NE1/4 OF SECTION 15, TOWNSHIP 23 NORTH, RANGE 08 EAST, W.M.

OPSTAD ELEMENTARY SCHOOL

PARKING LOT - BID SET

GENERAL NOTES

1. ALL DESIGN AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH PERMIT CONDITIONS, THE NORTH BEND MUNICIPAL CODE (NBCC), THE NORTH BEND PUBLIC WORKS STANDARDS, WASHINGTON STATE DOT (WSDOT) STANDARD SPECIFICATIONS AND THE CONDITIONS OF PRELIMINARY APPROVAL. IT SHALL BE THE SOLE RESPONSIBILITY OF THE APPLICANT AND THE PROFESSIONAL CIVIL ENGINEER TO CORRECT ANY ERROR, OMISSION, OR VARIATION FROM THE ABOVE REQUIREMENTS FOUND IN THESE PLANS. ALL CORRECTIONS SHALL BE AT NO ADDITIONAL COST OR LIABILITY TO THE CITY OF NORTH BEND.
2. THE DESIGN ELEMENTS WITHIN THESE PLANS HAVE BEEN REVIEWED ACCORDING TO THE CITY OF NORTH BEND. SOME ELEMENTS MAY HAVE BEEN OVERLOOKED OR MISSED BY THE PLAN REVIEWER. ANY VARIANCE FROM ADOPTED STANDARDS IS NOT ALLOWED UNLESS SPECIFICALLY APPROVED BY THE CITY OF NORTH BEND PRIOR TO CONSTRUCTION.
3. APPROVAL OF THIS ROAD, GRADING, PARKING AND DRAINAGE PLAN DOES NOT CONSTITUTE AN APPROVAL OF ANY OTHER CONSTRUCTION (E.G. DOMESTIC WATER CONVEYANCE, SEWER CONVEYANCE, GAS, ELECTRICAL, ETC.)
4. BEFORE ANY CONSTRUCTION OR DEVELOPMENT ACTIVITY, A PRECONSTRUCTION MEETING MUST BE HELD BETWEEN THE CITY OF NORTH BEND INSPECTOR, THE APPLICANT, AND THE APPLICANT'S CONSTRUCTION REPRESENTATIVE.
5. A COPY OF THESE APPROVED PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
6. GRADING ACTIVITIES (SITE ALTERATION) ARE LIMITED TO THE HOURS OF 7 A.M. TO 7 P.M. MONDAY THROUGH SATURDAY AND 10 A.M. TO 5 P.M. ON SUNDAY, UNLESS OTHERWISE APPROVED WITH A WRITTEN DECISION BY THE REVIEWING AGENCY.
7. IT SHALL BE THE APPLICANT'S/CONTRACTOR'S RESPONSIBILITY TO OBTAIN ALL CONSTRUCTION EASEMENTS NECESSARY BEFORE INITIATING OFF-SITE WORK. EASEMENTS REQUIRE REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
8. FRANCHISED UTILITIES OR OTHER INSTALLATIONS THAT ARE NOT SHOWN ON THESE APPROVED PLANS SHALL NOT BE CONSTRUCTED UNLESS AN APPROVED SET OF PLANS THAT MEET ALL REQUIREMENTS OF KCRDCS CHAPTER 8 ARE SUBMITTED TO THE DPER'S DEVELOPMENT INSPECTOR THREE DAYS PRIOR TO CONSTRUCTION.
9. DATUM SHALL BE NAVD88 UNLESS OTHERWISE APPROVED BY DPER.
10. ALL UTILITY TRENCHES AND ROADWAY SUBGRADE SHALL BE BACKFILLED AND COMPACTED TO 95 PERCENT MAXIMUM DENSITY PER WSDOT STANDARD SPECIFICATIONS 2-03.3(14)D, METHOD C.
11. OPEN CUTTING OF EXISTING ROADWAYS FOR NON-FRANCHISED UTILITY OR STORM WORK IS NOT ALLOWED UNLESS SPECIFICALLY APPROVED BY CITY OF NORTH BEND AND NOTED ON THESE APPROVED PLANS. ANY OPEN CUT SHALL BE RESTORED IN ACCORDANCE WITH NORTH BEND PUBLIC WORKS.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE SAFEGUARDS, SAFETY DEVICES, PROTECTIVE EQUIPMENT, FLAGGERS, AND ANY OTHER NEEDED ACTIONS TO PROTECT THE LIFE, HEALTH, AND SAFETY OF THE PUBLIC, AND TO PROTECT PROPERTY IN CONNECTION WITH THE PERFORMANCE OF WORK COVERED BY THE CONTRACTOR.

PROJECT NOTES

1. THE CONTRACTOR SHALL TAKE REASONABLE PRECAUTIONS AND EXERCISE SOUND ENGINEERING AND CONSTRUCTION PRACTICES IN CONDUCTING THE WORK. THE CONTRACTOR SHALL PROTECT EXISTING PUBLIC AND PRIVATE UTILITIES FROM DAMAGE DURING CONSTRUCTION. IF EXISTING UTILITIES ARE DAMAGED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITY PURVEYOR, OWNER AND THE ENGINEER. THE CONTRACTOR SHALL RESTORE THE UTILITY TO ITS EXISTING CONDITION. (WSDOT SEC. 1-07.17 APWA SUPPLEMENT). THE CONTRACTOR IS RESPONSIBLE FOR THE MEANS AND THE METHODS OF CONSTRUCTION FOR WORK SHOWN ON THESE PLANS.
2. ALL EXCAVATION, TRENCHING, SUBGRADE PREPARATION, FILL PLACEMENT, AND ALL SOIL WORK IN GENERAL SHALL BE CONDUCTED IN COMPLIANCE WITH THE CITY OF NORTH BEND STANDARDS.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR HIRING A PROFESSIONAL LAND SURVEYOR TO REFERENCE EXISTING MONUMENTS ON OR ADJOINING ESTABLISHED SAID POINTS AT PROJECT COMPLETION. THIS REESTABLISHMENT SHALL BE DOCUMENTED BY RECORD OF SURVEY PREVIOUS TO DEMOLITION OR CONSTRUCTION AND TO RECORNER RECORD AS DESCRIBED IN W.A.C. 332-120.
4. CONTRACTOR SHALL MAINTAIN A 5 FOOT MINIMUM HORIZONTAL CLEARANCE FROM THE WATER MAIN AND OTHER UTILITIES (i.e. GAS, CABLE, POWER, ETC.). IF SAID CLEARANCE CANNOT BE MAINTAINED, CONTACT ENGINEER FOR APPROVAL AND RECORD EXACT MEASUREMENTS OF THE UTILITY LINES ON THE AS-BUILT DRAWINGS. A 10 FOOT MINIMUM HORIZONTAL CLEARANCE MUST BE MAINTAINED BETWEEN WATER MAIN AND SANITARY SEWER.
5. SCHEDULE WITH CITY AND OWNER (96 HOURS MINIMUM NOTICE FOR WATER MAIN SHUT DOWN ON THE SCHOOL SITE). INSTALL CITY STANDARD TESTING CONNECTION ON NEW WATER MAIN FOLLOWING COMPLETION OF NEW WATER SYSTEM CONSTRUCTION, TESTING, AND ACCEPTANCE BY THE CITY, REMOVE TESTING CONNECTION AND INSTALL SEGMENT OF DI PIPE, LENGTH TO SUIT, WITH TWO LONG PATTERN SLEEVES. INSTALLATION AND CONNECTION TO EXISTING WATER SYSTEM SHALL BE WITH 100% CITY INSPECTION.
6. UNDERGROUND UTILITIES ARE SHOWN IN THE APPROXIMATE LOCATION. THERE IS NOT A GUARANTEE THAT ALL UTILITY LINES ARE SHOWN OR THAT THE LOCATION, SIZE, AND MATERIAL IS ACCURATE. THE CONTRACTOR SHALL UNCOVER ALL INDICATED PIPING WHERE CROSSINGS, INTERFERENCE'S OR CONNECTIONS OCCUR PRIOR TO TRENCHING OR EXCAVATION FOR ANY PIPE OR STRUCTURES, TO DETERMINE ACTUAL LOCATIONS, SIZE AND MATERIAL. THE CONTRACTOR SHALL MAKE THE APPROPRIATE PROVISION FOR PROTECTION OF SAID FACILITIES. THE CONTRACTOR SHALL NOTIFY ONE CALL AT 811 AND ARRANGE FOR PUBLIC AND PRIVATE FIELD LOCATION OF EXISTING FACILITIES BEFORE CONSTRUCTION.
7. SCHEDULE WITH CITY (48 HOURS MINIMUM NOTICE) FOR WATER METER SHUTOFF AND TO RETIRE METERS.

CONSTRUCTION SEQUENCE

1. BEFORE ANY CONSTRUCTION ACTIVITY ARRANGE AND ATTEND PRE-CONSTRUCTION CONFERENCES WITH CITY OF NORTH BEND AND JACOBSON CONSULTING ENGINEERS.
2. COMPLY WITH CONSTRUCTION PHASING REQUIREMENTS IDENTIFIED IN DRAWINGS AND SPECIFICATIONS.
3. PROVIDE TEMPORARY AND INTERIM MEASURES REQUIRED FOR EXECUTION OF THE WORK.
4. VERIFY VERTICAL AND HORIZONTAL LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES. CONTACT ALL UTILITY COMPANIES OR PROVIDERS THAT MAY BE AFFECTED BY THE PROPOSED CONSTRUCTION. CALL 811 AND UTILIZE PRIVATE LOCATING COMPANY ALONG THE ENTIRE WORK AREA.
5. PROVIDE CATCH BASIN PROTECTION AND OTHER APPROPRIATE TESC MEASURES, INCLUDING STRAW WATTLES, ETC. COORDINATE WITH CITY INSPECTOR.
6. BACKFILL AND COMPACT TRENCH. PATCH AND RESTORE SITE PER PLANS
7. INSTALL ALL NEW PAVING, LANDSCAPING AND SITE STABILIZATION.
8. CONTACT DESIGN ENGINEER AND CITY INSPECTOR SO THEY CAN PUNCH LIST THE SITE. ADDRESS PUNCH LIST ITEMS AS REQUIRED.

EROSION AND SEDIMENTATION CONTROL NOTES

1. APPROVAL OF THIS EROSION AND SEDIMENTATION CONTROL (ESC) PLAN DOES NOT CONSTITUTE AN APPROVAL OF PERMANENT ROAD OR DRAINAGE DESIGN (E.G. SIZE AND LOCATION OF ROADS, PIPES, RESTRICTORS, CHANNELS, RETENTION FACILITIES, UTILITIES, ETC.)
2. THE IMPLEMENTATION OF THESE ESC PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE APPLICANT/ESC SUPERVISOR UNTIL ALL CONSTRUCTION IS APPROVED.
3. THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THIS PLAN SHALL BE CLEARLY FLAGGED BY SURVEY TAPE OR FENCING, IF REQUIRED, PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE CLEARING LIMITS SHALL BE PERMITTED. THE CLEARING LIMITS SHALL BE MAINTAINED BY THE APPLICANT/ESC SUPERVISOR FOR THE DURATION OF CONSTRUCTION.
4. STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES, SUCH AS CONSTRUCTED WHEEL WASH SYSTEMS OR WASH PADS, MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN AND TRACK OUT TO ROAD RIGHT OF WAY DOES NOT OCCUR FOR THE DURATION OF THE PROJECT.
5. THE ESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED PRIOR TO OR IN CONJUNCTION WITH ALL CLEARING AND GRADING SO AS TO ENSURE THAT THE TRANSPORT OF SEDIMENT TO SURFACE WATERS, DRAINAGE SYSTEMS, FLOW CONTROL BMP LOCATIONS (EXISTING AND PROPOSED), AND ADJACENT PROPERTIES IS MINIMIZED.
6. THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND MODIFIED TO ACCOUNT FOR CHANGING SITE CONDITIONS (E.G. ADDITIONAL COVER MEASURES, ADDITIONAL SUMP PUMPS, RELOCATION OF DITCHES AND SILT FENCES, PERIMETER PROTECTION ETC.).
7. THE ESC FACILITIES SHALL BE INSPECTED DAILY BY THE APPLICANT/ESC SUPERVISOR AND MAINTAINED TO ENSURE CONTINUED PROPER FUNCTIONING. WRITTEN RECORDS SHALL BE KEPT OF WEEKLY REVIEWS OF THE ESC FACILITIES.
8. ANY AREAS OF EXPOSED SOILS, INCLUDING ROADWAY EMBANKMENTS, THAT WILL NOT BE DISTURBED FOR TWO DAYS DURING THE WET SEASON OR SEVEN DAYS DURING THE DRY SEASON SHALL BE IMMEDIATELY STABILIZED WITH THE APPROVED ESC COVER METHODS (E.G., SEEDING, MULCHING, PLASTIC COVERING, ETC.).
9. ANY AREA NEEDING ESC MEASURES, NOT REQUIRING IMMEDIATE ATTENTION, SHALL BE ADDRESSED WITHIN SEVEN (7) DAYS.
10. THE ESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH (MORE FREQUENTLY AS REQUIRED BY THE DPER SITE INSPECTOR) OR WITHIN 24 HOURS FOLLOWING A STORM EVENT.
11. AT NO TIME SHALL MORE THAN ONE (1) FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT-LADEN WATER INTO THE DOWNSTREAM SYSTEM.
12. ANY PERMANENT RETENTION/DETENTION FACILITY USED AS A TEMPORARY SETTLING BASIN SHALL BE MODIFIED WITH THE NECESSARY EROSION CONTROL MEASURES AND SHALL PROVIDE ADEQUATE STORAGE CAPACITY. IF THE PERMANENT FACILITY IS TO FUNCTION ULTIMATELY AS AN INFILTRATION SYSTEM, THE TEMPORARY FACILITY MUST BE ROUGH GRADED SO THAT THE BOTTOM AND SIDES ARE AT LEAST THREE FEET ABOVE THE FINAL GRADE OF THE PERMANENT FACILITY. FLOW CONTROL BMP FACILITY AREAS (EXISTING OR PROPOSED) SHALL NOT BE USED AS TEMPORARY FACILITIES AND SHALL BE PROTECTED FROM SEDIMENTATION AND INTRUSION.
13. COVER MEASURES WILL BE APPLIED IN CONFORMANCE WITH APPENDIX D OF THE KING COUNTY SURFACE WATER DESIGN MANUAL.
14. PRIOR TO THE BEGINNING OF THE WET SEASON (OCT. 1), ALL DISTURBED AREAS SHALL BE REVIEWED TO IDENTIFY WHICH ONES CAN BE SEEDED IN PREPARATION FOR THE WINTER RAINS. DISTURBED AREAS SHALL BE SEEDED WITHIN ONE WEEK OF THE BEGINNING OF THE WET SEASON. A SKETCH MAP OF THOSE AREAS TO BE SEEDED AND THOSE AREAS TO REMAIN UNCOVERED SHALL BE SUBMITTED TO THE CITY INSPECTOR FOR REVIEW.

LEGAL DESCRIPTION

LEGAL DESCRIPTION TAX PARCEL NO.152308-9110:

PER WFG NATIONAL TITLE INSURANCE COMPANY OF WASHINGTON, LLC-COMMITMENT FOR TITLE INSURANCE
ORDER NO.: 22-411648
COMMITMENT DATE: NOVEMBER 7, 2022

THE NORTH 145 FEET OF THE SOUTH 290 FEET OF THE EAST 320 FEET OF PORTION OF THE NORTH HALF OF THE SOUTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 15, TOWNSHIP 23 NORTH, RANGE 8 EAST, W.M., IN KING COUNTY, WASHINGTON;

EXCEPT THE EAST 20 FEET THEREOF CONVEYED TO KING COUNTY FOR ROAD UNDER RECORDING NO. 1816661.

SITUATE IN THE CITY OF NORTH BEND, COUNTY OF KING, STATE OF WASHINGTON.

LEGAL DESCRIPTION TAX PARCEL NO.152308-9156:

PER EASEMENT AFN: 20140724000747
DATE: JULY 24, 2014

THE NORTH 1/2 OF THE SW 1/4 OF THE NE 1/4 OF SECTION 15, TOWNSHIP 23 NORTH, RANGE 08 EAST, W.M.; LESS THE NORTH 310 FEET OF THE EAST 320 FEET, AND LESS THE SOUTH 290 FEET OF THE EAST 320 FEET; AND LESS COUNTY ROAD.

SITUATE IN THE CITY OF NORTH BEND, COUNTY OF KING, STATE OF WASHINGTON.

BASIS OF BEARINGS

THE BASIS OF BEARINGS IS PER WASHINGTON STATE PLANE COORDINATES, NORTH ZONE, AS DETERMINED BY TIES TO WASHINGTON STATE REFERENCE NETWORK FROM THE FOUND MONUMENTS MARKING THE EAST QUARTER AND THE NORTH QUARTER OF SECTION 15, TOWNSHIP 23 NORTH, RANGE 8 EAST, WILLAMETTE MERIDIAN, WITH THE LINE BETWEEN THEM OBSERVED AS N44°33'19"W.

VERTICAL DATUM

THE ELEVATIONS SHOWN HEREON ARE EXPRESSED IN NAVD 88, U.S. SURVEY FEET, BASED ON OBSERVATIONS UTILIZING THE WASHINGTON STATE REFERENCE NETWORK.

PROJECT BENCHMARK

1/2" REBAR AND CAP MARKING THE NORTHEAST BOUNDARY CORNER OF SUBJECT PARCEL

ELEVATION = 488.02'

PROPERTY INFORMATION

PARCEL NUMBER: 1523089110
ADDRESS: 1385 STILSON AVE SE, NORTH BEND, WA 98045
AREA: 43,500 SF (0.99 AC)
SITE ZONING: LOW DENSITY RESIDENTIAL (LDR) 4 UNITS/ACRE
ADJACENT ZONING: POSPF (WEST), LOW DENSITY RESIDENTIAL 4 UNITS/ACRE (SOUTH, EAST, AND NORTH)

PARCEL NUMBER: 1523089156
ADDRESS: 1345 STILSON AVE SE, NORTH BEND, WA 98045
AREA: 677,910 SF (15.56 AC)
SITE ZONING: PARKS/OPEN SPACE OR PUBLIC FACILITIES (POSPF)
ADJACENT ZONING: LOW DENSITY RESIDENTIAL (LDR)
4 UNITS/ACRE (SOUTH, WEST, AND NORTH)

EARTHWORK QUANTITIES

EXCAVATION	4,670 CY
FILL	2,062 CY
TOTAL EARTHWORK	6,732 CY

NOTE:
THE QUANTITIES SHOWN INCLUDES EARTHWORK FOR DETENTION SYSTEM INSTALLATION AND ARE PRELIMINARY ESTIMATES ONLY AND INTENDED FOR MUNICIPAL PERMITTING AND REVIEW FEES. THE CONTRACTOR SHALL IGNORE THESE QUANTITIES, THEY ARE EXCLUDED FROM THE BID DOCUMENT INFORMATION. THESE VOLUMES SHALL NOT BE USED BY THE CONTRACTOR AS A BASIS FOR ANY CONTRACTUAL INFORMATION. THE CONTRACTOR SHALL PREPARE THEIR OWN EARTHWORK QUANTITIES BASED ON THE INFORMATION PROVIDED IN THE CONTRACT DOCUMENTS, INCLUDING BUT NOT LIMITED TO DRAWINGS, SPECIFICATIONS, AND THE GEOTECHNICAL REPORT.

OWNER: SNOQUALMIE VALLEY SCHOOL DISTRICT
8001 SILVA AVE SE
SNOQUALMIE, WA 98065
(425) 831-8005 CONTACT: BRANDON KLEPPER
KLEPPERB@SVSD410.ORG

ENGINEER: JACOBSON CONSULTING ENGINEERS
255 S. KING STREET, SUITE 800
SEATTLE, WA 98104
(206) 426-2600 CONTACT: ALAN JACOBSON
ALAN@JACOBSONENGINEERS.COM

Sheet List Table

C0.00	COVER SHEET
C0.01	NOTES SHEET
C0.10	OVERALL SITE PLAN
C0.11	SIGHT DISTANCE TRIANGLE PLAN
C1.00	DEMOLITION PLAN
C2.00	TESC PLAN
C2.10	TESC DETAILS
C2.11	TESC DETAILS
C3.00	PAVING PLAN
C3.10	PAVING DETAILS
C3.11	PAVING DETAILS
C3.12	PAVING DETAILS
C4.00	STRIPING AND SIGNAGE PLAN
C4.10	SIGNAGE AND STRIPING DETAILS
C5.00	GRADING PLAN
C5.10	GRADING DETAILS
C5.11	GRADING DETAILS
C6.00	DRAINAGE AND UTILITY PLAN
C6.10	DRAINAGE DETAILS
C6.11	DRAINAGE DETAILS
C6.12	DRAINAGE DETAILS
C6.13	DRAINAGE DETAILS
C6.14	DRAINAGE DETAILS
C6.20	DRAINAGE PROFILES
L0.00	TREE PRESERVATION PLAN
L0.01	TREE TABLE
L1.00	LANDSCAPE PLAN
L1.01	LANDSCAPE SCHEDULE & DETAILS
L1.02	LANDSCAPE DETAILS
L1.03	SOIL PLAN & DETAILS
L2.00	IRRIGATION PLAN & SCHEDULE
L2.01	IRRIGATION DETAILS
L2.02	IRRIGATION DETAILS
IL-01	ILLUMINATION PLAN
OS-01	ON-SITE ILLUMINATION PLAN
OS-02	ON-SITE ILLUMINATION DETAILS
OS-03	ON-SITE ILLUMINATION DETAILS
OS-04	ON-SITE PHOTOMETRIC CALCULATIONS

NOTE:
NO CONSTRUCTION OR SITE DISTURBANCE FOR THIS PROJECT MAY BEGIN BEFORE THE APPLICANT FIRST OBTAINS A CONSTRUCTION STORMWATER GENERAL PERMIT FROM THE DEPARTMENT OF ECOLOGY.

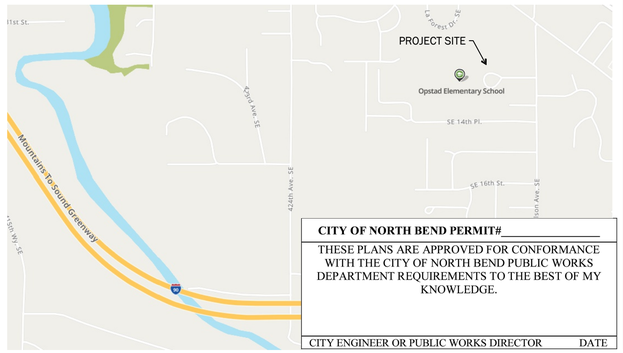
PROJECT IMPERVIOUS SURFACE SYSTEM DEVELOPMENT CHANGE CALCULATIONS

TOTAL EX IMPERVIOUS (SF) =	6,984
TOTAL PROPOSED IMPERVIOUS (SF) =	40,860
NET CHANGE (SF) =	33,876

STORM PERMIT QUANTITY CALCULATIONS

TOTAL DISTURBED AREA (SF) =	53,608
TOTAL ADDED AND REPLACED IMPERVIOUS AREA (SF) =	40,860

VICINITY MAP



CITY OF NORTH BEND PERMIT#_____

THESE PLANS ARE APPROVED FOR CONFORMANCE WITH THE CITY OF NORTH BEND PUBLIC WORKS DEPARTMENT REQUIREMENTS TO THE BEST OF MY KNOWLEDGE.

CITY ENGINEER OR PUBLIC WORKS DIRECTOR DATE

JACOBSON CONSULTING ENGINEERS

GERALD A. JACOBSON — STATE OF WASHINGTON — 43667 — REGISTERED PROFESSIONAL ENGINEER — 04/14/2026

JACOBSONENGINEERS.COM

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE,
NORTH BEND, WA 98045

BID SET

04/16/2026

Revisions

Mark	Date	Description

Checked By:
JAJ

Drawn By:
AJJ

Dwg File:
COVER-OES.DWG

Sheet Title
COVER SHEET

Sheet
C0.00

P:_2023\OPSTAD ES PARKING LOT C230073-0181 CAD\03-SHEETS\COVER-OES, 4/14/2026 11:40 AM

INFILTRATION FACILITY CONSTRUCTION NOTES

1. DURING CONSTRUCTION, THE INFILTRATION FACILITIES MUST BE CONFIGURED TO PREVENT INFLOW OF TURBID, SILT LADEN CONSTRUCTION RUNOFF. PRIOR TO BRINGING THE INFILTRATION FACILITIES ON-LINE, THE FOLLOWING ELEMENTS MUST BE ACHIEVED:
   ALL PLANNED EARTHWORK MUST BE COMPLETE.

2. SITE STABILIZATION MUST BE COMPLETE:
   2.A. ALL PERMANENT GROUNDCOVER IN PLACE.
   2.B. NO EXPOSED TOPSOIL.
   2.C. HYDROSEEDED AREAS MUST HAVE ESTABLISHED GROWTH SUFFICIENT TO FIX TOPSOIL IN PLACE.
   2.D. NO VISIBLE SEDIMENT TRANSPORT BY STORMWATER DURING RAIN EVENTS.
   2.E. CATCH-BASIN FILTER SOCKS SHOULD NO LONGER BE NEEDED AND SHALL BE REMOVED.

3. HARD SURFACES SUCH AS PAVING AND SIDEWALKS MUST BE CLEANED WITH NO VISIBLE SEDIMENT OR SUBSTANCES THAT COULD BE TRANSPORTED BY STORMWATER.

4. ALL STORMWATER COLLECTION SYSTEM COMPONENTS MUST BE CLEANED AND INSPECTED:
   4.A. ALL CATCH BASINS, MANHOLES, AND SIMILAR STRUCTURES SHALL BE CLEANED BY RINSING AND VACUUMING TO REMOVE VISIBLE SEDIMENT. NO WATER USED IN THE CLEANING OF THE UPSTREAM SYSTEM SHALL BE DISCHARGED INTO THE INFILTRATION FACILITIES.
   4.B. ALL STORMWATER PIPES SHALL BE JETTED TO REMOVE VISIBLE SEDIMENT.
   4.C. AFTER CLEANING, A VIDEO SURVEY SHALL BE COMPLETED OF ALL PIPES AND STRUCTURES IN THE STORMWATER COLLECTION SYSTEM. THE OWNER SHALL BE NOTIFIED PRIOR TO THE VIDEO SURVEY WORK SO THEY MAY OBSERVE THE WORK IN PROGRESS IF DESIRED. A RECORDING OF THE VIDEO SURVEY SHALL BE PROVIDED TO THE OWNER, CIVIL ENGINEER, AND GEOTECHNICAL ENGINEER. THE SURVEY SHALL INCLUDE SUFFICIENT DETAIL TO CORRELATE VIDEO IMAGES WITH ON-SITE LOCATIONS.

5. GEOTECHNICAL ENGINEER SHALL BE NOTIFIED THAT CONSTRUCTION IS COMPLETE, AND SHALL BE ALLOWED TO INSTALL LONG TERM MONITORING COMPONENTS SUCH AS WATER LEVEL LOGGERS, IF APPLICABLE, BEFORE WATER IS ROUTED TO THE INFILTRATION FACILITIES.

6. THE OWNER, CIVIL ENGINEER, AND GEOTECHNICAL ENGINEER MUST BE NOTIFIED THAT THE ABOVE ITEMS HAVE BEEN COMPLETED, AND MUST CONCUR THAT THE ABOVE ITEMS HAVE BEEN SATISFACTORILY COMPLETED.

7. WRITTEN AUTHORIZATION MUST BE PROVIDED FROM THE OWNER, CIVIL ENGINEER, AND GEOTECHNICAL ENGINEER TO THE CONTRACTOR THAT WATER MAY BE ROUTED TO THE INFILTRATION FACILITIES FOR DISPOSAL.

8. FOLLOWING THE FIRST SUBSTANTIAL RAIN EVENT AFTER THE INFILTRATION FACILITIES ARE BROUGHT ON LINE, THE SYSTEM SHALL BE VISUALLY INSPECTED. THE CONTRACTOR SHALL CONTACT THE OWNER, CIVIL ENGINEER, AND GEOTECHNICAL ENGINEER TO ATTEND THE INSPECTION, AND SHALL OPEN FACILITY ENCLOSURES, CATCH BASINS, MANHOLES, AND OTHER STRUCTURES AS NEEDED TO ALLOW VISUAL INSPECTION.

BIORETENTION NOTES

1. CONTRACTOR SHALL NOT EXCAVATE BIORETENTION AREAS UNTIL THE SITE HAS BEEN STABILIZED AND AUTHORIZATION IS PROVIDED BY THE OWNER'S REPRESENTATIVE.

2. ROUTE ALL SURFACE WATER AWAY FROM FUTURE/EXISTING BIORETENTION AREAS UNTIL THE SITE HAS BEEN STABILIZED PER THE LANDSCAPING AND/OR PAVING PLANS AND THE BIORETENTION AREA HAS BEEN ACCEPTED BY THE ENGINEER AND LANDSCAPE ARCHITECT.

3. CONTRACTOR SHALL HOLD A PRE-CONSTRUCTION MEETING WITH LANDSCAPE ARCHITECT, LANDSCAPE CONTRACTOR, CIVIL ENGINEER, EARTHWORK/CIVIL CONTRACTOR, GEOTECHNICAL ENGINEER AND OWNER'S REPRESENTATIVE PRIOR TO COMMENCING WORK ON BIORETENTION AREAS.

4. SUB-GRADE PREPARATION SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. THE CONTRACTOR SHALL HAVE ALL PREPARED SUB-GRADE AREAS INSPECTED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF MATERIAL.

5. GEOTECHNICAL ENGINEER SHALL FIELD VERIFY INFILTRATION RATE IS EQUAL TO 3-INCHES/HOUR OR GREATER ON APPROVED SOIL MIX AFTER PLACEMENT IN BIO-RETENTION AREAS. TESTING SHALL BE COMPLETED ON TYPICAL INSTALLATION AFTER ALL REQUIRED SUBGRADE PREPARATION AND FULL DEPTH BIO-RETENTION SOIL PLACEMENT AND BEFORE PLANTING. IF REQUIRED FIELD INFILTRATION PERFORMANCE IS NOT ACHIEVED, CONTRACTOR SHALL ADJUST SOIL MIX COMPONENTS OR PLACEMENT PROCEDURES AND ADDITIONAL TESTING WILL BE COMPLETED UNTIL FIELD INFILTRATION DOCUMENTS PERFORMANCE CONFORMS TO THESE PROJECT DOCUMENTS.

