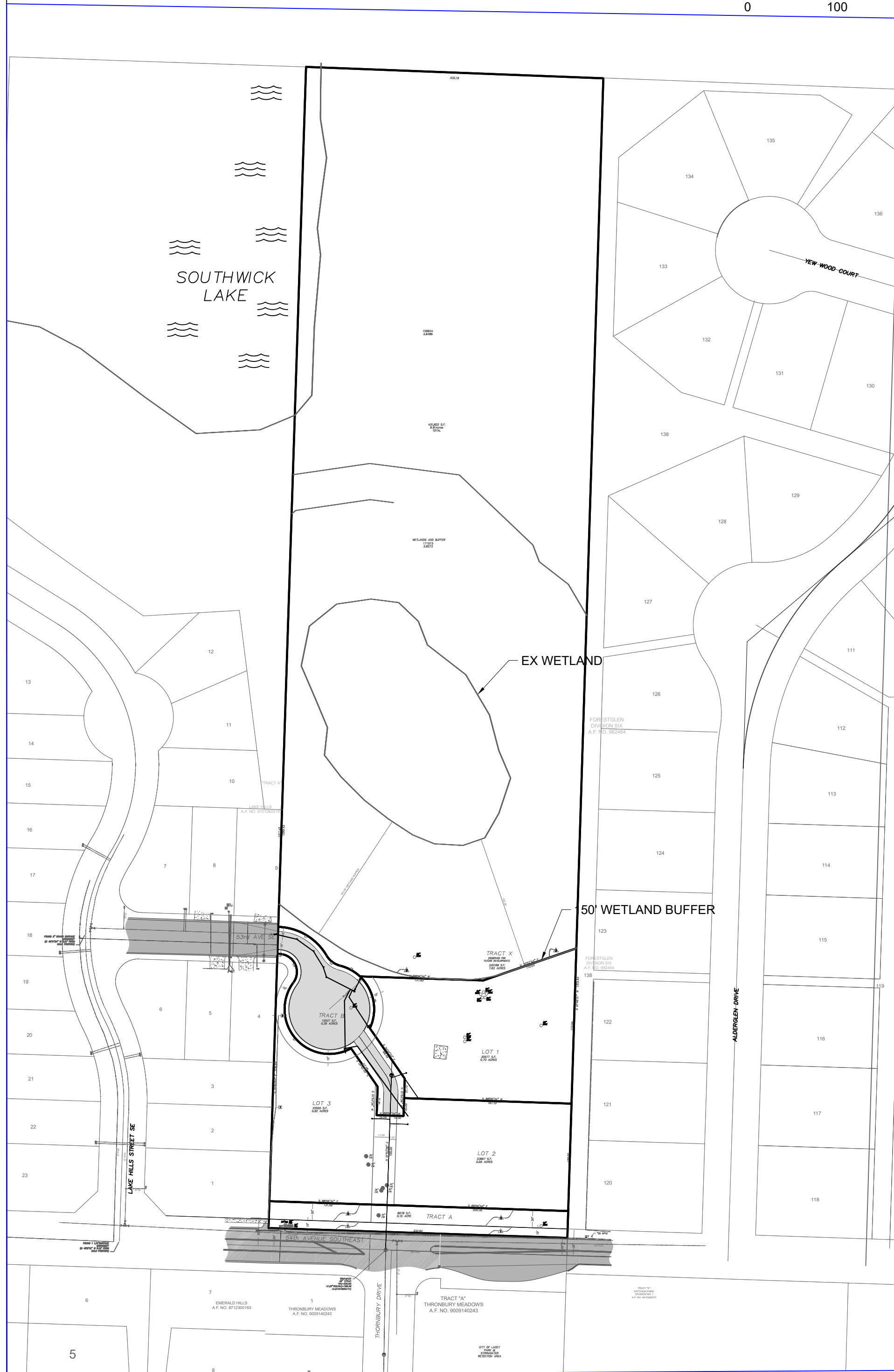
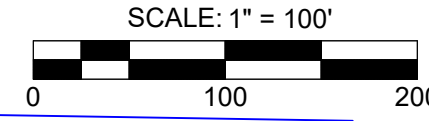


53TH AVE SHORT PLAT

XXX 53TH AVE SE



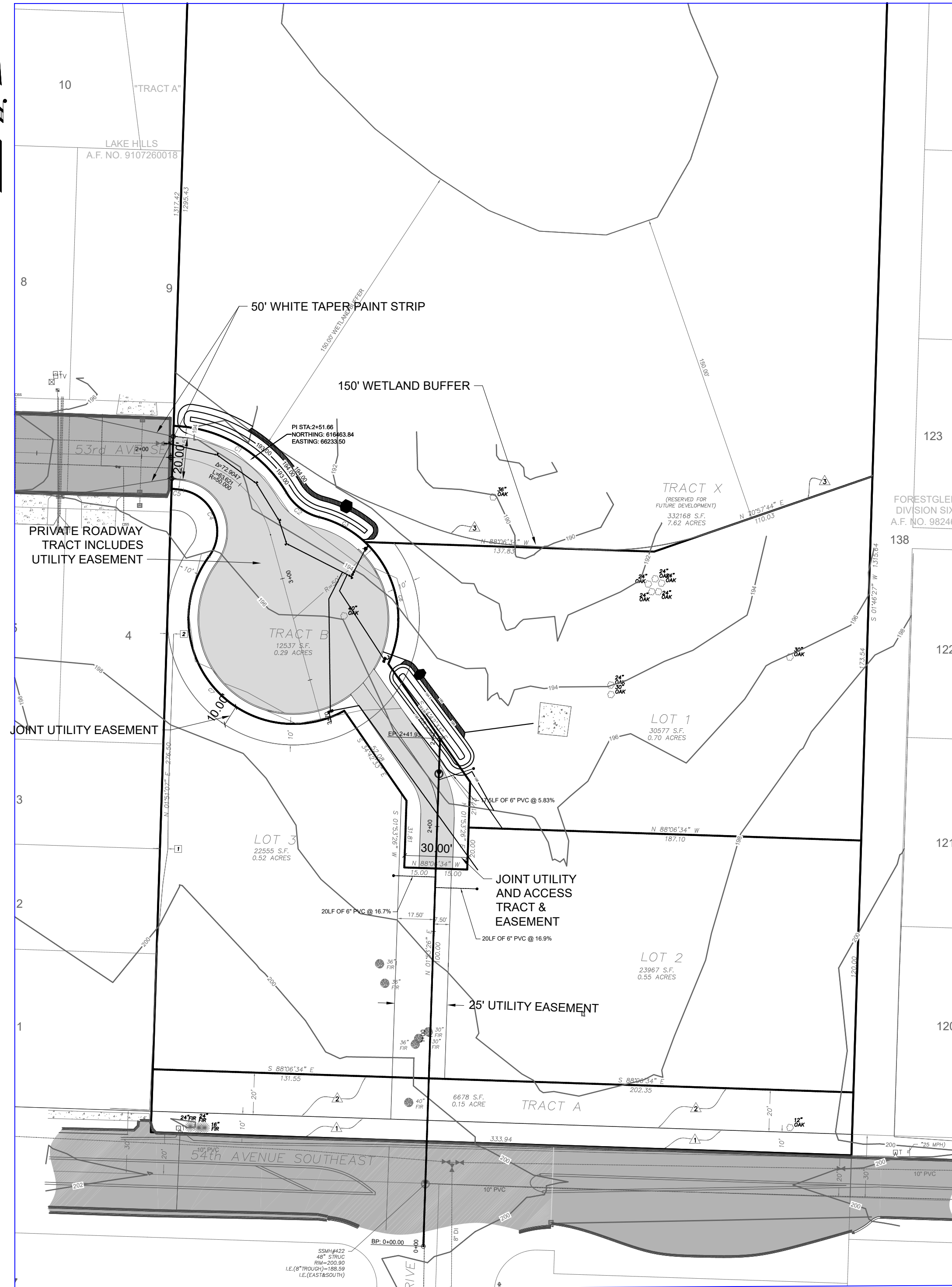
OVERALL LAYOUT PLAN

NOTE

ROOF DOWNSPOUT INFILTRATION SYSTEMS SHALL BE PLACED ON THE LOT BEING DEVELOPED AND SHALL BE SIZED TO ACCOMMODATE STORM RUNOFF PER THE CURRENT CITY OF LACEY STORMWATER DESIGN MANUAL.

TOPOGRAPHIC SURVEY BY:

HATTON PANTIER GODAT ENGINEERS AND SURVEYORS
3910 MARTIN WAY E, SUITE B
OLYMPIA, WA 98506
TEL: 360.943.1599



SHEET INDEX	
1 of 13	COVER SHEET
2 of 13	EROSION CONTROL PLAN
3 of 13	EROSION CONTROL NOTES & DETAILS
4 of 13	EROSION CONTROL NOTES & DETAILS
5 of 13	53RD AVE PLAN & PROFILE
6 of 13	FIRE LANE GRADING AND DRAINAGE PLAN
7 of 13	STREET DETAILS
8 of 13	DRAINAGE DETAILS
9 of 13	WATER PLAN & PROFILE
10 of 13	WATER DETAILS
11 of 13	WATER DETAILS
12 of 13	SEWER PLAN & PROFILE
13 of 13	SEWER DETAILS

The contractor shall be fully responsible for the location and protection of all existing utilities. The contractor shall verify all utility location prior to construction by calling the underground locate line at 800-824-5555 a minimum of 48 hours prior to any excavation



NOTE:

THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION BY CALLING THE UNDERGROUND LOCATE LINE AT 800-824-5555 A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION

CONTRACTOR AS-BUILT:

THE CONTRACTOR SHALL MAINTAIN ONE SET OF THE CONTRACT DRAWINGS THAT SHALL INCLUDE, CLEARLY AND LEGIBLY MARKED. ANY ALTERATIONS OR LOCATIONS OF UNDERGROUND UTILITIES ENCOUNTERED DURING PROGRESS OF THIS PROJECT, AND ANY ALTERATIONS MADE TO THE FACILITIES BEING INSTALLED. SAID DRAWINGS SHALL BE MARKED "AS-BUILT" AND SHALL BE SUBMITTED TO THE PROJECT ENGINEER UPON COMPLETION OF THE PROJECT.

CONSTRUCTION STAKING:

THIS PROJECT MUST BE STAKED PRIOR TO CONSTRUCTION BY THE DESIGN ENGINEER OR BY A LICENSED LAND SURVEYOR.

THIS DRAWING DOES NOT REPRESENT A RECORD DOCUMENT UNLESS CERTIFIED BY THE LAND DEVELOPER'S INC.

ANY ALTERATIONS TO THE DESIGN SHOWN HERON MUST BE REVIEWED AND APPROVED BY THE LAND DEVELOPER'S, INC

VICINITY MAP
NTS

LEGEND

	EXISTING	PROPOSED
SUBJECT PROPERTY LINE		
ADJACENT LOT LINE		
HABITAT BUFFER LINE		
WETLAND BUFFER LINE		
EASEMENT LINE		
RIGHT-OF-WAY LINE		
CENTER LINE		
CONTOUR, MAJOR	160	160
CONTOUR, MINOR	158	158
CONIFEROUS TREE		
DECIDUOUS TREE		
STREET SIGN		
POWER LINE		
OVERHEAD POWER LINE		
POWER POLE		
GUY WIRE		
POWER VAULT		
STREET LIGHT		
NATURAL GAS LINE		
TELEPHONE LINE		
TELEPHONE MANHOLE		
TELEPHONE PEDESTAL		
CABLE LINE		
CABLE PEDESTAL		
STORM MAIN LINE		
FOOTING DRAIN LINE		
ROOF DRAIN LINE		
CATCH BASIN		
TYPE I CATCH BASIN		
YARD DRAIN		
DOWNSPOUT		
WATER MAIN LINE		
WATER METER		
BLOWOFF VALVE FIRE HYDRANT		
GATE VALVE		
SEWER MANHOLE		
CLEANOUT		
SEWER MAIN LINE		
CONCRETE		
ASPHALT PAVEMENT		
POROUS ASPHALT		
LANDSCAPING		
GRAVEL		

PROJECT INFO

OWNER:
MOSURE, PATRICIA
1211 215TH PL SW
LYNNWOOD, WA 98036

LEGAL DESCRIPTION

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 KNOW AS 54th AVENUE SOUTHEAST.

IN THURSTON COUNTY, WASHINGTON

BASIS OF BEARING

CITY OF LACEY COORDINATE SYSTEM BASED ON SURVEY RECORDED UNDER AUDITOR'S FILE NO. 3111152

VERTICAL DATUM

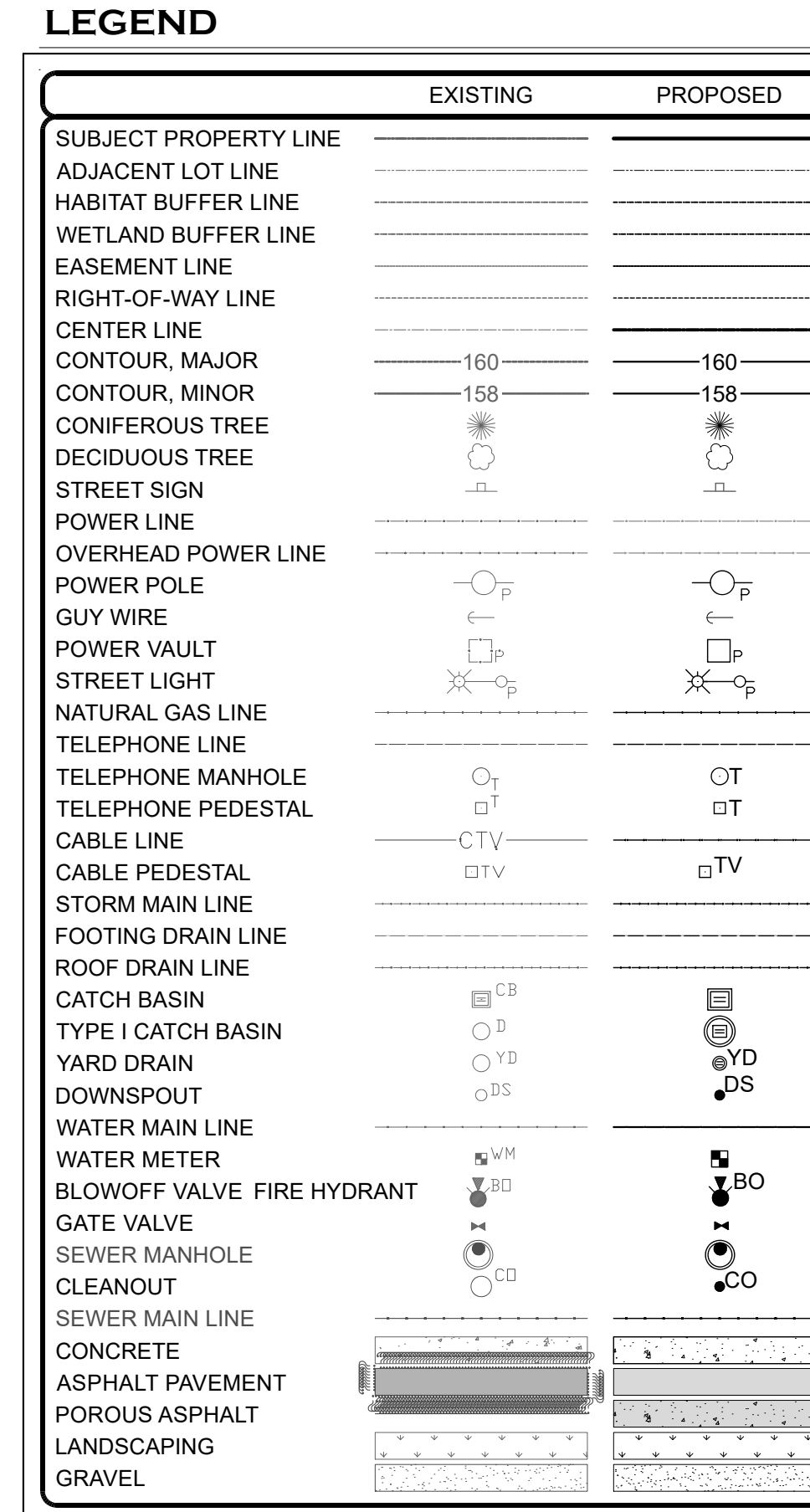
VERTICAL DATUM
NGVD 29
THURSTON COUNTY HIGH PRECISION SURVEY CONTROL NETWORK CONTROL POINT #1335 SURFACE MONUMENT WITH 2" BRASS CAP STAMPED "11019"
CENTER OF 57th AVE & 16' WEST OF CENTER OF RUMAC STREET
ELEV. = 197.687

PARCEL NUMBER

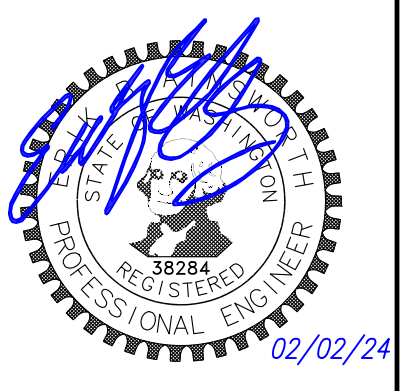
11834320000

BUILDING AREA

TOTAL AREA:	9.91 AC/ 431822 SF
WETLAND/BUFFERS:	3.93 ACRES
NET AREA:	5.98 ACRES
PUBLIC PAVED AREA:	7,784 SF
PRIVATE FIRE ACCESS LANE:	1,583 SF
TOTAL INP COVERAGE:	9,367 SF OR 3.60%



THE LAND DEVELOPER'S ENGINEERED SOLUTION
a division of THE LAND DEVELOPER, INC.
5737 LINDERSON WAY SW,
TUMWATER, WA 98501
PO BOX 4420, TUMWATER, WA 98501
(360) 890-4806
E-MAIL: erik@thelanddeveloper.com



DATE: 02/20/24

REVISIONS:

1	RECORD DRAWING
---	----------------

53RD AVE SHORT PLAT

COVER SHEET

PROJECT: Short Plat
53th Ave, Short Plat
APN 11834320000, 54th Ave SE
Lacey, WA

CLIENT:
Patricia Mosure
1211 215TH PL SW, LYNNWOOD, WA 98036
mosurepatricia@hotmail.com

DRAWN BY: EBA

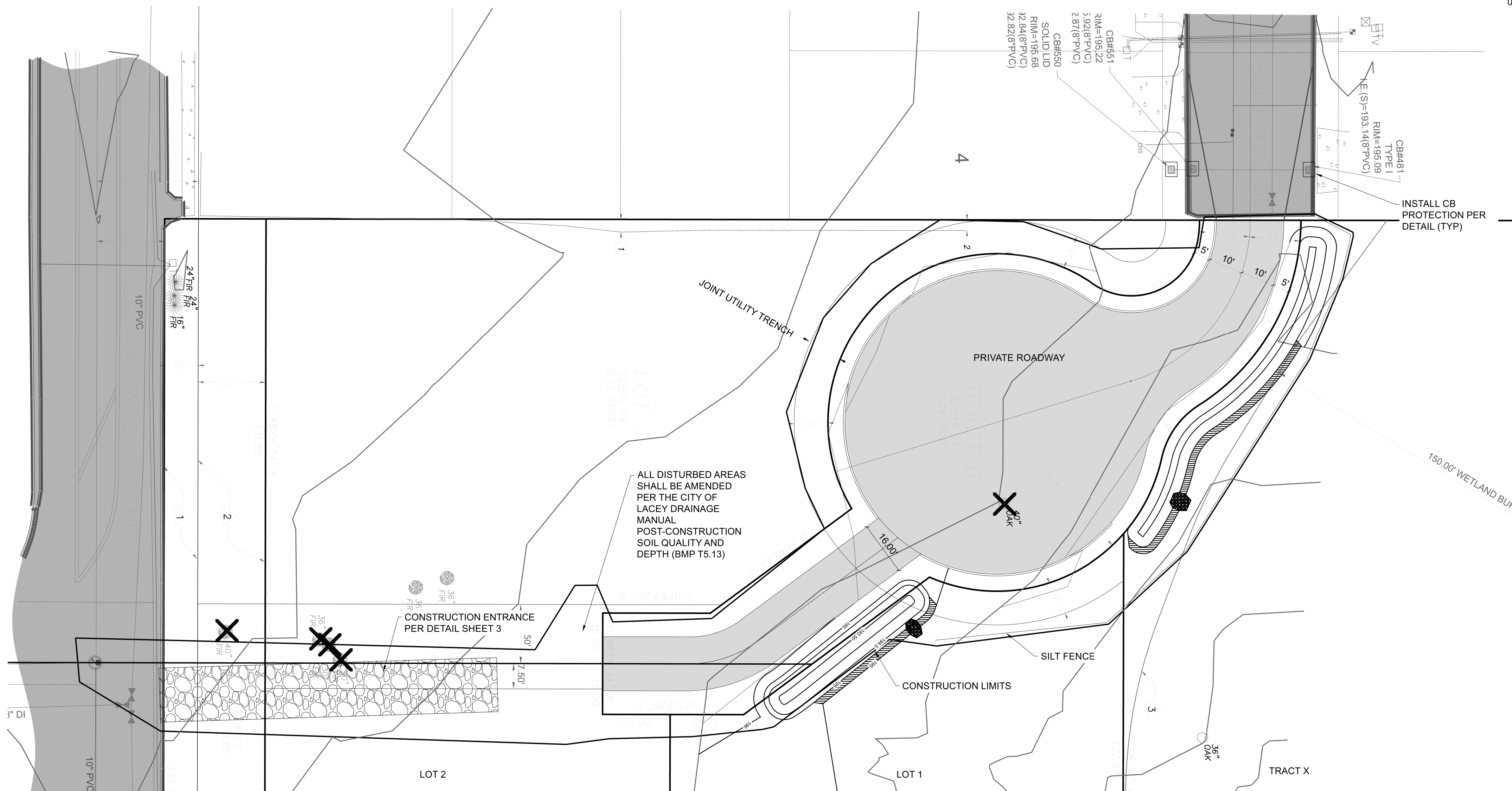
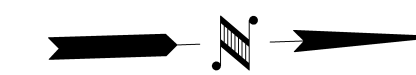
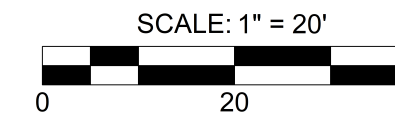
DATE: 8/30/23

AGENCY NO:

SHEET: 1 OF 13

JOB NO: 21-100

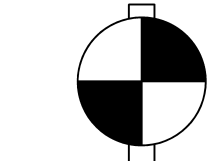
RECORD DRAWING



BASIS OF BEARING

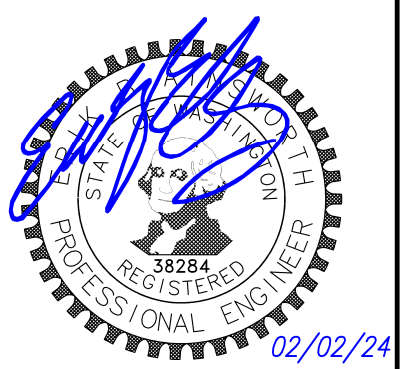
CITY OF LACEY COORDINATE SYSTEM BASED ON SURVEY RECORDED UNDER AUDITOR'S FILE NO. 3111152

VERTICAL DATUM



VERTICAL DATUM
NGVD 29
THURSTON COUNTY HIGH PRECISION SURVEY
CONTROL NETWORK CONTROL POINT #1335
SURFACE MONUMENT WITH 2" BRASS CAP
STAMPED "11019"
CENTER OF 57th AVE & 16' WEST OF
CENTER OF RUMAC STREET
ELEV. = 197.687

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(360) 890-4806
E-MAIL: erik@thelanddeveloper.com



REVISIONS:	DATE:
1 RECORD DRAWING	02/02/24

53RD AVE SHORT PLAT
EROSION CONTROL PLAN

PROJECT:
53th Ave. Short Plat
APN 11834320000, 54th Ave SE
Lacey, WA
CLIENT:
Patty Masure
1211 215TH PL SW., LYNNWOOD, WA 98036
masurepatty@hotmail.com

DRAWN BY: EBA
DATE: 8/30/23
AGENCY NO:
SHEET: 2 OF 13
JOB NO: 21-100

RECORD DRAWING

BMP T5.13 - Post-Construction Soil Quality and Depth

Purpose and Description
Naturally occurring (undisturbed) soil and vegetation provide important stormwater functions including: water infiltration; nutrient, sediment, and pollutant adsorption; sediment and pollutant biofiltration; water interflow storage and transmission; and pollutant decomposition. These functions are largely lost when development strips away native soil and vegetation and replaces it with minimal topsoil and sod. Not only are these important stormwater functions lost, but such landscapes themselves become pollution generating pervious surfaces due to increased use of pesticides, fertilizers and other landscaping and household/industrial chemicals, the concentration of pet wastes, and pollutants that accompany roadside litter. Establishing soil quality and depth regains greater stormwater functions in the post development landscape, provides increased treatment of pollutants and sediments that result from development and habitation, and minimizes the need for some landscaping chemicals, thus reducing pollution through prevention.

