Construction Permit No: ROW-CONST-2023-0003.1

Effective Date: MAY 31, 2024

MULTNOMAH COUNTY DEPARTMENT OF COMMUNITY SERVICES
TRANSPORTATION PLANNING AND DEVELOPMENT PROGRAM

Construction Permit

MAY 31, 20 24

Under the provisions of Multnomah County Code ("MCC") Sections 27.055, 27.056, 29.506, and 29.572, and Multnomah County Road Rules ("MCRR") 18.200, this Construction Permit (the "Permit") is hereby issued by Multnomah County Transportation Planning and Development Program ("County") to:

PORTLAND WATER BUREAU
1120 SW 5TH AVE, RM 405, PORTLAND, OR 97204
CONTACT: ROBERT FRALEY
CONTACT PHONE: 503-823-3573
CONTACT EMAIL: Robert.fraley@portlandoregon.gov

("Developer"). This Permit is issued for the construction of the improvements within the County controlled rights-of-way or easements, as described in EXHIBIT A, attached hereto and made a part of this document.

A. General Permit Requirements:

1. The County shall approve all plans, drawings, and other design documents prior to the construction of any improvements as described in the Exhibit A.

2. NO PARTIAL IMPROVEMENTS SHALL BE CONSTRUCTED WITHIN THE COUNTY RIGHT-OF-WAY.

3. ANY EXCAVATION, ROCKING, OR PAVING SHALL ONLY BE ALLOWED AS A PART OF A CONTINUOUS, TIMELY OPERATION TOWARD COMPLETION OF THE WORK AS DESCRIBED IN THE EXHIBIT "A." NO PAVING SHALL BE ALLOWED UNTIL ALL CURB, EXCAVATION, ROCK, DRAINAGE, AND UTILITY WORK, HAS BEEN COMPLETED WITHIN THE AREA TO BE PAVED, AND THEN ONLY AS A PART OF THE CONTINUOUS, TIMELY COMPLETION OF THE ENTIRE PAVING PROJECT, AS SHOWN ON THE APPROVED PLANS.

4. The County reserves the right to prohibit any further connections, withhold occupancy permits, or remove or block any existing connections between the facilities covered by this Permit and adjacent properties, if the Developer does not provide or complete all items of this Permit to the County's satisfaction.

B. The County agrees to do the following:

1. Establish the amounts of the Administration Fee, Performance Guarantee, and Maintenance Guarantee.

2. Review plans, drawings, and other design documents for conformance with design and drafting criteria. Upon approval of the plans, provide the Developer with copy sets of plans and specifications, and schedule a pre-construction meeting.

3. Establish a reasonable length of time for construction activities within the right-of-way. Issue "First Notification" to authorize the beginning of construction activities, and start the calendar day count.

4. Issue "Second Notification" to stop the calendar day count if the County deemed the project to be substantially complete in accordance to the contract documents so that the work can used for its intended purpose.

5. Perform all required final construction supervision, inspection, and testing if needed.

6. Inspect completed facility for acceptance of construction work, and if facilities are accepted issue the "Third Notification" to release the Performance Guarantee.

7. Conduct final inspection prior to expiration of Maintenance Guarantee, and if facilities are accepted issue the "Fourth Notification" to release the Maintenance Guarantee.

8. Administration required for processing and accepting facility as a County or Service District maintained facility, where applicable.

C. The Developer agrees to do the following:

1. Deposit with the County an Administration Fee (see Exhibit A), prior to scheduling the pre-design meeting. Following acceptance by the County of the completed improvements, this fee may be adjusted up or down to reflect the actual costs incurred by the County. Over-payment will be refunded to the Developer. Under-payment will result in billing the Developer for the difference between the actual costs incurred and the initial fee.

2. Before issuance of the "First Notification" provide to the County a properly executed Performance Guarantee (see Exhibit A). This guarantee shall be submitted to the County Engineer. The Performance Guarantee shall guarantee the completion of the improvements described in Exhibit A and shall remain in full force and effect until the Developer receives the "Third Notification" or termination of this Construction Permit whichever comes first.

3. Before issuance of the "Third Notification" provide to the County a properly executed Maintenance Guarantee (see Exhibit A). The guarantee shall be submitted to the County Engineer. The guarantee shall not expire for two (2) years from date Developer receives the "Third Notification" or receives the "Fourth Notification", whichever comes later. The Maintenance Guarantee shall guarantee the repair or replacement of any improvements constructed under this permit which become unsatisfactory to the County because of

workmanship or materials used during their construction or that are damaged by project workmen or equipment completing the related adjacent construction.

4. Complete all construction activities, to include all “As-Built” information, within eighteen (18) months of the issuance date of the “Third Notification”.

5. Obtain the services of a consulting Engineer, registered in the state of Oregon, WHO WILL BE FURNISHED A COPY OF THIS PERMIT BY THE DEVELOPER. The Developer or Consultant shall furnish to the County a fully executed "Consulting Engineer's Statement" (see attachment), AND SCHEDULE A PRE-DESIGN MEETING WITH THE COUNTY PRIOR TO COMMENCING ANY DESIGN WORK. If Developer should change consulting engineers prior to acceptance of plans a new fully executed "Consulting Engineer's Statement" must be furnished to the County before the project can continue. Any compensation paid to the Engineer for services rendered in performance of Developer’s obligations under this Permit may not be included as part of the Administration Fee.

6. Convey all right-of-way dedications and easement dedications as required by this Construction Permit to the appropriate governing body, free of all encumbrances, before issuance of the “First Notification.”

7. Developer shall defend, save, hold harmless, and indemnify County and its officers, employees, and agents from and against all claims, suits, actions, losses, damages, liabilities, costs, and expenses of any nature whatsoever, including attorney fees, resulting from, arising out of, or relating to the activities of Developer or its officers, employees, agents, contractors, subcontractors under this Permit. Developer shall have control of the defense and settlement of any claim that is subject to this paragraph. However, neither the Developer nor any attorney engaged by the Developer shall defend the claim in the name of the County or any department of the County, nor purport to act as legal representative of the County or any of its departments without receiving from the Multnomah County Attorney’s Office, authority to act as legal counsel for the County, nor shall Developer settle any claim on behalf of the County without the approval of the Multnomah County Attorney’s Office. County may, at its election and expense, assume its own defense and settlement.

D. Developer shall ensure that any Consulting Engineer (“Engineer”) retained by the Developer to provide services under this Permit complies with the following requirements:

1. The Engineer must work directly with the County Engineer, and provide engineering services in the same manner as if the Engineer had been retained by the County.

2. Design the project, including complete plans and specifications, in conformance with MCC 29.500, the Multnomah County Design and Construction Manual, and design standards adopted thereunder. All plans submitted for review shall be submitted on 24 inch by 36 inch sheets. Plans shall be produced using English units and quantities.

3. Perform or obtain all survey work according to County standards, as required for design and construction of the project. Perform any additional construction staking or material testing as directed by the County. The Engineer shall document any changes to the approved design that occur during construction, and submit any additional work required for preparation of

"as-built" plans.

4. After production of "as-built" plans, the Engineer shall provide to the County an electronic copy of the drawings, to include the base topographic survey data, with the "as-built" mylars.

5. Detail on the plans items of esthetic or historic significance, including trees, inside the right-of-way or within ten (10) feet of the right-of-way line that may be disturbed or destroyed by the project.

6. Detail on the plans all underground utilities to be constructed as part of this Permit as a composite utility plan. All information is to be furnished by the respective utilities, and approved by them.

7. Obtain DEQ and appropriate city approval of sanitary sewers, if applicable, and furnish copy of approval to the County prior to the County's approval of plans.

8. The Engineer shall make all changes to the plans as may be required for County approval of the plans. After all changes have been made, the Engineer shall submit original plans on double mat mylar or photocopied mylars on double mat mylars and one set of 11 inch by 17 inch paper. If mylars are hand produced or pen plotted, mylars are to be produced in black ink.

E. Developer shall ensure that any Construction Contractor ("Contractor") retained by the Developer to provide services under this Permit complies with the following requirements:

1. Before the pre-construction meeting, Contractor shall notify all affected utilities and coordinate their work within the project.

2. At the time of the pre-construction meeting, the Contractor shall provide to the County the following documents:

   Traffic control plans
   Insurance Certificate with Multnomah County as additional insured
   Construction work schedule
   List of contractors' contact numbers for emergencies
   List of subcontractors
   List of material suppliers
   Gradation, Abrasion, Sand Equivalent, Fracture, and Degradation Tests for Aggregate
   Mix Design for Concrete and Asphalt
   Material Certifications

   All documents shall conform to the requirements of the current ODOT Oregon Standard Specifications for Construction.

3. All activities, including work to be performed and materials to be used in the performance of work as described in the Exhibit/s, shall conform to the current ODOT Oregon Standard Specifications for Construction except as modified by Multnomah County Special Provisions.

4. Maintain all erosion control measures at all times.

5. Complete all construction activities within the right-of-way within the period specified in the "First Notification" and complete any corrective work as detailed in the "Second Notification" within twenty (20) calendar days from the date of the "Second Notification". Failure to meet these deadlines shall be grounds for the County to proceed under Section F (2) of this Permit.

F. Time Extension/Forfeiture

1. The County may, in its sole discretion, grant time extensions to the time limits described in this Permit. Any request for a time extension shall be in writing, and state the reasons for the extension. An approved extension may require an additional Administration Fee and may also require a new Performance Guarantee in an increased amount necessary to cover current estimated construction costs. Before the County grants any time extension, the Developer shall furnish proof that all Fees and Guarantees have met the requirements of Sections C (1) and C (2) for the new date being requested.

2. The County may, in its sole discretion, require forfeiture of the Performance Guarantee and complete the project for any of the following:

   a) Failure to complete construction by the date established in Section C (4)
   b) Failure to complete construction activities within the time limit established in the "First Notification."
   c) Failure to complete the corrective work within 20 calendar days of the date of the "Second Notification."
   d) Failure to abide by the other terms of this Permit.

3. If the Performance Guarantee is insufficient to reimburse the County for its costs to complete the project under paragraph 2 of this section, the County shall bill the Developer for any excess costs.

I (We) have read and hereby accept the terms of this Construction Permit.

By David Peters — 5/30/2024

Developer — (Date)

David Peters, PE — 93-6002236

Developer (Print Name) — Tax ID No.

Accepted for Multnomah County, Oregon

By Brad Choi — 5/31/2024

Digitally signed by Brad Choi
DN: C=US, E=brad.choi@multco.us, O=Multnomah County, OU=Transportation Planning and Development, CN=Brad Choi
Date: 2024.05.31 10:58:29-07'00'

Brad Choi, PE — (Date)

Transportation Development Manager

By Jon Henrichsen — 5/31/2024

Digitally signed by Jon Henrichsen
DN: C=US, E=jon.p.henrichsen@mco.us, O=Multnomah County Transportation Divison, OU=Transportation Division Director/County Engineer, CN=Jon Henrichsen
Reason: I am approving this document
Date: 2024.05.31 10:16:25-07'00'

Jon Henrichsen, PE — (Date)

Transportation Division Director

Construction Permit No: ROW-CONST-2023-0003.1

Effective Date: MAY 31, 2024

EXHIBIT "A"

To make frontage/road improvements as part of the Notice of Decision document T3-2022-16220 Hearings Officer's Decision and fulfills the following Conditions of Approval D.5.a, E.1.c, E.1.d, E.1.g and E.1.m.

The improvements are to consist of the following:

1. Road improvement as shown in the attached Construction Plan.
2. An ADA-compliant paved pedestrian route on SE Carpenter Ln east of SE Cottrell Rd to the site access.

Furnish Administration Fee in amount of $ 320,000.00 (please see Section C (1) of Construction Permit). Administration Fee must accompany signed Project Permit. If writing a check, please make check payable to: MULTNOMAH COUNTY.

Furnish Performance Guarantee in amount of $ 3,520,000.00 (please see Section C (2) of Construction Permit).

Furnish Maintenance Guarantee in amount of $ 704,000.00 (please see Section C (3) of Construction Permit).

Both the Performance Guarantee and the Maintenance Guarantee can be provided in the form of an indemnity agreement between the City and County in a form approved by the County Attorney.

PORTLAND WATER BUREAU

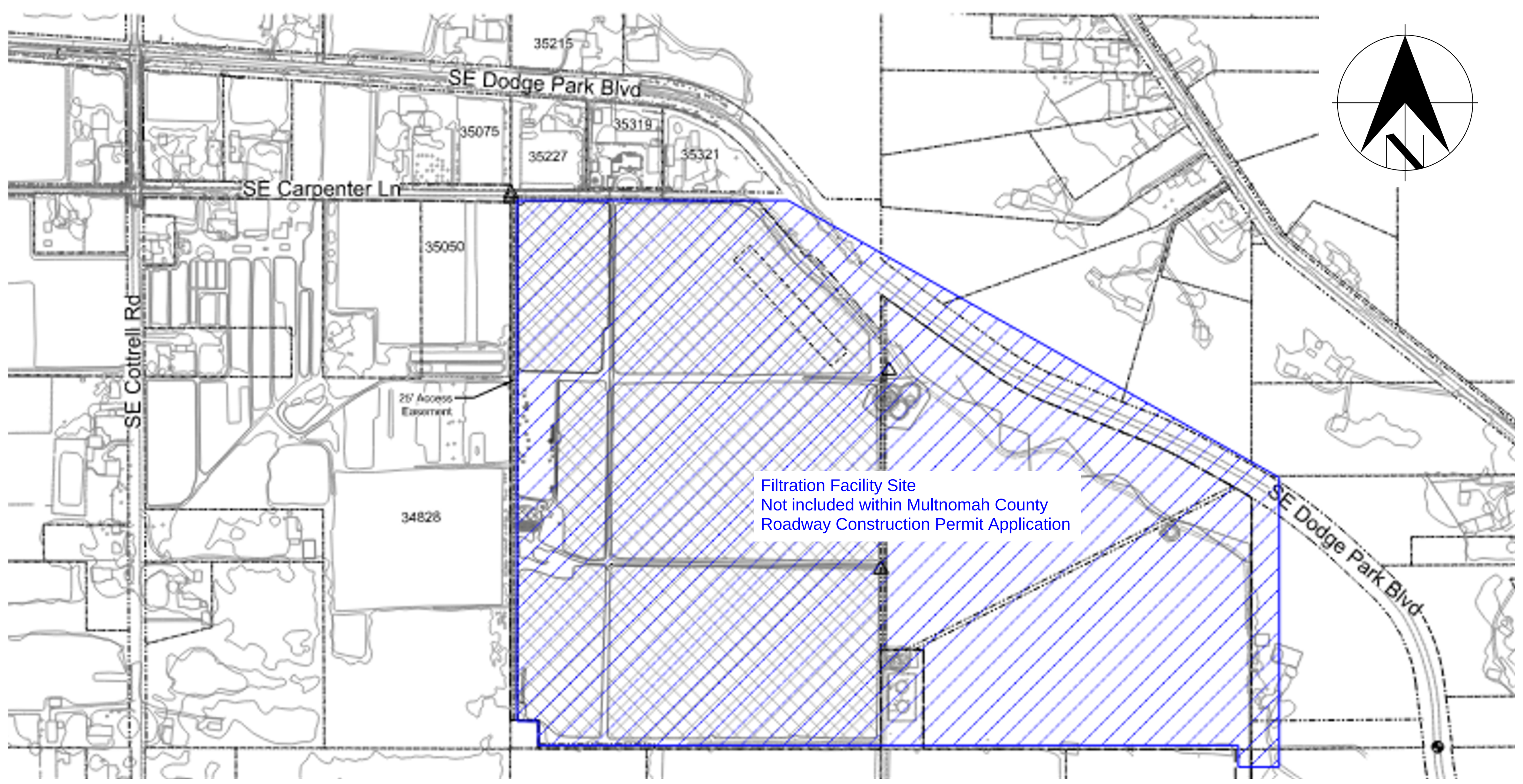
FROM FOREST TO FAUCET

Portland Water Bureau

Bull Run Filtration Facility

Construction Documents - October 2023

This drawing set includes select drawings for the Bull Run Filtration Facility project, compiled for construction permit application for Multnomah County within the Right-of-Way.



Vicinity Map

No Scale

Project Manager ________ Mark Graham, PE 10/19/2023 Date

Project Engineer ________ Jude Daniel Grounds, PE 10/19/2023 Date

MULTNOMAH COUNTY
TRANSPORTATION DIVISION

- [ ] ACCEPTED
- [ ] ACCEPTED WITH COMMENTS
- [x] APPROVED
- [ ] APPROVED AS NOTED
- [ ] RETURNED FOR CORRECTION

DOCUMENTS BEARING THIS STAMP ARE SUBJECT TO THE PROVISIONS SET FORTH IN SECTION 00150 OF THE OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION THAT ARE ACTIVE FOR THIS PROJECT. REVIEW IS ONLY FOR GENERAL CONFORMANCE AND COMPLIANCE OF THE PROJECT AND DOES NOT EXTEND TO MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES OF CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH CONTRACT DOCUMENTS. DIMENSIONS AND FABRICATION TO BE CONFIRMED AND COMPLETED AT THE JOB SITE FOR PROCESSES AND COORDINATION OF THE WORK OF ALL TRADES AND SATISFACTORY WORK PERFORMANCE.

BY buenr DATE 5/7/2024

Stantec

ABHT STRUCTURAL ENGINEERS

carollo

ELCON ASSOCIATES, INC.

EMERIO

McMILLEN JACOBS ASSOCIATES

mwa architects

[nev-ü-non] Nevue Ngan Associates Landscape Architecture

STRONGWORK ARCHITECTURE

Drawing Number	Drawing Title
GENERAL	
GEN-G-001	Cover Sheet
GEN-G-002A	List of Drawings & General Notes
CIVIL	
GEN-C-001	Symbols and Notes
GEN-C-903	Grading & Paving - Details - 3
GEN-C-904	Grading & Paving - Details - 4
GEN-C-907	Grading & Paving - Details - 7
GEN-C-908	Grading & Paving - Details - 8
GEN-C-915	Pipes - Details - 1
GEN-C-922	Storm - Details - 4
02-C-300	Overall Grading & Paving
02-C-301	Grading & Paving - Grid 00
02-C-302	Grading & Paving - Grid 01
02-C-303	Grading & Paving - Grid 02
02-C-304	Grading & Paving - Grid 03
02-C-305	Grading & Paving - Grid 04
02-C-306	Grading & Paving - Grid 05
02-C-400	Cottrell Rd - Plan and Profile - Sta 30+00 to 34+50
02-C-401	Cottrell Rd - Plan and Profile - Sta 34+50 to 35+30.30
02-C-402	Carpenter Ln - Plan and Profile - Sta 9+47 to 13+97
02-C-403	Carpenter Ln - Plan and Profile - Sta 13+97 to 18+47
02-C-404	Carpenter Ln - Plan and Profile - Sta 18+47 to 22+97
02-C-405	Carpenter Ln - Plan and Profile - Sta 22+97 to 27+47
02-C-406	Carpenter Ln - Plan and Profile - Sta 27+47 to 28+98
02-C-441	Retaining Walls - Plan and Profile - 4
02-C-901	Roadway Typical Sections - 1
02-C-902	Roadway Typical Sections - 2
03-C-616	Utilities - Grid 01
03-C-617	Utilities - Grid 02
03-C-618	Utilities - Grid 03
03-C-619	Utilities - Grid 04
03-C-620	Utilities - Grid 05
LANDSCAPE	
GEN-L-001	Symbols
GEN-L-101	Planting Schedule - 1
06-L-301	Overall Planting Plan
06-L-301A	Planting - Grid 00
06-L-302	Planting - Grid 01
06-L-303	Planting - Grid 02
06-L-304	Planting - Grid 03
06-L-305	Planting - Grid 04
06-L-306	Planting - Grid 05
STRUCTURAL	
02-S-901	Retaining Wall - Details - 1

General Notes

1. All work and materials shall be in accordance with the plans, contract documents, details, and the 2018 edition of the Oregon standard specifications for constructions.
2. Contractor shall field verify all existing utility locations elevations, slopes, and lengths prior to construction. Existing underground utility locations are compiled from the best available records. The Owner's Representative or utility companies do not guarantee the accuracy or the completeness of such records. Additional utilities may exist within the work area. Depths are approximate only and may vary in dept and distance from that indicated on the plans. Notify Owner's Representative of any discrepancies. No delays will be allowed due to negligence to coordinate with utility companies. Contractor must pot hole utilities prior to construction and coordinate with utility companies to relocate facilities as required. The contractor shall notify the Owner's Representative prior to proceeding with construction. Any changes in public facilities within the jurisdiction of the county must be reviewed and approved by county.
3. It shall be the responsibility of the contractor to procure all applicable permits, licenses, and certificates relative to the trades to complete the project and for the use of such work when completed. Compliance shall be at all levels, federal, state, county, and local relating to the performance of this work.
4. Oregon law requires the contractor 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. Copies of the rules may be obtained by calling the center (one call utility locate number 503-246-6699). All excavators must comply with all provisions or ORS 757.541 to 757.751including notification of all owners of underground facilities at least 48 business hours, but not more than 10 business days before commencing any excavation.
5. The contractor shall make provisions to keep all existing utilities in service and protect them during construction. The contractor shall immediately repair or replace any damaged utilities using materials and methods approved by the utility owner. No service interruptions shall be permitted without prior written agreement with the utility provider.
6. The contractor shall schedule a pre-construction meeting with Multnomah county and the local agency prior to the start of construction. The contractor shall provide two (2) weeks notice to schedule a pre-construction meeting.
7. Contractor shall notify the Owner's Representative, Multnomah county, and the city public works/city Owner's Representative 48 hours In advance of starting construction and 24 hours before resuming work after shutdowns except for normal resumption of work following saturdays, sundays, or holidays.
8. Contractor shall remove and dispose of waste materials in such a manner as to meet all applicable regulations. It shall be the contractor's responsibility to locate an appropriate site.
9. For unanticipated contamination encountered during construction in the county right-of-way, the permittee/applicant or its agent shall be responsible for all costs associated with the management and disposal of contaminated media encountered. The permittee is also responsible for all resultant delays.
10. Contractor shall not use the public right-of-way for storage of equipment, materials, construction trailers, and construction vehicles unless otherwise approved.
11. It is the obligation of the contractor to obtain written approval from private property, If applicable, for use of private property for construction staging and to restore private property to a condition satisfactory to property owner at project completion.
12. Contractor shall provide a staging plan. Construction vehicles shall only park on a location indicated on the construction staging plan.
13. Hours of construction shall be 7:30 am to 6:00 pm, Monday through Friday. Construction is prohibited on Saturday and Sunday and hours outside the normal hours of operation unless otherwise approved in writing. Construction activities include all field maintenance of equipment, refueling, and pick up and delivery of equipment as well as the actual construction activity.
14. The contractor shall have a minimum of one (1) set of approved construction plans on the job site at all times during construction.
15. Contractor shall perform all work necessary to complete this project In accordance with the plans and specifications including such incidentals as may be necessary to meet the Intent of the project contract documents, plans and applicable agency requirements and other work necessary to provide a complete project in an acceptable manner.
16. It is the contractor's responsibility to visit the site and verify all existing conditions before the start of work. The contractor shall take all necessary field measurements and otherwise verify dimensions and existing construction conditions indicated and/or shown on the plans. Should any error or inconsistency exist, the contractor shall not proceed with the work affected until reported to the project Owner's Representative for clarification or correction.
17. Any inspection by the city, county, state, federal agency or project Owner's Representative shall not, in any way, relieve the contractor form any obligation to perform the work in compliance with the applicable codes, regulations, project contract documents and city, county and state standards.
18. Prior to beginning work, the contractor shall present a list at the pre-construction meeting of sub-contractors, a project schedule, all materials submittals, all shop drawings, a traffic control plan and a list of at least three (3) people responsible for maintaining traffic control during non-work periods. All submittals must be ready at time of pre-construction meeting.
19. The contractor shall coordinate with pge or utility pole owner for temporary support or relocation for utility poles in close proximity to the work.
20. Areas of construction shall be stripped by removing topsoil, and other materials not suitable for compaction. Stripped materials shall not be used for roadway embankment or structural fill. All fill shall be considered structural fill. Fill areas to be inspected by the county or project Owner's Representative prior to placement of fill or base materials.
21. Adjust all water valve boxes, manhole and clean out rims, and meter boxes to match finished grade.
22. Contractor shall protect existing monuments, benchmarks, property corners and government corners where feasible. If monuments are disturbed or destroyed, notify the project Owner's Representative.
23. The contractor shall control traffic through the project site in conformance with the latest edition of the "manual on uniform traffic control devices (MUTCD)" and "oregon supplements" to mutcd.
24. If temporary road closures are required, contractor shall notify property owners and occupants affected by the closure by mail or door hanger at least 48 hours prior to road closure. Roads shall be reopened at the end of each day to all access to all properties.
25. The contractor shall take no advantage of any errors, omissions, or discrepancies in the plans. When errors, omissions, or discrepancies are found, the Owner's Representative and the county shall be notified. Work performed by the contractor as a result of an error, omission, or discrepancy in the plans shall be at contractor's risk and expense when such error, omission, or discrepancy has not been brought to the attention of the Owner's Representative and the county.
26. Owner's Representative shall be contacted prior to any variation from the approved plans.
27. Subsequent settlement or cracking of finished surface within the warranty period shall be considered to be a failure of the subgrade and repaired at no cost to the county and in a manner acceptable to the county.
28. Prior to final acceptance and payment, the contractor shall clean the work site and adjacent areas of any debris, discarded asphaltic concrete material or other items deposited by the contractor's personnel during the performance of the contract.
29. Contractor shall provide as-built information to the county after construction is completed.

1

NOTE:

Suffix "A" represents a unique drawing list only for Multnomah County Road Construction Permit

REGISTERED PROFESSIONAL ENGINEER
97188
DIGITALLY SIGNED
OREGON
MAY 11, 2021
CHRISTOPHER JOHNSON
EXPIRES: 06/30/23

Confidential

No	Date	Description	Appd
2	3/15/24	Multnomah County Construction Permit Revisions	MRG
1	10/19/23	Multnomah County Construction Permit Application	MRG
Revision			
Survey			

Stantec
carollo®

Designed By	CJ	Design Mgr	LSH
Drawn By	RB	Const Mgr	TG
Checked By	CF/DS	Const Supvr	RM
Project Mgr	MRG	Date	

Warning
0 ½ 1
If this bar does not measure 1" then the drawing is not to scale

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683

Date

CITY OF PORTLAND OREGON 1851

Bull Run Filtration Facility

General

List of Drawings & General Notes

SAP Project No	W02229
1/4 Section	3765 / 3766
Sheet No	GEN-G-002A
	X of X

Plot Date: 15-MAR-2024 00:04 User: stanpw11-pw-svc File: GEN-G-002A.dgn Model: Layout1 ColorTable: bw_IPlot.ctb DesignScript: PWB_PenTable.pen PlotScale: 0.166667:1

CIVIL LEGEND

EXISTING	THIS CONTRACT	
× 157.7	⊗ 158.5	SPOT ELEVATION
155	155	CONTOUR LINE
	3:1	SLOPE
	CB OR CB	CATCH BASIN OR INLET
	OR	SIGN
		FIRE HYDRANT
		UTILITY POLE
		LIGHT POLE
	° BM	BENCH MARK
	△	SURVEY CONTROL POINT OR POINT OF INTERSECTION
		BRUSH/TREE LINE
		TREE
P/L	P/L	PROPERTY LINE
		CENTER LINE, BUILDING, ROAD, ETC.
		STAGING OR WORK AREA LIMITS
	N 1000.00 E 1000.00	STRUCTURE, BUILDING OR FACILITY LOCATION POINT - COORDINATES
XXXXXXXXX OR	OR	DEMOLITION
OR	OR	STRUCTURE, BUILDING OR FACILITY
		ASPHALT CONCRETE PAVEMENT
		GRAVEL SURFACING
		CONCRETE PAVEMENT
		CURB
		CURB AND GUTTER
		SINGLE SWING GATE
		DOUBLE SWING GATE
		SLIDING GATE
		GUARD RAIL
		FENCE
		ARCHITECTURAL FENCE
		WIRE FENCE
		CULVERT
		POWER POLE
		SANITARY MAINTENANCE HOLE
Ⓢ	Ⓢ	STORM MAINTENANCE HOLE

Standard Erosion and Sedimentation Control:

Under no condition shall sediment be washed into the storm sewersystem or drainage ways.

Storm drain inlets, catchbasins, and area drains shall be protected using the approved Best Management Practice (BMP) at all times during construction.

Effective erosion control, dust control, and drainage control is required at all times. The county may order stoppage of work to effect corrective action at any time.

Apply temporary and permanent soil stabilization measures on all disturbed areas as grading progresses.

Construction activities must avoid or minimize excavation and creation of bare ground from october 1 through may 31.

During wet weather periods temporary stabilization of the site must occur at the end of each work day if rainfall is forecast in the next 24 hours.

All erosion and sediment controls not in the direct path of work must be installed prior to any land disturbance.

Preserve existing vegetation and re-vegetate open areas when practicable before and after grading or construction.

All temporary sediment controls must remain in place until permanent vegetation or other permanent covering of exposed soil is established.

Sediment controls must be installed and maintained on all down gradient sides of the construction site at all times during construction.

Watertight trucks must be used to transport saturated soils from the construction site. An approved equivalent is to drain the soil on-site at a designated location using appropriate BMP's; soil must be drained sufficiently for minimal spillage.

Temporary stabilization or covering of soil stockpiles must occur at the end of each work day or other bmp's must be implemented to prevent turbid discharges to surface waters.

Develop and maintain onsite a written spill prevention and response procedure.

Any use of toxic or other hazardous materials must include proper storage, application, and disposal.

The permitee must properly prevent and manage hazardous waste, used oils, contaminated soils, concrete waste, sanitary waste, liquid waste, or other toxic substances discovered or generated during construction.

Significant amounts of sediment which leave the site must be cleaned up within 24 hours and placed back on the site and stabilized or properly disposed, the cause of the sediment release must be found and prevented from causing a reoccurrence of the discharged within the same 24 hours. Any in-stream clean up of sediment shall be performed according to the oregon division of state lands required time frame.

Sediment must not be intentionally washed into storm sewers, drainage ways, or water bodies. Dry sweeping must be used to clean up released sediments.

The application rate of fertilizers used to reestablish vegetation must follow the manufacturer's recommendations. Nutrient releases from fertilizers to surface waters must be minimized. Time release fertilizers should be used and care should be taken in the application of fertilizers within any water way riparian zone.

Sediment must be removed from behind sediment fence when vegetation has reached the height of the fence above the ground, and before fence removal.

Sediment must be removed from behind bio bags and other barriers when it has reached a height of two (2) inches and before bmp removal.

Cleaning of trapped catch basins must occur when the sediment retention capacity has been reduced by fifty (50) percent, and at completion of project.

Removal of trapped sediment in a sediment basin or sediment trap must occur when the sediment retention capacity has been reduced by fifty (50) percent, and at completion of project.

DEQ must approve of any treatment system and operational plan that may be necessary to treat contaminated construction dewatering or sediment and turbidity in stormwater runoff.

Should all construction activities cease for thirty (30) days or more, the entire site must be temporarily stabilized using vegetation or a heavy mulch layer, temporary seeding, or other method.

Should construction activities cease for fifteen (15) days or more on any significant portion of a construction site, temporary stabilization is required for that portion of the site with straw, compost, or other covering that will prevent soil or wind erosion until work resumes on that portion of the site.

Paving:

The contractor shall adjust all valves boxes, manholes, and water meters to finished grade.

The contractor shall sawcut straight matchlines to create a clean butt joint between the existing and new pavement. seal all new pavement joints with rubberized sealant.

Aggregate base shall be compacted per the current oregon standard specifications for construction. Contractor to have aggregate base compaction testing conducted by a qualified testing facility prior to placement of asphalt concrete within the public right-of-way. Test reports to be provided to Multnomah County.

Asphalt concrete shall be compacted per the current oregon standard specifications for constructions. Contractor to have asphalt concrete compaction testing conducted by a qualified testing facility for all asphalt pavement placed within the public right-of-way. Test reports to be provided to Multnomah County.

All excavations within a paved street open to traffic shall be temporarily resurfaced at the end of each work day and prior to allowing vehicular traffic onto excavated areas. Contractor shall be responsible for placing, maintaining, and removing temporary surfacing materials. No measurement will be made for temporary surfacing materials and is considered incidental to the overall construction.

Longitudinal joints shall fall on either lane lines or fog lines. (2)

Survey Datum Notes

Original survey for Filtration Facility property conducted in July 2020. Supplemental survey performed August - November 2021.

Horizontal Control Basis:
Control network established in 2010 for the Water Bureau's Lusted Hill facility, using his scale factor control is on State Plane Coords - North Zone, NAD83(91), International feet, with a combined scale factor of 0.999903260, resulting in a coordinate system that reflects true ground distances then aligned to past projects in the area.

Vertical control is based on the City of Portland vertical datum, and was established by holding City benchmark BM 4283 record elevation of 654.716'.

Site North is 1.6 degrees CCW from true north
Facility North is 41 degrees CCW from true north

Civil General Notes

General

1. The Contractor shall take all precautionary measures necessary to protect existing improvements, which are to remain in place from damage. All improvements damaged by the Contractor's operations shall be expeditously repaired or reconstructed at the Contractor's expense without additional compensation.
2. All building coordinates are to be outside of wall of building and are called out according to true north.
3. For construction waste management. Reference spec 013545.
4. Contractor shall comply with Owner's Inadvertent Discovery Plan for the site relating to the discovery of cultural artifacts. Notify the owner immediately if any cultural artifacts are discovered and isolate an area 100' surrounding the discovery.

Utilities

5. Prior to the start of construction, the Contractor shall locate and pothole all existing utilities in and around the areas of construction to verify locations.
6. The Contractor shall pothole proposed connections prior to submittal of shop drawings for the connections. Verify location of connection, size, material, pipe roundness, depth and clearance from obstructions.
7. The Contractor shall protect all remaining existing utilities.
8. Locations of underground utilities shown on the drawings were obtained from available records. The Contractor shall verify all locations and elevations and shall take all precautionary measures necessary to protect utility lines whether shown or not shown.
9. Prior to any connection to an existing utility, the Contractor shall coordinate with the utility owner.
10. Prior to any excavation in the vicinity of any existing facilities, including all water, sewer, storm drain, gas, petroleum products, or other pipelines; all buried electric power, communications, or television cables; all traffic signal and street lighting facilities; and all roadway, state highway, and railroad rights-of-way, the Contractor shall notify the respective authorities representing the owners or agencies responsible for such facilities not less than 2 days nor more than 7 days prior to excavation so that a representative of said owners or agencies can be present during such work if they so desire.
11. Attention: Oregon Law requires you to follow rules adopted by the Oregon Utility Notification Center. Those rules are set forth in OAR 952-001-0011 through OAR 952-001-0090. You may obtain copies of the rules by calling the center. The center business number is 503-232-1987. Excavators are required to notify the center at least 2 business days, but no more than 10 business days, before commencing at excavation. To comply call 811 or 1-800-332-2344.
12. All work is to be constructed in accordance with the Oregon adminstrative rule (OAR), Chapter 33. When crossing under a sanitary sewer with less than 1-1/2 feet clearance, notify the owner's representative.

Piping

13. The Contractor shall comply with the state department of health services criteria for the separation of water mains and sanitary sewers.
14. The Contractor shall provide a minimum cover as indicated by the following list:
    -Use 72" min cover for the proposed 72" water and 66" water.
    -Use 48" min cover for water pipes 16" in dia to 42" in dia
    -Use 42" min cover for water pipes under 12" dia
    -Use 36" min cover for all other utility lines, except sanitary
    -Use 8 feet min. cover for sanitary lines.
15. Straight slopes shall be maintained between invert elevations shown or specified.
16. The Contractor shall adjust all valve boxes, pull boxes and maintenance holes to finished grade unless otherwise shown or specified. Maintenance holes in open fields shall be set one foot above grade. Approximate rim elevations are shown on drawings.
17. All pipe trenching and backfill shall be in accordance with Detail P-815.
18. The Contractor shall provide two flexible sleeve type couplings with restrained joints for each pipe penetrating a structure. Pipe to structure connections should be coordinated between Civil, Structural, and Geotechnical Engineers. Sleeves are not required when concrete encased. Spacing between couplings should vary with pipe diameter to provide proper length for differential settlement. All piping shall be restrained joint design unless indicated otherwise.
19. Couplings and restrained joints shall be provided whether shown on the drawings or not. Steel pipe restrained harness sets shall be provided in accordance with AWWA M-11. All other pipes, couplings and restrained joints shall be approved by the owners representative. All restrained joints shall be in accordance with the pipe manufacturers' recommendations.
20. All piping shall have restrained joints unless used for gravity flow. All piping shown restrained joint design shall have restrained sleeve couplings where flexible sleeves are required per notes 17 and 18.

Corrosion Control

21. See cathodic protection drawings.

REGISTERED PROFESSIONAL ENGINEER 55529PE OREGON JULY 15, 2003 RAFAEL CAETA EXPIRES 6-30-25

Confidential

$$$$$FILENAME$$$$

$$$$USER$$$$

$$$$DATE$$$$

No	Date	Description	Appd
2	3/13/24	Multnomah County Construction Permit Revision	MRG
1	10/27/23	Multnomah County Construction Permit	MRG

Revision

Survey

Stantec

EMERIO ENGINEERING • SURVEYING • DESIGN

Designed By	RG	Design Mgr	LSH
Drawn By	DJD	Const Mgr	TG
Checked By	LCS	Const Supvr	RM
Project Mgr	MRG	Date	3/13/24

Warning

0 ½ 1

If this bar does not measure 1" then the drawing is not to scale

PORTLAND WATER BUREAU

FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683

Date

CITY OF PORTLAND, OREGON 1851

Bull Run Filtration Facility

Civil

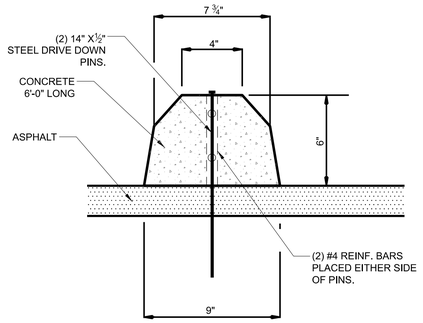
Symbols and Notes

SAP Project No
W02229

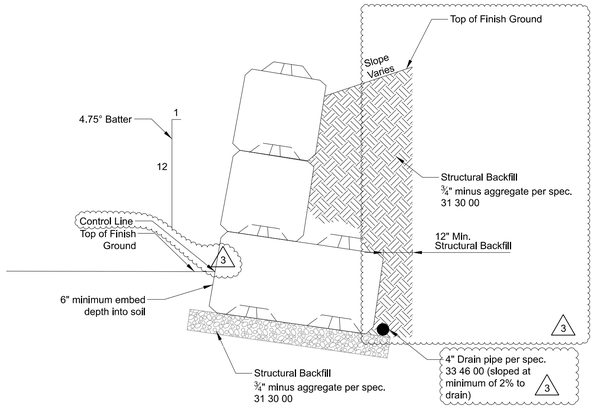
1/4 Section
3765 / 3766

Sheet No
GEN-C-001

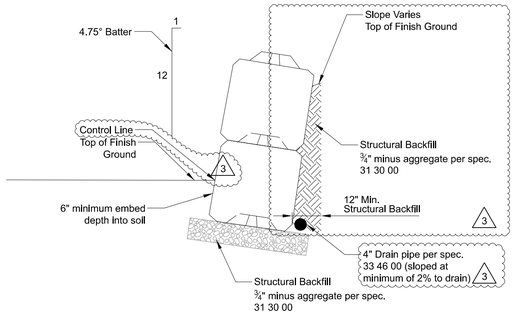
30 2410 of



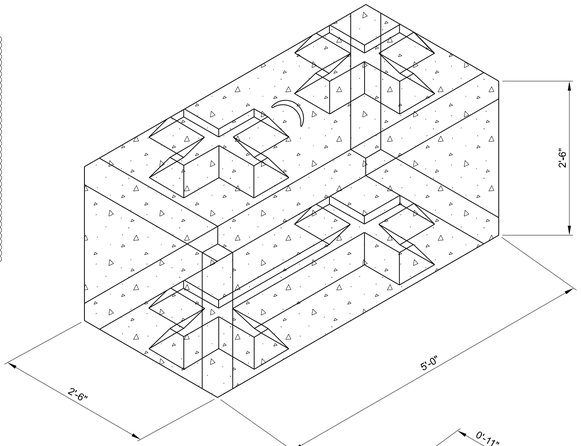
C-108 WHEEL STOP
NTS

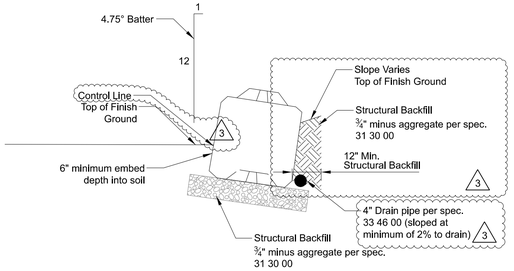


3 High Modular block wall section

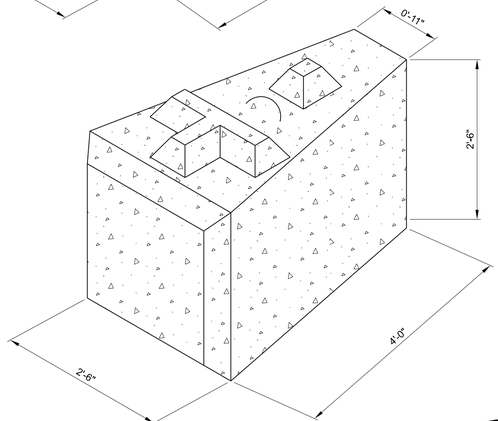


2 High Modular block wall section



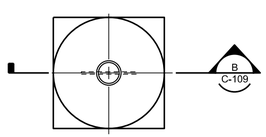


1 High Modular block wall section



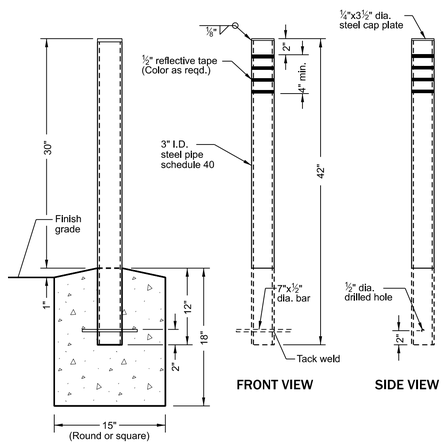
Note:
The leveling pad shall consist of 12 inches thick layer of structural backfill (31 00 00, Section 2.01.C.2) compacted to 95% of ASTM D 1996 modified proctor.

C-110 MODULAR BLOCK WALL
NTS



PLAN

C-109 BOLLARD
NTS



FRONT VIEW SIDE VIEW

B C-109 SECTION
NTS

GENERAL NOTES:

1. Grind all edges smooth.
2. Prime and paint bollard safety yellow after fabrication.
3. Hot-dip galvanize base assembly after fabrication.
4. All concrete shall be commercial grade concrete.
5. Orient lock assembly parallel with pedestrian traffic.
6. Provide lock, if required.
7. See project plans for details not shown.

$$$$FILENAME$$$$
$$$$USER$$$$
$$$$DATE$$$$

No	Date	Description	Appd
3	4/15/24	Multnomah County Construction Permit Revision	MRG
2	3/15/24	Multnomah County Construction Permit Revision	MRG
1	10/27/23	Multnomah County Construction Permit	MRG
		Revision	
		Survey	

Stantec
EMERIO ENGINEERING • SURVEYING • DESIGN

Designed By	RG	Design Mgr	LSH
Drawn By	DJD	Const Mgr	TG
Checked By	LCS	Const Supvr	RM
Project Mgr	MRG	Date	4/15/24

Warning
0 ½ 1
If this bar does not measure 1" then the drawing is not to scale

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683 — Date

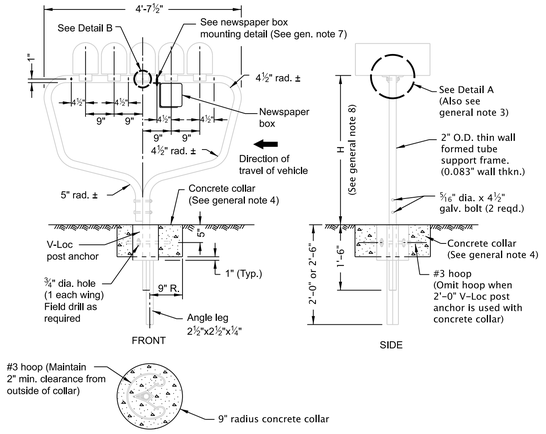
CITY OF PORTLAND OREGON 1851

Confidential

REGISTERED PROFESSIONAL ENGINEER
55529PE
Rafael Gaeta Date: 2024.04.15 14:15:07-07'00'
OREGON
JULY 15, 2003
RAFAEL GAETA
EXPIRES 6-30-25

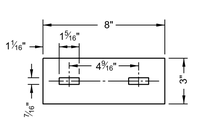
Bull Run Filtration Facility
Civil
Grading and Paving

SAP Project No
W02229
1/4 Section
3765 / 3766
Sheet No
GEN-C-903
43 of 2410

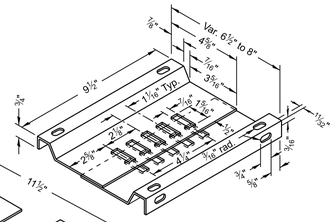


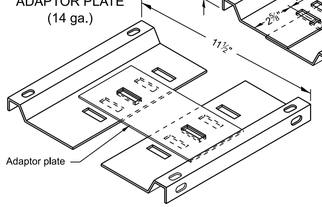
CONCRETE COLLAR
(See general note 4)

MULTIPLE SUPPORT
(Supports 5 standard (SIzes 1 & 1½) mailboxes or 4 large (SIze 2) mailboxes)



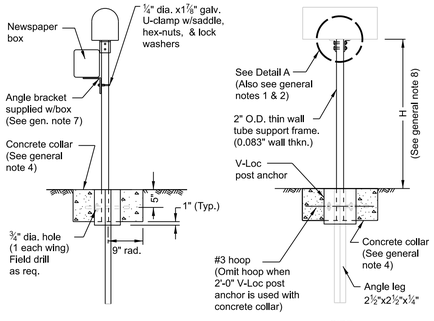
ADAPTOR PLATE
(14 ga.)





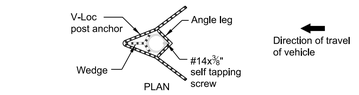
SIZE 1 & 1½
MOUNTING BRACKET
(16 ga.)

SIZE 2
MOUNTING BRACKET (16 ga.)
WITH ADAPTOR PLATE (14 ga.)



SINGLE SUPPORT

C-111 MAILBOX SUPPORT
NTS



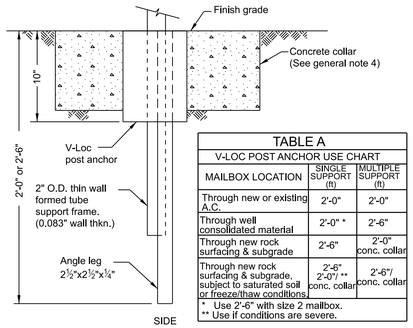
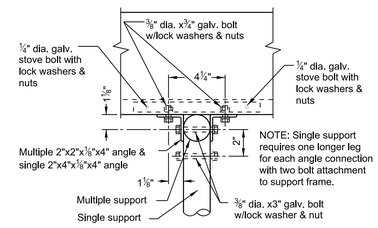
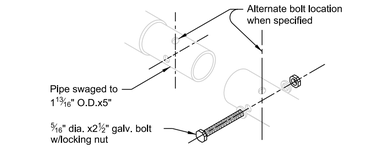


TABLE A V-LOC POST ANCHOR USE CHART		
MAILBOX LOCATION	SINGLE SUPPORT (ft)	MULTIPLE SUPPORT (ft)
Through new or existing A.C.	2'-0"	2'-0"
Through well consolidated material	2'-0" *	2'-6"
Through new rock surfacing & subgrade	2'-6"	2'-0" conc. collar
Through new rock surfacing & subgrade, subject to saturated soil or freeze/thaw conditions.	2'-6" 2'-0"/ ** conc. collar	2'-6"/ conc. collar
* Use 2'-6" with size 2 mailbox. ** Use if conditions are severe.		

POST MOUNTING SOCKET



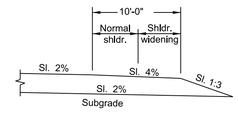
DETAIL A



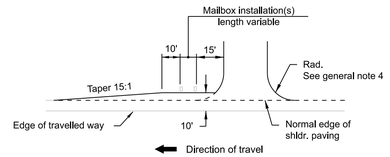
DETAIL B

NOTES:

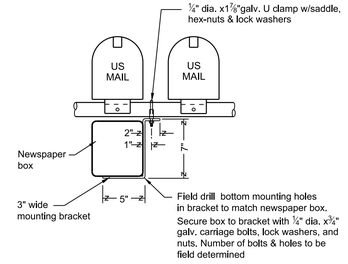
1. Angle connections to be parallel to traffic flow for Size 2 mailbox mounted on single post.
2. All holes in the tube support frame are to be predrilled by the manufacturer.
3. Size 2 mailbox mounted on a multiple support requires 2 each ⅜" dia. x⅝" galv. bolts with lock washers and nuts to attach the adaptor plate to the mounting bracket. The unit will then require 4 angle connections to attach to the formed tube support frame. See Detail A.
4. Provide concrete collar when any of the following conditions exist:
   a) when required in Table A
   b) when required by project plans
   c) as directed by the Engineer
   Concrete collar, when required, to be poured in place after V-Loc post anchor has been installed, level and plumb. Do not excavate below bottom of V-Loc post anchor. Care shall be taken that no concrete is placed within anchor.
5. Other proprietary products available as listed in ODOT's QPL.
6. For mailbox installation locations, see Std. Dwg. C-112 and project plans.
7. For Newspaper Box Mounting Detail, see Std. Dwg. C-112.
8. Mounting height (H) shall be 42" nominal, measured from vehicle driving surface.
9. See project plans for detail not shown.
10. Coordinate with post master when relocating mailboxes.



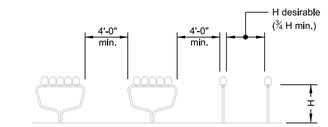
A C-112 SECTION
NTS



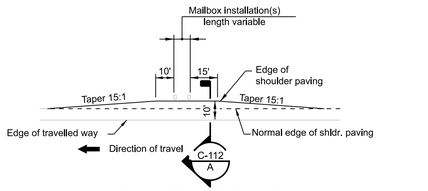
MAILBOX SERVICE TURNOUT AFTER APPROACH



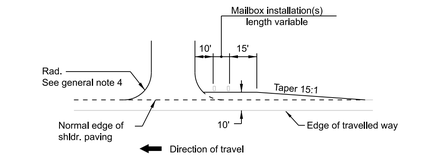
NEWSPAPER BOX
MOUNTING DETAIL



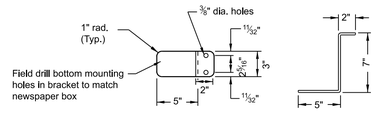
SUPPORT SPACING



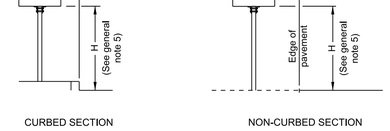
MAILBOX SERVICE TURNOUT



MAILBOX SERVICE TURNOUT BEFORE APPROACH



NEWSPAPER BOX
MOUNTING BRACKET DETAIL
(14 ga.)



* May be reduced to 0 if turnout is provided.

PLACEMENT

NOTES:

1. All holes in the tube support frame are to be predrilled by the manufacturer.
2. Other proprietary products available as listed in ODOT's QPL.
3. For mailbox support details, see Std. Dwg. C-111.
4. For approach details, see Std. Dwg. C-117.
5. Mounting height (H) shall be 42" nominal, measured from vehicle driving surface.
6. See project plans for details not shown.

C-112 MAILBOX INSTALLATION
NTS

Confidential

REGISTERED PROFESSIONAL ENGINEER
55529PE
OREGON
JULY 15, 2003
RAFAEL GAETA
EXPIRES 6-30-25

User: stanpw111cs04$ W02229_FF_GEN_C_904.dgn
10/27/2023

No	Date	Description	Appd
1	10/27/23	Multnomah County Construction Permit	MRG
Revision			
Survey			

Stantec
EMERIO ENGINEERING • SURVEYING • DESIGN

Designed By	RG	Design Mgr	LSH
Drawn By	DJD	Const Mgr	TG
Checked By	LGS	Const Supvr	RM
Project Mgr	MRG	Date	10/19/23

Warning
0 ½ 1
If this bar does not measure 1" then the drawing is not to scale

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683 — Date

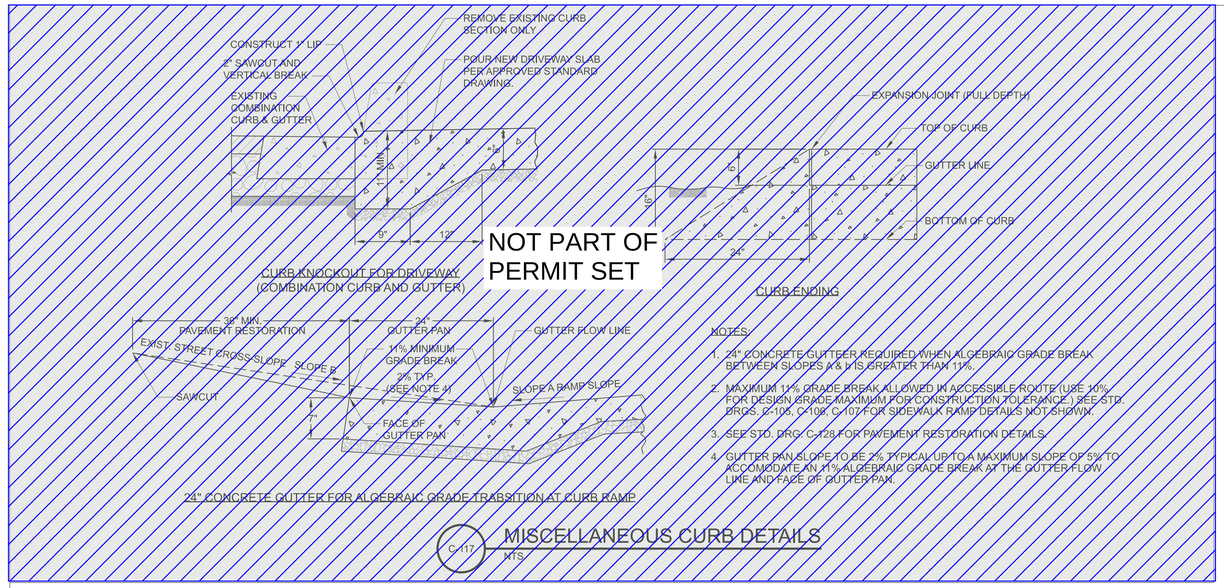
CITY OF PORTLAND OREGON 1851

Bull Run Filtration Facility

Civil

Grading & Paving
Details 4

SAP Project No	W02229
1/4 Section	3765 / 3766
Sheet No	GEN-C-904
	44 of 2410



NOTES:

1. 24" CONCRETE GUTTER REQUIRED WHEN ALGEBRAIC GRADE BREAK BETWEEN SLOPES A & B IS GREATER THAN 11%.
2. MAXIMUM 11% GRADE BREAK ALLOWED IN ACCESSIBLE ROUTE (USE 10% FOR DESIGN (GRADE MAXIMUM FOR CONSTRUCTION TOLERANCE.) SEE STD. DRGS. C-105, C-106, C-107 FOR SIDEWALK RAMP DETAILS NOT SHOWN.
3. SEE STD. DRG. C-128 FOR PAVEMENT RESTORATION DETAILS.
4. GUTTER PAN SLOPE TO BE 2% TYPICAL UP TO A MAXIMUM SLOPE OF 5% TO ACCOMODATE AN 11% ALGEBRAIC GRADE BREAK AT THE GUTTER FLOW LINE AND FACE OF GUTTER PAN.

RESIDENTIAL DRIVEWAY APPROACH DETAIL SHEET

Multnomah County
1620 SE 190th Avenue, Portland Oregon 97233-5910
Phone: (503) 988-5050 Fax: (503) 988-3419

Driveway Approach Dimensions

1. At a minimum, the driveway approach shall meet the dimensions in **Figure 1**
2. Regardless of construction method used, the driveway approach shall be surfaced to the extent of these minimum dimensions.

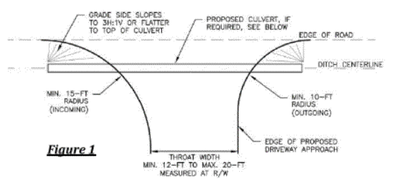


Figure 1

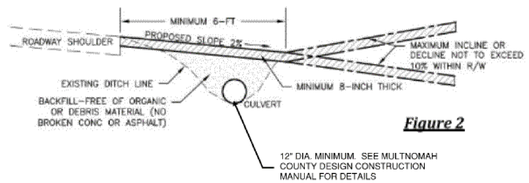


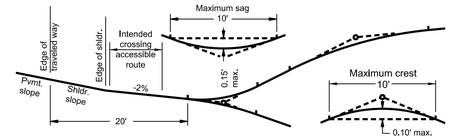
Figure 2

Driveway Approach Material and Depth

1. Gravel shall meet the ODOT gradation requirements.
2. Gravel (Aggregate) shall be a minimum of 8-inches in depth.
3. Materials may be natural aggregate, limestone, crushed concrete or HMA millings. However, absolutely no material may be larger than 1.5 inches in diameter, and shall be free of foreign material, brick, wire, glass, wood, rubber, etc.
4. Paved approach shall be per the Multnomah County standard pavement cross section detail.

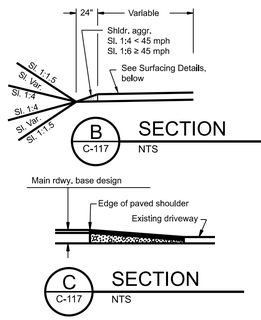
Driveway Approach Grade

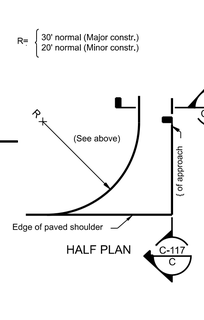
1. Driveway approaches shall be a 2% minimum slope down / away from the road shoulder so that the water runs away from the road and towards the ditch line as shown in **Figure 2**.
2. In no case shall water from the driveway drain out onto the shoulder or roadway.



APPROACH PROFILE

NOTE:
When grades on approaches meet without vertical curves the maximum algebraic difference on crests should be 8% and on sags 12%. Grades steeper than 15% should not be used without prior approval of the engineer of record. Any driveways with slopes exceeding 12% shall be paved.





NOTE:
Normal paving limits to extend 20' (30' for public road connections) from the edge of pavement or to the right of way line, whichever is less. Approach surfacing and width to then match existing approach.

APPROACH

P.C. CONCRETE SURFACING GRAVEL SURFACING

ASPHALT CONCRETE SURFACING

APPROACH AND DRIVEWAY CONNECTION SURFACING DETAILS

Sight Distance

1. It is necessary to provide a clear line of sight distance to safely enter or exit the roadway. No obstructions within the sight distance area (shown as shaded area in **Figure 3**) shall be taller than 2 feet. This area shall remain free of all structures, trees, and light poles.
2. Minimum sight distance for a Residential Driveway Approach shall be in accordance with **Table 1** below.

Figure 3

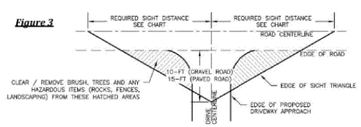


Table 1

Speed Limit (MPH)	Minimum Sight Distance (Feet)
25	280
30	335
35	390
40	445
45	500
50	555
55 / Unposted	610

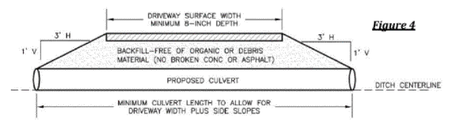
Culvert Length and Side Slopes

1. Driveway approach culverts shall be installed in line with the road ditch.
2. The contractor shall ensure that the culvert grade allows a positive flow through the ditch (at a minimum of 0.5% slope). Adjust ditch elevation if needed to allow positive flow.
3. Culvert material shall meet the requirements of **Table 2**. All joints shall be sealed and soil tight.
4. The required culvert length is dependent on the ditch depth, location and size of driveway approach.
   a. The minimum culvert length shall be 30-ft.
   b. A 3-ft horizontal to 1-ft vertical slope is required from the driveway edge down to the top of culvert as shown in **Figure 4.**
   c. Under no circumstances shall a vertical headwall be placed.

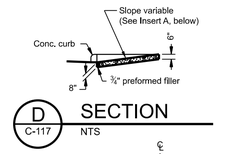
Table 2

Material	Diameter Size (Inches)	Minimum Gauge / Thickness
Corrugated Steel or Metal Pipe (CSP / CMP)	12-inch to 24-inch	16 gauge
	30-inch to 42-inch	14 gauge
	48-inch and greater	12 gauge
Reinforced Concrete Pipe (RCP)	12-inch to 48-inch	Minimum Class II (AASHTO M170)
Smooth Lined Corrugated Plastic Pipe Dual Wall (SLCPP)	12-inch to 24-inch	AASHTO M294, Type S, Prior Approval is Required
	30-inch and greater	Prior Approval is Required

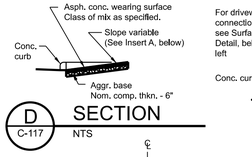
Figure 4

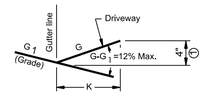


TYPE A
PORTLAND CEMENT CONCRETE

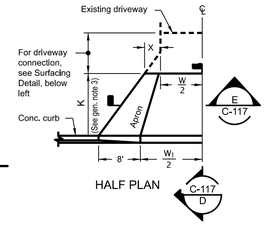


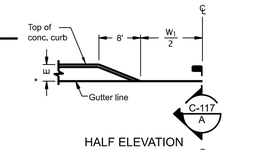
TYPE A-1
ASPHALT CONCRETE





① Minimum allowable for drainage control on negatively sloped driveways.





✱ Curb exposure E = 7" normal. Vary as shown on plans or as directed.

NON-SIDEWALK DRIVEWAYS
NOTE: This driveway type shall not be used along a pedestrian route. See "Table A" for dimensions not shown.

NOTES:

1. Driveway details shown on this drawing are to be used on roadways where there are no existing or planned sidewalks in driveway vicinity. For driveways located in a sidewalk see Std. Dwgs. C-118, C-119, C-120 and/or C-121, C-122, C-123, C-124, C-125.
2. Width of driveway (W) as shown on plans or as directed.
3. K is the distance from back of curb to back of driveway (10' max.).
4. Where existing driveway is in good condition, construct only as much as required for satisfactory connection with new work.
5. "Alternate Apron Slope" used only where plans designate. Alternate Apron Slope may also be used at local jurisdiction's request when approved by the Project Manager.
6. Increase thickness of asphalt concrete and stone base where shown on plans.
7. For curb details, see Std. Dwgs. C-101, C-102, C-103, C-104.
8. For expansion and contraction joint requirements, see applicable curb and sidewalk standard drawings.

