GENERAL NOTES

1. Locations of existing utilities are based on information supplied by the utilities and considered approximate only. The contractor shall for place and verify locations, elevations, types, and sizes of all existing utility crossings or connection locations.

2. All sewage force main joints shall be restrained. Restrain all exterior valves, tees, bends, and fittings with mechanical joint restraints and install concrete thrust blocks where shown. All fittings to be mechanical joint unless otherwise noted.

3. Contractor to obtain and convey with all applicable City of Wilsonville and Clackamas County permits and requirements.

4. Do not remove trees unless they have been identified in the plans for removal.

5. Contractor to provide "as constructed" drawings indicating final location and elevation, grade, alignment, fittings and materials installed, and all other utilities or obstacles shown on these plans. As constructed drawings shall be "red lines" of the design drawings.

6. At the end of each workday, all open trenches shall be backfilled or covered and secured with pinned plates. All trenches in traffic areas shall be paved with temporary hot mix asphalt.

7. Contractor shall comply with all Oregon Department of Environmental Quality (DEQ) requirements in the disposal of chlorinated water. See specifications.

8. Work hours within Memoral Park are restricted. See specification section 011216 work sequence for project specific work constraints.

9. Sewage force main shall maintain a minimum of 60 inches of cover from finished street grade unless otherwise shown on plans. Valve operator extensions required on all valves that are deeper than 48 inches. A minimum slope of 0.5% toward high and low points shown shall be maintained. Deflect pipe joints up to 50% of allowable manufacturers limits to maintain alignment shown or as specified.

10. Contractor shall maintain sewage force main separation from the existing water lines in accordance with OAR 333-50-0050(9).

11. Contractor shall restore all existing features, including but not limited to, roadways, structures, curbs, sidewalks, fences, walls, plantings, mailboxes, signs, piping, and utilities disturbed during construction to existing conditions unless otherwise specified. Such restoration will be considered incidental.

12. All survey and staking necessary for construction shall be provided by the contractor. The contractor shall develop and have all detail surveys necessary to establish principal lines and grades.

13. Protect freshly poured concrete from vandalism or other damage for a minimum of twenty-four (24) hours or until cured enough to support typical use. Whenever is longer, any concrete damaged by vandalism or other causes shall be replaced at no cost to the city.

14. The contractor will be required to submit a detailed plan two weeks prior to any proposed pump station shutdown. Temporary pumping equipment shall be provided by the contractor during proposed pump station shutdowns. See section 011710.11 - temporary sewage control and bypass pumping, section 011216 work sequence for additional requirements.

SURVEY CONTROL NOTES

HORIZONTAL DATUM: THE HORIZONTAL DATUM IS OREGON STATE PLANE COORDINATES NAD83(2011),(EPOCH:2010.0000), NORTH ZONE.

VERTICAL DATUM: THE VERTICAL DATUM IS NAVD 88 REFERENCED TO THE FOUND SITE BENCHMARK SHOWN THE TOPOGRAPHIC SURVEY BY MACAY AND SPOSITO, INC. DATED 11-23-2010. THE PUBLISHED ELEVATION IS 90.98 FEET.
**DESIGN DATA TABLE**

**PUMP STATION**

- LOCATION: MEMORIAL PARK, WILSONVILLE, OR 97070
- TYPE: TRIPLEX SUBMERSIBLE SEWAGE PUMP STATION WITH VARIABLE SPEED DRIVES
- NET CAPACITY OF PUMP STATION: 2,800 GPM AT 145 FEET TDH
- MOTOR HP: 85 HP
- TOTAL STARTS PER HOUR: 6
- WET WELL OPERATING VOLUME: 350 FT³
- LEVEL CONTROL TYPE: SUBMERSIBLE LEVEL TRANSDUCER
- STANDBY POWER: 250 KW PERMANENT DIESEL STANDBY GENERATOR CONNECTED TO AUTOMATIC TRANSFER SWITCH
- FUEL TANK CAPACITY: N/A
- OVERFLOW POINT: MANHOLE LOCATED APPROX 250 FT SW OF EXISTING PUMP STATION, AT THE LOW END OF THE PATH CONNECTING THE MEMORIAL PARK PARKING LOT TO MEMORIAL DRIVE
- OVERFLOW ELEVATION: 87.72 FT
- 100-YEAR FLOOD ELEVATION: 100-YR
- EPA RELIABILITY CLASS: 1
- FORCE MAIN: TYPE AND LENGTH: APPROX 1,100 FEET OF 12 INCH PROFILE DESCRIPTION: CONTINUOUSLY DESCENDING TO THE CONNECTION TO THE EXISTING FORCE MAIN, THEN ASCENDING ALONG THE PARK ACCESS ROAD TO THE WALKING PATH CONNECTING MEMORIAL PARK DRIVE, AND ALONG MEMORIAL DRIVE TO THE DISCHARGE MANHOLE, WITH ONE HIGH POINT ALONG MEMORIAL DRIVE
- AIR RELEASE VALVES: 2 - ONE AT PUMP STATION, ONE ON FORCE MAIN
- AVERAGE FORCE MAIN DETENTION TIME: 4.3 MINUTES (BASED ON EXISTING DRY WEATHER FLOW)
- DISCHARGE MANHOLE LOCATION: ON MEMORIAL DRIVE, 270 FT EAST OF ROGUE LANE
- SULFIDE CONTROL SYSTEM: N/A - DOWNSTREAM SEWER IS PVC

**SYSTEM HEAD CURVE**

- Flow (gpm): 0 to 5000
- TDH (ft): 0 to 300

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**DESIGN CRITERIA**

**PROJECT NO.:** 17-2136-OR-GEN
**SCALE:** G-5
**DATE:** JULY 2019
**DESCRIPTION:** MEMORIAL PARK
**PUMP STATION**

- LOCATION: MEMORIAL PARK, WILSONVILLE, OR 97070
- TYPE: TRIPLEX SUBMERSIBLE SEWAGE PUMP STATION WITH VARIABLE SPEED DRIVES
- NET CAPACITY OF PUMP STATION: 2,800 GPM AT 145 FEET TDH
- MOTOR HP: 85 HP
- TOTAL STARTS PER HOUR: 6
- WET WELL OPERATING VOLUME: 350 FT³
- LEVEL CONTROL TYPE: SUBMERSIBLE LEVEL TRANSDUCER
- STANDBY POWER: 250 KW PERMANENT DIESEL STANDBY GENERATOR CONNECTED TO AUTOMATIC TRANSFER SWITCH
- FUEL TANK CAPACITY: N/A
- OVERFLOW POINT: MANHOLE LOCATED APPROX 250 FT SW OF EXISTING PUMP STATION, AT THE LOW END OF THE PATH CONNECTING THE MEMORIAL PARK PARKING LOT TO MEMORIAL DRIVE
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- AIR RELEASE VALVES: 2 - ONE AT PUMP STATION, ONE ON FORCE MAIN
- AVERAGE FORCE MAIN DETENTION TIME: 4.3 MINUTES (BASED ON EXISTING DRY WEATHER FLOW)
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- SULFIDE CONTROL SYSTEM: N/A - DOWNSTREAM SEWER IS PVC

**PRELIMINARY ONLY - NOT FOR CONSTRUCTION**
1. Erosion and sediment control measures, effective erosion and sediment control measures, and mitigating measures shall be implemented at all times during construction. The property owner or designee shall be responsible for ensuring that all erosion and sediment control measures are implemented and maintained in accordance with the approved erosion and sediment control plan. Failure to implement the erosion and sediment control measures may result in fines and/or penalties being assessed.

2. Construction activities must avoid or minimize excavation and disturbance of natural ground surfaces to the extent possible. The property owner or designee shall be responsible for ensuring that all excavation and disturbance activities are conducted in a manner that minimizes erosion and sediment production.

3. Use of temporary erosion control measures, such as straw or plastic sheeting, shall be required during construction activities that are not covered by permanent erosion control measures. The property owner or designee shall be responsible for ensuring that all temporary erosion control measures are properly installed and maintained.

4. Construction activities shall be conducted in a manner that minimizes the disturbance of natural ground surfaces. The property owner or designee shall be responsible for ensuring that all construction activities are conducted in a manner that minimizes erosion and sediment production.

5. Daily inspection of erosion and sediment control measures shall be conducted by the property owner or designee. The property owner or designee shall be responsible for ensuring that all erosion and sediment control measures are properly maintained and repaired as necessary.

6. State 1200-CN (D) and 1200-CN (E) permits are required for any disturbance of five acres or more, or a copy of the approved 1200-CN shall be required for any disturbance of less than five acres. The property owner or designee shall be responsible for obtaining the appropriate permits and ensuring that all erosion and sediment control measures are properly implemented and maintained.

7. Inspections of initial and final erosion control measures are required. The city's authorized representative shall conduct initial and final erosion control inspections. The property owner or designee shall be responsible for ensuring that all erosion and sediment control measures are properly implemented and maintained.

