CONTRACT AND BONDS DOCUMENTS
FOR YOUNG STREET SANITARY SEWER IMPROVEMENTS PROJECT

PUBLIC WORKS DEPARTMENT
CITY OF WOODBURN, OREGON

YOUNG STREET SANITARY SEWER IMPROVEMENTS PROJECT

BID NUMBER:	**2022-10**
PROJECT NUMBER:	**2021-006-28**
BID OPENING DATE:	**June 16, 2022**
BID OPENING TIME:	**2:00 PM**
SUBSTANTIALLY COMPLETION DATE:	**December 19, 2022**
COMPLETION DATE	**January 18, 2023**

YOUNG STREET SANITARY SEWER IMPROVEMENTS PROJECT
BID DOCUMENTS

MAY 2022

EXPIRES: 12/31/2023

These Documents are the Property of the City of Woodburn

190 Garfield Street
Woodburn, OR 97071
(503) 982-5240

CONTRACT AND BONDS
FOR SEWER MAIN
CONSTRUCTION

YOUNG STREET SANITARY SEWER IMPROVEMENTS PROJECT

PROJECT No. 2021-006-28
BID NO. 2022-10

CITY OF WOODBURN
PUBLIC WORKS DEPARTMENT
WOODBURN, OREGON

ERIC SWENSON	MAYOR
DEBBIE CABRALES	COUNCIL WARD 1
ALI SWANSON	COUNCIL WARD 2
ROBERT CARNEY	COUNCIL WARD 3
SHARON SCHAUB	COUNCIL WARD 4
MARY BETH CORNWELL	COUNCIL WARD 5
BEN PUENTE JR.	COUNCIL WARD 6

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YOUNG STREET SANITARY SEWER IMPROVEMENTS PROJECT

PROJECT No. 2021-006-28
BID No. 2022-10

PART I – BID PREPARATION DOCUMENTS

INVITATION TO BID

By the
CITY OF WOODBURN
for
YOUNG STREET SANITARY SEWER IMPROVEMENTS PROJECT

PROJECT No. 2021-006-28
BID No. 2022-10

Sealed bids for the construction of ***"Young Street Sanitary Sewer Improvements Project"*** will be received by the City of Woodburn, OR at City Hall Annex, 190 Garfield St. until **2:00 PM, June 16, 2022** and will thereafter be publicly opened and read.

Proposals shall be addressed to the Public Works Director, City of Woodburn, and 190 Garfield St., Woodburn, OR 97071. Bids shall be submitted in a plain sealed envelope bearing the Bidder's name, the name of the project and the date and time of the Bid opening, and shall be marked **"Bid No. 2022-10"** and bidders shall indicate on the Form of Proposal that ***"Bidder will comply with the provisions of Chapter 279C.800 through 279C.870, Oregon Revised Statutes"***.

The major items of work are estimated (approximate) quantities as follows:

1. Street reconstruction, 1,102 tons of asphaltic concrete, 1,790 tons of aggregate base, 340 foot of concrete curb.
2. Sidewalk and driveway reconstruction, 1,620 square feet of concrete.
3. Sanitary Sewer improvements, 3,931 LF of different pipe sizes and materials, and 16 concrete manholes of different sizes.

Electronic plan sets are available for viewing and downloading on the Engineering Division's website at: **http://www.ci.woodburn.or.us/?q=blog-categories/bids-and-rfps** and/or have been downloaded by the following plan centers.

DJC Plan Center – Portland, OR
Contractor's Plan Center – Clackamas, OR
Salem Contractor's Exchange – Salem, OR

Copies of the Bid Documents may be obtained from the City Engineer's Office upon deposit of a non-refundable fee of fifty dollars ($50.00) for each set.

There is no pre-bid conference scheduled. Those not familiar with the project can visit the site at the Street sites as indicated on the Location Map of the Drawings.

Bidders must be pre-qualified in accordance with the laws of the State of Oregon. Completed pre-qualification forms or proof of pre-qualification shall conform to the Special Provisions. Only bids from pre-qualified Bidders will be opened.

No bid for a construction contract shall be received or considered unless the bidder is registered with the Construction Contractors Board. The Contractor and every Subcontractor must have a Public Works Bond filed with the CCB before starting work on the project.

Bidders on this project need not be licensed for asbestos handling pursuant to ORS 468A.720. Each bidder must indicate on the bid form whether they are a resident or nonresident bidder as defined in ORS 279A.120 (b).

All proposals shall be made on the proposal forms. All proposals shall be accompanied by a Bid Bond, equal to ten percent (10%) of the total bid. Bid Bond shall be forfeited to the City if the Contractor fails to execute the contract within time allotted under the specifications.

Pursuant to ORS 279C.370, bidders on public works projects with a contract value of $100,000 or more are required to disclose, 2-hours after bid opening, the bidders first-tier subcontractors. The bidder shall provide the information as required on City of Woodburn first-tier disclosure form, provided in the contract documents**.**

At the discretion of the Project Manager, Addenda (um) and Contract clarifications shall either be posted on the City, Engineering Division website or delivered to Plan Holders via facsimile. Potential Bidders should check the website on a daily basis until the Bid Opening date. The website can be found at **http://www.ci.woodburn.or.us/?q=blog-categories/bids-and-rfps**. Addenda must be signed and submitted with the Bid Proposal to be considered a responsive offer.

Although contract award is expected to be made by the City Council on **Monday, June 27, 2022** the City of Woodburn reserves the right to reject any and all bids not in compliance with prescribed bidding procedures and requirements, and may reject for good cause any and all bids upon a finding of the Agency if it is in the public interest to do so. The three (3) lowest bidders may not withdraw or modify his bid prior to the lapse of 35-days after the bid opening.

This project must be substantially completed not later than Monday, December 19, 2022.

All project work shall be completed by Wednesday, January 18, 2023.

Heather Pierson
City Recorder
City of Woodburn, OR 97071

INSTRUCTIONS TO BIDDERS
BID No.: 2022-10

1. GENERAL:

A. SPECIFICATIONS – The Specifications that is applicable to the Work on this Project is the 2021 edition of the "Oregon Standard Specifications for Construction" and as modified by Special Provisions.

B. This is a formal procure. Faxed bids will not be accepted.

C. Bidding requirements and obligations shall comply and conform to Part 00100 of the General Conditions of the Standard Specifications or as modified by the Special Provisions or herein.

2. SECURING CONTRACT DOCUMENTS:

A. Copies of the Contract Documents are on file with the Public Works Department - Engineering Division, located at:

City Hall Annex
190 Garfield Street
Woodburn, OR 97071.

B. Questions regarding bidding, materials or technical requirements should be directed to the Project Manager at:

Dago Garcia, City Engineer
190 Garfield St.
Woodburn, OR 97071
Phone: 503.982.5248
Email: dago.garcia@ci.woodburn.or.us

C. Bidder is responsible for completing and returning all page(s), attachment(s) which require a response.

D. Plan Holder's List – An electronic copy of the "Plan Holders List" is provided on the Agency website and will be periodically updated. Contractors, suppliers and others wishing to be added to this list should contact the Project Manager as identified in 2.B.

E. Project Notifications – Addenda, clarifications, etc. shall be posted on the Agency website and are the responsibility of the Contractor to download before submission of bids. Contractor shall sign and submit with offer all Addenda associated (posted on website) with the project.

3. PROJECT FINANCING:

A. This project is financed and paid for by the City of Woodburn Urban Renewal.

C. The Engineer's cost estimated range for the construction of this project is between: $2,500,000 and $3,500,000.

D. This project is subject to the prevailing wages rates under the Oregon Prevailing Wages Law (BOLI).

E. This project is subject to prevailing wage rates available at:

https://www.oregon.gov/boli/employers/pages/prevailing-wage.aspx
and listed as " Prevailing Wage Rates for Public Works Contracts in Oregon effective January 1, 2022**".**

4. CONSTRUCTION AGREEMENT

A. The construction contract between Owner and Contractor shall be provided by The City of Woodburn. A sample Agreement is included in these documents.

5. PREBID CONFERENCE:

B. No pre-bid conference is required nor scheduled for this project.

6. AWARD OF THE CONTRACT:

A. Award of the Contract, by the Contract Review Board (City Council), will be by recommendation of the Public Works Department, based on the lowest cost offer of the responsive and responsible Bidder in accordance with Section 00130 of the Oregon Standard Construction Specifications and all modifications by Special Provisions.

7. SPECIAL CONCERNS:

A. Provide access to all businesses, schools, and residents at all times.
B. Provide access to first responders at all times.
C. Services, such as delivery, waste management, mail, shall be maintained all times throughout all construction activities.

8. TIME OF COMPLETION:

A. The project shall be substantially completed not later than Monday, December 19, 2022.
B. All project work shall be completed by Wednesday, January 18, 2023.

PART II – BID FORMS

CERTIFICATION PAGE

Each Bidder (offeror) must read and comply with the following Sections. Failure to do so may result in bid/proposal (offer) rejection.

RESIDENCY INFORMATION

ORS 279A.120 (2) states "For the purposes of awarding a public contract, a contracting agency shall: (a) Give preference to goods or services that have been manufactured or produced in this state if price, fitness, availability and quality are otherwise equal; and (b) Add a percent increase to the bid of a nonresident bidder equal to the percent, if any, of the preference given to the bidder in the state in which the bidder resides."

"Resident bidder" means a bidder that has paid unemployment taxes or income taxes in this state during the 12 calendar months immediately preceding submission of the bid, has a business address in this state and has stated in the bid whether the bidder is a "resident bidder" [ORS 279A.120(1)(b)].

"Non-resident bidder" means a bidder who is not a "resident bidder" as defined above [ORS 279A.120 (1) (b)].

Check one: Bidder is a (☐) RESIDENT bidder (☐) NON-RESIDENT bidder.

CERTIFICATION OF COMPLIANCE WITH DISCRIMINATION LAWS

By my signature in Form of Proposal, I hereby attest or affirm under penalty of perjury that I am authorized to act on behalf of Contractor in this matter, and to the best of my knowledge the Contractor has not discriminated against minority, women or emerging small business enterprises certified under ORS 200.055, in obtaining any required subcontract or against a business enterprise that is owned or controlled by or that employs a disable veteran as defined in ORS 408.225.

CERTIFICATION OF COMPLIANCE WITH OREGON TAX LAWS

By my signature in Form of Proposal, I hereby attest or affirm under penalty of perjury that I am authorized to act on behalf of Contractor in this matter that I have authority and knowledge regarding the payment of taxes, and that Contractor is, to the best of my knowledge, not in violation of any Oregon Tax Laws.

For purposes of this certificate, 'Oregon Tax Laws' means those programs listed in ORS 305.380(4) which is incorporated herein by this reference. Examples include the state inheritance tax, personal income tax, withholding tax, corporation income and excise taxes, amusement device tax, timber taxes, cigarette tax, other tobacco tax, 9-1-1 emergency communications tax, the homeowners and renters property tax relief program and local taxes administered by the Department of Revenue.

VERIFICATION OF RESPONSIBILITY

The City reserves the right, pursuant to ORS 279C.375 and OAR 137-049-0390, to investigate and evaluate, at any time prior to award and execution of the contract, the lowest bidder's (apparent successful offeror's) ability to perform the contract. Submission of a signed offer shall constitute approval for the City to obtain any information the City deems necessary to conduct the evaluation. The City shall notify the apparent successful offeror, in writing, of any other documentation required. Being a responsible bidder may include having the appropriate financial, material, equipment, facility and personnel resources and expertise, or ability to obtain the resources and expertise to perform the contract. Contractor shall have a satisfactory record of contract performance. The Contractor shall also have a satisfactory record of integrity. An unsatisfactory record of integrity may include previous violations of state environmental laws or a false certifications made to any Public Agency. The Contractor is to be qualified legally to contract with the City of Woodburn. Failure to promptly provide any requested information may result in bid/proposal rejection.

The City may postpone the award of the contract after announcement of the apparent successful offeror in order to complete its investigation and evaluation. Failure of the apparent successful offeror to demonstrate responsibility, as required under ORS 279C.375 and OAR 137-049-0390, may render the offeror non-responsible and shall constitute grounds for offer rejection.

DRUG TESTING POLICY CERTIFICATION

DRUG-TESTING POLICY CERTIFICATION:

By my signature in Form of Proposal, I hereby attest or affirm under penalty of perjury that I am authorized to act on behalf of Contractor in the matter, and to the best of my knowledge the Contractor has a drug-testing program in place which applies to all employees. Contractor shall maintain a drug-testing program at all times during the performance of the Contract awarded. Failure to maintain such a program shall constitute a material breach of contract. [ORS 279C.505J

FORM OF PROPOSAL
For
YOUNG STREET SANITARY SEWER IMPROVEMENTS PROJECT

PROJECT No. 2021-006-28
Bid No. 2022-10

Honorable Mayor and City Council
City Hall
Woodburn, Oregon 97071

The undersigned, hereinafter called the Bidder, declares that the only persons or parties interested in this Proposal are those named herein, that the Proposal is in all respects fair and without fraud, which it is made without any connection or collusion with any person making another Proposal on this Contract.

The Bidder further declares that he has carefully examined the Contract Documents for the construction of the proposed improvements; that he has personally inspected the site; that he has satisfied himself as to the quantities of materials, items of equipment, and conditions or work involved, including the fact that the description of work and materials as included herein, is brief and is intended only to indicate the general nature of such items and to identify the said quantities with the detailed requirements of the Contract Documents; and that this Proposal is made according to the provisions and the terms of the Contract Documents, which Documents are herein attached and are hereby made a part of this Proposal.

The Bidder further agrees to complete construction of all work in all respects in accordance with the Special Provisions incorporated herein.

In the event the Bidder is awarded the Contract and shall fail to complete the work within the time limit set under Specifications of this document or extended time limit agreed upon, as more particularly set forth in the Contract Documents, liquidated damages shall be paid to the City of Woodburn, Oregon, using the rate formula outlined in the Special Provisions, and not less than $150.00 per day, until the work shall have been finished, as provided by the Contract Documents.

The Bidder further proposes to accept as full payment for the work proposed herein the amount computed under the provisions of the Contract Documents and based on the following unit price amounts, it being expressly understood that the unit prices are independent of the exact quantities involved, that they represent a true measure of the labor and material required to perform the work, including all allowance for overhead and profit for each type and unit of work called for in these Contract Documents.

The amounts shall be shown in both words and figures. In case of discrepancy, the amount shown in words shall govern.

It is declared that the Bidder will comply with all provisions of ORS 279C.840. The workmen on the project will be paid Oregon Prevailing Wage Rates (also called "PWR").

It is agreed that if the Bidder is awarded the Contract for the work herein proposed and shall fail or refuse to execute the Contract and furnish the specified Performance Bond within ten (10) calendar days after receipt of notification of acceptance of his Proposal, then, in that event, the bid security in the sum of:

(In Words):_____

(In Numbers): $_____

deposited herewith according to the conditions of the Advertisement for Bids and Information to Bidders, shall be retained by the City of Woodburn, Oregon, as liquidated damages; and it is agreed that the said sum is a fair measure of the amount of damage the City of Woodburn will sustain in case the Bidder shall fail or refuse to enter into the contract for the said work and to furnish the Performance Bond as specified in the Contract Documents. Bid security in the form of a certified check shall be subject to the same requirements as a bid bond.

If the Bidder is awarded a construction contract on this proposal, the surety who will provide the Performance Bond will be:

_____ Whose address is:

_____, _____, _____
Street City State Zip

Agents Name: _____ _____
Phone No.

The address for all communications concerned with this Proposal and where the Contract shall be sent is:

Contractor: _____ doing business at:

_____ , _____, _____
Street City State Zip

BID SCHEDULE YOUNG STREET SANITARY SEWER IMPROVEMENTS PROJECT					
Item #	**Description**	**Unit**	**Unit Price**	**Quantity**	**Total**
	TEMPORARY FEATURES AND APPURTENANCES				
1	MOBILIZATION (10%)	LS	$	1	$
2	STRIPE REMOVAL	FOOT	$	9,170	$
3	LEGEND REMOVAL	SQFT	$	128	$
4	BAR REMOVAL	SQFT	$	274	$
5	INLET PROTECTION, TYPE 3	EACH	$	16	$
6	CONSTRUCTION ENTRANCE, TYPE 1	EACH	$	2	$
7	POLLUTION CONTROL PLAN (0.5%)	LS	$	1	$
	ROADWORK				
8	REMOVAL OF CURBS	FOOT	$	340	$
9	REMOVAL OF SURFACINGS	SQYD	$	3,040	$
10	ASPHALT PAVEMENT SAW CUTTING (10 -15 INCH DEPTH)	LS	$	1	$
	SEWER/STORMWATER				
11	TUNNELING, BORING, AND JACKING	LS	$	1	$
12	4 INCH SANITARY SEWER PIPE, 20 FT DEPTH	FOOT	$	1,079	$
13	8 INCH SANITARY SEWER PIPE, 10 FT DEPTH	FOOT	$	68	$
14	8 INCH SANITARY SEWER PIPE, 20 FT DEPTH	FOOT	$	87	$
15	10 INCH SANITARY SEWER PIPE, 10 FT DEPTH	FOOT	$	43	$
16	12 INCH SANITARY SEWER PIPE, 20 FT DEPTH	FOOT	$	217	$
17	18 INCH SANITARY SEWER PIPE, 20 FT DEPTH	FOOT	$	2,029	$
18	CONCRETE SANITARY SEWER MANHOLES WITH EXTENDED BASE, 48 INCH DIAMETER	EACH	$	5	$
19	CONCRETE SANITARY SEWER MANHOLES WITH EXTENDED BASE, 48 INCH DIAMETER OVER EXISTING LINE	EACH	$	3	$
20	CONCRETE SANITARY SEWER MANHOLES WITH EXTENDED BASE, 96 INCH DIAMETER	EACH	$	1	$
21	CONCRETE SANITARY SEWER MANHOLES, OUTSIDE DROP WITH EXTENDED BASE, 48 INCH DIAMETER	EACH	$	5	$
22	CONCRETE SANITARY SEWER MANHOLES, OUTSIDE DROP WITH EXTENDED BASE, 48 INCH DIAMETER, OVER EXISTING LINE	EACH	$	1	$
23	CONCRETE SANITARY SEWER MANHOLES, OUTSIDE DROP WITH EXTENDED BASE, 60 INCH DIAMETER	EACH	$	1	$
24	CONNECTION TO EXISTING STRUCTURES	EACH	$	7	$
	BASES				
25	3/4 INCH - 0 AGGREGATE BASE	TON	$	1,790	$
	WEARING SURFACES				
26	EMULSIFIED ASPHALT IN FOG COAT	LS	$	1	$
27	LEVEL 3, 1/2 INCH ACP MIXTURE	TON	$	1,030	$
28	PG 64-22 ASPHALT IN 1/2 ACP	TON	$	70	$

29	CONCRETE CURBS, STANDARD CURB	FOOT	$	340	$
30	CONCRETE DRIVEWAYS	SQFT	$	630	$
31	CONCRETE WALKS	SQFT	$	990	$

	PERMANENT TRAFFIC SAFETY AND GUIDANCE DEVICES				
32	LONGITUDINAL PAVEMENT MARKINGS - PAINT	FOOT	$	9,170	$
33	PAVEMENT LEGEND, TYPE B-HS: BICYCLE LANE STENCIL	EACH	$	4	$
34	PAVEMENT BAR: TYPE AB	SQFT	$	274	$

	RIGHT OF WAY DEVELOPMENT AND CONTROL				
35	PERMANENT SEEDING	ACRE	$	0.3	$

	SPECIAL PROVISIONS				
36	CONSTRUCTION STAKING	LS	$	1	$
37	TRAFFIC CONTROL PLAN	LS	$	1	$
38	WOOD CHIP ACCESS MATS	SQFT	$	10,870	$
39	DEWATERING	LS	$	1	$
40	ADVANCED DEWATERING	EWO	$100,000	1	$100,000
41	SANITARY SEWER CLEANOUT	EACH	$	38	$
42	BYPASS PUMPING	LS	$	1	$
43	LAUNCHING PIT SHAFT EXCAVATION AND BACKFILL	EACH	$	4	$
44	RECEIVING PIT SHAFT EXCAVATION AND BACKFILL	EACH	$	3	$
45	TRENCHLESS 18 INCH SANITARY SEWER INSTALLATION STATION 8+00 TO STATION 8+83	FOOT	$	83	$
46	TRENCHLESS 18 INCH SANITARY SEWER INSTALLATION STATION 8+83 TO STATION 9+45.84	FOOT	$	63	$
47	TRENCHLESS 18 INCH SANITARY SEWER INSTALLATION STATION 40+19.85 TO STATION 41+77.88	FOOT	$	158	$
48	TRENCHLESS 24 INCH SANITARY SEWER INSTALLATION STATION 41+77.88 TO STATION 42+81.51	FOOT	$	104	$
49	FILLING ABANDONED MANHOLES	LS	$	1	$
50	FILLING ABANDONED PIPE	LS	$	1	$
51	SEALING EXISTING MANHOLE (SS MH 101-E)	EACH	$	1	$
				Total	***$***

The names of the principal officers of the corporation submitting this Proposal, or of the partnership, or of all persons interested in this Proposal as principals are as follows:

_____

_____

_____

_____

(If Sole Proprietor or Partnership)

In witness hereto the undersigned has set his (its) hand this_____ day of _____, 20___.

_____ _____

Signature of Bidder Title (If Corporation)

In witness whereof the undersigned corporation has caused this instrument to be executed and its seal affixed by its duly authorized officer this_____ day of _____, 20___.

Name of Corp: _____

Oregon Corp. No: _____

By: _____

Title: _____

CCB No: _____

Attest: _____

Secretary

_____*"Bidder will comply with the provisions of Oregon Revised Statutes (ORS) 279C.840".*

Initial

Attest: _____

Bidder

CITY OF WOODBURN, OR

FIRST-TIER SUBCONTRACTOR DISCLOSURE FORM

PROJECT NAME:	**Young Street Sanitary Sewer Improvements Project**		
PROJECT No:	**2021-006-028**	BID No:	**2022-10**
BID CLOSING DATE:	**June 16, 2022**	TIME:	**2:00 PM**
DISCLOSURE DEADLINE DATE:	**June 16, 2022**	TIME:	**4:00 PM**

This form must be submitted at the location specified in the Invitation to Bid on the advertised bid closing date with in two working hours after the advertised bid closing.

List below the name of each subcontractor that will be furnishing labor or materials and that is required to be disclosed, the category of work that the subcontractor will be performing and the dollar value of the subcontract. Enter "None" if there are no subcontractors that need to be disclosed. (IF NEEDED, ATTACH ADDITIONAL SHEETS.)

	NAME	DOLLAR VALUE	CATEGORY OF WORK
1		$	
2		$	
3		$	
4		$	
5		$	

The above listed first-tier subcontractor(s) are providing labor and/or materials with a Dollar Value equal to or greater than:

a. 5% of the total contract price or $15,000 (including all alternates), whichever is greater; or

b. $350,000.00 regardless of the percentage of the total Contract Price.

FAILURE TO SUBMIT THIS FORM FILLED OUT BY THE DISCLOSURE DEADLINE WILL RESULT IN A NON-RESPONSIVE BID. A NON-RESPONSIVE BID WILL NOT BE CONSIDERED FOR AWARD.

Form Submitted by (Bidder Name): _____

Contact Name: _____ **Phone No:** _____

Deliver Form to Agency: CITY OF WOODBURN

Person Designated to Receive Form: CITY ENGINEER

Agency's Address: 190 Garfield Street, Woodburn, OR 97071

UNLESS OTHERWISE STATED IN THE ORIGINAL SOLICITATION, THIS DOCUMENT SHALL NOT BE FAXED.

CITY OF WOODBURN, OR

CONTRACTOR AND SUBCONTRACTOR QUALIFICATION INFORMATION

PROJECT NAME:	**Young Street Sanitary Sewer Improvements Project**		
PROJECT No:	**2021-006-28**	BID No:	**2022-10**
BID CLOSING DATE:	**June 16, 2022**	TIME:	**2:00 PM**
DISCLOSURE DEADLINE DATE:	**June 16, 2022**	TIME:	**4:00 PM**

This form must be submitted at the location specified in the Invitation to Bid on the advertised bid closing date.

Provide the qualifications required as identified in the Special Provisions and Listed below.

1. **CONTRACTOR SHALL SUBMIT QUALIFICATIONS AS IDENTIFIED IN SPECIAL SPECIFICATION S-21, LAUNCHING & RECEIVING SHAFT EXCAVATIONS**
   a. Subsection 1.3

2. **CONTRACTOR SHALL SUBMIT QUALIFICATIONS AS IDENTIFIED IN SPECIAL SPECIFICATION S-22, TRENCHLESS SANITARY SEWER INSTALLATION**
   a. Subsection 22.1.3
   b. Subsection 22.2.3
   c. Subsection 22.3.3

Form Submitted by (Bidder Name): _____

Contact Name: _____ **Phone No:** _____

Deliver Form to Agency:	CITY OF WOODBURN
Person Designated to Receive Form:	CITY ENGINEER
Agency's Address:	190 Garfield Street, Woodburn, OR 97071

BID SUBMITTAL CHECKLIST

The following is a checklist of the items that shall be submitted with the Bidder's bid Proposal

- ❑ Form of Proposal
- ❑ Bid Bond
- ❑ First-Tier Subcontractor Disclosure Form (Submit within two hours after bid opening time)
- ❑ Certification Page

PART III – CONTRACT FORMS

SAMPLE FORM

ACORD™ CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

PRODUCER FAX

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURED

INSURERS AFFORDING COVERAGE	NAIC #
INSURER A:	
INSURER B:	
INSURER C:	
INSURER D:	
INSURER E:	

COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	ADD'L INSRD	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
		GENERAL LIABILITY				EACH OCCURRENCE	$
		COMMERCIAL GENERAL LIABILITY				DAMAGE TO RENTED PREMISES (Ea occurrence)	$
		CLAIMS MADE ☐ OCCUR ☐				MED EXP (Any one person)	$
		Owners and Cont Prot				PERSONAL & ADV INJURY	$
						GENERAL AGGREGATE	$
		GEN'L AGGREGATE LIMIT APPLIES PER:				PRODUCTS - COMP/OP AGG	$
		POLICY ☐ PRO-JECT ☐ LOC ☐				Fire Damage (any one fire)	
		AUTOMOBILE LIABILITY				COMBINED SINGLE LIMIT (Ea accident)	$
		ANY AUTO				BODILY INJURY (Per person)	$
		ALL OWNED AUTOS				BODILY INJURY (Per accident)	$
		SCHEDULED AUTOS				PROPERTY DAMAGE (Per accident)	$
		HIRED AUTOS					
		NON-OWNED AUTOS					
		GARAGE LIABILITY				AUTO ONLY - EA ACCIDENT	$
		ANY AUTO				OTHER THAN AUTO ONLY: EA ACC	$
						AGG	$
		EXCESS/UMBRELLA LIABILITY				EACH OCCURRENCE	$
		OCCUR ☐ CLAIMS MADE ☐				AGGREGATE	$
							$
		DEDUCTIBLE					$
		RETENTION $					$
		WORKERS COMPENSATION AND EMPLOYERS' LIABILITY				WC STATU-TORY LIMITS ☐ OTH-ER ☐	
		ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED?				E.L. EACH ACCIDENT	$
		If yes, describe under SPECIAL PROVISIONS below				E.L. DISEASE - EA EMPLOYEE	$
						E.L. DISEASE - POLICY LIMIT	$
		OTHER					

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES / EXCLUSIONS ADDED BY ENDORSEMENT / SPECIAL PROVISIONS

The City of Woodburn, OR its elected and appointed officials, agents, employees and volunteers.
Harper Houf Peterson Righellis Inc. and its officers, agents, representatives, volunteers and employees.
DKS Associates and its officers, agents, representatives, volunteers and employees.

CERTIFICATE HOLDER

WOODBURN

City of Woodburn
Public Works Dept.
190 Garfield St.
Woodburn, OR 97071

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE

CONSTRUCTION AGREEMENT

THIS AGREEMENT, made this_____ day of _____, 20**22**, by and between _____, hereinafter called "CONTRACTOR" and the CITY OF WOODBURN, an Oregon Municipal Corporation, hereinafter called "City" or "Owner".

The Contractor, for the consideration hereinafter named, does hereby agree to furnish all materials, equipment, labor and necessary implements for the construction of **Young Street Sanitary Sewer Improvements Project** and doing such other work as is necessary to make an appropriate and complete improvement.

All of said work shall be done according to the terms, conditions, and requirements of the Contract Documents including the: Advertisement of Bids, Contractor's signed Proposal, information to bidders, special specifications, general conditions, standard specifications, general specifications, and plans and Addendum Nos. **( )** for said improvement, which Contract Documents by this reference are made a part of this agreement.

Said improvement shall be completed by the date specified in said Contract Documents and if not so completed, unless said time for completion is extended, as provided in the Contract Documents, or if extended, if the same is not completed within time extended, the City will suffer liquidated damages as specified in the Contract Documents, which liquidated damages shall be retained out of any monies due or to become due under this agreement.

Payments shall be made as provided in the Contract Documents. The contract amount, as approved by the Council on **June 24, 2022** and agreed by the Contractor, is **$x,xxx,xxx.xx**.

The City will pay the required fee to the Bureau of Labor and Industries equal to one-tenth of one percent (0.1 percent) of the price of this contract, minimum fee in the amount of $250.00 and maximum fee of $7,500.00.

The Contractor will pay the prevailing wage rates in accordance with ORS279C.830 and as amended by Davis Bacon and all current amendments as set forth in the Contract.

NOW, THEREFORE, in consideration of the faithful performance of the covenants and agreements hereinbefore made by the Contractor, the City hereby covenants and agrees to pay the Contractor as in said Contract Documents provided.

IN WITNESS WHEREOF, the respective parties hereto have each caused these presents to be executed in duplicate the day and year first above written.

CITY OF WOODBURN, OREGON

ATTESTED: _____ _____.
Heather Pierson, *CITY RECORDER* Eric Swenson, *MAYOR*

CONTRACTOR: _____.
Organization

By:_____. Title:_____.

NOTICE OF CONTRACT AWARD

PROJECT DESCRIPTION: **Young Street Sanitary Sewer Improvements Project**
FILE No: **2021-006-28**
BID No: **2022-10**

The Owner has considered the bid submitted by you on __________ for the above described work in response to its Invitation to Bid.

You are hereby notified that on **June 27, 2022** the City Council accepted your bid for construction of the work in the amount of **$xxx,xxx,xxx.xx**

You are required under the terms of the Notice Inviting Bids and the Information for Bidders to execute the Agreement and furnish bonds and certificates of insurance within **14-calendar days** from the date of this Notice to you.

If you fail to execute said Agreement and furnish said bonds and certificates of insurance within 14-days of this Notice, said Owner will be entitled to consider all your rights arising out of the Owner's acceptance of your bid to be abandoned and as a forfeiture of your Bid Bond. The Owner will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this Notice of Award to the Owner.

Dated this **X** of **XXXX, 2022**

By __________________________ Title ______________________________________

Contractor shall fill in all information below this line and return original signed copy

- -

ACCEPTANCE OF NOTICE

Receipt of the foregoing Notice of Award is hereby acknowledged

By: ____

Title: ____

This: ______________ day of ____________________________ 2022.

Bond No.: _____
Project No: 2021-006-28
Bid No.: 2022-10

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS that, _____, as the Principal, and _____, a corporation organized and existing under the laws of the State of Oregon, and duly authorized to transact a surety business in the State of Oregon, as Surety, are held and firmly bound unto the City of Woodburn, a municipal corporation of the State of Oregon, in the penal sum of $_____ Dollars $_____, lawful money of the United States of America, for the payment whereof well and truly to be made, we and each of us, jointly and severally, bind ourselves, our and each of our heirs, executors, administrators successors and assign, firmly by these presents.

WHEREAS, the Principal has entered into a contract with the City of Woodburn, the plans, specifications, terms and conditions of which are contained in the above-referenced Solicitation;

WHEREAS, the terms and conditions of the contract, together with applicable plans, standard specifications, special provisions, schedule of performance, and schedule of contract prices, are made a part of this Performance Bond by reference, whether or not attached to the contract (all hereafter called the "Contract"); and

WHEREAS, the Principal has agreed to perform the Contract in accordance with the terms, conditions, requirements, plans and specifications, and all authorized modifications of the Contract which increase the amount of the work, the amount of the Contract, or constitute an authorized extension of the time for performance, notice of any such modifications hereby being waived by the Surety,

NOW, THEREFORE, THE CONDITION OF THIS BOND IS SUCH:

That if the Principal herein shall faithfully and truly observe and comply with the terms, conditions and provisions of the Contract, in all respects, and shall well and truly and fully do and perform all matters and things undertaken by Contractor to be performed under the Contract, upon the terms set forth therein, and within the time prescribed therein, or as extended as provided in the Contract, with or without notice to the Sureties, and shall indemnify and save harmless the City of Woodburn, the, its officers, employees and agents, against any direct or indirect damages or claim of every kind and description that shall be suffered or claimed to be suffered in connection with or arising out of the performance of the Contract by the Principal or its subcontractors, and shall in all respects perform said contract according to law, then this obligation is to be void; otherwise, it shall remain in full force and effect.

Nonpayment of the bond premium will not invalidate this bond nor shall the City of Woodburn, be obligated for the payment of any premiums.

This bond is given and received under authority of ORS Chapter 279C, the provisions of which hereby are incorporated into this bond and made a part hereof.

Contractor

_____

BY:

TITLE: _____

Surety

By: _____
Attorney-In-Fact

Bond No.: _____
Project No: 2021-006-28
Bid No.: 2022-10

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS that, _____, as the Principal, and _____, a corporation organized and existing under the laws of the State of Oregon, and duly authorized to transact a surety business in the State of Oregon, as Surety, are held and firmly bound unto the City of Woodburn, a municipal corporation of the State of Oregon, in the penal sum of $_____ Dollars $_____, lawful money of the United States of America, for the payment whereof well and truly to be made, we and each of us, jointly and severally, bind ourselves, our and each of our heirs, executors, administrators successors and assign, firmly by these presents.

WHEREAS, the Principal has entered into a contract with the City of Woodburn, the plans, specifications, terms and conditions of which are contained in the above-referenced Solicitation;

WHEREAS, the terms and conditions of the contract, together with applicable plans, standard specifications, special provisions, schedule of performance, and schedule of contract prices, are made a part of this Payment Bond by reference, whether or not attached to the contract (all hereafter called the "Contract"); and

WHEREAS, the Principal has agreed to perform the Contract in accordance with the terms, conditions, requirements, plans and specifications, and all authorized modifications of the Contract which increase the amount of the work, the amount of the Contract, or constitute an authorized extension of the time for performance, notice of any such modifications hereby being waived by the Surety,

NOW, THEREFORE, THE CONDITION OF THIS BOND IS SUCH:

That if the Principal shall faithfully and truly observe and comply with the terms, conditions and provisions of the Contract, in all respects, and shall well and truly and fully do and perform all matters and things by it undertaken to be performed under said Contract and any duly authorized modifications that are made, upon the terms set forth therein, and within the time prescribed therein, or as extended therein as provided in the Contract, with or without notice to the sureties, including the conditions listed in ORS 279.310 to 279.320, and shall indemnify and save harmless the City of Woodburn, its officers, employees and agents, against any claim for direct or indirect damages of every kind and description that shall be suffered or claimed to be suffered in connection with or arising out of the performance of the Contract by the Contractor or its Subcontractors, and shall promptly pay all persons supplying labor, materials or both to the Principal or its Subcontractors for prosecution of the work provided in the Contract; and shall promptly pay all contributions due the State Industrial Accident Fund and the State Unemployment Compensation Fund from the Principal or its Subcontractor in connection with the

performance of the Contract; and shall pay over to the Oregon Department of Revenue all sums required to be deducted and retained from the wages of employees of the Principal and its Subcontractors pursuant to ORS 316.167, and shall permit no lien nor claim to be filed or prosecuted against the City of Woodburn on account of any labor or materials furnished; and shall do all things required of the Principal by the laws of this State, then this obligation shall be void; otherwise, it shall remain in full force and effect.

Nonpayment of the bond premium will not invalidate this bond nor shall the City of Woodburn, be obligated for the payment of any premiums.

This bond is given and received under authority of ORS Chapter 279C, the provisions of which hereby are incorporated into this bond and made a part hereof.

Contractor

_____

BY:

TITLE: _____

Surety

By: _____

Attorney-In-Fact

Bond No.: _____
Project No: 2021-006-28
Bid No.: 2022-10

MAINTENANCE/WARRANTY BOND

KNOW ALL MEN BY THESE PRESENTS that, _____ , as the Principal, and _____, a corporation organized and existing under the laws of the State of Oregon, and duly authorized to transact a surety business in the State of Oregon, as Surety, are held and firmly bound unto the City of Woodburn, a municipal corporation of the State of Oregon, in the penal sum of $_____ Dollars $_____, lawful money of the United States of America, for the payment whereof well and truly to be made, we and each of us, jointly and severally, bind ourselves, our and each of our heirs, executors, administrators successors and assign, firmly by these presents.

WHEREAS, the Principal has entered into a contract with the City of Woodburn, the plans, specifications, terms and conditions of which are contained in the above-referenced Solicitation;

WHEREAS, the terms and conditions of the contract, together with applicable plans, standard specifications, special provisions, schedule of performance, and schedule of contract prices, are made a part of this Maintenance/Warranty Bond by reference, whether or not attached to the contract (all hereafter called the "Contract"); and

WHEREAS, the Principal has agreed to perform the Contract in accordance with the terms, conditions, requirements, plans and specifications, and all authorized modifications of the Contract which increase the amount of the work, the amount of the Contract, or constitute an authorized extension of the time for performance, notice of any such modifications hereby being waived by the Surety,

NOW, THEREFORE, THE CONDITION OF THIS BOND IS SUCH:

That the Principal agrees to warrant to the City of Woodburn that the construction is, and will remain for a period of one (1) year from the date of acceptance, free from defects in materials and workmanship.

That if the Principal herein shall faithfully and truly observe the terms, provisions, conditions, stipulations, directions, and requirements of the Contract and shall in all respects, whether the same be enumerated herein or not, faithfully comply with the same and shall assume the defense of indemnify and save harmless the City of Woodburn, its officers, agents, and employees from all claims, liabilities, loss, damage or injury which may have been suffered or claimed to have been suffered to persons or property directly or indirectly resulting from or arising out of the operations or conduct of the Principal or any subcontractor in the performance of the work under the Contract and shall indemnify and make whole the City for any injury or damage to any street, highway, avenue, or road

or any part thereof, resulting from the operations or conduct of the Principal or any subcontractor in connection with performance or conduct of the work under the Contract, and shall in all respects faithfully keep and observe all of said terms, provision, conditions, stipulations, directions, and requirements, then this obligation is void, otherwise, it shall remain in full force and effect.

WITNESS our hand and seals this _____ day of_____, 2022.

Name:

_____

BY:

TITLE: _____

Surety

By: _____

Attorney-In-Fact

NOTICE TO PROCEED	
PUBLIC WORKS DEPT. **ENGINEERING DIV.**	WOODBURN OREGON Incorporated 1889

PROJECT NAME:	Young Street Sanitary Sewer Improvements Project		
BID #:	2022-10	PROJECT No #:	2021-006-28
AMOUNT:	$	BEGIN DATE:	
CONTRACTOR:		CCB #:	
ADDRESS:			

You are hereby notified to commence work on the referenced contract and shall substantially complete all of the work of said contract not later than December 19, 2022.

The substantially completion date is therefore: **December 19, 2022.**

The completion date is therefore: **January 18, 2023.**

The contract provides for the assessment of liquidated damages for each consecutive calendar day after the above-established contract completion date that the work remains incomplete in the amount of: $_____per day.

PM for THE CITY OF WOODBURN: Dago Garcia

DATE: _____

Contractor: *Complete items below this line and return Document to Owner within seven (7) days*:

CONTRACTOR'S ACCEPTANCE OF THIS NOTICE

Receipt of the foregoing Notice to Proceed is hereby acknowledged:

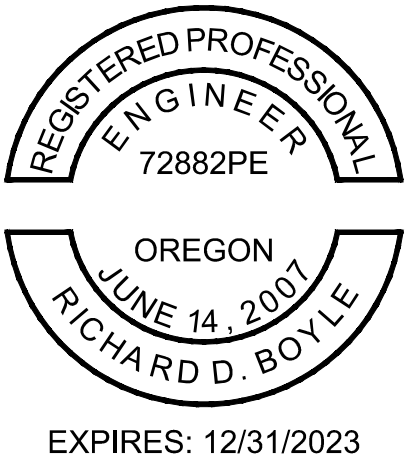
SIGNED: _____

TITLE: _____

DATE: _____

PART IV – TECHNICAL SPECIFICATIONS & SPECIAL PROVISIONS

Oregon Standard Specifications for Construction,
2021 Edition



EXPIRES: 12/31/2023

SPECIAL PROVISIONS

WORK TO BE DONE

The Work to be done under this Contract consists of the following:

1. Construct Sanitary Sewer Improvements on Sanitary Sewer Main
2. Sanitary Sewer Lateral Reconnections and Construction
3. Perform Traffic Control
4. Repair and Install Curb Gutter and Sidewalk
5. Perform Signing and Striping
6. Perform Fog Sealing
7. Abandon Pipes and Manholes

AUTHORITY OF CONSULTANT

The consultant will be directly in charge of the Project. However, the consultant's authority on this Project is as designated in the official "Consultant Agreement" for this Project, and as designated by the Engineer. This does not include authority to approve Contract changes or semifinal and Final Inspection of the Project.

APPLICABLE SPECIFICATIONS

The Specifications that are applicable to the Work on this Project is the 2021 edition of the "Oregon Standard Specifications for Construction", as modified by these Special Provisions. All Sections in Part 00100 apply, whether or not modified or referenced in the Special Provisions.

All number references in these Special Provisions shall be understood to refer to the Sections and subsections of the Standard Specifications bearing like numbers and to Sections and subsections contained in these Special Provisions in their entirety.

CLASS OF PROJECT

This is a City of Woodburn Project.

TABLE OF CONTENTS

SPECIAL SPECIFICATIONS

S-7 Price Escalation

S-8 Transfer of 1200-C Permit Coverage

S-9 Protection and Restoration of Construction Zone

S-10 Water Supply

S-11 Staging Area Security, Access Plan

S-12 Construction Survey

S-13 Traffic Control Plan

S-14 Utility Duct Bank Support

S-15 Wood Chip Access Mats

S-16 Dewatering

S-17 Advanced Dewatering

S-18 Public Communication

S-19 Sanitary Sewer Cleanout

S-20 Bypass Pumping

S-21 Launching and Receiving Shaft Excavations

S-22 Trenchless Sewer Installation

S-23 Filling Abandoned Manholes and Pipe

S-24 Sealing Existing Manhole

S-25 Anticipated Sequence of Construction

OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION

Section 00110 – Organization, Conventions, Abbreviations and Definitions

Comply with Section 00110 of the Standard Specifications modified as follows:

00110.05(e) Reference to Websites - Add the following bullet list to the end of this subsection:

• American Traffic Safety Services Association (ATSSA)
www.atssa.com

• BidExpress
www.bidx.com

• EquipmentWatch
www.equipmentwatch.com

• Executive Order 21-29
www.oregon.gov/gov/Documents/executive_orders/eo_21-29.pdf

• ODOT Construction Section
www.oregon.gov/odot/construction/pages/index.aspx

• ODOT Construction Section - Qualified Products List (QPL)
www.oregon.gov/ODOT/Construction/Pages/Qualified-Products.aspx

• ODOT Construction Surveying Manual for Contractors
www.oregon.gov/ODOT/ETA/Documents_Geometronics/Construction-Survey-Manual-Contractors.pdf

• ODOT Electronic Bidding Information Distribution System (eBids)
(Also referred to as ODOT eBids website)
https://ecmnet.odot.state.or.us/ebidse

• ODOT Estimating
www.oregon.gov/ODOT/Business/Pages/Steel.aspx

• Oregon Legislative Counsel
www.oregonlegislature.gov/lc

• ODOT Procurement Office - Conflict of Interest Guidelines and Disclosure Forms
www.oregon.gov/ODOT/Business/Procurement/Pages/PSK.aspx
• ODOT Procurement Office - Construction Contracts Unit Notice of Intent
www.oregon.gov/ODOT/Business/Procurement/Pages/NOI.aspx

• ODOT Procurement Office - Construction Contracts Unit prequalification forms
www.oregon.gov/odot/business/procurement/pages/bid_award.aspx

• Oregon Secretary of State: State Archives
sos.oregon.gov/archives/Pages/default.aspx

• ODOT Traffic Control Plans Unit
www.oregon.gov/ODOT/Engineering/Pages/Work-Zone.aspx

• ODOT Traffic Standards
www.oregon.gov/ODOT/Engineering/Pages/Signals.aspx

Section 00120 – Bidding Requirements and Procedures

Comply with Section 00120 of the Standard Specifications modified as follows:

00120.00 Prequalification of Bidders – Replace this subsection, except the subsection number and title, with the following:

The Agency will prequalify Bidders according to OAR 734-010 and OAR 731-005-0460. A Bidder must file for prequalification; there is no fee. Prequalification must be renewed biennially. Bidders shall make application for

prequalification on standard forms available at the ODOT Procurement Office Construction Contracts unit website. Bidder shall return the completed application to the City Engineer at 190 Garfield St., Woodburn, OR 97071; or email to dago.garcia@ci.woodburn.or.us.

Contracts will only be awarded to Bidders who, at the time of Bid Opening, are prequalified in the Class or Classes of Work specified in the Special Provisions, except that a Bidder whose prequalification has been revoked or revised as provided in ORS 279C.430(4) may also be eligible for Award under that statute if the Project was advertised prior to the revocation or revision. The Agency will consider a Bid from a Bidder whose complete application for prequalification has been received by the Public Works Department – Engineering Division prior to the opening of Bids. Bidder shall submit Bids in the same company name used in the prequalification application; however, if Bidder's legal name has changed since the submittal of its application for prequalification, it shall submit its Bid under its current legal name with the former name referenced by "formerly known as".

The Agency will regularly evaluate the performance of Contractors on its projects for purposes of responding to reference checks, future prequalification, and determinations of responsibility.

00120.01 General Bidding Requirements - Replace this subsection, except for the subsection number and title, with the following:

Bidders may submit Bids by paper only. No electronic (e-mail or facsimile) Bids will be accepted.

00120.05 Request for Plans, Special Provisions, and Bid Booklets - Replace this entire subsection, except the name and title, with the following:

a) **Informational Plans and Special Provisions** - Informational Project Plans and Special Provisions are available, free of charge, on the Agency's website.

b) **Bidding Plans, Special Provisions, and Bid Booklets** - Bidders must submit paper Bids.

1. **Paper Bids** - Bidders submitting bids shall access and print Plans, Special Provisions, and Bid Booklets from the Agency's website, or obtain the complete bidding package at 190 Garfield Street, Woodburn, Oregon 97071 for a fee of $50.00.

   Delete the paragraph that begins with the following;

2. **Electronic Bids** - Bidders …"

00120.30 Changes to Plans, Specifications, or Quantities before Opening of Bids - Replace this subsection, except for the subsection number and title, with the following:

The Agency reserves the right to issue Addenda making changes or corrections to the Plans, Specifications, or quantities. The Agency will provide Addenda only by publishing them on the City of Woodburn – Public Works Department website.

Addenda may be downloaded from the Agency's website. Bidders shall be responsible for checking the Agency website for Addenda. Bidders should check the website weekly until the week of Bid Closing and daily the week of Bid Closing.

Bidders, not the Agency, shall be responsible for failure of Bidders to check and download Addenda. Bids shall incorporate all Addenda. Bids may be rejected if opened and found by the Agency to not be based on all Addenda published on the Agency's website before Bid Closing.

00120.40(a)(1) Paper Bids - Replace this subsection, except for the subsection number and title, with the following:

Bidders shall not alter, in any manner, the (paper) documents within the Bid Section that are accessed and printed from the Agency's website. Bidders shall complete the certifications and statements included in the Bid Section of the Bid Booklet according to the instructions. Signature of the Bidder's authorized representative thereon constitutes the Bidder's confirmation of an agreement to all certifications and statements contained in the Bid Booklet. Entries on paper documents in the Bid Section shall be in ink or typed. Signatures and initials shall be in ink.

The Bidder shall properly complete and return all page(s), attachment(s) which requires a response (see Bid Submittal Checklist).

00120.40(a-2) Electronic Bids – Delete this subsection in its entirety.

00120.40(c-2) Electronic Bid Schedule Entries – Delete this subsection in its entirety.

00120.40(e-2) Bid Guaranty with Electronic Bids - Delete this subsection in its entirety.

00120.40(f) Disclosure of First-Tier Subcontractors - Replace this subsection, except for the subsection number and title, with the following:

Without regard to the amount of a Bidder's Bid, if the Agency's cost range for a public improvement Project in the "Notice to Contractors", or in other advertisement or solicitation documents, exceeds $100,000, the Bidder shall, within 2 working hours of the time Bids are due to be submitted, submit to the Agency, on a form provided by the Agency, a disclosure identifying any first-tier Subcontractors that will furnish labor or labor and Materials, and whose contract value is equal to or greater than:

- 5% of the total Project Bid, but at least $15,000; or
- $350,000, regardless of the percentage of the total Project Bid.

For each Subcontractor listed, Bidders shall state:

- The name of the Subcontractor;
- The dollar amount of the subcontract; and
- The category of Work that the Subcontractor would be performing.

If no subcontracts subject to the above disclosure requirements are anticipated, a Bidder shall so indicate by entering "NONE" or by filling in the appropriate check box. For each Subcontractor listed, Bidders shall provide all requested information. An incomplete form will be cause for rejection of the Bid. The Subcontractor Disclosure Form shall be submitted by filling out the Subcontractor Disclosure Form contained within the bid booklet.

The Agency is not responsible for partial, failed, illegible or partially legible facsimile transmissions or submittals, and such forms may be rejected as incomplete.

In the event that multiple Subcontractor Disclosure Forms are submitted, the last version received prior to the deadline will be considered to be the intended version.

Bids not in compliance with the requirements of this Subsection will be considered non-responsive.

00120.45 Submittal of Bids – Replace this subsection, except for the subsection number and title, with the following:

00120.45(a) Paper Bids – Bids may be submitted by mail, parcel delivery service, or hand delivery to the office and address and at the time given in the Bid Booklet. Submit Bids in a sealed envelope and marked on the outside of the envelope as required by the Invitation to Bid. Closing time for acceptance of Bids is 2:00:00 p.m. local time on the day of Bid Opening. Bids submitted after the time set for receiving Bids will not be opened or considered. The Agency assumes no responsibility for the receipt and return of late Bids.

00120.45(b) Electronic Bids - Delete this subsection in its entirety.

00120.60 Revisions or Withdrawals of Bids - Replace this entire subsection, except for name and title, with the following subsection:

a) **Paper Bids** - Information entered into the paper Bid Booklet by the Bidder may be changed after the paper Bid has been delivered to the Agency, provided that:

- Changes are prepared according to the instructions identified in the Bid Booklet; and
- Changes are received at the same office, address-, and times identified in the paper Bid Booklet for submitting Bids; and
- The changes are submitted in writing or by electronic facsimile (FAX) transmission to the FAX number given in the paper Bid booklet, signed by an individual authorized to sign the Bid.

A Bidder may withdraw its paper Bid after it has been delivered to the Agency, provided that:

- The written withdrawal request is submitted on the Bidder's letterhead, either by hand delivery or by FAX to the FAX number given in the paper Bid Booklet: and
- The request is signed by an individual who is authorized to sign the Bid, and proof of authorization to sign the Bid accompanies the withdrawal request; and
- The request is received at the same office, address, and times identified in the paper Bid Booklet for submitting Bids.

00120.70 Revisions or Withdrawals of Bids – Delete the bullet point that starts "The Bid is submitted on documents not obtained directly from"

Section 00130 – Award and Execution of Contract

Comply with Section 00130 of the Standard Specifications modified as follows:

00130.1 Award of Contract – Delete the paragraph that begins with the following, "The Agency will provide Notice of Intent…" and replace it with the following:

The Agency will provide Notice of Intent to Award on the Agency's website.

00130.50(a) By the Bidder – Replace the sentence that starts "The successful Bidder shall deliver" with the following sentence.

The successful Bidder shall deliver the required number of Contract booklets with the properly executed Contract, Performance Bond, Payment Bond, certification of workers' compensation coverage, and the required certificates of insurance, to the City within 15 Calendar Days after the date on which the Contract booklets are sent or otherwise conveyed to the Bidder.

Section 00150 – Control of Work

Comply with Section 00150 of the Standard Specifications modified as follows:

00150.50(c) Contractor Responsibilities – Replace the bullet that begins "Protect from damage or disturbance any Utility that remains…" with the following bullet:

• Protect from damage or disturbance any Utility that remains within the area in which Work is being performed. Maintain and re-establish location marks according to OAR 952-001-0090(3)(a). Coordinate re-establishment of the location marks with the associated Utility;

Replace the bullet that begins "Determine the exact location before excavating within …" with the following bullet:

• Determine the exact location before excavating within the tolerance zone according to OAR 952-001-0090(3)(c);

Replace the bullet that begins " In addition to the notification required in OAR 952-001-0090(5), notify the Engineer…" with the following bullet:

• In addition to the notification required in OAR 952-001-0090(6), notify the Engineer and the Utility as soon as the Contractor discovers any previously unknown Utility conflicts or issues. Contrary to the OAR, stop excavating until directed by the Engineer and allow the Utility a minimum of two weeks to relocate or resolve the previously unknown Utility issues; and

Add the following bullet to the end of the bulleted list:

• Hold a Utility scheduling meeting and monthly Utility coordination meetings (see also 00180.42)

Add the following subsection:

00150.50(g) Utility Information:

Table 00150-2

Utility	Contact Person's Name, Address, Email, and Phone Number
NW Natural	Darrell Hammond NW Natural – Field Engineering Technician T: 503.585.6611 x8035 C: 541.981.0164 d5h@ nwnatural.com
PGE	Alison Baziak Design Project Manager Lighting Services T: 503-463-4381 C: 503-367-8505 Alison.Baziak@pgn.com
Datavision	Jason Riggs Construction Coordinator T: 503-792-3611 C: 503-932-2727 jriggs@datavision.coop
Wavebroadband	Jerry Benson Technical Operations Construction Coordinator 1 2500 National Way Suite 1 Woodburn, OR 97071 C: (503) 307-0350 Jbenson@wavebroadband.com
Lumen Technologies	Josh Fallin Engineer 2 Salem, Keizer & Woodburn 740 State St., Room 407 Salem, OR 97301 T: 503-399-4931 C: 503-798-1009 josh.fallin@lumen.com
Comcast Cable	Phillip Curtis C: 971-777-0933 Phillip_Curtis@comcast.com

The Contractor shall notify, in writing, the Utilities listed above, with a copy to the Engineer, at least 14 Calendar Days before beginning Work on the Project.

In the event of an emergency, and in addition to the calls required by the Utilities notification system, the Contractor shall call:

• Northwest Natural Gas 1-800-882-3377

The Contractor shall notify the Power Supplier(s) in writing, with a copy to the Engineer, at least 14 Calendar Days before beginning Work within 10 feet of the power line(s).

Section 00180 – Prosecution and Progress

Comply with Section 00180 of the Standard Specifications modified as follows:

00180.40(a) In General – Add the following bullets to this subsection:

- Street closures are not allowed in this project.
- Provide and maintain access to all homes, Schools, and Businesses at all times.
- All work shall be accomplished between 7:00 AM and 5:00 PM every day from Monday through Friday, excluding Legal Holidays.
- No work on weekend or Legal Holidays.
- On-Site work shall not begin before Notice to Proceed is issued, unless approved by the Engineer.

00180.41 Project Work Schedules - After the paragraph that begins "One of the following Type…" add the following paragraph:

In addition to the "look ahead" Project Work schedule, a Type "A" schedule, as detailed in the Standard Specifications, is required on this Contract.

00180.42 Preconstruction Conference - Add the following paragraph to the end of this subsection:

The Contractor shall conduct a group Utilities scheduling meeting with representatives from the Utility companies involved with this Project and the Engineer before the preconstruction conference. The Contractor shall incorporate the Utilities time needs into the Contractor's schedule submitted at the preconstruction conference.

The Contractor shall submit a written Utility Coordination Report to the Engineer not later than seven Calendar Days after the Utility scheduling meeting. The Utility Coordination Report shall:

- Identify each specific Utility;
- Identify Utility contact names and numbers;
- Identify dates for Utility scheduling for the entire Project;
- Contain documents showing that the Contractor has accomplished Utility locates; and
- Contain documents showing that Utility locates, along with applicable construction activities, have been reviewed and discussed on-site with Utility representatives.

00180.85(b)(1) Single Contract Time – Add the following sentence to the end of this subsection:

There are 120 working days estimated to complete this project.

Section 00190 – Measurement of Pay Quantities

Comply with Section 00190 of the Standard Specifications modified as follows:

00190.20(f)(2) Scale Without Automatic Printer - Replace the sentence that begins "The Contractor shall inform the Engineer of ..." with the following sentence:

The Contractor shall inform the Engineer of its intent to use a scale without an automatic printer at least 3 working days before weighing begins or before the Contractor changes to a scale that does not have an automatic printer.

Section 00199 – Disagreements, Protests, and Claims

Comply with Section 00199 of the Standard Specifications modified as follows:

00199.40(c) Step 2: Agency Level Review - Replace the paragraph that begins "If the Contractor does not accept the Step 2 ..." with the following paragraph:

If the Contractor does not accept the Step 2 decision, the Contractor may, within 10 Calendar Days of receipt of the written decision, request in writing through the Engineer that the claim be advanced to Step 3 or 4 (see (d) and (e) below), as applicable. For purposes of determining which process to use for claims under Step 3 or 4 concerning a combination of additional compensation and Contract Time or for Contract Time only, the value of the claim or portion of the claim for Contract Time will be assumed to be the appropriate Liquidated Damages as provided in 00180.85 multiplied by the number of Calendar Days in question. If applicable, advancement of the claim is subject to the provisions of 00199.60 regarding waiver and dismissal of the claim or portions of the claim.

Section 00220 – Accommodations for Public Traffic

Comply with Section 00220 of the Standard Specifications modified as follows:

00220.02(a) General Requirements - Add the following bullets to the end of the bullet list:

• Before activating a modified traffic signal, revising lane usage, implementing new roadway geometry, or removing a "STOP" sign, protect traffic by installing "NEW TRAFFIC PATTERN AHEAD" (W23-2) signing according to 00222.40. Keep the signs in place for 30 Calendar Days after completing the modifications.

• When an abrupt edge is created by excavation, protect traffic according to the "Excavation Abrupt Edge" and the "Typical Abrupt Edge Delineation" configurations shown on the Standard Drawings.

• When paving operations create an abrupt edge, protect traffic by installing a "DO NOT PASS" (R4-1) sign before the Work Area at sign spacing "A" from the TCD Spacing Table" shown on the Standard Drawings. Alternate "ABRUPT EDGE" (CW21-7) signs with appropriate (CW21-8) rider and "DO NOT PASS" (R4-1) signs at 1/2 mile spacings. Install a "BUMP" (W8-1) sign 100 feet prior to the transverse paving edge.

• Protect pedestrians in pole base excavation areas by placing approved covers over all pole base excavations. Place a minimum of two B(II)LR barricades adjacent to and on either side of the excavated area, facing pedestrian traffic, or place covers and barricades as directed.

00220.02(b) Temporary Pedestrian Accessible Route Plan - Add the following bullet to the end of the bullet list:

• For an active Work Area controlled at each end by flaggers and pilot car, provide transportation for pedestrians and bicyclists through the active Work Area according to Section 00223 and Section 00228.

Single Lane Closures - One Traffic Lane may be closed on Roadways within the Project Site when allowed, shown, or directed during the following periods of time except as specified in 00220.40(e)(2):

- Daily, Monday through Thursday, between 9:00 a.m. and 4:00 p.m.
- Friday, between 9:00 a.m. and 3:00 p.m.
- Nightly, Sunday night through Friday morning, between 6:00 p.m. and 7:00 a.m.

00220.40(e)(2)(a) Holidays - Add the following to the list of legal holidays:

- Martin Luther King Day on the third Monday in January
- President's Day on the third Monday in February
- Juneteenth on June 19
- Veteran's Day on November 11
- Day after Thanksgiving on the fourth Friday in November

00220.40(e)(2)(b) Special Events - Add the following to the end of this subsection:

The following special events will occur during this Project:

• Last day of classes – June 15th, 2022

• First day of classes – August 29th, 2022

Section 00221 – Common Provisions for Work Zone Traffic Control

Comply with Section 00221 of the Standard Specifications modified as follows:

00221.03 Traffic Safety and Operations - Replace the bullet that begins "When paving operations create…" with the following bullet:

• When paving operations create an abrupt or sloped edge drop off greater than 1 inch, protect traffic by installing signing according to the "2 Lane, 2 Way Roadway Overlay Area" detail shown on the Standard Drawings. Protect longitudinal and transverse Pavement joints by placing and maintaining an asphalt concrete wedge according to 00221.07(c)(1).

00221.07(c)(1) Paving - Replace this subsection, except subsection number and title, with the following:

When the longitudinal joint is greater than 1 inch in height, install additional TCD according to 00221.03. Complete the placing of ACP and construction of paving joints according to 00735.48, 00735.49, 00743.45, 00744.44, 00744.45, 00745.47, and 00745.48, as applicable.

00221.90(b) Temporary Protection and Direction of Traffic - Delete the bullet that begins "Moving temporary barrier to and from Contractor's stockpile areas".

Replace the bullet that begins "When the Schedule of Items does not include …" with the following bullet:

• Preparing and signing the daily "Traffic Control Inspection Report", when a TCS is not included in the Schedule of Items or when a TCS is not onsite for a work shift.

Section 00222 – Temporary Traffic Control Signs

Comply with Section 00222 of the Standard Specifications modified as follows:

00222.40(e) Temporary Sign Placement - Add the following to the end of the bullet list:

• Place a “WAIT FOR FLAGGER” (CR4-23) sign approximately 50 feet in advance of each flagger station, facing incoming pedestrian traffic. Install the sign on a conical marker or other temporary sign support, as shown or as directed. Do not allow the sign installation height or location to block the visibility of the flagger for incoming public traffic.

• At least ten Calendar Days before closing the sidewalks within the project limits, place a “SIDEWALK CLOSED, Full Time” (CW11-4) sign in advance of each future closure point. Locate the sign so it is legible from the nearest alternate pedestrian pathway facing incoming pedestrian traffic. The sign may be mounted between the panels of a Type II barricade or on a single-post TSS. Do not place the sign or sign support such that it narrows the pedestrian pathway to a width of less than 4 feet.

• Before opening the TPAR, place TPAR signing and other TCM as shown, or as directed. Maintain the “SIDEWALK CLOSED, Full Time” (CW11-4) signs while the TPAR is open to pedestrian traffic.

• Install "ROAD WORK AHEAD" (W20-1-48) signs with a 36 by 24-inch "FINES DOUBLE" (R2-6aP) rider as shown on the plans, according to the "TCD Spacing Table" shown on the Standard Drawings or as modified by the Plans except do not install the "FINES DOUBLE" rider on concrete barrier mounted signs.

• Install beyond each end of the Project, facing outgoing traffic, an "END ROAD WORK" (CG20-2A-24) sign a distance of (A ÷ 2) according to the "TCD Spacing Table" shown on the Standard Drawings or as modified by the Plans.

• Install two sign flag boards, as shown on the Standard Drawings, above the following detour and road closed advance warning signs, where applicable:

• "DETOUR AHEAD", "DETOUR XXXX FT", "DETOUR X/X MILE" (W20-2) signs.

• "ROAD CLOSED AHEAD", "ROAD CLOSED XXXX FT", "ROAD CLOSED X/X MILE" (W20-3) signs.

• For each leg of the intersection affected by the new traffic signal, install the following warning signs:

• A "Signal Ahead" (W3-3) symbol sign approximately 150 feet in advance of the intersection, shown on the Standard Drawings or as modified by the Plans.

• A "NEW TRAFFIC PATTERN AHEAD" (W23-2) sign approximately 100 feet in advance of the "Signal Ahead" sign. Keep the "NEW TRAFFIC PATTERN AHEAD" signs in place 30 Calendar Days after installing the "Signal Ahead" sign.

00222.90 Payment - Replace this subsection, except subsection number and title, with the following:

Costs associated with the requirements of this section are considered incidental to construction and no additional compensation shall be due to the Contractor.

Section 00225 – Temporary Pavement Markings

Comply with Section 00225 of the Standard Specifications modified as follows:

00225.40 Temporary Pavement Markers - Replace the paragraph that begins "Unless otherwise shown..." and the three bullets with the following paragraphs and bullets:

Install temporary flexible overlay pavement markers for temporary centerline marking as follows:

• Place and maintain one temporary flexible overlay pavement marker on 40 foot spacing in tangent and curve sections except as below.

• Place and maintain one temporary flexible overlay pavement marker on 20 foot spacing in curved alignment sections identified by a speed rider displaying less than the posted speed and channelization areas.

Establish alignment for placing the temporary flexible overlay pavement markers as follows:

• Control markers at:
    • 200 foot intervals on tangents
    • 50 foot intervals on curves
    • 40 foot intervals on curves with speed rider

• Use string line or other appropriate means to maintain proper alignment of the markers. Adjust placement to avoid straddling a longitudinal joint, while maintaining a suitable alignment of markers.

• Remove and replace misaligned markers at no additional cost to the Agency.

Section 00228 – Temporary Pedestrian and Bicyclist Routing

Comply with Section 00228 of the Standard Specifications modified as follows:

00228.00 Scope - Replace this subsection, except subsection number and title, with the following:

In addition to the requirements of Section 00221, this Work consists of furnishing, installing, operating, maintaining, inspecting, and removing temporary devices for accommodating pedestrians and bicyclists through a work zone.

00228.80(a) Length Basis - Replace this subsection, except subsection number and title, with the following:

Pedestrian channelizing devices and bicycle channelizing devices will be measured on the length basis upon delivery to the Project. The quantities will be limited to those in the approved TCP.

Section 00280 – Erosion and Sediment Control

Comply with Section 00280 of the Standard Specifications modified as follows:

00280.00 Scope - Add the following paragraph to the end of this subsection:

The Project's NPDES 1200-C Permit (Permit No. NGEN12C-ORR10H211) is applicable to the Project.

00280.48 Emergency Materials - Add the following paragraphs after the paragraph that begins "Provide, stockpile, and protect...":

Provide and stockpile the following emergency materials on the Project site:

Item	Quantity
Sediment Fence	100 LF
Inlet Protection	10

00280.62 Inspection and Monitoring - Replace this subsection, except for the subsection number and title, with the following:

Inspect the Project Site and all ESC devices for potential erosion or sediment movement on a weekly basis and when 1/2 inch or more of rainfall occurs within a 24-hour period, including weekends and holidays.

If a significant noncompliance or serious water quality issue occurs that could endanger health or the environment, verbally report it to the Engineer within 24 hours.

00280.90 Payment - In the paragraph that begins "Item (a) includes..." delete the bullet that specifies "providing the Erosion and Sediment Control Manager".

Payment for bid items associated with this section shall be paid on a per each basis as stated in the **Bid Document, Bid Item 5, Inlet Protection, Type 3** and **Bid Item 6, Construction Entrance, Type 1**. Payment shall represent full compensation for all labor, equipment, and materials necessary to perform the requirements of this section.

Section 00310 – Removal of Structures and Obstructions

Comply with Section 00310 of the Standard Specifications modified as follows:

00310.80 Measurement –

Replace the bullet that starts **"Length and Area"** with the following:

- **Length and Area** - The length or area of the Structure or item actually removed, will be measured along the line and grade of the Structure or item for each continuous Structure or item removed. Measurement will be on the length or area basis, limited to the Neat Lines shown or directed. For asphalt Pavement no measurement of quantities will be made. There is a 10 to 15 inch variation in pavement depth within the project area. Consult the Geotechnical Report for borehole depths.

Payment for bid items associated with this section shall be paid as follows as stated in the **Bid Document, Bid Items 8 through 10:**

- **Bid Item 8, Removal of Curbs**: Per linear foot
- **Bid Item 9, Removal of Surfacings**: Per square yard

- **Bid Item 10, Asphalt Pavement Saw Cutting (10-15 inch Depth):** Lump Sum

Payment shall represent full compensation for all labor, equipment, and materials necessary to perform the requirements of this section.

Section 00405 – Trench Excavation, Bedding and Backfill

Comply with Section 00405 of the Standard Specifications modified as follows:

00405.90 Payment - Add the following paragraph to the end of this subsection:

When the Contract Schedule of Items does not indicate payment for Work performed under this Section, no separate or additional payment will be made. Payment will be included in payment made for the appropriate items under which this Work is required.

Section 00415 – Video Pipe Inspection

Comply with Section 00415 of the Standard Specifications modified as follows:

00415.40 (f) Recording Format and Labeling – Replace this subsection with the following:

00415.40 (f) Recording Format and Labeling – Record the video inspection using the latest version of NASSCO's PACP/MACP.