6. CONSTRUCTION TRAFFIC SHALL NOT BE ALLOWED TO DRIVE OVER BIORETENTION AREAS.

7. IF THE SUB-GRADE BECOMES COMPACTED OR CONTAMINATED WITH SILTS (OR OTHER DEBRIS) THE CONTRACTOR WILL BE RESPONSIBLE FOR OVER-EXCAVATING UP TO 2-FT OF MATERIAL BELOW THE SUB-GRADE AND BACK- FILLING WITH FREE-DRAINING MATERIAL AS DIRECTED BY THE GEOTECHNICAL ENGINEER AT NO ADDITIONAL COST TO THE OWNER.

8. THE OWNERS GEOTECHNICAL ENGINEER SHALL PROVIDE IN-SITU TESTING OF THE BIORETENTION SOIL MIX TO VERIFY INFILTRATION RATES MEET SPEC'S OF 3-INCHES/HR.

9. THE CONTRACTOR SHALL PROVIDE A DETAILED CONSTRUCTION SCHEDULE TO THE OWNER AND DESIGN TEAM AT THE PRECONSTRUCTION MEETING AND ALLOW ADEQUATE TIME FOR SUB-GRADE PREPARATION, IN-SITU TESTING AND INSPECTION.

10. SEE BIORETENTION CONSTRUCTION SEQUENCE NOTES ON THIS SHEET.

11. BIORETENTION SOIL MIX SHALL BE HPBSM TYPE 1. BLENDING OF HPBSM TYPE 1 SHALL BE CERTIFIED BY VENDOR/CONTRACTOR WITH SOIL BLENDING EXPERIENCE AND CERTIFICATION PROVIDED TO THE CITY PRIOR TO OR AT THE TIME OF DELIVERY. CITY OF NORTH BEND SHALL REVIEW CERTIFICATION PRIOR TO PLACEMENT OF SOIL.

BIORETENTION CONSTRUCTION SEQUENCE NOTES

1. INSTALL SEDIMENT CONTROL DEVICES AS SHOWN ON THE PLANS.

2. GRADE SITE TO ELEVATIONS SHOWN ON PLAN. IF APPLICABLE, CONSTRUCT PERIMETER PLANTER WALL ADJACENT TO BIORETENTION AS SHOWN ON THE PLANS. OUTSIDE EDGE OF WALL SHALL BE BLOCKED OR OTHER MEASURES TAKEN TO PROHIBIT DRAINAGE FROM ENTERING CONSTRUCTION AREA. AT THE END OF EACH WORK DAY, ALL EXCAVATIONS SHALL BE PROTECTED BY CONSTRUCTION SAFETY FENCING OR TEMPORARY BACKFILL AS NEEDED.

3. STABILIZE GRADING WITHIN LIMITS OF DISTURBANCE EXCEPT FOR BIORETENTION AREA.

4. BIORETENTION AREAS SHALL NOT BE CONSTRUCTED UNTIL THE SITE IS STABILIZED WITH PAVING AND STORM DRAINAGE SYSTEM IS INSTALLED AND AUTHORIZATION GIVEN BY THE ENGINEER.

5. EXCAVATE BIORETENTION AREA TO PROPOSED INVERT DEPTH. SURVEY EXCAVATED BIORETENTION AREA AND GAIN ENGINEER APPROVAL PRIOR TO SUBGRADE PREPARATION PER SECTION 329000.

6. PREPARE SUBGRADE PER SECTION 329000.

7. INSTALL OVERFLOW CATCH BASIN, GRATE AND STORM PIPING, TAKING CARE NOT TO COMPACT THE IN-SITU MATERIALS.

8. INSTALL BIORETENTION SOIL AND EROSION PROTECTION PER SECTION 329000.

9. INSTALL PLANT MATERIAL AND MULCH PER PLANS AND SECTION 329000.

10. REMOVE SEDIMENT CONTROL PRACTICES OR ENTRANCE BLOCKS WITH INSPECTOR AUTHORIZATION.

CITY OF NORTH BEND PERMIT#_____

THESE PLANS ARE APPROVED FOR CONFORMANCE WITH THE CITY OF NORTH BEND PUBLIC WORKS DEPARTMENT REQUIREMENTS TO THE BEST OF MY KNOWLEDGE.

CITY ENGINEER OR PUBLIC WORKS DIRECTOR DATE

JACOBSON
CONSULTING ENGINEERS

GERALD A. JACOBSEN — STATE OF WASHINGTON — 43667 — REGISTERED PROFESSIONAL ENGINEER — 04/14/2026

JACOBSONENGINEERS.COM

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE,
NORTH BEND, WA 98045

BID SET

04/16/2026

Revisions

Mark	Date	Description

Checked By:
JAJ

Drawn By:
AJJ

Dwg File:
COVER-OES.DWG

Sheet Title
NOTES SHEET

Sheet
C0.01

P:_2023\OPSTAD ES PARKING LOT C230073-01811\CAD\03-SHEETS\COVER-OES, 4/14/2026 11:40 AM

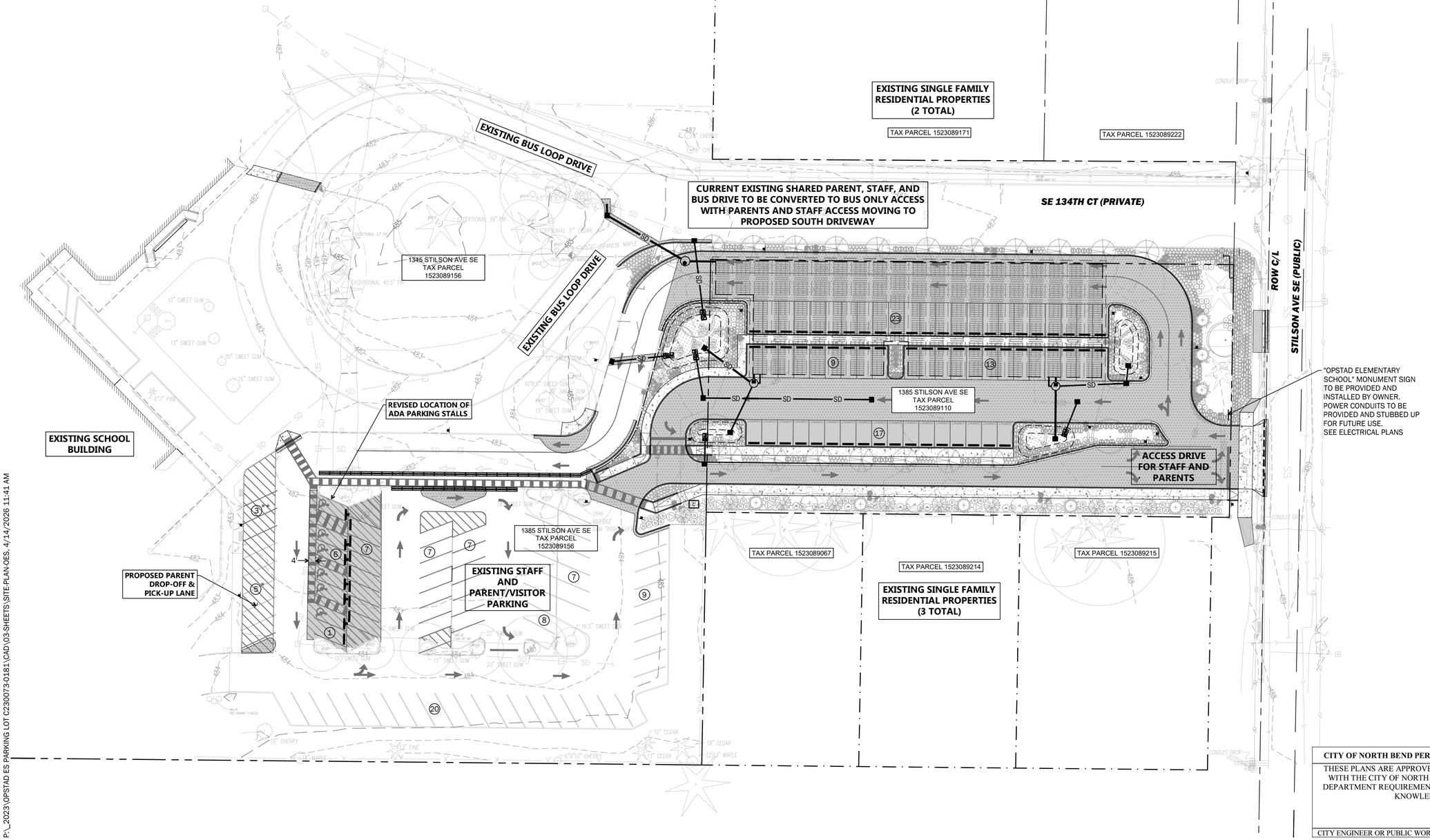
NE1/4 OF SECTION 15, TOWNSHIP 23 NORTH, RANGE 08 EAST, W.M.

EXISTING PARKING CALCULATIONS (PRE-CONSTRUCTION)

TOTAL EXISTING ANGLED STALLS =	87
TOTAL EXISTING ADA STALLS =	4
TOTAL =	91

PROPOSED PARKING CALCULATIONS

TOTAL NEW STANDARD STALLS (9'x19') =	45
TOTAL NEW COMPACT STALLS (9'x15') =	17
TOTAL EXISTING ANGLED STALLS =	51
TOTAL EXISTING ANGLED STALLS(*AFTER HOURS) =	5
TOTAL NEW ANGLED STALLS (**AFTER HOURS) =	3
TOTAL NEW ANGLED STALLS (8.6'x18.5'x67°~) =	15
TOTAL NEW ANGLED ADA STALLS ((8.6'x18.5'x67°~) =	6
TOTAL =	142



0 15 30 60

SCALE 1"=30'

Call before you Dig. 8-1-1 or 1-800-424-5555 UNDERGROUND SERVICE (USA) 811

LEGEND

- PROPERTY LINE — N 79°33'06" E – 46.81'
- STANDARD ASPHALT PAVEMENT
- HEAVY DUTY ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- CONCRETE CURB
- CONCRETE CURB AND GUTTER
- LANDSCAPING
- CHANNELIZATION PAVEMENT MARKINGS
- ACCESSIBLE PARKING SPACE — EX NEW

CITY OF NORTH BEND PERMIT#_____

THESE PLANS ARE APPROVED FOR CONFORMANCE WITH THE CITY OF NORTH BEND PUBLIC WORKS DEPARTMENT REQUIREMENTS TO THE BEST OF MY KNOWLEDGE.

CITY ENGINEER OR PUBLIC WORKS DIRECTOR DATE

JACOBSON CONSULTING ENGINEERS

GERALD A. JACOBSON — STATE OF WASHINGTON — 43667 — REGISTERED PROFESSIONAL ENGINEER — 04/14/2026

JACOBSONENGINEERS.COM

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE, NORTH BEND, WA 98045

BID SET

04/16/2026

Revisions

Mark	Date	Description

Checked By: JAJ

Drawn By: AJJ

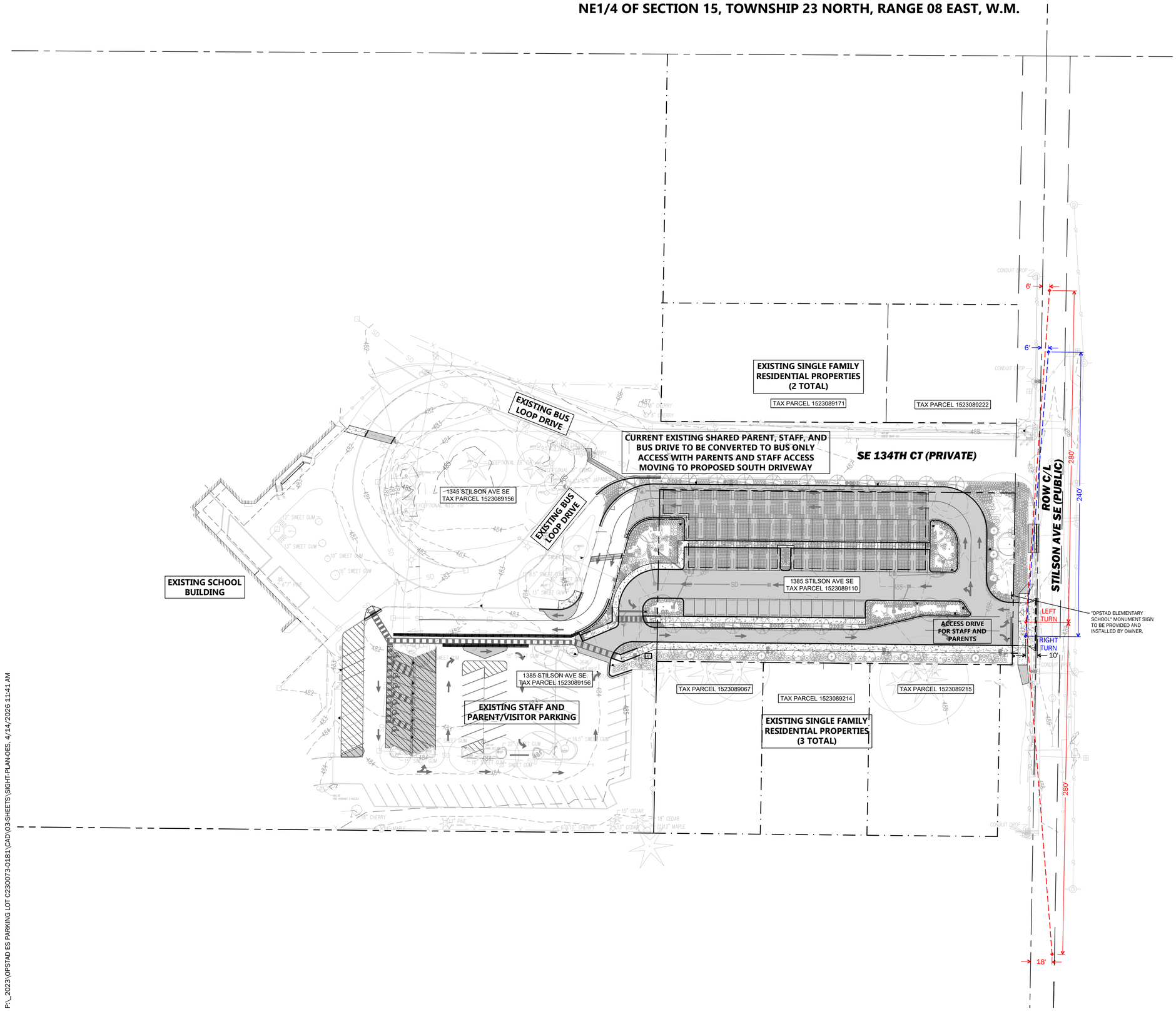
Dwg File: SITE-PLAN-OES.DWG

Sheet Title
OVERALL SITE PLAN

Sheet
C0.10

P:_2023\OPSTAD ES PARKING LOT C2300073-0181\CAD\03-SHEETS\SITE-PLAN-OES, 4/14/2026 11:41 AM

NE1/4 OF SECTION 15, TOWNSHIP 23 NORTH, RANGE 08 EAST, W.M.



0 20 40 80

SCALE 1"=40'

Call before you Dig. 8-1-1 or 1-800-424-5555 UNDERGROUND SERVICE (USA)

811

LEGEND

PROPERTY LINE — N 79°33'06" E - 46.81'

VEHICLE SIGHT DISTANCE TRIANGLES — LEFT / RIGHT

POSTED SPEED LIMIT	DISTANCE (LEFT TURN)	DISTANCE (RIGHT TURN)
50 MPH	555 FEET	480 FEET
45 MPH	500 FEET	430 FEET
40 MPH	445 FEET	385 FEET
35 MPH	390 FEET	335 FEET
30 MPH	335 FEET	290 FEET
25 MPH	280 FEET	240 FEET
20 MPH	225 FEET	195 FEET

NOTE:
VEHICLE SIGHT DISTANCE TRIANGLE TABLE PER AASHTO GREEN BOOK TABLE 9-7 FOR LEFT TURN FROM STOP AND TABLE 9-9 FOR RIGHT TURN FROM STOP FOR 2-LANE ROADWAYS

CITY OF NORTH BEND PERMIT#_____

THESE PLANS ARE APPROVED FOR CONFORMANCE WITH THE CITY OF NORTH BEND PUBLIC WORKS DEPARTMENT REQUIREMENTS TO THE BEST OF MY KNOWLEDGE.

CITY ENGINEER OR PUBLIC WORKS DIRECTOR DATE

JACOBSON
CONSULTING ENGINEERS

GERALD A. JACOBSON — STATE OF WASHINGTON — 43667 — REGISTERED PROFESSIONAL ENGINEER — 04/14/2026

JACOBSONENGINEERS.COM

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE,
NORTH BEND, WA 98045

BID SET

04/16/2026

Revisions

Mark	Date	Description

Checked By:
JAJ

Drawn By:
AJJ

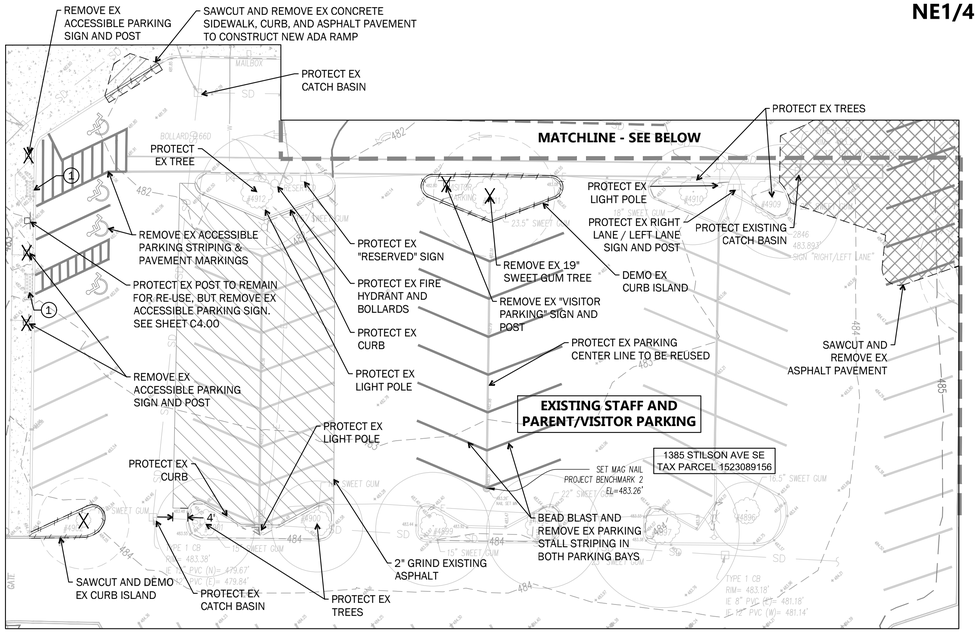
Dwg File:
SIGHT-PLAN-OES.DWG

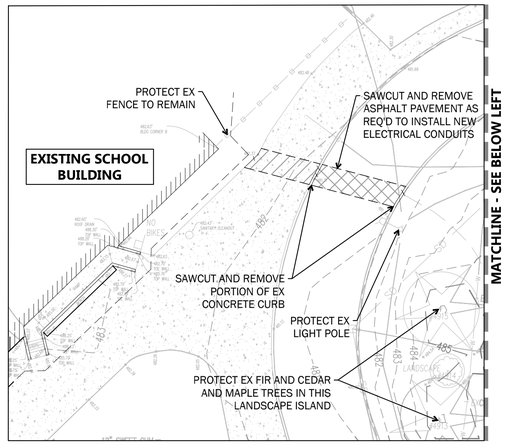
Sheet Title
SIGHT DISTANCE TRIANGLE PLAN

Sheet
C0.11

P:_2023\OPSTAD ES PARKING LOT C23007 3-0181\CAD\03-SHEETS\SIGHT-PLAN-OES, 4/14/2026 11:41 AM

NE1/4 OF SECTION 15, TOWNSHIP 23 NORTH, RANGE 08 EAST, W.M.





N

0 10 20 40

SCALE 1"=20'

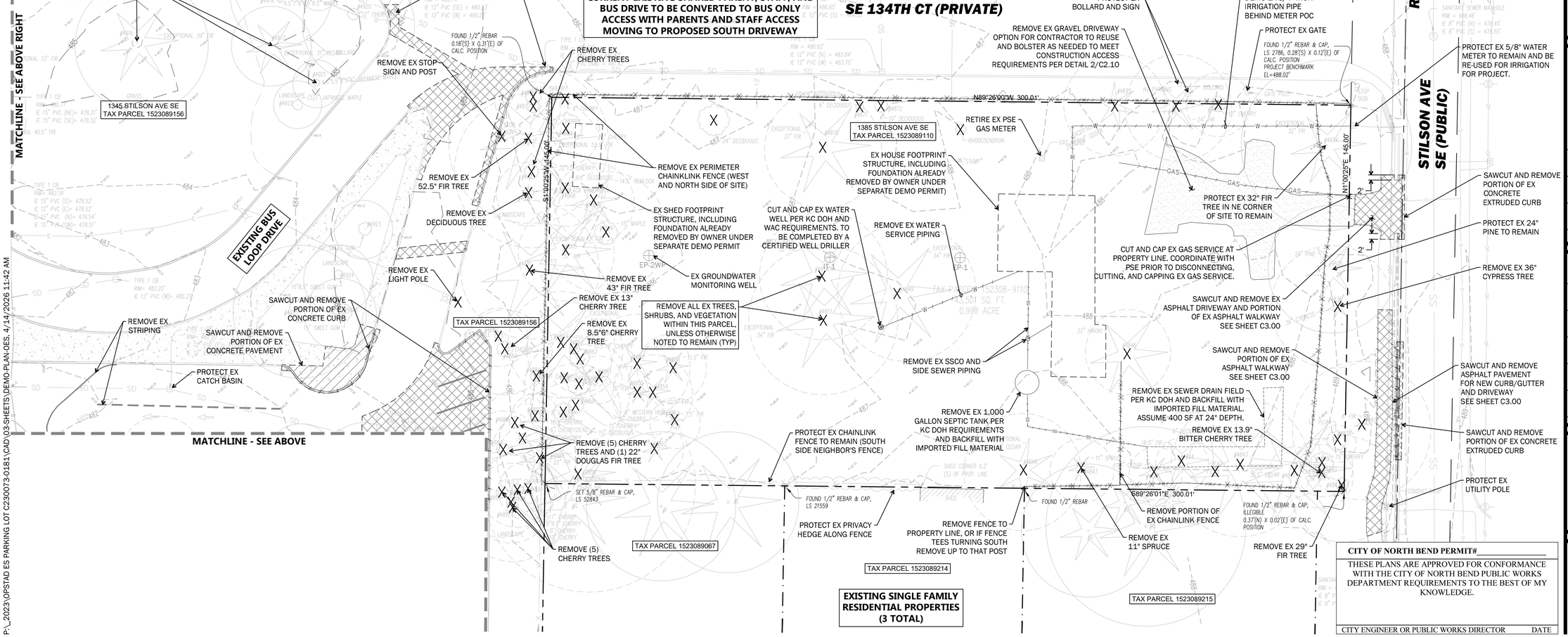
Call before you DIg. 8-1-1 or 1-800-424-5555 UNDERGROUND SERVICE (USA) 811

LEGEND

- PROPERTY LINE — N 79°33'06" E – 46.81'
- SAWCUT LINE
- REMOVE CURBING
- REMOVE ASPHALT PAVEMENT
- REMOVE CONCRETE PAVEMENT
- GRIND AND OVERLAY
- REMOVE TREE(S)
- REMOVE FENCING

KEYNOTES:

① DO NOT REMOVE EX ADA RAMPS TO REMAIN



CITY OF NORTH BEND PERMIT#_____

THESE PLANS ARE APPROVED FOR CONFORMANCE WITH THE CITY OF NORTH BEND PUBLIC WORKS DEPARTMENT REQUIREMENTS TO THE BEST OF MY KNOWLEDGE.

CITY ENGINEER OR PUBLIC WORKS DIRECTOR DATE

P:_2023\OPSTAD ES PARKING LOT C230073-0181\CAD\03-SHEETS\DEMO-PLAN-OES, 4/14/2026 11:42 AM

JACOBSON CONSULTING ENGINEERS

GERALD A. JACOBSON — STATE OF WASHINGTON — 43667 — REGISTERED PROFESSIONAL ENGINEER — 04/14/2026

JACOBSONENGINEERS.COM

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE, NORTH BEND, WA 98045

BID SET

04/16/2026

Revisions

Mark	Date	Description

Checked By: JAJ

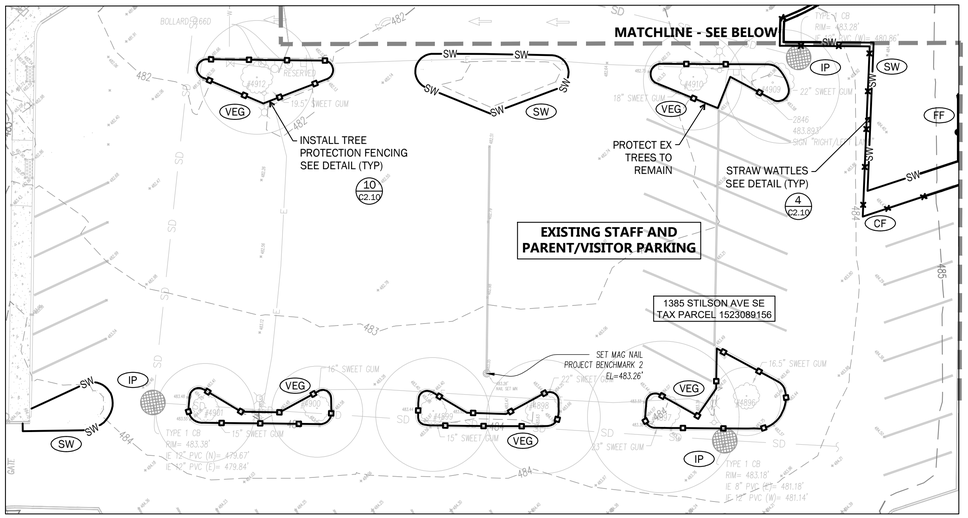
Drawn By: AJJ

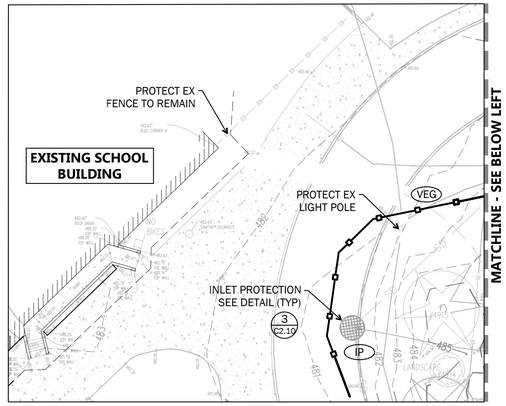
Dwg File: DEMO-PLAN-OES.DWG

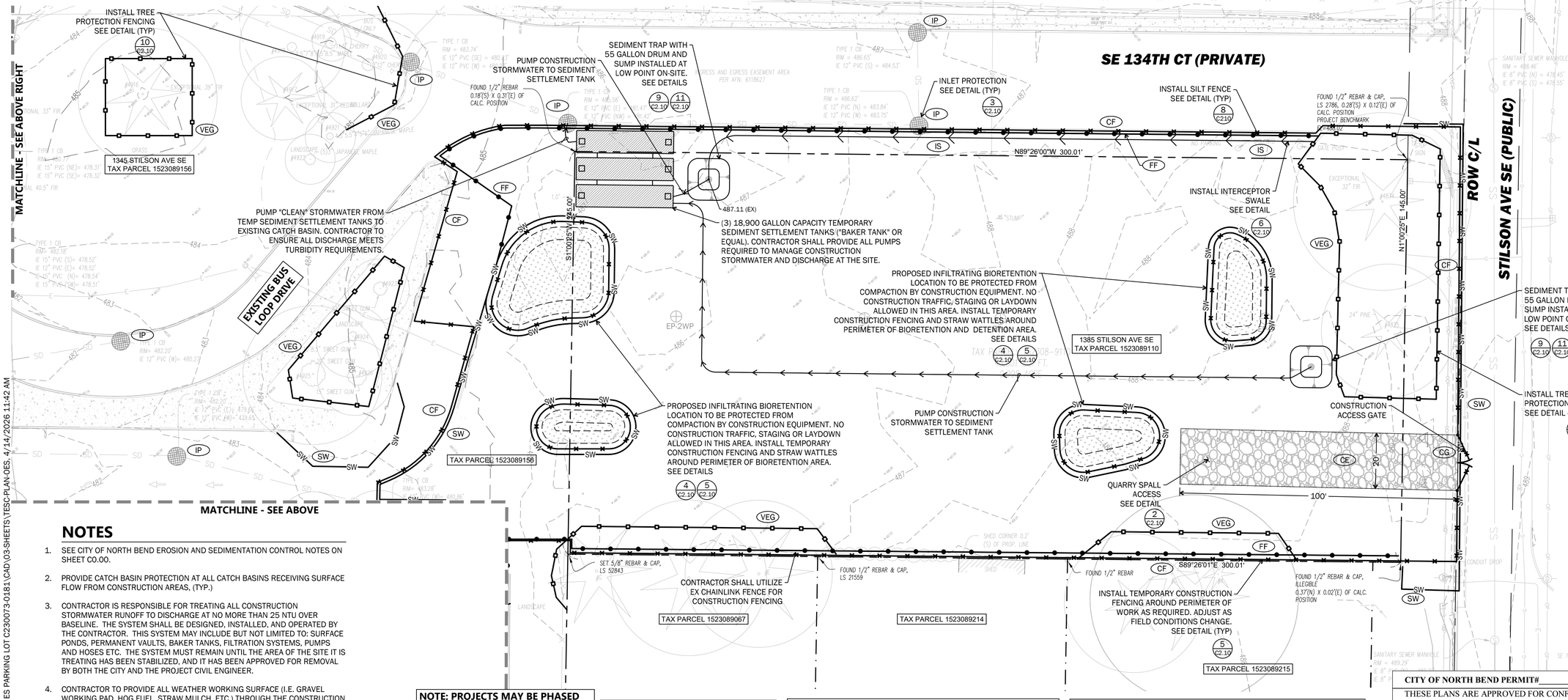
Sheet Title
DEMOLITION PLAN

Sheet
C1.00

NE1/4 OF SECTION 15, TOWNSHIP 23 NORTH, RANGE 08 EAST, W.M.







