



CITY COUNCIL

ANDY RYDER

Mayor

CYNTHIA PRATT

Deputy Mayor

LENNY GREENSTEIN

MICHAEL STEADMAN

CAROLYN COX

ED KUNKEL

MALCOLM MILLER

CITY MANAGER

SCOTT SPENCE

LACEY CITY COUNCIL AGENDA

MAY 20, 2021

4:00 P.M.

REMOTE ATTENDANCE

To comply with Governor Inslee's [Proclamation 20-28](#), the City Council meeting will be conducted remotely, not in-person. You may view the Council meeting by watching live using one of following platforms: [Live Meetings](#), [YouTube](#), [Facebook](#), Thurston Community Media, Channel 3 with your local cable provider, or Zoom:

https://us02web.zoom.us/webinar/register/WN_aGBt5NaUQQ6Xz2EpbwnLGQ

The public may listen to the meeting via telephone by dialing toll-free: (888) 788-0099 or (877) 853-5247 - when prompted enter Webinar ID 862 8212 6519

CALL TO ORDER:

1. PLEDGE OF ALLEGIANCE
2. APPROVAL OF AGENDA & CONSENT AGENDA ITEMS:
 - A. [Council Worksession minutes of April 8, 2021](#)
 - B. [Council Meeting minutes of April 15, 2021](#)
 - C. [Council Worksession minutes of April 22, 2021](#)
 - D. [A motion to approve payment of claims, wages, and transfers for April 6, 2021, through May 13, 2021](#)

**Items listed under the consent agenda are considered to be routine and will be enacted by one motion and one vote. There will be no separate discussion of these items. If discussion is desired, that item will be removed from the Consent Agenda and will be considered separately.*

3. PUBLIC RECOGNITIONS AND PRESENTATIONS:

- A. Lacey Veterans Services HUB Outstanding Service to Veterans Award
(Lourdes 'Alfie' Alvarado-Ramos)

4. PUBLIC COMMENT ON ITEMS NOT ON THE AGENDA**

**VERBAL PUBLIC COMMENT

Persons wishing to provide verbal public comment on items NOT on the agenda must preregister to speak at https://us02web.zoom.us/webinar/register/WN_aGBt5NaUQQ6Xz2EpbwnLGQ. Instructions and access details will be provided once registration is complete. Registration for verbal public comment closes at 3:00 p.m. on May 20, 2021.

**WRITTEN PUBLIC COMMENT

Public comments may also be submitted by email to publiccomment@ci.lacey.wa.us. Written comments will be provided to the City Council electronically prior to the meeting. Comments will not be addressed during the Council meeting; however, comments received will be added to the official record. The commenting period will close at 12:00 p.m. on May 20, 2021.

5. **PUBLIC HEARING:**
6. **PROCLAMATIONS:**
 - A. [Bicycle Commuter Month](#) (*Duncan Green*)
7. **REFERRAL FROM PLANNING COMMISSION:**
 - A. [Approve Ordinance 1588 - Hawks Prairie Business District Zoning Text Amendment](#) (*Jessica Brandt*)
8. **REFERRAL FROM HEARINGS EXAMINER:**
 - A. [Conditional Use Permit 20-101 Wastewater Lift Station](#) (*Reace Fant*)
9. **RESOLUTIONS:**
 - A. Naming Policy and Consideration of Memorial Roadway Application: (*Shannon Kelley-Fong*)
 1. [Approve Naming Policy](#)
 2. [Adopt Resolution No. 1104 to approve Memorial Roadway Application](#)
10. **ORDINANCES:**
 - A. [Approve Ordinance No. 1589 - Steilacoom/Marvin Road Annexation](#) (*Ryan Andrews*)
 - B. [Approve Ordinance No. 1590 - Mosure 54th Avenue Annexation Project No. 21-54](#) (*Ryan Andrews*)
11. **MAYOR'S REPORT:**
 - A. [Recommend appointments to Commission on Equity](#) (*Shannon Kelley-Fong*)
 - B. Recommend appointment of Councilmembers Greenstein and Steadman to the LEOFF 1 Disability Board (*Mayor Ryder*)
12. **CITY MANAGER'S REPORT:**
 - A. [Award Bid for 2021 Overlay Project PW 2021-13](#) (*Scott Egger*)
 - B. [Award Bid for 2021 Slurry Seal Project PW 2021-12](#) (*Scott Egger*)
 - C. [Youth Council Policy](#) (*Shannon Kelley-Fong*)
13. **STANDING GENERAL COMMITTEE:**
 - A. [Finance & Economic Development Committee](#) (04.27.2021)
 - B. [Land Use Committee](#) (04.27.2021)
 - C. [Utilities Committee](#) (05.03.2021)
 - D. [Community Relations & Public Affairs Committee](#) (05.03.2021)
 - E. [Transportation Committee](#) (05.04.2021)
14. **OTHER BUSINESS:**
15. **BOARDS, COMMISSIONS AND COMMITTEE REPORTS:**
 - A. Mayor Andy Ryder:
 1. Mayors' Forum
 2. Thurston Chamber Shared Legislative Committee
 3. Transportation Policy Board (TPB)

- B. Deputy Mayor Cynthia Pratt:
 - 1. Joint Animal Services Commission (JASCOM)
 - 2. LOTT Clean Water Alliance
 - 3. Olympic Region Clean Air Agency (ORCAA)
- C. Councilmember Carolyn Cox:
 - 1. Intercity Transit (IT)
 - 2. Regional Housing Council
- D. Councilmember Lenny Greenstein:
 - 1. Emergency Medical Services (EMS)
 - 2. TCOMM911
- E. Councilmember Malcolm Miller:
 - 1. Lodging Tax Advisory Committee (LTAC)
 - 2. Thurston County Coalition Against Trafficking (TCCAT)
 - 3. Thurston Regional Planning Council (TRPC)
 - 4. Thurston Thrives
- F. Councilmember Michael Steadman:
 - 1. Community Action Council
 - 2. Nisqually River Council
 - 3. Thurston County Law & Justice
- G. Councilmember Ed Kunkel:
 - 1. Economic Development Council (EDC)
 - 2. Lacey South Sound Chamber
 - 3. Olympia-Lacey-Tumwater Visitor & Convention Bureau (VCB)
 - 4. Solid Waste Advisory Committee (SWAC)

16. ADJOURN

**MINUTES OF THE JOINT WORKSESSION
LACEY CITY COUNCIL AND THURSTON COUNTY BOARD OF COUNTY
COMMISSIONERS**

APRIL 8, 2021
4:00 P.M. – 5:38 P.M.
REMOTE ONLY

COUNCIL PRESENT: MAYOR RYDER, DEPUTY MAYOR PRATT, COUNCILMEMBERS
GREENSTEIN, STEADMAN (AUDIO), COX, KUNKEL, MILLER

COMMISSIONERS
PRESENT: TYE MENSER (CHAIR), GARY EDWARDS (VICE-CHAIR) (AUDIO),
CAROLINA MEJIA (AUDIO)

STAFF PRESENT: S. SPENCE, S. KELLEY-FONG, D. SCHNEIDER, R. WALK,
R. ANDREWS, E. FONTAINE

ACTION: APPROVE WORKSESSION AGENDA

MOTION: MOTION MADE, SECONDED AND CARRIED BY COUNCILMEMBER GREENSTEIN
AND DEPUTY MAYOR PRATT

INTRODUCTIONS

PRESENTERS: ANDY RYDER, MAYOR, CITY OF LACEY
TYE MENSER, BOARD CHAIR, THURSTON COUNTY BOARD OF COUNTY
COMMISSIONERS

ACTION: INFORMATION ONLY

Introductions were made by Mayor Ryder and Commissioner Menser.

PUBLIC HEALTH UPDATE – COVID-19 AND VACCINATION STATUS

STAFF: SCHELLI SLAUGHTER, DIRECTOR, THURSTON COUNTY PUBLIC HEALTH AND
SOCIAL SERVICES

ACTION: INFORMATION ONLY

Schelli Slaughter, Thurston County Public Health and Social Services Director,
provided an update on COVID-19 statistics and vaccination status.

An overview of Thurston County's numbers on the Washington COVID-19 Risk Assessment Dashboard was discussed. Public health officials encourage continuation of wearing masks and following social distancing recommendations.

Effective April 15, 2021, all Washington residents will be eligible for receiving the vaccine and efforts are in place to increase staffing and vaccine supply. Staff advised that vaccine sites are made possible by volunteers and encouraged community members to volunteer with United Way of Thurston County. Residents without internet access, who wish to obtain vaccine appointments, can call Thurston County Public Health at 360-867-2610.

Staff also advised that leadership staffing positions will be opening soon and further communication would be forthcoming regarding recruitment.

ANNEXATION UPDATES

STAFF: RYAN ANDREWS, LACEY PLANNING MANAGER
JOSHUA CUMMINGS, DIRECTOR, THURSTON COUNTY COMMUNITY
PLANNING & ECONOMIC DEVELOPMENT

ACTION: INFORMATION ONLY

Ryan Andrews, City of Lacey Planning Manager, provided updates on the following pending City of Lacey annexations:

- Steilacoom and Marvin Annexation
 - 410 acres
 - 446 tax parcels
 - 562 dwelling units
 - 1,489 residents
- Capitol City/Chamber Estates Annexation
 - 288 acres
 - 491 tax parcels
 - 470 dwelling units
 - 965 residents
- Mosure 54th Avenue Annexation
 - 9.83 Acres
 - 1 Parcel
 - Undeveloped
 - Low density 0-4 Zoning

Lake Lois and Pacific Avenue was also reviewed as a potential future annexation.

Mayor Ryder expressed a need for a more current and updated process regarding the annexation agreement between the City and County.

HB 1590 - HOMEFUND

STAFF: RAMIRO CHAVEZ, THURSTON COUNTY MANAGER

ACTION: INFORMATION ONLY

Ramiro Chavez, Thurston County Manager, reviewed HB 1590, which allows the local sales and use tax for affordable housing to be imposed by a councilmanic authority.

Commissioners and County staff inquired with Council to determine if the City would be agreeable to the taxation and opened discussion to identify any opportunities to use funds towards affordable housing.

City Council and Commissioners discussed uncertainty of whether another source of revenue is needed at this time and expressed hesitation without seeing a unified plan with revenue projections.

AMERICAN RESCUE PLAN ACT (ARPA)

PRESENTER: MAYOR RYDER, LACEY CITY COUNCIL

ACTION: INFORMATION ONLY

Mayor Ryder and Lacey City Council reviewed the American Rescue Plan Act scheduled funds and inquired whether the County is willing to suspend any spending until a regional conversation takes place.

Thurston County advised that the Board has not made any decisions, but has definite priorities for the funds. Staff discussed that timelines could be adjusted, or amounts scaled, depending on what is being requested regionally.

Both the Lacey City Council and Thurston County Commissioners showed support in receiving an expedited recommendation from staff and the Regional Housing Council regarding an agreed upon approach.

INFORMATION SHARING & WRAP UP/NEXT STEPS

PRESENTER: MAYOR RYDER, LACEY CITY COUNCIL

ACTION: INFORMATION ONLY

Mayor Ryder reviewed items discussed during the meeting and next steps, which include the topic of updating the Annexation Agreement.

Council and Commissioners also expressed a desire to hold another meeting with local developers and realtors to discuss housing development regulations and barriers within the process.

MINUTES OF A REGULAR MEETING OF THE
LACEY CITY COUNCIL HELD THURSDAY,
APRIL 15, 2021, REMOTE ATTENDANCE

CALL TO ORDER: Deputy Mayor Pratt called the meeting to order at 4:00 p.m.

PLEDGE OF ALLEGIANCE: Deputy Mayor Pratt led the Pledge of Allegiance.

COUNCIL PRESENT: C. Pratt, L. Greenstein, C. Cox, M. Miller, M. Steadman

COUNCIL EXCUSED: A. Ryder, E. Kunkel, M. Steadman (excused at 4:16 pm)

STAFF PRESENT: S. Spence, R. Almada, J. Burbidge, S. Egger, M. Hardie, S. Kelley-Fong, D. Schneider, R. Walk, T. Woo, P. Edmonds

APPROVAL OF AGENDA
AND CONSENT AGENDA: Consent Agenda Items:
A. Council Worksession minutes of March 11, 2021.
B. Council Worksession minutes of March 25, 2021.
C. Council meeting minutes of April 1, 2021.
D. A motion to approve payment of claims, wages and transfers for March 24, 2021, through April 8, 2021.

COUNCILMEMBER GREENSTEIN MOVED TO APPROVE THE AGENDA AND CONSENT AGENDA. COUNCILMEMBER STEADMAN SECONDED. MOTION CARRIED.

PUBLIC COMMENT: Persons wishing to provide public comment on items not on the agenda must pre-register to speak. Registration closed at 3:00 p.m. today.

Courtney Fisher, a Lacey Fred Meyer employee, spoke in favor of hazard pay for grocery employees.

Deputy Mayor Pratt proposed, and Council agreed, to add the hazard pay discussion to the April 22, 2021, Worksession agenda.

Public comments may also be submitted by email by 12:00 p.m. today. Comments will be provided to the City Council electronically prior to the meeting. Comments will not be addressed during the meeting; however, comments received will be added to the official record.

Three written public comments were received and will be made part of the official record.

MAYOR'S REPORT:

Deputy Mayor Pratt recommended the appointment of Councilmember Steadman to the Nisqually River Council.

DEPUTY MAYOR PRATT MOVED TO APPOINT COUNCILMEMBER STEADMAN TO THE NISQUALLY RIVER COUNCIL. COUNCILMEMBER GREENSTEIN SECONDED. MOTION CARRIED.

CITY MANAGER'S REPORT:

Scott Spence, City Manager, presented an amendment to the Interlocal Agreement for the Regional Housing Council.

Over the last several months, the collective efforts of Thurston County and the cities of Lacey, Olympia, and Tumwater, worked to form a new partnership to replace Health and Human Services Council (HHSC). This effort proposes to create the Regional Housing Council (RHC) as the primary advisory body to help guide and direct public funds to address social services and housing needs within the Thurston Region. A new interlocal agreement (ILA) formalizes this new direction. The ILA has been modified to include acknowledgement that

2060 funds will continue to be used as match to the HOME funds as requested by City Council.

The Regional Housing Council will comprise of elected representatives and senior staff from Thurston County and the Cities of Lacey, Olympia, Tumwater, and Yelm. Councilmember Cox and Councilmember Greenstein (alternate) will represent the City of Lacey on the RHC. Scott Spence, City Manager, and Rick Walk, Director of Community & Economic Development, provide staff support.

At the Council meeting on August 27, 2020, the City Council approved the Regional Housing Council Interlocal Agreement. At that time the ILA included the communities of Tenino, Rainier, and Bucoda. Subsequent to the City Council's passage of the ILA, Tenino, Rainier, and Bucoda informed Thurston County that they would not be participating. As a result, the original ILA was never ratified, and a new ILA was brought forward to City Council, excluding the three communities, to formalize the Regional Housing Council (RHC). City Council approved the new ILA at its January 7, 2021, meeting. The proposed amended ILA clarifies the RHC's role in the decision making process for funds authorized by SHB 1406 and collected by the cities of Lacey, Olympia, Tumwater, Yelm, and Thurston County

The RHC will be a regional forum to discuss and coordinate actions related to housing and homelessness, and to leverage resources and partnerships through policies and projects that promote equitable access to safe and affordable housing. They will make recommendations related to funding a regional response to homelessness and affordable housing through existing and future Federal, State, and local funding programs.

DEPUTY MAYOR PRATT MOVED TO APPROVE AND AUTHORIZE THE CITY MANAGER TO SIGN THE AMENDED REGIONAL HOUSING COUNCIL INTERLOCAL AGREEMENT. COUNCILMEMBER GREENSTEIN SECONDED. MOTION CARRIED.

Scott Spence, City Manager, reported to Council that the following amended interlocal agreement was signed pursuant to Resolution 1067 and the Interlocal Agreements Approval Process Policy

- Amended Interlocal Agreement for Deschutes Water Rights Mitigation Strategy

STANDING COMMITTEES:

Community Relations & Public Affairs Committee

Councilmember Steadman reported the Committee met on April 5 to discuss a new naming policy relating to the recent inquiry by the Johnson family, and reviewed the Lacey Public Arts Policy.

BOARDS, COMMISSIONS
AND COMMITTEE REPORTS:

LOTT

Deputy Mayor Pratt reported on the following items:

- Discussed refunding the 2011 bonds
- Cyber security
- Permanent security issues at Budd Inlet Treatment Facility
- Mechanical Improvements Construction Contract
- Air quality summary

Intercity Transit

Councilmember Cox reported on the following items:

- Transportation is being provided to the public to get the COVID vaccine
- Lease extension for Walk-n-Roll program space
- Increase in ridership

TComm911

Councilmember Greenstein reported on the following items:

- Positive financial report
- Intergovernmental Agreement review process

Thurston Regional Planning Council (TRPC)

Councilmember Miller reported on the following items:

- Recap of census data
- Studies are being conducted for freights, goods, mobility of service in region

Thurston County Coalition Against Trafficking

Councilmember Miller announced the annual 5K Race Against Trafficking will be held virtually April 24-May 8, 2021.

Deputy Mayor Pratt adjourned the meeting at 4:36 p.m.

MAYOR: _____

ATTESTED BY CITY CLERK: _____

DATE APPROVED: _____

MINUTES OF THE LACEY CITY COUNCIL WORKSESSION

APRIL 22, 2021

4:00 P.M. – 5:59 P.M.

REMOTE ONLY

COUNCIL PRESENT: MAYOR RYDER, DEPUTY MAYOR PRATT, COUNCILMEMBERS
GREENSTEIN, STEADMAN, COX, KUNKEL, MILLER

STAFF PRESENT: S. SPENCE, S. KELLEY-FONG, D. SCHNEIDER, R. WALK,
E. FONTAINE

Mayor Ryder amended the agenda to add the item *Youth Council Update*

ACTION: APPROVE WORKSESSION AMENDED AGENDA

MOTION: MOTION MADE, SECONDED AND CARRIED BY COUNCILMEMBER
GREENSTEIN AND DEPUTY MAYOR PRATT

REVIEW OF QUASI-JUDICIAL PROCESS

STAFF: RICK WALK, COMMUNITY AND ECONOMIC DEVELOPMENT DIRECTOR

ACTION: INFORMATION ONLY

Rick Walk, Community and Economic Development Director presented on the Quasi-Judicial process and Lacey City Council's role.

Staff highlighted the limitations on Council's ability to respond to citizens and maintaining appearance of fairness and due process.

A comparison of the Quasi-Judicial process and Legislative functions included the following:

- Legislative
 - Actions affect the entire community
 - Adoption of zoning ordinances, critical areas regulations, comprehensive plans
 - Area-wide rezones are legislative in nature
 - Open Public Meetings Act

- Quasi-judicial
 - Decisions are like court proceedings
 - Determine requests of specific parties for permits, variances or other land use approvals
 - Involve application of existing laws to project proposals
 - Site-specific rezones
 - Decisions are based on Comprehensive Plan, Development Code, and basis of fact
 - Arbitrary and Capricious Test
 - Appearance of Fairness

Staff reviewed the effect of Hearing Examiner decisions and highlighted that decisions may be designated as one of the following:

- Recommendations to City Council
 - Current provision in LMC (maintain appearance of fairness)
- Final decision
 - Appealable to City Council (maintain appearance of fairness)
- Absolute Final Decision
 - Appealable to Superior Court (Council not involved/liability reduced)

The following alternatives were presented for Council discussion and consideration.

1. No change (Council involved)
2. Amend process to have Hearings Examiner final decision on all quasi-judicial matters subject to appeal to Council (Council still involved)
3. Amend process to have the final decision on all quasi-judicial matters subject to appeal to Superior Court (staff recommended) - (Council not involved and risk/liability reduced)

Council will have a more detailed discussion regarding the quasi-judicial process at a future Worksession.

COMMISSION ON EQUITY RECOMMENDATION

STAFF: SHANNON KELLEY-FONG, ASSISTANT CITY MANAGER
ACTION: INFORMATION ONLY

Shannon Kelley-Fong, Assistant City Manager, provided an update on the Commission on Equity member applications and highlighted the appointment recommendations from the Equity Workgroup.

As directed by City Council, initial review and recommendations of the applicants was conducted by the Equity Workgroup within the following process:

1. Initial Review conducted on April 5, 2021 – Applications with no names or addresses
2. Second Review conducted on April 12, 2021 – Application with names and addresses
3. Presentations conducted on April 13, 2021 – 10 applicants presented to the Equity Workgroup
4. Recommendations compiled on April 13 - 21 by the Equity Workgroup

Council expressed agreement in proceeding with appointing the recommended individuals at the May 20, 2021, Lacey City Council meeting.

Next steps include the Commission on Equity having their first meeting in June 2021. The first meeting would include introductions and an overview of Commission guidelines and procedures.

A consultant would lead the subsequent meetings, in which the group would establish the following:

- Shared definitions, e.g., equity, inequities, etc.; and
- Develop a draft workplan for the remainder of 2021 for the City Council's consideration.

Council directed staff to provide a recommendation regarding position terms prior to appointing Commission on Equity members.

YOUTH COUNCIL UPDATE

STAFF: SHANNON KELLEY-FONG, ASSISTANT CITY MANAGER

ACTION: INFORMATION ONLY

Shannon Kelley-Fong, Assistant City Manager. presented an update on Lacey Youth Council. The City evaluated the current Youth Council and staff highlighted recommendations to enhance the program for future years.

The following recommendations were reviewed and approved by the Youth Council on April 20, 2021:

Purpose

- Current:
 - Engage with Community's Youth & empower Youth to become future leaders
- Recommendation:
 - Serve as an advisory body to the Lacey City Council on youth perspectives related to community matters.

Membership

- Current:
 - 7 members, must be juniors or seniors
- Recommendations:
 - Increase membership to up to 15 individuals.
 - Allow sophomores to participate, in addition to juniors and seniors
 - Youth Council Mayor and Deputy Mayor must be juniors or seniors with one previous year on Youth Council, at the Mayor's discretion.

Meeting Times

- Current:
 - Once a month
- Recommendations:
 - Meet a minimum of twice a month:
 - o Regular meeting – First Tuesday
 - o Worksession Meeting – Following City Council presentation meeting on second Thursday.
 - Create a yearly workplan that includes:
 - o Civic educational element – determined by City
 - o Coordinated interactions with City Councilmembers
 - o Time to work on Youth projects
 - o Board and Commission updates
 - o City Staff presentations: 1) Information and 2) Youth perspectives

Youth Representation on Boards/Commissions

- Current:
 - LMC calls for Youth Representatives on Lacey Library Board, Board of Park Commissioners, Historical Commission, Commission on Equity (Council Policy 10.10)
- Recommendations:
 - Youth Councilmembers (juniors and seniors) serve as the Youth representatives to the above four boards
 - Have three (juniors or seniors) Youth Councilmembers serve as Project Managers for Youth project(s)

Lacey City Council Interaction

- Current:
 - Rotating Councilmembers
 - Mentors
 - Presentations in front of the Lacey Council every 2 months
- Recommendations:
 - Have one permanent Lacey Councilmember liaison; rotate the rest of the Councilmembers to attend at least once a year
 - Remove mentor requirement for now
 - Increase presentations in front of the Lacey Council every month – rotating Youth Councilmembers representing each school

Projects

- Current:
 - Youth focused public service and community engagement projects
 - Project proposals at first Worksession
- Recommendations:
 - Craft a year-long Youth Council work plan that includes a minimum of one service / community engagement project
 - Support City events throughout the year
 - Attend Youth Action Day / Other Leadership Summits
 - Have three Youth Councilmembers serve as program Project Managers

Replacement Process

➤ Current:

- No standard set for removing members that are not consistently attending meetings

➤ Recommendations:

- If a member fails to attend a total of two meetings without being approved by the City, they will be removed from the Youth Council

Regarding the time of the meetings, Council expressed a need to allow for accommodations when Council and school schedules return to normal. It was also suggested having Youth members having an alternate to gain flexibility with schedules.

Council also directed staff to provide further clarification and encouraged more flexibility regarding the recommended replacement process.

Staff will present an updated Youth Council Policy to the Lacey City Council at the May 20, 2021, Council meeting.

HAZARD PAY

PRESENTER: CITY COUNCIL

ACTION: INFORMATION ONLY

Council engaged in a discussion regarding implementation of hazard pay by City ordinance.

Council expressed concerns with applying boundaries and limitations regarding who would receive hazard pay, and who wouldn't.

It was determined that alternative solutions should be discussed at future meetings, including the Council Retreat



LACEY CITY COUNCIL MEETING May 20, 2021

SUBJECT: Disbursement Approval

RECOMMENDATION: By motion, approve payment of claims, wages, and transfers.

STAFF CONTACT: Troy Woo, Finance Director *TW*

ORIGINATED BY: Troy Woo, Finance Department

BACKGROUND:

The action requested of the City Council is by motion to approve payment of claims, wages and transfers for 4/6/2021 through 5/13/2021. The disbursements consist of the following:

Checks:	<u>Week of</u>	<u>Beg. Check No.</u>	<u>End. Check No.</u>	<u>Amount</u>
	4/9/2021	256141	256246	578,487.63
	4/16/2021	256247	256307	112,183.32
	4/23/2021	256308	256378	230,307.76
	4/30/2021	256379	256457	1,953,253.43
	*4/30/2021	256458	256459	924.76
	5/7/2021	256460	256551	1,626,418.61

Electronic Transfers:	<u>Week of</u>	<u>Amount</u>
	4/6/2021	12,550.19
	4/9/2021	1,280,286.70
	4/12/2021	15,924.42
	4/15/2021	381.00
	4/15/2021	3,492.61
	4/15/2021	448.41
	4/16/2021	364,602.39
	*4/21/2021	127,337.75
	*4/22/2021	27,122.21
	4/23/2021	814,958.33
	4/25/2021	83,970.40
	4/26/2021	306.00
	4/30/2021	211,708.61
	4/30/2021	47,534.78
	4/30/2021	1,352.32
	*4/30/2021	1,461,260.58
	*4/30/2021	34,174.04

5/3/2021	119,137.50
5/5/2021	27.45
5/7/2021	877,147.06
5/7/2021	345.00
5/10/2021	110.30
5/11/2021	12,115.40

Payroll:	<u>Month Ended:</u>	<u>Wages</u>
	*4/30/2021	1,515,560.75

Significant Disbursements:

<u>Vendor</u>	<u>Amount</u>	<u>Description</u>
JA Morris Construction	\$ 132,895.95	SPSCC Lacey Lower Level Impr.
KMB Architects	\$ 81,455.00	Museum and Civic Center
North Thurston Pub. Sch.	\$ 199,959.44	Family Resource Center Laundry Fac.
Northwest Cascade, Inc.	\$ 403,324.20	Manhole Rehabilitation 2020
T Bailey, Inc.	\$ 623,019.94	Hawks Prairie Sister Standpipe
Thurston Co. Pub. Works	\$ 66,141.54	Mullen Road Utilities
KMB Architects	\$ 129,206.90	Museum and Civic Center
Northwest Land & Water	\$ 109,047.34	Hydrogeology Services
Puget Sound Energy, Inc.	\$ 62,421.59	Utilities
South Sound Contractors	\$ 696,964.80	Cap City Water/Sewer
KMB Architects	\$ 70,939.08	Museum & Civic Center/Vet. SVC Hub
LOTT Wastewater Alliance	\$ 1,197,867.96	LOTT Reserve Cap Fees/ERU's
Platt Electric Supply	\$ 114,949.91	Street Light LED Lights
Thurston Co. Pub. Works	\$ 410,586.26	Mullen Road Utilities
Barcott Construction, LLC	\$ 289,711.24	Ruddell Road Retaining Wall
CDW Government, Inc.	\$ 300,984.61	Police Technology Investments
LOTT Wastewater Alliance	\$ 1,276,243.22	LOTT Reserve Cap Fees/ERU's
Murraysmith, Inc.	\$ 70,255.37	Water Sys Plan/Water Project Design
Northwest Land & Water	\$ 60,836.10	Hydrogeology Services
Simmons&Sons Contract.	\$ 82,680.18	Avonlea Sidewalk Repair

* Disbursements for employee out-of-pocket deductions and employee benefits.

CITY OF LACEY ***Proclamation***

WHEREAS, transportation accounts for about a third of the energy use in Washington State, and about half of our CO2 emissions from fossil fuel; and

WHEREAS, bicycle commuting reduces energy consumption, pollution, parking problems, and traffic congestion; and

WHEREAS, bicycling makes people healthier and more productive, prevents chronic diseases through physical activity and supports physical, emotional and mental well-being during a pandemic; and

WHEREAS, the City of Lacey has adopted a Pedestrian and Bicycle Plan to prioritize and encourage bicycle and pedestrian trips by providing a safe, well-connected and convenient bicycle and pedestrian circulation network throughout the City

WHEREAS, The City of Lacey encourages and supports pedestrian and bicycle facilities through our development standards; and

WHEREAS, Intercity Transit, with sponsors including the Capital Bicycling Club and many area businesses is hosting the 34th Annual Bicycle Commuter Challenge during the month of May, 2021.

NOW, THEREFORE, in recognition of the 64th National Bike Month I, Andy Ryder, Mayor of the City Lacey, on behalf of the Lacey City Council, proclaim May 2021, as

Bicycle Commuter Month

in the City of Lacey, and encourage all citizens to consider using active transportation modes, when possible.



A handwritten signature in blue ink, reading "Andy Ryder", is written over a horizontal line.

Mayor Andy Ryder
May 20, 2021



LACEY CITY COUNCIL MEETING May 20, 2021

SUBJECT: LMC 16.37, Hawks Prairie Business District, Residential and Commercial Zoning Text Amendment Application. Project no. 20-337.

RECOMMENDATION: Approve an ordinance related to a private-applicant initiated zoning text amendment to LMC 16.37 related to permitting residential and small-scale medical/dental uses in the HPBD-C subdistrict and, removing the 10% limit on smaller parcels.

STAFF CONTACT: Scott Spence, City Manager *SS*
Rick Walk, Community & Economic Development Director *RW*
Ryan Andrews, Planning Manager *RA*
Jessica Brandt, Associate Planner *JB*

ORIGINATED BY: Community & Economic Development Department by Private Applicant

ATTACHMENTS:

1. [Ordinance No. 1588](#)
2. [Zoning Text Amendment Application](#)
3. [LMC 16.37 proposed amendments](#)
4. [Hawks Prairie Business District Zoning Map](#)
5. [Planning Commission Public Hearing Minutes April 20, 2021](#)
6. [Planning Commission Staff Report March 16, 2021](#)
7. [Planning Commission Staff Report January 19, 2021](#)

FISCAL NOTE: None

PRIOR REVIEW: Planning Commission Introductory Briefing January 19, 2021
City Council/Planning Comm. Joint Worksession Jan. 28, 2021
Planning Commission Briefing March 2, 2021
Planning Commission Briefing March 16, 2021
Planning Commission Public Hearing April 20, 2021

BACKGROUND:

The City has received a private-applicant request to amend portions of Lacey Municipal Code Chapter 16.37 Hawks Prairie Business District. The applicant is requesting three amendments: 1) amend Chapter 16.37 of the Lacey Municipal Code to allow medical and dental offices and clinics within a multi-tenant building in Commercial sub-district, 2) allow

residential uses with design standards in the Hawks Prairie Business District-Commercial sub-district, and 3) remove density limits per parcel on residential uses within the Hawks Prairie Business District-Commercial zone and Business-Commercial zone on parcels smaller than twenty (20) acres in size.

The request is to amend specific text within the zoning code and does not require the need to amend any policies within the Comprehensive Plan. These types of applications are received periodically and are not subject to the docketing or annual Comprehensive Plan amendment timelines because amendment of the Comprehensive Plan is unnecessary. The Planning Commission has reviewed the request and provided a recommendation on the amendment to the City Council.

The intent of the Hawks Prairie Business District, per LMC 16.37.010 is to “encourage development of an integrated, planned community where people will want to live and work by permitting residential and compatible business uses to develop in close proximity to each other” and to “assure that development is site sensitive, user efficient, and furthers the mixed-use policies of the Northeast Area element of the Comprehensive Plan.” The Northeast Area element of the Comprehensive Plan was adopted in 1992.

The Hawks Prairie Business District (HPBD) has two subdistricts: Business Commercial (BC) and Commercial (C). The intent of the HPBD-BC is the more flexible of the two. The HPBD-BC allows for residential uses if in a mixed-use context, or if residential-only, it must be within 1000 feet of commercial uses. HPBD-BC also allows for medical uses. HPBD-C is more focused on commercial uses and does not currently allow for residential uses or medical uses. The HPBD-C subdistrict, per the Northeast Plan, was meant to be a retail destination north of the I-5 and Martin Way interchange. LMC Table 16T-71 describes detailed design guidelines for the retail/commercial area of the HPBD. This request would provide more flexibility in uses than is currently allowed.

The entire area of the HPBD is about 570 acres, with 296 acres currently undeveloped. The zoning designation for allowing medical and residential uses would apply throughout the entire Commercial subdistrict and changes to the residential limit would apply throughout the entire HPBD designation, in both subdistricts.

Hogum Bay Mixed Use, LLC Request

The first request is to allow medical and dental offices and clinics within multi-tenant buildings in the Commercial sub district (HPBD-C). Medical uses were permitted in the BC sub district because the intent of this focus area was for corporate style office, employment centers, in addition to residential, professional services, and retail and general commercial services. These standards were established in 1997. The intent was to ensure that medical did not over-proliferate in commercial areas as standalone developments. It was intended to prioritize the area for commercial development. The intent was not to prevent small dentists, clinics, etc. in a tenant space within a primarily commercial development. The request would allow for smaller medical uses in a multi-tenant building and would not allow large medical buildings, and meet the intent of the district.

The second and third request (combined) to expand residential uses is supported by the Northeast Area Plan which anticipated 1200-1300 units for the HPBD zone. A critical part of the request is to address the density cap that has limited the number of units permitted for an individual parcel based on 10% of the parcel area. While this cap may be appropriate for larger parcels that would allow for enough units for a development to be financially feasible, this has been problematic for smaller parcels. The applicants request would remove the 10% cap limit for parcels less than 20 acres, but still require residential uses to be in a mixed-use development or within 1000 feet of existing commercial development.

The Planning Commission has reviewed the request, held a public hearing, and is providing a recommendation to approve the amendment to the City Council. The public hearing was conducted by the Planning Commission on April 20, 2021. No public comments were received. After the public hearing, the Planning Commission voted unanimously to recommend approval of the request based on the following findings of fact.

The next step is for the City Council to take formal action on the Planning Commission's recommendation. The City Council may accept, modify or deny the recommendation. Staff is recommending that the City Council approve the attached ordinance, which will formally approve the applicant's request.

FINDINGS OF FACT:

The Lacey Planning Commission recommends to the Lacey City Council the approval of the application to amend Chapter 16.37 of the Lacey Municipal Code to allow medical and dental uses in the HPBD-C subdistrict, allow residential in the HPBD-C subdistrict, and to remove the 10% density cap on parcels less than 20 acres in size, subject to the following findings of fact:

1. The Economic Development Element and Housing Element of the 2016 Comprehensive Plan for Lacey and the Lacey Urban Growth contains discussion and policies related to business retention, expansion and housing needs.
2. Lacey Municipal Code 16.37.010 "Intent" contains statements related to the purpose of the HPBD zone, including: "encourage development of an integrated, planned community where people will want to live and work by permitting residential and compatible business uses to develop in close proximity to each other" and to "assure that development is site sensitive, user efficient, and furthers the mixed-use policies of the Northeast Area element of the Comprehensive Plan."
3. The Northeast Area element of the Comprehensive Plan envisioned 1,150 residential units for the HPBD zone. Current zoning standards limit potential units about 570 units. No residential units have been built to date. Infrastructure such as roads, water and sewer have been built and planned for the envisioned number of residential units.

4. The zoning text amendment addresses land use compatibility, streetscape aesthetics and progresses the vision for the HPBD zone to have a balanced mix of uses including housing, commercial services, employment, entertainment, and civic uses.
5. Market conditions in the region have changed dramatically in the past year and will continue to affect new development in the HPBD zone. The amendment supports the increasing demand for residential units and small-scale retail.
6. The Planning Commission received no comments at a public hearing on April 20, 2021.

ORDINANCE NO. 1588

CITY OF LACEY

AN ORDINANCE OF THE CITY OF LACEY RELATED TO HAWKS PRAIRIE BUSINESS DISTRICT ZONING, AMENDING SECTIONS 16.37.020 AND 16.37.070 OF THE LACEY MUNICIPAL CODE AND APPROVING A SUMMARY FOR PUBLICATION.

WHEREAS, the City of Lacey Community and Economic Development Department received a private applicant-initiated zoning text amendment request pertaining to the Hawks Prairie Business District; and

WHEREAS, the request is to 1) amend Chapter 16.37 of the Lacey Municipal Code to allow medical and dental offices and clinics within a multi-tenant building in the Commercial sub-district, 2) allow residential uses with design standards in the Hawks Prairie Business District-Commercial sub-district, and 3) remove density limits per parcel on residential uses within the Hawks Prairie Business District-Commercial zone and Business-Commercial zone on parcels smaller than twenty (20) acres in size; and

WHEREAS, the Planning Commission reviewed the requested amendments and conducted a public hearing on April 20, 2021; and

WHEREAS, the Planning Commission voted to recommend approval of the requested amendments to the City Council; and

WHEREAS, the City Council has reviewed the Planning Commission's recommendation and Findings of Fact and finds the proposed amendments to be in the public interest.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF LACEY, WASHINGTON, AS FOLLOWS:

Section 1. Section 16.37.020 of the Lacey Municipal Code is hereby amended as follows:

16.37.020 Permitted uses in the designated commercial area.

The following uses are permitted in that portion of the Hawks Prairie Business District designated as commercial area on Table 16T-67.

A. Commercial

Apparel

Automotive supplies

Auto sales including new or used cars, campers, trailers, motorcycles and boats subject to the provisions of LMC 16.37.070(K)

Books and stationery

Convenience stores and service stations designed for fueling no more than eight automobiles simultaneously and subject to the provisions of LMC 16.37.070(H)

Department stores

Drug stores and pharmacies

Fabric stores

Florists

Food stores

General merchandise

Gifts/specialty

Hobby/special interest

Homes appliances/electronics

Home furnishings

Home improvement centers/garden supplies

Jewelry and cosmetics

Liquor

Medical and dental offices and clinics (within multi-tenant buildings)

Personal services

Professional services when provided as an integral part of a commercial center

Sporting goods and related stores.

B. Hotels and motels.

C. Convention centers and conference facilities.

D. Eating and drinking establishments

Restaurants with drive through windows shall meet the provisions of LMC 16.37.070(I).

E. Cultural, entertainment and recreation

Art galleries

Athletic facilities and health clubs

Bowling alleys

Cinemas

Libraries and museums.

F. Day care facilities when provided as an integral part of a commercial center and in support of the other uses therein.

G. Financial institutions

Banks

Brokerages

Finance companies

Insurance and real estate offices

Such uses shall be allowed only when provided as an integral part of a commercial center and in support of the other uses therein.

H. Residential subject to the provisions of LMC 16.37.070(L).

~~H~~I. Other similar and related uses consistent with the intent of the zone as determined by the site plan review committee.

~~I~~J. Urban agricultural uses as provided for and limited under Chapter 16.21 LMC.

Section 2. Section 16.37.070 of the Lacey Municipal Code is hereby amended as follows:

16.37.070 Design standards.

A. Relationship Between Buildings. Proposed buildings shall be related harmoniously to the terrain and to other buildings in the vicinity that have a visual relationship to the proposed buildings.

B. Interior Circulation. Development proposals shall include the following components:

1. Location and number of access points to the public streets.
2. Sidewalks that provide continuous pedestrian and bicycle access along public, state, or private access roads and to primary uses within the development.
3. General interior circulation.
4. Separation of pedestrian and vehicular traffic, via strategically located, clearly defined pedestrian corridors through parking lots and other means of clearly differentiating pedestrian areas from vehicle areas. The number and location of pedestrian corridors shall be determined by the city based on the size and scale of the development.
5. Arrangement of parking areas that are safe and convenient and do not detract from the design of proposed buildings and structures and the neighboring properties.

C. Access. Connection to arterials shall be made at city determined locations. Full access to arterials may be restricted by the city where necessary to facilitate efficient traffic circulation.

D. Transit. Buildings shall be located so as to encourage and facilitate the use of transit and other forms of transportation alternatives to the single occupancy vehicle.

E. Signs. The size, location, design, color, texture, lighting and materials of all signs shall not detract from the design of proposed buildings and structures and shall comply with Chapter 16.75 LMC.

F. Parking. All parking areas and structures shall comply with the standards of Chapter 16.72 LMC.

G. Utilities. All permanent utility lines, pipes and conduits shall be located below ground, and all other utility facilities, except fire hydrants, shall be landscaped and screened with sight-obscuring vegetation.

H. Standards for Convenience Stores and Service Stations.

1. Must be sized and designed to be compatible with the Hawks Prairie Business District zone.
2. Convenience stores and service stations shall not be permitted on any parcel adjacent to an intersection.
3. Special attention must be given to assure compliance with the standards for the area. The site plan review committee may require revisions to the proposed layout in order to achieve such consistency.
4. Maximum front building setback shall be fifteen feet.

5. Signs must be consistent with the sign regulations contained in Chapter 16.75 LMC.

6. Buildings must be of an architectural style that is harmonious with and complementary to surrounding structures.

I. Standards for Restaurants with Drive-Through Windows.

1. Buildings must be of an architectural style that is harmonious with and complementary to surrounding structures.

2. Drive-through lanes and parking areas may not be located between the building and any public street.

3. Restaurants with drive-through windows shall not be permitted on any parcel adjacent to an intersection.

J. Mixed Use Occupancies. Residential units and retail business or office uses shall be permitted within the same structure, subject to the following limitations:

1. The nonresidential uses must have vehicular access via a business street or arterial and shall front directly on an adjacent sidewalk or pedestrian walkway, or on a front or side yard from which vehicles are excluded.

2. Business/commercial uses shall occupy the floors below the residential uses to preserve a residential atmosphere for the residents above.

3. Business and residential portions of the building must be separated by a soundproofed concrete or wood floor, insulated or otherwise soundproofed with the

intervening space unoccupied except for utility lines, heating and air conditioning ducts, and similar devices not producing noise or vibration or requiring regular access.

K. Standards for Auto Sales.

1. A showroom building is required. Maximum front building setback shall be fifteen feet. Showroom windows and displays shall face the fronting street encompassing a minimum of sixty percent of the facade surface area.
2. Showroom building width shall be a minimum of forty percent of the width of the parcel fronting the street.
3. Outdoor vehicle display shall be located at the side or rear of the showroom building.
4. Service facilities shall be located to the rear of the showroom building with bay doors oriented to the rear of the building. Any separate service buildings shall be located internal to or at the rear of the site.
5. Fifteen feet of Type II landscaping is required on any right-of-way frontages not containing a showroom or other building.
6. Buildings must be of an architectural style that is harmonious with and complementary to surrounding structures in compliance with the Design Review Checklist for the Hawks Prairie Business District.
7. Any existing buildings modified for the purposes of auto sales shall meet the requirements of this chapter.

L. Standards for Residential.

1. Residential units shall be located in mixed use buildings that have the first floor dedicated to offices or other nonresidential uses. An exception may be granted by the community and economic development director for allowing ground floor residential under the following conditions:

- a. As part of an approved master plan; provided, that the distance to a commercial or office building does not exceed one thousand feet.
- b. The ground floor residential uses are directly connected by pedestrian amenities to commercial and/or office uses.
- c. Buildings must be of an urban architectural style that is harmonious with and complementary to surrounding structures in compliance with the Design Review Checklist for the Hawks Prairie Business District.
- d. Ground floor residential uses shall be limited to townhomes, row homes, live/work, and urban walk-up apartments. No more than fifty percent of the total units shall be used for townhomes or row homes.

2. Maximum residential density shall be calculated at twenty units per acre. No more than ten percent of a parcel shall be used to calculate the number of units permitted on that parcel. However, this ten percent limitation shall not apply to parcels measuring less than 20 acres as of June 1, 2021.

M. Design Review. All development in the Hawks Prairie Business District shall be consistent with the appropriate provisions of Chapter 14.23 LMC.

Section 3. SEVERABILITY. If any section, sentence, clause or phrase of this ordinance should be held to be invalid by a court of competent jurisdiction, such invalidity or

unconstitutionality shall not affect the validity or constitutionality of any other section, sentence, clause or phrase of this ordinance.

Section 4. CORRECTIONS. The City Clerk and the codifiers of this ordinance are authorized to make necessary corrections to this ordinance including, but not limited to, the correction of scrivener's/clerical errors, references, ordinance numbering, section/subsection numbers and any references thereto.

Section 5. The Summary attached hereto is hereby approved for publication.

PASSED BY THE CITY COUNCIL OF THE CITY OF LACEY,
WASHINGTON, at a regularly-called meeting thereof, held this 20th day of May,
2021.

CITY COUNCIL

By: _____
Mayor

Approved as to form:

City Attorney

Attest:

City Clerk

SUMMARY FOR PUBLICATION

ORDINANCE NO 1588

CITY OF LACEY

The City Council of the City of Lacey, Washington, passed on May 20, 2021, “AN ORDINANCE OF THE CITY OF LACEY RELATED TO HAWKS PRAIRIE BUSINESS DISTRICT ZONING, AMENDING SECTIONS 16.37.020 AND 16.37.070 OF THE LACEY MUNICIPAL CODE AND APPROVING A SUMMARY FOR PUBLICATION.”

The main points of the Ordinance are described as follows:

1. The Ordinance amends section 16.37.020 of the Lacey Municipal Code related to permitting residential and small-scale medical/dental uses in the HPBD-C subdistrict.
2. The Ordinance amends section 16.37.070 of the Lacey Municipal Code related to maximum residential density for parcels less than 20 acres.
3. The Ordinance approves this Summary for Publication.

A copy of the full text of this Ordinance will be mailed without charge to any person requesting the same from the City of Lacey.

Published: May 24, 2021



CITY OF LACEY
Community & Economic Development Department
420 College Street SE
Lacey, WA 98503
(360) 491-5642

OFFICIAL USE ONLY

Case Number: _____

Date Received: _____

By: _____

Related Case Numbers:

ZONING TEXT AMENDMENT APPLICATION

SECTION I

APPLICANT NAME: HOGUM BAY MIXED USE LLC

MAILING ADDRESS: PO BOX 7534

CITY, STATE, ZIP: OLYMPIA, WA 98507

TELEPHONE: 360.705.2303

REPRESENTATIVE NAME: THOMAS ARCHITECTURE STUDIOS / MICHAEL KERSHISNIK AIA

MAILING ADDRESS: 525 COLUMBIA STREET SW

CITY, STATE, ZIP: OLYMPIA, WA 98501

TELEPHONE: 360.915.8775

* The representative is the person whom staff will contact regarding the application, and to whom all notices and reports shall be sent, unless otherwise stipulated by the applicant.

SECTION II

A. GENERAL DESCRIPTION OF PROPOSAL; DESCRIBE THE INTENT AND REASON FOR PROPOSING A CHANGE TO THE TEXT OF THE ZONING CODE

APPLICANT IS CONSIDERING A PROPOSED DEVELOPMENT ON APPROXIMATELY 18 ACRES IN THE HPBD-C ZONE WHICH WOULD INCLUDE RESIDENTIAL AND POSSIBLE MEDICAL / DENTAL USES. THE PROPOSAL WOULD ALLOW FOR A RESIDENTIAL USE IN THE HPBD-C ZONE AND A REVISION TO THE MAXIMUM RESIDENTIAL DENSITY IN THE HPBD ZONES. IN ADDITION, THE PROPOSAL ADDS A PROVISION TO ALLOW FOR "MEDICAL AND DENTAL OFFICES AND CLINICS" AS A PERMITTED USE WITHIN THE HPBD-C ZONE. THE LIMITED QUANTITY OF HPBD ZONED ACREAGE (APPROXIMATELY ~500 ACRES) IN LACEY COUPLED WITH THE EXISTING DEVELOPMENT PATTERNS WOULD LIMIT THE APPLICABILITY OF THIS PROPOSED AMENDMENT.

B. GENERAL PURPOSE OF THE ZONE TO BE CHANGED? CONSIDER WHAT FUNCTION THE ZONE SERVES AS DISCRIBED IN THE COMPREHENSIVE LAND USE PLAN AND HOW THAT FUNCTION OR PURPOSE MIGHT BE IMPACTED BY THE PROPOSED CHANGE

PER LMC 16.37.010 THE INTENT OF THE HPBD ZONE IS TO “ENCOURAGE DEVELOPMENT OF AN INTEGRATED, PLANNED COMMUNITY WHERE PEOPLE WILL WANT TO LIVE AND WORK, BY PERMITTING RESIDENTIAL AND COMPATIBLE BUSINESS USES TO DEVELOP IN CLOSE PROXIMITY TO EACH OTHER”. AND TO “ASSURE THAT DEVELOPMENT IS SITE SENSITIVE, USER EFFICIENT, AND FURTHERS THE MIXED-USE POLICIES OF THE NORTHEAST AREA ELEMENT OF THE COMPREHENSIVE PLAN.”

APPLICANT’S PROPOSAL WOULD BE CONSISTENT WITH THIS INTENT AND FURTHER SUPPORT THE AREAS MIXED USE / LIVE - WORK POLICIES THRU BOTH A DENSITY AND USE PATTERN.

C. TEXT CHANGE REQUESTED

CURRENT ZONING LANGUAGE:

APPLICANT HAS ATTACHED A STRIKE-THROUGH AND HIGHLIGHTED (RED TEXT) VERSION OF THE EXISTING CODE WITH PROPOSED CHANGES

REQUESTED NEW ZONING LANGUAGE:

APPLICANT HAS ATTACHED A STRIKE-THROUGH AND HIGHLIGHTED (RED TEXT) VERSION OF THE EXISTING CODE WITH PROPOSED CHANGES.

- D. DOES THE PROPOSED AMENDMENT AFFECT BOTH THE CITY AND THURSTON COUNTY? IS THE ZONE TO BE CHANGED IN BOTH INCORPORATED AND UNINCORPORATED AREAS; LACEY AND LACEY'S GROWTH AREA? (PLEASE EXPLAIN):**

THERE ARE NO PROPOSED CHANGES IN THURSTON COUNTY. THIS AMENDMENT WOULD ONLY AFFECT ZONING WITHIN THE CITY OF LACEY.

- E. WAS THIS ISSUE, THE ZONES SPECIFIC ALLOWED USES OR STANDARDS PROPOSED FOR CHANGE, DISCUSSED DURING THE COMPREHENSIVE PLAN AND ZONING REGULATIONS REVIEW AND ADOPTION PROCESS? IF SO, PLEASE EXPLAIN:**

UNKNOWN.

- F. IS THE PRESENT ZONING LANGUAGE THE RESULT OF A MISTAKE? WHAT KIND OF MISTAKE (i.e., ACCIDENTAL OMISSION, INTENT NOT CLARIFIED)? PLEASE EXPLAIN:**

NO.

- G. HOW MANY ACRES OF DEVELOPED AND UNDEVELOPED PROPERTY IN THIS ZONING DESIGNATION COULD BE IMPACTED BY THE CHANGE?**

DEVELOPED: APPROXIMATELY 5.0 ACRES

UNDEVELOPED: APPROXIMATELY 135.0 ACRES

WHAT ZONES ARE LOCATED ADJACENT TO THESE AREAS?

GENERAL COMMERCIAL (GC), LIGHT INDUSTRIAL (LI), OPEN SPACE INSTITUTIONAL (OS-I), LIGHT INDUSTRIAL COMMERCIAL (LI-C), HAWKS PRAIRIE BUSINESS DISTRICT – BUSINESS/COMMERCIAL (HPBD-BC)

- H. WHAT POTENTIAL LAND USE CONFLICTS COULD RESULT FROM THE PROPOSED CHANGE? CONSIDER ALL LAND IN THE ZONE TO BE CHANGED AS WELL AS EXISTING AND PLANNED LAND USES IN ADJACENT ZONES. DO NOT LIMIT CONSIDERATION ONLY TO THE SPECIFIC PARCEL(S) THAT YOU ARE INTERESTED IN. REMEMBER, A TEXT AMENDMENT WILL IMPACT ALL PROPERTY WITHIN THAT ZONE AND COULD POTENTIALLY IMPACT PROPERTY IN ADJACENT ZONES AS WELL.**

THE HPBD-C ZONE IS A SUB ZONE OF THE HAWKS PRAIRIE BUSINESS DISTRICT WITHIN THE CITY OF LACEY ZONING. THE PROPOSED AMMENDMENT WOULD ALLOW FOR DENSITY AND USES WITHIN THE HPBD-C ZONE THAT ARE REFLECTIVE OF THE ADJACENT HPBD-BC ZONE AND SUPPORT THE INTENT OF THE HAWKS PRAIRIE BUSINESS DISTRICT IN GENERAL. THEREFORE, NO POTENTIAL CONFLICT ARE ANTICIPATED WITH THIS PROPOSED CHANGE.

SECTION III

EXPLAIN HOW THE AMENDMENT IS CONSISTENT WITH THE FOLLOWING:

- **State Growth Management Act (GMA):**

THIS PROPOSAL SUPPORTS AND IS CONSISTENT WITH THE URBAN GROWTH, REDUCED SPRAWL, TRANSPORTATION, ECONOMIC DEVELOPMENT AND HOUSING GOALS OF THE STATE GROWTH MANAGEMENT ACT.

- **County-Wide Planning Policies (CWPP):**

THIS PROPOSAL SUPPORTS AND IS CONSISTENT WITH THE URBAN GROWTH, ECONOMIC DEVELOPMENT, HOUSING, TRANSPORTION AND ENVIRONMENTAL QUALITY GOALS OF THE COUNTY WIDE PLANNING POLICIES.

- **Lacey Comprehensive Plan:**

THIS PROPOSAL SUPPORTS AND IS CONSISTENT WITH THE FRAMEWORK LAND USE POLICIES REGARDING QUALITY OF LIFE (POLICY A), LAND USE PATTERNS (POLICY B), EMPLOYMENT (POLICY C), HOUSING (POLICY E), POPULATION GROWTH (POLICY G), AND TRANSPORTATION (POLICY H),

- **Regional Transportation Plan (RTP):**

THIS PROPOSAL SUPPORTS AND IS CONSISTENT WITH THE GOALS AND POLICIES REGARDING LAND USE PATTERNS (POLICY 1.a), DENSITY (POLICY 1.e), ACTIVITY NODES (POLICY 1.j), CREATE A SAFE AND VIBRANT CITY (POLICY 1.i) AND CREATE SAFE AND VIBRANT NEIGHBORHOODS (POLICY 1.i)

- **Other Applicable City Plans or Documents:**

THIS PROPOSAL SUPPORTS AND IS CONSISTENT WITH THE HAWKS PRAIRIE BUSINESS DISTRICTS PLANNING AND PROVIDES FLEXIBILITY FOR DEVELOPMENT THAT WOULD ALLOW A MORE DIVERSE AND ACTIVATED PUBLIC AND PRIVATE URBAN ENVIRONMENT.

- **Neighboring Jurisdictions' Comprehensive Plan (when your proposal affects multiple jurisdictions):**

THIS IS NOT APPLICABLE TO THIS PROPOSAL.

SUPPLEMENTAL INFORMATION

THIS APPLICATION MUST BE ACCOMPANIED BY THE FOLLOWING INFORMATION:

- 1- Environmental checklist (must include 2 CD's containing .pdf copies of all submittal materials, including applications)
- 2- Supplemental information and/or special reports may be required including:
 - a. Environmental issues;
 - b. Anticipated impacts from a change in uses or standards of the zone;
 - c. Other.

INITIATED BY:

☐ Planning Commission. Date of Initiation: _____

☐ City Council. Date of Initiation: _____

☐ Property owners as follows:

I (We) understand and agree with the above explained need for the map change and are contract purchaser of the property within the City of Lacey.

Signature

Walker John

Printed Name

ADDRESS: 206 State Ave Olympia, WA 98501

Signature

Printed Name

ADDRESS: _____

Signature

Printed Name

ADDRESS: _____

16.37.020 Permitted uses in the designated commercial area.

The following uses are permitted in that portion of the Hawks Prairie Business District designated as commercial area on Table [16T-67](#).

A. Commercial

Apparel

Automotive supplies

Auto sales including new or used cars, campers, trailers, motorcycles and boats subject to the provisions of LMC [16.37.070\(K\)](#)

Books and stationery

Convenience stores and service stations designed for fueling no more than eight automobiles simultaneously and subject to the provisions of LMC [16.37.070\(H\)](#)

Department stores

Drug stores and pharmacies

Fabric stores

Florists

Food stores

General merchandise

Gifts/specialty

Hobby/special interest

Homes appliances/electronics

Home furnishings

Home improvement centers/garden supplies

Jewelry and cosmetics

Liquor

[Medical and dental offices and clinics \(within multi-tenant buildings\)](#)

Personal services

Professional services when provided as an integral part of a commercial center

Sporting goods and related stores.

B. Hotels and motels.

C. Convention centers and conference facilities.

D. Eating and drinking establishments

Restaurants with drive through windows shall meet the provisions of LMC [16.37.070\(I\)](#).

E. Cultural, entertainment and recreation

Art galleries

Athletic facilities and health clubs

Bowling alleys

Cinemas

Libraries and museums.

F. Day care facilities when provided as an integral part of a commercial center and in support of the other uses therein.

G. Financial institutions

Banks

Brokerages

Finance companies

Insurance and real estate offices

Such uses shall be allowed only when provided as an integral part of a commercial center and in support of the other uses therein.

[H. Residential subject to the provisions of LMC 16.37.070\(L\).](#)

[HJ.](#) Other similar and related uses consistent with the intent of the zone as determined by the site plan review committee.

I. Urban agricultural uses as provided for and limited under Chapter [16.21](#) LMC. (Ord. 1480 §19, 2015; Ord. 1368 §33, 2011; Ord. 1054 §2, 1997).

The Lacey Municipal Code is current through Ordinance 1569, passed September 10, 2020.

Disclaimer: The city clerk's office has the official version of the Lacey Municipal Code. Users should contact the city clerk's office for ordinances passed subsequent to the ordinance cited above.

Note: This site does not support Internet Explorer. To view this site, Code Publishing Company recommends using one of the following browsers: Google Chrome, Firefox, or Safari.

[City Website: www.ci.lacey.wa.us](http://www.ci.lacey.wa.us)

[Code Publishing Company](#)

16.37.070 Design standards.

- A. *Relationship Between Buildings.* Proposed buildings shall be related harmoniously to the terrain and to other buildings in the vicinity that have a visual relationship to the proposed buildings.
- B. *Interior Circulation.* Development proposals shall include the following components:
1. Location and number of access points to the public streets.
 2. Sidewalks that provide continuous pedestrian and bicycle access along public, state, or private access roads and to primary uses within the development.
 3. General interior circulation.
 4. Separation of pedestrian and vehicular traffic, via strategically located, clearly defined pedestrian corridors through parking lots and other means of clearly differentiating pedestrian areas from vehicle areas. The number and location of pedestrian corridors shall be determined by the city based on the size and scale of the development.
 5. Arrangement of parking areas that are safe and convenient and do not detract from the design of proposed buildings and structures and the neighboring properties.
- C. *Access.* Connection to arterials shall be made at city determined locations. Full access to arterials may be restricted by the city where necessary to facilitate efficient traffic circulation.
- D. *Transit.* Buildings shall be located so as to encourage and facilitate the use of transit and other forms of transportation alternatives to the single occupancy vehicle.
- E. *Signs.* The size, location, design, color, texture, lighting and materials of all signs shall not detract from the design of proposed buildings and structures and shall comply with Chapter [16.75](#) LMC.
- F. *Parking.* All parking areas and structures shall comply with the standards of Chapter [16.72](#) LMC.
- G. *Utilities.* All permanent utility lines, pipes and conduits shall be located below ground, and all other utility facilities, except fire hydrants, shall be landscaped and screened with sight-obscuring vegetation.
- H. *Standards for Convenience Stores and Service Stations.*
1. Must be sized and designed to be compatible with the Hawks Prairie Business District zone.
 2. Convenience stores and service stations shall not be permitted on any parcel adjacent to an intersection.
 3. Special attention must be given to assure compliance with the standards for the area. The site plan review committee may require revisions to the proposed layout in order to achieve such consistency.

4. Maximum front building setback shall be fifteen feet.
5. Signs must be consistent with the sign regulations contained in Chapter [16.75](#) LMC.
6. Buildings must be of an architectural style that is harmonious with and complementary to surrounding structures.

I. Standards for Restaurants with Drive-Through Windows.

1. Buildings must be of an architectural style that is harmonious with and complementary to surrounding structures.
2. Drive-through lanes and parking areas may not be located between the building and any public street.
3. Restaurants with drive-through windows shall not be permitted on any parcel adjacent to an intersection.

J. Mixed Use Occupancies. Residential units and retail business or office uses shall be permitted within the same structure, subject to the following limitations:

1. The nonresidential uses must have vehicular access via a business street or arterial and shall front directly on an adjacent sidewalk or pedestrian walkway, or on a front or side yard from which vehicles are excluded.
2. Business/commercial uses shall occupy the floors below the residential uses to preserve a residential atmosphere for the residents above.
3. Business and residential portions of the building must be separated by a soundproofed concrete or wood floor, insulated or otherwise soundproofed with the intervening space unoccupied except for utility lines, heating and air conditioning ducts, and similar devices not producing noise or vibration or requiring regular access.

K. Standards for Auto Sales.

1. A showroom building is required. Maximum front building setback shall be fifteen feet. Showroom windows and displays shall face the fronting street encompassing a minimum of sixty percent of the facade surface area.
2. Showroom building width shall be a minimum of forty percent of the width of the parcel fronting the street.
3. Outdoor vehicle display shall be located at the side or rear of the showroom building.
4. Service facilities shall be located to the rear of the showroom building with bay doors oriented to the rear of the building. Any separate service buildings shall be located internal to or at the rear of the site.

5. Fifteen feet of Type II landscaping is required on any right-of-way frontages not containing a showroom or other building.
6. Buildings must be of an architectural style that is harmonious with and complementary to surrounding structures in compliance with the Design Review Checklist for the Hawks Prairie Business District.
7. Any existing buildings modified for the purposes of auto sales shall meet the requirements of this chapter.

L. Standards for Residential.

1. Residential units shall be located in mixed use buildings that have the first floor dedicated to offices or other nonresidential uses. An exception may be granted by the community and economic development director for allowing ground floor residential under the following conditions:
 - a. As part of an approved master plan; provided, that the distance to a commercial or office building does not exceed one thousand feet.
 - b. The ground floor residential uses are directly connected by pedestrian amenities to commercial and/or office uses.
 - c. Buildings must be of an urban architectural style that is harmonious with and complementary to surrounding structures in compliance with the Design Review Checklist for the Hawks Prairie Business District.
 - d. Ground floor residential uses shall be limited to townhomes, row homes, live/work, and urban walk-up apartments. No more than fifty percent of the total units shall be used for townhomes or row homes.
2. Maximum residential density shall be calculated at twenty units per acre. No more than ten percent of a parcel shall be used to calculate the number of units permitted on that parcel. However, this ten percent limitation shall not apply to parcels measuring less than 20 acres as of June 1, 2021.

M. *Design Review.* All development in the Hawks Prairie Business District shall be consistent with the appropriate provisions of Chapter [14.23](#) LMC. (Ord. 1539 §85, 2019; Ord. 1480 §22, 2015; Ord. 1220 §38, 2004; Ord. 1154 §13, 2001; Ord. 1139 § 5, 2000; Ord. 1054 §2, 1997).

The Lacey Municipal Code is current through Ordinance 1587, passed March 18, 2021.

Disclaimer: The city clerk's office has the official version of the Lacey Municipal Code. Users should contact the city clerk's office for ordinances passed subsequent to the ordinance cited above.

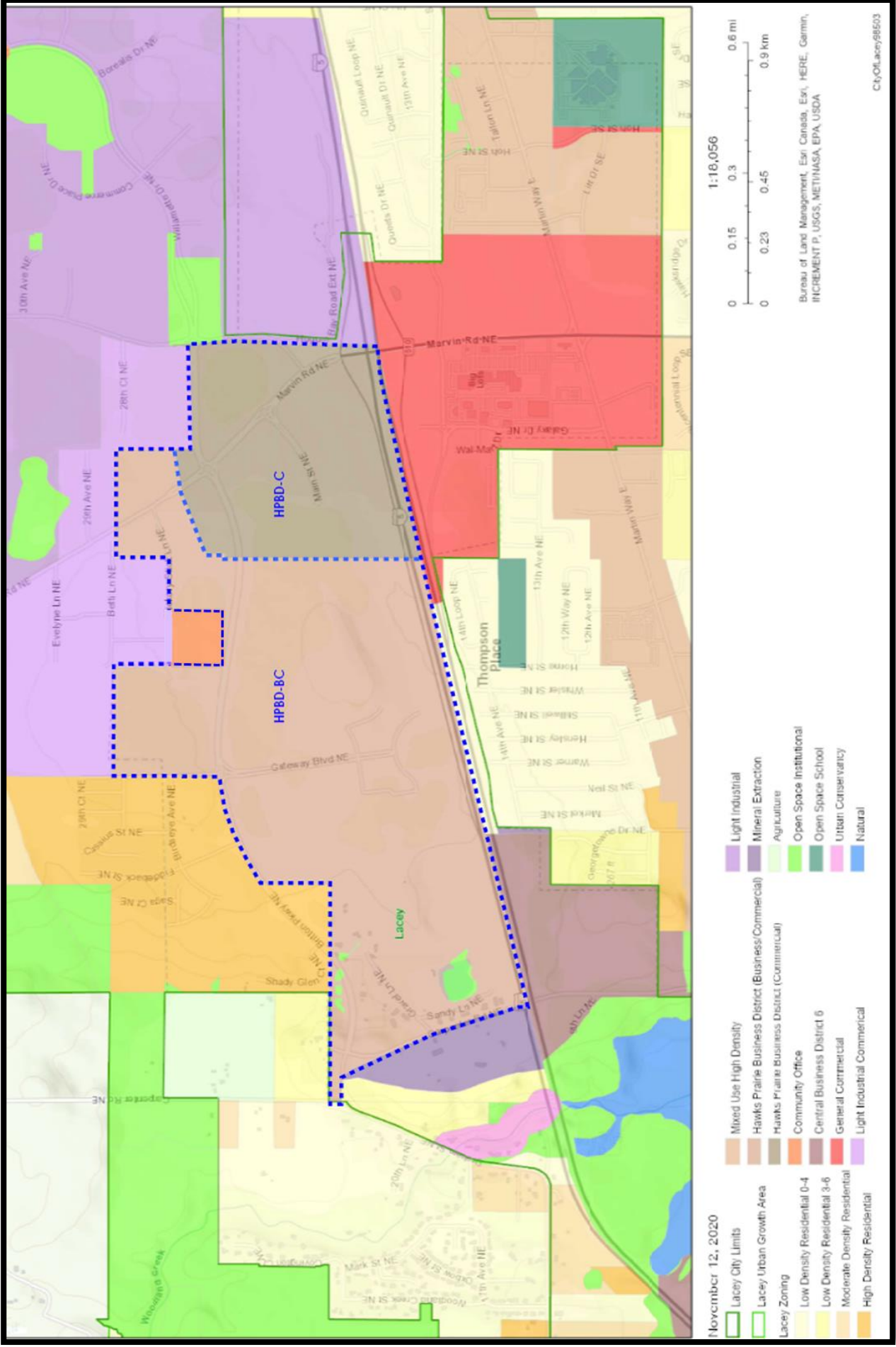
Note: This site does not support Internet Explorer. To view this site, Code Publishing Company recommends using one of the following browsers: Google Chrome, Firefox, or Safari.

[City Website: www.ci.lacey.wa.us](http://www.ci.lacey.wa.us)

[Code Publishing Company](#)



Hawks Prairie Business District - 570 Acres Two Sub- Districts



MINUTES

Lacey Planning Commission Meeting
Tuesday, April 20, 2021 – 5:00 p.m.
Conducted remotely via videoconference

Meeting was called to order at 5:00 p.m. by Dave Wasson.

Planning Commission members present: Dave Wasson, Gail Madden, Peg Evans-Brown, Daphne Retzlaff, Kyrian MacMichael, Mark Mininger, Shaunesy Walden Behrens, and Robin Vasquez. Staff present: Rick Walk, Ryan Andrews and Jessica Brandt.

Dave noted a quorum present.

Gail Madden made a motion, seconded by Mark Mininger, to approve the agenda for tonight's meeting and the April 6 meeting minutes. All were in favor, the motion carried.

1. Public Comments:

- Rick Walk noted that there are several land use applications in review at this time that the Planning Commission is not involved with, and encouraged citizens to contact Community & Economic Development with any questions on those projects.
- Joseph Aptaker asked if an environmental impact statement had been done in those areas, Rick noted that is done for any type of land use review, and he can contact CED with any questions.

2. Commission Members Reports:

- Mark reported on his attendance at the climate mitigation virtual open house.
- Robin reported that she has distributed the climate mitigation postcards in many locations around town.

3. Director's Report:

- Rick thanked Commissioners for their feedback on the virtual open house
- Rick reported that at this Thursday's Council worksession, one of the agenda items will be the Council's role in the land use hearing process.
- Rick reported that this Friday is the Council annual retreat. Discussion topics will include potential partnership with COL, SMU, MJR to look at the intersection of College and 7th and a potential roundabout; briefing council on potential future new police station; and going over potential programs or community need for American Recovery Act.

4. Public Hearing:

Hawks Prairie Business District Zoning Text Amendment: Jessica Brandt, Associate Planner.

- Jessica shared a presentation with some background info and noted that applicant representative Michael Kershisnik from Thomas Architecture Studios is in attendance and available to answer questions.
- Jessica noted that the proposed amendments would allow medical and dental offices, residential uses, and increased density on smaller parcels.
- Jessica reported that staff has not received any written comments, and asked that Dave open up the hearing to public comment.
- No public testimony was given.
- There was a discussion regarding changing the wording of the 10% limitation on parcels 20 acres or more.
- Jessica went over proposed findings of fact from the staff report.
- **Robin made a motion, seconded by Gail, to refer the zoning text amendment to council with the findings of fact. All were in favor, the motion carried.**

5. **New Business:**

Lacey Midtown District Assessment and Housing Strategy: Ryan Andrews, Planning Manager.

- Ryan introduced Mark Goodman and Evan Schneider with Heartland, a real estate advisory firm that has been working with staff on the assessment and housing strategy.
- Mark and Evan shared a presentation.
- There were discussions regarding density and infill, parking challenges, transit use, affordable housing, building height and building code requirements, and mixed-use developments.
- Mark went over the strategies and answered questions.
- Ryan discussed the need for a catalyst project to kick this off, and he and Rick discussed a proposed large multi-family project for two parcels in the district.

6. **Communications and Announcements:** Rick shared a report that identified the COL as 138th overall best place to start a small business.

7. **Next meeting:** May 4, 2021.

8. **Adjournment:** 6:55 p.m.



PLANNING COMMISSION STAFF REPORT

March 16, 2021

SUBJECT: LMC 16.37, Hawks Prairie Business District Zoning Text Amendment Application. Project no. 20-337.

RECOMMENDATION: The applicant will provide a follow-up briefing on a zoning text amendment to LMC 16.37 to allow medical/dental offices and clinics and residential uses, and revise the maximum residential density in Hawks Prairie Business District zone submitted by Hogum Bay Mixed Use, LLC.

TO: Lacey Planning Commission

STAFF CONTACTS: Rick Walk, Director of Community and Economic Development *RW*
Ryan Andrews, Planning Manager *RA*
Jessica Brandt, Associate Planner *JB*

ATTACHMENT(S):

1. Zoning Text Amendment Application
2. Proposed Amendments to LMC 16.37
3. Hawks Prairie Area Zoning Map

**PRIOR COUNCIL/
COMMISSION/**

COMMITTEE REVIEW: 03/02/21 Planning Commission Meeting
01/19/21 Planning Commission Meeting

BACKGROUND:

The Community and Economic Development Department received a private applicant-initiated zoning text amendment request. The request is comprised of three components: 1) amend Chapter 16.37 of the Lacey Municipal Code to allow medical and dental offices and clinics within a multi-tenant building in Commercial zone, 2) amend to allow residential uses with design standards in the Hawks Prairie Business District-Commercial zone, and 3) amend to remove density limits per parcel on residential uses within the Hawks Prairie Business District-Commercial zone and Business-Commercial zone.

The request is to amend specific text within the zoning code and does not require the need to amend any policies within the Comprehensive Plan. These types of applications are received periodically and are not subject to the docketing or annual Comprehensive Plan amendment timelines because amendment of the Comprehensive Plan is unnecessary. The Planning Commission will review the request and provide a recommendation on the amendment to the City Council.

The first request is to allow medical and dental offices and clinics within multi-tenant buildings in the Commercial sub district (HPBD-C). Medical uses were permitted in the BC sub district because the intent of this focus area was for corporate style office, employment centers, in addition to residential, professional services, and retail and general commercial services. These standards were established in 1997. The intent was to ensure that medical did not over-proliferate in commercial areas as standalone developments. It was intended to prioritize the area for commercial development. The intent was not to prevent small dentists, clinics, etc in a tenant space within a primarily commercial development. The request would allow for smaller medical uses in a multi-tenant building would not allow large medical buildings, and meet the intent of the district.

The second and third request (combined) to expand residential uses is supported by the Northeast Area Plan which anticipated 1200-1300 units for the HPBD zone. A critical part of the request is to address the density cap that has limited the number of units permitted for an individual parcel based on 10% of the parcel area. While this cap may be appropriate for larger parcels that would allow for enough units for a development to be financially feasible, this has been problematic for smaller parcels. The applicants request would remove the 10% cap limit but still require residential uses to be in a mixed-use development or within 1000 feet of existing commercial development.

For a vital town center, the district will need a combination and balance of employment, entertainment, housing, civic, and commercial uses. The Planning Commission discussed the need for productive growth, place-making, resiliency, and revenue per acre to create sustainable development from the “Strong Towns” concept and the Urban3 video. Having too much residential for example, would affect that balance of uses, so limits on the amount of residential development would likely be necessary for larger parcels in the HPBD.

An initial briefing was provided at the January 19th meeting and a follow up presentation was provided on March 2nd to provide a deeper historical context for the area.

RECOMMENDATION:

Staff is not recommending any specific recommendation at this time but potential options could include:

- A. No change to the 10% cap. This would keep regulations as is.
- B. Cap could depend on parcel size. Smaller parcels would have no cap, but parcels larger than 20 acres would have that 10% cap.
- C. No cap for parcels of any size

The applicant will provide a detailed briefing related to the request. The full staff analysis and recommendation will be presented at a future Planning Commission public hearing.

The Planning Commission is requested to review the submittal packet regarding proposed revisions to LMC 16.37 and identify any additional information the Planning Commission may

need to review this application. Direction can be given to the applicant and/or staff at the meeting to provide any additional information or to modify their amendment proposal.

An informational community meeting will occur in the next few weeks.



PLANNING COMMISSION STAFF REPORT

January 19, 2020

SUBJECT: LMC 16.37, Hawks Prairie Business District Zoning Text Amendment Application. Project no. 20-337.

RECOMMENDATION: Staff and the applicant will provide an introduction on a zoning text amendment to LMC 16.37 to allow medical/dental offices and clinics and residential uses, and revise the maximum residential density in Hawks Prairie Business District zone submitted by Hogum Bay Mixed Use, LLC.

TO: Lacey Planning Commission

STAFF CONTACTS: Rick Walk, Director of Community and Economic Development
Ryan Andrews, Planning Manager *RA*
Jessica Brandt, Associate Planner *JB*

ATTACHMENT(S):

1. Zoning Text Amendment Application
2. Proposed Amendments to LMC 16.37
3. Hawks Prairie Area Zoning Map

**PRIOR COUNCIL/
COMMISSION/**

COMMITTEE REVIEW: None.

BACKGROUND:

The Community and Economic Development Department received a private applicant-initiated zoning text amendment request. The request is comprised of three components: 1) amend Chapter 16.37 of the Lacey Municipal Code to allow medical and dental offices and clinics within a multi-tenant building in Commercial zone, 2) amend to allow residential uses with design standards in the Hawks Prairie Business District-Commercial zone, and 3) amend to remove density limits per parcel on residential uses within the Hawks Prairie Business District-Commercial zone and Business-Commercial zone.

The request is to amend specific text within the zoning code and does not require the need to amend any policies within the Comprehensive Plan. These types of applications are received periodically and are not subject to the docketing or annual Comprehensive Plan amendment timelines because amendment of the Comprehensive Plan is unnecessary. The Planning Commission will review the request and provide a recommendation on the amendment to the City Council.

The intent of the Hawks Prairie Business District, per LMC 16.37.010 is to “encourage development of an integrated, planned community where people will want to live and work by permitting residential and compatible business uses to develop in close proximity to each other” and to “assure that development is site sensitive, user efficient, and furthers the mixed-use policies of the Northeast Area element of the Comprehensive Plan.” The Northeast Area element of the Comprehensive Plan was adopted in 1992.

The Hawks Prairie Business District (HPBD) has two sub districts: Business Commercial (BC) and Commercial (C). The intent of the HPBD-BC is the more flexible of the two. The HPBD-BC allows for residential uses if in a mixed-use context, or if residential-only, it must be within 1000 feet of commercial uses. HPBD-BC also allows for medical uses. HPBD-C is more focused on commercial uses and does not currently allow for residential uses or medical uses. The HPBD-C sub district, per the Northeast Plan, was meant to be a retail destination north of the I-5 and Martin Way interchange. LMC Table 16T-71 describes detailed design guidelines for the retail/commercial area of the HPBD. This request would provide more flexibility in uses than is currently allowed.

The entire area of the HPBD is about 500 acres. The HPBD-C sub district is approximately 135 acres of undeveloped property and 5 acres of developed property. The zoning designation for allowing medical and residential uses would apply throughout the entire Commercial sub district and changes to the residential limit would apply throughout the entire HPBD designation, in both sub districts.

Request #1 Allowance of Medical and Dental Clinics

The first request is to allow medical and dental offices and clinics within multi-tenant buildings in the Commercial sub district (HPBD-C). Currently, the HPBD allows medical offices in the HPBD-BC sub district. Medical offices are not allowed in the HPBD-C sub district. The reason for the restriction in the commercial only sub district was to reserve this focus area (on Marvin Rd) for predominately retail use to meet the City’s economic vision and retail market at that time. Medical uses were permitted in the BC sub district because the intent of this focus area was for corporate style office, employment centers, in addition to residential, professional services, and retail and general commercial services. These standards were established in 1997. The intent was to ensure that medical did not over-proliferate in commercial areas as standalone developments. It was intended to prioritize the area for commercial development. The intent was not to prevent small dentists, clinics, etc in a tenant space within a primarily commercial development. The request would allow for smaller medical uses in a multi-tenant building.

Request #2 Allowance of Residential Uses, applying Design Standards from the Business-Commercial Sub District

The second request is to allow residential uses in the Commercial sub district (HPBD-C). Currently, this zoning district does not specifically list residential use as a permitted use and does not list as a prohibited use. These standards were established in 1997. The intent was to prevent over-proliferation of residential uses in the commercial area. The requirement for residential to be located within 1000 feet of existing commercial is meant to support the commercial areas. The request for residential uses would not cause the loss of small scale commercial but would help support it, which is becoming more important now that the demand for larger scale destination retail is diminishing quickly in the changing retail environment. Because residential uses are allowed in the Business-Commercial sub district,

the detailed residential design standards are requested to be used in the Commercial district as well.

Request #3 Removal of Density Limit

The third request is to remove the limit on residential density within both of the zoning sub districts. The current zoning designation limits residential density to twenty units per acre with no more than ten percent of the parcel to be used to calculate number of units permitted on the parcel. The cap on density limits potential housing units in the district. These standards were established in 1997 based on the 1992 Northeast Sub-area Plan. The Sub-area plan envisioned high density residential with no more than 10% of the zone for residential. To make it possible to enforce that cap, the 10% limit was placed on each parcel. The intent, as mentioned above, was to prevent too much residential in the commercial area.

The Northeast Sub-area Plan estimated number of the units for the HPBD to be about 1200-1300 units, based on the land capacity and density cap. Currently, no residential units have been built in the HPBD. The current limit on units became problematic over time for smaller parcels because it essentially prevented residential projects from penciling out. For example, a ten-acre parcel could only calculate density in 10% or one acre of the parcel. That means one acre times twenty units per acre equals twenty units on a ten acre parcel, which does not pencil out for an investor. The request would remove that limit but still require residential to be in a mixed use development or within 1000 feet of commercial development if developed as residential only.

RECOMMENDATION:

Staff will provide an introductory briefing related to the request. The full staff analysis and recommendation will be presented at a future Planning Commission public hearing. The applicant will also be available at the January 19th meeting to present their proposal and answer any questions.

The Planning Commission is requested to review the submittal packet regarding proposed revisions to LMC 16.37 and identify any additional information the Planning Commission may need to review this application. Direction can be given to the applicant and/or staff at the meeting to provide any additional information.

Additionally, public outreach will be a key element of the proposal. This public outreach will not only need to occur with neighboring property owners but also with other stakeholder in the Hawks Prairie Planning Area. At the briefing, staff will discuss with the Planning Commission, potential stakeholders and outreach to the area so that engagement with the public can occur prior to a formal public hearing.



HEARINGS EXAMINER RECOMMENDATION

The Hearings Examiner has made a decision on the following:

Project #20-101: Construct a new wastewater lift station and related infrastructure for the City of Lacey. Project includes the lift station and related infrastructure necessary for the project including wet well, electrical building, valve vault, force main, gravity sewer and access road. 2659 Willamette Drive NE, Lacey WA 98503. Parcel 42080000000

This decision is a recommendation to the City Council and will be considered by the Council at 12:00 p.m. on May 20, 2021 via zoom at the following link:
https://us02web.zoom.us/webinar/register/WN_aGBt5NaUQQ6Xz2EpbwnLGQ

A copy of the Hearings Examiner's recommendation is available at the Community Development Department at city hall.

According to the Lacey Municipal Code, Section 2.30.170, the City Council will consider the matter based upon the written record before the Hearings Examiner's decision.

The City Council may accept, modify, or reject the Hearings Examiner's decision.

Action of the City Council shall be final and conclusive unless a land use petition is timely filed with the Thurston County Superior Court for the purpose of review of the action taken.

Appeals from a decision to grant, deny or rescind a shoreline permit shall be governed by the provisions of RCW Chapter 90.58.

cc: Parties of Record

SUMMARY OF HEARINGS EXAMINER REPORT TO CITY COUNCIL

SUBJECT: Conditional Use Permit Application for the City of Lacey Lift Station #19 Replacement Project – Case no. 20-101

DESCRIPTION OF PROPOSAL: Construct a new wastewater lift station and related infrastructure for the City of Lacey. Project includes the lift station and related infrastructure necessary for the project including wet well, electrical building, valve vault, force main, gravity sewer and access road. The site is located at 2659 Willamette Drive NE, Lacey WA 98503. Parcel 42080000000.

SUMMARY OF CONCLUSIONS: The Hearings Examiner conducted a public hearing on Tuesday March 30, 2021. Staff and the applicant provided testimony in regards to the project. No members of the public attended the hearing.

The Hearings Examiner recommended approval of the conditional use permit application. The conditions of approval recommended to the City Council for the project are substantially as suggested by staff. Staff is requesting the Council approve the proposal including adoption of findings, conclusions and conditions outlined in the written recommendation of the Hearings Examiner received April 13, 2021.

ACTION OPTIONS FOR CITY COUNCIL: The City Council may take one of the following actions:

1. Approve the recommendation of the Hearings Examiner.
2. Reverse the decision of the Hearings Examiner.
3. Modify the recommendation of the Hearings Examiner.

Any decision to modify or reject the Examiner's decision shall be made based on the open record hearing and supported by findings of fact and conclusions.

LIST OF EXHIBITS

City of Lacey Lift Station #19 Replacement Project; HTE#20-101

<u>Exhibit #</u>	<u>Description</u>
1	List of Exhibits
2	Staff Report
3	General Land Use Application
4	Conditional Use Permit Application
5	Site Plan Packet a) Previous and Proposed Site Plan b) Proposed Landscape Plan
6	Site Perspective: Post Construction
7	Environmental Checklist
8	Lift Station #19 Replacement Drainage Report, dated December, 2020
9	Preliminary Tree Protection Report dated November 24, 2020
10	Notice of Application
11	Agency Routing Sheet
12	Comments from Tom Stiles, dated February 12, 2021
13	Comments from the Washington State Department of Ecology – dated February 3, 2021
14	Comments from Lauren Whybrew, Olympic Region Clean Air Authority (ORCAA), dated January 25, 2021
15	Mitigated Determination of Non-significance issued on February 22, 2021
16	Hearing notice to neighbors
17	Public notice to paper of record
18	Site Posting Notice
19	Certification of Public Notice

STAFF REPORT

Date: March 22, 2021
To: City of Lacey Hearings Examiner
From: City of Lacey Community Development Department
Subject: Project #20-101; City of Lacey Lift Station #19 Replacement; Conditional Use Permit Request

I. GENERAL INFORMATION

- A. Applicant/Property Owner:
City of Lacey
420 College Street SE
Lacey, Washington 98503
- B. Authorized Representative:
Puna Clarke, P.E, Public Works Department
360.459.4494

II. DESCRIPTION OF PROPOSAL

Construct a new wastewater lift station and related infrastructure for the City of Lacey. Project includes the lift station and related infrastructure necessary for the project including wet well, electrical building, valve vault, force main, gravity sewer and access road.

III. LEGAL DESCRIPTION OF SUBJECT PARCEL

The project is located at 2659 Willamette Drive NE, Lacey WA 98503. Parcel 42080000000. Site is legally described as Tract D of Commerce Place P.I.D. AFN 9403010120. Section 01, Township 18N, Range 1W.

IV. SITE PLAN INFORMATION

Project Size: The lift station is proposed to be located on a tract 16,980 square feet in size. The lift station itself including all paved area is proposed to occupy 5,780 square feet of the lot. The east, west and south faces of the facility will be landscaped with type one landscape screening.

Site Characteristics: The site is approximately 16,980 feet in size. The site is partially wooded tract adjacent to a stormwater pond for the surrounding light industrial facilities. There are light industrial facilities located to the north, south, east and west of the site.

Zoning: The property is zoned Open Space Institutional. Permitted uses within the OSI zoning are those which provide a public service or fill a public need as described in the statement of intent. Uses shall also be appropriate to the specific site and the intent behind each site's

designation as OSI. Conditional uses are permitted as provided in Chapter 16.66, "Conditional Uses and Permits," of the Lacey Municipal Code, and subject to review and approval through the quasi-judicial application procedures outlined in the Development Guidelines and Public Works Standards.

V. ENVIRONMENTAL EVALUATION

The environmental checklist for this project has been reviewed and a mitigated determination of non-significance was issued on February 22, 2021. The Optional MDNS process was used and the comment period for the project began on January 20, 2021 and ended on February 3, 2021. Notice of the comment period was given by posting the site and publishing a notice in The Olympian. The City received comments on the environmental checklist from the Department of Ecology. These comments are attached as exhibits to this report. A Mitigated Determination of Non-significance (MDNS) was issued in accordance with the procedures of WAC 197-11-355 and RCW 43.21C. The MDNS is attached.

VI. APPLICABLE COMPREHENSIVE GOALS AND POLICIES

The City of Lacey and Thurston County Land Use Plan for the Lacey Urban Growth Area: This document, known as the comprehensive land use plan, was prepared as a joint planning document by the City of Lacey and Thurston County for Lacey and the Lacey Urban Growth Area. There are other general policies in the Comprehensive Land Use Plan, which could apply, but the issues they cover are specifically detailed in the Lacey Zoning Ordinance, which is reviewed in the next section VII. The following sections of the Comprehensive Plan apply to this proposal:

- A. Growth Management Act Land Use Goals and County-Wide Planning Policies (Section III)
"Encourage development in urban areas where adequate public facilities and services exist or can be provided in an efficient manner."
- D. Environmental Quality (Section VI.G)
Goal 1. "All residential development should complement natural resources and environmentally sensitive areas."
Policy 1.a. "Development shall be consistent with the Lacey Environmental Protection and Resource Conservation Element."
- H. Utilities and Capital Facilities (Section VI.N.)
Policy 1.a. "All proposed development should be analyzed for anticipated impact on utilities and services, either as an element of the site plan review, subdivision review, or as part of the environmental impact assessment."
Policy 1.b. "Preference should normally be given to providing adequate public facilities to settled areas, rather than extending new services to sparsely settled or undeveloped areas."
- I. Water Resources (Section VI.O.)

Policy 1.b. “Ensure that new development is in conformation with and requirements and standards of the Drainage Design and Erosion Control Manual for Thurston Region.”

VII. APPLICABLE MUNICIPAL CODE STANDARDS

The following table depicts the applicable sections of the Lacey Municipal Code and if the project complies with the standards or if the project complies with the standards once staff conditions are imposed.

Applicable Municipal Code Sections	Project Complies	Project Will Comply With Staff Conditions
Chapter 16.66 Conditional Uses and Permits		
16.66.010 – Intent	X	
16.66.020 – Permitted Uses	X	
16.66.030 – Control of Uses	X	
16.66.040 – Environmental Performance Standards		X
16.66.050 – Design Standards		X
16.66.060 – Essential Public Facilities	X	
Chapter 16.80 Landscaping Requirements		
16.80.010 – Statement of Intent	X	
16.80.020 – General Requirements	X	
16.80.030 – Special Requirements		X
16.80.040 – Preservation of Significant Trees	X	
16.80.050 – Types of Landscaping		X
16.80.070 – Species Choice		X
16.80.080 – Maintenance of Plant Material		X
16.80.090 – Performance Assurance		X
16.80.110 – Fencing Standards	X	
Chapter 16.48 Open Space Institutional		
16.48.010 – Statement of Intent	X	
16.48.020 – Permitted Uses	X	
16.48.040 – Development Standards		X
16.48.050 – Environmental Impact		X
16.48.060 – Site Area		X
16.48.070 – Environmental Performance Standards		X
16.48.080 – Setback Requirements		X
16.48.090 – Ingress and Egress		X
16.48.100 – Off-Street Parking	X	
16.48.110 – Landscaping		X
16.48.120 – Stormwater Runoff		X

VIII. NOTIFICATION

The application for Conditional Use Permit was received on December 31, 2020 and was deemed complete pursuant to RCW 36.70B.070 on January 20, 2021. The Notice of Complete Application had a 14-day comment period that ended on February 3, 2021. A notice was published in The Olympian and the site was posted with the notice of complete application. The notice of application is attached to this report as exhibit #10. The City received comments from the Department of Ecology, the Olympic Region Clean Air Authority (ORCAA), and the City of Lacey Public Works. These comments are attached to this report as exhibits #12, #13 and #14.

Written notice of the public hearing was sent to all property owners within 300 feet of the site on March 19, 2021, and notice was published in The Olympian on March 19, 2021, at least 10 days prior to the public hearing. Notice was posted on-site on March 19, 2021.

IX. COMMUNITY DEVELOPMENT DEPARTMENT ANALYSIS

In review of this proposal it is important to consider the goals and policies of the comprehensive plan, the required findings and general provisions of the Zoning ordinance of the Lacey Municipal Code (LMC).

Project Background

The City of Lacey Public Works Department has submitted an application for a conditional use permit to relocate and replace an existing sanitary sewer lift station that is currently located on the parcel to the west of the newly proposed project site. The existing lift station is in need of upgrades to meet current standards and has poor access for maintenance crews and vehicles creating the potential of safety risks to City of Lacey employees. The City seeks to replace the lift station and relocate it directly east of the existing pump station. The current lift station will not be demolished but will be decommissioned. Lift station #19 has a service area that includes most of the Meridian Campus Area.

The new easement site is approximately 16,980 square feet and the lift station will occupy approximately 5,780 square feet of the site, this includes all paved areas. A typical lift station requires a 5,000 square foot footprint in order to provide adequate space for the lift station appurtenances and room for maintenance staff and service vehicles. The current design is slightly larger than the typical footprint to allow for safe access and departure for maintenance crews off of and onto Willamette Drive NE. The majority of the structures associated with the lift station are located below ground; those items include:

- Wet well; concrete structure where the pumps are located and wastewater is collected and moved, using pumps and pipelines
- Valve vault; concrete structure with a maximum interior depth of 4-feet from floor to hatch with valves from the wet well to the wastewater force main
- Wastewater force main; pressurized wastewater line to convey wastewater from the lift station
- Wastewater gravity line; non-pressurized wastewater line to convey wastewater to the lift station

- Water service line; potable water line to provide water to the lift station to maintain and irrigate the lift station

Above ground structures include safety railings around the wet well, site lighting, an electrical isolation control pedestal, an electrical controls building, and an emergency generator which operates during power outages and during monthly testing. All lighting on site will be shielded and directed towards the ground, landscape screening and distance from other facilities will render lighting as unnoticeable.

Essential Public Facilities:

The lift station is considered an essential public facility under the City of Lacey Zoning Ordinance. Chapter 16.66.060 C allows the City of Lacey to determine the classification of essential public facilities based on the approximate area of within which the project could potentially have adverse impacts. Because of the small service area of the lift station the City of Lacey has determined this to be a Type III public facility. A Type III essential public facility is reviewable through the conditional use permit process, and early notification of adjacent residents is not required.

Zoning Standards and Conditional Uses:

Pursuant to Lacey Municipal Code 16.66 Conditional Uses and Permits, sanitary sewer lift stations are considered an essential public facility and a public utility allowed to be sited in any zoning district through the conditional use permit review process. The intent of allowing uses by a conditional use permit is to provide an opportunity to locate certain types of uses, services and facilities that, because of their unique characteristics, cannot (or should not) be limited to specific land use classification districts.

The conditional use permit process allows modifications to certain zoning standards when warranted (LMC 16.66.050). LMC 16.66.050 establishes that the design standards established for the overlying zoning district shall be the initial base of reference in determining the design standards for conditional uses in the same district. The enforcing officer is authorized to vary the design of the district for a conditional use when such alteration or variation is found to be reasonable. Some of the design standards that may be altered include:

1. Size and shape of lots (minimum area, width, depth, setbacks, and building heights);
2. Maximum building coverage
3. Maximum development coverage
4. Off-street parking and loading
5. Landscaping, buffering and screening

In the case of this lift station, the City is requesting an alteration of required landscape standards. Typically a 15-foot type one landscape buffer to be planted as a screening buffer. However the size of the subject lot and the required size of the lift station footprint make accommodating a 15 foot buffer on all sides of the lift station a challenge. The applicants have proposed a 15 foot buffer on the east and west facing side of the lift station, a 10 foot non-

landscaped buffer on the north side of the lift station adjacent to the existing storm retention pond and landscaping on the south side of the site. A landscape plan was submitted for the project (attached as exhibit #5b) aforementioned buffers.

Compatibility and Impact of Proposal on Surrounding Area:

Overall a sanitary sewer lift station has very little impact on the surrounding area. Noise on site will be limited to maintenance visits and service of the lift station by staff, and occasionally when the generator is tested or has to run in the event of a loss of power. The City will be required to ensure that noise generated by the facility meets the noise requirements of LMC 16.57 "Environmental Performance Standards"; a condition has been included that would require the facility meet the requirements of this chapter.

In terms of odor control, if a lift station is functioning as designed and waste is moving through the facility, odor is typically not an issue. The existing lift station has not had odor problems. All lift stations constructed within the City of Lacey must be designed to conform to standards identified in the City of Lacey Development Guidelines and Public Works Standards as well as to the Washington Department of Ecology's "Criteria for Sewage Works and Design". The standards in these manuals include controls to ensure that odor does not become an issue.

Fencing and landscape buffers are required in order to mitigate any potential aesthetic concerns. The applicant has proposed fencing and has submitted a landscape plan which shows shrubs surrounding the lift station. A Type I landscape buffer will be required. Type 1 landscaping includes a requirement for screening type landscape surrounding the lift station. Screening landscape includes a mixture of both trees and shrubs and is intended to provide a dense landscape screen between incompatible land uses. The applicant should be required to coordinate with the City of Lacey Forester to ensure that species selected will not negatively impact the function of the lift station or introduce burdensome maintenance needs. Landscaping will not be required on the north side of the easement as there is a very large storm water retention pond that leaves substantial distance between the property to the north and the proposed pump station.

Approval of the facility will allow the City to replace the current infrastructure required to serve this portion of the City. Impacts to the area will generally be those associated with maintenance of the facility by staff, which takes place monthly or when necessary, and the operation of the generator which will typically only take place in emergency situations or during maintenance. Due to the nature of the surrounding Light Industrial zoning, very little to no impact is anticipated by the relocation of the lift station and conditions are included that are intended to mitigate any potential impacts that may occur as a result.

As proposed, and with conditions as recommended by staff, staff believes the proposal is consistent with the goals and policies of the Lacey Comprehensive Plan. Care should be taken, however, to ensure that the minimum provisions of the ordinance requirements are satisfied or exceeded.

X. HEARING EXAMINER AUTHORITY

The Hearings Examiner has the responsibility and authority to recommend action to the City Council on Conditional Use Permits. Pursuant to section 2.30.140 of the Lacey Municipal Code, the Examiner has the authority to render a decision on the application which may be to grant, deny, or grant with such conditions, limitations, modifications and restrictions as the Examiner finds necessary to make the application compatible with its environment, the comprehensive plan, other official policies and objectives and land use regulatory enactments.

XI. SUMMARY OF STAFF ANALYSIS

Staff finds that the proposed Conditional Use Permit is consistent with the City Comprehensive Development Plan, the City Zoning Code, and other applicable codes and regulations provided that the conditions recommended below, under Section XII, are implemented.

XII. STAFF RECOMMENDATIONS CONCERNING ACTION ON THE PROPOSED CONDITIONAL USE PERMIT APPLICATION:

Based upon the above analysis, city staff recommends approval of the Conditional Use permit. The project shall proceed in substantial conformance with the plans on file, except as modified below:

Community Development Department:

1. The project shall proceed in substantial conformance with the plans on file, received December 31, 2020 except as may be modified by the conditions herein.
2. All landscaping installed in the buffers shall be irrigated with a temporary or permanent irrigation system. An irrigation plan shall be submitted to the City of Lacey Community Development Department for review and approval.
3. Site lighting shall be directed downward so as to ensure that lighting does not cross property lines. This shall require installing a light shield to ensure that lighting is directed downward.
4. The requirements of LMC 16.57 Environmental Performance Standards shall be met.
5. A note shall be placed on the face of the landscaping and irrigation plans stating that any irrigation lines placed within tree protection zones established for the project must be installed in such a manner as to not cause damage to the root protection zone, such as by cutting roots, digging trenches, operation of machinery, etc. Special care must be taken (hand digging trenches, designing lines to stay out of these areas where possible, etc.) to ensure damage to the trees does not occur. In the event damage to these areas does occur, the city may require, at their discretion, replacement of the comparable landscape value of the trees damaged or other means to make up that loss. (LMC 16.80).

6. On site tree protection must follow in accordance as outlined in the “Tree Protection Plan” provided by Sound Urban Forestry dated 11/24/20.
7. All applicable requirements of the City Zoning Code shall be satisfied (LMC Title 16).
8. The applicant/developer shall be responsible for obtaining all applicable permits which may be required by outside agencies or departments; these may include National Pollutant Discharge Elimination System Permit (NPDES), and any others. These permits will require additional review time from the appropriate agencies.
9. All requirements of the international building and fire codes adopted by the City of Lacey shall be met.

Olympia Region Clean Air Authority

10. All permit requirements of the Olympic Region Clean Air Authority (ORCAA) shall be satisfied. A demolition permit shall be submitted to ORCAA.
11. If the engine powering the emergency generator has a rating of 500 horsepower (373kW) or greater, a permit from ORCAA is required. Contact the ORCAA if the engine exceeds the specified horsepower for permit requirements.

Public Works Department

Water Improvements

12. Water service for the lift station, shall be equipped with a Reduced Pressure Backflow Assembly device. (City of Lacey 2017 DG & PWS, Appendix P)
13. To support landscaping needs, an irrigation meter is suggested. If an irrigation meter is installed, it shall be equipped with a Double Check Valve Assembly backflow prevention device. (DG&PWS 6.120 F)
14. For Irrigation lines located in the Right-of-Way, the following shall be stated on the irrigation plans and is a condition of approval: “The property owner adjacent to the public Right-of-Way will be responsible for maintaining and locating all irrigation lines located in the public Right-of-Way”. (DG&PWS, Water, Irrigation 6.210)
15. Water system improvements shall meet the requirements of the City of Lacey, the Coordinated Water System Plan (CWSP), Department of Health (DOH), City of Lacey Water System Plan, AWWA, Department of Ecology, Thurston County Environmental Health and City of Lacey Fire Code Official’s standards. (DG&PWS, Water 6.010)

Sewer Improvements

16. Sewer improvements as needed to support the lift station shall be installed.
17. Sanitary sewer improvements associated with this project shall meet the requirements of the City of Lacey Comprehensive Sanitary Sewer Plan, Thurston County Health Department, Washington State Department of Health (DOH), the LOTT Clean Water Alliance and Department of Ecology. (DG&PWS, Sewer 7A.010 and Subdivisions and Short Plat 2-21)

Storm Drainage

18. This project shall comply with the City of Lacey 2016 Stormwater Design Manual (LMC 14.27). Stormwater drainage and erosion control submittals shall be in conformance with the formatting and content requirements described in Chapter 3 of the 2016 Stormwater Design Manual.
19. Treatment and infiltration/flow control facilities shall be constructed or discharge to existing stormwater facilities for stormwater associated with the site and adjacent properties currently discharging to the site.
20. A Construction Stormwater Pollution Prevention Plan (SWPPP) shall be submitted to and approved by the City prior to beginning site work or construction of the project. A complete SWPPP consists of both a narrative report and a temporary erosion and sediment control plan drawing. Each of the 13 SWPPP Elements as identified in Chapter 5 of the City of Lacey 2016 Stormwater Design Manual shall be addressed and included in the construction SWPPP. If site conditions render any SWPPP elements unnecessary, exemptions for each element shall be clearly justified in the narrative report.
21. A Stormwater Facility Maintenance Manual per chapter 3 of the City of Lacey 2016 Stormwater Design Manual shall be submitted to and approved by the City of Lacey. The maintenance manual shall be included in the drainage report as part of the stormwater site plan.
22. The maintenance manual shall be prepared as a stand-alone document for the post-development facility owner(s). The maintenance plan shall be submitted to and approved by the City prior to civil drawing approval.

Transportation

23. Access shall be provided to the property as determined and approved by the City. All access points shall meet minimum access spacing, minimum corner clearance, sight distance and minimum or maximum width requirements as outlined in the Development Guidelines & Public Works standards.

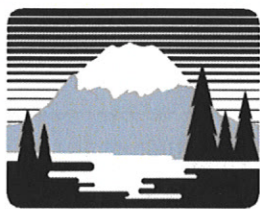
24. Traffic mitigations as determined by the Commercial Traffic Generation worksheet are required. Conditions of Lacey Municipal Code 14.21 shall be satisfied.

Surveying

25. The City of Lacey Coordinate System is a ground scale coordinate system derived from the Washington Coordinate System, NAD 83/91. Units are expressed in feet. Data can be obtained from Lacey Public Works Department. Civil drawings shall be submitted utilizing the City of Lacey Coordinate System. (DG&PWS 3.025)
26. City of Lacey Vertical Datum has elevations referenced to the National Geodetic Vertical Datum of 1929 (NGVD29). Units are expressed in feet. A benchmark listing can be obtained from Lacey Public Works Department. Civil drawings shall be submitted utilizing the City of Lacey Vertical Datum. (DG&PWS 3.025)

Other

27. All improvements shall satisfy City of Lacey Development Guideline Standards in place at the time complete application is obtained (Complete application is determined by the City of Lacey Community Development Department). (LMC)
28. All Public Works improvements must be designed by an engineer licensed in the State of Washington and submitted to the City of Lacey Public Works Department for review and approval. (DGPWS 3.040)
29. All structures associated with this site shall be connected to City of Lacey utilities (DG&PWS 6.010 and 7A.010).



Shaping
our community
together

CITY
OF **LACEY**

DEPARTMENT OF COMMUNITY & ECONOMIC DEVELOPMENT

420 College Street SE, Lacey, WA 98503 (360) 491-5642

OFFICIAL USE ONLY

Date: _____

Case #: _____

Received By: _____

Planner: _____

Related Cases: _____

GENERAL LAND USE APPLICATION

Please Identify Supplemental Forms Accompanying This Application:

- | | |
|---|--|
| ☐ Binding Site Plan (Preliminary) | ☐ Planned Residential Development (Preliminary) |
| ☐ Binding Site Plan (Final) | ☐ Planned Residential Development (Final) |
| ☐ Boundary Line Adjustment | ☐ Short Subdivision (Preliminary) |
| ☒ Conditional Use Permit | ☐ Short Subdivision (Final) |
| ☒ Environmental Checklist (SEPA) (must include 2 CD's containing .pdf copies of all submittal materials, including applications) | ☒ Site Plan Review |
| ☐ Joint Aquatic Resources Permit Application (JARPA) | ☐ Street Merchant Supplemental |
| ☐ Landclearing Permit/Class IV Forest Practices | ☐ Subdivision (Preliminary) |
| ☐ Limited Administrative Review (separate application form is <u>not</u> required) | ☐ Subdivision (Final) |
| | ☐ Townhouse Development Permit |
| | ☐ Wetland Development Permit |
| | ☐ Woodland District Supplemental |

*Applicant/Property Owner Information

Owner: City of Lacey

Mailing Address: 420 College Street SE, Lacey, WA 98503

Phone Number(s): 360-459-4494

E-mail Address: pclarke@ci.lacey.wa.us

Signature: _____

** For projects with multiple owners, attach a separate sheet with above owner information and signatures.*

Applicant: Puna Clarke, P.E.

Mailing Address: 420 College Street SE, Lacey, WA 98503

Phone Number(s): 360-459-4494

E-mail Address: pclarke@ci.lacey.wa.us

*Authorized Representative: Puna Clarke, P.E.

Mailing Address: 420 College Street SE, Lacey, WA 98503

Phone Number(s): 360-459-4494

E-mail Address: pclarke@ci.lacey.wa.us

**The authorized representative will be the primary staff contact for all project related questions and correspondence.*

Project InformationProject Name: Lift Station 19 ReplacementProject Description: Design and construct new wastewater lift station and related infrastructure for the City of Lacey. Project includes the lift station and related infrastructure necessary for this project including wet well, electrical building, valve vault, force main, gravity sewer and access road.**Property Description**Site Address: 2659 Willamette Dr NE, Lacey WA 98503Full Legal Description of Subject Property (attached ☐):
Tract D of Commerce Place P.I.D. AFN 9403010120Section: 01 Township: 18N Range: 1WAssessor Tax Parcel Number(s): 42080000000Zoning District: Open Space Institutional-OS-IShoreline Designation (if applicable): Not ApplicableArea of Project Site (in square feet if less than 1 acre; in acres if greater): 16,980 SF

Critical Areas on or near Site (show areas on site plan):

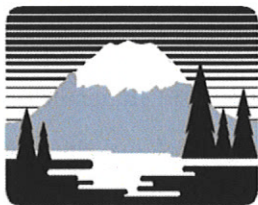
☒ None☐ Creek or stream (name): _____☐ Lake or pond (name): _____☐ Endangered or threatened species (identify): _____☐ Encumbrances, such as wells with radius, and easements: _____☐ Wetland☐ Steep slopes/draw/gully/ravine☐ Historic site or structure☐ Flood hazard area, provide FEMA flood zone and map number: _____**Utilities (Existing and Proposed)**Water: Existing None Proposed City of Lacey - 16-inch water mainSewer: Existing None Proposed City of LaceyAccess (name of street(s) from which access will be gained): Willamette Dr NE

I affirm, under penalty of perjury, that all answers, statements, and information submitted with this application are correct and accurate to the best of my knowledge. I also affirm that I am the owner of the subject site or am duly authorized by the owner to act with respect to this application. Further, I grant permission from the owner to any and all employees and representatives of the City of Lacey and other governmental agencies to enter upon and inspect said property as reasonably necessary to process this application. I agree to pay all fees of the City that apply to this application.

Puna Clarke, P.E.**Print Name**

Please attach all applicable supplemental forms

Puna Clarke
Signature12-30-2020
Date



Shaping
our community
together

CITY
OF **LACEY**

DEPARTMENT OF COMMUNITY & ECONOMIC DEVELOPMENT
420 College Street SE, Lacey, WA 98503 (360) 491-5642

OFFICIAL USE ONLY

Date: _____

Case #: _____

Received By: _____

Planner: _____

Related Cases: _____

CONDITIONAL USE PERMIT SUPPLEMENTAL

(This form to be accompanied by the General Land Use Application)

Project Information

Applicant Name and Phone Number: City of Lacey - Puna Clarke, P.E. 360-459-4494

Authorized Rep. Name and Number: RH2, David Matz, P.E., LEED AP 253-327-1521

Project Name: Lift Station 19 Replacement

Planning Project Number: 20-101

Summary Of Request (list types of uses)

Design and construction of new wastewater lift station and related infrastructure

Hours of Operation (include number of days per week): 24 hours/day-7days/week

Total Square Footage of Site: 16,980 Total Square Footage in Paved or Covered Surfaces: 5,780

Number of Dwelling Units: Proposed: 0 Permitted: 0

Existing Zoning

Existing Zoning Designation: Open Space Institutional (OS-I) Comprehensive Plan Designation: Open Space Institutional (OS-I)

How does the project conform to the Comprehensive Plan and Zoning Ordinance (attach additional sheets with narrative if necessary)? The new wastewater lift station replaces an existing wastewater lift station nearby which is in need of an upgrade and will still be kept in the same zoning designation.

Essential Public Facility? Yes Type One: _____ Type Two: _____ Type Three: X

Commercial Uses

Total gross square footage of commercial buildings: 315 SF

Description of each commercial use: The new wastewater lift station replaces an existing wastewater lift station nearby which is in need of an upgrade

What provisions have been made to safeguard the adjoining properties against any detrimental effects caused by the development? This project will be designed to all applicable current seismic and structural codes.

What provisions have been made to make the development compatible with the appearance and character of the surrounding neighborhood? This project has included landscaping with screening vegetation and stormwater mitigation.

Protective Covenants

Are there protective covenants for the subdivision in which this use is to be located? no

If so, attach a copy of the covenants and explain how the proposed use does or does not conform to the covenants. Cite specific section(s) of the covenants for reference: n/a

Day Care Centers And Nursery Schools

Maximum Number of Students: 0 Estimated Maximum Vehicular Trips Generated: 0

How are these vehicular trips distributed by mode and time of day? Not Applicable

Attach a commercial traffic generation worksheet to the application form.

Essential Public Facilities Identified:

Does the proposed use meet the definition and criteria of 16.66.060 for essential public facilities review:

☒ Yes ☐ No

If yes, what type of facility is it classified as:

☐ Type 1 ☐ Type 2 ☒ Type 3

Please see additional submittal requirements for Type 1 and 2 essential public facilities below.

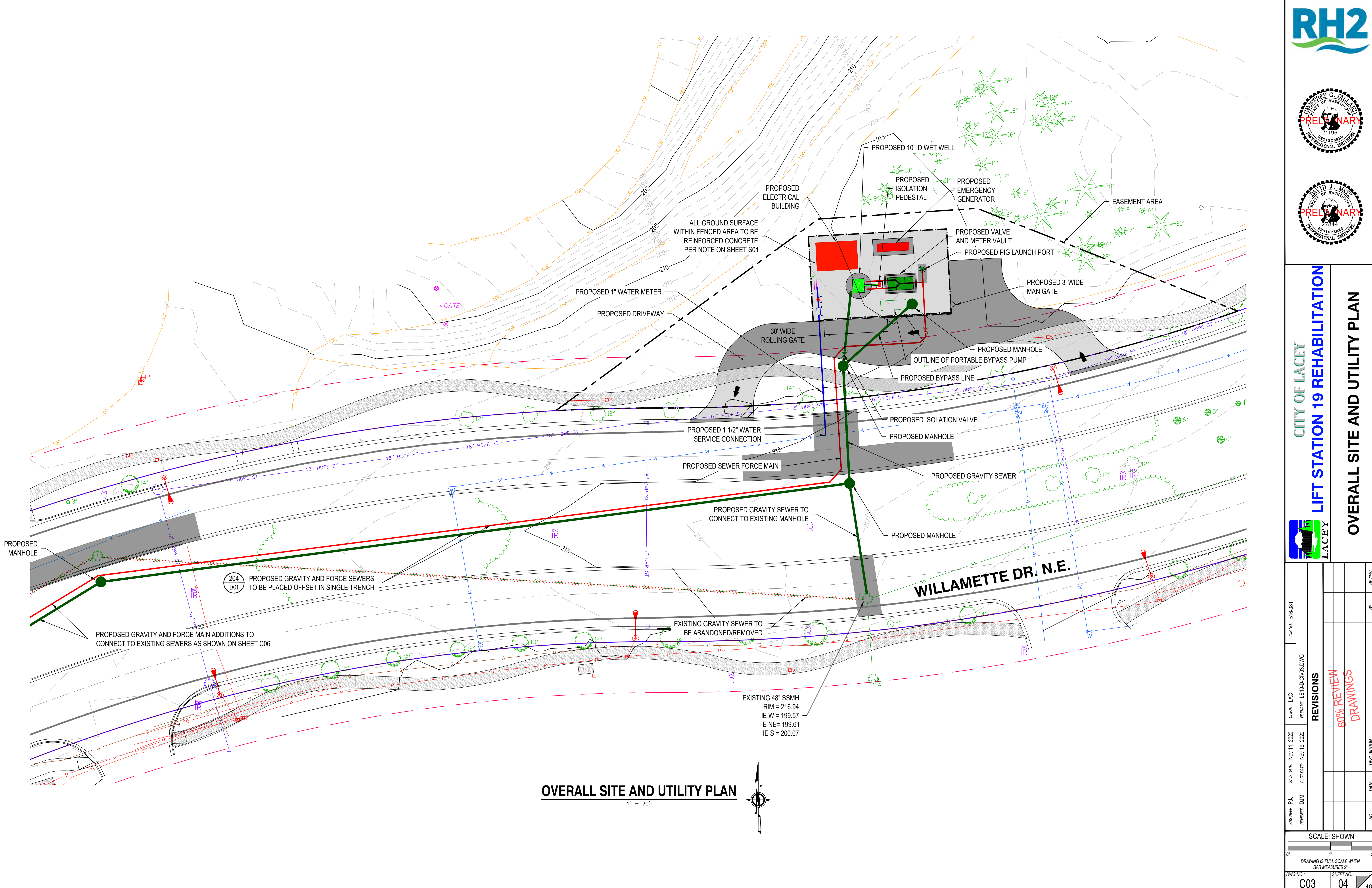
I affirm, under penalty of perjury, that all answers, statements, and information submitted with this application are correct and accurate to the best of my knowledge. I also affirm that I am the owner of the subject site or am duly authorized by the owner to act with respect to this application. Further, I grant permission from the owner to any and all employees and representatives of the City of Lacey and other governmental agencies to enter upon and inspect said property as reasonably necessary to process this application. I agree to pay all fees of the City that apply to this application.

Puna Clarke, P.E.
Print Name

Puna Clarke
Signature

12-30-2020
Date

Please attach all applicable supplemental forms

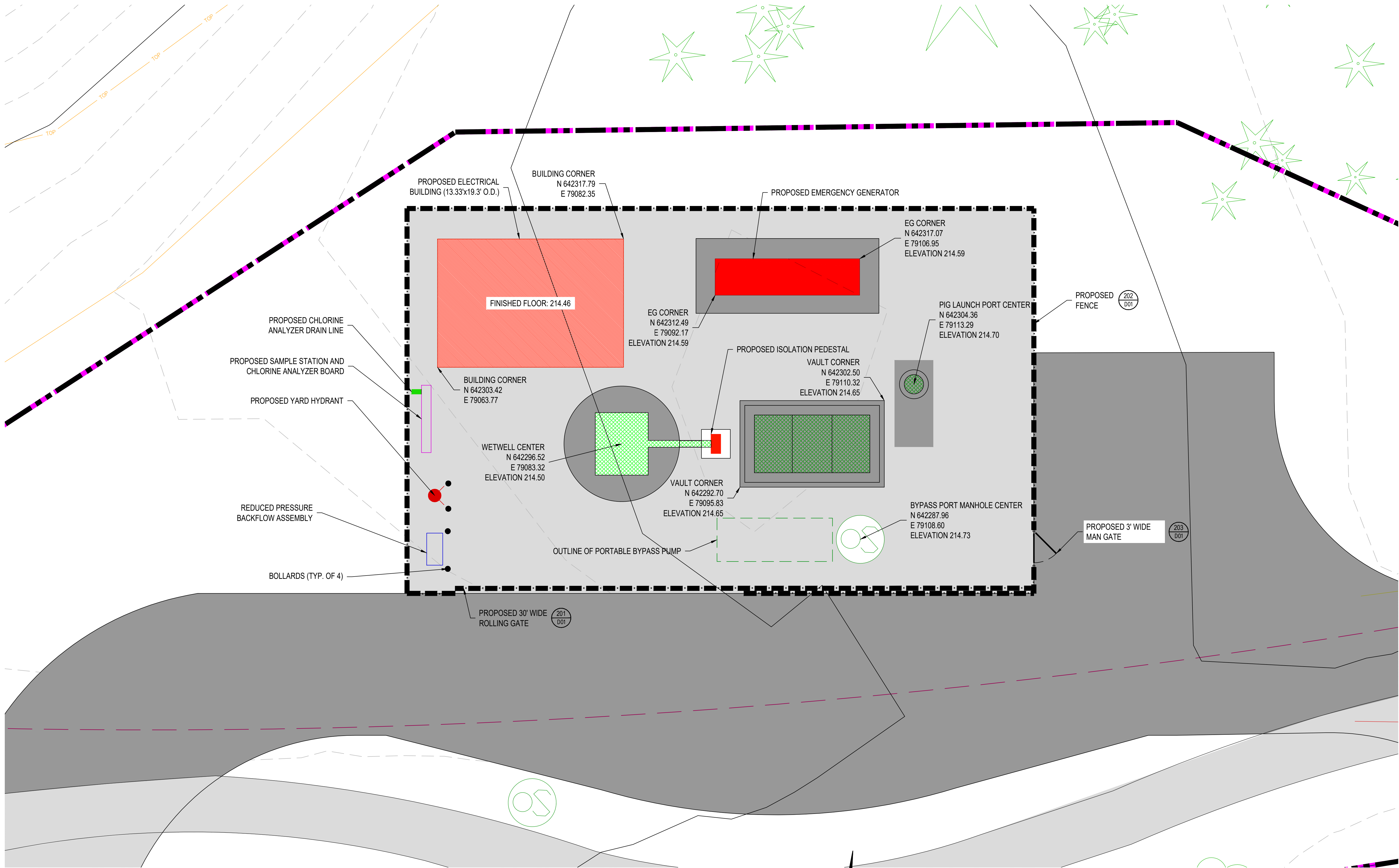


LIFT STATION 19 REHABILITATION

OVERALL SITE AND UTILITY PLAN

ENGINEER: PJJ	DATE: Nov 11, 2020	CLIENT: LAC	LOG NO.: 516-081
REVIEWED: DJM	DATE: Nov 19, 2020	FILE NAME: LS19-C-0103.DWG	
REVISIONS			
		60% REVIEW	
		DRAWINGS	
NO.	DATE	DESCRIPTION	BY
			REVIEW

SCALE: SHOWN
0" 1" 2"
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"
DWG NO.: C03 SHEET NO.: 04 48



PROPOSED LIFT STATION SITE PLAN

1" = 5'



LIFT STATION 19 REHABILITATION

PROPOSED LIFT STATION SITE PLAN

NO.	DATE	DESCRIPTION	BY	REVIEW
REVISIONS 60% REVIEW DRAWINGS				

ENGINEER: PJJ
REVIEWED: DJM

DATE: Nov 11, 2020
PLOT DATE: Nov 19, 2020

CLIENT: LAC
FILENAME: LS19-CQV05.DWG

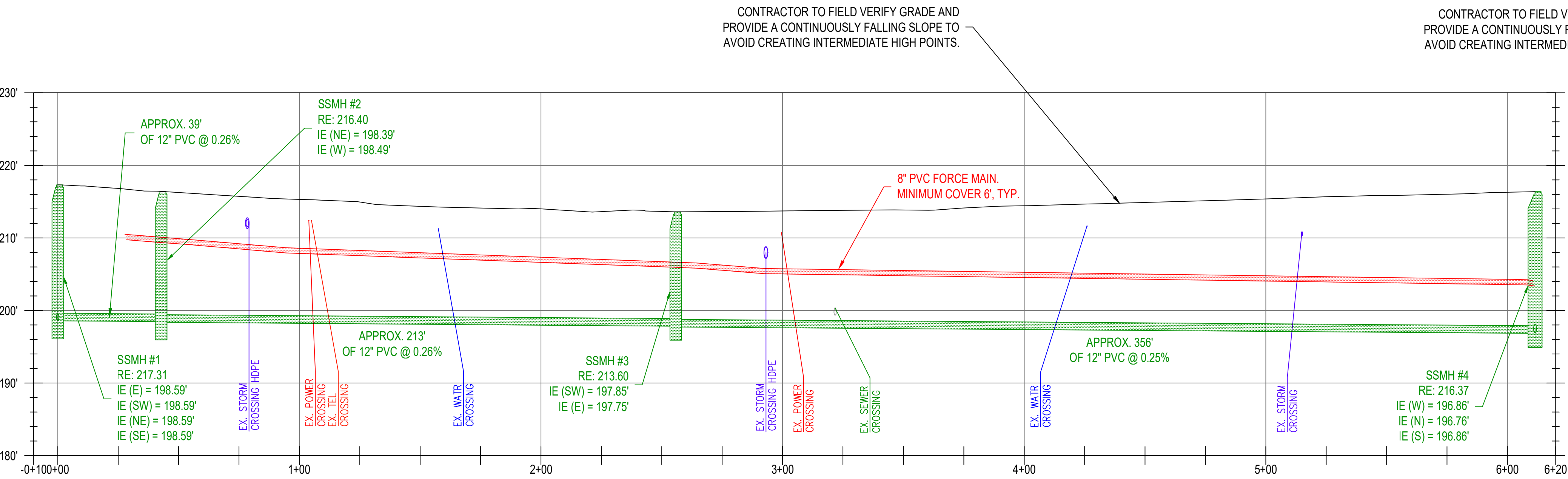
LOG NO.: 516-081

SCALE: SHOWN

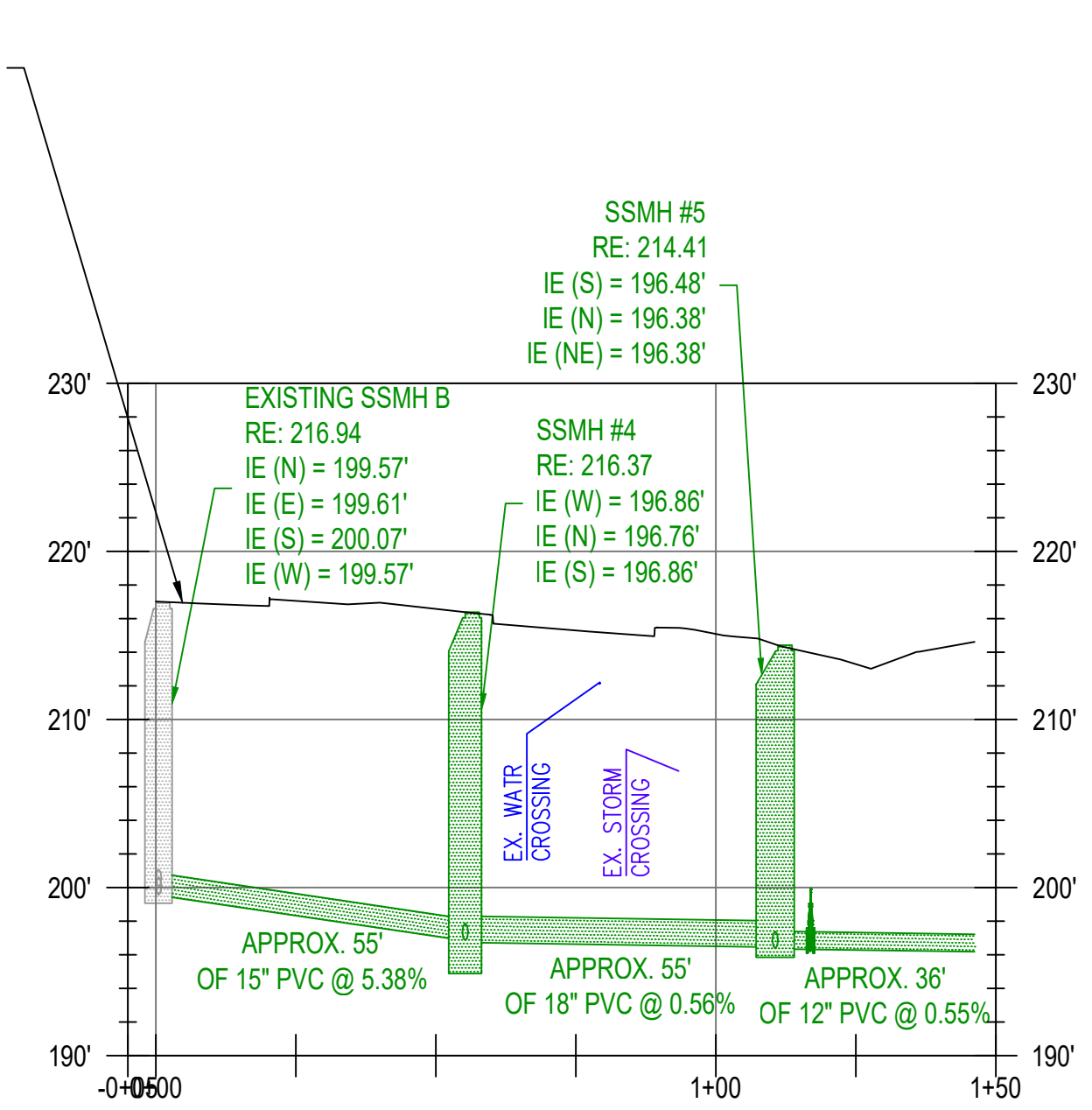
DRAWING IS FULL SCALE WHEN BAR MEASURES 2'

DWG NO.: C05
SHEET NO.: 06

48



H: 1" = 30'; V: 1" = 5'



H: 1" = 30'; V: 1" = 5'



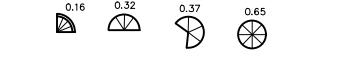
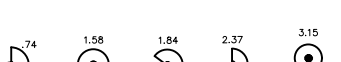
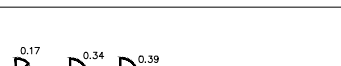
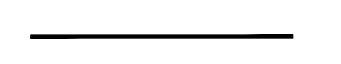
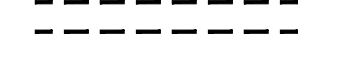
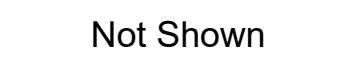
SCALE: SHOWN

0' 1'

DRAWING IS FULL SCALE WHEN
BAR MEASURES 2"

DWG NO.: C06	SHEET NO.: 07
------------------------	-------------------------

Irrigation Schedule

SYMBOL	DESCRIPTION	P.S.I.	RADIUS
	HUNTER MPLCS515, MPRCS515, MPSS530 STRIP ROTATOR HEAD, WITH MATCHED PRECIPITATION RATES	30	4'x28', 4'x14'
	HUNTER MP1000 ROTATOR, 12' ADJUSTABLE ARC AND RADIUS NOZZLE, WITH MATCHED PRECIPITATION RATES	30	12'
	HUNTER MP2000 ROTATOR, 17' & 18' ADJUSTABLE ARC AND RADIUS NOZZLE, WITH MATCHED PRECIPITATION RATES	30	17'-18'
	HUNTER MP3000 ROTATOR, 27' ADJUSTABLE ARC AND RADIUS NOZZLE, WITH MATCHED PRECIPITATION RATES	30	27'
	HUNTER MP CORNER ROTATOR, 12' RADIUS HEADS, ADJUSTABLE ARC NOZZLE, WITH MATCHED PRECIPITATION RATES	30	12'
	HUNTER PRO-SPRAY SHORT RADIUS NOZZLES - 4' RADIUS	30	4'
	HUNTER PRO-SPRAY SHORT RADIUS NOZZLES - 2' RADIUS	30	2'
	HUNTER PRO-SPRAY POP-UP SPRAY HEADS, 5 NOZZLE	30	6'
	HUNTER PRO-SPRAY POP-UP SPRAY HEADS, 8 NOZZLE (FOR ADJUSTABLE ARCS, TT AND TQ HEAD USE NOZZLE 8A)	30	8'
	HUNTER PRO-SPRAY POP-UP SPRAY HEADS, 10 NOZZLE (FOR ADJUSTABLE ARCS, TT & TQ HEAD USE NOZZLE 10A)	30	10'
	HUNTER PRO-SPRAY POP-UP SPRAY HEADS, 12 NOZZLE (FOR ADJUSTABLE ARCS USE NOZZLE 12A)	30	12'
	HUNTER PRO-SPRAY POP-UP SPRAY HEADS, 15 NOZZLE (FOR ADJUSTABLE ARCS USE NOZZLE 15A)	30	15'
	HUNTER PRO-SPRAY POP-UP SPRAY HEADS, 17' NOZZLE (FOR ADJ. ARCS, T, TT, TQ, & F HEAD USE NOZZLE 17A)	30	17'
	HUNTER STRIP PATTERN - L CORNER, R CORNER, SIDE STRIP, END STRIP, & CENTER STRIP	30	5'x30', 5'x15'
	BRASS GATE VALVE - RuB Ball Valve - Model S95F43 (Round Handle) - SIZE TO FIT MAINLINE		
	TORO TFS-200 FLOW SENSOR (SIZE TO MATCH METER)		
	AUTOMATIC CONTROL VALVE, HUNTER ICV, SEE VALVE KEY		
	1-1/2" WATER METER (BY OTHERS - COORDINATE POC WITH CONSTRUCTION MANAGER)		
	QUICK COUPLER - HUNTER HQ-44-LRC-AW		
	RAIN SENSOR - HUNTER RAIN-CLIK-WIRELESS RAIN SENSOR (WRC-INT) OR EQUAL, SEE GENERAL NOTE C		
	CONTROLLER - HUNTER I-CORE WITH DUAL (XX STATION EXTERIOR, WALL MOUNT, PLASTIC ENCLOSURE)		
	CLASS 200 PVC LATERAL LINE PIPING, SIZE PER PLAN		
	2" SCHEDULE 40 PVC MAIN LINE		
	CLASS 200 PVC SLEEVE 2X PIPE DIAMETER, 4" MIN.		
Not Shown	#14 AWG TYPE UF CONTROL WIRE, RED = SIGNAL, WHITE = COMMON, ORANGE= SPARE		

VALVE KEY

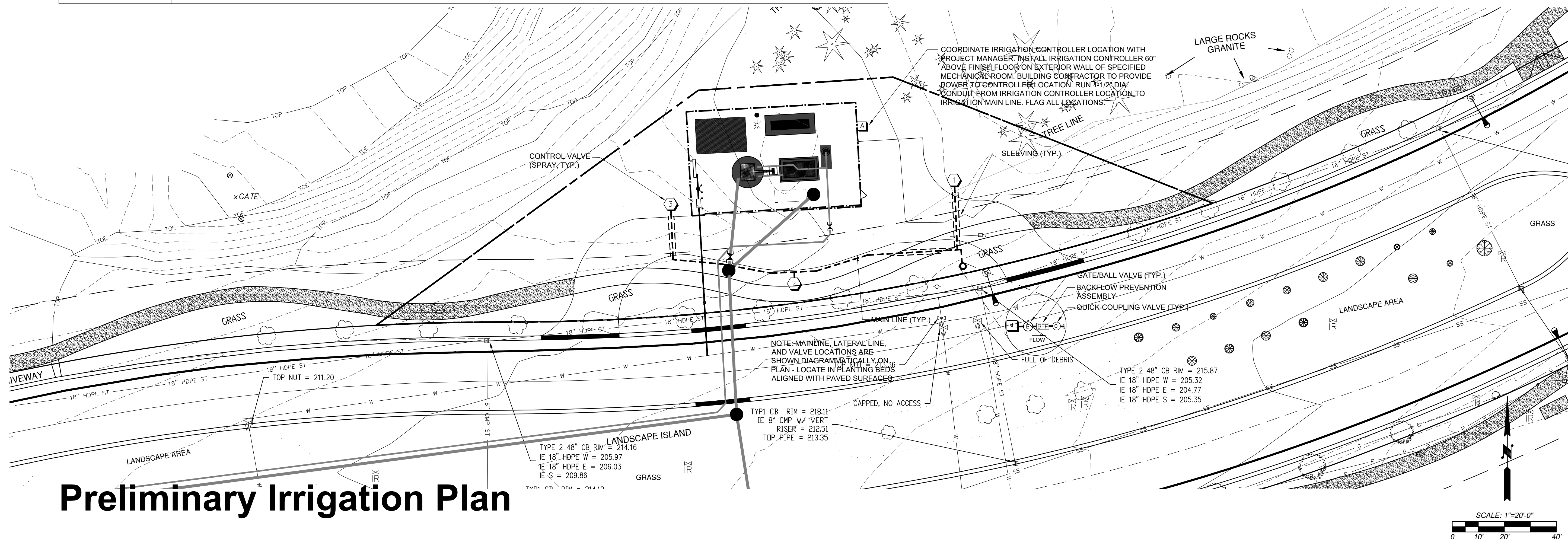
VALVE	SIZE	GPM
1	1-1/4"	20 max
2	1-1/4"	20 max
3	1-1/4"	20 max
4	Open	Open
5	Open	Open
6	Open	Open

SIZE PIPING AS FOLLOWS:

0 - 8 GPM = 3/4" PIPE
9-16 GPM = 1" PIPE
17- 24 GPM = 1 1/4" PIPE
25 - 32 GPM = 1 1/2" PIPE
33 - 50 GPM = 2" PIPE

NOTE:
THE UNDERGROUND, AUTOMATIC IRRIGATION
SYSTEM WILL PROVIDE REGULARLY SCHEDULED
WATERING BEGINNING YEAR ONE (1) THROUGH
THE END OF YEAR THREE (3) THROUGH THE PLANT
ESTABLISHMENT PERIOD. IRRIGATION WILL BE
PROVIDED ON A MODIFIED SCHEDULE AFTER YEAR
THREE (3), AS NEEDED, TO PROVIDE
SUPPLEMENTAL WATER DURING UNSEASONABLY
DRY CONDITIONS BETWEEN APRIL AND OCTOBER.

NOTE:
ANY IRRIGATION LINES PLACED WITHIN TREE PROTECTION ZONES ESTABLISHED FOR THE PROJECT MUST BE INSTALLED IN SUCH A MANNER AS TO NOT CAUSE DAMAGE TO THE ROOT PROTECTION ZONES OR AS FAR AS PRACTICABLE, AVOID ANY OPERATION OF MACHINERY, ETC. SPECIAL CARE MUST BE TAKEN (HAND DIGGING TRENCHES, DESIGNING LINES TO STAY OUT OF THESE AREAS WHERE POSSIBLE, ETC.) TO ENSURE DAMAGE TO THE TREES DOES NOT OCCUR. IN THE EVENT DAMAGE TO THESE AREAS DOES OCCUR, THE OWNER WILL REQUIRE, AT THEIR DISCRETION, REPLACEMENT OF THE COMPARABLE LANDSCAPE VALUE OF THE TREES DAMAGED OR OTHER MEANS TO MAKE UP THAT LOSS (CHAPTER 16.80 LMC).



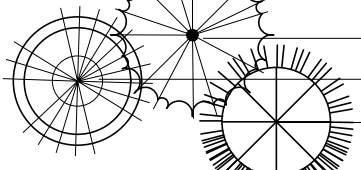
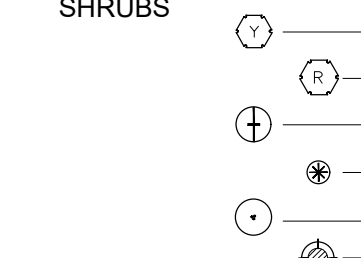
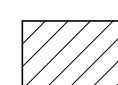
PRELIMINARY IRRIGATION PLAN

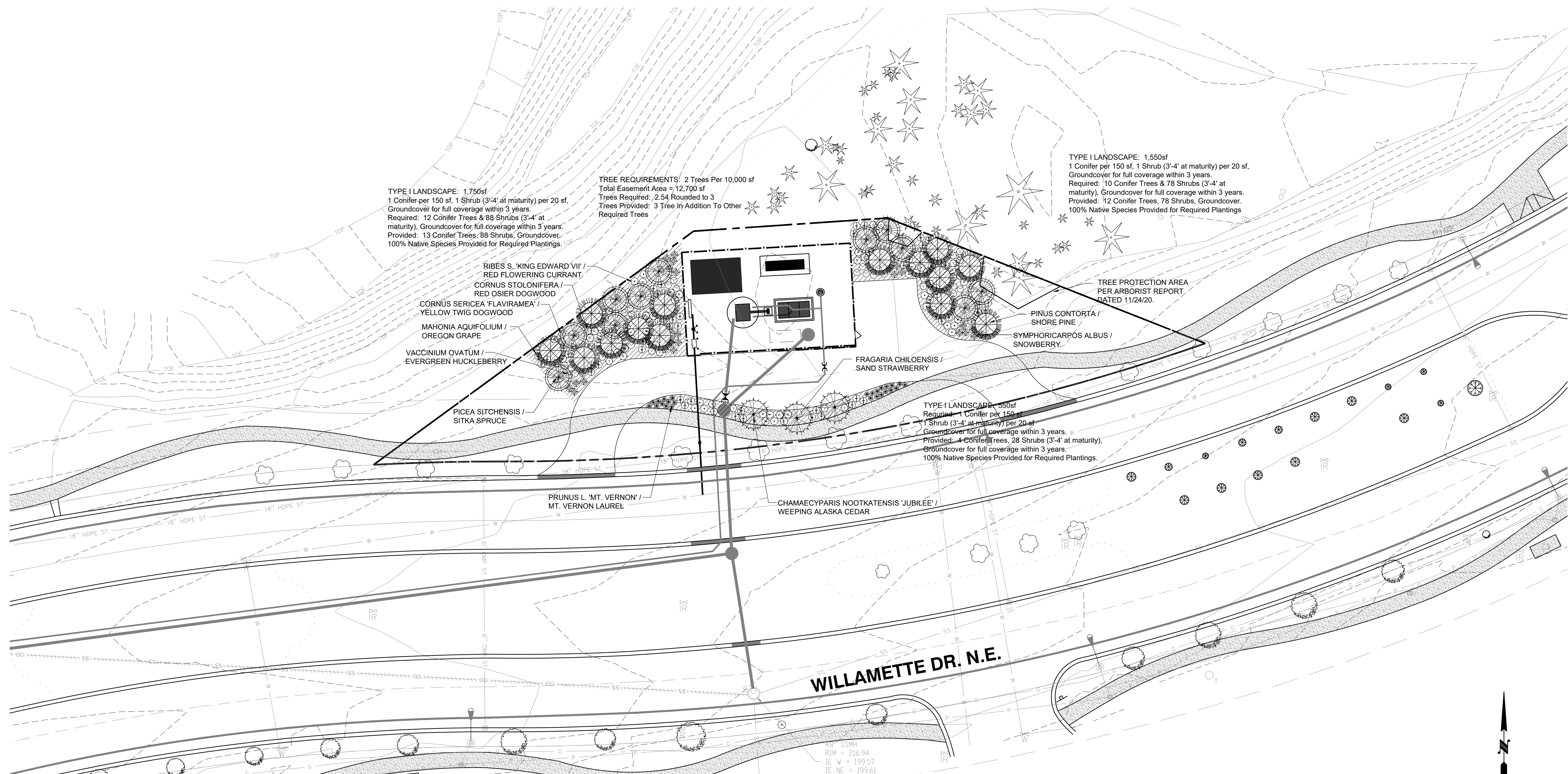
Lift Station 19

City of Lacey
Willamette Dr. NE, Lacey, WA

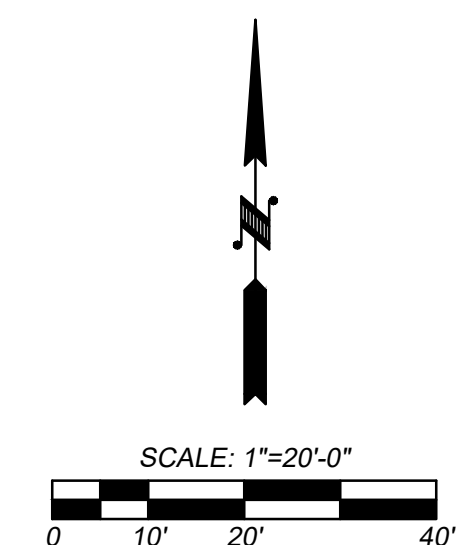
REVISION		
No.	Date	By
1	25 Nov 2008	MFW
Per Revised Site Plan & Comments		
Scale: 1"= 20'0"		
Designer MFW Project MFW Firm KBR Date 1 July 2008	Sheet No. IR-1 of 2 Sheets	
Phase 30% DD Project No. 30004		

Plant Schedule

SYMBOL			QTY.	BOTANICAL NAME / COMMON NAME	SIZE	SPACING, CONDITION & REMARKS
TREES-CONIFER						
	3	CHAMAECYPARIS NOOTKATENSIS 'JUBILEE' / WEEPING ALASKA CEDAR	6'-7" HT.	B&B, NURSERY GROWN		
	11	PICEA SITCHENSIS / SITKA SPRUCE	6'-7" HT.	B&B, NURSERY GROWN		
	14	PINUS CONTORTA / SHORE PINE	6'-7" HT.	B&B, NURSERY GROWN		
SHRUBS						
	29	CORNUS SERICEA 'FLAVIRAMEA' / YELLOW TWIG DOGWOOD	5 GAL. CONTAINER	FULL FOLIAGE, 36" O.C.		
	25	CORNUS STOLONIFERA / RED OSIER DOGWOOD	2 GAL. CONTAINER	FULL FOLIAGE, 36" O.C.		
	53	MAHONIA AQUIFOLIUM / OREGON GRAPE	2 GAL. CONTAINER	FULL FOLIAGE, 36" O.C.		
	25	PRUNUS LAUROCERASUS 'MT. VERNON' / MT. VERNON LAUREL	2 GAL. CONTAINER	FULL FOLIAGE, 24" O.C.		
	34	RIBES SANGUINEUM 'KING EDWARD VII' / RED FLOWERING CURRANT	2 GAL. CONTAINER	FULL FOLIAGE, 36" O.C.		
	25	SYMPHORICARPOS ALBUS / SNOWBERRY	2 GAL. CONTAINER	FULL FOLIAGE, 36" O.C.		
	28	VACCINIUM OVATUM / EVERGREEN HUCKLEBERRY	2 GAL. CONTAINER	FULL FOLIAGE, 36" O.C.		
GROUND COVER						
	1,425	FRAGARIA CHILOENSIS / SAND STRAWBERRY	1 GAL. CONTAINER	18" O.C.		



Landscape Plan



REVISION		
o.	Date	By
1.	25 Nov 2020	MWF
Per Revised Site Plan & Comments		
1"= 20'0"		
year MWF MWF KBR 1 July 2020	Sheet No. L-1 of 3 Sheets	
30% DD 20034		

Planting Requirements

GENERAL NOTES

- A. Plant material list submittal: within 30 calendar days after receipt of the notice to proceed, landscape contractor shall submit a complete list of materials proposed to be furnished and installed demonstrating conformance with the requirements specified. Include the name, addresses and telephone numbers of all plant material suppliers and growers.
- 1.A. Documentation shall also include suppliers name, contact person, address, telephone number, botanical and common name, plant size and size of container or ball.
- 1.B. Contractor shall provide a signed statement from the plant suppliers who have furnished the plant materials identifying the plant material being supplied by botanical and common names, plant size and stating that all of the plants supplied by them are in healthy growing conditions meeting the American Standard for Nursery Stock (ANSI Z60.1).
- 1.C. Submit a project installation schedule, coordinated with the propose soil amending and planting schedule to the landscape architect or owner for approval at least 30 calendar days prior to start of work under this section.
- B. Substitutions of plant materials will not be permitted unless authorized in writing by the landscape architect or owner. If proof is submitted that any plant specified is not obtainable, a proposal will be considered for use of the nearest equivalent size and variety. Such proof shall be substantiated and submitted in writing to the landscape architect or owner at least 30 days prior to start of work under this section. These provisions shall not relieve contractor of the responsibility of obtaining specified materials in advance if special growing conditions or other arrangements must be made in order to supply specified materials.
- C. Plants shall be subject to inspection and approval by landscape architect or owner for conformance to specifications upon delivery to the project site. Such approval shall not impair the subsequent right of inspection and rejection during progress of the work. Contractor shall give landscape architect 48 hours advance notice when plants will be delivered to the site for inspection. Inspection of plant materials shall take place within 24 hours of delivery to the site.
- D. Coordinate work with other trades as required.
- E. Locate all underground utilities prior to commencing work to avoid damage to buried pipes and cables.
- F. Provide protection for all property, persons, work in progress, structures, utilities, wells, curbs and paved surfaces from potential damage arising from this work. The contractor shall pay for any such damage at no additional cost to the owner. Unfinished and completed work shall be protected from erosion or trespassing, and proper safeguards shall be erected to protect the public from injury or danger.

PLANTING NOTES

1. Verify boundaries and plant layout with landscape architect prior to commencing work.
2. Verify that site conditions are acceptable prior to beginning work. Do not install any site elements or plant material until unsatisfactory conditions are corrected. When conditions detrimental to plant growth/constructed elements are encountered, immediately notify the owner.
3. Substitutions or changes in materials and placement shall be made only after written change orders are accepted by the owner.
4. Install protective fencing for on site existing trees and vegetation to remain, and plant material located on adjacent property prior to commencing work. The critical root protection area of all trees to remain has been established as a 1' radius of protection area for every 1" of diameter measured at 4.5' above grade, or the tree drip line, whichever is greater. Locate tree protection fencing as indicated on plan. Fencing is to be installed with stakes driven into the ground, not mounted on cinder blocks. Signage shall be affixed to the fencing that reads: 'No Entry, Tree Root Protection Area'. See existing tree and vegetation protection detail for additional information.