8. Final erosion control measures shall be implemented as required to ensure that sediment-laden water does not enter the drainage system, roadways, or waterways. The property owner or designee shall be responsible for ensuring that all erosion and sediment control measures are properly implemented and maintained.

9. Erosion control, no person shall create physical erosion by moving earth or any other material that will result in the creation of such erosion. Any such activity shall be immediately remedied by the person(s) responsible for creating such erosion.

10. The 1200-CN permit shall not apply to the construction of a publicly owned or maintained roadway or for a project funded by a public agency.

11. The property owner or designee shall be responsible for ensuring that all erosion and sediment control measures are properly implemented and maintained.

12. Use of straw. Solid straw bales are not to be used for any erosion control measures. Straw should only be used loose, to spread as temporary protection measures for dust control, if required by the city's authorized representative, shall include at least one water truck on site at all times.

13. Wet weather requirements. Exposed soils and un-vegetated surfaces shall be covered with an appropriate erosion control measure. All construction waste and sediment deposits before receiving a final erosion control approval. (solely straw or plastic sheeting is not permanent erosion protection).

14. Securing of portable toilets. If required, the property owner or designee shall secure portable toilets, by cable or chain, to stops at all times. The property owner or designee shall be responsible for ensuring that all portable toilets are properly secured.

15. Resources for ESC facility design & development. The property owner or designee shall be responsible for ensuring that all resources for erosion control facility design and development are properly implemented and maintained.


17. Drainage protection, if required, the property owner or designee shall ensure that all drainage protection measures are properly implemented and maintained.

18. Protection of stormwater facilities, drains & inlets. Storm drain inlets shall be protected with a ¾” – 0 crushed concrete filter. Drainage protection measures shall be installed before the construction site.

19. Sediment barrier, if at any time sediment barrier shall be required to prevent sediments from entering the drainage system, an erosion control fence shall be installed in conformance with detail 2.245.

20. Water-disposal systems, sediment and water disposal systems shall be installed as required. The use of stormwater detention and water quality solutions shall be approved by the city's authorized representative.

21. Erosion control measures shall be installed before the construction of a public roadway or for a project funded by a public agency.

22. WET WEATHER REQUIREMENTS. EXPOSED SOILS AND UN-VEGETATED SURFACES SHALL BE COVERED WITH AN APPROPRIATE EROSION CONTROL MEASURE. ALL CONSTRUCTION WASTE AND SEDIMENT DEPOSITS BEFORE RECEIVING A FINAL EROSION CONTROL APPROVAL. (SOLELY STRAW OR PLASTIC SHEETING IS NOT PERMANENT EROSION PROTECTION).

23. DRAINAGE PROTECTION, IF REQUIRED, THE PROPERTY OWNER OR DESIGNEE SHALL SECURE PORTABLE TOILETS, BY CABLE OR CHAIN, TO BARRIERS AT ALL TIMES. THE PROPERTY OWNER OR DESIGNEE SHALL BE RESPONSIBLE FOR ENSURING THAT ALL PORTABLE TOILETS ARE PROPERLY SECURED.

24. USE OF STRAW. SOLID STRAW BALE IS NOT TO BE USED FOR ANY ESC MEASURES. STRAW SHOULD ONLY BE USED LOOSE, TO SPREAD AS TEMPORARY PROTECTION MEASURES FOR DUST CONTROL, IF REQUIRED BY THE CITY'S AUTHORIZED REPRESENTATIVE, SHALL INCLUDE AT LEAST ONE WATER TRUCK ON SITE AT ALL TIMES.

25. WET WEATHER REQUIREMENTS. EXPOSED SOILS AND UN-VEGETATED SURFACES SHALL BE COVERED WITH AN APPROPRIATE EROSION CONTROL MEASURE. ALL CONSTRUCTION WASTE AND SEDIMENT DEPOSITS BEFORE RECEIVING A FINAL EROSION CONTROL APPROVAL. (SOLELY STRAW OR PLASTIC SHEETING IS NOT PERMANENT EROSION PROTECTION).

26. WATERTIGHT TRUCKS. WATERTIGHT TRUCKS SHALL BE USED TO TRANSPORT CONSTRUCTION WASTE AND SEDIMENT DEPOSITS BEFORE RECEIVING A FINAL EROSION CONTROL APPROVAL. (SOLELY STRAW OR PLASTIC SHEETING IS NOT PERMANENT EROSION PROTECTION).

27. USE OF STRAW. SOLID STRAW BALE IS NOT TO BE USED FOR ANY ESC MEASURES. STRAW SHOULD ONLY BE USED LOOSE, TO SPREAD AS TEMPORARY PROTECTION MEASURES FOR DUST CONTROL, IF REQUIRED BY THE CITY'S AUTHORIZED REPRESENTATIVE, SHALL INCLUDE AT LEAST ONE WATER TRUCK ON SITE AT ALL TIMES.

28. DRAINAGE PROTECTION, IF REQUIRED, THE PROPERTY OWNER OR DESIGNEE SHALL SECURE PORTABLE TOILETS, BY CABLE OR CHAIN, TO BARRIERS AT ALL TIMES. THE PROPERTY OWNER OR DESIGNEE SHALL BE RESPONSIBLE FOR ENSURING THAT ALL PORTABLE TOILETS ARE PROPERLY SECURED.

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30. Erosion control measures, effective erosion and sediment control measures, and mitigating measures shall be implemented at all times during construction. The property owner or designee shall be responsible for ensuring that all erosion and sediment control measures are implemented and maintained in accordance with the approved erosion and sediment control plan. Failure to implement the erosion and sediment control measures may result in fines and/or penalties being assessed.

31. The property owner or designee shall be responsible for ensuring that all erosion and sediment control measures are properly implemented and maintained.

32. Erosion control measures, effective erosion and sediment control measures, and mitigating measures shall be implemented at all times during construction. The property owner or designee shall be responsible for ensuring that all erosion and sediment control measures are implemented and maintained in accordance with the approved erosion and sediment control plan. Failure to implement the erosion and sediment control measures may result in fines and/or penalties being assessed.

33. Use of straw. Solid straw bales are not to be used for any erosion control measures. Straw should only be used loose, to spread as temporary protection measures for dust control, if required by the city's authorized representative, shall include at least one water truck on site at all times.

34. Wet weather requirements. Exposed soils and un-vegetated surfaces shall be covered with an appropriate erosion control measure. All construction waste and sediment deposits before receiving a final erosion control approval. (solely straw or plastic sheeting is not permanent erosion protection).

35. Sediment barrier, if at any time sediment barrier shall be required to prevent sediments from entering the drainage system, an erosion control fence shall be installed in conformance with detail 2.245.

36. Water-disposal systems, sediment and water disposal systems shall be installed as required. The use of stormwater detention and water quality solutions shall be approved by the city's authorized representative.

37. Erosion control measures, effective erosion and sediment control measures, and mitigating measures shall be implemented at all times during construction. The property owner or designee shall be responsible for ensuring that all erosion and sediment control measures are implemented and maintained in accordance with the approved erosion and sediment control plan. Failure to implement the erosion and sediment control measures may result in fines and/or penalties being assessed.

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43. Wet weather requirements. Exposed soils and un-vegetated surfaces shall be covered with an appropriate erosion control measure. All construction waste and sediment deposits before receiving a final erosion control approval. (solely straw or plastic sheeting is not permanent erosion protection).

44. Sediment barrier, if at any time sediment barrier shall be required to prevent sediments from entering the drainage system, an erosion control fence shall be installed in conformance with detail 2.245.

45. Water-disposal systems, sediment and water disposal systems shall be installed as required. The use of stormwater detention and water quality solutions shall be approved by the city's authorized representative.
1. Preconstruction Conference. The contractor shall coordinate with the project arborist in a timely manner to review tree protection and to answer any questions on-site prior to the start of construction activity.

2. Protection fencing. Trees to remain on site shall be protected by installation of tree protection fencing as depicted on the tree preservation plan in order to prevent injury to tree trunks or roots, or soil contamination within the root protection zone. Fences shall be a minimum 6-foot high 2-inch chain link mesh secured to a minimum 1.5-inch steel or aluminum posts or blocks driven into the ground except where minimum 4-foot high orange plastic mesh fencing or metal stakes is specified on the plan. The contractor is responsible for providing the materials and for the cost of fencing. The contractor shall have a signed agreement with an arborist to supply the tree protection fencing.

3. Tree protection zone. Without authorization from the project arborist, none of the following shall occur beneath the guideline of any protected tree:
   - Change of grade or cut and fill;
   - New pervious surfaces;
   - Utility drainage field placement;
   - Staging or storage of materials and equipment;
   - Shoveling, spading, or digging;
   - Tree damage or cutting.
   - Drainage and tree protection fences shall be removed in a timely manner to open up space for a healthy root system or as such space is needed for construction.