Furnish recordings on NASSCO PACP/MACP program and inventory sheets on CD including a test file to indicate the project number and name, date of inspection, pipe segment number, Contractor's name and weather it is a pre-construction or post-construction video, filenames, and description of the file contents.

00415.90 Payment – Replace this subsection with the following:

Costs associated with the requirements of this section are considered incidental to construction and no additional compensation shall be due to the Contractor.

Section 00440 – Commercial Grade Concrete

Comply with Section 00440 of the Standard Specifications modified as follows:

00440.12 Properties of Commercial Grade Concrete - Replace the bullet that begins "**Slump** - 5 inches…" with the following bullets:

• **Slump** - 5 inches or less

  • For concrete sidewalks, ramps, driveways, or other hand finished surface applications, and when using a high range water reducing admixture, provide a slump of 8 inches or less as approved by the Engineer.

00440.13 Field-Mixed Concrete - Replace the subsection, except for subsection number and title, with the following:

CGC Work items listed in 00440.14(a) may be field-mixed conventionally, or by volumetric/mobile mixers conforming to ASTM C685. When approved, concrete sidewalks, concrete curb ramps, concrete driveways, and other flat concrete surfaces may be field-mixed using volumetric/mobile mixers conforming to ASTM C685, request approval prior to placement. For all other CGC applications, submit written request to the Engineer for approval to use volumetric/mobile mixers conforming to ASTM C685 at least 21 Days prior to placement.

Pre-packaged dry blended concrete from the QPL may be used for Work items listed in 00440.14(a).

00440.40(b) Placing - Add the following bullet to the end of the bullet list:

• When haul time or placement conditions warrant exceeding the time of discharge, submit a detailed breakdown of the estimated time needed from batching to discharge of a load along with the measures that will be taken to ensure slump, temperature and uniformity will be maintained. Submit in advance to establish a new time limit at the Engineer's discretion.

Section 00445 – Sanitary, Storm, Culvert, Siphon and Irrigation Pipe

Comply with Section 00445 of the Standard Specifications modified as follows:

00445.02 Contractor's Options - Replace this subsection, except for the subsection number and title, with the following:

No Pipe Data sheet has been provided and the Contractor has the option of using different kinds of pipe material. The Contractor may substitute pipe of equal or stronger strength, larger diameter, and higher quality material at any installation location, provided the substitution is approved by the Agency and is made at no additional cost to the Agency.

00445.091 Payment – Add the following to this subsection:

Payment for all work associated with this section shall be paid on a linear foot basis as stated in the **Bid Document, Bid Items 12 through 17, inch Sanitary Sewer Pipe, ft Depth**. Payment shall represent full compensation for all labor, equipment, and materials necessary to perform the requirements of this section. Costs associated with Pipe Tees and Pipe Wyes are considered incidental to construction and no additional compensation shall be due to the Contractor.

Section 00470 – Manholes, Catch Basins, and Inlets

Comply with Section 00470 of the Standard Specifications modified as follows:

00470.41(c) Grates, Frames, Covers and Fittings - Replace this subsection, except for the subsection number and title, with the following:

Set metal frames for manholes on full non-shrink grout beds to prevent infiltration of surface water or groundwater between the frame and the concrete of the manhole section. If concrete is to be poured around the frames, coat the portion of the frame that will contact the concrete with hot asphalt before placing the concrete. Set frames, covers and grates true to the locations and grades established. Clean bearing surfaces and provide uniform contact. The use of a bolt adjustment system for frames from the QPL is allowed. Secure all fastenings. Construct all mortared, sanitary sewer manhole necks and all riser ring joints made with non-shrink grout using an approved commercial concrete bonding agent applied to all cured concrete surfaces being grouted.

00470.42 Precast Concrete Catch Basins and Inlets - Add the following sentence to the end of this subsection:

Grade adjustments using a bolt system from the QPL is allowed.

Add the following subsection:

00470.49 Waterproof Sealant – Apply watertight manhole wrap or spray sealant to the entire manhole exterior. Submit material products to be used for approval (See Special Specification S-3, Contractor Submittals).

Payment for all bid items associated with this section shall be paid on a per each basis as stated in the **Bid Document, Bid Items 18 through 20, Concrete Sanitary Sewer Manholes with Extended Base,** and **Bid Items 21 through 23, Concrete Manholes, Outside Drop with Extended Base,**. Payment shall represent full compensation for all labor, equipment, and materials necessary to perform the requirements of this section.

Section 00641 – Aggregate Subbase, Base, and Shoulders

Comply with Section 00641 of the Standard Specifications modified as follows:

00641.10(a) Base and Shoulder Aggregate - In the paragraph that begins "Aggregate for bases…", add the following sentence after the first sentence:

Base aggregate shall be 3/4"-0.

00641.12 Limits of Mixture - Add the following after the first sentence:

Water can be added to aggregate on grade to achieve optimum moisture and compaction. Care must be taken not to segregate the fine materials from the rock in the aggregate.

00641.41 Mixing, Hauling, and Placing - Replace the sentence that begins "Add water to the Aggregate…" with the following two sentences:

Add water to the aggregate while mixing to provide a moisture content according to 00641.12 and paragraph (a) of this subsection. Water can be added to aggregate on grade to achieve optimum moisture and compaction. Care must be taken not to segregate the fine materials from the rock in the aggregate.

00641.44(a-1) Dense-graded Aggregates - Replace this subsection, except for the subsection number and title, with the following:

Begin compaction of each layer of dense-graded Aggregates immediately after the Material is spread. Continue compaction to achieve a minimum of 100% of maximum density. Determine maximum density according to AASHTO T 99, Method D, and coarse particle correction according to AASHTO T 224. Test in place density according to AASHTO T 310. Determine in place compaction of non-density testable Material according to ODOT TM 158.

00641.41 Mixing, Hauling, and Placing - Replace the sentence that begins "Add water to the Aggregate…" with the following two sentences:

Add water to the Aggregate while mixing to provide a moisture content according to 00641.12 and subsection 00641.41(a). Road mix is not allowed on this Project.

Payment for work associated with this section shall be paid on a per ton basis as stated in the **Bid Document, Bid Item 25, ¾ inch - 0 Aggregate Base**. Payment shall represent full compensation for all labor, equipment, and materials necessary to perform the requirements of this section.

Section 00705 – Emulsified Asphalt Prime Coat and Emulsified Asphalt Fog Coat

Comply with Section 00705 of the Standard Specifications modified as follows:

0705.90 Payment - Unit of measurement for pay item (b), Emulsified Asphalt in Fog Coat, will be paid on a lump sum basis.

Payment for work associated with this section shall be paid on a lump sum basis as stated in the **Bid Document, Bid Item 26, Emulsified Asphalt in Fog Coat**. Payment shall represent full compensation for all labor, equipment, and materials necessary to perform the requirements of this section.

Section 00730 – Emulsified Asphalt Tack Coat

Comply with Section 00730 of the Standard Specifications modified as follows:

0730.11 Emulsified Asphalt - In the paragraph that begins "Obtain samples according to AASHTO T 40…" replace the words “AASHTO T 40” with the words “AASHTO R 66”.

00730.90 Payment - Replace this subsection, except for the subsection number and title, with the following:

No separate or additional payment will be made for Emulsified Asphalt tack coat.

Section 00744 – Asphalt Concrete Pavement

Comply with Section 00744 of the Standard Specifications modified as follows:

00744.11(a) Asphalt Cement - Add the following to the end of this subsection:

Provide PG 64-22 or PG 70-22 grade asphalt cement for this Project.

Add the following subsection:

00744.51 Opening Sections to Traffic - Schedule work so that, during the same shift, the surfaces being paved are paved full width and length through the wearing Course before opening to traffic.

00744.80 Measurement - Replace this subsection, except for the subsection number and title, with the following:

When measurement is by volume or weight, quantities will be the theoretical Neat Line quantity constructed and accepted, plus the field measured quantity constructed and accepted.

Payment for work associated with this section shall be paid on a per ton basis as stated in the **Bid Document, Bid Item 27, Level 3, ½ inch ACP Mixture.** Payment shall represent full compensation for all labor, equipment, and materials necessary to perform the requirements of this section.

Section 00759 – Miscellaneous Portland Cement Concrete Structures

Comply with Section 00759 of the Standard Specifications modified as follows:

Add the following subsection:

00759.03(d) Corrective Action Plan - Unless otherwise approved, notify the City before performing corrective action. Include TPAR necessary to complete corrective action work.

At least 21 Calendar Days before concrete Structures Work is scheduled to begin, submit a corrective action plan. The corrective action plan shall address procedures to correct deficient Structures through minor corrective action or replacement according to 00759.55(a), and include:

- List of minor corrective actions that will be used to correct deficiencies, according to 00759.50 and 00759.55.
- Procedures for performing corrective action.
- Proposed concrete grinding Equipment and method of grinding.
- Proposed concrete repair Material used for resurfacing ground concrete surfaces according to Section 02015.
- Construction activities, Equipment and staging necessary to complete corrective action Work.

The City will review the corrective action plan(s) and provide a response to the Contractor within 5 Days after receiving the plan. Do not begin concrete Structure Work until the corrective action plan is approved by the City.

Add the following subsection:

00759.23 Concrete Resurfacing Equipment - Furnish power-operated scarifying equipment capable of uniformly removing and preparing the existing surface to depths required. For concrete grinding operations, furnish 12 segment grinders, fine-toothed scarifying equipment, or other approved grinding equipment.

00759.46 Concrete - Replace this subsection, except for the subsection number and title, with the following:

Construct the Structures between suitable forms or by the extrusion method. Place concrete according to the Plans, Section 00440, and this Section.

00759.50(a) General - Add the following paragraphs to the end of this subsection:

Install truncated domes as shown. Place according to the manufacturer's recommendation. Install abutting truncated dome panels with no more than 1/4 inch spacing. Install anchors along cut edges of truncated dome panels according to manufacturer's recommendations.

In addition, finish concrete surfaces of Structures to be within the established Slopes and dimensions allowed by the Standard Drawings and Plans. Repair or remove and replace Structures not meeting the Standard Drawings and Plans at no additional cost to the Agency.

Submit a corrective action plan for each non-compliant Structure after receiving notice of non-compliance from the Engineer. Perform correction of defects according to 00759.55.

00759.50(c) Driveways, Walks, and Surfacings - Replace this subsection, except for the subsection number and title, with the following:

Prevent segregation of the concrete during placement. Strike-off the concrete to the grade shown and float the surface smooth. After the water sheen disappears, edge the joints, and remove edging tool marks prior to final finishing. Lightly cross-broom the surface to a uniform texture. Do not trowel joints or edges after brooming surface. The 24 inch smart level will be used to measure driveway and sidewalk cross slopes on the Pedestrian Access Route.

Add the following subsection:

00759.55 Correction of Deficient Structures - Unless otherwise approved, notify the Engineer before performing corrective action. Correct deficiencies at no additional cost to the Agency. Perform corrective actions as directed, according to the approved corrective action plan, and according to the following:

(a) Minor Corrective Action - Submit Equipment and procedure for minor corrective action to the Engineer for approval. Minor corrective action can be performed to correct a deficiency up to 1 square foot per panel. Limit minor corrective action to one area per panel. Perform minor corrective action according to the following:

(1) Concrete Grinding - Grinding to correct high area deficiencies is limited to 3/16 inch. Use equipment meeting the requirements of 00759.23. Resurface all ground concrete surfaces according to 00759.55(a)(2).

(2) Concrete Resurfacing - Resurfacing to correct low area deficiencies is limited to 3/16 inch depth. Existing concrete is to be at least 7 Days old prior to resurfacing. Resurface repair areas according to the following:

a**. Keyway** - Sawcut a keyway at the boundaries of repair areas that are not already defined by panel control joints. Sawcut is to be 1/8 inch wide by 1/4 inch deep. Bevel inside edge of keyway at a 45 degree angle.

b**. Surface Preparation** - Prepare limits of repair area by grinding using Equipment from 00759.23. After grinding, sandblast the surface of the repair area. Clean the surface using a low pressure washer, less than 5,000 psi.

c**. Presoak** - Presoak the repair area for a minimum of 30 minutes to saturated surface dry. Prior to resurfacing, ensure there is no ponding water on the surface.

d**. Resurface** - Provide concrete resurfacer from the QPL according to 02015.60; refer to QPL remarks to select an appropriate material based on allowable installation depths. Furnish resurfacer in a color that closely matches the color of surrounding concrete surfaces. Mask boundaries of the repair area. Use hand tools to work resurfacer into keyways and match existing grade at boundaries. Apply a light broom-finish to achieve non-slip surface.

e**. Curing and Return to Traffic** - Wet cure for a minimum of 1 hour or per the manufacturer's recommendation, whichever is more restrictive. Follow manufacturer's recommendation for return to traffic time.

(3) ACP Grinding - Taper grind to match existing Pavement with a minimum grinding width of 1 foot for each 1/4 inch of ACP removed.

(b) Acceptance of Structures - Once the corrective work or replacement has been completed, acceptance will be based on the Engineer's inspection and approval of the Structure.

00759.90 Payment -

Replace the paragraph that begins "No separate or additional payment will be..." with the following paragraph and bullet list:

No separate or additional payment will be made for:

• preplacement conference

• concrete form verification

• developing corrective action plans

Payment for bid items associated with this section shall be paid as follows as stated in the **Bid Document, Bid Items 29 through 31:**

- **Bid Item 29, Concrete Curbs, Standard Curb**: Per linear foot
- **Bid Item 30, Concrete Driveways**: Per square foot
- **Bid Item 31, Concrete Walks:** Per square foot

Payment shall represent full compensation for all labor, equipment, and materials necessary to perform the requirements of this section.

Section 01030 – Seeding

Comply with Section 01030 of the Standard Specifications modified as follows:

01030.13(c) Pure Live Seed - Replace this subsection, except subsection number and title, with the following subsection:

Use the PLS specified rate listed in 01030.13(f) for determining PLS application rates. Ensure the PLS application rate meets the PLS specified rate. Apply pre blended seed mixes, with multiple species, at a PLS application rate ensuring all species meet or exceed the PLS specified rate for each species in the seed mix.

PLS application rate for an individual seed species is determined as follows:

• PLS specified rate is listed in 01030.13(f)

• PLS factor is obtained by multiplying the seed label germination percentage times the seed label purity percentage. Use the purity and germination percentages from the label on actual bags of seed to be used on the Project.

• PLS application rate is obtained by dividing the PLS specified rate by the PLS factor.

For a seed mix, make this calculation for each seed species in the mix and then adjust as follows:

• Using the seed tag, determine the weight of each seed species in the bag and use this information to find the percentage, by weight, of each seed species is in 1 pound for the pre-blended mix.

• Divide the percentage by weight of each seed species, per pound, for the pre-blended mix, by the PLS application rate for that specific seed species.

Determine the highest application rate in the seed mix and apply the seed mix at that application rate.

01030.13(f) Types of Seed Mixes - Add the following to the end of this subsection:

Provide the following seed mix formulas:

Vegetated corridor areas require native seed mixes.

Dwarf Grass Mix (min. 100 lb/acre):

- Dwarf Perennial Ryegrass (min. 100 lb/ac)
- Creeping Red Fescue (20% by weight)

Standard Height Grass Mix (min. 100 lb/acre)

- Annual Ryegrass (40% by weight)
- Turf-type Fescue (60% by weight)

01030.13(g) Availability - Add the following sentence to the end of this subsection:

Submit the seed and seed mixes to be used on the project according to 00150.37.

Payment for all work associated with this section shall be paid on a per acre basis as stated in the **Bid Document, Bid Item 35, Permanent Seeding**. Payment shall represent full compensation for all labor, equipment, and materials necessary to perform the requirements of this section.

Section 02001 – Concrete

Comply with Section 02001 of the Standard Specifications modified as follows:

02001.02 Abbreviations and Definitions: Replace the sentence that begins "Pozzolans - Fly ash, silica fume…" with the following sentence:

Pozzolans - Fly ash, natural Pozzolans, silica fume, and high-reactivity Pozzolans.

Replace the sentence that begins **"Supplementary Cementitious Materials - Fly ash, silica fume…"** with the following sentence:

Supplementary Cementitious Materials - Pozzolans and ground granulated blast furnace slag.

02001.15(a) Current Mix Designs - Replace this subsection, except for the subsection number and title, with the following:

Mix designs that meet the requirements for the specified class of concrete and are currently being used or have been used within the past 24 months on any project, public or private, may be submitted for review. Provide individual test results that comprise the average if more than one data point exists. For paving designs the flexural strength testing must be from within the last two years. For HPC designs the length change and permeability tests must be from within the last two years.

02001.20(a) Strength - Replace Table 2001-1 with the following Table 2001-1:

Table 02001-1

Concrete Strength and Water/Cementitious Material (w/cm) Ratio		
Type of Concrete	**Strength f'_c (psi)**	**Maximum w/cm Ratio**
Structural	3300	0.50
	3300 (Seal)	0.45
	4000	0.48
	4000 (Drilled Shaft)	
	HPC4500	0.40
	HPC(IC)4500	
	5000 +	
Paving	4000	0.44
	5000	0.48
PPCM's (with cast-in-place decks and no entrained air)	5500	0.44
	6000 +	0.42

02001.30(e)(1) HPC Coarse Aggregate Content - Delete the paragraph that begins "Two or more Aggregate products or sources…"

Section 02030 – Supplementary Cementitious Materials

Comply with Section 02030 of the Standard Specifications modified as follows:

02030.00 Scope - Replace this subsection, except for the subsection number and title, with the following:

This Section includes the requirements for fly ash, natural pozzolans, silica fume, ground granulated blast furnace slag and high reactivity pozzolans used in portland cement concrete.

02030.10 Fly Ash - Replace this subsection, except for the subsection number and title, with the following:

Furnish Class C and Class F fly ash from the QPL and conforming to AASHTO M 295 (ASTM C618).

Add the following subsection:

02030.15 Natural Pozzolans - Furnish Class N natural pozzolans from the QPL and conforming to AASHTO M 295 (ASTM C618).

02030.50 Metakaolin - Replace this subsection with the following:

02030.50 High Reactivity Pozzolans - Furnish high-reactivity pozzolans from the QPL and conforming to AASHTO M 321.

Section 02050 – Curing Materials

Comply with Section 02050 of the Standard Specifications modified as follows:

02050.10 Liquid Compounds - Replace the paragraph that begins "Furnish liquid membrane-forming curing…" with the following paragraph:

Furnish liquid membrane-forming curing compounds from the QPL and meeting the requirements of ASTM C309. Before use, submit a one quart sample from each lot for testing. Samples will be tested according to ODOT TM 721. Samples are not required for curing compounds used on Commercial Grade Concrete.

Section 02560 – Fasteners

Comply with Section 02560 of the Standard Specifications modified as follows:

02560.30(b) High Strength Tie Rods, Anchor Bolts and Anchor Rods - Add the following paragraph to the end of this subsection:

End stamp all ASTM F1554, Grade 105 according to ASTM F1554 Supplementary Requirements S2 and S3. If the end of the bolt is to be embedded in concrete, the projecting end from the concrete shall be the marked end.

SPECIAL SPECIFICATIONS

S-1 – Prevailing Wage Rates for Public Works Contracts in Oregon/Public Works Bonds/BOLI Fee

Unless otherwise exempt, Contractor, its consultants and any subcontractors shall abide by ORS 279C.800 through 279C.870 that relate to the prevailing wage rates for the building and construction trades in the State of Oregon. Along with any subcontractors or consultants performing Work, Contractor shall pay workers in each trade or occupation required for the Work not less than the applicable Oregon prevailing rate of wage in accordance with ORS 279C.838 and 279C.840. The applicable Oregon prevailing wage rates for such workers are contained in the publication *January 1, 2022 Prevailing Wage Rates for Public Works Contracts in Oregon* dated January 1, 2022, including all applicable amendments (see links at http://www.oregon.gov/boli/whd/pages/index.aspx), and are hereby incorporated herein as of the date these bidding documents were first advertised. Contractor shall also include in every subcontract a provision requiring the subcontractor to comply with this provision.

Contractor shall have a public works bond filed with the Construction Contractors Board unless exempt under ORS 279C.836(4), 279C.836(7), 279C.836(8) or 279C.836(9). Contractor shall also include in every subcontract a provision requiring the consultant or subcontractor to have a public works bond filed with the Construction Contractors Board before starting work on the Project unless exempt under ORS 279C.836(4), 279C.836(7), 279C.836(8) or 279C.836(9).

The City will be responsible for paying the required fee to the Commissioner of the Bureau of Labor and Industries.

S-2 – Incorporation of Oregon Standard Specifications for Construction

Contractor shall incorporate all applicable provisions of the "Oregon Standard Specifications for Construction" into this bid proposal. All work done and materials used on this project shall be set forth in said Standard Specifications, except as specifically modified by the Special Specifications. If there is any difference, discrepancy, or conflict between the Special Specifications and the "Oregon Standard Specifications for Construction," the Special Specifications set forth herein shall apply.

Costs associated with the requirements of this section are considered incidental to construction and no additional compensation shall be due to the Contractor.

S-3 – Contractor Submittals

Contractor shall be required to make the following submittals. Direct submittals from suppliers shall not be allowed. Three (3) hard copy sets or one (1) electronic (PDF) of each submittal shall be required. Submittals shall consist of three types; (1) information for record, (2) information for City review/approval, and (3) operation/maintenance information. The following listing shall be considered minimum and may be expanded during the course of the work at the discretion of the City.

- Copy of All Licenses and Permits
- Project Schedule (00180)
- Site Specific Safety Plan (S-5)
- Emergency Response and Contact List (S-6)
- Staging Area Security, Access Plan (S-11)
- Utility Coordination Report (00180)

- Traffic Control Plan (S-13)
- Concrete structures work corrective action plan (00759)
- Seed & seed mixes to be used (01030)
- Staking Cut Sheets (S-12)
- Manufacturer/supplier certificates for products, where applicable
- Erosion and Sediment Control Materials
- Wood Chip Mat & Geotextile Fabric (S-15)
- Bypass Pumping Plan (S-20)
- Aggregate materials with Current Proctor (within two months)
- Dewatering Plan (S-16)
- Material products including pipes, manhole structures, fittings, jointing equipment, sealants, and procedures
- Launching & Receiving Shaft Excavations Plan (S-21)
- Concrete and Asphalt Mix designs
- Trenchless Sewer Installations (S-22)

Contractor shall be responsible for the accuracy and completeness of the information contained in each submittal and shall ensure that the material, equipment, or method of work shall be as described in the submittal. Contractor shall verify that all features of all products conform to the specified requirements. Submittal documents shall be clearly edited to indicate only those items, models, or series of equipment that are being submitted for review. All extraneous materials shall be crossed out or otherwise redacted. Contractor shall ensure that there is no conflict with other submittals and notify the Engineer in each case where its submittal may affect the work of another contractor or the City.

Contractor shall coordinate submittals with the work so that work will not be delayed. Contractor shall coordinate and schedule different categories of submittals, so that one will not be delayed for lack of coordination with another. No extension of time will be allowed due to Contractor's failure to schedule submittals properly. Contractor shall not proceed with work related to a submittal until the submittal process is complete. This requires that submittals for review and comment shall be returned to the Contractor stamped "No Exceptions Taken" or "Make Corrections Noted." Contractor shall certify on each submittal document that it has reviewed the submittal, verified field conditions, and complied with the Contract documents.

Review of Contract drawings, methods of work, or information regarding materials or equipment the Contractor proposes to provide, shall not relieve the Contractor of responsibility for errors therein and shall not be regarded as an assumption of risks or liability by the Engineer or the City, or by any officer or employee thereof, and the Contractor shall have no claim under the Contract on account of the failure, or partial failure, of the method of work, material, or equipment so reviewed. A mark of "No Exceptions Taken" or "Make Corrections Noted" shall mean that the City has no objection to the Contractor, upon its own responsibility, using the plan or method of work proposed, or providing the materials or equipment proposed.

Payment for submittals shall be considered incidental to their respective items and no additional compensation shall be due Contractor.

S-4 – Pre-Construction Meeting and Weekly Project Meetings

Contractor shall attend a pre-construction meeting attended by the City and Contractor personnel a minimum of one (1) week prior to the initiation of construction activities.

Contractor's project manager and/or site superintendent shall attend weekly on-site project status meetings. Progress meeting schedule shall be established by the Contractor and City at the pre-construction meeting.

Costs associated with meetings, scheduling, and other work necessary to comply with the requirements of this section are considered incidental to construction and no additional compensation shall be due to the Contractor.

S-5 – Safety

The Contractor shall perform all operations in strict accordance with all applicable standards and requirements established by, but not limited to, Oregon Revised Statutes (ORS); Oregon Administrative Rules (OAR); Oregon occupational safety and health regulations; Department of Labor and Industries; ODOT; the federal and state Departments of Labor, Occupational Safety and Health Act (OSHA); 29 Code of Federal Regulations (CFR) Part 1910 (Occupational Safety and Health Standards) and Part 1926 (Safety and Health Regulations for Construction); and all other applicable federal, state, county, and local laws, ordinances, and codes.

The Contractor shall conduct its operations and perform all work safely, perform all work necessary to ensure the safety of its personnel and others, and shall be solely and completely responsible for safety and the conditions on the job site, including the safety of all persons and property. This requirement shall commence after mobilization and apply continuously and not be limited to normal working hours. Contractor shall submit a Site Specific Safety Plan.

Costs associated with the requirements of this section are considered incidental to construction and no additional compensation shall be due to the Contractor.

S-6 – Emergency Response

Prior to beginning any work, Contractor shall provide the City with a list identifying all key personnel associated with this Project and their responsibilities. Contractor shall provide the City with a list of contact numbers for those employees responsible for responding to after hour call-outs, 24 hours per day, and 7 days per week, associated with Contractor's work. Contractor shall have personnel available to respond to emergency situations within 2 hours of receiving notice from the City.

If Contractor fails to provide timely response or corrective action, the City may provide response or corrective action without further notice to Contractor or Contractor's surety and deduct all cost thereof from any payments due or coming due Contractor. The City shall not be required to act in any situation and nothing shall relieve Contractor of its duties to prevent, correct, or respond to problems related to the work.

Costs associated with the requirements of this section are considered incidental to construction and no additional compensation shall be due to the Contractor.

S-7 – Price Escalation

After bid award, price escalation of material, labor, equipment, and/or fuel costs shall not be allowed on this project. If, during the performance of the Contract, the price of material, labor, equipment, and/or fuel costs significantly increases, the bid prices still stand, and no additional compensation shall be due to the Contractor. Bid prices are final and no escalation will be provided.

Costs associated with the requirements of this section are considered incidental to construction and no additional compensation shall be due to the Contractor.

S-8 – Transfer of 1200-C Permit Coverage

1200-C permit coverage (Permit No. NGEN12C-ORR10H211) shall be transferred to the Contractor before beginning construction. Contractor shall take over full ownership of the permit and Erosion and Sediment Control Plan and must follow and implement requirements as specified in the Plan. Any permit violations or fees administered by the Oregon Department of Environmental Quality or otherwise will be the responsibility of the Contractor. A copy of the permit and plan shall be available at the work area at all times.

Costs associated with the requirements of this section are considered incidental to construction and no additional compensation shall be due to the Contractor.

S-9 – Protection and Restoration of Construction Zone

Any open excavations or equipment on public or private property shall be isolated from residents and the general public by the use of secure temporary chain link or orange construction fencing or other approved barrier.

Contractor shall protect lawns, planted areas and all trees, not designated for possible removal, (at drip line), within the limits of the work and/or the public right-of-way.

All disturbed pavement (e.g., excavation for manholes or bypass operations, cracked pavement as a result of heavy equipment, etc.) shall be restored. The edges of the disturbed area shall be vertically saw cut to provide a clean vertical edge to match the new to the existing pavement. Contractor shall provide a minimum of 6 inches of hot-mix asphalt concrete pavement (ACP), and a minimum of 12 inches of 3/4 inch – 0 crushed aggregate base.

Costs associated with this section shall be considered incidental to construction and no additional compensation will be due to the Contractor.

S-10 – Water Supply

Contractor shall be responsible for providing all water necessary for the project. This may include water for dust control, moisture for fill material, and for cleaning and flushing lines. Contractor shall not use residential water services without prior written agreement from property owner(s). Contractor shall provide a copy of any agreement(s) to the City prior to utilizing any residential water service.

Costs associated with the requirements of this section are considered incidental to construction and no additional compensation shall be due to the Contractor.

S-11 – Staging Area Security, Access Plan

The Contractor may establish agreements with private property owners to secure additional work, storage, or staging areas. Any agreement relative to staging, storage, access, or construction activities executed between the Contractor and any private property owner shall be in writing with all conditions pertaining to usage and restoration clearly defined. All agreements shall contain language clearly excluding the City as a party to the agreement(s). A signed copy shall be provided to the City prior to any construction activities occurring on private property. Any cost associated with the Contractor's usage of private property shall be considered incidental to the project and borne by the Contractor at no cost to the City.

Continuous, unobstructed, safe, and adequate pedestrian and vehicular access shall be provided to fire hydrants, commercial and industrial establishments, private residences, churches, schools, parking lots, service stations, motels, fire and police stations, and hospitals. Continuous emergency vehicle access shall be provided through work areas on public roadways.

Submit a Staging Area and Access Plan to the City prior to conducting the Work. The Staging Area and Access Plan shall highlight all areas that will be used by the Contractor, types of equipment used, locations of bypass pumps and discharge piping, methods for securing equipment, including all equipment used for bypass pumping operations, the vehicular route for access, specifically, paths of ingress and egress, and duration of impact. The Staging Area and Access Plan shall adhere to all requirements listed in these Contract Documents. Markups of the Drawings are acceptable.

Costs associated with this section shall be considered incidental to the Project and no additional compensation will be due to the Contractor.

S-12 – Construction Survey

Contractor shall be responsible for all project layout based upon the plans. A CAD file will be made available to the Contractor for use to procure a surveyor for construction staking at the Contractor's expense. Contractor shall duplicate basis of bearing as provided in the plans. All cut and fills need to reference the benchmark as provided in the plans. Contractor shall maintain proper equipment on-site as necessary to ensure horizontal and vertical control and proper location of improvements. Contractor is solely responsible for all layout of the work. No additional survey staking will be provided except at the expense of the Contractor.

At a minimum, project construction staking shall include:

- 1-hub at center of all structures
- 2-offset hubs with tack and lath for each structure
    - All laths shall be marked with line station, offset distance, invert cut or fills, rim information, and slope where applicable
- Surface information at every 25-ft station on centerline, with cuts computed
- Limits for clearing which approximate Right-of-Way
- Fencing, sediment control and construction fencing
- Tree protection
- Staging areas
- Access Easements

- Engineering Stationing at 50 foot intervals for the length of the project along the shoulder of the highway. Maintain the stationing so that it is visible throughout construction of the project
- Trenchless Pipe Installation (See Trenchless Pipe Installation Specification)
    - Location of Launching and Receiving pits
    - Line and grade of guide rails
    - Monitor line and grade of casing pipe and carrier pipe

Cut sheets shall be made available to the City a minimum of 24 hours prior to construction of the improvements. Cut sheets shall include Station as referenced on the plans, horizontal and vertical distances from hubs, slopes and design grades.

The City or City's representative may verify line and grade staking prior to construction. Contractor shall provide enough information for verification.

Contractor is responsible for replacing monuments.

Post-construction as-built survey is the responsibility of the contractor and must be prepared by an Oregon Licensed Land Surveyor.

Payment for all work associated with this section shall be on a lump sum basis as stated in the **Bid Document, Bid Item 36, Construction Survey**. Payment shall represent full compensation for all labor, equipment, and materials necessary to meet the requirements of this section. No separate or additional payment will be made for preparing survey documents including but not limited to office time, preparing, and checking survey notes. Costs incurred caused by survey errors will be at the Contractor's expense. These costs may include price adjustments for repair, removal, or replacement of deficient products or practices and overages of materials.

S-13 – Traffic Control Plan

Contractor shall comply with all conditions of Road Access Permit issued by the City and have a copy on-site at all times. Contractor shall submit a traffic control plan to the City for approval. No work shall begin without approval of the traffic control plan. A copy of the approved traffic control plan shall be available at the work area at all times.

Public roadways shall not be closed to traffic at any time without prior approval of the City. Flaggers shall not detain traffic for more than 20 minutes. If Contractor elects to apply for a road closure permit from the City all fees or deposits associated with the closure request application shall be the responsibility of Contractor. Contractor shall meet all advance posting requirements and abide by all conditions of the permit. The City reserves the right to add or modify traffic control requirements as required to effectively control traffic and maintain public safety.

Contractor shall provide and maintain access to all homes, Schools, and Businesses at all times. Contractor shall strive to maintain access to private driveways to the extent practical. It is incumbent upon the Contractor to provide timely notification to individual property owners regarding impending, temporary interruptions to residence and/or driveway access by private vehicles. Failure of Contractor to abide by access requirements shall be cause for work stoppage until effective access is reestablished.

Contractor shall notify emergency services, public transportation, all affected utilities and local agencies about traffic control operations to properly coordinate and expedite the work in such a manner as to cause the least amount of conflict and interference between the work and operations of other agencies. Contractor shall notify school authorities at least 2 weeks in advance of any construction that will interfere with access to schools or affect school bus routes and schedules.

The Contractor shall conduct operations to minimize interference with authorized work of utility companies or other agencies in such streets or parking areas. The Contractor shall keep fire hydrants on or adjacent to work accessible to firefighting equipment.

The Contractor shall be responsible for providing adequate safeguards, safety devices, protective equipment, and any other needed actions to protect pedestrian traffic in connection with the performance of the work covered by the Contract. The Contractor shall perform any measures or actions that the Engineer may deem necessary to protect pedestrian traffic and shall be responsible for the provision and expense of this protection.

Payment for all work associated with this section shall be based on lump sum basis as stated in the **Bid Document, Bid Item 37, Traffic Control Plan**. The lump sum payment shall constitute full compensation for all coordination, labor, materials, and equipment necessary to prepare, submit, and receive approval of traffic control plan, the implementation and maintenance of traffic control operations, and signage per the requirements of this section.

S-14 – Utility Duct Bank Support

Work associated with this section shall consist of supporting and maintaining existing utility company conduits and/or cables that are affected by the Contractor's operations.

Sanitary sewer laterals are to be constructed below a three-by-three utility duct bank, containing nine 4-inch conduits. The Contractor shall provide support and maintain existing utility conduits and/or cables when trenching and/or excavation activities are near the duct bank. Existing utility cables shall remain in service throughout the contract duration. No temporary service shutdowns will be allowed.

Measured utility duct bank elevations are shown on the Plans. Contractor shall locate utilities to determine depth and exact horizontal alignment prior to the start of construction. Prior to installation of the improvements identified in the construction documents, Contractor shall pothole all known utility locations to determine the exact location and depth of all utilities that may conflict with construction of this Project. If Contractor fails to locate any known utility that interferes with the proposed improvements, the cost of correcting the conflict shall be borne by Contractor.

Costs associated with the requirements of this section are considered incidental to construction and no additional compensation shall be due to the Contractor.

S-15 – Wood Chip Access Mats

Contractor shall not cause compaction of soils within access easement and staging areas during the construction of this project. Contractor shall place and spread wood chips, hog fuel, to a minimum 12-inch depth, over geotextile fabric, on all access easement and staging areas that are to bear construction traffic and material storage.

Contractor shall make product submittal to the City for wood chip mat and geotextile fabric approval prior to placement. Within 30 days of the notification of acceptance of project, Contractor shall remove wood chip mat and geotextile fabric from access easement and/or staging areas. Contractor shall de-compact soils, shape, and permanently stabilize any area affected by the removal process. Contractor shall not remove wood chip mats and geotextile fabric before project has been accepted by the City.

Payment for work associated with wood chip mats shall be paid based on a square foot basis for matting installed and approved as stated in the **Bid Document, Bid Item 38, Wood Chip Access Mats**. Payment shall represent full compensation for all labor, equipment, and materials necessary to furnish, install, and remove the wood chip access mats and meet the requirements of this section.

S-16 – Dewatering

Dewatering shall consist of the design, furnishing, installation, operation, maintenance, and removal of a dewatering system(s) to achieve completion of all work performed under this Contract without damage to adjacent improvements, existing landscaping, water courses, and natural vegetation. Contractor shall be responsible for any fees imposed by the Department of Water Resources.

If dewatering requirements exceed 800 GPM, this work will be considered Advanced Dewatering and will be addressed through force account as described in Special Specification S-17.

Contractor shall furnish, install, operate, and remove any and all additional machinery, appliances, and equipment necessary to keep excavation free from water during construction. Contractor shall dewater and dispose of the water so as not to cause injury to public or private property, or to cause a nuisance or a menace to the public and to meet all water quality and permit requirements.

The control of groundwater shall be such that softening of the bottom of excavations, or formation of "quick" conditions or "boils" during excavation shall be prevented. Dewatering systems shall be designed and operated to prevent the removal of natural native soils.

Contractor shall control surface runoff so as to prevent entry or collection of water in excavations and areas under construction. This may require the installation and removal of swales and diversion berms to reroute or prevent the free flow of surface water through the construction site. Any surface water diversion shall be, first approved by the City, and shall be maintained 24 hours a day for the entire period of diversion, the release of water through the construction site will not be allowed.

Excavations shall be kept free of water during excavation, installation of pipe, placement of gravel bedding materials, placement and setting of manholes, and prior to the acceptance of any portion of the work. If an engineered dewatering system is necessary, it shall be designed using accepted and professional methods consistent with the best modern practice. The dewatering system may include any deep wells, well points, sumps, diversions, cofferdam, swales, check dams, and other equipment, appurtenances, and related earthwork necessary to perform the function.

Design, installation and responsibility of the dewatering system shall be entirely Contractor's responsibility. During times of the year, ground water may be at the surface of the existing ground. One week prior to dewatering, submit to the City, the method, installation, and details of the engineered dewatering system. A professional engineer licensed in the State of Oregon must stamp the engineered dewatering system design and submittal.

Acceptance of the method, installation, and operation and maintenance details submitted by Contractor shall not in any way be considered to relieve Contractor from full responsibility for errors therein. Nor shall it relieve Contractor from the responsibility for adequate design and performance of the system in controlling the water level in the excavated areas or for control of the hydrostatic pressures. Contractor shall be solely responsible for proper design, installation, operation, maintenance, any modification and failure of any component of the dewatering system for this Contract.

Contractor shall be responsible for any and all permits and fees associated with the dewatering system and shall comply with water disposal requirements of all authorities having jurisdiction.

Contractor may discharge clean groundwater to surface waters subject to the limitations and water quality requirements of all applicable law and permits. Sediment laden water must first be satisfactorily treated. Water from any construction site may not be discharged directly to an unpermitted storm water system, or to any other conveyance system leading directly to a water of the state.

Contractor shall be responsible for meeting requirements of all regulating agencies for quantity, frequency, quality,

clarity, and location of dewatering water discharge. Contractor shall provide, operate, and maintain sedimentation filter bags at a minimum or settling tanks, such as Baker Tanks as needed to adequately treat collected water. The number of bags or tanks shall provide 100% redundant settling capacity of collected flows. Settle and/or filter all dewatering and supplemental system flow collected through Contractor designed and provided settling systems prior to discharging to private storm drain system or other approved discharge point. Secondary containment around the filter bags shall be installed to prevent any sediment laden water from entering a water course. The secondary containment shall consist of sediment control fence and biobags or wattles. The City retains the authority to temporarily halt or modify the dewatering system to prevent excessive turbidity or damage to natural resources.

Contractor shall be responsible for monitoring the discharge of the dewatering operation.
If Contractor suspects, or while monitoring, determines that sediment laden water is leaving the project area, Contractor shall notify the City immediately and provide for additional storage and/or treatment of contaminated water prior to discharge.

Contractor shall be responsible for and repair any damage to work in place and the excavation that may result from its maintenance and operation of the dewatering system. Upon authorization from City, Contractor shall remove from the site all dewatering system elements. Contractor shall assume ownership and responsibility for the disposal of all dewatering pumps, pipes, and other assorted system hardware. Remove and abandon all wells in accordance with all laws and regulations of the State of Oregon. Contractor is responsible for all decommissioning fees.

The cost for repairs, materials replacement, cleanup, treatment costs, or fines resulting from overflow caused by Contractor's dewatering practices shall be incurred by Contractor and shall be considered incidental work. Contractor, prior to discharging of dewatering and any collected water to discharge points shall include all treatment costs associated with supplying all necessary equipment, tools, materials, labor, and supervision required for installing, operating, and maintaining the dewatering system and the discharge of settled water as necessary to meet the applicable contract requirements specified in this section.

Payment for all work associated with this section shall be paid on a lump sum basis as stated in the **Bid Document, Bid Item 39, Dewatering**. Payment shall represent full compensation for all labor, equipment, and materials necessary to perform the requirements of this section.

S-17 – Advanced Dewatering

In the case that the dewatering effort requires a system to be installed that is capable of transporting and disposal of more than 800 GPM, dewatering will be addressed through force account, as approved by the Engineer.

Payment for all work associated with this section, if required and approved by the Engineer, shall be paid on a force account basis as stated in the **Bid Document, Bid Item 40, Advanced Dewatering**. Payment shall represent full compensation for all labor, equipment, and materials necessary to perform the requirements of this section.

S-18 – Public Communication

Contractor is responsible for all public communication and neighbor coordination, from notice to proceed to substantial completion, regarding sanitary sewer service interruptions, driveway impacts, and any other impacts as necessary.

Contractor must coordinate with residents for sanitary sewer lateral connections. Contractor coordination with residents for sanitary sewer lateral connections shall include knocking on doors and providing informational door hangings a minimum of 72 hours prior to beginning work.

Costs associated with the requirements of this section are considered incidental to construction and no additional compensation shall be due to the Contractor.

S-19 – Sanitary Sewer Cleanout

Contractor shall construct Sanitary Sewer Cleanouts according to City of Woodburn Standard Detail number 6200-3.

Payment for sanitary sewer cleanouts shall be on a per each basis as stated in the **Bid Document, Bid Item 41, Sanitary Sewer Cleanout**. Payment shall represent full compensation for all labor, equipment, and materials necessary to perform the requirements of this section.

S-20 – Bypass Pumping

This project provides reconstruction of active sanitary trunk lines. Bypass pumping will be necessary to maintain sanitary sewer service during construction and isolate line segments under construction. The Contractor shall submit a bypass pumping plan(s) to the City for approval. Bypassing plan will need to be approved by the City prior to installation of equipment or initiation of any pumping. The bypass pumping plan must contain, at a minimum, the following information:

- A plan view of the diversion facilities on a site map, including location of pumps, suction and discharge manholes, and layout of discharge piping (may be included as part of the Staging Area Plan)
- Spill Containment for both sewerage and fueling.
- Pump types, sizes, capacities, fuel capacity, and placement, for both primary and standby pumps
- Diversion pipe size and type
- Design calculations proving the adequacy of the system and selected equipment, including system curves
- Power supplies, including standby power source
- Method of damming the flow
- Pumping strategy, including float levels and staffing plan with names and telephone numbers of the attendants
- Odor control plan
- Noise control plan
- Traffic control plan for bypass piping

Bypass pipe for uplands and roadways shall be watertight HDPE pipe with quick-connect couplings or an approved equal. In areas where the bypass pipe is located in wetland or other sensitive areas, continuous fused-joint HDPE pipe is required. Quick-connect couplings may be approved by the engineer in wetland or other sensitive areas if secondary containment is provided to capture leaks or spills at the joints. Prior to being put into service, all bypass pipes shall be hydrostatically tested to a pressure of 50 psi or twice the maximum operating pressure, whichever is greater.

The Contractor shall supply a pumping system of appropriate capacity to manage and convey average existing flow conditions of up to 2.0 cubic feet per second (cfs)/1.3 million gallons per day (mgd). Furthermore, higher total flows may occur similar to the period of 2016 to 2020, when peak flows of 6.3 cfs/4.1 mgd were generated during or following wet-weather events. Final sizing of initial bypass system at the average or up to the peak flows shall be the responsibility of the Contractor.

The Contractor shall maintain a backup pump(s) of equal capacity and configured such that the backup pump(s) operates automatically in the event of a failure of the primary system and initiates an autodialer call-out to the Contractor upon startup. The pump system shall include noise attenuation rated at 59 dB at 7 meters while operating at full load.

The Contractor shall set up pumps as far away from residential dwellings and businesses as the site conditions allow to minimize disturbance to property owners and to avoid relocation due to property owner complaints. Individual private sewer laterals must be bypassed at all times. No interruption or loss of sewer service will be allowed at any time.

The Contractor shall provide continuous (24-hours, 7-days per week) monitoring by a designated pump tender during all pumping operations. The pump tender shall have demonstrable ability and knowledge of the pumping system to maintain continuous operation and make repairs and/or pump replacement if required. Overnight bypass pumping operations shall be configured in a manner so that the backup pump operates automatically in the event of a failure of the primary system and initiates an autodialer. An emergency spill kit shall be on site at all times. The Contractor shall immediately contact City on-call emergency personnel if the Contractor experiences a sewer spill or believes that an unexpected circumstance may lead to a pumping system failure and subsequent spill. A spill containment pad is required for all gasoline or diesel-powered pumps or generators.

In the event of a sanitary sewer overflow or sewer backup resulting from any construction activity, including but not limited to a failure of the bypass pumping system or damage to an existing sewer, the costs of all fines imposed by the Oregon Department of Environmental Quality (DEQ) or other regulatory agencies, cleanup, repair to damaged public and personal property, inconvenience expenses, and any additional direct or indirect expenses shall be the sole responsibility of the Contractor.

Payment for all work associated with this section shall be on a lump sum basis as stated in the **Bid Document, Bid Item 42, Bypass Pumping**. Payment shall represent full compensation for all labor, equipment, and materials necessary to perform the requirements of this section.

S-21 – Launching & Receiving Shaft Excavations

1.1 General

A. The work specified in this section includes requirements for the excavation and support of shaft excavations for launching pits and receiving pits. Contractor shall design, furnish, install, and maintain a system of supports, including all bracing and associated items necessary to retain excavations in a safe manner, control ground movements, and prevent damage to adjacent utilities and facilities.

1.2 Design Criteria

A. Contractor shall have sole responsibility for sizing the shaft excavations required for jacking pits and receiving pits within the section of the sanitary sewer to be constructed by pilot tube microtunneling, auger boring, or pipe ramming subject to any limitations due to existing utilities and other site constraints indicated on the Plans. The size of the excavations shall provide adequate space for the Contractor's selected methods of construction. Contractor shall be responsible for determining the direction each boring will be installed. Plans show proposed location of individual shafts with Contractor to determine the final use (i.e., launching or receiving).

B. Locate and size shaft excavations to minimize conflicts with and damage to existing utilities. Relocate utilities that conflict with shaft and connecting pipeline excavations, as approved by the utility agency.

C. Design shaft excavation support systems for each shaft excavation to withstand lateral earth pressures, groundwater loads, equipment loads, applicable traffic and construction loads, thrust block reactions, and

other surcharge loads to allow safe construction of the pipeline without excessive movement or settlement of the ground surface, and to prevent damage to adjacent structures, roads, utilities and other improvements.

D. Excavation support systems selected for the project shall be compatible with the anticipated subsurface conditions described in the Geotechnical Data Report. Design the excavation support systems to handle the geotechnical conditions provided in the Geotechnical Data Report. Contractor shall be responsible for the control of groundwater, including the removal, handling, and disposal of groundwater and surface water runoff as necessary to construct the shaft and maintain a stable shaft excavation.

E. The Contractor shall comply with the following requirements:

1. Design each member or support element to support the maximum loads that can occur during construction with appropriate safety factors.

2. Select excavation and support methods and design the support system to control ground movements and protect any adjacent improvements and utilities from damage. Design support system to maintain the stability of the excavation and provide a factor of safety of at least 1.5 against sliding and bottom heave.

3. Provide solid base for each jacking pit to provide stable support for guide rails, jacking frame and jacks, and other construction operations.

4. Design shaft excavation support systems in accordance with applicable safety requirements. Review of the Contractor's plans and methods of construction by the Engineer does not relieve the Contractor of the responsibility to provide an adequate support system achieving the specified requirements.

1.3 Qualifications

A. Excavation support systems shall be designed by a Civil or Structural Engineer registered in the State of Oregon who has a minimum of five years of experience in the design of earth retaining structures.

1.4 Submittals

A. Provide sufficient detail to demonstrate that the proposed personnel, equipment, materials, procedures, and designs are in accordance with the requirements of the Contract. Review by the Engineer shall not be construed as relieving the Contractor of their responsibilities under this Contract.

B. The Contractor shall submit:

1. Name, qualifications, and resume of person responsible for excavation support system design. Submit qualifications on bid form provided.

2. A site plan for each shaft excavation, drawn to scale, indicating the staging area limits, shaft dimensions, site access provisions, site development details, traffic control details, fencing limits and gate locations, and the locations of cranes, trailers, support facilities, spoil handling and loading, and other plant and equipment. Include layout within each jacking pit and receiving pit including details such as excavation support penetrations, thrust block, jacking frame, and main jacks. Also include shaft site drainage and groundwater control measures including details for measures to control, treating, handling and disposing of surface water runoff, groundwater, and construction water removed from the shaft excavations.

3. Shop drawings and design calculations for each shaft excavation indicating arrangement of supports, sizes, construction methods and equipment, support installation procedures, and construction sequence for proposed support system(s). Indicate description, sizes, shapes, and material specifications for all support elements. Calculations shall include estimates of likely deflections or

deformations of the support system and maximum tolerable values. The drawings and calculations shall be prepared and signed by a Civil or Structural Engineer registered in Oregon.

4. Breakout plans indicating support installed to maintain support and stability of the shaft excavation when breaking out of jacking pit and when breaking into receiving pits. Provide details of launching seals at jacking pits shaft excavations where required.

5. Plan indicating methods used to install shoring for shaft excavations at manholes. Indicate shafts dimensions, the sequence of the work, the support installed to maintain shaft excavation stability, and the provisions for protecting casing or pipe during shoring installation.

6. Provisions for protecting or relocating adjacent utilities. All utilities within 20 feet of shaft excavations shall be addressed. Submit relocation plans to utility agencies with all required information in accordance with their procedures.

7. Quality control plan that describes materials testing requirements, certifications, and excavation monitoring provisions.

8. Plan addressing materials handling, stockpiling, and disposal for excavated materials.

9. Plans indicating site restoration details.

1.5 Structural Steel

A. All structural steel used for the shaft excavation support systems, whether new or used, shall be sound and free from defects that may impair their strength. Structural steel shall conform to ASTM A36 or ASTM A572, Grade 50 unless approved otherwise.

1.6 Steel Casing

A. Steel casing installed as shaft shoring shall be new, smooth wall, straight seam, steel pipe conforming to ASTM A139, Grade B.

1.7 Corrugated Metal Pipe (CMP)

A. All CMP installed as shaft shoring shall conform to ASTM A760.

1.8 Timber

A. All timber shall be structural grade with a minimum allowable flexural strength of 1,100 psi.

1.9 Shaft Excavation and Support – General

A. Size and locate shafts and their work areas, so as to minimize interference with vehicular and pedestrian traffic. Provide traffic control in accordance with accepted submittals.

B. Before beginning construction at any location, adequately protect existing utilities, structures, trees, shrubs, and other existing facilities. Relocate any existing utilities, as necessary, and in accordance with utility owner's requirements. Design excavation support systems to minimize deformations and ground movements that could damage adjacent utilities. The repair of or compensation for damage to existing facilities shall be at no cost to the City.

C. Commence with shaft excavations only after submittals have been reviewed and approved. Conduct all shaft construction work, including excavation, shoring, temporary facilities, materials storage, and construction traffic within any construction easements established for the project. All work shall be performed in accordance with applicable permits.

D. Construct fencing with locked gates, lights, and signs around the shaft excavations as necessary to control vehicular and pedestrian traffic and to provide for public safety. Maintain access to properties, driveways, and for fire trucks as indicated on the Plans.

E. Perform shaft excavations using hand excavation equipment, backhoes, clam shells, or other mechanical excavation equipment. Dispose of excavated materials properly in accordance with the applicable requirements.

F. All sheeting, shoring, and bracing shall be installed to the lines and elevations shown on the approved submittals. No component of the support system shall infringe on the minimum dimensions of any permanent structure shown on the Plans.

G. Install excavation support systems in accordance with submittals and shop drawings, which have been reviewed and accepted. Support ground immediately following excavation. All supports shall be installed tight against the excavation to provide positive support and any voids between the support system and the excavation shall be filled promptly with sand or pea gravel to minimize ground movements. All welding for shaft excavation supports shall conform to the applicable provisions of ANSI/AWS D1.1.

H. Install excavation monitoring provisions as indicated on the accepted submittals. Monitor performance of excavation support system for both horizontal and vertical deflections daily during excavation, and at intervals not to exceed seven days following the completion of excavation work. If monitoring data indicates that deflections may exceed estimated values, increase frequency of monitoring as required by the Engineer. If settlement or deflections of supports indicate that the support system requires modification to prevent excessive movements, redesign and resubmit revised shop drawings and calculations at no additional cost to the City.

1.10 Soldier Piles and Lagging

A. Install soldier piles in predrilled holes, to the tip elevations shown in the approved submittals.

B. After a pile has been seated plumb in the drill hole, encase it with concrete from the tip to the bottom of the final excavation.

C. Install timber, steel plate, or precast concrete lagging with no gaps between adjacent members. Install lagging as the excavation progresses. At no time shall there be more than 3 feet of unsupported ground. Backfill all voids behind the lagging with sand or pea gravel at least once per shift.

1.11 Sheetpiles

A. Drive sheetpiles in plumb position with each sheetpile interlocked with adjoining piles so as to form a continuous diaphragm throughout the perimeter length of the excavation.

1.12 Internal Bracing Support Systems

A. The internal bracing system shall include bracing, wales, struts, and/or shores. Braces, wales, and struts shall be free or twists or deformations. Installation procedures shall result in uniform loading of bracing members without eccentricities or overstressing and distortion of the members.

B. Install and maintain all bracing support members in tight contact with each other and with the surface being supported. Wales shall make full contact with each soldier pile or sheetpile. Welded tight shims may be necessary for full bearing at each support pile.

C. Include web stiffeners, plates, or angles as needed to prevent rotation, crippling, or buckling of connections and points of bearing between structural steel members.

D. The Contractor shall not proceed with excavation to the next level until bracing has been installed and tightly blocked or shimmed. Maintain bracing until structural elements are re-braced by other bracing or until permanent construction is able to withstand the lateral pressures.

E. The Contractor shall locate all bracing to clear all permanent work. If necessary to move a brace, the Contractor shall install new bracing prior to removal of original brace.

1.13 Steel and CMP Casing

A. Install steel and CMP casing in pre-augured hole or shaft excavation performed with backhoe or other suitable equipment. Limit the height of unsupported soil to a maximum of 4 feet. After completing the casing installation, immediately fill the annulus outside the casing with backfill grout.

1.14 Groundwater and Surface Water Control

A. Provide a sump and pump for each shaft excavation to remove any seepage or surface water runoff that enters the excavation. Dispose of all water removed from shaft excavations in accordance with all applicable requirements. Maintain existing surface drainage conditions in all areas affected by shaft excavations and use sandbags and other measures to divert surface water runoff away from shaft excavations.

1.15 Removal of Support System

A. All shoring elements, including sheetpiles, wales, struts, lagging, and shores that can be safely removed shall be removed from the excavation prior to restoration. Elements that cannot be entirely removed shall be exposed and the top 4 feet removed for the excavation without damaging adjacent utilities or improvements. Removal of the support system shall be performed in a manner that will not disturb or harm adjacent construction or facilities. All voids created by the removal of the support system shall be immediately filled with clean cohesion less sand, pea gravel, grout, or lean concrete as approved by the Engineer. The support system removed from the excavation shall remain the property of the Contractor and shall be removed from the site.

Payment for excavation and support of shaft excavations for launching pits and receiving pits shall be on a per each basis as stated in the **Bid document, Bid items 43 and 44, Launching Pit Shaft Excavation and Backfill and Receiving Pit Shaft Excavation and Backfill**. Payment shall represent full compensation for all labor, equipment, and materials necessary to prepare and submit shoring designs, furnishing and installing shoring systems, shaft excavation monitoring, handling and disposal of excavated materials, fencing, groundwater and surface water handling and disposal, and all other incidental work to develop, operate, and maintain the excavation shafts during construction to meet the requirements of this section. Pits that are used for both receiving and launching shall be considered as a single unit and no additional payment will be made.

S-22 – Trenchless Sanitary Sewer Installation

S-22 Trenchless Sewer Installation

Contractor shall construct trenchless line segment in accordance with one the following Special Specifications.

S-22.1 Auger Boring for Casing Installation and Installation of Carrier Pipe
S-22.2 Pilot Tube Microtunneling
S-22.3 Pipe Ramming for Casing Installation and Installation of Carrier Pipe

Special Specifications for trenchless sewer installation area as follows:

S-22.1 Auger Boring for Casing Installation and Installation of Carrier Pipe

22.1.1 General

A. The work specified in this section includes requirements for installing casings using auger boring methods for installation of a carrier pipe inside of the casing for a sanitary sewer line. This may also include use of a Pilot Tube described in 22.2.6 in order to achieve the necessary tolerances in 22.1.4.

22.1.2 Design criteria

A. Auger boring equipment shall be compatible with the subsurface conditions described in the Geotechnical Data Report. In addition, the following design criteria shall be followed:

1. The design grade of the product pipe for the gravity flow sanitary sewer is indicated on the Drawings.
2. Design of the casing pipe and determining acceptable pipe fabrication tolerances is the responsibility of the Contractor. Maximum compressive stresses applied to the casing shall not exceed 33 percent of the design compressive strength of the pipe material and shall not exceed the manufacturer's recommended allowable stresses, whichever is lower.
3. Casing pipe shall be designed for ground and hydrostatic loads, maximum anticipated grout pressures, AASHTO H-20 wheel loading with impact, and other anticipated loads during construction.
4. Furnish casing of a size to permit proper installation of the carrier pipe to the required lines and grades while also providing adequate backfill grout cover between the carrier pipe and the casing. Furnish welded steel pipe with joints that do not increase the pipe diameter and is suitable for the purpose intended.
5. Control settlement and heave above the casing so settlement or heave does not exceed one (1) inch at the ground surface.
6. The thrust block shall be constructed perpendicular to the proposed pipe alignment and shall be designed to withstand the maximum jacking pressure to be used, with a factor of safety of at least 2.0, without excessive deflection or displacement.
7. The casing backfill grout mix design shall meet the following basic requirements:
    a) Limit the heat of hydration to prevent damage to the carrier pipe.
    b) Achieve a minimum 28-day compressive strength of 200 psi.
    c) Flowable mix that can completely fill annular space between carrier pipe, casing spacers, and casing.

22.1.3 Qualifications

A. Provide resumes, a description of relevant experience, and contact information for Owners or Engineers that can verify the specified qualifications for each of the following entities and key individuals. Upon approval, Contractor shall not substitute or replace any entity or individual without express written approval from the Engineer.

B. The Contractor responsible for the trenchless casing installation shall have a minimum of five (5) years history and experience in trenchless casing installation and pipeline construction, and shall have constructed and satisfactorily completed a minimum of two (2) projects of similar (or greater) size and scope prior to award of this Project.

C. Provide a full time superintendent and one or more operating engineers who are experienced with the pipe installation method and the equipment the Contractor will use. The Superintendent and Operating Engineer

shall have successfully completed a minimum of five (5) projects of similar length and diameter using the proposed method. At least one shall have been installed in the past year.

D. Use certified welders qualified to AWS Section D1.1 Section 4 for the position, process, and pipe diameter on the job.

22.1.4 Tolerances

A. The casing shall be installed to allow the carrier pipe for the sanitary sewer to be constructed in accordance with the following tolerances:

1. Line tolerance: 3 inches per 100 feet
2. Grade tolerance: 2 inches per 100 feet

22.1.5 Submittals

A. Provide sufficient detail to demonstrate that the proposed personnel, equipment, materials, procedures, and designs are in accordance with the requirements of the Contract. Review by the Engineer shall not be construed as relieving the Contractor of its responsibilities under this Contract.

B. The Contractor shall submit:

1. The name of the contractor or subcontractor that will perform the auger boring work and written documentation summarizing the qualifications of the firm, description of reference projects including owner's name and telephone numbers, pipe size, drive lengths, subsurface conditions, equipment used, project superintendent, and machine operators. Provide qualifications for the proposed project superintendent, machine operator(s), site safety representative, personnel responsible for air quality monitoring, and licensed surveyor. Submit the qualifications on bid form provided. The other submittals listed below will not be accepted for review until the qualifications have been approved. No auger boring work shall be performed nor materials or equipment procured prior to approval of the qualifications.
2. A detailed auger boring work plan including descriptions of the methods, equipment and procedures to be utilized in completing the work, drives to be installed by auger boring, jacking and receiving pit locations, casing pipe details, and traffic control provisions. Include manufacturer's literature describing in detail the auger boring system to be used including machine type, spoil removal system, guidance system, and provisions for injecting pipe lubricants. Provide shop drawings that include geometry, grade of materials, and dimensions of the jacking system, including all steel framing, welds, bolts, braces, hydraulic jacking equipment, lubricant equipment, and controls. Dimension drawings to scale and show the spatial relation of the complete fabrication with respect to the casing and jacking pits and profile. Provide descriptions of three projects on which this system has been successfully used in similar geologic conditions including names, addresses, and telephone numbers of owner's representatives for these projects as well as length, diameter, and casing material used.
3. A description of the guidance, alignment control, and steering systems. Provide manufacturer's literature, drawings showing set up and support provisions, and other details for the systems. Confirm that these systems can achieve the required pipeline line and grade within the specified tolerances.
4. Provide an estimate of the maximum jacking force expected to complete each drive and verify that the installation equipment has sufficient energy to complete the drives shown on the drawings.

5. Details of lubrication system and pipe lubricants to be used during auger boring including manufacturer's literature.

6. Details of lighting, electrical, and ventilation systems when personnel must enter the casing.

7. A safety plan for auger boring operations.

8. Details of the casing pipe to be used. Indicate the required fabrication tolerances to prevent damage to the casing during installation, and provide a statement from pipe manufacturer indicating the maximum allowable jacking force that can be applied to the pipe.

9. Manufacturer's warranties, certificates of compliance, and guarantees that all materials incorporated into the work meet or exceed the requirements of the Plans and Specifications.

10. Provide a planned schedule for the work. Include a narrative describing the critical path; planned work sequence, durations, and advance rates; and planned work hours, number of shifts per day, number of days worked per week, crew size and make-up.

22.1.5.1 Calculations

A. The Contractor shall submit:

1. Design calculations demonstrating that the proposed casing pipe is capable of supporting the maximum stresses to be imposed on the pipe during installation and subsequent applications. The calculations shall take into account maximum ground and hydrostatic loads, jacking forces, live loads due to traffic, and any other loads that may be reasonably anticipated. All loads shall be shown and described.

2. Design calculations which demonstrate that the trenchless installation method will not damage the excavation support system and that the excavation support system has adequate strength to handle anticipated jacking loads.

22.1.5.2 Carrier Pipe Installation

A. The Contractor shall submit:

1. Work plan describing the proposed installation procedures and methods for installing the carrier pipe inside the casing.

a) Describe methods, procedures, and equipment for installing carrier pipe inside the casing to the line and grade shown on the plans, and methods for backfilling the annular space between the carrier pipe and the casing with backfill grout.

b) Casing backfill grout mix design, materials data, and other requested information.

c) Shop drawings and manufacturers literature for casing spacers to be utilized.

22.1.5.3 Contingency Plan

A. Prepare a detailed contingency plan that outlines contingency procedures to be employed in the event of the following:

1. Obstruction or impediment encountered.

2. Means and methods to maintain specified line and grade tolerances should casing steering to be sufficient to meet the specified requirements.

3. Surface settlement.

4. Unexpected or excessive groundwater inflow.
5. Over-excavation or running ground.
6. Equipment breakdowns.

22.1.5.4 Reports and Records

A. The Contractor shall submit the following on each day that measurements are made:

1. Survey notes, auger boring records, and shift reports indicating thrust force, rate of advance, line and grade deviation, roll, inclination, steering adjustments, volume of lubricant injected, and other pertinent information. Submit reports the following day after each shift worked.
2. Quality assurance reports for each casing pipe indicating wall thickness, outside diameter, length of opposite sides, end squareness of each end, straightness, materials testing data, and certifications from the manufacturer indicating that each casing pipe section complies with the specified requirements.

22.1.6 Auger Boring Equipment

A. The auger boring machine shall be manufactured by a company that specializes in the design and fabrication of this type of equipment. The machine shall satisfy all of the following general requirements:

1. The machine shall be capable of efficiently advancing through the geologic conditions described in the Geotechnical Data Report.
2. The leading section of the casing pipe shall be equipped with a cutting shoe. The cleaning auger flights shall not project or excavate beyond the cutting shoe face.
3. The machine shall have the ability to be steered in the vertical and horizontal directions to maintain line and grade within the specified tolerances.
4. A pipe lubrication injection system shall be provided to inject pipe lubricants continuously as the pipe is advanced to minimize the jacking forces.
5. The overcut of the machine shall not exceed the outside diameter of the jacked casing by more than 1-1/2 inches.
6. The jacking system shall be capable of continuously monitoring the jacking pressure, the rate of advancement, and the distance jacked. The jacking system shall distribute jacking forces uniformly to the end of the casing.

22.1.7 Casing Pipe

A. Pipe used for casing shall be round, have smooth, even outer surfaces, and have joints that allow for easy connections between pipes. Pipe ends shall be square so that jacking loads are evenly distributed around the entire pipe joint. Pipe shall be capable of withstanding the jacking forces imposed during installation, and the final in place loading conditions. The ends of the pipe shall be protected against damage during installation.

B. Join sections of steel casing to be bored by welding the joints with a continuous weld for the full circumference, or by other approved means. Provide joints capable of resisting the jacking, boring, or ramming forces.

22.1.8 Sanitary Sewer Pipe

A. Sanitary sewer pipes installed by auger boring shall be round, have smooth, even outer surfaces, and have joints that allow for easy connections between pipes.

B. For pipes that will be jacked into place, the pipe shall be capable of withstanding the jacking forces imposed during installation, and the final in place loading conditions. The ends of the pipe shall be protected against damage during installation.

C. Allowable sewer pipe materials include vitrified clay pipe (VCP) and fiberglass reinforced pipe (FRP).

D. Plastic pipes including HDPE and PVC are also acceptable pipe materials however they will need to be pulled into place rather than jacked into place.

E. Sewer pipe shall conform to the requirements of Part 0400 of the General Conditions and Standard Specifications.

22.1.9 Casing Spacers

A. Utilize casing spacers that fully supports the carrier pipe, restrains the carrier pipe from rotating during installation in casing; maintains the grade of the sanitary sewer within specified tolerances; protects the pipes from flotation, movement, and damage during backfill placement; and allows for installation of the carrier pipes in accordance with specified tolerances over the lengths shown on the Plans. Casing spacers must be able to support the combined weight of all carrier pipes filled with water.

22.1.10 Backfill Grout

A. Furnish grout for filling the annular space between the carrier pipe and the casing pipe of one part Portland cement, five parts sand, and seven parts 3/8 inch maximum size rounded aggregate by volume, or as approved.

22.1.11 Grouting Equipment

A. The grouting equipment shall be provided with a meter to determine the volume of grout injected. The meter shall be calibrated in cubic feet to the nearest one-tenth of a cubic foot.

B. The grouting equipment shall be maintained in satisfactory operating condition throughout the course of the work to ensure continuous and efficient performance during grouting operations.

22.1.12 Auger Boring Operations

A. Auger boring shall not begin until the following have items have been completed:

1. All required submittals have been provided and accepted.
2. Jacking and receiving pit excavations and support systems have been completed in accordance with accepted submittals and the requirements of this section.
3. Pre-construction surveys have been completed and the results submitted.

B. Conduct all operations such that trucks and other vehicles do not create a dust or noise nuisance in the streets and adjacent properties. Promptly clean up, remove, and dispose of any spoil spillage. Provide traffic control in accordance with accepted submittals.

C. Prior to starting auger boring operations, survey the location and orientation of the guide rails to ensure they are on the proper line and grade and check to see that they are properly supported. Set the guide rails in the jacking pit carefully and check to ensure correctness of the alignment, grade, and stability. Guide rails shall be securely anchored to prevent movement or shifting during the work.

D. Casing sections shall be jacked into position following the design line and grade of the pipeline without damaging the pipe. In the event a section of casing is damaged during installation, the pipe shall be removed and replaced. Other methods of repairing the damaged pipe may be used, subject to approval by the Engineer.

E. Provide a lubrication system, and inject pipe lubricants through injection ports as necessary, to minimize pipe friction. Pipe lubricants shall be injected continuously as the pipe is advanced. The volume injected shall not be less than that required to fill the annular void space outside the pipe. Inject greater volumes as required to minimize jacking forces.