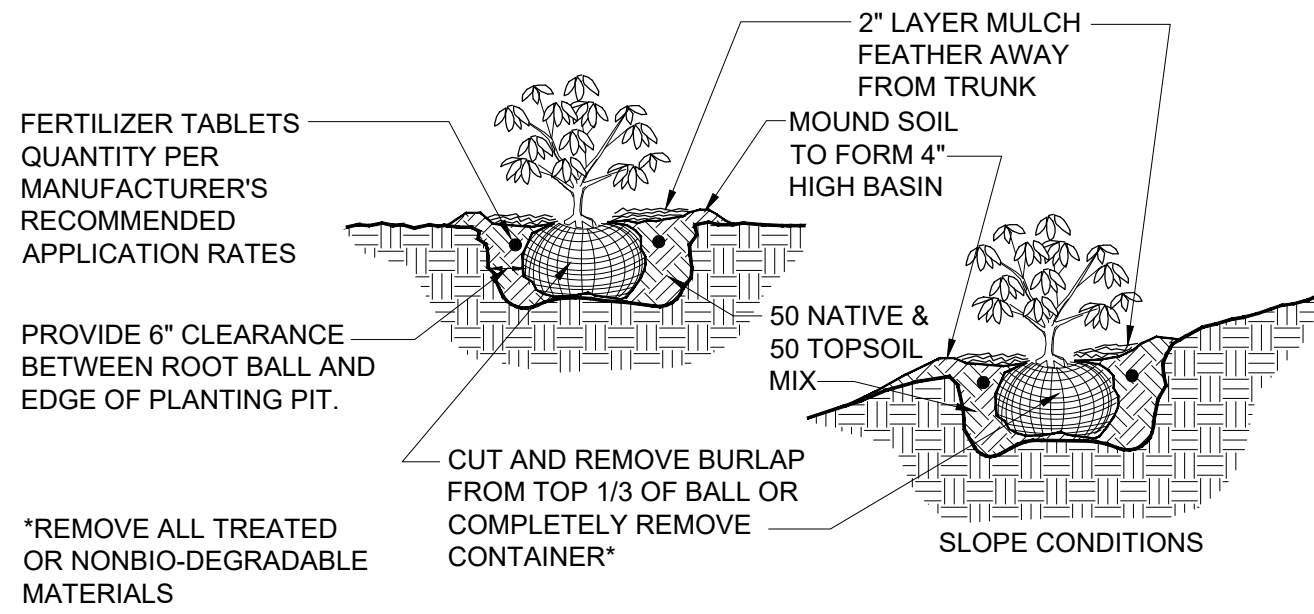
- 1) General Soil Requirements: The topsoil layer shall have a minimum depth of eight inches except where tree roots limit the depth of incorporation of amendments needed to meet the criteria. Subsoils below the topsoil layer should be scarified at least 4 inches with some incorporation of the upper material to avoid stratified layers, where possible. The topsoil should have an organic matter content of 5% dry weight for turf areas, and 10% dry weight for planting beds (typically around 20-25% compost for turf areas and 35-40% compost for planting areas). The soil portion must be 75-80% sandy loam for turf areas, and 60-65% sandy loam for planting areas. Soil pH should be 5.6-5.6 for turf areas, 5.5-7.0 for planting areas and 4.5-5.5 for areas planted with acid-tolerant or native plantings.
- 2) Requirements for Amending Existing Soil in Place:
- Turf Areas - Place and rototill 1.75 inches of composted material into 7.75 inches of existing soil for a total depth of 9.5 inches, and a settled depth of 8 inches. Subsoils below this layer should be scarified at least 4 inches, for a finished minimum depth of 12 inches of uncompacted soil.
- Planting Beds - Place and rototill 3 inches of composted material into 6.5 inches of existing soil for a total depth of 9.5 inches, and a settled depth of 8 inches. Subsoils below this layer should be scarified at least 4 inches, for a finished minimum depth of 12 inches of uncompacted soil. Do not scarify within drip lines of existing trees to be retained.

- 3) Requirements for Applying Imported Topsoil:
Turf Areas and Planting Areas - Scarify or till subgrade in two directions to 6 inches depth. Entire surface should be disturbed by scarification. Do not scarify within drip lines of existing trees to be retained. Place 4 inches of imported topsoil mix on surface and till into 2 inches of soil. Place second lift of 4 inches topsoil mix on surface.
 - 4) Requirements for Reapplying Stockpiled Topsoil:
Turf Areas - Reapply stockpiled soil and rototill in 1.75 inches of composted material for a combined minimum depth of 8 inches of soil and compost.
Planting Beds - Reapply stockpiled soil and rototill in 3 inches of composted material for a combined minimum depth of 8 inches of soil and compost.
 - 5) Within Stormwater Systems - On-site soil mixing or placement shall not be performed if soil is saturated or frozen. Total amended soil depth shall be a minimum of 18 inches. Mix all soil amendments uniformly throughout the rain garden soil section. Amended soil shall be placed in horizontal layers in no greater than 12 inches lifts. Allow soils to compact and settle naturally. Areas can be watered after each lift is placed to speed settling, but should not be wetted to saturation. Until the upstream catchment area is thoroughly stabilized, flow diversion and erosion control measures must be installed to protect the bioretention area from sedimentation.
 - 6) Rake beds to smooth, clean and remove all rocks, roots and debris over 1 inch in diameter. Water or roll turf areas to compact soil to 85 percent of maximum. Finish grade shall be at least 3 inches below adjacent hard surfaces for planting areas to allow for application of mulch. Finished grade for turf areas shall be at least 2 inches below adjacent hard surfaces. All planting areas must be mulched with 2 inches of organic material.
- Plants shall be pit planted with a 50/50 prepared mix of native soil and topsoil mix. See planting details for depth and staking requirements.
- Fertilize all installed plants during backfill operations with organic fertilizer as recommended by manufacturer.
- Mulch all planted areas with a minimum 2 inch (2") depth of medium fine bark mulch. Finish grade of mulch shall be one inch (1") below top of adjacent hard surface.
- All plant material to be nursery grown stock and arrive on-site in a healthy, vigorous, well branched, disease and insect free condition.

11. Plant trees, shrubs and groundcover as shown in the planting details. Roughly scarify sides of the planting pits. Install plant material at finish grade and feather bark mulch away from base of plant. Water plant pits thoroughly midway through backfilling and add fertilizer tablets. Balled and wrapped material that cannot be installed immediately shall be heeled in, mulched and watered regularly to keep root balls moist.
12. Provide landscape maintenance immediately after planting and continue until final acceptance. Work shall include watering, spraying, fertilizing, pruning, resetting of plants, restoring eroded areas, adjustments to staking and removal of weeds/debris as required for healthy plant growth.
13. Inspection and acceptance: the owner will make an inspection for substantial completion of the work upon request by the contractor.
14. Replacement of plantings: remove any plant from site that is either dead, or in unsatisfactory condition as determined by the owner or landscape architect. Replace with a new planting of equal size and species as soon as conditions permit within the normal planting season. All replacement plantings are then to be under re-instated guarantee period as specified. Identify those replacements and take whatever measures necessary to prevent similar demise of additional plant material.
15. Provide root barrier in a surround or linear pattern for tree plantings when trunk is located within five (5) linear feet of any paved surface. Deeproot universal barrier RUB-18 (or approved equivalent). Install per manufacturer's recommendations.

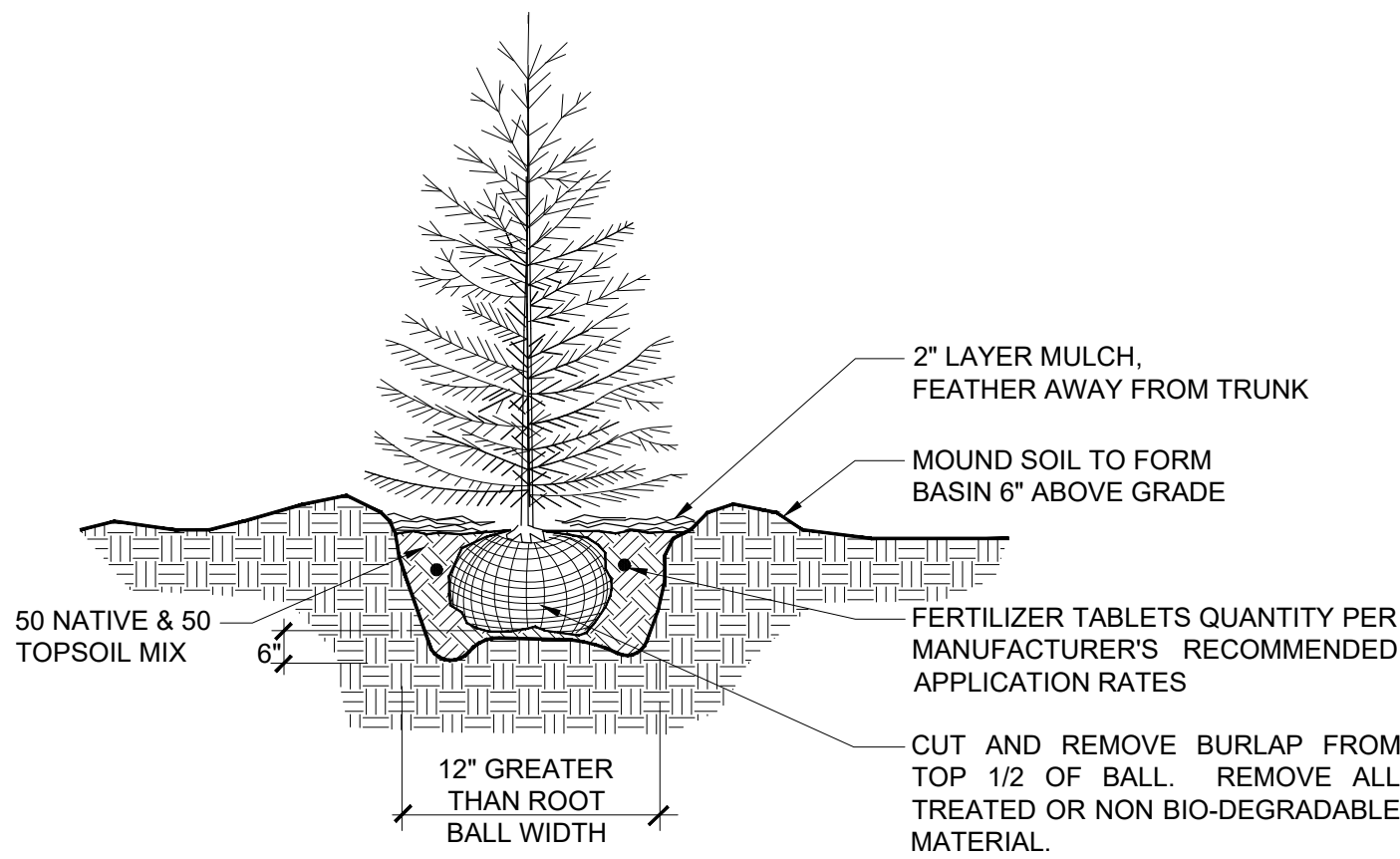
Warranty

The warranty shall include replacing and planting the same size and species of plant material, as shown on the landscape plan and that has been designated, by the landscape architect, to be replaced. Except for loss due to excessively severe climatological conditions (20 year weather charts), installed plant materials are required to be guaranteed until the end of one growing season against defects and unsatisfactory growth, except for cases of neglect or abuse by the owners or others. All plants replaced shall be re-instated under these plant guaranty conditions.



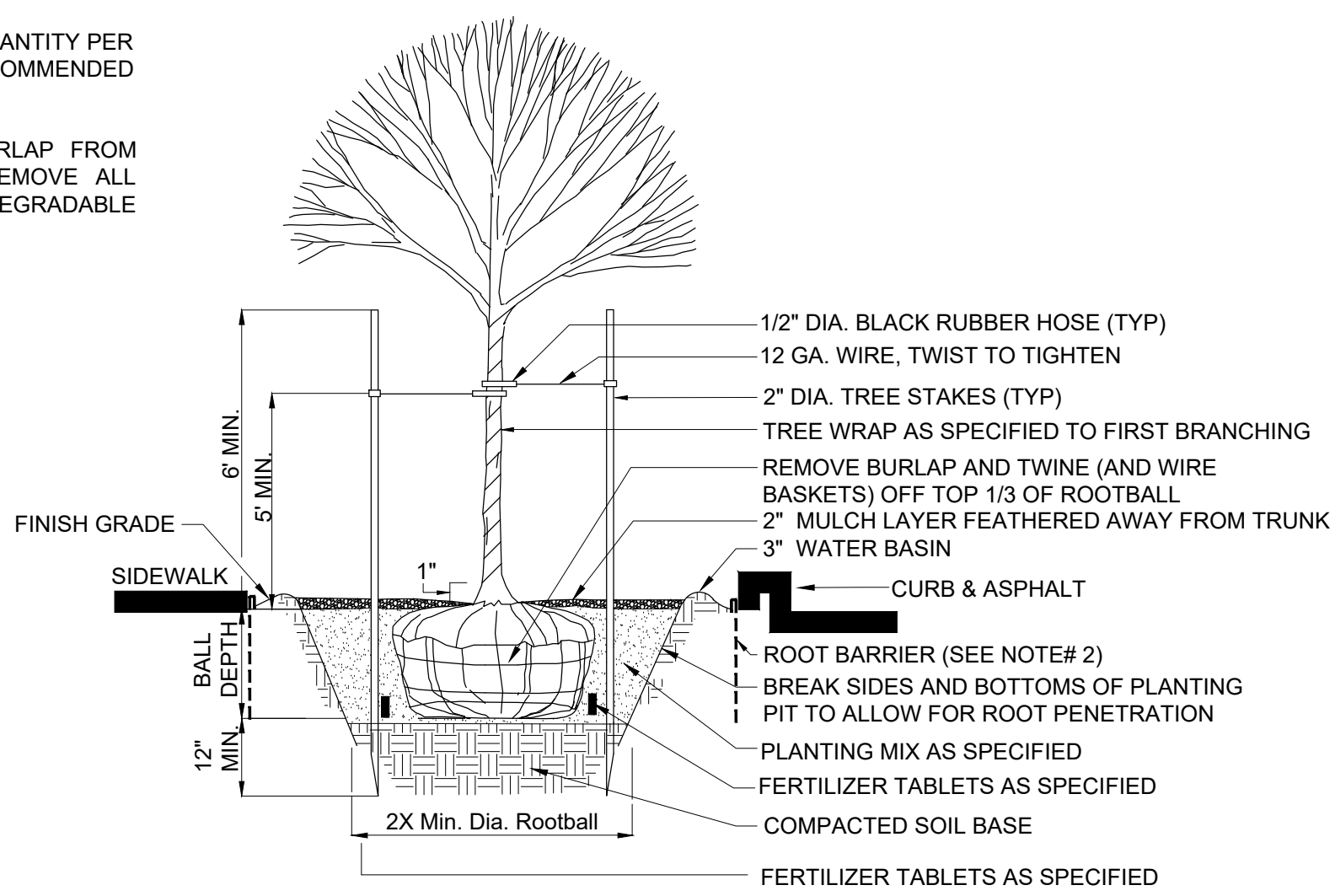
Shrub Planting Detail

(NOT TO SCALE)



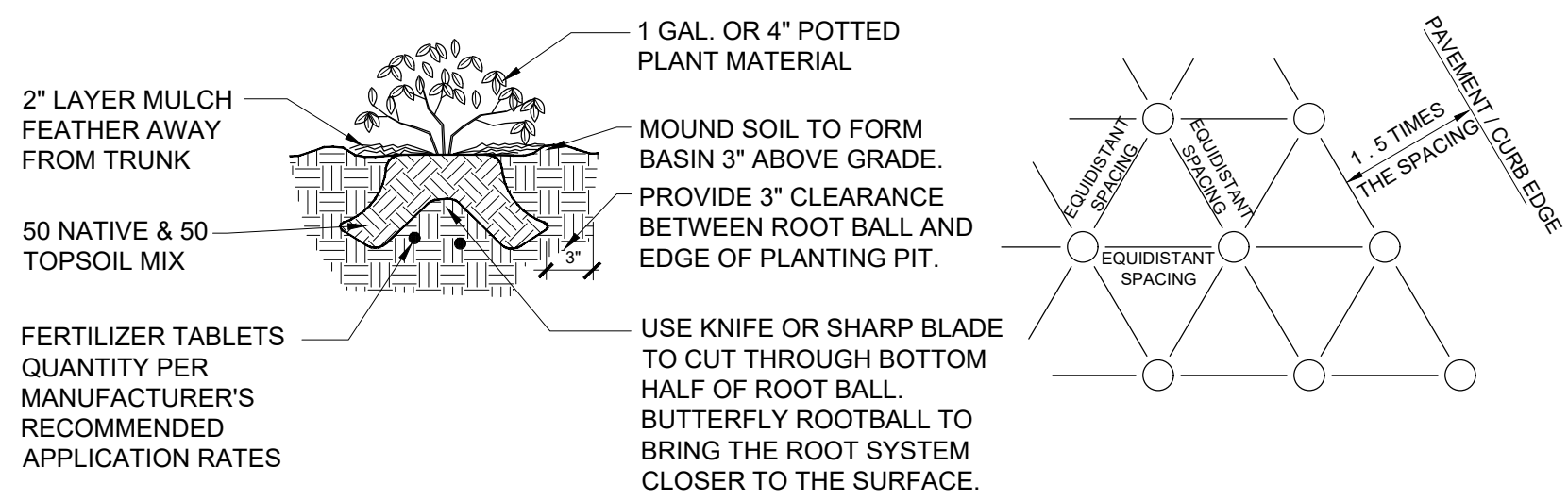
Conifer Tree Planting Detail

(NOT TO SCALE



Existing Tree & Vegetation Protection Detail

(NOT TO SCALE)



Groundcover Planting Detail

(NOT TO SCALE)

PLANT SCHEDULE, NOTES & DETAILS

Lift Station 19

City of Lacey

Willamette Dr. NE, Lacey, WA

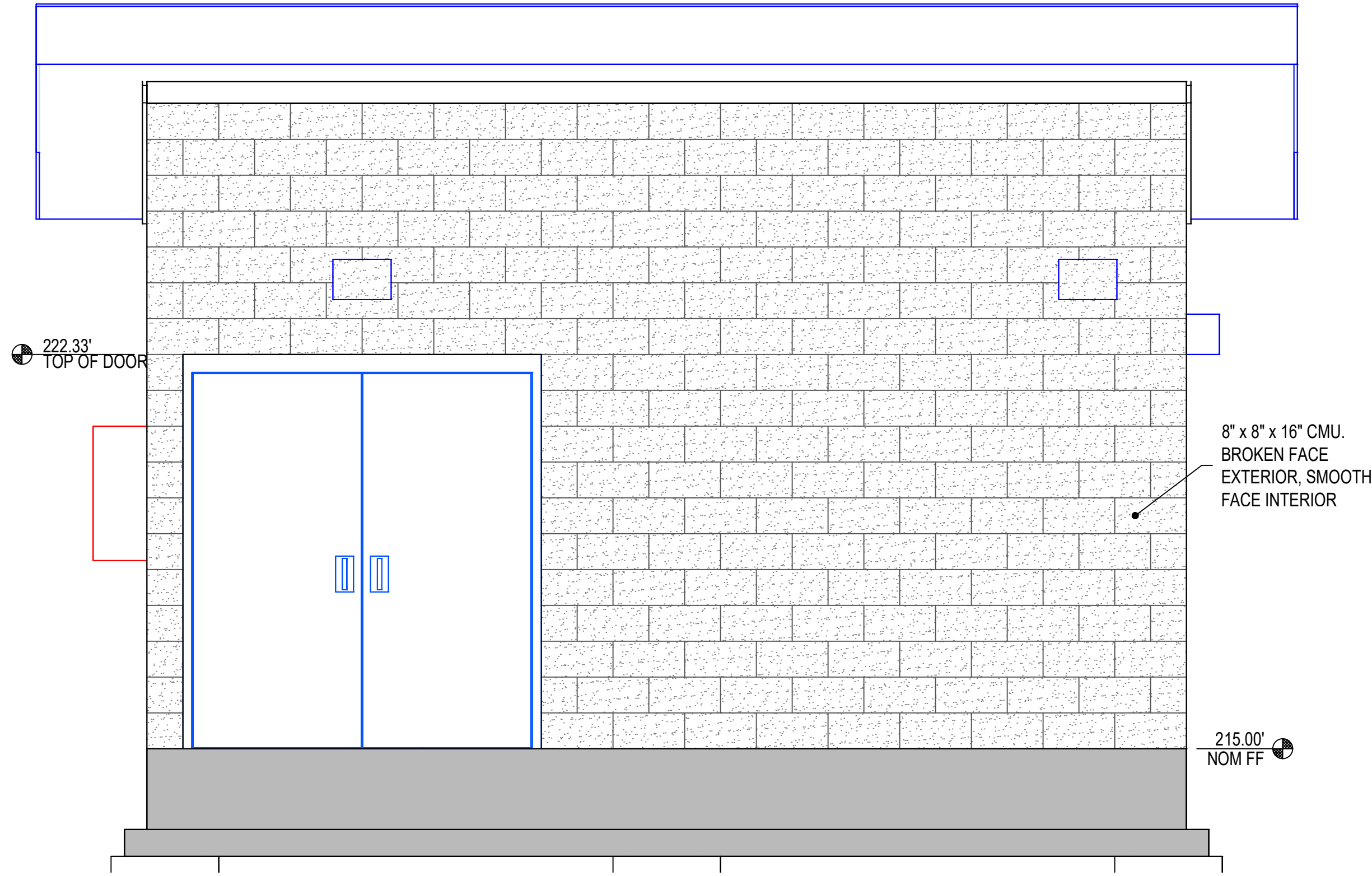
No.			Date			By		
1		25 Nov 2020				MFW		
Per Revised Site Plan & Comments								
Scale								
NTS			Drawing MFW Project Manager KBR Date 1 July 2020 Photo 30% DD Project No. 20034 Sheet No. L-2 of 3 Sheets					



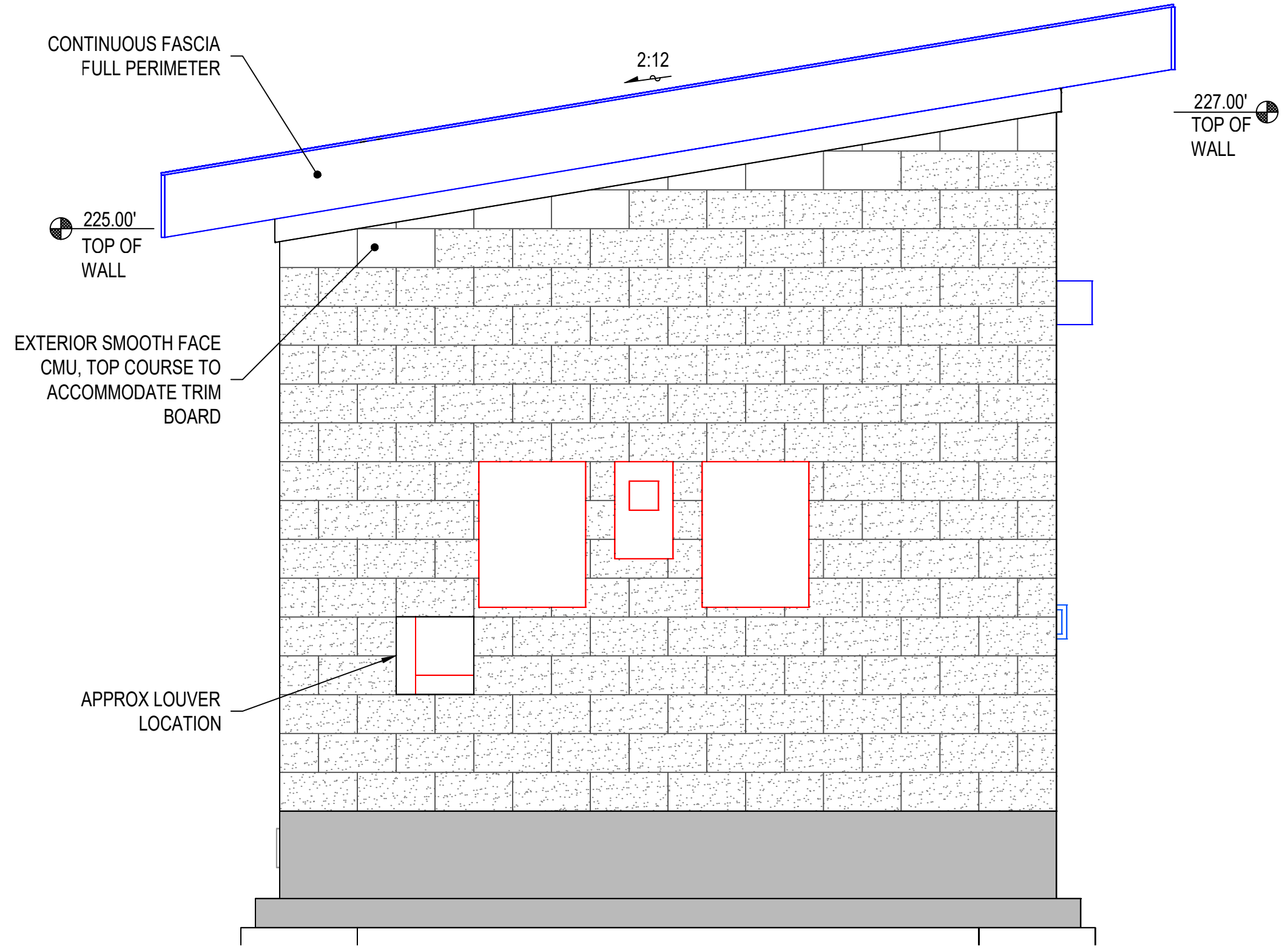
Lift Station 19

City of Lacey
Willamette Dr. NE, Lacey, WA

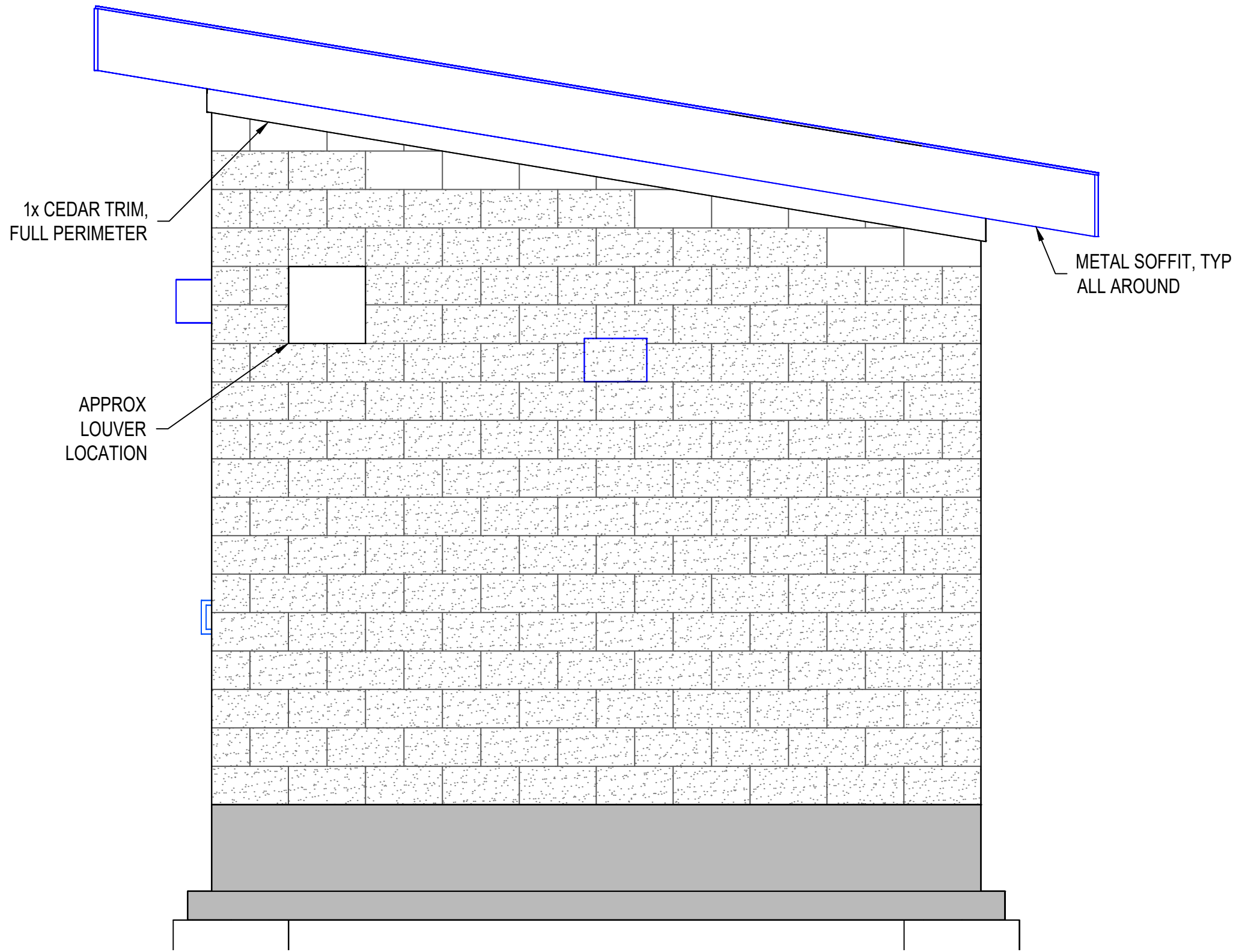
REVISION		
No.	Date	By
1	25 Nov 2020	MFW
Per Revised Site Plan & Comments		
Scale: 1"= 20'0"		Sheet No. L-3 of 3 Sheets
Designer MFW		
Project Manager MFW		
Principal KBR		
Date 1 July 2020		
Phase 30% DD		
Project No. 20074		



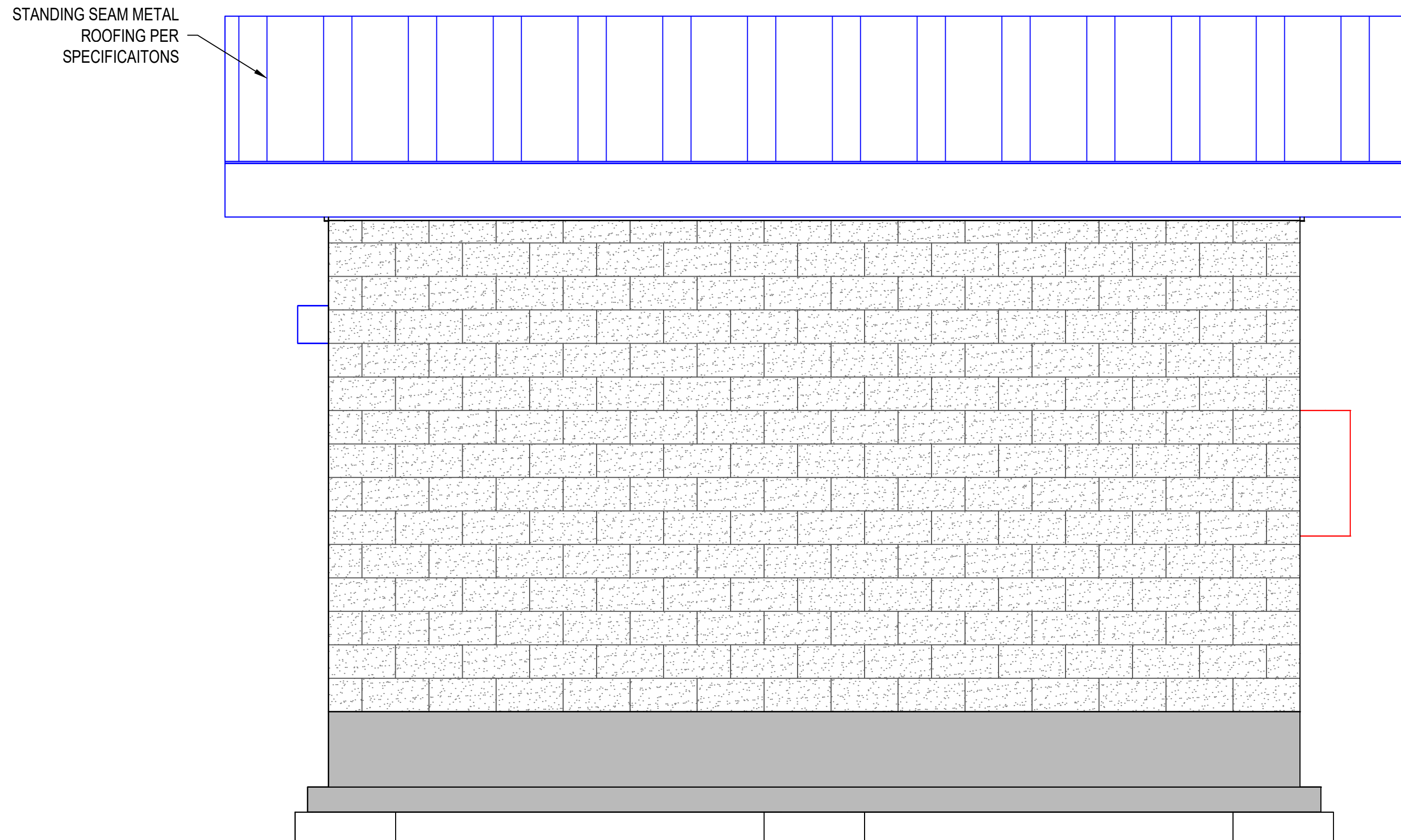
SOUTH ELEVATION
1/2" = 1'-0"



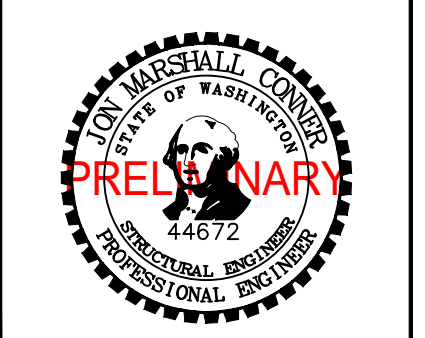
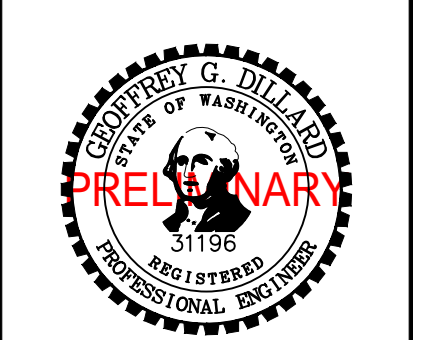
WEST ELEVATION
1/2" = 1'-0"



EAST ELEVATION
1/2" = 1'-0"



NORTH ELEVATION
1/2" = 1'-0"



**CITY OF LACEY**

LIFT STATION 19 REHABILITATION

BUILDING ARCHITECTURAL ELEVATIONS

ENGINEER: CPC	DATE: Nov 19, 2020	CLIENT: LAC	LOG NO.: 516-081	REVISIONS	NO.	DATE	DESCRIPTION	BY	REVIEW
REVIEWED: DJM	PLOT DATE: Nov 19, 2020	FILE NAME: LS19-B-AUT.DWG							
				60% REVIEW DRAWINGS					

SCALE: SHOWN

0"

1"

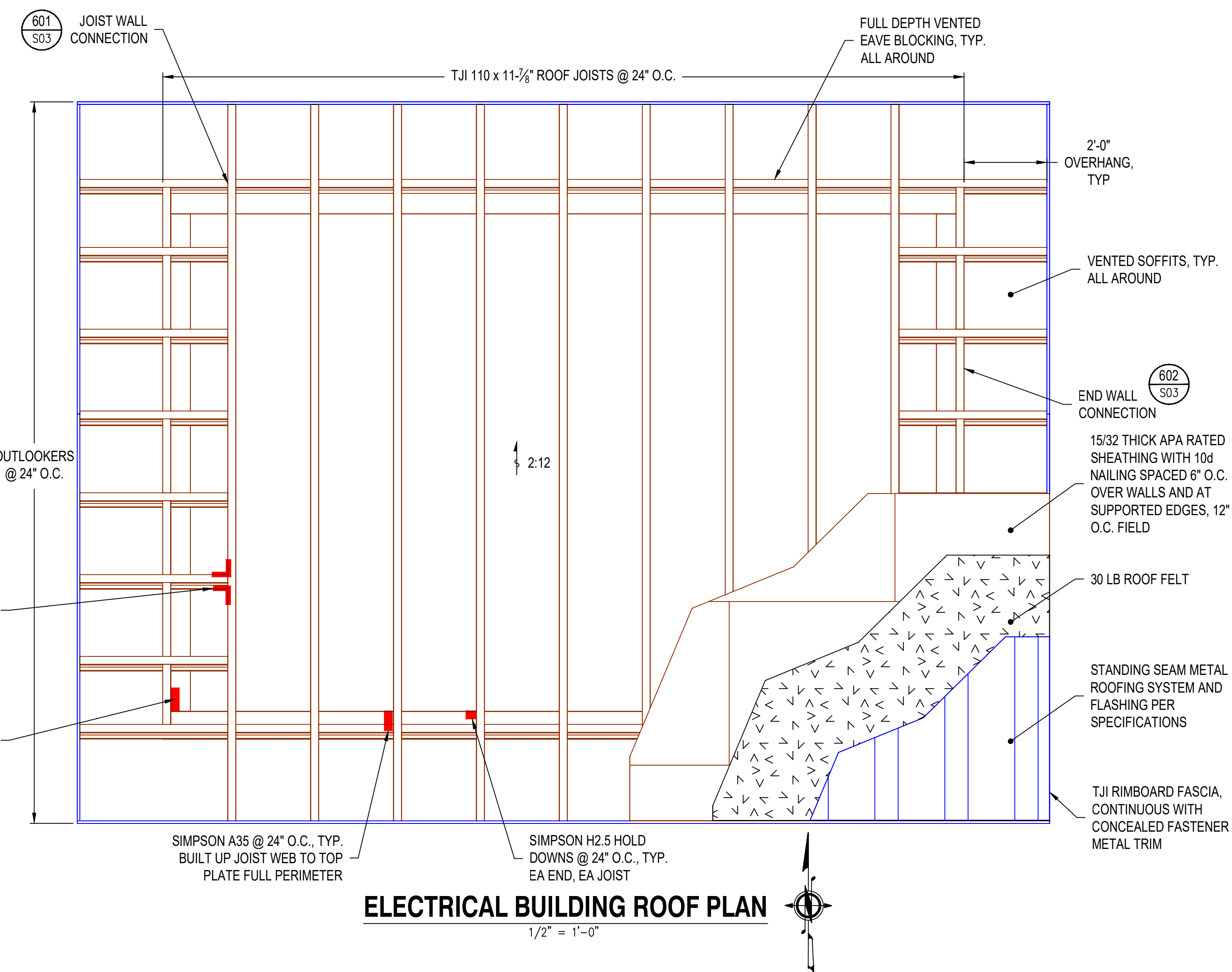
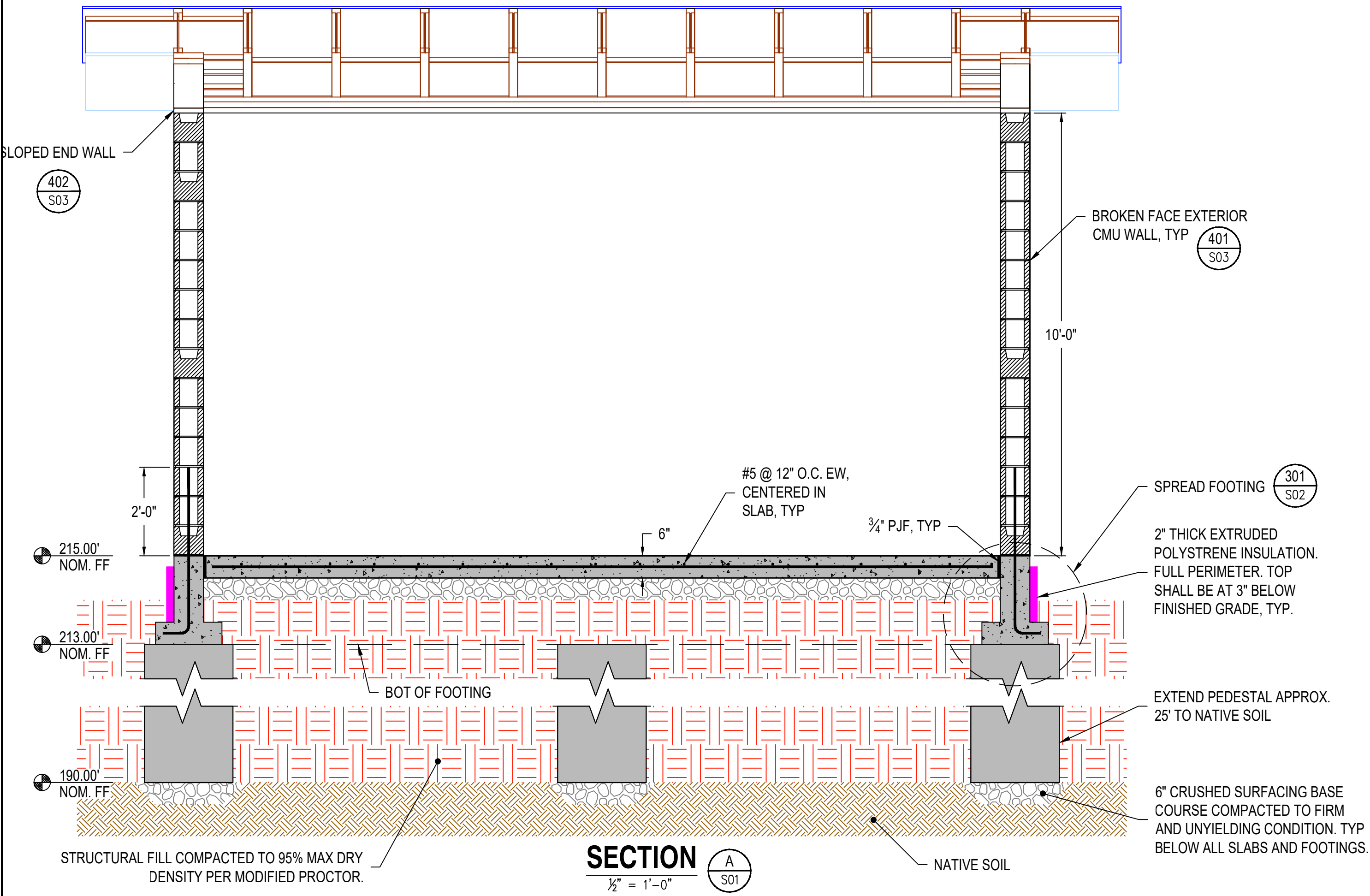
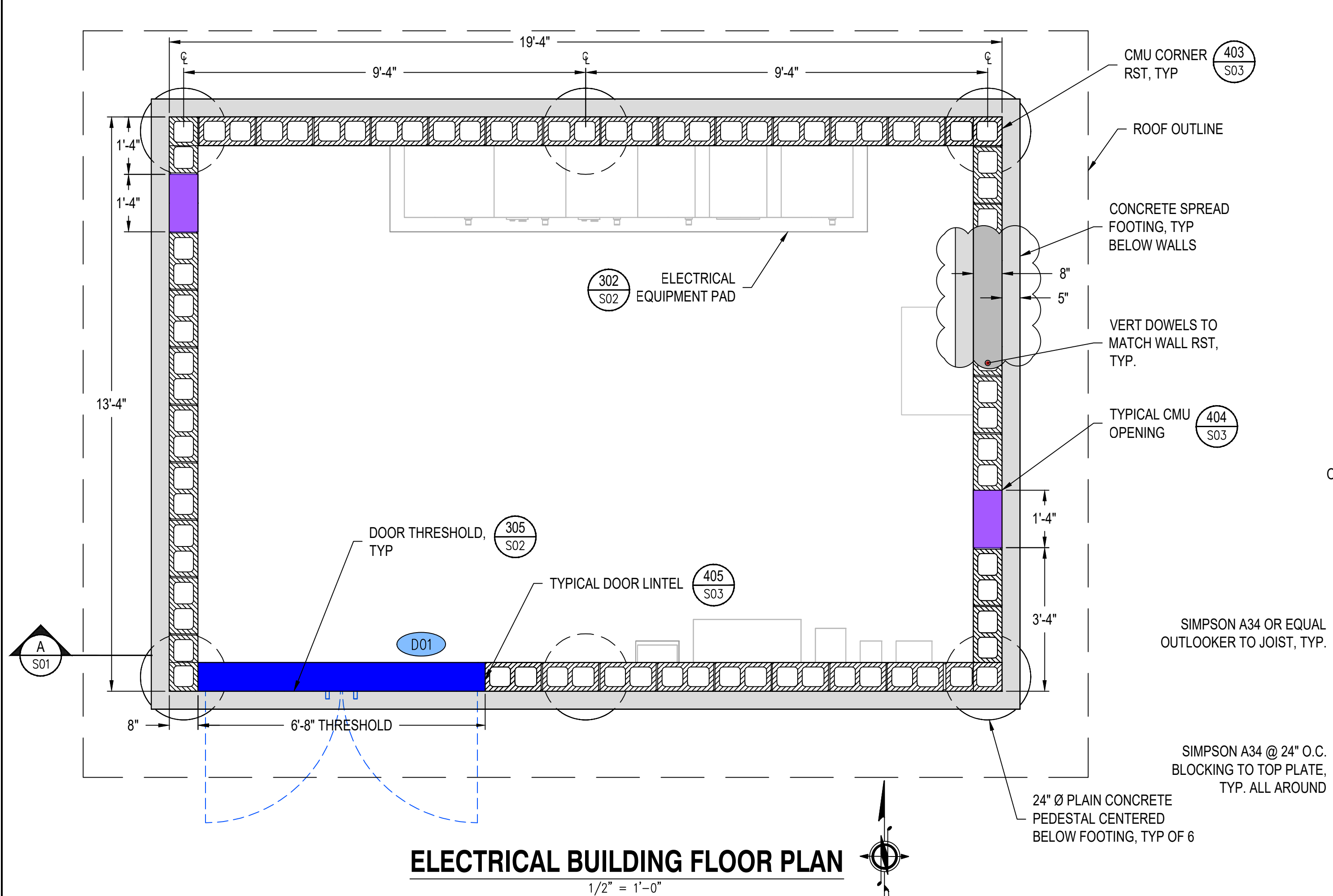
2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: A01

SHEET NO.: 15

48



DOOR AND FRAME SCHEDULE

No.	Door			Frame			Exit Device Required
	Size		Material	Size		Material	
	Width	Height		Width	Height		
D01	6'-4"	7'-2"	HM	6'-8"	7'-4"	HM	YES

VENTILATOR SCHEDULE

NO.	FLOW	FLOWRATE	BACKDRAFT DAMPER	MANUFACTURER	MODEL	ACCESSORIES
EF-1	EXHAUST					

LOUVER AND DAMPER SCHEDULE

NO.	FLOW	FLOW RATE (SCFM)	MANUFACTURER	DAMPER, LOUVER	DIMENSIONS	ACCESSORIES*	NOTES
LA-1	INTAKE						
LA-2	EXHAUST						

* MOUNTING SLEEVES DEPTH SHOULD BE 18" MAX.

CITY OF LACEY

LIFT STATION 19 REHABILITATION

BUILDING STRUCTURAL PLAN AND SECTION

LOG NO.: 516-081	CLIENT: LAC	ENGINEER: CPC	DATE: Nov 19, 2020	NO.	DATE	DESCRIPTION	BY	REVIEW
FILENAME: LS19-BQ-S01.DWG	REVIEWED: JMC	DATE: Nov 19, 2020						
REVISIONS								
60% REVIEW DRAWINGS								

SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: S01 SHEET NO.: 16 48



CITY OF LACEY
Community & Economic Development Department
420 College Street SE
Lacey, WA 98503
(360) 491-5642

WAC 197-11-960
ENVIRONMENTAL CHECKLIST

OFFICIAL USE ONLY

Case Number: _____

Date Received: _____

By: _____

Related Case Numbers:

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: [\[help\]](#)

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:

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: [\[help\]](#)

Lift Station #19 Replacement

2. Name of applicant: [\[help\]](#)

City of Lacey

3. Address and phone number of applicant and contact person: [\[help\]](#)

420 College Street SE, Lacey, WA 98503

4. Date checklist prepared: [\[help\]](#)

06/23/2020

5. Agency requesting checklist: [\[help\]](#)

City of Lacey

6. Proposed timing or schedule (including phasing, if applicable): [\[help\]](#)

Design 2020 and Construction of Lift Station #19 Replacement in 2021

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain. [\[help\]](#)

After construction, City will perform routine monthly and yearly maintenance on lift station.

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

Geotechnical memorandum, site development technical memorandum, stormwater report, wastewater comprehensive plan.

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. [\[help\]](#)

There are no applications pending, but site development, building, and electrical permits will be submitted and processed through City.

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

City of Lacey Building Permit, Electrical Permit, ROW Permit, and Grading Permit.

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

Lift Station #19 will consist of the construction of a 10-foot-diameter wet well, valve vault, 12-foot, 8-inch by 18-foot CMU electrical building, generator, gravity sewer and force main, access driveway, and site amenities.

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]

2659 Willamette Drive NE, Lacey WA 98516 Section 01 Township T18N, Range 1 W



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

1. Earth

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

(circle one): Flat, rolling, hilly, steep slopes, mountainous,
other gradual slope from southeast to northwest

- b. What is the steepest slope on the site (approximate percent slope)? [\[help\]](#)

10 percent at west side of easement.

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

During construction, soils will be graded and some removed from the site to allow for structural fill. On-site soils are gravelly sand with cobbles (GM).

- d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe. [\[help\]](#)

No.

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

On-site and off-site grading will consist of moving approximately 500 CY of material. Structural fill will be used for on-site construction.

- f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe. [\[help\]](#)

There is the possibility for on-site erosion during construction until the site is stabilized. Erosion control measures will be provided.

- g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)? [\[help\]](#)

46 percent

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

Native and landscape buffers will be provided to reduce and control erosion. Erosion control (silt fence) will be designed and installed.

2. Air

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

During construction, contractor equipment (generator, crane, excavator, bull dozer, dump truck, concrete truck) will be on site and emit emissions. After construction, City trucks and service equipment will be on site one to two times a week.

- b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe. [\[help\]](#)

None.

- c. Proposed measures to reduce or control emissions or other impacts to air, if any: [\[help\]](#)

Contractor will not be able to idle equipment during construction. Specifications will dictate when, how, and cover emission control. Dust control measures will include water truck cleaning of the roadway and spraying of the construction area throughout the day.

3. Water

- a. Surface Water: [\[help\]](#)

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

No

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

N/A

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

None

- 4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known. [\[help\]](#)

None

- 5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan. [\[help\]](#)

No

- 6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge. [\[help\]](#)

No

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

No

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

On-site storm water will be directed to the existing Meridian Campus pond via direct release or a dispersal trench along the western portion of the site. The Meridian Campus storm pond has been sized to accommodate storm water runoff from the surrounding area and developments.

- 2) Could waste materials enter ground or surface waters? If so, generally describe. [\[help\]](#)

There is always a possibility that waste material could enter ground or surface waters, but good contractor operating procedures and enforced BMPs should prevent it from happening.

- 3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.

No, the system will match the existing drainage patterns.

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any:

On-site and off-site will be directed to Meridian Campus storm pond and will be sized to meet City storm drainage standards if required.

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? [\[help\]](#)

There will be trees removed at the proposed lift station location. The site will be cleared in the construction zone.

- c. List threatened and endangered species known to be on or near the site. [\[help\]](#)

None.

- d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any: [\[help\]](#)

Site will retain significant trees and a landscape plan will be prepared to preserve and enhance existing vegetation.

- e. List all noxious weeds and invasive species known to be on or near the site.

Scotch broom, tansy ragwort, blackberry, and English ivy.

5. Animals

- 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. Examples include: [\[help\]](#)

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. [\[help\]](#)

Bald eagle.

- c. Is the site part of a migration route? If so, explain. [\[help\]](#)

No.

- d. Proposed measures to preserve or enhance wildlife, if any: [\[help\]](#)

A portion of the site will be left in existing and native condition.

- e. List any invasive animal species known to be on or near the site.

None.

6. Energy and natural resources

- a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc. [\[help\]](#)

Existing electric power located in Willamette Drive NE will be used on-site for operation.

- 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: [\[help\]](#)

Efficient pumps and electrical equipment will be used to help reduce energy impacts.

7. Environmental health

- a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal?

If so, describe. [\[help\]](#)

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

None

- 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.

There is no underground hazardous liquid and gas transmission pipelines located within the

project area and in the vicinity.

- 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.

Typical construction chemicals may be on-site during the construction process. (Diesel, paints, cleaning supplies, oil, etc.)

- 4) Describe special emergency services that might be required.

Medical aid and fire service may be required.

- 5) Proposed measures to reduce or control environmental health hazards, if any:

Controlled construction methods will help reduce or control environmental health

b. Noise

- 1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)? [\[help\]](#)

Construction equipment, generator operation, and maintenance activities traffic for concrete trucks and material deliveries.

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

Noise levels will follow City of Lacey Municipal Code 16.57.030 requirements. Short term will be the construction noise. Work hours will be within City limits. After construction, noise will be minimal.

- 3) Proposed measures to reduce or control noise impacts, if any: [\[help\]](#)

Enforce City work hour requirements.

8. Land and shoreline use

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

The property is zoned Open Space Institutional and has the Meridian Campus storm facility located on the parcel. There will be no effect on current land uses.

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

No.

- 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:

No.

- c. Describe any structures on the site. [\[help\]](#).

There are no existing structures on site.

- d. Will any structures be demolished? If so, what? [\[help\]](#).

No.

- e. What is the current zoning classification of the site? [\[help\]](#).

OS-I

- f. What is the current comprehensive plan designation of the site? [\[help\]](#).

Open Space – Institutional

- g. If applicable, what is the current shoreline master program designation of the site? [\[help\]](#).

N/A

- h. Has any part of the site been classified as a critical area by the city or county? If so, specify. [\[help\]](#).

No.

- i. Approximately how many people would reside or work in the completed project? [\[help\]](#)

No people would reside or work in this completed project. City operation & maintenance staff will visit the lift station to perform operation and maintenance tasks.

- j. Approximately how many people would the completed project displace? [\[help\]](#).

None.

- k. Proposed measures to avoid or reduce displacement impacts, if any: [\[help\]](#).

N/A

- L. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any: [\[help\]](#).

Permitting through the City of Lacey would ensure that the proposal is compatible with existing and projected land uses and plans.

- I. Proposed measures to ensure the proposal is compatible with nearby agricultural and forest lands of long-term commercial significance, if any:

N/A

9. Housing

- a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing. [\[help\]](#).

N/A

- b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing. [\[help\]](#).

None.

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

N/A

10.Aesthetics

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

Electrical CMU building will be approximately 12 feet tall with roof structure.

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

None.

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

Existing trees will be maintained to help buffer the lift station.

11.Light and glare

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

There will be an outside light on the site and be seen at night, but the site lights are shielded, and the light is pointed down.

- b. Could light or glare from the finished project be a safety hazard or interfere with views? [\[help\]](#)

No.

- 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: [\[help\]](#)

The onsite lamp will be designed to keep light on-site (the site lights are shielded, and the light is pointed down).

12.Recreation

- a. What designated and informal recreational opportunities are in the immediate vicinity? [\[help\]](#)

N/A

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

N/A

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

N/A

13.Historic and cultural preservation

- 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 located on or near the site? If so, specifically describe. [\[help\]](#)

No.

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

No.

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

City GIS data was evaluated and there is no evidence of potential impacts.

- 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.

N/A

14. Transportation

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

Access to the site will be from the proposed access off Willamette Drive NE.

- 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? [\[help\]](#)

Yes, Willamette Drive NE and Orion Drive NE.

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

One parking stall will be provided.

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

Two driveways onto Willamette Drive NE will be required.

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

No.

- 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? [\[help\]](#)

Limited trips to the site for maintenance will occur. One to two trips per week.

- 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.

No.

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

A traffic control plan will be prepared and approved by the City for construction activities.

15. Public services

- 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 it will match existing.

- b. Proposed measures to reduce or control direct impacts on public services, if any. [help]

N/A

16. Utilities

- a. Circle utilities currently available at the site: [help]

electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other

- b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed. [help]

Electricity Telephone/SCADA Water-City Sewer-City

PSE Centurylink

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: Puna Clarke, P.E.

Name of signee Puna Clarke, P.E.

Position and Agency/Organization Utility Engineer, City of Lacey, Public Works, Water Resources

Date Submitted: 12-23-2020

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?

During construction, there will be release of some storm water and emissions to the air along with construction equipment noise. After construction, there will only be some noise during lift station maintenance activities and operation.

Proposed measures to avoid or reduce such increases are:

Restrictions during construction of the contractor will help mitigate some of the emissions and discharge of stormwater.

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

Construction of the facility will affect some of the plants and trees on-site.

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

Landscape plans will be prepared to mitigation impacts to the surrounding area. Buffers have been provided and will be protected during on-site activities.

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

N/A

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

N/A

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?

None

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

N/A

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?

No affect.

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

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

No demand increase.

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

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

No conflicts.



LIFT STATION 19 REHABILITATION DRAINAGE REPORT

Prepared for City of Lacey

December 2020

LAC 516.081



Prepared by:

RH2 Engineering, Inc.

1201 Pacific Avenue, Suite 1750

Tacoma, WA 98402

1.800.720.8052 / rh2.com

City of Lacey

Lift Station 19 Rehabilitation

December 2020

Prepared by RH2 Engineering, Inc.

Prepared for City of Lacey

Note: This Drainage Report was completed under the direct supervision of the following Licensed Professional Engineers registered in the State of Washington.

Sincerely,

RH2 ENGINEERING, INC.



Signed: mm/dd/yyyy



Signed: mm/dd/yyyy



Signed: mm/dd/yyyy

City of Lacey

Lift Station 19 Rehabilitation

Table of Contents

Section 1 – Proposed Project Description	1
Core Requirement No. 1: Preparation of Stormwater Site Plans	2
Core Requirement No. 2: Construction Stormwater Pollution Prevention	3
Core Requirement No. 3: Source Control of Pollution	3
Core Requirement No. 4: Preservation of Natural Drainage Systems and Outfalls	3
Core Requirement No. 5: On-Site Stormwater Management	3
Core Requirement No. 6: Runoff Treatment	3
Core Requirement No. 7: Flow Control	4
Core Requirement No. 8: Wetlands Protection	4
Core Requirement No. 9: Operation and Maintenance	4
Section 2 – Existing Conditions Description	4
Section 3 – Vicinity Analysis and Sub-Basin Description	4
Section 4 – Flow Control and Water Quality Facility Sizing	6
Proposed Flow Control	6
Section 5 – Aesthetic Considerations for Facilities	6
Section 6 – Conveyance System Analysis and Design	7
Section 7 – Covenants, Dedications, and Easements	7
Section 8 – Agreements and Guarantees	7
Section 9 – Other Permits or Conditions Placed on the Project	7

Tables

Table 1 – Existing and Proposed Site Surfacing

Table 2 – Predeveloped and Mitigated Flow

Figures

Figure 1 – Flow Chart for Determining Core Requirements

Figure 2 – Sub-Basin Site

City of Lacey
LIFT STATION NO. 19 REHABILITATION
Table of Contents

Attachments

Attachment No. 1 – Site Development Drawings

Attachment No. 2 – Construction SWPPP

Attachment No. 3 – Soils Report

Appendices

Appendix A – Calculations

City of Lacey

Lift Station 19 Rehabilitation

Drainage Report

Section 1 – Proposed Project Description

The City of Lacey (City) is proposing to replace its existing Lift Station 19. The proposed project will add a concrete masonry unit (CMU) electrical building, generator, wet well, valve and meter vault, asphalt driveway, and concrete pads/hot mix asphalt to access the site. The proposed overall surfacing for the site is 0.181 acres of impervious surfacing. The existing bike path containing 0.03 acres of impervious area will be removed and replaced in kind.

This project will be required to comply with the City's 2016 *Stormwater Design Manual* (SDM). This project also will require a Conditional Use Permit (CUP), Critical Areas Review, State Environmental Policy Act (SEPA), Clearing and Grading Permit, and Building Permit.

The existing site easement is located on the southern border of Parcel No. 42080000000 near the intersection of Willamette Drive NE and Borealis Court NE. The site consists of 1,100 square feet (SF) of a concrete bike path, and various types of vegetation, consisting of mostly coniferous trees.

Table 1 summarizes the existing and proposed site surfacing.

Table 1. Existing and Proposed Site Surfacing

		Surface Type	Area (AC)	Soil Group	Total Area (AC)
Existing Conditions	Impervious Surface	Bike Path	0.025	x	0.025
	Pervious Surface	Forest/Grass	0.361	A	0.361
Proposed Conditions	Impervious Surface	Bike Path	0.025	x	0.181
		Driveway/Access	0.147	x	
		Rooftop	0.009	x	
	Pervious Surface	Grass, Landscaping	0.205	A	0.205

AC = acre

Figure 1 shows the project route through the Flow Chart for Determining Requirements for New Development from the City's SDM.

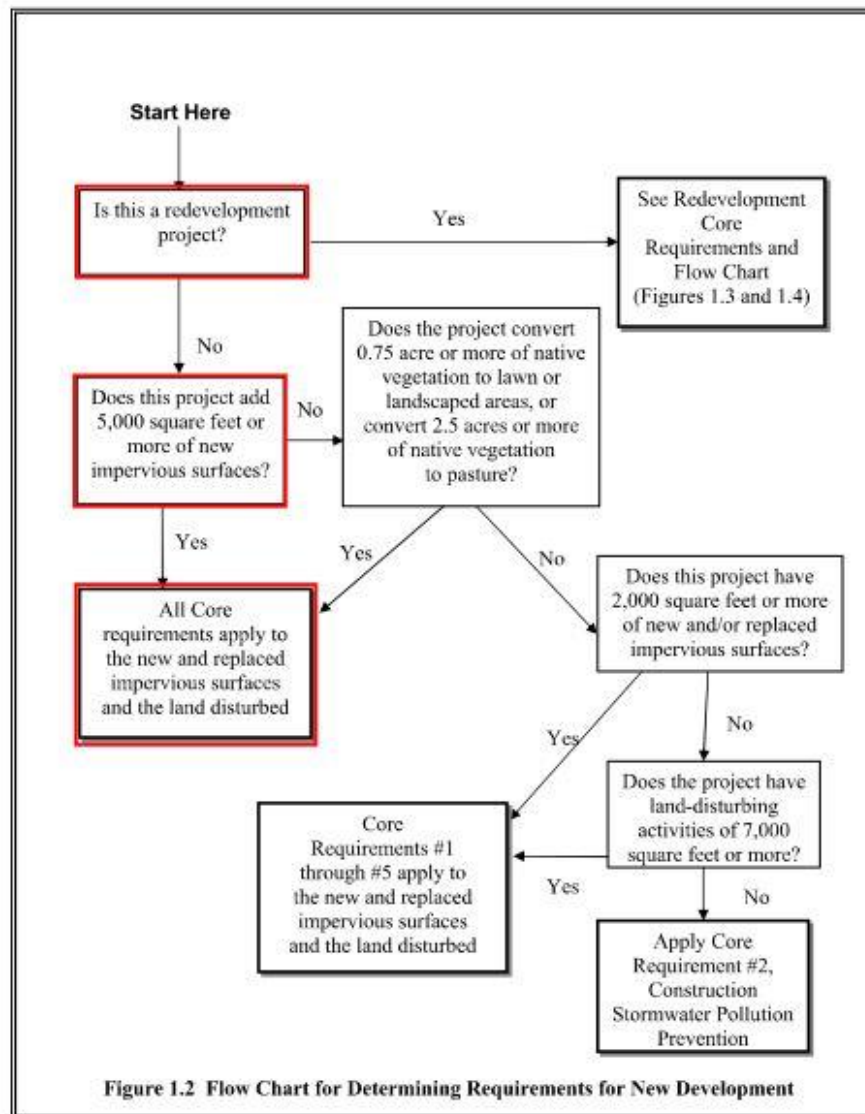


Figure 1

Flow Chart for Determining Core Requirements

Core Requirements Nos. 1 through 9 of the SDM apply to the new and replaced hard surfaces. All core requirements are addressed by the project plans or this Drainage Report. The core requirements will be met as follows.

Core Requirement No. 1: Preparation of Stormwater Site Plans

The site development drawings located in **Attachment No. 1 – Site Development Drawings** of this Drainage Report were created to meet the requirements of the Stormwater Site Plan.

Core Requirement No. 2: Construction Stormwater Pollution Prevention

A Construction Stormwater Pollution Prevention Plan (SWPPP) is included in this Drainage Report as **Attachment No. 2 – Construction SWPPP**.

Core Requirement No. 3: Source Control of Pollution

No sources of pollution have been identified for this project; therefore, a Maintenance and Source Control Manual will not be included in this report.

Core Requirement No. 4: Preservation of Natural Drainage Systems and Outfalls

Existing natural drainage systems and outfalls will be preserved to the maximum extent possible. The existing drainage system identified in the downstream analysis will be preserved during construction as described in the SWPPP.

Core Requirement No. 5: On-Site Stormwater Management

This project will provide on-site stormwater management implementing Best Management Practices (BMPs) from List No. 2 in the SDM. For lawn and landscaped areas, BMP T5.13 – Post Construction Soil Quality and Depth will be provided. For the proposed hard surfaces, stormwater will be routed through proposed landscaping on site and existing vegetation offsite providing Full Dispersion per Washington State Department of Ecology BMP T5.30.

Core Requirement No. 6: Runoff Treatment

This project will not technically be constructing pollution-generating impervious surfaces or pollution-generating pervious surfaces.

The proposed access to and around the proposed lift station will not be subject to “vehicular use.” The definition of “vehicular use” according to the SDM is:

A surface, whether paved or not, shall be considered subject to vehicular use if it is regularly used by motor vehicles...the following are not considered regularly-used surfaces: paved bicycle pathways separated from and not subject to drainage from roads for motor vehicles, restricted access fire lanes, and *infrequently used maintenance access roads* [emphasis added].

The proposed driveway and access around the lift station will be used infrequently and will not be subject to regular vehicular use. Since these surfaces are not subject to vehicular use, they are not considered “pollution-generating impervious surfaces” by definition in the SDM.

Because no pollution generating surfaces are proposed, this project is exempt from runoff treatment requirements.

Core Requirement No. 7: Flow Control

Flow control will be provided by the existing off-site Meridian Campus pond. The existing pond is located to the northwest off the project site.

Core Requirement No. 8: Wetlands Protection

There are no wetlands existing onsite or downstream of the site within downstream analysis. Wetlands protection does not apply to this project.

Core Requirement No. 9: Operation and Maintenance

No formal stormwater facilities exist onsite or are proposed as part of this project. The Meridian Campus pond is existing and has established maintenance protocols already. No operation and maintenance procedures are included in this report.

Section 2 – Existing Conditions Description

The City-owned property is comprised of one parcel with a total land area of 41.7 acres north of the intersection of Willamette Drive NE and Borealis Court NE. The Project Site (site), as defined by the SDM, is the portion of the property that is subject to land disturbing activities, and for this project consists of 0.386 acres on the south side of the City owned property. The existing groundcover on the project site consists of 0.025 acres of hard surfacing due to an existing bike path. None of the hard surface is pollution generating. The project site's pervious surfacing consists of approximately 0.361 acres of forested vegetation.

The existing site is generally flat with a gentle slope from the southeast to the northwest towards the Meridian Campus pond.

No visible runoff has been observed entering the project site from off site. No wetlands are present on the project site. Stormwater runoff from the existing site is naturally collected by the Meridian Campus pond.

There are no historical flooding or erosion problems onsite or downstream of the site. The local area and adjacent properties are served by sewer systems in the public right-of-way. There are no City specific basin plans for this area.

Section 3 – Vicinity Analysis and Sub-Basin Description

The vicinity analysis and sub-basin as described in the SDM must include the project site, the downstream area up to ½-mile downstream of the site, and all area upstream of the site that is affected by the backwater effect of the runoff from the site. The site's existing ground cover consists of various vegetation and a small bike path. No off-site drainage onto the site was observed. There is a moderate slope just outside of the easement area to the northwest, running down towards the Meridian Campus pond. The project is in a Category I Critical Aquifer Recharge Area according to Figure 8B.2 in the City's 2016 SDM. No existing drains, channels, or

swales currently exist in the site's extents. Based on an examination of site topography, the main point of exit for existing drainage is the northwest portion of the site leading to the Meridian Campus pond. The sub-basin for this analysis consists of the project site and adjacent area as shown in **Figure 2**.

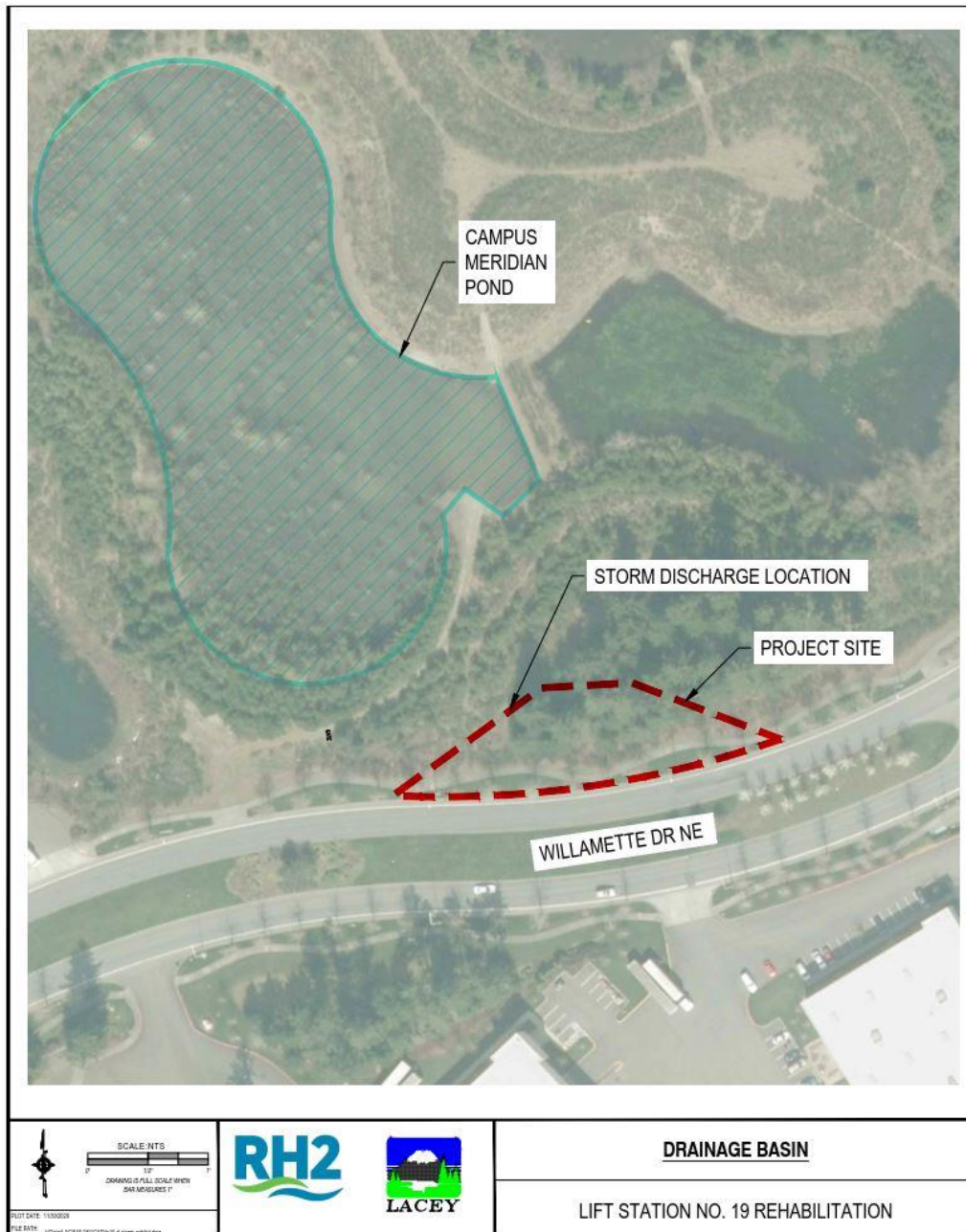


Figure 2
Sub-Basin Site

Section 4 – Flow Control and Water Quality Facility Sizing

For the proposed hard surfaces, the design intent is to direct runoff to the existing Meridian Campus pond offsite.

Proposed Flow Control

The new hard surfaces of 0.181 acres normally would be subject to Core Requirement No. 7 – Flow Control. However, full dispersion into native vegetation will be used to route runoff. The site design will meet the requirements of Section 7.4.2 Dispersion Facilities of the SDM in the design, which allows impervious areas to be modeled as lawn. The proposed hard surfaces will provide additional flow to the Meridian Campus pond, although flow will be minimal. Based on results from the Western Washington Hydrology Model (WWHM), the amount of flow added for a 100-year event is 0.157 cubic feet per second (cfs) using 15-minute timesteps.

The project will leave 65 percent of the project parcel undisturbed. Less than 10 percent of the parcel will be proposed hard surfaces. The flow path for runoff will be in the northwest corner of the site heading down the hill towards the Meridian Campus pond. This provides approximately 100 feet of flow path for stormwater through native vegetation. There may be some areas within the flow path that exceed 15-percent slope for any 20-foot reach; however, this is mitigated with the installation of a flow dispersion trench upstream of the flow.

Table 2 summarizes the additional flow during 2-, 5-, 10-, 25-, 50-, and 100-year storm events.

Table 2. Predeveloped and Mitigated Flow

Return Period	Predeveloped Flow (cfs)	Mitigated Flow (cfs)	Additional Flow (cfs)
2-year	0.0098	0.0169	0.0071
5-year	0.0144	0.0338	0.0194
10-year	0.0182	0.0510	0.0328
25-year	0.0240	0.0827	0.0587
50-year	0.0290	0.1156	0.0866
100-year	0.0349	0.1588	0.1239

The project will be adding less than 10,000 sf of impervious area within the threshold discharge area and will not result in an increase in the 100-year recurrence interval flow by more than 0.15 cfs using 15-minute timesteps. Therefore, this project does not contain any of the thresholds that trigger formal flow control facilities.

Section 5 – Aesthetic Considerations for Facilities

There are no stormwater facilities proposed for this site.

Section 6 – Conveyance System Analysis and Design

The project proposes 0.181 acres of impervious area, including the driveway and concrete slabs poured for site access. These surfaces will utilize full dispersion into native vegetation toward the Meridian Campus pond offsite. Therefore, there is no proposed conveyance system.

Section 7 – Covenants, Dedications, and Easements

No stormwater facilities are proposed onsite. The proposed drainage flow path is located on City property and will be maintained by City staff. No legal instruments are needed to guarantee preservation of drainage systems and access to and maintenance of the stormwater elements.

Section 8 – Agreements and Guarantees

No agreements or guarantees with the City are needed for this project as the City owns, operates, and maintains the site.

Section 9 – Other Permits or Conditions Placed on the Project

In addition to approval of the stormwater site plan, this project will require Site Plan review, SEPA review, Critical Areas review, CUP, and a Building Permit. Preparation of all required permits are in progress and will be submitted to the City on or before the 90-percent design benchmark.

Attachments

Attachment No. 1

Site Development Drawings

CITY OF LACEY

LIFT STATION 19 REHABILITATION

60% REVIEW
DRAWINGS

LACEY CONTRACT NO. XXX-XX
LACEY DRAWING NO. X-XX-XX
SUMMER 2020
VOLUME 1 OF 1

CITY OF LACEY OFFICIALS

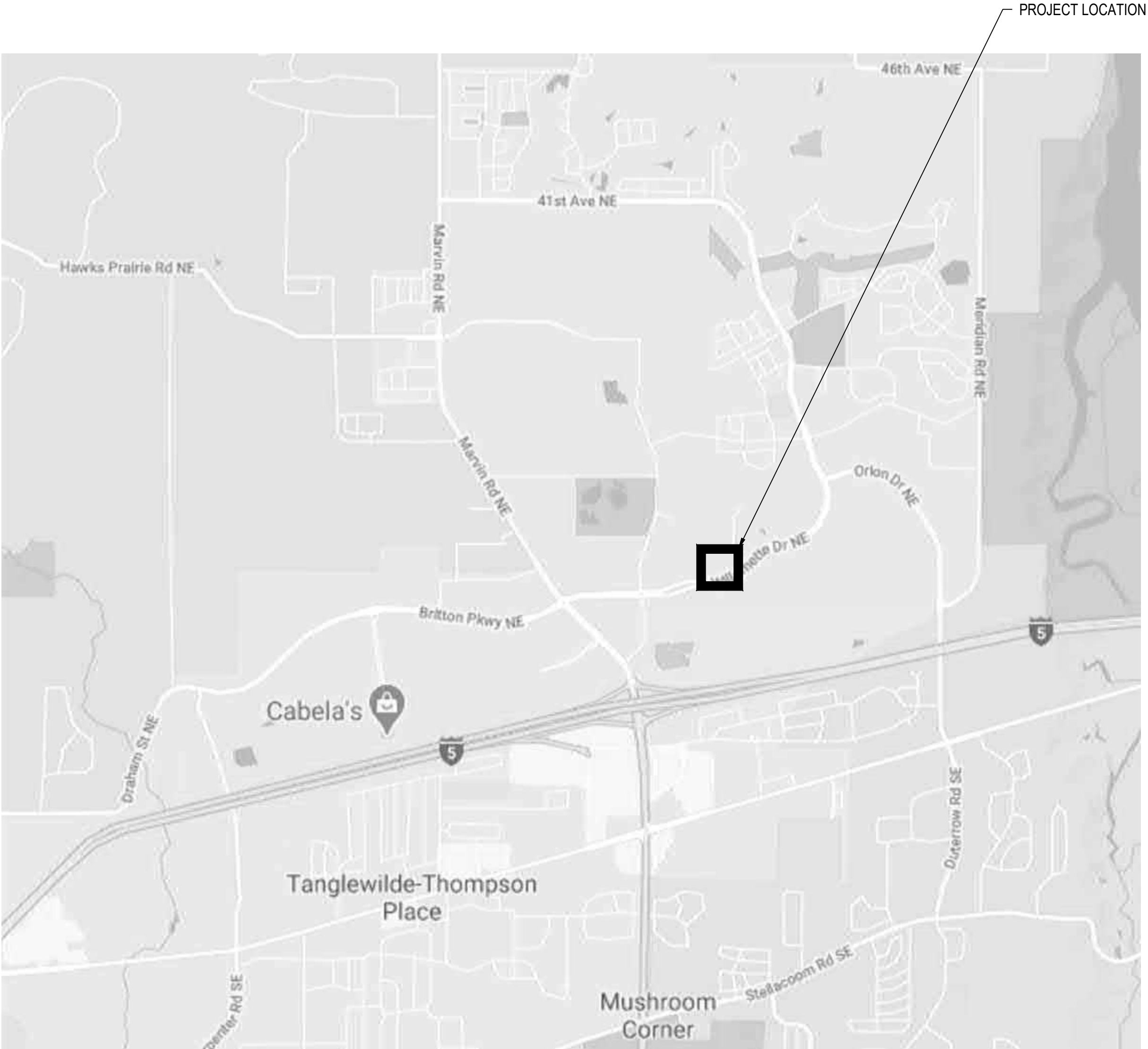
MAYOR:	ANDY RYDER
DEPUTY MAYOR:	CYNTHIA PRATT
CITY MANAGER:	SCOTT SPENCE
PUBLIC WORKS DIRECTOR:	SCOTT EGGER, P.E.
CITY ATTORNEY:	DAVID SCHNEIDER
CITY ENGINEER:	ROGER SCHOESSEL, P.E.
CITY COUNCIL:	
LENNY GREENSTEIN	
MICHAEL STEADMAN	
CAROLYN COX	
ED KUNKEL	
MALCOLM MILLER	

DATE: _____
DIRECTOR OF PUBLIC WORKS

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

REPORT ALL SPILLS
DEPT. OF ECOLOGY 1-800-258-5990

SURVEY VERTICAL DATUM
NGVD 29 - CITY OF LACEY BM#847
WESTERLY CAP BOLT ON HYDRANT ON SOUTH SIDE OF MARTIN WAY EAST IN FRONT OF HAWKS
PRAIRIE MINI STORAGE
ELEV =205.114



VICINITY MAP
NTS

SHEET INDEX

SHEET NO.	DESCRIPTION	DWG NO.
-	COVER	COV
01	GENERAL NOTES	G01
02	EXISTING SITE PLAN	C01
03	DEMOLITION AND TESC PLAN	C02
04	OVERALL SITE AND UTILITY PLAN	C03
05	PROPOSED GRADING AND PAVING PLAN	C04
06	PROPOSED LIFT STATION SITE PLAN	C05
07	PROPOSED OFF-SITE SEWER PLAN AND PROFILE	C06
08	SITE DETAILS	D01
09	STANDARD DETAILS 1	D02
10	STANDARD DETAILS 2	D03
11	STANDARD DETAILS 3	D04
12	STANDARD DETAILS 4	D05
13	STANDARD DETAILS 5	D06
14	TRAFFIC CONTROL PLAN	TC01
15	BUILDING ARCHITECTURAL ELEVATIONS	A01
16	BUILDING STRUCTURAL PLAN AND SECTION	S01
17	BUILDING STRUCTURAL DETAILS I	S02
18	BUILDING STRUCTURAL DETAILS II	S03
19	STRUCTURAL PLAN AND ELEVATION	S04
20	MECHANICAL PLAN AND ELEVATION	M01
21	MECHANICAL DETAILS	M02
22	WIRING SYMBOLS AND REQUIREMENTS	E01
23	CONTROL SYSTEMS MANUFACTURE CONSTRUCTION DETAILS	E02
24	ONE-LINE, INPUT, AND ANALOG WIRING DIAGRAM	E03
25	120 VOLT CONTROL AND OUTPUT AND MAGNETIC STARTER WIRING DIAGRAM	E04
26	ISOLATION PEDESTAL CONSTRUCTION DETAIL	E05
27	FIELD ELECTRICIAN CONSTRUCTION DETAILS	E06
28	CONTROL WIRING OPTIONS AND ELECTRICAL DETAILS	E07
29	LOAD TABLES AND CONDUIT SCHEDULE	E08
30	ELECTRICAL SITE PLAN	E09
31	POWER DISTRIBUTION AND SIGNAL PLAN	E10
32	LIGHTING AND RECEPTACLE PLAN	E11
33	MOTOR CONTROL CENTER DETAILS	E12
34	CONTROL LOGIC DIAGRAM	E13
35	GENERATOR DETAILS	E14
36	APPROVED MATERIALS 1	E15
37	APPROVED MATERIALS 2	E16
38	APPROVED MATERIALS 3	E17
39	APPROVED MATERIALS 4	E18
40	APPROVED MATERIALS 5	E19
41	APPROVED MATERIALS 6	E20
42	APPROVED MATERIALS 7	E21
43	APPROVED MATERIALS 8	E22
44	APPROVED MATERIALS 9	E23
45	APPROVED MATERIALS 10	E24
46	PHENOLIC LEGENDS AND VINYL LABELS 1	E25
47	PHENOLIC LEGENDS AND VINYL LABELS 2	E26
48	PHENOLIC LEGENDS AND VINYL LABELS 3	E27



GENERAL CONSTRUCTION NOTES	
ADDRESSES LIFT STATION 19 PROJECT SITE: 2659 WILLAMETTE DRIVE NE LACEY, WA 98516 CRITERIA 1) CONSTRUCTION OF SITE, ROAD, AND UTILITY IMPROVEMENTS SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION, LATEST EDITION, AS ISSUED BY THE WA. STATE DEPT. OF TRANSPORTATION AND THE AMERICAN PUBLIC WORKS ASSOC. AND CURRENT AWWA SPECIFICATIONS. 2) ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS, THE CITY OF LACEY DEVELOPMENT GUIDELINES AND PUBLIC WORKS STANDARDS AND ALL PERMITTING CONDITIONS OF APPROVAL. GENERAL CONSTRUCTION 1) A COPY OF THE APPROVED PLANS AND SPECIFICATIONS MUST BE ON-SITE WHENEVER CONSTRUCTION IS IN PROGRESS. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY OTHER REQUIRED OR RELATED PERMITS, THAT HAVE NOT BEEN PROVIDED, PRIOR TO BEGINNING CONSTRUCTION. 2) IN THE EVENT THAT STANDARD CONSTRUCTION NOTES ARE FOUND TO BE IN CONFLICT WITH PROJECT SPECIFIC NOTES, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY. WHERE CONFLICTS ARISE, THE CONTRACTOR SHALL ASSUME THAT THE MORE RESTRICTIVE CONDITION SHALL APPLY. GENERAL NOTES 1) THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE SAFEGUARDS, SAFETY DEVICES, PROTECTIVE EQUIPMENT, FLAGGERS, AND ANY OTHER NEEDED ACTIONS TO PROTECT THE LIFE, HEALTH, AND SAFETY OF THE PUBLIC, AND TO PROTECT PROPERTY IN CONNECTION WITH THE PERFORMANCE OF WORK COVERED BY THE CONTRACTOR. 2) CONTRACTOR INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION. 3) A PRE-CONSTRUCTION CONFERENCE SHALL BE HELD PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE 48 HOUR ADVANCE NOTIFICATION TO THE OWNER, ENGINEER AND ALL AFFECTED UTILITY COMPANIES PRIOR TO ACTUAL START OF WORK. 4) THE CITY WILL PROVIDE SURVEYING SERVICES AND STAKING FOR CONSTRUCTION. THE CONTRACTOR SHALL REQUEST ALL SURVEYING A MINIMUM OF 3 WORKING DAYS IN ADVANCE OF CONSTRUCTION. CONTRACTOR TO FURNISH ALL MATERIALS. 5) CONTRACTOR SHALL COORDINATE WITH CITY FOR ACCESS TO THE SITE PRIOR TO THE START OF CONSTRUCTION. SITE & TESC 1) PARKING AND STORAGE OF ALL MATERIALS AND EQUIPMENT IS TO BE CONFINED WITHIN THE CONSTRUCTION LIMITS AS DEFINED ON THE PLANS. IF PARKING OR STORAGE IS NEEDED OUTSIDE THE DEFINED CONSTRUCTION LIMITS, THE CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION FROM THE OWNER AND/OR ADJACENT PROPERTY OWNERS. 2) DO NOT DISTURB OUTSIDE OF CONSTRUCTION LIMITS AS DEFINED ON THE PLANS, UNLESS NOTED OTHERWISE FOR PROPOSED IMPROVEMENTS. MAINTAIN INTEGRITY AND SECURITY OF EXISTING SITE FENCE AND GATES TO DISCOURAGE SITE ACCESS BY UNAUTHORIZED PERSONNEL. 3) CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO EXISTING OR BETTER CONDITION UNLESS OTHERWISE STATED ON THE PLANS. 4) ALL VEHICLES ARE TO BE CLEANED OF ALL EXCESS CONCRETE AND DIRT PRIOR TO LEAVING THE SITE. PROTECT THE PROPERTY OUTSIDE OF THE DEFINED CONSTRUCTION LIMITS FROM SEDIMENT TRANSPORT DURING CONSTRUCTION. ANY CLEANUP SHALL BE SOLELY AT THE CONTRACTOR'S EXPENSE AND BE COMPLETED TO THE SATISFACTION OF THE OWNER.	SITE & TESC CONTINUED 5) THE CONTRACTOR SHALL CLEANUP ALL AREAS AFFECTED BY HIS ACTIVITIES TO THE SATISFACTION OF THE OWNER BY THE END OF EACH WORKING DAY OR MORE FREQUENTLY IF REQUIRED BY THE OWNER. THIS INCLUDES REMOVAL OF ALL DUST, MUD, ROCKS, ASPHALT DEBRIS, AND REFUSE FROM STREETS, SIDEWALKS, DRIVEWAYS, AND ANY OTHER AREAS AFFECTED BY THE CONSTRUCTION ACTIVITIES. FAILURE TO CLEANUP TO THE SATISFACTION OF THE OWNER WILL NECESSITATE A SHUTDOWN OF THE PROJECT UNTIL CLEANUP IS PROPERLY PERFORMED. DAILY CLEANUP IS AN INTEGRAL PART OF EROSION AND POLLUTION CONTROL. 6) THE CONTRACTOR IS RESPONSIBLE FOR MEETING ALL REQUIREMENTS FOR OFF SITE DISPOSAL INCLUDING ONLY DISPOSING OF WASTE MATERIAL AT SITES APPROVED BY THE CITY AND/OR COUNTY. 7) AT THE END OF EACH WORKING WEEK, THE OWNER WILL INSPECT ALL TEMPORARY RESTORATION. IF THE TEMPORARY RESTORATION DOES NOT PROVIDE AN ADEQUATE DRIVING SURFACE, AS DETERMINED BY THE OWNER, THEN THE CONTRACTOR SHALL <u>IMMEDIATELY</u> PROCEED WITH THE PERMANENT RESTORATION AS DESCRIBED IN THE SPECIFICATIONS. 8) FOR WET SEASON WORK, ALL WORKING SURFACES SHOULD BE COVERED WITH CSBC OR SHOULDER BALLAST TO PROTECT THE NATIVE IN-SITU SOILS FROM BECOMING LOOSE AND DISTURBED. 9) THE CONTRACTOR SHOULD BE DILIGENT IN THE IMPLEMENTATION AND MAINTENANCE OF BEST MANAGEMENT PRACTICES FOR TEMPORARY EROSION AND SEDIMENTATION CONTROL TO ENSURE THAT EROSION ON THE SITE DOES NOT OCCUR AND THAT WATER DOES NOT ACCUMULATE ON THE FLOOR OF THE EXCAVATION. MEASURES TO CONTROL THE QUALITY AND QUANTITY OF STORMWATER COMING FROM THE SITE, SUCH AS SILT FENCES AND OTHER TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES, SHOULD BE IN PLACE BEFORE CONSTRUCTION BEGINS TO ENSURE THE PROTECTION OF WATER QUALITY. UTILITIES 1) UTILITY LOCATIONS SHOWN HEREON ARE BASED UPON PREVIOUS PROJECT SURVEY DATA AND PREVIOUS PROJECT ASBUILT CONSTRUCTION RECORDS. NO SUB-SURFACE EXPLORATION WAS MADE TO VERIFY UTILITY LOCATIONS AND ROUTING. LOCATIONS AND ROUTING OF ALL BURIED UTILITIES IN AREAS CRITICAL TO CONSTRUCTION SHALL BE EXPOSED. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION, ELEVATION AND SIZE OF EXISTING UTILITIES PRIOR TO CONSTRUCTION OF ANY PROPOSED BURIED UTILITIES. CALL 1-800-424-5555 48 HOURS BEFORE CONSTRUCTION FOR UTILITY LOCATIONS. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING PIPE TYPES AND SIZES AS NECESSARY FOR PROPOSED IMPROVEMENTS. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND/OR THE UTILITY COMPANY WHEN A CONFLICT OCCURS OR WHEN A CONFLICT IS ANTICIPATED. 2) ALL TRENCHING SHALL BE PERFORMED IN ACCORDANCE WITH OSHA AND WISHA STANDARDS. 3) THE CONTRACTOR SHALL NOTIFY THE CITY OF LACEY AND THE FRANCHISE OFFICIAL(S), A MINIMUM OF 72 HOURS IN ADVANCE OF ANY PLANNED DISRUPTION TO UTILITIES INCLUDING, BUT NOT LIMITED TO WATER, SEWER, STORM, NATURAL GAS, IRRIGATION, TELEPHONE, POWER, CABLE AND FIBER OPTICS. THE CONTRACTOR SHALL NOT OPERATE EXISTING UTILITY EQUIPMENT (VALVES, SWITCHES, ETC.) AND SHALL COORDINATE TO HAVE THE CITY OR FRANCHISE OFFICIAL(S) OPERATE THE EQUIPMENT. 4) ALL UTILITY CONSTRUCTION SHALL COMPLY WITH THE CITY OF LACEY AND UTILITY FRANCHISE STANDARDS. 5) THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING EXISTING UTILITIES AND STRUCTURES AND SHALL PROVIDE SHORING AND SUPPORT AS NECESSARY.

LEGEND			
	WATER PIPING		WATER GATE VALVE
	SANITARY SEWER PIPING		WATER METER
	EASEMENT		FIRE HYDRANT (2 PORT)
	PROPERTY LINE		WATER MANHOLE
	UNDERGROUND POWER		WATER WELL
	UNDERGROUND TELEPHONE		WATER SAMPLING STATION
	NATURAL GAS		SANITARY SEWER MANHOLE
	FENCE		SANITARY SEWER CLEANOUT
	RIGHT OF WAY LINE		SANITARY SEWER VALVE
	STORM DRAIN PIPE		STORM DRAIN MANHOLE
	TOP OF SLOPE		STORM CATCH BASIN
	TOE OF SLOPE		POWER METER
	DITCH		JUNCTION BOX (TYPE 1, 2)
	STORM DRAIN CULVERT		TELEPHONE PEDESTAL
	TOPO FLOWLINE		STREET LIGHT ASSEMBLY
	EDGE OF ASPHALT		NATURAL GAS VALVE
			BOLLARD
			TEST PIT
			FENCE POST
			TREE (CONIFER)
			TREE (DECIDUOUS)
			BRUSH
			STUMP
			QUARTER CORNER
			SECTION CORNER

DWG NO.: G01	SHEET NO.: 01
-----------------	------------------



EXISTING SITE PLAN
1" = 20'





CITY OF LACEY

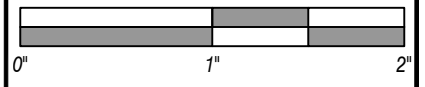
LACEY

LIFT STATION 19 REHABILITATION

EXISTING SITE PLAN

ENGINEER: PJJ	DATE: Nov 4, 2020	CLIENT: LAC	LOG NO.: 516-081
REVIEWED: DJM	DATE: Nov 19, 2020	FILENAME: LS19-CQ101.DWG	
REVISIONS			
60% REVIEW DRAWINGS			
NO.	DATE	DESCRIPTION	BY
			REVIEW

SCALE: SHOWN

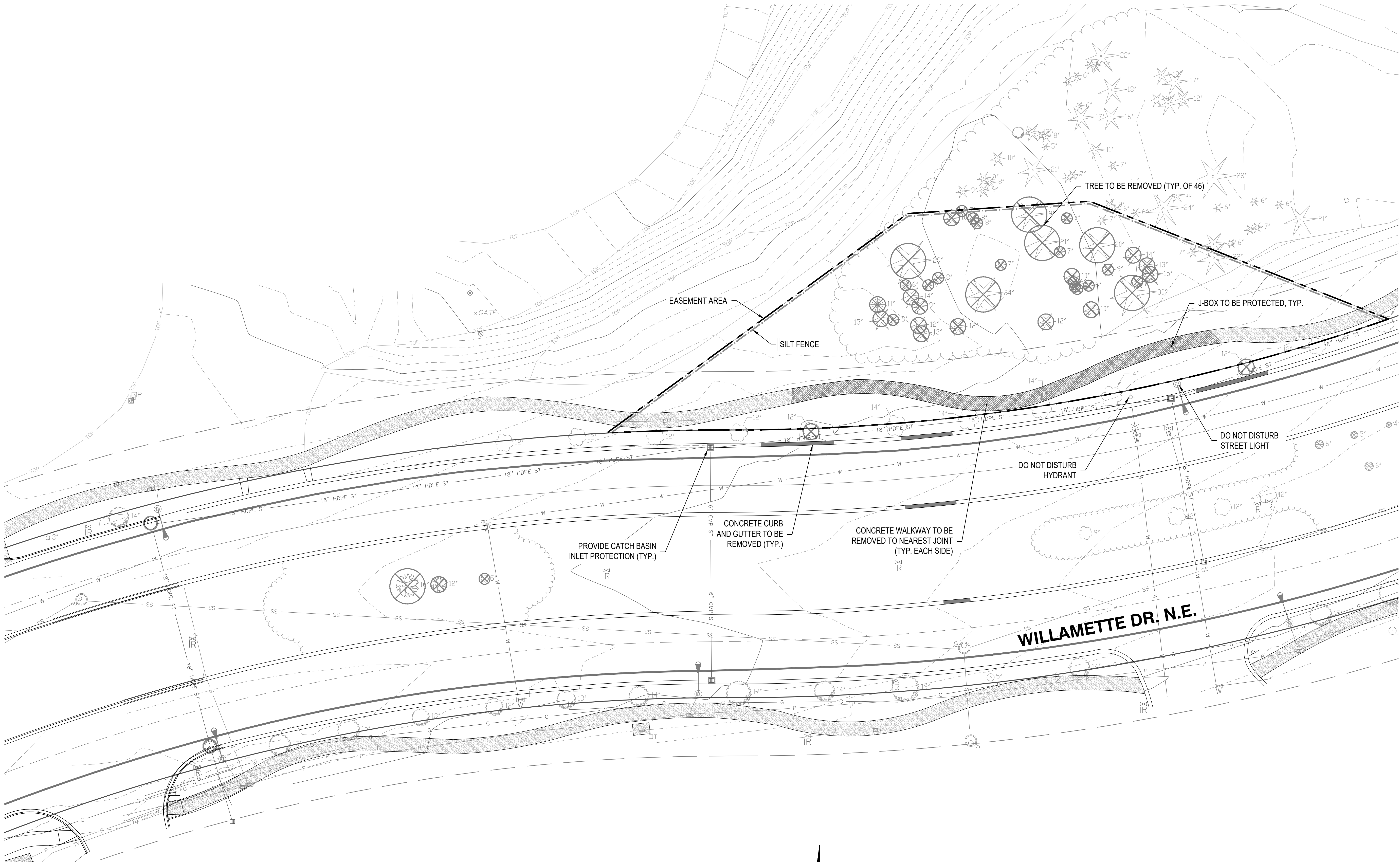


DRAWING IS FULL SCALE WHEN BAR MEASURES 2'

DWG NO.: C01

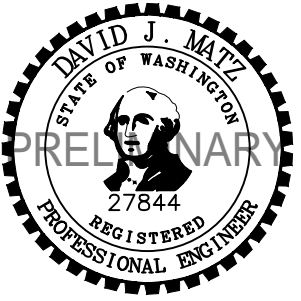
SHEET NO.: 02

48



DEMOLITION AND TESC PLAN

1" = 20'

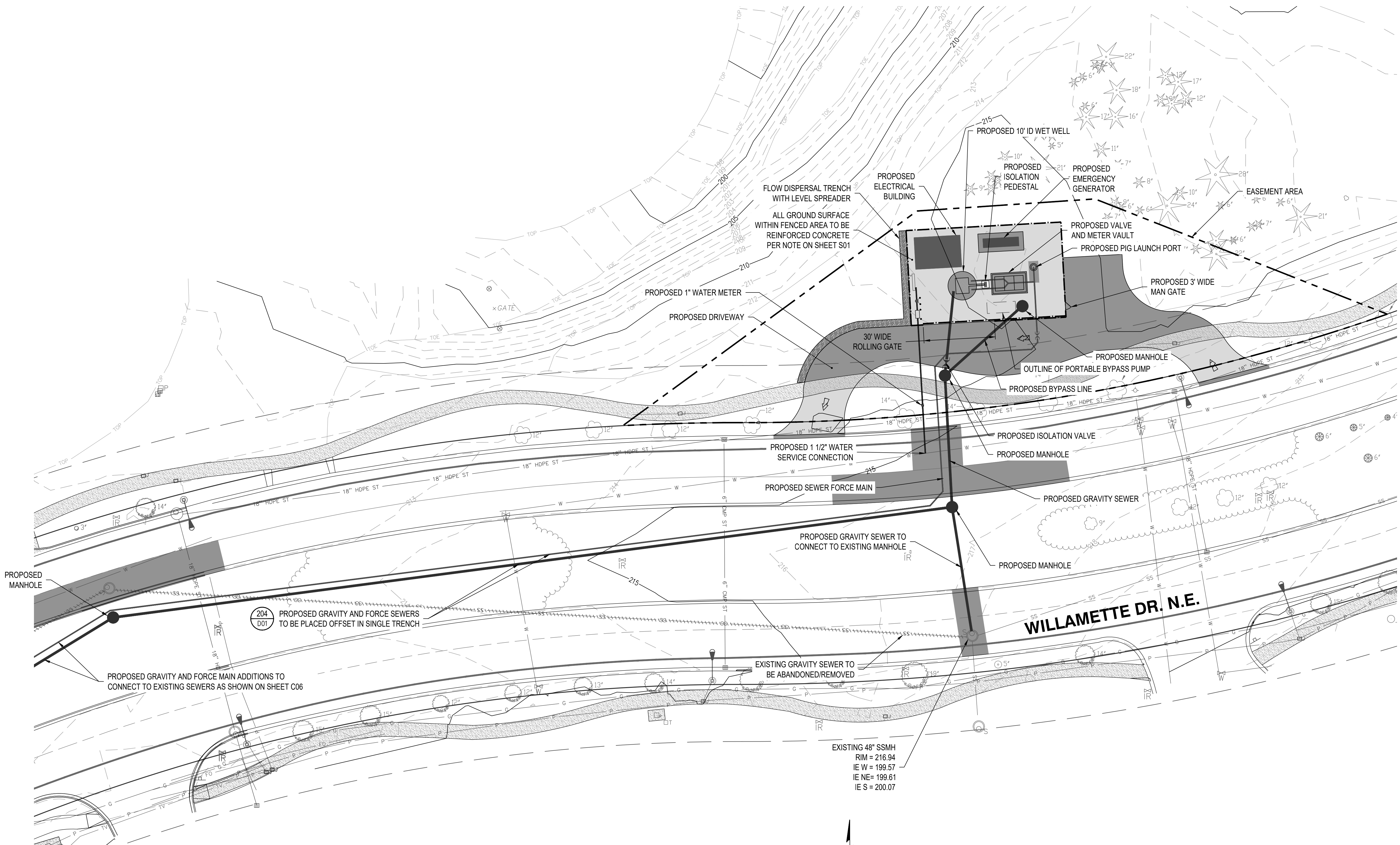


CITY OF LACEY
LIFT STATION 19 REHABILITATION

DEMOLITION AND TESC PLAN

NO.	DATE	DESCRIPTION	BY	REVIEW
REVISIONS				
60% REVIEW DRAWINGS				

ENGINEER: PJJ	DATE: Nov 11, 2020	CLIENT: LAC	LOG NO.: 516-081
REVIEWED: DJM	DATE: Nov 19, 2020	FILENAME: LS19-D-CIV02.DWG	
DWG NO.: C02	SHEET NO.: 03	48	



OVERALL SITE AND UTILITY PLAN
1" = 20'



CITY OF LACEY

LIFT STATION 19 REHABILITATION

OVERALL SITE AND UTILITY PLAN

ENGINEER: PJJ	DATE: Dec 2, 2020	CLIENT: LAC	LOG NO.: 516-081
REVIEWED: DJM	DATE: Dec 2, 2020	FILENAME: LS19-02-CIV03.DWG	
REVISIONS			
		60% REVIEW	
		DRAWINGS	
NO.	DATE	DESCRIPTION	BY
			REVIEW

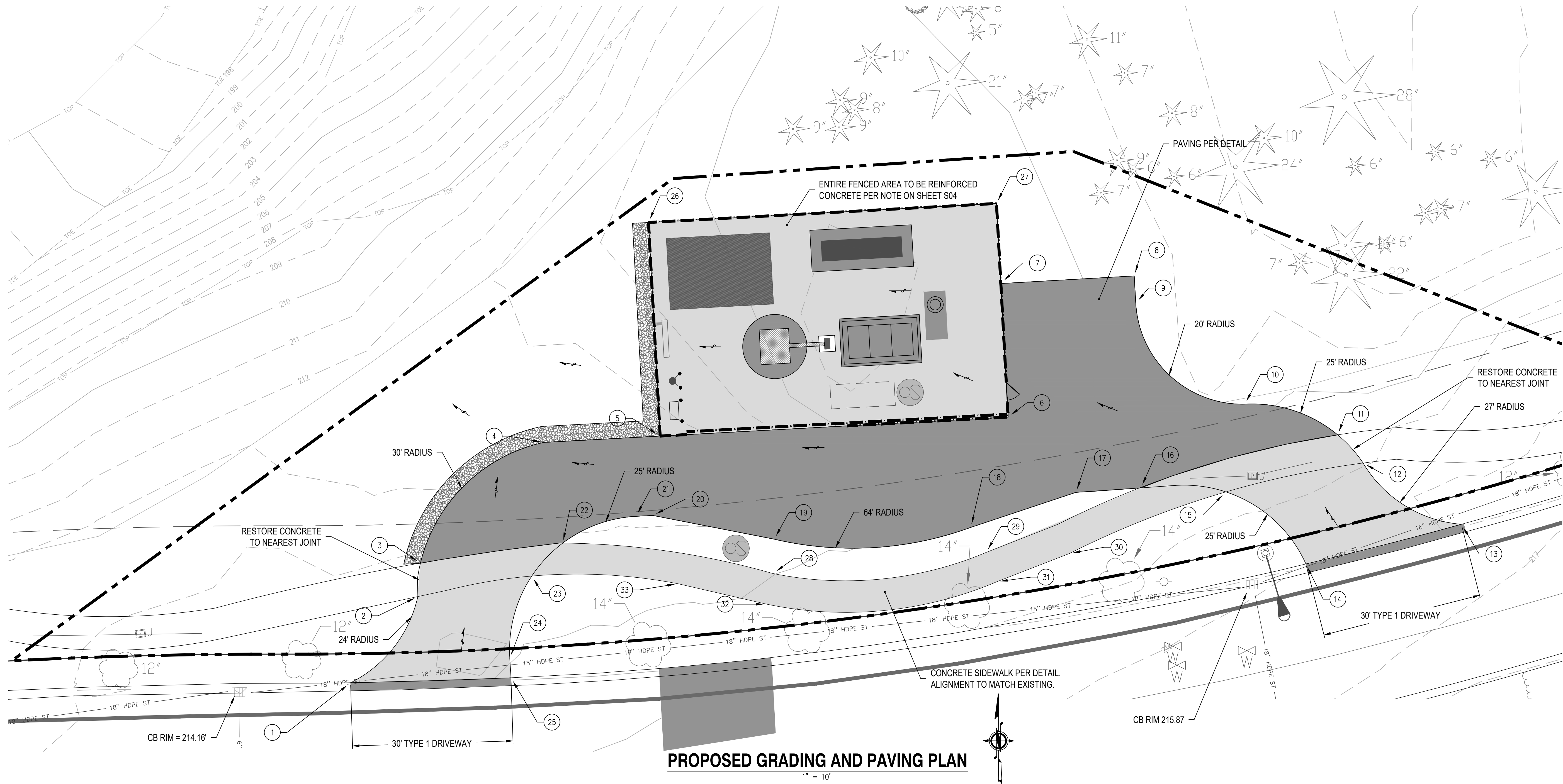
SCALE: SHOWN

DRAWING IS FULL SCALE WHEN BAR MEASURES 2'

DWG NO.: C03

SHEET NO.: 04

48



POINT TABLE - GRADING AND SURFACING				
POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	642233.65	79004.02	0.00 *	EDGE OF DRIVEWAY
2	642249.77	79016.60	214.24 *	EDGE OF DRIVEWAY/SIDEWALK
3	642255.99	79017.07	214.17 *	EDGE OF ASPHALT/SIDEWALK
4	642278.60	79040.15	213.80	EDGE OF ASPHALT
5	642279.79	79061.89	214.40	EDGE OF ASPHALT/CONCRETE
6	642283.33	79126.92	214.90	EDGE OF ASPHALT/CONCRETE
7	642308.31	79125.54	214.77	EDGE OF ASPHALT/CONCRETE
8	642309.73	79150.49	215.00	EDGE OF ASPHALT
9	642304.58	79150.78	215.06	EDGE OF ASPHALT
10	642285.75	79171.16	215.42	EDGE OF ASPHALT
11	642280.00	79188.52	215.64 *	EDGE OF ASPHALT/SIDEWALK

POINT TABLE - GRADING AND SURFACING				
POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
12	642274.74	79193.27	215.93 *	EDGE OF DRIVEWAY/SIDEWALK
13	642263.29	79211.64	0.00 *	EDGE OF DRIVEWAY
14	642255.87	79182.57	0.00 *	EDGE OF DRIVEWAY
15	642269.34	79167.62	215.37 *	EDGE OF DRIVEWAY/SIDEWALK
16	642270.09	79151.75	215.28 *	EDGE OF ASPHALT/SIDEWALK
17	642269.26	79139.60	215.10	EDGE OF ASPHALT
18	642262.71	79119.95	214.97	EDGE OF ASPHALT
19	642260.50	79083.21	214.74	EDGE OF ASPHALT
20	642264.94	79060.51	214.60	EDGE OF ASPHALT
21	642264.77	79057.37	214.53	EDGE OF ASPHALT
22	642259.76	79043.67	214.19 *	EDGE OF ASPHALT/SIDEWALK

POINT TABLE - GRADING AND SURFACING				
POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
23	642253.61	79037.89	214.30 *	EDGE OF DRIVEWAY/SIDEWALK
24	642238.23	79033.78	214.99 *	EDGE OF DRIVEWAY
25	642234.59	79034.01	0.00 *	EDGE OF DRIVEWAY
26	642319.73	79059.71	214.40	EDGE OF CONCRETE
27	642323.28	79124.75	214.70	EDGE OF CONCRETE
28	642254.08	79082.96	214.99 *	EDGE OF SIDEWALK
29	642258.03	79122.83	215.54 *	EDGE OF SIDEWALK
30	642257.84	79138.42	215.62 *	EDGE OF SIDEWALK
31	642252.55	79124.85	215.64 *	EDGE OF SIDEWALK
32	642248.34	79081.82	215.17 *	EDGE OF SIDEWALK
33	642252.17	79065.23	214.77 *	EDGE OF SIDEWALK

* ELEVATION TO MATCH EXISTING GRADE

CITY OF LACEY

LIFT STATION 19 REHABILITATION

PROPOSED GRADING AND PAVING PLAN

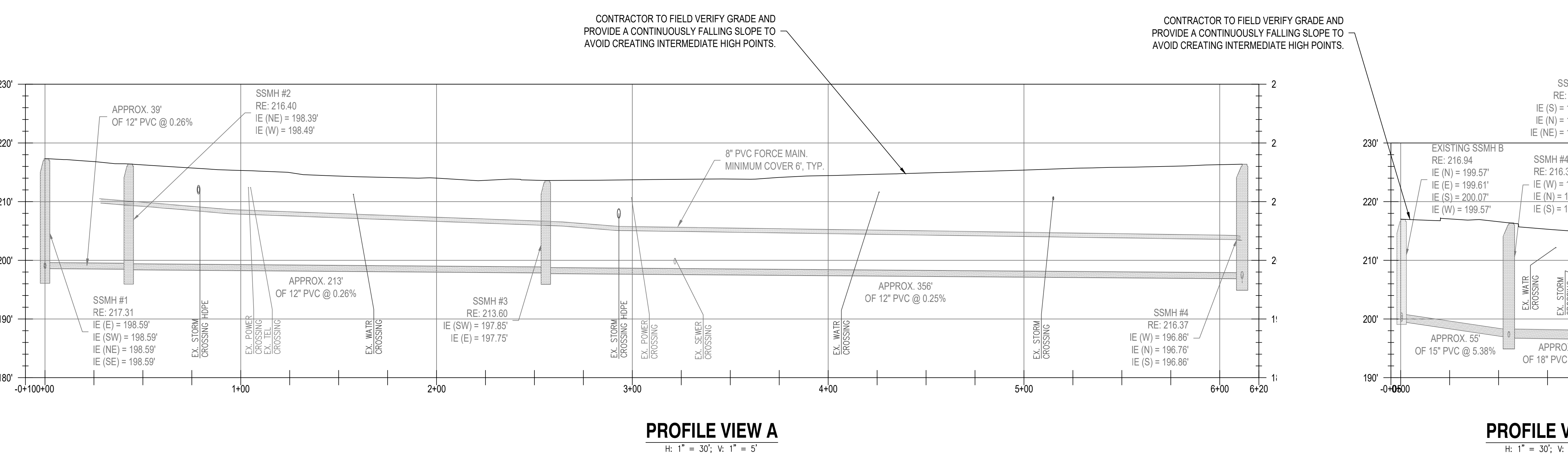
LOGO NO.: 516-081	CLIENT: LAC	ENGINEER: PJJ	SWF DATE: Dec 2, 2020	REVISIONS	NO.	DATE	DESCRIPTION	BY	REVIEW
FILENAME: LS19-CV104.DWG		REVIEWED: DJM	PLOT DATE: Dec 2, 2020	60% REVIEW					
				DRAWINGS					

SCALE: SHOWN

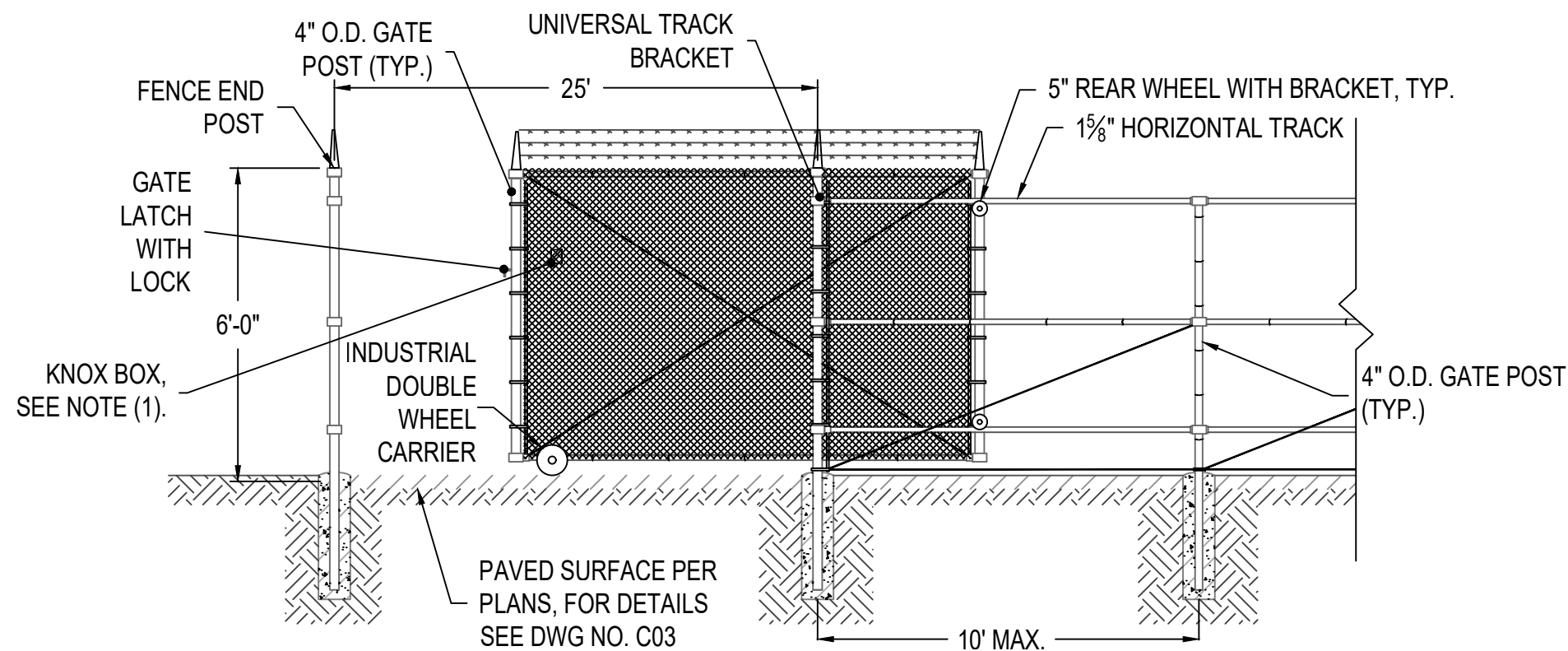
0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: C04 SHEET NO.: 05 48

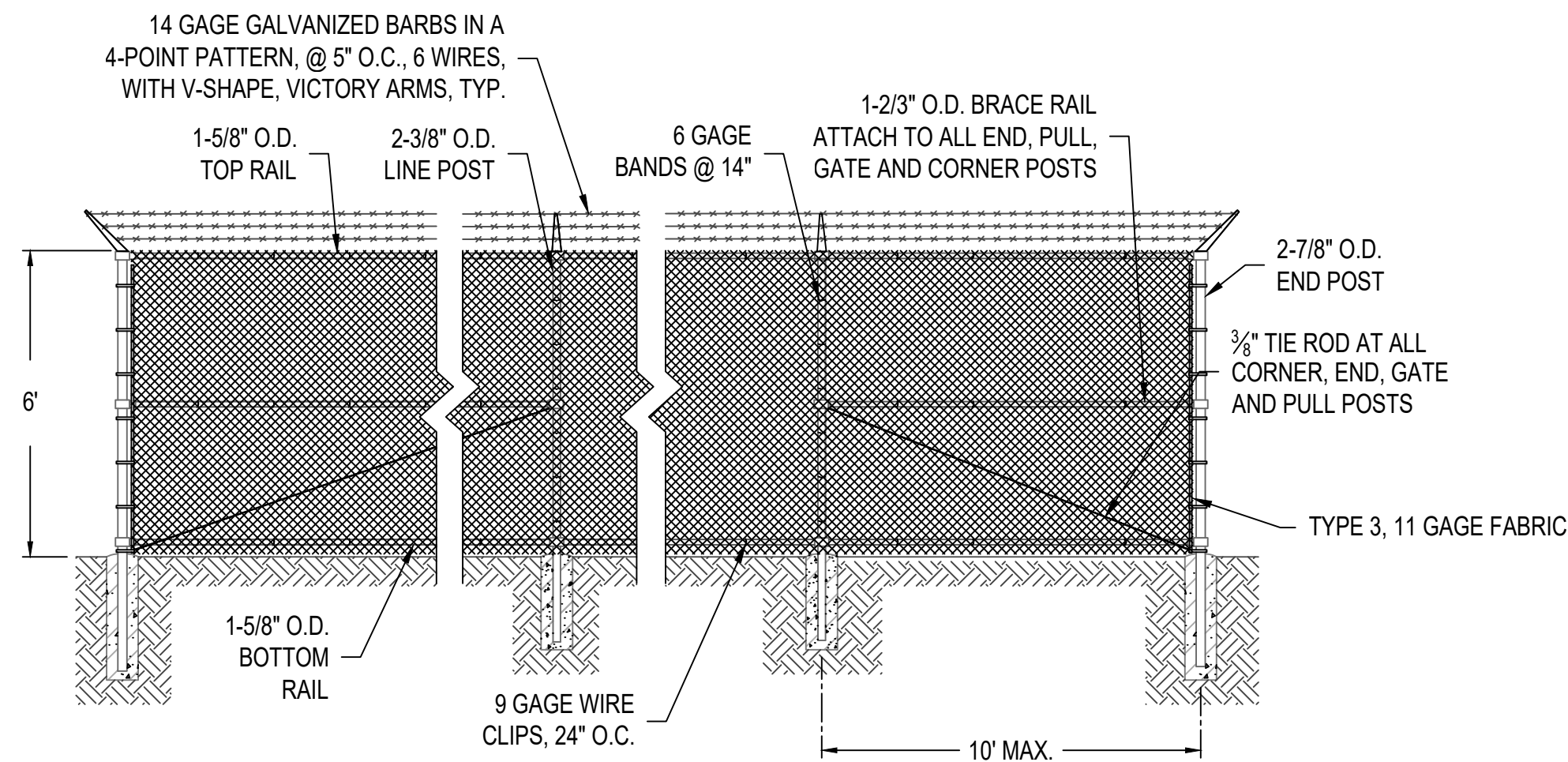


POST HOLE CONCRETE:	
<u>GATE AND END POSTS (2)</u>	<u>LINE POSTS (2)</u>
MIN. DEPTH = 54"	48"
MIN. DIAMETER = 18"	18"
MIN. POST EMBEDMENT = 24"	24"



MANUAL CHAINLINK ROLL GATE DETAIL

NOT TO SCALE



<u>POST HOLE CONCRETE:</u>	
<u>GATE AND END POSTS</u>	<u>LINE POSTS</u>
MINIMUM DEPTH=54"	48"
MINIMUM DIAMETER=18"	18"
MINIMUM POST EMBEDMENT = 24"	24"

NOTES:

1. MINIMUM DEPTHS BASED ON IBC GRAVEL OR SANDY GRAVE SOIL TYPES PER TABLE 1804.2
2. MINIMUM POST LENGTH: 8'-0"
3. FENCING SHALL BE PVC COATED (BLACK IN COLOR)
4. CONCRETE FOR ALL FOOTINGS SHALL BE WSDOT CLASS 4000.

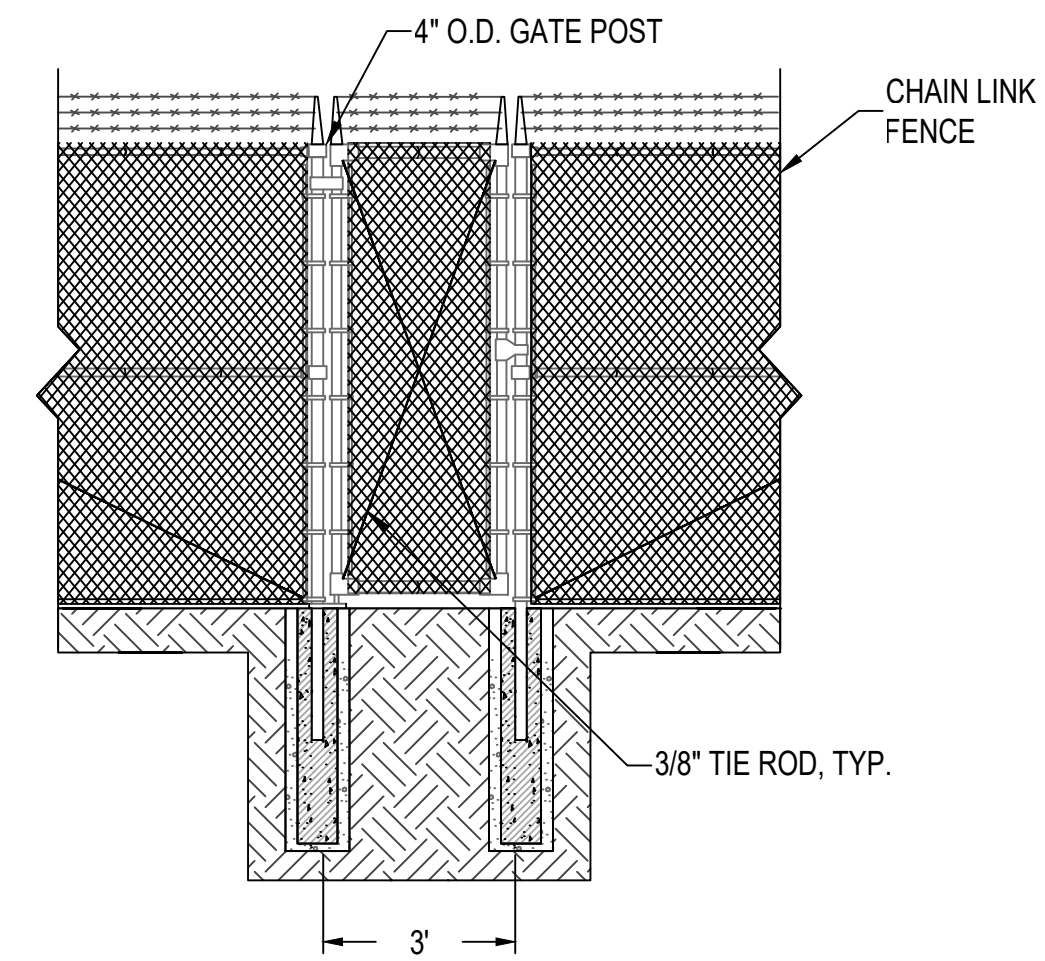
CHAIN LINK PERIMETER FENCE

NOT TO SCALE

<u>POST HOLE CONCRETE:</u>	
<u>GATE AND END POSTS</u>	<u>LINE POSTS</u>
MINIMUM DEPTH=54"	48"
MINIMUM DIAMETER=18"	18"
MINIMUM POST EMBEDMENT = 24"	24"

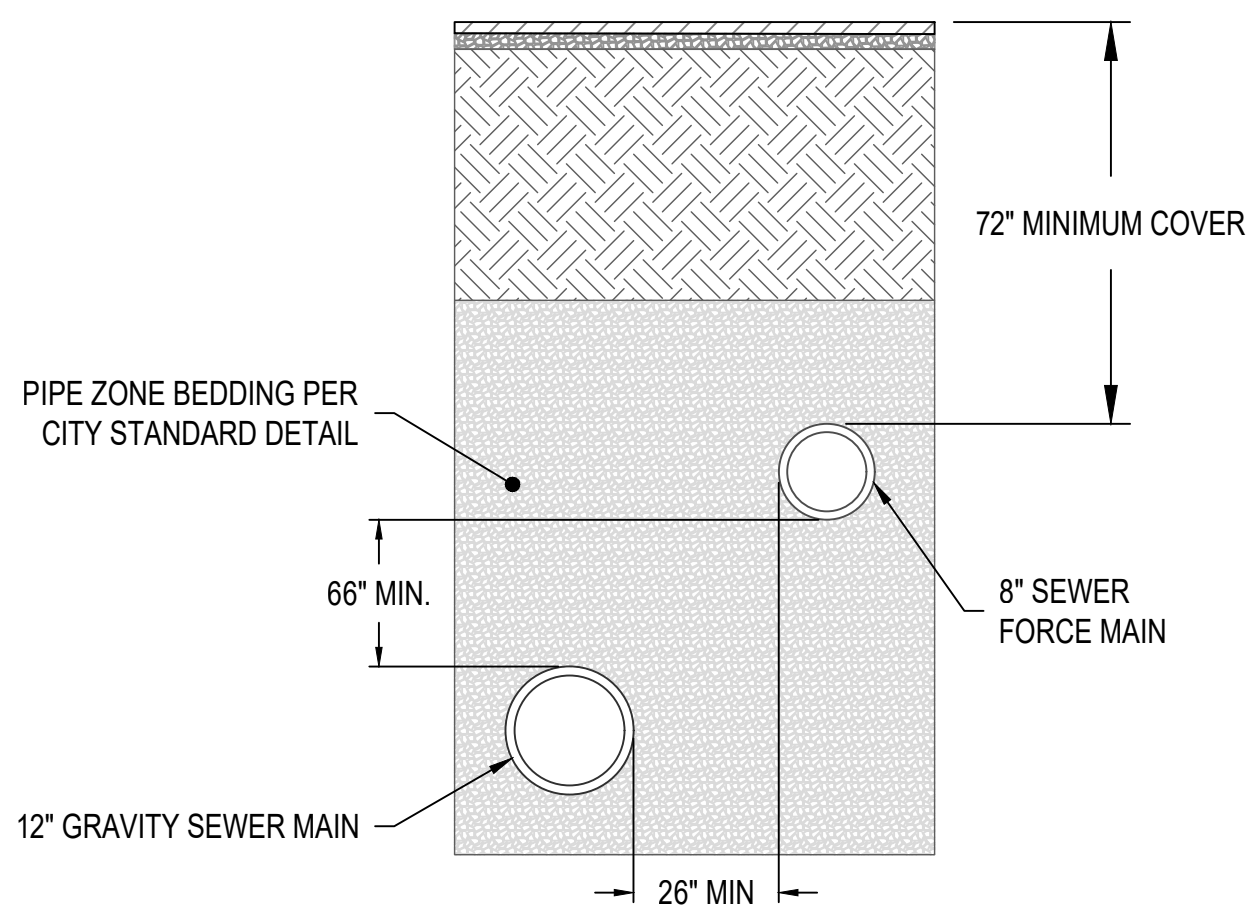
NOTES:

1. MINIMUM DEPTHS BASED ON IBC GRAVEL OR SANDY GRAVE SOIL TYPES PER TABLE 1804.2
2. MINIMUM POST LENGTH: 10'-0"
3. FENCING SHALL BE PCV COATED (BLACK IN COLOR)
4. CONCRETE FOR ALL FOOTINGS SHALL BE WSDOT CLASS 4000.



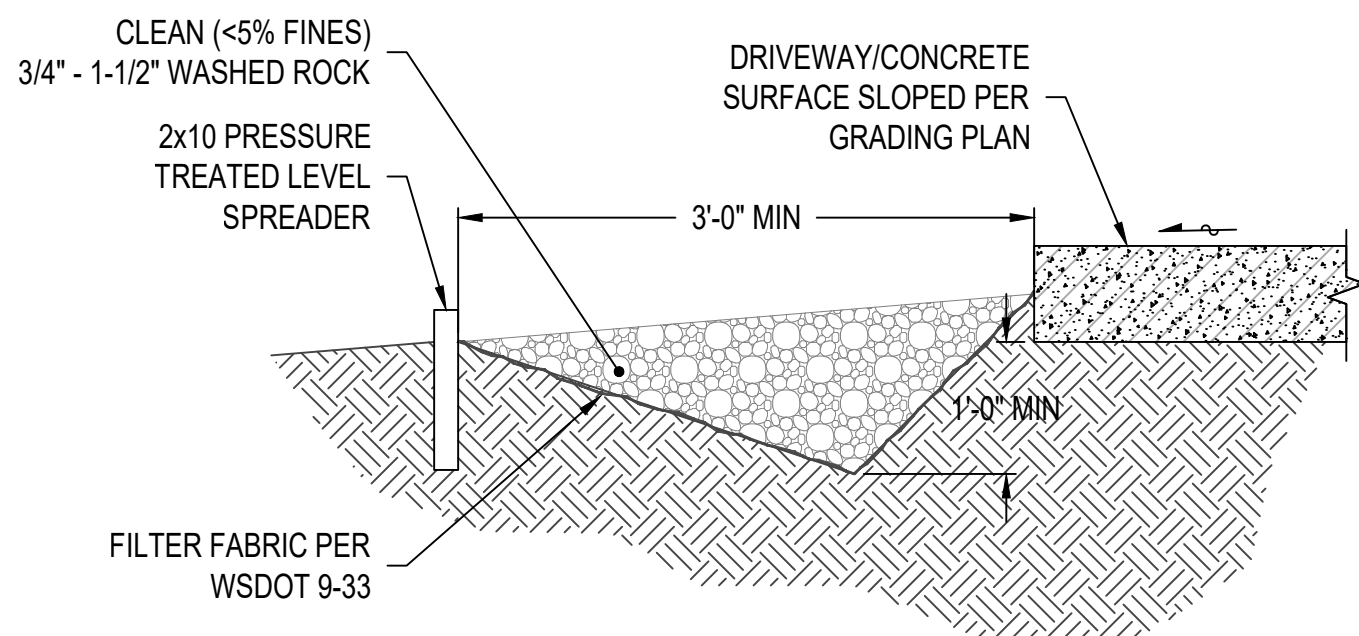
MAN GATE DETAIL

NOT TO SCALE



JOINT SEWER MAIN TRENCH SPACING

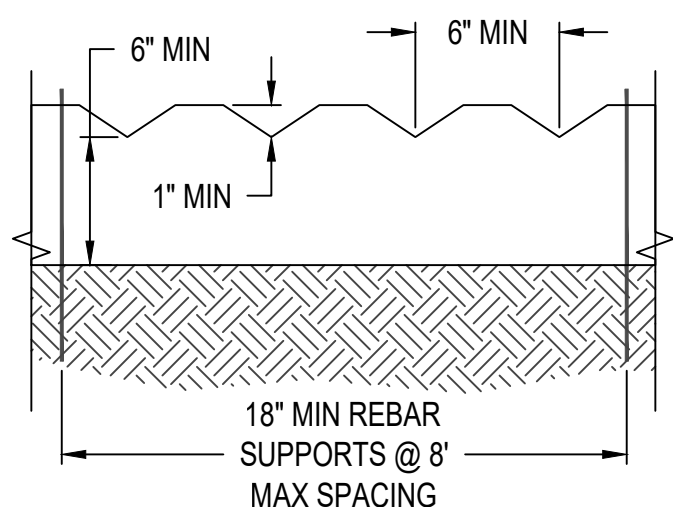
NTS



TRENCH CROSS SECTION

NOTES:

1. TRENCH SHALL BE CONSTRUCTED SO AS TO PREVENT POINT DISCHARGE AND/OR EROSION.
2. TRENCH AND GRADE BOARD MUST BE LEVEL.
3. GRADE BOARD SUPPORT POST SPACING AS REQUIRED BY SOIL CONDITIONS (MAX 8' O.C.)



LEVEL SPREADER DETAIL

FLOW DISPERSAL TRENCH

NOT TO SCALE



CITY OF LACEY
LIFT STATION 19 REHABILITATION

SITE DETAILS

ENGINEER: FJJ	SAVE DATE: Dec 2, 2020	CLIENT: LAC	JOB NO.: 516-081
REVIEWED: DJM	PLT DATE: Dec 2, 2020	FILENAME: LSI19-D-DET01.DWG	
REVISIONS			
		60% REVIEW	
		DRAWINGS	
NO.	DATE	DESCRIPTION	BY
			REVIEW

SCALE: SHOWN

DRAWING IS FULL SCALE WHEN

DWG NO.:	SHEET NO.:
----------	------------

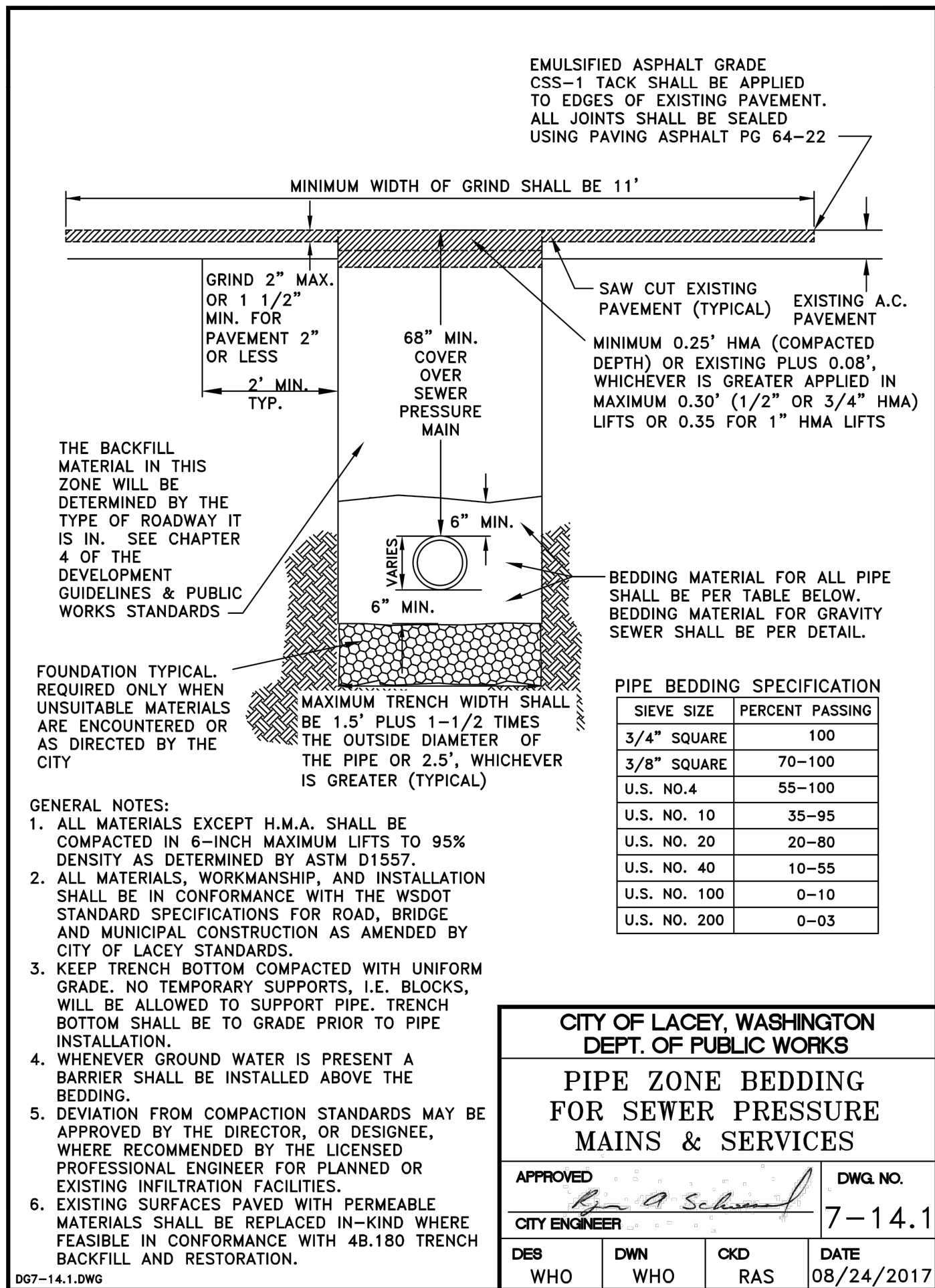
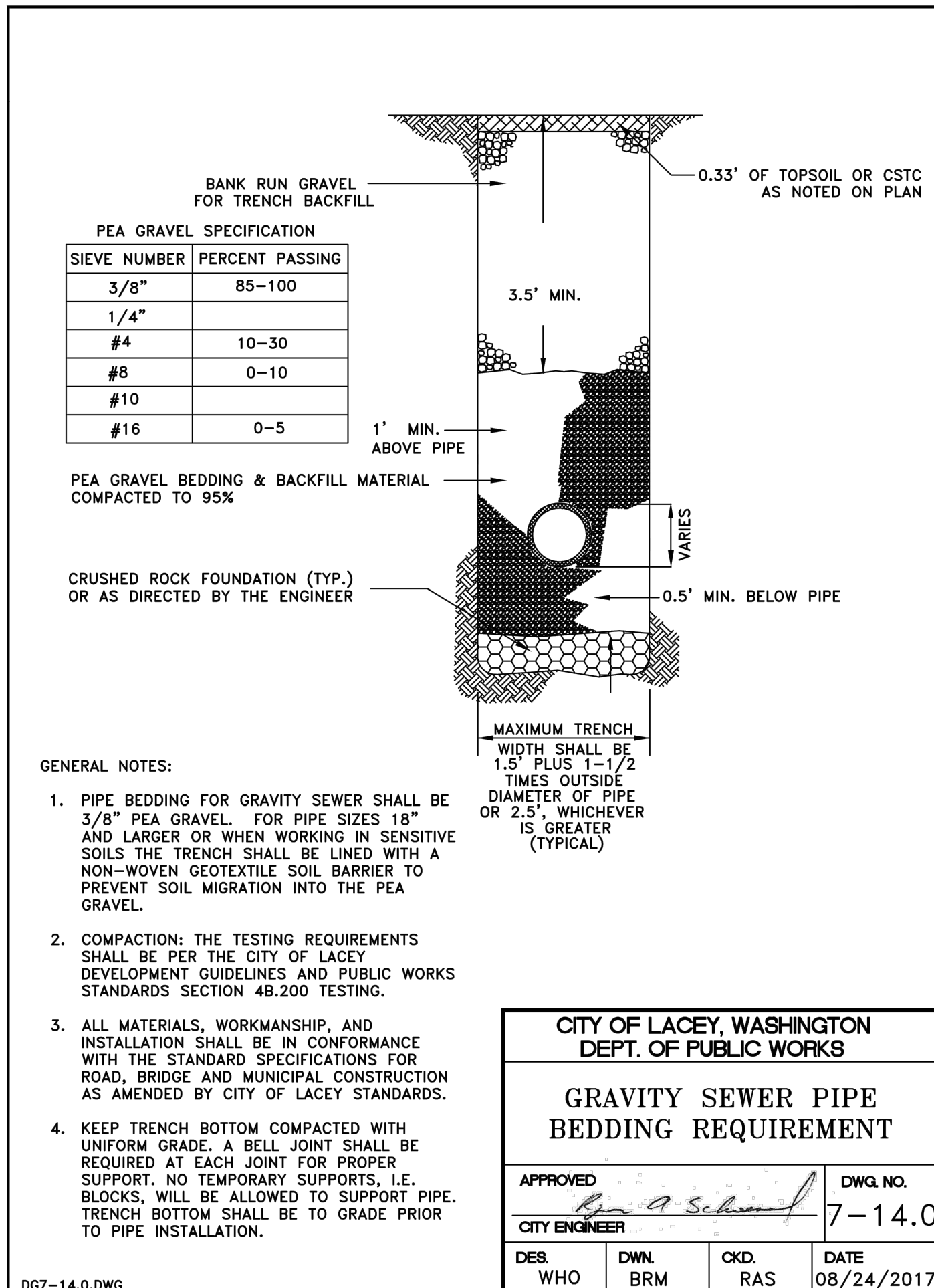
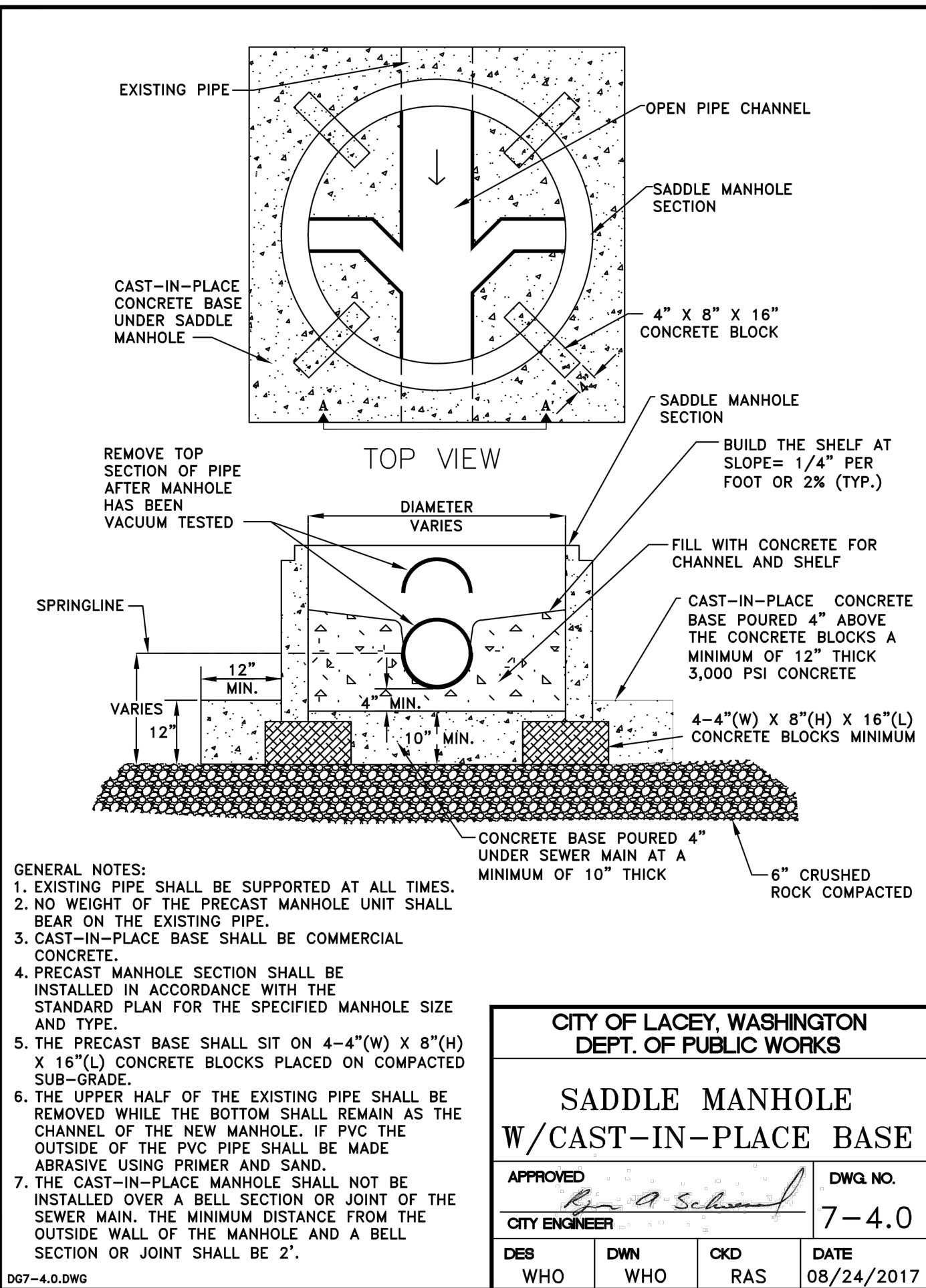
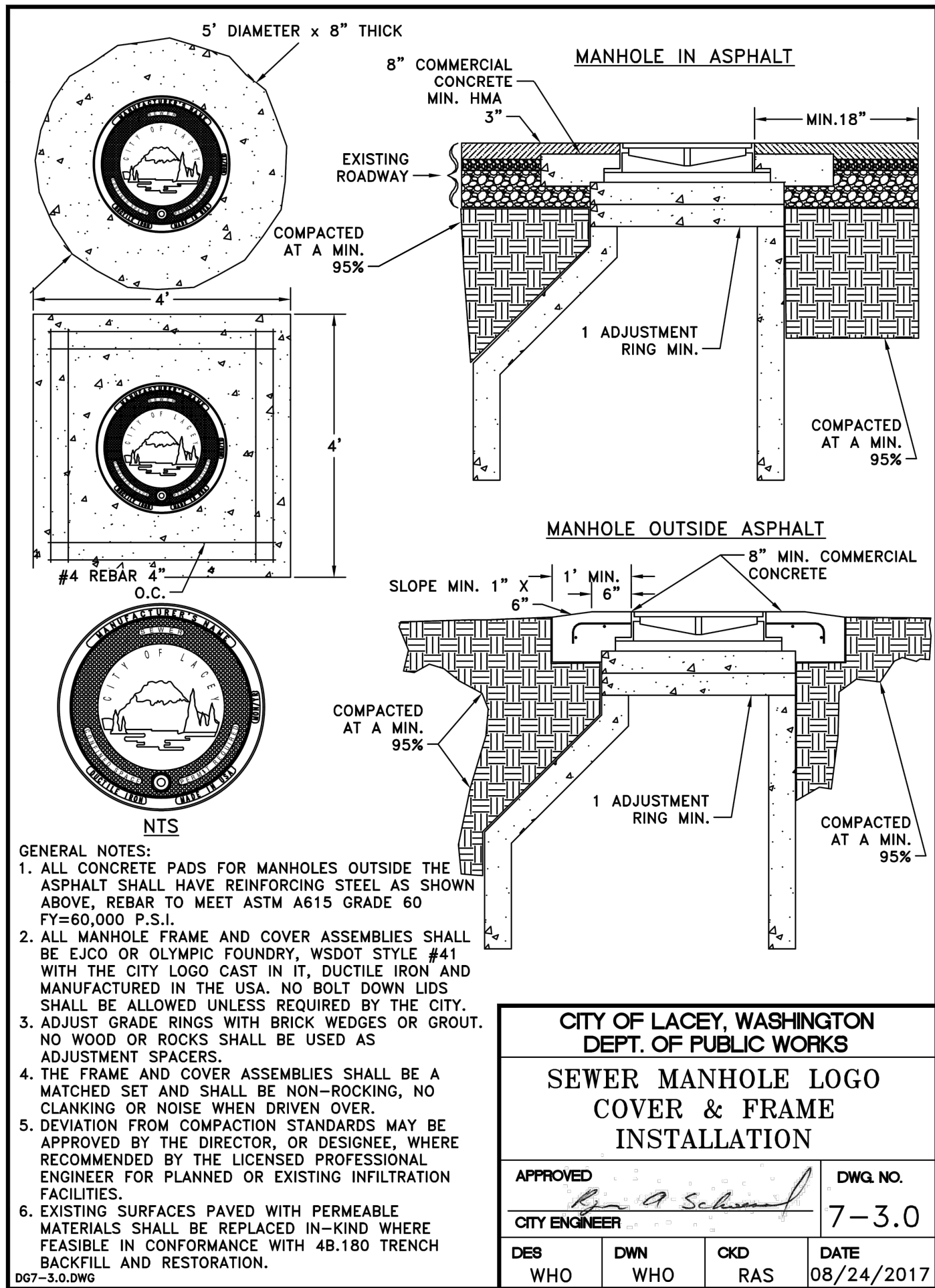
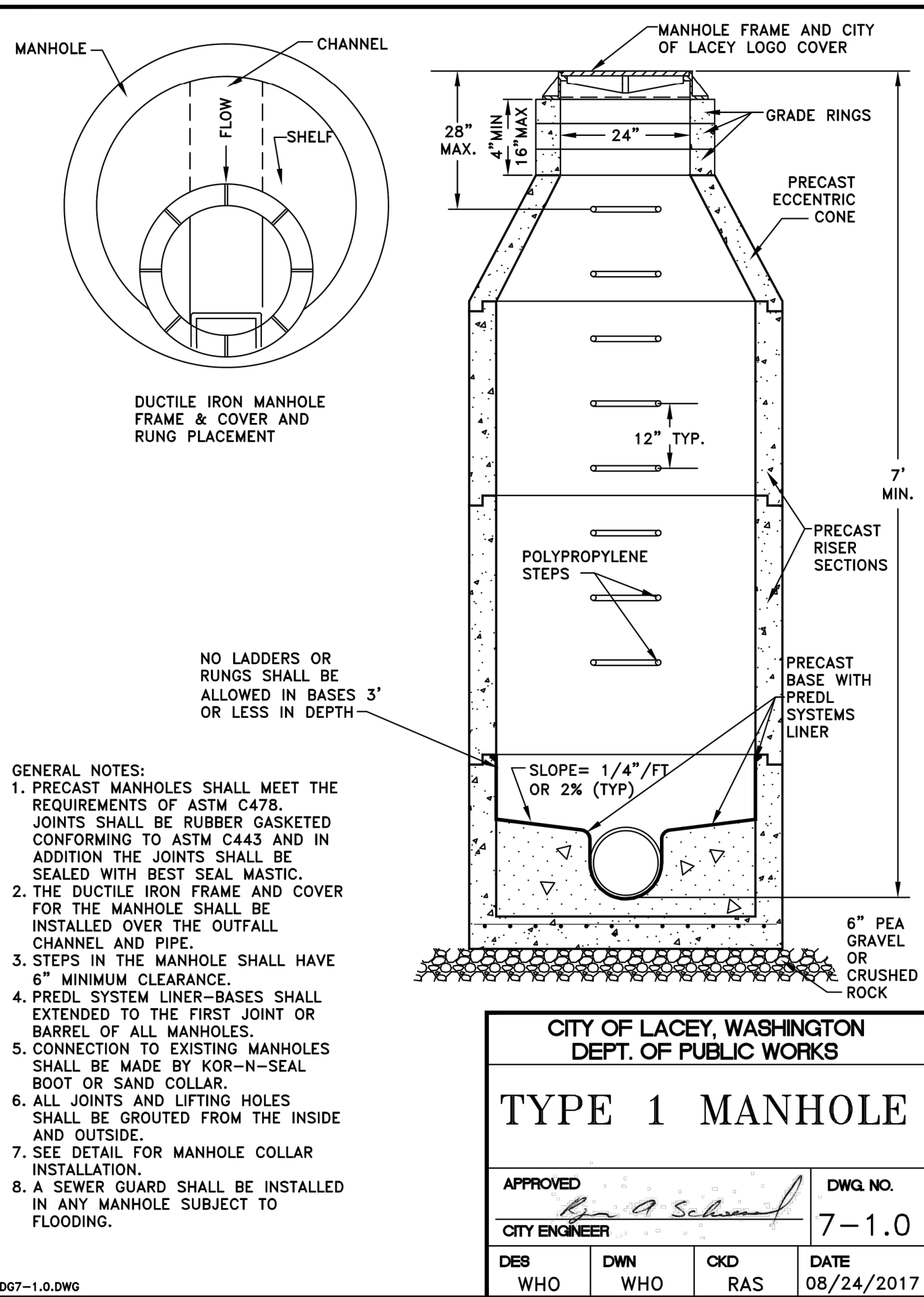
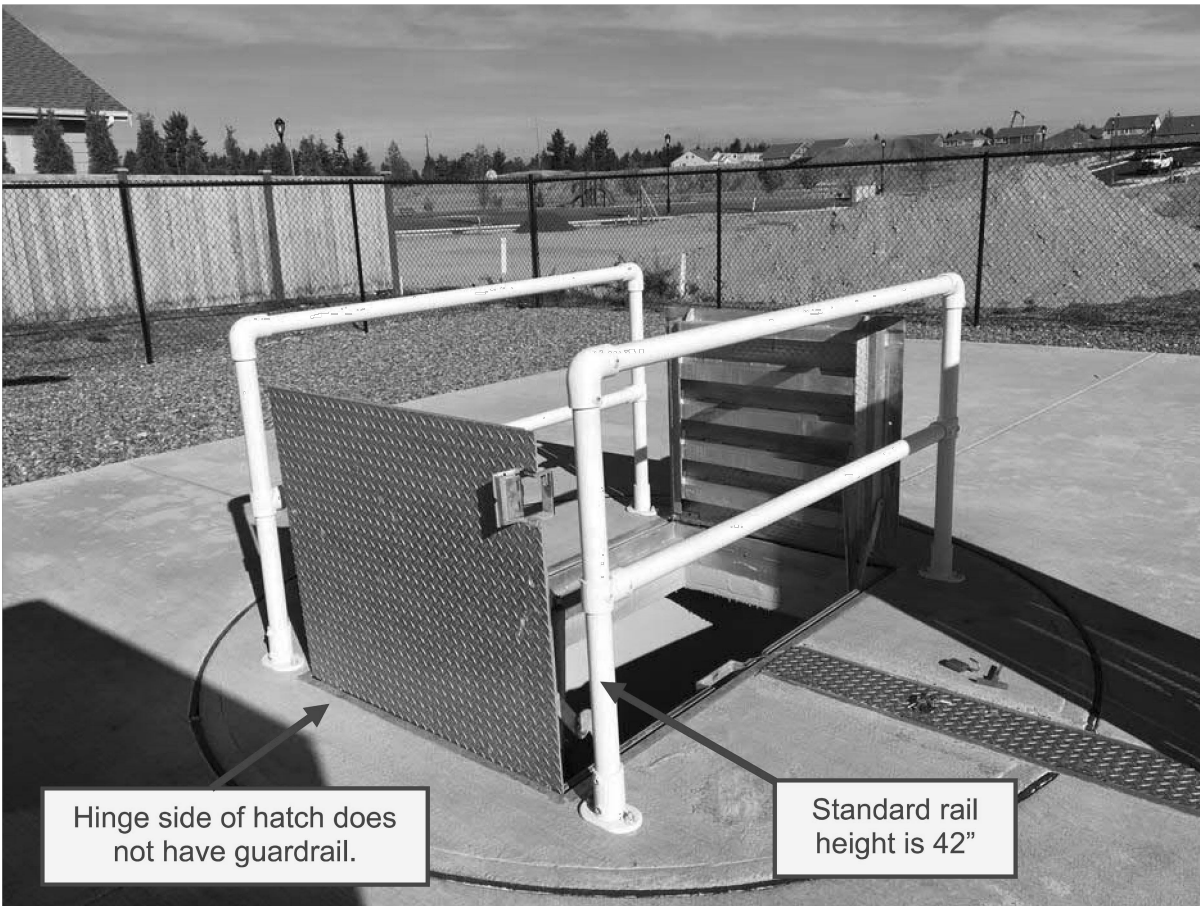
D01

September 12, 2017

CITY OF LACEY LIFT STATION WET WELL GUARD RAIL

Manufacturer:
Simplified Building Concepts
PO Box 24291
Rochester, NY 14624
Toll Free: 1 (888) 527 2278
www.simplifiedbuilding.com

- Rails must be Kee Safety Railing Solutions.
- Rails shall be steel, 2" diameter, powder coated white.
- Mounting bolts / concrete, fasteners shall be stainless steel.