NOTES

1. SEE CITY OF NORTH BEND EROSION AND SEDIMENTATION CONTROL NOTES ON SHEET C0.00.
2. PROVIDE CATCH BASIN PROTECTION AT ALL CATCH BASINS RECEIVING SURFACE FLOW FROM CONSTRUCTION AREAS, (TYP.)
3. CONTRACTOR IS RESPONSIBLE FOR TREATING ALL CONSTRUCTION STORMWATER RUNOFF TO DISCHARGE AT NO MORE THAN 25 NTU OVER BASELINE. THE SYSTEM SHALL BE DESIGNED, INSTALLED, AND OPERATED BY THE CONTRACTOR. THIS SYSTEM MAY INCLUDE BUT NOT LIMITED TO: SURFACE PONDS, PERMANENT VAULTS, BAKER TANKS, FILTRATION SYSTEMS, PUMPS AND HOSES ETC. THE SYSTEM MUST REMAIN UNTIL THE AREA OF THE SITE IT IS TREATING HAS BEEN STABILIZED, AND IT HAS BEEN APPROVED FOR REMOVAL BY BOTH THE CITY AND THE PROJECT CIVIL ENGINEER.
4. CONTRACTOR TO PROVIDE ALL WEATHER WORKING SURFACE (I.E. GRAVEL WORKING PAD, HOG FUEL, STRAW MULCH, ETC.) THROUGH THE CONSTRUCTION SITE AS NECESSARY. NO PAYMENT WILL BE MADE FOR UNSUITABLE SOILS IN THIS AREA THAT ARE NOT PROTECTED DURING THE DURATION OF CONSTRUCTION ACTIVITIES.
5. SEE SHEET C2.10 FOR OTHER DETAILS WHICH MAY BE OPTIONS TO UTILIZE IN MANAGING THE EROSION AND SEDIMENT CONTROL ON THE SITE.

NOTE: PROJECTS MAY BE PHASED TO LIMIT CLEARING AND MINIMIZE THE TIME THAT SOILS ARE EXPOSED

SEE SHEET C0.00 FOR EROSION AND SEDIMENTATION CONTROL NOTES

COORDINATE WITH SCHOOL DISTRICT FOR ACCESS TO AND FROM PROJECT SITE

NOTE:
INSTALL CONSTRUCTION FENCING AROUND LIMITS OF WORK TO PROTECT STAFF AND STUDENTS AND SECURE JOBSITE. CONTRACTOR SHALL ERECT FENCE AROUND JOBSITE AND ADJUST AS CONSTRUCTION CONDITIONS CHANGE OR AS PHASING ALLOWS. SEE DETAIL 5/C2.10

DUST CONTROL: PROVIDE SPRINKLERED/SPRAYED WATER TO PREVENT THE WIND TRANSPORT OF DUST FROM EXPOSED SOIL SURFACES. WHEN USING WATER FOR DUST CONTROL, THE EXPOSED SOILS SHALL BE SPRAYED UNTIL WET, BUT RUNOFF SHALL NOT BE GENERATED BY SPRAYING.

CITY OF NORTH BEND PERMIT#_____

THESE PLANS ARE APPROVED FOR CONFORMANCE WITH THE CITY OF NORTH BEND PUBLIC WORKS DEPARTMENT REQUIREMENTS TO THE BEST OF MY KNOWLEDGE.

CITY ENGINEER OR PUBLIC WORKS DIRECTOR DATE

Call before you Dig. 8-1-1 or 1-800-424-5555 UNDERGROUND SERVICE (USA)

0 10 20 40
SCALE 1"=20'

LEGEND

- PROPERTY LINE — N 79°33'06" E – 46.81'
- (IS) INTERCEPTOR SWALE
- (CF) TEMP CONSTRUCTION FENCING
- (CG) TEMP CONSTRUCTION GATE
- (CE) TEMP CONSTRUCTION ENTRANCE
- (FF) FILTER FABRIC FENCING
- (SW) STRAW WATTLES — SW
- INLET PROTECTION (IP)
- (VEG) TREE PROTECTION

SEDIMENT TANK STORAGE

VOLUME REQUIRED: 47,835 GALLONS
VOLUME PROVIDED: 56,700 GALLONS

JACOBSON CONSULTING ENGINEERS

GERALD A. JACOBSON — STATE OF WASHINGTON — 43667 — REGISTERED PROFESSIONAL ENGINEER — 04/14/2026

JACOBSONENGINEERS.COM

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE, NORTH BEND, WA 98045

BID SET

04/16/2026

Revisions

Mark	Date	Description

Checked By:
JAJ

Drawn By:
AJJ

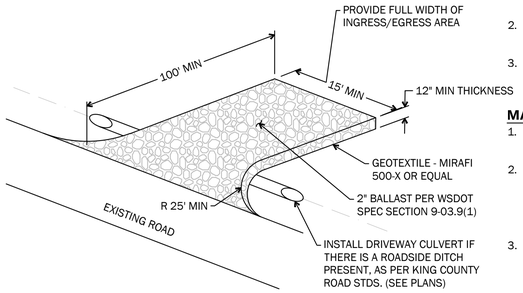
Dwg File:
TESC-PLAN-OES.DWG

Sheet Title
TESC PLAN

Sheet
C2.00

P:_2023\OPSTAD ES PARKING LOT C230073-0181\CAD\03-SHEETS\TESC-PLAN-OES, 4/14/2026 11:42 AM

IT IS RECOMMENDED THAT THE ENTRANCE BE CROWNED SO THAT RUNOFF DRAINS OFF THE PAD.



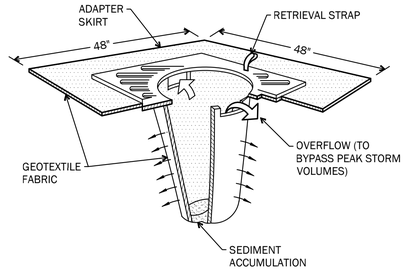
NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL BALLAST ROCK, AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEANOUT OF ANY STRUCTURES USED TO TRAP SEDIMENT. ALL MATERIALS SPILLED, DROPPED, WASHED, TRACKED FROM VEHICLES ONTO ROADWAY OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.
2. CONSTRUCTION ENTRANCE SHALL BE USED FOR TIRE CLEANING/WASHDOWN ONLY. GENERAL CLEANING/WASHDOWN (CONCRETE BOOMS, ETC.) SHALL OCCUR AT APPROPRIATE OFF-SITE LOCATIONS.
3. HAZARDOUS CONDITIONS MAY EXIST NEAR THE CONSTRUCTION ENTRANCE LOCATION (OVERHEAD POWER, ETC.). THEREFORE, IT SHALL BE THE FULL RESPONSIBILITY OF THE CONSTRUCTION ENTRANCE USERS TO EMPLOY SAFETY PRECAUTIONS AS DEEMED NECESSARY.

MAINTENANCE STANDARDS:

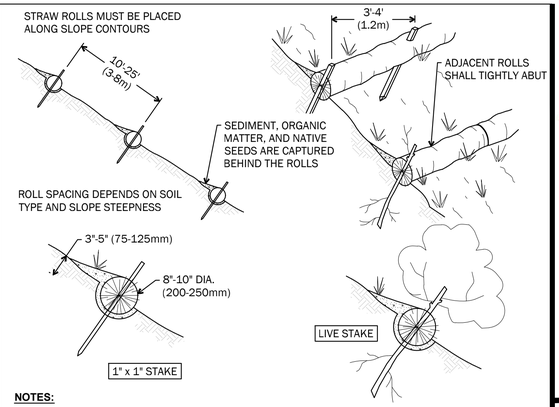
1. ADDITIONAL BALLAST ROCK SHALL BE ADDED IF THE PAD IS NO LONGER IN ACCORDANCE WITH THE SPECIFICATIONS.
2. IF THE ENTRANCE IS NOT PREVENTING SEDIMENT FROM BEING TRACKED ONTO PAVEMENT, THEN ALTERNATIVE MEASURES TO KEEP THE STREETS FREE OF SEDIMENT SHALL BE USED. THIS MAY INCLUDE STREET SWEEPING, AN INCREASE IN THE DIMENSIONS OF THE ENTRANCE, OR THE INSTALLATION OF A WHEEL WASH. IF WASHING IS USED, IT SHALL BE DONE ON AN AREA COVERED WITH CRUSHED ROCK, AND WASH WATER SHALL DRAIN TO A SEDIMENT TRAP OR POND.
3. ANY SEDIMENT THAT IS TRACKED ONTO PAVEMENT SHALL BE REMOVED IMMEDIATELY BY SWEEPING. THE SEDIMENT COLLECTED BY SWEEPING SHALL BE REMOVED OR STABILIZED ON SITE. THE PAVEMENT SHALL NOT BE CLEANED BY WASHING DOWN THE STREET, EXCEPT WHEN SWEEPING IS INEFFECTIVE AND THERE IS A THREAT TO PUBLIC SAFETY. IF IT IS NECESSARY TO WASH THE STREETS, A SMALL SUMP SHALL BE CONSTRUCTED. THE SEDIMENT WOULD THEN BE WASHED INTO THE SUMP WHERE IT CAN BE CONTROLLED. WASH WATER MUST BE PUMPED BACK ONTO THE SITE AND CAN NOT DISCHARGE TO SYSTEMS TRIBUTARY TO SURFACE WATERS.
4. ANY BALLAST ROCK THAT IS LOOSENED FROM THE PAD AND END UP ON THE ROADWAY SHALL BE REMOVED IMMEDIATELY.
5. IF VEHICLES ARE ENTERING OR EXITING THE SITE AT POINTS OTHER THAN THE CONSTRUCTION ENTRANCE(S), FENCING SHALL BE INSTALLED TO CONTROL TRAFFIC.

NTS **Construction Entrance** 2



INLET PROTECTION NOTE:
FILTERS SHALL BE INSPECTED AFTER EACH STORM EVENT AND CLEANED OR REPLACES WHEN 1/3 FULL.

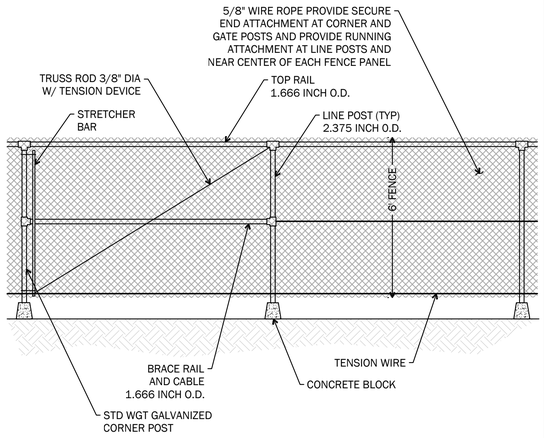
NTS **Inlet Protection** 3



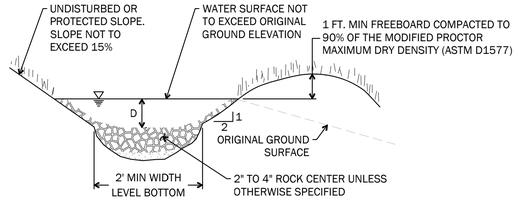
NOTES:

1. STRAW ROLL INSTALLATION REQUIRES THE PLACEMENT AND SECURE STAKING OF THE ROLL IN A TRENCH, 3" x 5" (75-125mm) DEEP, DUG ON CONTOUR.
2. RUNOFF MUST NOT BE ALLOWED TO RUN UNDER OR AROUND ROLL.
3. FOR ASPHALT OR CONCRETE APPLICATIONS, STRAW WATTLE SHALL BE LAID ON TOP OF PAVEMENT AND HELD IN PLACE AS NEEDED WITH SAND BAGS AND ADJUSTED AS NECESSARY AS PHASING OR FIELD CONDITIONS CHANGE.

NTS **Straw Wattle** 4



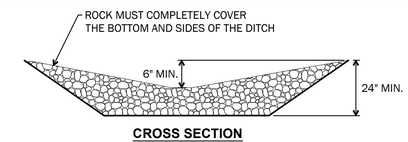
NTS **Construction Fence** 5



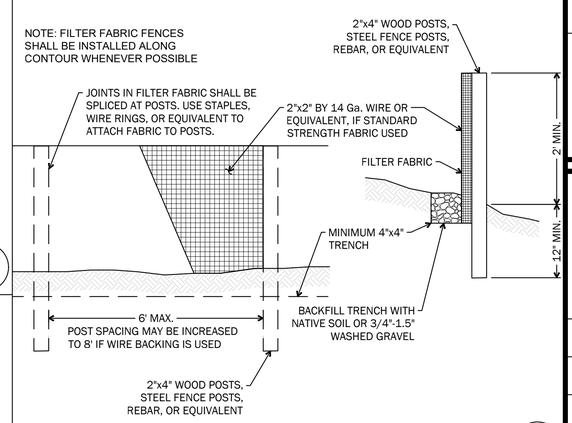
NOTES:

1. PROVIDE ROCK CHECK DAMS EVERY 50 FT. OR EVERY 5' OF VERTICAL FALL. SEE DETAIL 7/C2.10.
2. DIMESTIONS: 1 FT MINIMUM DEPTH(D) BY 2 FT MINIMUM BOTTOM WIDTH
3. SWALE GRADE SHOULD NOT EXCEED 5%. SIDE SLOPES SHOULD BE 2:1 OR LESS.
4. OUTLET SHALL CONSIST OF RIP RAP DISCHARGING TO STABILIZED OUTLET, SEDIMENT POND OR LEVEL SPREADER.
5. IF DESIGNED AS A PERMANENT DRAINAGE FEATURE, MAY BE USED IN COMBINATION WITH INTERCEPTOR DRAIN.

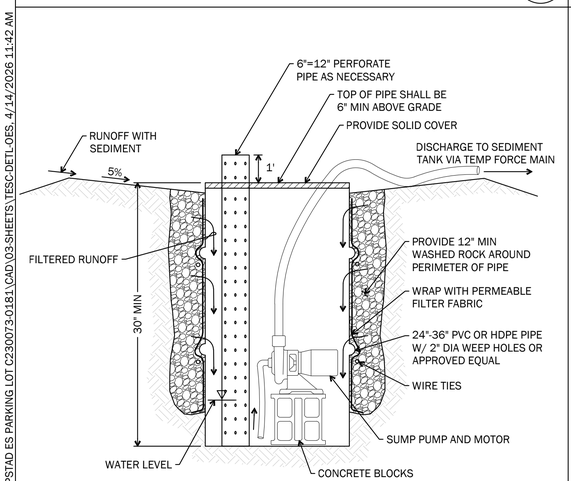
NTS **Interceptor Swale** 6



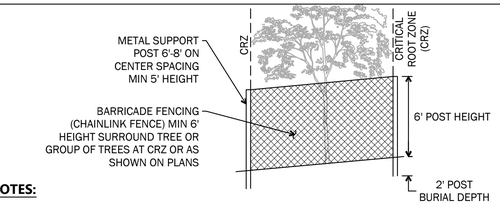
NTS **Check Dam** 7



NTS **Silt Fence** 8



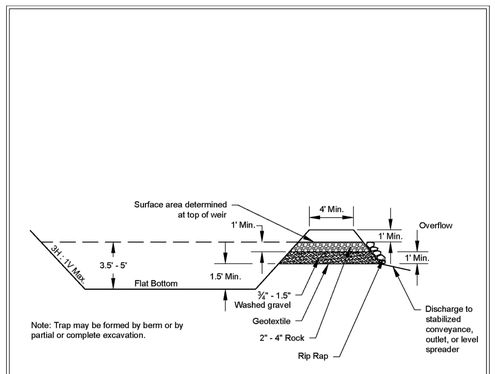
NTS **Temprorary Sump and Pump** 9



NOTES:

1. A MINIMUM 6 FOOT HIGH TEMPORARY FENCE MUST BE PLACED AT THE CRITICAL ROOT ZONE (CRZ) OF TREES PRIOR TO THE COMMENCEMENT OF CLEARING OR EARTHWORK. NOTIFY THE CLEARING AND GRADING INSPECTOR TO GET BOTH THE INSPECTION AND WRITTEN APPROVAL OF FLAGGED TREES AND TEMPORARY PROTECTION FENCING AROUND TREES TO BE RETAINED PER THE APPROVED CLEARING AND GRADING PLAN.
2. NO STOCKPILING OF MATERIAL AND NO VEHICULAR TRAFFIC ARE ALLOWED WITHIN THE LIMITS OF THE TEMPORARY FENCING. FILLING, EXCAVATION, AND CLEARING MUST BE ACCOMPLISHED BY HAND METHODS ONLY.
3. ROOTS OF TREES TO BE SAVED WHICH ARE DAMAGED DURING CONSTRUCTION MUST BE TREATED IN THE FOLLOWING WAY: FOR DAMAGED ROOTS OVER 1" IN DIAMETER, MAKE A CLEAN, STRAIGHT CUT TO REMOVE THE DAMAGED PORTION OF THE ROOT. ALL EXPOSED ROOTS WILL BE TEMPORARILY COVERED WITH DAMP BURLAP OR WOOD SHAVINGS TO PREVENT DRYING AND COVERED WITH EARTH AS SOON AS POSSIBLE.
4. SEE TESC PLANS FOR LOCATION OF EXISTING TREES TO RECEIVE TEMPORARY FENCING.
5. SEE DETAIL 4/C2.11 FOR ARBORIST TREE PROTECTION RECOMMENDATIONS. COORDINATE WITH SNOQUALMIE VALLEY SCHOOL DISTRICTS ARBORIST PRIOR TO BEGINNING CONSTRUCTION ACTIVITIES.
6. TREE PROTECTION FENCING SHALL INCLUDE REQUIRED SIGNAGE IN ACCORDANCE WITH NBMC CHAPTERS 18.18 AND 19.10. SIGNAGE SHALL BE POSTED AT VISIBLE INTERVALS AND MAINTAINED FOR THE DURATION OF CONSTRUCTION.

NTS **Tree Protection** 10



NOT TO SCALE

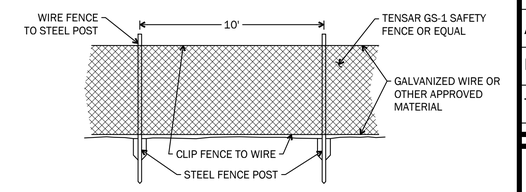
DEPARTMENT OF ECOLOGY
State of Washington

Cross Section of Sediment Trap

Revised June 2016

Please see *http://www.ecy.wa.gov/copyright.html* for copyright notice including permissions, limitation of liability, and disclaimer.

NTS **Sediment Trap** 11



NTS **Clearing Limits Fence** 12

CITY OF NORTH BEND PERMIT#_____

THESE PLANS ARE APPROVED FOR CONFORMANCE WITH THE CITY OF NORTH BEND PUBLIC WORKS DEPARTMENT REQUIREMENTS TO THE BEST OF MY KNOWLEDGE.

CITY ENGINEER OR PUBLIC WORKS DIRECTOR DATE

JACOBSON
CONSULTING ENGINEERS

GERALD A. JACOBSON — STATE OF WASHINGTON — 43667 — REGISTERED PROFESSIONAL ENGINEER — 04/14/2026

JACOBSONENGINEERS.COM

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE,
NORTH BEND, WA 98045

BID SET

04/16/2026

Revisions

Mark	Date	Description

Checked By:
JAJ

Drawn By:
AJJ

Dwg File:
TESC-DETL-OES.DWG

Sheet Title
TESC DETAILS

Sheet
C2.10

P:_2023\OPSTAD ES PARKING LOT C230073-0181\CAD\03-SHEETS\TESC-DETL-OES, 4/14/2026 11:42 AM

ZONE A
NO HEAVY EQUIPMENT TRAFFIC.
NO STACKING OF MATERIALS OR SUPPLIES.
ANY ROOTS ABOVE 1" SHOULD BE CUT CLEAN BACK TO LATERALS WHERE POSSIBLE.
SEVERANCE OF ROOTS OVER 2" IN DIAMETER PROHIBITED.
HAND DIGGING REQUIRED TO 3' DEPTH.
TUNNELING REQUIRED BELOW 3' DEPTH
NO GRADE CHANGES.
NO DISTURBANCE ALLOWED WITHOUT SITE SPECIFIC ARBORIST RECOMMENDATION AND APPROVAL.

GENERAL RECOMMENDATIONS:
MINIMIZE HEAVY TRAFFIC ON NATIVE SOILS THROUGHOUT THE SITE. FLAG OR MARK EXPOSED ROOTS AND OVERHANGING LIMBS.

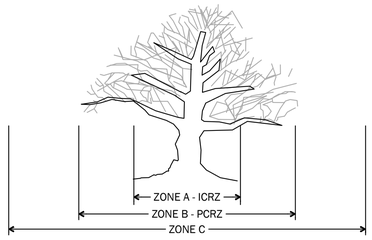
TREE PROTECTION SIGNAGE:
TREE PROTECTION FENCING SHALL INCLUDE REQUIRED SIGNAGE IN ACCORDANCE WITH NBMC CHAPTERS 18.18 AND 19.10. SIGNAGE SHALL BE POSTED AT VISIBLE INTERVALS AND MAINTAINED FOR THE DURATION OF CONSTRUCTION.

ZONE B
NO HEAVY EQUIPMENT TRAFFIC ON ROOTS.
NO STACKING OF MATERIALS.
APPLY 6" LAYER OF WOOD CHIP MULCH.
NO SEVERANCE OF ROOTS OVER 4" IN DIAMETER.
HAND DIGGING OR HAND GUIDED TRENCHER.
LIMIT TRENCH WIDTH.
ANY ROOTS ABOVE 1" SHOULD BE CUT CLEAN BACK TO LATERALS WHERE POSSIBLE.
MINIMIZE GRADE CHANGE
6' CHAINLINK FENCE AROUND PERIMETER.

ZONE C
APPLY 1' LAYER OF WOOD-CHIP MULCH.
OPEN TRENCHING ALLOWED WITH HEAVY EQUIPMENT.
MINIMIZE TRENCH WIDTH.
ALL ROOTS SEVERED ABOVE 1" IN DIAMETER MUST BE CUT CLEAN BACK TO LATERALS WHERE POSSIBLE.

NOTE: CRZ RADIUS = 12 INCHES PER INCH OF TRUNK DIAMETER, MEASURED AT 4.5 FEET ABOVE GRADE.

ZONES OF CONSTRUCTION IMPACT ZONES ON EXISTING TREES
RECOMMENDATIONS TO LIMIT CONSTRUCTION DAMAGE



ZONE A. HALF THE RADIUS OF THE FULL CRZ PER CRZ CALCULATION NOTE.
ZONE B. THE AREA FROM THE TRUNK TO THE CRITICAL ROOT ZONE (CRZ).
ZONE C. TWICE THE AREA OF ZONE B AND REPRESENTS THE EXTENT OF THE ABSORBING ROOT SYSTEM.

NTS
Arborist Tree Protection Recommendations 4

CITY OF NORTH BEND PERMIT#_____
THESE PLANS ARE APPROVED FOR CONFORMANCE WITH THE CITY OF NORTH BEND PUBLIC WORKS DEPARTMENT REQUIREMENTS TO THE BEST OF MY KNOWLEDGE.
CITY ENGINEER OR PUBLIC WORKS DIRECTOR DATE

JACOBSON
CONSULTING ENGINEERS

JERALD A. JACOBSON
STATE OF WASHINGTON
43667
REGISTERED PROFESSIONAL ENGINEER
4/14/2026

JACOBSONENGINEERS.COM

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE,
NORTH BEND, WA 98045

BID SET

04/16/2026

Revisions

Mark	Date	Description

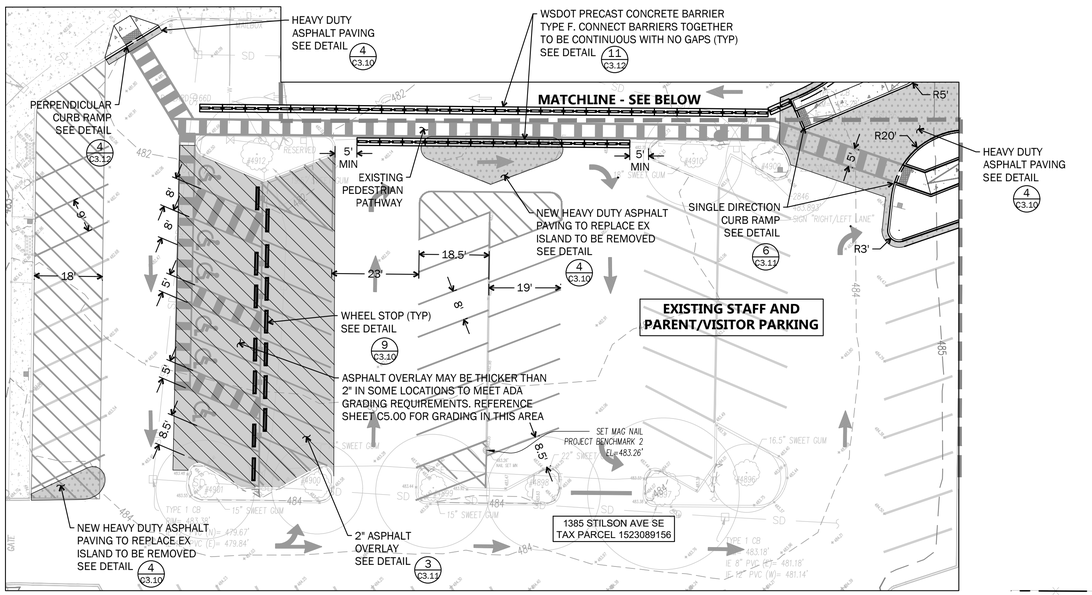
Checked By:
JAJ
Drawn By:
AJJ
Dwg File:
TESC-DETL-OES.DWG

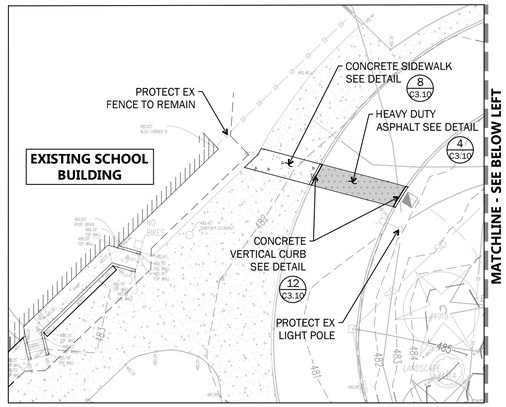
Sheet Title
TESC DETAILS

Sheet
C2.11

P:_2023\OPSTAD ES PARKING LOT C230073-04\81\CAD\03-SHEETS\TESC-DETL-OES, 4/14/2026 11:42 AM

NE1/4 OF SECTION 15, TOWNSHIP 23 NORTH, RANGE 08 EAST, W.M.





Call before you Dig. 8-1-1 or 1-800-424-5555 UNDERGROUND SERVICE (USA)

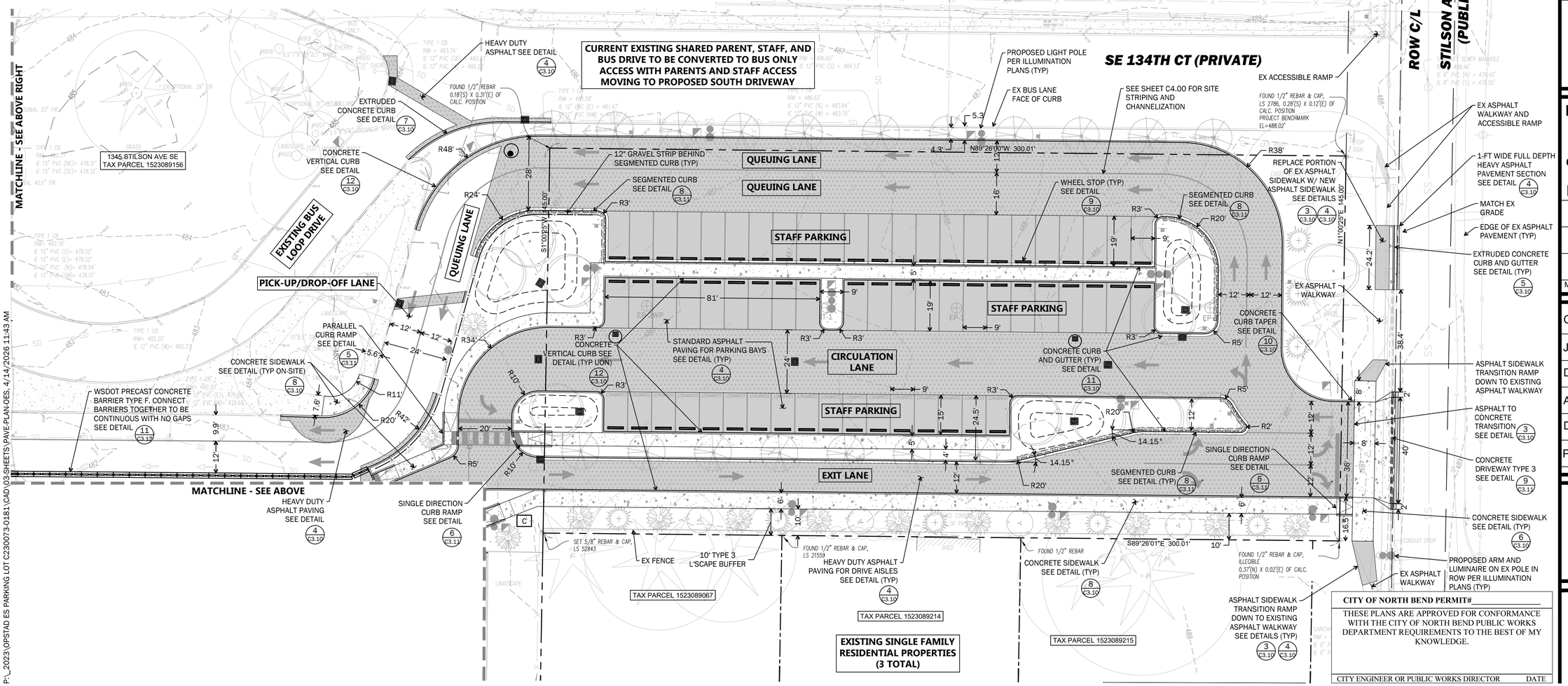
811

0 10 20 40

SCALE 1"=20'

LEGEND

- PROPERTY LINE — N 79°33'06" E – 46.81'
- CONTOUR (INDEX) — 110
- CONTOUR — 109
- SPOT ELEVATION — 109.36 — TC 109.86 BC 109.36
- GRADE BREAK — RIDGE — VALLEY
- STANDARD ASPHALT PAVEMENT
- HEAVY DUTY ASPHALT PAVEMENT
- ASPHALT GRIND AND OVERLAY
- CONCRETE PAVEMENT
- CONCRETE CURB
- CONCRETE CURB AND GUTTER



CITY OF NORTH BEND PERMIT#_____

THESE PLANS ARE APPROVED FOR CONFORMANCE WITH THE CITY OF NORTH BEND PUBLIC WORKS DEPARTMENT REQUIREMENTS TO THE BEST OF MY KNOWLEDGE.