F. The auger boring machine shall be operated so as to control both surface heave and loss of ground during auger boring. Control the advance rate and monitor the volume of material excavated and adjust advance rate, as required, to avoid loss of ground, over-excavation, and surface heave. The Contractor shall be responsible for monitoring and recording any movements associated with auger boring and making any necessary changes in construction methods to avoid loss of ground, over excavation, and surface heave.

G. If surface settlement or heave exceeds the limits specified, stop advancing the casing pipe and develop a plan to control the surface deformation. Submit the plan to the Engineer for review and do not proceed without the Engineer's approval of the plan. The Contractor shall repair any damage caused by surface settlement or heave immediately, at no additional cost to the City.

H. The machine shall be steered to maintain line and grade within the tolerance specified. This shall be achieved by continuously monitoring and adjusting line, grade, machine inclination, roll, and steering attitude during the operation.

22.1.13 Spoil Transport and Disposal

A. Transport and dispose of all excavated materials properly away from the construction site in accordance with all applicable requirements. Only use the disposal sites identified in the accepted submittals for muck disposal.

22.1.14 Control of Line and Grade

A. The benchmarks will be established as indicated on the Plans. The Contractor is responsible to verify these benchmarks at the beginning prior to start of construction and report any errors or discrepancies to the Engineer.

B. After confirming that all established benchmarks are correct, use these benchmarks to furnish and maintain all reference lines and grades for auger boring. The Contractor shall use these lines and grades to establish the location of the pipe using the submitted and approved guidance system. Submit to the Engineer copies of field notes used to establish all lines and grades and allow the Engineer to check laser set up prior to beginning each auger boring drive. Provide access for the Engineer to perform survey checks of laser and line-and-grade of casing on a daily basis during auger boring operations. The Contractor is fully responsible for the accuracy of the work and the correction of it, as required.

C. Monitor the line and grade, at least once in every 20 feet of installation length and report the results to the Engineer. Stop work if the line or grade has, or is expected to, deviate from the specified tolerances. Submit a proposed solution to the Engineer. Do not resume work until the corrective measured are approved.

D. Where the casing installation exceeds the specified tolerances, correct the installation, including, if necessary, redesign of the pipe or structures. All corrective work shall be performed as approved by the Engineer at no additional cost to the City.

22.1.15 Carrier Pipe Installation

A. Install carrier pipes in accordance with specified tolerances and approved submittals. Remove all loose soil and foreign material from casing. Provide casing spacers, strapping, blocking, guide rails, rollers, or other approved devices as required to prevent rotation, flotation, movement, or damage to the carrier pipe during installation and backfill grout placement.

22.1.16 Leakage Testing

A. Leakage testing of the carrier pipe shall be performed between each manhole. Testing shall be performed prior to the filling of the annular space between the casing and carrier pipelines with backfill grout. Perform leakage testing in accordance with the requirements of Part 0400 of the General Conditions and Special Specifications.

22.1.17 Backfill Grout

A. After the installation of the carrier pipe and leakage testing, the space inside the casing outside the carrier pipe shall be filled with backfill grout.

B. Furnish the necessary materials, equipment, hoses, valves, and fittings for the backfilling operation.

C. Construct a bulkhead or utilize a bulkhead or casing seal supplied by the casing spacer manufacturer to contain the grout at the end of the each casing segment to be backfilled.

D. Backfill grout shall be pumped through a pipe or hose. Use grout pipes, or other appropriate materials to avoid damage to carrier pipe during grouting. The backfill grout shall be proportioned to flow and to completely fill all voids between the carrier pipe and the casing. Backfill operations will be considered completed when no more grout can be injected into the annular space.

S-22.2 Pilot Tube Microtunneling

22.2.1 General

A. The work specified in this section includes requirements for installing the sanitary sewer using a remotely controlled microtunneling method that utilizes a pilot tube.

22.2.2 Design Criteria

A. Pilot tube microtunneling equipment shall be compatible with the subsurface conditions described in the Geotechnical Data Report. In addition, the following design criteria shall be followed:

1. The design grade of the gravity flow sanitary sewer is indicated on the Drawings.
2. Design of the sanitary sewer pipe and determining acceptable pipe fabrication tolerances is the responsibility of the Contractor. Maximum compressive stresses applied to the pipe shall not exceed 33 percent of the design compressive strength of the pipe material and shall not exceed the manufacturer's recommended allowable stresses whichever is lower.
3. Sanitary sewer pipe shall be designed for ground loads, AASHTO H-20 wheel loading with impact, and other loads anticipated.
4. The thrust block shall be constructed perpendicular to the proposed pipe alignment and shall be designed to withstand the maximum jacking pressure to be used, with a factor of safety of at least 2.0, without excessive deflection or displacement.
5. Pipe lubrication system shall be utilized during installation of the product pipe.
6. Control settlement and heave above the sanitary sewer pipe so settlement or heave does not exceed one (1) inch at the ground surface.

22.2.3 Qualifications

A. Pilot tube microtunneling work for sanitary sewer installation shall be performed by a qualified subcontractor or Contractor that has completed at least three (3) projects in the last five years using pilot tube microtunneling equipment on project lengths equal to or greater than 80% of the longest drive anticipated for this project. Acceptable reference projects shall involve the installation of pipe 6 to 18 inches in diameter and a total distance of 500 feet each.

B. The project superintendent shall have at least five years of experience involving trenchless construction methods including experience with pilot tube microtunneling methods. The superintendent shall have a minimum of two projects where a pilot tube was set to line and grade. The operator(s) shall have technical training in the operation of the equipment proposed for this project and shall have completed at least three projects with drive lengths that are at least 80% of the longest planned drive for this project.

22.2.4 Tolerances

A. The pilot tube shall be drilled to allow the sanitary sewer to be constructed in accordance with the following tolerances:

1. Line tolerance: 3 inches per 100 feet
2. Grade tolerance: 2 inches per 100 feet
3. Installation of the sanitary sewer without reverse grades or ponding of water in the invert.

22.2.5 Submittals

A. Provide sufficient detail to demonstrate that the proposed personnel, equipment, materials, procedures, and designs are in accordance with the requirements of the Contract. Review by the Engineer shall not be construed as relieving the Contractor of its responsibilities under this Contract.

B. The Contractor shall submit:

1. The name of the contractor or subcontractor that will perform the pilot tube microtunneling work and written documentation summarizing the qualifications of the firm, description of reference projects including owner's name and telephone numbers, pipe size, drive lengths, subsurface conditions, equipment used, project superintendent, and machine operators. Provide qualifications for the proposed project superintendent, machine operator(s), site safety representative, personnel responsible for air quality monitoring, and licensed surveyor. Submit the qualifications on bid form provided. The other submittals listed below will not be accepted for review until the qualifications have been approved. No work shall be performed nor materials or equipment procured prior to approval of the qualifications.
2. A detailed pilot tube microtunneling work plan including descriptions of the methods, equipment and procedures to be utilized in completing the work and traffic control provisions. Include manufacturer's literature describing in detail the pilot tube microtunneling system to be used including machine type, spoil removal system, and guidance system. Provide descriptions of three similar projects on which this system has been successfully used including names, addresses, and telephone numbers of owner's representatives for these projects as well as length, diameter, and carrier pipe used. Confirm that this system can achieve the required drive lengths for the sanitary sewer segments to be installed using this method.
3. Descriptions of the guidance, alignment control, and steering systems. Provide manufacturer's literature, drawings showing set up and support provisions, and other details for the laser. Submit a description of surveying methods to set laser positions and a description of procedures to check laser and reset or realign laser during construction. Confirm that these systems can achieve the specified line and grade tolerances for the sanitary sewer.
4. Thrust block and jacking frame design and details. Provide an estimate of the maximum jacking force expected to complete each drive. Submit calculations demonstrating that the soils behind the thrust block will sustain the maximum pressures exerted by the main jacks during pipe installation.

5. Spoil handling, removal, transport, and disposal equipment and procedures including the location of spoil disposal sites.

6. Shop drawing and details of the pipe to be used indicating pipe wall thickness, joint cushioning materials, gaskets, as applicable. Indicate the required fabrication tolerances to prevent damage to the pipe during installation, and provide a statement from the pipe manufacturer indicating the maximum allowable jacking force that can be applied to the pipe.

7. Details of the pipe lubrications system and lubrication procedures including lubrication during installation of the product pipe.

22.2.5.1 Calculations

A. The Contractor shall submit:

1. Design calculations demonstrating that the proposed pipe is capable of withstanding the maximum jacking force to be imposed on the pipe during installation.

22.2.5.2 Contingency Plan

A. Prepare a detailed contingency plan that outlines contingency procedures to be employed in the event of:

1. Obstruction or impediment encountered.

2. Means and methods to maintain specified line and grade tolerances should steering not be sufficient to meet the specified requirements.

3. Surface settlement.

4. Unexpected or excessive groundwater inflow.

5. Equipment breakdowns.

22.2.6 Pilot Tube Microtunneling Equipment

A. Pilot tube microtunneling equipment shall be manufactured by a company that specializes in the design and fabrication of this type of equipment. The machine shall satisfy the following requirements:

1. The equipment (drill head and reamer) shall be capable of efficiently advancing through the geologic conditions described in the Geotechnical Report.

2. The equipment shall be remotely operated, laser guided, and monitored continuously by the operator. An active target shall be employed that can electronically transmit the position of the laser beam to the operator's control panel. A display shall be provided at the control panel to allow the operator to see the laser position, steering attitude, rate of advance, installed length, and thrust force.

3. A pilot tube shall be installed such that the ground is always fully supported. Install the carrier pipe following an acceptable 2- or 3-step installation process.

4. Provide a system that is capable of lubricating the pilot tube and carrier pipe during installation to reduce friction and jacking forces.

22.2.7 Sanitary Sewer Pipe

A. Sanitary sewer pipes installed by auger boring shall be round, have smooth, even outer surfaces, and have joints that allow for easy connections between pipes.

B. For pipes that will be jacked into place, the pipe shall be capable of withstanding the jacking forces imposed during installation, and the final in place loading conditions. The ends of the pipe shall be protected against damage during installation.

C. Allowable sewer pipe materials include vitrified clay pipe (VCP) and fiberglass reinforced pipe (FRP).

D. Plastic pipes including HDPE and PVC are also acceptable pipe materials however they will need to be pulled into place rather than jacked into place.

E. Sewer pipe shall conform to the requirements of Part 0400 of the General Conditions and Standard Specifications.

22.2.8 Installation of Sanitary Sewer Pipe

A. Pilot tube microtunneling shall not begin until the following items have been completed:

1. All required submittals have been provided and accepted.
2. Jacking and receiving pit excavations and support systems have been completed in accordance with accepted submittals and the requirements of this section.
3. The correct elevation of the sanitary sewer has been surveyed and verified by the Engineer.
4. Traffic control provisions have been implemented.

B. The benchmarks will be established as indicated on the Plans. The Contractor is responsible to verify these benchmarks at the beginning prior to start of construction and report any errors or discrepancies to the Engineer.

C. After confirming that all established benchmarks are correct, use these benchmarks to furnish and maintain the reference lines and grade for the sanitary sewer. The Contractor shall use these lines and grades to establish the location of the pilot bore using a laser reference line. Submit to the Engineer copies of field notes used to establish the lines and grade at each jacking and receiving pit excavation. Allow the Engineer to check laser set up prior to beginning each pilot tube drive. The Contractor is fully responsible for the accuracy of the work and the correction of it, as required.

D. Laser shall be supported independently from the thrust block and jacking frame to maintain the alignment of the laser. Stop pilot tube microtunneling operations and reset laser, if laser alignment shifts or is moved off of design alignment and grade, for any reason. Do not advance pilot hole if laser moves off target, if laser is not operating properly, or if laser signal is not visible on target monitor. Check laser set up at least once per shift. Laser should be checked and reset by qualified surveying personnel in accordance with approved procedures.

E. The pilot tube shall be steered to maintain line and grade within the tolerance specified. This shall be achieved by continuously tracking the drilling bit and adjusting line, grade, during the operation. As a minimum, the thrust force, rate of advance, distance along the drive, deviation from line and grade, steering adjustments shall be monitored and recorded at least once per section of pilot tube for each drive.

F. If the pilot hole deviation for grade exceeds 1 inch per 100 feet and the line exceeds 3 inches per 100 feet, the pilot tube and drill bit shall be retracted and the hole shall be re-drilled to achieve the specified tolerances.

G. Product pipe shall be jacked or pulled into position following the pilot tube design line and grade without damaging the pipe. Do not exceed the pipe manufacturer's allowable jacking force or tensile load. In the event a section of pipe is damaged during the jacking operation, the pipe shall be jacked through to the receiving pit and removed. A lubrication system shall be utilized during installation of the product pipe.

S-22.3 Pipe Ramming for Casing Installation and Installation of Carrier Pipe

22.3.1 General

A. The work specified in this section includes requirements for installing casings using pipe ramming methods for installation of a carrier pipe inside of the casing for a sanitary sewer line. This may also include use of a Pilot Tube described in 22.2.6 in order to achieve the necessary tolerances in 22.3.4.

22.3.2 Design Criteria

A. Pipe ramming equipment shall be compatible with the subsurface conditions described in the Geotechnical Data Report. In addition, the following design criteria shall be followed:

1. The Contractor shall be responsible for the selection, sizing, and design of the pipe ramming equipment, all ancillary equipment, its use, and the means and methods of casing installation.
2. The ramming system shall be capable of the following:
    a) Ramming each casing segment forward as the casing progresses in such a way as to provide complete and adequate ground support at all times.
    b) Develop a uniform distribution of the ramming forces around the circumference of the casing.
    c) Maintain a minimum factor of safety of 2.0 between the casing compressive strength and the maximum ramming force imparted by the ramming hammer operating at 100% capacity.
3. Provide a means for maintaining a plug within the casing to prevent groundwater inflow and flowing soils into the casing and shaft. The plug shall provide full face support for the material that enters the casing as casing advancement takes place. The plug shall be designed to allow material to enter the casing as the casing is advanced. The plug shall not advance with the casing as the casing is rammed into the ground. The plug shall limit the flow of soil and water through the casing back to the launch pit to a maximum of 5 gallons per minute.
4. Furnish casing of a size to permit proper installation of the carrier pipe to the required lines and grades while also providing adequate backfill grout cover between the carrier pipe and the casing. Furnish welded steel pipe with joints that do not increase the pipe diameter and is suitable for the purpose intended.
5. Design of the casing pipe and determining acceptable pipe fabrication tolerances is the responsibility of the Contractor. Casing pipe shall be designed for ground and hydrostatic loads, maximum anticipated grout pressures, AASHTO H-20 wheel loading with impact, and other anticipated loads during construction.
6. Control settlement and heave above the casing so settlement or heave does not exceed one (1) inch at the ground surface.
7. The casing backfill grout mix design shall meet the following basic requirements:
    a) Limit the heat of hydration to prevent damage to the carrier pipe.
    b) Achieve a minimum 28-day compressive strength of 200 psi.
    c) Flowable mix that will completely fill annular space between carrier pipe, casing spacers, and casing.

22.3.3 Qualifications

A. Provide resumes, a description of relevant experience, and contact information for Owners or Engineers that can verify the specified qualifications for each of the following entities and key individuals. Upon approval,

Contractor shall not substitute or replace any entity or individual without express written approval from the Engineer.

B. The Contractor responsible for the trenchless casing installation shall have a minimum of five (5) years history and experience in trenchless casing installation and pipeline construction, and shall have constructed and satisfactorily completed a minimum of two (2) projects of similar (or greater) size and scope prior to award of this Project.

C. Provide a full time superintendent and one or more operating engineers who are experienced with the pipe installation method and the equipment the Contractor will use. The Superintendent and Operating Engineer shall have successfully completed a minimum of five (5) projects of similar length and diameter using the proposed method. At least one shall have been installed in the past year.

D. Use certified welders qualified to AWS Section D1.1 Section 4 for the position, process, and pipe diameter on the job.

22.3.4 Tolerances

A. The casing shall be installed to allow the carrier pipe for the sanitary sewer to be constructed in accordance with the following tolerances:

1. Line tolerance: 3 inches per 100 feet
2. Grade tolerance: 2 inches per 100 feet

22.3.5 Submittals

A. Provide sufficient detail to demonstrate that the proposed personnel, equipment, materials, procedures, and designs are in accordance with the requirements of the Contract. Review by the Engineer shall not be construed as relieving the Contractor of its responsibilities under this Contract.

B. The Contractor shall submit:

1. The name of the contractor or subcontractor that will perform the pipe ramming work and written documentation summarizing the qualifications of the firm, description of reference projects including owner's name and telephone numbers, pipe size, drive lengths, subsurface conditions, equipment used, project superintendent, and machine operators. Provide qualifications for the proposed project superintendent, machine operator(s), site safety representative, personnel responsible for air quality monitoring, and licensed surveyor. Submit the qualifications on bid form provided. The other submittals listed below will not be accepted for review until the qualifications have been approved. No pipe ramming work shall be performed nor materials or equipment procured prior to approval of the qualifications.
2. Provide shop drawings and calculations for construction of launch and receiving pits. Furnish details on the preparation and placement of the pit invert. Include shop drawings showing details of the wall seal that include details on how the wall seal will be secured to the shaft wall to provide sealed ingress and egress points for the casing. Provide shop drawings showing the pipe ramming equipment layout in the launch shaft.
3. A detailed pipe ramming work plan including descriptions of the methods, equipment and procedures to be utilized in completing the work, drives to be installed by pipe ramming, launch and receiving pit locations, casing pipe details, and traffic control provisions. Include manufacturer's literature describing in detail the pipe ramming system to be used including machine type, spoil removal system, guidance system, and provisions for injecting pipe lubricants. Provide shop drawings that include configuration of soil cutting shoe on lead

casing and overcut. Dimension drawings to scale and show the spatial relation of the complete set up with respect to the casing and launch pits and profile. Include anticipated required hammer operating pressure, air volume requirements, and anticipated hammer strokes per minute for operating capacities of 25%, 50%, 75% and 100% of maximum operating capacity.

4. A description of the guidance, alignment control, and steering systems. Provide manufacturer's literature, drawings showing set up and support provisions, and other details for the systems. Confirm that these systems can achieve the required pipeline line and grade within the specified tolerances.
5. Provide an estimate of the maximum ramming force expected to complete each drive and verify that the installation equipment has sufficient energy to complete the drives shown on the drawings.
6. Details of lubrication system and pipe lubricants to be used during pipe ramming including manufacturer's literature.
7. Details of lighting, electrical, and ventilation systems when personnel must enter the casing.
8. A safety plan for pipe ramming operations.
9. Groundwater control provisions.
10. Details of the casing pipe to be used. Indicate the required fabrication tolerances to prevent damage to the casing during installation, and provide a statement from pipe manufacturer indicating the maximum allowable jacking force that can be applied to the pipe.
11. Manufacturer's warranties, certificates of compliance, and guarantees that all materials incorporated into the work meet or exceed the requirements of the Plans and Specifications.
12. Provide a planned schedule for the work. Include a narrative describing the critical path; planned work sequence, durations, and advance rates; and planned work hours, number of shifts per day, number of days worked per week, crew size and make-up.

22.3.5.1 Calculations

A. The Contractor shall submit:

1. Design calculations demonstrating that the proposed casing pipe is capable of supporting the maximum stresses to be imposed on the pipe during installation and subsequent applications. The calculations shall take into account maximum ground and hydrostatic loads, jacking forces, live loads due to traffic, and any other loads that may be reasonably anticipated. All loads shall be shown and described.

22.3.5.2 Carrier Pipe Installation

A. The Contractor shall submit:

1. Work plan describing the proposed installation procedures and methods for installing the carrier pipe inside the casing.
2. Describe methods, procedures, and equipment for installing carrier pipe inside the casing to the line and grade shown on the plans, and methods for backfilling the annular space between the carrier pipe and the casing with backfill grout.
3. Casing backfill grout mix design, materials data, and other requested information.

4. Shop drawings and manufacturers literature for casing spacers to be utilized.

22.3.5.3 Contingency Plan

A. Prepare a detailed contingency plan that outlines contingency procedures to be employed in the event of the following:

1. Obstruction or impediment encountered.
2. Means and methods to maintain specified line and grade tolerances should casing steering be insufficient to meet the specified requirements.
3. Out of tolerance surface settlement or heave.
4. Unexpected or excessive groundwater inflow.
5. Ramming forces exceed the maximum anticipate ramming load.
6. Over-excavation or running ground.
7. Groundwater inflows or soil flows into casing or launch pit.
8. Casing advance halted due to impenetrable subsurface conditions.
9. Equipment breakdowns.

22.3.5.4 Reports and Records

A. The Contractor shall submit the following each day:

1. Log of the ramming operations that, as a minimum, includes the following:
2. Date and time at beginning and end of ramming for each segment of casing.
3. Position of casing in relation to design line and grade.
4. Inclination of casing.
5. General weather conditions during the installation process.
6. Advance rates.
7. Hammer strokes per minute.
8. Hammer operating capacity in cubic feet per minute.
9. Operating psi of air compressor.
10. Muck quantities removed.
11. Log of pipe lubrication including mix design, gallons pumped, viscosity, and pumping pressure.
12. Indicate the reason and duration of any work stoppages that occur.

B. Shift report for ramming crew, regardless of actual progress. Include the following:

1. Crew size, employee name, classification, and work assignment.
2. Number and type of equipment used.
3. List of idle or inoperative equipment and reason for downtime.

22.3.6 Pipe Ramming Equipment

A. The pipe ramming equipment shall be manufactured by a company that specializes in the design and fabrication of this type of equipment. The equipment shall satisfy all of the following general requirements:

1. The equipment shall be capable of efficiently advancing through the geologic conditions described in the Geotechnical Data Report.
2. Soil removal system shall be capable of being operated in a manner which will prevent loss of ground during installation.
3. The leading section of the casing pipe shall be equipped with a cutting shoe.
4. The machine shall have the ability to maintain line and grade within the specified tolerances.
5. A pipe lubrication injection system shall be provided to inject pipe lubricants continuously as the pipe is advanced to minimize the ramming forces.
6. Amount of overcut shall be compatible with the soil conditions, stiffness characteristics of the selected pipe, and joint system at the designed maximum ramming loads.
7. Provide a step-up connector assembly to mate the pilot tube to the casing if a pilot tube is used.

22.3.7 Casing Pipe

A. Pipe used for casing shall be steel, round, have smooth, even outer surfaces, and have joints that allow for easy connections between pipes. Pipe ends shall be square so that ramming loads are evenly distributed around the entire pipe joint. Pipe shall be capable of withstanding the ramming forces imposed during installation, and the final in place loading conditions. The ends of the pipe shall be protected against damage during installation. Pipe shall have a minimum yield strength of 35,000 psi.

B. Pipe casing diameter shall be selected by the Contractor to permit proper installation of the carrier pipe to the required lines and grades while also providing adequate backfill grout cover between the carrier pipe and the casing. Pipe wall thickness shall be determined by the Contractor based on ground and hydrostatic loads, maximum anticipated grout pressures, AASHTO H-20 wheel loading with impact, and other anticipated loads during construction.

C. Join sections of steel casing to be rammed by welding the joints with a continuous weld for the full circumference, or by other approved means. Provide joints capable of resisting the jacking, boring, or ramming forces.

22.3.8 Sanitary Sewer Pipe

A. Sanitary sewer pipes installed by auger boring shall be round, have smooth, even outer surfaces, and have joints that allow for easy connections between pipes.

B. For pipes that will be jacked into place, the pipe shall be capable of withstanding the jacking forces imposed during installation, and the final in place loading conditions. The ends of the pipe shall be protected against damage during installation.

C. Allowable sewer pipe materials include vitrified clay pipe (VCP) and fiberglass reinforced pipe (FRP).

D. Plastic pipes including HDPE and PVC are also acceptable pipe materials however they will need to be pulled into place rather than jacked into place.

E. Sewer pipe shall conform to the requirements of Part 0400 of the General Conditions and Standard Specifications.

22.3.9 Casing Spacers

A. Utilize casing spacers that fully supports the carrier pipe, restrains the carrier pipe from rotating during installation in casing; maintains the grade of the sanitary sewer within specified tolerances; protects the pipes from flotation, movement, and damage during backfill placement; and allows for installation of the carrier pipes in accordance with specified tolerances over the lengths shown on the Plans. Casing spacers must be able to support the combined weight of all carrier pipes filled with water. Wood spacers are not allowed.

22.3.10 Backfill Grout

A. Furnish grout for filling the annular space between the carrier pipe and the casing pipe of one part Portland cement, five parts sand, and seven parts 3/8 inch maximum size rounded aggregate by volume, or as approved.

22.3.11 Grouting Equipment

A. The grouting equipment shall be provided with a meter to determine the volume of grout injected. The meter shall be calibrated in cubic feet to the nearest one-tenth of a cubic foot.

B. The grouting equipment shall be maintained in satisfactory operating condition throughout the course of the work to ensure continuous and efficient performance during grouting operations.

22.3.12 Pipe Ramming Operations

A. Pipe ramming shall not begin until the following items have been completed:

1. All required submittals have been provided and accepted.
2. Launch and receiving pit excavations and support systems have been completed in accordance with accepted submittals and the requirements of this section.
3. Pre-construction surveys have been completed and the results submitted.

B. Conduct all operations such that trucks and other vehicles do not create a dust or noise nuisance in the streets and adjacent properties. Promptly clean up, remove, and dispose of any spoil spillage. Provide traffic control in accordance with accepted submittals.

C. Prior to starting pipe ramming operations, survey the location and orientation of the guide rails to ensure they are on the proper line and grade and check to see that they are properly supported. Set the guide rails in the launch pit carefully and check to ensure correctness of the alignment, grade, and stability. Guide rails shall be securely anchored to prevent movement or shifting during the work.

D. Each casing section shall be rammed forward as the excavation progresses in such a way to provide complete and adequate ground support at all times without damaging the pipe. A hammer frame shall be positioned to develop a uniform distribution of ramming forces around the periphery of the pipe. In the event a section of casing is damaged during installation, the pipe shall be removed and replaced. Other methods of repairing the damaged pipe may be used, subject to approval by the Engineer.

E. Provide a lubrication system, and inject pipe lubricants through injection ports as necessary, to minimize pipe friction. Pipe lubricants shall be injected continuously as the pipe is advanced. The volume injected shall not be less than that required to fill the annular void space outside the pipe. Inject greater volumes as required to minimize ramming forces.

F. Operate equipment so as to control both surface heave and loss of ground during pipe ramming. Control the advance rate and monitor the volume of material excavated and adjust advance rate, as required, to avoid loss of ground, over excavation, and surface heave. The Contractor shall be responsible for monitoring and recording any movements associated with pipe ramming and making any necessary changes in construction methods to avoid loss of ground, over excavation, and surface heave. If spoils are removed from the casing

during the drive, leave a plug of soil in the Casing sufficient to prevent uncontrolled groundwater and/or soil inflow. This plug shall not be removed until the casing is completely in place.

G. If surface settlement or heave exceeds the limits specified, stop advancing the casing pipe and develop a plan to control the surface deformation. Submit the plan to the Engineer for review and do not proceed without the Engineer's approval of the plan. The Contractor shall repair any damage caused by surface settlement or heave immediately, at no additional cost to the City.

22.3.13 Spoil Transport and Disposal

A. Transport and dispose of all excavated materials properly away from the construction site in accordance with all applicable requirements. Only use the disposal sites identified in the accepted submittals for muck disposal.

22.3.14 Control of Line and Grade

A. The benchmarks will be established as indicated on the Plans. The Contractor is responsible to verify these benchmarks at the beginning prior to start of construction and report any errors or discrepancies to the Engineer.

B. After confirming that all established benchmarks are correct, use these benchmarks to furnish and maintain all reference lines and grades for auger boring. The Contractor shall use these lines and grades to establish the location of the pipe using the submitted and approved guidance system. Submit to the Engineer copies of field notes used to establish all lines and grades and allow the Engineer to check laser set up prior to beginning each pipe ramming drive. Provide access for the Engineer to perform survey checks of laser and line-and-grade of casing on a daily basis during auger boring operations. The Contractor is fully responsible for the accuracy of the work and the correction of it, as required.

C. Monitor the line and grade, at least once in every 20 feet of installation length and report the results to the Engineer. Stop work if the line or grade has, or is expected to, deviate from the specified tolerances. Submit a proposed solution to the Engineer. Do not resume work until the corrective measured are approved.

D. Where the casing installation exceeds the specified tolerances, correct the installation. All corrective work shall be performed as approved by the Engineer at no additional cost to the City.

22.3.15 Carrier Pipe Installation

A. Install carrier pipes in accordance with specified tolerances and approved submittals. Remove all loose soil and foreign material from casing. Provide casing spacers, strapping, blocking, guide rails, rollers, or other approved devices as required to prevent rotation, flotation, movement, or damage to the carrier pipe during installation and backfill grout placement.

22.3.16 Leakage Testing

A. Leakage testing of the carrier pipe shall be performed between each manhole. Testing shall be performed prior to the filling of the annular space between the casing and carrier pipelines with backfill grout. Perform leakage testing in accordance with the requirements of Part 0400 of the General Conditions and Standard Specifications.

22.3.17 Backfill Grout

A. After the installation of the carrier pipe and leakage testing, the space inside the casing outside the carrier pipe shall be filled with backfill grout.

B. Furnish the necessary materials, equipment, hoses, valves, and fittings for the backfilling operation.

C. Construct a bulkhead or utilize a bulkhead or casing seal supplied by the casing spacer manufacturer to contain the grout at the end of the each casing segment to be backfilled.

D. Backfill grout shall be pumped through a pipe or hose. Use grout pipes, or other appropriate materials to avoid damage to carrier pipe during grouting. The backfill grout shall be proportioned to flow and to completely fill all voids between the carrier pipe and the casing. Backfill operations will be considered completed when no more grout can be injected into the annular space.

Trenchless Sanitary Sewer Installation work shall be measured and paid for on a unit price per lineal foot, as stated in the **Bid Document, Bid Items 45 through 48, Trenchless Inch Sanitary Sewer Installation Station to** . The work shall include full compensation for all excavation, controlling alignment and grade, casing pipe materials, lubricants, disposal of excavated materials and slurry, casing pipe contact grouting, installation of the carrier pipe, casing spacers, carrier pipe connections, leakage testing and repair, backfill grouting, carrier pipe bulkheads, retraction of the pilot tube and bit and redrilling, and all other work necessary for furnishing and installation of the sanitary sewer within the limits indicated on the Plans.

S-23 – Filling Abandoned Manholes and Pipe

Drain abandoned pipes and plug watertight. Plug abandoned pipes with gasketed mechanical plugs or grout seals, as directed. Where abandoned pipes connect to sewer manholes, install the plugs or seals from the inside of the manhole and reshape the channel to conform to the Standard Drawings.

Fill abandoned pipes greater than 12 inches diameter with sand or controlled low-strength material meeting the following requirements.

Controlled low strength material (CLSM) is highly flowable lean concrete mix; a mixture of fly ash, cement, fine Aggregates, water, and admixtures, if necessary. Furnish admixtures from the Oregon Department of Transportation Qualified Products List (QPL). Furnish Class C, Class F, or Class N fly ash from the QPL and conforming to AASHTO M 295 (ASTM C618). Portland cement shall be from the QPL. Furnish Type I, Type II, or Type III Portland Cement. Do not mix or alternately use differing brands or types of cement, or the same brand or type of cement from different mills without prior written approval. Portland cement shall conform to the requirements of AASHTO M 85 or ASTM C150 for low alkali cement except as follows:

- Cement shall have a total alkali content (sodium and potassium oxide calculated as Na2O + 0.658 K2O not exceeding 0.60 percent
- All cement types shall contain a maximum of 8 percent tricalcium aluminate (C3A)
- The time-of-setting tests will be by either the Gillmore test or the Vicat test
- Types I and II maximum fineness (specific surface) as determined by AASHTO T 153 air permeability test shall be 430 m2/kg. If C3S + 4.75 C3A is less than or equal to 90, the fineness criteria does not apply

Furnish fine aggregates that are commercial quality concrete sand. Furnish the following, to the City, prior to using any CLSM on the project:

- Written certification of CLSM materials proportions and compressive strength
- 28-Day cylinder reports from a trial CLSM batch based on the above certification. Include evidence that compressive strength requirements for specific applications are met.

CLSM shall attain a 28-day compressive strength of 100 psi - 200 psi. Acceptance will be based on the City's review and approval of written certification and trial batch cylinder reports.

Cap or plug all connecting pipes to manholes (on upstream and downstream end) and catch basins that are scheduled to be abandoned. Remove the manhole cone or flat top and manhole sections, or the catch basin frame, to a minimum depth of 3 feet below finish grade and fill the remaining manhole barrel or catch basin with Granular Material meeting the following requirements:

Dense Graded Aggregate:

- **Grading –** Dense-graded base Aggregate shall be crushed Rock, including sand. Uniformly grade the Aggregates from coarse to fine. Sieve analysis shall be determined according to AASHTO T 27. The Aggregates shall conform to one of the grading requirements of the below table.

Grading Requirements for Dense-Graded Aggregate

	Separated Sizes				
Sieve Size	**2 1/2" - 0**	**2" - 0**	**1 1/2" - 0**	**1" - 0**	**3/4" - 0**
	Percent Passing (by Weight)				
3"	100				
2 1/2"	95 - 100	100			
2"	–	95 - 100	100		
1 1/2"	–	–	95 - 100	100	
1 1/4"	55 - 75	–	–	–	
1"	–	55 - 75	–	90 - 100	100
3/4"	–	–	55 - 75	–	90 - 100
1/2"	–	–	–	55 - 75	–
3/8"	–	–	–	–	55 - 75
1/4"	30 - 45	30 - 45	35 - 50	40 - 55	40 - 60
No. 4 [1]	–	–	–	–	–
No. 10	[2]	[2]	[2]	[2]	[2]

[1] Report percent passing sieve when no grading requirements are listed
[2] Of the fraction passing the 1/4 inch sieve, 40 percent to 60 percent shall pass the No. 10 sieve

- **Fracture of Rounded Rock -** Fracture of rounded rock shall be determined according to AASHTO 335. Provide at least one fractured face based on the following percentage of particles retained on the ¼ inch sieve for the designated size:

Minimum Percent of Fractured Particles (by Weight of Material)

Designated Size	**Retained on 1/4 inch Sieve**
1 1/2" - 0 and larger	50
Smaller than 1 1/2" - 0	70

- **Durability -** Dense-graded Aggregate shall meet the following durability requirements:

Test	Test Method	Requirements
Abrasion	AASHTO T 96	35.0% maximum
Degradation (coarse Aggregate)		
Passing No. 20 sieve	ODOT TM 208	30.0% maximum
Sediment Height	ODOT TM 208	3.0" maximum

- **Sand Equivalent -** Dense-graded Aggregate shall be tested according to AASHTO T 176, and shall have a sand equivalent of not less than 30.

Open-Graded Aggregate:

- **Grading -** Open-graded Aggregate shall conform to the following grading requirements:

Aggregate Gradation for Open-Graded Aggregate

Sieve Size	Percent Passing (by Weight)
1"	100
3/4"	80 - 98
1/2"	60 - 85
3/8"	30 - 65
No. 10	5 - 20
No. 40	0 - 6
No. 100	0 - 3 (Dry Sieve)

- **Fracture of Rounded Rock -** Fracture of rounded Rock shall be determined according to AASHTO T 335. Open-graded Aggregate fracture requirements shall conform to the following:

Percentage of Fracture (by Weight)	
Material Retained on 3/4", 1/2", and 1/4" Sieves (two fractured faces)	90
Material Retained on No. 10 Sieve (one fractured face)	75

- **Durability -** Open-graded Aggregate shall meet the durability requirements of dense graded aggregate as described above.

Compact the Granular Material to 90 percent of maximum density according to AASHTO T 99. When in landscaped or unimproved roadway sections, backfill with approved materials meeting the following requirements: Furnish soil selected as directed from specified excavations, and containing no particle with any dimension greater than 3 inches, or other Unsuitable Material. Place Topsoil meeting the following requirements for the last 1 foot of backfill:

Furnish Topsoil containing no substance detrimental to the growth of plants and that is free of plants designated by the Oregon Department of Agriculture as Type "A" or Type "B" weeds. Unsuitable Topsoil, or Topsoil placed by the Contractor without approval in areas to be planted, may be required to be replaced at no additional cost to the City.

- **Selected Topsoil -** Furnish native Topsoil from the required excavations. The City will make the final determination of the areas where the most suitable materials exist. Furnish Topsoil that is the fertile part of a Soil profile commonly referred to as the "A" horizon, typically ranging in depth from 3 inches to 12 inches. Do not take material for Topsoil from a depth greater than 12 inches below existing ground, unless approved. Select only sources that are well-drained and, before stripping, have a healthy crop of vegetative growth. Remove and dispose of all heavy grass or other vegetation before taking materials from the source

- **Imported Topsoil -** Furnish imported Topsoil from non-Agency controlled lands that, when tested according to AASHTO T 88, meet the following limits:

Standard Sieve Analysis

Particle Size Range	Percent Retained (by Weight)
Larger than 2"	0
2" - 3/4"	0 - 5
3/4" - No. 4	0 - 20
No. 4 or less	0 - 100

Of the fraction passing the No. 4 sieve, excluding organic material, furnish Topsoil that conforms to the following limits:

Hydrometer Analysis

Particle Size Range	Percent (by Weight)
No. 4 - No. 200	5 - 70 (Retained)
No. 200 - 2 µm	20 - 80 (Retained)
Less than 2 µm	5 - 30 (Passing)

In addition, furnish Topsoil that analyzes at least 2 percent organic matter according to ASTM D2974.

Quantities to be abandoned:

Pipe

Diameter (in)	Length (ft)
8-10	124
12	2260
18	197
24	77

Manholes

Manhole ID	ID (in)	Depth (in)
101-A	48	16.01
101-B	48	23.99
101-C	48	15.85
101-D	48	9.1
103-A	48	14.77
104-A	48	14.79
106-A	48	14.52

Filling abandoned manholes and pipe will be paid on a lump sum basis, as stated in the **Bid Document, Bid Items 49 and 50, Filling Abandoned Manholes, and Filling Abandoned Pipe,** respectively. Payment shall represent full compensation for all labor, equipment, and materials necessary to perform the requirements of this section.

S-24 – Sealing Existing Manhole

Contractor shall perform manhole rehabilitation for the purpose of eliminating infiltration, repair of voids, and restoration of the structural integrity of the substrate as a result of applying a fiber-reinforced structural monolithic cementitious liner to the inner wall of existing manhole SS MH 101-E.

Contractor shall use Strong-Seal® High Performance Mix or approved equivalent. Submit material products to be used for approval (See Special Specification S-3, Contractor Submittals).

Described herein are the procedures to be followed prior, during, and after the use of cementitious liner products. The applicator, approved and trained by the manufacturer, shall furnish all labor, equipment and materials for applying a cementitious mix to form a structural monolithic liner of a minimum 1/2 inch thickness, with equipment specially designed for the application. All aspects of the installation shall be in accordance with the manufacturer's recommendations and per the following procedures to include:

A. The removal of any loose and unsound material
B. Cleaning of the area to be sprayed
C. The elimination of active infiltration prior to liner application
D. The repair and filling of voids
E. The repair and sealing of the invert and benches
F. The spray application of a cementitious material to form a structural monolithic line

Strong-Seal® High Performance Mix shall be made with 100% pure-fused calcium aluminate clinker and calcium aluminate cement (minimum alumina content of 38%) and used per manufacturer's recommendations in applications where there is moderate to severe evidence of hydrogen sulfide (biogenic) corrosion (pH of substrate surface is 1.0 or higher). High Performance Mix shall be factory blended requiring only the addition of water at the jobsite. The bag weight shall be 63-67 pounds. The contents shall have a dry bulk density of 100-103 pounds per cubic foot. When mixed with manufacturer's recommended amount of water it shall have a wet nozzle density in the range of 140-150 pounds per cubic foot and shall have a typical yield of 0.49 cubic feet per bag.

Water used to mix product shall be clean and free of contaminants. Questionable water shall be tested by a laboratory per ASTM C94. Potable water need not be tested.

Applicator shall use approved equipment designed and manufactured by the liner material supplier specifically for the application of cementitious liners in sanitary systems.

Specially designed equipment consisting of a progressive cavity pump and an air system for low velocity spray application of product shall be used for applying Strong-Seal® or equivalent products. Equipment shall be complete with water storage and metering system.

Surface Preparation:

A. Covers shall be placed over invert to prevent extraneous material from entering the sewer lines before cleaning.
B. All foreign material shall be removed from the manhole wall and bench using a high pressure water spray (minimum 3,000 psi). If grease, chemicals, previous coatings or linings, or other surface contaminants are present, the substrate shall be cleaned with steam, chemical cleaning compounds, or surface abrading as necessary to provide a clean substrate. Loose and protruding brick, mortar, and concrete shall be removed using a mason's hammer and chisel and/or scraper. Any large voids present shall be filled with Strong-Seal® QSR or approved equal.
C. Active leaks shall be stopped using Strong-Plug® or approved equal per manufacturer's recommendations. Some leaks may require weep holes to localize the infiltration during application. After application, the weep holes shall be plugged with Strong-Plug® or approved equal prior to final pass.
D. When severe infiltration exists, pressure grouting may be required by using a cementitious grout such as Grout 250, Grout 1,000, or approved equal, or by using chemical grouts. Manufacturer's recommendations shall be followed when pressure grouting is required.

Invert Repair:

A. After surface preparation has been completed, all remaining loose material shall be removed and the substrate shall be washed again.
B. Any bench, invert, or service line repairs shall be made at this time using Strong-Seal® QSR or approved equal per manufacturer's recommendations.
C. Invert repair shall be performed on all inverts with visible damage or where infiltration is present or when vacuum testing is specified. After blocking flow through the manhole and thoroughly cleaning the invert, or approved equal shall be applied to the invert in an expeditious manner. The material shall be troweled uniformly onto the damaged invert at a minimum thickness of 1/2 inch at the invert extending out onto the bench of the manhole sufficiently to tie into the structural monolithic liner to be spray applied. The finished invert surfaces shall be smooth and free of ridges. Flow may be re-established in the manhole within 30 minutes of the last placement of material. Covers shall be replaced at this time prior to spraying of liner material.

Mixing of Liner Material:

A. For each bag of product, 1.0 to 1.3 gallons of water shall be used. The required amount of water shall be added to the mixer first, followed by the bag of product. Only enough water shall be used to produce a mix consistency to allow application of liner material up to 1 inch thick in a single application without material "sagging" on a vertical surface using approved equipment for mixing and application. All other mixing procedures as noted on product bag shall be followed.
B. Mixed liner material shall be discharged into a hopper and another batch prepared to occur in such a manner as to allow spraying continuously without interruption until each application is complete.

Spraying of Liner Material:

A. The substrate shall be clean and free of all foreign material and shall be damp without noticeable free water droplets or running water prior to the application of liner material. Liner material shall be applied up to 1 inch thick in one or more passes starting from the bottom of the frame; however, minimum total thickness shall not be less than 1/2 inch. The surface shall then be firmly troweled to a smooth finish being careful not to over trowel. A wet brush finish shall be applied to the trowel-finished surface.

B. Manufacturer's recommendations shall be followed whenever more than 24 hours have elapsed between applications.

Bench Application:

A. The covers shall be removed at this time and the bench sprayed with liner material as mixed per specifications and spray applied in such a manner that a gradual slope is produced from the walls to the invert with the thickness at the invert to be no less than 1/2 inch. The wall/bench intersection shall be rounded to a uniform radius the full circumference of the intersection.

Curing:

A. Caution shall be taken to minimize exposure of applied liner material to sunlight and air movement. If time between applications of additional passes is to be longer than 15 minutes, the structure shall be covered. The structure shall not be exposed to sunlight or air movement for longer than 15 minutes before covering or closing access. In extremely hot and arid climates, the structure shall be shaded during application. The liner material shall be kept damp for the first 72 hours if humidity levels are below 70%. A curing compound conforming to ASTM C309 may be used in lieu of keeping the liner material damp if a polymeric topcoat will not be applied. Follow manufacturer's recommendations while applying curing compound.
    a. Mix shall have the following minimum cure times before being subjected to flow:

       Storm run-off and surcharge: 4-6 hours
       Force main impact: 6-8 hours

Weather:

A. No application shall be made if ambient temperature is below 40 degrees Fahrenheit. No application shall be made to frozen substrates or if the substrate is expected to freeze within 24 hours after application.
B. Precautions shall be taken to keep the mix temperature at time of application below 90 degrees Fahrenheit. Water temperature shall not exceed 80 degrees Fahrenheit. Chill with ice if necessary.

Acceptance:

A. Four 2 inch cube specimens shall be cast each day or from every pallet of liner material used, whichever occurs first. Specimens shall be properly packaged, labeled, and returned to manufacturer for testing in accordance with the owner's or manufacturer's directions for compression strength per ASTM C109.

Payment for all work associated with this section shall be on a per each basis as stated in the **Bid Document, Bid Item 51, Sealing Existing Manhole (SS MH 101-E).** Payment shall represent full compensation for all labor, equipment, and materials necessary to perform the requirements of this section.

S-25 – Anticipated Sequence of Construction

Contractor shall follow the anticipated sequence of construction as described in this section.

Contractor shall complete requirements associated with the below items prior to starting construction activities.

- Erosion and Sediment Control Plan

- Pollution Control Plan
- Traffic Control Plan
- Staging Area Security and Access Plan
- Wood chip access mats installation

Traffic Control Plan

Contractor shall only provide traffic control and operate on sections that can be completed and secured by end of workday to minimize impact to traffic. Any active excavations shall be covered by steel sheets and countersunk before end of the workday, and warning signs shall be displayed. The City and Engineer shall be indemnified against all expenses, judgments, fines and amounts paid in settlement associated with traffic control.

Sanitary Sewer

Manholes Over Existing Sanitary Sewer

Construct manholes over existing rigid sewers after first cleaning and applying an approved commercial concrete bonding agent to all surfaces of the pipe that will be in contact with the manhole. Manhole extended bases shall first be poured, and the doghouse manhole shall be wrapped and secured to the base with angle iron according to the Details as shown on the Plans. If the top of the existing rigid pipe is to be cut out, cut it to the springline for the full width of the manhole. Smooth and point the exposed edge of pipe with mortar. The extended base for SS MH 101-1 will weigh over 8,500 pounds and will be required to be cast in place.

Manholes SS MH 101-1 through SS MH 101-3 shall be completed independently of the main sanitary sewer line (manholes SS MH 101-4 through SS MH 108-1).

Contractor shall work in sections as listed below to minimize impact to traffic.

1) Trenchless to MH 101-4
2) MH 101-4 to MH 103-2
3) MH 103-2 to MH 105-1
4) MH 105-1 to MH 107-A (end)

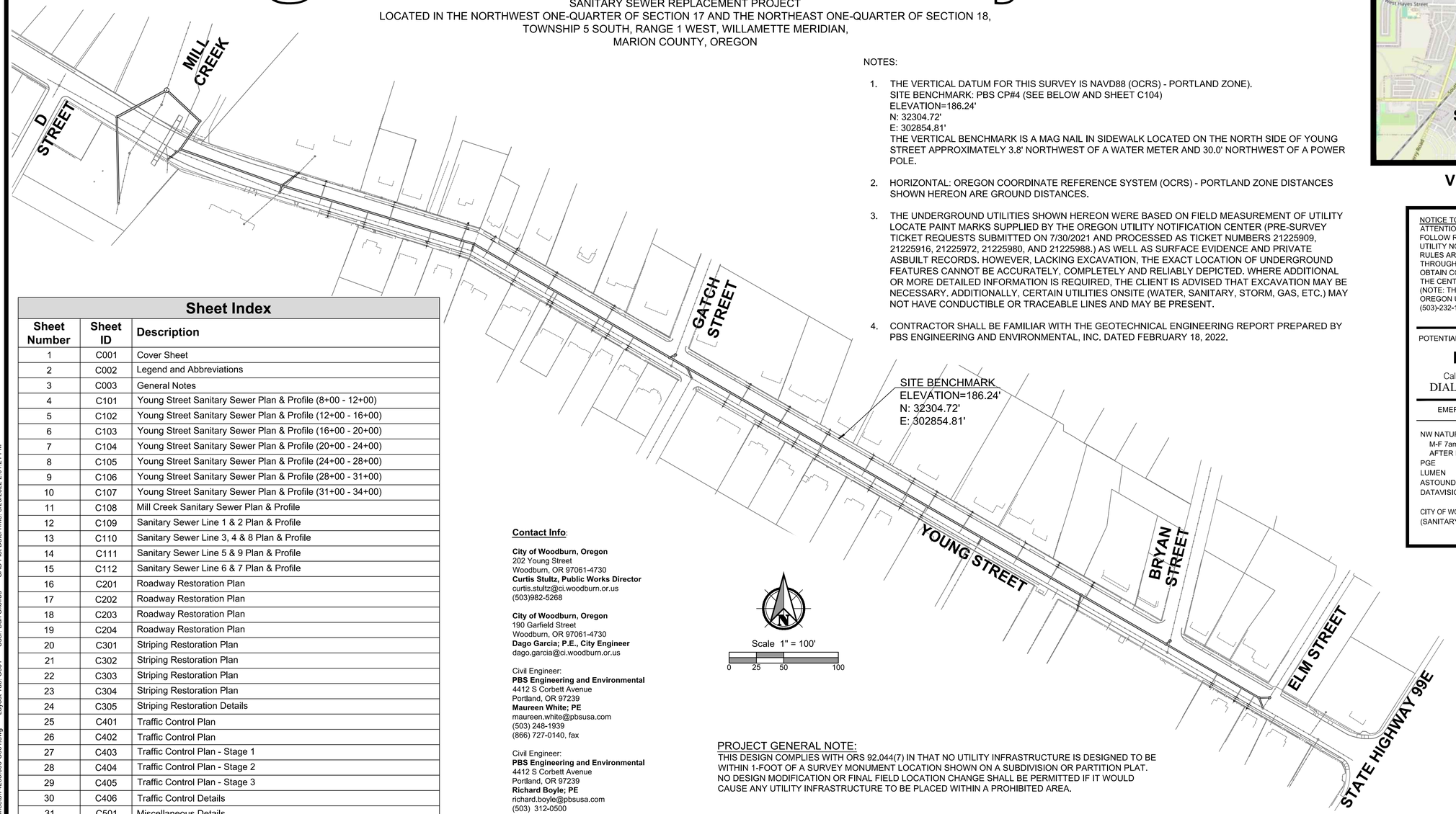
Pipe testing and manhole testing shall be completed prior to transfer of sanitary sewer lateral and live flow. After completion of the main sanitary sewer system, all pipes no longer being utilized shall be abandoned in place as specified in Special Specification S-23.

Costs associated with the requirements of this section are considered incidental to construction and no additional compensation shall be due to the Contractor.

PART V – PLANS

Young Street Sanitary Sewer

SANITARY SEWER REPLACEMENT PROJECT
LOCATED IN THE NORTHWEST ONE-QUARTER OF SECTION 17 AND THE NORTHEAST ONE-QUARTER OF SECTION 18,
TOWNSHIP 5 SOUTH, RANGE 1 WEST, WILLAMETTE MERIDIAN,
MARION COUNTY, OREGON



NOTES:

1. THE VERTICAL DATUM FOR THIS SURVEY IS NAVD88 (OCRS) - PORTLAND ZONE).
   SITE BENCHMARK: PBS CP#4 (SEE BELOW AND SHEET C104)
   ELEVATION=186.24'
   N: 32304.72'
   E: 302854.81'
   THE VERTICAL BENCHMARK IS A MAG NAIL IN SIDEWALK LOCATED ON THE NORTH SIDE OF YOUNG STREET APPROXIMATELY 3.8' NORTHWEST OF A WATER METER AND 30.0' NORTHWEST OF A POWER POLE.
2. HORIZONTAL: OREGON COORDINATE REFERENCE SYSTEM (OCRS) - PORTLAND ZONE DISTANCES SHOWN HEREON ARE GROUND DISTANCES.
3. THE UNDERGROUND UTILITIES SHOWN HEREON WERE BASED ON FIELD MEASUREMENT OF UTILITY LOCATE PAINT MARKS SUPPLIED BY THE OREGON UTILITY NOTIFICATION CENTER (PRE-SURVEY TICKET REQUESTS SUBMITTED ON 7/30/2021 AND PROCESSED AS TICKET NUMBERS 21225909, 21225916, 21225972, 21225980, AND 21225988.) AS WELL AS SURFACE EVIDENCE AND PRIVATE ASBUILT RECORDS. HOWEVER, LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE ACCURATELY, COMPLETELY AND RELIABLY DEPICTED. WHERE ADDITIONAL OR MORE DETAILED INFORMATION IS REQUIRED, THE CLIENT IS ADVISED THAT EXCAVATION MAY BE NECESSARY. ADDITIONALLY, CERTAIN UTILITIES ONSITE (WATER, SANITARY, STORM, GAS, ETC.) MAY NOT HAVE CONDUCTIBLE OR TRACEABLE LINES AND MAY BE PRESENT.
4. CONTRACTOR SHALL BE FAMILIAR WITH THE GEOTECHNICAL ENGINEERING REPORT PREPARED BY PBS ENGINEERING AND ENVIRONMENTAL, INC. DATED FEBRUARY 18, 2022.

Sheet Index

Full Size Sheet Format Is 22x34; If Printed Size Is Not 22x34, Then This Sheet Format Has Been Modified & Indicated Drawing Scale Is Not Accurate.

Contact Info:

City of Woodburn, Oregon
202 Young Street
Woodburn, OR 97061-4730
Curtis Stultz, Public Works Director
curtis.stultz@ci.woodburn.or.us
(503)982-5268

City of Woodburn, Oregon
190 Garfield Street
Woodburn, OR 97061-4730
Dago Garcia; P.E., City Engineer
dago.garcia@ci.woodburn.or.us

Civil Engineer:
PBS Engineering and Environmental
4412 S Corbett Avenue
Portland, OR 97239
Maureen White; PE
maureen.white@pbsusa.com
(503) 248-1939
(866) 727-0140, fax

Civil Engineer:
PBS Engineering and Environmental
4412 S Corbett Avenue
Portland, OR 97239
Richard Boyle; PE
richard.boyle@pbsusa.com
(503) 312-0500
(866) 727-0140, fax

Geotechnical Engineer:
PBS Engineering and Environmental
4412 S Corbett Avenue
Portland, OR 97239
Ryan White; PE, GE
ryan.white@pbsusa.com
(503) 248-1939
(866) 727-0140, fax

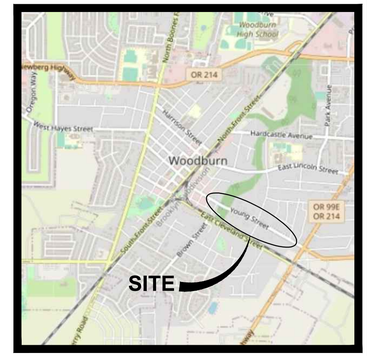
Surveyor:
PBS Engineering and Environmental
4412 S Corbett Avenue
Portland, OR 97239
Terry Goodman; PLS
terry.goodman@pbsusa.com
(360) 695-3488
(866) 727-0140, fax

PROJECT GENERAL NOTE:
THIS DESIGN COMPLIES WITH ORS 92.044(7) IN THAT NO UTILITY INFRASTRUCTURE IS DESIGNED TO BE WITHIN 1-FOOT OF A SURVEY MONUMENT LOCATION SHOWN ON A SUBDIVISION OR PARTITION PLAT. NO DESIGN MODIFICATION OR FINAL FIELD LOCATION CHANGE SHALL BE PERMITTED IF IT WOULD CAUSE ANY UTILITY INFRASTRUCTURE TO BE PLACED WITHIN A PROHIBITED AREA.

ENGINEER'S NOTE TO CONTRACTOR:
THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITIES OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY A SEARCH OF AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO EXISTING UTILITIES EXCEPT THOSE SHOWN ON THESE PLANS. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN ON THESE DRAWINGS. THE CONTRACTOR FURTHER ASSUMES ALL LIABILITY AND RESPONSIBILITY FOR THE UTILITY PIPES, CONDUITS OR STRUCTURES SHOWN OR NOT SHOWN ON THESE DRAWINGS.

THE CONTRACTOR AGREES THAT THEY SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER.

CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AND SHALL REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.



VICINITY MAP
NOT TO SCALE

NOTICE TO EXCAVATORS:
ATTENTION: OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH OAR 952-001-0090. YOU MAY OBTAIN COPIES OF THE RULES BY CALLING THE CENTER.
(NOTE: THE TELEPHONE NUMBER FOR THE OREGON UTILITY NOTIFICATION CENTER IS (503)-232-1987).

POTENTIAL UNDERGROUND FACILITY OWNERS

Dig Safely.
Call the Oregon One-Call Center
DIAL 811 or 1-800-332-2344

EMERGENCY TELEPHONE NUMBERS

NW NATURAL GAS	
M-F 7am-6pm	503-226-4211 Ext.8166
AFTER HOURS	503-226-4211
PGE	1-800-544-1793
LUMEN	1-800-573-1311
ASTOUND	1-888-317-0488
DATAVISION	503-792-3611

CITY OF WOODBURN PUBLIC WORKS DEPARTMENT
(SANITARY SEWER, STORM DRAINAGE & WATER)
503-982-5241

WOODBURN OREGON Incorporated 1889

CITY OF WOODBURN PROJECT # 2021-006-28

PBS Engineering and Environmental Inc.
4412 S Corbett Avenue
Portland, OR 97239
503.248.1939
pbsusa.com

PBS

COVER SHEET FOR:
YOUNG STREET SANITARY SEWER
A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

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

REGISTERED PROFESSIONAL ENGINEER
72882PE
OREGON
JUNE 14, 2007
RICHARD D. BOYLE
EXPIRES: 12/31/2023

DESIGNED: DPS
CHECKED: RDB
MAY 20, 2022
74203.000
SHEET ID
C001
SHEET 1 OF 44

Filename: L:\Projects\74000\74203\74203-000\Civil\CAD\Working\Sheets\74203.000-C001.dwg Layout Tab: C001 User: Dan Skalrud CAD Plot Date/Time: 5/20/2022 2:01:21 PM

Existing Linetype Legend

Existing Sanitary Sewer Pipe	SS
Existing Sanitary Force Main	FM
Existing Storm Sewer Pipe	SD
Existing Water Pipe	WL
Existing Cable Tv Line	TV
Existing Electric Line	E
Existing Gas Line	G
Existing Over Head Power Line	OHP
Existing Telephone Line	T
Existing Fiber Optic Line	FO
Existing Underground Utility Line	UGP
Existing Centerline	
Existing Curb	
Existing Curb & Gutter	
Existing Lot Line	
Existing Gravel road	
Existing Flow Line	
Existing Paint Stripe	
Existing Right-of-way	
Existing Fence	
Existing Building	
Existing Wetland Perimeter	
Existing Wetland Buffer	
Existing Property Line	
Existing Utility Easement	
Existing Quarter Section	

Proposed/Future Linetype Legend

Proposed Sanitary Sewer Pipe
Proposed Sanitary Lateral
Proposed Sanitary Force Main
Proposed Sawcut Line
Proposed Flow Line
Proposed Easement
Proposed Curb & Gutter
Proposed End Of Pav't
Proposed Sidewalk
Proposed Score Line
Proposed Paint Stripe
Proposed Fence
Proposed Wetland Buffer
Proposed Wetland Perimeter

Symbol Legend

Proposed Sanitary Cap	
Proposed Sanitary Cleanout	
Proposed Sanitary Manhole	
Existing Water Valve	WV
Existing Gas Valve	GV
Existing Fire Hydrant	
Existing Power Pole	
Existing Water Meter	
Existing Electrical Pedestal	
Existing Power Riser	
Existing Power Meter	
Existing Sanitary Manhole	
Existing Storm Manhole	
Existing Catch Basin	
Existing Area Drain	
Existing Combo Inlet	
Existing Telephone Pad	
Existing Telephone Riser	
Existing Roof Drain	
Existing Cleanout	CO
Existing Guy Anchor	
Existing Project Bench Mark	
Existing Iron Rod	
Existing Sign	
Existing Shrub	
Existing Deciduous Tree	
Existing Coniferous Tree	

Abbreviation Legend

Acres	AC	High Water Elevation	HW
Assembly	ASS'Y	Hydrant	HYD
Avenue	AVE	Invert Elevation	IE
Approved	APP'D	Intersection	INTX
Butterfly	BF	Invert	INV
Boulevard	BLVD	Length	L
Benchmark	BM	Lateral	LAT
Blow Off	BO	Left	LT
Back Of Curb	BOC	Maximum	MAX
Begin Curb Return	BR	Manhole	MH
Begin Vertical Curve	BVC	Minimum	MIN
Care Of	C/O	Mechanical Joint	MJ
Catch Basin	CB	Number	No. or #
Cubic Feet	CF	Overhead Electric	OHE
Cast Iron	CI	Pavement	PAV'T
Cement	CEM	Point Of Curve	PC
Circle	CIR	Power Pole	PP
Centerline	℄	Point Of Reverse Curve	PRC
Corrugated Metal Pipe	CMP	Point Of Reverse Vertical Curve	PRVC
Cleanout	CO	Point Of Tangent	PT
Combination	COMB	Point Of Vertical Intersection	PVI
Compaction	COMP	Polyvinyl Chloride	PVC
Concrete	CONC	Place	PL
Construction	CONST	Radius	R
Corrugated Polyethylene	CPE	Right Of Way	R/W
Concrete Sewer Pipe	CSP	Return	RET
Court	CT	Right	RT
Cubic Yard	CY	Sheet	SHT
Cement	CEM	Stainless Steel	SS
Depth	D	Steel	STL
Ductile Iron	DI	Sidewalk	S/W
Diameter	DIA	Street	ST
Ductile Iron Pipe	DIP	Station Centerline	STA
Down Spout	DS	Standard	STD
Edge Of Pavement	EOP	Sanitary	SS
End Curb Return	ER	Storm	SD
Easement	ESMT	Tangent	T
Existing	EXTG	Thrust Block	TB
Elevation	EL	Temporary Benchmark	TBM
Electric	ELEC	Top Of Curb	TC
End Vertical Curb	EVC	Telephone	TEL
Finished Floor	FF	Temporary	TEMP
Finished Grade	FG	Top Of Manhole	TOP
Fire Hydrant	FH	Typical	TYP
Flange	FLG	Underground Electric	UGE
Force Main	FM	Vertical Curve	VC
Foot / Feet	FT	Vertical	VERT
Gas	G	Water	WTR
Galvanized Iron	GI	With	W/
Ground	GRD	Without	W/O
Gate Valve	GV	With Yellow Plastic Cap	W/YPC
High Density Polyethylene	HDPE	Water Meter	WM
Horizontal	HORIZ	Yard	YD

PBS Engineering and Environmental Inc.
4412 S Corbett Avenue
Portland, OR 97239
503.248.1939
pbsusa.com

PBS

LEGEND AND ABBREVIATIONS FOR:

YOUNG STREET SANITARY SEWER

A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

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

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74203.000

SHEET ID
C002
SHEET 2 OF 44

WOODBURN OREGON Incorporated 1889

CITY OF WOODBURN PROJECT # 2021-006-28

Full Size Sheet Format Is 22x34; If Printed Size Is Not 22x34, Then This Sheet Format Has Been Modified & Indicated Drawing Scale Is Not Accurate.

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GENERAL NOTES:

1. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE 2021 EDITION OF THE OREGON STANDARD SPECIFICATIONS AND THE CONTRACT SPECIAL PROVISIONS FOR CONSTRUCTION AND ALL APPLICABLE LOCAL, STATE AND FEDERAL CODES AND REGULATIONS.
2. A COPY OF THESE APPROVED PLANS AND DETAILS SHALL BE ON-SITE DURING CONSTRUCTION.
3. ANY REVISIONS MADE TO THESE PLANS MUST BE REVIEWED AND APPROVED BY THE AGENCY PRIOR TO ANY IMPLEMENTATION IN THE FIELD.
4. THE CONTRACTOR SHALL HAVE ALL UTILITIES VERIFIED ON THE GROUND PRIOR TO ANY CONSTRUCTION. CALL THE ONE-CALL CENTER 48 HOURS IN ADVANCE (811 OR 1-800-332-2344). THE PUBLIC WORKS DEPARTMENT AND ENGINEERING DIVISION SHALL BE CONTACTED IMMEDIATELY IF A CONFLICT EXISTS (503-982-5240).
5. THE CONTRACTOR SHALL AT ALL TIMES ABIDE BY APPLICABLE SAFETY RULES OF OR-OSHA AND IN PARTICULAR THOSE PERTAINING TO ADEQUATE SHORING AND TRENCH PROTECTION.
6. THE CONTRACTOR SHALL INSTALL AND MAINTAIN ALL REQUIRED EROSION CONTROL MEASURES IN ACCORDANCE WITH THE NOTES AND PLANS.
7. EXISTING UTILITY LOCATIONS ARE APPROXIMATE ONLY, EXACT LOCATIONS TO BE DETERMINED IN THE FIELD BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UTILITIES NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL COORDINATE WORK WITH ALL UTILITY COMPANIES AS REQUIRED TO COMPLETE THE PROJECT.
8. ALL DAMAGE CAUSED BY THE CONTRACTOR SHALL BE RESTORED TO AN "AS GOOD OR BETTER" CONDITION.
9. PROPERTY OWNERS/RESIDENTS SHALL HAVE ACCESS TO THEIR PROPERTIES AT ALL TIMES DURING CONSTRUCTION ACTIVITIES. CONTRACTORS TO MAKE ALLOWANCES FOR ANY LOCAL DELIVERIES AND/OR GARBAGE PICK-UP. PROVIDE WRITTEN NOTICE TO ALL PROPERTY OWNERS AT LEAST 72 HOURS IN ADVANCE OF WORK IN AND/OR CROSSING DRIVEWAYS.
10. CONTRACTOR MAY PROCURE WATER FROM A CITY FIRE HYDRANT ONLY AFTER APPROVAL OF THE ENGINEER, INSTALLATION OF BACKFLOW PREVENTOR BY CITY DRINKING WATER SECTION CREWS, AND PAYMENT OF APPROPRIATE FEES TO THE WATER SECTION, IF REQUIRED.
11. ONLY CITY STAFF CAN OPERATE LIVE WATER VALVES AND FIRE HYDRANTS. NOTIFY THE CITY OF WOODBURN PRIOR TO THE NEED FOR THE OPERATION OF LIVE WATER LINES.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE THAT OCCURS TO ASPHALT PAVEMENT, CONCRETE STRUCTURES, OTHER UTILITIES, VALVE BOXES, METER BOXES, SIGNS, MAILBOXES, ETC. DUE TO CONSTRUCTION ACTIVITIES.
13. THE CONTRACTOR SHALL LOCATE AND MARK ALL EXISTING PROPERTY AND STREET MONUMENTS PRIOR TO CONSTRUCTION. ANY MONUMENTS DISTURBED DURING CONSTRUCTION OF THE PROJECT SHALL BE REPLACED AND RECORDED BY A REGISTERED LAND SURVEYOR AT THE CONTRACTOR'S EXPENSE.