TABLE A

W (ft)	X (ft)	K (ft) 5	6	8	10
		W_1 (ft)			
12	3	15	15	15	15
14		17	17	17	17
16		19	19	19	19
18		21	21	21	21
20	4	23	23	23	23
22		27	28	29	30
24		29	30	31	32
26		31	32	33	34
28		33	34	35	36
30	5	35	36	37	38
32		41	42	44	46
34		43	44	46	48
36		45	46	48	50

Where a travel lane is constructed adjacent to the curb line, use 16' W min. for residence and 30' W min. for light commercial, add 5' to W_1 for both. Do not add the 5' to W_1 when 4' min. shldr. or bikeway is included in the typical.

C-118
APPROACHES AND NON-SIDEWALK DRIVEWAYS
NTS

REGISTERED PROFESSIONAL ENGINEER
55529PE
Rafael Gaeta
Date: 2024.04.17 13:40:31-07'00'
OREGON
JULY 15, 2022
RAFAEL GAETA
EXPIRES 6-30-23

Confidential

$$$$FILENAME$$$$
$$$$USER$$$$
$$$$DATE$$$$

No	Date	Description	Appd
2	2/22/2024	Multnomah County Construction Permit Revisions	MRG
1	10/27/23	Multnomah County Construction Permit	MRG

Revision

Survey

Stantec
EMERIO ENGINEERING • SURVEYING • DESIGN

Designed By	RG	Design Mgr	LSH
Drawn By	DJD	Const Mgr	TG
Checked By	LCS	Const Supvr	RM
Project Mgr	MRG	Date	2/22/24

Warning
0 ½ 1
If this bar does not measure 1" then the drawing is not to scale

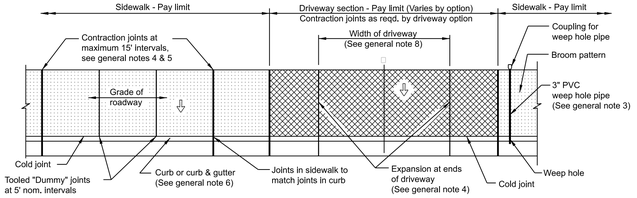
PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683 Date

CITY OF PORTLAND, OREGON 1851

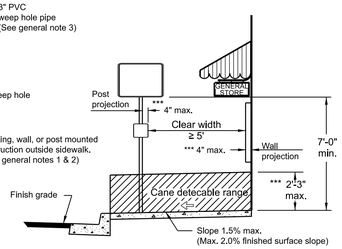
Bull Run Filtration Facility
Civil
Grading & Paving Details 7

SAP Project No W02229
1/4 Section 3765 / 3766
Sheet No GEN-C-907
47 of 2410

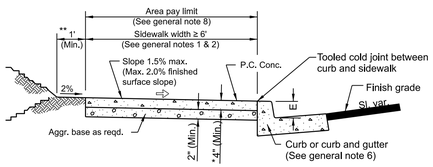


TYPICAL PLAN VIEW - CURB LINE SIDEWALK

*** Objects with base below 2'-3" may protrude any distance as long as the 5' circulation path is maintained. When an object with a base higher than 2'-3" protrudes further than 4" provide a detection below protrusion to delineate edge.



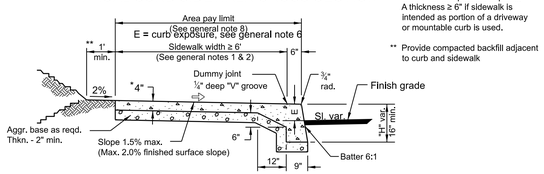
CLEAR CIRCULATION PATH



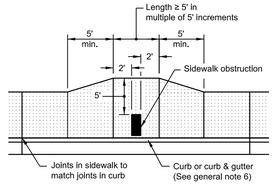
TYPICAL CURB SIDEWALK CROSS SECTION

* Min. 4" or as specified in plans. A thickness ≥ 6" if sidewalk is intended as portion of a driveway or mountable curb is used.

** Provide compacted backfill adjacent to curb and sidewalk



TYPICAL MONOLITHIC CURB & SIDEWALK CROSS SECTION
E = curb exposure, see general note 6



REQUIRED SIDEWALK WIDENING AROUND OBSTRUCTIONS

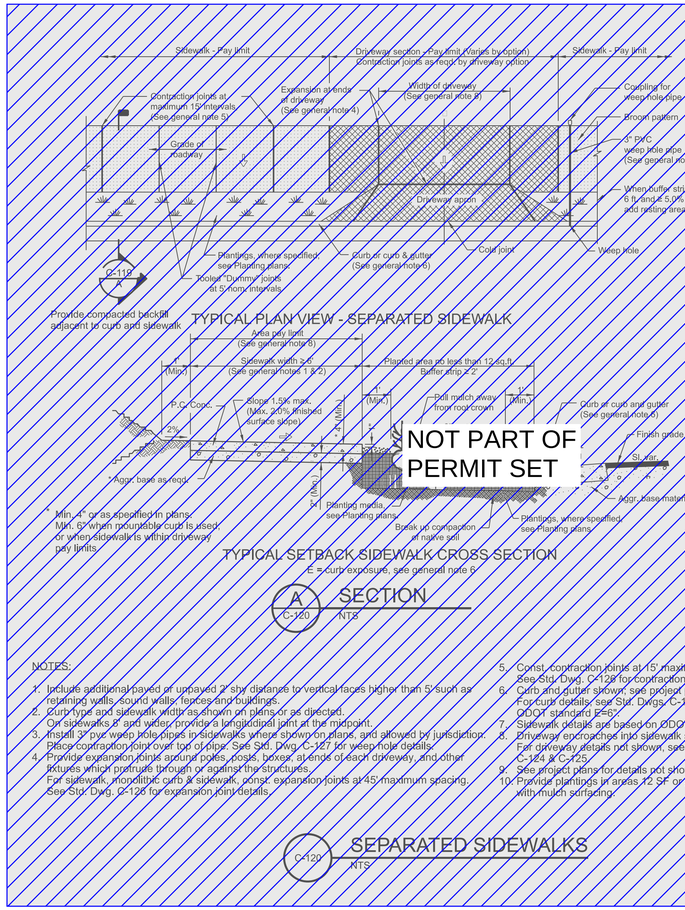
NOTES:

1. Include additional paved or unpaved 2' shy distance to vertical faces higher than 5' such as retaining walls, sound walls, fences and buildings.
2. Curb type and sidewalk width as shown on plans or as directed. On sidewalks 8' and wider, provide a longitudinal joint at the midpoint.
3. Install 3" pvc weep hole pipes in sidewalks where shown on plans, and allowed by jurisdiction. Place contraction joint over top of pipe. See Std. Dwg. C-127 for weep hole details.
4. Provide expansion joints around poles, posts, boxes, at ends of each driveway, and other fixtures which protrude through or against the structures. For sidewalk, monolithic curb & sidewalk, const. expansion joints at 45' maximum spacing. See Std. Dwg. C-126 for expansion joints details.
5. Const. contraction joints at 15' maximum spacing, and at ends of each curb ramp. See Std. Dwg. C-126 for contraction joints details.
6. For curb details, see Std. Dwgs. C-101, C-102, C-103, C-104. ODOT standard E=6".
7. Sidewalk details are based on applicable ODOT standards.
8. Fully lowered sidewalk shown; see project plans for the diveway design specified. For driveway details not shown, see Std. Dwgs. C-120, C-121, C-122, C-123, C-124 & C-125.
9. See project plans for details not shown.

LEGEND

- Sidewalk pay limit.
- Driveway pay limit, varies by option, (See general note 8).
- ⇦ Cross slope 1.5% max. (Max. 2.0% finished surface slope) (Normal sidewalk cross slope)

C-119 CURB LINE SIDEWALKS
NTS

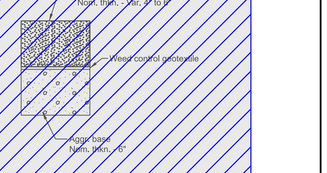


TYPICAL PLAN VIEW - SEPARATED SIDEWALK

* Min. 4" or as specified in plans. Min. 6" when mountable curb is used or when sidewalk is within driveway pay limits.

TYPICAL SETBACK SIDEWALK CROSS SECTION
E = curb exposure, see general note 6

A C-120 SECTION
NTS



NON-PLANTED SOFTSCAPE CROSS SECTION

NOTES:
1. Use softscape materials allowed by jurisdiction.
2. Approved softscape materials:
   a) Loose, durable round rock, 2"-4" in diameter
   b) Lava rock, 2"-4" diameter
   c) Wood chips/bark mulch
   d) Sand
3. No crushed aggregate or pea gravel allowed.
4. Install softscape material flush with the top of sidewalk.

LEGEND

- Sidewalk pay limit.
- Driveway pay limit, varies by option, (See general note 8).
- ⇦ Cross slope 1.5% max. (Max. 2.0% finished surface slope) (Normal sidewalk cross slope)

NOTES:

1. Include additional paved or unpaved 2' shy distance to vertical faces higher than 5' such as retaining walls, sound walls, fences and buildings.
2. Curb type and sidewalk width as shown on plans or as directed. On sidewalks 8' and wider, provide a longitudinal joint at the midpoint.
3. Install 3" pvc weep hole pipes in sidewalks where shown on plans, and allowed by jurisdiction. Place contraction joint over top of pipe. See Std. Dwg. C-127 for weep hole details.
4. Provide expansion joints around poles, posts, boxes, at ends of each driveway, and other fixtures which protrude through or against the structures. For sidewalk, monolithic curb & sidewalk, const. expansion joints at 45' maximum spacing. See Std. Dwg. C-126 for expansion joint details.
5. Const. contraction joints at 15' maximum spacing, and at ends of each curb ramp. See Std. Dwg. C-126 for contraction joint details.
6. Curb and gutter shown; see project plans for the curb design specified. For curb details, see Std. Dwgs. C-101, C-102, C-103, C-104. ODOT standard E=6".
7. Sidewalk details are based on ODOT applicable standards.
8. Driveway encroached into sidewalk shown; see project plans for the driveway design specified. For driveway details not shown, see Std. Dwgs. C-120, C-121, C-122, C-123, C-124 & C-125.
9. See project plans for details not shown.
10. Provide plantings in areas 12 SF or greater, as shown or directed. Treat areas less than 12 SF with mulch surfacing.

C-120 SEPARATED SIDEWALKS
NTS

NOT PART OF PERMIT SET

Confidential

REGISTERED PROFESSIONAL ENGINEER 55529PE
OREGON JULY 15, 2003 RAFAEL CAETA
EXPIRES 6-30-23

No	Date	Description	Appd
1	10/27/23	Multnomah County Construction Permit	MRG
Revision			
Survey			

Stantec
EMERIO ENGINEERING • SURVEYING • DESIGN

Designed By	RG	Design Mgr	LSH
Drawn By	DJD	Const Mgr	TG
Checked By	LCS	Const Supvr	RM
Project Mgr	MRG	Date	10/27/23

Warning
0 ½ 1
If this bar does not measure 1" then the drawing is not to scale

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683 — Date

CITY OF PORTLAND OREGON 1851

Bull Run Filtration Facility

Civil

Grading & Paving Details 8

SAP Project No	W02229
1/4 Section	3765 / 3766
Sheet No	GEN-C-908
	48 of 2410

10/27/2023
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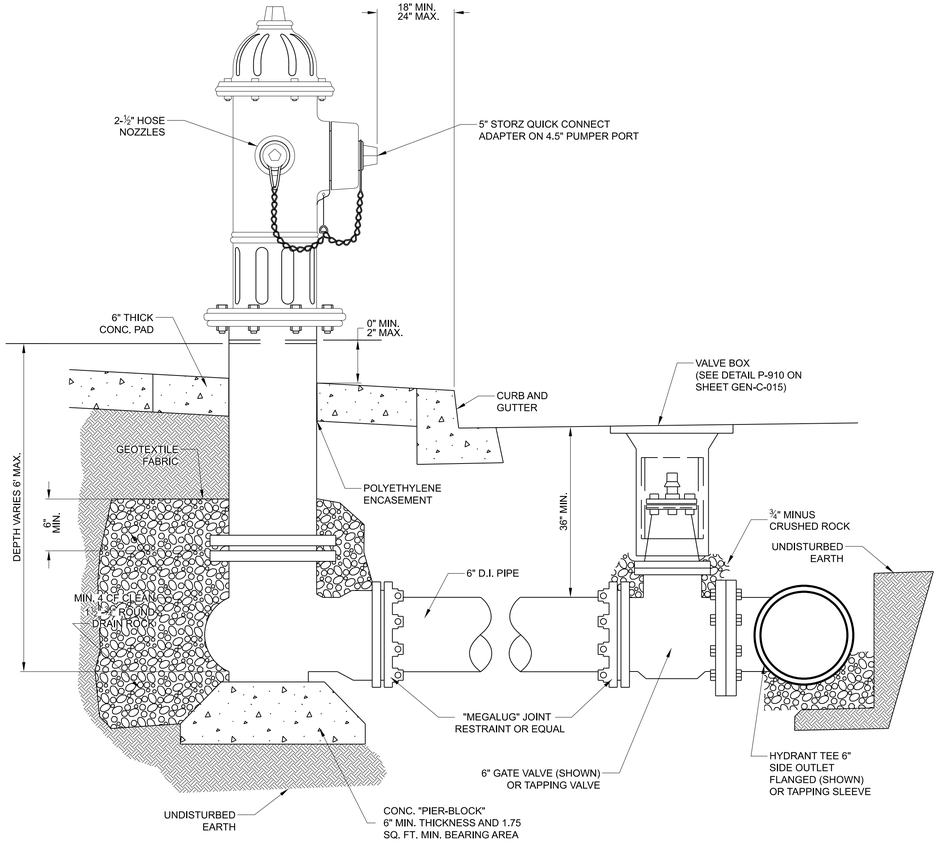


NOTE:

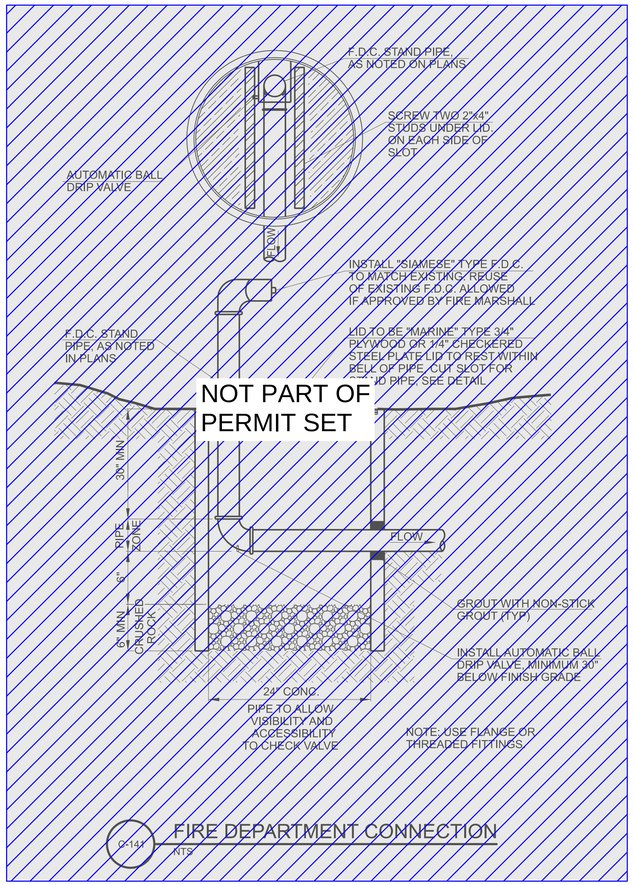
1. WHERE CURB TIGHT SIDEWALK (NO PLANTER STRIP) AND CURB EXIST. HYDRANT PUMPER PORT SHALL BE PLACED AT BACK OF SIDEWALK, OR AS DIRECTED BY ENGINEER.
2. WHERE HYDRANT IS ADJACENT TO GRAVEL ROAD, PROVIDE 24" CLEARANCE BETWEEN NOZZLE AND EDGE OF GRAVEL ROAD AND PROVIDE 5' SQUARE COLLAR AROUND HYDRANT.
3. FOR MORE DETAIL SEE SPECIFICATIONS IN THE CITY OF GRESHAM PWS SECTION 502.

NOTES FOR HYDRANT WITHIN ROW:

1. CURB, GUTTER, PLANTER STRIP, AND SIDEWALK ONLY WHERE APPLICABLE, SEE PLANS.
2. FIRE HYDRANTS SHALL BE MUELLER CENTURION, M & H 949 RELIANT OR CLOW F-2500 OR KENNEDY GUARDIAN WITH 6" MJ INLET AND 5 1/4" VALVE OPENING. FIRE HYDRANTS ARE TO HAVE A 4 1/2" AND TWO 2 1/2" OUTLETS. PUMPER OUTLET TO FACE THE DIRECTION OF ACCESS.
3. HYDRANT COLOR SHALL BE YELLOW SHERWIN WILLIAMS GCC-5006, OR APPROVED EQUAL.
4. ALL MJ'S ON TEE, VALVE AND FIRE HYDRANT SHALL BE RESTRAINED WITH "MEGALUG" FOLLOWER GLANDS OR APPROVED EQUAL. RESTRAIN MIN. 10 LF OF PIPE EACH SIDE OF TEE ON MAIN LINE AND ALL PIPE AND FITTINGS RESTRAIN ON THE BRANCH SIDE OF TEE. NO JOINTS BETWEEN VALVALVE AND SHOW UNLESS PIPE RUN LENGTH IS OVER 18 LF.
5. MIN. 4' CU. FT. OF1-1/2"-3/4" CLEAN DRAIN ROCK SHALL BE PLACED AROUND SHOW UP TO A MIN. OF 6" ABOVE DRAIN OUTLETS.
6. BURY OF HYDRANT SHALL BE MEASURE FROM BURY LINE TO BOTTOM OF CONNECTING PIPE. HYDRANT SHALL HAVE A MAX. OF A 6' BURY, UNLESS OTHERWISE APPROVED BY OWNER'S REPRESENTATIVE.
7. HYDRANT VALVE SHALL BE MUELLER RESILIENT WEDGE GATE VALVE #a-2360-16 OR APPROVED EQUAL.
8. WHERE NO SIDEWALK EXISTS AROUND A HYDRANT, INCLUDING A PLANTER STRIP, PLACE A 5'X5'X4" THICK CONC. PAD AROUND HYDRANT. EXPANSION JOINT MATERIAL SHALL BE PLACED AROUND HYDRANT BARREL WHEN PLACED IN CONCRETE.

△2

C-140 FIRE HYDRANT
NTS



C-141 FIRE DEPARTMENT CONNECTION
NTS

$$$$FILENAME$$$$
$$$$USER$$$$
$$$$DATE$$$$

No	Date	Description	Appd
2	03/08/24	Multnomah County Construction Permit Revision	MRG
1	10/27/23	Multnomah County Construction Permit	MRG
Revision			
Survey			

Stantec
EMERIO ENGINEERING • SURVEYING • DESIGN

Designed By	RG	Design Mgr	LSH
Drawn By	DJD	Const Mgr	TG
Checked By	LCS	Const Supvr	RM
Project Mgr	MRG	Date	10/27/23

Warning
0 ½ 1
If this bar does not measure 1" then the drawing is not to scale

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683

Date

CITY OF PORTLAND, OREGON 1851

REGISTERED PROFESSIONAL ENGINEER
55529PE
Date: Rafael Gaeta 2024.04.17 13:41:45-07'00'
OREGON
JULY 15, 2005
RAFAEL GAETA
EXPIRES 6-30-23

Confidential

Bull Run Filtration Facility

Civil

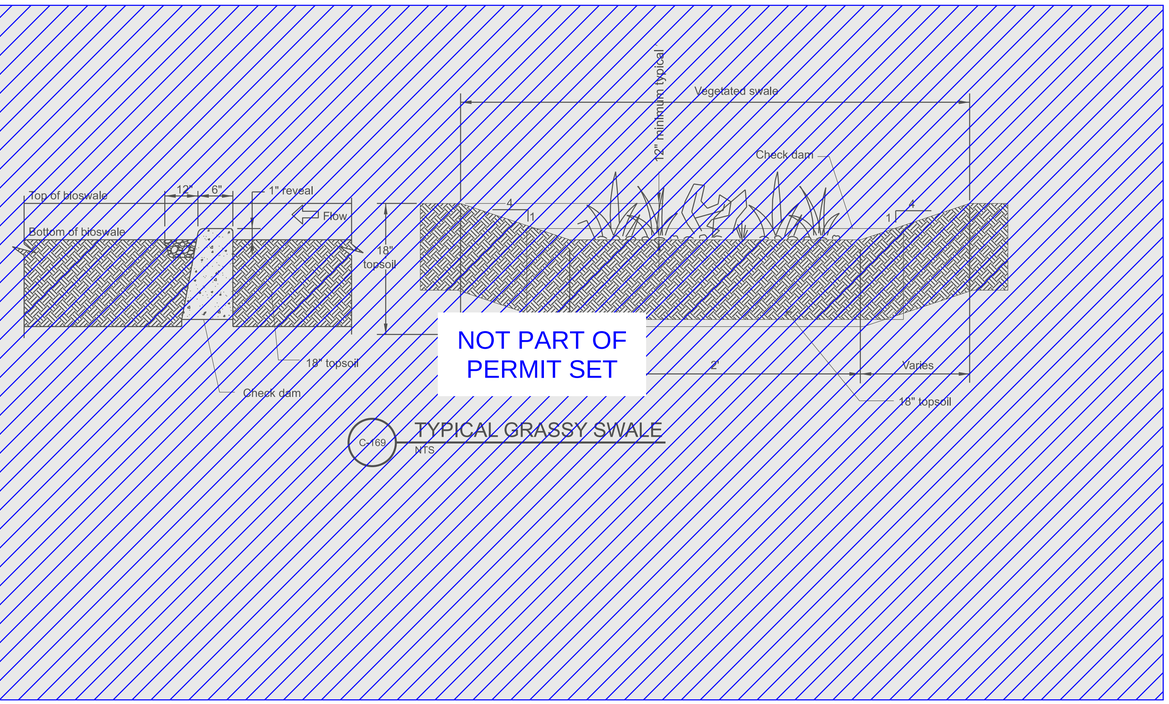
Pipes
Details - 1

SAP Project No
W02229

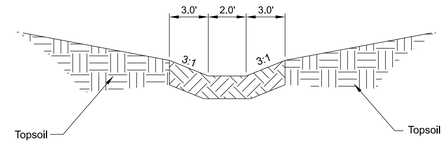
1/4 Section
3765 / 3766

Sheet No
GEN-C-915

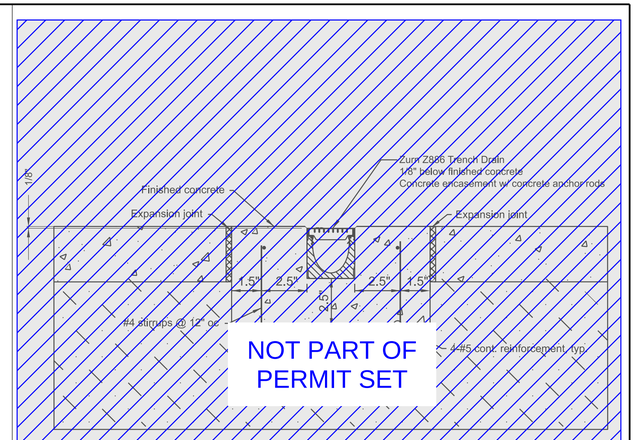
55 2410 of



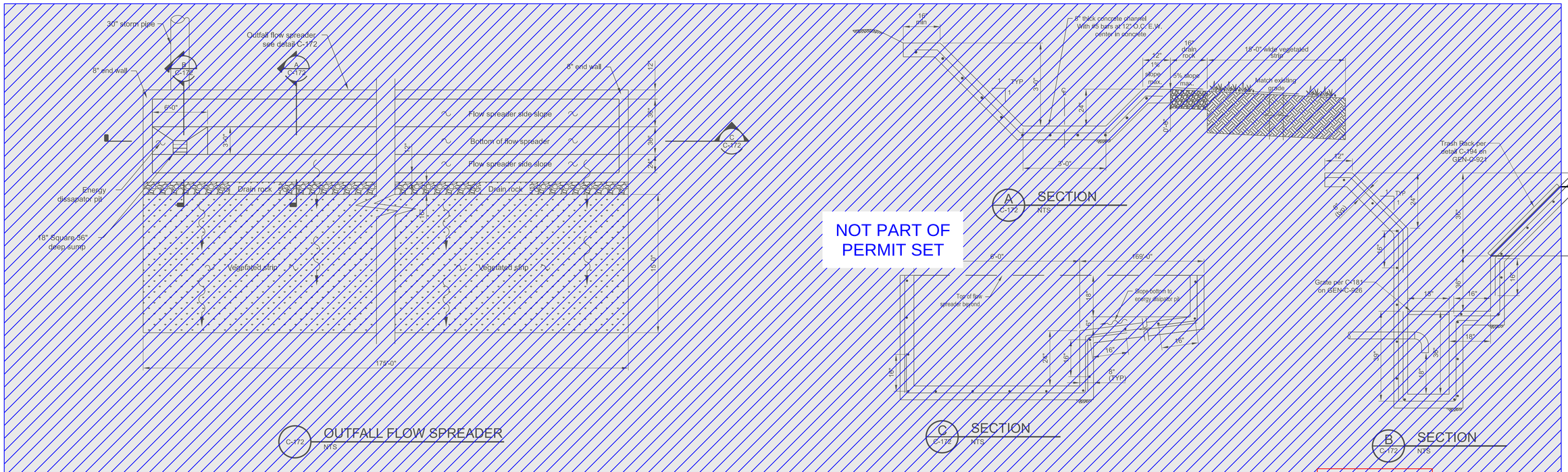
C-169 TYPICAL GRASSY SWALE
NTS



C-170 DITCH
NTS



C-171 TRENCH DRAIN
NTS



C-172 OUTFALL FLOW SPREADER
NTS

Confidential

REGISTERED PROFESSIONAL ENGINEER 55529PE OREGON JULY 15, 2003 RAFAEL CAETA EXPIRES 6-30-25

User: stanpw11ics04$ W02229_FF_GEN_C_922.dgn 10/27/2023

No	Date	Description	Appd
1	10/27/23	Multnomah County Construction Permit	MRG

Revision

Survey

Stantec

EMERIO ENGINEERING • SURVEYING • DESIGN

Designed By	RG	Design Mgr	LSH
Drawn By	DJD	Const Mgr	TG
Checked By	LCS	Const Supvr	RM
Project Mgr	MRG	Date	10/27/23

Warning

0 ½ 1

If this bar does not measure 1" then the drawing is not to scale

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683 Date

CITY OF PORTLAND OREGON 1851

Bull Run Filtration Facility

Civil

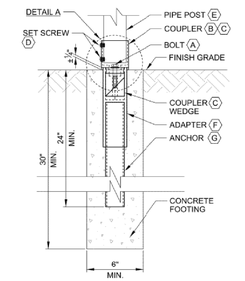
Storm
Details 4

SAP Project No
W02229

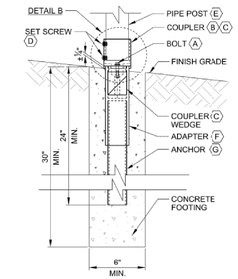
1/4 Section
3765 / 3766

Sheet No
GEN-C-922

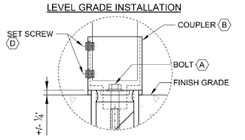
62 of 2410



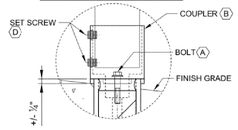
BREAKAWAY ANCHOR ASSEMBLY
LEVEL GRADE INSTALLATION



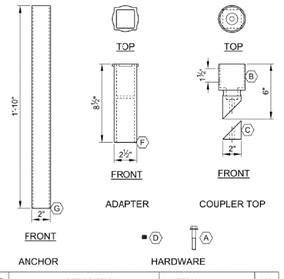
BREAKAWAY ANCHOR ASSEMBLY
SLOPED GRADE INSTALLATION



DETAIL A



DETAIL B



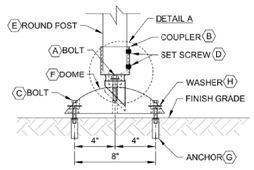
ITEM NO.	DESCRIPTION	MATERIAL	QTY
A	½" X 2½" USS HEX HEAD BOLT	GRADE 8 GALV. STEEL	1
B	2⅜" COUPLER TOP (ROUND)	CAST IRON	1
C	COUPLER WEDGE (2")	CAST IRON	1
D	½" USS SET SCREW	STAINLESS STEEL	2
E	ROUND POST 2.375" O.D.	SCHEDULE 40 STEEL	1
F	ADAPTER 2.5" O.D. X 8.5"	CAST IRON	1
G	ANCHOR 2.0" O.D. X 22"	STEEL	1

BREAKAWAY ANCHOR PARTS LIST

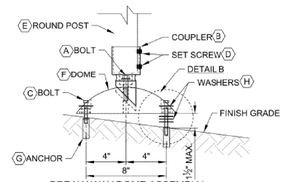
NOTES:

1. FOR PIPE SIGN POST INSTALLATION IN EARTH.
2. CENTER BOLT 'A' AND SET SCREWS 'D' SHALL BE TIGHTENED SECURELY SUCH THAT THE ENTIRE ASSEMBLY IS TIGHT.
3. FOR LEVEL INSTALLATIONS:
- THE ANCHOR 'G' AND ADAPTER 'F' SHALL BE PLACED SUCH THAT THE BOTTOM OF THE LIP SURROUNDING THE TOP OF ADAPTER IS AT FINISH GRADE.
4. THE SLOPED INSTALLATIONS:
- THE ANCHOR 'G' SHALL BE PLACED AT TOP OF FINISH GRADE RELATIVE TO THE UPPER SIDE OF THE SLOPE SUCH THAT NO PART OF THE ANCHOR IS BELOW FINISH GRADE AT ANY POINT.
5. EXTREME CARE SHALL BE TAKEN TO ENSURE THE ANCHOR ASSEMBLY IS PLACED VERTICALLY IN THE GROUND. THE ENTIRE SIGN INSTALLATION SHALL BE PLUMB AND TIGHTWHEN INSTALLATION IS COMPLETE.
6. FOR OTHERS INSTALLATION DETAILS FOLLOW MANUFACTURE'S INSTRUCTIONS.

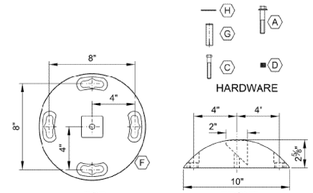
C-202 BREAKAWAY ANCHOR TRAFFIC SIGN SUPPORTS
NTS



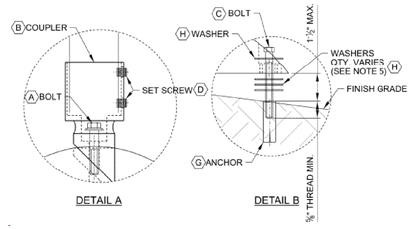
BREAKAWAY DOME ASSEMBLY
- LEVEL GRADE INSTALLATION



BREAKAWAY DOME ASSEMBLY
- SLOPED GRADE INSTALLATION



DOME



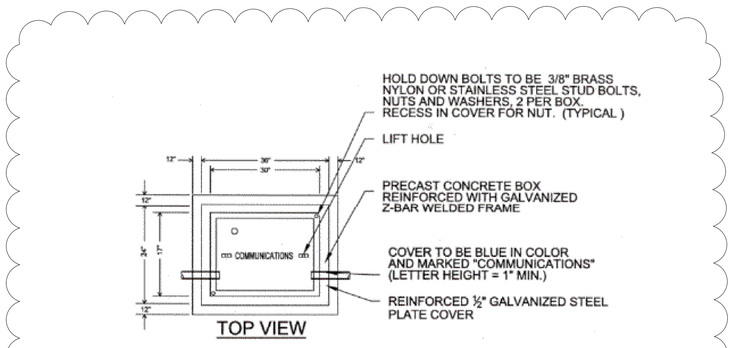
ITEM NO.	DESCRIPTION	MATERIAL	QTY.
A	½"X 2 ½"USS HEX HEAD BOLT	GRADE 8 GALV. STEEL	1
B	2⅜" COUPLER TOP (ROUND)	CAST IRON	1
C	½"X 1 ½" (MIN.) TO 3"(MAX.) USS HEX HEAD BOLT, 13 THREAD/INCH	GRADE 8 GALV. STEEL, ZINC FINISH	4
D	½" USS SET SCREW	STAINLESS STEEL	2
E	ROUND POST 2.375" O.D.	SCHEDULE 40 STEEL	1
F	ROUND DOME 10" DIA.X2⅜"	CAST ALUMINUM	1
G	½"X2" USS ANCHOR , 13 THREAD/INCH, 5/8" O.D.	STAINLESS STEEL	4
H	½" USS FLAT WASHER	GALV. STEEL, ZINC FINISH	4 (MIN.)

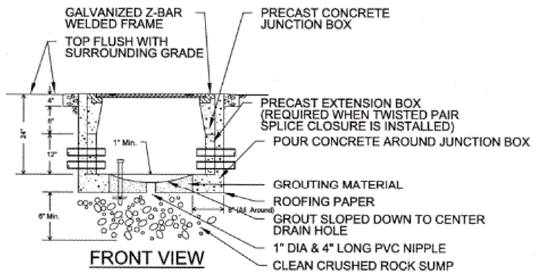
BREAKAWAY DOME PARTS LIST

NOTES:

1. FOR PIPE SIGN POST INSTALLATION IN SIDEWALK.
2. CENTER BOLT 'A' AND SET SCREWS 'D' SHALL BE TIGHTENED SECURELY SUCH THAT THE ENTIRE ASSEMBLY IS TIGHT.
3. THE ANCHOR HOLE SHALL BE DRILLED TO 5/8" DIAMETER. THE HOLE SHALL BE FREE OF DEBRIS BEFORE PLACING ANCHOR INTO HOLE.
4. ANCHORS 'G' MUST BE PRE-SET WITH HAND SETTING TOOL PRIOR TO INSTALLING BREAKAWAY DOME. EPOXY SHALL NOT BE USED.
5. FOR INSTALLATION ON SLOPED GRADES, LEVEL BREAKAWAY DOME BY STACKING WASHERS AS SHOWN SO THAT ENTIRE SIGN INSTALLATION IS PLUMB. USE LONGER BOLTS 'C' AS NECESSARY TO ACHIEVE MINIMUM ANCHOR PENETRATION WHERE LEVELING WASHER HEIGHT IS GREATER THAN 1/2-INCH, GROUNT VOID BETWEEN SIDEWALK AND BREAKAWAY DOME. DO NOT INSTALL BREAKAWAY DOME SIGN SUPPORT IF LEVELING WASHER HEIGHT EXCEEDS 1-1/2 INCHES: CORE AND REPLACE SIDEWALK TO INSTALL BREAKAWAY ANCHOR SIGN SUPPORT INSTEAD.
6. FOR OTHER INSTALLATION DETAILS FOLLOW MANUFACTURER'S INSTRUCTIONS.

C-203 BREAKAWAY DOME TRAFFIC SIGN SUPPORTS
NTS





C-204 COMMUNICATIONS JUNCTION BOX TYPE "C" PULLBOX OUTSIDE OF SIDEWALK TYPICAL INSTALLATION
NTS

1

REGISTERED PROFESSIONAL ENGINEER
55529PE
Date: Rafael Gaeta 2024.04.17 13:42:04-07'00'
OREGON
JULY 15, 2003
RAFAEL GAETA
EXPIRES 6-30-25

Confidential

No	Date	Description	Appd
			XX
1	3/7/24	Multnomah County Construction Permit Revision	MRG

Revision

Survey

Stantec
EMERIO ENGINEERING • SURVEYING • DESIGN

Designed By	RG	Design Mgr	LSH
Drawn By	DJD	Const Mgr	TG
Checked By	LCS	Const Supvr	RM
Project Mgr	MRG	Date	3/7/24

Warning
0 ½ 1
If this bar does not measure 1" then the drawing is not to scale

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683

Date

CITY OF PORTLAND, OREGON 1851

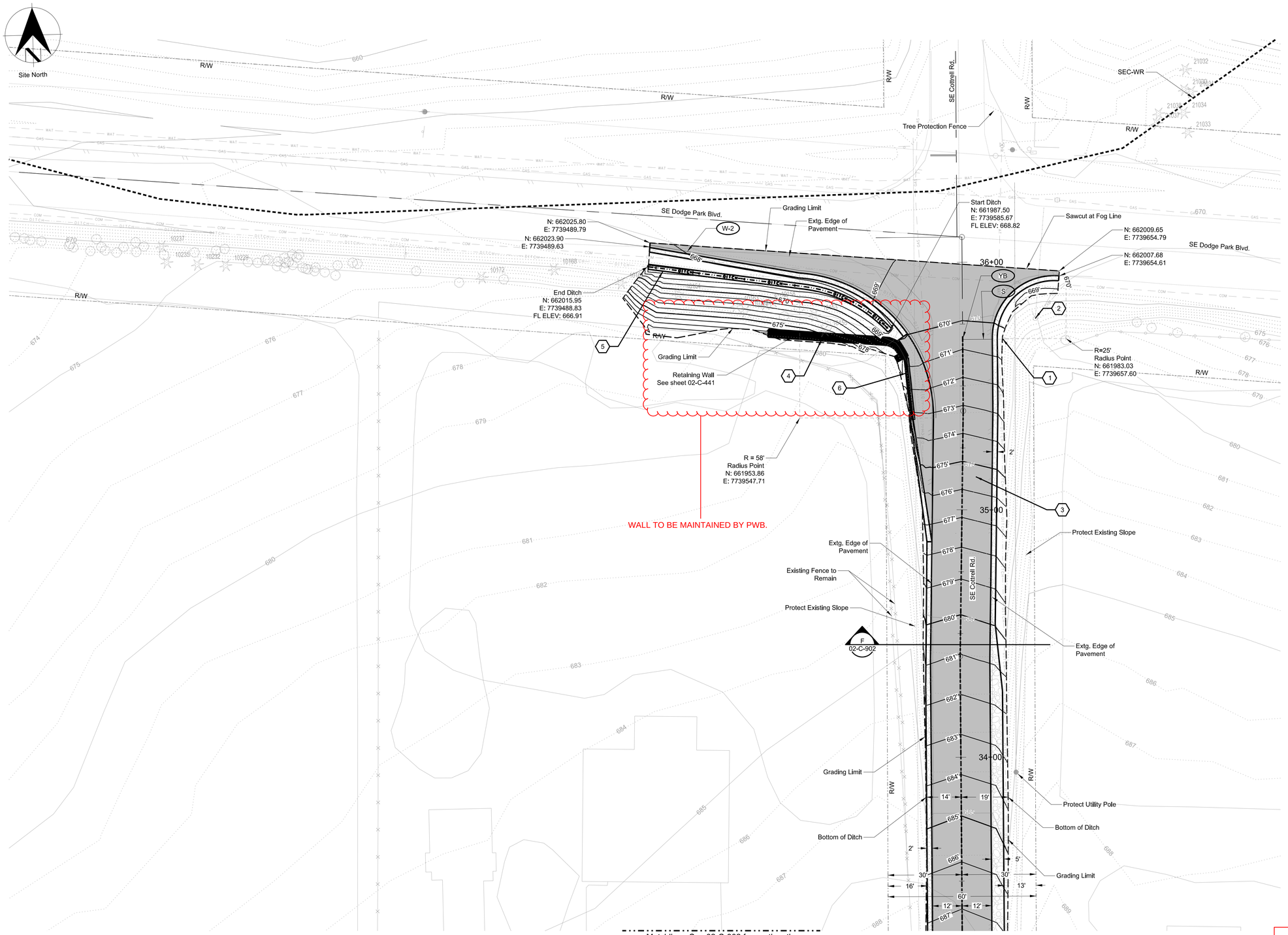
Bull Run Filtration Facility

Civil

Grading & Paving
Details 15

SAP Project No
W02229
1/4 Section
3765 / 3766
Sheet No
GEN-C-934
73.01 of 2410

$$$$DATE$$$$
$$$$USER$$$$
$$$$FILENAME$$$$



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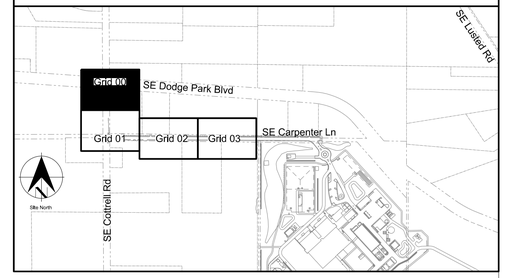

General Sheet Notes

1. See sheets 02-C-901 & 02-C-902 for typical roadway section.
2. See sheet 02-C-400 through 02-C-437 for roadway plan and profile.
3. See sheet 03-C-616 for utility design information.
4. See LS Networks drawing set for additional utility information not shown in this set.

Sheet Keynotes

1. Remove and Reinstall sign after work. During construction provide temporary sign.
2. Protect existing transformer.
3. Asphalt roadway, see detail D/02-C-902.
4. Modular block retaining wall per C-110 on sheet GEN-C-903. See plan and profile on sheet 02-C-411. (3)
5. Roadside ditch per C-170 on sheet GEN-C-922.
6. Solider Pile retaining wall. See details on sheet 02-S-901. See Plan and Profile on sheet 02-C-411. (3)

Legend

- Asphalt Pavement
- Gravel
- Retaining Wall
- Sawcut Line
- Ditch
- Grind and Inlay
- Striping Callout (XX) See C-113 on sheet GEN-C-905

SCALE IN FEET: 0, 20, 40

REGISTERED PROFESSIONAL ENGINEER
55529PE
Date: 2024.04.15 14:13:53-07:00
OREGON
JULY 15, 2005
RAFAEL GAETA
EXPIRES 6-30-25
Rafael Gaeta

Confidential

No	Date	Description	Appd
2	4/11/24	Multnomah County Construction Permit Revisions	MRG
2	3/15/24	Multnomah County Construction Permit Revisions	MRG
1	10/27/23	Multnomah County Construction Permit	MRG

Revision

Survey

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EMERIO ENGINEERING • SURVEYING • DESIGN

Designed By	RG	Design Mgr	LSH
Drawn By	DJD	Const Mgr	TG
Checked By	LCS	Const Supvr	RM
Project Mgr	MRG	Date	4/11/24

Warning
0 ½ 1
If this bar does not measure 1" then the drawing is not to scale

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683

Date

CITY OF PORTLAND OREGON 1851

Bull Run Filtration Facility

Civil

Grading & Paving
Grid 00

SAP Project No
W02229

1/4 Section
3765 / 3766

Sheet No
02-C-301

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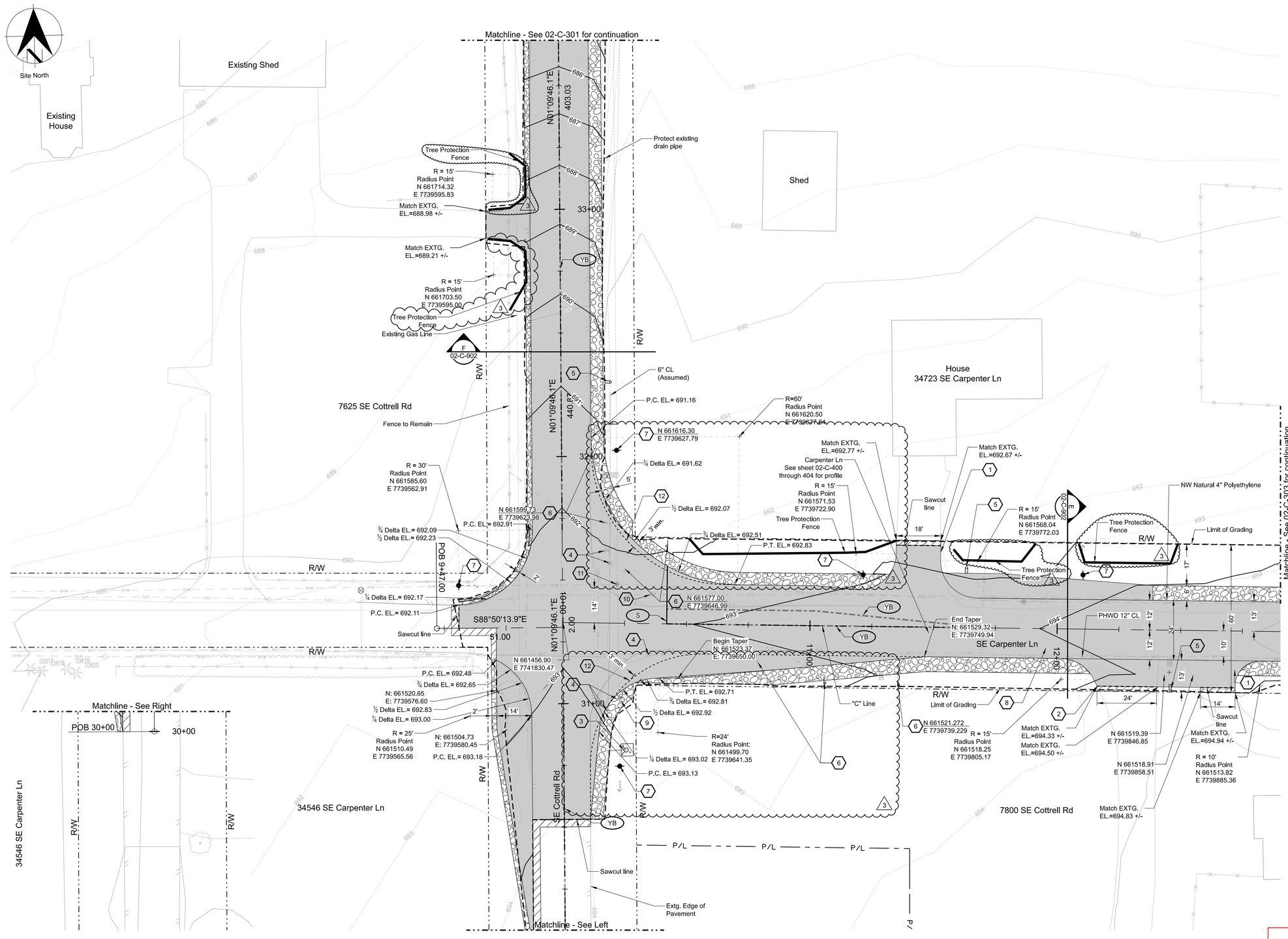
$$$$DATE$$$$
$$$$USER$$$$
$$$$FILENAME$$$$



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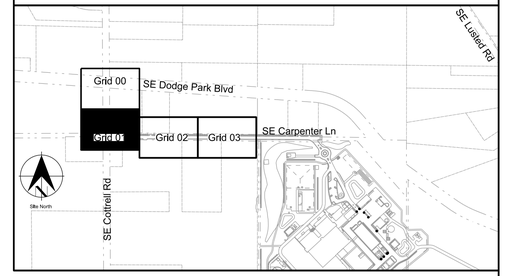


General Sheet Notes

1. See sheet 02-C-901 and 02-C-902 for typical roadways section.
2. See sheets 02-C-400 through 02-C-432 for roadway plan and profile.
3. See landscape sheets for additional information.
4. See sheet 03-C-617 for utility design information.
5. See LS Networks drawing set for additional utility information not shown in this set.

Sheet Keynotes

1. Asphalt driveway approach per detail C-118 on sheet GEN-C-907.
2. Gravel driveway approach per detail C-118 on sheet GEN-C-907.
3. Fire hydrant per detail C-140 on GEN-C-915.
4. Protect existing water valves, adjust to finished grade.
5. Mailbox support per detail C-111 on sheet GEN-C-904.
6. Salvage and reinstall sign and post in new location as shown.
7. Proposed utility poles (by others).
8. Asphalt roadway, see sheet 02-C-901 for detail.
9. Remove existing hydrant.
10. Protect existing gas valve.
11. Remove utility pole (by others).
12. Remove asphalt to this edge at the end of construction. Replace with gravel. (3)

Legend

- Asphalt Pavement
- Gravel
- Sawcut line
- Ditch
- Grind and Inlay
- XX — Striping Callout See C-113 on sheet GEN-C-905
- Post Construction Edge of Asphalt (3)

REGISTERED PROFESSIONAL ENGINEER 55529PE
OREGON JULY 15, 2003 RAFAEL GAETA
EXPIRES 6-30-25

0 20 40
SCALE IN FEET

Confidential

No	Date	Description	Appd
3	4/12/24	Multnomah County Construction Permit Revision	MRG
2	3/15/24	Multnomah County Construction Permit Revision	MRG
1	10/27/23	Multnomah County Construction Permit	MRG

Revision

Survey

Stantec
EMERIO ENGINEERING • SURVEYING • DESIGN

Designed By	RG	Design Mgr	LSH
Drawn By	DJD	Const Mgr	TG
Checked By	LCS	Const Supvr	RM
Project Mgr	MRG	Date	4/12/24

Warning
0 ½ 1
If this bar does not measure 1" then the drawing is not to scale

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683 — Date

CITY OF PORTLAND, OREGON 1851

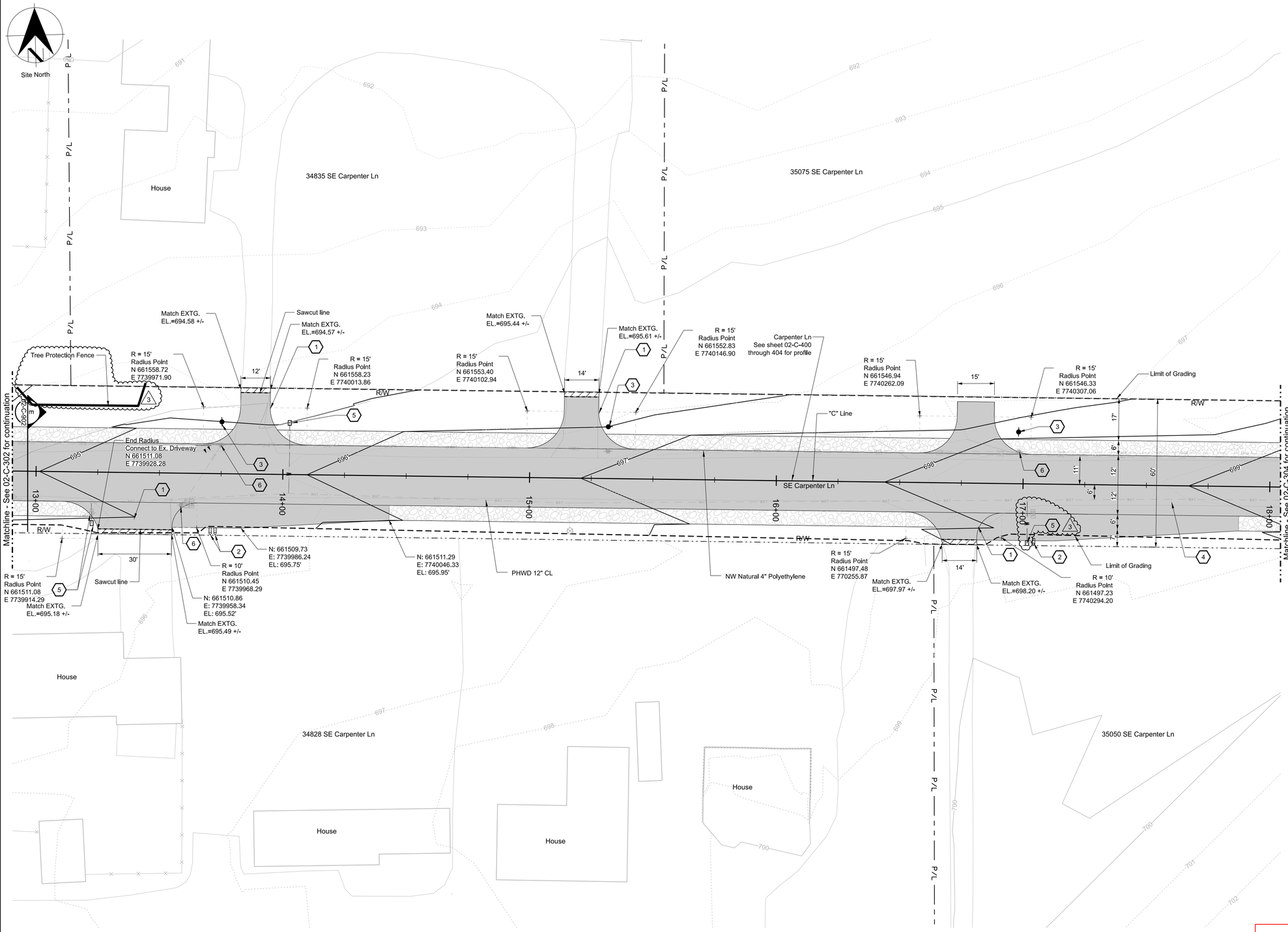
Bull Run Filtration Facility

Civil

Grading & Paving
Grid 01

SAP Project No
W02229
1/4 Section
3765 / 3766
Sheet No
02-C-302
80 of 2410

4/17/2024
User: stanpw11cs04$ W02229_FF_02_C_302.dgn



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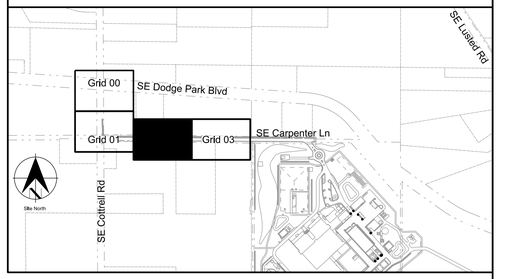


General Sheet Notes

1. See sheet 02-C-901 and 02-C-902 for typical roadways section.
2. See sheets 02-C-400 through 02-C-437 for roadway plan and profile.
3. See landscape sheets for additional information.
4. See sheet 03-C-618 for utility design information.
5. See LS Networks drawing set for additional utility information not shown in this set.

Sheet Keynotes

1. Asphalt driveway approach per detail C-118 on sheet GEN-C-907.
2. Mailbox supports per detail C-111 on sheet GEN-C-904.
3. Proposed utility poles (by others).
4. Asphalt roadway, see sheet 02-C-902 for detail.
5. Relocate existing water meter to location shown on plans.
6. Remove Utility Pole (by others).

Legend

- Asphalt Pavement
- Gravel
- Sawcut line

REGISTERED PROFESSIONAL ENGINEER 55529PE
OREGON JULY 15, 2003 RAFAEL GAETA
EXPIRES 6-30-25

0 20 40
SCALE IN FEET

Confidential

No	Date	Description	Appd
3	4/12/24	Multnomah County Construction Permit Revision	MRG
2	3/15/24	Multnomah County Construction Permit Revision	MRG
1	10/27/23	Multnomah County Construction Permit	MRG

Revision

Survey

4/17/2024

User: stanpw11ics03$ W02229_FF_02_C_303.dgn

Stantec
EMERIO ENGINEERING • SURVEYING • DESIGN

Designed By	RG	Design Mgr	LSH
Drawn By	DJD	Const Mgr	TG
Checked By	LCS	Const Supvr	RM
Project Mgr	MRG	Date	4/12/24

Warning
0 ½ 1
If this bar does not measure 1" then the drawing is not to scale

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683 — Date

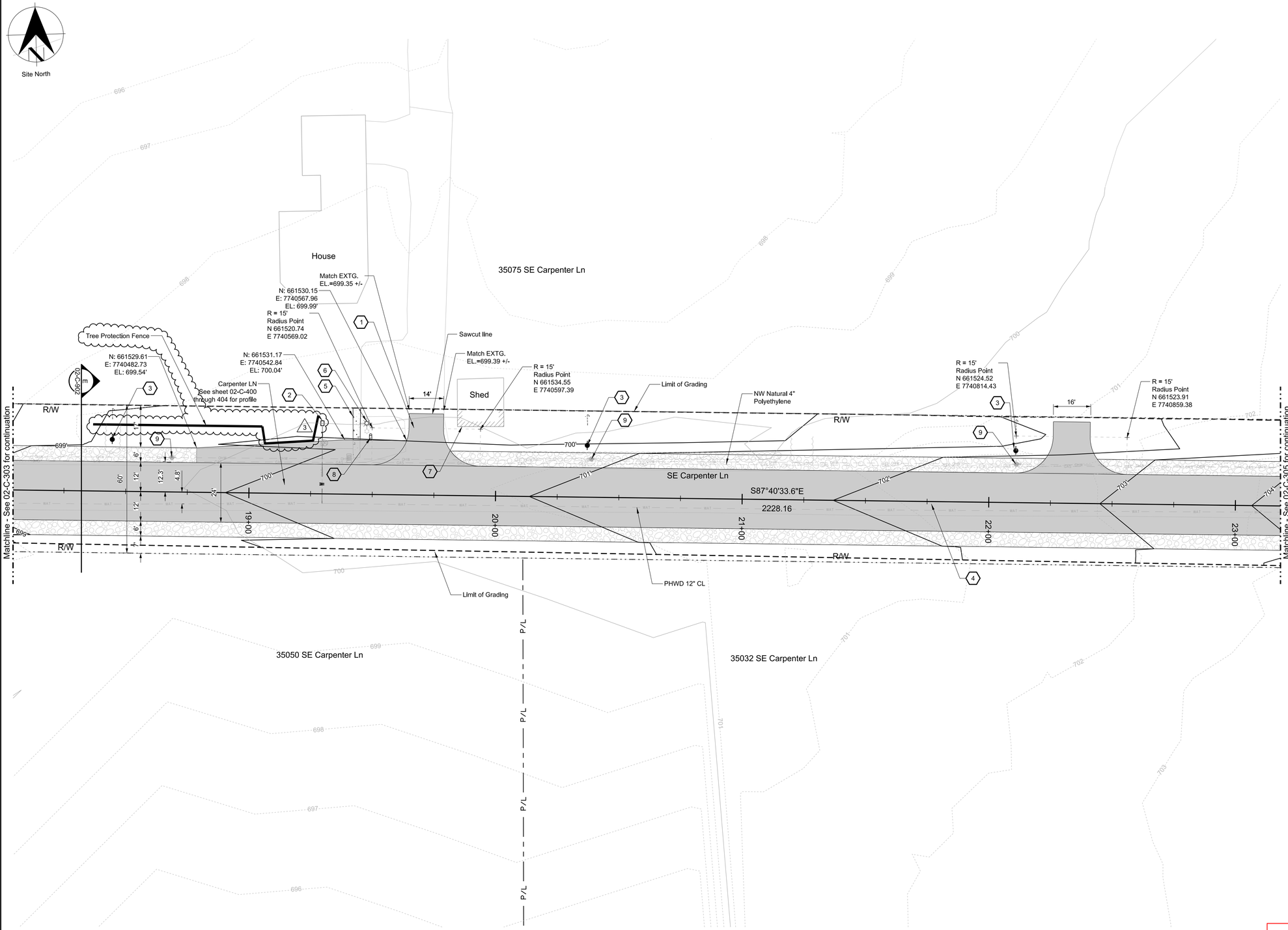
CITY OF PORTLAND, OREGON 1851

Bull Run Filtration Facility

Civil

Grading & Paving
Grid 02

SAP Project No W02229
1/4 Section 3765 / 3766
Sheet No 02-C-303
81 of 2410



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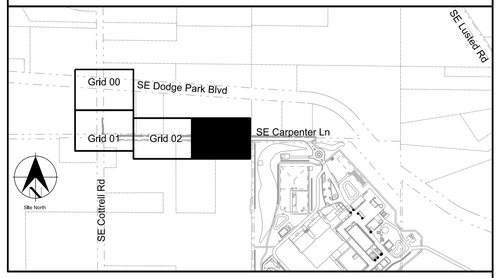

General Sheet Notes

1. See sheet GEN-C-301 for survey control information.
2. See sheet 02-C-901 and 02-C-902 for typical roadways section.
3. See sheet 02-C-400 through 02-C-437 for roadway plan and profile.
4. See 03-C-619 for utility design information.
5. See landscape sheets for additional information.
6. See LS Networks drawing for additional utility information not shown in this set.

Sheet Keynotes

1. Asphalt driveway approach per detail C-118 on sheet GEN-C-907.
2. Relocate water meter to location shown on plans.
3. Proposed utility pole (By Others).
4. Asphalt roadway, see sheet 02-C-902 for detail.
5. Concrete sidewalk per detail C-119 on sheet GEN-C-908.
6. Relocate existing light, coordinate with owner for new location.
7. Protect existing Shed.
8. Mailbox supports per detail C-111 on sheet GEN-C-904.
9. Remove Utility Pole (by others).