CITY ENGINEER OR PUBLIC WORKS DIRECTOR DATE

JACOBSON CONSULTING ENGINEERS

JACOBSONENGINEERS.COM

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE, NORTH BEND, WA 98045

BID SET

04/16/2026

Revisions

Mark	Date	Description

Checked By: JAJ

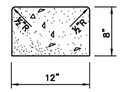
Drawn By: AJJ

Dwg File: PAVE-PLAN-OES.DWG

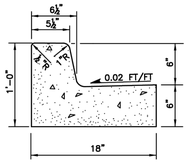
Sheet Title
PAVING PLAN

Sheet
C3.00

P:_2023\OPSTAD ES PARKING LOT C230073.0181\CAD\05-SHEETS\PAVE-PLAN-OES, 4/14/2026 11:43 AM



BORDER CURB



VERTICAL CONCRETE CURB AND GUTTER

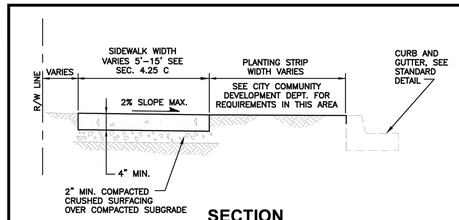
NOTES:

1. THE CURBS, GUTTERS AND SIDEWALKS SHALL HAVE EXPANSION JOINTS (3/8") AT INTERVALS OF NOT GREATER THAN 15'–0"
2. CEMENT CONCRETE SHALL BE AIR–ENTRAINED CLASS 3000, EXCEPT CLASS 4000 SHALL BE USED AT DRIVEWAY APPROACHES.
3. WHEN REPAIRING AND/OR REPLACING CEMENT CONCRETE CURB AND GUTTER, EXISTING CURB AND GUTTER SHALL BE REMOVED TO THE NEAREST JOINT, SAWCUTTING AND REMOVAL SHALL NOT BE ALLOWED.

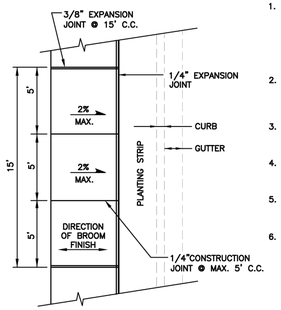
CITY OF NORTH BEND
CONCRETE CURB AND GUTTER

APPROVED:		DWG. NO.
MARK RIGOS, P.E. BY CITY	MAY 2018 DATE	T–22

NTS **Concrete Curb and Gutter** 5



SECTION



PLAN

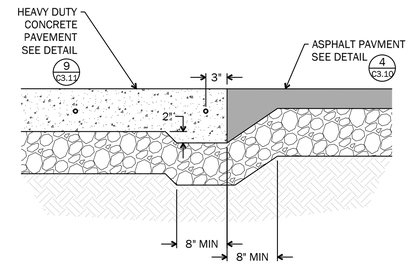
NOTES:

1. THRU JOINTS AND CONTRACTION JOINTS SHALL BE AS SHOWN ABOVE. THRU JOINTS SHALL ALSO BE PLACED IN THE SIDEWALK SECTION AT DRIVEWAY RETURNS. ALL JOINTS SHALL BE CLEAN AND EDGED WITH AN EDGE HAVING 1/4" RADIUS. JOINT SHALL BE FLUSH WITH THE FINISHED SURFACE.
2. ALL METER BOXES, ETC. IN SIDEWALK AREAS SHALL HAVE 3/8" JOINT MATERIAL (FULL DEPTH) PLACED AROUND THEM BEFORE PLACING CONCRETE.
3. PREMOLDED JOINT FILLER SHALL BE ASPHALT SATURATED FELT OR PAPER, FULL DEPTH OF SIDEWALK.
4. FORMS SHALL BE EITHER WOOD OR STEEL AND SHALL MEET ALL REQUIREMENTS OF THESE SPECIFICATIONS.
5. CEMENT CONCRETE SHALL BE AIR–ENTRAINED CLASS 3000 PSI, EXCEPT CLASS 4000 SHALL BE USED AT DRIVEWAY CROSSINGS.
6. FOR SIDEWALKS GREATER THAN 8' IN WIDTH, ADDITIONAL EXPANSION AND CONTRACTION JOINTS WILL BE REQUIRED.

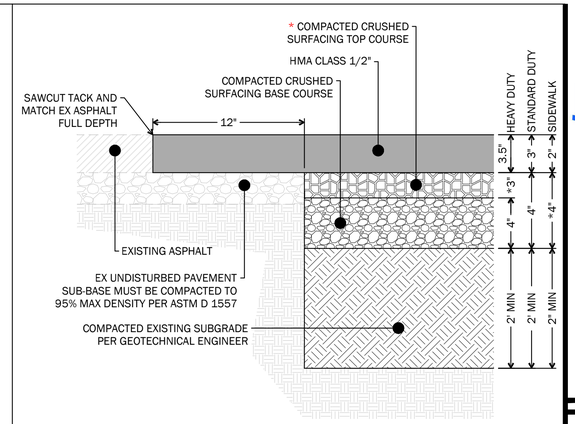
CITY OF NORTH BEND
SIDEWALK WITH PLANTING STRIP

APPROVED:		DWG. NO.
MARK RIGOS, P.E. BY CITY	MAY 2018 DATE	T–19

NTS **Sidewalk with Planting Strip** 6



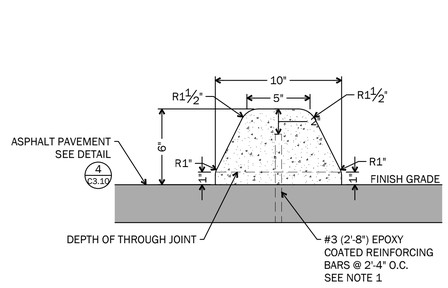
NTS **Asphalt Concrete Transition** 3



NOTES:

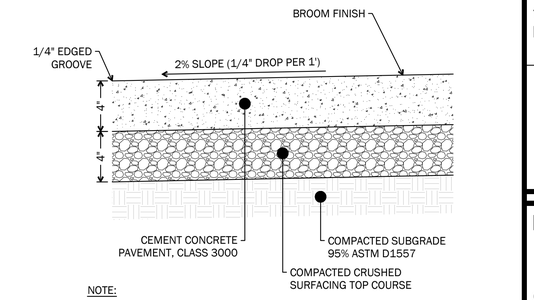
DEPTHS ARE COMPACTED THICKNESS

NTS **Asphalt Pavement** 4



NOTE:
1. CONTRACTOR MAY USE EPOXY BONDING AGENT, IN PLACE OF #3 DEFORMED BARS.
2. CONTRACTOR SHALL CONFORM TO WSDOT SPEC. 8-04.3

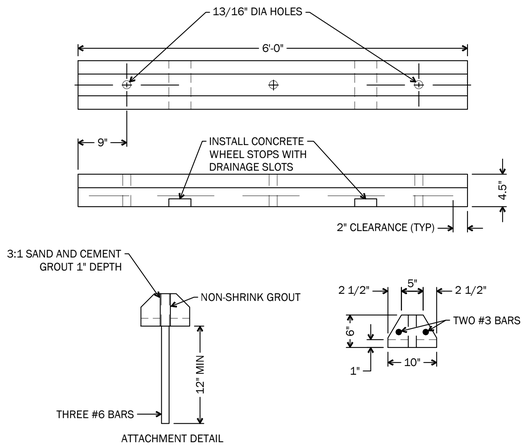
NTS **Extruded Curb** 7



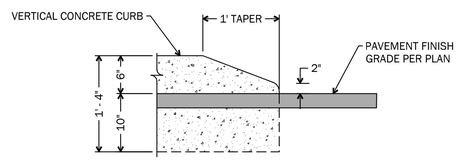
NOTE:

1. CEMENT CONCRETE SHALL BE CLASS 3000
2. DUMMY JOINTS (FELT STRIPS) CONSISTING OF 3/16" BY 2" PREMOLDED JOINT MATERIAL SHALL BE PLACED AT 15 FOOT INTERVALS

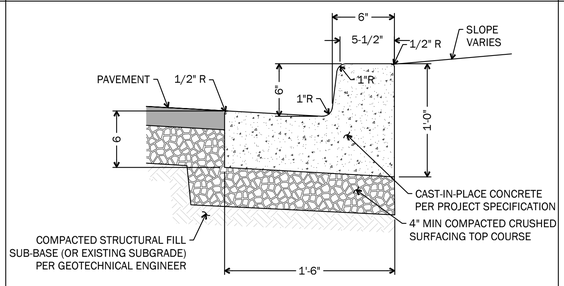
NTS **On-Site Concrete Sidewalk** 8



NTS **Wheel Stop** 9



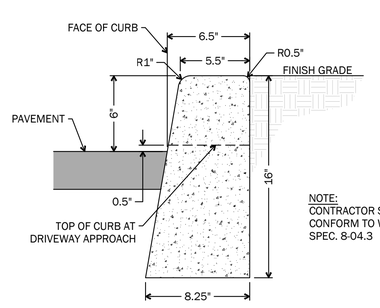
NTS **Curb Taper** 10



NOTES:

1. FORMS SHALL BE STEEL AND SET TRUE TO LINE AND GRADE (INSPECTION IS REQUIRED PRIOR TO PLACEMENT OF CONCRETE).
2. CONCRETE SHALL BE CEMENT CONCRETE CLASS 5-3/4 SACK OR 6 SACK, 4,000 PSI.
3. 10' THRU JOINT, ON CENTER.

NTS **On-Site Concrete Curb and Gutter** 11



NOTE:
CONTRACTOR SHALL CONFORM TO WSDOT SPEC. 8-04.3

NTS **On-Site Vertical Curb** 12

CITY OF NORTH BEND PERMIT#_____

THESE PLANS ARE APPROVED FOR CONFORMANCE WITH THE CITY OF NORTH BEND PUBLIC WORKS DEPARTMENT REQUIREMENTS TO THE BEST OF MY KNOWLEDGE.

CITY ENGINEER OR PUBLIC WORKS DIRECTOR DATE

JACOBSON
CONSULTING ENGINEERS

JACOBSONENGINEERS.COM

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE,
NORTH BEND, WA 98045

BID SET

04/16/2026

Revisions

Mark	Date	Description

Checked By:
JAJ

Drawn By:
AJJ

Dwg File:
GRAD-DETL-OES.DWG

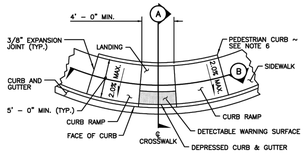
Sheet Title
PAVING DETAILS

Sheet
C3.10

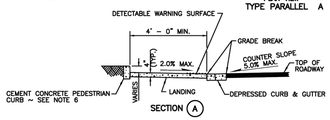
P:_2023\OPSTAD ES PARKING LOT C23007\3-0181\CAD\03-SHEETS\GRAD-DETL-OES, 4/14/2026 11:43 AM



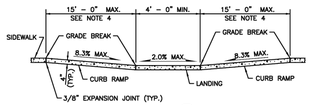
ISOMETRIC VIEW
TYPE PARALLEL A



PLAN VIEW
TYPE PARALLEL A



SECTION (A)



SECTION (B)

NOTES

1. CURB RAMP LOCATION SHALL BE PLACED WITHIN THE WIDTH OF THE ASSOCIATED CROSSWALK.
2. WHERE "GRADE BREAK" IS CALLED OUT, THE ENTIRE LENGTH OF THE GRADE BREAK BETWEEN THE TWO ADJACENT SURFACE PLANES SHALL BE FLUSH.
3. DO NOT PLACE GRATINGS, JUNCTION BOXES, ACCESS COVERS, OR OTHER APPURTENANCES IN FRONT OF THE CURB RAMP OR ON ANY PART OF THE CURB RAMP OR LANDING.
4. THE CURB RAMP MAXIMUM RUNNING SLOPE SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15 FEET TO AVOID CHASING THE SLOPE INDEFINITELY WHEN CONNECTING TO STEEP GRADES. WHEN APPLYING THE 15-FOOT MAX. LENGTH, THE RUNNING SLOPE OF THE CURB RAMP SHALL BE AS FLAT AS FEASIBLE.
5. CURB RAMP, LANDING, AND FLARES SHALL RECEIVE BROOM FINISH.
6. PEDESTRIAN CURB MAY BE OMITTED IF THE GROUND SURFACE AT THE BACK OF THE CURB RAMP AND/OR LANDING WILL BE AT THE SAME ELEVATION AS THE CURB RAMP OR LANDING AND THERE WILL BE NO MATERIAL TO RETAIN.
7. SUBGRADE AND FORM INSPECTION BY THE CITY SHALL BE REQUIRED PRIOR TO PLACING CEMENT CONCRETE. ALL CEMENT CONCRETE SHALL BE AIR-ENTRAINED.

LEGEND

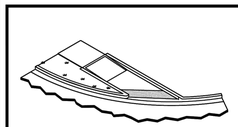
SLOPE IN EITHER DIRECTION

CITY OF NORTH BEND

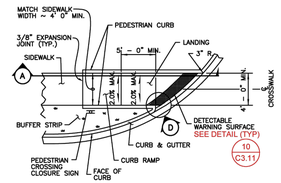
PARALLEL CURB RAMP

APPROVED:	DWG. NO.
MARK RIGOS, P.E. — MAY 2018	T-24A
BY CITY — DATE	

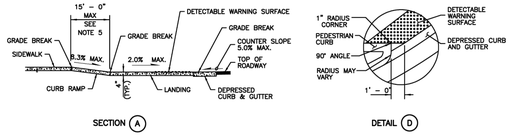
NTS **Parallel Curb Ramp** 5



ISOMETRIC VIEW
TYPE SINGLE DIRECTION



PLAN VIEW
TYPE SINGLE DIRECTION



SECTION (A) DETAIL (D)

NOTES

1. THIS PLAN IS TO BE USED WHERE PEDESTRIAN CROSSING IN ONE DIRECTION IS NOT PERMITTED.
2. CURB RAMP LOCATION SHALL BE PLACED WITHIN THE WIDTH OF THE ASSOCIATED CROSSWALK, OR AS SHOWN IN THE CONTRACT PLANS.
3. WHERE "GRADE BREAK" IS CALLED OUT, THE ENTIRE LENGTH OF THE GRADE BREAK BETWEEN THE TWO ADJACENT SURFACE PLANES SHALL BE FLUSH.
4. DO NOT PLACE GRATINGS, JUNCTION BOXES, ACCESS COVERS OR OTHER APPURTENANCES IN FRONT OF THE CURB RAMP OR ON ANY PART OF THE CURB RAMP OR LANDING.
5. CURB RAMP MAXIMUM RUNNING SLOPE SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15 FEET TO AVOID CHASING THE SLOPE INDEFINITELY WHEN CONNECTING TO STEEP GRADES. WHEN APPLYING THE 15 FOOT MAXIMUM LENGTH, THE RUNNING SLOPE OF THE CURB RAMP SHALL BE AS FLAT AS FEASIBLE.
6. CURB RAMPS AND LANDINGS SHALL RECEIVE BROOM FINISH.
7. PEDESTRIAN CURB MAY BE OMITTED IF THE GROUND SURFACE AT THE BACK OF THE CURB RAMP AND/OR LANDING WILL BE AT THE SAME ELEVATION AS THE CURB RAMP OR LANDING AND THERE WILL BE NO MATERIAL TO RETAIN.
8. SUBGRADE AND FORM INSPECTION BY THE CITY SHALL BE REQUIRED PRIOR TO PLACING CEMENT CONCRETE. ALL CEMENT CONCRETE SHALL BE AIR-ENTRAINED.

LEGEND

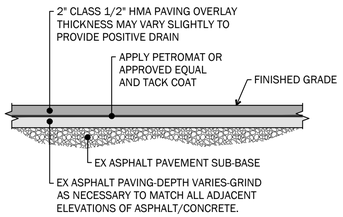
SLOPE IN EITHER DIRECTION

CITY OF NORTH BEND

SINGLE DIRECTION CURB RAMP

APPROVED:	DWG. NO.
MARK RIGOS, P.E. — MAY 2018	T-24C
BY CITY — DATE	

NTS **Single Direction Curb Ramp** 6

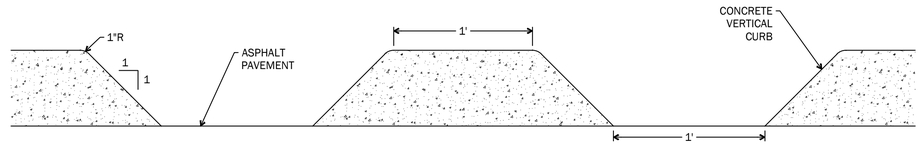


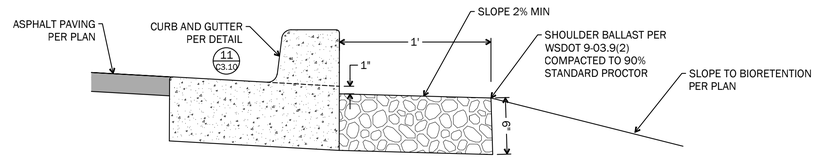
NOTES:

1. PLACE ASPHALT CONCRETE PAVEMENT IN ACCORDANCE WITH WSDOT APWA SECTION 5-04.
2. ASPHALT PAVEMENT OVERLAY SHALL BE PLACED IN (1) LIFT. FINAL LIFT SHALL BE CONSTRUCTED WITH THE OVERLAY OF THE EXISTING ASPHALT ONLY AFTER PAVEMENT PATCHING IS COMPLETE.
3. TACK COAT-USE AR4000.
4. USE PETROMAT® OR ENGINEER APPROVED EQUAL

NTS **Asphalt Overlay Paving Section** 3

NTS **Not Used** 4

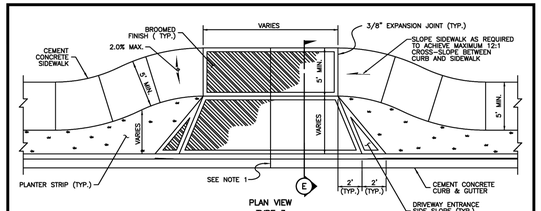




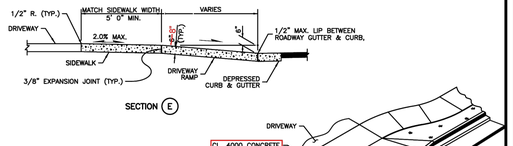
NOTES

1. CURB SLOT OPENINGS SHALL BE SPACED AT 3-FT ON CENTER UNLESS OTHERWISE NOTED ON PLANS.

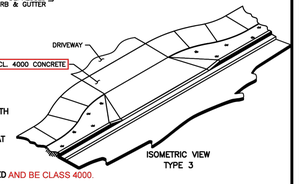
NTS **Segmented Curb** 8



PLAN VIEW
TYPE 3



SECTION (E)



ISOMETRIC VIEW
TYPE 3

NOTES:

1. WHEN THE DRIVEWAY WIDTH EXCEEDS 15 FEET, CONSTRUCT A FULL DEPTH EXPANSION JOINT WITH 3/8" JOINT FILLER ALONG THE DRIVEWAY CENTERLINE. CONSTRUCT EXPANSION JOINTS PARALLEL WITH THE CENTERLINE AS REQUIRED AT 15 FEET MAXIMUM SPACING WHEN DRIVEWAY WIDTHS EXCEED 30 FEET.
2. ALL CEMENT CONCRETE SHALL BE AIR-ENTRAINED AND BE CLASS 4000.
3. WHERE "GRADE BREAK" IS CALLED OUT, THE ENTIRE LENGTH OF THE LINE BETWEEN THE TWO ADJACENT SURFACE PLANES SHALL BE FLUSH.
4. THE RAMP MAXIMUM RUNNING SLOPE SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15 FEET TO AVOID CHASING THE SLOPE INDEFINITELY WHEN CONNECTING TO STEEP GRADES. WHEN APPLYING THE 15 FOOT MAX. LENGTH, THE RUNNING SLOPE OF THE RAMP SHALL BE AS FLAT AS FEASIBLE.
5. MINIMUM LENGTH OF FULL HEIGHT CURB BETWEEN DRIVEWAYS SHALL BE 2 FEET.
6. REINFORCING SHALL BE ADDED SUCH THAT IT IS SET 3" CLEAR FROM TOP W/ #4 BARS @ 12" O.C. EACH WAY.
7. DRIVEWAY SHALL BE CONSTRUCTED OVER A 4-INCH CRUSHED SURFACING (5/8" MINUS) TOP COURSE.

LEGEND

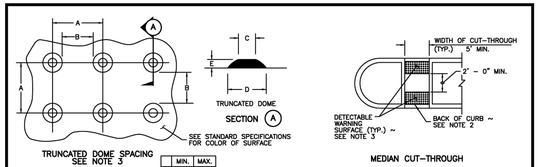
SLOPE IN EITHER DIRECTION

CITY OF NORTH BEND

CEMENT CONCRETE DRIVEWAY TYPE 3

APPROVED:	DWG. NO.
MARK RIGOS, P.E. — MAY 2018	T-23C
BY CITY — DATE	

NTS **Cement Concrete Driveway** 9

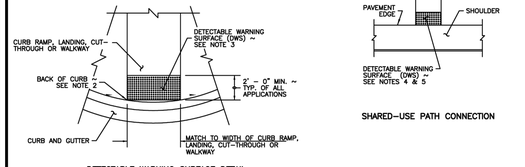


TRUNCATED DOME SPACING
SEE NOTE 3

	MIN.	MAX.
A	1.60"	2.40"
B	0.65"	----
C	0.45"	0.90"
D	0.9"	1.40"
E	0.2"	0.2"

TRUNCATED DOME DETAILS

MEDIAN CUT-THROUGH



DETECTABLE WARNING SURFACE DETAIL

SHARED-USE PATH CONNECTION

NOTES

1. THE DETECTABLE WARNING SURFACE (DWS) SHALL EXTEND THE FULL WIDTH OF THE CURB RAMP (EXCLUSIVE OF FLARES) OR THE LANDING.
2. THE DETECTABLE WARNING SURFACE SHALL BE PLACED AT THE BACK OF CURB, AND NEED NOT FOLLOW THE RADIUS.
3. THE ROWS OF TRUNCATED DOMES SHALL BE ALIGNED TO BE PERPENDICULAR TO THE GRADE BREAK AT THE BACK OF CURB.
4. THE ROWS OF TRUNCATED DOMES SHALL BE ALIGNED TO BE PARALLEL TO THE DIRECTION OF TRAVEL.
5. IF CURB AND GUTTER ARE NOT PRESENT, SUCH AS A SHARED-USE PATH CONNECTION, THE DETECTABLE WARNING SURFACE SHALL BE PLACED AT THE PAVEMENT EDGE.
6. WHEN THE GRADE BREAK BETWEEN THE CURB RAMP AND THE LANDING IS LESS THAN OR EQUAL TO 5 FT. FROM THE BACK OF CURB AT ALL POINTS, PLACE THE DETECTABLE WARNING SURFACE ON THE BOTTOM OF THE CURB RAMP.

CITY OF NORTH BEND

DETECTABLE WARNING SURFACE

APPROVED:	DWG. NO.
MARK RIGOS, P.E. — MAY 2018	T-24E
BY CITY — DATE	

NTS **Detectable Warning Surface** 10

NTS **Not Used** 11

NTS **Not Used** 12

CITY OF NORTH BEND PERMIT#_____

THESE PLANS ARE APPROVED FOR CONFORMANCE WITH THE CITY OF NORTH BEND PUBLIC WORKS DEPARTMENT REQUIREMENTS TO THE BEST OF MY KNOWLEDGE.

CITY ENGINEER OR PUBLIC WORKS DIRECTOR — DATE

JACOBSON
CONSULTING ENGINEERS

GERALD A. JACOBSON — STATE OF WASHINGTON — 43667 — REGISTERED PROFESSIONAL ENGINEER — 04/14/2026

JACOBSONENGINEERS.COM

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE,
NORTH BEND, WA 98045

BID SET

04/16/2026

Revisions

Mark	Date	Description

Checked By:
JAJ

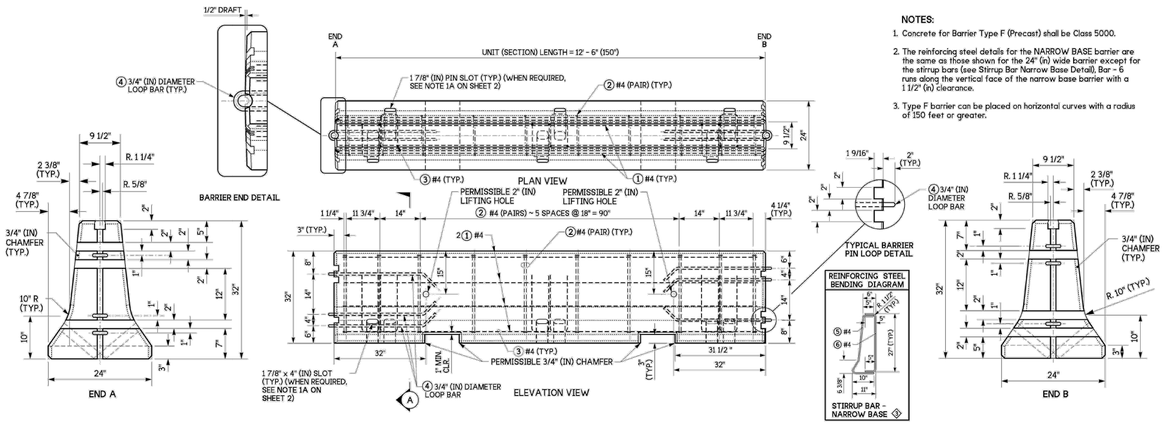
Drawn By:
AJJ

Dwg File:
GRAD-DETL-OES.DWG

Sheet Title
PAVING DETAILS

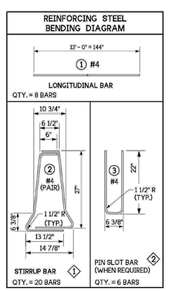
Sheet
C3.11

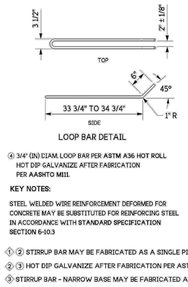
P:_2023\OPSTAD ES PARKING LOT C2300703-01\81.\CAD\03-SHEETS\GRAD-DETL-OES, 4/14/2026 11:43 AM



NOTES:

1. Concrete for Barrier Type F (Precast) shall be Class 5000.
2. The reinforcing steel details for the NARROW BASE barrier are the same as those shown for the 24" (in) wide barrier except for the stirrup bars (see Stirrup Bar Narrow Base Detail), Bar ~ 6 runs along the vertical face of the narrow base barrier with a 1 1/2" (in) clearance.
3. Type F barrier can be placed on horizontal curves with a radius of 150 feet or greater.





4 3/4" (IN) DIAM. LOOP BAR PER ASTM A36 HOT ROLL HOT DIP GALVANIZE AFTER FABRICATION PER AASHTO M111.

