontractors.

B. Electronic Transmission of Submittals:

- 1. Transmittals, except samples, shall be made electronically.
 - a. Use HDR's Project Tracker Collaboration System (PTCS) or email.
 - b. Protocols and processes will be determined at the Preconstruction Conference.
- 2. Provide documents in Adobe Acrobat Portable Document Format (PDF), latest version.
- 3. Do not password protect or lock the PDF document.

4. Drawings or other graphics must be converted to PDF file format from the original drawing file format and made part of the PDF document.
 - a. Scanning of Drawings is to be used only where actual file conversion is not possible and drawings must be scanned at a resolution of 300 dpi or greater.
 - b. Required signatures may be applied prior to scanning for transmittal.
5. Electronic Drawings shall be formatted to be at full-scale (or half-scale when printed to 11 x 17 IN).
 - a. Do not reduce drawings by more than 50 percent in size.
 - b. Reduced Drawings shall be clearly marked "HALF-SIZE" and shall scale accurately at that size.
6. Rotate sheets that are normally viewed in landscape mode so that when the PDF file is opened the sheet is in the appropriate position for viewing.
7. Create bookmarks in the bookmarks panel for the Operation and Maintenance Manual cover, the Table of Contents and each major section of the Table of Contents.
8. Using Adobe Acrobat Standard or Adobe Acrobat Professional, set the PDF document properties, initial view as follows:
 - a. Select File → Properties → Initial View.
 - b. Select the Navigation tab: Bookmarks Panel and Page.
 - c. Select the Page layout: Single Page.
 - d. Select the Magnification: Fit Page.
 - e. Select Open to page: 1.
 - f. Set the file to open to the cover page with bookmarks to the left, and the first bookmark linked to the cover page.
9. Set the PDF file "Fast Web View" option to open the first several pages of the document while the rest of the document continues to load.
 - a. To do this:
 - 1) Select Edit → Preferences → Documents → Save Settings.
 - 2) Check the Save As optimizes for Fast Web View box.
10. File naming conventions:
 - a. File names shall use a "ten dot three" convention (XXXXXX-YY-Z.PDF) where XXXXXX is the Specification Section number, YY is the Submittal number and Z is an ID number used to designate the associated volume.
11. As a minimum, include the following labeling:
 - a. Project Name.
 - b. Equipment Name and Project Tag Number.
 - c. Project Specification Section.
 - d. Manufacturer Name.
 - e. Vendor Name.

1.6 ENGINEER'S REVIEW ACTION

- A. Items within transmittals will be reviewed for overall design intent and will receive one (1) of the following actions:
 1. A - FURNISH AS SUBMITTED.
 2. B - FURNISH AS NOTED (BY ENGINEER).
 3. C - REVISE AND RESUBMIT.
 4. D - REJECTED.
 5. E - ENGINEER'S REVIEW NOT REQUIRED.
- B. Submittals received will be initially reviewed to ascertain inclusion of Contractor's approval stamp.
 1. Submittals not stamped by the Contractor or stamped with a stamp containing language other than that specified herein will not be reviewed for technical content and will be returned rejected.

- C. In relying on the representation on the Contractor's review and approval stamp, Owner and Engineer reserve the right to review and process poorly organized and poorly described submittals as follows:
1. Submittals transmitted with a description identifying a single item and found to contain multiple independent items:
 - a. Review and approval will be limited to the single item described on the transmittal letter.
 - b. Other items identified in the submittal will:
 - 1) Not be logged as received by the Engineer.
 - 2) Be removed from the submittal package and returned without review and comment to the Contractor for coordination, description and stamping.
 - 3) Be submitted by the Contractor as a new series number, not as a re-submittal number.
 2. Engineer, at Engineer's discretion, may revise the transmittal letter item list and descriptions, and conduct review.
 - a. Unless Contractor notifies Engineer in writing that the Engineer's revision of the transmittal letter item list and descriptions was in error, Contractor's review and approval stamp will be deemed to have applied to the entire contents of the submittal package.
- D. Submittals returned with Action "A" or "B" are considered ready for fabrication and installation.
1. If for any reason a submittal that has an "A" or "B" Action is resubmitted, it must be accompanied by a letter defining the changes that have been made and the reason for the resubmittal.
 2. Destroy or conspicuously mark "SUPERSEDED" all documents having previously received "A" or "B" Action that are superseded by a resubmittal.
- E. Submittals with Action "A" or "B" combined with Action "C" (Revise and Resubmit) or "D" (Rejected) will be individually analyzed giving consideration as follows:
1. The portion of the submittal given "C" or "D" will not be distributed (unless previously agreed to otherwise at the Preconstruction Conference).
 - a. One (1) copy or the one (1) transparency of the "C" or "D" Drawings will be marked up and returned to the Contractor.
 - 1) Correct and resubmit items so marked.
 2. Items marked "A" or "B" will be fully distributed.
 3. If a portion of the items or system proposed are acceptable, however, the major part of the individual Drawings or documents are incomplete or require revision, the entire submittal may be given "C" or "D" Action.
 - a. This is at the sole discretion of the Engineer.
 - b. In this case, some Drawings may contain relatively few or no comments or the statement, "Resubmit to maintain a complete package."
 - c. Distribution to the Owner and field will not be made (unless previously agreed to otherwise).
- F. Failure to include any specific information specified under the submittal paragraphs of the Specifications will result in the submittal being returned to the Contractor with "C" or "D" Action.
- G. Calculations required in individual Specification Sections will be received for information purposes only, as evidence calculations have been stamped by the professional as defined in the Specifications and for limited purpose of checking conformance with given performance and design criteria. The Engineer is not responsible for checking the accuracy of the calculations and the calculations will be returned stamped "E. Engineer's Review Not Required" to acknowledge receipt.

- H. Contractor shall furnish required submittals with sufficient information and accuracy to obtain required approval of an item with no more than three submittals. Engineer will record Engineer's time for reviewing a fourth or subsequent submittal of a Shop Drawings, sample, or other item requiring approval, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due to Contractor to secure reimbursement for such charges.
- I. Transmittals of submittals which the Engineer considers as "Not Required" submittal information, which is supplemental to but not essential to prior submitted information, or items of information in a transmittal which have been reviewed and received "A" or "B" action in a prior submittal, will be returned with action "E. Engineer's Review Not Required."
- J. Samples may be retained for comparison purposes:
 - 1. Remove samples when directed.
 - 2. Include in bid all costs of furnishing and removing samples.
- K. Approved samples submitted or constructed, constitute criteria for judging completed work.
 - 1. Finished work or items not equal to samples will be rejected.

PART 2 - PRODUCTS - (NOT APPLICABLE TO THIS SPECIFICATION SECTION)

PART 3 - EXECUTION - (NOT APPLICABLE TO THIS SPECIFICATION SECTION)

END OF SECTION



EXHIBIT A **Shop Drawing Transmittal No.**

 -
(Spec Section) (Series)

Project Name: Eells Hill Transfer Station Improvements		Date Received:
Project Owner: Mason County, WA		Checked By:
Contractor:	HDR Engineering, Inc.	Log Page:
Address:	Address:	HDR No.:
		Spec Section:
		Drawing/Detail No.:
Attn:	Attn:	1st. Sub ReSub.
Date Transmitted:	Previous Transmittal Date:	

Item No.	No. Copies	Description	Manufacturer	Mfr/Vendor Dwg or Data No.	Action Taken*

Remarks:

* The Action designated above is in accordance with the following legend:

<p>A - Furnish as Submitted</p> <p>B - Furnish as Noted</p> <p>C - Revise and Submit</p> <ol style="list-style-type: none"> 1. Not enough information for review. 2. No reproduces submitted. 3. Copies illegible. 4. Not enough copies submitted. 5. Wrong sequence number. 6. Wrong resubmittal number. 7. Wrong spec. section. 8. Wrong form used. 9. See comments. <p>D - Rejected</p>	<p>E - Engineer's review not required</p> <ol style="list-style-type: none"> 1. Submittal not required. 2. Supplemental Information. Submittal retained for informational purposes only. 3. Information reviewed and approved on prior submittal. 4. See comments. 5. Delegated Design - Submittal received as requested by the Contract Documents. The Engineer did not review the engineering or technical content of the submittal. <p>Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Any deviation from plans or specifications not depicted in the submittal or included but not clearly noted by the Contractor may not have been reviewed. Review by the Engineer shall not serve to relieve the Contractor of the contractual responsibility for any error or deviation from contract requirements.</p>
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Comments:

	By	Date
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Distribution: Contractor | File | Field | Owner | Other |



Contractor's Submittal Certification

Shop Drawing Transmittal No.: _____

Contract/Project Name: _____

Company Name: _____

has

1. reviewed and coordinated this Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
2. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
3. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
4. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.

This Submittal **does not** contain any variations from the requirements of the Contract Documents.

This Submittal **does** contain variations from the requirements of the Contract Documents. A separate description of said variations and a justification for them is provided in an attachment hereto identified as:

"Shop Drawing Transmittal No. _____ Variation and Justification Documentation"

Insert picture file or electronic signature of Authorized Representative

Authorized Representative

Date

SECTION 01 35 05

ENVIRONMENTAL PROTECTION AND SPECIAL CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Minimizing the pollution of air, water, or land; control of noise, and the disposal of solid waste materials.

SUBMITTALS

- A. Submittals:
1. See Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
 2. Prior to the start of any construction activities submit:
 - a. A detailed proposal of all methods of control and preventive measures to be utilized for environmental protection.
 - b. A drawing of the work area, haul routes, storage areas, access routes and current land conditions including trees and vegetation.
 - c. A copy of the approved pollution prevention plan.

PART 2 - PRODUCTS - (NOT APPLICABLE TO THIS SPECIFICATION SECTION)

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Employ and utilize environmental protection methods, obtain all necessary permits, and fully observe all local, state, and federal regulations.
- B. Land Protection:
1. Except for any work or storage area and access routes specifically assigned for the use of the Contractor, the land areas outside the limits of construction shall be preserved in their present condition.
 - a. Contractor shall confine his construction activities to within the Limits of Construction.
 2. Manage and control all borrow areas, work or storage areas, access routes and embankments to prevent sediment from entering nearby water or land adjacent to the work site.
 3. Restore all disturbed areas including borrow and haul areas and establish permanent type of locally adaptable vegetative cover.
 4. Unless earthwork is immediately paved or surfaced, protect all side slopes and backslopes immediately upon completion of final grading.
 5. Plan and execute earthwork in a manner to minimize duration of exposure of unprotected soils.
 6. Except for areas designated by the Contract Documents to be cleared and grubbed, the Contractor shall not deface, injure or destroy trees and vegetation, nor remove, cut, or disturb them without approval of the Engineer.
 - a. Any damage caused by the Contractor's equipment or operations shall be restored as nearly as possible to its original condition at the Contractor's expense.
- C. Surface Water Protection:
1. Utilize, as necessary, erosion control methods to protect side and backslopes, minimize and the discharge of sediment to the surface water leaving the construction site as soon as rough grading is complete.

- a. These controls shall be maintained until the site is ready for final grading and landscaping or until they are no longer warranted and concurrence is received from the Owner.
 - b. Physically retard the rate and volume of run-on and runoff by:
 - 1) Implementing structural practices such as diversion swales, terraces, straw bales, silt fences, berms, storm drain inlet protection, rock outlet protection, sediment traps and temporary basins.
 - 2) Implementing vegetative practices such as temporary seeding, permanent seeding, mulching, sod stabilization, vegetative buffers, hydroseeding, anchored erosion control blankets, sodding, vegetated swales or a combination of these methods.
 - 3) Providing sites with graveled or rock access entrance and exit drives and parking areas to reduce the tracking of sediment onto public or private roads.
 - 2. Discharges from the construction site shall not contain pollutants at concentrations that produce objectionable films, colors, turbidity, deposits or noxious odors in the receiving stream or waterway.
- D. Solid Waste Disposal:
- 1. Collect solid waste on a daily basis.
 - 2. Contractor may dispose of project-related solid waste onsite at the Eells Hill Transfer Station at no charge.
 - 3. Provide disposal of nondegradable solid waste to an approved solid waste disposal site (may include Eells Hill Transfer Station, if approved by Owner) or in an alternate manner approved by Owner.
 - 4. No building materials wastes or unused building materials shall be buried, dumped, or disposed of onsite.
 - 5. No wastes or unused building materials shall be burned.
- E. Fuel and Chemical Handling:
- 1. Store and dispose of chemical wastes in a manner approved by regulatory agencies.
 - 2. Take special measures to prevent chemicals, fuels, oils, greases, herbicides, and insecticides from entering drainage ways.
 - 3. Do not allow water used in onsite material processing, concrete curing, cleanup, and other waste waters to enter a drainage way(s) or stream.
 - 4. The Contractor shall provide containment around fueling and chemical storage areas to ensure that spills in these areas do not reach waters of the state.
- F. Control of Dust:
- 1. The control of dust shall mean that no construction activity shall take place without applying all such reasonable measures as may be required to prevent particulate matter from becoming airborne so that it remains visible beyond the limits of construction.
 - a. Reasonable measures may include paving, frequent road cleaning, planting vegetative groundcover, application of water or application of chemical dust suppressants.
 - b. The use of chemical agents such as calcium chloride is not acceptable.
 - 2. The Owner will determine the effectiveness of the dust control program and may request the Contractor to provide additional measures, at no additional cost to Owner.
- G. Control of Noise:
- 1. Control noise by fitting equipment with appropriate mufflers.
- H. Completion of Work:
- 1. Upon completion of work, leave area in a clean, natural looking condition.
 - 2. Ensure all signs of temporary construction and activities incidental to construction of required permanent work are removed.

END OF SECTION

SECTION 01 45 33
SPECIAL INSPECTIONS AND TESTING PROGRAM

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Contractor responsibilities for special inspection and testing.
 - 2. Special Inspection program and reporting requirements.
 - 3. Special Inspector qualifications, reporting requirements, and material specific inspections and tests.
 - a. This information is for the Contractor reference only and is not part of the Contract Documents.
- B. Purpose:
 - 1. This Document was developed to address the requirements of the 2015 International Building Code, including:
 - a. One or more special inspectors will be hired by the Contractor or Contractor's Agent to provide inspections during constructions on the types of work listed under IBC Section 1704.
 - 2. The Special Inspection program does not relieve the Contractor or any other entity of any contractual duties, including quality control, quality assurance, or safety. The Contractor is solely responsible for construction means, methods, and job site safety. Failure to adhere to the SI program as outlined herein may result in a stop work notice being issued by the Building Official.

1.2 DEFINITIONS

- A. Special Inspector: Representative of the Contractor approved inspection agency designated for that portion of the work.
- B. Testing Agency: Approved agency, not affiliated or hired by the Contractor, which is responsible for the materials testing requirements of the project including but not limited to concrete cylinder breaks, soils testing, and masonry materials testing.
- C. Statement of Special Inspections: Document provided to the Building Code Official outlining special inspections and tests to be done on the project and frequency of required test.
- D. Soils Engineer or Geotechnical Engineer: For the purposes of Special Inspection "Soils Engineer," "Geotechnical Engineering," and "Special Inspector" shall be interchangeable as pertains to the Division 31 specifications.
- E. NICET: National Institute for Certification in Engineering Technologies.

1.1 MATERIAL SPECIFIC SPECIAL INSPECTIONS AND TESTS

- A. Material specific requirements for special inspection and testing are listed in the Technical Specifications. Special inspection and testing requirements will be located in each appropriate technical specification under "SOURCE QUALITY CONTROL", "FIELD QUALITY CONTROL" and/or "QUALITY ASSURANCE" as appropriate for each material.

1.2 QUALIFICATIONS

- A. Soil, concrete, masonry, mortar, grout, steel and aluminum related testing.
 - 1. The Testing Agency shall have a minimum of 10 years experience in the testing of these materials.
 - 2. The Testing Agency's technician(s) conducting this testing:

- a. Shall have a minimum of five (5) years experience in the testing of soil, concrete, mortar, grout, steel and aluminum as appropriate.
- 3. Concrete related work:
 - a. International Code Council certification for Reinforced Concrete and American Concrete Institute Concrete Field Testing Technician – Grade 1.
- 4. Soil:
 - a. Special Inspection/testing will be provided per IBC Section 1704.7 as required to determine that the site has been prepared in accordance with the approved soils report, and to verify the allowable soil bearing pressure, materials, compaction densities, trenching and backfill and conformance to the project Specifications.
 - b. Inspection/testing requirements are listed separately in Specification Division 31 and are indicated as the work to be done by the Geotechnical Engineer, Testing Agency, or Special Inspections and Testing Provider.
- B. Special Structural Inspections:
 - 1. Professional Engineers or Architects, licensed in the State of Washington, may perform special inspections in accordance with their license qualifications.
 - 2. Other individuals, working under the direct supervision of a Licensed Engineer and meeting the following qualifications, may perform special inspections.
 - 3. Soils related work:
 - a. NICET Level II Certification in geotechnical engineering technology/construction; or
 - b. Registered Geologist; or
 - c. Engineer Intern under the direct supervision of a Licensed Professional Engineer.
 - 4. Concrete related work:
 - a. International Code Council certification for Reinforced Concrete Special Inspector or American Concrete Institute Concrete Construction Special Inspector.
 - b. Alternatively, may be an Engineer Intern under the direct supervision of a Licensed Professional Engineer.
 - 5. Precast concrete erection related work:
 - a. Engineer Intern under the direct supervision of a Licensed Professional Engineer.
 - 6. Precast concrete erection welding:
 - 1) American Welding Society as a Certified Welding Inspector; or
 - 2) International Code Council Structural Steel and Welding Certification and American Welding Society Qualified and one (1) year of related experience; or
 - 3) NDT Level II or II Certificate (for non-destructive testing only).
 - 7. Masonry related work:
 - a. Shall be certified by the International Code Council or American Concrete Institute for structural masonry and one (1) year of related experience.
 - b. Alternatively, may be an Engineer Intern with a minimum of two (2) years appropriate training.
 - 8. Steel and aluminum related work:
 - a. Frame and material verification IBC Table 1704.3.
 - b. Welding:
 - 1) American Welding Society as a Certified Welding Inspector; or
 - 2) International Code Council Structural Steel and Welding Certification and American Welding Society Qualified and one (1) year of related experience; or
 - 3) NDT Level II or II Certificate (for non-destructive testing only).
 - c. High strength bolting:
 - 1) International Code Council Structural Steel and Welding Certification and one (1) year related experience.
 - 2) Alternatively, may be an Engineer Intern with appropriate training.
 - 9. Fire resistive coating (intumescent paint) related work:
 - a. International Code Council Spray-Applied Fireproofing Certification and (3) years of related experience; or

- b. International Code Council Fire Inspector 1 Certification and (3) years of related experience.
- 10. Other equivalent certifications will not be acceptable unless approved by the Owner.

1.3 CONTRACTOR’S RESPONSIBILITIES

- A. Contractor shall procure and cooperate with Testing Agency Personnel, Special Inspector, and Agents of the Building Code Official and provide access to the work.
 - 1. Providing access to the work shall include all labor and facilities to perform inspections and tests as listed in the specifications for the duration of the inspections or tests involved.
 - 2. Contractor shall provide means to obtain and handle samples taken on site.
- B. Schedule and attend a preconstruction meeting to coordinate and clarify inspection and testing procedures, requirements.
- C. Contractor shall notify Special Inspector and/or testing agency of work to be inspected/tested minimum of 24 HRS prior.
- D. Work for which special inspections are required shall remain accessible and exposed for the purposes of special inspections until completion of required special inspections.
- E. Any portion of work that is not in conformance shall be corrected and re-inspected. Such portions of the work shall not be covered or concealed until authorized by Owner’s Representative.
- F. Work to be inspected should be complete at time of inspector's arrival on-site.
- G. Payment for Special Inspection services will be in accordance with the following:
 - 1. Payment describe below is for the Testing Agency and Special Inspector costs and does not include the Contractor’s costs listed in Paragraph A of this Article.
 - 2. After Contractor notification, inspector arrives at Site and performs inspection within twenty-four (24) HRS.
 - a. Inspection reveals work is satisfactory.
 - b. Owner pays all costs associated with this inspection as part of the Special Testing Bid Item.
 - 3. After Contractor notification, inspector arrives at Site and performs inspection within twenty-four (24) HRS.
 - a. Inspection reveals work is deficient.
 - b. Contractor corrects deficiencies within twenty-four (24) HRS.
 - c. Work is re-inspected and work is satisfactory.
 - d. Owner pays all costs associated with this inspection as part of the Special Testing Bid Item.
 - 4. After Contractor notification, inspector arrives at Site and work is not ready for inspection when inspector arrives.
 - a. Inspector will remain on-site for a maximum of one (1) HR awaiting the completion of the work.
 - b. If work is not ready for inspection at the end of this period, inspector will be dismissed until Contractor requests re-inspection.
 - c. All costs associated with this inspection trip are not reimbursable by the Owner.
 - 5. After Contractor notification, inspector arrives at site and performs inspection within twenty-four (24) HRS.
 - a. Inspection reveals work is deficient.
 - b. Contractor attempts to correct deficiencies within two (2) HRS and calls for re-inspection.
 - c. Work is re-inspected and found to still be deficient.
 - d. Inspector will be dismissed.
 - e. All costs associated with this inspection trip are not reimbursable by the Owner.

6. Owner will pay for "passing" soils on the Project. Costs of corrective actions and cost of failed test areas requiring retesting are the sole responsibility of the Contractor. For additional specific payment requirements for soils see the respective Division 31 Section.
- H. Special Inspection is intended to be an independent quality assurance. Special Inspections shall not relieve the Contractor of any quality assurance, quality control, workmanship, or warranty responsibilities. Contractor's own personnel shall review all work to be inspected for conformance with Contract Documents prior to calling for inspection.

1.4 REPORTING DUTIES AND AUTHORITY

- A. Reporting requirements for special inspector per IBC 2015 for Building System Related Work.
 1. Comply with requirements of IBC Section 1704.1.2.
 2. Provide written documentation of all inspections and testing.
 - a. Include exact location of work.
 - b. If testing of specimens is included, include detailed information on storage and curing of specimens prior to testing.
 3. Furnish inspection and test reports to the Contractor and the Owner.
 - a. Indicate that work inspected was done in conformance with approved construction documents.
 - b. Immediately report any discrepancies to the Contractor for correction.
 - 1) Deficient work that has been covered up or concealed prior to re-inspection shall be reported to the Owner.
 - c. If the discrepancies are not corrected in a timely fashion, notify the Owner.
- B. Special Inspector does not have authority to stop work or modify the requirements of the Contract Documents.
- C. Special Inspectors are responsible for verifying all information on each document prior to signing or sealing and directly forwarding it to the Owner. The Special Inspectors are responsible for verifying all inspectors under their supervision maintain current certifications during the course of the project.
- D. At the conclusion of each individual Special Inspection type, the Special Inspectors will complete a Final Report.
 1. Issue an electronic report summarizing all inspections, corrective action notifications and resolution of discrepancies and non-conforming work every two (2) weeks (14 calendar days).
 - a. Copy will be available to:
 - 1) Owner.
 - 2) Contractor.
 2. At the end of the Project, the Special Inspector shall compile all test reports for each inspected material and summarize into a single PDF and submit to the Owner.
 - a. Final summary report to be signed and sealed by a Registered Professional for Special Inspections stating:
 - 1) The required Special Inspections have been performed.
 - 2) All discrepancies have been resolved except as specifically stated in the summary report.

PART 2 - PRODUCTS - (NOT APPLICABLE TO THIS SPECIFICATION SECTION)

PART 3 - EXECUTION - (NOT APPLICABLE TO THIS SPECIFICATION SECTION)

END OF SECTION

SECTION 01 65 50
PRODUCT DELIVERY, STORAGE, AND HANDLING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Scheduling of product delivery.
 - 2. Packaging of products for delivery.
 - 3. Protection of products against damage from:
 - a. Handling.
 - b. Exposure to elements or harsh environments.
- B. Payment:
 - 1. No payment will be made to Contractor for equipment or materials not properly stored and insured or without approved Submittals.
 - a. Previous payments for items will be deducted from subsequent progress estimate(s) if proper storage procedures are not observed.

1.2 DELIVERY

- A. Scheduling: Schedule delivery of products or equipment as required to allow timely installation and to avoid prolonged storage.
- B. Packaging: Deliver products or equipment in manufacturer's original unbroken cartons or other containers designed and constructed to protect the contents from physical or environmental damage.
- C. Identification: Clearly and fully mark and identify as to manufacturer, item, and installation location.
- D. Protection and Handling: Follow manufacturer's instructions for storage and handling.
 - 1. Provide copies of manufacturer's instructions to Owner upon request.

PART 2 - PRODUCTS - (NOT APPLICABLE TO THIS SPECIFICATION SECTION)

PART 3 - EXECUTION

3.1 PROTECTION, STORAGE AND HANDLING

- A. Manufacturer's Instruction:
 - 1. Protect all products or equipment in accordance with manufacturer's written directions.
 - a. Store products or equipment in location to avoid physical damage to items while in storage.
 - b. Handle products or equipment in accordance with manufacturer's recommendations and instructions.
 - 2. Protect equipment from exposure to elements and keep thoroughly dry.
 - 3. When space heaters are provided in equipment, connect and operate heaters during storage until equipment is placed in service.

3.2 STORAGE FACILITIES

- A. Temporary Storage:
 - 1. Provide weatherproof temporary storage specifically for the purpose of providing for protection of products and equipment.

2. Equip storage area with lockable doors and lighting, and provide electrical service for equipment space heaters and heating or ventilation as necessary to provide storage environments acceptable to specified manufacturers.
3. Provide methods of storage of products and equipment off the ground.
4. Provide this area within 30 days after Notice to Proceed.
 - a. Locate onsite.
 - b. Remove from site prior to startup and demonstration period.

3.3 FIELD QUALITY CONTROL

- A. Inspect Deliveries:
 1. Inspect all products or equipment delivered to the site prior to unloading.
 - a. Reject all products or equipment that are damaged, used, or in any other way unsatisfactory for use on Project.
- B. Monitor Storage Area: Monitor storage area to ensure suitable temperature and moisture conditions are maintained as required by manufacturer or as appropriate for particular items.

END OF SECTION

SECTION 01 73 20
OPENINGS AND PENETRATIONS IN CONSTRUCTION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Methods of installing and sealing openings and penetrations in construction.
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 - Procurement and Contracting Requirements.
 - 2. Division 01 - General Requirements.

1.2 QUALITY ASSURANCE

Referenced Standards:

- 1. American Concrete Institute (ACI):
 - a. 318, Building Code Requirements for Structural Concrete.
- 2. ASTM International (ASTM):
 - a. A36, Standard Specification for Carbon Structural Steel.
 - b. A53, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
 - c. A269, Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
 - d. A312, Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes.
 - e. A351, Standard Specification for Castings, Austenitic, for Pressure-Containing Parts.
 - f. A554, Standard Specification for Welded Stainless Steel Mechanical Tubing.
 - g. A653, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - h. A666, Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
 - i. A995, Castings, Austenitic-Ferritic (Duplex) Stainless Steel, for Pressure-Containing Parts.
- 3. National Fire Protection Association (NFPA):
 - a. 70, National Electrical Code (NEC):
 - 1) Article 501, Class 1 Locations.
 - b. 90A, Standard for Installation of Air Conditioning and Ventilating Systems.
 - c. Sheet Metal and Air Conditioning Contractors' National Association (SMACNA).

1.3 DEFINITIONS

- A. Not used.

1.4 SUBMITTALS

- A. Shop Drawings:
 - 1. See Specification Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
 - 2. For each structure provide dimensioned or scaled (minimum 1/8 IN = 1 FT) plan view drawings containing the following information:
 - a. Vertical and horizontal location of all required openings and penetrations.
 - b. Size of all openings and penetrations.
 - c. Opening type.
 - d. Seal type.
 - 3. Manufacturer's installation instructions for standard manufactured products.

1.5 SITE CONDITIONS

- A. For purposes of this Project, water table level elevation is unknown. No previous geotechnical or subsurface explorations adjacent to the Limits of Construction have been completed for project.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Pipe Sleeves:
 - 1. Steel, Hot-dipped galvanized after fabrication.
 - 2. Penetrations 24 IN DIA or less: ASTM A53, Schedule 40.
 - 3. Penetrations larger than 24 IN DIA: ASTM A36, Minimum 1/4 IN thickness.
- B. Modular Mechanical Seals:
 - 1. Acceptable manufacturers:
 - a. Link-Seal.
 - 2. 316 stainless steel bolts, nuts and washers.
- C. Sheet Metal Sleeves:
 - 1. All other areas: Galvanized steel: ASTM A653, G90.
 - 2. Minimum 12 GA.
- D. Commercial Wall Castings:
 - 1. Ductile iron, ASTM A536.
 - 2. Grade equal to connecting piping system.

PART 3 - EXECUTION

3.1 FABRICATION

- A. Provide waterstop plate/anchor flange for piping, ducts, castings and sleeves cast-in-place in concrete.
 - 1. For fabricated units, weld plate to sleeve, pipe, or ductwork.
 - 2. For commercial castings, cast water stop/anchor with wall pipe.
 - 3. Plate is to be same thickness as sleeve, pipe, casting or ductwork.
 - 4. For fabricated units, diameter of plate or flange to be 4 IN larger than outside diameter of sleeve, pipe or ductwork.
 - 5. For commercial castings, waterstop/anchor size to be manufacturer standard.
 - 6. Provide continuous around entire circumference of sleeve, pipe, or ductwork.

3.2 INSTALLATION AND APPLICATION

- A. Obtain prior approval from Engineer when any opening larger than 100 SQ IN must be made in existing or newly completed construction.
- B. Install sleeves and castings in accordance with ACI 318, Chapter #6.
- C. Install sleeves with ends flush with finished surfaces.
- D. Size sleeves, blockouts and cutouts which will receive sealant seal such that free area to receive sealant is minimized and seal integrity may be obtained.
- E. For insulated piping and ducts, size sleeves, blockouts and cutouts large enough to accommodate full thickness of insulation.
- F. Do not cut into or core drill any beams, joists, or columns.
- G. Do not install sleeves in beams, joists, or columns.
- H. Do not install recesses in beams, joists, columns, or slabs.

- I. Field Cutting and Coring:
 - 1. Saw or core drill with non-impact type equipment.
 - 2. Mark opening and drill small 3/4 IN or less holes through structure following opening outline.
 - 3. Sawcut opening outline on both surfaces.
 - a. Knock out within sawcuts using impact type equipment.
 - b. Do not chip or spall face of surface to remain intact.
 - c. Do not allow any overcut with saw kerf.
- J. Precast-Prestressed Concrete Construction:
 - 1. Do not cut openings or core drill vertically or horizontally through stems of members.
 - 2. Do not locate or install sleeves or recess sleeves vertically or horizontally through or in stems of members.
 - 3. Cast openings and sleeves into flanges of units.
 - 4. Cast openings larger than 6 IN in diameter or 6 IN maximum dimension in units at time of manufacture.
 - 5. Cast openings smaller than 6 IN in diameter or 6 IN maximum dimensions in flanges of units at time of manufacture or field cut.
- K. Where alterations are necessary or where new and old work join, restore adjacent surfaces to their condition existing prior to start of work.
- L. Where area is blocked out to receive sheet metal sleeve at later date:
 - 1. If blockout size is sufficient to allow placement, utilize dowels for interface of initially placed concrete and sleeve encasement concrete which is placed later.
 - a. Size blockout based on sleeve size required plus 4 to 6 IN each side of sleeve for concrete encasement.
 - b. Provide #4 dowels at 12 IN spacing along each side of blockout with minimum of two (2) dowels required per side.
 - 2. If blockout size is not sufficient to allow placement of dowels, provide keyway along all sides of blockout.
 - a. Size blockout based on sleeve size required plus 2 to 4 IN each side of sleeve for concrete encasement.
- M. For interior wall applications where backer rod and sealant are specified, provide backer rod and sealant at each side of wall.
- N. Use full depth expanding foam sealant for seal applications where single or multiple pipes, conduits, etc., pass through a single sleeve.
- O. Do not make duct or conduit penetrations below high water levels when entering or leaving tankage, wet wells, or other water holding structures.
- P. Modular Mechanical Seals:
 - 1. Utilize one (1) seal for concrete thickness less than 8 IN and two (2) seals for concrete, 8 IN thick or greater.
 - 2. Utilize two (2) seals for piping 16 IN diameter and larger if concrete thickness permits.
 - 3. Install seals such that bolt heads are located on the most accessible side of the penetration.
- Q. Backer Rod and Sealant:
 - 1. Provide backer rod and sealant for modular mechanical seal applications.
 - a. Apply on top side of slab penetrations and on interior, dry side wall penetrations.

3.3 SCHEDULES

- A. General Schedule of Penetrations through Floors, Roofs, Foundation Base Slabs, Foundation Walls, Foundation Footings, Partitions and Walls for Ductwork, Piping, and Conduit:
 - 1. Provide the following opening and penetration types:
 - a. Type A - Block out 2 IN larger than outside dimensions of duct, pipe, or conduits.

- b. Type B - Saw cut or line-drill opening. Place new concrete with integrally cast sheet metal or pipe sleeve.
 - c. Type C - Fabricated sheet metal sleeve or pipe sleeve cast-in-place. Provide pipe sleeve with water ring for wet and/or washdown areas.
 - d. Type D - Commercial type casting or fabrication.
 - e. Type E - Saw cut or line-drill opening. Place new concrete with integrally cast pipe, duct or conduit spools.
 - f. Type F - Integrally cast pipe, duct or conduit.
 - g. Type G - Saw cut or line-drill and remove area 1 IN larger than outside dimensions of duct, pipe or conduit.
 - h. Type H - Core drill.
 - i. Type I - Block out area. At later date, place new concrete with integrally cast sheet metal or pipe sleeve.
 - j. Type J- Grating Banding for any field cut openings
2. Provide seals of material and method described as follows.
 - a. Category 1 - Modular Mechanical Seal.
 - b. Category 2 - Roof curb and flashing according to SMACNA specifications unless otherwise noted on Drawings.
 - c. Category 3 - 12 GA sheet metal drip sleeve set in bed of silicon sealant with backing rod and sealant used in sleeve annulus.
 - d. Category 4 - Backer rod and sealant.
 - e. Category 5 - Full depth compressible sealant with escutcheons on both sides of opening.
 - f. Category 6 - Full depth compressible sealant and flanges on both sides of opening. Flanges constructed of same material as duct, fastened to duct and minimum 1/2 IN larger than opening.
 - g. Category 7 - Full depth compressible sealant and finish sealant or full depth expanding foam sealant depending on application.
 - h. Category 8 - Banding for all grating openings and banding and cover plate of similar materials for abandoned openings
 3. Furnish openings and sealing materials through new floors, roofs, grating, partitions and walls in accordance with Schedule A, Openings and Penetrations for New Construction.
 4. Furnish openings and sealing materials through existing floors, grating, roofs, partitions and walls in accordance with Schedule B, Openings and Penetrations for Existing Construction.

**SCHEDULE A. OPENINGS AND PENETRATIONS SCHEDULE
FOR NEW CONSTRUCTION**

APPLICATIONS	DUCTS		PIPING		CONDUIT	
	OPENING TYPE	SEAL CATEGORY	OPENING TYPE	SEAL CATEGORY	OPENING TYPE	SEAL CATEGORY
Through floors on grade above water table	C F I	4 Not Req 4	C F I ⁽¹⁾	7 Not Req 7	C F I ⁽¹⁾	4 Not Req 7
Through slab on grade below water table	F	Not Req	F	Not Req	F	Not Req
Through exterior wall below grade above water table	C F I	7 Not Req 7	C D F I ⁽¹⁾	1 Not Req Not Req 1	F I ⁽¹⁾	Not Req 7
Through wall from tankage or wet well (above high water level) to dry well or dry area	C F I	7 Not Req 7	C D F H ⁽²⁾	1 Not Req Not Req 1	C F H ⁽²⁾ I ⁽¹⁾	7 Not Req 7 7
Through wall from tankage or wet well (below high water level) to dry well or dry area	F	Not Req	F	Not Req	F	Not Req
Through exterior wall above grade	A B C	6 6 6	A B D H ⁽²⁾	5 5 Not Req 5	C H ⁽²⁾	5 4
Through interior walls and slabs not covered by the above applications	A C	4 4	A C	4 4	A C F	4 4 Not Req
Grating openings and penetrations	J	8	J	8	J	8

**SCHEDULE B. OPENINGS AND PENETRATIONS SCHEDULE
FOR EXISTING CONSTRUCTION**

APPLICATIONS	DUCTS		PIPING		CONDUIT	
	OPENING TYPE	SEAL CATEGORY	OPENING TYPE	SEAL CATEGORY	OPENING TYPE	SEAL CATEGORY
Through floors on grade above water table	B	7	B	7	B	7
Through slab on grade below water table	E	Not Req	E	Not Req	E	Not Req
Through exterior wall below grade above water table	B	7	B ⁽¹⁾ B ⁽³⁾ H ⁽²⁾	7 1 7	B ⁽¹⁾⁽³⁾ H ⁽²⁾	7 7
Through wall from tankage or wet well (above high water level) to dry well or dry area	B E	7 Not Req	B E H ⁽²⁾	1 Not Req 1	B ⁽¹⁾⁽³⁾ E H ⁽²⁾	7 Not Req 7
Through wall from tankage or wet well (below high water level) to dry well or dry area	E	Not Req	E	Not Req	E	Not Req
Through exterior wall above grade	G	6	G ⁽¹⁾⁽³⁾ H ⁽²⁾	5 5	G ⁽¹⁾⁽³⁾ H ⁽²⁾	5 7
Through interior walls and slabs not covered by the above applications	G	4	G ⁽¹⁾⁽³⁾ H ⁽²⁾	4 4	G ⁽¹⁾⁽³⁾ H ⁽²⁾	4 4
Grating openings and penetrations	J	8	J	8	J	8

- (1) Multiple piping 3 IN and smaller or multiple conduits.
(2) Single pipe 3 IN and smaller or single conduit.
(3) Single pipe or conduit larger than 3 IN.

END OF SECTION

SECTION 01 74 13
CLEANING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes intermediate and final cleaning of Work not including special cleaning of closed systems specified elsewhere.

1.2 STORAGE AND HANDLING

- A. Store cleaning products and cleaning wastes in containers specifically designed for those materials.

1.3 SCHEDULING

- A. Schedule cleaning operations so that dust and other contaminants disturbed by cleaning process will not fall on newly painted surfaces.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents:
 - 1. Compatible with surface being cleaned.
 - 2. New and uncontaminated.
 - 3. For Manufactured Surfaces: Material recommended by manufacturer.

PART 3 - EXECUTION

3.1 CLEANING - GENERAL

- A. Prevent accumulation of wastes that create hazardous conditions.
- B. Conduct cleaning and disposal operations to comply with laws and safety orders of governing authorities.
- C. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains or sewers.
- D. Dispose of degradable debris at an approved solid waste disposal site.
- E. Dispose of nondegradable debris at an approved solid waste disposal site or in an alternate manner approved by Engineer and regulatory agencies.
- F. Handle materials in a controlled manner with as few handlings as possible.
- G. Do not drop or throw materials from heights greater than 4 FT or less than 4 FT if conditions warrant greater care.
- H. On completion of work, leave area in a clean, natural looking condition.
 - 1. Remove all signs of temporary construction and activities incidental to construction of required permanent Work.
- I. Do not burn materials.

3.2 INTERIOR CLEANING

- A. Cleaning During Construction:

1. Keep work areas clean so as not to hinder health, safety or convenience of personnel in existing facility operations.
 2. At maximum weekly intervals, dispose of waste materials, debris, and rubbish.
 3. Vacuum clean interior areas when ready to receive finish painting.
 - a. Continue vacuum cleaning on an as-needed basis, until substantial completion.
- B. Final Cleaning:
1. Complete immediately prior to Demonstration Period.
 2. Remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels, and other foreign materials from sight-exposed surfaces.
 3. Wipe all lighting fixture reflectors, lenses, lamps and trims clean.
 4. Wash and shine glazing and mirrors.
 5. Polish glossy surfaces to a clear shine.
 6. Ventilating systems:
 - a. Clean permanent filters and replace disposable filters if units were operated during construction.
 - b. Clean ducts, blowers and coils if units were operated without filters during construction.
 7. Replace all burned out lamps.
 8. Broom clean process area floors.
 9. Mop office and control room floors.

3.3 EXTERIOR (SITE) CLEANING

- A. Cleaning During Construction:
1. Construction debris:
 - a. Confine in strategically located container(s):
 - 1) Cover to prevent blowing by wind.
 - 2) Haul from site minimum once a week.
 - b. Remove from work area to container daily.
 2. Vegetation: Keep trimmed to 3 IN maximum height.
 3. Soils, sand, and gravel deposited on paved areas and walks:
 - a. Remove as required to prevent muddy or dusty conditions.
 - b. Do not flush into storm sewer system.
- B. Final Cleaning:
1. Remove trash and debris containers from site.
 - a. Re-seed areas disturbed by location of trash and debris containers.
 2. Clean paved roadways.

3.4 FIELD QUALITY CONTROL

- A. Immediately prior to Demonstration Period, conduct an inspection with Owner to verify condition of all work areas.

END OF SECTION

SECTION 01 75 00
FACILITY START-UP

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Procedures and actions, required of the Contractor, which are necessary to achieve and demonstrate Substantial Completion.
 - 2. Requirements for Substantial Completion Submittals.

1.2 DEFINITIONS

- A. Pre-Demonstration Period: The period of time, of unspecified duration after initial construction and installation activities during which Contractor, with assistance from manufacturer's representatives, performs in the following sequence:
 - 1. Finishing type construction work to ensure the Project has reached a state of Substantial Completion.
- B. Demonstration Period: A period of time, of specified duration, following the Pre-Demonstration Period, during which the Contractor initiates solid waste collection and transfer through the facility and starts up and operates the facility, without exceeding specified downtime limitations, to prove the functional integrity of the mechanical and electrical equipment and components and the control interfaces of the respective equipment and components comprising the facility as evidence of Substantial Completion.
- C. Substantial Completion: See the General Conditions.

1.3 SUBMITTALS

- A. See Specification Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
- B. Submit in the chronological order listed below prior to the completion of the Pre-Demonstration Period.
 - 1. Substantial Completion Submittal:
 - a. File Contractor's Notice of Substantial Completion and Request for Inspection.
 - b. Written request for Owner to witness each system pre-demonstration start-up.
 - 1) Request to be received by Owner minimum one (1) week before scheduled training of Owner's personnel on that system.
 - c. Equipment installation and pre-demonstration start-up certifications.
 - d. Letter verifying completion of all pre-demonstration start-up activities including receipt of all specified items from manufacturers or suppliers as final item prior to initiation of Demonstration Period.

1.4 SEQUENCING AND SCHEDULING

- A. Refer to Section 01 11 00 - Summary of Work regarding required phased construction to maintain continual solid waste services.

1.5 COST OF START-UP

- A. Contractor to pay all costs associated with Facility start-up.

PART 2 - PRODUCTS - (NOT APPLICABLE TO THIS SPECIFICATION SECTION)

PART 3 - EXECUTION

3.1 GENERAL

- A. Facility Start-up Divided into Two Periods:
 - 1. Pre-Demonstration Period including:
 - a. Completion of construction work to bring Project to a state of Substantial Completion.
 - b. Completion of the filing of all required submittals.
 - c. Filing of Contractor's Notice of Substantial Completion and Request for Inspection.
 - 2. Demonstration Period including:
 - a. Demonstration of functional integrity of facility.

3.2 PRE-DEMONSTRATION PERIOD

- A. Completion of Construction Work:
 - 1. Complete the work to bring the Project to a state of substantial completion.
 - 2. Obtain certifications, without restrictions or qualifications, and deliver to Engineer:
 - a. Manufacturer's equipment installation check letters (sometimes referred to as Manufacturer's Field Services report).
- B. Complete the filing of all required submittals:
 - 1. Shop Drawings.
 - 2. Operation and Maintenance Manuals.
- C. Filing of Contractor's Notice of Substantial Completion and Request for Inspection of Project:
 - 1. File the notice when the following have been completed:
 - a. Construction work (brought to state of Substantial Completion).
 - b. Submittal of required documents.
 - 2. Engineer will review required submittals for completeness within five (5) calendar days of Contractor's notice. If complete, Engineer will complete inspection of the Work, within ten (10) calendar days of Contractor's notice.
 - 3. Engineer will inform Contractor in writing of the status of the Work reviewed, within fourteen (14) calendar days of Contractor's notice.
 - a. Work determined not meeting state of Substantial Completion:
 - 1) Contractor: Correct deficiencies noted or submit plan of action for correction within five (5) days of Engineer's determination.
 - 2) Engineer: Reinspect work within five (5) days of Contractor's notice of correction of deficiencies.
 - 3) Reinspection costs incurred by Engineer will be billed to Owner who will deduct them from final payment due Contractor.
 - b. Work determined to be in state of tentative Substantial Completion: Engineer to prepare tentative "Engineer's Certificate of Substantial Completion."
 - c. Engineer's Certificate of Substantial Completion:
 - 1) Certificate tentatively issued subject to successful Demonstration of functional integrity.
 - 2) Issued subject to completion or correction of items cited in the certificate (punch list).
 - 3) Issued with responsibilities of Owner and Contractor cited.
 - 4) Executed by Engineer.
 - 5) Accepted by Owner.
 - 6) Accepted by Contractor.
 - d. Upon successful completion of Demonstration Period, Engineer will endorse certificate attesting to the successful demonstration, and citing the hour and date of ending the successful Demonstration Period of functional integrity as the effective date of Substantial Completion.

3.3 DEMONSTRATION PERIOD

A. General:

1. Demonstrate the functional integrity of the respective infrastructure and components comprising the facility as evidence of Substantial Completion.
2. Duration of Demonstration Period: 10 consecutive hours.
3. If, during the Demonstration Period, the aggregate amount of time used for repair, alteration, or unscheduled adjustments to any equipment or systems that renders the affected equipment or system inoperative exceed ten (10) percent of the Demonstration Period, the demonstration of functional integrity will be deemed to have failed.
 - a. In the event of failure, a new Demonstration Period will recommence after correction of the cause of failure.
 - b. The new Demonstration Period shall have the same requirements and duration as the Demonstration Period previously conducted.
4. Conduct the demonstration of functional integrity under full operational conditions.
5. Owner will provide operational personnel to provide process decisions affecting plant performance.
 - a. Owner's assistance will be available only for process decisions.
 - b. Contractor will perform all other functions including but not limited to equipment operation and maintenance until successful completion of the Demonstration Period.
6. Owner reserves the right to simulate operational variables, equipment failures, routine maintenance scenarios, etc., to verify the functional integrity of automatic and manual backup systems and alternate operating modes.
7. Time of beginning and ending any Demonstration Period shall be agreed upon by Contractor, Owner, and Engineer in advance of initiating Demonstration Period.
8. Throughout the Demonstration Period, provide knowledgeable personnel to answer Owner's questions, provide final field instruction on select systems and to respond to any system problems or failures which may occur.
9. Provide all labor, supervision, utilities, chemicals, maintenance, equipment, vehicles or any other item necessary to operate and demonstrate all systems being demonstrated.

END OF SECTION

SECTION 02 41 19
SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Demolition and removal of selected portions of building or structures.

1.2 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.
- B. Historic items, relics, antiques, and similar objects if encountered or uncovered during demolition, and that is of interest or value to Owner remains the property of Owner.
 - 1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.3 PREINSTALLATION MEETINGS

- A. Pre-demolition Conference: Conduct conference at Project site.

1.4 INFORMATIONAL SUBMITTALS

- A. Proposed Protection Measures: Submit report that indicates the measures proposed for protecting individuals and property, for dust control and, for noise control. Indicate proposed locations and construction of barriers.
- B. Schedule of selective demolition activities with starting and ending dates for each activity.
- C. Pre-demolition photographs or video.
- D. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician.

1.5 QUALITY ASSURANCE

- A. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

1.6 FIELD CONDITIONS

- A. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- B. Notify Owner of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- C. Hazardous Materials: None known.
 - 1. If suspected other hazardous materials are encountered, do not disturb; immediately notify Owner. Hazardous materials will be removed by Owner under a separate contract.
- D. Storage or sale of removed items or materials on-site is not permitted.

- E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
- B. Perform a survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.

3.2 PREPARATION

- A. Refrigerant: Before starting demolition, remove refrigerant from mechanical equipment according to 40 CFR 82 and regulations of authorities having jurisdiction.

3.3 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.
 - 1. Arrange to shut off utilities with utility companies.
 - 2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
 - 3. Disconnect, demolish, and remove plumbing, and HVAC systems, equipment, and components indicated on Drawings to be demolished or removed.
 - a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
 - b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.
 - c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
 - d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
 - e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
 - f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
 - g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material and leave in place.