4. Excavation control. Silt fencing required to be installed beneath the guideline of protected trees shall not be removed or disturbed until such time as is specified in advance by the project arborist. Trees to remain on site shall be protected by a minimum 6-foot high 2-inch chain link mesh secured to a minimum 1.5-inch steel or aluminum posts or blocks driven into the ground or the area would be feasible. Similarly, silt fencing may be removed by staking (grouting) or taping. Upon removal, the silt fencing shall be kept free of debris and shall be restored to the ground surface.

5. Tree and stump removal. Trees to be removed shall be clearly identified by tree-marking paint or other methods approved in advance by the project arborist. Stumps from removed trees located within the protection zone shall be removed in the ground where feasible. Otherwise, stumps may be removed by stump grouting or pilots. The contractor shall be responsible for removing all stumps from removed trees.

6. Pruning. Pruning will be needed to provide for overhead clearance and to remove dead and defective branches for safety. The city's parks maintenance crew shall be responsible for all required pruning. The city's project arborist shall coordinate with the project's engineering department in a timely manner to arrange the necessary pruning prior to construction.

7. Excavation. The project arborist shall provide on-site consultation during all excavation activities beneath the guideline of protected trees. Excavation in advance of adjacent to roots larger than 2 inches in diameter activating the root protection zone of retained trees shall be by hand or other non-invasive techniques to ensure that roots are not damaged. Where feasible, roots shall be protected by trench cutting or other means to avoid destruction or damage. Excavation can be made if, in the discretion of the project arborist, unacceptable damage will not occur to the tree.

8. Landscaping, following construction and where landscaping is desired, apply approximately 3-inches of mulch beneath the guideline of protected trees, but not directly against tree trunks. Soils and ground covers may be plant within tree protection areas if irrigation is used, but hand irrigation on low-flow preppers installed at native grade (no trenching) only beneath the guideline of protected trees. Landscaping shall be performed by hand and with hand tools only beneath protected tree guidelines. Adjust the location of plants to avoid tree root impacts.

9. Quality assurance. The project arborist should supervise thorough evaluation of this plan during construction activities that could endanger on retained trees. Tree protection site inspection monitoring reports should be provided to the client and city on a regular basis throughout construction.

10. Arborist report. The arborist report shall be used in conjunction with the plans. All recommendations in the arborist report shall be followed. Any proposed deviations from the plans or report shall be discussed with the engineer & arborist.
Sheet Notes:
1. For more information on tree protection, tree removal, conditions of specific trees, and other requirements, see the Arborist Report. Included as supplementary information to these plans.
INLET PROTECTION, SEE
CITY STD DWG NO S-2126
& E-2127, SHEET ESC-2, TYP

INLET PROTECTION, SEE
CITY STD DWG NO S-2126,
SHEET ESC-2, PLACE AT CURB
CUTS THAT ALLOW WATER
INTO STORMWATER SWALES

SEED BAG, SEE CITY STD
DWG NO S-2255, SHEET ESC-2, TYP

INSTALL BAG, SEE CITY STD
DWG NO S-2255, SHEET ESC-2, TYP

SEGMENT FENCE, SEE
CITY STD DWG NO S-2245,
SHEET ESC-2, TYP

DEAD TREE TO BE REMOVED

SMALL TREE TO BE REMOVED

TREE PROTECTION FENCING, SEE
DET 1 SHEET ESC-2, TYP

MATCHLINE STA FM4+20
SEE SHEET ESC-3

INSTALL BIOFILTER
BAG, SEE CITY STD
DWG NO S-2255,
SHEET ESC-2, TYP

DEAD TREE TO BE REMOVED
CHAIN LINK TREE
PROTECTION FENCING, SEE
DET 1 SHEET ESC-2, TYP

WATTLES, LOCATED 1 FT
AWAY FROM FENCE SEE DET 2,
SHEET ESC-2, TYP

90% SUBMITTAL
1. Remove all pump station specific electrical & mechanical equipment from existing pump station. Fill wet well with pea gravel. Water & power to remain and building to be used as parks storage building.

2. Abandonment of existing facilities shall be coordinated with proposed upgrades and pump station startup. See specification 01116 work sequencing for more information.

3. Remove all pump station specific electrical & mechanical equipment from existing pump station. Fill notes:

- Sequencing for more information.
- Coordinated with proposed upgrades and pump
- Exist ps, abandon once
- Not to scale

- See note 1
- See note 2
-.&nbsp;30" & Aban, See Note 2
- & gROUT for sewer to be abandoned, see note 2
- SSMH 6, See SHT C-4
- SSMH 4, See SHT C-5
- SSMH 5, See SHT C-5
- Fill exist 15” SS, See SHT C-4
- Fill exist 15” SS w/ clsh & aban, see note 2
- Plug 10” pipe penetration w/ grout for sewer to be abandoned, see note 2
- Limits of sawcut & road reconstruction, see SHT C-6
KEY NOTES

FORCE MAIN
1. BYPASS VAULT, SEE DET 2, SHT C-10
2. STA FM1+00, BEGIN 12' DI FM ALIGNMENT AT OUTSIDE FACE OF VALVE VAULT, SEE SHT C-4
3. SEE SHT M-1 FOR PS PIPING

WATER
4. 6" DI WATER AT 36" DEPTH W/ JOINT RESTRAINTS, SEE SHTS C-4 & C-5 FOR CONTINUATION
5. FIRE HYDRANT, SEE DET X, SHT C-X
6. 1" SERVICE SADDLE W/ 1" SERVICE CONNECTION
7. 4" CPVC WATER SERVICE INTO BUILDING, SEE SHT M-5

SANITARY SEWER
8. 21" GRAVITY SS, SEE SHTS C-4 & C-5
9. SSMH 2, SEE SHT C-4
10. SSMH 1, SEE SHT C-4
11. 4" DI FLOOR DRAIN FROM BUILDING

FIBER
12. FIBER OPTIC CONDUIT VAULT, SEE DET, SHT FO-1
13. FIBER OPTIC CONDUIT, SEE SHT FO-2 FOR FIBER OPTIC PLAN

ODOR CONTROL
14. 8" PVC PIPE, ROUTED FROM ODOR CONTROL UNIT TO WET WELL

STORM SEWER
15. STORM SEWER AREA DRAIN, SEE CITY STD DWG NO. S-2110, SHT C-11
16. 10" STORM SEWER, SEE SHT C-4

90% SUBMITTAL

PRELIMINARY ONLY NOT FOR CONSTRUCTION
NOTES:
1. DEWATERING WELLS AND OBSERVATION WELL LOCATIONS AND SPACING ARE APPROXIMATE AND ARE FOR CONTRACTOR BIDDING PURPOSES ONLY. FINAL DESIGN OF DEWATERING SYSTEM SHALL BE BY CONTRACTOR AS SPECIFIED IN SECTION 312319.
2. DEEP DEWATERING WELLS, LOCATED NORTH AND SOUTH OF THE VALVE VAULT, MAY NOT BE NECESSARY IF THE PUMP STATION EXCAVATION IS PERFORMED WITH INTERLOCKING SHEET PILE SHORING EMBEDDED TO APPROXIMATE ELEVATION OF 51 FEET (IE APPROXIMATELY 10 FEET INTO STIFF CLAY LAYER). COORDINATES WITH ENGINEER PRIOR TO DEWATERING CONTRACTORS MOBILIZATION TO THE SITE.
3. DEEP DEWATERING WELLS PLACED NEAR SDH-1 AND SDH-2 ARE RECOMMENDED TO HAVE THE BOTTOM OF THE SCREENED INTERVAL INSTALLED TO APPROXIMATE ELEVATION 41.5 FEET (IE TOP OF THE STIFF CLAY LAYER) AND PUMPED FOR A MINIMUM OF 5 DAYS PRIOR TO BEGINNING EXCAVATIONS.
4. INTERNAL DUMPING WILL BE NECESSARY FOR BOTH THE PUMP STATION AND PIPELINE MANHOLE EXCAVATIONS. INTERNAL DUMPING SHOULD ALSO BE USED TO SUPPLEMENT EXTERNAL DEWATERING SYSTEMS (IE DEEP WELLS OR VACUUM WELLPOINTS) WHEN USED.
5. AN OBSERVATION WELL IS PROPOSED TO CONFIRM DEWATERING IS OCCURRING NEAR THE PUMP STATION CONNECTIONS AND ALONG THE PIPELINE. PROPOSED LOCATIONS OF OBSERVATION WELLS FOR SUPPORT OF THE VACUUM WELLPOINT DEWATERING, NOT SHOWN. OBSERVATION WELLS ARE RECOMMENDED TO HAVE THE BOTTOM OF THE SCREENED INTERVALS PLACED TO APPROXIMATE ELEVATION OF THE TOP OF THE STIFF CLAY LAYER.