Cross Reference Guide

Soils Assessment	NA
Meets Minimum Requirements	#5
Related BMPs	None
Selection Criteria	CCSM, Book 1, Sections 2.2 and 2.5.2
Maintenance	CCSM, Book 4

These functions are largely lost when development strips away native soil and vegetation and replaces it with minimal topsoil and sod. Establishing in-situ soil quality and depth regains greater stormwater functions in the post development landscape and also minimizes the need for some landscaping chemicals, further limiting pollution.

BMP T5.13 - Post-Construction Soil Quality and Depth

This BMP is mandatory for all projects required to follow Minimum Requirements #1 - #5 or Minimum Requirements #1 - #9.

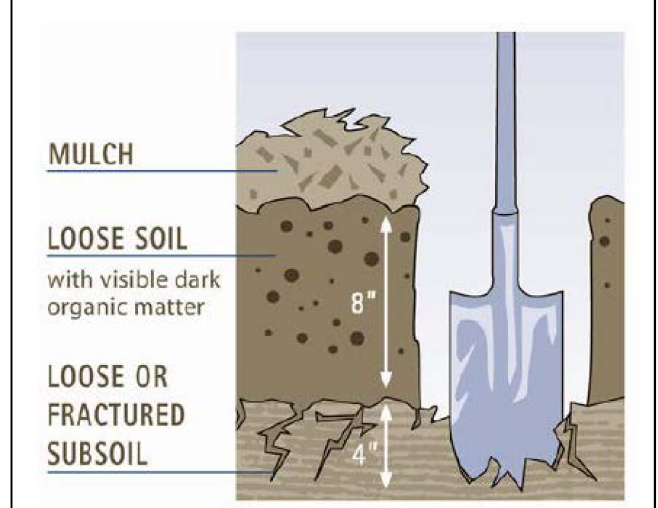


Figure 2.11: Typical Planting Bed Cross-section (Source: Washington Organic Recycling Council graphic in SMMWW)

- Design Criteria**
- Retain, in an undisturbed state, the duff layer and native topsoil to the maximum extent practicable. 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, to be reapplied to other portions of the site where feasible.
 - Areas subject to clearing and grading that have not been covered by hard surfaces, used for a drainage facility, or where the soils have been engineered as structural fill or slope, shall demonstrate the following after completion of the project:
 - A topsoil layer with:
 - A minimum organic matter content of 10% dry weight in planting beds.
 - 5% organic matter content in turf areas.
 - A pH from 6.0 to 8.0 or matching the pH of the undisturbed soil.
 - A minimum topsoil layer depth of 8 inches except where tree roots do not allow this.
 - Subsoils below the topsoil layer should be scarified at least 4 inches with some incorporation of the upper material to avoid stratified layers, where feasible.
 - Mulch planting beds with 2 inches of organic material.
 - Compost and other materials shall meet the following requirements for organic content:
 - The organic content for pre-approved (by Ecology) amendment rates can be met only using compost meeting the compost specification for

BMP T5.13 - Post-Construction Soil Quality and Depth

Bioretention (BMP T7.30), with the exception that the compost may have up to 35% biosolids or manure. The compost must also have an organic matter content of 40% to 65%, and a carbon to nitrogen ratio below 25:1. The carbon to nitrogen ratio may be as high as 35:1 for plantings composed entirely of plants native to the Portland/Vancouver region.

- Calculated amendment rates may be met through use of composted material meeting (a) above; or other organic materials amended to meet the carbon to nitrogen ratio requirements, and not exceeding the contaminant limits identified in Table 220-B, Testing Parameters, in WAC 173-350-220.
- The resulting soil should be conducive to the type of vegetation to be established.
- Only one of these methods can be used to meet the above criteria for a specific area on the site:
 - Native vegetation and soil should remain undisturbed and protected from compaction during construction.
 - Amend existing topsoil or subsoil either at default "pre-approved" rates, or at custom calculated rates based on soil tests of the soil and amendments.
 - Stockpile existing topsoil during grading and replace it over disturbed areas prior to planting. Stockpiled topsoil must also be amended if needed to meet the organic matter or depth requirements, either at a default "pre-approved" rate or at a custom calculated rate.
 - Import topsoil mix of sufficient organic content and depth to meet the requirements.
 - More than one method may be used on different portions of the same

site. Soil that already meets the depth and organic matter quality standards need not be amended. Scarification of subsoils can be accomplished using mechanical methods such as a rototiller.

NOTATIONS

- PLANNED 10' DEDICATION TO CITY OF LACEY FOR ROADWAY
 - PLANNED 20' LANDSCAPE BUFFER
 - 150' WETLAND BUFFER
 - PLANNED 10' UTILITY EASEMENT
 - PLANNED SANITARY SEWER EASEMENT FOR THE BENEFIT OF CITY OF LACEY
- INDICATES INLET PROTECTION SOCK (TYP)
 - INDICATES TREES TO BE REMOVED (TYP)
 - INDICATES TREES TO BE PROTECTED W/ TREE PROTECTION FENCE INCLUDING A 4" TALL CHAIN LINK OR POLYETHYLENE LAMINAR SAFETY FENCING OR SIMILAR MATERIAL (TYP)



The contractor shall be fully responsible for the location and protection of all existing utilities. The contractor shall verify all utility location prior to construction by calling the underground locate line at 800-824-5555 a minimum of 48 hours prior to any excavation

SW 1/4, SECTION 34, TOWNSHIP 18 N., RANGE 1W., W.M.

STORM DRAINAGE

STORM DRAINAGE

STORM DRAINAGE

REQUIRED STANDARD NOTES FOR CONSTRUCTION SWPPP DRAWINGS

The following Standard Construction SWPPP Notes are required for use in Construction Stormwater Pollution Prevention Plans (SWPPP). They are followed by additional Standard Notes for BMPs that are required for plans showing specific types of BMPs. Plans shall also identify with phone numbers the persons or firms responsible for the preparation of (design engineer) and maintenance of (CESCL) the Construction SWPPP.

Standard Construction SWPPP Notes

- Site inspections shall be conducted by a person who is knowledgeable in the principles and practices of erosion and sediment control. For project sites that require a Construction SWPPP, a Certified Erosion and Sediment Control Lead (CESCL) shall be identified in the Construction SWPPP and shall be on site or on call at all times.
- Approval of the Construction SWPPP does not constitute an approval of permanent road or drainage design (e.g. size and location of roads, pipes, restrictors, channels, retention/detention/infiltration facilities, utilities, etc.).
- The implementation of the Construction SWPPP and the construction, maintenance, replacement, and upgrading of these Construction SWPPP facilities is the responsibility of the applicant/contractor until all construction is completed and approved and vegetation/landscaping is established.
- The clearing limit boundaries shown on this plan shall be clearly flagged in the field prior to construction. During the construction period, no disturbance beyond the flagged clearing limits shall be permitted. The flagging shall be maintained by the applicant/contractor for the duration of construction.
- The Construction SWPPP facilities shown on this plan must be constructed in conjunction with all clearing and grading activities, and in such a manner as to ensure that sediment and sediment-laden water do not enter the drainage system, roadways, or violate applicable standards for surface water quality, groundwater quality, or sediment quality.
- The Construction SWPPP facilities shown on this plan are the minimum requirements for anticipated site conditions. During the construction period, these Construction SWPPP facilities shall be upgraded as needed for unexpected storm events and to ensure that sediment and sediment-laden

08/2017 5-12

STORM DRAINAGE

BMP C105: Stabilized Construction Entrance/Exit Notes

- The rock pad shall be at least 12 inches thick and 100 feet long. Width shall be at least 15 feet and be the full width of the vehicle ingress and egress area. Smaller pads may be approved where required size is impractical.
- Material shall be 4" to 8" quarry spalls, a 4-inch course of asphalt treated base (ATB), or use existing pavement. Do not use broken/crushed concrete, cement, or calcium chloride.
- 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)
- 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.
- Additional quarry spalls shall be added periodically to maintain proper function of the pad.
- 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, an increase in the dimensions of the entrance, or the installation of a wheel wash.

(E) Place the following standard notes on drawings showing seeding:

BMP C120: Temporary and Permanent Seeding Notes

- Seed mixture and application rate shall be:

(Designer shall insert appropriate Seed Mix Table from SDM Chapter 5).
- When applied with hydromulch, apply in two phases:

08/2017 5-15

08/2017 5-16

- Phase 1 - Install all seed and fertilizer with 25 to 30 percent mulch and tackifier onto soil in the first lift.
 - Phase 2 - Install the rest of the mulch and tackifier in the second lift.
- If feasible, seed between April 1 and June 30 or between September 1 and October 1.
 - Seed beds planted between July 1 and August 30 shall be irrigated until 75 percent grass cover is established.
 - Seed beds planted between October 1 and March 30 shall be mulched with straw or an erosion control blanket until 75 percent grass cover is established.
 - Confirm the installation of all required surface water control measures prior to seeding.
 - Seed beds shall be firm and rough prior to seeding. Where compaction is required for engineering purposes, slopes shall be track walked before seeding.
 - Backblading or smoothing is prohibited on seed beds steeper than 4:1.
 - It is recommended that areas being seeded for final landscaping conduct soil tests to determine the exact type and quantity of fertilizer needed. Minimize use of fertilizer adjacent to water bodies and wetlands.

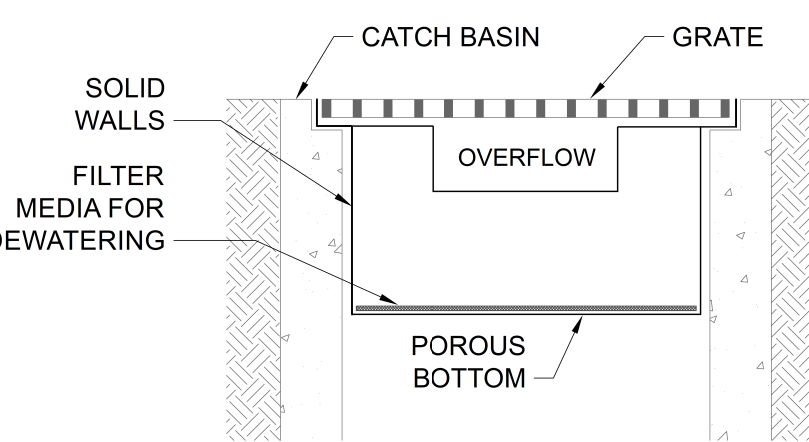
(F) Place the following standard notes on drawings showing mulching:

BMP C121: Mulching Notes

- When mulch is used for erosion control, soil must be completely and uniformly covered, without shadow areas where soil shows through.
- Mulch comprised of straw, coarse compost, chipped site vegetation, or wood strands / wood straw shall be applied at least 2 inches thick.
- Hydraulically applied erosion control products (Hydromulch) shall be from the WSDOT QPL for standard specification:
 - 9-14.2(2)C Short-Term Mulch when mulch is used for 3-6 months

08/2017 5-16

08/2017 5-12



- NOTES:
THIS DETAIL IS ONLY SCHEMATIC. ANY INSERT IS ALLOWED THAT HAS:
- A MIN. 0.5 C.F. OF STORAGE.
 - THE MEANS TO DEWATER THE STORED SEDIMENT.
 - AN OVERFLOW, AND
 - CAN BE EASILY MAINTAINED.

3 CB INLET PROTECTION
SCALE: NTS

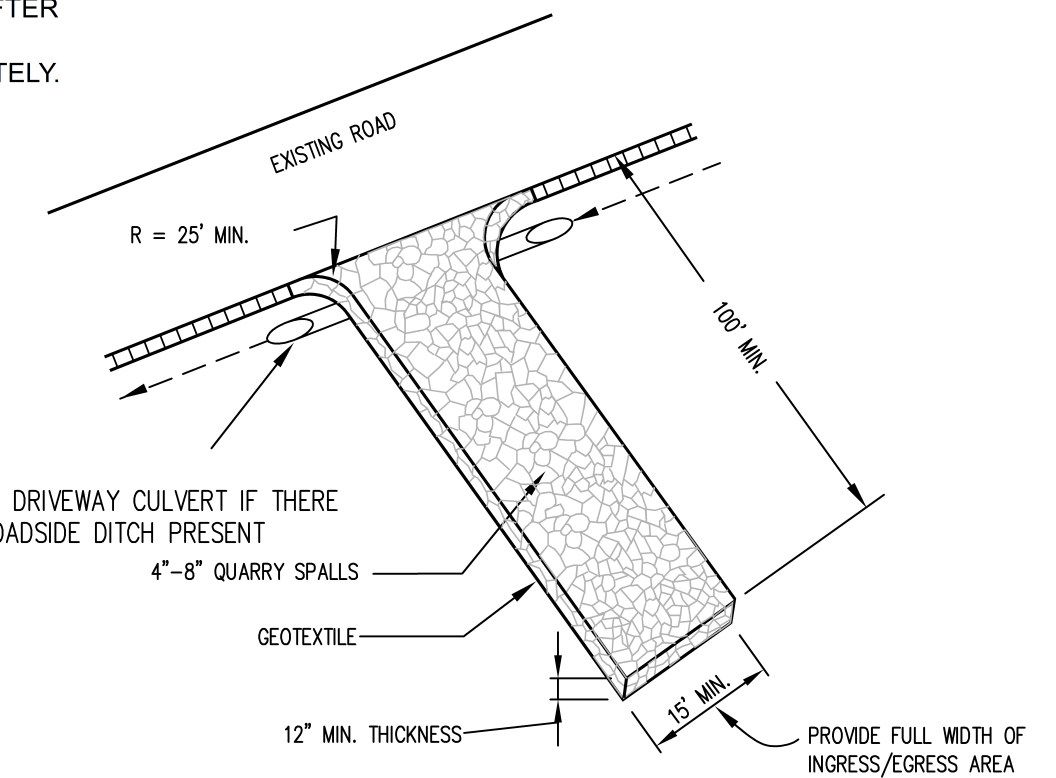
SITE FENCE NOTES:

- FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL AND CUT TO THE LENGTH OF THE BARRIER TO AVOID USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6-INCH OVERLAP, AND SECURELY FASTENED AT BOTH ENDS TO POSTS.
- POSTS SHALL BE SPACED A MAXIMUM OF 6 FEET APART AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 30 INCHES).
- A TRENCH SHALL BE EXCAVATED APPROXIMATELY 8 INCHES WIDE AND 12 INCHES DEEP ALONG THE LINE OF POSTS AND UPSLOPE FROM THE BARRIER. THIS TRENCH SHALL BE BACKFILLED WITH WASHED GRAVEL.
- WHEN STANDARD STRENGTH FILTER FABRIC IS USED, A WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY-DUTY WIRE STAPLES AT LEAST 1 INCH LONG. TIE WIRES OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 4 INCHES AND SHALL NOT EXTEND MORE THAN 24 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
- THE STANDARD STRENGTH FILTER FABRIC SHALL BE STAPLED OR WIRED TO THE FENCE, AND 20 INCHES OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT EXTEND MORE THAN 24 INCHES ABOVE THE ORIGINAL GROUND SURFACE. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.
- WHEN EXTRA-STRENGTH FILTER FABRIC AND CLOSER POST SPACING IS USED, THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED. IN SUCH A CASE, THE FILTER FABRIC IS STAPLED OR WIRED DIRECTLY TO THE POSTS WITH ALL OTHER PROVISIONS OF ABOVE NOTES APPLYING.
- FILTER FABRIC FENCES SHALL NOT BE REMOVED BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.
- FILTER FABRIC FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
- SILT FENCES WILL BE INSTALLED PARALLEL TO ANY SLOPE CONTOURS.

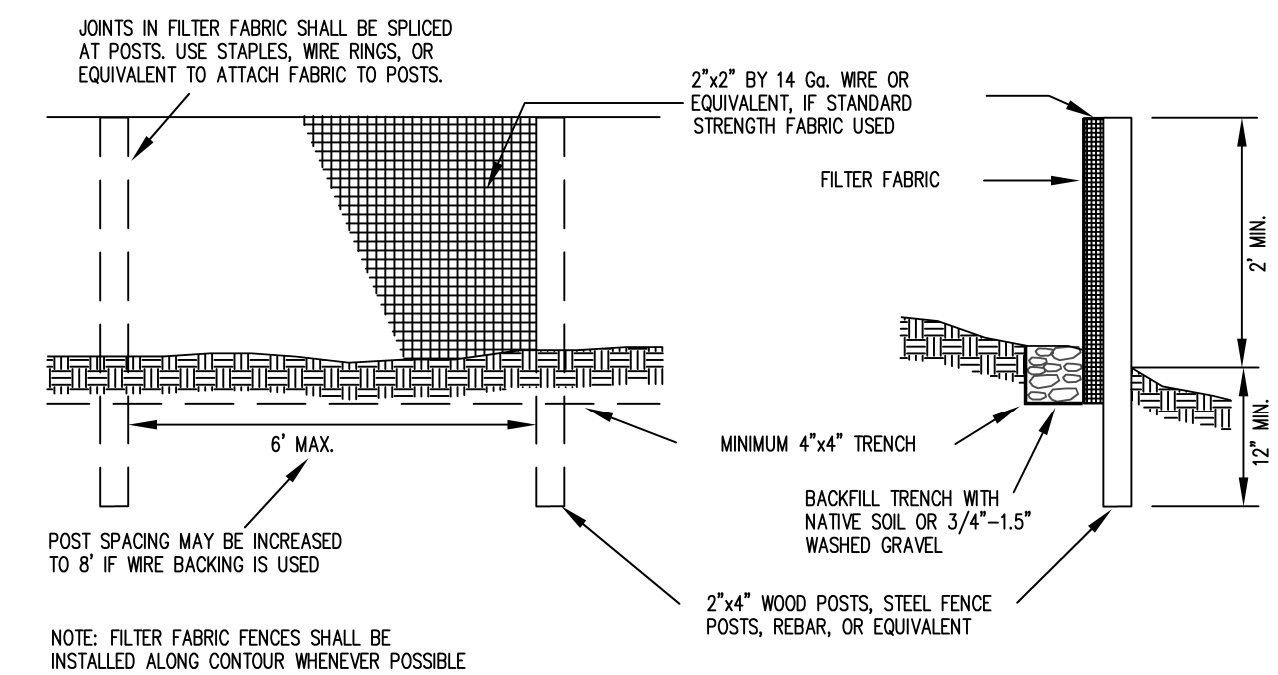
- CONTRIBUTING LENGTH OF FENCE WILL NOT BE GREATER THAN 100 FEET.
- DO NOT INSTALL BELOW AN OUTLET OR PIPE OR WEIR.
- INSTALL DOWNSLOPE OF EXPOSED AREAS.
- DO NOT DRIVE OVER OR FILL OVER SILT FENCES.

CONSTRUCTION SEQUENCE

- SCHEDULE AND ATTEND PRECONSTRUCTION MEETING WITH CITY OFFICIALS.
- ESTABLISH CLEARING AND GRADING LIMITS.
- INSTALL FILTER FABRIC FENCING AROUND SITE AS SHOWN ON THE PLANS.
- INSTALL TEMPORARY CONSTRUCTION ENTRANCE TO LIMIT ACCESS TO SITE.
- CLEAR SITE VEGETATION AND STRIP TOPSOIL AS REQUIRED TO PREPARE SITE FOR CONSTRUCTION
- INSTALL ADDITIONAL ESC MEASURES AS MAY BE REQUIRED OR DIRECTED BY THE CITY OR THE PROJECT ENGINEER TO ADDRESS SEASONAL CONSTRUCTION ISSUES.
- INSTALL SITE UTILITIES, INCLUDING WATER, SANITARY SEWER, AND STORM DRAINAGE IMPROVEMENTS PER THE APPROVED PLANS.
- COMPLETE BUILDING, LANDSCAPE AND STABILIZED EXPOSED SURFACES, THEN REMOVE ESC MEASURES.



1 ROCK CONSTRUCTION ENTRANCE
3 NTS



2 SILT FENCE
3 NTS

THE LAND DEVELOPERS ENGINEERED SOLUTION
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5737 LINDBERSON WAY SW.
TUMWATER, WA. 98501
PO BOX 4420, TUMWATER, WA. 98501
(360) 890-4806
E-MAIL: erik@thelanddeveloper.com



REVISIONS:
DATE: 02/02/24
RECORD DRAWING

53RD AVE SHORT PLAT
EROSION CONTROL DETAILS

PROJECT:
53rd Ave. Short Plat
APN 11834320000, 54th Ave SE
Lacey, WA
CLIENT:
Patty Masure
1211 215TH PL SW, LYNNWOOD, WA 98036
masurepatty@hotmail.com

DRAWN BY: EBA
DATE: 8/30/23
AGENCY NO:
SHEET: 3 OF 13
JOB NO: 21-100

RECORD DRAWING



Know what's below.
Call before you dig.

The contractor shall be fully responsible for the location and protection of all existing utilities. The contractor shall verify all utility location prior to construction by calling the underground locate line at 800-824-5555 a minimum of 48 hours prior to any excavation

SW 1/4, SECTION 34, TOWNSHIP 18 N., RANGE 1W., W.M.

STORM DRAINAGE

BMP C124: Sod Placement Notes

- Sod shall be free of weeds, of uniform thickness (approximately 1 inch thick), and shall have a dense root mat for mechanical strength.
- 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.
- Fertilize according to the supplier's recommendations.

(I) Place the following standard notes on drawings showing **gradient terraces**:

BMP C131: Gradient Terraces

- The terrace spacing shall be calculated in accordance with the SWPPP and no greater than 50 feet between terraces.
- The terrace shall have enough capacity to handle the peak runoff expected from a 2-year, 24-hour design storm without overtopping.
- 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.
- Stabilize outlets to prevent erosion. Stabilize outlets to prevent erosion.

(J) Place the following standard notes on drawings showing **interceptor dikes and swales**:

BMP C200: Interceptor Dike and Swale Notes

- The upslope side of the dike shall provide positive drainage to the dike outlet.
- Provide energy dissipation measures around the outlet as necessary to prevent erosion.
- Release sediment-laden runoff through a sediment trapping facility.

08/2017 5-18

STORM DRAINAGE

rainfall. Sediment shall be removed when it reaches one-half the height of the dam.

- Immediately repair any damage or any undercutting of the dam.

(N) Place the following standard notes on drawings showing **outlet protection**:

BMP C209: Outlet Protection Notes

- Protect the receiving channel at the outlet of a culvert 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), outlet protection lining of the channel shall be four times the diameter of the pipe.
- Where discharge velocity at the outlet is less than 5 feet per second (pipe slope typically less than 10 percent), use 2- to 8-inch riprap. Minimum thickness is 1 foot.
- At the base of slopes steeper than 10 an engineered energy dissipater shall be used.
- Place filter fabric or erosion control blankets under riprap to prevent scour and channel erosion.
- Bank stabilization, bioengineering, and habitat features may be required for disturbed areas.
- Add rock as needed to maintain the intended function.
- Remove any accumulated sediment from the energy dissipater.

(O) Place the following standard notes on drawings showing **straw wattles**:

BMP C235: Wattles Notes

- Wattles shall be 8 to 10 inches in diameter and installed perpendicular to the flow direction and parallel to the slope contour.
- Straw roll installation requires the placement and secure staking of the roll in a trench, 3 inches to 5 inches deep, dug on contour. Runoff must not be allowed to run under or around roll.