3.4 PROTECTION

- A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
- B. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
- C. Remove temporary barricades and protections where hazards no longer exist.

3.5 SELECTIVE DEMOLITION

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
 - 1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
 - 2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 - 3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
 - 4. Maintain fire watch during and for at least 8 hours after flame-cutting operations.
 - 5. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 - 6. Dispose of demolished items and materials promptly.
- B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with Site operations.

3.6 CLEANING

- A. Contractor may be able to dispose of demolition waste materials onsite at the transfer station with prior approval from Owner. Otherwise dispose of them in an approved construction and demolition waste landfill acceptable to authorities having jurisdiction.
 - 1. Do not allow demolished materials to accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn demolished materials.
- C. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION

SECTION 03 05 05
CONCRETE TESTING AND INSPECTION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Contractor requirements for testing of concrete and grout.
 - 2. Definition of Contractor provided testing.
 - 3. Acceptance criteria for concrete.
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 - Procurement and Contracting Requirements.
 - 2. Division 01 - General Requirements.
 - 3. Section 03 09 00 - Concrete.
 - 4. Section 03 15 19 – Anchorage to Concrete

1.2 RESPONSIBILITY AND PAYMENT

- A. Contractor will hire an independent Testing Agency/Service Provider to perform the following testing and inspection and provide test results to the Engineer and Contractor.
 - 1. Testing and inspection of concrete and grout produced for incorporation into the work during the construction of the Project for compliance with the Contract Documents.
 - 2. Additional testing or retesting of materials occasioned by their failure, by test or inspection, to meet requirements of the Contract Documents.
 - 3. Strength testing on concrete required by the Engineer or Special Inspector when the water-cement ratio exceeds the water-cement ratio of the typical test cylinders.
 - 4. In-place testing of concrete as may be required by Engineer when strength of structure is considered potentially deficient.
 - 5. Other testing services needed or required by Contractor such as field curing of test specimens and testing of additional specimens for determining when forms, form shoring or reshoring may be removed.
 - 6. Contractor will pay for services defined in Paragraph 1.2A.1.
 - 7. See Specification Section 01 30 00.
- B. Contractor shall hire a qualified testing agency to perform the following testing and provide test results to the Engineer.
 - 1. Testing of materials and mixes proposed by the Contractor for compliance with the Contract Documents and retesting in the event of changes.
 - 2. Additional testing and inspection required because of changes in materials or proportions requested by Contractor.
 - 3. Contractor shall pay for services defined in Paragraphs 1.2B.1 and 1.2B.2.
 - 4. Contractor shall reimburse Owner for testing services defined in Paragraphs 1.2A.2, 1.2A.3, 1.2A.4, and 1.2A.5.
 - 5. See Specification Section 01 30 00.
- C. Duties and Authorities of Testing Agency/Service Provider:
 - 1. Any Testing Agency/Service Provider or agencies and their representatives retained by Contractor for any reason are not authorized to revoke, alter, relax, enlarge, or release any requirement of Contract Documents, nor to reject, approve or accept any portion of the Work.
 - 2. Testing Agency/Service Provider shall inform the Contractor and Engineer regarding acceptability of or deficiencies in the work including materials furnished and work performed by Contractor that fails to fulfill requirements of the Contract Documents.
 - 3. Testing Agency to submit test reports and inspection reports to Engineer and Contractor immediately after they are performed.

- a. All test reports to include exact location in the work at which batch represented by a test was deposited.
- b. Reports of strength tests to include detailed information on storage and curing of specimens prior to testing.
4. Owner retains the responsibility for ultimate rejection or approval of any portion of the Work.

1.3 QUALITY ASSURANCE

- A. Referenced Standards:
 1. American Concrete Institute (ACI):
 - a. 318, Building Code Requirements for Structural Concrete.
 2. ASTM International (ASTM):
 - a. ASTM Cement and Concrete Reference Laboratory (CCRL).
 - b. C31, Standard Practice for Making and Curing Concrete Test Specimens in the Field.
 - c. C39, Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
 - d. C42, Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
 - e. C94, Standard Specification for Ready-Mixed Concrete.
 - f. C138, Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete.
 - g. C143, Standard Test Method for Slump of Hydraulic-Cement Concrete.
 - h. C172, Standard Practice for Sampling Freshly Mixed Concrete.
 - i. C173, Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.
 - j. C231, Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
 - k. C1019, Standard Test Method for Sampling and Testing Grout.
 - l. C1218, Standard Test Method for Water-Soluble Chloride in Mortar and Concrete.
 - m. E329, Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection.
- B. Qualifications:
 1. Contractor's Testing Agency:
 - a. Meeting requirements of ASTM E329 and ASTM C94.
 - b. Provide evidence of recent inspection by CCRL of NBS, and correction of deficiencies noted.
- C. Use of Testing Agency and approval by Engineer of proposed concrete mix design shall in no way relieve Contractor of responsibility to furnish materials and construction in full compliance with Contract Documents.

1.4 DEFINITIONS

- A. Testing Agency/Service Provider: An independent professional testing/inspection firm or service hired by Contractor to perform testing, inspection or analysis services as directed, and as provided in the Contract Documents.

1.5 SUBMITTALS

- A. Shop Drawings:
 1. See Specification Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
 2. Product technical data including:
 - a. Concrete materials and concrete mix designs proposed for use.
 - 1) Include results of all testing performed to qualify materials and to establish mix designs.
 - 2) Place no concrete until approval of mix designs has been received in writing.

- 3) Submittal for each concrete mix design to include:
 - a) Sieve analysis and source of fine and coarse aggregates.
 - b) Test for aggregate organic impurities.
 - c) Proportioning of all materials.
 - d) Type of cement with mill certificate for the cement.
 - e) Brand, quantity and class of fly ash proposed for use along with other submittal data as required for fly ash by Specification Section 03 09 00.
 - f) Slump.
 - g) Brand, type and quantity of air entrainment and any other proposed admixtures.
 - h) Shrinkage test results.
 - i) Total water soluble chloride ion concentration in hardened concrete from all ingredients determined per ASTM C1218.
 - j) 7-day and 28-day compression test results and any other data required by Specification Section 03 09 00 to establish concrete mix design.
3. Certifications:
 - a. Testing Agency qualifications.

PART 2 - PRODUCTS - (NOT APPLICABLE TO THIS SPECIFICATION SECTION)

PART 3 - EXECUTION

3.1 TESTING SERVICES TO BE PERFORMED SERVICE PROVIDER/TESTING AGENCY

- A. The following concrete testing will be performed by the Service Provider/Testing Agency:
 1. Concrete strength testing:
 - a. Secure concrete samples in accordance with ASTM C172.
 - 1) Obtain each sample from a different batch of concrete on a random basis, avoiding selection of test batch other than by a number selected at random before commencement of concrete placement.
 - b. For each strength test, mold and cure cylinders from each sample in accordance with ASTM C31.
 - 1) Record any deviations from requirements on test report.
 - 2) Cylinder size: Per ASTM C31.
 - a) 4 IN cylinders shall not be used for concrete mixes with maximum aggregate size larger than 1 IN.
 - b) Use the same size cylinder for all tests for each concrete mix.
 - 3) Quantity:
 - a) 6 IN DIA by 12 IN high: Minimum of Four (4) cylinders.
 - b) 4 IN DIA by 8 IN high: Minimum of Six (6) cylinders.
 - c. Field cure two (2) cylinders for the seven (7) day test.
 - 1) Laboratory cure the remaining.
 - d. Test cylinders in accordance with ASTM C39.
 - 1) 6 IN DIA cylinders:
 - a) Test two (2) cylinders at 28 days for strength test result and the two (2) field cured sample at seven (7) days for information.
 - b) Hold remaining cylinder in reserve.
 - c) At contractor's discretion, an additional concrete strength test prior to 7-day test can be performed to evaluate high-early mix performance.
 - 2) 4 IN DIA cylinders:
 - a) Test three (3) cylinders at 7 days for strength test result and the one (1) field cured cylinder at twenty eight (28) days for information.
 - b) Hold remaining cylinders in reserve.
 - c) At contractor's discretion, an additional concrete strength test prior to 7-day test can be performed to evaluate high-early mix performance.

- d)
- e. Strength test result:
 - 1) Average of strengths of two (2) 6 IN DIA cylinders or three (3) 4 IN DIA cylinders from the same sample tested at 7 days.
 - 2) If one (1) cylinder in a test manifests evidence of improper sampling, molding, handling, curing, or testing, discard and test reserve cylinder(s); average strength of remaining cylinders shall be considered strength test result.
 - 3) Should all cylinders in any test show any of above defects, discard entire test.
- f. Frequency of tests:
 - 1) Concrete sand cement grout: One (1) strength test for each 4 HR period of grout placement or fraction thereof.
 - a) Test grout in accordance with ASTM C1019.
 - 2) Concrete topping, concrete fill and lean concrete: One (1) strength test for each 10 CY of each type of concrete or fraction thereof placed.
 - 3) All other concrete:
 - a) One (1) strength test to be taken not less than once a day, nor less than once for each 60 CY or fraction thereof placed in any one (1) day.
 - b) Once for each 5000 SQ FT of slab or wall surface area placed each day
 - c) If total volume of concrete on Project is such that frequency of testing required in above paragraph will provide less than five (5) strength tests for each concrete mix, tests shall then be made from at least five (5) randomly selected batches or from each batch if fewer than five (5) batches are provided.
- 2. Slump testing:
 - a. Determine slump of concrete sample for each strength test.
 - 1) Determine slump in accordance with ASTM C143.
 - b. If consistency of concrete appears to vary, the Engineer or Owner's Representative shall be authorized to require a slump test for each concrete truck.
 - 1) This practice shall continue until three consecutive batches are determined to be consistent and meet the slump requirements specified.
- 3. Air content testing: Determine air content of concrete sample for each strength test in accordance with either ASTM C231, ASTM C173, or ASTM C138.
- 4. Temperature testing: Determine temperature of concrete sample for each strength test.

3.2 SPECIAL INSPECTIONS

- A. See Section 01 45 33.
 - 1. Special Inspections listed are for the Contractor reference only and are not part of the Contract Documents.
 - 2. It is included to assist the Contractor in understanding the Contractor-provided Services so that those services may be factored into the Contractor's pricing and schedule.
- B. Formwork Special Inspections:
 - 1. Shape, location, and dimensions.
 - a. Inspect in accordance with dimensions and details on Drawings.
 - b. Frequency: Inspect prior to each concrete pour.
- C. Reinforcing Special Inspections:
 - 1. Reinforcing size, spacing, lap length and concrete cover.
 - a. Inspect in accordance with Drawings and Specification.
 - b. Frequency: Inspect prior to each concrete pour.
 - 2. Reinforcing adhesive anchoring system:
 - a. Inspect in accordance with ICC-ES report.
 - b. Frequency:
 - 1) Inspect all adhesive anchors for the first 4 HRS of installation.
 - 2) Inspect approximately 25 percent of adhesive anchors thereafter.
 - 3) Additional inspection will be required for different installer or if the quality of installation appears to vary.

3. Mechanical splices:
 - a. Inspect in accordance with ICC-ES report.
 - b. Frequency:
 - 1) Inspect all mechanical splices prior to placing concrete for the first 4 HRS of installation.
 - 2) Additional inspection will be required for different installer or if the quality of installation appears to vary.
- D. Mixing, Placing, Jointing, and Curing Special Inspections:
 1. Perform concrete tests per the requirements of this Specification Section.
 2. Verification of proper mix design.
 - a. Frequency: Periodically, prior to each concrete pour.
 3. Proper concrete placement techniques.
 - a. Inspect per requirements of Section 03 09 00.
 - b. Frequency: During each concrete pour.
 4. Proper curing temperature and techniques.
 - a. Inspect per requirements of Section 03 09 00.
 - b. Frequency: Periodically, but not less than every third day.
 5. Joints:
 - a. Inspect joints for proper joint type, dimensions, reinforcing, dowel alignment, surface preparation and location.
 - b. Frequency: Prior to each concrete pour.
- E. Anchorage to Concrete Special Inspection:
 1. Post installed anchors as required by the Building Code, ICC-ES Evaluation Reports, and as specified by the Engineer.
 - a. Frequency: Per ICC-ES Report.
 2. Cast-in-place concrete anchors, including anchor size, embedment, material and location.
 - a. Frequency: Prior to each concrete pour.

3.3 SAMPLING ASSISTANCE AND NOTIFICATION FOR OWNER

- A. To facilitate testing and inspection, perform the following:
 1. Furnish any necessary labor to assist Testing Agency in obtaining and handling samples at site.
 2. Provide and maintain for sole use of Testing Agency adequate facilities for safe storage and proper curing of test specimens on site for first 24 HRS as required by ASTM C31.
 3. Take samples at point of placement into concrete member.
- B. Notify Contractor's Testing Agency sufficiently in advance of operations (minimum of 24 HRS) to allow for assignment of personnel and for scheduled completion of quality tests.

3.4 ACCEPTANCE

- A. Completed concrete work which meets applicable requirements will be accepted without qualification.
- B. Completed concrete work which fails to meet one or more requirements but which has been repaired to bring it into compliance will be accepted without qualification.
- C. Completed concrete work which fails to meet one or more requirements and which cannot be brought into compliance may be accepted or rejected as provided in these Contract Documents.
 1. In this event, modifications may be required to assure that concrete work complies with requirements.
 2. Modifications, as directed by Engineer, to be made at no additional cost to Owner.
- D. Dimensional Tolerances:
 1. Formed surfaces resulting in concrete outlines smaller than permitted by tolerances shall be considered potentially deficient in strength and subject to modifications required by Engineer.

2. Formed surfaces resulting in concrete outlines larger than permitted by tolerances may be rejected and excess material subject to removal.
 - a. If removal of excess material is permitted, accomplish in such a manner as to maintain strength of section and to meet all other applicable requirements of function and appearance.
 3. Concrete members cast in wrong location may be rejected if strength, appearance or function of structure is adversely affected or misplaced items interfere with other construction.
 4. Inaccurately formed concrete surfaces exceeding limits of tolerances and which are exposed to view, may be rejected.
 - a. Repair or remove and replace if required.
 5. Finished slabs exceeding tolerances may be required to be repaired provided that strength or appearance is not adversely affected.
 - a. High spots may be removed with a grinder, low spots filled with a patching compound, or other remedial measures performed as permitted or required.
- E. Appearance:
1. Concrete surfaces exposed to view with defects which, in opinion of Engineer, adversely affect appearance as required by specified finish shall be repaired by approved methods.
 2. Concrete not exposed to view is not subject to rejection for defective appearance unless, in the opinion of the Engineer, the defects impair the long-term strength or function of the member.
- F. High Water-Cement Ratio:
1. Concrete with water in excess of the specified maximum water-cement ratio will be rejected.
 2. Remove and replace concrete with high water-cement ratio or make other corrections as directed by Engineer.
- G. Strength of Structure:
1. Strength of structure in place will be considered potentially deficient if it fails to comply with any requirements which control strength of structure, including but not necessarily limited to following:
 - a. Low concrete strength:
 - 1) Test results for standard molded and cured test cylinders to be evaluated separately for each mix design.
 - a) Such evaluation shall be valid only if tests have been conducted in accordance with specified quality standards.
 - b) For evaluation of potential strength and uniformity, each mix design shall be represented by at least three (3) strength tests.
 - c) A strength test shall be the average of two (2) 6 IN diameter cylinders or three (3) 4 IN diameter cylinders from the same sample tested at 7 days.
 - 2) Acceptance:
 - a) Strength level of each specified compressive strength shall be considered satisfactory if both of the following requirements are met:
 - (1) Average of all sets of three (3) consecutive strength tests equal or exceed the required specified 7 day compressive strength.
 - (2) No individual strength test falls below the required specified 7 day compressive strength by more than 500 PSI.
 - b. Reinforcing steel size, configuration, quantity, strength, position, or arrangement at variance with requirements in Specification Section 03 09 00 or requirements of the Contract Drawings or approved Shop Drawings.
 - c. Concrete which differs from required dimensions or location in such a manner as to reduce strength.
 - d. Curing time and procedure not meeting requirements of this Specification Section.
 - e. Inadequate protection of concrete from extremes of temperature during early stages of hardening and strength development.

- f. Mechanical injury, construction fires, accidents or premature removal of formwork likely to result in deficient strength.
 - g. Concrete defects such as voids, honeycomb, cold joints, spalling, cracking, etc., likely to result in deficient strength or durability.
2. Structural analysis and/or additional testing may be required when strength of structure is considered potentially deficient.
 3. In-place testing of concrete may be required when strength of concrete in place is considered potentially deficient.
 - a. Testing by impact hammer, sonoscope, or other nondestructive device may be permitted by Engineer to determine relative strengths at various locations in the structure or for selecting areas to be cored.
 - 1) Such tests shall not be used as a basis for acceptance or rejection.
 - b. Core tests:
 - 1) Where required, test cores will be obtained in accordance with ASTM C42.
 - a) If concrete in structure will be dry under service conditions, air dry cores (temperature 60 to 80 DEGF, relative humidity less than 60 PCT) for seven (7) days before test then test dry.
 - b) If concrete in structure will be wet or subjected to high moisture atmosphere under service conditions, test cores after immersion in water for at least 40 HRS and test wet.
 - c) Testing wet or dry to be determined by Engineer.
 - 2) Three (3) representative cores may be taken from each member or area of concrete in place that is considered potentially deficient.
 - a) Location of cores shall be determined by Engineer so as least to impair strength of structure.
 - b) If, before testing, one (1) or more of cores shows evidence of having been damaged subsequent to or during removal from structure, damaged core shall be replaced.
 - 3) Concrete in area represented by a core test will be considered adequate if average strength of three (3) cores is equal to at least 85 PCT of specified strength and no single core is less than 75 PCT of specified strength.
 - 4) Fill core holes with non-shrink grout and finish to match surrounding surface when exposed in a finished area.
 4. If core tests are inconclusive or impractical to obtain or if structural analysis does not confirm safety of structure, load tests may be required and their results evaluated in accordance with ACI 318, Chapter 20.
 5. Correct or replace concrete work judged inadequate by structural analysis or by results of core tests or load tests with additional construction, as directed by Engineer, at Contractor's expense.
 6. Contractor to pay all costs incurred in providing additional testing and/or structural analysis required.

END OF SECTION

SECTION 03 09 00
CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Cast-in-place concrete and grout.
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 - Procurement and Contracting Requirements.
 - 2. Division 01 - General Requirements.

1.2 QUALITY ASSURANCE

- A. Referenced Standards:
 - 1. American Concrete Institute (ACI):
 - a. 117, Specification for Tolerances for Concrete Construction and Materials.
 - b. 211.1, Standard Practice for Selecting Proportions for Normal, Heavyweight and Mass Concrete.
 - c. 212.3R, Chemical Admixtures for Concrete.
 - d. 304R, Guide for Measuring, Mixing, Transporting, and Placing Concrete.
 - e. 304.2R, Placing Concrete by Pumping Methods.
 - f. 305.1, Hot Weather Concreting.
 - g. 306.1, Cold Weather Concreting.
 - h. 318, Building Code Requirements for Structural Concrete.
 - i. 347, Guide to Formwork for Concrete.
 - j. CT-13, Concrete Terminology.
 - 2. ASTM International (ASTM):
 - a. A82, Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.
 - b. A185, Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete.
 - c. A615, Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
 - d. A1064, Standard Specification for Steel Wire and Welded Wire Replacement, Plain and Deformed, for Concrete.
 - e. C31, Standard Practice for Making and Curing Concrete Test Specimens in the Field.
 - f. C33, Standard Specification for Concrete Aggregates.
 - g. C39, Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
 - h. C94/C94M, Standard Specification for Ready-Mixed Concrete.
 - i. C138, Standard Method of Test for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete.
 - j. C143, Standard Test Method for Slump of Hydraulic Cement Concrete.
 - k. C150, Standard Specification for Portland Cement.
 - l. C172, Standard Practice for Sampling Freshly Mixed Concrete.
 - m. C173, Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.
 - n. C231, Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
 - o. C260, Standard Specification for Air-Entraining Admixtures for Concrete.
 - p. C289, Standard Test Method for Potential Alkali-Silica Reactivity of Aggregates (Chemical Method).
 - q. C309, Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.

- r. C494, Standard Specification for Chemical Admixtures for Concrete.
 - s. C618, Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
 - t. C1315, Standard Specification for Liquid Membrane-Forming Compounds Having Special Properties for Curing and Sealing Concrete.
 - u. D882, Standard Test Method for Tensile Properties of Thin Plastic Sheet.
 - v. D994, Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type).
 - w. D1056, Standard Specification for Flexible Cellular Materials-Sponge or Expanded Rubber.
 - x. D1709, Standard Test Methods for Impact Resistance of Plastic Film by the Free-Falling Dart Method.
 - y. D1751, Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).
 - z. E96, Standard Test Methods for Water Vapor Transmission of Materials.
 - aa. E329, Standard Specification for Agencies Engaged in Construction Inspection and/or Testing.
3. National Ready Mixed Concrete Association (NRMCA).
- B. Quality Control:**
- 1. Concrete testing agency:
 - a. Contractor to employ and pay for services of a testing laboratory to:
 - 1) Perform materials evaluation.
 - 2) Design concrete mixes.
 - b. Concrete testing agency to meet requirements of ASTM E329.
 - 2. Do not begin concrete production until proposed concrete mix design has been approved by Engineer.
 - a. Approval of concrete mix design by Engineer does not relieve Contractor of his responsibility to provide concrete that meets the requirements of this Specification.
 - 3. Adjust concrete mix designs when material characteristics, job conditions, weather, strength test results or other circumstances warrant.
 - a. Do not use revised concrete mixes until submitted to and approved by Engineer.
 - 4. Perform structural calculations as required to prove that all portions of the structure in combination with remaining forming and shoring system has sufficient strength to safely support its own weight plus the loads placed thereon.
- C. Qualifications:**
- 1. Ready mixed concrete batch plant certified by NRMCA.
 - 2. Formwork, shoring and reshoring for slabs and beams except where cast on ground to be designed by a professional engineer currently registered in the state where the Project is located.

1.3 DEFINITIONS

- A. Per ACI CT-13 except as modified herein:**
- 1. Concrete fill: Non-structural concrete.
 - 2. Concrete Testing Agency: Testing agency employed to perform materials evaluation, design of concrete mixes or testing of concrete placed during construction.
 - 3. Exposed concrete: Exposed to view after construction is complete.
 - 4. Indicated: Indicated by Contract Documents.
 - 5. Nonexposed concrete: Not exposed to view after construction is complete.
 - 6. Required: Required by Contract Documents.
 - 7. Specified strength: Specified compressive strength at 28 days.
 - 8. Submitted: Submitted to Engineer.

1.4 SUBMITTALS

- A. Shop Drawings:**

1. See Specification Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
2. Concrete mix designs proposed for use.
 - a. Concrete mix design submittal to include the following information:
 - 1) Sieve analysis and source of fine and coarse aggregates.
 - 2) Test for aggregate organic impurities.
 - 3) Test for deleterious aggregate per ASTM C289.
 - 4) Proportioning of all materials.
 - 5) Type of cement with mill certificate for cement.
 - 6) Type of fly ash with certificate of conformance to specification requirements.
 - 7) Slump.
 - 8) Air content.
 - 9) Brand, type, ASTM designation, and quantity of each admixture proposed for use.
 - 10) 7-day and 28-day cylinder compressive test results of trial mixes per ACI 318 and as indicated herein.
3. Product technical data including:
 - a. Acknowledgement that products submitted meet requirements of standards referenced.
 - b. Manufacturer's installation instructions.
 - c. Manufacturers and types:
 - 1) Joint fillers.
 - 2) Curing agents.
 - 3) Chemical sealer.
 - 4) Bonding and patching mortar.
 - 5) Construction joint bonding adhesive.
 - 6) Nonshrink grout with cure/seal compound.
4. Reinforcing steel:
 - a. Show grade, sizes, number, configuration, spacing, location and all fabrication and placement details.
 - b. In sufficient detail to permit installation of reinforcing without having to make reference to Contract Drawings.
 - c. Obtain approval of Shop Drawings by Engineer before fabrication.
 - d. Mill certificates.
5. Scaled (minimum 1/8 IN per foot) drawings showing proposed locations of construction joints, control joints, expansion joints (as applicable) and joint dimensions.
6. Strength test results of in place concrete including slump, air content and concrete temperature.
7. Certifications:
 - a. Certification of standard deviation value in psi for ready mix plant supplying the concrete.
 - b. Certification that the material and sources submitted in the mix design will be used in the concrete for this project.
8. Test reports:
 - a. Cement mill reports for all cement to be supplied.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Storage of Material:
 1. Cement and pozzolan:
 - a. Store in moistureproof, weathertight enclosures.
 - b. Do not use if caked or lumpy.
 2. Aggregate:
 - a. Store to prevent segregation and contamination with other sizes or foreign materials.
 - b. Obtain samples for testing from aggregates at point of batching.
 - c. Do not use frozen or partially frozen aggregates.
 - d. Do not use bottom 6 IN of stockpiles in contact with ground.
 - e. Allow sand to drain until moisture content is uniform prior to use.

3. Admixtures:
 - a. Protect from contamination, evaporation, freezing, or damage.
 - b. Maintain within temperature range recommended by manufacturer.
 - c. Completely mix solutions and suspensions prior to use.
 4. Reinforcing steel: Support and store all rebars above ground.
- B. Delivery:
1. Concrete:
 - a. Prepare a delivery ticket for each load for ready-mixed concrete.
 - b. Truck operator shall hand ticket to Owner's Representative at the time of delivery.
 - c. Ticket to show:
 - 1) Mix identification mark.
 - 2) Quantity delivered.
 - 3) Amount of each material in batch.
 - 4) Outdoor temp in the shade.
 - 5) Time at which cement was added.
 - 6) Numerical sequence of the delivery.
 - 7) Amount of water added.
 2. Reinforcing steel:
 - a. Ship to jobsite with attached plastic or metal tags with permanent mark numbers.
 - b. Mark numbers to match Shop Drawing mark number.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with the Contract Documents, the following products and manufacturers are acceptable:
1. Nonshrink, nonmetallic grout:
 - a. Sika "SikaGrout 212."
 - b. Euclid Chemical "NS Grout."
 - c. BASF Admixtures, Inc. "Masterflow 713."
 2. Expansion joint fillers:
 - a. Permaglaze Co.
 - b. Rubatex Corp.
 - c. Williams Products, Inc.
 3. Form coating:
 - a. Richmond "Rich Cote."
 - b. Industrial Lubricants "Nox-Crete Form Coating."
 - c. Euclid Chemical "Kurez DR VOX."
 4. Synthetic Fibers
 - a. GCP Applied Technologies, Inc.
 - b. BASF Corporation
 - c. Euclid Chemical Company
 5. Cementitious Concrete Coating:
 - a. Aquafin International.
 - b. BASF Building Systems.
 - c. Euclid Chemical Company.
 6. Chemical sealer:
 - a. L&M Construction Chemicals, Inc.
 - b. Euclid Chemical Company.
 - c. Dayton Superior.
- B. Submit request for substitution in accordance with Specification Section 01 25 13.

2.2 MATERIALS

- A. Portland Cement: Conform to ASTM C150 Type III

- B. Fly Ash:
 - 1. ASTM C618, Class F or Class C.
 - 2. Nonstaining.
 - a. Hardened concrete containing fly ash to be uniform light gray color.
 - 3. Maximum loss on ignition: 6 percent.
 - 4. Compatible with other concrete ingredients.
 - 5. Obtain proposed fly ash from a source approved by the State Highway Department in the state where the Project is located for use in concrete for bridges.
- C. Admixtures:
 - 1. Air entraining admixtures: ASTM C260.
 - 2. Water reducing, retarding, and accelerating admixtures:
 - a. ASTM C494 Type A through E
 - b. Conform to provisions of ACI 212.3R.
 - c. Do not use retarding or accelerating admixtures unless specifically approved in writing by Engineer and at no cost to Owner.
 - d. Follow manufacturer's instructions.
 - e. Use chloride free admixtures only.
 - 3. Maximum total water soluble chloride ion content contributed from all ingredients of concrete including water, aggregates, cementitious materials and admixtures by weight percent of cement:
 - a. 0.10 all concrete.
 - 4. Do not use calcium chloride.
 - 5. Pozzolanic admixtures: ASTM C618.
 - 6. Provide admixtures of same type, manufacturer and quantity as used in establishing required concrete proportions in the mix design.
- D. Water: Potable, clean, free of oils, acids and organic matter.
- E. Aggregates:
 - 1. Normal weight concrete: ASTM C33, except as modified below.
 - 2. Fine aggregate:
 - a. Clean natural sand.
 - b. No manufactured or artificial sand.
 - 3. Coarse aggregate:
 - a. Crushed rock, natural gravel, or other inert granular material.
 - b. Maximum amount of clay or shale particles: 1 PCT.
 - 4. Gradation of coarse aggregate:
 - a. Lean concrete and concrete topping: Size #7.
 - b. All other concrete: Size #57.
- F. Macrosynthetic Fibers (fibrillated fibers):
 - 1. Conform to ASTM C1116.
 - 2. Fibrillated to minimize exposed fibers above finished surface
 - 3. Fiber length = 2" min.
 - 4. Re3 > 31%
 - 5. Dosage to obtain a minimum average residual strength at a net deflection of L/150: 170 PSI in accordance with ASTM C1609 and ASTM C1399.
 - 6. Acceptable manufacturer:
 - a. MasterFiber MAC Series by BASF Corporation.
 - b. Strux 90/40 by GCP Applied Technologies, Inc.
 - c. Tuf-Strand SF by Euclid Chemical Company
 - d. Fibermesh 650 by Propex Concrete Systems.
- G. Concrete Grout:
 - 1. Nonshrink, nonmetallic grout:
 - a. Nonmetallic, noncorrosive, nonstaining, premixed with only water to be added.
 - b. Grout to produce a positive but controlled expansion.

- c. Mass expansion not to be created by gas liberation.
 - d. Minimum compressive strength of nonshrink grout at 28 days: 6500 PSI.
 - e. In accordance with COE CRD-C621.
2. Epoxy grout:
- a. 3-component epoxy resin system.
 - 1) Two liquid epoxy components.
 - 2) One inert aggregate filler component.
 - b. Each component packaged separately for mixing at jobsite.
- H. Reinforcing Steel:
- 1. Reinforcing bars: ASTM A615, Grade 60.
 - 2. Welded wire reinforcement:
 - a. ASTM A185 or ASTM A1064.
 - b. Minimum yield strength: 60,000 PSI.
 - 3. Column spirals: ASTM A82 or ASTM A1064.
- I. Forms:
- 1. Prefabricated or job built.
 - 2. Wood forms:
 - a. 5/8 or 3/4 IN 5-ply structural plywood of concrete form grade.
 - b. Built-in-place or prefabricated type panel.
 - 3. Metal forms:
 - a. Metal forms may be used except for aluminum in contact with concrete..
 - b. Forms to be tight to prevent leakage, free of rust and straight without dents to provide members of uniform thickness.
 - 4. Chamfer strips: Clear white pine, surface against concrete planed.
- J. Form Ties:
- 1. Commercially fabricated for use in form construction.
 - a. Field fabricated ties are unacceptable.
 - 2. Constructed so that ends or end fasteners can be removed without causing spalling at surfaces of the concrete.
 - 3. 3/4 IN minimum to 1 IN maximum diameter cones on both ends.
 - 4. Embedded portion of ties to be not less than 1-1/2 IN from face of concrete after ends have been removed.
 - 5. Form release: Nonstaining and shall not prevent bonding of future finishes to concrete surface.
- K. Chairs, Runners, Bolsters, Spacers, and Hangers:
- 1. Stainless steel, epoxy coated, or plastic coated metal.
 - a. Plastic coated: Rebar support tips in contact with the forms only.
- L. Cementitious Concrete Coating:
- 1. Polymer modified Portland cement based coating for concrete and masonry.
 - a. Waterproof.
 - b. Resistant to both positive and negative hydrostatic pressure.
 - c. Breathable.
 - 2. BASF "Masterseal 581 Thoroseal".
 - a. Color:
 - 1) Interior surfaces: Standard gray.
 - 2) Exterior surfaces: Custom color to match concrete surface.
 - 3) Texture: Fine.
- M. Membrane Curing Compound:
- 1. ASTM C309, Type II-B.
 - 2. Resin based, dissipates upon exposure to UV light.
 - 3. Curing compound shall not prevent bonding of any future coverings, coatings or finishes.

- N. Expansion Joint Filler:
1. In contact with water or sewage:
 - a. Closed cell neoprene.
 - b. ASTM D1056, Class SC (oil resistant and medium swell) of 2 to 5 PSI compression deflection (Grade SCE41).
 2. Exterior driveways, curbs and sidewalks:
 - a. Asphalt expansion joint filler.
 - b. ASTM D994.
 3. Other use:
 - a. Fiber expansion joint filler.
 - b. ASTM D1751.

2.3 CONCRETE MIXES

- A. General:
1. All concrete to be ready mixed concrete conforming to ASTM C94/C94M.
 2. Provide concrete of specified quality capable of being placed without segregation and, when cured, of developing all properties required.
 3. All concrete to be normal weight concrete.
 4. Provide pozzolan content for all cast-in-place construction.
- B. Strength:
1. Provide specified strength and type of concrete for each use in structure(s) as follows:

TYPE	WEIGHT	SPECIFIED STRENGTH*
Concrete topping (high-early concrete mix)	Normal weight	4500 PSI
All other general use concrete	Normal weight	4500PSI

* Minimum 7-day compressive strength.

- C. Air Entrainment:
1. Provide air entrainment in all concrete resulting in a total air content percent by volume as follows:

MAX AGGREGATE SIZE	TOTAL AIR CONTENT PERCENT
1 IN or 3/4 IN	6 ±1-1/2
<3/4 IN	6-1/2 ±1-1/2

2. Air content to be measured in accordance with ASTM C231, ASTM C173, or ASTM C138.

- D. Slump - 4 IN maximum, 1 IN minimum:
1. Measured at point of discharge of the concrete into the concrete construction member.
 2. 8 IN maximum after addition of superplasticizer (if used).
 3. Concrete of lower than minimum slump may be used provided it can be properly placed and consolidated.
 4. Pumped concrete:
 - a. Provide additional water at batch plant to allow for slump loss due to pumping.
 - b. Provide only enough additional water so that slump of concrete at discharge end of pump hose does not exceed maximum slump specified above.
 5. Determine slump per ASTM C143.

- E. Selection of Proportions:
1. General:
 - a. Proportion ingredients to:
 - 1) Produce proper workability, durability, strength, and other required properties.

- 2) Prevent segregation and collection of excessive free water on surface.
2. Minimum cement contents and maximum water cement ratios for concrete to be as follows:

SPECIFIED STRENGTH	MINIMUM CEMENT, MAXIMUM AGGREGATE SIZE			MAXIMUM WATER CEMENT RATIO BY WEIGHT
	1/2 IN	3/4 IN	1 IN	
4500	564	564	564	0.45

3. Fly ash:
 - a. For cast-in-place concrete only, a maximum of 25 PCT by weight of Portland cement content per cubic yard may be replaced with fly ash at rate of 1 LB fly ash for 1 LB of cement.
 - b. When fly ash is used, the water to cementitious materials ratio shall not exceed the maximum value specified herein.
4. Synthetic Macro Fiber:
 - a. Dosage:
 - 1) Determined by Contractor and concrete supplier as required to meet the specified minimum average residual strength and the requirements of 2.2.F.
 - 2) Per ASTM C1399 and ASTM C1609.
 - 3) Under no circumstances shall dosage be less than:
 - a) 3 LBS per cubic yard for all specified locations.
5. Concrete mix proportioning methods for normal weight concrete:
 - a. Proportion mixture to provide desired characteristics using one of methods described below:
 - 1) Method 1 (Trial Mix):
 - a) Per ACI 318, Chapter 5, except as modified herein.
 - b) Air content within range specified above.
 - c) Record and report temperature of trial mixes.
 - d) Proportion trial mixes per ACI 211.1.
 - 2) Method 2 (Field Experience):
 - a) Per ACI 318, Chapter 5, except as modified herein:
 - b) Field test records must be acceptable to Engineer to use this method.
 - c) Test records shall represent materials, proportions and conditions similar to those specified.
6. Required average strength to exceed the specified 28-day compressive strength by the amount determined or calculated in accordance with the requirements of Chapter 5 of ACI 318 using the standard deviation of the proposed concrete production facility.

PART 3 - EXECUTION

3.1 CLEANING AND SURFACE PREPARATION

- A. Surface Roughness of existing concrete
 1. Roughen surface of all existing concrete to receive concrete overlay as follows:
 - a. Roughen to surface amplitude of 1/8" to 3/16" for proper adhesion of new concrete overlay using shot blast, scarifying, grinding or other engineer approved method.
- B. Surface preparation after roughening
 1. Clean surface of all dirt and laitance, down to firm strata
 2. Wet surface to Saturated Surface Dry (SSD) condition prior to placing scrub coat and new concrete.

3.2 FORMING AND PLACING CONCRETE

- A. Formwork:

1. Contractor is responsible for design and erection of formwork.
 2. Construct formwork so that concrete members and structures are of correct size, shape, alignment, elevation and position.
 - a. Allowable tolerances: As recommended in ACI 347.
 3. Provide slabs and beams of minimum indicated depth when sloping foundation base slabs or elevated floor slabs to drains.
 - a. For slabs on grade, slope top of subgrade to provide floor slabs of minimum uniform indicated depth.
 - b. Do not place floor drains through beams.
 4. Openings:
 - a. Provide openings in formwork to accommodate work of other trades.
 - b. Accurately place and securely support items built into forms.
 5. Chamfer strips: Place 3/4 IN chamfer strips in forms to produce 3/4 IN wide beveled edges on permanently exposed corners of members.
 6. Clean and adjust forms prior to concrete placement.
 7. Tighten forms to prevent mortar leakage.
 8. Coat form surfaces with form release agents prior to placing reinforcing bars in forms.
- B. Reinforcement:
1. Position, support and secure reinforcement against displacement.
 2. Locate and support with chairs, runners, bolsters, spacers and hangers, as required.
 3. Set wire ties so ends do not touch forms and are directed into concrete, not toward exposed concrete surfaces.
 4. Lap splice lengths: ACI 318 Class B top bar tension splices unless indicated otherwise on the Drawings.
 5. Extend reinforcement to within 2 IN of concrete perimeter edges.
 - a. If perimeter edge is earth formed, extend reinforcement to within 3 IN of the edge.
 6. Minimum concrete protective covering for reinforcement: As shown on Drawings.
 7. Do not weld reinforcing bars.
 8. Welded wire reinforcement:
 - a. Install welded wire reinforcement in maximum practical sizes.
 - b. Splice sides and ends with a splice lap length measured between outermost cross wires of each fabric sheet not less than:
 - 1) One spacing of cross wires plus 2 IN.
 - 2) 1.5 x development length.
 - 3) 6 IN.
 - c. Development length: ACI 318 basic development length for the specified fabric yield strength.
- C. Construction, Expansion, and Contraction Joints:
1. Locate joints as indicated on Contract Drawings or as shown on approved Shop Drawings.
 - a. Where construction joint spacing shown on Drawings exceeds the joint spacing indicated in Paragraph below, submit proposed construction joint location in conformance with this Specification Section.
 2. Unplanned construction joints will not be allowed.
 3. Locate construction joints in floor overlay such that they align with construction joints of existing base slab.
 4. Install construction joints perpendicular to main reinforcement with all reinforcement continued across construction joints.
 5. At least 72 HRS shall elapse between placing of adjoining concrete construction.
 6. Thoroughly clean and remove all laitance and loose and foreign particles from construction joints.
 7. Before new concrete is placed, dampen concrete surfaces.
- D. Embedments:
1. Set and build in anchorage devices and other embedded items required for other work that is attached to, or supported by concrete.

2. See Specification Section 03 15 19 - Anchorage to Concrete.
 3. Use setting diagrams, templates and instructions for locating and setting.
- E. Placing Concrete:
1. Place concrete in compliance with ACI 304R and ACI 304.2R.
 2. Place in a continuous operation within planned joints or sections.
 3. Begin placement when work of other trades affecting concrete is completed.
 4. Place concrete by methods which prevent aggregate segregation.
 5. Do not allow concrete to free fall more than 4 FT.
 6. Where free fall of concrete will exceed 4 FT, place concrete by means of tremie pipe or chute.
- F. Consolidation: Consolidate all concrete using mechanical vibrators supplemented with hand rodding and tamping, so that concrete is worked around reinforcement and embedded items into all parts of forms.
- G. Protection:
1. Protect concrete from physical damage or reduced strength due to weather extremes.
 2. In cold weather comply with ACI 306.1 except as modified herein.
 - a. Do not place concrete on frozen ground or in contact with forms or reinforcing bars coated with frost, ice or snow.
 - b. Do not place heated concrete that is warmer than 80 DEGF.
 - c. If freezing temperatures are expected during curing, maintain the concrete temperature at or above 50 DEGF for 7 days or 70 DEGF for 3 days.
 - d. Do not allow concrete to cool suddenly.
 3. In hot weather comply with ACI 305.1 except as modified herein.
 - a. At air temperature of 90 DEGF and above, keep concrete as cool as possible during placement and curing.
 - b. Do not allow concrete temperature to exceed 90 DEGF at placement.
 - c. Prevent plastic shrinkage cracking due to rapid evaporation of moisture.
 - d. Do not place concrete when the actual or anticipated evaporation rate equals or exceeds 0.2 LBS/SF/HR as determined from ACI 305.1, Figure 2.1.5.
- H. Curing:
1. Begin curing concrete as soon as free water has disappeared from exposed surfaces.
 2. Cure concrete by use of moisture retaining cover, burlap kept continuously wet or by membrane curing compound.
 3. Provide protection as required to prevent damage to concrete and to prevent moisture loss from concrete during curing period.
 4. Provide curing for minimum of 7 days.
 5. Form materials left in place may be considered as curing materials for surfaces in contact with the form materials except in periods of hot weather.
 6. In hot weather follow curing procedures outlined in ACI 305.1.
 7. In cold weather follow curing procedures outlined in ACI 306.1.
 8. Curing vertical surfaces with a curing compound:
 - a. Cover vertical surfaces with a minimum of two coats of the curing compound.
 - b. Allow the preceding coat to completely dry prior to applying the next coat.
 - c. Apply the first coat of curing compound immediately after form removal.
 - d. Vertical surface at the time of receiving the first coat shall be damp with no free water on the surface.
 - e. A vertical surface is defined as any surface steeper than 1 vertical to 4 horizontal.
- I. Form Removal:
1. Remove forms after concrete has hardened sufficiently to resist damage from removal operations or lack of support.
 2. Where no reshoring is planned, leave forms and shoring used to support concrete until it has reached its specified 28-day compressive strength.

3.3 CONCRETE FINISHES

- A. Tolerances:
 - 1. Class A: 1/8 IN in 10 FT.
 - 2. Class B: 1/4 IN in 10 FT.
- B. Surfaces Exposed to View:
 - 1. Provide a smooth finish for exposed concrete surfaces and surfaces that are:
 - a. To be covered with a coating or covering material applied directly to concrete.
 - b. Scheduled for grout cleaned finish.
 - 2. Remove fins and projections, and patch voids, air pockets, and honeycomb areas with cement grout.
- C. Surfaces Not Exposed to View:
 - 1. Patch voids, air pockets and honeycomb areas with cement grout.
 - 2. Fill tie holes with nonshrink, nonmetallic grout.
- D. Slab Float Finish:
 - 1. After concrete has been placed, consolidated, struck off, and leveled, do no further work until ready for floating.
 - 2. Do not use water to aid in finishing.
 - 3. Begin floating when water sheen has disappeared and surface has stiffened sufficiently to permit operation.
 - 4. During or after first floating, check planeness of entire surface with a 10 FT straightedge applied at not less than two different angles.
 - 5. Cut down all high spots and fill all low spots during this procedure to produce a surface within Class B tolerance throughout.
 - 6. Refloat slab immediately to a uniform sandy texture.
- E. Troweled Finish:
 - 1. Float finish surface.
 - 2. Next power trowel, and finally hand trowel.
 - 3. Do not use water to aid in finishing.
 - 4. Produce a smooth surface which is relatively free of defects with first hand troweling.
 - 5. Perform additional trowelings by hand after surface has hardened sufficiently.
 - 6. Final trowel when a ringing sound is produced as trowel is moved over surface.
 - 7. Thoroughly consolidate surface by hand troweling.
 - 8. Leave finished surface essentially free of trowel marks, uniform in texture and appearance and plane to a Class A tolerance.
 - 9. On surfaces intended to support floor coverings remove any defects of sufficient magnitude that would show through floor covering by grinding.
- F. Broom Finish: Immediately after concrete has received a float finish as specified, give it a transverse scored texture by drawing a broom across surface.

3.4 GROUT

- A. Preparation:
 - 1. Nonshrinking, nonmetallic grout:
 - a. Clean concrete surface to receive grout.
 - b. Saturate concrete with water for 24 HRS prior to grouting.
- B. Application:
 - 1. Nonshrinking, nonmetallic grout:
 - a. Mix in a mechanical mixer.
 - b. Use no more water than necessary to produce flowable grout.
 - c. Place in accordance with manufacturer's instructions.
 - d. Completely fill all spaces and cavities below the bottom of baseplates.
 - e. Provide forms where baseplates and bedplates do not confine grout.
 - f. Where exposed to view, finish grout edges smooth.

- g. Except where a slope is indicated on Drawings, finish edges flush at the baseplate, bedplate, member, or piece of equipment.
- h. Protect against rapid moisture loss by covering with wet rags or polyethylene sheets.
- i. Wet cure grout for seven (7) days, minimum.

3.5 FIELD QUALITY CONTROL

- A. Owner will employ and pay for services of a concrete testing laboratory to perform testing of concrete placed during construction.
 - 1. Contractor to cooperate with Owner in obtaining and testing samples.
- B. Tests During Construction:
 - 1. Strength test:
 - a. For each strength test, mold and cure cylinders from each sample in accordance with ASTM C31.
 - 1) Cylinder size: Per ASTM C31.
 - a) 4 IN cylinders may not be used for concrete mixes with concrete aggregate size larger than 1 IN.
 - 2) Quantity:
 - a) 6 IN DIA by 12 IN high: Four (4) cylinders.
 - b) 4 IN DIA by 8 IN high: Six (6) cylinders.
 - b. Field cure one (1) cylinder for the seven (7) day test.
 - 1) Laboratory cure the remaining.
 - c. Test cylinders in accordance with ASTM C39.
 - 1) 6 IN DIA cylinders:
 - a) Test two (2) cylinders at 28 days for strength test result and the one (1) field cured sample at seven (7) days for information.
 - b) Hold remaining cylinder in reserve.
 - 2) 4 IN DIA cylinders:
 - a) Test three (3) cylinders at 28 days for strength test result and the one (1) field cured cylinder at seven (7) days for information.
 - b) Hold remaining cylinders in reserve.
 - d. Strength test result:
 - 1) Average of strengths of two (2) 6 IN DIA cylinders or three (3) 4 IN DIA cylinders from the same sample tested at 28 days.
 - 2) If one (1) cylinder in a test manifests evidence of improper sampling, molding, handling, curing, or testing, discard and test reserve cylinder(s); average strength of remaining cylinders shall be considered strength test result.
 - 3) Should all cylinders in any test show any of above defects, discard entire test.
 - e. Frequency of tests:
 - 1) All [other] concrete:
 - a) One (1) strength test to be taken not less than once a day, nor less than once for each 60 CU YD or fraction thereof placed in any one (1) day.
 - b) Once for each 5000 SQ FT of slab or wall surface area placed each day
 - c) If total volume of concrete on Project is such that frequency of testing required in above paragraph will provide less than five (5) strength tests for each concrete mix, tests shall then be made from at least five (5) randomly selected batches or from each batch if fewer than five (5) batches are provided.
 - 2. Slump test:
 - a. Per ASTM C143.
 - b. Determined for each strength test sample.
 - c. Additional slump tests may be taken.
 - 3. Air content:
 - a. Per ASTM C231, ASTM C173, and ASTM C138.
 - b. Determined for each strength test sample.
 - 4. Temperature: Determined for each strength test sample.