RH2



CITY OF LACEY
LIFT STATION 19 REHABILITATION

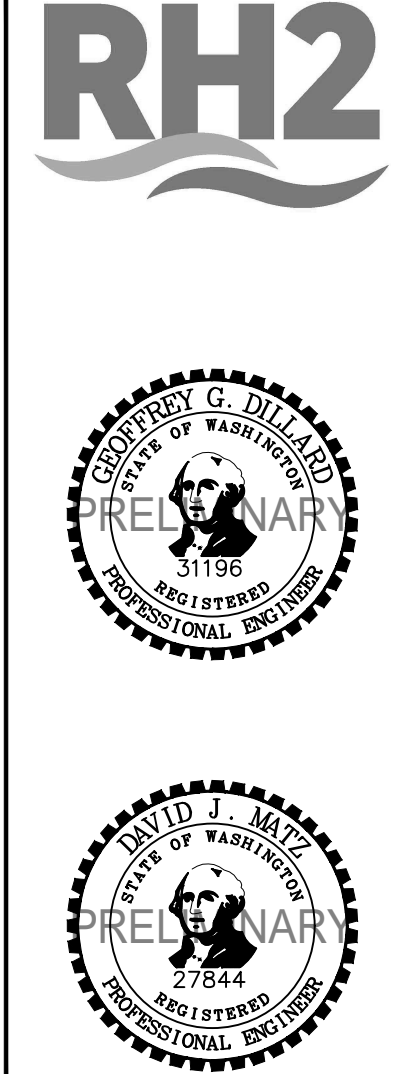
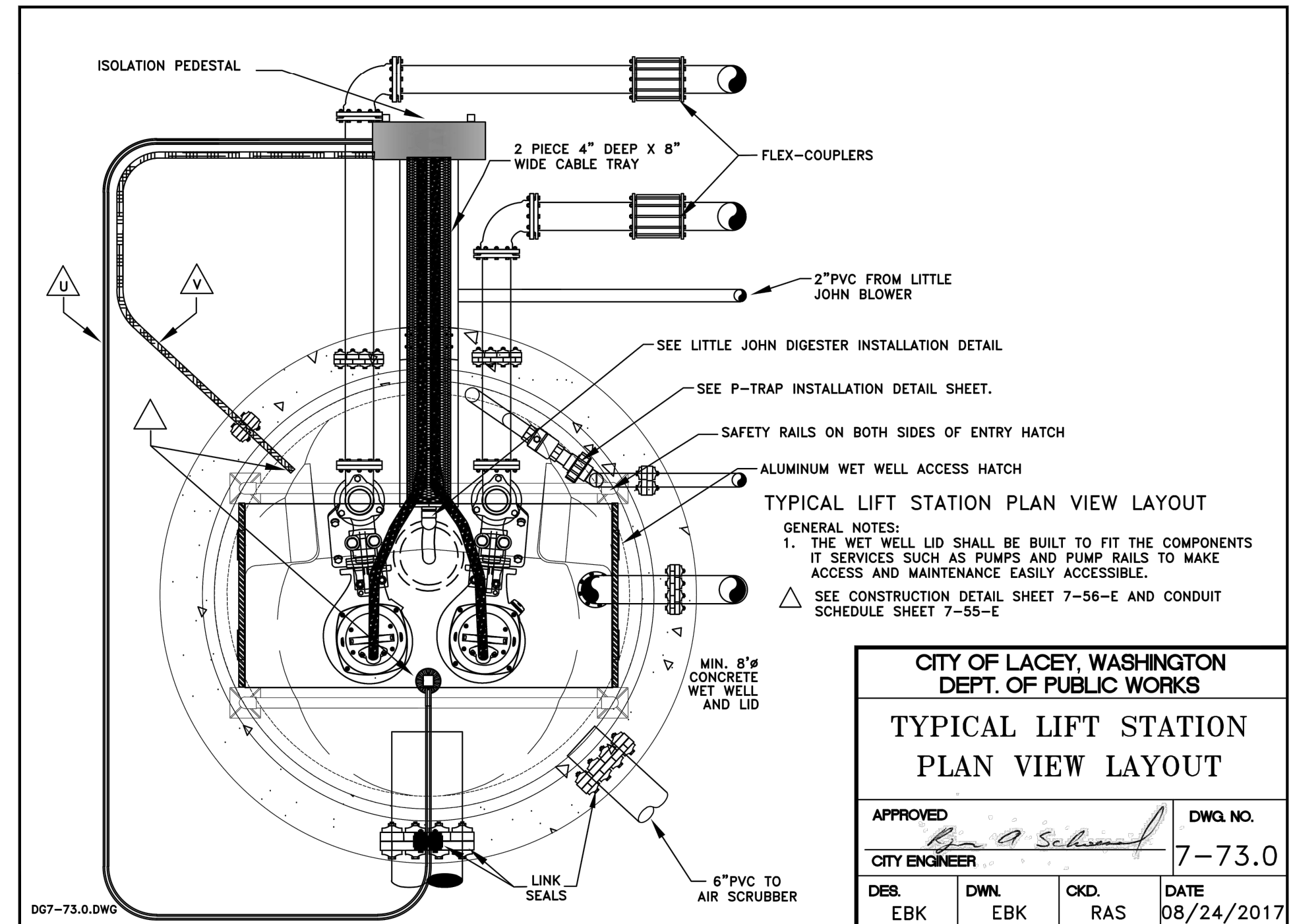
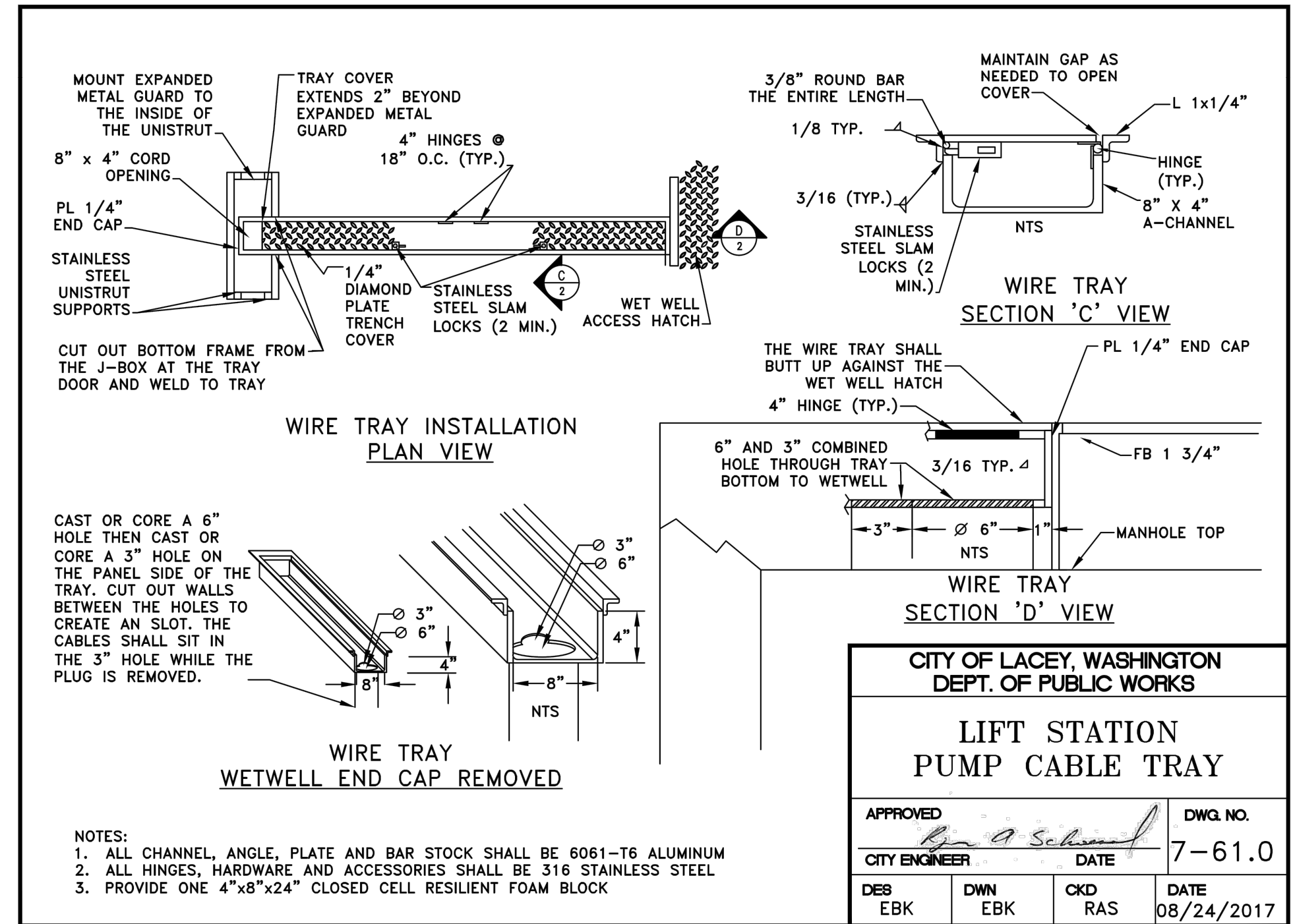
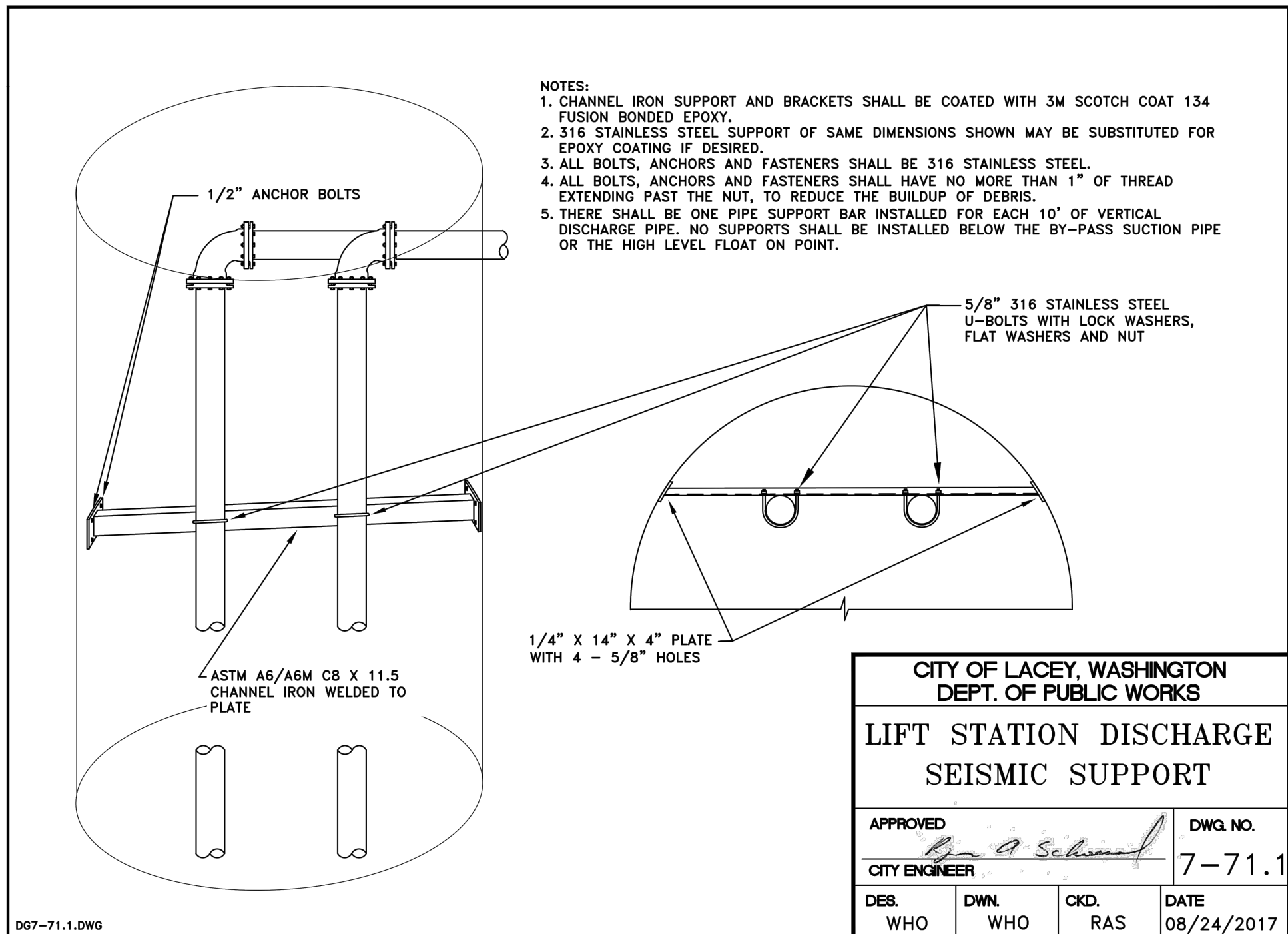
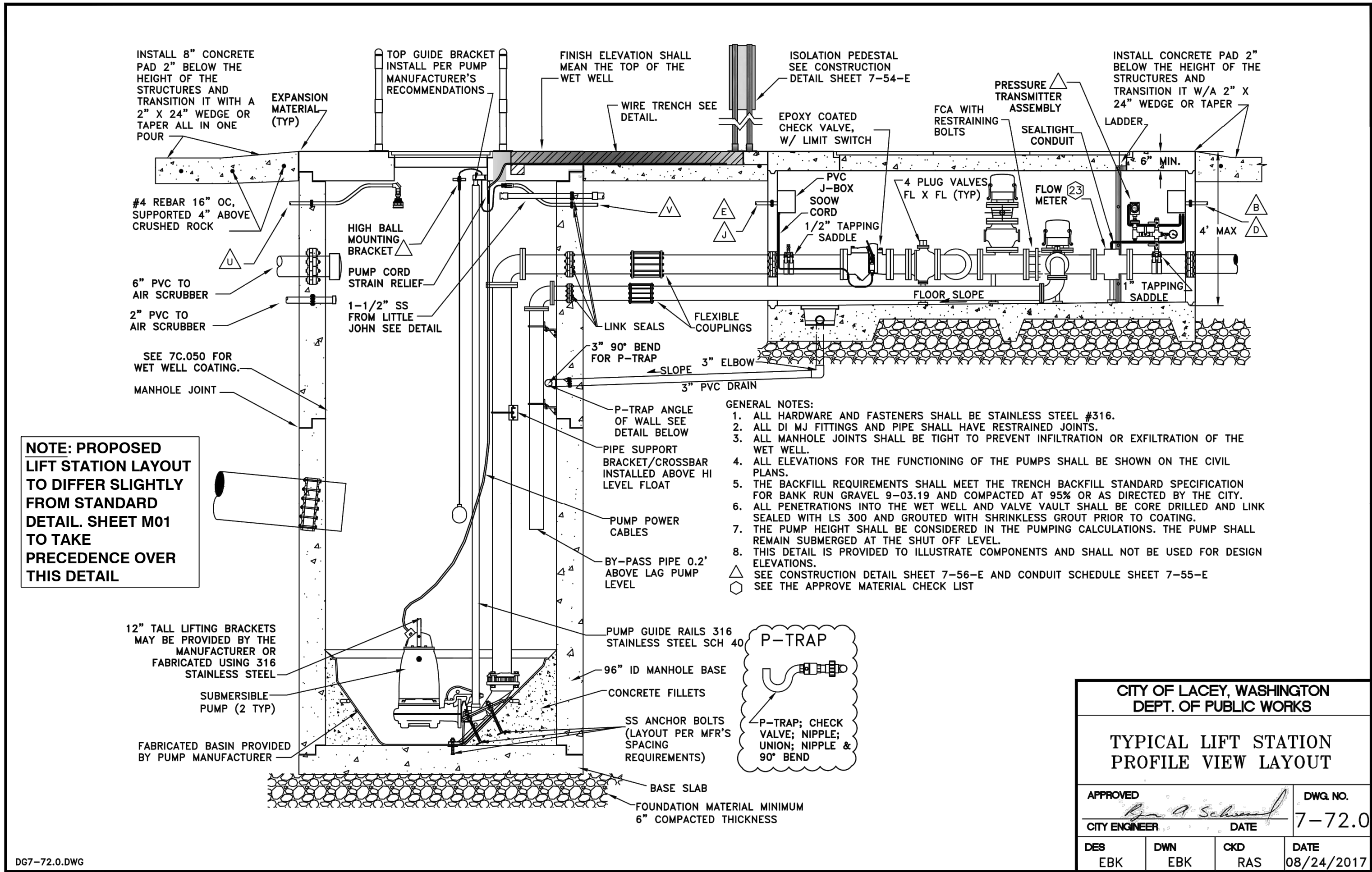
STANDARD DETAILS 2

REVISIONS	DATE	DESCRIPTION	NO.	DATE	BY	REVIEW
60% REVIEW						
DRAWINGS						

SCALE: SHOWN

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: D03 SHEET NO.: 10 OF 48



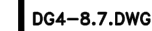
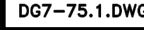
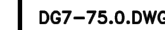
CITY OF LACEY

LIFT STATION 19 REHABILITATION

STANDARD DETAILS 4

LACEY

LOG NO.: 516-081	CLIENT: LAC	FILE NAME: LS19-D-DET02.DWG	DATE: 5/16/2017	REVIEW
ENGINEER: PJJ	SAFETY DATE: Nov 10, 2020	REVIEWED: DJM	PLOT DATE: Nov 19, 2020	BY
REVISIONS				DESCRIPTION
60% REVIEW				DRAWINGS
NO.	DATE	NO.	DATE	DESCRIPTION
SCALE: SHOWN				
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"				
DWG NO.: D05	SHEET NO.: 12		48	



MINIMUM LANE CLOSURE TAPER LENGTH = L (FEET)

LANE WIDTH (FEET)	POSTED SPEED (MPH)									
	25	30	35	40	45	50	55	60	65	70
10	105	150	205	270	450	500	550	–	–	–
11	115	165	225	295	495	550	605	660	–	–
12	125	180	245	320	540	600	660	720	780	840

MINIMUM SHOULDER TAPER LENGTH = L/3 (FEET)

SHOULDER WIDTH (FEET)	POSTED SPEED (MPH)									
	25	30	35	40	45	50	55	60	65	75
8'	40	40	60	90	120	130	150	160	170	190
10'	40	60	90	90	150	170	190	200	220	240

USE A MINIMUM 3 DEVICES TAPER FOR SHOULDER LESS THAN 8'.

SIGN SPACING = X(1)

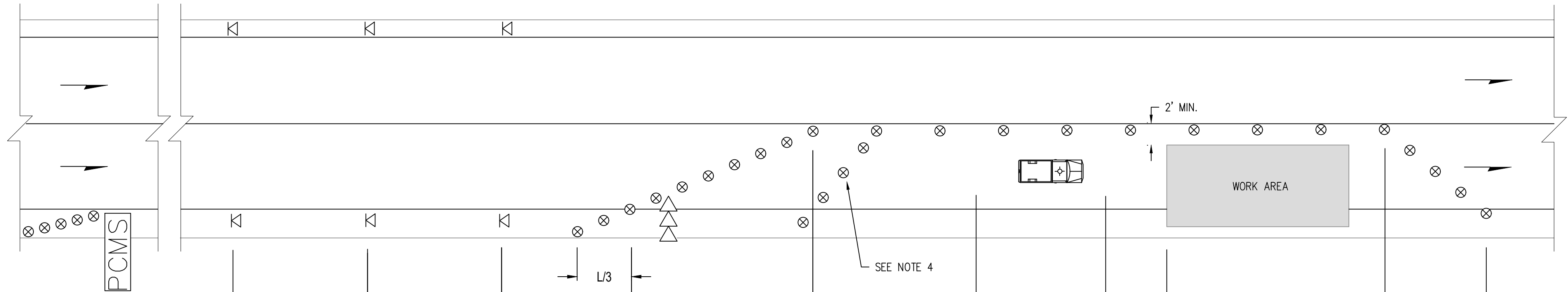
FREEWAYS & EXPRESSWAYS	55 / 70 MPH	1500'
RURAL HIGHWAYS	60 / 65 MPH	800'
RURAL ROADS	45 / 55 MPH	500'
RURAL ROADS & URBAN ARTERIALS	35 / 40 MPH	350'
RURAL ROADS, URBAN ARTERIALS, RESIDENTIAL & BUSINESS DISTRICTS	25 / 30 MPH	200' (2)
URBAN STREETS	25 MPH OR LESS	100' (2)

1. ALL SPACING MAY BE ADJUSTED TO ACCOMMODATE INTERSECTIONS AND DRIVEWAYS.
2. THIS SPACING MAY BE REDUCED IN URBAN AREAS TO FIT ROADWAY CONDITIONS.

PCMS

1	2
RIGHT LANE CLOSURE	1 MILE AHEAD
2.0 SEC	2.0 SEC

FIELD LOCATE 1 MILE IN ADVANCE OF LANE CLOSURE SIGNING.



- LEGEND
- TEMPORARY SIGN LOCATION
 - TRAFFIC SAFETY DRUM
 - SEQUENTIAL ARROW SIGN
 - PROTECTIVE VEHICLE
 - PORTABLE CHANGEABLE MESSAGE SIGN

- NOTES:
- NO FLAGGERS OR SPOTTERS.
 - EXTEND DEVICE TAPER AT L/3 ACROSS SHOULDER.
 - DEVICES SHALL NOT ENCROACH INTO THE ADJACENT LANE.
 - USE TRANSVERSE DEVICES IN CLOSED LANE EVERY 1000' (RECOMMENDED).
 - DEVICE SPACING FOR THE DOWNSTREAM TAPER SHALL BE 20'.
 - ALL SIGNS ARE BLACK AND ORANGE.
 - SEE SPECIAL PROVISIONS FOR WORK HOUR RESTRICTIONS.

CHANNELIZATION DEVICE SPACING (FEET)

MPH	TAPER	TANGENT
50 / 65	40	80
35 / 45	30	60
25 / 30	20	40

BUFFER DATA

LONGITUDINAL BUFFER SPACE = B										
SPEED (MPH)	25	30	35	40	45	50	55	60	65	70
LENGTH (FEET)	155	200	250	305	360	425	495	570	645	730
BUFFER VEHICLE ROLL AHEAD DISTANCE = R										
TRANSPORTABLE ATTENUATOR: MINIMUM HOST VEHICLE WEIGHT 15,000 LBS. THE MAXIMUM WEIGHT SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATION. PROTECTIVE VEHICLE: MAY BE A WORK VEHICLE STRATEGICALLY LOCATED TO SHIELD THE WORK AREA.								30 FEET MIN. TO 100 FEET MAX.		
								NO SPECIFIED DISTANCE REQUIRED		

SINGLE-LANE CLOSURE FOR MULTI-LANE ROADWAYS

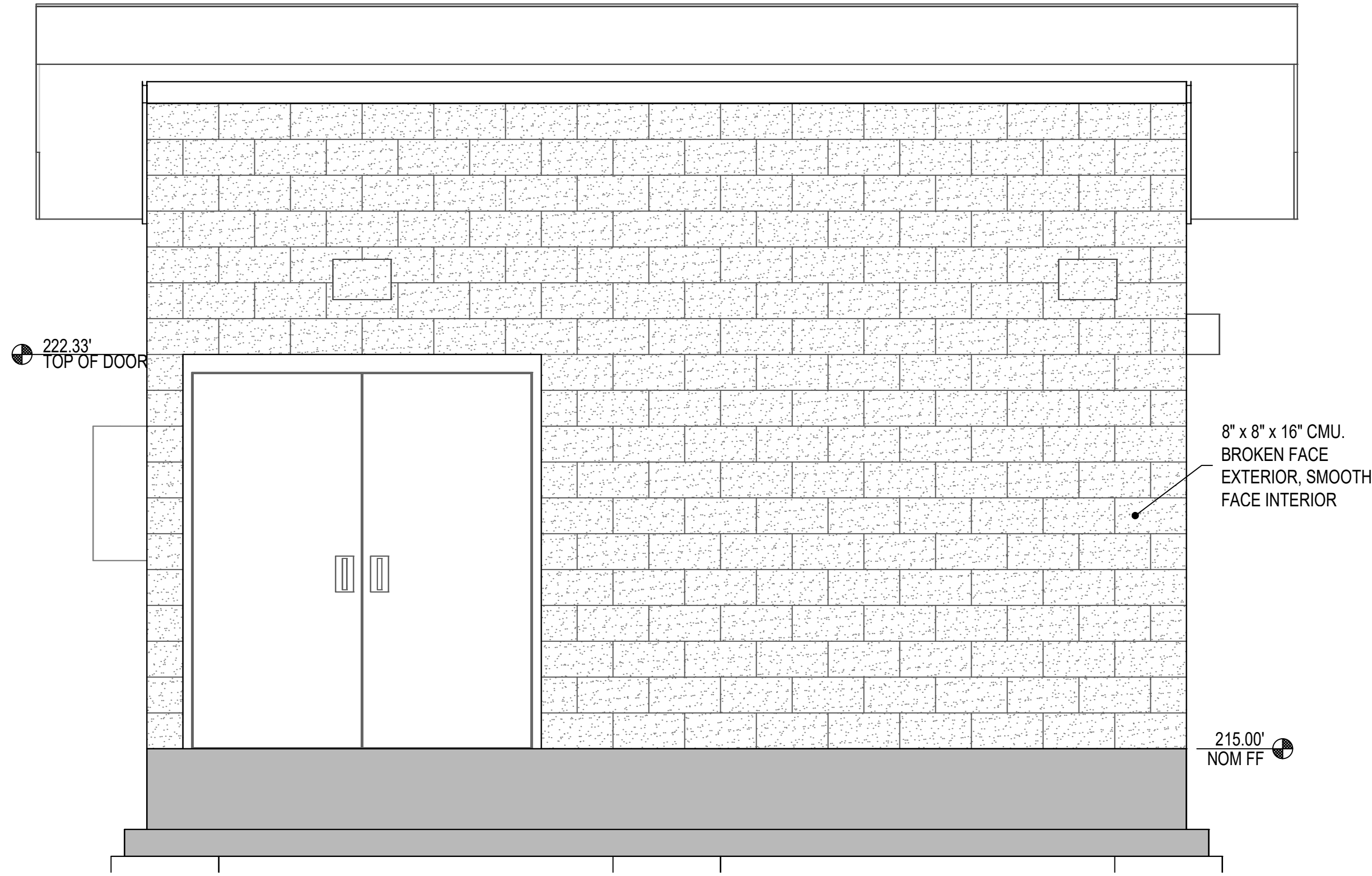
NOT TO SCALE



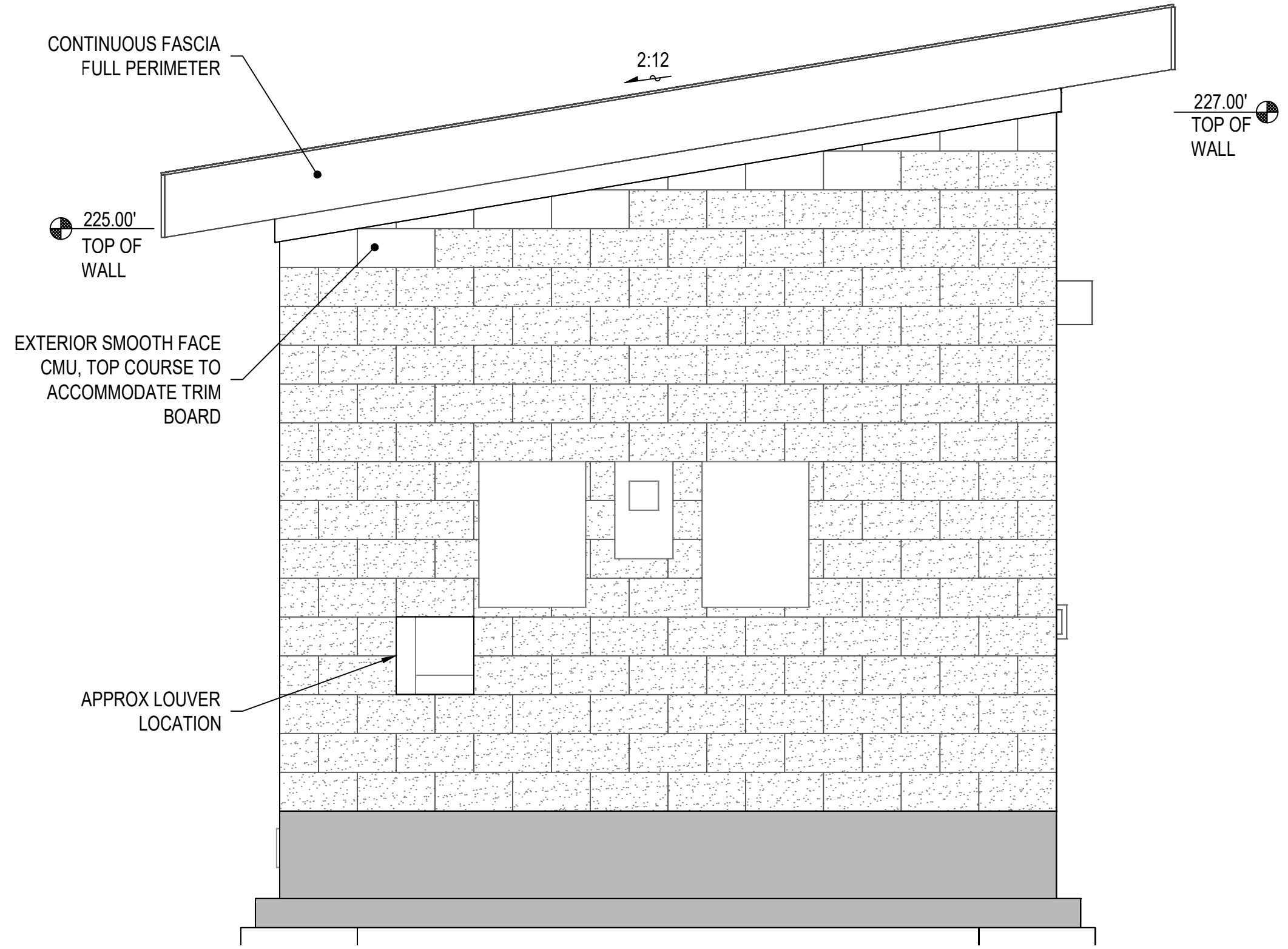
CITY OF LACEY
LIFT STATION 19 REHABILITATION

TRAFFIC CONTROL PLAN

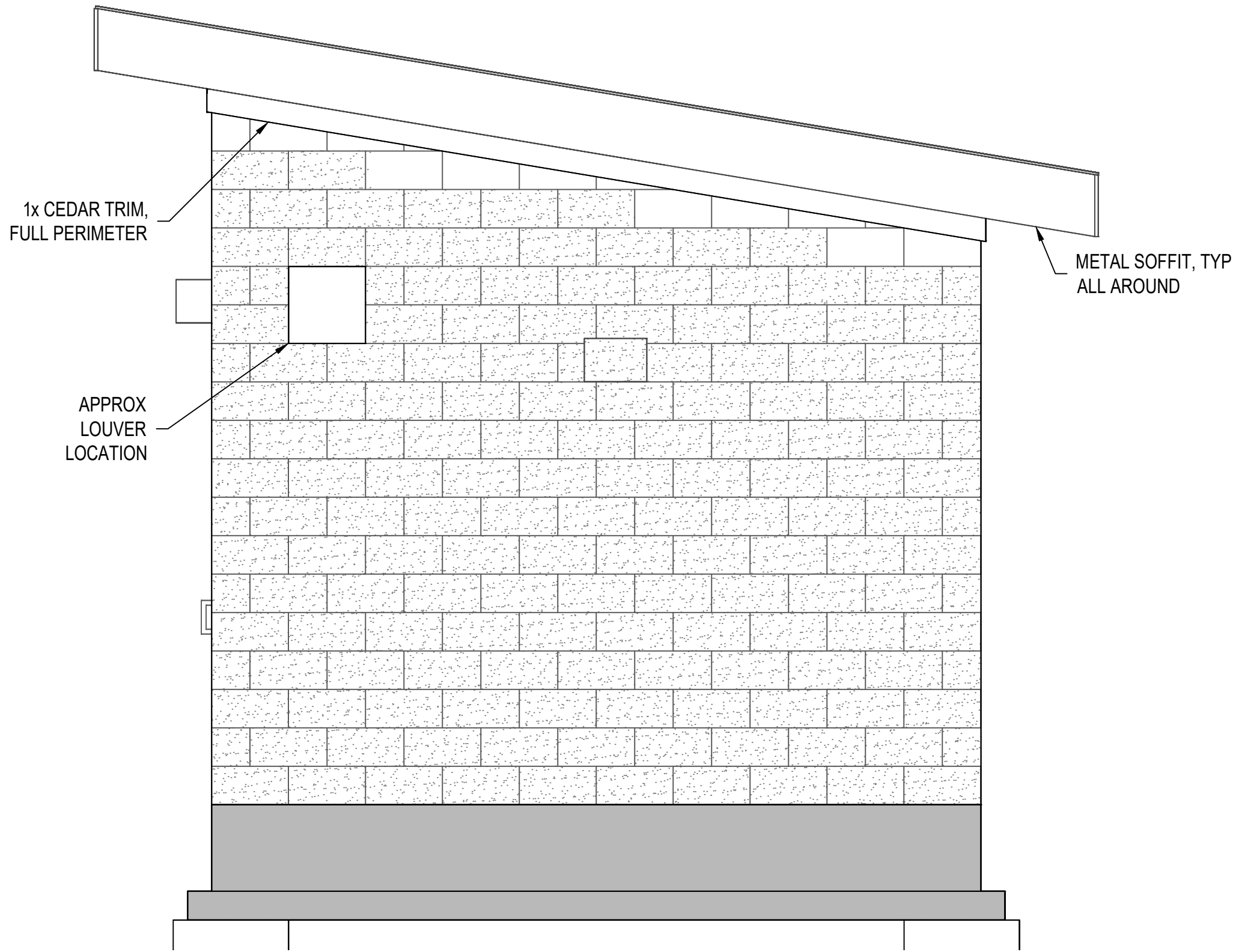
ENGINEER: PJJ	DATE: Oct 23, 2020	CLIENT: LAC	LOG NO.: 516-081	REVISIONS		60% REVIEW		DRAWINGS		DESCRIPTION		DATE		BY		REVIEW	
REVIEWED: DJM	DATE: Nov 19, 2020	FILENAME: LS19-Q-ROW PERMIT.DWG															



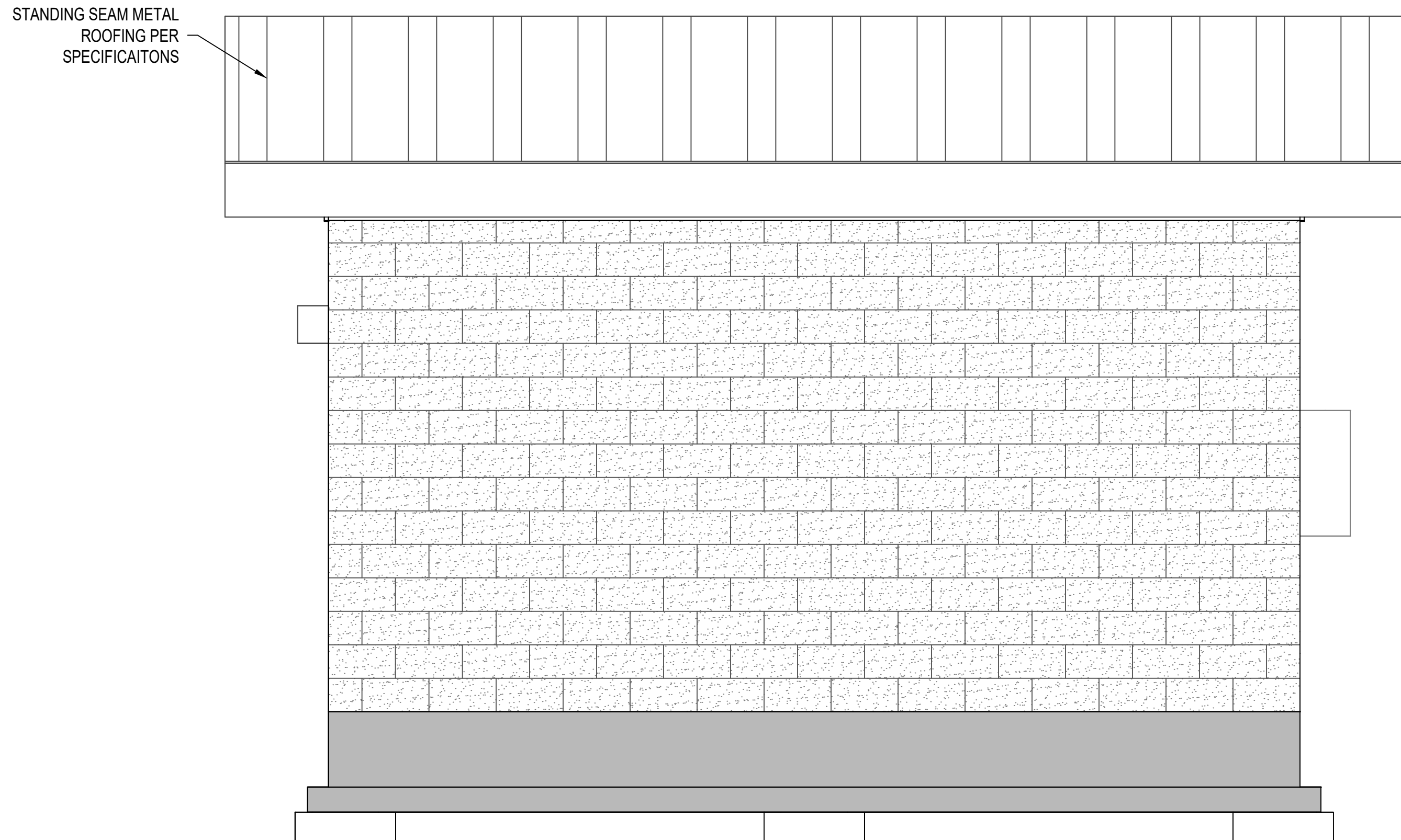
SOUTH ELEVATION
1/2" = 1'-0"



WEST ELEVATION
1/2" = 1'-0"



EAST ELEVATION
1/2" = 1'-0"



NORTH ELEVATION
1/2" = 1'-0"

LIFT STATION 19 REHABILITATION

BUILDING ARCHITECTURAL ELEVATIONS

ENGINEER: CPC	DATE: Nov 19, 2020	CLIENT: LAC	LOG NO.: 516-081
REVIEWED: DJM	PLOT DATE: Nov 19, 2020	FILE NAME: LS19-01-DWG	
REVISIONS			
NO.	DATE	DESCRIPTION	BY
		60% REVIEW	
		DRAWINGS	

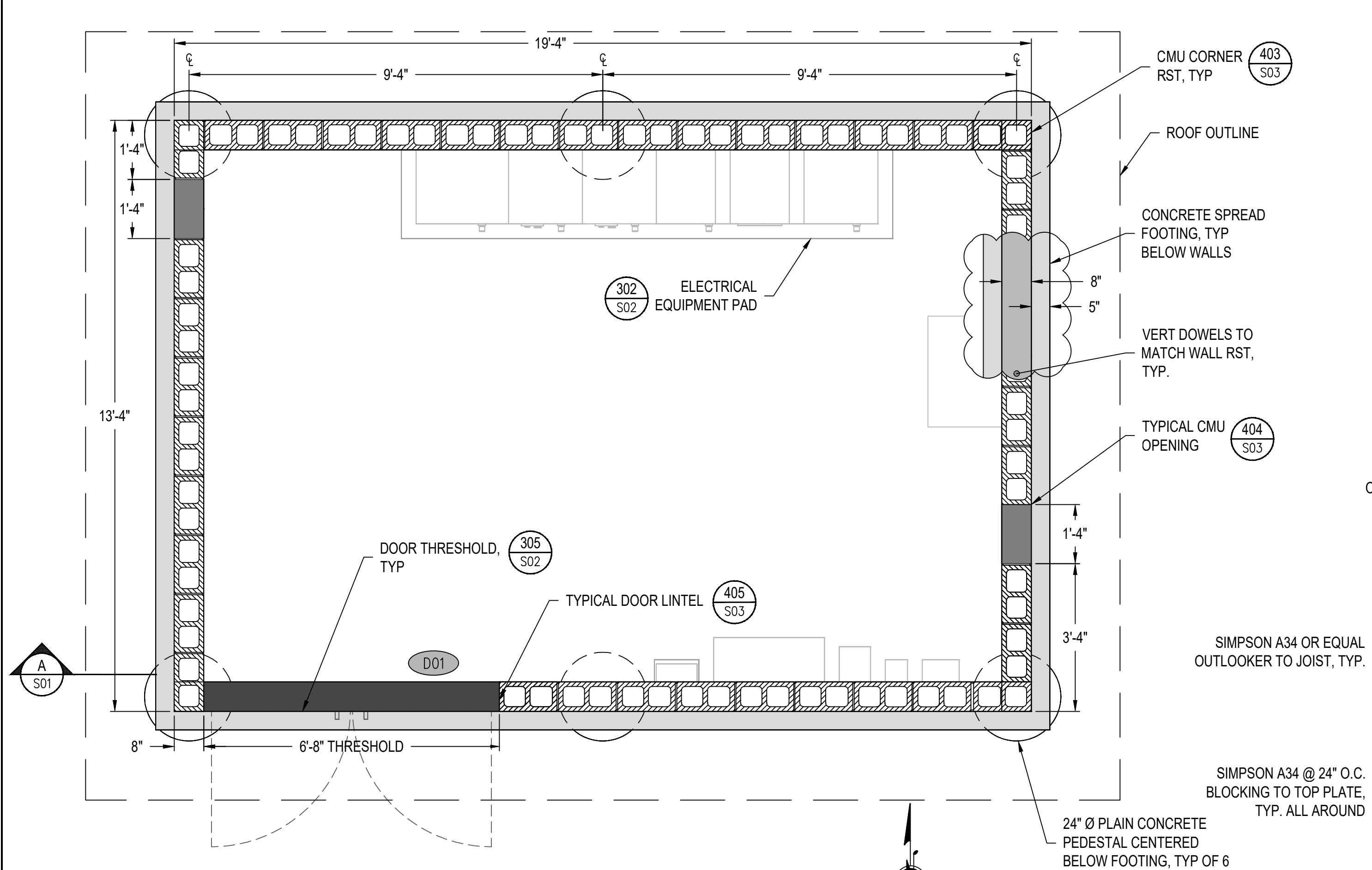
SCALE: SHOWN

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

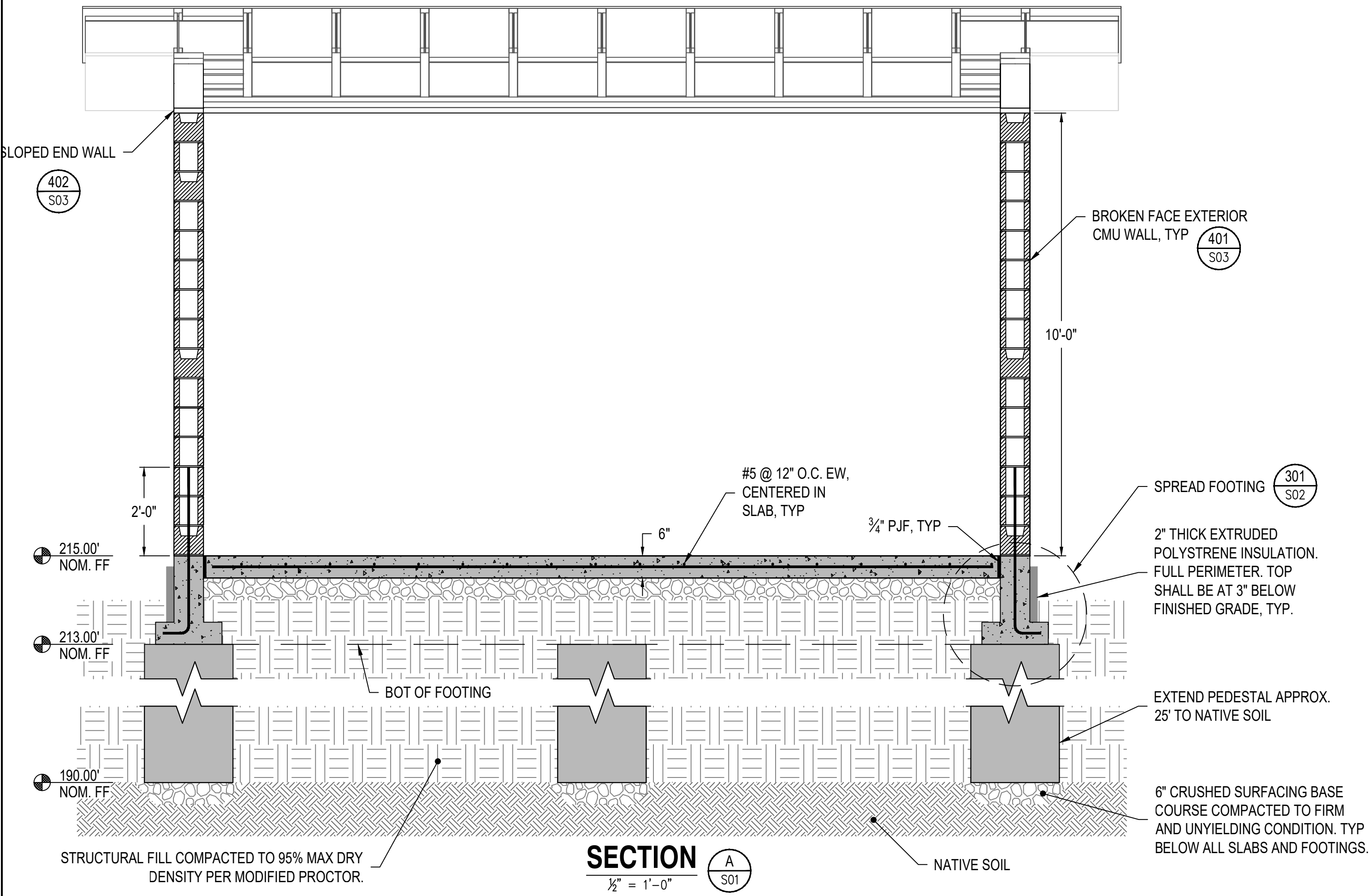
DWG NO.: A01

SHEET NO.: 15

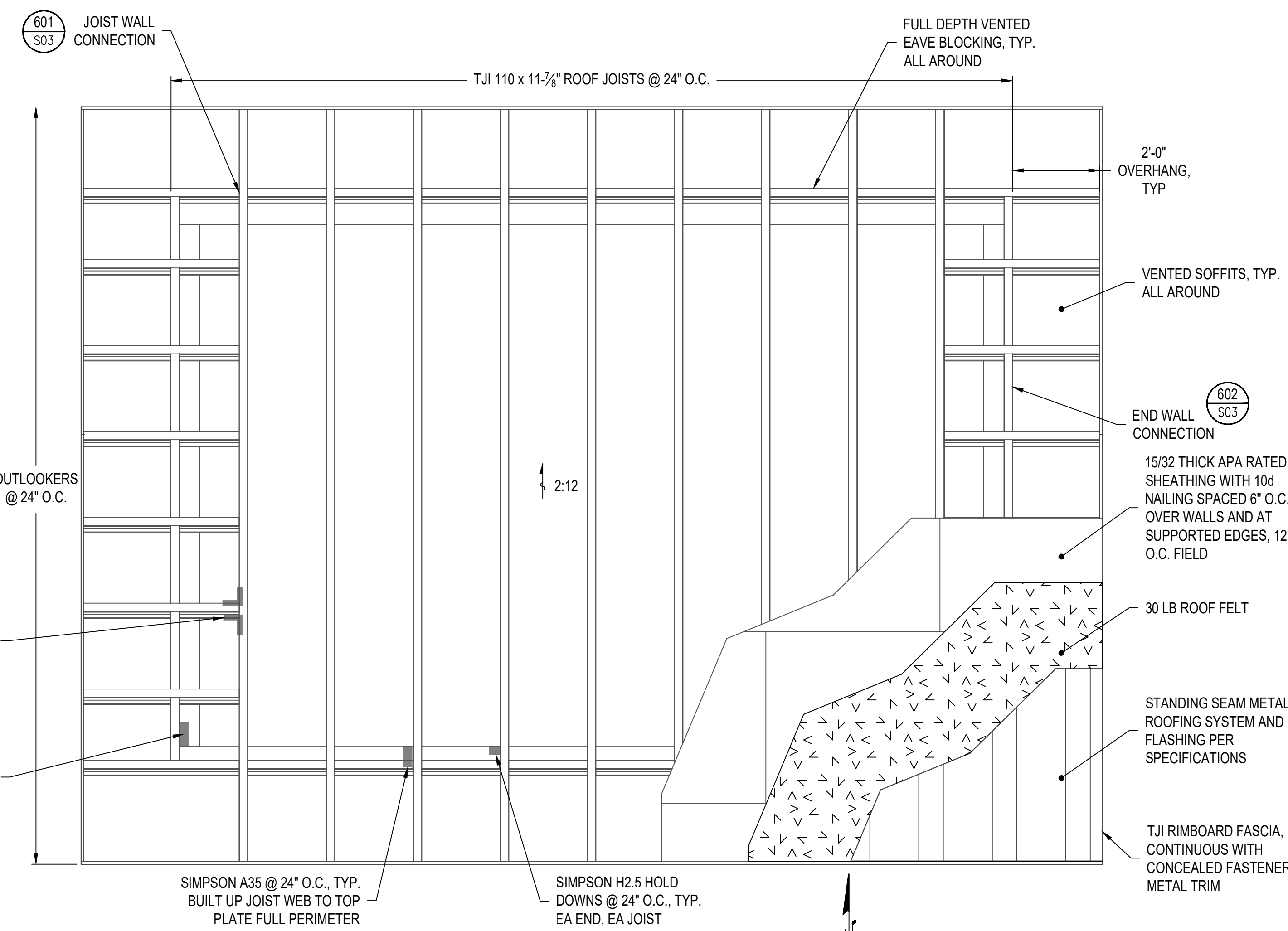
48



ELECTRICAL BUILDING FLOOR PLAN
1/2" = 1'-0"



SECTION A
1/2" = 1'-0"



ELECTRICAL BUILDING ROOF PLAN
1/2" = 1'-0"

DOOR AND FRAME SCHEDULE							
No.	Door			Frame			Exit Device Required
	Size		Material	Size		Material	
	Width	Height		Width	Height		
D01	6'-4"	7'-2"	HM	6'-8"	7'-4"	HM	YES

VENTILATOR SCHEDULE						
NO.	FLOW	FLOWRATE	BACKDRAFT DAMPER	MANUFACTURER	MODEL	ACCESSORIES
EF-1	EXHAUST					

LOUVER AND DAMPER SCHEDULE							
NO.	FLOW	FLOW RATE (SCFM)	MANUFACTURER	DAMPER, LOUVER	DIMENSIONS	ACCESSORIES*	NOTES
LA-1	INTAKE						
LA-2	EXHAUST						

* MOUNTING SLEEVES DEPTH SHOULD BE 18" MAX.

CITY OF LACEY

LIFT STATION 19 REHABILITATION

BUILDING STRUCTURAL PLAN AND SECTION

LOG NO.: 516-081

CLIENT: LAC

FILE NAME: LS19-03-01.DWG

ENGINEER: CPC

DATE: Nov 19, 2020

REVIEWED: JMC

DATE: Nov 19, 2020

NO.

DATE

DESCRIPTION

BY

REVIEW

REVISIONS

60% REVIEW

DRAWINGS

SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: S01

SHEET NO.: 16

48

MINIMUM FROST DEPTH	12"
MAXIMUM NET BEARING	2,000 PSF STATIC PER
SOILS REPORT REFERENCE	"TECHNICAL MEMORANDUM" BY RH2 ENGINEERING, AUGUST 2020
<u>OTHER LOADING PARAMETERS:</u>	
WIND LOAD	115 MPH, EXPOSURE B
SNOW LOAD	25 PSF
EARTHQUAKE LOAD	LAT 47.072467, LONG -122.753311 SITE CLASS C $S_{DS} = 1.109g$ $S_{D1} = 0.5g$
<u>OTHER DESIGN VALUES USED:</u>	
RISK CATEGORY	IV - ESSENTIAL FACILITY
CONCRETE	4,000 PSI WITH 60,000 PSI REINFORCING
CMU	1,500 PSI WITH 60,000 PSI REINFORCING
STEEL	A36 FOR PLATES, A992 FOR OTHER
TIMBER	SPRUCE-PINE FIR, NO 2 OR BETTER
<u>LIVE LOADS:</u>	
ROOF	20 PSF
<u>IBC BUILDING CRITERIA</u>	
OCCUPANCY GROUP	U (UTILITY)
CONSTRUCTION TYPE	V-B
OCCUPANT LOAD	49
BUILDING AREA	258 SQ. FT.

ALL MATERIALS, WORKMANSHIP, DESIGN, AND CONSTRUCTION SHALL CONFORM TO THE
DRAWINGS, SPECIFICATIONS, AND THE INTERNATIONAL BUILDING CODE (2015 EDITION)

PROVIDE VERIFICATION OF APPROVED SHOP IF AN APPROVED SHOP IS USED.
SPECIAL INSPECTIONS AND TESTS SHALL INCLUDE THE FOLLOWING. REFER TO IBC SECTION 1704 AND 1707 FOR DETAILS.

1. SPECIAL INSPECTIONS BY THE GEOTECHNICAL ENGINEER INCLUDING:
 - 1.1. SITE EXCAVATION AND GRADING
 - 1.2. PLACEMENT OF STRUCTURAL FILL AND SOIL COMPACTION
 - 1.3. VERIFICATION OF SOIL-BEARING CAPACITY
2. CONCRETE PLACEMENT AT CONCRETE CONSTRUCTION: CONTINUOUS, SEE ALSO SECTION 1704.4 OF THE INTERNATIONAL BUILDING CODE.
3. REINFORCEMENT AT CONCRETE CONSTRUCTION: PERIODIC, SEE ALSO SECTION 1704.4.
4. MASONRY CONSTRUCTION, INCLUDING PLACEMENT OF MASONRY UNITS, MORTAR REINFORCEMENT AND STRUCTURAL CONNECTIONS: PERIODIC, SEE ALSO SECTION 1704.5.3.
5. GROUT PLACEMENT AT MASONRY CONSTRUCTION: CONTINUOUS, SEE ALSO SECTION 1704.5.3.
6. WOOD-FRAMED LATERAL-FORCE RESISTING SYSTEM: PERIODIC, SEE ALSO SECTION 1707.3.
7. TESTING OF CONCRETE FOR SPECIFIED COMPRESSIVE STRENGTH (FC), AIR CONTENT AND SLUMP. SEE ALSO TABLE 1704.4 OF THE INTERNATIONAL BUILDING CODE.
8. VERIFICATION OF SPECIFIED COMPRESSIVE STRENGTH (FM) OF MASONRY PRIOR TO CONSTRUCTION AT EVERY 5,000 SQUARE FEET DURING CONSTRUCTION. SEE ALSO TABLE 1708.1.4 OF THE INTERNATIONAL BUILDING CODE.
9. STRUCTURAL OBSERVATION BY A REGISTERED DESIGN PROFESSIONAL IN ACCORDANCE WITH IBC 1709. SHALL BE PROVIDED.
10. CONTINUOUS SPECIAL INSPECTION OF DRILL AND EPOXY ANCHOR INSTALLATION REQUIRED.
11. SPECIAL INSPECTION OF WELDING / BOLTING REQUIRED UNLESS PERFORMED AT AN APPROVED SHOP.

LINES SHOWN ON DRAWINGS MAY BE ASSOCIATED WITH CAD MODELING AND MAY NOT REPRESENT REQUIRED
 OR ALLOWED JOINTS. SEE DETAILS FOR CLARIFICATION ON REQUIRED AND ALLOWED JOINTS.

1. REINFORCING STEEL SHALL BE DETAILED (INCLUDING HOOKS AND BENDS) IN ACCORDANCE WITH ACI 318 AND 318-14. LAP ALL REINFORCEMENTS IN ACCORDANCE WITH THE "REINFORCING SPLICE AND DEVELOPMENT LENGTH SCHEDULE". SEE THIS SHEET. LAP ADJACENT MATS OF WELDED WIRE FABRIC MINIMUM OF 8" AT SIDES AND ENDS.
2. NO BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE SHALL BE FIELD BENT UNLESS SPECIFICALLY DETAILED OR APPROVED BY THE STRUCTURAL ENGINEER.
3. CONCRETE PROTECTION FOR REINFORCING STEEL SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED:
 - 3.1. FOOTINGS AND OTHER UNIFORMED SURFACES CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
 - 3.2. FORMED SURFACES EXPOSED TO EARTH (WALLS BELOW GRADE), WATER OR WEATHER (#6 BARS OR LARGER) 2"
 - 3.3. SLABS AND INTERIOR FACES 2"

AL - ALUMINUM
CHK - CHECKERED
CL - CENTERLINE
CLR - CLEAR
CSBC - CRUSHED SURFACING
BASE COURSE
EA - EACH
EF - EACH FACE
FB - FLAT BAR
HORZ - HORIZONTAL
LLV - LONG LEG VERT
O.C. - ON CENTER
PL - PLATE
PJF - PREMOLDED
JOINT FILLER
RB - ROUND BAR
RST - REINF. STEEL
SST - STAINLESS STEEL
T&B - TOP & BOTTOM
VERT - VERTICAL
UNO - UNLESS NOTED
OTHERWISE
WWM - WELDED WIRE MESH

REINFORCEMENT SPLICE AND DEVELOPMENT SCHEDULE				
	MINIMUM STRAIGHT DEVELOPMENT LENGTHS		MINIMUM LAP SPLICE LENGTHS	MINIMUM EMBEDMENT LENGTHS
BAR	TOP BARS	OTHER BARS	TOP BARS	ALL BARS
#3	19"	15"	25"	6"
#4	25"	19"	33"	7"
#5	31"	24"	41"	9"
	37"	29"	49"	10"

"TOP BARS" ARE HORIZONTAL BARS WITH MORE THAN 12" DEPTH OF CONCRETE CAST BELOW THEM.

IF CLEAR CONCRETE COVER IS LESS THAN 2x THE DIAMETER OF THE BAR OR THE CENTER-TO-CENTER SPACING IS LESS THAN (4) BAR DIAMETERS, THEN VALUES SHALL BE INCREASED BY 43%.

SIDE COVER MUST BE EQUAL TO OR GREATER THAN 2'-1/2".

END COVER FOR 90° HOOKS MUST BE EQUAL TO OR GREATER THAN 2'.

CMU ANCHORS FOR USE IN BOTH GROUTED AND UNGROUTED CMU CELLS SHALL BE EITHER HILTI HIT-HY 270 INJECTABLE MORTAR, SIMPSON STRONG-TIE SET-XP ANCHORING ADHESIVE, OR POWERS AC100+ GOLD ADHESIVE ANCHORS.

WHERE SIZE IS CALLED OUT ON THE DRAWINGS, PROVIDE MINIMUM EMBEDMENT DEPTHS AS SHOWN ON THE FOLLOWING TABLES. PROVIDE MINIMUM EDGE DISTANCES AND SPACING AS SHOWN ON THE FOLLOWING TABLES UNLESS SPECIFICALLY DETAILED OTHERWISE.

INSTALL ANCHORS IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS

NOTIFY OWNER 48 HOURS IN ADVANCE OF INSTALLATION OF ALL ANCHORS.

WHERE SIZE IS NOT CALLED OUT, ANCHOR SHALL BE SELECTED BASED ON DESIGN LOADS. IF THE MINIMUM EDGE DISTANCE AND/OR MINIMUM SPACING CAN NOT BE ACHIEVED, REFER TO PRODUCT INFORMATION FOR REDUCTION IN ALLOWABLE LOADS.

FORCES ARE DETERMINED BY THE FOLLOWING FORMULA: $(P_s / P_t) + (V_s / V_t) = 1$

WHERE: P_s = APPLIED SERVICE TENSION LOAD
 P_t = ALLOWABLE SERVICE TENSION LOAD
 V_s = APPLIED SERVICE SHEAR LOAD
 V_t = ALLOWABLE SERVICE SHEAR LOAD

THE ABOVE FORMULA IS FOR THE ALLOWABLE LOADS FOR ANCHORS SUBJECTED TO COMBINED TENSION AND SHEAR.

GROUTED CMU ANCHORS					
HILTI HIT-HY 270, SIMPSON STRONG-TIE SET-XP & POWERS AC100+ GOLD					
DIA. OF ROD (INCHES) OR REBAR SIZE NO.	MIN. EDGE DISTANCE (INCHES)	MIN. EMBEDMENT (INCHES)	MIN. ANCHOR SPACING (INCHES)	ALLOWABLE LOAD BASED ON BOND STRENGTH (POUNDS)	
				TENSION	SHEAR
3/8	12	3-3/8	(1) PER CELL	1,000	845
1/2	12	4-1/2	(1) PER CELL	1,000	1,470
5/8	12	5-5/8	(1) PER CELL	1,140	1,595
3/4	12	6-3/4	(1) PER CELL	1,200	1,625
#3	12	3-3/8	(1) PER CELL	1,000	850
#4	12	4-1/2	(1) PER CELL	1,000	1,355
#5	12	5-5/8	(1) PER CELL	1,140	1,355

UNGROUTED CMU ANCHORS					
HILTI HIT-HY 270, SIMPSON STRONG-TIE SET-XP & POWERS AC108+ GOLD					
DIA. OF ROD (INCHES) OR REBAR SIZE NO.	MIN. EDGE DISTANCE (INCHES)	MIN. EMBEDMENT (INCHES)	MIN. ANCHOR SPACING (INCHES)	ALLOWABLE LOAD BASED ON BOND STRENGTH (POUNDS)	
				TENSION	SHEAR
3/8	12	3	(1) PER CELL	280	265
1/2	12	3	(1) PER CELL	280	265
5/8	12	3	(1) PER CELL	280	265
3/4	12	3	(1) PER CELL	280	265
#3	12	3	(1) PER CELL	280	265
#4	12	3	(1) PER CELL	280	265
#5	12	3	(1) PER CELL	280	265

301
—

CONCRETE ANCHORS SHALL BE EITHER HILTI HIT-RE 500-V3 INJECTABLE MORTAR, SIMPSON STRONG-TIE SET-XP ANCHORING ADHESIVE, OR POWERS PE1000+ ADHESIVE ANCHORS AS SPECIFIED. WHERE SIZE IS CALLED OUT ON THE DRAWINGS, PROVIDE MINIMUM EMBEDMENT DEPTHS AS SHOWN ON THE FOLLOWING TABLES. PROVIDE MINIMUM EDGE DISTANCES AND SPACING AS SHOWN ON THE FOLLOWING TABLES UNLESS SPECIFICALLY DETAILED OTHERWISE. SPECIAL INSPECTION REQUIRED.

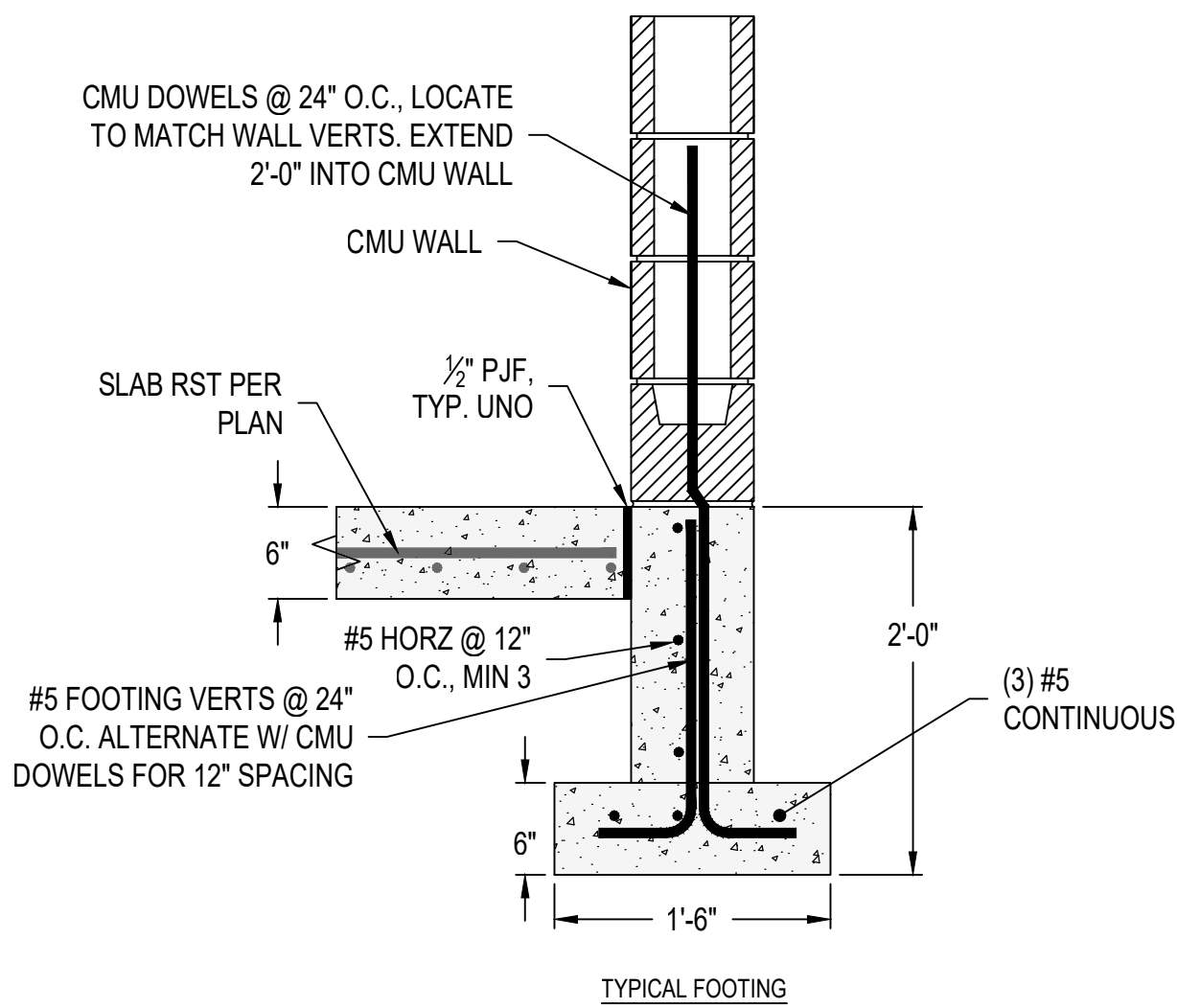
INSTALL ANCHORS IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS

NOTIFY OWNER 48 HOURS IN ADVANCE OF INSTALLATION OF ALL ANCHORS.

WHERE SIZE IS NOT CALLED OUT, ANCHOR SHALL BE SELECTED BASED ON DESIGN LOADS. IF THE MINIMUM EDGE DISTANCE AND/OR MINIMUM SPACING CAN NOT BE ACHIEVED, REFER TO PRODUCT INFORMATION FOR REDUCTION IN ALLOWABLE LOADS.

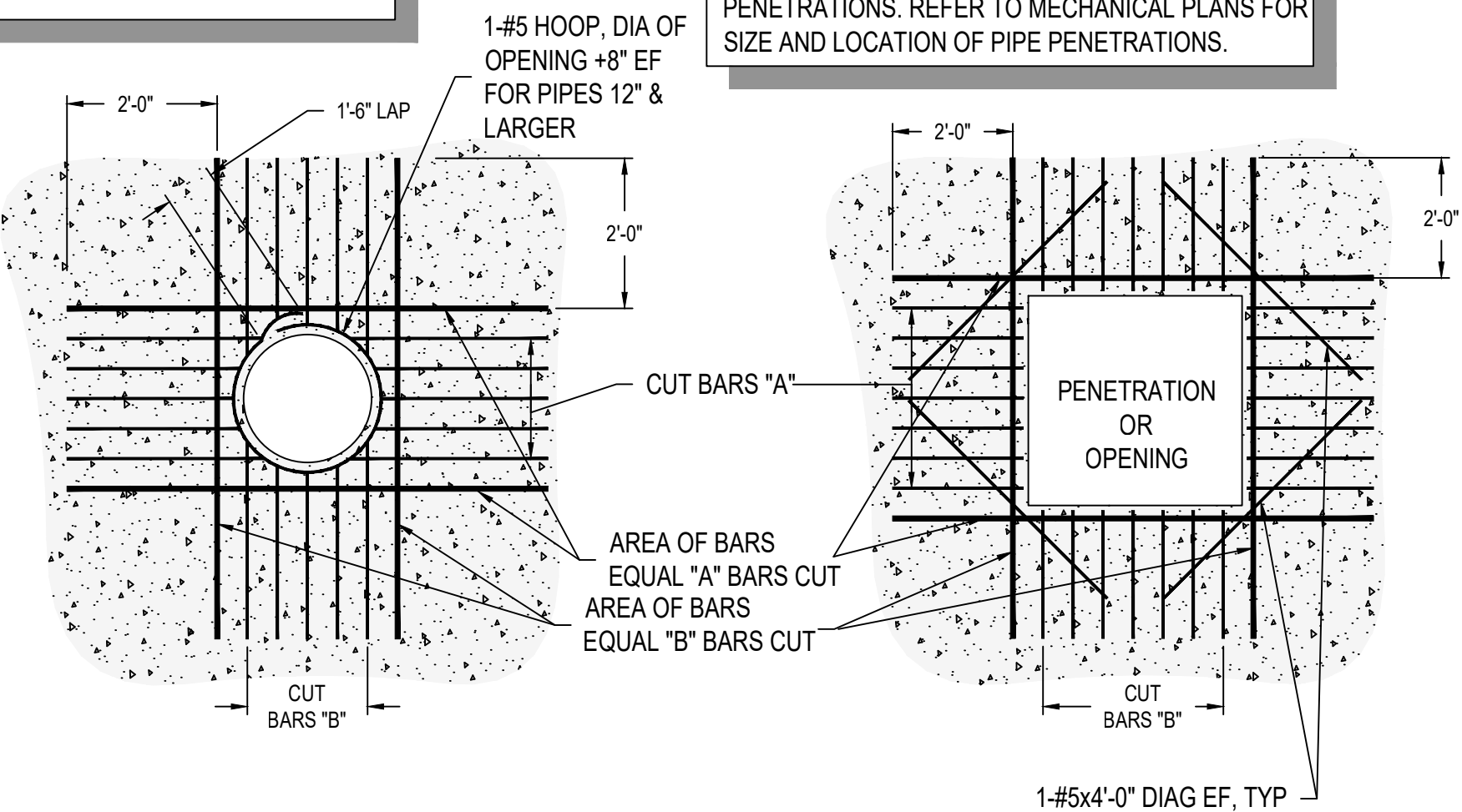
CONCRETE ANCHORS					
HILTI HIT-RE 500-V3, SIMPSON STRONG-TIE SET-XP & POWERS PE1000+					
DIA. OF ROD (INCHES) OR REBAR SIZE NO.	MIN. EDGE DISTANCE (INCHES)	MIN. EMBEDMENT (INCHES)	MIN. ANCHOR SPACING (INCHES)	ALLOWABLE LOAD BASED ON BOND STRENGTH (POUNDS)	
				TENSION	SHEAR
1/2	2-1/2	2-3/4	2-1/2	1,027	2,210
5/8	3-1/8	3-1/8	3-1/8	1,312	2,827
3/4	3-3/4	3-1/2	3-3/4	1,556	3,351
7/8	4-3/8	3-1/2	4-3/8	1,556	3,351
#4	2-1/2	4-1/2	2-1/2	1,520	3,618
#5	3-1/8	5-5/8	3-1/8	1,775	5,494
#6	3-3/4	6-3/4	3-3/4	2,225	7,570
#7	4-3/8	7-7/8	4-3/8	2,440	9,428
#8	5	9	5	4,520	11,507

302



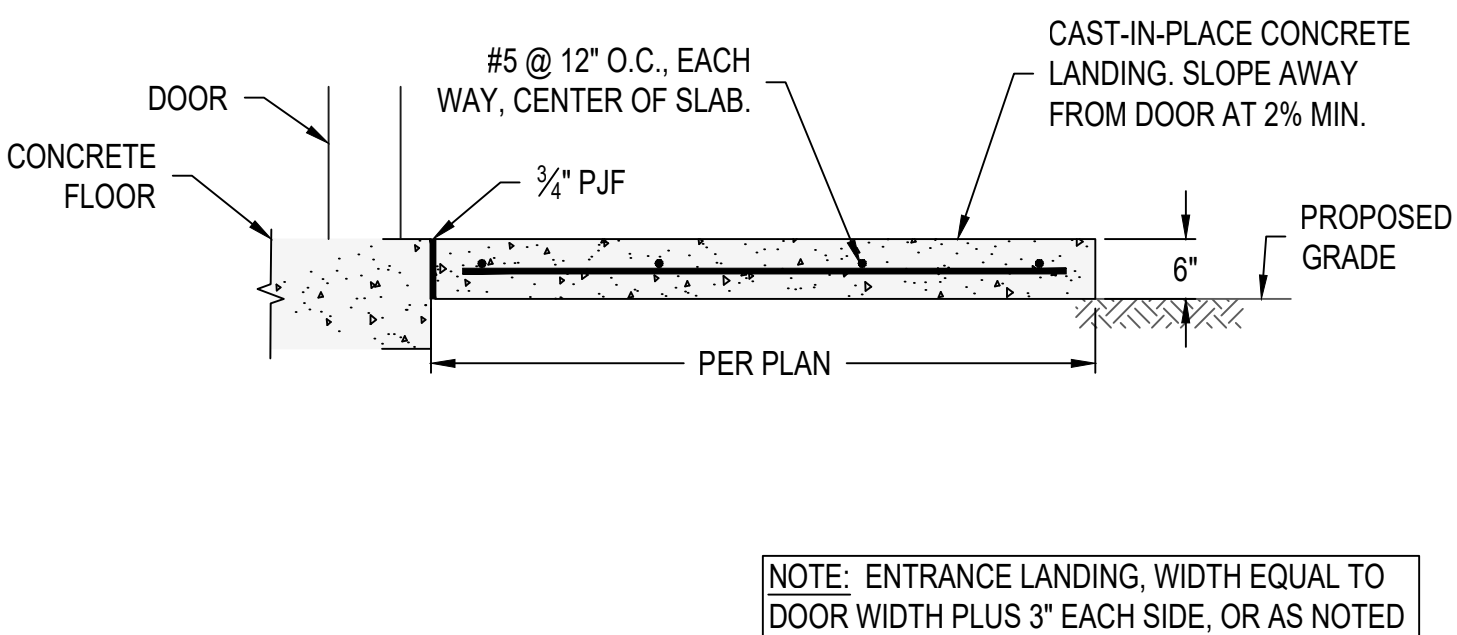
301
TYP

NOTE: NOT ALL PENETRATIONS ARE
SHOWN ON STRUCTURAL PLANS.



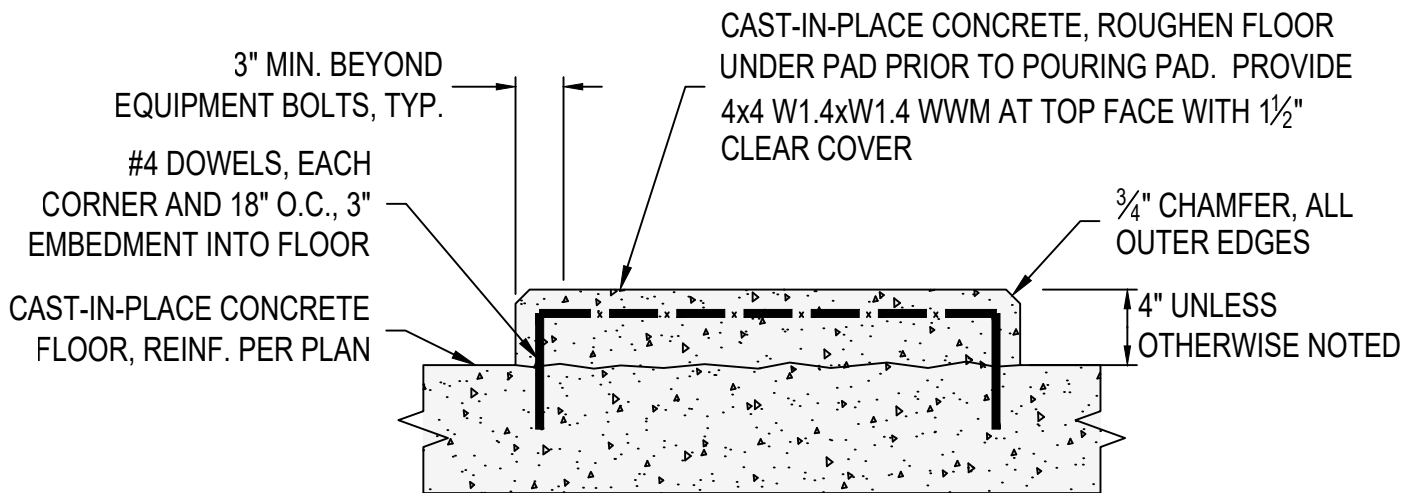
NOT TO SCALE

NOTE: PROVIDE CONCRETE CONTRACTION JOINTS @ 6 FT O.C. SPACING

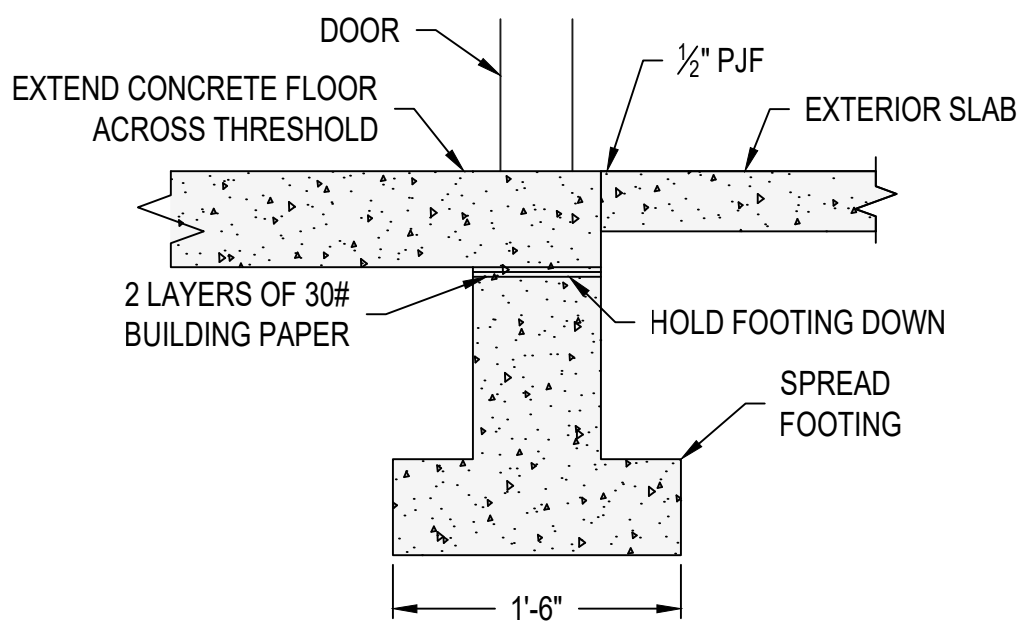


304
TYP

NOT TO SCALE



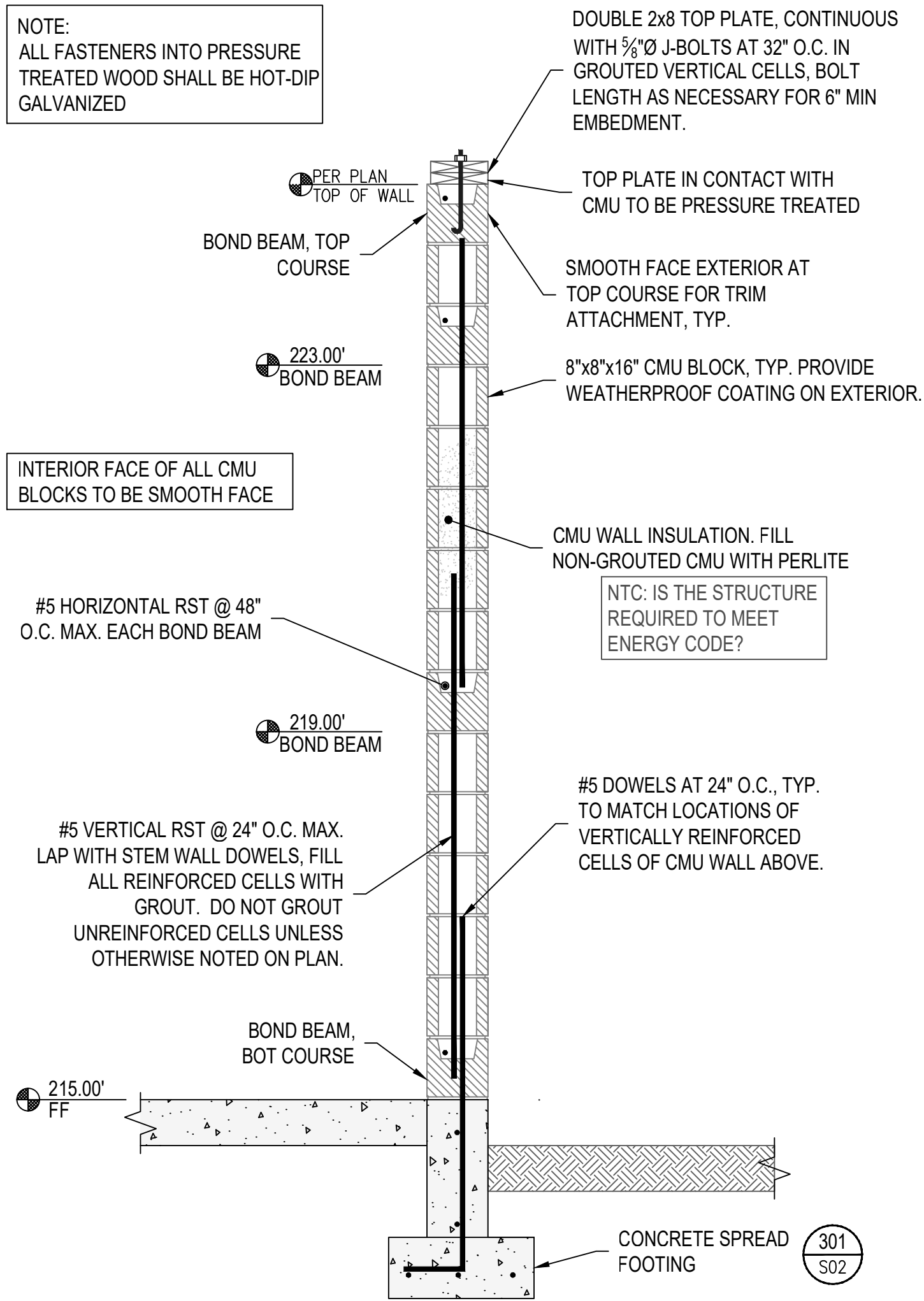
NTS



305
TYP

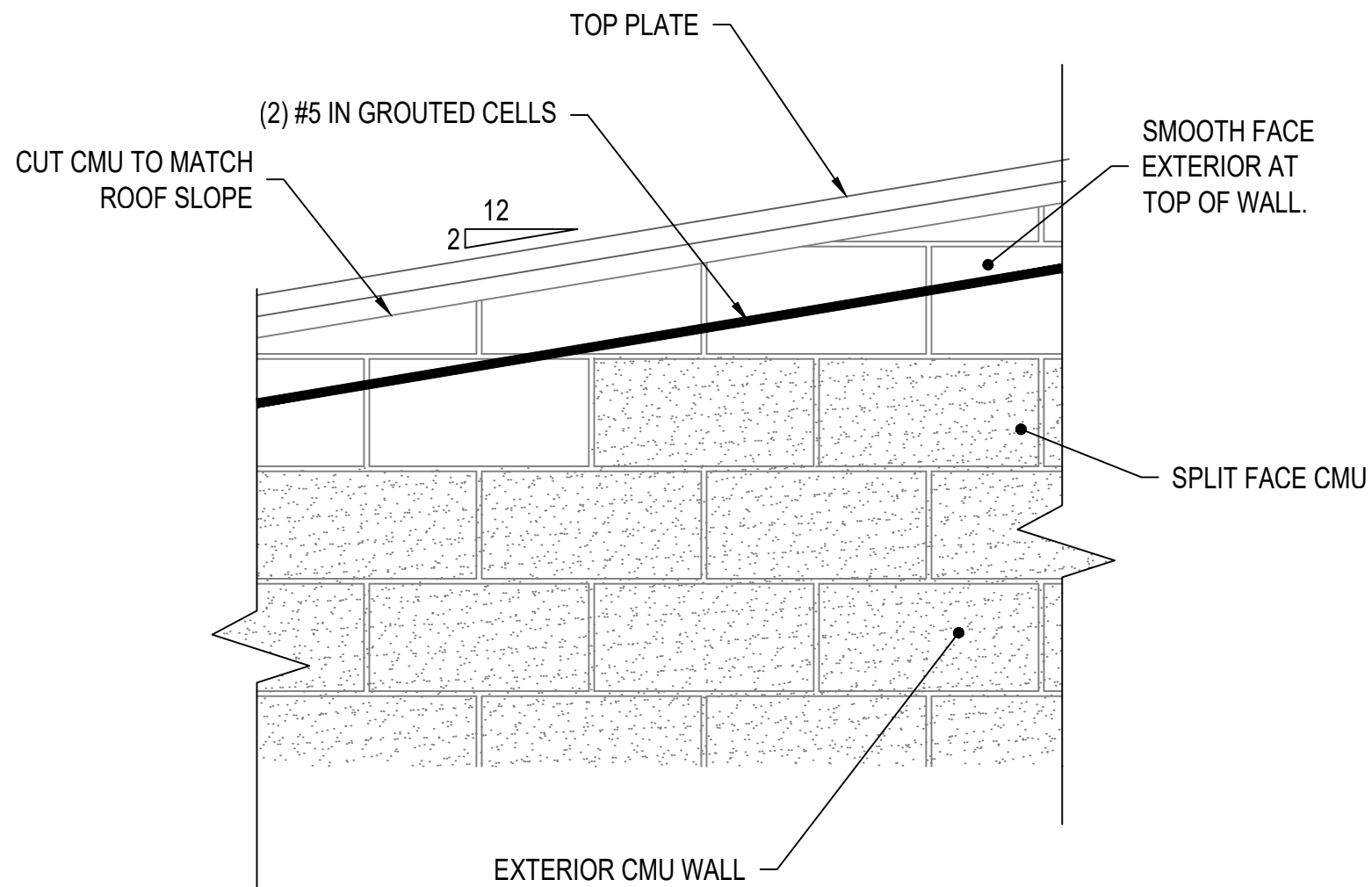
$$\overline{1''} = 1' - 0''$$
[illegible]

NOTE:
ALL FASTENERS INTO PRESSURE
TREATED WOOD SHALL BE HOT-DIP
GALVANIZED



EXTERIOR CMU WALL
NOT TO SCALE

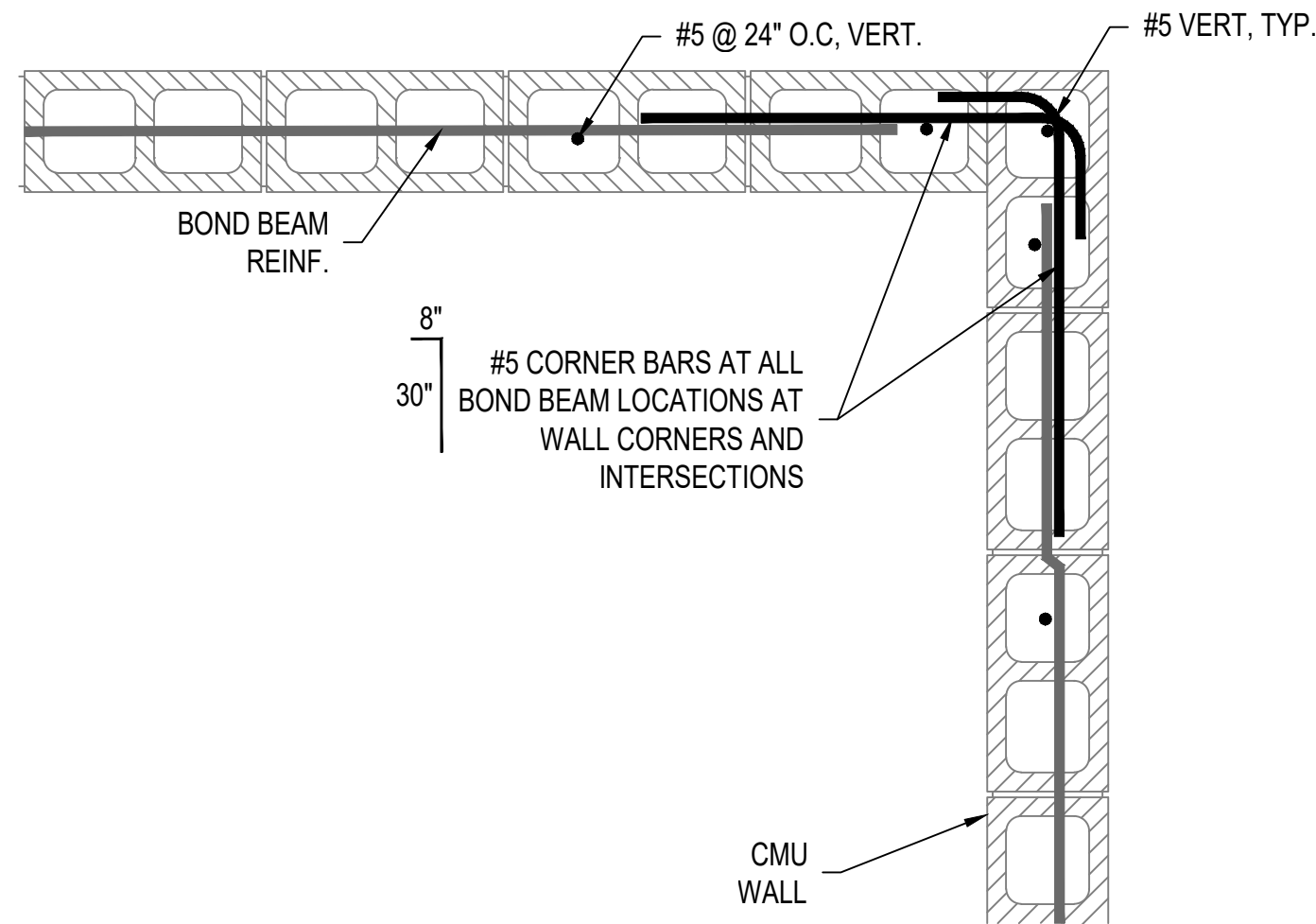
401
TYP



SLOPED END WALL DETAIL

1" = 1'-0"

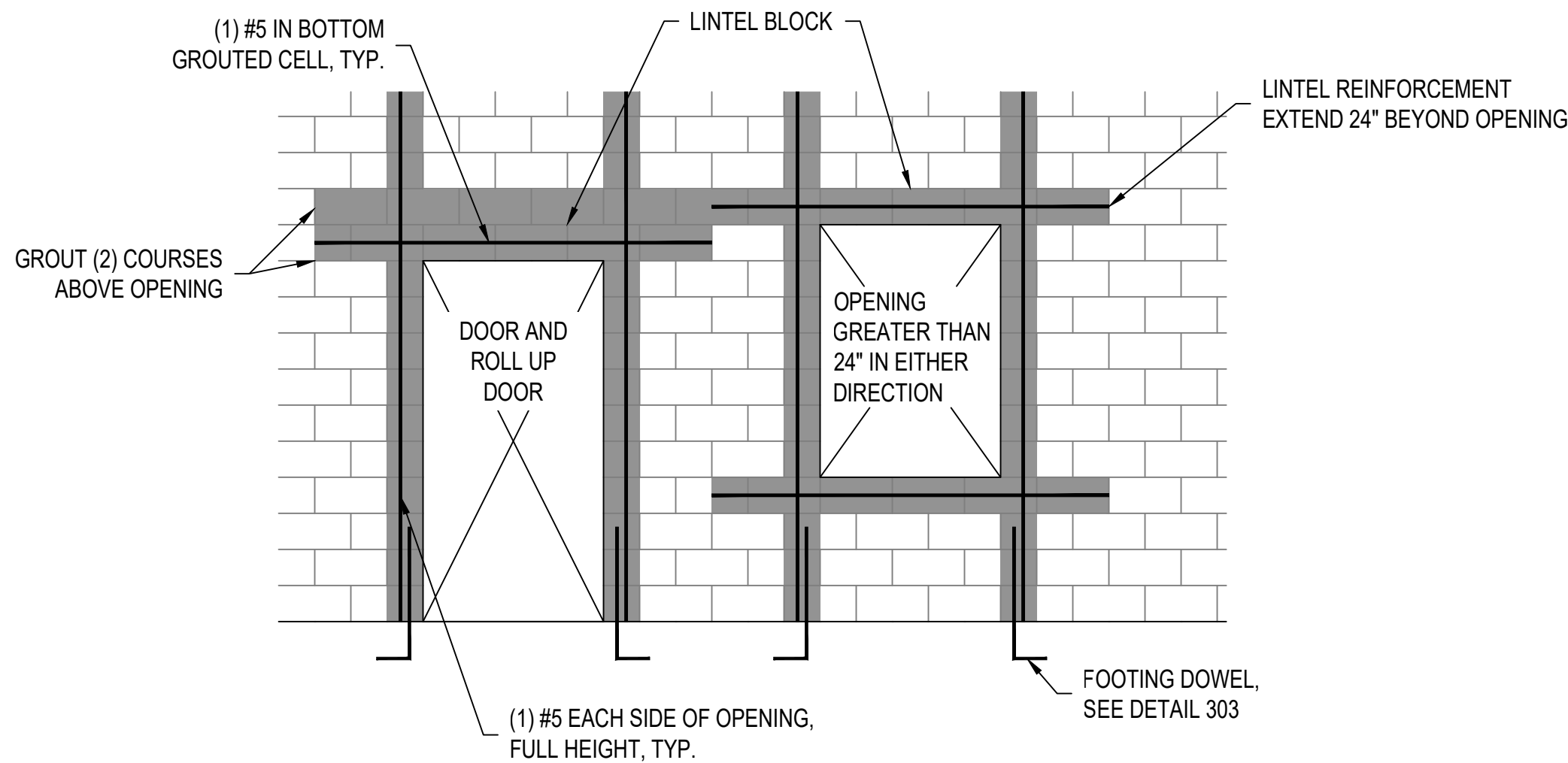
402
TYP



CMU WALL INTERSECTION / CORNER

1" = 1'-0"

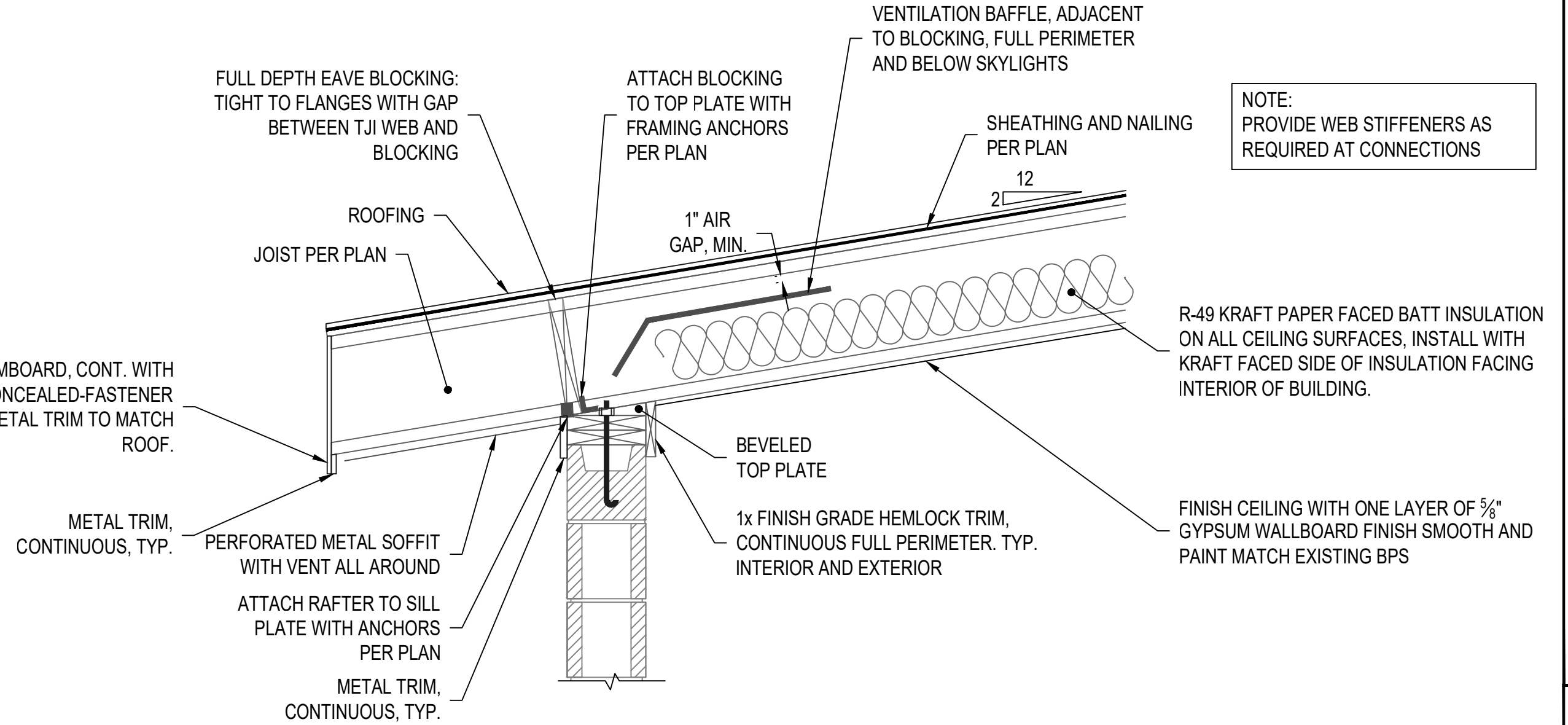
403
TYP



TYPICAL CMU OPENING

NOT TO SCALE

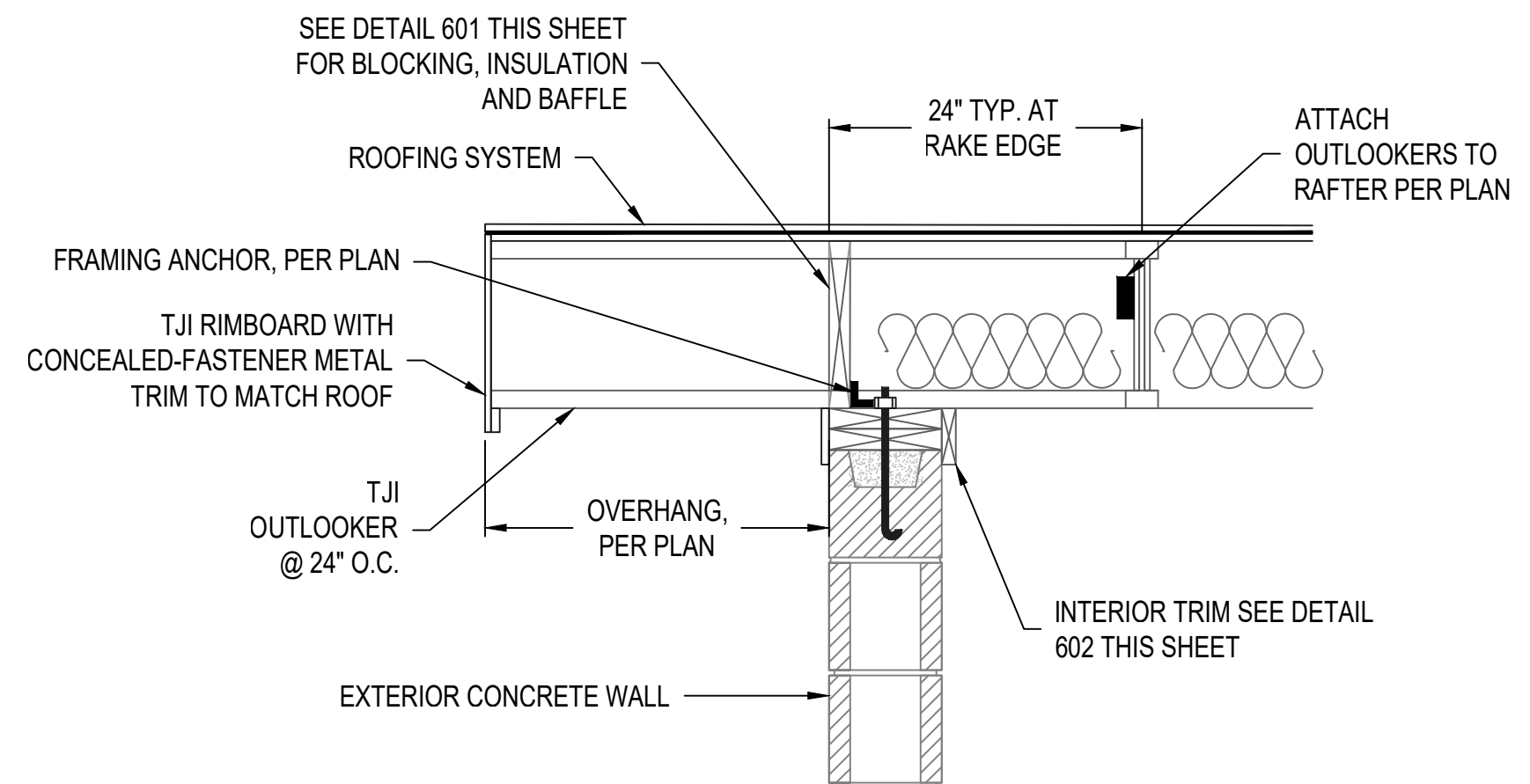
404
TYP



TYPICAL WALL/RAFTER CONNECTION

1" = 1'-0"

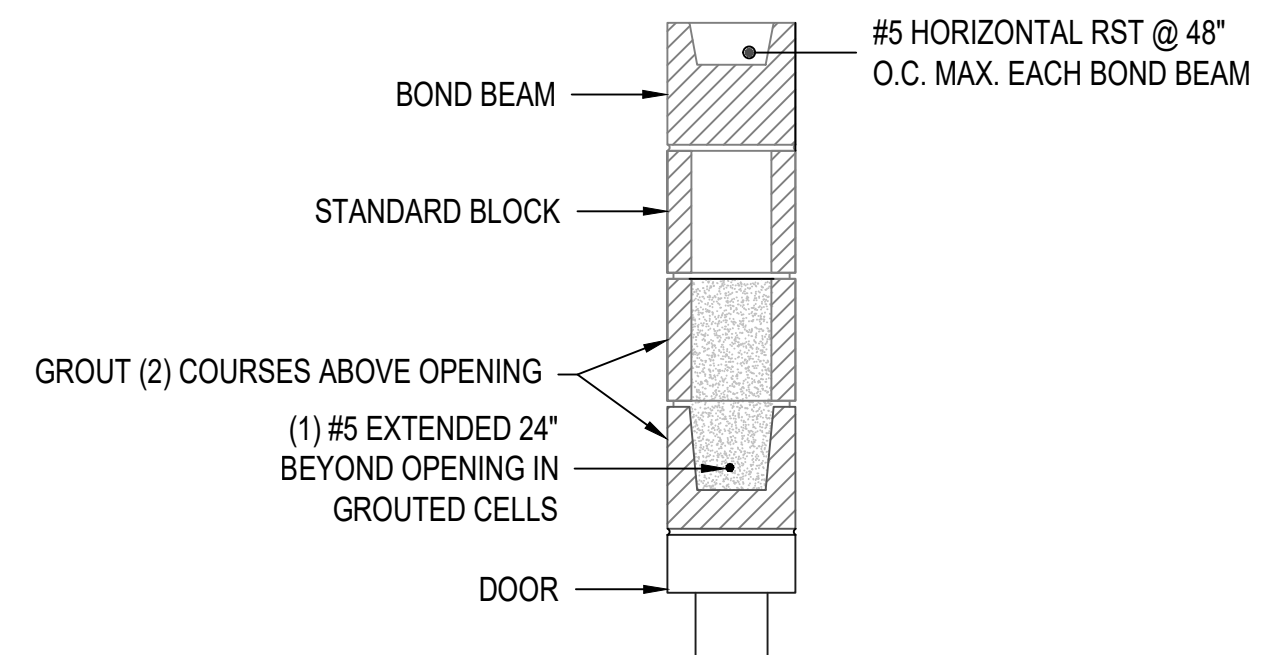
601
TYP



RAKE SECTION

1"=1'-0"

602
TYP.



TYPICAL DOOR LINTEL

1" = 1'-0"

405
TYP



CITY OF LACEY
LIFT STATION 19 REHABILITATION



BUILDING STRUCTURAL DETAILS II

ENGINEER: CPC	REVIEWED: JMC	DATE: Nov 19, 2020	DATE: Nov 20, 2020	NO.	DATE	DESCRIPTION	BY	REVIEW
LOG NO.: 516-081				CLIENT: LAC				
FILENAME: LS19-Q-S03.DWG				REVISIONS				
				60% REVIEW DRAWINGS				

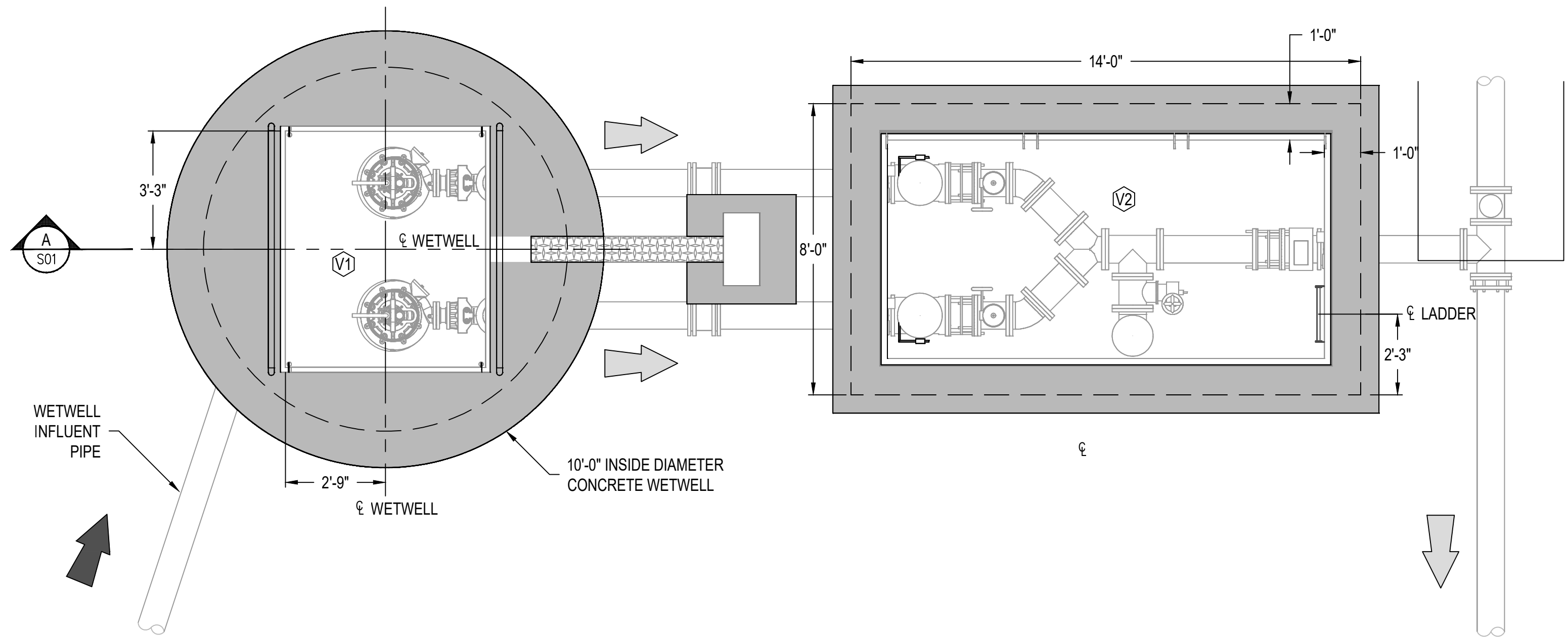
SCALE: SHOWN	
0'	1'
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"	
DWG NO.: S03	SHEET NO.: 18

NOTES:
VALVE VAULT INSIDE DEPTH MUST BE LESS THAN 4' FROM FLOOR TO HATCH.

VAULT AND MANHOLE INTERIOR SHOWN ON SHEET M01

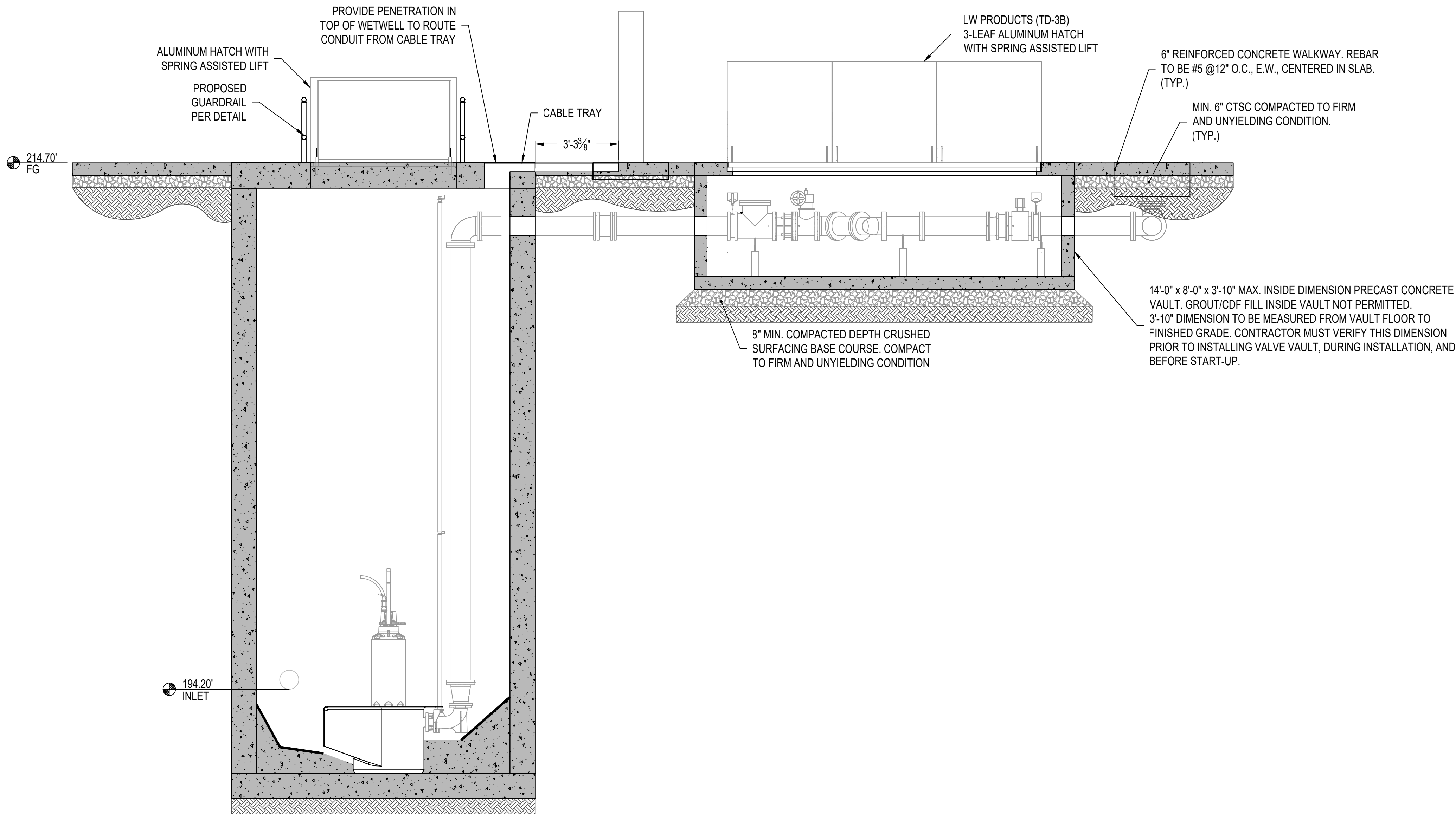
ACCESS HATCH SCHEDULE						
NO.	CLEAR OPENING	NO. OF LEAVES	RATING	MOUNTING*	GRATING	GASKET ODOR TIGHT / STANDARD
V1	78" x 66"	2	H-20	BOLTS	NO	ODOR TIGHT
V2	144" x 72"	3	H-20	ANCHOR	NO	STANDARD

ACCESS HATCH NOTES:
* ACCESS HATCH OVER WET WELL SHALL BE MOUNTED USING STAINLESS STEEL BOLTS AS SHOWN ON THIS PLAN. ALL OTHER ACCESS HATCHES SHALL BE MOUNTED USING THE STANDARD FRAME ANCHORS THAT COME WITH THE HATCH.



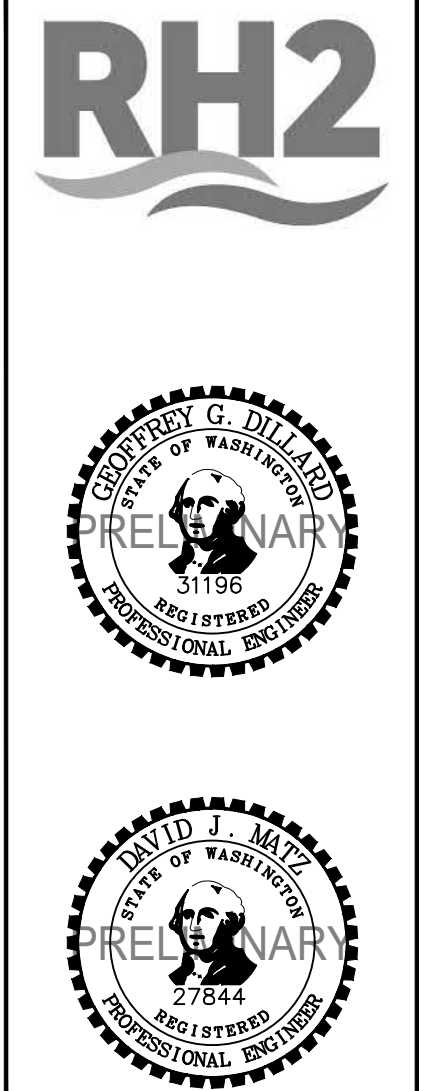
PROPOSED LIFT STATION STRUCTURAL PLAN

3/8" = 1'-0"



PROPOSED LIFT STATION STRUCTURAL ELEVATION

3/8" = 1'-0"



CITY OF LACEY

LIFT STATION 19 REHABILITATION

LACEY

STRUCTURAL PLAN AND ELEVATION

ENGINEER: CPC	DATE: Nov 13, 2020	CLIENT: LAC	LOG NO.: 516-081	REVISIONS			
REVIEWED: JMC	PLOT DATE: Nov 19, 2020	FILENAME: LS19-Q-S04.DWG		60% REVIEW DRAWINGS			
NO.	DATE	DESCRIPTION	BY	REVIEW			

SCALE: SHOWN

0'1'2'

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: S04SHEET NO.: 1948

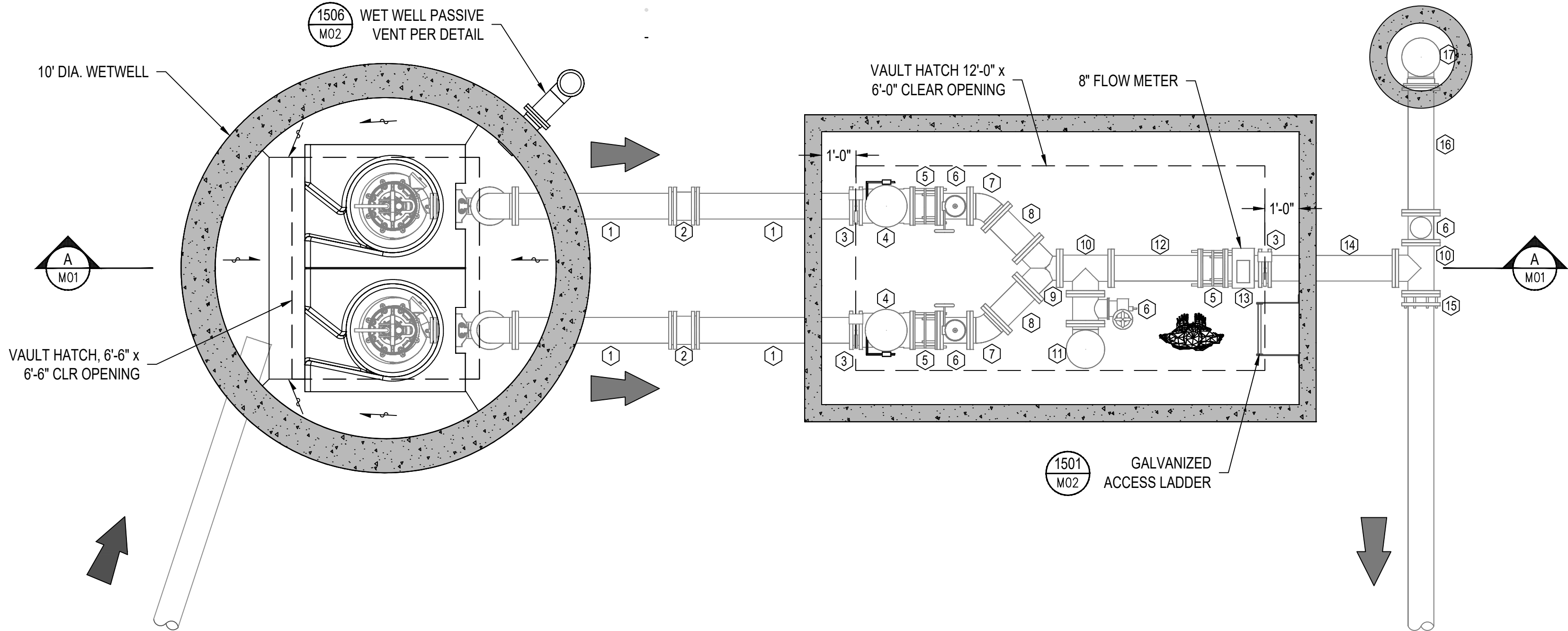
NOTE:
ALL HARDWARE AND FASTENERS MUST
BE 316 STAINLESS STEEL

NOTE: NOT ALL PIPE AND
FITTINGS ARE IDENTIFIED IN
THE MECHANICAL LEGEND(S).
CONTRACTOR SHALL BE
RESPONSIBLE OR PROVIDING
PIPE AND FITTINGS AS
NECESSARY FOR A COMPLETE
AND FUNCTIONING SYSTEM.

