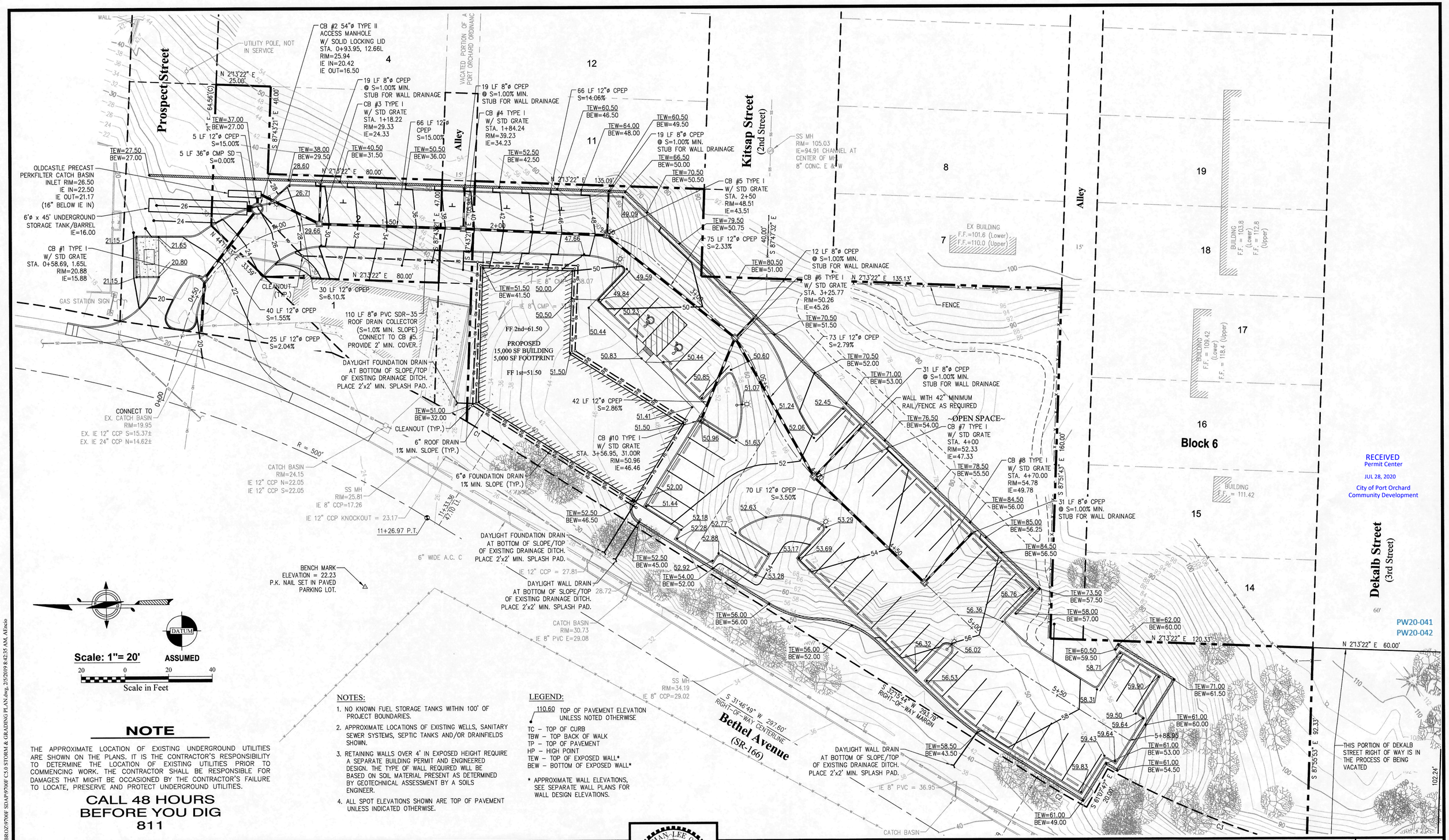



## NOTE

THE APPROXIMATE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN ON THE PLANS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE LOCATION OF EXISTING UTILITIES PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGES THAT MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO LOCATE, PRESERVE AND PROTECT UNDERGROUND UTILITIES.

**CALL 48 HOURS BEFORE YOU DIG 811**

NOTES:

1. NO KNOWN FUEL STORAGE TANKS WITHIN 100' OF PROJECT BOUNDARIES.
2. APPROXIMATE LOCATIONS OF EXISTING WELLS, SANITARY SEWER SYSTEMS, SEPTIC TANKS AND/OR DRAINFIELDS SHOWN.
3. RETAINING WALLS OVER 4' IN EXPOSED HEIGHT REQUIRE A SEPARATE BUILDING PERMIT AND ENGINEERED DESIGN. THE TYPE OF WALL REQUIRED WILL BE BASED ON SOIL MATERIAL PRESENT AS DETERMINED BY GEOTECHNICAL ASSESSMENT BY A SOILS ENGINEER.
4. ALL SPOT ELEVATIONS SHOWN ARE TOP OF PAVEMENT UNLESS INDICATED OTHERWISE.

LEGEND:

110.60 TOP OF PAVEMENT ELEVATION UNLESS NOTED OTHERWISE

TC – TOP OF CURB
TBW – TOP BACK OF WALK
TP – TOP OF PAVEMENT
HP – HIGH POINT
TEW – TOP OF EXPOSED WALL*
BEW – BOTTOM OF EXPOSED WALL*

* APPROXIMATE WALL ELEVATIONS, SEE SEPARATE WALL PLANS FOR WALL DESIGN ELEVATIONS.

| REVISIONS | | | | | BY | DATE |
|---|---|---|---|---|---|---|
| NO. | DATE | BY | DESCRIPTION | DESIGNED | JFK | 2/19 |
| | | | | DRAWN | AUE | 2/19 |
| | | | | CHECKED | NLOII | 2/19 |
| | | | | APPROVED | | |
| | | | | ACCEPTED | | |


N.L.Olson & Associates, Inc.
Engineering, Planning and Surveying
(360) 876-2284
2453 Bethel Avenue, P.O. Box 637, Port Orchard, WA 98366


NORMAN LEE OLSON — STATE OF WASHINGTON — 37919 — REGISTERED PROFESSIONAL ENGINEER

# STORM DRAINAGE AND GRADING PLAN

1320 BAY STREET, PORT ORCHARD, WA

Portion of the Southeast Quarter of the Southeast Quarter of Section 25, Township 24 North, Range 1 East, W.M. in Kitsap County, Washington

FOR:


**Michael Broz**
**2023 Edgewater Way**
**Santa Barbara, CA 93109**
**Phone: (805) 407-7691**


| | |
|---|---|
| SCALE: | 1"=20' |
| DATE: | Feb. 6, 2019 |
| DRAWING NUMBER: | 17-10120 |
| SHEET | C5.0 |



\\SERVER\AutoCAD Projects\9700 BROZ\9700F SD\AP9700F C5.0 STORM & GRADING PLAN.dwg, 2/5/2019 8:42:35 AM, Alincio

## STORM AND GRADING MATERIAL SPECIFICATIONS

| | |
|---|---|
| 1. CATCH BASIN | TYPE I, W.S.D.O.T. STANDARD PLAN B-5.20-00<br>TYPE IL, W.S.D.O.T. STANDARD PLAN B-5.40-00<br>TYPE II, W.S.D.O.T. STANDARD PLAN B-10.20-00<br>STORM DRAIN MANHOLE<br>TYPE I, W.S.D.O.T. STANDARD PLAN B-15.20-00 |
| 2. FRAME & GRATE: | VANED GRATE, W.S.D.O.T. STANDARD PLAN B-2b (AS NOTED ON PLANS).<br>STANDARD FRAME AND GRATE, W.S.D.O.T. STANDARD B-30.50-00<br>CURB INLET WSDOT STANDARD PLAN B-25.20-00 |
| 3. SOLID METAL COVER: | 3 BOLT LOCKING TYPE, OLYMPIC FOUNDARY TYPE MH 30D/T OR EQUAL FOR TYPE II CATCH BASINS.<br>OLYMPIC FOUNDARY TYPE SM 605 OR W.S.D.O.T. STANDARD PLAN B-30.70-00 (OR EQUAL) FOR TYPE I CATCH BASINS. |
| 4. STORM SEWER PIPE | *CORRUGATED METAL PIPE n=0.024 (CMP) PER W.S.D.O.T. 9-05.9<br>*CONCRETE PIPE PER W.S.D.O.T. 9-05.7(1) & 9-05.7(2) n=0.012<br>*CORRUGATED HIGH DENSITY POLYETHYLENE PIPE (HDPE), ADS N-12 OR HANCOR Hi-Q (ASSHTO M294 TYPE S) n=0.012 |
| 5. DOWN SPOUT TIGHTLINE: | ADS N-12 (OR EQUAL.) |
| 6. PIPE BEDDING | W.S.D.O.T. 9-03.12(3) GRAVEL BACKFILL FOR PIPE BEDDING. |
| 7. INITIAL BACKFILL: | NATIVE MATERIAL OBTAINED FROM EXCAVATION PER W.S.D.O.T. 7-08.3(3) |
| 8. REMAINING BACKFILL: | NATIVE MATERIAL OBTAINED FROM EXCAVATION PER W.S.D.O.T. 2-09.3(1)E. |
| 9. SPALLS: | W.S.D.O.T. 9-13.1, LOOSE RIPRAP IN SIZES RANGING FROM 3" TO 1/3 CUBIC FOOT. |
| 10. PAVEMENT SECTION: | HOT MIX ASPHALT (HMA) W.S.D.O.T. 5-04<br>TOP COURSE, W.S.D.O.T. 9-03.9(3)<br>BASE COURSE, W.S.D.O.T. 9-03.10 |

## GRADING NOTES

1. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN THE EVENT OR DISCOVERY OF POOR SOILS, GROUNDWATER OR DISCREPANCIES IN THE EXISTING CONDITIONS AS NOTED ON THE PLANS.
2. MAXIMUM SLOPE STEEPNESS SHALL BE 2:1 HORIZONTAL: VERTICAL FOR CUT AND FILL SLOPES.
3. UNLESS OTHERWISE SPECIFIED, ALL EMBANKMENTS IN THE PLAN SET SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 2-03.3(14)B OF THE WSDOT STANDARD SPECIFICATIONS. EMBANKMENT COMPACTIONS SHALL CONFORM TO SECTION 2-03.3(14)C, METHOD B OF SAID STANDARD SPECIFICATION.
4. EMBANKMENTS DESIGNED TO IMPOUND WATER SHALL BE COMPACTED TO 95% MAXIMUM DENSITY PER SECTION 2-03.3(14)C, METHOD C OF WSDOT STANDARD SPECIFICATIONS.
5. ALL AREAS RECEIVING FILL MATERIAL SHALL BE PREPARED BY REMOVING VEGETATION, NONCOMPLYING FILL, TOPSOIL AND OTHER UNSUITABLE MATERIAL, BY SCARIFYING THE SURFACE TO PROVIDE A BOND WITH THE NEW FILL, AND WHERE THE SLOPES ARE STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL AND THE HEIGHT IS GREATER THAN 5 FT., BY BENCHING INTO SOUND COMPETENT MATERIAL AS DETERMINED BY THE ENGINEER.

## CONSTRUCTION NOTES

1. ALL WORK SHALL BE IN CONFORMANCE WITH THE LATEST REVISION OF THE STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION" AS JOINTLY ADOPTED BY WASHINGTON STATE DEPARTMENT OF TRANSPORTATION AND THE AMERICAN PUBLIC WORKS ASSOCIATION (WASHINGTON STATE CHAPTER).
2. ANY REVISIONS TO THESE PLANS MUST BE REVIEWED AND APPROVED BY CITY OF PORT ORCHARD PUBLIC WORKS PRIOR TO ANY IMPLEMENTATION IN THE FIELD.
3. THE LOCATION OF EXISTING UTILITIES SHOWN ON THIS PLAN IS APPROXIMATE ONLY. THE CONTRACTOR SHALL CONTACT THE "UNDERGROUND LOCATE" CENTER AND NON-SUBSCRIBING INDIVIDUAL UTILITY COMPANIES 48 HOURS IN ADVANCE OF THE COMMENCEMENT OF ANY CONSTRUCTION ACTIVITY (PHONE #1-800-424-5555). THE CONTRACTOR SHALL PROVIDED PROTECTION OF EXISTING UTILITIES FROM DAMAGED CAUSED BY CONTRACTOR OPERATIONS.
4. DRAINAGE SYSTEM SHALL BE INSTALLED AND FUNCTIONING PRIOR TO INSTALLATION OF PAVING.
5. CONTRACTOR SHALL HAVE AVAILABLE, AT THE SITE AT ALL TIMES DURING CONSTRUCTION, A SET OF APPROVED FINAL CONSTRUCTION PLANS.
6. BEFORE WORKING IN COUNTY RIGHT-OF-WAY, THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS REQUIRED BY THE CITY.
7. ALL SLOPES SHALL BE 2:1. (UNLESS OTHERWISE NOTED)
8. CONTRACTOR WILL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL REQUIRED AS A RESULT OF HIS/HER OPERATIONS.
9. CONTRACTOR SHALL USE A PROFESSIONAL LAND SURVEYOR FOR ALL CONSTRUCTION STAKING.
10. UNLESS OTHERWISE INDICATED ON PLANS, ALL STORM SEWER PIPE HAS BEEN SIZED TO MEET MANNING'S ROUGHNESS COEFFICENT, N = 0.012. THE CONTRACTOR SHALL HAVE THE OPTION TO:
    A. INSTALL STORM SEWER PIPE AS INDICATED ON PLANS USING PIPE WHICH MEETS, n=0.012
    B. OR PROVIDE "ENGINEER" W/ REVISED PLANS W/ DIAMETERS AND OR SLOPE ADJUSTMENTS AS REQUIRED.
11. ALL ROOF DRAINS, FOOTING DRAINS, ROCKWALL DRAINS, AND CRAWL SPACE DRAINS SHALL BE CONNECT TO THE STORM WATER CONVEYANCE SYSTEM.
12. CONSTRUCTION SHALL FOLLOW THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEERING INVESTIGATION PREPARED BY N.L. OLSON AND ASSOCIATES DATED JANUARY, 2019.