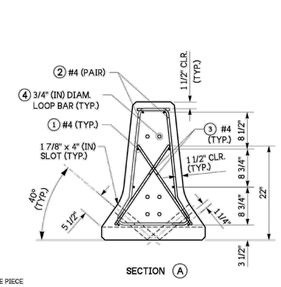
KEY NOTES:

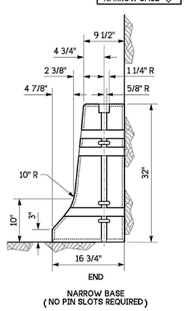
STEEL WELDED WIRE REINFORCEMENT DEFORMED FOR CONCRETE MAY BE SUBSTITUTED FOR REINFORCING STEEL IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 6-10.3

1 2 STIRRUP BAR MAY BE FABRICATED AS A SINGLE PIECE

2 3 HOT DIP GALVANIZE AFTER FABRICATION PER ASTM A767

3 STIRRUP BAR - NARROW BASE MAY BE FABRICATED AS A SINGLE PIECE







Jul 18, 2024

CONCRETE BARRIER TYPE F (PRECAST)

STANDARD PLAN C-60.10-04

SHEET 1 OF 2 SHEETS

APPROVED FOR PUBLICATION

Mark A Hanks Jul 21, 2024

STATE DESIGN ENGINEER

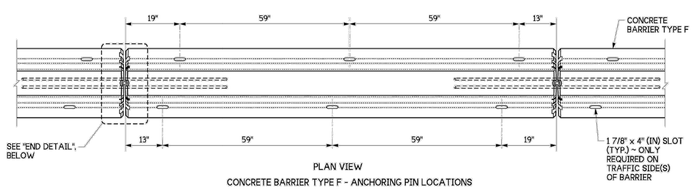
Washington State Department of Transportation

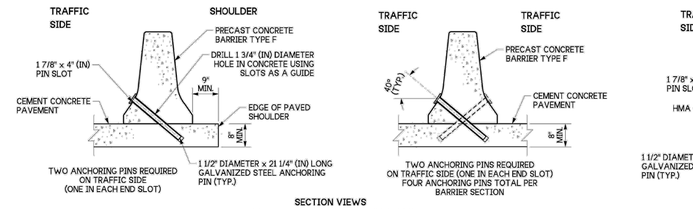
NOTES: (Anchoring and Joining Barrier)

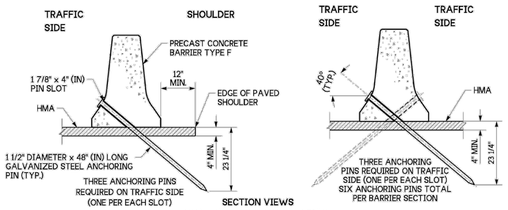
1. Precast Concrete Barrier Type F can be installed in the following configurations:

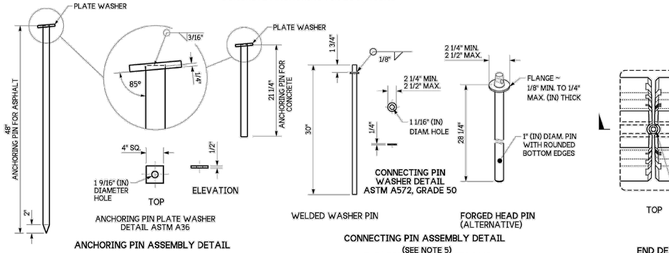
   A. Unanchored on hot mix asphalt (HMA), or cement concrete pavement in permanent or temporary installations, and on compacted soil in temporary installations. It is permissible to manufacture theType F barrier without pin slots and pin slot bars when barrier is not anchored.
   B. Anchored on hot mix asphalt (HMA) or cement concrete pavement in permanent or temporary installations as shown on this plan. See **Standard Plans K-80.35 and K-80.37** for anchoring Type F Narrow Base in temporary installations on cement concrete pavement or bridge decks.

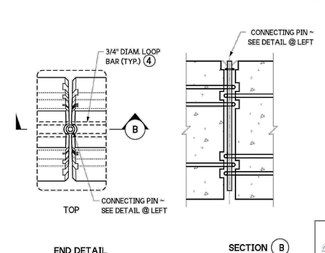
2. See **Standard** Plan C-60.70 for anchoring patterns when transitioning from Type F anchored runs to another type of barrier run.
3. After removing the anchoring pins, clean the pin holes and fill them with sealant according to **Std. Specification** Section 9-04.2.
4. Remove slack between barrier segments after inserting the connecting pin.
5. Connecting Pin head designs vary among different Mfrs. Pin designs that are shaped differently than those shown in the details are acceptable if the bearing surface is within the minimum and maximum widths specified.













Jul 18, 2024

CONCRETE BARRIER TYPE F (PRECAST)

STANDARD PLAN C-60.10-04

SHEET 2 OF 2 SHEETS

APPROVED FOR PUBLICATION

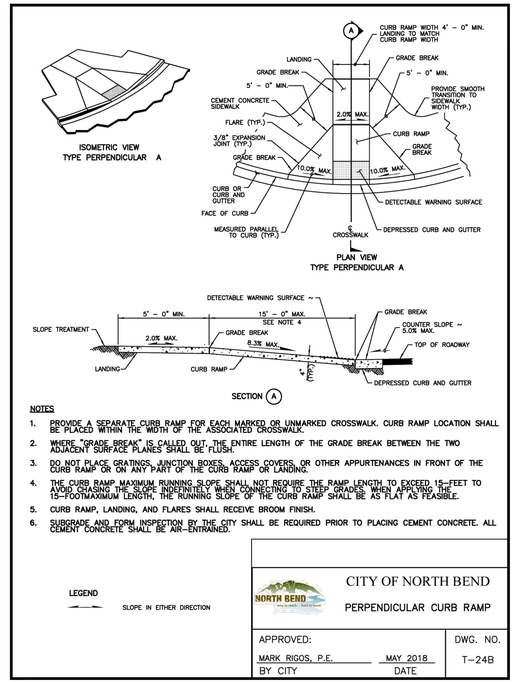
Mark A Hanks Jul 21, 2024

STATE DESIGN ENGINEER

Washington State Department of Transportation

NTS

Concrete Barrier Type F (Precast) 11



NOTES

1. PROVIDE A SEPARATE CURB RAMP FOR EACH MARKED OR UNMARKED CROSSWALK. CURB RAMP LOCATION SHALL BE PLACED WITHIN THE WIDTH OF THE ASSOCIATED CROSSWALK.
2. WHERE "GRADE BREAK" IS CALLED OUT, THE ENTIRE LENGTH OF THE GRADE BREAK BETWEEN THE TWO ADJACENT SURFACE PLANES SHALL BE FLUSH.
3. DO NOT PLACE GRATINGS, JUNCTION BOXES, ACCESS COVERS, OR OTHER APPURTENANCES IN FRONT OF THE CURB RAMP OR ON ANY PART OF THE CURB RAMP OR LANDING.
4. THE CURB RAMP MAXIMUM RUNNING SLOPE SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15-FEET TO AVOID CHASING THE SLOPE INDEFINITELY WHEN CONNECTING TO STEEP GRADES. WHEN APPLYING THE 15-FOOTMAXIMUM LENGTH, THE RUNNING SLOPE OF THE CURB RAMP SHALL BE AS FLAT AS FEASIBLE.
5. CURB RAMP, LANDING, AND FLARES SHALL RECEIVE BROOM FINISH.
6. SUBGRADE AND FORM INSPECTION BY THE CITY SHALL BE REQUIRED PRIOR TO PLACING CEMENT CONCRETE. ALL CEMENT CONCRETE SHALL BE AIR-ENTRAINED.

LEGEND

SLOPE IN EITHER DIRECTION

CITY OF NORTH BEND

PERPENDICULAR CURB RAMP

APPROVED:	DWG. NO.
MARK RIGOS, P.E. MAY 2018	T-24B
BY CITY DATE	

NTS

Perpendicular Curb Ramp 4

NTS

Not Used 12

CITY OF NORTH BEND PERMIT#_____

THESE PLANS ARE APPROVED FOR CONFORMANCE WITH THE CITY OF NORTH BEND PUBLIC WORKS DEPARTMENT REQUIREMENTS TO THE BEST OF MY KNOWLEDGE.

CITY ENGINEER OR PUBLIC WORKS DIRECTOR DATE

JACOBSON CONSULTING ENGINEERS



JACOBSONENGINEERS.COM

Project:

OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:

1345 STILSON AVE SE, NORTH BEND, WA 98045

BID SET

04/16/2026

Revisions

Mark	Date	Description

Checked By:

JAJ

Drawn By:

AJJ

Dwg File:

GRAD-DETL-OES.DWG

Sheet Title

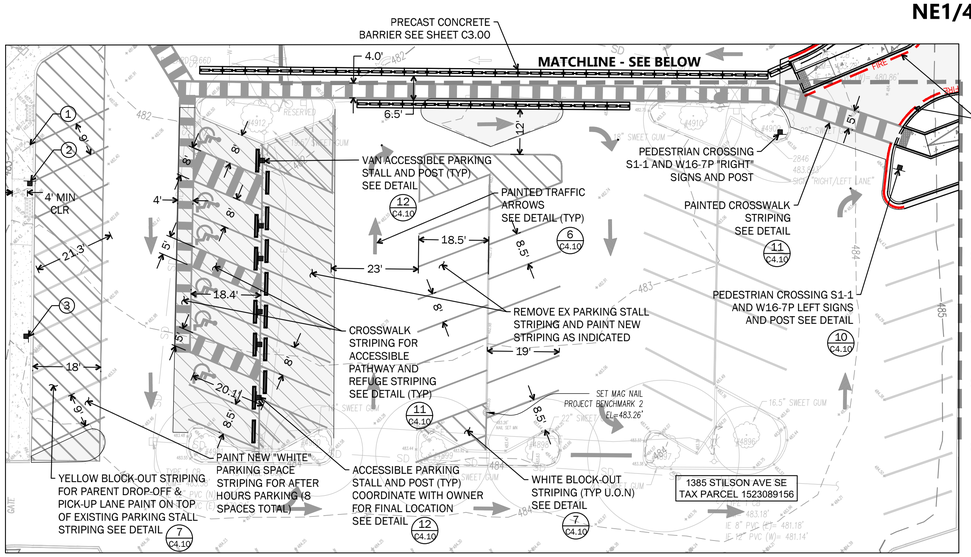
PAVING DETAILS

Sheet

C3.12

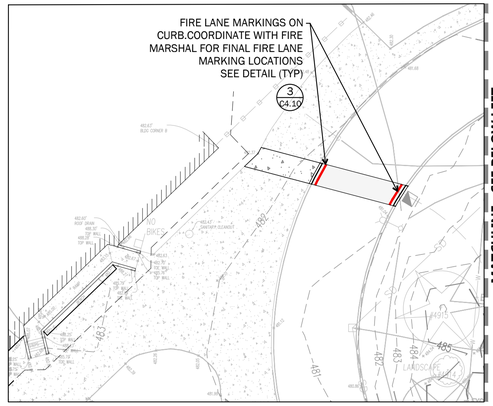
P:_2023\OPSTAD ES PARKING LOT C230073-0181\CAD\03-SHEETS\GRAD-DETL-OES, 4/14/2026 11:43 AM

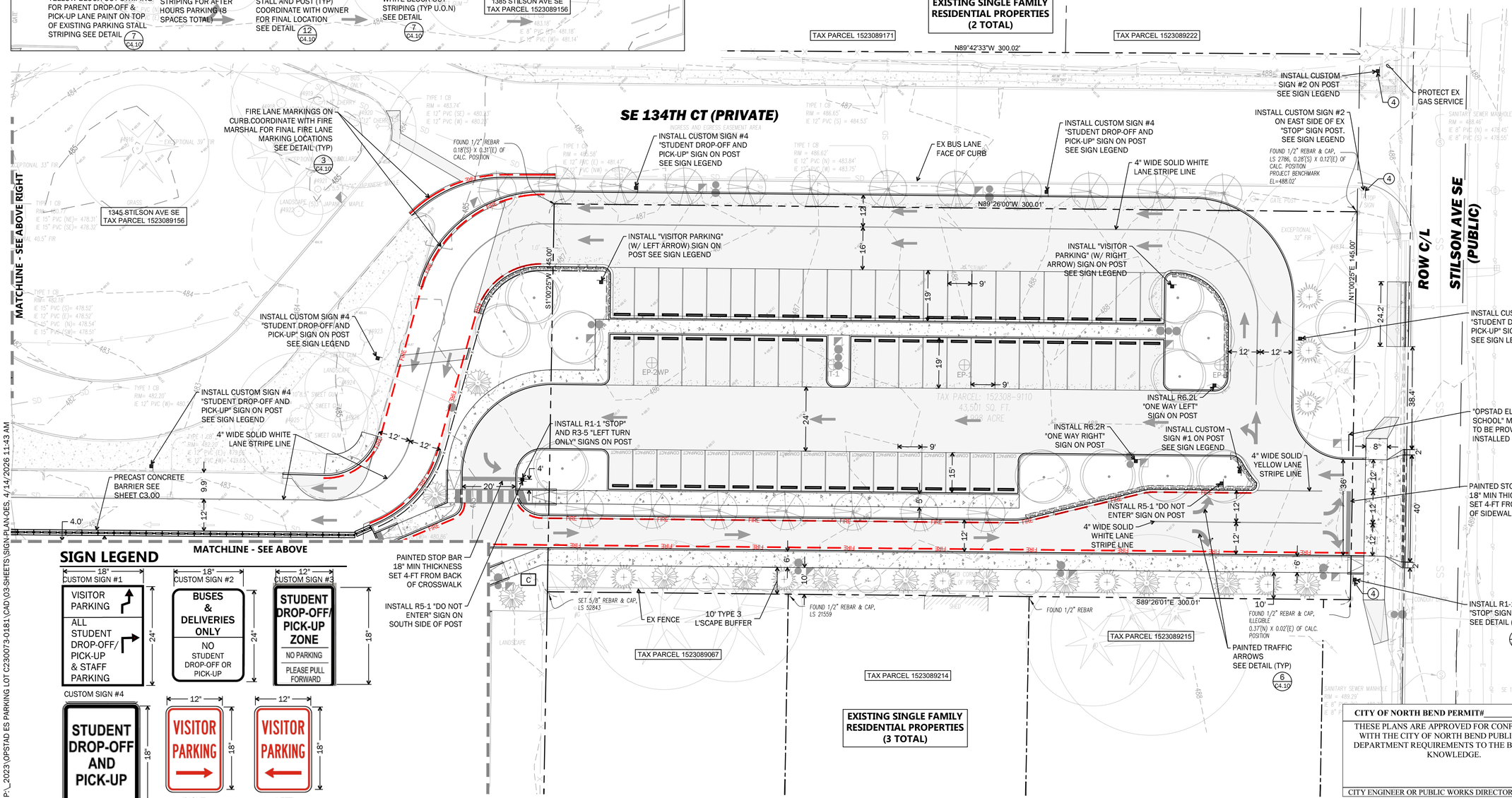
NE1/4 OF SECTION 15, TOWNSHIP 23 NORTH, RANGE 08 EAST, W.M.



KEYNOTES

1. ADD SIGN TO EXISTING POST THAT READS "NO PARKING M-F 8:00 AM TO 4:00 PM WITH ARROW POINTING IN BOTH DIRECTIONS (12" x 18" SIZE SIGN)
2. INSTALL CUSTOM SIGN #3 ON POST SEE SIGN LEGEND
3. INSTALL NEW SIGN ON POST THAT READS "NO PARKING M-F 8:00 AM TO 4:00 PM WITH ARROW POINTING IN BOTH DIRECTIONS (12" x 18" SIZE SIGN)
4. FOR SIGNS IN THE RIGHT-OF-WAY, A SIGN PERMIT SHALL BE OBTAINED FROM CITY PRIOR TO FABRICATION AND INSTALLATION.





SIGN LEGEND

P:_2023\OPSTAD ES PARKING LOT C230073-0181\CAD\03-SHEETS\SIGN PLAN-OES, 4/14/2026 11:43 AM

N

0 10 20 40

SCALE 1"=20'

Call before you Dig. 8-1-1 or 1-800-424-5555 UNDERGROUND SERVICE (USA) 811

LEGEND

- PROPERTY LINE — N 79°33'06" E – 46.81'
- CONTOUR (INDEX) — 110
- CONTOUR — 109
- STANDARD ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- CONCRETE CURB
- CONCRETE CURB AND GUTTER
- CHANNELIZATION PAVEMENT MARKINGS
- ACCESSIBLE PARKING SPACE
- FIRE LANE MARKINGS

JACOBSON CONSULTING ENGINEERS

GERALD A. JACOBSON — STATE OF WASHINGTON — 43667 — REGISTERED PROFESSIONAL ENGINEER — 04/14/2026

JACOBSONENGINEERS.COM

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE, NORTH BEND, WA 98045

BID SET

04/16/2026

Revisions

Mark	Date	Description

Checked By: JAJ

Drawn By: AJJ

Dwg File: SIGN-PLAN-OES.DWG

Sheet Title
STRIPING AND SIGNAGE PLAN

Sheet
C4.00

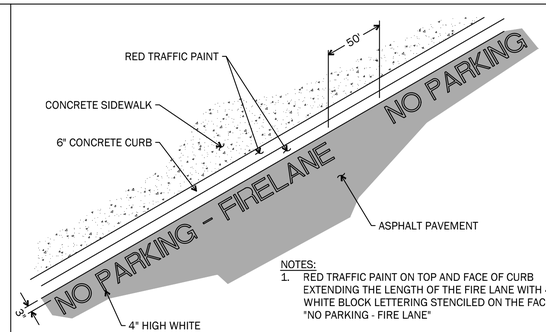
CITY OF NORTH BEND PERMIT#_____

THESE PLANS ARE APPROVED FOR CONFORMANCE WITH THE CITY OF NORTH BEND PUBLIC WORKS DEPARTMENT REQUIREMENTS TO THE BEST OF MY KNOWLEDGE.

CITY ENGINEER OR PUBLIC WORKS DIRECTOR DATE

NTS
Not Used 1

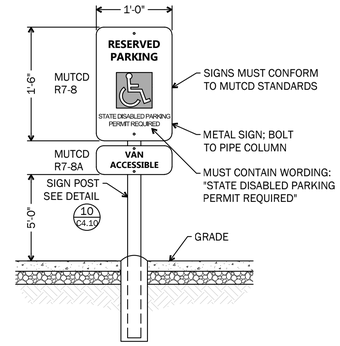
NTS
Not Used 2



NOTES:

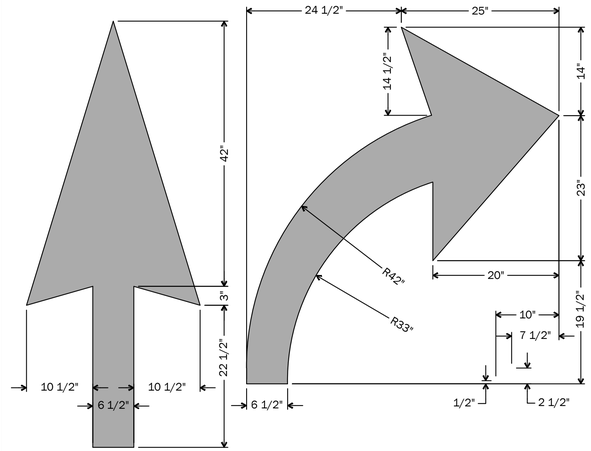
1. RED TRAFFIC PAINT ON TOP AND FACE OF CURB EXTENDING THE LENGTH OF THE FIRE LANE WITH 4" WHITE BLOCK LETTERING STENCILED ON THE FACE "NO PARKING - FIRE LANE"
2. ROLLED CURBS OR SURFACES WITHOUT CURBS SHALL HAVE A 6" WIDE RED STRIPE EXTENDING THE LENGTH OF THE FIRE LANE PAINTED WITH 4" WHITE BLOCK LETTER STENCILED ON STRIPE "NO PARKING - FIRE LANE"
3. LETTERING SPACED EVERY 50 FEET
4. PLANS/DETAILS MUST BE SUBMITTED AND APPROVED BY THE FIRE MARSHAL PRIOR TO PAINTING ANY NEW FIRE LANE OR MODIFYING ANY EXISTING FIRE LANE.

NTS
Fire Lane Markings 3

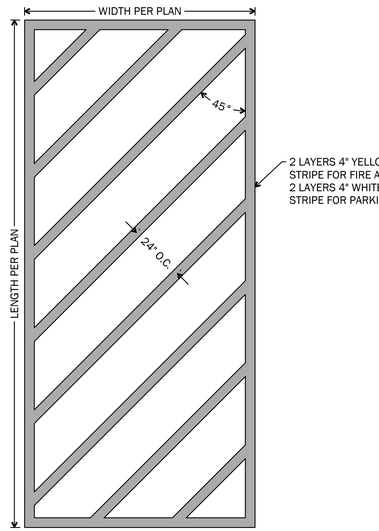


NTS
Accessible Parking Sign 4

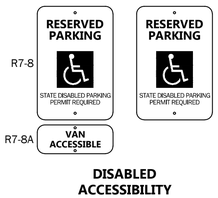
NTS
Not Used 5



NTS
On-Site Traffic Arrows 6



NTS
Blockout Striping 7

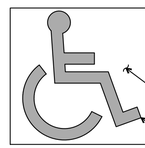


DISABLED ACCESSIBILITY SIGNAGE

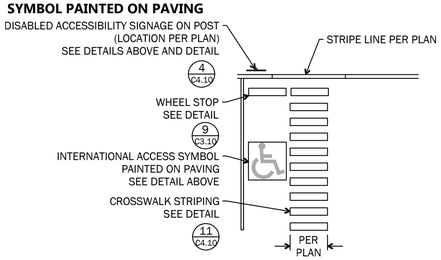
EACH PARKING SPACE RESERVED FOR PERSONS WITH PHYSICAL DISABILITIES SHALL BE IDENTIFIED BY A REFLECTORIZED SIGN PERMANENTLY POSTED IMMEDIATELY ADJACENT TO AND VISIBLE FROM EACH STALL OR SPACE CONSISTING OF A PROFILE VIEW OF A WHEELCHAIR WITH OCCUPANT IN WHITE ON DARK BLUE BACKGROUND. THE SIGN SHALL NOT BE SMALLER THAN 70 SQUARE INCHES IN AREA AND SHALL BE CENTERED ON AND JUST BEYOND THE FRONT EDGE OF THE PARKING STALL. SIGNS MAY ALSO BE HUNG ON THE WALL AT THE INTERIOR END OF THE PARKING SPACE. SIGN MOUNTING HEIGHT SHALL BE 60 INCHES ABOVE THE PARKING SPACE FINISHED GRADE.

AN ADDITIONAL SIGN SHALL ALSO BE POSTED, IN A CONSPICUOUS PLACE, AT EACH ENTRANCE TO OFF-STREET PARKING FACILITIES, OR IMMEDIATELY ADJACENT TO AND VISIBLE FROM EACH STALL OR SPACE. THE SIGN SHALL BE NOT LESS THAN 17 INCHES BY 22 INCHES IN SIZE WITH LETTERING NOT LESS THAN 1 INCH IN HEIGHT, WHICH CLEARLY AND CONSPICUOUSLY STATES THE FOLLOWING:

"UNAUTHORIZED VEHICLES PARKED IN DESIGNATED DISABLED PARKING SPACES NOT DISPLAYING DISTINGUISHING PLACARDS OR LICENSE PLATES ISSUED FOR PHYSICALLY DISABLED PERSONS MAY BE TOWED AWAY AT OWNER'S EXPENSE. TOWED VEHICLES MAY BE RECLAIMED AT _____ OR _____ OR BY TELEPHONING _____."



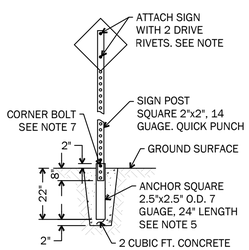
INTERNATIONAL ACCESS SYMBOL PAINTED ON PAVING



NTS
ADA Symbol and Blockout Striping 12

NOTES:

1. METAL POSTS SHALL BE TELESPAR QUICK PUNCH POST
2. METAL STOP AND YIELD SIGN POSTS SHALL HAVE ALTERNATING 1' BANDS OF RED AND WHITE 3M DIAMOND GRADE SHEETING. ALL OTHER POSTS SHALL BE UNSHEETED
3. FOR IN-SIDEWALK INSTALLATIONS, CORE 4" DIAM. HOLE. ANCHOR LENGTH MAY BE DECREASED TO 12"
4. POST SHALL BE ROLLED CARBON SHEET STEEL, ASTM A570 GRADE 50 AND BE HOT DIPPED GALVANIZED AASHTO M-120 YIELD STRENGTH 60,000 PSI MIN. POST SHALL HAVE 7/16" DIE-PUNCHED KNOCKOUTS ON 1" CENTERS FULL LENGTH, FOUR SIDES.
5. ANCHOR SHALL HAVE 4 7/16" HOLES ONE EACH SIDE 2" FROM TOP END. FINISH SHALL BE ZINC HOT DIPPED GALVANIZED MATERIAL TO MEET ASTM A500 GRADE B.
6. DRIVE RIVETS TO BE TL3806 3/8" DIA.
7. CORNER BOLTS TO BE TLCB516M.
8. FOR SIGNS IN THE RIGHT-OF-WAY, A SIGN PERMIT SHALL BE OBTAINED FROM CITY PRIOR TO FABRICATION AND INSTALLATION.



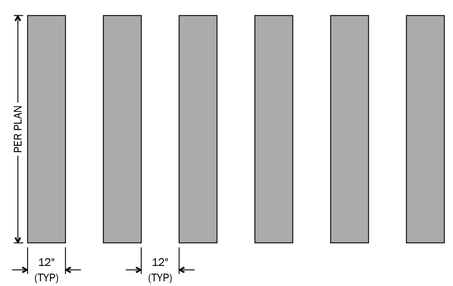
SQUARE METAL POST

SITE SIGNS SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES

STOP SIGN	R1-1 (30")
LEFT TURN MUST YIELD	R10-1201
DO NOT ENTER	R5-1 (30")
NO RIGHT TURN	R3-1 (30")
NO LEFT TURN	R3-2 (30")
RIGHT TURN ONLY	R3-5R
LEFT TURN ONLY	R3-5L
NO PARKING FIRE LANE*	7-107 MODIFIED PER BELLEVUE FIRE REQ TO READ: "NO PARKING FIRE LANE"
ACCESSIBLE LOADING*	R7-801A (18"x9"): MODIFIED TO READ "ACCESSIBLE LOADING"
AUTHORIZED VEHICLES ONLY*	R4-3 (30"x36"): MODIFIED TO READ "AUTHORIZED VEHICLES ONLY"
VISITOR PARKING*	R4-3 (30"x36"): MODIFIED TO READ "VISITOR PARKING"
CURB LANE LOADING ONLY*	R4-3 (30"x36"): MODIFIED TO READ "CURB LANE LOADING ONLY"

*CONTRACTOR SHALL SUBMIT A MOCK UP OF ALL MODIFIED SIGNS TO ENGINEER FOR APPROVAL PRIOR TO ORDER OR PURCHASE OF SIGNS

NTS
Site Signage 10



NOTES:

1. STRIPING COLOR SHALL BE "WHITE" AND PAINTED PER PROJECT SPECIFICATIONS
2. STRIPING DIMENSIONS SHALL MEET MUTC SPECIFICATION 3B-18 AND FIGURE 3-14C.

NTS
On-Site Crosswalk Striping 11

CITY OF NORTH BEND PERMIT#_____

THESE PLANS ARE APPROVED FOR CONFORMANCE WITH THE CITY OF NORTH BEND PUBLIC WORKS DEPARTMENT REQUIREMENTS TO THE BEST OF MY KNOWLEDGE.

CITY ENGINEER OR PUBLIC WORKS DIRECTOR DATE

JACOBSON
CONSULTING ENGINEERS

JERALD A. JACOBSON — STATE OF WASHINGTON — 43667 — REGISTERED PROFESSIONAL ENGINEER — 04/14/2026

JACOBSONENGINEERS.COM

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE,
NORTH BEND, WA 98045

BID SET

04/16/2026

Revisions

Mark	Date	Description

Checked By:
JAJ

Drawn By:
AJJ

Dwg File:
GRAD-DETL-OES.DWG

Sheet Title
SIGNAGE AND STRIPING DETAILS

Sheet
C4.10

P:_2023\OPSTAD ES PARKING LOT C2300730181\CAD\03-SHEETS\GRAD-DETL-OES, 4/14/2026 11:44 AM

NE1/4 OF SECTION 15, TOWNSHIP 23 NORTH, RANGE 08 EAST, W.M.