MECHANICAL FITTING LEGEND

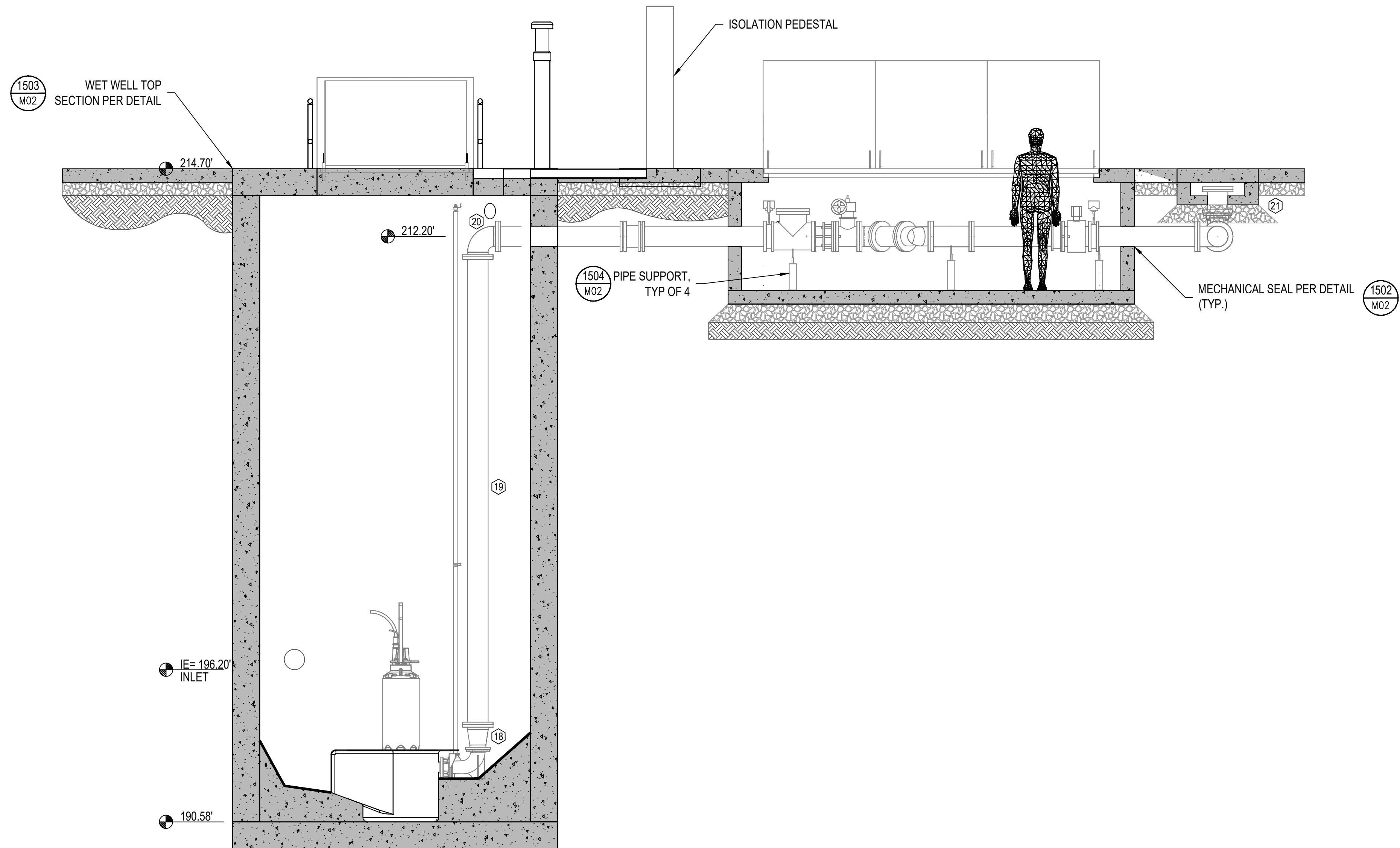
- ① 8" DI SPOOL (FLxPE), APPROX. 4' 6" LENGTH (TYP. OF 4)
- ② 8" DI SLEEVE (TYP. OF 2)
- ③ PRESSURE GAUGE AND TRANSMITTER ASSEMBLY (TYP. OF 3)
- ④ 8" DI M&H MODEL 159 SWING CHECK VALVE, OR APPROVED EQUAL (TYP. OF 2)
- ⑤ 8" DI DISMANTLING JOINT (TYP. OF 3)
- ⑥ 8" DI PLUG VALVE (FLxFL) (TYP. OF 4)
- ⑦ 8" DI 45° BEND (FLxFL) (TYP. OF 2)
- ⑧ 8" DI SPOOL (FLxFL), APPROX. 1' 4" LENGTH (TYP. OF 2)
- ⑨ 8" DI WYE (FLxFL)
- ⑩ 8" DI TEE (FLxFL) (TYP. OF 2)
- ⑪ 8" DI 90° VERTICAL BEND WITH CAM LOCK (FLxFL)
- ⑫ 8" DI SPOOL (FLxFL), APPROX. 3' 4" LENGTH
- ⑬ 8" FLOW METER (FLxFL)
- ⑭ 8" DI SPOOL (FLxFL), APPROX. 3' 9" LENGTH
- ⑮ 8" DI RFCA
- ⑯ 8" DI SPOOL (FLxPE), APPROX. 3' 7" LENGTH
- ⑰ 8" DI 90° VERTICAL BEND (RJxRJ)
- ⑱ 8" x 6" DI REDUCER (FLxFL) (TYP. OF 2)
- ⑲ 8" DI SPOOL (FLxFL), APPROX. 17' 3" LENGTH (TYP. OF 2)
- ⑳ 8" DI 90° VERTICAL BEND (FLxFL) (TYP. OF 2)
- ㉑ 8" DI SPOOL WITH CAM LOCK (FLxPE), APPROX. 0' 9" LENGTH

1505
M02



PROPOSED LIFT STATION MECHANICAL PLAN

3/8" = 1'-0"



PROPOSED LIFT STATION MECHANICAL ELEVATION

3/8" = 1'-0"

RH2



CITY OF LACEY
LIFT STATION 19 REHABILITATION



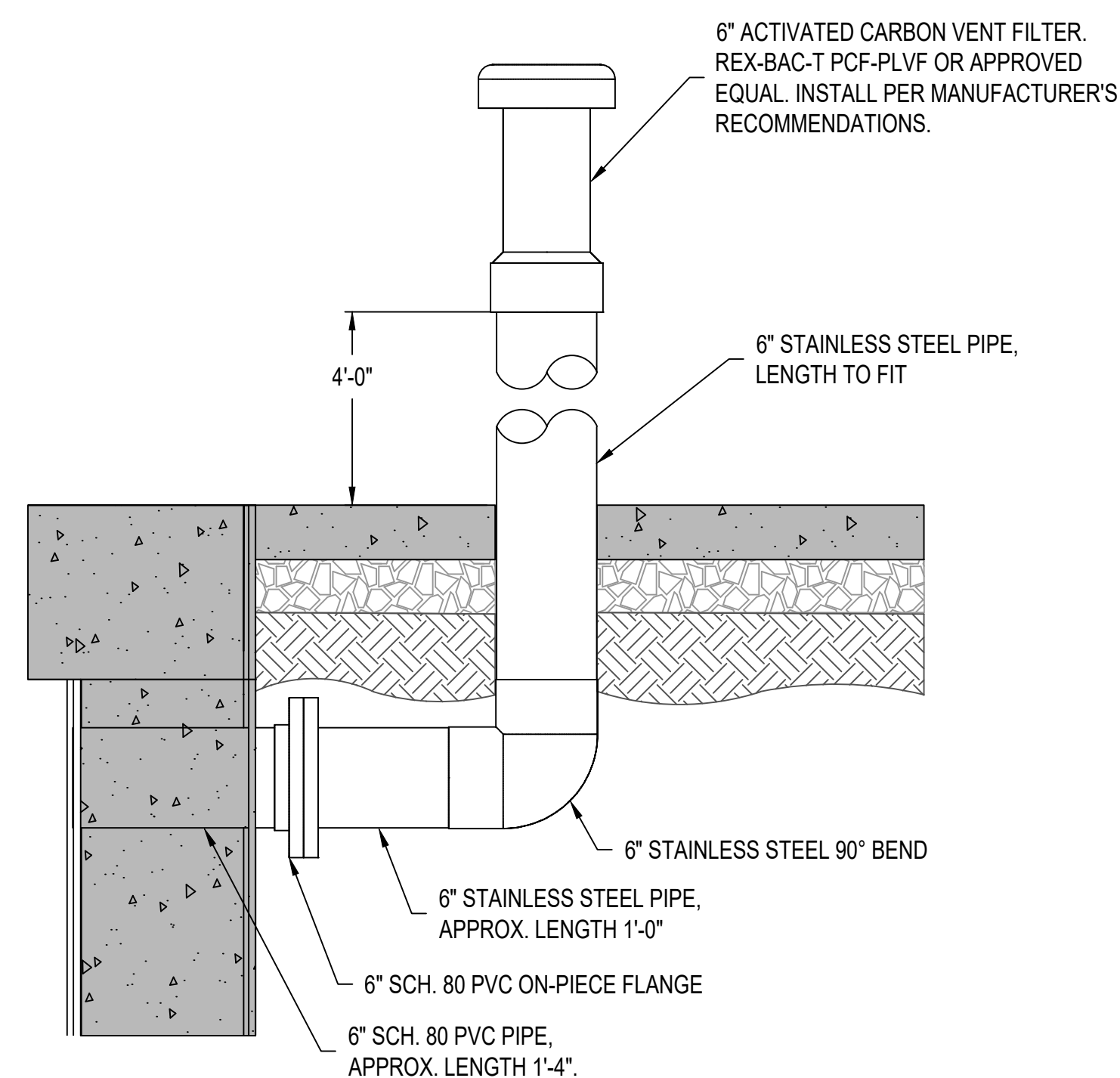
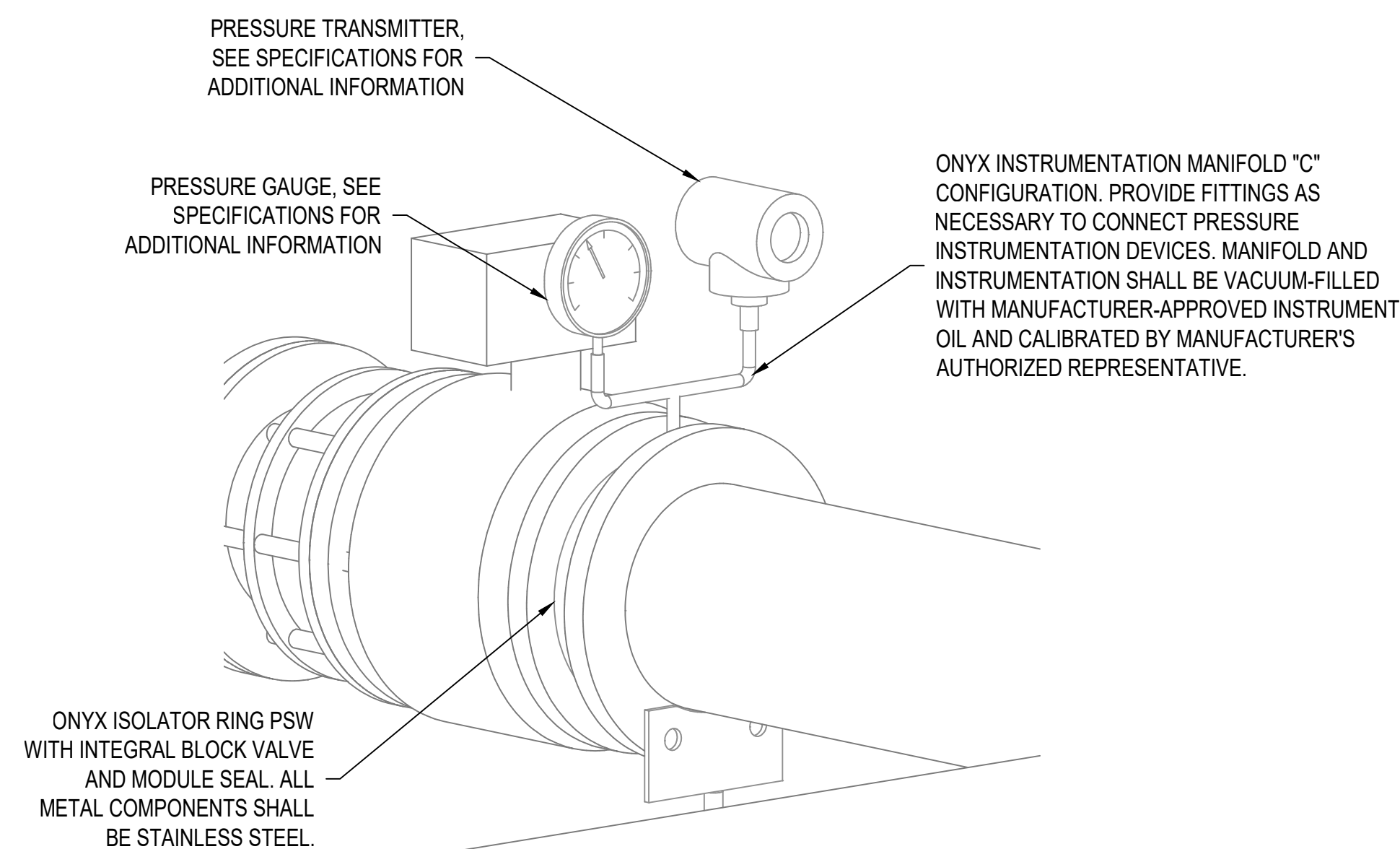
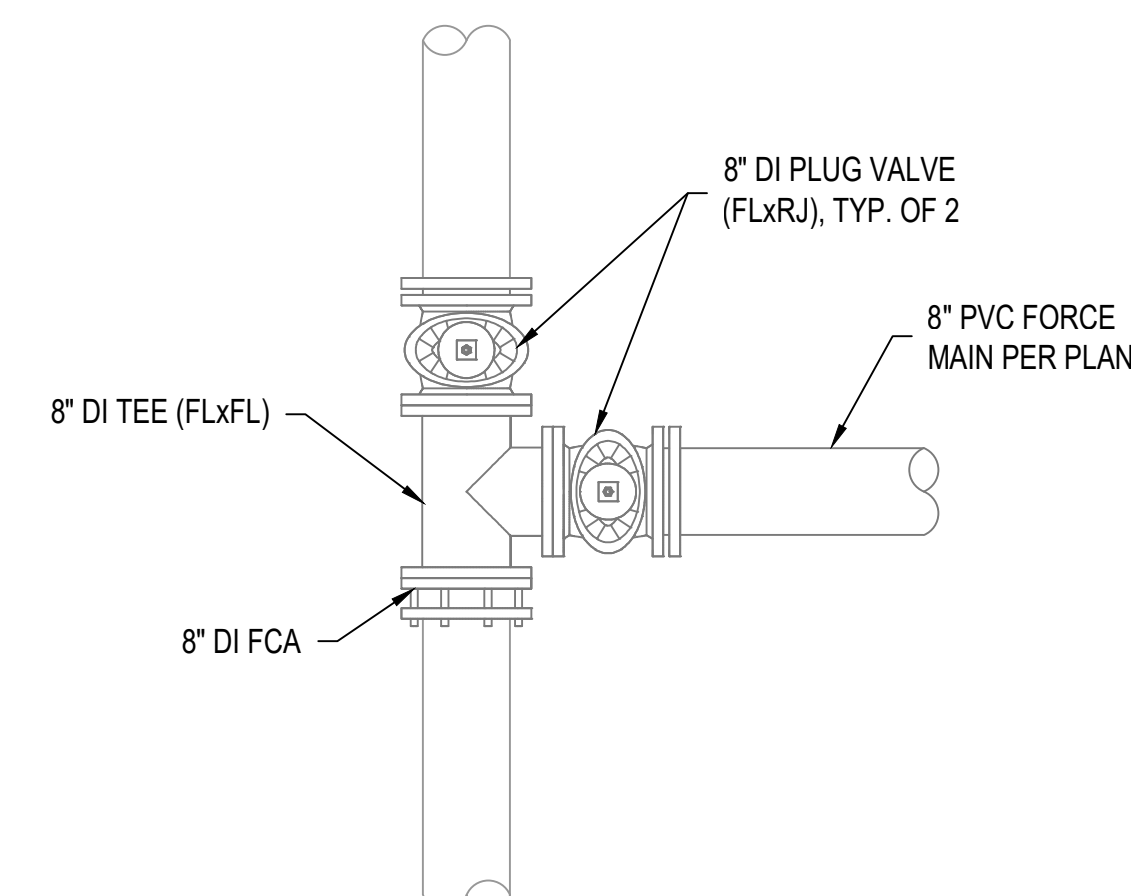
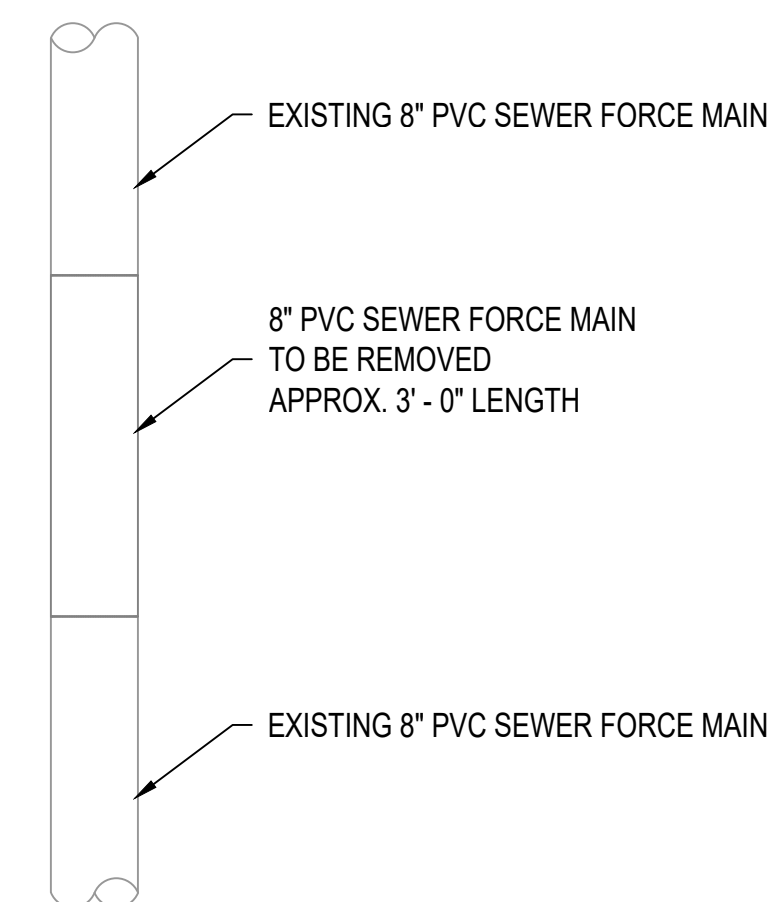
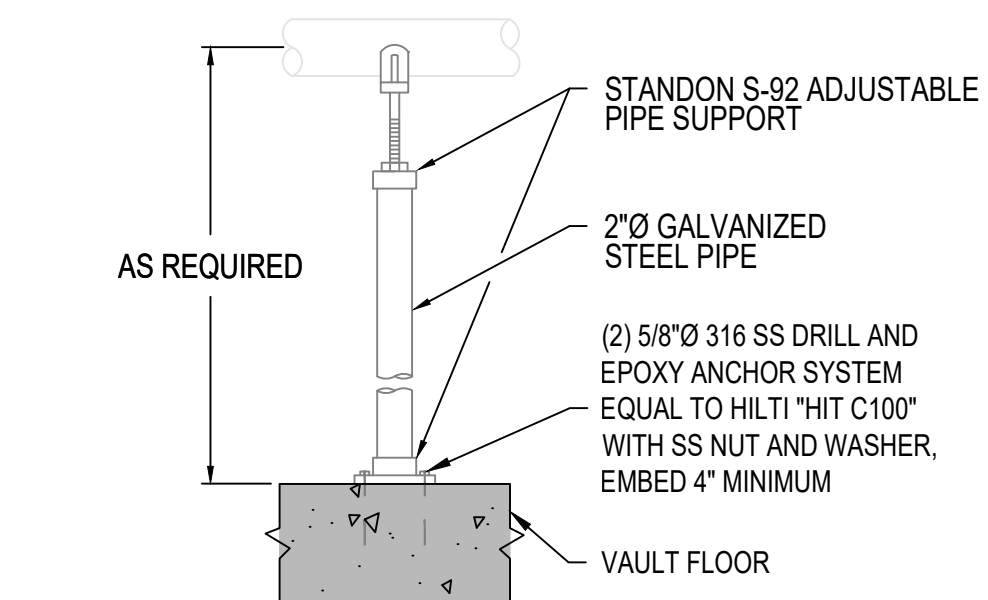
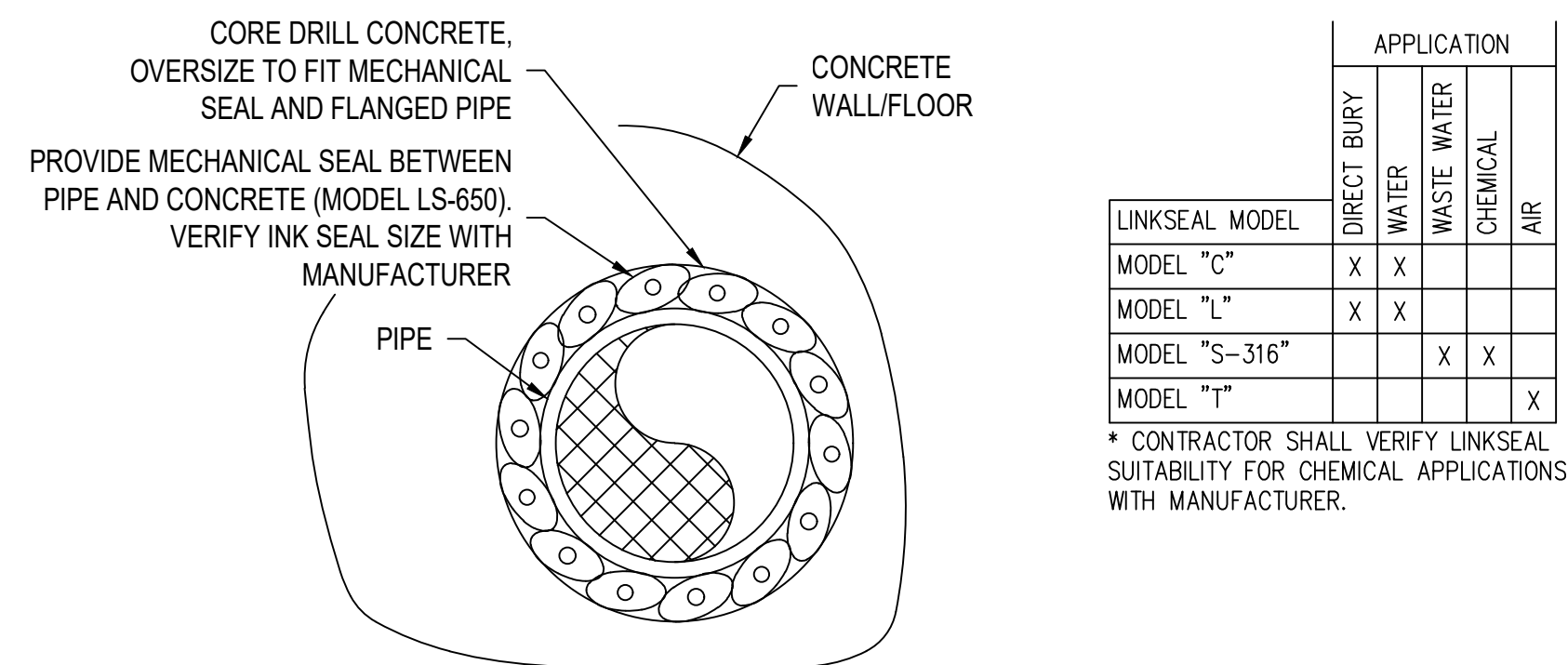
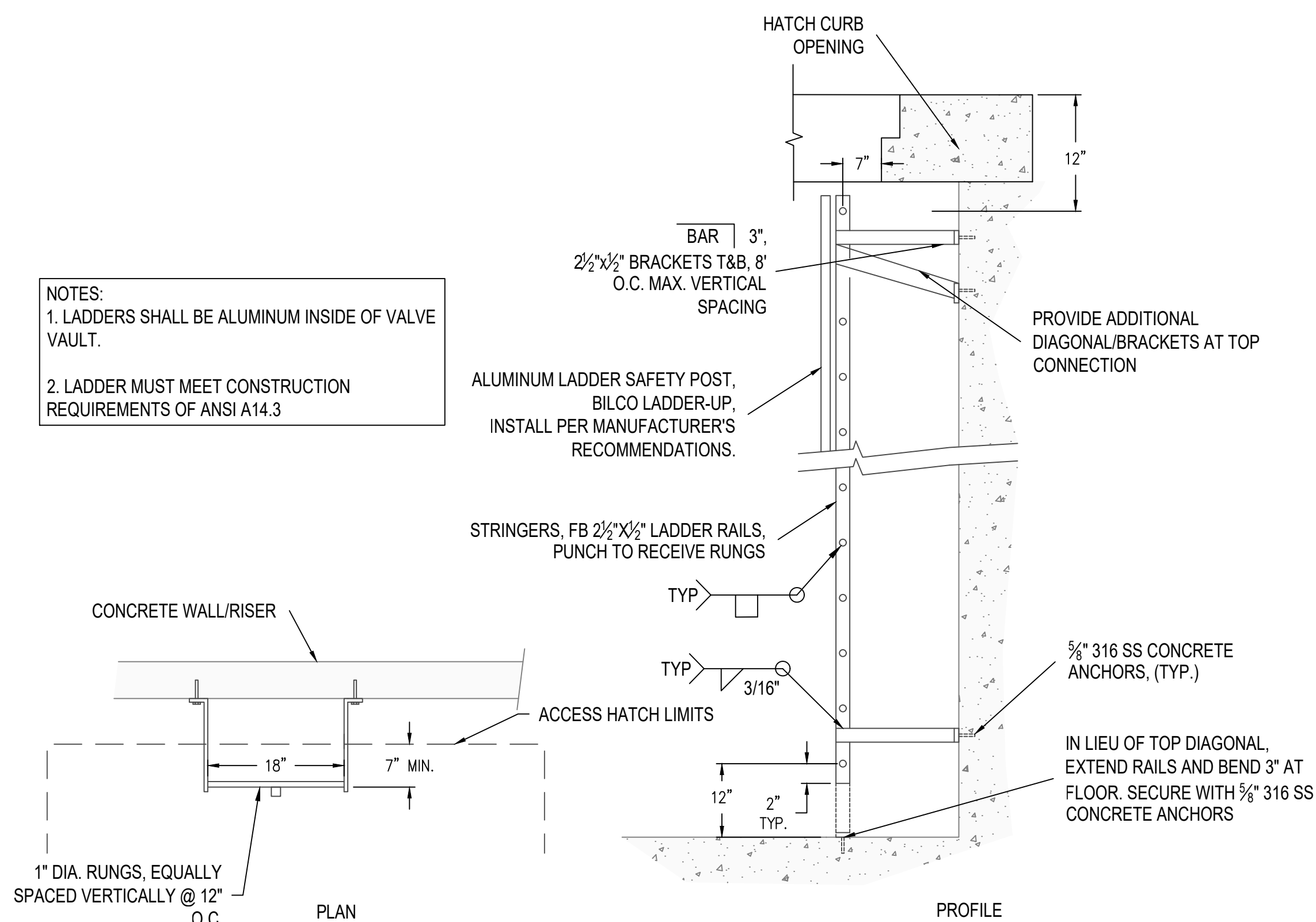
MECHANICAL PLAN AND ELEVATION

ENGINEER: CPC	SAVE DATE: Nov 6, 2020	CLIENT: LAC	JOB NO.: 516-081
REVIEWED: DJM	PLOT DATE: Nov 19, 2020	FILE NAME: LS19-C-M01.DWG	
REVISIONS			
			</

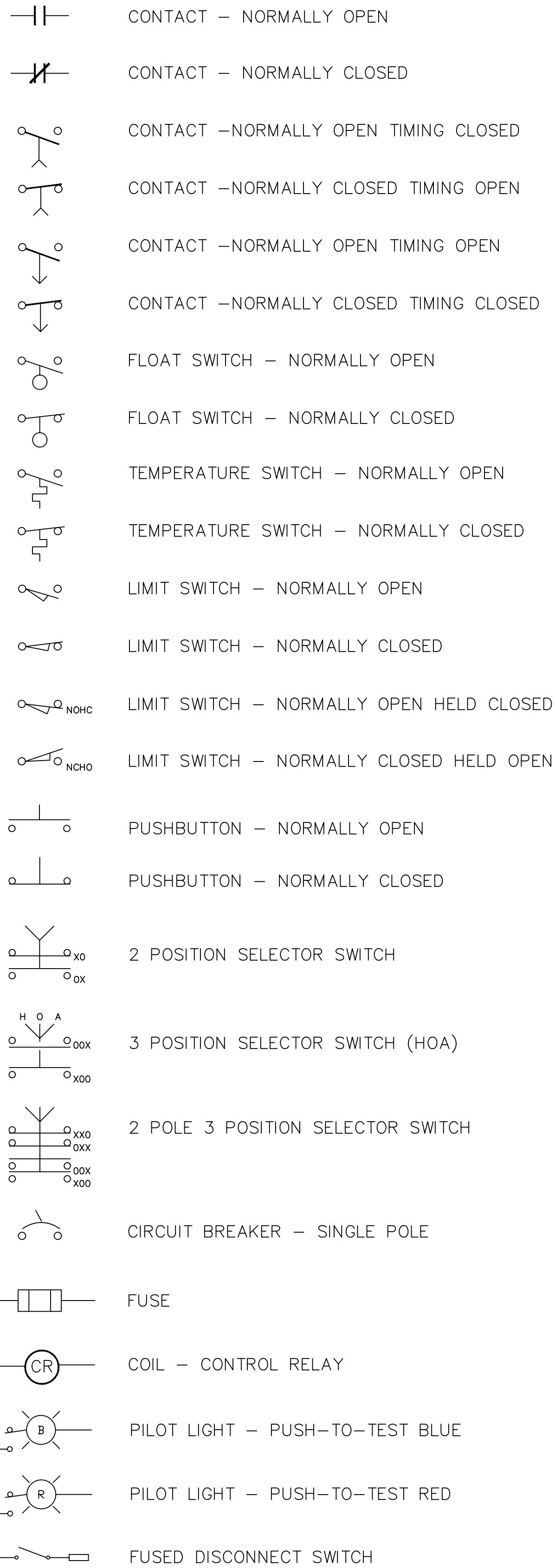
SCALE: SHOWN
0' 1' 2'

DRAWING IS FULL SCALE WHEN
BAR MEASURES 2"

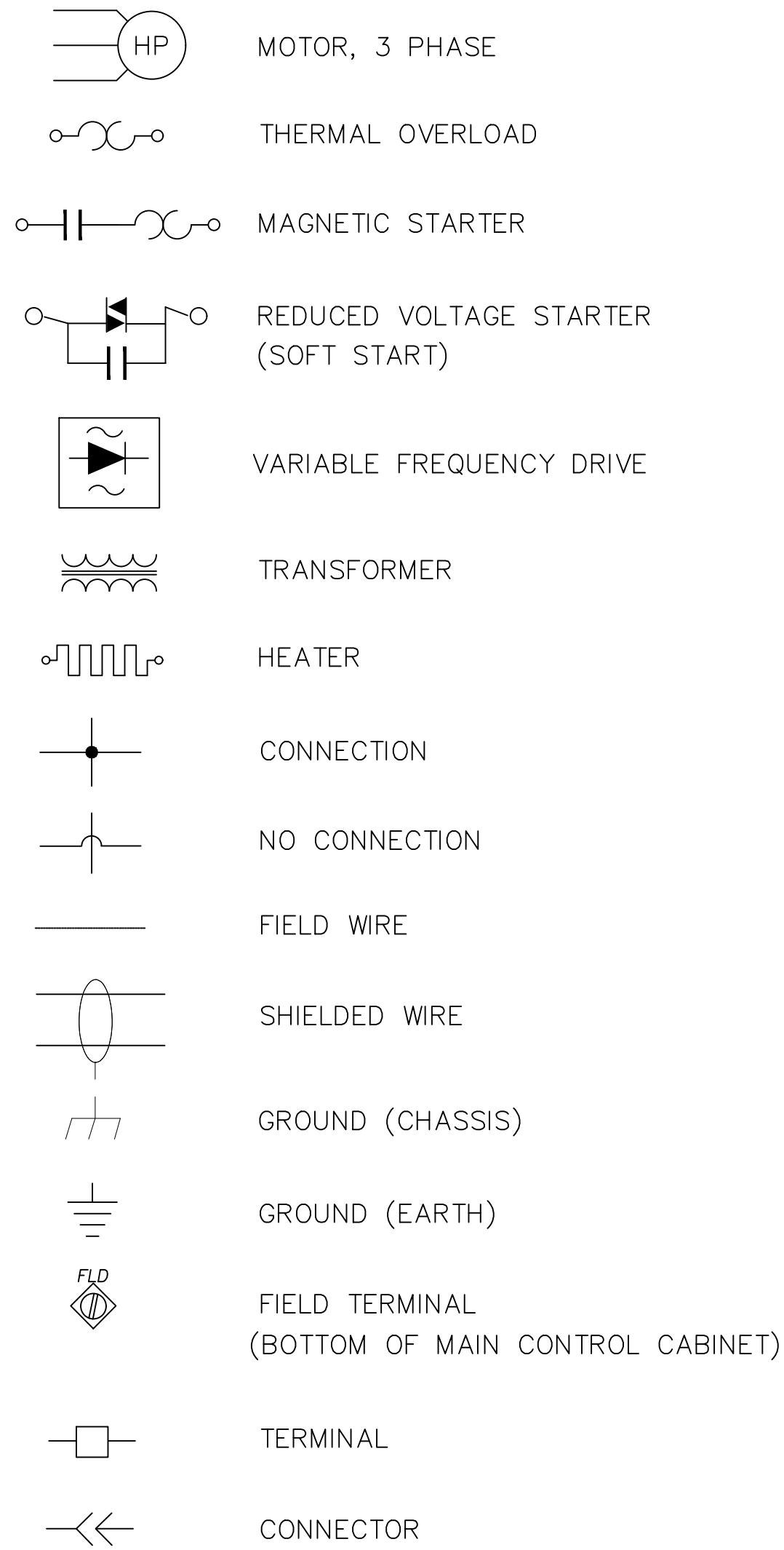
DWG NO.: M01
SHEET NO.: 20
48



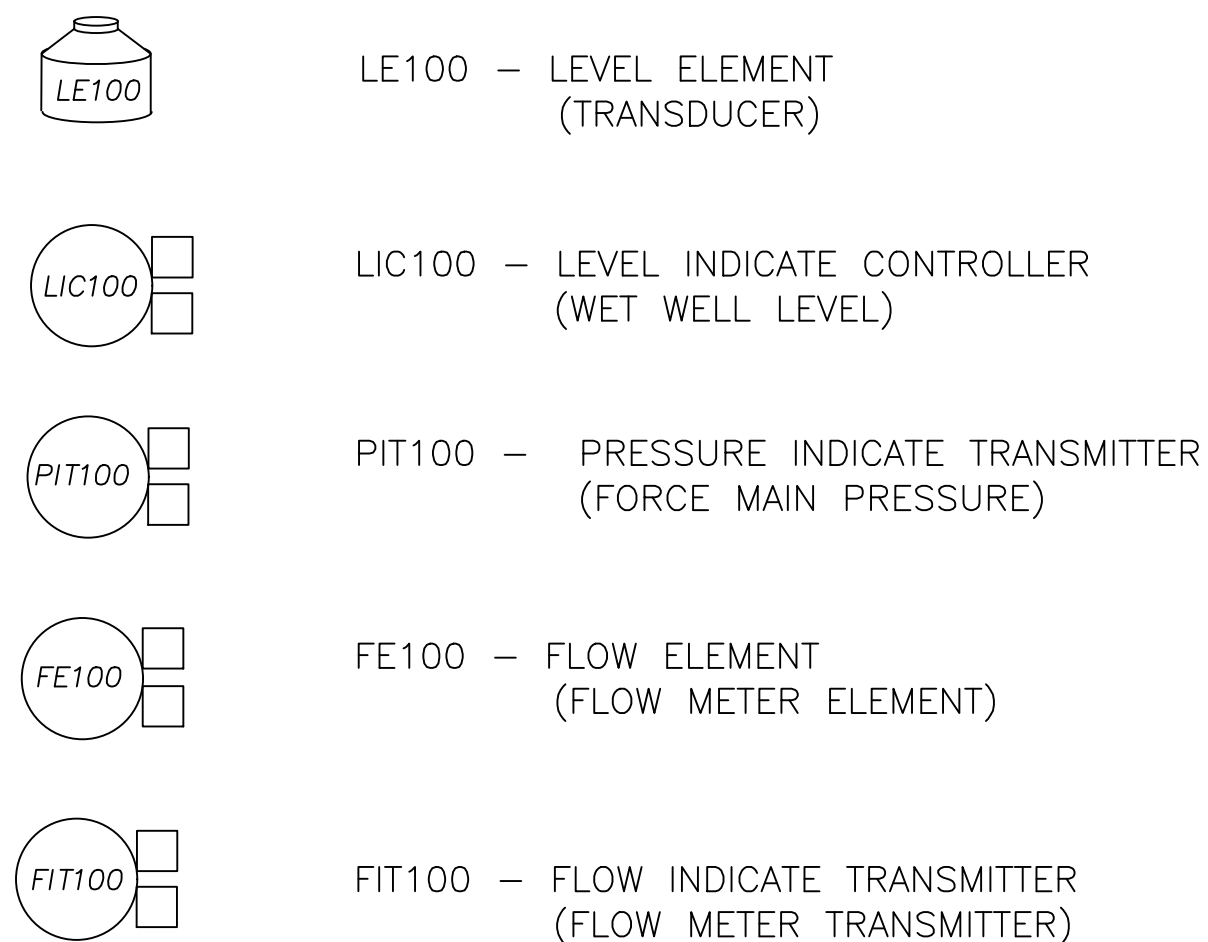
CONTROL DRAWING SYMBOLS



CONTROL DRAWING SYMBOLS



INSTRUMENTATION SYMBOLS



WIRING NOTES

1. 480 VOLT SUPPLY WIRING SHALL BE BROWN/ORANGE/YELLOW TINNED MTW/TEW.
2. ALL NEUTRAL WIRING SHALL BE WHITE TINNED MTW/TEW.
ALL WIRES CONNECTED TO BREAKERS IN THE BREAKER PANEL SHALL BE BLACK 12 AWG TINNED MTW/TEW.
3. ANY 120 VAC WIRE THAT IS NOT CONNECTED DIRECTLY TO A BREAKER IS A CONTROL WIRE, ALL CONTROL WIRES SHALL BE RED 14 AWG TINNED MTW/TEW.
4. ALL 12 VDC+ WIRES SHALL BE ORANGE 16 AWG TINNED MTW/TEW.
ALL 12 VDC- WIRES SHALL BE YELLOW 16 AWG TINNED MTW/TEW.
5. ALL 24 VDC+ WIRES SHALL BE DARK BLUE 16 AWG TINNED MTW/TEW.
ALL 24 VDC- SHALL BE WHITE WITH A BLUE STRIPE 16 AWG TINNED MTW/TEW.
6. ALL INTRINSICALLY SAFE WIRES SHALL BE PURPLE.
7. ALL ANALOG INPUTS SHALL BE 18 AWG SHIELDED TWISTED PAIR CONDUCTORS BETWEEN SOURCE, DEVICE AND THE INPUT CARD.
CONNECT THE SHIELD DRAIN ON THE PUMP CONTROL PANEL END.
8. BRANCH CIRCUITS, CONTROL CIRCUITS AND PUMP MOTOR FIELD WIRING SHALL BE THE SAME SIZE AND COLOR AS THE CONTROL PANEL WIRING IT IS CONNECTED TO. ALL FIELD WIRING SHALL BE TFFN/THHN.
9. WIRE NUTS AND BUTT SPLICES SHALL NOT BE USED IN ANY CIRCUIT OTHER THAN LIGHTING CIRCUITS.
10. ALL VOLTAGES WITHIN THE MAIN CONTROL CABINET ARE CONSIDERED LOCAL. NO FOREIGN VOLTAGES EXIST.

WIRE MARKINGS

1. ALL WIRES SHALL BE LABELED WITH THE SAME DESCRIPTION ON BOTH ENDS.
2. WIRES LABEL SHALL HAVE THE SAME DESCRIPTION AS THE CITY OF LACEY'S ORIGINAL DRAWING.
3. WIRE LABELS SHALL BE PRINTED HEAT SHRINK TYPE WIRE MARKING SLEEVES.
4. WIRE LABEL TEXT SHALL BE ORIENTED IN THE SAME DIRECTION. HORIZONTAL WIRE TO READ FROM LEFT TO RIGHT AND VERTICAL WIRES TO READ FROM TOP TO BOTTOM.
5. COLOR CODE ALL SECONDARY SERVICE FEEDER AND BRANCH CIRCUIT CONDUCTORS.

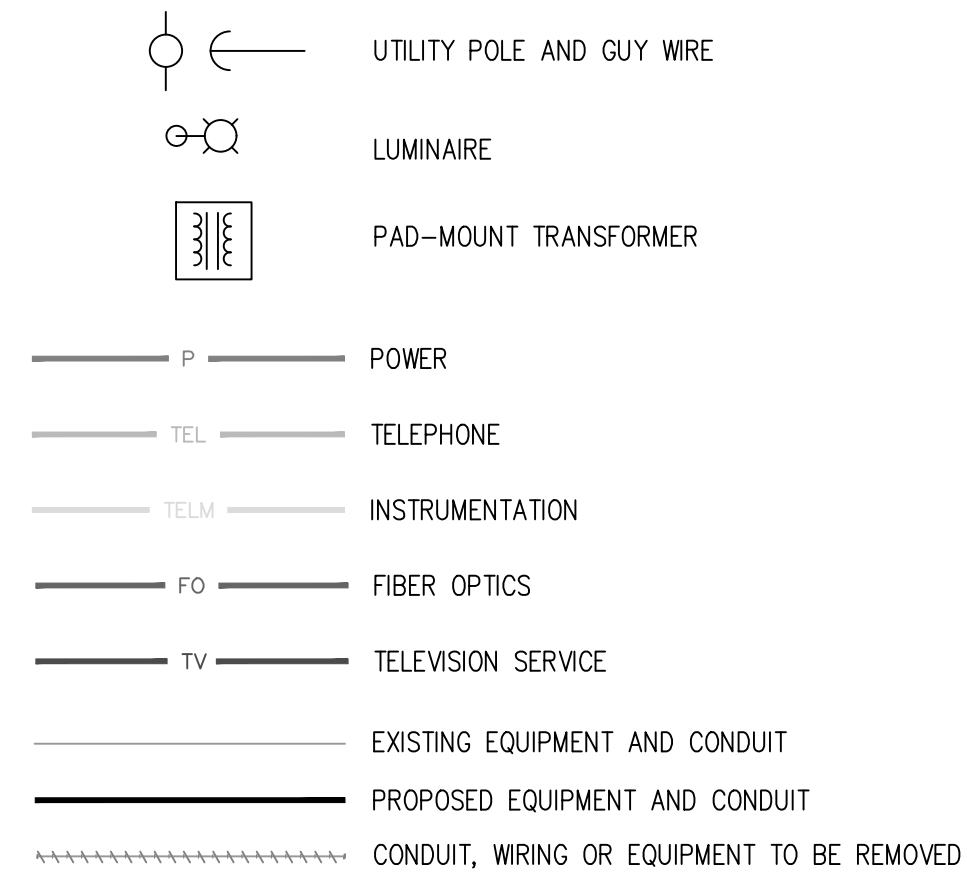
TERMINAL BLOCK MARKINGS

1. TERMINAL BLOCK MARKING AND WIRE LABELING SHALL HAVE THE SAME DESCRIPTION.
2. TERMINALS BLOCKS SHALL BE MACHINE PRINTED.
3. TERMINAL BLOCK TEXT SHALL BE ORIENTED IN THE SAME DIRECTION AS THE WIRE. BLOCKS TO READ FROM LEFT TO RIGHT AND FROM TOP TO BOTTOM.

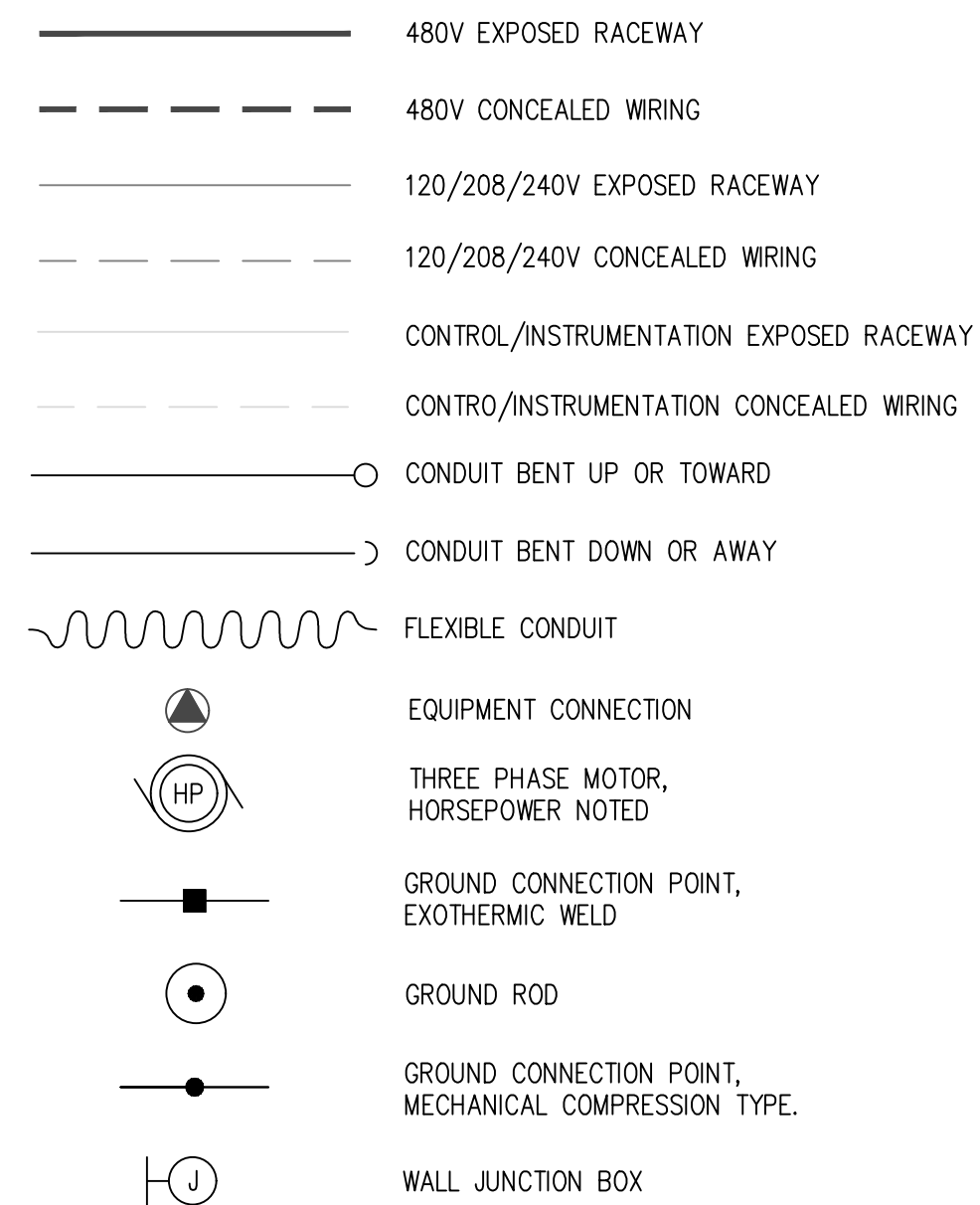
CONDUIT MARKINGS

1. CONDUITS WITH INTRINSICALLY SAFE CONDUCTORS SHALL BE LABELED.

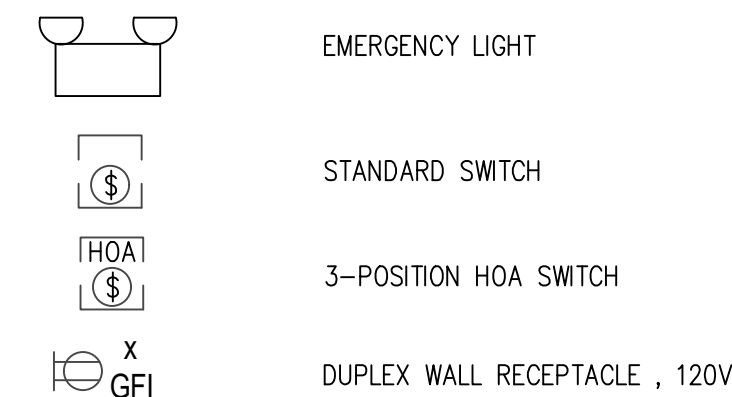
SITE PLAN



POWER DISTRIBUTION AND SIGNAL PLAN

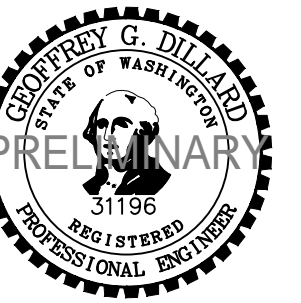


LIGHTING AND RECEPTACLE PLAN



CONTROL SYSTEMS MANUFACTURE'S NOTE

1. SUBMITTAL DRAWINGS SHALL BE SUBMITTED IN AN UNPROTECTED AUTOCAD FORMAT.
2. SUBMITTAL DRAWINGS SHALL CONTAIN EVERY DETAIL CONTAINED IN THE CITY OF LACEY'S ORIGINAL DRAWING. EVERY COMPONENT AND SYMBOL SHALL BE REPRESENTED.
3. SUBMITTAL DRAWINGS SHALL HAVE A LAYOUT KEY WITH EVERY COMPONENT OF THE CITY OF LACEY'S ORIGINAL DRAWING IDENTIFIED.
4. SUBMITTAL DRAWINGS SHALL USE THE SAME COMPONENT NAMES AS THE LAYOUT KEY IN CITY OF LACEY'S ORIGINAL DRAWING.
5. CONTROL SYSTEMS MANUFACTURE SHALL COMPLETE THE APPROVED MATERIAL CHECK LIST.



CITY OF LACEY

LIFT STATION 19 REHABILITATION

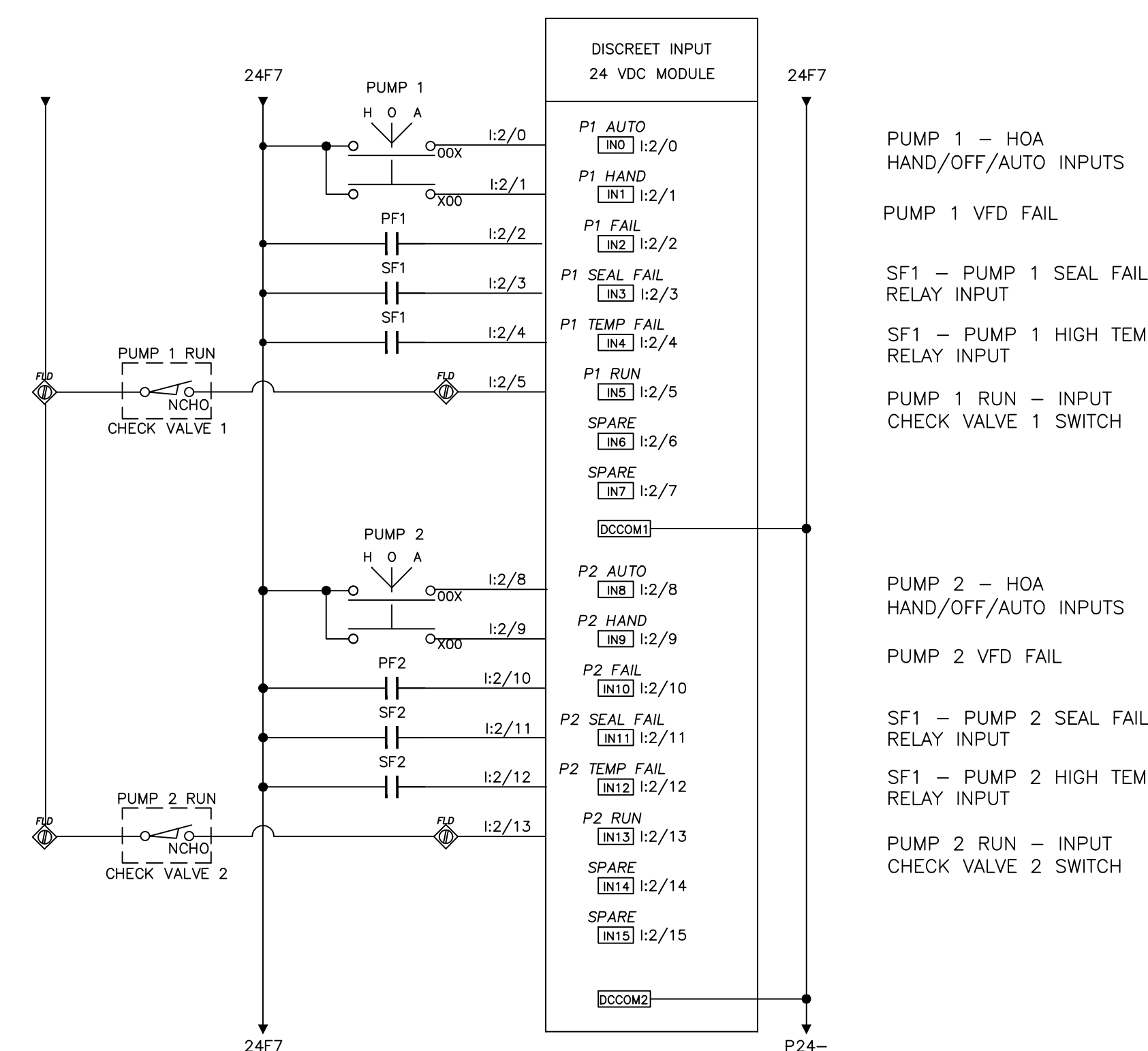
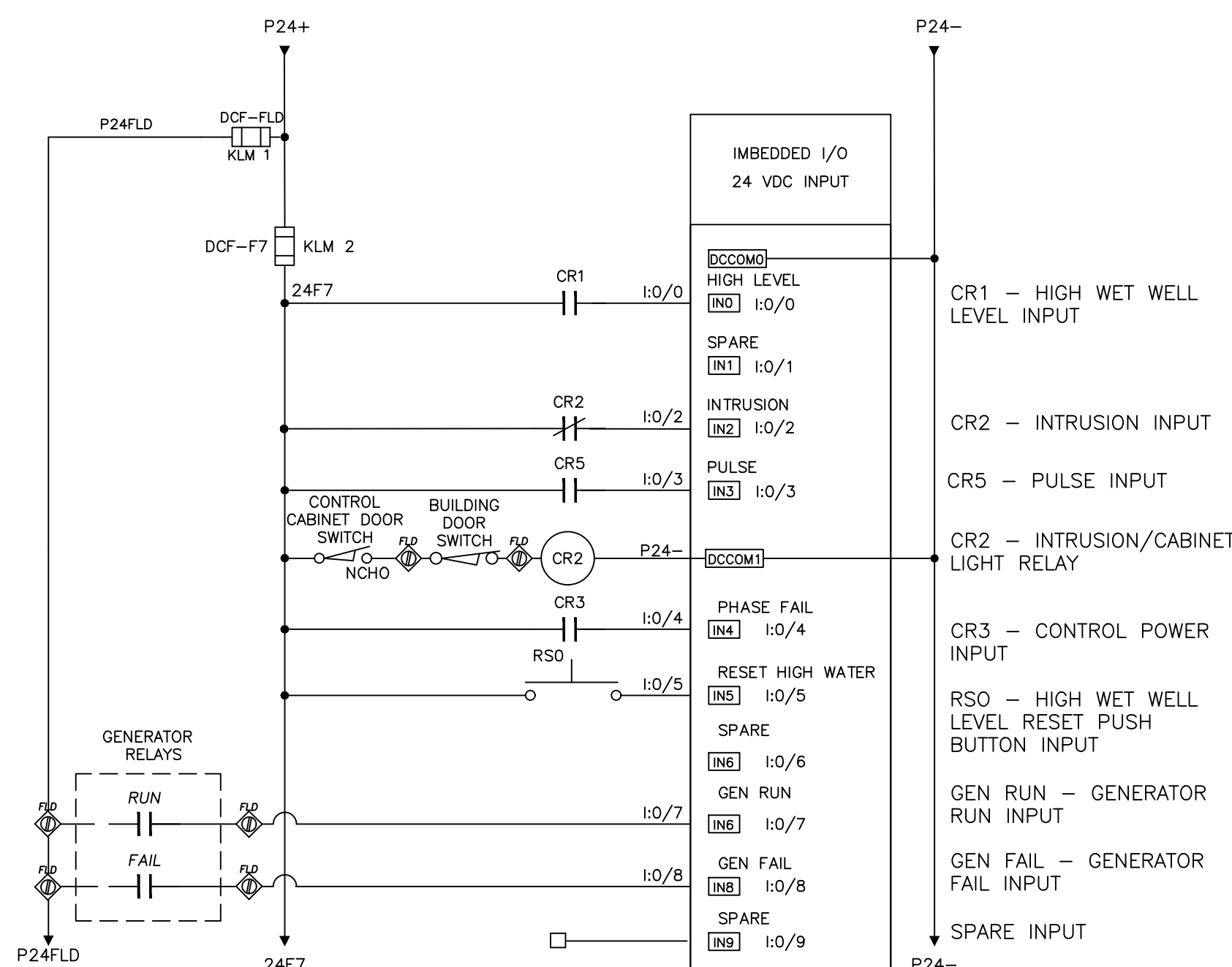
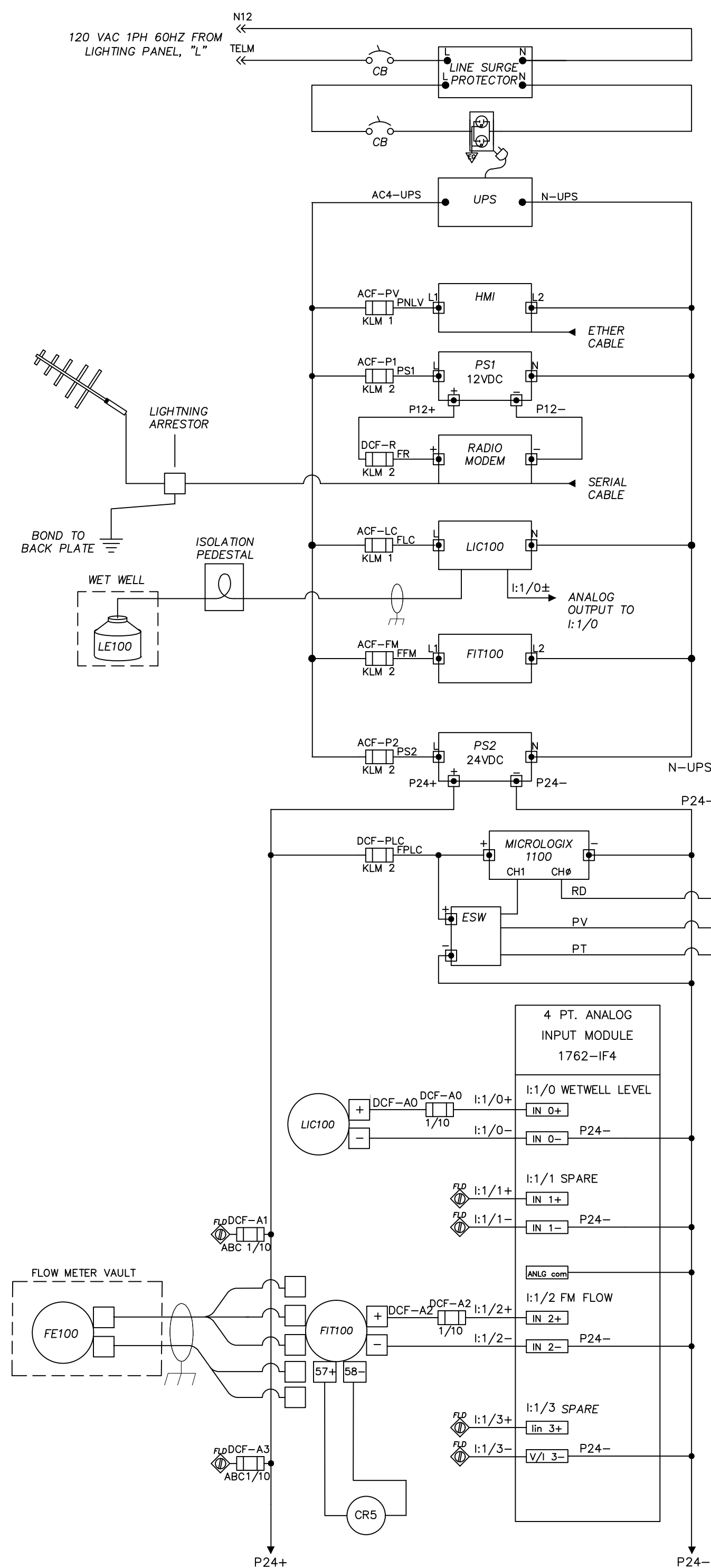
WIRING SYMBOLS AND REQUIREMENTS

SCALE: SHOWN			
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"			
DWGS NO.: E01		SHEET NO.: 22	
		48	

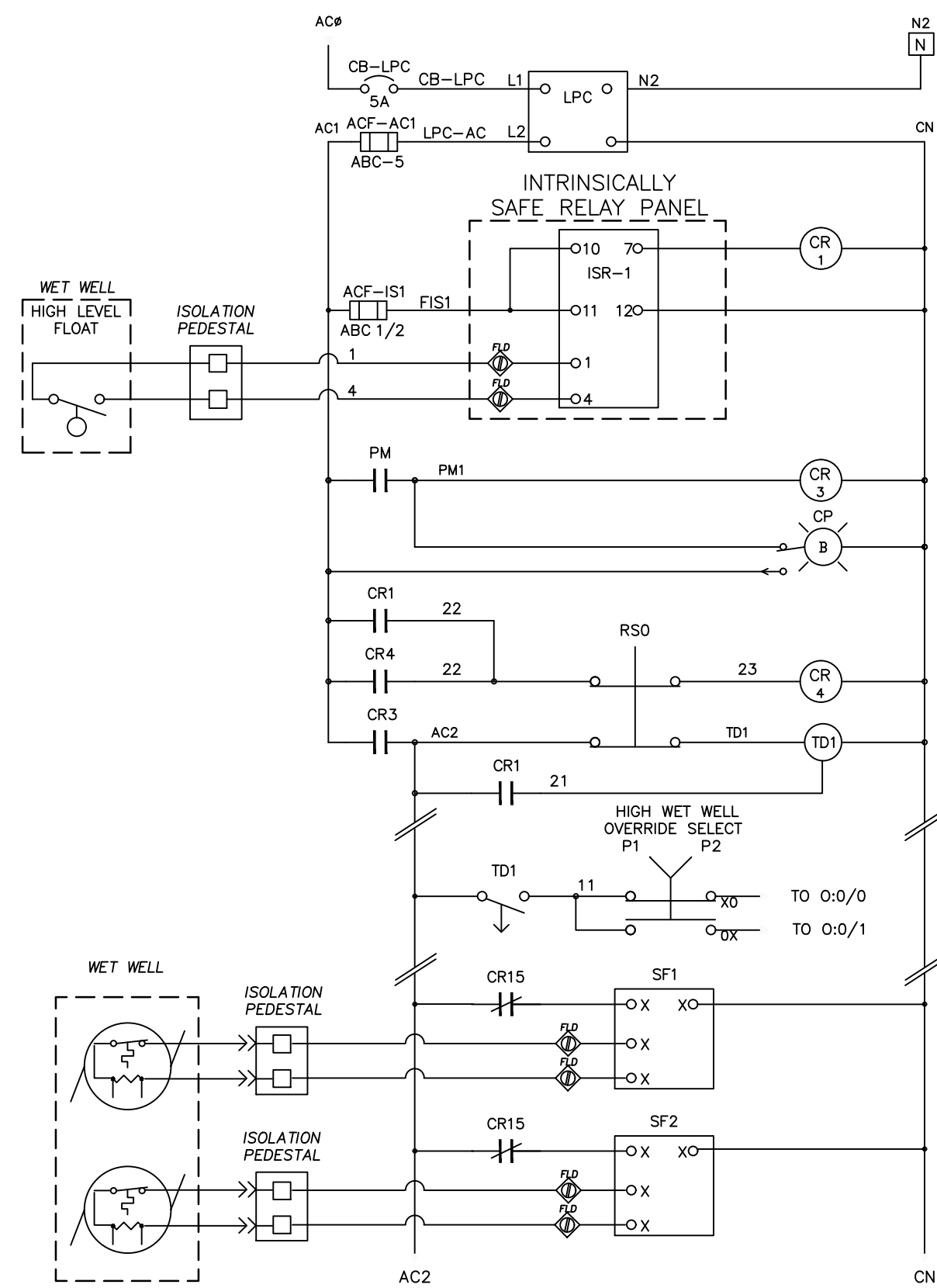
[illegible]

Diagram of a 2x2 grid of buttons. The top-left button is labeled <123> and the bottom-left button is labeled <124>. The top-right and bottom-right buttons are unlabeled. A small circle is located at the bottom center of the grid.

Diagram illustrating the connection of a 63-pin connector to a 7-pin connector. The 63-pin connector is shown with a label '63' and the 7-pin connector is shown with a label '7'.



-  ALL FIELD WIRES SHALL LAND ON TERMINAL BLOCKS AT THE BOTTOM OF THE PUMP CONTROL PANEL BACK PLATE. SEE DWG NO. E02 FOR LOCATION.



CB7 - LINE POWER CONDITIONER
CIRCUIT BREAKER

LPC1 - LINE POWER
CONDITIONER

CR1 - HIGH WET WELL
LEVEL
ALARM RELAY

ISR1 – INTRINSICALLY
SAFE RELAY

PM - PHASE MONITOR
RELAY
3 PHASE POWER MONITOR

CR3—CONTROL POWER RELAY

CP - CONTROL POWER
INDICATOR LIGHT

RSO - HIGH WET WELL
LEVEL
CR4/TD1 RESET PUSH
BUTTON

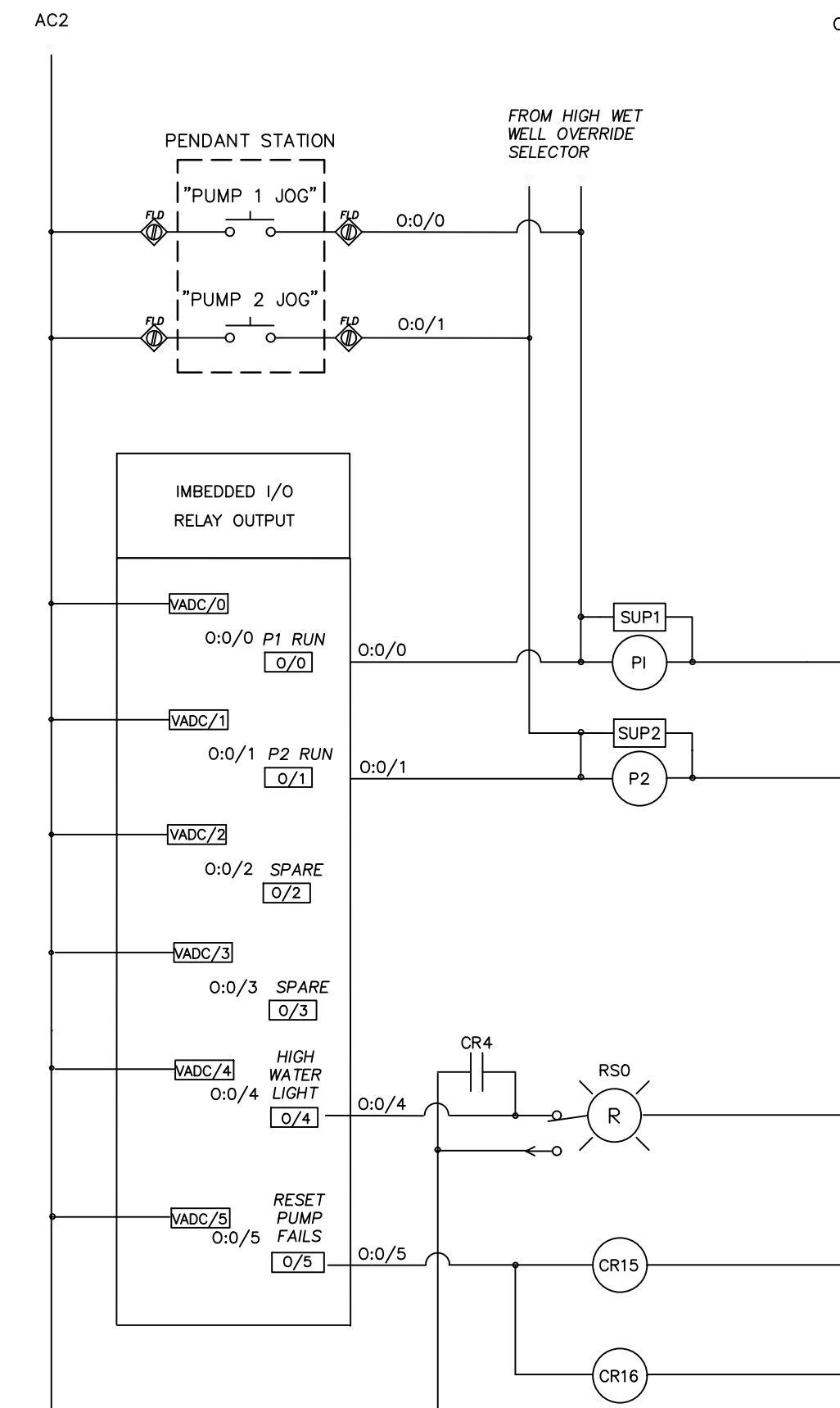
CR4 - HIGH WET WELL
LEVEL
ALARM LATCH RELAY

TD1 - HIGH WET WELL
LEVEL OVERRIDE PUMP
DOWN TIMER

HIGH WET WELL
OVERRIDE
PUMP SELECTOR SWITCH

SF1—SEAL FAIL AND MOTOR
OVERTemperature SENSING
RELAY
MINICAS II WHEN USING FLYGT
PUMP

SF2-SEAL FAIL AND MOTOR
OVERTEMPERATURE SENSING
RELAY
MINICAS II WHEN USING FLYGT
PUMP



PUMP 1 AND PUMP 2
JOG CONTROL OVERRIDE

PUMP 1 VFD START RELAY

PUMP 2 VFD START RELAY

CR4 - HIGH WET WELL
LEVEL
LIGHT LATCH RELAY
RS0 - HIGH WET WELL
LEVEL FAIL INDICATOR
LIGHT/RESET SWITCH

CR15 - RESETS SF1/SF2 OVER
TEMPERATURE/ SEAL FAIL SENSING
RELAYS

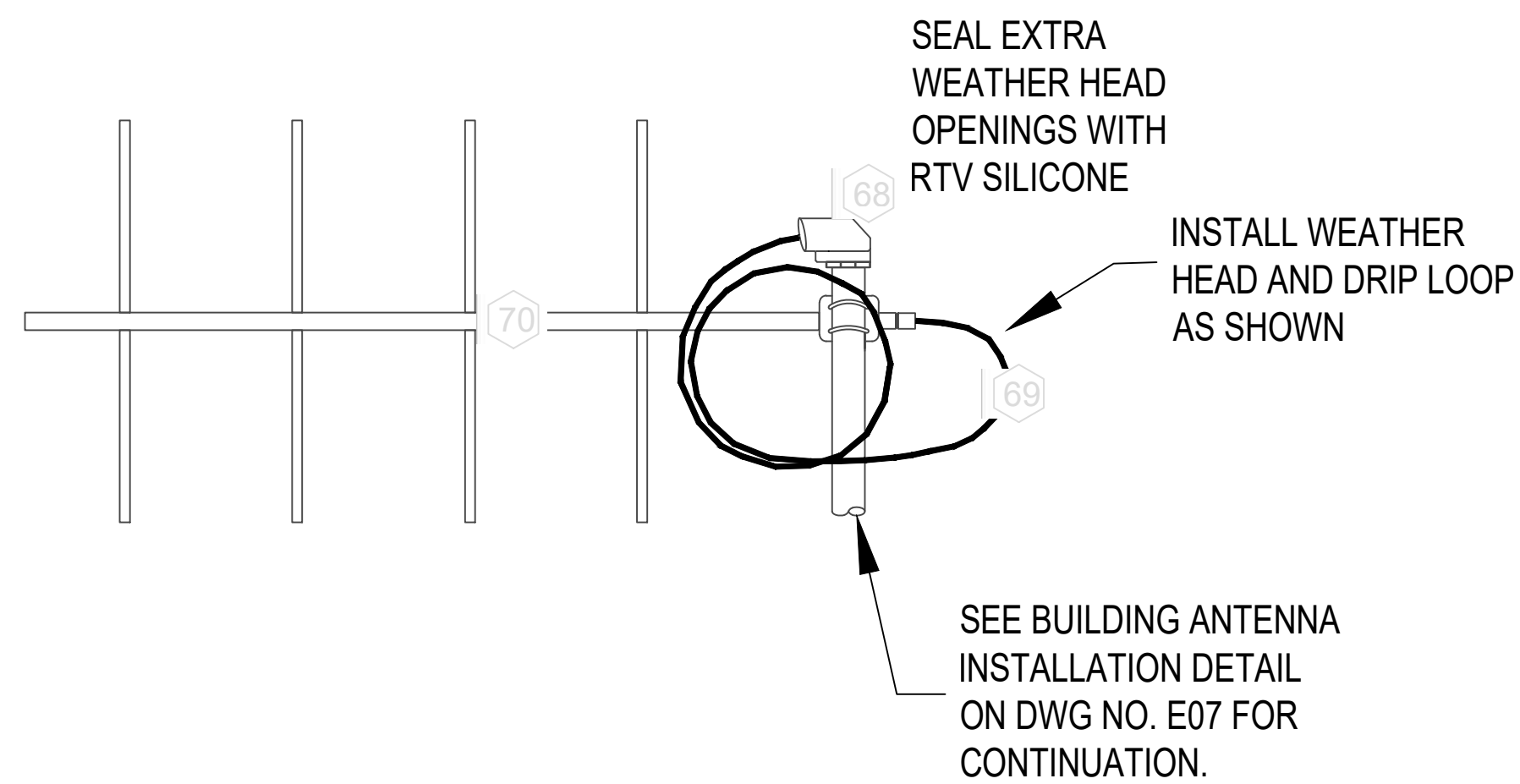
CR16 - RESETS PUMP 1 AND 2
VFD FAULT ALARMS

 ALL FIELD WIRES SHALL LAND ON TERMINAL BLOCKS AT THE BOTTOM OF THE PUMP CONTROL PANEL BACK PLATE. SEE DWG NO. E02 FOR LOCATION.

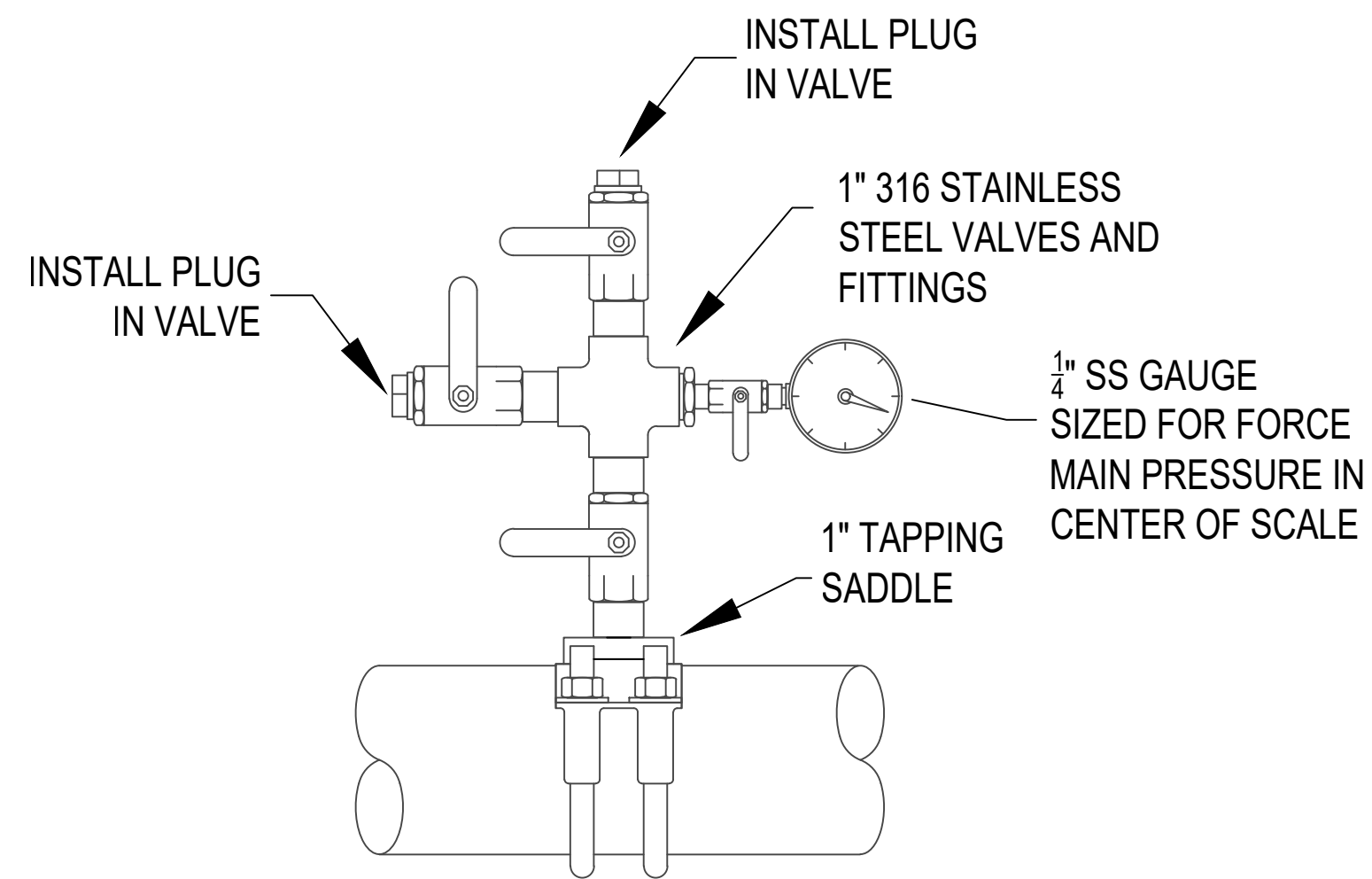
NO.	DATE	DESCRIPTION	BY	REVIEW
REVISIONS				
60% REVIEW DRAWINGS				

ENGINEER: KES	DATE: Nov 17, 2020	CLIENT: LAC	LOG NO.: 516-081
REVIEWED: CMR	PLOT DATE: Nov 19, 2020	FILENAME: LS19-02-EQA.DWG	
SCALE: SHOWN			
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"			
DWG NO.: E06	SHEET NO.: 27	48	

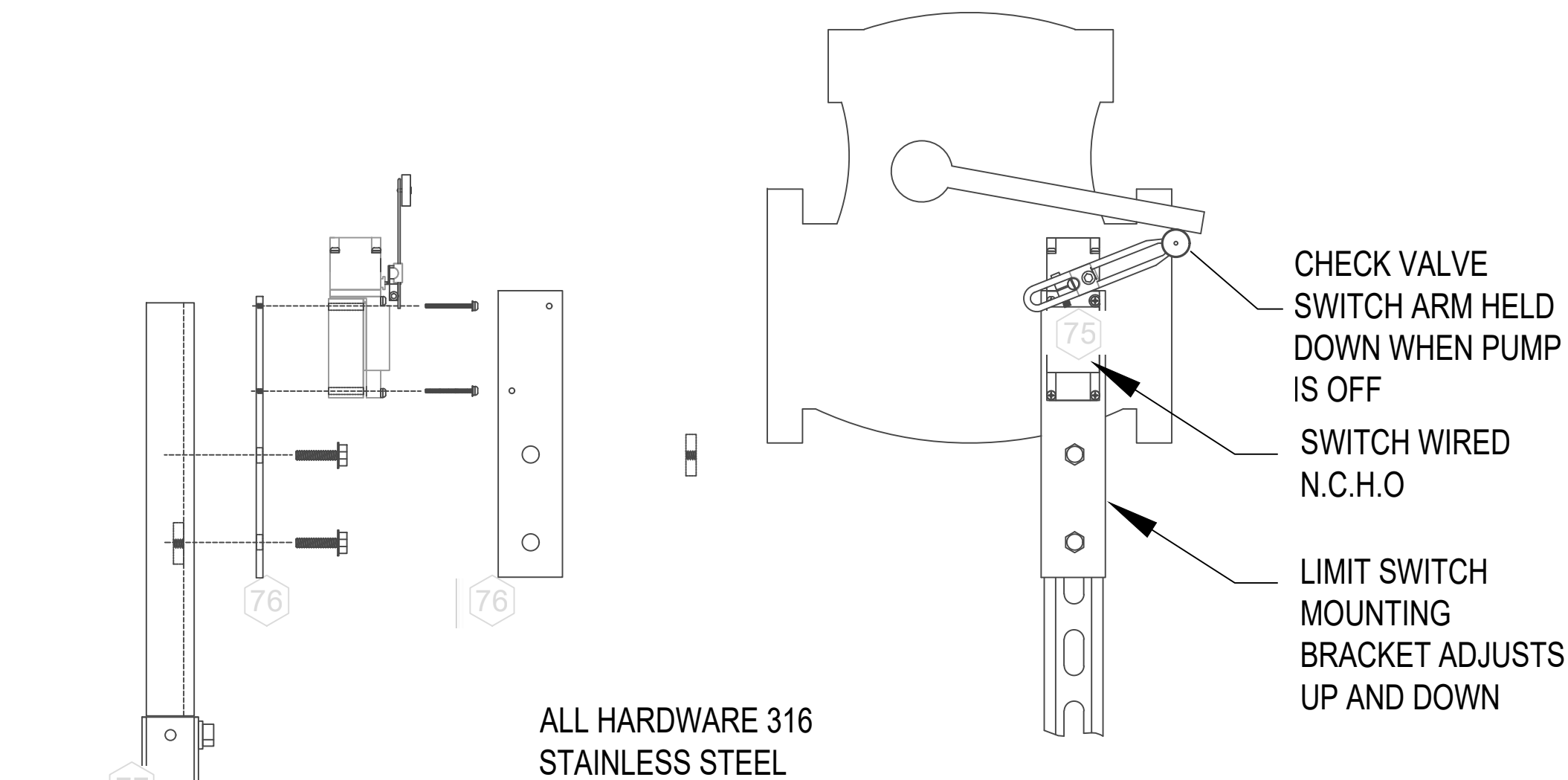
ANTENNA
INSTALLATION DETAIL



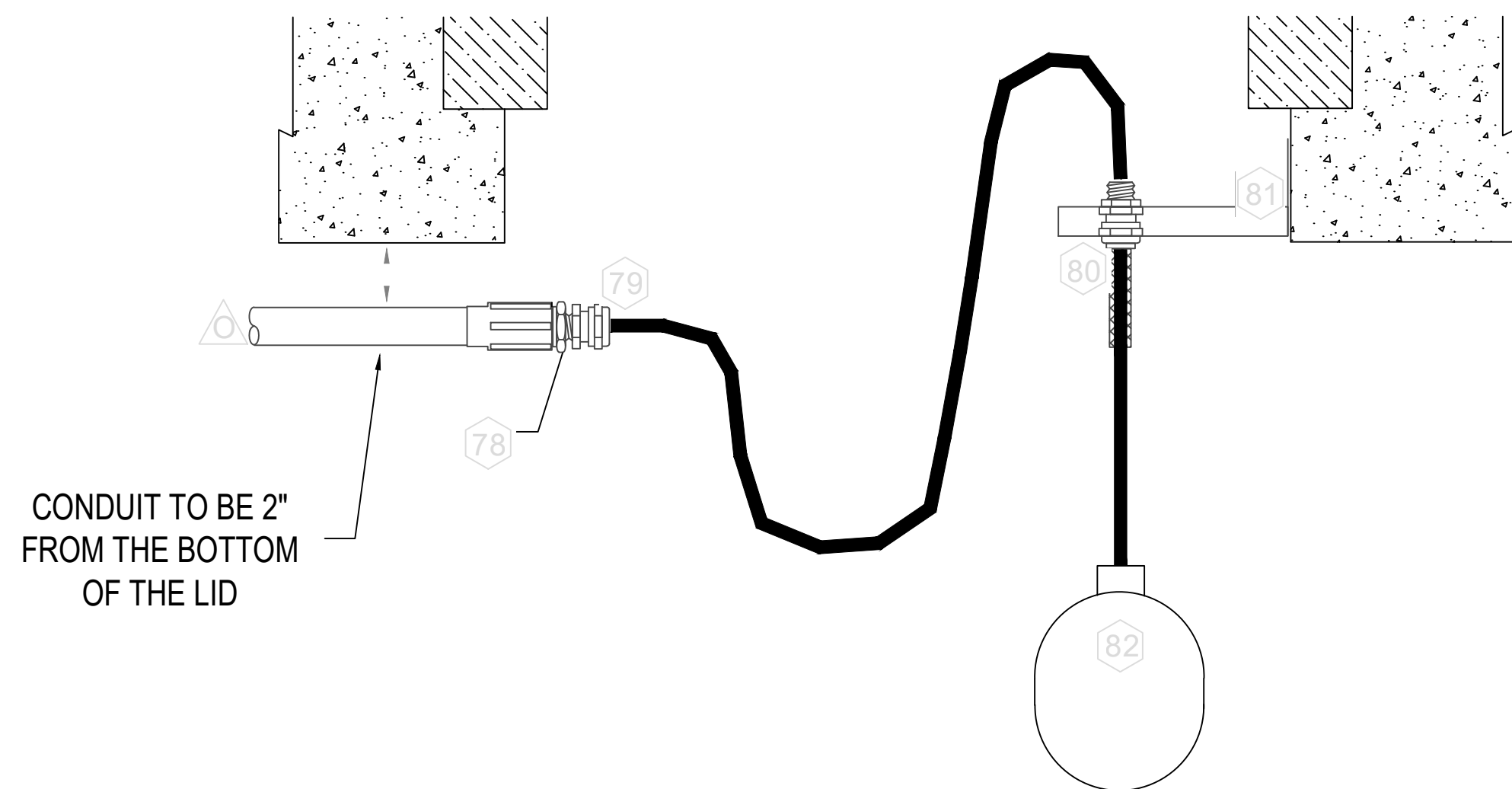
PRESSURE GAUGE
INSTALLATION DETAIL



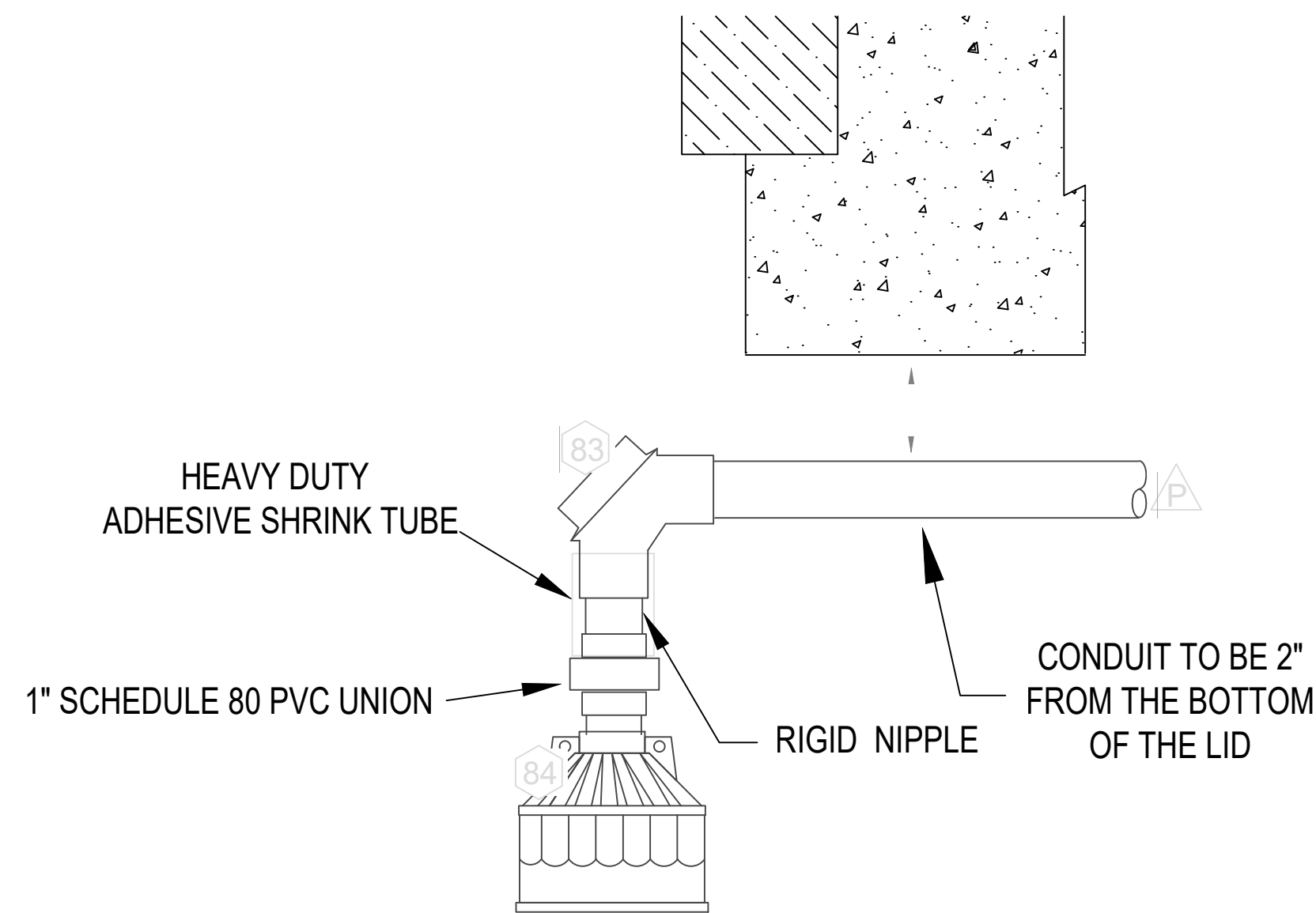
SWING CHECK VALVE
INSTALLATION DETAIL



HIGH BALL INSTALLATION DETAIL



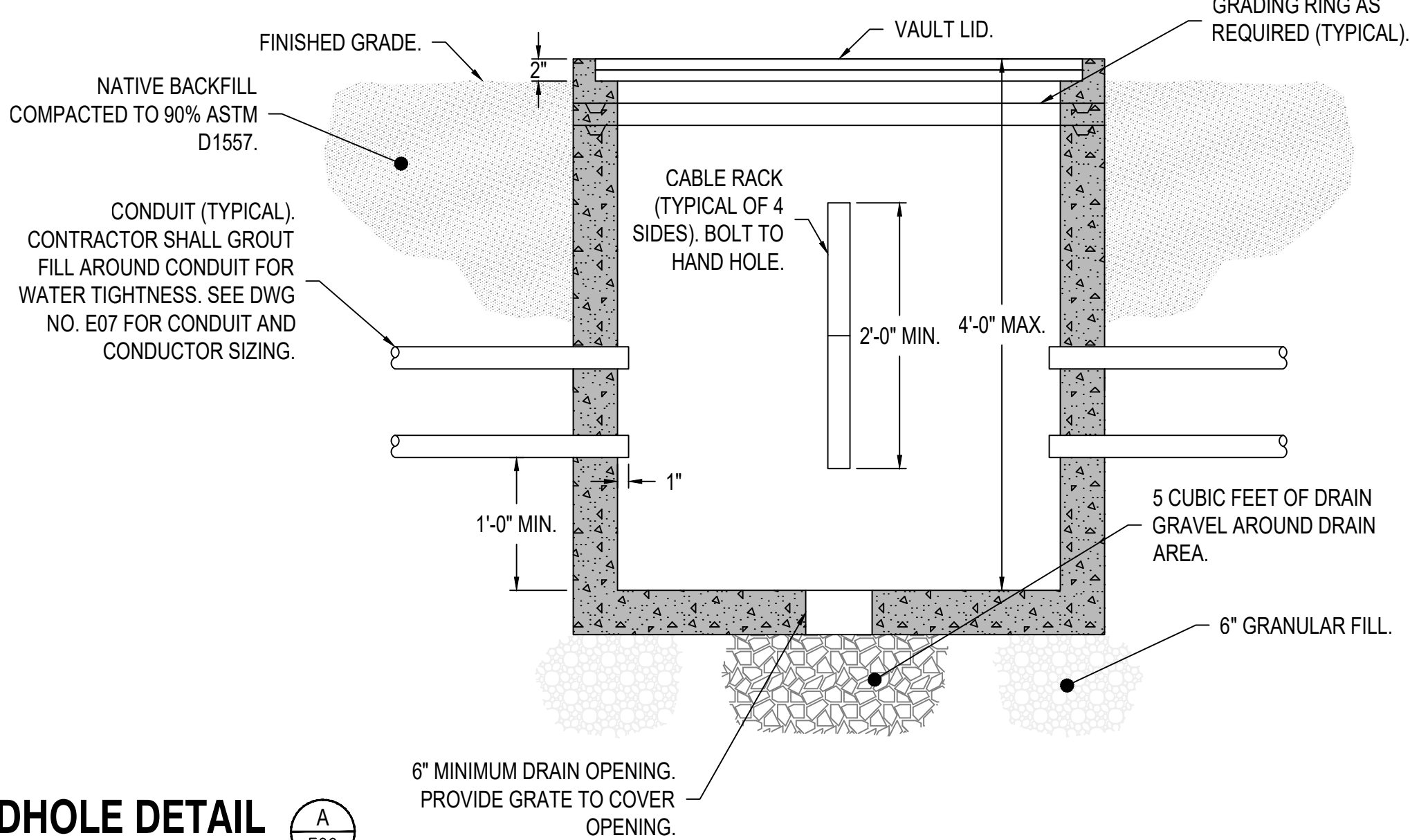
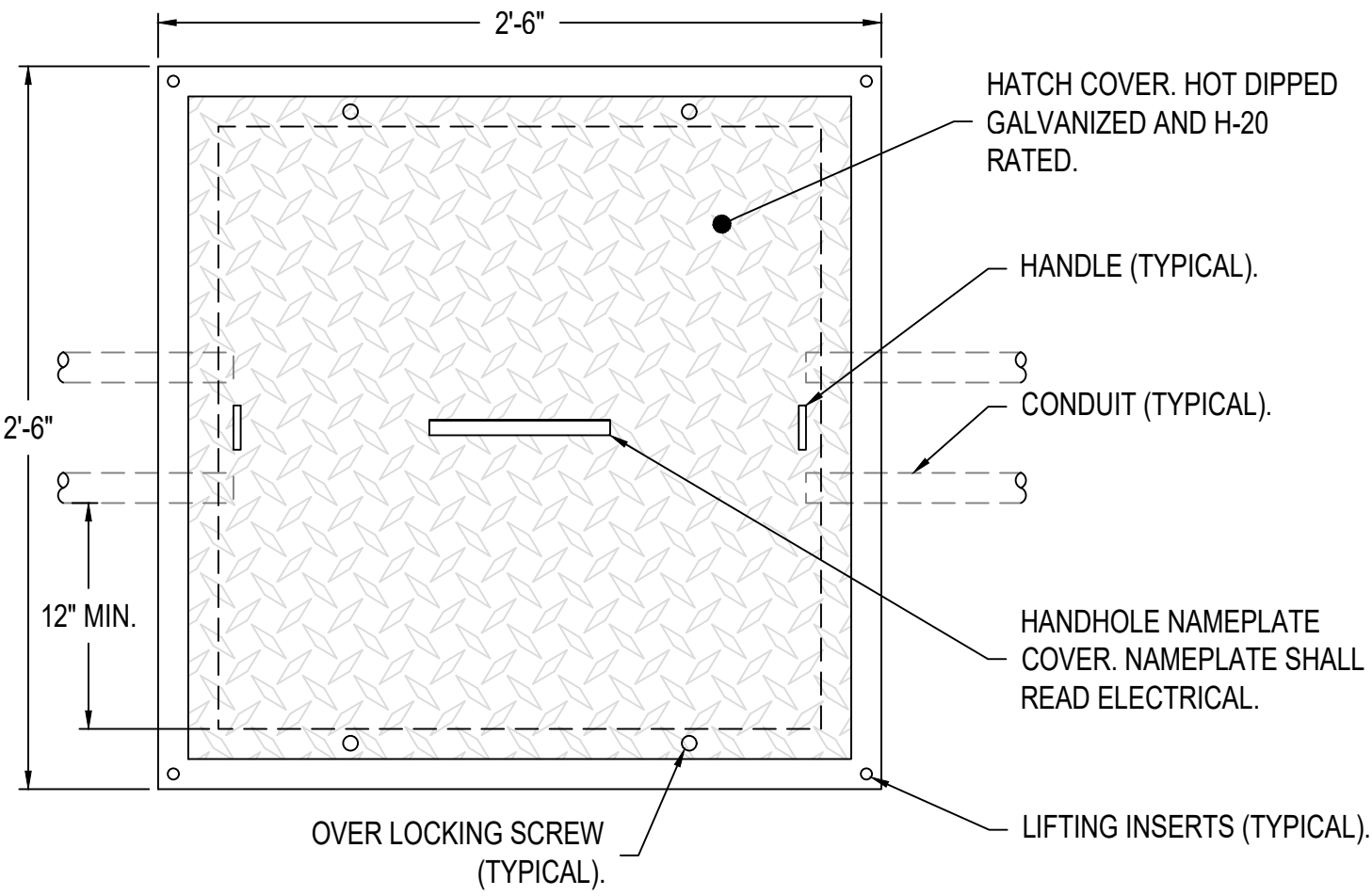
LEVEL TRANSDUCER
INSTALLATION DETAIL



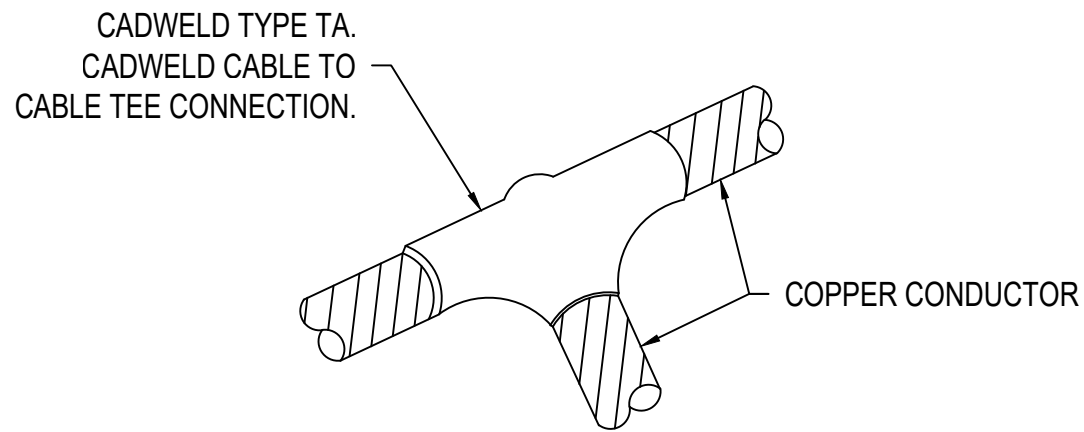
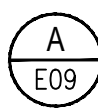
SHEET LAYOUT KEY:

- 68 1-1/2" WEATHER HEAD
- 69 ANTENNA CABLING
- 70 ANTENNA
- 71 16' LIGHT POLE WITH TENNON TOP
- 72 LUMINAIRE MOUNTING BRACKET
- 73 LED LUMINAIRE
- 75 CHECK VALVE SWITCH ASSEMBLY
- 76 LIMIT SWITCH MOUNTING BRACKET
- 77 LIMIT SWITCH POST BASE
- 78 1" X 1/2" SS REDUCER BUSHING
- 79 SS CORD GRIP
- 80 SS CORD GRIP WITH STRAIN RELIEF
- 81 HIGH BALL MOUNTING BRACKET
- 82 HIGH BALL
- 83 PULLING "L"
- 84 LEVEL TRANSDUCER

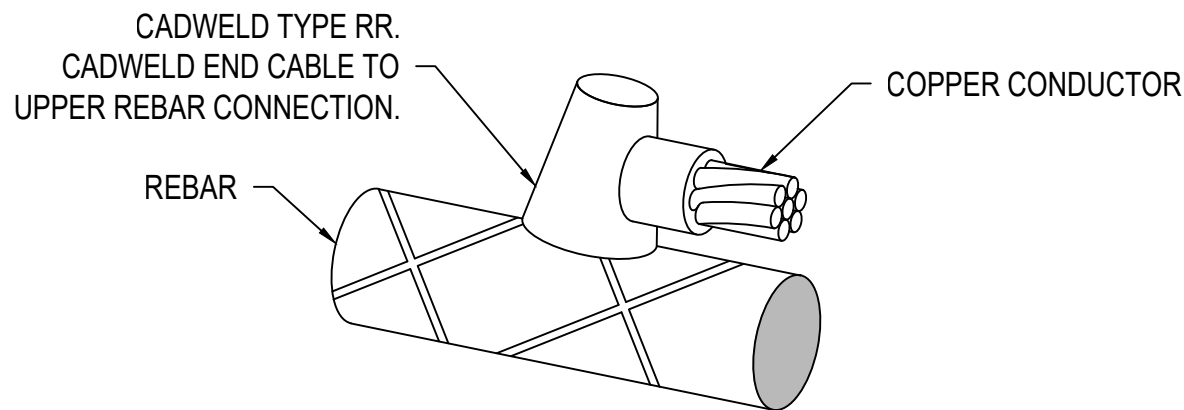
CONDUIT PENETRATIONS.
SEE CONDUIT SCHEDULE DWG NO. E08



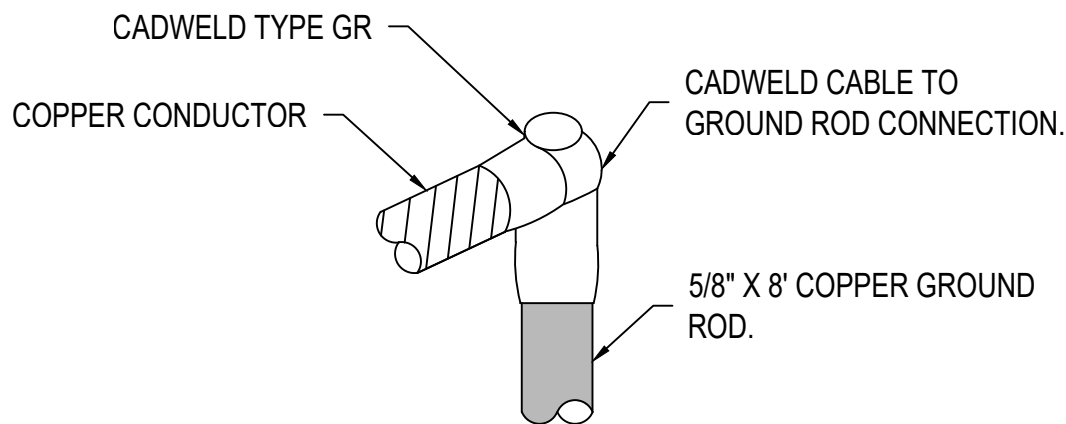
HANDHOLE DETAIL
NOT TO SCALE



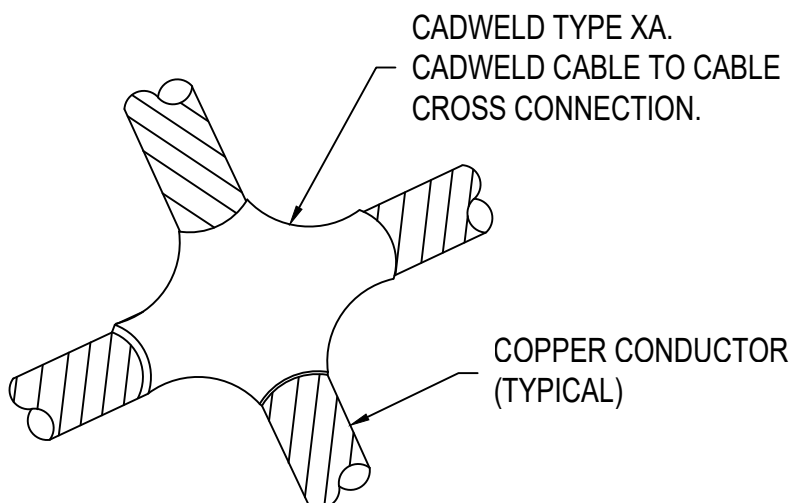
GROUND TEE DETAIL
NOT TO SCALE



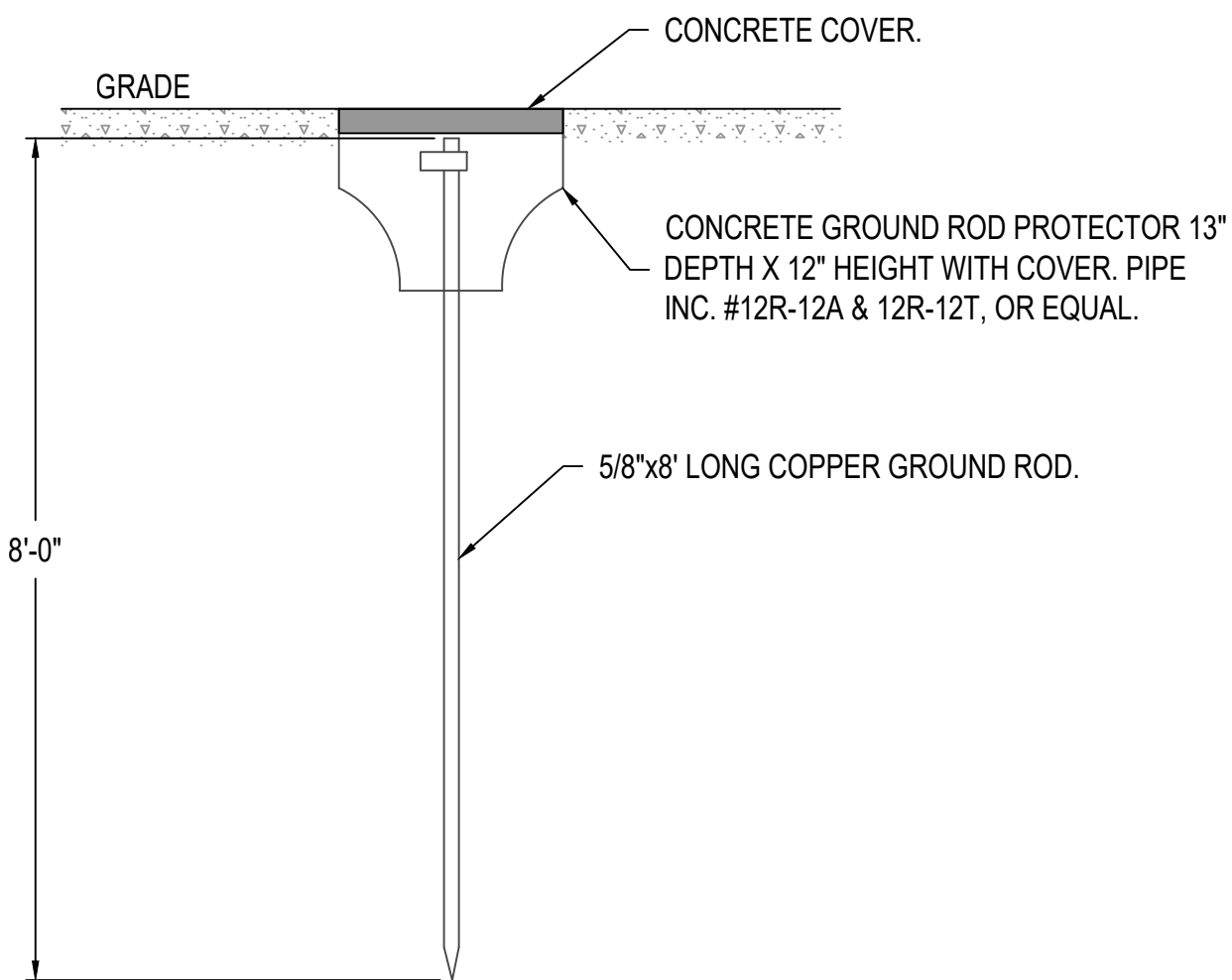
GROUND REBAR DETAIL
NOT TO SCALE



GROUND TEE DETAIL
NOT TO SCALE

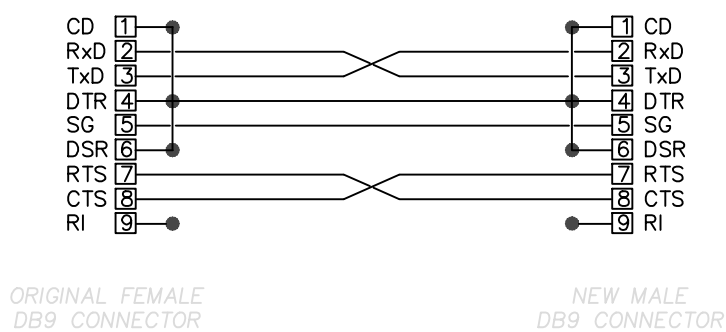


GROUND CROSS DETAIL
NOT TO SCALE

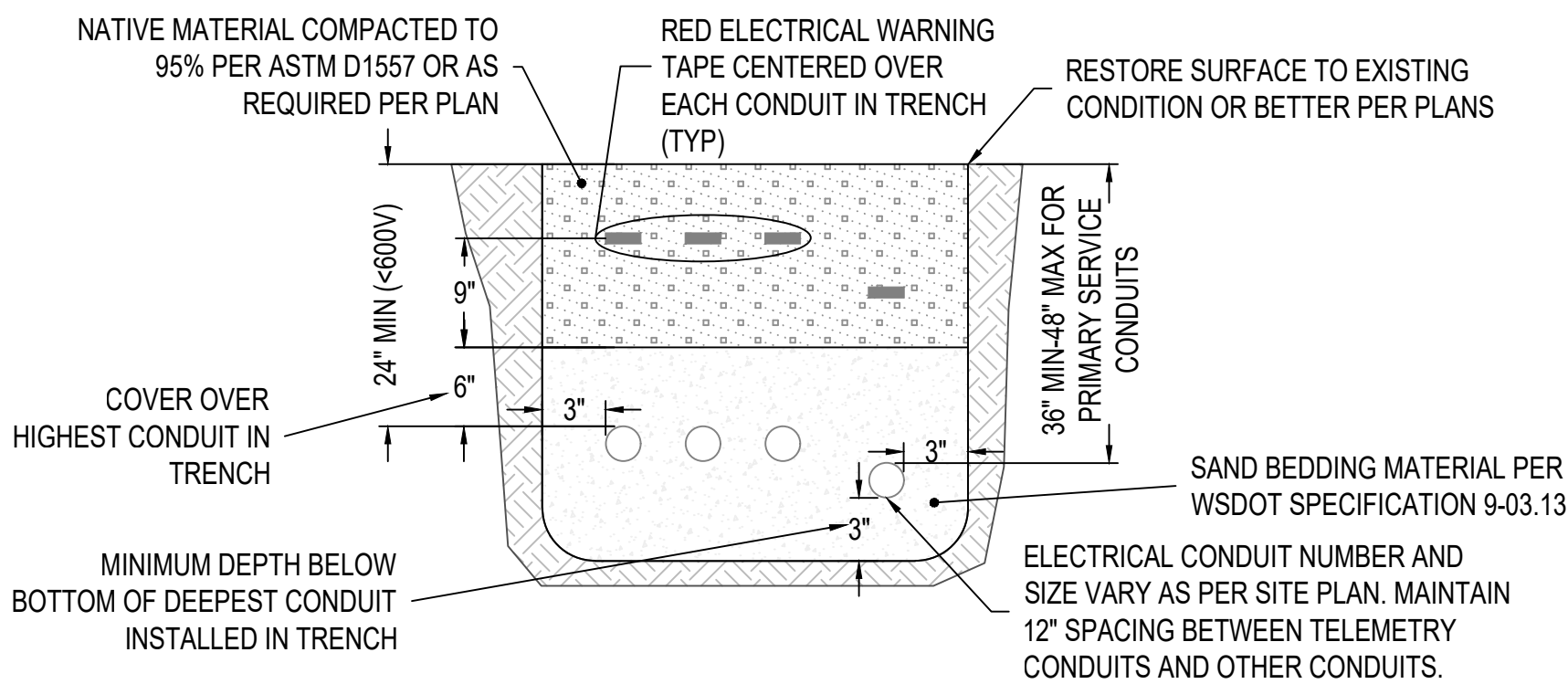


GROUND ROD DETAIL
NOT TO SCALE

PLC TO RADIO SERIAL CABLE (RE-PIN)
DB9 CONNECTOR NULL MODEM PINOUT



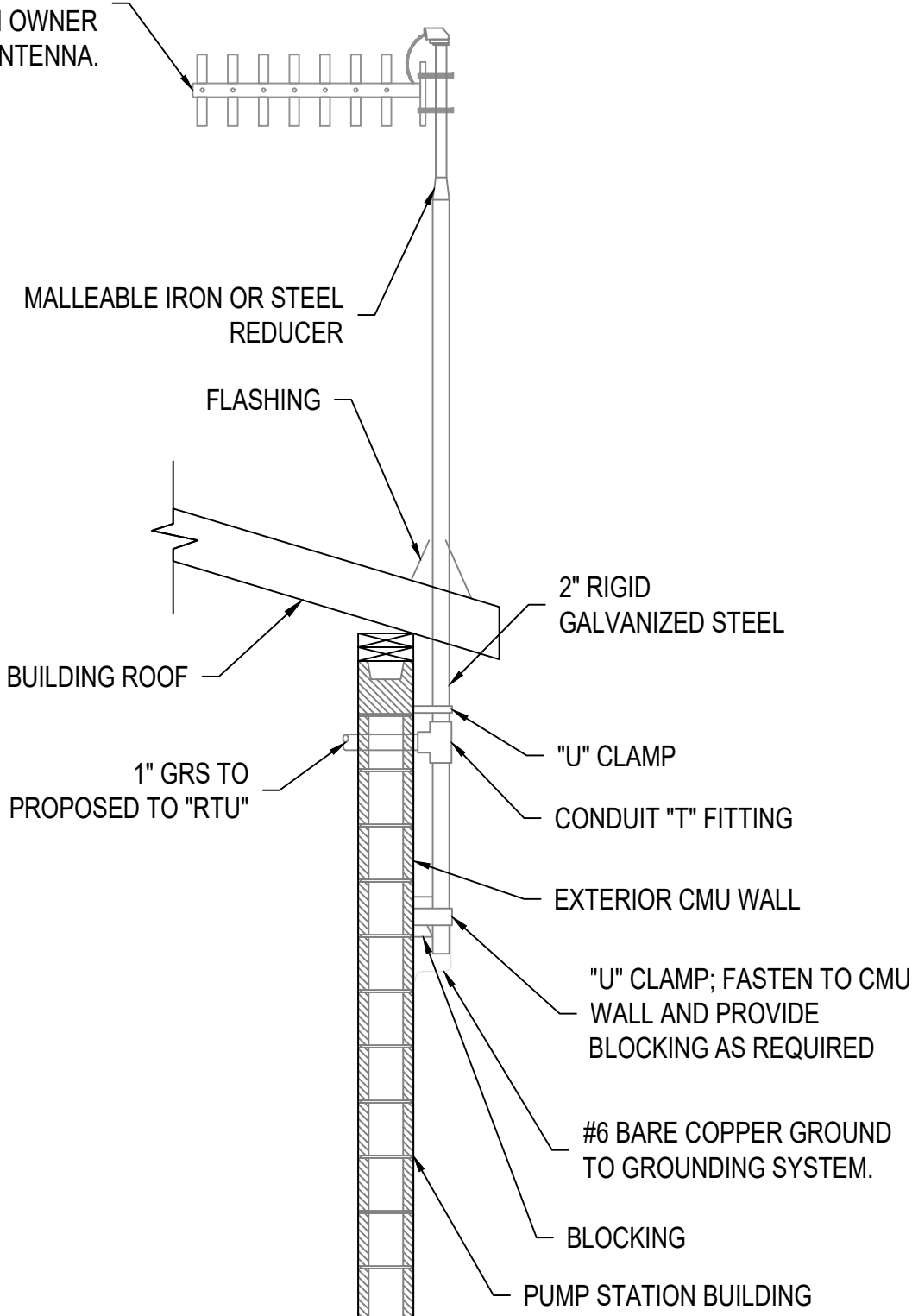
PLC TO SERIAL CABLE WIRING
NOT TO SCALE



TYPICAL ELECTRICAL TRENCH DETAIL
NOT TO SCALE

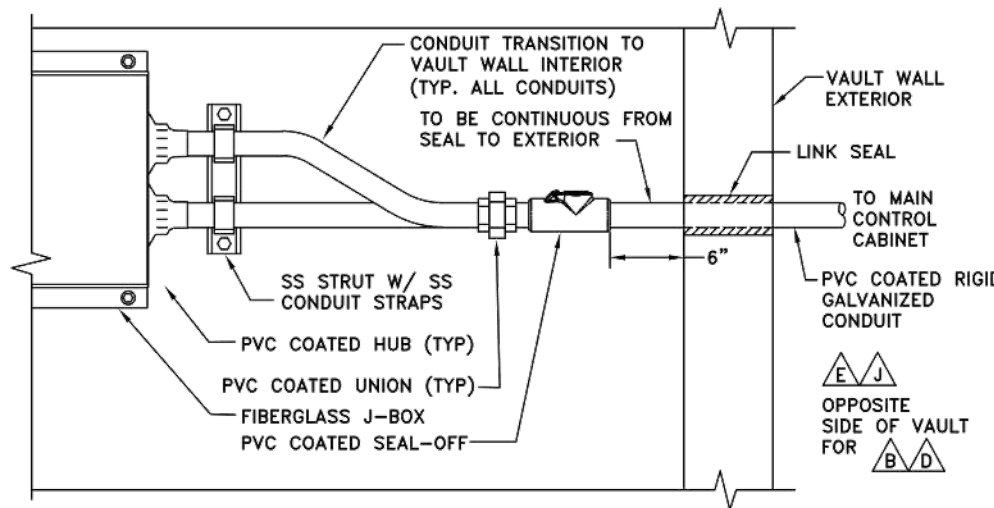
NOTE: BURY DEPTH OF CONDUIT AND HORIZONTAL SPACING SHALL BE CONFIRMED WITH SERVING UTILITY BEFORE CONSTRUCTION.

TELEMETRY ANTENNA, POSITIONED 20' ABOVE GRADE. CONTRACTOR SHALL COORDINATE WITH OWNER ON DIRECTION TO POINT ANTENNA.

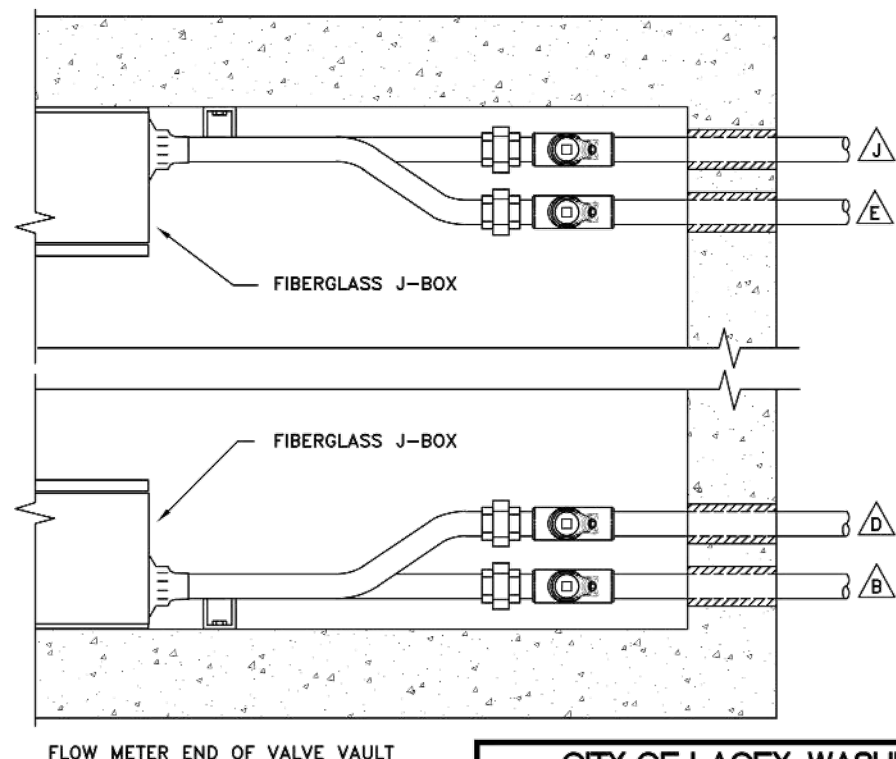


BUILDING ANTENNA INSTALLATION DETAIL

ELEVATION VIEW



PLAN VIEW



GENERAL NOTES

- SEPARATE CONDUCTORS THROUGH THE SEAL-OFFS WITH APPLETON FOI FIBER FILLER AND FILL WITH APPLETON ACTA SEALING CEMENT.
- SEAL SPARE CONDUIT WITH DUCT SEALING COMPOUND
- USE COPPER COAT ON CONDUIT THREADS, UNION THREADS AND SEAL-OFF CAPS.

DG7-62.0.DWG

CITY OF LACEY, WASHINGTON
DEPT. OF PUBLIC WORKS
**LIFT STATION
VALVE VAULT
SEAL-OFF FITTING**

APPROVED: *[Signature]* DWG. NO. 7-62.0
CITY ENGINEER
DES. EBK DWN. EBK OKD. RAS DATE 08/24/2017

RH2



CITY OF LACEY
LIFT STATION 19 REHABILITATION
**CONTROL WIRING OPTIONS AND
ELECTRICAL DETAILS**

REVISIONS	DATE	DESCRIPTION	BY	REVIEW
1	5/16/08	LOG NO. 5/16/08		
2	5/16/08	LOG NO. 5/16/08		
3	5/16/08	LOG NO. 5/16/08		
4	5/16/08	LOG NO. 5/16/08		
5	5/16/08	LOG NO. 5/16/08		
6	5/16/08	LOG NO. 5/16/08		
7	5/16/08	LOG NO. 5/16/08		
8	5/16/08	LOG NO. 5/16/08		
9	5/16/08	LOG NO. 5/16/08		
10	5/16/08	LOG NO. 5/16/08		
11	5/16/08	LOG NO. 5/16/08		
12	5/16/08	LOG NO. 5/16/08		
13	5/16/08	LOG NO. 5/16/08		
14	5/16/08	LOG NO. 5/16/08		
15	5/16/08	LOG NO. 5/16/08		
16	5/16/08	LOG NO. 5/16/08		
17	5/16/08	LOG NO. 5/16/08		
18	5/16/08	LOG NO. 5/16/08		
19	5/16/08	LOG NO. 5/16/08		
20	5/16/08	LOG NO. 5/16/08		
21	5/16/08	LOG NO. 5/16/08		
22	5/16/08	LOG NO. 5/16/08		
23	5/16/08	LOG NO. 5/16/08		
24	5/16/08	LOG NO. 5/16/08		
25	5/16/08	LOG NO. 5/16/08		
26	5/16/08	LOG NO. 5/16/08		
27	5/16/08	LOG NO. 5/16/08		
28	5/16/08	LOG NO. 5/16/08		
29	5/16/08	LOG NO. 5/16/08		
30	5/16/08	LOG NO. 5/16/08		
31	5/16/08	LOG NO. 5/16/08		
32	5/16/08	LOG NO. 5/16/08		
33	5/16/08	LOG NO. 5/16/08		
34	5/16/08	LOG NO. 5/16/08		
35	5/16/08	LOG NO. 5/16/08		
36	5/16/08	LOG NO. 5/16/08		
37	5/16/08	LOG NO. 5/16/08		
38	5/16/08	LOG NO. 5/16/08		
39	5/16/08	LOG NO. 5/16/08		
40	5/16/08	LOG NO. 5/16/08		
41	5/16/08	LOG NO. 5/16/08		
42	5/16/08	LOG NO. 5/16/08		
43	5/16/08	LOG NO. 5/16/08		
44	5/16/08	LOG NO. 5/16/08		
45	5/16/08	LOG NO. 5/16/08		
46	5/16/08	LOG NO. 5/16/08		
47	5/16/08	LOG NO. 5/16/08		
48	5/16/08	LOG NO. 5/16/08		
49	5/16/08	LOG NO. 5/16/08		
50	5/16/08	LOG NO. 5/16/08		
51	5/16/08	LOG NO. 5/16/08		
52	5/16/08	LOG NO. 5/16/08		
53	5/16/08	LOG NO. 5/16/08		
54	5/16/08	LOG NO. 5/16/08		
55	5/16/08	LOG NO. 5/16/08		
56	5/16/08	LOG NO. 5/16/08		
57	5/16/08	LOG NO. 5/16/08		
58	5/16/08	LOG NO. 5/16/08		
59	5/16/08	LOG NO. 5/16/08		
60	5/16/08	LOG NO. 5/16/08		
61	5/16/08	LOG NO. 5/16/08		
62	5/16/08	LOG NO. 5/16/08		
63	5/16/08	LOG NO. 5/16/08		
64	5/16/08	LOG NO. 5/16/08		
65	5/16/08	LOG NO. 5/16/08		
66	5/16/08	LOG NO. 5/16/08		
67	5/16/08	LOG NO. 5/16/08		
68	5/16/08	LOG NO. 5/16/08		
69	5/16/08	LOG NO. 5/16/08		
70	5/16/08	LOG NO. 5/16/08		
71	5/16/08	LOG NO. 5/16/08		
72	5/16/08	LOG NO. 5/16/08		
73	5/16/08	LOG NO. 5/16/08		
74	5/16/08	LOG NO. 5/16/08		
75	5/16/08	LOG NO. 5/16/08		
76	5/16/08	LOG NO. 5/16/08		
77	5/16/08	LOG NO. 5/16/08		
78	5/16/08	LOG NO. 5/16/08		
79	5/16/08	LOG NO. 5/16/08		
80	5/16/08	LOG NO. 5/16/08		
81	5/16/08	LOG NO. 5/16/08		
82	5/16/08	LOG NO. 5/16/08		
83	5/16/08	LOG NO. 5/16/08		
84	5/16/08	LOG NO. 5/16/08		
85	5/16/08	LOG NO. 5/16/08		
86	5/16/08	LOG NO. 5/16/08		
87	5/16/08	LOG NO. 5/16/08		
88	5/16/08	LOG NO. 5/16/08		
89	5/16/08	LOG NO. 5/16/08		
90	5/16/08	LOG NO. 5/16/08		
91	5/16/08	LOG NO. 5/16/08		
92	5/16/08	LOG NO. 5/16/08		
93	5/16/08	LOG NO. 5/16/08		
94	5/16/08	LOG NO. 5/16/08		
95	5/16/08	LOG NO. 5/16/08		
96	5/16/08	LOG NO. 5/16/08		
97	5/16/08	LOG NO. 5/16/08		
98	5/16/08	LOG NO. 5/16/08		
99	5/16/08	LOG NO. 5/16/08		
100	5/16/08	LOG NO. 5/16/08		

SCALE: SHOWN
DRAWING IS FULL SCALE WHEN
BAR MEASURES 2"
DWG NO.: E07 SHEET NO.: 28 48

LIFT STATION LOAD CHART					
LOAD DESCRIPTION	DUTY NO.	HP EACH	KVA EACH	TOTAL DUTY KVA	PLANT LOAD NO. KVA
PUMP 1	1.25	50	67.55	67.55	67.55
PUMP 2	1.0	50	54.04	54.04	54.04
MISC. LOAD			15.00	15.00	15.00
				TOTAL DUTY	DESIGN TOTAL
KVA SUB-TOTAL				136.59	KVA 136.59
AMPS @ 480, 3P					AMPS 164.29

GENERATOR LOAD TABLE					
LOAD REQUIREMENTS			PERFORMANCE REQUIREMENTS		
RUNNING kW	106.09		NOMINAL 480V 60HZ 3PH		
RUNNING kVA	120.74		MAX. VOLTAGE DIP	30%	
RUNNING P.F.	0.88		MAX. FREQUENCY DIP	15%	
MAX. START kW	19.40	IN STEP 2	MAX. VOLTAGE HARMONIC DISTORTION	10%	
MAX. START kVA	53.90	IN STEP 2			
			MIN. GENERATOR LOADED	25%	
			MAX. GENERATOR LOADED	90%	
			TOTAL kW REQUIRED	125.00	
			TOTAL AMPS REQUIRED	150.35	

CONDUIT AND WIRE SCHEDULE						
CONDUIT USE	CONDUIT DESIGNATION	CONDUIT SIZE	CONDUIT TYPE	CONDUCTOR SIZE AND NUMBER OF CONDUCTORS	CONDUIT FROM	CONDUIT TO
UNDERGROUND SERVICE	A	3"	PVC	(3) - #3/0, , (1) - #3/0 N	UTILITY TRANSFORMER	METER DISCONNECT
UTILITY METER	B	2"	PGRC	(3) - #3/0, , (1) - #3/0 N	METER DISCONNECT	UTILITY METER
MAIN DISCONNECT	C	2"	PGRC	(3) - #3/0, , (1) - #3/0 N	UTILITY METER	MAIN SERVICE DISCONNECT
ATS	D	(2) - 1 1/4"	PGRC	(3) - #2, (1) - #2 N, (1) - #4 GRD	MAIN SERVICE DISCONNECT	AUTOMATIC TRANSFER SWITCH, 'ATS'
GENERATOR	E	2"	PGRC	(3) - #3/0, (1) - #3/0 N, (1) - #6 GRD	AUTOMATIC TRANSFER SWITCH, 'ATS'	STANDBY GENERATOR
ATS	F	2"	PGRC	(3) - #3/0, (1) - #3/0 N, (1) - #6 GRD	AUTOMATIC TRANSFER SWITCH, 'ATS'	MOTOR CONTROL CENTER, 'MCC'
PUMP #1	G	1 1/2"	PGRC	(3) - #4, (1) - #8 GRD	MOTOR CONTROL CENTER, 'MCC'	ISOLATION PEDESTAL
PUMP #2	H	1 1/2"	PGRC	(3) - #4, (1) - #8 GRD	MOTOR CONTROL CENTER, 'MCC'	ISOLATION PEDESTAL
PUMP #1	I	2"	PGRC	MANUFACTURER'S CABLES	ISOLATION PEDESTAL	PUMP #1
PUMP #2	J	2"	PGRC	MANUFACTURER'S CABLES	ISOLATION PEDESTAL	PUMP #2
GENERATOR BLOCK HEATER AND BATTER CHARGER	K	1"	PGRC	(4) - #12, (1) - #12 GRD	LIGHTING PANEL, 'L'	STANDBY GENERATOR
ISOLATION PEDESTAL HEATER	L	1"	PGRC	(2) - #12, (1) - #12 GRD	LIGHTING PANEL, 'L'	ISOLATION PEDESTAL
REDUCED PRESSURE BACKFLOW ASSEMBLY (HOTBOX)	M	1"	PGRC	(2) - #12, (1) - #12 GRD	LIGHTING PANEL, 'L'	RPBA (HOT BOX)
PCP POWER	N	1"	PGRC	(2) - #12, (1) - #12 GRD	LIGHTING PANEL, 'L'	PUMP CONTROL PANEL, 'PCP'
HIGH BALL	O	1"	PGRC	MANUFACTURER'S CABLE	WET WELL	ISOLATION PEDESTAL
LEVEL TRANSDUCER	P	1"	PGRC	MANUFACTURER'S CABLE	WET WELL	ISOLATION PEDESTAL
HIGH BALL	Q	1"	PGRC	(2) - #12, (1) - #12 GRD	INTRINSICALLY SAFE RELAY PANEL	ISOLATION PEDESTAL
LEVEL TRANSDUCER	R	1"	PGRC	MANUFACTURER'S CABLE	LEVEL TRANSMITTER	ISOLATION PEDESTAL
PUMP SEAL FAIL/OVERTEMP	S	1"	PGRC	(4) - #14, (1) - #14 GRD	PUMP CONTROL PANEL, 'PCP'	ISOLATION PEDESTAL
CHECK VALVE LIMIT SWITCHES	T	1"	PGRC	(4) - #14, (1) - #14 GRD	PUMP CONTROL PANEL, 'PCP'	VALVE AND METER VAULT JUNCTION BOX
FLOW METER	U	(2) - 1 1/2"	PGRC	MANUFACTURER'S FLOW METER CABLES	FLOW METER TRANSMITTER	VALVE AND METER VAULT JUNCTION BOX
VALVE AND METER VAULT SPARE	V	1"	PGRC	(1) - NYLON PULL CORD	PUMP CONTROL PANEL, 'PCP'	VALVE AND METER VAULT JUNCTION BOX
CHECK VALVE LIMIT SWITCHES	W	1"	PGRC	(4) - #14, (1) - #14 GRD	VALVE AND METER VAULT JUNCTION BOX	CHECK VALVE LIMIT SWITCHES
FLOW METER	X	(2) - 1 1/2"	PGRC	MANUFACTURER'S FLOW METER CABLES	VALVE AND METER VAULT JUNCTION BOX	FLOW METER
GENERATOR RUN/FAIL/START	Y	1"	PGRC	(6) - #14, (1) - #14 GRD	PUMP CONTROL PANEL, 'PCP'	STANDBY GENERATOR
ATS IN EMERGENCY/IN UTILITY/IN PRETRANSFER	Z	1"	PGRC	(6) - #14, (1) - #14 GRD	AUTOMATIC TRANSFER SWITCH, 'ATS'	STANDBY GENERATOR
INTRUSION SWITCH	1	1"	PGRC	(2) - #14, (1) - #14 GRD	PUMP CONTROL PANEL, 'PCP'	ELECTRICAL BUILDING INTRUSION SWITCH
PUMP DIGITAL SIGNALS	2	1"	PGRC	(28) - #14, (1) - #14 GRD	PUMP CONTROL PANEL, 'PCP'	MOTOR CONTROL CENTER, 'MCC'
POWER MONITOR	3	3/4"	PGRC	(1) CAT 5E ETHERNET CABLE	PUMP CONTROL PANEL, 'PCP'	MOTOR CONTROL CENTER, 'MCC'
ANTENNA	4	1 1/2"	PGRC	(1) - ANTENNA COAX CABLE	PUMP CONTROL PANEL, 'PCP'	ANTENNA MAST
LEVEL TRANSMITTER	5	3/4"	PGRC	(1) 2-CONDUCTOR SHIELDED CABLE	PUMP CONTROL PANEL, 'PCP'	LEVEL TRANSMITTER
FLOW TRANSMITTER	6	3/4"	PGRC	(1) 2-CONDUCTOR SHIELDED CABLE	PUMP CONTROL PANEL, 'PCP'	FLOW METER TRANSMITTER
INTRINSICALLY SAFE RELAY PANEL	7	3/4"	PGRC	(2) - #12, (1) - #12 GRD	PUMP CONTROL PANEL, 'PCP'	INTRINSICALLY SAFE RELAY PANEL
FUTURE AIR SCRUBBER POWER	8	1"	PGRC	(1) - NYLON PULL CORD	MOTOR CONTROL CENTER, 'MCC'	AIR SCRUBBER HANDHOLE
FUTURE AIR SCRUBBER CONTROL	9	1"	PGRC	(1) - NYLON PULL CORD	PUMP CONTROL PANEL, 'PCP'	AIR SCRUBBER HANDHOLE

CONSTRUCTION NOTE : CONDUIT INSULATION

1. ALL STRUT AND MOUNTING HARDWARE MUST BE STAINLESS STEEL
2. MYERS HUB FITTING MUST BE USED ON ALL CONDUIT PENETRATIONS
3. ALL CONDUIT MUST BE PVC COATED GALVANIZED RIGID.
4. THE PROPER TOOLS MUST BE USED WHILE CUTTING,THREADING, BENDING AND TIGHTENING ANY PVC COATED CONDUIT.
5. THE PVC COATING MUST REMAIN INTACT ONLY 1 INCH OF THE COATING MAY BE REMOVED AT THE END OF THE CONDUIT TO ALLOW FOR THE THREAD.
6. ANY CONDUIT WITH THE DAMAGED COATING MUST BE REPLACED.
7. THE COATING TOUCH UP PAINT IS ONLY TO BE USED FOR COSMETIC BLEMISHES.
8. ALL THREADED CONNECTIONS MUST BE COPPER COATED AND TIGHTENED APPROPRIATELY.
9. ALL UNDER GROUND CONDUIT RUNS MUST BE INSPECTED BEFORE THEY CAN BE COVERED.



CITY OF LACEY

11

REVISIONS

60% REVIEW

DRAWINGS

LOG NO.: 516-081

CLIENT: LAC

DATE: Nov 17, 2020

ENGINEER: KES

FILENAME: LS19-0-EGS.DWG

DATE: Nov 19, 2020

REVIEWED: CMR

NO.

DESCRIPTION

DATE

BY

REVIEW

SCALE: SHOWN

0"

1"

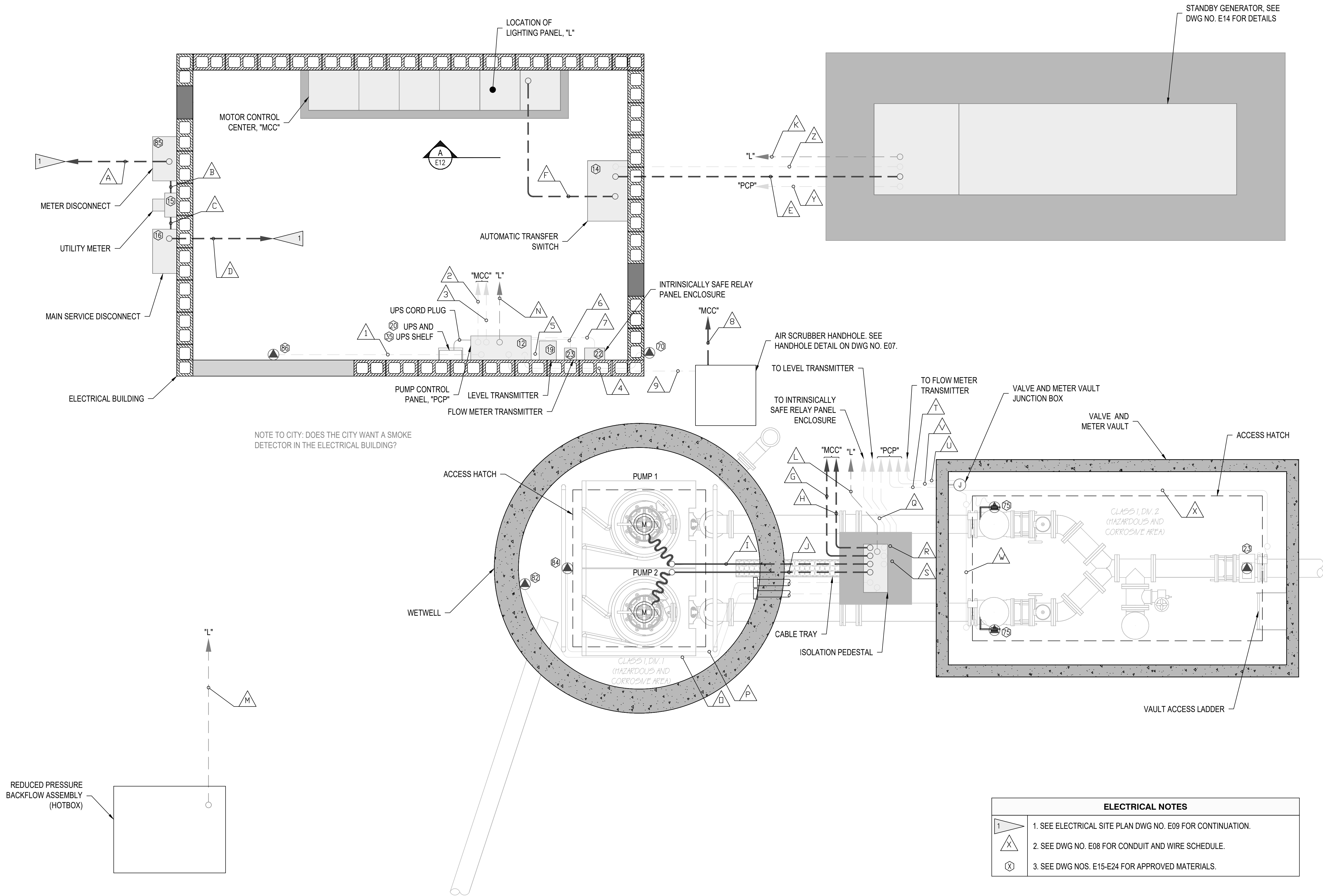
2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E08

SHEET NO.: 29

48



POWER DISTRIBUTION AND SIGNAL PLAN

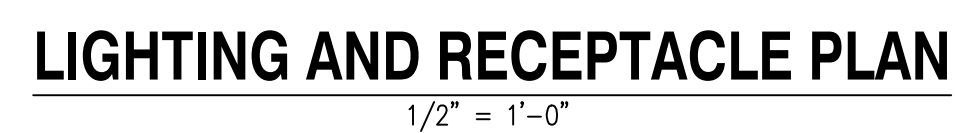
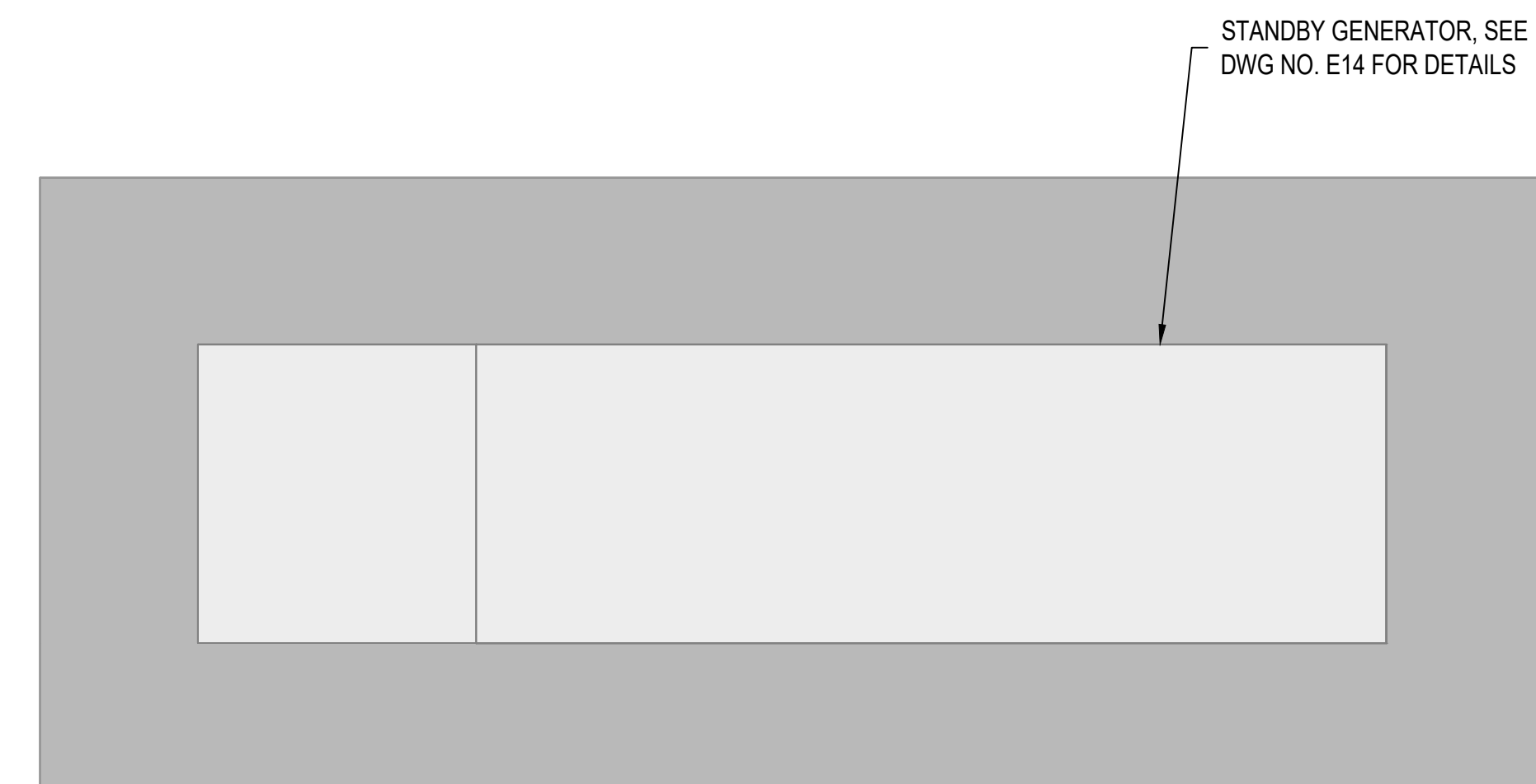
1/2" = 1'-0"

ENGINEER: KALCO	DATE: NOV 19, 2020	CLIENT: LAC	LOG NO.: 516-081
REVIEWED: CMR	PLOT DATE: NOV 19, 2020	FILENAME: LS19-D-E07.DWG	
REVISIONS			

SCALE: SHOWN

0' 1' 2'

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"



ELECTRICAL NOTES	
1	1. DOUBLE GANG BOX AND SWITCHES RECESSED IN WALL.
2	2. GROUND ROD PER N.E.C. (TYPICAL). USE EXOTHERMIC WELD CONNECTION AT THE GROUND ROD. SEE DWG NO. E07 FOR DETAIL. LOCATE GROUND RODS 2' MINIMUM FROM BUILDING FOUNDATION.
3	3. CONNECTION TO REINFORCEMENT GRID (TYPICAL OF 2 LOCATIONS). SEE DWG NO. E07 FOR ADDITIONAL DETAIL.
A#	4. SEE DWG NO. E24 FOR LIGHTING FIXTURE SCHEDULE.
X	5. SEE DWG NOS. E15-E24 FOR APPROVED MATERIALS.
	6. PROVIDE AND INSTALL LABELS FOR ALL LIGHT SWITCHES. LABELS SHALL INDICATE THE DEVICE CONTROLLED BY THE SWITCH.
	7. LOCATE ALL LIGHT FIXTURES, SWITCHES, AND DEVICES IN LOCATION SHOWN ON THE PLANS USING ENGINEERING SCALE. ADJUST LOCATION AS NECESSARY TO AVOID INTERFERENCE WITH OTHER EQUIPMENT.

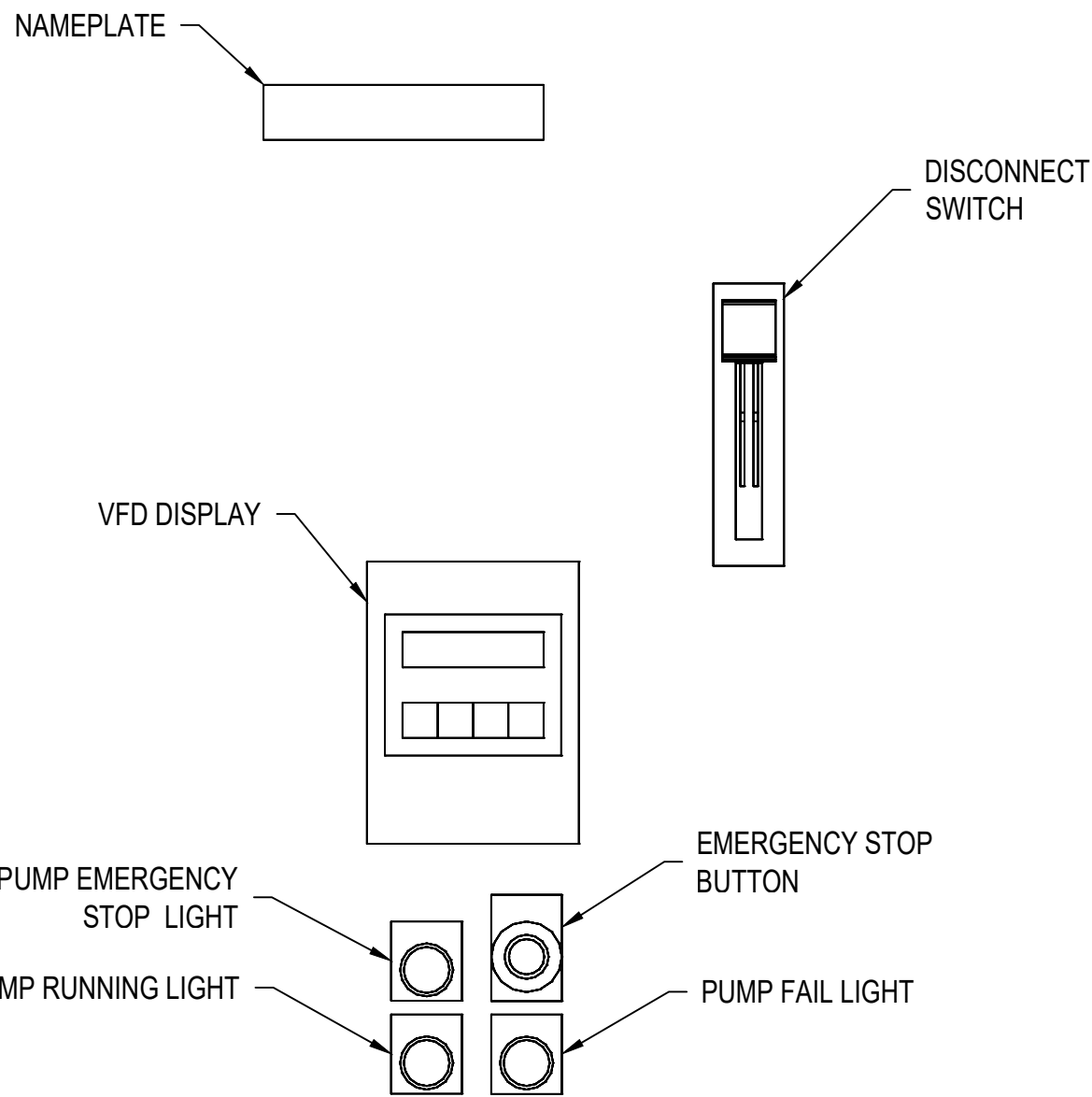


CITY OF LACEY

LIFT STATION 19 REHABILITATION

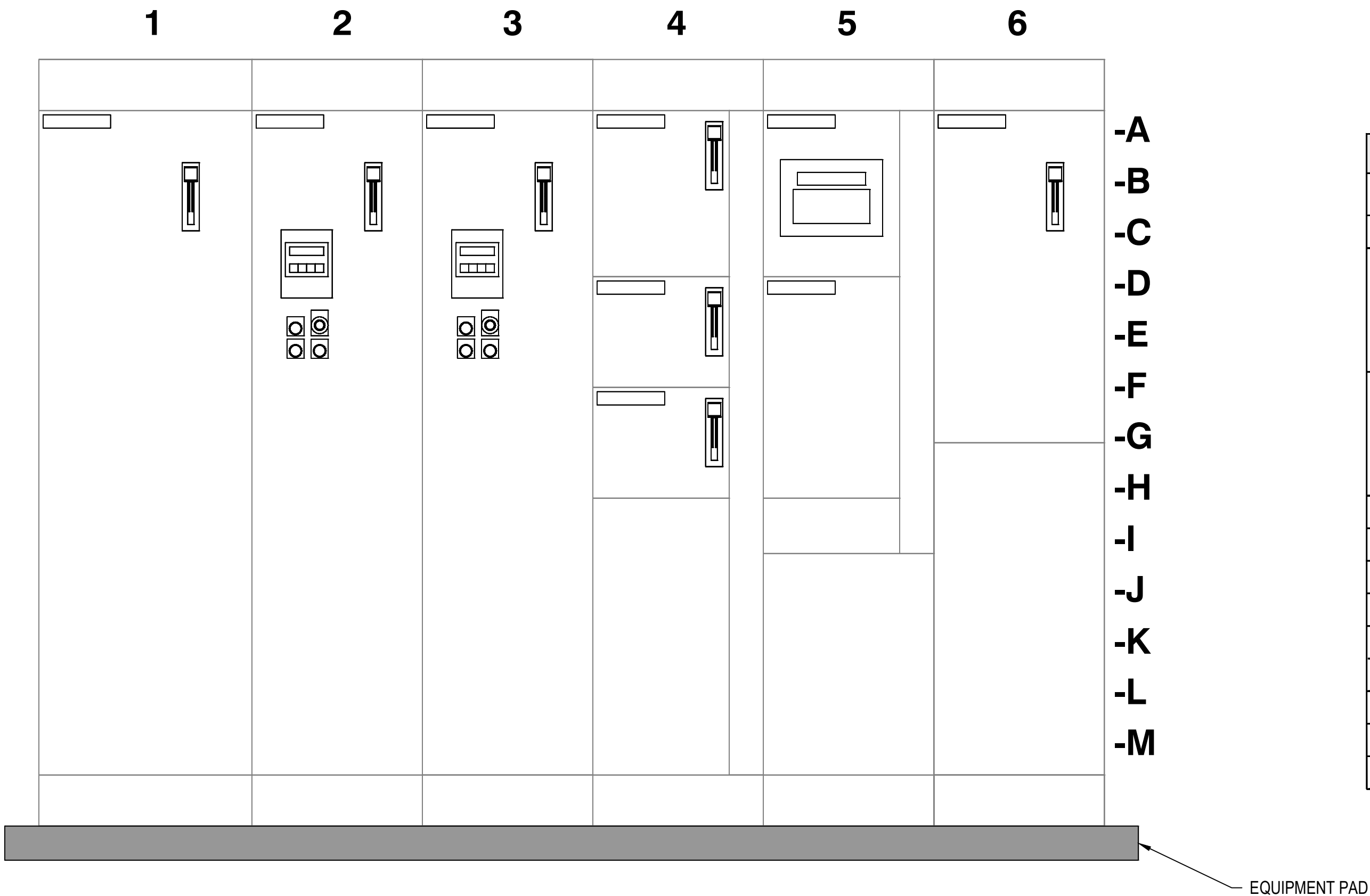
LIGHTING AND RECEPTACLE PLAN

		SCALE: SHOWN	
DWG NO.: E11		SHEET NO.: 32	
ENGINEER: KES		SAVE DATE: Nov 11, 2020	
REVIEWED: CNR		PLOT DATE: Nov 19, 2020	
CLIENT: LAC		FILENAME: L319-D-E08.DWG	
REVISIONS			
		60% REVIEW DRAWINGS	
NO.		DATE	
DESCRIPTION		BY	
REVIEW			



TYPICAL VFD PANEL LAYOUT

NOT TO SCALE



MOTOR CONTROL CENTER LAYOUT

1" = 1'-0"



MCC CONTROL DEVICES	
MCC SECTION	NAMEPLATE SCHEDULE
1A	ACTIVE HARMONIC FILTER
2A	PUMP NO. 1 PUMP RUNNING LIGHT PUMP FAIL LIGHT EMERGENCY STOP LIGHT EMERGENCY STOP PUSHBUTTON
3A	PUMP NO. 2 PUMP RUNNING LIGHT PUMP FAIL LIGHT EMERGENCY STOP LIGHT EMERGENCY STOP PUSHBUTTON
4A	SURGE PROTECTION DEVICE (SPD)
4D	PHASE MONITOR RELAY
4F	ACTIVE HARMONIC FILTER FEEDER
4H	SPARE
5A	POWER MONITOR
5D	LIGHTING PANELBOARD "L"
5H	LIGHTING TRANSFORMER
6A	MCC MAIN DISCONNECT
6G	SPARE





LIFT STATION 19 REHABILITATION

MOTOR CONTROL CENTER DETAILS

ENGINEER: KES	DATE: Nov 11, 2020	CLIENT: LAC	LOG NO.: 516-081
REVIEWED: CMR	PLOT DATE: Nov 19, 2020	FILENAME: LS19-Q-EDB.DWG	
REVISIONS			
60% REVIEW DRAWINGS			
NO.	DATE	DESCRIPTION	BY
			REVIEW

SCALE: SHOWN

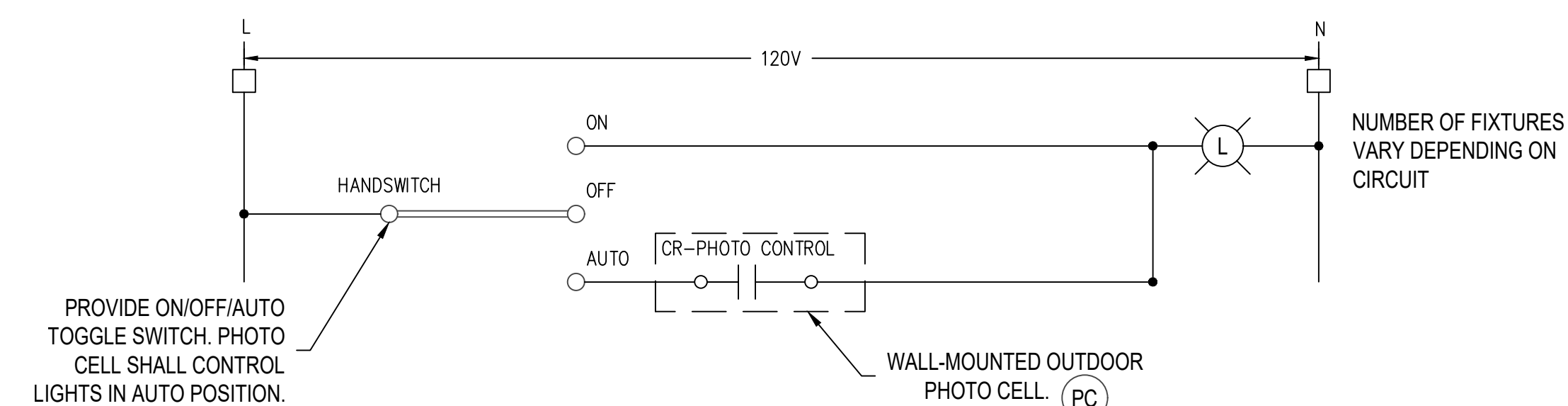
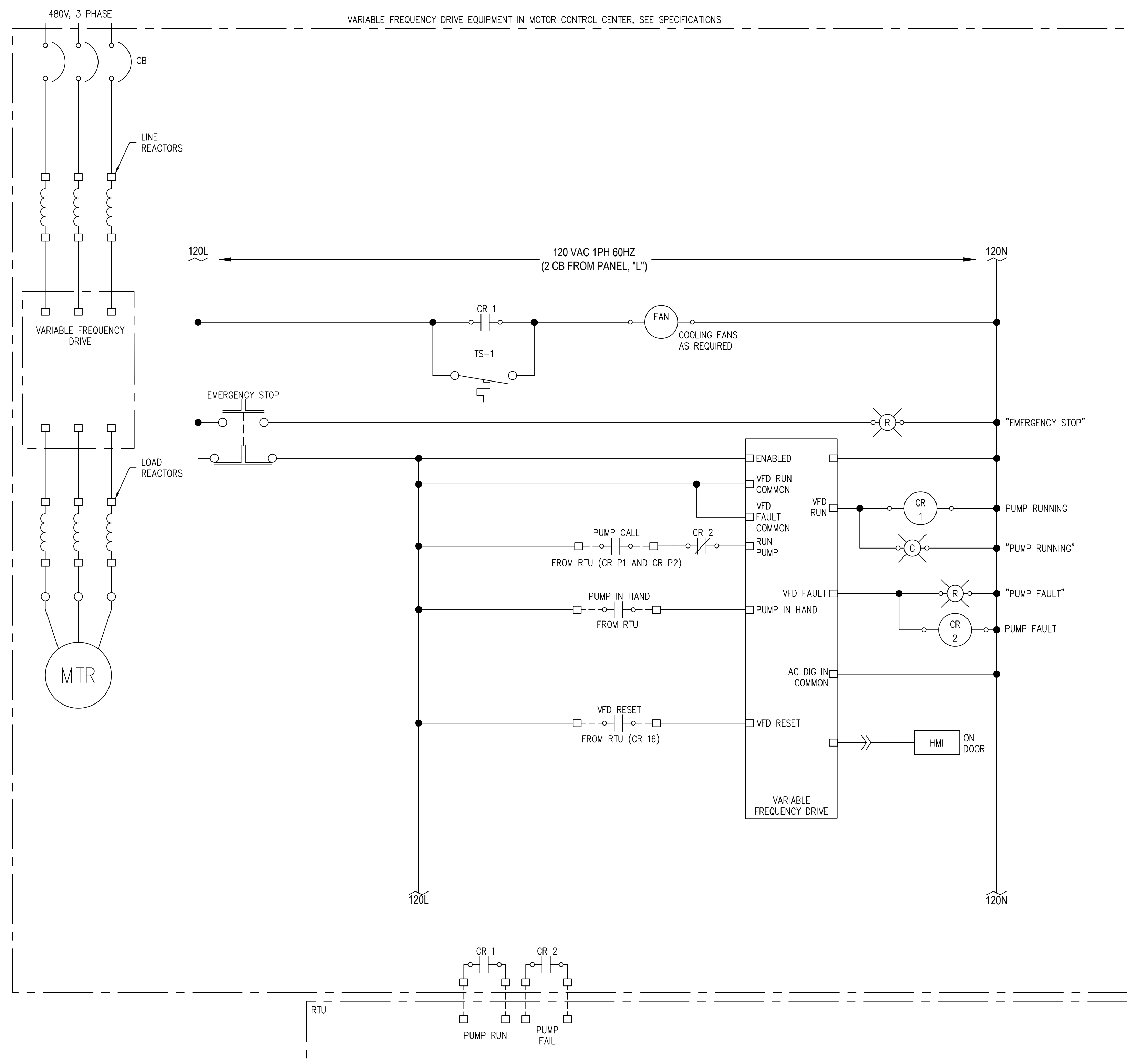
0"1"2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E12

SHEET NO.: 33

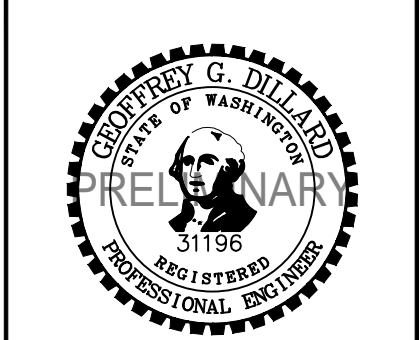
48



APPROVED MATERIALS (BOM)

ITEM	CITY OF LACEY DESCRIPTION	MANUFACTURER	PART #	SPECIAL CONSTRUCTION NOTES	ENGINEER SPECIFIED PART# (see foot note)	
				*Control System Manufacturing shall use listed parts and install them using the Special Construction Notes.		
1	RADIO EQUIPMENT					
	DATA RADIO			Radio provided by City for installation by contractor.		
	PLC TO RADIO SERIAL CABLE "CUSTOM"	ALLEN BRADLEY	1761-CBL-PM02	The 9 pin end must be re-pinned to null modem configuration. No Adapter! SEE DWG NO. E07 FOR DETAIL		
	RADIO TO ARRESTOR COAX JUMPER	"CUSTOM"	"SMA" type male to "N" type male			
	LIGHTENING ARRESTOR	POLYPHASER	IS-B50LN-C2	Bond to ATS with #8 AWG CU wire.		
	RADIO BRACKET	"CUSTOM"		Allow minimum 1" clearance above and below the radio and flush with the front of the Pump Control Panel.		
2	ETHERNET PORT	EATON	M22-RJ45-SA			
3	CABINET LIGHT	COOPER	HU1024D830P			
	24" DAISY CHAIN CONNECTOR	COOPER	HU103P			
	120" DAISY CHAIN CONNECTOR	COOPER	HU104P	Cut connector off of one end and land under CR2.		
4	TVSS	GENERAL ELECTRIC	9L15ECC001	Mount TVSS to the back plate.		
5	INTRUSION SWITCH ASSEMBLY			Mount intrusion switch to Pump Control Panel ceiling track with a bracket. Intrusion switch is configured normally closed held open. When the control cabinet door is closed, the lever switch arm is pushed back and the contacts within the switch are held open. When the control cabinet door is opened, the lever arm is released and contacts within the switch close. At this point CR2 is energized. CR2 has two C-form contacts (two poles). One pole switches the cabinet light via the normally open contacts the other pole switches the intrusion input via normally closed contacts. The PLC program creates an intrusion alarm when there is no input to I:0/2. WHEN THE Pump Control Panel IS CLOSED, THERE IS AN INPUT TO I:0/2.		
	RECEPTACLE	EATON	E50RA			
	SWITCH BODY	EATON	E50SA			
	5° HEAD	EATON	E50DR1			
	LEVER ARM	EATON	E50KL538			
6	CABINET VENTILATION					
	FAN	RITTAL	3239.110	Mount fan on lower right.		
	VENT	RITTAL	3239.200			
	SS HOOD	RITTAL	3239.080	Mount intake and exhaust hoods forward in the Main Control Cabinet toward the door, allowing clearance for the Service Entrance Disconnect. Filter must be installed.		