- C. Evaluation of Tests:
 - 1. Strength test results:
 - a. Average of 7-day strength of two cylinders from each sample.
 - 1) If one cylinder manifests evidence of improper sampling, molding, handling, curing or testing, strength of remaining cylinder will be test result.
 - 2) If both cylinders show any of above defects, test will be discarded.
- D. Acceptance of Concrete:
 - 1. Strength level of each type of concrete shall be considered satisfactory if both of the following requirements are met:
 - a. Average of all sets of three consecutive strength tests equals or exceeds the required specified 7-day compressive strength.
 - b. No individual strength test falls below the required specified 7-day compressive strength by more than 500 PSI.
 - 2. If tests fail to indicate satisfactory strength level, perform additional tests and/or corrective measures as directed by Engineer.
 - a. Perform additional tests and/or corrective measures at no additional cost to Owner.
- E. Concrete tolerances per ACI 117.

3.6 SCHEDULES

- A. Form Types:
 - 1. Surfaces exposed to view:
 - a. Prefabricated or job-built wood forms.
 - b. Laid out in a regular and uniform pattern with long dimensions vertical and joints aligned.
 - c. Produce finished surfaces free from offsets, ridges, waves, and concave or convex areas.
 - d. Construct forms sufficiently tight to prevent leakage of mortar.
 - 2. Surfaces normally submerged or not normally exposed to view: Wood or steel forms sufficiently tight to prevent leakage of mortar.
 - 3. Other types of forms may be used:
 - a. For surfaces not restricted to plywood or lined forms.
 - b. As backing for form lining.
- B. Grout:
 - 1. Nonshrinking, nonmetallic grout: General use.
- C. Concrete:
 - 1. Normal weight concrete: All concrete.
- D. Concrete Finishes:
 - 1. Slab finishes:
 - a. Use following finishes as applicable, unless otherwise indicated:
 - 1) Floated finish: Surfaces intended to receive roofing, concrete topping, lean concrete, concrete fill and waterproofing.
 - 2) Troweled finish: Interior floor slabs, exposed roof slabs and base slabs of structures, equipment bases, and column bases.
 - 3) Broom finish: Sidewalks, docks, concrete stairs, and ramps.

END OF SECTION

SECTION 03 15 19
ANCHORAGE TO CONCRETE

GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Requirements for all cast-in-place anchor bolts, anchor rods, reinforcing adhesive anchorage, and post-installed concrete anchors required for the Project but not specified elsewhere in the Contract Documents.
 2. Design of all concrete anchors not indicated on the Drawings including, but not limited to, installation of anchors into concrete for the following structural and nonstructural components:
 - a. Structural members and accessories.
 - b. Metal, wood, and plastic fabrications.
 - c. Architectural components.
 - d. Mechanical and electrical equipment and components.
 - e. Plumbing, piping, and HVAC work.
 - f. All other components requiring attachment to concrete.
- B. Related Specification Sections include but are not necessarily limited to:
1. Division 00 - Procurement and Contracting Requirements.
 2. Division 01 - General Requirements.
 3. Section 03 05 05 - Concrete Testing and Inspection.

1.2 QUALITY ASSURANCE

Referenced Standards:

1. American Concrete Institute (ACI):
 - a. 318, Building Code Requirements for Structural Concrete and Commentary.
2. American Concrete Institute/Concrete Reinforcing Steel Institute (ACI-CRSI):
 - a. Adhesive Anchor Installation Certification Program: Adhesive Anchor Installer.
3. American Institute of Steel Construction (AISC):
 - a. 303, Code of Standard Practice for Steel Buildings and Bridges.
4. ASTM International (ASTM):
 - a. A36, Standard Specification for Carbon Structural Steel.
 - b. A108, Standard Specification for Steel Bar, Carbon and Alloy, Cold-Finished.
 - c. A123, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 - d. A153, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
 - e. A307, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
 - f. A496, Standard Specification for Steel Wire, Deformed, for Concrete Reinforcement.
 - g. A563, Standard Specification for Carbon and Alloy Steel Nuts.
 - h. A780, Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
 - i. F436, Standard Specification for Hardened Steel Washers.
 - j. F593, Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.
 - k. F594, Standard Specification for Stainless Steel Nuts.
 - l. F1554, Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength.
5. ICC Evaluation Service (ICC-ES):
 - a. AC193, Acceptance Criteria for Mechanical Anchors in Concrete Elements.

- b. AC308, Acceptance Criteria for Post-Installed Adhesive Anchors in Concrete Elements.
 - 6. Building code:
 - a. International Code Council (ICC):
 - 1) International Building Code and associated standards, 2015 Edition including all amendments, referred to herein as Building Code.
- B. Qualifications:
 - 1. Anchor designer for Contractor-designed post-installed anchors and cast in place anchorage shall be a professional civil engineer licensed in the State of Washington.
 - 2. Installer for post-installed anchors shall be trained by the manufacturer or certified by a training program approved by the Engineer.
- C. Post-installed anchors and related materials shall be listed by the following agencies:
 - 1. ICC-ES.
 - 2. Engineer approved equivalent.

1.3 DEFINITIONS

- A. Adhesive Anchors:
 - 1. Post-installed anchors developing their strength primarily from chemical bond between the concrete and the anchor.
 - 2. Includes anchors using acrylics, epoxy and other similar adhesives.
- B. Anchor Bolt: Any cast-in-place anchorage that is made of a headed (i.e. bolt) material.
- C. Anchor Rod: Any cast-in-place or post-installed anchorage made from unheaded, threaded, rod or deformed bar material.
- D. Concrete Anchor: Generic term for either an anchor bolt or an anchor rod.
- E. Galvanizing: Hot-dip galvanizing per ASTM A123 or ASTM A153 with minimum coating of 2.0 OZ of zinc per square foot of metal (average of specimens) unless noted otherwise or dictated by standard.
- F. Hardware: As defined in ASTM A153.
- G. Installer or Applicator:
 - 1. Installer or applicator is the person actually installing or applying the product in the field at the Project site.
 - 2. Installer and applicator are synonymous.
- H. MPII: Manufacturer's printed installation instructions.
- I. Mechanical Anchors:
 - 1. Post-installed anchors developing their strength from attachment other than thru adhesives or chemical bond to concrete.
 - 2. Includes expansion anchors, expansion sleeve, screw anchors, undercut anchors, specialty inserts and other similar types of anchorages.
 - 3. Drop-in anchors and other similar anchors are not allowed.
- J. Post-Installed Anchor: Any adhesive or mechanical anchor installed into previously placed and adequately cured concrete.

1.4 SUBMITTALS

- A. Shop Drawings:
 - 1. See Specification Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
 - 2. Product technical data including:
 - a. Acknowledgement that submitted products meet requirements of referenced standards.
 - b. Manufacturer material data sheet for each anchor.

- 1) Clearly indicate which products on the data sheet are proposed for use on the Project.
 - c. Manufacturer's printed installation instructions.
 - d. Current ICC-ES report for each post-installed anchor system indicating the following:
 - 1) Certification that anchors meet all requirements indicated in this Specification.
 - 2) Performance data showing that anchor is approved for use in cracked concrete.
 - 3) Seismic design categories for which anchor system has been approved.
 - 4) Required installation procedures.
 - 5) Special inspection requirements for installation.
 - e. Anchorage layout drawings and details:
 - 1) Indicate anchor diameter, embedment, length, anchor type, material and finish.
 - 2) Drawings showing location, configuration, spacing and edge distance.
 - f. Contractor Designed Post-Installed Anchors:
 - 1) Show diameter and embedment depth of each anchor.
 - 2) Indicate compliance with ACI 318, Chapter 17.
 - 3) Design tension and shear loads used for anchor design.
 - 4) Engineering design calculations:
 - a) Indicate design load to each anchor.
 - b) When the design load is not indicated on Drawings, include calculations to develop anchor forces based on Design Criteria listed herein.
 - c) Sealed and signed by contractor's professional engineer.
 - d) Calculations will be submitted for information purposes only.
 - 5) Type of post-installed anchor system used.
 - a) Provide manufacturer's ICC-ES report for the following:
 - (1) Mechanical anchorage per ICC-ES AC193.
 - (2) Adhesive anchorage per ICC-ES AC308.
- B. Samples:
1. Representative samples of concrete anchors may be requested by Engineer. Review will be for type and finish only. Compliance with all other requirements is exclusively the responsibility of the Contractor.
- C. Informational Submittals:
1. See Specification Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
 2. Certification of qualifications for each installer of post-installed anchors.
 - a. Indicate successful completion or certification for each type of approved post-installed anchor as required by the Contract Documents.
 - b. Provide one of the following for each type of anchor, as required by this specification section:
 - 1) Letter from manufacturer documenting successful training completion.
 - 2) Certification of completion for Engineer approved program.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to job site in manufacturer's or distributor's packaging undamaged and complete with installation instructions.
- B. Store above ground on skids or other supports to keep items free of dirt and other foreign debris and to protect against corrosion.
- C. Protect and handle materials in accordance with manufacturer's recommendations to prevent damage or deterioration.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cast-in-place Concrete Anchors:

1. Building, non-building structures, and equipment:
 - a. ASTM F1554, Grade 36 or Grade 55 with weldability supplement S1 for galvanized or non-galvanized threaded rods.
 - b. ASTM A307, Grade A for galvanized headed bolts.
2. All other cast-in-place concrete anchors:
 - a. Stainless steel with matching nut and washer.
 - b. Submerged application: ASTM F593, Type 316.
 - c. Non-submerged application: ASTM F593, Type 304 or Type 316.
- B. Post-Installed Mechanical and Adhesive Concrete Anchors:
 1. Stainless steel with matching nut and washer.
 2. Submerged application: ASTM F593, Type 316.
 3. Non-submerged application: ASTM F593, Type 304 or Type 316.
- C. Reinforcement: See Section 03 09 00.
- D. Headed Studs: ASTM A108 with a minimum yield strength of 50,000 PSI and a minimum tensile strength of 60,000 PSI.
- E. Deformed Bar Anchors: ASTM A496 with minimum yield strength of 70,000 PSI and a minimum tensile strength of 80,000 PSI.
- F. Washers:
 1. ASTM F436 unless noted otherwise.
 2. If stainless steel anchorage is being used for cast-in-place anchorage, furnish washers of the same material and alloy as in the accompanying anchorage.
 3. Plate washers: Minimum 1/2IN thick fabricated ASTM A36 square plates as required.
 4. Follow manufacturer's requirements for all post-installed anchorage.
- G. Nuts:
 1. ASTM A563 for all cast-in-place anchorage.
 2. If stainless steel anchorage is being used for cast-in-place anchorage, nuts shall meet ASTM F594 and be the matching material and alloy as in the accompanying anchorage.
 3. Follow manufacturer's requirements if using post-installed anchorage.
- H. Galvanizing Repair Paint:
 1. High zinc dust content paint for re-galvanizing welds and abrasions.
 2. ASTM A780.
 3. Zinc content: Minimum 92 PCT in dry film.
 4. ZRC "ZRC Cold Galvanizing" or Clearco "High Performance Zinc Spray."

2.2 CONTRACTOR DESIGNED ANCHORAGE

- A. Acceptable Manufacturers:
 1. Post-installed anchor systems for the listed manufacturers will be considered only if a current ICC-ES evaluation report is submitted in accordance with the SUBMITTALS Article in PART 1 of this Specification Section and if the anchor system is approved by the Engineer.
 - a. Hilti.
 - b. Powers Fasteners.
 - c. Simpson Strong-Tie.
 2. Submit request for substitution in accordance with Specification Section 01 25 13.
- B. Contractor shall design the anchorage when any of the following occur:
 1. Design load for concrete anchorage is shown on the Drawings.
 2. When specifically required by the Contract Documents.
 3. When an anchorage is required but not specified in the Drawings.
 4. When anchorage is shown on Drawings other than Structural Drawings.
- C. Anchorage Design Loads:
 1. Determine all of the design loads, including wind and seismic loads, per the Building Code.

- a. Anchorage of equipment and non-structural components: Use the actual dead and operating loads provided by the manufacturer.
- D. When Contract Drawings, other than the Structural Drawings, indicate an anchor diameter or length, the Contractor design shall incorporate these as “minimums.”
- E. Cast-in-Place Concrete Anchors:
 - 1. Provide the material, nominal diameter, embedment length, spacing, edge distance and design capacity to resist the calculated load based on the requirements given in the Building Code including ACI 318, Chapter 17.
 - 2. Design assuming cracked concrete.
- F. Post-installed Concrete Anchors:
 - 1. Provide the manufacturer’s system name/type, nominal diameter, embedment depth, spacing, minimum edge distance, cover, and design capacity to resist the specified or calculated load based on requirements given in the Building Code, ACI 318, Chapter 17, and current ICC-ES report, for the anchor to be used.
 - 2. Design assuming cracked concrete.

2.3 ENGINEER DESIGNED ANCHORAGE

- A. When the size, length and details of anchorages are shown on Contract Structural Drawings, Contractor design of anchorage is not required.
- B. Acceptable Manufacturers:
 - 1. Additional newer post-installed anchor systems for the listed manufacturers will be considered only if a current evaluation agency report is submitted in accordance with the SUBMITTALS Article in PART 1 of this Specification Section, the anchor system is certified by ICC-ES for cracked concrete conditions, and if approved by the Engineer. For structural elements subject to dynamic loads, mechanical expansion anchors shall be avoided.
 - 2. Mechanical Anchors:
 - a. Hilti:
 - 1) Kwik Bolt 3 (ICC-ES ESR-2302).
 - 3. Adhesive Concrete Anchors:
 - a. Hilti:
 - 1) HIT RE 500-SD (ICC-ES ESR-2322).
 - 2) HIT RE 500 V3 (ICC ESR-3814).
 - 4. Concrete Screw Anchors:
 - a. Hilti: Kwik HUS-EZ Screw (ICC-ES ESR-3027).
 - 5. Submit request for substitution in accordance with Specification Section 01 25 13.
 - a. Substitution request to indicate the proposed anchor has the at least the same tension and shear strength as the specified anchor installed as indicated in the Contract Drawings.
 - b. Calculations to be stamped by a Professional Engineer registered in the state that the Project is located in.

PART 3 - EXECUTION

3.1 GENERAL

- A. Cast-in-Place Anchorage:
 - 1. Use where anchor rods or bolts are indicated on the Drawings, unless another anchor type is approved by the Engineer.
 - 2. Provide concrete anchorage as shown on the Drawings or as required to secure components to concrete.
- B. Adhesive Anchorage:

1. Use only where specifically indicated on the Drawings or when approved for use by the Engineer.
 2. May be used where subjected to vibration or where buried or submerged.
 3. Do not use in overhead applications or sustained tension loading conditions such as utility hangers.
 4. Contact Engineer for clarification when anchors will not be installed in compliance with manufacturer's printed installation requirements.
- C. Mechanical Anchorage:
1. Use only where specifically indicated on the Drawings or when approved for use by the Engineer.
 2. Do not use where subjected to vibration.
 3. May be used in overhead applications.
 4. Contact Engineer for clarification when anchors will not be installed in compliance with manufacturer's printed installation requirements.
- D. Do not use powder actuated fasteners and other types of bolts and fasteners not specified herein for structural applications unless approved by the Engineer or specified in Contract Documents.

3.2 PREPARATION

- A. Provide adequate time to allow for proper installation and inspection prior to placing concrete for cast-in-place concrete anchorage.
- B. Prior to installation, inspect and verify areas and conditions under which concrete anchorage is to be installed.
1. Notify Engineer of conditions detrimental to proper and timely completion of work.
 2. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to the Engineer.
- C. Special Inspection is required in accordance with the Building Code for all concrete anchorage.
1. Notify the Special Inspector that an inspection is required prior to concrete placement (or during post-installed anchorage installation).
 2. See the FIELD QUALITY CONTROL Article in PART 3 of this Specification Section for additional requirements.
- D. Post-installed anchor manufacturer's representative shall demonstrate and observe the proper installation procedures for the post-installed anchors at no additional expense to the Owner.
1. Follow such procedures to assure acceptable installation.

3.3 INSTALLATION

- A. Tie cast-in-place anchorage in position to embedded reinforcing steel using wire.
1. Tack welding of anchorage is prohibited.
 2. Coat the projected portion of carbon steel anchors and nut threads with a heavy coat of clean grease after concrete has cured.
 3. Anchorage location tolerance shall be in accordance with AISC 303.
 4. Provide steel or durable wood templates for all column and equipment anchorage.
 - a. Templates to be placed above top of concrete and not impede proper concrete placement and consolidation.
- B. Unless noted or specified otherwise:
1. Connect aluminum and steel members to concrete and masonry using stainless steel cast-in-place anchorage unless shown otherwise.
 - a. Provide dissimilar materials protection per Specifications.
 2. Provide washers for all anchorage.
 3. Where exposed, extend threaded anchorage a maximum of 3/4 IN and a minimum of 1/2 IN above the top of the fully engaged nut.
 - a. If anchorage is cut off to the required maximum height, threads must be dressed to allow nuts to be removed without damage to the nuts.

- C. Do the following after nuts are snug-tightened down:
 - 1. If using post-installed anchorage, follow MPII.
 - 2. Upset threads of anchorage to prevent nuts from backing off.
 - a. Provide double nut or lock nut in lieu of upset threads for items that may require removal in the future.
 - 3. For all other cast-in-place anchorage material, tighten nuts down an additional 1/8 turn to prevent nuts from backing off.
 - 4. If two (2) nuts are used per concrete anchor above the base plate, tighten the top nut an additional 1/8 turn to "lock" the two (2) nuts together.
 - 5. If using post-installed anchorage, follow manufacturer's installation procedures.
- D. Assure that embedded items are protected from damage and are not filled in with concrete.
- E. Secure architectural components such that it will not be aesthetically distorted nor fasteners overstressed from expansion, contraction or installation.
- F. Repair damaged galvanized surfaces in accordance with ASTM A780.
 - 1. Prepare damaged surfaces by abrasive blasting or power sanding.
 - 2. Apply galvanizing repair paint to minimum 6 mils DFT in accordance with manufacturer's instructions and ASTM A780.
- G. For post-installed anchors, comply with the MPII on the hole diameter and depth required to fully develop the tensile strength of the anchor or reinforcing bar.
 - 1. Use hammer drills to create holes.
 - 2. Properly clean out the hole per the ICC-ES reports utilizing a non-metallic fiber bristle brush and compressed air or as otherwise required to remove all loose material from the hole prior to installing the anchor in the presence of the Special Inspector.

3.4 FIELD QUALITY CONTROL

- A. Special Inspection:
 - 1. See Section 01 45 33.
 - 2. See Section 03 09 00.
 - 3. See Section 03-05-05

3.5 CLEANING

- A. After concrete has been placed, remove protection and clean all anchorage of all concrete, dirt, and other foreign matter.

END OF SECTION

SECTION 05 12 00
STRUCTURAL STEEL

GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Structural steel, including the fabrication and erection of support and bracing members, including connections.
 2. Connection detail design as required.
- B. Related Specification Sections include but are not necessarily limited to:
1. Division 00 - Procurement and Contracting Requirements.
 2. Division 01 - General Requirements.
 3. Section 03 15 19 - Anchorage to Concrete.

1.2 QUALITY ASSURANCE

Referenced Standards:

1. American Institute of Steel Construction (AISC):
 - a. 303, Code of Standard Practice for Steel Buildings and Bridges.
 - b. 360, Specifications for Structural Steel Buildings.
 - c. Quality Certification Program for Fabricators.
2. American Society of Mechanical Engineers (ASME):
 - a. B18.21.1, Washers: Helical Spring-Lock, Tooth Lock, and Plain Washers (Inch Series).
3. ASTM International (ASTM):
 - a. A2, Standard Specification for Carbon Steel Girder Rails of Plain, Grooved, and Guard Types.
 - b. A6/A6M, Standard Specification for General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Sheet Piling.
 - c. A36/A36M, Standard Specification for Carbon Structural Steel.
 - d. A53/A53M, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
 - e. A108, Standard Specification for Steel Bar, Carbon and Alloy, Cold-Finished.
 - f. A123/A123M, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 - g. A153/A153M, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
 - h. A307, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
 - i. A325, Standard Specification of Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.
 - j. A490, Standard Specification for Structural Bolts, Alloy Steel, Heat Treated, 150 ksi Minimum Tensile Strength.
 - k. A500/A500M, Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
 - l. A563, Standard Specification for Carbon and Alloy Steel Nuts.
 - m. A992/A992M, Standard Specification for Structural Steel Shapes.
 - n. A1064/A1064M, Standard Specification for Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.
 - o. F436, Standard Specification for Hardened Steel Washers.
 - p. F959, Standard Specification for Compressible-Washer-Type Direct Tension Indicators for Use with Structural Fasteners.

- q. F1554, Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength.
- r. F1852, Standard Specification for "Twist Off" Type Tension Control Structural Bolt/Nut/Washer Assemblies, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.
- 4. American Welding Society (AWS):
 - a. A5.1/A5.1M, Specification for Carbon Steel Electrodes for Shielded Metal Arc Welding.
 - b. A5.5/A5.5M, Specification for Low-Alloy Steel Electrodes for Shielded Metal Arc Welding.
 - c. A5.17/A5.17M, Specification for Carbon Steel Electrodes and Fluxes for Submerged Arc Welding.
 - d. A5.18/A5.18M, Specification for Carbon Steel Electrodes and Rods for Gas Shielded Arc Welding.
 - e. A5.20/A5.20M, Specification for Carbon Steel Electrodes for Flux Cored Arc Welding.
 - f. A5.23/A5.23M, Specification for Low-Alloy Steel Electrodes and Fluxes for Submerged Arc Welding.
 - g. A5.28/A5.28M, Specification for Low-Alloy Steel Electrodes and Rods for Gas Shielded Arc Welding.
 - h. A5.29/A5.29M, Specification for Low-Alloy Steel Electrodes for Flux Cored Arc Welding.
 - i. D1.1/D1.1M, Structural Welding Code - Steel.
 - 1) Steel stud connectors and their installation to comply with requirements of AWS D1.1/D1.1M.
- 5. National Institute of Steel Detailing (NISD).
- 6. Research Council on Structural Connections (RCSC):
 - a. Specification for Structural Joints Using High-Strength Bolts.
- 7. Building code:
 - a. International Code Council (ICC):
 - 1) International Building Code and associated standards, 2015 Edition including all amendments, referred to herein as Building Code.
- B. Qualifications:
 - Steel fabricator:
 - a. Minimum of 10 years experience in fabrication of structural steel or participate in the AISC Certification program and is designated an AISC Certified Plant, Category BU (formally known as STD), at time of bid.
 - b. Fabricator plant quality control and inspection program: Meet requirements of the Building Code and/or be an Approved Fabricator.
 - c. Plants that are not an Approved Fabricator may be acceptable, provided:
 - 1) Plant meets all remaining qualifications.
 - 2) Contractor reimburses the Owner the cost of required Special Inspection services.
 - 2. Steel erector:
 - a. Minimum of 10 years of experience in erection of structural steel similar in the scope of this project or certified as CSE under the AISC Quality Certification Program.
 - b. With an active and enforced quality assurance program in place, as described in the applicable Codes.
 - 3. Qualify welding procedures and welding operators in accordance with AWS.

1.3 DEFINITIONS

- A. Owner: May mean the Owner's Designated Representative for Construction as defined by the AISC 303.
- B. Galvanizing: Hot-dipped galvanizing per ASTM A153/A153M and/or ASTM A123/A123M with minimum coating of 2.0 OZ of zinc per square foot of metal (average of specimens) unless noted otherwise or dictated by aforementioned standards.

- C. Approved Fabricator: Approved by the Building Official to perform the Building Code required Special Inspections.

1.4 SUBMITTALS

- A. Shop Drawings:
 - 1. See Specification Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
 - 2. Product technical data including:
 - a. Acknowledgement that products submitted meet requirements of standards referenced.
 - b. Manufacturer's installation instructions.
 - c. Detailed supplemental specification relating to load indicator washers or high-strength bolts.
 - 1) Alternate design for Engineer approval (submitted at Contractor's option if desired by Contractor for use).
 - d. Source and certification of quality for high-strength bolts, nuts and washers.
 - 3. Fabrication and/or layout drawings:
 - a. Prepare Shop Drawings under NISD Quality Procedures Program certification.
 - b. Complete Shop Drawings for all of the work showing clearly all pieces, sizes, dimensions, details, connections materials and shop coatings.
 - 1) All Shop Drawings must be checked and signed "approved" before submittal.
 - 2) Show all cuts, copes, and holes.
 - 3) Indicate all shop and field bolts.
 - 4) Indicate all shop and field welds using AWS symbols.
 - c. Prepare complete erection drawings showing the location and marks of all pieces.
 - 1) Copies of up-to-date erection drawings shall accompany the Shop Drawings.
 - 2) Use match marks on the erection drawings to indicate the sheet number on which each particular member is detailed.
 - d. Correct any incorrect or unacceptable material or fabrication due to incorrect detailing, shop work, or erection, without additional charge.
 - 4. Certifications:
 - a. Certificates of compliance with standards specified for all major components and fasteners incorporated into work.
 - b. Copies of current welding certificates for each welder assigned to perform welding indicating compliance with testing specified by AWS.
 - c. Welder qualification data and prequalified procedures.
 - d. Special Inspections reports.
 - e. Source Quality Control Documentation, including certificate of compliance stating that the work performed in the fabrication shop was done in accordance with the approved construction documents.
 - 1) Certification is required only if the fabricator is fabricator approved by the Building Official.
 - 5. Test reports:
 - a. Certified copies of mill tests.
 - b. Manufacturer's load test and temperature sensitivity data for post-installed anchor bolts.
 - c. Test reports for all structural steel work.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Handle and store steel members above ground on skids or other supports.
 - 1. Keep free of dirt and other foreign material and protect against corrosion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:

1. High-strength bolts:
 - a. Portland Bolt and Manufacturing Company.
 - b. Lewis Bolt & Nut Company.
 - c. Nucor Fasteners.
 - d. St. Louis Screw and Bolt Company.
 2. Load indicator washers for high-strength bolts:
 - a. Portland Bolt and Manufacturing Company.
 - b. Mid-South Bolt and Screw Co., Inc.
 - c. J and M Turner, Inc.
 3. Alternate design high-strength bolts:
 - a. T. C. Bolt Corporation.
 - b. Construction Fastener Systems Division of Bristol Machine Company.
 - c. LeJuene Bolt Co.
 4. Headed studs and deformed bar anchors:
 - a. Nelson Stud Welding Division, TRW, Inc.
 - b. Stud Welding Products, Inc.
 5. Mechanical anchor bolts:
 - a. See Section 03 15 19.
 6. Adhesive anchors bolts:
 - a. See Section 03 15 19
 7. Anchor bolt sleeves:
 - a. Sinco/Wilson.
- B. Submit request for substitution in accordance with Specification Section 01 25 13.

2.2 MATERIALS

- A. Steel, Structural Shapes and Plate (unless noted otherwise on Drawings):
 1. All W-shapes and WT-shapes: ASTM A992/A992M.
 2. All other plates, bars and rolled shapes: ASTM A36/A36M.
 3. Baffle Plate shall conform to ASTM A514.
- B. Pipe: ASTM A53/A53M, Grade B (Type E or S) (Fy=35).
- C. Hollow Structural Sections (HSS):
 1. Round: ASTM A500/A500M, Grade B (Fy=42).
 2. Square or rectangular: ASTM A500/A500M, Grade B (Fy=46).
- D. High-Strength Bolts, Nuts and Washers:
 1. ASTM A325 with ASTM A563 nuts galvanized:
 2. High-strength bolts:
 - a. Provide two (2) ASTM F436 washers for all bolts galvanized.
 - b. Provide beveled washers at connections of sloped/tapered sections.
 3. High-strength bolts with compressible washer type direct tension indicators (DTI), ASTM F959.
 - a. Provide at Contractor's option and subject to approval of Engineer.
 4. Alternate high-strength design: Provide at Contractor's option and subject to approval of Engineer.
- E. Bolts, Non-high Strength: ASTM A307, Grade A.
- F. Threaded Rod: ASTM F1554, Grade 36.
- G. Washers, Plain (for Non-high Strength Bolts): ASME B18.22.1, Type B.
- H. Welding Electrodes:
 1. Shielded metal arc: AWS A5.1/A5.1M or AWS A5.5/A5.5M, E70XX or E801X-X.
 2. Submerged arc: AWS A5.17/A5.17M or AWS A5.23/A5.23M, F7XX-EXXX or F8XX-EXXX-XX.

3. Gas metal arc: AWS A5.18/A5.18M, E70S-X or E70U-1 or AWS A5.28/A5.28M, ER80S-XX, E80C-XXX.
 4. Flux cored arc: AWS A5.20/A5.20M, E7XT-X (except 2, 3, 10, GS), AWS A5.29/A5.29M, E7XT-X or E8XTX-X, E8XTX-XM.
- I. Anchor Rods and Bolts:
1. See Section 03 15 19.
- J. Headed Studs and Deformed Bar Anchors:
1. Headed studs:
 - a. ASTM A108, complying with AWS D1.1/D1.1M, Section 7, Type B; minimum yield strength 50,000 PSI, minimum tensile strength 60,000 PSI.
 - b. Uniform diameter.
 - c. Heads: Concentric and normal to shaft.
 - d. Weld end: Chamfered and solid flux.
 2. Deformed bar anchor:
 - a. ASTM A1064/A1064M, complying with AWS D1.1/D1.1M, Section 7, Type C.
 - b. Minimum yield strength: 70,000 PSI.
 - c. Minimum tensile strength: 80,000 PSI.
 - d. Straight, unless indicated otherwise.
 - e. Solid flux.
 3. After welding, remove ceramic ferrules and maintain free from any substance which would interfere with function, or prevent bonding to concrete.
- K. Nonshrink Grout: See Specification Section 03 09 00.
- L. Mechanical and Adhesive Anchor Bolts for Fastening to Concrete:
1. See Specification Section 03 15 19.

2.3 FABRICATION

- A. Comply with requirements of applicable Building Code and AISC 360 with modifications and additional requirements specified herein.
1. Identify high-strength steel material in fabricated members in accordance with ASTM A6/A6M.
- B. Minimize the amount of field welding.
1. Shop assemble components into largest size possible commensurate with transportation and handling limitations.
 2. Shop connections: Bolted with high-strength bolts or welded.
- C. Connection Details:
1. Provide as a minimum, two (2) 3/4 IN DIA, high-strength bolts for all bolted connections unless otherwise specified.
- D. Provide bearing type connections for all bolted connections, unless otherwise noted.
- E. Field Connections:
1. Provide bolts for all field connections except where shown otherwise on the Drawings.
 2. Use high-strength bolts unless shown or specified otherwise.
 3. Use of high-strength bolts: Conform to RCSC Specification for Structural Joints Using High-Strength Bolts.
 4. Unfinished bolts may be used for attaching stair treads to stringers.
 5. If structural steel details (field welds versus shop welds, etc.) shown on design Drawings are not compatible with selected erection procedures, submit proposed modifications for review.
 6. Connections to structural steel provided by others: Provide all connectors and coordinate location of bolt holes to match connection holes in steel provided by others.
- F. Accurately mill column end bearing surfaces to true plane.

- G. Fabricate and erect beams with non-specified camber in accordance with AISC 360, Chapter L1.
- H. Cut, drill, or punch holes at right angles to surface of metal.
 - 1. Do not make or enlarge holes by burning.
 - 2. Make holes clean cut, without torn or ragged edges.
 - 3. Remove outside burrs resulting from drilling or reaming operations with tool making 1/16 IN bevel.
 - 4. Provide holes in members to permit connection of work of other trades or contractors.
- I. Make allowance for draw in all cross bracing to provide small amount of initial tension in members.
- J. Make splices only where indicated or where approved.
- K. Wall Girts:
 - 1. Extend past columns and miter ends unless noted otherwise.
 - 2. Connect girts to each other at corners unless noted otherwise.
- L. Cope at 45 DEG, corners of stiffener plates at junction of member flanges with webs.
- M. Flame cut bevels for welds, provided such cutting is done automatically.
 - 1. Leave free of burrs and slag by grinding or planing the cut edges.
- N. Grind smooth all rough welds and sharp steel edges shall be ground to approximately 1/8 IN radius.
- O. Tolerances (unless noted otherwise on Drawings):
 - 1. When material received from the mill does not satisfy ASTM A6/A6M tolerances for camber, profile, flatness or sweep, Contractor is permitted to perform corrective work by the use of controlled heating, and mechanical straightening, subject to the limitations of the AISC 360.
 - 2. Fabrication tolerance:
 - a. Member length:
 - 1) Both ends finished for contact bearing: 1/32 IN.
 - 2) Framing members: 30 FT or less: 1/16 IN. Over 30 FT: 1/8 IN.
 - b. Member straightness:
 - 1) Compression members: 1/1000 of axial length between points laterally supported.
 - 2) Non-compression members: ASTM A6/A6M tolerance for wide flange shapes.
 - c. Specified member camber (except compression members):
 - 1) 50 FT or less: -0/+1/2 IN.
 - 2) Over 50 FT: -0/+1/2 IN (plus 1/8 IN per 10 FT over 50 FT).
 - 3) Members received from mill with 75 PCT of specified camber require no further cambering.
 - 4) Fabricate beams/trusses without specified camber so after erection, camber is upward.
 - 5) Measure camber in fabrication shop in unstressed condition.
 - d. Use filler plates at bolted splices to take up depth deviation.
 - 1) At welded joints, adjust weld profile to conform to variation in depth.
 - 2) Slope weld surface per AWS requirements.
 - e. Free finished members from twists, bends and open joints.
 - 1) Sharp kinks, bends and deviation from the above tolerances are cause for rejection of material.

2.4 WELDING

- A. Comply with AWS D1.1/D1.1M, and other requirements indicated herein, for all welding, techniques of welding employed, appearance and quality of welds, and methods used to correct defective work.
 - 1. Qualify joint welding procedures or test in accordance with AWS qualification procedures.

- B. Test and qualify welders, welding operators and tackers in compliance with AWS D1.1/D1.1M for position and type of welding to which they will be assigned.
 - 1. Conduct tests in presence of approved testing agency.
 - 2. Certification within previous 12 months will be acceptable, provided samples of the welder's work are satisfactory.
- C. Before Starting Welding:
 - 1. Carefully plumb and align members in compliance with specified requirements.
 - 2. Fully tighten all bolts.
 - 3. Comply with AWS D1.1/D1.1M, Section 5 for assembly and surface preparation.
 - 4. Preheat base metal to temperature stated in AWS D1.1/D1.1M.
 - a. When no preheat temperature is given in AWS D1.1/D1.1M and base metal is below 50 DEGF, preheat base metal to at least 70 DEGF.
 - b. Maintain temperature during welding.
 - c. Preheat surface of all base metal within distance from point of welding equal to thickness of thicker part being welded or 3 IN, whichever is greater, to specified preheat temperature.
 - d. Maintain this temperature during welding.
 - 5. Mark welds with an identifying mark unique to each welder.
- D. Make flange welds before making web welds.
- E. Where groove welds have back-up plates, make first three (3) passes with 1/8 IN round electrodes.
 - 1. Use backup plates in accordance with AWS D1.1/D1.1M, extending minimum of 1 IN either side of joint.
- F. Flame cut edges of stiffener plates at shop or field butt weld.
 - 1. Do not shear.
- G. Grind flush web fillets at webs notched to receive backup plates for flange groove welds.
- H. Low Hydrogen Electrodes: Dry and store electrodes in compliance with AWS D1.1/D1.1M.
- I. Do not perform welding when ambient temperature is lower than 0 DEGF or where surfaces are wet or exposed to rain, snow, or high wind, or when welders are exposed to inclement conditions.
- J. Headed Studs and Deformed Bar Anchors:
 - 1. Automatically end welded in accordance with the AWS D1.1/D1.1M and manufacturer's recommendations.
 - 2. Fillet welding of headed studs and deformed bar anchors is not allowed unless approved by Engineer.
- K. Test in-place studs in accordance with requirements of AWS D1.1/D1.1M to ensure satisfactory welding of studs to members.
 - 1. Replace studs failing this test.
- L. When headed stud-type shear connectors are to be applied, clean top surface of members to receive studs in shop to remove oil, scale, rust, dirt, and other materials injurious to satisfactory welding.
 - 1. Do not shop paint or galvanize metal surfaces to receive field applied studs.

2.5 SHOP COATING

- A. Provide suitable methods of handling and transporting painted steel to avoid damage to coating.
- B. Do not coat following surfaces:
 - 1. Machined surfaces, surfaces adjacent to field welds, and surfaces fully embedded in concrete.
 - 2. All other members for which no coating is specified.

3. Contact surfaces at bolted slip-critical connections, unless surface condition conforms to the RCSC Specification for Structural Joints Using High-Strength Bolts, Part 3.2.2.
- C. Clean thoroughly all surfaces not coated before shipping.
1. Remove loose mill scale, rust, dirt, oil and grease.
 2. Protect machined surfaces.

2.6 SOURCE QUALITY CONTROL

- A. Special Inspection and Testing:
1. See Specification Section 01 45 33.
 2. If the fabricator is not an Approved Fabricator, Owner will employ the services of an independent testing agency to inspect and test structural steel shop work for compliance with Specifications.
 - a. Contractor provides sufficient notification and access so inspection and testing can be accomplished.
 3. Contractor responsible for testing to qualify shop welders and as needed for Contractor's own quality control to ensure compliance with Contract Documents.
- B. Approved Fabricator or Testing Agency Responsibilities:
1. Inspect shop and field welding in accordance with AWS D1.1/D1.1M, Section 6 including the following non-destructive testing:
 - a. Visually inspect all welds.
 - b. In addition to visual inspection, test 50 PCT of full penetration welds and 20 PCT of fillet welds with liquid dye penetrant.
 - c. Test 20 PCT of liquid dye penetrant tested full penetration welds with ultrasonic or radiographic testing.
 2. Inspect high-strength bolting in accordance with the RCSC Specification for Structural Joints Using High-Strength Bolts, Section 9.
 - a. Verify proper pretension for slip-critical bolted connection only.
 - b. Verify direct tension indicator gaps for slip-critical bolted connection only.
 3. Inspect stud welding in accordance with AWS D1.1/D1.1M, Section 7.8.
 4. Prepare and submit inspection and test reports to Engineer.

PART 3 - EXECUTION

3.1 GENERAL

- A. Contractor is solely responsible for safety.
1. Construction means and methods and sequencing of work is the prerogative of the Contractor.
 2. Take into consideration that full structural capacity of many structural members is not realized until structural assembly is complete; e.g., until slabs, decks, bracing or rigid connections are installed.
 3. Partially complete structural members shall not be loaded without an investigation by the Contractor.
 4. Until all elements of the permanent structure and lateral bracing system are complete, provide temporary bracing designed, furnished, and installed by the Contractor for the partially complete structure.
- B. Adequate temporary bracing to provide safety, stability and to resist all loads to which the partially complete structure may be subjected, including wind, construction activities, and operation of equipment, is the responsibility of the Contractor.
1. Use temporary guys, braces, shoring, connections, etc., necessary to maintain the structural framing plumb and in proper alignment until permanent connections are made, the succeeding work is in place, and temporary work is no longer necessary.

2. Use temporary guys, bracing, shoring, and other work to prevent injury or damage to adjacent work or construction from stresses due to erection procedures and operation of erection equipment, construction loads, and wind.
 3. Design of the temporary bracing system and consideration of the sequence and schedule of placement of such elements and effects of loads imposed on the structural steel members by partially or completely installed work, including work of all other trades, is the Contractor's responsibility.
 - a. If not obvious from experience or from the Drawings, the Contractor shall confer with the Engineer to identify those structural steel elements that must be complete before the temporary bracing system is removed.
 4. Remove and dispose of all temporary work and facilities off-site.
- C. Examine work-in-place on which specified work is in any way dependent to ensure that conditions are satisfactory for the installation of the work.
1. Report defects in work-in-place which may influence satisfactory completion of the work.
 2. Absence of such notification will be construed as acceptance of work-in-place.
- D. Field Measurement:
1. Take field measurements as necessary to verify or supplement dimensions indicated on the Drawings.
 2. Contractor is responsible for the accurate fit of the work.
- E. Check the elevations of all finished footings or foundations and the location and alignment of all anchor bolts before starting erection.
1. Notify Engineer of any errors or deviations found by such checking.

3.2 ERECTION

- A. Framing member location tolerances after erection shall not exceed the framing tolerances listed in the FIELD QUALITY CONTROL Article in PART 3 of this Specification Section.
- B. Erect plumb and level; introduce temporary bracing required to support erection loads.
- C. Use light drifting necessary to draw holes together.
1. Drifting to match unfair holes is not allowed.
- D. Welding:
1. Conform to AWS D1.1/D1.1M and requirements of this Specification Section.
 2. Join two (2) sections of steel of different ASTM designations using welding techniques in accordance with a qualified AWS D1.1/D1.1M procedure.
- E. Shore existing members when unbolting of common connections is required.
1. Use new bolts for re-bolting connections.
- F. Clean stored material of all foreign matter accumulated during erection period.
- G. Clean bearing and contact surfaces before assembly.
- H. Set beam and column base and bearing plates accurately, as indicated, on non-shrink grout.
1. Set and anchor each base plate to proper line and elevation.
 2. Use metal wedges, shims or setting nuts as required and tighten anchor bolts.
 - a. Use same metal as base plate.
 - b. Cut off protrusions of wedges and shims flush with edge of base plate.
 3. Fill sleeves around anchor bolts with non-shrink grout.
 4. Pack grout solidly between bottom of plate and bearing surface.
 5. Refer to Specification Section 03 09 00 for non-shrink grout requirements.
- I. Cast-in-place Anchor Bolts:
1. See Specification Section 03 15 19.
- J. Install high strength bolts with hardened washers.

1. Install and tighten in accordance with the RCSC Specification for Structural Joints Using High-Strength Bolts, Section 8.
 2. Coordinate installation with inspection.
 - a. Do not start installation until coordination with Testing Agency is complete.
 3. Bearing-type connections: High-strength bolts shall be tightened to snug-tight condition.
 4. Slip-critical connections:
 - a. Perform calibration testing for all methods of installation of high-strength bolts in accordance with RCSC Specification for Structural Joints Using High-Strength Bolts, Section 8.2.
 - b. Turn-of-nut tightening:
 - 1) Inspector shall observe the pre-installation verification testing.
 - 2) Subsequently, ensure by routine observation that the bolting crew properly rotates the turned element relative to the unturned element by the amount specified.
 - 3) Alternatively, when fastener assemblies are match-marked after the initial fit-up of the joint but prior to pre-tensioning, visual inspection after pre-tensioning is permitted in lieu of routine observation.
 - c. Calibrated wrench tightening: Calibrate on a daily basis.
 - d. Direct tension indicator tightening: If previously approved by Engineer.
 - e. Installation of alternate design bolts: If previously approved by Engineer.
 5. In the event any bolt in a connection is found to be defective, check and retighten all bolts in the connection.
- K. Do not use gas cutting to correct fabrication errors.
1. In case members do not fit or holes do not match, ream out the holes and insert the next larger size bolt.
 - a. Drill new holes if the connections require new holes.
 - b. Make no such corrections without prior approval of the Engineer.
 2. Burning of holes is not permitted.
- L. Prior to making field connections to existing structural steel, remove completely all paint from existing steel which will be in contact with new steel and new welds.
- M. Tighten and leave in place erection bolts used in welded construction.
- N. Provide beveled washers to give full bearing to bolt head or nut where bolts are to be used on surfaces having slopes greater than 1 IN 20 with a plane normal to bolt axis.
- O. After bolts are tightened, upset threads of non-high strength bolts and anchor bolts to prevent nuts from backing off.
- P. After Erection:
1. Grind smooth all sharp surface irregularities resulting from field cutting or welding.
 2. Power tool clean welds, bolts, washers and abrasions to shop coat removing all rust and foreign matter.
- Q. Mechanical Anchor Bolts and Adhesive Anchor Bolts:
1. See Specification Section 03 15 19.

3.3 FIELD QUALITY CONTROL

- A. Special Inspection and Testing:
1. See Specification Section 01 45 33.
 2. Special Inspection to be in accordance with the Building Code.
 3. Special Inspection is required for:
 - a. Material verification of high-strength bolts, nuts, and washers.
 - 1) Frequency: All high-strength bolts, prior to being covered up or substantial completion.
 - b. Inspection of high-strength boltings:
 - 1) Frequency:
 - a) All high-strength bolts, prior to being covered up or substantial completion.

- b) Pre-tensioned and slip-critical joints using turn-of-nut without match marking or calibrated wrench methods of installation require continuous inspection.
 - c. Material verification of structural steel.
 - 1) Frequency: Prior to being covered up or substantial completion,
 - d. Material verification of weld filler materials.
 - 1) Frequency:
 - a) Prior to welding on site.
 - b) Randomly thereafter.
 - e. Inspection of welding.
 - 1) Frequency:
 - a) Visually inspect all welds.
 - b) In addition to visual inspection, test 50 PCT of full penetration welds and 20 PCT of fillet welds with liquid dye penetrant or magnetic particle.
 - c) Test 20 PCT of liquid dye penetrant tested full penetration welds with ultrasonic or radiographic testing.
 - f. Inspect structural steel which has been erected.
 - 1) Frequency: Prior to members being covered up or substantial completion.
 - g. Inspect stud welding in accordance with AWS D1.1/D1.1M, Section 7.8.
- B. Erected Framing Tolerance, unless noted otherwise on the Drawings:
 - 1. Do not exceed cumulative effect of rolling, fabrication and erection tolerance for overall finished dimensions.
 - 2. Erection tolerances are defined relative to member working points and working lines as follows:
 - a. Actual centerline of top flange or surface at each end for horizontal members.
 - b. Actual center of member at each end for all other members.
 - c. Other points may be used, providing they are based on these definitions.
 - d. Working line is straight line connecting member working points.
 - 3. Tolerances on position and alignment are as specified in the Code, unless otherwise modified.
 - a. Provide "adjustable items" such as lintels, wall supports, curb angles, window mullions and similar members with adjustable connections to supporting structural framing.
 - 4. Certification by steel erector:
 - a. Certify the location of erected structural steel is acceptable for plumbness, level and aligned within tolerances specified.
 - b. Provide certification upon completion of any part of work.
 - c. Provide certification prior to start of work by other trades that may be supported; attach to structural steel work.

3.4 CLEANING AND REPAIR OF SHOP PRIMER PAINT

- A. After erection, clean all steel of mud or other foreign materials, and repair any damage.
 - 1. Touchup coatings to comply with Specification Sections.

END OF SECTION

SECTION 05 50 00

METAL FABRICATIONS

GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Custom fabricated metal items and certain manufactured units not otherwise indicated to be supplied under work of other Specification Sections.
 2. Design of all temporary bracing not indicated on Drawings.
 3. Design of systems and components, including but not limited to:
 - a. Stairs.
 - b. Landings.
 - c. Ladders.
 - d. Modular framing system.
- B. Related Specification Sections include but are not necessarily limited to:
1. Division 00 - Procurement and Contracting Requirements.
 2. Division 01 - General Requirements.
 3. Section 03 09 00 - Concrete.
 4. Section 03 15 19 - Anchorage to Concrete.
 5. Section 05 12 00 - Structural Steel.

1.2 QUALITY ASSURANCE

Referenced Standards:

1. American Institute of Steel Construction (AISC):
 - a. 325, Manual of Steel Construction.
 - b. 360, Specifications for Structural Steel Buildings (referred to herein as AISC Specification).
2. American National Standards Institute (ANSI):
 - a. A14.3, Ladders - Fixed - Safety Requirements.
3. American Society of Civil Engineers (ASCE):
 - a. 7, Minimum Design Loads for Buildings and Other Structure
4. ASTM International (ASTM):
 - a. A6, Standard Specification for General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Sheet Piling.
 - b. A36, Standard Specification for Carbon Structural Steel.
 - c. A47, Standard Specification for Ferritic Malleable Iron Castings.
 - d. A48, Standard Specification for Gray Iron Castings.
 - e. A53, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
 - f. A108, Standard Specification for Steel Bar, Carbon and Alloy, Cold Finished.
 - g. A123/A123M, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 - h. A153/A153M, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
 - i. A197, Standard Specification for Cupola Malleable Iron.
 - j. A269, Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
 - k. A276, Standard Specification for Stainless Steel Bars and Shapes.
 - l. A307, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.