Call before you Dig. 8-1-1 or 1-800-424-5555 UNDERGROUND SERVICE (USA)

0 10 20 40

SCALE 1"=20'

LEGEND

PROPERTY LINE — N 79°33'06" E – 46.81'

CONTOUR (INDEX) — 110

CONTOUR — 109

SPOT ELEVATION — 109.36 / TC 109.86 BC 109.36

GRADE BREAK — RIDGE / VALLEY

CB TYPE 2/CB TYPE 1/ AREA DRAIN/SDCO

INFILTRATION GALLERY

MATCHLINE - SEE BELOW

MATCHLINE - SEE ABOVE RIGHT

MATCHLINE - SEE ABOVE

RAMP #6 SEE DETAIL 12/C5.10

RAMP #2 SEE DETAIL 4/C5.10

RAMP #1 SEE DETAIL 3/C5.10

RAMP #4 SEE DETAIL 8/C5.10

RAMP #2 SEE DETAIL 4/C5.10

RAMP #3 SEE DETAIL 7/C5.10

RAMP #1 SEE DETAIL 3/C5.10

SINGLE DIRECTION CURB RAMP SEE DETAIL 6/C3.11

481.99 (EX) 482.00 (EX) 482.03 (EX) 482.11 482.22 (EX) 482.24 482.17 (EX) 482.33 482.40 482.35 (EX) 482.44 482.57 482.50 (EX) 482.60 482.67 482.61 (EX) 482.76 482.83 482.78 (EX) 482.87 483.00 483.03 483.11 (EX) 483.20 483.10 483.30 483.29 (EX) 483.26 483.46 483.41 (EX) 483.48 (EX) 483.49 (EX) 483.46 (EX) 483.61 (EX)

482.32 (EX) 482.45 (EX) 482.61 (EX) 482.68 (EX) 482.80 (EX) 482.98 (EX) 483.21 (EX) 483.41 (EX)

1.1% 1.0% 1.2% 1.9%

MATCH EX ASPHALT GRADE (TYP)

MATCH EX GRADE

EXISTING STAFF AND PARENT/VISITOR PARKING

1385 STILSON AVE SE TAX PARCEL 1523089156

SET MAG NAIL PROJECT BENCHMARK 2 EL=483.26'

TC 484.08 BC 483.58

TC 484.94 BC 484.44

TC 485.78 BC 485.28

TC 485.11 BC 484.61

EXISTING SINGLE FAMILY RESIDENTIAL PROPERTIES (2 TOTAL)

TAX PARCEL 1523089171

TAX PARCEL 1523089222

N89°42'33"W 300.02'

SE 134TH CT (PRIVATE)

INGRESS AND EGRESS EASEMENT AREA PER AFN: 6118627

SD A1 CB TYPE I RIM 483.92

SD B1 CB TYPE I RIM 485.60

FOUND 1/2" REBAR 0.18'(S) X 0.31'(E) OF CALC. POSITION

SD A2 CB TYPE II - 54" RIM 485.48

TC 486.21 BC 485.71

TC 486.13 (EX) BC 485.63 (EX)

TC 485.01 (EX) BC 484.51 (EX)

INFILTRATING BIORETENTION #1 BOTTOM ELEV 483.00 SEE DETAIL 2/C6.12

SD C2 CB TYPE I RIM 484.00

TC 485.74 BC 485.24

TC 486.01 BC 485.51

TC 486.01 BC 485.51

S1°00'25"E 145.00'

EXISTING BUS LOOP DRIVE

TC 485.70 (EX) BC 485.20 (EX)

TC 485.74 (EX) BC 485.24 (EX)

SD B2 CB TYPE I RIM 484.84

INFILTRATING BIORETENTION #2 BOTTOM ELEV 484.00 SEE DETAIL 2/C6.12

SD B3 CB TYPE I RIM 484.80

TC 485.96 BC 485.46

TC 485.70 BC 485.75

TC 485.25 BC 485.67

TC 485.17 BC 485.54

TC 485.48 BC 484.98

TC 485.50 BC 485.00

TC 485.50 BC 485.00

TC 485.56 BC 485.06

TC 485.60 BC 485.10

SD B4 CB TYPE I RIM 485.95

FLOWLINE

SD C1 CB TYPE II - 48" RIM 485.23

1385 STILSON AVE SE TAX PARCEL 1523089110

TC 485.09 (EX) BC 484.59 (EX)

485.87 (EX)

484.81 (EX)

TC 484.53 (EX) BC 484.03 (EX)

TC 485.21 (EX) BC 484.71 (EX)

TC 485.46 BC 484.96

TC 484.07 (EX) BC 483.57 (EX)

TC 484.82 BC 484.32

TC 484.08 BC 483.58

SD D1 CB TYPE I RIM 485.00

TC 486.19 BC 485.69

TC 485.27 BC 485.77

SD D2 CB TYPE I RIM 485.30

TC 485.30 BC 484.80

TC 485.89 BC 485.39

SET 5/8" REBAR & CAP, LS 52843

MATCH EX GRADE AT EX FENCE LINE

TAX PARCEL 1523089067

TAX PARCEL 1523089214

FOUND 1/2" REBAR & CAP, LS 21559

EXISTING SINGLE FAMILY RESIDENTIAL PROPERTIES (3 TOTAL)

TC 487.14 BC 486.64

TC 486.94 BC 486.44

TC 486.73 BC 486.23

TC 487.05 BC 486.55

TC 486.84 BC 486.34

TC 486.30

TC 486.19

TC 487.60 BC 487.10

TC 487.60 BC 487.10

INFILTRATING BIORETENTION #3 BOTTOM ELEV 485.60 SEE DETAIL 2/C6.12

TC 488.42 BC 487.92

TC 486.71 BC 486.21

TC 487.76 BC 487.26

SD E1 CB TYPE II - 48" RIM 487.31

SD E2 CB TYPE I RIM 486.60

SD E3 CB TYPE I RIM 487.35

SD F1 CB TYPE I RIM 487.95

SD F2 CB TYPE I RIM 487.40

TC 488.01 BC 487.51

TC 488.16 BC 487.66

TC 488.27 BC 487.77

TC 487.69 BC 487.19

TC 487.80 BC 487.30

TC 488.23 BC 487.73

TC 488.05 BC 487.55

TC 488.11

TC 488.73

TC 488.67 BC 488.17

TC 488.93 BC 488.43

TC 488.96 BC 488.46

TC 487.55 BC 487.09

TC 488.49 BC 487.99

TC 488.51 BC 488.01

TC 488.51 BC 488.01

TC 488.46 BC 487.96

TC 488.25 BC 487.75

TC 488.25 BC 487.75

TC 488.58 BC 488.08 (MID PT)

TC 488.70 BC 488.20

TC 488.89 BC 488.39

TC 488.98 BC 488.48

TC 489.14 BC 488.64

TC 489.05 BC 488.55

TC 489.04 BC 488.54 (MID PT)

TC 489.12 BC 488.62

TC 488.67 BC 488.17

TC 489.15 BC 488.65

TC 489.52 BC 489.02

TC 489.73 BC 489.23 (MID PT)

TC 489.87 BC 489.37

INFILTRATING BIORETENTION #4 BOTTOM ELEV 486.90 SEE DETAIL 2/C6.12

GRADE BREAK

RIDGE

FLOWLINE

PHASE 1 ACCESS DRIVE FOR STAFF AND PARENTS

FOUND 1/2" REBAR & CAP, LS 2786, 0.28'(S) X 0.12'(E) OF CALC. POSITION PROJECT BENCHMARK EL=488.02'

N89°26'00"W 300.01'

S89°25'01"E 300.01'

FOUND 1/2" REBAR

DRAINAGE SWALE

FOUND 1/2" REBAR & CAP, ILLEGIBLE 0.37'(N) X 0.02'(E) OF CALC. POSITION

SANITARY SEWER MANHOLE RIM = 488.46' IE 8" PVC (N) = 478.45' IE 8" PVC (S) = 478.55'

N1°00'25"E 145.00'

ROW C/L

STILSON AVE SE (PUBLIC)

SEE GRADING DETAIL 10/C5.10

1/C5.10

6'

CITY OF NORTH BEND PERMIT#_____

THESE PLANS ARE APPROVED FOR CONFORMANCE WITH THE CITY OF NORTH BEND PUBLIC WORKS DEPARTMENT REQUIREMENTS TO THE BEST OF MY KNOWLEDGE.

CITY ENGINEER OR PUBLIC WORKS DIRECTOR DATE

P:_2023\OPSTAD ES PARKING LOT C2300073-0181\CAD\03-SHEETS\GRAD-PLAN-OES, 4/14/2026 11:44 AM

JACOBSON CONSULTING ENGINEERS

JACOBSONENGINEERS.COM

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE, NORTH BEND, WA 98045

BID SET

04/16/2026

Revisions

Mark	Date	Description

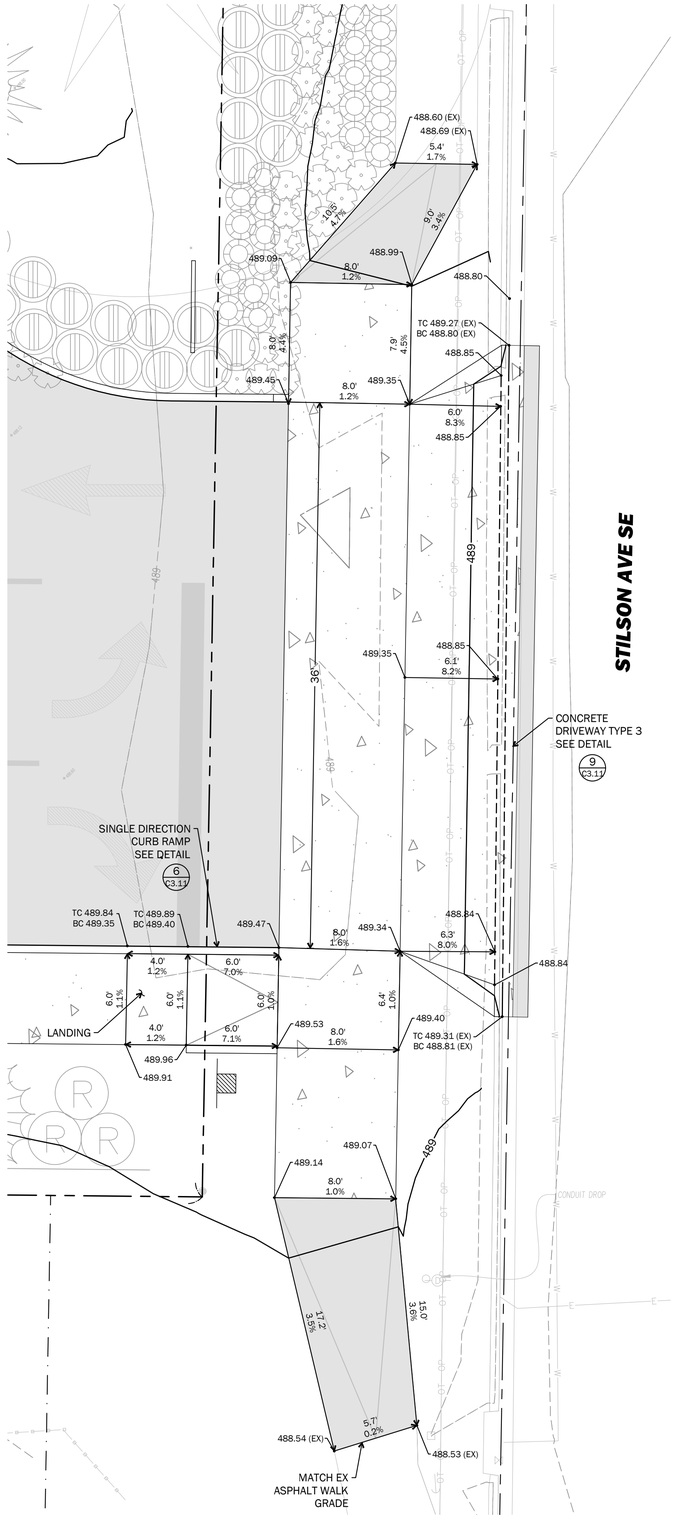
Checked By: JAJ

Drawn By: AJJ

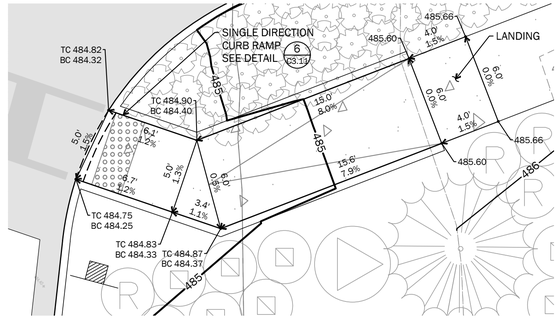
Dwg File: GRAD-PLAN-OES.DWG

Sheet Title
GRADING PLAN

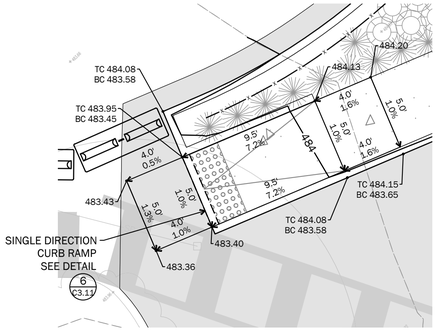
Sheet
C5.00



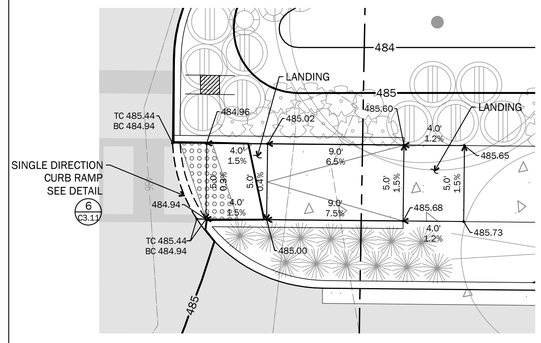
1"=5'
Detailed Driveway Grading **10**



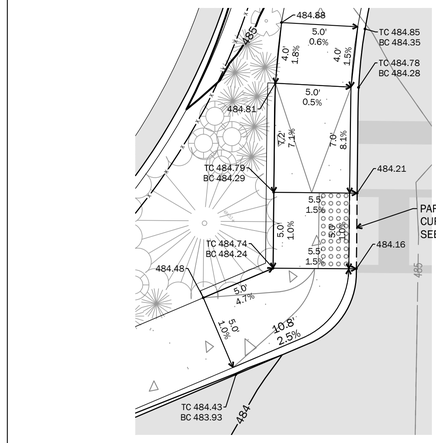
1"=5'
Detailed Ramp Grading #1 **3**



1"=5'
Detailed Ramp Grading #2 **4**

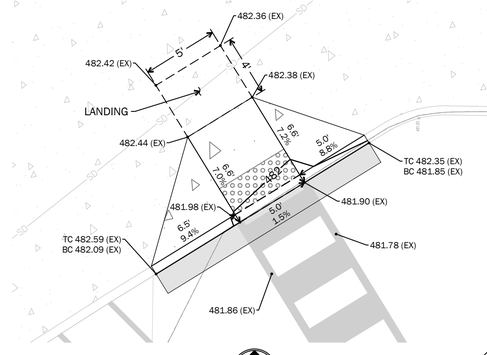


1"=5'
Detailed Ramp Grading #3 **7**



1"=5'
Detailed Ramp Grading #4 **8**

NTS
Not Used **11**



1"=5'
Detailed Ramp Grading #6 **12**

CITY OF NORTH BEND PERMIT#_____

THESE PLANS ARE APPROVED FOR CONFORMANCE WITH THE CITY OF NORTH BEND PUBLIC WORKS DEPARTMENT REQUIREMENTS TO THE BEST OF MY KNOWLEDGE.

CITY ENGINEER OR PUBLIC WORKS DIRECTOR DATE

JACOBSON
CONSULTING ENGINEERS

GERALD A. JACOBSON
STATE OF WASHINGTON
43667
REGISTERED
PROFESSIONAL ENGINEER
04/14/2026

JACOBSONENGINEERS.COM

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE,
NORTH BEND, WA 98045

BID SET

04/16/2026

Revisions

Mark	Date	Description

Checked By:
JAJ

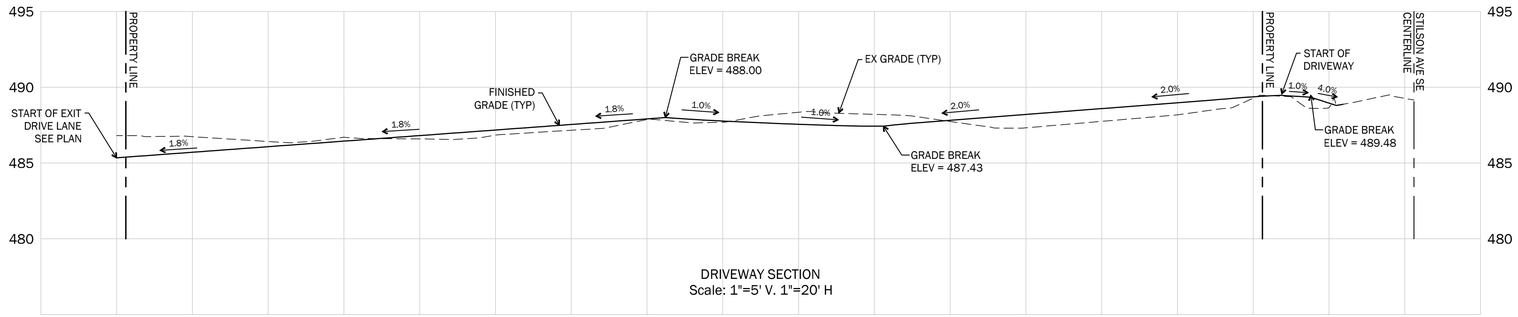
Drawn By:
AJJ

Dwg File:
GRAD-DETL-OES.DWG

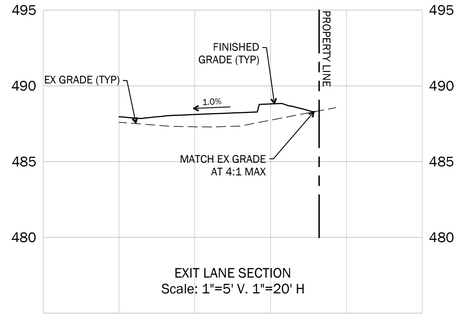
Sheet Title
GRADING DETAILS

Sheet
C5.10

P:_2023\OPSTAD ES PARKING LOT C230073-0181\CAD\03-SHEETS\GRAD-DETL-OES, 4/14/2026 11:45 AM



DRIVEWAY SECTION
Scale: 1"=5' V. 1"=20' H



EXIT LANE SECTION
Scale: 1"=5' V. 1"=20' H

CITY OF NORTH BEND PERMIT#_____

THESE PLANS ARE APPROVED FOR CONFORMANCE WITH THE CITY OF NORTH BEND PUBLIC WORKS DEPARTMENT REQUIREMENTS TO THE BEST OF MY KNOWLEDGE.

CITY ENGINEER OR PUBLIC WORKS DIRECTOR DATE

JACOBSON
CONSULTING ENGINEERS

GERALD A. JACOBSON
STATE OF WASHINGTON
43667
REGISTERED
PROFESSIONAL ENGINEER
04/14/2026

JACOBSONENGINEERS.COM

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE,
NORTH BEND, WA 98045

BID SET

04/16/2026

Revisions

Mark	Date	Description

Checked By:
JAJ

Drawn By:
AJJ

Dwg File:
GRAD-DETL-OES.DWG

Sheet Title
GRADING DETAILS

Sheet
C5.11

P:_2023\OPSTAD ES PARKING LOT C230073-01&1\CAD\03-SHEETS\GRAD-DETL-OES, 4/14/2026 11:45 AM

NE1/4 OF SECTION 15, TOWNSHIP 23 NORTH, RANGE 08 EAST, W.M.

STORM DRAINAGE NOTES

1. PROOF OF LIABILITY INSURANCE SHALL BE SUBMITTED TO CITY OF NORTH BEND PRIOR TO THE CONSTRUCTION OF THE DRAINAGE FACILITIES, PREFERABLY AT THE PRECONSTRUCTION MEETING.
2. ALL PIPE AND APPURTENANCES SHALL BE LAID ON A PROPERLY PREPARED FOUNDATION IN ACCORDANCE WITH WSDOT SPECIFICATIONS. THIS SHALL INCLUDE LEVELING AND COMPACTING THE TRENCH BOTTOM, THE TOP OF THE FOUNDATION MATERIAL, AND ANY REQUIRED PIPE BEDDING, TO A UNIFORM GRADE SO THAT THE ENTIRE PIPE IS SUPPORTED BY A UNIFORMLY DENSE UNYIELDING BASE.
3. STEEL PIPE SHALL BE ALUMINIZED, OR GALVANIZED WITH ASPHALT TREATMENT #1 OR BETTER INSIDE AND OUTSIDE.
4. ALL DRAINAGE STRUCTURES, SUCH AS CATCH BASINS AND MANHOLES, NOT LOCATED WITHIN A TRAVELED ROADWAY OR SIDEWALK, SHALL HAVE SOLID LOCKING LIDS. ALL DRAINAGE STRUCTURES ASSOCIATED WITH A PERMANENT RETENTION/DETENTION FACILITY SHALL HAVE SOLID LOCKING LIDS.
5. ALL CATCH BASIN GRATES SHALL CONFORM TO CITY STANDARDS, WHICH INCLUDES THE STAMPING "OUTFALL TO STREAM, DUMP NO POLLUTANTS".
6. DRAINAGE OUTLETS (STUB-OUTS) SHALL BE PROVIDED FOR EACH INDIVIDUAL LOT, EXCEPT FOR THOSE LOTS APPROVED FOR INFILTRATION BY CITY OF NORTH BEND. STUB-OUTS SHALL CONFORM TO THE FOLLOWING:
   a. EACH OUTLET SHALL BE SUITABLY LOCATED AT THE LOWEST ELEVATION ON THE LOT, SO AS TO SERVICE ALL FUTURE ROOF DOWNSPOUTS AND FOOTING DRAINS, DRIVEWAYS, YARD DRAINS, AND ANY OTHER SURFACE OR SUBSURFACE DRAINS NECESSARY TO RENDER THE LOTS SUITABLE FOR THEIR INTENDED USE. EACH OUTLET SHALL HAVE FREE-FLOWING, POSITIVE DRAINAGE TO AN APPROVED STORMWATER CONVEYANCE SYSTEM OR TO AN APPROVED OUTFALL LOCATION.
   b. OUTLETS ON EACH LOT SHALL BE LOCATED WITH A FIVE-FOOT-HIGH, 2" X 4" STAKE MARKED "STORM" OR "DRAIN". THE STUB-OUT SHALL EXTEND ABOVE SURFACE LEVEL, BE VISIBLE, AND BE SECURED TO THE STAKE.
   c. PIPE MATERIAL SHALL CONFORM TO UNDERDRAIN SPECIFICATIONS DESCRIBED IN CITY OF NORTH BEND PUBLIC WORKS STANDARDS AND, IF NON-METALLIC, THE PIPE SHALL CONTAIN WIRE OR OTHER ACCEPTABLE DETECTION.
   d. DRAINAGE EASEMENTS ARE REQUIRED FOR DRAINAGE SYSTEMS DESIGNED TO CONVEY FLOWS THROUGH INDIVIDUAL LOTS.
   e. THE APPLICANT/CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE LOCATIONS OF ALL STUB-OUT CONVEYANCE LINES WITH RESPECT TO THE UTILITIES (E.G. POWER, GAS, TELEPHONE, TELEVISION).
   f. ALL INDIVIDUAL STUB-OUTS SHALL BE PRIVATELY OWNED AND MAINTAINED BY THE LOT OWNER.
7. ALL DISTURBED PERVIOUS AREAS (COMPACTED, GRADED, LANDSCAPED, ETC.) OF THE DEVELOPMENT SITE MUST DEMONSTRATE ONE OF THE FOLLOWING, IN ACCORDANCE WITH CITY OF NORTH BEND PUBLIC WORKS STANDARDS AND THE LOW IMPACT DEVELOPMENT (LID) COMPONENTS OF THE APPROVED SITE PLAN: THE EXISTING DUFF LAYER SHALL BE STAGED AND REDISTRIBUTED TO MAINTAIN THE MOISTURE CAPACITY OF THE SOIL, OR; AMENDED SOIL SHALL BE ADDED TO MAINTAIN THE MOISTURE CAPACITY. SOIL AMMENDMENT SHALL BE MINIMUM 8" THICK AND CONFORM TO KCC 16.82.100
8. SEASONAL CLEARING IS LIMITED BETWEEN OCTOBER 1 AND APRIL 30 INCLUSIVE, UNLESS OTHERWISE APPROVED WITH A WRITTEN DECISION BY THE REVIEWING AGENCY.
9. IMPROVEMENTS AND/OR BUILDINGS SHALL NOT BE INSTALLED UNTIL DRAINAGE FACILITIES ARE "IN OPERATION".

Call before you Dig. 8-1-1 or 1-800-424-5555 UNDERGROUND SERVICE (USA) 811

0 10 20 40

SCALE 1"=20'

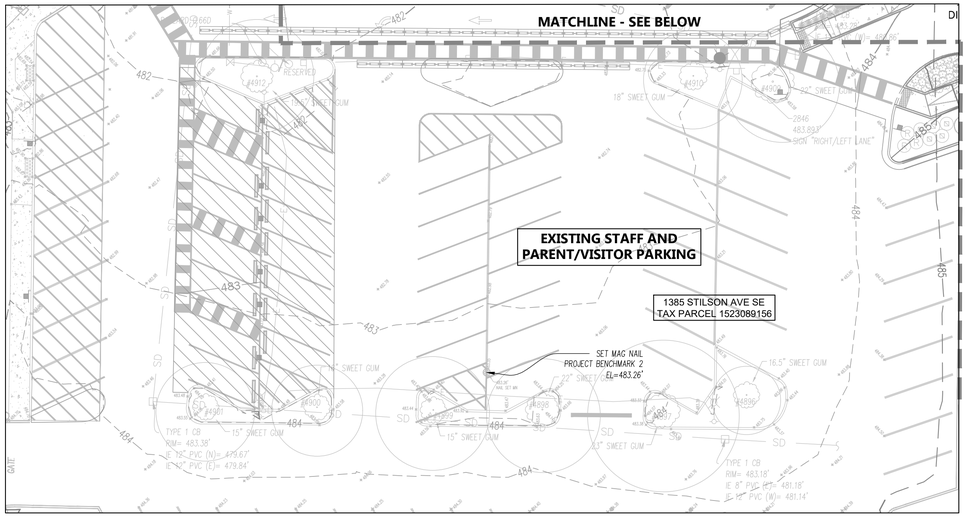
LEGEND

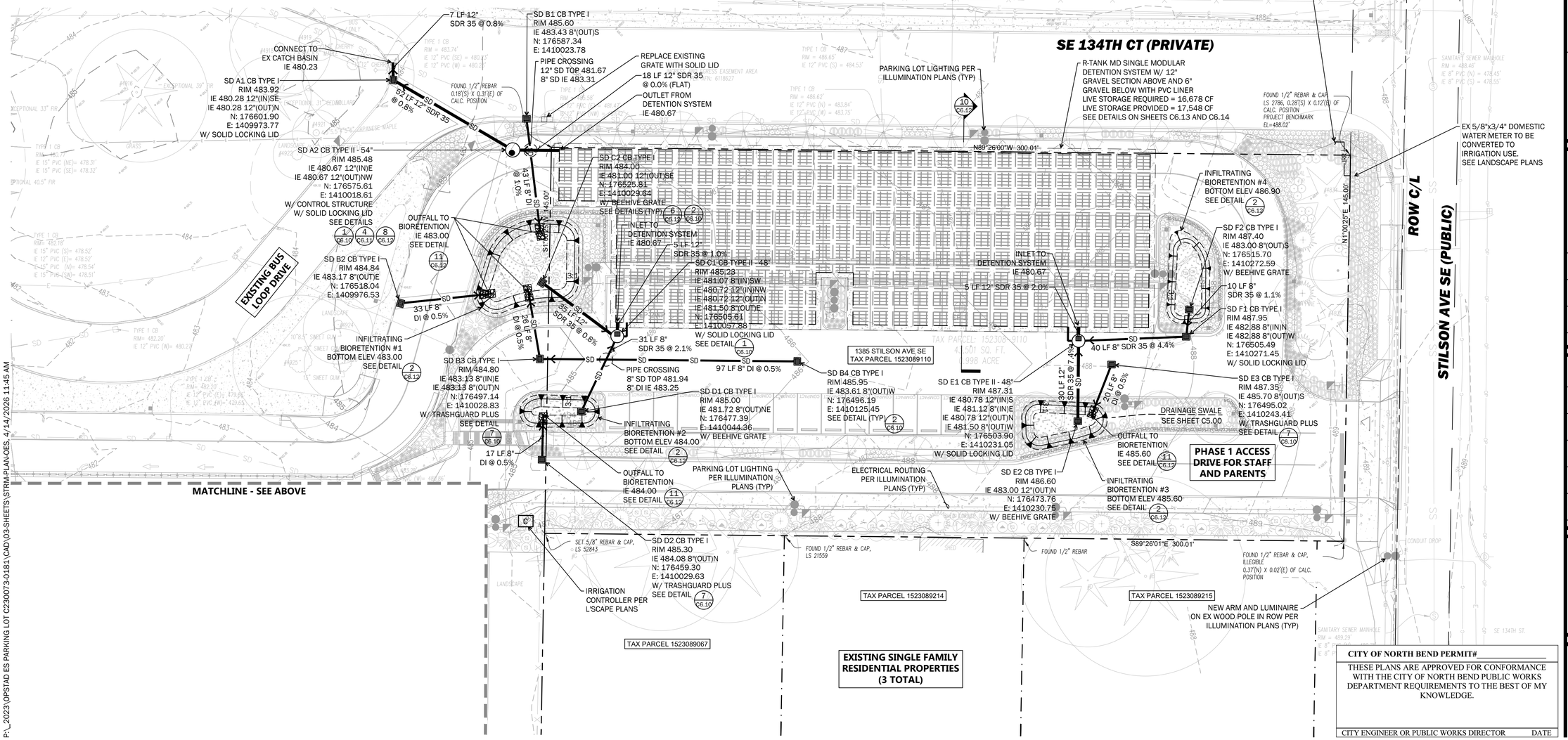
- PROPERTY LINE — N 79°33'06" E – 46.81'
- STORM DRAINAGE PIPE — SD
- CB TYPE 2/CB TYPE 1/ AREA DRAIN/SDCO
- MODULAR DETENTION SYSTEM

ALL STORM PIPE MATERIAL ON-SITE SHALL BE D3034 SDR 35, UNLESS NOTED OTHERWISE

FOR STORM PIPE BEDDING AND TRENCHING SEE DETAIL 6/C6.10

SEE BIORETENTION NOTES, BIORETENTION CONSTRUCTION NOTES AND INFILTRATION FACILITY CONSTRUCTION NOTES, SHEET C0.01





CITY OF NORTH BEND PERMIT#_____

THESE PLANS ARE APPROVED FOR CONFORMANCE WITH THE CITY OF NORTH BEND PUBLIC WORKS DEPARTMENT REQUIREMENTS TO THE BEST OF MY KNOWLEDGE.

CITY ENGINEER OR PUBLIC WORKS DIRECTOR DATE

JACOBSON CONSULTING ENGINEERS

GERALD A. JACOBSON — STATE OF WASHINGTON — 43667 — REGISTERED PROFESSIONAL ENGINEER — 04/14/2026

JACOBSONENGINEERS.COM

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE, NORTH BEND, WA 98045

BID SET

04/16/2026

Revisions

Mark	Date	Description

Checked By: JAJ

Drawn By: AJJ

Dwg File: STRM-PLAN-OES.DWG

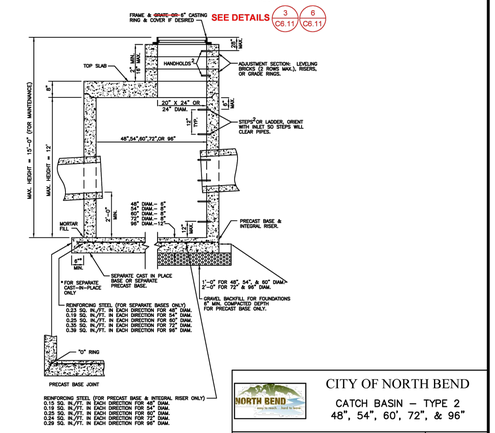
Sheet Title
DRAINAGE AND UTILITY PLAN

Sheet
C6.00

P:_2023\OPSTAD ES PARKING LOT C230073.0181\CAD\03-SHEETS\STRM-PLAN-OES_4/14/2026 11:45 AM

NOTES:

1. CATCH BASINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478 (AASHTO M199) AND ASTM C890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE STANDARD SPECIFICATIONS.
2. HANDHOLDS IN ADJUSTMENT SECTION SHALL HAVE 3" MIN. CLEARANCE. STEPS IN CATCH BASIN SHALL HAVE 6" MIN. CLEARANCE. HANDHOLDS SHALL BE PLACED IN ALTERNATING GRADE ADJUSTMENT SECTIONS AT A MAXIMUM SPACING OF ONE HANDHOLD BETWEEN THE LAST STEP AND FINISHED GRADE. ALL STEPS AND HANDHOLDS SHALL BE MADE OF POLY PROPYLENE.
3. ALL REINFORCED CAST-IN-PLACE CONCRETE SHALL BE CLASS 4000. ALL PRECAST CONCRETE SHALL BE CLASS 4000.
4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE WALL THICKNESS OF 2" MIN. UNUSED KNOCKOUTS NEED NOT BE GROUTED IF WALL IS LEFT INTACT. PIPES SHALL BE INSTALLED ONLY IN FACTORY KNOCKOUTS UNLESS OTHERWISE APPROVED BY THE ENGINEER.
5. KNOCKOUT OR CUTOUT HOLE SIZE SHALL EQUAL PIPE OUTER DIAM. PLUS CATCH BASIN WALL THICKNESS. MAX. HOLE SIZE SHALL BE 36" FOR 48" CATCH BASIN, 42" FOR 54" C.B., 48" FOR 60" C.B., 60" FOR 72" C.B., 84" FOR 96" C.B. MIN. DISTANCE BETWEEN HOLES SHALL BE 8" FOR 48", 54", AND 60" C.B.; 12" FOR 72" AND 96" C.B.
6. CATCH BASIN FRAMES AND GRATES OR COVERS SHALL BE IN ACCORDANCE WITH SEC. 7.05 OF THE WSDOT STANDARD SPECIFICATIONS. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.
7. ALL BASE REINFORCING STEEL SHALL HAVE A MIN. YIELD STRENGTH OF 60,000 PSI AND BE PLACED IN THE UPPER HALF OF THE BASE WITH 1" MIN. CLEARANCE.
8. MIN. SOIL BEARING VALUE SHALL EQUAL 3,300 POUNDS PER SQUARE FOOT.
9. FOR DETAILS SHOWING LADDER, STEPS, HANDRAILS AND TOP SLABS, SEE OTHER STANDARD DETAILS.
10. SEE THE WSDOT STANDARD SPECIFICATIONS SEC. 7-05.3 FOR JOINT REQUIREMENTS.