Legend

- Asphalt Pavement
- Gravel
- Concrete
- Sawcut line

REGISTERED PROFESSIONAL ENGINEER
55529PE
OREGON
JULY 15, 2003
RAFAEL CAETA
EXPIRES 6-30-25

0 20 40
SCALE IN FEET

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No	Date	Description	Appd
3	4/12/24	Multnomah County Construction Permit Revision	MRG
2	3/15/24	Multnomah County Construction Permit Revision	MRG
1	10/27/23	Multnomah County Construction Permit	MRG

Revision

Survey

Stantec
EMERIO
ENGINEERING • SURVEYING • DESIGN

Designed By	RG	Design Mgr	LSH
Drawn By	DJD	Const Mgr	TG
Checked By	LCS	Const Supvr	RM
Project Mgr	MRG	Date	4/12/24

Warning
0 ½ 1
If this bar does not measure 1" then the drawing is not to scale

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683

Date

CITY OF PORTLAND OREGON 1851

Bull Run Filtration Facility

Civil

Grading & Paving
Grid 03

SAP Project No
W02229
1/4 Section
3765 / 3766
Sheet No
02-C-304
82 of 2410

4/17/2024
User: stanpw11ics03$
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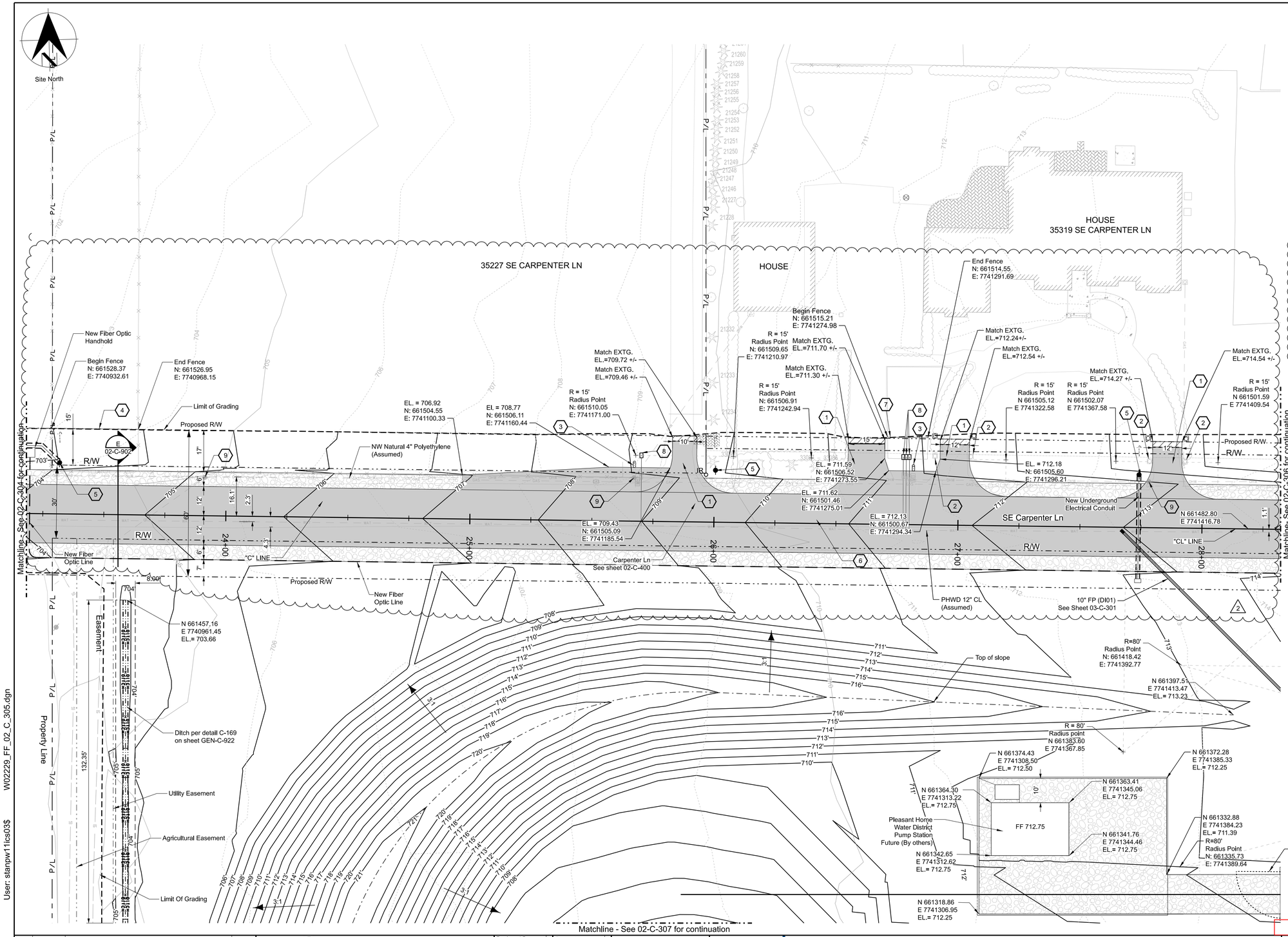

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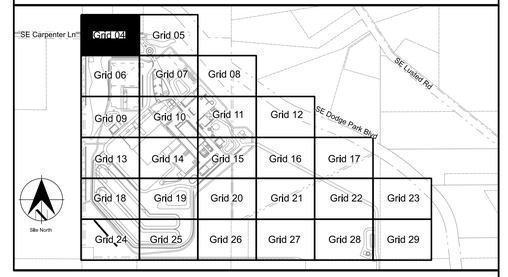


General Sheet Notes

1. See sheet GEN-C-301 for survey control information.
2. See sheet 02-C-901 adn 02-C-902 for typical roadway section
3. See sheets 02-C-400 to 02-C-437 for roadway plan and profile
4. See landscape sheets for additional information.
5. See sheet 02-C-619 for utility design information.
6. See LS Networks drawing for additional utility information not shown in this set. (2)

Sheet Keynotes

1. Asphalt driveway per detail C-118 on sheet GEN-C-907.
2. Re-install light pole on concrete base, outside of R/W, coordinate with property owner.
3. Mailbox supports per detail C-111 on sheet GEN-C-904.
4. 4' wire mesh fence to be relocated outside of R/W.
5. Proposed utility pole (by others).
6. Asphalt roadway, see sheets 02-C-901 and 02-C-902 for detail.
7. 4' chainlink fence to be relocated outside of R/W.
8. Relocate water meter to location shown on plans.
9. Remove Utility Pole. (2)

Legend

- Asphalt
- Gravel
- Top of Slope
- Sawcut Line
- Fiber Optic Line
- Fiber Optic Handhold

Confidential

No	Date	Description	Appd
2	3/11/24	Multnomah County Construction Permit Revision	MRG
1	10/27/23	Multnomah County Construction Permit	MRG
Revision			
Survey			

Stantec
EMERIO ENGINEERING • SURVEYING • DESIGN

Designed By	RG	Design Mgr	LSH
Drawn By	DJD	Const Mgr	TG
Checked By	LCS	Const Supvr	RM
Project Mgr	MRG	Date	3/11/24

Warning
0 ½ 1
If this bar does not measure 1" then the drawing is not to scale

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683 — Date

CITY OF PORTLAND, OREGON 1851

REGISTERED PROFESSIONAL ENGINEER 55529PE
OREGON JULY 15, 2005 RAFAEL CAETE
EXPIRES 6-30-25

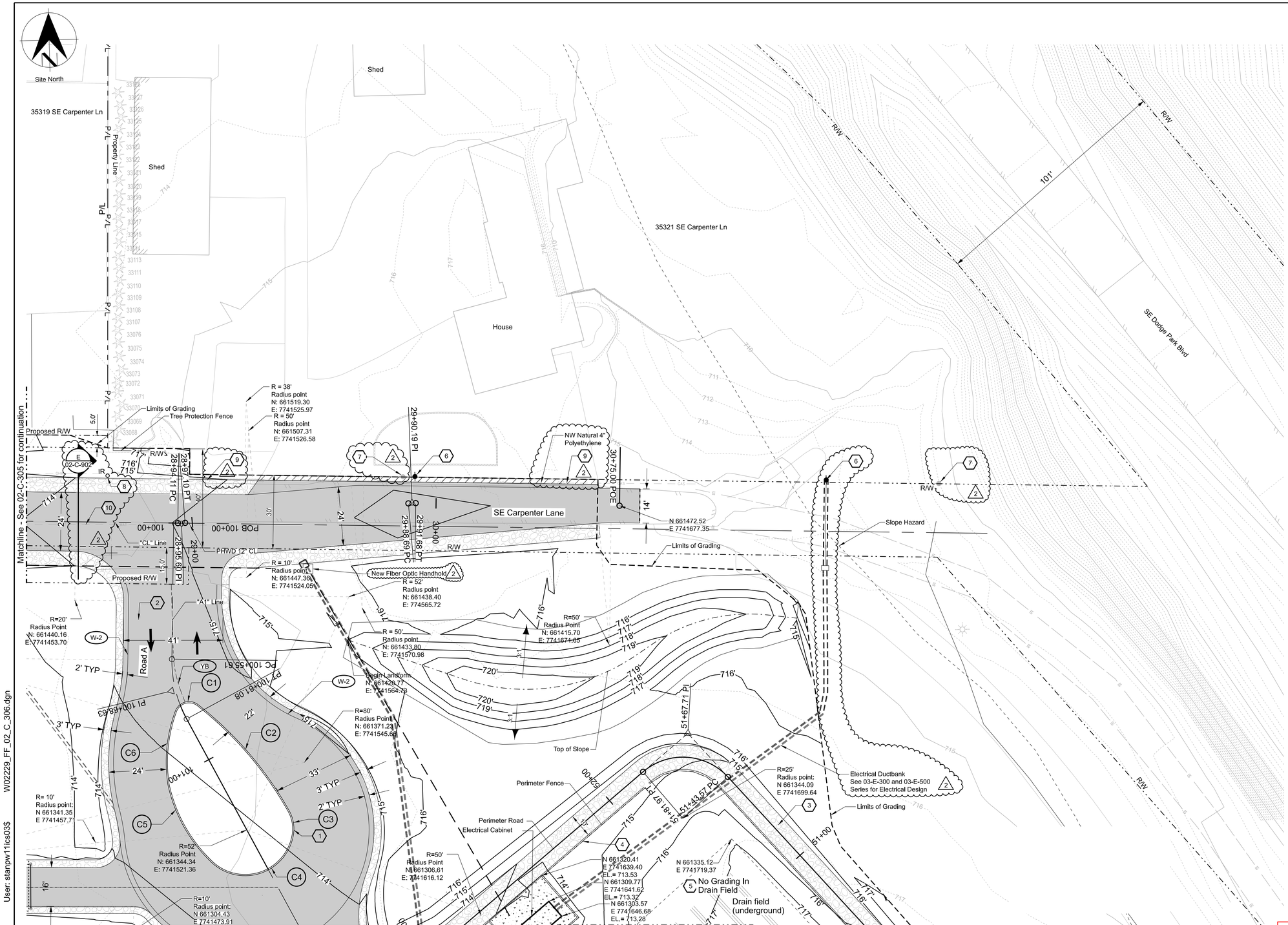
Bull Run Filtration Facility

Civil

Grading & Paving
Grid 04

SAP Project No
W02229
1/4 Section
3765 / 3766
Sheet No
02-C-305
83 of 2410

3/11/2024
User: stanpw11tcs03$
W02229_FF_02_C_305.dgn



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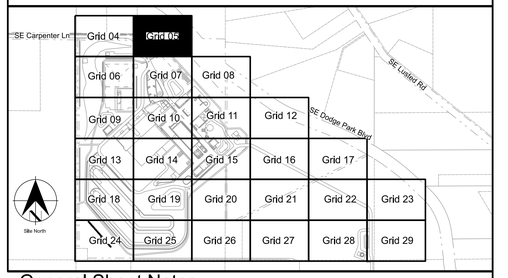


General Sheet Notes

1. See detail C on sheet 02-C-902 for Carpenter Lane typical roadway section.
2. See detail B on sheet 02-C-901 for Road A typical roadway section.
3. See sheets 02-C-400 through 02-C-437 for roadway plan and profiles.
4. See structural sheets for wall details.
5. See landscape sheets for additional information.
6. See architectural sheets for building information.
7. See 03-C-621 for utility design information.
8. See LS Networks drawing set for additional utility design information not shown on this set. (2)

Sheet Keynotes

1. Standard curb per detail C-101 on sheet GEN-C-901.
2. Asphalt roadway, see sheet 02-C-901 for detail.
3. Perimeter road, see sheet 02-C-901 for detail A.
4. Perimeter fence per detail 97/06-L-912.
5. The future site of the septic field must be protected and may not be utilized in any manner during construction. Refer to specification section 01.31.30 Construction and Schedule Constraints for additional information.
6. Proposed Utility Pole (By Others).
7. Remove Utility Pole (by others).
8. Protect Survey Monument.
9. Protect gas line in place. Locates, Potholes, request Standby 48-hrs in advance for support. Submit UPP to owner's representative.
10. Protect and maintain a minimum of 18" of cover for PHWD water mainline. Submit UPP to owner's representative. (2)

Legend

- Asphalt Pavement
- Concrete
- Gravel
- Grind and Inlay
- Slope Hazard
- Top of Slope
- XX — Striping Callout See C-113 on sheet GEN-C-905

REGISTERED PROFESSIONAL ENGINEER 55529PE
OREGON JULY 15, 2003 RAFAEL GAETA
EXPIRES 6-30-25

Confidential

0 20 40
SCALE IN FEET

No	Date	Description	Appd
2	3/15/24	Multnomah County Construction Permit Revision	MRG
1	10/27/23	Multnomah County Construction Permit	MRG

Revision

Survey

Stantec
EMERIO ENGINEERING • SURVEYING • DESIGN

Designed By	RG	Design Mgr	LSH
Drawn By	DJD	Const Mgr	TG
Checked By	LCS	Const Supvr	RM
Project Mgr	MRG	Date	3/15/24

Warning
0 ½ 1
If this bar does not measure 1" then the drawing is not to scale

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683 — Date

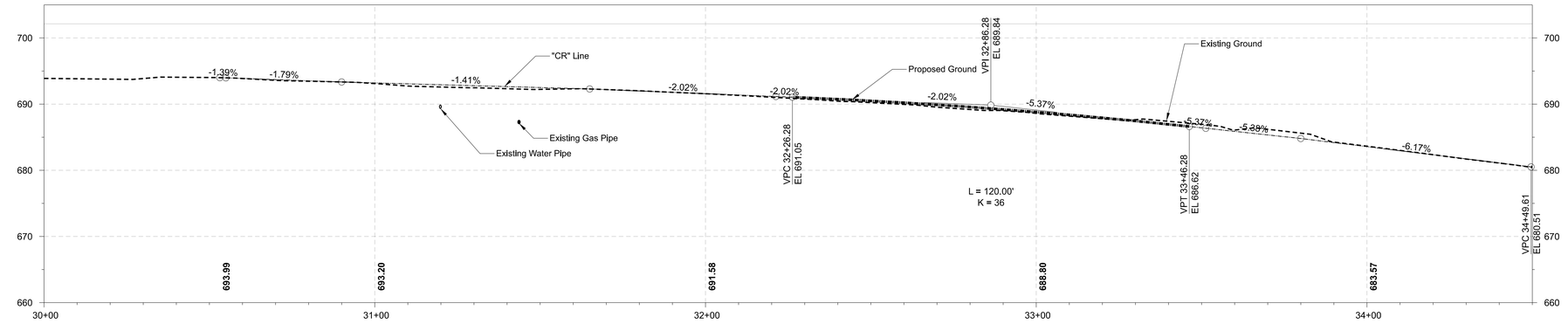
CITY OF PORTLAND OREGON 1851

Bull Run Filtration Facility

Civil

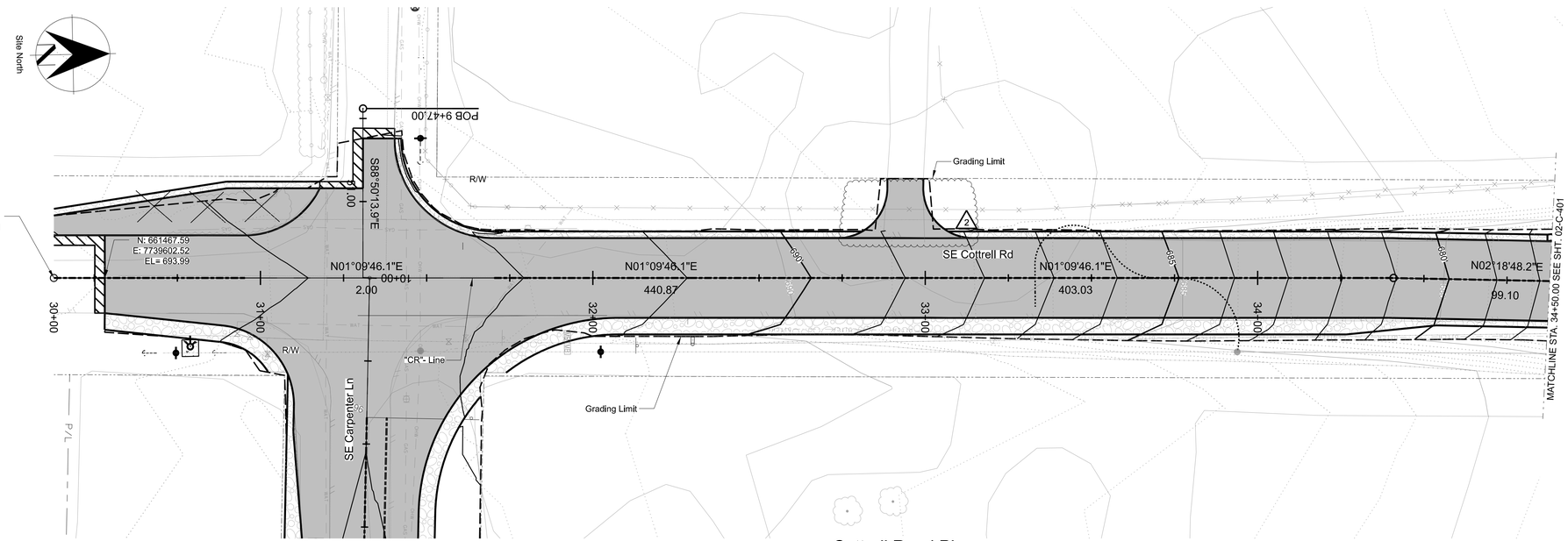
Grading & Paving
Grid 05

SAP Project No
W02229
1/4 Section
3765 / 3766
Sheet No
02-C-306
84 of 2410



Cottrell Road Profile

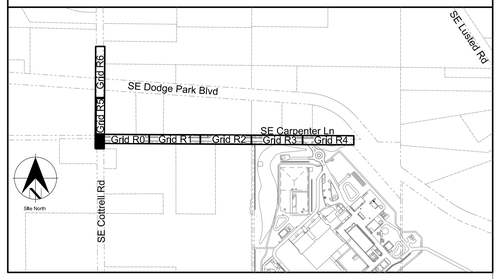
Scale:1" = 20' Horiz.
1" = 5' Vert.



Cottrell Road Plan

1"=20'

KEY PLAN



General Sheet Notes

1. See Sheet 02-C-901 for typical roadway sections. (2)

0 20 40
SCALE IN FEET

Confidential

No	Date	Description	Appd
2	3/14/24	Multnomah County Construction Permit Revision	MRG
1	10/27/23	Multnomah County Construction Permit	MRG
		Revision	

Survey

Stantec
EMERIO ENGINEERING • SURVEYING • DESIGN

Designed By	RG	Design Mgr	LSH
Drawn By	DJD	Const Mgr	TG
Checked By	LCS	Const Supvr	RM
Project Mgr	MRG	Date	3/14/24

Warning
0 ½ 1
If this bar does not measure 1" then the drawing is not to scale

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683 — Date

CITY OF PORTLAND, OREGON 1851

REGISTERED PROFESSIONAL ENGINEER
55529PE
Rafael Gaeta Date: 2024.04.11 13:43:20-07'00'
OREGON
JULY 15, 2003
RAFAEL GAETA
EXPIRES 6-30-25

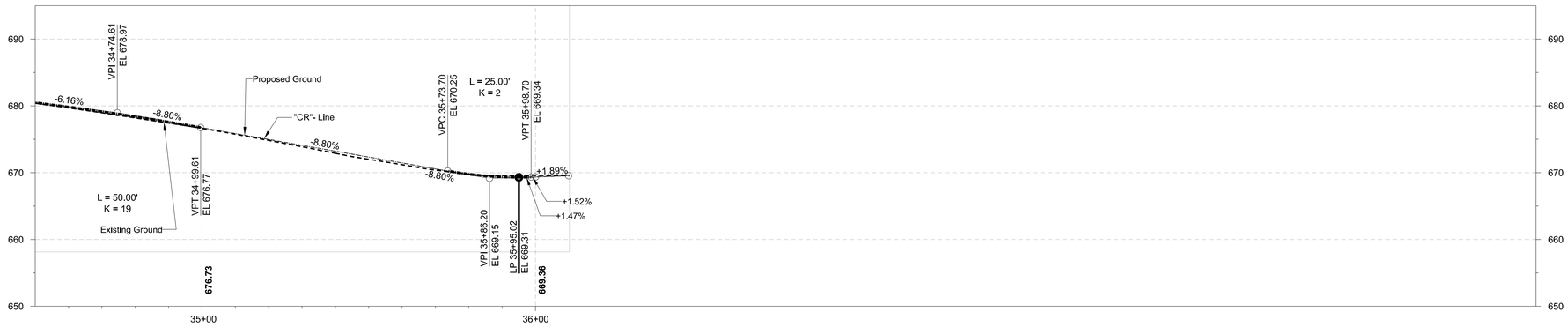
Bull Run Filtration Facility

Civil

Cottrell Rd
Plan and Profile 1
Sta 30+00 to 34+50

SAP Project No
W02229
1/4 Section
3765 / 3766
Sheet No
02-C-400
116 of 2410

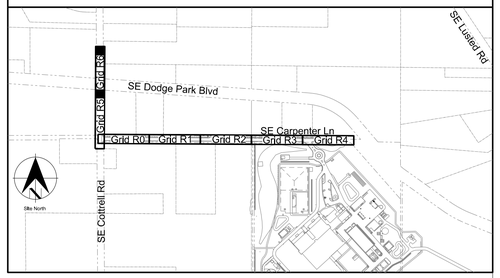
$$$$DATE$$$$
$$$$USER$$$$
$$$$FILENAME$$$$



Cottrell Road Profile

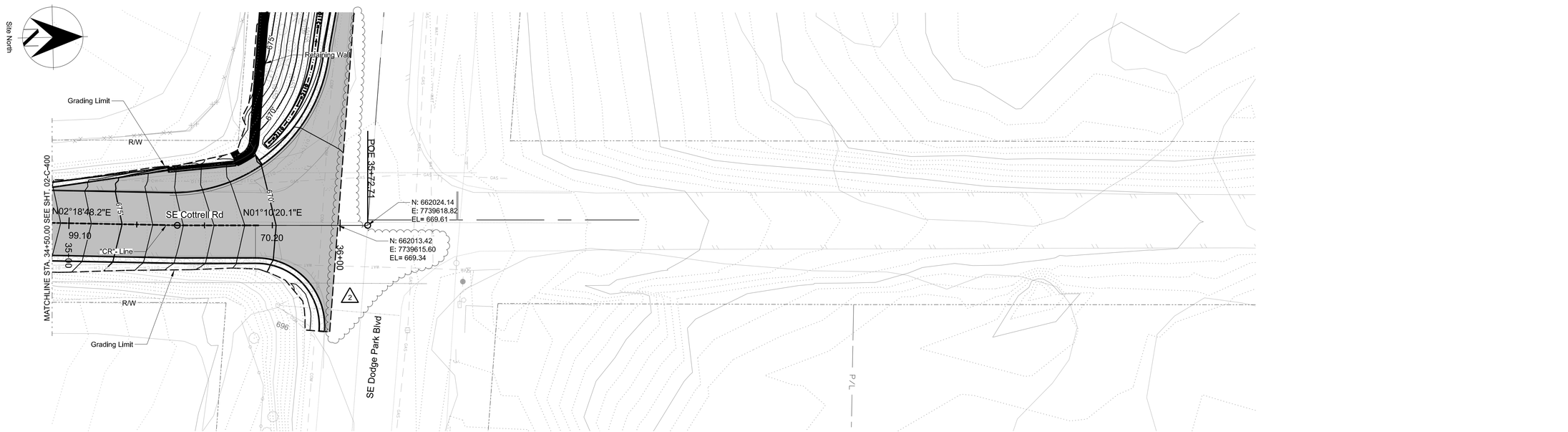
Scale:1" = 20' Horiz.
1" = 5' Vert.

KEY PLAN



General Sheet Notes

1. See Sheet 02-C-901 for typical roadway sections. (2)



Cottrell Road Plan

1"=20'

0 20 40
SCALE IN FEET

Confidential

No	Date	Description	Appd
2	3/14/24	Multnomah County Construction Permit Revision	MRG
1	10/27/23	Multnomah County Construction Permit	MRG
		Revision	
Survey			

Stantec
EMERIO ENGINEERING • SURVEYING • DESIGN

Designed By	RG	Design Mgr	LSH
Drawn By	DJD	Const Mgr	TG
Checked By	LCS	Const Supvr	RM
Project Mgr	MRG	Date	3/14/24

Warning
0 ½ 1
If this bar does not measure 1" then the drawing is not to scale

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683 — Date

CITY OF PORTLAND, OREGON 1851

REGISTERED PROFESSIONAL ENGINEER
55529PE
Rafael Gaeta Date: 2024.06.14 13:43:39-07'00'
OREGON
JUNE 15, 2023
RAFAEL GAETA
EXPIRES 6-30-25

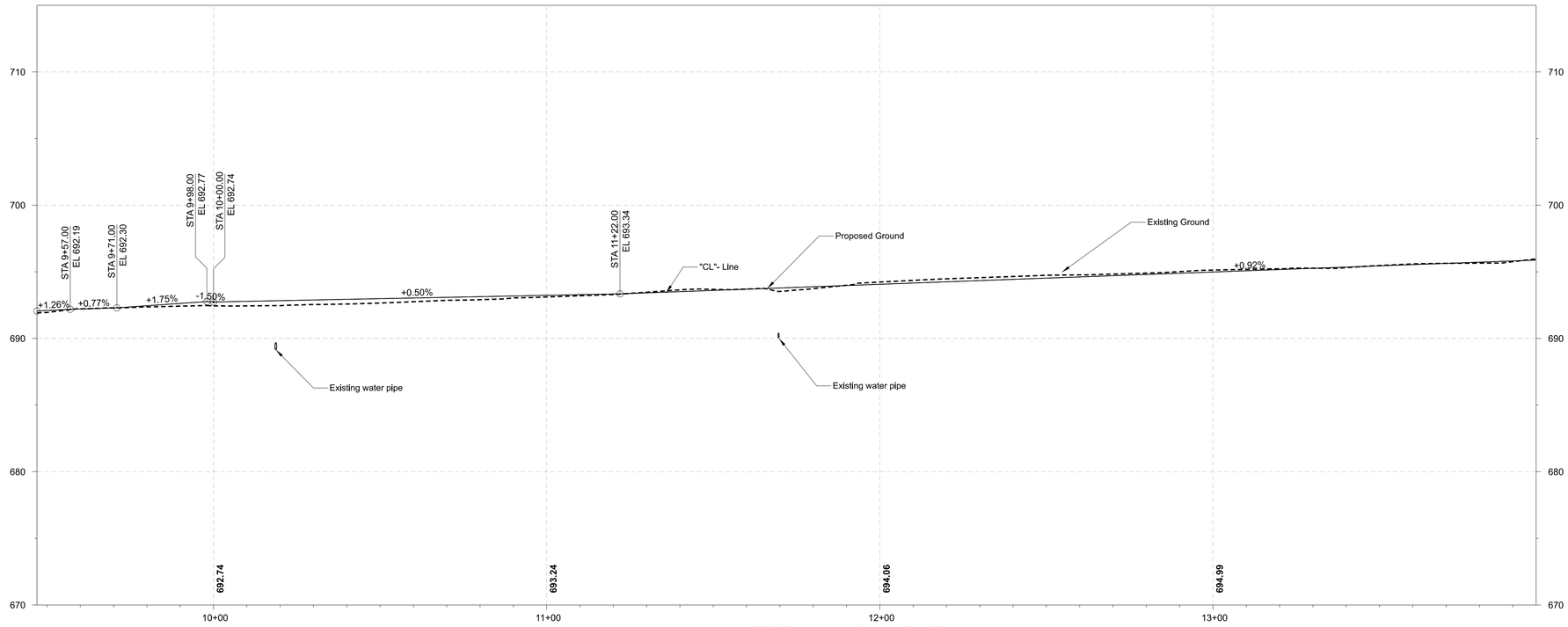
Bull Run Filtration Facility

Civil

Cottrell Rd
Plan and Profile 2
Sta 34+50 to 35+72.71

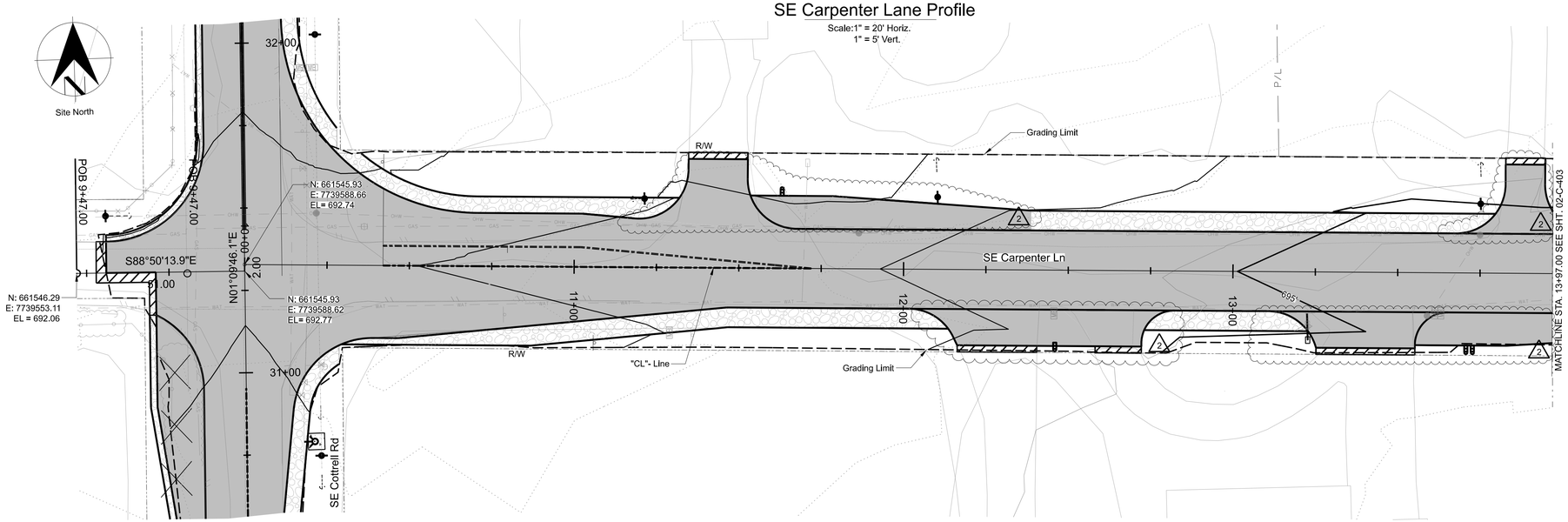
SAP Project No	W02229
1/4 Section	3765 / 3766
Sheet No	02-C-401
	117 of 2410

$$$$$FILENAME$$$$
$$$$USER$$$$
$$$$DATE$$$$



SE Carpenter Lane Profile

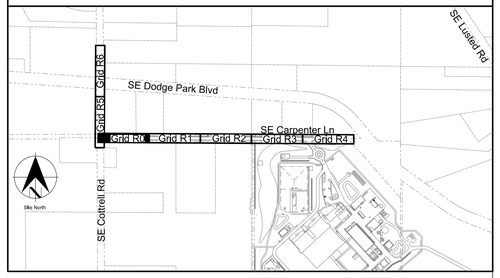
Scale:1" = 20' Horiz.
1" = 5' Vert.



SE Carpenter Lane Plan

1"=20'

KEY PLAN



General Sheet Notes

1. See Sheet 02-C-902 for typical roadway sections. (2)

0 20 40
SCALE IN FEET

Confidential

REGISTERED PROFESSIONAL ENGINEER
55529PE
Rafael Gaeta Date: 2024.04.17 13:43:56-07'00'
OREGON
JULY 15, 2005
RAFAEL GAETA
EXPIRES 6-30-25

$$$$FILENAME$$$$
$$$$USER$$$$
$$$$DATE$$$$

No	Date	Revision	Appd
2	3/14/24	Multnomah County Construction Permit Revision	MRG
1	10/27/23	Multnomah County Construction Permit	MRG

Survey

Stantec
EMERIO ENGINEERING • SURVEYING • DESIGN

Designed By	RG	Design Mgr	LSH
Drawn By	DJD	Const Mgr	TG
Checked By	LCS	Const Supvr	RM
Project Mgr	MRG	Date	3/14/24

Warning
0 ½ 1
If this bar does not measure 1" then the drawing is not to scale

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683 — Date

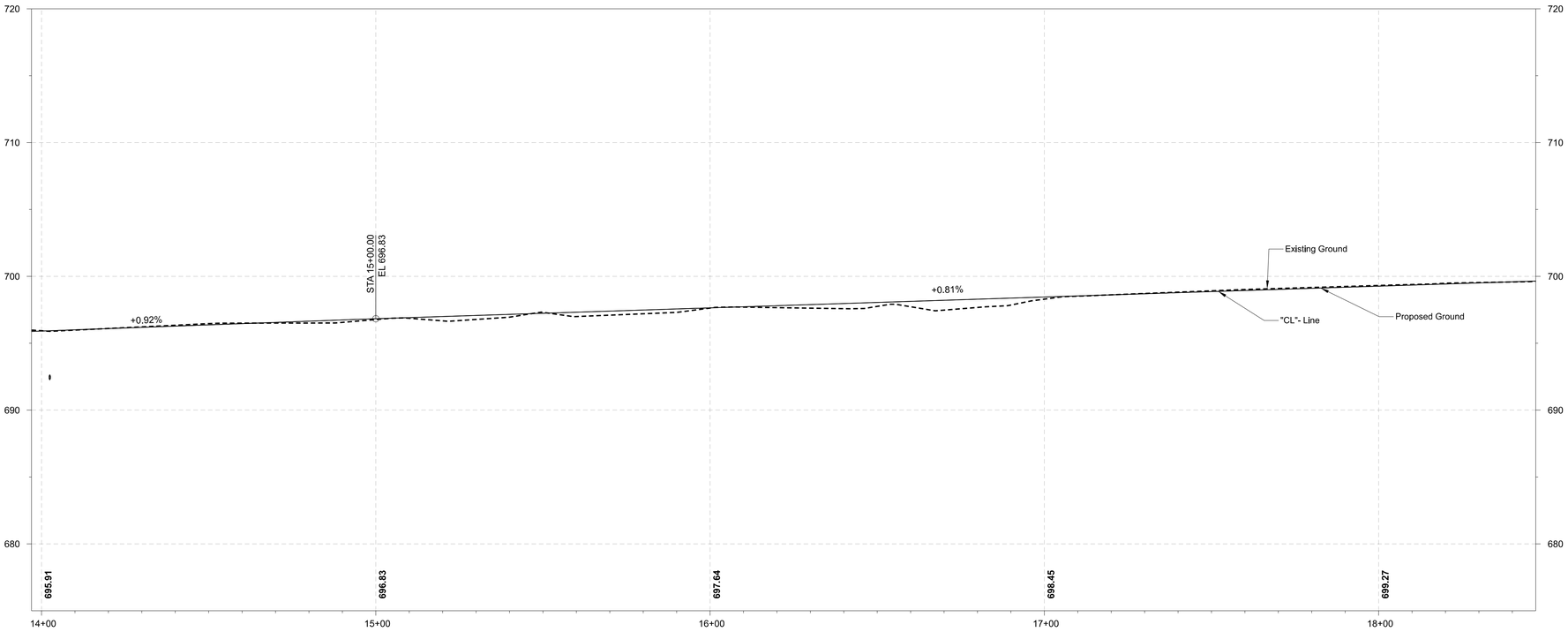
CITY OF PORTLAND OREGON 1851

Bull Run Filtration Facility

Civil

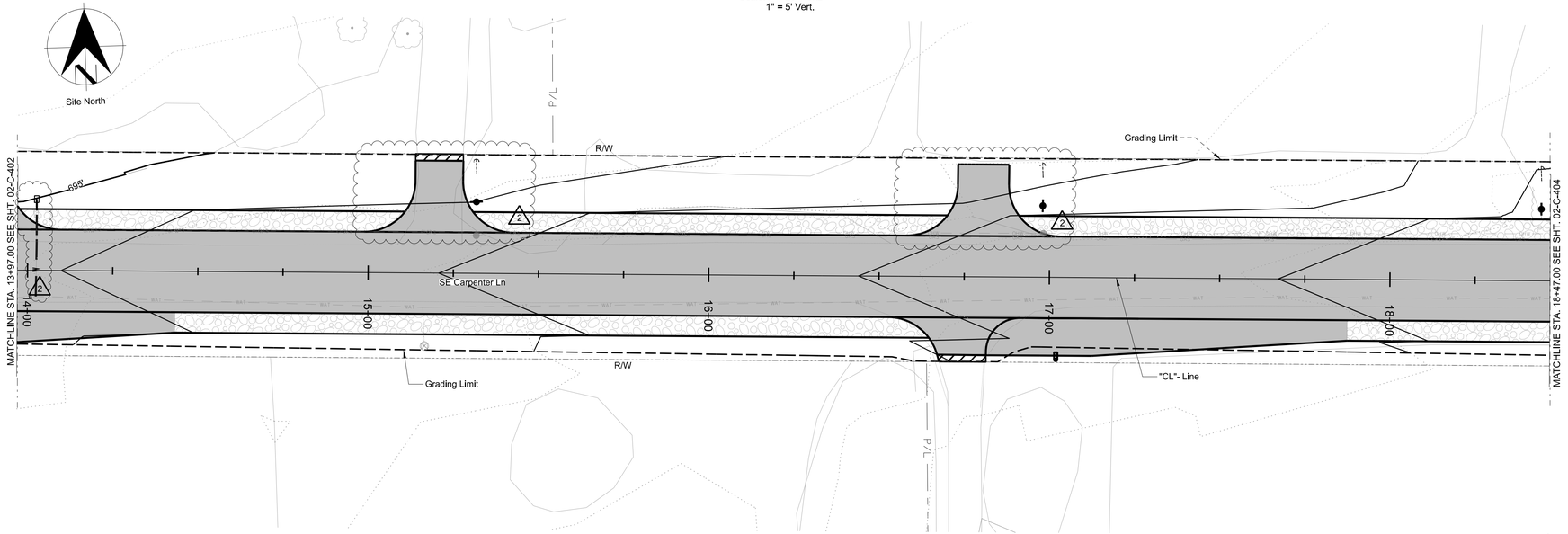
Carpenter Ln
Plan and Profile
Sta 9+47 to 13+97

SAP Project No
W02229
1/4 Section
3765 / 3766
Sheet No
02-C-402
118 of 2410



SE Carpenter Lane Profile

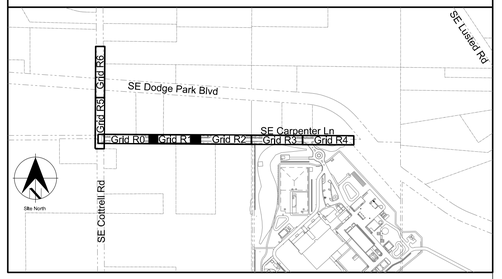
Scale:1" = 20' Horiz.
1" = 5' Vert.



SE Carpenter Lane Plan

1"=20'

KEY PLAN



General Sheet Notes

1. See Sheet 02-C-902 for typical roadway sections. (2)

$$$$FILENAME$$$$

$$$$USER$$$$

$$$$DATE$$$$

No	Date	Revision	Appd
2	3/14/24	Multnomah County Construction Permit Revision	MRG
1	10/27/23	Multnomah County Construction Permit	MRG

Survey

Stantec

EMERIO ENGINEERING • SURVEYING • DESIGN

Designed By	RG	Design Mgr	LSH
Drawn By	DJD	Const Mgr	TG
Checked By	LCS	Const Supvr	RM
Project Mgr	MRG	Date	3/14/24

Warning

0 ½ 1

If this bar does not measure 1" then the drawing is not to scale

PORTLAND WATER BUREAU

FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683

Date

CITY OF PORTLAND OREGON 1851

REGISTERED PROFESSIONAL ENGINEER
55529PE
Rafael Gaeta Date: 2024.04.17 13:44:18-07'00'
OREGON
JUNE 15, 2023
RAFAEL GAETA
EXPIRES 6-30-25

Confidential

Bull Run Filtration Facility

Civil

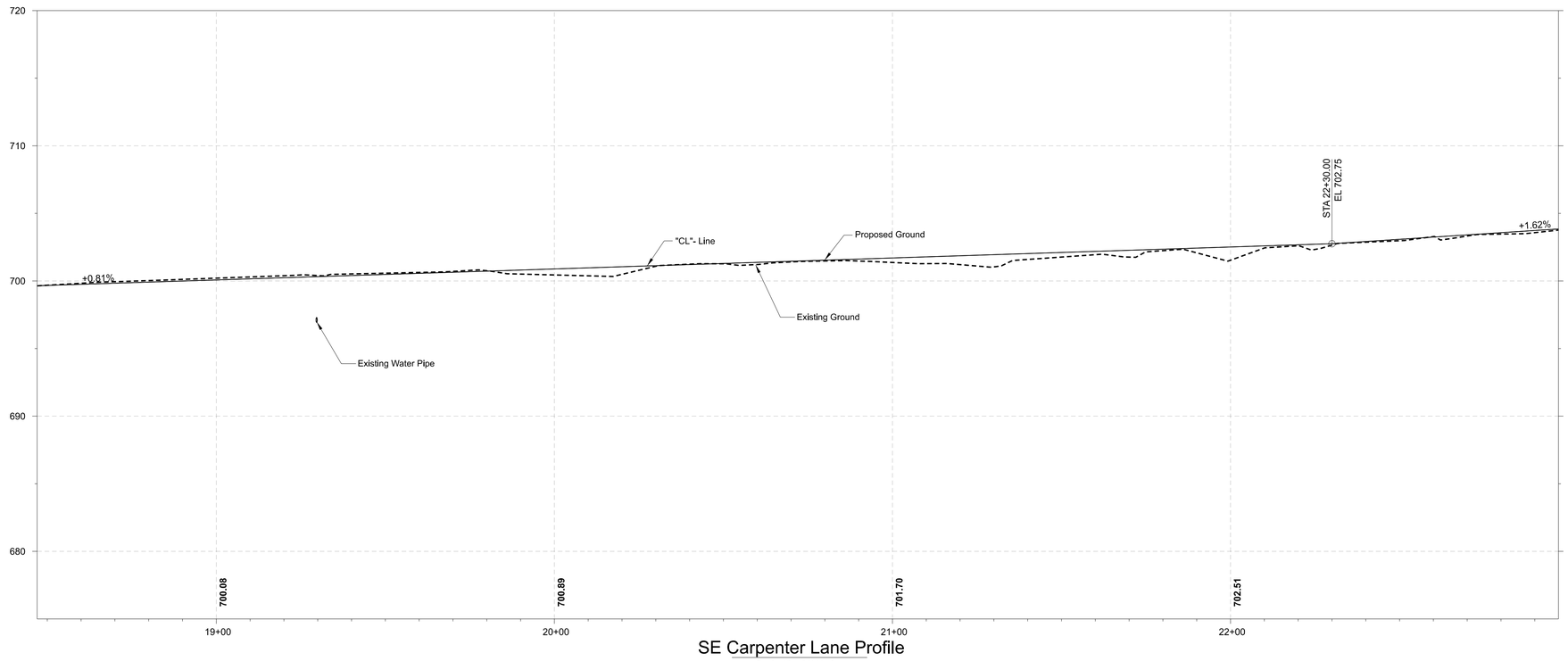
Carpenter Ln
Plan and Profile 2
Sta 13+97 to 18+47

SAP Project No
W02229

1/4 Section
3765 / 3766

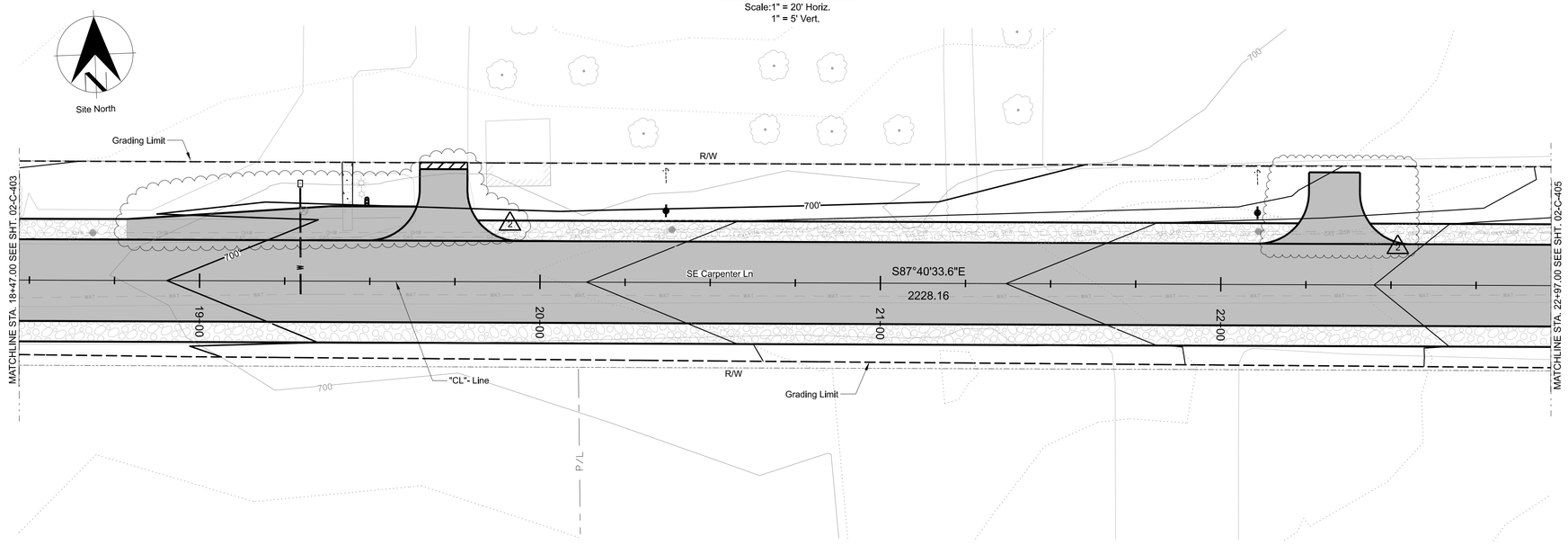
Sheet No
02-C-403

119 of 2410



SE Carpenter Lane Profile

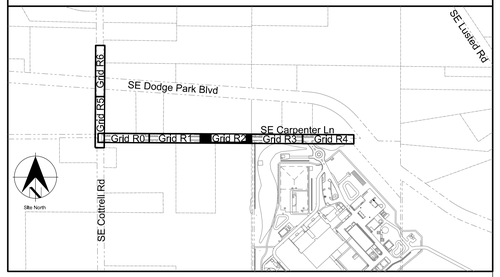
Scale:1" = 20' Horiz.
1" = 5' Vert.



SE Carpenter Lane Plan

1"=20'

KEY PLAN



General Sheet Notes

1. See Sheet 02-C-902 for typical roadway sections. (2)

$$$$FILENAME$$$$
$$$$USER$$$$
$$$$DATE$$$$

No	Date	Description	Appd
2	3/14/24	Multnomah County Construction Permit Revision	MRG
1	10/27/23	Multnomah County Construction Permit	MRG
Revision			
Survey			

Stantec
EMERIO ENGINEERING • SURVEYING • DESIGN

Designed By	RG	Design Mgr	LSH
Drawn By	DJD	Const Mgr	TG
Checked By	LCS	Const Supvr	RM
Project Mgr	MRG	Date	3/14/24

Warning
0 ½ 1
If this bar does not measure 1" then the drawing is not to scale

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683

Date

REGISTERED PROFESSIONAL ENGINEER
55529PE
Date: Rafael Gaeta 2024.04.17 13:44:38-07'00'
OREGON
JUNE 15, 2023
RAFAEL GAETA
EXPIRES: 6-30-25

0 20 40
SCALE IN FEET

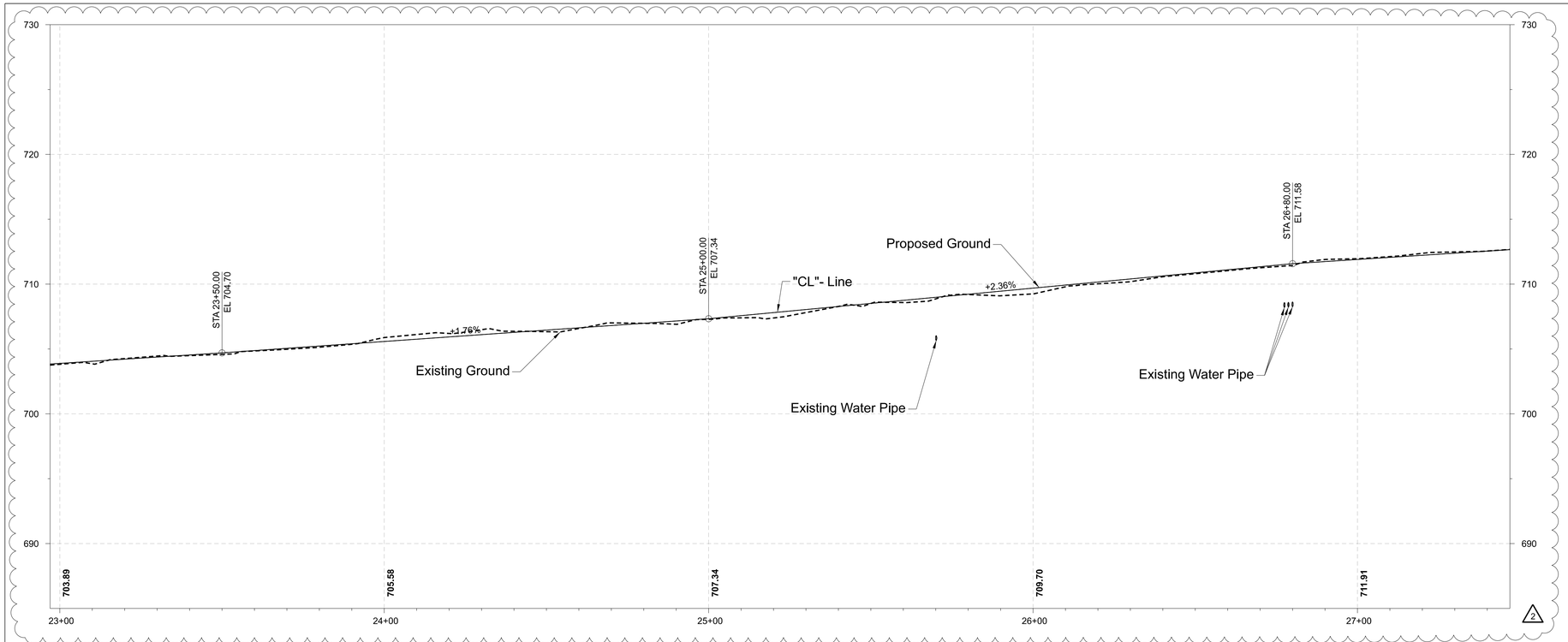
Confidential

Bull Run Filtration Facility

Civil

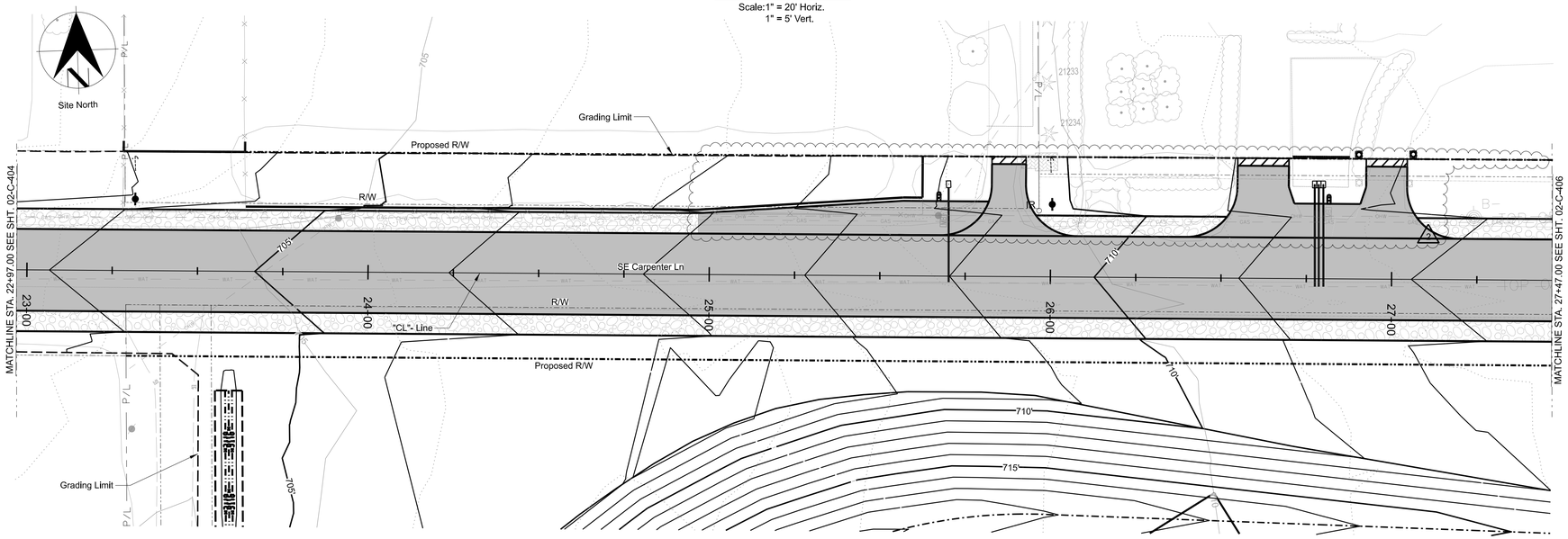
Carpenter Ln
Plan and Profile 3
Sta 18+47 to 22+97

SAP Project No
W02229
1/4 Section
3765 / 3766
Sheet No
02-C-404
120 of 2410



SE Carpenter Lane Profile

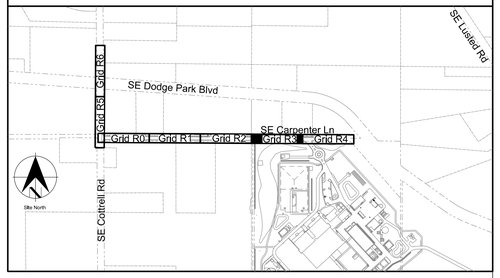
Scale:1" = 20' Horiz.
1" = 5' Vert.



SE Carpenter Lane Plan

1"=20'

KEY PLAN



General Sheet Notes

1. See Sheet 02-C-902 for typical roadway sections. (2)

$$$$FILENAME$$$$
$$$$USER$$$$
$$$$DATE$$$$

No	Date	Revision	Appd
2	3/15/24	Multnomah County Construction Permit Revision	MRG
1	10/27/23	Multnomah County Construction Permit	MRG
		Survey	

Stantec
EMERIO ENGINEERING • SURVEYING • DESIGN

Designed By	RG	Design Mgr	LSH
Drawn By	DJD	Const Mgr	TG
Checked By	LCS	Const Supvr	RM
Project Mgr	MRG	Date	3/15/24

Warning
0 ½ 1
If this bar does not measure 1" then the drawing is not to scale

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683

Date

REGISTERED PROFESSIONAL ENGINEER
55529PE
Date: Rafael Gaeta 2024.04.17 13:44:55-07'00'
OREGON
JULY 15, 2003
RAFAEL GAETA
EXPIRES 6-30-25

0 20 40
SCALE IN FEET

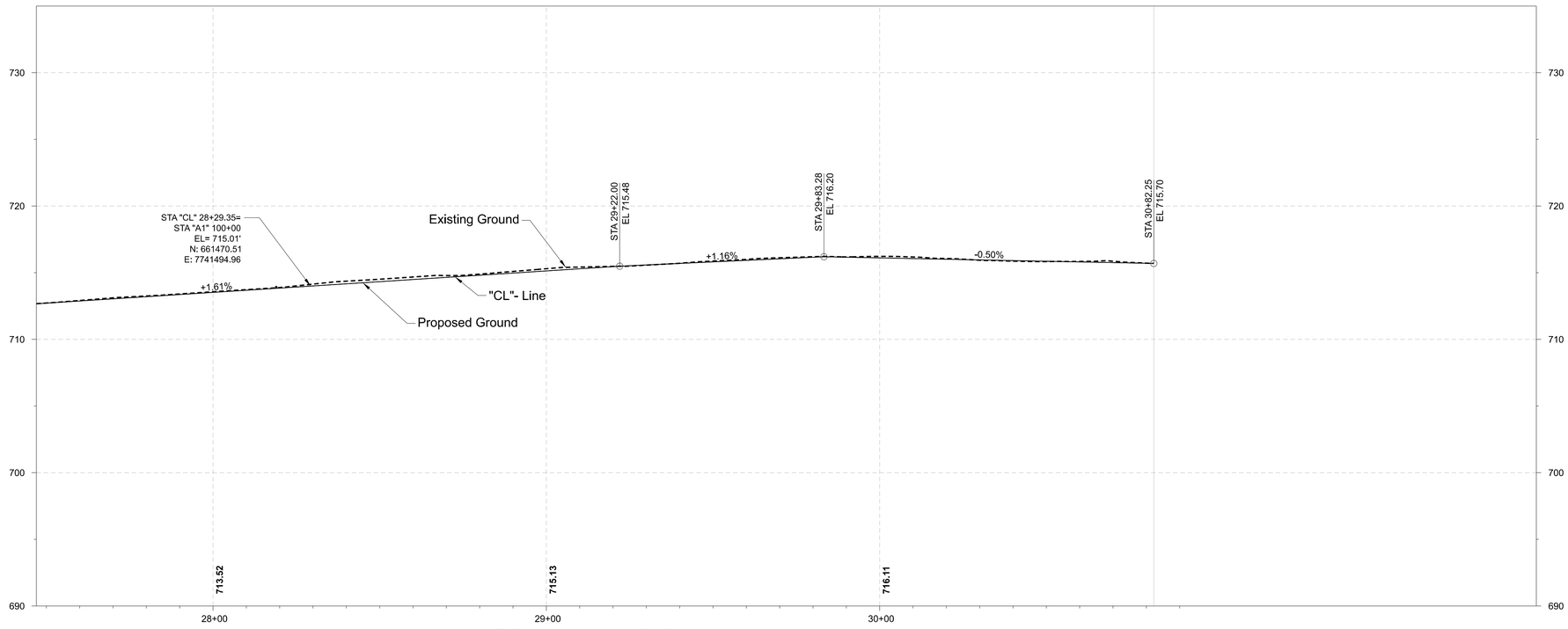
Confidential

Bull Run Filtration Facility

Civil

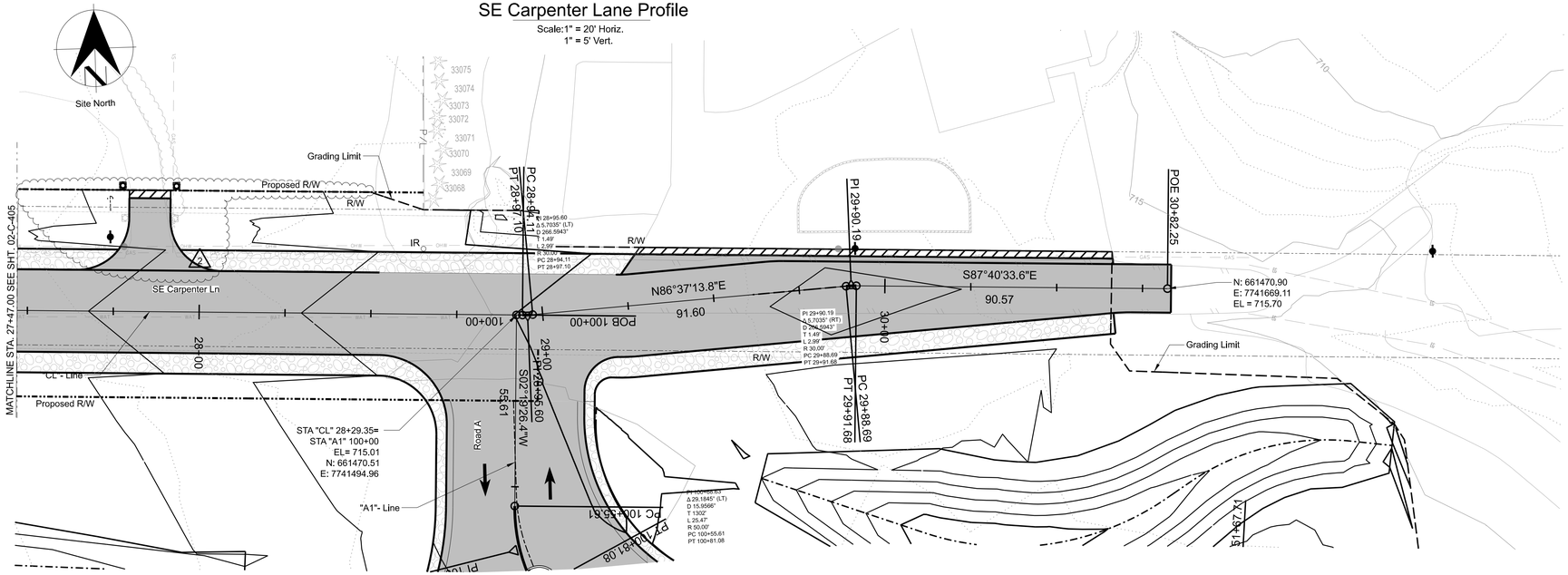
Carpenter Ln
Plan and Profile 4
Sta 22+97 to 27+47

SAP Project No	W02229
1/4 Section	3765 / 3766
Sheet No	02-C-405
	121 of 2410



SE Carpenter Lane Profile

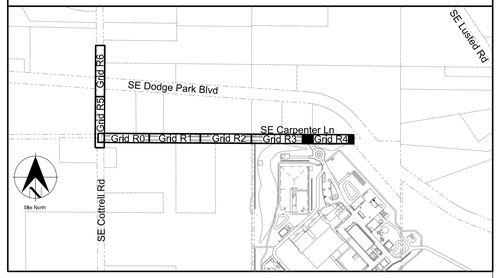
Scale:1" = 20' Horiz.
1" = 5' Vert.