08/2017 5-21

STORM DRAINAGE

- 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. Stakes should be driven through the middle of the wattle, leaving 2 to 3 inches of the stake protruding above the wattle.

- Wooden stakes should be at least 0.75 by 0.75 by 24 inches. 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.

- Inspect the slope after significant storms and repair any areas where wattles are not tightly abutted or water has scoured beneath the wattles.

08/2017 5-22

GENERAL PUBLIC WORKS CONSIDERATIONS

3.045 General Public Works Construction Notes

GENERAL CONSTRUCTION NOTES (ALL PUBLIC WORKS IMPROVEMENTS)

- All workmanship and materials shall be in accordance with City of Lacey standards and the most current edition of the *State of Washington Standard Specifications for Road, Bridge and Municipal Construction* (WSDOT/APWA). In cases of conflict, the most stringent standard shall apply.
- The contractor shall be in compliance with all safety standards and requirements as set forth by OSHA, WISHA and the State of Washington, Department of Labor and Industries.
- All approvals and permits required by the City of Lacey shall be obtained by the contractor prior to the start of construction.
- If construction is to take place in the County right-of-way, the contractor shall notify the County and obtain all the required approvals and permits.
- A pre-construction meeting shall be held with the City of Lacey Construction Inspector a minimum 72 hours prior to the start of construction.
- The City of Lacey Construction Inspector shall be notified a minimum of 48 hours in advance of a tap connection to an existing main. The inspector shall be present at the time of the tap.
- The contractor shall be fully responsible for the location and protection of all existing utilities. The contractor shall verify all utility locations prior to construction by calling the Underground Locate Line at 811 not less than two business days and not more than 10 business days prior to any excavation. The contractor will also be responsible for maintaining all locate marks once the utilities have been located.
- Temporary street patching shall be allowed for as approved by the City engineer. Temporary street patching shall be provided by placement and compaction of 1 inch maximum asphalt concrete cold mix. Contractor shall be responsible for maintenance as required.

08/2017 3 - 31

GENERAL PUBLIC WORKS CONSIDERATIONS

- The contractor shall be responsible for all traffic control in accordance with the *WSDOT/APWA Standard Plans for Road, Bridge and Municipal Construction* (all applicable "K" plans) and/or the *Manual on Uniform Traffic Control Devices* (MUTCD). Prior to disruption of any traffic, a traffic control plan shall be prepared and submitted to the City for approval. No work shall commence until all approved traffic control is in place.
- Erosion control/water pollution measures shall be required in accordance with Section 1-07.15 of the *WSDOT/APWA Standard Specifications for Road, Bridge and Municipal Construction* and the *City of Lacey Stormwater Design Manual*. At no time will silts and debris be allowed to drain into an existing or newly installed facility unless special provisions have been designed.
- All surveying and staking shall be performed per the corresponding chapter of the *City of Lacey Development Guidelines and Public Works Standards*.
- It shall be the responsibility of the contractor to have a copy of an approved set of plans on the construction site at all times.
- Any changes to the design shall first be reviewed and approved by the project engineer and the City of Lacey.
- If construction is to take place in other jurisdiction's right-of-way (i.e., the county, the State, the City of Olympia, or other adjacent municipalities), the contractor shall notify the jurisdiction and obtain all the required approvals and permits.
- Prior to backfill all mains and appurtenances shall be inspected and approved by the City of Lacey Construction Inspector. Approval shall not relieve the contractor for correction of any deficiencies and/or failures as determined by subsequent testing and inspections. It shall be the contractor's responsibility to notify the City of Lacey for the required inspections.
- The City will be given 72 hours notice prior to scheduling a shutdown. Where connections require "field verification", connection points shall be exposed by the contractor and fittings verified 72 hours prior to distributing shut-down notices.

08/2017 3 - 32



**Know what's below.
Call before you dig.**

The contractor shall be fully responsible for the location and protection of all existing utilities. The contractor shall verify all utility location prior to construction by calling the underground locate line at 800-824-5555 a minimum of 48 hours prior to any excavation

THE LAND DEVELOPERS ENGINEERED SOLUTION
a division of THE LAND DEVELOPER, INC.
5737 LINDERSON WAY SW.
TUMWATER, WA. 98501
PO BOX 4420, TUMWATER, WA. 98501
(360) 890-4806
E-MAIL: erik@thelanddeveloper.com



REVISIONS:	DATE:
1. RECORD DRAWING	02/02/24

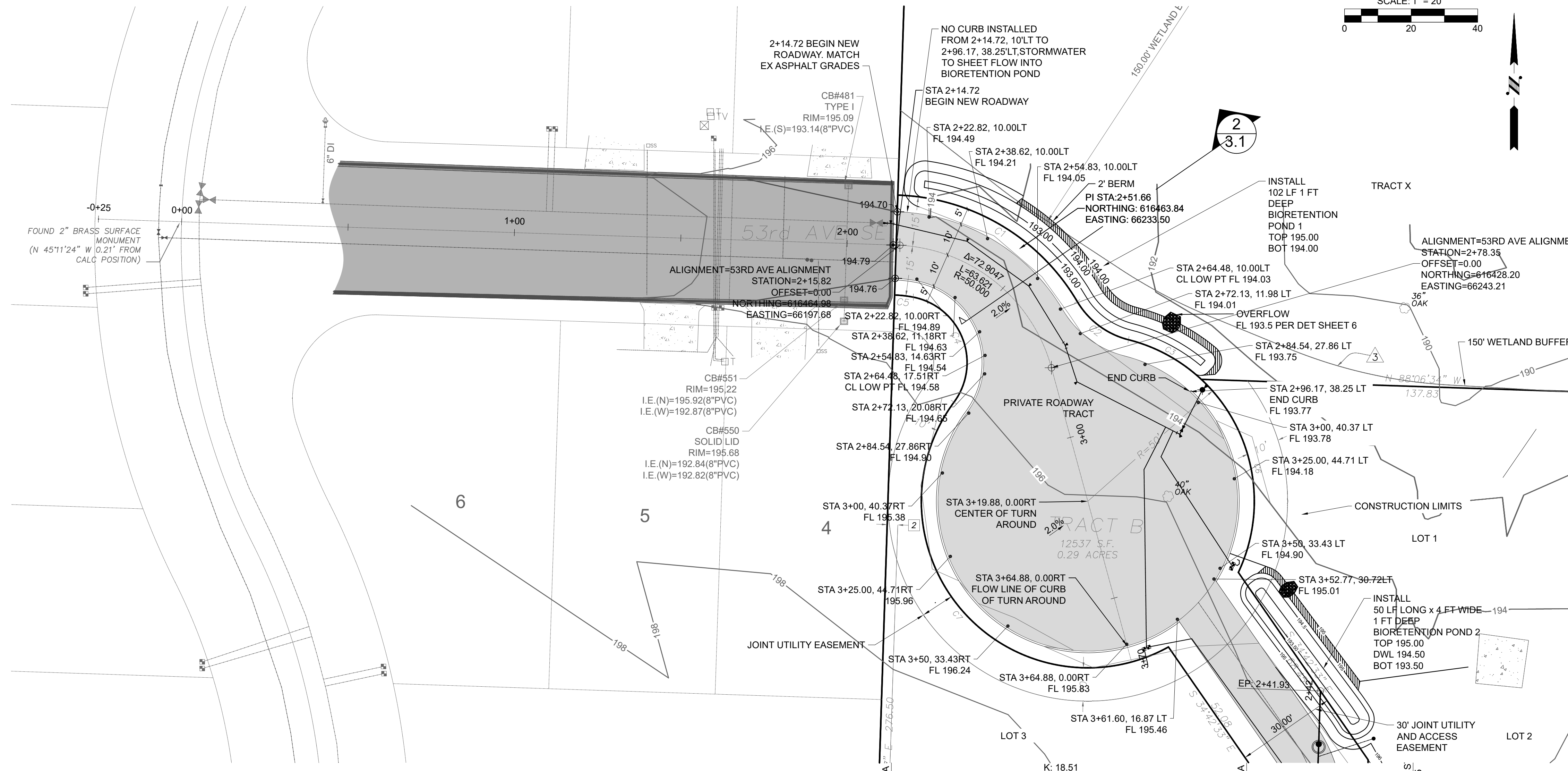
**53RD AVE SHORT PLAT
EROSION CONTROL DETAILS &
GENERAL CONSTRUCTION NOTES**

PROJECT:
53th Ave. Short Plat
APN 11834320000, 54th Ave SE
Lacey, WA
CLIENT:
Patty Masure
1211 215TH PL SW, LYNNWOOD, WA 98036
masurepatty@hotmail.com

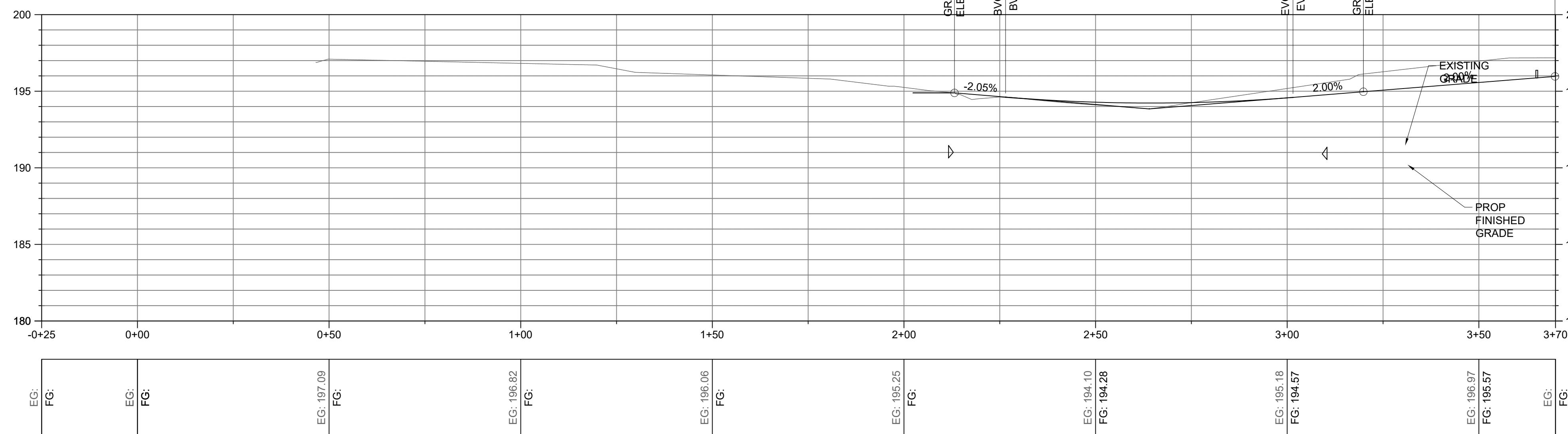
DRAWN BY: EBA
DATE: 8/30/23
AGENCY NO: _____
SHEET: 4 OF 13
JOB NO: 21-100

RECORD DRAWING

SW 1/4, SECTION 34, TOWNSHIP 18 N., RANGE 1W., W.M.

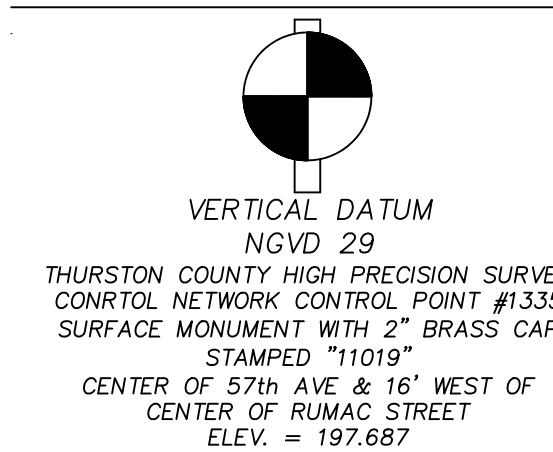


PROFILE VIEW OF 53RD AVE ALIGNMENT



SCALE:
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

VERTICAL DATUM



BASIS OF BEARING

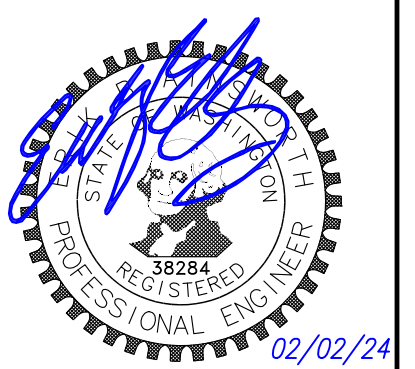
CITY OF LACEY COORDINATE SYSTEM BASED ON SURVEY RECORDED UNDER AUDITOR'S FILE NO. 3111152



Know what's below.
Call before you dig.

The contractor shall be fully responsible for the location and protection of all existing utilities. The contractor shall verify all utility location prior to construction by calling the underground locate line at 800-824-5555 a minimum of 48 hours prior to any excavation

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(360) 890-4806
E-MAIL: erik@thelanddeveloper.com



REVISIONS:

NO.	DATE	DESCRIPTION
1	02/02/24	RECORD DRAWING

53RD AVE SHORT PLAT

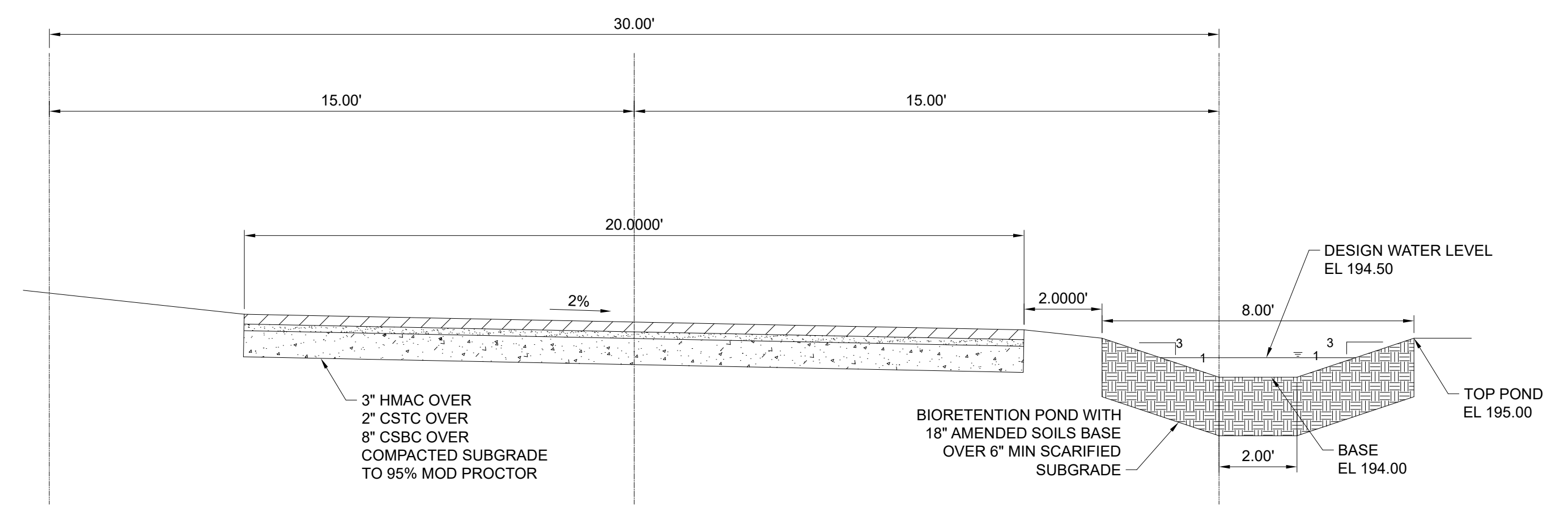
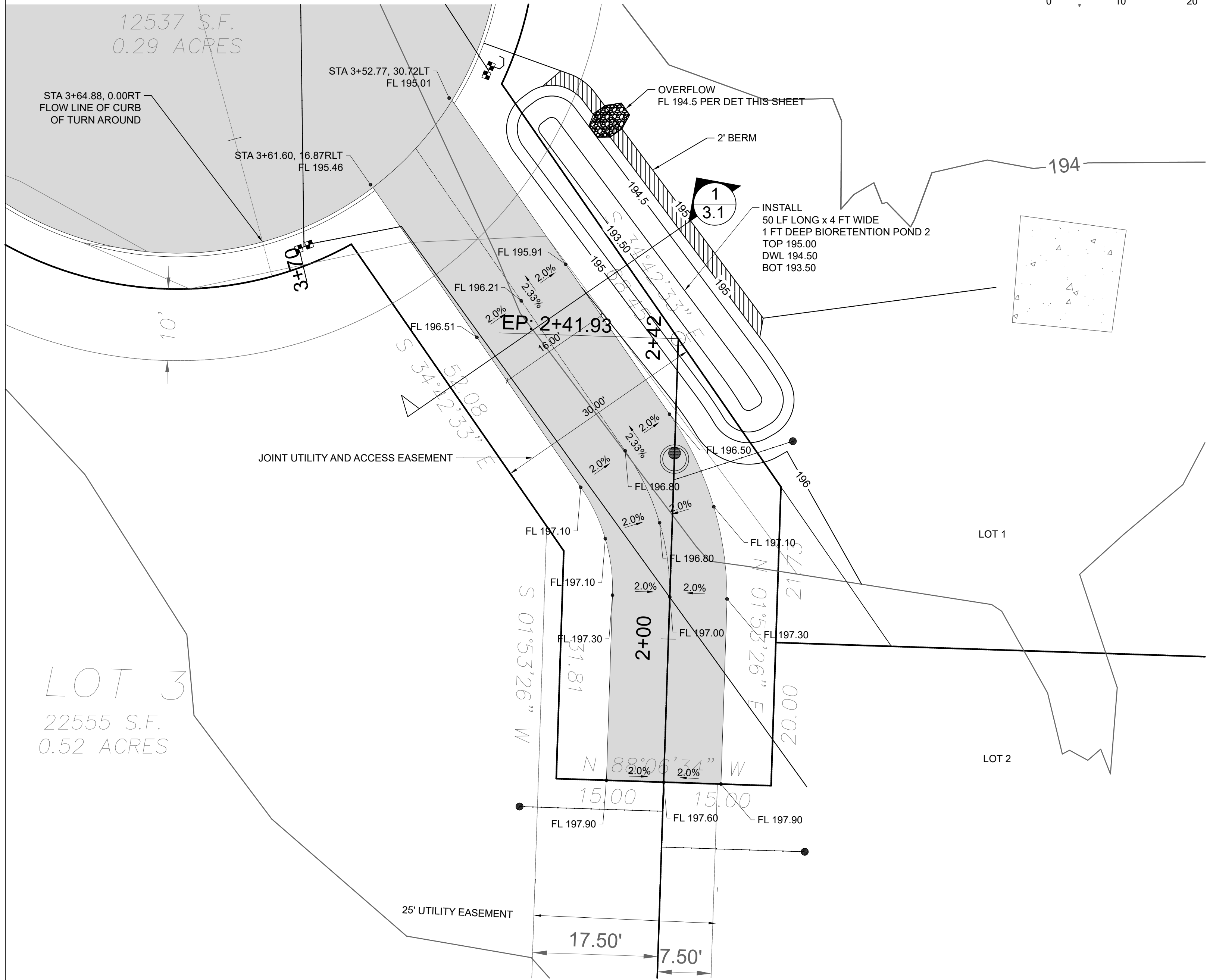
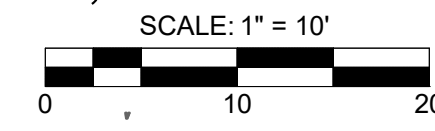
CUL-DE-SAC PLAN & PROFILE

PROJECT:
53th Ave. Short Plat
APN 1183432000, 54th Ave SE
Lacey, WA
CLIENT:
Patty Masure
1211 215TH PL SW., LYNNWOOD, WA 98036
masurepatty@hotmail.com

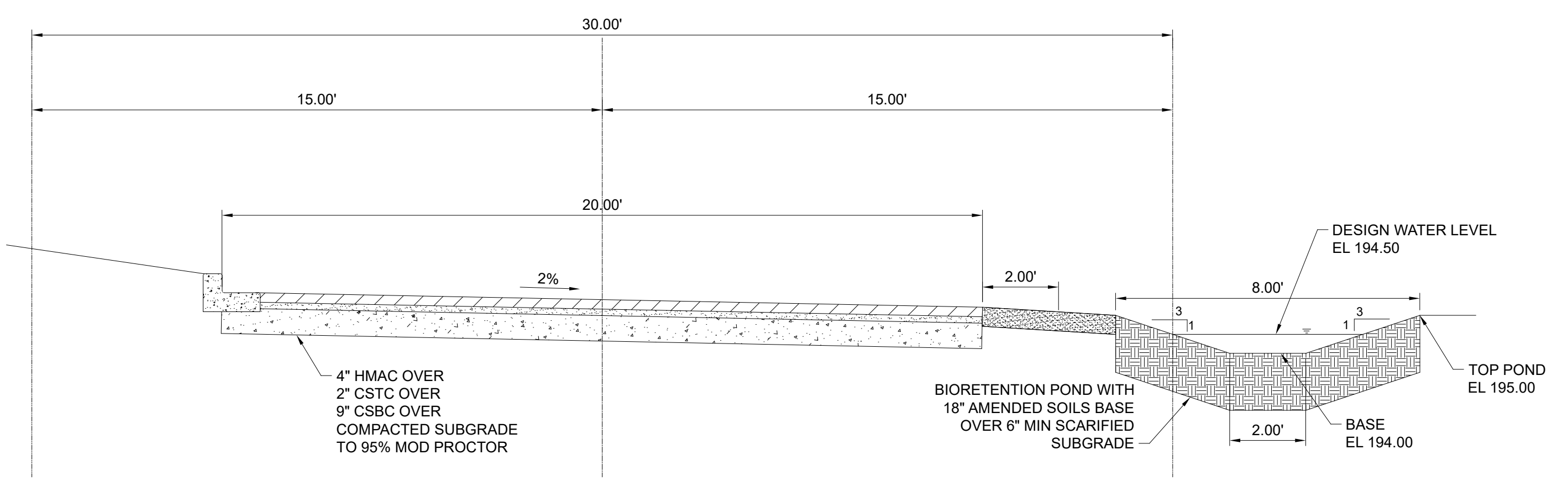
DRAWN BY: EBA
DATE: 8/30/23
AGENCY NO:
SHEET: 5 OF 13
JOB NO: 21-100

RECORD DRAWING

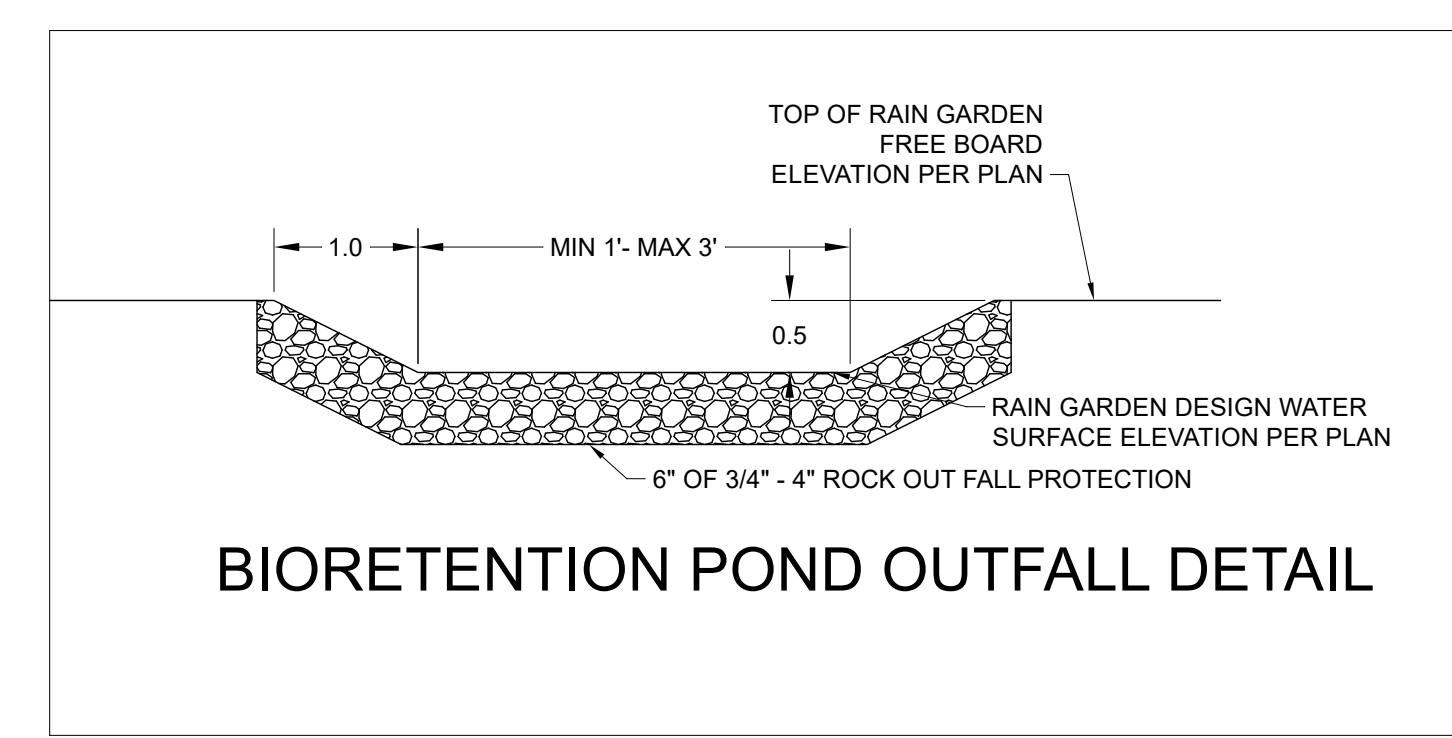
SW 1/4, SECTION 34, TOWNSHIP 18 N., RANGE 1W., W.M.