- m. A312, Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes.
 - n. A325, Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.
 - o. A380, Standard Practice for Cleaning, Descaling, and Passivation of Stainless Steel Parts, Equipment, and Systems.
 - p. A500, Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
 - q. A501, Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.
 - r. A536, Standard Specification for Ductile Iron Castings.
 - s. A554, Standard Specification for Welded Stainless Steel Mechanical Tubing.
 - t. A572, Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel.
 - u. A666, Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
 - v. A668, Standard Specification for Steel Forgings, Carbon and Alloy, for General Industrial Use.
 - w. A780, Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
 - x. A786, Standard Specification for Hot-Rolled Carbon, Low-Alloy, High-Strength Low-Alloy, and Alloy Steel Floor Plates.
 - y. A992, Standard Specification for Steel for Structural Shapes.
 - z. A1064, Standard Specification for Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.
 - aa. A1011, Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength.
 - bb. B26, Standard Specification for Aluminum-Alloy Sand Castings.
 - cc. B209, Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
 - dd. B221, Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
 - ee. B308, Standard Specification for Aluminum-Alloy 6061-T6 Standard Structural Profiles.
 - ff. B429, Standard Specification for Aluminum-Alloy Extruded Structural Pipe and Tube.
 - gg. B632, Standard Specification for Aluminum-Alloy Rolled Tread Plate.
 - hh. F467, Standard Specification for Nonferrous Nuts for General Use.
 - ii. F468, Standard Specification for Nonferrous Bolts, Hex Cap Screws, and Studs for General Use.
 - jj. F593, Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.
 - kk. F835, Standard Specification for Alloy Steel Socket Button and Flat Countersunk Head Cap Screws.
 - ll. F879, Standard Specification for Stainless Steel Socket Button and Flat Countersunk Head Cap Screws.
 - mm. F1789, Standard Terminology for F16 Mechanical Fasteners.
5. American Welding Society (AWS):
 - a. A5.1/A5.1M, Specification for Carbon Steel Electrodes for Shielded Metal Arc Welding.
 - b. D1.1, Structural Welding Code - Steel.
 - c. D1.2, Structural Welding Code - Aluminum.
 - d. D1.6/D1.6M, Structural Welding Code - Stainless Steel.
 6. National Association of Architectural Metal Manufacturers (NAAMM):
 - a. AMP 510, Metal Stairs Manual.
 - b. AMP 555, Code of Standard Practice for the Architectural Metal Industry (Including Miscellaneous Iron).
 - c. MBG 531, Metal Bar Grating Manual.

7. NACE International (NACE).
 8. Nickel Development Institute (NiDI):
 - a. Publication 11 007, Guidelines for the welded fabrication of nickel-containing stainless steels for corrosion resistant services.
 9. Occupational Safety and Health Administration (OSHA):
 - a. 29 CFR 1910, Occupational Safety and Health Standards, referred to herein as OSHA Standards.
 10. Building code:
 - a. International Code Council (ICC):
 - 1) International Building Code and associated standards, 2015 Edition including all amendments, referred to herein as Building Code.
 - b. A117.1, Accessible and Usable Buildings and Facilities.
- B. Qualifications:
1. Qualify welding procedures and welding operators in accordance with AWS.
 2. Fabricator shall have minimum of 10 years experience in fabrication of metal items specified.
 3. Engineer for contractor-designed systems and components: Professional structural engineer licensed in the State of _Washington
 4. NACE certified inspector shall have minimum of two (2) years experience performing inspections as indicated.
 - a. Have a current Level III coating inspector certification.

1.3 DEFINITIONS

- A. Fasteners: As defined in ASTM F1789.
- B. Galvanizing: Hot-dip galvanizing per ASTM A123/A123M or ASTM A153/A153M with minimum coating of 2.0 OZ of zinc per square foot of metal (average of specimens) unless noted otherwise or dictated by standard.
- C. Hardware: As defined in ASTM A153/A153M.
- D. Installer or Applicator:
 1. Installer or applicator is the person actually installing or applying the product in the field at the Project site.
 2. Installer and applicator are synonymous.

1.4 SUBMITTALS

- A. Shop Drawings:
 1. See Specification Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
 2. Qualifications:
 - a. NACE inspector qualifications.
 3. Fabrication and/or layout drawings and details:
 - a. Submit drawings for all fabrications and assemblies.
 - 1) Include erection drawings, plans, sections, details and connection details.
 - b. Identify materials of construction, shop coatings and third party accessories.
 4. Product technical data including:
 - a. Acknowledgement that products submitted meet requirements of standards referenced.
 - b. Manufacturer's installation instructions.
 - c. Provide manufacturer's standard allowable load tables for the following:
 - 1) Grating and checkered plate.
 - 2) Castings, trench covers and accessories.
 - 3) Modular framing systems.
 5. Contractor designed systems and components:
 - a. Certification that manufactured units meet all design loads specified.
 - b. Shop Drawings and engineering design calculations:

- 1) Indicate design live loads.
 - 2) Sealed by a licensed professional engineer, registered in the State of Washington
 - 3) Engineer will review for general compliance with Contract Documents.
- c. Contractor designed systems and components include the following:
- 1) Metal Stairs and associated landings.

B. Informational Submittals:

1. See Specification Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
2. Certification of welders and welding processes.
 - a. Indicate compliance with AWS.
3. NACE certification of surface preparation.
4. NACE certification of paint application.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and handle fabrications to avoid damage.
- B. Store above ground on skids or other supports to keep items free of dirt and other foreign debris and to protect against corrosion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:
 1. Abrasive stair nosings (embedded in concrete stairs):
 - a. American Safety Tread.
 - b. Balco.
 2. Headed studs and deformed bar anchors:
 - a. Nelson Stud Welding Div., TRW Inc.
 - b. Stud Welding Products, Inc.
 3. Mechanical anchor bolts:
 - a. See Section 03 15 19.
 4. Epoxy adhesive anchor bolts:
 - a. See Section 03 15 19.
 5. Concrete screw anchors:
 - a. See Section 03 15 19.
 6. Castings, trench covers and accessories:
 - a. Neenah Foundry Co.
 - b. Deeter Foundry Co.
 - c. Barry Craft Construction Casting Co.
 - d. McKinley Iron Works.
 7. Aluminum ladders:
 - a. Any manufacturer capable of meeting the requirements of this Specification Section.
 8. Galvanizing repair paint:
 - a. Clearco Products Co., Inc.
 - b. ZRC Products.
 9. Modular framing system:
 - a. Unistrut Building Systems.
 - b. B-Line Systems.
 - c. Kindorf.
 - d. Superstrut.
 10. Ladder safety extension post:
 - a. Bilco.

B. Submit request for substitution in accordance with Specification Section 01 25 13.

2.2 MATERIALS

A. Steel:

1. Structural:
 - a. W-shapes and WT-shapes: ASTM A992, Grade 50.
 - b. All other plates and rolled sections: ASTM A36.
2. Pipe: ASTM A53, Types E or S, Grade B or ASTM A501.
3. Structural tubing:
 - a. ASTM A500, Grade B (46 ksi minimum yield).
4. Bolts, nuts and washers, high strength:
 - a. ASTM A325.
 - b. Provide two (2) washers with all bolts.
5. Bolts and nuts:
 - a. ASTM A307, Grade A.
6. Welding electrodes: AWS D1.1, E70 Series.
7. Steel forgings: ASTM A668.

B. Washers: Same material and alloy as found in accompanying bolts and nuts.

C. Embedded Anchor Bolts:

1. See Specification Section 03 15 19.

D. Mechanical Anchor Bolts and Adhesive Anchor Bolts:

1. See Specification Section 03 15 19.

E. Headed Studs: ASTM A108 with a minimum yield strength of 50,000 PSI and a minimum tensile strength of 60,000 PSI.

F. Deformed Bar Anchors: ASTM A1064 with a minimum yield strength of 70,000 PSI and a minimum tensile strength of 80,000 PSI.

G. Iron and Steel Hardware: Galvanized in accordance with ASTM A153/A153M when required to be galvanized.

H. Galvanizing Repair Paint:

1. High zinc dust content paint for regalvanizing welds and abrasions.
2. ASTM A780.
3. Zinc content: Minimum 92 PCT in dry film.
4. ZRC "ZRC Cold Galvanizing" or Clearco "High Performance Zinc Spray."

I.

2.3 MANUFACTURED UNITS

A. Ladders:

1. General:
 - a. Fully welded type.
 - 1) All welds to be full penetration welds, unless otherwise specified.
 - b. All ladders of a particular material shall have consistent construction and material shapes and sizes unless noted otherwise on the Drawings.
 - c. Design ladder in accordance with OSHA Standards, ANSI A14.3, ASCE 7 and applicable Building Codes.
 - d. Ladders shall be designed to support a minimum concentrated live load of 300 LBS at any point to produce the maximum stress in the member being designed.
 - 1) Apply additional 300 LB loads for each section of ladder exceeding 10 FT.
 - e. Maximum allowable stresses per AA ADM 1.
 - f. Maximum lateral deflection: Side rail span/240 when lateral load of 100 LBS is applied at any location.
2. Material:

- a. Aluminum.
 - b. Finish:
 - 1) Mill.
3. Rails:
- a. Round pipe or rectangular tubing:
 - 1) Round pipe:
 - a) 1-1/2 IN nominal diameter.
 - b) Schedule 80.
 - 2) Rectangular tubing:
 - a) Cross-section: 3 by 2 IN maximum.
 - b) Thickness: 0.125 IN minimum.
 - b. Spacing:
 - 1) Minimum clear distance between rails to be 18 IN.
 - 2) Step-through ladder extensions: 24 IN, centerline to centerline.
 - c. Provide cap at exposed top and bottom of side rails.
 - 1) Provide weep holes as necessary to prevent the accumulation of moisture within hollow members.
 - d. Extend side rails of step-through ladders a minimum of 42 IN above the landing.
4. Rungs:
- a. Minimum 1 IN DIA or 1 IN square solid bar.
 - 1) Integral non-slip finish on all sides.
 - a) Non-slip finish: Coarse knurling or extruded serrations.
 - b) Shop or field-applied grit tape and cap type non-slip finishes are not acceptable.
 - b. Rungs shall penetrate inside wall of side rails.
 - 1) Do not extend rungs beyond the outside face of the side rail.
 - 2) Provide fillet weld all around rung at inside face of side rail and plug weld at outside face of side rail.
 - c. Rung spacing:
 - 1) Uniform, 12 IN.
 - 2) Top rung shall be level with landing or platform.
 - a) Where top of ladder terminates at grating cover, floor access door, roof hatch or similar condition; locate top rung as close as practicable to, but not more than 6 IN below, adjacent walking surface.
 - 3) Spacing of bottom rung from grade or platform may vary but shall not exceed 14 IN.
5. Brackets:
- a. Angle or bent plate brackets welded to side rails:
 - 1) 3/8 IN by 2-1/2 IN by length required.
 - 2) Provide punched holes for 3/4 IN bolts or anchors.
 - 3) Minimum distance from centerline of rung to wall or any obstruction: 7 IN.
 - 4) Maximum spacing: 6 FT OC.
 - b. For floor supported ladders, provide 3/8 by 2-1/2 by 4 IN rectangular bracket or 3/8 by 6 by 6 IN square plate welded to rails with punched holes for 3/4 IN bolts.
 - 1) Provide wall brackets on floor supported units if vertical run is over 4 FT.
6. Provide ladder cage where shown on the Drawings or required by OSHA.
- a. Cage construction shall meet all requirements of OSHA Standards and this Specification Section:
 - 1) Hoops: Minimum 1/4 by 2 IN bar at 48 IN OC spacing.
 - 2) Vertical bars: Minimum 1/4 by 1-1/2 IN bar.
 - 3) Weld all connections.
 - 4) Construct cage of same materials as the ladder on which it is mounted.
 - 5) Mount cage on ladder by welding.
7. Landings:
- a. Construct landing, railing and all supports of same material as the ladder.
 - b. Design live load for landing platform and supporting structure:

- 1) 100 psf, uniform load.
- 2) 300 LBS concentrated load on 4 IN square area.
- 3) All components to be adequate for the uniform load or the concentrated load, whichever requires the stronger component.
- 4) Maximum deflection: 1/300 of span under a superimposed live load of 100 PSF.
- c. Grating:
 - 1) Per this Specification Section.
- d. Structural support: Channel or tubular sections with bracing, plates, angles, etc., to support guardrail and grating and to support landing from the side of the building wall.
 - 1) Weld or bolt all connections using [stainless steel][galvanized] bolts, nuts and washers.
- e. Guardrails:
 - 1) Match ladder side rails.
 - a) Space intermediate rails equally between top rail and top of kickplate.
 - 2) Provide 4 IN high x 3/8 IN thick toeboard each side of landing.
8. Gates:
 - a. Constructed of same material and sizes as the railing system.
 - b. Hinges:
 - 1) Stainless steel.
 - 2) Heavy-duty, self-closing.
 - c. Gate stop:
 - 1) Galvanized steel.
9. Deflector plate:
 - a. For aluminum ladders: Minimum .0625 IN aluminum plate, ASTM B209.
 - b. For stainless steel ladders: Minimum .0625 IN stainless steel plate, ASTM A666.
 - c. For steel ladders: Minimum .0625 IN steel plate, ASTM A6.
 - d. Profile as shown on Drawings.
 - e. Fabricate to shapes and sizes required to meet OSHA Standards.
- B. Abrasive Stair Nosings:
 1. Exterior cast-in-place concrete stairs:
 - a. One piece cast aluminum with wing anchors.
 - b. Diamond abrasive pattern.
 - c. Babcock Davis "BSTCA-C3W".
 2. Interior stairs:
 - a. Two (2) component consisting of an embedded subchannel and an abrasive tread plate.
 - b. Subchannel: 6063-T5 extruded aluminum.
 - 1) Complete with concrete anchors.
 - c. Tread plate:
 - 1) 6063-T5 extruded aluminum.
 - 2) Solid epoxy abrasive filler.
 - a) Color: Safety yellow.
 - d. Balco "DXH-330."
 - e. Finish: Mill.
 3. Length:
 - a. Concrete stairs and landings:
 - 1) 4 IN less than overall stair width.
 - 2) Where tread mounted railing post occurs, hold nosing back 4 IN clear from railing centerline.
 - b. Concrete filled metal pan stairs: Full length of tread.
 - c. Concrete landings at metal stairs: 4 IN less than clear width between stringers.
- C. Metal Stairs:
 1. Treads: Grating as specified.
 - a. Provide integral corrugated non-slip nosing.
 2. Risers:

- a. Grating treads:
 - 1) Solid plate welded to trailing edge of tread or landing.
 - 2) Minimum 3/16 IN thick by 4 IN high.
 - b. Checkered plate treads: Solid checkered plate riser integral with tread.
 - 3. Landings:
 - a. Gratingas specified.
 - b. Provide integral corrugated non-slip nosing at edge acting as stair tread/nosing.
 - 4. Design live load for landing platform and supporting structure:
 - a. 100 psf, uniform load.
 - b. 300 LBS concentrated load on 4 IN square area.
 - c. All components to be adequate for the uniform load or the concentrated load, whichever requires the stronger component.
 - d. Maximum deflection: 1/300 of span under a superimposed live load of 100 PSF.
 - 5. Design, fabricate, and install in compliance with NAAMM and applicable codes.
 - a. NAAMM AMP 510:
 - 1) Exterior at site structures and equipment: Industrial Class.
 - 2) Interior or exterior at buildings: Service Class.
 - 6. Handrails and guardrails: Refer to Specification Section 05 52 02 .
 - 7. Material:
 - a. Steel: ASTM A36, galvanized after fabrication
- D. Steel Grating:
- 1. NAAMM MBG 531.
 - 2. Bearing bars:
 - a. Rectangular 1-1/2 by 3/16 IN unless otherwise noted on Drawings.
 - b. Maximum 1-3/16 IN OC spacing.
 - 3. Cross bars:
 - a. Welded, swagged or pressure locked to bearing bars.
 - b. Maximum 4 IN OC spacing.
 - 4. Top edges of bars: Serrated or grooved.
 - 5. Removable grating sections: Not wider than 3 FT and not more than 100 LBS.
 - 6. Finish:
 - a. Galvanized.
 - b. Clips and bolts: Galvanized.
 - c. Seat angles: Galvanized steel.
 - 7. Ends and perimeter edges: Banded.
 - 8. Openings through grating: Reinforced to provide required load carrying capacity and banded with 4 IN high toe plate.
 - 9. Provide joints at openings between individual grating sections.
- E. Heavy-Duty Castings, Trench Covers, and Accessories:
- 1. Prefabricated, cast iron ASTM A48 or or cast aluminum ASTM B26.
 - 2. Design load: AASHTO HS-20 wheel loading for indicated span.
 - 3. Machine horizontal mating surfaces.
- F. Access Cover:
- 1. Tank type manhole frame and solid lid: ASTM A48 or ASTM A536, cast iron.
 - 2. Unless shown otherwise, design of cover shall be such that top of frame extends several inches above slab to prevent surface water from entering tank.
 - 3. Equip lid with four (4) stainless steel screws to secure lid to frame.
- G. Loose Lintels:
- 1. Steel, ASTM A36 or ASTM A572 Grade 50, sizes as indicated on Drawings.
 - 2. Hot-dip galvanized per ASTM A123/A123M.

2.4 FABRICATION

- A. Verify field conditions and dimensions prior to fabrication.

- B. Form materials to shapes indicated with straight lines, true angles, and smooth curves.
 - 1. Grind smooth all rough welds and sharp edges.
 - a. Round all corners to approximately 1/32 - 1/16 IN nominal radius.
- C. Provide drilled or punched holes with smooth edges.
 - 1. Punch or drill for field connections and for attachment of work by other trades.
- D. Weld Shop Connections:
 - 1. Welds to be continuous fillet type unless indicated otherwise.
 - 2. Full penetration butt weld at bends in stair stringers and ladder side rails.
 - 3. Weld structural steel in accordance with AWS D1.1 using Series E70 electrodes conforming to AWS A5.1/A5.1M.
 - 4. Weld aluminum in accordance with AWS D1.2.
 - 5. Weld stainless steel in accordance with AWS D1.6k.
 - a. Treat all welded areas in accordance with ASTM A380.
 - 6. All headed studs to be welded using automatically timed stud welding equipment.
 - 7. Grind smooth welds that will be exposed.
- E. Passivate stainless steel items and stainless steel welds after they have been ground smooth, .
 - 1. ASTM A380.
- F. Conceal fastenings where practicable.
- G. Fabricate work in shop in as large assemblies as is practicable.
- H. Tolerances:
 - 1. Rolling:
 - a. ASTM A6.
 - b. When material received from the mill does not satisfy ASTM A6 tolerances for camber, profile, flatness, or sweep, the Contractor is permitted to perform corrective work by the use of controlled heating and mechanical straightening, subject to the limitations of the AISC Specification.
 - 2. Fabrication tolerance:
 - a. Member length:
 - 1) Both ends finished for contact bearing: 1/32 IN.
 - 2) Framed members:
 - a) 30 FT or less: 1/16 IN.
 - b) Over 30 FT: 1/8 IN.
 - b. Member straightness:
 - 1) Compression members: 1/1000 of axial length between points laterally supported.
 - 2) Non-compression members: ASTM A6 tolerance for wide flange shapes.
 - c. Specified member camber (except compression members):
 - 1) 50 FT or less: Minus 0/plus 1/2 IN.
 - 2) Over 50 FT: Minus 0/plus 1/2 IN (plus 1/8 IN per 10 FT over 50 FT).
 - 3) Members received from mill with 75 PCT of specified camber require no further cambering.
 - 4) Beams/trusses without specified camber shall be fabricated so after erection, camber is upward.
 - 5) Camber shall be measured in fabrication shop in unstressed condition.
 - d. At bolted splices, depth deviation shall be taken up by filler plates.
 - 1) At welded joints, adjust weld profile to conform to variation in depth.
 - 2) Slope weld surface per AWS requirements.
 - e. Finished members shall be free from twists, bends and open joints.
 - 1) Sharp kinks, bends and deviation from above tolerances are cause for rejection of material.
- I. Fabricate grating, checkered plate, stairs, ladders and accessories using galvanized steel unless shown otherwise on Drawings.
 - 1. Finish:

- a. Mill, unless noted otherwise.
 - 1)
- J. Fabricate grating in accordance with NAAMM MBG 531.
 - 1. Maximum tolerance for difference in depth between grating depth and seat or support angle depth: 1/8 IN.
 - 2. Distance between edge of grating and face of embedded seat angle or face of wall or other structural member: 1/4 IN.
 - a. Tolerance: NAAMM MBG 531.
 - 3. Removable sections: Not wider than 3 FT and not heavier than 100 LBS.
 - 4. Ends and perimeter edges: Banded, with alternate bearing bars welded to band.
 - a. Provide full depth banding unless noted otherwise.
 - b. Banding at trenches and sumps to be 1/4 IN less than grating depth to allow for drainage.
 - 5. Openings through grating: Reinforced to provide required load carrying capacity and banded with 4 IN high toe plate.
 - 6. Provide joints at openings between individual grating sections.
 - 7. Fabricate grating so that bearing bars and cross bars in adjacent sections are aligned.
- K. Fabricate checkered plate and miscellaneous metals in accordance with NAAMM AMP 555.
 - 1. Workmanship: Class 2 unless noted otherwise.

2.5 SOURCE QUALITY CONTROL

- A. Surface Preparation:
 - 1. All miscellaneous metal fabrication item surfaces shall be inspected and approved by NACE certified coatings inspector prior to application of shop-applied coatings.
 - a. Inspection shall be performed to determine depth of blast profile and cleanliness of surface.
 - b. Fabricator shall reblast and/or re-clean surfaces as required until acceptable.
- B. Shop Applied Coating Application:
 - 1.
 - 2. After surface has been accepted in writing by NACE certified coatings inspector, fabricator may proceed with application of coatings.
 - 3. Application of coatings shall be observed and certified by NACE certified coatings inspector.
- C. Shop Inspection and Testing:
 - 1. Employ and pay for the services of a qualified independent testing agency to inspect and test all structural steel work for compliance with Contract Documents.
 - 2. Contractor responsible for testing to qualify shop and field welders and as needed for Contractor's own quality control to ensure compliance with Contract Documents.
 - 3. Independent testing agency shall have a minimum of five (5) years performing similar work and shall be subject to Owner's approval.
- D. Responsibilities of Testing Agency:
 - 1. Inspect shop and field welding in accordance with AWS Code including the following non-destructive testing:
 - a. Visually inspect all welds.
 - b. In addition to visual inspection, test 50 PCT of full penetration welds and 20 PCT of fillet welds with liquid dye penetrant or mag particle.
 - c. Test 20 PCT of liquid dye penetrant tested full penetration welds with ultrasonic or radiographic testing.
 - 2. Inspect high-strength bolting in accordance with the RCSC Specification for Structural Joints Using High-Strength Bolts, Section 9.
 - a. Verify direct tension indicator gaps, if applicable.
 - 3. Inspect structural steel which has been erected.

4. Inspect stud welding in accordance with AWS Code.
5. Prepare and submit inspection and test reports to Engineer.
 - a. Assist Engineer to determine corrective measures necessary for defective work.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Provide items to be built into other construction in time to allow their installation.
 1. If such items are not provided in time for installation, cut in and install.
- B. Prior to installation, inspect and verify condition of substrate.
- C. Correct surface defects or conditions which may interfere with or prevent a satisfactory installation.
 1. Field welding aluminum is not permitted unless approved in writing by Engineer.

3.2 INSTALLATION

- A. Set metal work level, true to line, plumb.
 1. Shim and grout as necessary.
- B. Contractor is solely responsible for safety.
 1. Construction means and methods and sequencing of work is the prerogative of the Contractor.
 2. Take into consideration that full structural capacity of many structural members is not realized until structural assembly is complete; e.g., until slabs, decks, and diagonal bracing or rigid connections are installed.
 3. Partially complete structural members shall not be loaded without an investigation by the Contractor.
 4. Until all elements of the permanent structure and lateral bracing system are complete, temporary bracing for the partially complete structure will be required.
- C. Adequate temporary bracing to provide safety, stability and to resist all loads to which the partially complete structure may be subjected, including construction activities and operation of equipment is the responsibility of the Contractor.
 1. Plumb, align, and set structural steel members to specified tolerances.
 2. Use temporary guys, braces, shoring, connections, etc., necessary to maintain the structural framing plumb and in proper alignment until permanent connections are made, the succeeding work is in place, and temporary work is no longer necessary.
 3. Use temporary guys, bracing, shoring, and other work to prevent injury or damage to adjacent work or construction from stresses due to erection procedures and operation of erection equipment, construction loads, and wind.
 4. Contractor shall be responsible for the design of the temporary bracing system and must consider the sequence and schedule of placement of such elements and effects of loads imposed on the structural steel members by partially or completely installed work, including work of all other trades.
 - a. If not obvious from experience or from the Drawings, the Contractor shall confer with the Engineer to identify those structural steel elements that must be complete before the temporary bracing system is removed.
 5. Remove and dispose of all temporary work and facilities off-site.
- D. Examine work-in-place on which specified work is in any way dependent to ensure that conditions are satisfactory for the installation of the work.
 1. Report defects in work-in-place which may influence satisfactory completion of the work.
 2. Absence of such notification will be construed as acceptance of work-in-place.
- E. Field Measurement:
 1. Take field measurements as necessary to verify or supplement dimensions indicated on the Drawings.

- 2. Contractor responsible for the accurate fit of the work.
- F. Check the elevations of all finished footings or foundations and the location and alignment of all anchor bolts before starting erection.
 - 1. Use surveyor's level.
 - 2. Notify Engineer of any errors or deviations found by such checking.
- G. Framing member location tolerances after erection shall not exceed the frame tolerances listed in the FIELD QUALITY CONTROL Article in PART 3 of this Specification Section.
- H. Erect plumb and level; introduce temporary bracing required to support erection loads.
- I. Use light drifting necessary to draw holes together.
 - 1. Drifting to match unfair holes is not allowed.
- J. Welding:
 - 1. Conform to AWS D1.1 and requirements of the FABRICATION Article in PART 2 of this Specification Section.
 - 2. When joining two (2) sections of steel of different ASTM designations, welding techniques shall be in accordance with a qualified AWS D1.1 procedure.
- K. Shore existing members when unbolting of common connections is required.
 - 1. Use new bolts for rebolting connections.
- L. Clean stored material of all foreign matter accumulated prior to the completion of erection.
- M. Bolt Field Connections: Where practicable, conceal fastenings.
- N. Field Welding:
 - 1. Follow AWS procedures.
 - 2. Grind welds smooth where field welding is required.
- O. Field cutting grating or checkered plate to correct fabrication errors is not acceptable.
 - 1. Replace entire section.
- P. Remove all burrs and radius all sharp edges and corners of miscellaneous plates, angles, framing system elements, etc.
- Q. Unless noted or specified otherwise:
 - 1. Connect steel members to steel members with 3/4 IN DIA ASTM A325 high strength bolts.
 - 2. Connect aluminum to aluminum with 3/4 IN DIA stainless bolts.
 - 3. Connect aluminum to structural steel using 3/4 IN DIA stainless steel bolts.
 - a. Provide dissimilar metals protection.
 - 4. Connect aluminum and steel members to concrete and masonry using stainless steel mechanical anchor bolts or adhesive anchor bolts unless shown otherwise.
 - a. Provide dissimilar materials protection.
 - 5. Provide washers for all bolted connections.
 - 6. Where exposed, bolts shall extend a maximum of 3/4 IN and a minimum of 1/2 IN above the top of installed nut.
 - a. If bolts are cut off to required maximum height, threads must be dressed to allow nuts to be removed without damage to the bolt or the nuts.
- R. Install and tighten ASTM A325 high-strength bolts in accordance with the AISC 325, Allowable Stress Design (ASD).
 - 1. Provide hardened washers for all ASTM A325 bolts.
 - a. Provide the hardened washer under the element (nut or bolt head) turned in tightening.
- S. After bolts are tightened, upset threads of ASTM A307 bolts or anchor bolts to prevent nuts from backing off.
- T. Secure metal to wood with lag screws of adequate size with appropriate washers.

- U. Do not field splice fabricated items unless said items exceed standard shipping length or change of direction requires splicing.
 - 1. Provide full penetration welded splices where continuity is required.
- V. Provide each fabricated item complete with attachment devices as indicated or required to install.
- W. Anchor such that work will not be distorted nor fasteners overstressed from expansion and contraction.
- X. Set beam and column base plates accurately on nonshrink grout as indicated on Drawings.
 - 1. See Division 03 Specification Sections for non-shrink grout and anchorage.
 - 2. Set and anchor each base plate to proper line and elevation.
 - a. Use metal wedges, shims, or setting nuts for leveling and plumbing columns and beams.
 - 1) Wedges, shims and setting nuts to be of same metal as base plate they support.
 - 2) Tighten nuts on anchor bolts.
 - b. Fill space between bearing surface and bottom of base plate with nonshrink grout.
 - 1) Fill space until voids are completely filled and base plates are fully bedded on wedges, shims, and grout.
 - c. Do not remove wedges or shims.
 - 1) Where they protrude, cut off flush with edge of base plate.
 - d. Fill sleeves around anchor bolts solid with non-shrink grout.
- Y. Tie anchor bolts in position to embedded reinforcing steel using wire.
 - 1. Tack welding prohibited.
 - a. Coat projecting bolt threads and nuts with heavy coat of clean grease.
 - 2. Anchor bolt location tolerance:
 - a. Per Section 03 15 19.
- Z. Install bollards as detailed on Drawings.
 - 1. Fill pipe with concrete and round off at top.
- AA. Provide abrasive stair nosings in each tread and landing of all concrete stairs and at each concrete stair landing having metal stair structure attaching to the concrete landing.
 - 1. Center stair nosings in stair width.
- BB. Accurately locate and place frames for openings before casting into floor slab so top of plate is flush with surface of finished floor.
 - 1. Keep screw holes clean and ready to receive screws.
- CC. Attach grating to end and intermediate supports with grating saddle clips and bolts.
 - 1. Maximum spacing: 2 FT OC with minimum of two (2) per side.
 - 2. Attach individual units of aluminum grating together with clips at 2 FT OC maximum with a minimum of two (2) clips per side.
- DD. Repair damaged galvanized surfaces in accordance with ASTM A780.
 - 1. Prepare damaged surfaces by abrasive blasting or power sanding.
 - 2. Apply galvanizing repair paint to minimum 6 mils DFT in accordance with manufacturer's instructions.
- EE. Anchor ladder to concrete structure with minimum 3/4 IN stainless steel anchor bolts with minimum 6 IN embedment.
- FF. Anchor ladder to masonry structure with minimum 3/4 IN stainless steel anchor bolts with minimum 6 IN embedment.
 - 1. When anchoring into masonry, fill masonry cores with grout at anchor locations and each masonry core within 8 IN of anchor
 - 2. When anchoring into cavity wall construction, provide minimum 6 IN embedment into concrete or masonry back-up wall.

- a. At each anchor location, provide sleeve between back face of veneer and cavity face of concrete or masonry back-up wall.
 - b. Cut cavity insulation as required and seal around sleeve.
 - 1) Sleeve to be 1 IN DIA schedule 40 stainless steel tubing, TP-304L, ASTM A269.
 - a) Minimum wall thickness to be .065 IN.
 - 2) Continuously weld 4 by 4 by 1/4 IN Type 304 stainless steel, ASTM A666 flange onto each end of pipe.
 - a) Drill 1 IN hole in flange to match pipe.
 - b) Attach sleeve to concrete or masonry back-up with 1/4 IN concrete screw anchors.
 - 3) Grout solid, area around bolt where bolt penetrates veneer.
 - 4) Accurately locate sleeves to align with bolt locations on ladder.
- GG. Anchor ladder to metal stud walls using minimum 1/2 IN stainless steel bolts, nuts and washers.
- 1. Verify that stud wall has been provided with adequate backing to accept ladder anchors.
- HH. Install ladder safety extension post in accordance with manufacturer's instructions.
- 1. Mount device opposite the climbing side.
 - 2. Provide ladder safety extension device for all ladders unless noted otherwise.
- II. Mount ladder fall protection system with rail offset from ladder side rail approximately 3 IN.
- JJ. Install factory pre-fabricated stairs in location indicated in the Contract Documents and approved submittals.

3.3 FIELD QUALITY CONTROL

- A. Tolerances shall meet structural requirements of Specification Section 05 12 00 for erecting items of structural nature.
- B. Tolerances (unless otherwise noted on the Drawings):
 - 1. Frame placement, after assembly and before welding or tightening.
 - a. Deviation from plumb, level and alignment: 1 IN 500, maximum.
 - b. Displacement of centerlines of columns: 1/2 IN maximum, each side of centerline location shown on Drawings.
 - c. Displacement of centerlines of columns: 1/2 IN maximum, each side of centerline location shown on Drawings.
- C. OWNER Pays for Field Inspection and Testing:
 - 1. Owner will employ and pay for services of an independent testing agency to inspect and test structural steel shop and field work for compliance with this Specification Section.
 - 2. Contractor provides sufficient notification and access so inspection and testing can be accomplished.
 - 3. Contractor pays for retesting of failed tests and for additional testing required when defects are discovered.

3.4 CLEANING

- A. After fabrication, erection, installation or application, clean all miscellaneous metal fabrication surfaces of all dirt, weld slag and other foreign matter.
- B. All stainless steel products in addition to Paragraph A. above:
 - 1. Remove all heat tint, rusting, discoloration by passivation, ASTM A380, or other acceptable means as listed in NiDI 11 007 as approved by the Engineer.
- C. Provide surface acceptable to receive field applied paint coatings specified.

END OF SECTION

SECTION 05 52 05

STEEL RAILINGS

GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Steel handrail, stair rail and guardrail.
 - 2. Steel guardrail gates.
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 - Procurement and Contracting Requirements.
 - 2. Division 01 - General Requirements.
 - 3. Section 05 50 00 - Metal Fabrications.

1.2 QUALITY ASSURANCE

Referenced Standards:

- 1. U.S. Department of Justice, Architectural and Transportation Barriers Compliance Board (Access Board):
 - a. Americans with Disabilities Act (ADA):
 - 1) Accessibility Guidelines for Buildings and Facilities (ADAAG).
 - 2. ASTM International (ASTM):
 - a. A36, Standard Specification for Carbon Structural Steel.
 - b. A53, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
 - c. A123/A123M, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 - d. A153/A153M, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
 - e. A501, Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.
 - 3. American Welding Society (AWS):
 - a. D1.1, Structural Welding Code - Steel.
 - 4. National Association of Architectural Metal Manufacturers (NAAMM):
 - a. AMP 521, Pipe Railing Systems Manual.
 - 5. Occupational Safety and Health Administration (OSHA):
 - a. 29 CFR 1910, Occupational Safety and Health Standards, referred to herein as OSHA Standards.
 - 6. Building code:
 - a. International Code Council (ICC):
 - 1) International Building Code and associated standards, 2015 Edition including all amendments, referred to herein as Building Code.
- B. Qualify welding procedures and welding operators in accordance with AWS.

1.3 DEFINITIONS

- A. Hardware: As defined in ASTM A153/A153M.
- B. Galvanizing: Hot-dip galvanizing per ASTM A123/A123M or ASTM A153/A153M with minimum coating of 2.0 OZ of zinc per square foot of metal (average of specimens) unless noted otherwise or dictated by standard.
- C. Guardrail: A system of building components located near the open sides of elevated walking surfaces for the purpose of minimizing the possibility of an accidental fall from the walking surface to the lower level.

- D. Handrail: A railing provided for grasping with the hand for support.
- E. Railing: A generic term referring to guardrail, handrail and/or stair rails.
- F. Stair Rail: A guardrail, installed at the open side of stairways with either a handrail mounted to the inside face of the guardrail, or where allowed by applicable codes, with the top rail mounted at handrail height and serving the function of a handrail.

1.4 SUBMITTALS

- A. Shop Drawings:
 - 1. See Specification Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
 - 2. Fabrication and/or layout drawings.
 - a. Plan showing profile, location, section and details of each railing, and type and details of anchorage system.
 - b. Location and type of expansion joints.
 - c. Materials of construction including shop-applied coatings.
 - 3. Product technical data including:
 - a. Acknowledgement that products submitted meet requirements of standards referenced.
 - b. Manufacturer's installation instructions.
- B. Informational Submittals:
 - 1. See Specification Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
 - 2. Certification of welders and welding procedures indicating compliance with AWS.
 - 3. Certification that railings have been designed and fabricated to meet the loading requirements specified.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver and handle railings to preclude damage.
- B. Store railings on skids, keep free of dirt and other foreign matter which will damage railings or finish and protect from corrosion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:
 - 1. Welded railing systems:
 - a. Any manufacturer meeting this Specification Section.
 - 2. Galvanizing repair paint:
 - a. ZRC Products.
- B. Submit request for substitution in accordance with Specification Section 01 25 13.

2.2 MATERIALS

- A. Pipe: ASTM A53, Types E or S, Grade B, or ASTM A501.
- B. Steel Sheet, Bar (Pickets) and Plate: ASTM A36.
- C. Galvanizing Repair Paint:
 - 1. High zinc dust content paint for regalvanizing welds and abrasions.
 - 2. Dried film shall contain not less than 95 PCT zinc dust by weight.
 - 3. ZRC Products "ZRC."
- D. Expansion and Adhesive Anchors: See Specification Section 05 50 00.
- E. Welding Electrodes: AWS D1.1, E70 Series.

2.3 FABRICATION

- A. General:
 - 1. Verify field conditions and dimensions prior to fabrication.
 - 2. For fabrication of items which will be exposed to view, use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trade names and roughness.
 - a. Remove blemishes by grinding and buffing or by welding and grinding, prior to cleaning, treating and application of surface finishes.
 - 3. Form exposed work with smooth, short radius bends, accurate angles and straight edges.
 - a. Ease exposed edges to a radius of approximately 1/32 IN.
 - b. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
 - 4. Form exposed connections with flush, smooth, hairline joints, using galvanized steel splice locks to splice sections together or by welding.
 - 5. Provide for anchorage of type indicated on the Drawings or as required by field conditions.
 - a. Drill or punch holes with smooth edges.
 - 6. Design railing and anchorage system in accordance with NAAMM AMP 521 to withstand loading as required by Building Code.
 - 7. Design railings in accordance with accessibility requirements per the Building Code and ADAAG.
- B. Custom fabricate pipe railings to dimensions and profiles indicated.
 - 1. Guardrails:
 - a. 1-1/2 IN nominal diameter pipe.
 - b. Top rails and intermediate rails: Schedule 40.
 - c. Vertical posts: Schedule 40.
 - 2. Handrails mounted to walls or guardrail vertical posts: 1-1/4 IN nominal diameter Schedule 40 pipe.
 - 3. Where details are not indicated, space intermediate rails to requirements of the Building Code or OSHA Standards, whichever requires the more restrictive design.
 - 4. Space vertical posts as required by loading requirements but not more than 4 FT OC.
 - a. Avoid locating vertical posts at changes in direction of railing.
 - b. Hold vertical post back from corner and provide radiused corners.
 - 5. Space handrail brackets as required by loading requirements but not more than 4 FT OC.
 - 6. Base plate for vertical guardrail posts mounted to top of concrete surface:
 - a. 3/8 x 6 x 6 IN square plate welded to the vertical post.
 - b. Predrilled to accept four (4) anchors.
 - 7. Base plate for vertical guardrail post mounted to metal structure:
 - a. 3/8 x 2-1/2 x 8 IN plate welded to the vertical post.
 - b. Predrilled to accept two (2) fasteners.
 - 8. Mounting bracket for vertical guardrail post mounted to vertical concrete surface or web of metal structural member:
 - a. Pair of 3/8 IN angles or bent plates welded to vertical posts.
 - b. Predrilled to accept two (2) fasteners each.
 - c. Provide 1/4 x 4 IN high toe boards at elevated walkways and platforms, where indicated on the Drawings or required by OSHA Standards.
 - 1) Clearance between bottom of toe board and walking surface shall not exceed 1/4 IN.
 - d. Guardrail gates:
 - 1) Constructed of same material and sizes as the guardrail system.
 - 2) Width of gate as shown on Drawings.
 - 3) Hinges:
 - a) Self-closing.
 - (1) Stainless steel torsion spring.
 - b) Similar to Wagner, Model "IR100."

- 4) Gate latch and stop:
 - a) Spring-loaded pin latch.
 - (1) Stainless steel spring.
 - b) Similar to Wagner, Model "IR101."
- C. Welded Railing Fabrication:
1. All welding to be continuous in accordance with AWS D1.1.
 - a. All welded railing joints shall have full penetration welds.
 2. All exposed welds to be ground and buffed smooth and flush to match and blend with adjoining surfaces.
 - a. NAAMM AMP 521, Type 2.
 3. No ragged edges, surface defects, or undercutting of adjoining surfaces will be accepted.
 4. Fit exposed ends of guardrails and handrails with solid terminations.
 - a. Return ends of handrails to wall but do not attach to wall.
 5. Preassemble items in shop to greatest extent possible to minimize field splicing and assembly of units at project site.
- D. Install weeps to drain moisture from hollow sections of railing at exterior locations and in high humidity areas.
1. Drill 1/4 IN weep hole in railings closed at bottom:
 - a. 1 IN above walkway surface at bottom of posts.
 - 1) 1 IN above solid rod at removable railing sections.
 - b. At low point of intermediate rails.
 - c. Drill hole prior to galvanizing.
 - d. Do not drill weep holes:
 - 1) In bottom of base plate.
- E. Expansion Joints:
1. Joints to be designed to allow expansion and contraction of railing and still meet design loads required.
 - a. Top rail splices and expansion joints shall be located within 8 IN of post or other support.
 - b. Where railings span building [or tank] expansion joints; provide a railing expansion joint in the span crossing the building [or tank] expansion joint.
 2. Provide expansion joints in any continuous run exceeding 20 FT in length.
 - a. Space expansion joints at not more than 40 FT on center.
 3. Provide minimum 0.10 IN of expansion joint for each 20 FT length of top rail for each 25 DegF differential between installation temperature and maximum design temperature.
 - a. Maximum expansion joint width at time of installation shall not exceed 3/8 IN.
 - 1) Provide additional expansion joints as required to limit expansion joint width.
 4. Provide slip-joint with internal sleeve.
 - a. Extend slip joint min 2 IN beyond joint at maximum design width.
 - b. Fasten internal sleeve securely to one side
 - 1) Provide allen-head set screw located in bottom of rail.
 - 2) Rivets or exposed screw heads are not acceptable.
- F. Finish:
1. Hot-dip galvanize after fabrication.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Prior to installation, inspect and verify condition of substrate.
- B. Correct surface defects or conditions which may interfere with or prevent a satisfactory installation.

3.2 INSTALLATION

- A. Install handrails and guardrails to meet loading requirements of the Building Code.
- B. Install products in accordance with NAAMM AMP 521 and manufacturer's instructions.
- C. Set work accurately in location, alignment and elevation; plumb, level, and true.
 - 1. Measure from established lines and items which are to be built into concrete, masonry or similar construction.
- D. Align railings prior to securing in place to assure proper matching at butting and expansion joints and correct alignment throughout their length.
 - 1. Provide shims as required.
- E. Install proper sized expansion joints based on temperature at time of installation and differential coefficient of expansion of materials in all railings as recommended by manufacturer.
 - 1. Lubricate expansion joint splice bar for smooth movement of railing sections.
- F. Provide removable railing sections where indicated on Drawings.
- G. Attach handrails to walls or guardrails with brackets designed for condition.
 - 1. Provide brackets which provide a minimum 1-1/2 IN clearance between handrail and nearest obstruction.
 - a. Handrails shall not project more than 4-1/2 IN into required stairway width.
 - 2. Anchor handrail brackets to concrete or masonry walls with 1/2 IN stainless steel adhesive anchors and stainless steel hex head bolts.
- H. Anchor railings to concrete with minimum 1/2 IN stainless steel adhesive anchors with stainless steel bolts, nuts and washers unless noted otherwise in the Contract documents.
 - 1. Where exposed, bolts shall extend minimum 1/2 IN and maximum 3/4 IN above the top nut.
 - a. If bolts are cut off to required height, threads must be dressed to allow nuts to be removed without damage to the bolt or the nut.
 - b. Bevel the top of the bolt after cutting to provide a smooth surface.
- I. Anchor railings to metal structure with minimum 3/4 IN stainless steel bolts, nuts and washers.
- J. Install toeboards to fit tight to the walking surface.
 - 1. Attach to railing vertical post with manufacturer's standard mounting clamp:
 - a. Adjustable.
 - b. Designed to engage in extruded slot on back of toeboard.
 - 2. Provide splice bars, corner splices and brackets:
 - a. Manufacturer's standard items as required for a complete installation.
 - 3. Notch toeboards at base plates or other obstructions.
 - 4. Bottom of toeboard shall not exceed 1/4 IN above walking surface.
- K. Repair damaged galvanized surfaces in accordance with ASTM A780.
 - 1. Properly prepare surface in accordance with galvanizing repair paint manufacturer's recommendations.
 - 2. Apply minimum 6 mils DFT of galvanizing repair paint in accordance with manufacturer's recommendations.
- L. Provide railings as required for stair construction identified in Specification Section 05 50 00.

END OF SECTION

SECTION 31 23 00 EARTHWORK

GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Earthwork - excavation, backfilling, grading, compaction, disposal of waste and surplus materials, placing crushed stone, construction of berms, sheeting, bracing, dewatering and other Earthwork related work.
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 - Procurement and Contracting Requirements.
 - 2. Division 01 - General Requirements.
 - 3. 33 30 00 – Sanitary Sewerage Utilities
 - 4. 33 40 00 – Storm Drainage System
 - 5.
 - 6. Section 31 25 00 - Soil Erosion and Sediment Control.

1.2 QUALITY ASSURANCE

Standard Specifications for Road, Bridge, and Municipal Construction, 2016 edition, as issued by the Washington State Department of Transportation (WSDOT) and the American Public Works Association (APWA), Washington State Chapter.

- B. ASTM International (ASTM):
 - 1. C33, Standard Specification for Concrete Aggregates.
 - 2. D698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 FT-lbf/ft³).
 - 3. D1557, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 FT-lbf/ft³(2,700 kN-m/m)).
 - 4. This needs to be referenced somewhere in the remainder of the specifications.
 - 5. D1586, Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils.
 - 6. D2487, Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).
 - 7. D3786, Standard Test Method for Bursting Strength of Textile Fabrics--Diaphragm Bursting Strength Tester Method.
 - 8. D4253, Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.
 - 9. D4254, Standard Test Methods for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density.
 - 10. D4632, Standard Test Method for Grab Breaking Load and Elongation of Geotextiles.
- C. Occupational Safety and Health Administration (OSHA):
 - 1. 29 CFR Part 1926.650, Occupational Safety and Health Standards, referred to herein as OSHA Standards.

1.3 DEFINITIONS

- A. Excavation:
 - 1. Consists of removal of material encountered to subgrade elevations required or indicated.
 - 2. Includes excavation of soils; pavements and other obstructions visible on surface; underground structures, utilities, and other items indicated to be demolished and removed; boulders; and rock.

1.4 SUBMITTALS

- A. Shop Drawings:

1. See Specification Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
 2. Product technical data including:
 - a. Acknowledgement that products submitted meet requirements of standards referenced.
 - b. Manufacturer's installation instructions.
 3. Certifications.
- B. Samples:
1. Coordinate samples and testing for approval of off-site materials with Owner.
 2. Test reports.

1.5 SITE CONDITIONS

Avoid overloading or surcharge a sufficient distance back from edge of excavation to prevent slides or caving.

1. Maintain and trim excavated materials in such manner to be as little inconvenience as possible to public and adjoining property owners.
- B. Provide full access to public and private premises, fire hydrants and water valves at street crossings, sidewalks and other points as designated by Owner to prevent serious interruption of travel.
- C. Protect and maintain bench marks, monuments or other established points and reference points and if disturbed or destroyed, replace items to full satisfaction of Owner and controlling agency.
- D. Verify location of existing underground utilities prior to construction:

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Backfill Material:
1. Per WSDOT Standard Specifications Section 9-03.14(1) Gravel Borrow.
- B. Pipe Bedding Material:
1. Refer to Specification Section 33 30 00 – Sanitary Sewerage Utilities for pipe bedding information.

PART 3 - EXECUTION

3.1 PROTECTION

- A. Erosion Control:
1. See Specification Section 31 25 00.
 2. Clean paved roadways daily of any spillage of dirt, rocks or debris from vehicles and equipment entering or leaving site.
 3. Conduct work to minimize erosion of site. Remove eroded material washed off site.
 - a. If necessary or requested by Engineer, construct stilling areas to settle and detain eroded material.
- B. Protect existing surface and subsurface features on-site and adjacent to site as follows:
1. Provide barricades, coverings, or other types of protection necessary to prevent damage to existing items indicated to remain in place.
 2. Protect and maintain bench marks, monuments or other established reference points and property corners.
 - a. If disturbed or destroyed, replace at own expense to full satisfaction of Owner and controlling agency.
 3. Verify location of utilities.
 - a. Omission or inclusion of utility items does not constitute nonexistence or definite location.