DEWATERING WELLS
SEE NOTE 2, TYP

DEWATERING WELLS
SEE NOTE 3, TYP

PUMP DISCONNECT PANEL & FRENCH
SEE DET X, SHT X-X

PUMP STATION GRADING
AND SURFACING PLAN

CITY OF WILSONVILLE,
OREGON MEMORIAL PARK
PUMP STATION

Murraysmith

PRELIMINARY ONLY
DRAWN TO SHOW SIZE
JULY 2019

90% SUBMITTAL

PROJECT NO.: 17-2136.204
SCALE: 1"=70'

NOTICE
Preliminary drawings are not for construction.
Prepared by: Murraysmith
Approved by: John Burt
July 2019

0 10 20
10
5
0

SCALE IN FT
Sheet Notes:
1. Prior to installing manhole, cap existing 8" sewer. Coordinate with city, manhole to locate sewer for exact location of manhole. Field core 8" penetration into manhole.
2. Install joint restrainers on all force main joints.
3. Vacuum well points to be installed per note 1, sheet C-4.
5. All ductile iron pipe shall be restrained.
6. Coordinate all work with the requirements in specification section 011216 Work Sequencing.

Plan

90% Submittal

City of Wilsonville,
Oregon
Memorial Park
Pump Station

Off Site Utility Plan

STA FM4+20 TO STA FM8+00

Connect to exist 12"FM, See Note 6

Furnish & install:
1-12" 45° bend, MJ

STA FM7+23.0

Furnish & install:
1-12" 45° bend, MJ

STA FM7+94

Furnish & install:
1-12" LS, MJ, Restr

1-TB

STA FM7+77

Furnish & install:
1-12" 45° bend, MJ

STA FM7+52

Furnish & install:
1-12" 45° bend, MJ

Connect to exist 12"FM, See Note 6

Furnish & Install:
1-48" SSMH,
See City Std Dwg's 2005 & 2080,
SHT C-11 and Dwg No. 2055, SHT C-12,

Connect to exist 8" sewer, see note 1

Vacuum well points, see Note 3

SEE CITY STD DWGS. 2005 & 2080,
SHT C-11 AND DWG NO. 2055, SHT C-12,
**KEY NOTES**

- Replace road striping w/ MMA, TYP ALL
- Limits of sawcut
- Protect exist CB
- Remove & replace pavement, see det, this shh for replacement section

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**ACCESS ROAD PLAN**

**ACCESS ROAD PROFILE**

**TYPICAL PARK ACCESS ROAD PAVEMENT SECTION**

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**NOTES:**

1. AC pavement shall be Level 3, 1/2" dense.
2. Excavate and remove existing pavement and road base to subgrade elevation. Finish grade may vary from existing grade.

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**SCALE:** 1"=30’ H; 1"=5’ V

**NOT TO SCALE**

**PRELIMINARY ONLY**

DO NOT USE FOR CONSTRUCTION

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**CITY OF WILSONVILLE, OREGON MEMORIAL PARK PUMP STATION**

**PAVEMENT RESTORATION PLAN, PROFILE AND SECTION**

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**90% SUBMITTAL**
NOTES:
1. GENERAL LOCATION OF BOLLARDS SHOWN ON PLANS. LOCATE BOLLARDS WITH A MINIMUM 3' CLEARANCE FROM ALL UNDERGROUND PIPING AND APPURTENANCES AND A MINIMUM 2' CLEARANCE FROM ALL STRUCTURES. BOLLARD LOCATIONS SHALL BE AS DIRECTED BY THE OWNER'S REPRESENTATIVE.

2. PROVIDE YELLOW HDPE BOLLARD COVER WITH REFLECTIVE TAPE MANUFACTURED BY POST GUARD, (ENCORE COMMERCIAL PRODUCTS, INC) OR APPROVED EQUAL.

- 3. SCALE: NTS
  5" REMOVABLE BOLLARD
  SCALE: NTS
  5" Nom Dia (Galv) STL Pipe ASTM A53
  5/8" Rebar Welded to Pipe Bottom
  Reflecting Tape (3" Wide)
  Post w/ Cover, See Note 2
  5" Nom Dia (Galv) STL Pipe ASTM A53
  3'-2" GROUND SURFACE
  Drain Rock Aggregate Base
  300 psi Compressive Strength Conc

3. SCALE: NTS
5" REMOVABLE BOLLARD
SCALE: NTS
5" Nom Dia (Galv) STL Pipe ASTM A53
5/8" Rebar Welded to Pipe Bottom
Reflecting Tape (3" Wide)
Post w/ Cover, See Note 2
5" Nom Dia (Galv) STL Pipe ASTM A53
3'-2" GROUND SURFACE
Drain Rock Aggregate Base
300 psi Compressive Strength Conc

4. SCALE: NTS
TYPICAL CONCRETE SURFACING SECTION
SCALE: NTS
6" Nom Dia (Galv) STL Pipe ASTM A53
6/8" Rebar Welded to Pipe Bottom
Reflecting Tape (3" Wide)
Post w/ Cover, See Note 2
6" Nom Dia (Galv) STL Pipe ASTM A53
6" Thk Conc
6" Thk 3/4" CR
Subgrade Material
Subgrade Separation w/ Mirafi 140N Non-Woven Fabric or Appvd Eq
Drain Rock Aggregate Base
6" Thk Conc
6" Thk 3/4" CR
Subgrade Material
Subgrade Separation w/ Mirafi 140N Non-Woven Fabric or Appvd Eq

5. SCALE: NTS
TYPICAL CONCRETE WALKWAY
SCALE: NTS
4' Wide
2" Thk of 3/4" CR
Compacted Subgrade Material, See Grading Sections
Subgrade Separation w/ Mirafi 140N Non-Woven Fabric or Appvd Eq

NOT TO SCALE
THEN DRAWING IS NOT MEASURE 1" IF THIS BAR DOES NOT NOTICE
CHECKED
DRAWN
DESIGNED
PRELIMINARY ONLY
DO NOT USE FOR CONSTRUCTION
PRELIMINARY - NOT FOR CONSTRUCTION
SHEET 1

SMALL BLOCK GRAVITY RETAINING WALL
SCALE: NTS

NOTES:
1. RETAINING WALL BLOCKS SHALL BE BROADSTONE 8"W x 12" D x 8" H UNITS MANUFACTURED BY KEYSTONE WALLS, OR APPROVED EQUAL, SEE SPECIFICATION SECTION XXXXXX.
2. MAXIMUM WALL HEIGHT IS 2'-0".

USE STD SMALL BLOCK UNITS, SEE NOTE 1, WALL HEIGHT VARIES, SEE SHT C-3

EXCAVATE AS NECESSARY TO MAINTAIN SLP STABILITY DURING CONST

USE STD SMALL BLOCK UNITS, SEE DET 2 SHT C-9

EXC AVATE AS NECESSARY TO MAINTAIN SLP STABILITY DURING CONST

6" CONC SURFACING,
SEE DET 2 SHT C-9

6" CONC SURFACING,
SEE DET 2 SHT C-9

EXC AVATE AS NECESSARY TO MAINTAIN SLP STABILITY DURING CONST

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SEE DET 2 SHT C-9

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SEE DET 2 SHT C-9

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6" CONC SURFACING,
SEE DET 2 SHT C-9

EXC AVATE AS NECESSARY TO MAINTAIN SLP STABILITY DURING CONST

6" CONC SURFACING,
Standard Details - 2

CITY OF WILSONVILLE, OREGON MEMORIAL PARK PUMP STATION

90% SUBMITTAL

C-12

STANDARD DETAILS - 2

17-2136.204 C-12 JULY 2019

Call before you dig.

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NOTES:
1. RESTORE ALL EXISTING FEATURES AS REQUIRED.
2. EXACT DEPTH OF FORCE MAIN AT CONNECTION POINT IS UNKNOWN. CONTRACTOR TO POISON TO OBTAIN THIS DEPTH PRIOR TO EVACUATION.

REPLACE CURB & GUTTER AS REQ'D
RESTORE PAVEMENT, MIN PATCH WIDTH 10', RESTORE FULL LANE TO CL.
REPLACE S/W AS REQ'D

COMBINATION AIR RELEASE VALVE VAULT

PRELIMINARY - NOT FOR CONSTRUCTION
FIBER OPTIC NOTES:

1. <TO FOLLOW>
NOTES:
1. CONDUIT SHALL BE NO LESS THAN 30 INCHES BELOW GRADE.
2. THERE SHALL BE NO MORE THAN A TOTAL OF 270 DEGREES IN BENDS BETWEEN VAULTS.
3. MAIN FIBER CONDUITS SHALL BE 4" DIAMETER SCHEDULE 40 PVC OR HDPE SDR 17.
4. SECONDARY FIBER CONDUITS SHALL BE 2" HDPE SDR 17.
5. SEE CITY OF WILSONVILLE PUBLIC WORKS STANDARD SECTION 7 FOR FURTHER DETAILS ON FIBER REQUIREMENTS.
KEYNOTES
1. GENERATOR, SEE ELECTRICAL SHEETS
2. AIR HANDLING UNIT, SEE H SHEETS
3. SEE ELECTRICAL SHEETS FOR ELECTRICAL EQUIPMENT LAYOUT
4. DESK, OWNER FURNISHED
5. BIOAIR DRUM SCRUBBER, SEE MECHANICAL SHEETS
6. SINK WITH DRAIN BOARD, SEE SPECS

GENERAL NOTES
1. CONTRACTOR TO VERIFY ALL DIMENSIONS ON SITE.
2. DIMENSIONS INDICATED ARE TO GRIDLINE, FACE OF CONCRETE OR FACE OF MASONRY U.N.O.
3. SEE ELEVATIONS FOR LOUVER SILL HEIGHTS.
4. SEE MECHANICAL FOR ADDITIONAL LOUVER INFORMATION.