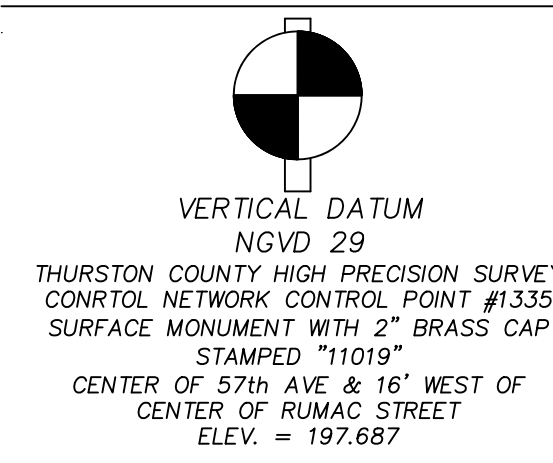
1 PRIVATE ACCESS FIRE LANE ROADWAY SECTION
SCALE: NTS



2 53RD AVE STREET SECTION PRIVATE ROADWAY EXTENSION
SCALE: NTS



VERTICAL DATUM



BASIS OF BEARING

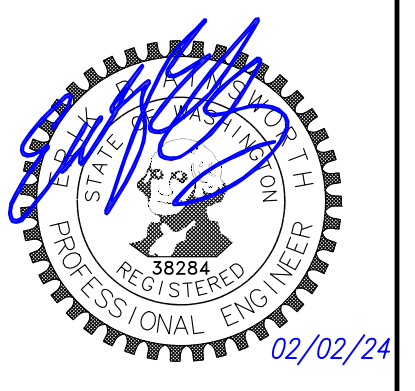
CITY OF LACEY COORDINATE SYSTEM BASED ON SURVEY RECORDED UNDER AUDITOR'S FILE NO. 3111152



Know what's below.
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TUMWATER, WA 98501
PO BOX 4420, TUMWATER, WA 98501
(360) 890-4806
E-MAIL: erik@thelanddeveloper.com



REVISIONS:	DATE:
1 RECORD DRAWING	02/02/24

53RD AVE SHORT PLAT
FIRELANE GRADING & DRAINAGE PLAN

RECORD DRAWING

PROJECT:
53th Ave. Short Plat
APN 1183432000, 54th Ave SE
Lacey, WA

CLIENT:
Patty Masure
1211 215TH PL SW, LYNNWOOD, WA 98036
masurepatty@hotmail.com

DRAWN BY: EBA

DATE: 8/30/23

AGENCY NO: _____

SHEET: 6 OF 13

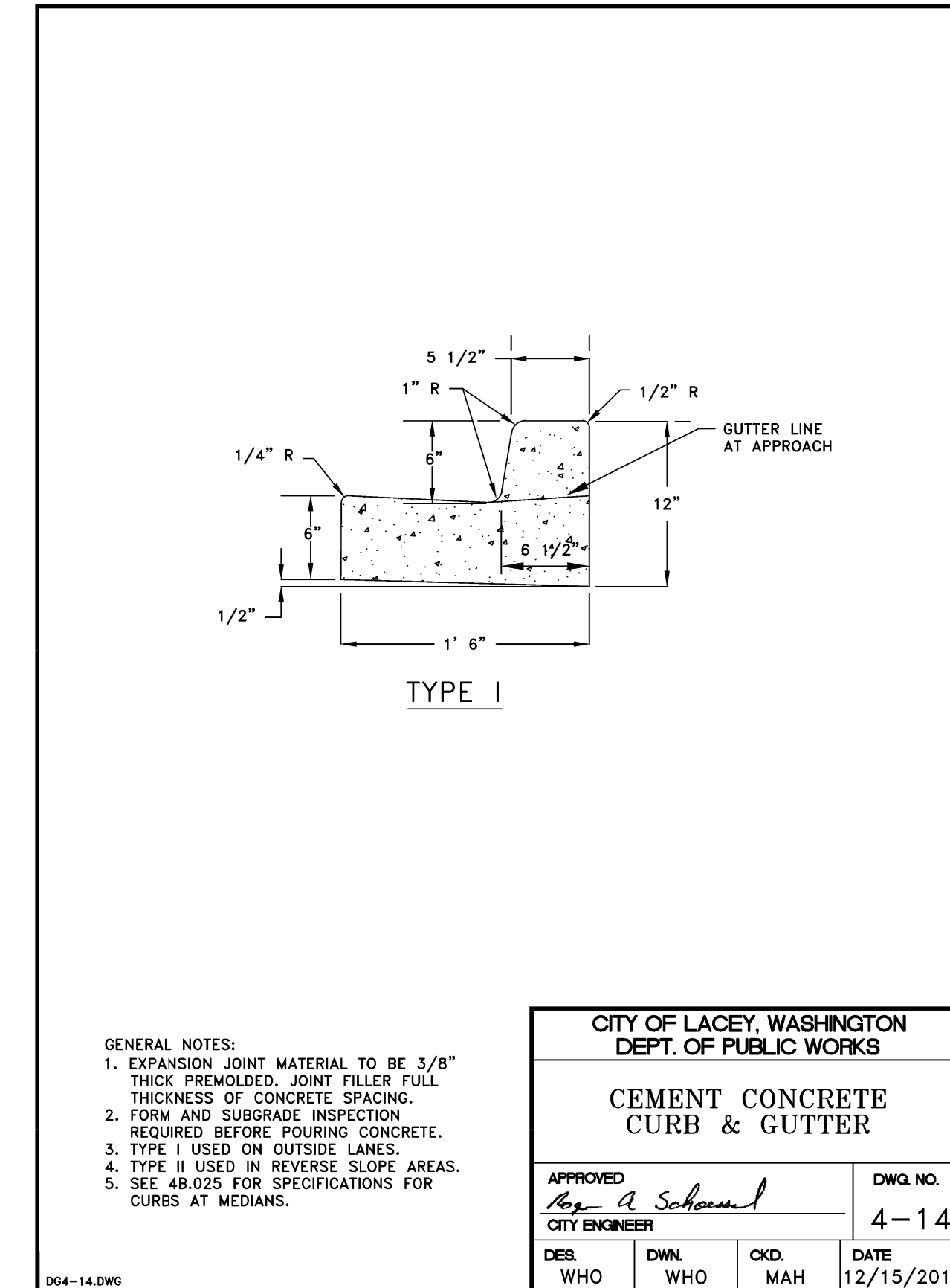
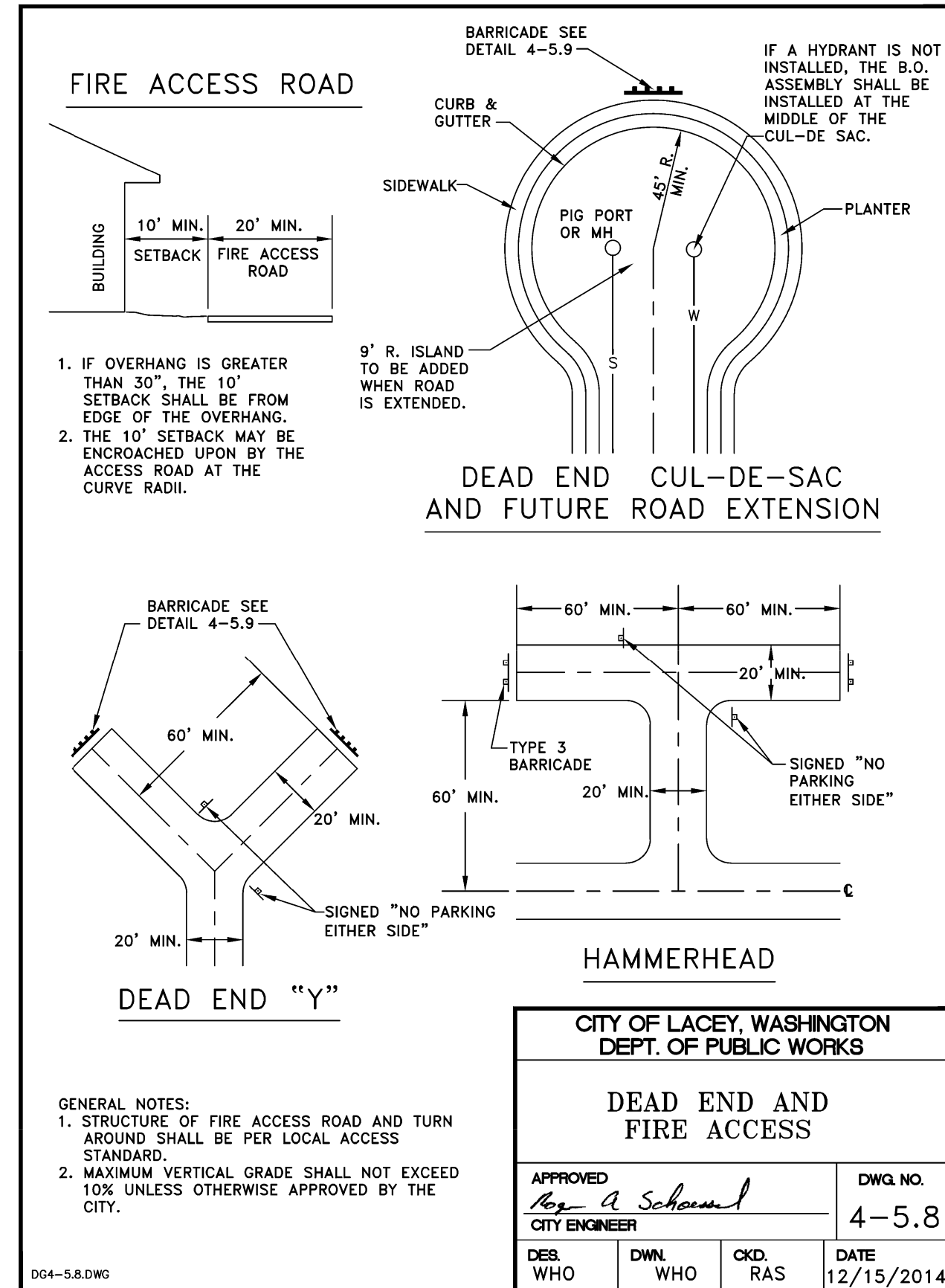
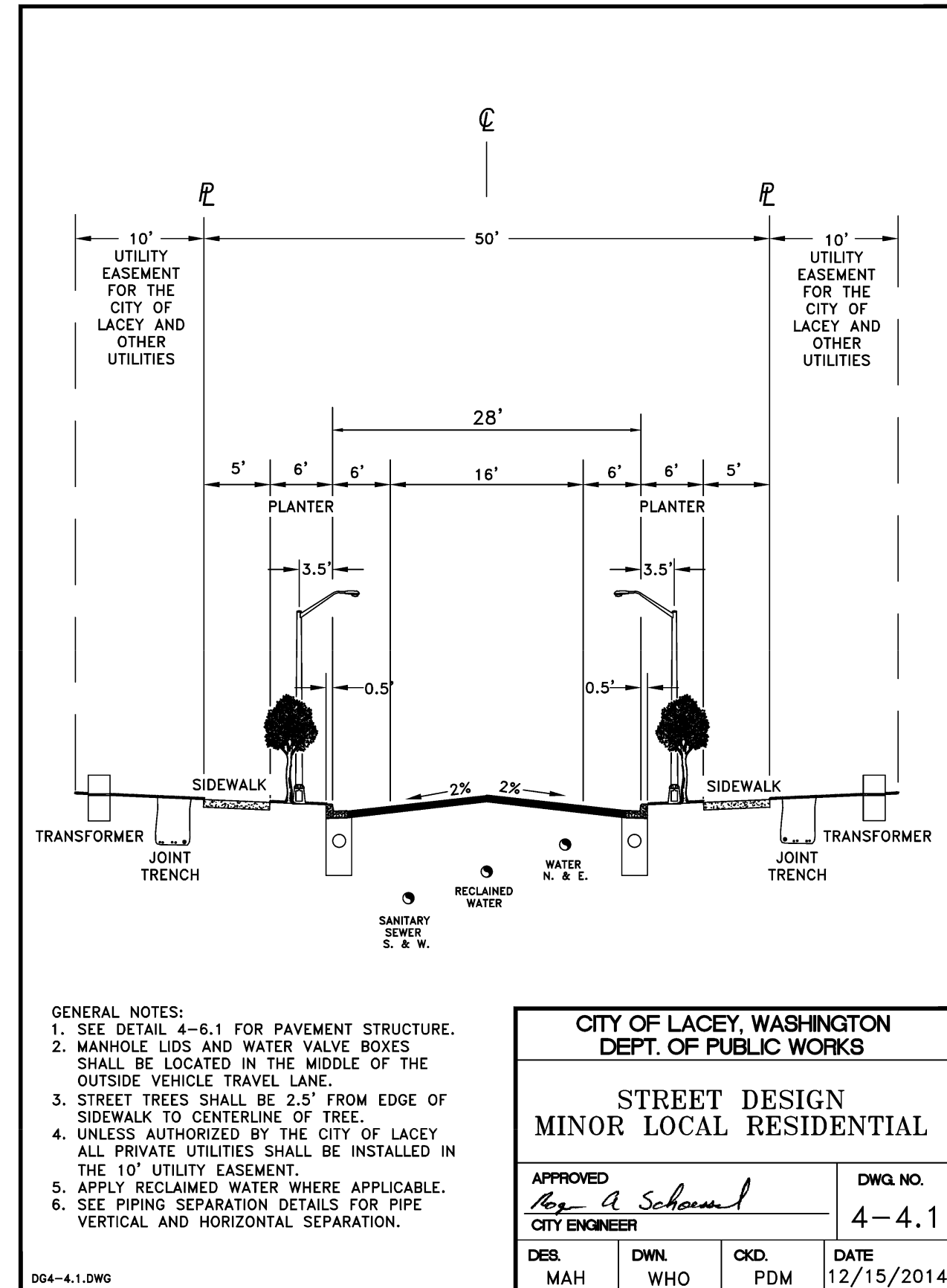
JOB NO: 21-100

TRANSPORTATION

GENERAL NOTES (STREET CONSTRUCTION)

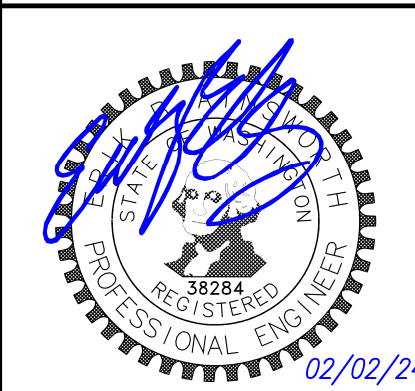
- See appropriate detail for specifications for joining new and existing asphalt.
- Compaction of subgrade, rock, and asphalt shall be in accordance with the most current adopted version of the *WSDOT/APWA Standard Specifications for Road, Bridge and Municipal Construction*.
- Form and subgrade inspection by the City is required before pouring concrete. (See *WSDOT/APWA Standard Specifications for Road, Bridge and Municipal Construction 8-14.3 (1) through (4)*). Twenty-four hours notice is required for form inspection.
- See City of Lacey Development Guidelines and Public Works Standards, Chapter 4B.200, for testing and sampling frequencies.
- The City manufactures and installs public and private street name signs, and regulatory signs at the contractor's/developer's expense. Other signs that shall be manufactured and installed by the City and paid for by the contractor/developer will include signs for well sites, tank sites, lift stations, odor control stations, maintenance and/or fire access through an easement. (Sec 4B.050). Signs shall be requested at the time street construction begins.
- Material used for all plastic stop lines, plastic crosswalk lines, plastic traffic arrows, plastic traffic letters, plastic legends, and plastic symbols shall be Type B - Pre-formed fused thermoplastic at 120 mil thickness.

Revised: 03/2014



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 5737 LINDERSON WAY SW.
 TUMWATER, WA 98501
 PO BOX 4420, TUMWATER, WA 98501
 (360) 890-4806
 E-MAIL: erik@thelanddeveloper.com



DATE:	02/02/24
REVISIONS:	
RECORD DRAWING	

53RD AVE SHORT PLAT
 SITE PLAN

PROJECT:
 53rd Ave. Short Plat
 APN 11834320000, 54th Ave SE
 Lacey, WA

CLIENT:
 Patty Masure
 1211 215TH PL SW, LYNNWOOD, WA 98036
 masurepatty@hotmail.com

DRAWN BY: EBA
 DATE: 8/30/23
 AGENCY NO:
 SHEET: 7 OF 13
 JOB NO: 21-100

RECORD DRAWING

SW 1/4, SECTION 34, TOWNSHIP 18 N., RANGE 1W., W.M.

STORM DRAINAGE

GENERAL NOTES (STORM DRAIN CONSTRUCTION)

- All approvals and permits required by the City of Lacey shall be obtained by the contractor prior to the start of construction. A grading permit for storm pond construction may be required.
- Storm drain pipe material shall be on the WSDOT Qualified Products list for the specification listed below and approved by the City prior to installation:
 - Plain Concrete Storm Sewer Pipe or Reinforced Concrete Storm Sewer Pipe per WSDOT Standard Specification 9-05.7.
 - Solid Wall PVC Storm Sewer Pipe per WSDOT Standard Specification 9-05.12(1).
 - Ductile Iron Sewer Pipe per WSDOT Standard Specification 9-05.13.
 - Hancor Blue Seal™ and Advanced Drainage Systems (ADS/Hancor) N-12 HDPE and (ADS/Hancor) SaniTite up to 36 inch in diameter per WSDOT Standard Specifications 9-05.20 and 9-05.24.
 - Advance Drainage Systems (ADS) Corrugated Polypropylene Pipe (CPEP) from 42" to 60" in diameter per WSDOT 9-05.24 (1) for use not in Right of Way.
 - Contech DuroMaxx steel rib reinforced polyethylene pipe, in diameters from 24 inch to 60 inch per WSDOT Standard Specification 9-05.22.
- All storm drainage systems shall be tested per WSDOT Standard Specification Section 7-04.3. Testing shall be done by the contractor.
- Testing of the storm sewer shall include video recording of the main by the contractor. Immediately prior to video recording, enough water shall be run down the line so it comes out the lower catch basin. A copy of the video recording shall be submitted to the City of Lacey. Acceptance of the line will not be made until after the recording has been reviewed and approved by the City. Testing shall take place after all underground utilities are installed and compaction of the roadway subgrade is complete.
- Special structures, oil/water separators, and outlet controls shall be installed per plans and manufacturers' recommendations. Where oil/water separators are connected to a sewer system, they shall be installed with a P-trap or check valve to prevent odors.

08/2017 5-8

STORM DRAINAGE

- All disturbed areas shall be stabilized in accordance with Core Requirement 2 of the current City of Lacey Stormwater Design Manual. For sites where vegetation has been planted through hydroseeding, the financial guarantee will not be released until the vegetation has been thoroughly established.
- Where connections require "field verifications", connection points will be exposed by contractor and fittings verified 48 hours prior to distributing shut-down notices.
- All catch basins/manholes shall have pads per Lacey standard detail.
- Any changes to the design shall first be reviewed and approved in writing by the project engineer and the City of Lacey.
- All storm pipe shall be a minimum of 12-inch diameter for mains and 8-inch diameter for laterals crossings. When private stormwater (i.e. roof, lot, or footing drains) cannot be infiltrated on individual lots, the minimum standard piping connection to the public system shall be 8-inch PVC. The 8-inch main used for connection shall begin at the right-of-way. The connection to the catch basin or manhole shall be cored.
- All storm mains and stormwater treatment and/or flow control BMPs/facilities areas shall be staked for grade and alignment by an engineering or survey firm licensed to perform such work.
- The minimum staking of storm sewer systems shall be as follows:
 - Stake location of all catch basins, manholes, and other fixtures for grade and alignment.
 - Stake location, size, and depth of stormwater treatment and/or flow control BMPs/facilities.
 - Stake finished grade of all stormwater features, including but not limited to catch basin/manhole rim elevations, overflow structures, weirs, and invert elevations of all pipes in catch basins, manholes, and pipes that daylight.
- Pipe size, slope, cover, etc., shall be as specified in the City of Lacey Development Guidelines and Public Works Standards.
- All driveway culverts shall be of sufficient length to provide a minimum 3:1 slope from the edge of the driveway to the bottom of the ditch at the

08/2017 5-9

STORM DRAINAGE

- Culvert end. Culverts shall have beveled end sections to match the side slope.
- If drainage outlets (stub-outs) are to be provided for each individual lot, the stub-outs shall conform to the following:
 - Each outlet shall be suitably located at the lowest elevation on the lot, so as to service all future roof downspouts, footing drains, driveways, yard drains, and any other surface or subsurface drains necessary to render the lots suitable for their intended use. Each outlet shall have free-flowing, positive drainage to an approved storm water conveyance system or to an approved outfall location.
 - Outlets on each lot shall be located with a five-foot-high, 2-inch by 4-inch stake marked "storm" or "drain." The stub-out shall visibly extend above surface level and be secured to the stake.
 - Drainage easements are required for drainage systems designed to convey flows through individual lots.
 - The developer and/or contractor is responsible for coordinating the locations of all stub-out conveyance lines with respect to the utilities (e.g., power, gas, telephone, television).
 - All individual stub-outs shall be privately owned and maintained by the lot home owner.
- The storm drainage system shall be constructed according to approved plans on file with the City. Any material deviation from the approved plans will require written approval from the City and shall be corrected in the as-built drawings.
- All areas subject to clearing and grading that have not been covered by impervious surface, incorporated into a drainage facility, or engineered as structural fill or slope shall be amended in accordance with the current City of Lacey Stormwater Design Manual and then seeded, planted, and mulched or similarly stabilized after construction to the satisfaction of the City. For sites where grass has been planted through hydroseeding, the performance bond will not be released until the grass has been thoroughly established, unless otherwise approved by the City.
- All erosion control and stormwater facilities shall be regularly inspected and maintained by the contractor during the construction phase of the development project.

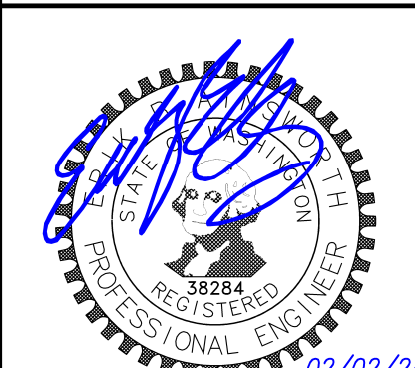
08/2017 5-10 08/2017 5-11

STORM DRAINAGE

- No final cut or fill slope shall exceed 2:1 without stabilization by rockery or by a structural retaining wall.
- The project engineer shall verify the locations, widths, thicknesses, and elevations of all existing pavements and structures, including utilities and other frontage improvements, which are to interface with new work. The Contractor shall provide all trimming, cutting, saw cutting, grading, leveling, sloping, coating, and other work, including materials as necessary to cause the interface with existing works to be proper, without conflict, acceptable to the engineer and the City, complete in place, and ready to use.
- Compaction of all fill areas shall be per current APWA specifications. Fill shall be provided in 6" maximum lifts and shall be compacted to 95 percent of its maximum relative density. Deviation from this standard may be approved by the Director, or designee, where recommended by the licensed professional engineer for planned or existing infiltration facilities.