EROSION AND SEDIMENT CONTROL (ESC) NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL MEASURES, IN ACCORDANCE LOCAL, STATE AND FEDERAL REGULATIONS.
2. THE IMPLEMENTATION OF THESE ESC PLANS AND CONSTRUCTION, MAINTENANCE, REPLACEMENT AND UPGRADING OF THESE FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED BY THE LOCAL JURISDICTION, AND VEGETATION/LANDSCAPING IS ESTABLISHED.
3. THE ESC FACILITIES DESCRIBED ON THIS PLAN MUST BE CONSTRUCTED IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES, AND IN SUCH A MANNER AS TO INSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DOES NOT ENTER THE DRAINAGE SYSTEM, ROADWAYS, OR VIOLATE APPLICABLE WATER STANDARDS.
4. THE ESC FACILITIES SHOWN ON THIS PLAN ARE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND TO ENSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DOES NOT LEAVE THE SITE.
5. THE ESC FACILITIES SHALL BE INSPECTED DAILY BY THE APPLICANT/CONTRACTOR AND MAINTAINED AS NECESSARY TO ENSURE THEIR CONTINUED FUNCTIONALITY.
6. AT NO TIME SHALL SEDIMENT BE ALLOWED TO ACCUMULATE MORE THAN 1/3 THE BARRIER HEIGHT. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING. THE CLEANING OPERATIONS SHALL NOT FLUSH SEDIMENT LADEN WATER INTO THE DOWNSTREAM SYSTEM.
7. STORM DRAIN INLETS, BASINS AND AREA DRAINS SHALL BE PROTECTED UNTIL UNTIL PAVEMENT SURFACES ARE COMPLETED AND/OR VEGETATION IS RE-ESTABLISHED.
8. PAVEMENT SURFACES AND VEGETATION ARE TO PLACED AS RAPIDLY AS POSSIBLE.
9. SEEDING SHALL BE PERFORMED NO LATER THAN SEPTEMBER 1 FOR EACH PHASE OF CONSTRUCTION.
10. IF THERE ARE EXPOSED SOILS OR SOILS NOT FULLY ESTABLISHED FROM OCTOBER 1st THROUGH APRIL 30th, THE WET WEATHER EROSION PREVENTION MEASURES WILL BE IN EFFECT.
11. THE CONTRACTOR SHALL REMOVE ESC MEASURES WHEN VEGETATION IS FULLY ESTABLISHED.
12. ANY SOIL OR DEBRIS TRANSPORTED ONTO ROADWAYS AND SIDEWALKS SHALL BE REMOVED. DEPOSITS SHALL BE COMPLETELY REMOVED BY SHOVELING AND/OR SWEEPING. WASHING SHALL NOT BE UTILIZED UNLESS SPECIFICALLY APPROVED IN WRITING BY THE CITY OF WOODBURN.
13. IF BMPS (BEST MANAGEMENT PRACTICES) SHOWN ARE UTILIZED, BUT ARE INSUFFICIENT TO PREVENT SEDIMENT FROM REACHING WATER BODIES, ADJACENT PROPERTIES, OR PUBLIC RIGHT-OF-WAY; ADDITIONAL BMPS SHALL BE IMPLEMENTED TO PREVENT FURTHER ENCROACHMENT OF SEDIMENT.
14. STABILIZED AREAS SHALL BE PROVIDED FOR EMPLOYEE PARKING AND STORAGE OF CONSTRUCTION MATERIALS. ERODABLE STOCKPILES OR EARTHEN MATERIALS, SUCH AS TOPSOIL, SILTY AND CLAYEY SOILS; LANDSCAPE MATERIALS SHALL BE COVERED WHEN NOT BEING INCORPORATED IN THE WORK. EROSION CONTROL BMPS SHALL BE UTILIZED AS NECESSARY TO PREVENT SEDIMENT LADEN RUNOFF FROM LEAVING OR SEDIMENT BEING TRANSPORTED FROM THESE AREAS FROM VEHICLE ACTIVITY.
15. ALL TRUCKS LEAVING THE SITE WITH EXCAVATION SPOILS MUST BE INSPECTED FOR WATER SEEPAGE. IF SATURATED SOILS ARE A PROBLEM, WATERTIGHT TRUCKS MUST BE USED OR LOADS SHALL BE DRAINED, ON-SITE, SO THAT WATER SEEPING FROM THE SOIL CANNOT DRAIN FROM THE VEHICLE.
16. CONSTRUCTION SHALL NOT BE CONSIDERED COMPLETE AND ACCEPTABLE UNTIL ALL DISTURBED SOIL SURFACES HAVE BEEN PROTECTED FROM EROSION WITH PERMANENT LANDSCAPING, COVERED WITH IMPERVIOUS SURFACES, RESTORED TO ORIGINAL UNDISTURBED CONDITION OR PERMANENTLY STABILIZED.
17. VEGETATED STABILIZATION AND LANDSCAPING SHALL BE FERTILIZED, WATERED AND MAINTAINED TO INSURE THAT GROWTH OF VEGETATION IS ESTABLISHED AND SUSTAINED.
18. PLACE GRASS SEED OVER BARREN SOIL; 80/20 BLEND OF DWARF PERENNIAL RYE AND CREEPING RED FESCUE, MINIMUM 100#/ACRE. APPLY 20-10-10 FERTILIZER IN ACCORDANCE WITH SUPPLIER'S RECOMMENDATIONS.

GRADING AND PAVING NOTES:

1. AGGREGATE BASE ROCK SHALL BE 3/4"-0 CRUSHED ROCK. AGGREGATE BASE IS TO BE COMPACTED IN 6" MAXIMUM LIFTS TO 95% OF MAXIMUM DRY DENSITY PER AASHTO T-180.
2. THE LIFTS OF ASPHALT CONCRETE ARE TO BE CLASS AS CALLED OUT ON THE PLANS PER ODOT SPECIFICATIONS. CONTRACTOR IS TO PROVIDE THE OWNER WITH A PAVING MIX CERTIFICATE OF COMPLIANCE FROM THE ASPHALT PAVEMENT PLANT. PAVE ONLY DURING DRY WEATHER AND WHEN THE SURFACE TEMPERATURE IS 40 DEGREES OR WARMER.
3. INSPECTION OF SUBGRADE, BASE ROCK AND A.C. WILL BE IN STRICT CONFORMANCE WITH THE AGENCY STANDARDS.
4. ALL MATERIALS, INSTALLATION, TEST AND INSPECTIONS ARE TO BE IN STRICT ACCORDANCE WITH THE AGENCY STANDARDS.
5. SAWCUT STRAIGHT MATCHLINES TO CREATE A BUTT JOINT BETWEEN THE EXISTING PAVEMENT AND NEW PAVEMENT. APPLY PRIME COAT AT JOINT SURFACES AND SAND SEAL AT ALL NEW PAVEMENT JOINTS.

WET WEATHER MEASURES:

1. THE MEASURES FOR WET WEATHER CONDITIONS ARE ONE OF THE FOLLOWING OR A COMBINATION TO PREVENT SOIL EROSION: ESTABLISHED GRASS, 2" MINIMUM STRAW MULCH COVER, EROSION CONTROL BLANKETS WITH ANCHORS, 6-MIL PLASTIC SHEET COVER OR SEDIMENT TRAP OR POND.
2. AS THE WET WEATHER APPROACHES MORE EROSION CONTROL MEASURES (AS REQUIRED BY CONSTRUCTION INSPECTOR) MAY BE NECESSARY TO REDUCE EROSION.

DEWATERING NOTES:

1. THE CONTROL OF GROUND WATER SHALL BE SUCH THAT SOFTENING OF THE BOTTOM OF EXCAVATIONS OR FORMATIONS OF "QUICK" CONDITIONS OR "BOILS" DURING EXCAVATION SHALL BE PREVENTED. DEWATERING SYSTEMS SHALL BE DESIGNED AND OPERATED SO AS TO PREVENT REMOVAL OF THE NATURAL SOILS.
2. DURING EXCAVATION AND INSTALLATION OF PIPELINES AND PLACEMENT OF TRENCH BACKFILL, EXCAVATIONS SHALL BE KEPT FREE OF WATER. THE CONTRACTOR SHALL CONTROL SURFACE WATER RUNOFF SO AS TO PREVENT ENTRY OR COLLECTION OF WATER IN THE EXCAVATIONS. THE STATIC WATER LEVEL SHALL BE DRAWN DOWN A MINIMUM 1 FOOT BELOW THE BOTTOM OF THE EXCAVATION SO AS TO MAINTAIN THE UNDISTURBED STATE OF THE FOUNDATION SOILS AND ALLOW THE PLACEMENT OF ANY FILL OR BACKFILL TO THE REQUIRED DENSITY. THE DEWATERING SYSTEM SHALL BE INSTALLED AND OPERATED SO THAT THE GROUND WATER LEVEL OUTSIDE THE EXCAVATION IS NOT REDUCED TO THE EXTENT THAT WOULD DAMAGE OR ENDANGER ADJACENT STRUCTURES OR PROPERTY.
3. BEFORE DEWATERING IS STARTED, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER A STATEMENT OF THE METHOD, INSTALLATION AND DETAILS OF THE DEWATERING SYSTEM THAT IS BEING PROPOSED. OPEN AND CASED SUMPS SHALL NOT BE DEEPER THAN 3 FEET BELOW THE STATIC WATER TABLE.
4. THE CONTRACTOR SHALL COMPLY WITH OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY REQUIREMENTS FOR DEWATERING USING SEDIMENT BAGS OR SETTLING TANKS OR MEET OR EXCEED THE DISCHARGE CRITERIA FOR TURBIDITY.

SANITARY SEWER NOTES:

1. SEWER PIPE AND FITTINGS TO BE PVC GRAVITY SEWER PIPE CONFORMING TO ASTM F679 (PIPE > 15 INCH DIAMETER) AND D3034, SDR 35 (PIPE UP TO 15 INCH DIAMETER) WITH RUBBER RING TYPE JOINTS CONFORMING WITH ASTM D-3212. SUBMIT CERTIFICATION OF COMPLETION OF 95% MANDREL TEST ON ALL PIPES AFTER COMPACTION.
2. TRACER WIRE SHALL BE INSTALLED ON ALL PIPES (MAIN LINE AND LATERALS). PLACE TRACER WIRE DIRECTLY OVER PIPE CENTERLINE AND ON TOP OF PIPE ZONE MATERIAL. COIL AND SECURE TRACER WIRE IN MANHOLE TO NON CORROSIVE FASTENER. LEAVE ENOUGH WIRE TO EXTEND 18 INCHES ABOVE TOP OF MANHOLE COVER. SEE CITY OF WOODBURN DETAIL 6510-3 ON SHEET C505.
3. PIPE BEDDING, PIPE ZONE MATERIALS SHALL BE AS SPECIFIED ON THE PLANS AND THE CITY OF WOODBURN SPECIFICATIONS.
4. SEWER MAINS TO BE AIR TESTED FOLLOWING TRENCH BACKFILL AND COMPACTION. VIDEO INSPECTION AND 95% MANDREL TEST PER APWA 303.3.11 REQUIRED FOR ALL SANITARY SEWERS.
5. SETTLEMENT OF THE FINISHED SURFACE WITHIN THE WARRANTY PERIOD SHALL BE CONSIDERED TO BE A RESULT OF IMPROPER COMPACTION AND SHALL BE PROMPTLY REPAIRED BY THE CONTRACTOR AT NO EXPENSE TO THE OWNER.
6. ALL AC SAWCUT LINES SHALL BE STRAIGHT. ALL EDGES SHALL BE SEALED AND SANDED UPON COMPLETION.
7. ALL SANITARY SEWER AND WATERLINE CROSSINGS SHALL CONFORM TO THE REQUIREMENTS OF OAR 333.
8. TRENCH SHALL BE BACKFILLED WITH 3/4"-0 CRUSHED ROCK COMPACTED IN 6" LIFTS TO 95% OF AASHTO T-180. PIPE TRENCH BEDDING SHALL BE CLEAN 3/4"-0 CRUSHED ROCK.

WOODBURN OREGON Incorporated 1889

CITY OF WOODBURN PROJECT # 2021-006-28

PBS Engineering and Environmental Inc.
4412 S Corbett Avenue
Portland, OR 97239
503.248.1939
pbsusa.com

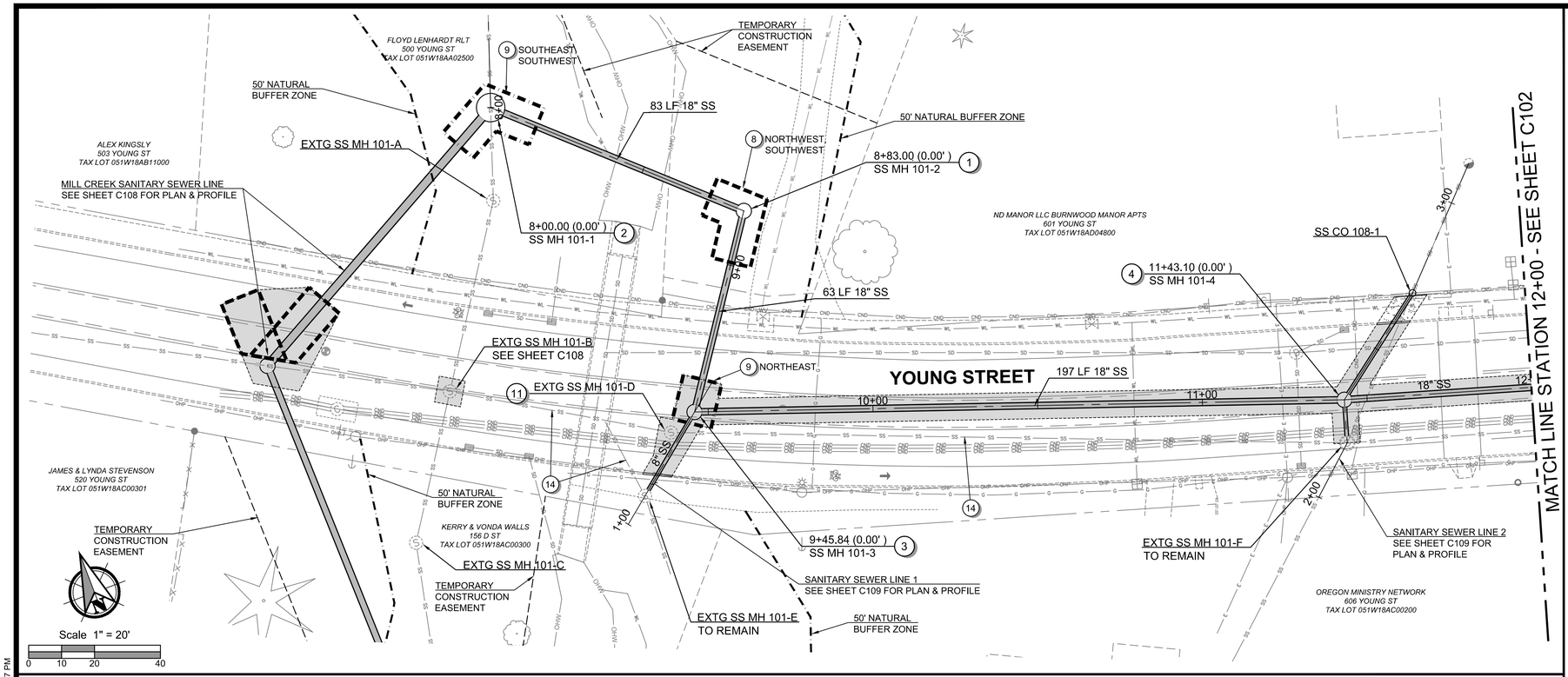
PBS

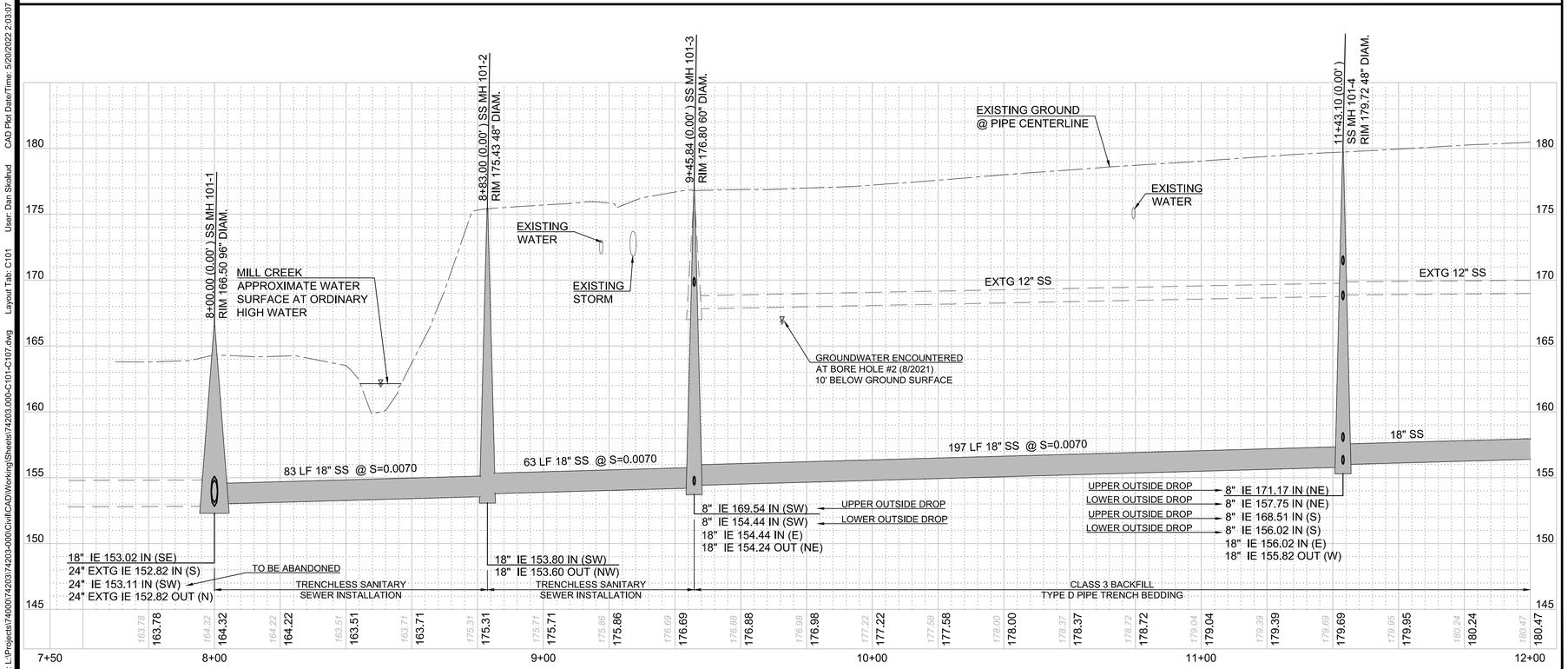
GENERAL NOTES FOR:
YOUNG STREET SANITARY SEWER
A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

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

REGISTERED PROFESSIONAL ENGINEER
72882PE
OREGON
JUNE 14, 2001
RICHARD D. BOYLE
EXPIRES: 12/31/2023

DESIGNED: DPS
CHECKED: RDB
MAY 20, 2022
74203.000
SHEET ID
C003
SHEET 3 OF 44





YOUNG STREET - STATION 7+50 TO STATION 12+00

SANITARY SEWER CONSTRUCTION NOTES

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NOTE: MINIMUM CLEANOUT INVERT ELEVATION AT RIGHT OF WAY IS AT A DEPTH OF 8 FEET. CONTRACTOR TO VERIFY LOCATION AND DEPTH OF EXISTING LATERAL AND MATCH EXISTING INVERT ELEVATION.

WOODBURN OREGON Incorporated 1889

CITY OF WOODBURN PROJECT # 2021-006-28

PBS Engineering and Environmental Inc.
4412 S Corbett Avenue
Portland, OR 97239
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PBS

YOUNG STREET SANITARY SEWER

YOUNG STREET SANITARY SEWER PLAN & PROFILE (8+00 - 12+00) FOR:
A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

Know what's below. Call before you dig.

REGISTERED PROFESSIONAL ENGINEER
72882PE
OREGON
JUNE 14, 2007
RICHARD D. BOYLE
EXPIRES: 12/31/2023

DESIGNED: DPS
CHECKED: RDB
MAY 20, 2022
74203.000

SHEET ID
C101
SHEET 4 OF 44

Filename: L:\Projects\74000\74203\74203-000\Civil\CAD\Working\Sheets\74203.000-C101-C107.dwg Layout Tab: C101 User: Dan Stolfus CAD Plot Date/Time: 5/20/2022 2:03:07 PM

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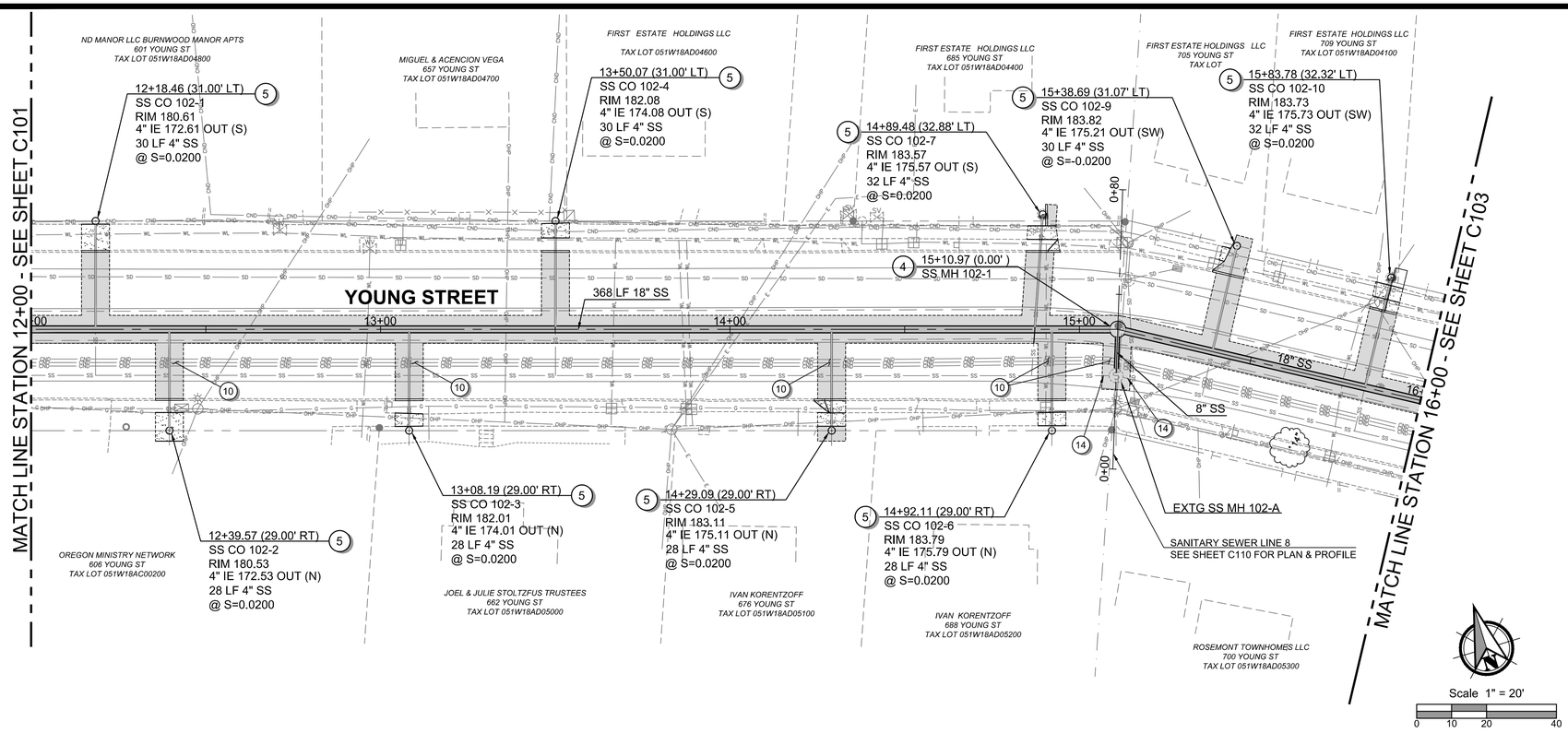

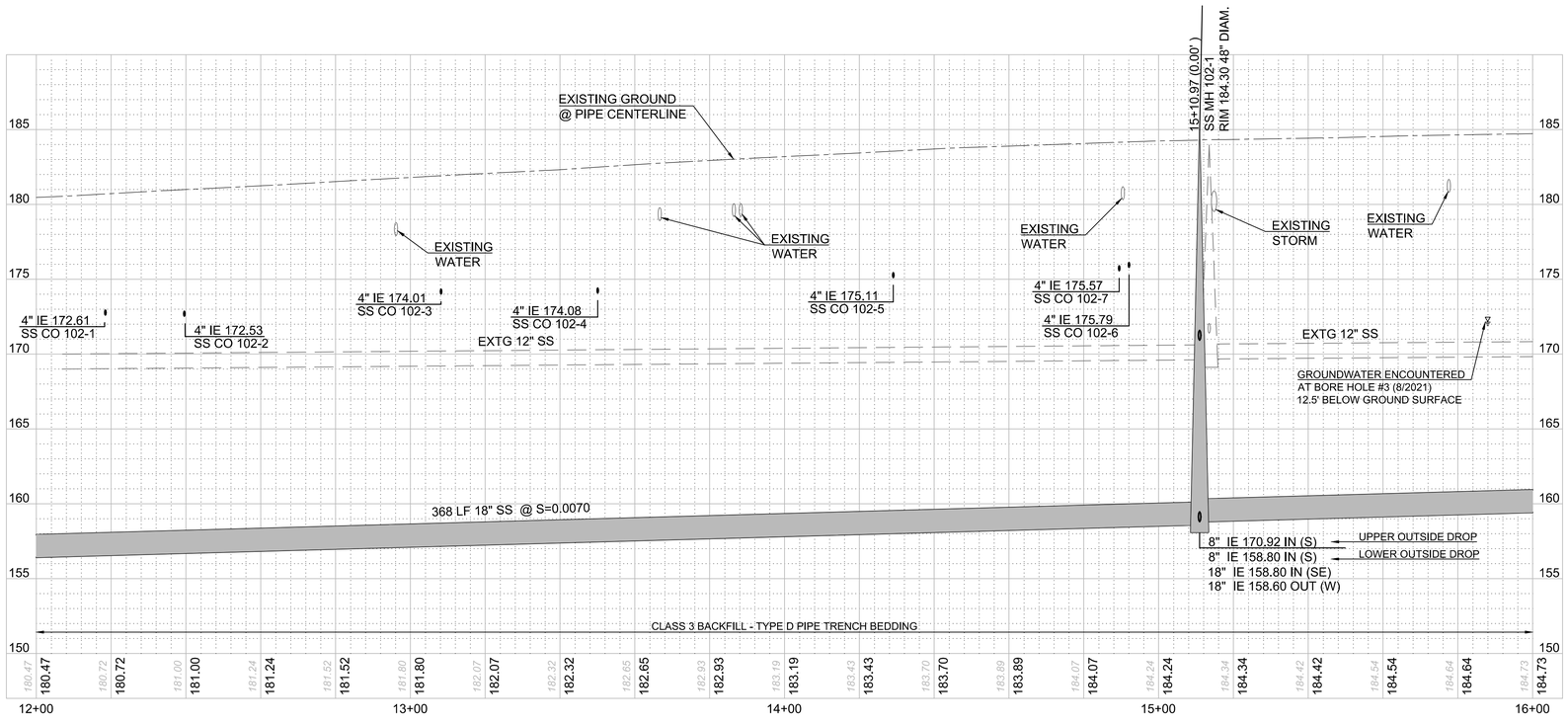

YOUNG STREET - STATION 12+00 TO STATION 16+00

SANITARY SEWER CONSTRUCTION NOTES

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NOTE: MINIMUM CLEANOUT INVERT ELEVATION AT RIGHT OF WAY IS AT A DEPTH OF 8 FEET. CONTRACTOR TO VERIFY LOCATION AND DEPTH OF EXISTING LATERAL AND MATCH EXISTING INVERT ELEVATION.

WOODBURN OREGON Incorporated 1889

CITY OF WOODBURN PROJECT # 2021-006-28

PBS Engineering and Environmental Inc.
4412 S Corbett Avenue
Portland, OR 97239
503.248.1939
pbsusa.com

PBS

YOUNG STREET SANITARY SEWER PLAN & PROFILE (12+00 - 16+00) FOR:

YOUNG STREET SANITARY SEWER

A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

Know what's below. Call before you dig.

REGISTERED PROFESSIONAL ENGINEER
72882PE
OREGON
JUNE 14, 2007
RICHARD D. BOYLE
EXPIRES: 12/31/2023

DESIGNED:	DPS
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MAY 20, 2022	74203.000
SHEET ID	C102
SHEET	5 OF 44

Filename: L:\Projects\74000\74203\74203-000\Civil\CAD\Working\Sheets\74203.000-C101-C107.dwg Layout Tab: C102 User: Dan Stolfus CAD Plot Date/Time: 5/20/2022 2:03:25 PM

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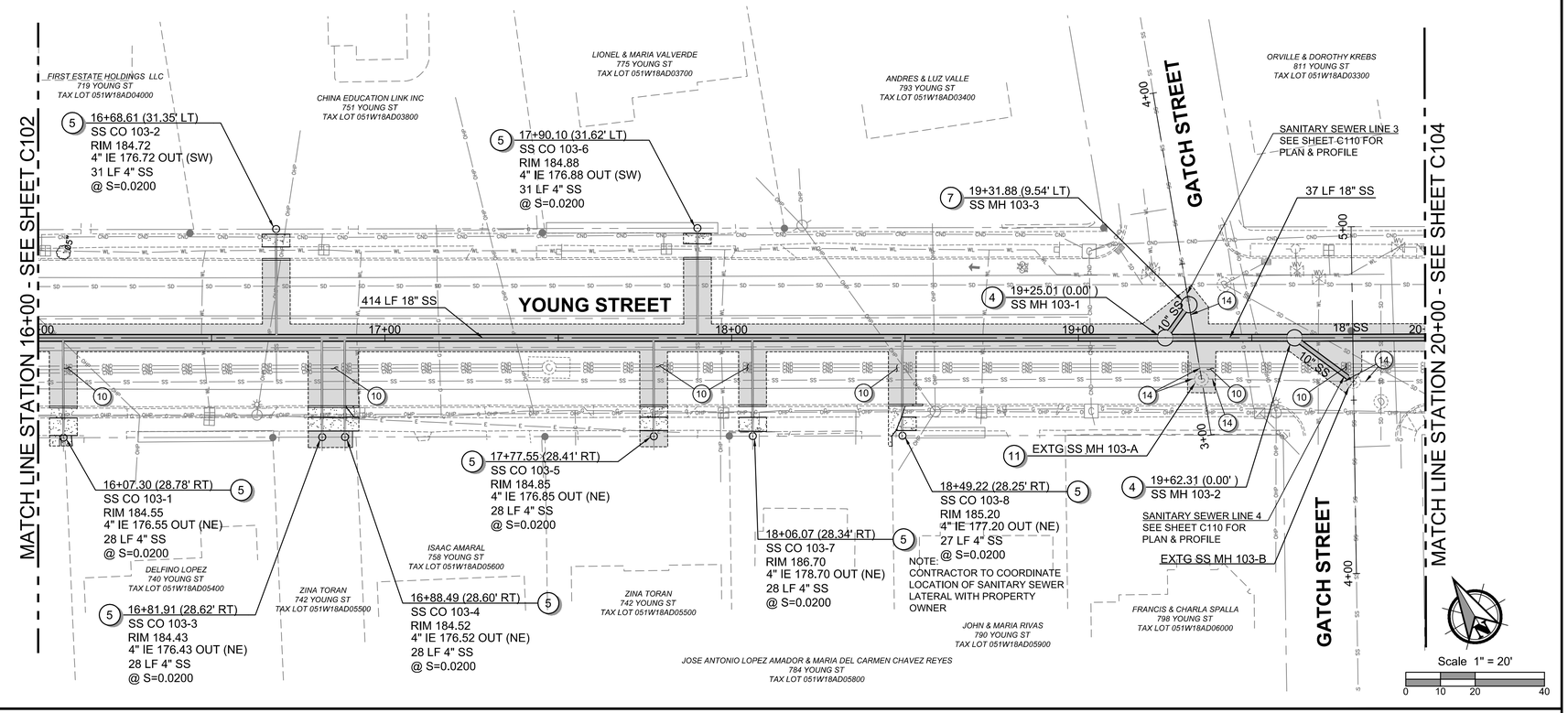

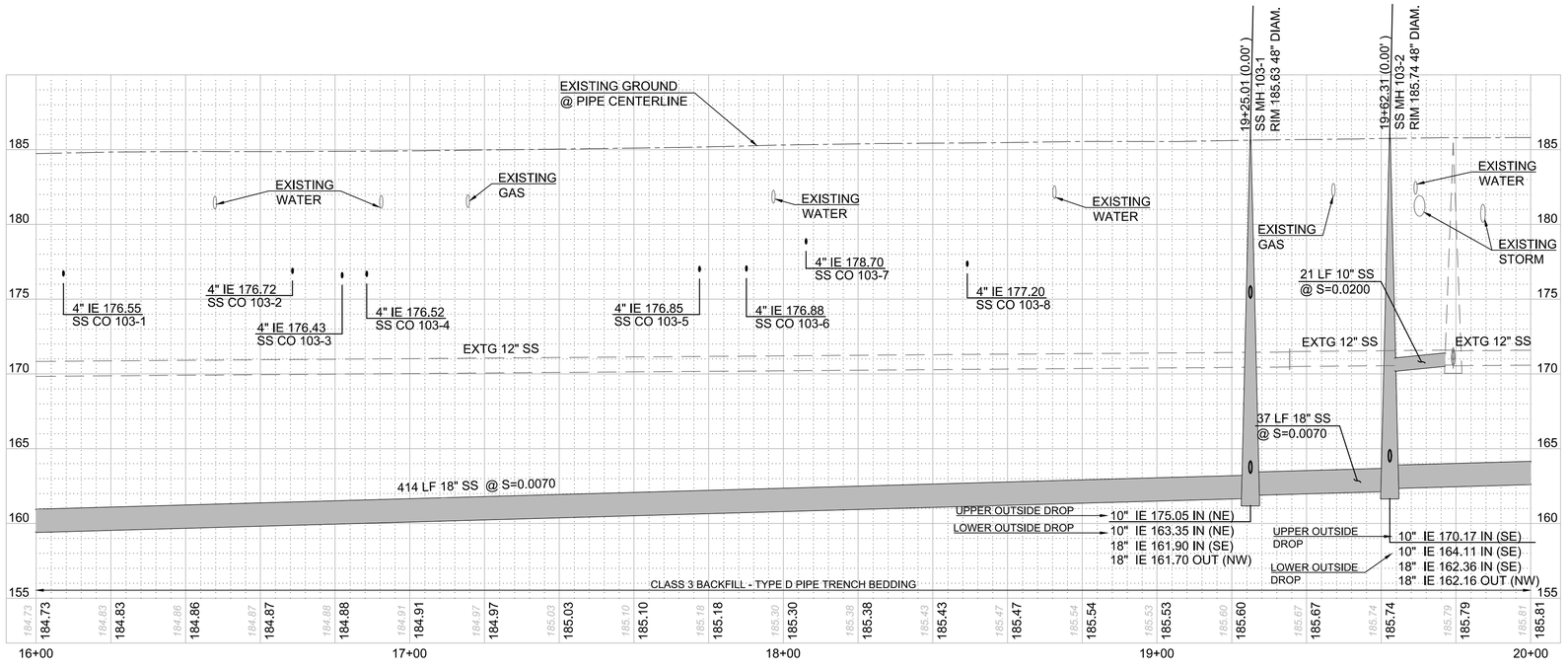

YOUNG STREET - STATION 16+00 TO STATION 20+00

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SANITARY SEWER CONSTRUCTION NOTES

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WOODBURN OREGON Incorporated 1889

CITY OF WOODBURN PROJECT # 2021-006-28

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PBS

YOUNG STREET SANITARY SEWER

YOUNG STREET SANITARY SEWER PLAN & PROFILE (16+00 - 20+00) FOR:
A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

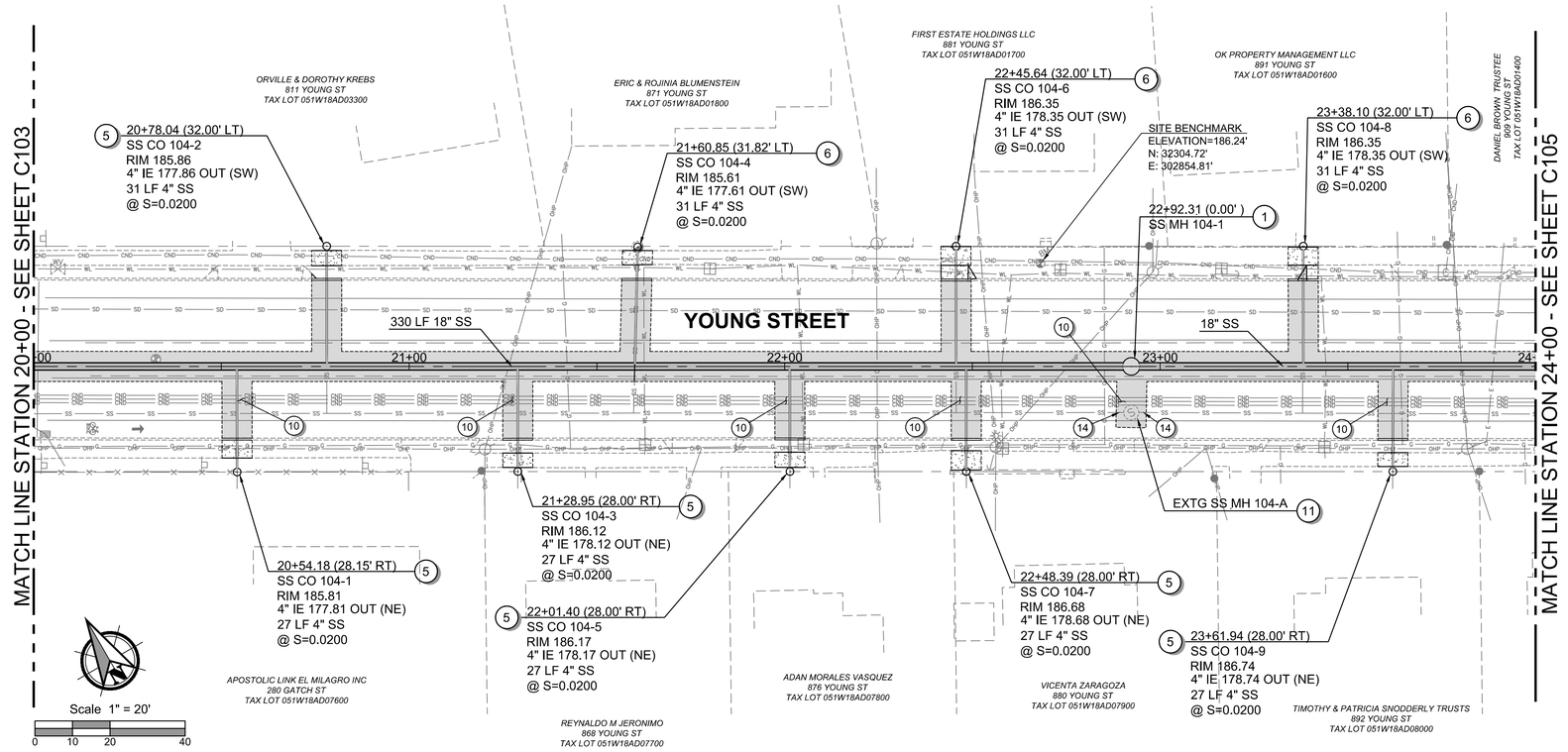
Know what's below. Call before you dig.

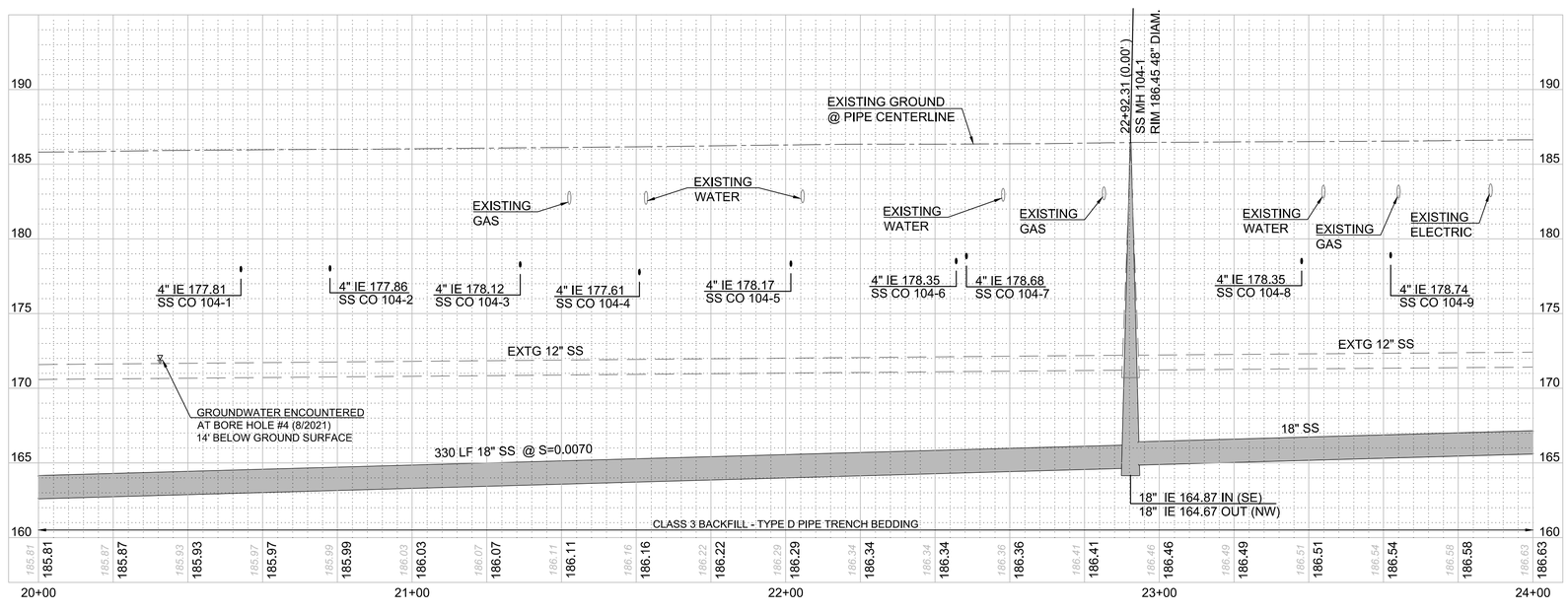
REGISTERED PROFESSIONAL ENGINEER
72882PE
OREGON
JUNE 14, 2007
RICHARD D. BOYLE
EXPIRES: 12/31/2023

DESIGNED: DPS
CHECKED: RDB
MAY 20, 2022
74203.000

SHEET ID
C103
SHEET 6 OF 44

Filename: L:\Projects\74000\74203\74203-000\Civil\CADWorking\Sheets\74203.000-C101-C107.dwg Layout Tab: C103 User: Dan Stolfus CAD Plot Date/Time: 5/20/2022 2:03:38 PM





YOUNG STREET - STATION 20+00 TO STATION 24+00

SANITARY SEWER CONSTRUCTION NOTES

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12. INSTALL SEWER SERVICE CONNECTION PER CITY OF WOODBURN DETAIL NO. 6200-3, SEE DETAIL ON SHEET C505. CONTRACTOR TO VERIFY LOCATION AND DEPTH OF EXISTING LATERAL.
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WOODBURN OREGON Incorporated 1889

CITY OF WOODBURN PROJECT # 2021-006-28

PBS Engineering and Environmental Inc.
4412 S Corbett Avenue
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pbsusa.com

PBS

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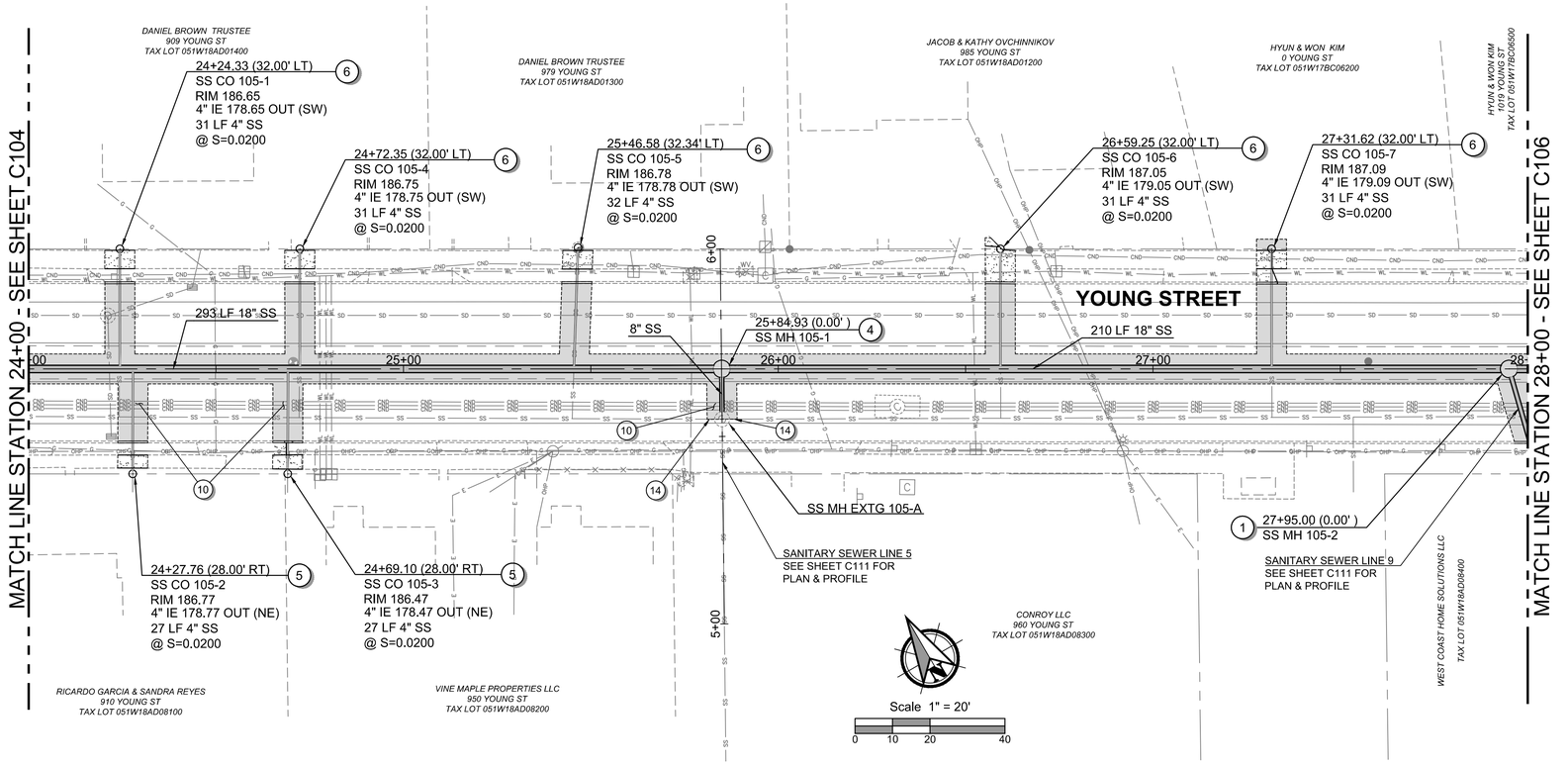

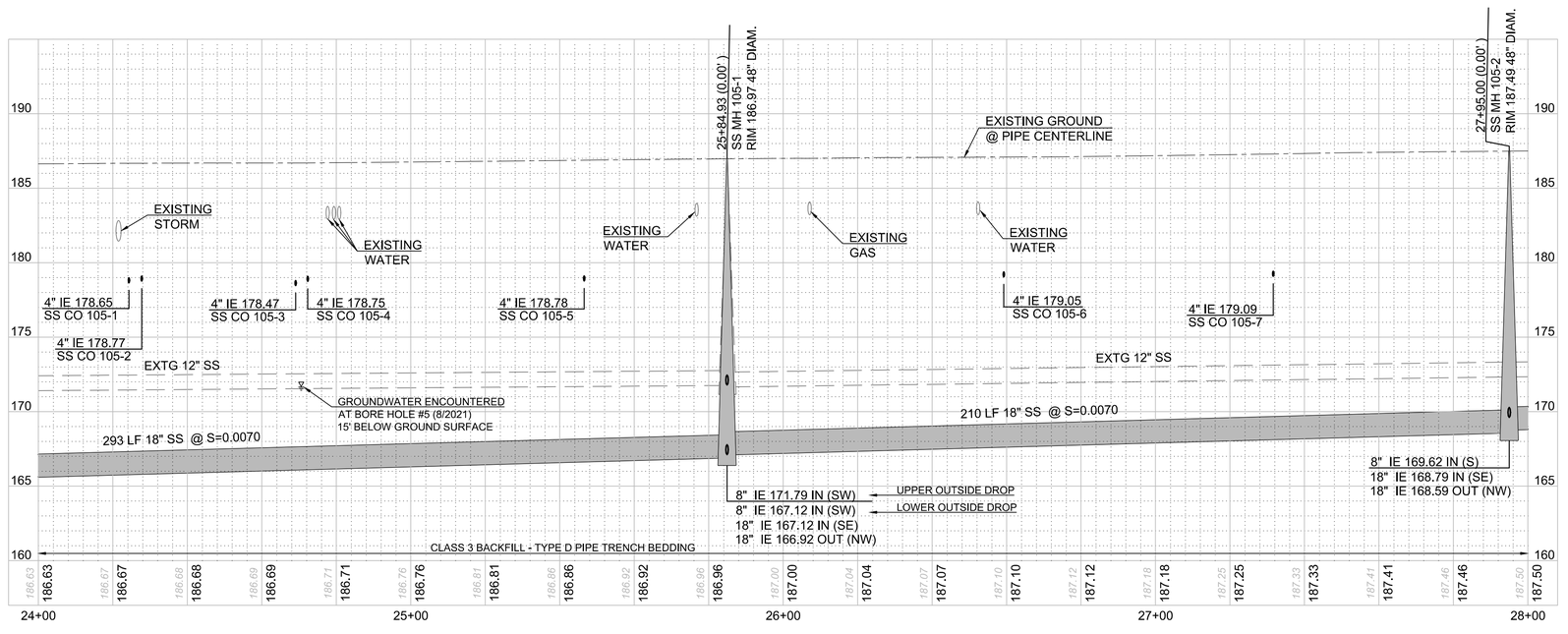

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WOODBURN OREGON Incorporated 1889

CITY OF WOODBURN PROJECT # 2021-006-28

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SHEET ID
C105
SHEET 8 OF 44

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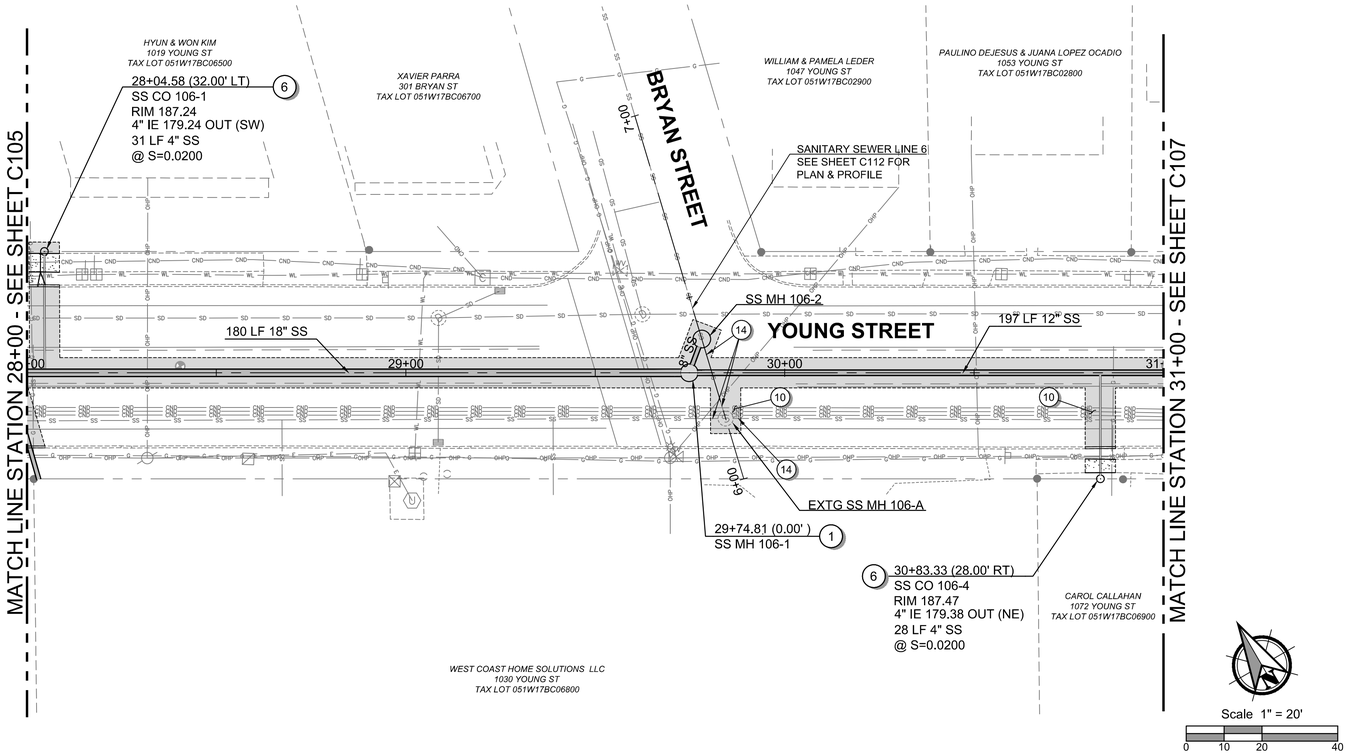

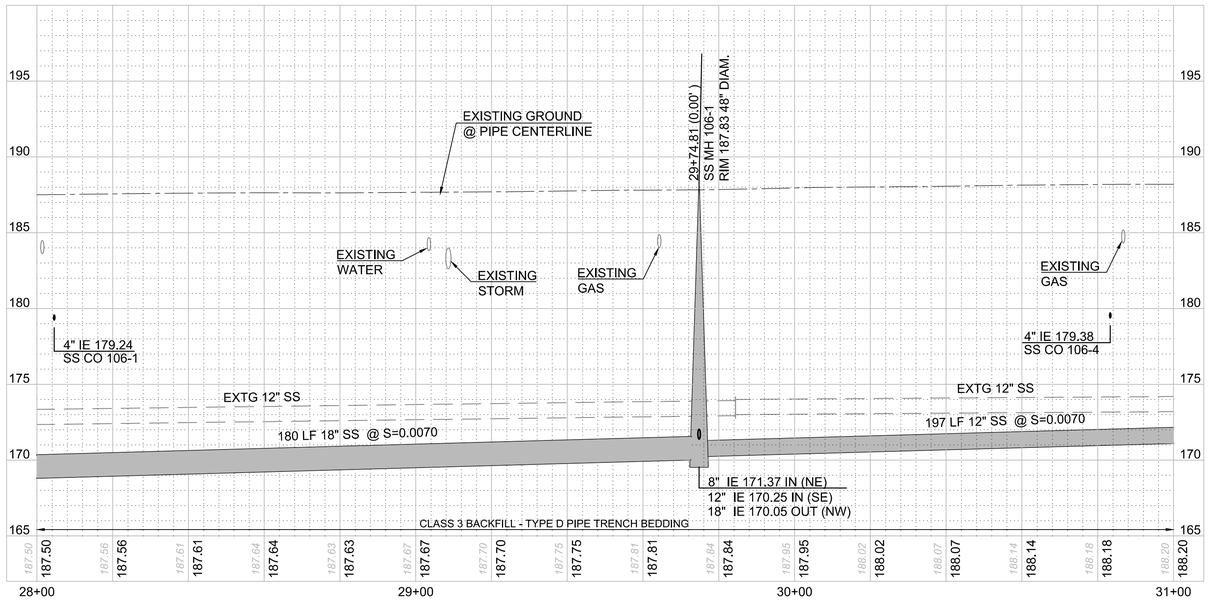

YOUNG STREET - STATION 28+00 TO STATION 31+00

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WOODBURN OREGON Incorporated 1889

CITY OF WOODBURN PROJECT # 2021-006-28

PBS Engineering and Environmental Inc.
4412 S Corbett Avenue
Portland, OR 97239
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PBS

YOUNG STREET SANITARY SEWER PLAN & PROFILE (28+00 - 31+00) FOR:

YOUNG STREET SANITARY SEWER

A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

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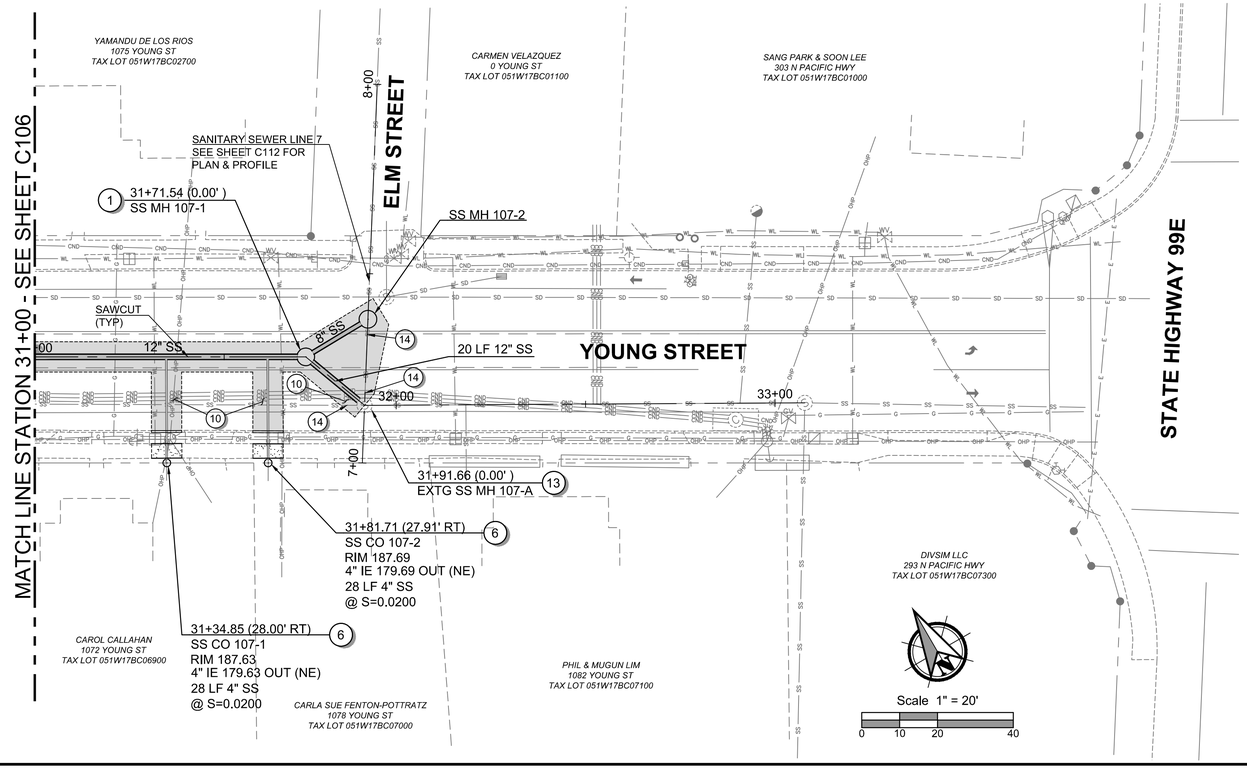

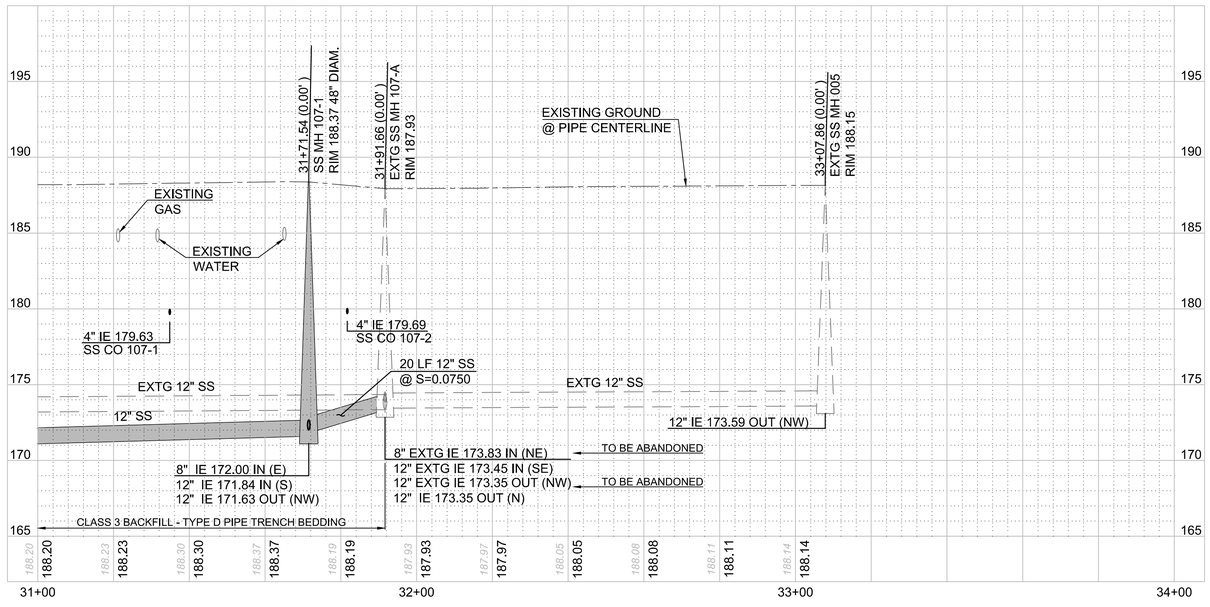

YOUNG STREET - STATION 31+00 TO STATION 34+00

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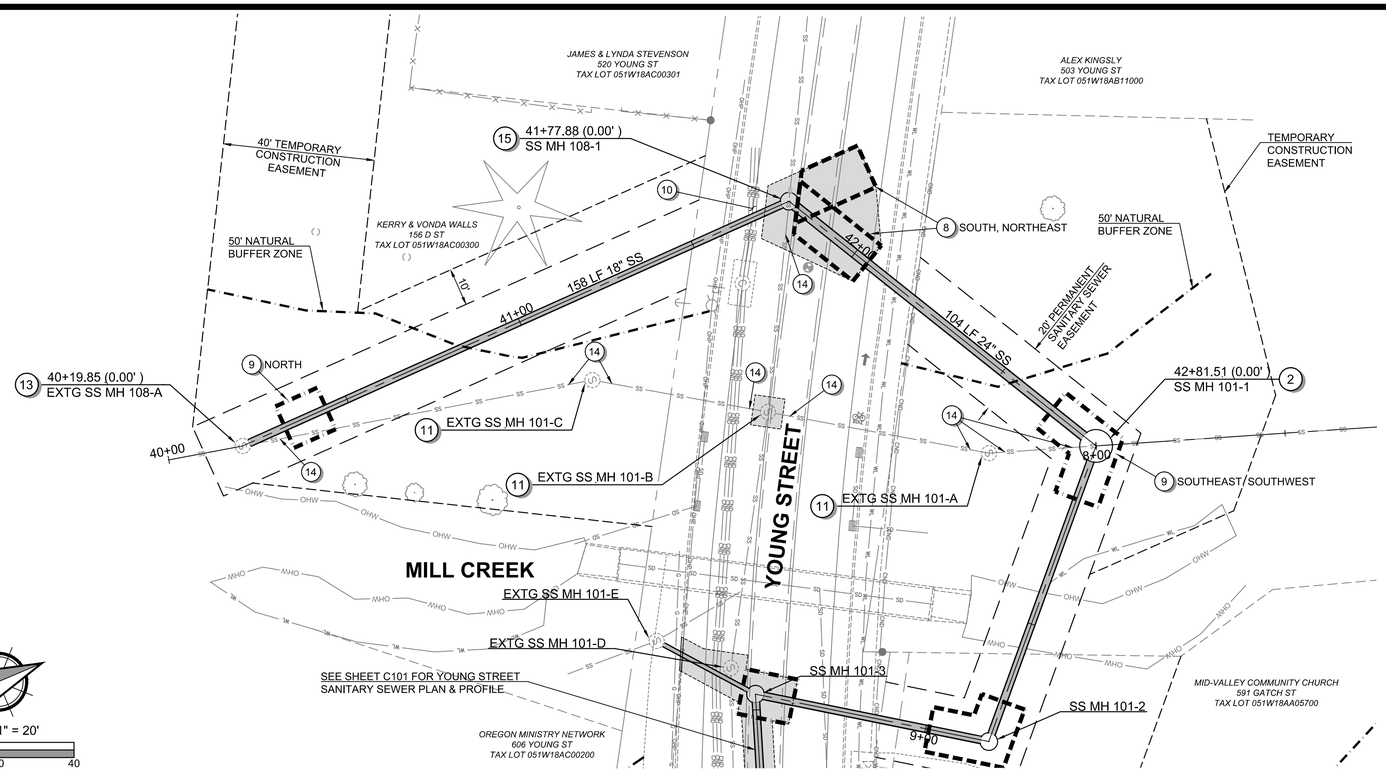

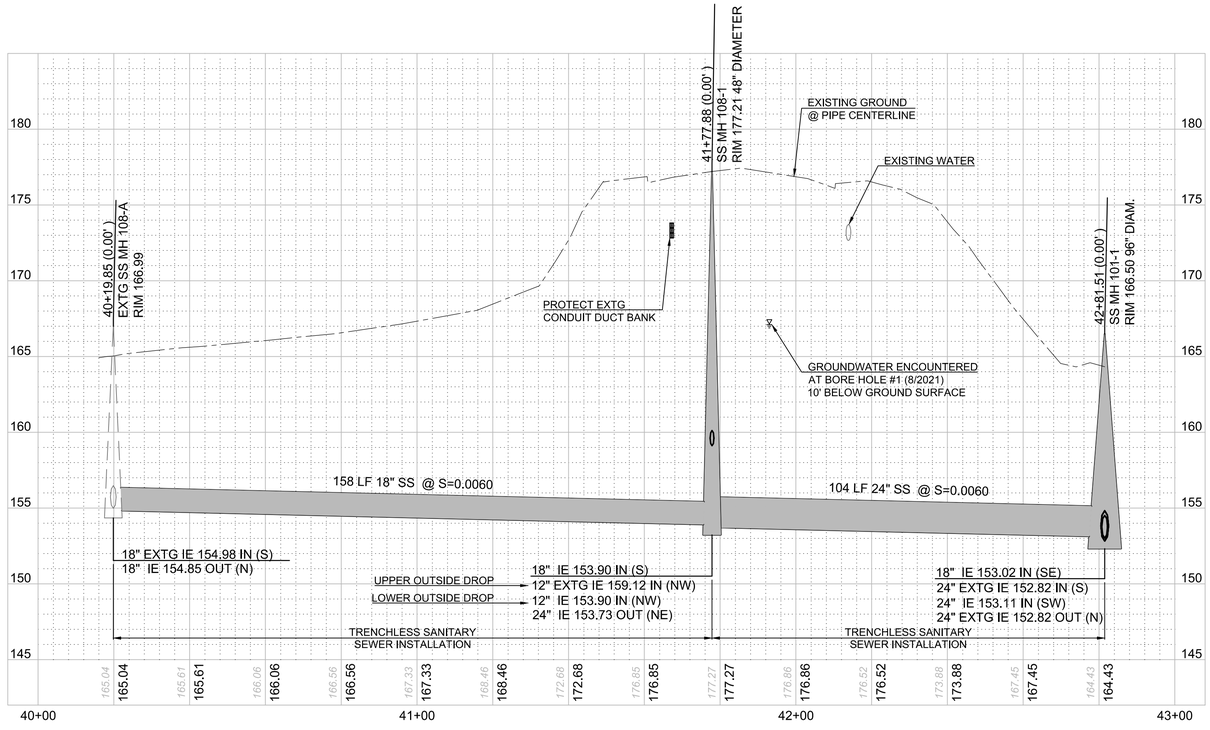

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WOODBURN OREGON Incorporated 1889

CITY OF WOODBURN PROJECT # 2021-006-28

PBS Engineering and Environmental Inc.
4412 S Corbett Avenue
Portland, OR 97239
503.248.1939
pbsusa.com

PBS

MILL CREEK SANITARY SEWER PLAN & PROFILE FOR:

YOUNG STREET SANITARY SEWER

A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

Know what's below. Call before you dig.

REGISTERED PROFESSIONAL ENGINEER
72882PE
OREGON
JUNE 14, 2007
RICHARD D. BOYLE
EXPIRES: 12/31/2023

DESIGNED:	DPS
CHECKED:	RDB
MAY 20, 2022	74203.000
SHEET ID	C108
SHEET	11 OF 44

Full Size Sheet Format Is 22x34; If Printed Size Is Not 22x34, Then This Sheet Format Has Been Modified & Indicated Drawing Scale Is Not Accurate.