## ROAD & STORM DRAINAGE CONSTRUCTION INSPECTION REQUIREMENTS AND SCHEDULES

1. THE CONTRACTOR SHALL NOTIFY THE CITY ENGINEER TO ARRANGE INSPECTION SCHEDULES FOR THOSE PHASES OF WORK CHECKED BELOW. INSPECTION SCHEDULES SHALL BE ARRANGED PRIOR TO PROCEEDING TO THE NEXT PHASE OF WORK. INSPECTIONS IN ADDITION TO THOSE INDICATED MAY BE REQUIRED BY THE CITY. THE CONTRACTOR SHALL VERIFY THE INSPECTIONS REQUIRED WITH THE CITY AND SHALL ARRANGE INSPECTIONS SCHEDULES BY CONTACTING THE CITY OF PORT ORCHARD.

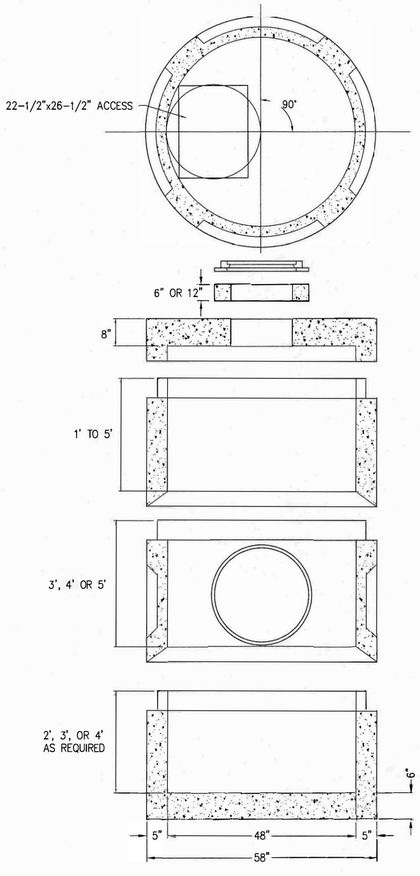
- ✓ A. IMPLEMENTATION OF VARIOUS PHASES OF TEMPORARY EROSION AND SEDIMENTATION CONTROL PLANS.
- ✓ B. PLACEMENT OF THE MAJOR DRAINAGE STRUCTURES PRIOR TO BACKFILLING, INCLUDING DETENTION POND DIKES.
- ✓ C. PRIOR TO THE INSTALLATION OF ORIFICE CONTROL STRUCTURE.
- ✓ D. COMPLETION OF SUBGRADE PREPARATION
- ✓ E. COMPLETION OF PLACEMENT OF GRAVEL BASE.
- ✓ F. COMPLETION OF FINE GRADING PRIOR TO PAVING.
- ✓ G. COMPLETION OF PAVEMENT INSTALLATIONS.

2. IF ADEQUATE INSPECTION IS NOT CALLED FOR BEFORE COMPLETION OF THE PAVEMENT CONSTRUCTION, IT MAY BE NECESSARY FOR CORE DRILLING AND TESTING TO BE PERFORMED TO ASSURE AN ACCEPTABLE QUALITY OF ROADWAY. WHEN CORE DRILLING IS FOUND TO BE NECESSARY, THE CONTRACTOR WILL BE BILLED AND HELD RESPONSIBLE FOR ALL COSTS INCURRED.

**NOTE**

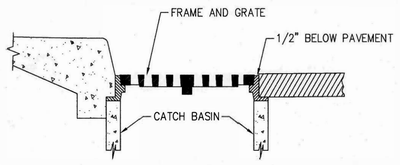
THE APPROXIMATE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN ON THE PLANS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE LOCATION OF EXISTING UTILITIES PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGES THAT MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO LOCATE, PRESERVE AND PROTECT UNDERGROUND UTILITIES.

**CALL 48 HOURS BEFORE YOU DIG 811**




## TYPE 2 CATCH BASIN

NOT TO SCALE




## FRAME & GRATE INSTALLATION

STANDARD PLAN B-341

ALL UNITS ARE MANUFACTURED TO MEET THE REQUIREMENTS OF THE DEPARTMENT OF TRANS-PORTATION AND APWA STANDARD PLAN B-1e.

SLAB TOP.

8 INCHES THICK. ROUNDED OR RECTANGULAR OPENINGS ARE PROVIDED WHERE NEEDED.

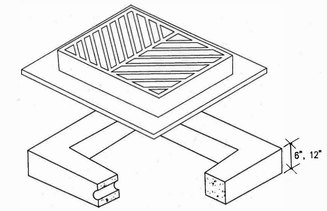
PRECAST SECTIONS.

UNITS ARE AVAILABLE IN VARIOUS HEIGHTS STANDARD JOINTING IS BY RUBBER GASKETS. STEPS ARE AVAILABLE ON REQUEST. LIFT HOLES ARE PROVIDED.

KNOCKOUTS ARE PLACED FOR 15" PIPE STRAIGHT THROUGH AND OR 21" PIPE STRAIGHT THROUGH.

BASE SECTIONS.

THE BASE SECTIONS ARE AVAILABLE IN 2 FOOT OR 5 FOOT HEIGHTS. THE 5' BASE HAS 4 KNOCKOUTS, FOR 21" AND 18" PIPE.



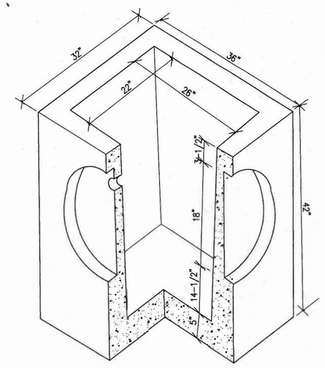

TOP UNIT.

SHOWN WITH FRAME CAST IN IRON CASTING-OLYMPIC FDY. #5435A STEEL CASTING-OLYMPIC FDY. #5434. INS

FRAME MAY BE PLACED DIRECTLY ON BASE OR EXTENSION.

"S" EXTENSION UNITS.

AVAILABLE IN 6", 12" OR 24" HEIGHTS. USED TO ADJUST TO A MAXIMUM CATCH BASIN HEIGHTS OF 5'-0" FINISHED GRADE TO PIPE INVERT.




BASE SECTION.

THIS UNIT IS PROVIDED WITH KNOCKOUTS FOR 18" CONCRETE PIPE ON ALL FOUR SIDES.

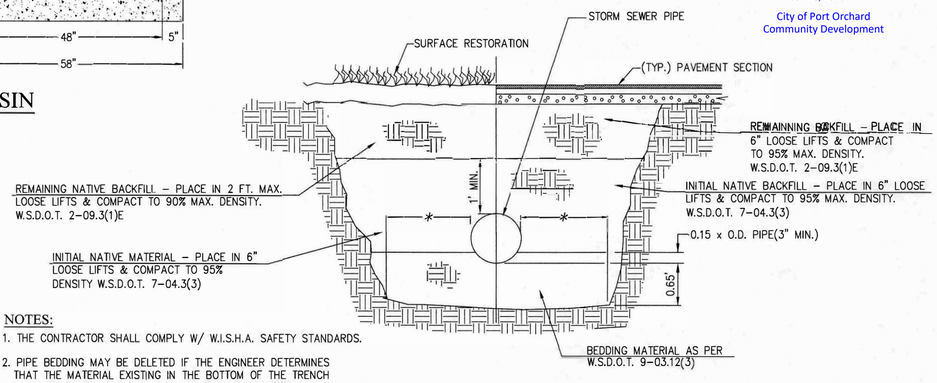
SPECIFICATIONS

ALL UNITS ARE MANUACTURED TO THE SPECIFICATIONS OF THE DEPARTMENT OF TRANSPORTATION AND THE APWA STANDARD PLAN B-1.

## TYPE I CATCH BASIN

NOT TO SCALE

RECEIVED
Permit Center
JUL 28, 2020
City of Port Orchard
Community Development




NOTES:

1. THE CONTRACTOR SHALL COMPLY W/ W.I.S.H.A. SAFETY STANDARDS.
2. PIPE BEDDING MAY BE DELETED IF THE ENGINEER DETERMINES THAT THE MATERIAL EXISTING IN THE BOTTOM OF THE TRENCH IS SATISFACTORY FOR PIPE BEDDING, PROVIDED THE EXISTING MATERIAL IS LOOSENED, RE GRADED, & COMPACTED TO FORM A DENSE UNYIELDING BASE.
3. UNSUITABLE FOUNDATION MATERIAL BEING ROCK, UNYIELDING MATERIAL, OR SOFT MATERIAL SHALL BE REMOVED PRIOR TO PIPE INSTALLATION.

*12" FOR PIPE 12" DIA THRU 42" DIA.
24" FOR PIPE GREATER THAN 42" DIA.

## STORM TRENCH

(PER W.S.D.O.T. 7-02.3(1))
NOT TO SCALE

PW20-041
PW20-042

| REVISIONS | | | | | | BY | DATE |
|---|---|---|---|---|---|---|---|
| NO. | DATE | BY | DESCRIPTION | | DESIGNED | JFK | 2/19 |
| | | | | | DRAWN | AUE | 2/19 |
| | | | | | CHECKED | NLOII | 2/19 |
| | | | | | APPROVED | | |
| | | | | | ACCEPTED | | |


N.L.Olson & Associates, Inc.
Engineering, Planning and Surveying
(360) 876-2284
2453 Bethel Avenue, P.O. Box 637, Port Orchard, WA 98366


NORMAN LEE OLSON — STATE OF WASHINGTON — 37918 — REGISTERED PROFESSIONAL ENGINEER — 7/6/19

# STORM DRAINAGE AND GRADING NOTES & DETAILS

1320 BAY STREET, PORT ORCHARD, WA

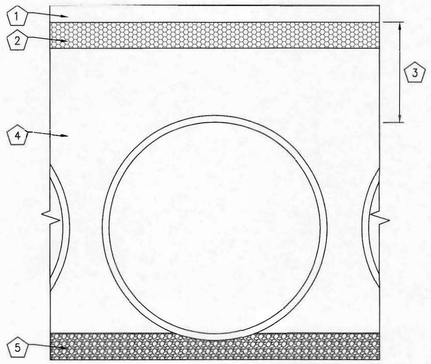
Portion of the Southeast Quarter of the Southeast Quarter of Section 25, Township 24 North, Range 1 East, W.M. in Kitsap County, Washington

FOR:

**Michael Broz**
**2023 Edgewater Way**
**Santa Barbara, CA 93109**
**Phone: (805) 407-7691**

| | |
|---|---|
| SCALE: | AS SHOWN |
| DATE: | Feb. 6, 2019 |
| DRAWING NUMBER: | 17-10120 |
| SHEET | C5.1 |

\\Gis\VER\AutoCAD Projects\9700 BROZ\9700 STAP\9700 C5.1 C5.3 STORM DETAILS.dwg, 2/5/2019 1:37:37 AM, AEnio




KEY

1. RIGID OR FLEXIBLE PAVEMENT
2. GRANULAR ROAD BASE
3. 12" MIN. FOR DIAMETERS THROUGH 96" 18" MIN. FOR DIAMETERS FROM 102" AND LARGER MEASURED TO TOP OF RIGID OR BOTTOM OF FLEXIBLE PAVEMENT.
4. SELECT GRANULAR FILL PER AASHTO M145 A1, A2 OR A3 OR APPROVED EQUAL. PLACED IN 8" LIFTS (COMPACTED TO MIN. 90% STANDARD DENSITY PER AASHTO T99).
5. GRANULAR BEDDING, ROUGHLY SHAPED TO FIT THE BOTTOM OF PIPE, 4" TO 6" IN DEPTH.