Revised: 03/2017

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 5737 LINDESON WAY SW.
 TUMWATER, WA. 98501
 PO BOX 4420, TUMWATER, WA. 98501
 (360) 890-4806
 E-MAIL: erik@thelanddeveloper.com



REVISIONS:	DATE:
1. RECORD DRAWING	02/02/24

53RD AVE SHORT PLAT
 DRAINAGE DETAILS

PROJECT: Short Plat
 53rd Ave. APN 11834320000, 54th Ave SE
 Lacey, WA
 CLIENT: Patty Masure
 1211 215TH PL SW, LYNNWOOD, WA 98036
 masurepatty@hotmail.com

DRAWN BY: EBA
 DATE: 8/30/23
 AGENCY NO:
 SHEET: 8 OF 13
 JOB NO: 21-100



The contractor shall be fully responsible for the location and protection of all existing utilities. The contractor shall verify all utility location prior to construction by calling the underground locate line at 800-824-5555 a minimum of 48 hours prior to any excavation

OPTION 1 - RETAIN AND PROTECT UNDISTURBED SOIL

OPTION 2 - AMEND SOIL

NOTES:

- AREAS OF NO DISTURBANCE SHALL BE PROTECTED FROM COMPACTION BY FENCING AND KEEPING MATERIALS STORAGE AND EQUIPMENT OFF THESE AREAS DURING CONSTRUCTION.
- SOIL SHALL BE PLACED 2-INCHES BELOW FINAL GRADE TO ALLOW FOR SOD GROWTH.

GENERAL NOTES:

- TO MEASURE SETTLED DEPTH, WATER SOIL SUFFICIENTLY TO FULLY SATURATE WITHOUT CAUSING EROSION.
- COMPOST SHALL MEET SPEC. REQUIREMENTS IN THE 2016 CITY OF LACEY STORMWATER DESIGN MANUAL, TABLE 5.9.
- COMPACTION OF TOPSOIL (WHERE REQUIRED) TO BE TO 85% (MAX) OF THE MAXIMUM DRY DENSITY PER MODIFIED PROCTOR TEST (ASTM D1557).

CITY OF LACEY, WASHINGTON DEPT. OF PUBLIC WORKS			
POST CONSTRUCTION SOIL QUALITY AND DEPTH 1			
APPROVED CITY ENGINEER	DWG. NO. 5-13		
DEB OS	DWN ESM	CKD MMF	DATE 08/24/2017

NO OVERFLOW STRUCTURE REQUIRED

PLAN

PROFILE

NOTES:

- LOCATION, NUMBER, AND SPACING OF CURB CUTS VARY WITH FACILITY LENGTH AND ROAD SLOPE. PROVIDE A MINIMUM OF ONE CURB CUT PER FACILITY. SEE PLANS FOR LOCATIONS.
- REFER TO THE 2016 CITY OF LACEY STORMWATER DESIGN MANUAL SECTION 7.4.4 FOR SETBACK REQUIREMENTS.

CITY OF LACEY, WASHINGTON DEPT. OF PUBLIC WORKS			
BIORETENTION PLAN/PROFILE			
APPROVED CITY ENGINEER	DWG. NO. 5-14		
DEB OS	DWN ESM	CKD MMF	DATE 08/24/2017

BIORETENTION SECTION

NOTES:

- SCARIFY SUBGRADE 3" (MIN) BEFORE BIORETENTION SOIL MIX (BSM) INSTALLATION.
- BSM SHALL CONFORM TO 2016 CITY OF LACEY STORMWATER DESIGN MANUAL (SDM) SPECIFICATIONS, SECTION 7.4.4.
- BSM PLACEMENT, GRADING, AND CONSOLIDATION SHALL NOT OCCUR WHEN THE BSM IS EXCESSIVELY WET, OR HAS BEEN SUBJECTED TO MORE THAN 1/2 INCH OF PRECIPITATION WITHIN 48 HOURS PRIOR TO PLACEMENT. EXCESSIVELY WET IS DEFINED AS BEING AT OR ABOVE 22 PERCENT SOIL MOISTURE BY A GENERAL TOOLS & INSTRUMENTS DSMMSO00 PRECISION DIGITAL SOIL MOISTURE METER WITH PROBE (OR EQUIVALENT). THERE SHALL BE NO VISIBLE FREE WATER IN THE MATERIAL.
- PLACE BSM LOOSELY WITH A CONVEYOR BELT OR WITH AN EXCAVATOR OR LOADER FROM A HEIGHT OF 6 FEET OR LESS (I.E., DO NOT DUMP MATERIAL DIRECTLY FROM TRUCK INTO CELL). COMPACT BSM USING NON-MECHANICAL COMPACTION METHODS (E.G., BOOT PACKING, HAND TAMPING, OR WATER CONSOLIDATION).
- MINIMUM DEPTH TO GROUNDWATER OR OTHER IMPERMEABLE LAYER VARIES BY CONTRIBUTING AREA. SEE THE 2016 CITY OF LACEY SDM, SECTION 7.4.4 FOR REQUIREMENTS.
- TRANSITION ZONE SHALL BE 1.5' (MIN) BETWEEN FACE OF CURB AND BEGINNING OF THE BIORETENTION SIDE SLOPE. PROVIDE 2.5' (MIN) TRANSITION ZONE WHERE ADJACENT TO PARALLEL PARKING. BIORETENTION SHALL NOT BE LOCATED ADJACENT TO PARALLEL PARKING THAT IS DESIGNATED AS ADA COMPLIANT.
- TRANSITION ZONE SOIL SHALL BE ROCK BASE COURSE OR APPROVED SOIL COMPACTED TO 95% MAXIMUM DRY DENSITY PER MODIFIED PROCTOR TEST (ASTM D1557).
- MINIMUM FREEBOARD SHALL BE 2 INCHES FOR DRAINAGE AREAS LESS THAN 1,000 SQUARE FEET AND 6 INCHES FOR DRAINAGE AREAS 1,000 SQUARE FEET OR GREATER.
- PROVIDE 3 INCHES OF ARBORIST WOOD CHIP MULCH OR DENSE GROUND COVER FOR UPLAND AREAS AND 3 INCHES COARSE COMPOST AS A MULCH FOR AREAS THAT SEE PONDING. SEE THE 2016 CITY OF LACEY SDM SECTION 7.4.4 FOR SPECIFICATIONS.
- PROVIDE 3 INCHES COARSE COMPOST AS A MULCH FOR AREAS THAT SEE PONDING. SEE THE 2016 CITY OF LACEY SDM TABLE 5.9 FOR SPECIFICATIONS.

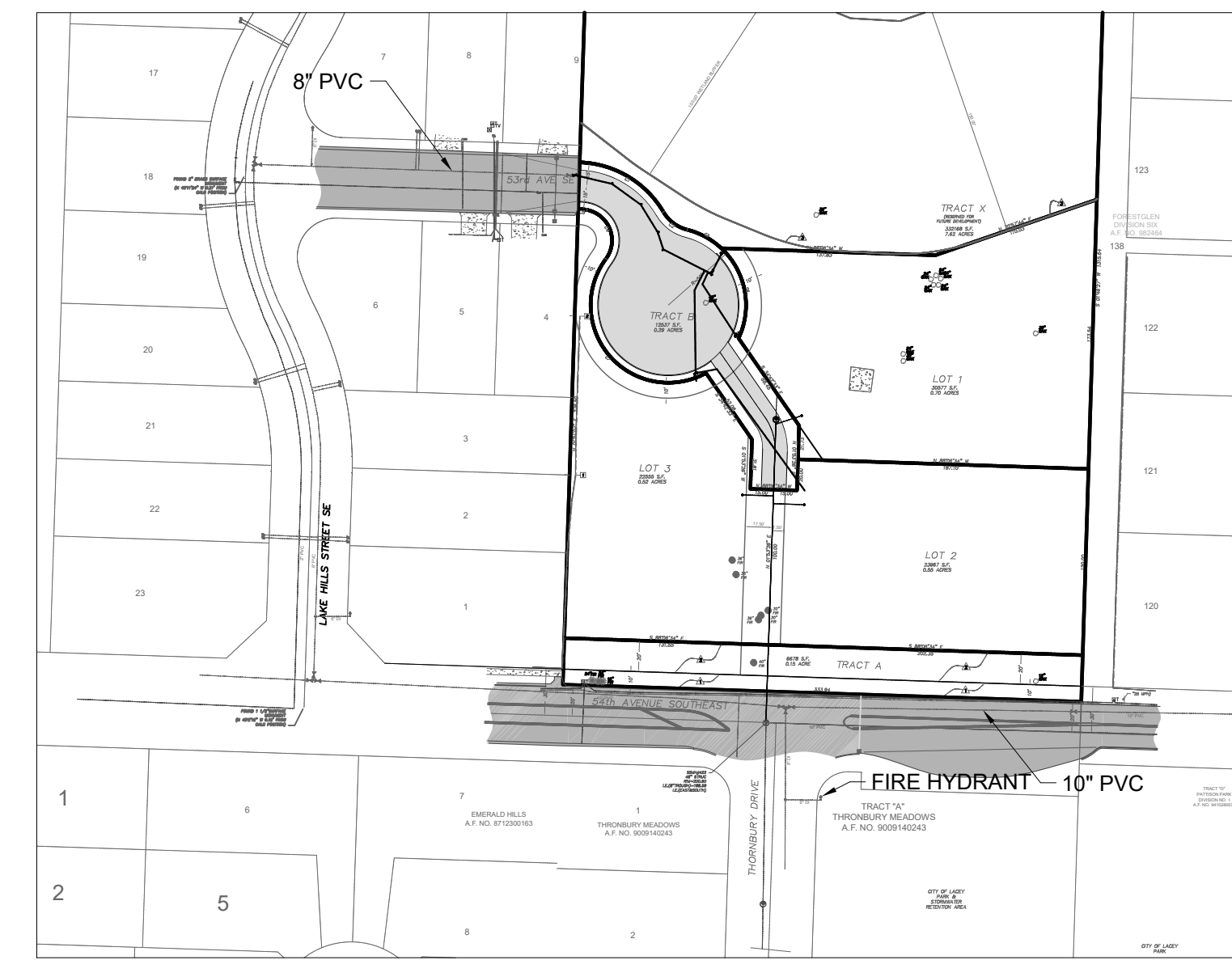
CITY OF LACEY, WASHINGTON DEPT. OF PUBLIC WORKS			
BIORETENTION SECTION			
APPROVED CITY ENGINEER	DWG. NO. 5-15		
DEB OS	DWN ESM	CKD MMF	DATE 08/24/2017

SOIL MIX SHALL BE High-Performance Bioretention Soil Mix (2022 SDM, Section 7.4.4) REFERENCE SHEET 11

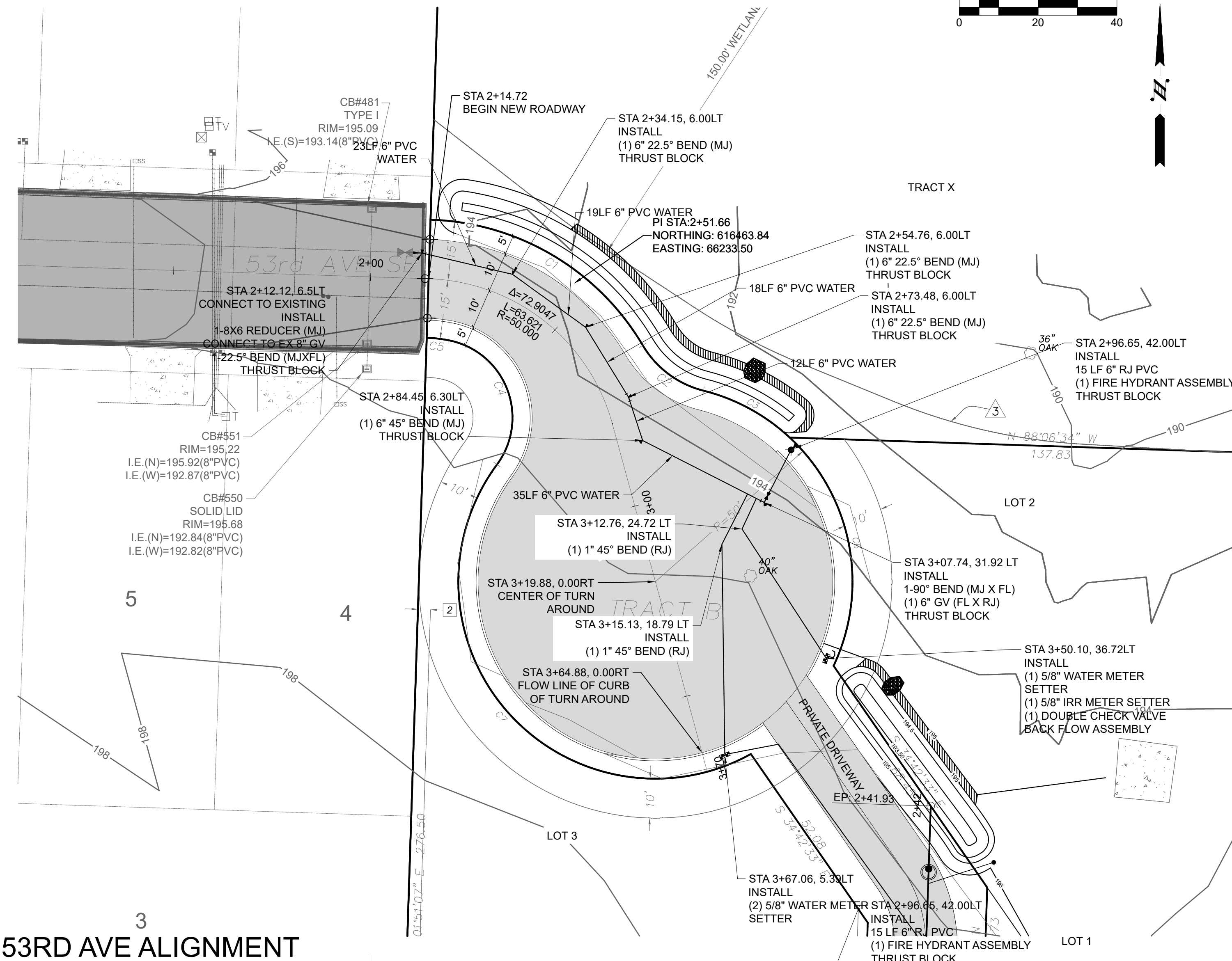
PER THE SOILS REPORT GROUND WATER IS LOWER THAN 3' BELOW THE BOTTOM OF THE BIO-RETENTION SOIL

RECORD DRAWING

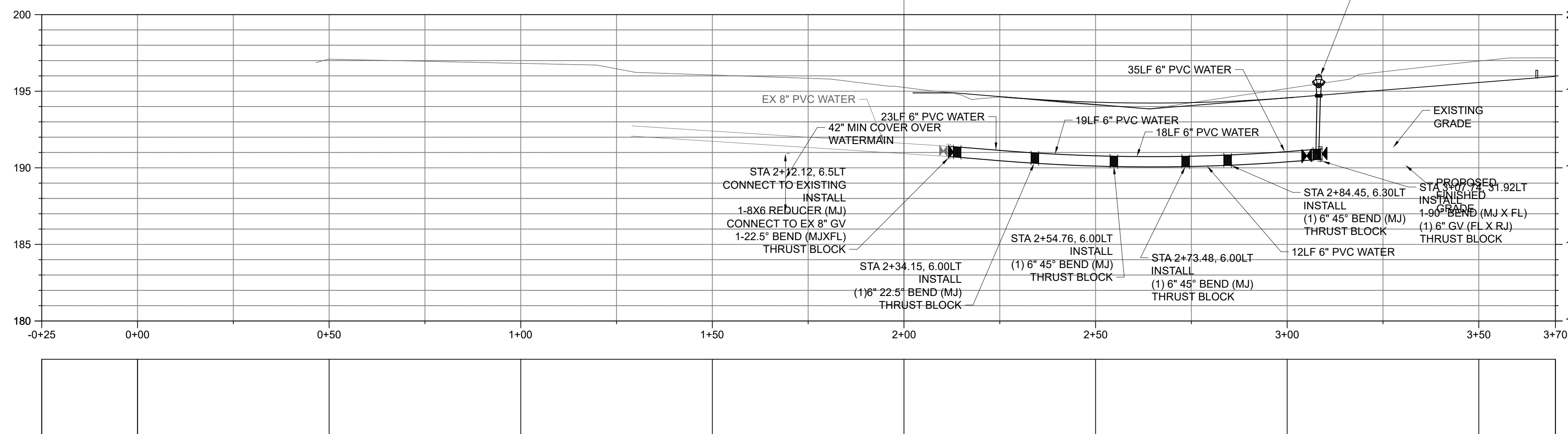
SW 1/4, SECTION 34, TOWNSHIP 18 N., RANGE 1W., W.M.



LACEY WATER SYSTEM MAP



PROFILE VIEW OF 53RD AVE ALIGNMENT



Know what's below.
Call before you dig.

The contractor shall be fully responsible for the location and protection of all existing utilities. The contractor shall verify all utility location prior to construction by calling the underground locate line at 800-824-5555 a minimum of 48 hours prior to any excavation

SCALE:
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

NOTE

ALL 8"-INCH WATER MAINS
SHALL BE AWWA C900 DR14

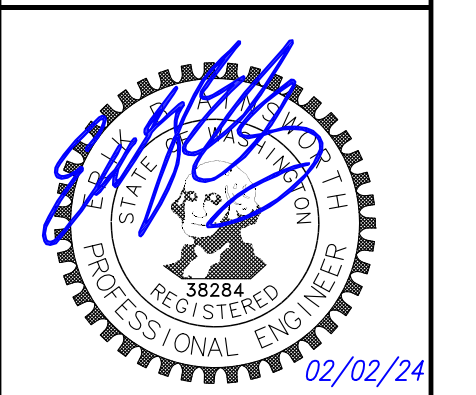
VERTICAL DATUM

VERTICAL DATUM
NGVD 29
THURSTON COUNTY HIGH PRECISION SURVEY
CONTROL NETWORK CONTROL POINT #1335
SURFACE MONUMENT WITH 2" BRASS CAP
STAMPED "11019"
CENTER OF 57th AVE & 16' WEST OF
CENTER OF RUMAC STREET
ELEV. = 197.687

BASIS OF BEARING

CITY OF LACEY COORDINATE SYSTEM BASED ON
SURVEY RECORDED UNDER AUDITOR'S FILE NO.
3111152

THE LAND DEVELOPER'S ENGINEERED SOLUTION
a division of THE LAND DEVELOPER, INC.
5737 LINDERSON WAY SW,
TUMWATER, WA 98501
PO BOX 4420, TUMWATER, WA 98501
(360) 890-4806
E-MAIL: erik@thelanddeveloper.com



REVISIONS:

DATE:	02/02/24
RECORD DRAWING	

53RD AVE SHORT PLAT
WATER PLAN & PROFILE

PROJECT:
53rd Ave. Short Plat
APN 11834320000, 54th Ave SE
Lacey, WA
CLIENT:
Patty Masure
1211 215TH PL SW., LYNNWOOD, WA 98036
masurepatty@hotmail.com

RECORD DRAWING
DRAWN BY: EBA
DATE: 8/30/23
AGENCY NO:
SHEET: 9 OF 13
JOB NO: 21-100

SW 1/4, SECTION 34, TOWNSHIP 18 N., RANGE 1W., W.M.

WATER

GENERAL NOTES (WATER MAIN INSTALLATION)

- Water mains up to 10" shall be AWWA C900 DR14 or ductile iron standard thickness class 52. Water mains larger than 10" shall be ductile iron standard thickness class 52. See Chapter 6.030B for more detailed pipe specifications.
- All water mains shall be delivered from the manufacturer with pipe dust caps installed. The caps shall remain on the pipe until the time of installation.
- Gate valves shall be resilient wedge, NRS (Non Rising Stem) with O-ring seals. Valve ends shall be mechanical joint or ANSI flanges. Valves shall conform to AWWA C-515 latest revision. Valves shall be Mueller, M & H, Kennedy, Clow R/W, Waterous Series 2500, EJ Flowmaster or American AVK.
- Existing valves shall be operated by City employees only.
- Hydrants shall be City approved as specified on the hydrant details and shall be bagged until the system is approved.
- The contractor with the assistance of the City inspector shall install, chlorinate and fill the water main, including appurtenances. Testing shall include the main, valves, service lines and appurtenances. After testing is completed, the newly constructed system shall be flushed. After flushing chlorinated water from disinfected lines, the City shall measure chlorine residual to verify that flushing is complete. This will be completed prior to the City taking microbiological samples.
- All pipe and services shall be installed with continuous tracer tape installed 12" to 18" under the final ground surface. The marker shall be plastic non-biodegradable, metal core backing marked "water" which can be detected by a standard metal detector. Tape shall be 3 inch wide Terra Tape "D" or approved equal. In addition to tracer tape, install direct bury, U.S.E. 12 gauge blue coated copper wire, wrapped around or taped to the pipe, as shown on detail. Low voltage grease-type splice kits shall be used on tracer wire. After the wire nut is used to connect the wire together an overhand knot shall be tied just outside the grease kit to prevent it from coming apart. Continuity testing of the wire will be done by the City.
- All service line locations shall be marked on the top or face of the curb with an embossed "W" 3 inches high and 1/4 inch into concrete.

08/2017 6-4

WATER

- The City will be given 72 hours notice prior to scheduling a shutdown. Where connections require "field verification", connection points shall be exposed by the contractor and fittings verified 72 hours prior to distributing shut-down notices.
- Separation between water and sewer shall be maintained per DOE standards. See Development Guideline Chapter 6.130 for more information.
- A concrete pad per detail shall be installed around all valve boxes and blow-offs that are not in a pavement area.
- At any connection to an existing line where a new valve is not installed, the existing valve must be pressure tested to City standards prior to connection. If an existing valve fails to pass the test, the contractor shall make the necessary provisions to test the new line prior to connection to the existing system or install a new valve.
- The minimum burial depth of all water lines shall be 42 inches. The Contractor shall maintain a minimum of 18 inches of vertical separation between sanitary sewers/reclaimed water and water mains. To accommodate crossings, the minimum cover for water main of 42 inches may be reduced to 30 inches upon approval by the City to provide for as much vertical separation as possible. When a reduced depth is allowed, ductile iron piping and/or casings may be required. See 6.080 for casing specifications.
- It shall be the contractor's responsibility to field verify the location and depth of the existing main and provide the fittings required to make the connection to the existing main.
- The contractor shall install a temporary 2 inch brass blow off for flushing and sampling on the existing and/or new water main. The blow off shall be constructed with a standard 2 inch tapping saddle and Ford brass corporation stop with 2 inch brass pipe extended up to finished grade. When flushing and sampling are completed, the 2 inch pipe shall be removed. The corporation stop shall be shut off and capped tight with a threaded brass cap.