*Engineer to determine part number based on voltage/amperage and fill in the missing part number represented by *the asterisk.



CITY OF LACEY

LIFT STATION 19 REHABILITATION

LACEY

APPROVED MATERIALS 1

ENGINEER: KES
REVIEWED: CMR

DATE: Nov 11, 2020
DATE: Nov 19, 2020

LOG NO.: 516-081
CLIENT: LAC
FILENAME: LSI19-Q-E13.DWG

REVISIONS

60% REVIEW
DRAWINGS

NO.	DATE	DESCRIPTION	BY	REVIEW

SCALE: SHOWN

0"1"2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E15

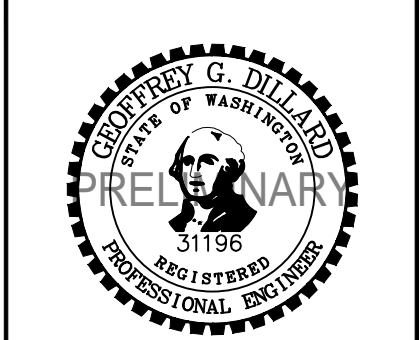
SHEET NO.: 36

48

APPROVED MATERIALS (BOM)

ITEM	CITY OF LACEY DESCRIPTION	MANUFACTURER	PART #	SPECIAL CONSTRUCTION NOTES	ENGINEER SPECIFIED PART# (see foot note)
				*Control System Manufacturing shall use listed parts and install them using the Special Construction Notes.	
7	PHASE MONITOR	CROUZET	H3US		
8	PHASE MONITOR FUSE HOLDER	BUSSMAN	CHCC31		
	PHASE MONITOR FUSES	BUSSMAN	KTK-R-1/10		
9	CB5 - TVSS	EATON	WMZT3C30		
10	POWER DISTRIBUTION BLOCK	BUSSMAN	16323-3 Include cover	Load Side - one connection per point i.e. CB1 and CB2 would require 6 points. Wire connected to any breaker must exceed the breakers ampacity.	
11	DUAL THERMOSTAT	STEGO	ZR 01172.0-01		
12	PUMP CONTROL PANEL				
	FOR 2 PUMP STATION	HOFFMAN	CSD363012 with steel back plate		
	FOR 3 PUMP STATION	HOFFMAN	CSD423612 with steel back plate		
14	AUTOMATIC TRANSFER SWITCH	ASCO	D3ATSA3****GXC - 11BE		200N
15	METER HEAD				
	ONE THAT MEETS PSE'S CURRENT SPECIFICATIONS			Torque to spec.	
16	SERVICE ENTRANCE DISCONNECT			Needs to be drilled so that it can be locked in the on position. Shipped with the Main Control Cabinet (to be mounted by the field electrician). Torque to spec.	
	ENCLOSURE	EATON	WFDN***		225
	NEUTRAL KIT	EATON	DH***N*	Control systems manufacturer to install neutral kit.	200, K
	BREAKER	EATON	FD3***	Control systems manufacturer to install breaker.	225L

*Engineer to determine part number based on voltage/amperage and fill in the missing part number represented by *the asterisk.





CITY OF LACEY

LIFT STATION 19 REHABILITATION

APPROVED MATERIALS 2

ENGINEER: KES
REVIEWED: CMR

DATE: Nov 11, 2020
PLOT DATE: Nov 19, 2020

LOG NO.: 516-081

CLIENT: LAC

FILENAME: LS19-LQ-E13.DWG

REVISIONS

60% REVIEW DRAWINGS

NO.

DATE

DESCRIPTION

BY

REVIEW

SCALE: SHOWN

0"

1"

2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E16

SHEET NO.: 37

48



ENGINEER: KES	DATE: Nov 11, 2020	CLIENT: LAC	LOG NO.: 516-081	REVISIONS	NO.	DATE	DESCRIPTION	BY	REVIEW
REVIEWED: CMR	PLOT DATE: Nov 19, 2020	FILE NAME: LS19-Q-E13.DWG		60% REVIEW					
				DRAWINGS					

APPROVED MATERIALS (BOM)

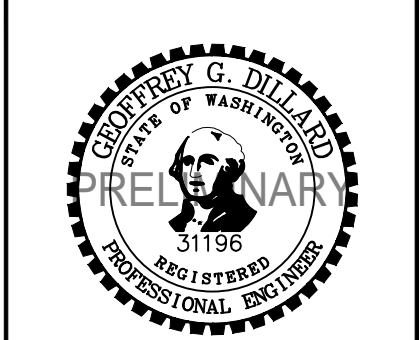
ITEM	CITY OF LACEY DESCRIPTION	MANUFACTURER	PART #	SPECIAL CONSTRUCTION NOTES	ENGINEER SPECIFIED PART# (see foot note)
				*Control System Manufacturing shall use listed parts and install them using the Special Construction Notes.	
18	BREAKER PANEL PRIMARY BREAKER	EATON	ED3060L		
19	LEVEL CONTROL				
	LUT 420	SIEMENS	7ML50500AA111DA0		
20	UPS	APC	SMT1500		
20	UPS	EATON	5115 1400		
21	BREAKER PANEL	EATON	CH18L3125R	All wires shall be tinned stranded MTW/AWM/TEW. NO VINYL COVERING. Wires connected to breakers will be black #12 . All 120 VAC control wires are to be red #14. All 120 VAC neutrals will be white. One neutral and ground for each branch circuit.	
22	INTRINSICALLY SAFE RELAY PANEL ENCLOSURE	HOFFMAN	A12N106 with white steel back plate	Barrier to be outlined with red tape on the bottom of the Main Control Cabinet prior to shipping. Knock out a 1" penetration centered in the bottom of the ISR panel.	
23	FLOW METER				
	MAG 5100 ELEMENT and MAG 6000 TRANSMITTER	SIEMENS	7ME6580***142 1JA2		JA2
	COIL CABLE AND ELECTRODE CABLE	SIEMENS	FDK: 001STCAB		
	EMPTY PIPE CABLE	SIEMENS	FDK: 001SPCAB		
	FLOW TRANSMITTER REMOTE MOUNT BRACKETS	SIEMENS	FDK: 085U1053		
	GROUNDING RINGS	SIEMENS		Grounding rings are required for all installations.	FDK:083G0695
24	POTTING KIT	SIEMENS	FDK: 085U0220		
	UPS RECEPTACLE	PHOENIX	2963860		
25	GFCI	HUBBELL	DRUBGFI15 DGK		

*Engineer to determine part number based on voltage/amperage and fill in the missing part number represented by *the asterisk.

APPROVED MATERIALS (BOM)

ITEM	CITY OF LACEY DESCRIPTION	MANUFACTURER	PART #	SPECIAL CONSTRUCTION NOTES	ENGINEER SPECIFIED PART# (see foot note)
				*Control System Manufacturing shall use listed parts and install them using the Special Construction Notes.	
26	OUTSIDE AREA LIGHT SWITCH	BRYANT	CSB120BW		
	BELL BOX	COOPER	TP7010		
	COVER	BRYANT	SS1		
27	CABINET HEATER	HOFFMAN	DHA2001A		
28	PANELVIEW HMI	ALLEN BRADLEY	2711P - T7C4A8		
29	AMMETER			Scale meter to 0-15 amps	
	2 1/2 "	PC&S	ST70		
30	MOTOR CIRCUIT BREAKER THRU - DOOR OPERATOR	EATON	EHMVD - 12R	Clocked straight up and down for the "ON" position. Mount Breaker and Operator independently, so the Operator can be removed and the Breaker remains mounted on the back plate. Operator Rod needs to be cut to the proper length. Install Cotter Pins.	
31	H-O-A SWITCH				
	22 MM HW SERIES CONTACT BLOCKS	IDEC	HW - F**		
32	CONTROL POWER INDICATOR				
	22 MM HW SERIES LED LAMP	IDEC	LST - H2*		
	FULL VOLTAGE ADAPTER	IDEC	HW-DA1F		
	BLUE LENS	IDEC	HW1A - L1 – S		
	CONTACT BLOCKS	IDEC	HW - F**		
	OPERATOR	IDEC	HW1B - ****		
33	HIGH WET WELL OVERRIDE SELECTOR SWITCH				
	22 MM HW SERIES CONTACT BLOCKS	IDEC	HW - F**		
	OPERATOR	IDEC	HW1S - *T		

*Engineer to determine part number based on voltage/amperage and fill in the missing part number represented by *the asterisk.



CITY OF LACEY

LIFT STATION 19 REHABILITATION

LACEY

LOG NO.: 516-081

CLIENT: LAC

DATE: Nov 11, 2020

ENGINEER: KES

REVIEWED: CMR

FILE NAME: LSI19-Q-E13.DWG

DATE: Nov 19, 2020

REVISIONS

60% REVIEW

DRAWINGS

NO.

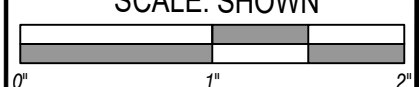
DATE

DESCRIPTION

BY

REVIEW

SCALE: SHOWN



DRAWING IS FULL SCALE WHEN BAR MEASURES 2'

DWG NO.: E18

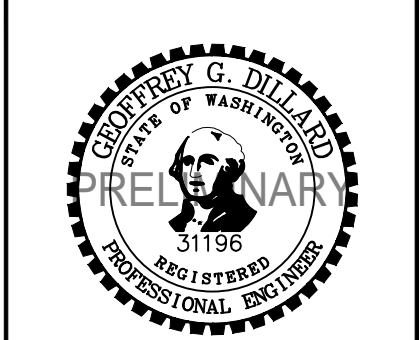
SHEET NO.: 39

48

APPROVED MATERIALS (BOM)

ITEM	CITY OF LACEY DESCRIPTION	MANUFACTURER	PART #	SPECIAL CONSTRUCTION NOTES	ENGINEER SPECIFIED PART# (see foot note)
				*Control System Manufacturing shall use listed parts and install them using the Special Construction Notes.	
34	HIGH WET WELL LEVEL INDICATOR/RESET SWITCH				
	22 MM HW SERIES LED LAMP	IDEC	LST - H2*		
	FULL VOLTAGE ADAPTER	IDEC	HW-DA1F		
	RED LENS	IDEC	HW1A - L1 – R		
	CONTACT BLOCKS	IDEC	HW - F**		
	OPERATOR	IDEC	HW1B - ****		
35	UPS SHELF	"CUSTOM"		The shelf needs to be heavy enough to support the weight of the UPS and larger than the UPS base. For earthquake readiness, the UPS must also be strapped to the Main Control Cabinet back plate.	
36	MOTOR CIRCUIT BREAKER	EATON	HMCPE***	Wire connected to any breaker must exceed the breakers ampacity.	015E0C
37	CURRENT TRANSFORMER	CROMPTON	2RL-***	Paired with Ammeter, wrap CT 4 times to achieve an accurate current reading.	600
38	MAGNETIC START (ACROSS-THE-LINE)	EATON		PROVIDE C440-XCOM MODULE FOR REMOTE OVERLOAD RESET	AN19BN0A5E020
39	AIR SCRUBBER BREAKER	EATON	HMCPE**		
	ON/OFF HASPLOCK - 3 POLE	EATON	EFPHL		
40	LITTLE JOHN BREAKER	EATON	HMCPE**		
	ON/OFF HASPLOCK - 3 POLE	EATON	EFPHL		
41	CB7 - LINE POWER CONDITIONER	EATON	FAZ-C5/1-NA		
42	AC FUSE HOLDERS				
	NEON FUSE BLOWN INDICATOR	SPRECHER SCHUH	V7-H4		
	AC FUSES	BUSSMAN	GDL - **/KLM - **/ABC - **		

*Engineer to determine part number based on voltage/ampereage and fill in the missing part number represented by *the asterisk.



CITY OF LACEY

LIFT STATION 19 REHABILITATION

LACEY

APPROVED MATERIALS 5

ENGINEER: KES
REVIEWED: CMR

DATE: Nov 11, 2020
PLOT DATE: Nov 19, 2020

LOG NO.: 516-081
CLIENT: LAC
FILENAME: LST19-Q-E13.DWG

REVISIONS

60% REVIEW
DRAWINGS

NO. DATE DESCRIPTION BY REVIEW

SCALE: SHOWN

0" 1" 2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E19
SHEET NO.: 40/48

APPROVED MATERIALS (BOM)

ITEM	CITY OF LACEY DESCRIPTION	MANUFACTURER	PART #	SPECIAL CONSTRUCTION NOTES	ENGINEER SPECIFIED PART# (see foot note)
				*Control System Manufacturing shall use listed parts and install them using the Special Construction Notes.	
43	DC FUSE HOLDERS				
	LED FUSE BLOWN INDICATOR	SPRECHER SCHUH	V7-H5		
	DC FUSES	BUSSMAN	ABC - **/KLM - **		
44	12 VDC POWER SUPPLY	SOLA	SDP3 - 15 - 100T	Allow 1" clearance per manufacturer requirements. All wires shall be tinned stranded MTW/AWM/TEW. NO VINYL COVERING. 12 VDC Positive - Orange #16 12 VDC Negative - Yellow #16	
45	24 VDC POWER SUPPLY	SOLA	SDP4 - 24 - 100LT	Allow 1" clearance per manufacturer requirements. All wires shall be tinned stranded MTW/AWM/TEW. NO VINYL COVERING. 24 VDC Positive - Dark blue #16 24 VDC Negative - White with blue stripe #16	
46	24 VDC SOFT START POWER SUPPLY	EATON	PSG240E	Allow 50 mm clearance top and bottom, 20 mm on the sides, per manufacturer requirements. All wires shall be tinned stranded MTW/AWM/TEW. NO VINYL COVERING. 24 VDC Positive - Dark blue #16 24 VDC Negative - White with blue stripe #16	
47	PROGRAMMABLE LOGIC CONTROLLER AND I/O			Allow 2" clearance per manufacturer requirements.	
	MICROLOGIX 1100	ALLEN BRADLEY	1763-L16DWD		
	ANALOG INPUT MODULE	ALLEN BRADLEY	1762-IF4		
	DIGITAL INPUT MODULE	ALLEN BRADLEY	1762-IQ16		
48	ETHERNET SWITCH	N-TRON	105TX-SL		
49	CONTROL RELAYS	IDEC	RH*B-UL		
	RELAY BASE	IDEC	SH*B-05		
50	PULSE RELAY CR5	ALLEN BRADLEY	700-HLS1Z24	Pulse wires shall be tinned stranded MTW/AWM/TEW. NO VINYL COVERING. Positive - Dark blue #16 Negative - White with blue stripe #16	
51	LINE POWER CONDITIONER	ALLEN BRADLEY	4983-DC120-05	Allow 1" clearance per manufacturer requirements.	
52	TIME DELAY RELAY	CROUZET	OUR1	Set on "C" off delay.	
	RELAY BASE	IDEC	SR2P - 06		

*Engineer to determine part number based on voltage/amperage and fill in the missing part number represented by *the asterisk.



CITY OF LACEY

LIFT STATION 19 REHABILITATION

LACEY

APPROVED MATERIALS 6

LOG NO.: 516-081

CLIENT: LAC

FILE NAME: LSI19-Q-E13.DWG

ENGINEER: KES

REVIEWED: CMR

SWF DATE: Nov 11, 2020

PLOT DATE: Nov 19, 2020

REVISIONS

60% REVIEW

DRAWINGS

NO.

DATE

DESCRIPTION

BY

REVIEW

SCALE: SHOWN

0"

1"

2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E20

SHEET NO.: 41

48



APPROVED MATERIALS 7

ENGINEER: KES	SWDATE: NOV 11, 2020	CLIENT: LAC	JOB NO.: 516-U01
REVIEWED: CMR	PLT DATE: NOV 19, 2020	FILENAME: L319-D-E13.DWG	
REVISIONS			
		60% REVIEW DRAWINGS	
NO.	DATE	DESCRIPTION	BY
			REVIEW

60% REVIEW
DRAWINGS

SCALE: SHOWN

DRAWING IS FULL SCALE WHEN
BAR MEASURES 2"

WG NO.:	SHEET NO.:
---------	------------

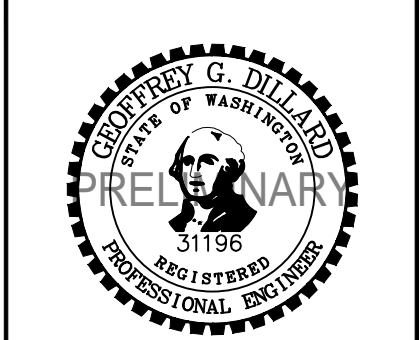
E21	42	
-----	----	---

08/2017

APPROVED MATERIALS (BOM)

ITEM	CITY OF LACEY DESCRIPTION	MANUFACTURER	PART #	SPECIAL CONSTRUCTION NOTES	ENGINEER SPECIFIED PART# (see foot note)
				*Control System Manufacturing shall use listed parts and install them using the Special Construction Notes.	
64	BREAKER PANEL BREAKER – 15A	EATON	CH115		
65	BREAKER PANEL BREAKER – 20A	EATON	CH120		
66	PUMP JOG PENDANT			50 foot cord needs to be supplied with pendant attached and then cut to length in the field.	
	FOR 2 PUMP STATION	WOODHEAD	4022	Cord needs to be long enough to reach the wet well from the main control cabinet.	
	FOR 3 PUMP STATION	WOODHEAD	4023	Neatly coil up cord and hag up by using a heavy duty Velcro strap with a eyelet in it to secure to an existing bolt.	
67	ISOLATION PEDESTAL POST BASE	B-LINE	B281SQ SS4	SEE DWG NO. E05 FOR DETAIL	
		UNISTRUT	P2073ASQSS	SEE DWG NO. E05 FOR DETAIL	
68	1 ½" WEATHER HEAD	OZ-GEDNEY	170-150G	SEE DWG NO. E06 FOR DETAIL	
69	ANTENNA CABLING			Must be taped with silicon splicing tape and covered with black vinyl tape.	
	LMR400 with type "N" male LMR400 connector			NO HEAT SHRINK SEE DWG NO. E06 FOR DETAIL	
70	ANTENNA				
	Laird UHF Directional Yagi	ANTENEX	4506	SEE DWG NO. E06 FOR DETAIL	
71	16' LIGHT POLE WITH TENNON TOP	HAPCO	RTA16D6B4200BAL/AB	Ground inside the hand hole. Grout under bottom of pole.	
72	LUMINAIRE ARM	CREE	XA-XSP4PTMNT	Mount with stainless steel hardware.	
73	LED LUMINAIRE	CREE	BXSPBHT3MEB40KUS ULBKJ	SEE DWG NO. E08 FOR DETAIL	

*Engineer to determine part number based on voltage/amperage and fill in the missing part number represented by *the asterisk.



CITY OF LACEY

LIFT STATION 19 REHABILITATION

LACEY

APPROVED MATERIALS 8

ENGINEER: KES	DATE: Nov 11, 2020	CLIENT: LAC	LOG NO.: 516-081	REVISIONS	60% REVIEW DRAWINGS	DESCRIPTION	DATE	BY	REVIEW
REVIEWED: CMR	PLOT DATE: Nov 19, 2020	FILENAME: LS19-02-E13.DWG							

SCALE: SHOWN

0"

1"

2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E22

SHEET NO.: 43

48

APPROVED MATERIALS (BOM)

ITEM	CITY OF LACEY DESCRIPTION	MANUFACTURER	PART #	SPECIAL CONSTRUCTION NOTES	ENGINEER SPECIFIED PART# (see foot note)
				*Control System Manufacturing shall use listed parts and install them using the Special Construction Notes.	
75	CHECK VALVE SWITCH ASSEMBLY			No splices in the J-box. All wires to be home run to the Main Control Cabinet field terminals.	
	RECEPTACLE	EATON	E50RA	SEE DWG NO. E06 FOR DETAIL	
	SWITCH BODY	EATON	E50SA	SEE DWG NO. E06 FOR DETAIL	
	5° HEAD	EATON	E50DR1	SEE DWG NO. E06 FOR DETAIL	
	LEVER ARM	EATON	E50KL537	SEE DWG NO. E06 FOR DETAIL	
76	LIMIT SWITCH MOUNTING BRACKET				
	Use with M&H Swing Check	"CUSTOM"		Needs to be constructed out of 1/4" x 11/2" x 8" stainless steel flat bar. Drill and tap holes to mount the limit switch to the flat bar and secure to strut with strut nuts. SEE DWG NO. E06 FOR DETAIL	
77	LIMIT SWITCH POST BASE	B-LINE	B280SQ SS4	SEE DWG NO. E06 FOR DETAIL	
	Use with M&H Swing Check	POWER STRUT	P2072ASQSS	SEE DWG NO. E06 FOR DETAIL	
78	1" X 1/2" SS REDUCER BUSHING	CROUSE – HIND	RBSS31	SEE DWG NO. E06 FOR DETAIL	
79	SS CORD GRIP	WOODHEAD	MAX - LOC 1300980070	SEE DWG NO. E06 FOR DETAIL	
80	SS CORD GRIP WITH STRAIN RELIEF	WOODHEAD	MAX – LOC 130097 – 034	SEE DWG NO. E06 FOR DETAIL	
81	HIGH LEVEL FLOAT (HIGH BALL) MOUNTING BRACKET	ANCHOR SCIENTIFIC	W-MS	SEE DWG NO. E06 FOR DETAIL	
82	HIGH LEVEL FLOAT (HIGH BALL)	ANCHOR SCIENTIFIC	ROTO-FLOAT N.O. type "S" ** foot	SEE DWG NO. E06 FOR DETAIL	
83	PVC COATED CAPPED ELL	OCAL	LBY35-G	Apply copper coat to cap threads. SEE DWG NO. E06 FOR DETAIL	
84	LEVEL TRANSDUCER	SIEMENS	XPS–15 7ML11180EA30	Cable will loop through the Isolation Pedestal and home run to Level Control. Do not remove the sheathing. Seal cable gland directly to sheathing with resin. SEE DWG NO. E06 FOR DETAIL	

*Engineer to determine part number based on voltage/amperage and fill in the missing part number represented by *the asterisk.



CITY OF LACEY

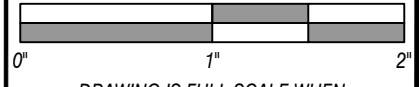
LIFT STATION 19 REHABILITATION

LACEY

APPROVED MATERIALS 9

ENGINEER: KES	DATE: Nov 11, 2020	CLIENT: LAC	LOG NO.: 516-081
REVIEWED: CMR	PLOT DATE: Nov 19, 2020	FILE NAME: LS19-Q-E13.DWG	
REVISIONS			
		60% REVIEW	
		DRAWINGS	
NO.	DATE	DESCRIPTION	BY

SCALE: SHOWN



DRAWING IS FULL SCALE WHEN BAR MEASURES 2'

DWG NO.: E23 SHEET NO.: 44 / 48

APPROVED MATERIALS (BOM)

ITEM	CITY OF LACEY DESCRIPTION	MANUFACTURER	PART #	SPECIAL CONSTRUCTION NOTES	ENGINEER SPECIFIED PART# (see foot note)
				*Control System Manufacturing shall use listed parts and install them using the Special Construction Notes.	
85	METER DISCONNECT ONE THAT MEETS PSE'S CURRENT SPECIFICATIONS			NEMA 4X STAINLESS STEEL ENCLOSURE, HEAVY DUTY SWITCH, 200 AMP, 600 VOLT, 3Ø, 42 KAIC WITHSTAND, FUSED DISCONNECT SWITCH, FLEX HANDLE OPERATOR MOUNTED ON SIDE OF ENCLOSURE.	
86	INTRUSION ALARM SWITCH	SQUARE D	HEAVY DUTY TYPE C, CLASS 9007 OR EQUAL	CONTRACTOR SHALL SELECT ACTUATOR LEVER ARM BEST SUITED FOR MOUNTING CONFIGURATION.	

LIGHTING FIXTURE SCHEDULE						
TYPE	DESCRIPTION	MANUFACTURER NAME	MANUFACTURER CATALOG NO.	LAMP QTY. *	LAMP CATALOG NO.	REMARKS
A1	LED LIGHT FIXTURE, 120 VAC, 4'-4" LONG, 45 WATT, 5000K COLOR TEMPERATURE, 60,000 HOUR LED, HIGH EFFICIENCY DRIVER, HIGH-IMPACT ACRYLIC LENS, MOLDED FIBERGLASS HOUSING, CEILING MOUNTED, U.L. LISTED FOR WET LOCATIONS.	LITHONIA	FEM L48 6000LM IMAFL 50K	1	INTEGRATED LED	
A2	LED OUTDOOR AREA LIGHT – (1)–27W 10C LED. 700mA, 5000K COLOR TEMPERATURE, 120VAC, MOUNT BOTTOM OF FIXTURE 1'-0" ABOVE DOOR, U.L. LISTED FOR WET LOCATIONS.	LITHONIA	DSXW1 LED 10C 700 50K T3M 120 DDBXD	1	INTEGRATED LED	
A3	DUAL HEAD EMERGENCY LIGHT – (2)–1.8W LED LAMPS, DUAL–VOLTAGE INPUT 120VAC/277VAC, 3 3/4" H, 14 5/8" W, THERMOPLASTIC HOUSING, INTEGRATED RECHARGEABLE BATTERY, MOUNT BOTTOM OF FIXTURE 1'-0" ABOVE DOOR, U.L. LISTED FOR DAMP LOCATIONS.	LITHONIA	EU2 LED M12	2	1.5 WATT DC	

* NUMBER OF LAMPS PER FIXTURE





CITY OF LACEY

LIFT STATION 19 REHABILITATION

APPROVED MATERIALS 10

ENGINEER: KES
REVIEWED: CMR

DATE: Nov 11, 2020
PLOT DATE: Nov 19, 2020

CLIENT: LAC

FILENAME: LS19-Q-E13.DWG

JOB NO.: 516-081

REVISIONS

60% REVIEW
DRAWINGS

NO.

DATE

DESCRIPTION

BY

REVIEW

SCALE: SHOWN

0"

1"

2"

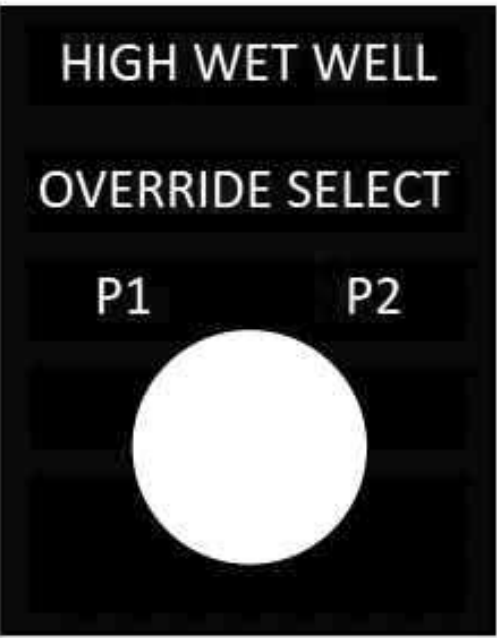
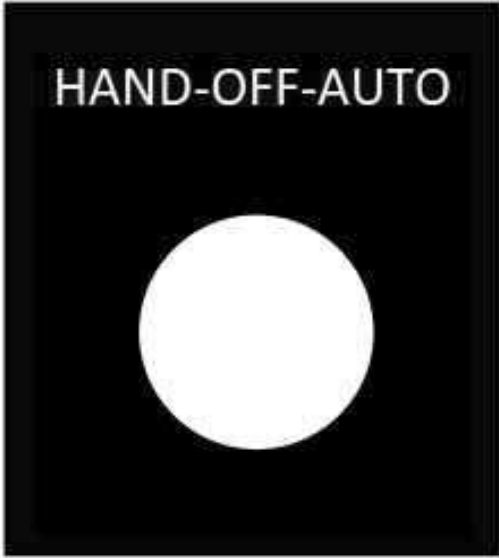
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

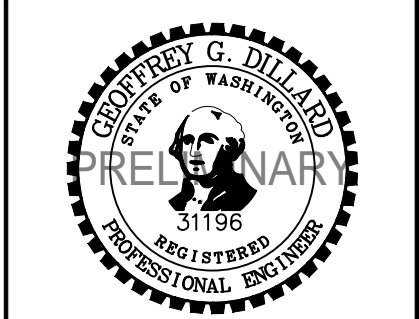
DWG NO.: E24

SHEET NO.: 45

48

Phenolic Legends

1-1/2" X 7-1/2" Red background with white 3/8" letters, text to include: <1> 277/480 3ø *** AMPS	4-1/2" X 7-1/2" Black background with white 1/4" letters, text to include: <2> SERVICE/METER DISCONNECT FEEDS ATS IN CONTROL CABINET FED BY STANDBY GENERATOR (location of generator)	1-1/2" X 7-1/2" Black background with white 3/16" letters, text to include: <3> LIFT STATION (address)	1-1/2" X 6" Black background with white 1/2" letters, text to include: <4> LIFT STATION (number)
1-1/2" X 5" Red background with white 1/4" letters, text to include: <5> DISCONNECT TO THE RIGHT OF ENCLOSURE	1-1/2" X 5" Black background with white 3/8" letters, text to include: <6> BREAKER PANEL	1-1/2" X 6" Black background with white 3/8" letters, text to include: <7> LIFT STATION 19 PUMP CONTROL PANEL	3/4" X 2-1/2" Black background with white 3/8" letters, text to include: <8> PUMP 1
3/4" X 2-1/2" Black background with white 3/8" letters, text to include: <9> PUMP 2	Not Used	1-3/4" X 2" Black background with white 5/32" letters, text to include: <12> CONTROL POWER 	1-3/4" X 2" Black background with white 5/32" letters, text to include: <13> HIGH WET WELL OVERRIDE SELECT P1 P2 
Not Used	1-3/4" X 2" Black background with white 5/32" letters, text to include: <14> HIGH WET WELL LEVEL RESET 	1-3/4" X 2" Black background with white 5/32" letters, text to include: <15> HAND-OFF-AUTO 	3/4" X 3" Black background with white 3/16" letters, phenolic width to match HOA width, text to include: <16> PUMP 1
3/4" X 3" Black background with white 3/16" letters, phenolic width to match HOA width, text to include: <17> PUMP 2	Not Used		1-1/2" X 5" Black background with white 3/8" letters, text to include: <20> ISR PANEL
1-1/2" X 5" Black background with white 3/8" letters, text to include: <21> ISOLATION PEDESTAL	1-1/2" X 5" Red background with white 3/16" letters, text to include: <22> GENERATOR EMERGENCY STOP INSIDE		



CITY OF LACEY

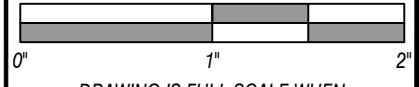
LIFT STATION 19 REHABILITATION

LACEY

PHENOLIC LEGENDS AND VINYL LABELS

1

ENGINEER: KES	DATE: Nov 11, 2020	CLIENT: LAC	LOG NO.: 516-081	NO.	DATE	DESCRIPTION	BY	REVIEW
REVIEWED: CMR	PLOT DATE: Nov 19, 2020	FILE NAME: LSI19-Q-E13.DWG						
REVISIONS			60% REVIEW DRAWINGS					

SCALE: SHOWN

DRAWING IS FULL SCALE WHEN BAR MEASURES 2'
DWG NO.: E25 SHEET NO.: 46 48

Vinyl Labels

Emedco part number SQS116 text to include:		Emedco part number SQS9 text to include:		Emedco part number SQ3784 text to include:					
<25>	DANGER 208 VOLTS	<26>	CAUTION THIS EQUIPMENT IS SUPPLIED BY MORE THAN ONE POWER SOURCE	<35>	WARNING ARC FLASH AND SHOCK HAZARD APPROPRIATE PPE REQUIRED FAILURE TO COMPLY CAN RESULT IN DEATH OR INJURY.				
White background with 18 point black font, text to include:									
<27>	PHASE MONITOR	<28>	TVSS	<29>	F1 F2 F3 KTK-R-1/10	<30>	CB-TVSS		
<31>	XFMR PRIMARY	<32>	XFMR SECONDARY	<33>	UPS	<34>	AREA LIGHT		
<36>	PS-1	<37>	PS-2	<38>	PS-3	<39>	PS-4		
<40>	PS-5	<42>	LPC	<44>	CB-LPC				
White background with black font, text to include: (label to include fuse name, type and size)									
<45>	DCF-A0 TYPE SIZE	<46>	DCF- A1 TYPE SIZE	<47>	DCF- A2 TYPE SIZE	<48>	DCF-A3 TYPE SIZE		
<49>	DCF-R TYPE SIZE	<50>	DCF-PLC TYPE SIZE	<51>	DCF-FLD TYPE SIZE	<52>	DCF-F7 TYPE SIZE		
<53>	DCF-MS1 TYPE SIZE	<54>	DCF-MS2 TYPE SIZE			<57>	SPARE TYPE SIZE		
White background with 18 point black font, text to include: {Mount on back plate}									
<58>	CR-5–PULSE	<59>	TD-1	<60>	TD-2	<61>	TD-3		
<63>	CR-1	<64>	CR-2	<65>	CR-3	<66>	CR-4		
<67>	CR-6	<68>	CR-7	<69>	CR-8	<72>	CR-11		
<73>	CR-12	<74>	CR-13	<75>	CR-14	<76>	CR-15		
<77>	CR-16								
White background with black font, text to include: (label to include fuse name, type and size)									
<78>	ACF-PV TYPE SIZE	<79>	ACF–P1 TYPE SIZE	<80>	ACF-LC TYPE SIZE	<81>	ACF–FM TYPE SIZE		
<82>	ACF–P2 TYPE SIZE	<83>	ACF–AC1 TYPE SIZE	<84>	ACF–IS1 TYPE SIZE	<85>	ACF–P3 TYPE SIZE		
<86>	ACF–P4 TYPE SIZE	<87>	ACF–P5 TYPE SIZE						
White background with 18 point black font, text to include:									
<90>	SEAL FAIL 1	<91>	SEAL FAIL 2		<94>	CB1	<95>	CB2	
								<99>	MS-1
<100>	MS-2								



CITY OF LACEY

LACEY

LIFT STATION 19 REHABILITATION

PHENOLIC LEGENDS AND VINYL LABELS

2

ENGINEER: KES	DATE: Nov 11, 2020	CLIENT: LAC	LOGO NO.: 516-081
REVIEWED: CMR	PLOT DATE: Nov 19, 2020	FILENAME: LS19-02-E13.DWG	
REVISIONS			
		60% REVIEW	
		DRAWINGS	
NO.	DATE	DESCRIPTION	BY
			REVIEW

SCALE: SHOWN

0"

1"

2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E26

SHEET NO.: 47

48

Vinyl Labels

White background with 24 point black font, text to include:

<104> CONTROL CABINET FAN & HEATER	<105> CHEMICAL FEED SYSTEM	<106> CONTROL CABINET GFCI RECEPTACLE	<107> RPBA HEAT TAPE
<107> RPBA/AIR RELEASE HEAT TAPE	<108> ISOLATION PEDESTAL HEATER	<109> PUMP PANEL 120 VAC CONTROL POWER	<110> UPS RECEPTACLE
<111> OUTSIDE AREA LIGHT	<112> GENERATOR BATTERY CHARGER	<113> GENERATOR BLOCK HEATER	

Red or yellow background with black 5/32" letters, text to include:

<116> WARNING: To prevent ignition of flammables or combustible atmospheres, disconnect power before servicing. This panel provides intrinsically safe circuit extensions for use in CLASS 1 GROUP D HAZARDOUS LOCATIONS when connected per (Control System Manufacturer) drawing package (number).	<117> Apply red tape to the floor of the MAIN CONTROL CABINET to designate intrinsically safe area. (Only intrinsically safe circuits are allowed in this area. No conduit should be closer than 2" to the red line.)
--	--

White background with 18 point black font, text to include:

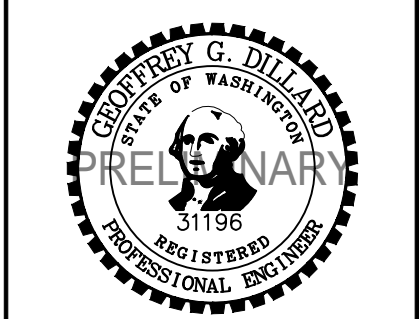
<118> HIGH BALL	<119> PUMP 1	<120> PUMP 2	Not Used				
----------------------------	-------------------------	-------------------------	----------	--	--	--	--

White background with black font, text to include: (Sized to fit)

<123> PUMP 1	<124> PUMP 2	Not Used	<127> EMERGENCY POWER	<128> LOAD BANK	<129> BATTERY CHARGER	<130> BLOCK HEATER	<131> DISCONNECT IS IN THE MAIN CONTROL PANEL
-------------------------	-------------------------	----------	--------------------------------------	----------------------------	----------------------------------	-------------------------------	--

This document is supported by UL 898A, WAC 296 – 46B, 2014 NEC, NFPA 90, PSE and the Local Jurisdiction having Authority.
It is the contractor's responsibility to comply with all current codes.

January 22, 2018



CITY OF LACEY

LIFT STATION 19 REHABILITATION

PHENOLIC LEGENDS AND VINYL LABELS

3

ENGINEER: KES	DATE: Nov 11, 2020	CLIENT: LAC	LOG NO.: 516-081
REVIEWED: CMR	PLOT DATE: Nov 19, 2020	FILENAME: LS19-Q-E13.DWG	
REVISIONS			
		60% REVIEW	
		DRAWINGS	
NO.	DATE	DESCRIPTION	BY
			REVIEW

SCALE: SHOWN

0"1"2"

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E27

SHEET NO.: 48

48

Attachment No. 2

Construction Stormwater Pollution
Prevention Plan

Construction Stormwater General Permit

Stormwater Pollution Prevention Plan (SWPPP)

for
The City of Lacey
Lift Station 19 Rehabilitation

Prepared for:
The Washington State Department of Ecology
Southwest Regional Office

Permittee / Owner	Developer	Operator / Contractor
City of Lacey	N/A	TBD

9002 Main Street East, Bonney Lake, WA

Certified Erosion and Sediment Control Lead (CESCL)

Name	Organization	Contact Phone Number
TBD	Contractor TBD	TBD

SWPPP Prepared By

Name	Organization	Contact Phone Number
Dave Matz	RH2 Engineering, Inc.	253-272-3059

SWPPP Preparation Date

7/31/20

Project Construction Dates

Activity / Phase	Start Date	End Date
Lift Station Construction	Fall 2020	Winter 2020

Table of Contents

1	Project Information.....	4
1.1	Existing Conditions	4
1.2	Proposed Construction Activities.....	4
2	Construction Stormwater Best Management Practices (BMPs).....	6
2.1	The 13 Elements.....	6
2.1.1	Element 1: Preserve Vegetation/Mark Clearing Limits	6
2.1.2	Element 2: Establish Construction Access	7
2.1.3	Element 3: Control Flow Rates.....	8
2.1.4	Element 4: Install Sediment Controls	9
2.1.5	Element 5: Stabilize Soils.....	10
2.1.6	Element 6: Protect Slopes.....	12
2.1.7	Element 7: Protect Drain Inlets.....	13
2.1.8	Element 8: Stabilize Channels and Outlets	14
2.1.9	Element 9: Control Pollutants.....	15
2.1.10	Element 10: Control Dewatering	17
2.1.11	Element 11: Maintain BMPs.....	18
2.1.12	Element 12: Manage the Project.....	19
2.1.13	Element 13: Protect Low Impact Development (LID) BMPs	20
3	Pollution Prevention Team	21
4	Monitoring and Sampling Requirements	22
4.1	Site Inspection	22
4.2	Stormwater Quality Sampling.....	22
4.2.1	Turbidity Sampling	22
4.2.2	pH Sampling	24
5	Discharges to 303(d) or Total Maximum Daily Load (TMDL) Waterbodies	25
5.1	303(d) Listed Waterbodies	25
5.2	TMDL Waterbodies	25
6	Reporting and Record Keeping.....	26
6.1	Record Keeping	26
6.1.1	Site Log Book	26
6.1.2	Records Retention	26
6.1.3	Updating the SWPPP.....	26
6.2	Reporting	27
6.2.1	Discharge Monitoring Reports.....	27
6.2.2	Notification of Noncompliance.....	27

List of Tables

Table 1 – Summary of Site Pollutant Constituents	4
Table 2 – Pollutants	15
Table 3 – pH-Modifying Sources	15
Table 4 – Dewatering BMPs	17
Table 5 – Management	19
Table 7 – Team Information	21
Table 8 – Turbidity Sampling Method	22
Table 9 – pH Sampling Method	24

List of Appendices

Appendix/Glossary

- A. Site Map**
- B. BMP Detail**
- C. Correspondence**
- D. Site Inspection Form**

List of Acronyms and Abbreviations

Acronym / Abbreviation	Explanation
303(d)	Section of the Clean Water Act pertaining to Impaired Waterbodies
BFO	Bellingham Field Office of the Department of Ecology
BMP(s)	Best Management Practice(s)
CESCL	Certified Erosion and Sediment Control Lead
CO₂	Carbon Dioxide
CRO	Central Regional Office of the Department of Ecology
CSWGP	Construction Stormwater General Permit
CWA	Clean Water Act
DMR	Discharge Monitoring Report
DO	Dissolved Oxygen
Ecology	Washington State Department of Ecology
EPA	United States Environmental Protection Agency
ERO	Eastern Regional Office of the Department of Ecology
ERTS	Environmental Report Tracking System
ESC	Erosion and Sediment Control
GULD	General Use Level Designation
NPDES	National Pollutant Discharge Elimination System
NTU	Nephelometric Turbidity Units
NWRO	Northwest Regional Office of the Department of Ecology
pH	Power of Hydrogen
RCW	Revised Code of Washington
SPCC	Spill Prevention, Control, and Countermeasure
su	Standard Units
SWMMEW	Stormwater Management Manual for Eastern Washington
SWMMWW	Stormwater Management Manual for Western Washington
SWPPP	Stormwater Pollution Prevention Plan
TESC	Temporary Erosion and Sediment Control
SWRO	Southwest Regional Office of the Department of Ecology
TMDL	Total Maximum Daily Load
VFO	Vancouver Field Office of the Department of Ecology
WAC	Washington Administrative Code
WSDOT	Washington Department of Transportation
WWHM	Western Washington Hydrology Model

1 Project Information

Project/Site Name: Lift Station 19
Street/Location: 2659 Willamette Dr. NE
City: Lacey State: WA Zip code: 98516
Subdivision: N/A
Receiving waterbody: Meridian Campus Pond

1.1 Existing Conditions

Total acreage (including support activities such as off-site equipment staging yards, material storage areas, borrow areas).

Total acreage: 41.7

Disturbed acreage: 0.348

Existing structures: None

Landscape topography: Gentle slopes covered in grass and vegetation.

Drainage patterns: Natural through forested vegetation.

Existing Vegetation: Grass with mostly coniferous trees.

Critical Areas (wetlands, streams, high erosion risk, steep or difficult to stabilize slopes): None

List of known impairments for 303(d) listed or Total Maximum Daily Load (TMDL) for the receiving waterbody: No known impairments.

Table 1 includes a list of suspected and/or known contaminants associated with the construction activity.

Table 1 – Summary of Site Pollutant Constituents

Constituent (Pollutant)	Location	Depth	Concentration
-	-	-	-

1.2 Proposed Construction Activities

Description of site development:

This project will include grading, construction of a sewer lift station, electrical building, generator and site access such as a paved drive way and concrete access pads.

Description of construction activities (example: site preparation, demolition, excavation):

Site preparation, clearing and grubbing, excavation/grading, backfill, and associated structures and appurtanances.

Description of site drainage including flow from and onto adjacent properties. Must be consistent with Site Map in Appendix A:

The existing site is located on the Souther border of City-owned Parcel number 42080000000 approximately 41.7 acres in size. The project easement is approximately 0.348 acres and consists of 1100 SF of concrete bike path, various types of vegetation and mostly coniferous trees. The site is generally flat with a gentle slope from Southwest to Northwest towards the Meridian Campus Pond. No visible runoff has been observed entering the project site from offsite. Stormwater runoff is currently collected naturally by the meridian Campus Pond.

There are no historical flooding or erosion problems on-site or downstream of the site. The local area and adjacent properties are served by the sewer system in the public right-of-way. No City specific basin plans exist for this area.

Description of final stabilization (example: extent of revegetation, paving, landscaping):

All disturbed surfaces will be stabilized at the end of this project. Final surfacing will consist of an electrical building, asphalt paving, concrete surfacing and landscaping. A landscaping plan will be prepared by a landscape architect.

Contaminated Site Information:

Proposed activities regarding contaminated soils or groundwater (example: on-site treatment system, authorized sanitary sewer discharge):

No current contamination sources exist on-site.

2 Construction Stormwater Best Management Practices (BMPs)

The SWPPP is a living document reflecting current conditions and changes throughout the life of the project. These changes may be informal (i.e., hand-written notes and deletions). Update the SWPPP when the CESCL has noted a deficiency in BMPs or deviation from original design.

2.1 The 13 Elements

2.1.1 Element 1: Preserve Vegetation / Mark Clearing Limits

Prior to beginning land disturbing activities, clearing limits will be clearly marked with high visibility plastic, metal, or stake wire fence.

The duff layer and native top soil shall be preserved to the maximum degree possible. When feasible, the duff layer shall be stockpiled onsite and covered to prevent erosion and replaced immediately after disturbing the site.

List and describe BMPs:

- BMP C101: Preserving Natural Vegetation
- BMP C103: High Visibility Plastic or Metal Fence

Installation Schedules: Prior to land disturbing activities.

Inspection and Maintenance plan: Weekly

Responsible Staff: CESCL

2.1.2 Element 2: Establish Construction Access

Construction vehicle access shall be limited to one route.

Construction access will be stabilized with a pad of quarry spalls.

Wheel wash or tire baths will be located onsite to prevent tracking of sediment onto roads.

If sediment is tracked offsite, the affected roadway will be thoroughly cleaned at the end of each day, or more frequently, as necessary. Sediment shall be removed from roads by shoveling, sweeping, or pick up, and shall be transported to a controlled sediment disposal area.

Street washing shall be conducted only after sediment removal, as described above.

Construction access restoration shall be equal to or better than the pre-construction condition.

List and describe BMPs:

- BMP C105: Stabilized Construction Entrance/Exit
- BMP C106: Wheel Wash
- BMP C107: Construction Road/Parking Area Stabilization

Installation Schedules: Prior to land disturbing activities.

Inspection and Maintenance plan: Weekly

Responsible Staff: CESCL

2.1.3 Element 3: Control Flow Rates

Construction runoff shall be limited to maximum degree possible. Construction flow controls, such as straw wattles and silt fence, are called out on the construction plans. Other BMPs such as nets and erosion control blankets, mulching, and check dams shall be implemented by the CESCL as necessary.

Will you construct stormwater retention and/or detention facilities?

☐ Yes ☒ No

Will you use permanent infiltration ponds or other low impact development (example: rain gardens, bio-retention, porous pavement) to control flow during construction?

☐ Yes ☒ No

List and describe BMPs:

- BMP C120: Temporary and Permanent Seeding
- BMP C121: Mulching
- BMP C122: Nets and Blankets
- BMP C207: Check Dams
- BMP C233: Silt Fence
- BMP C235: Wattles

Installation Schedules: Prior to land disturbing activities and as necessary throughout construction.

Inspection and Maintenance plan: Weekly; during and after storm events.

Responsible Staff: CESCL

2.1.4 Element 4: Install Sediment Controls

Prior to discharge to and from the project site, stormwater runoff from disturbed areas and fully stabilized areas will pass through sediment retention devices such as silt fence and straw wattles. The CESCL shall monitor sediment controls on a weekly basis, before and after storm events.

List and describe BMPs:

- BMP C233: Silt Fence

Installation Schedules: Prior to land disturbing activities and as necessary for throughout construction.

Inspection and Maintenance plan: Weekly; during and after storm events.

Responsible Staff: CESCL

2.1.5 Element 5: Stabilize Soils

Exposed and unworked soils shall be stabilized by erosion control BMPs. Soils shall not remain exposed and unworked for more than the time periods set forth below:

Soils and stockpiles shall be stabilized at the end of a shift, before a holiday, and before the weekend.

The amount of soil exposed during construction and soil compaction shall be minimized. Stormwater volume and velocity shall be controlled within the site. Stabilization requirements shall apply to all soils onsite, whether at final grade or not.

Dust will be controlled through the use of watering, palliative materials, and/or vacuum sweepers.

West of the Cascade Mountains Crest

Season	Dates	Number of Days Soils Can be Left Exposed
During the Dry Season	May 1 – September 30	7 days
During the Wet Season	October 1 – April 30	2 days

Soils must be stabilized at the end of the shift before a holiday, or weekend if needed, based on the weather forecast.

Anticipated project dates: Start date: Fall 2020 End date: Winter 2020

Will you construct during the wet season?

☐ Yes ☒ No

List and describe BMPs:

- BMP C120: Temporary and Permanent Seeding
- BMP C121: Mulching
- BMP C122: Nets and Blankets
- BMP C123: Plastic Covering
- BMP C124: Sodding
- BMP C125: Topsoiling/Composting
- BMP C126: Polyacrylamide for Soil Erosion Protection
- BMP C130: Surface Roughening
- BMP C131: Gradient Terraces
- BMP C140: Dust Control

Installation Schedules: Prior to land disturbing activities and as necessary throughout construction.

Inspection and Maintenance plan: Weekly; during and after storm events.

Responsible Staff: CESCL

2.1.6 Element 6: Protect Slopes

The proposed project will include cut and fill slopes. Runoff will be prevented from causing sediment transport and erosion on slopes by using plastic sheeting or soil stabilization techniques. Disturbed slopes shall be stabilized according to Element 5.

Slope runoff velocities shall be reduced by decreasing continuous lengths of slope, reducing slope steepness, and roughening slope surface.

Divert upslope drainage and run-off waters with interceptors at the top of the slope. Off-site stormwater should be handled separately from stormwater generated onsite. Divert off-site stormwater around the site if applicable. Diverted flows shall be redirected to the natural drainage location at or before the property boundary.

Contain downslope collected flows in pipes, slope drains, or protected channels. Check dams shall be used within channels that are cut down a slope.

Provide drainage to remove groundwater intersecting the slope surface of exposed soil areas.

Excavated material shall be placed on the uphill side of trenches, consistent with safety and space considerations.

Will steep slopes be present at the site during construction?

☒ Yes ☐ No

List and describe BMPs:

- BMP C120: Temporary and Permanent Seeding
- BMP C121: Mulching
- BMP C122: Nets and Blankets

Installation Schedules: Prior to land disturbing activities and as necessary throughout construction.

Inspection and Maintenance plan: Weekly; during and after storm events.

Responsible Staff: CESCL

2.1.7 Element 7: Protect Drain Inlets

All operable storm drain inlets shall be protected during construction so that stormwater runoff shall not enter the conveyance system without first being filtered or treated to remove sediment.

Approach roads shall be kept clean. Sediment and street wash water shall not be allowed to enter storm drains without prior and adequate treatment.

Inlets should be inspected weekly at a minimum, and daily during storm events.

List and describe BMPs:

- BMP C220: Storm Drain Inlet Protection

Installation Schedules: Prior to land disturbing activities and as necessary throughout construction.

Inspection and Maintenance plan: Weekly; daily during storm events.

Responsible Staff: CESCL

2.1.8 Element 8: Stabilize Channels and Outlets

Temporary on-site stabilization techniques shall be used to prevent erosion from the expected peak flow velocity of the 10-year, 24-hour design storm event. Quarry spill dispersion pads shall be located at all pipe inlets and outlets.

Provide stabilization, including armoring material, adequate to prevent erosion of outlets, adjacent stream banks, slopes, and downstream reaches, will be installed at the outlets of all conveyance systems.

List and describe BMPs:

- BMP C202: Channel Lining
- BMP C209: Outlet Protection

Installation Schedules: Prior to land disturbing activities and as necessary throughout construction.

Inspection and Maintenance plan: Weekly; during and after storm events.

Responsible Staff: CESCL

2.1.9 Element 9: Control Pollutants

The following pollutants are anticipated to be present onsite:

Table 2 – Pollutants

Pollutant (List pollutants and source, if applicable)
Agriculture chemicals – Proposed landscaping

All pollutants, including waste materials, that occur during construction will be handled and disposed of in a manner that does not cause environmental contamination of stormwater. Cover, containment, and protection from vandalism shall be provided for all chemicals, liquid products, petroleum products, and non-inert wastes present on the site (refer to Chapter 173-304 WAC for the definition of “inert waste”).

Heavy equipment maintenance and repair will be conducted using spill prevention techniques. Contaminated surfaces shall be cleaned immediately following any discharge or spill incident. Spills shall be reported to the Washington Emergency Management Division at 1-800-258-5990, National Response Center at 1-800-424-8802, and Ecology at 1-360-407-6300. On-site fueling tanks shall have secondary containment.

Application of agricultural chemicals, including fertilizers and pesticides, shall be conducted in a manner and at application rates that will not result in loss of chemical to stormwater runoff.

Discharge wheel wash or tire bath wastewater to a separate on-site treatment system that prevents discharge to surface water, such as closed loop recirculation or upland application, or to the sanitary sewer, with local sewer district approval.

Use BMPs to prevent contamination of stormwater runoff by pH modifying sources. Adjust the pH of stormwater if necessary to prevent violations of water quality standards.

Adjust pH of stormwater if outside the range of 6.5 to 8.5 su. Obtain written approval from Ecology before using chemical treatment with the exception of CO₂ or dry ice to modify pH.

The contractor must provide a Spill Prevention Containment and Control Plan, designate a person as the responsible-in-charge, and be prepared to execute the plan.

Will maintenance, fueling, and/or repair of heavy equipment and vehicles occur on-site?

☒ Yes ☐ No

Will wheel wash or tire bath system BMPs be used during construction?

☒ Yes ☐ No

Will pH-modifying sources be present on-site?

☒ Yes ☐ No

Table 3 – pH-Modifying Sources

☒	None
☐	Bulk cement
☐	Cement kiln dust
☐	Fly ash
☐	Other cementitious materials
☐	New concrete washing or curing waters
☐	Waste streams generated from concrete grinding and sawing
☐	Exposed aggregate processes
☐	Dewatering concrete vaults
☐	Concrete pumping and mixer washout waters
☐	Recycled concrete
☐	Recycled concrete stockpiles
☐	Other (i.e., calcium lignosulfate)

Concrete trucks must not be washed out onto the ground, or into storm drains, open ditches, streets, or streams. Excess concrete must not be dumped on-site, except in designated concrete washout areas with appropriate BMPs installed.

Will uncontaminated water from water-only based shaft drilling for construction of building, road, and bridge foundations be infiltrated provided the wastewater is managed in a way that prohibits discharge to surface waters?

☐ Yes ☒ No

List and describe BMPs:

- BMP C153: Material Delivery, Storage, and Containment

Installation Schedules: Prior to land disturbing activities and as necessary throughout construction.

Inspection and Maintenance plan: Weekly; during and after storm events.

Responsible Staff:

2.1.10 Element 10: Control Dewatering

It is not anticipated that de-watering will be required for this project. However, all water from dewatering, if required, shall be treated as stormwater and discharged to construction stormwater facilities.

Highly turbid or contaminated dewatering water shall be handled separately from stormwater.

Table 4 – Dewatering BMPs

☒	Infiltration
☒	Transport off-site in a vehicle (vacuum truck for legal disposal)
☒	Ecology-approved on-site chemical treatment or other suitable treatment technologies
☒	Sanitary or combined sewer discharge with local sewer district approval (last resort)
☒	Use of sedimentation bag with discharge to ditch or swale (small volumes of localized dewatering)

Installation Schedules: Prior to dewatering activities.

Inspection and Maintenance plan: Daily during dewatering activities.

Responsible Staff:

2.1.11 Element 11: Maintain BMPs

All temporary and permanent Erosion and Sediment Control (ESC) BMPs shall be maintained and repaired as needed to ensure continued performance of their intended function.

Maintenance and repair shall be conducted in accordance with each particular BMP specification (see Volume II of the SWMMWW).

Visual monitoring of all BMPs installed at the site will be conducted at least once every calendar week, and within 24 hours of any stormwater, or non-stormwater, discharge from the site. If the site becomes inactive and is temporarily stabilized, the inspection frequency may be reduced to once every calendar month.

All temporary ESC BMPs shall be removed within 30 days after final site stabilization is achieved, or after the temporary BMPs are no longer needed.

Trapped sediment shall be stabilized onsite or removed. Disturbed soil resulting from removal of either BMPs or vegetation shall be permanently stabilized.

Additionally, protection must be provided for all BMPs installed for the permanent control of stormwater from sediment and compaction. BMPs that are to remain in place following completion of construction shall be examined and restored to full operating condition. If sediment enters these BMPs during construction, the sediment shall be removed and the facility shall be returned to conditions specified in the construction documents.

2.1.12 Element 12: Manage the Project

The project will be managed based on the following principles:

- Projects will be phased to the maximum extent practicable, and seasonal work limitations will be taken into account.
- Inspection and monitoring:
 - o Inspection, maintenance, and repair of all BMPs will occur as needed to ensure performance of their intended function.
 - o Site inspections and monitoring will be conducted in accordance with Special Condition S4 of the CSWGP. Sampling locations are indicated on the [Site Map](#). Sampling station(s) are located in accordance with applicable requirements of the CSWGP.
- Maintain an updated SWPPP.
 - o The SWPPP will be updated, maintained, and implemented in accordance with Special Conditions S3, S4, and S9 of the CSWGP.

As site work progresses, the SWPPP will be modified routinely to reflect changing site conditions. The SWPPP will be reviewed monthly to ensure the content is current.

Table 5 – Management

☒	Design the project to fit the existing topography, soils, and drainage patterns
☒	Emphasize erosion control rather than sediment control
☒	Minimize the extent and duration of the area exposed
☒	Keep runoff velocities low
☒	Retain sediment on-site
☒	Thoroughly monitor site and maintain all ESC measures
☒	Schedule major earthwork during the dry season
☐	Other (please describe)

2.1.13 Element 13: Protect Low-Impact Development (LID) BMPs

There are currently no low-impact development (LID) BMPs on or near the project site, and no LID BMPs are proposed for this project. Element 13 is not applicable to this project.

3 Pollution Prevention Team

Table 7 – Team Information

Title	Name(s)	Phone Number
Certified Erosion and Sediment Control Lead (CESCL)	TBD	TBD
Resident Engineer		
Emergency Ecology Contact	DOE Report a Spill	1-800-424-8802 1-800-258-5990
Emergency Permittee/ Owner Contact		
Non-Emergency Owner Contact		
Monitoring Personnel	CESCL	TBD
Ecology Regional Office	Southwest Regional Office	360-407-6300

4 Monitoring and Sampling Requirements

Monitoring includes visual inspection, sampling for water quality parameters of concern, and documentation of the inspection and sampling findings in a site log book. A site log book will be maintained for all on-site construction activities and will include:

- A record of the implementation of the SWPPP and other permit requirements
- Site inspections
- Stormwater sampling data

A sample site inspection form can be found in Appendix D.

The site log book must be maintained on-site within reasonable access to the site, and be made available upon request to Ecology or the local jurisdiction.

Numeric effluent limits may be required for certain discharges to 303(d) listed waterbodies. See CSWGP Special Condition S8 and Section 5 of this SWPPP.

4.1 Site Inspection

Site inspections will be conducted at least once every calendar week and within 24 hours following any discharge from the site. For sites that are temporarily stabilized and inactive, the required frequency is reduced to once per calendar month.

The discharge point(s) are indicated on the Site Map (see Appendix A) and in accordance with the applicable requirements of the CSWGP.

4.2 Stormwater Quality Sampling

4.2.1 Turbidity Sampling

Requirements include calibrated turbidity meter or transparency tube to sample site discharges for compliance with the CSWGP. Sampling will be conducted at all discharge points at least once per calendar week.

Method for sampling turbidity:

Table 8 – Turbidity Sampling Method

☒	Turbidity Meter/Turbidimeter (required for disturbances 5 acres or greater in size)
☐	Transparency Tube (option for disturbances less than 1-acre and up to 5 acres in size)

The benchmark for turbidity value is 25 nephelometric turbidity units (NTU) and a transparency less than 33 centimeters.

If the discharge's turbidity is 26 to 249 NTU, **or** the transparency is less than 33 cm but equal to or greater than 6 cm, the following steps will be conducted:

1. Review the SWPPP for compliance with Special Condition S9. Make appropriate revisions within 7 days of the date the discharge exceeded the benchmark.

2. Immediately begin the process to fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible. Address the problems within 10 days of the date the discharge exceeded the benchmark. If installation of necessary treatment BMPs is not feasible within 10 days, Ecology may approve additional time when the Permittee requests an extension within the initial 10-day response period.
3. Document BMP implementation and maintenance in the site log book.

If the turbidity exceeds 250 NTU, **or** the transparency is 6 cm or less at any time, the following steps will be conducted:

1. Telephone or submit an electronic report to the applicable Ecology Region's Environmental Report Tracking System (ERTS) within 24 hours.
 - **Southwest Region** (Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Lewis, Mason, Pacific, Pierce, Skamania, Thurston, Wahkiakum,): (360) 407-6300 or http://www.ecy.wa.gov/programs/spills/forms/nerts_online/SWRO_nerts_online.html
2. Immediately begin the process to fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible. Address the problems within 10 days of the date the discharge exceeded the benchmark. If installation of necessary treatment BMPs is not feasible within 10 days, Ecology may approve additional time when the Permittee requests an extension within the initial 10-day response period
3. Document BMP implementation and maintenance in the site log book.
4. Continue to sample discharges daily until one of the following is true:
 - Turbidity is 25 NTU (or lower).
 - Transparency is 33 cm (or greater).
 - Compliance with the water quality limit for turbidity is achieved.
 - o 1 - 5 NTU over background turbidity, if background is less than 50 NTU
 - o 1% - 10% over background turbidity, if background is 50 NTU or greater
 - The discharge stops or is eliminated.

4.2.2 pH Sampling

pH monitoring is required for “significant concrete work” (i.e., greater than 1000 cubic yards poured concrete over the life of the project). The use of recycled concrete or engineered soils (soil amendments including but not limited to Portland cement-treated base [CTB], cement kiln dust [CKD] or fly ash) also requires pH monitoring.

For significant concrete work, pH sampling will start the first day concrete is poured and continue until it is cured, typically three (3) weeks after the last pour.

For engineered soils and recycled concrete, pH sampling begins when engineered soils or recycled concrete are first exposed to precipitation and continues until the area is fully stabilized.

If the measured pH is 8.5 or greater, the following measures will be taken:

1. Prevent high pH water from entering storm sewer systems or surface water.
2. Adjust or neutralize the high pH water to the range of 6.5 to 8.5 su using appropriate technology such as carbon dioxide (CO₂) sparging (liquid or dry ice).
3. Written approval will be obtained from Ecology prior to the use of chemical treatment other than CO₂ sparging or dry ice.

Method for sampling pH:

Table 9 – pH Sampling Method

☐	pH meter
☐	pH test kit
☐	Wide range pH indicator paper

5 Discharges to 303(d) or Total Maximum Daily Load (TMDL) Waterbodies

5.1 303(d) Listed Waterbodies

Is the receiving water 303(d) (Category 5) listed for turbidity, fine sediment, phosphorus, or pH?

☐ Yes ☒ No

List the impairment(s):

N/A

5.2 TMDL Waterbodies

Waste Load Allocation for CWSGP discharges:

N/A

6 Reporting and Record Keeping

6.1 Record Keeping

6.1.1 Site Log Book

A site log book will be maintained for all on-site construction activities and will include:

- A record of the implementation of the SWPPP and other permit requirements
- Site inspections
- Sample logs

6.1.2 Records Retention

Records will be retained during the life of the project and for a minimum of three (3) years following the termination of permit coverage in accordance with Special Condition S5.C of the CSWGP.

Permit documentation to be retained on-site:

- CSWGP
- Permit Coverage Letter
- SWPPP
- Site Log Book

Permit documentation will be provided within 14 days of receipt of a written request from Ecology. A copy of the SWPPP or access to the SWPPP will be provided to the public when requested in writing in accordance with Special Condition S5.G.2.b of the CSWGP.

6.1.3 Updating the SWPPP

The SWPPP will be modified if:

- Found ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site.
- There is a change in design, construction, operation, or maintenance at the construction site that has, or could have, a significant effect on the discharge of pollutants to waters of the State.

The SWPPP will be modified within seven (7) days if inspection(s) or investigation(s) determine additional or modified BMPs are necessary for compliance. An updated timeline for BMP implementation will be prepared.

6.2 Reporting

6.2.1 Discharge Monitoring Reports

Cumulative soil disturbance is one (1) acre or larger; therefore, Discharge Monitoring Reports (DMRs) will be submitted to Ecology monthly. If there was no discharge during a given monitoring period the DMR will be submitted as required, reporting “No Discharge.” The DMR due date is fifteen (15) days following the end of each calendar month.

DMRs will be reported online through Ecology’s WQWebDMR System.

To sign up for WQWebDMR go to:

<http://www.ecy.wa.gov/programs/wq/permits/paris/webdmr.html>

6.2.2 Notification of Noncompliance

If any of the terms and conditions of the permit is not met, and the resulting noncompliance may cause a threat to human health or the environment, the following actions will be taken:

1. Ecology will be notified within 24 hours of the failure to comply by calling the applicable Regional office ERTS phone number (Regional office numbers listed below).
2. Immediate action will be taken to prevent the discharge/pollution or otherwise stop or correct the noncompliance. If applicable, sampling and analysis of any noncompliance will be repeated immediately and the results submitted to Ecology within five (5) days of becoming aware of the violation.
3. A detailed written report describing the noncompliance will be submitted to Ecology within five (5) days, unless requested earlier by Ecology.

Anytime turbidity sampling indicates turbidity is 250 NTUs or greater, or water transparency is 6 cm or less, the Ecology Regional office will be notified by phone within 24 hours of analysis as required by Special Condition S5.A of the CSWGP.

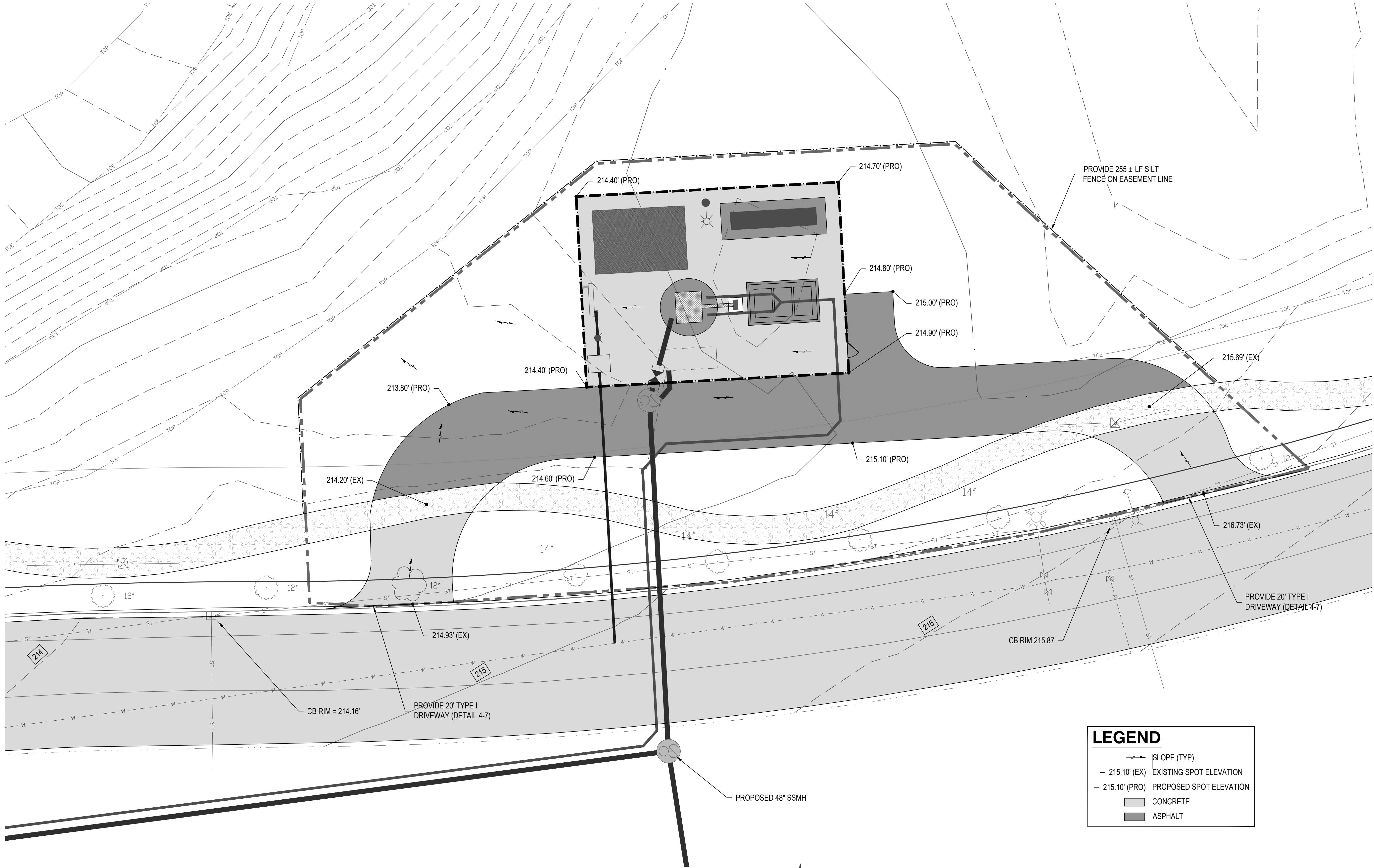
- **Southwest Region** at (360) 407-6300 for Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Lewis, Mason, Pacific, Pierce, Skamania, Thurston, or Wahkiakum

Include the following information:

1. Your name and / Phone number
2. Permit number
3. City / County of project
4. Sample results
5. Date / Time of call
6. Date / Time of sample
7. Project name

In accordance with Special Condition S4.D.5.b of the CSWGP, the Ecology Regional office will be notified if chemical treatment other than CO₂ sparging is planned for adjustment of high pH water.

A. Site Map



GRADING PLAN
1" = 10'



LEGEND

- SLOPE (TYP)
- 215.10' (EX) EXISTING SPOT ELEVATION
- 215.10' (PRO) PROPOSED SPOT ELEVATION
- CONCRETE
- ASPHALT

CITY OF LACEY

LIFT STATION 19 REHABILITATION

SITE DEVELOPMENT PLAN, GRADING,
STORM, TECSP

ENGINEER: CPC	DATE: JUL 2, 2020	CLIENT: LAC	LOG NO.: 516-081	NO.	DATE	DESCRIPTION	BY	REVIEW
REVIEWED: DJM	DATE: JUL 31, 2020	FILENAME: LS19-CD-01.DWG						
REVISIONS								

SCALE: SHOWN

DRAWING IS FULL SCALE WHEN BAR MEASURES 2'

DWG NO.: C02

SHEET NO.: 3

17

B. BMP Detail

BMP C102: Buffer Zones***Purpose***

Delineation of an area to remain undisturbed or strip of natural vegetation or an established suitable planting that will provide a living filter to reduce soil erosion and runoff velocities.

Conditions of Use

Natural buffer zones are used along streams, wetlands and other bodies of water that need protection from erosion and sedimentation. Vegetative buffer zones can be used to protect natural swales and can be incorporated into the natural landscaping of an area.

Critical-areas buffer zones shall not be used as sediment treatment areas. These areas shall remain completely undisturbed. The city may expand the buffer widths temporarily to allow the use of the expanded area for removal of sediment.

Design and Installation Specifications

- Preserving natural vegetation or plantings in clumps, blocks, or strips is generally the easiest and most successful method.
- Leave all unstable steep slopes in natural vegetation.
- Mark clearing limits and keep all equipment and construction debris out of the natural areas and buffer zones. High visibility fencing is the most effective method in protecting sensitive areas and buffers. Alternatively, wire-backed silt fence on steel posts is marginally effective. Flagging alone is typically not effective.
- Keep all excavations outside the dripline of trees and shrubs.
- Do not push debris or extra soil into the buffer zone area because it will cause damage from burying and smothering.
- Vegetative buffer zones for streams, lakes or other waterways shall be established by the city or other state or federal permits or approvals.

Maintenance Standards

- Inspect the area frequently to make sure fencing or flagging remains in place and remains undisturbed. Replace all damaged fencing or flagging immediately.

BMP C103: High Visibility Fence***Purpose***

Fencing is intended to:

- Restrict clearing to approved limits
- Prevent disturbance of sensitive areas, their buffers, and other areas required to be left undisturbed
- Limit construction traffic to designated construction entrances, exits or internal roads
- Protect areas where marking with flagging/survey tape may not provide adequate protection

Conditions of Use

To establish clearing limits plastic, fabric, or metal fence may be used:

- At the boundary of sensitive areas, their buffers, and other areas required to be left uncleared
- As necessary to control vehicle access to and on the site

Design and Installation Specifications

- High visibility plastic fence shall be composed of a high-density polyethylene material and shall be at least 4 feet in height. Posts for the fencing shall be steel or wood and placed every 6 feet on center (maximum) or as needed to ensure rigidity. The fencing shall be fastened to the post every 6 inches with a polyethylene tie. On long continuous lengths of fencing, a tension wire or rope shall be used as a top stringer to prevent sagging between posts. The fence color shall be high visibility orange. The fence tensile strength shall be 360 pounds/feet using the American Society for Testing and Materials (ASTM) D4595 testing method.
- If appropriate install fabric silt fence in accordance with BMP C233 to act as high visibility fence. Except that the silt fence shall be at least 3 feet high and must be highly visible to meet the requirements of this BMP.
- Metal fences are the least preferred but might be appropriate to address security concerns. Metal fencing shall be designed and installed according to the manufacturer's specifications.
- Metal fences shall be at least 4 feet high and must be highly visible.
- Fences shall not be wired or stapled to trees.

Maintenance Standards

- If the fence has been damaged or visibility reduced, it shall be repaired or replaced immediately and visibility restored.

BMP C105: Stabilized Construction Entrance/Exit***Purpose***

Stabilized Construction entrances are established to reduce the amount of sediment transported onto paved roads by vehicles or equipment. This is done by constructing a stabilized pad of quarry spalls at entrances and exits for construction sites.

Conditions of Use

Construction entrances shall be stabilized wherever traffic will be entering or leaving a construction site if paved roads or other paved areas are within 1,000 feet of the site.

For residential construction, provide stabilized construction entrances for each residence, rather than only at the main subdivision entrance. Stabilized surfaces shall be of sufficient length/width to provide vehicle access, based on lot size and configuration.

Design and Installation Specifications

- See Figure 5.1 for details. Note: the 100 foot minimum length of the entrance shall be reduced to the maximum practicable size when the size or configuration of the site does not allow the full length (100 feet).
- Construct stabilized construction entrances with a 12-inch-thick pad of 4-inch to 8-inch quarry spalls, a 4-inch course of asphalt treated base (ATB), or use existing pavement. For single-family residential lots pad may be reduced in length to fit site, to no less than 20 feet long, and in depth, to 6 inches thick with 4-inch to 6-inch quarry spalls, provided that performance standards are still met.
- Do not use crushed concrete, cement, or calcium chloride for construction entrance stabilization because these products raise pH levels in stormwater and concrete discharge to surface waters of the State is prohibited.
- A separation geotextile shall be placed under the spalls to prevent fine sediment from pumping up into the rock pad. The geotextile shall meet the following standards:
 - Grab Tensile Strength (ASTM D4751): 200 psi minimum
 - Grab Tensile Elongation (ASTM D4632): 30 percent maximum
 - Mullen Burst Strength (ASTM D3786-80a): 400 psi minimum
 - AOS (ASTM D4751): 20 to 45 (U.S. standard sieve size)
- Fencing (see BMP C103) shall be installed as necessary to restrict traffic to the construction entrance.

- Whenever possible, the entrance shall be constructed on a firm, compacted subgrade. This can substantially increase the effectiveness of the pad and reduce the need for maintenance.

Maintenance Standards

- Quarry spalls shall be added if the pad is no longer in accordance with the specifications.
- On large commercial, highway, and road projects, the designer should include enough extra materials in the contract to allow for additional stabilized entrances not shown in the initial Construction SWPPP. It is difficult to determine exactly where access to these projects will take place; additional materials will enable the contractor to install them where needed.
- Construction entrances should avoid crossing existing sidewalks and back of walk drains if at all possible. If a construction entrance must cross a sidewalk or back of walk drain, the full length of the sidewalk and back of walk drain must be covered and protected from sediment leaving the site.
- If the entrance is not preventing sediment from being tracked onto pavement, then alternative measures to keep the streets free of sediment shall be used. This may include replacement/cleaning of the existing quarry spalls, street sweeping, an increase in the dimensions of the entrance, or the installation of a wheel wash.
- Any sediment that is tracked onto pavement shall be removed by shoveling or street sweeping. The sediment collected by sweeping shall be removed or stabilized on site. The pavement shall not be cleaned by washing down the street, except when high efficiency sweeping is ineffective and there is a threat to public safety. If it is necessary to wash the streets, the construction of a small sump to contain the wash water may be required. The sediment would then be washed into the sump where it can be controlled.
- Perform street sweeping by hand or with a high efficiency sweeper. Do not use a non-high efficiency mechanical sweeper as these sweepers create dust and throw soil into nearby storm systems or conveyance ditches.
- Any quarry spalls that are loosened from the pad, which end up on the roadway shall be removed immediately.
- If vehicles are entering or exiting the site at points other than the construction entrance(s), fencing (see BMP C103) shall be installed to control traffic.
- Upon project completion and site stabilization, all construction accesses intended as permanent access for maintenance shall be permanently stabilized.

Approved as Equivalent

Ecology has approved specific products as able to meet the requirements of BMP C105. However, the products did not pass through the Technology Assessment Protocol – Ecology (TAPE) process. The list of products is available on Ecology’s web site at www.ecy.wa.gov/programs/wq/stormwater/newtech/equivalent.html.

If a project wishes to use any of the “approved as equivalent” BMPs in the City of Lacey, the project owner or representative must obtain approval for use of the BMP from the city on a case-by-case basis (i.e., for each project or site) before use.

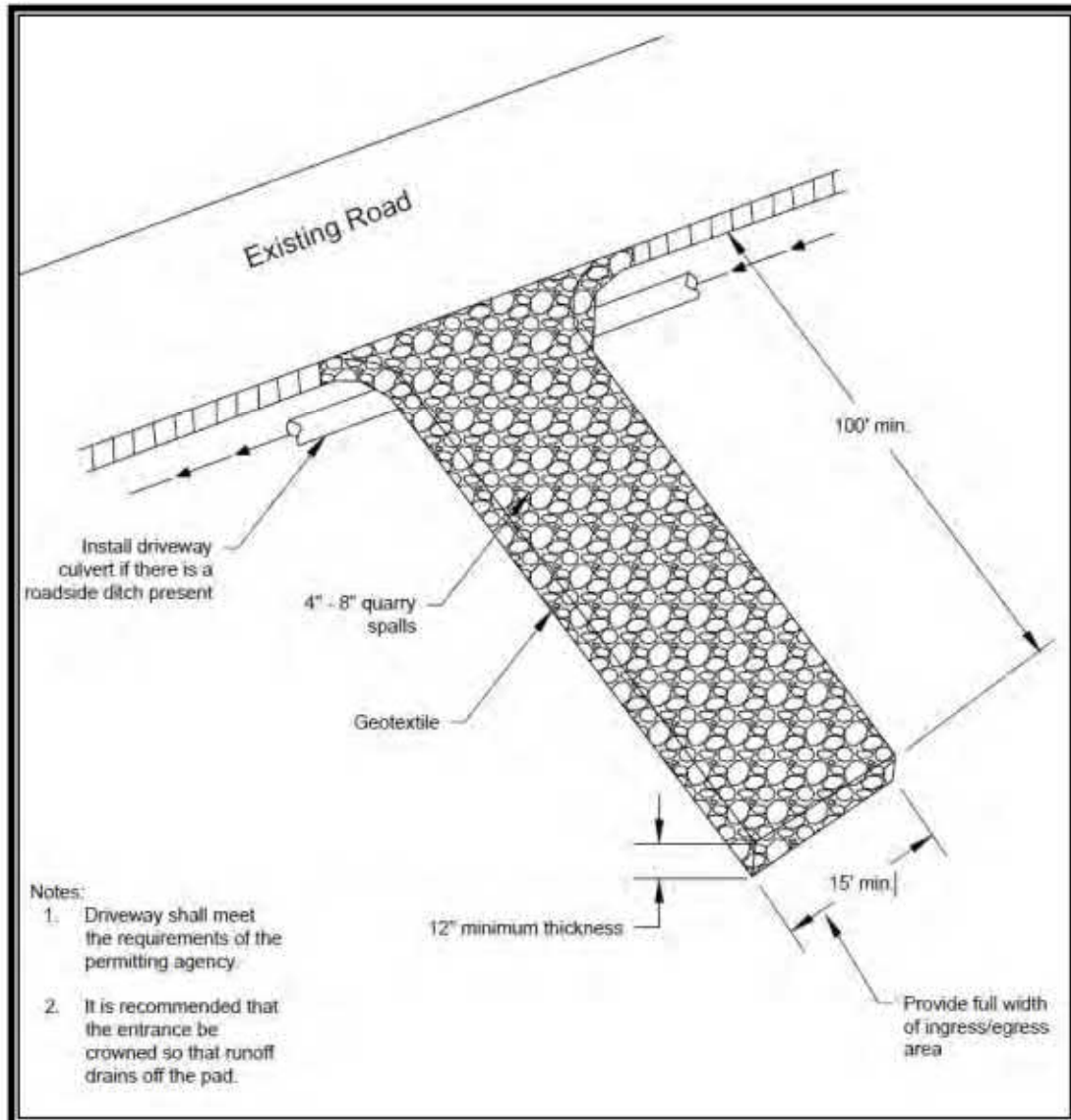


Figure 5.1. Stabilized Construction Entrance.

BMP C106: Wheel Wash***Purpose***

Wheel washes reduce the amount of sediment transported onto paved roads by motor vehicles.

Conditions of Use

When a stabilized construction entrance/exit (see BMP C105) is not preventing sediment from being tracked onto pavement.

- Wheel washing is generally an effective BMP when installed with careful attention to topography. For example, a wheel wash can be detrimental if installed at the top of a slope abutting a right-of-way where the water from the dripping truck can run unimpeded into the street.
- Pressure washing combined with an adequately sized and surfaced pad with direct drainage to a large 10-foot by 10-foot sump can be very effective.

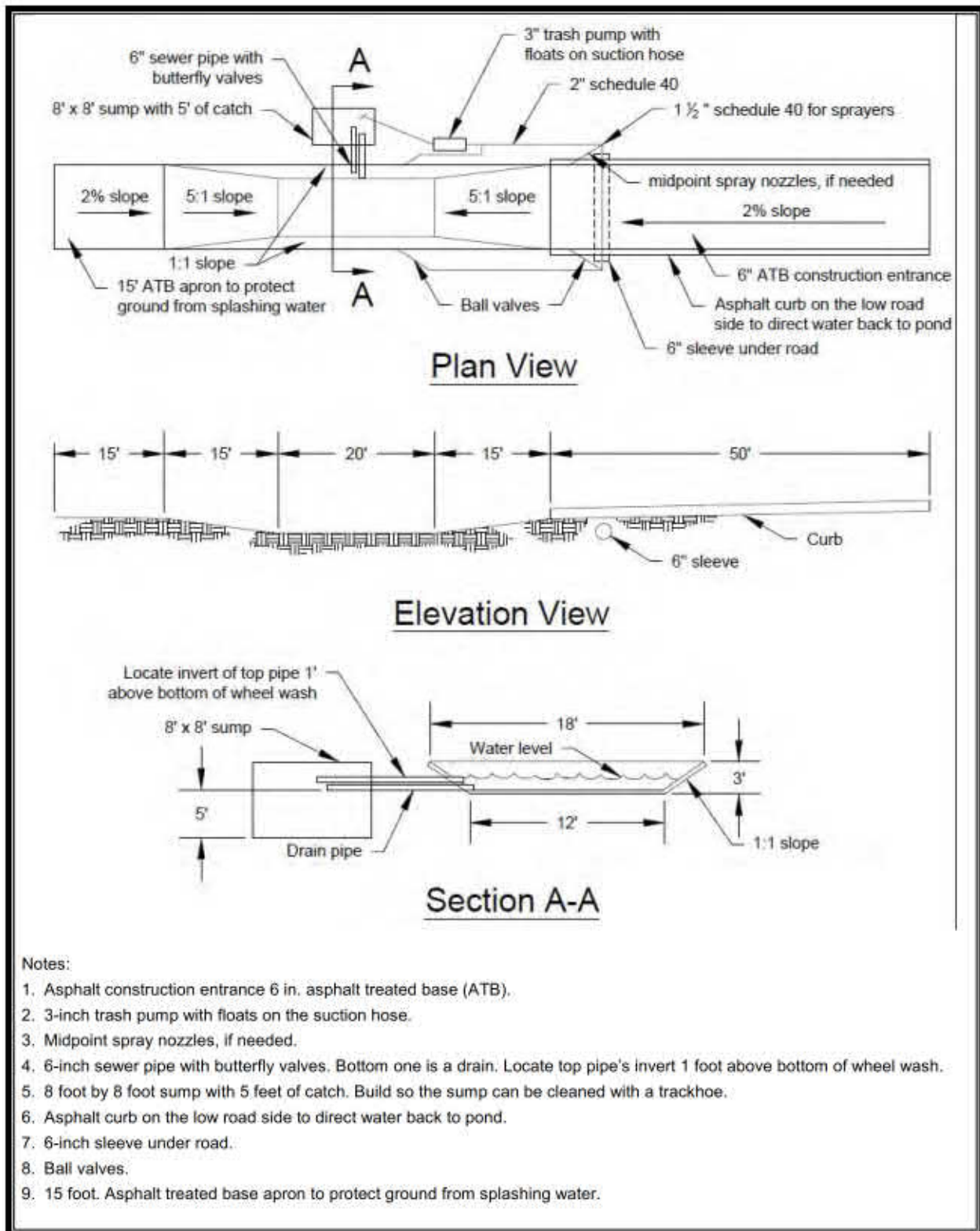
Design and Installation Specifications

- Suggested details are shown in Figure 5.2. A minimum of 6 inches of asphalt treated base over crushed base material or 8 inches over a good subgrade is recommended to pave the wheel wash.
- Discharge wheel wash or tire bath wastewater to a separate on-site treatment system that prevents discharge to surface water, such as closed-loop recirculation or upland land application, or to the sanitary sewer with city approval. For discharges to the sanitary sewer, permits must be obtained either from the City of Lacey Wastewater Utility Department at (360) 491-5600, or the LOTT Clean Water Alliance at (360) 664-2333. The city manages the collection and conveyance of wastewater to the LOTT Clean Water Alliance Wastewater Treatment Plant. Note that a permit may need to be obtained by either or both entity(ies) depending on the nature of the discharge.
- Wheel wash or tire bath wastewater shall not include wastewater from concrete washout areas.
- Use a low clearance truck to test the wheel wash before paving. Either a belly dump or lowboy will work well to test clearance.
- Keep the water level from 12 to 14 inches deep to avoid damage to truck hubs and filling the truck tongues with water.
- Midpoint spray nozzles are only needed in extremely muddy conditions.

- Wheel wash systems shall be designed with a small grade change, 6 to 12 inches for a 10-foot-wide pond, to allow sediment to flow to the low side of pond to help prevent resuspension of sediment. A drainpipe with a 2- to 3-foot riser should be installed on the low side of the pond to allow for easy cleaning and refilling. Polymers may be used to promote coagulation and flocculation in a closed-loop system.

Maintenance Standards

- The wheel wash should start out the day with fresh water.
- The washwater should be changed a minimum of once per day. On large earthwork jobs where more than 10 to 20 trucks per hour are expected, the washwater will need to be changed more often.

**Figure 5.2. Wheel Wash.**

BMP C107: Construction Road/Parking Area Stabilization***Purpose***

Stabilizing subdivision roads, parking areas, and other on-site vehicle transportation routes immediately after grading reduces erosion caused by construction traffic or runoff.

Conditions of Use

- Roads or parking areas shall be stabilized wherever they are constructed, whether permanent or temporary, for use by construction traffic.
- High Visibility Fencing (see BMP C103) shall be installed, if necessary, to limit the access of vehicles to only those roads and parking areas that are stabilized.

Design and Installation Specifications

- On areas that will receive asphalt as part of the project, install the first lift as soon as possible. Is not appropriate when final surface is porous/permeable.
- A 6-inch depth of 2- to 4-inch crushed rock, gravel base, or crushed surfacing base course shall be applied immediately after grading or utility installation. A 4-inch course of asphalt treated base (ATB) may also be used, or the road/parking area may be paved. If the area will not be used for permanent roads, parking areas, or structures, a 6-inch depth of hog fuel may also be used, but this is likely to require more maintenance. Whenever possible, construction roads and parking areas shall be placed on a firm, compacted subgrade.
- Temporary road gradients shall not exceed 15 percent. Roadways shall be carefully graded to drain. Drainage ditches shall be provided on each side of the roadway in the case of a crowned section, or on one side in the case of a super-elevated section. Drainage ditches shall be directed to a sediment control BMP.
- Rather than relying on ditches, it may also be possible to grade the road so that runoff sheet-flows into a heavily vegetated area with a well-developed topsoil. Landscaped areas are not adequate. If this area has at least 50 feet of vegetation that water can flow through, then it is generally preferable to use the vegetation to treat runoff, rather than a sediment pond or trap. The 50 feet shall not include wetlands or their buffers. If runoff is allowed to sheetflow through adjacent vegetated areas, it is vital to design the roadways and parking areas so that no concentrated runoff is created.
- Storm drain inlets shall be protected to prevent sediment-laden water entering the stormwater drainage system (see BMP C220).

Maintenance Standards

- Inspect stabilized areas regularly, especially after large storm events.
- Crushed rock, gravel base, hog fuel, etc., shall be added as required to maintain a stable driving surface and to stabilize any areas that have eroded.
- Following construction, these areas shall be restored to preconstruction condition or better to prevent future erosion.
- Perform street cleaning at the end of each day or more often if necessary.

BMP C120: Temporary and Permanent Seeding

Purpose

Seeding reduces erosion by stabilizing exposed soils with a well-established vegetative cover. This is one of the most effective methods of reducing erosion.

Conditions of Use

- Use seeding throughout the project on disturbed areas that have reached final grade or that will remain unworked for more than 30 days.
- The optimum seeding windows for western Washington are April 1 through June 30 and September 1 through October 1.
- Between July 1 and August 30 seeding requires irrigation until 75 percent grass cover is established.
- Between October 1 and March 30 seeding requires a cover of mulch with straw or an erosion control blanket until 75 percent grass cover is established.
- Where the term “fully established” is used to describe vegetative cover or plantings, it shall be understood to mean that healthy vegetation covers 90 percent of exposed soil.
- Inspect all disturbed areas in late August to early September and complete all seeding by the end of September. Otherwise, vegetation will not establish itself enough to provide more than average protection.
- Mulch is required at all times for seeding because it protects seeds from heat, moisture loss, and transport due to runoff. Mulch can be applied on top of the seed or simultaneously by hydroseeding. See BMP C121: Mulching for specifications.
- Seed and mulch all disturbed areas not otherwise vegetated at final site stabilization. Final stabilization means the completion of all soil disturbing activities at the site and the establishment of a permanent vegetative cover, or equivalent permanent stabilization measures (such as pavement, riprap, gabions, or geotextiles) that will prevent erosion.

Design and Installation Specifications

- Seed retention/detention ponds as required.
- Install channels intended for vegetation before starting major earthwork and hydroseeded with a Bonded Fiber Matrix (BFM). For vegetated channels that will have high flows, install erosion control blankets over hydroseed. Before allowing water to flow in vegetated channels, establish 75 percent vegetation cover. If

vegetated channels cannot be established by seed before water flow, install sod in the channel bottom—over hydromulch and erosion control blankets.

- Confirm the installation of all required surface water control measures to prevent seed from washing away.
- The seedbed should be firm and rough. All soil shall be roughened no matter what the slope. If compaction is required for engineering purposes, slopes must be track walked before seeding. Backblading or smoothing of slopes greater than 4:1 is not allowed if they are to be seeded.
- New and more effective restoration-based landscape practices rely on deeper incorporation than that provided by a simple single-pass rototilling treatment. Wherever practical the subgrade should be initially ripped to improve long-term permeability, infiltration, and water inflow qualities. At a minimum, permanent areas shall use soil amendments to achieve organic matter and permeability performance defined in engineered soil/landscape systems. For systems that are deeper than 8 inches the rototilling process should be done in multiple lifts, or the prepared soil system shall be prepared properly and then placed to achieve the specified depth.
- Organic matter is the most appropriate form of “fertilizer” because it provides nutrients (including nitrogen, phosphorus, and potassium) in the least water-soluble form. A natural system typically releases 2 to 10 percent of its nutrients annually. Chemical fertilizers have since been formulated to simulate what organic matter does naturally.
- In general, 10-4-6 N-P-K (nitrogen-phosphorus-potassium) fertilizer can be used at a rate of 90 pounds per acre. Slow-release fertilizers shall be used because they are more efficient and have fewer environmental impacts. It is recommended that areas being seeded for final landscaping conduct soil tests to determine the exact type and quantity of fertilizer needed. This will prevent the over-application of fertilizer. Fertilizer must not be added to the hydromulch machine and agitated more than 20 minutes before it is to be used. If agitated too much, the slow-release coating is destroyed.
- There are numerous products available on the market that takes the place of chemical fertilizers. These include several with seaweed extracts that are beneficial to soil microbes and organisms. If 100 percent cottonseed meal is used as the mulch in hydroseed, chemical fertilizer may not be necessary. Cottonseed meal is a good source of long-term, slow-release, available nitrogen.
- Hydroseed applications shall include a minimum of 1,500 pounds per acre of mulch with 3 percent tackifier. See BMP C121: Mulching for specifications.
- On steep slopes, BFM or Mechanically Bonded Fiber Matrix (MBFM) products should be used. BFM/MBFM products are applied at a minimum rate of

3,000 pounds per acre of mulch with approximately 10 percent tackifier. Application is made so that a minimum of 95 percent soil coverage is achieved. Numerous products are available commercially and should be installed per manufacturer's instructions. Most products require 24 to 36 hours to cure before a rainfall and cannot be installed on wet or saturated soils. Generally, these products come in 40- to 50-pound bags and include all necessary ingredients except for seed and fertilizer.

- BFM and MBFM have some advantages over blankets:
 - No surface preparation required
 - Can be installed via helicopter in remote areas
 - On slopes steeper than 2.5:1, blanket installers may need to be roped and harnessed for safety
 - They are at least \$1,000 per acre cheaper installed.
- In most cases, the shear strength of blankets is not a factor when used on slopes, only when used in channels. BFM and MBFM are good alternatives to blankets in most situations where vegetation establishment is the goal.
- Areas that will have seeding only and not landscaping may need compost or meal-based mulch included in the hydroseed in order to establish vegetation. Re-install native topsoil on the disturbed soil surface before application. See also postconstruction soil quality and depth in Chapter 7, Section 7.4.1.
- When installing seed via hydroseeding operations, only about one-third of the seed actually ends up in contact with the soil surface. This reduces the ability to establish a good stand of grass quickly. To overcome this, consider increasing seed quantities by up to 50 percent.
- Enhance vegetation establishment by dividing the hydromulch operation into two phases:
 1. Phase 1 – Install all seed and fertilizer with 25 to 30 percent mulch and tackifier onto soil in the first lift.
 2. Phase 2 – Install the rest of the mulch and tackifier over the first lift.Or, enhance vegetation by:
 1. Installing the mulch, seed, fertilizer, and tackifier in one lift.
 2. Spread or blow straw over the top of the hydromulch at a rate of 800 to 1,000 pounds per acre.
 3. Hold straw in place with a standard tackifier.

Both of these approaches will increase cost moderately but will greatly improve and enhance vegetative establishment. The increased cost may be offset by the reduced need for:

- Irrigation
- Reapplication of mulch
- Repair of failed slope surfaces.

This technique works with standard hydromulch (1,500 pounds per acre minimum) and BFM or Mechanically Bonded Fiber Matrix (MBFM) (3,000 pounds per acre minimum).

- Seed may be installed by hand if:
 - Temporary and covered by straw, mulch, or topsoil
 - Permanent in small areas (usually less than 1 acre) and covered with mulch, topsoil, or erosion blankets.
- The seed mixes listed in the tables below include recommended mixes for both temporary and permanent seeding, and rates are provided as pounds of pure live seed per acre.
- Other mixes may be appropriate, depending on the soil type and hydrology of the area. Consult the local revegetation experts or the local conservation district for their recommendations because the appropriate mix depends on a variety of factors, including location, exposure, soil type, slope, and expected foot traffic. Alternative seed mixes approved by the city may be used.
- Table 5.3 represents the standard mix for areas requiring a temporary vegetative cover.

Table 5.3. Temporary Erosion Control Seed Mix.		
Common Name	Species	Pounds Pure Live Seed per Acre
Spike bentgrass	<i>Agrostis exarata</i>	0.1
California brome	<i>Bromus carinatus</i>	10.5
Tufted hairgrass	<i>Deschampsia cespitosa</i>	0.4
Blue wildrye	<i>Elymus glaucus</i>	11.4
California oatgrass	<i>Danthonia californica</i>	6.0
Native red fescue	<i>Festuca rubra</i> var. <i>rubra</i>	2.5
Meadow barley	<i>Hordeum brachyantherum</i>	8.2
Total		39.1

- Table 5.4 lists a recommended mix for landscaping seed.

Table 5.4. Landscaping Seed Mix.		
Common Name	Species	Pounds Pure Live Seed per Acre
Sideoats grama	<i>Bouteloua curtipendula</i>	7.3
California oatgrass	<i>Danthonia californica</i>	6.6
Native red fescue	<i>Festuca rubra</i> var. <i>rubra</i>	4.2
Prairie Junegrass	<i>Koeleria macrantha</i>	0.9
Total		19.0

- Table 5.5 lists a low-maintenance turf seed mix that may be used in dry situations where there is little to no watering.

Table 5.5. Low-Growing Turf Seed Mix.		
Common Name	Species	Pounds Pure Live Seed per Acre
Hard fescue	<i>Festuca brevipila</i>	3.1
Sheep fescue	<i>Festuca ovina</i>	3.1
Native red fescue	<i>Festuca rubra</i> var. <i>rubra</i>	3.5
Prairie Junegrass	<i>Koeleria macrantha</i>	0.6
Total		10.2

- Table 5.6 lists a mix for bioswales and other intermittently wet areas.

Table 5.6. Bioswale Seed Mix.		
Common Name	Species	Pounds Pure Live Seed per Acre
American sloughgrass	<i>Beckmannia syzigachne</i>	0.9
Tufted hairgrass	<i>Deschampsia cespitosa</i>	0.6
Blue wildrye	<i>Elymus glaucus</i>	11.4
Native red fescue	<i>Festuca rubra</i> var. <i>rubra</i>	2.8
Meadow barley	<i>Hordeum brachyantherum</i>	9.8
Northwestern mannagrass	<i>Glyceria occidentalis</i>	5.2
Total		30.7

- Table 5.7 lists a low-growing seed mix appropriate for very wet areas that are not regulated wetlands. Consult Hydraulic Permit Authority (HPA) for seed mixes if applicable.

Table 5.7. Low Growing Wet Area Seed Mix.		
Common Name	Species	Pounds Pure Live Seed per Acre
California brome	<i>Bromus carinatus</i>	10.5
Columbia brome	<i>Bromus vulgaris</i>	8.7
Tufted hairgrass	<i>Deschampsia cespitosa</i>	0.4
California oatgrass	<i>Danthonia californica</i>	5.0
Native red fescue	<i>Festuca rubra</i> var. <i>rubra</i>	2.4
Western manna grass	<i>Glyceria occidentalis</i>	3.5
Meadow barley	<i>Hordeum brachyantherum</i>	8.2
Total		38.5

- Table 5.8 lists a recommended meadow seed mix that is intended for infrequently maintained areas or non-maintained areas where colonization by native plants is desirable. Likely applications include rural road and utility right-of-way. Seeding should take place in September or very early October in order to obtain adequate establishment prior to the winter months.

Table 5.8. Meadow Seed Mix.		
Common Name	Species	Pounds Pure Live Seed per Acre
Common yarrow	<i>Achillea millefolium</i>	0.07
Pearly everlasting	<i>Anaphalis margaritacea</i>	0.01
California brome	<i>Bromus carinatus</i>	7.84
California oatgrass	<i>Danthonia californica</i>	3.73
Blue wildrye	<i>Elymus glaucus</i>	7.60
Idaho fescue	<i>Festuca idahoensis</i>	1.74
Native red fescue	<i>Festuca rubra</i> var. <i>rubra</i>	1.88
Sickle keeled lupine	<i>Lupinus albicaulis</i>	2.22
Fowl bluegrass	<i>Poa palustris</i>	0.36
Total		22.9

Maintenance Standards

- Reseed any seeded areas that fail to establish at least 80 percent cover (100 percent cover for areas that receive sheet or concentrated flows). If reseeding is ineffective, an alternate method, such as sodding, mulching, or nets/blankets, shall be used. If winter weather prevents adequate grass growth, this time limit may be relaxed at the discretion of the city when sensitive areas would otherwise be protected.

- Reseed and protect by mulch any areas that experience erosion after achieving adequate cover. Reseed and protect by mulch any eroded area.
- Supply seeded areas with adequate moisture, but do not water to the extent that it causes runoff.

Approved as Equivalent

Ecology has approved specific products as able to meet the requirements of BMP C120. However, the products did not pass through the Technology Assessment Protocol – Ecology (TAPE) process. The list of products is available on Ecology’s web site at www.ecy.wa.gov/programs/wq/stormwater/newtech/equivalent.html.

If a project wishes to use any of the “approved as equivalent” BMPs in the City of Lacey, the project owner or representative must obtain approval for use of the BMP from the city on a case-by-case basis (i.e., for each project or site) before use.

BMP C121: Mulching

Purpose

Mulching soils provides immediate temporary protection from erosion. Mulch also enhances plant establishment by conserving moisture, holding fertilizer, seed, and topsoil in place, and moderating soil temperatures. There is an enormous variety of mulches that can be used. This section discusses only the most common types of mulch.

Conditions of Use

As a temporary cover measure, mulch shall be used:

- For fewer than 30 days on disturbed areas that require cover.
- At all times for seeded areas, especially during the wet season and during the hot summer months.
- During the wet season on slopes steeper than 3H:1V with more than 10 feet of vertical relief.
- Mulch may be applied at any time of the year and must be refreshed periodically.
- For seeded areas, mulch may be made up of 100 percent: cottonseed meal; fibers made of wood, recycled cellulose, hemp, kenaf; compost; or blends of these. Tackifier shall be plant-based, such as guar or alpha plantago, or chemical-based such as polyacrylamide or polymers. Any mulch or tackifier product used shall be installed per manufacturer's instructions. Generally, mulches come in 40- to 50-pound bags. Seed and fertilizer are added at time of application.

Design and Installation Specifications

For mulch materials, application rates, and specifications, see Table 5.9. Always use a 2-inch minimum mulch thickness; increase the thickness until the ground is 95 percent covered (i.e., not visible under the mulch layer). Note: Thicknesses may be increased for disturbed areas in or near sensitive areas or other areas highly susceptible to erosion.

Where the option of "compost" is selected, it must be a coarse compost that meets the following size gradations when tested in accordance with the U.S. Composting Council "Test Methods for the Examination of Compost and Composting" Test Method 02.02-B.

Table 5.9. Mulch Standards and Guidelines.

Mulch Material	Quality Standards	Application Rates	Remarks
Straw	Air-dried; free from undesirable seed and coarse material.	2" to 3" thick; five bales per 1,000 sq. ft. or 2 to 3 tons per acre	Cost-effective protection when applied with adequate thickness. Hand-application generally requires greater thickness than blown straw. The thickness of straw may be reduced by half when used in conjunction with seeding. In windy areas straw must be held in place by crimping, using a tackifier, or covering with netting. Blown straw always has to be held in place with a tackifier as even light winds will blow it away. Straw, however, has several deficiencies that should be considered when selecting mulch materials. It often introduces and/or encourages the propagation of weed species and it has no significant long-term benefits. It should also not be used within the ordinary high water elevation of surface waters (due to flotation).
Hydromulch	No growth inhibiting factors.	Approx. 25 to 30 lbs per 1,000 sq. ft. or 1,500 to 2,000 lbs per acre	Shall be applied with hydromulcher. Shall not be used without seed and tackifier unless the application rate is at least doubled. Fibers longer than about 0.75 to 1 inch clog hydromulch equipment. Fibers should be kept to less than 0.75 inch.
Compost	No visible water or dust during handling. Must be produced per WAC 173-350, Solid Waste Handling Standards, but may have up to 35% biosolids.	2" thick min.; approx. 100 tons per acre (approx. 800 lbs per yard)	More effective control can be obtained by increasing thickness to 3 inches. Excellent mulch for protecting final grades until landscaping because it can be directly seeded or tilled into soil as an amendment. Compost used for mulch has a coarser size gradation than compost used for BMP C125 or the postconstruction soil quality and depth BMP see Chapter 7, Section 7.4.1. It is more stable and practical to use in wet areas and during rainy weather conditions. Do not use near wetlands or near phosphorous impaired water bodies.
Chipped Site Vegetation	Average size should be several inches. Gradations from fines to 6 inches in length for texture, variation, and interlocking properties.	2" thick min.	This is a cost-effective way to dispose of debris from clearing and grubbing, and it eliminates the problems associated with burning. Generally, it should not be used on slopes above approx. 10 percent because of its tendency to be transported by runoff. It is not recommended within 200 feet of surface waters. If seeding is expected shortly after mulch, the decomposition of the chipped vegetation may tie up nutrients important to grass establishment.
Wood-based Mulch or Wood Straw	No visible water or dust during handling. Must be purchased from a supplier with a Solid Waste Handling Permit or one exempt from solid waste regulations.	2" thick min.; approx. 100 tons per acre (approx. 800 lbs per cubic yard)	This material is often called "hog fuel" or "hogged fuel." The use of mulch ultimately improves the organic matter in the soil. Special caution is advised regarding the source and composition of wood-based mulches. Its preparation typically does not provide any weed seed control, so evidence of residual vegetation in its composition or known inclusion of weed plants or seeds should be monitored and prevented (or minimized).
Wood Strand Mulch	A blend of loose, long, thin wood pieces derived from native conifer or deciduous trees with high length-to-width ratio.	2" thick min.	Cost-effective protection when applied with adequate thickness. A minimum of 95 percent of the wood strand shall have lengths between 2 and 10 inches, with a width and thickness between one-sixteenth and three-eighths inch. The mulch shall not contain resin, tannin, or other compounds in quantities that would be detrimental to plant life. Sawdust or wood shavings shall not be used as mulch. (WSDOT Standard Specification 9-14.4(4)).

Coarse Compost

- Mulch may be applied at any time of the year and must be refreshed periodically
- Minimum Percent passing 3-inch sieve openings 100 percent
- Minimum Percent passing 1-inch" sieve openings 90 percent
- Minimum Percent passing 0.75-inch sieve openings 70 percent
- Minimum Percent passing 0.25-inch sieve openings 40 percent

Mulch used within the ordinary high water mark of surface waters must be selected to minimize potential flotation of organic matter. Composted organic materials have higher specific gravities (densities) than straw, wood, or chipped material.

Maintenance Standards

- The thickness of the cover must be maintained.
- Any areas that experience erosion shall be remulched and/or protected with a net or blanket. If the erosion problem is drainage related, then the problem shall be fixed and the eroded area remulched.

BMP C122: Nets and Blankets

Purpose

Erosion control nets and blankets are intended to prevent erosion and hold seed and mulch in place on steep slopes and in channels so that vegetation can become well established. In addition, some nets and blankets can be used to permanently reinforce turf to protect drainage ways during high flows. Nets (commonly called matting) are strands of material woven into an open, but high-tensile strength net (for example, coconut fiber matting). Blankets are strands of material that are not tightly woven, but instead form a layer of interlocking fibers, typically held together by a biodegradable or photodegradable netting (for example, excelsior or straw blankets). They generally have lower tensile strength than nets, but cover the ground more completely. Coir (coconut fiber) fabric comes as both nets and blankets.

Conditions of Use

Erosion control nets and blankets shall be used:

- To aid permanent vegetated stabilization of slopes 2H:1V or greater and with more than 10 feet of vertical relief.
- For drainage ditches and swales (highly recommended). The application of appropriate netting or blanket to drainage ditches and swales can protect bare soil from channelized runoff while vegetation is established. Nets and blankets also can capture a great deal of sediment due to their open, porous structure. Nets and blankets can be used to permanently stabilize channels and may provide a cost-effective, environmentally preferable alternative to riprap. One hundred percent synthetic blankets manufactured for use in ditches may be easily reused as temporary ditch liners.

Disadvantages of blankets include:

- Surface preparation required
- On slopes steeper than 2.5H:1V, blanket installers may need to be roped and harnessed for safety
- They cost at least \$4,000 to \$6,000 per acre installed.

Advantages of blankets include:

- Installation without mobilizing special equipment
- Installation by anyone with minimal training
- Installation in stages or phases as the project progresses

- Installers can hand place seed and fertilizer as they progress down the slope
- Installation in any weather
- There are numerous types of blankets that can be designed with various parameters in mind. Those parameters include: fiber blend, mesh strength, longevity, biodegradability, cost, and availability.

Design and Installation Specifications

- See Figures 5.3 and 5.4 for typical orientation and installation of blankets used in channels and as slope protection. Note: These are typical only; all blankets must be installed per manufacturer's installation instructions.
- Installation is critical to the effectiveness of these products. If good ground contact is not achieved, runoff can concentrate under the product, resulting in significant erosion.
- Installation of Blankets on Slopes:
 - Complete final grade and track walk up and down the slope.
 - Install hydromulch with seed and fertilizer.
 - Dig a small trench, approximately 12 inches wide by 6 inches deep along the top of the slope.
 - Install the leading edge of the blanket into the small trench and staple approximately every 18 inches. NOTE: Staples are metal, U-shaped, and a minimum of 6 inches long. Longer staples are used in sandy soils. Biodegradable stakes are also available.
 - Roll the blanket slowly down the slope as installer walks backwards. NOTE: The blanket rests against the installer's legs. Staples are installed as the blanket is unrolled. It is critical that the proper staple pattern is used for the blanket being installed. The blanket is not to be allowed to roll down the slope on its own as this stretches the blanket making it impossible to maintain soil contact. In addition, no one is allowed to walk on the blanket after it is in place.
 - If the blanket is not long enough to cover the entire slope length, the trailing edge of the upper blanket must overlap the leading edge of the lower blanket and be stapled. On steeper slopes, this overlap must be installed in a small trench, stapled, and covered with soil.
- With the variety of products available, it is impossible to cover all the details of appropriate use and installation. Therefore, it is critical that the design engineer

consult the manufacturer's information and that a site visit takes place in order to ensure that the product specified is appropriate. Information is also available at the following web site:

- WSDOT (Section 3.2.4):

www.wsdot.wa.gov/NR/rdonlyres/3B41E087-FA86-4717-932D-D7A8556CCD57/0/ErosionTrainingManual.pdf>.

- Use jute matting in conjunction with mulch (BMP C121). Excelsior, woven straw blankets and coir (coconut fiber) blankets may be installed without mulch. There are many other types of erosion control nets and blankets on the market that may be appropriate in certain circumstances.
- In general, most nets (e.g., jute matting) require mulch in order to prevent erosion because they have a fairly open structure. Blankets typically do not require mulch because they usually provide complete protection of the surface.
- Extremely steep, unstable, wet, or rocky slopes are often appropriate candidates for use of synthetic blankets, as are riverbanks, beaches and other high-energy environments. If synthetic blankets are used, the soil should be hydromulched first.
- One hundred percent biodegradable blankets are available for use in sensitive areas. These organic blankets are usually held together with a paper or fiber mesh and stitching which may last up to a year.
- Most netting used with blankets is photodegradable, meaning they break down under sunlight (not UV stabilized). However, this process can take months or years even under bright sun. Once vegetation is established, sunlight does not reach the mesh. It is not uncommon to find non-degraded netting still in place several years after installation. This can be a problem if maintenance requires the use of mowers or ditch cleaning equipment. In addition, birds and small animals can become trapped in the netting.

Maintenance Standards

- Maintain good contact with the ground. Erosion must not occur beneath the net or blanket.
- Repair and staple any areas of the net or blanket that are damaged or not in close contact with the ground.
- Fix and protect eroded areas if erosion occurs due to poorly controlled drainage.

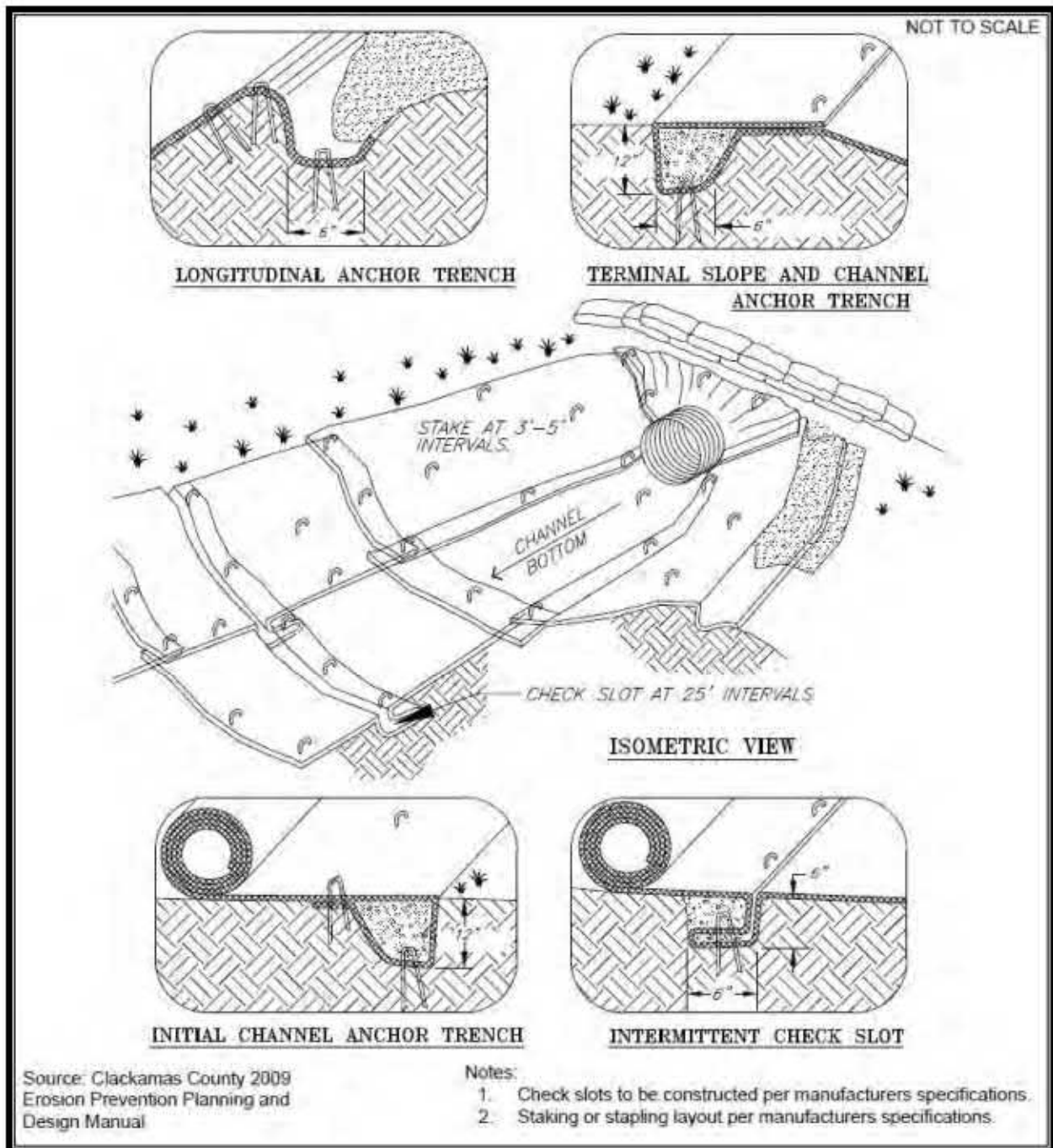


Figure 5.3. Channel Installation.

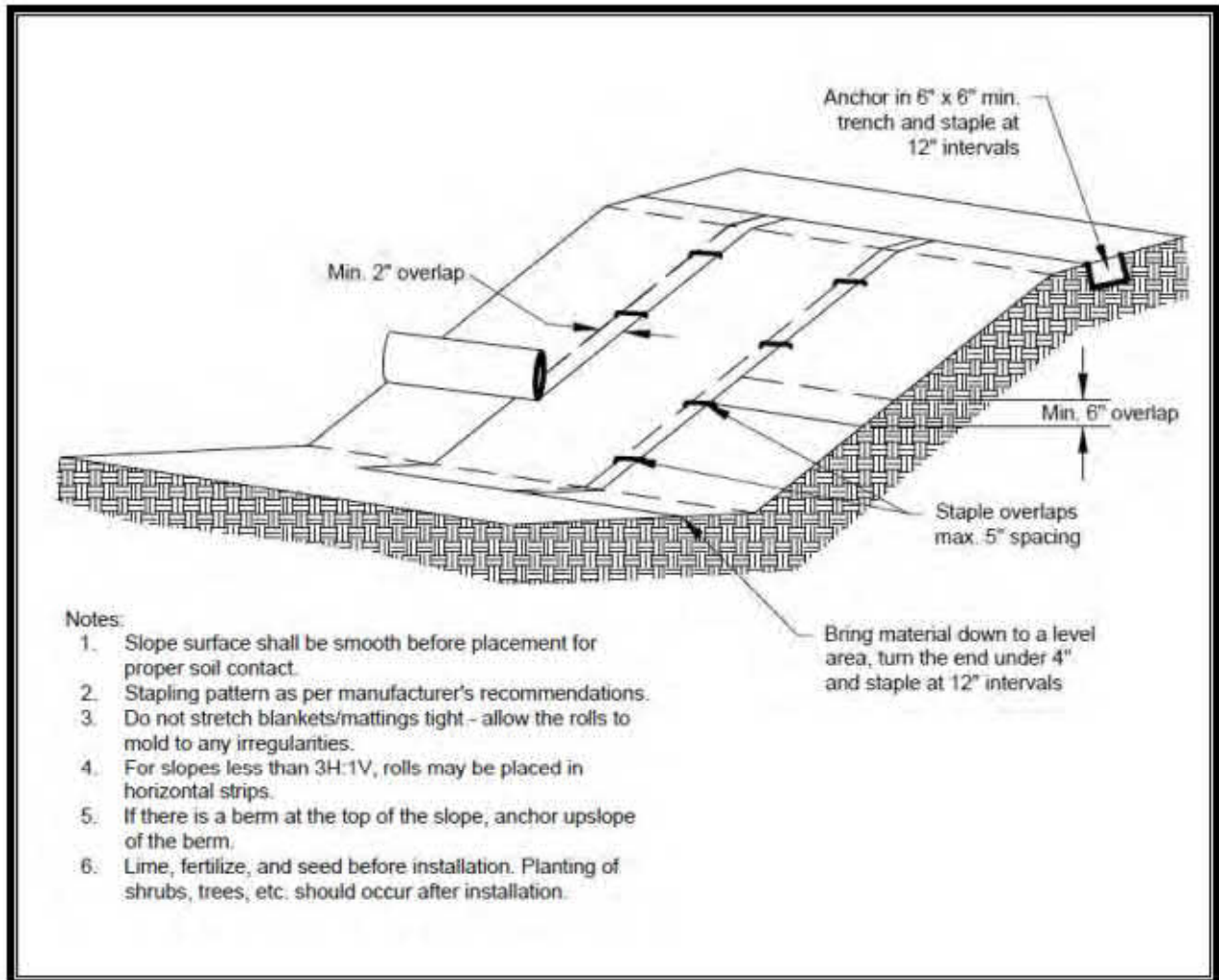


Figure 5.4. Slope Installation.

BMP C123: Plastic Covering***Purpose***

Plastic covering provides immediate, short-term erosion protection to slopes and disturbed areas.

Conditions of Use

- Plastic covering may be used on disturbed areas that require cover measures for less than 30 days, except as stated below.
- Plastic is particularly useful for protecting cut and fill slopes and stockpiles. Note: The relatively rapid breakdown of most polyethylene sheeting makes it unsuitable for long-term (greater than 6 months) applications.
- Due to rapid runoff caused by plastic covering, do not use this method upslope of areas that might be adversely impacted by concentrated runoff. Such areas include steep and/or unstable slopes.
- Plastic sheeting may result in increased runoff volumes and velocities, requiring additional on-site measures to counteract the increases. Creating a trough with wattles or other material can convey clean water away from these areas.
- To prevent undercutting, trench and backfill rolled plastic covering products.
- While plastic is inexpensive to purchase, the added cost of installation, maintenance, removal, and disposal make this an expensive material, up to \$1.50 to \$2 per square yard.
- Whenever plastic is used to protect slopes install water collection measures at the base of the slope. These measures include plastic-covered berms, channels, and pipes used to convey clean rainwater away from bare soil and disturbed areas. Do not mix clean runoff from a plastic covered slope with dirty runoff from a project.
- Other uses for plastic include:
 - Temporary ditch liner
 - Pond liner in temporary sediment pond
 - Liner for bermed temporary fuel storage area if plastic is not reactive to the type of fuel being stored
 - Emergency slope protection during heavy rains
 - Temporary drainpipe (“elephant trunk”) used to direct water.

Design and Installation Specifications

- Plastic slope cover must be installed as follows:
 - Run plastic up and down slope, not across slope.

- Plastic may be installed perpendicular to a slope if the slope length is less than 10 feet.
- Minimum of 8-inch overlap at seams.
- On long or wide slopes, or slopes subject to wind, tape all seams.
- Place plastic into a small (12-inch wide by 6-inch deep) slot trench at the top of the slope and backfill with soil to keep water from flowing underneath.
- Place sand filled burlap or geotextile bags every 3 to 6 feet along seams and tie them together with twine to hold them in place.
- Inspect plastic for rips, tears, and open seams regularly and repair immediately. This prevents high velocity runoff from contacting bare soil which causes extreme erosion.
- Sandbags may be lowered into place tied to ropes. However, all sandbags must be staked in place.
- Plastic sheeting shall have a minimum thickness of 6 mil.
- If erosion at the toe of a slope is likely, a gravel berm, riprap, or other suitable protection shall be installed at the toe of the slope in order to reduce the velocity of runoff.

Maintenance Standards

- Torn sheets must be replaced and open seams repaired.
- Completely remove and replace the plastic if it begins to deteriorate due to ultraviolet radiation.
- Completely remove plastic when no longer needed.
- Dispose of old tires used to weight down plastic sheeting appropriately.

Approved as Equivalent

Ecology has approved specific products as able to meet the requirements of BMP C123. However, the products did not pass through the Technology Assessment Protocol – Ecology (TAPE) process. The list of products is available on Ecology’s web site at www.ecy.wa.gov/programs/wq/stormwater/newtech/equivalent.html.

If a project wishes to use any of the “approved as equivalent” BMPs in the City of Lacey, the project owner or representative must obtain approval for use of the BMP from the city on a case-by-case basis (i.e., for each project or site) before use.

BMP C124: Sodding***Purpose***

The purpose of sodding is to establish permanent turf for immediate erosion protection and to stabilize drainage ways where concentrated overland flow will occur.

Conditions of Use

Sodding may be used in the following areas:

- Disturbed areas that require short-term or long-term cover.
- Disturbed areas that require immediate vegetative cover.
- All waterways that require vegetative lining. Waterways may also be seeded rather than sodded, and protected with a net or blanket.

Design and Installation Specifications

Sod shall be free of weeds, of uniform thickness (approximately 1 inch thick), and shall have a dense root mat for mechanical strength.

The following steps are recommended for sod installation:

- Shape and smooth the surface to final grade in accordance with the approved grading plan. The swale needs to be overexcavated 4 to 6 inches below design elevation to allow room for placing soil amendment and sod.
- Amend 4 inches (minimum) of compost into the top 8 inches of the soil if the organic content of the soil is less than 10 percent or the permeability is less than 0.6 inches per hour. See <www.ecy.wa.gov/programs/swfa/organics/soil.html> for further information.
- Fertilize according to the supplier's recommendations.
- Work lime and fertilizer 1 to 2 inches into the soil, and smooth the surface.
- Lay strips of sod beginning at the lowest area to be sodded and perpendicular to the direction of water flow. Wedge strips securely into place. Square the ends of each strip to provide for a close, tight fit. Stagger joints at least 12 inches. Staple on slopes steeper than 3H:1V. Staple the upstream edge of each sod strip.
- Roll the sodded area and irrigate.
- When sodding is carried out in alternating strips or other patterns, seed the areas between the sod immediately after sodding.

Maintenance Standards

If the grass is unhealthy, the cause shall be determined and appropriate action taken to re-establish a healthy groundcover. If it is impossible to establish a healthy groundcover due to frequent saturation, instability, or some other cause, the sod shall be removed, the area seeded with an appropriate mix, and protected with a net or blanket.

BMP C125: Topsoiling/Composting***Purpose***

Topsoiling and composting provide a suitable growth medium for final site stabilization with vegetation. While not a permanent cover practice in itself, topsoiling and composting are an integral component of providing permanent cover in those areas where there is an unsuitable soil surface for plant growth. Use this BMP in conjunction with other BMPs such as seeding, mulching, or sodding. Note that this BMP is functionally the same as the postconstruction soil quality and depth BMP (see Chapter 7, Section 7.4.1), which is required for all disturbed areas that will be developed as lawn or landscaped areas at the completed project site.

Native soils and disturbed soils that have been organically amended not only retain much more stormwater, but they also serve as effective biofilters for urban pollutants and, by supporting more vigorous plant growth, reduce the water, fertilizer and pesticides needed to support installed landscapes. Topsoil does not include any subsoils but only the material from the top several inches including organic debris.

Conditions of Use

- Permanent landscaped areas shall contain healthy topsoil that reduces the need for fertilizers, improves overall topsoil quality, provides for better vegetal health and vitality, improves hydrologic characteristics, and reduces the need for irrigation.
- Leave native soils and the duff layer undisturbed to the maximum extent practicable. Stripping of existing, properly functioning soil system and vegetation for the purpose of topsoiling during construction is not acceptable. Preserve existing soil systems in undisturbed and uncompacted condition if functioning properly.
- Areas that already have good topsoil, such as undisturbed areas, do not require soil amendments.
- Restore, to the maximum extent practicable, native soils disturbed during clearing and grading to a condition equal to or better than the original site condition's moisture-holding capacity. Use on-site native soil, incorporate amendments into on-site soil, or importing blended topsoil to meet this requirement.
- Topsoiling is a required procedure when establishing vegetation on shallow soils, and soils of critically low pH (high acid) levels.
- Beware of where the topsoil comes from, and what vegetation was on site before disturbance, invasive plant seeds may be included and could cause problems for establishing native plants, landscaped areas, or grasses.
- Topsoil from the site will contain mycorrhizal bacteria that are necessary for healthy root growth and nutrient transfer. These native mycorrhiza are acclimated

to the site and will provide optimum conditions for establishing grasses. Use commercially available mycorrhiza products when using off-site topsoil.

Design and Installation Specifications

Meet the following requirements for disturbed areas requiring disruption and topsoiling: that will be developed as lawn or landscaped areas at the completed project site:

- Maximize the depth of the topsoil wherever possible to provide the maximum possible infiltration capacity and beneficial growth medium. Topsoil shall have:
 - A minimum depth of 8 inches. Scarify subsoils below the topsoil layer at least 4 inches with some incorporation of the upper material to avoid stratified layers, where feasible. Ripping or restructuring the subgrade may also provide additional benefits regarding the overall infiltration and interflow dynamics of the soil system.
 - A minimum organic content of 10 percent dry weight in planting beds, and 5 percent organic matter content in turf areas. Incorporate organic amendments to a minimum 8-inch depth except where tree roots or other natural features limit the depth of incorporation.
 - A pH between 6.0 and 8.0 or matching the pH of the undisturbed soil.
 - If blended topsoil is imported, then fines shall be limited to 25 percent passing through a U.S. #200 sieve.
 - Mulch planting beds with 2 inches of organic material.
- Accomplish the required organic content, depth, and pH by returning native topsoil to the site, importing topsoil of sufficient organic content, and/or incorporating organic amendments.
 - When using the option of incorporating amendments to meet the organic content requirement, use compost that meets the composted material specification for bioretention (see Chapter 7, Section 7.4.4), with the exception that the compost may have up to 35 percent biosolids or manure.
 - Sections three through seven of the document entitled *Guidelines and Resources for Implementing Soil Quality and Depth BMP T5.13 in WDOE Stormwater Management Manual for Western Washington* provide useful guidance for implementing whichever option is chosen. The document includes guidance for preapproved default strategies and guidance for custom strategies. As of this printing the document can be found at:
<www.soilsforsalmon.org/pdf/Soil_BMP_Manual.pdf>.
- The final composition and construction of the soil system will result in a natural selection or favoring of certain plant species over time. For example,

incorporation of topsoil may favor grasses, while layering with mildly acidic, high-carbon amendments may favor more woody vegetation.

- Allow sufficient time in scheduling for topsoil spreading prior to seeding, sodding, or planting.
- Take care when applying top soil to subsoils with contrasting textures. Sandy topsoil over clayey subsoil is a particularly poor combination, as water creeps along the junction between the soil layers and causes the topsoil to slough. If topsoil and subsoil are not properly bonded, water will not infiltrate the soil profile evenly and it will be difficult to establish vegetation. The best method to prevent a lack of bonding is to actually work the topsoil into the layer below for a depth of at least 6 inches.
- Field exploration of the site shall be made to determine if there is surface soil of sufficient quantity and quality to justify stripping. Topsoil shall be friable and loamy (loam, sandy loam, silt loam, sandy clay loam, and clay loam). Avoid areas of natural groundwater recharge.
- Stripping shall be confined to the immediate construction area. A 4-inch to 6-inch stripping depth is common, but depth may vary depending on the particular soil. All surface runoff control structures shall be in place prior to stripping.
- Do not place topsoil while in a frozen or muddy condition, when the subgrade is excessively wet, or when conditions exist that may otherwise be detrimental to proper grading or proposed sodding or seeding.
- In any areas requiring grading, remove and stockpile the duff layer and topsoil on site in a designated, controlled area, not adjacent to public resources and critical areas. Stockpiled topsoil is to be reapplied to other portions of the site where feasible.
- Locate the topsoil stockpile so that it meets specifications and does not interfere with work on the site. It may be possible to locate more than one pile in proximity to areas where topsoil will be used.

Stockpiling of topsoil shall occur in the following manner:

- Side slopes of the stockpile shall not exceed 2H:1V
- Between October 1 and April 30:
 - An interceptor dike with gravel outlet and silt fence shall surround all topsoil
 - Within 2 days, complete erosion control seeding, or covering stockpiles with clear plastic, or other mulching materials.

- Between May 1 and September 30:
 - An interceptor dike with gravel outlet and silt fence shall surround all topsoil if the stockpile will remain in place for a longer period of time than active construction grading.
 - Within 7 days, complete erosion control seeding, or covering stockpiles with clear plastic, or other mulching materials.
- When native topsoil is to be stockpiled and reused the following should apply to ensure that the mycorrhizal bacterial, earthworms, and other beneficial organisms will not be destroyed:
 - Re-install topsoil within 4 to 6 weeks
 - Do not allow the saturation of topsoil with water
 - Do not use plastic covering.

Maintenance Standards

- Inspect stockpiles regularly, especially after large storm events. Stabilize any areas that have eroded.
- Establish soil quality and depth toward the end of construction and once established, protect from compaction, such as from large machinery use, and from erosion.
- Plant and mulch soil after installation.
- Leave plant debris or its equivalent on the soil surface to replenish organic matter.
- Reduce and adjust, where possible, the use of irrigation, fertilizers, herbicides and pesticides, rather than continuing to implement formerly established practices.

BMP C126: Polyacrylamide (PAM) for Soil Erosion Protection

Polyacrylamide (PAM) is used on construction sites to prevent soil erosion.

Applying PAM to bare soil in advance of a rain event significantly reduces erosion and controls sediment in two ways. First, PAM increases the soil's available pore volume, thus increasing infiltration through flocculation and reducing the quantity of stormwater runoff. Second, it increases flocculation of suspended particles and aids in their deposition, thus reducing stormwater runoff turbidity and improving water quality.

Although PAM is an Ecology-approved BMP, it is very rarely used in the City of Lacey. Therefore, details on this BMP are not included in the SDM. Rather, users must refer to the 2014 Ecology Manual for details on BMP C126: Polyacrylamide (PAM) for Soil Erosion Protection.

BMP C130: Surface Roughening

Purpose

Surface roughening aids in the establishment of vegetative cover, reduces runoff velocity, increases infiltration, and provides for sediment trapping through the provision of a rough soil surface. Horizontal depressions are created by operating a tiller or other suitable equipment on the contour or by leaving slopes in a roughened condition by not fine grading them.

Use this BMP in conjunction with other BMPs such as seeding, mulching, or sodding.

Conditions of Use

- All slopes steeper than 3H:1V and greater than 5 vertical feet require surface roughening to a depth of 2 to 4 inches prior to seeding
- Areas that will not be stabilized immediately may be roughened to reduce runoff velocity until seeding takes place
- Slopes with a stable rock face do not require roughening
- Slopes where mowing is planned should not be excessively roughened.

Design and Installation Specifications

There are different methods for achieving a roughened soil surface on a slope, and the selection of an appropriate method depends upon the type of slope. Roughening methods include stair-step grading, grooving, contour furrows, and tracking. See Figure 5.5 for tracking and contour furrows. Factors to be considered in choosing a method are slope steepness, mowing requirements, and whether the slope is formed by cutting or filling.

- Disturbed areas that will not require mowing may be stair-step graded, grooved, or left rough after filling.
- Stair-step grading is particularly appropriate in soils containing large amounts of soft rock. Each “step” catches material that sloughs from above, and provides a level site where vegetation can become established. Stairs must be wide enough to work with standard earth moving equipment. Stair steps must be on contour or gullies will form on the slope.
- Areas that will be mowed (these areas should have slopes less steep than 3H:1V) may have small furrows left by disking, harrowing, raking, or seed-planting machinery operated on the contour.
- Graded areas with slopes steeper than 3H:1V but less than 2H:1V shall be roughened before seeding. This can be accomplished in a variety of ways,

including “track walking,” or driving a crawler tractor up and down the slope, leaving a pattern of cleat imprints parallel to slope contours.

- Tracking is done by operating equipment up and down the slope to leave horizontal depressions in the soil.

Maintenance Standards

- Areas that are graded in this manner should be seeded as quickly as possible.
- Regular inspections should be made of the area. If rills appear, they should be regraded and reseeded immediately.

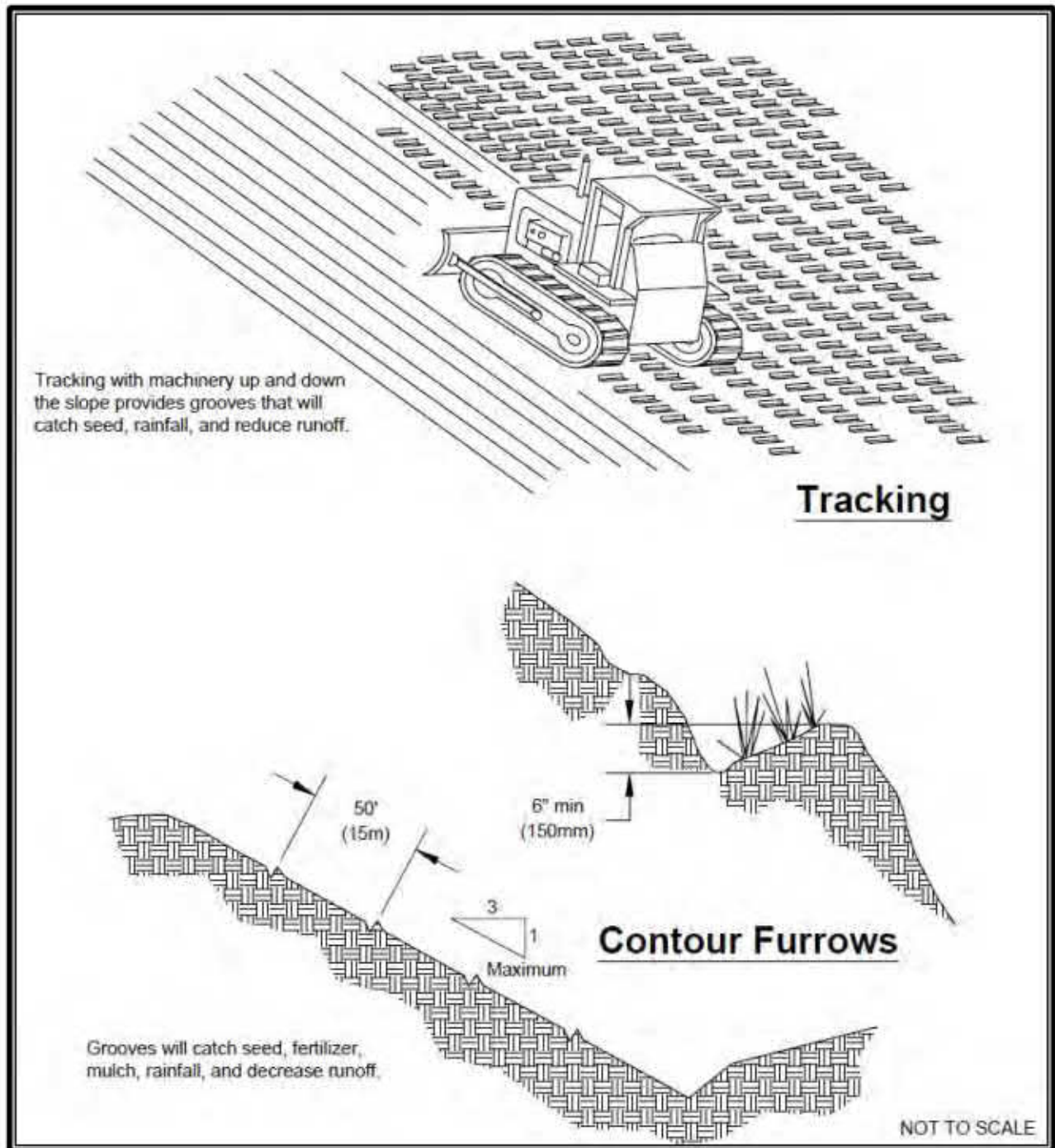


Figure 5.5. Surface Roughening by Tracking and Contour Furrows.

BMP C131: Gradient Terraces***Purpose***

Gradient terraces reduce erosion damage by intercepting surface runoff and conducting it to a stable outlet at a nonerosive velocity.

Conditions of Use

- Gradient terraces normally are limited to denuded land having a water erosion problem. They should not be constructed on deep sands or on soils that are too stony, steep, or shallow to permit practical and economical installation and maintenance. Gradient terraces may be used only where suitable outlets are or will be made available. See Figure 5.6 for gradient terraces.

Design and Installation Specifications

- The maximum spacing of gradient terraces shall be determined by the following method:

$$VI = (0.8)s + y$$

Where: VI = vertical interval in feet
s = land rise per 100 feet, expressed in feet
y = a soil and cover variable with values from 1.0 to 4.0

Values of “y” are influenced by soil erodibility and cover practices. The lower values are applicable to erodible soils where little to no residue is left on the surface. The higher value is applicable only to erosion-resistant soils where a large amount of residue (1.5 tons of straw/acre equivalent) is on the surface.

- The minimum constructed cross-section shall meet the design dimensions.
- The top of the constructed ridge shall not be lower at any point than the design elevation plus the specified overfill for settlement. The opening at the outlet end of the terrace must have a cross-section equal to that specified for the terrace channel.
- Channel grades may be either uniform or variable with a maximum grade of 0.6 foot per 100-foot length (0.6 percent). For short distances, terrace grades may be increased to improve alignment. The channel velocity shall not exceed that which is nonerosive for the soil type.
- All gradient terraces must have adequate outlets. Such an outlet may be a grassed waterway, vegetated area, or tile outlet. In all cases the outlet must convey runoff from the terrace or terrace system to a point where the outflow will not cause damage. Vegetative cover should be used in the outlet channel.

- The design elevation of the water surface of the terrace should not be lower than the design elevation of the water surface in the outlet at their junction, when both are operating at design flow.
- Vertical spacing determined by the above methods may be increased as much as 0.5 foot or 10 percent, whichever is greater, to provide better alignment or location, to avoid obstacles, to adjust for equipment size, or to reach a satisfactory outlet.
- The drainage area above the top shall not exceed the area that would be drained by a terrace with normal spacing.
- The terrace shall have enough capacity to handle the peak runoff expected from a 2-year, 24-hour design storm without overtopping.
- The terrace cross-section should be proportioned to fit the land slope. The ridge height shall include a reasonable settlement factor. The ridge must have a minimum top width of 3 feet at the design height. The minimum cross-sectional area of the terrace channel shall be 8 square feet for land slopes of 5 percent or less, 7 square feet for slopes from 5 to 8 percent, and 6 square feet for slopes steeper than 8 percent. The terrace can be constructed wide enough to be maintained using a small vehicle.

Maintenance Standards

- Maintenance shall be performed as needed. Terraces shall be inspected regularly; at least once a year, and after large storm events.

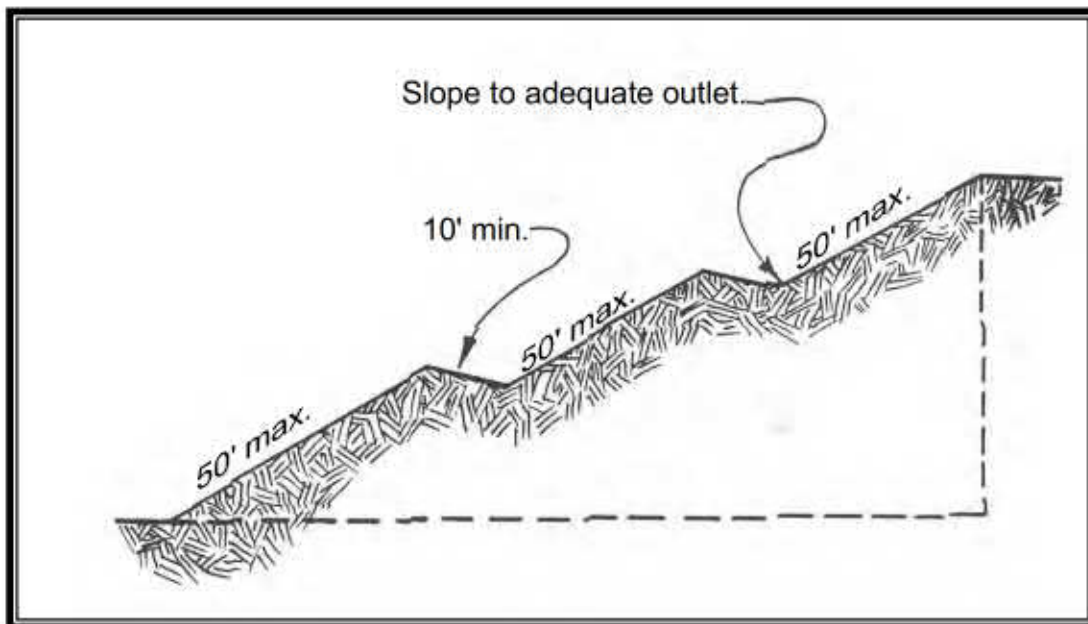


Figure 5.6. Gradient Terraces.

BMP C140: Dust Control***Purpose***

Dust control prevents wind transport of dust from disturbed soil surfaces onto roadways, drainage ways, and surface waters.

Conditions of Use

For use in areas (including roadways) subject to surface and air movement of dust where on site and off-site impacts to roadways, drainage ways, or surface waters are likely.

Design and Installation Specifications

Vegetate or mulch areas that will not receive vehicle traffic. In areas where planting, mulching, or paving is impractical, apply gravel or landscaping rock.

- Limit dust generation by clearing only those areas where immediate activity will take place, leaving the remaining area(s) in the original condition. Maintain the original ground cover as long as practical.
- Construct natural or artificial windbreaks or windscreens. These may be designed as enclosures for small dust sources.
- Sprinkle the site with water until surface is wet. Repeat as needed. To prevent carryout of mud onto street, refer to Stabilized Construction Entrance (BMP C105).
- Irrigation water can be used for dust control. Irrigation systems should be installed as a first step on sites where dust control is a concern.
- Spray exposed soil areas with a dust palliative, following the manufacturer's instructions and cautions regarding handling and application. Oil based products are prohibited from use as a dust suppressant. The city may approve other dust palliatives such as calcium chloride or PAM.
- PAM (BMP C126) added to water at a rate of 0.5 pounds per 1,000 gallons of water per acre and applied from a water truck is more effective than water alone. This is due to increased infiltration of water into the soil and reduced evaporation. In addition, small soil particles are bonded together and are not as easily transported by wind. Adding PAM may actually reduce the quantity of water needed for dust control. Use of PAM could be a cost-effective dust control method.

Techniques that can be used for unpaved roads and lots include:

- Lower speed limits. High vehicle speed increases the amount of dust stirred up from unpaved roads and lots.

- Upgrade the road surface strength by improving particle size, shape, and mineral types that make up the surface and base materials.
- Add surface gravel to reduce the source of dust emission. Limit the amount of fine particles (those smaller than 0.75 mm) to 10 to 20 percent.
- Use geotextile fabrics to increase the strength of new roads or roads undergoing reconstruction.
- Encourage the use of alternate, paved routes, if available.
- Restrict use of paved roadways by tracked vehicles and heavy trucks to prevent damage to road surface and base.
- Apply chemical dust suppressants using the admix method, blending the product with the top few inches of surface material. Suppressants may also be applied as surface treatments.
- Pave unpaved permanent roads and other trafficked areas.
- Use vacuum street sweepers.
- Remove mud and other dirt promptly so it does not dry and then turn into dust.
- Limit dust-causing work on windy days.