FOUNDATION/BEDDING PREPARATION

PRIOR TO PLACING THE BEDDING, THE FOUNDATION MUST BE CONSTRUCTED TO A UNIFORM AND STABLE GRADE. IN THE EVENT THAT UNSUITABLE FOUNDATION MATERIALS ARE ENCOUNTERED DURING EXCAVATION, THEY SHALL BE REMOVED AND BROUGHT BACK TO THE GRADE WITH A FILL MATERIALS AS APPROVED BY THE ENGINEER. ONCE THE FOUNDATION PREPARATION IS COMPLETE, 4"-6" OF A WELL-GRADED GRANULAR MATERIAL SHALL BE PLACED AS THE BEDDING.

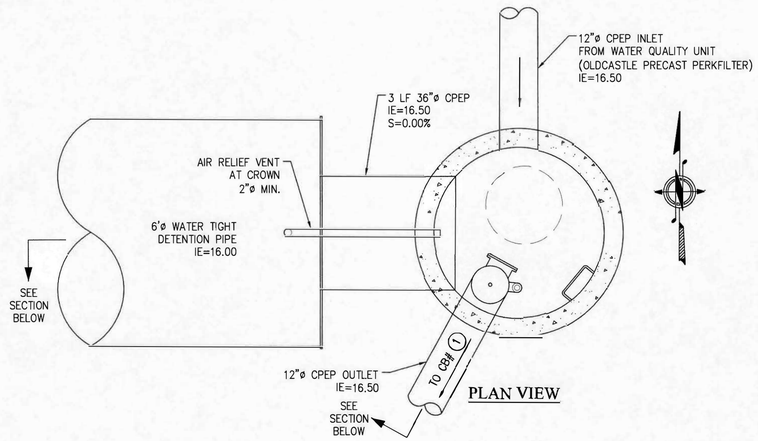
BACKFILL

THE BACKFILL SHALL BE AN A1, A2 OR A3 GRANULAR FILL PER AASHTO M145, OR A WELL-GRADED GRANULAR FILL AS APPROVED BY THE SITE ENGINEER (SEE INSTALLATION GUIDELINES). THE MATERIALS SHALL BE PLACED IN 8" LOOSE LIFTS AND COMPACTED TO 90% AASHTO T99 STANDARD PROCTOR DENSITY. WHEN PLACING THE FIRST LIFTS OF BACKFILL IT IS IMPORTANT TO MAKE SURE THAT THE BACKFILL IS PROPERLY COMPACTED UNDER AND AROUND THE PIPE HAUNCHES. BACKFILL SHALL BE PLACED SUCH THAT THERE IS NO MORE THAN A TWO LIFT (16") DIFFERENTIAL BETWEEN ANY OF THE PIPES AT ANY DURING THE BACKFILL PROCESS. THE BACKFILL SHALL BE ADVANCED ALONG THE LENGTH OF THE DETENTION SYSTEM AT THE SAME RATE TO AVOID DIFFERENTIAL LOADING ON THE PIPE.

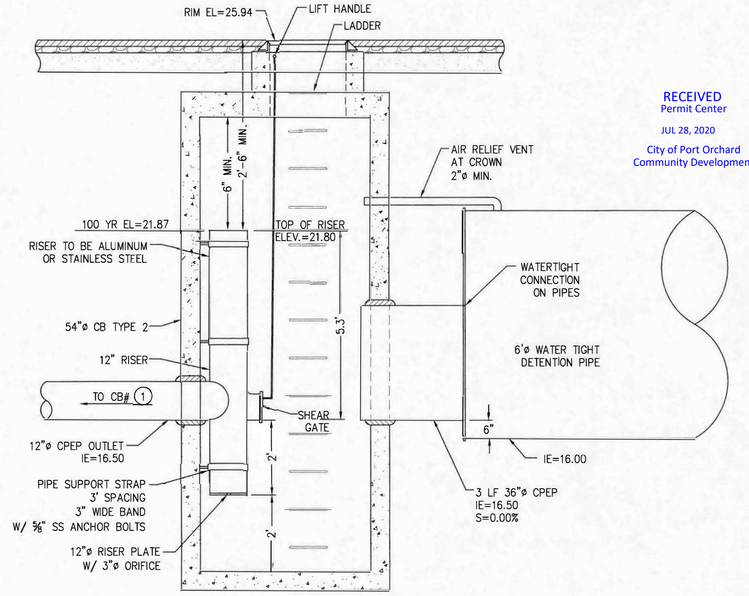
OTHER ALTERNATE BACKFILL MATERIAL MAY BE ALLOWED DEPENDING ON SITE SPECIFIC CONDITIONS, AS APPROVED BY SITE ENGINEER.

## DETENTION BARREL BACKFILL DETAIL

NOT TO SCALE

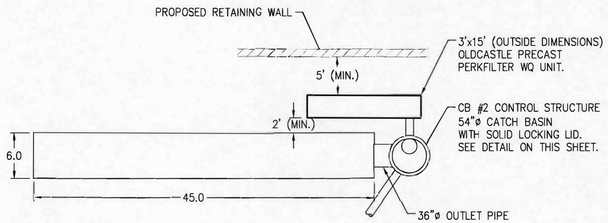



PLAN VIEW




CB #2 54"Ø CONTROL STRUCTURE

SCALE 1"=2"




## 6'Ø CMP DETENTION BARREL LAYOUT

NOT TO SCALE

**NOTE**

THE APPROXIMATE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN ON THE PLANS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE LOCATION OF EXISTING UTILITIES PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGES THAT MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO LOCATE, PRESERVE AND PROTECT UNDERGROUND UTILITIES.

**CALL 48 HOURS BEFORE YOU DIG 811**

RECEIVED
Permit Center
JUL 28, 2020
City of Port Orchard
Community Development

PW20-041
PW20-042

| REVISIONS | | | | | BY | DATE |
|---|---|---|---|---|---|---|
| NO. | DATE | BY | DESCRIPTION | DESIGNED | JFK | 2/19 |
| | | | | DRAWN | AUE | 2/19 |
| | | | | CHECKED | NLOH | 2/19 |
| | | | | APPROVED | | |
| | | | | ACCEPTED | | |

N.L.Olson & Associates, Inc.
Engineering, Planning and Surveying
(360) 876-2284
2453 Bethel Avenue, P.O. Box 637, Port Orchard, WA 98366

NORMAN LEE OLSON — STATE OF WASHINGTON — 37919 — REGISTERED PROFESSIONAL ENGINEER — 2/5/19

# STORM NOTES & DETAILS

1320 BAY STREET, PORT ORCHARD, WA

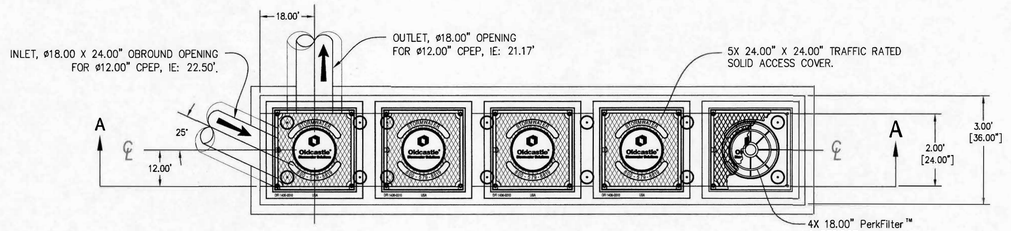
Portion of the Southeast Quarter of the Southeast Quarter of Section 25, Township 24 North, Range 1 East, W.M. in Kitsap County, Washington

FOR:

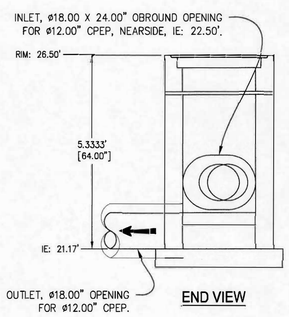
**Michael Broz**
**2023 Edgewater Way**
**Santa Barbara, CA 93109**
**Phone: (805) 407-7691**

SCALE: AS SHOWN
DATE: Feb. 6, 2019
DRAWING NUMBER:
17-10120
SHEET C5.2

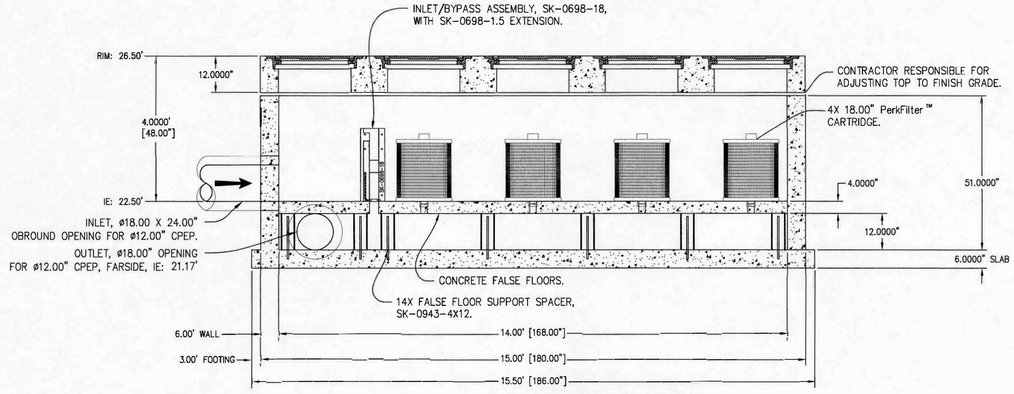
| WADOE GULD |
|---|
| PerkFilter™<br>Concrete Catch Basin<br>18.00" Cartridge, 4 Each |
| Treatment Flow Rate<br>40.8 gpm / 0.091 cfs |
| Total Flow Capacity 1.3 cfs |




PLAN VIEW




END VIEW




SECTION A-A

NOTES:

1. CONCRETE COMPONENTS ARE DESIGNED FOR HS-20 TRUCK LIVE LOAD AND MANUFACTURED IN ACCORDANCE WITH ASTM C890 & C913.
2. GROUND WATER TABLE FOR STRUCTURAL CALCULATIONS IS ASSUMED 3' BELOW GRADE.
3. DESIGN CONCRETE COMPRESSIVE STRENGTH IS 5,000 PSI (MIN.) AT 28 DAYS.
4. PRECAST DESIGN DOES NOT INCLUDE ANY LATERAL OR SURCHARGE LOADS FROM OTHER BUILDINGS OR FOUNDATIONS ADJACENT TO THIS STRUCTURE. THIS STRUCTURE SHALL BE KEPT A MINIMUM OF 1:1 RATIO AWAY FROM OTHER FOOTINGS OR FOUNDATIONS.
5. THIS STRUCTURE IS DESIGNED TO THE PARAMETERS NOTED HEREIN. PLEASE VERIFY THAT THESE PARAMETERS MEET PROJECT REQUIREMENTS (I.E. LIVE LOAD, FILL RANGE, WATER TABLE). IF DESIGN PARAMETERS ARE INCORRECT, REVIEWING ENGINEER/AUTHORITY SHALL NOTIFY OLDCASTLE PRECAST UPON REVEW OF THIS SUBMITTAL.
6. OVERSIZED HOLES TO ACCOMMODATE SPECIFIC PIPE TYPE MUST BE CONCENTRIC TO PIPE ID. AFTER PIPES ARE INSTALLED, ALL ANNULAR SPACES SHALL BE FILLED WITH A MINIMUM OF 3000 PSI CONCRETE FOR FULL THICKNESS OF PRECAST WALLS.
7. CONTRACTOR RESPONSIBLE TO VERIFY ALL SIZES, LOCATIONS AND ELEVATIONS OF OPENINGS.
8. CONTRACTOR RESPONSIBLE TO ENSURE ADEQUATE BEARING SURFACE IS PROVIDED (I.E. COMPACTED & LEVEL PER PROJECT SPECIFICATIONS)
9. SECTION HEIGHTS, SLAB/WALL THICKNESSES & KEYWAYS ARE SUBJECT TO CHANGE DUE TO AVAILABILITY & PRODUCTION PLANT CAPABILITY.
12. MAXIMUM PICK WEIGHT: BASE WITH INTERNALS INSTALLED = 17,000 LBS.

Oldcastle Infrastructure™
A CRH COMPANY

Ph: 800.579.8819 | www.oldcastleinfrastructure.com/stormwater



PerkFilter™ Concrete Catch Basin
18.00" Cartridge, 4 Each

RECEIVED
Permit Center
JUL 28, 2020
City of Port Orchard
Community Development

**NOTE**

THE APPROXIMATE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN ON THE PLANS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE LOCATION OF EXISTING UTILITIES PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGES THAT MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO LOCATE, PRESERVE AND PROTECT UNDERGROUND UTILITIES.