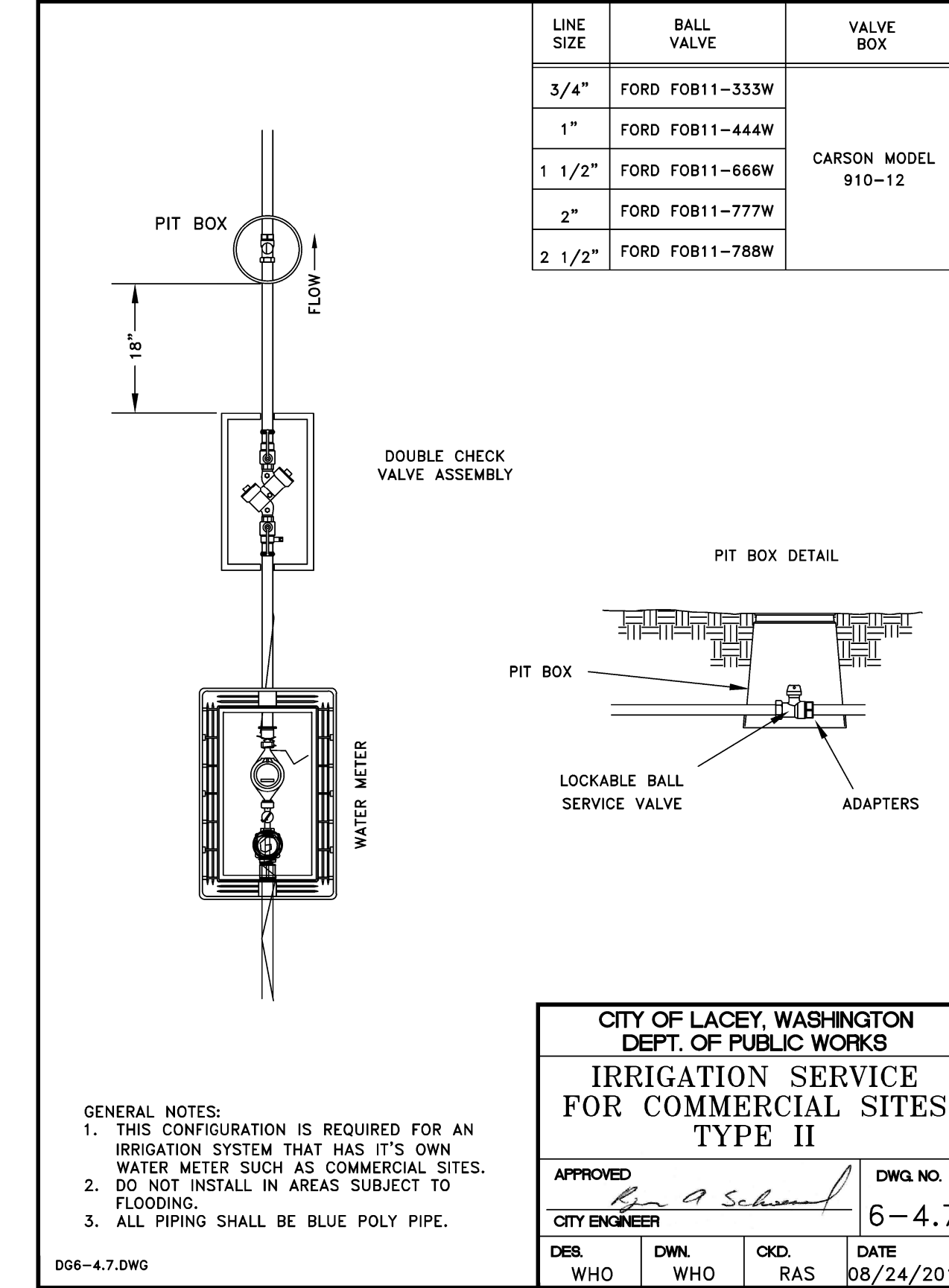
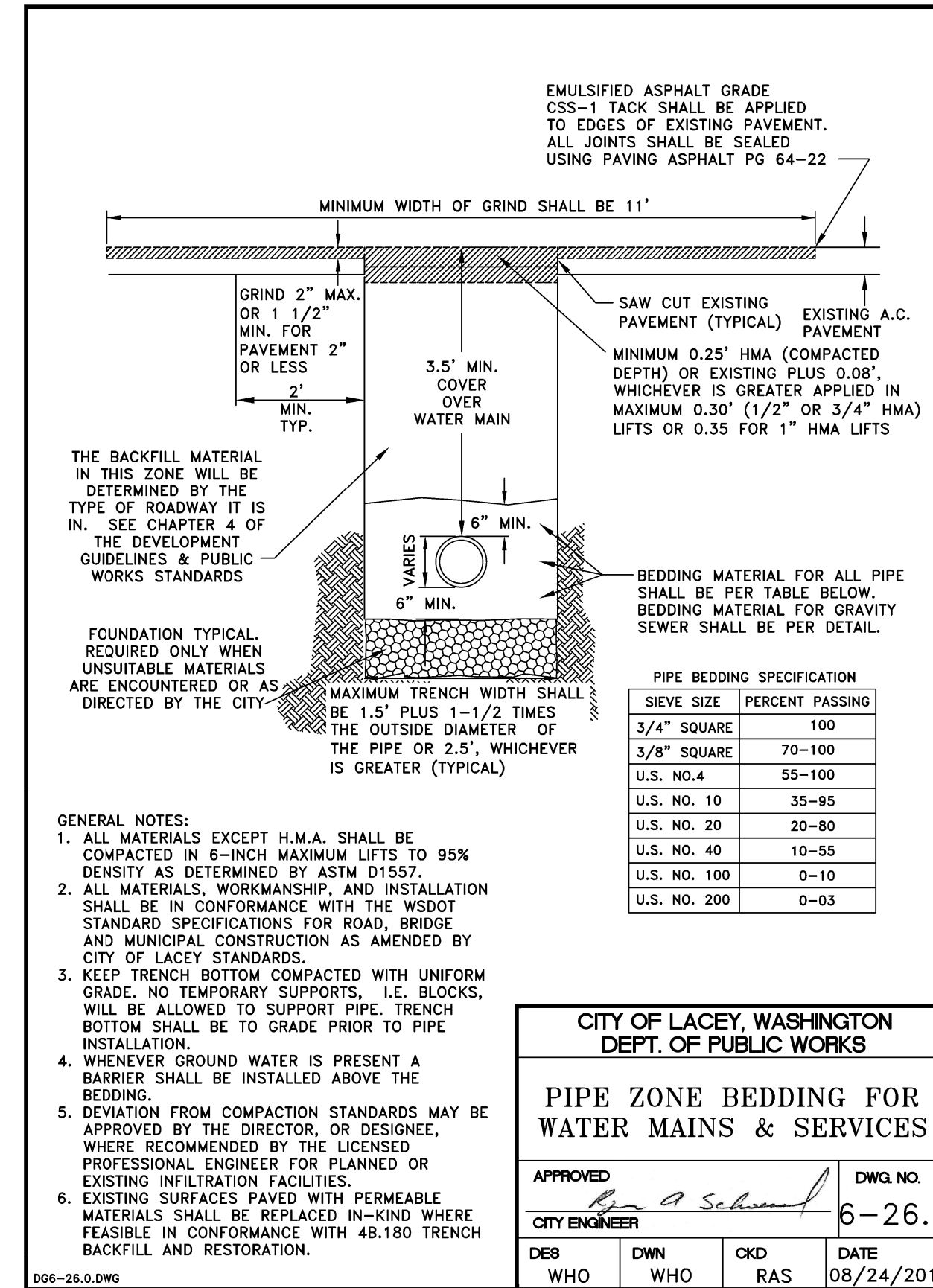
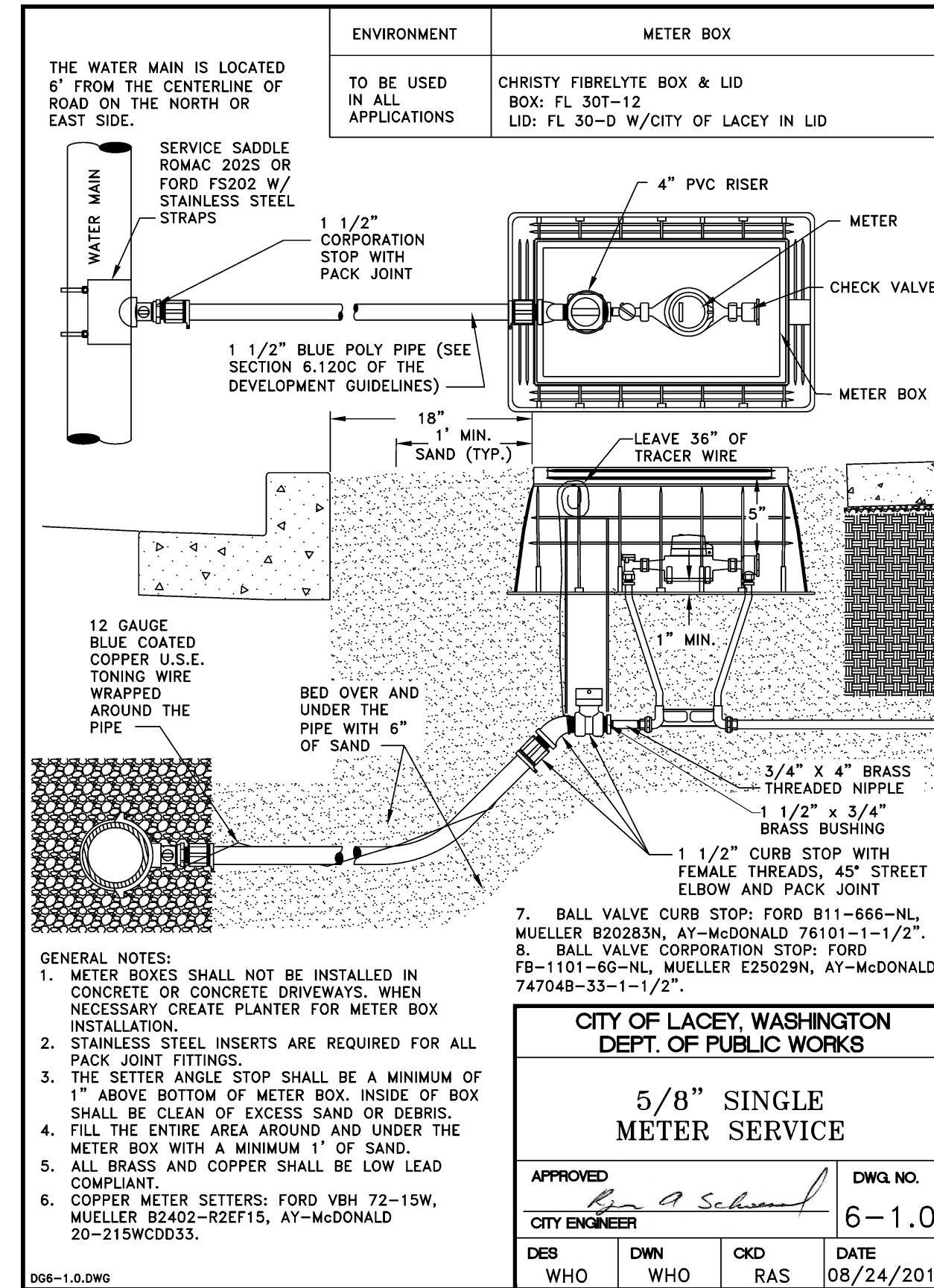
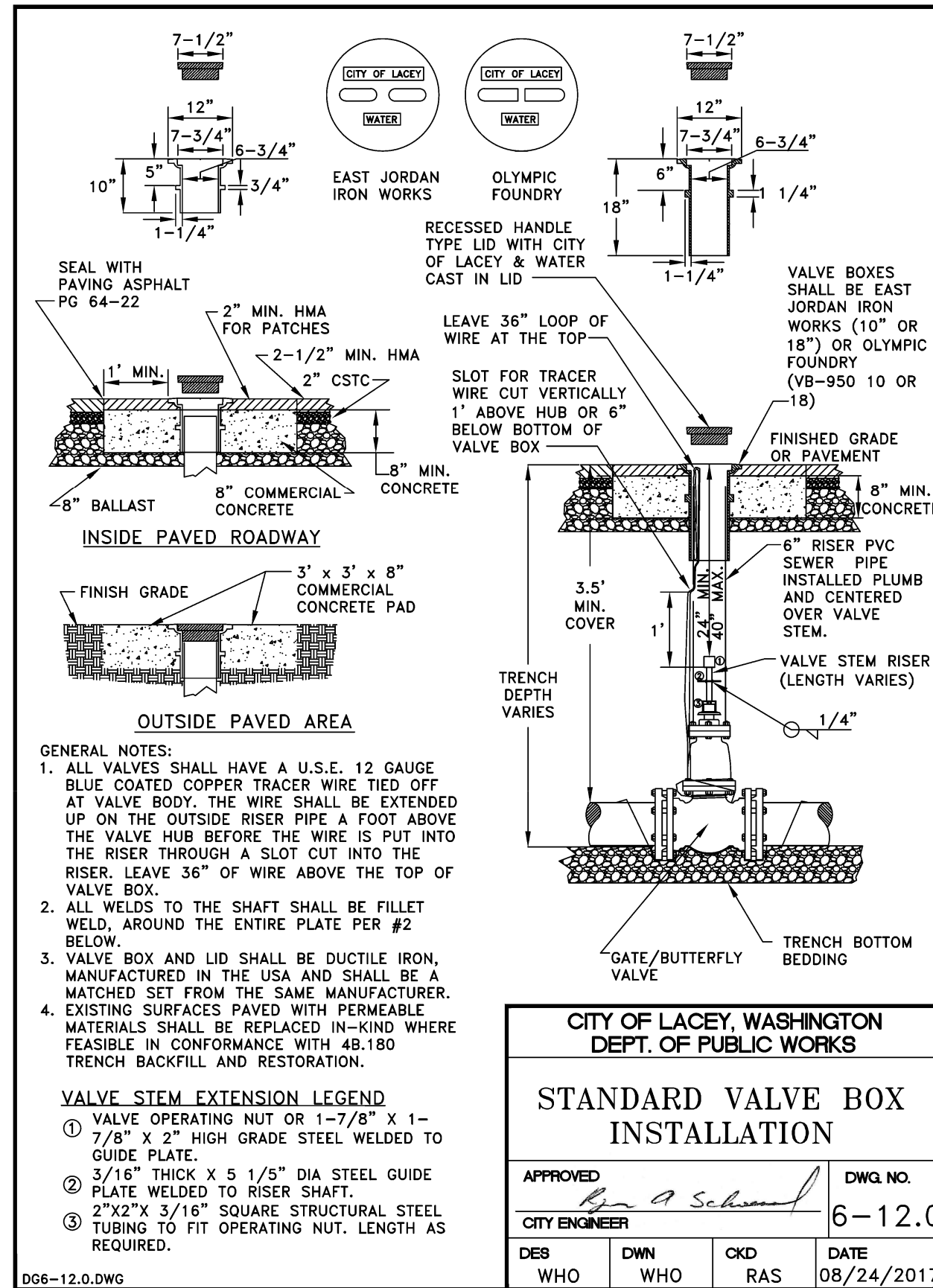
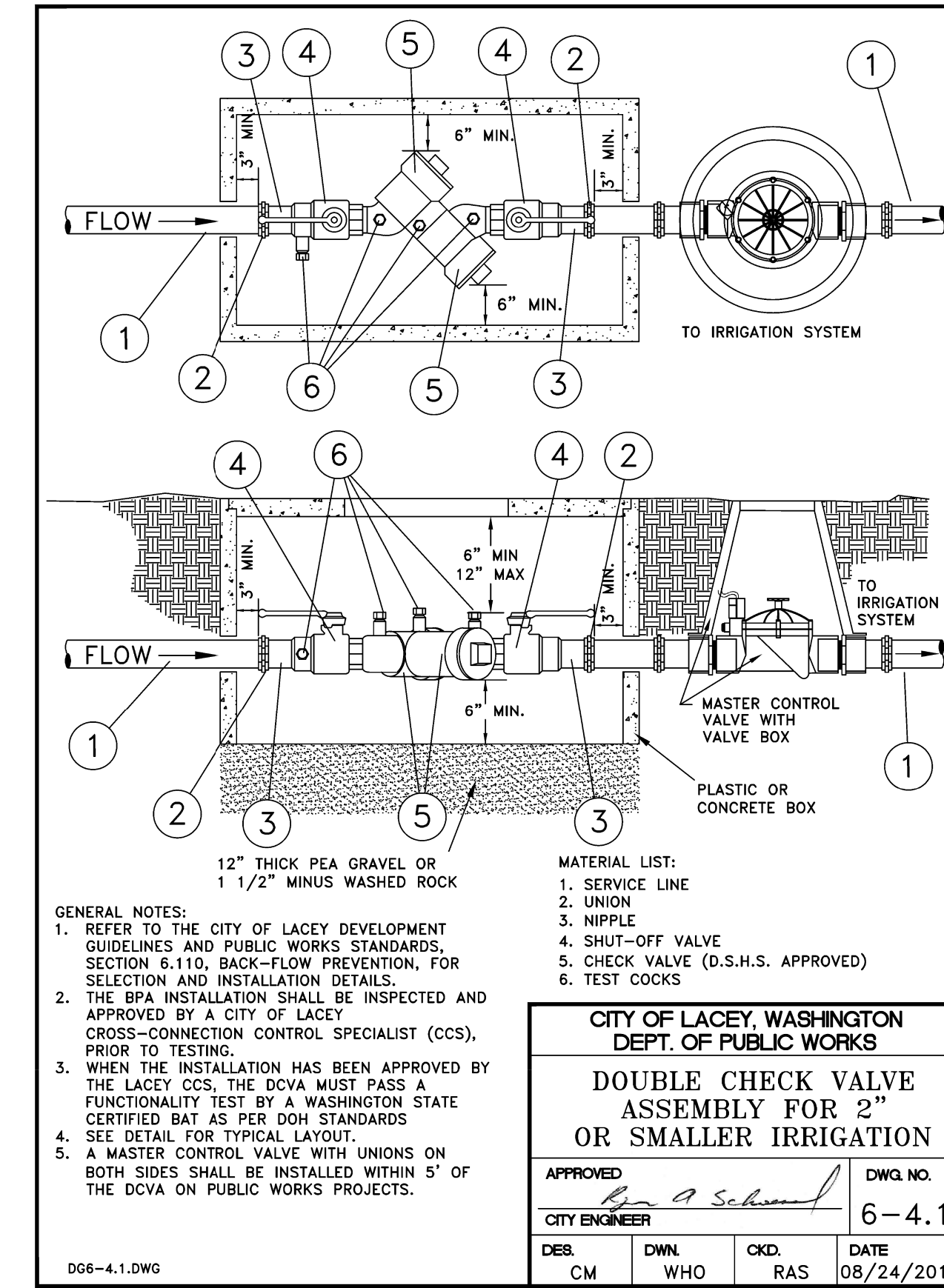
08/2017 6-5

WATER

- When an existing City water main is to be abandoned, it shall be the developer's responsibility to coordinate and abandon the existing main. It shall also be the developer's responsibility to install and transfer existing water services to the new main.
- Sand shall be placed around and under service lines and meter boxes by hand to a height of 6 inches above and 6 inches below the line(s) and boxes. Excavation for the meter box shall be an additional one foot around the entire box and backfilled with sand per City detail.
- Meters 3 inches or larger in size must be ordered from City Utility Billing by the contractor/developer a minimum of 10 weeks in advance of installation.
- All valve box, blow-off and manhole lids shall be clean and clear of asphalt or concrete before scheduling a walk through.
- The water main and appurtenances and service connections to the meter setter shall be tested in sections of convenient lengths under a hydrostatic pressure equal to 150 psi in excess of that under which it will operate. In no case shall the test pressure be less than 225 psi.
- All water mains and service lines shall be bedded per detail 6-26 and meeting the pipe bedding specification chart requirements.
- All brass pipe and fittings shall be manufactured in the United States of America and comply with public law 111-380 (reduction of lead in Drinking Water Act). Imported brass pipe and fittings shall not be permitted.
- When using a hydrant meter to fill a tanker truck or portable tank of any kind, an approved permanently installed air gap of at least two times the inside diameter of the fill pipe is required. See detail. Any air gap on tanker trucks or portable tanks used within the City of Lacey water system must be inspected annually by a certified Backflow Assembly Tester (BAT) and a typical backflow prevention test report submitted to the Lacey Cross-Connection Specialist. (See Appendix V)

Revised: 03/2014

08/2017 6-6



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(360) 890-4806
E-MAIL: erik@thelanddeveloper.com



DATE: 02/02/24
REVISIONS: RECORD DRAWING

53RD AVE SHORT PLAT

WATER DETAILS

PROJECT: 53th Ave. Short Plat APN 11834320000, 54th Ave SE Lacey, WA
CLIENT: Patty Masure 1211 215TH PL SW, LYNNWOOD, WA 98036 msurepatty@hotmail.com

DRAWN BY: EBA
DATE: 8/30/23
AGENCY NO:
SHEET: 10 OF 13
JOB NO: 21-100



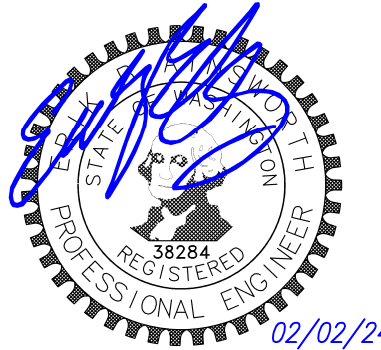
The contractor shall be fully responsible for the location and protection of all existing utilities. The contractor shall verify all utility location prior to construction by calling the underground locate line at 800-824-5555 a minimum of 48 hours prior to any excavation

RECORD DRAWING



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THE LAND DEVELOPERS ENGINEERED SOLUTION
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REVISIONS:	DATE:
1. RECORD DRAWING	02/02/24

Table 1. Approved high performance BSM (HPBSM) for runoff treatment in bioretention

Performance Goals for Runoff Treatment	Achieves suspended solids treatment (>80% reduction)	Achieves dissolved metal treatment (>30% copper and >60% zinc reduction)	Achieves phosphorus treatment (>50% reduction)	Achieves additional LD objectives and water quality objectives *
Type 1: 18" HPBSM Primary Layer. HPBSM primary layer consists of 70% sand, 20% coir, and 10% high carbon wood ash (biochar) by volume.	X	X		
Type 2: 18" HPBSM Primary Layer plus 12" HPBSM Polishing Layer. HPBSM Polishing layer consists of 90% sand, 7.5% activated alumina, and 2.5% iron aggregate by volume.	X	X	X	
Type 3: 18" HPBSM Primary Layer plus 12" HPBSM Polishing Layer plus 2" Compost Surface Layer^{a,c}. Compost must meet bioretention compost specifications in Ecology's stormwater manuals.	X	X	X	X

* The 2" Compost Surface layer is anticipated to improve success of plantings, due to improved water holding capacity (McIntyre et al., 2020). Additionally, based on the King County and Herrera, 2020 study this mix was successful in meeting all treatment goals (basic, copper, zinc, and phosphorus) as well as some protection against the acute toxicity to *C. dubia* and *D. rerio* found in the influent (untreated) stormwater.
^b Do not use the HPBSM Primary Layer (Type 1) with the Compost Surface Layer without the HPBSM Polishing Layer. The HPBSM Polishing Layer is necessary to limit phosphorus and nitrogen export from the Compost Surface Layer.
^c Carbon or organic matter components of the mixes such as compost and mulch are believed to be an important factor to capture organic compounds in stormwater runoff (King County and Herrera, 2020; McIntyre et al., 2020).

Current guidance for municipal stormwater permittees

Stormwater infrastructure is usually publicly funded and Ecology recognizes the need for confidence in bioretention effectiveness for flow control and runoff treatment. Bioretention BMPs are among the most cost-effective stormwater management options, but we do not yet know their full life span. We anticipate it to be in the range of 20-40 years. Ecology will continue to require permittees to remove barriers to LID in their codes and local ordinances. Ecology continues to support the use of bioretention within the 2019 SWMMWW and 2019 SWMMEW.

These three HPBSM options are now approved for use as the engineered soil layer for bioretention BMP designs in Washington State. Use of HPBSM in bioretention BMPs is allowed within one-quarter mile of a known or suspected phosphorus-sensitive receiving water. Designers can install the HPBSM Polishing

Appendix 1: High Performance Bioretention Soil Media (HPBSM) Specifications

This appendix provides the specifications for making the HPBSM that were studied as part of the SAM study. King County, Herrera Environmental Consultants, Inc. and Whatcom County are acknowledged for working with Ecology to develop and test specifications for this publication.

The high performance bioretention soil mixes (HPBSM) shown in Table 1 are the engineered soil layer for bioretention BMP designs in Washington State to achieve specific runoff treatment performance goals. Two of the three new BSM types are approved for phosphorus treatment.