CITY OF NORTH BEND

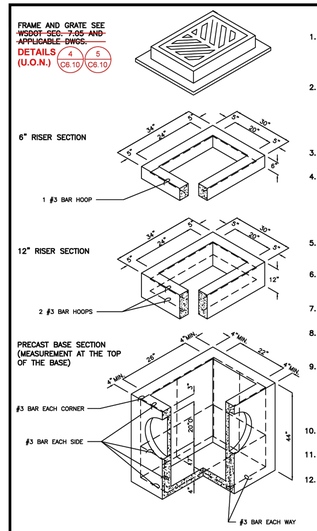
CATCH BASIN – TYPE 2

48", 54", 60', 72", & 96"

APPROVED:		DWG. NO.
MARK RIGOS, P.E. BY CITY	MAY 2018 DATE	SD-3

NTS **Catch basin Type II** 1

FRAME AND GRATE SEE ~~WSDOT SEC. 7.05 AND APPLICABLE DWGS.~~ DETAILS (U.O.N.) 4 C6.10 5 C6.10



NOTES:

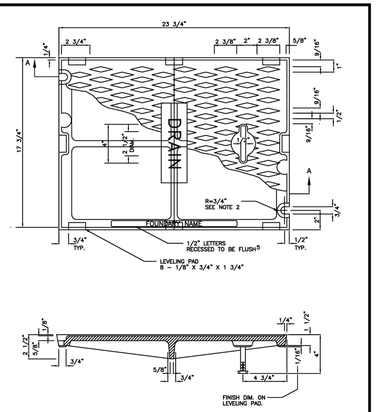
1. CATCH BASINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478 (AASHTO M 199) & C890 UNLESS OTHERWISE SHOWN ON PLANS OR NOTED IN THE WSDOT/APWA STANDARD SPECIFICATIONS.
2. AS AN ACCEPTABLE ALTERNATIVE TO REBAR, WELDED WIRE FABRIC HAVING A MIN. AREA OF 0.12 SQUARE INCHES PER FOOT MAY BE USED. WELDED WIRE FABRIC SHALL COMPLY TO ASTM A497 (AASHTO M 221). WIRE FABRIC SHALL NOT BE PLACED IN KNOCKOUTS.
3. ALL REINFORCED CAST-IN-PLACE CONCRETE SHALL BE CLASS 4000.
4. PRECAST BASES SHALL BE FURNISHED WITH CUTOUTS OR KNOCKOUTS. KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" MIN. ALL PIPE SHALL BE INSTALLED IN FACTORY PROVIDED KNOCKOUTS. UNUSED KOCKOUTS NEED NOT BE GROUTED IF WALL IS LEFT INTACT.
5. KNOCKOUT OR CUTOUT HOLE SIZE IS EQUAL TO PIPE OUTER DIAM. PLUS CATCH BASIN WALL THICKNESS.
6. ROUND KNOCKOUTS MAY BE ON ALL 4 SIDES, WITH MAX. DIAM. OF 20". KNOCKOUTS MAY BE EITHER ROUND OR "D" SHAPE.
7. THE MAX. DEPTH FROM THE FINISHED GRADE TO THE PIPE INVERT IS 5'-0".
8. THE TAPER ON THE SIDES OF THE PRECAST BASE SECTION AND RISER SECTION SHALL NOT EXCEED 1/2"/FT.
9. CATCH BASIN FRAME AND GRATE SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS AND MEET THE STRENGTH REQUIREMENTS OF FEDERAL SPECIFICATION RR-F-621D. MATING SURFACES SHALL BE FINISHED TO ASSURE NON-ROCKING FIT WITH ANY COVER POSITION.
10. FRAME AND GRATE MAY BE INSTALLED WITH FLANGE DOWN OR CAST INTO RISER.
11. FOR CATCH BASINS IN PARKING LOTS REFER TO WSDOT/APWA STANDARD DWG. B-5.60-02.
12. EDGE OF RISER OR BRICK SHALL NOT BE MORE THAN 2" FROM VERTICAL EDGE OF CATCH BASIN WALL.

CITY OF NORTH BEND

CATCH BASIN – TYPE 1

APPROVED:		DWG. NO.
MARK RIGOS, P.E. BY CITY	MAY 2018 DATE	SD-1

NTS **Catch Basin Type I** 2



NOTES:

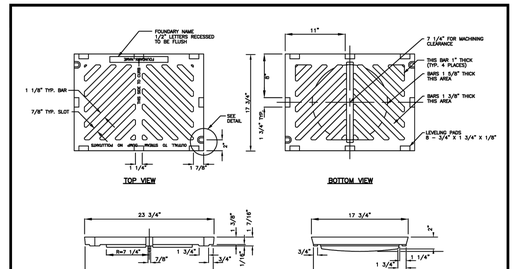
1. USE WITH FRAME DRILLED AND TAPPED FOR LOCKING BOLTS.
2. USE WITH TWO LOCKING BOLTS 5/8"-11 NC STAINLESS STEEL TYPE 304 STEEL SOCKET HEAD (ALLEN HEAD) BOLTS, 2" LONG.
3. COVER MATERIAL IS CAST IRON PER ASTM A48 CLASS 30.
4. SHALL CONFORM TO SEC. 7.05 OF THE WSDOT STANDARD SPECIFICATIONS.
5. COVER SHALL HAVE THE WORD "DRAIN" IN 2-INCH RAISED LETTERS.
6. ALL LIDS TO BE LOCKING UNLESS OTHERWISE SPECIFIED IN PLANS.

CITY OF NORTH BEND

SOLID STORM DRAIN COVER

APPROVED:		DWG. NO.
MARK RIGOS, P.E. BY CITY	MAY 2018 DATE	SD-4

NTS **Solid Storm Drain Cover** 3



NOTES:

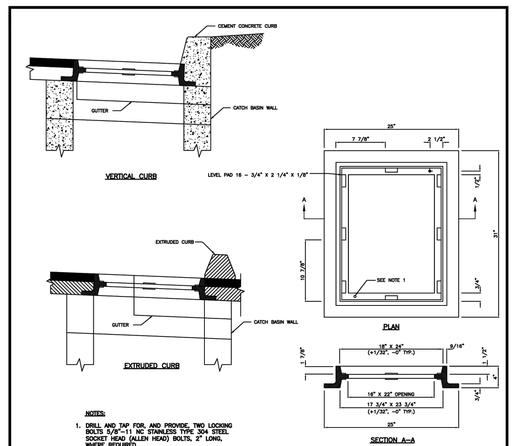
1. SLOT FORMED AND RECESSED FOR 5/8"-11 NC X 2" SOCKET HEAD (ALLEN HEAD) BOLT.
2. GRATE SHALL BE DUCTILE IRON.
3. SHALL CONFORM TO SEC. 9-05.15 OF THE WSDOT STANDARD SPECIFICATIONS.
4. USE VANED GRATE IN CURB LINE.
5. USE FRAME SHOWN IN STANDARD DETAIL SD-6. SEE DETAIL 5 C6.10
6. ALL LIDS TO BE LOCKING UNLESS OTHERWISE SPECIFIED IN PLANS.

CITY OF NORTH BEND

PARKING LOT AREA GRATE

APPROVED:		DWG. NO.
MARK RIGOS, P.E. BY CITY	MAY 2018 DATE	SD-5

NTS **Parking Lot Area Grate** 4



NOTES:

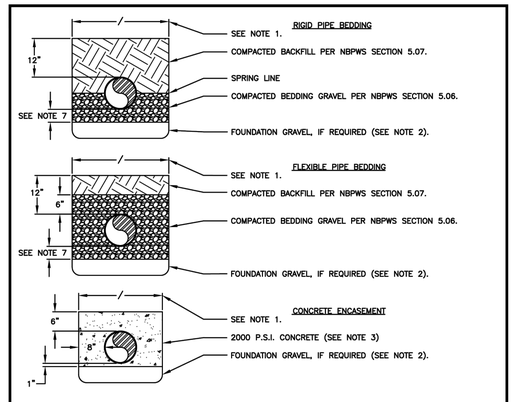
1. DRILL AND TAP FOR, AND PROVIDE, TWO LOCKING BOLTS 5/8"-11 NC STAINLESS TYPE 304 STEEL SOCKET HEAD (ALLEN HEAD) BOLTS, 2" LONG, WHERE REQUIRED.
2. FRAME MATERIAL IS CAST IRON PER ASTM A48 CLASS 30 OR BETTER.
3. SET FRAME TO GRADE AND CONSTRUCT ROAD AND GUTTER TO BE FLUSH WITH FRAME.
4. ALL LIDS TO BE LOCKING UNLESS OTHERWISE SPECIFIED IN PLANS.

CITY OF NORTH BEND

STANDARD FRAME INSTALLATION

APPROVED:		DWG. NO.
MARK RIGOS, P.E. BY CITY	MAY 2018 DATE	SD-6

NTS **Standard Frame Installation** 5



NOTES:

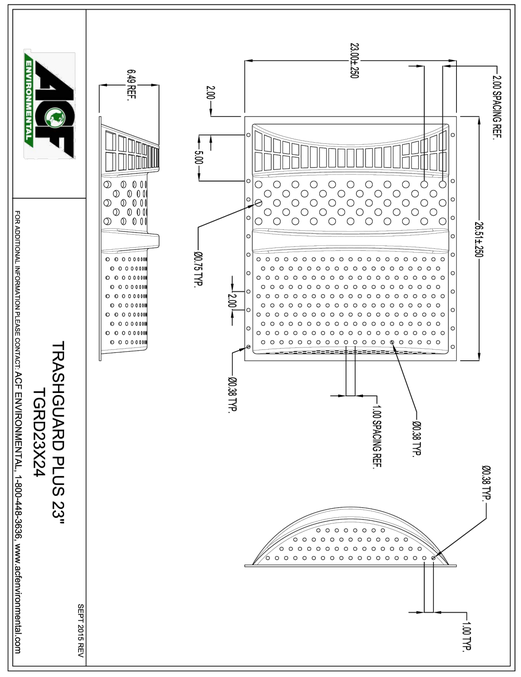
1. FOR PIPES 15-INCHES AND UNDER, TRENCH WIDTH=I.D. + 30-INCHES. FOR PIPES 18-INCHES AND OVER, TRENCH WIDTH=(1.5 x I.D.)+18-INCHES. PER SECTION 2-09.4, "MEASUREMENT", OF THE WSDOT STANDARD SPECIFICATIONS.
2. EXCAVATE UNSTABLE MATERIAL DOWN TO FIRM SOIL AND REPLACE WITH FOUNDATION GRAVEL PER SECTION 9-03.9(1), "BALLAST", OF THE STANDARD SPECIFICATIONS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANCHORING PIPE TO PREVENT FLOTATION DURING CONCRETE PLACEMENT.
4. WHEN THE DESIGN OF TANKS OR PIPES DOES NOT TAKE INTO ACCOUNT BUOYANCY, UNDERDRAINS SHALL BE PROVIDED.
5. PROVIDE CLEANOUTS ON UNDERDRAIN PIPE, EVERY 100 FEET, AND AT BENDS OR JUNCTIONS.
6. SEE WSDOT SECTION 9-03.9 FOR ADDITIONAL REQUIREMENTS.
7. 4-INCHES FOR PIPE 18-INCH DIAMENTER AND LESS; 6-INCHES FOR PIPE GREATER THAN 18-INCH DIAMETER.
8. COMPACTED CRUSHED SURFACING TOP COURSE CAN ALSO BE USED AS BEDDING GRAVEL.

CITY OF NORTH BEND

PIPE BEDDING DETAIL

APPROVED:		DWG. NO.
MARK RIGOS, P.E. BY CITY	MAY 2018 DATE	SD-14

NTS **Pipe Bedding** 6



NTS **TrashGuard Plus** 7

NTS **Not Used** 8

CITY OF NORTH BEND PERMIT#_____

THESE PLANS ARE APPROVED FOR CONFORMANCE WITH THE CITY OF NORTH BEND PUBLIC WORKS DEPARTMENT REQUIREMENTS TO THE BEST OF MY KNOWLEDGE.

CITY ENGINEER OR PUBLIC WORKS DIRECTOR DATE

JACOBSON CONSULTING ENGINEERS

GERALD A. JACOBSON — STATE OF WASHINGTON — 43667 — REGISTERED PROFESSIONAL ENGINEER — 04/14/2026

JACOBSONENGINEERS.COM

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE,
NORTH BEND, WA 98045

BID SET

04/16/2026

Revisions

Mark	Date	Description

Checked By:
JAJ

Drawn By:
AJJ

Dwg File:
STRM-DETL-OES.DWG

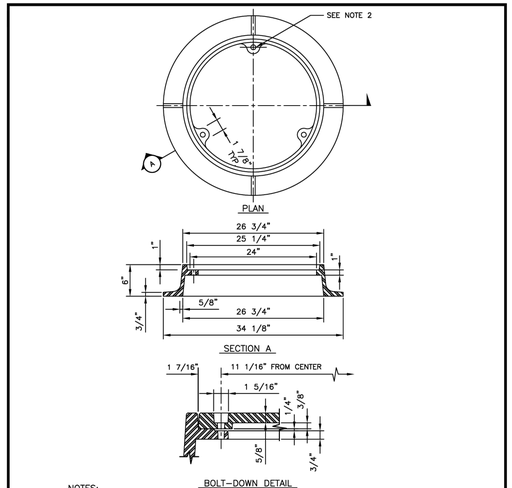
Sheet Title
DRAINAGE DETAILS

Sheet
C6.10

P:_2023\OPSTAD ES PARKING LOT C230073-0181\CAD\03-SHEETS\STRM-DETL-OES, 4/14/2026 11:45 AM

NTS
Not Used 1

NTS
Not Used 2



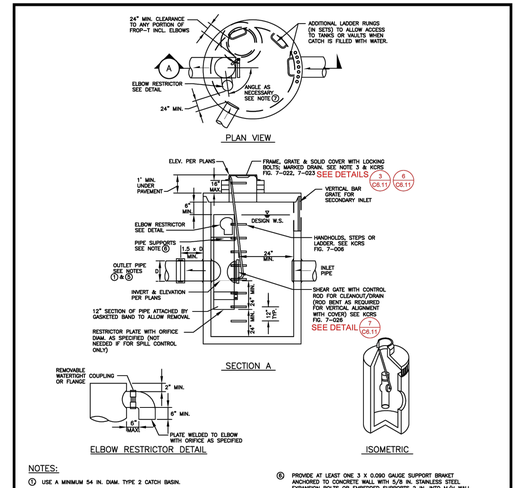
NOTES:

1. MATERIAL IS CAST IRON ASTM A48 CLASS 30.
2. DRILL AND TAP THREE 5/8 IN.–11 NC HOLES THROUGH FRAME AT 120° AND 11 1/16 IN. RADIUS.
3. SEE SEC. 7.05.
4. SEE THE WSDOT/APWA STANDARD SPECIFICATIONS SECTION 9–05.15 FOR METAL CASTINGS REQUIREMENTS.

CITY OF NORTH BEND
24" LOCKING MANHOLE FRAME

APPROVED:	DWG. NO.
MARK RIGOS, P.E. — MAY 2018	SD–21
BY CITY — DATE	

NTS
24 Inch Locking Manhole Frame 3



NOTES:

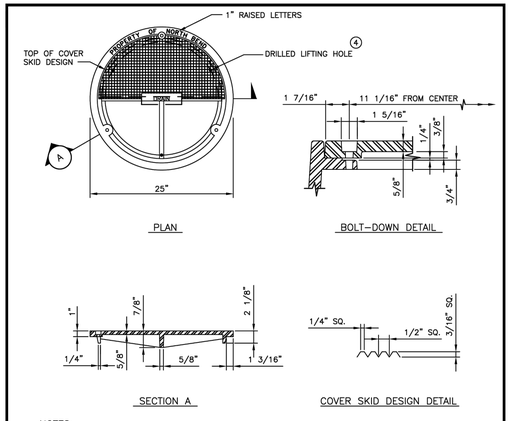
1. USE A MINIMUM 54 IN. DIAM. TYPE 2 CATCH BASIN.
2. OUTLET CAPACITY: 100–YEAR DEVELOPED PEAK FLOW.
3. METAL PARTS: CORROSION RESISTANT, NON–GALVANIZED PARTS PREFERRED. GALVANIZED PIPE PARTS TO HAVE ASPHALT TREATMENT 1.
4. FRAME AND LADDER OR STEPS OFFSET SO:
   A. CLEANOUT GATE IS VISIBLE FROM TOP;
   B. CLIMB–DOWN SPACE IS CLEAR OF RISER AND CLEANOUT GATE;
   C. FRAME IS CLEAR OF CURB.
5. IF METAL OUTLET CONNECTS TO CEMENT CONCRETE PIPE, OUTLET PIPE TO HAVE SMOOTH O.D. EQUAL TO CONCRETE PIPE I.D. LESS 1/4 IN.
6. PROVIDE AT LEAST ONE 3 X 0.090 GAUGE SUPPORT BRACKET ANCHORED TO CONCRETE WALL WITH 5/8 IN. STAINLESS STEEL EXPANSION BOLTS OR EMBEDDED SUPPORTS 2 IN. INTO M/H WALL (VERTICAL SPACING).
7. LOCATE ELBOW RESTRICTOR(S) AS NECESSARY TO PROVIDE MIN. CLEARANCE AS SHOWN.
8. LOCATE ADDITIONAL LADDER RUNGS IN STRUCTURES USED AS ACCESS TO TANKS OR VAULTS TO ALLOW ACCESS WHEN CATCH BASIN IS FILED WITH WATER.
9. SEE THE WSDOT/APWA STANDARD SPECIFICATIONS SECTION 9–05.15 FOR METAL CASTINGS REQUIREMENTS.

CITY OF NORTH BEND
FLOW RESTRICTOR TEE TYPE

APPROVED:	DWG. NO.
MARK RIGOS, P.E. — MAY 2018	SD–18
BY CITY — DATE	

NTS
Flow Restrictor Tee Type 4

NTS
Not Used 5



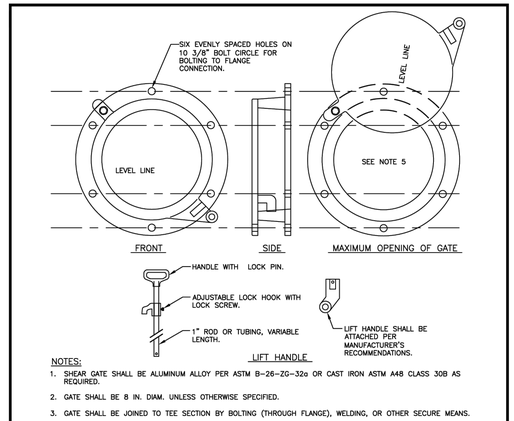
NOTES:

1. USE WITH THREE LOCKING BOLTS 5/8 IN.–11 NC STAINLESS TYPE 304 STEEL SOCKET HEAD (ALLEN HEAD) CAP SCREWS 2 IN. LONG. DRILL HOLES SPACED 120° AT 11 1/16 IN. RADIUS.
2. MATERIAL IS DUCTILE IRON ASTM A536 GRADE 80–55–06.
3. SEE SEC. 7.05.
4. DRILL THREE 1 IN. HOLES SPACED AT 120° AND 9 1/2 IN. RADIUS.
5. SEE THE WSDOT/APWA STANDARD SPECIFICATIONS SECTION 9–05.15 FOR METAL CASTINGS REQUIREMENTS.
6. ALL LIDS TO BE LOCKING UNLESS APPROVED OTHERWISE.

CITY OF NORTH BEND
24" LOCKING MANHOLE COVER

APPROVED:	DWG. NO.
MARK RIGOS, P.E. — MAY 2018	SD–20
BY CITY — DATE	

NTS
24 Inch Locking Manhole Cover 6



NOTES:

1. SHEAR GATE SHALL BE ALUMINUM ALLOY PER ASTM B–26–ZG–32a OR CAST IRON ASTM A48 CLASS 30B AS REQUIRED.
2. GATE SHALL BE 8 IN. DIAM. UNLESS OTHERWISE SPECIFIED.
3. GATE SHALL BE JOINED TO TEE SECTION BY BOLTING (THROUGH FLANGE), WELDING, OR OTHER SECURE MEANS.
4. LIFT ROD: AS SPECIFIED BY MFR. WITH HANDLE EXTENDING TO WITHIN ONE FOOT OF COVER AND ADJUSTABLE HOOK LOCK FASTENED TO FRAME OR UPPER HANDHOLD.
5. GATE SHALL NOT OPEN BEYOND THE CLEAR OPENING BY LIMITED HINGE MOVEMENT, STOP TAB, OR SOME OTHER DEVICE.
6. NEOPRENE RUBBER GASKET REQUIRED BETWEEN RISER MOUNTING FLANGE AND GATE FLANGE.
7. MATING SURFACES OF LID AND BODY TO BE MACHINED FOR PROPER FIT.
8. FLANGE MOUNTING BOLTS SHALL BE 3/8 IN. DIAM. STAINLESS STEEL.
9. ALTERNATE CLEANOUT/SHEAR GATES TO THE DESIGN SHOWN ARE ACCEPTABLE, PROVIDED THEY MEET THE MATERIAL SPECIFICATIONS ABOVE AND HAVE A SIX BOLT, 10 3/8 IN. BOLT CIRCLE FOR BOLTING TO THE FLANGE CONNECTION.
10. SEE THE WSDOT/APWA STANDARD SPECIFICATIONS SECTION 9–05.15 FOR METAL CASTINGS REQUIREMENTS.

CITY OF NORTH BEND
TEE SECTION
SHEAR GATE DETAIL

APPROVED:	DWG. NO.
MARK RIGOS, P.E. — MAY 2018	SD–19
BY CITY — DATE	

NTS
Tee Section Shear Gate 7

NTS
Not Used 8

CITY OF NORTH BEND PERMIT#_____

THESE PLANS ARE APPROVED FOR CONFORMANCE WITH THE CITY OF NORTH BEND PUBLIC WORKS DEPARTMENT REQUIREMENTS TO THE BEST OF MY KNOWLEDGE.

CITY ENGINEER OR PUBLIC WORKS DIRECTOR — DATE

JACOBSON
CONSULTING ENGINEERS

GERALD A. JACOBSON — STATE OF WASHINGTON — 43667 — REGISTERED PROFESSIONAL ENGINEER — 04/14/2026

JACOBSONENGINEERS.COM

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE,
NORTH BEND, WA 98045

BID SET

04/16/2026

Revisions

Mark	Date	Description

Checked By:
JAJ

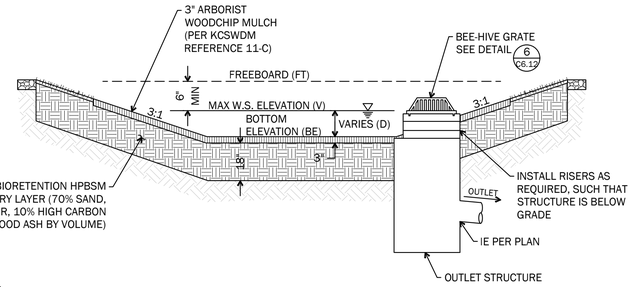
Drawn By:
AJJ

Dwg File:
STRM-DETL-OES.DWG

Sheet Title
DRAINAGE DETAILS

Sheet
C6.11

P:_2023\OPSTAD ES PARKING LOT C23007\3-01\81\CAD\03-SHEETS\STRM-DETL-OES, 4/14/2026 11:45 AM

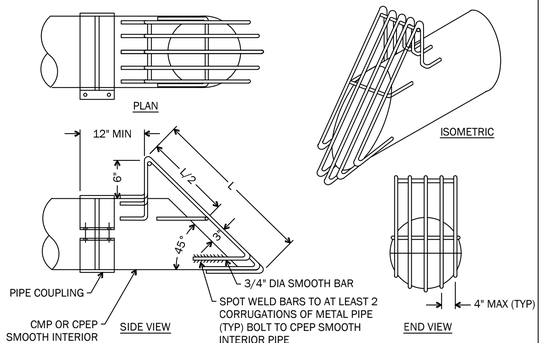


NOTES:

1. ALL COMPONENTS (PLANTS, SOIL, MULCH) ARE REQUIRED FOR STORMWATER FUNCTION. SEE L'SCAPE PLANS
2. SEE BIORETENTION NOTES, SHEET C0.01
3. SEE BIORETENTION CONSTRUCTION NOTES, SHEET C0.01
4. CONTRACTOR SHALL VERIFY WITH AS-BUILT SURVEY, THE MINIMUM BOTTOM AREA, SIDE SLOPES, BOTTOM ELEVATION, MAX W.S. ELEVATION, FREE BOARD ELEVATION, AND BIORETENTION DEPTH ARE PROVIDED AS DESIRED.
5. SUBMIT AS-BUILT SURVEY TO ENGINEER PRIOR TO PLANTING.
6. SEE SHEET C0.01 FOR INFILTRATION FACILITY CONSTRUCTION NOTES.
7. BIORETENTION SOIL MIX SHALL MEET REQUIREMENTS FOR TYPE 1 HPSBM PER KCSWDM AMENDED 2024, REFERENCE 14-B SECTION 1.3.5.

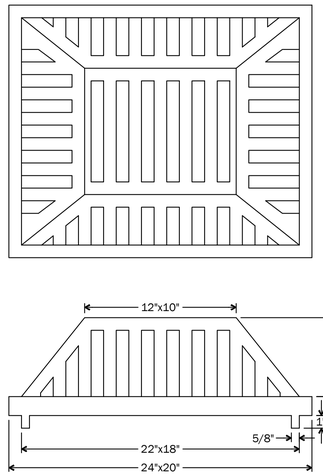
BIORETENTION NUMBER (#)	REQUIRED BOTTOM AREA (SF)	PONDING DEPTH (FT) (D)	BOTTOM ELEVATION (FT) (BE)	MAXIMUM W.S. ELEVATION (FT) (V)	TOP OF FREE BOARD (FT)
1	570	12"	483.00	484.00	484.50
2	59	12"	484.00	485.00	484.50
3	157	12"	485.60	486.60	487.10
4	240	6"	486.90	487.40	487.90

NTS **Infiltrating Bioretention** 2

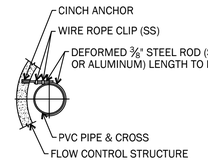


NOTE:
1. THIS DEBRIS BARRIER IS FOR USE OUTSIDE ROADWAYS ON PIPES 36" DIA. AND SMALLER
2. ALL STEEL PARTS MUST BE GALVANIZED AND ASPHALT COATED. (TREATMENT 1 OR BETTER).
3. CPEP-SMOOTH INTERIOR PIPE REQUIRES BOLTS TO SECURE DEBRIS BARRIER TO PIPE.

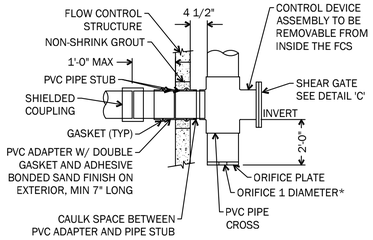
NTS **Debris Cage** 5



NTS **Bee Hive Grate - CB Type I** 6

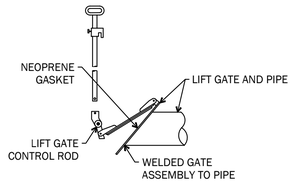


DETAIL A: PIPE SUPPORT DETAIL



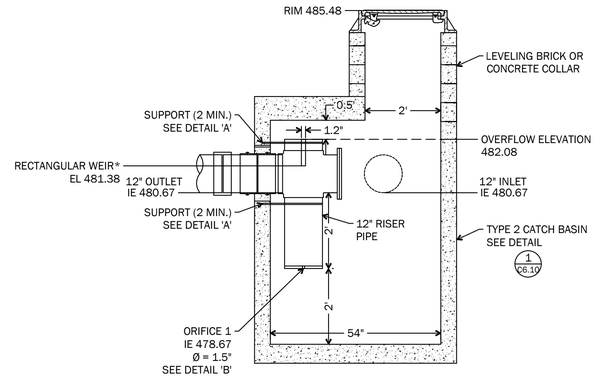
DETAIL B: CONNECTION & CONTROL DEVICE

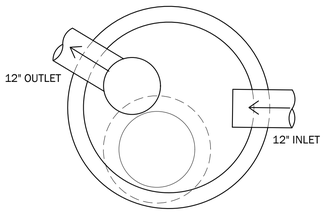
NOTES:
1. PVC PIPE MUST BE SCHEDULE 40, PER ASTM 1785.
2. *CONSTRUCTION DRAWINGS MUST PROVIDE ELEVATION AND DIAMETER FOR ORIFICE 1 AND DIMENSIONS AND ELEVATION FOR THE BOTTOM OF THE RECTANGULAR WEIR AND ELEVATION FOR OVERFLOW
3. FIELD CHANGES TO DETENTION PIPE INVERT AND SLOPE REQUIRE CONFIRMATION FROM THE ENGINEER OF RECORD THAT THE CONSTRUCTION DRAWING ELEVATIONS FOR THE FLOW CONTROL DEVICE ASSEMBLY STILL MEET THE DESIGN REQUIREMENTS.