CALL 48 HOURS
BEFORE YOU DIG
811

PW20-041
PW20-042

| REVISIONS | | | | | | |
|---|---|---|---|---|---|---|
| NO. | DATE | BY | DESCRIPTION | | BY | DATE |
| | | | | DESIGNED | JFK | 2/19 |
| | | | | DRAWN | AUE | 2/19 |
| | | | | CHECKED | NLOH | 2/19 |
| | | | | APPROVED | | |
| | | | | ACCEPTED | | |

N.L.Olson & Associates, Inc.
Engineering, Planning and Surveying
(360) 876-2284
2453 Bethel Avenue, P.O. Box 637, Port Orchard, WA 98366

NORMAN LEE OLSON
STATE OF WASHINGTON
37919
REGISTERED
PROFESSIONAL ENGINEER
2/6/19

# STORM WATER QUALITY DETAILS

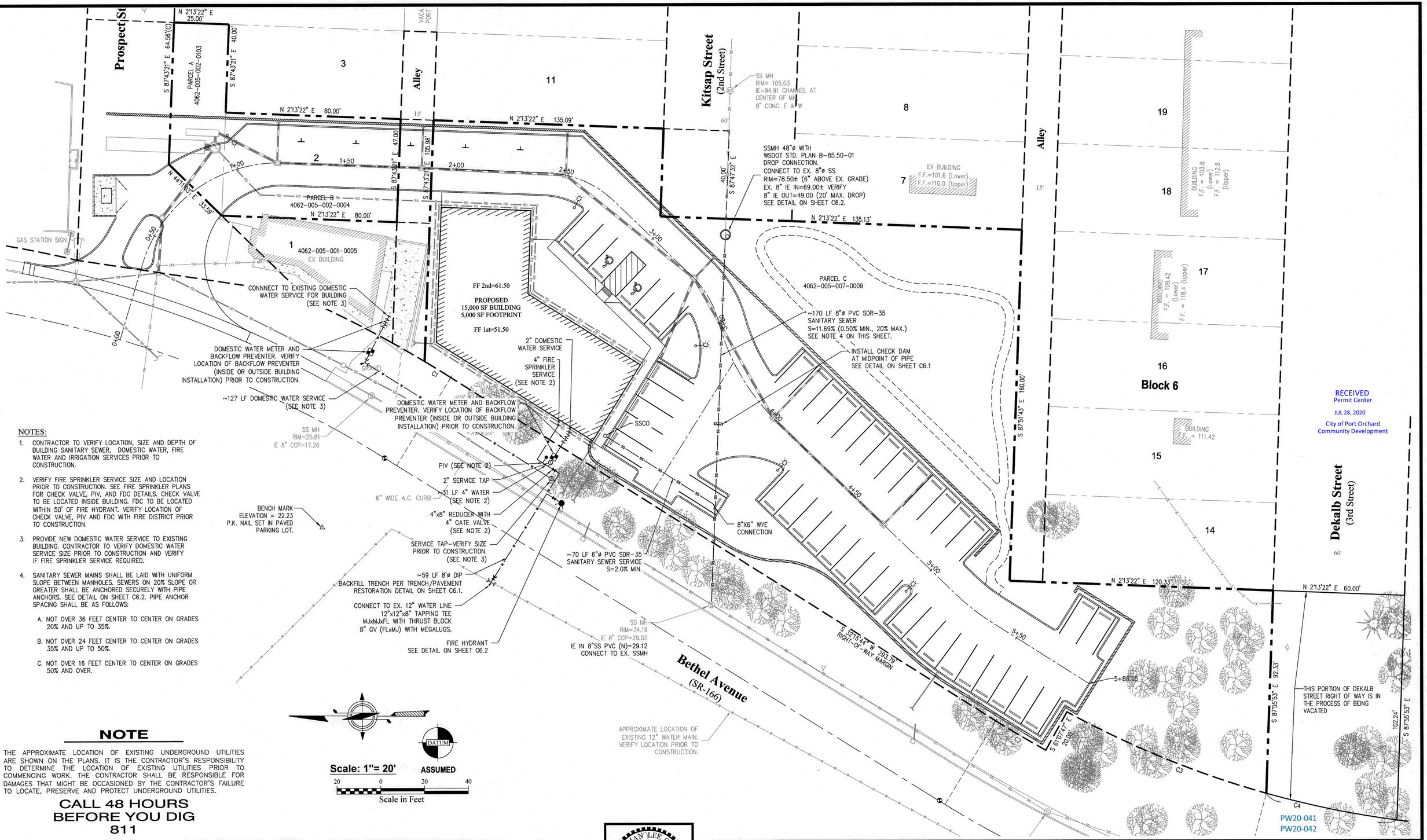
1320 BAY STREET, PORT ORCHARD, WA

Portion of the Southeast Quarter of the Southeast Quarter of Section 25, Township 24 North, Range 1 East, W.M. in Kitsap County, Washington

FOR:

**Michael Broz**
**2023 Edgewater Way**
**Santa Barbara, CA 93109**
**Phone: (805) 407-7691**

SCALE: AS SHOWN
DATE: Feb. 6, 2019
DRAWING NUMBER:
17-10120
SHEET C5.3




NOTES:

1. CONTRACTOR TO VERIFY LOCATION, SIZE AND DEPTH OF BUILDING SANITARY SEWER, DOMESTIC WATER, FIRE WATER AND IRRIGATION SERVICES PRIOR TO CONSTRUCTION.
2. VERIFY FIRE SPRINKLER SERVICE SIZE AND LOCATION PRIOR TO CONSTRUCTION. SEE FIRE SPRINKLER PLANS FOR CHECK VALVE, PIV, AND FDC DETAILS. CHECK VALVE TO BE LOCATED INSIDE BUILDING. FDC TO BE LOCATED WITHIN 50' OF FIRE HYDRANT. VERIFY LOCATION OF CHECK VALVE, PIV AND FDC WITH FIRE DISTRICT PRIOR TO CONSTRUCTION.
3. PROVIDE NEW DOMESTIC WATER SERVICE TO EXISTING BUILDING. CONTRACTOR TO VERIFY DOMESTIC WATER SERVICE SIZE PRIOR TO CONSTRUCTION AND VERIFY IF FIRE SPRINKLER SERVICE REQUIRED.
4. SANITARY SEWER MAINS SHALL BE LAID WITH UNIFORM SLOPE BETWEEN MANHOLES. SEWERS ON 20% SLOPE OR GREATER SHALL BE ANCHORED SECURELY WITH PIPE ANCHORS. SEE DETAIL ON SHEET C6.2. PIPE ANCHOR SPACING SHALL BE AS FOLLOWS:
   A. NOT OVER 36 FEET CENTER TO CENTER ON GRADES 20% AND UP TO 35%.
   B. NOT OVER 24 FEET CENTER TO CENTER ON GRADES 35% AND UP TO 50%.
   C. NOT OVER 16 FEET CENTER TO CENTER ON GRADES 50% AND OVER.

## NOTE

THE APPROXIMATE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN ON THE PLANS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE LOCATION OF EXISTING UTILITIES PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGES THAT MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO LOCATE, PRESERVE AND PROTECT UNDERGROUND UTILITIES.

**CALL 48 HOURS BEFORE YOU DIG 811**

Scale: 1"= 20'

DATUM ASSUMED

20 0 20 40

Scale in Feet

RECEIVED
Permit Center
JUL 28, 2020
City of Port Orchard
Community Development

PW20-041
PW20-042

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| NO. | DATE | BY | DESCRIPTION | | BY | DATE |
| | | | | DESIGNED | JFK | 2/19 |
| | | | | DRAWN | AUE | 2/19 |
| | | | | CHECKED | NLOII | 2/19 |
| | | | | APPROVED | | |
| | | | | ACCEPTED | | |


N.L.Olson & Associates, Inc.
Engineering, Planning and Surveying
(360) 876-2284
2453 Bethel Avenue, P.O. Box 637, Port Orchard, WA 98366


NORMAN LEE OLSON — STATE OF WASHINGTON — 37918 — REGISTERED PROFESSIONAL ENGINEER

# UTILITY PLAN

1320 BAY STREET, PORT ORCHARD, WA

Portion of the Southeast Quarter of the Southeast Quarter of Section 25, Township 24 North, Range 1 East, W.M. in Kitsap County, Washington

FOR:

**Michael Broz**
**2023 Edgewater Way**
**Santa Barbara, CA 93109**
**Phone: (805) 407-7691**

| | |
|---|---|
| SCALE: | 1"=20' |
| DATE: | Feb. 6, 2019 |
| DRAWING NUMBER: | 17-10120 |
| SHEET | C6.0 |

\\SERVER\AutoCAD Projects\9700 BROZ\9700F SD\AP\9700F C6.0 UTILITY PLAN.dwg, 2/4/2019 4:18:43 PM, AAncio

# GENERAL SANITARY SEWER NOTES

1. CONSTRUCTION MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE REQUIREMENTS OF THE CITY OF PORT ORCHARD DEPARTMENT OF PUBLIC WORKS SANITARY SEWER SYSTEM STANDARDS, (DEVELOPER'S HANDBOOK, LATEST EDITION) IN CONJUNCTION WITH THE STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION, LATEST EDITION, PREPARED BY THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION AND THE WASHINGTON STATE CHAPTER OF THE AMERICAN PUBLIC WORKS ASSOCIATION.

2. THE CONTRACT SHALL ARRANGE FOR A PRECONSTRUCTION CONFERENCE PRIOR TO COMMENCING CONSTRUCTION. THE ENGINEER AND/OR INSPECTOR FOR THE CITY OF PORT ORCHARD DEPARTMENT OF PUBLIC WORKS SHALL BE IN ATTENDANCE.

3. ALL SEWER INSTALLATION INSPECTIONS AND TEST OBSERVATIONS SHALL BE MADE BY CITY OF PORT ORCHARD DEPARTMENT OF PUBLIC WORKS WASTEWATER DIVISION. THE CITY INSPECTOR SHALL BE NOTIFIED TWO DAYS IN ADVANCE OF COMMENCING WORK ON A SANITARY SEWER EXTENSION. PRIOR TO FINAL ACCEPTANCE OF ALL INSTALLATIONS THE CITY SHALL CONDUCT AN INSPECTION OF ALL MAIN LINES BY THE USE OF TELEVISION EQUIPMENT. FINAL ACCEPTANCE OF SEWER INSTALLATIONS WILL NOT BE MADE UNTIL TESTS AND INSPECTIONS ARE COMPLETE AND PROVE SATISFACTORY.

4. PIPE REQUIREMENTS: PVC PER W.S.D.O.T. 9-05.12(1)

5. BEDDING REQUIREMENTS: W.S.D.O.T. 7-08.3(1)

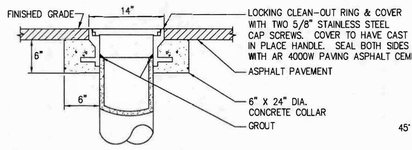
6. BACKFILL MATERIAL AND COMPACTION REQUIREMENTS: W.S.D.O.T. 9-03.12(3)

7. THE PHYSICAL CONNECTION TO AN EXISTING MANHOLE OR SEWER SHALL NOT BE MADE UNTILL AUTHORIZED BY THE CITY. SUCH AUTHORIZATION WILL NOT BE GIVEN UNTILL ALL UPSTREAM LINES HAVE BEEN COMPLETLY CLEANED AND ALL DEBRIS REMOVED.

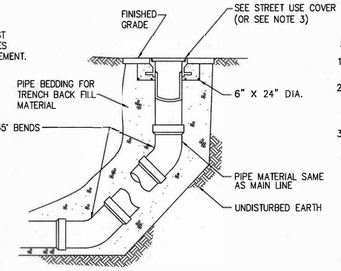
8. GRAVITY MAINS SHALL BE TESTED BY THE LOW PRESSURE AIR METHOD. PRESSURE MAINS SHALL BE TESTED BY THE HYDROSTATIC TEST METHOD. ALL TESTS SHALL BE MADE IN THE PRESENCE OF THE CITY INSPECTOR.

9. CLEANOUT FRAME AND COVERS SHALL BE CAST IRON TWO BOLT LOCKING TYPE, OLYMPIC FOUNDRY TYPE M1025, OR EQUAL. BOLTS SHALL BE 5/8" STAINLESS STEEL SOCKET HEAD, COUNTERSUNK.

10. ALL SIDE SEWER SHALL BE 6" DIAMETER MINIMUM AND LAYED ON A MINIMUM SLOPE OF 2 PERCENT. ALL SIDE SEWERS SHALL BE PROVIDED WITH A CLEANOUT AND TEST TEES FOR EACH LOT TO BE SERVED.