Figures 1 and 2 present typical cross sections of the HPBSM. Figure 1 is an example of the HPBSM with the primary layer but no polishing layer or compost layer (Type 1), and Figure 2 is a typical cross section of the HPBSM with the primary layer, polishing layer, and compost layer (Type 3).

Figure 1. Typical Cross Section of Type 1 HPBSM

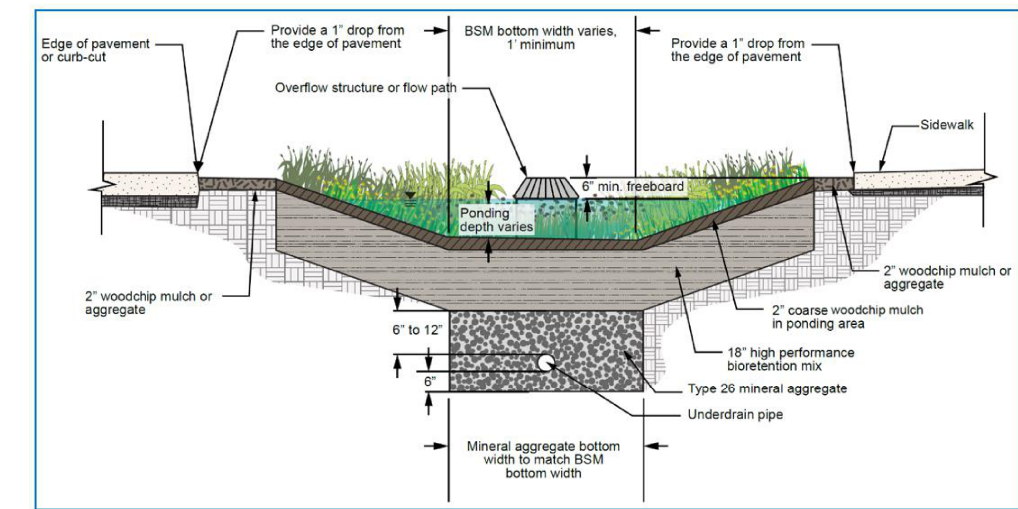
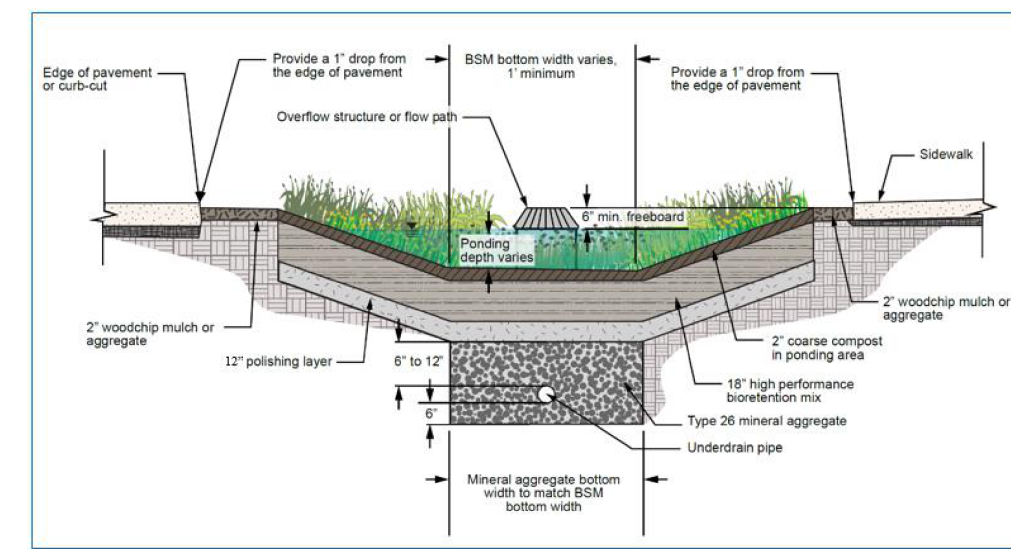


Figure 2. Typical Cross Section of Type 3 HPBSM



Type 1: HPBSM Primary Layer

The HPBSM Primary Layer media should be a blend of the following components in the following ratios:

Component	Ratio (by volume)
Filter Sand	70% (+/- 3%)
Coconut Coir Fiber	20% (+/- 2%)
High Carbon Wood Ash	10% (+/- 1%)

Coconut Coir Fiber

The Coconut Coir Fiber should be double rinsed and buffered, meeting the following requirements for quality:

Test / Method	Testing Responsibility ^a	Criterion	Requirement
Synthetic Precipitation Leaching Protocol (EPA Method 1312) and EPA Method 353.2	Proponent	NO ₃ +NO ₂	0.15 mg/L (Max.)
Synthetic Precipitation Leaching Protocol (EPA Method 1312) and NEMI Method SM 4500-P-E-99	Proponent	Total Phosphorus	0.15 mg/L (Max.)
		Ortho-phosphorus	0.15 mg/L (Max.)
Synthetic Precipitation Leaching Protocol (EPA Method 1312) and EPA Method 200.8 UCT-KED	Proponent	Copper	10 µg/L (Max.)
Test Methods for the Examination of Compost and Composting (TMECC) Method 04.10-A	Manufacturer	Electrical Conductivity	1.0 mmhos/cm (Max.)

^a Though the manufacturer will provide many of the tests indicated in this table, project proponents are encouraged to test the exact material which will be provided for their projects. Manufacturer tests are only run periodically on the source material not on the exact material supplied for the project.

Filter Sand

The aggregate shall be sand meeting the gradation below and the requirements of Section 9-03.1(2)(B) (Class 1) of the Washington State Department of Transportation Standard Specifications, and shall have a Coefficient of Uniformity of four (minimum). The filter sand gradation tolerances herein apply to the aggregate in the HPBSM Primary Layer media as well as the HPBSM Polishing Layer media (if used):

Sieve Size	Percent Passing Min.	Percent Passing Max.
3/8"	99	100
No. 4	95	100
No. 8	68	86
No. 16	47	65
No. 30	27	42
No. 50	9	20
No. 100	0	7
No. 200	0	2.5

The filter sand shall be thoroughly cleaned and free of dirt, clay, silt, asphalt, organic material, or other foreign matter and all aggregate passing the No. 200 sieve size shall be non-plastic. The filter sand shall meet the following requirements for quality:

Test / Method	Testing Responsibility ^a	Criterion	Requirement
Synthetic Precipitation Leaching Protocol (EPA Method 1312) and EPA Method 353.2	Proponent	NO ₃ -NO ₂	0.15 mg/L (Max.)
Synthetic Precipitation Leaching Protocol (EPA Method 1312) and NEMI Method SM 4500-P-E-99	Proponent	Total Phosphorus	0.15 mg/L (Max.)
		Ortho-phosphorus	0.15 mg/L (Max.)
Synthetic Precipitation Leaching Protocol (EPA Method 1312) and EPA Method 200.8 UCT-KED	Proponent	Copper	10 µg/L (Max.)

^a Though the supplier will provide many of the tests indicated in this table, project proponents are encouraged to test the exact material which will be provided for their projects. Supplier tests are only run periodically on the source material not on the exact material supplied for the project. This is particularly important for the aggregate gradation which has the strongest influence on system hydraulics.

High Carbon Wood Ash (Biochar)

The High Carbon Wood Ash (HCWA) should consist of screened and processed organic and inorganic residue remaining after the thermal processing of biomass in an oxygen-controlled environment. The biomass feed-stocks should be limited to clean cellululosic material from the 1) woody by-products of pacific northwest forestry operations (including cut residues left after a timber harvest, cut trees that are not marketable as lumber), 2) chipped trees and brush from biomass reduction operations (i.e. commercial tree trimming), and 3) agricultural residues such as nut shells, straw, orchard pruning, seeds, hulls, and pits. The biomass feedstocks should not include any post-consumer or post-industrial sourced woody biomass (i.e., construction or demolition waste, wood contaminated with paints or sealers, metal, plastic, or other deleterious materials).

The HCWA should be classified as a "Class 1" Biochar following the International Biochar Initiative (IBI) guidelines (IBI 2015).

The HCWA should be sourced from a producer with at least 5-years of experience producing HCWA for soil amendments and/or water filtration and meet the following requirements for quality and grading:

Test / Method	Testing Responsibility ^a	Criterion	Requirement
Synthetic Precipitation Leaching Protocol (EPA Method 1312) and EPA Method 353.2	Proponent	NO ₃ +NO ₂	0.15 mg/L (Max.)
Synthetic Precipitation Leaching Protocol (EPA Method 1312) and NEMI Method SM 4500-P-E-99	Proponent	Total Phosphorus	0.15 mg/L (Max.)
		Ortho-phosphorus	0.15 mg/L (Max.)
Synthetic Precipitation Leaching Protocol (EPA Method 1312) and EPA Method 200.8 UCT-KED	Proponent	Copper	10 µg/L (Max.)
Total C and H analysis by dry combustion-elemental analyzer (EPA Method 440.0). Inorganic C analysis by determination of CO ₂ -C content with 1N HCl, as outlined in ASTM D4373 Standard Test Method for Rapid Determination of Carbonate Content of Soils. Organic C calculated as Total C - Inorganic C.	Manufacturer	Organic Carbon (C _{org})	60% (Min.)
Proximate Analysis (ASTM D1762)	Manufacturer	H: C _{org}	0.7 (Max.)
		Volatile matter	20% (Max.)
Metals (EPA Method 6020)	Manufacturer	Ash	40% (Max.)
		Arsenic	20 ppm (Max.)

		Cadmium	10 ppm (Max.)
		Lead	150 ppm (Max.)
		Mercury	8 ppm (Max.)
		Molybdenum	9 ppm (Max.)
		Nickel	210 ppm (Max.)
		Selenium	18 ppm (Max.)
		Zinc	1400 ppm (Max.)
Total polycyclic aromatic hydrocarbons by US EPA 8270 (2007) using Soxhlet extraction (US EPA 3540) and 100% toluene as the extracting solvent	Manufacturer	PAH	300 ppm (Max.)
Dioxins/Furans TEQ EPA 8290 (2007)	Manufacturer	PCDD/Fs	17 ppb WHO-TEQ ^b (Max.)
Cation Exchange Capacity (USEPA Method 9081)	Manufacturer	milliequivalents CEC/100 g dry soil	Report
Gradation (ASTM D422)	Manufacturer	# 6	100% Passing
		# 100	10% Passing (Max.)

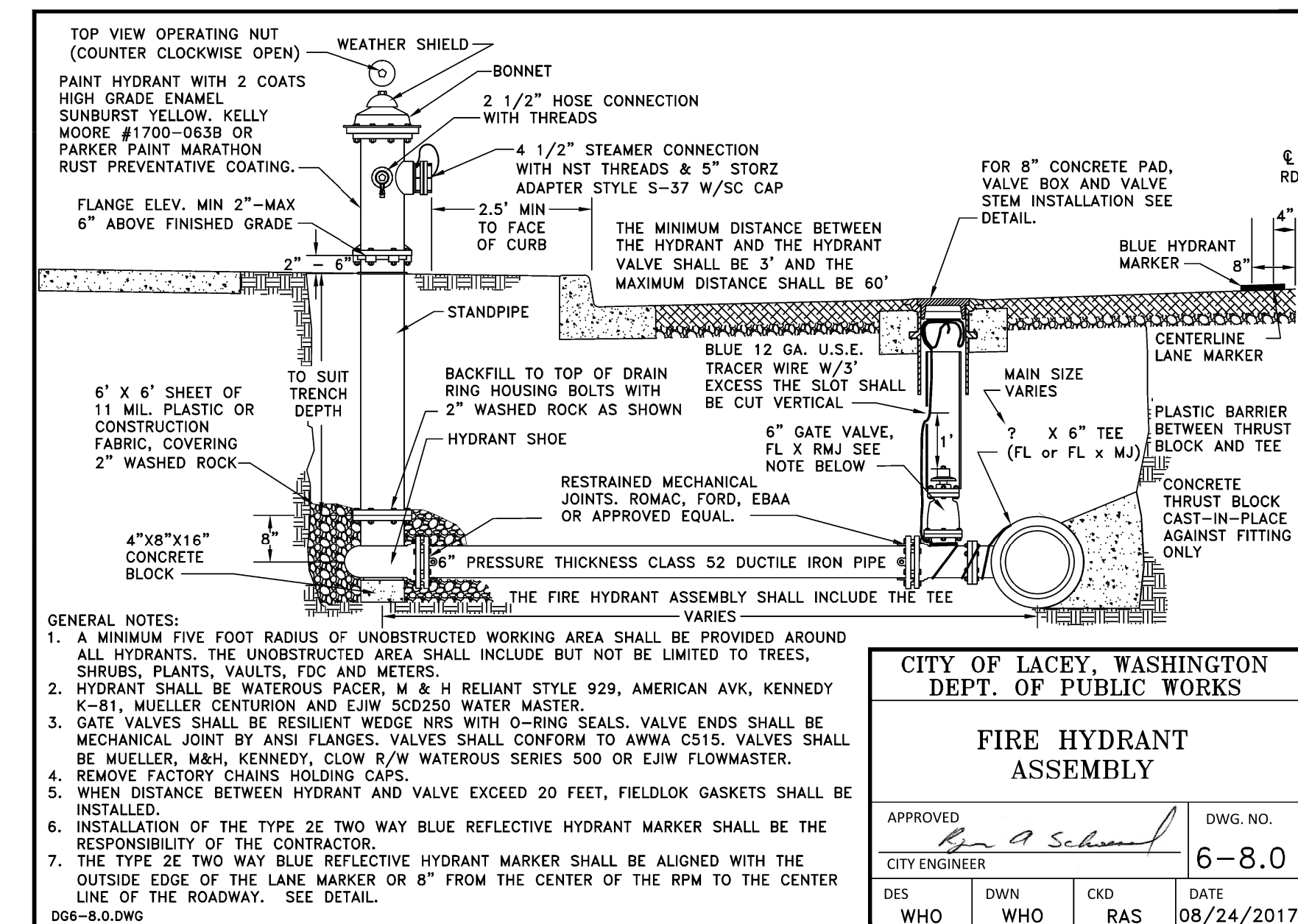
^a Though the manufacturer will provide many of the tests indicated in this table, project proponents are encouraged to test the exact material which will be provided for their projects. Manufacturer tests are only run periodically on the source material not on the exact material supplied for the project.
^b Toxic Equivalency (TEQ) is calculated by multiplying the concentration of each PCDD/F by its World Health Organization (WHO) Toxic Equivalency Factor (TEF) and summing the products.

HPBSM Polishing Layer

The HPBSM Polishing Layer media should be a blend of the following components in the following ratios:

Component	Ratio (by volume)
Filter Sand	91% (+/- 1%)
Activated Alumina	6.5% (+1% / - 0%)
Iron Aggregate	2.5% (+0% / -0.25%)

The HPBSM Polishing Layer media should be mechanically blended to produce a homogeneous mix by a blending vendor/contractor with at least 5-years of soil blending experience.



CITY OF LACEY, WASHINGTON DEPT. OF PUBLIC WORKS			
FIRE HYDRANT ASSEMBLY			
APPROVED:	DWG. NO.		
<i>Erik Schumacher</i>	6-8.0		
CITY ENGINEER	DES:	DWN:	CKD:
	WHO	WHO	RAS
			DATE: 08/24/2017

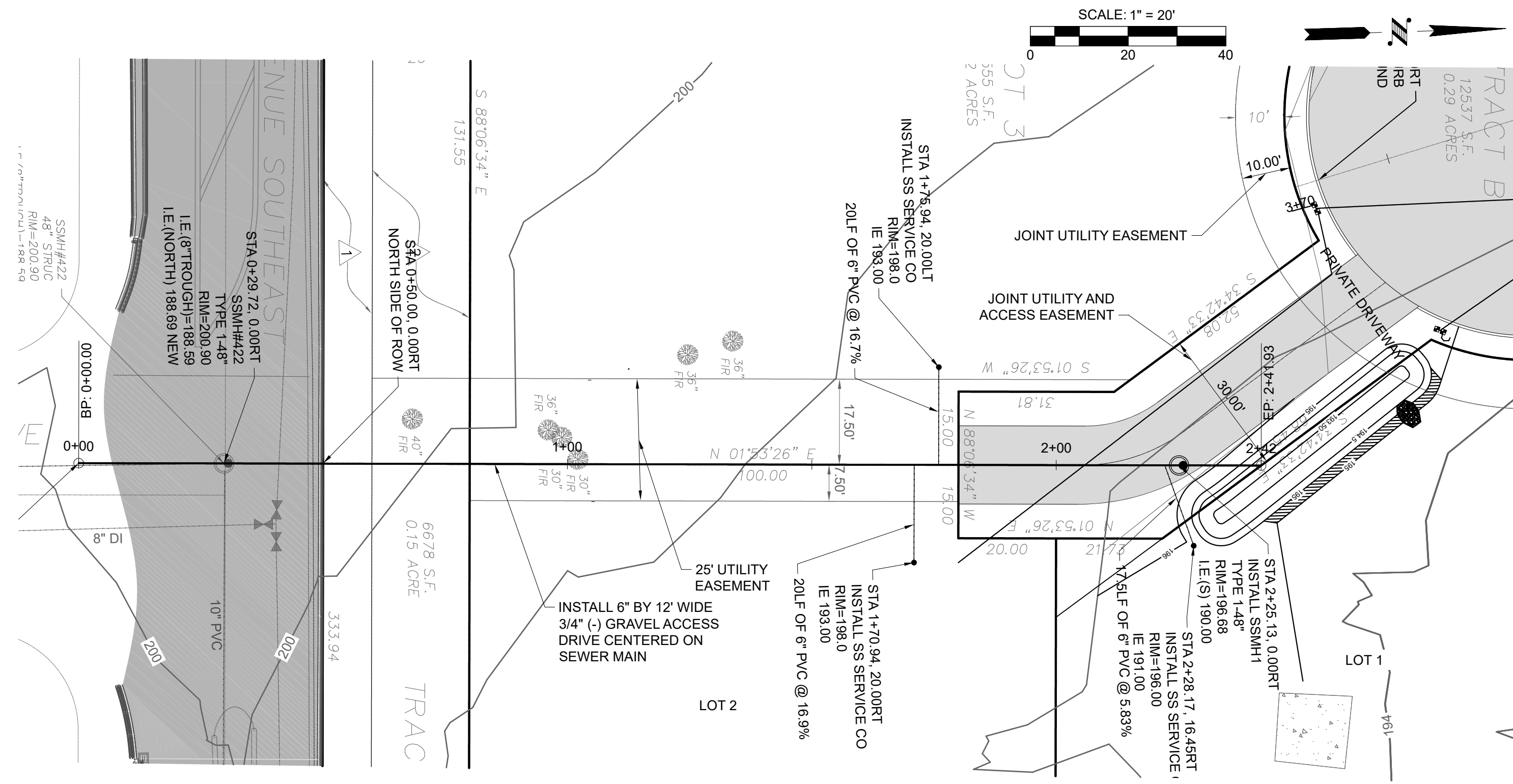
53RD AVE SHORT PLAT
WATER DETAILS

PROJECT: 53rd Ave. Short Plat APN 11834320000, 54th Ave SE Lacey, WA
CLIENT: Patty Mosure 1211 215TH PL SW, LYNNWOOD, WA 98036 mosurepatty@hotmail.com

DRAWN BY: EBA
DATE: 8/30/23
AGENCY NO:
SHEET: 11 OF 13
JOB NO: 21-100

RECORD DRAWING

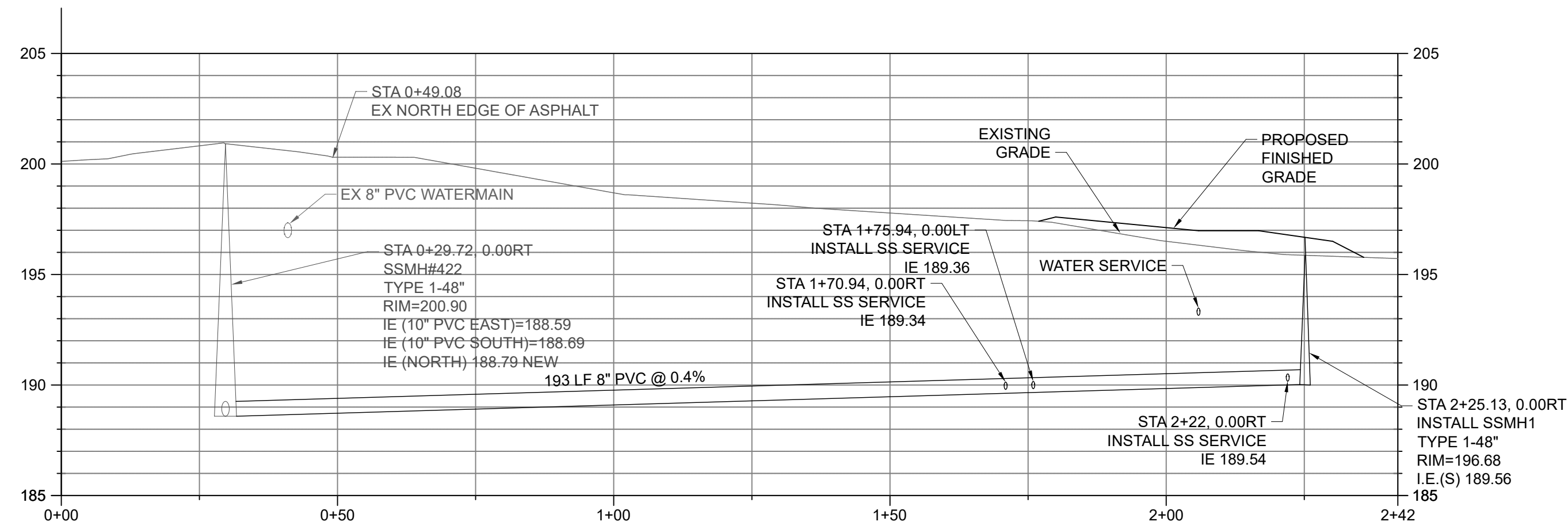
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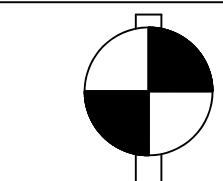
MATERIAL NOTE:

ALL 8-INCH PVC GRAVITY SEWER MAINS SHALL BE PVC ASTM D 3034 SDR 35
 6-INCH SEWER LATERALS SHALL BE PVC ASTM D 3034 SDR 35

PROFILE VIEW OF SEWER1



VERTICAL DATUM

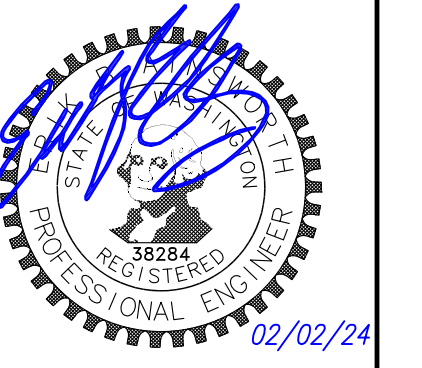


VERTICAL DATUM
 NGVD, 29
 THURSTON COUNTY HIGH PRECISION SURVEY
 CONTROL NETWORK CONTROL POINT #1335
 SURFACE MONUMENT WITH 2" BRASS CAP
 STAMPED "11019"
 CENTER OF 57th AVE & 161' WEST OF
 CENTER OF RUMAC STREET
 ELEV. = 197.687

BASIS OF BEARING

CITY OF LACEY COORDINATE SYSTEM BASED ON
 SURVEY RECORDED UNDER AUDITOR'S FILE NO.
 3111152

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 (360) 890-4806
 E-MAIL: erik@thelanddeveloper.com



REVISIONS:
 A RECORD DRAWING

DATE:
 02/02/24

53RD AVE SHORT PLAT

SEWER PLAN & PROFILE

RECORD DRAWING

PROJECT:
 53rd Ave. Short Plat
 APN 11834320000, 54th Ave SE
 Lacey, WA

CLIENT:
 Patty Masure
 1211 215TH PL SW, LYNNWOOD, WA 98036
 masurepatty@hotmail.com

DRAWN BY: EBA

DATE: 8/30/23

AGENCY NO:

SHEET: 12 OF 13

JOB NO: 21-100



SW 1/4, SECTION 34, TOWNSHIP 18 N., RANGE 1W., W.M.