Contact your Puget Sound Clean Air Agency <www.pscleanair.org> for guidance and training on other dust control measures. Compliance with Puget Sound Clean Air Agency guidance and BMPs constitutes compliance with this BMP.

Maintenance Standards

- Respray area as necessary to keep dust to a minimum.

BMP C150: Materials on Hand

Purpose

Keep quantities of erosion prevention and sediment control materials on the project site at all times to be used for regular maintenance and emergency situations such as unexpected heavy summer rains. Having these materials on site reduces the time needed to implement BMPs when inspections indicate that existing BMPs are not meeting the Construction SWPPP requirements. In addition, contractors can save money by buying some materials in bulk and storing them at their office or yard.

Conditions of Use

- Construction projects of any size or type can benefit from having materials on hand. A small commercial development project could have a roll of plastic and some gravel available for immediate protection of bare soil and temporary berm construction. A large earthwork project, such as highway construction, might have several tons of straw, several rolls of plastic, flexible pipe, sandbags, geotextile fabric, and steel T-posts.
- Materials are stockpiled and readily available before any site clearing, grubbing, or earthwork begins. A contractor or developer could keep a stockpile of materials that are available for use on several projects.
- If storage space at the project site is at a premium, the contractor could maintain the materials at their office or yard. The office or yard must be less than an hour from the project site.

Design and Installation Specifications

Depending on project type, size, complexity, and length, materials and quantities will vary. A good minimum that will cover numerous situations includes:

Material
Clear Plastic, 6 mil
Drainpipe, 6- or 8-inch diameter
Sandbags, filled
Straw Bales for mulching,
Quarry Spalls
Washed Gravel
Geotextile Fabric
Catch Basin Inserts
Steel "T" Posts
Silt fence material
Straw Wattles

Maintenance Standards

- All materials with the exception of the quarry spalls, steel T-posts, and gravel must be kept covered and out of both sun and rain.
- Restock materials used as needed.

BMP C151: Concrete Handling***Purpose***

Concrete work can generate process water and slurry that contain fine particles and high pH, both of which can violate water quality standards in the receiving water. Concrete spillage or concrete discharge to surface waters of the State is prohibited. Use this BMP to minimize and eliminate concrete, concrete process water, and concrete slurry from entering waters of the State.

Conditions of Use

Any time concrete is used, utilize these management practices. Concrete construction projects include, but are not limited to, the following:

- Curbs
- Sidewalks
- Roads
- Bridges
- Foundations
- Floors
- Runways.

Design and Installation Specifications

Ensure that washout of concrete trucks, chutes, pumps, and internals is performed at an approved off-site location or in designated concrete washout areas, in accordance with BMP C154. Do not wash out concrete trucks onto the ground, or into storm drains, open ditches, streets, or streams.

Return unused concrete remaining in the truck and pump to the originating batch plant for recycling. Do not dump excess concrete on site, except in designated concrete washout areas.

- Wash off hand tools including, but not limited to, screeds, shovels, rakes, floats, and trowels into formed areas only.
- Wash equipment difficult to move, such as concrete pavers in areas that do not directly drain to natural or constructed stormwater conveyances.
- Do not allow washdown from areas, such as concrete aggregate driveways, to drain directly to natural or constructed stormwater conveyances.

- Contain washwater and leftover product in a lined container when no formed areas are available. Dispose of contained concrete in a manner that does not violate groundwater or surface water quality standards.
- Always use forms or solid barriers for concrete pours, such as pilings, within 15 feet of surface waters.
- Refer to BMPs C252 and C253 for pH adjustment requirements.
- Refer to the CSWGP for pH monitoring requirements if the project involves one of the following activities:
 - Significant concrete work (greater than 1,000 cubic yards poured concrete or recycled concrete used over the life of a project)
 - The use of engineered soils amended with (but not limited to) Portland cement-treated base, cement kiln dust or fly ash.
- Discharging stormwater to segments of water bodies on the 303(d) list (Category 5) for high pH.

Maintenance Standards

- Check containers for holes in the liner daily during concrete pours and repaired the same day.

BMP C152: Sawcutting and Surfacing Pollution Prevention***Purpose***

Sawcutting and surfacing operations generate slurry and process water that contains fine particles and high pH (concrete cutting), both of which can violate the water quality standards in the receiving water. Concrete spillage or concrete discharge to surface waters of the State is prohibited. Use this BMP to minimize and eliminate process water and slurry from entering waters of the State.

Conditions of Use

Utilize these management practices anytime sawcutting or surfacing operations take place. Sawcutting and surfacing operations include, but are not limited to, the following:

- Sawing
- Coring
- Grinding
- Roughening
- Hydro-demolition
- Bridge and road surfacing

Design and Installation Specifications

- Vacuum slurry and cuttings during cutting and surfacing operations.
- Slurry and cuttings shall not remain on permanent concrete or asphalt pavement overnight.
- Slurry and cuttings shall not drain to any natural or constructed drainage conveyance including stormwater systems. This may require temporarily blocking catch basins.
- Dispose of collected slurry and cuttings in a manner that does not violate groundwater or surface water quality standards.
- Do not allow process water generated during hydro-demolition, surface roughening or similar operations to drain to any natural or constructed drainage conveyance including stormwater systems. Dispose process water in a manner that does not violate groundwater or surface water quality standards.

- Handle and dispose cleaning waste material and demolition debris in a manner that does not cause contamination of water. Dispose of sweeping material from a pick-up sweeper at an appropriate disposal site.

Maintenance Standards

- Continually monitor operations to determine whether slurry, cuttings, or process water could enter waters of the State. If inspections show that a violation of water quality standards could occur, stop operations and immediately implement preventive measures such as berms, barriers, secondary containment, and vacuum trucks.

BMP C153: Material Delivery, Storage, and Containment***Purpose***

Prevent, reduce, or eliminate the discharge of pollutants to the stormwater system or watercourses from material delivery and storage. Minimize the storage of hazardous materials on site, store materials in a designated area, and install secondary containment.

Conditions of Use

These procedures are suitable for use at all construction sites with delivery and storage of the following materials:

- Petroleum products such as fuel, oil and grease
- Soil stabilizers and binders (e.g., Polyacrylamide)
- Fertilizers, pesticides and herbicides
- Detergents
- Asphalt and concrete compounds
- Hazardous chemicals such as acids, lime, adhesives, paints, solvents, and curing compounds
- Any other material that may be detrimental if released to the environment

Design and Installation Specifications

The following steps should be taken to minimize risk:

- Temporary storage area should be located away from vehicular traffic, near the construction entrance(s), and away from waterways or storm drains.
- Material Safety Data Sheets (MSDS) should be supplied for all materials stored. Chemicals should be kept in their original labeled containers.
- Hazardous material storage on site should be minimized.
- Hazardous materials should be handled as infrequently as possible.
- During the wet weather season (October 1 to April 30), consider storing materials in a covered area.
- Materials should be stored in secondary containments, such as earthen dike, horse trough, or even a children's wading pool for non-reactive materials such as detergents, oil, grease, and paints. Small amounts of material may be secondarily contained in "bus boy" trays or concrete mixing trays.
- Do not store chemicals, drums, or bagged materials directly on the ground. Place these items on a pallet and, when possible, in secondary containment.

- If drums must be kept uncovered, store them at a slight angle to reduce ponding of rainwater on the lids to reduce corrosion. Domed plastic covers are inexpensive and snap to the top of drums, preventing water from collecting.

Material Storage Areas and Secondary Containment Practices:

- Liquids, petroleum products, and substances listed in 40 CFR Parts 110, 117, or 302 shall be stored in approved containers and drums and shall not be overfilled. Containers and drums shall be stored in temporary secondary containment facilities.
- Temporary secondary containment facilities shall provide for a spill containment volume able to contain 10 percent of the total enclosed container volume of all containers, or 110 percent of the capacity of the largest container within its boundary, whichever is greater.
- Secondary containment facilities shall be impervious to the materials stored therein for a minimum contact time of 72 hours.
- Secondary containment facilities shall be maintained free of accumulated rainwater and spills. In the event of spills or leaks, accumulated rainwater and spills shall be collected and placed into drums. These liquids shall be handled as hazardous waste unless testing determines them to be non-hazardous.
- Sufficient separation should be provided between stored containers to allow for spill cleanup and emergency response access.
- During the wet weather season (October 1 to April 30), each secondary containment facility shall be covered during non-working days, prior to and during rain events.
- Keep material storage areas clean, organized and equipped with an ample supply of appropriate spill cleanup material (spill kit).
- The spill kit shall include, at a minimum:
 - 1 water resistant nylon bag
 - 3 oil absorbent socks 3 inches by 4 feet
 - 2 oil absorbent socks 3 inches by 10 feet
 - 12 oil absorbent pads 17 inches by 19 inches
 - 1 pair splash resistant goggles
 - 3 pair nitrile gloves
 - 10 disposable bags with ties
 - Instructions

BMP C154: Concrete Washout Area***Purpose***

Prevent or reduce the discharge of pollutants to stormwater from concrete waste by conducting washout off site, or performing on-site washout in a designated area to prevent pollutants from entering surface waters or groundwater.

Conditions of Use

Concrete washout area best management practices are implemented on construction projects where:

- Concrete is used as a construction material.
- It is not possible to dispose of all concrete wastewater and washout off site (ready mix plant, etc.).
- Concrete trucks, pumpers, or other concrete coated equipment are washed on site.
- Note: If fewer than 10 concrete trucks or pumpers need to be washed out on site, the washwater may be disposed of in a formed area awaiting concrete or an upland disposal site where it will not contaminate surface or groundwater. The upland disposal site shall be at least 50 feet from sensitive areas such as storm drains, open ditches, or water bodies, including wetlands.

Design and Installation Specifications**Implementation:**

The following steps will help reduce stormwater pollution from concrete wastes:

- Perform washout of concrete trucks at an approved off-site location or in designated concrete washout areas only.
- Do not wash out concrete trucks onto the ground, or into storm drains, open ditches, streets, or streams.
- Do not allow excess concrete to be dumped on site, except in designated concrete washout areas.
- Concrete washout areas may be prefabricated concrete washout containers, or self-installed structures (above-grade or below-grade).
- Prefabricated containers are most resistant to damage and protect against spills and leaks. Companies may offer delivery service and provide regular maintenance and disposal of solid and liquid waste.

- If self-installed concrete washout areas are used, below-grade structures are preferred over above-grade structures because they are less prone to spills and leaks.
- Self-installed above-grade structures should only be used if excavation is not practical.

Education:

- Discuss the concrete management techniques described in this BMP with the ready-mix concrete supplier before any deliveries are made.
- Educate employees and subcontractors on the concrete waste management techniques described in this BMP.
- Arrange for contractor's superintendent or CESCL to oversee and enforce concrete waste management procedures.
- A sign should be installed adjacent to each temporary concrete washout facility to inform concrete equipment operators to utilize the proper facilities.

Contracts:

Incorporate requirements for concrete waste management into concrete supplier and subcontractor agreements.

Location and Placement:

- Locate washout area at least 50 feet from sensitive areas such as storm drains, open ditches, or water bodies, including wetlands.
- Allow convenient access for concrete trucks, preferably near the area where the concrete is being poured.
- If trucks need to leave a paved area to access washout, prevent track-out with a pad of rock or quarry spalls (see BMP C105). These areas should be far enough away from other construction traffic to reduce the likelihood of accidental damage and spills.
- The number of facilities you install will depend on the expected demand for storage capacity.
- On large sites with extensive concrete work, washouts must be placed in multiple locations for ease of use by concrete truck drivers.

On-site Temporary Concrete Washout Facility, Transit Truck Washout Procedures:

- Temporary concrete washout facilities shall be located a minimum of 50 feet from sensitive areas including storm drain inlets, open drainage facilities, and water courses. See Figures 5.7 and 5.8.
- Concrete washout facilities shall be constructed and maintained in sufficient quantity and size to contain all liquid and concrete waste generated by washout operations.
- Washout of concrete trucks shall be performed in designated areas only.
- Concrete washout from concrete pumper bins can be washed into concrete pumper trucks and discharged into designated washout area or properly disposed of off site.
- Once concrete wastes are washed into the designated area and allowed to harden, the concrete should be broken up, removed, and disposed of per applicable solid waste regulations. Dispose of hardened concrete on a regular basis.
- Temporary Above-Grade Concrete Washout Facility:
 - Temporary concrete washout facility (type above grade) shall be constructed as shown on the details below, with a recommended minimum length and minimum width of 10 feet, but with sufficient quantity and volume to contain all liquid and concrete waste generated by washout operations.
 - Plastic lining material shall be a minimum of 10 mil polyethylene sheeting and must be free of holes, tears, or other defects that compromise the impermeability of the material.
- Temporary Below-Grade Concrete Washout Facility:
 - Temporary concrete washout facilities (type below grade) should be constructed as shown on the details below, with a recommended minimum length and minimum width of 10 feet. The quantity and volume must be sufficient to contain all liquid and concrete waste generated by washout operations.
 - Lath and flagging shall be commercial type.
 - Plastic lining material shall be a minimum of 10 mil polyethylene sheeting and must be free of holes, tears, or other defects that compromise the impermeability of the material.
 - Liner seams shall be installed in accordance with manufacturers' recommendations.
 - Soil base shall be prepared free of rocks or other debris that may cause tears or holes in the plastic lining material.

Maintenance Standards**Inspection and Maintenance:**

- Inspect and verify that concrete washout BMPs are in place prior to the commencement of concrete work.
- During periods of concrete work, inspect daily to verify continued performance.
 - Check overall condition and performance
 - Check remaining capacity (percent full)
 - If using self-installed washout facilities, verify plastic liners are intact and sidewalls are not damaged
 - If using prefabricated containers, check for leaks.
- Washout facilities shall be maintained to provide adequate holding capacity with a minimum freeboard of 12 inches.
- Washout facilities must be cleaned, or new facilities must be constructed and ready for use once the washout is 75 percent full.
- If the washout is nearing capacity, vacuum and dispose of the waste material in an approved manner.
 - Do not discharge liquid or slurry to waterways, storm drains or directly onto ground.
 - Do not use sanitary sewer without a permit that must be obtained either from the City of Lacey Wastewater Utility Department at (360) 491-5600, or the LOTT Clean Water Alliance at (360) 664-2333. The city manages the collection and conveyance of wastewater to the LOTT Clean Water Alliance Wastewater Treatment Plant. Note that a permit may need to be obtained by either or both entity(ies) depending on the nature of the discharge.
 - Place a secure, non-collapsing, non-water collecting cover over the concrete washout facility prior to predicted wet weather to prevent accumulation and overflow of precipitation.
 - Remove and dispose of hardened concrete and return the structure to a functional condition. Concrete may be reused on site or hauled away for disposal or recycling.
- When you remove materials from the self-installed concrete washout, build a new structure; or, if the previous structure is still intact, inspect for signs of weakening

or damage, and make any necessary repairs. Re-line the structure with new plastic after each cleaning.

Removal of Temporary Concrete Washout Facilities:

- When temporary concrete washout facilities are no longer required for the work, the hardened concrete, slurries and liquids shall be removed and properly disposed of.
- Materials used to construct temporary concrete washout facilities shall be removed from the site of the work and disposed of or recycled.
- Holes, depressions or other ground disturbance caused by the removal of the temporary concrete washout facilities shall be backfilled, repaired, and stabilized to prevent erosion.

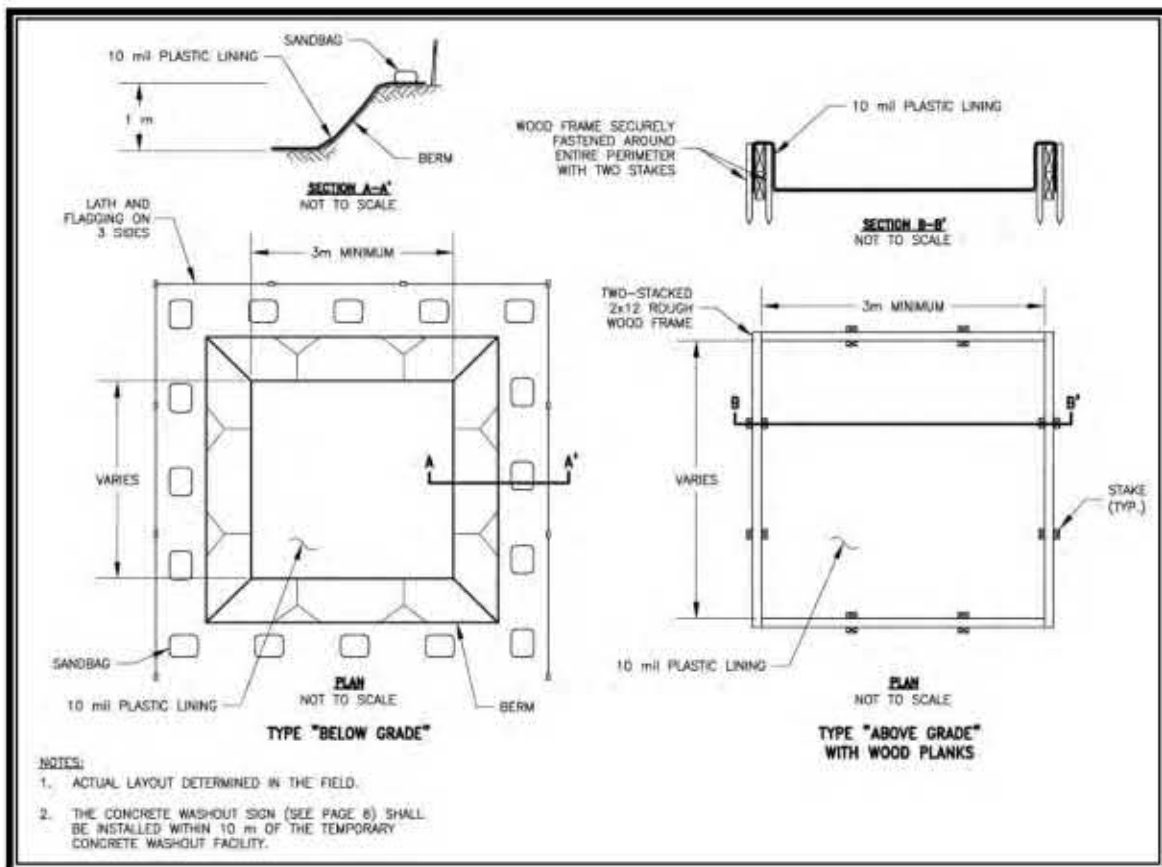


Figure 5.7a. Concrete Washout Area.

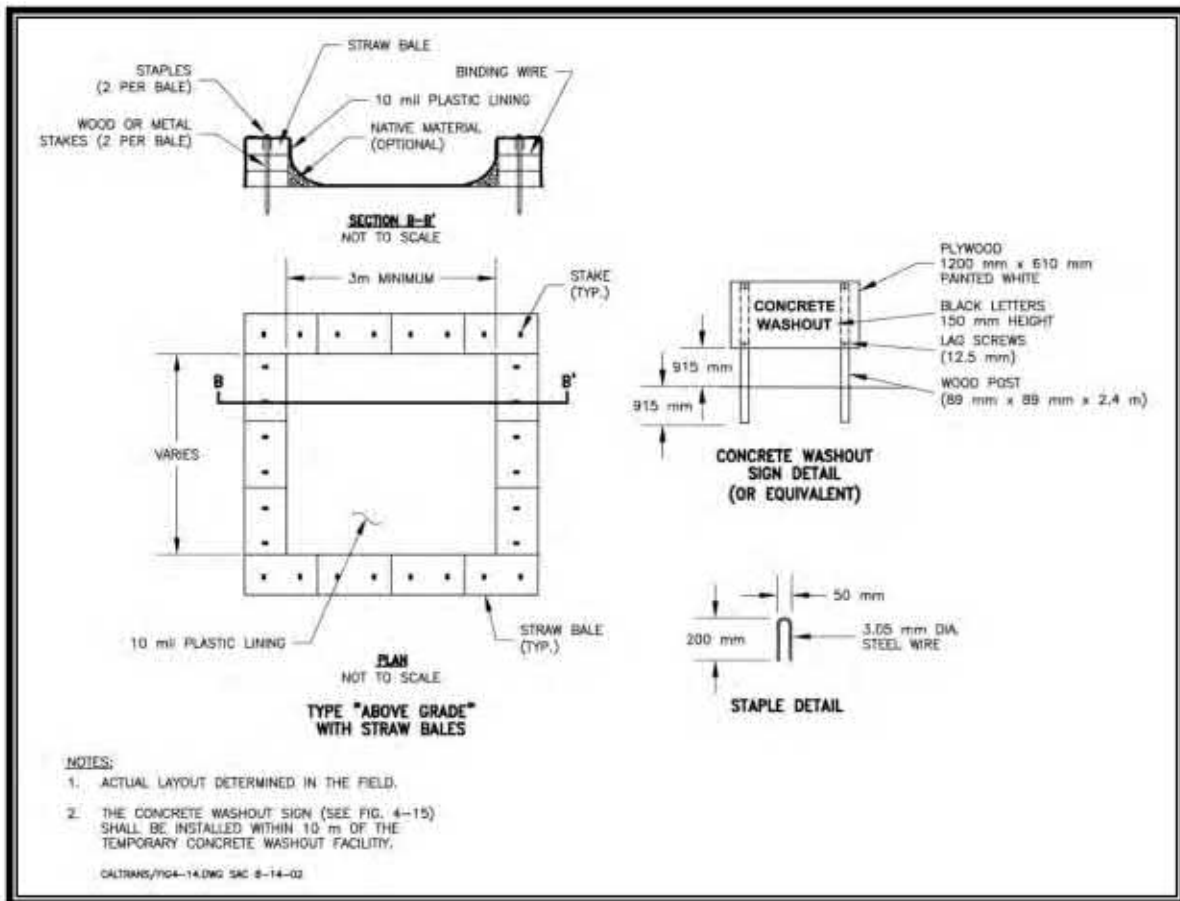


Figure 5.7b. Concrete Washout Area.

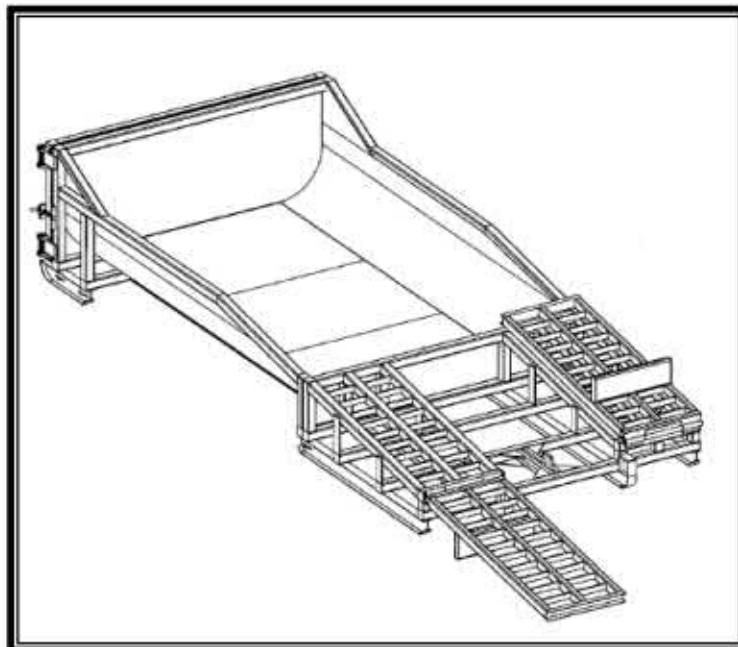


Figure 5.8. Prefabricated Concrete Washout Container with Ramp.

BMP C160: Certified Erosion and Sediment Control Lead***Purpose***

The project applicant designates at least one person as the responsible representative in charge of erosion and sediment control, and water quality protection. The designated person shall be the CESCL who is responsible for ensuring compliance with all local, state, and federal Construction SWPPP and water quality requirements.

Conditions of Use

A CESCL shall be made available on projects required to prepare a Construction SWPPP and that discharge stormwater to surface waters of the State.

The CESCL shall:

- Have a current certificate proving attendance in an erosion and sediment control training course that meets the minimum training and certification requirements established by Ecology (see details below)
- Ecology will maintain a list of erosion and sediment control training and certification providers at:
<www.ecy.wa.gov/programs/wq/stormwater/cescl.html>

OR

- Be a Certified Professional in Erosion and Sediment Control (CPESC); for additional information go to: <www.cpesc.net>.

Specifications

Certification shall remain valid for 3 years.

- The CESCL shall have authority to act on behalf of the contractor or developer and shall be available, or on call, 24 hours per day throughout the period of construction.
- The Construction SWPPP shall include the name, telephone number, email address, fax number, and address of the designated CESCL.
- A CESCL may provide inspection and compliance services for multiple construction projects in the same geographic region.

Duties and responsibilities of the CESCL shall include, but are not limited to the following:

- Maintaining permit file on site at all times which includes the Construction SWPPP and any associated permits and plans.

- Directing BMP installation, inspection, maintenance, modification, and removal.
- Updating all project drawings and the Construction SWPPP with changes made.
- Completing any sampling requirements including reporting results using WebDMR.
- Keeping daily logs, and inspection reports. Inspection reports must include:
 - Inspection date/time.
 - Weather information; general conditions during inspection and approximate amount of precipitation since the last inspection.
 - A summary or list of all BMPs implemented, including observations of all erosion/sediment control structures or practices. The following shall be noted:
 - Locations of BMPs inspected
 - Locations of BMPs that need maintenance
 - Locations of BMPs that failed to operate as designed or intended
 - Locations of where additional or different BMPs are required
 - Visual monitoring results, including a description of discharged stormwater. The presence of suspended sediment, turbid water, discoloration, and oil sheen shall be noted, as applicable.
 - Any water quality monitoring performed during inspection.
 - General comments and notes, including a brief description of any BMP repairs, maintenance or installations made as a result of the inspection.
- Facilitate, participate in, and take corrective actions resulting from inspections performed by outside agencies or the owner.

BMP C162: Scheduling***Purpose***

Sequencing a construction project reduces the amount and duration of soil exposed to erosion by wind, rain, runoff, and vehicle tracking.

Conditions of Use

The construction sequence schedule is an orderly listing of all major land-disturbing activities together with the necessary erosion and sedimentation control measures planned for the project. This type of schedule guides the contractor on work to be done before other work is started so that serious erosion and sedimentation problems can be avoided.

Following a specified work schedule that coordinates the timing of land-disturbing activities and the installation of control measures is perhaps the most cost-effective way of controlling erosion during construction. The removal of surface ground cover leaves a site vulnerable to accelerated erosion. Construction procedures that limit land clearing provide timely installation of erosion and sedimentation controls, and restore protective cover quickly can significantly reduce the erosion potential of a site.

Design Considerations

- Minimize construction during rainy periods.
- Schedule projects to disturb only small portions of the site at any one time. Complete grading as soon as possible. Immediately stabilize the disturbed portion before grading the next portion. Practice staged seeding in order to revegetate cut and fill slopes as the work progresses.

BMP C200: Interceptor Dike and Swale***Purpose***

Provide a ridge of compacted soil, or a ridge with an upslope swale, at the top or base of a disturbed slope or along the perimeter of a disturbed construction area to convey stormwater. Use the dike and/or swale to intercept the runoff from unprotected areas and direct it to areas where erosion can be controlled. This can prevent storm runoff from entering the work area or sediment-laden runoff from leaving the construction site.

Conditions of Use

Where the runoff from an exposed site or disturbed slope must be conveyed to an erosion control facility which can safely contain the stormwater:

- Locate upslope of a construction site to prevent runoff from entering disturbed area
- When placed horizontally across a disturbed slope, it reduces the amount and velocity of runoff flowing down the slope
- Locate downslope to collect runoff from a disturbed area and direct water to a sediment basin.

Design and Installation Specifications

- Dike and/or swale and channel must be stabilized with temporary or permanent vegetation or other channel protection during construction.
- Channel requires a positive grade for drainage; steeper grades require channel protection and check dams.
- Review construction for areas where overtopping may occur.
- Can be used at top of new fill before vegetation is established.
- May be used as a permanent diversion channel to carry the runoff.
- Subbasin tributary area shall be 1 acre or less.
- Design capacity for the peak flow from a 10-year, 24-hour storm event assuming a NRCS Type 1A rainfall distribution resolved to 10-minute time steps, for temporary facilities. Alternatively, use 1.6 times the 10-year, 1-hour time step flow indicated by an approved continuous runoff model. If a 15-minute (or less) time step is used, no correction factor is required. For conveyance systems that will also serve on a permanent basis see design standards in Chapter 6.

- **Interceptor dikes** shall meet the following criteria:

- Top Width: 2 feet minimum.
- Height: 1.5 feet minimum on berm.
- Side Slope: 2H:1V or flatter.
- Grade: Depends on topography; however, dike system minimum is 0.5 percent, maximum is 1 percent
- Compaction: Minimum of 90 percent ASTM D698 standard proctor.
- Horizontal Spacing of Interceptor Dikes:

Average Slope	Slope Percent	Flowpath Length
>20H:1V or flatter	3% to <5%	300 feet
(>10 to 20)H:1V	5% to <10%	200 feet
(>4 to 10)H:1V	10% to <25%	100 feet
(2 to 4)H:1V	25% to 50%	50 feet

- Stabilization depends on velocity and reach:
 - Slopes *less than 5 percent*: Seed and mulch applied within 5 days of dike construction (see *BMP C121, Mulching*).
 - Slopes *5 to 40 percent*: Dependent on runoff velocities and dike materials. Stabilization must be done immediately using either sod or riprap or other measures to avoid erosion.
- The upslope side of the dike shall provide positive drainage to the dike outlet. No erosion shall occur at the outlet. Provide energy dissipation measures as necessary. Sediment-laden runoff must be released through a sediment trapping facility.
- Minimize construction traffic over temporary dikes. Use temporary cross culverts for channel crossing.
- **Interceptor swales** shall meet the following criteria:
 - Bottom Width: 2-foot minimum; the cross-section bottom shall be level.
 - Depth: 1-foot minimum.
 - Side Slope: 2H:1V or flatter.

- Grade: Maximum 5 percent, with positive drainage to a suitable outlet (such as a sediment pond).
- Stabilization: Seed as per *BMP C120, Temporary and Permanent Seeding*, or *BMP C202, Channel Lining*, 12 inches thick of riprap pressed into the bank and extending at least 8 inches vertical from the bottom.
- Inspect diversion dikes and interceptor swales once a week and after every rainfall. Immediately remove sediment from the flow area.
- Damage caused by construction traffic or other activity must be repaired before the end of each working day.
- Check outlets and make timely repairs as needed to avoid gully formation. When the area below the temporary diversion dike is permanently stabilized, remove the dike and fill and stabilize the channel to blend with the natural surface.

BMP C201: Grass-Lined Channels***Purpose***

To provide a channel with a vegetative lining for conveyance of runoff. See Figure 5.9 for typical grass-lined channels.

Conditions of Use

This practice applies to construction sites where concentrated runoff needs to be contained to prevent erosion or flooding.

- When a vegetative lining can provide sufficient stability for the channel cross-section and at lower velocities of water (normally dependent on grade). This means that the channel slopes are generally less than 5 percent and space is available for a relatively large cross-section.
- Typical uses include roadside ditches, channels at property boundaries, outlets for diversions, and other channels and drainage ditches in low areas.
- Channels that will be vegetated should be installed before major earthwork and hydroseeded with a bonded fiber matrix (BFM). The vegetation should be well established (i.e., 75 percent cover) before water is allowed to flow in the ditch. With channels that will have high flows, erosion control blankets should be installed over the hydroseed. If vegetation cannot be established from seed before water is allowed in the ditch, sod must be installed in the bottom of the ditch in lieu of hydromulch and blankets.

Design and Installation Specifications

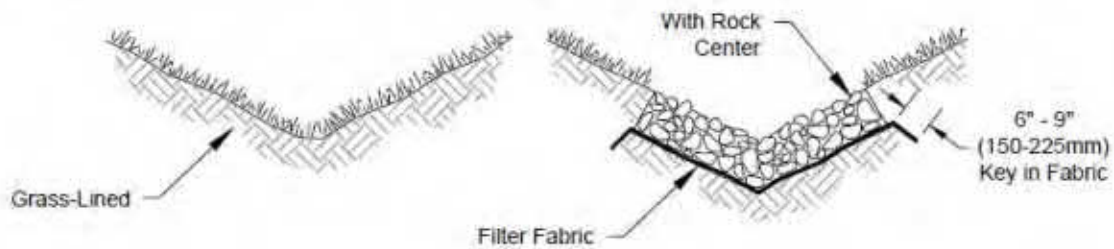
- Locate the channel where it can conform to the topography and other features such as roads.
- Locate them to use natural drainage systems to the greatest extent possible.
- Avoid sharp changes in alignment or bends and changes in grade.
- Do not reshape the landscape to fit the drainage channel.
- The maximum design velocity shall be based on soil conditions, type of vegetation, and method of revegetation, but at no times shall velocity exceed 5 feet/second. The channel shall not be overtopped by the peak runoff from a 10-year, 24-hour storm event assuming a NRCS Type 1A rainfall distribution resolved to 10-minute time steps. Alternatively, use 1.6 times the 10-year, 1-hour time step flow indicated by an approved continuous runoff model to determine a flow rate which the channel must contain. If a 15-minute (or less) time step is used, no correction factor is required.

- Where the grass-lined channel will also function as a permanent stormwater conveyance facility, the channel must meet the drainage conveyance requirements defined in Chapter 6.
- An established grass or vegetated lining is required before the channel can be used to convey stormwater, unless stabilized with nets or blankets.
- If design velocity of a channel to be vegetated by seeding exceeds 2 feet/second, a temporary channel liner is required. Geotextile or special mulch protection such as straw or netting provides stability until the vegetation is fully established. See Figure 5.10.
- Check dams shall be removed once the grass roots and aboveground biomass have grown enough to stabilize soils and sufficiently protect the swale bottom and side slopes from erosion. Check dams will remain when swale slopes are greater than 4 percent for long term erosion protection. The area beneath the check dams shall be seeded and mulched immediately after dam removal.
- If vegetation is established by sodding, the permissible velocity for established vegetation may be used and no temporary liner is needed.
- Do not subject grass-lined channel to sedimentation from disturbed areas. Use sediment-trapping BMPs upstream of the channel.
- **V-shaped grass channels** generally apply where the quantity of water is small, such as in short reaches along roadsides. The V-shaped cross-section is least desirable because it is difficult to stabilize the bottom where velocities may be high.
- **Trapezoidal grass channels** are used where runoff volumes are large and slope is low so that velocities are nonerosive to vegetated linings. (Note: it is difficult to construct small parabolic shaped channels.)
- Subsurface drainage, or riprap channel bottoms, may be necessary on sites that are subject to prolonged wet conditions due to long duration flows or a high water table.
- Provide outlet protection at culvert ends and at channel intersections.
- Grass channels, at a minimum, must carry peak runoff for temporary construction drainage facilities from the 10-year, 24-hour storm without eroding. Where flood hazard exists, increase the capacity according to the potential damage.
- Grassed channel side slopes generally are constructed 3H:1V or flatter to aid in the establishment of vegetation and for maintenance.
- Construct channels a minimum of 0.2 foot larger around the periphery to allow for soil bulking during seedbed preparations and sod buildup.

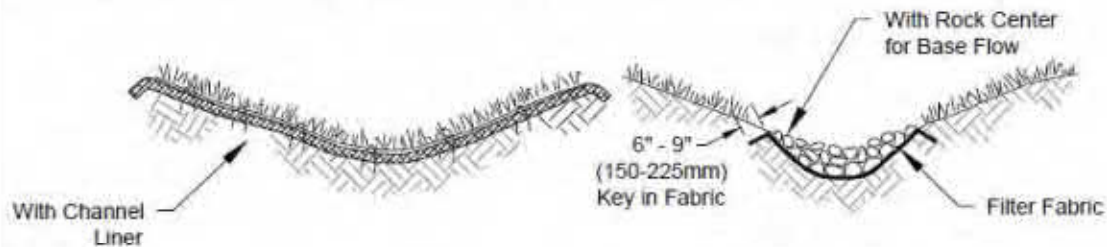
Maintenance Standards

- During the establishment period, check grass-lined channels after every rainfall.
- After grass is established, periodically check the channel; check it after every heavy rainfall event. Immediately make repairs.
- It is particularly important to check the channel outlet and all road crossings for bank stability and evidence of piping or scour holes.
- Remove all significant sediment accumulations to maintain the designed carrying capacity. Keep the grass in a healthy, vigorous condition at all times, since it is the primary erosion protection for the channel.

Typical V-Shaped Channel Cross-Section



Typical Parabolic Channel Cross-Section



Typical Trapezoidal Channel Cross-Section

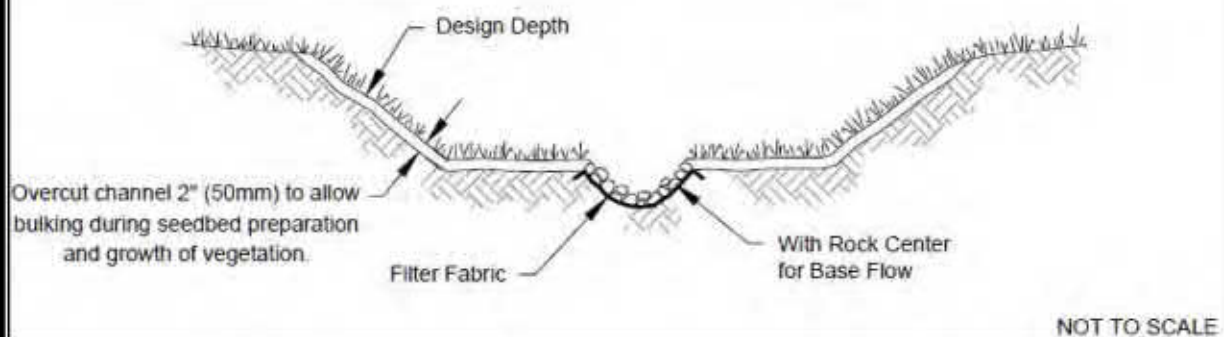


Figure 5.9. Typical Grass-Lined Channels.

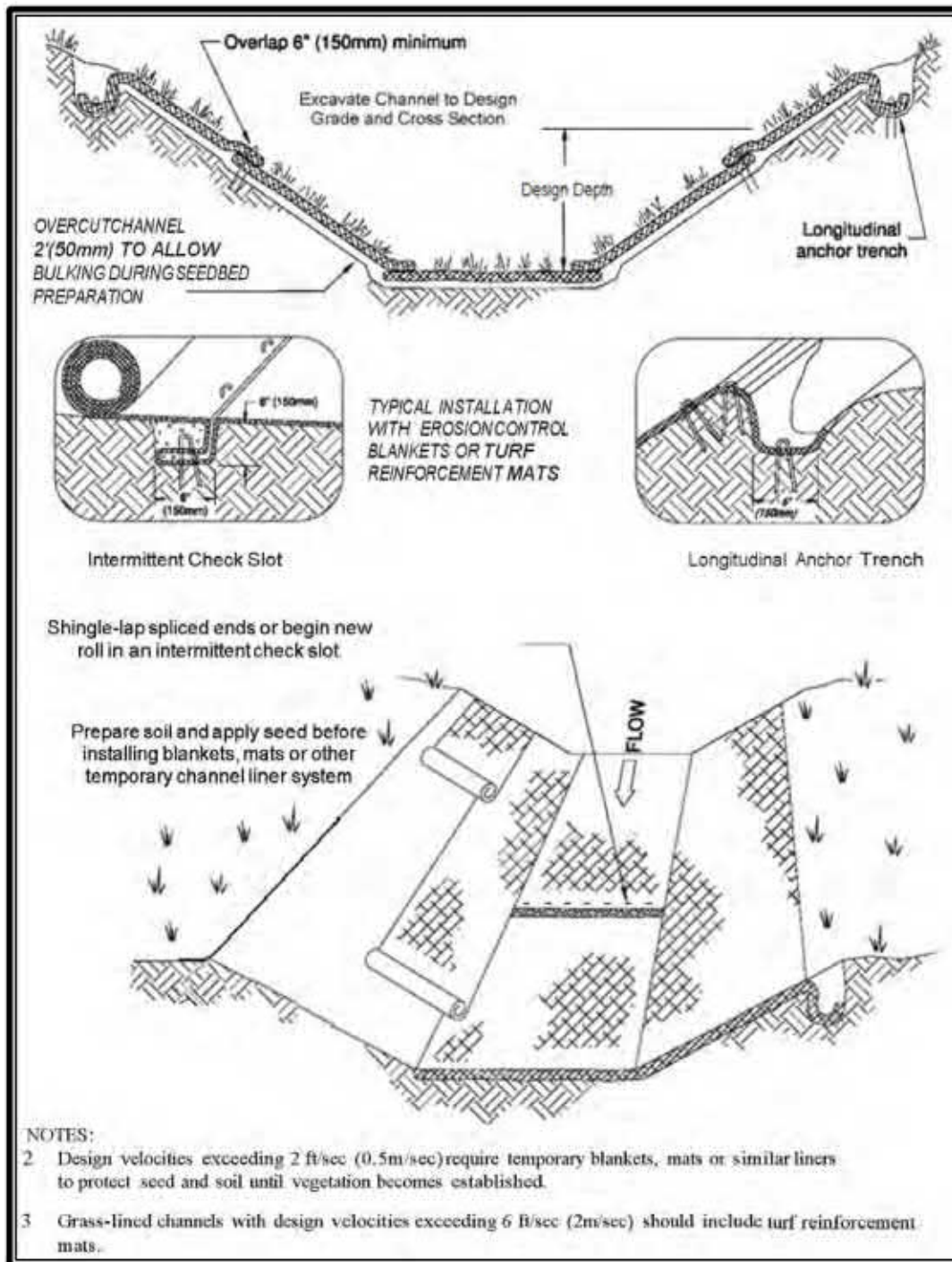


Figure 5.10. Temporary Channel Liners.

BMP C202: Channel Lining***Purpose***

To protect channels by providing a channel liner using either blankets or riprap.

Conditions of Use

When natural soils or vegetated stabilized soils in a channel are not adequate to prevent channel erosion.

- When a permanent ditch or pipe system is to be installed and a temporary measure is needed.
- In almost all cases, synthetic and organic coconut blankets are more effective than riprap for protecting channels from erosion. Blankets can be used with and without vegetation. Blanketed channels can be designed to handle any expected flow and longevity requirement. Some synthetic blankets have a predicted life span of 50 years or more, even in sunlight.
- Other reasons why blankets are better than rock include the availability of blankets over rock. In many areas of the state, rock is not easily obtainable or is very expensive to haul to a site. Blankets can be delivered anywhere. Rock requires the use of dump trucks to haul and heavy equipment to place. Blankets usually only require laborers with hand tools, and sometimes a backhoe.
- The Federal Highway Administration recommends not using flexible liners whenever the slope exceeds 10 percent or the shear stress exceeds 8 pounds/square foot.

Design and Installation Specifications

- See BMP C122 for information on blankets.
- Since riprap is used where erosion potential is high, construction must be sequenced so that the riprap is put in place with the minimum possible delay.
- Disturbance of areas where riprap is to be placed should be undertaken only when final preparation and placement of the riprap can follow immediately behind the initial disturbance. Where riprap is used for outlet protection, the riprap should be placed before or in conjunction with the construction of the pipe or channel so that it is in place when the pipe or channel begins to operate.
- The designer, after determining the riprap size that will be stable under the flow conditions, shall consider that size to be a minimum size and then, based on riprap gradations actually available in the area, select the size or sizes that equal or exceed the minimum size. The possibility of drainage structure damage by

children shall be considered in selecting a riprap size, especially if there is nearby water or a gully in which to toss the stones.

- Stone for riprap shall consist of field stone or quarry stone of approximately rectangular shape. The stone shall be hard and angular and of such quality that it will not disintegrate on exposure to water or weathering and it shall be suitable in all respects for the purpose intended.
- A lining of engineering filter fabric (geotextile) shall be placed between the riprap and the underlying soil surface to prevent soil movement into or through the riprap. The geotextile must be keyed in at the top of the bank.
- Filter fabric shall not be used on slopes greater than 1.5H:1V as slippage may occur. It should be used in conjunction with a layer of coarse aggregate (granular filter blanket) when the riprap to be placed is 12 inches and larger.

BMP C203: Water Bars

Purpose

A small ditch or ridge of material is constructed diagonally across a road or right-of-way to divert stormwater runoff from the road surface, wheel tracks, or a shallow road ditch. See Figure 5.11.

Conditions of Use

Clearing right-of-way and construction of access for power lines, pipelines, and other similar installations often require long narrow right-of-ways over sloping terrain. Disturbance and compaction promotes gully formation in these cleared strips by increasing the volume and velocity of runoff. Gully formation may be especially severe in tire tracks and ruts. To prevent gullying, runoff can often be diverted across the width of the right-of-way to undisturbed areas by using small predesigned diversions.

- Give special consideration to each individual outlet area, as well as to the cumulative effect of added diversions. Use gravel to stabilize the diversion where significant vehicular traffic is anticipated.

Design and Installation Specifications

- Height: 8-inch minimum measured from the channel bottom to the ridge top.
- Side slope of channel: 2H:1V maximum; 3H:1V or flatter when vehicles will cross.
- Base width of ridge: 6-inch minimum.
- Locate them to use natural drainage systems and to discharge into well vegetated stable areas.
- Guideline for Spacing:

Average Slope	Slope Percent	Spacing (feet)
> 20H:1V or flatter	<5%	125
(> 10 to 20) H:1V	5% to <10%	100
(> 5 to 10) H:1V	10% to <20%	75
(> 2.86 to 5) H:1V	20% to <35%	50
2.86 H:1V or steeper	≥35%	Use rock lined ditch

- Grade of water bar and angle: Select angle that results in ditch slope less than 2 percent.
- Install as soon as the clearing and grading is complete. Reconstruct when construction is complete on a section when utilities are being installed.

- Compact the ridge when installed.
- Stabilize, seed, and mulch the portions that are not subject to traffic. Gravel the areas crossed by vehicles.

Maintenance Standards

- Periodically inspect right-of-way diversions for wear and after every heavy rainfall for erosion damage.
- Immediately remove sediment from the flow area and repair the dike.
- Check outlet areas and make timely repairs as needed.
- When permanent road drainage is established and the area above the temporary right-of-way diversion is permanently stabilized, remove the dikes and fill the channel to blend with the natural ground, and appropriately stabilize the disturbed area.

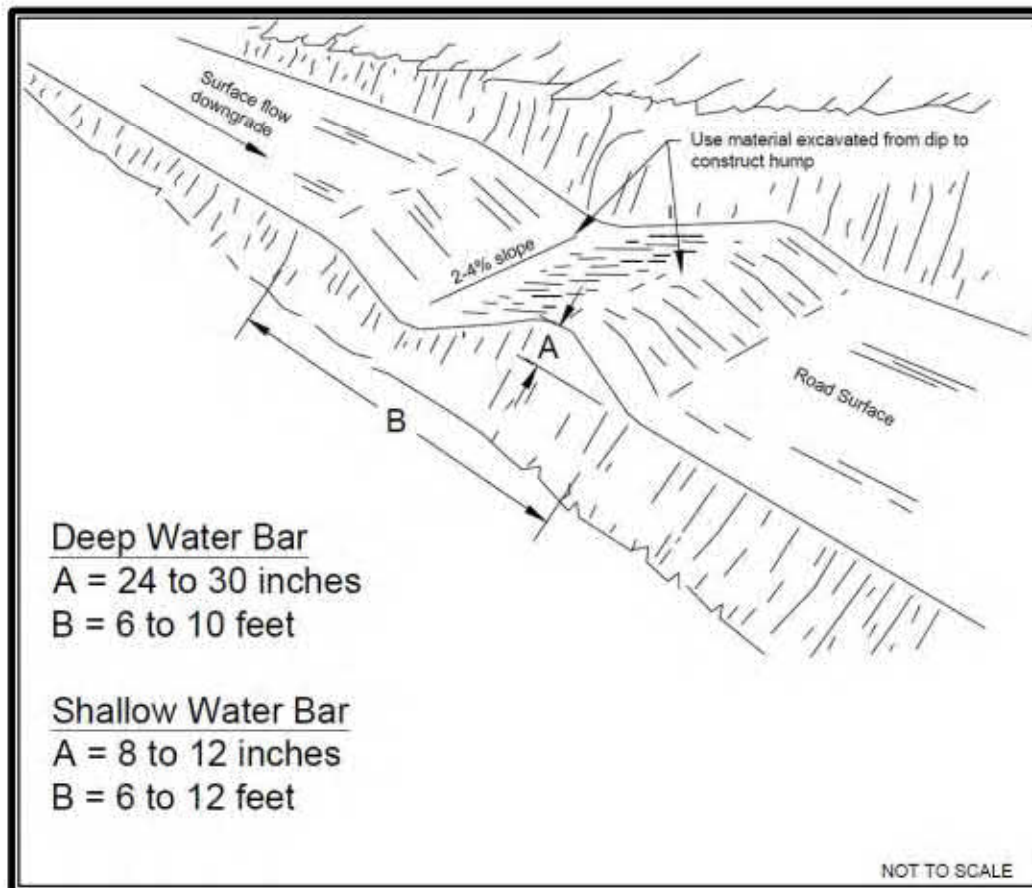


Figure 5.11. Water Bar.

BMP C204: Pipe Slope Drains

Purpose

To use a pipe to convey stormwater anytime water needs to be diverted away from or over bare soil to prevent gullies, channel erosion, and saturation of slide-prone soils.

Conditions of Use

Pipe slope drains should be used when a temporary or permanent stormwater conveyance is needed to move the water down a steep slope to avoid erosion. See also Figure 5.12.

On highway projects, pipe slope drains should be used at bridge ends to collect runoff and pipe it to the base of the fill slopes along bridge approaches. These can be designed into a project and included as bid items. Another use on road projects is to collect runoff from pavement and pipe it away from side slopes. These are useful because there is generally a time lag between having the first lift of asphalt installed and the curbs, gutters, and permanent drainage installed. Used in conjunction with sand bags, or other temporary diversion devices, these will prevent massive amounts of sediment from leaving a project.

Water can be collected, channeled with sand bags, Triangular Silt Dikes, berms, or other material, and piped to temporary sediment ponds.

Pipe slope drains can be:

- Connected to new catch basins and used temporarily until all permanent piping is installed.
- Used to drain water collected from aquifers exposed on cut slopes and take it to the base of the slope.
- Used to collect clean runoff from plastic sheeting and direct it away from exposed soil.
- Installed in conjunction with silt fence to drain collected water to a controlled area.
- Used to divert small seasonal streams away from construction. They have been used successfully on culvert replacement and extension jobs. Large flex pipe can be used on larger streams during culvert removal, repair, or replacement.
- Connected to existing downspouts and roof drains and used to divert water away from work areas during building renovation, demolition, and construction projects.

There are now several commercially available collectors that are attached to the pipe inlet and help prevent erosion at the inlet.

Design and Installation Specifications

Size the pipe to convey the flow. The capacity for temporary drains shall be sufficient to handle the peak flow from a 10-year, 24-hour storm event assuming a NRCS Type 1A rainfall distribution resolved to 10-minute time steps,. Alternatively, use 1.6 times the 10-year, 1-hour time step flow indicated by an approved continuous runoff model. If a 15-minute (or less) time step is used, no correction factor is required.

- Use care in clearing vegetated slopes for installation.
- Re-establish cover immediately on areas disturbed by installation.
- Use temporary drains on new cut or fill slopes.
- Use diversion dikes or swales to collect water at the top of the slope.
- Ensure that the entrance area is stable and large enough to direct flow into the pipe.
- Dike material shall be compacted to 90 percent modified proctor to prevent piping of water through the berm. The entrance area is a common failure location.
- The entrance shall consist of a standard flared end section for culverts 12 inches and larger with a minimum 6-inch metal toe plate to prevent runoff from undercutting the pipe inlet. The slope of the entrance shall be at least 3 percent. Sand bags may also be used at pipe entrances as a temporary measure.
- The soil around and under the pipe and entrance section shall be thoroughly compacted to prevent undercutting.
- The flared inlet section shall be securely connected to the slope drain and have watertight connecting bands.
- Slope drain sections shall be securely fastened together, fused or have gasketed watertight fittings, and shall be securely anchored into the soil.
- Thrust blocks must be installed anytime 90 degree or sharper bends are utilized. Depending on size of pipe and flow, these can be constructed with sand bags, straw bales staked in place, T-posts and wire, or ecology blocks.
- Pipe needs to be secured along its full length to prevent movement. This can be done with steel T-posts and wire. A post is installed on each side of the pipe and the pipe is wired to them. This should be done every 10 to 20 feet of pipe length or so, depending on the size of the pipe and quantity of water to be diverted.
- Interceptor dikes shall be used to direct runoff into a slope drain. The height of the dike shall be at least 1 foot higher at all points than the top of the inlet pipe.

- The area below the outlet must be stabilized with a riprap apron (see BMP C209 Outlet Protection, for the appropriate outlet material).
- If the pipe slope drain is conveying sediment-laden water, direct all flows into the sediment trapping facility.
- Materials specifications for any permanent piped system are listed in Chapter 6, Section 6.3.5, and shall be approved by the city.

Maintenance Standards

- Check inlet and outlet points regularly, especially after storms.
- The inlet must be free of undercutting, and no water should be going around the point of entry. If there are problems, the headwall shall be reinforced with compacted earth or sand bags.
- The outlet point must be free of erosion and installed with appropriate outlet protection.
- For permanent installations, inspect pipe periodically for vandalism and physical distress such as slides and windthrow.
- Normally the pipe slope is so steep that clogging is not a problem with smooth wall pipe; however, debris may become lodged in the pipe.

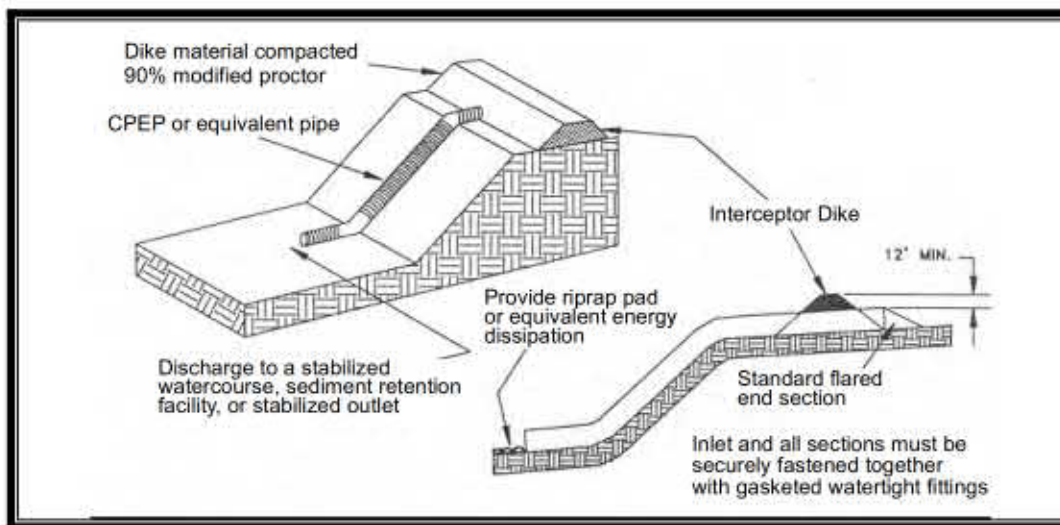


Figure 5.12. Pipe Slope Drain.

BMP C205: Subsurface Drains

Purpose

To intercept, collect, and convey groundwater to a satisfactory outlet, using a perforated pipe or conduit below the ground surface. Subsurface drains are also known as “French drains.” The perforated pipe provides a dewatering mechanism to drain excessively wet soils, provide a stable base for construction, improve stability of structures with shallow foundations, or to reduce hydrostatic pressure to improve slope stability.

Conditions of Use

Use when excessive water must be removed from the soil. The soil permeability, depth to water table and impervious layers are all factors which may govern the use of subsurface drains.

Design and Installation Specifications

- **Relief drains** are used either to lower the water table in large, relatively flat areas, improve the growth of vegetation, or to remove surface water.
 - They are installed along a slope and drain in the direction of the slope
 - They can be installed in a grid pattern, a herringbone pattern, or a random pattern.
- **Interceptor drains** are used to remove excess groundwater from a slope, stabilize steep slopes, and lower the water table immediately below a slope to prevent the soil from becoming saturated.
 - Interceptor drains are installed perpendicular to a slope and drain to the side of the slope
 - They usually consist of a single pipe or series of single pipes instead of a patterned layout.
- **Depth and spacing of interceptor drains** – The depth of an interceptor drain is determined primarily by the depth to which the water table is to be lowered or the depth to a confining layer. For practical reasons, the maximum depth is usually limited to 6 feet, with a minimum cover of 2 feet to protect the conduit.
 - The soil should have depth and sufficient permeability to permit installation of an effective drainage system at a depth of 2 to 6 feet.
 - An adequate outlet for the drainage system must be available either by gravity or by pumping.
 - The quantity and quality of discharge needs to be accounted for in the receiving stream (additional detention may be required).

- This standard does not apply to subsurface drains for building foundations or deep excavations.
- The capacity of an interceptor drain is determined by calculating the maximum rate of groundwater flow to be intercepted. Therefore, it is good practice to make complete subsurface investigations, including hydraulic conductivity of the soil, before designing a subsurface drainage system.
- **Size of drain** – Size subsurface drains to carry the required capacity without pressure flow. Minimum diameter for a subsurface drain is 4 inches.
 - The minimum velocity required to prevent silting is 1.4 feet/second. The line shall be graded to achieve this velocity at a minimum. The maximum allowable velocity using a sand-gravel filter or envelope is 9 feet/second.
 - Filter material and fabric shall be used around all drains for proper bedding and filtration of fine materials. Envelopes and filters should surround the drain to a minimum of 3-inch thickness.
 - The outlet of the subsurface drain shall empty into a sediment pond through a catch basin. If free of sediment, it can then empty into a receiving channel, swale, or stable vegetated area adequately protected from erosion and undermining.
 - The trench shall be constructed on a continuous grade with no reverse grades or low spots.
 - Soft or yielding soils under the drain shall be stabilized with gravel or other suitable material.
 - Backfilling shall be done immediately after placement of the pipe. No sections of pipe shall remain uncovered overnight or during a rainstorm. Backfill material shall be placed in the trench in such a manner that the drain pipe is not displaced or damaged.
 - Do not install permanent drains near trees to avoid the tree roots that tend to clog the line. Use solid pipe with watertight connections where it is necessary to pass a subsurface drainage system through a stand of trees.
- **Outlet** – Ensure that the outlet of a drain empties into a channel or other watercourse above the normal water level.
 - Secure an animal guard to the outlet end of the pipe to keep out rodents.
 - Use outlet pipe of corrugated metal, cast iron, or heavy-duty plastic without perforations and at least 10 feet long. Do not use an envelope or filter material around the outlet pipe, and bury at least two-thirds of the pipe length.
 - When outlet velocities exceed those allowable for the receiving stream, outlet protection must be provided.

Maintenance Standards

- Subsurface drains shall be checked periodically to ensure that they are free-flowing and not clogged with sediment or roots.
- The outlet shall be kept clean and free of debris.
- Trees located too close to a subsurface drain often clog the system with their roots. If a drain becomes clogged, relocate the drain or remove the trees as a last resort. Drain placement should be planned to minimize this problem.
- Where drains are crossed by heavy vehicles use steel plate or boards to prevent the lines from being crushed. After work is complete the line shall be checked to ensure that it was not crushed.

BMP C206: Level Spreader***Purpose***

To provide a temporary outlet for dikes and diversions consisting of an excavated depression constructed at zero grade across a slope. To convert concentrated runoff to sheet flow and release it onto areas stabilized by existing vegetation or an engineered filter strip.

Conditions of Use

Used when a concentrated flow of water needs to be dispersed over a large area with existing stable vegetation.

Items to consider are:

1. What is the risk of erosion or damage if the flow may become concentrated?
2. Is an easement required if discharged to adjoining property?
3. Will most of the flow discharge to groundwater and not contribute to surface flow?
4. Is there an unstable area downstream that cannot accept additional groundwater?

Use only where the slopes are gentle, the water volume is relatively low, and the soil will adsorb most of the low flow events.

- Design and Installation Specifications
- Use above undisturbed areas that are stabilized by existing vegetation.
- If the level spreader has any low points, flow will concentrate, create channels and may cause erosion.
- Discharge area below the outlet must be uniform with a slope flatter than 5H:1V.
- Outlet to be constructed level in a stable, undisturbed soil profile (not on fill).
- The runoff shall not reconcentrate after release unless intercepted by another downstream measure.
- The grade of the channel for the last 20 feet of the dike or interceptor entering the level spreader shall be less than or equal to 1 percent. The grade of the level spreader shall be 0 percent to ensure uniform spreading of storm runoff.
- A 6-inch high gravel berm placed across the level lip shall consist of washed crushed rock, 2- to 4-inch or 0.75-inch to 1.5-inch size.

- The spreader length shall be determined by estimating the peak flow expected from the 10-year, 24-hour design storm event assuming a NRCS Type 1A rainfall distribution resolved to 10-minute time steps. Alternatively, use the peak flow from a 10-year, 15-minute (or less) time step using an approved continuous runoff model. The length of the spreader shall be a minimum of 15 feet for 0.1 cubic feet per second and shall increase by 10 feet for each 0.1 cubic feet per second thereafter to a maximum of 0.5 cubic feet per second per spreader. Use multiple spreaders for higher flows.
- The width of the spreader must be at least 6 feet.
- The depth of the spreader as measured from the lip must be at least 6 inches and be uniform across the entire length.
- Level spreaders shall be setback 100 feet minimum from the property line unless there is an easement for flow or the flow is directed to a natural drainage course.
- Level spreaders, when installed every so often in grassy swales, keep the flows from concentrating. Materials that can be used include sand bags, lumber, logs, concrete, and pipe. To function properly, the material needs to be installed level and on contour. Figures 5.13 and 5.14 provide a cross-section and a detail of a level spreader. A capped perforated pipe could also be used as a spreader.

Maintenance Standards

- The spreader should be inspected after every runoff event to ensure that it is functioning correctly.
- The contractor should avoid the placement of any material on the structure and shall prevent construction traffic from crossing over the structure.
- If the spreader is damaged by construction traffic, it shall be immediately repaired.

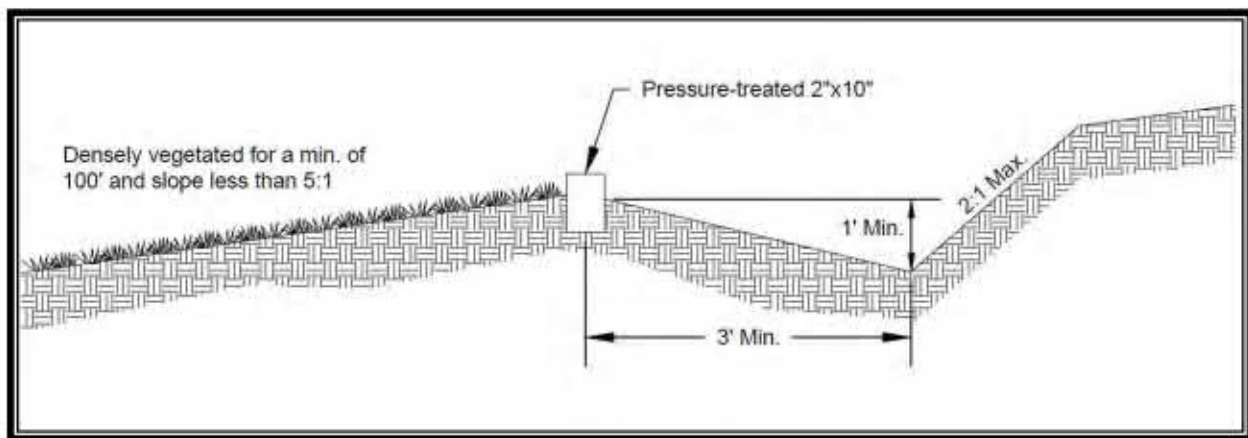


Figure 5.13. Cross-Section of Level Spreader.

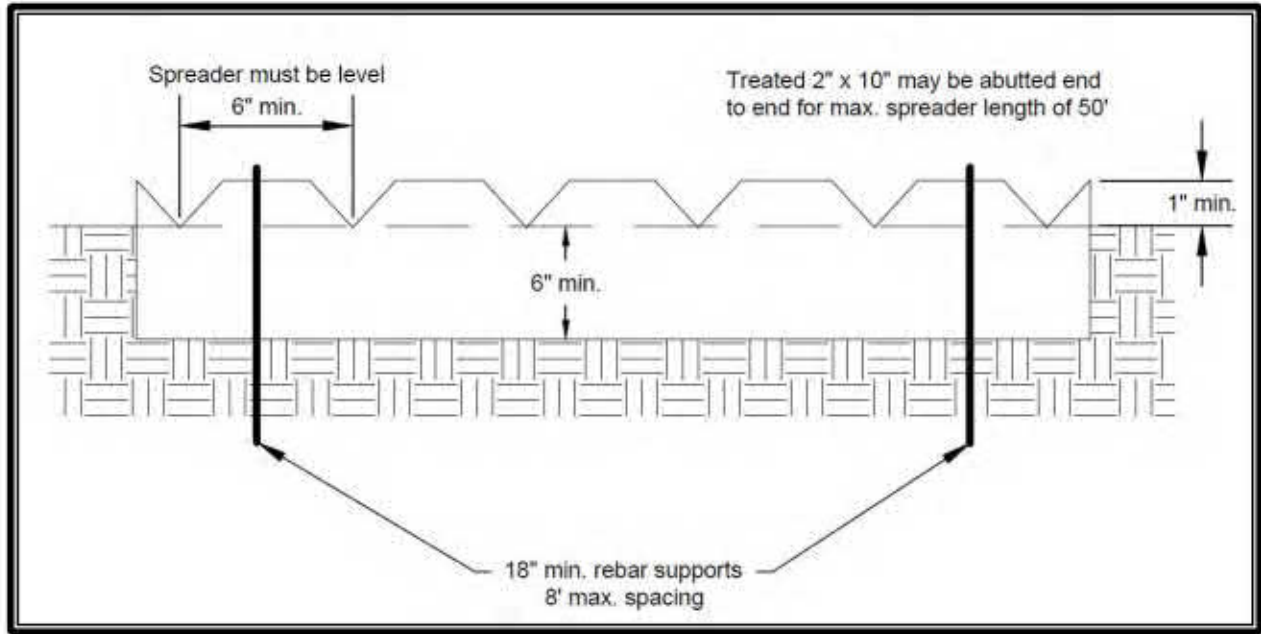


Figure 5.14. Detail of Level Spreader.

BMP C207: Check Dams***Purpose***

Construction of small dams across a swale or ditch reduces the velocity of concentrated flow and dissipates energy at the check dam.

Conditions of Use

- Where temporary channels or permanent channels are not yet vegetated, channel lining is infeasible, and/or velocity checks are required.
- Check dams may not be placed in streams unless approved by the WDFW. Check dams may not be placed in wetlands without approval from the appropriate permitting agency.
- Do not place check dams below the expected backwater from any salmonid bearing water between October 1 and May 31 to ensure that there is no loss of high flow refuge habitat for overwintering juvenile salmonids and emergent salmonid fry.

Design and Installation Specifications

- Construct rock check dams from appropriately sized rock. The rock used must be large enough to stay in place given the expected design flow through the channel. The rock must be placed by hand or by mechanical means (no dumping of rock to form dam) to achieve complete coverage of the ditch or swale and to ensure that the center of the dam is lower than the edges.
- Check dams may also be constructed of either rock or pea-gravel filled bags. Numerous products are also available for this purpose. They tend to be reusable, quick and easy to install, effective, and cost efficient. Straw bales are not an allowed construction material.
- Place check dams perpendicular to the flow of water.
- The dam should form a triangle when viewed from the side. This prevents undercutting as water flows over the face of the dam rather than falling directly onto the ditch bottom.
- Before installing check dams, impound and bypass upstream water flow away from the work area. Options for bypassing include pumps, siphons, or temporary channels.
- Check dams in association with sumps work more effectively at slowing flow and retaining sediment than just a check dam alone. A deep sump should be provided immediately upstream of the check dam.

- In some cases, if carefully located and designed, check dams can remain as permanent installations with very minor regrading. They may be left as either spillways, in which case accumulated sediment would be graded and seeded, or as check dams to prevent further sediment from leaving the site.
- The maximum spacing between the dams shall be such that the toe of the upstream dam is at the same elevation as the top of the downstream dam.
- Keep the maximum height at 2 feet at the center of the dam.
- Keep the center of the check dam at least 12 inches lower than the outer edges at natural ground elevation.
- Keep the side slopes of the check dam at 2H:1V or flatter.
- Key the stone into the ditch banks and extend it beyond the abutments a minimum of 18 inches to avoid washouts from overflow around the dam.
- Use filter fabric foundation under a rock or sand bag check dam. If a blanket ditch liner is used, filter fabric is not necessary. A piece of organic or synthetic blanket cut to fit will also work for this purpose.
- In the case of grass-lined ditches and swales, all check dams and accumulated sediment shall be removed when the grass has matured sufficiently to protect the ditch or swale—unless the slope of the swale is greater than 4 percent. The area beneath the check dams shall be seeded and mulched immediately after dam removal.
- Ensure that channel appurtenances, such as culvert entrances below check dams, are not subject to damage or blockage from displaced stones. Figure 5.15 depicts a typical rock check dam.

Maintenance Standards

- Check dams shall be monitored for performance and sediment accumulation during and after each runoff producing rainfall. Sediment shall be removed when it reaches one-half the sump depth.
- Anticipate submergence and deposition above the check dam and erosion from high flows around the edges of the dam.
- If significant erosion occurs between dams, install a protective riprap liner in that portion of the channel.

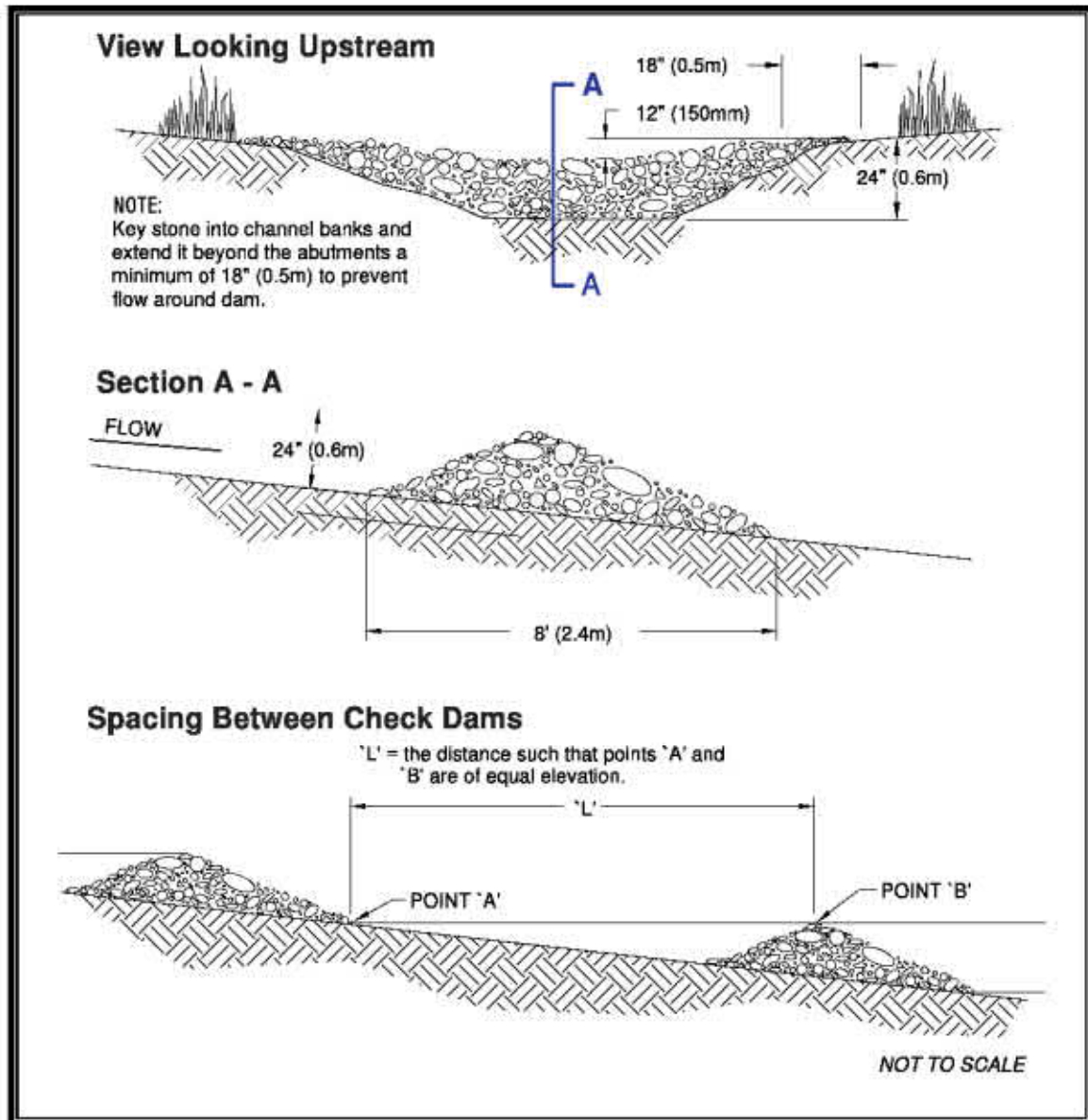


Figure 5.15. Check Dams.

BMP C208: Triangular Silt Dike (TSD) (Geotextile-Encased Check Dam)***Purpose***

Triangular silt dikes may be used as check dams, for perimeter protection, for temporary soil stockpile protection, for drop inlet protection, or as a temporary interceptor dike.

Conditions of Use

- May be used on soil or pavement with adhesive or staples
- TSDs have been used to build temporary:
 - Sediment ponds
 - Diversion ditches
 - Concrete washout facilities
 - Curbing
 - Water bars
 - Level spreaders
 - Berms.

Design and Installation Specifications

- Made of urethane foam sewn into a woven geosynthetic fabric.
- It is triangular, 10 inches to 14 inches high in the center, with a 20-inch to 28-inch base. A 2-foot apron extends beyond both sides of the triangle along its standard section of 7 feet. A sleeve at one end allows attachment of additional sections as needed.
- Install with ends curved up to prevent water from flowing around the ends.
- The fabric flaps and check dam units are attached to the ground with wire staples. Wire staples should be No. 11 gauge wire and should be 200 millimeters to 300 millimeters in length.
- When multiple units are installed, the sleeve of fabric at the end of the unit shall overlap the abutting unit and be stapled.
- Check dams should be located and installed as soon as construction will allow.
- Check dams should be placed perpendicular to the flow of water.

- When used as check dams, the leading edge must be secured with rocks, sandbags, or a small key slot and staples.
- In the case of grass-lined ditches and swales, check dams and accumulated sediment shall be removed when the grass has matured sufficiently to protect the ditch or swale unless the slope of the swale is greater than 4 percent. The area beneath the check dams shall be seeded and mulched immediately after dam removal.

Maintenance Standards

- Triangular silt dams shall be inspected for performance and sediment accumulation during and after each runoff producing rainfall. Sediment shall be removed when it reaches one-half the height of the dam.
- Anticipate submergence and deposition above the triangular silt dam and erosion from high flows around the edges of the dam. Immediately repair any damage or any undercutting of the dam.

BMP C209: Outlet Protection

Purpose

Outlet protection prevents scour at conveyance outlets and minimizes the potential for downstream erosion by reducing the velocity of concentrated stormwater flows.

Conditions of Use

Outlet protection is required at the outlets of all ponds, pipes, ditches, or other conveyances, and where runoff is conveyed to a natural or artificial drainage feature such as a stream, wetland, lake, or ditch.

Design and Installation Specifications

- The receiving channel at the outlet of a culvert shall be protected from erosion by rock lining a minimum of 6 feet downstream and extending up the channel sides a minimum of 1 foot above the maximum tailwater elevation or 1 foot above the crown, whichever is higher. For large pipes (more than 18 inches in diameter), the outlet protection lining of the channel is lengthened to four times the diameter of the culvert.
- Standard wingwalls, and tapered outlets and paved channels should also be considered when appropriate for permanent culvert outlet protection. (See WSDOT Hydraulics Manual, available through WSDOT Engineering Publications <www.wsdot.wa.gov/Publications/Manuals/index.htm>.)
- Organic or synthetic erosion blankets, with or without vegetation, are usually more effective than rock, cheaper, and easier to install. Materials can be chosen using manufacturer product specifications. ASTM test results are available for most products and the designer can choose the correct material for the expected flow.
- With low flows, vegetation (including sod) can be effective.
- The following shall be used for riprap outlet protection:
 - If the discharge velocity at the outlet is less than 5 feet per second (pipe slope typically less than 10 percent), use 2-inch to 8-inch riprap. Minimum thickness is 1 foot.
 - For outlets at the base of steep slope pipes (pipe slope greater than 10 percent), an engineered energy dissipater shall be used.
- Filter fabric or erosion control blankets shall be used under riprap to prevent scour and channel erosion.

- New pipe outfalls can provide an opportunity for low-cost fish habitat improvements. For example, an alcove of low-velocity water can be created by constructing the pipe outfall and associated energy dissipater back from the stream edge and digging a channel, over-widened to the upstream side, from the outfall. Overwintering juvenile and migrating adult salmonids may use the alcove as shelter during high flows. Bank stabilization, bioengineering, and habitat features may be required for disturbed areas. This work may require a hydraulic project approval (HPA). See Chapter 6, Section 6.3.5, for more information on outfall system design.

Maintenance Standards

- Inspect and repair as needed.
- Add rock as needed to maintain the intended function.
- Clean energy dissipater if sediment builds up.

BMP C220: Storm Drain Inlet Protection

Purpose

Storm drain inlet protection prevents coarse sediment from entering drainage systems prior to permanent stabilization of the disturbed area.

Conditions of Use

Use storm drain inlet protection at inlets that are operational before permanent stabilization of the disturbed drainage area. If these BMPs are used on active roadways, projects shall install appropriate traffic control to ensure vehicle and pedestrian traffic is not exposed to the roadway obstructions. Provide protection for all storm drain inlets downslope and within 500 feet of a disturbed or construction area, unless conveying runoff entering catch basins to a sediment pond or trap.

Also use inlet protection for lawn and yard drains on new home construction. These small and numerous drains coupled with lack of gutters in new home construction can add significant amounts of sediment into the roof drain system. If possible delay installing lawn and yard drains until just before landscaping or cap these drains to prevent sediment from entering the system until completion of landscaping. Consider erosion protection methods around each finished lawn and yard drain until area is stabilized.

Table 5.10 lists several options for inlet protection. All of the methods for storm drain inlet protection tend to plug and require a high frequency of maintenance. Limit drainage areas to 1 acre or less. Possibly provide emergency overflows with additional end-of-pipe treatment where stormwater ponding would cause a hazard.

Table 5.10. Storm Drain Inlet Protection.			
Type of Inlet Protection	Emergency Overflow	Applicable for Paved/Earthen Surfaces	Conditions of Use
Drop Inlet Protection			
Excavated drop inlet protection	Yes, temporary flooding will occur	Earthen	Applicable for heavy flows. Easy to maintain. Large area Requirement: 30- by 30-feet/acre
Block and gravel drop inlet protection	Yes	Paved or Earthen	Applicable for heavy concentrated flows. Will not pond.
Gravel and wire drop inlet protection	No		Applicable for heavy concentrated flows. Will pond. Can withstand traffic.
Catch basin filters	Yes	Paved or Earthen	Frequent maintenance required.
Curb Inlet Protection			
Curb inlet protection with a wooden weir	Small capacity overflow	Paved	Used for sturdy, more compact installation.
Lock and gravel curb inlet protection	Yes	Paved	Sturdy, but limited filtration.
Culvert Inlet Protection			
Culvert inlet sediment trap			18-month expected life.

Design and Installation Specifications

- **Excavated Drop Inlet Protection:** An excavated impoundment around the storm drain. Sediment settles out of the stormwater prior to entering the storm drain.
 - Provide a depth of 1 to 2 feet as measured from the crest of the inlet structure
 - Slope sides of excavation no steeper than 2H:1V
 - Minimum volume of excavation 35 cubic yards
 - Shape basin to fit site with longest dimension oriented toward the longest inflow area
 - Install provisions for draining to prevent standing water problems
 - Clear the area of all debris
 - Grade the approach to the inlet uniformly
 - Drill weep holes into the side of the inlet
 - Protect weep holes with screen wire and washed aggregate
 - Seal weep holes when removing structure and stabilizing area
 - Build a temporary dike, if necessary, to the down slope side of the structure to prevent bypass flow.
- **Block and Gravel Filter:** A barrier formed around the storm drain inlet with standard concrete blocks and gravel. See also Figure 5.16.
 - Provide a height of 1 to 2 feet above inlet
 - Recess the first row 2 inches into the ground for stability
 - Support subsequent courses by placing a 2 by 4 through the block opening
 - Do not use mortar
 - Lay some blocks in the bottom row on their side for dewatering the pool
 - Place hardware cloth or comparable wire mesh with 0.5-inch openings over all block openings
 - Place washed rock, 0.75- to 3-inch diameter, just below the top of blocks on slopes of 2H:1V or flatter.

- **Gravel and Wire Mesh Filter:** A gravel barrier placed over the top of the inlet. This structure does not provide an overflow.
 - Use a hardware cloth or comparable wire mesh with 0.5-inch openings
 - Use coarse aggregate
 - Provide a height 1 foot or more, 18 inches wider than inlet on all sides
 - Place wire mesh over the drop inlet so that the wire extends a minimum of 1 foot beyond each side of the inlet structure
 - Overlap the strips if more than one strip of mesh is necessary
 - Place coarse aggregate over the wire mesh
 - Provide at least a 12-inch depth of gravel over the entire inlet opening and extend at least 18 inches on all sides.
- **Catch Basin Filters:** Use inserts designed by manufacturers for construction sites. The limited sediment storage capacity increases the amount of inspection and maintenance required, which may be daily for heavy sediment loads. To reduce maintenance requirements, combine a catch basin filter with another type of inlet protection. The combination of inlet protection and filters may provide flow bypass without overflow and therefore may be a better method for inlets located along active rights-of-way.
 - Provides 5 cubic feet of storage
 - Requires dewatering provisions
 - Provides a high-flow bypass that will not clog under normal use at a construction site
 - Insert the catch basin filter in the catch basin just below the grating.
- **Curb Inlet Protection with Wooden Weir:** Barrier formed around a curb inlet with a wooden frame and gravel.
 - Use wire mesh with 0.5-inch openings
 - Use extra strength filter cloth
 - Construct a frame
 - Attach the wire and filter fabric to the frame
 - Pile coarse washed aggregate against wire/fabric
 - Place weight on frame anchors.

- **Block and Gravel Curb Inlet Protection:** Barrier formed around an inlet with concrete blocks and gravel. See Figure 5.17.
 - Use wire mesh with 0.5-inch openings.
 - Place two concrete blocks on their sides abutting the curb at either side of the inlet opening. These are spacer blocks.
 - Place a 2 by 4 stud through the outer holes of each spacer block to align the front blocks.
 - Place blocks on their sides across the front of the inlet and abutting the spacer blocks.
 - Place wire mesh over the outside vertical face.
 - Pile coarse aggregate against the wire to the top of the barrier.
- **Curb and Gutter Sediment Barrier:** Sandbag or rock berm (riprap and aggregate) 3 feet high and 3 feet wide in a horseshoe shape. See Figure 5.18.
 - Construct a horseshoe shaped berm, faced with coarse aggregate if using riprap, 3 feet high and 3 feet wide, at least 2 feet from the inlet
 - Construct a horseshoe shaped sedimentation trap on the outside of the berm sized to sediment trap standards for protecting a culvert inlet.

Maintenance Standards

- Inspect catch basin filters frequently, especially after storm events. Clean or replace clogged inserts. For systems with clogged stone filters pull away from the inlet and clean or replace. An alternative approach would be to use the clogged stone as fill and put fresh stone around the inlet.
- Do not wash sediment into storm drains while cleaning. Spread all excavated material evenly over the surrounding land area or stockpile and stabilize as appropriate.

Approved as Equivalent

Ecology has approved specific products as able to meet the requirements of BMP C220. However, the products did not pass through the Technology Assessment Protocol – Ecology (TAPE) process. The list of products is available on Ecology’s web site at www.ecy.wa.gov/programs/wq/stormwater/newtech/equivalent.html.

If a project wishes to use any of the “approved as equivalent” BMPs in the City of Lacey, the project owner or representative must obtain approval for use of the BMP from the city on a case-by-case basis (i.e., for each project or site) before use.

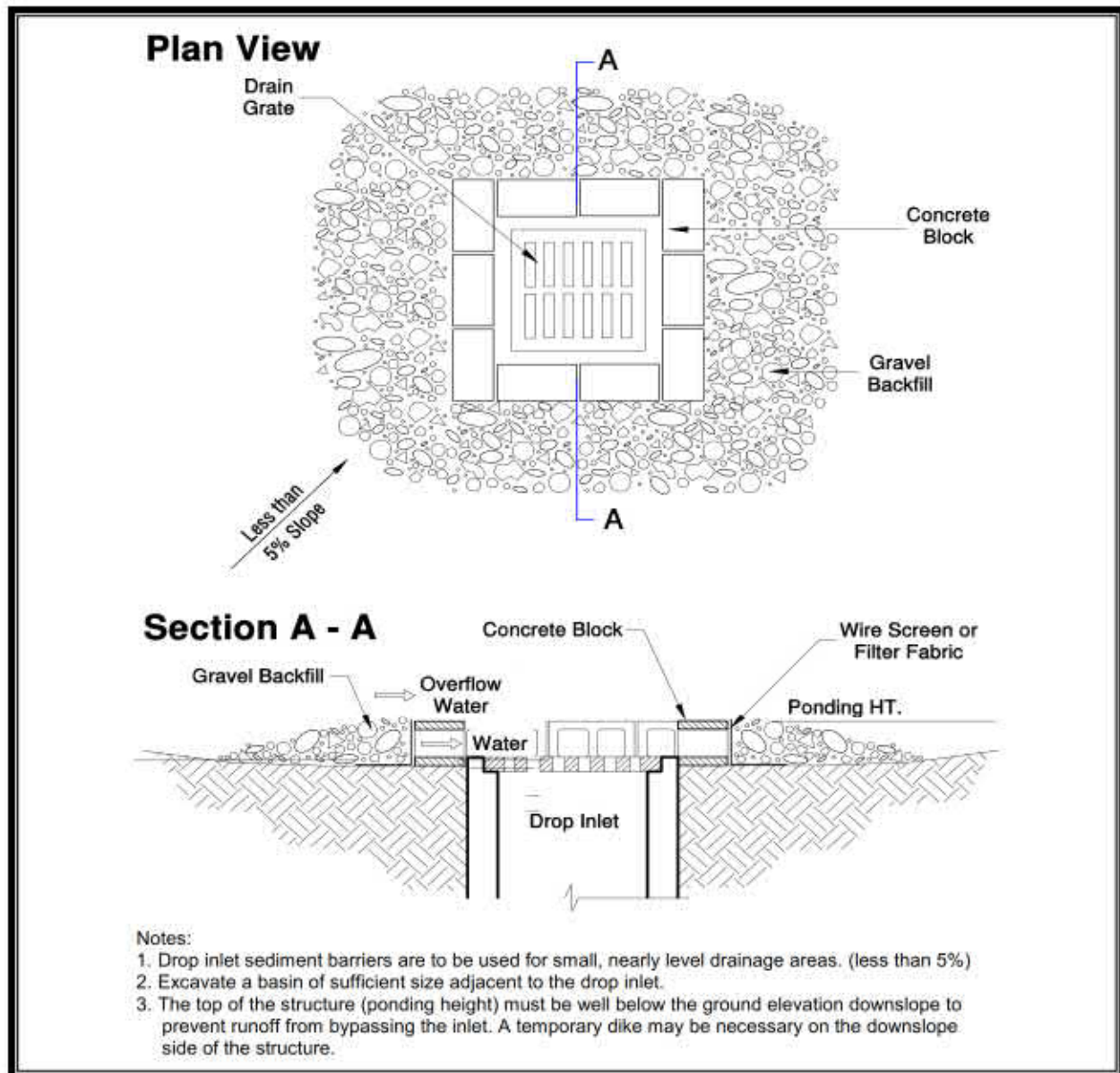


Figure 5.16. Block and Gravel Filter

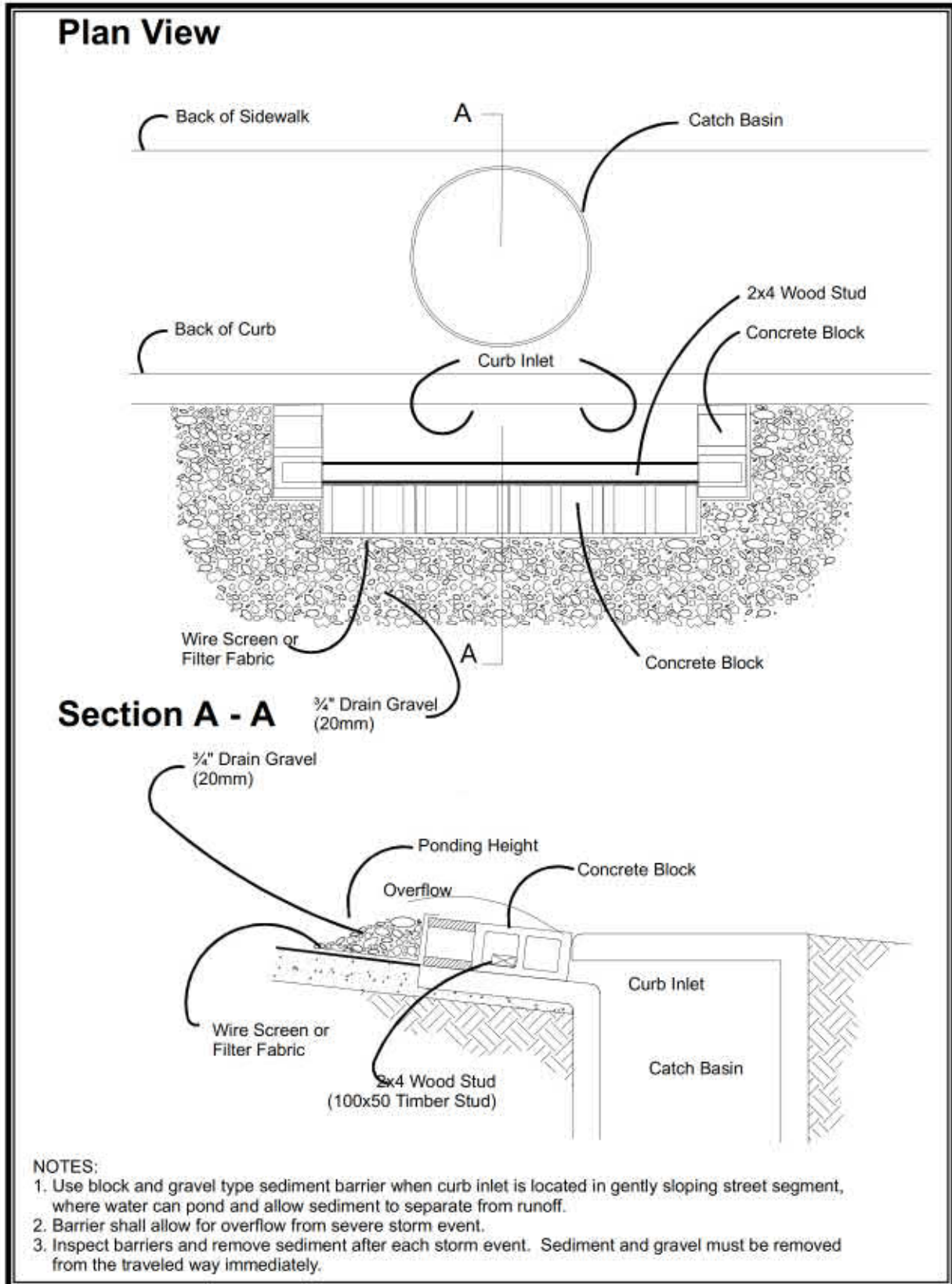


Figure 5.17. Block and Gravel Curb Inlet Protection.

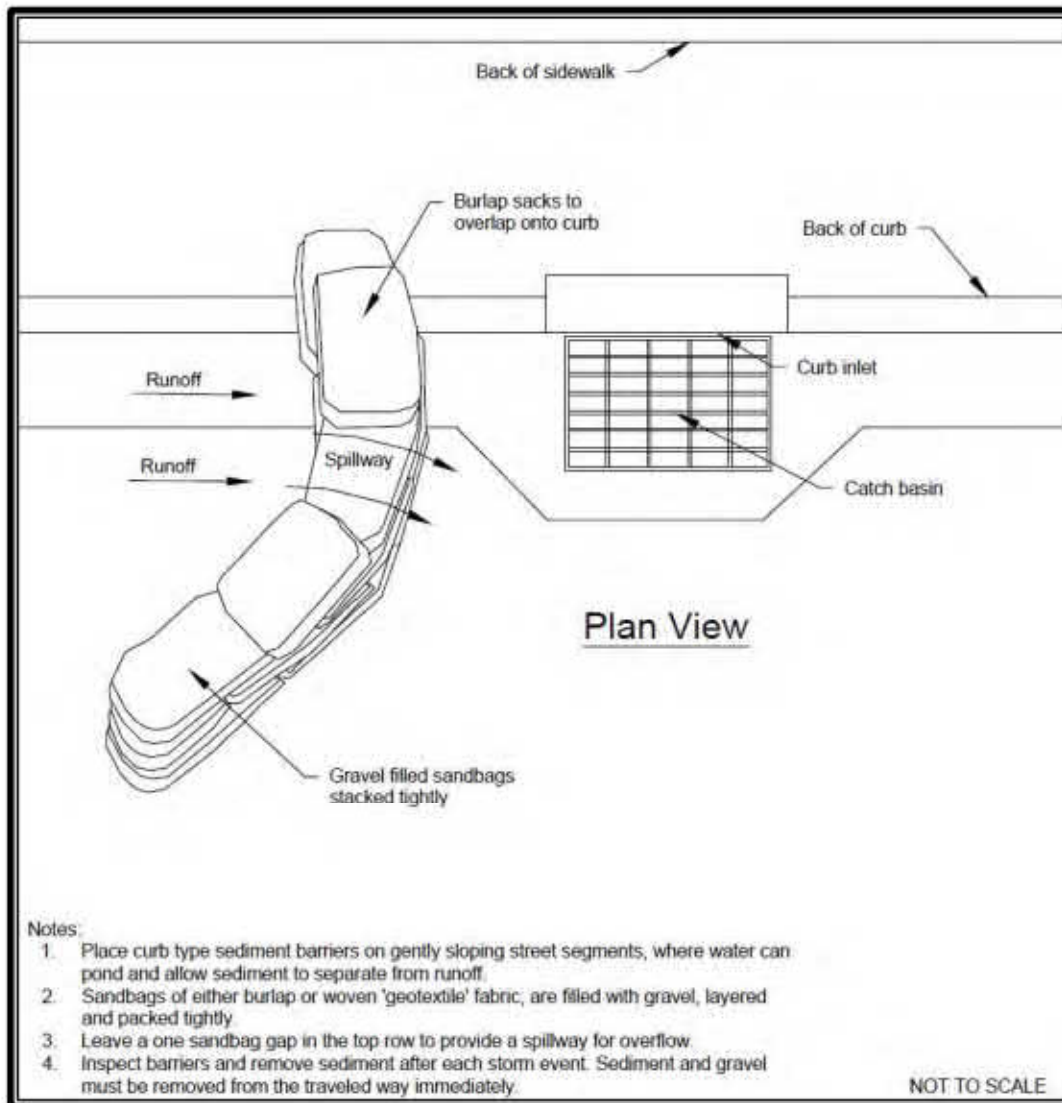


Figure 5.18. Curb and Gutter Barrier.

BMP C231: Brush Barrier***Purpose***

The purpose of brush barriers is to reduce the transport of coarse sediment from a construction site by providing a temporary physical barrier to sediment and reducing the runoff velocities of overland flow.

Conditions of Use

- Brush barriers may be used downslope of all disturbed areas of less than 0.25 acre.
- Brush barriers are not intended to treat concentrated flows, nor are they intended to treat substantial amounts of overland flow. Any concentrated flows must be conveyed through the drainage system to a sediment pond. The only circumstance in which overland flow can be treated solely by a brush barrier, rather than by a sediment pond, is when the area draining to the barrier is small.
- Brush barriers shall only be installed on contours.

Design and Installation Specifications

- Height 2 feet (minimum) to 5 feet (maximum).
- Width 5 feet at base (minimum) to 15 feet (maximum).
- Filter fabric (geotextile) may be anchored over the brush berm to enhance the filtration ability of the barrier. Ten-ounce burlap is an adequate alternative to filter fabric.
- Chipped site vegetation, wood-based mulch (hog fuel), or other suitable mulch material can be used to construct brush barriers.
- A 100 percent biodegradable installation can be constructed using 10-ounce burlap held in place by wooden stakes. Figure 5.19 depicts a typical brush barrier.

Maintenance Standards

- There shall be no signs of erosion or concentrated runoff under or around the barrier. If concentrated flows are bypassing the barrier, it must be expanded or augmented by toed-in filter fabric.
- The dimensions of the barrier must be maintained.

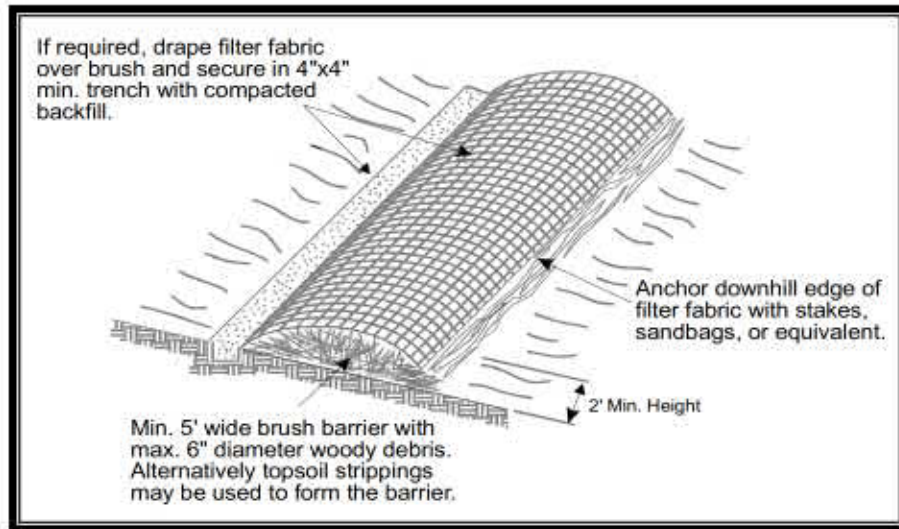


Figure 5.19. Brush Barrier.

BMP C233: Silt Fence***Purpose***

Use of a silt fence reduces the transport of coarse sediment from a construction site by providing a temporary physical barrier to sediment and reducing the runoff velocities of overland flow. See Figure 5.20 for details on silt fence construction.

Conditions of Use

- Silt fence may be used downslope of all disturbed areas.
- Silt fence shall prevent soil carried by runoff water from going beneath, through, or over the top of the silt fence, but shall allow the water to pass through the fence.
- Silt fence is not intended to treat concentrated flows, nor is it intended to treat substantial amounts of overland flow. Convey any concentrated flows through the drainage system to a sediment pond.
- Do not construct silt fences in streams or use in V-shaped ditches. Silt fences do not provide an adequate method of silt control for anything deeper than sheet or overland flow.

Design and Installation Specifications

- Use in combination with sediment basins or other BMPs.
- Maximum slope steepness (normal [perpendicular] to fence line) 1H:1V.
- Maximum sheet or overland flow path length to the fence of 100 feet.
- Do not allow flows greater than 0.5 cubic feet per second.
- The geotextile used shall meet the following standards. All geotextile properties listed below are minimum average roll values (i.e., the test result for any sampled roll in a lot shall meet or exceed the values shown in Table 5.11).

Table 5.11. Geotextile Standards.	
Polymeric Mesh AOS (ASTM D4751)	0.60 mm maximum for film wovens (U.S. #30 sieve). 0.30 mm maximum for all other geotextile types (U.S. #50 sieve). 0.15 mm minimum for all fabric types (U.S. #100 sieve).
Water Permittivity (ASTM D4491)	0.02 sec ⁻¹ minimum
Grab Tensile Strength (ASTM D4632)	180 lbs minimum for extra strength fabric. 100 lbs minimum for standard strength fabric.
Grab Tensile Strength (ASTM D4632)	30% maximum
Ultraviolet Resistance (ASTM D4355)	70% minimum

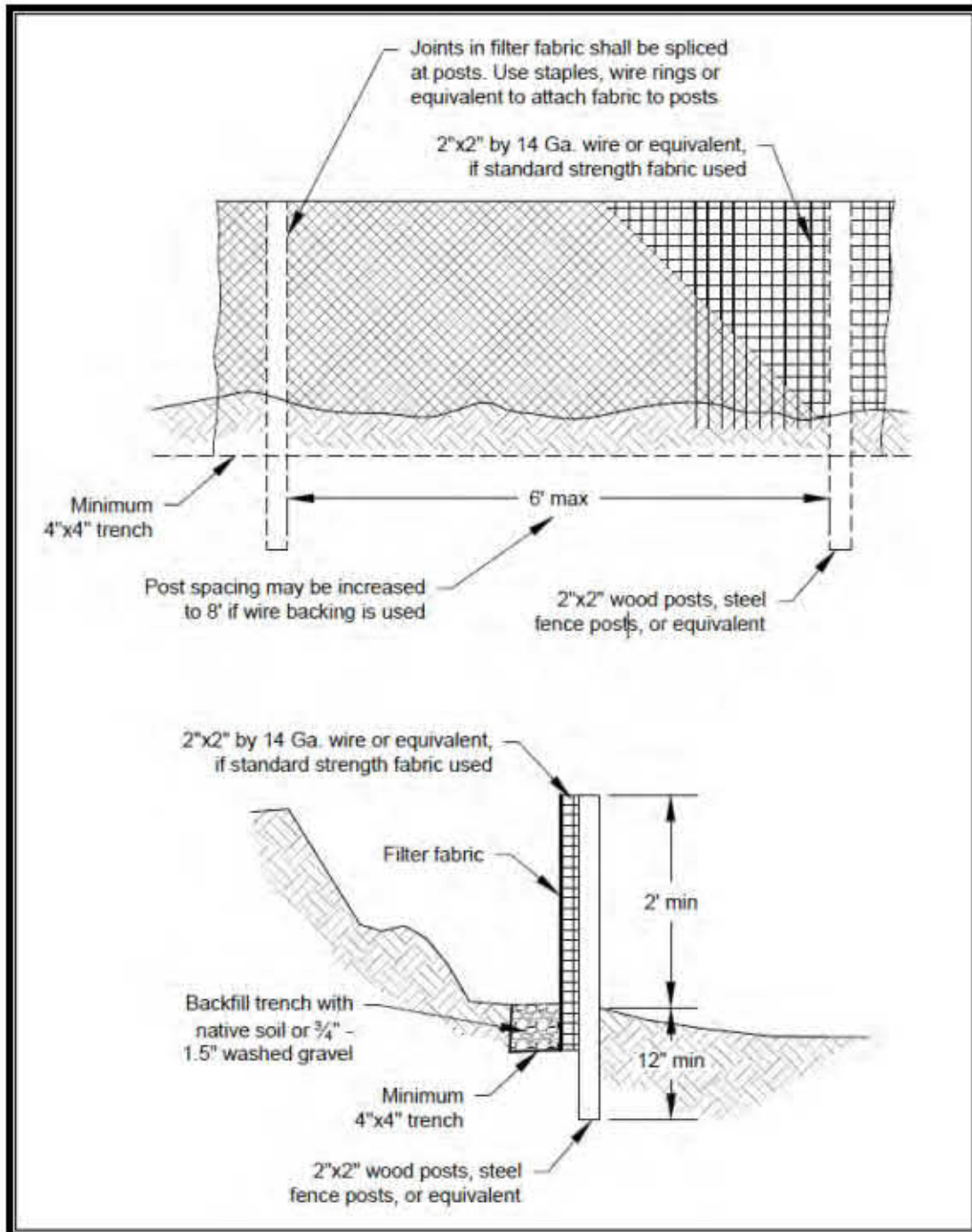
- Standard strength fabrics must be supported with wire mesh, chicken wire, 2-inch by 2-inch wire, safety fence, or jute mesh to increase the strength of the fabric to the 180 lbs minimum threshold. Silt fence materials are available that have synthetic mesh backing attached.
- Filter fabric material shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of 6 months of expected usable construction life at a temperature range of 0°F to 120°F.
- Include the following standard notes for silt fence on construction plans and specifications:
 - The contractor shall install and maintain temporary silt fences at the locations shown in the plans.
 - Construct silt fences in areas of clearing, grading, or drainage prior to starting those activities.
 - The silt fence shall have a 2-foot minimum and 2.5-foot maximum height above the original ground surface.
 - The filter fabric shall be sewn together at the point of manufacture to form filter fabric lengths as required. Locate all sewn seams at support posts. Alternatively, two sections of silt fence can be overlapped, provided the contractor can demonstrate, to the satisfaction of the engineer, that the overlap is long enough and that the adjacent fence sections are close enough together to prevent silt laden water from escaping through the fence at the overlap.
 - Attach the filter fabric on the upslope side of the posts and secure with staples, wire, or in accordance with the manufacturer's recommendations. Attach the filter fabric to the posts in a manner that reduces the potential for tearing.
 - Support the filter fabric with wire or plastic mesh, dependent on the properties of the geotextile selected for use. If wire or plastic mesh is used, fasten the mesh securely to the upslope side of the posts with the filter fabric upslope of the mesh.
 - Mesh support, if used, shall consist of steel wire with a maximum mesh spacing of 2 inches, or a prefabricated polymeric mesh. The strength of the wire or polymeric mesh shall be equivalent to or greater than 180 pounds grab tensile strength. The polymeric mesh must be as resistant to the same level of ultraviolet radiation as the filter fabric it supports.
 - Bury the bottom of the filter fabric 4 inches min. below the ground surface. Backfill and tamp soil in place over the buried portion of the filter fabric, so that no flow can pass beneath the fence and scouring cannot occur. The wire or polymeric mesh shall extend into the ground 3 inches min.

- Drive or place the fence posts into the ground 18 inches minimum. A 12-inch minimum depth is allowed if topsoil or other soft subgrade soil is not present and 18 inches cannot be reached. Increase fence post min. depths by 6 inches if the fence is located on slopes of 3H:1V or steeper and the slope is perpendicular to the fence. If required post depths cannot be obtained, the posts shall be adequately secured by bracing or guying to prevent overturning of the fence due to sediment loading.
- Use wood, steel, or equivalent posts. The spacing of the support posts shall be a maximum of 6 feet. Posts shall consist of either:
 - Wood with dimensions of 2-inch by 2-inch minimum width and a 3-foot minimum length. Wood posts shall be free of defects such as knots, splits, or gouges.
 - No. 6 steel reinforcement bar or larger.
 - ASTM A 120 steel pipe with a minimum diameter of 1 inch.
 - U, T, L, or C shape steel posts with a minimum weight of 1.35 pounds/feet.
 - Other steel posts having equivalent strength and bending resistance to the post sizes listed above.
- Locate silt fences on contour as much as possible, except at the ends of the fence, where the fence shall be turned uphill such that the silt fence captures the runoff water and prevents water from flowing around the end of the fence.
- If the fence must cross contours, with the exception of the ends of the fence, place gravel check dams perpendicular to the back of the fence to minimize concentrated flow and erosion. The slope of the fence line where contours must be crossed shall not be steeper than 3H:1V.
 - Gravel check dams shall be approximately 1 foot deep at the back of the fence. Gravel check dams shall be continued perpendicular to the fence at the same elevation until the top of the check dam intercepts the ground surface behind the fence.
 - Gravel check dams shall consist of crushed surfacing base course, gravel backfill for walls, or shoulder ballast. Gravel check dams shall be located every 10 feet along the fence where the fence must cross contours.

- Silt fence installation using the slicing method specification details follow. See also Figure 5.21:
 - The base of both end posts must be at least 2 to 4 inches above the top of the filter fabric on the middle posts for ditch check dams to drain properly. Use a hand level or string level, if necessary, to mark base points before installation.
 - Install posts 3 to 4 feet apart in critical retention areas and 6 to 7 feet apart in standard applications. Install posts 24 inches deep on the downstream side of the silt fence, and as close as possible to the filter fabric, enabling posts to support the filter fabric from upstream water pressure.
 - Install posts with the nipples facing away from the filter fabric.
 - Attach the filter fabric to each post with three ties, all spaced within the top 8 inches of the filter fabric. Attach each tie diagonally 45 degrees through the filter fabric, with each puncture at least 1 inch vertically apart. Each tie should be positioned to hang on a post nipple when tightening to prevent sagging.
 - Wrap approximately 6 inches of fabric around the end posts and secure with three ties.
 - No more than 24 inches of a 36-inch filter fabric is allowed above ground level, 12 inches must be buried.
- Compact the soil immediately next to the filter fabric with the front wheel of the tractor, skid steer, or roller exerting at least 60 pounds per square inch. Compact the upstream side first and then each side twice for a total of four trips. Check and correct the silt fence installation for any deviation before compaction. Use a flat-bladed shovel to tuck fabric deeper into the ground if necessary.

Maintenance Standards

- Repair any damage immediately.
- Intercept and convey all evident concentrated flows uphill of the fence to a sediment pond.
- Check the uphill side of the fence for signs of the fence clogging and acting as a barrier to flow and then causing channelization of flows parallel to the fence. If this occurs, replace the fence or remove the trapped sediment.
- Remove sediment deposits when the deposit reaches approximately one-third the height of the silt fence, or install a second silt fence.
- Replace filter fabric that has deteriorated due to ultraviolet breakdown.

**Figure 5.20. Silt Fence.**

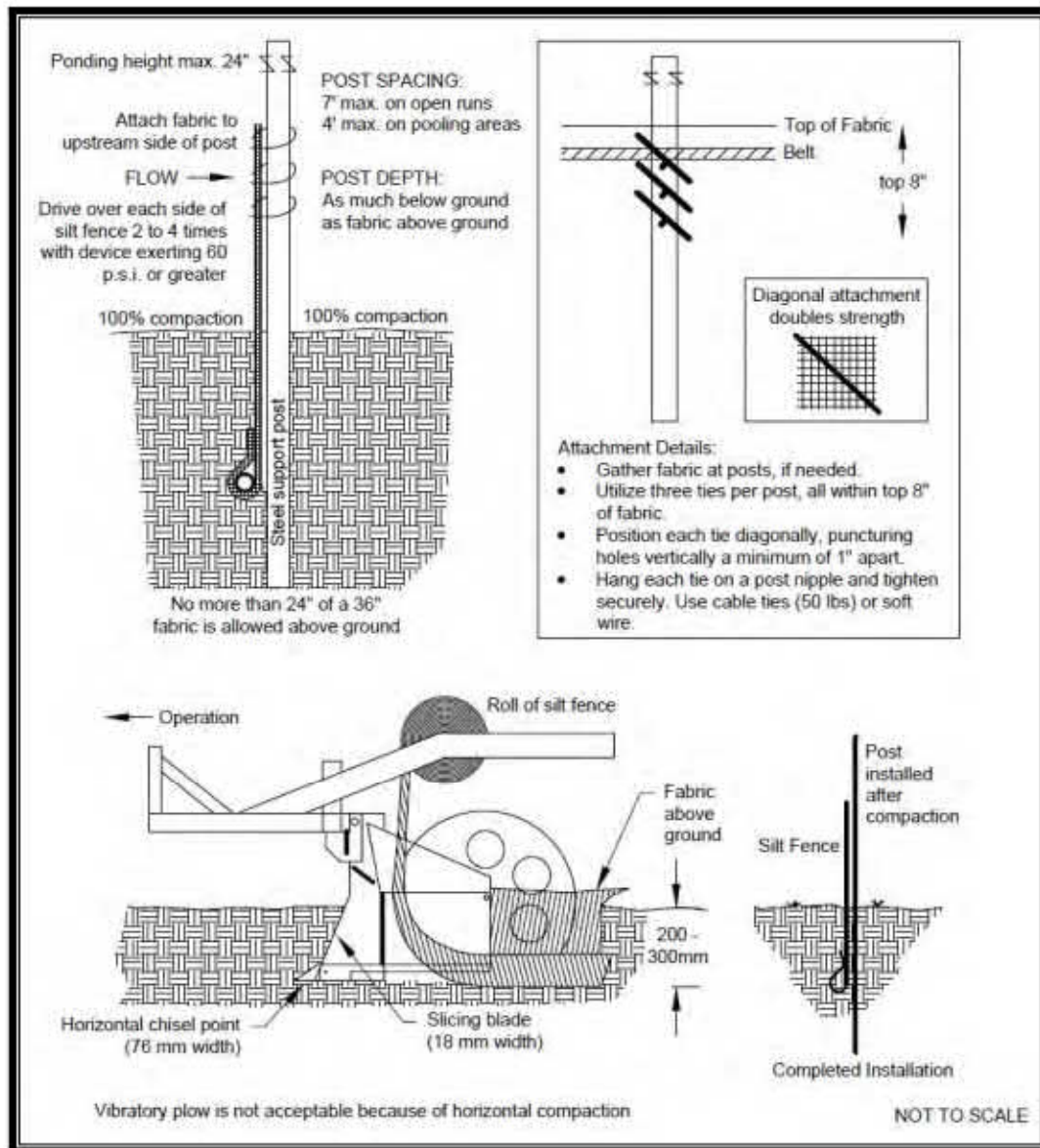


Figure 5.21. Silt Fence Installation by Slicing Method.

BMP C234: Vegetated Strip

Purpose

Vegetated strips reduce the transport of coarse sediment from a construction site by providing a temporary physical barrier to sediment and reducing the runoff velocities of overland flow.

Conditions of Use

- Vegetated strips may be used downslope of all disturbed areas.
- Vegetated strips are not intended to treat concentrated flows, nor are they intended to treat substantial amounts of overland flow. Any concentrated flows must be conveyed through the drainage system to a sediment pond. The only circumstance in which overland flow can be treated solely by a strip, rather than by a sediment pond, is when the following criteria are met (see Table 5.12):

Table 5.12. Vegetated Strips.		
Average Contributing Area Slope	Average Contributing Area Percent Slope	Max Contributing Area Flowpath Length
1.5H:1V or flatter	67% or flatter	100 feet
2H:1V or flatter	50% or flatter	115 feet
4H:1V or flatter	25% or flatter	150 feet
6H:1V or flatter	16.7% or flatter	200 feet
10H:1V or flatter	10% or flatter	250 feet

Design and Installation Specifications

- The vegetated strip shall consist of a continuous strip of dense vegetation with topsoil and have a minimum 25-foot-long flowpath. Grass-covered, landscaped areas are generally not adequate because the volume of sediment overwhelms the grass. Ideally, vegetated strips should consist of undisturbed native growth with a well-developed soil that allows for infiltration of runoff.
- The slope within the strip shall not exceed 4H:1V.
- The uphill boundary of the vegetated strip shall be delineated with clearing limits.

Maintenance Standards

- Any areas damaged by erosion or construction activity shall be seeded immediately and protected by mulch.
- If more than 5 feet of the original vegetated strip width has had vegetation removed or is being eroded, sod must be installed.
- If there are indications that concentrated flows are traveling across the buffer, surface water controls must be installed to reduce the flows entering the buffer, or additional perimeter protection must be installed.

BMP C235: Wattles***Purpose***

Wattles are temporary erosion and sediment control barriers consisting of straw, compost, or other material that is wrapped in biodegradable tubular plastic or similar encasing material. They reduce the velocity and can spread the flow of rill and sheet runoff, and can capture and retain sediment. Wattles are typically 8 to 10 inches in diameter and 25 to 30 feet in length. Wattles are placed in shallow trenches and staked along the contour of disturbed or newly constructed slopes. See Figure 5.22 for typical construction details.

Conditions of Use

- Use wattles:
 - In disturbed areas that require immediate erosion protection
 - On exposed soils during the period of short construction delays, or over winter months
 - On slopes requiring stabilization until permanent vegetation can be established.
- The material used dictates the effectiveness period of the wattle. Typically, wattles are effective for one to two wet seasons.
- Prevent rilling beneath wattles by properly entrenching and abutting wattles together to prevent water from passing between them.

Design Criteria

- Install wattles perpendicular to the flow direction and parallel to the slope contour.
- Narrow trenches shall be dug across the slope on contour to a depth of 3 to 5 inches on clay soils and soils with gradual slopes. On loose soils, steep slopes, and areas with high rainfall, the trenches shall be dug to a depth of 5 to 7 inches, or one-half to two-thirds of the thickness of the wattle.
- Start building trenches and installing wattles from the base of the slope and work up. Spread excavated material evenly along the uphill slope and compacted using hand tamping or other methods.
- Construct trenches on contours at intervals of 10 to 25 feet apart depending on the steepness of the slope, soil type, and rainfall. The steeper the slope, the closer together the trenches.

- Install the wattles snugly into the trenches and abut tightly end to end. Do not overlap the ends.
- Install stakes at each end of the wattle, and at 4-foot centers along entire length of wattle.
- If required, install pilot holes for the stakes using a straight bar to drive holes through the wattle and into the soil.
- Wooden stakes should be approximately 0.75 by 0.75 by 24 inches min. Willow cuttings or 0.375-inch rebar can also be used for stakes. Note: rebar must be removed at end of project if used, while other fasteners maybe permitted to remain if all parts of the wattles are biodegradable and shown in plans for permanent erosion control.

Maintenance Standards

- Stakes should be driven through the middle of the wattle, leaving 2 to 3 inches of the stake protruding above the wattle.
- Wattles may require maintenance to ensure they are in contact with soil and thoroughly entrenched, especially after significant rainfall on steep sandy soils.
- Inspect the slope after significant storms and repair any areas where wattles are not tightly abutted or water has scoured beneath the wattles.

Approved as Equivalent

Ecology has approved specific products as able to meet the requirements of BMP C235. However, the products did not pass through the Technology Assessment Protocol – Ecology (TAPE) process. The list of products is available on Ecology’s web site at www.ecy.wa.gov/programs/wq/stormwater/newtech/equivalent.html.

If a project wishes to use any of the “approved as equivalent” BMPs in the City of Lacey, the project owner or representative must obtain approval for use of the BMP from the city on a case-by-case basis (i.e., for each project or site) before use.

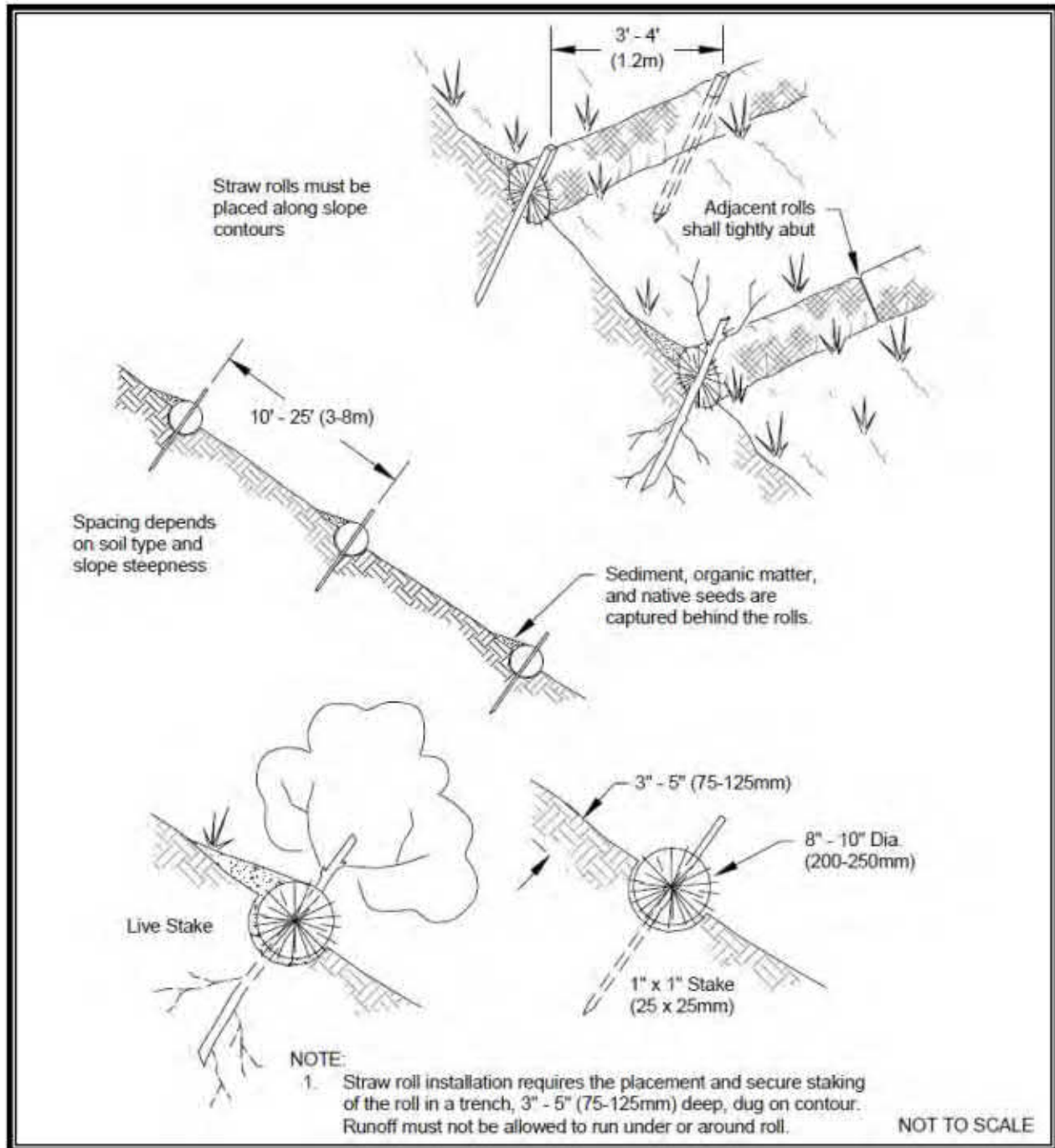


Figure 5.22. Straw Wattles.

BMP C236: Vegetative Filtration***Purpose***

Vegetative filtration may be used in conjunction with BMP C241 Temporary Sediment Ponds, BMP C206 Level Spreader, and a pumping system with surface intake to improve turbidity levels of stormwater discharges by filtering through existing vegetation where undisturbed forest floor duff layer or established lawn with thatch layer are present. Vegetative filtration can also be used to infiltrate dewatering waste from foundations, vaults, and trenches as long as runoff does not occur.

Conditions of Use

- For every 5 acres of disturbed soil, use 1 acre of grass field, farm pasture, or wooded area. Reduce or increase this area depending on project size, groundwater table height, and other site conditions.
- Wetlands shall not be used for filtration.
- Do not use this BMP in areas with a high groundwater table, or in areas that will have a high seasonal groundwater table during the use of this BMP.
- This BMP may be less effective on soils that prevent the infiltration of the water, such as hard till.
- Using other effective source control measures throughout a construction site will prevent the generation of additional highly turbid water and may reduce the time period or area need for this BMP.
- Stop distributing water into the vegetated area if standing water or erosion results.

Design Criteria

- Find an on the project site that has a vegetated field, preferably a farm field, or wooded area.
- If the project site does not contain enough vegetated field area consider obtaining easement from adjacent landowners if conditions would allow for proper filtration. An easement is required for any off-site area used to meet the requirements of this BMP.
- Install a pump and downstream distribution manifold depending on the project size. Generally, the main distribution line should reach 100- to 200-feet long (many large projects, or projects on tight soil, will require systems that reach several thousand feet long with numerous branch lines off the main distribution line).

- The manifold should have several valves, allowing for control over the distribution area in the field.
- Install several branches of 4-inch schedule 20, swaged-fit common septic tight-lined sewer line, or 6-inch fire hose, which can convey the turbid water out to various sections of the field. See Figure 5.23.
- Determine the branch length based on the field area geography and number of branches. Typically, branches stretch from 200 feet to several thousand feet. Always, lay branches on contour with the slope.
- On uneven ground, sprinklers perform well. Space sprinkler heads so that spray patterns do not overlap.
- On relatively even surfaces, a level spreader using 4-inch perforated pipe may be used as an alternative option to the sprinkler head setup. Install drain pipe at the highest point on the field and at various lower elevations to ensure full coverage of the filtration area. Pipe should be placed with the holes up to allow for a gentle weeping of stormwater evenly out all holes. Leveling the pipe by staking and using sandbags may be required.
- To prevent the over saturation of the field area, rotate the use of branches or spray heads. Do this as needed based on monitoring the spray field.
- Monitor the spray field on a daily basis to ensure that over saturation of any portion of the field doesn't occur at any time. The presence of standing puddles of water or creation of concentrated flows visually signify that over saturation of the field has occurred.
- Since the operator is handling contaminated water, physically monitor the vegetated spray field all the way down to the nearest surface water, or furthest spray area, to ensure that the water has not caused overland or concentrated flows, and has not created erosion around the spray nozzle.
- Monitoring usually needs to take place 3 to 5 times per day to ensure sheet-flow into waters of the State. Do not exceed water quality standards for turbidity.
- The city recommends that a separate inspection log be developed, maintained, and kept with the existing site logbook to aid the operator conducting inspections. This separate "Field Filtration Logbook" can also aid the facility in demonstrating compliance with permit conditions.

Maintenance Standards

- Inspect the spray nozzles daily, at a minimum, for leaks and plugging from sediment particles.

- If erosion, concentrated flows, or over saturation of the field occurs, rotate the use of branches or spray heads or move the branches to a new field location.
- Check all branches and the manifold for unintended leaks.

Flowpath Guidelines for Vegetative Filtration		
Average Slope	Average Area Percent Slope	Estimated Flowpath Length (ft)
1.5H:1V	67%	250
2H:1V	50%	200
4H:1V	25%	150
6H:1V	16.7%	115
10H:1V	10%	100



Figure 5.23. Manifold and Branches in a Wooded, Vegetated Spray Field.

BMP C240: Sediment Trap

Purpose

A sediment trap is a small temporary ponding area with a gravel outlet used to collect and store sediment from sites cleared and/or graded during construction. Sediment traps, along with other perimeter controls, shall be installed before any land disturbance takes place in the drainage area.

Conditions of Use

Prior to leaving a construction site, stormwater runoff must pass through a sediment pond or trap or other appropriate sediment removal BMP. Non-engineered sediment traps may be used on site upstream to an engineered sediment trap or sediment pond to provide additional sediment removal capacity.

It is intended for use on sites where the tributary drainage area is less than 3 acres, with no unusual drainage features, and a projected build-out time of 6 months or less. The sediment trap is a temporary measure (with a design life of approximately 6 months) and shall be maintained until the site area is permanently protected against erosion by vegetation and/or structures.

Sediment traps are only effective in removing sediment down to about the medium silt size fraction. Runoff with sediment of finer grades (fine silt and clay) will pass through untreated, emphasizing the need to control erosion to the maximum extent first.

Whenever possible, sediment-laden water shall be discharged into on site, relatively level, vegetated areas (see BMP C234 – Vegetated Strip). This is the only way to effectively remove fine particles from runoff unless chemical treatment or filtration is used. This can be particularly useful after initial treatment in a sediment trap. The areas of release must be evaluated on a site-by-site basis in order to determine appropriate locations for and methods of releasing runoff. Vegetated wetlands shall not be used for this purpose. Frequently, it may be possible to pump water from the collection point at the downhill end of the site to an upslope vegetated area. Pumping shall only augment the treatment system, not replace it, because of the possibility of pump failure or runoff volume in excess of pump capacity.

All projects that are constructing permanent detention facilities or infiltration basins and trenches can use the rough-graded permanent facilities for traps. If infiltration facilities are to be used, the sides and bottom of the facility must only be rough excavated to a minimum of 2 feet above final grade. Final grading of the infiltration facility shall occur only when all contributing drainage areas are fully stabilized. When permanent facilities are used as temporary sedimentation facilities, the surface area requirement of a sediment trap or pond must be met. If the surface area requirements are larger than the surface area of the permanent facility, then the trap or pond shall be enlarged to comply with the surface area requirement. The permanent pond shall also be divided into two cells as required for sediment ponds.

Either a permanent control structure or the temporary control structure (described in BMP C241, Temporary Sediment Pond) can be used. If a permanent control structure is used, it may be advisable to partially restrict the lower orifice with gravel to increase residence time while still allowing dewatering of the pond. A shut-off valve may be added to the control structure to allow complete retention of stormwater in emergency situations. In this case, an emergency overflow weir must be added.

A skimmer may be used for the sediment trap outlet if approved by the city.

Design and Installation Specifications

- See Figures 5.24 and 5.25 for details.
- If permanent runoff control facilities are part of the project, they should be used for sediment retention.
- To determine the sediment trap geometry, first calculate the design surface area (SA) of the trap, measured at the invert of the weir. Use the following equation:

$$SA = FS(Q_2/V_s)$$

Where: Q_2 = Design inflow (cfs) based on the 2-year recurrence interval flow rate. Use a 15-minute time step using an approved continuous runoff model for the developed (unmitigated) site. If the time of concentration is less than 30 minutes, a 5-minute time step may be required. The 10-year recurrence interval peak flow shall be used if the project size, expected timing and duration of construction, or downstream conditions warrant a higher level of protection. If no hydrologic analysis is required, the rational method may be used.

V_s = The settling velocity of the soil particle of interest. The 0.02 mm (medium silt) particle with an assumed density of 2.65 g/cm³ has been selected as the particle of interest and has a settling velocity (V_s) of 0.00096 foot per second.

FS = A factor of safety of 2 to account for non-ideal settling.

- Therefore, the equation for computing surface area becomes:

$$SA = 2 \times Q_2 / 0.00096$$

OR

2,080 square feet per cubic feet per second of inflow

Note: Even if permanent facilities are used, they must still have a surface area that is at least as large as that derived from the above formula. If they do not, the pond must be enlarged.

- To aid in determining sediment depth, all sediment traps shall have a staff gauge with a prominent labeled mark each 1-foot interval above the bottom of the trap.
- Sediment traps may not be feasible on utility projects due to the limited work space or the short-term nature of the work. Portable tanks may be used in place of sediment traps for utility projects.

Maintenance Standards

- Sediment shall be removed from the trap when it reaches 1 foot in depth.
- Any damage to the trap embankments or slopes shall be repaired.

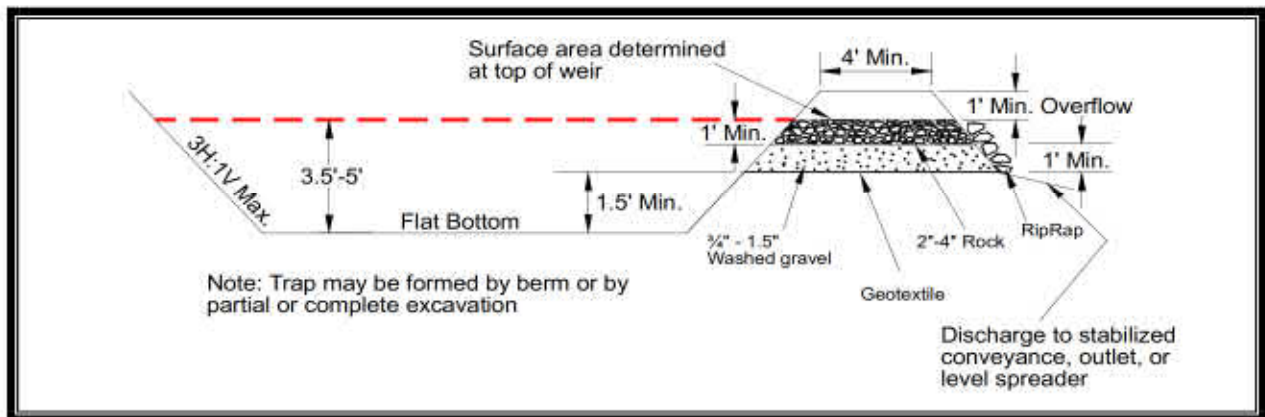


Figure 5.24. Cross-Section of Sediment Trap.

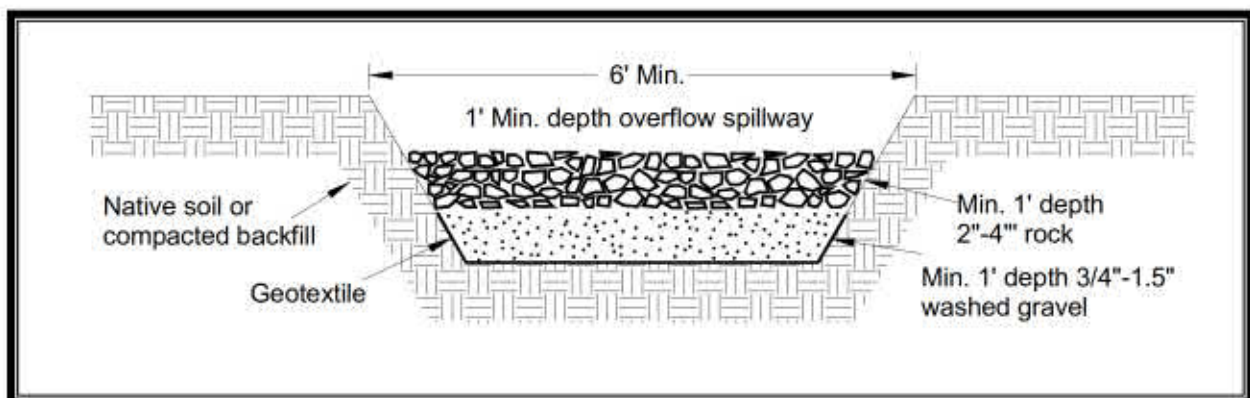


Figure 5.25. Sediment Trap Outlet.

BMP C241: Temporary Sediment Pond

Purpose

Sediment ponds remove sediment from runoff originating from disturbed areas of the site. Sediment ponds are typically designed to remove sediment no smaller than medium silt (0.02 mm). Consequently, they usually reduce turbidity only slightly.

Conditions of Use

Prior to leaving a construction site, stormwater runoff must pass through a sediment pond or other appropriate sediment removal BMP.

A sediment pond shall be used where the contributing drainage area is 3 acres or more. Ponds must be used in conjunction with erosion control practices to reduce the amount of sediment flowing into the basin.

Design and Installation Specifications

Sediment ponds must be installed only on sites where failure of the structure would not result in loss of life, damage to homes or buildings, or interruption of use or service of public roads or utilities. Also, sediment traps and ponds are attractive to children and can be very dangerous. If fencing of the pond is planned, the type of fence and its location shall be shown on the Construction SWPPP.

- Structures having a maximum storage capacity at the top of the dam of 10 acre-feet (435,600 cubic feet) or more are subject to the Washington Dam Safety Regulations (Chapter 173-175 WAC).
- See Figures 5.26, 5.27, and 5.28 for details.
- Projects that are constructing permanent detention facilities or infiltration basins and trenches can use the rough-graded permanent facilities for traps. The surface area requirements of the sediment pond must be met. This may require temporarily enlarging the permanent basin to comply with the surface area requirements. The permanent control structure must be temporarily replaced with a control structure that only allows water to leave the pond from the surface or by pumping. The permanent control structure must be installed after the site is fully stabilized.
- Use of infiltration facilities for sedimentation ponds during construction tends to clog the soils and reduce their capacity to infiltrate. If infiltration facilities are to be used, the sides and bottom of the facility must only be rough excavated to a minimum of 2 feet above final grade. Final grading of the infiltration facility shall occur only when all contributing drainage areas are fully stabilized. The infiltration pretreatment facility should be fully constructed and used with the sedimentation pond to help prevent clogging.

Determining Pond Geometry:

- Obtain the discharge from the hydrologic calculations of the peak flow for the 2-year recurrence interval runoff event (Q_2). Use a 15-minute time step and an approved continuous runoff model for the developed (unmitigated) site. If the time of concentration is less than 30 minutes, a 5-minute time step may be required. The 10-year recurrence interval peak flow shall be used if the project size, expected timing and duration of construction, or downstream conditions warrant a higher level of protection. If no hydrologic analysis is required, the Rational Method may be used.
- Determine the required surface area at the top of the riser pipe with the equation:

$$SA = 2 \times Q_2 / 0.00096$$

OR

2,080 square feet per cubic feet per second (cfs) of inflow

- See BMP C240 for more information on the derivation of the surface area calculation.
- The basic geometry of the pond can now be determined using the following design criteria:
 - Required surface area SA (from Step 2 above) at top of riser.
 - Minimum 3.5-foot depth from top of riser to bottom of pond.
 - Maximum 3H:1V interior side slopes and maximum 2H:1V exterior slopes. The interior slopes can be increased to a maximum of 2H:1V if fencing is provided at or above the maximum water surface.
 - One foot of freeboard between the top of the riser and the crest of the emergency spillway.
 - Flat bottom.
 - Minimum 1-foot deep spillway.
 - Length-to-width ratio between 3:1 and 6:1.

Sizing of Discharge Mechanisms:

- The outlet for the pond consists of a combination of principal and emergency spillways. These outlets must pass the peak runoff expected from the contributing drainage area for a 100-year recurrence interval storm. If, due to site conditions and pond geometry, a separate emergency spillway is not feasible, the principal spillway must pass the entire peak runoff expected from the 100-year recurrence

interval storm. However, an attempt to provide a separate emergency spillway should always be made. The runoff calculations should be based on the site conditions during construction. The flow through the dewatering orifice cannot be utilized when calculating the 100-year recurrence interval storm elevation because of its potential to become clogged; therefore, available spillway storage must begin at the principal spillway riser crest.

- The principal spillway designed by the procedures contained in this standard will result in some reduction in the peak rate of runoff. However, the riser outlet design will not adequately control the pond discharge to the predevelopment discharge limitations as stated in Core Requirement #7: Flow Control. However, if the basin for a permanent stormwater detention pond is used for a temporary sedimentation pond, the control structure for the permanent pond can be used to maintain predevelopment discharge limitations. The size of the pond, the expected life of the construction project, the anticipated downstream effects and the anticipated weather conditions during construction, should be considered to determine the need of additional discharge control. See Figure 5.29 for riser inflow curves.
 - **Principal Spillway:** Determine the required diameter for the principal spillway (riser pipe). The diameter shall be the minimum necessary to pass the discharge from the 10-year recurrence interval runoff event (Q_{10}). Use a 15-minute time step and an approved continuous runoff model for the developed (unmitigated) site. If the time of concentration is less than 30 minutes, a 5-minute time step may be required. The 10-year recurrence interval peak flow shall be used if the project size, expected timing and duration of construction, or downstream conditions warrant a higher level of protection. If no hydrologic analysis is required, the Rational Method may be used. Use Figure 5.29 to determine this diameter ($h = 1$ foot). Note: A permanent control structure may be used instead of a temporary riser.
 - **Emergency Overflow Spillway:** Determine the required size and design of the emergency overflow spillway for the developed 100-year peak flow indicated by an approved continuous runoff model using a 15-minute time step.
 - **Dewatering Orifice:** Determine the size of the dewatering orifice(s) (minimum 1-inch diameter) using a modified version of the discharge equation for a vertical orifice and a basic **equation** for the area of a circular orifice. Determine the required area of the orifice with the following equation:

$$A_o = \frac{A_s (2h)^{0.5}}{0.6 \times 3600 T g^{0.5}}$$

Where: A_o = orifice area (square feet)

A_s = pond surface area (square feet)

h = head of water above orifice (height of riser in feet)

T = dewatering time (24 hours)

g = acceleration of gravity (32.2 feet/second²)

Convert the required surface area to the required diameter D of the orifice:

$$D = 24 \times \sqrt{\frac{A_o}{\pi}} = 13.54 \times \sqrt{A_o}$$

The vertical, perforated tubing connected to the dewatering orifice must be at least 2 inches larger in diameter than the orifice to improve flow characteristics. The size and number of perforations in the tubing should be large enough so that the tubing does not restrict flow. The orifice should control the flow rate.

Additional Design Specifications:

- The **pond shall be divided** into two roughly equal volume cells by a permeable divider that will reduce turbulence while allowing movement of water between cells. The divider shall be at least one-half the height of the riser and a minimum of 1 foot below the top of the riser. Wire-backed, 2- to 3-foot-high, extra-strength filter fabric supported by treated 4 by 4 inches can be used as a divider. If the pond is more than 6 feet deep, a different mechanism must be proposed. A riprap embankment is one acceptable method of separation for deeper ponds. Other designs that satisfy the intent of this provision are allowed as long as the divider is permeable, structurally sound, and designed to prevent erosion under or around the barrier.
- To aid in determining sediment depth, **1-foot intervals** above the pond bottom shall be prominently marked on the riser or a staff gauge.
- If an **embankment** of more than 6 feet is proposed, the pond must comply with the criteria contained in Chapter 7, Section 7.5.1, regarding dam safety for detention BMPs. An electronic version of the Dam Safety Guidelines is available at www.ecy.wa.gov/programs/wr/dams/GuidanceDocs.html.
- The most common structural failure of sedimentation ponds is caused by piping. Piping refers to two phenomena: 1) water seeping through fine-grained soil, eroding the soil grain by grain and forming pipes or tunnels; and 2) water under pressure flowing upward through a granular soil with a head of sufficient magnitude to cause soil grains to lose contact and capability for support.

The most critical construction sequences to prevent piping will be:

- Tight connections between riser and barrel and other pipe connections
- Adequate anchoring of riser
- Proper soil compaction of the embankment and riser footing
- Proper construction of anti-seep devices

Maintenance Standards

- Sediment shall be removed from the pond when it reaches 1-foot in depth.
- Any damage to the pond embankments or slopes shall be repaired.

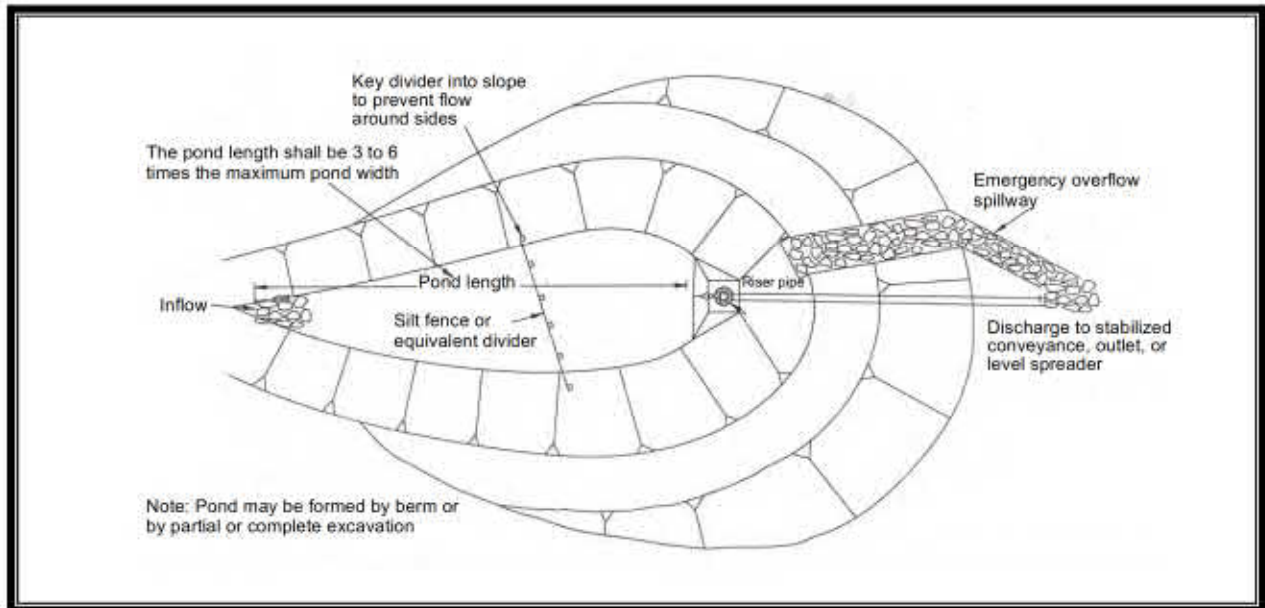


Figure 5.26. Sediment Pond Plan View.

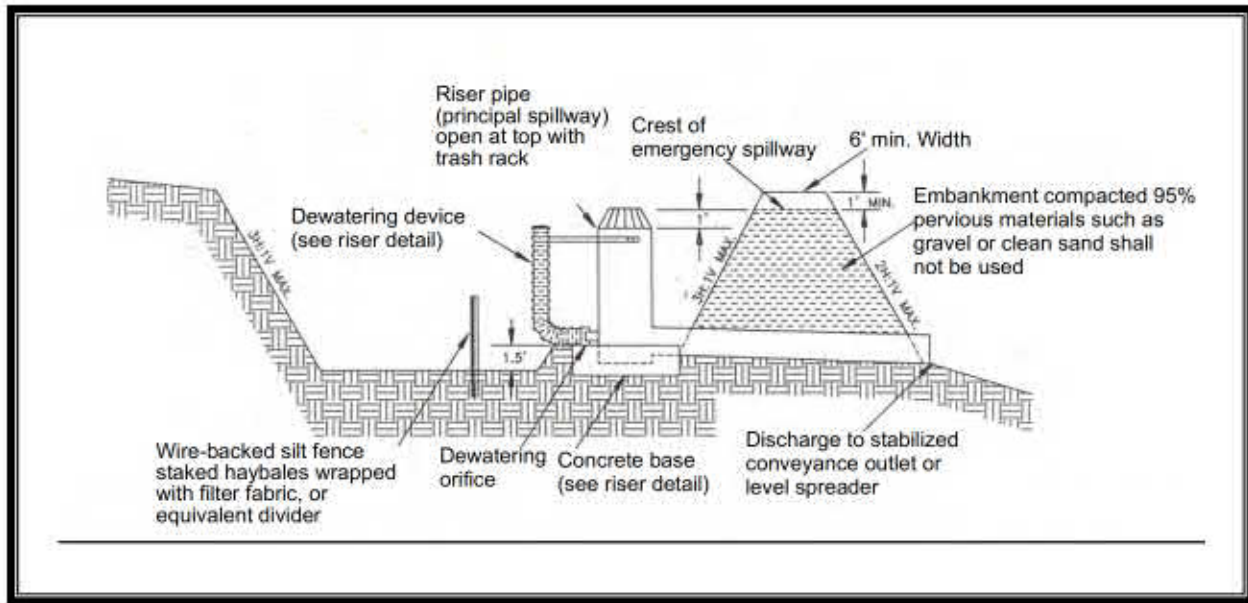


Figure 5.27. Sediment Pond Plan View.