STREET USE COVER

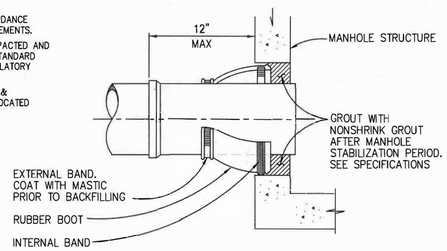



## CLEANOUT AND STREET USE COVER

NOT TO SCALE

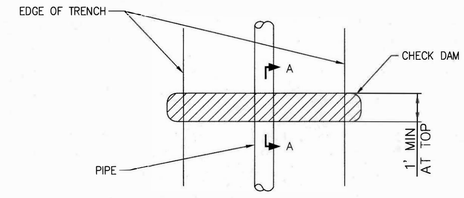
NOTES:

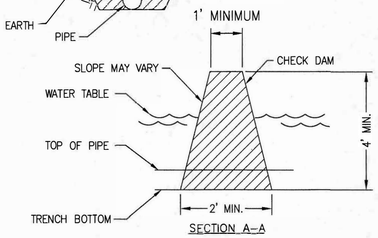
1. RESTORATION SHALL BE IN ACCORDANCE WITH LOCAL REGULATORY REQUIREMENTS.
2. TRENCH BACKFILL SHALL BE COMPACTED AND TESTED IN ACCORDANCE WITH STANDARD SPECIFICATIONS AND LOCAL REGULATORY REQUIREMENTS.
3. SEE EASEMENT CLEANOUT FRAME & COVER DETAIL FOR CLEANOUTS LOCATED IN EASEMENTS




## RUBBER BOOT MANHOLE INSERT

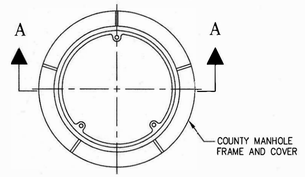
NOT TO SCALE



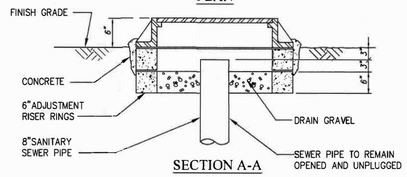




## CHECK DAM DETAIL

NOT TO SCALE



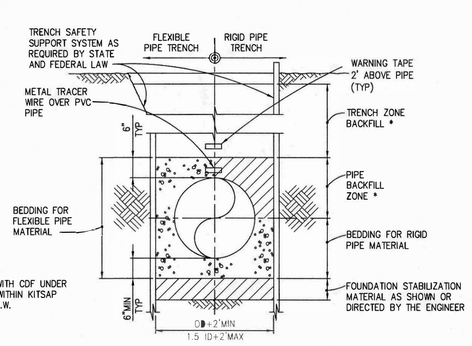

PLAN




SECTION A-A

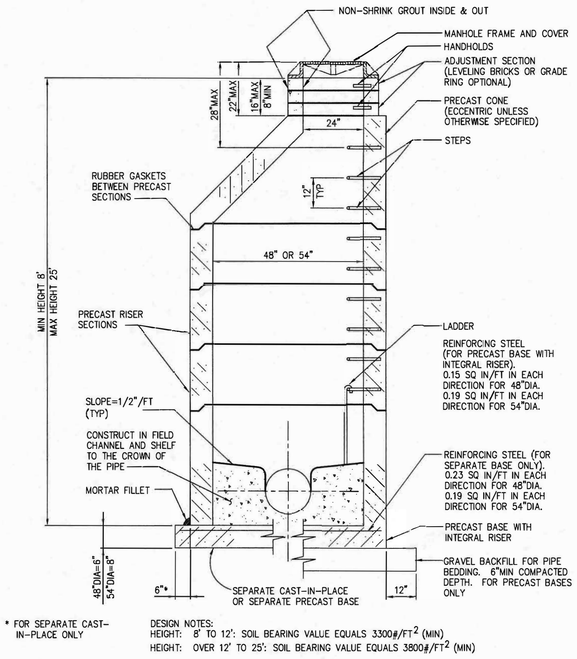
## EASEMENT CLEANOUT COVER

NOT TO SCALE




## TYPICAL PIPE TRENCH

NOT TO SCALE

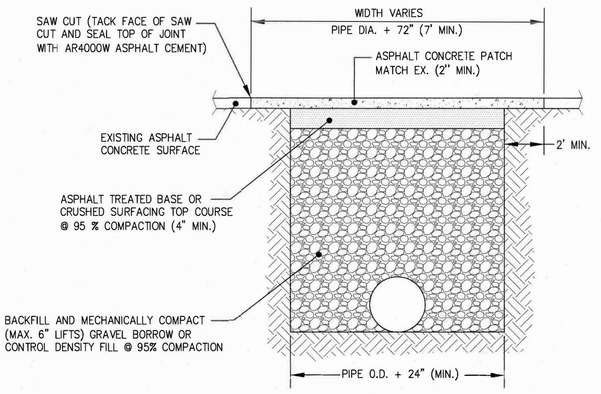



* FOR SEPARATE CAST-IN-PLACE ONLY

DESIGN NOTES:
HEIGHT: 8' TO 12': SOIL BEARING VALUE EQUALS 3300#/FT$^2$ (MIN)
HEIGHT: OVER 12' TO 25': SOIL BEARING VALUE EQUALS 3800#/FT$^2$ (MIN)

## TYPE 1 MANHOLE
## RUBBER BOOTED AND PRE-CHANNELED

NOT TO SCALE




NOTES:

1. ASPHALT CONCRETE MIX SHALL BE HMA ½" (PG 58-22).
2. ALL UTILITIES SHALL HAVE 36" MIN COVER UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.
3. ROADWAY PUSHES & BORES SHALL HAVE 48" MIN. COVER.
4. IF ROAD CLOSURES OR DETOURS ARE ANTICIPATED, A TRAFFIC PLAN INCLUIDNG SPECIFIC DATES AND DURATIONS OF SUCH ACTIONS SHALL BE FILED WITH THE DEPARTMENT OF PUBLIC WORKS.
5. THE APPLICANT IS RESPONSIBLE FOR ALL TEMPORARY AND PERMANENT PATCHING.
6. NO OPEN TRENCHES LEFT OVERNIGHT.
7. PERMIT TO DIG IN CITY R/W REQUIRED.

## STANDARD TRENCH / PAVEMENT RESTORATION
## (WITHIN R.O.W. TRAVELED WAY)

NOT TO SCALE

RECEIVED
Permit Center
JUL 28, 2020
City of Port Orchard
Community Development

PW20-041
PW20-042

## NOTE

THE APPROXIMATE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN ON THE PLANS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE LOCATION OF EXISTING UTILITIES PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGES THAT MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO LOCATE, PRESERVE AND PROTECT UNDERGROUND UTILITIES.

**CALL 48 HOURS BEFORE YOU DIG 811**

| REVISIONS | | | | | | |
|---|---|---|---|---|---|---|
| NO. | DATE | BY | DESCRIPTION | | BY | DATE |
| | | | | DESIGNED | JFK | 2/19 |
| | | | | DRAWN | AUE | 2/19 |
| | | | | CHECKED | NLOII | 2/19 |
| | | | | APPROVED | | |
| | | | | ACCEPTED | | |


N.L.Olson & Associates, Inc.
Engineering, Planning and Surveying
(360) 876-2284
2453 Bethel Avenue, P.O. Box 637, Port Orchard, WA 98366


NORMAN LEE OLSON — STATE OF WASHINGTON — 37918 — REGISTERED PROFESSIONAL ENGINEER — 7/1/19

# SANITARY SEWER NOTES AND DETAILS

1320 BAY STREET, PORT ORCHARD, WA

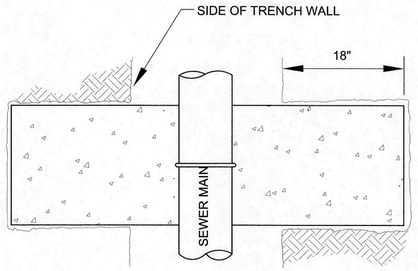
Portion of the Southeast Quarter of the Southeast Quarter of Section 25, Township 24 North, Range 1 East, W.M. in Kitsap County, Washington

FOR:

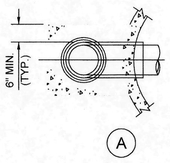

**Michael Broz**
**2023 Edgewater Way**
**Santa Barbara, CA 93109**
**Phone: (805) 407-7691**

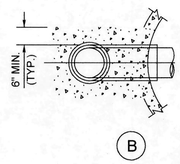

SCALE: AS SHOWN
DATE: Feb. 6, 2019
DRAWING NUMBER:
17-10120
SHEET C6.1

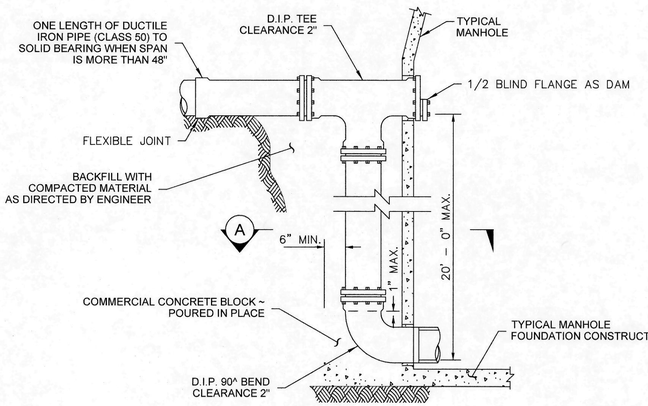
\\SERVER\Autocad Projects\9700 BROZ\9700F C6.1-C6.2 SANITARY SEWER NOTES AND DETAILS.dwg, 2/5/2019 8:44:45 AM, AEnicio



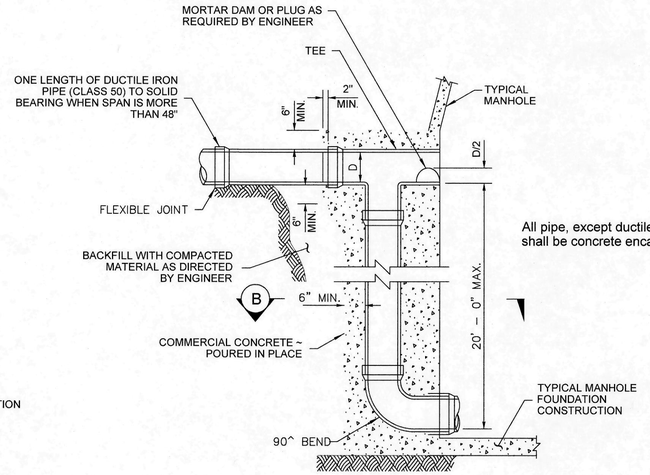

| PIPE SIZE | DIMENSIONS (INCHES) | | | | |
|---|---|---|---|---|---|
| | A | B | C | D | E |
| 4" | 2⅜" | 4¾" | 17 | 13 | 14½" |
| 6" | 3½" | 6⅞" | 18 | 14 | 14½" |
| 8" | 4½" | 9⅛" | 19 | 15 | 14½" |
| 10" | 5⅝" | 11⅛" | 20 | 16 | 14⅜" |
| 12" | 6⅝" | 13¼" | 21 | 17 | 14⅜" |
| 14" | 7¾" | 15¼" | 22 | 18 | 14¼" |
| 16" | 8¾" | 17¼" | 23 | 19 | 14¼" |
| 18" | 9¾" | 19¼" | 24 | 20 | 14¼" |




DUCTILE IRON
DROP CONNECTION

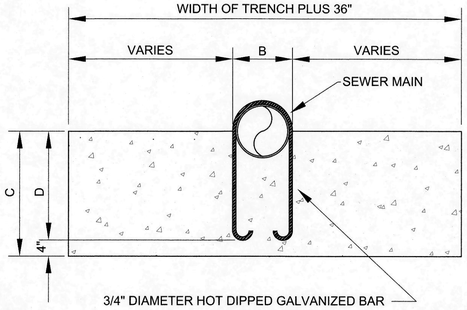


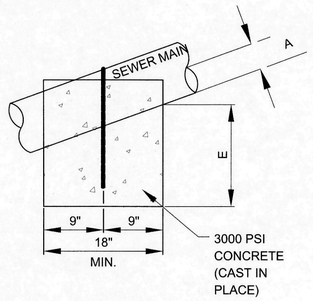

CONCRETE ENCASED
DROP CONNECTION

All pipe, except ductile iron pipe, shall be concrete encased.