SE Carpenter Lane Plan

1"=20'

KEY PLAN



General Sheet Notes

1. See Sheet 02-C-902 for typical roadway sections. (2)

0 20 40
SCALE IN FEET

Confidential

REGISTERED PROFESSIONAL ENGINEER
55529PE
Date:
Rafael Gaeta 2024.04.17
13:45:14-07'00'
OREGON
JULY 15, 2005
RAFAEL GAETA
EXPIRES: 6-30-25

No	Date	Description	Appd
2	3/15/24	Multnomah County Construction Permit Revision	MRG
1	10/27/23	Multnomah County Construction Permit	MRG
Revision			
Survey			

Stantec
EMERIO ENGINEERING • SURVEYING • DESIGN

Designed By	RG	Design Mgr	LSH
Drawn By	DJD	Const Mgr	TG
Checked By	LCS	Const Supvr	RM
Project Mgr	MRG	Date	3/15/24

Warning
0 ½ 1
If this bar does not measure 1" then the drawing is not to scale

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683

Date

CITY OF PORTLAND OREGON 1851

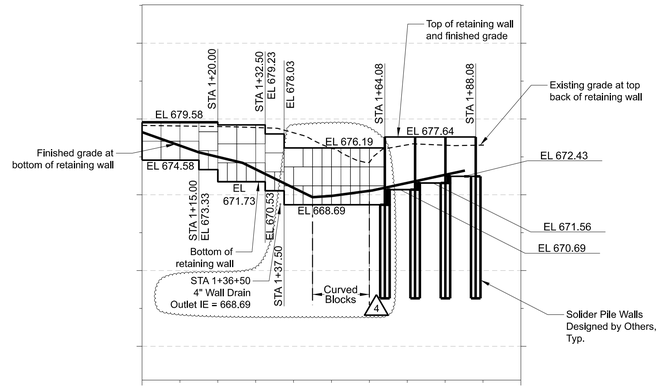
Bull Run Filtration Facility

Civil

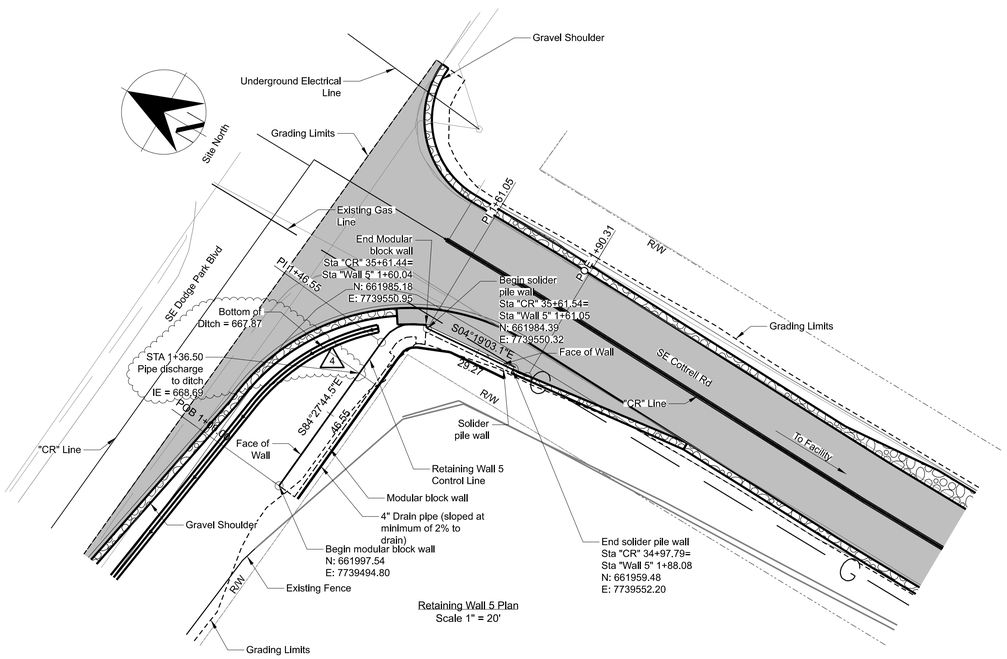
Carpenter Ln
Plan and Profile 5
Sta 27+47.00 to 30+80.25

SAP Project No
W02229
1/4 Section
3765 / 3766
Sheet No
02-C-406
122 of 2410

$$$$DATE$$$$
$$$$USER$$$$
$$$$FILENAME$$$$

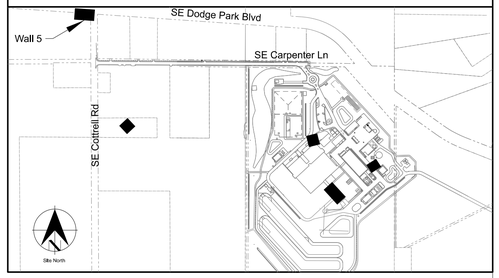


Retaining Wall 5 Profile
Scale:1" = 10' Vert.
1" = 20' Horiz.



Retaining Wall 5 Plan
Scale 1" = 20'

KEY PLAN



General Sheet Notes

1. Modular block per detail C-110 on sheet GEN-C-903.
2. Solider pile per details 1 and 2 on sheet 02-S-901.
3. All materials and workmanship shall conform to the 2021 Oregon Standard Specifications for Construction and the Project Special Provisions, and the current edition of The General Conditions for Construction for the City of Portland Road Department.

Design References:
1. ODOT Geotechnical Design Manual

Design Parameters:
Design Surcharge = 250 psf

Based on project geotechnical bore log P5:
Stiff Clay (Elevation 673' to 665')
- Unit weight: 115 psf
- Submerged unit weight: 58 psf
- Phi: 28 deg
- Ka: 0.36
- Kp: 2.76
- Wall friction: 4.75 deg

Stiff Clay to Sandy Clay (Elevation 665' to 656.5')
- Unit weight: 115 psf
- Submerged unit weight: 58 psf
- Phi: 28 deg
- Ka: 0.36
- Kp: 2.76
- Wall friction: 4.75 deg

Ground water assumed at elevation 634.00'

REGISTERED PROFESSIONAL ENGINEER 17298PE OREGON JULY 19, 1994 ROBERT J. TOYAR
DIGITALLY SIGNED Date: 2024.04.29 15:01:56-07'00'
EXPIRES: 6/30/2024

$$$$FILENAME$$$$
$$$$USER$$$$
$$$$DATE$$$$

No	Date	Description	Appd
4	4/29/24	Multnomah County Construction Permit Revision	MRG
3	4/15/24	Multnomah County Construction Permit Revision	MRG
2	3/14/2024	Multnomah County Construction Permit Revision	MRG
1	10/27/23	Multnomah County Construction Permit	MRG

Revision

Survey

Stantec
EMERIO ENGINEERING • SURVEYING • DESIGN

Designed By	RG	Design Mgr	LSH
Drawn By	DJD	Const Mgr	TG
Checked By	LCS	CM/I Engr Mgr	JB
Project Mgr	MRG	Date 05/10/24	

Warning
0 ½ 1
If this bar does not measure 1" then the drawing is not to scale

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683 — Date

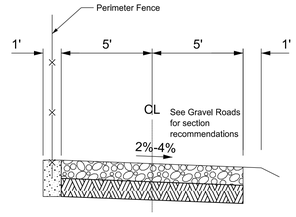
CITY OF PORTLAND OREGON 1851

Bull Run Filtration Facility

Civil

Retaining Walls
Plan and Profile - 4

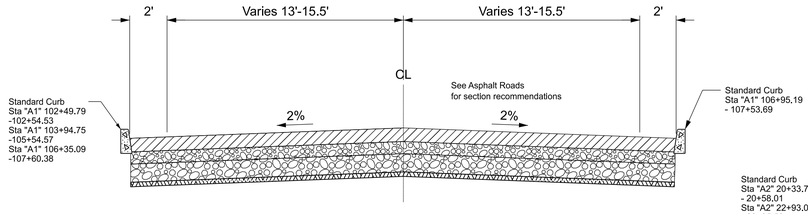
SAP Project No
W02229
1/4 Section
3765 / 3766
Sheet No
02-C-441
156 of



Sta "P" 1+00.00 - 53+20.48

A 02-C-901 Perimeter Road Typical Section

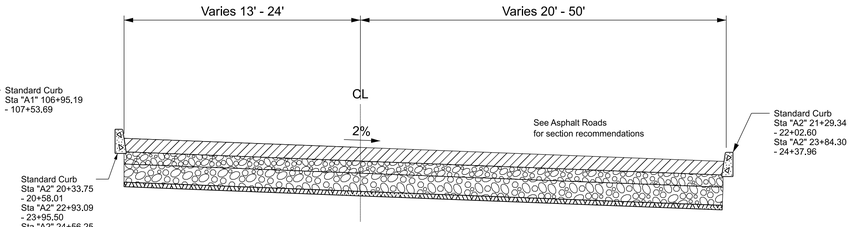
NTS



Sta "A1" 102+47.22 - 107+93.97

B 02-C-901 Road A Typical Section

NTS

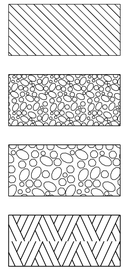


Sta "A2" 20+00.00 - 25+29.03

C 02-C-901 Road A Typical Section

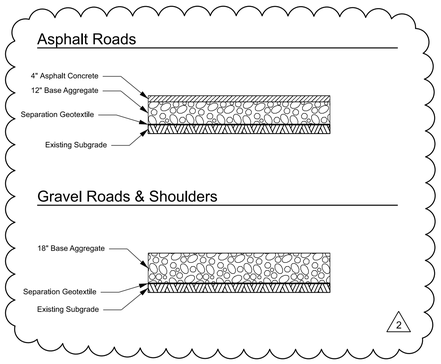
NTS

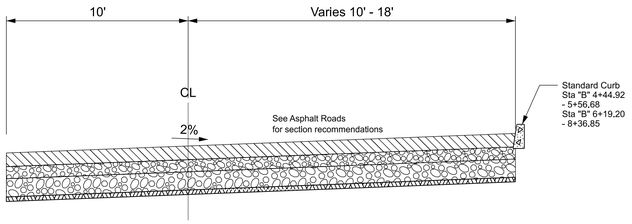
Legend



General Sheet Notes

1. Prepare subgrade in accordance with Section 10.1.4 of the Geotech Engineering Report.
2. Asphalt design parameters per Table 10-3 of the Geotech Engineering Report.

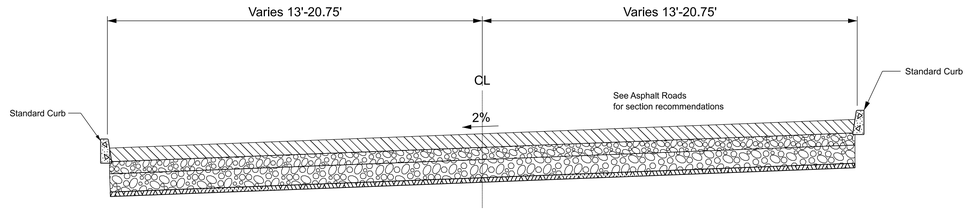




Sta "B" 4+02.25 - 9+42.56

D 02-C-901 Road B Typical Section

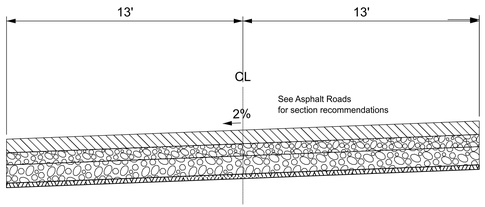
NTS



Sta "C" 3+13.87 - 7+27.64

E 02-C-901 Road C Typical Section

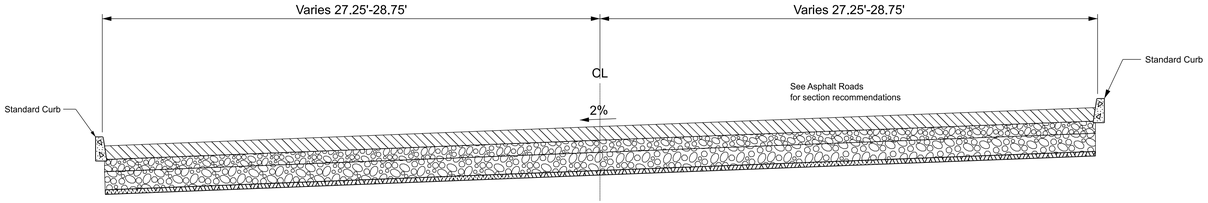
NTS



Sta "C" 10+00.00 - 12+80.63
Sta "E" 1+00.00 - 7+21.36
Sta "F" 1+00.00 - 9+77.53

F 02-C-901 26' Road Typical Section

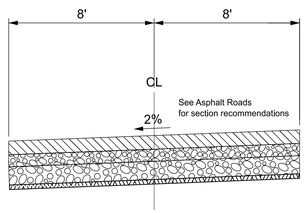
NTS



Sta "D" 1+00.00 - 6+97.76

G 02-C-901 Road D Typical Section

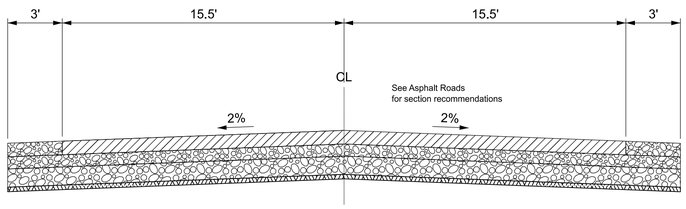
NTS



Sta "H" 10+00.00 - 29+95.29

H 02-C-901 Road H Typical Section

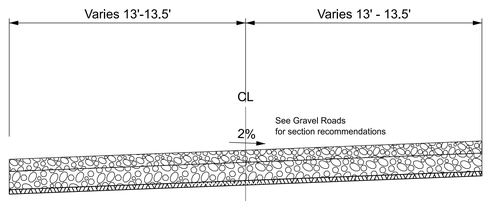
NTS



Sta "A1" 100+00.00 - 102+47.22

I 02-C-901 Road A Typical Section

NTS



Sta "B" 9+42.56 - 11+48.25

J 02-C-901 Road B Typical Section

NTS

REGISTERED PROFESSIONAL ENGINEER
55529PE
OREGON
JULY 15, 2003
RAFAEL CAETA
EXPIRES 6-30-25

Confidential

No	Date	Description	Appd
2	3/11/24	Multnomah County Construction Permit Revision	MRG
1	10/27/23	Multnomah County Construction Permit	MRG
Revision			
Survey			

Stantec
EMERIO ENGINEERING • SURVEYING • DESIGN

Designed By	RG	Design Mgr	LSH
Drawn By	JSL	Const Mgr	TG
Checked By	LCS	Const Supvr	RM
Project Mgr	MRG	Date	3/11/24

Warning
0 ½ 1
If this bar does not measure 1" then the drawing is not to scale

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683

Date

CITY OF PORTLAND OREGON 1851

Bull Run Filtration Facility

Civil

Roadway Typical Sections -1

SAP Project No
W02229
1/4 Section
3765 / 3766
Sheet No
02-C-901
166 of 2410

3/11/2024

User: stanpw11lcs03$

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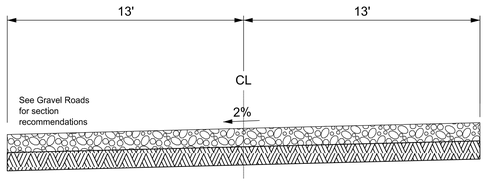

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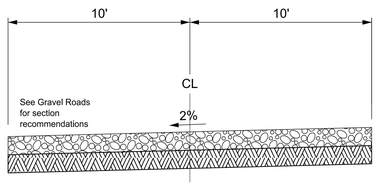
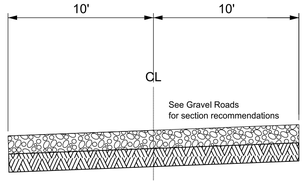
A 02-C-902 **Emergency Access** NTS



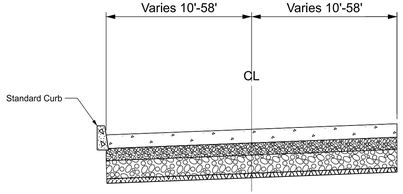
Sta "I" 1+00.00 - 5+34.80

B 02-C-902 **Road I** NTS



Sta "J" 2+27.84 - 2+86.76

C 02-C-902 **Road J** NTS



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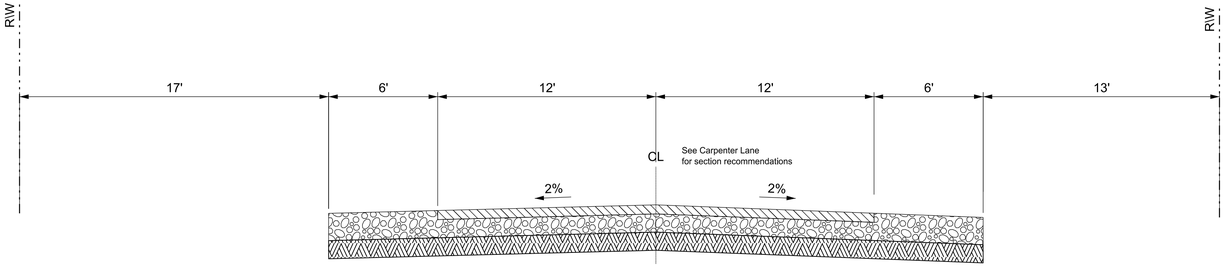
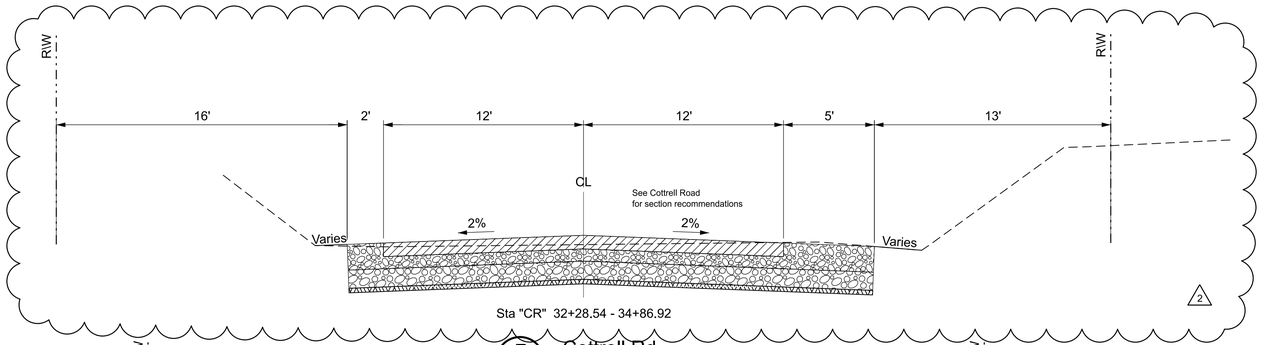
D 02-C-902 **Road J** NTS



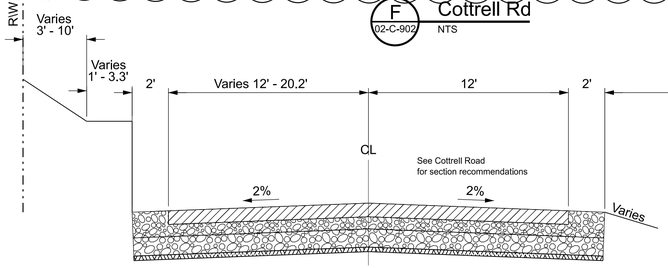
Sta "CL" 10+41.53 - 28+94.11

E 02-C-902 **Carpenter Lane** NTS



Sta "CR" 32+28.54 - 34+86.92

F 02-C-902 **Cottrell Rd** NTS



Sta "CR" 35+36.25 - 35+70.02

F 02-C-902 **Cottrell Rd** NTS

Sta "G" 1+00.00 - 4+99.76

G 02-C-902 **Road G** NTS

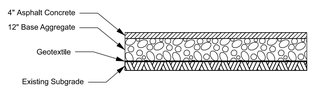
Legend

- Asphalt Concrete
- Aggregate
- Compacted Base Rock
- Compacted Subgrade
- Concrete

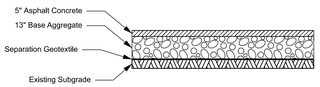
General Sheet Notes

1. Prepare subgrade in accordance with Section 10.1.4 of the Geotech Engineering Report.
2. Asphalt design parameters per Table 10-3 of the Geotech Engineering Report.

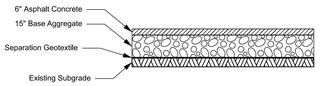
Asphalt Roads



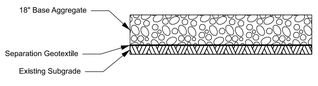
Carpenter Lane Details



Cottrell Road Details



Gravel Roads and Shoulders



REGISTERED PROFESSIONAL ENGINEER 55529PE OREGON JULY 15, 2003 RAFAEL GAETA EXPIRES 6-30-25

Confidential

No	Date	Description	Appd
2	03/08/24	Multnomah County Construction Permit Revision	MRG
1	10/27/23	Multnomah County Construction Permit	MRG

Revision

Survey

Stantec

EMERIO ENGINEERING • SURVEYING • DESIGN

Designed By	RG	Design Mgr	LSH
Drawn By	JSL	Const Mgr	TG
Checked By	LCS	Const Supvr	RM
Project Mgr	MRG	Date	3/8/24

Warning

0 ½ 1

If this bar does not measure 1" then the drawing is not to scale

PORTLAND WATER BUREAU

FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683

Date

CITY OF PORTLAND, OREGON 1851

Bull Run Filtration Facility

Civil

Roadway Typical Sections -2

SAP Project No W02229

1/4 Section 3765 / 3766

Sheet No 02-C-902

3/9/2024

User: stanpw11ics03$

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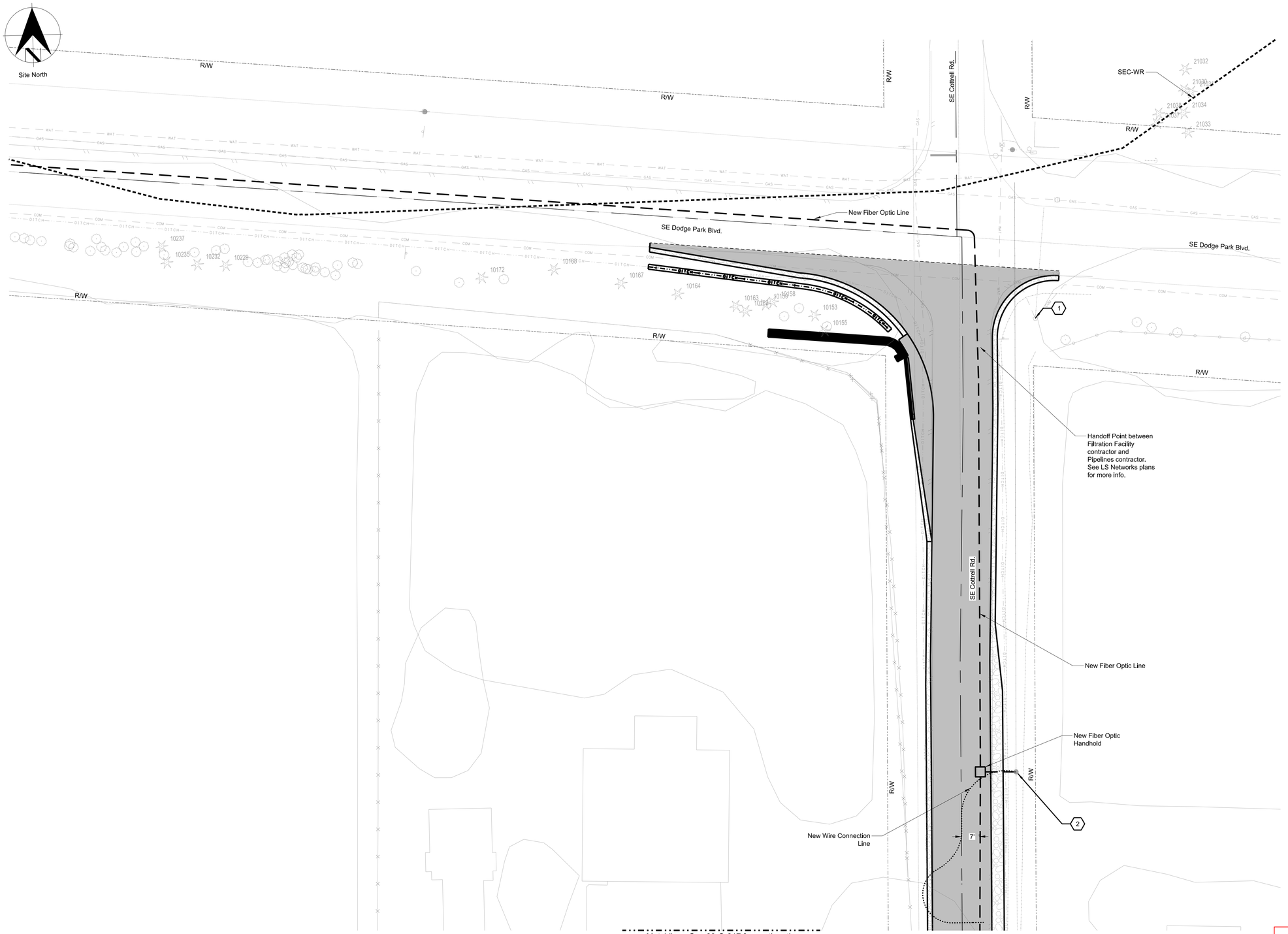
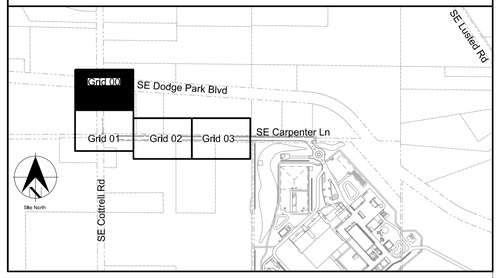


KEY PLAN



General Sheet Notes

1. See sheets 02-C-901 and 02-C-902 for typical roadway section.
2. See sheet 02-C-400 through 02-C-437 for roadway plan and profile.
3. See sheet 02-C-301 for grading and paving information.
4. See LS Networks drawing set for additional utility information not shown in this set.
5. Comcast underground infrastructure material (including but not limited to conduit, pull strings, boxes) to be furnished by Comcast and installed by contractor. Contractor to coordinate with Comcast for material quantities and hand off.
6. See PGE M3292698 Priority plans for additional PGE, Comcast, and Ziply utility design information.

Sheet Keynotes

1. Protect existing transformer.
2. Protect utility pole.

Legend

- Asphalt Pavement
- Gravel
- Retaining Wall
- Fiber Optic Line
- Wire Connection Line
- Fiber Optic Handhold
- Ditch

0 20 40
SCALE IN FEET

Confidential

REGISTERED PROFESSIONAL ENGINEER
55529PE
OREGON
JULY 15, 2004
RAFAEL CAETE
EXPIRES: 6-30-25

No	Date	Description	Appd
1	3/15/24	Multnomah County Construction Permit Revisions	MRG
Revision			
Survey			

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EMERIO ENGINEERING • SURVEYING • DESIGN

Designed By	RG	Design Mgr	LSH
Drawn By	DJD	Const Mgr	TG
Checked By	LCS	Const Supvr	RM
Project Mgr	MRG	Date	3/15/24

Warning
0 ½ 1
If this bar does not measure 1" then the drawing is not to scale

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683

Date

CITY OF PORTLAND OREGON 1851

Bull Run Filtration Facility

Civil

Utilities

Grid 00

SAP Project No
W02229

1/4 Section
3765 / 3766

Sheet No
03-C-616

of

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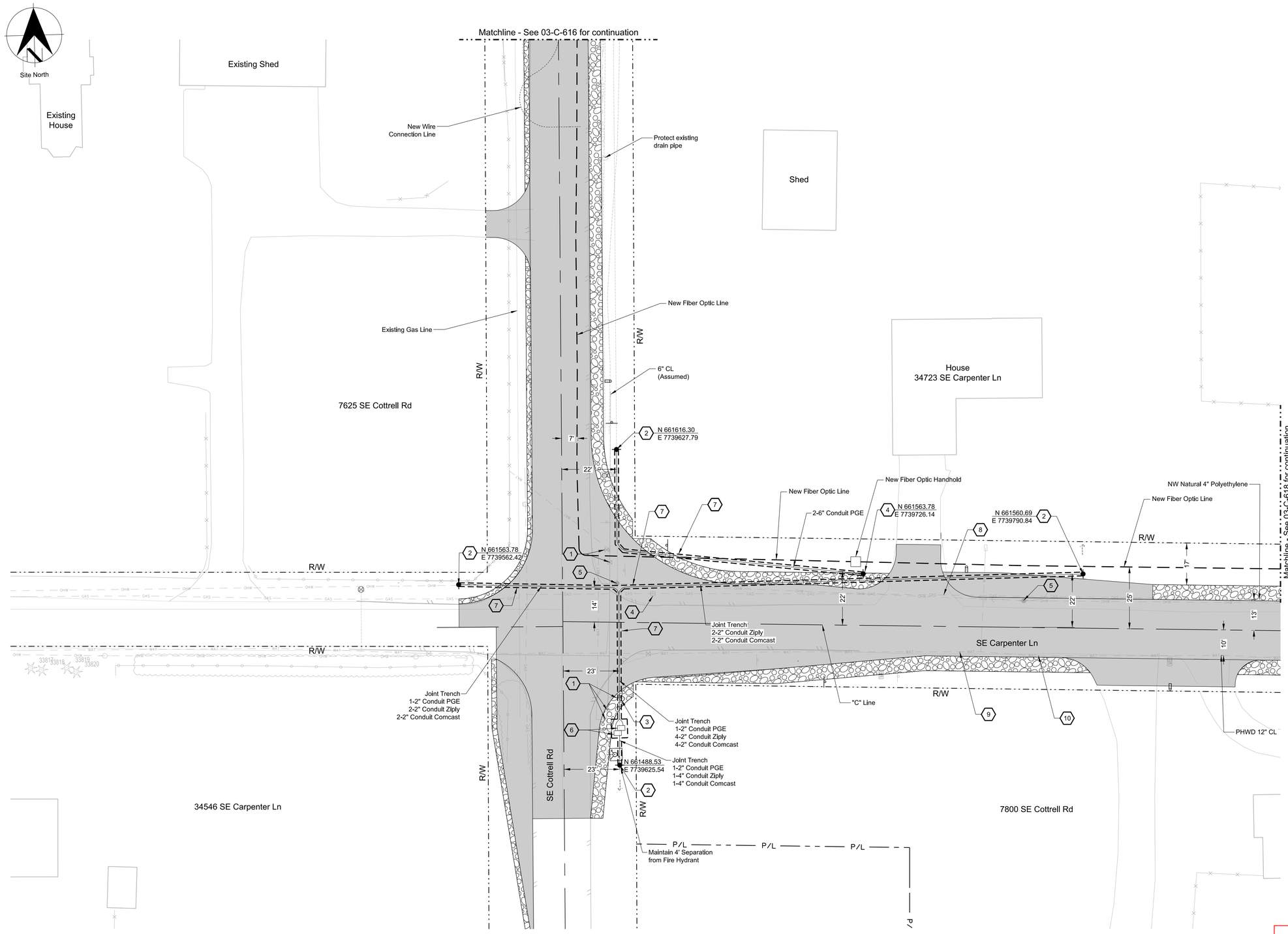

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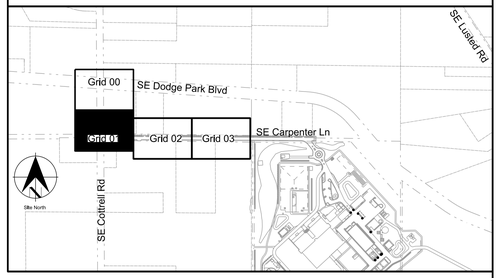


General Sheet Notes

1. See sheet 02-C-901 and 02-C-902 for typical roadways section.
2. See sheets 02-C-400 through 02-C-432 for roadway plan and profile.
3. See sheet 02-C-302 for grading and paving design information.
4. See LS Networks drawing set for additional utility information not shown in this set.
5. Comcast underground infrastructure material (including but not limited to conduit, pull strings, boxes) to be furnished by Comcast and installed by contractor. Contractor to coordinate with Comcast for material quantities and hand off.
6. See PGE M3292698 Priority plans for additonal PGE, Comcast, and Ziply utility design information.
7. All PGE facilities and infrastructure shall be permitted under a separate permit. See PGE design for additional information.

Sheet Keynotes

1. Protect existing water valves, adjust to finished grade.
2. Proposed utility poles (by others).
3. Remove existing hydrant.
4. Protect existing gas valve.
5. Remove utility pole (by others).
6. Junction Box per detail C-204 on sheet GEN-C-934.
7. Utility Trench per detail E-923 on sheet GEN-E-789.
8. Protect gas main in place.
9. Protect water main in place.
10. Protect and maintain a minimum of 18" of cover for PHWD water mainline. The special requirements if depth of cover for CI main drops below 24" include:
    1) The contractor shall maintain a minimum 5' horizontal clearance from CI lines (after excavation) with all construction and material handling equipment.
    2) All base rock will be placed by dumping, spreading and/ or pushing the material from the base rock surface when in an area 5' from the centerline of CI pipe with less than 24" of cover.
    3) Vibratory compaction will not be allowed over CI pipe with less than 24" of cover.
    4) Hand compaction of base material will be required near water service lines, valves, blow-offs and other water main appurtenances when they are exposed during excavation.
    Please note these requirements in the project's Special Specifications. Submit UPP to owner's representative.

Legend

- Asphalt Pavement
- Gravel
- Fiber Optic Line
- Wire Connection Line
- Fiber Optic Handhold

0 20 40
SCALE IN FEET

REGISTERED PROFESSIONAL ENGINEER 55529PE
OREGON JULY 15, 2003 RAFAEL GAETA
EXPIRES 6-30-25

Confidential

User: stanpw11ics03$ W02229_FF_03_C_617.dgn
3/15/2024

No	Date	Description	Appd
1	3/15/24	Multnomah County Construction Permit Revisions	MRG

Revision

Survey

Stantec
EMERIO ENGINEERING • SURVEYING • DESIGN

Designed By	RG	Design Mgr	LSH
Drawn By	DJD	Const Mgr	TG
Checked By	LCS	Const Supvr	RM
Project Mgr	MRG	Date	3/15/24

Warning
0 ½ 1
If this bar does not measure 1" then the drawing is not to scale

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683 — Date

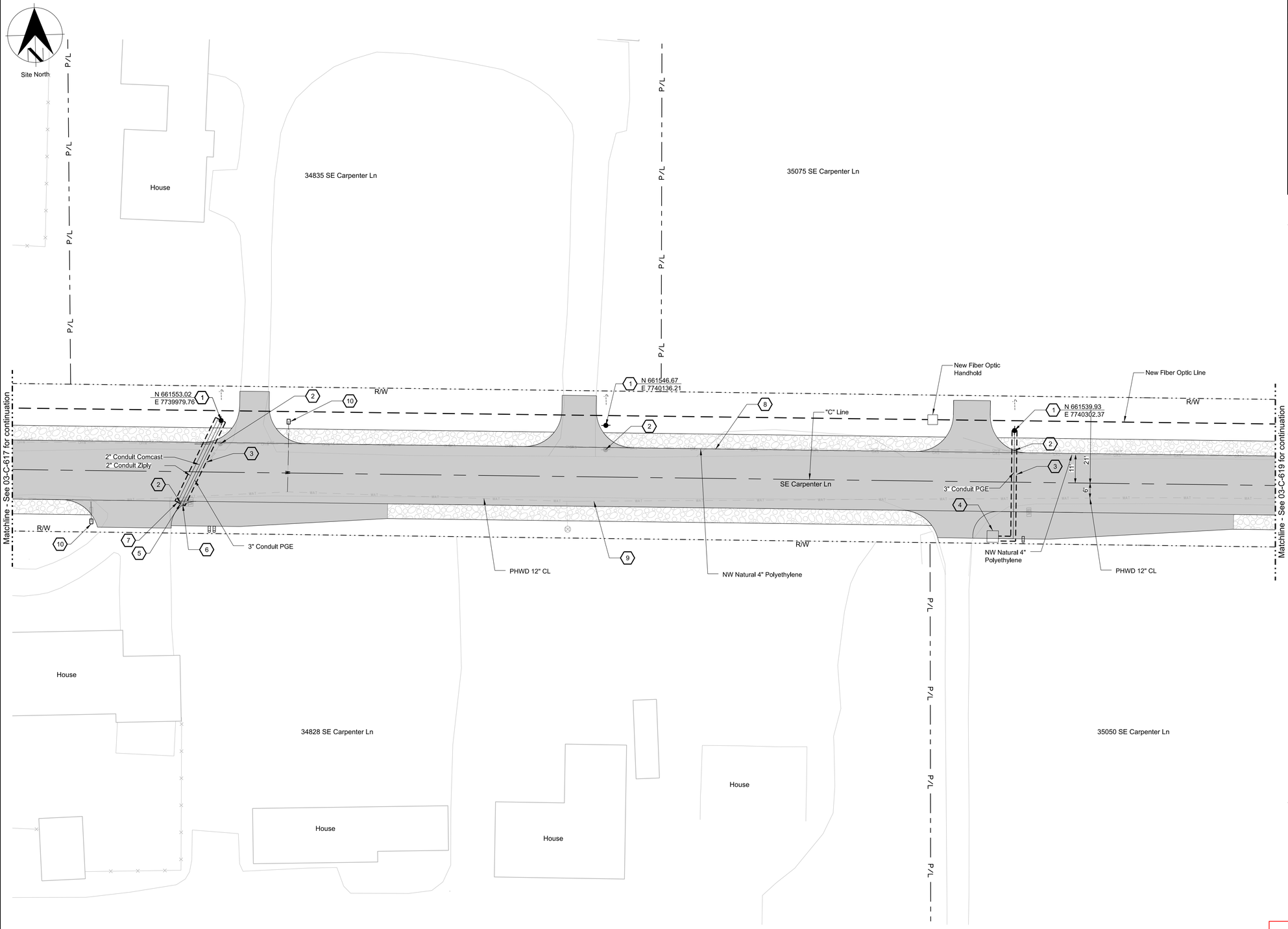
CITY OF PORTLAND OREGON 1851

Bull Run Filtration Facility

Civil

Utilities
Grid 01

SAP Project No
W02229
1/4 Section
3765 / 3766
Sheet No
03-C-617
of



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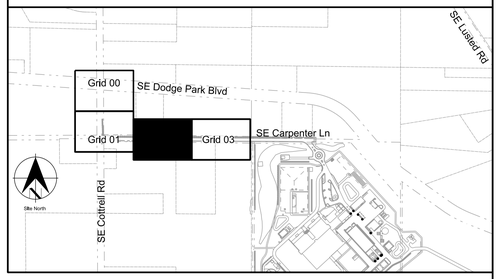

General Sheet Notes

1. See sheet 02-C-901 and 02-C-902 for typical roadways section.
2. See sheets 02-C-400 through 02-C-437 for roadway plan and profile.
3. See 02-C-303 for grading and paving information.
4. See LS Networks drawing set for additional utility information not shown in this set.
5. Comcast underground infrastructure material (including but not limited to conduit, pull strings, boxes) to be furnished by Comcast and installed by contractor. Contractor to coordinate with Comcast for material quantities and hand off.
6. See PGE M3292698 Priority plans for additional PGE, Comcast, and Ziply utility design information.
7. All PGE facilities and infrastructure shall be permitted under a separate permit. See PGE design for additional information.

Sheet Keynotes

1. Proposed utility poles (by others).
2. Remove utility pole (by others).
3. Utility Trench per detail E-923 on sheet GEN-E-789.
4. 504-PGE Switch Vault. See PGE M3292698 Priority plans for details.
5. Comcast to make final connection from new 2" conduit to existing service conduit.
6. PGE to make final connection from new 3" conduit to existing service conduit.
7. Conduit to terminate within 11' x 17' Ziply Handhold.
8. Protect gas main in place.
9. Protect and maintain a minimum of 18" of cover for PHWD water mainline. The special requirements if depth of cover for CI main drops below 24" include:
   1) The contractor shall maintain a minimum 5' horizontal clearance from CI lines (after excavation) with all construction and material handling equipment.
   2) All base rock will be placed by dumping, spreading and/ or pushing the material from the base rock surface when in an area 5' from the centerline of CI pipe with less than 24" of cover.
   3) Vibratory compaction will not be allowed over CI pipe with less than 24" of cover.
   4) Hand compaction of base material will be required near water service lines, valves, blow-offs and other water main appurtenances when they are exposed during excavation.
   Please note these requirements in the project's Special Specifications. Submit UPP to owner's representative.
10. Relocate water meter to location shown on plans.

Legend

- Asphalt Pavement
- Gravel
- Fiber Optic Line
- Fiber Optic Handhold

0 20 40
SCALE IN FEET

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REGISTERED PROFESSIONAL ENGINEER 55529PE
OREGON JULY 15, 2003 RAFAEL CAETA
EXPIRES 6-30-25

No	Date	Revision	Appd
1	3/15/24	Multnomah County Construction Permit Revisions	MRG
Survey			

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EMERIO ENGINEERING • SURVEYING • DESIGN

Designed By	RG	Design Mgr	LSH
Drawn By	DJD	Const Mgr	TG
Checked By	LCS	Const Supvr	RM
Project Mgr	MRG	Date 3/15/24	

Warning
0 ½ 1
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PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683 — Date

CITY OF PORTLAND OREGON 1851

Bull Run Filtration Facility
Civil
Utilities
Grid 02

SAP Project No W02229
1/4 Section 3765 / 3766
Sheet No 03-C-618
of

3/15/2024
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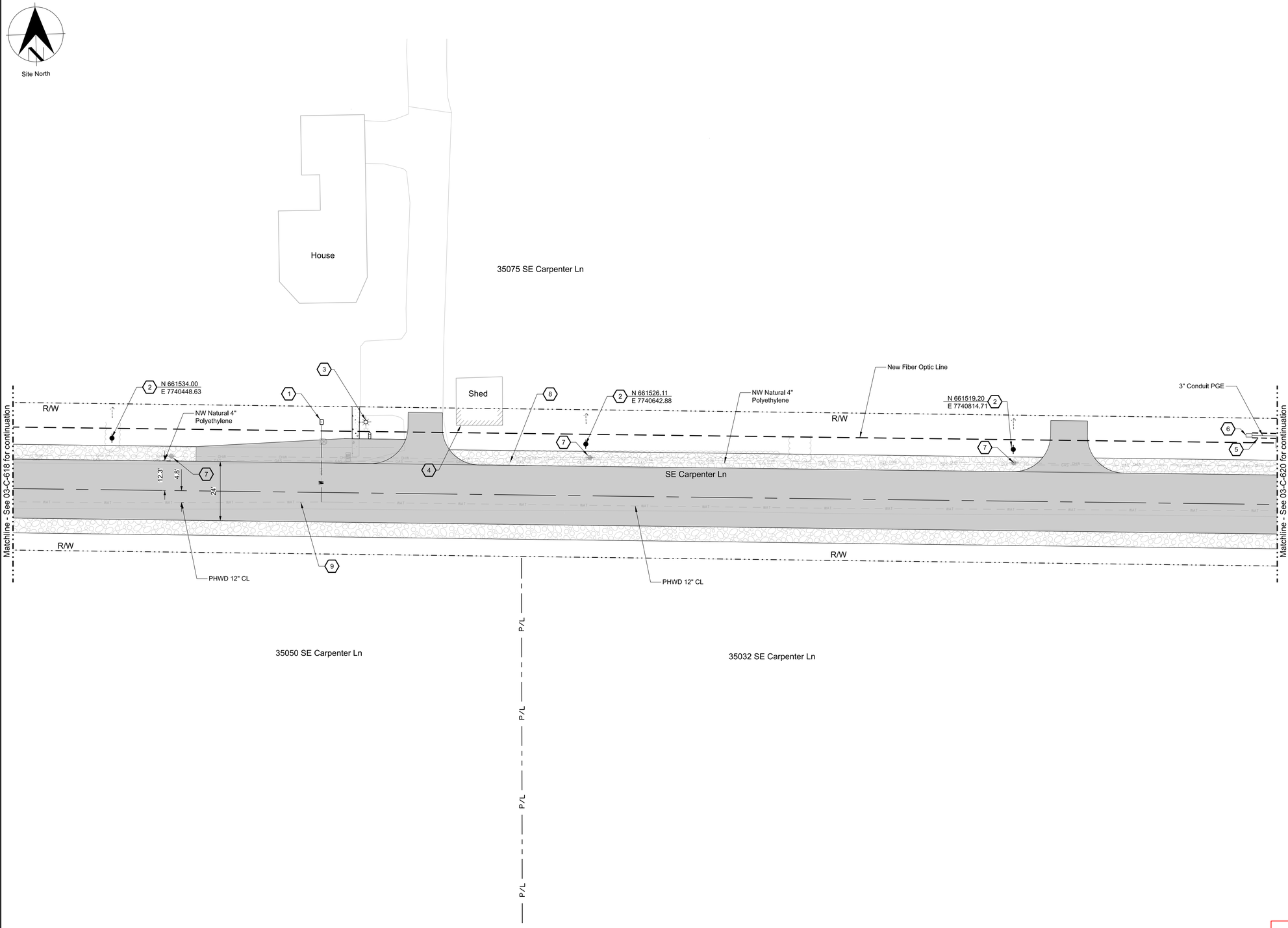

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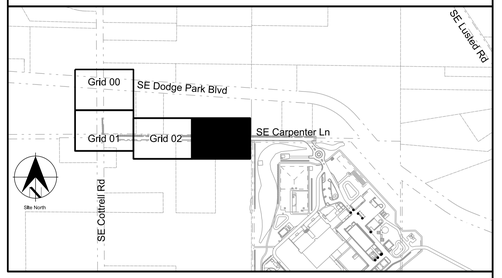

General Sheet Notes

1. See sheet GEN-C-301 for survey control information.
2. See sheet 02-C-901 and 02-C-902 for typical roadways section.
3. See sheet 02-C-400 through 02-C-437 for roadway plan and profile.
4. See 02-C-304 for grading and paving information.
5. See LS Networks drawing set for additional utility information not shown in this set.
6. Comcast underground infrastructure material (including but not limited to conduit, pull strings, boxes) to be furnished by Comcast and installed by contractor. Contractor to coordinate with Comcast for material quantities and hand off.
7. See PGE M3292698 Priority plans for additional PGE, Comcast, and Ziply utility design information.

Sheet Keynotes

1. Relocate water meter to location shown on plans.
2. Proposed utility pole (By Others).
3. Relocate existing light, coordinate with owner for new location.
4. Protect existing Shed.
5. Utility Trench per detail E-923 on sheet GEN-E-789.
6. 1730 Secondary Vault. See PGE M3292698 Priority plans for details.
7. Remove utility pole (by others).
8. Protect gas main in place.
9. Protect and maintain a minimum of 18" of cover for PHWD water mainline. The special requirements if depth of cover for CI main drops below 24" include:
   1) The contractor shall maintain a minimum 5' horizontal clearance from CI lines (after excavation) with all construction and material handling equipment.
   2) All base rock will be placed by dumping, spreading and/ or pushing the material from the base rock surface when in an area 5' from the centerline of CI pipe with less than 24" of cover.
   3) Vibratory compaction will not be allowed over CI pipe with less than 24" of cover.
   4) Hand compaction of base material will be required near water service lines, valves, blow-offs and other water main appurtenances when they are exposed during excavation.
   Please note these requirements in the project's Special Specifications. Submit UPP to owner's representative.

Legend

- Asphalt Pavement
- Gravel
- Concrete
- Fiber Optic Line

0 20 40
SCALE IN FEET

REGISTERED PROFESSIONAL ENGINEER 55529PE
OREGON JULY 15, 2003 RAFAEL GAETA
EXPIRES 6-30-25

Confidential

No	Date	Description	Appd
1	3/15/24	Multnomah County Construction Permit Revisions	MRG

Revision

Survey

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EMERIO ENGINEERING • SURVEYING • DESIGN

Designed By	RG	Design Mgr	LSH
Drawn By	BYS	Const Mgr	TG
Checked By	LCS	Const Supvr	RM
Project Mgr	MRG	Date	3/15/24

Warning
0 ½ 1
If this bar does not measure 1" then the drawing is not to scale

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

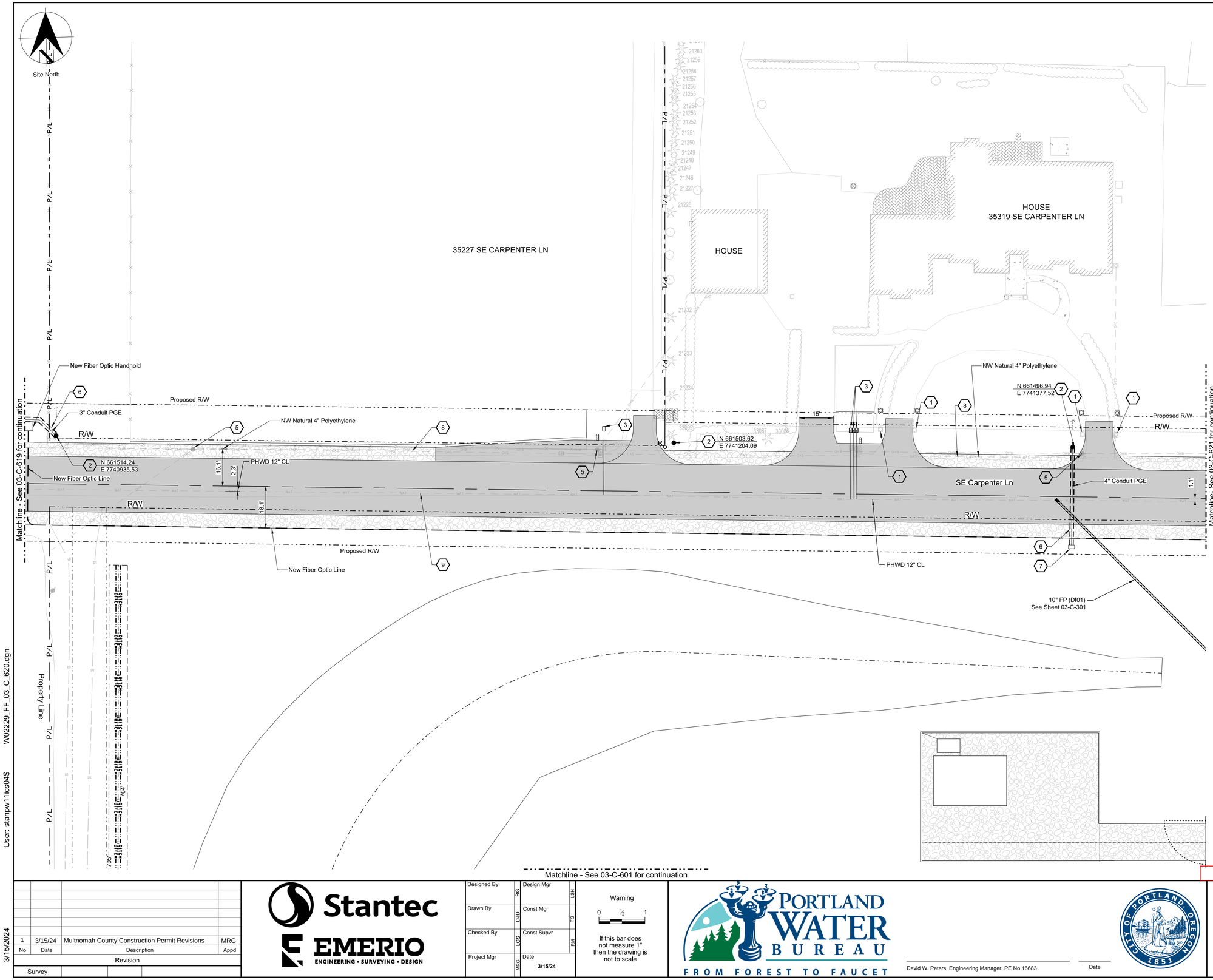
David W. Peters, Engineering Manager, PE No 16683 — Date

CITY OF PORTLAND OREGON 1851

Bull Run Filtration Facility
Civil
Utilities
Grid 03

SAP Project No
W02229
1/4 Section
3765 / 3766
Sheet No
03-C-619
of

3/15/2024
User: stanpw111cs04$
W02229_FF_03_C_619.dgn



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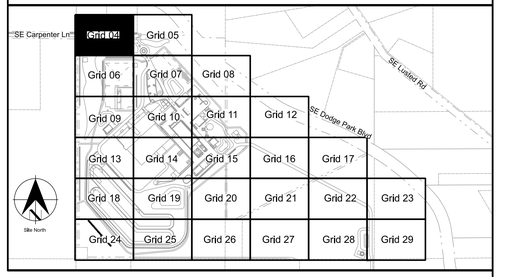

General Sheet Notes

1. See sheet 02-C-901 and 02-C-902 for typical roadway section
2. See sheets 02-C-400 to 02-C-437 for roadway plan and profile
3. See 02-C-305 for grading and paving information.
4. See LS Networks drawing set for additional utility information not shown in this set.
5. Comcast underground infrastructure material (including but not limited to conduit, pull strings, boxes) to be furnished by Comcast and installed by contractor. Contractor to coordinate with Comcast for material quantities and hand off.
6. See PGE M3292698 Priority plans for additional PGE, Comcast, and Ziply utility design information.
7. All PGE facilities and infrastructure shall be permitted under a separate permit. See PGE design for additional information.

Sheet Keynotes

1. Re-install light pole on concrete base, outside of R/W, coordinate with property owner.
2. Proposed utility pole (by others).
3. Relocate water meter to location shown on plans.
4. Utility Trench per detail C-204 on sheet GEN-C-934.
5. Remove utility pole (by others).
6. Utility Trench per detail E-923 on sheet GEN-C-789.
7. 1730 Secondary Vault. See PGE M3292698 Priority plans for details.
8. Protect gas line in place. Contractor to coordinate with NW Natural gas for Locates, Potholes, Request Standby 48-hrs in advance for support. Submit UPP to owner's representative.
9. Protect and maintain a minimum of 18" of cover for PHWD water mainline. The special requirements if depth of cover for CI main drops below 24" include:
   1) The contractor shall maintain a minimum 5' horizontal clearance from CI lines (after excavation) with all construction and material handling equipment.
   2) All base rock will be placed by dumping, spreading and/ or pushing the material from the base rock surface when in an area 5' from the centerline of CI pipe with less than 24" of cover.
   3) Vibratory compaction will not be allowed over CI pipe with less than 24" of cover.
   4) Hand compaction of base material will be required near water service lines, valves, blow-offs and other water main appurtenances when they are exposed during excavation.
   Please note these requirements in the project's Special Specifications. Submit UPP to owner's representative.

Legend

- Asphalt
- Gravel
- Fiber Optic Line
- Fiber Optic Handhold

0 20 40
SCALE IN FEET

REGISTERED PROFESSIONAL ENGINEER 55529PE
OREGON JULY 15, 2003 RAFAEL GAETA
EXPIRES 6-30-25

Confidential

No	Date	Revision	Appd
1	3/15/24	Multnomah County Construction Permit Revisions	MRG
Survey			

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EMERIO ENGINEERING • SURVEYING • DESIGN

Designed By	RG	Design Mgr	LSH
Drawn By	DJD	Const Mgr	TG
Checked By	LCS	Const Supvr	RM
Project Mgr	MRG	Date	3/15/24

Warning
0 ½ 1
If this bar does not measure 1" then the drawing is not to scale

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683 — Date

CITY OF PORTLAND, OREGON 1851

Bull Run Filtration Facility

Civil

Utilities
Grid 04

SAP Project No
W02229
1/4 Section
3765 / 3766
Sheet No
03-C-620
of

3/15/2024
User: stanpw11ics04$
W02229_FF_03_C_620.dgn

Planting Symbology

- Type 1 Seed Mix — See DWG GEN-L-101
- Type 2 Seed Mix — See DWG GEN-L-101
- Type 3 Seed Mix — See DWG GEN-L-101
- Conveyance Swale Plant Mix (311) — See DWG GEN-L-102
- Stormwater Pond Plant Mix (312) — See DWG GEN-L-102
- Screening Mix Forested (309) — See DWG GEN-L-102
- Screening Mix Shrubby Irrigated (310) — See DWG GEN-L-102
- Screening Mix Shrubby Unirrigated (310) — See DWG GEN-L-102
- Groundcover Plant Mix (314) — See DWG GEN-L-102
- Rock Mulch (27)

(1) QUE GAR
Evergreen Deciduous
Individual Tree Planting With Count and Symbol (301) — See plant schedule DWG GEN-L-102

(3) SPI BET
Individual Shrub Planting With Count and Symbol (304) — See plant schedule DWG GEN-L-102

A — Planting Cluster Type A, (A1, A2, A3 per plan) (313) — See plant schedule DWG GEN-L-102; See planting details DWG 06-L-930

C — Planting Cluster Type C (313) — See plant schedule DWG GEN-L-102; See planting details DWG 06-L-930

B — Planting Cluster Type B (313) — See plant schedule DWG GEN-L-102; See planting details DWG 06-L-930

Hardscape Symbology

20 Scale Plans

See Civil plans for layout and general grading of site elements across the facility unless otherwise noted.

- Asphalt Paving — See Civil
- Concrete Paving — See Civil
- Gravel Paving — See Civil
- Curbs — See Civil

ITEMS FOR AREAS OUTSIDE R.O.W.
NOT PART OF PERMIT SET

Admin. Building Exterior Enlargement Plans

- Concrete Paving At Admin With Scoring (29, 06-L-904) — See 06-L-306 and 06-L-308
- Mulched Area Rock Mulch (27)
- CIP Concrete Walls — See 06-L-913 for examples; Heights and dimensions shown on plans
- Timber Bench (91, 06-L-911)
- Accessible Bench (88, 06-L-911)
- Bike Rack (89, 06-L-911)
- Edging (25, 06-L-904)

Grading and Layout Symbology

712.92 — Spot Elevation

1.5% — Direction and degree of slope

Irrigation Symbology

Equipment Symbols

SYMBOL	DESCRIPTION	P.S.I.	RADIUS
	Rain Bird 18xx SAM P45 pop-up with Hunter MP corner nozzle. For pop-up heights see note this sheet.		
	Rain Bird 18xx SAM P45 pop-up with Hunter MP strips	45	15'
	Rain Bird 18xx SAM P45 pop-up with Hunter MP 1000 Rotator nozzle	45	15'
	Rain Bird 18xx SAM P45 pop-up with Hunter MP 2000 Rotator nozzle	45	20'
	Rain Bird 18xx SAM P45 pop-up with Hunter MP 3000 Rotator nozzle	45	30'
	Rain Bird 18xx SAM P45 pop-up with Hunter MP 3500 Rotator nozzle	45	30'
	Hunter I-20-06 rotor - See drawing for nozzle each location	55	40'-50'
	All spray nozzles to be 6" pop-up height in turf areas, and 12" pop-up height in all shrub and ground cover areas.		
	Irrigation Water Meter. SCADA Compatible, specified by Portland Water Bureau		
PUMP	Pump station shall be manufactured by Munro Companies Incorporated. Model number: SCSUL08-100-300-10/20/20-C-6/4-G-X-4-X-SP-X-I. Coordinate all work with factory authorized representative, contact Justin McDaniel (970) 263-2206.		
4	Automatic control valve. All MP Rotator and Rotor zones shall use Rain Bird PEB valves with PRS-D module. Size per valve key. All drip zones shall use Rain Bird XCZ-150-LCS control zone kits. All zones activated by Baseline BL-520x valve Bicoders		
	Quick coupler valve -Rain Bird 44 RC in 12" round box with Leemco LS-120 stabilizer.		
C	Controller - Baseline BL-3200X. Install two wire path with BL-LA01 lightning surge arrestors at intervals specified by manufacturer. Utilize Baseline decoders as required: BL-5201 single station decoder, BL-5202 two station decoder, BL-5204 4 station decoder. Provide ethernet communication to controller location. Coordinate with other trades as necessary. Provide basemanager plus subscription and related software to include mobile access, pipeview and flowstation app. Provide (8) BL-5315B bisensor soil moisture sensors. Installation location to be field directed by owner's representative.		
	Flow Sensor. Flomec QS200-4 with Baseline BL-5308 flow bicoder installed per manufacturer's recommendation		
RPBA	4" ZURN WILKINS Model 375 reduced pressure backflow assembly. Enclosure by Safe-T Cover Model 300T-AL. See detail 501 sheet 06-L-951		
	Isolation valve line size: NIBCO P-619-RW. See detail 508 sheet 951.		
	Mainline air relief: Bermad C-30C, line size.		
	Netafim Techline CV drip line TLHCVXR-RW7-12xx, 0.77 gph emitters at 12" o.c. Dripline rows to be 18" spacing. Provide and install operation and pressure indicator stakes minimum 2 per zone.		
	Manual flush valve in 8" round box. Provide minimum (2) per zone as per detail.		
	Irrigation mainline: Schedule 40 gasketed PVC, 4" unless otherwise noted on plans. Install Harco cast iron fittings and joint restraints per manufacturer's recommendations. See also detail 508 sheet 951. At a minimum all 4" mainline joints will be restrained within 40 linear feet of each dead end and within 25 linear feet of each pipe size reduction.		
	Schedule 40 pvc lateral pipe - size as indicated. minimum 1" size, no 1/2" or 3/4" or 1 1/4" pipe.All pipe shall be sized to not allow flow velocities to exceed 5ft/s. Pipe Size Schedule as shown this sheet.		
	Schedule 40 pvc sleeve - 6" size unless otherwise indicated		
NOT SHOWN	Wire: Paige Electric P707ZD double jacketed 14 AWG two conductor control cable, or approved equal. Provide two distinct outer jacket colors; one for each leg of mainline divergin at pump station. See additional keyed notes on drawings. Provide surge protection along wire path as specified by manufacturer. Provide surge protection at ends of all wire paths. Tracing wire: Paige Electric 14 AWG yellow, Model #: 791430CFY		

PIPE SIZE SCHEDULE

SCHEDULE 40 PIPE	
GPM	SIZE
0 - 11	1"
12 - 29	1 1/2"
30 - 49	2"
49 - 69	2 1/2"
69 - 110	3"
110-190	4"

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No	Date	Description	Appd
2	3/15/24	Multnomah County Construction Permit Revisions	MRG
1	10/19/23	Multnomah County Construction Permit	MRG

Revision

Survey

Stantec
NNA Landscape Architecture

Designed By	JBH	Design Mgr	LSH
Drawn By	JSJ	Const Mgr	TG
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PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683 — Date

CITY OF PORTLAND, OREGON 1851

Bull Run Filtration Facility
Landscape
Symbols

SAP Project No: W02229
1/4 Section: -
Sheet No: GEN-L-001
X of X

Plot Date: 12-MAR-2024 10:35 User: JASON File: W02229-GEN-L-001.dgn Model: Layout1 ColorTable: user attached from dialog DesignScript: PWB_PenTable.pen PlotScale: 1:0.0833333

SEE SPECIFICATION 32 91 13 SOIL PREPARATION FOR PREPARATION AND DEPTH AS DESCRIBED BY PLANTING AREA

Type 1 Seeding - Provide topsoil for Type C seeded areas

Legend	Seeded Mowing Area		
	Botanical Name	**Common Name**	**Percentage/PLS**
	Fleur de Lawn Blanche		PLS
	Lolium perenne	Perennial Ryegrass	40%
	Festuca trachyphylla	Hard Fescue	22%
	Festuca 'Quatro'	Quatro Tetraploid Sheep Fescue	20%
	Trifolium repens	White Clover	5%
	Achillea millefolium	White Yarrow	5%
	Lobularia maritima	Sweet Alyssum	5%
	Bellis perennis	Single White English Daisy	3%

Type 2 Seeding - Provide topsoil for Type C seeded areas

Legend	Grassland Seeding - Bunchgrass Focused		
	Botanical Name	**Common Name**	**Lbs/Acre**
	Grasses		
	Danthonia californica	California Oatgrass	6
	Deschampsia elongata	Slender Hairgrass	5
	Festuca occidentalis	Western Fescue	1
	Festuca roemeri	Roemer's Fescue	2
	Hordeum brachyantherum	Meadow Barley	1
	Koeleria macrantha	Prairie Junegrass	1
	Poa scabrella	Pine Junegrass	1
	Forbs		
	Achillea millefolium	Yarrow	0.5
	Anaphalis marginatacea	Pearly Everlasting	0.5
	Epilobium angustifolium	Fireweed	0.5
	Eriophyllum lanatum	Oregon Sunshine	1
	Geranium oreganum	Western Geranium	1
	Lupinus polyphyllus	Bigleaf Lupine	0.1
	Prunella vulgaris ssp lanceolata	Common Selfheal	1
	Sidalcea campestris	Meadow checkermallow	1
	Lomatium utriculatum	Common biscuitroot	1
	Lomatium macrocarpum	Bigseed Biscuitroot	1
	Solidago canadensis	Canada Goldenrod	0.25

Type 3 Seeding - Provide topsoil for Type C seeded areas

Legend	Grassland Seeding - Color and Fire Resistance Focused		
	Botanical Name	**Common Name**	**lbs/Acre**
	Danthonia californica	California Oatgrass	6
	Deschampsia elongata	Slender Hairgrass	5
	Festuca occidentalis	Western Fescue	1
	Festuca roemeri	Roemer's Fescue	2
	Hordeum brachyantherum	Meadow Barley	2
	Koeleria macrantha	Prairie Junegrass	1
	Poa scabrella	Pine Junegrass	2
	Forbs		
	Achillea millefolium	Yarrow	0.5
	Asclepias speciosa	Milkweed	0.5
	Anaphalis marginatacea	Pearly Everlasting	0.5
	Brodiaea coronaria	Brodiaea	0.5
	Epilobium angustifolium	Fireweed	0.25
	Eriophyllum lanatum	Oregon Sunshine	0.5
	Gaillardia aristata	blanket flower	0.5
	Geranium oreganum	Western Geranium	0.5
	Lomatium macrocarpum	*Bigseed Biscuitroot*	1
	Lupinus polyphyllus	*Bigleaf Lupine*	0.1
	Penstemon cardwellii	Cardwell's penstemon	0.25
	Prunella vulgaris ssp lanceolata	Common Selfheal	0.5
	Sidalcea campestris	Meadow checkermallow	0.5
	Solidago canadensis	Canada Goldenrod	0.5

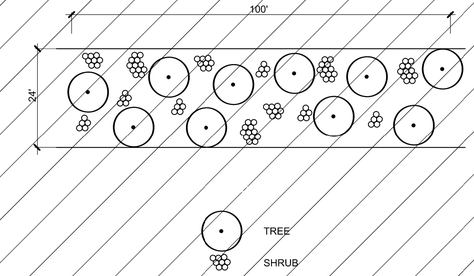
Stormwater Seed Mixes - Provide topsoil for Type B stormwater facilities

See Details 311 and 312 on Sheet 06-L-931 for placement of seed mixes in stormwater areas. These seed mixes are only to be applied to stormwater areas that are depicted with the hatch patterns shown in the sheet legends.