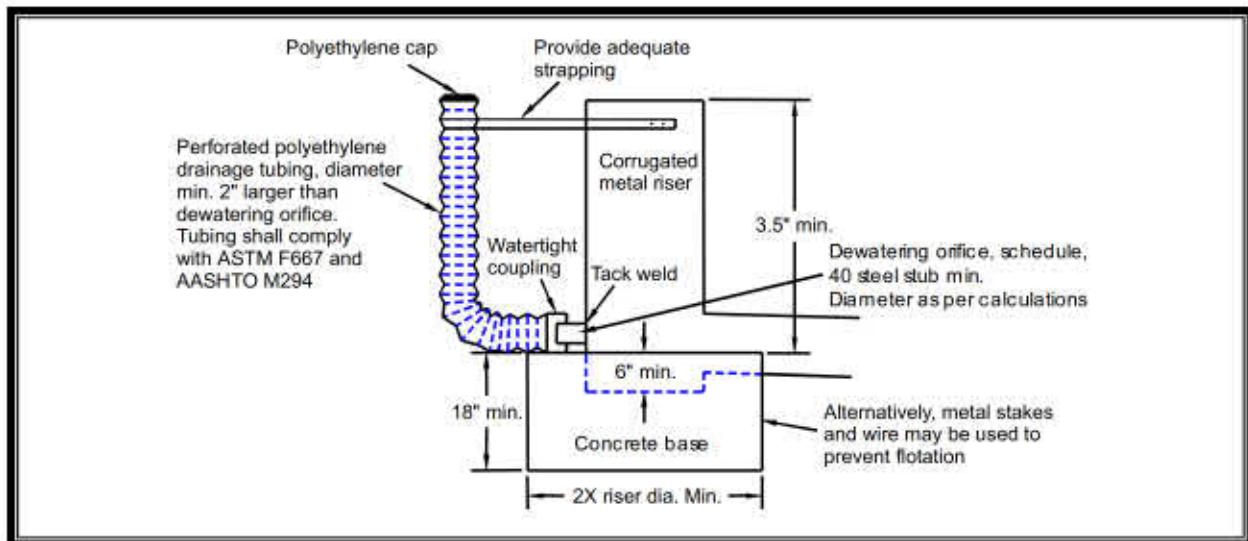


Figure 5.28. Sediment Pond Riser Detail.

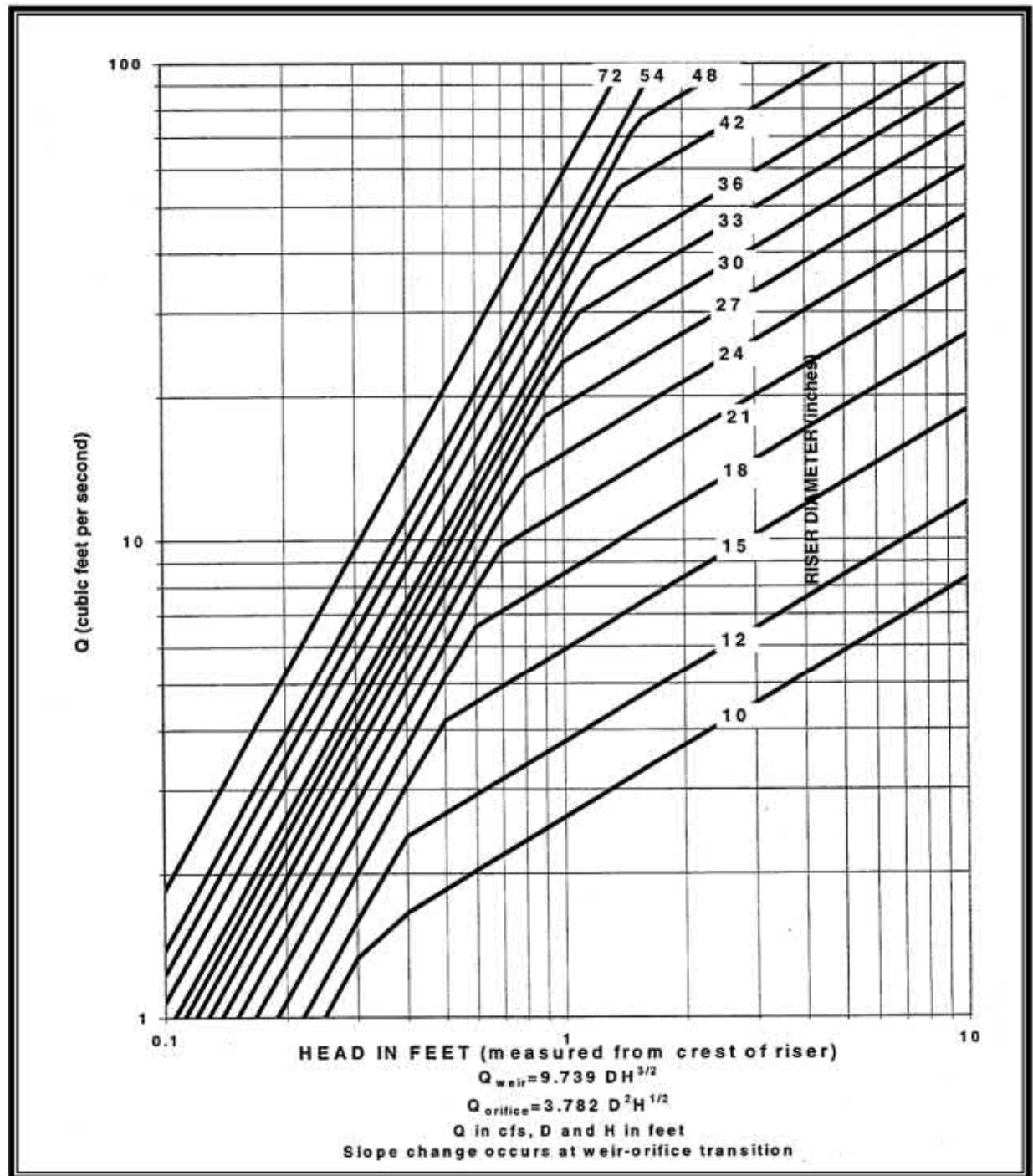


Figure 5.29. Riser Inflow Curves.

BMP C250: Construction Stormwater Chemical Treatment

This BMP applies when using stormwater chemicals in batch treatment or flow-through treatment.

Chemical treatment can reliably provide exceptional reductions of turbidity and associated pollutants. Chemical treatment may be required to meet turbidity stormwater discharge requirements, especially when construction is to proceed through the wet season.

Although Construction Stormwater Chemical Treatment is an Ecology-approved BMP, it is very rarely used in the City of Lacey. Therefore, details on this BMP are not included in the SDM. Rather, users must refer to the 2014 Ecology Manual for details on BMP C250: Construction Stormwater Chemical Treatment.

BMP C251: Construction Stormwater Filtration

Filtration removes sediment from runoff originating from disturbed areas of the site. Filtration with sand media has been used for over a century to treat water and wastewater. The use of sand filtration for treatment of stormwater has developed recently, generally to treat runoff from streets, parking lots, and residential areas. The application of filtration to construction stormwater treatment is currently under development.

Although Construction Stormwater Filtration is an Ecology-approved BMP, it is very rarely used in the City of Lacey. Therefore, details on this BMP are not included in the SDM. Rather, users must refer to the 2014 Ecology Manual for details on BMP C251: Construction Stormwater Filtration.

BMP C252: High pH Neutralization Using CO₂

When pH levels in stormwater rise above 8.5, it is necessary to lower the pH levels to the acceptable range of 6.5 to 8.5; this process is called pH neutralization. pH neutralization involves the use of solid or compressed carbon dioxide gas in water requiring neutralization. Neutralized stormwater may be discharged to surface waters under the General Construction NPDES permit.

Although pH Neutralization is an Ecology-approved BMP, it is very rarely used in the City of Lacey. Therefore, details on this BMP are not included in the SDM. Rather, users must refer to the 2014 Ecology Manual for details on BMP C252: High pH Neutralization Using CO₂.

BMP C253: pH Control for High pH Water

When pH levels in stormwater rise above 8.5, it is necessary to lower the pH levels to the acceptable range of 6.5 to 8.5; this process is called pH neutralization. Stormwater with pH levels exceeding water quality standards may be treated by infiltration, dispersion in vegetation or compost, pumping to a sanitary sewer, disposal at a permitted concrete batch plant with pH neutralization capabilities, or carbon dioxide sparging. BMP C252 gives guidelines for carbon dioxide sparging.

Although pH Control is an Ecology-approved BMP, it is very rarely used in the City of Lacey. Therefore, details on this BMP are not included in the SDM. Rather, users must refer to the 2014 Ecology Manual for details on BMP C253: pH Control for High pH Water.

C. Correspondence

Ecology

EPA

City of Lacey

D. Site Inspection Form

Construction Stormwater Site Inspection Form

Project Name _____ Permit # _____ Inspection Date _____ Time _____

Name of Certified Erosion Sediment Control Lead (CESCL) or qualified inspector if *less than one acre*

Print Name: _____

Approximate rainfall amount since the last inspection (in inches): _____

Approximate rainfall amount in the last 24 hours (in inches): _____

Current Weather Clear ☐ Cloudy ☐ Mist ☐ Rain ☐ Wind ☐ Fog ☐

A. Type of inspection: Weekly ☐ Post Storm Event ☐ Other ☐

B. Phase of Active Construction (check all that apply):

Pre Construction/installation of erosion/sediment controls	☐	Clearing/Demo/Grading	☐	Infrastructure/storm/roads	☐
Concrete pours	☐	Vertical Construction/buildings	☐	Utilities	☐
Offsite improvements	☐	Site temporary stabilized	☐	Final stabilization	☐

C. Questions:

- | | | | | |
|--|-----|-------|----|-------|
| 1. Were all areas of construction and discharge points inspected? | Yes | _____ | No | _____ |
| 2. Did you observe the presence of suspended sediment, turbidity, discoloration, or oil sheen | Yes | _____ | No | _____ |
| 3. Was a water quality sample taken during inspection? (<i>refer to permit conditions S4 & S5</i>) | Yes | _____ | No | _____ |
| 4. Was there a turbid discharge 250 NTU or greater, or Transparency 6 cm or less?* | Yes | _____ | No | _____ |
| 5. If yes to #4 was it reported to Ecology? | Yes | _____ | No | _____ |
| 6. Is pH sampling required? pH range required is 6.5 to 8.5. | Yes | _____ | No | _____ |

If answering yes to a discharge, describe the event. Include when, where, and why it happened; what action was taken, and when.

*If answering yes to # 4 record NTU/Transparency with continual sampling daily until turbidity is 25 NTU or less/ transparency is 33 cm or greater.

Sampling Results: _____ Date: _____

Parameter	Method (circle one)	Result			Other/Note
		NTU	cm	pH	
Turbidity	tube, meter, laboratory				
pH	Paper, kit, meter				

Construction Stormwater Site Inspection Form

D. Check the observed status of all items. Provide "Action Required" details and dates.

Element #	Inspection	BMPs Inspected			BMP needs maintenance	BMP failed	Action required (describe in section F)
		yes	no	n/a			
1 Clearing Limits	Before beginning land disturbing activities are all clearing limits, natural resource areas (streams, wetlands, buffers, trees) protected with barriers or similar BMPs? (high visibility recommended)						
2 Construction Access	Construction access is stabilized with quarry spalls or equivalent BMP to prevent sediment from being tracked onto roads?						
	Sediment tracked onto the road way was cleaned thoroughly at the end of the day or more frequent as necessary.						
3 Control Flow Rates	Are flow control measures installed to control stormwater volumes and velocity during construction and do they protect downstream properties and waterways from erosion?						
	If permanent infiltration ponds are used for flow control during construction, are they protected from siltation?						
4 Sediment Controls	All perimeter sediment controls (e.g. silt fence, wattles, compost socks, berms, etc.) installed, and maintained in accordance with the Stormwater Pollution Prevention Plan (SWPPP).						
	Sediment control BMPs (sediment ponds, traps, filters etc.) have been constructed and functional as the first step of grading.						
	Stormwater runoff from disturbed areas is directed to sediment removal BMP.						
5 Stabilize Soils	Have exposed un-worked soils been stabilized with effective BMP to prevent erosion and sediment deposition?						

Construction Stormwater Site Inspection Form

Element #	Inspection	BMPs Inspected			BMP needs maintenance	BMP failed	Action required (describe in section F)
		yes	no	n/a			
5 Stabilize Soils Cont.	Are stockpiles stabilized from erosion, protected with sediment trapping measures and located away from drain inlet, waterways, and drainage channels?						
	Have soils been stabilized at the end of the shift, before a holiday or weekend if needed based on the weather forecast?						
6 Protect Slopes	Has stormwater and ground water been diverted away from slopes and disturbed areas with interceptor dikes, pipes and or swales?						
	Is off-site storm water managed separately from stormwater generated on the site?						
	Is excavated material placed on uphill side of trenches consistent with safety and space considerations?						
	Have check dams been placed at regular intervals within constructed channels that are cut down a slope?						
7 Drain Inlets	Storm drain inlets made operable during construction are protected.						
	Are existing storm drains within the influence of the project protected?						
8 Stabilize Channel and Outlets	Have all on-site conveyance channels been designed, constructed and stabilized to prevent erosion from expected peak flows?						
	Is stabilization, including armoring material, adequate to prevent erosion of outlets, adjacent stream banks, slopes and downstream conveyance systems?						
9 Control Pollutants	Are waste materials and demolition debris handled and disposed of to prevent contamination of stormwater?						
	Has cover been provided for all chemicals, liquid products, petroleum products, and other material?						
	Has secondary containment been provided capable of containing 110% of the volume?						
	Were contaminated surfaces cleaned immediately after a spill incident?						
	Were BMPs used to prevent contamination of stormwater by a pH modifying sources?						

Construction Stormwater Site Inspection Form

Element #	Inspection	BMPs Inspected			BMP needs maintenance	BMP failed	Action required (describe in section F)
		yes	no	n/a			
9 Cont.	Wheel wash wastewater is handled and disposed of properly.						
10 Control Dewatering	Concrete washout in designated areas. No washout or excess concrete on the ground.						
	Dewatering has been done to an approved source and in compliance with the SWPPP.						
	Were there any clean non turbid dewatering discharges?						
11 Maintain BMP	Are all temporary and permanent erosion and sediment control BMPs maintained to perform as intended?						
12 Manage the Project	Has the project been phased to the maximum degree practicable?						
	Has regular inspection, monitoring and maintenance been performed as required by the permit?						
	Has the SWPPP been updated, implemented and records maintained?						
13 Protect LID	Is all Bioretention and Rain Garden Facilities protected from sedimentation with appropriate BMPs?						
	Is the Bioretention and Rain Garden protected against over compaction of construction equipment and foot traffic to retain its infiltration capabilities?						
	Permeable pavements are clean and free of sediment and sediment laden-water runoff. Muddy construction equipment has not been on the base material or pavement.						
	Have soiled permeable pavements been cleaned of sediments and pass infiltration test as required by stormwater manual methodology?						
	Heavy equipment has been kept off existing soils under LID facilities to retain infiltration rate.						

E. Check all areas that have been inspected. ✓

All in place BMPs ☐ All disturbed soils ☐ All concrete wash out area ☐ All material storage areas ☐
 All discharge locations ☐ All equipment storage areas ☐ All construction entrances/exits ☐

Construction Stormwater Site Inspection Form

F. Elements checked "Action Required" (section D) describe corrective action to be taken. List the element number; be specific on location and work needed. Document, initial, and date when the corrective action has been completed and inspected.

Element #	Description and Location	Action Required	Completion Date	Initials

Attach additional page if needed

Sign the following certification:

"I certify that this report is true, accurate, and complete, to the best of my knowledge and belief"

Inspected by: (print) _____ (Signature) _____ Date: _____

Title/Qualification of Inspector: _____

Attachment No. 3

Soils Report

RH2 TECHNICAL MEMORANDUM

Client:	City of Lacey		
Project:	Lift Station No. 19 Rehabilitation		
Project File:	LAC 516.081.01.102	Project Manager:	David Matz, PE
Composed by:	Sue Cook, LG		
Reviewed by:	Steve Nelson, LEG, and Geoff Dillard, PE		
Subject:	Engineering Geology Evaluation		
Date:	August 10, 2020		



Suzanne Sweet Cook

Signed: 08/xx/2020



STEPHEN ERIC NELSON

Signed: 08/xx/2020



Signed: 08/xx/2020

INTRODUCTION

The City of Lacey (City) identified the need for rehabilitation of its Lift Station No. 19 (LS). The existing LS is a 1.0 million gallons per day (MGD) wet pit/dry pit duplex located within the City at 2631 Willamette Drive NE. The LS was constructed in 1990, with no major upgrades since startup. Recurrent ragging (clogging of fibrous debris), rocks damaging pumps, and aged electrical controls in the dry well at the LS cause frequent maintenance issues. The City procured a new easement, located approximately 600 feet east of the existing LS along Willamette Drive NE on Parcel No. 42080000000, for construction of a new lift station. RH2 Engineering, Inc., (RH2) was retained to evaluate key items for the new lift station and work with City staff to develop design criteria, including design flows, pumps, site access, wet well, vaults, controls, location, geotechnical conditions, and restoration.

The proposed LS rehabilitation project includes new gravity sewer and sewer force main that will connect to existing sewer facilities, will be placed offset into a single trench within the median of Willamette Drive NE, and will connect to the new lift station. The proposed 8-inch-diameter ductile iron (DI) force main is approximately 650 feet long, begins at the existing sewer line in the median adjacent to the existing LS, and continues east to the proposed lift station. The proposed 12-inch-diameter gravity sewer is approximately 722 feet long, begins at an existing sewer manhole, continues east to the proposed wet well, and includes two connections to existing manholes. The proposed LS rehabilitation plan is shown in the attached **Conceptual Site Plan (Site Plan)**. The existing LS and the

proposed gravity and force main sewers are shown on the attached Lift Station 19 Off-Site Sewer plan and profile drawing (Existing LS Plan)

This technical memorandum summarizes the findings of a limited subsurface investigation to observe, characterize, and document earth and groundwater conditions for the proposed LS rehabilitation; to identify potential geologic hazards and recommendations to mitigate these risks; to evaluate the presence and concentration of arsenic and lead in shallow soil; and to provide recommendations for design and construction of the proposed lift station rehabilitation project.

The LS rehabilitation project site (the Site) is in the NE $\frac{1}{4}$ of the SW $\frac{1}{4}$ of Section 01, Township 18 N, Range 01 W, centered at latitude 47.0724 degrees N, longitude 122.7534 degrees W. The Site is located approximately 4 miles northeast of downtown Lacey. The general layout of the Site is shown on the attached Site Plan and Existing LS Plan.

The area of the Site is developed as part of a commercial campus along Willamette Drive NE and adjacent to large stormwater management ponds.

PROPOSED CONSTRUCTION

Approximately 650 feet of 8-inch-diameter DI sewer force main and 722 feet of 12-inch-diameter polyvinyl chloride (PVC) gravity sewer will be installed within open-cut trenches from existing sewer connections adjacent to the existing LS, continue east along Willamette Drive NE, and terminate at the proposed lift station and wet well. The proposed force main and gravity sewer will be installed offset within a single open-cut 15- to 20-foot-deep trench and at maximum depths of approximately 12 feet and 20 feet, respectively. The 8-inch-diameter DI sewer force main will be approximately 5 feet deep, with approximately 6 feet of cover. Three new gravity sewer manholes will be constructed at depths of approximately 15 to 20 feet. The construction will require crossing under existing storm, power, and water utilities, and the north lane of Willamette Drive NE. Refer to the attached Site Plan and Existing LS Plan.

REGIONAL GEOLOGY

RH2 reviewed geologic maps and descriptions of regional geologic conditions provided by the Washington State Department of Natural Resources (WDNR) website (<https://geologyportal.dnr.wa.gov/>) and Geologic Map of the Lacey 7.5-minute quadrangle, Thurston County, Washington (Logan, et al., 2003, Washington Division of Geology and Earth Resources, Open File Report 2003-9). RH2 reviewed the driller's logs for borings and wells (Well Logs) completed within 1 mile of the Site and recorded at the Washington State Department of Ecology (Ecology) well log website.

The surficial geologic units mapped at the site are recessional glacial outwash and glacial lodgement till. Recessional outwash is mapped along the eastern two-thirds of the project area, including the proposed lift station, and consists of poorly to moderately sorted sand and gravel, locally containing silt and clay. Glacial lodgement till is mapped along the western third of the project area, and consists of an unstratified and unsorted, highly compact mixture of clay, silt, sand, and gravel deposited directly by glacier ice of very low permeability. Typical thickness of glacial till varies from very thin to 30 feet. Recessional glacial outwash typically overlies glacial till in profile and may onlap till locally. Advance

glacial outwash sand and gravel typically underlies glacial till, or recessional outwash, when till is absent.

Groundwater wells in the site vicinity tap aquifer(s) at depths below 100 feet.

Due to the grain size distribution, deep groundwater, and loose to dense conditions, the Site is considered to have a Seismic Site Class C to D and a very low risk of liquefaction.

SITE INVESTIGATION

Geologic Evaluation

Before site exploration, RH2 reviewed available geologic maps, soil maps, and soil boring and well logs for the local area. On June 10, 2020, RH2 observed the excavation of three soil test pits (TP-1, TP-2, and TP-3) onsite to depths of 12 to 13 feet, by GEC Northwest, Inc., of Tacoma, Washington using an excavator equipped with a 2-foot toothed bucket. Caving and sloughing of the excavation sidewalls limited the ability to extend the excavations below 13 feet. After excavation, GEC Northwest, Inc., backfilled the test pits with excavated soil and tamped. The Test Pit Logs are attached, and the test pit locations are shown on the attached Site Plan.

RH2 observed the excavated soil from the test pits to identify stratigraphy, composition, texture, structure, and cohesion of native earth materials encountered in the borings. The earth materials encountered in the test pits consisted of a surficial layer of fill approximately 4.5 and 2.0 feet thick in TP-1 and TP-3, respectively, composed of loose to dense silty sand with variable gravel content. Underlying fill (in TP-1 and TP-3) or topsoil (in TP-2) was recessional glacial outwash consisting of loose to dense, sandy gravel to gravelly sand with variable silt content. Moderate caving of the sidewalls during excavation of all three test pits was observed in native recessional outwash.

Below 10 to 12 feet in each test pit (correlating to approximately 202 to 206 feet elevation above mean sea level), a relative increase in density, silt content, moisture, and sidewall stability was observed. According to the geologic map, advance outwash is mapped at the ground surface below 200 feet elevation approximately 1 and 2 miles, east and west, respectively, of the Site. The base of the test pits may have encountered advance outwash consisting of dense, silty sandy gravel to silty gravelly sand.

Glacial till is mapped at the ground surface at the location of the existing LS and western third of the proposed sewer additions. Glacial till also may underlie recessional outwash locally but was not encountered in the test pits excavated near the proposed lift station. The nearby stormwater pond north of the existing LS appears to have been excavated into outwash. Soil borings at the Hoglum Bay-Willamette Drive roundabout encountered 15 to 20 feet of outwash (Well Logs). It is likely that the area underlying the existing LS and along the proposed gravity and force main extensions are underlain by outwash.

Groundwater was not observed in the test pits to the terminal depths of 12 to 13 feet. Area soil boring and well logs obtained from Ecology indicate a regional aquifer exists in sediments over 200 feet below ground surface (bgs), with static water levels over 100 feet bgs. Locally, groundwater may accumulate on low-permeability layers, such as silt, clay, or glacial till, underlying or within recessional outwash. Increased density, silt content, and moisture was observed near the terminal depth of the test pits. Minor seepage may be encountered in open trenches at the contact of recessional outwash and glacial till (when present) or below 10 to 12 feet bgs depending on the season.

Soil Sampling for Arsenic and Lead Concentrations

Shallow soil samples were collected on June 24, 2020 at several locations for analysis of lead and arsenic to evaluate the potential presence of these metals, which could affect site construction activities. Samples were collected following guidance of Tacoma Smelter Plume Model Remedies Guidance (July 2019), prepared by Ecology. Samples of soil were collected at 8 locations at depths of 0 to 6 inches below surface duff, and at 2 of the same locations at 6 to 12 inches below the surface duff. One sample of surface duff was collected. A total of 11 samples were submitted to OnSite Environmental Inc. laboratory for analysis of lead and arsenic using U.S Environmental Protection Agency Method 6010D. The sample analytical results are attached. Table 1 summarizes the analytical results.

Table 1
Summary of Lacey LS 19 Soil Sampling Analyses

Sample Location	Arsenic Concentration	PQL	Lead Concentration	PQL
1s	44	12	95	6.2
2s	<	11	<	5.5
3s	14	13	14	6.3
4s	20	12	50	6.1
5s	<	11	<	5.7
6s	16	13	28	6.7
7s	<	12	<	6.0
8s	13	13	<	6.3
Average	15.5		24.8	
2d	<	10	<	5.2
7d	<	11	<	5.7
Average	<11		<5.4	
Duff	13	11	82	11.0

All results in milligrams per kilograms (mg/kg), equivalent to parts per million (ppm).
PQL - Practical Quantitation Limit (but not equal to zero for the averaging of samples)
< - Less than the PQL

The average concentrations of arsenic and lead in shallow and deeper samples were below cleanup levels (average arsenic levels of greater than 20 ppm, or average lead levels of greater than 250 ppm), indicating that none of the site soil contains arsenic or lead concentrations that would be considered “elevated,” requiring special action or cleanup during construction per Ecology guidance.

GEOLOGIC HAZARDS

The WDNR geology and hazards portal website was reviewed for geologic hazards at the Site. The information that follows summarizes the geologic hazards and relative risk they pose to the LS rehabilitation project:

- Risks from liquefaction and flooding are very low.
- Risks from landsliding are negligible.
- The risk of earthquakes of magnitude 5 to 6 during the next 50 years is high (80 percent).

- The risk of caving and sidewall sloughing of native soil into open cut trenches below 5 feet is high.
- The risk of persistent groundwater seepage from surrounding native soil into excavations below 12 feet is low. Minor groundwater seepage into excavations may occur, depending on the season.
- The risk of groundwater seepage from surrounding native soil into open-cut trenches less than 10 to 12 feet is low, depending on the season.

GEOTECHNICAL PROPERTIES

Based on the observed soil composition and density, the primary unit may support a structure with an appropriately designed foundation that spreads a load that does not exceed a net allowable bearing capacity of 2,000 pounds per square foot (psf).

The recessional outwash and glacial till should be considered as a Site Class C to D, medium dense to very dense soil.

RECOMMENDATIONS

SITE EXCAVATION FOR IMPROVEMENTS

- Open-cut excavations to install gravity sewer at a depth of approximately 15 to 20 feet through loose to dense recessional outwash, glacial till, or advance outwash should be feasible using excavators equipped with toothed buckets. Shoring of all excavations will be required. Minor seepage may occur at geologic contacts or below depths of 12 feet, depending on the season.
- Excavations to the subgrade should be reviewed by a Licensed Engineering Geologist (LEG) or Professional Engineer with a geotechnical background (PEG) at the lowest excavated subgrade elevation, prior to any subgrade improvements.

SLOPES AND SHORING

- The loose to medium dense recessional outwash will not support temporary slopes cut steeper than 2H:1V and open for more than a few minutes; shoring would be required for slopes cut at steeper slopes and for excavations open for longer than a few minutes.
- Excavations will require shoring below depths of 4 feet to protect workers, adjacent structures, roads, and utilities.
- All excavated slopes should be reviewed for stability several times a day, or as often as necessary to ensure slope integrity. This shall include reviewing the top of the slope for tension cracks and settlement, as well as erosion.
- The native geologic unit and surficial fill material is erodible. All temporary slopes should be protected from erosion from direct precipitation or runoff from adjacent impermeable surfaces. Before and during precipitation events, the surface should be covered by plastic sheeting or other techniques that prevent rain splash erosion and rilling. Measures should be taken to prevent stormwater runoff into the open excavation.

- All permanent slopes should be protected from erosion by hydroseeding and planting with landscape fabric, coarse bark placement, quarry spalls, or other materials that prevent rain splash erosion and rilling.
- The contractor will be responsible for maintaining the integrity and safety of the excavation and must provide a shoring plan as part of the bid submittal.

GROUNDWATER CONTROL

- Minor seepage may occur at geologic contacts or below depths of 12 feet, depending on the season.
- Limited or occasional sumping may be required to manage any limited amounts of seepage.

SUBGRADE PREPARATION

- Areas of subgrade that consist of less than 12 inches of loose or unsuitable native soil should be over-excavated and backfilled with compacted crushed rock up to the design subgrade depth.
- Areas of subgrade that consist of more than 12 inches of loose or unsuitable native soil should be over-excavated and backfilled with compacted structural fill up to the design subgrade depth. Additional materials, such as geotextile fabric or quarry spalls, may supplement the placement of structural fill.
- Structural backfill should meet the requirements of gravel borrow (or equivalent) per the Washington State Department of Transportation (WSDOT) Standard Specifications 2018, 9-03.14(1). Structural backfill should be placed at optimal moisture in 6-inch loose lifts and compacted to a firm and unyielding surface to achieve at least 95 percent of maximum dry density as determined by the modified proctor test (ASTM D1557).
- The final subgrade should be flat and free of loose earth materials and cobbles larger than 4 inches in diameter. The subgrade should be probed to confirm uniform soil density and approved by an LEG or PEG.
- Crushed rock should meet the requirements of crushed surfacing base course (CSBC) per the WSDOT Standard Specifications 2018, 9-03.9(3). CSBC should be placed in 6-inch lifts and compacted to a firm and unyielding surface to achieve at least 95 percent of maximum dry density as determined by ASTM D1557.

PIPE ZONE BEDDING

- Pipe zone bedding for utility trenches should be placed and compacted to a firm and unyielding condition at the base of the trench and with hand tools above the utilities.
- Pipe zone bedding alongside and above the pipe should be compacted to a firm and unyielding condition.

USE OF EXCAVATED EARTH MATERIALS

- Excavated native soil and in-situ fill will contain a high percentage of cobbles and should be exported offsite and not used for structural fill unless the excavated material is screened of material larger than 4 inches in diameter and is maintained at optimum soil moisture.

- Screened excavated material may be used for trench backfill above pipe zone bedding in areas that will not be covered by pavement.

COMPACTION AND TESTING OF IMPORTED FILL

- Representative samples of imported structural fill should be tested to establish optimum moisture content and MDD.
- Imported trench backfill material should be tested for moisture content just prior to placement. Trench backfill should be within plus 3 percentage points of its optimum moisture content when placed.
- Trench backfill should be placed in lifts that are not more than 8 inches thick. Placement and compaction of the fill should be observed by an LEG or PEG.
- All imported fill used as backfill below pavement should be compacted to 95 percent of MDD, as determined in accordance with the modified proctor test (ASTM D1557).
- All imported fill not placed below pavement should be compacted to 90 percent of MDD, as determined in accordance with the modified proctor test.

ATTACHMENTS

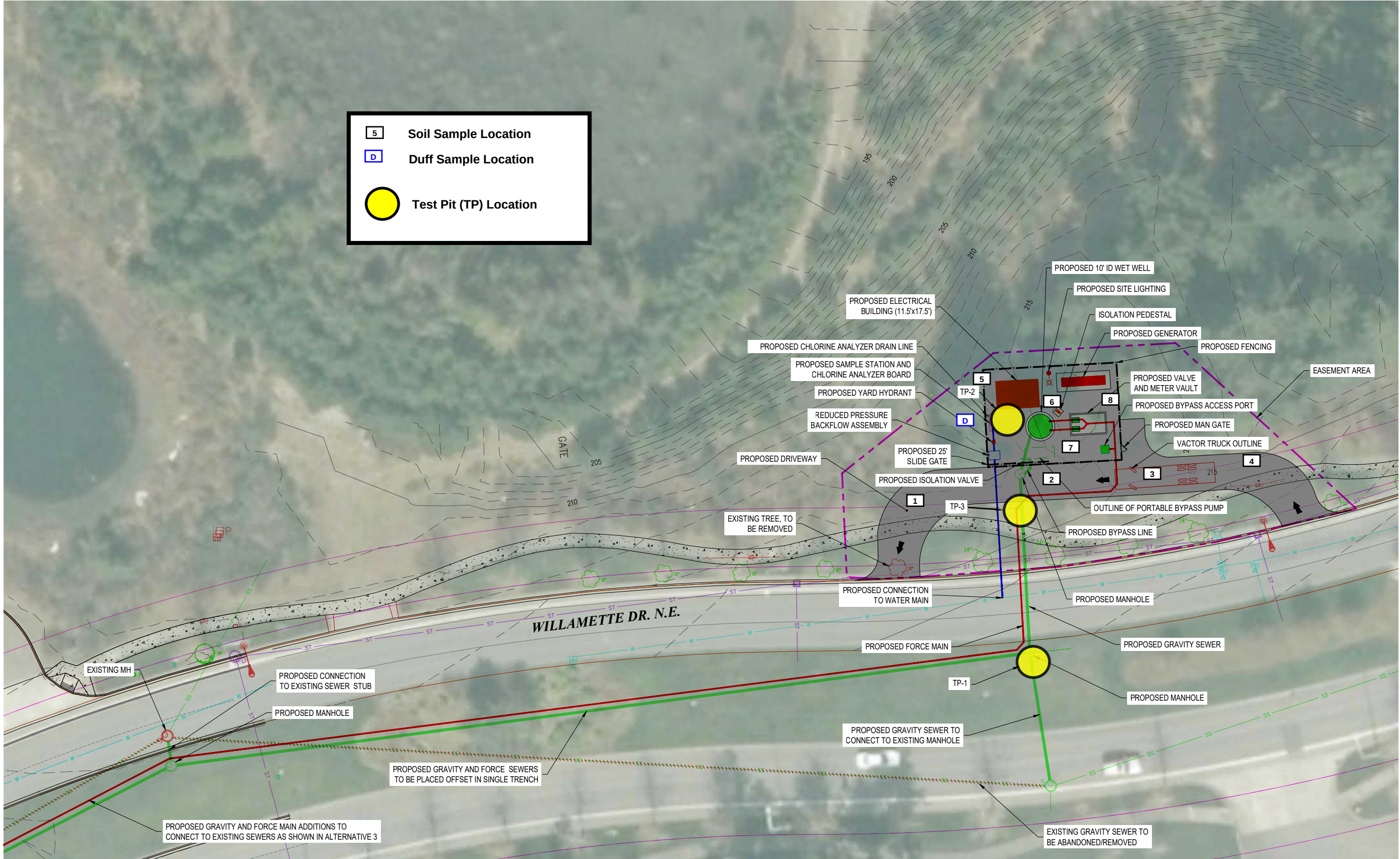
1. Site Plan
2. Existing LS Plan
3. Well Logs
4. Test Pit Logs
5. Soil Testing Results

PRELIMINARY

Attachments

PRELIMINARY

Site Plan



CONCEPTUAL SITE PLAN

1" = 20'



ALTERNATIVE SUMMARY	
EASEMENT AREA:	APPROX. 12700 SF
SITE AREA:	APPROX. 2220 SF
DRIVEWAY AREA:	APPROX. 3520 SF
NEW GRAVITY SS:	APPROX. 720 LF
NEW FORCE MAIN:	APPROX. 680 LF
NEW MANHOLE:	3

CITY OF LACEY

LIFT STATION 19 ALTERNATIVES

CONCEPTUAL SITE PLAN

ENGINEER	REVIEWER	DATE	NO.	DATE	DESCRIPTION	BY	REVIEW
###	###	###	###	###	###	###	###

SCALE: ###

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: ### SHEET NO.: ###

Existing Lift Station Plan

PRELIMINARY

Well Logs

MONITORING WELL REPORT

430676

Well ID# SOVL BORING
Start Card # SE431A16

(1) OWNER/PROJECT WELL NO. _____
 Name City of Lacey
 Address Lacey City Hall 420 College St. S.E.
 City Lacey State WA Zip 98503

(2) TYPE OF WORK

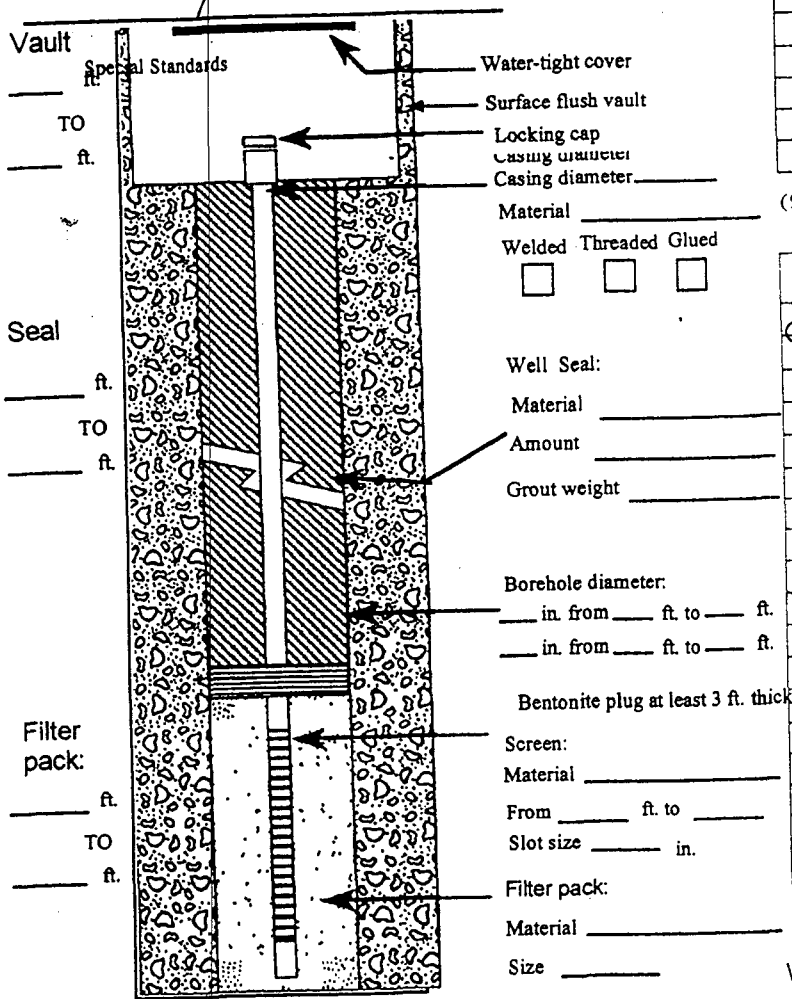
☒ New construction ☐ Alteration (Repair/Recondition)
☐ Conversion ☐ Deepening ☐ Abandonment

(3) DRILLING METHOD

☐ Rotary Air ☐ Rotary Mud ☐ Cable
☒ Hollow Stein Auger ☐ Other _____

(4) BORE HOLE CONSTRUCTION:

Special Standards ☐ Yes ☒ No Depth of Completed Well 16 ft.



(6) LOCATION OF WELL By *legal description*:

County Thurston Latitude _____ Longitude _____
Township 13N (N or S) Range 1W (E or W) Section 2
SE 1/4 of SE 1/4 of above section.
Street address of well location Intersection of Willamette
Dr & Hugum Bay Rd Lacey, WA 98516
Tax lot number of well location _____

(7) STATIC WATER LEVEL:

_____ Ft. below land surface. Date _____

Artesian Pressure _____ lb/sq. in. Date _____

(8) WATER BEARING ZONES:

Depth at which water was first found _____

From	To	Est. Flow Rate	SWL

(9) WELL LOG:

Ground Elevation _____

[illegible]

Date started 19/14/11 Completed 07/14/11

(5) WELL TESTS:

☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Permeability _____ Yield _____ GPM _____

Conductivity

Temperature of water _____ OF/C Depth artesian flow found _____ ft.

Was water analysis done? ☒ Yes ☐ No

By whom? _____

Depth of strata to be analyzed. From _____ ft. to _____ ft.

Remarks: _____

Landau Associates

WELL CONSTRUCTION CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Type or Print Name Jeremy Carlson License No. 2989

Trainee Name _____ License No. _____

Drilling Company: Holocene Drilling Inc.

(Signed) [Signature] License No. 2989

Address 11412 162nd Ave E Puyallup, WA. 98373

Registration No. HOLDCEIO44KH Date 09/21

WATER WELL REPORT
STATE OF WASHINGTON

Elev 242 ft

(WADNR)

Application No.

Permit No.

G2-20427P

(1) OWNER: Name BRUNO BETTI Address 1027 N MARVIN RD. OLY-98506
(2) LOCATION OF WELL: County THURSTON NE 1/4 SW 1/4 Sec 2 T. 18 N. R. 1 W
Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☒ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one)
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☒ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 8 inches
Drilled 218 ft. Depth of completed well 218 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 8" Diam. from 218 ft. to 218 ft.
Threaded ☐ " Diam. from _____ ft. to _____ ft.
Welded ☒ " Diam. from _____ ft. to _____ ft.

Perforations: Yes ☐ No ☒
Type of perforator used _____
SIZE of perforations _____ in. by _____ in.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.

Screens: Yes ☒ No ☐
Manufacturer's Name Johnson
Type WIRE WOUND Model No. Stainless
Diam. 8 Slot size 30 from 212 ft. to 218 ft.
Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: _____
Gravel placed from _____ ft. to _____ ft.

Surface seal: Yes ☐ No ☒ To what depth? _____ ft.
Material used in seal _____
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? _____ Depth of strata _____
Method of sealing strata off _____

(7) PUMP: Manufacturer's Name Whelen
Type: Submersible HP 7 1/2

(8) WATER LEVELS: Land-surface elevation 227 ft. above mean sea level
Static level 148 ft. below top of well Date 10/9/72
Artesian pressure _____ lbs. per square inch Date _____
Artesian water is controlled by _____ (Cap. valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom? _____
Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____
Bailer test 39 gal./min. with 18 ft. drawdown after 2 hrs.
Artesian flow _____ g.p.m. Date 10/19/72
Temperature of water 51 Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure; and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Hardpan	0	58
Sand	58	62
Sand Pea Gravel	62	81
Sand Gravel	81	101
Hardpan	101	129
Sand Gravel	129	148
Sandy Blue Clay	148	164
Sand Gravel	164	187
Fine Sand Gravel	187	209
Course " "	209	216
Fine Sand	216	218

RECEIVED

JUL 13 1977

DEPARTMENT OF ECOLOGY
SOUTHWEST REGIONAL OFFICEWork started 10/6 1972 Completed 10/19 1972

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME PATTERSON DRILLING CO
(Person, firm, or corporation) (Type or print)

Address 2513 E 4th Olympia

[Signed] M.B. Patterson
(Well Driller)

License No. 0388 Date July 2 1974



Well Tagging Form

PWS ID #: 060727 Source #: 2

Unique Well Tag No: AHF 069

RECORD VERIFICATION (check ☒ one)

- ☒ Well Report available (please attach this form to the well report and submit it to the Ecology Regional Office near you)
- ☐ Verification inconclusive
- ☐ Well Report not available

PUBLIC WATER SYSTEM INFORMATION

Water System Name: Betti Hawks Prairie Water Supply

Street Address: 2929 Main Rd NE

City: Olympia State: WA 98516

LOCATION OF WELL, IF DIFFERENT FROM WELL REPORT

Well Address: TP 11802320600

City: _____ County: Thurston

T. 18 N. R. 1 W. W.M. Sec. 2 NW 1/4 of the 8W

FOR AGENCY USE ONLY

Latitude _____ "

Longitude _____ "

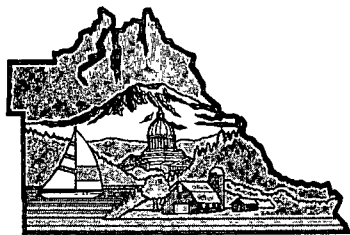
Elevation at land surface _____ feet/meters (circle one)

Additional information, if available:

☐ Location marked on topographic map (please attach)

☒ Location marked on air photo (please attach)

- ☐ GPS
- ☐ Topographic Map
- ☐ Survey
- ☐ Computer generated
- ☐ Digital Altimeter
- ☐ Topographic Map
- ☐ Other _____



THURSTON COUNTY

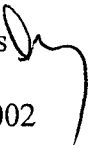
WASHINGTON
SINCE 1852

COUNTY COMMISSIONERS
Cathy Wolfe
District One
Diane Oberquell
District Two
Kevin J. O'Sullivan
District Three

PUBLIC HEALTH AND SOCIAL SERVICES DEPARTMENT

Memorandum

Patrick M. Libbey, Director
Diana T. Yu, MD, MSPH
Health Officer

To: Thurston Geodata Staff
From: Heather Saunders 
Date: November 20, 2002
Re: Water System and Well Site
Betti Hawks Prairie Water Supply – ID# 060727

Service Area:

- The present service area is shown on the attached map. It is probable this area will be served by the City of Lacey in the near future.

Well Site:

- Well #2 is on tax parcel 11802320600. The well is located relative to the aerial photograph. The wellhouse shows up in the photo. Well #4, which has never been approved is adjacent to the storage tank on an adjacent parcel. It was not tagged due to inaccessibility.

Well Tags

- The well was tagged with AHF 069.

Questions: Please call Heather Saunders at 754-2963.

ATTACHMENTS



WATER WELL REPORT
STATE OF WASHINGTONElev 234 ft
(WADNR)

Application No.

Permit No.

(1) OWNER: Name H.D. Fowler Inc. Address 3007 Marvin Rd. N.E.(2) LOCATION OF WELL: County THURSTEN W 1/2 NW 1/4 NW 1/4 Sec 2 T. 18 N. R. 14 W.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐(4) TYPE OF WORK: Owner's number of well
(if more than one)
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☒ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 203.6 ft. Depth of completed well 203.6 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6" Diam. from 0 ft. to 203.6 ft.
Threaded ☐ " Diam. from _____ ft. to _____ ft.
Welded ☒ " Diam. from _____ ft. to _____ ft.Perforations: Yes ☐ No ☒

Type of perforator used _____

SIZE of perforations _____ in. by _____ in.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.Screens: Yes ☒ No ☐Manufacturer's Name JOHNSONType SLANLESS Model No. _____Diam. 6" Slot size 1/8 from 198 ft. to 203.6 ft.

Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: _____

Gravel placed from _____ ft. to _____ ft.

Surface seal: Yes ☒ No ☐ To what depth? 18 ft.Material used in seal BENTONITEDid any strata contain unusable water? Yes ☐ No ☒

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

(7) PUMP: Manufacturer's Name _____

Type: _____ HP _____

(8) WATER LEVELS: Land-surface elevation _____ ft.

Static level 156 ft. below top of well Date _____

Artesian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? Yes ☐ No ☒ If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

" " " " " "

" " " " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time Water Level Time Water Level Time Water Level

Date of test _____

Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Gray Hard Pan	0	30
Gray cemented Gravel	30	65
	65	128
Gray Sand + Gravel	128	132
Gray Sand Gravel + Water	132	134
Gray Hard pan	134	137
Gray Sand + Gravel (water shed)	137	165
Gray Clay	165	175
Brown Sand + Gravel	175	186
Gray Sand + Gravel	186	190
Brown Sand	190	192
Gray Hard pan	192	203 1/2
Gray coarse Sand + Gravel		
water		
Bottom out (Brown		
Hard pan		

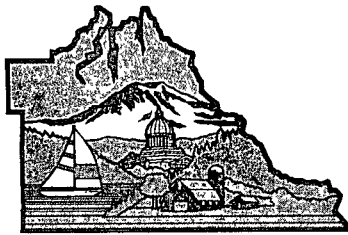
Work started 5-9-7 1985 Completed 6-19 1985

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Roy Mc Gill Well Drilling
(Person, firm, or corporation) (Type or print)Address 7837 Martin Way #23[Signed] Roy Mc Gill
(Well Driller)License No. 0336 Date 6-19 1985

(USE ADDITIONAL SHEETS IF NECESSARY)



THURSTON COUNTY

W A S H I N G T O N
SINCE 1852

COUNTY COMMISSIONERS

Cathy Wolfe
District One

Diane Oberquell
District Two

Kevin J. O'Sullivan
District Three

PUBLIC HEALTH AND SOCIAL SERVICES DEPARTMENT

Memorandum

Patrick M. Libbey, Director
Diana T. Yu, MD, MSPH
Health Officer

To: Thurston Geodata Staff
From: Heather Saunders
Date: September 27, 2002
Re: Water System and Well Site
Floating Bear – ID# 65153F

Service Area:

- The service area is shown on the attached map.

Well Site:

- The well is on tax parcel 11802320200. The well is located relative to the aerial photograph.

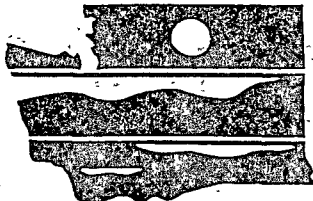
Well Tags

- The well was tagged with AHF 054.

Questions: Please call Heather Saunders at 754-2963.

ATTACHMENTS





WASHINGTON STATE
DEPARTMENT OF
ECOLOGY

Well Tagging Form

PWS ID #: 65153F Source #: 1

Unique Well Tag No: AHF 054

RECORD VERIFICATION (check one)

- ☒ Well Report available (please attach this form to the well report and submit it to the Ecology Regional Office near you)
- ☐ Verification inconclusive
- ☐ Well Report not available

RECEIVED

OCT 08 2002

DEPARTMENT OF ECOLOGY
WELL DRILLING UNIT

PUBLIC WATER SYSTEM INFORMATION

Water System Name: Flooting Bear

Street Address: 3011 Marvin Rd NE

City: Olympia State: WA

LOCATION OF WELL, IF DIFFERENT FROM WELL REPORT

Well Address: 3011 Marvin Rd NE

City: Olympia County: Thurston

T. 18 N. R. 1 W. W.M. Sec. 02 NW 1/4 of the SW

FOR AGENCY USE ONLY

Latitude _____ "

Longitude _____ "

- ☐ GPS
- ☐ Topographic Map
- ☐ Survey
- ☐ Computer generated

Elevation at land surface _____ feet/meters (circle one)

- ☐ Digital Altimeter
- ☐ Topographic Map
- ☐ Other _____

Additional information, if available:

- ☐ Location marked on topographic map (please attach)
- ☒ Location marked on air photo (please attach)

WATER WELL REPORT
STATE OF WASHINGTON

Elev 235 Application No.
(WADNR) Permit No.

(1) OWNER: Name John A. Thompson Address 10113 Helen Drive E., Olympia, Wa. 98506

(2) LOCATION OF WELL: County Thurston SW $\frac{1}{4}$ SW $\frac{1}{4}$ Sec. 6 T 18 N. R. 1E W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Multiple
Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) 2
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☒ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 258 ft. Depth of completed well 258 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from 0 ft. to 253 ft.
Threaded ☐ " Diam. from _____ ft. to _____ ft.
Welded ☒ " Diam. from _____ ft. to _____ ft.

Perforations: Yes ☐ No ☒

Type of perforator used _____
SIZE of perforations _____ in. by _____ in.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.

Screens: Yes ☒ No ☐ UOP Johnson

Manufacturer's Name _____ Model No. _____
Type Stainless
Diam. 6 Slot size 60 from 253 ft. to 258 ft.
Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: _____
Gravel placed from _____ ft. to _____ ft.

Surface seal: Yes ☒ No ☐ To what depth? 20 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? _____ Depth of strata _____
Method of sealing strata off _____

(7) PUMP: Manufacturer's Name Jacuzzi Bros., Inc.
Type Submersible, 3340 HP 3

(8) WATER LEVELS: Land-surface elevation above mean sea level _____ ft.
Static level 217 ft. below top of well Date 12/2/74
Artesian pressure _____ lbs. per square inch Date _____
Artesian water is controlled by _____ (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☒ No ☐ If yes, by whom? Driller
Yield: 30 gal./min. with 3 ft. drawdown after 4 hrs.

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test 12/2/74
Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.
Artesian flow _____ g.p.m. Date _____
Temperature of water _____ Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Sand & gravel	0	49
Hardpan	49	86
Shale, clay seams	86	240
Clay & fine sand	240	246
Gravel, water	246	258

RECEIVED

DEC 13 1974

DEPARTMENT OF ECOLOGY
SOUTHWEST REGIONAL OFFICE

Work started 11/19/ 1974 Completed 12/2/ 1974

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Richardson Well Drilling Company
(Person, firm, or corporation) (Type or print)

Address P.O. Box 44408, Tacoma, Wa. 98444

[Signed] Richardson
(Well Driller)

License No. 223-02-6500 Date December 16, 1974

(USE ADDITIONAL SHEETS IF NECESSARY)



Well Tagging Form

PWS ID #: 53780ASource #: 2Unique Well Tag No: ATF 041

RECORD VERIFICATION (check one)



Well Report available (please attach this form to the well report and submit it to the Ecology Regional Office near you)



Verification inconclusive



Well Report not available

PUBLIC WATER SYSTEM INFORMATION

Water System Name: Meridian HeightsStreet Address: 2806 Nisqually View LP NECity: OlympiaState: WA

LOCATION OF WELL, IF DIFFERENT FROM WELL REPORT

Well Address: 9524 Helen Ave NECity: OlympiaCounty: ThurstonT. 18 N. R. 1 E W.M. Sec. 06 SW 1/4 of the SW

FOR AGENCY USE ONLY

Latitude _____ "

Longitude _____ "

Elevation at land surface _____ feet/meters (circle one)

Additional information, if available:



Location marked on topographic map (please attach)



Location marked on air photo (please attach)



GPS

Topographic Map

Survey

Computer generated



Digital Altimeter

Topographic Map

Other _____

PRELIMINARY

Test Pit Logs

	Test Pit/Exploration Log LAC TP-1 Exploration Name	Lift Station No. 19 Rehabilitation City of Lacey Project	10 feet S of curb in median along Willamette Drive NE Location
Sue Cook, LG Observed By	June 10, 2020 Date	LAC 516.081 Project No.	Volvo ECR88D, 2-foot toothed bucket GEC Northwest, Inc. Backhoe and Operator
Depth	Description		Sketch/Photo
0 to 1.0 feet	Silty SAND with Gravel (SM); dark brown; fine to coarse sand, fine to coarse rounded to subrounded gravel, non-plastic fines, trace cobbles; very moist; medium dense; abundant roots; lawn (fill).		
1.0 to 4.5 feet	Gravelly SAND (SM); light gray to olive gray; fine to coarse sand, fine to coarse rounded to subrounded gravel, few non-plastic silt, trace cobbles; moist; dense to very dense; partially cemented; layering (fill).		
4.5 to 10.0 feet	Sandy Fine GRAVEL (GW); brown; fine rounded to subrounded gravel, fine to coarse sand, trace coarse gravel, trace cobbles, trace non-plastic fines, occasional boulders; moist to very moist; medium dense; well sorted (recessional outwash).		
10.0 to 12.0 feet	Silty GRAVEL with Sand (GP); brown; fine rounded to subrounded gravel, with coarse sand, trace fine to medium sand, trace non-plastic fines; very moist to wet; medium dense to dense; some orange mottling (recessional outwash). No groundwater seepage encountered. Sidewalls stable 0 to 5 feet, moderate caving 5 to 10 feet, minor caving 10 to 12 feet.		
Exploration backfilled with excavated soil.			

	Test Pit/Exploration Log LAC TP-2 Exploration Name	Lift Station No. 19 Rehabilitation City of Lacey Project	60 feet North of curb along Willamette Drive NE Location
Sue Cook, LG Observed By	June 10, 2020 Date	LAC 516.081 Project No.	Volvo ECR88D, 2-foot toothed bucket GEC Northwest, Inc. Backhoe and Operator
Depth	Description		Sketch/Photo
0 to 1.0 feet	Silty SAND (SM); dark brown; fine to coarse sand, non-plastic fines, few fine to coarse rounded to subrounded gravel; very moist; loose; abundant roots; forest duff.		
1.0 to 4.0 feet	Sandy GRAVEL (GP); yellowish brown; fine to coarse rounded to subrounded gravel, fine to coarse sand, few non-plastic silt, trace cobbles; slightly moist; loose (recessional outwash).		
4.0 to 9.0 feet	Sandy GRAVEL (GW-GP); gray to brown; fine to coarse rounded to subrounded gravel, fine to coarse sand, trace to few non-plastic fines, trace to few cobbles; moist; medium dense; sorted; stratified; cobbly zone at 6 feet (recessional outwash).		
9.0 to 11.0 feet	Sandy GRAVEL with Cobbles (GP); gray to brown; fine to coarse rounded to subrounded gravel, fine to coarse sand, with cobbles, trace to few non-plastic fines; very moist; medium dense to dense (recessional outwash).		
11.0 to 13.0 feet	Silty SAND with Gravel (SP-SM); gray; fine to coarse sand, fine to coarse rounded to subrounded gravel, few non-plastic fines; very moist; dense; poorly sorted (recessional outwash?). No groundwater seepage encountered. Moderate caving 0 to 9 feet, minor caving 9 to 13 feet.		
Exploration backfilled with excavated soil.			

	Test Pit/Exploration Log LAC TP-3 Exploration Name	Lift Station No. 19 Rehabilitation City of Lacey Project	28 feet North of curb along Willamette Drive NE Location
Sue Cook, LG Observed By	June 10, 2020 Date	LAC 516.081 Project No.	Volvo ECR88D, 2-foot toothed bucket GEC Northwest, Inc. Backhoe and Operator
Depth	Description		Sketch/Photo
0 to 2.0 feet	Silty SAND (SM); dark brown to brown; fine to coarse sand, few fine to coarse rounded to subrounded gravel, few non-plastic fines; moist; loose to medium dense; abundant roots; lawn (fill).		
2.0 to 7.0 feet	Silty SAND with Gravel (SP-SM); yellowish orange; fine to coarse sand, fine to coarse rounded to subrounded gravel, few non-plastic fines, few cobbles, occasional boulders; slightly moist; medium dense to dense; roots to 6 feet (weathered recessional outwash).		
7.0 to 12.0 feet	Sandy GRAVEL (GP-GW); brown to gray; fine to coarse rounded to subrounded gravel, fine to coarse sand, trace to few non-plastic fines, trace to few cobbles; moist; medium dense to dense; sorted (recessional outwash).		
12.0 to 13.0 feet	Sandy GRAVEL to Gravelly SAND (GP-SP); brown to gray; fine to coarse rounded to subrounded gravel, medium to coarse sand, trace to few non-plastic fines; trace cobbles; moist; dense (recessional outwash?). No groundwater seepage encountered. Minor caving 0 to 7 feet, moderate caving 7 to 13 feet.		
Exploration backfilled with excavated soil.			

Soil Testing Results



14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

July 6, 2020

Steve Nelson
RH2 Engineering, Inc.
22722 29th Drive, Suite 210
Bothell, WA 98021

Re: Analytical Data for Project LAC 516081
Laboratory Reference No. 2006-305

Dear Steve:

Enclosed are the analytical results and associated quality control data for samples submitted on June 25, 2020.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read "DB", with a long horizontal stroke extending to the right.

David Baumeister
Project Manager

Enclosures



OnSite Environmental, Inc. 14648 NE 95th Street, Redmond, WA 98052 (425) 883-3881

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: July 6, 2020
Samples Submitted: June 25, 2020
Laboratory Reference: 2006-305
Project: LAC 516081

Case Narrative

Samples were collected on June 24, 2020 and received by the laboratory on June 25, 2020. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.



Date of Report: July 6, 2020
 Samples Submitted: June 25, 2020
 Laboratory Reference: 2006-305
 Project: LAC 516081

**TOTAL METALS
 EPA 6010D**

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	Duff 1					
Laboratory ID:	06-305-01					
Arsenic	13	11	EPA 6010D	6-30-20	6-30-20	
Lead	82	11	EPA 6010D	6-30-20	6-30-20	

Client ID:	Soil 1					
Laboratory ID:	06-305-02					
Arsenic	44	12	EPA 6010D	6-30-20	6-30-20	
Lead	95	6.2	EPA 6010D	6-30-20	6-30-20	

Client ID:	Soil 2S					
Laboratory ID:	06-305-03					
Arsenic	ND	11	EPA 6010D	6-30-20	6-30-20	
Lead	ND	5.5	EPA 6010D	6-30-20	6-30-20	

Client ID:	Soil 2D					
Laboratory ID:	06-305-04					
Arsenic	ND	10	EPA 6010D	6-30-20	6-30-20	
Lead	ND	5.2	EPA 6010D	6-30-20	6-30-20	

Client ID:	Soil 3					
Laboratory ID:	06-305-05					
Arsenic	14	13	EPA 6010D	6-30-20	6-30-20	
Lead	14	6.3	EPA 6010D	6-30-20	6-30-20	

Client ID:	Soil 4					
Laboratory ID:	06-305-06					
Arsenic	20	12	EPA 6010D	6-30-20	6-30-20	
Lead	50	6.1	EPA 6010D	6-30-20	6-30-20	

Client ID:	Soil 5					
Laboratory ID:	06-305-07					
Arsenic	ND	11	EPA 6010D	6-30-20	6-30-20	
Lead	ND	5.7	EPA 6010D	6-30-20	6-30-20	



Date of Report: July 6, 2020
 Samples Submitted: June 25, 2020
 Laboratory Reference: 2006-305
 Project: LAC 516081

**TOTAL METALS
 EPA 6010D**

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	Soil 6					
Laboratory ID:	06-305-08					
Arsenic	16	13	EPA 6010D	6-30-20	6-30-20	
Lead	28	6.7	EPA 6010D	6-30-20	6-30-20	

Client ID:	Soil 7S					
Laboratory ID:	06-305-09					
Arsenic	ND	12	EPA 6010D	6-30-20	6-30-20	
Lead	ND	6.0	EPA 6010D	6-30-20	6-30-20	

Client ID:	Soil 7D					
Laboratory ID:	06-305-10					
Arsenic	ND	11	EPA 6010D	6-30-20	6-30-20	
Lead	ND	5.7	EPA 6010D	6-30-20	6-30-20	

Client ID:	Soil 8					
Laboratory ID:	06-305-11					
Arsenic	13	13	EPA 6010D	6-30-20	6-30-20	
Lead	ND	6.3	EPA 6010D	6-30-20	6-30-20	



Date of Report: July 6, 2020
 Samples Submitted: June 25, 2020
 Laboratory Reference: 2006-305
 Project: LAC 516081

**TOTAL METALS
 EPA 6010D
 QUALITY CONTROL**

Matrix: Soil
 Units: mg/Kg (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0630SM2					
Arsenic	ND	5.0	EPA 6010D	6-30-20	6-30-20	
Lead	ND	5.0	EPA 6010D	6-30-20	6-30-20	

Analyte	Result		Spike Level		Source	Percent	Recovery	RPD		
					Result	Recovery	Limits	RPD	Limit	Flags
DUPLICATE										
Laboratory ID:	06-305-09									
	ORIG	DUP								
Arsenic	5.35	5.75	NA	NA		NA	NA	7	20	
Lead	ND	5.00	NA	NA		NA	NA	NA	20	

MATRIX SPIKES

Laboratory ID:	06-305-09									
	MS	MSD	MS	MSD		MS	MSD			
Arsenic	91.0	93.1	100	100	5.35	86	88	75-125	2	20
Lead	232	261	250	250	ND	93	104	75-125	12	20



Date of Report: July 6, 2020
 Samples Submitted: June 25, 2020
 Laboratory Reference: 2006-305
 Project: LAC 516081

% MOISTURE

Client ID	Lab ID	% Moisture	Date Analyzed
Duff 1	06-305-01	54	6-30-20
Soil 1	06-305-02	20	6-30-20
Soil 2S	06-305-03	9	6-30-20
Soil 2D	06-305-04	4	6-30-20
Soil 3	06-305-05	20	6-30-20
Soil 4	06-305-06	18	6-30-20
Soil 5	06-305-07	13	6-30-20
Soil 6	06-305-08	26	6-30-20
Soil 7S	06-305-09	17	6-30-20
Soil 7D	06-305-10	12	6-30-20
Soil 8	06-305-11	21	6-30-20





Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
- B - The analyte indicated was also found in the blank sample.
- C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
- E - The value reported exceeds the quantitation range and is an estimate.
- F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
- H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
- I - Compound recovery is outside of the control limits.
- J - The value reported was below the practical quantitation limit. The value is an estimate.
- K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
- L - The RPD is outside of the control limits.
- M - Hydrocarbons in the gasoline range are impacting the diesel range result.
- M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
- N - Hydrocarbons in the lube oil range are impacting the diesel range result.
- N1 - Hydrocarbons in diesel range are impacting lube oil range results.
- O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
- P - The RPD of the detected concentrations between the two columns is greater than 40.
- Q - Surrogate recovery is outside of the control limits.
- S - Surrogate recovery data is not available due to the necessary dilution of the sample.
- T - The sample chromatogram is not similar to a typical _____.
- U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- U1 - The practical quantitation limit is elevated due to interferences present in the sample.
- V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
- W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
- X - Sample extract treated with a mercury cleanup procedure.
- X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.
- Y - The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
- Z -
- ND - Not Detected at PQL
- PQL - Practical Quantitation Limit
- RPD - Relative Percent Difference



Chain of Custody

Company: RH2

Project Number: LAC 516081

Project Name: LS19 Soil

Project Manager: Steve Nelson

Sampled by: Steve Nelson

**Turnaround Request
(in working days)**

(Check One)

☐ Same Day ☐ 1 Day

☐ 2 Days ☐ 3 Days

☒ Standard (7 Days)

☐ _____ (other)

Laboratory Number: 06-305

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Gx	NWTPH-Dx (☐ Acid / SG Clean-up)	Volatiles 8260C	Halogenated Volatiles 8260C	EDB EPA 8011 (Waters Only)	Semivolatiles 8270D/SIM (with low-level PAHs)	PAHs 8270D/SIM (low-level)	PCBs 8082A	Organochlorine Pesticides 8081B	Organophosphorus Pesticides 8270D/SIM	Chlorinated Acid Herbicides 8151A	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664A	Argenic	Lead	% Moisture
1	Duff 1	6/24/20		S	1																		X	X	X
2	Soil 1				1																				X
3	Soil 2S				1																				X
4	Soil 2D				1																				X
5	Soil 3				1																				X
6	Soil 4				1																				X
7	Soil 5				1																				X
8	soil 6				1																				X
9	Soil 7S				1																				X
10	Soil 7D	6/24/20		S	1																		X	X	X

	Signature	Company	Date	Time	Comments/Special Instructions
Relinquished	<u>[Signature]</u>				
Received	<u>[Signature]</u>	<u>OSE</u>	<u>6/25/20</u>	<u>1500</u>	
Relinquished					
Received					
Relinquished					
Received					Data Package: Standard ☐ Level III ☐ Level IV ☐
Reviewed/Date		Reviewed/Date			Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☐

Chain of Custody

Company: RH2

Project Number: LAC 5/6 081

Project Name: LS19 Soil

Project Manager: Steve Nelson

Sampled by: Steve Nelson

**Turnaround Request
(in working days)**

(Check One)

☐ Same Day ☐ 1 Day

☐ 2 Days ☐ 3 Days

☒ Standard (7 Days)

☐ _____ (other)

Laboratory Number: 06-305

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number	NWTPH	NWTPH	NWTPH	NWTPH	Volatiles	Halogenes	EDB EF	Semivolatile (with low PAHs)	PAHs	PCBs	Organochlorine	Organophosphate	Chlorinated	Total Radium	Total Mercury	TCLP Metals	HEM (oil and grease)	As	Pb	% Moisture
11	Soil 8	6/24/20		S	1																		X	X	X

Appendix A

Calculations

WWHM2012
PROJECT REPORT

General Model Information

Project Name: default
Site Name: LS19 Rehab
Site Address: 2659 Willamette Drive
City: Lacey, WA
Report Date: 12/1/2020
Gage: Fairgrounds (Kaiser)
Data Start: 1955/10/01
Data End: 2011/09/30
Timestep: 15 Minute
Precip Scale: 0.875
Version Date: 2019/09/13
Version: 4.2.17

POC Thresholds

Low Flow Threshold for POC1:	50 Percent of the 2 Year
High Flow Threshold for POC1:	50 Year

Landuse Basin Data

Predeveloped Land Use

Basin 1

Bypass: No

GroundWater: No

Pervious Land Use acre
A B, Forest, Flat 0.361

Pervious Total 0.361

Impervious Land Use acre
SIDEWALKS FLAT 0.025

Impervious Total 0.025

Basin Total 0.386

Element Flows To:
Surface Interflow Groundwater

Mitigated Land Use

Basin 1

Bypass:	No
GroundWater:	No
Pervious Land Use A B, Lawn, Flat	acre 0.361
Pervious Total	0.361
Impervious Land Use SIDEWALKS FLAT	acre 0.025
Impervious Total	0.025
Basin Total	0.386

Element Flows To:		
Surface	Interflow	Groundwater

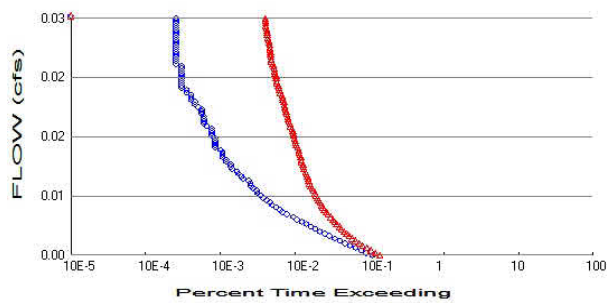
Routing Elements

Predeveloped Routing

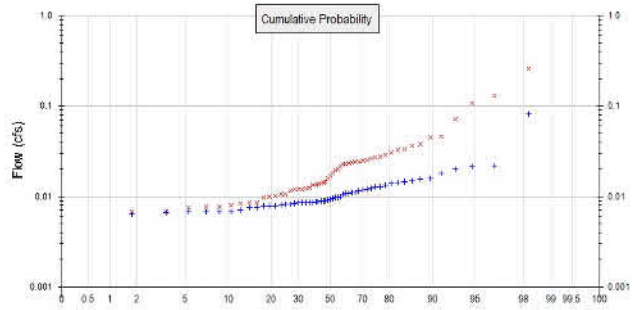
Mitigated Routing

Analysis Results

POC 1



+ Predeveloped x Mitigated



Predeveloped Landuse Totals for POC #1

Total Pervious Area: 0.361
Total Impervious Area: 0.025

Mitigated Landuse Totals for POC #1

Total Pervious Area: 0.361
Total Impervious Area: 0.025

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	0.009841
5 year	0.014413
10 year	0.018194
25 year	0.02395
50 year	0.029033
100 year	0.034875

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	0.016932
5 year	0.033753
10 year	0.051038
25 year	0.082697
50 year	0.115627
100 year	0.158837

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1956	0.010	0.023
1957	0.013	0.045
1958	0.008	0.016
1959	0.009	0.025
1960	0.011	0.023
1961	0.006	0.012
1962	0.008	0.008
1963	0.016	0.072
1964	0.010	0.017
1965	0.009	0.029

1966	0.007	0.007
1967	0.008	0.014
1968	0.007	0.015
1969	0.007	0.010
1970	0.007	0.012
1971	0.008	0.024
1972	0.011	0.034
1973	0.009	0.010
1974	0.012	0.012
1975	0.009	0.012
1976	0.009	0.018
1977	0.014	0.014
1978	0.014	0.031
1979	0.012	0.012
1980	0.013	0.025
1981	0.012	0.046
1982	0.014	0.036
1983	0.018	0.021
1984	0.009	0.014
1985	0.008	0.008
1986	0.009	0.027
1987	0.009	0.023
1988	0.007	0.007
1989	0.007	0.007
1990	0.011	0.024
1991	0.022	0.131
1992	0.082	0.259
1993	0.012	0.038
1994	0.020	0.020
1995	0.013	0.013
1996	0.011	0.027
1997	0.021	0.107
1998	0.016	0.027
1999	0.010	0.010
2000	0.008	0.008
2001	0.008	0.008
2002	0.009	0.009
2003	0.006	0.020
2004	0.011	0.024
2005	0.009	0.009
2006	0.010	0.010
2007	0.009	0.012
2008	0.008	0.008
2009	0.009	0.010
2010	0.015	0.033
2011	0.008	0.013

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	0.0815	0.2594
2	0.0219	0.1313
3	0.0215	0.1075
4	0.0201	0.0723
5	0.0180	0.0462
6	0.0157	0.0448
7	0.0156	0.0378
8	0.0148	0.0364

9	0.0144	0.0337
10	0.0142	0.0325
11	0.0138	0.0309
12	0.0135	0.0286
13	0.0127	0.0273
14	0.0127	0.0270
15	0.0123	0.0266
16	0.0119	0.0251
17	0.0118	0.0246
18	0.0116	0.0243
19	0.0110	0.0241
20	0.0109	0.0238
21	0.0108	0.0233
22	0.0108	0.0229
23	0.0105	0.0226
24	0.0099	0.0214
25	0.0097	0.0202
26	0.0097	0.0195
27	0.0096	0.0180
28	0.0094	0.0168
29	0.0092	0.0157
30	0.0090	0.0145
31	0.0090	0.0143
32	0.0089	0.0140
33	0.0088	0.0136
34	0.0088	0.0135
35	0.0086	0.0134
36	0.0086	0.0124
37	0.0086	0.0122
38	0.0085	0.0120
39	0.0085	0.0119
40	0.0084	0.0119
41	0.0083	0.0116
42	0.0081	0.0105
43	0.0081	0.0105
44	0.0078	0.0100
45	0.0078	0.0100
46	0.0078	0.0097
47	0.0076	0.0086
48	0.0075	0.0086
49	0.0071	0.0084
50	0.0068	0.0080
51	0.0068	0.0077
52	0.0068	0.0077
53	0.0068	0.0075
54	0.0066	0.0068
55	0.0063	0.0067
56	0.0063	0.0065

Duration Flows

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0049	2160	2708	125	Fail
0.0052	1801	2368	131	Fail
0.0054	1531	2076	135	Fail
0.0057	1278	1824	142	Fail
0.0059	1075	1604	149	Fail
0.0061	931	1439	154	Fail
0.0064	790	1282	162	Fail
0.0066	677	1154	170	Fail
0.0069	569	1051	184	Fail
0.0071	499	974	195	Fail
0.0074	427	901	211	Fail
0.0076	369	830	224	Fail
0.0078	322	778	241	Fail
0.0081	279	715	256	Fail
0.0083	244	674	276	Fail
0.0086	211	635	300	Fail
0.0088	189	596	315	Fail
0.0091	154	548	355	Fail
0.0093	135	521	385	Fail
0.0095	124	490	395	Fail
0.0098	110	466	423	Fail
0.0100	98	446	455	Fail
0.0103	92	430	467	Fail
0.0105	82	410	500	Fail
0.0108	75	394	525	Fail
0.0110	68	380	558	Fail
0.0113	63	365	579	Fail
0.0115	61	351	575	Fail
0.0117	54	336	622	Fail
0.0120	51	323	633	Fail
0.0122	50	313	626	Fail
0.0125	47	302	642	Fail
0.0127	40	296	740	Fail
0.0130	38	292	768	Fail
0.0132	35	284	811	Fail
0.0134	33	273	827	Fail
0.0137	28	259	925	Fail
0.0139	27	255	944	Fail
0.0142	27	253	937	Fail
0.0144	24	245	1020	Fail
0.0147	24	239	995	Fail
0.0149	21	235	1119	Fail
0.0152	21	231	1100	Fail
0.0154	21	224	1066	Fail
0.0156	20	223	1115	Fail
0.0159	17	215	1264	Fail
0.0161	17	205	1205	Fail
0.0164	17	202	1188	Fail
0.0166	17	201	1182	Fail
0.0169	17	193	1135	Fail
0.0171	15	189	1260	Fail
0.0173	15	188	1253	Fail
0.0176	15	185	1233	Fail
0.0178	15	181	1206	Fail

0.0181	13	172	1323	Fail
0.0183	12	169	1408	Fail
0.0186	12	164	1366	Fail
0.0188	12	160	1333	Fail
0.0190	12	158	1316	Fail
0.0193	11	152	1381	Fail
0.0195	11	150	1363	Fail
0.0198	11	148	1345	Fail
0.0200	10	144	1440	Fail
0.0203	9	143	1588	Fail
0.0205	9	140	1555	Fail
0.0208	8	136	1700	Fail
0.0210	8	134	1675	Fail
0.0212	8	133	1662	Fail
0.0215	7	125	1785	Fail
0.0217	7	123	1757	Fail
0.0220	6	120	2000	Fail
0.0222	6	118	1966	Fail
0.0225	6	114	1900	Fail
0.0227	6	112	1866	Fail
0.0229	6	111	1850	Fail
0.0232	6	110	1833	Fail
0.0234	6	105	1750	Fail
0.0237	6	105	1750	Fail
0.0239	6	104	1733	Fail
0.0242	6	102	1700	Fail
0.0244	5	99	1979	Fail
0.0246	5	96	1920	Fail
0.0249	5	95	1900	Fail
0.0251	5	94	1879	Fail
0.0254	5	93	1860	Fail
0.0256	5	93	1860	Fail
0.0259	5	92	1840	Fail
0.0261	5	91	1820	Fail
0.0264	5	91	1820	Fail
0.0266	5	89	1779	Fail
0.0268	5	88	1760	Fail
0.0271	5	86	1720	Fail
0.0273	5	84	1679	Fail
0.0276	5	84	1679	Fail
0.0278	5	83	1660	Fail
0.0281	5	82	1640	Fail
0.0283	5	80	1600	Fail
0.0285	5	80	1600	Fail
0.0288	5	79	1580	Fail
0.0290	5	79	1580	Fail

The development has an increase in flow durations from 1/2 Predeveloped 2 year flow to the 2 year flow or more than a 10% increase from the 2 year to the 50 year flow.

The development has an increase in flow durations for more than 50% of the flows for the range of the duration analysis.

Water Quality

Water Quality BMP Flow and Volume for POC #1

On-line facility volume:	0 acre-feet
On-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.
Off-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Total Volume Infiltrated		0.00	0.00	0.00		0.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Failed

Model Default Modifications

Total of 0 changes have been made.

PERLND Changes

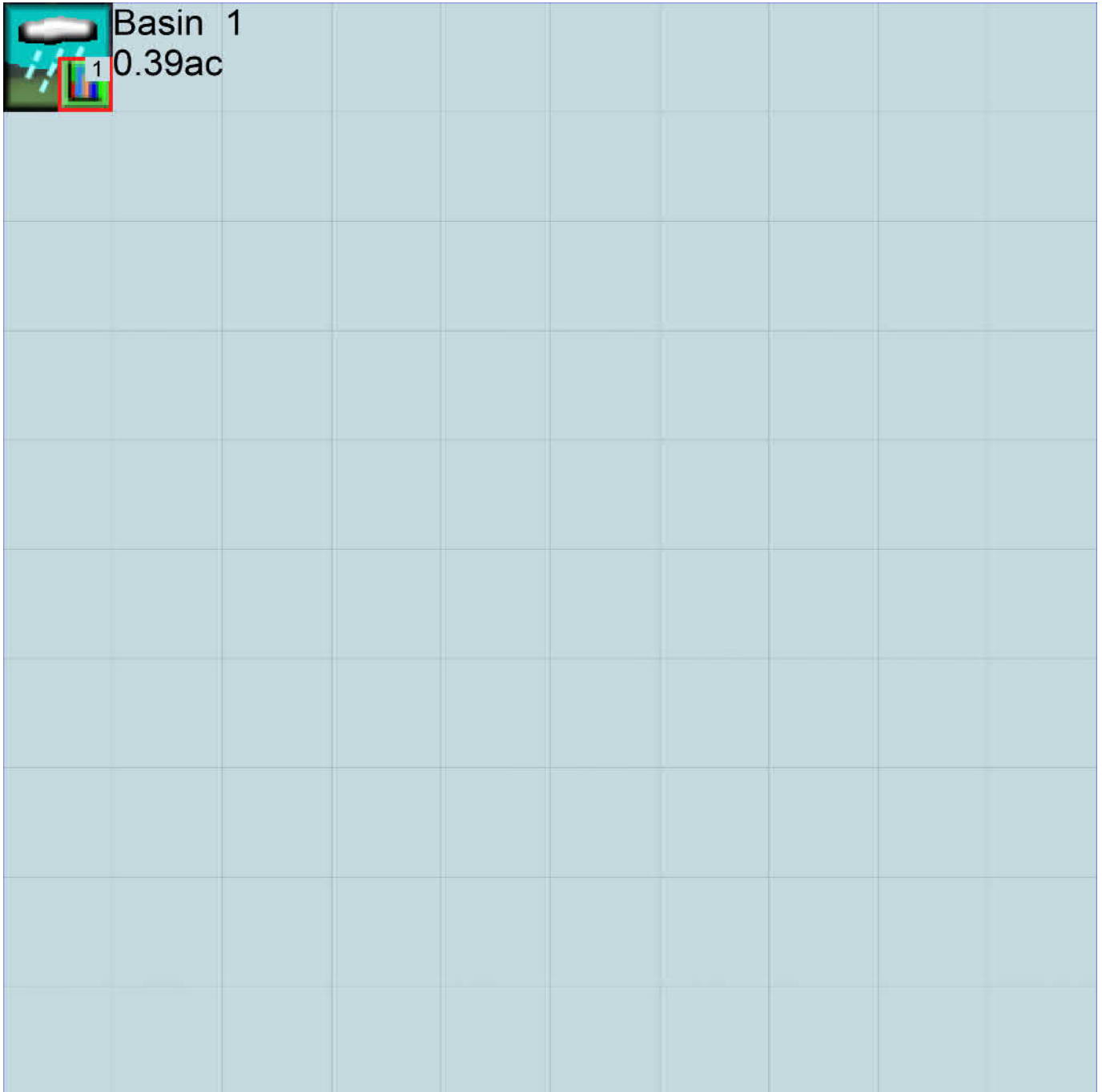
No PERLND changes have been made.

IMPLND Changes

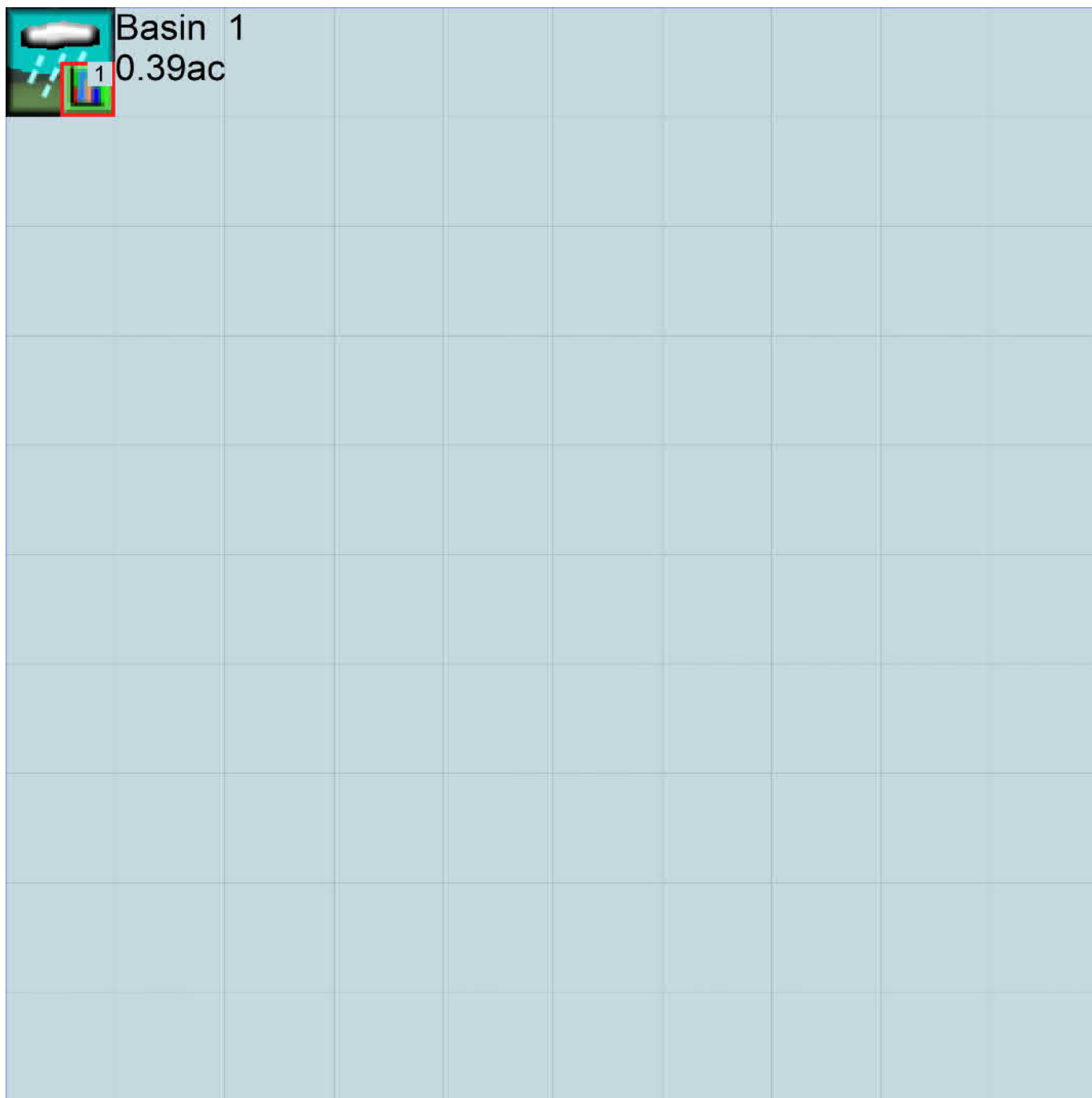
No IMPLND changes have been made.

Appendix

Predeveloped Schematic



Mitigated Schematic



Predeveloped UCI File

RUN

GLOBAL

```
WWM4 model simulation
START      1955 10 01      END      2011 09 30
RUN INTERP OUTPUT LEVEL    3      0
RESUME     0 RUN          1
UNIT SYSTEM          1
END GLOBAL
```

FILES

```
<File> <Un#> <-----File Name----->***
<-ID->                                     ***
WDM      26      default.wdm
MESSU    25      Predefault.MES
          27      Predefault.L61
          28      Predefault.L62
          30      POCdefault1.dat
```

END FILES

OPN SEQUENCE

```
INGRP                      INDELT 00:15
  PERLND      1
  IMPLND      8
  COPY        501
  DISPLY      1
```

END INGRP

END OPN SEQUENCE

DISPLY

DISPLY-INF01

```
# - #<-----Title----->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
1      Basin 1      MAX      1      2      30      9
```

END DISPLY-INF01

END DISPLY

COPY

TIMESERIES

```
# - # NPT NMN ***
1      1      1
501    1      1
```

END TIMESERIES

END COPY

GENER

OPCODE

```
#      # OPCD ***
```

END OPCODE

PARM

```
#      #      K ***
```

END PARM

END GENER

PERLND

GEN-INFO

```
<PLS ><-----Name----->NBLKS      Unit-systems      Printer ***
# - #      User      t-series      Engl Metr ***
                      in      out      ***
```

```
1      A/B, Forest, Flat      1      1      1      1      27      0
```

END GEN-INFO

*** Section PWATER***

ACTIVITY

```
<PLS > ***** Active Sections *****
# - # ATMP SNOW PWAT SED PST PWG PQAL MSTL PEST NITR PHOS TRAC ***
1      0      0      1      0      0      0      0      0      0      0      0
```

END ACTIVITY

PRINT-INFO

```
<PLS > ***** Print-flags ***** PIVL PYR
# - # ATMP SNOW PWAT SED PST PWG PQAL MSTL PEST NITR PHOS TRAC *****
1      0      0      4      0      0      0      0      0      0      0      0      1      9
```

END PRINT-INFO

```

PWAT-PARM1
<PLS > PWATER variable monthly parameter value flags ***
# - # CSNO RTOP UZFG VCS VUZ VNN VIFW VIRC VLE INFC HWT ***
1 0 0 0 0 0 0 0 0 0 0 0
END PWAT-PARM1

PWAT-PARM2
<PLS > PWATER input info: Part 2 ***
# - # ***FOREST LZSN INFILT LSUR SLSUR KVARV AGWRC
1 0 5 2 400 0.05 0.3 0.996
END PWAT-PARM2

PWAT-PARM3
<PLS > PWATER input info: Part 3 ***
# - # ***PETMAX PETMIN INFEXP INFILD DEEPFR BASETP AGWETP
1 0 0 2 2 0 0 0
END PWAT-PARM3

PWAT-PARM4
<PLS > PWATER input info: Part 4 ***
# - # CEPSC UZSN NSUR INTFW IRC LZETP ***
1 0.2 0.5 0.35 0 0.7 0.7 ***
END PWAT-PARM4

PWAT-STATE1
<PLS > *** Initial conditions at start of simulation
ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
# - # *** CEPS SURS UZS IFWS LZS AGWS GWVS
1 0 0 0 0 3 1 0
END PWAT-STATE1

END PERLND

IMPLND
GEN-INFO
<PLS ><-----Name-----> Unit-systems Printer ***
# - # User t-series Engl Metr ***
in out
8 SIDEWALKS/FLAT 1 1 1 27 0
END GEN-INFO
*** Section IWATER***

ACTIVITY
<PLS > ***** Active Sections *****
# - # ATMP SNOW IWAT SLD IWG IQAL ***
8 0 0 1 0 0 0
END ACTIVITY

PRINT-INFO
<ILS > ***** Print-flags ***** PIVL PYR
# - # ATMP SNOW IWAT SLD IWG IQAL *****
8 0 0 4 0 0 0 1 9
END PRINT-INFO

IWAT-PARM1
<PLS > IWATER variable monthly parameter value flags ***
# - # CSNO RTOP VRS VNN RTLI ***
8 0 0 0 0
END IWAT-PARM1

IWAT-PARM2
<PLS > IWATER input info: Part 2 ***
# - # *** LSUR SLSUR NSUR RETSC
8 400 0.01 0.1 0.1
END IWAT-PARM2

IWAT-PARM3
<PLS > IWATER input info: Part 3 ***
# - # ***PETMAX PETMIN
8 0 0

```

```

END IWAT-PARM3

IWAT-STATE1
  <PLS > *** Initial conditions at start of simulation
  # - # *** RETS      SURS
  8      0      0
END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->
<Name> #
Basin 1***
PERLND 1      0.361      COPY 501      12
PERLND 1      0.361      COPY 501      13
IMPLND 8      0.025      COPY 501      15

*****Routing*****
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name> # <Name> # #<-factor->strg <Name> # # <Name> # # ***
COPY 501 OUTPUT MEAN 1 1 48.4 DISPLY 1 INPUT TIMSER 1

<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name> # <Name> # #<-factor->strg <Name> # # <Name> # # ***
END NETWORK

RCHRES
GEN-INFO
  RCHRES Name Nexits Unit Systems Printer ***
  # - #<-----><----> User T-series Engl Metr LKFG ***
  in out
END GEN-INFO
*** Section RCHRES***

ACTIVITY
  <PLS > ***** Active Sections *****
  # - # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
END ACTIVITY

PRINT-INFO
  <PLS > ***** Print-flags ***** PIVL PYR
  # - # HYDR ADCA CONS HEAT SED GQL OXRX NUTR PLNK PHCB PIVL PYR *****
END PRINT-INFO

HYDR-PARM1
  RCHRES Flags for each HYDR Section ***
  # - # VC A1 A2 A3 ODFVFG for each *** ODGTFG for each FUNCT for each
  FG FG FG FG possible exit *** possible exit possible exit
  * * * * * * * * * *
END HYDR-PARM1

HYDR-PARM2
  # - # FTABNO LEN DELTH STCOR KS DB50 ***
  <-----><-----><-----><-----><-----><-----> ***
END HYDR-PARM2

HYDR-INIT
  RCHRES Initial conditions for each HYDR section ***
  # - # *** VOL Initial value of COLIND Initial value of OUTDGT
  *** ac-ft for each possible exit for each possible exit
  <-----><-----> <---><---><---><---><---> *** <---><---><---><---><--->
END HYDR-INIT
END RCHRES

SPEC-ACTIONS

```

END SPEC-ACTIONS
 FTABLES
 END FTABLES

EXT SOURCES

<-Volume->	<Member>	SsysSgap<--Mult-->Tran	<-Target	vols>	<-Grp>	<-Member->	***
<Name>	#	<Name> # tem strg<-factor->strg	<Name>	#	#	<Name> # #	***
WDM	2	PREC ENGL 0.875	PERLND	1	999	EXTNL PREC	
WDM	2	PREC ENGL 0.875	IMPLND	1	999	EXTNL PREC	
WDM	1	EVAP ENGL 0.76	PERLND	1	999	EXTNL PETINP	
WDM	1	EVAP ENGL 0.76	IMPLND	1	999	EXTNL PETINP	

END EXT SOURCES

EXT TARGETS

<-Volume->	<-Grp>	<-Member-><--Mult-->Tran	<-Volume->	<Member>	Tsys	Tgap	Amd	***
<Name>	#	<Name> # #<-factor->strg	<Name>	#	<Name>	tem	strg	strg***
COPY	501	OUTPUT MEAN 1 1 48.4	WDM	501	FLOW	ENGL	REPL	

END EXT TARGETS

MASS-LINK

<Volume>	<-Grp>	<-Member-><--Mult-->	<Target>	<-Grp>	<-Member->***
<Name>	#	<Name> # #<-factor->	<Name>	#	<Name> # #***
MASS-LINK	12				
PERLND	PWATER	SURO 0.083333	COPY	INPUT	MEAN
END MASS-LINK	12				
MASS-LINK	13				
PERLND	PWATER	IFW0 0.083333	COPY	INPUT	MEAN
END MASS-LINK	13				
MASS-LINK	15				
IMPLND	IWATER	SURO 0.083333	COPY	INPUT	MEAN
END MASS-LINK	15				

END MASS-LINK

END RUN

Mitigated UCI File

RUN

GLOBAL

```
WWM4 model simulation
START      1955 10 01      END      2011 09 30
RUN INTERP OUTPUT LEVEL    3      0
RESUME     0 RUN          1
UNIT SYSTEM                1
END GLOBAL
```

FILES

```
<File>  <Un#>  <-----File Name----->***
<-ID->                                     ***
WDM      26     default.wdm
MESSU    25     Mitdefault.MES
          27     Mitdefault.L61
          28     Mitdefault.L62
          30     POCdefault1.dat
```

END FILES

OPN SEQUENCE

```
INGRP                      INDELT 00:15
  PERLND      7
  IMPLND      8
  COPY        501
  DISPLY      1
```

END INGRP

END OPN SEQUENCE

DISPLY

DISPLY-INF01

```
# - #<-----Title----->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
1   Basin 1          MAX          1   2   30   9
```

END DISPLY-INF01

END DISPLY

COPY

TIMESERIES

```
# - # NPT NMN ***
1   1   1
501 1   1
```

END TIMESERIES

END COPY

GENER

OPCODE

```
#   # OPCD ***
```

END OPCODE

PARM

```
#   #           K ***
```

END PARM

END GENER

PERLND

GEN-INFO

```
<PLS ><-----Name----->NBLKS  Unit-systems  Printer ***
# - #      User  t-series  Engl Metr ***
              in  out      ***
```

```
7   A/B, Lawn, Flat      1   1   1   1   27   0
```

END GEN-INFO

*** Section PWATER***

ACTIVITY

```
<PLS > ***** Active Sections *****
# - # ATMP SNOW PWAT  SED  PST  PWG  PQAL MSTL PEST  NITR PHOS TRAC ***
7   0   0   1   0   0   0   0   0   0   0   0   0
```

END ACTIVITY

PRINT-INFO

```
<PLS > ***** Print-flags ***** PIVL  PYR
# - # ATMP SNOW PWAT  SED  PST  PWG  PQAL MSTL PEST  NITR PHOS TRAC *****
7   0   0   4   0   0   0   0   0   0   0   0   0   1   9
```

END PRINT-INFO

```

PWAT-PARM1
<PLS > PWATER variable monthly parameter value flags ***
# - # CSNO RTOP UZFG VCS VUZ VNN VIFW VIRC VLE INFC HWT ***
7 0 0 0 0 0 0 0 0 0 0 0
END PWAT-PARM1

PWAT-PARM2
<PLS > PWATER input info: Part 2 ***
# - # ***FOREST LZSN INFILT LSUR SLSUR KVARV AGWRC
7 0 5 0.8 400 0.05 0.3 0.996
END PWAT-PARM2

PWAT-PARM3
<PLS > PWATER input info: Part 3 ***
# - # ***PETMAX PETMIN INFEXP INFILD DEEPFR BASETP AGWETP
7 0 0 2 2 0 0 0
END PWAT-PARM3

PWAT-PARM4
<PLS > PWATER input info: Part 4 ***
# - # CEPSC UZSN NSUR INTFW IRC LZETP ***
7 0.1 0.5 0.25 0 0.7 0.25
END PWAT-PARM4

PWAT-STATE1
<PLS > *** Initial conditions at start of simulation
ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
# - # *** CEPS SURS UZS IFWS LZS AGWS GWVS
7 0 0 0 0 3 1 0
END PWAT-STATE1

END PERLND

IMPLND
GEN-INFO
<PLS ><-----Name-----> Unit-systems Printer ***
# - # User t-series Engl Metr ***
in out
8 SIDEWALKS/FLAT 1 1 1 27 0
END GEN-INFO
*** Section IWATER***

ACTIVITY
<PLS > ***** Active Sections *****
# - # ATMP SNOW IWAT SLD IWG IQAL ***
8 0 0 1 0 0 0
END ACTIVITY

PRINT-INFO
<ILS > ***** Print-flags ***** PIVL PYR
# - # ATMP SNOW IWAT SLD IWG IQAL *****
8 0 0 4 0 0 0 1 9
END PRINT-INFO

IWAT-PARM1
<PLS > IWATER variable monthly parameter value flags ***
# - # CSNO RTOP VRS VNN RTLI ***
8 0 0 0 0
END IWAT-PARM1

IWAT-PARM2
<PLS > IWATER input info: Part 2 ***
# - # *** LSUR SLSUR NSUR RETSC
8 400 0.01 0.1 0.1
END IWAT-PARM2

IWAT-PARM3
<PLS > IWATER input info: Part 3 ***
# - # ***PETMAX PETMIN
8 0 0

```

```

END IWAT-PARM3

IWAT-STATE1
  <PLS > *** Initial conditions at start of simulation
  # - # *** RETS      SURS
  8      0      0
END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->
<Name> #
Basin 1***
PERLND 7      0.361      COPY 501      12
PERLND 7      0.361      COPY 501      13
IMPLND 8      0.025      COPY 501      15

*****Routing*****
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name> # <Name> # #<-factor->strg <Name> # # <Name> # # ***
COPY 501 OUTPUT MEAN 1 1 48.4 DISPLY 1 INPUT TIMSER 1

<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name> # <Name> # #<-factor->strg <Name> # # <Name> # # ***
END NETWORK

RCHRES
GEN-INFO
  RCHRES Name Nexits Unit Systems Printer ***
  # - #<-----><----> User T-series Engl Metr LKFG ***
  in out
END GEN-INFO
*** Section RCHRES***

ACTIVITY
  <PLS > ***** Active Sections *****
  # - # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
END ACTIVITY

PRINT-INFO
  <PLS > ***** Print-flags ***** PIVL PYR
  # - # HYDR ADCA CONS HEAT SED GQL OXRX NUTR PLNK PHCB PIVL PYR *****
END PRINT-INFO

HYDR-PARM1
  RCHRES Flags for each HYDR Section ***
  # - # VC A1 A2 A3 ODFVFG for each *** ODGTFG for each FUNCT for each
  FG FG FG FG possible exit *** possible exit possible exit
  * * * * * * * *
END HYDR-PARM1

HYDR-PARM2
  # - # FTABNO LEN DELTH STCOR KS DB50 ***
  <-----><-----><-----><-----><----->
END HYDR-PARM2
HYDR-INIT
  RCHRES Initial conditions for each HYDR section ***
  # - # *** VOL Initial value of COLIND Initial value of OUTDGT
  *** ac-ft for each possible exit for each possible exit
  <-----><-----> <---><---><---><---><---> *** <---><---><---><---><--->
END HYDR-INIT
END RCHRES

SPEC-ACTIONS

```

END SPEC-ACTIONS
 FTABLES
 END FTABLES

EXT SOURCES

<-Volume->	<Member>	SsysSgap<--Mult-->Tran	<-Target	vols>	<-Grp>	<-Member->	***
<Name>	#	<Name> # tem strg<-factor->strg	<Name>	#		<Name> # #	***
WDM	2	PREC ENGL 0.875	PERLND	1	999	EXTNL PREC	
WDM	2	PREC ENGL 0.875	IMPLND	1	999	EXTNL PREC	
WDM	1	EVAP ENGL 0.76	PERLND	1	999	EXTNL PETINP	
WDM	1	EVAP ENGL 0.76	IMPLND	1	999	EXTNL PETINP	

END EXT SOURCES

EXT TARGETS

<-Volume->	<-Grp>	<-Member-><--Mult-->Tran	<-Volume->	<Member>	Tsys	Tgap	Amd	***
<Name>	#	<Name> # #<-factor->strg	<Name>	#	<Name>	tem	strg	strg***
COPY	1	OUTPUT MEAN 1 1 48.4	WDM	701	FLOW	ENGL		REPL
COPY	501	OUTPUT MEAN 1 1 48.4	WDM	801	FLOW	ENGL		REPL

END EXT TARGETS

MASS-LINK

<Volume>	<-Grp>	<-Member-><--Mult-->	<Target>	<-Grp>	<-Member->***
<Name>		<Name> # #<-factor->	<Name>		<Name> # #***
MASS-LINK		12			
PERLND	PWATER	SURO 0.083333	COPY	INPUT	MEAN
END MASS-LINK		12			
MASS-LINK		13			
PERLND	PWATER	IFWO 0.083333	COPY	INPUT	MEAN
END MASS-LINK		13			
MASS-LINK		15			
IMPLND	IWATER	SURO 0.083333	COPY	INPUT	MEAN
END MASS-LINK		15			

END MASS-LINK

END RUN

Disclaimer

Legal Notice

This program and accompanying documentation are provided 'as-is' without warranty of any kind. The entire risk regarding the performance and results of this program is assumed by End User. Clear Creek Solutions Inc. and the governmental licensee or sublicensees disclaim all warranties, either expressed or implied, including but not limited to implied warranties of program and accompanying documentation. In no event shall Clear Creek Solutions Inc. be liable for any damages whatsoever (including without limitation to damages for loss of business profits, loss of business information, business interruption, and the like) arising out of the use of, or inability to use this program even if Clear Creek Solutions Inc. or their authorized representatives have been advised of the possibility of such damages. Software Copyright © by : Clear Creek Solutions, Inc. 2005-2020; All Rights Reserved.

Clear Creek Solutions, Inc.
6200 Capitol Blvd. Ste F
Olympia, WA. 98501
Toll Free 1(866)943-0304
Local (360)943-0304

www.clearcreeksolutions.com

SUF

SOUND URBAN FORESTRY, LLC

Appraisals ~ Site Planning ~ Urban Landscape Design and Management
Environmental Education ~ Risk Assessment

11/24/2020

City of Lacey
Puna Clarke, Utility Engineer
420 College St SE
Lacey, WA 98503

RE: Lift Station #19 Tree Removal and Protection, Case #20-101

Ms. Clarke:

Upon your request, I have conducted an assessment at the site of the City's future lift station #19 at 2633 Willamette Dr NE. I have been asked to provide an overview of the trees to be removed and my recommendations for protection of trees to be retained as part of the project. I visited the site and met with you on June 5, 2020.

I. Site and Project Description

The site currently undeveloped and forested with mostly Douglas fir.

The project will involve a new electrical building, generator, valve and meter vault and a 20' driveway. Due to conflicts with the proposed improvements, 35 trees will require removal.

Tree Removals

A total of 35 trees within the easement area have been identified for removal. These trees along with their equivalent board feet are presented in the table below. Based on this information, an FPA is not necessary. In addition, there are 2 sweetgum street trees along Willamette Drive and 3 trees (1 Kousa dogwood and 2 Austrian pines) within the median strip that will be removed due to access and sewer lines. They have been identified on the attached drawing.

Table 1. Tree Removals

ID	Species	DBH	Board Feet
A	Douglas Fir	29"	1010
B	Douglas Fir	6"	20
C	Douglas Fir	7"	20
D	Douglas Fir	8"	25
E	Douglas Fir	14"	72
F	Douglas Fir	15"	80
G	Douglas Fir	9"	30
H	Douglas Fir	12"	60
I	Douglas Fir	8"	25
J	Douglas Fir	12"	60
K	Douglas Fir	24	540
L	Douglas Fir	7"	20
M	Douglas Fir	12"	60
N	Douglas Fir	10"	30
O	Douglas Fir	6"	20
P	Douglas Fir	6"	20
Q	Douglas Fir	7"	20
R	Douglas Fir	10"	30
S	Douglas Fir	6"	20
T	Douglas Fir	7"	20
U	Douglas Fir	21"	340
V	Douglas Fir	19"	210
W	Douglas Fir	8"	25
X	Douglas Fir	8"	25
Y	Douglas Fir	10"	30
Z	Douglas Fir	7"	20

ID	Species	DBH	Board Feet
AA	Douglas Fir	20"	212
AB	Douglas Fir	9"	30
AC	Douglas Fir	30"	112
AD	Douglas Fir	9"	30
AE	Douglas Fir	15"	80
AF	Douglas Fir	13"	69
AG	Douglas Fir	14"	72
AH	Sweetgum (street tree)	12"	0
AI	Sweetgum (street tree)	14"	0
AJ	Douglas Fir	15"	80
AK	Douglas Fir	11"	45
AL	Kousa Dogwood (median tree)	5"	0
AM	Austrian Pine	12"	0
AN	Austrian Pine	16"	0
			Total = 3562

Tree Retention and Protection

Based on the proposed site plan I have been provided, I am recommending the retention of 46 trees with the easement area. These are listed in the table below and numbered and shown in green on the attached drawing. The silt fencing as shown on the Demolition and TESC Plans will suffice as tree protection fencing with the exception of bump-outs to accommodate Trees #17, 21 and 22. These bump-outs are shown in orange on the attached drawing.

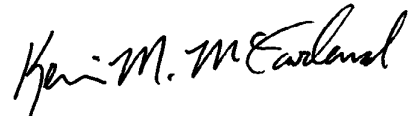
Table 2. Trees to be Retained

ID	Species	DBH
1	Douglas Fir	9"
2	Douglas Fir	9"
3	Douglas Fir	8"
4	Douglas Fir	9"
5	Douglas Fir	10"
6	Douglas Fir	21"
7	Douglas Fir	7"
8	Douglas Fir	7"
9	Douglas Fir	5"
10	Douglas Fir	8"
11	Douglas Fir	6"
12	Douglas Fir	12"
13	Madrone	8"
14	Douglas Fir	7"
15	Douglas Fir	9"

16	Douglas Fir	6"
17	Douglas Fir	7"
18	Douglas Fir	6"
19	Douglas Fir	24"
20	Douglas Fir	10"
21	Douglas Fir	7"
22	Douglas Fir	22"
23	Douglas Fir	16"
24	Douglas Fir	6"
25	Douglas Fir	7"
26	Douglas Fir	7"
27	Douglas Fir	21"
28	Douglas Fir	6"
29	Douglas Fir	6"
30	Douglas Fir	6"
31	Douglas Fir	28"
32	Douglas Fir	11"
33	Douglas Fir	17"
34	Douglas Fir	6"
35	Douglas Fir	16"
36	Douglas Fir	18"
37	Douglas Fir	9"
38	Douglas Fir	14"
39	Douglas Fir	12"
40	Douglas Fir	17"
41	Douglas Fir	12"
42	Douglas Fir	7"
43	Douglas Fir	6"
44	Douglas Fir	6"
45	Douglas Fir	9"
46	Douglas Fir	22"

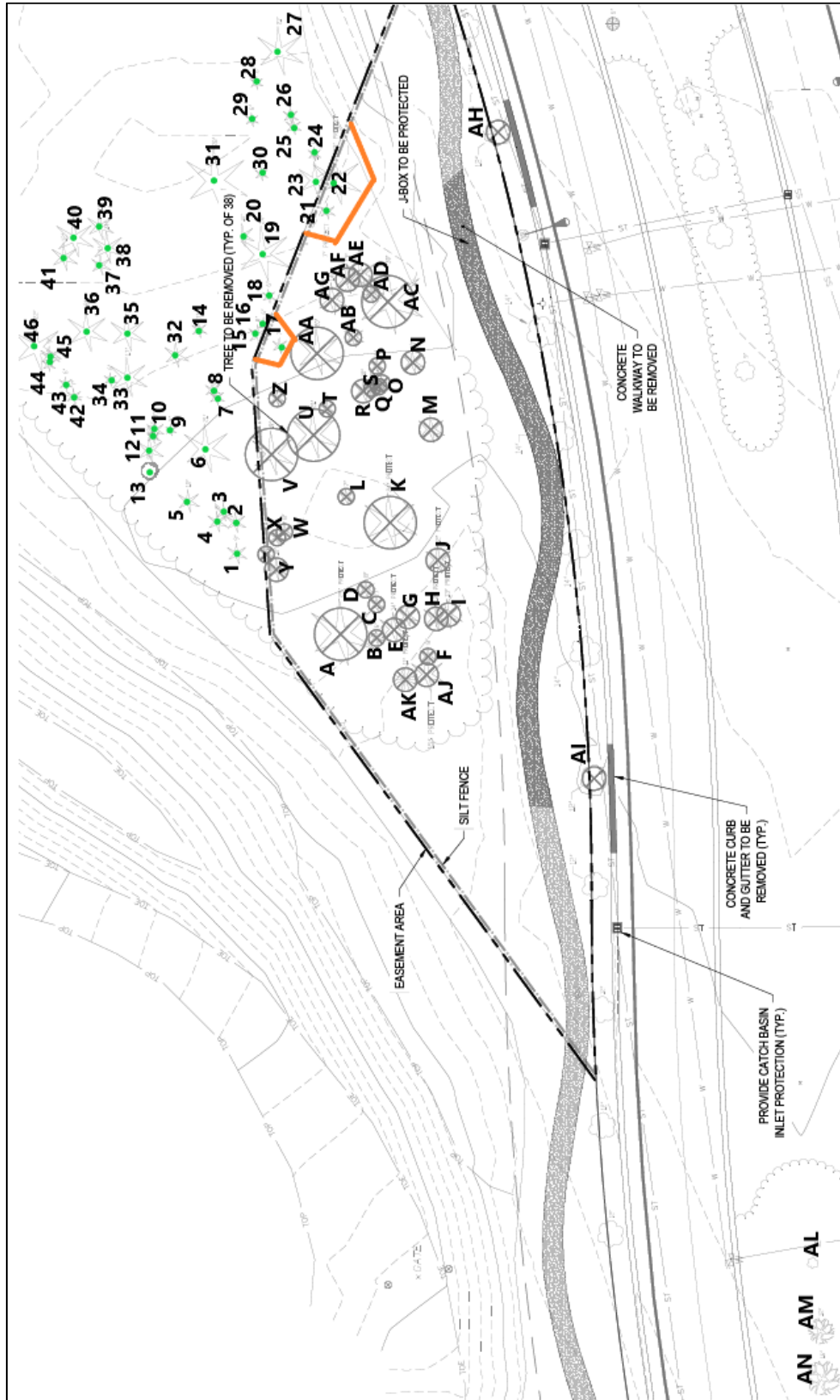
Please contact me should you have any questions.

Sincerely,

A handwritten signature in black ink that reads "Kevin M. McFarland". The signature is written in a cursive, flowing style.

Kevin M. McFarland, Principal
Consulting Forester/ISA Certified Arborist PN-0373 & ISA Tree Risk Assessor Qualified
City of Lacey Contracted Tree Protection Professional
Sound Urban Forestry, LLC
1910 E. 4th Ave., PMB 97
Olympia, WA 98506

Tree and Protection Fencing Locations



NOTICE OF APPLICATION WITH THE OPTIONAL DNS PROCESS

The City of Lacey Department of Community Development has received the following application for Conditional Use Permit / SEPA.

Date Application Received: 12/31/2020

Project Name: City of Lacey Lift Station 19 Replacement

Project Description: Construct a new wastewater lift station and related infrastructure for the City of Lacey. Project includes the lift station and relates infrastructure necessary for the project including wet well, electrical building, valve vault, force main, gravity sewer and access road.

*Project Location: 2659 Willamette Drive NE, Lacey WA 98503.
Parcel Number: 42080000000*

The following studies and/or reports are required as a part of this application:

SEPA

This Application will undergo the following approval process:

Environmental Review: A review of the submitted Environmental Checklist and other supporting studies will be conducted.

*Other Permits/Approvals
Required: Site Plan Review / Conditional Use Permit*

At minimum, this project will be subject to the following regulations:

LMC Chapter 14 Building and Construction, LMC Chapter 16 Zoning Regulations, IBC/IFC, City of Lacey Stormwater Design Manual, Development Guidelines and Public Works Standards

On January 20, 2021 this application was deemed complete pursuant to RCW 36.70B.070. This determination of completeness means that the application is sufficient for continued review. This determination does not preclude the City of Lacey or other reviewing agencies from requesting additional information or studies either at the time of this notice or subsequently, if new information is required or if substantial changes in the proposal occur.

Pursuant to WAC 197-11-355, the City of Lacey is using the Optional DNS process. The Optional Process enables the comment periods for the environmental review and

notice of application to be integrated. The City of Lacey expects to issue a Determination of non-significance for this project. This commenting period may be your only opportunity to comment on the environmental impacts of the proposal. Copies of the environmental checklist and supporting materials may be reviewed at Lacey City Hall.

Anyone may review any document submitted as part of this project application and may comment on this proposal. No action will be taken on this application for 14 days from the date of this notice or before 02/03/2021.

If you would like to make written comments, these may be directed to Reace Fant, Assistant Planner in the Department of Community Development at the address below. If a public hearing is required as part of the application review process, any member of the public may request to be notified, and may give written or oral comment on the proposal to the Hearings Examiner, and may request a copy of any decisions made on the project. A request for advance notification should be made to the Department of Community Development.

NOTE: Pursuant to RCW 43.21C.075 and Lacey City Code 14.24.170(A), a project denial based upon environmental information, and a conditioned or mitigated Determination of Nonsignificance (DNS) may be appealed by any agency or aggrieved person. Appeals are filed either with the Community Development Department when there is also an underlying governmental action or with the City Council if there is no underlying governmental action. Appeals to the City Council must be filed within ten (10) days of the issuance of the written decision (refer to the Lacey City Code for time periods on appeals filed with the Community Development Department).

*Lacey Community Development Department
420 College St. SE
Lacey, WA 98503
(360) 491-5642*



TRANSMITTAL MEMORANDUM

Department of Community Development
420 College St. SE, Lacey, WA 98503
360-491-5642

Date: *January 20, 2021*

Project Name: *City of Lacey Lift Station*

Case Number: *20-101*

H.T.E. Case Number: *20-101*

Parcel Number(s): *42080000000*

Please review the attached project information and notify **Reace Fant, Assistant Planner**, in our office in writing of any comments or recommendations by **2/3/2021**. Your comments will become part of the record and utilized in the decision-making process. You may either mail your comments to the above-mentioned address or e-mail them to rfant@ci.lacey.wa.us

TYPE OF APPLICATION:

Conditional Use Permit / Site Plan Review / SEPA

TO:

- | | |
|-------------------------------------|---|
| ✓ Building Codes – Jeff | ✓ Site Plan Review Committee |
| ✓ Fire Codes – Terry | ✓ Puget Sound Energy – Amy |
| ✓ Development Review Division - Tom | ✓ Olympic Region Clean Air Agency |
| ✓ Water Resources Engineer - Doug | ✓ WA State Department of Ecology |
| ✓ Erosion Control - Carlos | ✓ WA State Historic Preservation Office |
| ✓ Surveying Division – Monty | ✓ Nisqually Tribe |
| ✓ Finance Department | ✓ Squaxin Island Tribe |
| ✓ Addressing – Marci | |

If comments are not received by the date noted above, it will be construed that your agency/department does not have any comments or objections to the project as proposed.

**CITY OF LACEY
DEVELOPMENT REVIEW
PUBLIC WORKS DIVISION
SITE PLAN REVIEW CONDITIONS**



PW FILE #: 118-01-314XXX

OWNER: City of Lacey

APPLICANT: Puna Clarke

PROPOSED USE: Replace Existing Lift Station with a new one (similar location)

PLANNER: Reace Fant

COMMENTS DATE: 2/12/2021

H.T.E. CASE NUMBER: 20-101

NOTES BY: Tom Stiles

Water Improvements:

1. Water service for the lift station, shall be equipped with a Reduced Pressure Backflow Assembly device. (City of Lacey 2017 DG & PWS, Appendix P)
2. To support landscaping needs, an irrigation meter is suggested. If an irrigation meter is installed, it shall be equipped with a Double Check Valve Assembly backflow prevention device. (DG&PWS 6.120 F)
3. For Irrigation lines located in the Right-of-Way, the following shall be stated on the irrigation plans and is a condition of approval: "The property owner adjacent to the public Right-of-Way will be responsible for maintaining and locating all irrigation lines located in the public Right-of-Way". (DG&PWS, Water, Irrigation 6.210)
4. Water system improvements shall meet the requirements of the City of Lacey, the Coordinated Water System Plan (CWSP), Department of Health (DOH), City of Lacey Water System Plan, AWWA, Department of Ecology, Thurston County Environmental Health and City of Lacey Fire Code Official's standards. (DG&PWS, Water 6.010)

Sewer Improvements:

5. Sewer improvements as needed to support the lift station shall be installed.
6. Sanitary sewer improvements associated with this project shall meet the requirements of the City of Lacey Comprehensive Sanitary Sewer Plan, Thurston County Health Department, Washington State Department of Health (DOH), the LOTT Clean Water Alliance and Department of Ecology. (DG&PWS, Sewer 7A.010 and Subdivisions and Short Plat 2-21)

Stormwater Improvements:

7. This project shall comply with the City of Lacey 2016 Stormwater Design Manual (LMC 14.27). Stormwater drainage and erosion control submittals shall be in conformance with the formatting and content requirements described in Chapter 3 of the 2016 Stormwater Design Manual.
8. Treatment and infiltration/flow control facilities shall be constructed or discharge to existing stormwater facilities for stormwater associated with the site and adjacent properties currently discharging to the site.
9. A Construction Stormwater Pollution Prevention Plan (SWPPP) shall be submitted to and approved by the City prior to beginning site work or construction of the project. A complete SWPPP consists of both a narrative report and a temporary erosion and sediment control plan drawing. Each of the 13 SWPPP Elements as identified in Chapter 5 of the City of Lacey 2016 Stormwater Design Manual shall be addressed and included in the construction SWPPP. If site conditions render any SWPPP elements unnecessary, exemptions for each element shall be clearly justified in the narrative report.
10. A Stormwater Facility Maintenance Manual per chapter 3 of the City of Lacey 2016 Stormwater Design Manual shall be submitted to and approved by the City of Lacey. The maintenance manual shall be included in the drainage report as part of the stormwater site plan.

The maintenance manual shall be prepared as a stand-alone document for the post-development facility owner(s). The maintenance plan shall be submitted to and approved by the City prior to civil drawing approval.

Please see Doug Christenson's comments for additional specific stormwater conditions

Transportation Improvements:

11. Access shall be provided to the property as determined and approved by the City. All access points shall meet minimum access spacing, minimum corner clearance, sight distance and minimum or maximum width requirements as outlined in the Development Guidelines & Public Works standards.
12. Traffic mitigations as determined by the Commercial Traffic Generation worksheet are required. Conditions of Lacey Municipal Code 14.21 shall be satisfied.

Please see Martin Hoppe's comments for additional specific transportation conditions

Surveying Requirements:

13. The City of Lacey Coordinate System is a ground scale coordinate system derived from the Washington Coordinate System, NAD 83/91. Units are expressed in feet. Data can be obtained from Lacey Public Works Department. Civil drawings shall be submitted utilizing the City of Lacey Coordinate System. (DG&PWS 3.025)
14. City of Lacey Vertical Datum has elevations referenced to the National Geodetic Vertical Datum of 1929 (NGVD29). Units are expressed in feet. A benchmark listing can be obtained from Lacey Public Works Department. Civil drawings shall be submitted utilizing the City of Lacey Vertical Datum. (DG&PWS 3.025)

Other Requirements:

15. All improvements shall satisfy City of Lacey Development Guideline Standards in place at the time complete application is obtained (Complete application is determined by the City of Lacey Community Development Department). (LMC)
16. All Public Works improvements must be designed by an engineer licensed in the State of Washington and submitted to the City of Lacey Public Works Department for review and approval. (DGPWS 3.040)
17. All structures associated with this site shall be connected to City of Lacey utilities (DG&PWS 6.010 and 7A.010).

End of Comments



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

*PO Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341*

February 3, 2021

Reace Fant, Assistant Planner
City of Lacey
Community Development Department
PO Box 3400
Lacey, WA 98509-3400

Dear Reace Fant:

Thank you for the opportunity to comment on the optional determination of nonsignificance/notice of application for the Lift Station #19 Replacement Project (20-101) located at 2659 Willamette Drive Southeast. The Department of Ecology (Ecology) reviewed the environmental checklist and has the following comment(s):

SOLID WASTE MANAGEMENT: Derek Rockett (360) 407-6287

All grading and filling of land must utilize only clean fill. All other materials may be considered solid waste and permit approval may be required from the local jurisdictional health department prior to filling. All removed debris resulting from this project must be disposed of at an approved site. Contact the local jurisdictional health department for proper management of these materials.

TOXICS CLEANUP: Eva Barber (360) 407-7094

This project is located in an area that has been contaminated with heavy metals due to the air emissions originating from the old Asarco smelter in north Tacoma. Soil contamination from the old Asarco poses risks to human health and the environment. Children are at especially high risk from direct exposure to contaminated soil. Construction workers, landscapers, gardeners, and others who work in the soils are also at risk. Washington State Department of Ecology (Ecology) recommended that the lead agency include soil sampling and analysis for arsenic and lead as conditions of approval.

The applicant sampled and analyzed the soil for arsenic and lead and submitted the results to Ecology. One of the samples exceeded the Model Toxic Control Act Method A cleanup level for unrestricted land use. Ecology recommended remediation of this area prior to project construction.

Extra precautions shall be taken to avoid escaping dust, soil erosion, and water pollution during construction. Contaminated soils generated during construction shall be managed and disposed of in accordance with state and local regulations, including the Solid Waste

Handling Standards regulation (Chapter 173-350 WAC). For information about soil disposal contact the local health department in the jurisdiction where soils will be placed.

TOXICS CLEANUP: Mohsen Kourehdar (360) 407-6256

If contamination is suspected, discovered, or occurs during the proposed SEPA action, testing of the potentially contaminated media must be conducted. If contamination of soil or groundwater is readily apparent, or is revealed by testing, the Department of Ecology must be notified. Contact the Environmental Report Tracking System Coordinator at the Southwest Regional Office at (360) 407-6300. For assistance and information about subsequent cleanup and to identify the type of testing that will be required, contact Mohsen Kourehdar with the Toxic Cleanup Program at the Southwest Regional Office at (360) 999-9592.

**WATER QUALITY/WATERSHED RESOURCES UNIT:
Morgan Maupin (360) 407-7320**

For information on contaminated construction sites, please contact Carol Serdar at carol.serdar@ecy.wa.gov, or by phone at (360) 742-9751.

Erosion control measures must be in place prior to any clearing, grading, or construction. These control measures must be effective to prevent stormwater runoff from carrying soil and other pollutants into surface water or stormdrains that lead to waters of the state. Sand, silt, clay particles, and soil will damage aquatic habitat and are considered to be pollutants.

Any discharge of sediment-laden runoff or other pollutants to waters of the state is in violation of Chapter 90.48 RCW, Water Pollution Control, and WAC 173-201A, Water Quality Standards for Surface Waters of the State of Washington, and is subject to enforcement action.

Ecology's comments are based upon information provided by the lead agency. As such, they may not constitute an exhaustive list of the various authorizations that must be obtained or legal requirements that must be fulfilled in order to carry out the proposed action.

If you have any questions or would like to respond to these comments, please contact the appropriate reviewing staff listed above.

Department of Ecology
Southwest Regional Office

(GMP:202100304)

cc: Derek Rockett, SWM
Eva Barber, TCP
Mohsen Kourehdar, TCP
Morgan Maupin, WQ

Reace Fant

From: Lauren Whybrew <lauren.whybrew@orcaa.org>
Sent: Monday, January 25, 2021 3:56 PM
To: Reace Fant
Cc: Debbie Moody
Subject: ORCAA comment on SEPA# 202100304
Attachments: 20-101-4-LS19-SEPA 2020-12-23 signed.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

External Email Warning! Use caution before clicking links or opening attachments.

Greetings,

Olympic Region Clean Air Agency (ORCAA) received the attached notice for the Lift Station #19 Replacement project, located at 2659 Willamette Dr SE in Lacey. It's possible that pre-approval from ORCAA via a Notice of Construction (NOC) is required for the generator. The following requires a NOC from ORCAA prior to installing the engine:

- Stationary internal combustion engines with a rated capacity of 500 hp or greater, and used for standby emergency power, require approval by ORCAA through a Notice of Construction application.
- Stationary internal combustion engines with a rated capacity of 50 hp or greater, and used for non-emergency purposes, require approval by ORCAA through a Notice of Construction application.

If the new generator falls into either of the categories above, I can email the applicant instructions and forms for how to submit a NOC application. If the generator will be less than the applicable horsepower thresholds outlined above, please let me know so that I can close out the file on my end.

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

Thank you!

Please note: I am working from home until further notice. The best way to reach me is via email.

Lauren Whybrew, Engineer I

Olympic Region Clean Air Agency - "Clean Air is Everyone's Business!"
2940 Limited Lane NW · Olympia WA 98502 · www.orcaa.org
(360) 539-7610 ext. 107 · 1-800-422-5623

Please take notice that any records or communications with ORCAA are subject to public disclosure under the Public Records Act (RCW 42.56) unless exempt under applicable law.

Please consider the environment before printing this email. Thank you.



DETERMINATION OF NONSIGNIFICANCE

SEPA/Case Number: 20-101

Description of Proposal: Construct a new wastewater lift station and related infrastructure for the City of Lacey. Project includes the lift station and related infrastructure necessary for the project including wet well, electrical building, valve vault, force main, gravity sewer and access road.

Proponent: City of Lacey

Location of Proposal: 2659 Willamette Drive NE, Lacey WA 98503. Parcel 42080000000

Lead Agency: City of Lacey Community Development Department

Threshold Determination: As provided by RCW 43.21C.240 and WAC 197-11-158, the lead agency has determined that the requirements for environmental analysis, protection, and mitigation measures have been adequately addressed in the applicable development regulations and comprehensive plan adopted under Chapter 36.70A RCW and in other local, state, or federal laws or rules. Therefore, this proposal is not likely to have a significant adverse impact upon the environment, an Environmental Impact Statement is not required under RCW 43.21C.030(2)(C), and the City of Lacey will not require additional mitigation measures under SEPA. This decision was made after review of an Environmental Checklist and other information on file with the City. This information is available to the public upon request.

____ There is no comment period for this DNS.

____ This DNS is issued under 197-11-340(2); the lead agency will not act on this proposal for 14 days. Comments must be submitted by [Click **here** and type date]

___X___ The comment period, pursuant to WAC 197-11-355, was combined with the Notice of Application comment period, using the Optional DNS Process. The comment period closed on 2/3/2021.

Environmental Conditions:

1. Prior to site disturbing work the soils on site shall be sampled and analyzed for arsenic and lead. The soil sampling results shall be sent to the Department of Ecology (ECY) for review.
2. If lead or arsenic are found at concentrations above the Model Toxics Control Act (MTCA) cleanup levels (WAC 173-340) the owners, potential buyers, construction workers and others shall be notified of their occurrence. The applicant shall also contact the Environmental Report Tracking System Coordinator at the Ecology Southwest Regional Office at (360)407-6300. The MTCA cleanup level for arsenic is 20 ppm and lead is 250 ppm.
3. If lead, arsenic and/or other contaminants are found at concentrations above MTCA cleanup levels, prior to grading permit issuance the applicant shall:
 - a) Enter into the Voluntary Cleanup Program with Ecology prior to issuance of any site development or disturbance permits;

- b) Obtain an opinion letter from Ecology stating that the proposed soil remediation will likely result in no further action under MTCA;
 - c) Provide the City with written verification from Ecology that development permits are consistent with the cleanup action plan developed under the requirements of the Voluntary Cleanup Program.
- 4. If soils are found to be contaminated with arsenic, lead or other contaminants, extra precautions shall be taken to avoid escaping dust, soil erosion, and water pollution during grading and site construction. Site design shall include protective measures to isolate or remove contaminated soils from public spaces, yards, and children's play areas.
 - 5. Contaminated soils generated during site construction shall be managed and disposed of in accordance with state and local regulations, including the Solid Waste Handling Standards regulation (WAC 173-350). For information about soil disposal contact the local health department in the jurisdiction where soils will be placed.
 - 6. All mitigation measures volunteered by the developer and described within each element of the submitted environmental checklist shall be implemented into the design and/or development of the proposed development.

Findings of Fact:

- 1. The Washington State Department of Ecology (Ecology) submitted comments dated February 3, 2021, that identified this property on its Tacoma Asarco Smelter Plume map as one that is likely contaminated with heavy metals due to the air emissions originating from the former Asarco smelter in Tacoma. Additionally, nearby properties have identified contaminates originating from the Asarco Smelter.
- 2. Soil contamination from the former Asarco smelter poses a risk to human health and the environment. Construction workers, landscapers, gardeners, and others who work in the soils are at risk.
- 3. Based on information from the Department of Ecology's ongoing Tacoma Smelter Plume Toxics Cleanup Program the Responsible Official has determined that there is potential for soils contaminated with lead and/or arsenic to be located on the subject site. The potential identified probable significant adverse impacts to site development workers and future residents will be mitigated with soil sampling, analysis and a cleanup plan if contamination is found.
- 4. No other probable significant adverse impacts were identified through the review of the environmental checklist and application materials that would not be addressed and/or governed by the provisions of the Lacey Municipal code.

Assigned Staff Person: Reace Fant, Assistant Planner

Responsible Official: Rick Walk, AICP, Director of Community & Economic Development

Address: 420 College Street SE, Lacey, WA 98503

Phone: (360) 491-5642 **Fax:** (360) 438-2669

Date: 2/22/2021

Signature:  _____

Appeal Deadline: 5:00 p.m. on 3/9/2021

NOTE: Pursuant to RCW 43.21.C.075 and Lacey City Code 14.24.170(A), a project denial based upon environmental information, and a conditioned or mitigated Determination of Nonsignificance (DNS) may be appealed by any agency or aggrieved person. Appeals are filed either with the Community Development Department when there is also an underlying governmental action or with the City Council if there is no underlying governmental action. Appeals to the City Council must be filed within fourteen (14) days of the issuance of the written decision (refer to the Lacey City Code for time periods on appeals filed with the Community Development Department).

cc: Department of Ecology

NOTICE OF PUBLIC HEARING

This is to notify you that the City of Lacey Hearings Examiner will conduct a public hearing on March 30, 2021 at 10:00am, the hearing will be held virtually via Zoom Web Conferencing, and is for consideration of the following item(s):

Application #20-101: Request by the City of Lacey Public Works Department to construct a new wastewater lift station and related infrastructure including wet well, electrical building, valve vault, force main, gravity sewer and access road. The project is located at 2659 Willamette Drive NE, Lacey WA 98503. Parcel 42080000000. Site is legally described as Tract D of Commerce Place P.I.D. AFN 9403010120. Section 01, Township 18N, Range 1W.

If you want to state your opinion of this project, please register at the below web address to virtually attend the public hearing. Be prepared to speak briefly to the Hearings Examiner. What you say will then become part of the public record. If you cannot attend the virtual public hearing but wish to comment, please write a letter to: Hearings Examiner, 420 College St. SE, Lacey, WA 98503. Your letter will become part of the public record if we receive it **before the hearing.**

Information on this project, including a study of possible environmental impacts, is available at City Hall. Or, you may phone the Community Development Department at (360) 491-5642, or to the project planner, Reace Fant, via email at rfant@ci.lacey.wa.us

If you need special accommodations to participate in this meeting, please call us at (360) 491-5642 by 10:00 a.m. the business day before the hearing. To register to participate in the hearing please go to https://us02web.zoom.us/webinar/register/WN_PCTlnk1-SDuzlmloL3W3xg. **You must register prior to the hearing in order to testify.**

LACEY COMMUNITY DEVELOPMENT DEPARTMENT

Reace Fant, Assistant Planner

rfant@ci.lacey.wa.us

420 College St. SE

Lacey, WA 98503

**DID YOUR NEIGHBORS RECEIVE THIS NOTICE?
PLEASE SHARE IT WITH THEM!**

NOTICE OF PUBLIC HEARING

Notice is hereby given that the City of Lacey Hearings Examiner will conduct a public hearing on March 30, 2021 at 10:00am, the hearing will be held virtually via Zoom Web Conferencing, and is for consideration of the following item(s):

Application #20-101: Request by the City of Lacey Public Works Department to construct a new wastewater lift station and related infrastructure including wet well, electrical building, valve vault, force main, gravity sewer and access road. The project is located at 2659 Willamette Drive NE, Lacey WA 98503. Parcel 42080000000. Site is legally described as Tract D of Commerce Place P.I.D. AFN 9403010120. Section 01, Township 18N, Range 1W.

The purpose of the public hearing is to give citizens an opportunity to testify to the Hearings Examiner regarding the above proposal. Any interested citizen may testify at the virtual hearing by registering to testify ahead of the hearing at the following web address: https://us02web.zoom.us/webinar/register/WN_PCTlnk1-SDuzlmloL3W3xg. Anyone who cannot attend the virtual meeting may give testimony in a letter addressed to: Hearings Examiner, 420 College St. SE, Lacey, WA 98503. If your letter is received before the hearing, it will become part of the public record. Prior to the hearing, information regarding the proposal, including an environmental impact analysis, may be obtained by contacting Reace Fant, Assistant Planner, at the City of Lacey Community and Economic Development Department by phone at (360) 491-5642 or email at rfant@ci.lacey.wa.us.

If you need special accommodations to participate in this meeting, please call us at (360) 491-5642 by 10:00 a.m. the day before the meeting.

LACEY COMMUNITY DEVELOPMENT DEPARTMENT
Reace Fant, Assistant Planner

Do not publish below this line

Please Publish: 3/19/2021

Send bill to City of Lacey, 420 College St. SE, Lacey, WA 98503.

NOTICE OF PUBLIC HEARING

Notice is hereby given that the City of Lacey Hearings Examiner will conduct a public hearing on March 30, 2021 at 10:00am, the hearing will be held virtually via Zoom Web Conferencing, and is for consideration of the following item(s):

Application #20-101: Request by the City of Lacey Public Works Department to construct a new wastewater lift station and related infrastructure including wet well, electrical building, valve vault, force main, gravity sewer and access road. The project is located at 2659 Willamette Drive NE, Lacey WA 98503. Parcel 42080000000. Site is legally described as Tract D of Commerce Place P.I.D. AFN 9403010120. Section 01, Township 18N, Range 1W.

If you want to state your opinion of this project, please register at the below web address to virtually attend the public hearing. Be prepared to speak briefly to the Hearings Examiner. What you say will then become part of the public record. If you cannot attend the virtual public hearing but wish to comment, please write a letter to: Hearings Examiner, 420 College St. SE, Lacey, WA 98503. Your letter will become part of the public record if we receive it before the hearing.

Information on this project, including a study of possible environmental impacts, is available at City Hall. Or, you may phone the Community Development Department at (360) 491-5642, or to the project planner, Reace Fant, via email at rfant@ci.lacey.wa.us

If you need special accommodations to participate in this meeting, please call us at (360) 491-5642 by 10:00 a.m. the day before the meeting. To register to participate in the hearing please go to https://us02web.zoom.us/webinar/register/WN_PCTlnk1-SDuzlmloL3W3xg. **You must register prior to the hearing in order to testify.**

LACEY COMMUNITY DEVELOPMENT DEPARTMENT
Reace Fant, Assistant Planner

CERTIFICATION OF PUBLIC NOTICE

I, Reace Fant, Assistant Planner, for the City of Lacey hereby certify that public notice for the City of Lacey Pump Station #19 Replacement file #20-101 was given as follows:

APPLICATION

Notice of Application Published: 1/20/2021
Notice of Application Posted: 1/20/2021
Posting Locations: 2659 Willamette Drive NE, Lacey
WA 98503. Parcel 42080000000
The Olympian Newspaper.

Environmental Determination Published: 2/24/2021

HEARING

Notice of Public Hearing Published: 3/21/2021
Notice of Public Hearing Posted: 3/18/2021
Posting Locations: 2659 Willamette Drive NE, Lacey
WA 98503. Parcel 42080000000
The Olympian Newspaper.
Notice of Public Hearing Mailed to Mailing List: 3/18/2021

The above is an accurate accounting of the public notice provided for the project.

Reace Fant

Reace Fant, Assistant Planner

3/22/21

Date

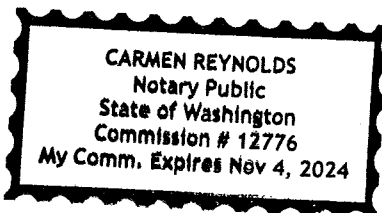
STATE OF WASHINGTON)

) ss.

County of Thurston)

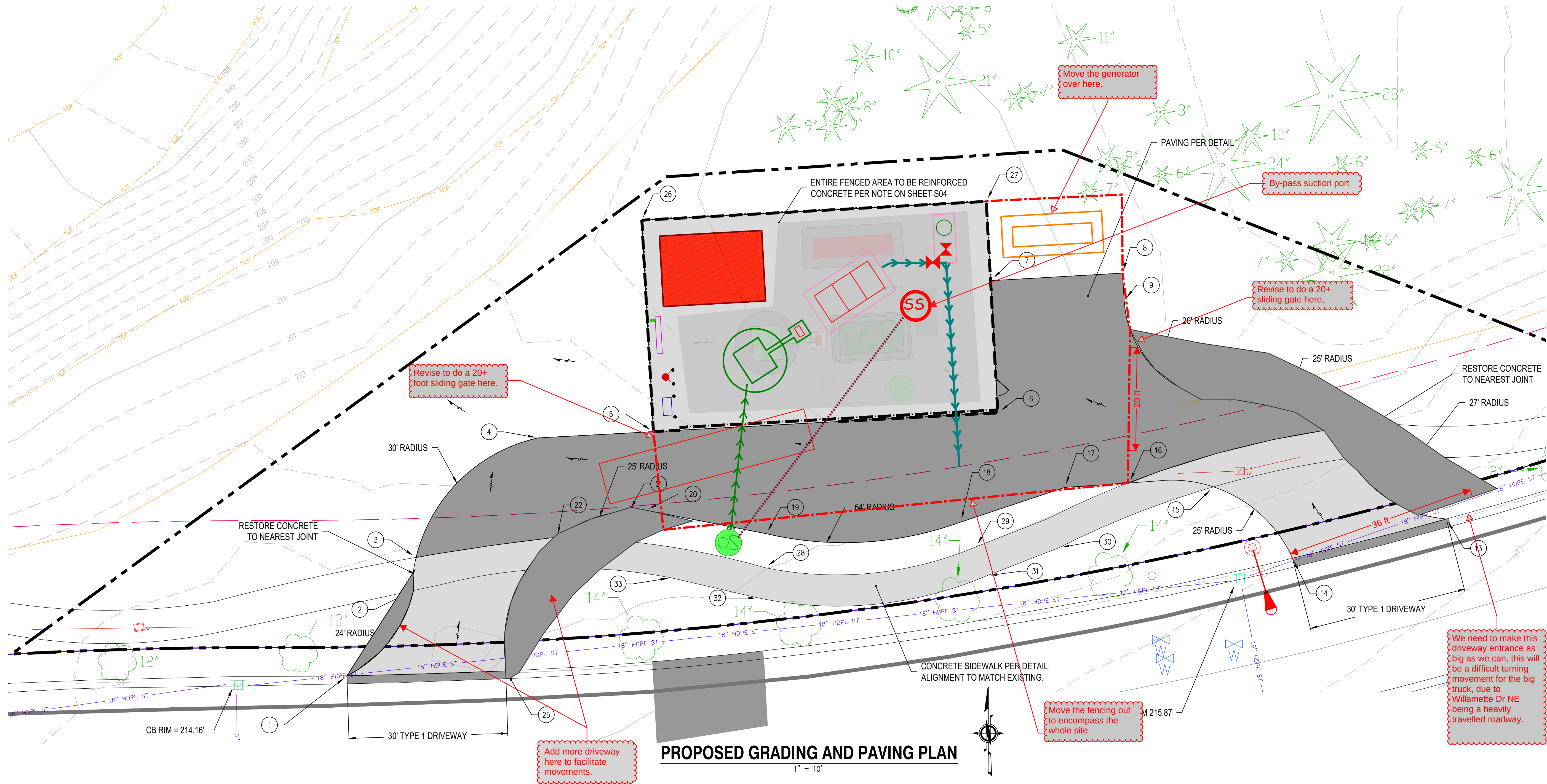
This is to certify that on March 22, 2021 before the undersigned Notary Public, personally appeared Reace Fant Planner for the City of Lacey.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year first above written.



Carmen Reynolds
Notary Public in and for the State of Washington,
residing at: Olympia WA

My Commission Expires: NOV. 4th 2024



POINT TABLE - GRADING AND SURFACING				
POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	642233.65	79004.02	0.00 *	EDGE OF DRIVEWAY
2	642249.77	79016.60	214.24 *	EDGE OF DRIVEWAY/SIDEWALK
3	642255.99	79017.07	214.17 *	EDGE OF ASPHALT/SIDEWALK
4	642278.60	79040.15	213.80	EDGE OF ASPHALT
5	642279.79	79061.89	214.40	EDGE OF ASPHALT/CONCRETE
6	642283.33	79126.92	214.90	EDGE OF ASPHALT/CONCRETE
7	642308.31	79125.54	214.77	EDGE OF ASPHALT/CONCRETE
8	642309.73	79150.49	215.00	EDGE OF ASPHALT
9	642304.58	79150.78	215.06	EDGE OF ASPHALT
10	642285.75	79171.16	215.42	EDGE OF ASPHALT
11	642280.00	79188.52	215.64 *	EDGE OF ASPHALT/SIDEWALK

* ELEVATION TO MATCH EXISTING GRADE

POINT TABLE - GRADING AND SURFACING				
POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
12	642274.74	79193.27	215.93 *	EDGE OF DRIVEWAY/SIDEWALK
13	642263.29	79211.64	0.00 *	EDGE OF DRIVEWAY
14	642255.87	79182.57	0.00 *	EDGE OF DRIVEWAY
15	642269.34	79167.62	215.37 *	EDGE OF DRIVEWAY/SIDEWALK
16	642270.09	79151.75	215.28 *	EDGE OF ASPHALT/SIDEWALK
17	642269.26	79139.60	215.10	EDGE OF ASPHALT
18	642262.71	79119.95	214.97	EDGE OF ASPHALT
19	642260.50	79083.21	214.74	EDGE OF ASPHALT
20	642264.94	79060.51	214.60	EDGE OF ASPHALT
21	642264.77	79057.37	214.53	EDGE OF ASPHALT
22	642259.76	79043.67	214.19 *	EDGE OF ASPHALT/SIDEWALK

POINT TABLE - GRADING AND SURFACING				
POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
23	642253.61	79037.89	214.30 *	EDGE OF DRIVEWAY/SIDEWALK
24	642238.23	79033.78	214.99 *	EDGE OF DRIVEWAY
25	642234.59	79034.01	0.00 *	EDGE OF DRIVEWAY
26	642319.73	79059.71	214.40	EDGE OF CONCRETE
27	642323.28	79124.75	214.70	EDGE OF CONCRETE
28	642254.08	79082.96	214.99 *	EDGE OF SIDEWALK
29	642258.03	79122.83	215.54 *	EDGE OF SIDEWALK
30	642257.84	79138.42	215.62 *	EDGE OF SIDEWALK
31	642252.55	79124.85	215.64 *	EDGE OF SIDEWALK
32	642248.34	79081.82	215.17 *	EDGE OF SIDEWALK
33	642252.17	79065.23	214.77 *	EDGE OF SIDEWALK

LIFT STATION 19 REHABILITATION

PROPOSED GRADING AND PAVING PLAN

LOG NO.: 516-081

CLIENT: LAC

DATE: Nov 11, 2020

ENGINEER: PJJ

FILE NAME: LS19-CIV04.DWG

DATE: Nov 19, 2020

REVIEWED: DJM

REVISIONS

60% REVIEW DRAWINGS

NO.	DATE	DESCRIPTION	BY	REVIEW

SCALE: SHOWN

DRAWING IS FULL SCALE WHEN BAR MEASURES 2'

DWG NO.: C04

SHEET NO.: 05

48



LACEY CITY COUNCIL MEETING May 20, 2021

SUBJECT: Naming of Public Facilities and Memorial Roadways Policy Consideration

RECOMMENDATION: Motion to approve the Naming of Public Facilities and Memorial Roadways Policy

STAFF CONTACT: Scott Spence, City Manager *SS*
Shannon Kelley-Fong, Assistant City Manager *SKF*

ORIGINATED BY: City Manager's Department

ATTACHMENTS:

1. [Draft Naming of Public Facilities and Memorial Roadways](#)
2. [Draft Application for Naming of Public Facilities and Memorial Roadways](#)

FISCAL NOTE: There would be no immediate fiscal impact if the draft Naming of Public Facilities and Memorial Roadways policy is adopted.

PRIOR REVIEW: Community Relations & Public Affairs Committee – April 3, 2021
Community Relations & Public Affairs Committee – May 3, 2021

BACKGROUND:

On February 12, 2021, the City of Lacey ("City") received a letter addressed to the General Government Committee from Ed Sorger, a former Lacey Police Department Commander. The letter from Mr. Sorger requested that the City recognize the late Master Sergeant (MSG) Leslie Johnson by naming a City-owned facility in his honor. Specifically, the letter expressed an interest in naming one or more of the following City facilities after Mr. Johnson: 1) the Lacey Veterans Services Hub (LVSH); 2) the street the LVSH is located on; 3) a parking stall at the LVSH; or 4) the street Mr. Johnson lived on in Lacey, Shirley Street SE.