NOTICE
If this bar does not measure 1" then drawing is NOT TO SCALE.

CITY OF WILSONVILLE, OREGON MEMORIAL PARK PUMP STATION
FLOOR AND ROOF PLANS
A-2

90% SET

PRELIMINARY - NOT FOR CONSTRUCTION
GENERAL NOTES

1. SEE MECHANICAL FOR ADDITIONAL LOUVER INFORMATION.
2. SEE CIVIL FOR FINISH FLOOR ELEVATION.
3. DIMENSIONS INDICATED ARE TO GRIDLINE, FACE OF CONCRETE OR FACE OF MASONRY U.N.O.

KEYNOTES

1. FIBER CEMENT TRIM BOARD
2. HOLLOW METAL DOOR
3. METAL LOUVER - SEE MECHANICAL

COLOR & MATERIAL LEGEND

- CMU - SPLIT FACED - DRIFTWOOD
- CMU - SMOOTH FACE - DRIFTWOOD
- LS-1 - LAP SIDING (SEE SPECS) - SW 6037 TAUPE
- SS-1 - STANDING SEAM METAL ROOF - WEATHERED COPPER

NOTICE

IF THIS BAR DOES NOT MEASURE 1"
THEN DRAWING IS NOT TO SCALE

90% SET
GENERAL NOTES
1. SEE MECHANICAL FOR ADDITIONAL LOUVER INFORMATION.
2. SEE CIVIL FOR FINISH FLOOR ELEVATION.
3. DIMENSIONS INDICATED ARE TO GRIDLINE, FACE OF CONCRETE OR FACE OF MASONRY U.N.O.

KEYNOTES
1. CONCRETE SLAB - SEE STRUCTURAL
2. CMU WALL - SEE ELEVATIONS AND STRUCTURAL
3. FIBER CEMENT TRIM BOARD

NOTICE
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

90% SET

BUILDING SECTIONS

CITY OF WILSONVILLE, OREGON MEMORIAL PARK PUMP STATION

PROJECT NO. 20180213 REV. D AS-101001 REV. D 11/08/2018

SCALE: 1/4" = 1'-0"
**DOOR SCHEDULE**

<table>
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<tr>
<th>NO</th>
<th>WIDTH</th>
<th>HEIGHT</th>
<th>THICKNESS</th>
<th>FIRE RATING</th>
<th>DOOR MATERIAL</th>
<th>DOOR FINISH</th>
<th>FRAME MATERIAL</th>
<th>FRAME FINISH</th>
<th>SHEET</th>
</tr>
</thead>
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</table>

**DOOR HEAD @ CMU**

- Sealant both sides TYP.
- Fully grouted HM door frame

**DOOR JAMB @ CMU**

- HM Door - See Schedule and Frame Types
- Mismatched Door Anchors per Manuf.
- Fully grouted Frame

**DOOR SILL**

- 2 x 2 x 1/4 Louver Mounting Angle
- Interior metal trim w/ exposed gaskets fasteners
- Door side w/ integral drip
- Aluminum threshold set in sealant

**LOUVER SCHEDULE**

<table>
<thead>
<tr>
<th>NO.</th>
<th>DESCRIPTION</th>
<th>SHEET</th>
</tr>
</thead>
<tbody>
<tr>
<td>LVR-2</td>
<td>Metal Louver W/ Frame: 6' - 0&quot; X 8' - 8&quot;</td>
<td>1</td>
</tr>
<tr>
<td>LVR-2</td>
<td>Metal Louver W/ Frame: 6' - 0&quot; X 8' - 8&quot;</td>
<td>2</td>
</tr>
</tbody>
</table>

**LOUVER TYPES**

- LVR-2 Metal Louver W/ Frame: 6' - 0" X 8' - 8" Refer to Exterior Elevations and Floor Plan for Location

**NOTICE**

- If this bar does not measure 1" then drawing is not to scale
QUALITY ASSURANCE PLAN

(a) Periodic Special Inspection frequency and timing to be defined by the registered design professional.
(b) Inspection to be made by the registered design professional based on building category and design methodology.

90% - SUBMITTAL
PRELIMINARY ONLY
DO NOT USE FOR CONSTRUCTION

90% - SUBMITTAL

CITY OF WILSONVILLE, OREGON MEMORIAL PARK PUMP STATION
VALVE VAULT PLAN, SECTION, AND CONNECTION DETAILS

NOTICE
PRELIMINARY ONLY
DO NOT USE FOR CONSTRUCTION

JULY 2019

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PROJECT NO.: 1801-0070
SCALE: 1" = 1'-0"
DATE: JULY 2019

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90% - SUBMITTAL

CITY OF WILSONVILLE, OREGON MEMORIAL PARK PUMP STATION
VALVE VAULT PLAN, SECTION, AND CONNECTION DETAILS

NOTE: BEFORE BEGINNING THE CONSTRUCTION, A SUBMITTAL MUST BE SUBMITTED TO THE CITY OF WILSONVILLE FOR APPROVAL. THE SUBMITTAL MUST INCLUDE A COMPLETE SET OF DRAWINGS AND A DETAILED PRE-SUBMITTAL MEETING.
KEY NOTES

1. 12" DI PRECAST WET WELL
   VALVE VAULT, 7'-3"x12'-3", OLDCASTLE MODEL 712-LA OR APPROVD EQ
2. METER VAULT, 6'-3"x7'-9", OLDCASTLE MODEL 676-LA OR APPROVD EQ
3. 85 HP SUBMERSIBLE SEWAGE PUMP, TYP OF 3
4. PRESS GAUGE, SEE DET 5, SHT M-4, TYP OF 4
5. 10" DI SWING CHECK, FLG, TYP OF 3
6. 10" DI PV, FLG, TYP OF 3
7. 12" MAGNETIC FLOW METER, FLG, SEE SPECS
8. 10" DI LS, MJ, TYP OF 6
9. 10" DI TEE, MJ, TYP OF 3
10. 10''x12'' DI TEE, MJ, TYP OF 3
11. DI RFCA, SIZE PER ADJACENT PIPE, FLG, TYP OF 4
12. 12" DI LS, MJ, TYP OF 2
13. 10" DI SPL, FLGxPE, LENGTH AS REQ'D, TYP OF 6
14. 10" DI SPL, PE, LENGTH AS REQ'D, TYP OF 6
15. 12" DI SPL, PE, LENGTH AS REQ'D, TYP OF 7
16. 12" DI SPL, FLGxPE, LENGTH AS REQ'D, TYP OF 8
17. WET WELL WASHDOWN NOZZLE, BELOW SLAB PER M-2, SEE SPEC SECTION 40 05 23.17
18. TRANS FROM 1" COP TO 3/4" SST OUTSIDE THE WET WELL
19. 2" PVC RDGR

PLAN
SCALE 1/2"=1'-0"
1. Prior to backfilling, grout wet well, manholes and precast concrete manufacturer.

5. See sheet M-1 for plan view.

3. All backfill material shall be compacted bottom and completion of all sanitary sewer testing.

6. All poured-in-place concrete shall be structural concrete, see specifications.

NOTES:

7. Field core drill wet well and vault penetrations for pump presence, verify elevations with engineer prior to core drill.

9. Wet well base shall be provided with a buoyancy ring as shown on these sheets and structural sheets.

10. Minimum of 4' of overspill below the bottom of the structural will be required for the wet well.

CONTRACTOR SHALL NOTIFY ENGINEER TO REVIEW SUBGRADE CONDITIONS.

8. All fasteners, anchors, pipe supports, and fabricated steel within wet well and vaults shall be 316 stainless steel, stainless steel bolts & nuts at all flange connections require isolation kits, see specification section 055000-Metal Fabrication.

4. Contractor to coordinate all pump specific requirements and connections with pump manufacturer. Wet well access hatch location shall be coordinated with pumps and precast concrete manufacturer.

5. See sheet M-1 for plan view.

6. All poured-in-place concrete shall be structural concrete, see specifications.

NOTE:

1. DUCKBILL STYLE CHUV, SIZED TO PIPE, TYP

2. 8" DIA WITH PR-TRAP, TYP OF 2

3. DECK CONTROL AIR INTAKE, 8" PVC

4. LINK-SEAL SEE DET 1, SHT M-4 (TYP ALL PENETRATIONS)

5. 316 SST DUCKBILL STYLE CHK, SEIZED TO PIPE, TYP OF 3

6. 6" PVC DRAIN

7. 2% MIN SLP

8. EL=87.0

9. EL=92.50

10. Minimum of 4' of overspill below the bottom of the structural will be required for the wet well.

CONTRACTOR SHALL NOTIFY ENGINEER TO REVIEW SUBGRADE CONDITIONS.