- b. Secure and examine local utility records for location data.
 - c. Take necessary precautions to protect existing utilities from damage due to any construction activity.
 - 1) If utilities are indicated to remain in place, provide adequate means of support and protection during earthwork operations.
 - 2) Do not interrupt existing utilities serving facilities occupied by Owner or others, during occupied hours, except when permitted in writing by Owner and then only after acceptable temporary utility services have been provided.
 - 3) Obtain Owner's approval prior to disconnecting any utility service.
 - d. Repair damages to utility items at own expense.
 - e. In case of damage, notify Engineer at once so required protective measures may be taken.
4. Maintain free of damage, existing sidewalks, structures, and pavement, not indicated to be removed.
 - a. Protect new and existing structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
 - b. Any item known or unknown or not properly located that is inadvertently damaged shall be repaired to original condition.
 - c. All repairs to be made and paid for by Contractor.
 5. Provide full access to public and private premises, fire hydrants, street crossings, sidewalks and other points as designated by Owner to prevent serious interruption of travel.
 6. Maintain stockpiles and excavations in such a manner to prevent inconvenience or damage to structures on-site or on adjoining property.
 7. Avoid surcharge or excavation procedures which can result in heaving, caving, or slides.

3.2 SITE EXCAVATION AND GRADING

- A. The site excavation and grading work includes the onsite stockpiling of excavated soil material:
 1. That exceed quantities required for earthwork on the project.
 2. That the Contractor or Owner determines is unacceptable.
- B. Excavation and Grading:
 1. Perform as required by the Contract Drawings.
 2. Contract Drawings may indicate both existing grade and finished grade required for construction of Project.
 - a. Stake all units, structures, piping, roads, parking areas and walks and establish their elevations.
 - b. Perform other layout work required.
 - c. Replace property corner markers to original location if disturbed or destroyed.
 3. Preparation of ground surface for embankments or fills:
 - a. Before fill is started, scarify to a minimum depth of 6 IN in all proposed embankment and fill areas.
 - b. Where ground surface is steeper than one vertical to four horizontal, plow surface in a manner to bench and break up surface so that fill material will bind with existing surface.
 4. Protection of finish grade:
 - a. During construction, shape and drain embankment and excavations.
 - b. Maintain ditches and drains to provide drainage at all times.
 - c. Protect graded areas against action of elements prior to acceptance of work.
 - d. Reestablish grade where settlement or erosion occurs.
- C. Borrow:
 1. Provide necessary amount of approved fill compacted to density equal to that indicated in this Specification.
 2. Include cost of all borrow material in original proposal.
 3. Fill material to be approved by Owner prior to placement.

- D. Bedding and Backfill:
 - 1. Per WSDOT Standard Specifications Sections 7-08.3(1)C and 7-08.3(3).
- E. Construct embankments and fills as required by the Contract Drawings:
 - 1. Construct embankments and fills at locations and to lines of grade indicated.
 - a. Completed fill shall correspond to shape of typical cross section or contour indicated regardless of method used to show shape, size, and extent of line and grade of completed work.
 - 2. Provide approved fill material which is free from roots, organic matter, trash, frozen material, and stones having maximum dimension greater than 6 IN.
 - a. Ensure that stones larger than 4 IN are not placed in upper 6 IN of fill or embankment.
 - b. Do not place material in layers greater than 8 IN loose thickness.
 - c. Place layers horizontally and compact each layer prior to placing additional fill.
 - 3. Compact soils as required to obtain specified density. Selection of appropriate equipment is the Contractor's responsibility.
 - a. In general, compact cohesive soils by sheepsfoot, and granular soils by pneumatic rollers, vibrators, or by other equipment as required to obtain specified density.
 - b. Control moisture for each layer necessary to meet requirements of compaction.
- F. Grading Tolerances: 0.1 ±IN from elevations shown on Drawings.

3.3 USE OF EXPLOSIVES

- A. Blasting with any type of explosive is prohibited.

3.4 COMPACTION DENSITY REQUIREMENTS

- A. Obtain approval from Owner or designee with regard to suitability of soils and acceptable subgrade prior to subsequent operations.
- B. Provide dewatering system necessary to successfully complete compaction and construction requirements.
- C. Remove frozen, loose, wet, or soft material and replace with approved material as directed by Owner or designee.
- D. Stabilize subgrade with well graded granular materials as directed by Owner or designee.
- E. Assure by results of testing that compaction densities comply with the following requirements:
 - 1. Sitework:

LOCATION	COMPACTION DENSITY	MOISTURE CONTENT
Under Paved Areas, Sidewalks and Piping:		
Cohesive soils	95 PCT per ASTM D698	-2 to +3 PCT of optimum
Cohesionless soils	75 PCT relative density per ASTM D4253 and ASTM D4254	
Unpaved Areas:		
Cohesive soils	90 PCT of ASTM D698	-2 to +3 PCT of optimum
Cohesionless soils	65 PCT relative density per ASTM D4253 and ASTM D4254	

- 2. Structures:

LOCATION	COMPACTION DENSITY	MOISTURE CONTENT
Inside of structures under foundations, under equipment support pads, under slabs-on-grade and scarified existing subgrade under fill material	98 PCT per ASTM D698	-2 to +3 PCT of optimum
Outside structures next to walls, piers, columns and any other structure exterior member	92 PCT per ASTM D698	-2 to +3 PCT of optimum

3. Specific areas:

LOCATION	COMPACTION DENSITY	MOISTURE CONTENT
Outside structures under equipment support foundations	98 PCT per ASTM D698	-2 to +3 PCT of optimum
Under void	85 PCT per ASTM D1557	-2 to +3 PCT of optimum
Granular fill under base slabs with pressure relief valves	75 PCT relative density per ASTM D4253 and ASTM D4254 or 98 PCT of ASTM D698	
Granular fill under building floor slabs-on-grade	60 PCT relative density per ASTM D4253 and ASTM D4254	

3.5 FIELD QUALITY CONTROL

- A. All excavation, trenching, and related sheeting, bracing, etc. shall comply with the requirements of OSHA standards 29 CFR Part 1926.650 Subpart P, and state requirements. Where conflict between OSHA and state regulations exists, the more stringent requirements shall apply.
- B. Responsibilities of Testing Agency for Site Excavation and Grading:
 1. All testing, observation and work indicated as being performed by the Contractor in other than Article 3.5 of this Specification Section.
 2. Services will include verification and documentation of satisfactory soil materials, subgrade quality, sampling, placement, moisture conditioning, compaction and testing of proposed soil materials, and field testing for quality control.
 3. Moisture density relations, to be established by the Contractor required for all materials to be compacted.
 4. Extent of compaction testing will be as necessary to assure compliance with specifications.

END OF SECTION

SECTION 31 25 00
SOIL EROSION AND SEDIMENT CONTROL

GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Soil erosion and sediment control.
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 - Procurement and Contracting Requirements.
 - 2. Division 01 - General Requirements.

1.2 QUALITY ASSURANCE

Referenced Standards:

- 1. Erosion control standards: Standards and Specifications for Soil Erosion and Sediment Control in Developing Areas by the United States Department of Agriculture (USDA), Soil Conservation Service, College Park, Maryland.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Straw bales, twine tied.
- B. Grass Seed: Annual ryegrass.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Prior to General Stripping Topsoil and Excavating:
 - 1. Install perimeter dikes and swales.
 - 2. Excavate and shape sediment basins and traps.
 - 3. Machine compact all berms, dikes and embankments for basins and traps.
 - 4. Install straw bales where indicated.
 - a. Provide two stakes per bale.
 - b. First stake angled toward previously installed bale to keep ends tight against each other.
- B. Construct sediment traps where indicated on Drawings during rough grading as grading progresses.
- C. Temporarily seed basin slopes and soil stockpiles:
 - 1. Rate: 1/2 LB/1000 SQFT.
 - 2. Reseed as required until good stand of grass is achieved.

3.2 DURING CONSTRUCTION PERIOD

- A. Maintain Basins, Dikes, Traps, Stone Filters, Straw Bales, etc.:
 - 1. Inspect regularly especially after rainstorms.
 - 2. Repair or replace damaged or missing items.
- B. After rough grading, sow temporary grass cover over all exposed earth areas not draining into sediment basin or trap.
- C. Construct inlets as soon as possible.
 - 1. Excavate and tightly secure straw bales completely around inlets as detailed on Drawings.

- D. Provide necessary swales and dikes to direct all water towards and into sediment basins and traps.
- E. Do not disturb existing vegetation (grass and trees).
- F. Excavate sediment out of basins and traps when capacity has been reduced by 50 PCT.
 - 1. Remove sediment from behind bales to prevent overtopping.
- G. Topsoil and Fine Grade Slopes and Swales, etc.: Seed and mulch as soon as areas become ready.

3.3 NEAR COMPLETION OF CONSTRUCTION

- A. Eliminate basins, dikes, traps, etc.
- B. Grade to finished or existing grades.
- C. Fine grade all remaining earth areas, then seed and mulch.

END OF SECTION

SECTION 32 12 16
HOT MIX ASPHALT VEHICULAR PAVING

GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Hot mix asphalt (HMA) vehicular paving.
- B. Related Specification Sections include but are not necessarily limited to:
 - 1. Division 00 - Procurement and Contracting Requirements.
 - 2. Division 01 - General Requirements.

1.2 QUALITY ASSURANCE

Referenced Standards:

- 1. Construction standards: State of Washington, Department of Transportation (WSDOT), Standard Specifications for Road, Bridge, and Municipal Construction, 2016, as amended to date.

1.3 SUBMITTALS

- A. Shop Drawings:
 - 1. See Specification Section 01 33 00 for requirements for the mechanics and administration of the submittal process.
 - 2. Product technical data including:
 - a. Acknowledgement that products submitted meet requirements of standards referenced.
 - b. Manufacturer's installation instructions.
- B. HMA Mix Design
- C. Quality Assurance:
 - 1. Material certificates signed by material producer certifying that each material complies with specified requirements.
 - 2. Mix design certification by WSDOT.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. HMA: Per WSDOT Divisions 9-02 and 9-03.

2.2 MIXES

- A. Contractor shall develop a mix design in accordance with WSDOT Standard Operating Procedure 732 and meet the requirements of WSDOT Sections 5-04.3(7)A, 9-03.8(2) and 9-03.8(6).

PART 3 - EXECUTION

3.1 APPLICATION

- A. Construct to line, grade and section as shown on Drawings and in accordance with referenced State Specifications.
- B. Install a two (2) IN compacted layer of asphaltic base course in accordance with the Drawings and Division 5-04 of the referenced State Specifications.

- C. Spread a prime coat uniformly on compacted aggregate base course at rate of 0.05 to 0.10 GAL per square yard in accordance with Section 5-04.3(5)B of State Specifications.
- D. Use paragraph below only with an asphaltic base course.
- E. Install a two (2) IN surface course, in accordance with the Drawings Division 5-04 of State Specifications.
- F. Tolerance of Finished Grade: +0.10 FT from required elevations.

END OF SECTION

SECTION 33 30 00
SANITARY SEWERAGE UTILITIES

GENERAL

1.1 DESCRIPTION

- A. Section Includes:
1. Sewer - sanitary sewer lines, sanitary sewer catch basins, fittings, accessories, sewer holding vault, trench drains, trench drain catch basins, and connections to existing sewer lines.
- B. Related Specification Sections include but are not necessarily limited to:
1. Division 00 - Procurement and Contracting Requirements.
 2. Division 01 - General Requirements.
 3. Section 03 09 00 – Concrete
 4. Section 33 40 00 – Storm Drain System

1.2 QUALITY ASSURANCE

- A. Standard Specifications for Road, Bridge, and Municipal Construction, 2016 edition, as issued by the Washington State Department of Transportation (WSDOT) and the American Public Works Association (APWA), Washington State Chapter.

SUBMITTALS

- A. Submit the following for approval prior to delivery to the site and commencement of the work:
1. Manufacturer's installation instructions.
 2. Acknowledgement that products submitted meet requirements of standards referenced.
 3. Fabrication and/or layout drawings:
 - a. Include detailed diagrams of sanitary sewer catch basins showing typical components and dimensions, reinforcements and other details.
 - b. Itemize, on separate schedule, sectional breakdown of each sanitary sewer catch basins structure with all components and refer to drawing identification number or notation.
 - c. Indicate knockout elevations for all piping entering each sanitary sewer catch basins.
 4. Buoyancy uplift and structural calculations for sanitary sewer catch basins and sewer holding vault.
 5. Sanitary sewer catch basins and holding tank design shall be signed and sealed by a Professional Engineer registered in Washington State.
 6. Shop drawings and erections plans for precast units, trench drains, and trench catch basins showing:
 - a. Size and location of structure/trench drain.
 - b. Size, configuration, location, and quantity of reinforcing bars.
 - c. Size and location of openings verified by Contractor.
 - d. Size, number, and location of embedded metal items and connections.
 - e. Required concrete strengths.

1.4 PROJECT RECORD DOCUMENTS

- A. Submit documents under provisions of Division 01. Record location of sanitary sewer pipe, trench drain, connections to existing sewer, structures, and invert elevations. Identify and describe unexpected variations to the designed plan.

1.5 SITE CONDITIONS

- A. For this project, the assumed high groundwater elevation shall be at surface grade.

1.6 COORDINATION

- A. Coordinate Sanitary Sewerage work with the work in other sections of these specifications.

1.7 QUALITY ASSURANCE

- A. When two or more units of the same type or class, materials or equipment are required, these units shall be products of one manufacturer.
- B. Copies of source quality control tests.

1.8 DELIVERY, STORAGE

- A. Conduct an inspection at time of delivery of sewer pipes and appurtenances to verify correct products, markings, and quantities.
- B. Handle sanitary sewer catch basins and trench drain according to manufacturer's installation instructions and recommendations.
- C. Materials shall be inspected for damage due to manufacturing or shipment.
- D. Materials shall be stored and handled to avoid damage and personal injury.
- E. Pipe and sewer structures shall never be dropped on the ground. Replace any damaged materials and remove damaged materials from the Project Site at no additional cost to the Owner.
- F. Pipe should be stored in such a manner that support is provided along its length to avoid concentrated loads on pipe ends.
- G. Protective covers shall remain in place until material is ready for installation.
- H. On-site storage and handling shall comply with manufacturer's recommendations.

1.9 SEQUENCING AND SCHEDULING

- A. Coordinate with other utility, roadway, and facility construction.

PART 2 - PRODUCTS

2.1 GENERAL

- A. All materials and equipment listed herein shall be new and of the type specified. Comply with Specifications and manufacturer's data. Where these may be in conflict, the more stringent requirements govern, at the direction of the Engineer.

2.2 PIPE AND FITTINGS

- A. See WSDOT Standard Specification 9-05.12(1) for sanitary sewer pipe materials, joints, and fitting requirements.
- B. All fittings shall be made of the same material as the pipe.
- C. Connect new sanitary sewer line to existing sewer line with Romac 401 fittings (or approved equal) and per manufacturer requirements.

2.3 TRENCH DRAINS AND TRENCH CATCH BASINS

- A. Trench Drain: prefabricated, 0.05% sloped channel ACO Drain PowerDrain - S300K iron edged channel as manufactured by ACO Polymer Products, Inc. (or approved equal).
- B. Trench Catch Basin: prefabricated ACO Drain Type 903D In-line catch basin as manufactured by ACO Polymer Products, Inc. (or approved equal).
- C. Grating: ductile iron, HS-20 rated longitudinal grates with 'PowerLok' boltless locking system and Anti-Shunt lugs as manufactured by ACO Polymer Products, Inc. (or approved equal).

2.4 SANITARY SEWER CATCH BASINS (SSCB) AND PRECAST HOLDING TANK

- A. Install products in accordance with manufacturer's instructions.
- B. Sanitary Sewer Catch Basins:

1. Cast channel with 3000 PSI concrete. Width and depth of channel must equal the largest pipe diameter with a slope of 2%. Channel walls must be vertical.
 2. Sanitary sewer catch basin lid shall be a solid lid rated for HS-20 loading. The lid shall be inscribed with the word: "sewer".
- C. Precast Holding Tank Vault: Oldcastle Precast Vault 577-LA (or approved equal).
1. Cast channel with 3000 PSI concrete. Width and depth of channel must equal the largest pipe diameter with a slope of 2%. Channel walls must be vertical.
- D. Precast Holding Tank Lid: circular frame (ring) and cover per WSDOT standard plan B-30.70-03. Lettering in MH cover shall read "SEWER". Oldcastle Precast No. GR2406 riser (or approved equal).
- E. Minimum 1.50 safety factor for buoyancy calculations:
1. Uplift forces equals the weight of volume of water displaced by submerged portion of structure.
 2. Resistant force equals the weight of the structure plus the weight of backfill soil within the footprint of the base slab:
 - a. Buoyant soil weight equal 67 pcf.
 - b. Dry weight of soil equal 135 pcf.
 3. Do not include resistance associated with soil friction on the sides of the structure in the safety factor calculations.

2.5 IDENTIFICATION TAPE

- A. Utility pipe tracer tape shall be detectable below ground surface, color coded, with utility name printed on tape. Conductive warning tape required over all sewer pipe at 6" below finished grades. Underground - Type Plastic Line Markers: Permanent, bright-colored, continuous-printed plasticized aluminum tape, intended for direct-burial service; not less than 3" wide x 5 mils thick. Detectable Marking Tape colors shall be as follows:

<u>Piping</u>	<u>Color</u>	<u>Wording</u>
Sanitary Sewers	Green	Caution Sanitary Sewer

PART 3 - EXECUTIONS

3.1 SANITARY SEWER CATCH BASINS AND HOLDING TANK

- A. Upon Substantial Completion of the Work, all sanitary sewer catch basins and other sewer structures shall conform to the requirements of the Drawings except as approved by the Project Representative.
- B. The existing holding tank may be full at the beginning of construction. Contractor is responsible for pumping out and disposing of contents within the tank prior to demolition of the existing sanitary sewer line upstream of the vault.
- C. Contractor shall pump out and dispose of contents within both holding tanks at the end of construction.

3.2 INSPECTION

- A. Prior to backfill, all gravity sewer mains, fittings, and appurtenances shall be inspected and approved by the Engineer. Approval shall not relieve the Contractor for correction of any deficiencies and/or failures as determined by subsequent testing and inspections. It shall be the contractor's responsibility to notify the county for the required inspections.

3.3 TRENCH DRAINS AND TRENCH CATCH BASINS

- A. Install in accordance with manufacturer's instructions and approved Shop Drawings.
- B. Install trench sections with the top edges level and straight at elevations indicated.
 - 1. Support channel sections in place while concrete is placed under and around sections as indicated.

END OF SECTION

SECTION 33 40 00

STORM DRAINAGE SYSTEM

GENERAL

1.1 SUMMARY

A. Section Includes:

1. Storm drainage systems.
2. Storm drainage pipe.
3. Inlets, headwalls, flumes and flared end sections.
4. Catch basins.
5. Roadway drainage ditch.
6. Infiltration ditch.

B. Related Specification Sections include but are not necessarily limited to:

1. Division 00 - Procurement and Contracting Requirements.
2. Division 01 - General Requirements.
3. Section 31 23 00 - Earthwork.
4. Section 33 30 00 – Sanitary Sewerage Utilities.

1.2 QUALITY ASSURANCE

Referenced Standards:

1. Washington Department of Transportation Standard Specifications for Road, Bridge, and Municipal Construction, 2016 edition (WSDOT Standard).
2. Washington State Department of Ecology (Ecology) 2012 Stormwater Management Manual for Western Washington, as Amended in December 2014 (The 2014 SWMMWW).
3. American Association of State Highway and Transportation Officials (AASHTO):
 - a. AASHTO M 199 Standard Specifications for Precast Reinforced Concrete Manhole Sections
 - b. AASHTO M 252 Standard Specification for Corrugated Polyethylene Drainage Pipe
 - c. AASHTO M 294 Standard Specification for Corrugated Polyethylene Pipe, 300- to 1500 mm Diameter
 - d. AASHTO M 306, Standard Specification for Drainage, Sewer, Utility, and Related Castings
4. ASTM International (ASTM):
 - a. A536, Standard Specification for Ductile Iron Castings.
 - b. D638-08, Standard Test Methods for Tensile Properties of Plastics.
 - c. D698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 FT-lbf/ft³ (600 kN-m/m³)).
 - d. D1557, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 FT-lbf/ft³ (2,700 kN-m/m³)).
 - e. D1784, Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.
 - f. D1785, Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
 - g. D2321, Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.]D3212, Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
 - h. D2729, Standard Specification for Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
 - i. D2837, Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials or Pressure Design Basis for Thermoplastic Pipe Products.
 - j. D3034, Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings D4253, Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.

- k. D3212, Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
- l. D3350, Standard Specification for Polyethylene Plastics Pipe and Fitting Materials.
- m. D4254, Standard Test Methods for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density.
- n. F477, Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
- o. F679-08, Standard Specification for Poly Vinyl Chloride (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings.
- p. F2648, Standard Specification for 2 to 60 IN Annular Corrugated Profile Wall Polyethylene (PE) Pipe and Fittings for Land Drainage Applications.

1.3 SUBMITTALS

- A. Submit the following for approval prior to delivery to the site and commencement of the work:
 - 1. Manufacturer's product data for pipe.
 - 2. Manufacturer's product data for catch basins.
 - 3. Manufacturer's installation instructions.
- B. Quality Assurance Submittals:
 - 1. Certifications.
 - 2. Submit all certifications and tests in single coordinated document. Partial submittals will not be accepted.

1.4 PROJECT RECORD DOCUMENTS

- A. Submit documents under provisions of Division 01. Record location of pipe runs, connections, structures, and invert elevations. Identify and describe unexpected variations to the designed plan.

1.5 COORDINATION

- A. Coordinate Storm Drain Utility work with the work in other sections of these specifications.

1.6 DEFINITIONS

- A. Pipe Zone refers to the area from the top of the foundation level for the pipe (same as the bottom of pipe bedding) to a minimum of 1 FT above the pipe crown.
- B. Hydroseed: A slurry of seed, mulch, fertilizer, and tackifier.

1.7 QUALITY ASSURANCE

- A. Environmental Compliance: Comply with applicable portions of local environmental agency regulations pertaining to storm drainage systems, including Washington State Department of Health.
- B. When two or more units of the same type or class, materials or equipment are required, these units shall be products of one manufacturer.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Conduct an inspection at time of delivery of storm drain pipes and appurtenances to verify correct products, markings, and quantities.
- B. Handle catch basins and inlet structures according to manufacturer's written rigging instructions.
- C. Materials shall be inspected for damage due to manufacturing or shipment.
- D. Materials shall be stored and handled to avoid damage and personal injury.
- E. Pipe and drainage structures shall never be dropped on the ground. Replace any damaged materials and remove damaged materials from the Project Site at no additional cost to the Owner.
- F. Pipe should be stored in such a manner that support is provided along its length to avoid concentrated loads on pipe ends.
- G. Protective covers shall remain in place until material is ready for installation.

H. On-site storage and handling shall comply with manufacturer's recommendations.

1.9 SEQUENCING AND SCHEDULING

A. Coordinate with other utility, roadway, and facility construction.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Storm Drain Pipe and Fittings

1. General: Provide pipe and pipe fitting materials compatible with each other.
2. PVC: PVC drainpipe, couplings, and fittings meeting the requirements of ASTM D 1785. The pipe size shall be 12 IN in diameter.
 - a. Joints shall conform to ASTM D 3212 using elastomeric gaskets conforming to ASTM F 477. Fittings and joints shall be of a schedule or pressure class that equals or exceeds that of the plastic pipe. Fittings and joints shall be compatible with the pipe to which they attach. Fittings for use with non-pressure systems shall conform to the requirements of the same ASTM designation as the pipe used.
3. Pipe Bedding
 - a. See WSDOT Standard Specification 7-08.3(1)C for storm drain pipe bedding requirements.
 - b. Refer to Section 31 00 00 – Earthwork for additional backfilling information.

B. Type 1 catch basins:

1. Metal frames and grates for catch basins shall meet the requirements in WSDOT Standard Specification 9-05.15(2).
2. All precast concrete items shall meet the requirements of AASHTO M199, fabricated as shown on the Plans, and shall meet the tolerances and revisions as listed in WSDOT Standard Specification 9-05.50.

C. Roadway Drainage Ditch:

1. See WSDOT Standard Specification 2-12.3 for Permanent Erosion Control and Ditch Lining requirements.
2. Erosion Control Matting shall meet the requirements of WSDOT Standard Specifications 9-33 for Ditch Lining.
3. Contractor shall use round river rock provided on site as directed by Owner.

D. Infiltration Ditch:

1. See WSDOT Standard Specification 9-14.1(2) and (3) for topsoil requirements.
2. Hydraulically applied erosion control products (HECPS) shall be a combination of wood cellulose fiber and tackifier and shall be furnished premixed by the manufacturer. Under no circumstances will field mixing of additives or components be acceptable.
3. HECPs shall meet all requirements of WSDOT Standard Specification 9-14.4(2) and WSDOT Standard Specification 9-14.4(A) Long-Term Mulch.

PART 3 - EXECUTION

3.1 GENERAL

- A. Verify that excavation base is ready to receive work and excavations, dimensions, and elevations are as indicated on the Drawings.
- B. Excavation tolerance of sub-grade shall be +/- 0.05 feet. Sub-grade must be in a smooth, even condition prior to placement of any permeable material. All depths shown are to be compacted depths. Where material is placed as fill, the Contractor shall compact the material as required by Section 31 00 00 - Earthwork. If excavated material exceeds the quantity needed as on-site common fill, excess materials shall be removed from the site.

- C. The excavation for all catch basins shall be sufficient to leave 1 foot in the clear between their outer surfaces and the earth bank.

3.2 CATCH BASIN

- A. Install products in accordance with WSDOT Standard Specification 7-05, WSDOT Standard Plan B-5.20-02, and manufacturer's instructions.
- B. Upon Substantial Completion of the Work, all catch basins and other storm drainage and wastewater structures shall conform to the requirements of the Drawings except as approved by the Project Representative.
- C. The cover or grating of the catch basin shall not be grouted to final grade until the final elevation of the pavement, gutter, ditch, or sidewalk in which it is to be placed has been established, and until permission thereafter is given by the Engineer to grout the cover or grating in place. Covers shall be seated properly to prevent rocking. Leveling and adjustment devices that do not modify the structural integrity of the metal frame, grate or cover, and do not void the originating foundry's compliance to these specifications and warranty are allowed. Approved leveling devices are listed in the Qualified Products List of WSDOT Standard Specifications. Leveling and adjusting devices that interfere with the backfilling, backfill density, grouting and asphalt density will not be allowed. The hardware for leveling and adjusting devices shall be completely removed when specified by the Project Engineer.
- D. The ends of all pipes shall be trimmed flush with the inside walls.
- E. Rubber gaskets or flexible plastic gaskets may be used in tongue and groove joints of precast units. All other joints and all openings cut through the walls shall be grouted and watertight. Mortar shall conform to the requirements of WSDOT Standard Specification Section 9-20.4(3).
- F. If gaskets are used, handling of the precast units after the gasket has been affixed shall be done carefully to avoid disturbing or damaging the gasket or contaminating it with foreign material. Care shall be exercised to attain proper alignment before the joints are entirely forced home. During insertion of the tongue or spigot, the units shall be partially supported to minimize unequal lateral pressure on the gasket and to maintain concentricity until the gasket is properly positioned.
- G. Backfilling around the Work will not be allowed until the concrete or mortar has thoroughly set.
- H. Catch basins shall be watertight.
- I. Backfilling of catch basins shall be done in accordance with the provisions of WSDOT Standard Specification Section 2-09.
- J. Catch basins shall be constructed on a compacted or undisturbed level foundation. If the Contractor elects to use a separate cast-in-place base, the concrete shall be Class 4000.
- K. Any shoring or extra excavation required shall meet the requirements of WSDOT Standard Specification Section 2-09.3.

3.3 PIPE TRENCHING

- A. Work in accordance with WSDOT Standard Specification Section 7-08.3(3) for Pipe Zone Backfill, Section 9-03.12(3) for Gravel Backfill for Pipe Zone Bedding, and Section 2-09.4 for Measurement and Trench Width.
- B. Comply with Section 31 23 00 - Earthwork.
- C. Trenches shall be cut with smooth sides, no less width than as shown on the Drawings. In the event that the trench has been over-excavated, the Contractor shall correct by use of the gravel filter material, as long as the invert elevations of the pipe and the minimum gravel filter material and fabric are per the Plans. Trench bottom shall be smooth and compact and to the grade specified. Also, refer to Section 31 00 00 - Earthwork for backfilling information.

D. All trenches shall be maintained with vertical sides and without loose or sloughed materials therein; care shall be taken in placement of gravel to insure no sloughing of trench sides or contamination of the gravel. The Contractor shall not drive construction vehicles across excavated or back-filled trenches but shall use alleys between trenches for travel ways. Exception will be granted only when the Contractor can show evidence that the bridging scheme he proposes will ensure conformance with the foregoing.

3.4 PIPE BEDDING AND BACKFILL

- A. Refer to Specification Section 31 23 00 – Earthwork.
- B. Hire an independent soils laboratory to conduct in-place moisture-density tests for backfilling to assure that all work complies with this Specification Section.
- C. For crossing existing roadways, the entire trench shall be backfilled with 1¼-inch minus crushed surfacing base course meeting the requirements of Section 9-03.9(3) of the WSDOT/APWA Standard Specifications. Backfill shall be placed and compacted mechanically in 6-inch lifts to 95 percent of the maximum density as determined by the compaction control tests described in Section 2-03.3(14)D of the WSDOT/APWA Standard Specifications. If the capability can be demonstrated, based on compaction equipment or quality of backfill to achieve 95 percent density in thicker lifts, the depth of backfill lifts may be increased up to 1 foot.

3.5 PIPE LAYING

- A. Install pipe, fittings, and accessories in accordance with WSDOT Standard specification 7-08.3(2).
- B. Maximum deviation from established line and grade shall not be greater than 0.03 feet at the time of backfill.
- C. No adverse grade in any pipe length shall be permitted.
- D. The difference in deviation from true line and grade between any two successive joints shall not exceed 1/3 of the amounts specified above.

3.6 INSPECTION

- A. Prior to backfill, all gravity storm drain mains, fittings, and appurtenances shall be inspected and approved by the Engineer or Owner's Representative. Approval shall not relieve the Contractor for correction of any deficiencies and/or failures as determined by subsequent testing and inspections. It shall be the contractor's responsibility to notify the county for the required inspections.

3.7 TESTING

- A. See WSDOT Standard Specification 7-04.3(1) for storm drain testing requirements. The Contractor shall furnish all equipment and personnel for conducting the test under the observation of the inspector. The Contractor shall make an air test for his own purposes prior to notifying the county to witness the test. The acceptance air test shall be made after trench is backfilled and compacted and the gravel access roadway section is completed to subgrade. No visible leakage in a catch basin shall be permitted.

3.8 ROADWAY DRAINAGE DITCH

- A. See WSDOT Standard Specification 2-12.3 for Permanent Erosion Control and Ditch Lining requirements.
- B. Grade and compact areas to the lines and levels indicated on the Drawings. The surface shall be prepared as per Section 31 23 00 – Earthwork and the following requirements.
- C. Remove rocks, soil clods, and vegetation that could prevent the erosion control matting from being in intimate contact with the subgrade. The surface to receive the erosion control matting shall be smooth with no ruts or ridges greater than 1 IN.
- D. Excavate 6 IN wide by 12 IN deep anchor trench at upgrade end of installation to inhibit undermining from surface water.

- E. Immediately following establishment of the final grade, erosion control matting shall be unrolled parallel to the flow of water.
- F. Where more than one strip of the erosion control matting is required to cover the given area, it shall overlap the adjacent strip a minimum of 6 IN.
- G. The ends of the erosion control matting shall overlap at least 6 IN with the upgradient section on top.
- H. The erosion control matting shall be secured in accordance with the manufacturer's directions and the following:
- I. The edges of erosion control matting shall be buried around the edges of catch basins and other structures. Erosion control matting must be spread evenly and smoothly and in contact with the soil at all points.
- J. Install river rock as indicated on Drawings such that finished elevation is flush with surrounding grade.

3.9 INFILTRATION DITCH

- A. Work in accordance with WSDOT Standard Specification Section 2-01 for Clearing, Grubbing, and Roadside Cleanup of the existing infiltration trench and area where infiltration trench will be expanded. Debris shall be handled according to WSDOT Standard Specification Section 2-01.2(2), Disposal Method No. 2 – Waste Site.
- B. Excavated material shall be placed in the open area to the west of the infiltration ditch and covered with hydroseed. Sideslopes of the excavated material shall not be steeper than 2:1.
- C. Provide and install Top Soil as indicated on the Drawings.
- D. Weather Limitations:
 - 1. Seeding operations shall not be permitted when wind velocities exceed 15 MPH.
 - 2. Seed shall be sown only when the soil is moist and in proper condition to induce growth. No seeding shall be done when the ground is unduly wet, or otherwise not in a tillable condition. Seeding shall be done only after finish grading and adjacent construction has been completed.
 - 3. Seeding shall only be completed from March 1 to May 15 and from September 1 until October 1. Seeding at other times of the year shall only be completed with written permission from the Construction Manager.
- E. Hydroseeding:
 - 1. Seed shall be added to water and thoroughly mixed at the rates specified.
 - 2. The seed, water, wood cellulose fiber, and tackifier shall be thoroughly mixed to produce a homogeneous slurry.
 - 3. While the soil is still loose and moist, the slurry shall be uniformly broadcast under pressure over the nominated area using a hydroseeding apparatus.
 - 4. HECs shall be applied at the manufacturer prescribed rates for slope that is being hydroseeded.
 - 5. Terrain that is steeper than 2.5H:1V areas that exceed 10,000 SQ FT, and areas having a vertical drop greater than 15 FT shall be treated with a supplemental tackifier.
 - 6. Hydroseeding shall be conducted in a two step process. The first application shall include seed, 10 percent mulch fiber, and fertilizer; second application with no seed and 90 percent mulch fiber. The first application shall be from east to west and the second from north to south to ensure uniformity.
 - 7. The hydroseeded area shall not be rolled.
 - 8. The device for spreading seed, wood cellulose fiber, and tackifier shall be capable of uniformly distributing the material at the Manufacturer's specified rate for that product.
 - 9. Any seeded areas that have become compacted beyond 85 percent maximum density prior to seeding must be scarified to a depth of 6 IN by acceptable means, then finish graded as herein described.

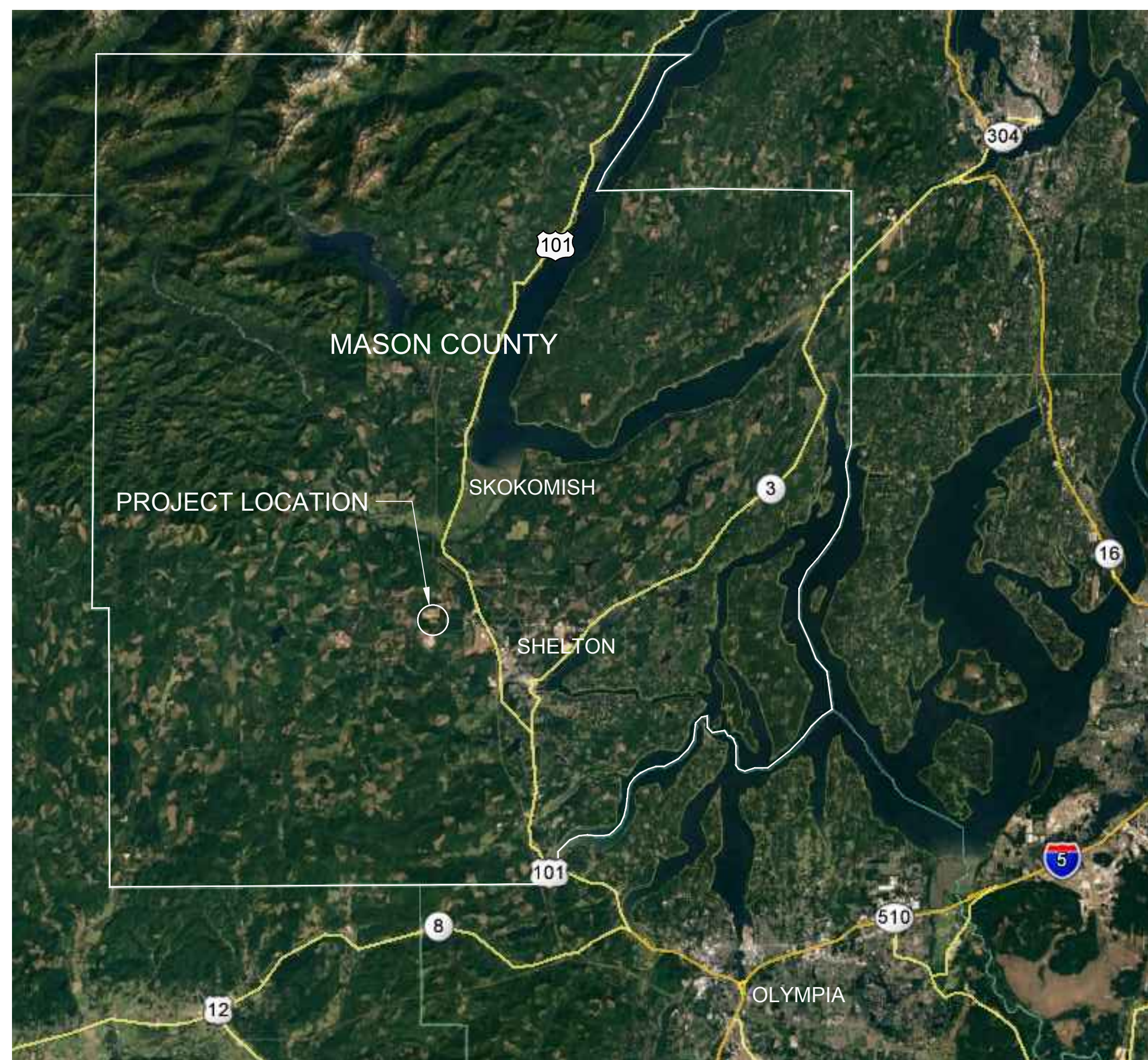
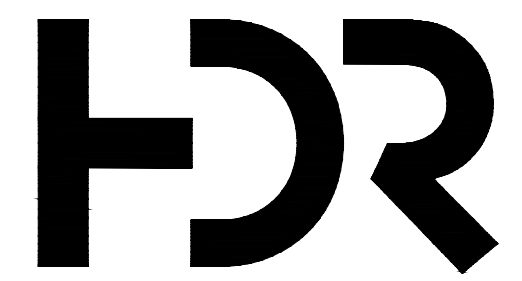
10. The Contractor shall be responsible for the watering, reseeding, mowing, and other necessary operations of seeded areas until Final Acceptance of the project.

3.10 ABANDON PIPE

- A. Abandon existing 8 IN Perforated Stormwater Line in place, except where demolition is shown on the Drawings.

END OF SECTION

PART V- HDR PROJECT DRAWINGS



Contract Drawings For

Mason County Transfer Station

Eells Hill Transfer Station Improvements

Issued For Construction

Project No.
10059970

Shelton, Mason County, Washington
October, 2017

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GENERAL NOTES

UNLESS NOTED OTHERWISE:

- G1. FACILITY IS AN ACTIVE WASTE TRANSFER STATION. CONSTRUCTION SCHEDULING AND ANY POTENTIAL OUTAGES MUST BE COORDINATED WITH OWNER.
G2. OWNER TRAFFIC, INCLUDING OPERATIONS AND CUSTOMERS, SHALL BE GIVEN PRIORITY TO CONSTRUCTION TRAFFIC AT ALL TIMES.
G3. EXISTING CONDITIONS SHOWN ON PLANS ARE BASED ON 1993 DESIGN DRAWINGS FOR TRANSFER STATION CONSTRUCTION AND LIMITED POINT SURVEY AND REFLECT EXISTING CONDITIONS TO THE EXTENT KNOWN. EXISTING SURVEY MAP IS NOT AVAILABLE.
G4. IN GENERAL, EXISTING INFRASTRUCTURE AND UTILITIES ARE SHOWN SCREENED IN LIGHT LINEWEIGHTS AND PROPOSED FEATURES ARE SHOWN IN HEAVIER LINEWEIGHTS.
G5. EXCAVATION AND SHORING SHALL BE COMPLETED IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REQUIREMENTS FOR TRENCHING AND EXCAVATION.
G6. CONTRACTOR TO FIELD VERIFY MATERIAL QUANTITIES PRIOR TO ORDERING.
G7. CONTRACTOR TO COORDINATE WITH OWNER FOR TIMING, LOCATION, AND USE OF EXISTING ONSITE MATERIALS AND STOCKPILING.

CIVIL GENERAL NOTES

UNLESS NOTED OTHERWISE:

- C1. CONTRACTOR TO PROTECT ALL UTILITIES AND FEATURES INCLUDING THOSE MARKED AS PREVIOUSLY ABANDONED UNLESS OTHERWISE NOTED ON THE DRAWINGS.
C2. CONTRACTOR TO FIELD VERIFY LOCATION AND DEPTH OF EXISTING SITE FEATURES.
C3. CONTRACTOR TO PROVIDE CONTROLS TO PREVENT THE RELEASE OF LEACHATE TO THE GROUND SURFACE OR STORMWATER COLLECTION SYSTEM DURING CONSTRUCTION.
C4. DEMOLITION OR ABANDONMENT OF EXISTING SITE FEATURES AND UTILITIES SHALL BE CONDUCTED IN ACCORDANCE WITH THE SPECIFICATIONS.
C5. CONTRACTOR SHALL SUBMIT AND RECEIVE OWNER APPROVAL OF A TEMPORARY EROSION AND SEDIMENT CONTROL (TESC) PLAN PRIOR TO COMMENCEMENT OF ONSITE CONSTRUCTION ACTIVITIES.
C6. ANY AREAS OF EXPOSED SOILS, INCLUDING EXCAVATIONS AND STOCKPILES THAT WILL NOT BE DISTURBED OVER A TWO-DAY PERIOD DURING THE WET SEASON OR OVER A SEVEN-DAY PERIOD DURING THE DRY SEASON, SHALL BE IMMEDIATELY STABILIZED WITH APPROVED ESC METHODS (E.G. SEEDING, MULCHING, PLASTIC COVERING).
C7. WHEN STRAW MULCH IS USED FOR TESC, PREVENT STRAW FROM ENTERING STORMWATER CONVEYANCE AND DETENTION FEATURES.

STRUCTURAL GENERAL NOTES

UNLESS NOTED OTHERWISE (UNO):

- G1. SCOPE: THE NOTES ON THIS SHEET AND THE STANDARD STRUCTURAL DETAILS ARE GENERAL AND APPLY TO THE ENTIRE PROJECT WHETHER SPECIFICALLY CALLED OUT OR NOT. EXCEPT WHERE THERE ARE SPECIFIC INDICATIONS TO THE CONTRARY ON STRUCTURAL SHEETS, IF THERE ARE QUESTIONS, THEY SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER AND ANSWERED IN WRITING PRIOR TO CONSTRUCTION.
G2. APPLICABLE SPECIFICATIONS AND CODES: A. 2015 INTERNATIONAL BUILDING CODE (IBC); B. ASCE 7-10, MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES; C. ACI 318-14, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE; D. AISC STEEL CONSTRUCTION MANUAL, 14TH EDITION.
G3. SAFETY: SAFETY AND STRUCTURE STABILITY DURING CONSTRUCTION ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. STRUCTURES HAVE BEEN DESIGNED TO RESIST THE DESIGN LOADS ONLY AS A COMPLETED STRUCTURE.
G4. OPENINGS: OPENINGS FOR PIPES, DUCTS, CONDUITS, ETC. ARE NOT ALL SHOWN ON THE STRUCTURAL DRAWINGS. COORDINATE AND PROVIDE OPENINGS AS REQUIRED TO ACCOMMODATE ALL WORK SHOWN OR SPECIFIED IN THE CONTRACT DOCUMENTS AND OTHERWISE REQUIRED FOR THE FURNISHING OF A FUNCTIONALLY COMPLETE PROJECT. REINFORCE AROUND OPENINGS PER STANDARD STRUCTURAL DETAILS UNLESS OTHERWISE SHOWN.
G5. DIMENSIONS: STRUCTURAL DIMENSIONS CONTROLLED BY OR RELATED TO MECHANICAL OR ELECTRICAL EQUIPMENT SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
G6. PROVISIONS FOR EQUIPMENT: MECHANICAL AND ELECTRICAL EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, RECESSES AND REVEALS NOT SHOWN ON THE STRUCTURAL DRAWINGS BUT REQUIRED BY OTHER CONTRACT DOCUMENTS SHALL BE PROVIDED PRIOR TO CASTING CONCRETE.
G7. CONSTRUCTION JOINTS: UNLESS OTHERWISE SHOWN, LOCATION OF ALL CONSTRUCTION JOINTS SHALL HAVE THE APPROVAL OF THE ENGINEER.
G8. STANDARD DETAILS: THE STANDARD DETAILS DEPICT TYPICAL DETAILING TO BE USED ON THIS PROJECT. IF CONDITIONS ARE NOT EXPLICITLY SHOWN ON THE DRAWINGS THEY SHALL BE MADE SIMILAR TO THE STANDARD DETAILS. OBTAIN APPROVAL OF ENGINEER IN WRITING FOR SIMILAR CONDITIONS PRIOR TO CONSTRUCTION.

STRUCTURAL GENERAL NOTES

(CONTINUED)

- G9. EXISTING CONSTRUCTION: THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS OF EXISTING CONSTRUCTION AS REQUIRED TO COORDINATE NEW CONSTRUCTION. SUBMIT REQUIRED CHANGES FOR APPROVAL.
G10. EQUIPMENT LOADING: CONTRACTOR TO SUBMIT FOR REVIEW ALL EQUIPMENT SIZES, OPERATING WEIGHTS, VIBRATION FORCES, SUPPORT LOCATIONS, ALONG WITH ANY FLOOR OPENINGS, NOTCHES, AND RECESSES REQUIRED BY SUCH EQUIPMENT. CONCRETE SUPPORT PADS AND/OR FRAMING REQUIRED TO SUPPORT SAID EQUIPMENT SHALL NOT BE FABRICATED AND PLACED UNTIL THE CONCRETE SUPPORT PADS AND/OR FRAMING IS APPROVED TO SUPPORT THE EQUIPMENT.
G11. CONFLICTS: IF THERE ARE CONFLICTS IN THE CONTRACT DOCUMENTS, THE MOST STRINGENT REQUIREMENTS SHALL CONTROL FOR BID PURPOSES. SUBMIT QUESTIONS IN WRITING TO ENGINEER FOR CLARIFICATION PRIOR TO CONSTRUCTION.