## DROP CONNECTIONS
## WSDOT STANDARD PLAN B-85.50-01

NOT TO SCALE




NOTES:

1) WHEN SLOPES ARE GREATER THAN 20% - PROVIDE CONCRETE SLOPE ANCHORS (20' TO 25' ON CENTER)

## SEWER MAIN CONCRETE SLOPE ANCHOR

NOT TO SCALE

RECEIVED
Permit Center
JUL 28, 2020
City of Port Orchard
Community Development

## NOTE

THE APPROXIMATE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN ON THE PLANS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE LOCATION OF EXISTING UTILITIES PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGES THAT MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO LOCATE, PRESERVE AND PROTECT UNDERGROUND UTILITIES.

**CALL 48 HOURS BEFORE YOU DIG 811**

PW20-041
PW20-042

| REVISIONS | | | | | BY | DATE |
|---|---|---|---|---|---|---|
| NO. | DATE | BY | DESCRIPTION | DESIGNED | JFK | 2/19 |
| | | | | DRAWN | AUE | 2/19 |
| | | | | CHECKED | NLOII | 2/19 |
| | | | | APPROVED | | |
| | | | | ACCEPTED | | |

N.L.Olson & Associates, Inc.
Engineering, Planning and Surveying
(360) 876-2284
2453 Bethel Avenue, P.O. Box 637, Port Orchard, WA 98366

NORMAN LEE OLSON
STATE OF WASHINGTON
37919
REGISTERED
PROFESSIONAL ENGINEER
3/4/19

# SANITARY SEWER DETAILS

1320 BAY STREET, PORT ORCHARD, WA

Portion of the Southeast Quarter of the Southeast Quarter of Section 25, Township 24 North, Range 1 East, W.M. in Kitsap County, Washington

FOR:

**Michael Broz**
**2023 Edgewater Way**
**Santa Barbara, CA 93109**
**Phone: (805) 407-7691**

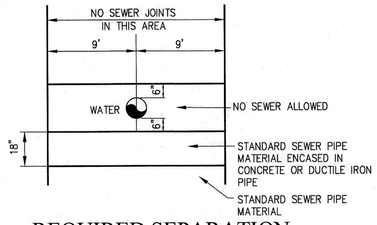
SCALE: AS SHOWN
DATE: Feb. 6, 2019
DRAWING NUMBER:
17-10120
SHEET C6.2

# GENERAL WATER NOTES

1. EXCEPT WHERE THE STANDARDS PROVIDE OTHERWISE, DESIGN DETAILS WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE 2000 EDITION OF THE "STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION" PREPARED BY THE WASHINGTON STATE CHAPTER OF AMERICAN PUBLIC WORKS ASSOCIATION AND THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION.
2. ALL WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE CITY OF PORT ORCHARD DEPT. OF PUBLIC WORKS.
3. ALL PIPE SHALL BE DUCTILE IRON CL. 50 UNLESS OTHERWISE SHOWN.
4. ALL PIPE AND FITTINGS NOT TO BE DISINFECTED IN PLACE SHALL BE SWABBED WITH 200 PPM CHLORINE SOLUTION PRIOR TO INSTALLATION.
5. AFTER DISINFECTION OF THE WATERMAIN, DISPOSE OF CHLORINATED WATER BY DISCHARGING TO NEAREST OPERATING SANITARY SEWER.
6. WATERMAIN SHUT-OFF SHALL BE COORDINATED WITH CITY OF PORT ORCHARD WATER DISTRICT OPERATIONS CREW FOR PREFERRED TIMING DURING FLOW CONTROL CONDITIONS. (876-4991)
7. LOCATIONS OF EXISTING UTILITIES SHOWN IN THESE PLANS ARE APPROXIMATE AND MAY NOT BE COMPLETE. ACTUAL UTILITY LOCATIONS ARE TO BE DETERMINED IN THE FIELD BY THE CONTRACTOR.
8. DEFLECT THE WATERMAIN ABOVE OR BELOW EXISTING UTILITIES AS REQUIRED TO MAINTAIN 3 FEET MINIMUM COVER AND 12 INCHES MINIMUM VERTICAL CLEARANCE BETWEEN UTILITIES UNLESS OTHERWISE SPECIFIED.
9. THE WATERMAIN SHALL BE INSTALLED ONLY AFTER THE ROADWAY SUBGRADE IS BACKFILLED, GRADED AND COMPACTED IN CUT AND FILL AREAS.
10. TRENCH BACKFILL AND SURFACE RESTORATION OF EXISTING ASPHALT PAVEMENT SHALL BE AS REQUIRED BY THE RIGHT-OF-WAY USE PERMIT.
11. ALL FITTINGS SHALL BE BLOCKED PER STANDARD DETAILS UNLESS OTHERWISE SPECIFIED.
12. THE CONTRACTOR SHALL PROVIDE PROTECTIVE CLOTHING AND EQUIPMENT TO CREWS WORKING WITH ASBESTOS CEMENT PIPE IN ORDER TO ASSURE THE WORKERS' EXPOSURE TO ASBESTOS MATERIALS BE AT OR BELOW THE LIMIT PRESCRIBED IN WAC 296-62-07705. PER STATE STANDARDS/REQUIREMENTS.
13. THE CONTRACTOR SHALL USE A VACUUM STREET SWEEPER TO REMOVE DUST AND DEBRIS FROM PAVEMENT AREAS AS DIRECTED BY THE ENGINEER. FLUSHING OF STREETS SHALL NOT BE PERMITTED WITHOUT PRIOR CITY APPROVAL.
14. BEFORE COMMENCEMENT OF TRENCHING, THE CONTRACTOR SHALL PROVIDE FILTER FABRIC FOR ALL DOWNHILL STORM DRAIN INLETS AND CATCH BASINS. THE CONTRACTOR SHALL PERIODICALLY INSPECT THE CONDITION OF ALL FILTER FABRIC AND REPLACE AS NECESSARY.

# WATER SYSTEM SPECIFICATIONS

1. METER TO BE FURNISHED AND INSTALLED BY THE CITY. WATER METERS SHALL BE SENSUS AND READ IN GALLONS.
2. BACKFLOW PREVENTION DEVICES TO BE INSTALLED IN ACCORDANCE WITH STATE REQUIREMENTS.
3. FIRE DEPARTMENT MUST APPROVE ALL FIRE HYDRANT SELECTIONS AND PLACEMENT PRIOR TO CONSTRUCTION. STORZ COUPLINGS ARE REQUIRED ON ALL HYDRANTS.
4. ALL NEW MAINS WILL BE PRESSURE TESTED TO 'APWA' STANDARDS. THE MINIMUM TEST SHALL BE 175 POUNDS FOR 15 MINUTES.
5. ALL NEW MAINS WILL BE DISINFECTED AND TESTED BY THE HEALTH DEPARTMENT PRIOR TO ACCEPTANCE BY THE CITY. THE CITY WILL ACTUALLY TAKE THE WATER SAMPLE FOR THE HEALTH DEPARTMENT TESTING.



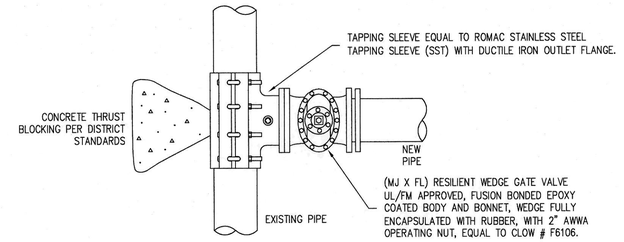

## REQUIRED SEPARATION BETWEEN WATER LINES & GRAVITY SANITARY SEWERS

NOT TO SCALE

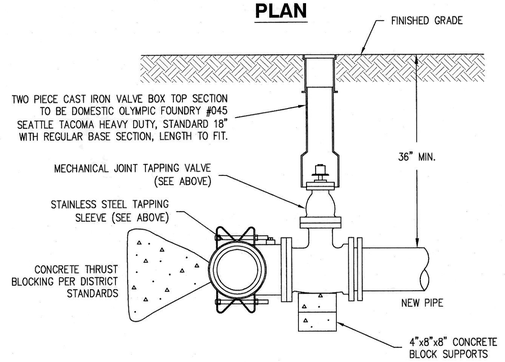
## NOTE

THE APPROXIMATE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN ON THE PLANS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE LOCATION OF EXISTING UTILITIES PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGES THAT MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO LOCATE, PRESERVE AND PROTECT UNDERGROUND UTILITIES.

**CALL 48 HOURS BEFORE YOU DIG 811**




## PLAN

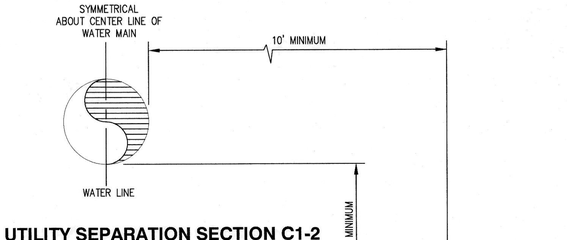



## ELEVATION

NOTES:
1. PRIOR TO BORING:
   A. TAPPING SLEEVE AND VALVE SHALL BE PRESSURE TESTED AT 200 PSI FOR A PERIOD OF 15 MINUTES. PRESSURE LOSS DURING TESTING SHALL NOT EXCEED 5 PSI.
   B. TAPPING SLEEVE AND VALVE SHALL BE STERILIZED PER SPECIFICATIONS
2. PRIOR TO FINAL CONNECTION OF TAPPING VALVE TO NEW PIPING, THE NEW PIPING SHALL BE PRESSURE TESTED AND STERILIZED PER SPECIFICATIONS

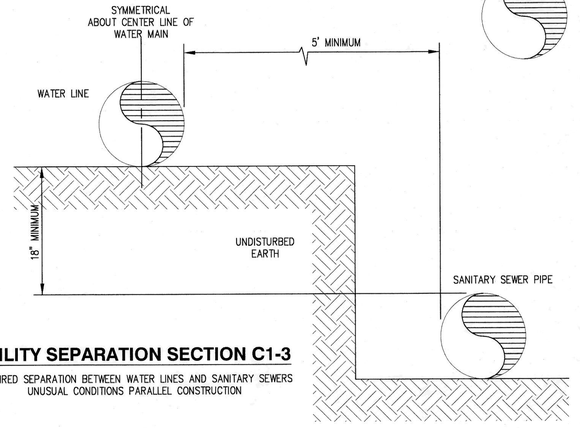
## WET TAP DETAIL

NOT TO SCALE




## UTILITY SEPARATION SECTION C1-2

REQUIRED SEPARATION BETWEEN WATER LINES AND SANITARY SEWERS PARALLEL CONSTRUCTION

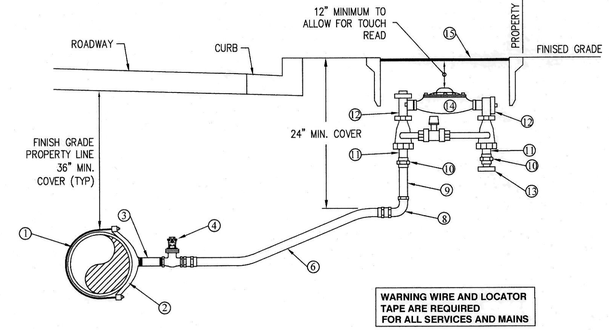



## UTILITY SEPARATION SECTION C1-3

REQUIRED SEPARATION BETWEEN WATER LINES AND SANITARY SEWERS UNUSUAL CONDITIONS PARALLEL CONSTRUCTION

## SEPARATION STANDARDS DETAIL

NOT TO SCALE



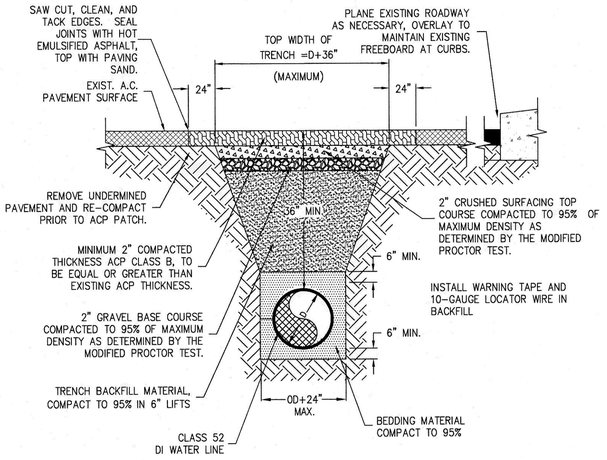

## MATERIAL LIST FOR 1 1/2" OR 2" WATER SERVICE

1. EXISTING WATER MAIN
2. 2" (IP THREAD) DOUBLE STRAP SADDLE EQUAL TO ROMAC STYLE 202S
3. 2" BRASS NIPPLE, 3" LONG
4. CORP. STOP, FORD F101 OR EQUAL
5. 2" MIPT X CTS GRIP JOINT EQUAL TO FORD C8477G
6. 2" POLY, MAINTAIN 36" COVER FROM WATER MAIN TO WITHIN 48" OF METER BOX
7. 2" FIPT X CTS. GRIP JOINT EQUAL TO FORD C14-77G
8. 2" BRASS STREET ELL
9. 2" BRASS NIPPLE, 6" LONG
10. 2" BRASS UNION
11. 2" BRASS NIPPLE, 3" LONG
12. 2" METER SETTER WITH HIGH BYPASS EQUAL TO FORD SERIES 80. VERT. IN, VERT. OUT. FLANGED BALL VALVE WITH LOCK WINGS AND CHECK VALVE.
13. SCHEDULE 40 2" PVC THREADED PLUG. REMOVED WHEN CONNECTION MADE TO CUSTOMER LINE
14. WATER METER - TO BE SUPPLIED BY THE DISTRICT
15. METER BOX SHALL BE EQUAL TO FOG TITE # 2 WITH TRAFFIC COVER AND HINGED INSPECTION LID. PROVIDE TOUCH READ PIT LID. PLACE BACK OF METER BOX FLUSH WITH PROPERTY LINE.