PRELIMINARY - NOT FOR CONSTRUCTION

CITY OF WILSONVILLE, OREGON MEMORIAL PARK PUMP STATION

MECHANICAL SECTIONS

M-2

July 2019

Murraysmith

NOTICE

PRELIMINARY ONLY

NOT FOR CONSTRUCTION

90% SUBMITTAL

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7/19

1/2"=1'-0"

SCALE: 1/2"=1'-0"

PRELIMINARY - NOT FOR CONSTRUCTION
1. All pipe and fittings shall be Schedule 80 stainless steel with threaded ends.

2. Install pressure gauge and diaphragm seal per stainless steel with threaded ends.

3. Install gauge hanger as high as possible without conflicting with access path.

4. Provide two link seals at each penetration.

5. Provide two link seals at each penetration.

6. Provide two link seals at each penetration.

7. All hardware grade 316 stainless steel.

8. All plate, brackets, clips, fasteners and appurtenances shall be type 316 stainless steel.

9. All hardware grade 316 stainless steel.

10. Provide two link seals at each penetration.

11. Provide two link seals at each penetration.

12. Provide two link seals at each penetration.

13. Provide two link seals at each penetration.
1. TRAP PRIMER FEEDS P-TRAPS IN BUILDING AS WELL AS IN VAULTS.

NOTES:
1. SAMPLE PORTS AND DRAINS CONSTRUCTED OF PVC BALL VALVES
2. AIRFLOW CAPACITY: 500 CFM
3. VESSEL AND MIST & GREASE ENCLOSURE CONSTRUCTED OF HDPE
4. BLOWER CONSTRUCTED OF CAST ALUMINUM
5. VESSEL LID CONSTRUCTED OF FRP
6. VESSEL INLET: 6" SLIP FIT
7. ODOR CONTROL UNIT SHALL BE DS-500 MODEL, MANUFACTURED BY PUREAIR, SEE SPEC SECTION 44 31 00

DS-500 ODOR CONTROL UNIT
SCALE: 1/2" = 1'-0"
DIFFUSER, REGISTER AND GRILLE SCHEDULE

<table>
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<tr>
<th>TYPE</th>
<th>DESCRIPTION</th>
<th>HP/MODEL</th>
<th>NOTES</th>
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<tbody>
<tr>
<td>A</td>
<td>SUPPLY REGISTER - SURFACE MOUNTED</td>
<td>H-1</td>
<td>DOUBLE DEFLECTION</td>
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<tr>
<td>B</td>
<td>RETURN REGISTER - SURFACE MOUNTED</td>
<td>H-1</td>
<td>SINGLE DEFLECTION</td>
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FAN COIL SCHEDULE

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<tr>
<td>H-1</td>
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<td>FAN COIL SCHEDULE</td>
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HEAT PUMP SCHEDULE

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<tbody>
<tr>
<td>H-1</td>
<td>FC-1</td>
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</table>

FAN MOTOR (HP)

- 1.

ELECTRICAL (V-PH)

- 1.

DESIGN WEIGTH (LBS)

- 1.

MIN. EFF. (SEER)

- 1.

AMBIENT TEMP (°F)

- 1.

SENSIBLE CAP (MBH)

- 1.

CONVECTION CAP (MBH)

- 1.

SUPPORT GRILLE MODEL

- 1.

NOTES:

- 1.

RETURN/EXHAUST AIR DUCT MOUNTED REGISTER

- 1.

RETURN/EXHAUST AIR CEILING REGISTER

- 1.

SUPPLY AIR DUCT MOUNTED REGISTER

- 1.

UNIT HEATER SCHEDULE

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<tbody>
<tr>
<td>H-1</td>
<td>UL-1</td>
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</table>

RETURN AIR DIFFUSER WITH THLOW DIRECTION

- 1.

RETURN/EXHAUST AIR CEILING REGISTER

- 1.

RETURN/EXHAUST AIR DUCT REGISTER

- 1.

SUPPLY AIR DUCT REGISTER

- 1.

NOTE: NOT ALL SYMBOLS OR ABBREVIATIONS CONTAINED IN THIS LEGEND WILL APPEAR ON DRAWINGS.

MECHANICAL HVAC LEGEND

<table>
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<td>D</td>
<td>DUCTWORK FITTINGS (DOUBLE/SINGLE LINE) AND CONTROLS</td>
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<td>P</td>
<td>FAN MOTOR (HP)</td>
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<td>EXHAUST AIR</td>
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<td>R</td>
<td>RETURN AIR</td>
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<td></td>
</tr>
<tr>
<td>S</td>
<td>SUPPLY AIR</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTE: NOT ALL SYMBOLS OR ABBREVIATIONS CONTAINED IN THIS LEGEND WILL APPEAR ON DRAWINGS.
KEY NOTES:

1. PROVIDE FLOOR STAND, MOUNT UNIT AND CONNECT TO STAND AS REQUIRED. FOR ADDITIONAL INFORMATION, SEE DETAIL 1/H-3.

2. PROVIDE 3/4" CONDENSATE DRAIN PIPING AND 3/4" OVERFLOW DRAINING AND ROUTE FROM FAN COIL TO DISCHARGE INTO FLOOR DRAIN.

3. PROVIDE REFRIGERANT PIPING SIZED PER MANUFACTURER'S RECOMMENDATION BASED ON FINAL ROUTING AND LENGTH. ROUTE ABOVE CEILING TO OUTSIDE HEAT PUMP.

4. PROVIDE DUCT SLEEVE WITH HVG SAME SIZE AS REGISTER NECK, CONNECT TO DUCT MAIN AND MOUNT REGISTER.

5. PROVIDE DUCT SLEEVE WITH HVG SAME SIZE AS REGISTER NECK, CONNECT TO RETURN DUCT AND MOUNT REGISTER.

6. MOUNT HEAT PUMP ON RUBBER ISOLATORS AS RECOMMENDED BY MANUFACTURER.

7. ROUTE DUCTWORK TIGHT TO UNDERSIDE OF CEILING.

8. LOCATE BOTTOM OF LOUVER AT 16" AFF. MOUNT CONTROL DAMPER ON INSIDE OF LOUVER. FOR CONTROL DAMPER, SEE LOUVER SCHEDULE.

9. MOUNT UNIT HEATER AT 8' AFF TO BOTTOM OF HEATER.

10. ROUTE GENERATOR SUBBASE TANK NORMAL VENT SIZED PER MANUFACTURER'S RECOMMENDATION UP THROUGH ROOF AND TERMINATE WITH APPROVED CAP.

11. ROUTE GENERATOR SUBBASE TANK EMERGENCY VENT SIZED PER MANUFACTURER'S RECOMMENDATION UP THROUGH ROOF AND TERMINATE WITH APPROVED CAP.

12. LOCATE BOTTOM OF LOUVER FLUSH WITH FLOOR SLAB. INSTALL LOUVER TO ALLOW FOR FUTURE REMOVAL OF GENERATOR THROUGH LOUVER OPENING. MOUNT RECONNECT DAMPER ON INSIDE OF LOUVER. FOR RELIEF DAMPER, SEE LOUVER SCHEDULE.

13. PROVIDE FLEXIBLE CONNECTOR AT GENERATOR RADIATOR AND TRANSITION TO LOUVER SIZE AND CONNECT.

14. DIESEL GENERATOR MOUNTED ON BASE MOUNTED FUEL TANK. FOR ADDITIONAL INFORMATION, SEE DETAIL 2/H-3.

15. PROVIDE FUEL PIPING AND CONNECT TO BASE MOUNTED FUEL TANK AND FUEL FILL BOX. SLOPE A MINIMUM OF 2% TOWARD TANK.

16. ENGINE EXHAUST PIPE FROM GENERATOR THROUGH OUTSIDE WALL. SEE DETAIL 2/H-3.

17. FUEL FILL BOX MOUNTED AT THE MINIMUM DISTANCE ABOVE GRADE REQUIRED FOR 2% SLOPE TO GENERATOR AND AT A MINIMUM DISTANCE OF 5' FROM BUILDING OPENINGS. FUEL FILL BOX TO COMPLY WITH NFPA REQUIREMENTS AND INCLUDE:
   a. MAIN SUPPLY LINE WITH MANUAL BALL VALVE, ANGLE CHECK VALVE AND TIGHTFILL ADAPTER.
   b. LOCKABLE, WEATHERPROOF, STAINLESS STEEL ENCLOSURE WITH 16-GALLON CONTAINMENT WITH HAND PUMP AND STAINLESS STEEL HARDWARE.
   c. LOCKABLE, MANUAL BALL VALVE.
   d. TWO-POINT ALARM PANEL TO RECEIVE HIGH LEVEL AND LEAK DETECTION ALARM INDICATIONS.
   e. GROUND CONNECTION.
   f. ON/OFF POWER SWITCH AND VISUAL INDICATION.
   g. 90% AND 95% TANK FULL ALARM, VISUAL AND AUDIBLE, WITH AUTOMATICALLY CLOSING VALVE TO STOP FUEL DELIVERY.
   h. PHOENIX PRODUCTS DIESEL DIRECTOR REMOTE FILLPORT OR APPROVED EQUAL.