CONCRETE

UNLESS NOTED OTHERWISE:

- C1. DESIGN STRENGTHS: Fc = 4,500 PSI; Fy = 60,000 PSI.
C2. CONCRETE COVER: UNLESS OTHERWISE NOTED, PROVIDE CONCRETE COVER FOR REINFORCING AS FOLLOWS: CONCRETE DEPOSITED AGAINST EARTH: 3"; TIE REINFORCING AT COLS: 1 1/2"; ALL OTHER: 2". SEE DRAWINGS FOR EXCEPTIONS.
C3. ALL DETAILING, FABRICATION, AND ERECTION OF REINFORCING BARS, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE ACI MANUAL OF STANDARD PRACTICE. SEE SPECIFICATIONS FOR ADDITIONAL REINFORCING PLACEMENT REQUIREMENTS.
C4. REFER TO OTHER DISCIPLINE DRAWINGS PRIOR TO CONSTRUCTION FOR EMBEDDED ITEMS AND PENETRATIONS NOT SHOWN ON STRUCTURAL DRAWINGS, AS REQUIRED TO ACCOMMODATE ALL WORK SHOWN OR SPECIFIED IN THE CONTRACT DOCUMENTS AND OTHERWISE REQUIRED FOR THE FURNISHING OF A FUNCTIONALLY COMPLETE PROJECT. REINFORCE AROUND OPENINGS PER STANDARD STRUCTURAL DETAILS UNLESS OTHERWISE SHOWN.
C5. PROVIDE 3/4" CHAMFERS AT ALL EXPOSED EDGES AND 1/2" CHAMFERS AT JOINTS AS SHOWN. NOT ALL CHAMFERS MAY BE SHOWN ON DRAWINGS.
C6. FIELD ADJUST REINFORCING AT OPENINGS AND EMBEDDED ITEMS AS INDICATED.
C7. ANCHOR BOLTS NOT SPECIFIED BY ENGINEER SHALL BE DESIGNED AND CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER, RETAINED BY THE CONTRACTOR, IN ACCORDANCE WITH APPLICABLE PROJECT AND CODE REQUIREMENTS. SUBMIT AS A SHOP DRAWING FOR REVIEW AND APPROVAL BY THE ENGINEER. COORDINATE LOCATION, SIZE AND EMBEDMENT PRIOR TO CASTING CONCRETE.
C8. ABSOLUTELY NO WELDING OF REINFORCING BARS OR TORCHING TO BEND REINFORCING BARS SHALL BE ALLOWED WITHOUT SPECIFIC APPROVAL FROM THE STRUCTURAL ENGINEER.
C9. CONTRACTOR SHALL SUBMIT A CONCRETE PLACEMENT PLAN PER SPECIFICATIONS IDENTIFYING JOINT TYPES, JOINT LOCATIONS AND CONCRETE PLACEMENT SEQUENCE.
C10. ALL CAST-IN-PLACE AND POST-INSTALLED ANCHORS INDICATED IN THE STRUCTURAL DOCUMENTS SHALL COMPLY WITH CHAPTER 17 OF ACI 318 AND CHAPTER 19 OF THE IBC. ALL EXPANSION AND ADHESIVE ANCHORS SHALL HAVE AN ICC REPORT SHOWING EQUIVALENT LOAD CAPACITY. SUBMIT AND INSTALL PER THE ICC EVALUATION REPORT. ICC REPORT SHALL MEET REQUIREMENTS OF IBC 2015 FOR "CRACKED CONCRETE."
C11. CONCRETE FLOOR OVERLAY: A. CLEAN SURFACE OF ALL DIRT AND LAITANCE DOWN TO FIRM STRATA WITH A SURFACE PROFILE OF 1/8" - 1/16". PRIOR TO SHOTCRETE APPLICATION, WET SURFACE TO SATURATED SURFACE DRY (SSD) CONDITION. SURFACE PREPARATION SHALL INCLUDE REMOVAL OF ALL EXISTING JOINT SEALANT MATERIAL AT CONSTRUCTION JOINTS AND INTERMEDIATE CRACKS THAT HAVE BEEN PREVIOUSLY REPAIRED. DO NOT USE BONDING AGENT. APPLY CORROSION INHIBITOR TO EXPOSED EXISTING REINFORCING USING "SIKAFERROGARD-903" OR APPROVED EQUIVALENT. B. SCRUB COAT: DAMPEN THE AREA TO BE REPAIRED SO THAT THE PORES OF THE CONCRETE ARE FILLED WITH WATER. REMOVE ANY PONDING OR GLISTENING WATER REMAINING ON THE SURFACE. BRUSH A MORTAR SCRUB COAT INTO THE CONCRETE SUBSTRATE TO ESTABLISH A BOND. THE SCRUB COAT SHALL REMAIN WET OR TACKY UNTIL THE PLACEMENT OF THE TOPPING SLAB. IF THE SCRUB COAT DRIES, A FRESH COAT SHALL BE APPLIED. THE MORTAR SCRUB COAT SHALL CONSIST OF 1 PART PORTLAND CEMENT AND 2 PARTS AGGREGATE. C. ALL CONCRETE SHALL BE NORMAL WEIGHT AND SHALL DEVELOP A MINIMUM 28 DAY LABORATORY CURED COMPRESSIVE CYLINDER STRENGTH OF 5000 PSI. D. OVERLAY MIX SHALL INCORPORATE MACRO SYNTHETIC FIBERS WITH FIBRILLATED ENDS TO MINIMIZE EXPOSED FIBERS AT THE SURFACE. E. MACRO SYNTHETIC FIBERS SHALL MEET THE MATERIAL SPECIFICATIONS OF ASTM C-1116, TYPE III FIBER. F. SAMPLE FOR STRENGTH TESTS OF EACH CLASS OF CONCRETE PLACED EACH DAY SHALL BE TAKEN NOT LESS THAN ONCE A DAY, NOR LESS THAN ONCE FOR EACH 50 CUBIC YARDS OF CONCRETE, NOR LESS THAN EACH 5000 SQUARE FEET OF SURFACE AREA FOR SLABS OR WALLS. FREQUENCY OF TESTING MAY BE CHANGED AT THE DISCRETION OF THE ENGINEER. SAMPLES AS IDENTIFIED IN THESE SPECIFICATIONS SHALL CONSIST OF A MINIMUM OF FIVE CAST CYLINDERS. ONE TO BE CURED UNDER JOB CONDITIONS AND FOUR IN AN APPROVED COMMERCIAL LABORATORY. CYLINDERS SHALL BE TESTED FOR COMPRESSIVE STRENGTH AS FOLLOWS: TWO LAB CURED AT SEVEN DAYS, TWO LAB CURED AT TWENTY EIGHT DAYS. SLUMP, AIR ENTRAINMENT, LOCATION IN STRUCTURE, ETC., SHALL BE MEASURED AND RECORDED FOR EACH SET OF CYLINDERS PER ASTM STANDARDS. CONCRETE CYLINDER AND TESTING SHALL CONFORM WITH ASTM STANDARDS. G. CONCRETE FORMS, MIXING, PLACING, AND CURING SHALL CONFORM TO ACI MANUAL OF CONCRETE PRACTICE, LATEST EDITION AND SPECIFICATIONS. H. CONCRETE SHALL HAVE A MAXIMUM SLUMP OF FOUR INCHES. I. CONCRETE FOR EACH FLOOR SECTION (BETWEEN CONSTRUCTION JOINTS) SHALL BE PLACED IN ONE CONTINUOUS OPERATION. J. ALIGN OVERLAY CONSTRUCTION JOINTS WITH EXISTING JOINTS.

STEEL

UNLESS NOTED OTHERWISE:

- S1. DESIGN STRENGTHS AND MATERIALS: WIDE FLANGE AND TEES: ASTM A992 Fy=50 KSI; HSS SECTIONS: ASTM A500 Fy=46 KSI; WASTE CHUTE PLATES: ASTM A514; ALL OTHER PLATES AND SHAPES: ASTM A36 Fy=36 KSI.
S2. DIMENSIONS: TO CENTERLINES OF COLUMNS AND BEAMS, TOP SURFACES OF BEAMS AND TUBES AND BACKS OF CHANNELS AND ANGLES.
S3. ELEVATIONS: TOP OF STEEL REFERS TO TOP SURFACE OF MEMBER OR FLANGE, UNO.
S4. ALL STRUCTURAL STEEL AND PLATES TO BE GALVANIZED PER ASTM A123.
S4. WELDING SHALL CONFORM TO AWS CODE FOR ARC AND GAS WELDING IN BUILDING CONSTRUCTION. WELDER SHALL BE CERTIFIED. WELDING ELECTRODE SHALL BE E70XX.
S5. WHEN FILLET WELD SIZE IS NOT INDICATED, PROVIDE MAXIMUM WELD SIZE BASED ON MATERIAL THICKNESS IN ACCORDANCE WITH AISC SPECIFICATIONS.
S6. BOLTS FOR STRUCTURAL STEEL CONNECTIONS SHALL BE HIGH STRENGTH CONFORMING TO ASTM A325. UNLESS OTHERWISE NOTED, INSTALLATION OF BOLTS SHALL CONFORM TO AISC SPECIFICATIONS FOR STRUCTURAL JOINTS, USING A325 BOLTS.
S7. ALL BOLTED STRUCTURAL CONNECTIONS ARE BEARING TYPE CONNECTIONS UNLESS OTHERWISE SPECIFIED TO BE SLIP-CRITICAL. PROVIDE LOAD INDICATING WASHERS AT SLIP-CRITICAL CONNECTIONS.
S8. CONFORM TO AISC 360, STEEL CONSTRUCTION MANUAL AND AISC 341, SEISMIC DESIGN MANUAL.

SCHEDULE OF SPECIAL INSPECTION SERVICES table with columns: INSPECTION ITEM REQUIRED, FREQUENCY (CONTINUOUS, PERIODIC), CODE REFERENCE, REMARKS. Rows include GENERAL STRUCTURAL OBSERVATIONS, CONCRETE AND REINFORCING STEEL, STRUCTURAL STEEL, and VERIFICATION OF CORRECT STRUCTURAL STEEL MATERIAL DELIVERED TO JOB SITE.

* SPECIFIC REQUIREMENTS SHALL BE PER MANUFACTURER'S RESEARCH REPORT.

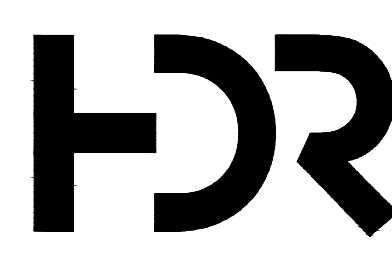
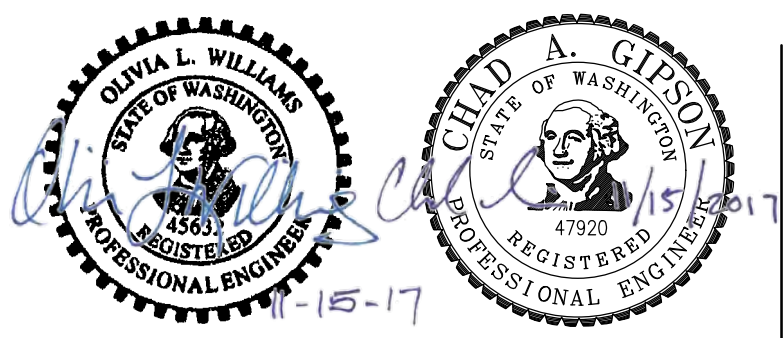


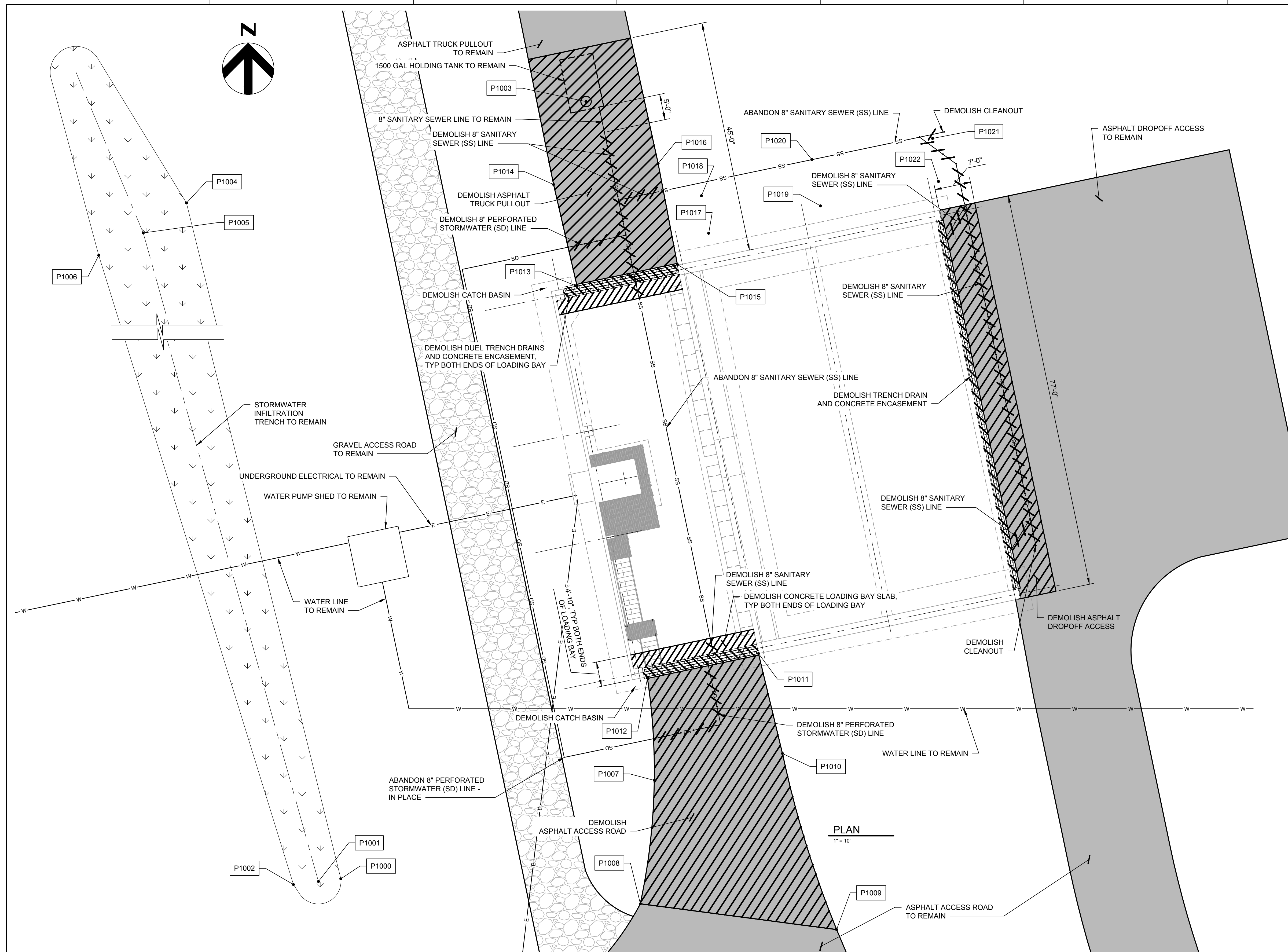
Table with columns: ISSUE, DATE, DESCRIPTION. Row 1: 1, 11/15/2017, REVISIONS PER COUNTY COMMENTS. Row 2: 0, 10/19/2017, ISSUED FOR CONSTRUCTION.

PROJECT MANAGER: OLIVIA WILLIAMS. STRUCTURAL ENGINEER: CG. CIVIL ENGINEER: OW. CAD: RM. PROJECT NUMBER: 10059970.



MASON COUNTY SOLID WASTE DEPT. EELLS HILL TRANSFER STATION IMPROVEMENTS SHELTON, WASHINGTON. Includes logo and scale bar.

GENERAL NOTES. FILENAME: G-002.dwg. SCALE: N/A. SHEET: G-002.



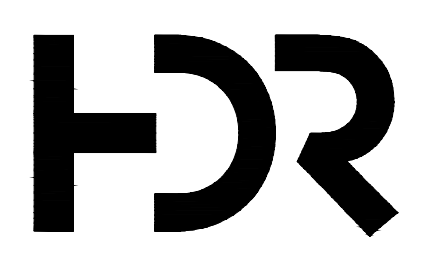
- NOTES:**
- SEE MASON COUNTY DEPARTMENT OF COMMUNITY DEVELOPMENT WASTE EXPORT TRANSFER STATION DRAWINGS, JOB NO 21-1682-13, DATED MAY 1993, FOR EXISTING SITE WORK, STRUCTURES, AND UTILITY DETAILS.
 - DEMOLISH TRENCH DRAIN TO BUILDING LIMITS.
 - ABANDONED SEWER PIPE SHALL BE FILLED WITH CDF AND REMAIN IN PLACE.
 - DEMOLISHED PIPE SHALL BE REMOVED AND DISPOSED OF OFF-SITE.
 - DEMOLITION OF ASPHALT SHALL INCLUDE REMOVAL OF EXISTING HMA TO CSBC. HMA TO BE REMOVED AND DISPOSED OF OFF-SITE.
 - DEMOLISHED TRENCH DRAIN SHALL BE REMOVED AND DISPOSED OF OFF-SITE.

LEGEND:
 //// EXISTING FEATURES TO BE DEMOLISHED.

SURVEYED GROUND SURFACE POINTS TABLE

POINT No.	NORTHING	EASTING	ELEVATION (FT)
P1000	710700.46	972183.89	309.00
P1001	710699.94	972179.55	308.36
P1002	710699.35	972174.69	308.75
P1003	710851.34	972231.50	303.08
P1004	710870.89	972141.78	309.90
P1005	710865.08	972133.38	308.16
P1006	710860.73	972124.74	310.07
P1007	710719.56	972244.77	304.10
P1008	710695.61	972242.05	305.98
P1009	710690.15	972280.14	306.15
P1010	710724.78	972269.63	304.21
P1011	710744.19	972264.97	303.11
P1012	710739.49	972243.42	303.15
P1013	710815.46	972229.76	303.11
P1014	710835.21	972225.19	302.98
P1015	710819.68	972249.24	302.95
P1016	710839.28	972245.49	302.78
P1017	710825.75	972255.30	303.35
P1018	710833.05	972253.91	303.73
P1019	710831.07	972277.00	311.63
P1020	710840.07	972298.32	311.65
P1021	710844.16	972298.78	317.31
P1022	710835.80	972299.92	318.35

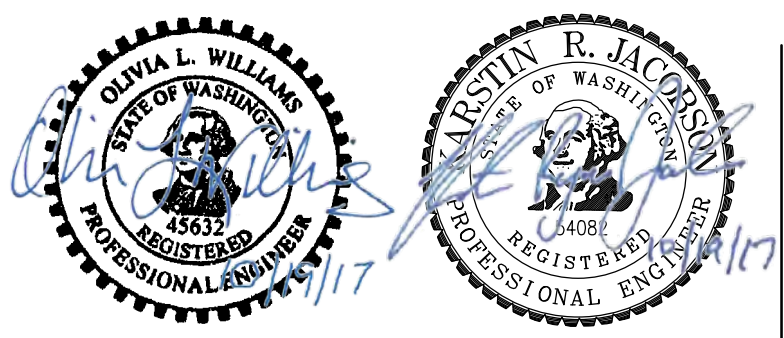
PLAN
 1" = 10'



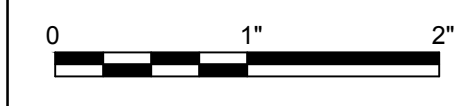
ISSUE	DATE	DESCRIPTION
0	10/19/2017	ISSUED FOR CONSTRUCTION

PROJECT MANAGER OLIVIA WILLIAMS

SANITARY SEWER ENGINEER	KJ
STORMWATER ENGINEER	OW
CAD	RM
PROJECT NUMBER	10059970

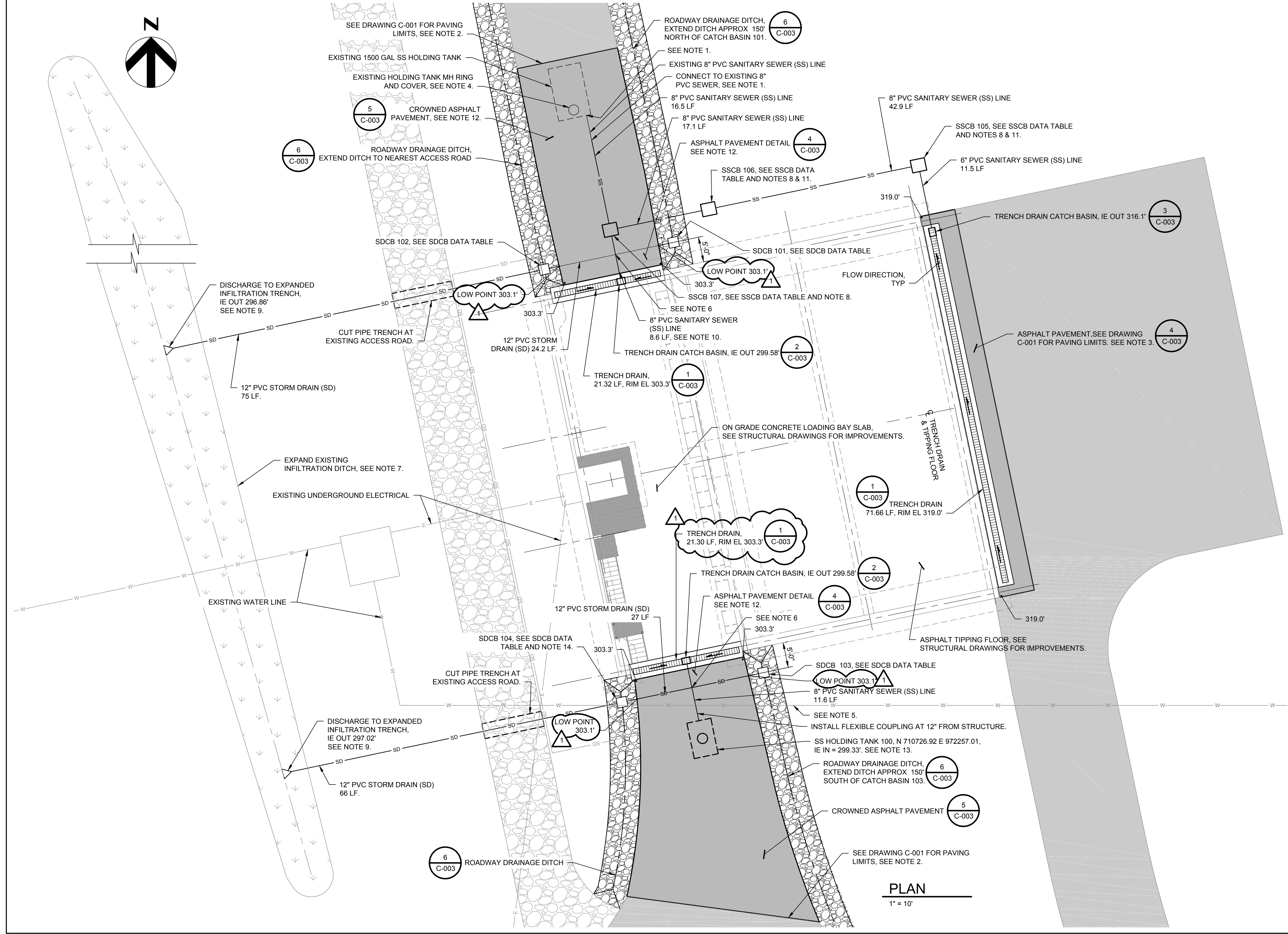
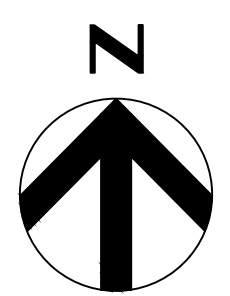


MASON COUNTY SOLID WASTE DEPT.
EELLS HILL TRANSFER STATION IMPROVEMENTS
 SHELTON, WASHINGTON



FILENAME C-001.dwg
 SCALE 1" = 10'

SHEET
C-001



- NOTES:**
1. INVERT ELEVATION OF EXISTING INLET PIPE AT THE EXISTING 1500 GAL SS HOLDING TANK IS APPROX 299.0 FEET PER DESIGN DRAWINGS. CONTRACTOR SHALL FIELD VERIFY DEPTH, LOCATION, AND OUTSIDE DIAMETER PRIOR TO CONNECTING TO EXISTING PIPE. THE CONNECTION SHALL BE MADE WITH A FLEXIBLE COUPLING.
 2. ASPHALT FINAL ELEVATIONS BASED ON SURVEY PROVIDED BY MASON COUNTY. LIMITS OF PROPOSED PAVING SHALL MATCH EXISTING ASPHALT GRADES.
 3. LIMITS OF PROPOSED PAVING SHALL MATCH EXISTING ASPHALT GRADES. CONTRACTOR SHALL VERIFY THAT FLOWS DRAIN AWAY FROM TRENCH DRAIN.
 4. INSTALL NEW HOLDING TANK 24" MANHOLE RING AND SOLID COVER AT FINISHED ASPHALT GRADE.
 5. LOCATION OF EXISTING WATER LINE IS APPROXIMATE. CONTRACTOR TO FIELD VERIFY LOCATION AND PROTECT IN PLACE PRIOR TO CONSTRUCTION.
 6. CONTRACTOR TO MAINTAIN MINIMUM 1.0 FOOT VERTICAL SEPARATION BETWEEN SEWER AND STORMWATER UTILITIES.
 7. MAINTAIN EASTERN EDGE OF EXISTING INFILTRATION DITCH. FROM EASTERN LIMIT, EXCAVATE AT 2:1 SLOPE TO MINIMUM OF 11.5 FEET WIDTH & BELOW EXISTING FLOWLINE AT MINIMUM SLOPE OF 0.5% TOWARDS THE NORTH END OF THE INFILTRATION DITCH. NORTH AND SOUTH ENDS OF INFILTRATION DITCH SHOULD HAVE 3:1 SLOPE FOR MAINTENANCE ACCESS. BASE OF TRAPEZOIDAL TRENCH SHOULD BE 6 FEET WIDE. ADD 3 INCHES TOP SOIL TO SIDE SLOPES AND BOTTOM, AND HYDROSEED ALL SURFACES. DITCH SHOULD BE A MINIMUM OF 200 FEET LONG. IF EASTERN EDGE OF DITCH IS LESS THAN 200 FEET LONG, EXTEND NORTH TO ACHIEVE LENGTH OF 200 FEET. COUNTY TO APPROVE LOCATIONS OF ANY EXTENDED AREA.
 8. CHANNEL BASE OF SANITARY SEWER CATCH BASIN SIMILAR TO MANHOLE. SLOPE TO CONVEY FLOWS TOWARDS DOWNSTREAM INVERT.
 9. BEVELED END SECTION PER WSDOT STANDARD PLANS B-70.20-00.
 10. MINIMUM SLOPE FOR 6" AND 8" PVC SEWER LINE FROM TRENCH DRAIN CONNECTION SHALL BE .005 FT/FT.
 11. GRADE 2" AREA AROUND CATCH BASIN LID FLAT AND 2" BELOW RIM ELEVATION. FRAMES AND GRATES FOR SANITARY SEWER CATCH BASINS INSTALLED IN SLOPED HILLSIDE SHALL BE INTEGRALLY CAST INTO THE ADJUSTMENT SECTION WITH THE FLANGE UP.
 12. TRANSITION TO ASPHALT PAVEMENT CROWN SHALL START 5 FEET SOUTH OF THE TRENCH DRAIN ON THE SOUTH END OF THE LOADING BAY AND 5 FEET NORTH OF THE TRENCH DRAIN ON THE NORTH END OF THE LOADING BAY. THE TRANSITION DISTANCE FROM FLAT PAVEMENT TO CROWNED PAVEMENT TO BE 5 FEET AND SHALL BE GENTLY SLOPED TO DRAIN TO ADJACENT STORM DRAIN CATCH BASINS.
 13. INSTALL SS HOLDING TANK 100 WITH RISER AND MH LID. NORTHING AND EASTING INFORMATION GIVEN FROM CENTER OF MH LID.
 14. LOCATION OF WATER LINE IS APPROXIMATE. CONTRACTOR TO FIELD ADJUST SDCB 104 AND STORMWATER LINE TO AVOID CONFLICT WITH EXISTING WATER LINE. A MINIMUM OF 6 INCHES OF CLEARANCE AND A FOAM PAD MUST BE PROVIDED BETWEEN LINES.
 15. ALL NON-PAVED DISTURBED AREAS TO BE HYDRO SEEDED AFTER CONSTRUCTION.

STORM DRAIN CATCH BASIN (SDCB) DATA

THESE CATCH BASINS TO BE TYPE 1 PER WSDOT STD PLAN B-5.20-02

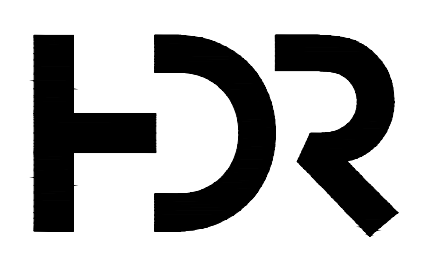
	SDCB 101	SDCB 102	SDCB 103	SDCB 104
RIM EL	301.6'	301.6'	301.6'	301.6'
NORTHING	710825.11	710819.75	710739.95	710734.09
EASTING	972251.28	972225.67	972269.09	972241.06
12" IE IN	-	(E) 297.24'	-	(E) 297.35'
12" IE OUT	(W) 297.37'	(W) 297.24'	(W) 297.49'	(W) 297.35'

SANITARY SEWER CATCH BASIN (SSCB) DATA

THESE CATCH BASINS TO BE TYPE 1L PER WSDOT STD PLAN B-5.40-02

	SSCB 105	SSCB 106	SSCB 107
RIM EL	317.8'	303.5'	303.3'
NORTHING	710840.35	710831.67	710827.60
EASTING	972299.77	972258.24	972238.88
6" IE IN	(S) 314.4'	-	-
8" IE IN	-	(E) 299.4'	(W) 299.19'
8" IE IN	-	-	(S) 299.19'
8" IE OUT	(W) 314.3'	(W) 299.3'	(N) 299.09'

PLAN
1" = 10'



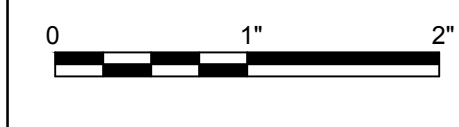
ISSUE	DATE	DESCRIPTION
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PROJECT MANAGER OLIVIA WILLIAMS

SANITARY SEWER ENGINEER	KJ
STORMWATER ENGINEER	OW
CAD	RM
PROJECT NUMBER	10059970



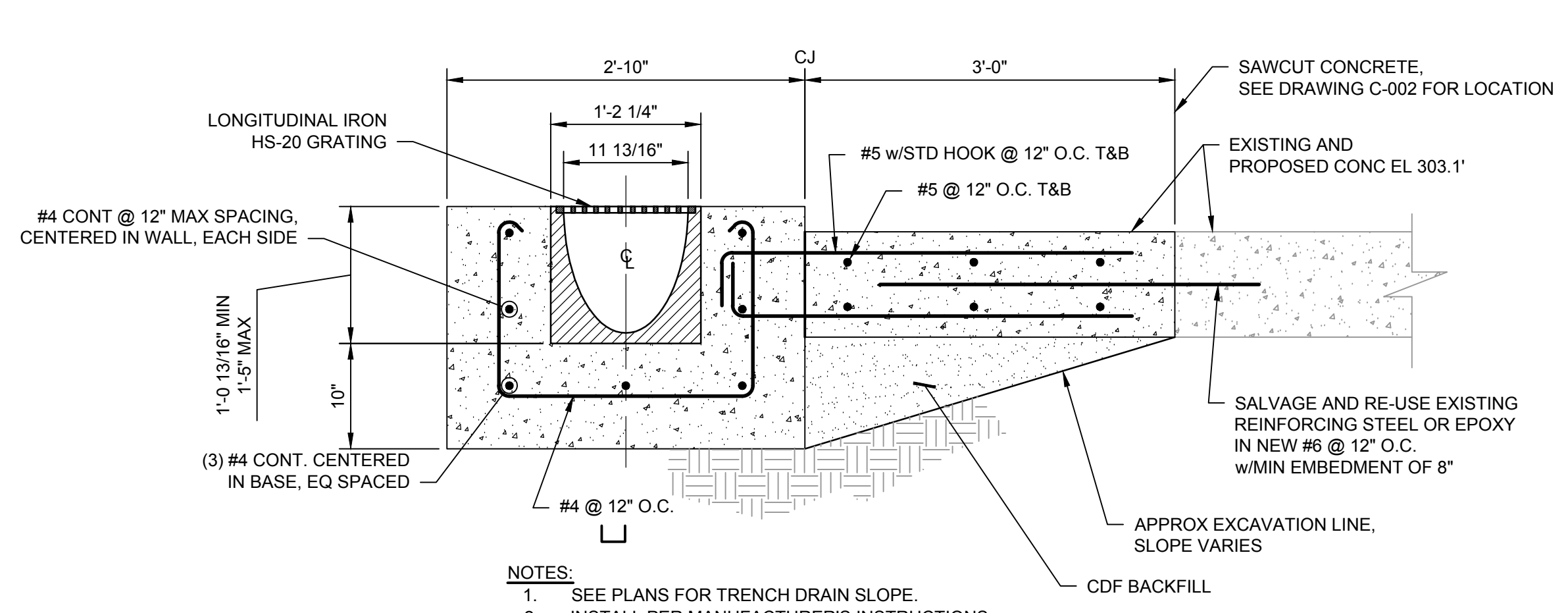
MASON COUNTY SOLID WASTE DEPT.
EELLS HILL TRANSFER STATION IMPROVEMENTS
SHELTON, WASHINGTON



CIVIL PROPOSED UTILITIES AND PAVING PLAN

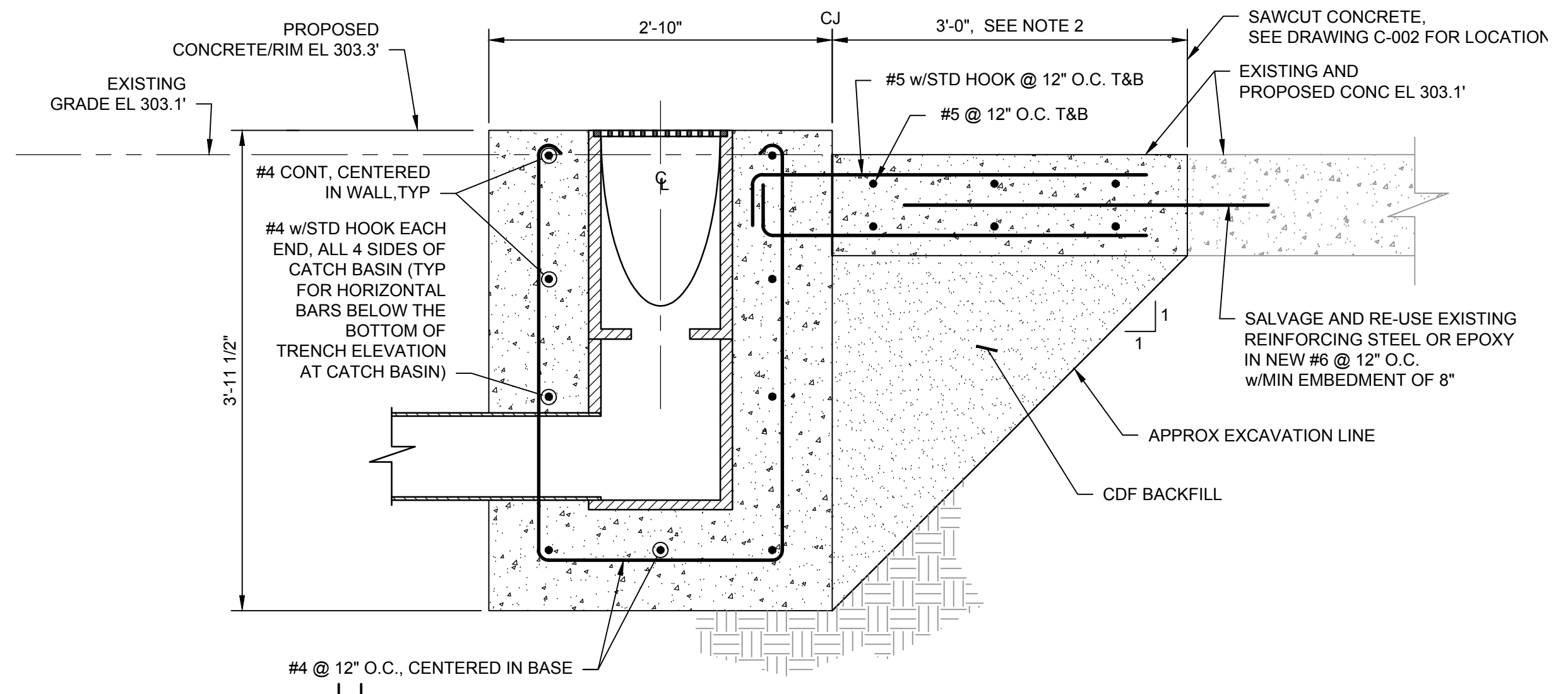
FILENAME C-002.dwg
SCALE 1" = 10'

SHEET
C-002



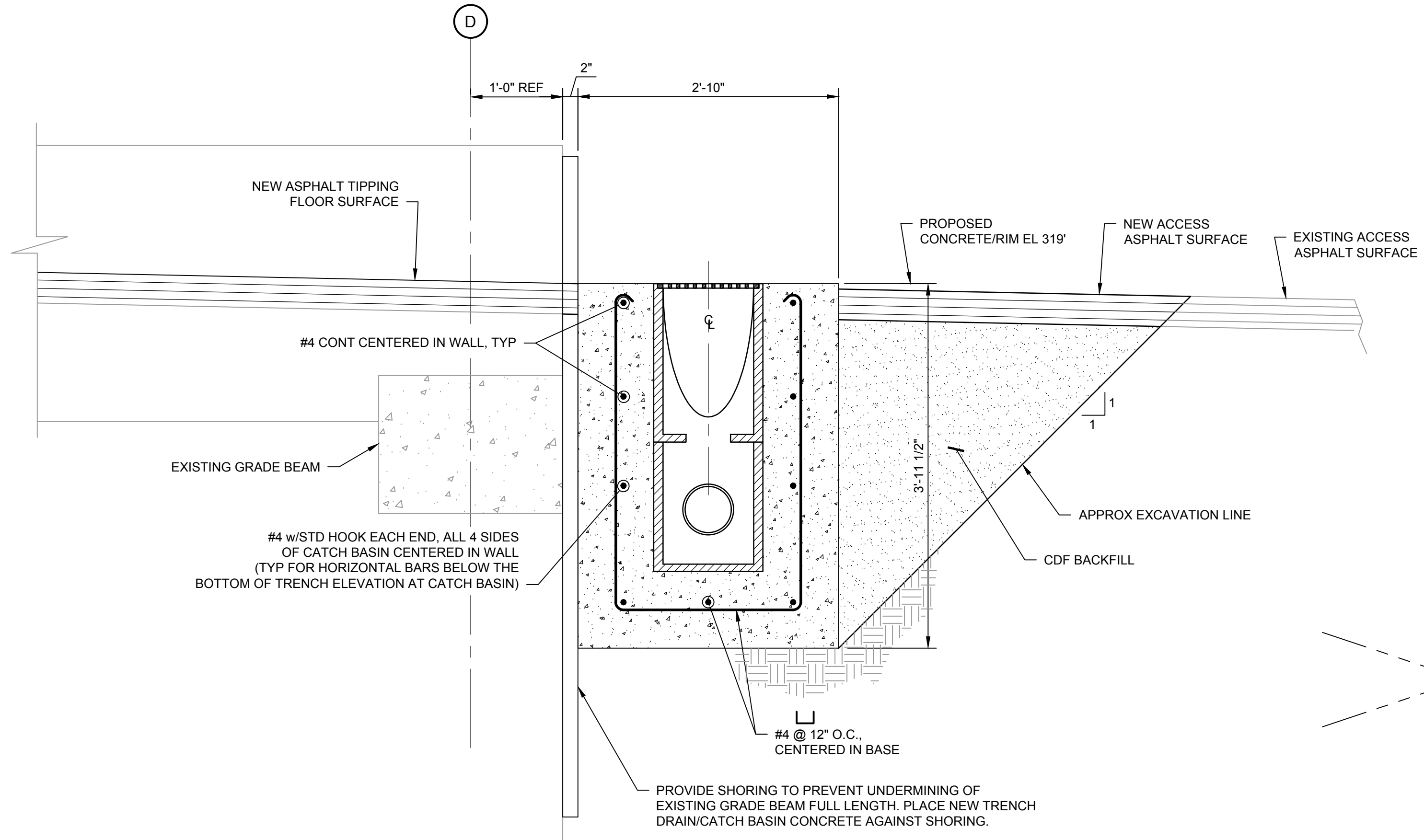
NOTES:
 1. SEE PLANS FOR TRENCH DRAIN SLOPE.
 2. INSTALL PER MANUFACTURER'S INSTRUCTIONS.

TRENCH DRAIN DETAIL
 1
 C-002 1" = 1'-0"



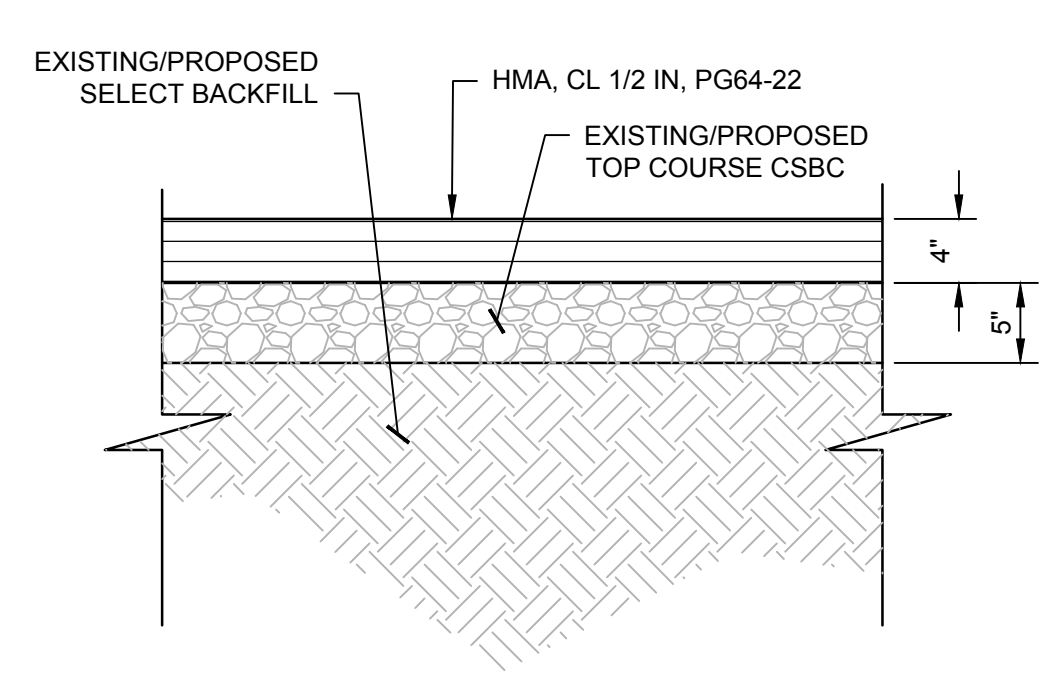
NOTES:
 1. SEE PLANS FOR TRENCH DRAIN SLOPE.
 2. INSTALL PER MANUFACTURER'S INSTRUCTIONS.

TRENCH DRAIN CATCH BASIN DETAIL @ LOADING BAY
 2
 C-002 1" = 1'-0"

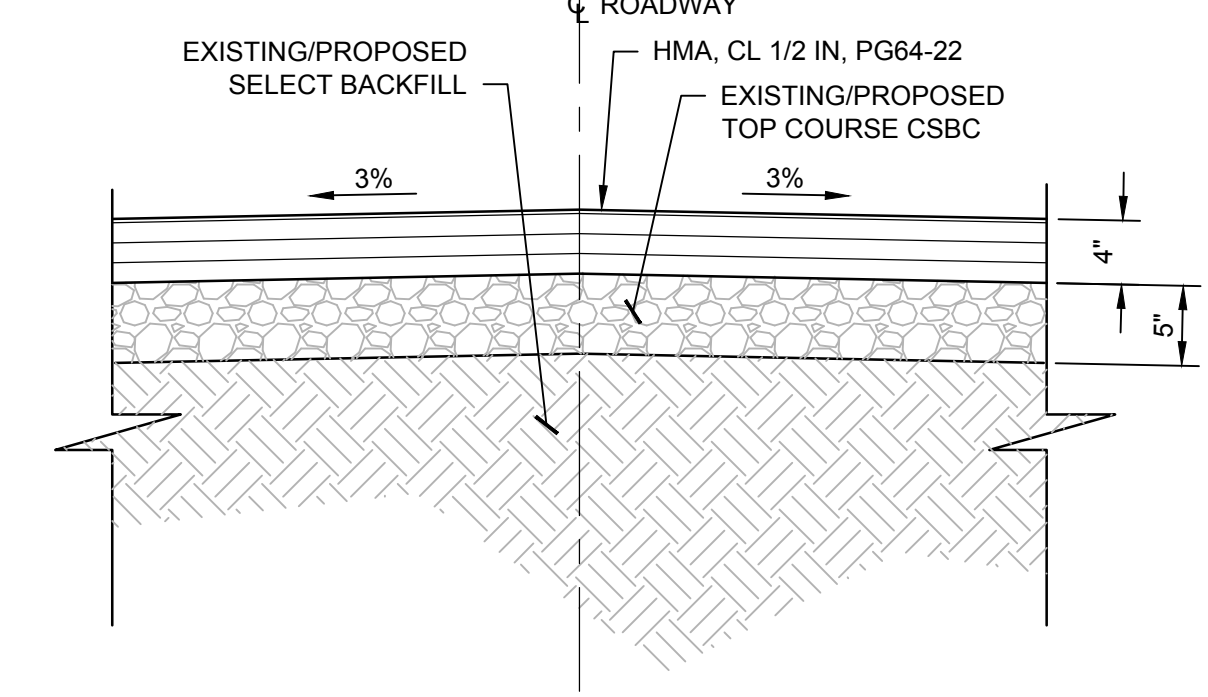


NOTES:
 1. SEE PLANS FOR TRENCH DRAIN SLOPE.
 2. INSTALL PER MANUFACTURER'S INSTRUCTIONS.

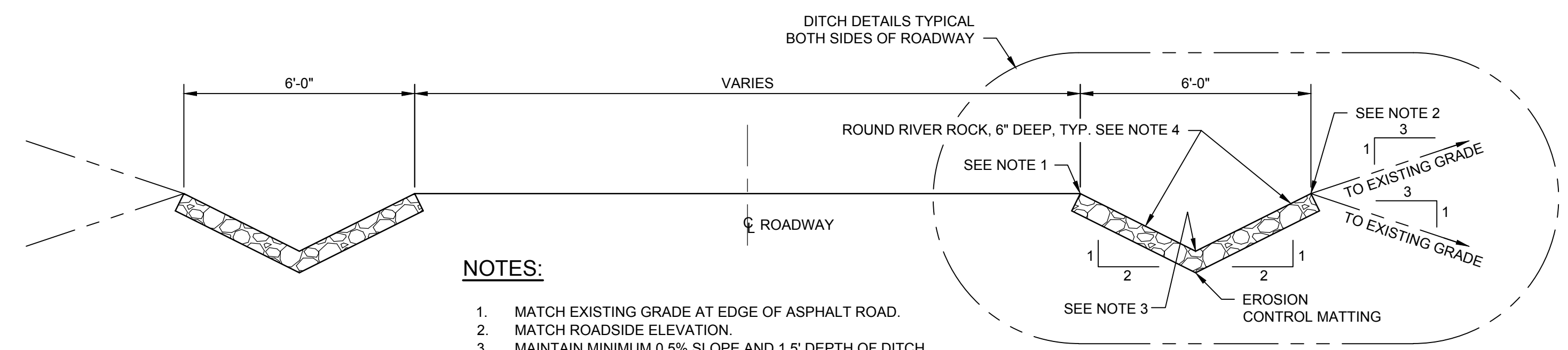
TRENCH DRAIN CATCH BASIN DETAIL @ TIPPING FLOOR
 3
 C-002 1" = 1'-0"



ASPHALT PAVEMENT SECTION DETAIL
 4
 C-002 N.T.S.

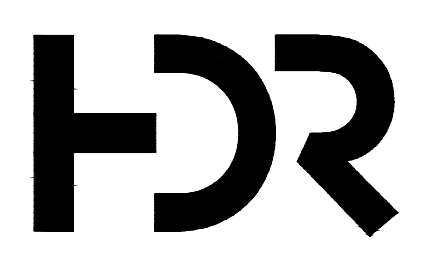


CROWNED ASPHALT PAVEMENT SECTION DETAIL
 5
 C-002 N.T.S.



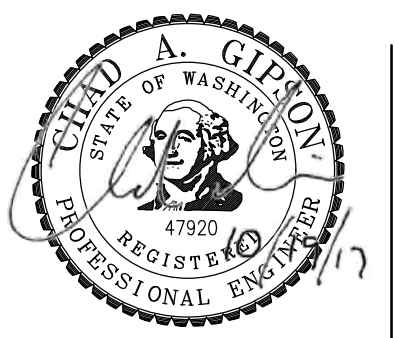
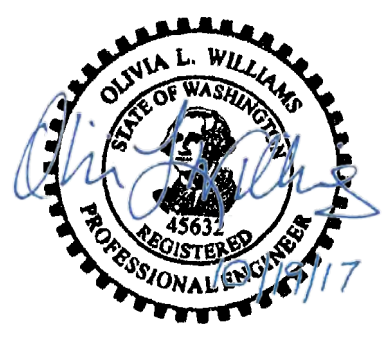
NOTES:
 1. MATCH EXISTING GRADE AT EDGE OF ASPHALT ROAD.
 2. MATCH ROADSIDE ELEVATION.
 3. MAINTAIN MINIMUM 0.5% SLOPE AND 1.5' DEPTH OF DITCH.
 4. CONTRACTOR TO USE ROUND RIVER ROCK LOCATED ON-SITE (PROVIDED BY COUNTY), COUNTY TO MONITOR AND ADJUST ROCK PLACEMENT AS NECESSARY FOR ONE YEAR AFTER PLACEMENT.

ROADWAY DRAINAGE DITCH SECTION DETAIL
 6
 C-002 N.T.S.