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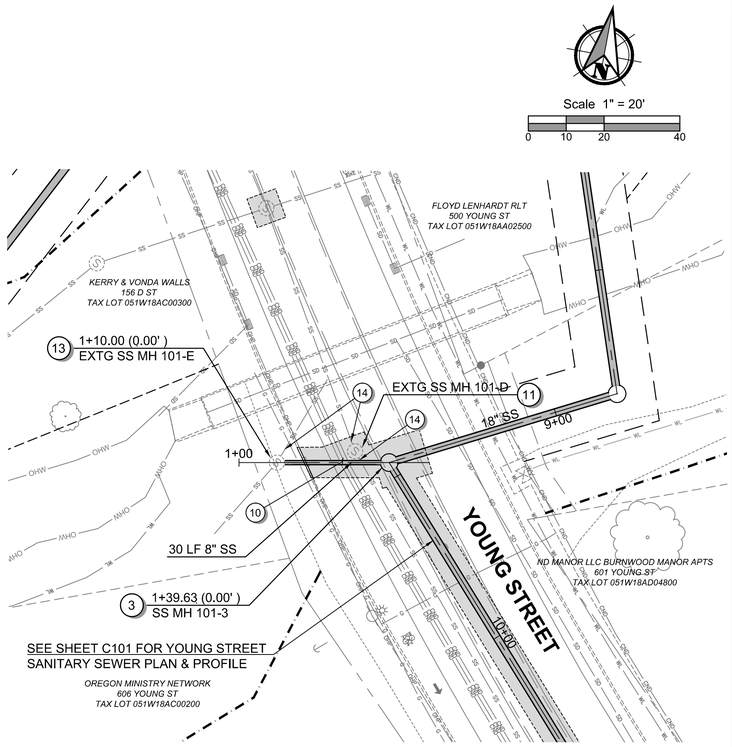

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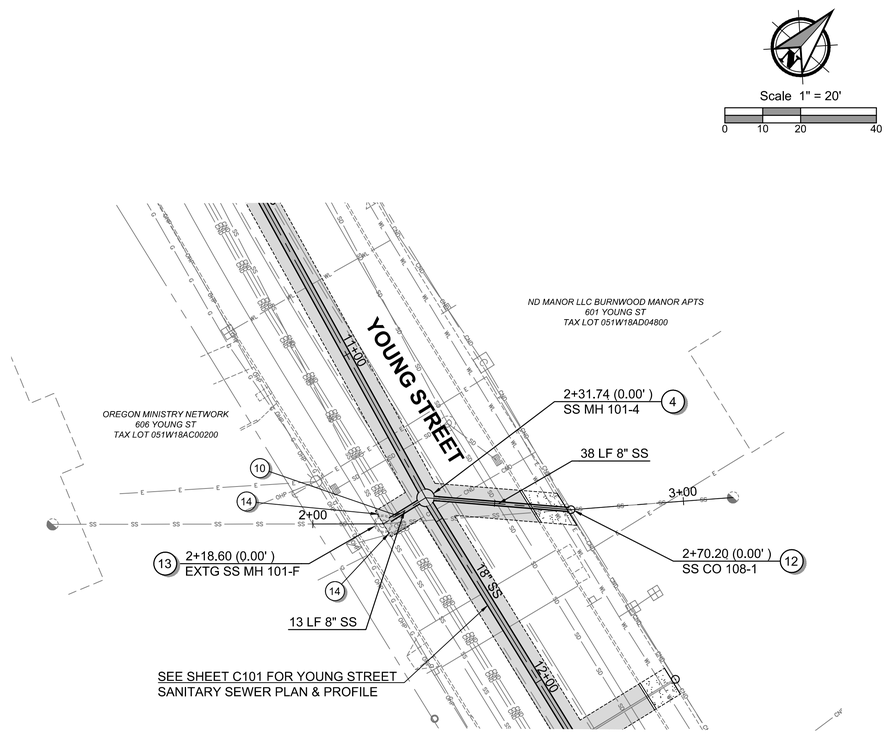

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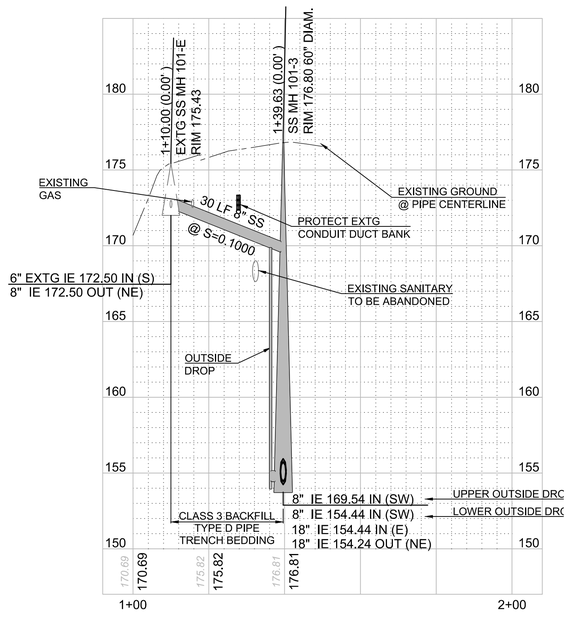

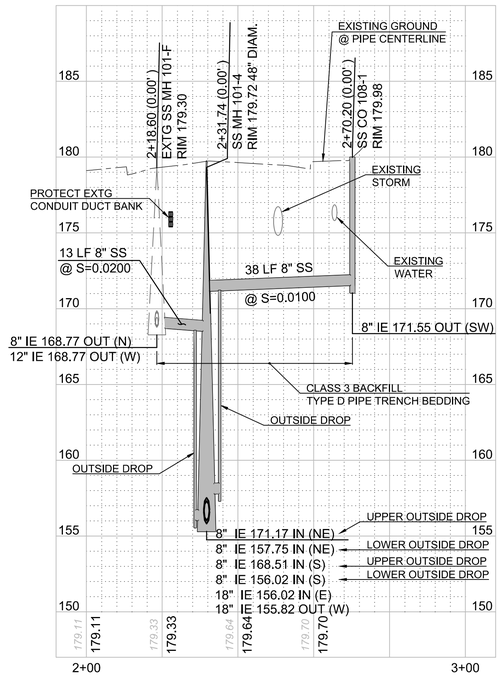

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WOODBURN OREGON Incorporated 1889

CITY OF WOODBURN PROJECT # 2021-006-28

PBS Engineering and Environmental Inc.
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Portland, OR 97239
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PBS

SANITARY SEWER LINE 1 & 2 PLAN & PROFILE FOR: YOUNG STREET SANITARY SEWER

A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

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

REGISTERED PROFESSIONAL ENGINEER
72882PE
OREGON
JUNE 14, 2007
RICHARD D. BOYLE
EXPIRES: 12/31/2023

DESIGNED: DPS
CHECKED: RDB
MAY 20, 2022
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SHEET ID
C109
SHEET 12 OF 44

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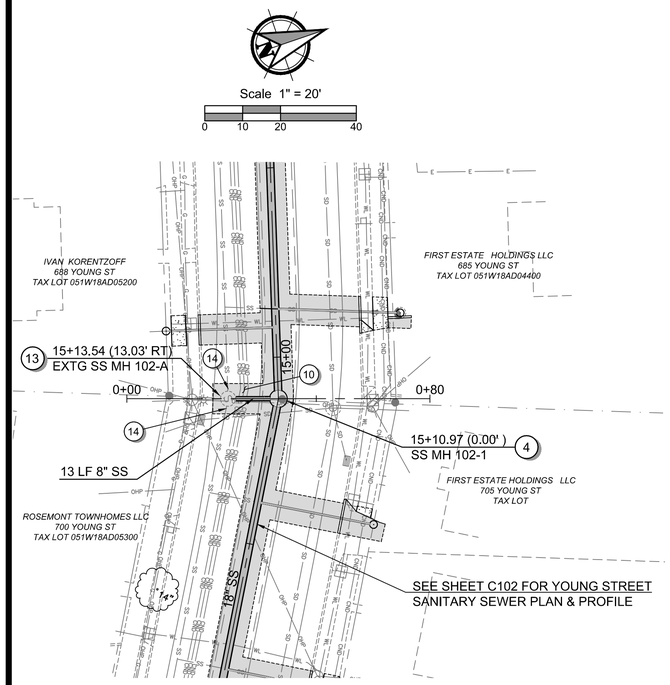

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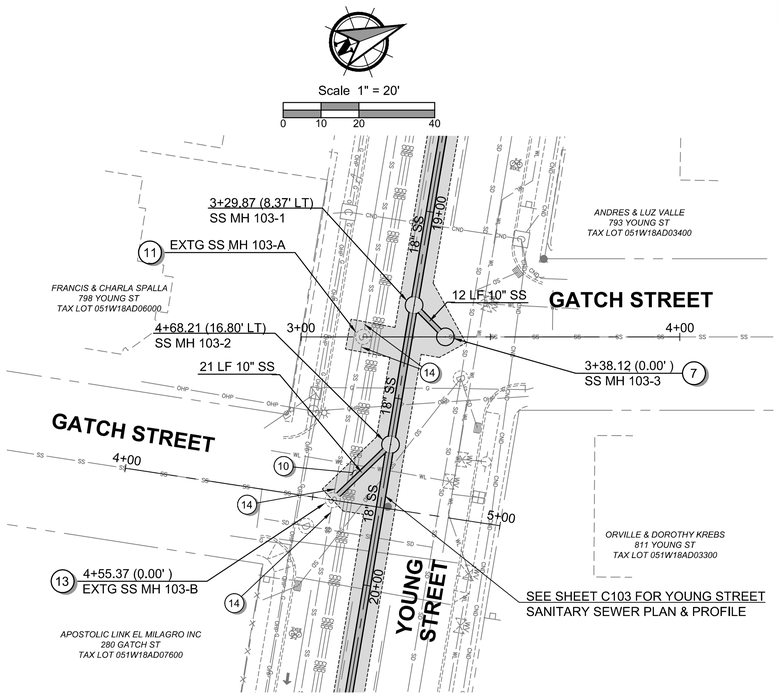

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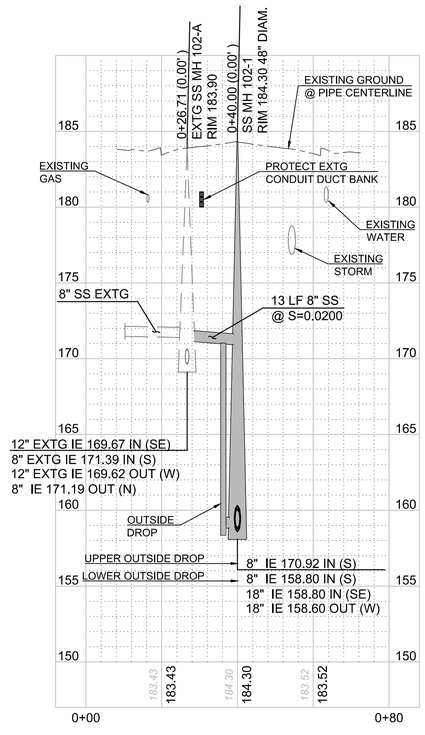

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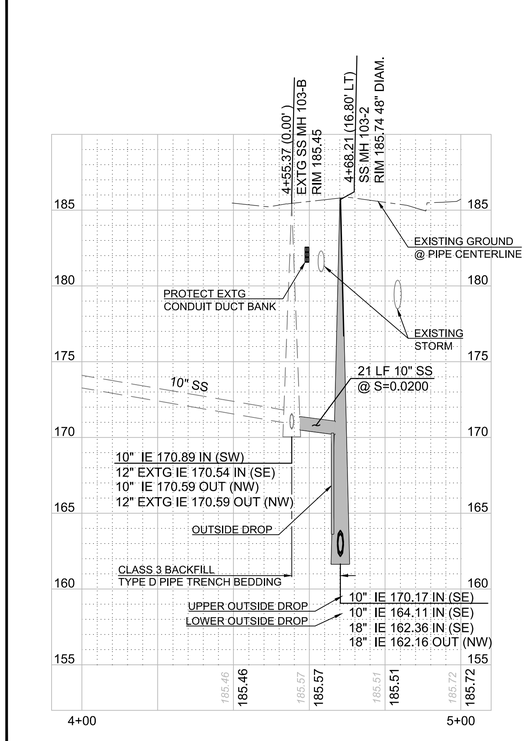

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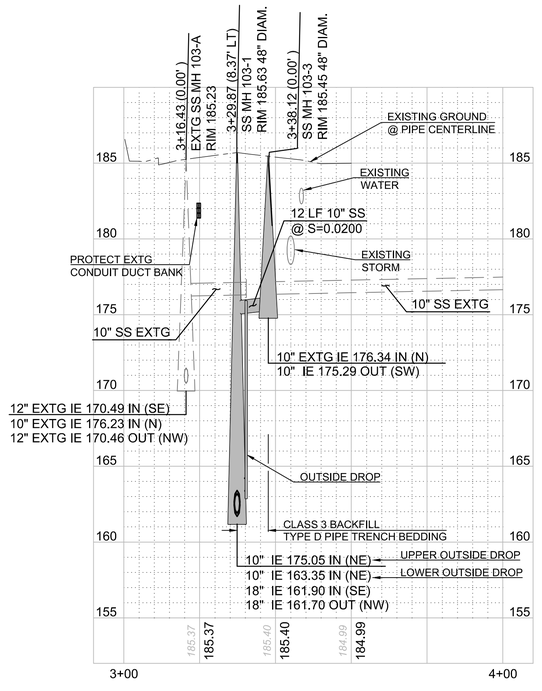

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CITY OF WOODBURN PROJECT # 2021-006-28

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PBS

SANITARY SEWER LINE 3, 4 & 8 PLAN & PROFILE FOR:

YOUNG STREET SANITARY SEWER

A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

Know what's below. Call before you dig.

REGISTERED PROFESSIONAL ENGINEER
72882PE
OREGON
JUNE 14, 2007
RICHARD D. BOYLE
EXPIRES: 12/31/2023

DESIGNED:	DPS
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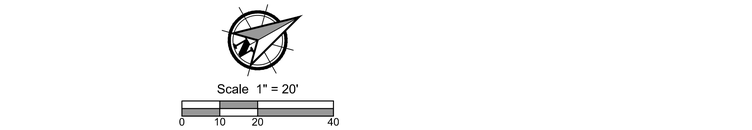
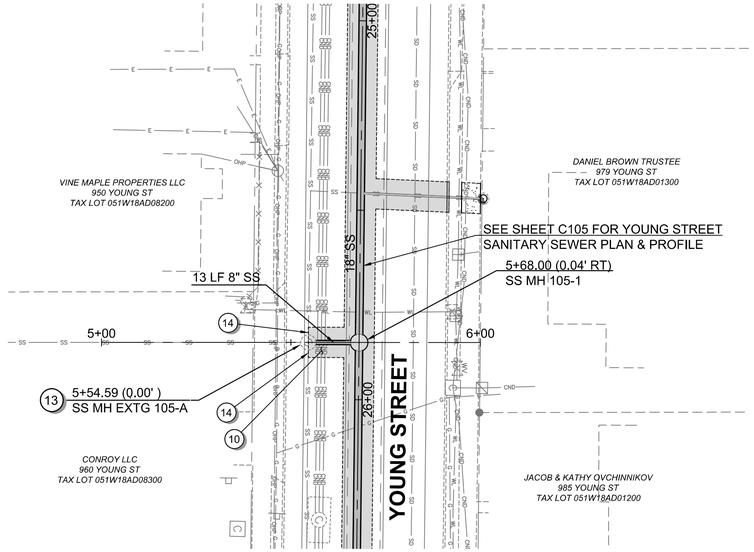
MAY 20, 2022	74203.000
SHEET ID	C110
SHEET	13 OF 44





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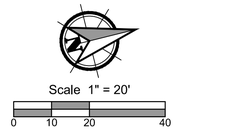

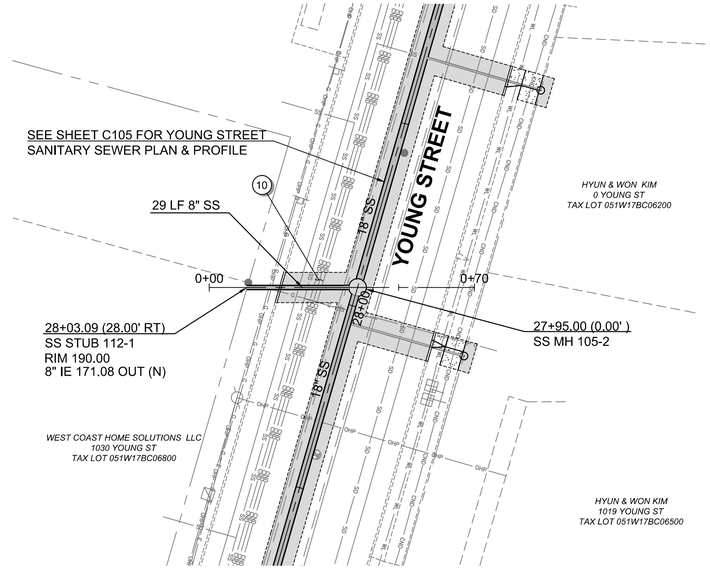

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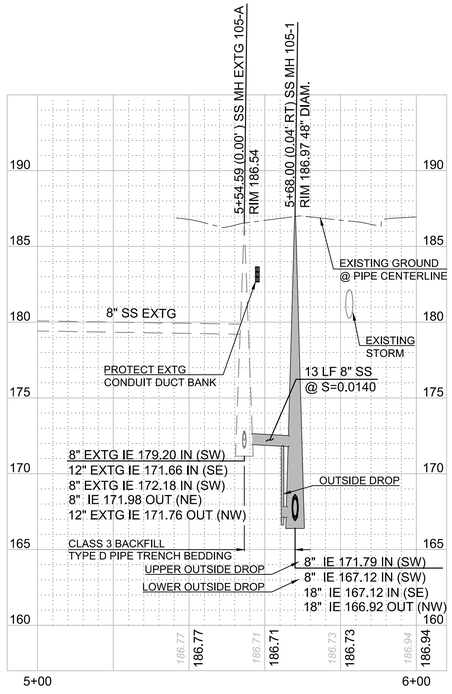

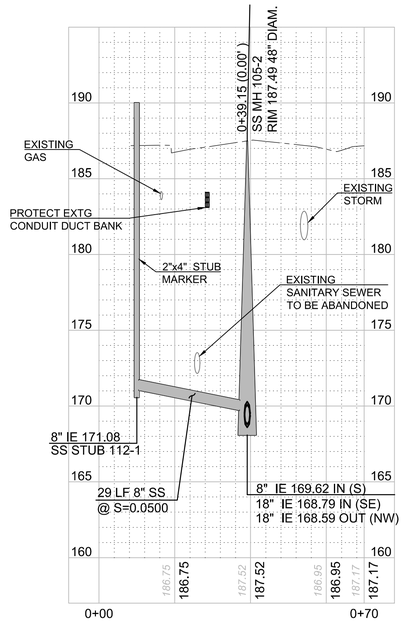

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CITY OF WOODBURN PROJECT # 2021-006-28

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PBS

SANITARY SEWER LINE 5 & 9 PLAN & PROFILE FOR:

YOUNG STREET SANITARY SEWER

A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

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

REGISTERED PROFESSIONAL ENGINEER
72882PE
OREGON
JUNE 14, 2007
RICHARD D. BOYLE
EXPIRES: 12/31/2023

DESIGNED: DPS
CHECKED: RDB
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SHEET ID
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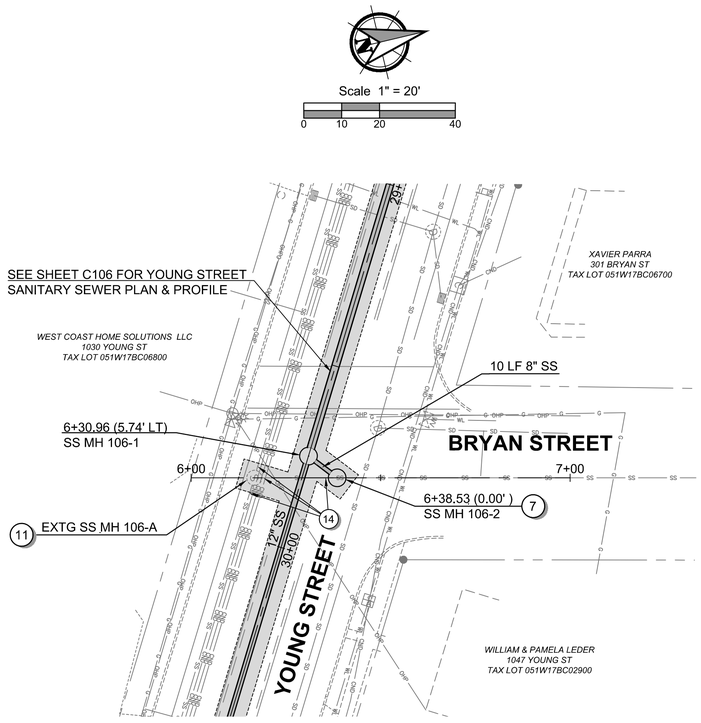
SHEET 14 OF 44



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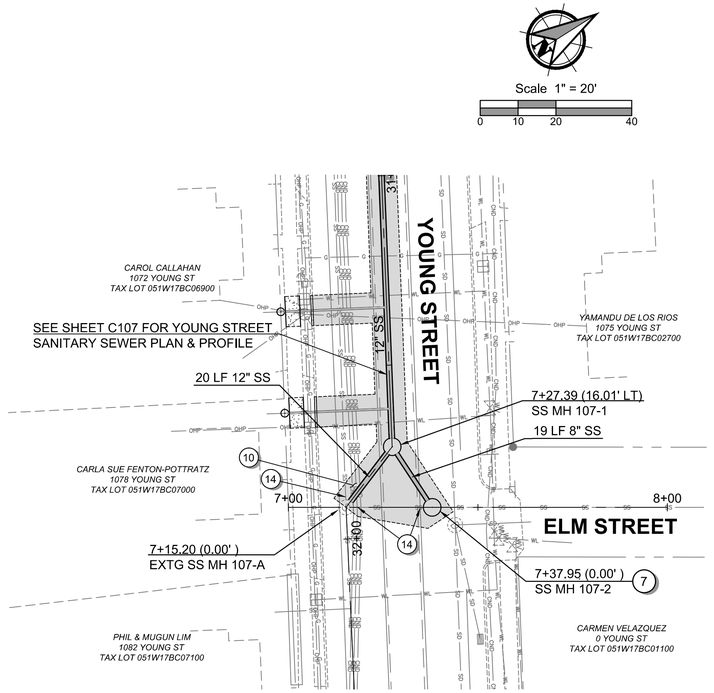

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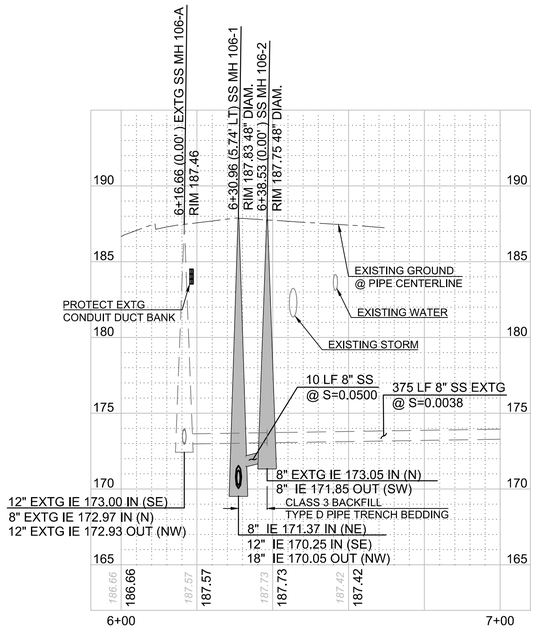

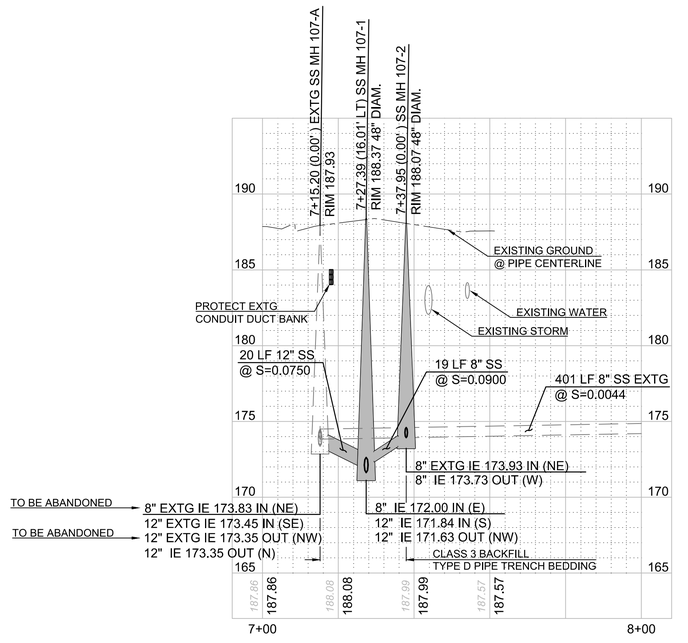

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7. INSTALL 48 INCH DIAMETER SANITARY SEWER MANHOLE OVER EXISTING SANITARY SEWER PIPE PER CITY OF WOODBURN DETAIL NO. 6510-3 ON SHEET C505. SEE SHEET C501 TO C504 FOR MANHOLE CONSTRUCTION DATA. GEOTECHNICAL OBSERVATION AND APPROVAL REQUIRED FOR MANHOLE SUBGRADE. OVEREXCAVATION MAY BE REQURIED.
8. LAUNCHING PIT SHAFT EXCAVATION AND BACKFILL.
9. RECEIVING PIT SHAFT EXCAVATION AND BACKFILL.
10. EXISTING CONDUIT DUCT BANK TO BE PROTECTED. CONDUIT DUCT BANK SHALL BE PHYSICALLY SUPPORTED WHEN TRENCHING AND/OR EXCAVATION ACTIVITIES ARE NEAR THE DUCT BANK.
11. AFTER COMPLETION OF NEW SANITARY SEWER MAIN, ABANDON EXISTING MANHOLE.
12. INSTALL SEWER SERVICE CONNECTION PER CITY OF WOODBURN DETAIL NO. 6200-3, SEE DETAIL ON SHEET C505. CONTRACTOR TO VERIFY LOCATION AND DEPTH OF EXISTING LATERAL.
13. CONNECT SANITARY SEWER PIPE TO EXISTING SANITARY SEWER MANHOLE. EXISTING SANITARY SEWER MANHOLE SHALL BE CHANNELED TO DIRECT FLOW TO NEW SANITARY SEWER PIPE.
14. EXISTING SANITARY SEWER PIPE TO BE ABANDONED, FILLED WITH CONTROL DENSITY FILL (CDF) AND PLUGGED.
15. INSTALL 48 INCH DIAMETER SANITARY SEWER MANHOLE, OUTSIDE DROP MANHOLE CONNECTIONS AND OVER EXISTING SANITARY SEWER PIPE PER CITY OF WOODBURN DETAIL NO. 6510-3 ON SHEET C505. SEE SHEET C501 TO C504 FOR MANHOLE CONSTRUCTION DATA. GEOTECHNICAL OBSERVATION AND APPROVAL REQUIRED FOR MANHOLE SUBGRADE. OVEREXCAVATION MAY BE REQURIED.

NOTE: MINIMUM CLEANOUT INVERT ELEVATION AT RIGHT OF WAY IS AT A DEPTH OF 8 FEET. CONTRACTOR TO VERIFY LOCATION AND DEPTH OF EXISTING LATERAL AND MATCH EXISTING INVERT ELEVATION.

WOODBURN OREGON Incorporated 1889

CITY OF WOODBURN PROJECT # 2021-006-28

PBS Engineering and Environmental Inc.
4412 S Corbett Avenue
Portland, OR 97239
503.248.1939
pbsusa.com

PBS

YOUNG STREET SANITARY SEWER

SANITARY SEWER LINE 6 & 7 PLAN & PROFILE FOR:
A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

Know what's below. Call before you dig.

REGISTERED PROFESSIONAL ENGINEER
72882PE
OREGON
JUNE 14, 2007
RICHARD D. BOYLE
EXPIRES: 12/31/2023

DESIGNED: DPS
CHECKED: RDB
MAY 20, 2022
74203.000

SHEET ID
C112
SHEET 15 OF 44

Filename: L:\Projects\74000\74203\74203-000\Civil\CAD\Working\Sheets\74203.000-C109-C112.dwg Layout Tab: C112 User: Dan Stolkud CAD Plot Date/Time: 5/20/2022 2:08:19 PM

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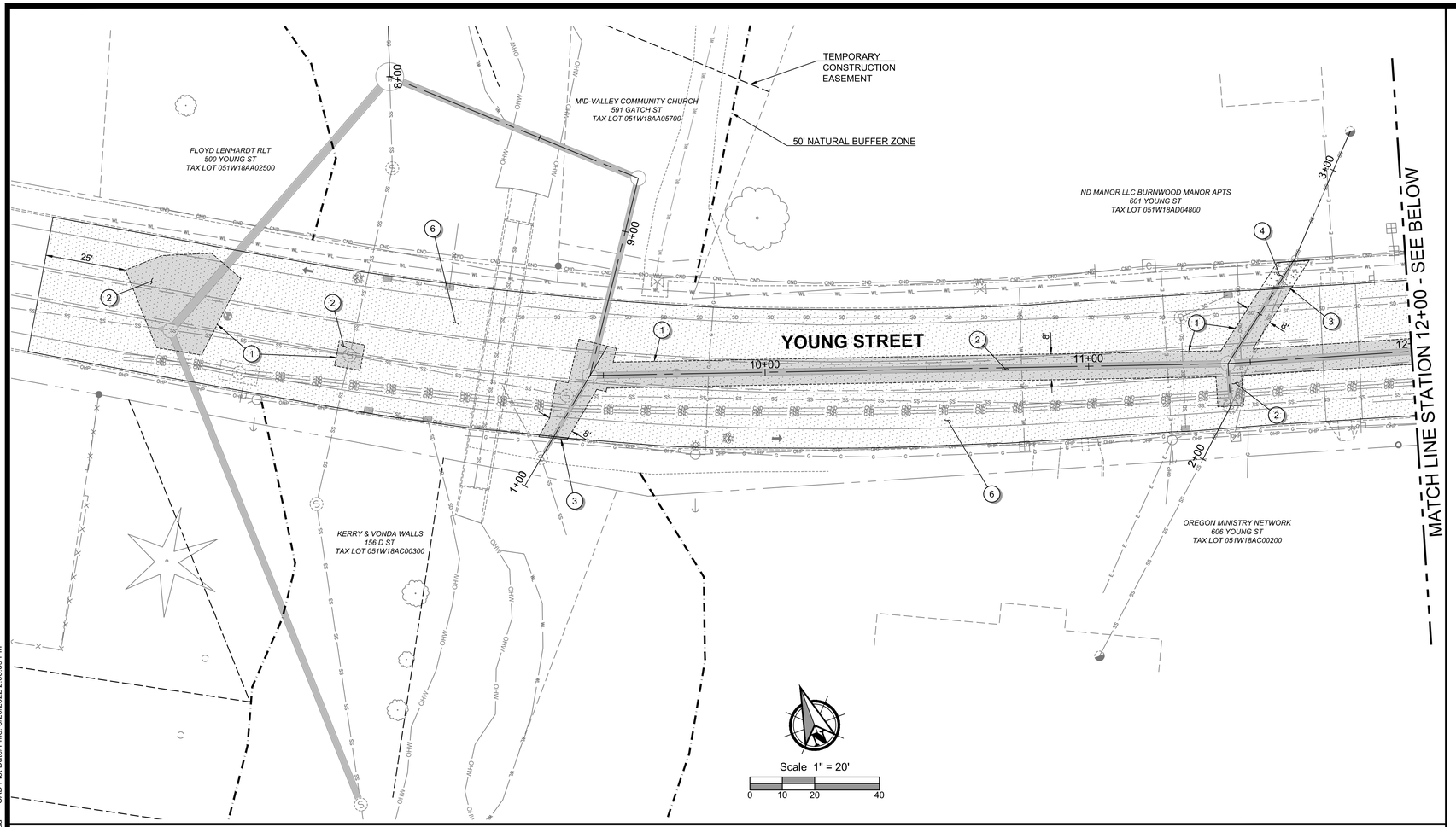

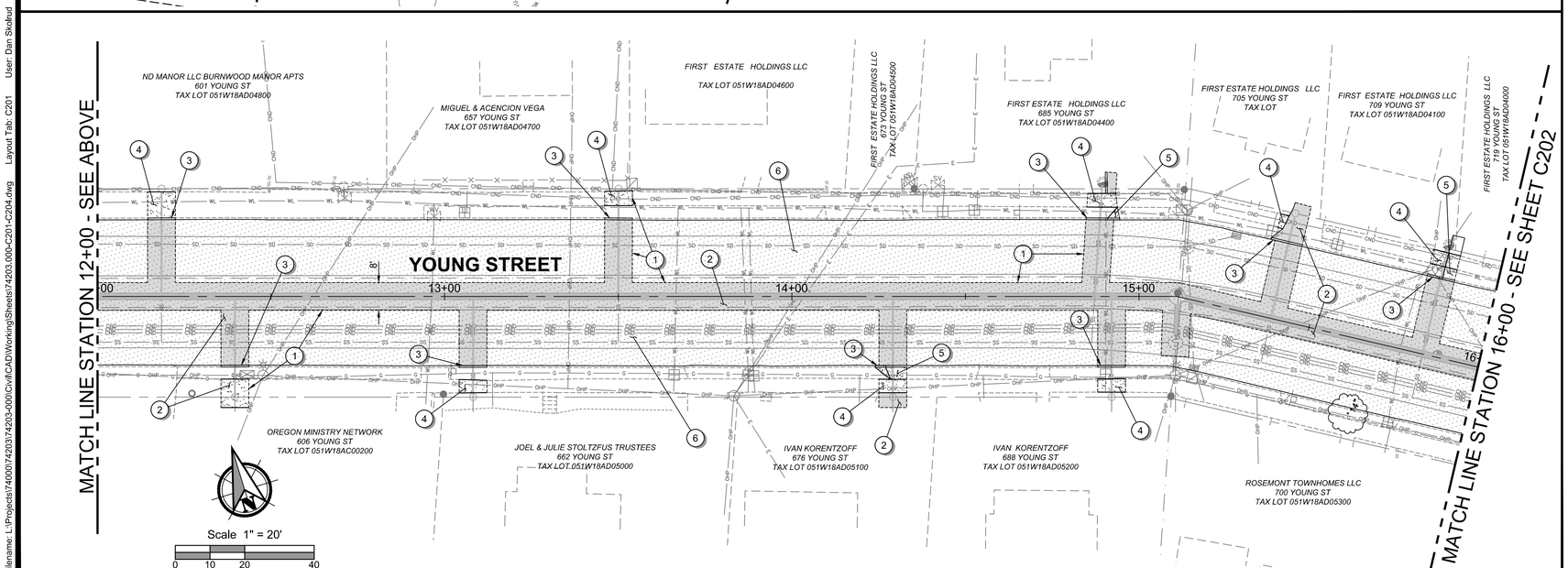

STREET CONSTRUCTION NOTES

1. ASPHALT PAVEMENT SAWCUTTING AT ALL CONNECTIONS (INCLUDES CONCRETE). MATCH NEW SURFACING TO EXISTING SURFACING.
2. CONSTRUCT ACP SECTION PER CITY OF WOODBURN TRENCH CAP DETAIL 3800-5 ON SHEET C505.
3. CONSTRUCT CONCRETE TYPE 'C' CURB, PER CITY OF WOODBURN DETAIL 4100-2 AND 4100-5 ON SHEET C506.
4. CONSTRUCT CONCRETE WALKS CITY OF WOODBURN DETAIL 4150-8 ON SHEET C506.
5. CONSTRUCT CONCRETE DRIVEWAY APPROACH CITY OF WOODBURN DETAIL 4150-1, 4150-3 AND 4150-4 ON SHEET C506.
6. INSTALL EMULSIFIED ASPHALT IN FOG COAT. EXISTING STRIPING, BARS AND LEGEND SYMBOLS SHALL BE REMOVED FROM EXISTING ASPHALT PRIOR TO FOG COAT INSTALLATION.

PBS Engineering and Environmental Inc.
4412 S Corbett Avenue
Portland, OR 97239
503.248.1939
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ROADWAY RESTORATION PLAN FOR: YOUNG STREET SANITARY SEWER

A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

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72882PE
OREGON
JUNE 14, 2007
RICHARD D. BOYLE
EXPIRES: 12/31/2023

DESIGNED: DPS
CHECKED: RDB
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74203.000

SHEET ID
C201

SHEET 16 OF 44

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CITY OF WOODBURN PROJECT # 2021-006-28

Filename: L:\Projects\74000\74203\74203-000\Civil\CAD\Working\Sheets\74203.000-C201-C204.dwg Layout Tab: C201 User: Dan Skolkud CAD Plot Date/Time: 5/20/2022 2:08:59 PM

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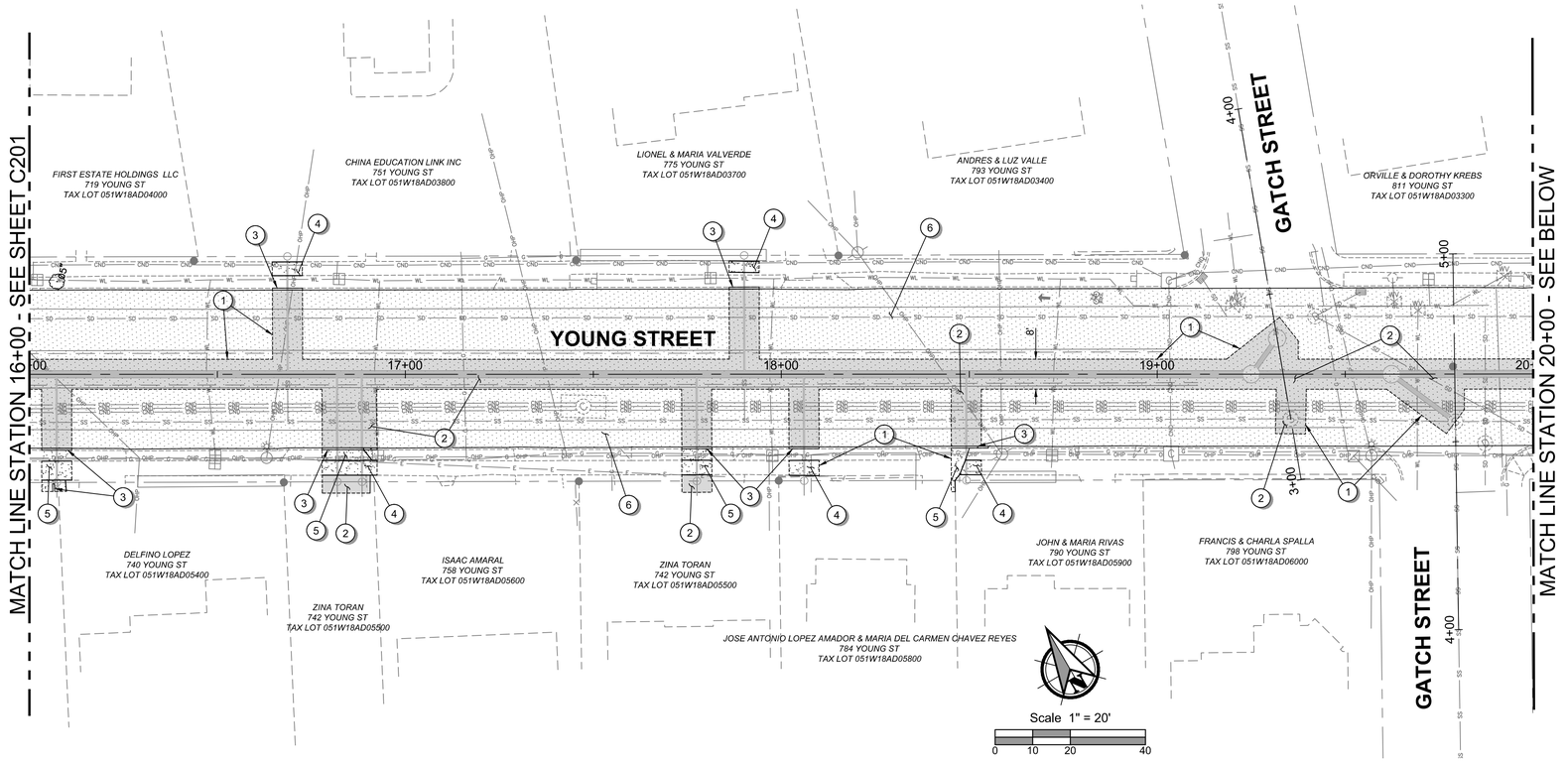

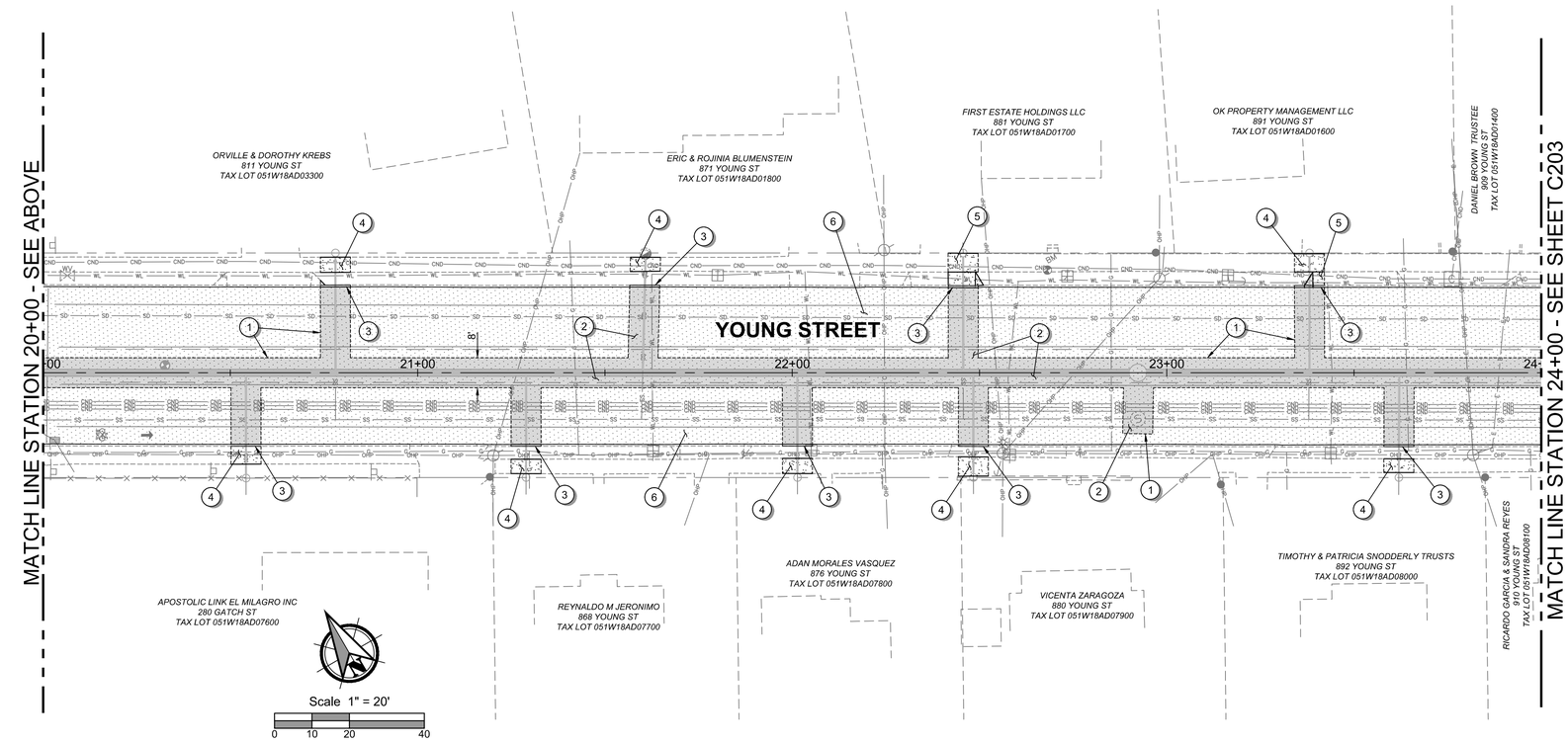

STREET CONSTRUCTION NOTES

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ROADWAY RESTORATION PLAN FOR:

YOUNG STREET SANITARY SEWER

A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

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SHEET ID	C202
SHEET	17 OF 44

WOODBURN OREGON Incorporated 1889

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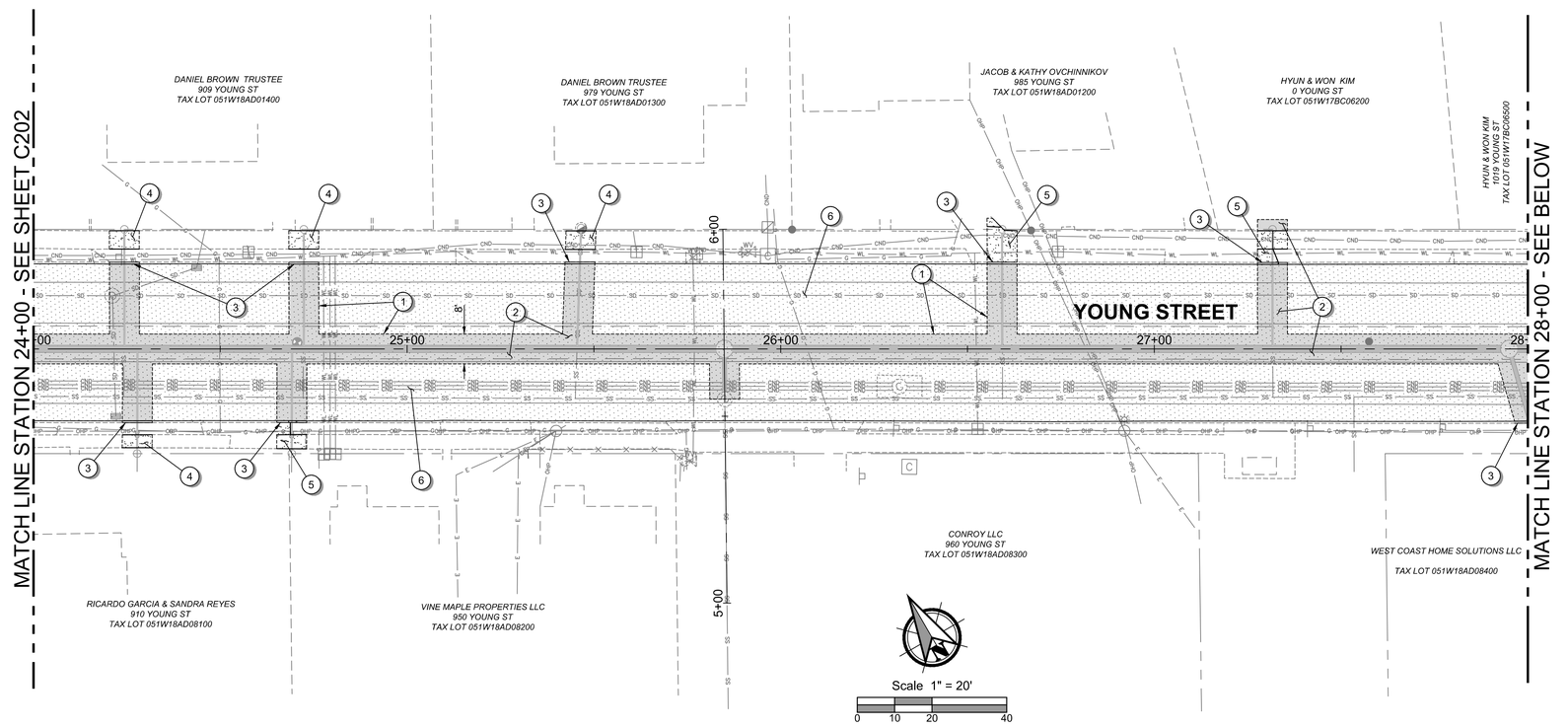

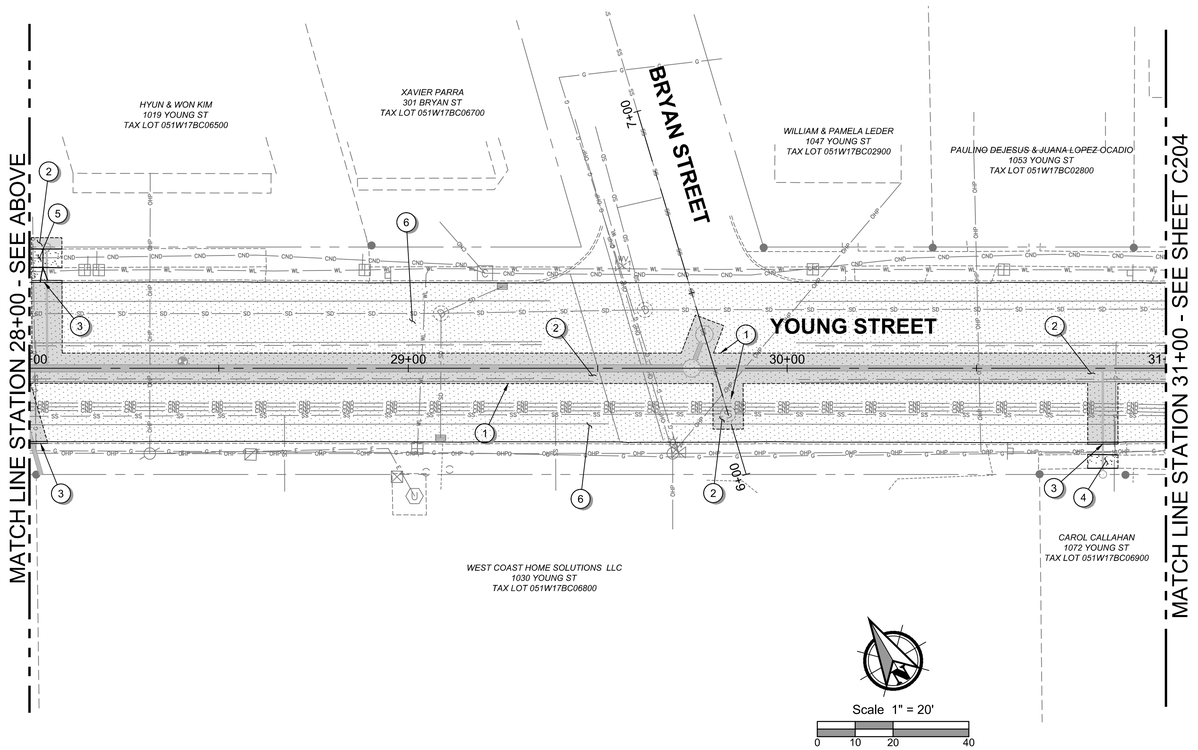

STREET CONSTRUCTION NOTES

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Portland, OR 97239
503.248.1939
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ROADWAY RESTORATION PLAN FOR: YOUNG STREET SANITARY SEWER

A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

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SHEET	18 OF 44

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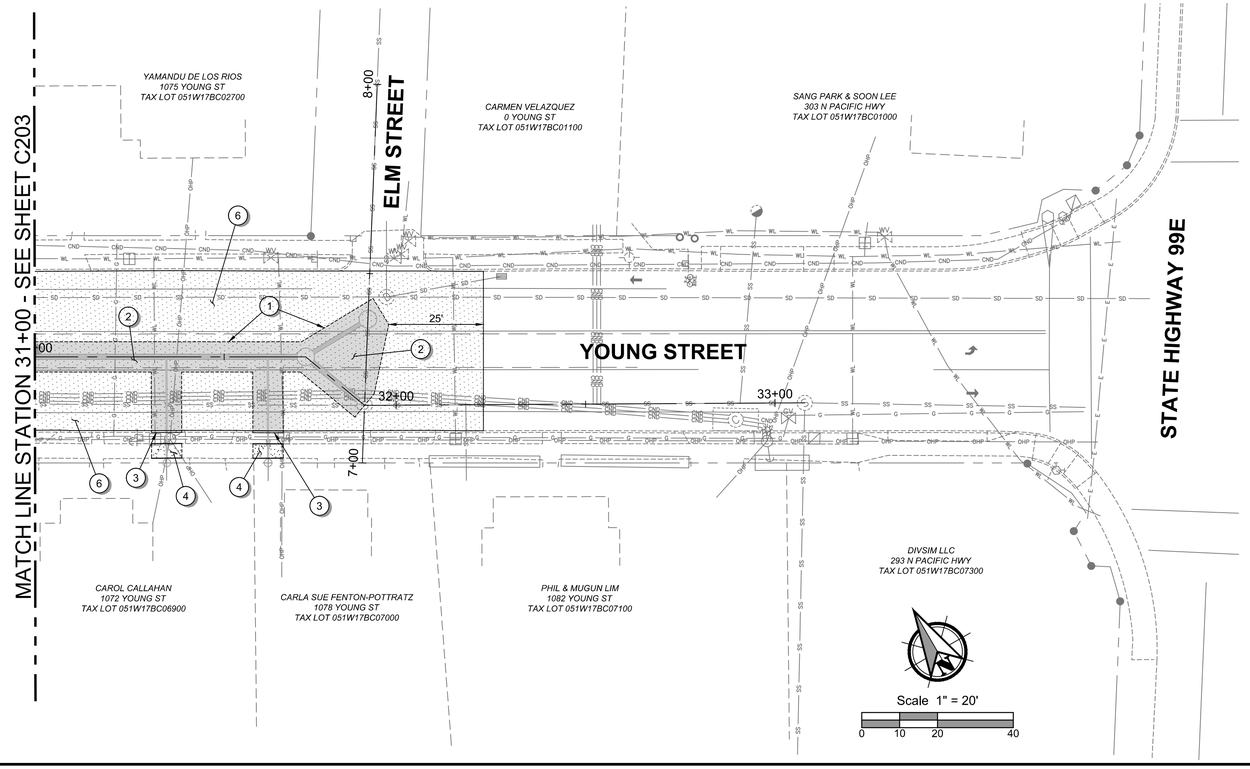
CITY OF WOODBURN PROJECT # 2021-006-28



STREET CONSTRUCTION NOTES

1. ASPHALT PAVEMENT SAWCUTTING AT ALL CONNECTIONS (INCLUDES CONCRETE). MATCH NEW SURFACING TO EXISTING SURFACING.
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Portland, OR 97239
503.248.1939
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ROADWAY RESTORATION PLAN FOR:

YOUNG STREET SANITARY SEWER

A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

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RICHARD D. BOYLE
EXPIRES: 12/31/2023

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SHEET 19 OF 44

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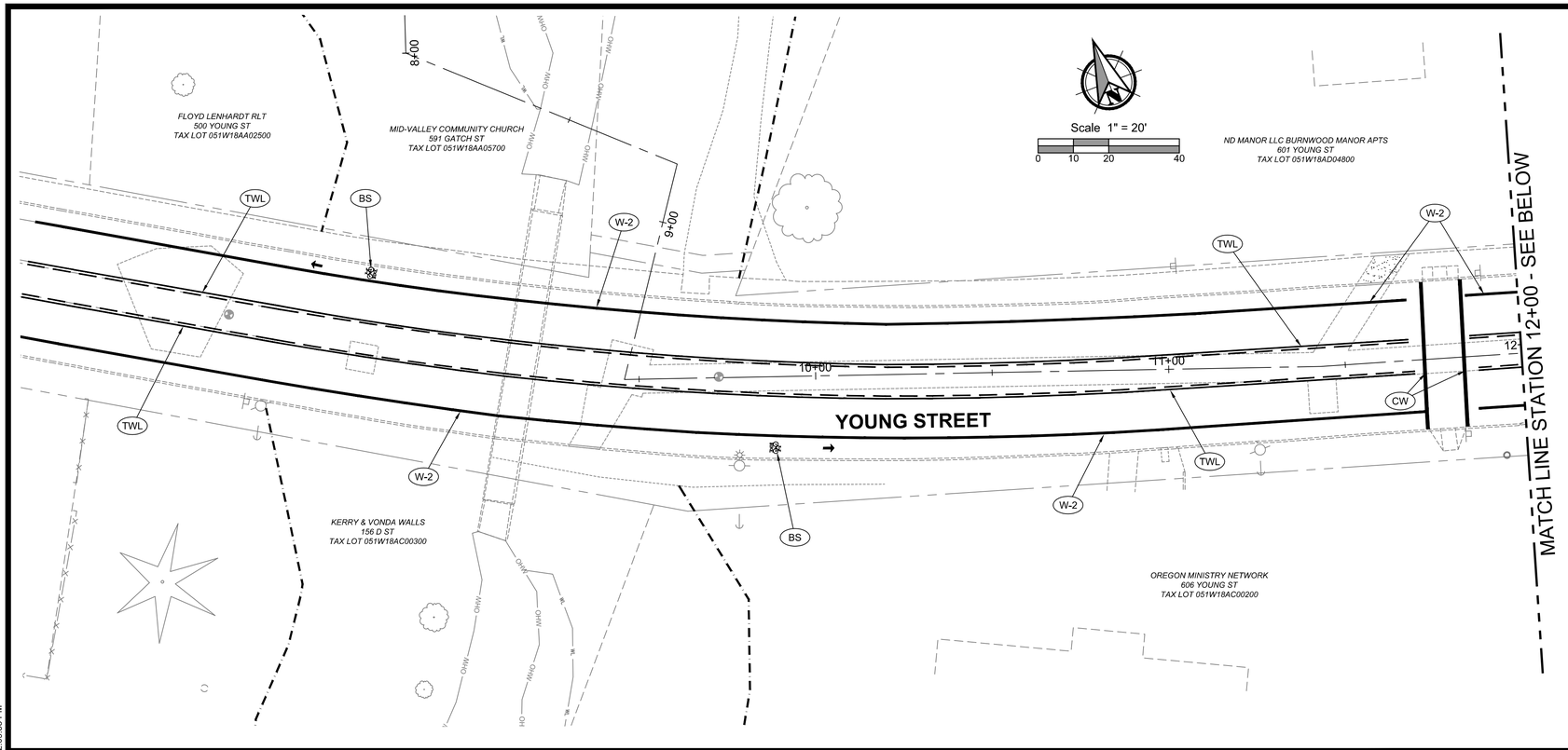

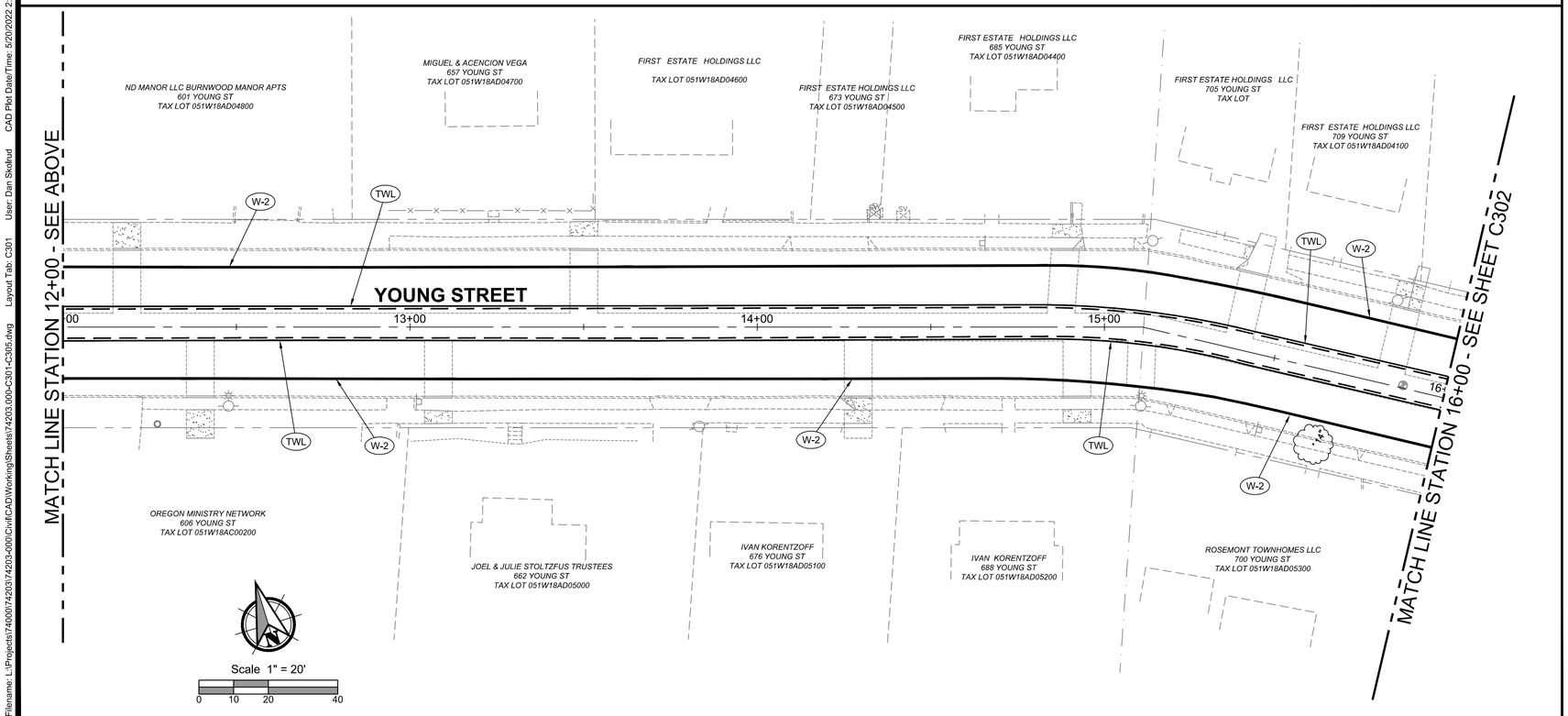

STRIPING NOTES

(W-2) INSTALL PAINTED 8" WHITE LINE PER ODOT STANDARD DRAWING TM500 ON SHEET C305.

(TWL) INSTALL PAINTED TWO-WAY LEFT TURN 4" YELLOW LINES PER ODOT STANDARD DRAWING TM500 ON SHEET C305.

(CW) INSTALL STANDARD PLASTIC CROSSWALK TWO 1' WHITE BARS PER ODOT STANDARD DRAWING TM503 ON SHEET C305. CROSSWALK SHALL BE INSTALLED PER ODOT STANDARD DRAWING TM530 ON SHEET C305.

(BS) INSTALL PLASTIC BIKE LANE STANDARD SYMBOL PER ODOT STANDARD DRAWING TM503 ON SHEET C305.

PBS Engineering and Environmental Inc.
4412 S Corbett Avenue
Portland, OR 97239
503.248.1939
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STRIPING RESTORATION PLAN FOR:
YOUNG STREET SANITARY SEWER
A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

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OREGON
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RICHARD D. BOYLE
EXPIRES: 12/31/2023

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SHEET ID
C301
SHEET 20 OF 44

WOODBURN OREGON Incorporated 1889

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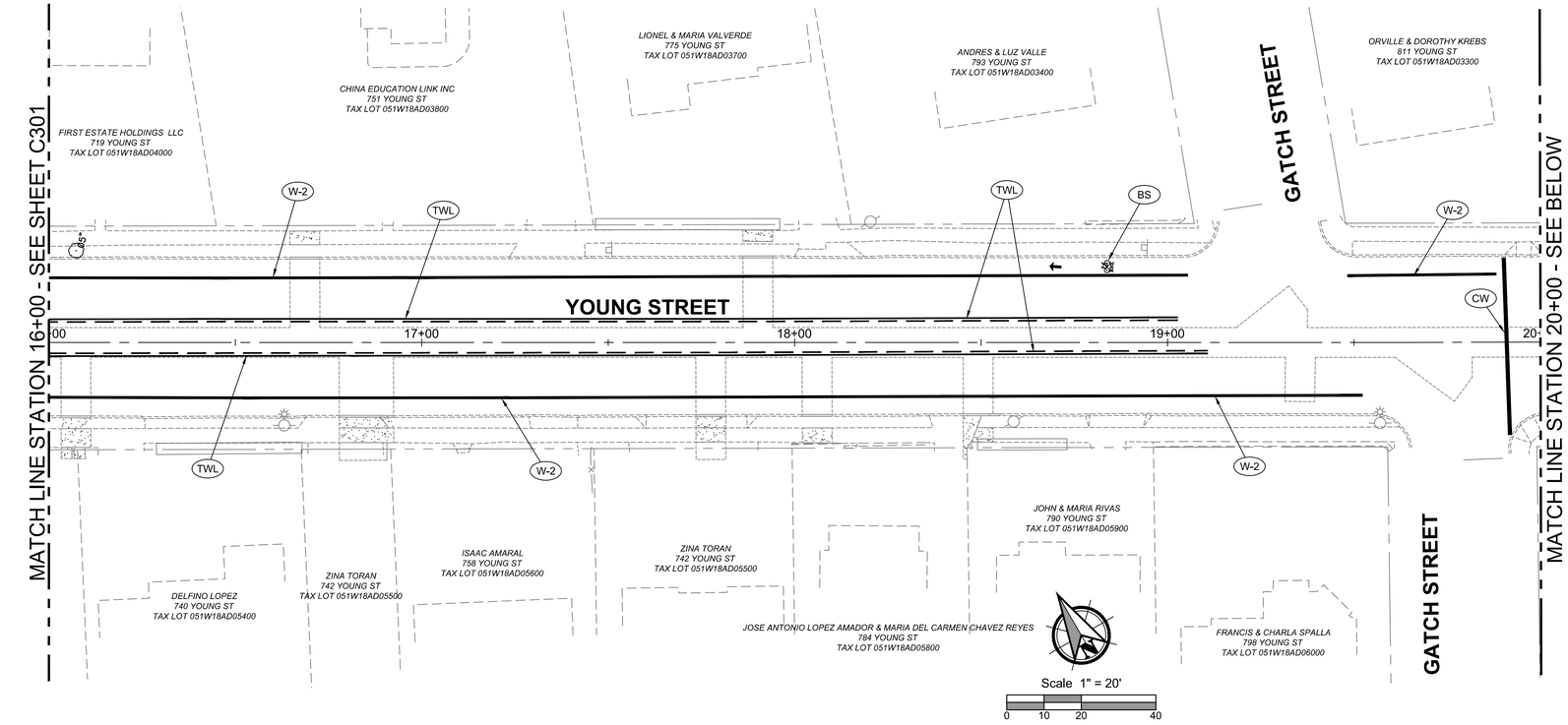

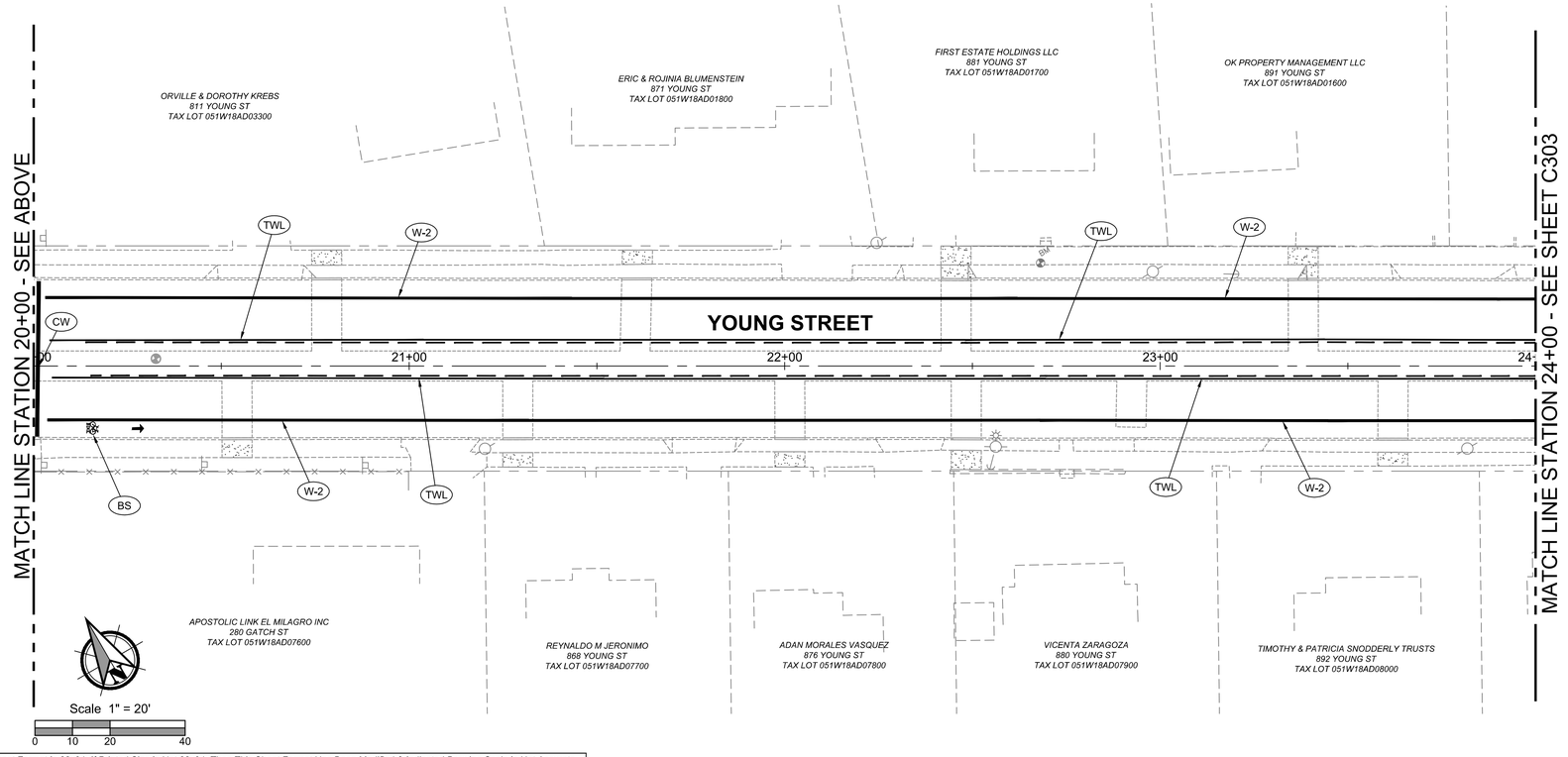

STRIPING NOTES

(W-2) INSTALL PAINTED 8" WHITE LINE PER ODOT STANDARD DRAWING TM500 ON SHEET C305.