H-2

90% SUBMITTAL
**Fan Coil Detail**

- Provide supply flexible flare size as unit connection size. Expand size as required to connect supply duct. Line plenum with 1" liner.
- Provide return plenum with 1" lining and mount return register on plenum.
- Provide angle iron or unistrut stand for fan coil.
- Condensate drain & over flow to floor drain.
- Provide exhaust fire thimble (HAPCO or equivalent). Install according to MFR's instructions.

**Generator Detail**

- Provide clearance for unimpeded operation of back draft damper.
- Condensate drain & overflow to floor drain.
- Install flashing and weather shield under the flue at 45° and cover offering with 1/2" x 1/2" mesh screen.
- Provide supply pleum same size as unit connection size.
- Provide exhaust pleum.
- Provide return pleum.
- Provide flexible duct connection.
- Provide sheet metal ducting from flex to lever.
- Provide exhaust pipe.
- Verify size with MFR.
- Muffler with insulation.
- Support from structure.
- Provide angle iron or unistrut stand for fan coil.
- Provide clearance for unimpeded operation of back draft damper.

**Notes:**
1. Provide valved drain at low point of engine exhaust pipe.
2. Maintain code required clearances to combustibles.
3. Maintain code required clearances to combustibles.
4. Coordinate with plumbing.
5. Fire alarm control panel.
6. Verify radiator dimensions.
ELECTRICAL ONE-LINE DIAGRAM
NOT TO SCALE

LOAD SUMMARY

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
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<tbody>
<tr>
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<td>103.1 kVA</td>
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<tr>
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<tr>
<td>Pump 3</td>
<td>85 HP</td>
</tr>
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</table>

NON-MOTOR LOADS

SHARING FACTOR (GF) x 100% 3.6 kVA 1.25% (ASSUME 0.8 PF)

NEW LOAD TOTAL:

SERVICE SIZE @ 480V, 3-PH: 531.9 kVA 531.9 AMPS

90% SUBMITTAL

SURGE PROTECTIVE DEVICE (SPD) IS MOUNTED DIRECTLY ADJACENT TO ITS FEEDER CIRCUIT BREAKER. KEEP WIRING AS SHORT AND AS STRAIGHT AS POSSIBLE.
Distance from new PGE vault to PGE transformer is approximately 750 feet. Contractor to verify actual distance.
<table>
<thead>
<tr>
<th>CIRCUIT NUMBER</th>
<th>FROM</th>
<th>TO</th>
<th>CONDUCTORS</th>
<th>RAIL/EAY</th>
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<tr>
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<td>PUMP 2</td>
<td>PUMP 2</td>
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<td>ROUTE CABLE IN CABLE TRENCH</td>
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<tr>
<td>48</td>
<td>PUMP 3</td>
<td>PUMP 3</td>
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<td>2/14 AWG &amp; 6/0 AWG</td>
<td>3/4&quot;</td>
<td>STATUS</td>
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<td>54</td>
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<td>2/14 AWG &amp; 6/0 AWG</td>
<td>3/4&quot;</td>
<td>STATUS</td>
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<td>CONTROL PANEL</td>
<td>2/14 AWG &amp; 6/0 AWG</td>
<td>3/4&quot;</td>
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<td>3/4&quot;</td>
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### Electrical Panel Schedule

#### PHASE: DISTRIBUTION PANEL

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<th>TYPE</th>
<th>VOLTAGE</th>
<th>PHASE</th>
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#### PHASE: LIGHTING PANEL

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#### FEEDER: 208/120:120 VOLT 3 PHASE 4 WIRE

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<tbody>
<tr>
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<td>208/120</td>
<td></td>
<td>80</td>
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<tr>
<td>2</td>
<td>335</td>
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#### LOAD PER PHASE (AMPS)

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<td>239.7</td>
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<td>396.8</td>
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#### TOTAL LOAD (KVA)

- **Total Load:** 540

#### TOTAL LOAD AMPS

- **Total Load:** 109,908 A

---

**NOTES:**

- **Load:** 5,522 A
- **Connecting Load:**
  - **A:** 109,908 VA
  - **B:** 109,908 VA
  - **C:** 109,908 VA
  - **Total Load:** 396.8 A

---

**Electrical Panel Schedules**

**City of Wilsonville, Oregon Memorial Park Pump Station**

**R&W Engineering, Inc.**

**Beaverton, Oregon 97005**

**Suite 107**

**90% Submittal**

**Effective Date:** July 2019

**Prepared by:** Murray Smith Associates

**Reviewed by:** Kristin Trone

**Prepared for:** R&W Engineering, Inc.

**Prepared by:** Murray Smith Associates

**Prepared for:** R&W Engineering, Inc.

---

**Notice:**

- **Engineering Integrated Solutions**
  - Project No.: [Project Number]
  - **Phone:** (503) 726-3343
  - **Fax:** (503) 726-3319
  - **E-mail:** rweng@rweng.com
  - **Address:** 615 S.W. Allen Boulevard, Suite 107, Beaverton, Oregon 97005

---

**Prepared by:** Murray Smith Associates

**Prepared for:** R&W Engineering, Inc.

**Prepared by:** Murray Smith Associates

**Prepared for:** R&W Engineering, Inc.
### Programmable Controller - I/O and Parts List

#### PLC/Network/Radio Details

<table>
<thead>
<tr>
<th>No.</th>
<th>Micrologix 1400</th>
<th>No.</th>
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<td>Backup Mode</td>
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#### Analog Inputs and Outputs

- Analog Inputs: 4 pt expansion module
- Analog Outputs: 4 pt expansion module

#### Parts List

- **Lightning Arrester**
- **Network**
- **Cellular Modem Detail**

#### Diagram

- **Antenna Mounting Detail**
- **Telemetry Radio Communication**

---

**Note:** Analog inputs and outputs on the base unit are not used as they are lower resolution.
**KEY NOTES**

1. ENCLOSURE WITH LOCKABLE BLANK FRONT AND CONTINUOUS HINGE.
2. PANEL HEATER.
3. T-STAT. INSTALL T-STAT ON HEATER CIRCUIT. SET T-STAT FOR 55 F.
4. POWER TERMINAL BLOCKS.
5. NOT USED.
6. CONTROL TERMINAL BLOCKS.
7. LABEL: "WARNING: PANEL FED FROM MULTIPLE SOURCES".
8. 200 AMP RATED, 3-POLE, 4-WIRE PIN & SLEEVE RECEPTACLE (FEMALE MOUNTED ON PANEL) AND MATCHING PLUG (MALE CONNECTED TO PUMP CABLE), WITH 2-PILOT CONTACTS AND AUXILIARY SWITCH.
9. WET WELL SENSOR DEVICE. PROVIDE STRAIN RELIEF FOR CABLE PROTECTION.
10. CONDUIT CONNECTION AREA.
11. PROVIDE ACCESS PORT FOR LEVEL TRANSDUCER CABLE. PROVIDE STRAIN RELIEF FOR CABLE PROTECTION.
12. GFCI RECEPTACLE.
13. DISCRETE SIGNAL INTRINSICALLY SAFE BARRIER. MULTITRODE MTISB-10.
14. ANALOG SIGNAL INTR INS LETICALLY SAFE BARRIER.
15. METAL BARRIER.