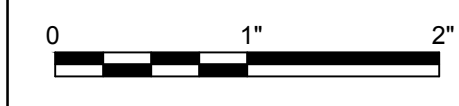


ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	OLIVIA WILLIAMS
SANITARY SEWER ENGINEER	KJ
STORMWATER ENGINEER	OW
STRUCTURAL ENGINEER	CG
CAD	RM
PROJECT NUMBER	10059970



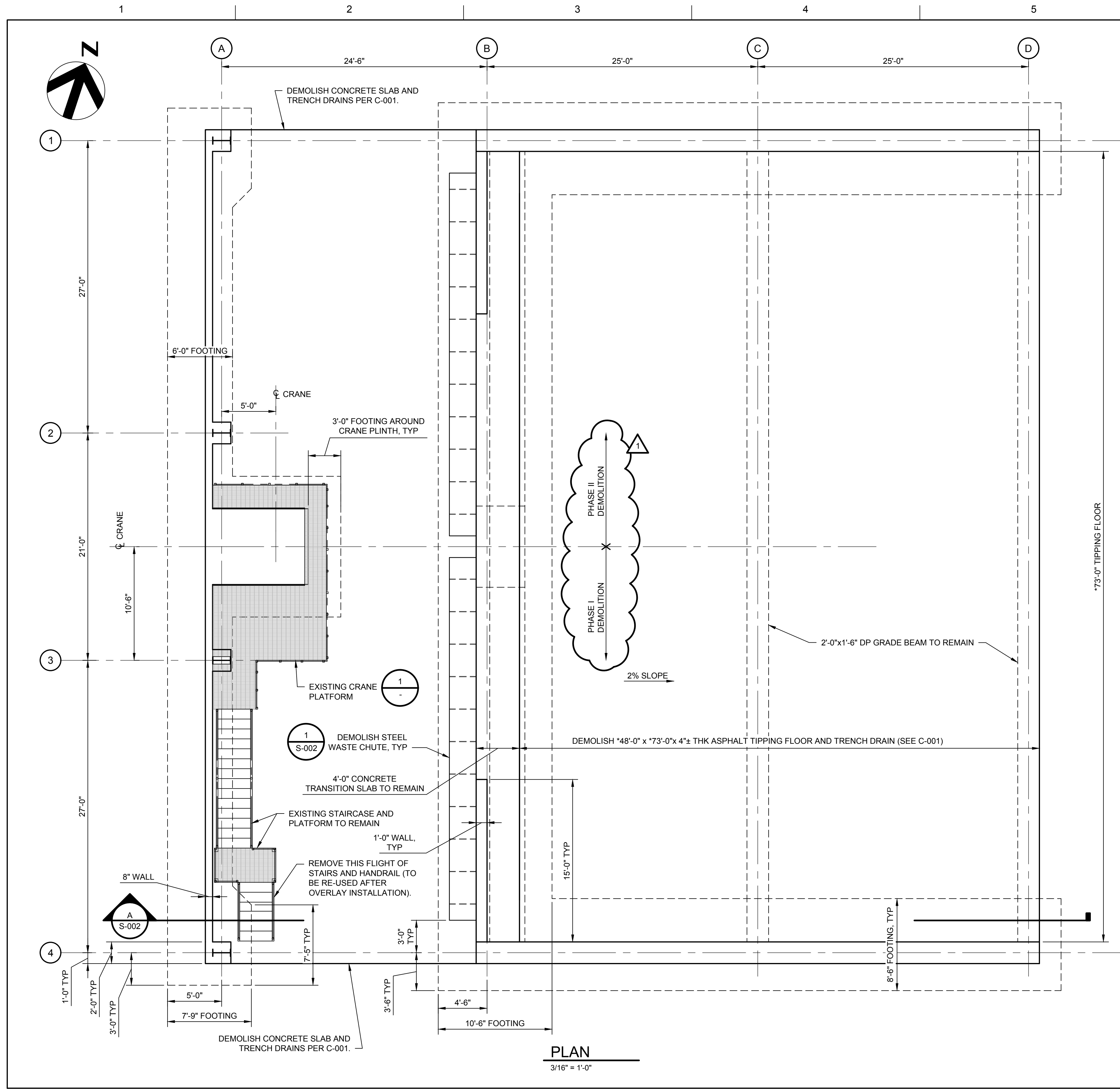
MASON COUNTY SOLID WASTE DEPT.
EELLS HILL TRANSFER STATION IMPROVEMENTS
SHELTON, WASHINGTON



CIVIL DETAILS

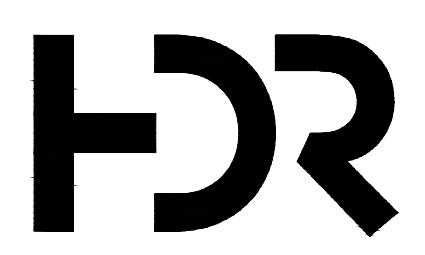
FILENAME | C-003.dwg
 SCALE | NOTED

SHEET
C-003



SEE 6 S-007 PLATFORM BRACE AND PLINTH CORNER EMBED REPLACEMENT
1 - N.T.S.
CRANE PLATFORM DEMOLITION DETAIL

- NOTES:**
- SEE G-002 FOR STRUCTURAL GENERAL NOTES.
 - SEE DRAWING S-003 FOR TIPPING FLOOR RESURFACING AND FOR LOADING BAY SLAB TOPPING.
 - ALL NOTED DIMENSIONS ("X'-X'") ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY PRIOR TO DEMOLITION.
 - CAREFULLY SAW CUT MEMBERS TO BE DEMOLISHED TO AVOID DAMAGE TO MEMBERS TO REMAIN.
 - KEEP ANCHOR BOLTS EMBEDDED IN CONCRETE WHERE POSSIBLE FOR MEMBERS TO BE REMOVED.
 - REPAIR GALVANIZED ITEMS PER SPECIFICATIONS AFTER DEMOLITION AND FIELD WELDING.



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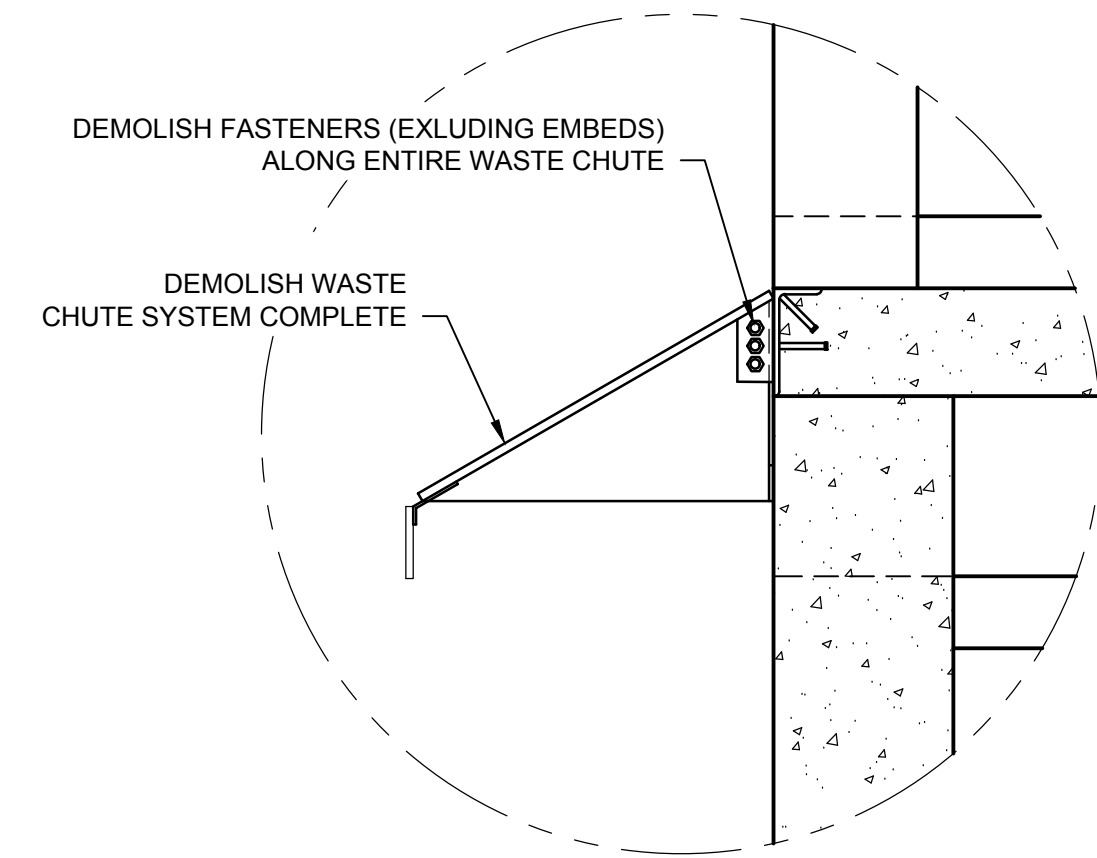
PROJECT MANAGER OLIVIA WILLIAMS	
STRUCTURAL ENGINEER	CG
CAD	RM
PROJECT NUMBER 10059970	




MASON COUNTY SOLID WASTE DEPT.
EELLS HILL TRANSFER STATION IMPROVEMENTS
SHELTON, WASHINGTON

STRUCTURAL TRANSFER STATION EXISTING CONDITIONS AND DEMOLITION PLAN

FILENAME | S-001.dwg
 SCALE | NOTED
 SHEET | **S-001**

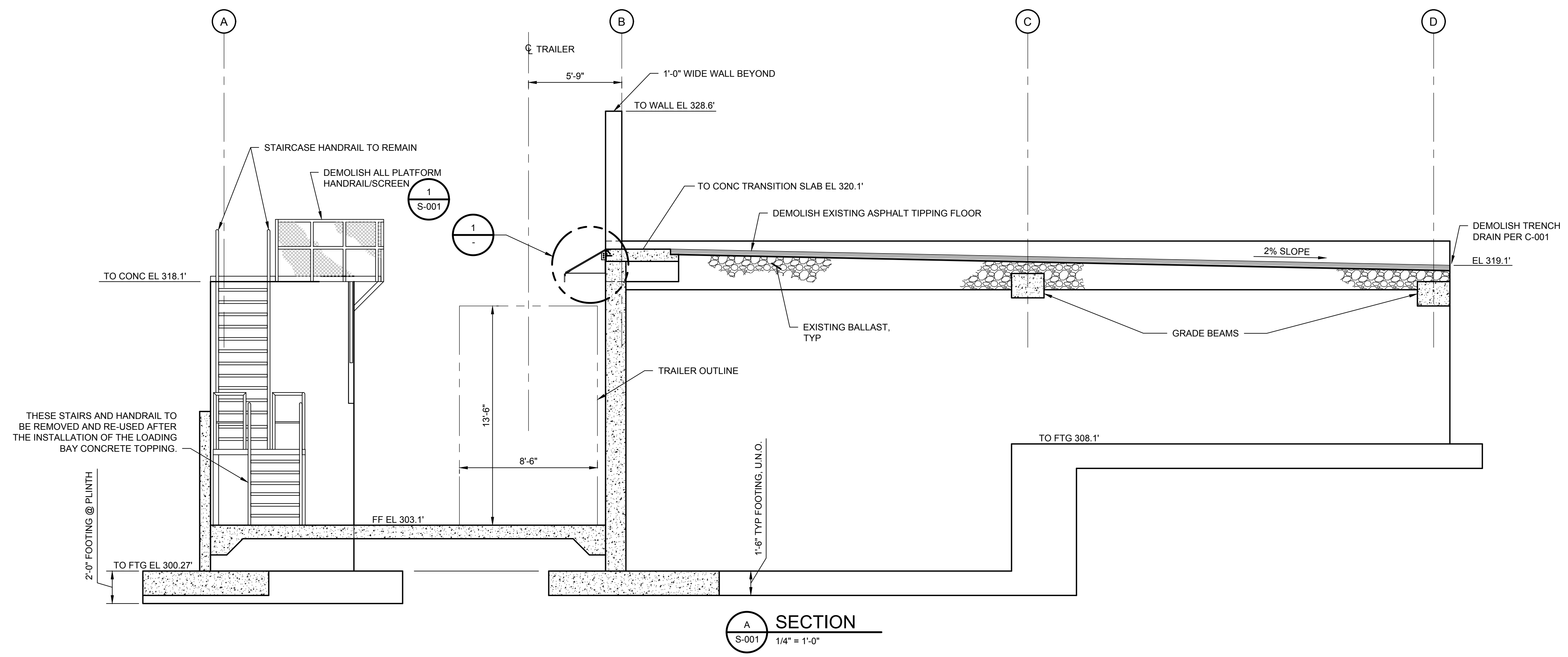


**WASTE CHUTE DEMOLITION
DETAIL**

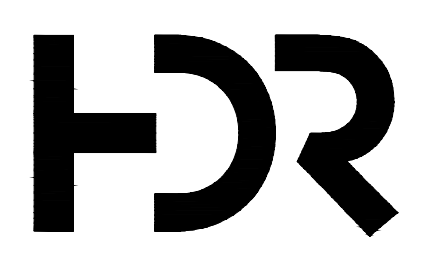
1
3/4" = 1'-0"

NOTES:

1. SEE G-002 FOR STRUCTURAL GENERAL NOTES.
2. SEE DRAWING S-003 FOR TIPPING FLOOR RESURFACING AND FOR LOADING BAY SLAB TOPPING.
3. ALL NOTED DIMENSIONS ("X'-X") ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY PRIOR TO DEMOLITION.
4. CAREFULLY SAW CUT MEMBERS TO BE DEMOLISHED TO AVOID DAMAGE TO MEMBERS TO REMAIN.
5. KEEP ANCHOR BOLTS EMBEDDED IN CONCRETE WHERE POSSIBLE FOR MEMBERS TO BE REMOVED.
6. REPAIR GALVANIZED ITEMS PER SPECIFICATIONS AFTER DEMOLITION AND FIELD WELDING.

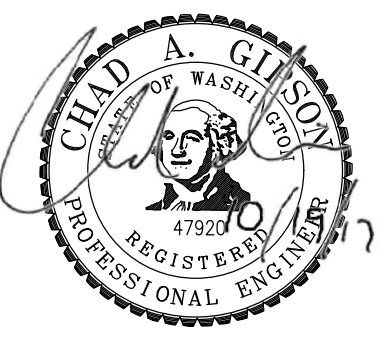


**SECTION
A**
S-001
1/4" = 1'-0"



ISSUE	DATE	DESCRIPTION
0	10/19/2017	ISSUED FOR CONSTRUCTION

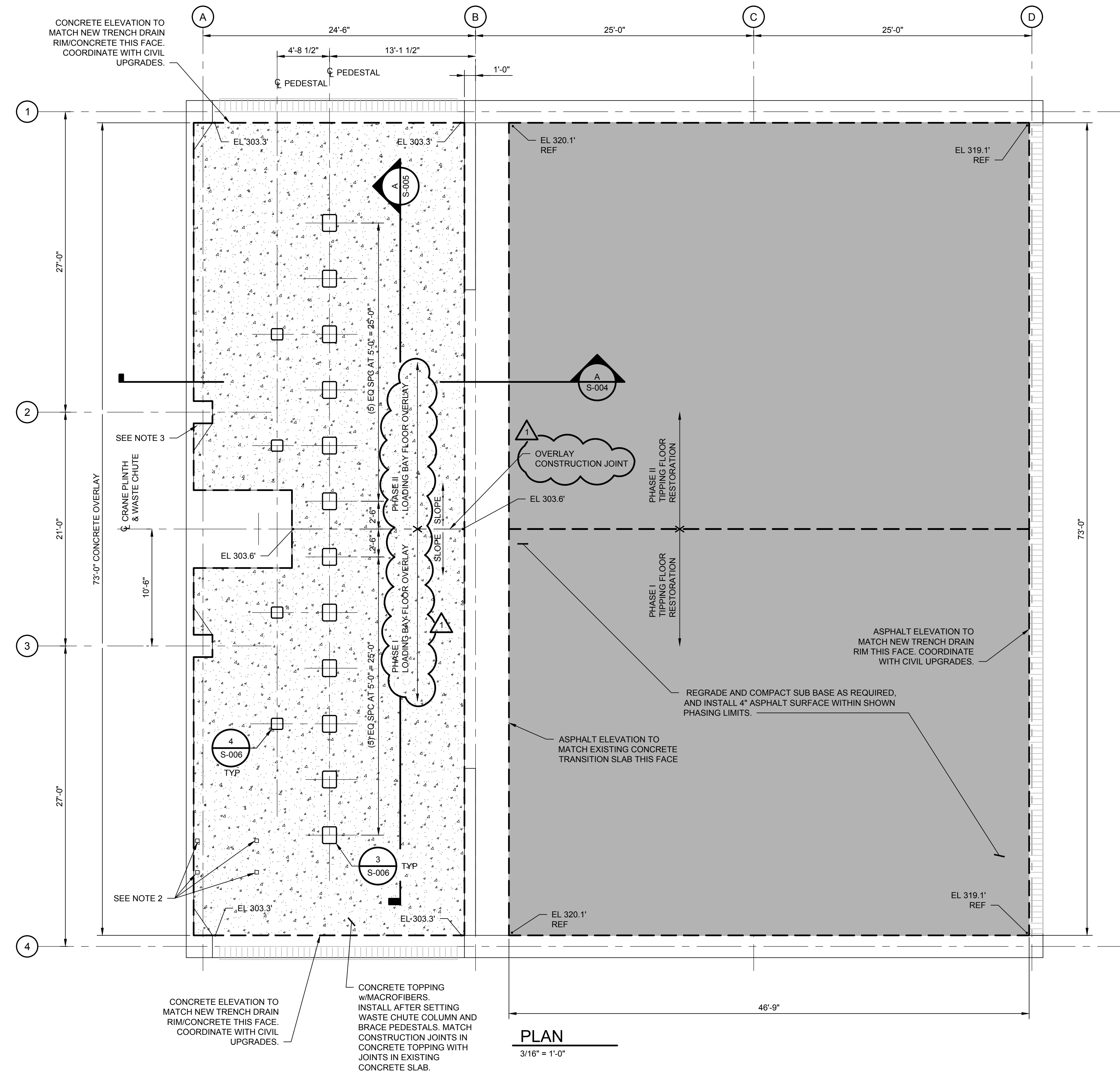
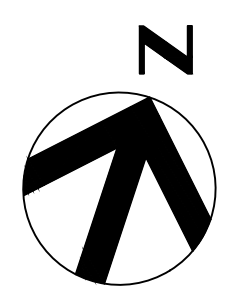
PROJECT MANAGER OLIVIA WILLIAMS	
STRUCTURAL ENGINEER	CG
CAD	RM
PROJECT NUMBER	10059970



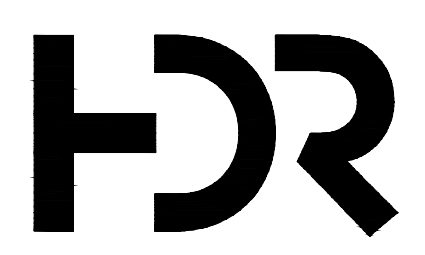

MASON COUNTY SOLID WASTE DEPT.
EELLS HILL TRANSFER STATION IMPROVEMENTS
SHELTON, WASHINGTON

**STRUCTURAL
TRANSFER STATION
EXISTING CONDITIONS AND DEMOLITION
SECTION AND DETAILS**

0 1" 2"
 FILENAME | S-002.dwg
 SCALE | NOTED
 SHEET | **S-002**



PLAN
3/16" = 1'-0"




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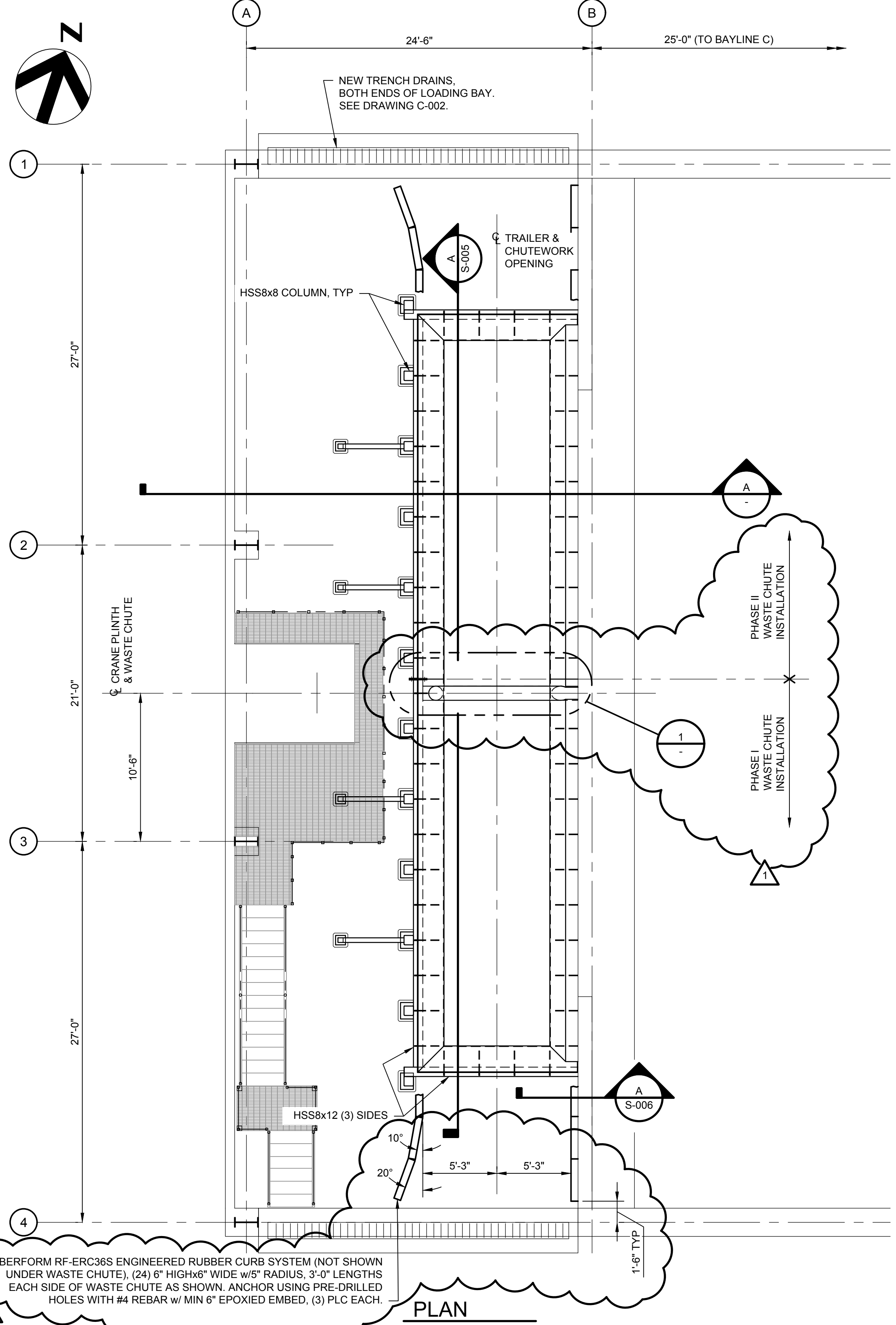
PROJECT MANAGER	OLIVIA WILLIAMS
STRUCTURAL ENGINEER	CG
CAD	RM
PROJECT NUMBER	10059970




MASON COUNTY SOLID WASTE DEPT.
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SHELTON, WASHINGTON

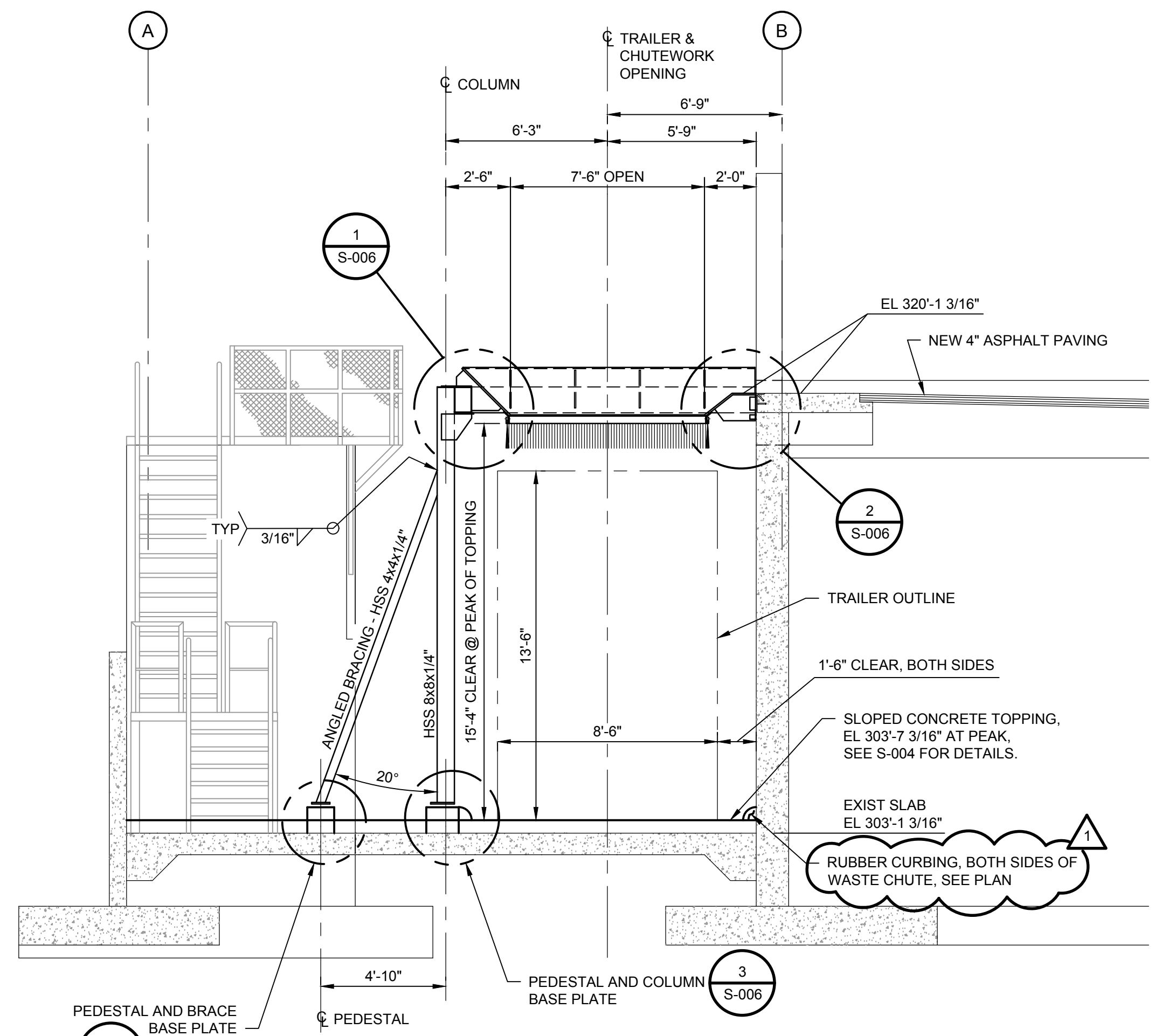
**STRUCTURAL
TRANSFER STATION
LOADING BAY AND TIPPING FLOOR IMPROVEMENTS
PLAN**


 FILENAME | S-003.dwg
 SCALE | 3/16" = 1'-0"
 SHEET | **S-003**

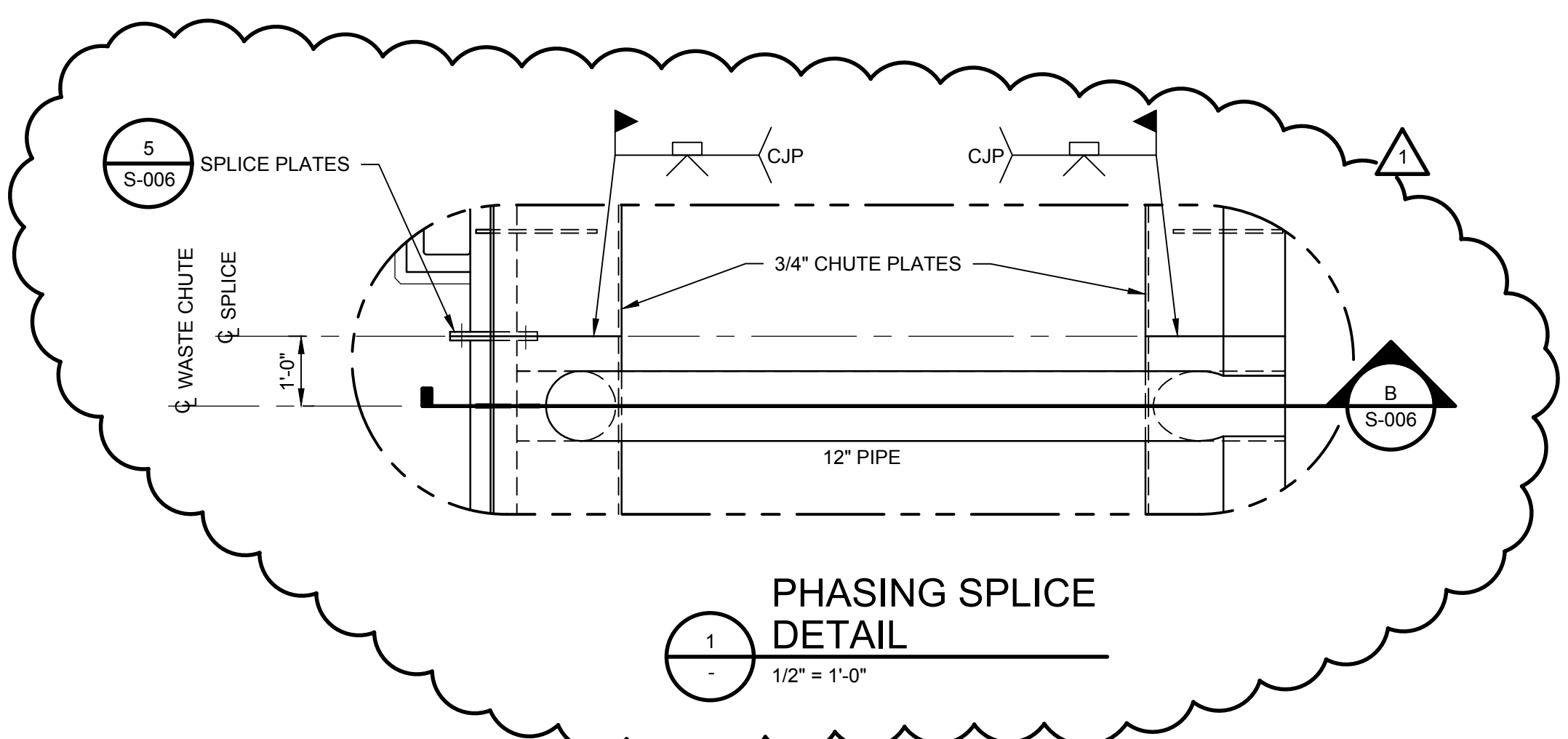


RUBBERFORM RF-ERC36S ENGINEERED RUBBER CURB SYSTEM (NOT SHOWN UNDER WASTE CHUTE), (24) 6" HIGHx6" WIDE w/5" RADIUS, 3'-0" LENGTHS EACH SIDE OF WASTE CHUTE AS SHOWN. ANCHOR USING PRE-DRILLED HOLES WITH #4 REBAR w/ MIN 6" EPOXIED EMBED, (3) PLC EACH.

PLAN
3/16" = 1'-0"

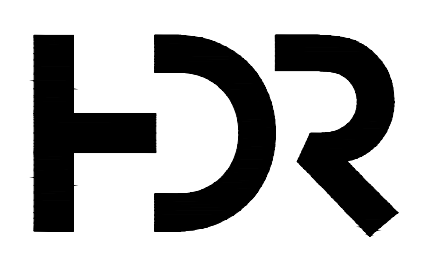


SECTION A-A
1/4" = 1'-0"



PHASING SPLICE DETAIL
1/2" = 1'-0"

- NOTES:**
1. SEE DRAWING G-002 FOR STRUCTURAL GENERAL NOTES.
 2. SEE DRAWING S-003 FOR TIPPING FLOOR RESURFACING AND FOR LOADING BAY SLAB OVERLAY.
 3. REFER TO AISC STEEL CONSTRUCTION MANUAL, 14TH EDITION, TABLE 8-2 FOR WELD SYMBOLS AND PRE-QUALIFIED WELDED JOINTS.

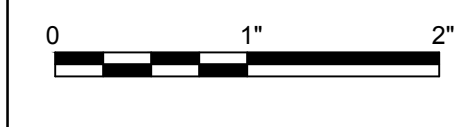


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CAD	RM
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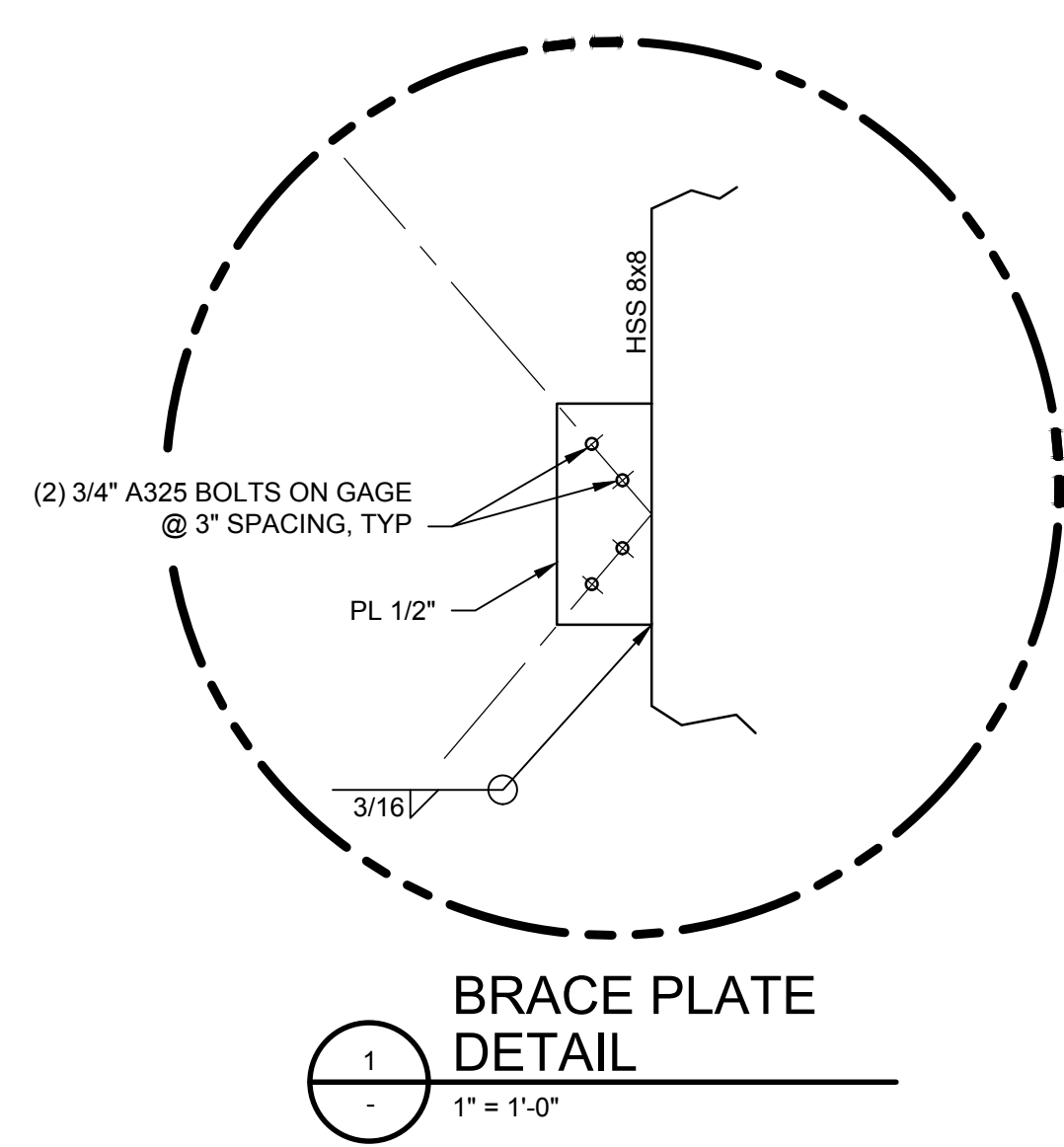
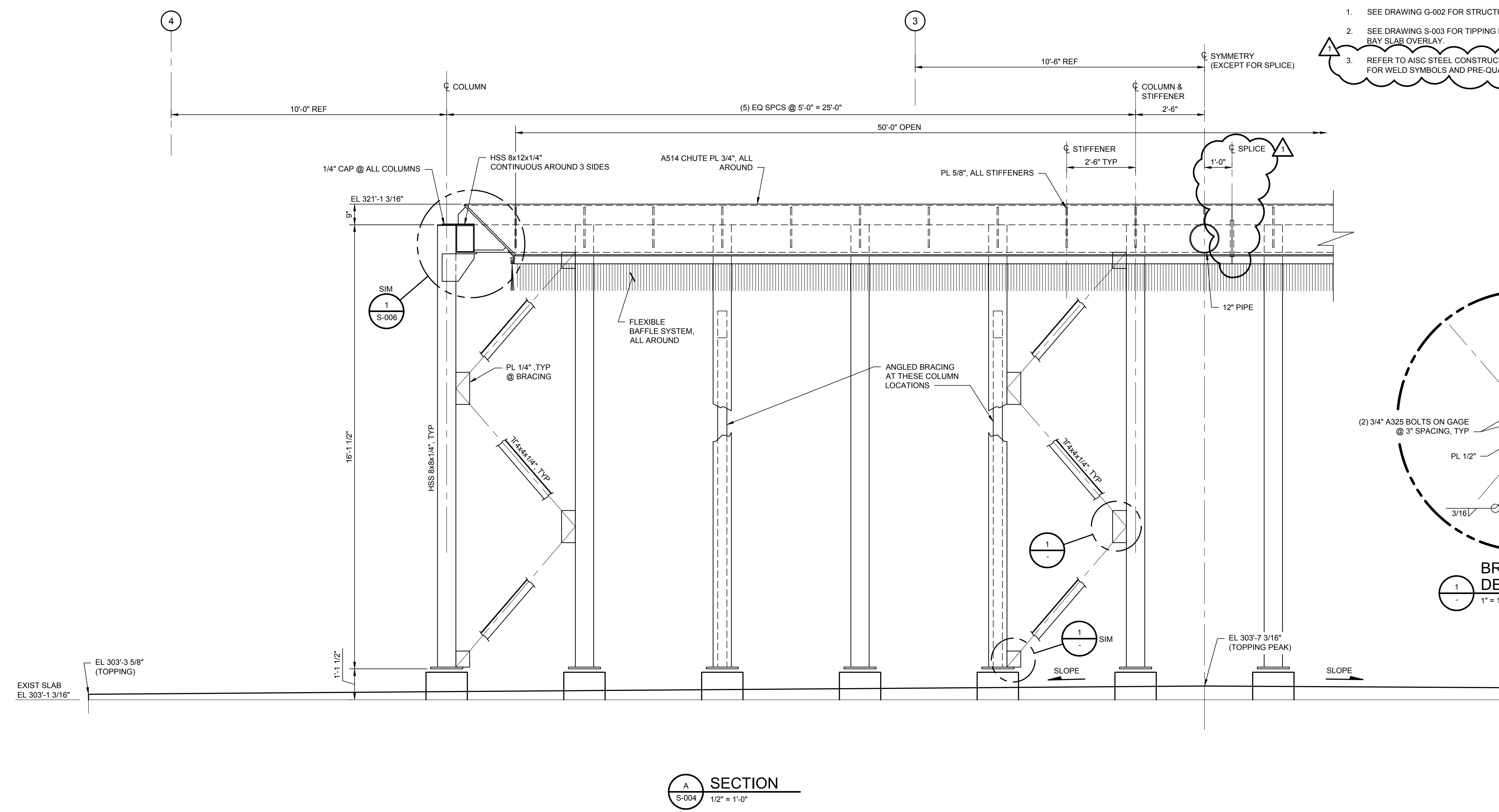


STRUCTURAL TRANSFER STATION LOADING BAY WASTE CHUTE PLAN AND SECTION

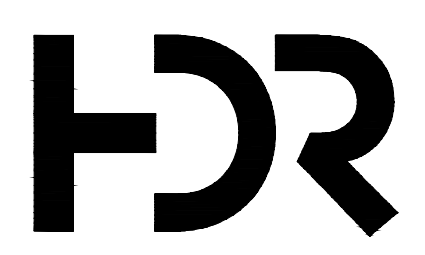
FILENAME | S-004.dwg
SCALE | NOTED

SHEET | **S-004**

- NOTES:**
- SEE DRAWING G-002 FOR STRUCTURAL GENERAL NOTES.
 - SEE DRAWING S-003 FOR TIPPING FLOOR RESURFACING AND FOR LOADING BAY SLAB OVERLAY.
 - REFER TO AISC STEEL CONSTRUCTION MANUAL, 14TH EDITION, TABLE 8-2 FOR WELD SYMBOLS AND PRE-QUALIFIED WELDED JOINTS.



SECTION
A
S-004 1/2" = 1'-0"

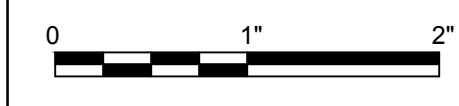


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STRUCTURAL ENGINEER	CG
CAD	RM
PROJECT NUMBER 10059970	




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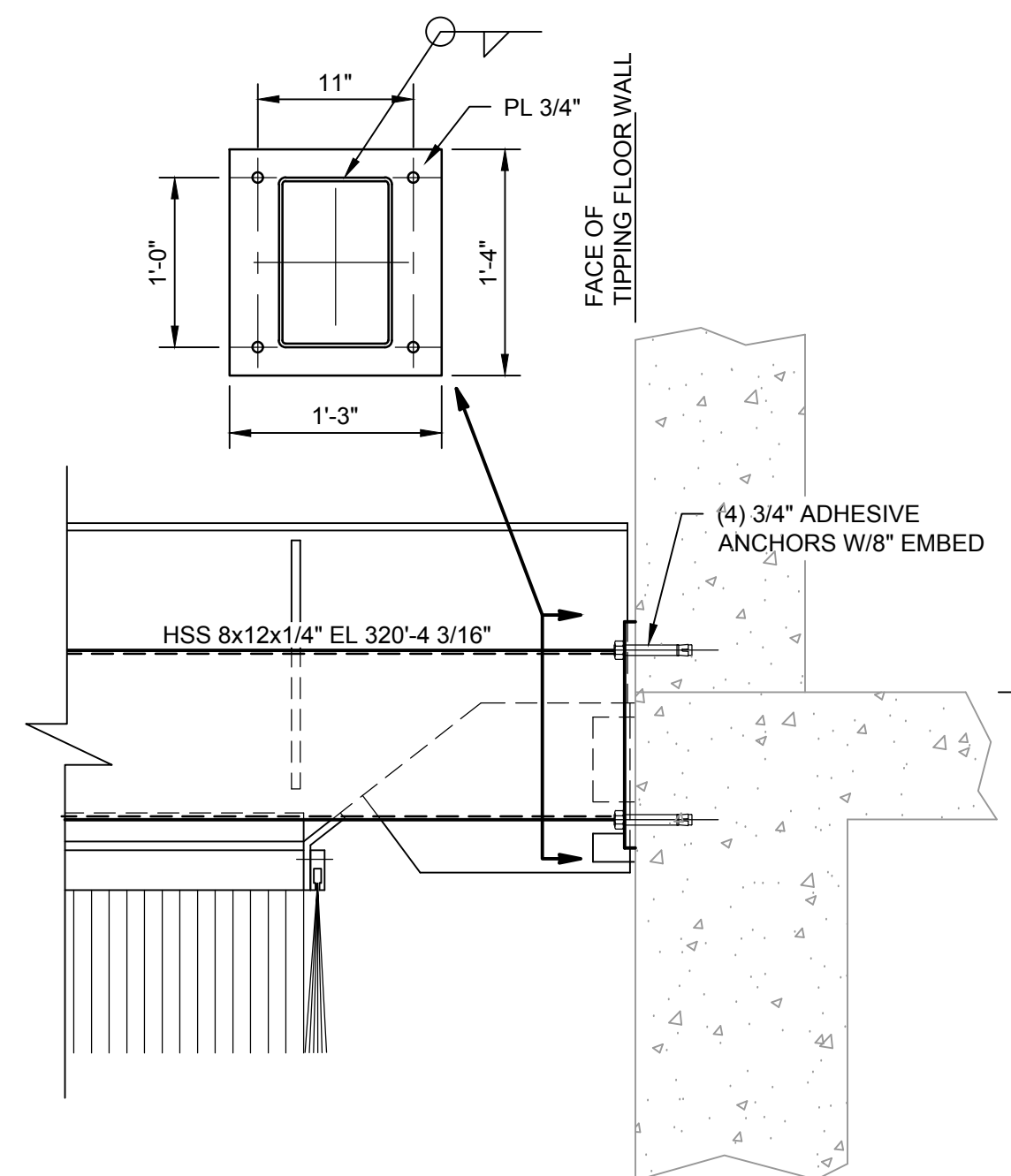
**STRUCTURAL
TRANSFER STATION
LOADING BAY WASTE CHUTE
SECTION**

FILENAME | S-005.dwg
SCALE | NOTED

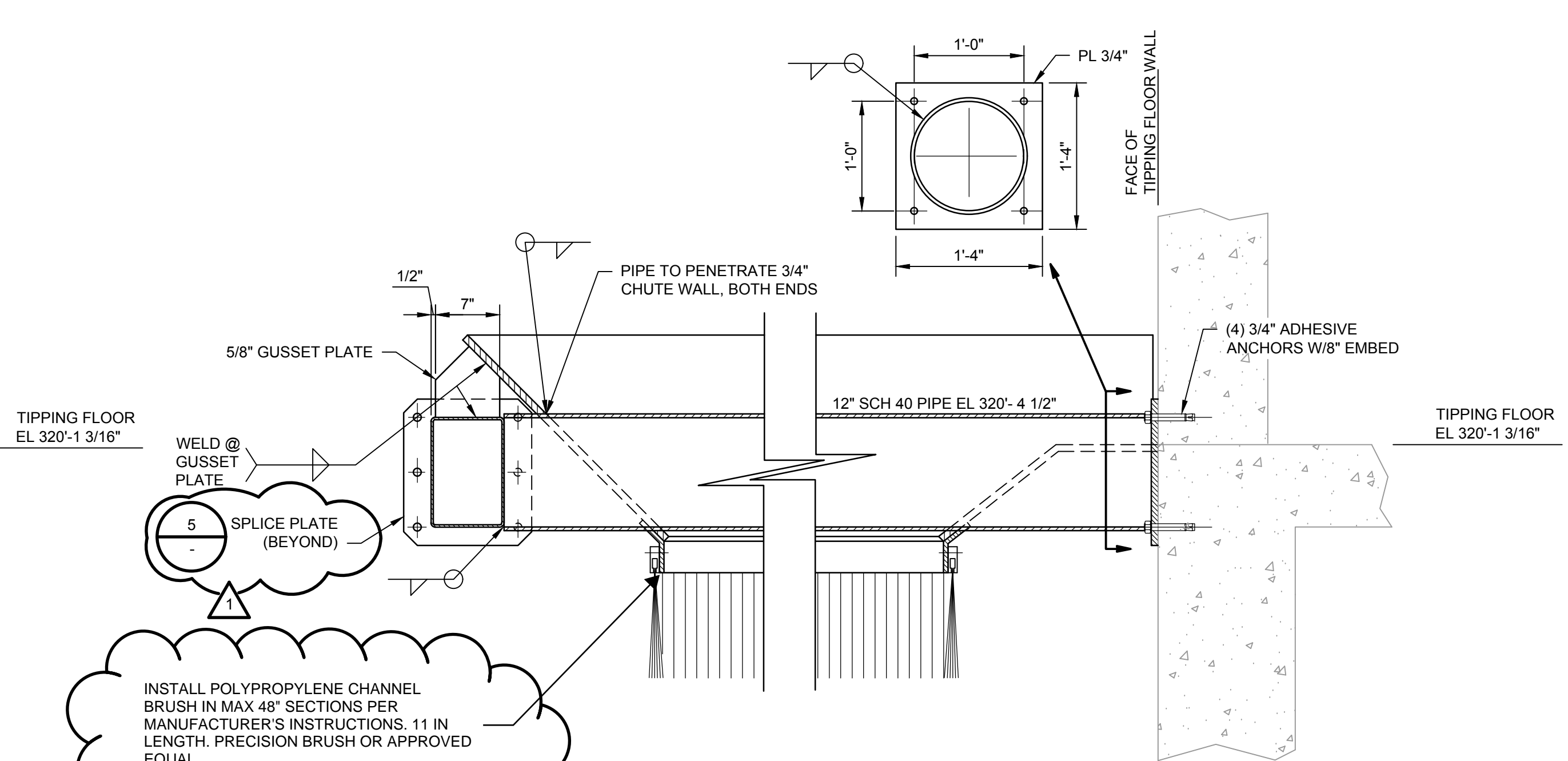
SHEET
S-005

NOTES:

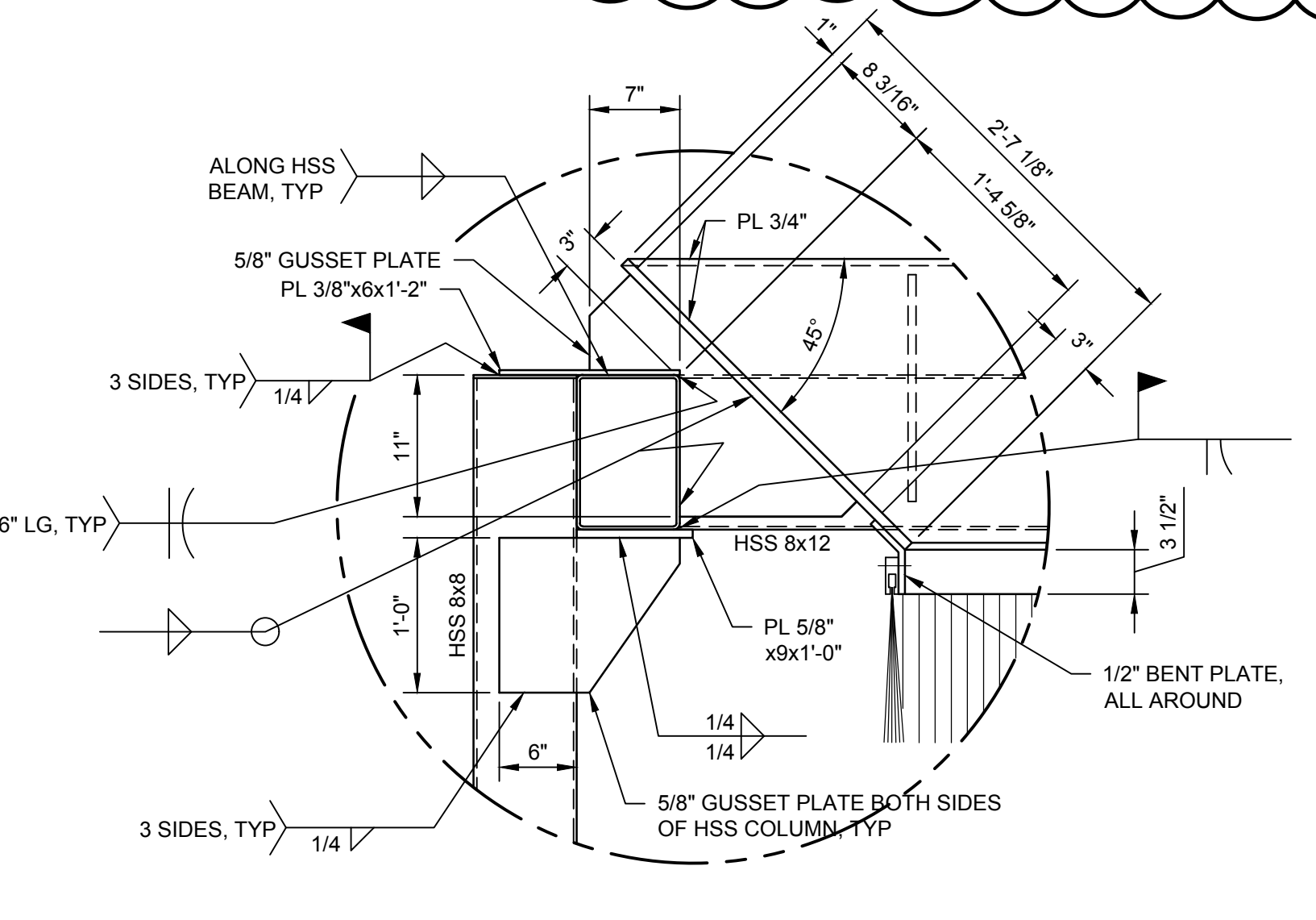
- SEE DRAWING G-002 FOR STRUCTURAL GENERAL NOTES.
- SEE DRAWING S-003 FOR TIPPING FLOOR RESURFACING AND FOR LOADING BAY SLAB OVERLAY.
- REFER TO AISC STEEL CONSTRUCTION MANUAL, 14TH EDITION, TABLE 8-2 FOR WELD SYMBOLS AND PRE-QUALIFIED WELDED JOINTS.