Currently, there is no policy for naming or renaming City facilities in the City of Lacey City Council Policies - Procedures Manual. The City does have naming policies for 1) corporate naming rights for parks (Park and Recreation Department policy); 2) Public parks, trails and

parkways, etc. (Section 10.16); and 3) historical buildings; (Section 10.17). In addition to these policies, Lacey Municipal Code 12.04 provides requirements for uniform street naming and house numbering.

At the March 11, 2021, Lacey City Council meeting, the Lacey City Council directed City personnel to review Mr. Sorger's request at the City of Lacey Community Relations and Public Affairs Committee meeting and consider developing a City policy for commemoratively naming City facilities.

This item was brought to the Community Relations and Public Affairs Committee at its April, 3, 2021, meeting. At this meeting, it was recommended by City personnel that the City establish a consistent process for considering commemorative naming requests for public facilities and roadways prior. The Community Relations Committee directed City personnel to draft a public facility naming policy for the committee's review on May 3, 2021.

At the May 3, 2021, meeting, the Community Relations and Public Affairs Committee moved to bring the draft Naming of Public Facilities and Memorial Roadways Policy to the full Lacey City Council for consideration. The Community Relations and Public Affairs Committee also moved to bring the application for a Memorial Roadway in honor of Master Sergeant Leslie Johnson submitted by Ed Sorger to the full Lacey City Council for consideration.

Draft Naming of Public Facilities and Memorial Roadways Policy Overview:

1. Provides an established and consistent procedure to commemoratively name City public facilities and memorial roadways.
2. Provides criteria for considering commemorative naming of City facilities and memorial roadways.
3. Outlines an application process.
4. Specifies that all commemorative naming decisions are at the discretion of the Lacey City Council.

ADVANTAGES:

1. Adopting the draft Naming of Public Facilities and Memorial Roadways would provide a consistent process for considering naming requests for public facilities and memorial roadways in the future.

DISADVANTAGES:

1. None identified at this time.

10.18 Naming of Public Facilities and Memorial Roadways

It is the policy of the City of Lacey to utilize an established and consistent procedure to commemoratively name City public facilities and memorial roadways.

Naming policies for parks, trails, parkways, recreation facilities, community buildings, plazas, open space areas, habitat reserves, memorials, park accessories, etc., are specified in Section 10.16 Naming of Public Parks, Trails, Parkway, etc.

Naming policies for Historical Buildings are specified in Section 10.17 Naming of Historical Buildings.

The commemorative naming and renaming of public facilities and memorial roadways shall only be done in accordance with the procedures and criteria set forth below. Once adopted, commemorative name and memorial roadway changes should occur on an exceptional basis and only at the discretion of the Lacey City Council.

A. Definitions:

1. **City facility accessories** – means all substantial structures or subareas of a building, which includes but is not limited to interior and exterior features such as lobbies, atriums, squares, plazas, foyers, halls, meeting rooms, chambers, corridors, waiting rooms, etc.
2. **City public facilities (“Public Facilities”)** – means, but is not limited to, City-owned buildings, utility facilities, including utility poles, utility boxes, and other utility elements, and other City facility accessories. City-owned streets and rights-of-way will only be considered for commemorative naming as memorial roadways.
3. **Commemorative name** – means a name provided to a City facility through the process outlined in the policy below.
4. **Memorial roadway** – means any public road, street, avenue, boulevard, or associated rights-of-way within City limits provided, or intended to be provided, with a secondary memorial name other than its formal navigational address name, in accordance with this naming policy. A memorial roadway name does not replace a street, road, avenue or boulevard’s formal navigational address name. A memorial road may be designated for the entirety of the public roadway or for a segment of a public roadway. The length of the memorial roadway is at the discretion of the Lacey City Council.

B. Criteria:

In the commemorative naming of public facilities or memorial roadways, consideration will be primarily given to the following:

1. Neighborhood, geographic or common name identification
2. Natural or geological features
3. Significant historical events or cultural attributes

4. Historical or cultural figures
5. Outstanding individuals in the community
 - a. Outstanding individuals will be considered posthumously. There shall be a lapse of at least thirty-six (36) months between the date of the death of the person(s) or of the event commemorated and the final naming or renaming of the City facility; or at the discretion of the City Council. Consideration will be given when:
 - i. the person was exceptionally dedicated or demonstrated excellence in service in ways that made a significant contribution to the community; or
 - ii. the person risked his or her life to save or protect others.
6. Veterans or military units with exceptional service contributions to the nation, state, or community
7. An individual who has made a significant land and/or monetary contribution to the City or greater community and who has stipulated the name as a condition of the donation
8. An individual who has contributed exceptional civic service to the City or greater community
 - a. Facilities shall not ordinarily be named for living persons, except under the following conditions:
 - i. The individual provided exceptional service of substantial length and leadership to the City.
 - ii. The individual's accomplishments must have had a measurable effect upon the quality of life within the community, and be directly related to enhancing public facilities.
9. A business entity or organization that has donated a significant parcel of property or facility, or has provided financing for the acquisition of a public facilities or provided for significant development of a public facility or an element within a public facility

C. Procedure:

The commemorative naming of public facilities and memorial roadways should be approached without preconceived notions and with patience and deliberation. Timing is important in naming public facilities, since temporary designations tend to be retained.

1. During the development of a public facility, a street designation or number will be used until the formal naming of the public facility occurs.
2. Whenever possible, naming of the public facility will be made upon closing a purchase or construction of the public facility.
3. Any group, person, or organization may apply to commemoratively name or re-name a public facility, excluding public roadways.

4. Any group, person, or organization may apply to create a memorial roadway.
5. The commemorative renaming and reconsideration of current names of public facilities and memorial roadways is allowed but discouraged.
6. Name change applications will be subject to a critical review that includes consideration of the original justification for the current name, the monetary value of prior contributors, and the rationale for changing the name. The renaming process would follow all other steps outline below.
7. Applications must contain:
 - a. the full name of the applicant, group, or organization;
 - b. contact information for a main point of contact;
 - c. identification of the public facility to be commemoratively named or renamed or the identification of the roadway to be considered for a memorial roadway;
 - d. the proposed name for the public facility or roadway;
 - e. supporting background information and/or justification describing the accomplishments and/or legitimacy of the name designation and how it is consistent with the naming criteria;
 - f. evidence of demonstrated community support for the proposed name;
 - g. written documentation of approval of the person (if living) or next of kin (if deceased), if available;
 - h. identification of interested/impacted stakeholders;
 - i. a description of the location and a map; and
 - j. for renaming proposals of a facility, background information on the current name and the rationale for requesting a new name.
8. All applications should be submitted to the Public Affairs Office.
9. Naming Approval Process
 - a. The City Council will be advised based on a transparent process and utilize the following information as guidelines for approval.
 - i. All written suggestions, solicited or not, will be acknowledged and recorded for consideration.
 - ii. To avoid duplication, confusing similarity, or inappropriateness, the City, in considering commemorative names or memorial roadway applications, will review existing names used for public and private facilities in Lacey and the surrounding area.

- iii. Public facilities may only have one additional commemorative or historical name.
 - iv. Public roadways may only have one additional commemorative or historical name in addition to its formal navigational designation.
 - v. The City will refer all completed applications to Community Relations and Public Affairs Committee for review. The Community Relations and Public Affairs Committee will provide recommendations to the full Lacey City Council.
 - vi. The City shall notify the applicant of the application status once the full City Council has acted to approve the commemorative naming or memorial roadway application by resolution. If the Lacey City Council does not act by resolution on the commemorative naming or memorial roadway application, or the resolution does not receive a majority of the Lacey City Council vote, the application is considered denied. Denial of an application does not prohibit an applicant from submitting a new application for the same public facility or public roadway. Any subsequent applications are subject to the process described in the section above.
- 5. Any naming of City-owned facilities or memorial roadways may be revoked at the discretion of the Lacey City Council through a resolution.
 - 6. Public facilities shall be identified by the established commemorative name.
 - 7. Plaques, monuments, street signs, or other markers designating the commemorative name of the public facility or memorial roadway shall be maintained as a source of identity and civic pride. The size, material, and location of plaques, monuments, street signs, or other markers designating a commemorative name or memorial roadway are at the sole discretion of the City.
 - 8. Upon approval of the commemorative name or memorial roadway, the name will be filed with the Fire Department, 911, the Lacey Police Department or any agency/business that would use names as a reference.



City of Lacey
Application for Naming Public Facilities and Memorial Roadways

Name of individual, group or organization making the request:		
Primary contact:		
Address:		
City:	State:	Zip:
Phone:	Email:	

1. The application is for a:

- ☐ **Commemorative name** for a public facility. Public facility means, but is not limited to, City-owned buildings, streets and rights-of-way, utility facilities, including utility poles, utility boxes, and other utility elements, and other City facility accessories.
- ☐ **Memorial roadway** for a public road, street, avenue or boulevard within City limits. A memorial roadway name does not replace a street, road, avenue or boulevard's formal navigational address name.
- ☐ **Renaming a commemorative name.**

2. Public facility (or street) proposed to be named (or have memorial roadway). For example, City Hall or College Street SE.

3. Proposed name for the public facility or memorial roadway:

4. Please indicate what City criteria for commemorative names / memorial roadways your proposal meets - check off all criteria that apply. Proposed commemorative name or memorial roadway is in honor of:

- ☐ A neighborhood, geographic or common name identification.
- ☐ A natural or geological feature.
- ☐ A significant historical event(s) or cultural attributes.
- ☐ A historical or cultural figure(s).
- ☐ An outstanding individual(s) in the community. Outstanding individuals will be considered posthumously. There shall be a lapse of at least thirty-six (36) months between the date of the death of the person(s) or of the event commemorated and the final naming or renaming of the City facility; or at the discretion of the City Council.
- ☐ A veteran(s) or military unit with exceptional service contributions to the nation, state, or community.
- ☐ An individual who has made a significant land and/or monetary contribution to the City or greater community and who has stipulated the name as a condition of the donation.
- ☐ An individual who has contributed exceptional civic service to the City or greater community.
- ☐ A business entity or organization that has donated a significant parcel of property or facility, or has provided financing for the acquisition of a public facilities or provided for significant development of a public facility or an element within a public facility.

3. Provide any additional supporting background information and/or justification describing the accomplishments and/or legitimacy of the name designation and how it is consistent with the City's naming criteria:

4. Explain how the proposed commemorative name or memorial roadway is supported by the community:

5. Please identify any interested or impacted stakeholder that would be affected by this proposal:
6. Please include the following attachments with this application:
 - ☐ **Attachment A** - Description/Map showing location of proposed public facility / public roadway
 - ☐ **Attachment B** - Written document of approval of person (if living) or next of kin (if deceased) if available.
7. If proposing to rename a facility (see Question 1), provide background information on the current name and the rationale for requesting a new name:

Signature of Primary Contact:

Printed of Primary Contact:

Organization:

Submitted completed applications to:

City of Lacey
ATTN: Public Affairs
420 College Street SE, Lacey, WA 98503
Tel: (805) 583-6748
Email: PublicAffairs@ci.Lacey.wa.us

For Internal Use ONLY

Date Received: _____, by: _____

SCHEDULE:

Community Relations Committee Meeting: _____

Lacey City Council Meeting: _____

Lacey City Council Action:

Approved - Resolution _____

Denied

Date: _____



LACEY CITY COUNCIL MEETING May 20, 2021

SUBJECT: Consideration of Memorial Roadway Application in honor of Master Sergeant Leslie Johnson submitted by Ed Sorger.

RECOMMENDATION: Approve by resolution the application for a Memorial Roadway in honor of Master Sergeant Leslie Johnson submitted by Ed Sorger.

STAFF CONTACT: Scott Spence, City Manager 
Shannon Kelley-Fong, Assistant City Manager 

ORIGINATED BY: City Manager's Department

ATTACHMENTS:

1. [Resolution No. 1104 approving the application for a Memorial Roadway in honor of Master Sergeant Leslie Johnson submitted by Ed Sorger](#)
2. [Application for a Memorial Roadway in honor of Master Sergeant Leslie Johnson submitted by Ed Sorger](#)

FISCAL NOTE: If the application for a Memorial Roadway in honor of Master Sergeant Leslie Johnson submitted by Ed Sorger passed, there would be a minor fiscal impact for memorial roadway signage.

PRIOR REVIEW: Community Relations & Public Affairs Committee – April 3, 2021
Community Relations & Public Affairs Committee – May 3, 2021

BACKGROUND:

On February 12, 2021, the City of Lacey ("City") received a letter addressed to the General Government Committee from Ed Sorger, a former Lacey Police Department Commander. The letter from Mr. Sorger requested that the City recognize the late Master Sergeant (MSG) Leslie Johnson by naming a City-owned facility in his honor. Specifically, the letter expressed an interest in naming one or more of the following City facilities after Mr. Johnson: 1) the Lacey Veterans Services Hub (LVSH); 2) the street the LVSH is located on; 3) a parking stall at the LVSH; or 4) the street Mr. Johnson lived on in Lacey, Shirley Street SE.

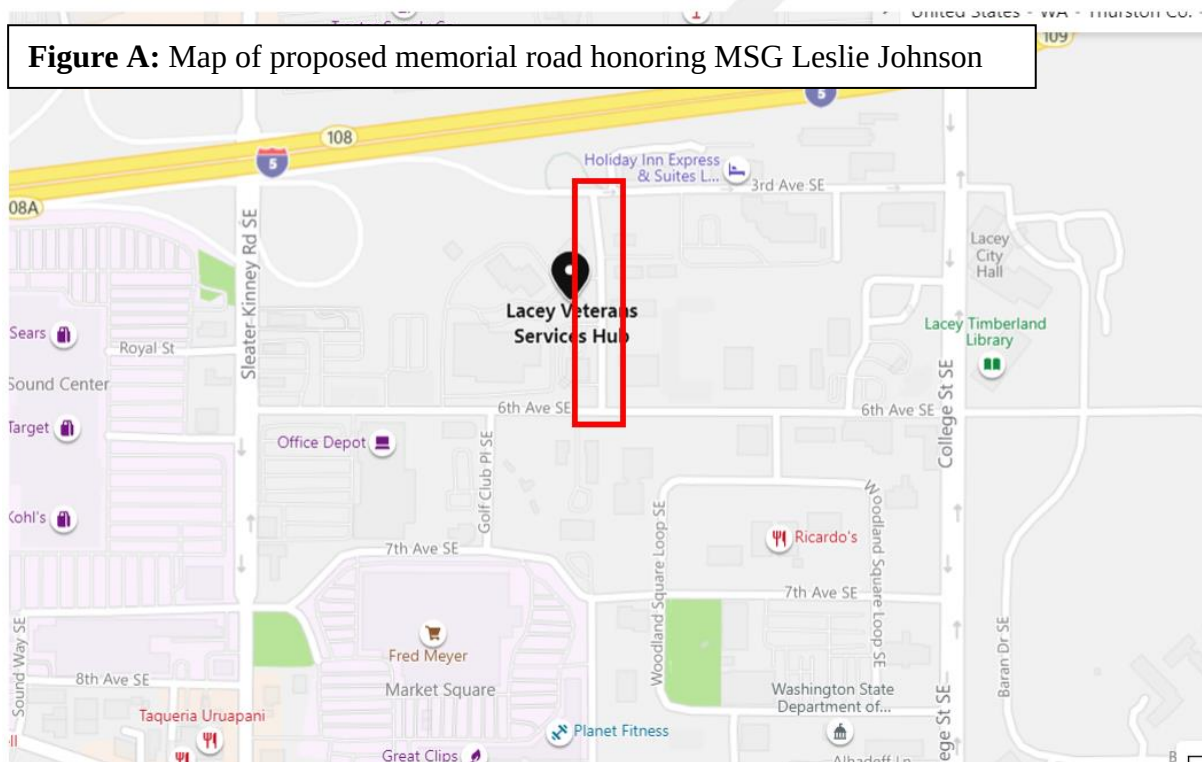
At the March 11, 2021, Lacey City Council meeting, the Lacey City Council directed City personnel to review Mr. Sorger's request at the City of Lacey Community Relations and Public Affairs Committee meeting and consider developing a City policy for commemoratively naming City facilities. This item was brought to the Community Relations and Public Affairs Committee at its April, 3, 2021 meeting. At this meeting it was recommended by City personnel that the City establish a consistent process for considering commemorative naming requests for public facilities and roadways prior. The Community Relations Committee directed City personnel to draft a public facility naming policy for the committee's review on May 3, 2021.

At the May 3, 2021 meeting, the Community Relations and Public Affairs Committee moved to bring the draft Naming of Public Facilities and Memorial Roadways Policy to the full Lacey City Council for consideration. Together with this motion, the Community Relations and Public Affairs Committee also moved to bring the application for a Memorial Roadway in honor of Master Sergeant Leslie Johnson submitted by Ed Sorger to the full Lacey City Council for consideration.

Application Overview:

1. The application is for a memorial roadway near the Lacey Veterans Services Hub on Golf Club Rd SE between 3rd Avenue SE and 6th Avenue SE, see **Figure A**.
2. The proposed name for the memorial roadway is "MSG Leslie Johnson Road."
3. The proposed memorial roadway honors Master Sergeant Leslie Johnson, who meets Memorial Roadway criteria found in Section 10.18(B)(6) as MSG Leslie Johnson was a veteran with exceptional service contributions to the nation, state, or community.
4. Community Relations and Public Affairs Committee moved to bring the draft Naming of Public Facilities and Memorial Roadways Policy to the full Lacey City Council for consideration.

Figure A: Map of proposed memorial road honoring MSG Leslie Johnson



Recommended Next Step:

1. Approve by resolution the application for a Memorial Roadway in honor of MSG Leslie Johnson submitted by Ed Sorger.

ADVANTAGES:

1. The application for a Memorial Roadway in honor of Master Sergeant Leslie Johnson submitted by Ed Sorger meets the draft Naming of Public Facilities and Memorial Roadway criteria found in Section 10.18(B)(6) as the memorial roadway would be for a veteran with exceptional service contributions to the nation, state, or community.

DISADVANTAGES:

1. None identified at this time.

RESOLUTION NO. 1104

CITY OF LACEY

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF LACEY APPROVING
A MEMORIAL ROADWAY NAME OF “MSG LESLIE JOHNSON ROAD” FOR
GOLF CLUB RD SE BETWEEN 3RD AVENUE SE AND 6TH AVEUE SE.

WHEREAS, the greatest acknowledgement of our freedom is to honor our armed forces veterans
who have sacrificed and, in many instances, paid the ultimate price for our freedom; and

WHEREAS, the late Master Sergeant (Ret.) Leslie "Les" Johnson enlisted in the Army at the age
of 18 at Camp Shelby, Mississippi, as a Combat Medic; and

WHEREAS, Master Sergeant Johnson served in World War II fighting in the Battle of
Normandy and his service also extended into the Korean War conflict; and

WHEREAS, Master Sergeant Johnson received the Purple Heart and the Bronze Star with Valor;
and

WHEREAS, for his meritorious service, he also received presidential and congressional medals,
citations and commendations; and

WHEREAS, Master Sergeant Johnson served 24 years in the military before retiring in July 1967
to the City of Lacey; and

WHEREAS, Master Sergeant Johnson was and continues to be an inspiration to the community
through his demonstration of courage, leadership, and commitment to service in our community and
country; and

WHEREAS, the City of Lacey has an adopted process to consider the naming of public facilities
and memorial roadways within the City of Lacey; and

WHEREAS, Master Sergeant Johnson’s exceptional service contributions to the nation meets the
criteria for being considered for a memorial roadway.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF LACEY,
WASHINGTON:

SECTION 1. The City of Lacey hereby creates a memorial roadway in honor of late Master Sergeant Johnson. Said memorial roadway shall be located on Golf Club Road South East between Third Avenue South East and Sixth Avenue South East, and shall read “MSG Leslie Johnson Road.”

PASSED BY THE CITY COUNCIL OF THE CITY OF LACEY, WASHINGTON, THIS 20th day of May, 2021.

LACEY CITY COUNCIL

By _____
Mayor

Attest:

City Clerk

Approved as to form:

City Attorney



City of Lacey
Application for Naming Public Facilities and Memorial Roadways

Name of individual, group or organization making the request:	Ed Sorger	
Primary contact:	Ed Sorger	
Address:	10244 Windward Dr NW	
City: Lacey	State: WA	Zip: 98403
Phone: 360-481-5782	Email: emsorger@gmail.com	

1. The application is for a:

☐ **Commemorative name** for a public facility. Public facility means, but is not limited to, City-owned buildings, utility facilities, including utility poles, utility boxes, and other utility elements, and other City facility accessories.

☒ **Memorial roadway** for a public road, street, avenue, boulevard, or associated rights-of-way within City limits. A memorial roadway name does not replace a street, road, avenue or boulevard's formal navigational address name.

☐ **Renaming a commemorative name.**

2. Public facility (or street) proposed to be named (or have memorial roadway). For example, City Hall or College Street SE.

Create a memorial roadway near the Lacey Veterans Services Hub on Golf Club Rd SE between 3rd Avenue SE and 6th Avenue SE. The request is to have memorial signage on 3rd Avenue SE and 6th Avenue SE.

3. Proposed name for the public facility or memorial roadway:

MSG Leslie Johnson Road

4. Please indicate what City criteria for commemorative names / memorial roadways your proposal meets - check off all criteria that apply. Proposed commemorative name or memorial roadway is in honor of:

☐ A neighborhood, geographic or common name identification.

☐ A natural or geological feature.

☐ A significant historical event(s) or cultural attributes.

☐ A historical or cultural figure(s).

☒ An outstanding individual(s) in the community. Outstanding individuals will be considered posthumously. There shall be a lapse of at least thirty-six (36) months between the date of the death of the person(s) or of the event commemorated and the final naming or renaming of the City facility; or at the discretion of the City Council.

☒ A veteran(s) or military unit with exceptional service contributions to the nation, state, or community.

☐ An individual who has made a significant land and/or monetary contribution to the City or greater community and who has stipulated the name as a condition of the donation.

☐ An individual who has contributed exceptional civic service to the City or greater community.

☐ A business entity or organization that has donated a significant parcel of property or facility, or has provided financing for the acquisition of a public facilities or provided for significant development of a public facility or an element within a public facility.

3. Provide any additional supporting background information and/or justification describing the accomplishments and/or legitimacy of the name designation and how it is consistent with the City's naming criteria:

Mr. Johnson is the most decorated military officer the City of Lacey has ever had who resided in our city. He was recognized by proclamation at a Lacey City Council Meeting in late 2019 and we are requesting further recognition from the city

**Mr. Johnson earned the following medals earned across his 24 year career:
Army Commendation; Good Conduct; National Defense; American Campaign;
European-African Campaign; Presidential Unit Citation; Army of Occupation;
Special Congressional Medal for the Battle of Normandy; Greek War Cross; Purple**

Heart; Bronze Star w/ Valor; WWII Victory; Korean Service; United Nations Korean Service Medal; Korean War Ambassador for Peace Medal; and Korean Presidential Unit Citation.

He Retired as an E-7, MSG, on 31 July, 1967 at Fort Ord, CA. He and Friedel decided they wanted to retire in Lacey, WA, near her sister Christine, and his friend Jimmy-so they did, and enjoyed many years of family, friendship and penny poker!

4. Explain how the proposed commemorative name or memorial roadway is supported by the community:

The Lacey community is proud to have a strong military affiliation and partnership.

Commemorating Mr. Johnson, the most decorated military officer the City of Lacey has ever had who resided in our city, would be a testament to this relationship and a meaningful way to recognize Mr. Johnson's distinguished service to our country for future generations.

Mr. Johnson's service and dedication to our country was truly exceptional and his heroic actions helped keep our country, and the world, safe in unprecedented times during World War Two, the Korean War, and beyond. Mr. Johnson is an exemplar of service to our county and should be celebrated as such.

5. Please identify any interested or impacted stakeholder that would be affected by this proposal:

Emergency Services, Lacey Veterans Services Hub, South Puget Sound Community College and other nearby businesses should be alerted to the addition of a memorial name on Golf Club Rd SE.

6. Please include the following attachments with this application:

 **Attachment A** - Description/Map showing location of proposed public facility / public roadway

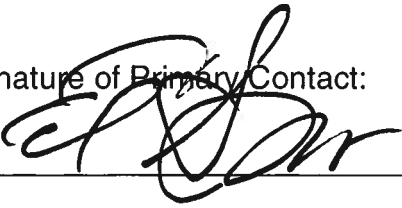
 **Attachment B** - Written document of approval of person (if living) or next of kin (if deceased) if available.

7. If proposing to rename a facility (see Question 1), provide background information on the current name and the rationale for requesting a new name:

Not applicable for this application.

SIGNATURE PAGE FOLLOWS

Signature of Primary Contact:



Printed of Primary Contact:



Organization:

Submitted completed applications to:

City of Lacey

ATTN: Public Affairs

420 College Street SE, Lacey, WA 98503

Tel: (805) 583-6748

Email: PublicAffairs@ci.Lacey.wa.us

For Internal Use ONLY

Date Received: _____, by: _____

Community Relations Committee Meeting: _____

Lacey City Council Meeting: _____

Lacey City Council Action:

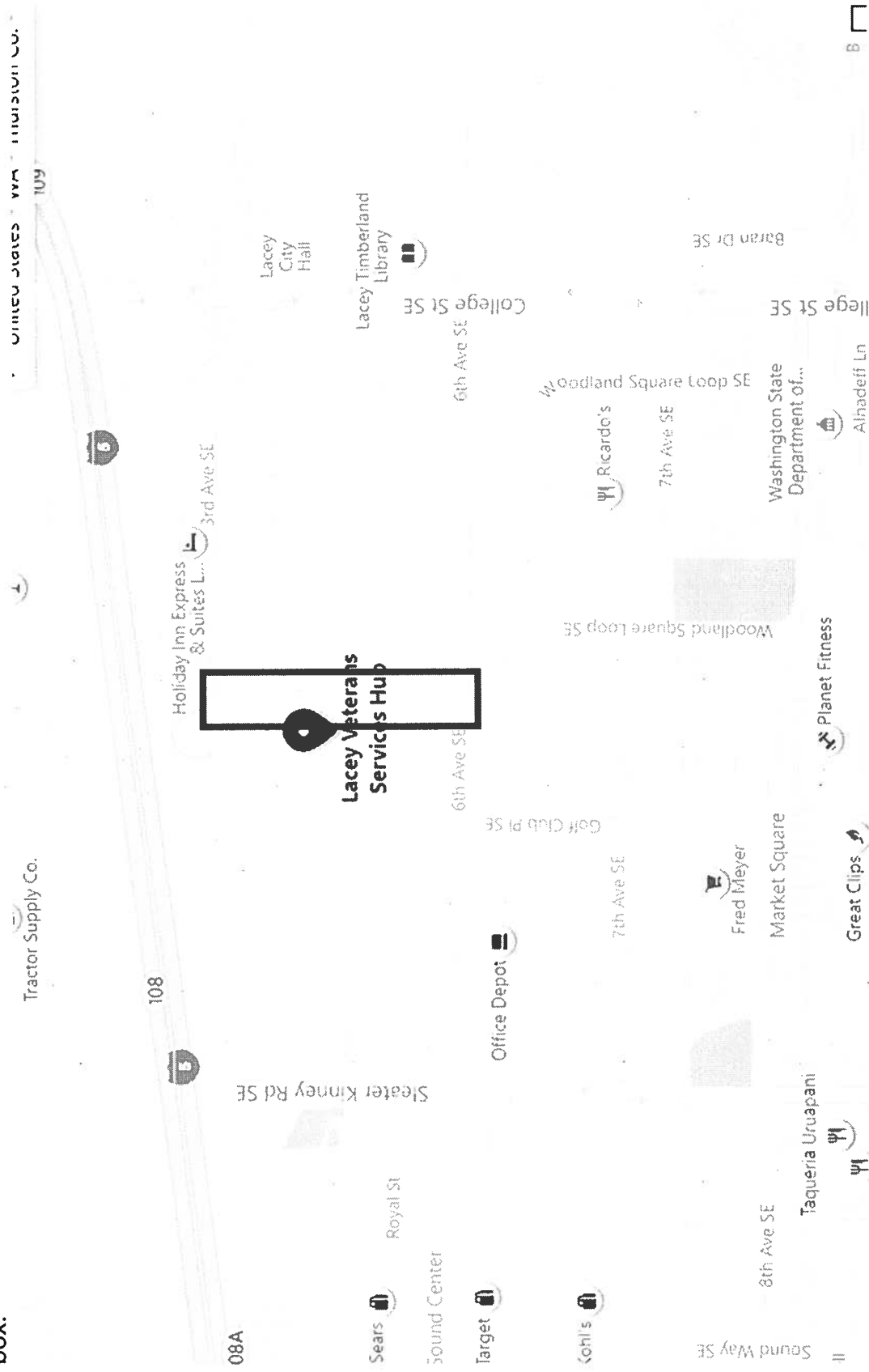
Approved - Resolution _____

Denied

Date: _____

Attachment A - Description/Map showing location of proposed public facility / public roadway

The proposed "MSG Leslie Johnson Road" Memorial Roadway between 3rd Ave. SE and 6th Ave. SE is shown in the red box.



Attachment B - Written document of approval of person (if living) or next of kin (if deceased) if available.

City of Lacey

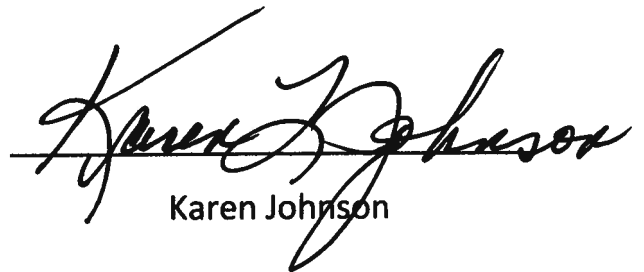
May 2, 2021

Attn: Shannon Kelley Fong

We are requesting the City of Lacey recognize our father, Master Sergeant Leslie Johnson for his extraordinary service to our country. He retired decades ago as a Lacey resident and his service as a Purple Heart recipient is exemplary and we appreciate your consideration for honoring his service.

A handwritten signature in cursive script that reads "Linda Johnson Fuller". The signature is written in black ink and is positioned above a horizontal line.

Linda Johnson Fuller

A handwritten signature in cursive script that reads "Karen Johnson". The signature is written in black ink and is positioned above a horizontal line.

Karen Johnson



LACEY CITY COUNCIL MEETING
May 20, 2021

SUBJECT: Steilacoom/Marvin Annexation. Project no. 18-154.

RECOMMENDATION: Adopt an ordinance to approve the Steilacoom/Marvin Annexation.

STAFF CONTACT: Scott Spence, City Manager *SS*
Rick Walk, Community and Economic Development Director *RW*
Ryan Andrews, Planning Manager *RA*

ORIGINATED BY: Community and Economic Development Department

ATTACHMENTS:

1. [Ordinance No. 1589](#)
2. [Overview Map](#)
3. [Boundary Review Board Decision](#)

FISCAL NOTE: See discussion below.

PRIOR REVIEW: July 2, 2018, Utilities Committee Meeting
August 9, 2018, City Council Meeting
November 15, 2018, City Council Meeting

BACKGROUND:

The Steilacoom/Marvin Annexation began as an owner-initiated annexation and included approximately 260 acres of private and publicly owned properties centered around the area known as “Mushroom Corner” including Ostrom’s Mushroom Farm, the Regional Athletic Complex, Nisqually Middle School, and Lacey Fire District 3 Station 34. On November 15, 2018, the City Council formally acted upon a petition for annexation using the 60% petition method (RCW 35A.14.120).

On November 30, 2018, the City of Lacey filed a petition with the Boundary Review Board for Thurston County. In a decision dated April 23, 2019, the Boundary Review Board required an expansion of the annexation boundaries by an additional 150 acres to include the Hawks Ridge, Bicentennial, Steilacoom Heights, Hawks Glen, and Hidden Forest neighborhoods.

Following the Boundary Review Board decision, the City of Lacey and Thurston County have been negotiating a transfer of assets. With the April 1, 2021, approval of a Memorandum of Understanding, the annexation moves forward to the City Council for final review and consideration in ordinance form.

Annexation Area

The area proposed for annexation is located in the Meadows Planning Area and within the Lacey Urban Growth Area and generally located around the intersection of Steilacoom Road SE and Marvin Road SE. The area includes approximately 410 acres in 372 separate tax parcels. The 2020-2021 assessed value of these parcels is \$164,913,480, however, a considerable amount of the assessed value is in parcels that are owned by a government entity or a church and would be exempt from the payment of property taxes. The taxable assessed value for the area is \$103,299,480. This boundary, as proposed, would connect to the current city limits to the south of River Ridge High School, the Marq Apartments, and the General Commercial Zone located off of Martin Way. This configuration is a logical extension and would not create any unincorporated islands.

The area proposed for annexation includes the existing Rainier Vista Mobile Home Park, which contains 151 leased spaces over approximately 40 acres. To the west of the mobile home park are the existing Hawks Glen and Hidden Firs subdivisions containing approximately 124 parcels. To the south of the mobile home park is the Steilacoom Heights subdivision, the Regional Athletic Complex as well as Lacey Fire District 3 Station 34. To the west of the existing Regional Athletic Complex is the future RAC Phase 3 and the Graceworks Church. To the north of the Graceworks Church is Nisqually Middle School and the Bicentennial subdivision, which contains a mixture of single-family and multi-family units. To the west is the Hawksridge subdivision and the Ostrom's Mushroom Farm complex.

The properties contain a mixture of zoning. Much of the developed-single family lots are zoned Low Density Residential 0-4 except for the northern portion of the Bicentennial subdivision which is zoned Moderate Density Residential. Ostrom's, the existing mobile home park properties, Fire District 3 properties, Steilacoom Heights and the future expansion area of the RAC at the southeastern corner of the intersection of Steilacoom and Marvin Roads are zoned Low Density Residential 3-6. Nisqually Middle School and the Regional Athletic Complex are zoned Open Space Institutional. The RAC Phase 3 property is zoned a mixture of High Density and Moderate Density Residential. In accordance with the Countywide Planning Policies and joint planning agreements with Thurston County, the zoning would remain upon annexation.

With annexation, the associated street frontage and right-of-way is also annexed. Therefore, Marvin and Steilacoom Roads and their associated rights-of-way would be annexed adjacent to the subject parcels. Marvin Road is designated as State Highway 510 in this area. The City of Lacey would assume maintenance responsibilities for the approximately 9.4 lane miles of public streets within the annexation area.

Additional Considerations

Since the Boundary Review Board Decision in April of 2019, additional information has been gathered related to the annexation area. This includes information about police services to be provided as well as future potential revenue and expenditures. Discussion on each item is provided below in more detail.

Police Service

The most significant change to services within the annexation area will be related to law enforcement as additional demands on police resources would result from annexation of the

area. Police services are currently provided by the Thurston County Sherriff's Office. With annexation, police response will transition from Thurston County Sherriff's Office to the Lacey Police Department. Transitioning to the Lacey Police Department will provide a more timely response in the area which would benefit property owners as well as visitors to the Regional Athletic Complex. Annexation will require additional officers to serve the area and may also necessitate expanding the School Resource Officer program to Nisqually Middle School.

Future Potential Revenue and Expenditures

The City would benefit from additional tax revenue associated with any property, sales, and B&O taxes associated with the existing and future businesses as well as the revenue associated with any future land use and building permits. However, any revenue is anticipated to be minor in relation to the services provided. The primary tax benefit associated with these properties would be through property taxes. Staff estimates that total annual tax revenue associated with the annexation would be approximately \$270,000. Expenditures from services (police, streets and general government) would be an estimated \$610,000 annually. Annexation of the area would result in a net deficit of approximately \$340,000 per year.

Other Issues

Upon annexation, the City is required to conduct a door-to-door census of the area. An accurate census ensures that population-based revenues are distributed to the City. The City will be contracting with a private consultant to complete the census this summer.

Like other recently completed annexations, the annexation will require the assumption of the City's bonded indebtedness except that it specifically waives the City's portion of the bonded indebtedness associated with Fire District 3. This is to prevent the property owners from paying both the Thurston County fire levy as well as the Lacey fire levy.

Process

Procedurally, the next step is for the City Council to take final action through passage of an ordinance approving the annexation. Upon final ordinance passage, notification of the annexation is sent to affected agencies and the annexation certification process will be completed. If the ordinance is passed, the effective date of the annexation will be June 1, 2021.

ADVANTAGES:

1. Annexing the proposed area is a logical extension of city boundaries into an area that contains emergency services that serve Lacey citizens, contains City of Lacey-owned properties, will be served by city utilities and will make for more logical municipal boundaries.

DISADVANTAGES:

1. None identified.

ORDINANCE 1589

CITY OF LACEY

AN ORDINANCE OF THE CITY OF LACEY, WASHINGTON, ANNEXING TERRITORY TO THE CITY OF LACEY, ESTABLISHING THE ZONING FOR SUCH PROPERTY, AND APPROVING A SUMMARY FOR PUBLICATION (STEILACOOM MARVIN).

WHEREAS, a legally sufficient petition for annexation was filed seeking annexation of certain properties shown on Exhibit A and described on Exhibit B; and

WHEREAS, the City Council held a public hearing on November 15, 2018, pursuant to legal notice, to consider the petition; and

WHEREAS, the City Council voted to refer the proposed annexation to the Thurston County Boundary Review Board; and

WHEREAS, said proposed annexation was filed with and processed by the Thurston County Boundary Review Board, and jurisdiction was invoked; and

WHEREAS, the Thurston County Boundary Review Board approved the proposed annexation with modifications; and

WHEREAS, the proposed annexation represents a logical extension of the corporate limits of the City of Lacey into its established UGA; and

WHEREAS, the proposed annexation is found to be in compliance with the criteria for annexations established in Chapter 35A.14 RCW.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF LACEY, WASHINGTON, as follows:

Section 1. That certain territory shown on Exhibit A and described on Exhibit B, each of which exhibits are attached hereto and made a part hereof as though fully set forth at length, is hereby annexed to the City of Lacey.

Section 2. Pursuant to the terms of the petition for annexation of said property, the property within the territory annexed by this Ordinance shall be assessed and taxed on the same basis as property previously within the City for the payment of any bonds issued or debts contracted prior to or existing at the date of this annexation. Provided, however, as it relates to the issue of bonded indebtedness associated with Fire District 3, the City hereby waives the City's portion of such bonded indebtedness for the area of the annexed territory

that was already located in Fire District 3, it being the City's intent that these parcels not be levied twice.

Section 3. The zoning and all land use designations within the territory annexed shall be in accordance with the Lacey Comprehensive Land Use Plan and the zoning map for the Lacey Urban Growth Area.

Section 4. This Ordinance shall take effect June 1st, 2021.

Section 5. SEVERABILITY. If any section, sentence, clause or phrase of this ordinance should be held to be invalid by a court of competent jurisdiction, such invalidity or unconstitutionality shall not affect the validity or constitutionality of any other section, sentence, clause or phrase of this ordinance.

Section 6. CORRECTIONS. The City Clerk and the codifiers of this ordinance are authorized to make corrections to this ordinance including, but not limited to, the corrections of scrivener's/clerical errors, references, ordinance numbering, section/subsection number and any references thereto.

Section 7. The Summary Attached is hereby approved for publication.

PASSED BY THE CITY COUNCIL OF THE CITY OF LACEY, WASHINGTON, this 20th day of May, 2021.

CITY COUNCIL

By: _____
Mayor

Approved as to form:

City Attorney

Attest:

City Clerk

SUMMARY FOR PUBLIC ATION
ORDINANCE NO 1589
CITY OF LACEY

The City Council of Lacey, Washington passed on May 20, 2021, Ordinance No. 1589, entitled “AN ORDINANCE OF THE CITY OF LACEY, WASHINGTON, ANNEXING TERRITORY TO THE CITY OF LACEY, ESTABLISHING THE ZONING FOR SUCH PROPERTY, AND APPROVING A SUMMARY FOR PUBLICATION (STEILACOOM MARVIN).”

The main points of the Ordinance are described as follows:

1. The Ordinance annexes territory to the City of Lacey.
2. The Ordinance maintains the current zoning for the annexed territory
3. The Ordinance approves this summary for Publication.

A copy of the full text of this Ordinance will be mailed without charge to any person requesting the same from the City of Lacey.

Published: May 24, 2021

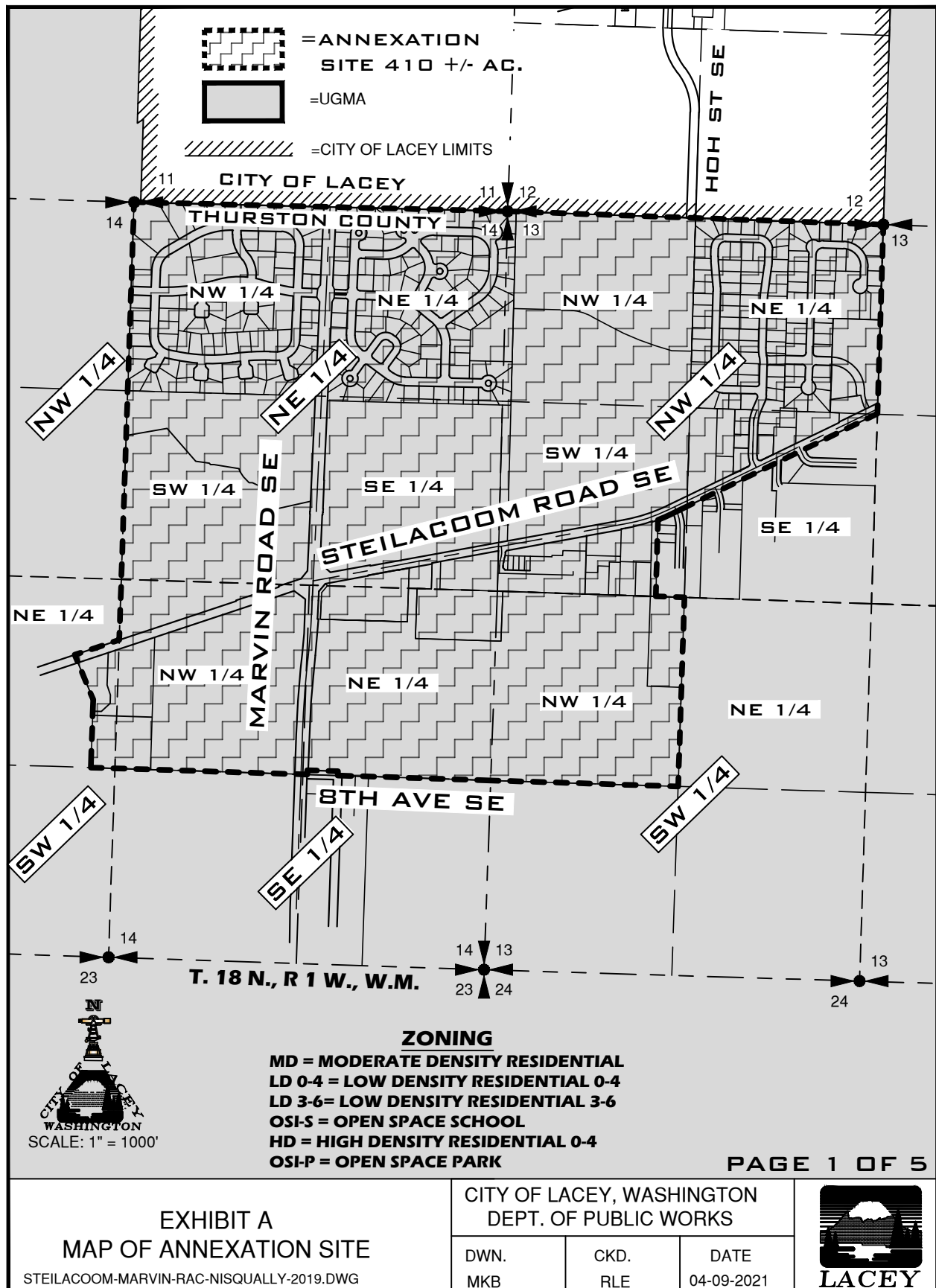




EXHIBIT A
MAP OF ANNEXATION SITE

STEILACOOM-MARVIN-RAC-NISQUALLY-2019.DWG

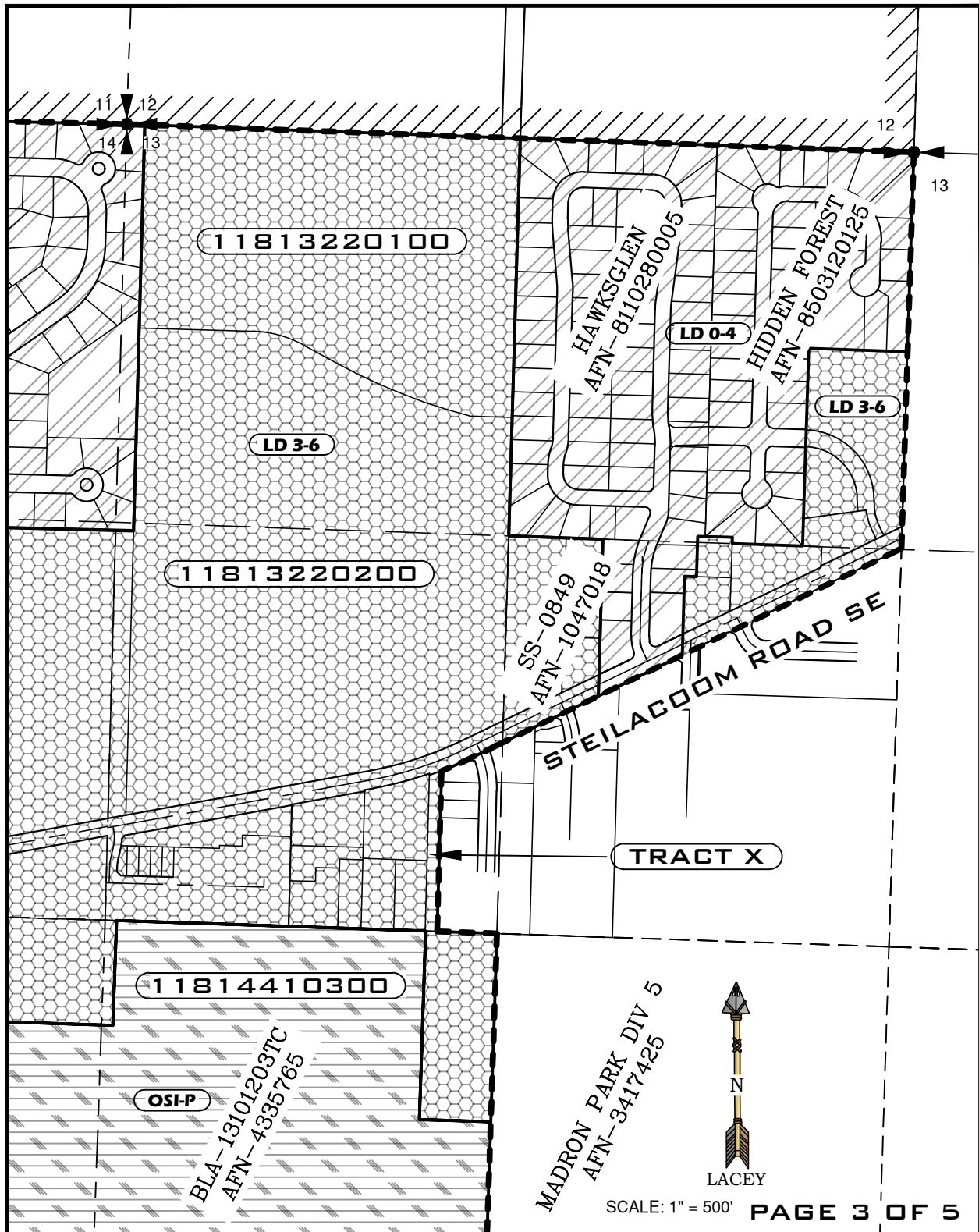
CITY OF LACEY, WASHINGTON
DEPT. OF PUBLIC WORKS

DWN.
MKB

CKD.
RLE

DATE
04-09-2021





PAGE 3 OF 5

EXHIBIT A
MAP OF ANNEXATION SITE

STEILACOOM-MARVIN-RAC-NISQUALLY-2019.DWG

CITY OF LACEY, WASHINGTON
DEPT. OF PUBLIC WORKS

DWN.
MKB

CKD.
RLE

DATE
04-09-2021



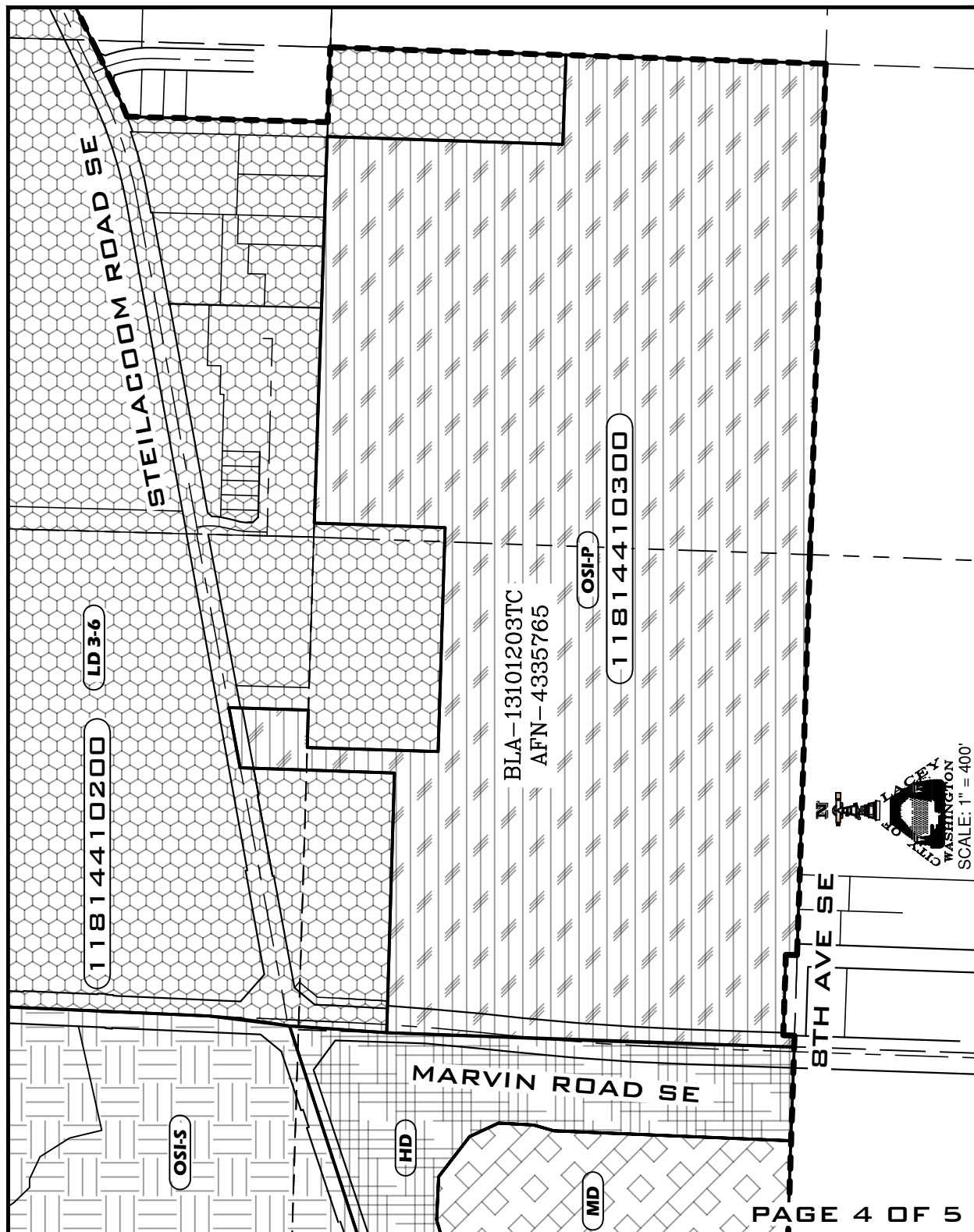


EXHIBIT A MAP OF ANNEXATION SITE

STEILACOOM-MARVIN-RAC-NISQUALLY-2019.DWG

CITY OF LACEY, WASHINGTON
DEPT. OF PUBLIC WORKS

DWN.
MKB

CKD.
RLE

DATE
04-09-2021



SCALE: 1" = 500'

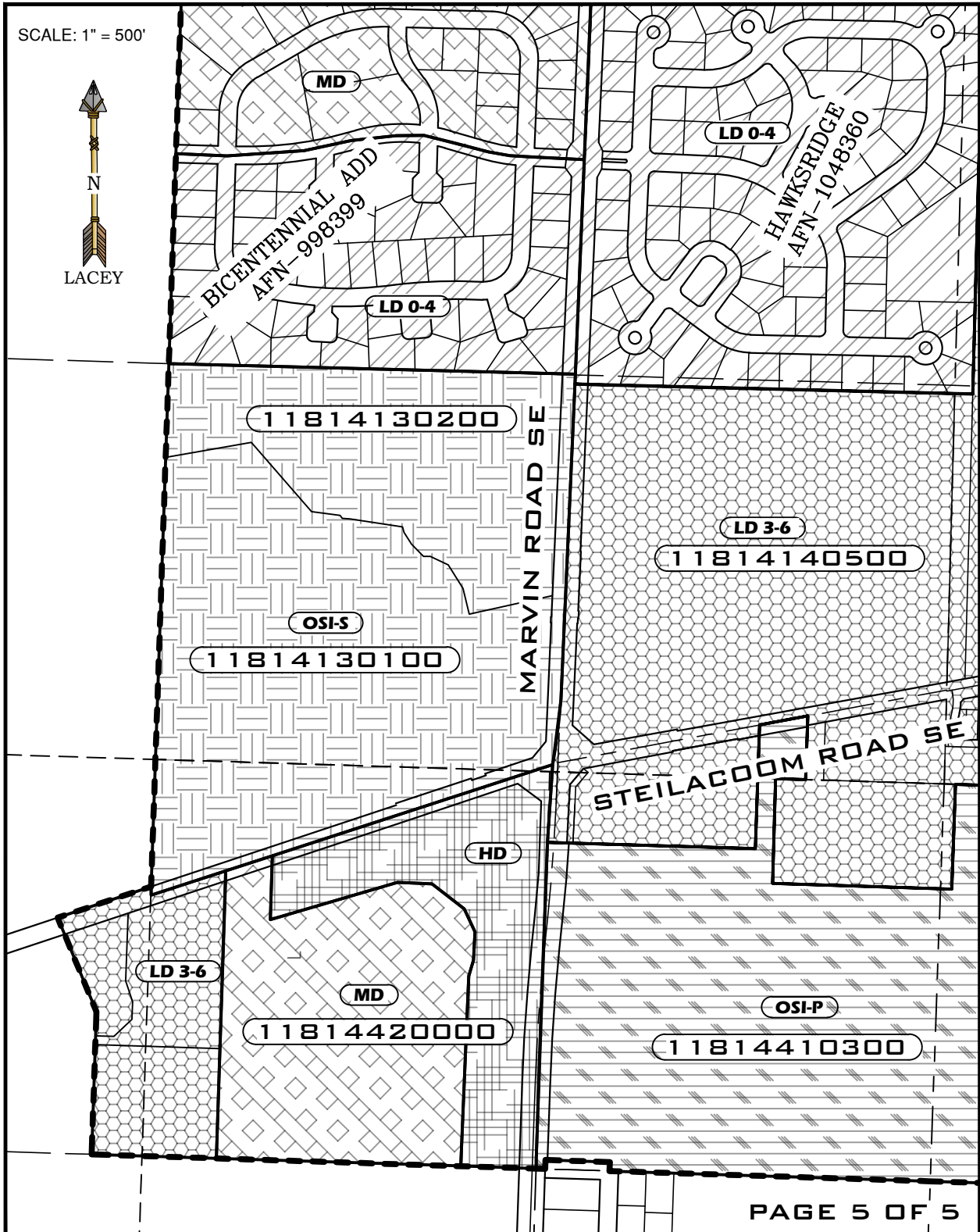


EXHIBIT A
MAP OF ANNEXATION SITE
STEILACOOM-MARVIN-RAC-NISQUALLY-2019.DWG

CITY OF LACEY, WASHINGTON
DEPT. OF PUBLIC WORKS

DWN.
MKB

CKD.
RLE

DATE
04-09-2021



EXHIBIT “B”
ANNEXATION LEGAL DESCRIPTION

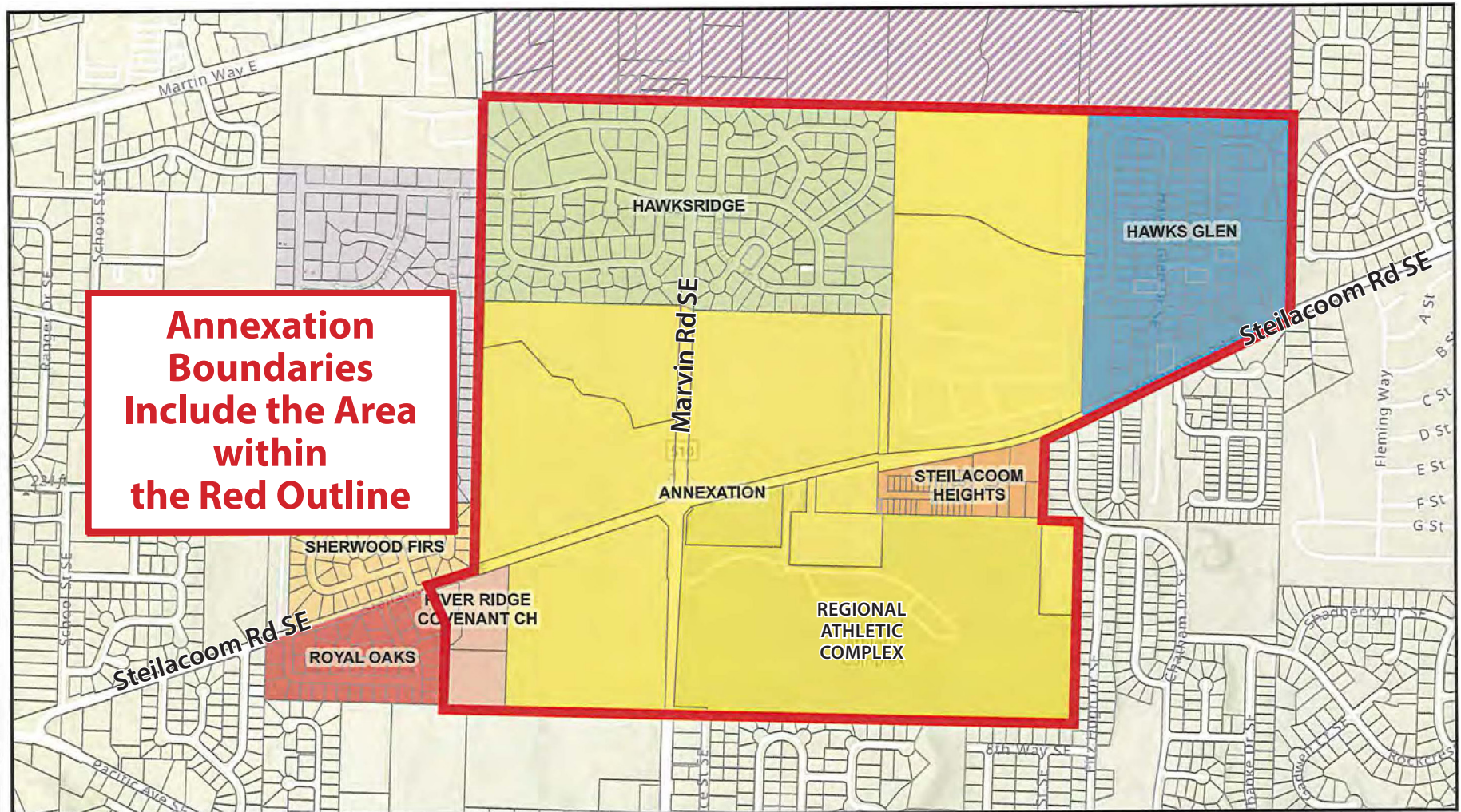
BEGINNING at the Northwest corner of the Northeast Quarter of Section 14, Township 18 North, Range 1 West, W.M.; thence easterly along the north line of said subdivision to the Northeast corner of said section; thence easterly along the north line of the Northwest Quarter of Section 13, Township 18 North, Range 1 West to the Northeast corner of said subdivision; thence southerly along the east line of said Northwest Quarter to the southerly right of way of Steilacoom Road Southeast; thence southwestwardly along said right of way to the east line of Tract X of the Plat of Madrona Park 5, recorded under Auditor's File No. 3417425, records of Thurston County, Washington; thence southerly along said east line of said Tract X to the north line of the Northwest Quarter of the Southwest Quarter of said Section 13; thence easterly along said north line to the Northeast corner of said subdivision; thence southerly along the east line of said subdivision to the south line thereof; thence westerly along said south line to the west line of said subdivision; thence westerly along the south line of the Northeast Quarter of the Southeast Quarter and Northwest Quarter of the Southeast Quarter of Section 14, Township 18 North, Range 1 West, W.M. to the west line of said Southeast Quarter; thence westerly along the south line of the Northeast Quarter of the Southwest Quarter of said Section 14, to the Southwest corner of Lot 2 of the Amended Boundary Line Adjustment BLA-1732, recorded on April 4th, 1996, under Auditor's File No. 3022894, records of Thurston County, Washington; thence northerly along the west lines of Lot 1 and 2 of the above said BLA-1732 and the extension thereof to the northerly right of way line of Steilacoom Road Southeast; thence northeasterly along said right of way to the north-south center line of said section 14; thence northerly along said north-south center line to the point of beginning.
Containing 410 +/- acres.

EXCEPTING THEREFROM the south 30 feet of the west 245 feet of said Northeast Quarter of the Southeast Quarter of Section 14.

See Exhibit “A” attached hereto and by this reference made apart hereof.



STEILACOOM/MARVIN ANNEXATION MAP





COUNTY COMMISSIONERS

John Hutchings
District One

Gary Edwards
District Two

Tye Menser
District Three

BOUNDARY REVIEW BOARD

Creating Solutions for Our Future

TO: Affected Parties

FROM: Katrina Van Every, Chief Clerk

DATE: April 23, 2019

SUBJECT: Decision for City of Lacey Steilacoom/Marvin Rd Annexation (Case No. ANNEX2018-05)

Enclosed is the Washington State Boundary Review Board for Thurston County decision regarding the Lacey Steilacoom/Marvin Rd Annexation (Case No. ANNEX2018-05).

The decision must be filed with the Board of County Commissioners and governmental units directly affected by the decision (RCW 36.93.160(4)).

Pursuant to RCW 36.93.160(5), the decision of the Boundary Review Board regarding this proposal shall be final and conclusive unless within thirty (30) days from the date of the Board's action a governmental unit affected by the decision or any person owning real property or residing in the area affected by the decision files a notice of appeal in Superior Court. The filing of the notice of appeal within the time limit shall stay the effective date of the decision of the board until such time as the appeal shall have been adjudicated or withdrawn.

Affected parties will be notified if any appeals are received that may affect this decision.

If you have any questions, please do not hesitate to contact me.

Enclosures: Boundary Review Board Decision on Lacey Steilacoom/Marvin Rd Annexation

cc: City of Lacey
Thurston County

1 BEFORE THE WASHINGTON STATE
2 BOUNDARY REVIEW BOARD
3 FOR THURSTON COUNTY
4

5 CITY OF LACEY PROPOSED ANNEXATION OF 410 ACRES

6 FILE NO. ANNEX2018-05

7 FINDINGS AND FINAL DECISION OF THE BOUNDARY REVIEW BOARD
8

9 **I. PROCESS AND PROCEDURE**

10 The City of Lacey ("City") submitted a Notice of Intention to the Washington State Boundary
11 Review Board for Thurston County ("Board") on November 30, 2018 for the Steilacoom/Marvin
12 Rd Annexation (ANNEX2018-05) to annex approximately 259.1 acres of land in Thurston
13 County ("County") located within the City's Urban Growth Area. The Steilacoom/Marvin Rd
14 Annexation is located generally at the intersection of Steilacoom Road SE and Marvin Road SE.
15 Municipal annexations are subject to review by the Board under RCW 36.93.090. The proposal
16 for the annexation was initiated by the property owners through the 60% petition method
17 pursuant to RCW 35A.14.120. The Chief Clerk circulated the Notice of Intention to affected
18 jurisdictions for a 45-day period for review ending on January 14, 2019. RCW 36.93.100.

19 On January 14, 2019, County submitted a Petition for Review to invoke review by the
20 Boundary Review Board and requested that the boundaries of the annexation area be expanded to
21 include an additional 250 acres. This request was revised on February 22, 2019 to reduce the
22 expanded annexation area. The legal description for this revised area (Exhibit 9) shows that 150
23 additional acres are proposed to be included in the annexation, bringing the total area to 410
24 acres, more or less.

25 A decision is due by May 14, 2019, or 40 calendar days after the final public hearing,
26 whichever comes first. RCW 36.93.100 and 36.93.160. The Boundary Review Board has a
27 maximum of 120 calendar days after jurisdiction is invoked for the first time to hold a public
28 hearing and render a decision. RCW 36.93.100.

29 The Board set public hearing dates at their February 7, 2019 meeting for consideration of
30 the annexation itself and consideration of expanding the boundaries of the annexation area. The
31 public hearing to consider the annexation was duly noticed and held at 7:00 P.M. on Thursday
32 March 28, 2019 in Conference Room A at the offices of Thurston Regional Planning Council,
33 2424 Heritage Court SW Olympia, Washington 98502. The meeting was recessed and re-opened
34 on April 9, 2019. The public hearing to consider expanding the boundaries of the annexation
35 area to include an additional 120 acres was held at 7:00 P.M. on Tuesday, April 9, 2019 in the
36 cafeteria at Nisqually Middle School, 8100 Steilacoom Rd SE, Lacey Washington 98503.

37 The Board does not review the validity of a review request until after a public hearing has
38 been held. RCW 36.93.100 and 36.93.160. No rule or provision of state law allows for the
39 Board to review the validity of a request for review when jurisdiction is invoked pursuant to state
40 law. The Board may reject a request for review when the request does not meet the thresholds for
41 requesting review in state law. RCW 36.93.100.

42 Ten exhibits were submitted and made part of the record including:

43 Exhibit 1: Boundary Review Board Staff Memorandum dated March 22, 2019

44 Attachment A: Map of Annexation Area

45 Attachment B: Map of Expanded Annexation Area

46 Attachment C: Notice of Intention

47 Attachment D: Thurston County Review Request

48 Attachment E: Thurston County Revised Request
49 Attachment F: March 20, 2019 Thurston County Memorandum
50 Attachment G: Excerpts from State Law
51 Attachment H: Joint Planning Agreements
52 Attachment I: County-wide Planning Policies
53 Attachment J: Public Notice Information
54 Exhibit 2: Thurston County Position Statement Received March 20, 2019
55 Attachment a: Map of Annexation Area, as Amended
56 Attachment b: Joint Planning Agreements
57 Attachment c: County-Wide Planning Policies
58 Attachment d: Lacey/Thurston County 1990 Annexation Agreement
59 Attachment: Interlocal Cooperation Agreement for Mutual Aid Between
60 Thurston County Law Enforcement Agencies
61 Exhibit 3: FAQ: City of Lacey and Thurston County
62 Exhibit 4: Written Public Comment Received as of March 27, 2019
63 Exhibit 5: Lacey – Alternative #1 Summary
64 Exhibit 6: Lacey – Alternative #2 Summary
65 Exhibit 7: April 4, 2019 Memo from the Chief Clerk
66 Attachment A: April 3, 2019 Press Release
67 Attachment B: Affidavit of Posting for April 9, 2019 Public Hearing
68 Exhibit 8: April 4, 2019 Joint Zoning Memo from City of Lacey and Thurston County
69 Exhibit 9: Thurston County – Legal Description for Expanded Annexation Area
70 Exhibit 10: Written Public Comment Received as of April 8, 2019

71 The Board has limited discretion in state law regarding its decision-making authority. According
72 to RCW 36.93.150, the Board may:

73 (1) Approve the proposal as submitted;

74 (2) Subject to RCW 35.02.170, modify the proposal by adjusting boundaries to add or delete
75 territory.

76 (3) Determine a division of assets and liabilities between two or more governmental units where
77 relevant.

78 (4) Determine whether, or the extent to which, functions of a special purpose district are to be
79 assumed by an incorporated city or town, metropolitan municipal corporation, or another existing
80 special purpose district.

81 (5) Disapprove the proposal (...)

82 The board shall not modify or deny a proposed action unless there is evidence on the record to
83 support a conclusion that the action is inconsistent with one or more of the objectives under
84 RCW 36.93.180. (...)

85 The Board may make a decision under RCW 36.93.150 (1), (2), (3), and (5). In order to add
86 area, the Board had to include this area in a public hearing notice and notify affected property
87 owners, which occurred.

88 The Board may not make a decision under RCW 36.93.150(4) because the functions of the
89 Lacey Fire District 3 – by which the annexation area is served and the city of Lacey is annexed
90 to – do not change. Once the property it is annexed into the City, Lacey Fire District 3 will
91 continue to serve it. Pursuant to RCW 52.04.091, fire district boundaries automatically change
92 upon annexation by a city that has annexed into a fire district.

93

94 **II. FINDINGS**

95 **A. FACTORS TO BE CONSIDERED BY THE BOARD (RCW 36.93.170):**

96 In reaching its decision, the Board considered all factors listed in RCW 36.93.170. The Board
97 discussed the County and the City's jointly-adopted common comprehensive plan for the Lacey
98 Urban Growth Area, including joint plan zoning designations under the Washington State
99 Growth Management Act ("GMA"). Looking at the GMA, the Board determined that the City is
100 a full municipal service provider, that the proposed annexation area is within the City's sewer
101 and water service area, and that the City already provides services to this area. The City is part
102 of Fire District No. 3 to address fire and emergency services; and that the City will provide
103 police services, including the addition of three police officers to serve this area. Under the
104 GMA, the state legislature intends that cities are to be the primary provider of urban services.
105 From evidence provided and testimony given, the Board determines that the factors under RCW
106 36.93.170 are not adversely affected by this annexation proposal.

107 **B. OBJECTIVES TO BE CONSIDERED BY THE BOARD (RCW 36.93.180)**

108 RCW 36.93.180 sets out nine objectives which the Board is to "attempt to achieve" by its
109 decision.

110 Having reviewed all of the objectives identified in RCW 36.93.180, the Board determined the
111 following objectives do not support or are not applicable to the proposal, as originally submitted
112 by the City of Lacey:

113 3. Creation and preservation of logical service areas.

114 The annexation area will be served by the City of Lacey Police and Fire District #3 via city
115 streets but will require Thurston County Sheriff's deputies to travel through incorporated areas to
116 serve unincorporated Thurston County residents.

- 117 4. Prevention of abnormally irregular boundaries.
- 118 The annexation will result in abnormally irregular boundaries by leaving out neighborhoods
- 119 adjacent to the annexation area, resulting in unincorporated county peninsulas.
- 120 5. Discouragement of multiple incorporations of small cities and encouragement of
- 121 incorporation of cities in excess of ten thousand population in heavily populated urban areas.
- 122 No new cities are being incorporated with this action.
- 123 6. Dissolution of inactive special purpose districts.
- 124 No special purpose districts are being dissolved with this action.
- 125 7. Adjustment of impractical boundaries.
- 126 The annexation will result in an impractical boundary by creating unincorporated county
- 127 peninsulas.
- 128 9. Protection of agricultural and rural lands which are designated for long term productive
- 129 agricultural and resource use by a comprehensive plan adopted by the county legislative
- 130 authority.
- 131 Ostrom's Mushroom Farm, located within the annexation area is considered an agricultural use,
- 132 but it is a nonconforming use and is not designated for long term agricultural production. No
- 133 other agricultural lands or resource uses designated in the County's Comprehensive Plan are
- 134 included in the annexation area.
- 135 The Board determined the following six objectives are supported by the modified proposal, as
- 136 proposed by Thurston County:
- 137 1. Preservation of natural neighborhoods and communities.

138 The expanded annexation preserves the existing neighborhoods and communities of
139 Bicentennial, Hawksridge, Hawks Glen, Steilacoom Heights, and the Rainier Vista mobile home
140 park, as well as other smaller subdivisions in the area.

141 2. Use of physical boundaries, including but not limited to bodies of water, highways, and
142 land contours.

143 The boundary with the City lies to the north of the annexation. The expanded annexation
144 generally follows the current City boundaries south on the east and the west to Steilacoom Road,
145 and property lines to the south. The expanded annexation will prevent illogical boundaries
146 creating an unincorporated county peninsula.

147 3. Creation and preservation of logical service areas.

148 The expanded annexation area will be served by the City of Lacey Police and Fire District #3 via
149 city streets and will not need to travel through unincorporated County. The annexation area is
150 already served by the City of Lacey sewer and water utilities whether or not it is annexed by the
151 City.

152 4. Prevention of abnormally irregular boundaries.

153 The expanded annexation will prevent abnormally irregular boundaries by including adjacent
154 neighborhoods in the annexation area.

155 7. Adjustment of impractical boundaries.

156 The expanded annexation will prevent an impractical boundary by including adjacent
157 neighborhoods that would otherwise be bypassed, creating unincorporated county peninsulas.

158 8. Incorporation as cities or towns or annexation to cities or towns of unincorporated areas
159 which are urban in character.

The expanded annexation area is located within the City's planned Urban Growth Area, is already largely developed at urban densities, and is urban in character.

All parties were permitted to comment on whether or not the proposed annexation meets or does not meet the above objectives. No party at the public hearing contested that the proposed annexation meets one or more of the objectives above.

C. GMA CONSIDERATIONS

The Board is required to ensure its decisions are consistent with sections of the Growth Management Act (GMA) including the goals of the GMA in RCW 36.70A.020, the location of the annexation is in an Urban Growth Area in RCW 36.70A.110, and whether the decision is consistent with the County-Wide Planning Policies in RCW 36.70A.210, which are addressed below.

The Board does not make land use decisions and does not make decisions on whether or not an adopted Comprehensive Plan is consistent with the Growth Management Act and its goals. This is the purview of the Growth Management Hearings Board. RCW 36.70A.280 & 36.70A.320.

The City and County plans under the GMA and adopted plans must be consistent with GMA goals. RCW 36.70A.020. Comprehensive plans adopted by the City and County are valid upon adoption. RCW 36.70A.320. The Board determined that the following state planning goals under RCW 36.70A.020 are applicable:

1. Urban growth. Encourage development in urban areas where adequate public facilities and services exist or can be provided in an efficient manner.
2. Reduce sprawl. Reduce the inappropriate conversion of undeveloped land into sprawling, low-density development.

182 3. Transportation. Encourage efficient multimodal transportation systems that are based on
183 regional priorities and coordinated with county and city comprehensive plans.

184 4. Housing. Encourage the availability of affordable housing to all economic segments of
185 the population of this state, promote a variety of residential densities and housing types, and
186 encourage preservation of existing housing stock.

187 9. Open space and recreation. Retain open space, enhance recreational opportunities,
188 conserve fish and wildlife habitat, increase access to natural resource lands and water, and
189 develop parks and recreation facilities.

190 11. Citizen participation and coordination. Encourage the involvement of citizens in the
191 planning process and ensure coordination between communities and jurisdictions to reconcile
192 conflicts.

193 12. Public facilities and services. Ensure that those public facilities and services necessary to
194 support development shall be adequate to serve the development at the time the development is
195 available for occupancy and use without decreasing current service levels below locally
196 established minimum standards.

197 The Board determined that the comprehensive plans for Urban Growth Areas adopted by the
198 City and County under RCW 36.70A.110 are applicable:

199 • RCW 36.70A.110(1): Each county that is required or chooses to plan under RCW
200 36.70A.040 shall designate an Urban Growth Area or areas within which urban growth shall be
201 encouraged and outside of which growth can occur only if it is not urban in nature.

202 • RCW 36.70A.110(3): Urban growth should be located first in areas already characterized
203 by urban growth that have existing public facility and service capacities to serve such
204 development, and second in areas already characterized by urban growth that will be served by

205 combination of both existing public facilities and services and any additional needed public
206 facilities and services that are provided by either public or private sources. Further, it is
207 appropriate that urban government services be provided by cities, and urban government services
208 should not be provided in rural areas.

209 • RCW 36.70A.110(4): In general, cities are the units of local government most
210 appropriate to provide urban governmental services.

211 • RCW 36.70A.110(6): Each county shall include designations of Urban Growth Areas in
212 its comprehensive plans.

213 Here, the annexation is located entirely within the City's Urban Growth Area. The joint land use
214 and zoning designation within the annexation was adopted by both the City and the County. No
215 evidence has been provided that the City and County comprehensive plans are not compliant
216 with the GMA. The City provided sufficient documentation that the City has the obligation to
217 provide an adequate range of urban services and utilities to the subject properties in a timely and
218 efficient manner.

219 The GMA requires the adoption of countywide planning policies that address, among other
220 things, policies for promotion or contiguous and orderly development of urban services.

221 Thurston County has adopted county-wide planning policies that were last updated in 2015
222 (Exhibit 1, Attachment I). The Board determined that the county-wide planning policies under
223 RCW 36.70A.210(1) are applicable to this decision, and that the decision is consistent with the
224 county-wide planning policies.

225 D. DIVISION OF ASSETS AND LIABILITIES

226 The Board may determine the division of assets and liabilities between two governmental units
227 pursuant to RCW 36.93.150(3). In the present case, this would include the City and the County.

The Board did not determine a division of assets and liabilities between the City and the County.

III. DECISION

The Board has considered all of the facts, testimony and exhibits offered at the public hearings and the meeting as well as the material contained in said Lacey Steilacoom/Marvin Rd Annexation File (ANNEX2018-05). According to the findings above, the Board may approve, modify, or deny the annexation. Modification and denial are only allowed if there is evidence in the record that the annexation is inconsistent with one or more of the objectives in RCW 36.93.180. RCW 36.93.150. Based upon the above findings, and having weighed the statutory factors and objectives deemed relevant to the proposed annexation, a motion was made and seconded, and passed by a vote of 3 to 0 (William Kilpatrick absent) to reject the initial annexation proposed by the City of Lacey for the reasons described above in the Findings and to approve the modified City of Lacey Steilacoom/Marvin Rd Annexation proposed by Thurston County for the reasons described above in the Findings to add 150 acres of territory for a total of approximately 410 acres, the legal description of which is as follows:

BEGINNING at the Northwest corner of the Northeast Quarter of Section 14, Township 18 North, Range 1 West, W.M.; thence easterly along the north line of said subdivision to the Northeast corner of said section; thence easterly along the north line of the Northwest Quarter of Section 13, Township 18 North, Range 1 West to the Northeast corner of said subdivision; thence southerly along the east line of said Northwest Quarter to the southerly right of way of Steilacoom Road Southeast; thence southwesterly along said right of way to the east line of Tract X of the Plat of Madrona Park 5, recorded under Auditor's File No. 3417425, records of Thurston County, Washington; thence southerly along said east line of said Tract X to the north

251 line of the Northwest Quarter of the Southwest Quarter of said Section 13; thence easterly along
252 said north line to the Northeast corner of said subdivision; thence southerly along the east line of
253 said subdivision to the south line thereof; thence westerly along said south line to the west line of
254 said subdivision; thence westerly along the south line of the Northeast Quarter of the Southeast
255 Quarter and Northwest Quarter of the Southeast Quarter of Section 14, Township 18 North,
256 Range 1 West, W.M. to the west line of said Southeast Quarter; thence westerly along the south
257 line of the Northeast Quarter of the Southwest Quarter of said Section 14, to the Southwest
258 corner of Lot 2 of the Amended Boundary Line Adjustment BLA-1732, recorded on April 4th,
259 1996, under Auditor's File No. 3022894, records of Thurston County, Washington; thence
260 northerly along the west lines of Lot 1 and 2 of the above said BLA-1732 and the extension
261 thereof to the northerly right of way line of Steilacoom Road Southeast; thence northeasterly
262 along said right of way to the north-south center line of said section 14; thence northerly along
263 said north-south center line to the point of beginning.

264 Containing 410 +/- acres.

265 The Board further determined that the modified annexation proposal is consistent with the intent
266 of RCW 36.93 and the Growth Management Act as described above in the Findings.

267 EXCEPTING THEREFROM the south 30 feet of the west 245 feet of said Northeast Quarter of
268 the Southeast Quarter of Section 14.

269 THEREFORE, BE IT RESOLVED BY THE WASHINGTON STATE BOUNDARY REVIEW
270 BOARD FOR THURSTON COUNTY that the City of Lacey proposal, as modified by the
271 Board, to annex approximately 490.1 acres in Thurston County, File No. ANNEX2018-05, is
272 hereby APPROVED.

273 ADOPTED BY THE BOUNDARY REVIEW BOARD by a vote of 3 to 0 in favor of the motion
274 to approve on the 9th day of April 2019 and signed in authentication on the 22nd day of April
275 2019.
276

APPROVED AS TO FORM:

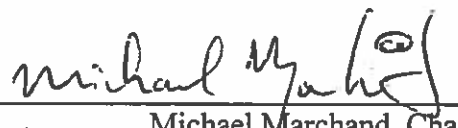
JON TUNHEIM
PROSECUTING ATTORNEY

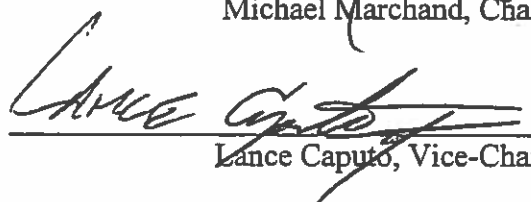

Rick Peters
Deputy Prosecuting Attorney

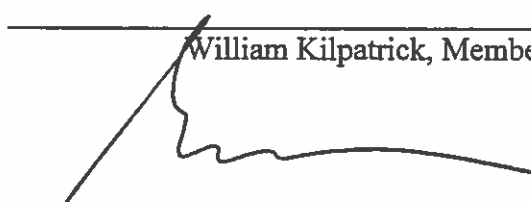
FILED BY ME ON THIS 23rd DAY OF
APRIL 2019


KATRINA VAN EVERY, CHIEF CLERK

FOR THE WASHINGTON BOUNDARY
REVIEW BOARD FOR THURSTON
COUNTY


Michael Marchand, Chair


Lance Caputo, Vice-Chair


William Kilpatrick, Member


Gary Pearson, Member

277 Pursuant to RCW 36.93.160 (5), the decision of the Boundary Review Board regarding this proposal shall be final
278 and conclusive unless within thirty (30) days from the date of the Board's action a governmental unit affected by the
279 decision or any person owning real property or residing in the area affected by the decision files in Superior Court a
280 notice of appeal.
281 NOTE: The 30-day appeal period expires on May 22, 2019.



LACEY CITY COUNCIL MEETING
May 20, 2021

SUBJECT: Mosure 54th Avenue Annexation. Project no. 21-54.

RECOMMENDATION: Adopt an ordinance to approve the Mosure 54th Avenue Annexation.

STAFF CONTACT: Scott Spence, City Manager *SS*
Rick Walk, Community and Economic Development Director *RW*
Ryan Andrews, Planning Manager *RA*

ORIGINATED BY: Community and Economic Development Department

ATTACHMENTS:

1. [Ordinance No. 1590](#)
2. [Overview Map](#)
3. [Petition for Annexation](#)

FISCAL NOTE: None.

PRIOR REVIEW: April 1, 2021, City Council Public Hearing
January 21, 2021, City Council Meeting
January 4, 2021, Utilities Committee Meeting

BACKGROUND:

The City has received a notice of intent to commence annexation proceedings filed by Patty Mosure for a single parcel located on 54th Avenue SE using the 60 percent petition method (RCW 35A.14.120). The Thurston County Assessor's office has verified that the signatures represent not less than 60 percent of the assessed valuation for general taxation of the property for which the annexation has been petitioned (RCW 35A.01.040). The annexation has been sent to the Thurston County Boundary Review Board (BRB) for their review. The BRB has declined to invoke jurisdiction so the application returns to the Council for final consideration in ordinance form.

Proposed Annexation Area

The area proposed for annexation is located in the Lakes Planning Area and within the Lacey Urban Growth Area east of Ruddell Road SE and north of 54th Avenue SE between Lakehills Street SE and Alderglen Drive SE. The area includes one tax parcel (parcel is currently unaddressed but has an assessor's parcel no. 11834320000) totaling 9.91 acres. The property is undeveloped and is accessible from 54th Avenue SE which is a Lacey city street. The 2020-2021 assessed value of this parcel is \$222,000. There are critical areas on the site including Southwick Lake and a wetland. Prior to development of the site, a critical area report will need

to be prepared to ensure that the development meets the requirements of the City of Lacey's Shoreline Master Program and wetland regulations contained in chapter 14.28 of the Lacey Municipal Code.

The parcel is zoned Low Density Residential 0-4. The purpose of the LD 0-4 zone is to allow single-family residential development at a density of up to 4 units per acre for larger lot size development adjacent to environmentally sensitive areas. Upon annexation, the zoning of these parcels will remain as currently designated as required by an annexation agreement with Thurston County.

The area proposed for annexation is a single parcel that is surrounded on three sides by the existing Lacey city limits. The configuration is a logical extension of the city limits and would not create any islands or illogical boundaries. All streets accessing the property including 54th Avenue SE and 53rd Avenue SE are City of Lacey rights-of-way.

The proposed annexation area is located within the City of Lacey's water service area and is served by an existing 10-inch waterline located in 54th Avenue SE and an 8-inch waterline in 53rd Avenue SE within the Lake Hills subdivision to the west. The lines are adequate to serve the future development of the proposed annexation area.

City of Lacey sewer service is provided by existing 10-inch PVC line in 54th Avenue SE. An existing 2-inch step line is available in 53rd Avenue, however, staff is recommending that the future development associated with this property be required to connect to the gravity line in 54th Avenue.

Like other recently completed annexations, the annexation will require the assumption of the City's bonded indebtedness except that it specifically waives the City's portion of the bonded indebtedness associated with Fire District 3. This is to prevent the property owners from paying both the Thurston County fire levy as well as the Lacey fire levy.

Process

Procedurally, the next step is for the City Council to take final action through passage of an ordinance approving the annexation. Upon final ordinance passage, notification of the annexation is sent to affected agencies and the annexation certification process will be completed.

ADVANTAGES:

1. The annexation is consistent with the City's regulations for extension of utility services to properties contiguous to City boundaries.

DISADVANTAGES:

1. None identified.

ORDINANCE 1590

CITY OF LACEY

AN ORDINANCE OF THE CITY OF LACEY, WASHINGTON, ANNEXING TERRITORY TO THE CITY OF LACEY, ESTABLISHING THE ZONING FOR SUCH PROPERTY, AND APPROVING A SUMMARY FOR PUBLICATION (54th AVENUE).

WHEREAS, a legally sufficient petition for annexation was filed seeking annexation of certain properties shown on Exhibit A and described on Exhibit B; and

WHEREAS, the City Council held a public hearing on April 1st, 2021, pursuant to legal notice, to consider the petition; and

WHEREAS, the City Council voted to refer the proposed annexation to the Thurston County Boundary Review Board; and

WHEREAS, said proposed annexation was filed with and processed by the Thurston County Boundary Review Board, and jurisdiction was not invoked; and

WHEREAS, the proposed annexation represents a logical extension of the corporate limits of the City of Lacey into its established UGA; and

WHEREAS, the proposed annexation is found to be in compliance with the criteria for annexations established in Chapter 35A.14 RCW.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF LACEY, WASHINGTON, as follows:

Section 1. That certain territory shown on Exhibit A and described on Exhibit B, each of which exhibits are attached hereto and made a part hereof as though fully set forth at length, is hereby annexed to the City of Lacey.

Section 2. Pursuant to the terms of the petition for annexation of said property, the property within the territory annexed by this Ordinance shall be assessed and taxed on the same basis as property previously within the City for the payment of any bonds issued or debts contracted prior to or existing at the date of this annexation. Provided, however, as it relates to the issue of bonded indebtedness associated with Fire District 3, the City hereby waives the City's portion of such bonded indebtedness for the area of the annexed territory that was already located in Fire District 3, it being the City's intent that these parcels not be levied twice.

Section 3. The zoning and all land use designations within the territory annexed shall be in accordance with the Lacey Comprehensive Land Use Plan and the zoning map for the Lacey Urban Growth Area.

Section 4. This Ordinance shall take effect five (5) days after its passage and publication as provided by law.

Section 5. SEVERABILITY. If any section, sentence, clause or phrase of this ordinance should be held to be invalid by a court of competent jurisdiction, such invalidity or unconstitutionality shall not affect the validity or constitutionality of any other section, sentence, clause or phrase of this ordinance.

Section 6. CORRECTIONS. The City Clerk and the codifiers of this ordinance are authorized to make corrections to this ordinance including, but not limited to, the corrections of scrivener's/clerical errors, references, ordinance numbering, section/subsection number and any references thereto.

Section 7. The Summary Attached is hereby approved for publication.

PASSED BY THE CITY COUNCIL OF THE CITY OF LACEY, WASHINGTON, this 20th day of May, 2021.

CITY COUNCIL

BY: _____
Mayor

Approved as to form:

City Attorney

Attest:

City Clerk

SUMMARY FOR PUBLIC ATION
ORDINANCE NO 1590
CITY OF LACEY

The City Council of Lacey, Washington passed on May 20, 2021, Ordinance No. 1590, entitled “AN ORDINANCE OF THE CITY OF LACEY, WASHINGTON, ANNEXING TERRITORY TO THE CITY OF LACEY, ESTABLISHING THE ZONING FOR SUCH PROPERTY, AND APPROVING A SUMMARY FOR PUBLICATION (54th AVENUE).”

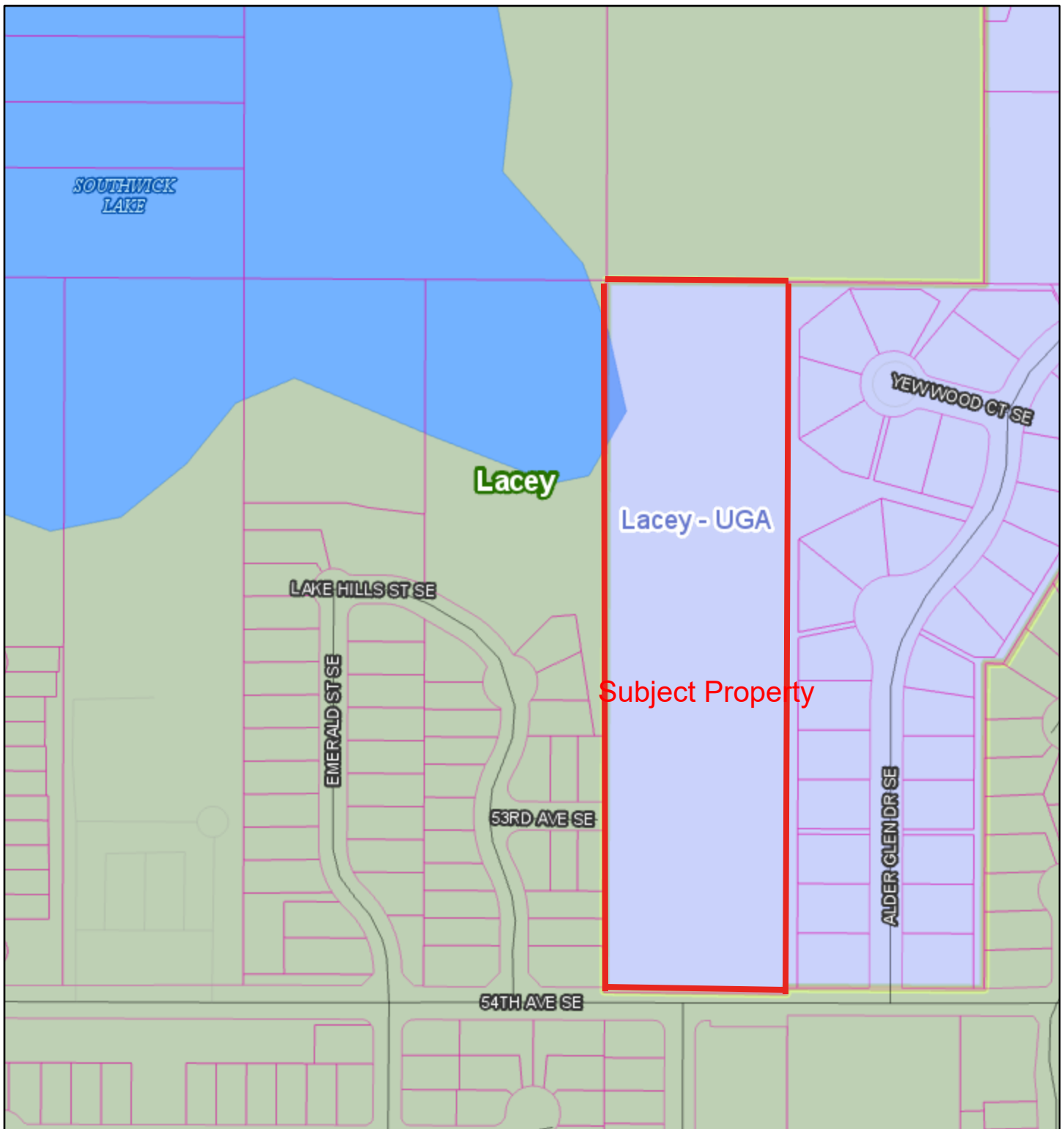
The main points of the Ordinance are described as follows:

1. The Ordinance annexes territory to the City of Lacey.
2. The Ordinance maintains the current zoning for the annexed territory
3. The Ordinance approves this summary for Publication.

A copy of the full text of this Ordinance will be mailed without charge to any person requesting the same from the City of Lacey.

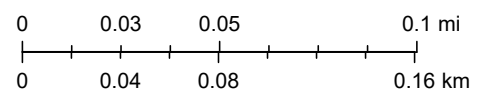
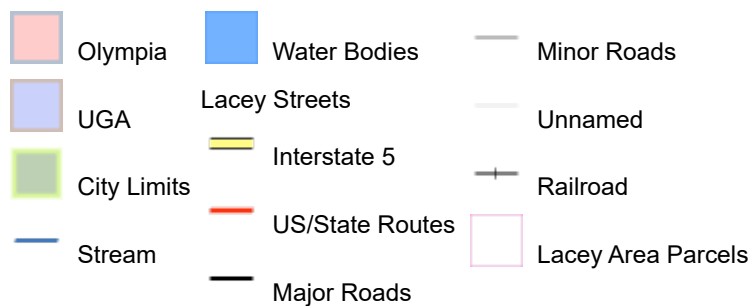
Published: May 24, 2021.

Mosure 54th Avenue Annexation Overview



12/21/2020, 9:42:04 AM

1:4,514



GIS Coordinator, City of Lacey

RECEIVED

FEB 19 2021

BY 21-54

**PETITION FOR ANNEXATION
60 PERCENT PETITION METHOD
RCW 35A.14.120**

TO: THE HONORABLE CITY COUNCIL of the City of Lacey, State of Washington:

The undersigned, being property owner(s) and representing at least 60% of the assessed value of property herein depicted on Exhibit A and described on exhibit B, do hereby petition to annex this property to the City of Lacey pursuant to RCW 35A.14.120 and under the following terms and conditions.

1. Adoption of Low Density Residential (0-4) comprehensive plan and zoning designation,
2. Assumption of a pro rata share of the City's bonded indebtedness.

Signature(s) of property owners:

WARNING

EVERY PERSON WHO SIGNS THIS PETITION WITH ANY OTHER THAN HIS/HER TRUE NAME, OR WHO KNOWINGLY SIGNS MORE THAN ONE OF THESE PETITIONS, OR SIGNS A PETITION SEEKING AN ELECTION WHEN HE/SHE IS NOT A LEGAL VOTER, OR SIGNS A PETITION WHEN HE/SHE IS OTHERWISE NOT QUALIFIED TO SIGN, OR WHO MAKES HEREIN ANY FALSE STATEMENT, SHALL BE GUILTY OF A MISDEMEANOR.

NOTE: EACH PAGE WITH A SIGNATURE MUST CONTAIN ALL OF THE ABOVE INFORMATION

<u>Property Owner</u>	<u>Date</u>	<u>Address</u>	<u>Acreage</u>	<u>Parcel No</u>	<u>Assessor Value</u>
Patricia Mosure-Jakala	1-23 2021	NA	9.83	11834320000	\$222,000
[Signature]	1/23/2021	"	"	"	"
[Signature]	1/23/2021	"	"	"	"
[Signature]	1/23/2021	"	"	"	"

EXHIBIT "A"

A PORTION OF THE NORTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 34, TOWNSHIP 18 NORTH, RANGE 1 WEST, W.M.

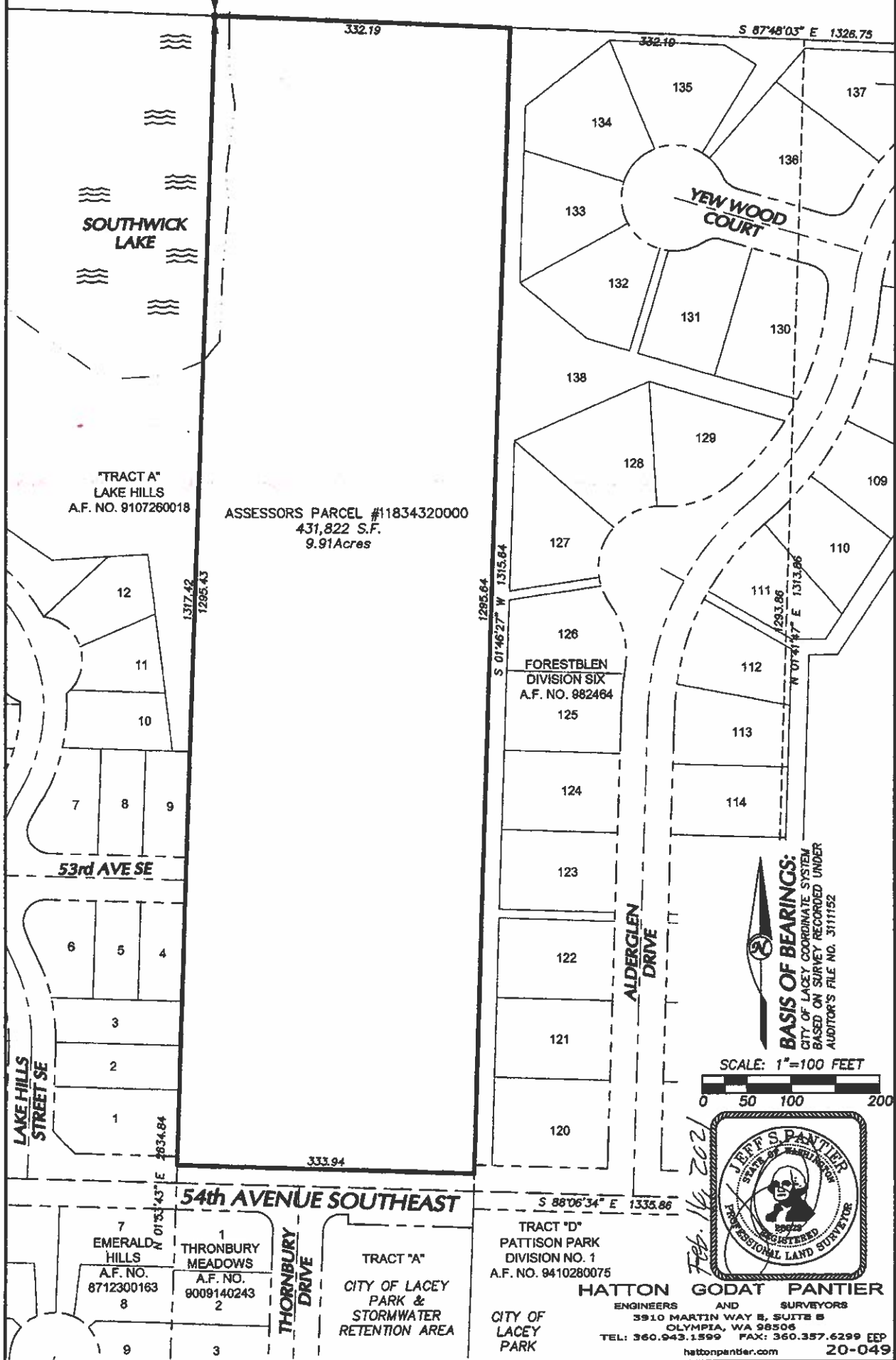


EXHIBIT "B"

THE WEST QUARTER OF THE NORTHWEST QUARTER OF THE SOUTHWEST QUARTER
OF SECTION 34, TOWNSHIP 18 NORTH, RANGE 1 WEST, W.M.; EXCEPTING
THEREFROM THE SOUTH 20 FEET FOR COUNTY ROAD KNOWN AS 54TH AVENUE
SOUTHEAST.

IN THURSTON COUNTY, WASHINGTON.



Feb. 14, 2021



LACEY CITY COUNCIL MEETING May 20, 2021

SUBJECT: Commission on Equity Appointments

RECOMMENDATION: Motion to appoint the seven individuals recommended by the Equity Workgroup to the Commission on Equity.

STAFF CONTACT: Scott Spence, City Manager *SS*
Shannon Kelley-Fong, Assistant City Manager *SKF*

ORIGINATED BY: City Manager's Department

ATTACHMENTS: None

FISCAL NOTE: None

PRIOR REVIEW: January 14, 2021 - Council Worksession
July 2, 2020 - Council Worksession
March 25, 2021 - Council Worksession
April 22, 2021 – Council Worksession

BACKGROUND:

On January 21, 2021, the Lacey City Council enacted [Ordinance 1581](#), establishing the City of Lacey ("City") Commission on Equity.

Soliciting for Commission on Equity members

The City solicited for Commission on Equity members from February 1 to March 1, 2021. The City advertised the application process on its website, social media platforms, and through press releases and outreach to various community groups.

Applications Received

In total, the City received 23 applications. The City received 16 applications within City-limits and 7 applications within Lacey's UGA. The City did not receive any applications from youth participants.

Equity Workgroup Recommendations

The Equity Workgroup reviewed the applications and selected seven individuals to recommend to serve on the Commission on Equity.

The Equity Workgroup recommended the following individuals to the Lacey City Council for appointment to the Commission on Equity:

1. Kristine Stolberg
2. Jonathan (Jon) Hegwood
3. Thelma Jackson
4. Clifton Brown
5. Anne Clay
6. Makieda Hart
7. Kim Sauer

ADVANTAGES:

1. Appointing the recommended members to the Commission on Equity allows the commission to start meeting in June or July.

DISADVANTAGES:

1. No disadvantages identified at this time. Future work performed by the Commission on Equity may result in recommendations for more equitable applicant selection processes for the City of Lacey's Boards and Commission members, including the selection process for the Commission on Equity.



LACEY CITY COUNCIL MEETING May 20, 2021

SUBJECT: 2021 Overlay Project

RECOMMENDATION: Motion to award Lacey Contract Number PW 2021-13 to low bidder Lakeside Industries, Inc. from Lacey, Washington in the amount of \$1,487,621.60.

STAFF CONTACT: Scott Spence, City Manager *SS*
Scott Egger, P.E., Public Works Director *SE*
Roger Schoessel, P.E., City Engineer *RAS*
Aubrey Collier, P.E., S.E., Design and Construction Manager *AC*
Tyson Poeckh, Ph.D., P.E., Project Administrator *TP*
Justin Knox, P.E., Design Engineer *JK*

ORIGINATED BY: Public Works Department

ATTACHMENTS: NONE

FISCAL NOTE: 2021 Overlay was anticipated and included in Lacey's 2021 Budget. Funding for the project is provided under the fund code ST21OL through the fund source of Arterial Streets Funds \$2.5M and Transportation Benefit District Funds \$2M, 102-4101-595.90 and 103-4301-595.90, respectively.

PRIOR REVIEW: N/A

BACKGROUND:

This contract provides for street reconstruction and hot mix asphalt overlays of three (3) streets, HMA patching, selective digouts, city wide valve and manhole patching to include road removal, minor reconstruction, adjustments of utility appurtenances, striping and other work. This project will pave approximately 2.7 lane miles.

The project was advertised for two weeks and bids were opened May 6, 2021. Seven (7) bids were received. The bids ranged from a low of \$1,487,621.60 to a high of \$1,751,767.00. Lakeside Industries, Inc. from Lacey, Washington, is low bidder at \$1,487,621.60. The Engineer's Estimate is \$1,800,000.00. A Bid Summary Sheet is attached.

Lakeside Industries is qualified and capable of performing the work. Start date of the project is anticipated to be beginning of July 2021, and there are 40 working days allotted.

ADVANTAGES:

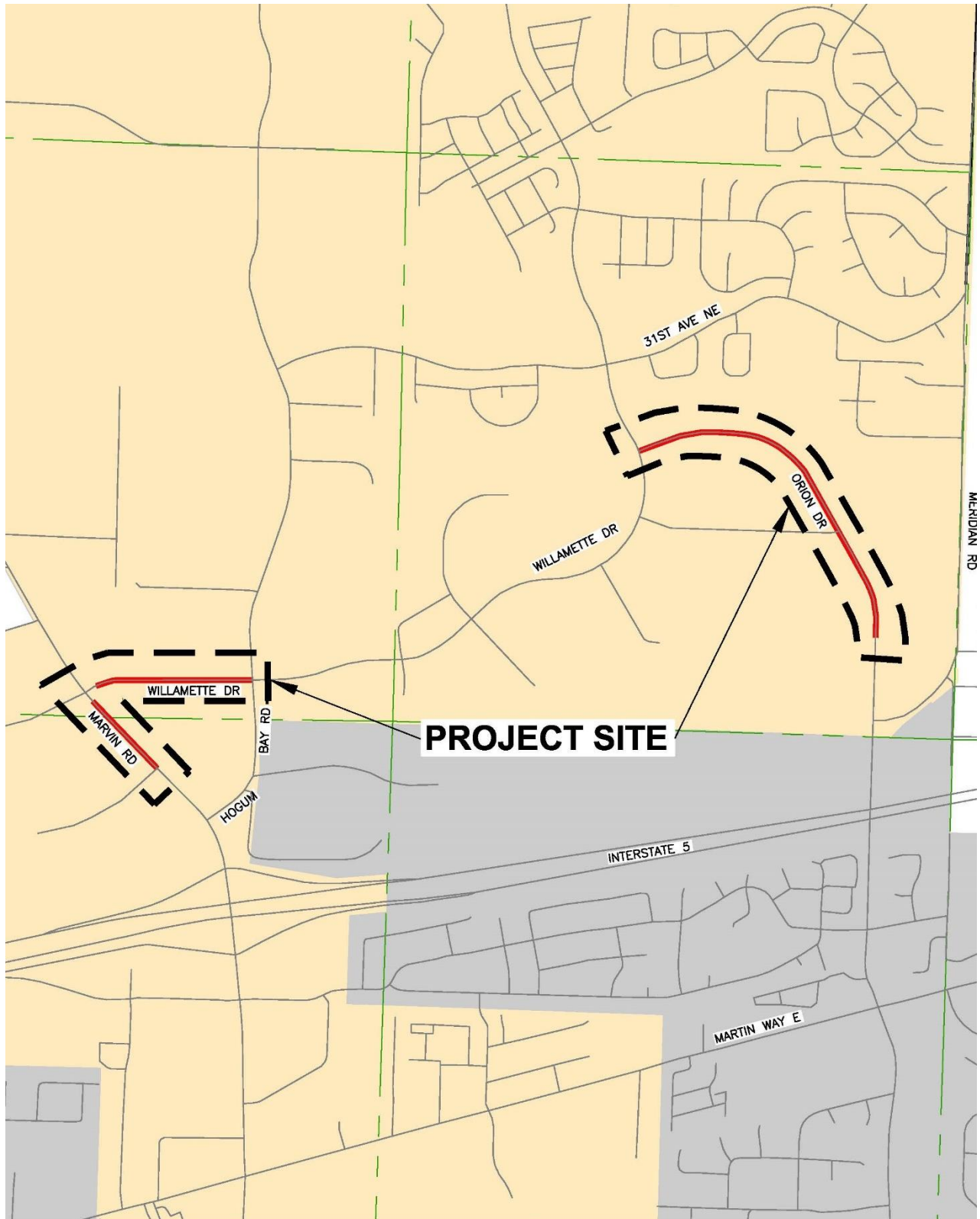
1. Provides new asphalt wearing surface.

DISADVANTAGES:

1. Typical traffic delays can be expected during construction.

**CITY OF LACEY
2021 Overlay
PW 2021-13**

CONTRACTOR	LOCATION	BID	POS.
Lakeside Industries Inc.	Lacey, WA	\$1,487,621.60	1
Miles Resources LLC.	Puyallup, WA	\$1,527,875.00	2
Active Construction Inc.	Puyallup, WA	\$1,595,595.00	3
Tucci & Sons Inc.	Tacoma, WA	\$1,683,622.00	4
Central Paving	Ellensburg, WA	1,693,601.30	5
Puget Paving & Construction, Inc.	Lakewood, WA	\$1,732,731.00	6
Granite Construction Co.	Olympia, WA	\$1,751,767.00	7
ENGINEER'S ESTIMATE \$1,800,000.00			



*MH AND VALVE ADJUSTMENT LOCATIONS VARY
SEE CORRESPONDING SHEETS IN THE PLANSET



LACEY CITY COUNCIL MEETING May 20, 2021

SUBJECT: 2021 Slurry Seal Project

RECOMMENDATION: Motion to award Lacey Contract Number PW 2021-12 to low bidder Intermountain Slurry Seal, Inc. from Sparks, Nevada in the amount of \$354,354.00.

STAFF CONTACT: Scott Spence, City Manager *SS*
Scott Egger, P.E., Public Works Director *SE*
Roger Schoessel, P.E., City Engineer *RAS*
Aubrey Collier, P.E., S.E., Design and Construction Manager *AC*
Tyson Poeckh, Ph.D., P.E., Project Administrator *TP*
Justin Knox, P.E., Design Engineer *JK*

ORIGINATED BY: Public Works Department

ATTACHMENTS: NONE

FISCAL NOTE: 2021 Slurry Seal was anticipated and included in Lacey's 2021 Budget. Funding for the project is provided under the fund code ST21OL through the fund source of Arterial Streets Funds \$2.5M and Transportation Benefit District Funds \$2M, 102-4101-595.90 and 103-4301-595.90, respectively.

PRIOR REVIEW: N/A

BACKGROUND:

This contract provides for slurry sealing of several neighborhoods in the southeast area of the City, work to include sealing of streets and other work. The slurry seal will cover approximately 17.5 lanes miles.

The project was advertised for two and a half weeks and bids were opened May 5, 2021. Three (3) bids were received. The bids ranged from a low of \$354,354.00 to a high of

\$441,323.17. Intermountain Slurry Seal from Sparks, Nevada, is low bidder at \$354,354.00. The Engineer's Estimate is \$495,000.00. A Bid Summary Sheet is attached.

Intermountain Slurry Seal is qualified and capable of performing the work. Start date of the project is anticipated to be beginning of July 2021, and there are 20 working days allotted.

ADVANTAGES:

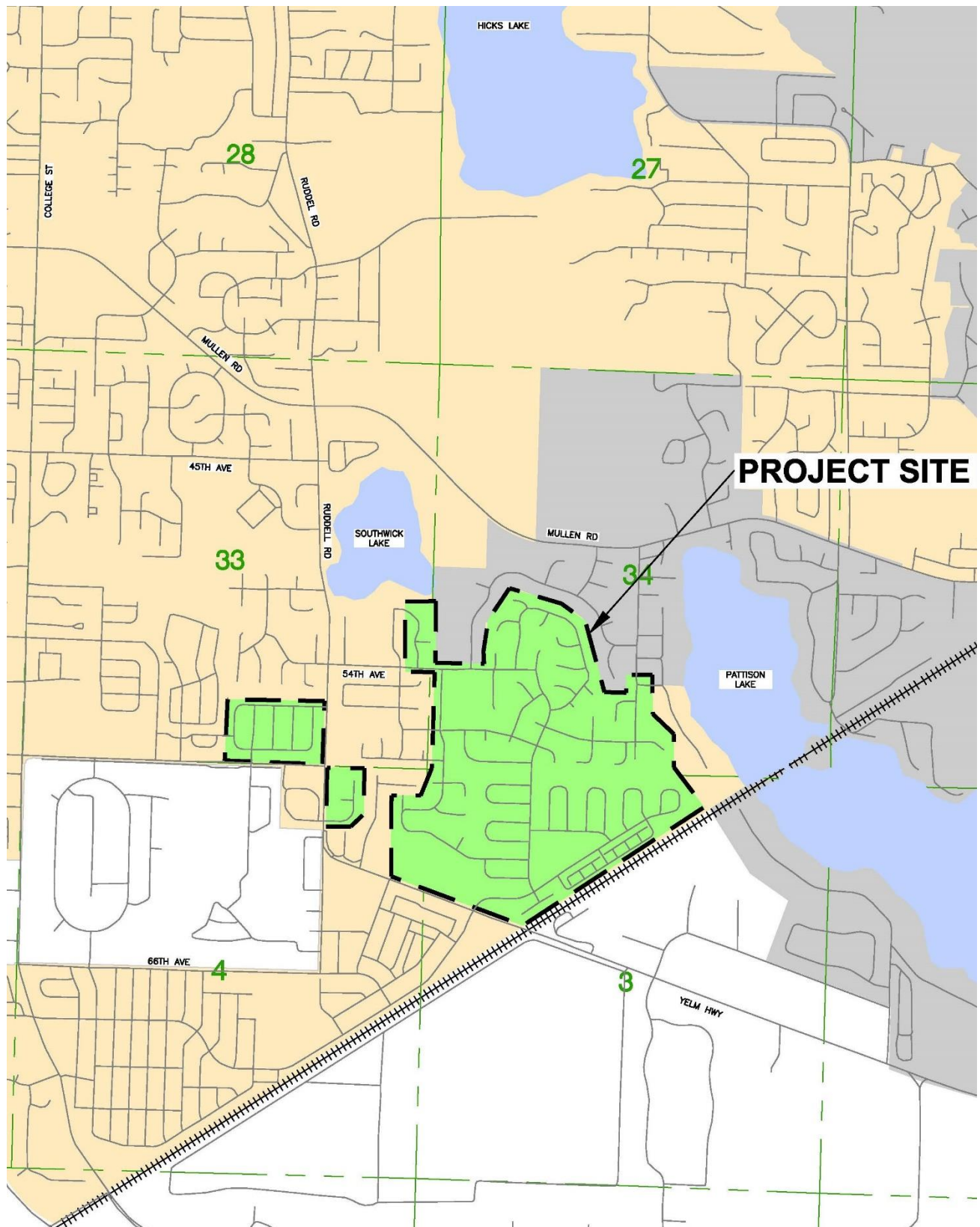
1. The roads are in good shape and with this work it provides new asphalt wearing surface and will keep the roads in good shape for a longer period of time at a fraction of the cost of a normal overlay.

DISADVANTAGES:

1. Typical traffic delays can be expected during construction.

**CITY OF LACEY
2021 Slurry Seal
PW 2021-12**

CONTRACTOR	LOCATION	BID	POS.
Intermountain Slurry Seal, Inc.	Sparks, NV	\$354,354.00	1
VSS International	Sacramento, CA	\$372,325.00	2
Doolittle Construction	Bellevue, WA	\$441,323.17	3
ENGINEER'S ESTIMATE \$495,000.00			





LACEY CITY COUNCIL MEETING
May 20, 2021

SUBJECT: Lacey Youth Council Policy Update

RECOMMENDATION: Motion to approve the proposed amendments to the Lacey Youth Council Policy

STAFF CONTACT: Scott Spence, City Manager *SS*
Shannon Kelley-Fong, Assistant City Manager *SKF*

ORIGINATED BY: City Manager's Department

ATTACHMENTS: 1. [Draft Lacey Youth Council Policy Amendments](#)

FISCAL NOTE: None.

PRIOR REVIEW: Lacey City Council Worksession – April 22, 2021
Lacey Youth Council – April 20, 2021

BACKGROUND:

The City of Lacey's Youth Council was created in 2019. Since its inception, the City has successfully held two cohorts of Youth Council. Based on these experiences and analysis of other Youth Councils around the region and country, it is recommended that the City's Youth Council policy be amended in effort to improve the Youth Council experience and enhance Youth involvement with the City.

The following provides a brief overview of the proposed changes found in **Attachment 1**:

1. Expands the purpose of Youth Council to include serving as an advisory body to the Lacey City Council on youth perspectives related to community matters.
2. Expands membership from 7 to 15 Youth Councilmembers.
3. Allows sophomores to participate in addition to juniors and seniors. Youth Council Mayor and Deputy Mayor remain juniors or seniors and must have one year of experience on the Youth Council, at the Lacey Mayor's discretion.
4. Increases meeting times to twice a month, including one Regular meeting and one Worksession meeting.

5. Outlines that four (4) Youth Councilmembers (juniors or seniors) will serve as Youth Representatives on the Lacey Library Board, Board of Park Commissioners, Historical Commission, and Commission on Equity.
6. Outlines that three (3) Youth Councilmembers (juniors or seniors) will serve as Project Managers for the Youth Council service or community engagement project.
7. Calls for the creation of a year-long workplan that includes civic education elements, time to create and accomplish youth projects, and increases youth advisory opportunities.
8. Increases Youth Council presentations in front of the City of Lacey Council to once a month.
9. Allows for flexibility with in-person or virtual attendance at meetings.
10. Provides specific criteria for removing Youth Councilmembers with unexcused absences.

Recommended Next Step:

1. Adopt the proposed amendments to the Lacey Youth Council Policy.

ADVANTAGES:

1. The updates are intended to improve the Lacey Youth Council experience for future cohorts and provide the Lacey City Council an advisory board on youth perspective related to youth community matters.

DISADVANTAGES:

1. None identified at this time.

Chapter X.XX
Lacey Youth Council

Sections:

X.XX.010	Purpose
X.XX.020	Structure
X.XX.030	Meeting Times
X.XX.040	Representation on Lacey City Council Advisory Boards and Commissions
X.XX.040	Lacey City Council Interactions
X.XX.050	Youth Council Projects
X.XX.060	Recruitment
X.XX.070	Selection Process
X.XX.080	Replacement Process

X.XX.010 Purpose

- A. The Lacey Youth Council serves as an avenue for the Lacey City Council to proactively engage with our community's youth and empower Lacey's youth to become future leaders.
- B. The Lacey Youth Council serves as an advisory body to the Lacey City Council on youth perspectives related to community matters.

X.XX.020 Structure

- A. The Youth Council is comprised of fifteen (15) members recruited from the following organizations: North Thurston High School, River Ridge High School, South Sound High School, Timberline High School, Northwest Christian High School, Pope John Paul II High School, and home school organizations.
- B. Seven (7) Youth Council members will be juniors or seniors. This requirement may be waived at the discretion of the Mayor of Lacey.
- C. The Youth Council selects a Youth Council Mayor and Deputy Mayor from among its members. The Youth Council Mayor and Deputy Mayor must be juniors or seniors with one previous year in Youth Council. School level and previous Youth Council experience requirements may be waived at the discretion of the Mayor of Lacey.
 - a. At the first meeting of the year, Youth Councilmembers will indicate if they are interested in serving as Youth Council Mayor or Deputy Mayor. City staff will present candidate names in alphabetical order for a vote of the Youth Council. The first candidate to secure a majority of votes for each position receives the appointment.

- b. The Youth Council Mayor is responsible for chairing the meeting and ensuring that the meeting follows the set agenda. The Youth Council Mayor also assigns Youth Council members to deliver monthly reports regarding each of the school listed above and other youth events or youth-involved issues to the Lacey City Council.
 - c. The Youth Council Mayor represents the Youth Council at any outside meetings requiring the attendance of the Youth Council. The Youth Council Deputy Mayor assumes the role of Chair in the absence of the Chair.
- D. All members of the Youth Council have an equal vote.
- E. Youth Council Members serve for up to three (3) terms. If a student graduates or leaves high school, they are no longer eligible to serve on the Youth Council.
- F. The Youth Council utilizes and follows Robert's Rules of Order.
- G. Youth Council in coordination with City personnel will create a year-long workplan for the Youth Council.
- H. City personnel will conduct ongoing civic educational sessions and trainings throughout the duration of the year.

X.XX.030 Meeting Times

- A. The Youth Council meets at least twice a month during the school year or from September to June. Meetings will include one Regular Meeting and one Worksession meeting. Youth Councilmembers may attend meetings remotely if they cannot make the meeting in-person.
- B. Youth Council Regular Meetings will be held on the first Tuesday of the month at 5 p.m.
- C. Youth Council Worksession meetings will be held prior to or following the Youth Council's monthly reports to the Lacey City Council on the second Thursday of the month.
- D. All Youth Council Regular and Worksession meetings are limited to two (2) hours.
- E. The Youth Council may schedule additional Youth Council meetings, as needed. Youth Council Special meetings may exceed two (2) hours.

X.XX.040 Representation on Lacey City Council Advisory Boards and Commissions

- A. Four (4) Youth Councilmembers that are junior or seniors will serve as the Youth Representatives to one of the following City of Lacey Advisory Boards and Commission:
 - a. Historical Commission
 - b. Board of Parks Commissioners
 - c. Library Board; and
 - d. Commission on Equity.
- B. At the first meeting of the year, Youth Councilmembers will indicate if they are interested in serving as the Youth Representative to a Lacey Advisory Board. City staff will present candidate names in alphabetical order for a vote of the Youth Council. The first candidate to secure a majority of votes for each position receives the appointment.

X.XX.050 Lacey City Council Interaction

- A. One (1) Lacey City Councilmember will serve as a liaison to the Youth Council for the duration of the Youth Council year.
- B. All other Lacey City Councilmembers will be assigned at minimum one (1) Youth Council meeting to attend during the year.
- C. Once a month, selected Youth Council members will deliver a report to the Lacey City Council during the second Lacey City Council Meeting of that month.

X.XX.060 Youth Council Projects

- A. The Youth Council will pursue at minimum one (1) public service and community engagement project during the year.
- B. Three (3) Youth Councilmembers that are junior or seniors will serve as Project Managers for Youth Council Projects.
- C. Youth Council may participate in other volunteer and engagement efforts, such as but not limited to:
 - a. providing support for City of Lacey events; and
 - b. attending Youth Action Day or other leadership summits.

X.XX.070 Recruitment

- A. The City will coordinate with North Thurston Public Schools, Pope John Paul II, Northwest Christian High School, and home school organizations to promote the Youth Council and solicit applications to the Youth Council.
- B. Youth Councilmembers will help with Youth Council recruitment efforts.
- C. Recruitment efforts begin in March of each year.

X.XX.080 Selection Process

- A. Applicants must be in their freshman, sophomore, or junior year at the time of application.
- B. The City of Lacey Mayor reviews all applications and selects candidates for interview. The interview panel consists of the City of Lacey Mayor, City of Lacey staff, and if possible, members of Youth Council.
- C. After candidate interviews, the City of Lacey Mayor selects individuals to recommend to the full Lacey City Council for service on the Lacey Youth Council. Lacey City Council will confirm the selection of Lacey Youth Councilmembers.
- D. Once confirmed to the Lacey Youth Council, the City will notify the selected individuals of meeting times, training requirements and next steps.

X.XX.090 Replacement Process

- A. If a member of the Youth Council resigns, moves, graduates from high school, or is removed due to behavior, or conduct then the vacated position will be filled as soon as possible.
- B. If a member of the Youth Council fails to attend a total of two (2) meetings, regardless if the meetings are consecutively missed, without being approved by appropriate City personnel, those members will be removed from the Youth Council. The vacated position will be filled as soon as possible.
- C. Previous eligible applicants receive notification of the vacancy and recruitment activities take place to fill the position. The Lacey City Mayor reviews potential candidates and appoints an individual to the position. Where possible, the Lacey City Mayor backfills the position with a candidate from the origin school of the departing Youth Councilmember.

FINANCE & ECONOMIC DEVELOPMENT COMMITTEE MINUTES

APRIL 27, 2021

8:30 A.M. – 9:11 A.M.

REMOTE ONLY

COUNCIL PRESENT: MAYOR RYDER (CHAIR), DEPUTY MAYOR PRATT, COUNCILMEMBER GREENSTEIN

STAFF PRESENT: SCOTT SPENCE, RICK WALK, SARAH SCHELLING, ELISSA FONTAINE

ACTION: APPROVE FINANCE & ECONOMIC DEVELOPMENT COMMITTEE AGENDA

MOTION: MOTION MADE, SECONDED, AND CARRIED BY COUNCILMEMBER GREENSTEIN AND DEPUTY MAYOR PRATT

SCALEUP PROGRAM

STAFF: RICK WALK, COMMUNITY & ECONOMIC DEVELOPMENT DIRECTOR
WESLEY NGUYEN, ECONOMIC DEVELOPMENT COORDINATOR
JAMES DAVIS, BUSINESS DEVELOPMENT MANAGER, CENTER FOR BUSINESS AND INNOVATION

ACTION: INFORMATION ONLY

Rick Walk, Community & Economic Development Director and staff provided an update on the ScaleUp program, a business training program to help develop skills and provide mentorship to local businesses.

The Thurston Economic Development Council (EDC) Center for Business Innovation (CBI) historically has provided ScaleUp business training programs to Thurston County businesses through contract funding from the Small Business Administration (SBA).

In 2017, the SBA funding for the ScaleUp program was cut. To ensure local businesses had access to training that can help provide them skills to operate, maintain and potentially expand their business, the City of Lacey established an annual fund of \$30,000 to provide scholarships to City of Lacey and Lacey UGA businesses to participate in the training. This kept the ScaleUp program alive in Thurston County. The following year, the cities of Olympia and Tumwater followed suit and provided scholarships to their businesses.

To realize this opportunity to provide additional resources to our local business community, City staff is working with the EDC to amend the annual contract to recognize the new curriculum being developed by the EDC.

James Davis, Business Development Manager with CBI presented the current ScaleUp training series and highlighted plans to refine and improve on the program.

MULTI-FAMILY TAX EXEMPTION PROGRAM OVERVIEW

STAFF: RICK WALK, COMMUNITY & ECONOMIC DEVELOPMENT DIRECTOR
 SARAH SCHELLING, ASSOCIATE PLANNER
ACTION: INFORMATION ONLY

Rick Walk, Community & Economic Development Director and Sarah Schelling, Associate Planner reviewed the multi-family tax exemption program, recent application and highlighted the process with the Committee.

The Multi-family Tax Exemption Program is a program created by the State Legislature and enumerated in RCW 84.14. The purpose is to encourage increased residential opportunities, including affordable housing, through new construction and rehabilitation of existing buildings located within the urban centers of cities planning under the GMA. When the tax exemption program was first adopted by the Washington State legislature in 1995, only three cities were eligible; those with populations of 150,000 or more (Seattle, Tacoma and Spokane). Three subsequent amendments to RCW 84.14 reduced the minimum city size to provide opportunities to a higher number of cities in the state that are planning under the GMA. The program was last amended in 2007, reducing the eligible city size to a population of 15,000 allowing more than 90 cities across the state to participate in the program

The primary purpose of RCW 84.14 is to encourage increased residential opportunities in cities required to plan under the GMA within urban centers where there are insufficient housing opportunities. As indicated by the Urban Corridor Task Force and the Woodland District Strategic Plan, the Woodland District meets the purpose of RCW 84.14. Effect of Tax Exemption. The multi-family tax exemption program exempts the ad valorem tax specific to the value of new housing construction and the increase value of housing rehabilitation. The tax exemption would not apply to the ad valorem tax on land value or improvements not related to housing.

To qualify, a developer will need to apply for tax exemption prior to the start of construction of the residential units. In essence, the program delays the collection of future revenues for a period of eight or twelve years. The benefit is the strong potential to spur additional redevelopment in the urban center increasing the tax revenues as a whole. Once the tax exemption expires, then the owners of the residential projects would be subject to ad valorem taxes based on current market rate assessments.

Following a public hearing on the project, the Lacey City Council, on December 18, 2014 adopted Ordinance 1452, which identified the requirements for a Multi-Family Tax Exemption program and designated Lacey Mid-town (formerly the Woodland District) as a Residential Target Area as defined by RCW 84.14. Adoption of the ordinance provided an incentive for property owners and developers to construct new multi-family and new or redeveloped mixed use buildings within the target area, helping to achieve the goals set for the district to become a vibrant, prosperous mixed-use district.

On March 9, 2021, the City issued land use approval to DM Ventures Woodland Inc., for the development of a 151-unit, multi-story apartment building with a ground floor tap room at 4402 6th Ave SE. The developer has since (on April 8, 2021) submitted a Multi-Family Tax Exemption application, and seeks approval to receive the eight-year exemption. This is the first application for the program that the City has received since adopting the ordinance and developing the program.

The City has 90 days to issue an approval of the application from the time of complete application. The application submitted by DM Ventures is currently under review. The application will be reviewed by the Community and Economic Development Department to ensure that all submittals are in order and that the application and project meet the requirements of the program. Approval is granted by the department and the proponent then enters into a contract with the Lacey City Council. The contract will stipulate the terms and conditions of the program.

WORKFORCE CONSIDERATIONS

STAFF: SCOTT SPENCE, CITY MANAGER

ACTION: INFORMATION ONLY

Scott Spence, City Manager discussed some upcoming workforce recruitments and adjustments, including additional positions within Utility Billing, Community & Economic Development and potentially Public Works.

All expenditures relating to workforce, will be included and reviewed as part of future budget amendments presented to Council.

LAND USE COMMITTEE
APRIL 27, 2021
10:32 A.M. – 11:09 A.M.
REMOTE ONLY

COUNCIL PRESENT: COUNCILMEMBER COX (CHAIR), DEPUTY MAYOR PRATT,
COUNCILMEMBER GREENSTEIN

STAFF PRESENT: SCOTT SPENCE, RICK WALK, JESSICA BRANDT, SARAH SCHELLING,
ELISSA FONTAINE

ACTION: APPROVE THE LAND USE COMMITTEE AGENDA

MOTION: MOTION MADE, SECONDED, AND CARRIED BY COUNCILMEMBER GREENSTEIN
AND DEPUTY MAYOR PRATT

MULTI-FAMILY TAX EXEMPTION PROGRAM OVERVIEW

STAFF: RICK WALK, COMMUNITY & ECONOMIC DEVELOPMENT DIRECTOR
SARAH SCHELLING, ASSOCIATE PLANNER

ACTION: INFORMATION ONLY

Rick Walk, Community & Economic Development Director and Sarah Schelling, Associate Planner reviewed the multi-family tax exemption program, recent application and highlighted the process with the Committee.

The Multi-family Tax Exemption Program is a program created by the State Legislature and enumerated in RCW 84.14. The purpose is to encourage increased residential opportunities, including affordable housing, through new construction and rehabilitation of existing buildings located within the urban centers of cities planning under the GMA. When the tax exemption program was first adopted by the Washington State legislature in 1995, only three cities were eligible; those with populations of 150,000 or more (Seattle, Tacoma and Spokane). Three subsequent amendments to RCW 84.14 reduced the minimum city size to provide opportunities to a higher number of cities in the state that are planning under the GMA. The program was last amended in 2007, reducing the eligible city size to a population of 15,000 allowing more than 90 cities across the state to participate in the program

The primary purpose of RCW 84.14 is to encourage increased residential opportunities in cities required to plan under the GMA within urban centers where there are insufficient housing opportunities. As indicated by the Urban Corridor Task

Force and the Woodland District Strategic Plan, the Woodland District meets the purpose of RCW 84.14. Effect of Tax Exemption. The multi-family tax exemption program exempts the ad valorem tax specific to the value of new housing construction and the increase value of housing rehabilitation. The tax exemption would not apply to the ad valorem tax on land value or improvements not related to housing.

To qualify, a developer will need to apply for tax exemption prior to the start of construction of the residential units. In essence, the program delays the collection of future revenues for a period of eight or twelve years. The benefit is the strong potential to spur additional redevelopment in the urban center increasing the tax revenues as a whole. Once the tax exemption expires, then the owners of the residential projects would be subject to ad valorem taxes based on current market rate assessments.

Following a public hearing on the project, the Lacey City Council, on December 18, 2014 adopted Ordinance 1452, which identified the requirements for a Multi-Family Tax Exemption program and designated Lacey Mid-town (formerly the Woodland District) as a Residential Target Area as defined by RCW 84.14. Adoption of the ordinance provided an incentive for property owners and developers to construct new multi-family and new or redeveloped mixed use buildings within the target area, helping to achieve the goals set for the district to become a vibrant, prosperous mixed-use district.

On March 9, 2021, the City issued land use approval to DM Ventures Woodland Inc., for the development of a 151-unit, multi-story apartment building with a ground floor tap room at 4402 6th Ave SE. The developer has since (on April 8, 2021) submitted a Multi-Family Tax Exemption application, and seeks approval to receive the eight-year exemption. This is the first application for the program that the City has received since adopting the ordinance and developing the program.

The City has 90 days to issue an approval of the application from the time of complete application. The application submitted by DM Ventures is currently under review. The application will be reviewed by the Community and Economic Development Department to ensure that all submittals are in order and that the application and project meet the requirements of the program. Approval is granted by the department and the proponent then enters into a contract with the Lacey City Council. The contract will stipulate the terms and conditions of the program.

HAWKS PRAIRIE BUSINESS DISTRICT ZONING TEXT AMENDMENTS

STAFF: JESSICA BRANDT, ASSOCIATE PLANNER

ACTION: INFORMATION ONLY

Jessica Brandt, Associate Planner presented the Hawks Prairie Business District zoning text amendment received from a private application.

The Hawks Prairie Business District consists of 570 acres and two sub districts. The intent of the text amendment is to create flexibility between business commercial and commercial zoning.

The proposed amendment includes the following:

1. Allow medical/dental services in multi-tenant buildings
2. Allow residential use in commercial zone
3. Increase residential density allowed on smaller parcels (20 acres or less)

Staff reviewed the findings of fact from the Planning Commission, and advised that no public comments were received at the public hearing. The Planning Commission recommendation will be presented to the full Council at the May 20, 2021, meeting.

UTILITIES COMMITTEE MINUTES

MAY 3, 2021

12:00 P.M. – 12:47 P.M.

REMOTE ONLY

COUNCIL PRESENT: COUNCILMEMBERS KUNKEL (CHAIR), STEADMAN (AUDIO ONLY), AND MILLER

STAFF PRESENT: SHANNON KELLEY-FONG, SCOTT EGGER, PETER BROOKS, DOUG CHRISTENSON, ELISSA FONTAINE

ACTION: APPROVE UTILITIES AGENDA

MOTION: MOTION MADE, SECONDED AND CARRIED BY COUNCILMEMBERS STEADMAN AND MILLER

WATER SHORTAGE RESPONSE PLAN

STAFF: PETER BROOKS, WATER RESOURCES MANAGER
SCOTT EGGER, PUBLIC WORKS DIRECTOR

ACTION: INFORMATION ONLY

Peter Brooks, Water Resources Manager presented on the 2021 Water Shortage Response Plan (WSRP).

The maximum well pumping time of 21 hours per day is based on the available standby and operational reservoir storage capacity of the water system, expressed in units of millions of gallons per day (MGD). The annual period begins on June 1, 2021 and is P3 = 17.8 MGD.

Staff reviewed internal steps for each stage, as well as public messages, jurisdictional coordination and mandatory water use restrictions.

Stages include:

Stage 1: Advisory Stage (every summer)

Stage 2: Internal Action Stage (80% of P3 for 1 day or 90% of P3 for 1 day)

Stage 3: Mandatory Stage (95% of P3 for 1 day or 97% of P3 for 1 day)

Stage 4: Emergency Stage (100% of P3 for 1 day)

Staff provided additional information regarding general timelines associated with well replacement and advised the Committee that grants and programs will be pursued for future costs associated with well infrastructure.

STORMWATER 2020 ANNUAL REPORT

STAFF: DOUG CHRISTENSON, UTILITIES CIVIL ENGINEER
SCOTT EGGER, PUBLIC WORKS DIRECTOR
ACTION: INFORMATION ONLY

Doug Christenson, Utilities Civil Engineer presented on the Annual Stormwater Report for 2020.

The Western Washington NPDES Phase 2 Municipal Stormwater Permit, issued by the Department of Ecology, authorizes the City of Lacey to discharge stormwater runoff from our municipal storm sewer system to surface waters and groundwater. The current version of the permit is in effect from August 2019 through July 2024.

The Permit requires the City to track all of the activities, inspections, trainings, and other efforts related to permit compliance. In addition, the City must plan and prepare for actions to take in the coming years to meet evolving permit requirements by their specified deadlines. All of this information must be documented, certified, and submitted in an Annual Report to the Department of Ecology.

The Stormwater Annual Report consists of two main components:

- (1) a 94-item Annual Report questionnaire form regarding the City's compliance with the permit requirements during the preceding calendar year, and
- (2) a Stormwater Management Program (SWMP) Plan document describing the past year's SWMP activities, along with the current and upcoming permit requirements and the actions the City will take to address those requirements.

The annual report is due to Ecology by March 31 each year, plus the City is required to post the updated SWMP Plan document on the City website by May 31. Staff advised that these steps have both been accomplished. The updated SWMP Plan document covering 2020 activity data and required future actions has been posted on the City of Lacey website in the Plans and Reports Library, to inform the public about the NPDES Phase II Permit and the actions the City conducted during 2020, and plans to take in future years, to comply with the permit.

Lacey's Annual Report package included the following required attachments of additional information for 2020:

- Annexations or other changes in the City boundary (i.e. the area of permit coverage)
- Description of internal (interdepartmental) coordination mechanisms for permit compliance

- Stormwater CIP project list and implementation schedule
- Summary of general public awareness efforts, with target audiences and subject areas
- List and description of stewardship opportunities provided
- Spreadsheet of mapped storm system outfalls
- Illicit discharges and spills data report spreadsheet
- TMDL compliance activities (for Henderson Inlet and Deschutes River Watershed TMDLs)

The largest component of our Annual Report submittal is the Stormwater Management Program (SWMP) 2020 Plan. The Phase II Permit requires the City to develop and implement a comprehensive Stormwater Management Program, to protect and improve the quality of the surface water and groundwater resources by reducing negative impacts due to urbanization and runoff water. Within the overall program are a variety of components, each with specific requirements and compliance schedules. For the 2019-2024 permit term, the number of component sections have increased, with the addition of three new sections. The current SWMP component sections are:

1. Stormwater Planning (new section for 2019-2024)
2. Public Education and Outreach
3. Public Involvement and Participation
4. MS4 Mapping and Documentation (new section for 2019-2024)
5. Illicit Discharge Detection and Elimination (IDDE)
6. Controlling Runoff from New Development, Redevelopment, and Construction Sites
7. Operations & Maintenance
8. Source Control Program for Existing Development (new section for 2019–2024)

In addition to these main program components, the Phase II permit also includes three other component sections that affect Lacey:

- Compliance with Total Maximum Daily Load water cleanup plans (TMDLs)
- Stormwater Monitoring and Assessment
- Reporting Requirements

Staff confirmed that all of these stormwater program components are being addressed by City of Lacey staff to keep the City in compliance with the Phase II Permit.

COMMUNITY RELATIONS & PUBLIC AFFAIRS COMMITTEE MINUTES

MAY 3, 2021

11:00 A.M. – 11:35 A.M.

REMOTE ONLY

COUNCIL PRESENT: COUNCILMEMBERS STEADMAN (CHAIR), COX, AND KUNKEL

STAFF PRESENT: SHANNON KELLEY-FONG, JEN BURBIDGE, JEANNETTEE SIELER,
ELISSA FONTAINE

ACTION: APPROVE COMMUNITY RELATIONS & PUBLIC AFFAIRS COMMITTEE
AGENDA

MOTION: MOTION MADE, SECONDED AND CARRIED BY COUNCILMEMBERS COX
AND KUNKEL

LACEY MINSK MAZOWIECKI SISTER CITY ASSOCIATION

PRESENTER: RICK SCHILDMAN, ASSOCIATION SECRETARY

ACTION: 1. MOTION TO APPROVE 2021 WORK PLAN
2. MOTION TO ACCEPT 2021 BUDGET

MOTION: 1. MOVED, SECONDED AND CARRIED BY COUNCILMEMBERS STEADMAN
AND COX
2. MOVED, SECONDED AND CARRIED BY COUNCILMEMBERS STEADMAN
AND KUNKEL

Rick Schildman, Association Secretary presented an overview of 2020 – 2021 for the Lacey Minsk Mazowiecki Sister City Association (LMMSCA) and advised that COVID-19 has significantly impacted LMMSCA functions. The last in-person event held was the Pierogi making class on March 12, 2020 and all subsequent events have been postponed or cancelled.

Updates for the year 2021 include a transition of Association President from Hanna Anders to Steve Dobosz, website updates, resumption of the 2nd Annual Pierogi festival in December and the 600-year anniversary of Minsk Mazowiecki on May 29, 2021.

A review of the treasury status was discussed, as well as memberships, insurance, and student exchange programs.

NAMING POLICY

STAFF: SHANNON KELLEY-FONG, ASSISTANT CITY MANAGER

ACTION: 1. RECOMMEND FORWARDING THE DRAFT NAMING POLICY TO THE FULL CITY COUNCIL FOR APPROVAL
2. RECOMMEND FORWARDING THE APPLICATION FOR A MEMORIAL ROADWAY IN HONOR OF MASTER SERGEANT LESLIE JOHNSON TO THE FULL CITY COUNCIL FOR APPROVAL

MOTION: 1. MADE, AND SECONDED BY COUNCILMEMBERS KUNKEL AND STEADMAN. MOTION CARRIED
2. MADE, AND SECONDED BY COUNCILMEMBERS STEADMAN AND KUNKEL. MOTION CARRIED

Shannon Kelley-Fong, Assistant City Manager presented the proposed Public Facilities Naming Policy.

The City of Lacey currently has naming policies for the following:

- Corporate Naming Rights
- Public Parks, Trails and Parkways, etc.
- Historical Buildings

Currently, there are no policies for (re)naming City facilities, including public streets and public buildings. The draft policy recommends criteria and an application process to name or rename public facilities and memorial roadways.

Staff also updated the Committee on an application to recognize WWII Veteran Master Sergeant Leslie Johnson, by creating a memorial roadway on Golf Club Rd SE between 3rd Avenue SE and 6th Avenue SE. The proposed name would be MSG Leslie Johnson Avenue.

The Committee directed staff to invite family members to the meeting, tentatively scheduled for May 20, 2021.

CULTURAL CELEBRATION RECAP

PRESENTER: JEANNETTE SIELER, RECREATION SUPERVISOR

JENNIFER BURBIDGE, PARKS, CULTURE AND RECREATION DIRECTOR

ACTION: INFORMATION ONLY

Jeannette Sieler, Recreation Supervisor presented an overview of the 2021 Lacey Cultural Celebration. The Cultural Celebration was held 'live' virtually on March 27, 2021 and on demand from March 28 through April 27.

Interactive pieces included a scavenger hunt, finding World-O, and a KAHOOT! Game during the event.

Compared to 18 performances from the last in-person event, 13 performances and 6 presentations filled the event schedule with multiple viewing options. The virtual event allowed the City to expand presentations and interactions with viewers, while also providing a platform to promote local restaurants.

Staff advised that the event had 1,220 views on the day of, and a total amount of 2,879 views. Viewers visted from 24 states, plus India, Canada, United Kingdom, and Singapore.

TRANSPORTATION COMMITTEE MINUTES

MAY 4, 2021

11:00 A.M. – 11:36 A.M.

REMOTE ONLY

COUNCIL PRESENT: COUNCILMEMBERS MILLER (CHAIR), COX, AND STEADMAN

STAFF PRESENT: SHANNON KELLEY-FONG, SCOTT EGGER, ROGER SCHOESSEL
TOM STILES, AUBREY COLLIER, PERI EDMONDS

ACTION: APPROVE TRANSPORTATION COMMITTEE AGENDA

MOTION: MOTION MADE, SECONDED AND CARRIED BY COUNCILMEMBERS COX AND
STEADMAN

HERCULES DRIVE TRANSPORTATION LATECOMER'S AGREEMENT

STAFF: TOM STILES, DEVELOPMENT REVIEW ENGINEER

ACTION: MOTION TO FORWARD THE LATECOMER AGREEMENT TO THE FULL CITY
COUNCIL TO SCHEDULE A PUBLIC HEARING DATE

MOTION: MOVED AND SECONDED BY COUNCILMEMBERS STEADMAN AND COX.
MOTION CARRIED.

Schneider Homes constructed Puget Meadow West Apartments. A condition of development was the construction of Hercules Drive along their frontage. In order to construct Hercules Drive, it was necessary to acquire right-of-way from the property owner on the east side of the future Hercules Drive. The City negotiated and acquired the necessary right-of-way from the property owner, YUS LLC. Subsequent to acquisition of the necessary right-of-way, Schneider Homes installed Hercules Drive roadway and water main improvements. YUS LLC benefits from these improvements. Schneider Homes and the City are entitled to recover a proportional share of the cost of the improvements per LMC 12.30, Street Latecomers Agreements. With the latecomer agreement, the proportionate share of improvements benefitting YUS LLC will be collected when their property develops, provided such development occurs within fifteen years.

A preliminary determination of area boundaries and assessments is provided. Per LMC 12.30.030, the City Council must hold a hearing to make a ruling on the determination of boundaries and assessments. If the City Council rules in favor of the boundaries and assessments, the Council's ruling establishing an assessment area

and program shall be by ordinance. The hearing date must allow sufficient time to comply with LMC 12.30.030.B which states:

The preliminary determination of area boundaries and assessments, along with a description of the property owner's rights and options, shall be forwarded by registered mail to the property owners of record within the proposed assessment area. This notice shall advise them of the hearing to be conducted before the city council within twenty days of the mailing of the preliminary determination.

CONSTRUCTION UPDATE

STAFF: AUBREY COLLIER, DESIGN & CONSTRUCTION MANAGER
ACTION: INFORMATION ONLY

Staff provided an update on the following construction projects:

- Ruddell Road Retaining Wall
 - o Retaining wall construction complete
 - o Working on electrical, fencing, and landscaping
- Mullen Road Improvements
 - o Working on concrete
 - o Construction to be completed Summer 2021
- Hawks Prairie Roundabout
 - o 95% complete
- Capitol City Water and Wastewater
 - o Phase 1 converts 175 homes from septic to sewer
 - o Includes 11,000 LF water main/11,000 LF sewer main
 - o Construction substantially complete June 2021
 - o Phase 2 will begin May 10, 2021
- Carpenter Road Utilities
 - o 3000 ft water main, 4000 ft sewer main
 - o Bid opening on May 20, 2021 for Carpenter Road overlay
 - o Work will begin early August
- Hawks Prairie Sister Standpipe
 - o Includes constructing 2.0 million gallon steel reservoir and frontage improvements on Marvin Road
 - o Construction complete by end of 2021