**DISCONNECT STAND BASE DETAIL NOTES**

A. ALL MATERIAL TO BE STAINLESS STEEL.
B. BACK AND SIDES OF STAND TO BE ENCASED WITH EXPANDED METAL MESH, WELDED TO STAND FRAME. (1/2" x 13mm).
C. COVER DOOR WITH SAME MESH AS STAND.
D. CONTRACTOR TO VERIFY ALL DIMENSIONS AND CLEARANCES WITH ACTUAL DISCONNECT PANEL PROVIDED AND CONDUIT LAYOUT USED PRIOR TO FABRICATION AND INSTALLATION.
<table>
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<tr>
<th>ITEM</th>
<th>ENGRAVING</th>
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</thead>
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<tr>
<td>1</td>
<td>RAVING</td>
</tr>
<tr>
<td>2</td>
<td>POwer AVAILABLE</td>
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<tr>
<td>3</td>
<td>PROGammable LOGIC CONTROLLER (PLC)</td>
</tr>
<tr>
<td>4</td>
<td>INNER PANEL</td>
</tr>
<tr>
<td>5</td>
<td>DESCRIPTION</td>
</tr>
<tr>
<td>6</td>
<td>NEMA 12 ENCLOSURE, 48Hx36Wx12D</td>
</tr>
<tr>
<td>7</td>
<td>750 V UPS</td>
</tr>
<tr>
<td>8</td>
<td>2X2 WIREWAY</td>
</tr>
<tr>
<td>9</td>
<td>2X2 WIREWAY</td>
</tr>
<tr>
<td>10</td>
<td>1.5X2 WIREWAY</td>
</tr>
<tr>
<td>11</td>
<td>AMBER PUSH TO TEST PILOT LIGHT</td>
</tr>
<tr>
<td>12</td>
<td>LED PANEL LIGHT</td>
</tr>
<tr>
<td>13</td>
<td>OPERATOR INTERFACE TERMINAL (OIT)</td>
</tr>
<tr>
<td>14</td>
<td>GFCI/ETHERNET PORT COMBO</td>
</tr>
<tr>
<td>15</td>
<td>RS 232/422/485</td>
</tr>
<tr>
<td>16</td>
<td>PHONE SW</td>
</tr>
<tr>
<td>17</td>
<td>TX</td>
</tr>
<tr>
<td>18</td>
<td>RX</td>
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<td>TX</td>
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<td>20</td>
<td>RX</td>
</tr>
<tr>
<td>21</td>
<td>12VDC</td>
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<tr>
<td>22</td>
<td>C POWER</td>
</tr>
<tr>
<td>23</td>
<td>NNA</td>
</tr>
<tr>
<td>24</td>
<td>1x2 DC WIREWAY</td>
</tr>
<tr>
<td>25</td>
<td>INTRUSION ON/OFF</td>
</tr>
<tr>
<td>26</td>
<td>PLC CONTROL PANEL</td>
</tr>
<tr>
<td>27</td>
<td>GHS R&amp;W</td>
</tr>
<tr>
<td>28</td>
<td>GHS R&amp;W</td>
</tr>
<tr>
<td>29</td>
<td>GHS R&amp;W</td>
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</table>

**Bill of Materials**

- Inner Panel
- Description
- NEMA 12 Enclosure, 48Hx36Wx12D
- 750 V UPS
- 2x2 Wireway
- 2x2 Wireway
- 1.5x2 Wireway
- Amber Push to Test Pilot Light
- LED Panel Light
- Operator Interface Terminal (OIT)
- GFCI/Ethernet Port Combo
- RS 232/422/485
- Phone SW
- TX
- RX
- TX
- RX
- 12VDC
- C Power
- NNA
- 1x2 DC Wireway
- Intrusion On/Off
- PLC Control Panel

**City of Wilsonville, Oregon Memorial Park Pump Station**

**Pump Control Panel**

**90% Submittal**

**Murray Smith**

**Phone:** 9615 S.W. Allen Boulevard

**Beaverton, Oregon 97005**

**Suite 107**

**Project No.:** 17-213

**Scale:** AS SHOWN

**Date:** JULY 2019

**Rev.:** E-13

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1. Call utilities to locate existing services prior to excavation.

2. System operation and design is based on a minimum requirement of 40 PSI of pressure and 7 GPM at the shutoff valve. The contractor shall verify the design pressure and volume before installation and notify owners if there is a discrepancy.

3. Contractor shall reference planting plan(s) prior to installation of valves. Locate valves in planting beds wherever possible. Adjust valve locations to eliminate conflict with proposed plantings and planting patterns.

4. Valve locations shall be staked by the contractor and approved by the owner's representative prior to installation of new irrigation system.

5. The contractor shall verify the dimensions and layout of all new planting and lawn areas on site before starting work and immediately notify owners of any deviations from plan.

6. New tree locations shall be staked by the contractor and approved by the owner's representative prior to installation of new irrigation system.

7. The contractor shall install the irrigation controller(s) at the location(s) shown on the drawings, per the manufacturer's recommendations. The contractor shall verify the location with the owner prior to installation.

8. Main and lateral lines may be shown diagrammatically for clarity. Main and lateral lines shown in paved areas shall be placed in adjacent planting beds unless specifically shown as passing under paving in sleevng. The contractor must obtain approval of owner's representative before making changes in routing of pipe or location of valves.

Irrigation Equipment

- Point of Connection
- Drip Control Zone Kit - Rain Bird XCZ-100-PRB-COM
- Irrigation Controller - Hunter PHC-600 W/ Flow Sensor and Rain Click
- Irrigation Lateral Line - PVC 200, 1" Min.
- Control Valve Target
- Station Number
- Area Designation: D = Drip
- Flow in GPM
- Valve Size

Irrigation Notes

- See irrigation note 8 below

0% - Submittal
NOTES:
1. INSTALL IRRIGATION SLEEVES 24" BEYOND EACH SIDE OF PAVING.
2. SLEEVE PIPE DIAMETER TO BE A MINIMUM OF TWO TIMES PIPE DIAMETER(S) IT CONTAINS.
3. 24" MINIMUM DEPTH UNDER PEDESTRIAN WALKS; 36" MINIMUM DEPTH UNDER VEHICULAR PAVING.

4. QUICK COUPLER VALVE

5. IRRIGATION SLEEVE UNDER PAVEMENT

6. WALL MOUNT IRRIGATION CONTROLLER
1. AIR VACUUM RELIEF VALVE

2. LANDSCAPE DRIPLINE - FLUSH VALVE

NOTES:
- Air relief valve kit
- Landscape dripline tubing
- 8" round valve box
- Top of valve 12" above grade
- Top of valve below 4.5" above grade
- 4" round valve box
- Valve 4.5" above grade
- Landscape dripline tubing
- Geotextile filter fabric
- Standard brick capping
- Depth of masonry depth of 3/4" round valve box

90% - SUBMITTAL
PLANTING LEGEND

**TREES**

<table>
<thead>
<tr>
<th>BOTANICAL NAME</th>
<th>COMMON NAME</th>
<th>SIZE &amp; TYPE</th>
<th>SPACING</th>
<th>QTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMELANCHIER LAEVIS</td>
<td>SNOWCLOUD'</td>
<td>2&quot; CAL, B&amp;B</td>
<td>AS SHOWN</td>
<td>1</td>
</tr>
<tr>
<td>PSEUDOTSUGA MENZIESII</td>
<td>DOUGLAS FIR</td>
<td>AS SHOWN</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>THUJA PUGATA NIGRA</td>
<td>HOGAN'S CEDAR</td>
<td>4' HT, BB</td>
<td>AS SHOWN</td>
<td>3</td>
</tr>
</tbody>
</table>

**SHRUBS AND GROUNDCOVERS**

| Hepatica japonica | KINNIKINIK | 1 GAL. CONT. | 36" O.C. | 36 |
| Schizachyrium scoparium | KARL FOERSTER | 1 GAL. CONT. | 36" O.C. | 2 |
| Juncus patens | SPREADING RUSH | 1 GAL. CONT. | 30" O.C. | 20 |
| Cornus stolonifera 'KELSEYI' | KELSEY DOGWOOD | 1 GAL. CONT. | 30" O.C. | 10 |
| Mahonia repens | CREEPING MAHONIA | 1 GAL. CONT. | 24" O.C. | 25 |
| Polystichum munitum | SWORD FERN | 1 GAL. CONT. | 30" O.C. | 4 |
| Vaccinium ovatum | EVERGREEN HUCKLEBERRY | 1 GAL. CONT. | 24" O.C. | 4 |
| Vaccinium ovatum | BERRY WAXCAP | 1 GAL. CONT. | 24" O.C. | 10 |

**PLANTING NOTES**

1. CONTRACTOR SHALL PROVIDE PLANTING SOIL, SOIL AMENDMENTS, AND BARK MULCH TO THE COMPOSITION AND DEPTHS IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS OF THE CONTRACT DOCUMENTS.

2. ALL PLANTS SHALL BE INSTALLED IN ACCORDANCE WITH THE DRAWINGS AND THE SPECIFICATIONS PROVIDED AS PART OF THE CONTRACT DOCUMENTS.

3. QUANTITIES ARE LISTED FOR THE CONTRACTOR’S CONVENIENCE ONLY. ALL COUNTS MUST BE VERIFIED BY THE CONTRACTOR. IN THE CASE OF A DISCREPANCY BETWEEN THE LEGEND AND THE PLAN, PLANTS INDICATED ON THE PLAN SHALL SUPERCEDE QUANTITIES LISTED IN THE LEGEND.

4. UTILITY LOCATIONS SHOWN ON PLANS MAY DIFFER FROM FIELD CONDITIONS. CONTRACTOR TO FIELD VERIFY ALL UTILITIES BEFORE INSTALLATION. CONFLICTS BETWEEN ANY EXISTING AND PROPOSED UTILITIES ARE TO BE BROUGHT TO THE ATTENTION OF THE OWNER’S REPRESENTATIVE IMMEDIATELY.

5. SEED ALL AREAS OUTSIDE OF PLANTING BEDS DISTURBED BY CONSTRUCTION.