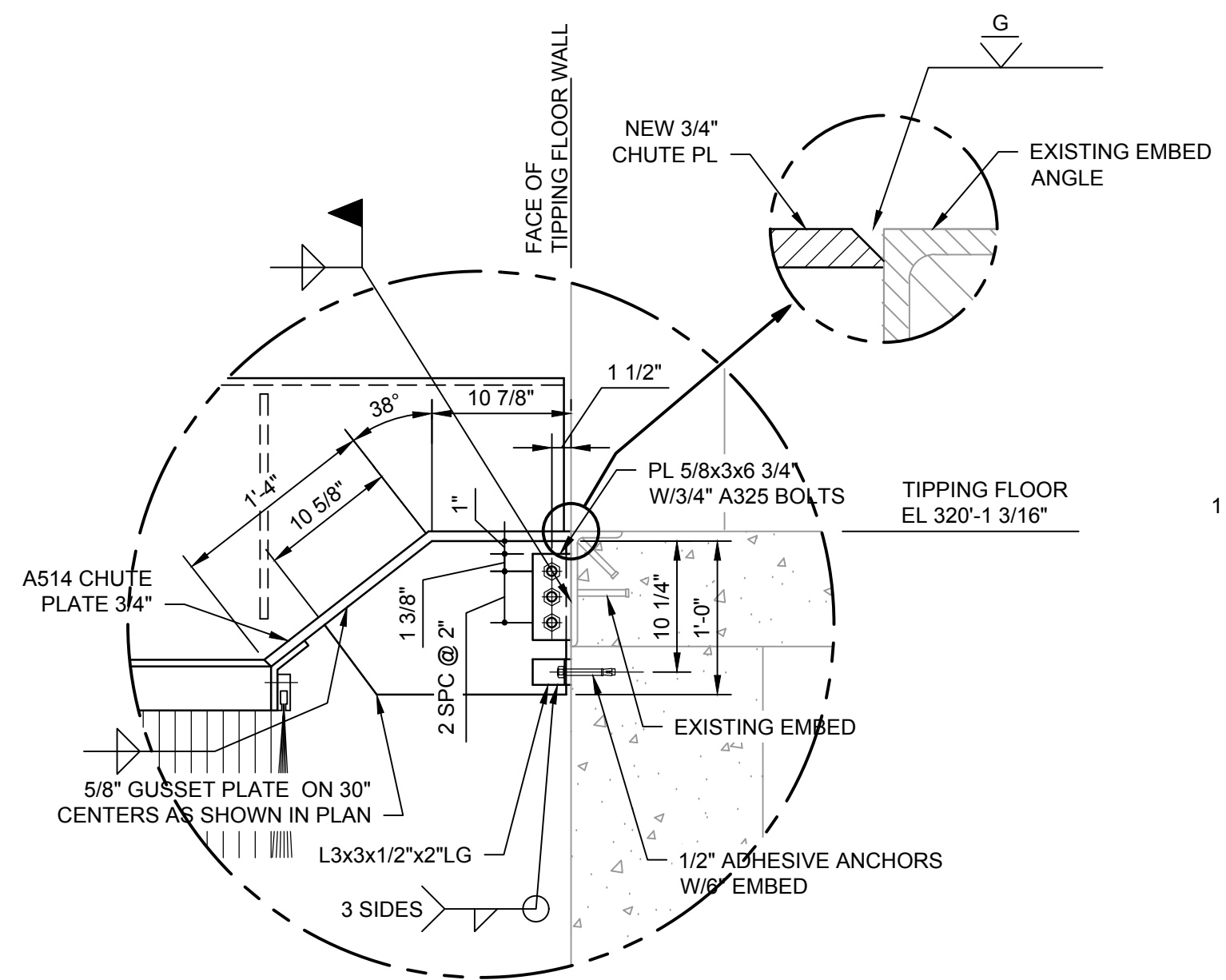
A VIEW
S-004 1" = 1'-0"



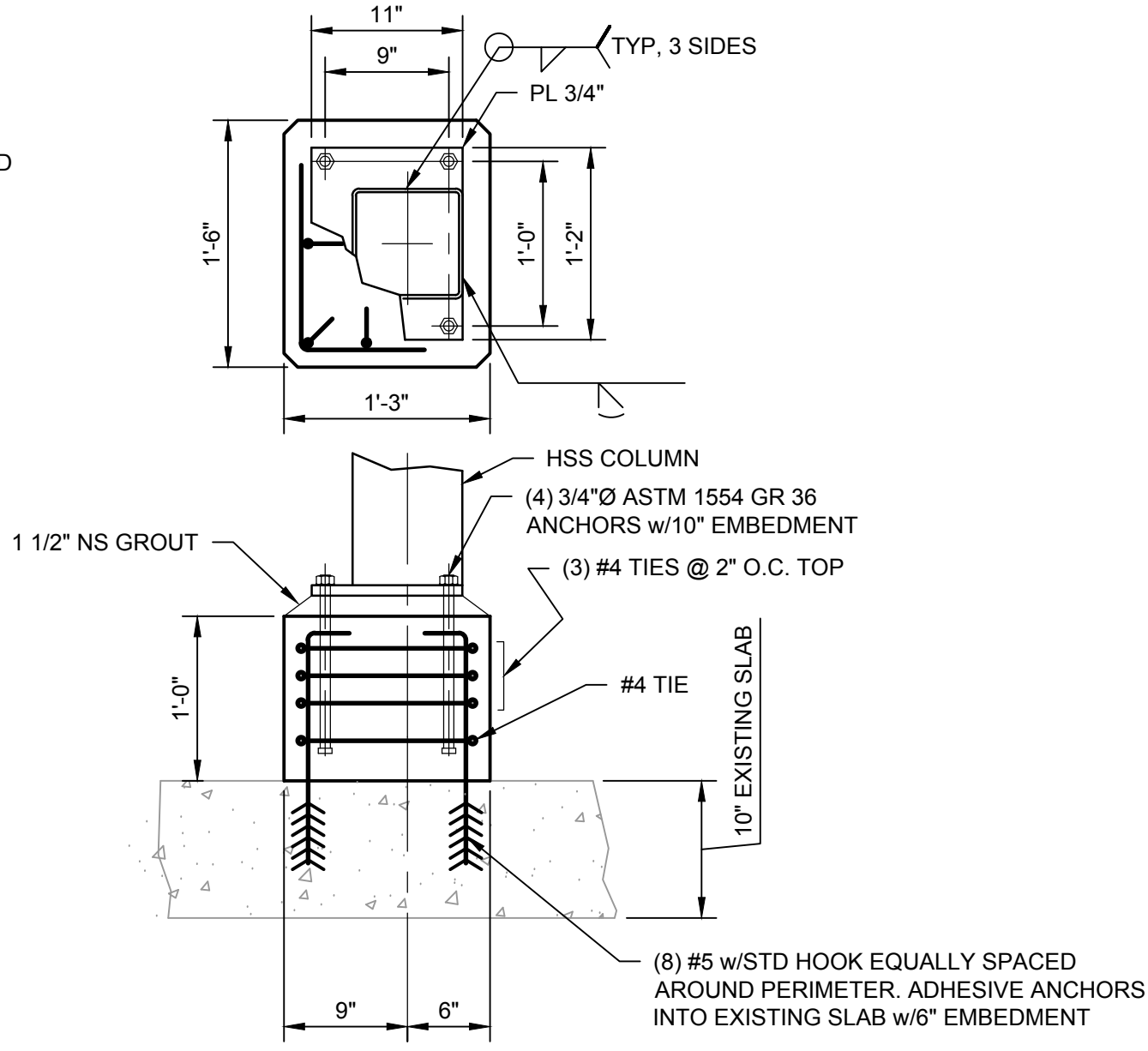
B SECTION
S-004 1" = 1'-0"



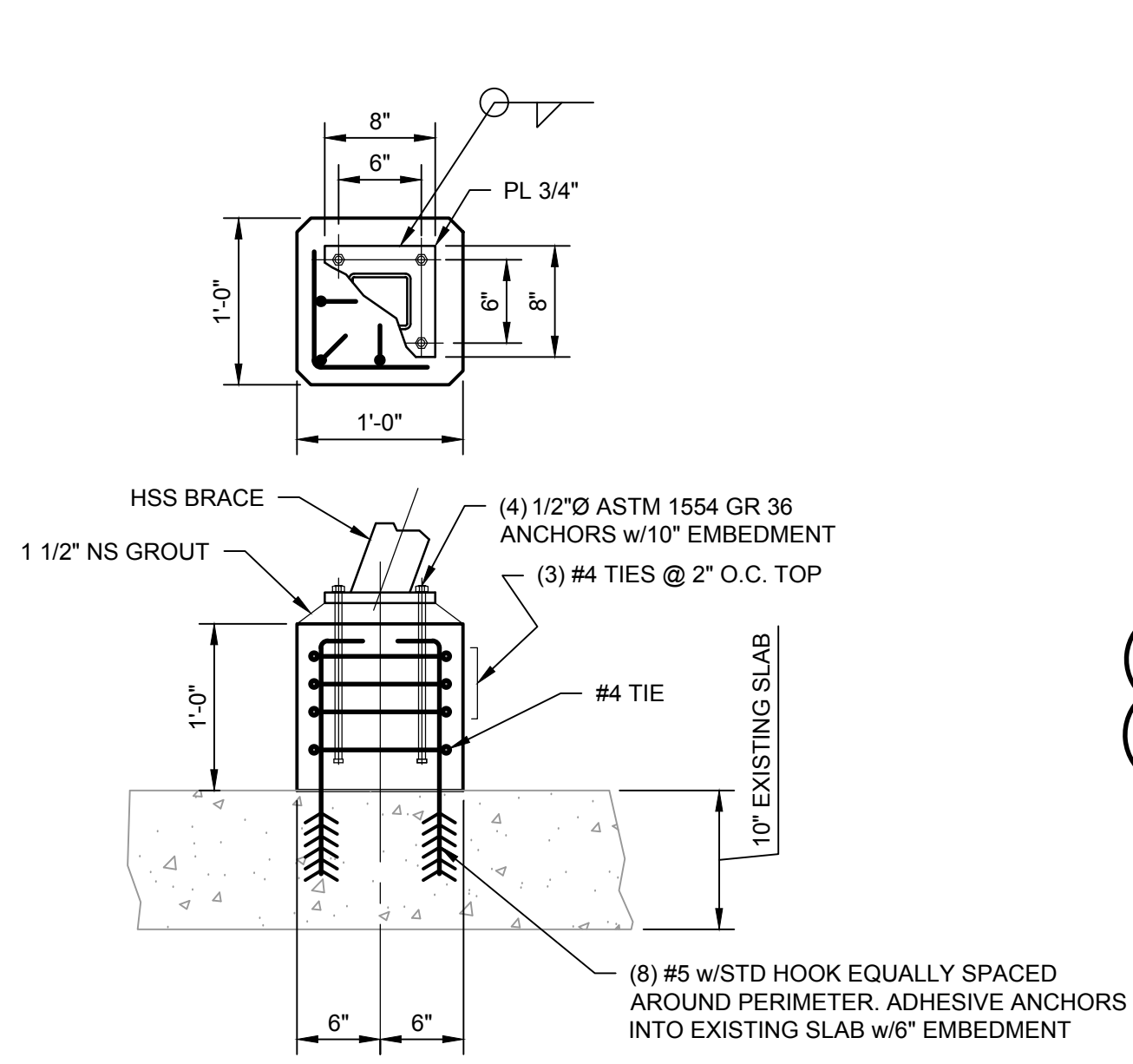
1 DETAIL
S-004
S-005 1" = 1'-0"



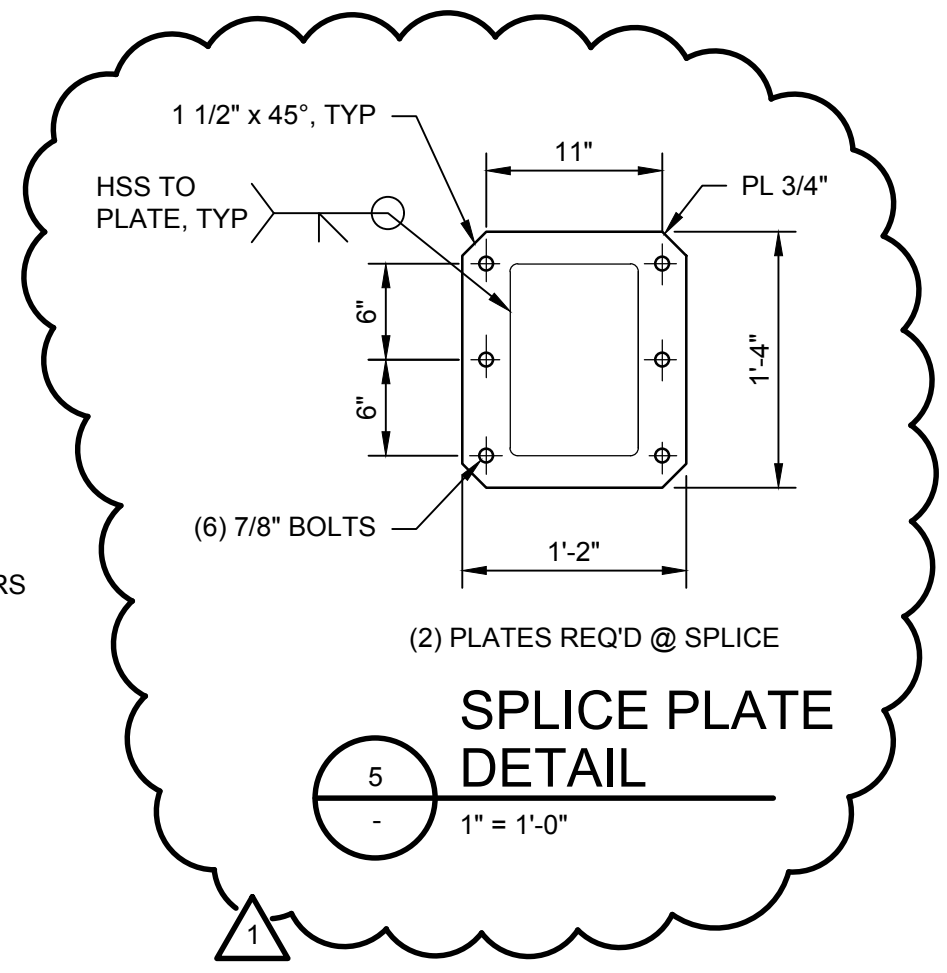
2 DETAIL
S-004 1" = 1'-0"



3 CONCRETE PEDESTAL DETAIL
S-004 1" = 1'-0"



4 CONCRETE PEDESTAL DETAIL
S-004 1" = 1'-0"



5 SPLICE PLATE DETAIL
S-004
S-005 1" = 1'-0"

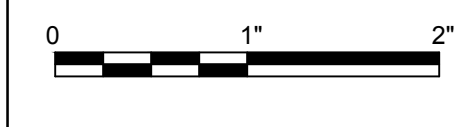


ISSUE	DATE	DESCRIPTION
1	11/15/2017	REVISIONS PER COUNTY COMMENTS
0	10/19/2017	ISSUED FOR CONSTRUCTION

PROJECT MANAGER	OLIVIA WILLIAMS
STRUCTURAL ENGINEER	CG
CAD	RM
PROJECT NUMBER	10059970

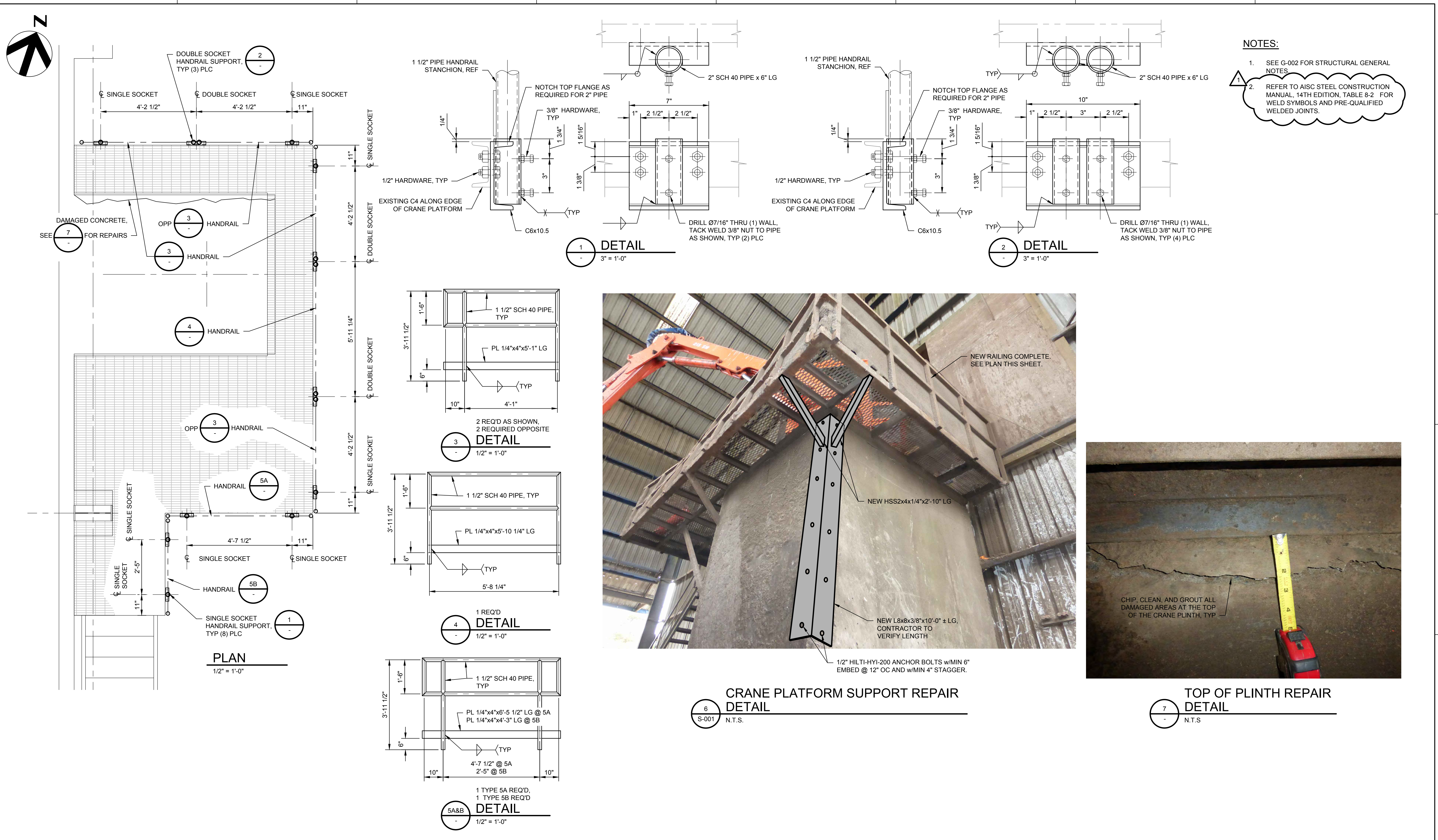



MASON COUNTY SOLID WASTE DEPT.
EELLS HILL TRANSFER STATION IMPROVEMENTS
SHELTON, WASHINGTON



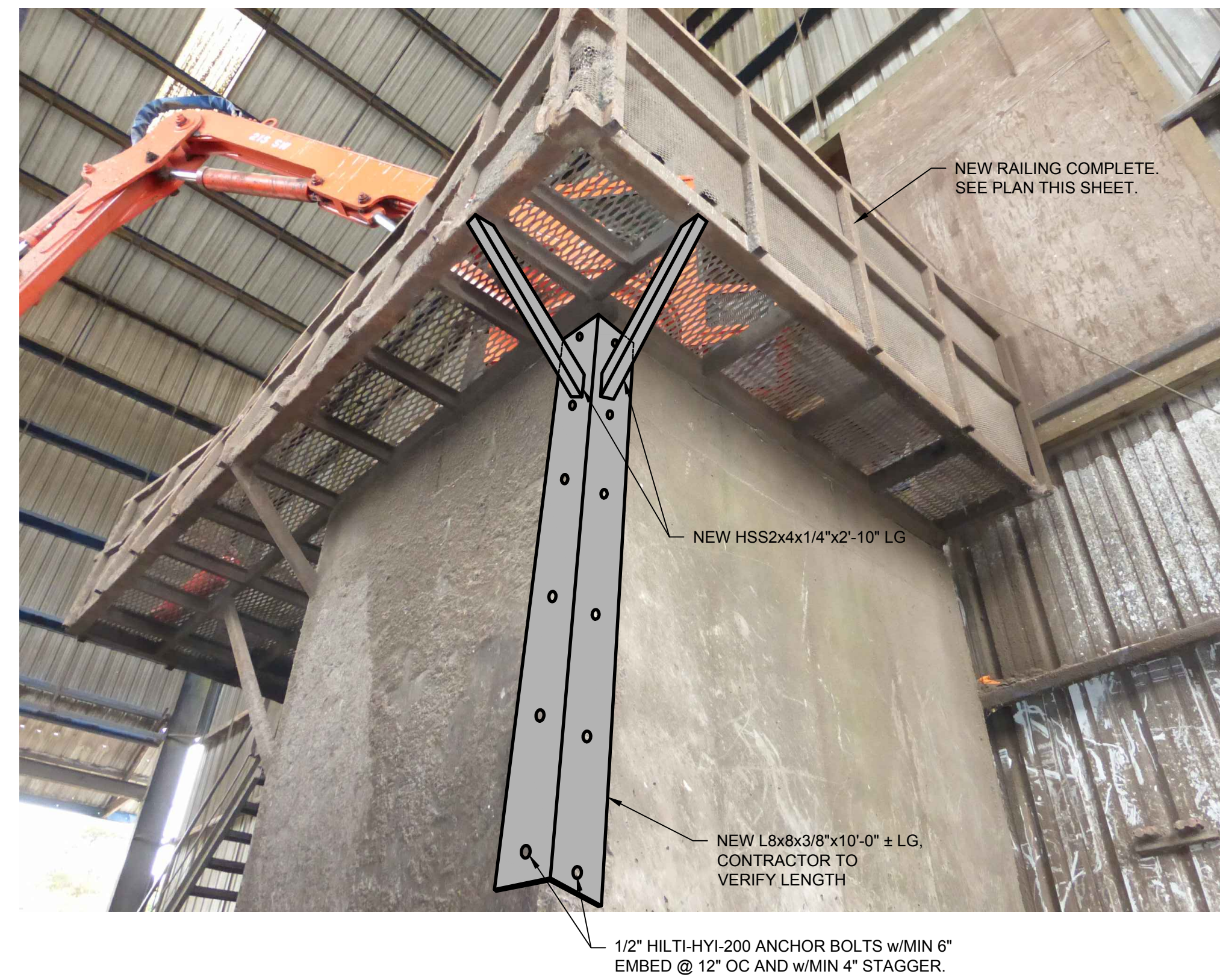
**STRUCTURAL
TRANSFER STATION
LOADING BAY WASTE CHUTE
SECTIONS, VIEWS, AND DETAILS**

FILENAME | S-006.dwg
SCALE | NOTED



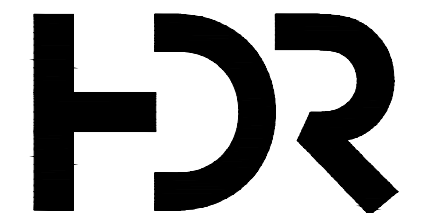
NOTES:

- SEE G-002 FOR STRUCTURAL GENERAL NOTES
- REFER TO AISC STEEL CONSTRUCTION MANUAL, 14TH EDITION, TABLE 8-2 FOR WELD SYMBOLS AND PRE-QUALIFIED WELDED JOINTS.



CRANE PLATFORM SUPPORT REPAIR DETAIL
S-001 N.T.S.

TOP OF PLINTH REPAIR DETAIL
N.T.S.



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PROJECT MANAGER	OLIVIA WILLIAMS
STRUCTURAL ENGINEER	MH
CAD	RM
PROJECT NUMBER	10059970



MASON COUNTY SOLID WASTE DEPT.
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SHELTON, WASHINGTON



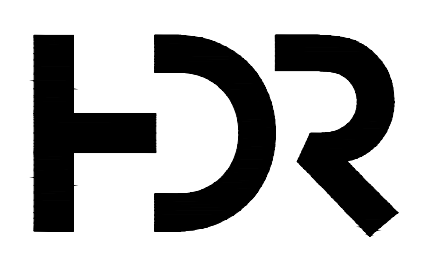
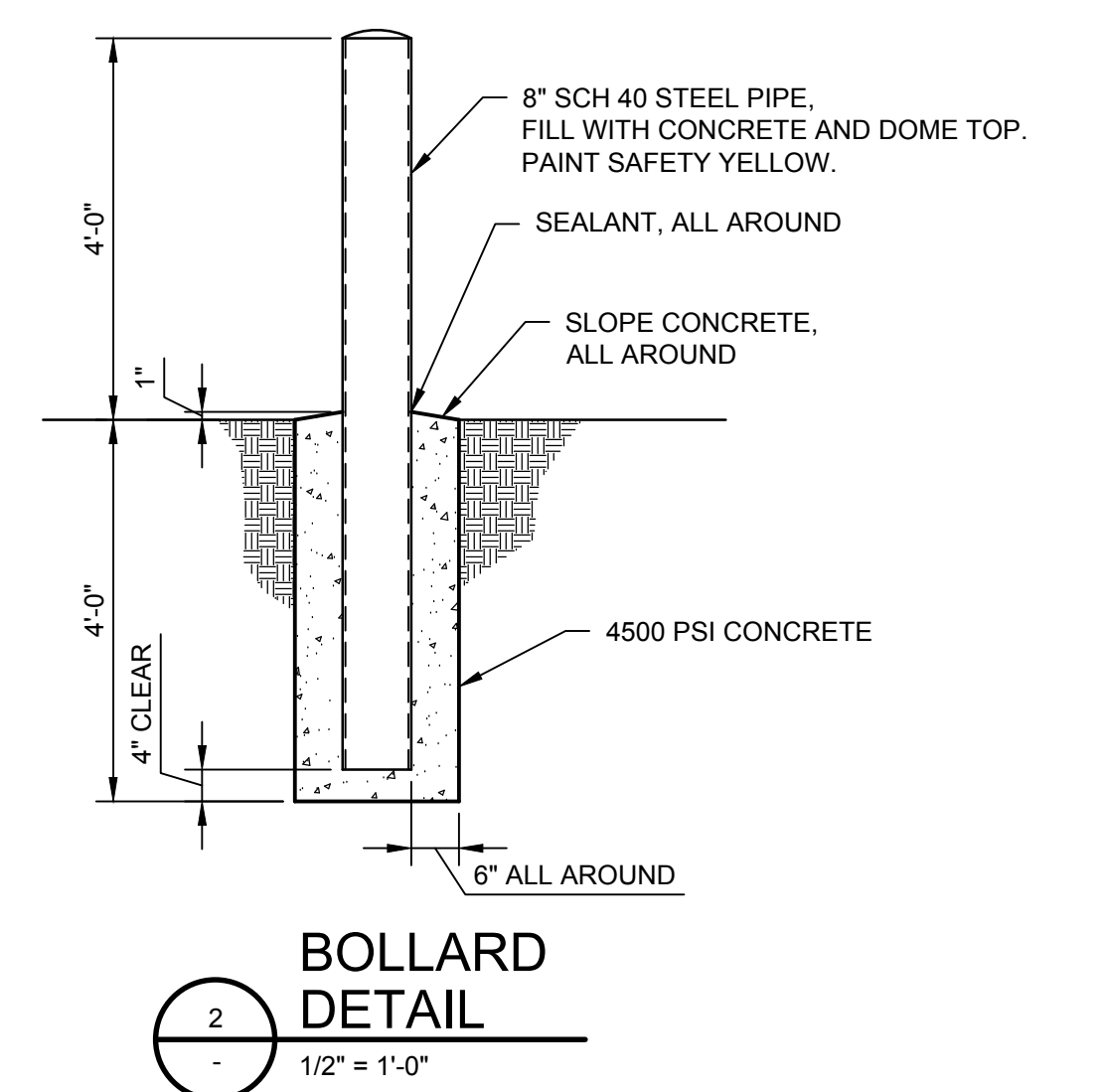
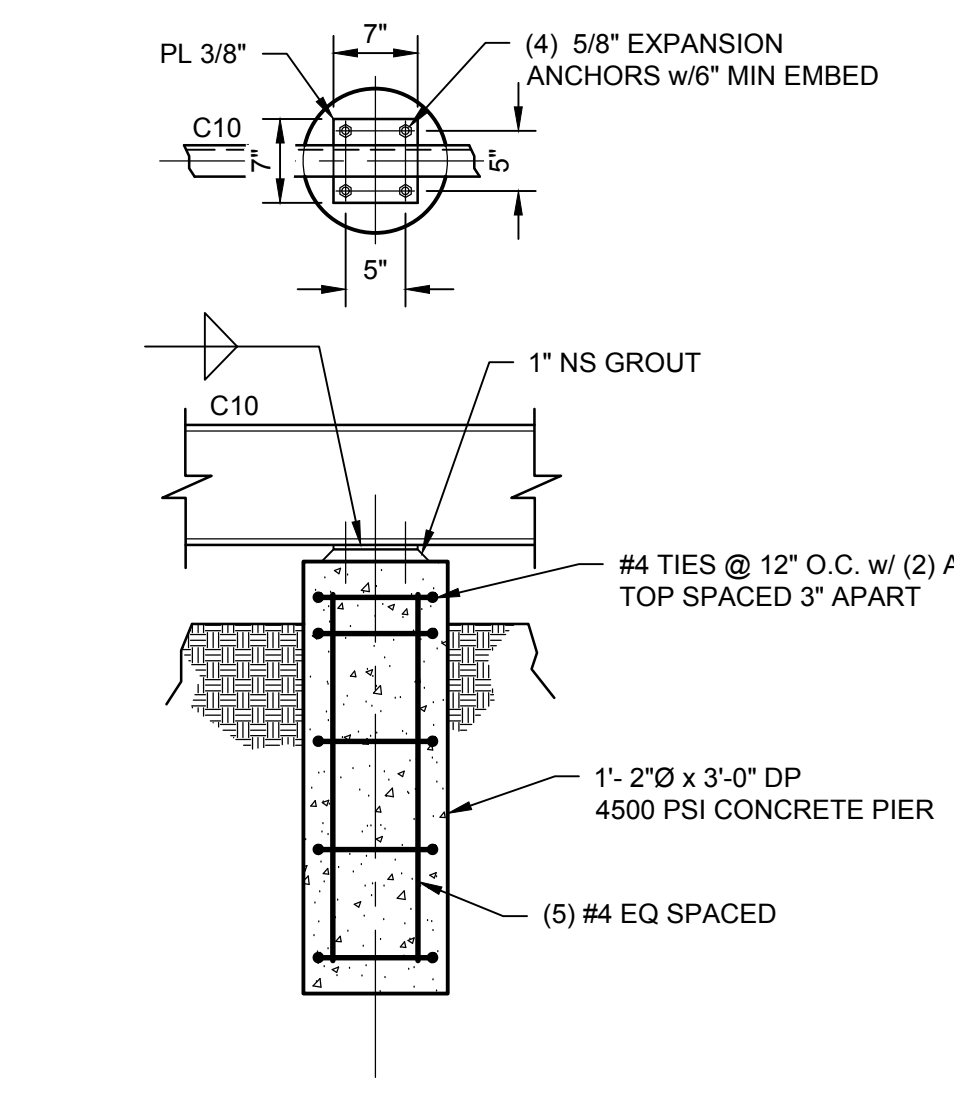
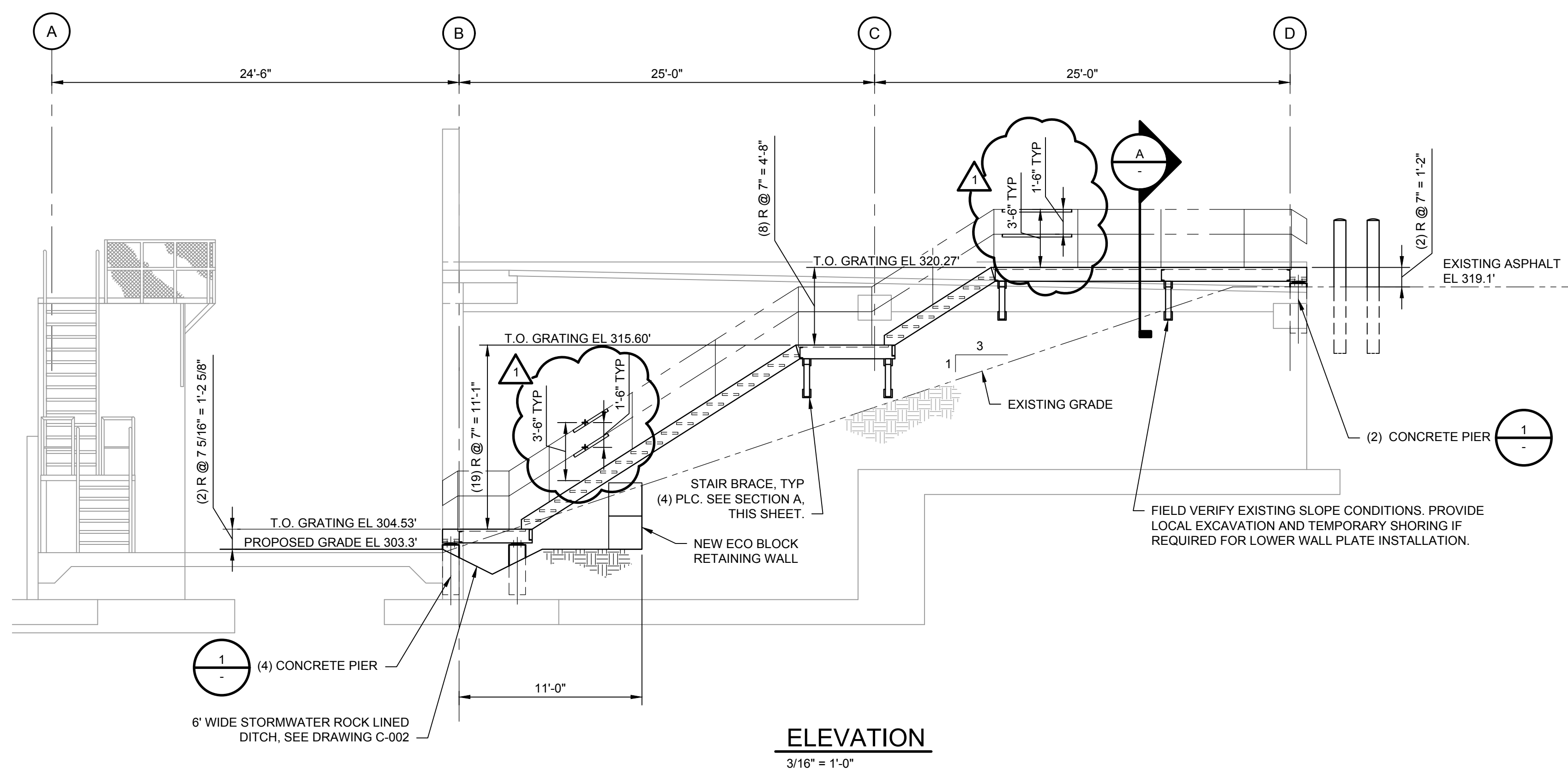
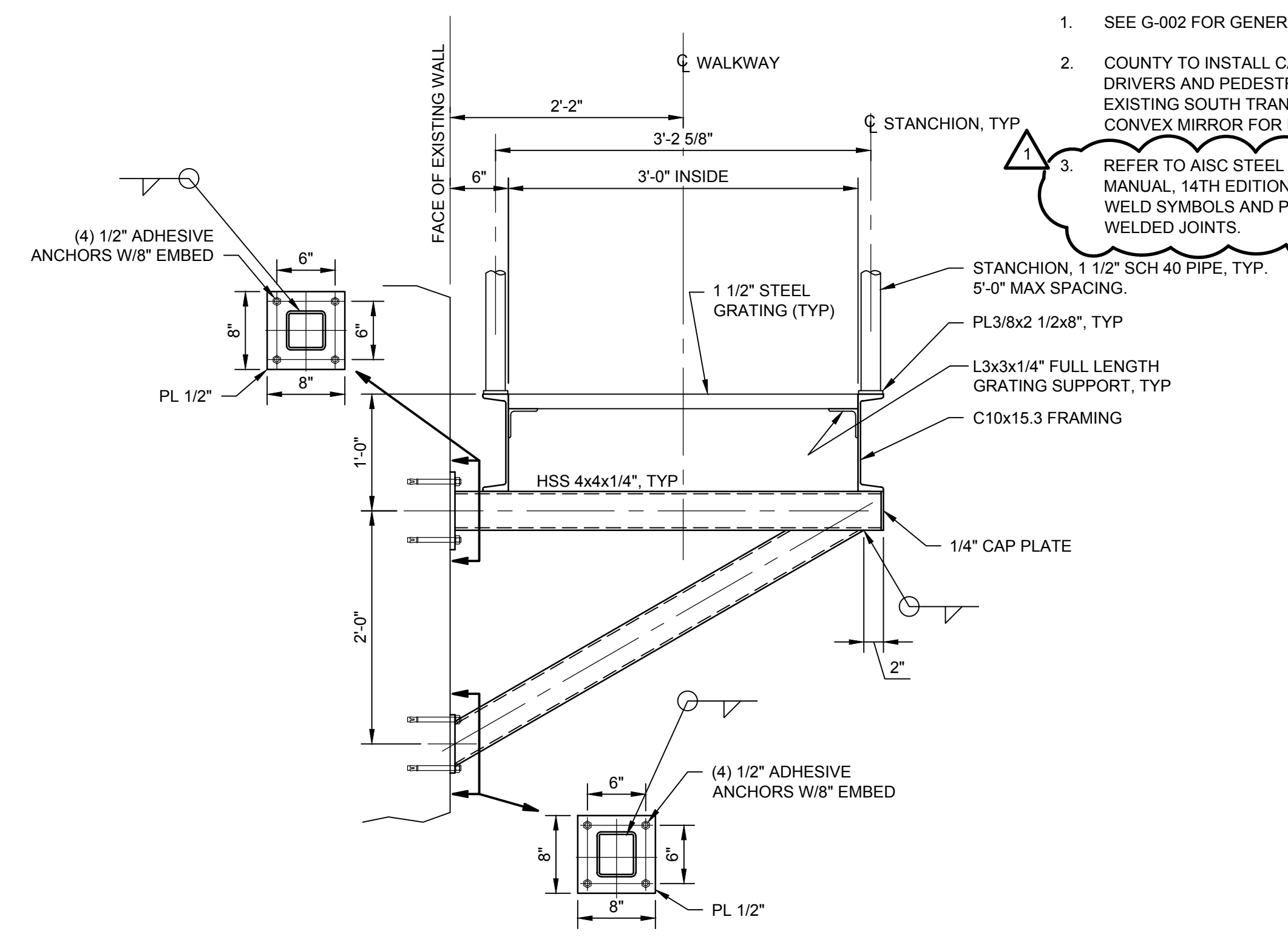
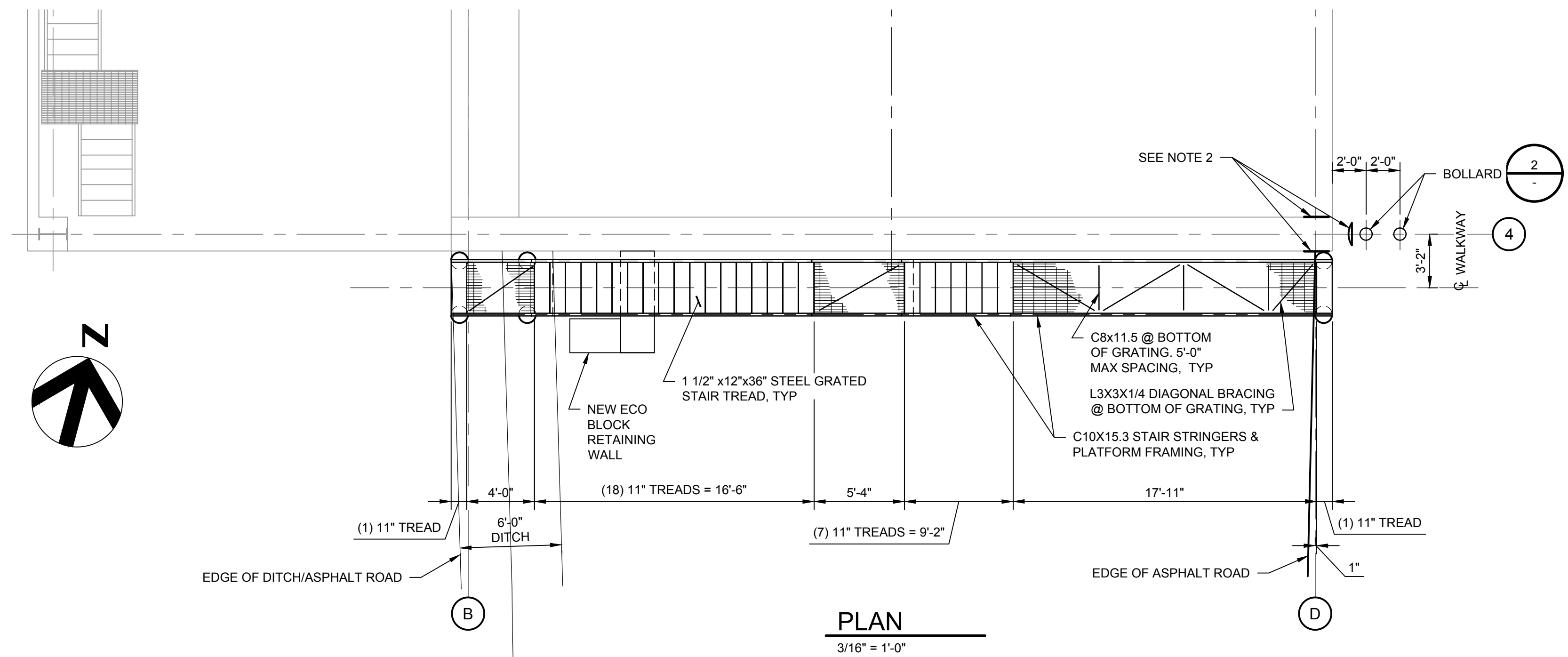
STRUCTURAL TRANSFER STATION LOADING BAY CRANE PLATFORM REPAIRS PLAN AND DETAILS



FILENAME | S-007.dwg
SCALE | NOTED

SHEET | **S-007**

- NOTES:**
- SEE G-002 FOR GENERAL STRUCTURAL NOTES.
 - COUNTY TO INSTALL CAUTION SIGN FOR DRIVERS AND PEDESTRIANS ON EACH SIDE OF EXISTING SOUTH TRANSFER STATION WALL AND CONVEX MIRROR FOR DRIVER VISIBILITY.
 - REFER TO AISC STEEL CONSTRUCTION MANUAL, 14TH EDITION, TABLE 8-2 FOR WELD SYMBOLS AND PRE-QUALIFIED WELDED JOINTS.

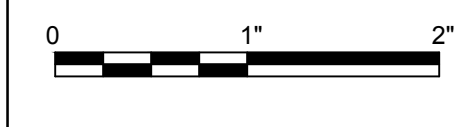


ISSUE	DATE	DESCRIPTION
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PROJECT MANAGER	OLIVIA WILLIAMS
STRUCTURAL ENGINEER	CG
CAD	RM
PROJECT NUMBER	10059970



MASON COUNTY SOLID WASTE DEPT.
EELLS HILL TRANSFER STATION IMPROVEMENTS
SHELTON, WASHINGTON



FILENAME | S-008.dwg
SCALE | NOTED

SHEET
S-008

STRUCTURAL
TRANSFER STATION
OUTDOOR STAIRCASE AND WALKWAY
PLAN, SECTION AND DETAILS