(TWL) INSTALL PAINTED TWO-WAY LEFT TURN 4" YELLOW LINES PER ODOT STANDARD DRAWING TM500 ON SHEET C305.

(CW) INSTALL STANDARD PLASTIC CROSSWALK TWO 1' WHITE BARS PER ODOT STANDARD DRAWING TM503 ON SHEET C305. CROSSWALK SHALL BE INSTALLED PER ODOT STANDARD DRAWING TM530 ON SHEET C305.

(BS) INSTALL PLASTIC BIKE LANE STANDARD SYMBOL PER ODOT STANDARD DRAWING TM503 ON SHEET C305.

PBS Engineering and Environmental Inc.
4412 S Corbett Avenue
Portland, OR 97239
503.248.1939
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STRIPING RESTORATION PLAN FOR:

YOUNG STREET SANITARY SEWER

A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

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OREGON
JUNE 14, 2007
RICHARD D. BOYLE
EXPIRES: 12/31/2023

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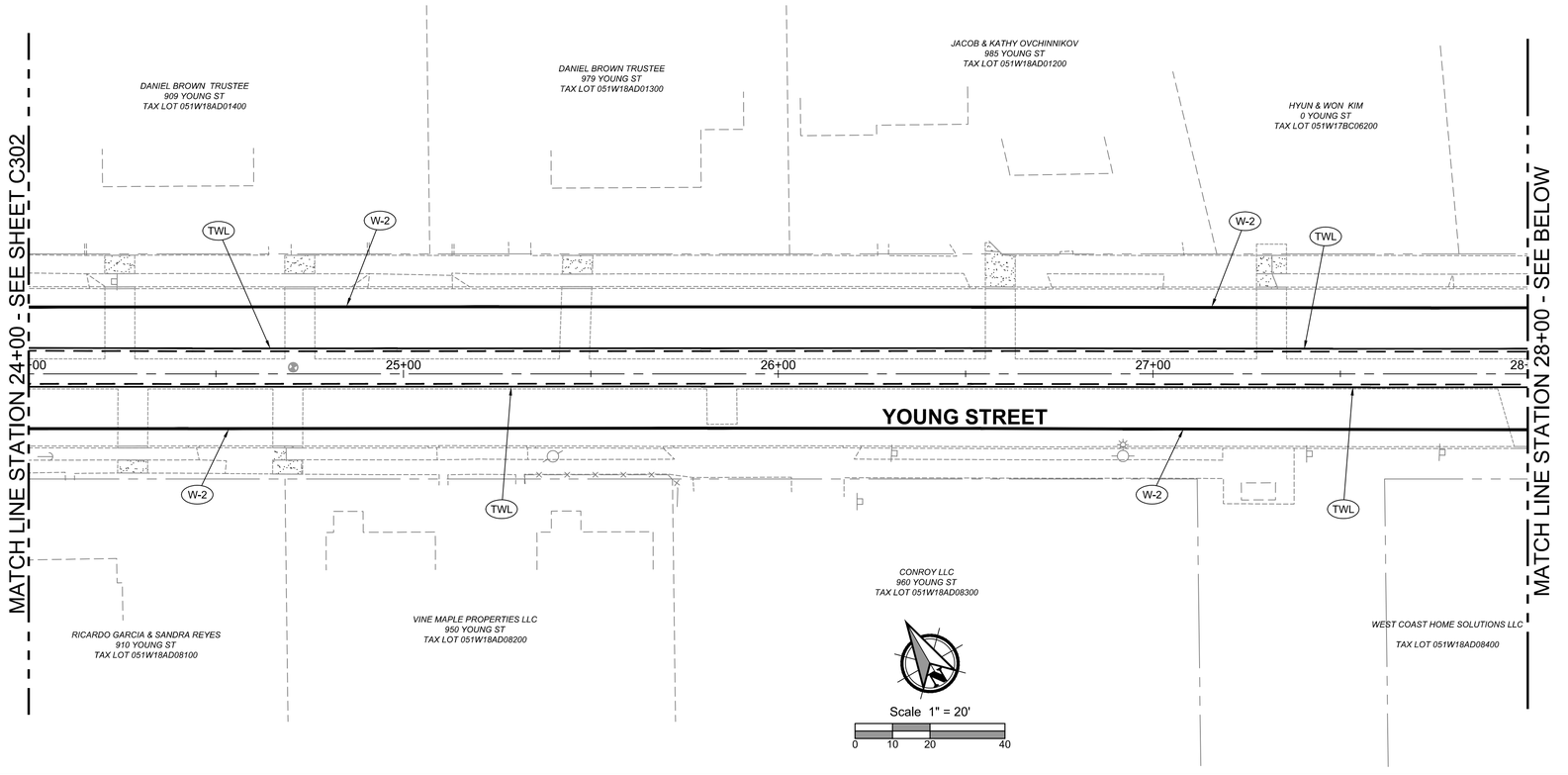
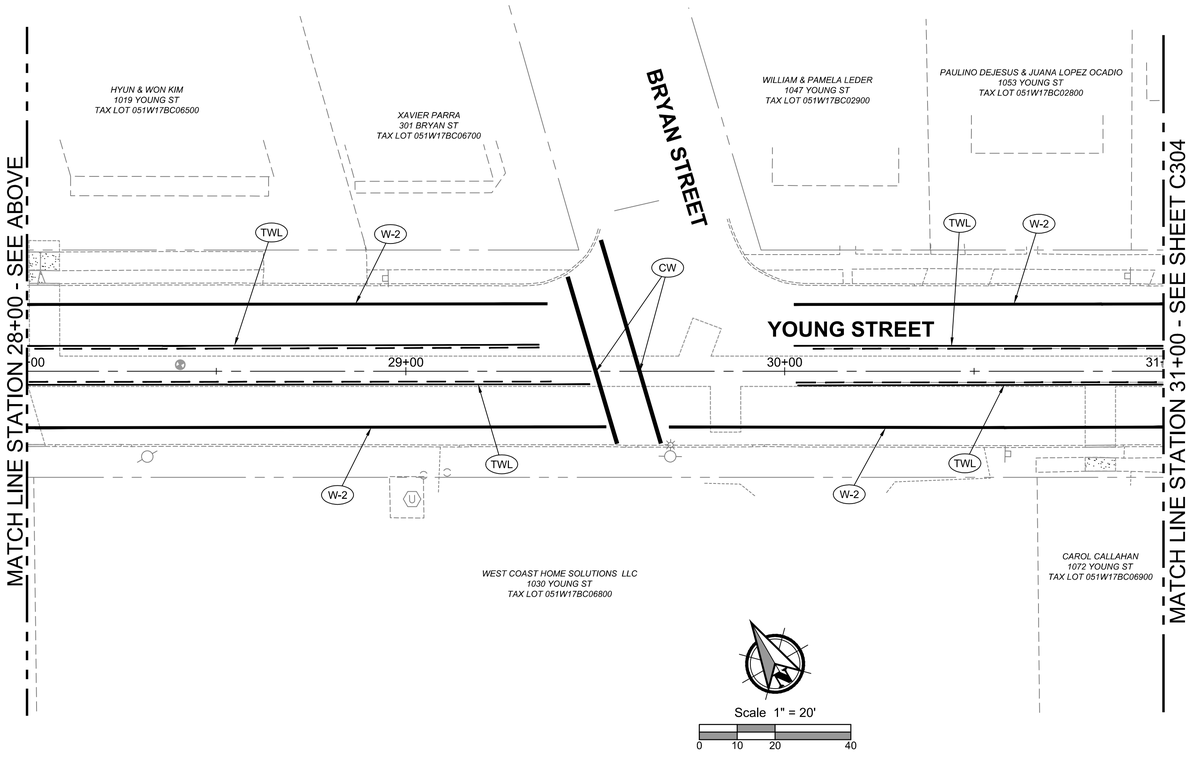
SHEET	21 OF 44

WOODBURN OREGON Incorporated 1889

CITY OF WOODBURN PROJECT # 2021-006-28





STRIPING NOTES

(W-2) INSTALL PAINTED 8" WHITE LINE PER ODOT STANDARD DRAWING TM500 ON SHEET C305.

(TWL) INSTALL PAINTED TWO-WAY LEFT TURN 4" YELLOW LINES PER ODOT STANDARD DRAWING TM500 ON SHEET C305.

(CW) INSTALL STANDARD PLASTIC CROSSWALK TWO 1' WHITE BARS PER ODOT STANDARD DRAWING TM503 ON SHEET C305. CROSSWALK SHALL BE INSTALLED PER ODOT STANDARD DRAWING TM530 ON SHEET C305.

(BS) INSTALL PLASTIC BIKE LANE STANDARD SYMBOL PER ODOT STANDARD DRAWING TM503 ON SHEET C305.

PBS Engineering and Environmental Inc.
4412 S Corbett Avenue
Portland, OR 97239
503.248.1939
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STRIPING RESTORATION PLAN FOR:

YOUNG STREET SANITARY SEWER

A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

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REGISTERED PROFESSIONAL ENGINEER
72882PE
OREGON
JUNE 14, 2007
RICHARD D. BOYLE
EXPIRES: 12/31/2023

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MAY 20, 2022	74203.000
SHEET ID	C303
SHEET	22 OF 44

WOODBURN OREGON Incorporated 1889

CITY OF WOODBURN PROJECT # 2021-006-28

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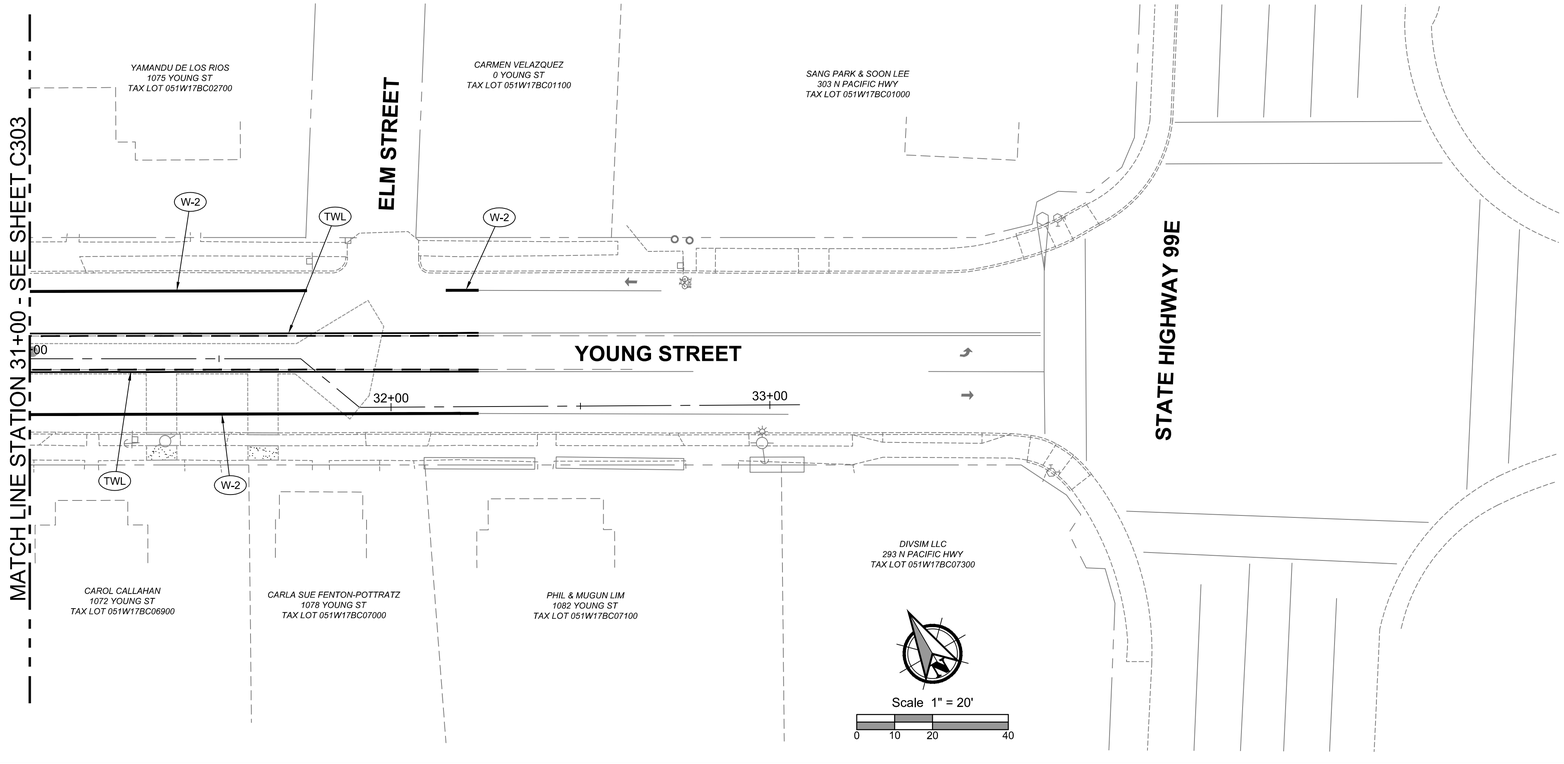

STRIPING NOTES

(W-2) INSTALL PAINTED 8" WHITE LINE PER ODOT STANDARD DRAWING TM500 ON SHEET C305.

(TWL) INSTALL PAINTED TWO-WAY LEFT TURN 4" YELLOW LINES PER ODOT STANDARD DRAWING TM500 ON SHEET C305.

(CW) INSTALL STANDARD PLASTIC CROSSWALK TWO 1' WHITE BARS PER ODOT STANDARD DRAWING TM503 ON SHEET C305. CROSSWALK SHALL BE INSTALLED PER ODOT STANDARD DRAWING TM530 ON SHEET C305.

(BS) INSTALL PLASTIC BIKE LANE STANDARD SYMBOL PER ODOT STANDARD DRAWING TM503 ON SHEET C305.

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Portland, OR 97239
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STRIPING RESTORATION PLAN FOR:

YOUNG STREET SANITARY SEWER

A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

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REGISTERED PROFESSIONAL ENGINEER
72882PE
OREGON
JUNE 14, 2007
RICHARD D. BOYLE
EXPIRES: 12/31/2023

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MAY 20, 2022
74203.000

SHEET ID
C304
SHEET 23 OF 44

WOODBURN OREGON Incorporated 1889

CITY OF WOODBURN PROJECT # 2021-006-28

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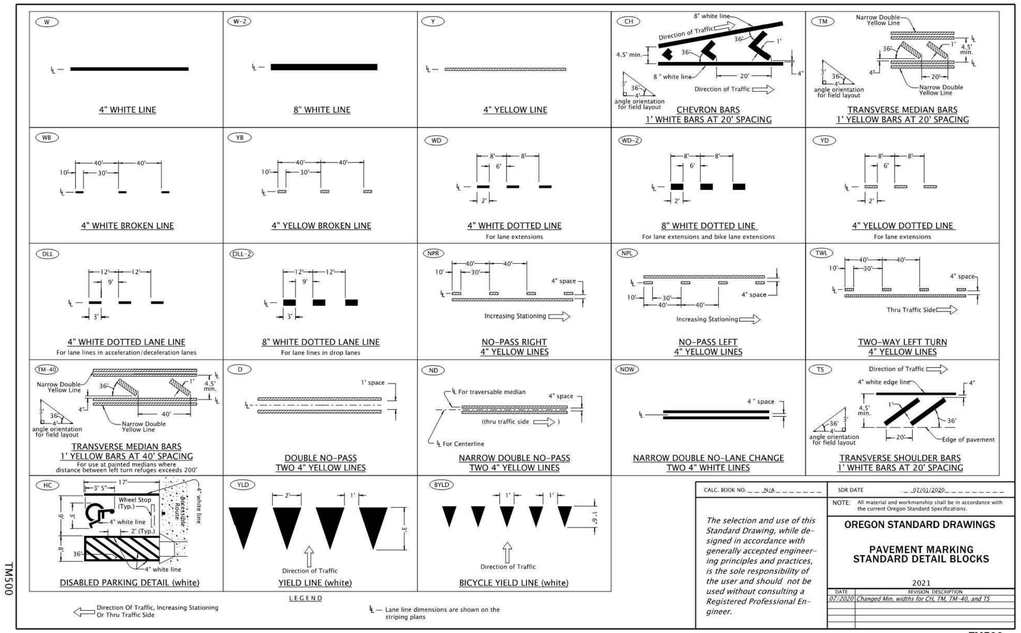


CALC. BOOK NO. ___N/A_____ SDR DATE __01/01/2020__

NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.

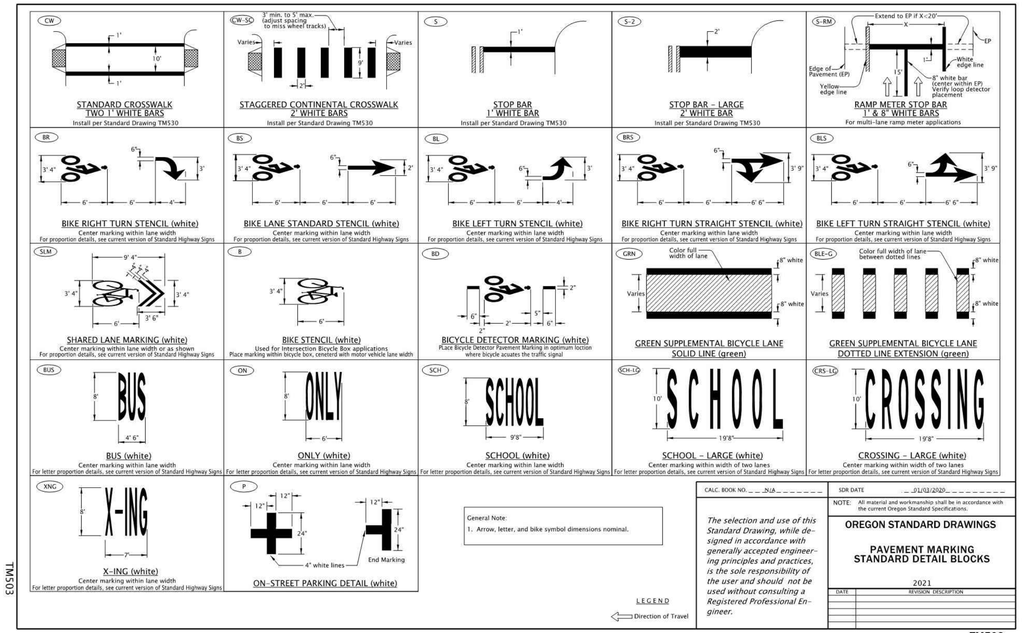
OREGON STANDARD DRAWINGS

PAVEMENT MARKING STANDARD DETAIL BLOCKS

2021

DATE	REVISION DESCRIPTION
07/2020	Changed Min. widths for CH, TM, TM-40, and TS

Effective Date: December 01, 2021 - May 31, 2022 TM500



CALC. BOOK NO. ___N/A_____ SDR DATE __01/01/2020__

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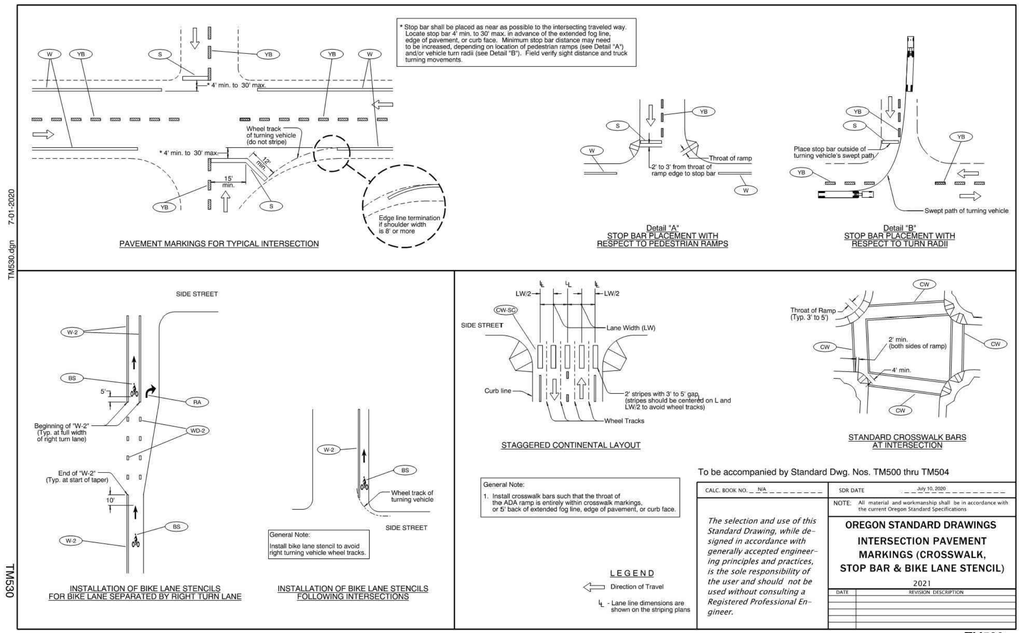
OREGON STANDARD DRAWINGS

PAVEMENT MARKING STANDARD DETAIL BLOCKS

2021

DATE	REVISION DESCRIPTION

Effective Date: December 01, 2021 - May 31, 2022 TM503



To be accompanied by Standard Dwg. Nos. TM500 thru TM504

CALC. BOOK NO. ___N/A_____ SDR DATE __July 10, 2020__

NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.

OREGON STANDARD DRAWINGS

INTERSECTION PAVEMENT MARKINGS (CROSSWALK, STOP BAR & BIKE LANE STENCIL)

2021

DATE	REVISION DESCRIPTION

Effective Date: December 01, 2021 - May 31, 2022 TM530

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503.248.1939
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STRIPING RESTORATION DETAILS FOR: YOUNG STREET SANITARY SEWER

A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

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CITY OF WOODBURN PROJECT # 2021-006-28

Filename: L:\Projects\74000\74203\74203-000\CivilCAD\Working\Sheets\74203.000-C301-C305.dwg Layout Tab: C305 User: Dan Skokut CAD Plot Date/Time: 5/20/2022 2:10:10 PM

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A

YOUNG STREET
ROAD WORK AHEAD
EXPECT DELAYS

48"x36"
(POST MOUNT)

DATE to DATE

36"x12"

B

ROAD
WORK
AHEAD

W20-1
36"x36"

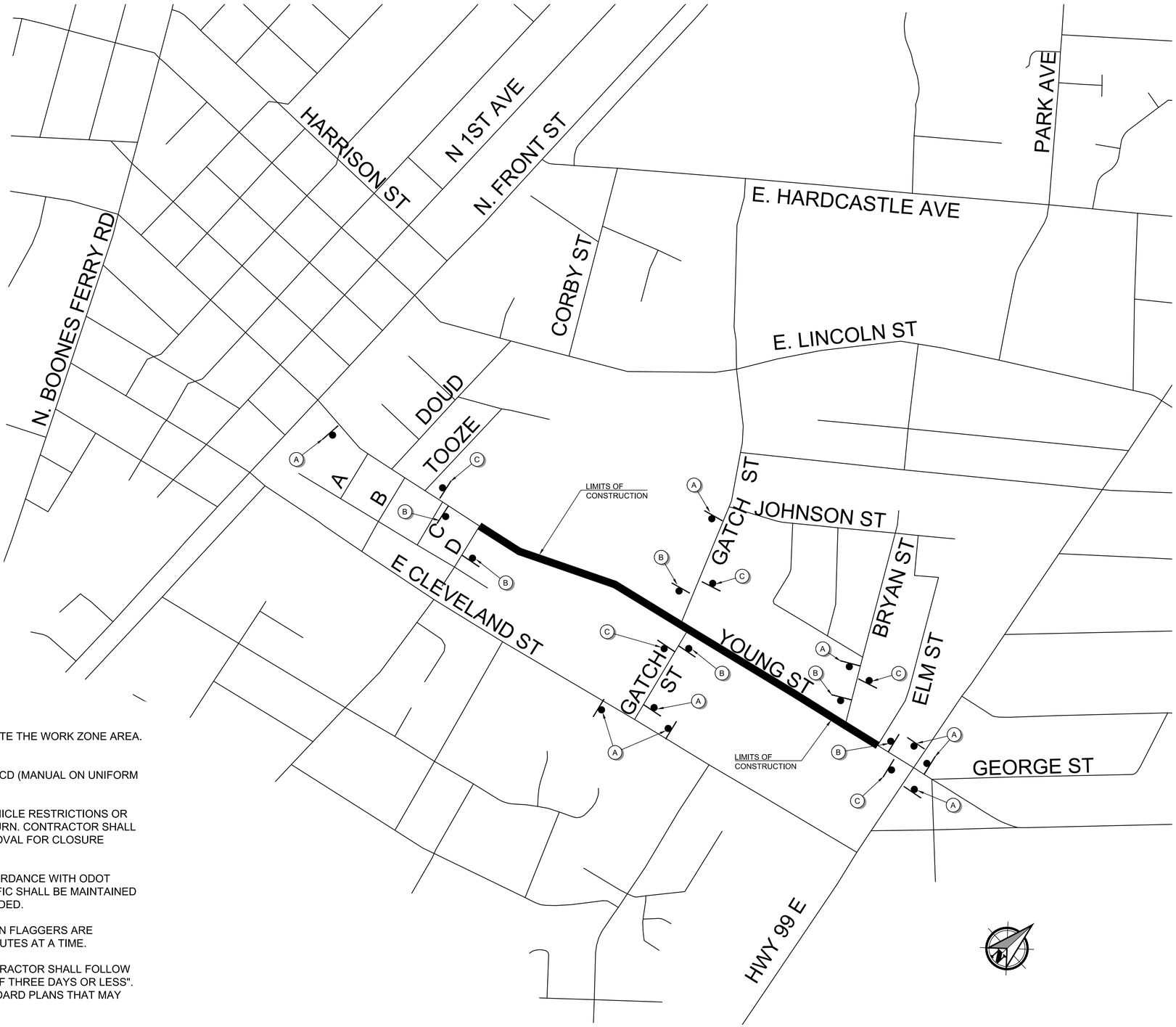
YOUNG STREET

36"x6"

C

END
ROAD WORK

G20-2
24"x18"



GENERAL NOTES:

1. ALL SIGN DIMENSIONS LISTED IN INCHES UNLESS OTHERWISE NOTED.
2. ALL SIGNS TO BE TYPE "04" UNLESS OTHERWISE NOTED ON PLANS.
3. TRAFFIC CONTROL SHALL BE MODIFIED ON A DAILY BASIS TO ACCOMMODATE THE WORK ZONE AREA. TRAFFIC CONTROL WORK ZONE SHALL BE LIMITED TO TRENCHED AREAS.
4. ALL TRAFFIC CONTROL IS TO BE IN ACCORDANCE WITH THE CURRENT MUTCD (MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES).
5. ACCESS SHALL BE MAINTAINED AT ALL TIMES TO YOUNG STREET WITH VEHICLE RESTRICTIONS OR SHORT TERM CLOSURES FOR PAVING FOR APPROVAL BY CITY OF WOODBURN. CONTRACTOR SHALL MINIMIZE CLOSURES AT PUBLIC STREET CONNECTIONS AND OBTAIN APPROVAL FOR CLOSURE DURATIONS BY CITY OF WOODBURN.
6. SINGLE LANE TWO-WAY TRAFFIC WITH FLAGGERS SHALL BE DONE IN ACCORDANCE WITH ODOT STANDARD DRAWING TM850. UNOBSTRUCTED TWO LANE, TWO-WAY TRAFFIC SHALL BE MAINTAINED OUTSIDE OF CONSTRUCTION HOURS UNLESS 24 HOUR FLAGGING IS PROVIDED.
7. SINGLE LANE TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES WHEN FLAGGERS ARE PRESENT. FLAGGERS SHALL NOT DETAIN TRAFFIC FOR MORE THAN 20 MINUTES AT A TIME.
8. FOR WORK REQUIRING DEVICES IN PLACE FOR 3 DAYS OR LESS, THE CONTRACTOR SHALL FOLLOW "OREGON TEMPORARY TRAFFIC CONTROL HANDBOOK FOR OPERATIONS OF THREE DAYS OR LESS". ALL OTHER OPERATIONS SHALL FOLLOW ODOT'S TRAFFIC CONTROL STANDARD PLANS THAT MAY APPLY.
9. CONTRACTOR TO MAINTAIN DRIVEWAY ACCESSES.
10. STAGE SIDEWALK CONSTRUCTION TO BE ONE SIDE OF THE STREET AT A TIME.
11. THE CONTRACTOR SHALL PREPARE FORMAL TRAFFIC CONTROL PLANS AND OBTAIN APPROVAL FROM THE CITY OF WOODBURN.

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WOODBURN
OREGON
Incorporated 1889

CITY OF WOODBURN PROJECT # 2021-006-28

PBS Engineering and Environmental Inc.
4412 S Corbett Avenue
Portland, OR 97239
503.248.1939
pbsusa.com

PBS

TRAFFIC CONTROL PLAN FOR:

YOUNG STREET SANITARY SEWER

A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

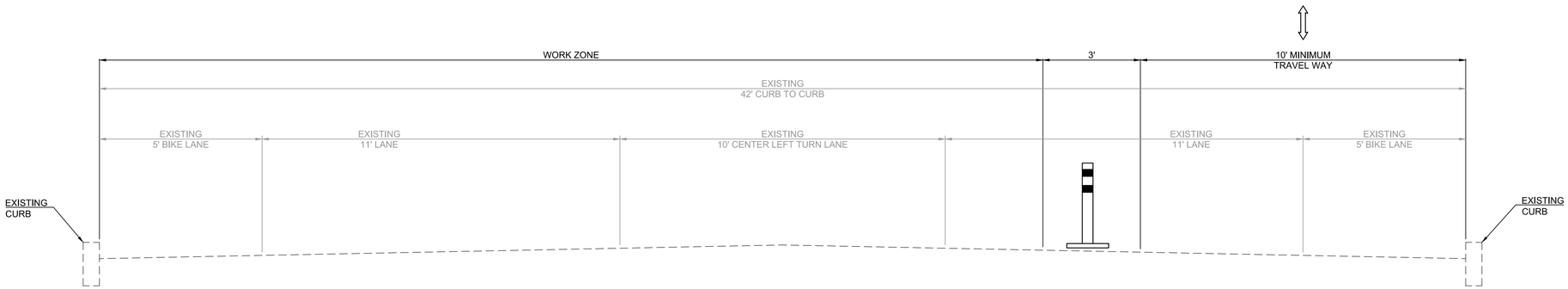
Know what's below. Call before you dig.

REGISTERED PROFESSIONAL ENGINEER
72882PE
OREGON
JUNE 14, 2007
RICHARD D. BOYLE
EXPIRES: 12/31/2023

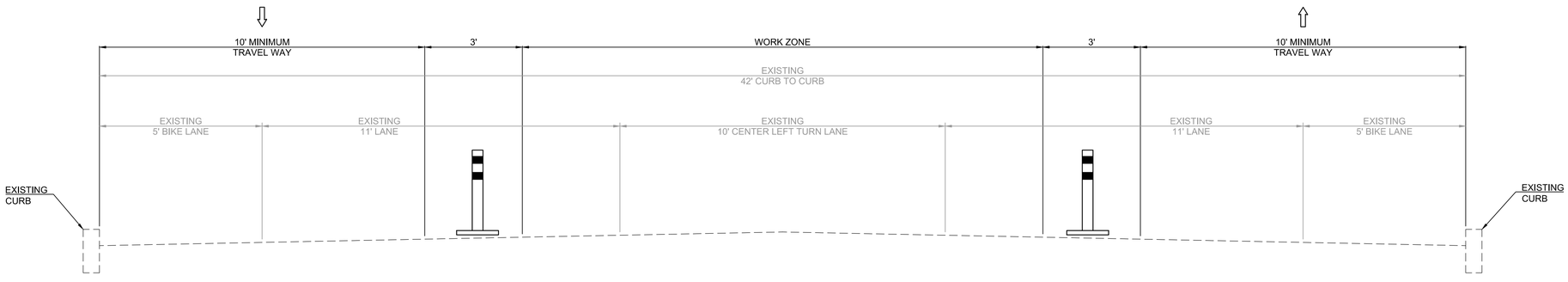
DESIGNED: DPS
CHECKED: RDB
MAY 20, 2022
74203.000

SHEET ID
C401
SHEET 25 OF 44

Filename: L:\Projects\74000\74203\74203-000\Civil\CAD\Working\Sheets\74203.000-C401-C402.dwg Layout Tab: C401 User: Dan Skolfrud CAD Plot Date/Time: 5/20/2022 2:10:19 PM



YOUNG STREET
FLAGGING TRAFFIC CONFIGURATION



YOUNG STREET
NON-WORKING HOURS TRAFFIC CONFIGURATION

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TRAFFIC CONTROL PLAN FOR:
YOUNG STREET SANITARY SEWER
A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

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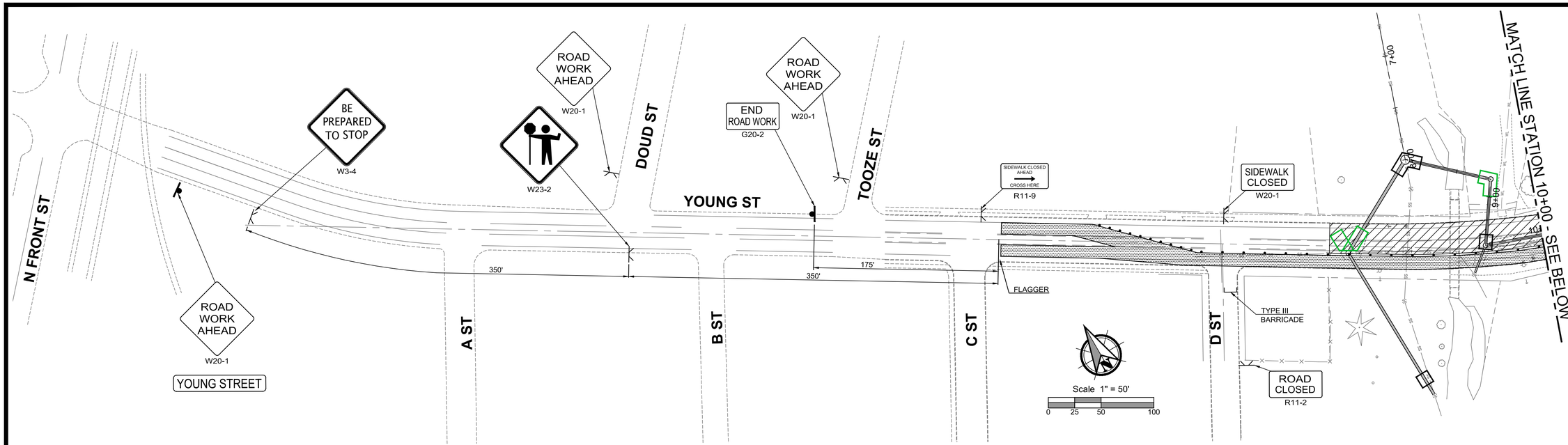
REGISTERED PROFESSIONAL ENGINEER
72882PE
OREGON
JUNE 14, 2007
RICHARD D. BOYLE
EXPIRES: 12/31/2023

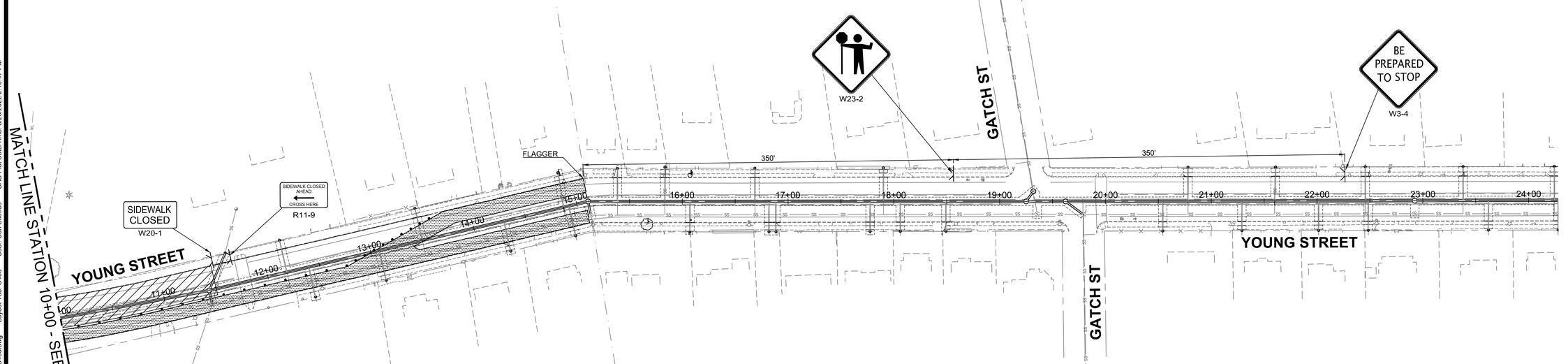
DESIGNED: DPS
CHECKED: RDB
MAY 20, 2022
74203.000

SHEET ID
C402
SHEET 26 OF 44

Filename: L:\Projects\74000\74203\74203-000\Civil\CAD\Working\Sheets\74203.000-C401-C402.dwg Layout Tab: C402 User: Dan Skofeld CAD Plot Date/Time: 5/20/2022 2:10:25 PM



STAGE 1 - TRENCHLESS MAIN INSTALLATION AND TRENCHED MAIN INSTALLATION TO SS MH 101-4 AND ROADWAY RESTORATION



LEGEND

- UNDER TRAFFIC
- UNDER CONSTRUCTION
- 28" TUBULAR MARKERS WITH 20' SPACING AND 10' SPACING ON TANGENTS, TAPERS AND RADII
- TYPE III BARRICADE
- TSS SIGN SUPPORT AS SHOWN ON ODOT STANDARD DRAWING TM821
- POST MOUNTED CONSTRUCTION SIGN

SEE SHEET C401 FOR GENERAL NOTES AND TRAFFIC CONTROL TYPICAL SECTIONS.

WOODBURN OREGON Incorporated 1889

CITY OF WOODBURN PROJECT # 2021-006-28

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TRAFFIC CONTROL PLAN - STAGE 1 FOR: YOUNG STREET SANITARY SEWER

A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

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72882PE
OREGON
JUNE 14, 2001
RICHARD D. BOYLE
EXPIRES: 12/31/2023

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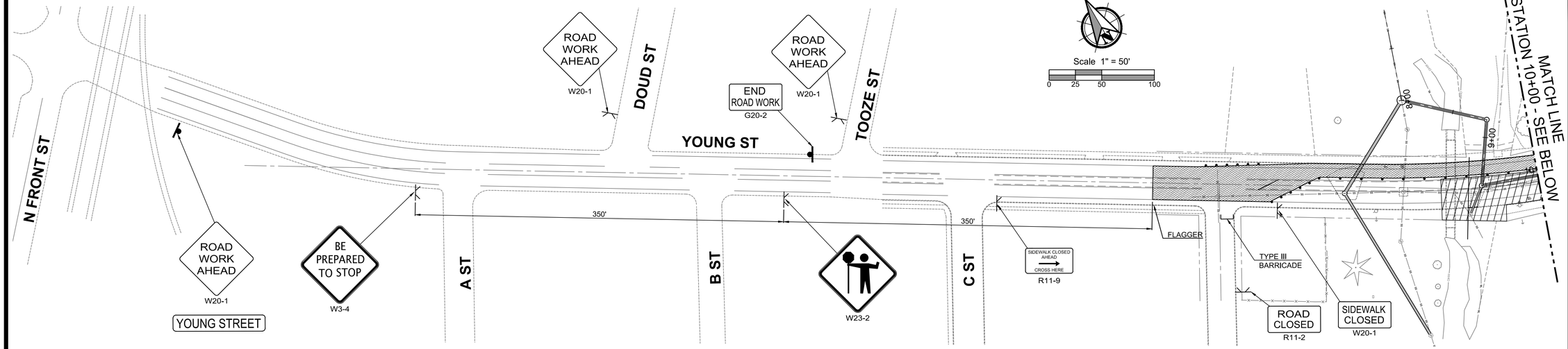
CHECKED: RDB
MAY 20, 2022 74203.000

SHEET ID C403

SHEET 27 OF 44

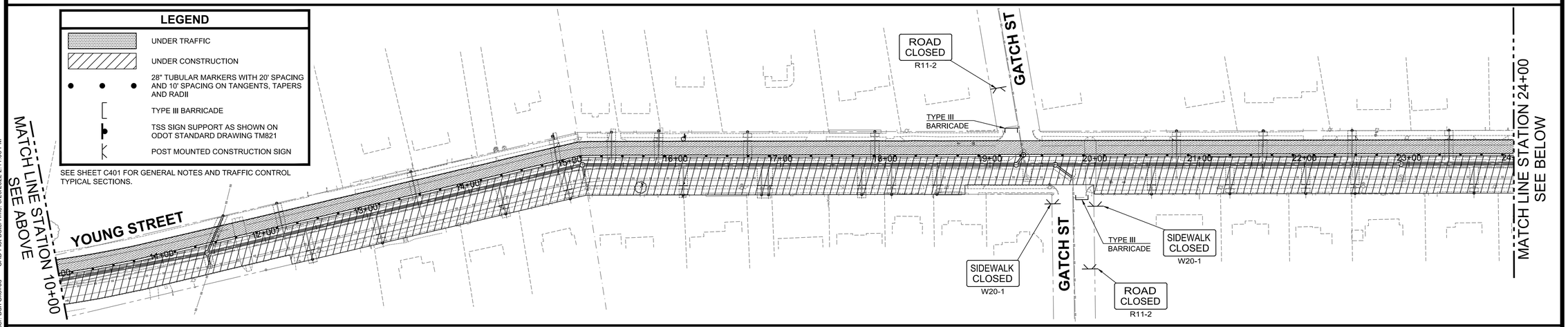


STAGE 2 - INSTALL TRENCHED MAIN FROM SS MH 101-4 TO END OF MAIN INSTALLATION, SANITARY SEWER SERVICE LATERAL INSTALLATION AND ROADWAY RESTORATION ON THE SOUTH SIDE OF YOUNG STREET

LEGEND

- UNDER TRAFFIC
- UNDER CONSTRUCTION
- 28" TUBULAR MARKERS WITH 20' SPACING AND 10' SPACING ON TANGENTS, TAPERS AND RADII
- TYPE III BARRICADE
- TSS SIGN SUPPORT AS SHOWN ON ODOT STANDARD DRAWING TM821
- POST MOUNTED CONSTRUCTION SIGN

SEE SHEET C401 FOR GENERAL NOTES AND TRAFFIC CONTROL TYPICAL SECTIONS.



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PREPARED FOR:

YOUNG STREET SANITARY SEWER

TRAFFIC CONTROL PLAN - STAGE 2 FOR A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

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RICHARD D. BOYLE
EXPIRES: 12/31/2023

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CITY OF WOODBURN PROJECT # 2021-006-28

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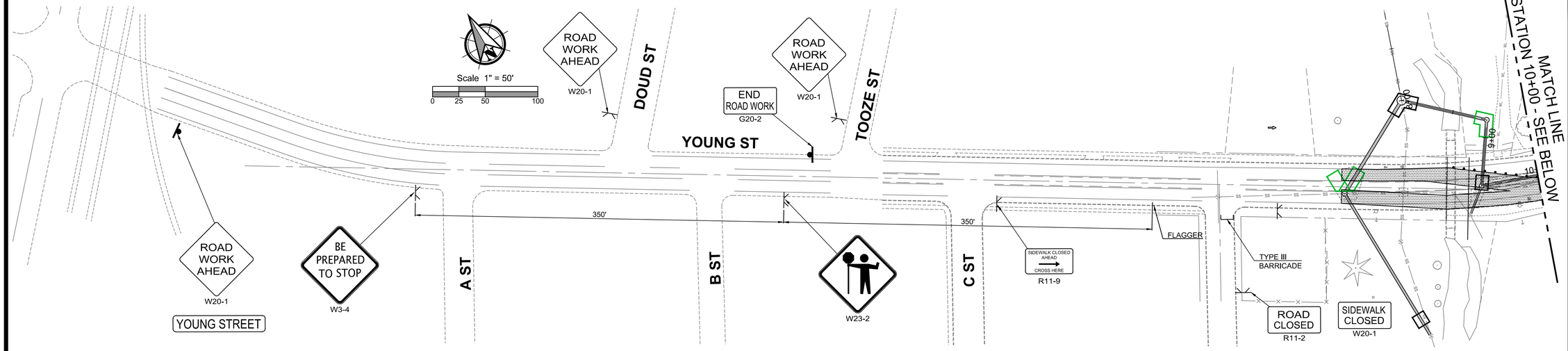
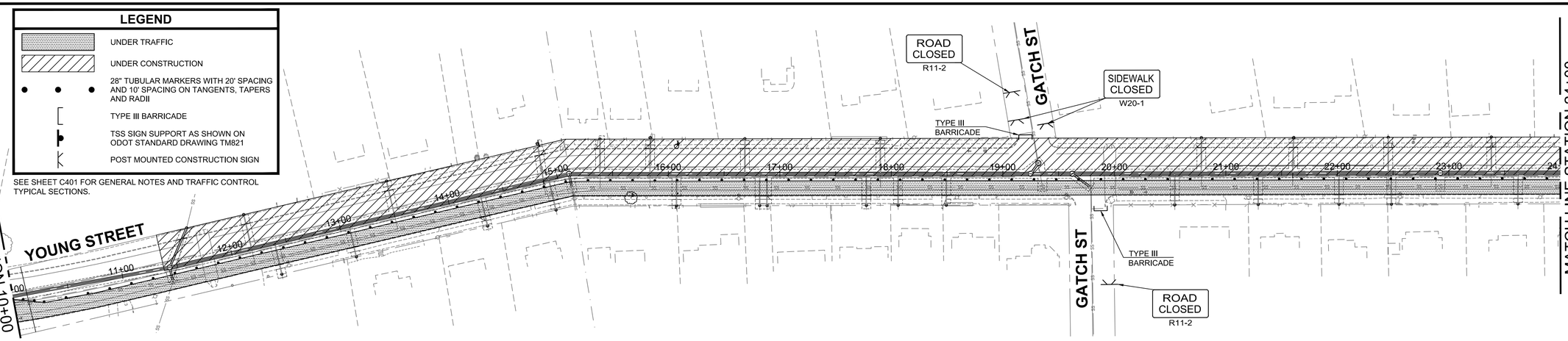


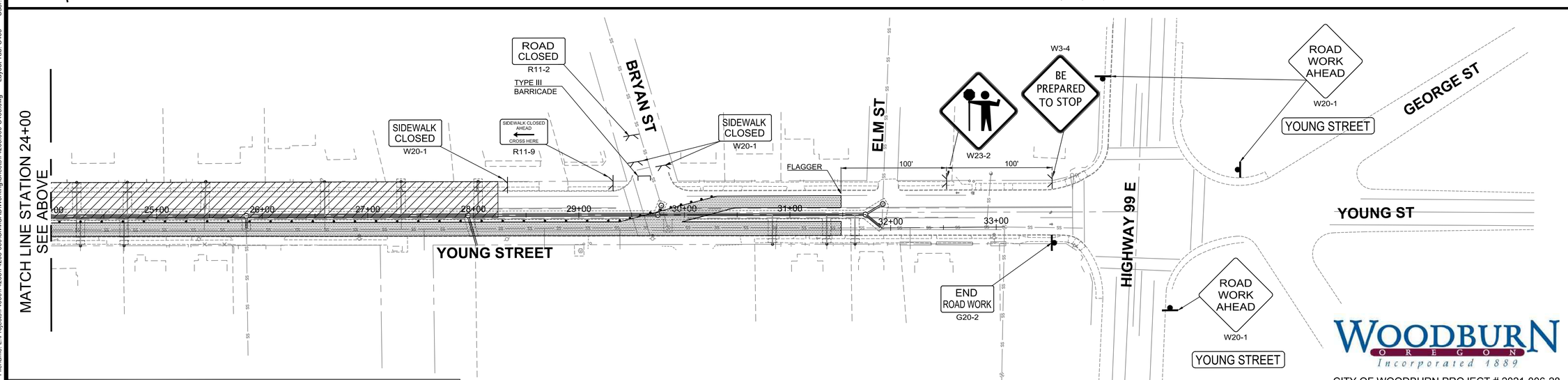
STAGE 3 - SANITARY SEWER SERVICE LATERAL INSTALLATION AND ROADWAY RESTORATION ON THE NORTH SIDE OF YOUNG STREET

LEGEND

- UNDER TRAFFIC
- UNDER CONSTRUCTION
- 28" TUBULAR MARKERS WITH 20' SPACING AND 10' SPACING ON TANGENTS, TAPERS AND RADII
- TYPE III BARRICADE
- TSS SIGN SUPPORT AS SHOWN ON ODOT STANDARD DRAWING TM821
- POST MOUNTED CONSTRUCTION SIGN

SEE SHEET C401 FOR GENERAL NOTES AND TRAFFIC CONTROL TYPICAL SECTIONS.





CITY OF WOODBURN PROJECT # 2021-006-28

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TRAFFIC CONTROL PLAN - STAGE 3 FOR:

YOUNG STREET SANITARY SEWER

A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

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REGISTERED PROFESSIONAL ENGINEER
72882PE
OREGON
JUNE 14, 2007
RICHARD D. BOYLE
EXPIRES: 12/31/2023

DESIGNED:	DPS
CHECKED:	RDB
MAY 20, 2022	74203.000
SHEET ID	C405
SHEET	29 OF 44

TAPER TYPES & FORMULAS	
TAPER	FORMULA
Merging (Lane Closure)	"L"
Shifting	"L"/2 or ½"L"
Shoulder Closure	"L"/3 or ⅓"L"
Flagging (See Drg. TM850)	50' – 100'
Downstream (Termination)	Varies (See Drawings)

★ Use Pre-Construction Posted Speed to select the Speed from the Tables below:

TEMPORARY BARRIER FLARE RATE TABLE	
★SPEED (mph)	MINIMUM FLARE RATE
≤ 30	8:1
35	9:1
40	10:1
45	12:1
50	14:1
55	16:1
60	18:1
65	19:1
70	20:1

MINIMUM LENGTHS TABLE					
"L" VALUE FOR TAPERS (ft)					BUFFER "B" (ft)
★ SPEED (mph)	W = Lane or Shoulder Width being closed or shifted				
	W = 10'	W = 12'	W = 14'	W = 16'	
25	105	125	145	165	75
30	150	180	210	240	100
35	205	245	285	325	125
40	265	320	375	430	150
45	450	540	630	720	180
50	500	600	700	800	210
55	550	660	770	880	250
60	600	720	840	960	285
65	650	780	910	1000	325
70	700	840	980	1000	365
FREEWAYS					
55	1000	1000	1000	1000	250
60	1000	1000	1000	1000	285
65	1000	1000	1000	1000	325
70	1000	1000	1000	1000	365

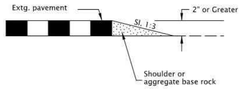
NOTES:
- For Lane closures where W < 10', use "L" value for W = 10'.
- For Shoulder closures where W < 10', use "L" value for W = 10' or calculate "L" using formula, for Speeds ≥ 45: L = WS, Speeds < 45: L = S²W/60, S = Speed, W=Width

TRAFFIC CONTROL DEVICES (TCD) SPACING TABLE				
★ SPEED (mph)	Sign Spacing (ft)			Max. Channelizing Device Spacing (ft)
	A	B	C	
20 – 30	100	100	100	20
35 – 40	350	350	350	20
45 – 55	500	500	500	40
60 – 70	700	700	700	40
Freeway	1000	1500	2640	40

NOTES:
- Place traffic control devices on 10 ft. spacing for intersection and access radii.
- When necessary, sign spacing may be adjusted to fit site conditions. Limit spacing adjustments to 30% of the "A" dimension for all speeds.

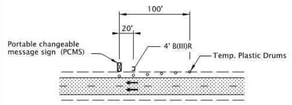
TM800

NOTES:
- When paved shoulders adjacent to excavations are less than four feet wide protect longitudinal abrupt edge as shown.
- Use aggregate wedge when abrupt edge is 2 inches or greater.



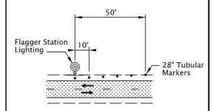
EXCAVATION ABRUPT EDGE

NOTES:
- Install PCMS beyond the outside shoulder, when possible.
- Use the appropriate type of barricade panels for PCMS location. Right shoulder, use Type B(III)R Left shoulder, use Type B(III)L
- Use six drums in shoulder taper on 20' spacing. The drums and barricade may be omitted when PCMS is placed behind a roadside barrier.
- Detail as shown is used for trailered and non-crashworthy components of:
  - Portable Traffic Signals
  - Smart Work Zone Systems



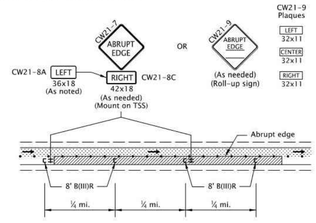
PORTABLE CHANGEABLE MESSAGE SIGN (PCMS) INSTALLATION

NOTES:
- Install Flagger Station Lighting beyond the outside shoulder, where practical.
- Use six tubular markers in shoulder taper on 10' spacing.
- Place cart / generator / power supply off of the shoulder, as far as practical.



FLAGGER STATION LIGHTING DELINEATION

NOTES:
- Abrupt edges may be created by paving, operations, excavations or other roadway work. Use abrupt edge signing for longitudinal abrupt edges of 1 inch or greater.
- If the excavation is located on left side of traffic, replace the 8' B(III)R barricades with 8' B(III)L barricades and replace the "RIGHT" (CW21-8C) riders with "LEFT" (CW21-8A) riders.
- Continue signing and other traffic control devices throughout excavation area at spacings shown.
- If roll-up signs are used, attach the correct (CW21-9) plaques to the sign face using hook and loop fasteners. Place roll-up signs in advance of barricades.



TYPICAL ABRUPT EDGE DELINEATION

GENERAL NOTES FOR ALL TCP DRAWINGS:
- Signs and other Traffic Control Devices (TCD) shown are the minimum required.
- Place a barricade approx. 20' ahead of all sequential arrow boards.
- Arrows shown in roadway are directional arrows to indicate traffic movements.
- All signs are 48" x 48" unless otherwise shown. Use flourescent orange sheeting for the background of all temporary warning signs.
- All diamond shaped warning signs mounted on barrier sign supports shall be 36" by 36". All other signs mounted on barrier sign supports shall not exceed 12 sq. ft. in total sign area.
- Low speed highways have a pre-construction posted speed of 40 mph or less. High speed highways have a pre-construction posted speed of 45 mph or higher.
- Do not locate sign supports in locations designated for bicycle or pedestrian traffic.
- Combine drawing details to complete temporary traffic control for each work activity.
- To be accompanied by Dwg. Nos. TM820 & TM821.

- - - Temp. Plastic Drums See TCD Spacing Table for max. spacing.
• • • 28" Tubular Markers See TCD Spacing Table for max. spacing.
UNDER TRAFFIC
UNDER CONSTRUCTION

CALC. BOOK NO. _ _ _ TM09-01 _ _ _ | SDR DATE _ _ _ 01-JUL-2021 _ _ _

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.

NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications

OREGON STANDARD DRAWINGS

TABLES, ABRUPT EDGE AND PCMS DETAILS

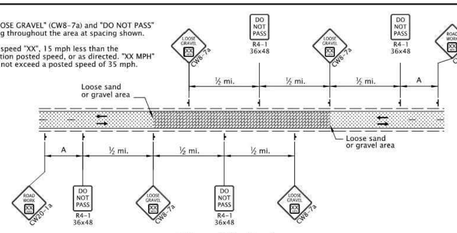
2021

DATE	REVISION DESCRIPTION

TM800

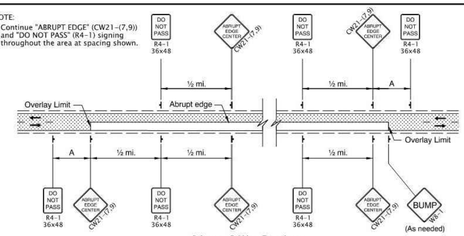
Effective Date: December 1, 2021 – May 31, 2022

NOTE:
- Continue "LOOSE GRAVEL" (CW8-7a) and "DO NOT PASS" (R4-1) signing throughout the area at spacing shown.
- Use advisory speed "XX", 15 mph less than the pre-construction posted speed, or as directed. "XX MPH" placard shall not exceed a posted speed of 35 mph.



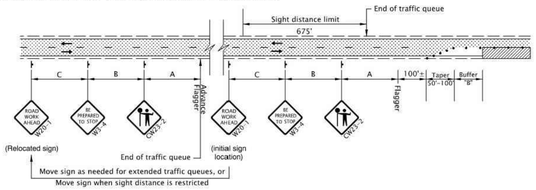
2-Lane, 2-Way Roadway
LOOSE GRAVEL IN ROADWAY SIGNING

NOTE:
- Continue "ABRUPT EDGE" (CW21-(7,9)) and "DO NOT PASS" (R4-1) signing throughout the area at spacing shown.



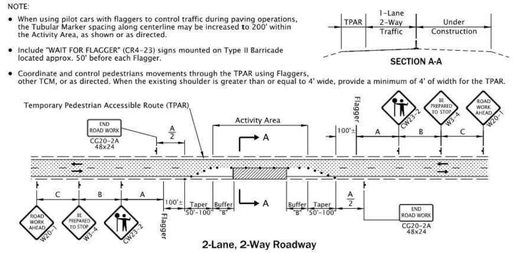
2-Lane, 2-Way Roadway
OVERLAY AREA SIGNING

NOTES:
- Place Advance Flagger and additional signing when traffic queues extend beyond initial warning signing OR when sight distance is restricted.
- Relocate initial "ROAD WORK AHEAD" (W20-1) sign in advance of additional "BE PREPARED TO STOP" (W3-4) and Flagger Ahead (CW23-2) signs, as shown.
- Place additional Tubular Markers for Flagger and Advance Flagger Stations according to FLAGGER STATION DELINEATION detail.



ADVANCE FLAGGER FOR EXTENDED TRAFFIC QUEUES

NOTE:
- When using pilot cars with flaggers to control traffic during paving operations, the Tubular Marker spacing along centerline may be increased to 200' within the Activity Area, as shown or as directed.
- Include "WAIT FOR FLAGGER" (CR4-23) signs mounted on Type II Barricade located approx. 50' before each Flagger.
- Coordinate and control pedestrians movements through the TPAR using Flaggers, other TCM, or as directed. When the existing shoulder is greater than or equal to 4' wide, provide a minimum of 4' of width for the TPAR.

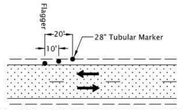


2-Lane, 2-Way Roadway
ONE LANE CLOSURE

GENERAL NOTES FOR ALL DETAILS:
- The "FLAGGER" (CW23-2) symbol sign shall be used only in conjunction with the "BE PREPARED TO STOP" (W3-4) sign.
- Cover existing passing zone signing, as directed.
- Install temporary striping as required.
- To determine Taper Length ("L") and Buffer Length ("B"), use the "MINIMUM LENGTHS TABLE" shown on Dwg. No. TM800.
- To determine sign spacing A, B, and C, use "TRAFFIC CONTROL DEVICES (TCD) SPACING TABLE" on Dwg. No. TM800.
- Install a "BICYCLES ON ROADWAY" (CW11-1) sign in advance of the closure when a bike lane is closed, or when the shoulder is closed and bikes are expected.
- At night, flagger stations shall be illuminated according to the FLAGGER STATION LIGHTING DELINEATION detail on Dwg No. TM800.
- To be accompanied by Dwg. Nos. TM820 & TM821.

• • • • • 28" Tubular Markers on 20' max. spacing for flagger tapers and stations
• • • 28" Tubular Markers See TCD Spacing Table on TM800 for max. spacing.
UNDER TRAFFIC
UNDER CONSTRUCTION
CONSTRUCTION UNDER TRAFFIC

NOTE:
- Use a minimum of 3 tubular markers in shoulder taper on 10' spacing for flagger station delineation.



FLAGGER STATION DELINEATION

CALC. BOOK NO. _ _ _ _ _ N/A _ _ _ _ | SDR DATE _ _ _ _ 01-JUL-2020 _ _ _ _

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.

NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications

OREGON STANDARD DRAWINGS

2-LANE, 2-WAY ROADWAYS

2021

DATE	REVISION DESCRIPTION

TM850

Effective Date: December 1, 2021 – May 31, 2022

PBS Engineering and Environmental Inc.
4412 S Corbett Avenue
Portland, OR 97239
503.248.1939
pbsusa.com

PBS

TRAFFIC CONTROL DETAILS FOR:
YOUNG STREET SANITARY SEWER
A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

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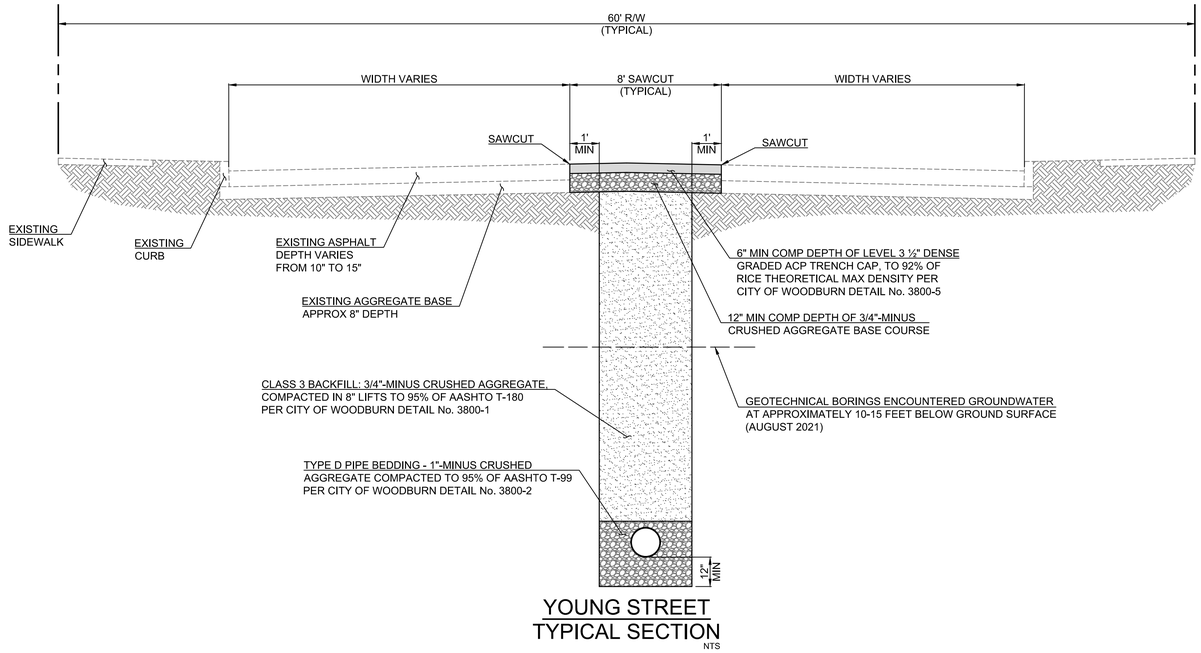
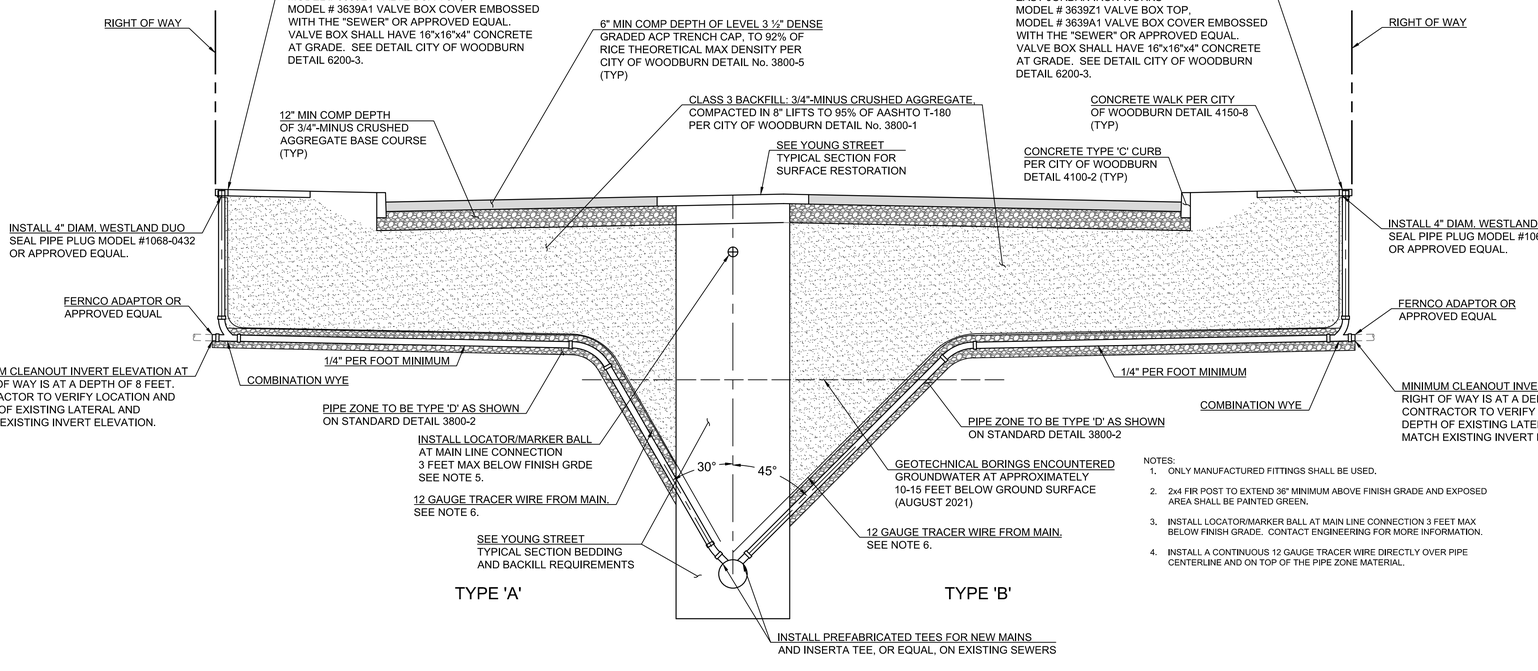
SHEET ID	C406
SHEET	30 OF 44

WOODBURN OREGON Incorporated 1889

CITY OF WOODBURN PROJECT # 2021-006-28



YOUNG STREET
TYPICAL SECTION
NTS

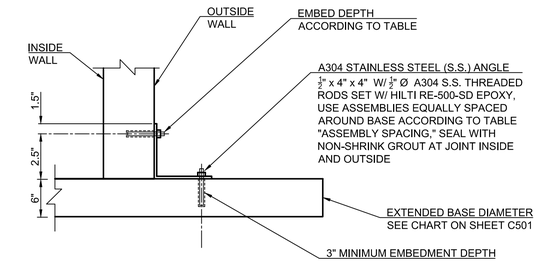


NOTES:
1. ONLY MANUFACTURED FITTINGS SHALL BE USED.
2. 2x4 FIR POST TO EXTEND 36" MINIMUM ABOVE FINISH GRADE AND EXPOSED AREA SHALL BE PAINTED GREEN.
3. INSTALL LOCATOR/MARKER BALL AT MAIN LINE CONNECTION 3 FEET MAX BELOW FINISH GRADE. CONTACT ENGINEERING FOR MORE INFORMATION.
4. INSTALL A CONTINUOUS 12 GAUGE TRACER WIRE DIRECTLY OVER PIPE CENTERLINE AND ON TOP OF THE PIPE ZONE MATERIAL.