Legend	Stormwater - Seed Mix		
	Botanical Name	**Common Name**	**Lbs/Acre**
	Grasses		
	Danthonia californica	California Oatgrass	5
	Deschampsia cespitosa	Tufted Hairgrass	3
	Deschampsia elongata	Slender Hairgrass	3
	Hordeum brachyantherum	Meadow Barley	1
	Flowering Plants		
	Achillea millefolium	Yarrow	0.5
	Asclepias spec	[illegible]	0.5
	Carex densa	[illegible]	1
	Carex unilateralis	[illegible]	1
	Juncus patens	Slender Rush	1
	Juncus tenuis	Spreading Rush	1
	Lupinus latifolius	Broadleaf Lupine	0.1
	Potentilla gracilis	Graceful Cinquefoil	0.5

PLANT LISTS FOR AREAS OUTSIDE R.O.W.
NOT PART OF PERMIT SET

Legend	Stormwater Pond Bottom - Seed Mix		
	Botanical Name	**Common Name**	**Lbs/Acre**
	Carex densa	Dense Sedge	0.25
	Carex pachystachya	Chamisso Sedge	0.5
	Carex scoparia	Broom Sedge	0.5
	Carex unilateralis	Bone-Sided Sedge	0.5
	Agrostis exerata	Spike bentgrass	1
	Danthonia californica	California Oatgrass	2
	Deschampsia cespitosa	Tufted Hairgrass	1
	Juncus tenuis	Slender Rush	0.1
	Achillea millefolium	Western Yarrow	0.25
	Epilobium densiflorum	Spike Primrose	0.1
	Grindelia integrifolia	Willamette Gumweed	0.1
	Lupinus rivularis	Riverbank Lupine	0.1
	Madia elegans	Common Madia	0.3
	Mimulus guttatus	Yellow Monkeyflower	0.1
	Plagiobothrys figuratus	Fragrant Popcorn Flower	0.1
	Sidalcea campestris	Checkermallow	0.5



NOTES

1) Prior to installing plants, apply Grassland Seeding mix and establish for 45-days minimum.

2) Install trees at an overall density of 39 trees/10,000 s.f. (170/acre)

3) Install trees in a naturalistic manner, dispersed throughout the hedgerow. Min. 12', Max. 18' on-center.

4) Install shrubs at an overall density of 399 shrubs/10,000 s.f.

5) Install shrubs in groups of 3-12 plants per species. Space shrubs 1' min to 3' max on-center.

6) provide 5' minimum spacing between shrub groups and between a tree and shrubs group.

7) Spread species throughout the given planting area to avoid monocultures, a random 10,000 s.f. sample should contain all species.

8) Maintain a 1' diameter plant-free area around all stems and mulch with wood chip mulch to prevent weeds.

Hedgerow Planting			
Botanical Name	**Common Name**	**Plant Size**	**Composition**
Trees			
Rhamnus purshiana	Cascara	1/2" Bareroot	39/10,000 sf
Shrubs			
Mahonia aquifolium	Tall Oregon Grape	Bareroot	57/10,000 sf
Ribes malvaceum	Chaparral Currant	Bareroot	57/10,000 sf
Rosa gymnocarpa	Baldhip Rose	Bareroot	57/10,000 sf
Rosa nutkana	Nootka Rose	Bareroot	57/10,000 sf
Rubus parviflorus	Thimbleberry	Bareroot	57/10,000 sf
Spiraea douglasii	Douglas Spiraea	Bareroot	57/10,000 sf
Symphoricarpos albus	Snowberry	Bareroot	57/10,000 sf

Hedgerow Planting
NTS

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No	Date	Description	Appd
2	3/15/24	Multnomah County Construction Permit Revisions	MRG
1	10/19/23	Multnomah County Construction Permit	MRG

Revision

Survey

Stantec
NNA Landscape Architecture

Designed By	JBH	Design Mgr	LSH
Drawn By	JSJ	Const Mgr	TG
Checked By	SR	Const Supvr	RM
Project Mgr	MRG	Date	

Warning
0 ½ 1
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PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

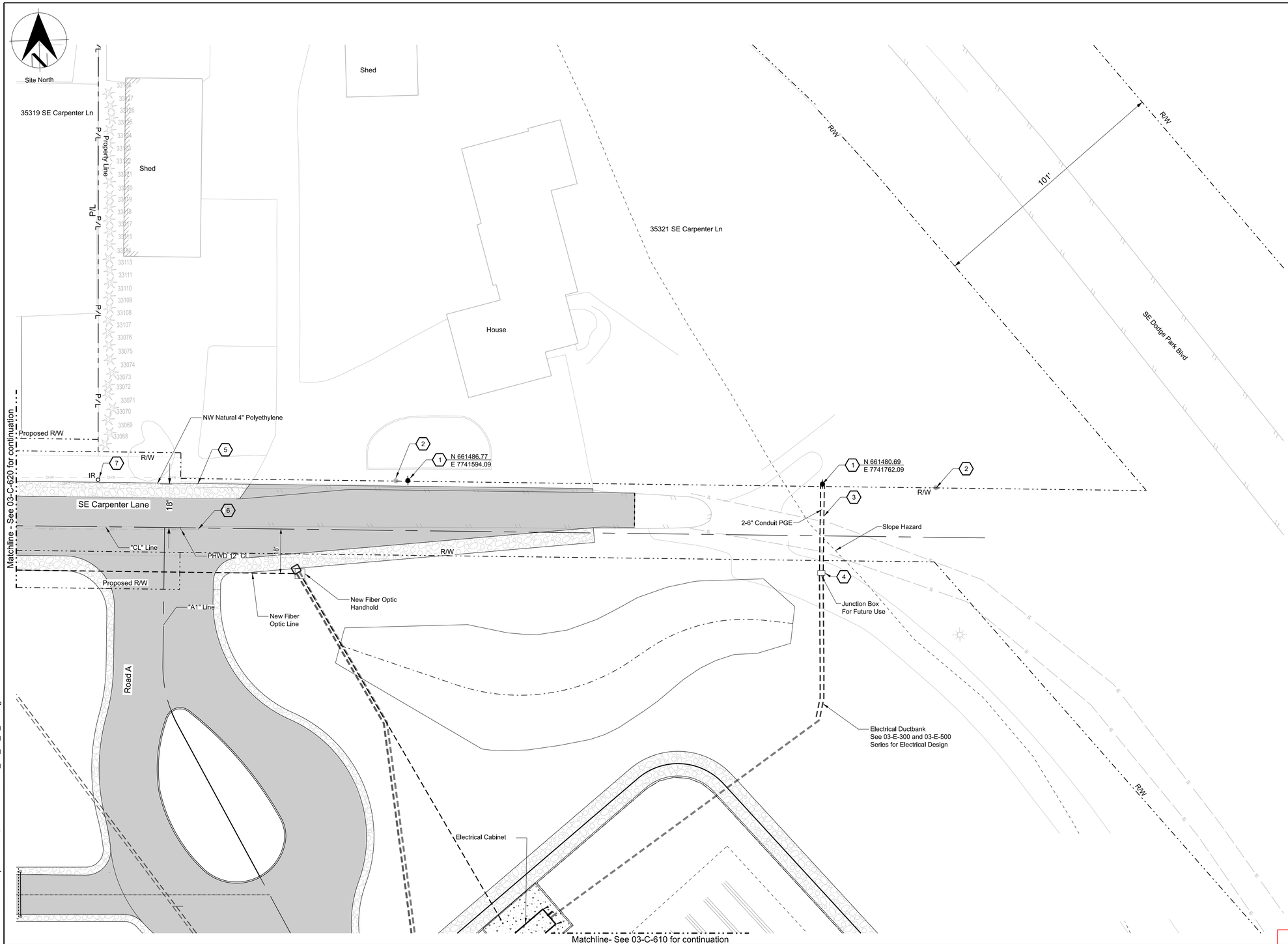
David W. Peters, Engineering Manager, PE No 16683 — Date

CITY OF PORTLAND, OREGON 1851

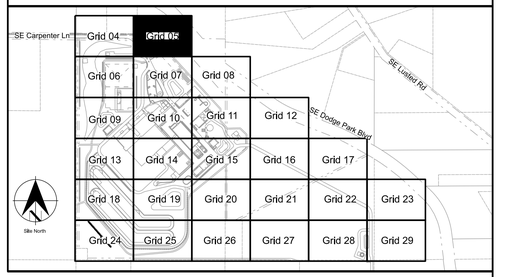
Bull Run Filtration Facility
Landscape
Planting Schedule - 1

SAP Project No: W02229
1/4 Section: -
Sheet No: GEN-L-101
X of X

Plot Date: 12-MAR-2024 09:54 User: JASON File: W02229-GEN-L-101.dgn Model: Layout1 ColorTable: user attached from dialog DesignScript: PWB_PenTable.pen PlotScale: 1:0.08333333



KEY PLAN



General Sheet Notes

1. See 02-C-306 for grading and paving information.
2. See LS Networks drawing set for additional utility information not shown on this set.
3. Comcast underground infrastructure material (including but not limited to conduit, pull strings, boxes) to be furnished by Comcast and installed by contractor. Contractor to coordinate with Comcast for material quantities and handoff.
4. See PGE M3292698 Priority plans for additional PGE, Comcast, and Ziply utility design information.
5. All PGE facilities and infrastructures shall be permitted under a separate permit. See PGE design for additional information.

Sheet Keynotes

1. Proposed Utility Pole (by others).
2. Remove utility pole (by others).
3. Utility Trench per detail E-923 on sheet GEN-E-789.
4. Junction Box per detail C-204 on sheet GEN-C-934.
5. Protect gas line in place. Contractor to coordinate with NW Natural gas for Locates, Potholes, Request Standby 48-hrs in advance for support. Submit UPP to owner's representative.
6. Protect and maintain a minimum of 18" of cover for PHWD water mainline. The special requirements if depth of cover for CI main drops below 24" include:
   1) The contractor shall maintain a minimum 5' horizontal clearance from CI lines (after excavation) with all construction and material handling equipment.
   2) All base rock will be placed by dumping, spreading and/ or pushing the material from the base rock surface when in an area 5' from the centerline of CI pipe with less than 24" of cover.
   3) Vibratory compaction will not be allowed over CI pipe with less than 24" of cover.
   4) Hand compaction of base material will be required near water service lines, valves, blow-offs and other water main appurtenances when they are exposed during excavation.
   Please note these requirements in the project's Special Specifications. Submit UPP to owner's representative.
7. Protect survey monument.

Legend

- Asphalt Pavement
- Concrete
- Gravel
- Slope Hazard
- Top of Slope
- Fiber Optic Line
- Fiber Optic Handhold

REGISTERED PROFESSIONAL ENGINEER 55529PE
OREGON JULY 15, 2003 RAFAEL GAETA
EXPIRES 6-30-25

0 20 40
SCALE IN FEET

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No	Date	Description	Appd
1	3/15/24	Multnomah County Construction Permit	MRG

Revision

Survey

Stantec
EMERIO ENGINEERING • SURVEYING • DESIGN

Designed By	RG	Design Mgr	LSH
Drawn By	DJD	Const Mgr	TG
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Project Mgr	MRG	Date	3/15/24

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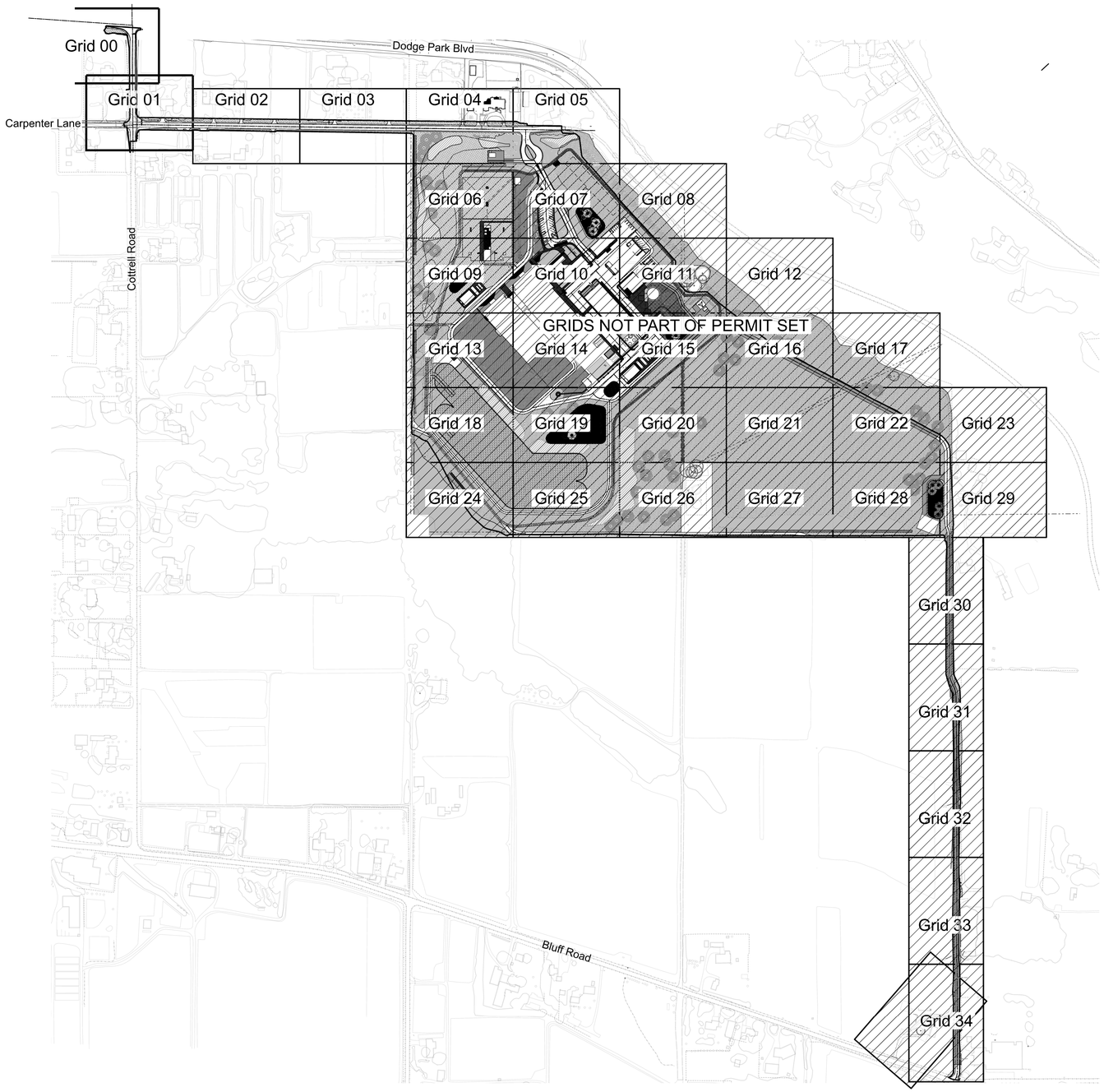
Bull Run Filtration Facility

Civil

Utilities
Grid 05

SAP Project No
W02229
1/4 Section
3765 / 3766
Sheet No
03-C-621
of

3/15/2024
User: stanpw11ics04$
W02229_FF_03_C_621.dgn



Overall Plan

SCALE: 1" =300'

General Sheet Notes

1. See DWG GEN-L-001 for complete landscape symbols.
2. See DWG GEN-L-101 and 102 for seeding and planting schedules.
3. See DWG 06-L-351 for Overall Irrigation Plan.
4. See Civil sheets for layout of pathways and hardscape unless otherwise noted.

Site North

0 300 600 900 1200

FEET

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No	Date	Description	Appd
2	3/15/24	Multnomah County Construction Permit Revisions	MRG
1	10/19/23	Multnomah County Construction Permit	MRG

Revision

Survey

Stantec

NNA Landscape Architecture

Designed By	JBH	Design Mgr	LSH
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Warning

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PORTLAND WATER BUREAU

FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683

Date

CITY OF PORTLAND, OREGON 1851

Bull Run Filtration Facility

Landscape

Overall Planting Plan

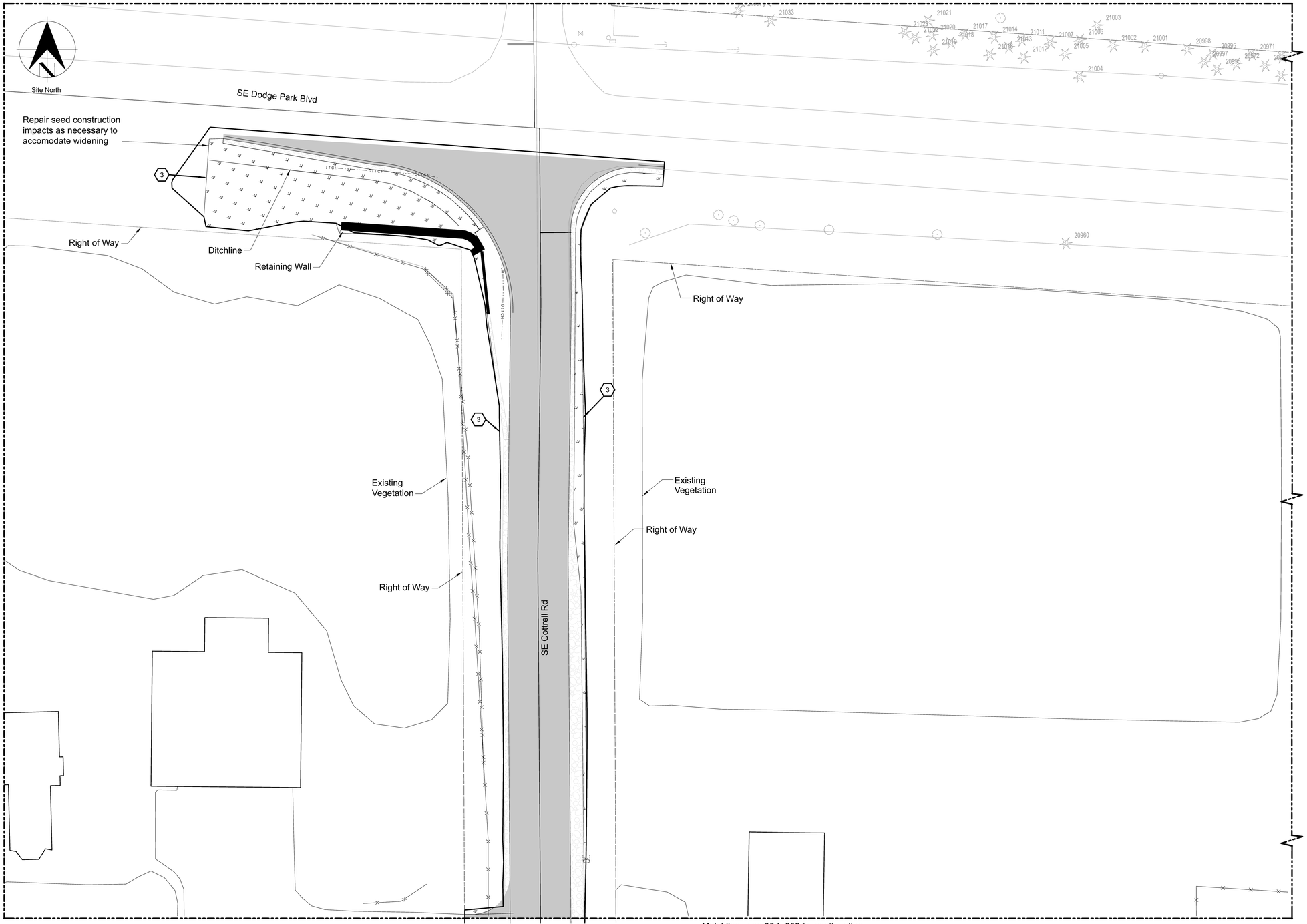
SAP Project No W02229

1/4 Section -

Sheet No 06-L-301

X of X

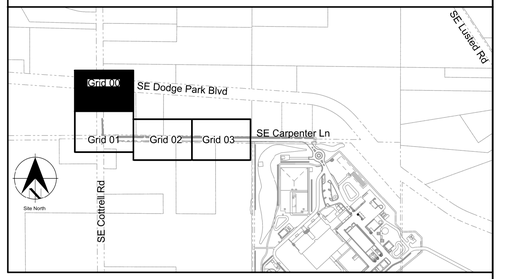
Plot Date: 12-MAR-2024 09:42 User: JASON File: W02229-FF-06-L-301.dgn Model: Layout1 ColorTable: user attached from dialog DesignScript: PWB_PenTable.pen PlotScale: 1:0.0833333



Plan

Scale: 1" = 20'-0"

KEY PLAN



General Sheet Notes

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3. See DWG 06-L-351 for Overall Irrigation Plan.
4. See civil sheets for layout of pathways and hardscape unless otherwise noted.

Sheet Keynotes

3. Limit of work

Legend

- Asphalt Paving (See Civil)
- Concrete Paving (See Civil)
- Gravel Paving (See Civil)
- Type 1 Seed Mix
- Type 2 Seed Mix
- Type 3 Seed Mix
- Conveyance Swale Plant Mix — 311 / 06-L-931
- Stormwater Pond Plant Mix — 312 / 06-L-931
- Screening Mix Forested — 309 / 06-L-931
- Screening Mix Shrubby Irrigated — 310 / 06-L-931
- Screening Mix Shrubby Unirrigated — 310 / 06-L-931
- Rock Mulch — 27 / 06-L-904
- Groundcover Plant Mix — 312 / 06-L-931
- Tree — 301 / 06-L-930
- Shrub and Groundcover — 304 / 06-L-930

0 20 40 60 80

FEET

Confidential

No	Date	Description	Appd
2	3/15/24	Multnomah County Construction Permit Revisions	MRG
1	10/19/23	Multnomah County Construction Permit	MRG
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Survey			

Stantec

NNA Landscape Architecture

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CITY OF PORTLAND, OREGON 1851

Bull Run Filtration Facility

Landscape

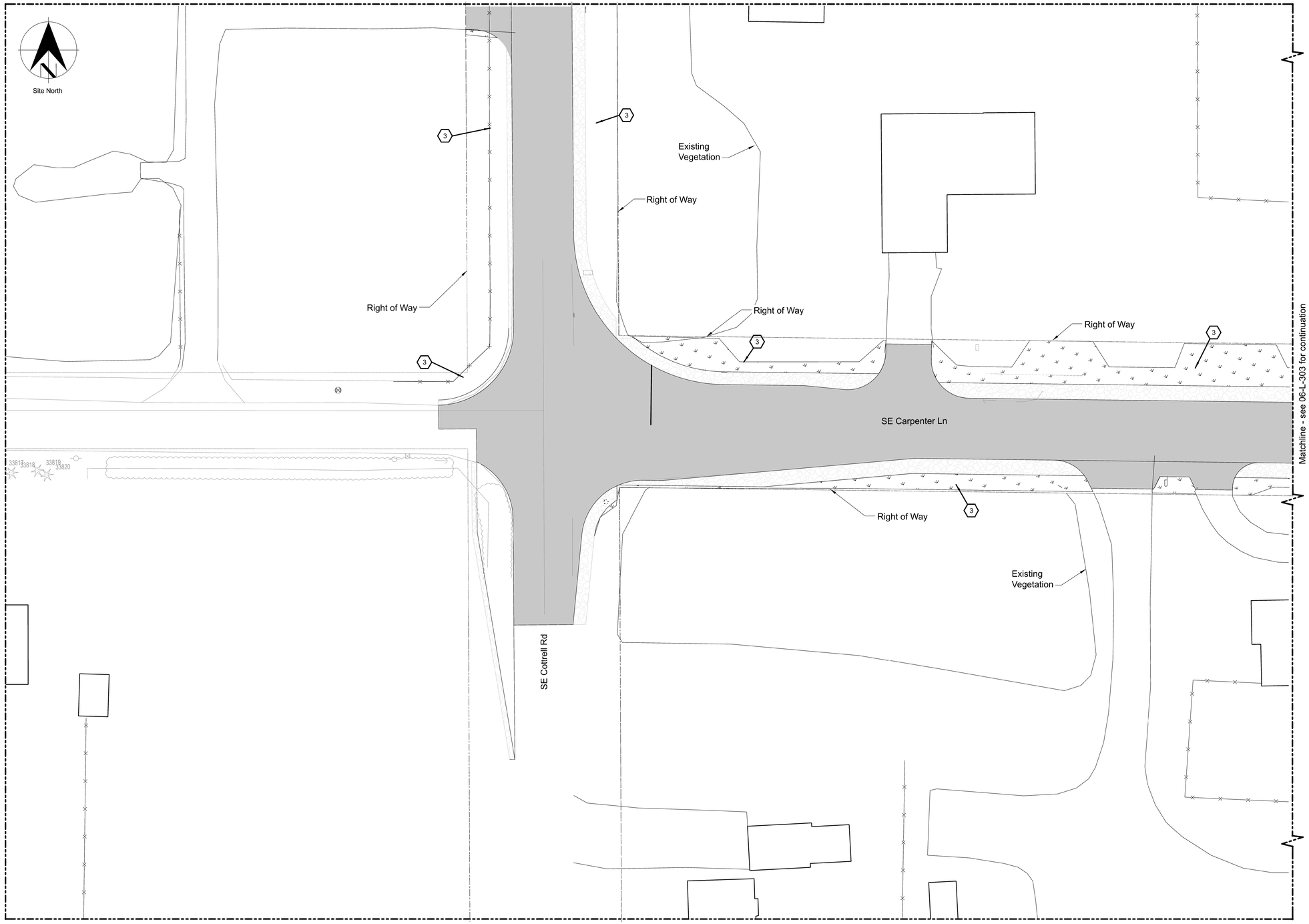
Planting
Grid 00

SAP Project No
W02229

1/4 Section
-

Sheet No
06-L-301A

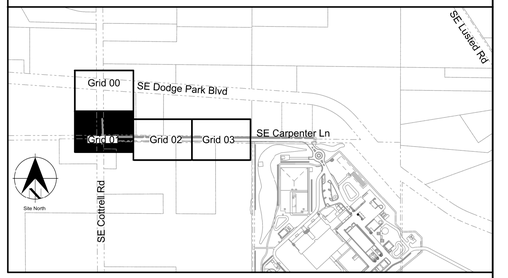
X of X



Plan

Scale: 1" = 20'-0"

KEY PLAN



General Sheet Notes

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- Groundcover Plant Mix — 312, 06-L-931
- Tree — 301, 06-L-930
- Shrub and Groundcover — 304, 06-L-930

0 20 40 60 80

FEET

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Survey			

Stantec

NNA Landscape Architecture

Designed By	JBH	Design Mgr	LSH
Drawn By	JSJ	Const Mgr	TG
Checked By	SR	Const Supvr	RM
Project Mgr	MRG	Date	

Warning

0 ½ 1

If this bar does not measure 1" then the drawing is not to scale

PORTLAND WATER BUREAU

FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683

Date

CITY OF PORTLAND, OREGON 1851

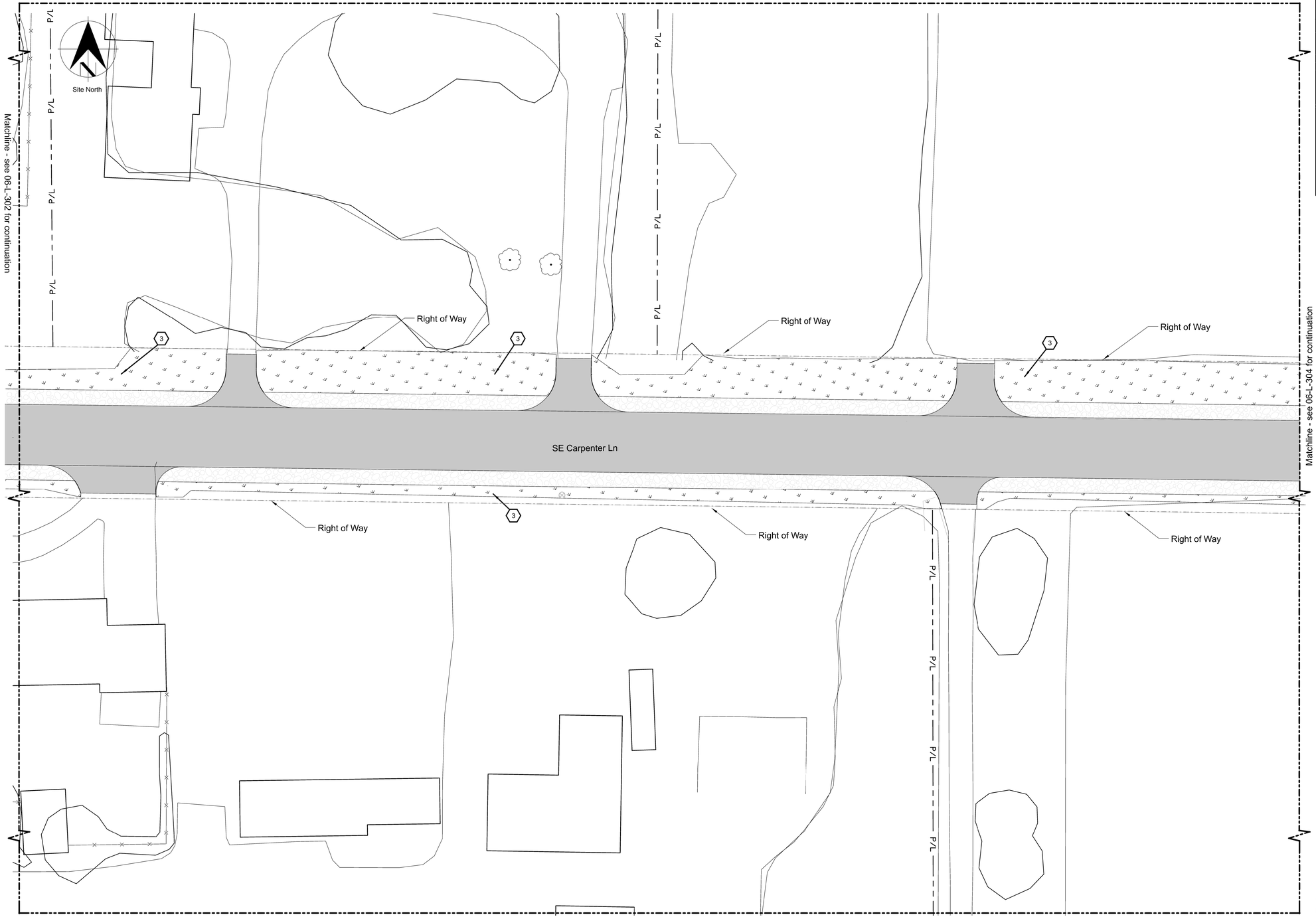
Bull Run Filtration Facility

Landscape

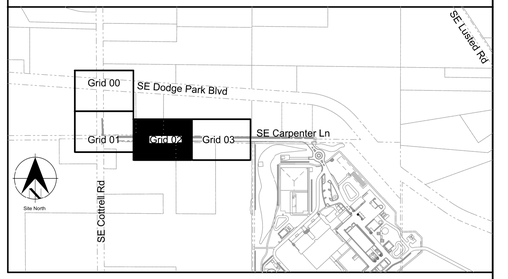
Planting
Grid 01

SAP Project No
W02229
1/4 Section
-
Sheet No
06-L-302
X of X

Plot Date: 22-FEB-2024 11:55 User: JASON File: W02229-FF-06-L-302.dgn Model: Layout1 ColorTable: user attached from dialog DesignScript: PWB_PenTable.pen PlotScale: 1:0.0833333



KEY PLAN



General Sheet Notes

1. See DWG GEN-L-001 for complete landscape symbols.
2. See DWG GEN-L-101 and 102 for seeding and planting schedules.
3. See DWG 06-L-351 for Overall Irrigation Plan.
4. See civil sheets for layout of pathways and hardscape unless otherwise noted.

Sheet Keynotes

3. Limit of work

Legend

- Asphalt Paving (See Civil)
- Concrete Paving (See Civil)
- Gravel Paving (See Civil)
- Type 1 Seed Mix
- Type 2 Seed Mix
- Type 3 Seed Mix
- Conveyance Swale Plant Mix (311 / 06-L-931)
- Stormwater Pond Plant Mix (312 / 06-L-931)
- Screening Mix Forested (309 / 06-L-931)
- Screening Mix Shrubby Irrigated (310 / 06-L-931)
- Screening Mix Shrubby Unirrigated (310 / 06-L-931)
- Rock Mulch (27 / 06-L-904)
- Groundcover Plant Mix (312 / 06-L-931)
- Tree (301 / 06-L-930)
- Shrub and Groundcover (304 / 06-L-930)

0 20 40 60 80
FEET

Plan
Scale: 1" = 20'-0"

Confidential

No	Date	Description	Appd
2	3/15/24	Multnomah County Construction Permit Revisions	MRG
1	10/19/23	Multnomah County Construction Permit	MRG

Revision

Survey

Stantec

NNA Landscape Architecture

Designed By	JBH	Design Mgr	LSH
Drawn By	JSJ	Const Mgr	TG
Checked By	SR	Const Supvr	RM
Project Mgr	MRG	Date	

Warning
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PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683

Date

CITY OF PORTLAND OREGON 1851

Bull Run Filtration Facility

Landscape

Planting
Grid 02

SAP Project No
W02229

1/4 Section
-

Sheet No
06-L-303

X of X

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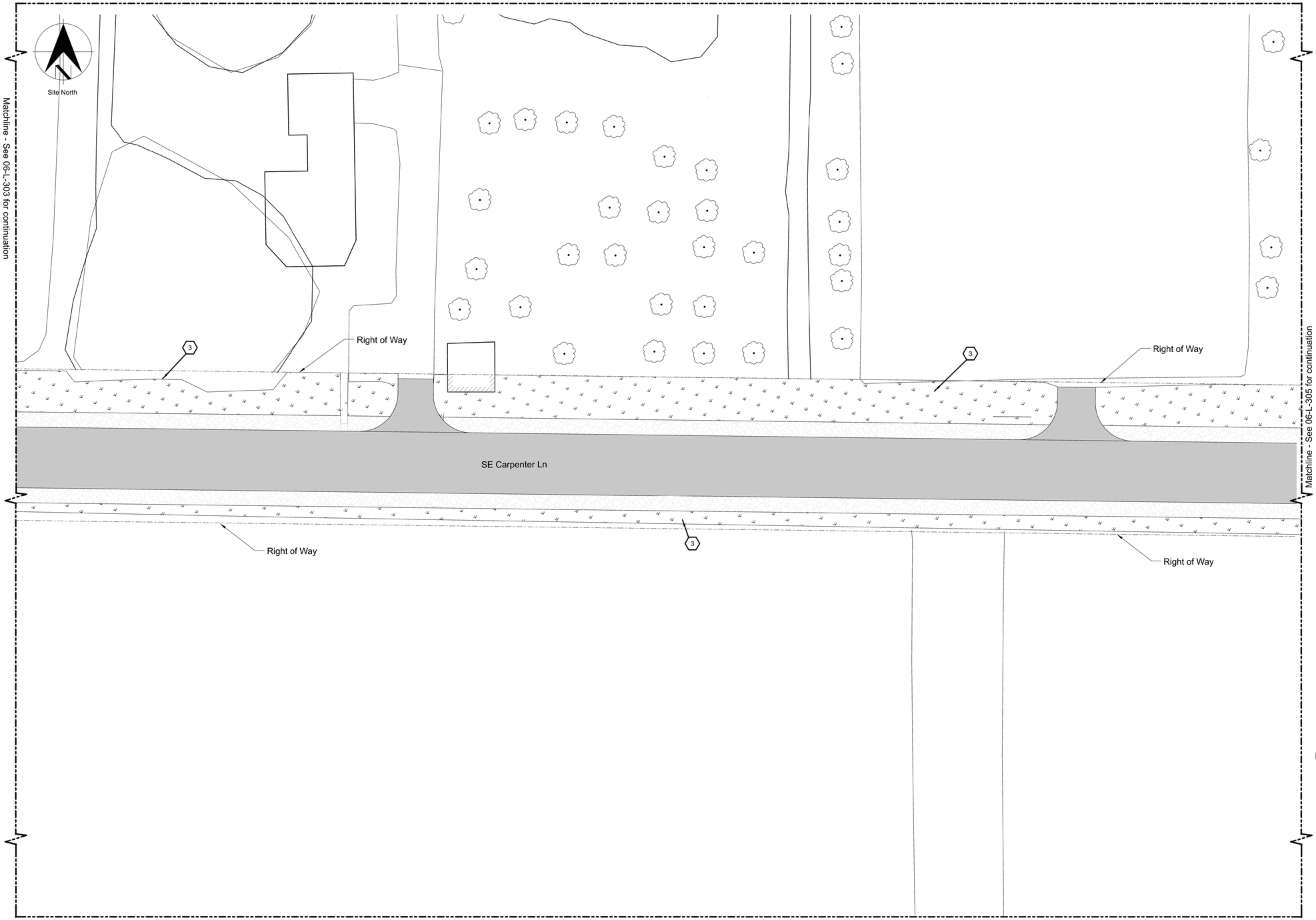
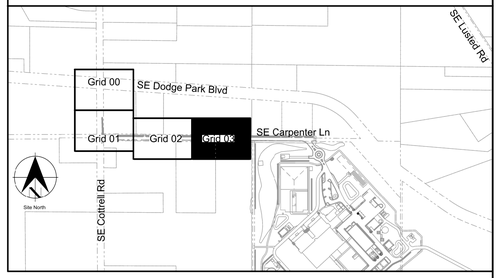


Plan

Scale: 1" = 20'-0"

KEY PLAN



General Sheet Notes

1. See DWG GEN-L-001 for complete landscape symbols.
2. See DWG GEN-L-101 and 102 for seeding and planting schedules.
3. See DWG 06-L-351 for Overall Irrigation Plan.
4. See civil sheets for layout of pathways and hardscape unless otherwise noted.

Sheet Keynotes

3. Limit of work

Legend

- Asphalt Paving (See Civil)
- Concrete Paving (See Civil)
- Gravel Paving (See Civil)
- Type 1 Seed Mix
- Type 2 Seed Mix
- Type 3 Seed Mix
- Conveyance Swale Plant Mix (311, 06-L-931)
- Stormwater Pond Plant Mix (312, 06-L-931)
- Screening Mix Forested (309, 06-L-931)
- Screening Mix Shrubby Irrigated (310, 06-L-931)
- Screening Mix Shrubby Unirrigated (310, 06-L-931)
- Rock Mulch (27, 06-L-904)
- Groundcover Plant Mix (312, 06-L-931)
- Tree (301, 06-L-930)
- Shrub and Groundcover (304, 06-L-930)

0 20 40 60 80

FEET

Confidential

No	Date	Description	Appd
2	3/15/24	Multnomah County Construction Permit Revisions	MRG
1	10/19/23	Multnomah County Construction Permit	MRG

Revision

Survey

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NNA Landscape Architecture

Designed By	JBH	Design Mgr	LSH
Drawn By	JSJ	Const Mgr	TG
Checked By	SR	Const Supvr	RM
Project Mgr	MRG	Date	

Warning

0 ½ 1

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PORTLAND WATER BUREAU

FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683

Date

CITY OF PORTLAND OREGON 1851

Bull Run Filtration Facility

Landscape

Planting

Grid 03

SAP Project No

W02229

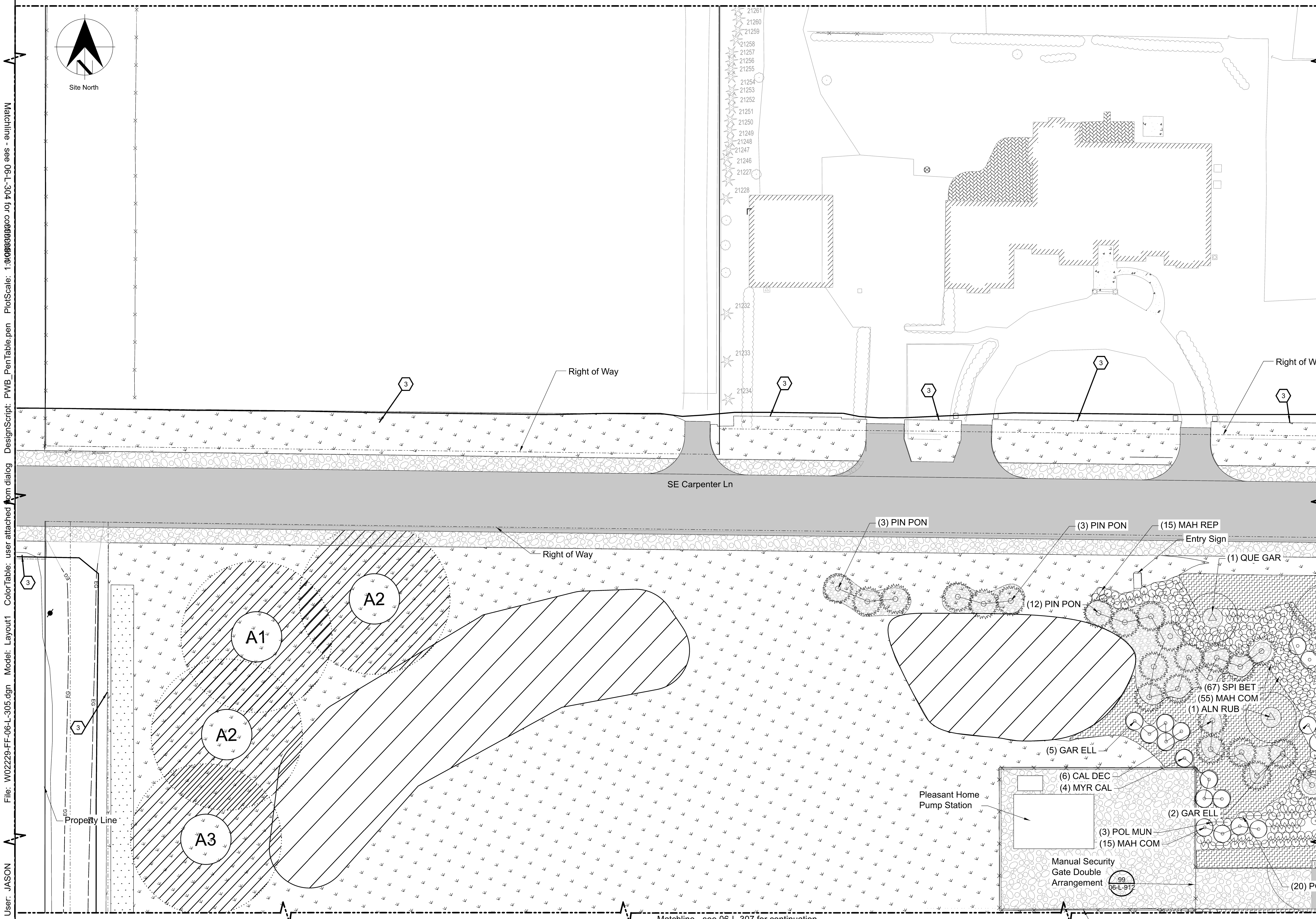
1/4 Section

-

Sheet No

06-L-304

X of X



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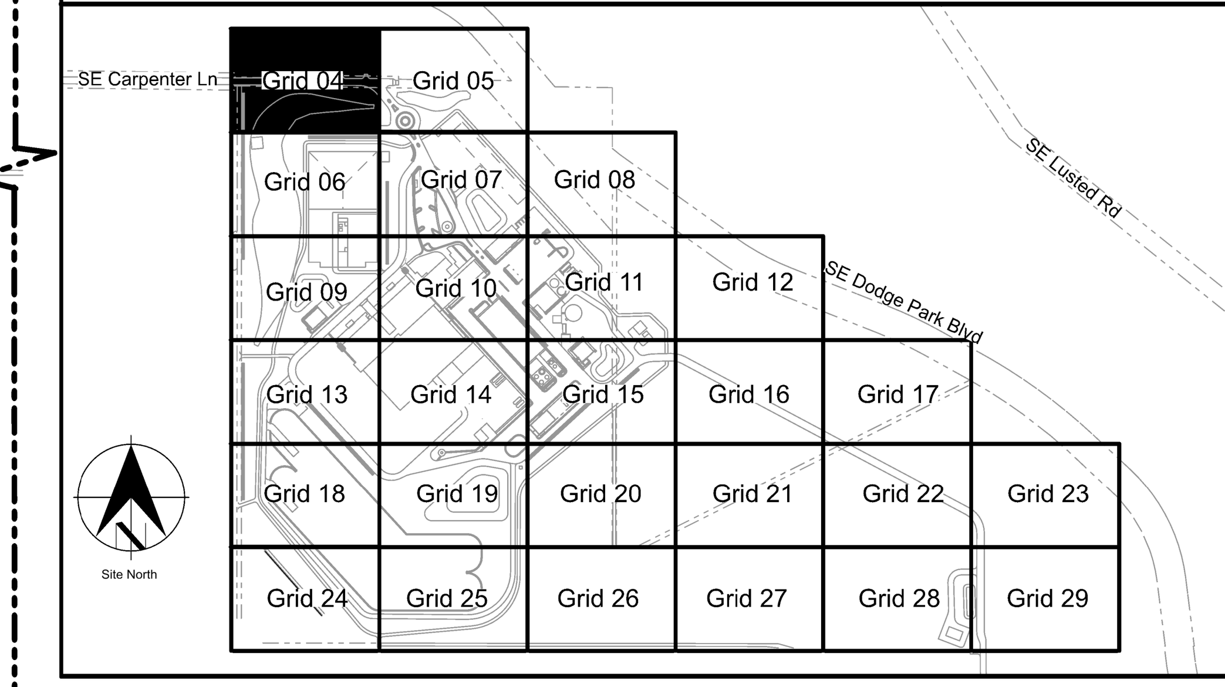
KEY PLAN



General Sheet Notes

1. See DWG GEN-L-001 for complete landscape symbols.
2. See DWG GEN-L-101 and 102 for seeding and planting schedules.
3. See DWG 06-L-351 for Overall Irrigation Plan.
4. See civil sheets for layout of pathways and hardscape unless otherwise noted.

Sheet Keynotes

3. Limit of work

Legend

- Asphalt Paving (See Civil)
- Concrete Paving (See Civil)
- Gravel Paving (See Civil)
- Type 1 Seed Mix
- Type 2 Seed Mix
- Type 3 Seed Mix
- Conveyance Swale Plant Mix 311 06-L-931
- Stormwater Pond Plant Mix 312 06-L-931
- Screening Mix Forested 309 06-L-931
- Screening Mix Shrubby Irrigated 310 06-L-931
- Screening Mix Shrubby Unirrigated 310 06-L-931
- Rock Mulch 27 06-L-904
- Groundcover Plant Mix 312 06-L-931
- Tree 301 06-L-930
- Shrub and Groundcover 304 06-L-930
- Swing Barrier Arm Gate 17 06-L-903

0 20 40 60 80
FEET

Confidential

No	Date	Description	Appd
2	3/15/24	Multnomah County Construction Permit Revisions	MRG
1	10/19/23	Multnomah County Construction Permit	MRG

Revision

Survey

Stantec
NNA Landscape Architecture

Designed By	JBH	Design Mgr	LSH
Drawn By	JSJ	Const Mgr	TG
Checked By	SR	Const Supvr	RM
Project Mgr	MRG	Date	

Warning
0 ½ 1
If this bar does not measure 1" then the drawing is not to scale

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

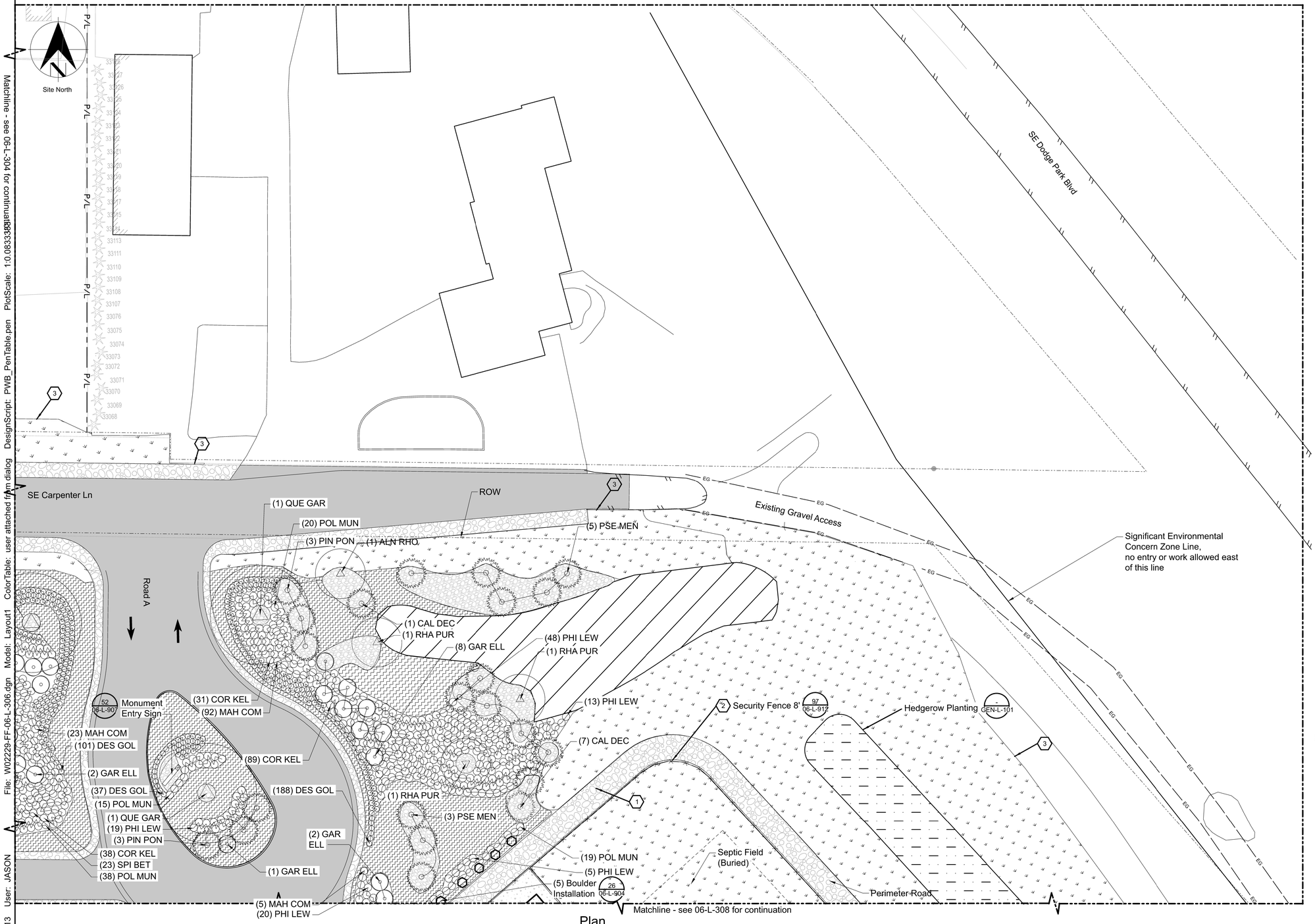
City of Portland Oregon 1851

David W. Peters, Engineering Manager, PE No 16683   Date

Bull Run Filtration Facility
Landscape
Planting
Grid 04

SAP Project No W02229
1/4 Section -
Sheet No 06-L-305
X of X

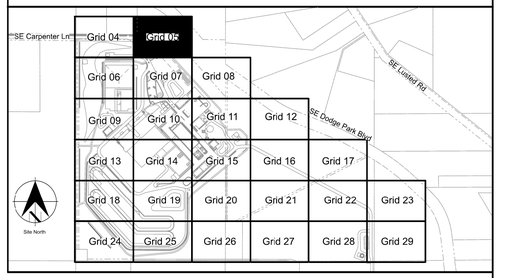
Plot Date: 22-FEB-2024 12:33 User: JASON File: W02229-FF-06-L-305.dgn Model: Layout1 ColorTable: user attached from dialog DesignScript: PWB_PenTable.pen PlotScale: 1:0.000000



Plan

Scale: 1" = 20'-0"

KEY PLAN



General Sheet Notes

1. See DWG GEN-L-001 for complete landscape symbols.
2. See DWG GEN-L-101 and 102 for seeding and planting schedules.
3. See DWG 06-L-351 for Overall Irrigation Plan.
4. See civil sheets for layout of pathways and hardscape unless otherwise noted.

Sheet Keynotes

1. Perimeter Road
2. Fenceline
3. Limit of work

Legend

- Asphalt Paving (See Civil)
- Concrete Paving (See Civil)
- Gravel Paving (See Civil)
- Type 1 Seed Mix
- Type 2 Seed Mix
- Type 3 Seed Mix
- Conveyance Swale Plant Mix 311 06-L-931
- Stormwater Pond Plant Mix 312 06-L-931
- Screening Mix Forested 309 06-L-931
- Screening Mix Shrubby Irrigated 310 06-L-931
- Screening Mix Shrubby Unirrigated 310 06-L-931
- Rock Mulch 27 06-L-904
- Groundcover Plant Mix 312 06-L-931
- Tree 301 06-L-930
- Shrub and Groundcover 304 06-L-930

0 20 40 60 80

FEET

Confidential

No	Date	Description	Appd
2	3/15/24	Multnomah County Construction Permit Revisions	MRG
1	10/19/23	Multnomah County Construction Permit	MRG

Revision

Survey

Stantec

NNA Landscape Architecture

Designed By	JBH	Design Mgr	LSH
Drawn By	JSJ	Const Mgr	TG
Checked By	SR	Const Supvr	RM
Project Mgr	MRG	Date	

Warning

0 ½ 1

If this bar does not measure 1" then the drawing is not to scale

PORTLAND WATER BUREAU

FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683

Date

CITY OF PORTLAND, OREGON 1851

Bull Run Filtration Facility

Landscape

Planting

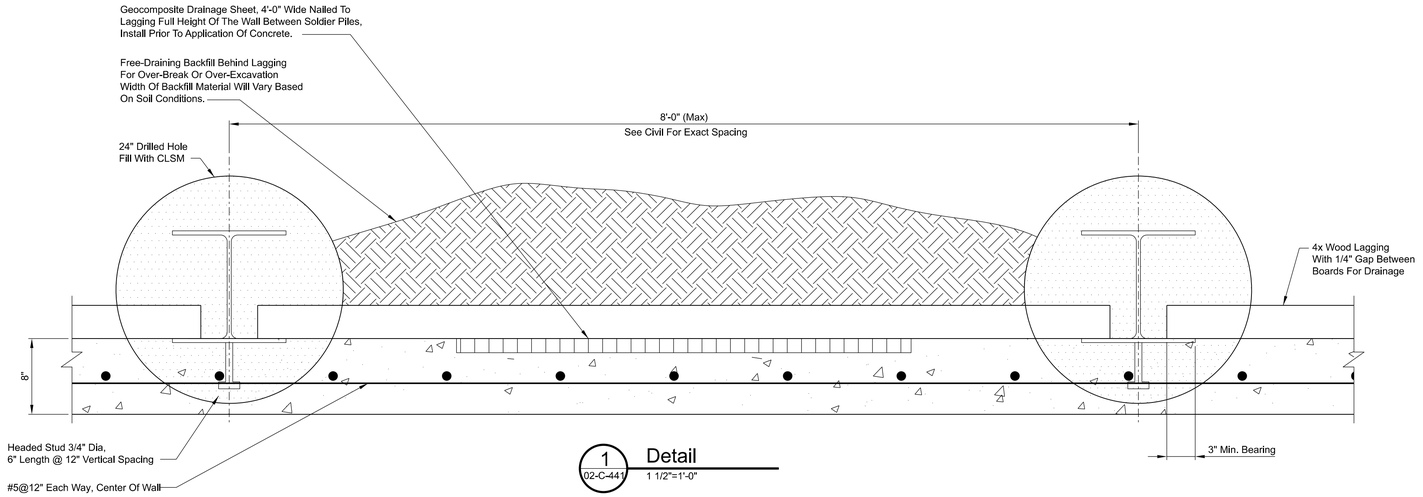
Grid 05

SAP Project No W02229

1/4 Section -

Sheet No 06-L-306

X of X



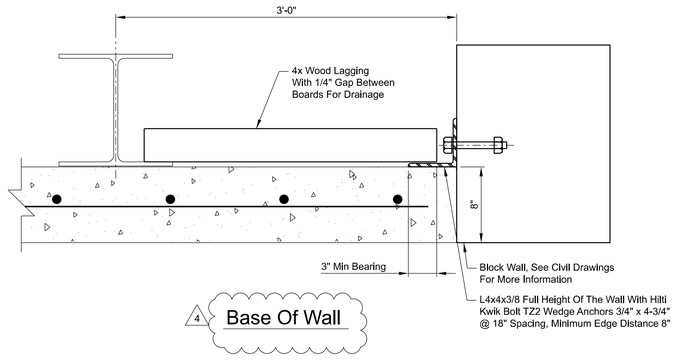
1 02-C-441 **Detail**
1 1/2"=1'-0"

Soldier Pile Wall Notes

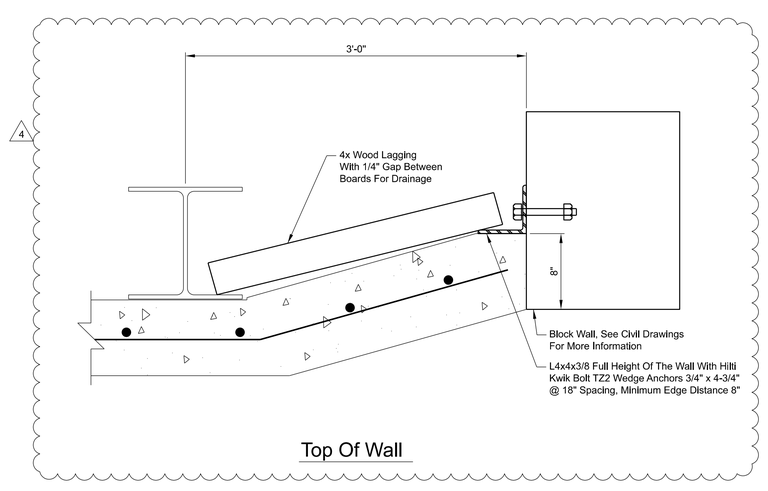
1. For plan and profile reference 02-C-441
2. Soldier piles shall be HP12x53
3. Soldier pile wall design criteria:

   Designed in accordance with the 2023 edition of ODOT Geotechnical design manual.

   Soil weight: 115 pcf
   Phi: 28 Degrees
   Ka: 0.36
   Kp: 2.76
   Kae: 0.46
   Top of soldiers: EL 677.67
   Bottom of soldiers: EL 657.67
   Retained Soil Height (MAX): 6 Feet, Slope As Shown on Civil Drawings
   Design Surcharge = 250 psf
4. Reinforced Concrete And Headed Studs Shall Be Installed After Completion Of The Potable Water Milestone, All Work Shall Be Done Except Minor Punch List Items As An Input To Substantial Completion.

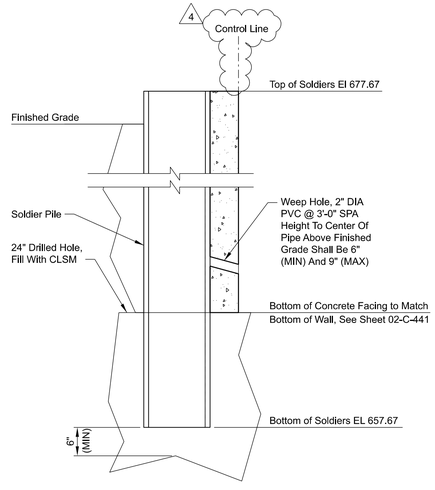


4 **Base Of Wall**



Top Of Wall

2 02-C-441 **Detail**
1 1/2"=1'-0"



3 02-C-441 **Detail**
3/4"=1'-0"

STRUCTURAL
REGISTERED PROFESSIONAL ENGINEER
82642PE
OREGON
07-08-2014
MATTHEW ERICH PERMINTER

EXPIRES: 12/31/24

No	Date	Description	Appd
4	4/26/24	Multnomah County Construction Permit Revisions	MRG
3	4/12/24	Multnomah County Construction Permit Revisions	MRG
2	3/15/24	Multnomah County Construction Permit Revisions	MRG
1	10/19/23	Multnomah County Construction Permit	MRG

Revision

Survey

Stantec

Designed By	MP	Design Mgr	LSH
Drawn By	SGS	Const Mgr	TG
Checked By	JMT	CM/I Engr Mgr	JB
Project Mgr	MRG	Date 05/10/24	

Warning
0 ½ 1
If this bar does not measure 1" then the drawing is not to scale

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

David W. Peters, Engineering Manager, PE No 16683 — Date

CITY OF PORTLAND, OREGON 1851

Bull Run Filtration Facility

Structural

Retaining Wall Details - 1

SAP Project No W02229
1/4 Section 3765 / 3766
Sheet No 02-S-901
X of X

4/29/2024
02-S-901.dgn
User: skate

MWH Kiewit
A JOINT VENTURE

Submittal 0011
Revision No. 01

MWH-Kiewit JV, a Joint Venture
Job Site Address
Gresham, OR 97080

To: PWB Masterworks Document Control	From MWH-Kiewit JV, a Joint Venture.
City of Portland, Portland Water Bureau	Date: 4/30/2024
1120 SW 5th Ave	Project: Bull Run Filtration Facility
Portland, OR 97204	Project No.: W02229

Submitted by: Omid Moghadam

Subject: Traffic Control Plan – Project Access and Temporary Road Improvements	Submittal Type: Plan/Procedure
Phase: GMP 1	Area: Off Site
Discipline: Other	Package #: OPP-03

Specification Reference	Contents
01 55 26 - Temporary Traffic Controls	Traffic control plans are resubmitted for approval, as per spec 01 55 26. The revised plans incorporate comments on previous revision, combine the project access traffic control (SUB-015526-0035) plan, and are updated to include the overall staging of traffic control along Dodge Park, Cottrell, and Carpenter Lane through all phases on construction related to the Bull Run Filtration Facility. TCP's also address comments from Multnomah County hearing officer Land Use Decision.