NOTE: ALL FITTINGS TO BE BRASS.
IF USING 1 1/2" METER MUST USE TWO FORD A-67'S OR APPROVED EQUAL.

## 1-1/2" OR 2" WATER SERVICE

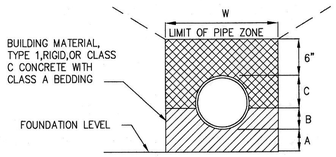
NOT TO SCALE




## WATERLINE TRENCH DETAIL

NOT TO SCALE

BEDDING FOR RIGID PIPE IN TRENCHES



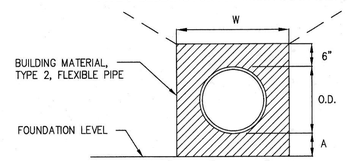

NOTES : ( RIGID AND FLEXIBLE )
1. PROVIDE UNIFORM SUPPORT UNDER BARREL.
2. WORK BEDDING UNDER HAUNCHES AND HAND TAMP.
3. COMPACT BEDDING MATERIAL TO 95% MAX. DENSITY EXCEPT DIRECTLY OVER PIPE, HAND TAMP ONLY.
4. MAKE SURFACE OF BEDDING LEVEL, OR SLOPE UP AWAY FROM PIPE.
5. SEE "TYPICAL TRENCH SECTION" STANDARD PLAN FOR TRENCH WIDTH "W" AND TRENCHING OPTIONS.

| DIMENSION | CLASS A | CLASS B | CLASS C | CLASS D |
|---|---|---|---|---|
| A | 1/4" I.D. 4" MIN. 12" MAX. | 4" MIN.,27" & UNDER 6" MIN.,OVER 27" I.D. | | ZERO |
| B | 1/4 O.D. | 1/2 O.D. | 1/8 O.D. | ZERO |
| C | 3/4 O.D. | 1/2 O.D. | 7/8 O.D. | O.D. |

BEDDING MATERIAL TYPE 1, RIDGID PIPE

| | |
|---|---|
| PASSING 3/4" SQUARE SIEVE | 100% |
| PASSING 3/8" SQUARE SIEVE | 95-100% |
| PASSING #8 SIEVE | 0-10 |
| PASSING #200 SIEVE | 0-3 |
| SAND EQUIVALENT | 35 MIN. |

TYPE 'F' BEDDING FOR FLEXIBLE PIPE IN TRENCH




BEDDING MATERIAL TYPE 2, FLEXIBLE PIPE

| | |
|---|---|
| PASSING 3/4" SQUARE SIEVE | 100% |
| PASSING 3/8" SQUARE SIEVE | 70-100% |
| PASSING #4 SIEVE | 55-100 |
| PASSING #10 SIEVE | 35-95 |
| PASSING #20 SIEVE | 20-80 |
| PASSING #40 SIEVE | 10-55 |
| PASSING #100 SIEVE | 0-10 |
| PASSING #40 SIEVE | 0-3 |
| SAND EQUIVALENT | 35 MIN. |

## PIPE BEDDING

NOT TO SCALE

RECEIVED
Permit Center
JUL 28, 2020
City of Port Orchard
Community Development

PW20-041
PW20-042

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| NO. | DATE | BY | DESCRIPTION | | BY | DATE |
| | | | | DESIGNED | JFK | 2/19 |
| | | | | DRAWN | AUE | 2/19 |
| | | | | CHECKED | NLOII | 2/19 |
| | | | | APPROVED | | |
| | | | | ACCEPTED | | |


N.L.Olson & Associates, Inc.
Engineering, Planning and Surveying
(360) 876-2284
2453 Bethel Avenue, P.O. Box 637, Port Orchard, WA 98366


NORMAN LEE OLSON — STATE OF WASHINGTON — 37919 — REGISTERED — PROFESSIONAL ENGINEER — 1/1/19

# WATER NOTES AND DETAILS

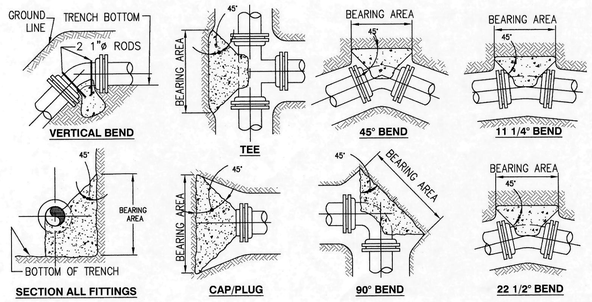
1320 BAY STREET, PORT ORCHARD, WA

Portion of the Southeast Quarter of the Southeast Quarter of Section 25, Township 24 North, Range 1 East, W.M. in Kitsap County, Washington

FOR:
**Michael Broz**
**2023 Edgewater Way**
**Santa Barbara, CA 93109**
**Phone: (805) 407-7691**

SCALE: AS SHOWN
DATE: Feb. 6, 2019
DRAWING NUMBER:
17-10120
SHEET C6.3

\\SERVER\AutoCAD Projects\9700 BROZ\9700F SD\AP9700F C6.3-C6.4 WATER NOTES AND DETAILS.dwg, 2/5/2019 8:57:21 AM, AEncio




## THRUST BLOCK REQUIREMENTS

BEARING AREA REQUIRED IN SQUARE FEET

| | | TEE/CAP OR PLUG | | | 90 Degree BEND | | | 45 Degree BEND | | | 22.5 Degree BEND | | | 11.25 Degree BEND | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PIPE SIZE | PIPE SIZE | 200 | 225 | 250 | 200 | 225 | 250 | 200 | 225 | 250 | 200 | 225 | 250 | 200 | 225 | 250 |
| nominal | outside dia. | psi | psi | psi | psi | psi | psi | psi | psi | psi | psi | psi | psi | psi | psi | psi |
| 4 | 4.80 | 1.8 | 2.0 | 2.3 | 2.6 | 2.9 | 3.2 | 1.4 | 1.6 | 1.7 | 0.7 | 0.8 | 0.9 | 0.4 | 0.4 | 0.4 |
| 6 | 6.90 | 3.7 | 4.2 | 4.7 | 5.3 | 5.9 | 6.6 | 2.9 | 3.2 | 3.6 | 1.5 | 1.6 | 1.8 | 0.7 | 0.8 | 0.9 |
| 8 | 9.05 | 6.4 | 7.2 | 8.0 | 9.1 | 10.2 | 11.4 | 4.9 | 5.5 | 6.2 | 2.5 | 2.8 | 3.1 | 1.3 | 1.4 | 1.6 |
| 12 | 13.20 | 13.7 | 15.4 | 17.1 | 19.4 | 21.8 | 24.2 | 10.5 | 11.8 | 13.1 | 5.3 | 6.0 | 6.7 | 2.7 | 3.0 | 3.4 |
| 16 | 17.40 | 23.8 | 26.8 | 29.7 | 33.6 | 37.8 | 42.0 | 18.2 | 20.5 | 22.7 | 9.3 | 10.4 | 11.6 | 4.7 | 5.2 | 5.8 |
| 18 | 19.50 | 29.9 | 33.6 | 37.3 | 42.2 | 47.5 | 52.8 | 22.9 | 25.7 | 28.6 | 11.7 | 13.1 | 14.6 | 5.9 | 6.6 | 7.3 |
| 24 | 25.80 | 52.3 | 58.8 | 65.3 | 73.9 | 83.2 | 92.4 | 40.0 | 45.0 | 50.0 | 20.4 | 22.9 | 25.5 | 10.2 | 11.5 | 12.8 |

**NOTES:**

1. ALL CONCRETE BLOCKING SHALL BE POURED AGAINST DRY, UNDISTURBED SUBGRADE. TABLE IS BASED ON 2000 POUNDS PER SQUARE FOOT ALLOWABLE SOIL BEARING. WEAKER SOIL WILL REQUIRE INCREASED BEARING AREA. SEE SOIL BEARING LOAD CHART.
2. KEEP CONCRETE CLEAR OF JOINTS AND ACCESSORIES. USE FORMING AS NECESSARY.
3. HORIZONTAL ANCHOR BLOCKING CONFIGURATIONS FOR FITTINGS NOT SHOWN SHALL HAVE PRIOR APPROVAL.
4. THE SQUARE FOOT AREAS REQUIRED FOR BEARING ARE CALCULATED BY THE FOLLOWING FORMULAS:
   FORMULA AT TEE & CAP OR PLUG:
   T=PA
   TI K=BEARING AREA REQUIRED IN SQUARE FEET
   FORMULA AT ALL PIPE BENDS:
   T = 2PA (SIN 1/2△) WHERE △= THE DEGREE BEND OF THE FITTING.
   TI K=BEARING AREA REQUIRED IN SQUARE FEET
   WHERE:
   T=THRUST IN POUNDS
   P=TEST PRESSURE IN PSI
   A=CROSS-SECTIONAL AREA OF PIPE IN SQUARE INCHES
   K=ASSUMED 2000 PSF SOIL BEARING PRESSURE
5. WRAP FITTINGS WITH VISQUEEN PRIOR TO BLOCK POUR.

SAFE BEARING LOADS IN LBS/SQ. FT.

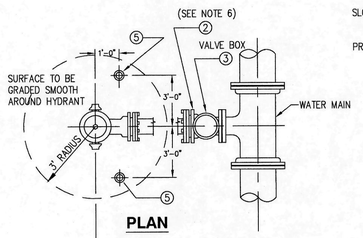
THE SAFE SOIL BEARING LOADS SHOWN BELOW ARE FOR HORIZONTAL THRUSTS WHEN THE DEPTH OF COVER OVER PIPE EXCEEDS 3 FEET.

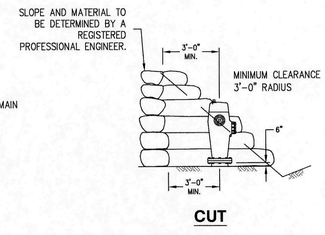
| SOIL | SAFE BEARING LOAD LBS/SQ. FT. |
|---|---|
| MUCK, PEAT, ETC | 0 |
| SOFT CLAY, SILT | 1,000 |
| SAND, SANDY SILT | 2,000 |
| SAND AND GRAVEL | 3,000 |
| SAND AND GRAVEL CEMENTED W/CLAY | 4,000 |
| HARD SHALE | 10,000 |

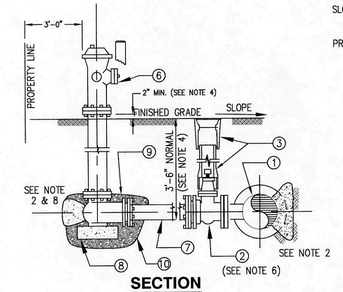
IN MUCK OR PEAT, ALL THRUST SHALL BE RESTRAINED BY PILES OR TIE RODS TO SOLID FOUNDATIONS OR BY REMOVAL OF MUCK OR PEAT AND REPLACEMENT WITH BALLAST OF SUFFICIENT STABILITY TO RESIST THRUSTS.

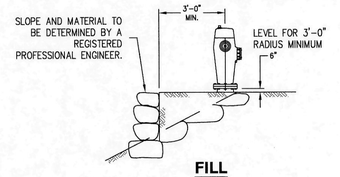
## THRUST BLOCKING DETAILS

NOT TO SCALE




**FIRE HYDRANT LOCATION IN CUT AND FILL**

NOTE: ANY HYDRANT RUN OVER ONE FULL LENGTH OF PIPE, SHALL HAVE A RESTRAINED JOINT GASKET EQUAL TO FIELD LOK GASKETS.