SANITARY SEWER

SANITARY SEWER

SANITARY SEWER



Know what's below.
Call before you dig.

GENERAL NOTES (SANITARY SEWER MAIN INSTALLATION)

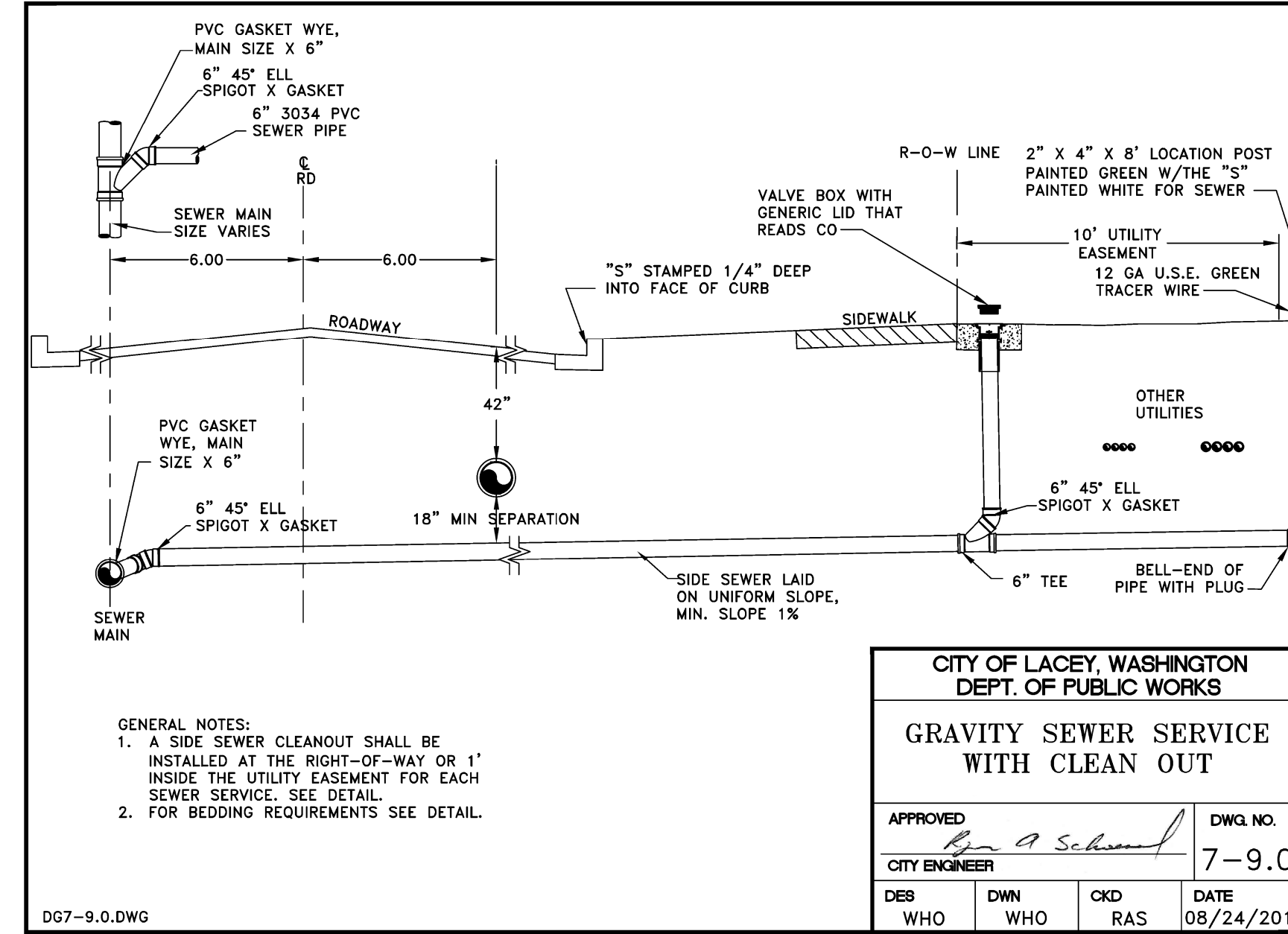
- Gravity sewer main shall be PVC, ASTM D 3034 SDR 35 or ASTM F 679 with joints and rubber gaskets conforming to ASTM D 3212 and ASTM F 477.
- Pre-cast manholes shall meet the requirements of ASTM C 478. Manholes shall be Type 1-48 inch manhole unless otherwise specified on the plans. All manhole bases shall be positive seal type as manufactured by Predl Systems North America Inc. or approved equal. Joints shall be rubber gasket conforming to ASTM C 443 and shall be grouted from the inside. Lift holes shall be grouted from the outside and inside of the manhole. (See Note 1.) Connection of a pipe line to a system where a manhole is not available shall be accomplished by the use of a saddle type or cast-in-place manhole. This is accomplished by pouring a concrete base and setting manhole sections on it. The existing pipe shall not be cut into until the manhole is vacuum tested and approved by the City. (See detail)
- Manhole frames and Logo Lids shall be EJ or Olympic Foundry WSDOT style ductile iron casting marked "City of Lacey", "Sewer", "Made in USA", "Confined Space", "Permit Required" and conforming to the requirements of ASTM A-30, Class 25. The frames and lids shall be free of porosity, shrink cavities, cold shuts, cracks, or any surface defects which would impair serviceability. The frames and lids shall be machine finished or ground on seating surfaces so as to assure a non-rocking, self seating fit in any position and be interchangeable in other standard manhole frames.

Lock-type covers shall be required in all multi-family complexes, on school grounds, on manholes containing odor control devices or as determined by the City. The manhole opening shall be centered over the outlet channel regardless of the location of the ladder rungs. All casting shall be coated with a bituminous coating prior to delivery to the job site.
- Side sewer services shall be PVC, ASTM D 3034 SDR 35 with flexible gasket joints (see detail). Side sewer connections shall be made by a tap to an existing main or a wye branch from a new main connected above the spring line of the pipe. When a tap is used to connect a new service lateral to an existing sewer main, televising from the closest manhole to 15 feet past the tap is required. Foreign objects and debris shall be removed by high pressure cleaning and/or vacuum removal.

- All sewer mains shall be field staked for grades and alignment in accordance with section 7A.030 of the Development Guidelines.
- All plastic pipe and services shall be installed with continuous green tracer tape 12 inches to 18 inches under the proposed finished sub grade. The marker shall be plastic non-biodegradable, metal core or backing, marked "sewer" which can be detected by a standard metal detector. Tape shall be Terra Tape "D" or approved equal. The tape shall be furnished by the contractor.
- All side sewer locations shall be marked on the face of the curb with an embossed "S" 3 inch high and 1/4 inch into concrete.
- Bedding of the sewer main shall be a minimum 6 inches of 3/8 inch minus pea gravel under the pipe and a minimum of 12 inches of 3/8 inch minus pea gravel over the pipe. When working in sensitive soils a barrier above the pea gravel may be required to prevent the fine soils from migrating into the pea gravel. All pea gravel shall be washed. Compaction of the backfill material shall be required in accordance with the above mentioned specification (See Note #1). The applicable Chapter 4-8 Trench Restoration details and detail 7-20 shall be used.
- Install a 4' x 4' square x 8 inch thick concrete pad with #4 rebar around all manhole frames and cleanouts that are not in a pavement area.
- All lines shall be high velocity cleaned and pressure tested prior to paving in conformance with the above referenced specifications, see note 1. Hydrant flushing of lines is not an acceptable cleaning method. Testing of the sanitary sewer main shall include videotaping of the main by the contractor. Immediately prior to videotaping, enough water shall be run down the line so it comes out the lower manhole. A copy of the video tape shall be submitted to the City of Lacey inspector. Acceptance of the line will be made after the tape has been reviewed and approved by the inspector. A vacuum test of all manholes in accordance with Lacey standard is also required. Testing shall take place after all underground utilities are installed and compaction of the roadway sub grade is completed. After the paving and raising of manholes are complete, the Developer shall clean and videotape the sewer conveyance system again at the Developer's expense. The method of cleaning shall be high velocity water pressure cleaning. All rocks and debris shall be removed and disposed at the Developer's expense.
- Contractors shall be responsible for cleanup of any debris in new or existing manholes and mains associated with the project after the new

- lines are cleaned as outlined above. The sewer system shall be televised to assure the system is clean.
- Encasement material shall include 1/4 inch steel, ductile iron and in special or unusual cases C-900 DR 14 PVC pipe may be allowed if approved by the Director of Public Works in advance. Concrete, CDF and other methods of encasement shall not be allowed.

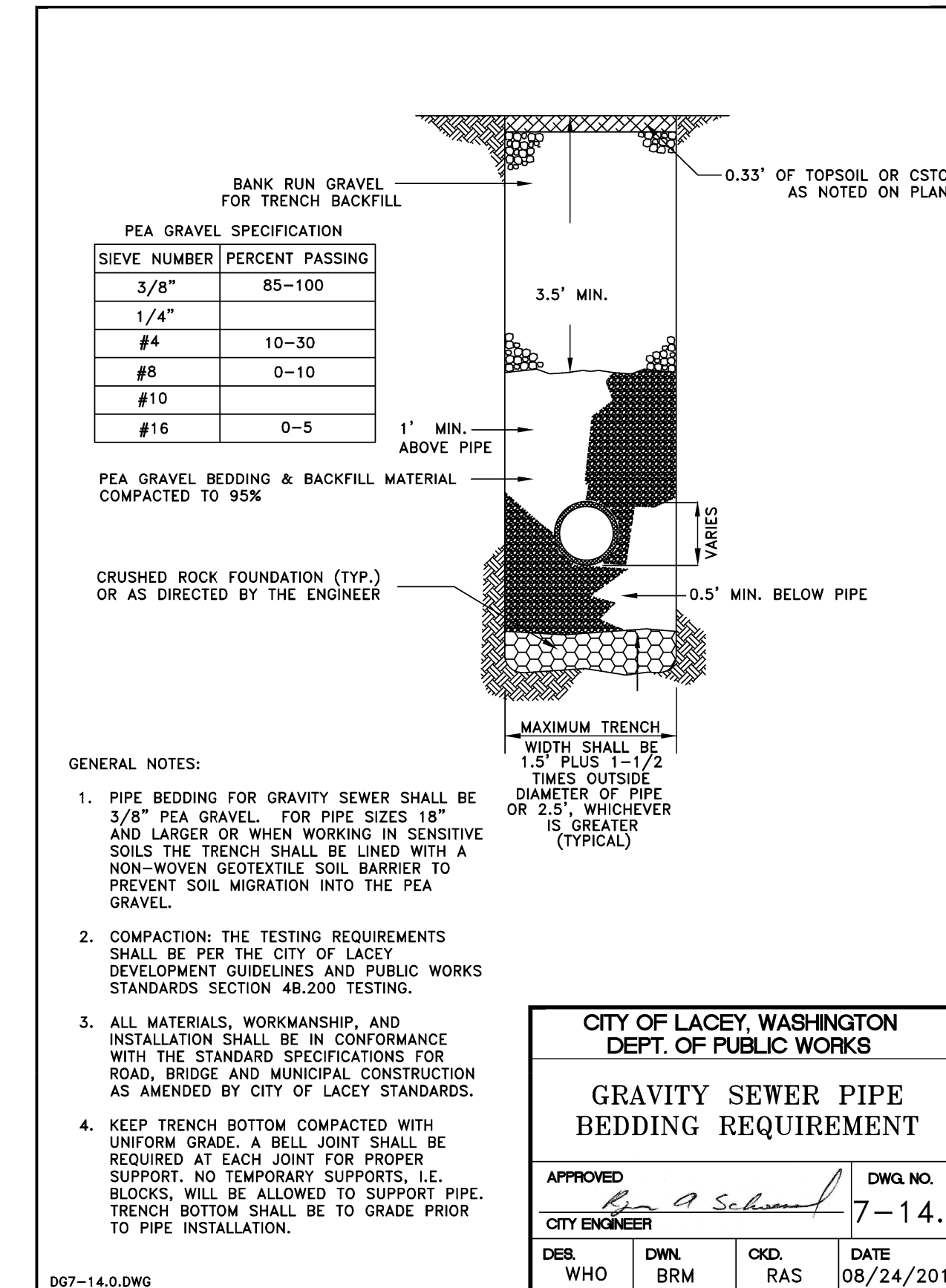
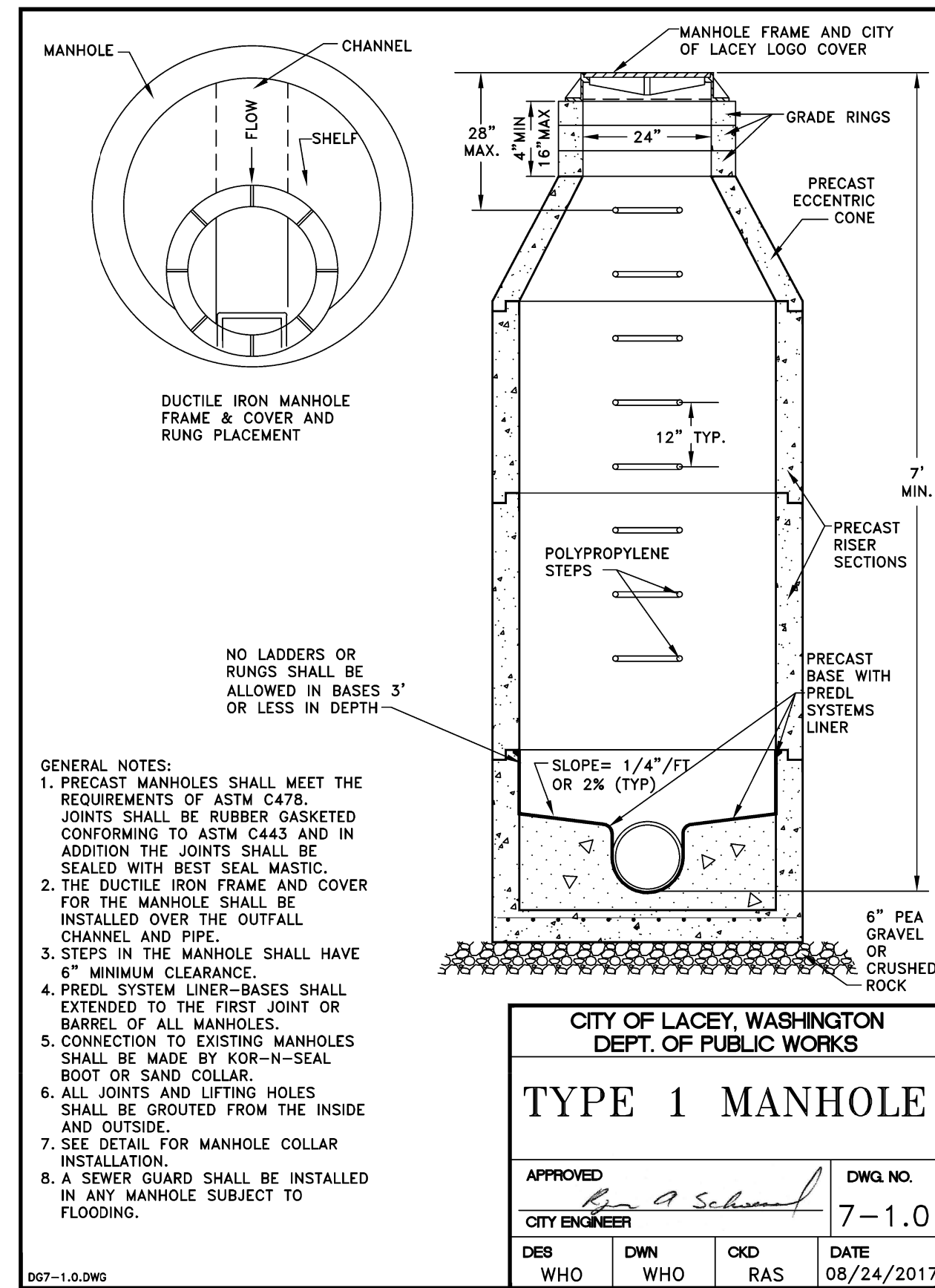
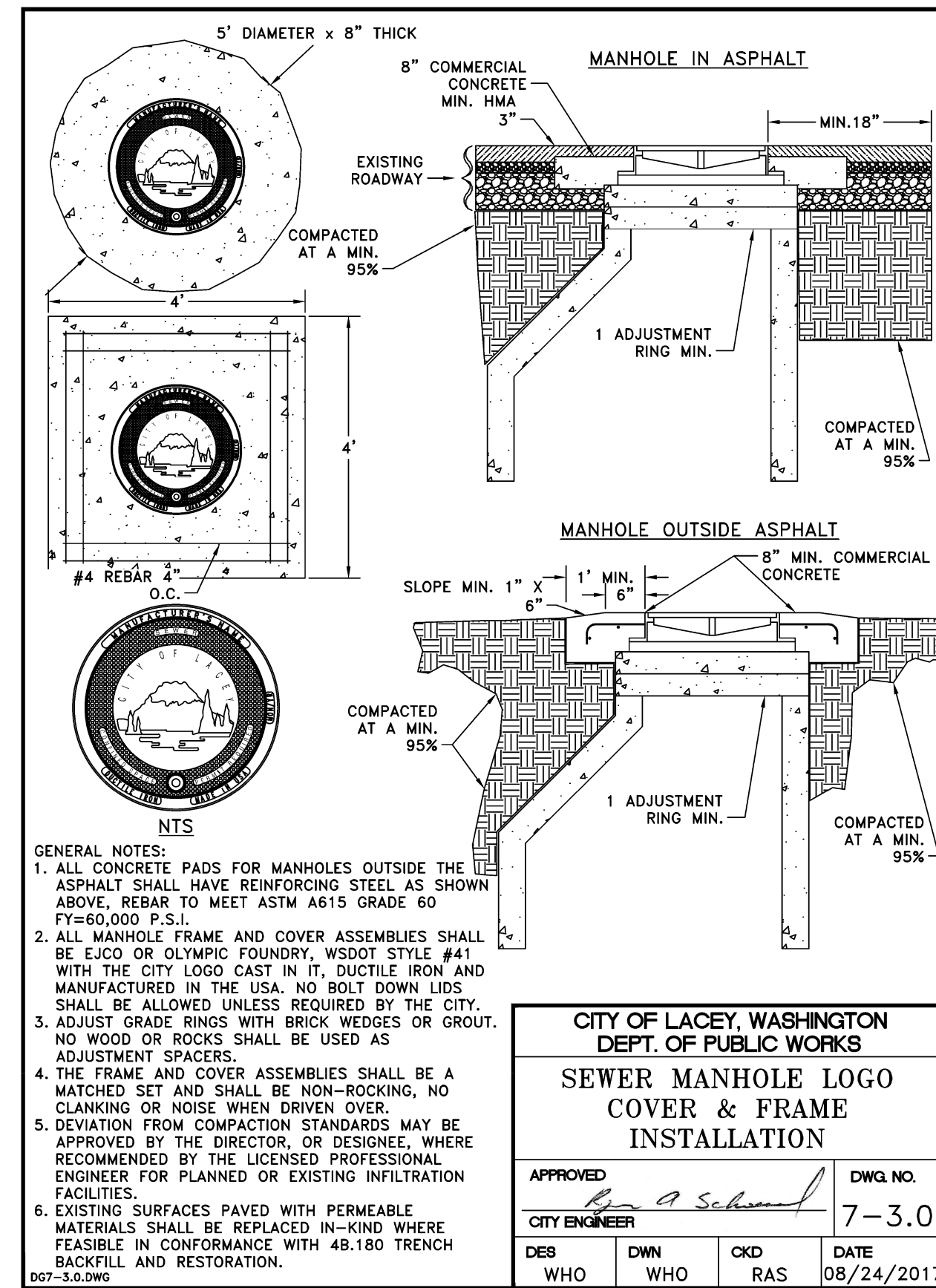
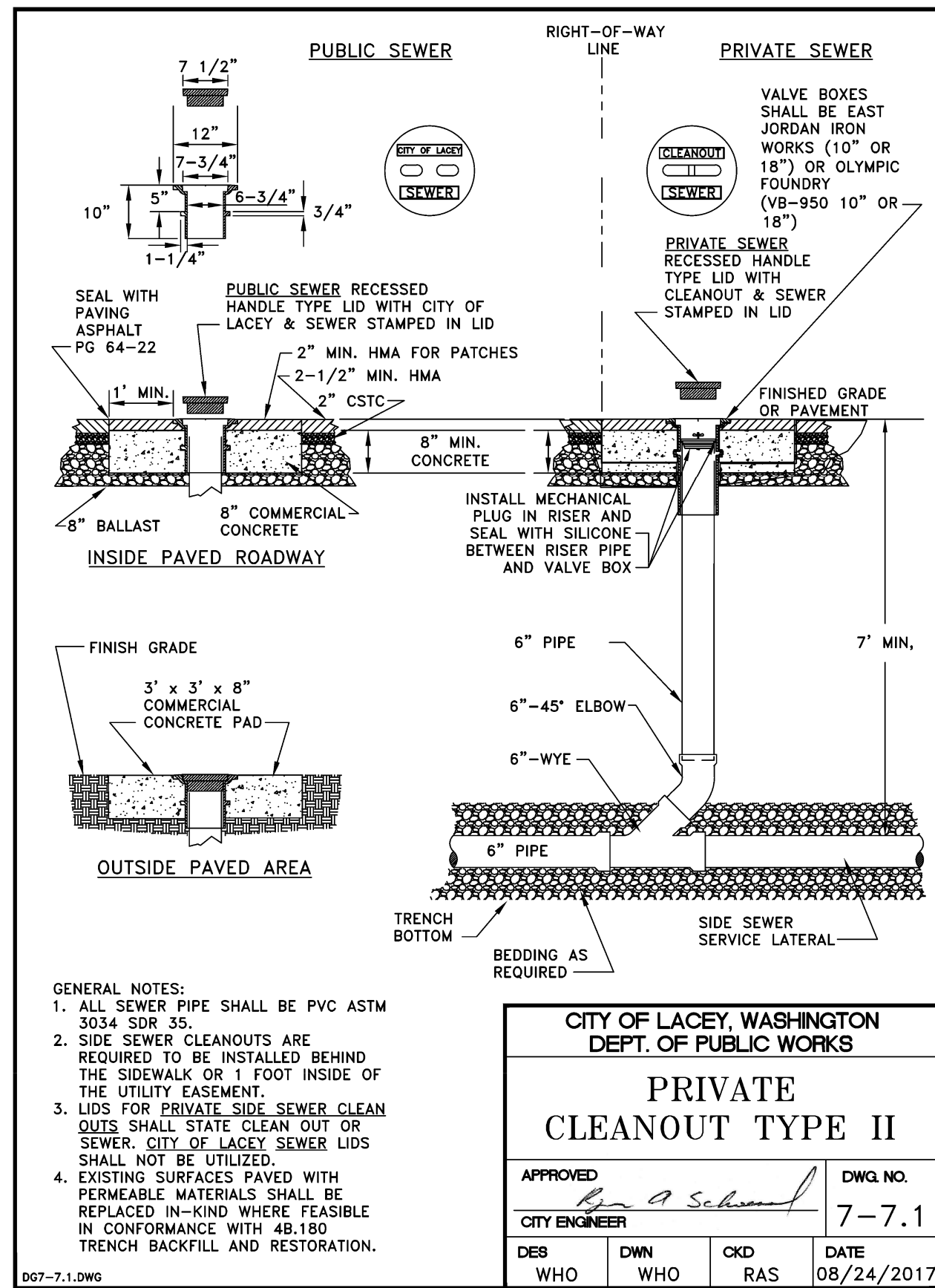
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08/2017 7 - 15

08/2017 7 - 16

08/2017 7 - 17



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DATE: 02/02/24
REVISIONS:
A RECORD DRAWING

533RD AVE SHORT PLAT
SEWER PLAN DETAILS

PROJECT:
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APN 11834320000, 54th Ave SE
Lacey, WA
CLIENT:
Patly Masure
1211 215TH PL SW., LYNNWOOD, WA 98036
masurepatly@hotmail.com

DRAWN BY: EBA
DATE: 8/30/23
AGENCY NO:
SHEET: 13 OF 13
JOB NO: 21-100

RECORD DRAWING