SANITARY SEWER SERVICE CONNECTION
TYPE 'A' OR TYPE 'B'
NTS

SANITARY SEWER
EXTENDED BASE MANHOLES

STRUCTURE NAME	MANHOLE INSIDE DIAMETER	EXTENDED MANHOLE MINIMUM BASE DIAMETER	EXTENDED MANHOLE BASE THICKNESS	MANHOLE CONSTRUCTED OVER EXISTING SS LINE
SS MH 101-1	96"	148"	6"	SEE DETAIL BELOW
SS MH 101-2	48"	64"	6"	N/A
SS MH 101-3	60"	82"	6"	N/A
SS MH 101-4	48"	64"	6"	N/A
SS MH 102-1	48"	N/A	N/A	N/A
SS MH 103-1	48"	64"	6"	N/A
SS MH 103-2	48"	64"	6"	N/A
SS MH 103-3	48"	70"	6"	SEE DETAIL BELOW
SS MH 104-1	48"	64"	6"	N/A
SS MH 105-1	48"	64"	6"	N/A
SS MH 105-2	48"	64"	6"	N/A
SS MH 106-1	48"	66"	6"	N/A
SS MH 106-2	48"	66"	6"	SEE DETAIL BELOW
SS MH 107-1	48"	66"	6"	N/A
SS MH 107-2	48"	70"	6"	SEE DETAIL BELOW
SS MH 108-1	48"	64"	6"	SEE DETAIL BELOW



EMBED DEPTH (IN)	
MANHOLE ID (IN)	EMBED DEPTH (IN)
96	4
60	3
48	2.5

ASSEMBLY SPACING	
MANHOLE ID (IN)	# OF ASSEMBLIES
96	10
60	7
48	5

EXTENDED BASE TO RISER CONNECTION FOR MANHOLES
CONSTRUCTED OVER EXISTING SANITARY SEWER LINES
NTS

PBS Engineering and Environmental Inc.
4412 S Corbett Avenue
Portland, OR 97239
503.248.1939
pbsusa.com

PBS

MISCELLANEOUS DETAILS FOR:
YOUNG STREET SANITARY SEWER
A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

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

REGISTERED PROFESSIONAL ENGINEER
72882PE
OREGON
JUNE 14, 2007
RICHARD D. BOYLE
EXPIRES: 12/31/2023

DESIGNED: DPS
CHECKED: RDB
MAY 20, 2022
74203.000
SHEET ID
C501
SHEET 31 OF 44

WOODBURN OREGON Incorporated 1889
CITY OF WOODBURN PROJECT # 2021-006-28

Full Size Sheet Format Is 22x34; If Printed Size Is Not 22x34, Then This Sheet Format Has Been Modified & Indicated Drawing Scale Is Not Accurate.

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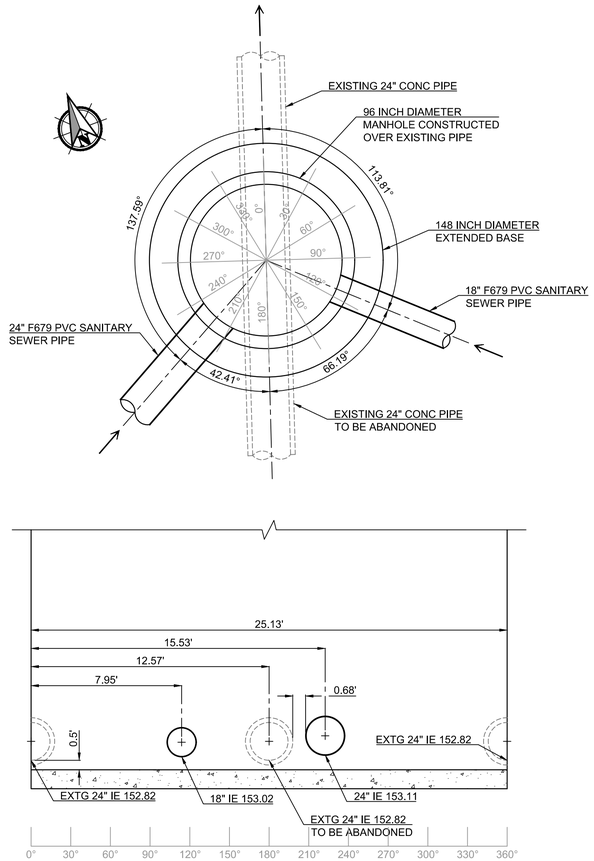
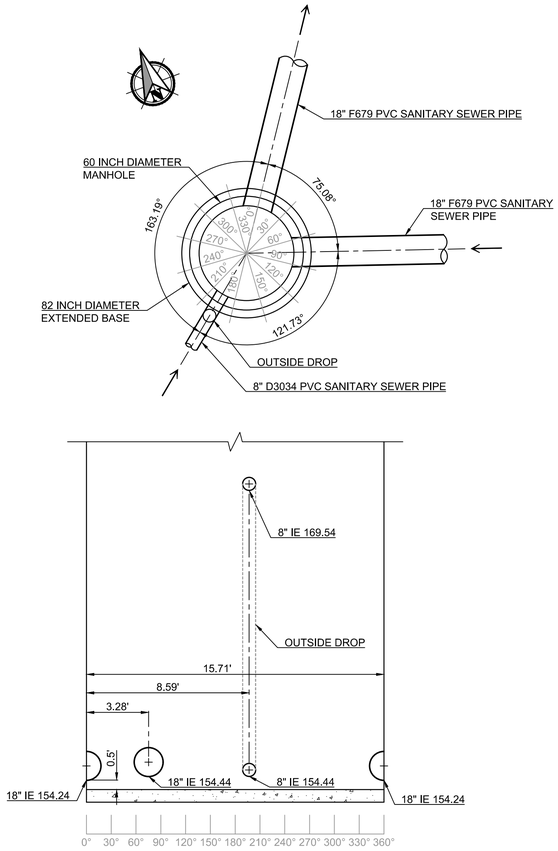
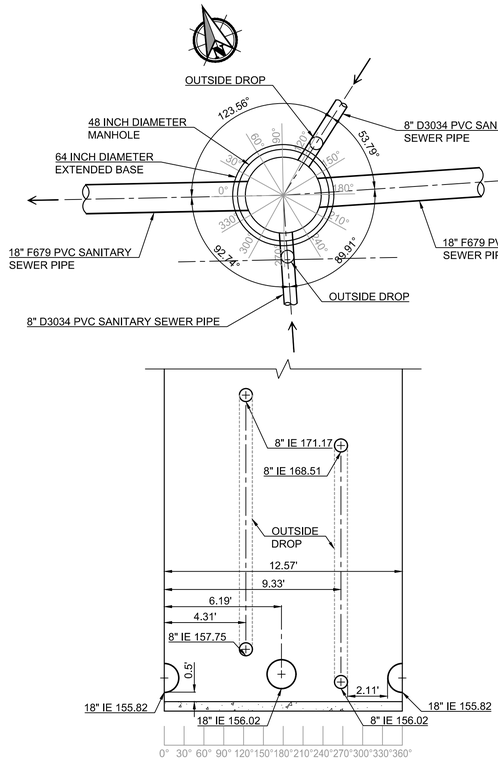


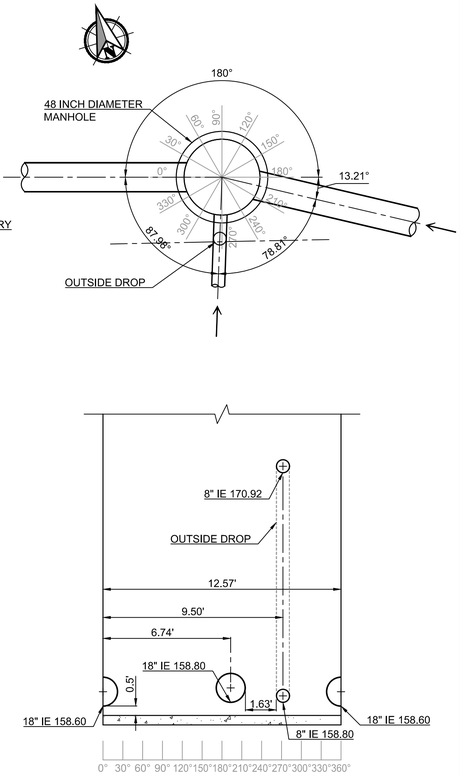
SS MH 101-1



SS MH 101-3



SS MH 101-4



SS MH 102-1

FLOW DIRECTION IN MANHOLES

Scale 1" = 4'

0 2 4 8

SANITARY SEWER MANHOLES NOT SHOWN IN ROLLOUT DETAILS

STRUCTURE NAME	MANHOLE INSIDE DIAMETER	NUMBER OF PIPES CONNECTED TO MANHOLE	ANGLE BETWEEN PIPES
SS MH 101-2	48"	2	98.5°
SS MH 104-1	48"	2	180°

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SANITARY SEWER MANHOLE DETAILS FOR: YOUNG STREET SANITARY SEWER

A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

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72882PE
OREGON
JUNE 14, 2007
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EXPIRES: 12/31/2023

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MAY 20, 2022
74203.000

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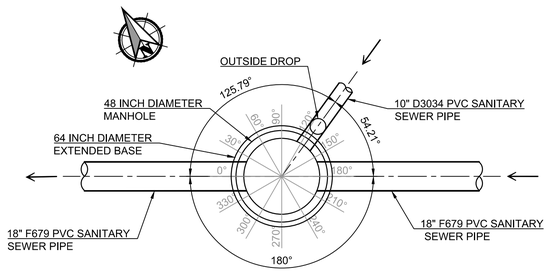
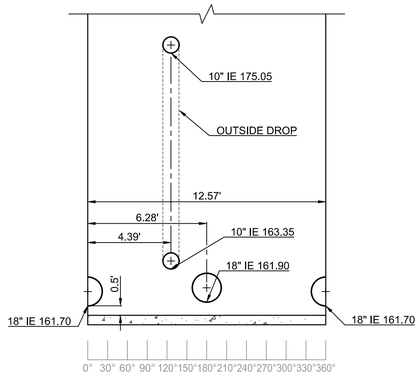
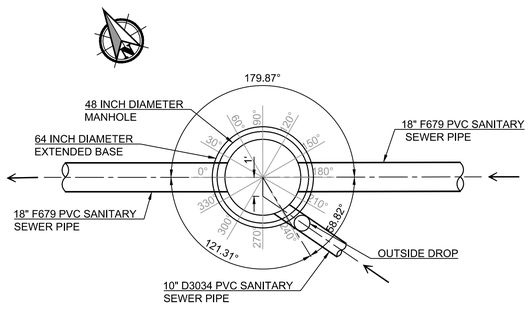
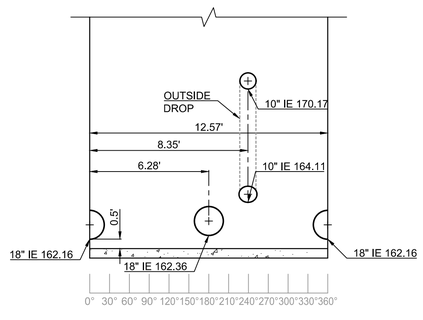
SHEET 32 OF 44



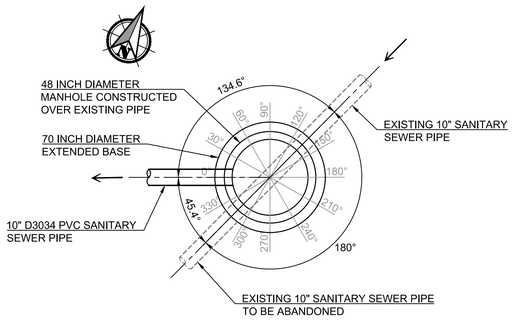


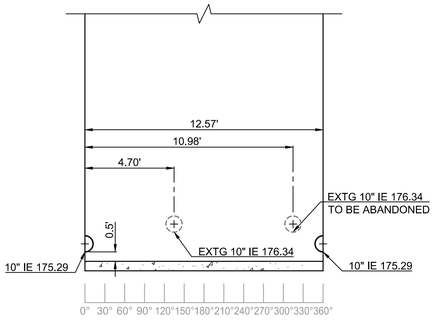
SS MH 103-1



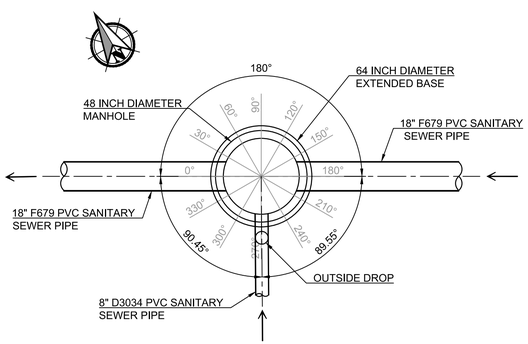


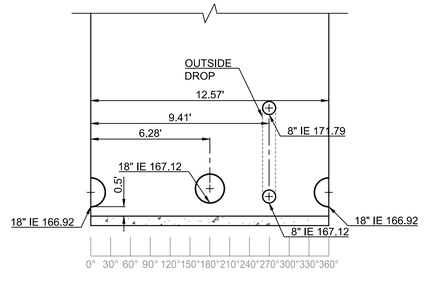
SS MH 103-2



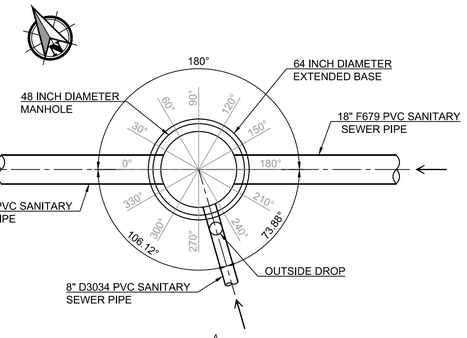


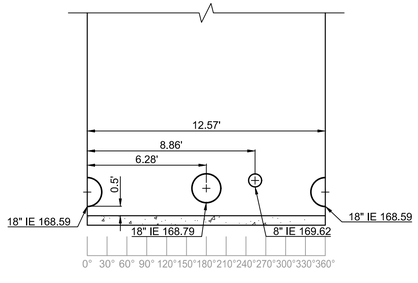
SS MH 103-3





SS MH 105-1





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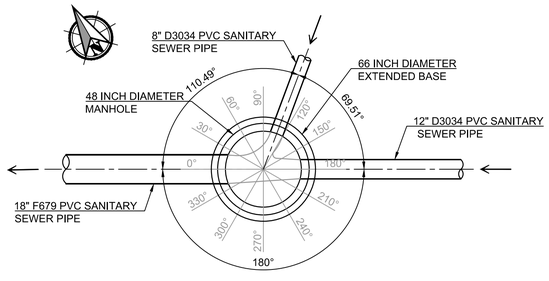

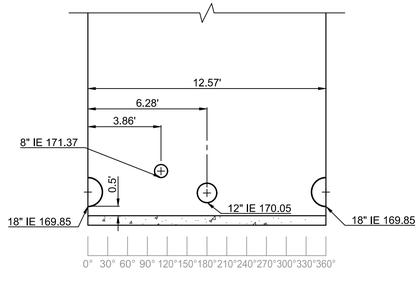

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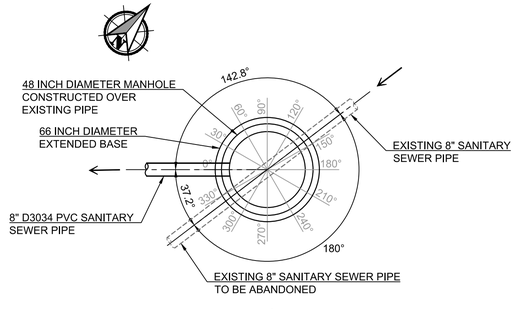

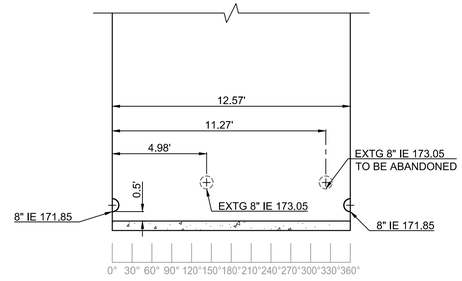

SS MH 106-2

FLOW DIRECTION IN MANHOLES

Scale 1" = 4'

0 2 4 8

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SANITARY SEWER MANHOLE DETAILS FOR:

YOUNG STREET SANITARY SEWER

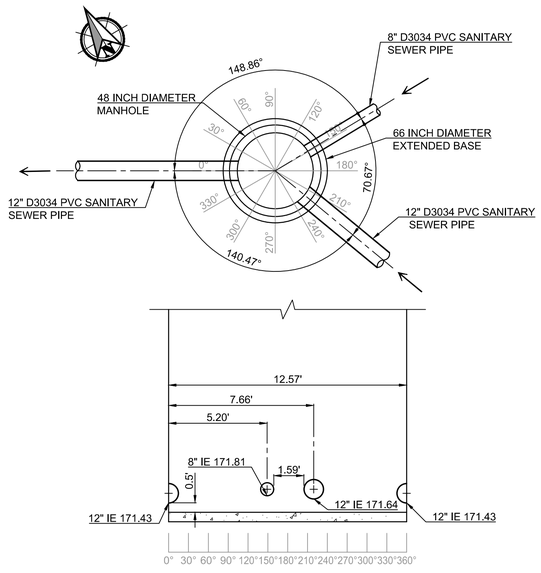
A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

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

REGISTERED PROFESSIONAL ENGINEER
72882PE
OREGON
JUNE 14, 2007
RICHARD D. BOYLE
EXPIRES: 12/31/2023

DESIGNED: DPS
CHECKED: RDB
MAY 20, 2022
74203.000

SHEET ID
C503
SHEET 33 OF 44



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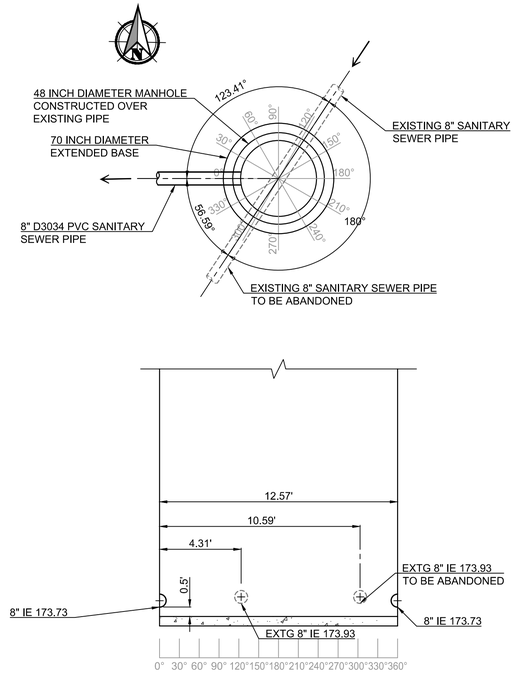
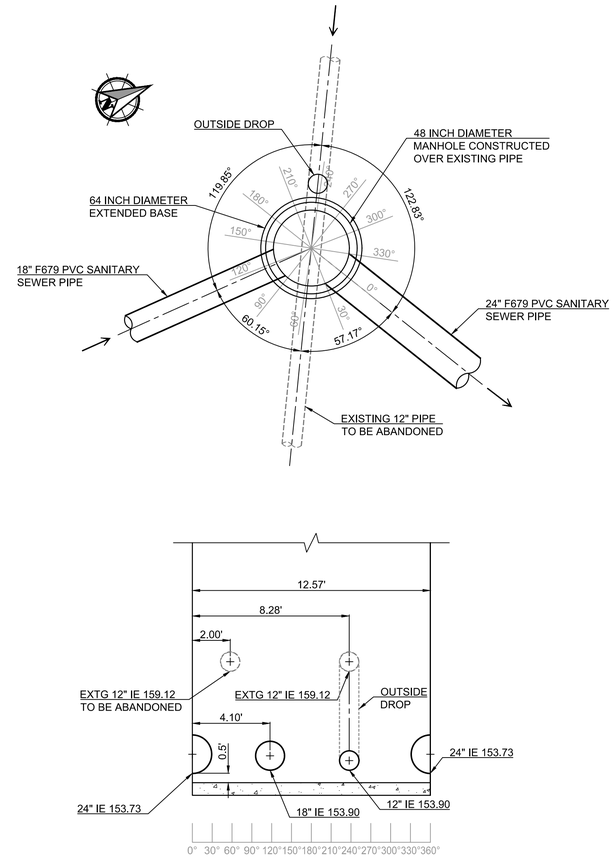


SS MH 107-2



SS MH 108-1

FLOW DIRECTION IN MANHOLES

Scale 1" = 4'

0 2 4 8

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SANITARY SEWER MANHOLE DETAILS FOR:

YOUNG STREET SANITARY SEWER

A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

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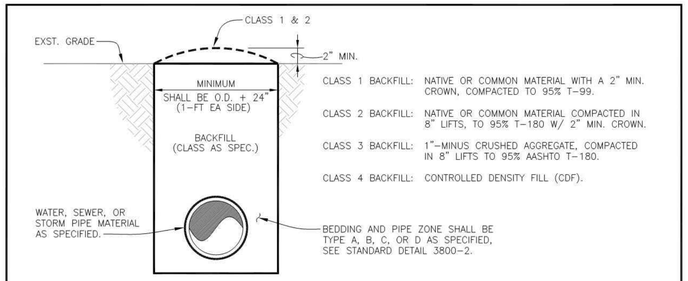

CLASS 1 BACKFILL: NATIVE OR COMMON MATERIAL WITH A 2" MIN. CROWN, COMPACTED TO 95% T-99.

CLASS 2 BACKFILL: NATIVE OR COMMON MATERIAL COMPACTED IN 8" LIFTS, TO 95% T-180 W/ 2" MIN. CROWN.

CLASS 3 BACKFILL: 1"-MINUS CRUSHED AGGREGATE, COMPACTED IN 8" LIFTS TO 95% AASHTO T-180.

CLASS 4 BACKFILL: CONTROLLED DENSITY FILL (CDF).

NOTES:

1. ENGINEER WILL CONSIDER ADJUSTING USUAL TRENCH WIDTH TO ACCOMMODATE CONDITION ENCOUNTERED.
2. REFERENCE TECHNICAL SPEC. SECTION 3800.
3. FOR HMA TRENCH CAP SURFACE REPLACEMENT SEE DETAIL 3800-5.

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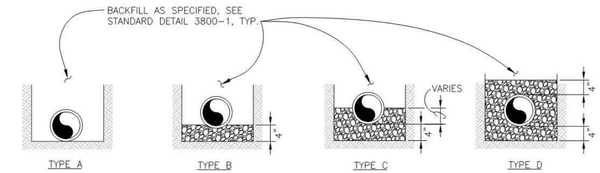
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

PIPE TRENCH BACKFILL

REV: DEC. 2007
SCALE: NTS
DET No. 3800-1



TYPE A – PLACE PIPE BARREL ON UNDISTURBED EARTH.

TYPE B – SUPPORT PIPE ON 4" OF COMPACTED 1"-MINUS CRUSHED AGGREGATE.

TYPE C – PIPE BEDDED WITH 1"-MINUS CRUSHED AGGREGATE FROM 4" BELOW INVERT TO SPRING LINE.

TYPE D – PIPE BEDDED WITH 1"-MINUS CRUSHED AGGREGATE FROM 4" BELOW INVERT TO 4" ABOVE ZENITH.

LEGEND

UNDISTURBED NATIVE SOIL

1"-MINUS CRUSHED AGGREGATE, COMPACTED 95 PCT. OF AASHTO T-99

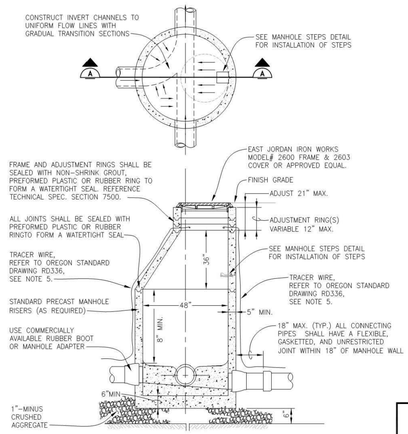
NOTES:

1. REFERENCE TECHNICAL SPEC. SECTION 3800.

WOODBURN OREGON Incorporated 1889
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

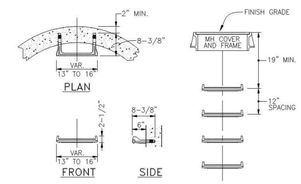
PIPE TRENCH BEDDING AND ZONE

REV: DEC. 2007
SCALE: NTS
DET No. 3800-2



NOTES:

1. ALL PRECAST SECTIONS SHALL CONFORM TO REQUIREMENTS OF ASTM C478.
2. STANDARD PRECAST MANHOLE SECTION DIAMETER SHALL BE 48". USE 42" IF SPECIFIED BY THE ENGINEER. MAXIMUM PIPE DIAMETER 24".
3. ALL CONNECTING PIPES SHALL HAVE A FLEXIBLE, GASKETTED, AND UNRESTRAINED JOINT WITHIN 18" OF MANHOLE WALL.
4. USE FLAT TOP FOR SHALLOW MANHOLE WHERE DIRECTED.
5. COIL AND SECURE TRACER WIRE IN MANHOLE TO NON CORROSIVE FASTENER, LEAVE ENOUGH FREE WIRE TO EXTEND 18" ABOVE TOP OF MANHOLE COVER.

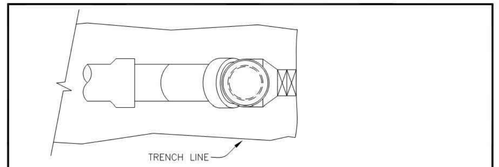


MANHOLE STEPS DETAIL

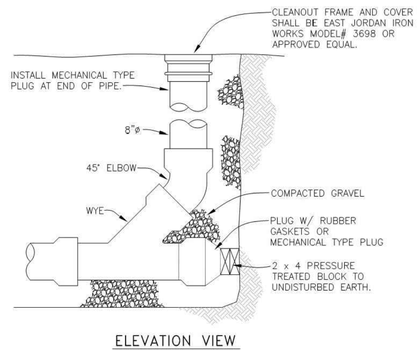
WOODBURN OREGON Incorporated 1889
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

SANITARY SEWER MANHOLE

REV: FEB. 2021
SCALE: NTS
DET No. 6510-3



PLAN VIEW



ELEVATION VIEW

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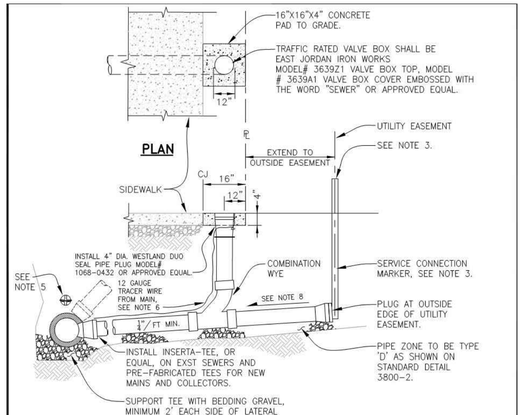
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

MAIN LINE CLEANOUT

REV: DEC. 2007
SCALE: NTS
DET No. 6200-1



ELEVATION

NOTES:

1. PIPE AND FITTINGS SHALL BE COMPATIBLE. ONLY MANUFACTURED FITTINGS SHALL BE USED.
2. MINIMUM DEPTH AT RIGHT-OF-WAY OR EASEMENT LINE SHALL BE 4 FEET.
3. 2 x 4 FIR. POST TO EXTEND 36" MINIMUM ABOVE FINISH GRADE AND EXPOSED AREA SHALL BE PAINTED GREEN.
4. LAY SANITARY SEWER SERVICE TEE AT MAXIMUM 45°, MINIMUM 20° FROM HORIZONTAL.
5. INSTALL LOCATOR/MARKER BALL AT MAIN LINE CONNECTION 3FT MAX BELOW FINISH GRADE. CONTACT ENGINEERING FOR MORE INFORMATION.
6. INSTALL A CONTINUOUS 12-GAUGE TRACER WIRE FROM MAIN. PLACE TRACER WIRE DIRECTLY OVER PIPE CENTERLINE AND ON TOP OF THE PIPE ZONE MATERIAL.
7. REFERENCE TECHNICAL SPEC. SECTION 6200.
8. CONTACT MARION COUNTY PUBLIC WORKS FOR REQUIREMENTS.

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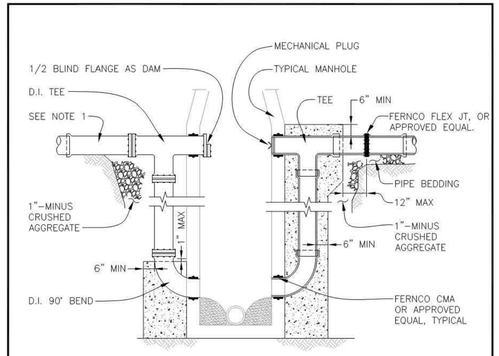
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

SEWER SERVICE CONNECTION

REV: JUNE 2021
SCALE: NTS
DET No. 6200-3



DUCTILE IRON PIPE

PVC OR APPROVED EQUAL PIPE MATERIAL

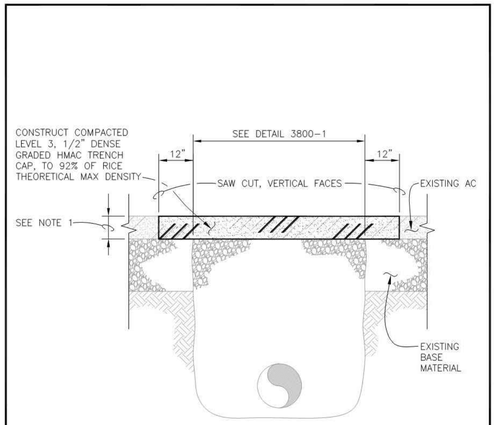
NOTES:

1. USE ONE LENGTH OF D.I. TO SOLID BEARING IF SPAN IS LONGER THAN 4 FEET.
2. REFERENCE TECHNICAL SPEC. SECTION 6510.
3. CONCRETE ENCASING: MATERIAL – 3500 PSI CONCRETE AT 28 DAYS.

WOODBURN OREGON Incorporated 1889
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

OUTSIDE DROP MANHOLE CONNECTION

REV: DEC. 2007
SCALE: NTS
DET No. 6510-2



NOTES:

1. REPLACEMENT OF HMA SHALL MATCH EXST. DEPTH (4-INCH MINIMUM), OR OTHERWISE SPECIFIED ON PLANS. IN NO CASE SHALL THICKNESS BE LESS THAN THAT SHOWN ON STANDARD DETAIL 4200-1.
2. REFERENCE TECHNICAL SPEC. SECTION 2400, 4200 AND 4220.

WOODBURN OREGON Incorporated 1889
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

TRENCH CAP

REV: DEC. 2016
SCALE: NTS
DET No. 3800-5

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MISCELLANEOUS DETAILS FOR:

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A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

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SHEET 35 OF 44

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CITY OF WOODBURN PROJECT # 2021-006-28

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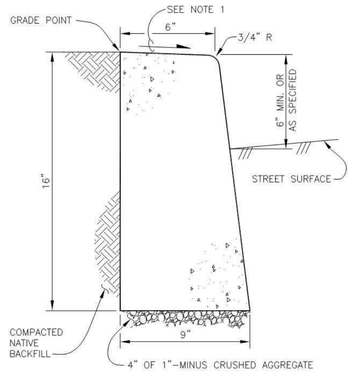
Filename: L:\Projects\74000\74203\74203-000\Civil\CAD\Working\Sheets\74203.000-C505-C506.dwg Layout Tab: C505 User: Dan Skolrud CAD Plot Date/Time: 5/20/2022 2:12:03 PM



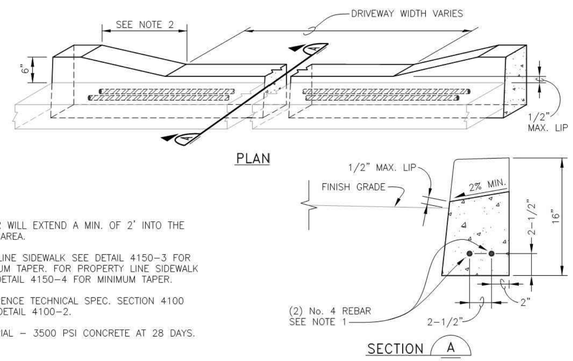
NOTES:

1. SLOPE CURB 0.02 FT/FT TO CURB FACE.
2. MATERIAL – 3500 PSI CONCRETE AT 28 DAYS.
3. REFERENCE TECHNICAL SPEC. SECTIONS 2000, 2300 AND 4100.
4. PLACE CONTRACTION JOINTS AT 15' MAX. INTERVALS AND SHALL EXTEND AT LEAST 50% THROUGH CURB.

WOODBURN OREGON Incorporated 1889
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

TYPE 'C' CURB

REV: DEC. 2007
SCALE: NTS
DET No. **4100-2**



NOTES:

1. REBAR WILL EXTEND A MIN. OF 2' INTO THE WING AREA.
2. CURBLINE SIDEWALK SEE DETAIL 4150-3 FOR MINIMUM TAPER. FOR PROPERTY LINE SIDEWALK SEE DETAIL 4150-4 FOR MINIMUM TAPER.
3. REFERENCE TECHNICAL SPEC. SECTION 4100 AND DETAIL 4100-2.
4. MATERIAL – 3500 PSI CONCRETE AT 28 DAYS.

WOODBURN OREGON Incorporated 1889
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

TYPE 'C' CURB AT DRIVEWAY

REV: DEC. 2007
SCALE: NTS
DET No. **4100-5**

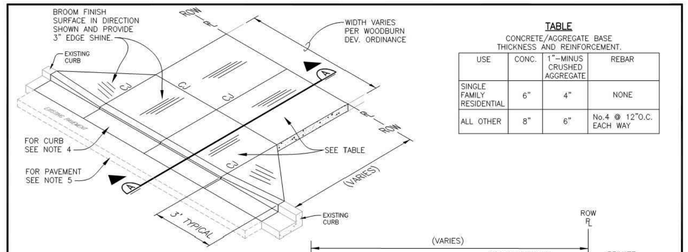


TABLE
CONCRETE/AGGREGATE BASE THICKNESS AND REINFORCEMENT.

USE	CONC.	1"-MINUS CRUSHED AGGREGATE	REBAR
SINGLE FAMILY RESIDENTIAL	6"	4"	NONE
ALL OTHER	8"	6"	No.4 @ 12"O.C. EACH WAY

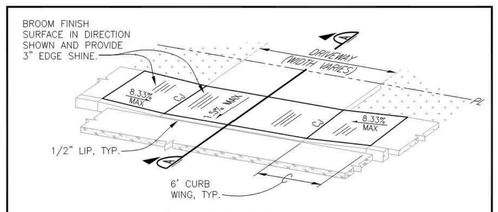
NOTES:

1. REFERENCE TECHNICAL SPEC. SECTION 4150.
2. EXPANSION JOINTS (EJ) SHALL BE 1/2" AC IMPREGNATED JOINT FILLER AT ALL DISSIMILAR VERTICAL SURFACES.
3. MATERIAL – 3500 PSI CONCRETE AT 28 DAYS.
4. CURBS WITH CRACKING, SETTLEMENT, DRAINAGE PROBLEMS OR SIGNIFICANT DETERIORATION SHALL BE REPLACED UNLESS APPROVED BY ENGINEERING DEPARTMENT.
5. ASPHALT STREETS SHALL BE REPAIRED TO FIX ANY OVERCUTS OR DAMAGE CAUSED BY PLACING CURB FORMS. REPAIR SHALL BE A MINIMUM OF 1FT WIDE AND THE EXTEND THE ENTIRE LENGTH OF THE CURB REPLACEMENT AREA. ALL LIMITS SHALL BE CLEANLY SAW CUT.

WOODBURN OREGON Incorporated 1889
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

DRIVEWAY APPROACH

REV: AUG. 2020
SCALE: NTS
DET No. **4150-1**



NOTES:

1. REFERENCE TECHNICAL SPEC. SECTION 4150.
2. PLACE CONSTRUCTION JOINTS AT 5' INTERVALS 1/3 THICKNESS.
3. MATERIAL – 3500 PSI CONCRETE AT 28 DAYS.

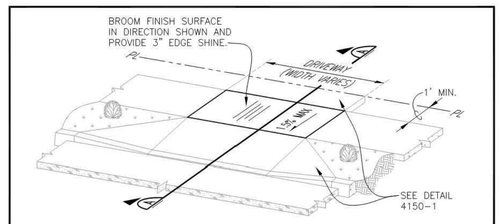
CONCRETE/AGGREGATE BASE THICKNESS AND REINFORCEMENT.

USE	CONC.	1"-MINUS CRUSHED AGGREGATE	REBAR
SINGLE FAMILY RESIDENTIAL	6"	4"	NONE
ALL OTHER	8"	6"	No.4 @ 12"O.C. EACH WAY

WOODBURN OREGON Incorporated 1889
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

CURBSIDE SIDEWALK AT DRIVEWAY

REV: MAY 2019
SCALE: NTS
DET No. **4150-3**



NOTES:

1. REFERENCE TECHNICAL SPEC. SECTION 4150.
2. PLACE CONSTRUCTION JOINTS AT 5' INTERVALS 1/3 THICKNESS.
3. MATERIAL – 3500 PSI CONCRETE AT 28 DAYS.

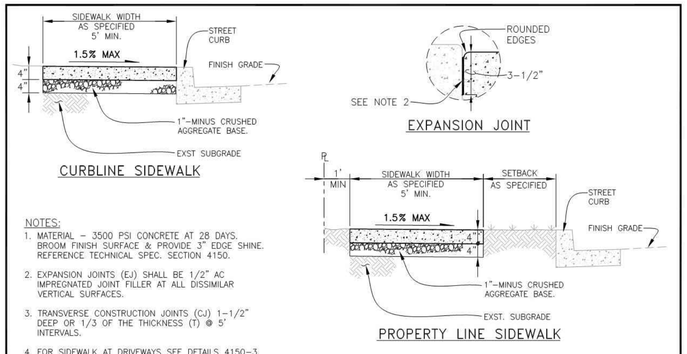
CONCRETE/AGGREGATE BASE THICKNESS AND REINFORCEMENT.

USE	CONC.	1"-MINUS CRUSHED AGGREGATE	REBAR
SINGLE FAMILY RESIDENTIAL	6"	4"	NONE
ALL OTHER	8"	6"	No.4 @ 12"O.C. EACH WAY

WOODBURN OREGON Incorporated 1889
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

PROPERTY LINE SIDEWALK AT DRIVEWAY

REV: JUNE. 2018
SCALE: NTS
DET No. **4150-4**



NOTES:

1. MATERIAL – 3500 PSI CONCRETE AT 28 DAYS. BROOM FINISH SURFACE & PROVIDE 3" EDGE SHINE. REFERENCE TECHNICAL SPEC. SECTION 4150.
2. EXPANSION JOINTS (EJ) SHALL BE 1/2" AC IMPREGNATED JOINT FILLER AT ALL DISSIMILAR VERTICAL SURFACES.
3. TRANSVERSE CONSTRUCTION JOINTS (CJ) 1-1/2" DEEP OR 1/3 OF THE THICKNESS (T) @ 5' INTERVALS.
4. FOR SIDEWALK AT DRIVEWAYS SEE DETAILS 4150-3 AND 4150-4.

WOODBURN OREGON Incorporated 1889
PUBLIC WORKS DEPARTMENT
ENGINEERING DIVISION

SIDEWALKS

REV: JULY 2018
SCALE: NTS
DET No. **4150-8**

PBS Engineering and Environmental Inc.
4412 S Corbett Avenue
Portland, OR 97239
503.248.1939
pbsusa.com

PBS

MISCELLANEOUS DETAILS FOR:
YOUNG STREET SANITARY SEWER
A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

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

DESIGNED: DPS
CHECKED: RDB
MAY 20, 2022
74203.000

SHEET ID
C506
SHEET 36 OF 44

WOODBURN OREGON Incorporated 1889

CITY OF WOODBURN PROJECT # 2021-006-28

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YOUNG STREET SANITARY SEWER

YOUNG STREET BETWEEN D STREET AND ELM STREET
CITY OF WOODBURN, MARION COUNTY, OREGON
1200-C

THE PERMITTEE IS REQUIRED TO MEET ALL THE CONDITIONS OF THE 1200–C PERMIT. THIS ESCP AND GENERAL CONDITIONS HAVE BEEN DEVELOPED TO FACILITATE COMPLIANCE WITH THE 1200–C PERMIT REQUIREMENTS. IN CASES OF DISCREPANCIES OR OMISSIONS, THE 1200–C PERMIT REQUIREMENTS SUPERCEDE REQUIREMENTS OF THIS PLAN. REFER TO DEQ GUIDANCE MANUAL FOR A COMPREHENSIVE LIST OF AVAILABLE BMP'S

BMP'S WITH ESCP IMPLEMENTATION SCHEDULE FORM

THE FOLLOWING CONTROLS AND PRACTICES (BMPS), IF APPROPRIATE FOR THE SITE, ARE REQUIRED IN THE ESCP. SUBMISSION OF ALL ESCP REVISIONS TO DEQ ARE NOT REQUIRED. ESCP REVISIONS MUST BE SUBMITTED IN 10 DAYS FOR SPECIFIC CONDITIONS. SEE 1200–C PERMIT (SECTION 4.8).

YEAR:	2022							2023	
BMPS / MONTH #:	6	7	8	9	10	11	12	1	2
BIOBAGS									
BIOSWALES									
CHECK DAMS									
COMPOST BERM									
COMPOST BLANKETS									
COMPOST SOCKS									
CONCRETE TRUCK WASHOUT	X	X	X	X	X	X	X	X	X
CONSTRUCTION ENTRANCE	X	X	X	X	X	X	X	X	X
DEWATERING (TREATMENT LOCATION, SCHEMATIC, AND SAMPLING PLAN REQUIRED)									
DRAINAGE SWALES									
EARTH DIKES (STABILIZED)									
ENERGY DISSIPATERS									
EROSION CONTROL BLANKETS & MATS (SPECIFY TYPE)									
HYDROSEEDING									
INLET PROTECTION	X	X	X	X	X	X	X	X	X
MULCHES (SPECIFY TYPE)									
MYCORRHIZAE/ BIOFERTILIZERS									
NATURAL BUFFER ZONE	X	X	X	X	X	X	X	X	X
ORANGE FENCING (PROTECTING SENSITIVE/PRESERVED AREAS)	X	X	X	X	X	X	X	X	X
OUTLET PROTECTION									
PERMANENT SEEDING AND PLANTING			X	X	X	X	X	X	X
PIPE SLOPE DRAINS									
PLASTIC SHEETING		X	X	X	X	X	X	X	X
PRESERVE EXISTING VEGETATION	X	X	X	X	X	X	X	X	X
SEDIMENT FENCING									
SEDIMENT BARRIER									
SEDIMENT TRAP									
SODDING									
SOIL TACKIFIERS									
STORM DRAIN INLET PROTECTION	X	X	X	X	X	X	X	X	X
STRAW WATTLES (OR OTHER MATERIALS)	X	X	X	X	X	X	X	X	X
TEMPORARY DIVERSION DIKES									
TEMPORARY OR PERMANENT SEDIMENTATION BASINS									
TEMPORARY SEEDING AND PLANTING									
TREATMENT SYSTEM (O & M PLAN REQUIRED)									
UNPAVED ROADS GRAVELED OR OTHER BMP ON THE ROAD			X	X	X	X	X	X	X
VEGETATIVE BUFFER STRIPS									

INSPECTION FREQUENCY:

SITE CONDITION	MINIMUM FREQUENCY
1. ACTIVE PERIOD	ON INITIAL DATE THAT LAND DISTURBANCE ACTIVITIES COMMENCE. WITHIN 24 HOURS OF ANY STORM EVENT, INCLUDING RUNOFF FROM SNOW MELT, THAT RESULTS IN DISCHARGE FROM THE SITE. AT LEAST ONCE EVERY 14 DAYS, REGARDLESS OF WHETHER STORMWATER RUNOFF IS OCCURRING.
2. INACTIVE PERIODS GREATER THAN FOURTEEN (14) CONSECUTIVE CALENDAR DAYS.	THE INSPECTOR MAY REDUCE THE FREQUENCY OF INSPECTIONS IN ANY AREA OF THE SITE WHERE THE STABILIZATION STEPS IN SECTION 2.2.20 HAVE BEEN COMPLETED TO TWICE PER MONTH FOR THE FIRST MONTH, NO LESS THAN 14 CALENDAR DAYS APART, THEN ONCE PER MONTH
3. PERIODS DURING WHICH THE SITE IS INACCESSIBLE DUE TO INCLEMENT WEATHER	IF SAFE, ACCESSIBLE AND PRACTICAL, INSPECTIONS MUST OCCUR DAILY AT A RELEVANT DISCHARGE POINT OR DOWNSTREAM LOCATION OF THE RECEIVING WATERBODY.
4. PERIODS DURING WHICH CONSTRUCTION ACTIVITIES ARE SUSPENDED AND RUNOFF IS UNLIKELY DUE TO FROZEN CONDITIONS.	VISUAL MONITORING INSPECTIONS MAY BE TEMPORARILY SUSPENDED. IMMEDIATELY RESUME MONITORING UPON THAWING, OR WHEN WEATHER CONDITIONS MAKE DISCHARGES LIKELY.
5. PERIODS DURING WHICH CONSTRUCTION ACTIVITIES ARE SUSPENDED AND RUNOFF IS UNLIKELY DUE TO FROZEN CONDITIONS.	VISUAL MONITORING INSPECTIONS MAY BE REDUCED TO ONCE A MONTH . IMMEDIATELY RESUME MONITORING UPON THAWING, OR WHEN WEATHER CONDITIONS MAKE DISCHARGES LIKELY

PERMITTEE'S SITE INSPECTOR

NAME: JEROME KLIMA, PE, CESCL
PH: 503–417–7591
EMAIL: JEROME.KLIMA@PBSUSA.COM
COMPANY NAME: PBS ENGINEERING & ENVIRONMENTAL
ADDRESS: 4412 S CORBETT AVENUE, PORTLAND, OR 97239
CERTIFICATION: CERTIFIED EROSION AND SEDIMENT CONTROL LEAD (CESCL #83381)
TRAINING: CESCL TRAINING EROSION AND SEDIMENT CONTROL, NORTHWEST ENVIRONMENTAL TRAINING CENTER.
EXPERIENCE: 6 YEARS STORMWATER, GRADING AND EROSION CONTROL DESIGN EXPERIENCE. 6 MONTHS EXPERIENCE AS CESCL INSPECTOR AND EROSION CONTROL LEAD

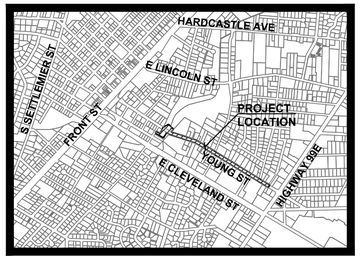
RATIONALE STATEMENT

A COMPREHENSIVE LIST OF AVAILABLE BEST MANAGEMENT PRACTICES (BMP) OPTIONS BASED ON DEQ's GUIDANCE MANUAL HAS BEEN REVIEWED TO COMPLETE THIS EROSION AND SEDIMENT CONTROL PLAN. SOME OF THE ABOVE LISTED BMP's WERE NOT CHOSEN BECAUSE THEY WERE DETERMINED TO NOT EFFECTIVELY MANAGE EROSION PREVENTION AND SEDIMENT CONTROL FOR THIS PROJECT BASED ON SPECIFIC SITE CONDITIONS, INCLUDING SOIL CONDITIONS TOPOGRAPHIC CONSTRAINTS, ACCESSIBILITY TO THE SITE, AND OTHER RELATED CONDITIONS, AS THE PROJECT PROGRESSES AND THERE IS A NEED TO REVISE THE ESC PLAN, AN ACTION PLAN WILL BE SUBMITTED.

INITIAL RDB

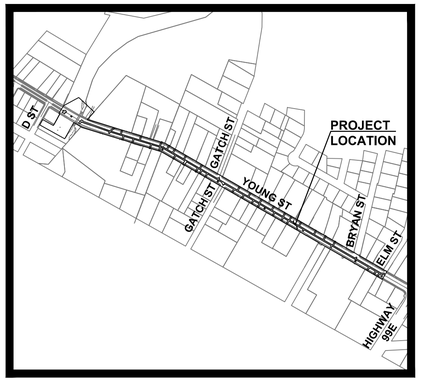
ATTENTION EXCAVATORS:

OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952–001–0010 THROUGH OAR 952–001–0090. YOU MAY OBTAIN COPIES OF THESE RULES FROM THE CENTER BY CALLING 503–232–1987. IF YOU HAVE ANY QUESTIONS ABOUT THE RULES, YOU MAY CONTACT THE CENTER. YOU MUST NOTIFY THE CENTER AT LEAST TWO BUSINESS DAYS, BEFORE COMMENCING AN EXCAVATION. CALL 503–246–6699.



SITE VICINITY MAP

SCALE: 1" = 1500'



SITE PLAN

SCALE: 1" = 500'

OWNER/APPLICANT:
CITY OF WOODBURN, OREGON
202 YOUNG STREET
WOODBURN, OR 97071–4730
CURTIS STULTZ, PUBLIC WORKS DIRECTOR
CURTIS.STULTZ@CI.WOODBURN.OR.US
(503)982–5268

CITY OF WOODBURN, OREGON
190 GARFIELD STREET
WOODBURN, OR 97071–4730
DAGO GARCIA, PE, CITY ENGINEER
DAGO.GARCIA@CI.WOODBURN.OR.US
(503)982–5240

ENGINEER:
PBS ENGINEERING AND ENVIRONMENTAL
4412 S CORBETT AVENUE
PORTLAND, OR 97239
RICHARD BOYLE, PE
RICHARD.BOYLE@PBSUSA.COM
(503)312–0500

GEOTECHNICAL ENGINEER:
PBS ENGINEERING AND ENVIRONMENTAL
4412 S CORBETT AVENUE
PORTLAND, OR 97239
RYAN WHITE, PE, GE
RYAN.WHITE@PBSUSA.COM
(503)417–7608

SURVEYOR:
PBS ENGINEERING AND ENVIRONMENTAL
4412 S CORBETT AVENUE
PORTLAND, OR 97239
TERRY GOODMAN, PLS
TERRY.GOODMAN@PBSUSA.COM
(503)928–9281

PROJECT LOCATION & DESCRIPTION
YOUNG STREET BETWEEN D STREET AND ELM STREET
CITY OF WOODBURN, MARION COUNTY, OREGON
LATITUDE: N 45° 08' 24.85"
LONGITUDE: W 122° 51' 10.05"

EXISTING SITE CONDITIONS
THE EXISTING SITE IS A PAVED ROAD ALONG YOUNG STREET BETWEEN D STREET AND ELM STREET. YOUNG STREET IS RELATIVELY FLAT ALONG THE ENTIRE PROJECT. MILL CREEK FLOWS NORTHWORD THROUGH A CULVERT AT THE WESTERN PORTION OF THE SITE.

DEVELOPED CONDITIONS
THE SANITARY SEWER MAIN AND SANITARY SEWER LATERALS IN YOUNG STREET WILL BE REPLACED AND THE REMOVED SURFACING WILL BE REPLACED IN KIND FOR THE ENTIRE LENGHTH OF THE PROJECT.

NATURE OF CONSTRUCTION ACTIVITY AND ESTIMATED TIME TABLE
PROJECT START DATE: 06/01/2022
INSTALL EROSION CONTROL BMPs: 06/03/2022
UTILITY INSTALLATION: 06/06/2022 – 12/23/2022
ACCESS CONSTRUCTION: 06/03/2022
FINAL SITE COMPLETED AND STABILIZED: 02/06/2023
TOTAL SITE AREA = 0.97 ACRES
TOTAL DISTURBED AREA = 0.97 ACRES

SITE SOIL CLASSIFICATION
AMITY SILT LOAM(Am)–21.0%, BASHAW CLAY(Ba)–20.9%, DAYTON SILT LOAD(Da)–2.7%, WOODBURN SILT LOAM(WuA)–47.6%, WOODBURN SILT LOAM(WuD)–7.7%

EXISTING SUBSURFACE CONDITIONS WERE DETERMINED FROM ~~TEST PITS~~ BORINGS AND ARE AS FOLLOWS:
EMBANKMENT FILL CONSISTING OF BROWN SILT WITH TRACE SAND AND GRAVEL WAS ENCOUNTERED IN THE ~~TEST PITS~~ NEAR MILL CREEK AND WAS PRESENT TO A DEPTH OF 8 TO 9 FEET BELOW GROUND SURFACE (BGS). THE SILT EXHIBITED MEDIUM PLASTICITY, CONTAINED FINE TO COURSE SAND AND SUBANGULAR GRAVEL AND WAS SOFT. DARK GRAY SILT WITH VARYING AMOUNTS OF SAND AND GRAVEL AND INFREQUENT ORGANICS WAS PRESENT BELOW THE EMBANKMENT FILL TO A DEPTH OF 14.5 TO 15.5 FEET BGS. THE SILT EXHIBITED LOW TO MEDIUM PLASTICITY AND WAS VERY SOFT TO SOFT. VERY DARK, BLUISH GRAY, HIGH PLASTICITY CLAY WAS ENCOUNTED IN THE BORINGS NEAR MILL CREEK AND WAS VERY SOFT. THE CLAY TERMINATED BETWEEN DEPTHS OF APPROXIMATELY 16 TO 23 FEET BGS. PEAT WAS ALSO ENCOUNTERED BENEATH ONE OF THE BORINGS TO A DEPTH OF 25 FEET BGS.

MISSOULA FLOOD SEDIMENTS CONSISTING OF INTERBEDDED SILT, SILT WITH SAND, AND SILTY SAND WAS ENCOUNTERED IN ALL BORINGS. INTERBEDS RANGED IN THICKNESS FROM 1 TO 6 INCHES AND WERE GRAY TO DARK GREENISH GRAY NEAR THE MILL CREEK BORINGS AND DARK BROWN AND MOTTLED WITH DIFFERENT COLORS (BROWNISH, RED, OLIVE GRAY, OLIVE BROWN, AND ORANGE) IN BORINGS SOUTHEAST OF MILL CREEK. THESE SEDIMENTS RANGED FROM NON–PLASTIC TO MEDIUM PLASTICITY.

GROUNDWATER WAS ENCOUNTERED AT A DEPTH OF APPROXIMATELY 10 TO 15 FEET BGS. (MEASURED 8/2021) ALONG THE PROJECT ALIGNMENT

RECEIVING WATER BODIES
STORMWATER RUNOFF WILL DISCHARGE TO MILL CREEK.

EROSION AND SEDIMENT CONTROL NOTES:

1. ONCE KNOWN, INCLUDE A LIST OF ALL CONTRACTORS THAT WILL ENGAGE IN CONSTRUCTION ACTIVITIES ON SITE, AND THE AREAS OF THE SITE WHERE THE CONTRACTOR(S) WILL ENGAGE IN CONSTRUCTION ACTIVITIES. REVISE THE LIST AS APPROPRIATE UNTIL PERMIT COVERAGE IS TERMINATED (SECTION 4.4.C.I). IN ADDITION, INCLUDE A LIST OF ALL PERSONNEL (BY NAME AND POSITION) THAT ARE RESPONSIBLE FOR THE DESIGN, INSTALLATION AND MAINTENANCE OF STORMWATER CONTROL MEASURES (E.G. ESCP DEVELOPER, BMP INSTALLER (SEE SECTION 4.10), AS WELL AS THEIR INDIVIDUAL RESPONSIBILITIES. (SECTION 4.4.C.II)
2. VISUAL MONITORING INSPECTION REPORTS MUST BE MADE IN ACCORDANCE WITH DEQ 1200–C PERMIT REQUIREMENTS. (SECTION 6.5)
3. INSPECTION LOGS MUST BE KEPT IN ACCORDANCE WITH DEQ' S 1200–C PERMIT REQUIREMENTS. (SECTION 6.5.Q)
4. RETAIN A COPY OF THE ESCP AND ALL REVISIONS ON SITE AND MAKE IT AVAILABLE ON REQUEST TO DEQ, AGENT, OR THE LOCAL MUNICIPALITY. (SECTION 4.7)
5. THE PERMIT REGISTRANT MUST IMPLEMENT THE ESCP. FAILURE TO IMPLEMENT ANY OF THE CONTROL MEASURES OR PRACTICES DESCRIBED IN THE ESCP IS A VIOLATION OF THE PERMIT. (SECTIONS 4 AND 4.11)
6. THE ESCP MUST BE ACCURATE AND REFLECT SITE CONDITIONS. (SECTION 4.8)
7. SUBMISSION OF ALL ESCP REVISIONS IS NOT REQUIRED. SUBMITTAL OF THE ESCP REVISIONS IS ONLY UNDER SPECIFIC CONDITIONS. SUBMIT ALL NECESSARY REVISION TO DEQ OR AGENT WITHIN 10 DAYS. (SECTION 4.9)
8. SEQUENCE CLEARING AND GRADING TO THE MAXIMUM EXTENT PRACTICAL TO PREVENT EXPOSED INACTIVE AREAS FROM BECOMING A SOURCE OF EROSION. (SECTION 2.2.2)
9. CREATE SMOOTH SURFACES BETWEEN SOIL SURFACE AND EROSION AND SEDIMENT CONTROLS TO PREVENT STORMWATER FROM BYPASSING CONTROLS AND PONDING. (SECTION 2.2.3)
10. IDENTIFY, MARK, AND PROTECT (BY CONSTRUCTION FENCING OR OTHER MEANS) CRITICAL RIPARIAN AREAS AND VEGETATION INCLUDING IMPORTANT TREES AND ASSOCIATED ROOTING ZONES, AND VEGETATION AREAS TO BE PRESERVED. IDENTIFY VEGETATIVE BUFFER ZONES BETWEEN THE SITE AND SENSITIVE AREAS (E.G., WETLANDS), AND OTHER AREAS TO BE PRESERVED, ESPECIALLY IN PERIMETER AREAS. (SECTION 2.2.1)
11. PRESERVE EXISTING VEGETATION WHEN PRACTICAL AND RE–VEGETATE OPEN AREAS. RE–VEGETATE OPEN AREAS WHEN PRACTICABLE BEFORE AND AFTER GRADING OR CONSTRUCTION. IDENTIFY THE TYPE OF VEGETATIVE SEED MIX USED. (SECTION 2.2.5)
12. MAINTAIN AND DELINEATE ANY EXISTING NATURAL BUFFER WITHIN THE 50–FEET OF WATERS OF THE STATE. (SECTION 2.2.4)
13. INSTALL PERIMETER SEDIMENT CONTROL, INCLUDING STORM DRAIN INLET PROTECTION AS WELL AS ALL SEDIMENT BASINS, TRAPS, AND BARRIERS PRIOR TO LAND DISTURBANCE. (SECTIONS 2.1.3)
14. CONTROL BOTH PEAK FLOW RATES AND TOTAL STORMWATER VOLUME, TO MINIMIZE EROSION AT OUTLETS AND DOWNSTREAM CHANNELS AND STREAMBANKS. (SECTIONS 2.1.1. AND 2.2.16)
15. CONTROL SEDIMENT AS NEEDED ALONG THE SITE PERIMETER AND AT ALL OPERATIONAL INTERNAL STORM DRAIN INLETS AT ALL TIMES DURING CONSTRUCTION, BOTH INTERNALLY AND AT THE SITE BOUNDARY. (SECTIONS 2.2.6 AND 2.2.13)
16. ESTABLISH CONCRETE TRUCK AND OTHER CONCRETE EQUIPMENT WASHOUT AREAS BEFORE BEGINNING CONCRETE WORK. (SECTION 2.2.14)
17. APPLY TEMPORARY AND/OR PERMANENT SOIL STABILIZATION MEASURES IMMEDIATELY ON ALL DISTURBED AREAS AS GRADING PROGRESSES. TEMPORARY OR PERMANENT STABILIZATIONS MEASURES ARE NOT REQUIRED FOR AREAS THAT ARE INTENDED TO BE LEFT UNVEGETATED, SUCH AS DIRT ACCESS ROADS OR UTILITY POLE PADS.(SECTIONS 2.2.20 AND 2.2.21)
18. ESTABLISH MATERIAL AND WASTE STORAGE AREAS, AND OTHER NON–STORMWATER CONTROLS. (SECTION 2.3.7)
19. KEEP WASTE CONTAINER LIDS CLOSED WHEN NOT IN USE AND CLOSE LIDS AT THE END OF THE BUSINESS DAY FOR THOSE CONTAINERS THAT ARE ACTIVELY USED THROUGHOUT THE DAY. FOR WASTE CONTAINERS THAT DO NOT HAVE LIDS, PROVIDE EITHER (1) COVER (E.G., A TARP, PLASTIC SHEETING, TEMPORARY ROOF) TO PREVENT EXPOSURE OF WASTES TO PRECIPITATION, OR (2) A SIMILARLY EFFECTIVE MEANS DESIGNED TO PREVENT THE DISCHARGE OF POLLUTANTS (E.G., SECONDARY CONTAINMENT). (SECTION 2.3.7)
20. PREVENT TRACKING OF SEDIMENT ONTO PUBLIC OR PRIVATE ROADS USING BMPS SUCH AS: CONSTRUCTION ENTRANCE, GRAVELED (OR PAVED) EXITS AND PARKING AREAS, GRAVEL ALL UNPAVED ROADS LOCATED ONSITE, OR USE AN EXIT TIRE WASH. THESE BMPS MUST BE IN PLACE PRIOR TO LAND– DISTURBING ACTIVITIES. (SECTION 2.2.7)
21. WHEN TRUCKING SATURATED SOILS FROM THE SITE, EITHER USE WATER–TIGHT TRUCKS OR DRAIN LOADS ON SITE. (SECTION 2.2.7.F)
22. CONTROL PROHIBITED DISCHARGES FROM LEAVING THE CONSTRUCTION SITE, I.E., CONCRETE WASH–OUT, WASTEWATER FROM CLEANOUT OF STUCCO, PAINT AND CURING COMPOUNDS. (SECTIONS 1.5 AND 2.3.9)
23. ENSURE THAT STEEP SLOPE AREAS WHERE CONSTRUCTION ACTIVITIES ARE NOT OCCURRING ARE NOT DISTURBED. (SECTION 2.2.10)
24. PREVENT SOIL COMPACTION IN AREAS WHERE POST–CONSTRUCTION INFILTRATION FACILITIES ARE TO BE INSTALLED. (SECTION 2.2.12)
25. USE BMPS TO PREVENT OR MINIMIZE STORMWATER EXPOSURE TO POLLUTANTS FROM SPILLS; VEHICLE AND EQUIPMENT FUELING, MAINTENANCE, AND STORAGE; OTHER CLEANING AND MAINTENANCE ACTIVITIES; AND WASTE HANDLING ACTIVITIES. THESE POLLUTANTS INCLUDE FUEL, HYDRAULIC FLUID, AND OTHER OILS FROM VEHICLES AND MACHINERY, AS WELL AS DEBRIS, FERTILIZER, PESTICIDES AND HERBICIDES, PAINTS, SOLVENTS, CURING COMPOUNDS AND ADHESIVES FROM CONSTRUCTION OPERATIONS. (SECTIONS 2.2.15 AND 2.3)
26. PROVIDE PLANS FOR SEDIMENTATION BASINS THAT HAVE BEEN DESIGNED PER SECTION 2.2.17 AND STAMPED BY AN OREGON PROFESSIONAL ENGINEER. (SEE SECTION 2.2.17.A).
27. IF ENGINEERED SOILS ARE USED ON SITE, A SEDIMENTATION BASIN/IMPOUNDMENT MUST BE INSTALLED. (SEE SECTIONS 2.2.17 AND 2.2.18)
28. PROVIDE A DEWATERING PLAN FOR ACCUMULATED WATER FROM PRECIPITATION AND UNCONTAMINATED GROUNDWATER SEEPAGE DUE TO SHALLOW EXCAVATION ACTIVITIES. (SEE SECTION 2.4)
29. IMPLEMENT THE FOLLOWING BMPS WHEN APPLICABLE: WRITTEN SPILL PREVENTION AND RESPONSE PROCEDURES, EMPLOYEE TRAINING ON SPILL PREVENTION AND PROPER DISPOSAL PROCEDURES, SPILL KITS IN ALL VEHICLES, REGULAR MAINTENANCE SCHEDULE FOR VEHICLES AND MACHINERY, MATERIAL DELIVERY AND STORAGE CONTROLS, TRAINING AND SIGNAGE, AND COVERED STORAGE AREAS FOR WASTE AND SUPPLIES. (SECTION 2.3)
30. USE WATER, SOIL–BINDING AGENT OR OTHER DUST CONTROL TECHNIQUE AS NEEDED TO AVOID WIND–BLOWN SOIL. (SECTION 2.2.9)
31. THE APPLICATION RATE OF FERTILIZERS USED TO REESTABLISH VEGETATION MUST FOLLOW MANUFACTURER' S RECOMMENDATIONS TO MINIMIZE NUTRIENT RELEASES TO SURFACE WATERS. EXERCISE CAUTION WHEN USING TIME–RELEASE FERTILIZERS WITHIN ANY WATERWAY RIPARIAN ZONE. (SECTION 2.3.5)
32. IF AN ACTIVE TREATMENT SYSTEM (FOR EXAMPLE, ELECTRO–COAGULATION, FLOCCULATION, FILTRATION, ETC.) FOR SEDIMENT OR OTHER POLLUTANT REMOVAL IS EMPLOYED, SUBMIT AN OPERATION AND MAINTENANCE PLAN (INCLUDING SYSTEM SCHEMATIC, LOCATION OF SYSTEM, LOCATION OF INLET, LOCATION OF DISCHARGE, DISCHARGE DISPERSION DEVICE DESIGN, AND A SAMPLING PLAN AND FREQUENCY) BEFORE OPERATING THE TREATMENT SYSTEM. OBTAIN ENVIRONMENTAL MANAGEMENT PLAN APPROVAL FROM DEQ BEFORE OPERATING THE TREATMENT SYSTEM. OPERATE AND MAINTAIN THE TREATMENT SYSTEM ACCORDING TO MANUFACTURER' S SPECIFICATIONS. (SECTION 1.2.9)
33. TEMPORARILY STABILIZE SOILS AT THE END OF THE SHIFT BEFORE HOLIDAYS AND WEEKENDS, IF NEEDED. THE REGISTRANT IS RESPONSIBLE FOR ENSURING THAT SOILS ARE STABLE DURING RAIN EVENTS AT ALL TIMES OF THE YEAR. (SECTION 2.2)
34. AS NEEDED BASED ON WEATHER CONDITIONS, AT THE END OF EACH WORKDAY SOIL STOCKPILES MUST BE STABILIZED OR COVERED, OR OTHER BMPS MUST BE IMPLEMENTED TO PREVENT DISCHARGES TO SURFACE WATERS OR CONVEYANCE SYSTEMS LEADING TO SURFACE WATERS. (SECTION 2.2.8)
35. SEDIMENT FENCE: REMOVE TRAPPED SEDIMENT BEFORE IT REACHES ONE THIRD OF THE ABOVE GROUND FENCE HEIGHT AND BEFORE FENCE REMOVAL. (SECTION 2.1.5.B)
36. OTHER SEDIMENT BARRIERS (SUCH AS BIOBAGS): REMOVE SEDIMENT BEFORE IT REACHES TWO INCHES DEPTH ABOVE GROUND HEIGHT AND BEFORE BMP REMOVAL. (SECTION 2.1.5.C)
37. CATCH BASINS: CLEAN BEFORE RETENTION CAPACITY HAS BEEN REDUCED BY FIFTY PERCENT. SEDIMENT BASINS AND SEDIMENT TRAPS: REMOVE TRAPPED SEDIMENTS BEFORE DESIGN CAPACITY HAS BEEN REDUCED BY FIFTY PERCENT AND AT COMPLETION OF PROJECT. (SECTION 2.1.5.D)
38. WITHIN 24 HOURS, SIGNIFICANT SEDIMENT THAT HAS LEFT THE CONSTRUCTION SITE, MUST BE REMEDIATED. INVESTIGATE THE CAUSE OF THE SEDIMENT RELEASE AND IMPLEMENT STEPS TO PREVENT A RECURRENCE OF THE DISCHARGE WITHIN THE SAME 24 HOURS. ANY IN–STREAM CLEAN–UP OF SEDIMENT SHALL BE PERFORMED ACCORDING TO THE OREGON DEPARTMENT OF STATE LANDS REQUIRED TIMEFRAME. (SECTION 2.2.19.A)
39. THE INTENTIONAL WASHING OF SEDIMENT INTO STORM SEWERS OR DRAINAGE WAYS MUST NOT OCCUR. VACUUMING OR DRY SWEEPING AND MATERIAL PICKUP MUST BE USED TO CLEANUP RELEASED SEDIMENTS. (SECTION 2.2.19)
40. DOCUMENT ANY PORTION(S) OF THE SITE WHERE LAND DISTURBING ACTIVITIES HAVE PERMANENTLY CEASED OR WILL BE TEMPORARILY INACTIVE FOR 14 OR MORE CALENDAR DAYS. (SECTION 6.5.F.)
41. PROVIDE TEMPORARY STABILIZATION FOR THAT PORTION OF THE SITE WHERE CONSTRUCTION ACTIVITIES CEASE FOR 14 DAYS OR MORE WITH A COVERING OF BLOWN STRAW AND A TACKIFIER, LOOSE STRAW, OR AN ADEQUATE COVERING OF COMPOST MULCH UNTIL WORK RESUMES ON THAT PORTION OF THE SITE. (SECTION 2.2.20)
42. DO NOT REMOVE TEMPORARY SEDIMENT CONTROL PRACTICES UNTIL PERMANENT VEGETATION OR OTHER COVER OF EXPOSED AREAS IS ESTABLISHED. ONCE CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED, ALL TEMPORARY EROSION CONTROLS AND RETAINED SOILS MUST BE REMOVED AND DISPOSED OF PROPERLY, UNLESS NEEDED FOR LONG TERM USE FOLLOWING TERMINATION OF PERMIT COVERAGE. (SECTION 2.2.21)

INDEX TO DRAWINGS

1 UPDATES TO NOTES ON EC-0012022-05-20

PBS Engineering and Environmental Inc.
4412 S Corbett Avenue
Portland, OR 97239
503.248.1939
pbsusa.com

EROSION CONTROL COVER SHEET FOR:
YOUNG STREET SANITARY SEWER
A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

Know what's below. Call before you dig.