## BILL OF MATERIALS

| No. | NOMENCLATURE | REQUIRED |
|---|---|---|
| 1 | MJ x FL TEE | 1 |
| 2 | VALVE WITH FLG. x M.J. CONNECTIONS, SEE NOTE 6. | 1 |
| 3 | 2 PIECE CAST IRON VALVE BOX | 1 |
| 4 | NOT USED | |
| 5 | REINFORCED CONCRETE GUARD POST 9"ø x 6' (PRIVATE PROP. ONLY) | 2 |
| 6 | FIRE HYDRANT WITH STORTZ ADAPTER | 1 |
| 7 | PIPE, 6" CL. 52 D.I., FIELD CUT WITH MEGALUG RETAINER GLANDS | 1 |
| 8 | 12" x 12" x 4" SOLID CONCRETE BEARING BLOCK | 1 |
| 9 | 1/4 C.Y. DRAIN ROCK, 1-1/2" - 3/4", NO FINES, 7 C.F. OF 7/8" WASHED ROCK WRAPPED IN GEOTEXTILE FABRIC | |
| 10 | 6 OZ. GEOTEXTILE FABRIC | |

**NOTES:**

1. ALL MATERIALS AND BRANDS MUST BE APPROVED BY CITY.
2. BLOCK TEE AND HYDRANT WITH POURED CONCRETE AS REQUIRED PER BLOCKING DETAIL. IN ADDITION, 6" MEG-A-LUGS ARE TO BE INSTALLED AT VALVE AND HYDRANT M.J. OUTLETS.
3. HYDRANT SHALL HAVE DISTRICT'S STANDARD HOSE THREADS AND OPERATING NUTS.
4. HYDRANT LENGTH AND TRENCH DEPTH SHALL BE SO AS TO PROVIDE FOR HYDRANT SETTING AT CORRECT ELEVATION RELATIVE TO FINISH GRADE.
5. SET HYDRANT VERTICAL. USE LEVEL. COMPACT ALL BACKFILL.
6. VALVE SHALL BE AWWA STANDARD GATE "O" RING PACKING, NON-RISING STEM, 2" OPERATION NUT. RESILIENT WEDGE GATE.
7. TOP OF GUARD POST TO BE LEVEL WITH TOP OF HYDRANT.
7. WHEN GUARD POSTS ARE USED, THE TOP OF THE POST WILL BE LEVEL WITH THE HYDRANT.
8. FOR CENTER STEM HYDRANTS THE CONCRETE BLOCK WILL BE BELOW THE DRAIN HOLES AND DRAIN ROCK. TAKE CARE TO NOT PLUG DRAIN HOLES OR CONTAMINATE DRAIN ROCK.
9. ALL HYDRANTS SHALL BE FURNISHED WITH STORZ COUPLINGS.
10. ALL HYDRANTS AND BENDS SHALL BE SECURED WITH MEGA-LUGS.
11. STENCIL THE DISTANCE FROM THE FOOT VALVE ON THE HYDRANT BARREL WITH 1-1/2" LETTERS.

## FIRE HYDRANT ASSEMBLY

NOT TO SCALE



## NOTE

THE APPROXIMATE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN ON THE PLANS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE LOCATION OF EXISTING UTILITIES PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGES THAT MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO LOCATE, PRESERVE AND PROTECT UNDERGROUND UTILITIES.

**CALL 48 HOURS BEFORE YOU DIG 811**

PW20-041
PW20-042

| REVISIONS | | | | | BY | DATE |
|---|---|---|---|---|---|---|
| NO. | DATE | BY | DESCRIPTION | DESIGNED | JFK | 2/19 |
| | | | | DRAWN | AUE | 2/19 |
| | | | | CHECKED | NLOII | 2/19 |
| | | | | APPROVED | | |
| | | | | ACCEPTED | | |

N.L.Olson & Associates, Inc.
Engineering, Planning and Surveying
(360) 876-2284
2453 Bethel Avenue, P.O. Box 637, Port Orchard, WA 98366

NORMAN LEE OLSON — STATE OF WASHINGTON — 37910 — REGISTERED PROFESSIONAL ENGINEER — 3/6/19

# WATER DETAILS

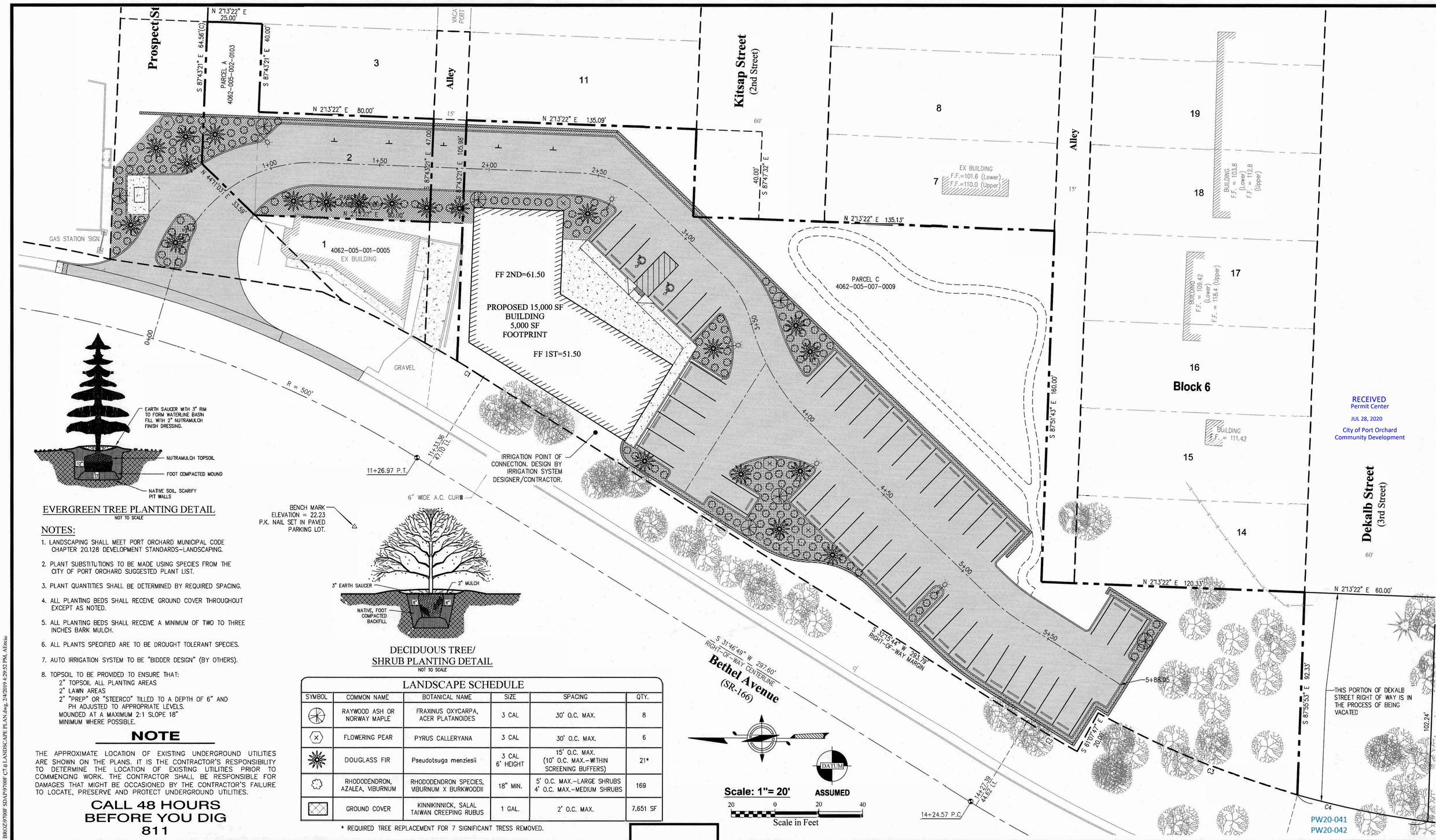
1320 BAY STREET, PORT ORCHARD, WA

Portion of the Southeast Quarter of the Southeast Quarter of Section 25, Township 24 North, Range 1 East, W.M. in Kitsap County, Washington

FOR:
**Michael Broz**
**2023 Edgewater Way**
**Santa Barbara, CA 93109**
**Phone: (805) 407-7691**

| | |
|---|---|
| SCALE: | AS SHOWN |
| DATE: | Feb. 6, 2019 |
| DRAWING NUMBER: | 17-10120 |
| SHEET | C6.4 |

\\SERVER\AutoCAD Projects\9700 BROZ\9700F SDAP\9700F C6.3-C6.4 WATER NOTES AND DETAILS.dwg, 2/5/2019 8:59:05 AM, Alexio







EVERGREEN TREE PLANTING DETAIL
NOT TO SCALE




DECIDUOUS TREE/
SHRUB PLANTING DETAIL
NOT TO SCALE

## NOTES:

1. LANDSCAPING SHALL MEET PORT ORCHARD MUNICIPAL CODE CHAPTER 20.128 DEVELOPMENT STANDARDS–LANDSCAPING.
2. PLANT SUBSTITUTIONS TO BE MADE USING SPECIES FROM THE CITY OF PORT ORCHARD SUGGESTED PLANT LIST.
3. PLANT QUANTITIES SHALL BE DETERMINED BY REQUIRED SPACING.
4. ALL PLANTING BEDS SHALL RECEIVE GROUND COVER THROUGHOUT EXCEPT AS NOTED.
5. ALL PLANTING BEDS SHALL RECEIVE A MINIMUM OF TWO TO THREE INCHES BARK MULCH.
6. ALL PLANTS SPECIFIED ARE TO BE DROUGHT TOLERANT SPECIES.
7. AUTO IRRIGATION SYSTEM TO BE "BIDDER DESIGN" (BY OTHERS).
8. TOPSOIL TO BE PROVIDED TO ENSURE THAT:
   2" TOPSOIL ALL PLANTING AREAS
   2" LAWN AREAS
   2" "PREP" OR "STEERCO" TILLED TO A DEPTH OF 6" AND PH ADJUSTED TO APPROPRIATE LEVELS.
   MOUNDED AT A MAXIMUM 2:1 SLOPE 18" MINIMUM WHERE POSSIBLE.

## NOTE

THE APPROXIMATE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN ON THE PLANS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE LOCATION OF EXISTING UTILITIES PRIOR TO COMMENCING WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGES THAT MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO LOCATE, PRESERVE AND PROTECT UNDERGROUND UTILITIES.

**CALL 48 HOURS BEFORE YOU DIG 811**

## LANDSCAPE SCHEDULE

| SYMBOL | COMMON NAME | BOTANICAL NAME | SIZE | SPACING | QTY. |
|---|---|---|---|---|---|
| | RAYWOOD ASH OR NORWAY MAPLE | FRAXINUS OXYCARPA, ACER PLATANOIDES | 3 CAL | 30' O.C. MAX. | 8 |
| | FLOWERING PEAR | PYRUS CALLERYANA | 3 CAL | 30' O.C. MAX. | 6 |
| | DOUGLASS FIR | Pseudotsuga menziesii | 3 CAL 6' HEIGHT | 15' O.C. MAX. (10' O.C. MAX.–WITHIN SCREENING BUFFERS) | 21* |
| | RHODODENDRON, AZALEA, VIBURNUM | RHODODENDRON SPECIES, VIBURNUM X BURKWOODII | 18" MIN. | 5' O.C. MAX.–LARGE SHRUBS 4' O.C. MAX.–MEDIUM SHRUBS | 169 |
| | GROUND COVER | KINNIKINNICK, SALAL TAIWAN CREEPING RUBUS | 1 GAL. | 2' O.C. MAX. | 7,651 SF |

* REQUIRED TREE REPLACEMENT FOR 7 SIGNIFICANT TRESS REMOVED.

RECEIVED
Permit Center
JUL 28, 2020
City of Port Orchard
Community Development

PW20-041
PW20-042

| REVISIONS | | | | | |
|---|---|---|---|---|---|
| NO. | DATE | BY | DESCRIPTION | | BY | DATE |
| | | | | DESIGNED | JFK | 2/19 |
| | | | | DRAWN | AUE | 2/19 |
| | | | | CHECKED | NLOH | 2/19 |
| | | | | APPROVED | | |
| | | | | ACCEPTED | | |

N.L.Olson & Associates, Inc.
Engineering, Planning and Surveying
(360) 876–2284
2453 Bethel Avenue, P.O. Box 637, Port Orchard, WA 98366

# LANDSCAPE PLAN

1320 BAY STREET, PORT ORCHARD, WA

Portion of the Southeast Quarter of the Southeast Quarter of Section 25, Township 24 North, Range 1 East, W.M. in Kitsap County, Washington

FOR:
**Michael Broz**
**2023 Edgewater Way**
**Santa Barbara, CA 93109**
**Phone: (805) 407-7691**

SCALE: 1"=20'
DATE: Feb. 6, 2019
DRAWING NUMBER:
17-10120
SHEET C7.0

\\SERVER\AutoCAD Projects\9700 BROZ\9700F SDAP\9700F C7.0 LANDSCAPE PLAN.dwg, 2/4/2019 4:29:52 PM, AEbejo