MULTNOMAH COUNTY
TRANSPORTATION DIVISION
☐ ACCEPTED
☐ ACCEPTED WITH COMMENTS
☐ APPROVED
☑ APPROVED AS NOTED
☐ RETURNED FOR CORRECTION

DOCUMENTS BEARING THIS STAMP ARE SUBJECT TO THE PROVISIONS SET FORTH IN SECTION 00150 OF THE OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION THAT ARE ACTIVE FOR THIS PROJECT. REVIEW IS ONLY FOR GENERAL CONFORMANCE AND COMPLIANCE OF THE PROJECT AND DOES NOT EXTEND TO MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES OF CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH CONTRACT DOCUMENTS. DIMENSIONS AND FABRICATION TO BE CONFIRMED AND COMPLETED AT THE JOB SITE FOR PROCESSES AND COORDINATION OF THE WORK OF ALL TRADES AND SATISFACTORY WORK PERFORMANCE.

BY buenr DATE 5/23/2024

functional ID information.

THE COUNTY MAY REQUIRE CONTRACTOR TO MODIFY TCP BASED ON THE CURRENT TRAFFIC CONDITION AT THE TIME OF ROAD WORK. TCP SHALL COMPLY WITH THE MOST CURRENT MUTCD AND/OR ODOT STANDARD.

☐ Expedite

MWH-Kiewit requests that this Submittal be returned back earlier than the contractual review period for the following reason(s).

Respond by: Click or tap to enter a date.

Reviewed by: Omid Moghadam

MWH-Kiewit has reviewed, checked and approves this submittal for contract compliance.

Date of Approval: 4/30/2024

MWH Kiewit
A JOINT VENTURE

Table of Contents

MWH Kiewit
A JOINT VENTURE

LAND USE HEARING COMMENTS - ADDRESSED

Final Disposition from Submittal Response:		
☐ No Exceptions Taken	Project	Bull Run Filtration Facility
☐ Make Corrections Noted	Project No.	W02229
☐ Submit Specified Items	Submittal Title	Bull Run -Traffic Control Plan
☐ Revise and Resubmit	Submittal No.	SUB-0011-01
	Primary Reviewer.	Thomas Gilman

NO.	SUBMITTAL COMMENT			RELATED SPEC	REVIEWER NAME	MWH-KIEWIT'S RESPONSE
	Multnomah County Hearings officer comment					
1	1) Update traffic control plan(s) for the revisions to the Carpenter/Cottrell/Dodge Park road improvements(see Transmittal TRAN-0031 for most recent plans)					Work areas remain the same despite changes in design. TCP's have been adjusted to better cover the work areas, minimize length of work zones affecting intersections, etc
2	2) Include in the TCP provisions to meet the Conditions of Approval below from our Multnomah CountyLand Use Decision (Pages 81-88 of the Decision).					Seperately submitted prior to return of this package, "project access" TCP address the general conditions from Multnomah County land use. Both submittals have been returned and are now combined, showing staged TCP's that will be in place for each phase. Note the "local area signage" TCP's are in place for long duration and cover most of the additions required. Single lane closure TCP's are localized work areas, and only show traffic devices for the flagger controled work area, in place only during working hours
3	2)a) Include notes for emergency coordination that at minimum includes the following:					-
4	2)a)i) Satisfies the minimum requirements of the Manual on Uniform Traffic Control Devices for Streets andHighways;					Plans previously submitted meet this criteria, as do revised TCP's
5	2)a)ii) Provides construction update reports to emergency responders that include, at a minimum, thefollowing information: -(1)Dates and times of closure/partial closure, -(2)Name of contractor and emergencycontacts (required on-site contact), -(3)Purpose of closure, Location of closure and number of lanes, -(4)Workhours and times of road closures, and -(5)Traffic control layout plans (include Legend, North arrow, Streetnames within a certain distance of the site, Physical features such as medians, shoulders, etc., -(6)Identifiedmethod for passage of emergency response vehicles [including temporary conditions/detour plan], -(7)Location of significant construction items such as dumpsters and heavy equipment)					Construction reports / responder updates, MWH-Kiewit will submit TCPs with the required info to PWB. And provide updates to the anticipated dates at the required frequency. 1 thru 4: Title block added with this information to each TCP 5: Layout plans cleaned up for clarity, information was already included 6: Note added to title block, will always be either 2 lane road remains open, or flaggers will stop traffic for emergency vehicles to pass in the open lane 7: No signifigant items anticipated, residential / commercial driveways are main concern
6	2)a)iii) The construction update reports must be provided at least weekly unless an alternative frequency isrequested by an emergency responder					Construction reports / responder updates, MWH-Kiewit will submit TCPs with the required info to PWB. And provide updates to the anticipated dates at the required frequency.
7	2)b) Provide an ADA compliant paved pedestrian route. See response to RFI-0019					TPAR will be shown schematically to TCP's. Phasing of TCPs revolves around this pathway now, generally "before", "construction of", "in service during road construction", "in service during facility work" and "removed" As this pathway is not shown on the contract documents, and typical options conflict with the design of Carpenter Lane, this task requires detailed engineering to provide design plans compliant with ADA, MUTCD, and other regulations
8	2)c) Show any detours and road closures. Note, any deviation to the approved TCP during construction shallrequire a resubmittal of the TCP to Multnomah County for approval i) Except for those roads where specific work will be required by the Project Agreement described in LandUse Condition 6, rural roads with a Pavement Condition Index (PCI) rating below 50 must not be used asdetour routes in the Traffic Control Plan except where PWB has submitted construction plans to mitigateimpacts and improve the PCI ii) Do not include Carpenter Lane west of Cottrell as a detour option in traffic control plans duringconstruction					Not Applicable, TCP's do not show any detours or road closures, nor are any required for the work anticipated. Road closures & detour by other parties (ie other roadwork contractors or Pipeline work) would be the responsibility of those parties to provide traffic control for their work and assess pavement conditions of detours Carpenter Lane, west of Cottrell, is shown as local only on MWH-Kiewit traffic control plans.
9	2)d) Provide for access through construction zones as follows:					-

10	2)d)i) Where no detour is available, such as to access Lusted Flats via Dodge Park Boulevard or to access theonly access to a farm field, the applicant shall (1) ensure that work zones allowing a single lane of trafficto pass are wide enough to accommodate farm traffic up to 16 feet wide; and (2) flag farm traffic, serviceproviders, and local residents (within the closure) through otherwise closed work zones					All work zones requiring single lane closures maintain a lane open for general traffic, mostly expected to be MWH-Kiewit's own commercial vehicles, and are sized accordingly. Note that 16' width will not be maintained on Carpenter Lane during single lane closures, as the existing paved surface is currenly only 18' wide. Farm vehicles will likely use the shoulder area, except that the ADA pathway and power poles prevents this on one side
11	2)d)ii) TCP shall (1) ensure that work zones allowing a single lane of traffic to pass are wide enough toaccommodate emergency vehicles; and (2) flag emergency vehicles through otherwise closed work zones.Access for emergency vehicles shall be provided at all times.					All work zones requiring single lane closures maintain a lane open for general traffic, mostly expected to be MWH-Kiewit's own commercial vehicles, and are sized accordingly.
12	2)d)iii) Contractor shall take measures to ensure they can accommodate this traffic through a work zoneregardless of the stage of construction. For example, if pipeline construction obstructs a road that cannotbe detoured around, the contractor shall have on hand the materials needed to plate the excavation orotherwise allow this traffic to proceed through the work zone.					All work zones requiring single lane closures maintain a lane open for general traffic, mostly expected to be MWH-Kiewit's own commercial vehicles, and are sized accordingly.
13	2)d)iv) Include in the Traffic Control Plan an accommodation to ensure that driveway access to R&HNursery's loading dock on Carpenter Lane is not unreasonably delayed, in the form of stop control,flagger, or other measures that would create a gap in traffic to allow R&H nursery traffic to exit the sitepromptly when needed.					Driveway is noted as to remain accessible. Standard proceedure for alternating traffic controlled by flaggers (during times of single lane closures) will equalize time allow for each direction of travel.
14	2)e) Include driver feedback radar speed signs in each direction on Carpenter Lane					Seperately submitted prior to return of this package, "project access" tcp addressed this general condition from Multnomah County land use. Both submittals have been returned and are now combined, showing staged TCP's that will be in place for each phase. Radar signs will be in place through all stages, until facility construction is complete
15	2)f) Include on-site signs that notify truck drivers and commuters that they are required to yield to farmtraffic, horses, school buses, bicyclists, and pedestrians					Seperately submitted prior to return of this package, "project access" tcp addressed this general condition from Multnomah County land use. Both submittals have been returned and are now combined, showing staged TCP's that will be in place for each phase.
16	2)g) Include “local access only” signage restricting access to Carpenter Lane west of Cottrell Road, as wellas including the prohibition on use in the safe driver training.					Seperately submitted prior to return of this package, "project access" tcp addressed this general condition from Multnomah County land use. Both submittals have been returned and are now combined, showing staged TCP's that will be in place for each phase. Note that safe driver training requirements is a comment applicable for safety orientation, or safety management plans, and is not added to TCP's
17	3) PWB suggests including ‘no parking’ signs in and around our work zones before construction begins tohelp ensure parked vehicles don't preclude work. Please consider 'no parking' signage on both sides ofCarpenter (east of Cottrell), Cottrell northbound to Dodge Park, and around the intersection of DodgePark.					Temporary "No Parking" signage added to TCP's along Cottrell and Carpenter Lane. MWH-Kiewit is not the road authority and is unsure how binding these signs would be.
18	4) PWB suggests including a staged TCP that includes both work during the off-site improvements andremaining access to the site during construction of the facility					Staging added as follows: Phase 0: Project Access / Truck Route {in effect through all phases} Phase 1: Prior to Carpenter Lane TPAR and temporary improvements {ie day zero condition} Phase 2: Construction of Carpenter Lane TPAR and temporary improvements Phase 2: Single Lane Closure Plans during road work: multiple TCPs Phase 3: Carpenter Lane TPAR in service, prior to permanent widening Phase 4: Carpenter Lane TPAR in service, during permanent road improvements {ie after power poles removed} Phase 4: Single Lane Closure Plans during road work: multiple TCPs Phase 5: Carpenter Lane TPAR in service, permanent road improvement complete {but modified for accomadation of the TPAR}
19						
20						
21						

Phase 0 and 1

Prior to any construction activities
Include early construction signage, truck route, No Parking zone and preliminary ~~Multnoma~~ county requirement
Multnomah

Prepared By

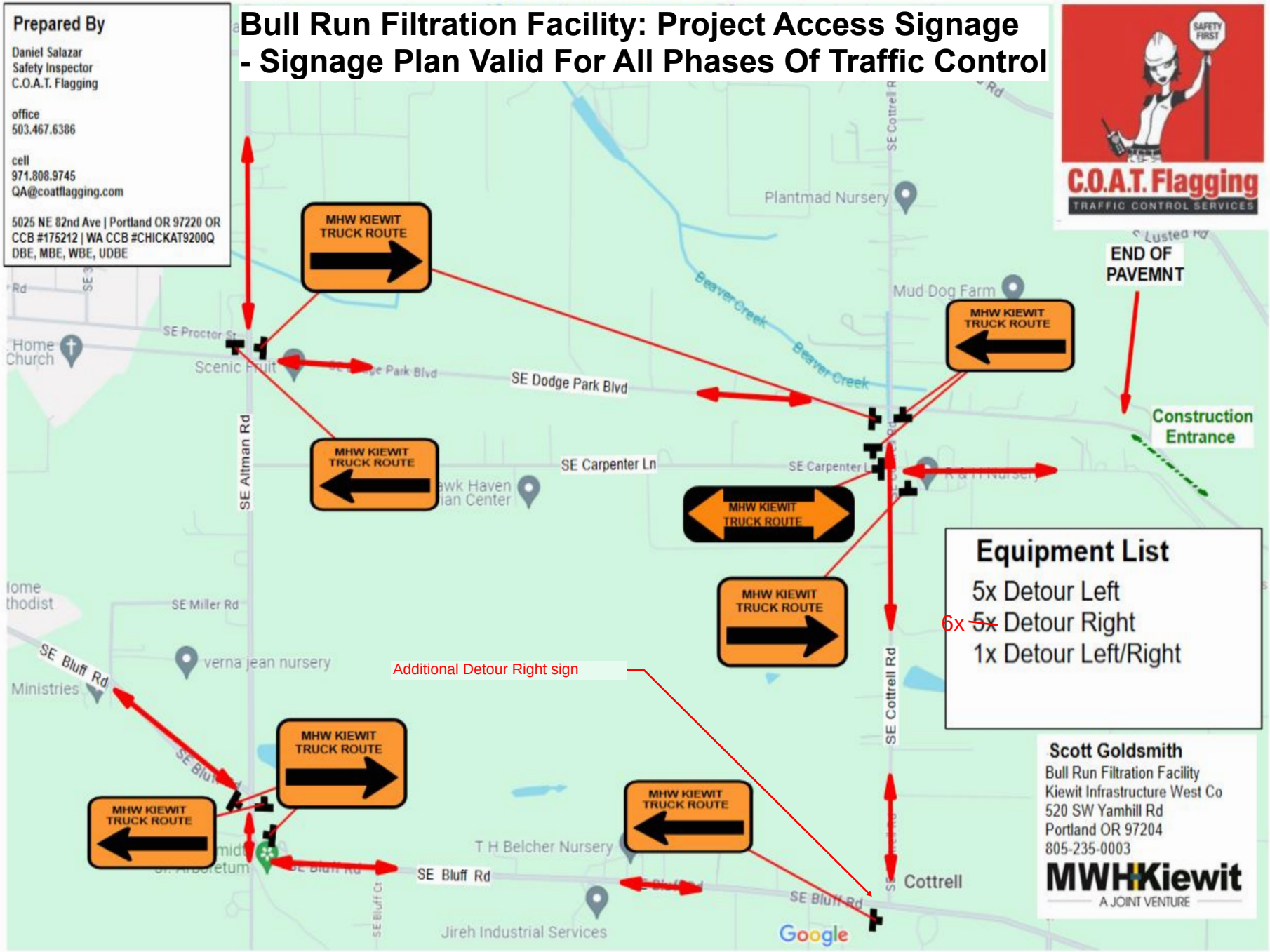
Daniel Salazar
Safety Inspector
C.O.A.T. Flagging

office
503.467.6386

cell
971.808.9745
QA@coatflagging.com

5025 NE 82nd Ave | Portland OR 97220 OR
CCB #175212 | WA CCB #CHICKAT9200Q
DBE, MBE, WBE, UDBE

Bull Run Filtration Facility: Project Access Signage - Signage Plan Valid For All Phases Of Traffic Control



Equipment List

5x Detour Left
6x ~~5x~~ Detour Right
1x Detour Left/Right

Additional Detour Right sign

Scott Goldsmith
Bull Run Filtration Facility
Kiewit Infrastructure West Co
520 SW Yamhill Rd
Portland OR 97204
805-235-0003

C.O.A.T. Flagging
TRAFFIC CONTROL SERVICES

MWH Kiewit
A JOINT VENTURE

Bull Run Filtration Facility: Phase 1
Prior to Carpenter Lane TPAR & Temporary Improvements
>Local Area Signage Plan

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Prepared By

Daniel Salazar
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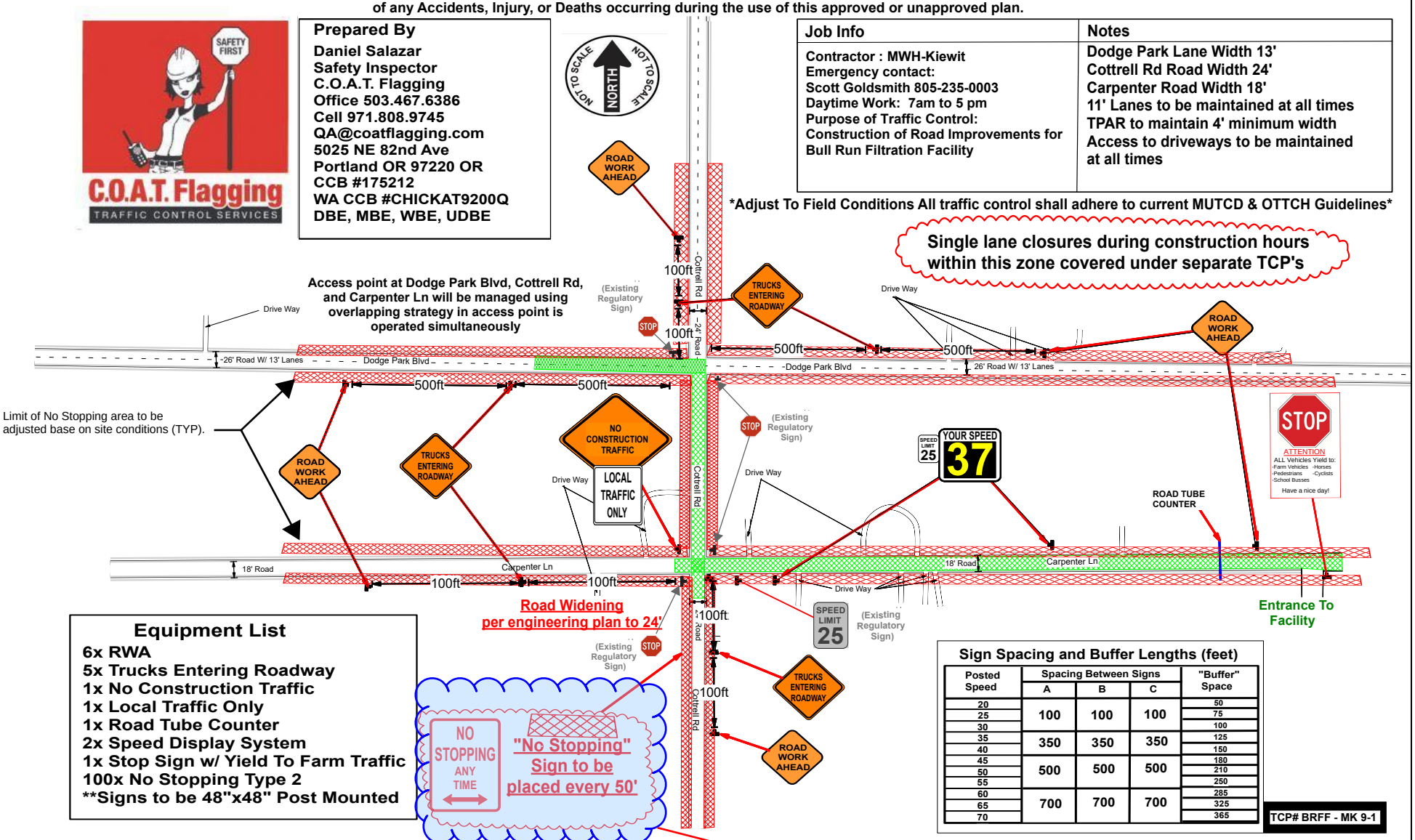
CCB #175212
WA CCB #CHICKAT9200Q
DBE, MBE, WBE, UDBE

Job Info	Notes
Contractor : MWH-Kiewit Emergency contact: Scott Goldsmith 805-235-0003 Daytime Work: 7am to 5 pm Purpose of Traffic Control: Construction of Road Improvements for Bull Run Filtration Facility	Dodge Park Lane Width 13' Cottrell Rd Road Width 24' Carpenter Road Width 18' 11' Lanes to be maintained at all times TPAR to maintain 4' minimum width Access to driveways to be maintained at all times

Adjust To Field Conditions All traffic control shall adhere to current MUTCD & OTTCH Guidelines



Equipment List

- 6x RWA
- 5x Trucks Entering Roadway
- 1x No Construction Traffic
- 1x Local Traffic Only
- 1x Road Tube Counter
- 2x Speed Display System
- 1x Stop Sign w/ Yield To Farm Traffic
- 100x No Stopping Type 2
- **Signs to be 48"x48" Post Mounted

Sign Spacing and Buffer Lengths (feet)

Posted Speed	Spacing Between Signs A	B	C	"Buffer" Space
20	100	100	100	50
25				75
30				100
35	350	350	350	125
40				150
45	500	500	500	180
50				210
55				250
60	700	700	700	285
65				325
70				365

TCP# BRFF - MK 9-1

Emergency Access

1) Dodge Park, Cottrell Rd, Carpenter Lane maintain as 2 lane 2-way roads during non-working hours
2) During single lane closure in working hours, on-site traffic control flaggers will direct emergency responders through the work area in the single open lane

Would add "and farm traffic" to this note that is listed on all TCPs (per comment #10)

A legend showing describing red and green hatched patterned areas would be helpful

Phase 2

Construction of Temporary Pedestrian Accessible Route (TPAR) on Carpenter Lane, Utility investigation and Temporary road improvements

To maintain 11' lane (or 16' width described in comment #10), temp. widening will be needed on both Cottrell and especially Carpenter.

Bull Run Filtration Facility:
Phase 2: Construction of Carpenter Lane TPAR & Temporary Road Improvements
>Local Area Signage Plan

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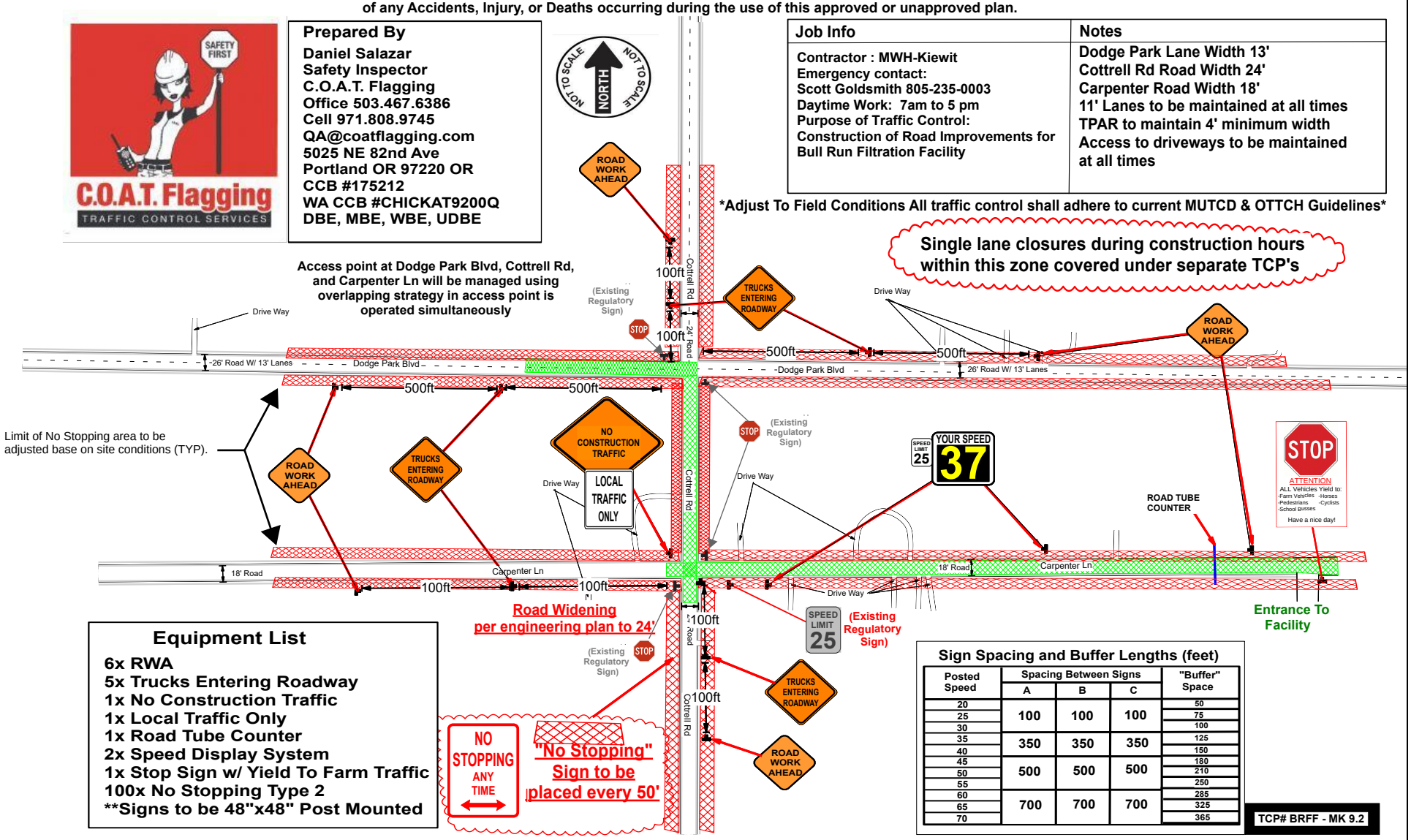
Adjust To Field Conditions All traffic control shall adhere to current MUTCD & OTTCH Guidelines

Single lane closures during construction hours within this zone covered under separate TCP's

Access point at Dodge Park Blvd, Cottrell Rd, and Carpenter Ln will be managed using overlapping strategy in access point is operated simultaneously



Equipment List

- 6x RWA
- 5x Trucks Entering Roadway
- 1x No Construction Traffic
- 1x Local Traffic Only
- 1x Road Tube Counter
- 2x Speed Display System
- 1x Stop Sign w/ Yield To Farm Traffic
- 100x No Stopping Type 2
- **Signs to be 48"x48" Post Mounted

Sign Spacing and Buffer Lengths (feet)

Posted Speed	Spacing Between Signs A	B	C	"Buffer" Space
20	100	100	100	50
25				75
30				100
35	350	350	350	125
40				150
45	500	500	500	180
50				210
55				250
60	700	700	700	285
65				325
70				365

TCP# BRFF - MK 9.2

Emergency Access
1) Dodge Park, Cottrell Rd, Carpenter Lane maintain as 2 lane 2-way roads during non-working hours.
2) During single lane closure in working hours, on-site traffic control flaggers will direct emergency responders through the work area in the single open lane

Bull Run Filtration Facility: Single Lane Closures
Phase 2: Construction of Carpenter Lane TPAR & Temporary Road Improvements
>Single Lane Closures
>>Work at SW corner of Dodge Park Blvd & Cottrell Rd

Job Info	Notes
Contractor : MWH-Kiewit Emergency contact: Scott Goldsmith 805-235-0003 Daytime Work: 7am to 5 pm Purpose of Traffic Control: Construction of Road Improvements for Bull Run Filtration Facility	Dodge Park Lane Width 13' Cottrell Rd Road Width 24' Carpenter Road Width 18' 11' Lanes to be maintained at all times TPAR to maintain 4' minimum width Access to driveways to be maintained at all times

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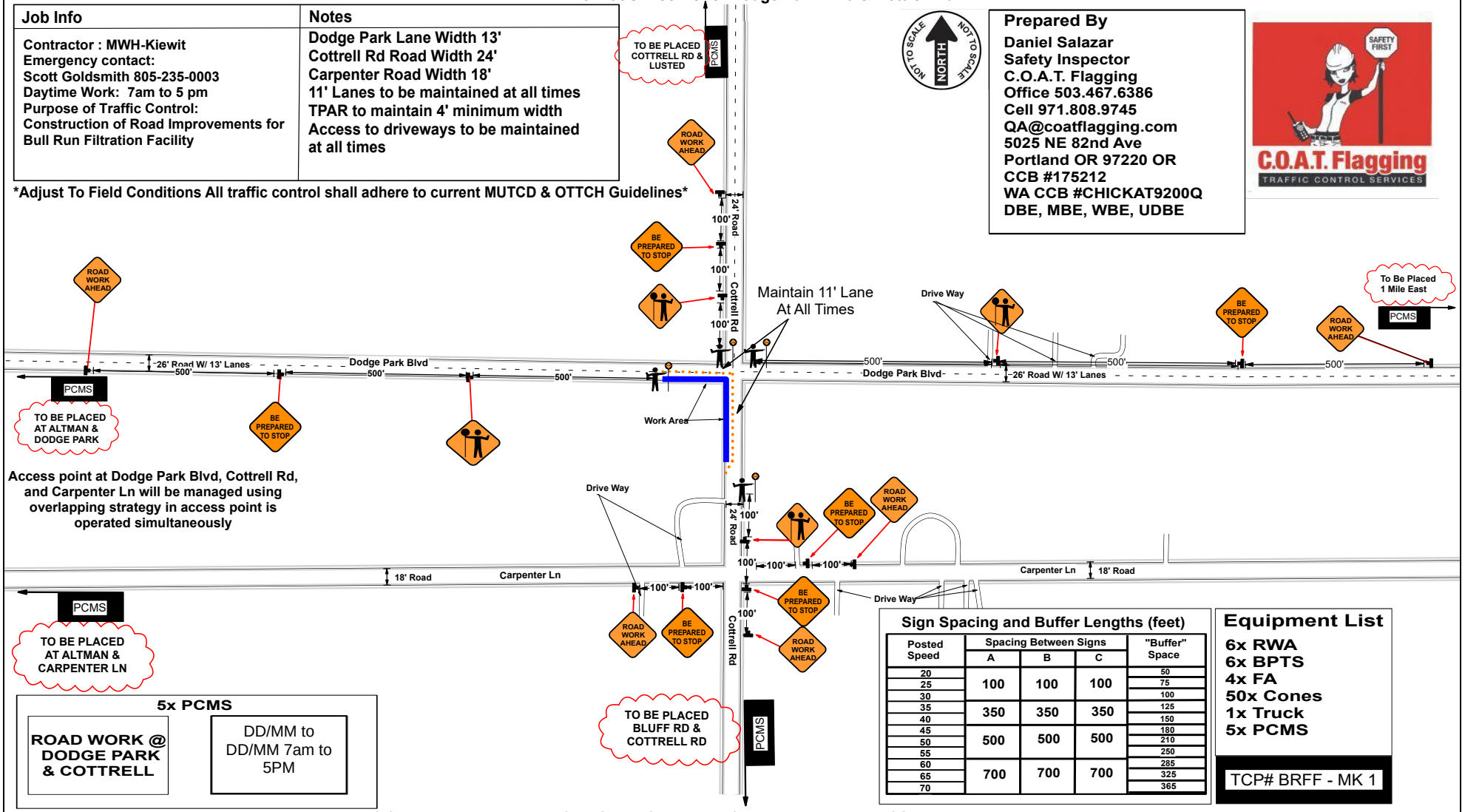
TRAFFIC CONTROL SERVICES



5x PCMS

ROAD WORK @ DODGE PARK & COTTRELL	DD/MM to DD/MM 7am to 5PM

Sign Spacing and Buffer Lengths (feet)

Posted Speed	Spacing Between Signs A	B	C	"Buffer" Space
20	100	100	100	50
25				75
30				100
35	350	350	350	125
40				150
45	500	500	500	180
50				210
55				250
60	700	700	700	285
65				325
70				365

Equipment List
6x RWA
6x BPTS
4x FA
50x Cones
1x Truck
5x PCMS

TCP# BRFF - MK 1

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2) During single lane closure in working hours, on-site traffic control flaggers will direct emergency responders through the work area in the single open lane

Bull Run Filtration Facility: Single Lane Closures
Phase 2: Construction of Carpenter Lane TPAR & Temporary Road Improvements
>Single Lane Closures
>>Work at SE corner of Dodge Park Blvd & Cottrell Rd

Job Info	Notes
Contractor : MWH-Kiewit Emergency contact: Scott Goldsmith 805-235-0003 Daytime Work: 7am to 5 pm Purpose of Traffic Control: Construction of Road Improvements for Bull Run Filtration Facility	Dodge Park Lane Width 13' Cottrell Rd Road Width 24' Carpenter Road Width 18' 11' Lanes to be maintained at all times TPAR to maintain 4' minimum width Access to driveways to be maintained at all times

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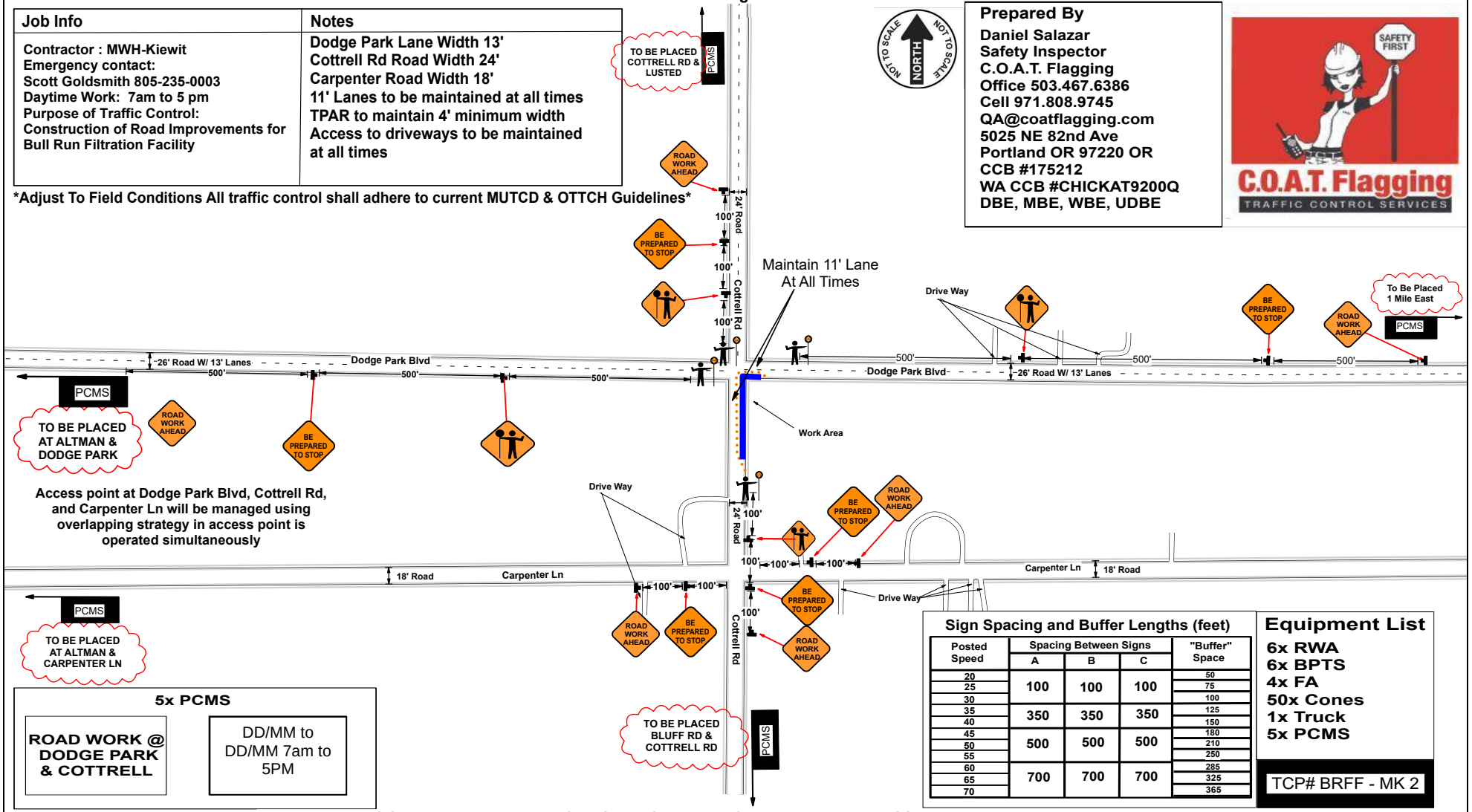

5x PCMS

ROAD WORK @ DODGE PARK & COTTRELL	DD/MM to DD/MM 7am to 5PM

Sign Spacing and Buffer Lengths (feet)

Posted Speed	Spacing Between Signs A	B	C	"Buffer" Space
20	100	100	100	50
25				75
30				100
35	350	350	350	125
40				150
45	500	500	500	180
50				210
55				250
60	700	700	700	285
65				325
70				365

Equipment List
6x RWA
6x BPTS
4x FA
50x Cones
1x Truck
5x PCMS

TCP# BRFF - MK 2

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Emergency Access
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2) During single lane closure in working hours, on-site traffic control flaggers will direct emergency responders through the work area in the single open lane

Bull Run Filtration Facility: Phase 2: Construction of Carpenter Lane TPAR & Temporary Road Improvements
>Single Lane Closures
>>Work on Cottrell NB Lane (between Dodge Park Blvd & Carpenter Lane)

Job Info	Notes
Contractor : MWH-Kiewit Emergency contact: Scott Goldsmith 805-235-0003 Daytime Work: 7am to 5 pm Purpose of Traffic Control: Construction of Road Improvements for Bull Run Filtration Facility	Dodge Park Lane Width 13' Cottrell Rd Road Width 24' Carpenter Road Width 18' 11' Lanes to be maintained at all times TPAR to maintain 4' minimum width Access to driveways to be maintained at all times

Adjust To Field Conditions All traffic control shall adhere to current MUTCD & OTTCH Guidelines

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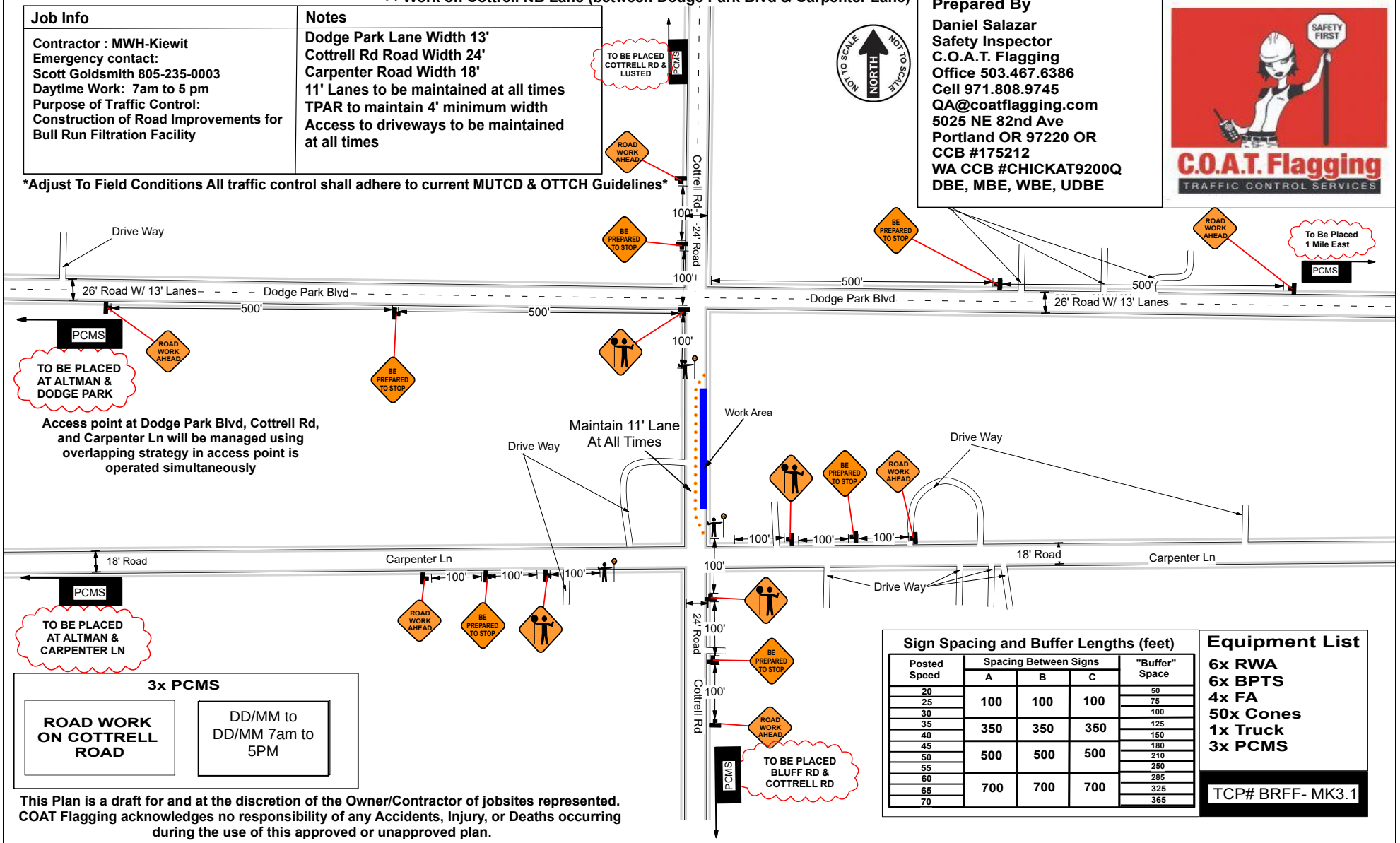

3x PCMS

ROAD WORK ON COTTRELL ROAD	DD/MM to DD/MM 7am to 5PM

Sign Spacing and Buffer Lengths (feet)

Posted Speed	Spacing Between Signs A	B	C	"Buffer" Space
20	100	100	100	50
25				75
30				100
35	350	350	350	125
40				150
45	500	500	500	180
50				210
55				250
60	700	700	700	285
65				325
70				365

Equipment List
6x RWA
6x BPTS
4x FA
50x Cones
1x Truck
3x PCMS

TCP# BRFF- MK3.1

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2) During single lane closure in working hours, on-site traffic control flaggers will direct emergency responders through the work area in the single open lane

Bull Run Filtration Facility: Phase 2: Construction of Carpenter Lane TPAR & Temporary Road Improvements
>Single Lane Closures
>>Work on Cottrell SB Lane (between Dodge Park Blvd & Carpenter Lane)

Job Info	Notes
Contractor : MWH-Kiewit Emergency contact: Scott Goldsmith 805-235-0003 Daytime Work: 7am to 5 pm Purpose of Traffic Control: Construction of Road Improvements for Bull Run Filtration Facility	Dodge Park Lane Width 13' Cottrell Rd Road Width 24' Carpenter Road Width 18' 11' Lanes to be maintained at all times TPAR to maintain 4' minimum width Access to driveways to be maintained at all times

Adjust To Field Conditions All traffic control shall adhere to current MUTCD & OTTCH Guidelines

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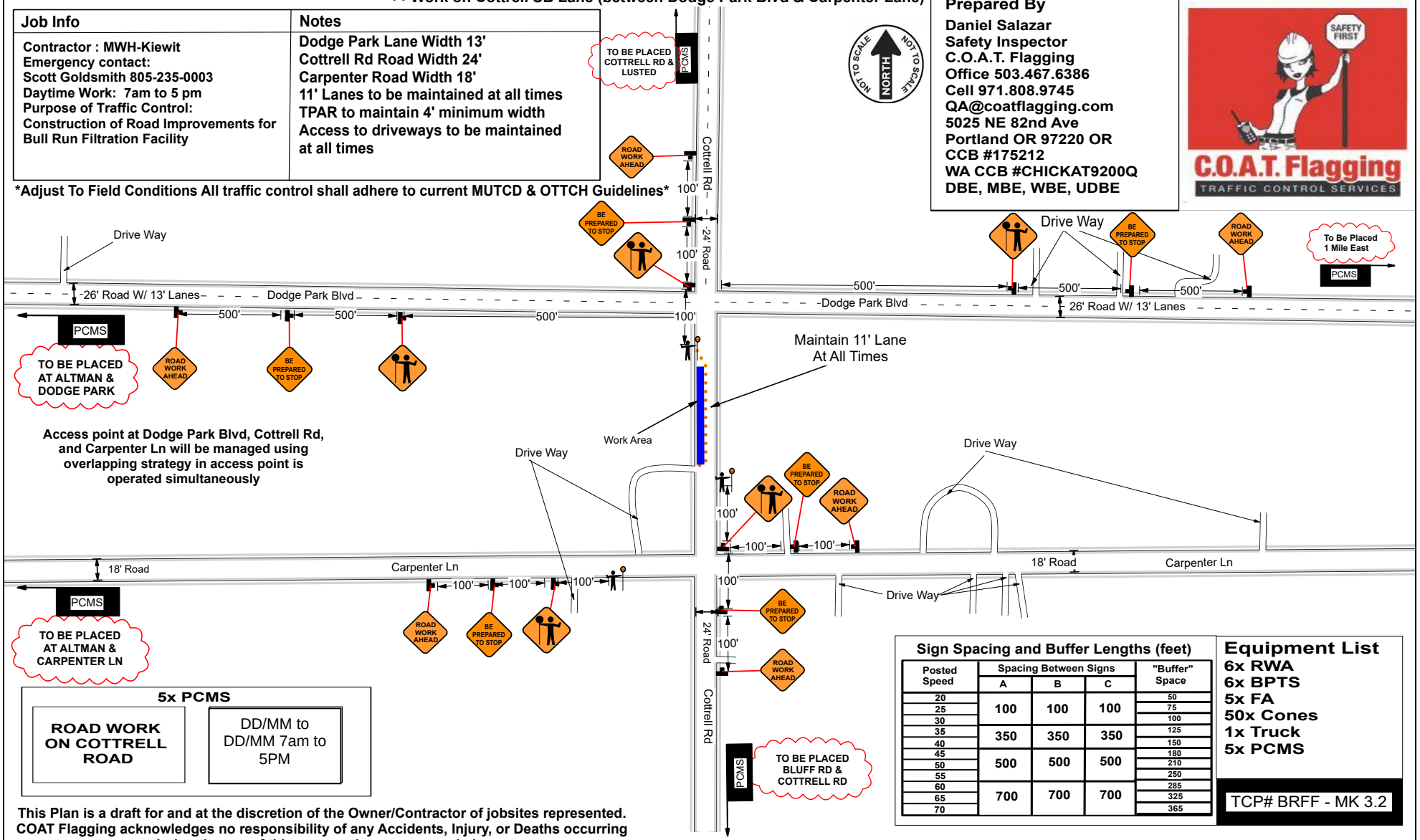

5x PCMS

ROAD WORK ON COTTRELL ROAD	DD/MM to DD/MM 7am to 5PM

Sign Spacing and Buffer Lengths (feet)

Posted Speed	Spacing Between Signs A	B	C	"Buffer" Space
20	100	100	100	50
25				75
30				100
35	350	350	350	125
40				150
45	500	500	500	180
50				210
55				250
60	700	700	700	285
65				325
70				365

Equipment List
6x RWA
6x BPTS
5x FA
50x Cones
1x Truck
5x PCMS

TCP# BRFF - MK 3.2

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2) During single lane closure in working hours, on-site traffic control flaggers will direct emergency responders through the work area in the single open lane

Bull Run Filtration Facility: Phase 2:
Construction of Carpenter Lane TPAR & Temporary Road Improvements
>>Work at NW corner of Cottrell Rd & Carpenter Ln

Job Info	Notes
Contractor : MWH-Kiewit Emergency contact: Scott Goldsmith 805-235-0003 Daytime Work: 7am to 5 pm Purpose of Traffic Control: Construction of Road Improvements for Bull Run Filtration Facility	Dodge Park Lane Width 13' Cottrell Rd Road Width 24' Carpenter Road Width 18' 11' Lanes to be maintained at all times TPAR to maintain 4' minimum width Access to driveways to be maintained at all times

Adjust To Field Conditions All traffic control shall adhere to current MUTCD & OTTCH Guidelines

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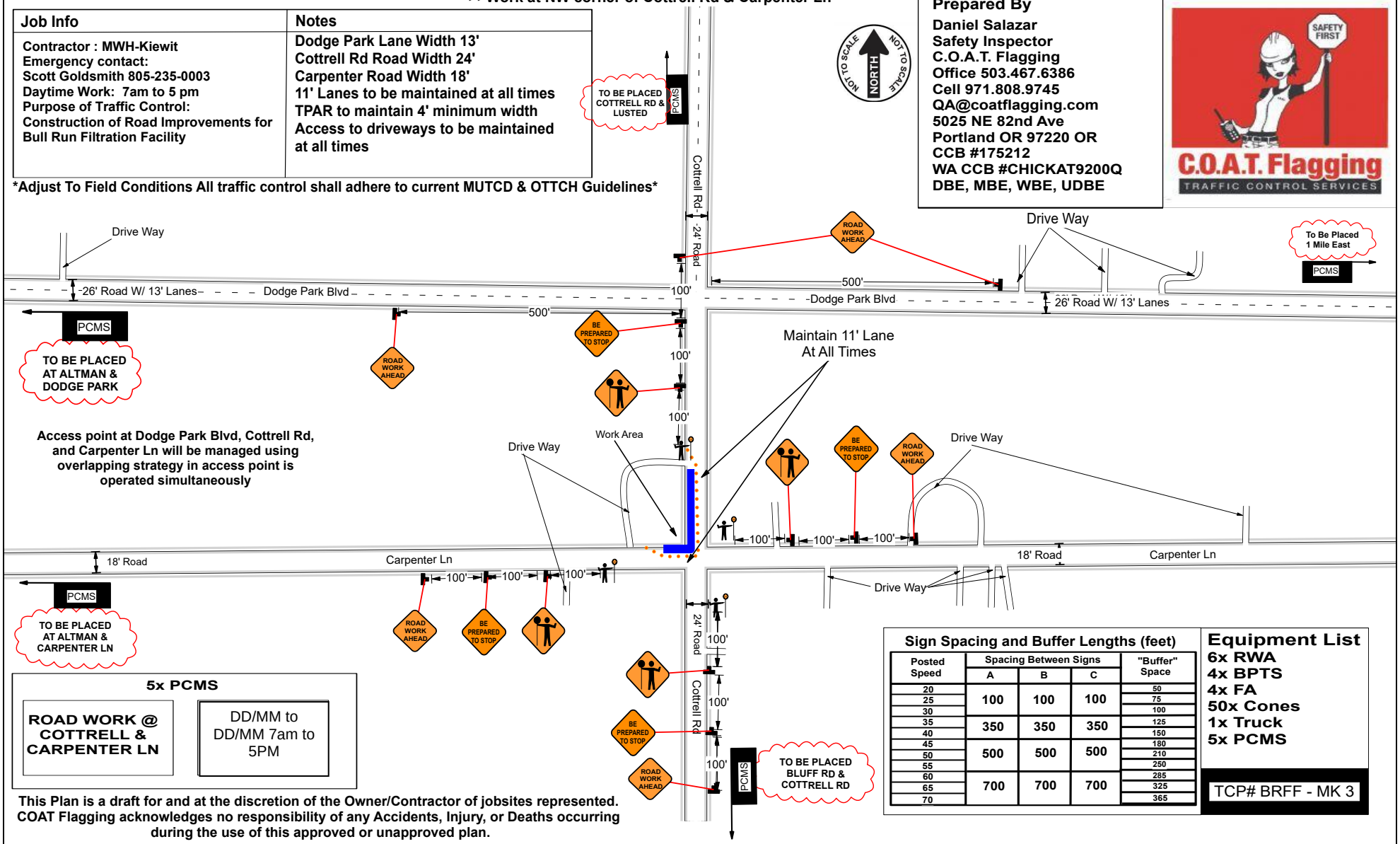

5x PCMS

ROAD WORK @ COTTRELL & CARPENTER LN	DD/MM to DD/MM 7am to 5PM

Sign Spacing and Buffer Lengths (feet)

Posted Speed	Spacing Between Signs A	B	C	"Buffer" Space
20	100	100	100	50
25				75
30				100
35	350	350	350	125
40				150
45	500	500	500	180
50				210
55				250
60	700	700	700	285
65				325
70				365

Equipment List
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4x BPTS
4x FA
50x Cones
1x Truck
5x PCMS

TCP# BRFF - MK 3

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Bull Run Filtration Facility: Single Lane Closures
Phase 2: Construction of Carpenter Lane TPAR & Temporary Road Improvements
>>Work at NE corner of Cottrell Rd & Carpenter Ln

Job Info	Notes
Contractor : MWH-Kiewit Emergency contact: Scott Goldsmith 805-235-0003 Daytime Work: 7am to 5 pm Purpose of Traffic Control: Construction of Road Improvements for Bull Run Filtration Facility	Dodge Park Lane Width 13' Cottrell Rd Road Width 24' Carpenter Road Width 18' 11' Lanes to be maintained at all times TPAR to maintain 4' minimum width Access to driveways to be maintained at all times

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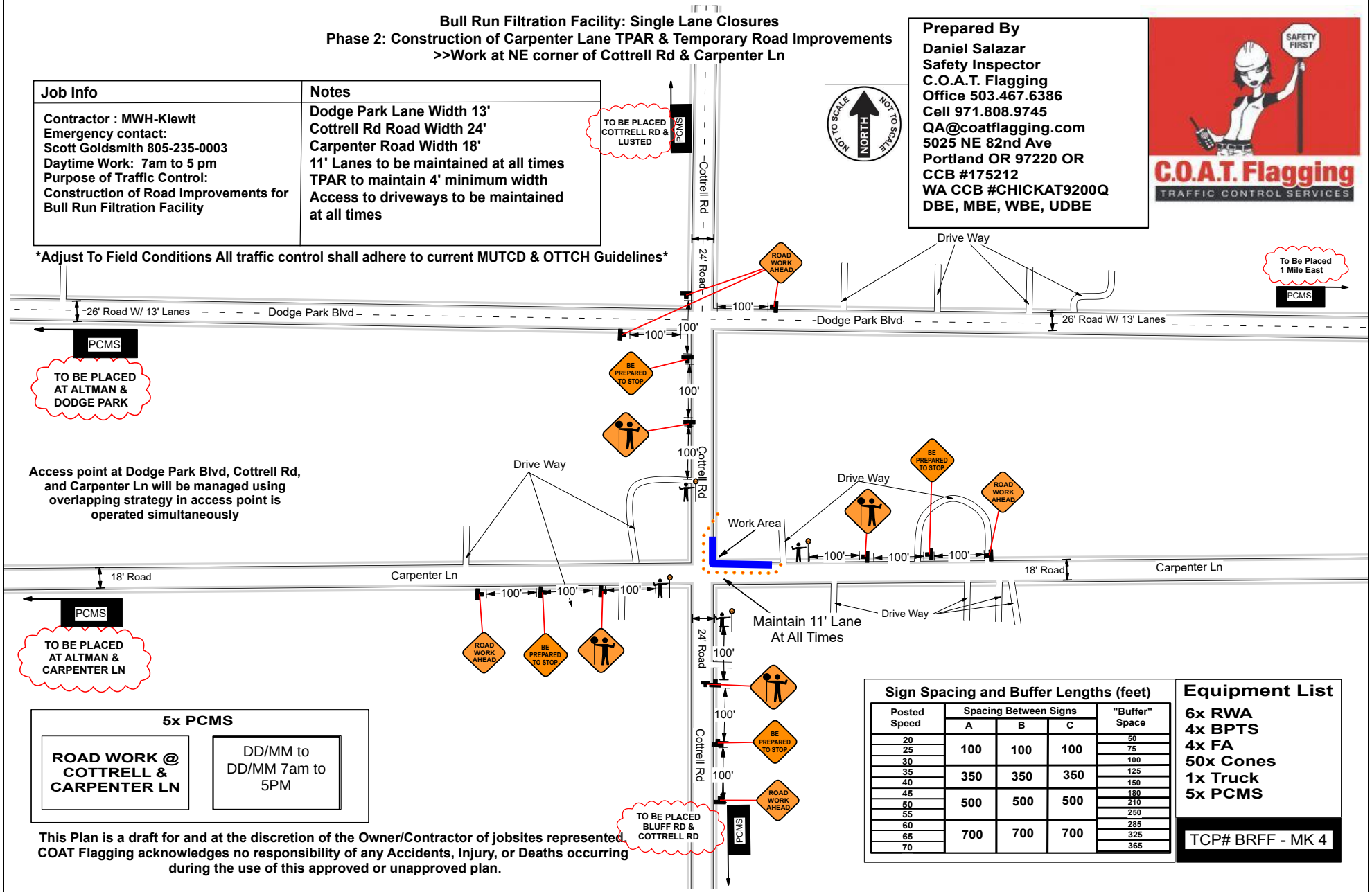

5x PCMS

ROAD WORK @ COTTRELL & CARPENTER LN	DD/MM to DD/MM 7am to 5PM

Sign Spacing and Buffer Lengths (feet)

Posted Speed	Spacing Between Signs A	B	C	"Buffer" Space
20	100	100	100	50
25				75
30				100
35	350	350	350	125
40				150
45	500	500	500	180
50				210
55				250
60	700	700	700	285
65				325
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Equipment List
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4x BPTS
4x FA
50x Cones
1x Truck
5x PCMS

TCP# BRFF - MK 4

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Bull Run Filtration Facility: Single Lane Closures Phase 2:
Construction of Carpenter Lane TPAR & Temporary Road Improvements
>Single Lane Closures
>>Work at SW corner of Cottrell Rd & Carpenter Ln

Job Info	Notes
Contractor : MWH-Kiewit Emergency contact: Scott Goldsmith 805-235-0003 Daytime Work: 7am to 5 pm Purpose of Traffic Control: Construction of Road Improvements for Bull Run Filtration Facility	Dodge Park Lane Width 13' Cottrell Rd Road Width 24' Carpenter Road Width 18' 11' Lanes to be maintained at all times TPAR to maintain 4' minimum width Access to driveways to be maintained at all times

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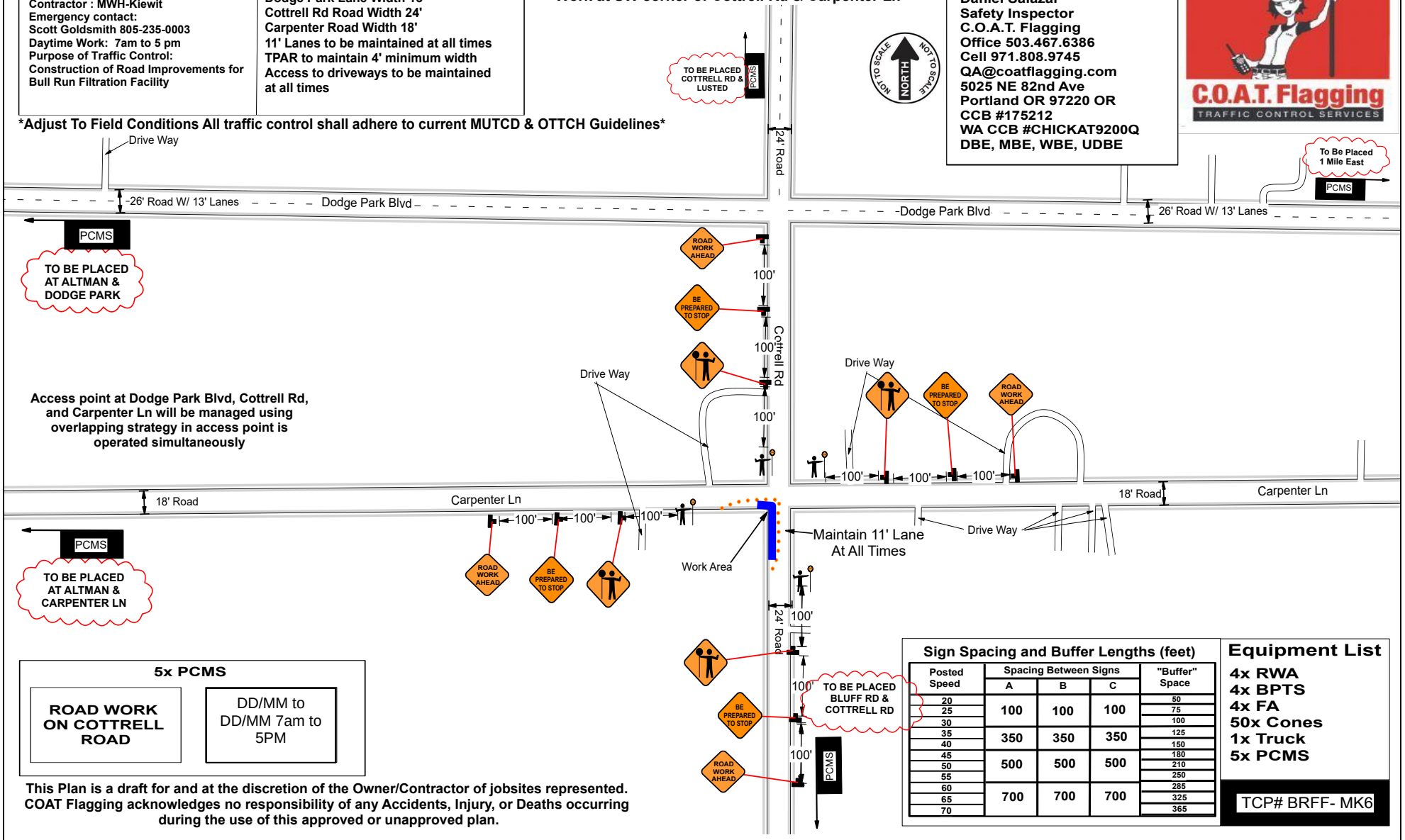

5x PCMS

ROAD WORK ON COTTRELL ROAD	DD/MM to DD/MM 7am to 5PM

Sign Spacing and Buffer Lengths (feet)

Posted Speed	Spacing Between Signs A	B	C	"Buffer" Space
20	100	100	100	50
25				75
30				100
35	350	350	350	125
40				150
45	500	500	500	180
50				210
55				250
60	700	700	700	285
65				325
70				365

Equipment List
4x RWA
4x BPTS
4x FA
50x Cones
1x Truck
5x PCMS

TCP# BRFF- MK6

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Bull Run Filtration Facility: Single Lane Closures
Phase 2: Construction of Carpenter Lane TPAR & Temporary Road Improvements
>Single Lane Closures
>>Work at SE corner of Cottrell Rd & Carpenter Ln

Job Info	Notes
Contractor : MWH-Kiewit Emergency contact: Scott Goldsmith 805-235-0003 Daytime Work: 7am to 5 pm Purpose of Traffic Control: Construction of Road Improvements for Bull Run Filtration Facility	Dodge Park Lane Width 13' Cottrell Rd Road Width 24' Carpenter Road Width 18' 11' Lanes to be maintained at all times TPAR to maintain 4' minimum width Access to driveways to be maintained at all times