REGISTERED PROFESSIONAL ENGINEER
72882PE
OREGON
JUNE 14, 2007
RICHARD D. BOYLE
EXPIRES: 12/31/2023

DESIGNED: DPS
CHECKED: ----
APRIL 2022
74203.000
SHEET ID
EC-001
SHEET 34 OF 41

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DUST CONTROL NOTES

DUST SHALL BE MINIMIZED TO THE EXTENT PRACTICABLE, UTILIZING ALL MEASURES NECESSARY, INCLUDING, BUT NOT LIMITED TO THE FOLLOWING BMPS:

1. SPRINKLING HAUL AND ACCESS ROADS AND OTHER EXPOSED DUST PRODUCING AREAS WITH WATER.
2. APPLICATION OF DUST PALLIATIVES ON ACCESS AND HAUL ROADS AS APPROVED BY THE DISTRICT.
3. ESTABLISHING TEMPORARY VEGETATIVE COVER.
4. PLACING WOOD CHIPS OR OTHER EFFECTIVE MULCHES ON VEHICLE AND PEDESTRIANUSE AREAS.
5. MAINTAINING THE PROPER MOISTURE CONDITION ON ALL FILL SURFACES.
6. PRE-WETTING CUT AND BORROW AREA SURFACES.
7. USE OF COVERED HAUL EQUIPMENT.

PRE-CONSTRUCTION, CLEARING, AND DEMOLITION NOTES

1. PERIMETER CONTROLS, INLET PROTECTION AND REQUIRED BMP'S MUST BE INPLACE PRIOR TO ANY DISTURBANCE OR POLLUTANT GENERATING ACTIVITIES, SUCH AS DEMOLITION, TREE REMOVAL, AND SAW-CUTTING
2. ALL BASE ESC MEASURES (INLET PROTECTION, PERIMETER SEDIMENT CONTROL, GRAVEL CONSTRUCTION ENTRANCES, ETC.) MUST BE IN PLACE, FUNCTIONAL, AND APPROVED IN AN INITIAL INSPECTION, PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
3. SEDIMENT BARRIERS APPROVED FOR USE INCLUDE SEDIMENT FENCE, BERMS CONSTRUCTED OUT OF MULCH, CHIPPINGS, OR OTHER SUITABLE MATERIAL, STRAW WATTLES, OR OTHER APPROVED MATERIALS.
4. SENSITIVE RESOURCES INCLUDING, BUT NOT LIMITED TO, TREES, WETLANDS, AND RIPARIAN PROTECTION AREAS SHALL BE CLEARLY DELINEATED WITH ORANGE CONSTRUCTION FENCING OR CHAIN LINK FENCING IN A MANNER THAT IS CLEARLY VISIBLE TO ANYONE IN THE AREA. NO ACTIVITIES ARE PERMITTED TO OCCUR BEYOND THE CONSTRUCTION BARRIER.
5. CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES INCLUDING, BUT NOT LIMITED TO, STREET SWEEPING, AND VACUUMING, MAY BE REQUIRED TO INSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.
6. RUN-ON AND RUN-OFF CONTROLS SHALL BE IN PLACE AND FUNCTIONING PRIOR TO BEGINNING SUBSTANTIAL CONSTRUCTION ACTIVITIES. RUN-ON AND RUN-OFF CONTROL MEASURES INCLUDE: SLOPE DRAINS (WITH OUTLET PROTECTION), CHECK DAMS, SURFACE ROUGHENING, AND BANK STABILIZATION.
7. CONTRACTOR TO REFER TO THE NATIONAL WEATHER SERVICE WEBSITE (WATER.WEATHER.GOV) FOR DAILY PRECIPITATION INFORMATION. THE NEAREST RAIN GAUGE IS LOCATED AT THE PUDDING RIVER NEAR WOODBURN, OREGON. IF THE CONTRACTOR DEEMS IT NECESSARY TO HAVE A RAIN GAUGE ON SITE. THEY SHALL DO SO AT THEIR OWN EXPENSE.

GRADING, STREET AND UTILITY EROSION AND SEDIMENT CONSTRUCTION NOTES

1. SEED USED FOR TEMPORARY OR PERMANENT SEEDING SHALL BE COMPOSED OF ONE OF THE FOLLOWING MIXTURES, UNLESS OTHERWISE AUTHORIZED:
   A. VEGETATED CORRIDOR AREAS REQUIRE NATIVE SEED MIXES. SEE RESTORATION PLAN FOR APPROPRIATE SEED MIX.
   B. DWARF GRASS MIX (MIN. 100 LB./AC.)
      - DWARF PERENNIAL RYEGRASS (80% BY WEIGHT)
      - CREEPING RED FESCUE (20% BY WEIGHT)
   C. STANDARD HEIGHT GRASS MIX (MIN. 100LB./AC.)
      - ANNUAL RYEGRASS (40% BY WEIGHT)
      - TURF-TYPE FESCUE (60% BY WEIGHT)
2. SLOPE TO RECEIVE TEMPORARY OR PERMANENT SEEDING SHALL HAVE THE SURFACE ROUGHENED BY MEANS OF TRACK-WALKING OR THE USE OF OTHER APPROVED IMPLEMENTS. SURFACE ROUGHENING IMPROVES SEED BEDDING AND REDUCES RUN-OFF VELOCITY.
3. LONG TERM SLOPE STABILIZATION MEASURES SHALL INCLUDE THE ESTABLISHMENT OF PERMANENT VEGETATIVE COVER VIA SEEDING WITH APPROVED MIX AND APPLICATION RATE.
4. TEMPORARY SLOPE STABILIZATION MEASURES SHALL INCLUDE: COVERING EXPOSED SOIL WITH PLASTIC SHEETING, STRAW MULCHING, WOOD CHIPS, OR OTHER APPROVED MEASURES.
5. STOCKPILED SOIL OR STRIPPINGS SHALL BE PLACED IN A STABLE LOCATION AND CONFIGURATION. STOCKPILES SHALL BE COVERED WITH PLASTIC SHEETING OR STRAW MULCH. SEDIMENT FENCE IS REQUIRED AROUND THE PERIMETER OF THE STOCKPILE.
6. EXPOSED CUT OR FILL AREAS SHALL BE STABILIZED THROUGH THE USE OF TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS OR MATS, MID-SLOPE SEDIMENT FENCES OR WATTLES, OR OTHER APPROPRIATE MEASURES. SLOPES EXCEEDING 25% MAY REQUIRE ADDITIONAL EROSION CONTROL MEASURES.
7. AREAS SUBJECT TO WIND EROSION SHALL USE APPROPRIATE DUST CONTROL MEASURES INCLUDING THE APPLICATION OF A FINE SPRAY OF WATER, PLASTIC SHEETING, STRAW MULCHING, OR OTHER APPROVED MEASURES.
8. CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES INCLUDING, BUT NOT LIMITED TO, TIRE WASHES, STREET SWEEPING, AND VACUUMING MAY BE BE REQUIRED TO INSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.
9. ACTIVE INLETS TO STORM WATER SYSTEMS SHALL BE PROTECTED THROUGH THE USE OF APPROVED INLET PROTECTION MEASURES. ALL INLET PROTECTION MEASURES ARE TO BE REGULARLY INSPECTED AND MAINTAINED AS NEEDED.
10. SATURATED MATERIALS THAT ARE HAULED OFF-SITE MUST BE TRANSPORTED IN WATER-TIGHT TRUCKS TO ELIMINATE SPILLAGE OF SEDIMENT AND SEDIMENT-LADEN WATER.
11. AN AREA SHALL BE PROVIDED FOR THE WASHING OUT OF CONCRETE TRUCKS IN A LOCATION THAT DOES NOT PROVIDE RUN-OFF THAT CAN ENTER THE STORM WATER SYSTEM. IF THE CONCRETE WASH-OUT AREA CAN NOT BE CONSTRUCTED GREATER THAN 50' FROM ANY DISCHARGE POINT, SECONDARY MEASURES SUCH AS BERMS OR TEMPORARY SETTLING PITS MAY BE REQUIRED. THE WASH-OUT SHALL BE LOCATED WITHIN SIX FEET OF TRUCK ACCESS AND BE CLEANED WHEN IT REACHES 50% OF THE CAPACITY.
12. SWEEPINGS FROM EXPOSED AGGREGATE CONCRETE SHALL NOT BE TRANSFERRED TO THE STORM WATER SYSTEM. SWEEPINGS SHALL BE PICKED UP AND DISPOSED IN THE TRASH.
13. AVOID PAVING IN RAIN WHEN PAVING CHEMICALS CAN RUN-OFF INTO THE STORM WATER SYSTEM.
14. USE BMPs SUCH AS CHECK-DAMS, BERMS, AND INLET PROTECTION TO PREVENT RUN-OFF FROM REACHING DISCHARGE POINTS.
15. COVER CATCH BASINS, MANHOLES, AND OTHER DISCHARGE POINTS WHEN APPLYING SEAL COAT, TACK COAT, ETC. TO PREVENT INTRODUCING THESE MATERIALS TO THE STORM WATER SYSTEM.

EROSION AND SEDIMENT CONTROL BMP IMPLEMENTATION

1. ALL BASE ESC MEASURES (INLET PROTECTION, PERIMETER SEDIMENT CONTROL, GRAVEL CONSTRUCTION ENTRANCES, ETC.) MUST BE IN PLACE, FUNCTIONAL, AND APPROVED IN AN INITIAL INSPECTION, PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
2. STOCK PILE AND STAGING AREAS SHALL BE MOVED AS NECESSARY TO ACCOMMODATE CONSTRUCTION ACTIVITIES.
3. EQUIPMENT MAINTENANCE, FUELING, PORTA-POTTY, AND SOLID WASTE STORAGE SHALL BE WITHIN THE STAGING AREA AND BE PROTECTED FROM DISCHARGING TO STORMWATER FACILITIES.
4. ALL "SEDIMENT BARRIERS (TO BE INSTALLED AFTER GRADING)" SHALL BE INSTALLED IMMEDIATELY FOLLOWING ESTABLISHMENT OF FINISHED GRADE AS SHOWN ON THESE PLANS.
5. LONG TERM SLOPE STABILIZATION MEASURES, INCLUDING MATTING, SHALL BE IN PLACE OVER ALL EXPOSED SOILS BY OCTOBER 1.
6. THE STORM WATER FACILITY SHALL BE CONSTRUCTED AND LANDSCAPED PRIOR TO THE STORM WATER SYSTEM FUNCTIONING AND SITE PAVING.
7. INLET PROTECTION SHALL BE IN-PLACE IMMEDIATELY FOLLOWING PAVING ACTIVITIES.

POLLUTION PREVENTION CONTROLS

1. THE REGISTRANT MUST IMPLEMENT POLLUTION PREVENTION CONTROLS IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS TO PREVENT THE DISCHARGE OF POLLUTANTS TO STORMWATER AND TO PREVENT THE DISCHARGE OF POLLUTANTS FROM SPILLED OR LEAKED MATERIALS FROM CONSTRUCTION ACTIVITIES, SUCH AS BUILDING MATERIALS, BUILDING PRODUCTS, CONSTRUCTION WASTES, TRASH, LANDSCAPE MATERIALS, FERTILIZERS, PESTICIDES, HERBICIDES, DETERGENTS, SANITARY WASTE, FUELS, LUBRICANTS, AND OTHER MATERIALS PRESENT. THE REGISTRANT MUST PROVIDE WRITTEN SPILL PREVENTION AND RESPONSE PROCEDURES, EMPLOYEE TRAINING ON SPILL PREVENTION AND PROPER DISPOSAL PROCEDURES, SPILL KITS AVAILABLE ON SITE, REGULARLY MAINTAINED VEHICLES AND MACHINERY, MATERIAL DELIVERY AND STORAGE CONTROLS,SIGNAGE, AND COVERED STORAGE AREAS FOR WASTE AND SUPPLIES

2. GENERAL CONDITIONS:
   PROVIDE AN EFFECTIVE MEANS OF ELIMINATING THE DISCHARGE OF ANY WASTE FROM ANY ACTIVITIES PERFORMED ON SITE BY IMPLEMENTING THE FOLLOWING:

- LOCATE ACTIVITIES AWAY FROM WATERS OF THE STATE AND STORMWATER INLETS OR CONVEYANCES SO THAT STORMWATER COMING INTO CONTACT WITH THESE ACTIVITIES CANNOT REACH WATERS OF THE STATE;
- ENSURE ADEQUATE SUPPLIES ARE AVAILABLE AT ALL TIMES TO HANDLE SPILLS, LEAKS, AND DISPOSAL OF LIQUIDS, AND PROVIDE SECONDARY CONTAINMENT (E.G. SPILL BERMS, DECKS, SPILL CONTAINMENT PALLETS);
- HAVE A SPILL KIT AVAILABLE ON SITE AND ENSURE PERSONNEL ARE AVAILABLE TO RESPOND EXPEDITIOUSLY IN THE EVENT OF A LEAK OR SPILL;
- CLEAN UP SPILLS OR CONTAMINATED SURFACES IMMEDIATELY USING DRY CLEAN UP MEASURES (DO NOT CLEAN CONTAMINATED SURFACES BY HOSING THE AREA DOWN), AND ELIMINATE THE SOURCE OF THE SPILL TO PREVENT A DISCHARGE OR A CONTINUATION OF AN ONGOING DISCHARGE; AND
- STORE MATERIALS IN A COVERED AREA (E.G., PLASTIC SHEETING, TEMPORARY ROOFS), OR IN SECONDARY CONTAINMENT TO PREVENT THE EXPOSURE OF THESE CONTAINERS TO PRECIPITATION OR STORMWATER RUNOFF, OR A SIMILARLY EFFECTIVE MEANS DESIGNED TO PREVENT THE DISCHARGE OF POLLUTANTS FROM THESE AREAS.

3. EQUIPMENT AND VEHICLE FUELING AND MAINTENANCE:
- USE DRIP PANS AND ABSORBENTS UNDER OR AROUND VEHICLES; AND
- DISPOSE OF OR RECYCLE OIL AND OILY WASTES IN ACCORDANCE WITH OTHER FEDERAL, STATE, TRIBAL, OR LOCAL REQUIREMENTS.

4. EQUIPMENT AND VEHICLE WASHING:
- ENSURE THERE IS NO DISCHARGE OF SOAPS, SOLVENTS, OR DETERGENTS IN EQUIPMENT AND VEHICLE WASH WATER.
- PREVENT THE DISCHARGE OF TURBID VEHICLE WASH WATER TO WATERS OF THE STATE OR CONVEYANCES THAT LEAD TO WATERS OF THE STATE.

5. BUILDING MATERIALS AND BUILDING PRODUCTS:
- MINIMIZE MATERIAL EXPOSURE IN CASES WHERE THE EXPOSURE TO PRECIPITATION OR TO STORMWATER WILL RESULT IN A DISCHARGE OF POLLUTANTS (E.G. ELEVATE MATERIALS FROM SOIL TO PREVENT LEACHING OF POLLUTANTS).

6. PESTICIDES, HERBICIDES, INSECTICIDES, AND FERTILIZERS:
   COMPLY WITH ALL APPLICATION AND DISPOSAL REQUIREMENTS INCLUDED ON THE REGISTERED PESTICIDE, HERBICIDE, INSECTICIDE, AND FERTILIZER LABEL (SEE ALSO HAZARDOUS AND TOXIC WASTES). WHEN APPLYING FERTILIZERS, REGISTRANTS MUST:
- APPLY AT A RATE AND IN AMOUNTS CONSISTENT WITH MANUFACTURER' S SPECIFICATIONS;
- APPLY AT THE APPROPRIATE TIME OF YEAR FOR THE LOCATION, AND PREFERABLY TIMED TO COINCIDE AS
- CLOSELY AS POSSIBLE TO THE PERIOD OF MAXIMUM VEGETATION UPTAKE AND GROWTH;
- AVOID APPLYING BEFORE HEAVY RAINS THAT COULD CAUSE EXCESS NUTRIENTS TO BE DISCHARGED;
- NEVER APPLY TO FROZEN GROUND;
- NEVER APPLY TO STORMWATER CONVEYANCE CHANNELS; AND
- FOLLOW ALL OTHER FEDERAL, STATE, AND LOCAL REQUIREMENTS REGARDING FERTILIZER APPLICATION.

7. HAZARDOUS OR TOXIC WASTES:
- SEPARATE HAZARDOUS OR TOXIC WASTE FROM CONSTRUCTION AND DOMESTIC WASTE;
- STORE WASTE IN SEALED CONTAINERS, WHICH ARE CONSTRUCTED OF SUITABLE MATERIALS TO PREVENT
  LEAKAGE AND CORROSION, AND WHICH ARE CLEARLY LABELED WITH THEIR CONTENTS IN ACCORDANCE WITH
  ALL APPLICABLE FEDERAL, STATE, TRIBAL, OR LOCAL REQUIREMENTS;
- STORE ALL OUTSIDE CONTAINERS WITHIN APPROPRIATELY-SIZED SECONDARY CONTAINMENT (E.G., SPILL BERMS, DECKS, SPILL CONTAINMENT PALLETS) TO PREVENT SPILLS FROM BEING DISCHARGED, OR PROVIDE A SIMILARLY EFFECTIVE MEANS DESIGNED TO PREVENT THE DISCHARGE OF POLLUTANTS FROM THESE AREAS
  (E,G,, STORING CHEMICALS IN A COVERED AREA, HAVING A SPILL KIT AVAILABLE ON SITE); AND
- DISPOSE OF HAZARDOUS OR TOXIC WASTE IN ACCORDANCE WITH THE MANUFACTURER' S RECOMMENDED
  METHOD OF DISPOSAL AND IN COMPLIANCE WITH FEDERAL, STATE, TRIBAL, AND LOCAL REQUIREMENTS.

8. CONSTRUCTION AND DOMESTIC WASTES:
- PROVIDE WASTE CONTAINERS (E.G., DUMPSTER, TRASH RECEPTACLE) THAT PROVIDE GROUND SEPARATION
  AND ARE OF SUFFICIENT SIZE AND NUMBER TO CONTAIN CONSTRUCTION AND DOMESTIC WASTES;
- KEEP WASTE CONTAINER LIDS CLOSED WHEN NOT IN USE AND CLOSE LIDS AT THE END OF THE BUSINESS
  DAY FOR THOSE CONTAINERS THAT ARE ACTIVELY USED THROUGHOUT THE DAY. FOR WASTE CONTAINERS THAT
  DO NOT HAVE LIDS, PROVIDE EITHER (1) COVER (E.G., A TARP, PLASTIC SHEETING, TEMPORARY ROOF) TO PREVENT EXPOSURE OF WASTES TO PRECIPITATION, OR (2) A SIMILARLY EFFECTIVE MEANS DESIGNED TO PREVENT THE DISCHARGE OF POLLUTANTS (E.G., SECONDARY CONTAINMENT);
- CLEAN UP AND DISPOSE OF WASTE IN DESIGNATED WASTE CONTAINERS; AND
- CLEAN UP IMMEDIATELY IF CONTAINERS OVERFLOW.

9. SANITARY WASTES:
- POSITION PORTABLE TOILETS SO THAT THEY ARE SECURE AND WILL NOT BE TIPPED OR KNOCKED OVER, AND
  LOCATED AWAY FROM WATERS OF THE STATE AND STORMWATER INLETS OR CONVEYANCES.

10. WASHING APPLICATORS AND CONTAINERS
    WASHING APPLICATORS AND CONTAINERS USED FOR STUCCO, PAINT, CONCRETE, FORM RELEASE OILS, CURING COMPOUNDS, OR OTHER MATERIALS:
- NO DISCHARGE OF THESE LIQUID WASTES IS ALLOWED IN STORM SEWERS OR WATERS OF THE STATE;
- DISPOSE OF LIQUID WASTES IN ACCORDANCE WITH APPLICABLE REQUIREMENTS;
- REMOVE AND DISPOSE OF HARDENED CONCRETE WASTE CONSISTENT WITH THE HANDLING OF OTHER CONSTRUCTION WASTES; AND
- LOCATE ANY WASHOUT OR CLEANOUT ACTIVITIES AS FAR AWAY AS POSSIBLE FROM WATERS OF THE STATE AND STORMWATER INLETS OR CONVEYANCES, AND, TO THE EXTENT FEASIBLE, DESIGNATE AREAS TO BE USED FOR THESE ACTIVITIES WITH SIGNS AND IN THE ESCP AND CONDUCT SUCH ACTIVITIES ONLY IN THESE AREAS.

11. EMERGENCY SPILL NOTIFICATION REQUIREMENTS:
- DISCHARGES OF TOXIC OR HAZARDOUS SUBSTANCES FROM A SPILL OR OTHER RELEASE ARE PROHIBITED, CONSISTENT WITH SECTION 1.5. WHERE A LEAK, SPILL, OR OTHER RELEASE CONTAINING A HAZARDOUS SUBSTANCE OR OIL OCCURS DURING A 24-HOUR PERIOD, THE REGISTRANT MUST NOTIFY THE OREGON EMERGENCY RESPONSE SYSTEM AT (800) 452-0311 AS SOON AS THE REGISTRANT HAS KNOWLEDGE OF THE RELEASE. CONTACT INFORMATION MUST BE IN LOCATIONS THAT ARE READILY ACCESSIBLE AND AVAILABLE TO ALL EMPLOYEES.

CONSTRUCTION DEWATERING REQUIREMENTS

1. THIS SECTION PERTAINS TO ACCUMULATED WATER FROM PRECIPITATION AND UNCONTAMINATED GROUNDWATER SEEPAGE DUE TO SHALLOW EXCAVATION ACTIVITIES, NOT FOR THE LOWERING OF CONTAMINATED GROUNDWATER (SEE SECTION 1.2.9). REGISTRANT MUST COMPLY WITH THE FOLLOWING REQUIREMENTS TO PREVENT THE DISCHARGE OF POLLUTANTS IN GROUNDWATER OR ACCUMULATED STORMWATER THAT IS REMOVED FROM EXCAVATIONS, TRENCHES, FOUNDATIONS, VAULTS, OR OTHER SIMILAR POINTS OF ACCUMULATION, IN ACCORDANCE WITH SECTION 1.5.

- TO THE EXTENT FEASIBLE, USE VEGETATED, UPLAND AREAS OF THE SITE TO INFILTRATE DEWATERING WATER BEFORE DISCHARGE. THE REGISTRANT IS PROHIBITED FROM USING WATERS OF THE STATE AS PART OF THE TREATMENT AREA;
- IMPLEMENT THE APPROPRIATE CONTROL MEASURES FOR DEWATERING DISCHARGES TO PREVENT THE DISCHARGE OF POLLUTANTS;
- DO NOT DISCHARGE VISIBLE FLOATING SOLIDS OR FOAM;
- USE AN OIL-WATER SEPARATOR OR SUITABLE FILTRATION DEVICE (SUCH AS A CARTRIDGE FILTER) THAT IS DESIGNED TO REMOVE OIL, GREASE, OR OTHER PRODUCTS IF DEWATERING WATER IS FOUND TO CONTAIN THESE MATERIALS;
- AT ALL POINTS WHERE DEWATERING WATER IS DISCHARGED, COMPLY WITH THE VELOCITY DISSIPATION REQUIREMENTS OF SECTION 2.2.16;
- WITH BACKWASH WATER, EITHER HAUL IT AWAY FOR DISPOSAL OR RETURN IT TO THE BEGINNING OF THE TREATMENT PROCESS;
- REPLACE AND CLEAN THE FILTER MEDIA USED IN DEWATERING DEVICES WHEN THE PRESSURE DIFFERENTIAL EQUALS OR EXCEEDS THE MANUFACTURER' S SPECIFICATIONS;
- IF THERE IS NO ALTERNATIVE OPTION, THE USE OF A SANITARY OR COMBINED SEWER DISCHARGE IS AUTHORIZED WITH LOCAL SEWER DISTRICT APPROVAL; AND
- ACTIVE TREATMENT SYSTEMS FOR TURBIDITY OR ANY OTHER POLLUTANTS MUST BE DESIGNED AND STAMPED BY AN OREGON REGISTERED PROFESSIONAL ENGINEER

PBS Engineering and Environmental Inc.
4412 S Corbett Avenue
Portland, OR 97239
503.248.1939
pbsusa.com

EROSION CONTROL NOTES FOR:

YOUNG STREET SANITARY SEWER

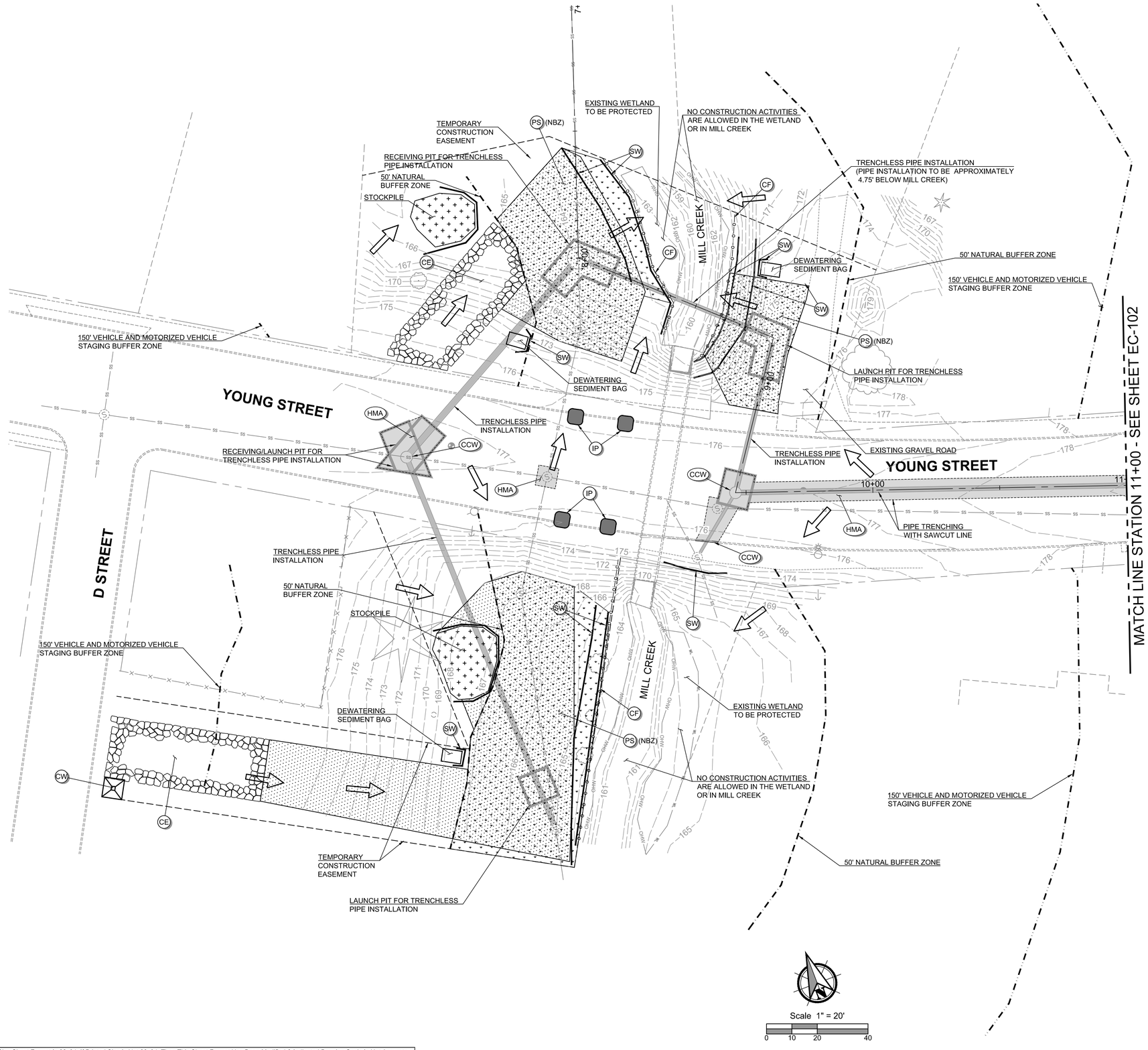
A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

Know what's below. Call before you dig.

REGISTERED PROFESSIONAL ENGINEER
72882PE
OREGON
JUNE 14, 2007
RICHARD D. BOYLE
EXPIRES: 12/31/2023

DESIGNED: DPS
CHECKED: —
APRIL 2022
74203.000

SHEET ID
EC-002
SHEET 35 OF 41



PAVING & UTILITIES EROSION CONTROL PLAN NOTES

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UTILITY & ROADWAY EROSION CONTROL PLAN FOR:

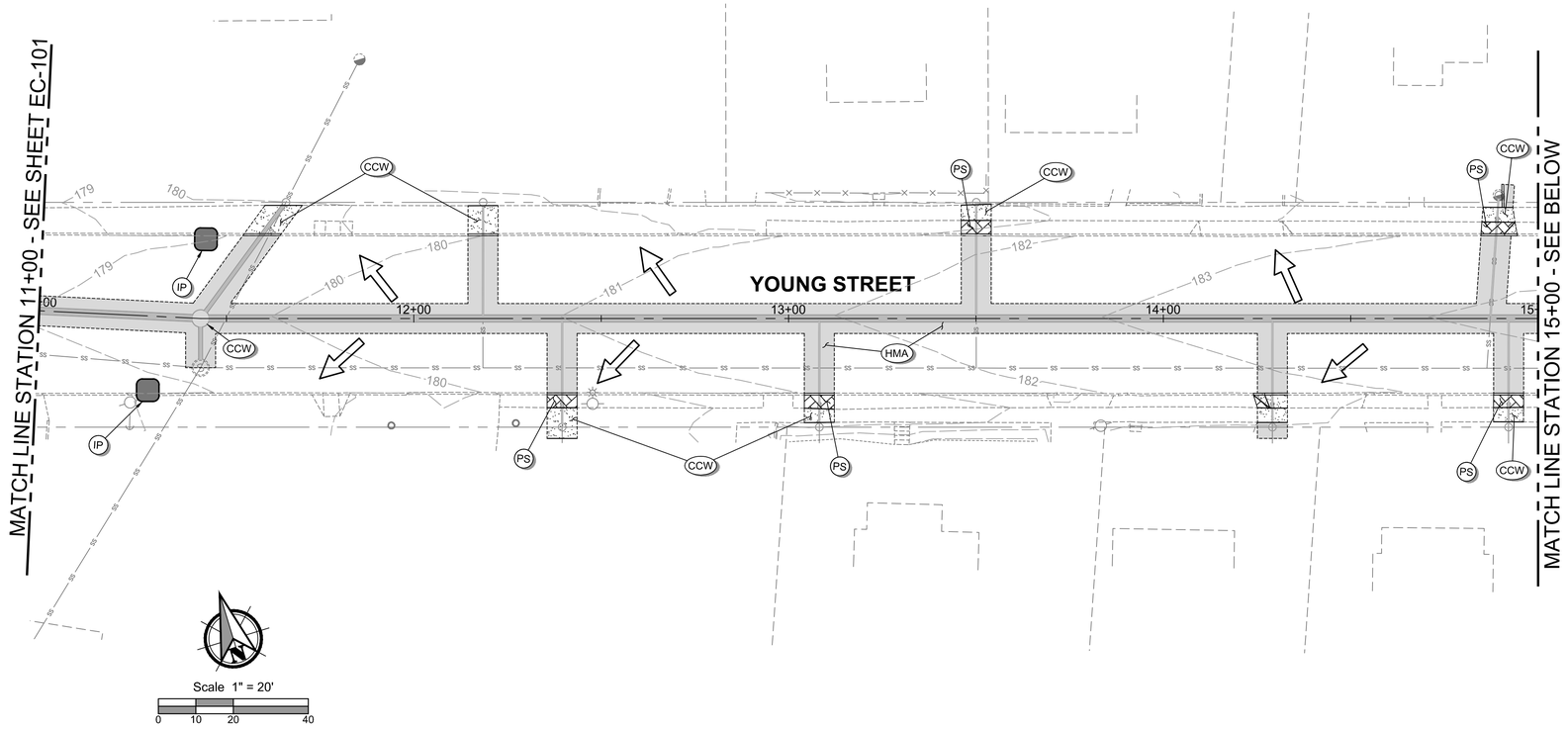
YOUNG STREET SANITARY SEWER

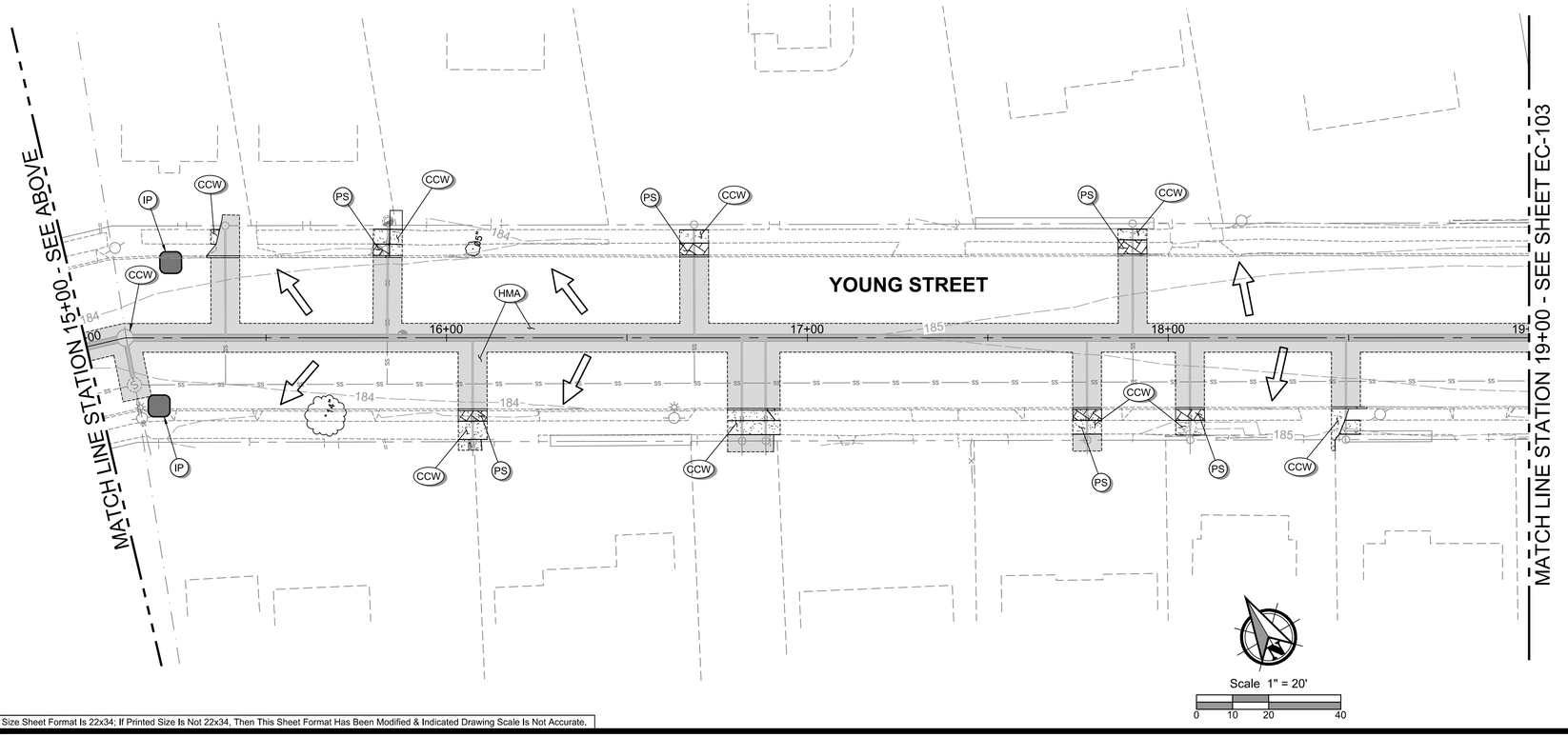
A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

Know what's below. Call before you dig.

REGISTERED PROFESSIONAL ENGINEER
72882PE
OREGON
JUNE 14, 2007
RICHARD D. BOYLE
EXPIRES: 12/31/2023

DESIGNED:	DPS
CHECKED:	----
APRIL 2022	74203.000
SHEET ID	EC-101
SHEET	36 OF 41





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EXPIRES: 12/31/2023

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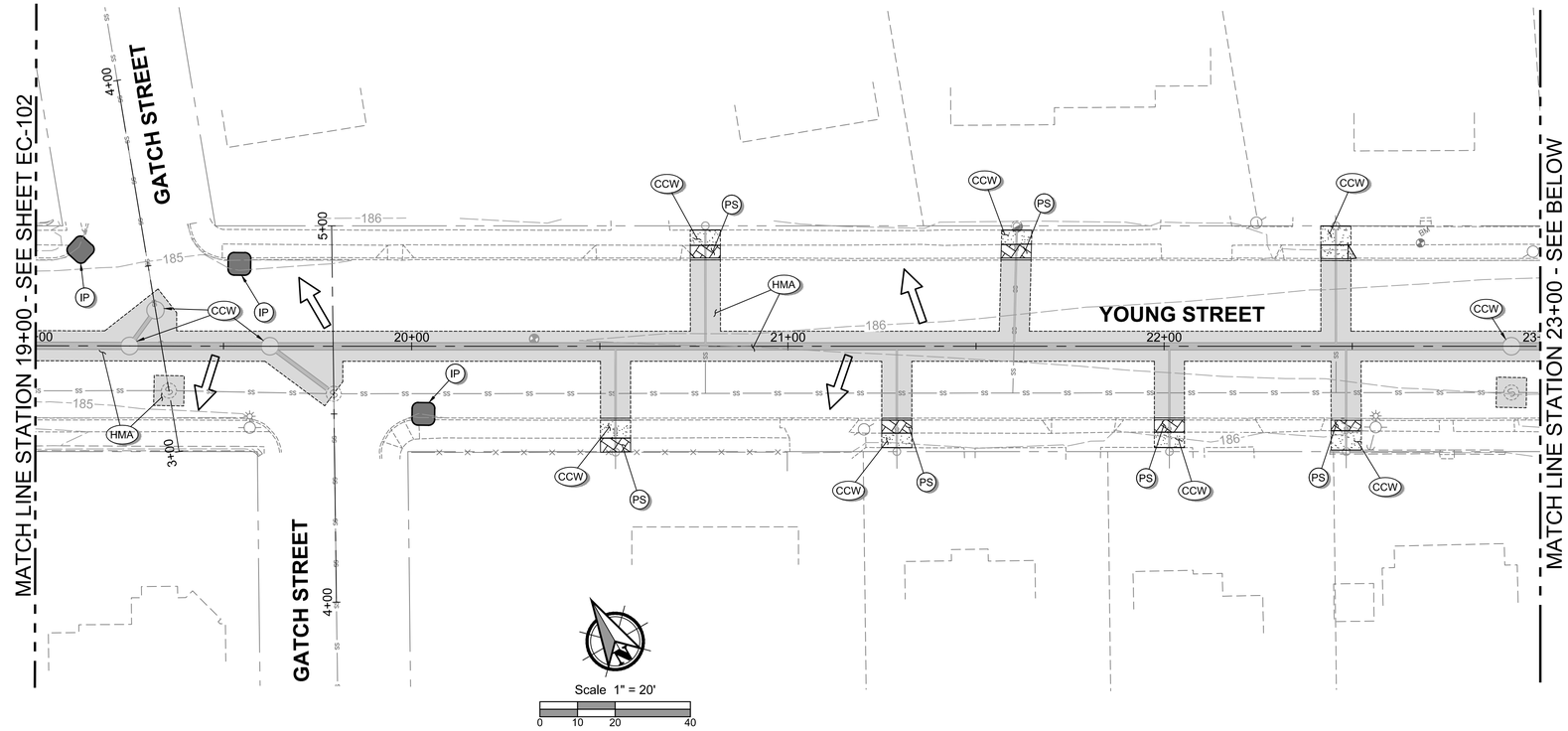
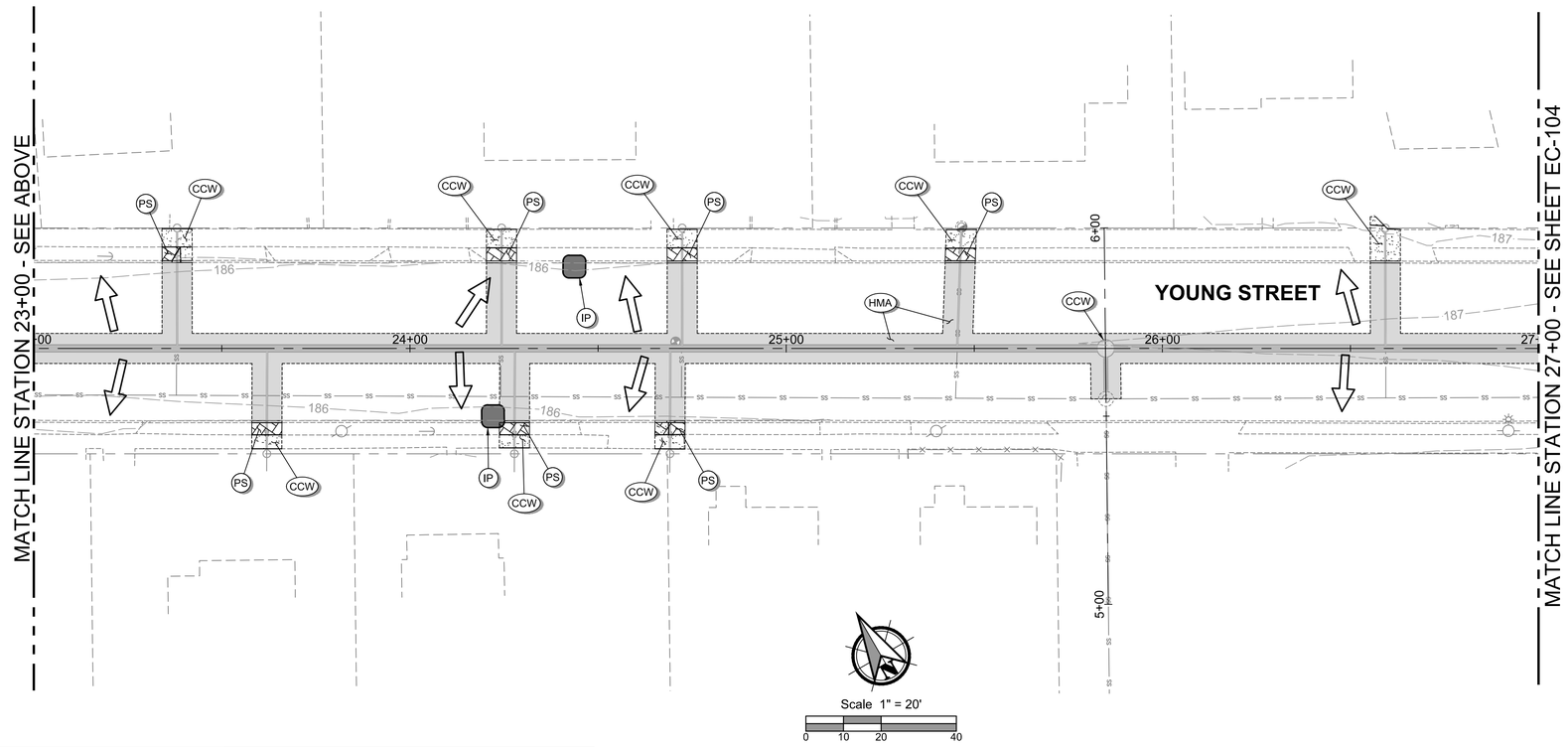
CHECKED: ---
APRIL 2022 74203.000

SHEET ID
EC-102
SHEET 37 OF 41





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APRIL 2022	74203.000
SHEET ID	EC-103
SHEET	38 OF 41

Full Size Sheet Format Is 22x34; If Printed Size Is Not 22x34, Then This Sheet Format Has Been Modified & Indicated Drawing Scale Is Not Accurate.

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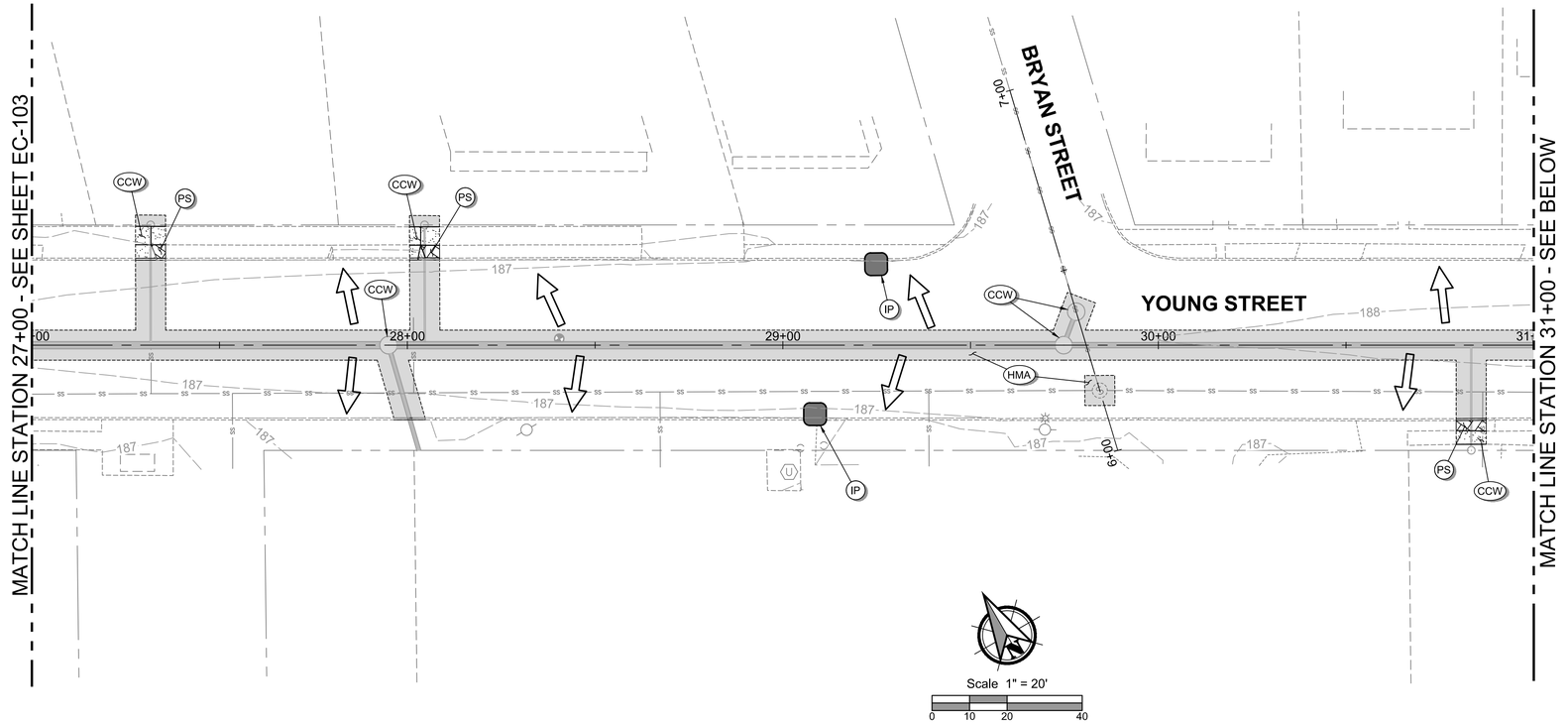

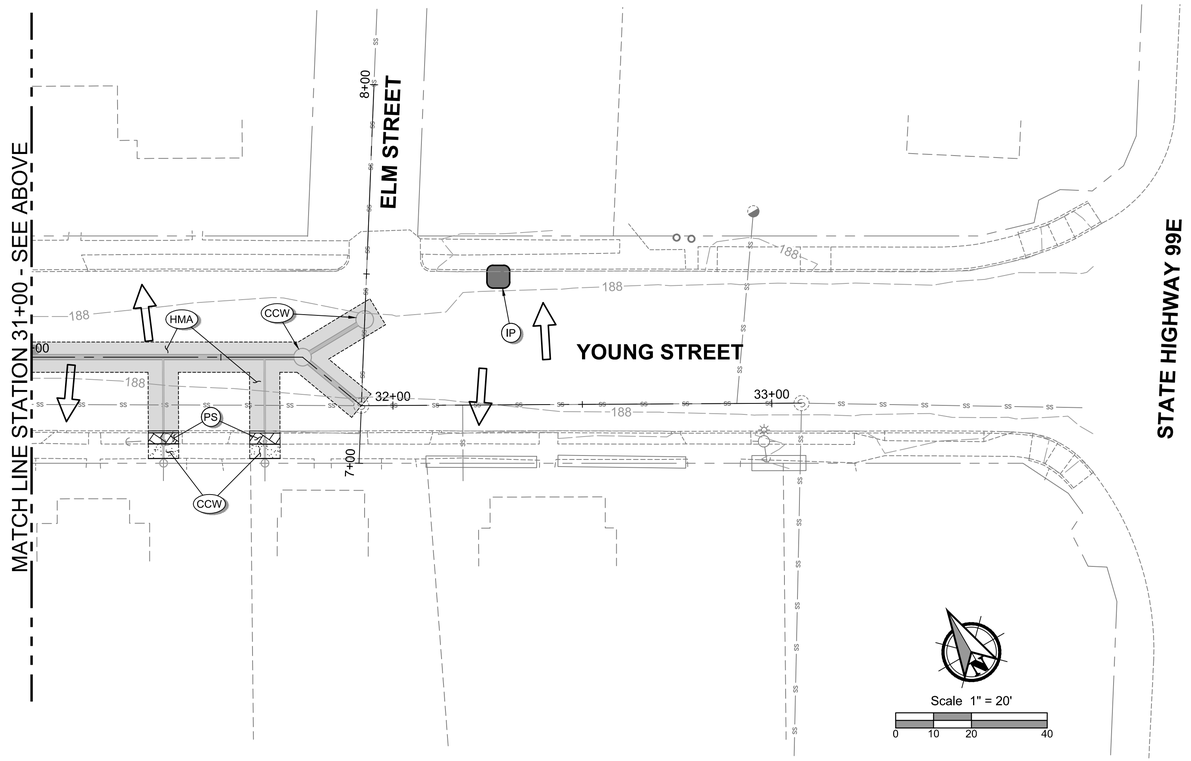

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SHEET ID
EC-104
SHEET 39 OF 41

Filename: L:\Projects\74000\74203\74203-000\Civil\CAD\Working\Sheets\74203.000-EC-101-EC-106.dwg Layout Tab: EC-104 User: Dan Skolrud CAD Plot Date/Time: 4/21/2022 4:50:25 PM

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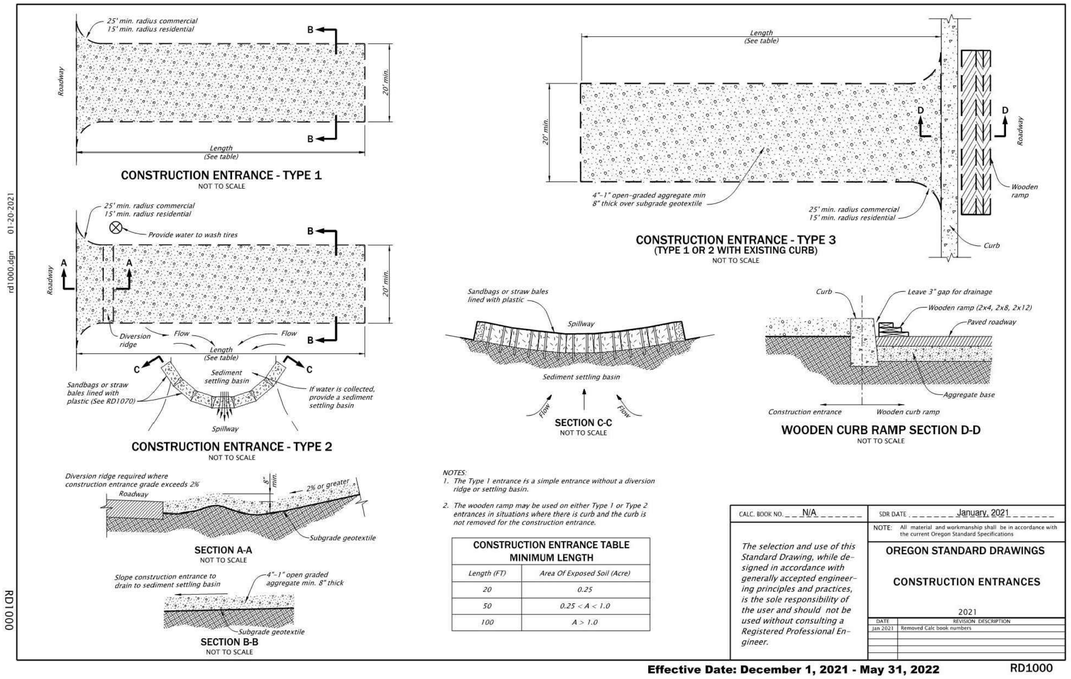


NOTES:
1. The Type 1 entrance is a simple entrance without a diversion ridge or settling basin.
2. The wooden ramp may be used on either Type 1 or Type 2 entrances in situations where there is curb and the curb is not removed for the construction entrance.

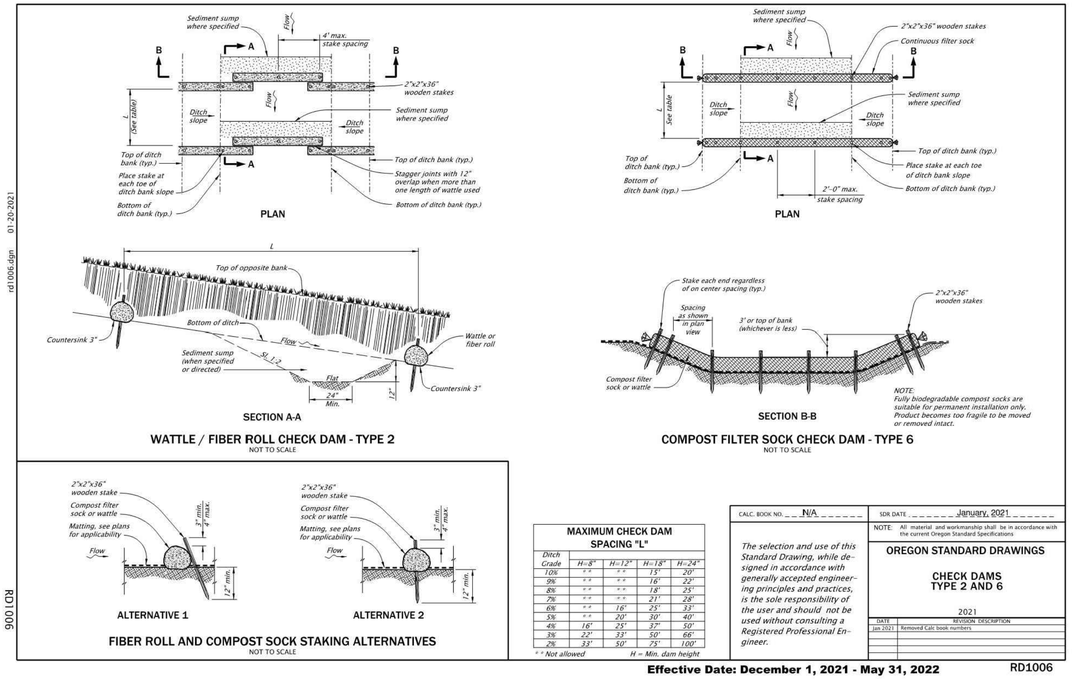
CONSTRUCTION ENTRANCE TABLE MINIMUM LENGTH	
Length (FT)	Area Of Exposed Soil (Acre)
20	0.25
50	0.25 < A < 1.0
100	A > 1.0

CALC. BOOK NO. N/A	SDR DATE January, 2021
The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.	NOTE: All material and workmanship shall be in accordance with the current Oregon Standard Specifications
	OREGON STANDARD DRAWINGS CONSTRUCTION ENTRANCES 2021

DATE	REVISION DESCRIPTION
Jan 2021	Removed Calc book numbers

RD1000

Effective Date: December 1, 2021 - May 31, 2022 RD1000



RD1006

MAXIMUM CHECK DAM SPACING "L"				
Ditch Grade	H=8"	H=12"	H=18"	H=24"
10%	* *	* *	15'	20'
9%	* *	* *	16'	22'
8%	* *	* *	18'	25'
7%	* *	* *	21'	28'
6%	* *	16'	25'	33'
5%	* *	20'	30'	40'
4%	16'	25'	37'	50'
3%	22'	33'	50'	66'
2%	33'	50'	75'	100'

* * Not allowed
H = Min. dam height

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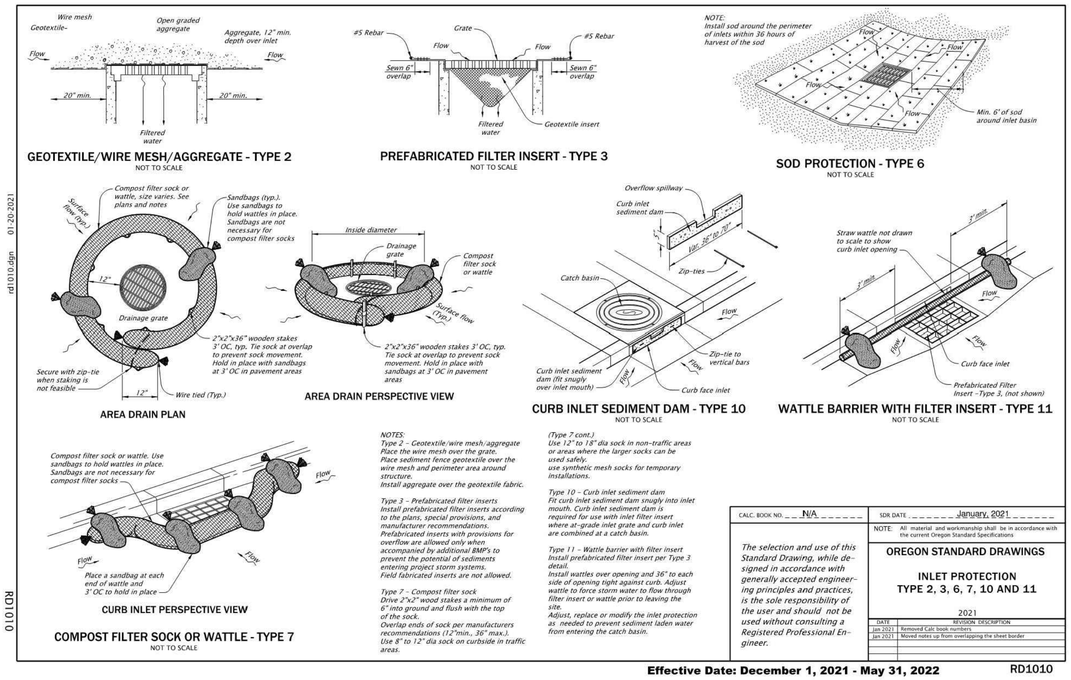
	OREGON STANDARD DRAWINGS CHECK DAMS TYPE 2 AND 6 2021

DATE	REVISION DESCRIPTION
Jan 2021	Removed Calc book numbers

Effective Date: December 1, 2021 - May 31, 2022 RD1006



NOTES:
Type 2 - Geotextile/wire mesh/aggregate
Place the wire mesh over the grate.
Place sediment fence geotextile over the wire mesh and perimeter area around structure.
Install aggregate over the geotextile fabric.

Type 3 - Prefabricated filter inserts
Install prefabricated filter inserts according to the plans, special provisions, and manufacturer recommendations.
Prefabricated inserts with provisions for overflow are allowed only when accompanied by additional BMP's to prevent the potential of sediments entering project storm systems.
Field fabricated inserts are not allowed.

Type 7 - Compost filter sock
Drive 2"x2" wood stakes a minimum of 6" into ground and flush with the top of the sock.
Overlap ends of sock per manufacturers recommendations (12"min., 36" max.).
Use 8" to 12" dia sock on curbside in traffic areas.

(Type 7 cont.)
Use 12" to 18" dia sock in non-traffic areas or areas where the larger socks can be used safely.
use synthetic mesh socks for temporary installations.

Type 10 - Curb inlet sediment dam
Fit curb inlet sediment dam snugly into inlet mouth. Curb inlet sediment dam is required for use with inlet filter insert where at-grade inlet grate and curb inlet are combined at a catch basin.

Type 11 - Wattle barrier with filter insert
Install prefabricated filter insert per Type 3 detail.
Install wattles over opening and 36" to each side of opening tight against curb. Adjust wattle to force storm water to flow through filter insert or wattle prior to leaving the site.
Adjust, replace or modify the inlet protection as needed to prevent sediment laden water from entering the catch basin.

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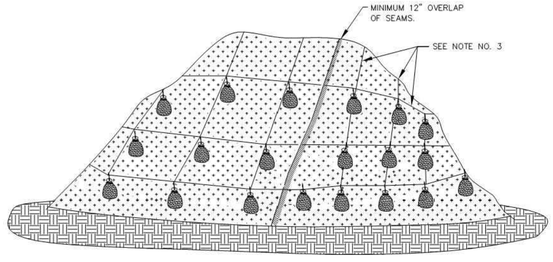
	OREGON STANDARD DRAWINGS INLET PROTECTION TYPE 2, 3, 6, 7, 10 AND 11 2021

DATE	REVISION DESCRIPTION
Jan 2021	Removed Calc book numbers
Jan 2021	Moved notes up from overlapping the sheet border

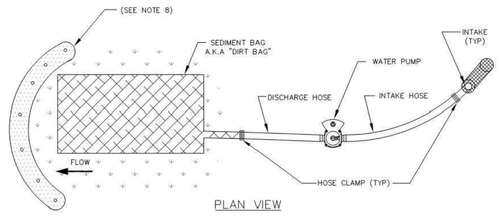
RD1010

Effective Date: December 1, 2021 - May 31, 2022 RD1010



NOTES:
1. MINIMUM 12" OVERLAP OF ALL SEAMS REQUIRED.
2. PERIMETER SEDIMENT CONTROL BMP TO BE INSTALLED A MIINIMUM OF 3' FROM TOE OF STOCKPILE.
3. COVERING MAINTAINED TIGHTLY IN PLACE BY USING SANDBAGS OR APPROVED EQUAL ON ROPES WITH A MAXIMUM 10' GRID SPACING IN ALL DIRECTIONS.
4. PLASTIC TO EXTEND MINIMUM 1' BEYOND TOE OF SLOPE.
5. AS APPROPRIATE, BMP'S SHALL BE INSTALLED TO CONVEY WATER DISCHARGE FROM STOCKPILE AREAS.

PLASTIC SHEETING
NTS



NOTES:
1. THE SEDIMENT SHALL BE MANUFACTURED USING A POLYPROPYLENE 8 OZ. NON-WOVEN GEOTEXTILE SEWN INTO A BAG WITH DOUBLE NEEDLE, USING A HIGH STRENGTH THREAD.
2. EACH STANDARD SEDIMENT BAG MUST HAVE A FILL SPOUT LARGE ENOUGH TO ACCOMODATE A 4" DISCHARGE HOSE. STRAPS ARE ATTACHED TO SECURE THE HOSE AND PREVENT PUMPED WATER FROM ESCAPING WITHOUT BEING FILTERED.
3. THE SEDIMENT BAG SHALL MEET OR EXCEED OVERALL BAG REMOVAL EFFICIENCY RATE OF 97.55%.
4. WATER BEING DISCHARGED FROM THE SEDIMENT BAG SHALL BE FREE OF ALL SEDIMENT PRIOR TO LEAVING THE SITE OR ENTERING INTO THE STORM SYSTEM.
5. SEDIMENT BAG IS FULL WHEN IT NO LONGER CAN EFFICIENTLY FILTER SEDIMENT OR ALLOW WATER TO PASS AT A RATE LESS THAN 50% OF THE MANUFACTURER'S DESIGN FLOW RATE.
6. SEDIMENT BAG MUST BE MONITORED DURING USE.
7. SEDIMENT BAG SHALL BE DISPOSED OF OFF-SITE.
8. INSTALL WATTLE DOWNSTREAM OF SEDIMENT BAG.
9. FOR BEST RESULTS PLACE SEDIMENT BAG ON FLAT SURFACE.
10. SEDIMENT BAG SHOULD PLACED ON EXISTING VEGETATION, ROCK OR BED OF STRAW. SEDIMENT BAG SHOULD NOT BE PLACED ON BARE GROUND.

SEDIMENT BAG
NTS

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4412 S Corbett Avenue
Portland, OR 97239
503.248.1939
pbsusa.com

EROSION CONTROL DETAILS FOR:
YOUNG STREET SANITARY SEWER
A SANITARY SEWER PROJECT FOR THE CITY OF WOODBURN, OREGON

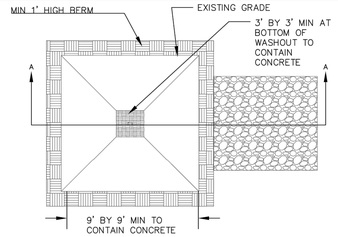
Know what's below. Call before you dig.

DESIGNED:	DPS
CHECKED:	----
APRIL 2022	74203.000

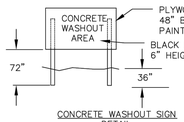
SHEET ID
EC-105
SHEET 40 OF 41

NOTES:

1. WASHOUT FACILITIES SHALL BE MAINTAINED TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM FREEBOARD OF 12 INCHES.
2. WASHOUT FACILITIES MUST BE CLEANED, OR NEW FACILITIES MUST BE CONSTRUCTED AND READY FOR USE ONCE THE WASHOUT IS 75% FULL.
3. IF THE WASHOUT IS NEARING CAPACITY, VACUUM AND DISPOSE OF THE WASTE MATERIAL IN AN APPROVED MANNER.
4. TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE LOCATED A MINIMUM OF 50 FT FROM SENSITIVE AREAS INCLUDING OPEN DRAINAGE FACILITIES AND WATERSOURSES.
5. CONCRETE WASHOUT FACILITIES SHALL BE CONSTRUCTED AND MAINTAINED IN SUFFICIENT QUANTITY AND SIZE TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS.
6. INSTALL CONCRETE WASHOUT SIGN WITHIN 30 FEET OF TEMPORARY CONCRETE WASHOUT FACILITY.
7. TEMPORARY CONCRETE WASHOUTS MAY BE A PREFABRICATED CONTAINER THAT IS PORTABLE AND REUSABLE.

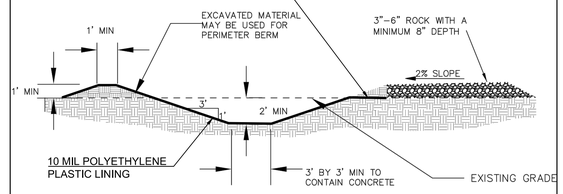


PLAN
NOT TO SCALE



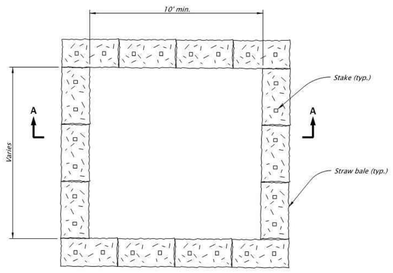
CONCRETE WASHOUT SIGN DETAIL
(OR EQUIVALENT)
NOT TO SCALE

STAPLE PLASTIC LINER AROUND TOP OF CONCRETE WASHOUT

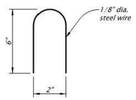


SECTION A–A
NOT TO SCALE

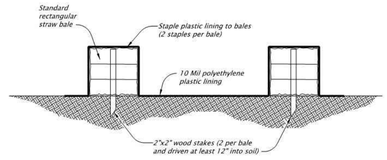
RD1070 01-20-2021 rd1070.dgn



PLAN



STAPLE DETAIL
NOT TO SCALE



SECTION A-A

CONCRETE TRUCK WASH OUT FACILITY
NOT TO SCALE

CALC. BOOK NO. N/A

SDR DATE January, 2021

NOTE. All material and workmanship shall be in accordance with the current Oregon Standard Specifications

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without consulting a Registered Professional Engineer.

OREGON STANDARD DRAWINGS

CONCRETE TRUCK WASH OUT

2021

DATE	REVISION DESCRIPTION
Jan 2021	Removed Calc book numbers

Effective Date: December 1, 2021 - May 31, 2022 RD1070

CONCRETE WASHOUT
NTS

PBS Engineering and Environmental Inc.
4412 S Corbett Avenue
Portland, OR 97239
503.248.1939
pbsusa.com

PBS

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SHEET ID
EC-106
SHEET 41 OF 41