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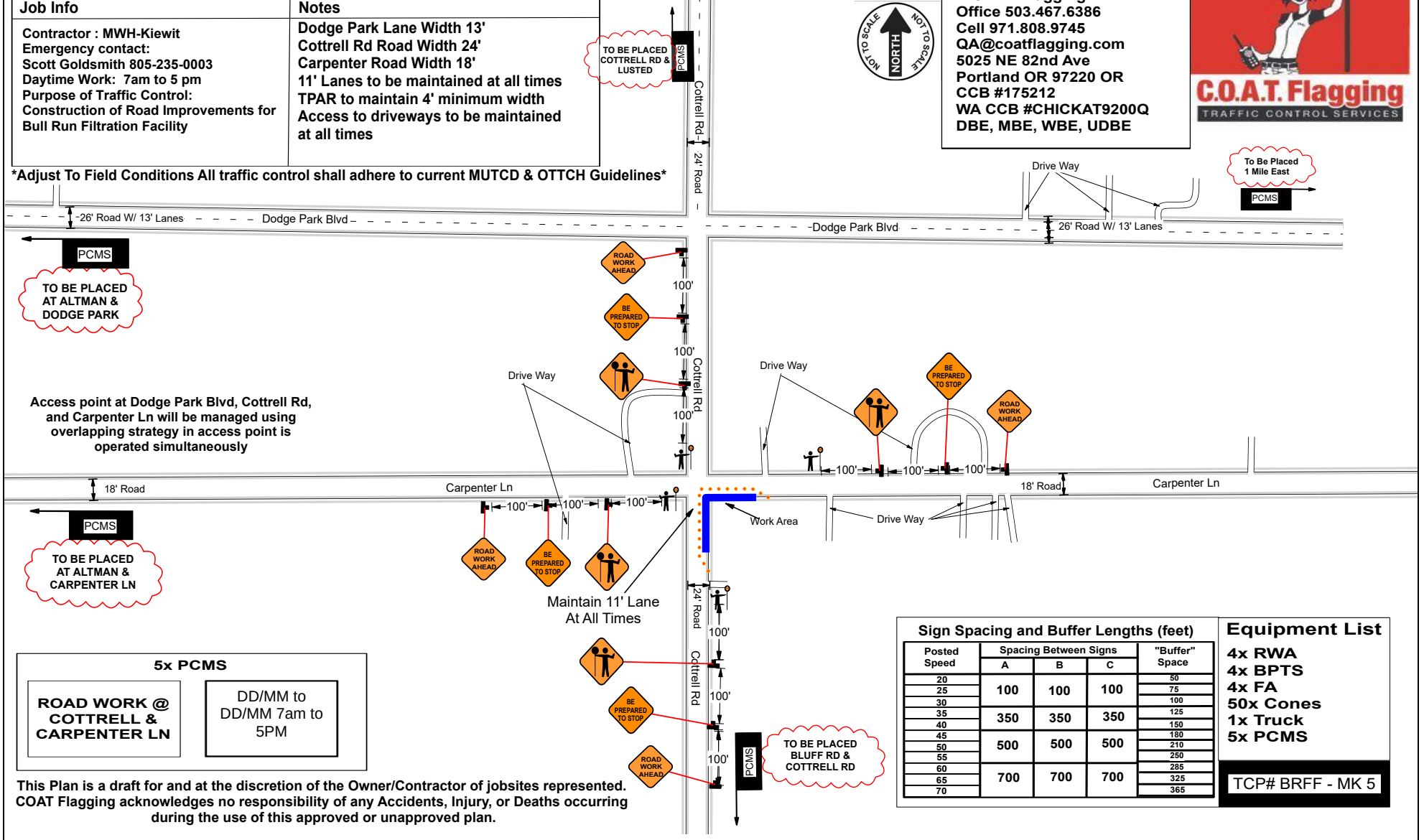

5x PCMS

ROAD WORK @ COTTRELL & CARPENTER LN	DD/MM to DD/MM 7am to 5PM

Sign Spacing and Buffer Lengths (feet)

Posted Speed	Spacing Between Signs A	B	C	"Buffer" Space
20	100	100	100	50
25				75
30				100
35	350	350	350	125
40				150
45	500	500	500	180
50				210
55				250
60	700	700	700	285
65				325
70				365

Equipment List
4x RWA
4x BPTS
4x FA
50x Cones
1x Truck
5x PCMS

TCP# BRFF - MK 5

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Bull Run Filtration Facility: Single Lane Closures
Phase 2: Construction of Carpenter Lane TPAR & Temporary Road Improvements
>Single Lane Closures
>>Work on Carpenter Lane EB Lane (East of Cottrell Rd)

Job Info	Notes
Contractor : MWH-Kiewit Emergency contact: Scott Goldsmith 805-235-0003 Daytime Work: 7am to 5 pm Purpose of Traffic Control: Construction of Road Improvements for Bull Run Filtration Facility	Dodge Park Lane Width 13' Cottrell Rd Road Width 24' Carpenter Road Width 18' 11' Lanes to be maintained at all times TPAR to maintain 4' minimum width Access to driveways to be maintained at all times

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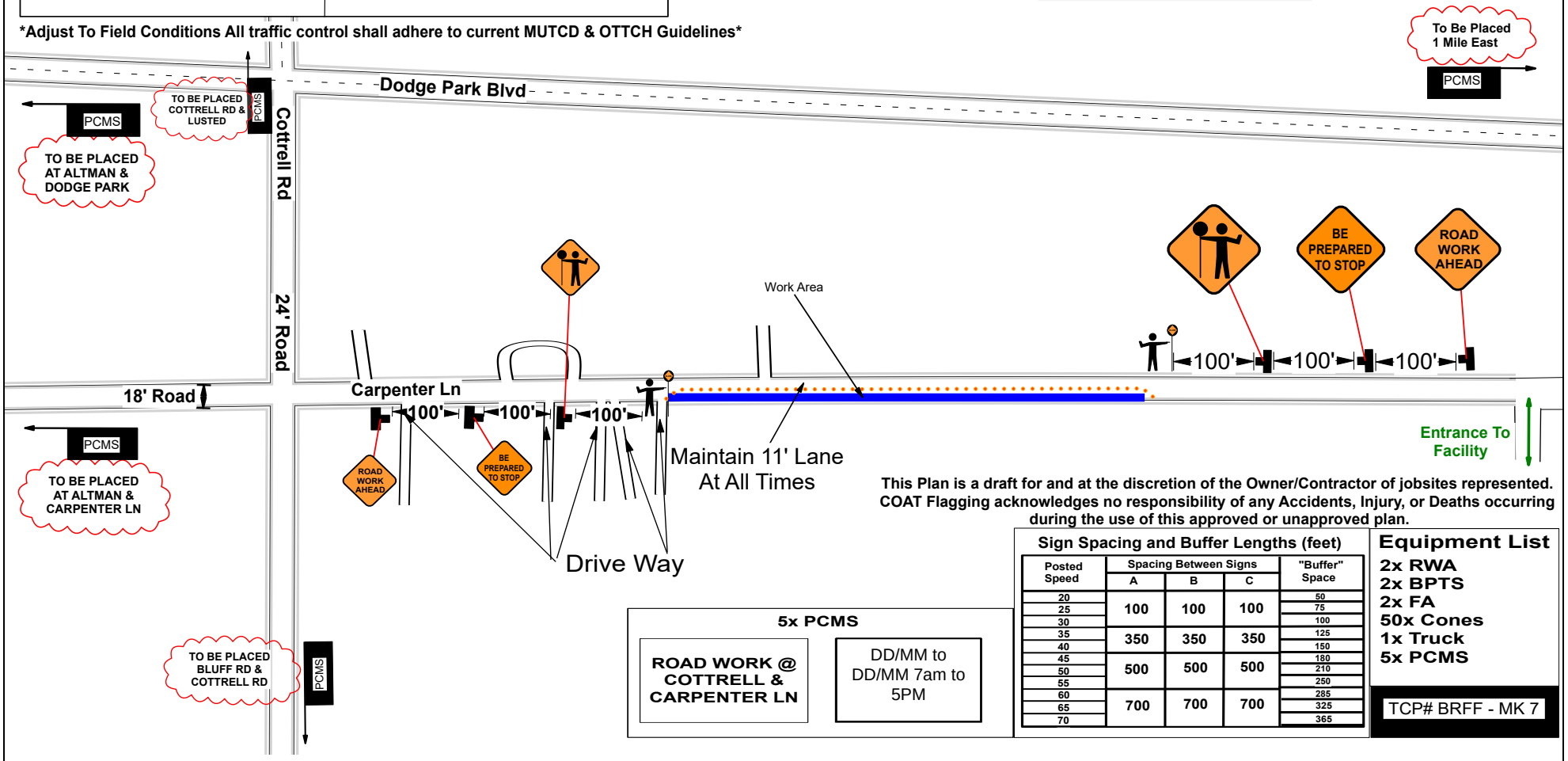
TRAFFIC CONTROL SERVICES

Adjust To Field Conditions All traffic control shall adhere to current MUTCD & OTTCH Guidelines



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5x PCMS

ROAD WORK @ COTTRELL & CARPENTER LN	DD/MM to DD/MM 7am to 5PM

Sign Spacing and Buffer Lengths (feet)

Posted Speed	Spacing Between Signs A	B	C	"Buffer" Space
20	100	100	100	50
25				75
30				100
35	350	350	350	125
40				150
45	500	500	500	180
50				210
55				250
60	700	700	700	285
65				325
70				365

Equipment List
2x RWA
2x BPTS
2x FA
50x Cones
1x Truck
5x PCMS

TCP# BRFF - MK 7

Emergency Access
1) Dodge Park, Cottrell Rd, Carpenter Lane maintain as 2 lane 2-way roads during non-working hours.
2) During single lane closure in working hours, on-site traffic control flaggers will direct emergency responders through the work area in the single open lane

Bull Run Filtration Facility: Single Lane Closures
Phase 2: Construction of Carpenter Lane TPAR & Temporary Road Improvements
>Single Lane Closures
>>Work on Carpenter Lane WB Lane (East of Cottrell Rd)

Job Info	Notes
Contractor : MWH-Kiewit Emergency contact: Scott Goldsmith 805-235-0003 Daytime Work: 7am to 5 pm Purpose of Traffic Control: Construction of Road Improvements for Bull Run Filtration Facility	Dodge Park Lane Width 13' Cottrell Rd Road Width 24' Carpenter Road Width 18' 11' Lanes to be maintained at all times TPAR to maintain 4' minimum width Access to driveways to be maintained at all times

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TRAFFIC CONTROL SERVICES

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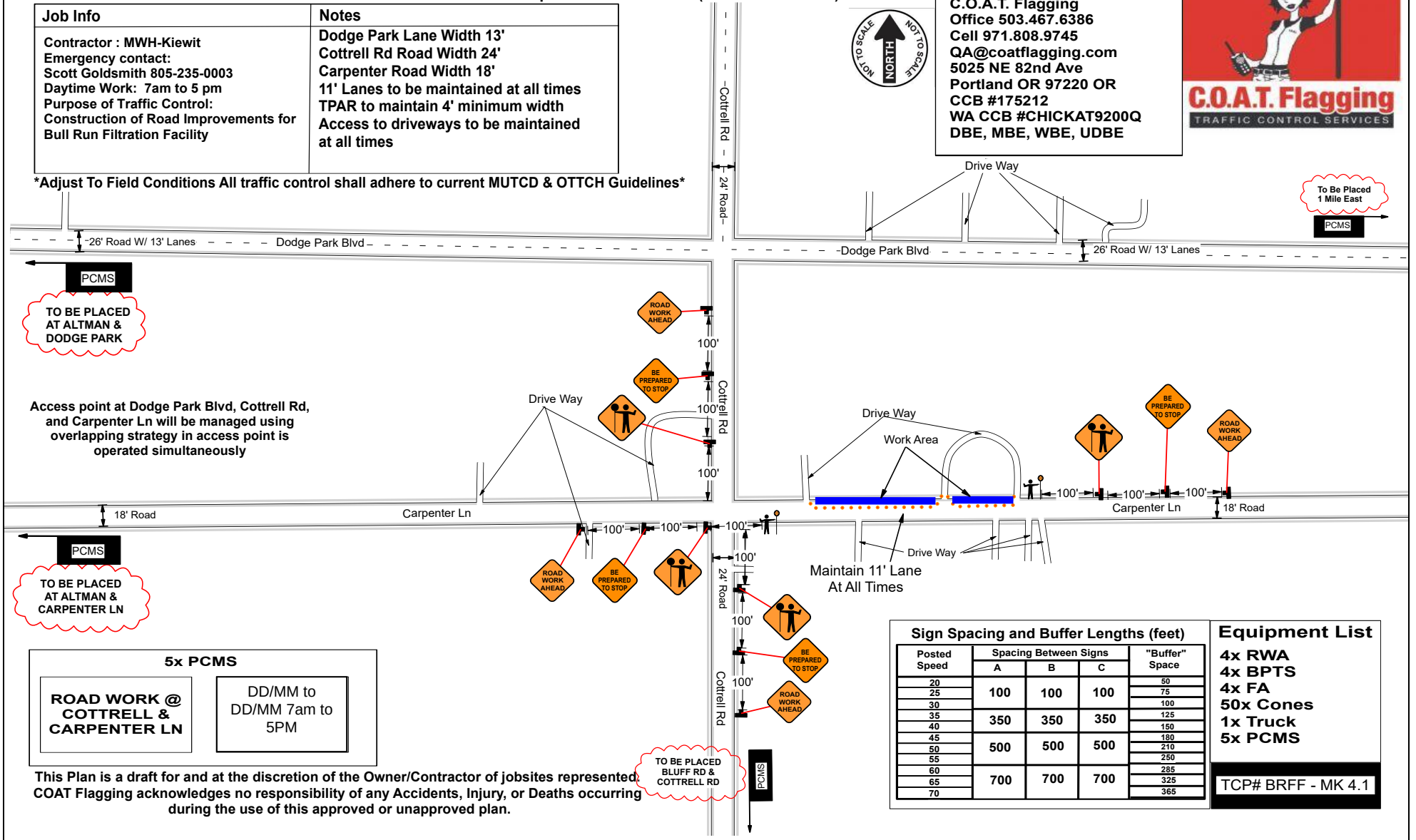

Access point at Dodge Park Blvd, Cottrell Rd, and Carpenter Ln will be managed using overlapping strategy in access point is operated simultaneously

5x PCMS

ROAD WORK @ COTTRELL & CARPENTER LN	DD/MM to DD/MM 7am to 5PM

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Sign Spacing and Buffer Lengths (feet)

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30				100
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40				150
45	500	500	500	180
50				210
55				250
60	700	700	700	285
65				325
70				365

Equipment List
4x RWA
4x BPTS
4x FA
50x Cones
1x Truck
5x PCMS

TCP# BRFF - MK 4.1

Emergency Access
1) Dodge Park, Cottrell Rd, Carpenter Lane maintain as 2 lane 2-way roads during non-working hours.
2) During single lane closure in working hours, on-site traffic control flaggers will direct emergency responders through the work area in the single open lane

Bull Run Filtration Facility: Single Lane Closures
Phase 2: Construction of Carpenter Lane TPAR & Temporary Road Improvements
>Single Lane Closures
>>Work on Carpenter Lane WB Lane (Mid Block, East of Cottrell Rd)

Job Info	Notes
Contractor : MWH-Kiewit Emergency contact: Scott Goldsmith 805-235-0003 Daytime Work: 7am to 5 pm Purpose of Traffic Control: Construction of Road Improvements for Bull Run Filtration Facility	Dodge Park Lane Width 13' Cottrell Rd Road Width 24' Carpenter Road Width 18' 11' Lanes to be maintained at all times TPAR to maintain 4' minimum width Access to driveways to be maintained at all times

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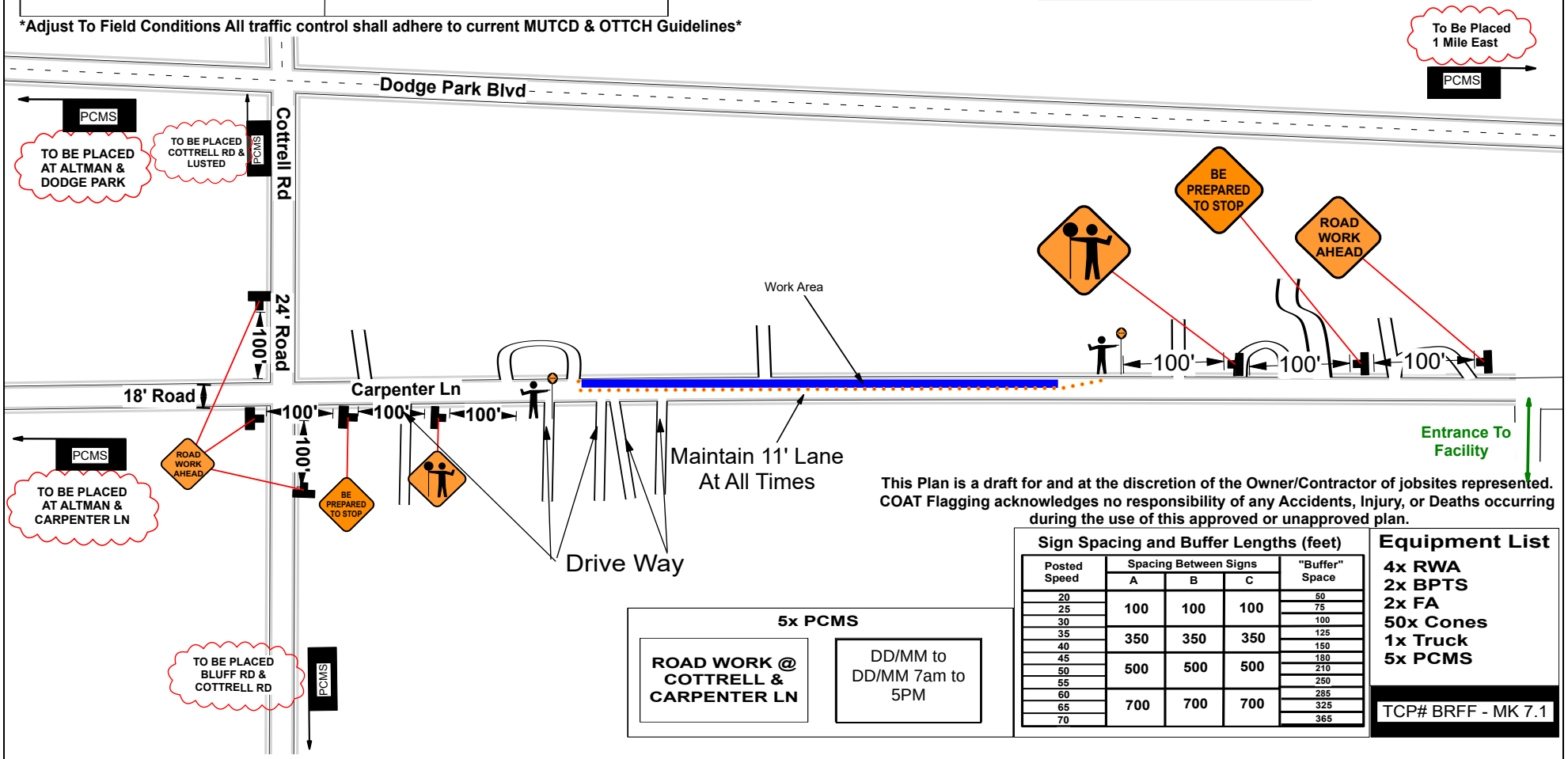

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5x PCMS

ROAD WORK @ COTTRELL & CARPENTER LN	DD/MM to DD/MM 7am to 5PM

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40				150
45	500	500	500	180
50				210
55				250
60	700	700	700	285
65				325
70				365

Equipment List
4x RWA
2x BPTS
2x FA
50x Cones
1x Truck
5x PCMS

TCP# BRFF - MK 7.1

Emergency Access
1) Dodge Park, Cottrell Rd, Carpenter Lane maintain as 2 lane 2-way roads during non-working hours.
2) During single lane closure in working hours, on-site traffic control flaggers will direct emergency responders through the work area in the single open lane

Bull Run Filtration Facility: Single Lane Closures
Phase 2: Construction of Carpenter Lane TPAR & Temporary Road Improvements
>Single Lane Closures
>>Work on Carpenter Lane EB Lane (East of Cottrell Rd)

Job Info	Notes
Contractor : MWH-Kiewit Emergency contact: Scott Goldsmith 805-235-0003 Daytime Work: 7am to 5 pm Purpose of Traffic Control: Construction of Road Improvements for Bull Run Filtration Facility	Dodge Park Lane Width 13' Cottrell Rd Road Width 24' Carpenter Road Width 18' 11' Lanes to be maintained at all times TPAR to maintain 4' minimum width Access to driveways to be maintained at all times

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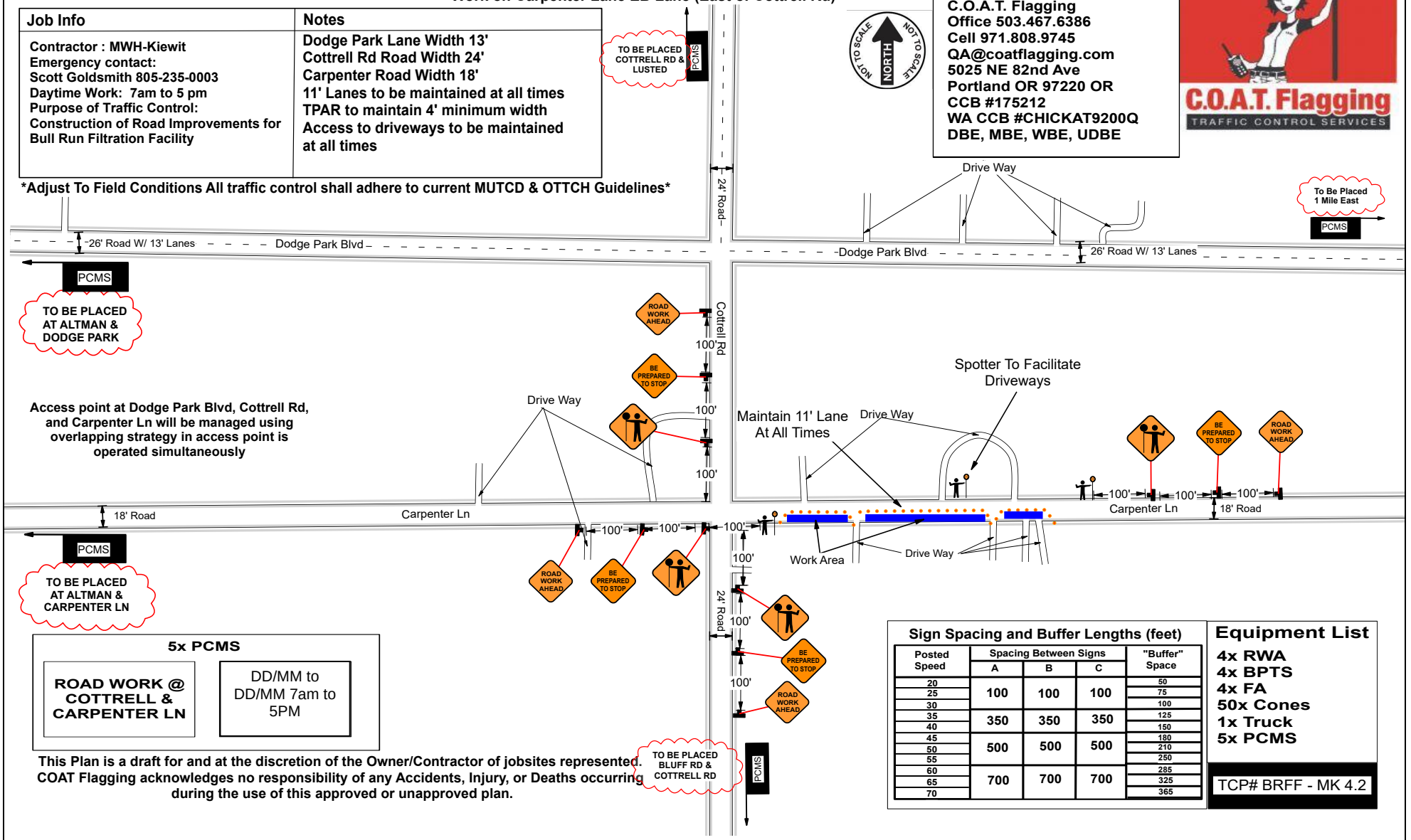

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ROAD WORK @ COTTRELL & CARPENTER LN	DD/MM to DD/MM 7am to 5PM

Sign Spacing and Buffer Lengths (feet)

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35	350	350	350	125
40				150
45	500	500	500	180
50				210
55				250
60	700	700	700	285
65				325
70				365

Equipment List
4x RWA
4x BPTS
4x FA
50x Cones
1x Truck
5x PCMS

TCP# BRFF - MK 4.2

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Emergency Access
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2) During single lane closure in working hours, on-site traffic control flaggers will direct emergency responders through the work area in the single open lane

Bull Run Filtration Facility: Single Lane Closures
Phase 2: Construction of Carpenter Lane TPAR & Temporary Road Improvements
>Single Lane Closures
>>Work on Carpenter Lane WB Lane (1000'+ East of Cottrell Rd)

Job Info	Notes
Contractor : MWH-Kiewit Emergency contact: Scott Goldsmith 805-235-0003 Daytime Work: 7am to 5 pm Purpose of Traffic Control: Construction of Road Improvements for Bull Run Filtration Facility	Dodge Park Lane Width 13' Cottrell Rd Road Width 24' Carpenter Road Width 18' 11' Lanes to be maintained at all times TPAR to maintain 4' minimum width Access to driveways to be maintained at all times

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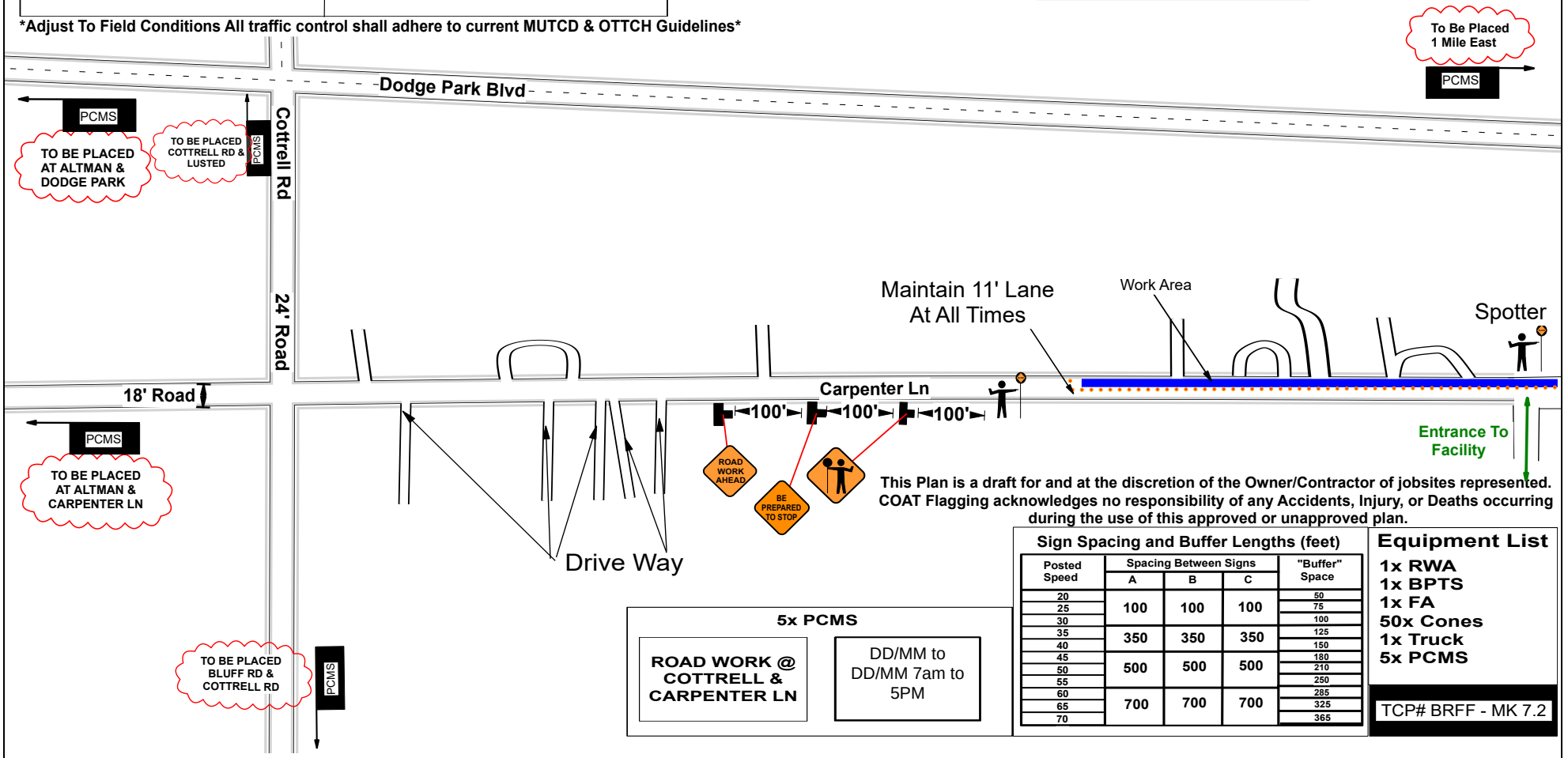

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5x PCMS

ROAD WORK @ COTTRELL & CARPENTER LN	DD/MM to DD/MM 7am to 5PM

Sign Spacing and Buffer Lengths (feet)

Posted Speed	Spacing Between Signs A	B	C	"Buffer" Space
20	100	100	100	50
25				75
30				100
35	350	350	350	125
40				150
45	500	500	500	180
50				210
55				250
60	700	700	700	285
65				325
70				365

Equipment List
1x RWA
1x BPTS
1x FA
50x Cones
1x Truck
5x PCMS

TCP# BRFF - MK 7.2

Emergency Access
1) Dodge Park, Cottrell Rd, Carpenter Lane maintain as 2 lane 2-way roads during non-working hours.
2) During single lane closure in working hours, on-site traffic control flaggers will direct emergency responders through the work area in the single open lane

Bull Run Filtration Facility: Single Lane Closures
Phase 2: Construction of Carpenter Lane TPAR & Temporary Road Improvements
>Single Lane Closures
>>Work on Carpenter Lane EB Lane (1000'+ East of Cottrell Rd)

Job Info	Notes
Contractor : MWH-Kiewit Emergency contact: Scott Goldsmith 805-235-0003 Daytime Work: 7am to 5 pm Purpose of Traffic Control: Construction of Road Improvements for Bull Run Filtration Facility	Dodge Park Lane Width 13' Cottrell Rd Road Width 24' Carpenter Road Width 18' 11' Lanes to be maintained at all times TPAR to maintain 4' minimum width Access to driveways to be maintained at all times

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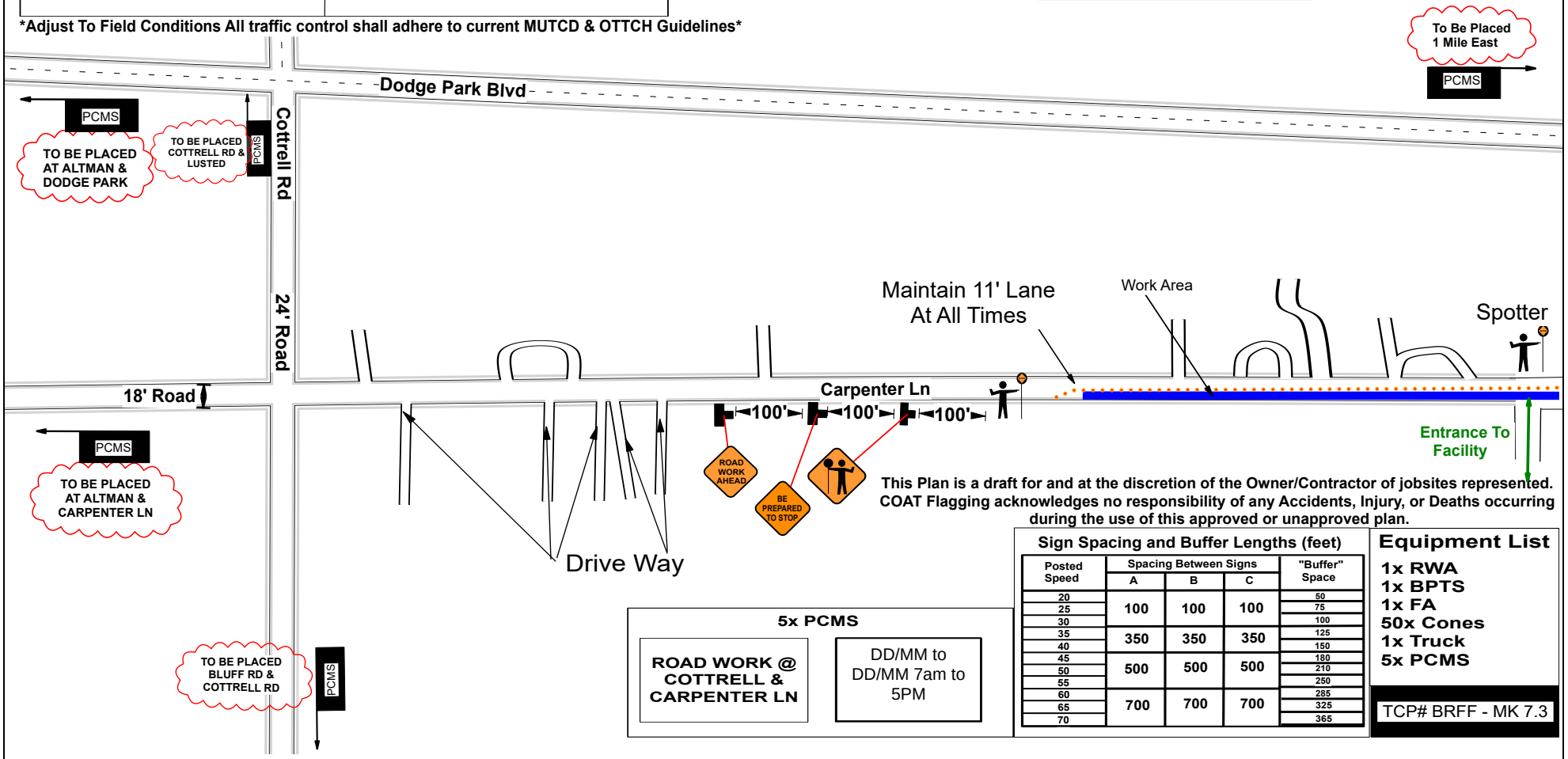

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5x PCMS

ROAD WORK @ COTTRELL & CARPENTER LN	DD/MM to DD/MM 7am to 5PM

Sign Spacing and Buffer Lengths (feet)

Posted Speed	Spacing Between Signs A	B	C	"Buffer" Space
20	100	100	100	50
25				75
30				100
35	350	350	350	125
40				150
45	500	500	500	180
50				210
55				250
60	700	700	700	285
65				325
70				365

Equipment List
1x RWA
1x BPTS
1x FA
50x Cones
1x Truck
5x PCMS

TCP# BRFF - MK 7.3

Emergency Access
1) Dodge Park, Cottrell Rd, Carpenter Lane maintain as 2 lane 2-way roads during non-working hours.
2) During single lane closure in working hours, on-site traffic control flaggers will direct emergency responders through the work area in the single open lane

Bull Run Filtration Facility:
Phase 3 Carpenter Lane TPAR in service, prior to permanent road widening
>Local Area Signage Plan

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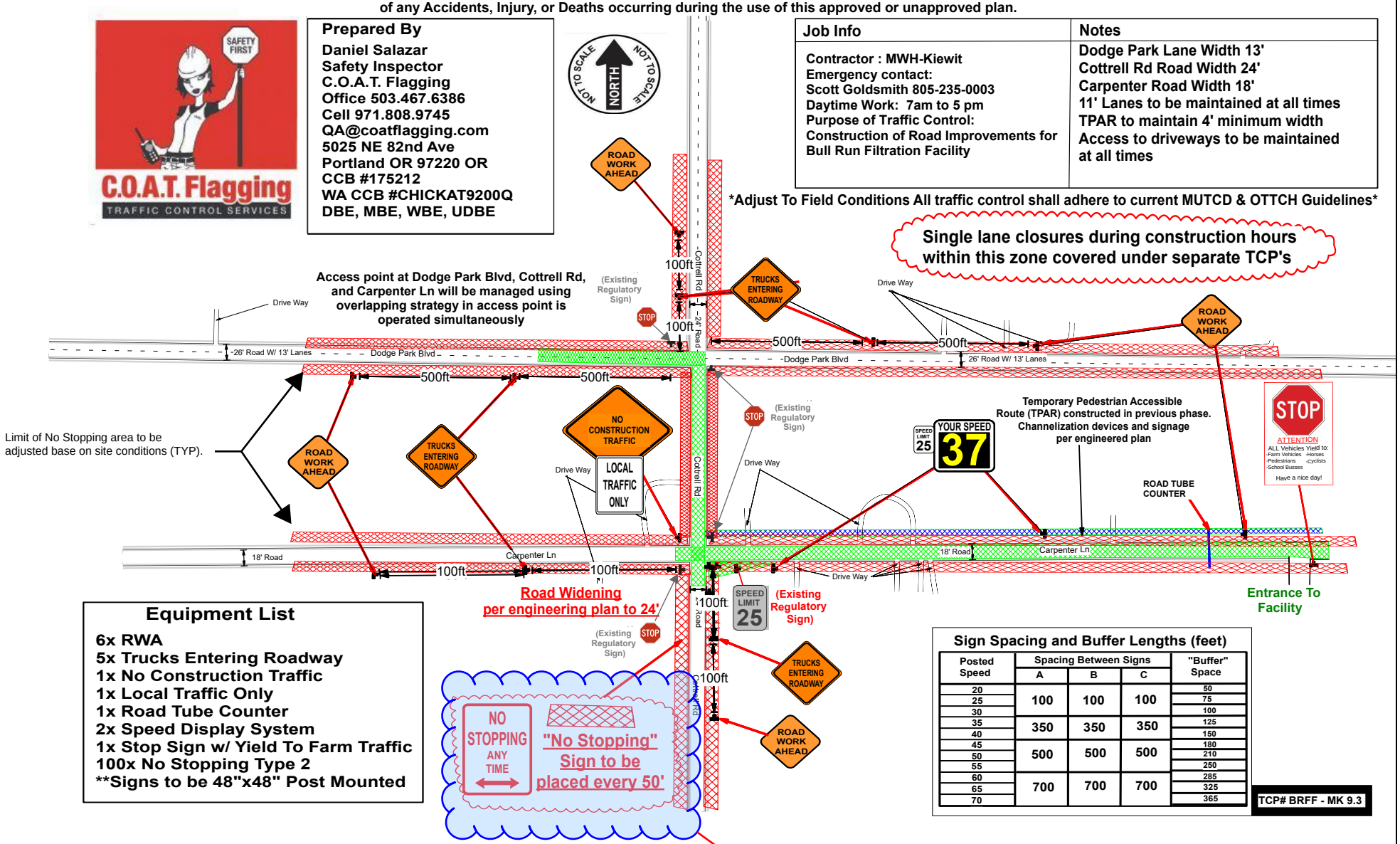
Job Info	Notes
Contractor : MWH-Kiewit Emergency contact: Scott Goldsmith 805-235-0003 Daytime Work: 7am to 5 pm Purpose of Traffic Control: Construction of Road Improvements for Bull Run Filtration Facility	Dodge Park Lane Width 13' Cottrell Rd Road Width 24' Carpenter Road Width 18' 11' Lanes to be maintained at all times TPAR to maintain 4' minimum width Access to driveways to be maintained at all times

Adjust To Field Conditions All traffic control shall adhere to current MUTCD & OTTCH Guidelines



Equipment List

- 6x RWA
- 5x Trucks Entering Roadway
- 1x No Construction Traffic
- 1x Local Traffic Only
- 1x Road Tube Counter
- 2x Speed Display System
- 1x Stop Sign w/ Yield To Farm Traffic
- 100x No Stopping Type 2
- **Signs to be 48"x48" Post Mounted

Sign Spacing and Buffer Lengths (feet)

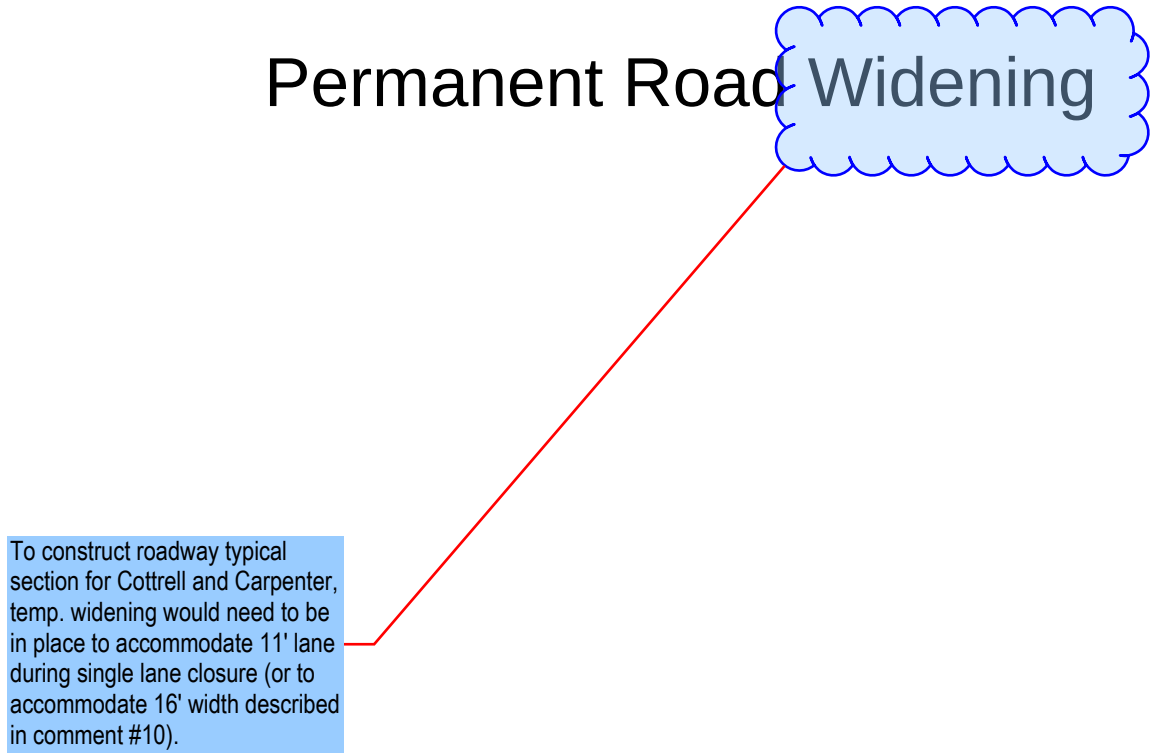
Posted Speed	Spacing Between Signs A	B	C	"Buffer" Space
20	100	100	100	50
25				75
30				100
35	350	350	350	125
40				150
45	500	500	500	180
50				210
55				250
60	700	700	700	285
65				325
70				365

TCP# BRFF - MK 9.3

Emergency Access
1) Dodge Park, Cottrell Rd, Carpenter Lane maintain as 2 lane 2-way roads during non-working hours.
2) During single lane closure in working hours, on-site traffic control flaggers will direct emergency responders through the work area in the single open lane.

Legend describing the red, green and blue/green hatching patterned areas would be helpful

Phase 4


Permanent Road Widening
To construct roadway typical section for Cottrell and Carpenter, temp. widening would need to be in place to accommodate 11' lane during single lane closure (or to accommodate 16' width described in comment #10).

Bull Run Filtration Facility:
Phase 4 Carpenter Lane TPAR in service, construction of permanent road widening
>Local Area Signage Plan

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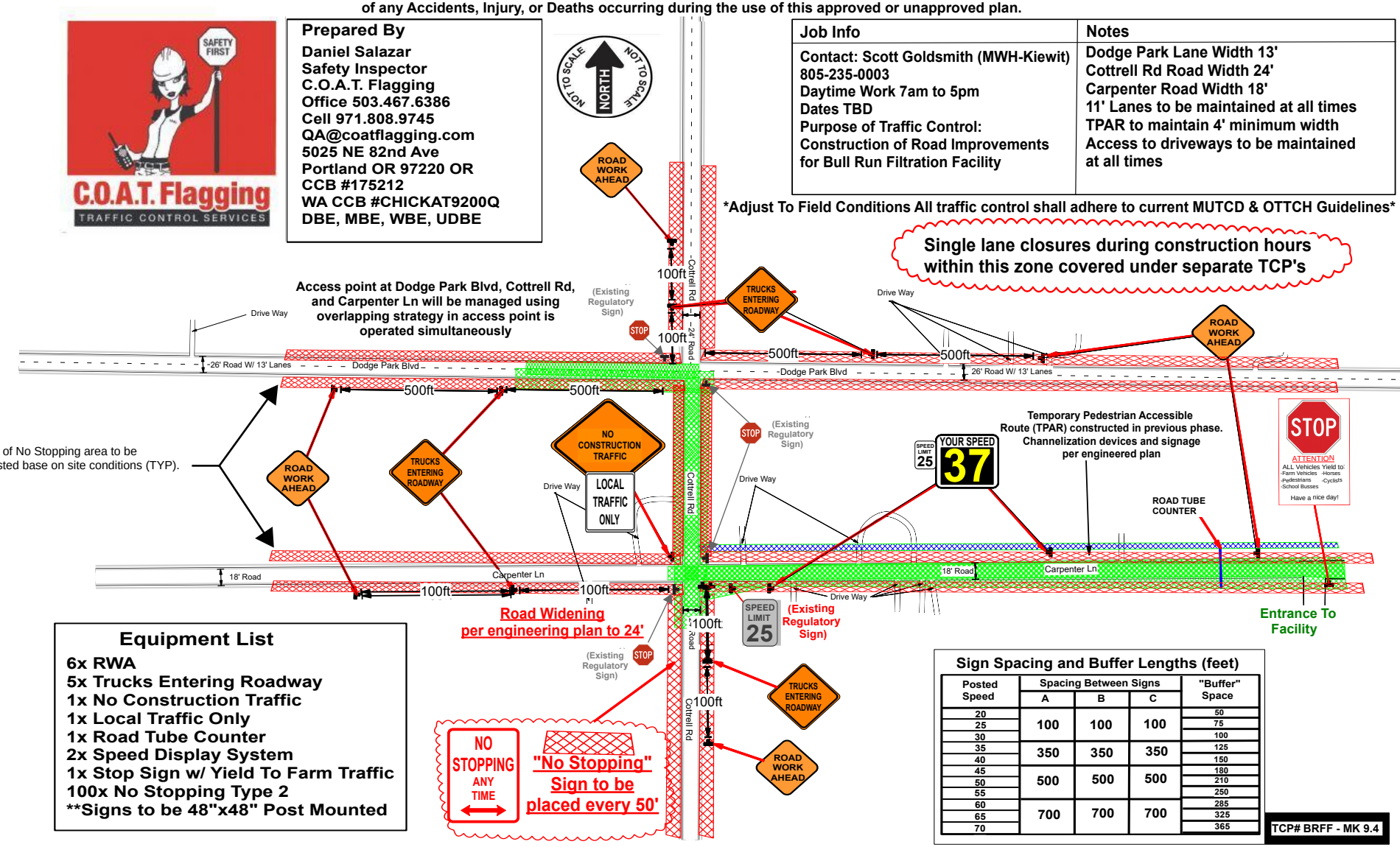
Job Info	Notes
Contact: Scott Goldsmith (MWH-Kiewit) 805-235-0003 Daytime Work 7am to 5pm Dates TBD Purpose of Traffic Control: Construction of Road Improvements for Bull Run Filtration Facility	Dodge Park Lane Width 13' Cottrell Rd Road Width 24' Carpenter Road Width 18' 11' Lanes to be maintained at all times TPAR to maintain 4' minimum width Access to driveways to be maintained at all times

Adjust To Field Conditions All traffic control shall adhere to current MUTCD & OTTCH Guidelines



Equipment List

- 6x RWA
- 5x Trucks Entering Roadway
- 1x No Construction Traffic
- 1x Local Traffic Only
- 1x Road Tube Counter
- 2x Speed Display System
- 1x Stop Sign w/ Yield To Farm Traffic
- 100x No Stopping Type 2
- **Signs to be 48"x48" Post Mounted

Sign Spacing and Buffer Lengths (feet)

Posted Speed	Spacing Between Signs A	B	C	"Buffer" Space
20	100	100	100	50
25				75
30				100
35	350	350	350	125
40				150
45	500	500	500	180
50				210
55				250
60	700	700	700	285
65				325
70				365

TCP# BRFF - MK 9.4

Emergency Access
1) Dodge Park, Cottrell Rd, Carpenter Lane maintain as 2 lane 2-way roads during non-working hours.
2) During single lane closure in working hours, on-site traffic control flaggers will direct emergency responders through the work area in the single open lane

Bull Run Filtration Facility:
Phase 4 Carpenter Lane TPAR in service, construction of permanent road widening
>>Work at SW corner of Dodge Park Blvd & Cottrell Rd

Job Info	Notes
Contact: Scott Goldsmith (MWH-Kiewit) 805-235-0003 Daytime Work 7am to 5pm Dates TBD Purpose of Traffic Control: Construction of Road Improvements for Bull Run Filtration Facility	Dodge Park Lane Width 13' Cottrell Rd Road Width 24' Carpenter Road Width 18' 11' Lanes to be maintained at all times TPAR to maintain 4' minimum width Access to driveways to be maintained at all times

Adjust To Field Conditions All traffic control shall adhere to current MUTCD & OTTCH Guidelines

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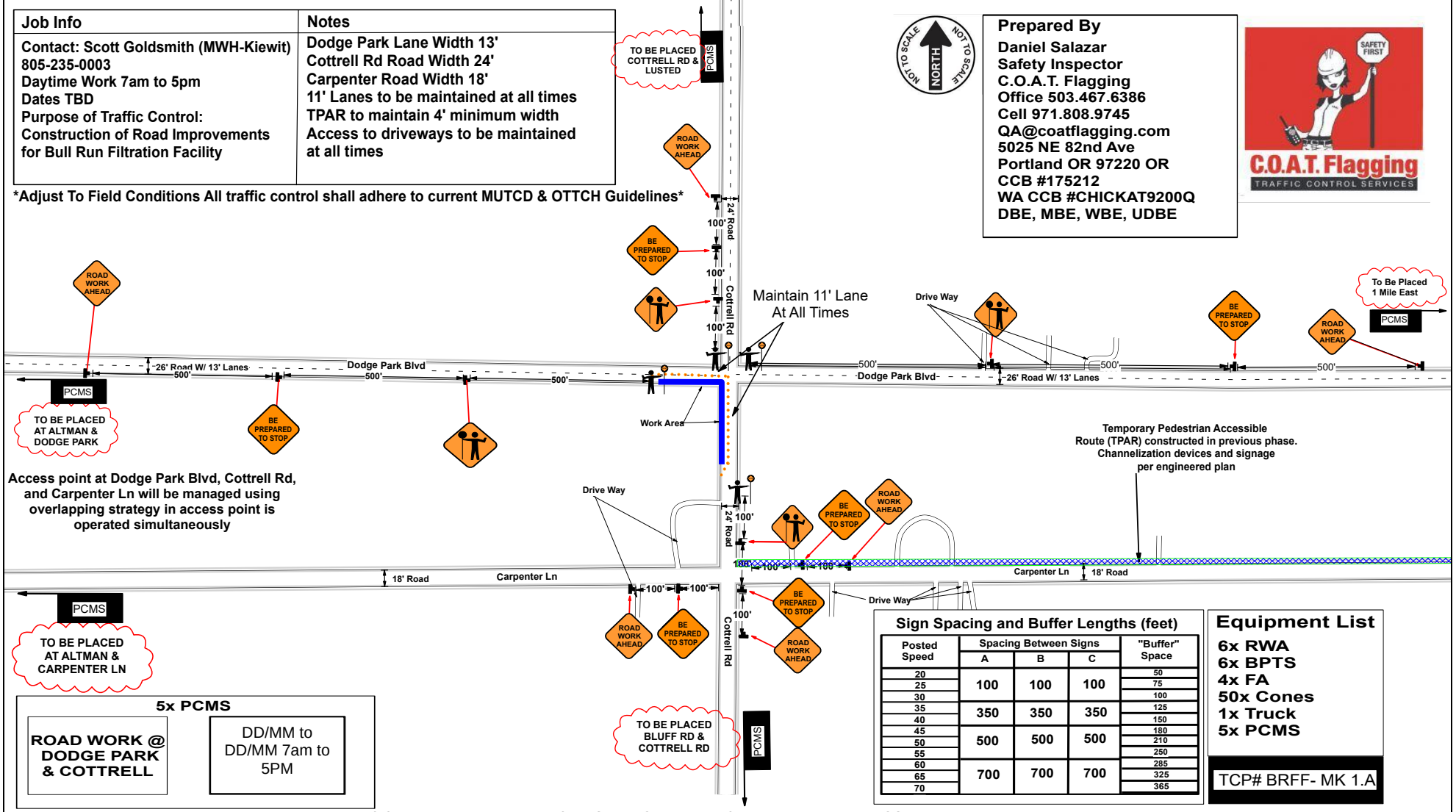

Sign Spacing and Buffer Lengths (feet)

Posted Speed	Spacing Between Signs A	B	C	"Buffer" Space
20	100	100	100	50
25				75
30				100
35	350	350	350	125
40				150
45	500	500	500	180
50				210
55				250
60	700	700	700	285
65				325
70				365

Equipment List
6x RWA
6x BPTS
4x FA
50x Cones
1x Truck
5x PCMS

TCP# BRFF- MK 1.A

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Emergency Access
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2) During single lane closure in working hours, on-site traffic control flaggers will direct emergency responders through the work area in the single open lane

Bull Run Filtration Facility: Phase 4
Carpenter Lane TPAR in service, construction of permanent road widening
>>Work at SE corner of Dodge Park Blvd & Cottrell Rd

Job Info	Notes
Contact: Scott Goldsmith (MWH-Kiewit) 805-235-0003 Daytime Work 7am to 5pm Dates TBD Purpose of Traffic Control: Construction of Road Improvements for Bull Run Filtration Facility	Dodge Park Lane Width 13' Cottrell Rd Road Width 24' Carpenter Road Width 18' 11' Lanes to be maintained at all times TPAR to maintain 4' minimum width Access to driveways to be maintained at all times

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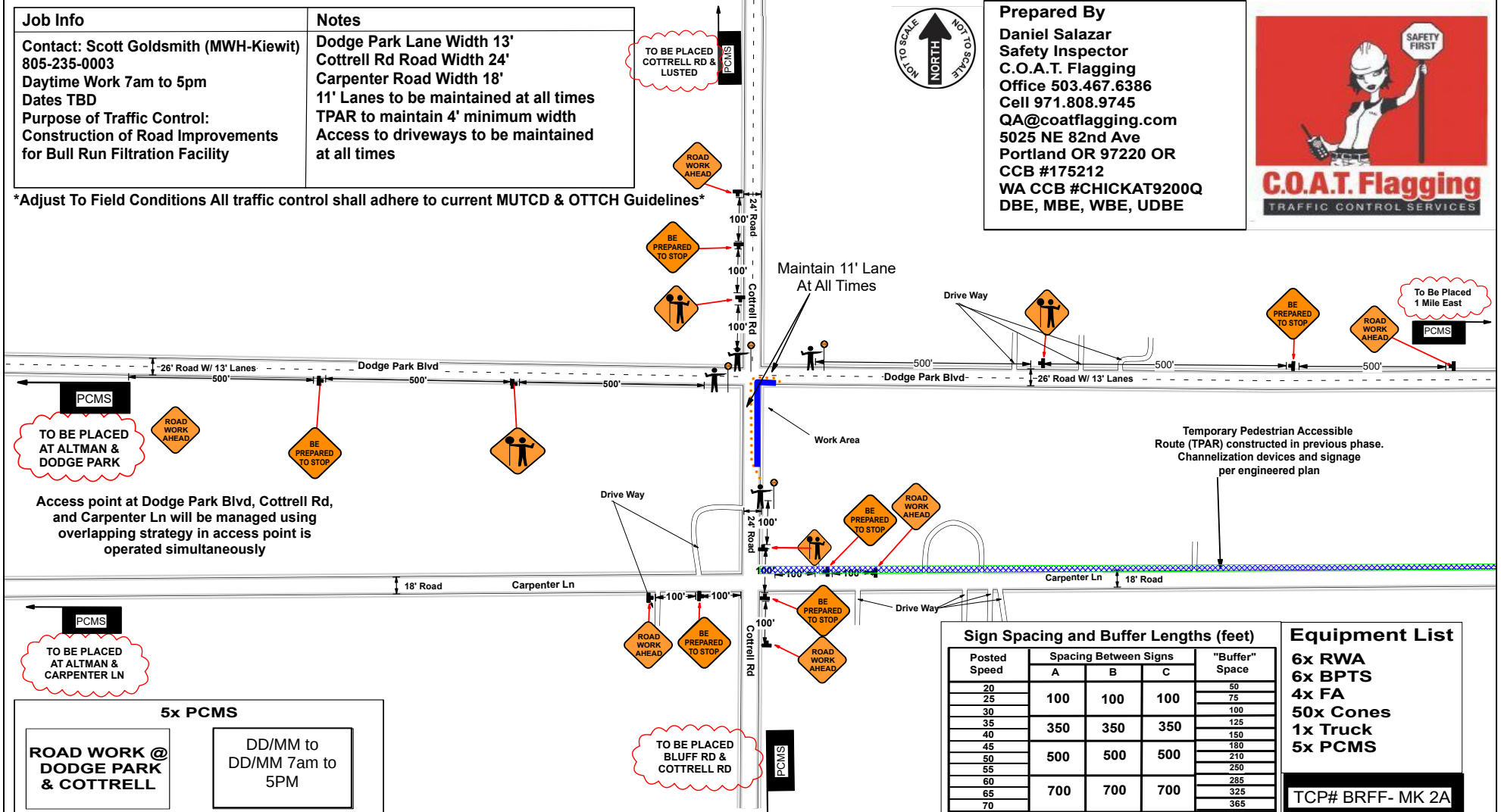

5x PCMS

ROAD WORK @ DODGE PARK & COTTRELL	DD/MM to DD/MM 7am to 5PM

Sign Spacing and Buffer Lengths (feet)

Posted Speed	Spacing Between Signs A	B	C	"Buffer" Space
20	100	100	100	50
25				75
30				100
35	350	350	350	125
40				150
45	500	500	500	180
50				210
55				250
60	700	700	700	285
65				325
70				365

Equipment List
6x RWA
6x BPTS
4x FA
50x Cones
1x Truck
5x PCMS

TCP# BRFF- MK 2A

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2) During single lane closure in working hours, on-site traffic control flaggers will direct emergency responders through the work area in the single open lane

Bull Run Filtration Facility:
Phase 4 Carpenter Lane TPAR in service, construction of permanent road widening
>>Work on Cottrell SB Lane (between Dodge Park Blvd & Carpenter Lane)

Job Info	Notes
Contact: Scott Goldsmith (MWH-Kiewit) 805-235-0003 Daytime Work 7am to 5pm Dates TBD Purpose of Traffic Control: Construction of Road Improvements for Bull Run Filtration Facility	Dodge Park Lane Width 13' Cottrell Rd Road Width 24' Carpenter Road Width 18' 11' Lanes to be maintained at all times TPAR to maintain 4' minimum width Access to driveways to be maintained at all times

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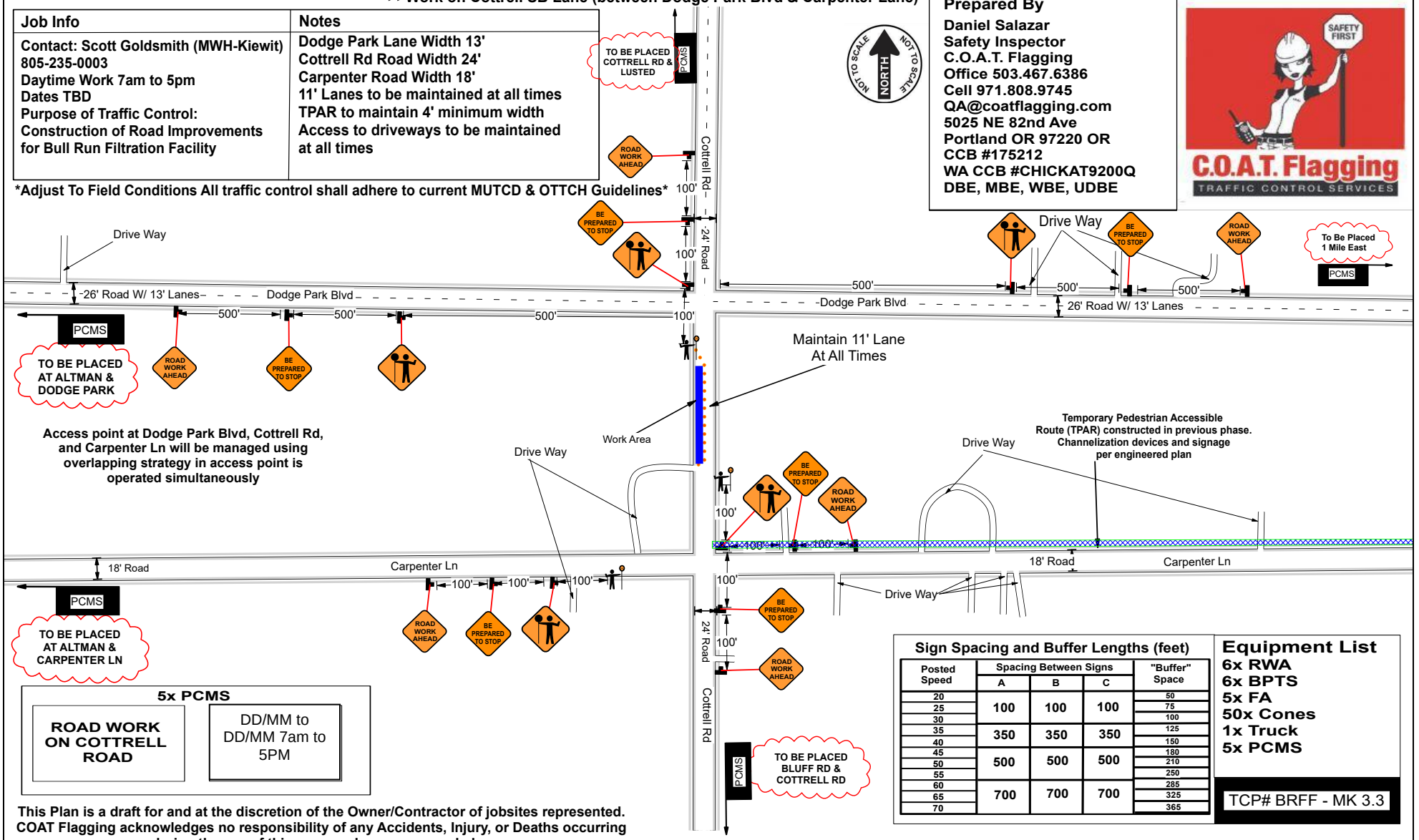
TRAFFIC CONTROL SERVICES



Sign Spacing and Buffer Lengths (feet)

Posted Speed	Spacing Between Signs A	B	C	"Buffer" Space
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30				100
35	350	350	350	125
40				150
45	500	500	500	180
50				210
55				250
60	700	700	700	285
65				325
70				365

Equipment List
6x RWA
6x BPTS
5x FA
50x Cones
1x Truck
5x PCMS

TCP# BRFF - MK 3.3

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2) During single lane closure in working hours, on-site traffic control flaggers will direct emergency responders through the work area in the single open lane

Bull Run Filtration Facility: Phase 4
Carpenter Lane TPAR in service, construction of permanent road widening
>>Work on Cottrell NB Lane (between Dodge Park Blvd & Carpenter Lane)

Job Info	Notes
Contact: Scott Goldsmith (MWH-Kiewit) 805-235-0003 Daytime Work 7am to 5pm Dates TBD Purpose of Traffic Control: Construction of Road Improvements for Bull Run Filtration Facility	Dodge Park Lane Width 13' Cottrell Rd Road Width 24' Carpenter Road Width 18' 11' Lanes to be maintained at all times TPAR to maintain 4' minimum width Access to driveways to be maintained at all times

Adjust To Field Conditions All traffic control shall adhere to current MUTCD & OTTCH Guidelines

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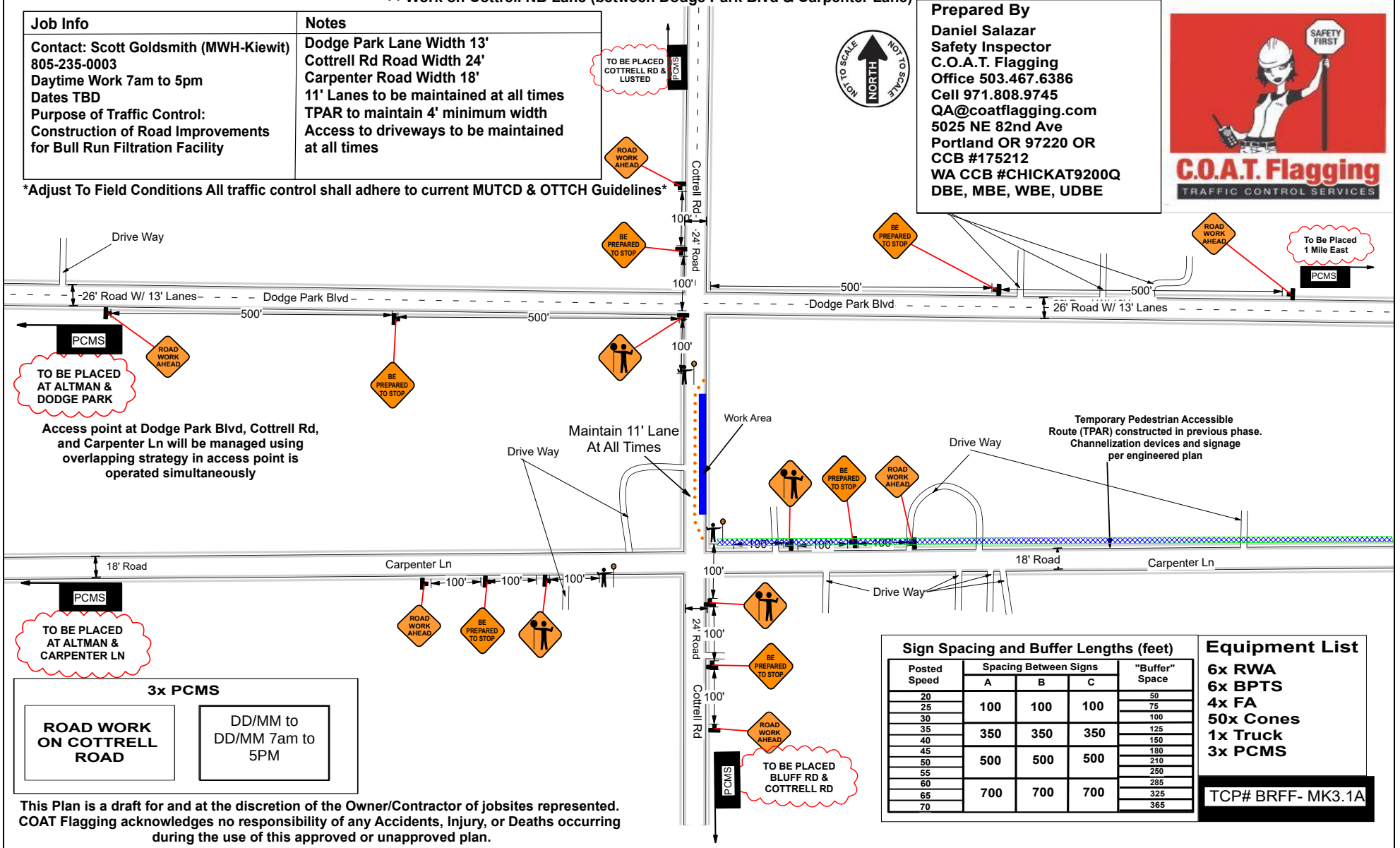
TRAFFIC CONTROL SERVICES



3x PCMS

ROAD WORK ON COTTRELL ROAD	DD/MM to DD/MM 7am to 5PM

Sign Spacing and Buffer Lengths (feet)

Posted Speed	Spacing Between Signs A	B	C	"Buffer" Space
20	100	100	100	50
25				75
30				100
35	350	350	350	125
40				150
45	500	500	500	180
50				210
55				250
60	700	700	700	285
65				325
70				365

Equipment List
6x RWA
6x BPTS
4x FA
50x Cones
1x Truck
3x PCMS

TCP# BRFF- MK3.1A

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Emergency Access
1) Dodge Park, Cottrell Rd, Carpenter Lane maintain as 2 lane 2-way roads during non-working hours.
2) During single lane closure in working hours, on-site traffic control flaggers will direct emergency responders through the work area in the single open lane

Bull Run Filtration Facility:
Phase 4 Carpenter Lane TPAR in service, construction of permanent road widening
>>Work at NW corner of Cottrell Rd & Carpenter Ln

Job Info	Notes
Contact: Scott Goldsmith (MWH-Kiewit) 805-235-0003 Daytime Work 7am to 5pm Dates TBD Purpose of Traffic Control: Construction of Road Improvements for Bull Run Filtration Facility	Dodge Park Lane Width 13' Cottrell Rd Road Width 24' Carpenter Road Width 18' 11' Lanes to be maintained at all times TPAR to maintain 4' minimum width Access to driveways to be maintained at all times

Adjust To Field Conditions All traffic control shall adhere to current MUTCD & OTTCH Guidelines

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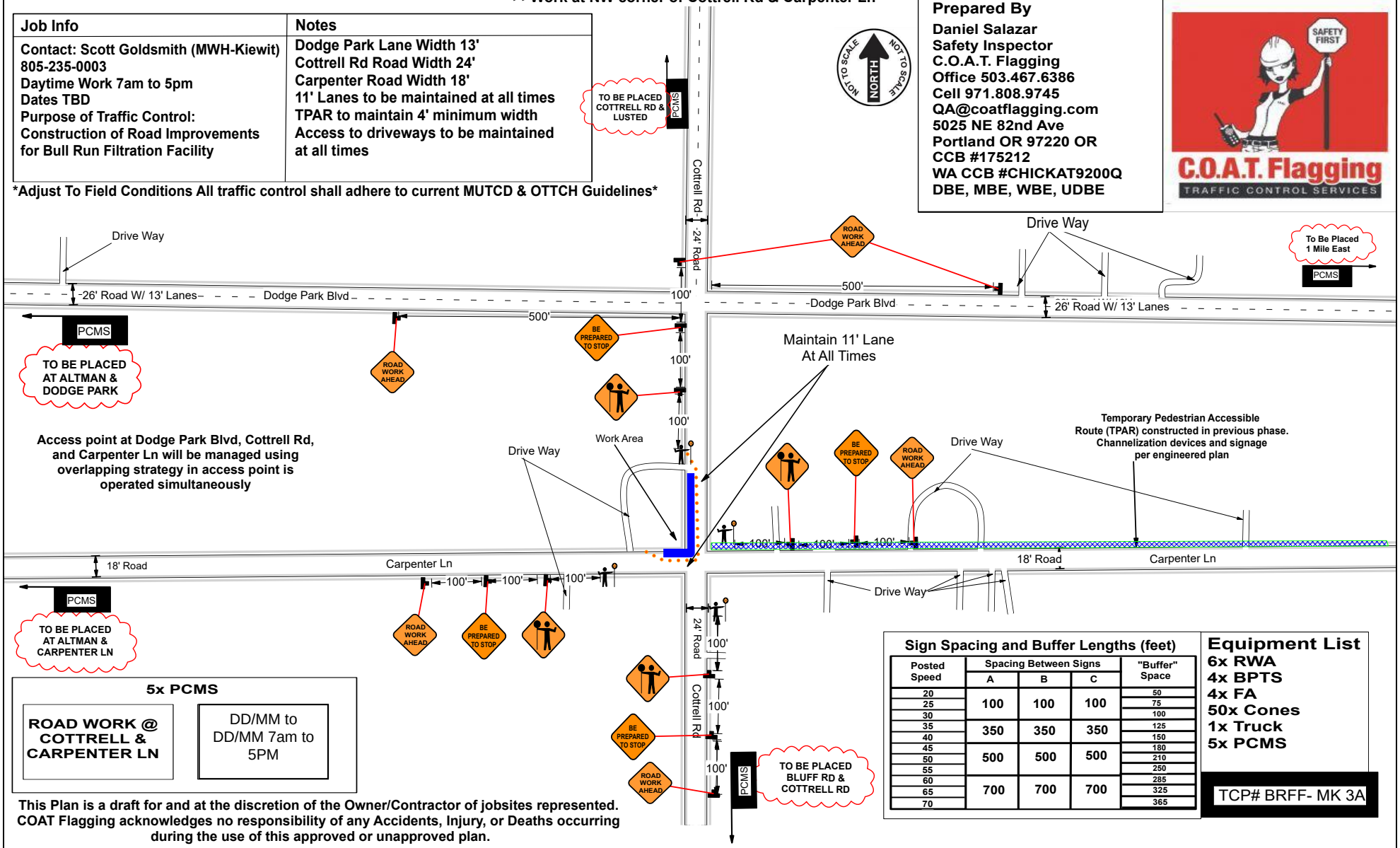

Sign Spacing and Buffer Lengths (feet)

Posted Speed	Spacing Between Signs A	B	C	"Buffer" Space
20	100	100	100	50
25				75
30				100
35	350	350	350	125
40				150
45	500	500	500	180
50				210
55				250
60	700	700	700	285
65				325
70				365

Equipment List
6x RWA
4x BPTS
4x FA
50x Cones
1x Truck
5x PCMS

TCP# BRFF- MK 3A

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Emergency Access
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2) During single lane closure in working hours, on-site traffic control flaggers will direct emergency responders through the work area in the single open lane

Bull Run Filtration Facility:
Phase 4 Carpenter Lane TPAR in service, construction of permanent road widening
>>Work at NE corner of Cottrell Rd & Carpenter Ln

Job Info	Notes
Contact: Scott Goldsmith (MWH-Kiewit) 805-235-0003 Daytime Work 7am to 5pm Dates TBD Purpose of Traffic Control: Construction of Road Improvements for Bull Run Filtration Facility	Dodge Park Lane Width 13' Cottrell Rd Road Width 24' Carpenter Road Width 18' 11' Lanes to be maintained at all times TPAR to maintain 4' minimum width Access to driveways to be maintained at all times

Adjust To Field Conditions All traffic control shall adhere to current MUTCD & OTTCH Guidelines

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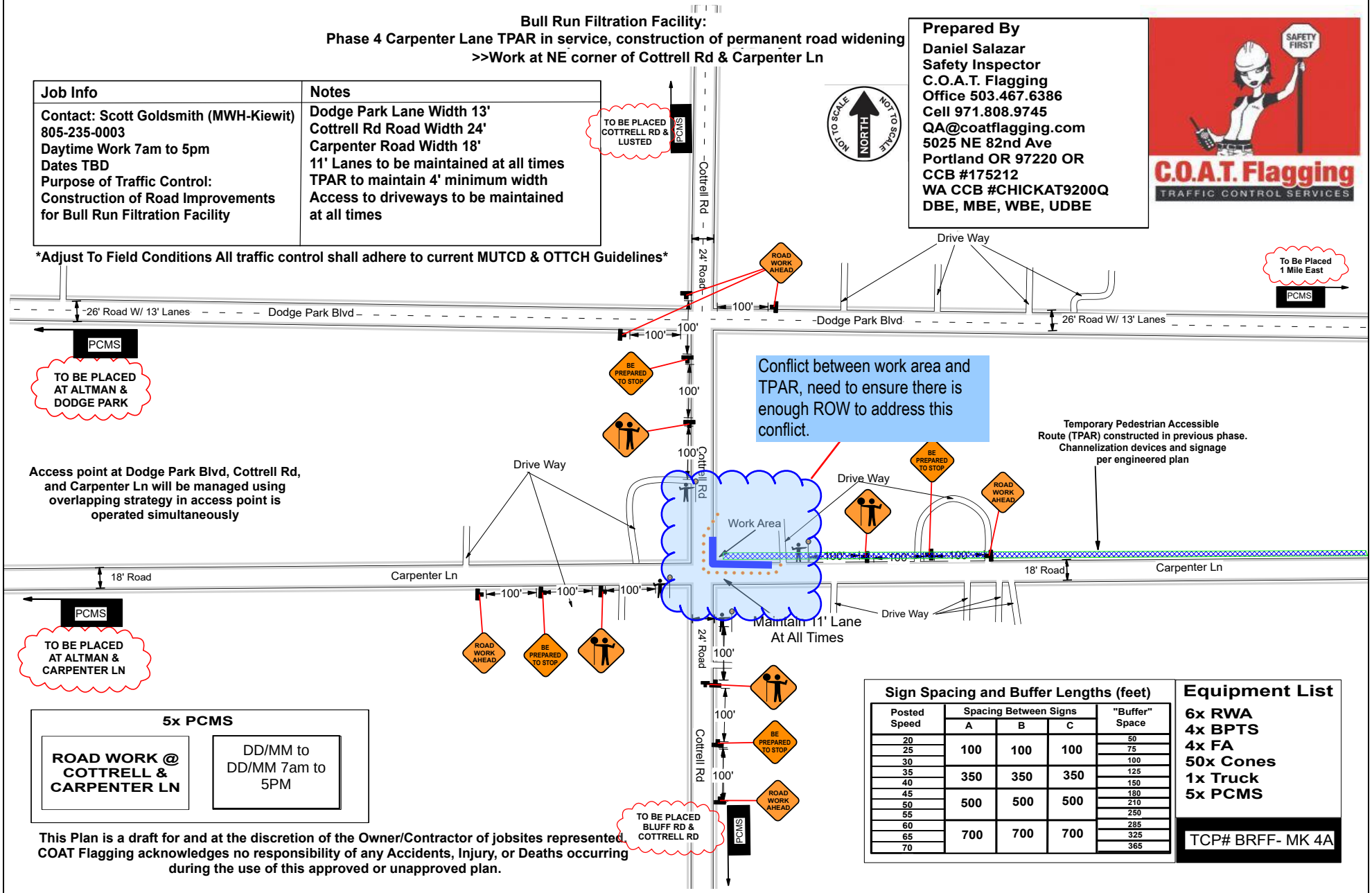

5x PCMS

ROAD WORK @ COTTRELL & CARPENTER LN	DD/MM to DD/MM 7am to 5PM

Sign Spacing and Buffer Lengths (feet)

Posted Speed	Spacing Between Signs A	B	C	"Buffer" Space
20	100	100	100	50
25				75
30				100
35	350	350	350	125
40				150
45	500	500	500	180
50				210
55				250
60	700	700	700	285
65				325
70				365

Equipment List
6x RWA
4x BPTS
4x FA
50x Cones
1x Truck
5x PCMS

TCP# BRFF- MK 4A

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Emergency Access
1) Dodge Park, Cottrell Rd, Carpenter Lane maintain as 2 lane 2-way roads during non-working hours.
2) During single lane closure in working hours, on-site traffic control flaggers will direct emergency responders through the work area in the single open lane

Bull Run Filtration Facility: Phase 4

Carpenter Lane TPAR in service, construction of permanent road widening

Work at SW corner of Cottrell Rd & Carpenter Ln

Job Info	Notes
Contact: Scott Goldsmith (MWH-Kiewit) 805-235-0003 Daytime Work 7am to 5pm Dates TBD Purpose of Traffic Control: Construction of Road Improvements for Bull Run Filtration Facility	Dodge Park Lane Width 13' Cottrell Rd Road Width 24' Carpenter Road Width 18' 11' Lanes to be maintained at all times TPAR to maintain 4' minimum width Access to driveways to be maintained at all times

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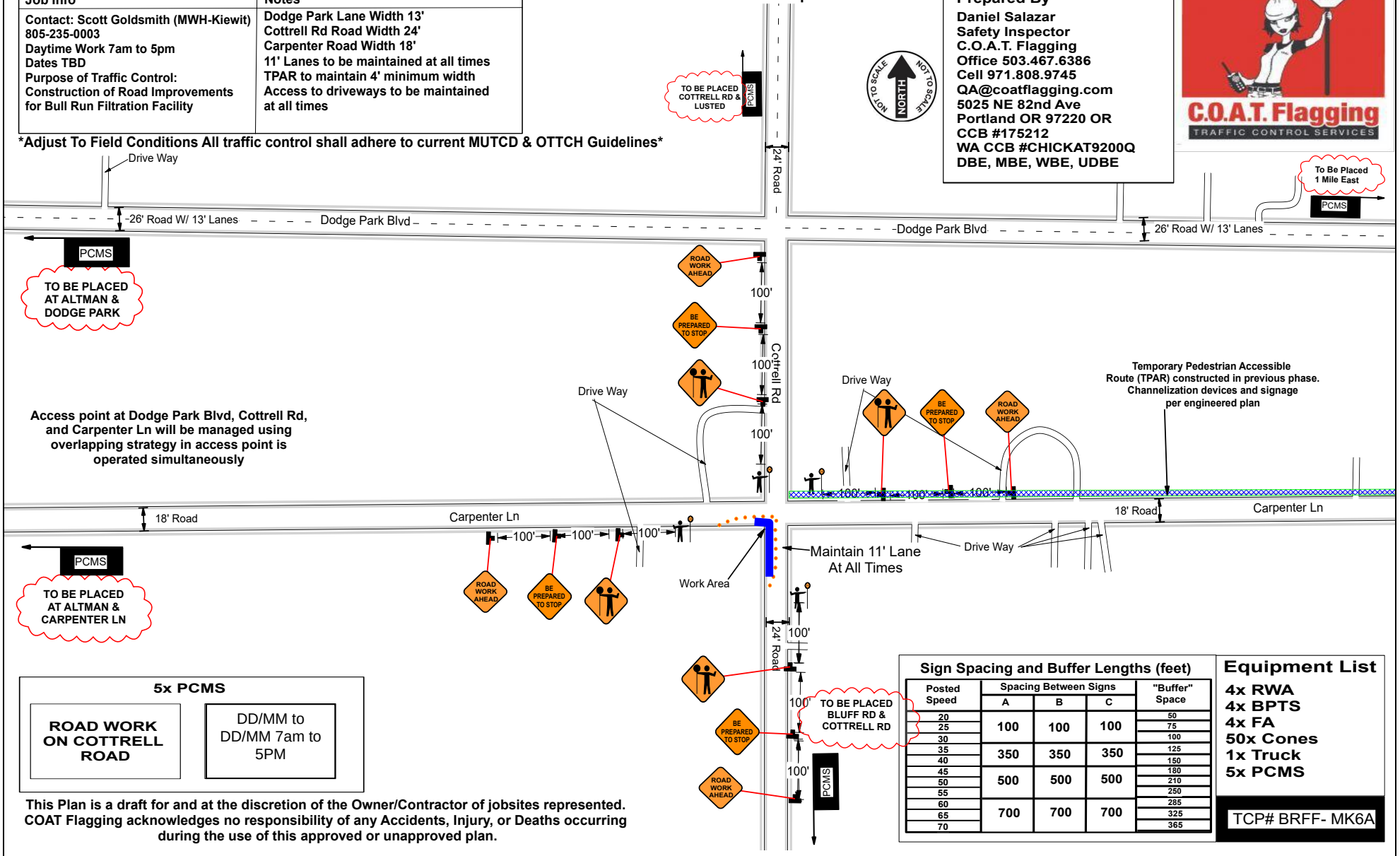

Access point at Dodge Park Blvd, Cottrell Rd, and Carpenter Ln will be managed using overlapping strategy in access point is operated simultaneously

5x PCMS

ROAD WORK ON COTTRELL ROAD	DD/MM to DD/MM 7am to 5PM

Sign Spacing and Buffer Lengths (feet)

Posted Speed	Spacing Between Signs A	B	C	"Buffer" Space
20	100	100	100	50
25				75
30				100
35	350	350	350	125
40				150
45	500	500	500	180
50				210
55				250
60	700	700	700	285
65				325
70				365

Equipment List
4x RWA
4x BPTS
4x FA
50x Cones
1x Truck
5x PCMS

TCP# BRFF- MK6A

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Emergency Access
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2) During single lane closure in working hours, on-site traffic control flaggers will direct emergency responders through the work area in the single open lane

Bull Run Filtration Facility: Phase 4
Carpenter Lane TPAR in service, construction of permanent road widening
>>Work at SE corner of Cottrell Rd & Carpenter Ln

Job Info	Notes
Contact: Scott Goldsmith (MWH-Kiewit) 805-235-0003 Daytime Work 7am to 5pm Dates TBD Purpose of Traffic Control: Construction of Road Improvements for Bull Run Filtration Facility	Dodge Park Lane Width 13' Cottrell Rd Road Width 24' Carpenter Road Width 18' 11' Lanes to be maintained at all times TPAR to maintain 4' minimum width Access to driveways to be maintained at all times

Adjust To Field Conditions All traffic control shall adhere to current MUTCD & OTTCH Guidelines

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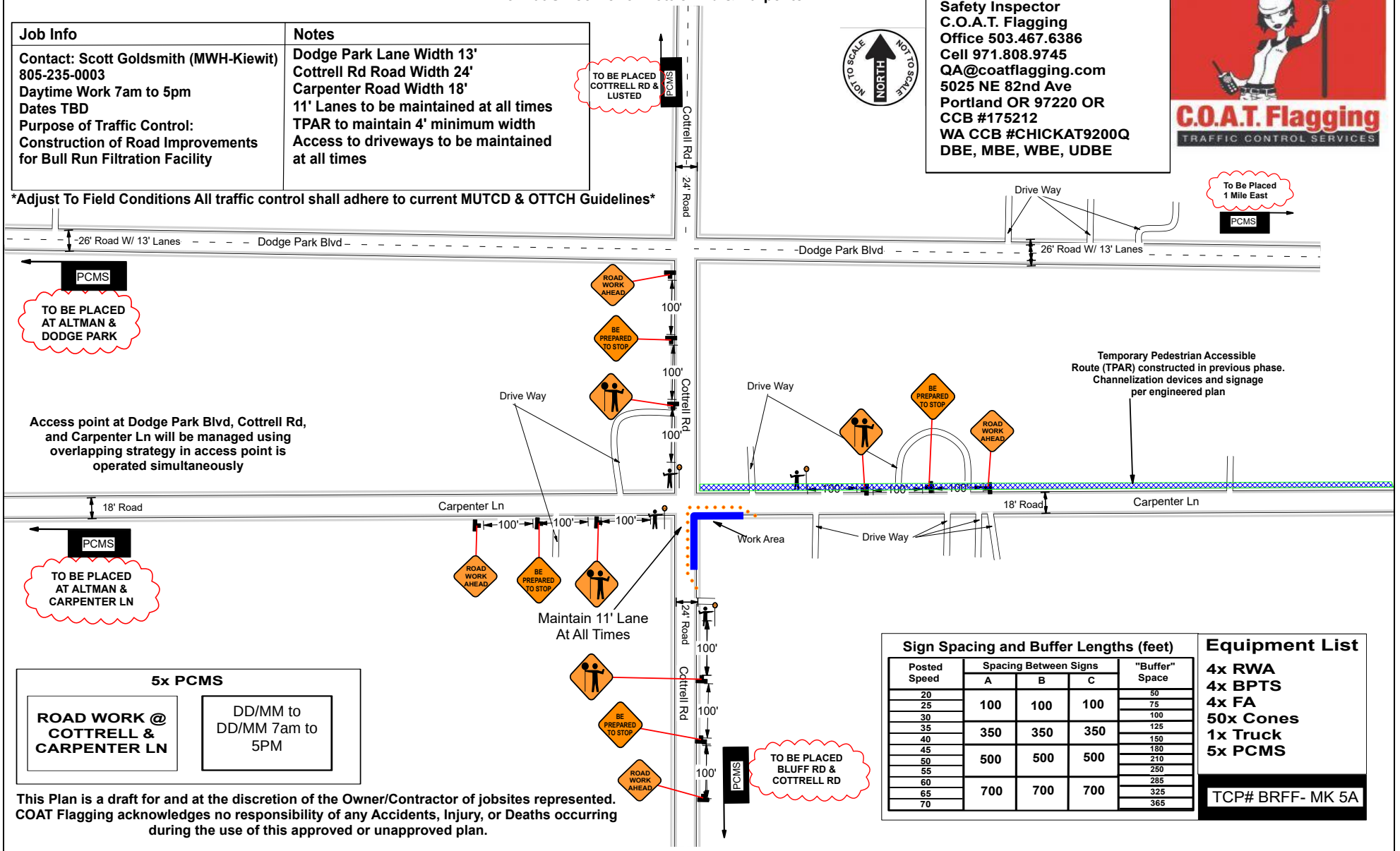

5x PCMS

ROAD WORK @ COTTRELL & CARPENTER LN	DD/MM to DD/MM 7am to 5PM

Sign Spacing and Buffer Lengths (feet)

Posted Speed	Spacing Between Signs A	B	C	"Buffer" Space
20	100	100	100	50
25				75
30				100
35	350	350	350	125
40				150
45	500	500	500	180
50				210
55				250
60	700	700	700	285
65				325
70				365

Equipment List
4x RWA
4x BPTS
4x FA
50x Cones
1x Truck
5x PCMS

TCP# BRFF- MK 5A

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Emergency Access
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2) During single lane closure in working hours, on-site traffic control flaggers will direct emergency responders through the work area in the single open lane

Bull Run Filtration Facility:
Phase 4 Carpenter Lane TPAR in service, construction of permanent road widening
>>Work on Carpenter Lane WB Lane (East of Cottrell Rd)

Job Info	Notes
Contact: Scott Goldsmith (MWH-Kiewit) 805-235-0003 Daytime Work 7am to 5pm Dates TBD Purpose of Traffic Control: Construction of Road Improvements for Bull Run Filtration Facility	Dodge Park Lane Width 13' Cottrell Rd Road Width 24' Carpenter Road Width 18' 11' Lanes to be maintained at all times TPAR to maintain 4' minimum width Access to driveways to be maintained at all times

Adjust To Field Conditions All traffic control shall adhere to current MUTCD & OTTCH Guidelines

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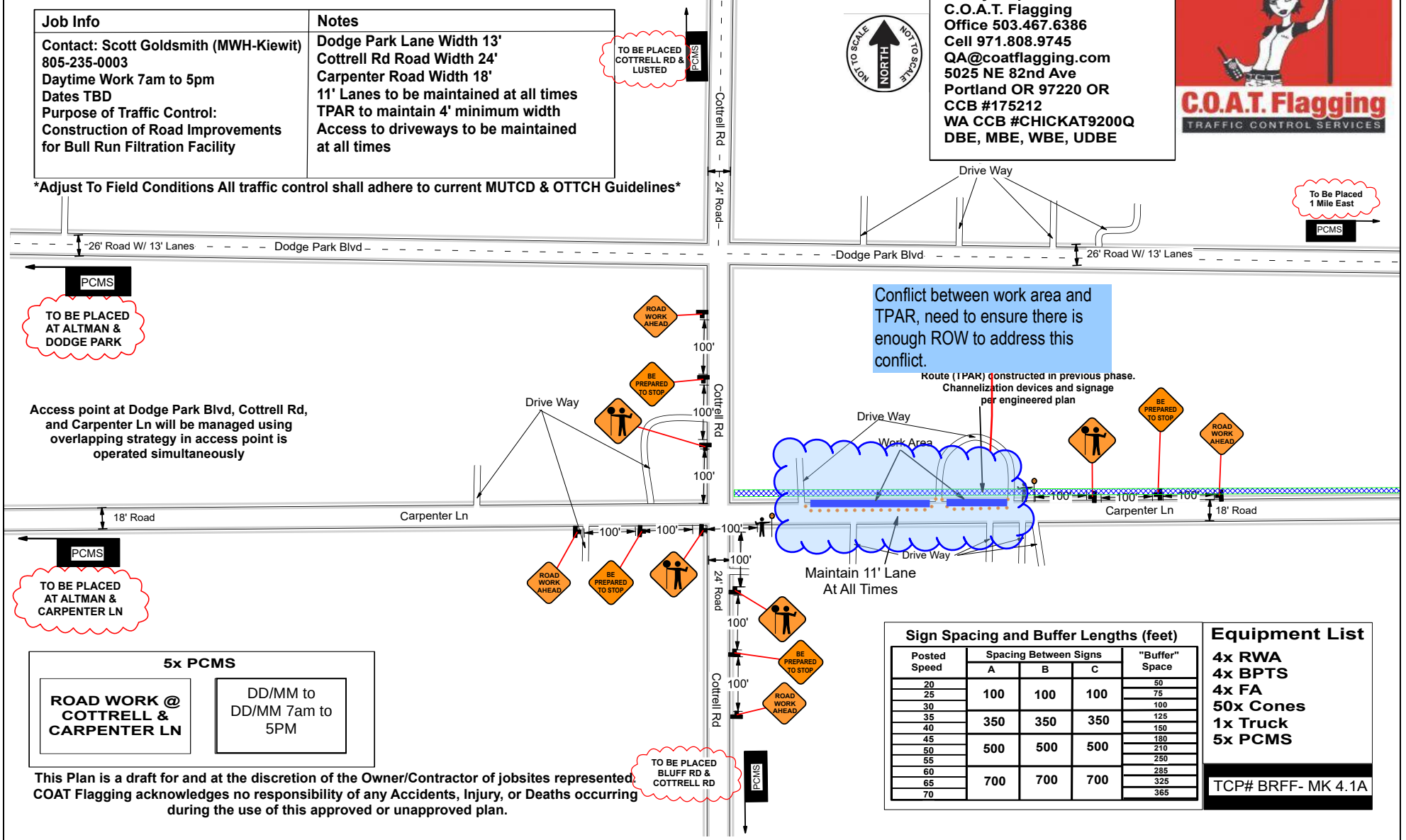

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Sign Spacing and Buffer Lengths (feet)

Posted Speed	Spacing Between Signs A	B	C	"Buffer" Space
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25				75
30				100
35	350	350	350	125
40				150
45	500	500	500	180
50				210
55				250
60	700	700	700	285
65				325
70				365

Equipment List
4x RWA
4x BPTS
4x FA
50x Cones
1x Truck
5x PCMS

TCP# BRFF- MK 4.1A

Emergency Access
1) Dodge Park, Cottrell Rd, Carpenter Lane maintain as 2 lane 2-way roads during non-working hours.
2) During single lane closure in working hours, on-site traffic control flaggers will direct emergency responders through the work area in the single open lane

Bull Run Filtration Facility: Phase 4
Carpenter Lane TPAR in service, construction of permanent road widening
>>Work on Carpenter Lane EB Lane (East of Cottrell Rd)

Job Info	Notes
Contact: Scott Goldsmith (MWH-Kiewit) 805-235-0003 Daytime Work 7am to 5pm Dates TBD Purpose of Traffic Control: Construction of Road Improvements for Bull Run Filtration Facility	Dodge Park Lane Width 13' Cottrell Rd Road Width 24' Carpenter Road Width 18' 11' Lanes to be maintained at all times TPAR to maintain 4' minimum width Access to driveways to be maintained at all times

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TRAFFIC CONTROL SERVICES

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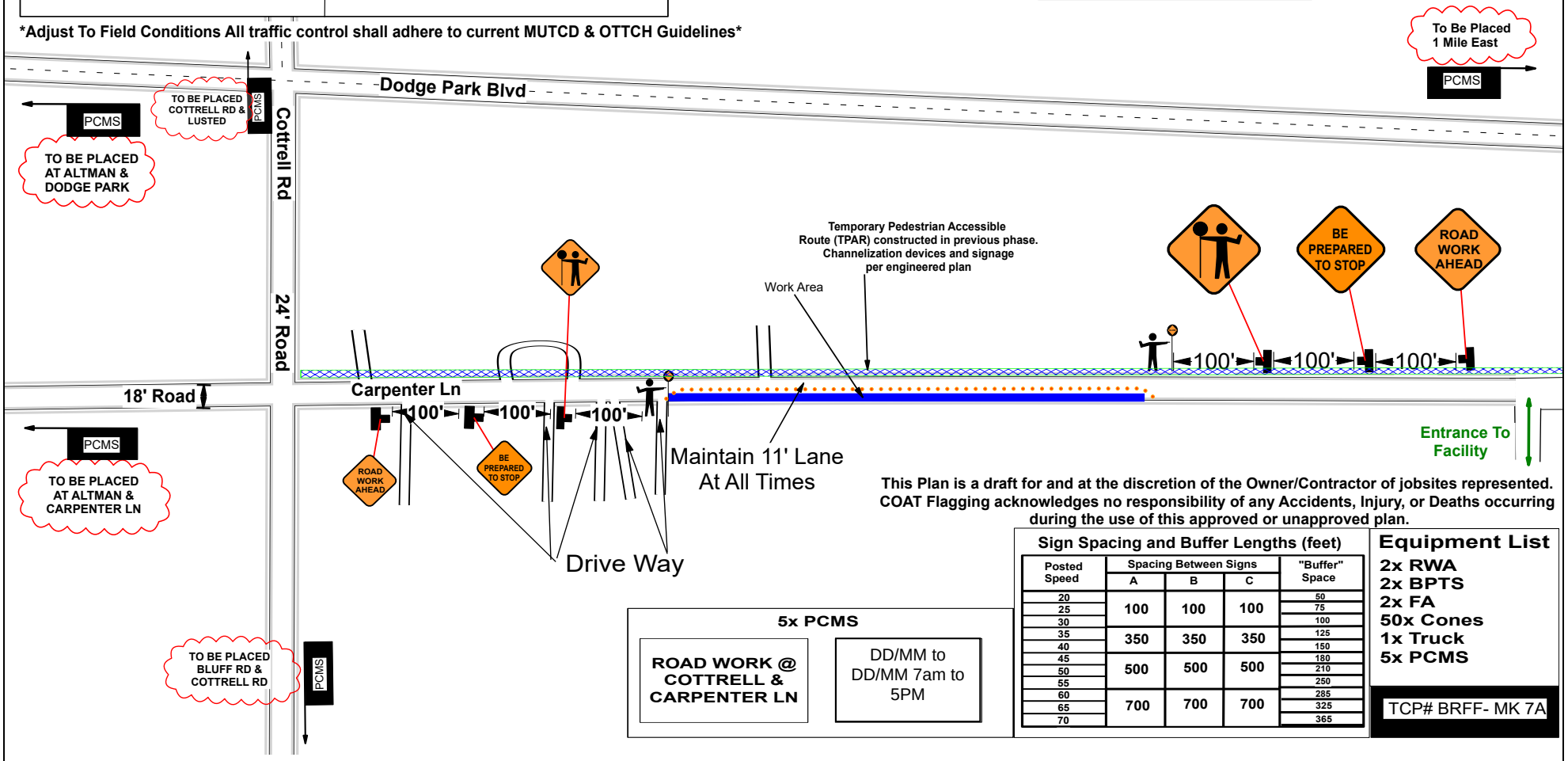

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5x PCMS

ROAD WORK @ COTTRELL & CARPENTER LN	DD/MM to DD/MM 7am to 5PM

Sign Spacing and Buffer Lengths (feet)

Posted Speed	Spacing Between Signs A	B	C	"Buffer" Space
20	100	100	100	50
25				75
30				100
35	350	350	350	125
40				150
45	500	500	500	180
50				210
55				250
60	700	700	700	285
65				325
70				365

Equipment List
2x RWA
2x BPTS
2x FA
50x Cones
1x Truck
5x PCMS

TCP# BRFF- MK 7A

Emergency Access
1) Dodge Park, Cottrell Rd, Carpenter Lane maintain as 2 lane 2-way roads during non-working hours.
2) During single lane closure in working hours, on-site traffic control flaggers will direct emergency responders through the work area in the single open lane

Bull Run Filtration Facility: Phase 4
Carpenter Lane TPAR in service, construction of permanent road widening
>>Work on Carpenter Lane WB Lane (Mid Block, East of Cottrell Rd)

Job Info	Notes
Contact: Scott Goldsmith (MWH-Kiewit) 805-235-0003 Daytime Work 7am to 5pm Dates TBD Purpose of Traffic Control: Construction of Road Improvements for Bull Run Filtration Facility	Dodge Park Lane Width 13' Cottrell Rd Road Width 24' Carpenter Road Width 18' 11' Lanes to be maintained at all times TPAR to maintain 4' minimum width Access to driveways to be maintained at all times

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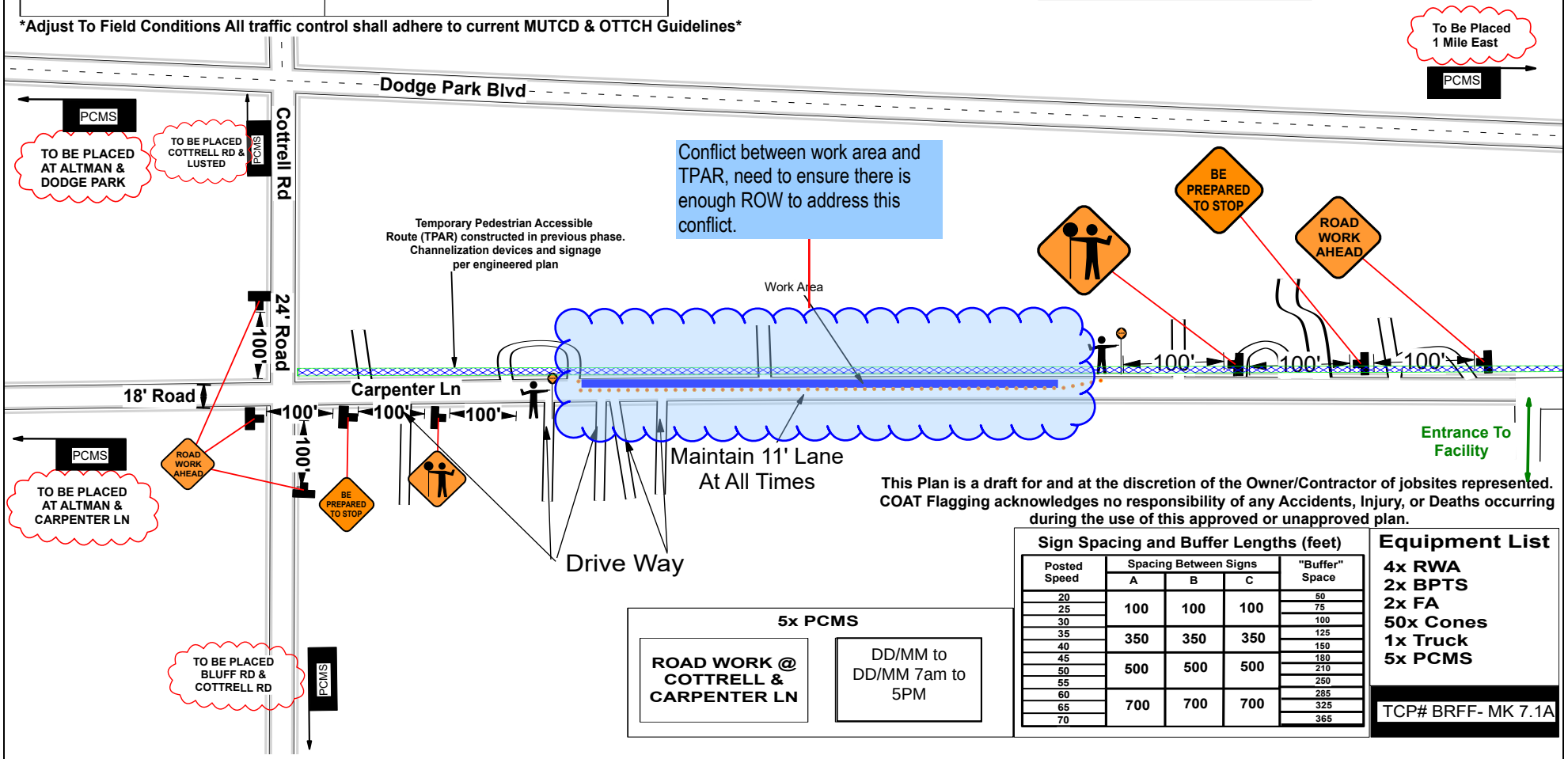

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5x PCMS

ROAD WORK @ COTTRELL & CARPENTER LN	DD/MM to DD/MM 7am to 5PM

Sign Spacing and Buffer Lengths (feet)

Posted Speed	Spacing Between Signs A	B	C	"Buffer" Space
20	100	100	100	50
25				75
30				100
35	350	350	350	125
40				150
45	500	500	500	180
50				210
55				250
60	700	700	700	285
65				325
70				365

Equipment List
4x RWA
2x BPTS
2x FA
50x Cones
1x Truck
5x PCMS

TCP# BRFF- MK 7.1A

Emergency Access
1) Dodge Park, Cottrell Rd, Carpenter Lane maintain as 2 lane 2-way roads during non-working hours.
2) During single lane closure in working hours, on-site traffic control flaggers will direct emergency responders through the work area in the single open lane

Bull Run Filtration Facility: Phase 4
Carpenter Lane TPAR in service, construction of permanent road widening
>>Work on Carpenter Lane EB Lane (East of Cottrell Rd)

Job Info	Notes
Contact: Scott Goldsmith (MWH-Kiewit) 805-235-0003 Daytime Work 7am to 5pm Dates TBD Purpose of Traffic Control: Construction of Road Improvements for Bull Run Filtration Facility	Dodge Park Lane Width 13' Cottrell Rd Road Width 24' Carpenter Road Width 18' 11' Lanes to be maintained at all times TPAR to maintain 4' minimum width Access to driveways to be maintained at all times

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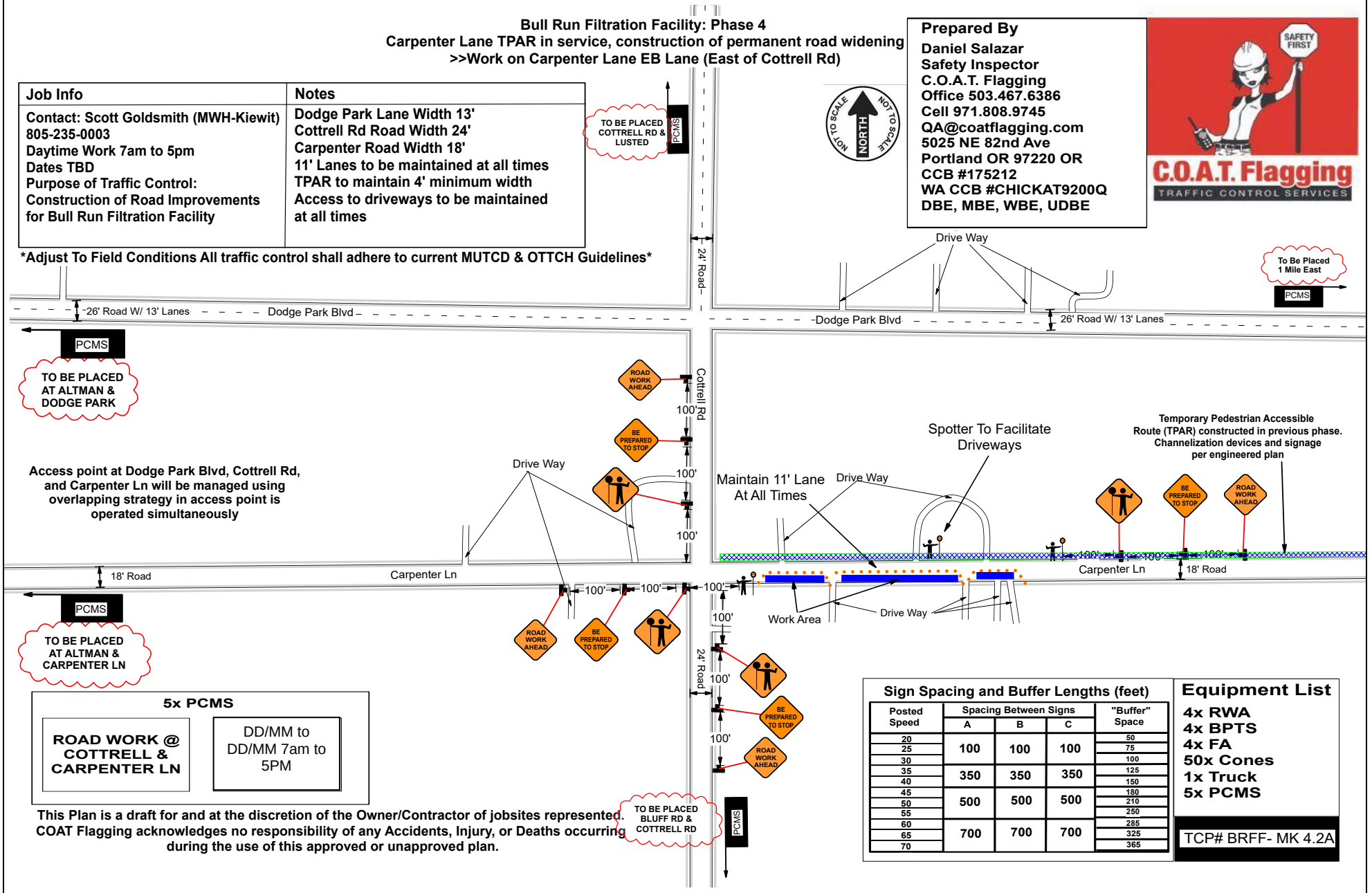

5x PCMS

ROAD WORK @ COTTRELL & CARPENTER LN	DD/MM to DD/MM 7am to 5PM

Sign Spacing and Buffer Lengths (feet)

Posted Speed	Spacing Between Signs A	B	C	"Buffer" Space
20	100	100	100	50
25				75
30				100
35	350	350	350	125
40				150
45	500	500	500	180
50				210
55				250
60	700	700	700	285
65				325
70				365

Equipment List
4x RWA
4x BPTS
4x FA
50x Cones
1x Truck
5x PCMS

TCP# BRFF- MK 4.2A

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Emergency Access
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2) During single lane closure in working hours, on-site traffic control flaggers will direct emergency responders through the work area in the single open lane

Bull Run Filtration Facility: Phase 4
Carpenter Lane TPAR in service, construction of permanent road widening
>>Work on Carpenter Lane WB Lane (1000'+ East of Cottrell Rd)

Job Info	Notes
Contact: Scott Goldsmith (MWH-Kiewit) 805-235-0003 Daytime Work 7am to 5pm Dates TBD Purpose of Traffic Control: Construction of Road Improvements for Bull Run Filtration Facility	Dodge Park Lane Width 13' Cottrell Rd Road Width 24' Carpenter Road Width 18' 11' Lanes to be maintained at all times TPAR to maintain 4' minimum width Access to driveways to be maintained at all times

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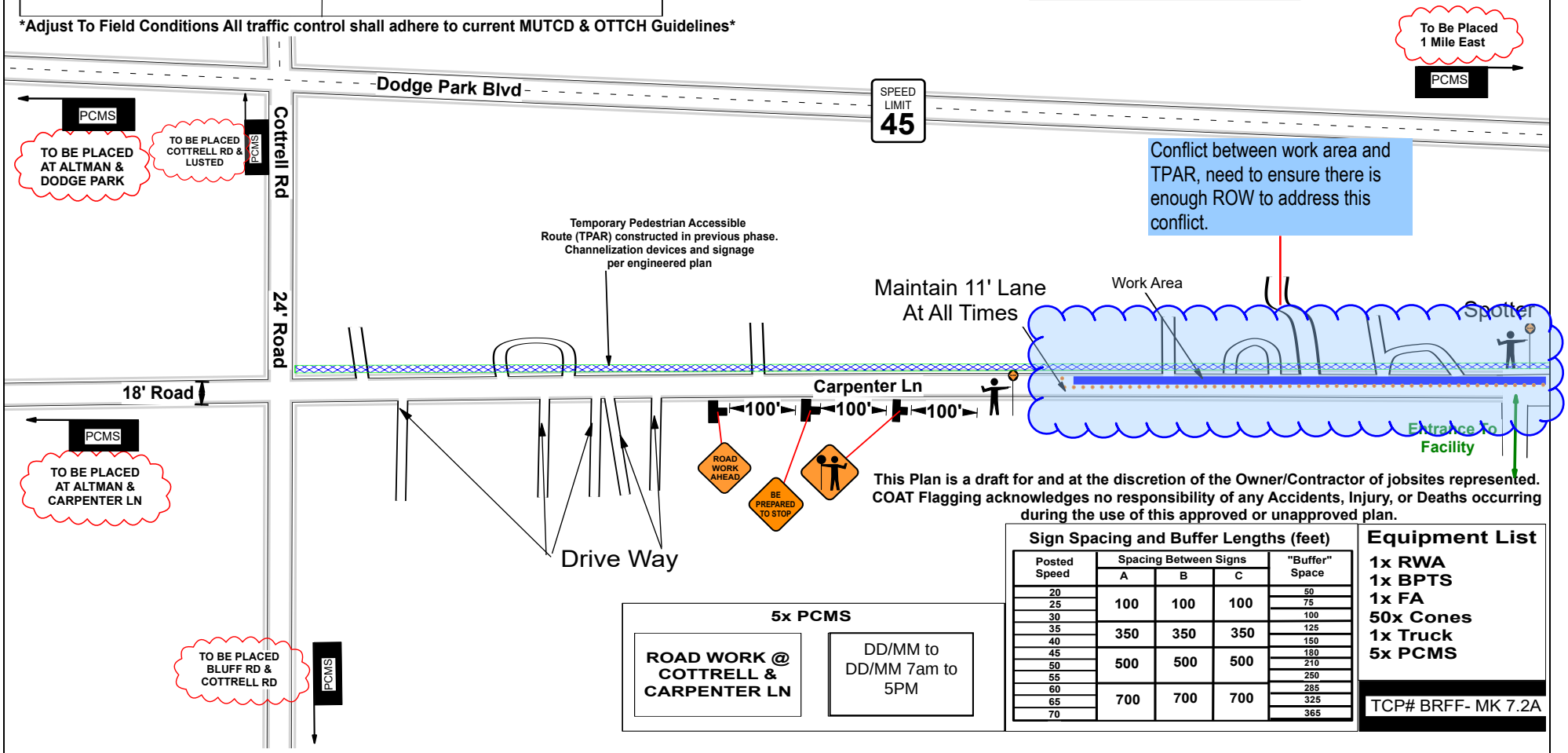

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5x PCMS

ROAD WORK @ COTTRELL & CARPENTER LN	DD/MM to DD/MM 7am to 5PM

Sign Spacing and Buffer Lengths (feet)

Posted Speed	Spacing Between Signs A	B	C	"Buffer" Space
20	100	100	100	50
25				75
30				100
35	350	350	350	125
40				150
45	500	500	500	180
50				210
55				250
60	700	700	700	285
65				325
70				365

Equipment List
1x RWA
1x BPTS
1x FA
50x Cones
1x Truck
5x PCMS

TCP# BRFF- MK 7.2A

Emergency Access
1) Dodge Park, Cottrell Rd, Carpenter Lane maintain as 2 lane 2-way roads during non-working hours.
2) During single lane closure in working hours, on-site traffic control flaggers will direct emergency responders through the work area in the single open lane

Bull Run Filtration Facility: Phase 4
Carpenter Lane TPAR in service, construction of permanent road widening
>>Work on Carpenter Lane EB Lane (1000'+ East of Cottrell Rd)

Job Info	Notes
Contact: Scott Goldsmith (MWH-Kiewit) 805-235-0003 Daytime Work 7am to 5pm Dates TBD Purpose of Traffic Control: Construction of Road Improvements for Bull Run Filtration Facility	Dodge Park Lane Width 13' Cottrell Rd Road Width 24' Carpenter Road Width 18' 11' Lanes to be maintained at all times TPAR to maintain 4' minimum width Access to driveways to be maintained at all times

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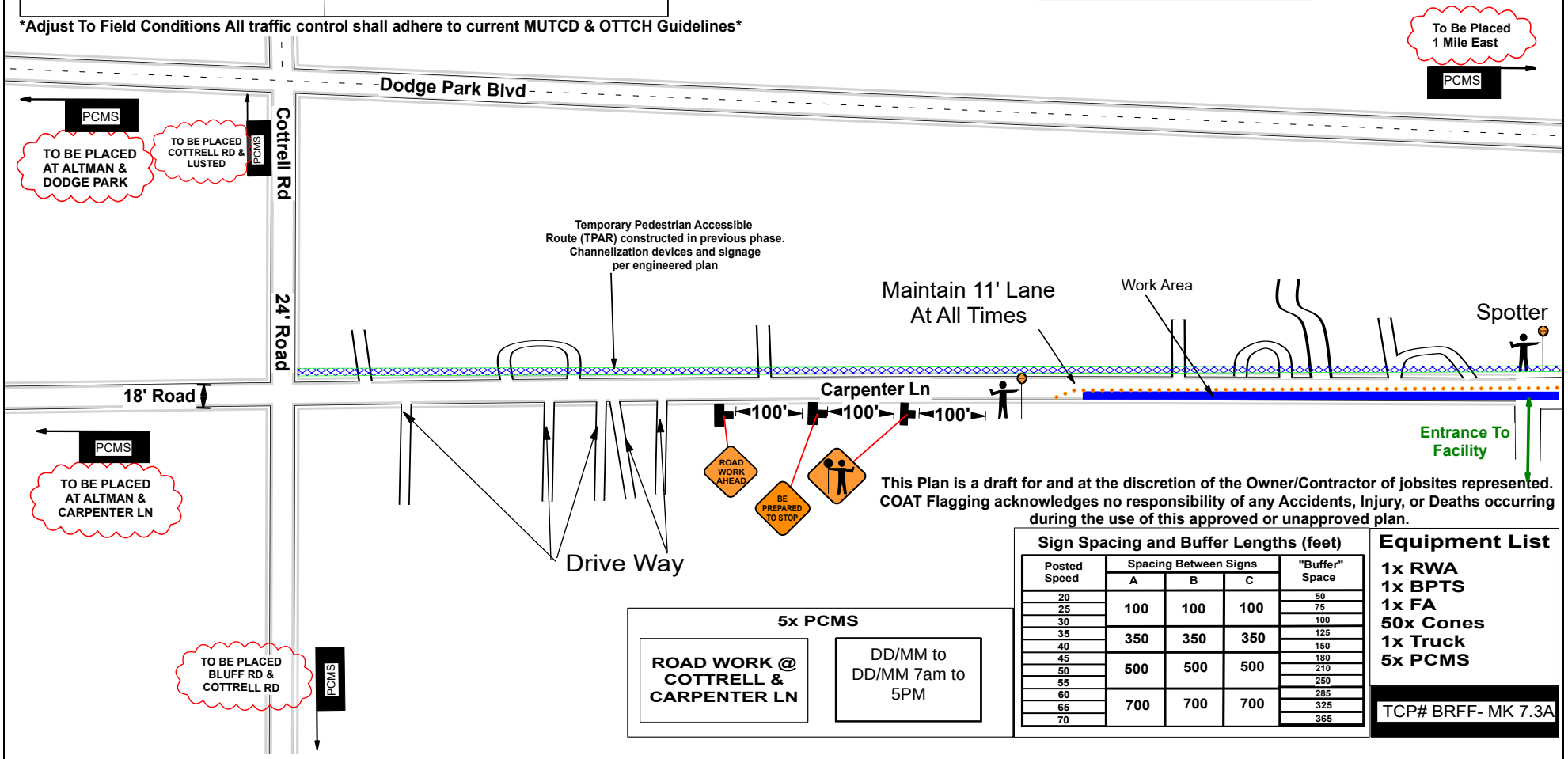

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5x PCMS

ROAD WORK @ COTTRELL & CARPENTER LN	DD/MM to DD/MM 7am to 5PM

Sign Spacing and Buffer Lengths (feet)

Posted Speed	Spacing Between Signs A	B	C	"Buffer" Space
20	100	100	100	50
25				75
30				100
35	350	350	350	125
40				150
45	500	500	500	180
50				210
55				250
60	700	700	700	285
65				325
70				365

Equipment List
1x RWA
1x BPTS
1x FA
50x Cones
1x Truck
5x PCMS

TCP# BRFF- MK 7.3A

Emergency Access
1) Dodge Park, Cottrell Rd, Carpenter Lane maintain as 2 lane 2-way roads during non-working hours.
2) During single lane closure in working hours, on-site traffic control flaggers will direct emergency responders through the work area in the single open lane

Bull Run Filtration Facility:
Phase 5 Carpenter Lane TPAR in service, with permanent road widening completed
>Local Area Signage Plan

This Plan is a draft for and at the discretion of the Owner/Contractor of jobsites represented. COAT Flagging acknowledges no responsibility of any Accidents, Injury, or Deaths occurring during the use of this approved or unapproved plan.

C.O.A.T. Flagging
TRAFFIC CONTROL SERVICES

Prepared By
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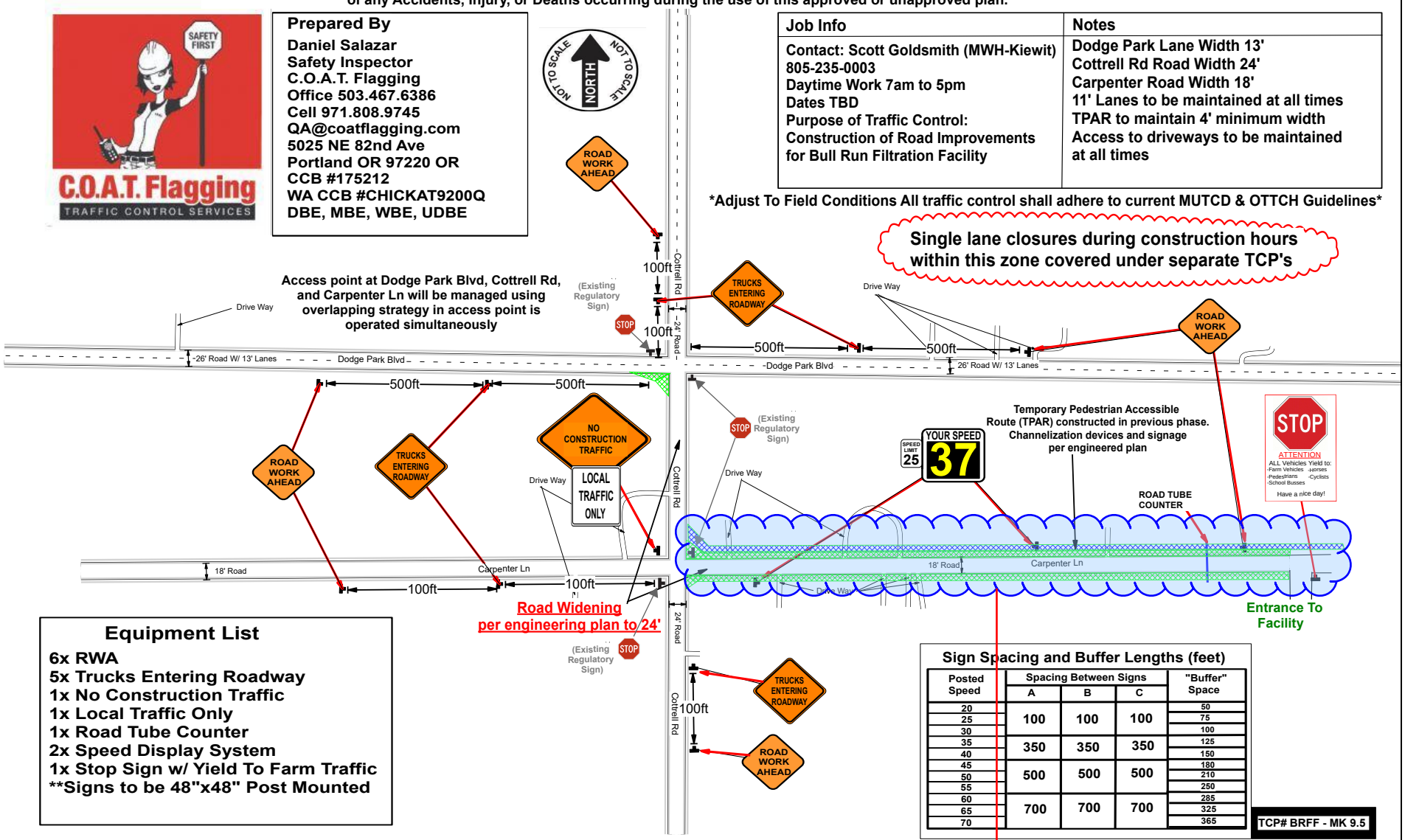
Job Info	Notes
Contact: Scott Goldsmith (MWH-Kiewit) 805-235-0003 Daytime Work 7am to 5pm Dates TBD Purpose of Traffic Control: Construction of Road Improvements for Bull Run Filtration Facility	Dodge Park Lane Width 13' Cottrell Rd Road Width 24' Carpenter Road Width 18' 11' Lanes to be maintained at all times TPAR to maintain 4' minimum width Access to driveways to be maintained at all times

Adjust To Field Conditions All traffic control shall adhere to current MUTCD & OTTCH Guidelines

Single lane closures during construction hours within this zone covered under separate TCP's



Equipment List

- 6x RWA
- 5x Trucks Entering Roadway
- 1x No Construction Traffic
- 1x Local Traffic Only
- 1x Road Tube Counter
- 2x Speed Display System
- 1x Stop Sign w/ Yield To Farm Traffic
- **Signs to be 48"x48" Post Mounted

Sign Spacing and Buffer Lengths (feet)

Posted Speed	Spacing Between Signs A	B	C	"Buffer" Space
20	100	100	100	50
25				75
30				100
35	350	350	350	125
40				150
45	500	500	500	180
50				210
55				250
60	700	700	700	285
65				325
70				365

TCP# BRFF - MK 9.5

Emergency Access
1) Dodge Park, Cottrell Rd, Carpenter Lane maintain as 2 lane 2-way roads during non-working hours.
2) During single lane closure in working hours, on-site traffic control flaggers will direct emergency responders through the work area in the single open lane

Legend describing green and blue hatched patterned areas would be helpful