DETAIL C: LIFT GATE ASSEMBLY

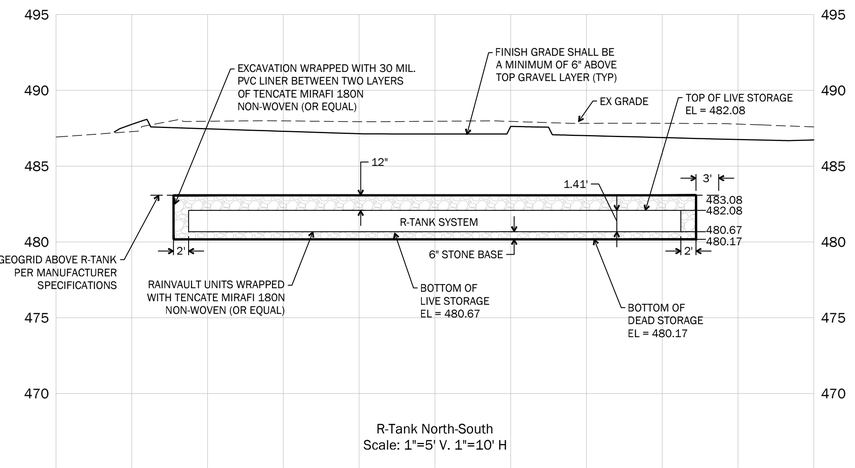
REFERENCE CITY OF NORTH BEND FLOW RESTRICTOR TEE TYPE DETAIL FOR ADDITIONAL INFORMATION. SEE DETAIL 4/C6.11.



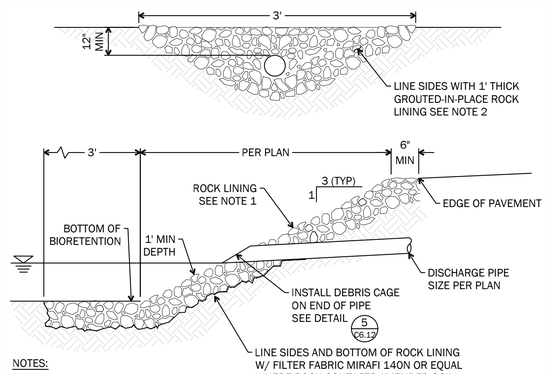


SD A2 - CONTROL STRUCTURE

Scale: 1"=2' **Control Structure** 8



NTS **R-Tank Wrap and Excavation Envelope Detail** 10



NOTES:
1. ROCK LINING GRADATION REQUIREMENTS:
   PASSING 8" SQUARE SIEVE: 100%
   PASSING 3" SQUARE SIEVE: 40-60% MAX
   PASSING 3/4" SQUARE SIEVE: 0-10% MAX
2. PROVIDE 1' THICK ANGULAR QUARRY SPALLS OVER FILTER FABRIC. ROCK ON SIDE SLOPES TO BE PARTIALLY GROUTED WITH CEMENT MORTAR TO LOCK STONES IN PLACE, FILLING JOINTS TO APPROXIMATELY 1/3 TO 1/2 DEPTH OF ROCK.

NTS **Rip Rap Pad** 11

NTS **Not Used** 12

CITY OF NORTH BEND PERMIT#_____

THESE PLANS ARE APPROVED FOR CONFORMANCE WITH THE CITY OF NORTH BEND PUBLIC WORKS DEPARTMENT REQUIREMENTS TO THE BEST OF MY KNOWLEDGE.

CITY ENGINEER OR PUBLIC WORKS DIRECTOR DATE

JACOBSON CONSULTING ENGINEERS

GERALD A. JACOBSON — STATE OF WASHINGTON — 43667 — REGISTERED PROFESSIONAL ENGINEER — 04/14/2026

JACOBSONENGINEERS.COM

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE,
NORTH BEND, WA 98045

BID SET

04/16/2026

Revisions

Mark	Date	Description

Checked By:
JAJ

Drawn By:
AJJ

Dwg File:
STRM-DETL-OES.DWG

Sheet Title
DRAINAGE DETAILS

Sheet
C6.12

P:_2023\OPSTAD ES PARKING LOT C230073-0181\CAD\03-SHEETS\STRM-DETL-OES, 4/14/2026 11:45 AM

GENERAL NOTES & DISCLAIMERS

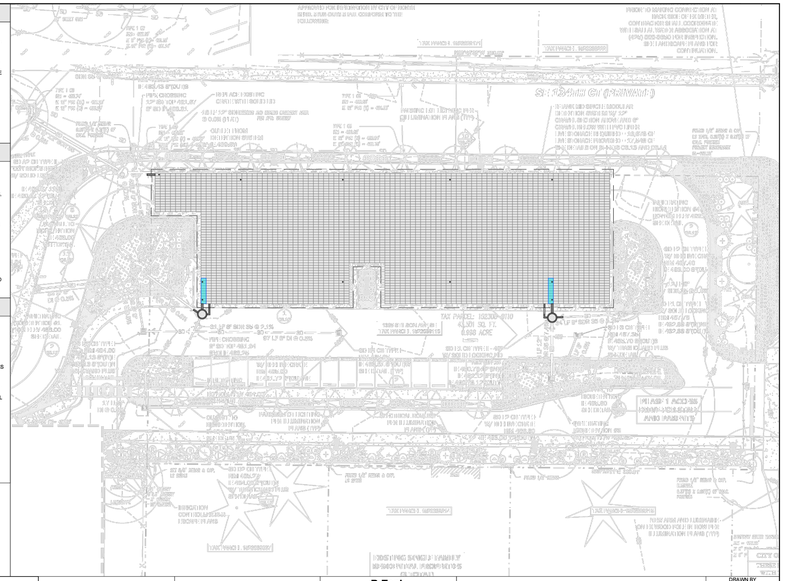
1. MATERIAL SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.
2. CONSULTANT DRAWINGS ARE BEING RELIED UPON AS BEING CORRECT WITH EXISTING SITE CONDITIONS, THAT THEY SATISFY ANY LOCAL BUILDING CODE REQUIREMENTS, AND THAT THEY ACCURATELY DEPICT SUBSURFACE CONDITIONS.
3. FERGUSON SUPPLIES THE PRODUCTS ONLY AND TAKES NO RESPONSIBILITY FOR INSTALLATION AND HAS NO ROLE IN THE INSTALLATION OF THE PRODUCTS.
4. R-TANK SYSTEMS ARE NOT DESIGNED TO SUPPORT LOADS FROM BUILDINGS, RETAINING WALLS, ETC. THEREFORE, THE PROPER DISCIPLINES SHALL DETERMINE WHETHER THE PROPER DISCIPLINES TO ENSURE NO STRUCTURAL LOADS ARE IMPARTED UPON THE SYSTEM AND ANY INFILTRATION FROM THE SYSTEM HAS BEEN ACCOUNTED FOR IN FOUNDATION DESIGN.

MATERIAL HANDLING

1. PROTECT R-TANK AND OTHER MATERIALS FROM DAMAGE DURING DELIVERY AND OFFLOADING. HANDLING IS TO BE PERFORMED BY EQUIPMENT APPROPRIATE TO THE MATERIALS AND SITE CONDITIONS.
2. STORAGE OF MATERIALS SHOULD BE ON SMOOTH SURFACES, FREE FROM DIRT, MUD AND DEBRIS, AND AWAY FROM ANY OPEN FLAME, WELDING OPERATIONS, OR OTHER POTENTIAL HEAT SOURCES.
3. UV SENSITIVE MATERIALS AND R-TANK UNITS SHOULD BE STORED UNDER A TARP TO PROTECT FROM SUNLIGHT WHEN TIME FROM DELIVERY TO INSTALLATION EXCEEDS TWO WEEKS.
4. WHEN HANDLING AND INSTALLING PRODUCT IN COLD WEATHER:
   A. WHEN THE AIR TEMPERATURE IS 40° F OR BELOW, CARE MUST BE TAKEN WHEN HANDLING PLASTICS TO ENSURE NO CRACKING. DO NOT USE FROZEN MATERIALS OR MATERIALS MIXED OR COATED WITH ICE OR FROST.
   B. DO NOT BUILD ON FROZEN GROUND OR WET, SATURATED OR MUDDY SUBGRADE.

INSTALLATION NOTES

1. R-TANK INSTALLATION SHALL NOT BEGIN, UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-INSTALLATION CONFERENCE PER THE R-TANK SPECIFICATIONS.
2. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
3. BACKFILL, GEOTEXTILE, AND/OR LINER SHALL BE IN ACCORDANCE WITH THE R-TANK SPECIFICATIONS. QUANTITIES ARE APPROXIMATIONS BASED ON DIMENSIONS SHOWN.
4. THE USE OF CONSTRUCTION EQUIPMENT IS LIMITED, REFER TO THE CONSTRUCTION EQUIPMENT COVER DETAIL INCLUDE IN THIS DRAWING.
5. FERGUSON RECOMMENDS, PRIOR TO SITE STABILIZATION, ALL UPSTREAM INLETS BE PROTECTED FROM ACTIVE CONSTRUCTION SITE RUNOFF TO PREVENT DEBRIS AND SEDIMENT FROM ENTERING THE SYSTEM.
6. PRETREATMENT DEVICES ARE RECOMMENDED UP-STREAM OF ALL INFLOW CONNECTIONS. LEAF GUARDS SHOULD BE INSTALLED ON ANY DOWNSPOUT CONNECTIONS. CONTRACTOR AND ENGINEER ARE RESPONSIBLE ON DETERMINING IF THE PRETREATMENT DEVICE IS ADEQUATE TO CONTAIN THE NECESSARY TREATMENT DEVICE.
7. CONTACT YOUR LOCAL FERGUSON REPRESENTATIVE WITH ANY QUESTIONS.



DATE	INITIALS	DESCRIPTIONS
1/16/2026	BTF	REVISED BYPASS PIPE SIZES

R-TANK

DISTRIBUTED BY: FERGUSON WATERWORKS

R-Tank
MODULAR STORMWATER STORAGE SYSTEM

0 30' 60'

SYSTEM OVERLAY
OPSTAD ELEMENTARY SCHOOL PARKING LOT
NORTH BEND, WA

DRAWN BY: BTF
DATE: 01/09/2026
SHEET NO.: 1 of 6

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO FERGUSON WATERWORKS BY THE DESIGN ENGINEER, CONTRACTOR, OR OTHER PROJECT REPRESENTATIVE. THE ENGINEER OF RECORD SHALL REVIEW AND APPROVED THAT THE DEPICTED LAYOUT AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE REGULATIONS AND PROJECT SPECIFIC REQUIREMENTS.

NTS
R-Tank System Overlay 1

R-TANK QUANTITIES

TRAFFIC RATING	HS-20
# OF MD SINGLE R-TANKS	4083
# OF MD SINGLE ACCESS MODULES	20
# OF MD HALF CONE BODIES	8166

R-TANK VOLUMES

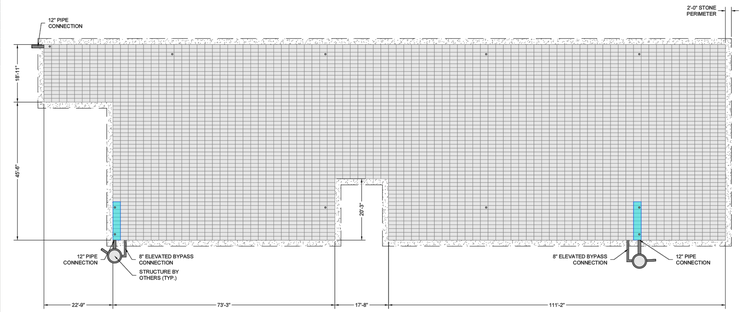
TOTAL SYSTEM STORAGE	26,863 CF
R-TANK STORAGE VOLUME	17,548 CF
STONE STORAGE VOLUME (40% VOID RATIO)	9,315 CF
STONE BED FOOTPRINT	14,346 SF
STONE QUANTITY	863 CY

R-TANK ELEVATIONS

DESCRIPTION	ELEVATION
BASE INV.	480.17
TANK INV.	480.67
TOP OF TANK	482.08
GEOGRID	483.08
MIN. ALLOW. FINAL GRADE	483.33
MAX. ALLOW. FINAL GRADE	492.07

LEGEND

R-TANK MD SINGLE UNITS
R-TANK MD SINGLE ACCESS UNITS
INSPECTION PORT
PIPE CONNECTION
EXCAVATION PERIMETER
PERIMETER BACKFILL



NOTE:
STORAGE BETWEEN ELEVATIONS 480.67' AND 482.08' = 17,506 CF

DATE	INITIALS	DESCRIPTIONS
1/16/2026	BTF	REVISED BYPASS PIPE SIZES

R-TANK

DISTRIBUTED BY: FERGUSON WATERWORKS

R-Tank
MODULAR STORMWATER STORAGE SYSTEM

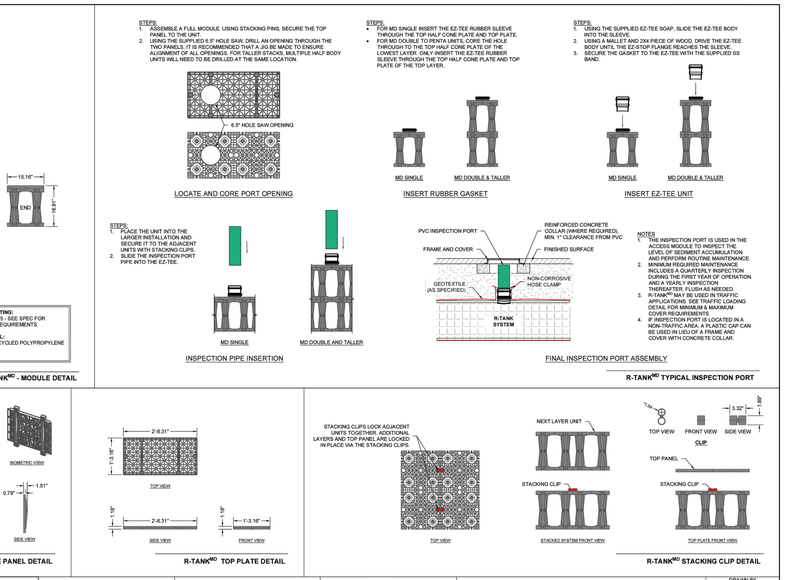
0 20' 40'

SYSTEM LAYOUT
OPSTAD ELEMENTARY SCHOOL PARKING LOT
NORTH BEND, WA

DRAWN BY: BTF
DATE: 01/09/2026
SHEET NO.: 2 of 6

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO FERGUSON WATERWORKS BY THE DESIGN ENGINEER, CONTRACTOR, OR OTHER PROJECT REPRESENTATIVE. THE ENGINEER OF RECORD SHALL REVIEW AND APPROVED THAT THE DEPICTED LAYOUT AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE REGULATIONS AND PROJECT SPECIFIC REQUIREMENTS.

NTS
R-Tank System Layout 2



MODULE DATA

GEOMETRY:
LENGTH = 30.31 IN. (770 MM)
WIDTH = 15.16 IN. (385 MM)
HEIGHT = 18.93 IN. (430 MM)
TANK VOLUME = 4.83 CF
STORAGE VOLUME = 4.28 CF
VOID INTERNAL VOLUME: 89%
VOID SURFACE AREA: 90%

LOAD RATING:
H20/HS25 - SEE SPEC FOR COVER REQUIREMENTS

MATERIAL:
100% RECYCLED POLYPROPYLENE

SINGLE R-TANK^{MD} - MODULE DETAIL

STEPS:
1. ASSEMBLE A FULL MODULE, USING STACKING PINS, SECURE THE TOP PANEL TO THE UNIT.
2. USING THE SUPPLIED 6.5" HOLE SAW, DRILL AN OPENING THROUGH THE TWO PANELS. IT IS RECOMMENDED THAT A JIG BE MADE TO ENSURE ALIGNMENT OF ALL OPENINGS. FOR TALLER STACKS, MULTIPLE HALF BODY UNITS WILL NEED TO BE DRILLED AT THE SAME LOCATION.

LOCATE AND CORE PORT OPENING

STEPS:
- FOR MD SINGLE INSERT THE EZ-TEE RUBBER SLEEVE THROUGH THE TOP HALF CONE PLATE AND TOP PLATE.
- FOR MD DOUBLE TO PENTA UNITS, COPY THE HOLE THROUGH TO THE TOP HALF CONE PLATE OF THE LOWEST LAYER. ONLY INSERT THE EZ-TEE RUBBER SLEEVE THROUGH THE TOP HALF CONE PLATE AND TOP PLATE OF THE TOP LAYER.

INSERT RUBBER GASKET

STEPS:
1. USING THE SUPPLIED EZ-TEE SOAP, SLIDE THE EZ-TEE BODY INTO THE SLEEVE.
2. USING A MALLET AND 2X4 PIECE OF WOOD, DRIVE THE EZ-TEE BODY UNITS, THE EZ-STOP FLANGE REACHES THE SLEEVE.
3. SECURE THE GASKET TO THE EZ-TEE WITH THE SUPPLIED SS BAND.

INSERT EZ-TEE UNIT

STEPS:
1. LOCATE THE UNIT INTO THE LARGER INSTALLATION AND SECURE IT TO THE ADJACENT UNITS WITH STACKING CLIPS.
2. SLIDE THE INSPECTION PORT PIPE INTO THE EZ-TEE.

INSPECTION PIPE INSERTION

NOTES:
1. THE INSPECTION PORT IS USED IN THE ACCESS MODULE TO INSPECT THE LEVEL OF SEDIMENT ACCUMULATION AND FOR FLUSHING MAINTENANCE.
2. MINIMUM REQUIRED MAINTENANCE INCLUDES A QUARTERLY INSPECTION DURING THE FIRST YEAR OF OPERATION AND A YEARLY INSPECTION THEREAFTER, FLUSH AS NEEDED.
3. R-TANK^{MD} MAY BE USED IN TRAFFIC APPLICATIONS. SEE TRAFFIC LOADING CHART FOR DEPTH OF FILL AND MAXIMUM COVER REQUIREMENTS.
4. IF INSPECTION PORT IS LOCATED IN A NON-TRAFFIC AREA, A PLASTIC CAP CAN BE USED IN LIEU OF A FRAME AND COVER WITH CONCRETE COLLAR.

FINAL INSPECTION PORT ASSEMBLY

R-TANK^{MD} TYPICAL INSPECTION PORT

R-TANK^{MD} SIDE PANEL DETAIL

R-TANK^{MD} TOP PLATE DETAIL

R-TANK^{MD} STACKING CLIP DETAIL

DATE	INITIALS	DESCRIPTIONS
1/16/2026	BTF	REVISED BYPASS PIPE SIZES

R-TANK

DISTRIBUTED BY: FERGUSON WATERWORKS

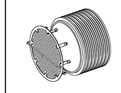
R-Tank
MODULAR STORMWATER STORAGE SYSTEM

SYSTEM DETAILS
OPSTAD ELEMENTARY SCHOOL PARKING LOT
NORTH BEND, WA

DRAWN BY: BTF
DATE: 01/09/2026
SHEET NO.: 5 of 6

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO FERGUSON WATERWORKS BY THE DESIGN ENGINEER, CONTRACTOR, OR OTHER PROJECT REPRESENTATIVE. THE ENGINEER OF RECORD SHALL REVIEW AND APPROVED THAT THE DEPICTED LAYOUT AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE REGULATIONS AND PROJECT SPECIFIC REQUIREMENTS.

NTS
R-Tank Module and Inspection Port Details 3

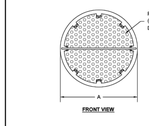




R-TANK UNIT LOAD RATING					
UNIT TYPE	COMPRESSION STRENGTH	NON-VEHICULAR MIN. COVER*	HS-20 MIN. COVER*	HS-25 MIN. COVER*	MAX. COVER*
MD	64.0 PSI	12"	15"	18"	9.99'

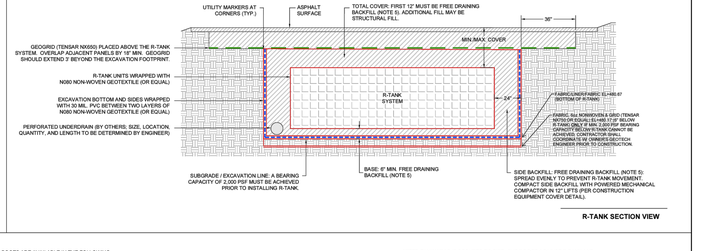
* MINIMUM AND MAXIMUM COVER ARE MEASURED FROM THE TOP OF THE R-TANK UNIT TO THE TOP OF THE FINISHED SURFACE.

NOTES:
1. INSTALLATIONS PER THIS DETAIL MEET GUIDELINES OF HL-93 LOADING PER THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
2. PROVIDE A LEVEL BASE, SMOOTH, FREE OF LUMPS OR DEBRIS, AND EXTEND 2' BEYOND R-TANK FOOTPRINT. THE ENGINEER OF RECORD IS RESPONSIBLE FOR ASSESSING THE BEARING CAPACITY OF THE SUBGRADE AND BASE.
3. FOR INSTALLATIONS IN LANDSCAPED AREAS, THE INSTALLATION OF TREES IS PROHIBITED ABOVE THE R-TANK UNITS. PLEASE CONTACT YOUR LOCAL FERGUSON WATERWORKS REPRESENTATIVE FOR MORE INFORMATION.
4. THE R-TANK SYSTEM IS NOT DESIGNED TO SUPPORT LOADS FROM BUILDINGS OR STRUCTURES. THEREFORE, THE ENGINEER OF RECORD SHALL WORK COLLABORATIVELY WITH THE PROPER DISCIPLINES TO ENSURE NO STRUCTURAL LOADS ARE IMPARTED UPON THE SYSTEM AND ANY INFILTRATION FROM THE SYSTEM HAS BEEN ACCOUNTED FOR IN THE FOUNDATION DESIGN.
5. BACKFILL MATERIAL SHALL BE STONE (ANGULAR AND SMALLER THAN 1.5" IN DIAMETER) OR SOIL (GW, GP, SW, OR SP AS CLASSIFIED BY THE UNIFIED SOIL CLASSIFICATION SYSTEM).
6. USE OF CRUSHED RECYCLED CONCRETE OR ASPHALT FOR FREE DRAINING BACKFILL MATERIAL IS NOT ALLOWED.

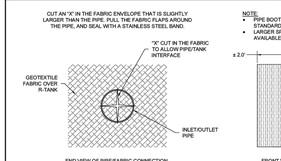


PART NUMBER	PIPE DIA.	SCREEN DIA. (A)	DEPTH (B)	SPRING TAB DIA. (C)	MAX WEIGHT (LBS.)	FILTERED FLOW RATE (CFS)
OPAB-1	8"	9.00"	3.25"	7.79"	5.00	0.25
OPA10-1	10"	11.00"	4.25"	9.79"	5.00	0.80
OPA10-1	12"	13.25"	4.25"	12.00"	5.00	1.20
OPA15-1	15"	16.25"	4.25"	15.14"	5.00	2.00
OPA18-1	18"	20.25"	4.25"	18.00"	5.00	3.30
OPA24-1	24"	26.25"	7.50"	24.00"	8.00	5.20

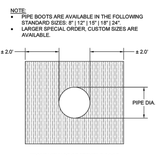
DEBRIS SCREEN PRETREATMENT DETAIL

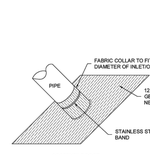


R-TANK SECTION VIEW

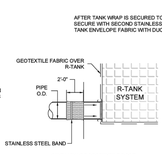


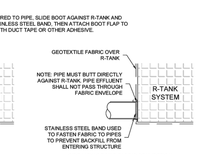
NOTE:
- PIPE BOOTS ARE AVAILABLE IN THE FOLLOWING STANDARD SIZES: 8" | 12" | 15" | 18" | 24".
- LARGER SPECIAL ORDER, CUSTOM SIZES ARE AVAILABLE.





AFTER TANK WRAP IS SECURED TO PIPE, SLIDE BOOT AGAINST R-TANK AND SECURE WITH SECOND STAINLESS STEEL BAND. THEN ATTACH BOOT FLAP TO TANK ENVELOPE FABRIC WITH DUCT TAPE OR OTHER ADHESIVE.





R-TANK TYPICAL TANK INLET/OUTLET W/ GEOTEXTILE PIPE BOOT DETAIL

DATE	INITIALS	DESCRIPTIONS
1/16/2026	BTF	REVISED BYPASS PIPE SIZES

R-TANK

DISTRIBUTED BY: FERGUSON WATERWORKS

R-Tank
MODULAR STORMWATER STORAGE SYSTEM

SYSTEM DETAILS
OPSTAD ELEMENTARY SCHOOL PARKING LOT
NORTH BEND, WA

DRAWN BY: BTF
DATE: 01/09/2026
SHEET NO.: 4 of 6

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO FERGUSON WATERWORKS BY THE DESIGN ENGINEER, CONTRACTOR, OR OTHER PROJECT REPRESENTATIVE. THE ENGINEER OF RECORD SHALL REVIEW AND APPROVED THAT THE DEPICTED LAYOUT AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE REGULATIONS AND PROJECT SPECIFIC REQUIREMENTS.

NTS
R-Tank Geotextile Details 4

CITY OF NORTH BEND PERMIT#_____

THESE PLANS ARE APPROVED FOR CONFORMANCE WITH THE CITY OF NORTH BEND PUBLIC WORKS DEPARTMENT REQUIREMENTS TO THE BEST OF MY KNOWLEDGE.

CITY ENGINEER OR PUBLIC WORKS DIRECTOR DATE

JACOBSON
CONSULTING ENGINEERS

JACOBSONENGINEERS.COM

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE,
NORTH BEND, WA 98045

BID SET

04/16/2026

Revisions

Mark	Date	Description

Checked By:
JAJ

Drawn By:
AJJ

Dwg File:
STRM-DETL-OES.DWG

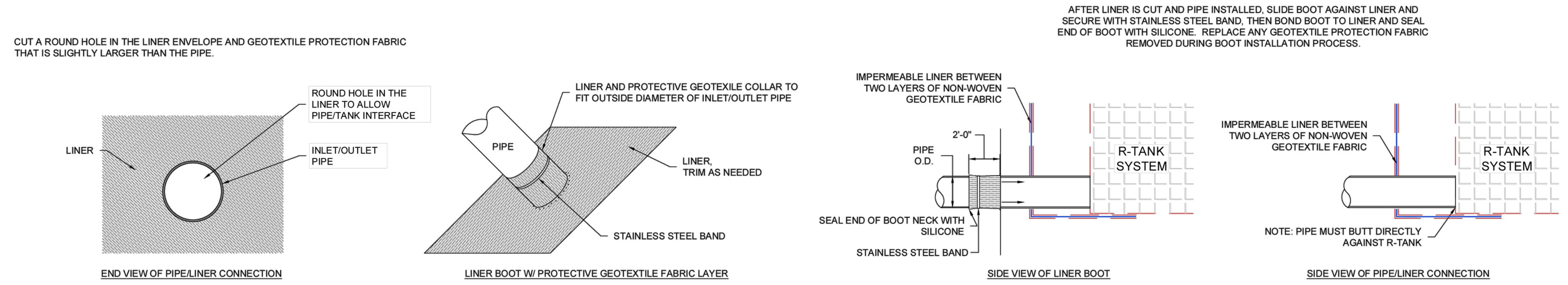
Sheet Title
DRAINAGE DETAILS

Sheet
C6.13

P:_2023\OPSTAD ES PARKING LOT C230073-0181\CAD\03-SHEETS\STRM-DETL-OES, 4/14/2026 11:46 AM

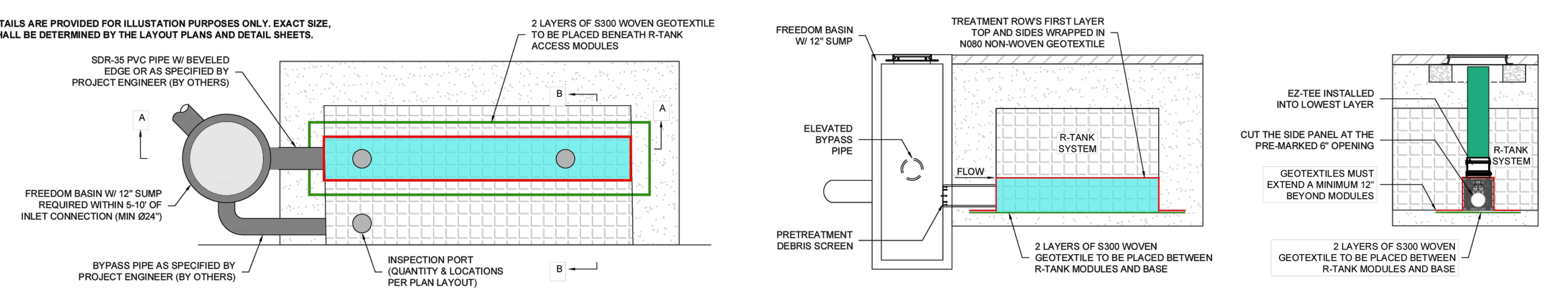
AFTER LINER IS CUT AND PIPE INSTALLED, SLIDE BOOT AGAINST LINER AND SECURE WITH STAINLESS STEEL BAND, THEN BOND BOOT TO LINER AND SEAL END OF BOOT WITH SILICONE. REPLACE ANY GEOTEXTILE PROTECTION FABRIC REMOVED DURING BOOT INSTALLATION PROCESS.

CUT A ROUND HOLE IN THE LINER ENVELOPE AND GEOTEXTILE PROTECTION FABRIC THAT IS SLIGHTLY LARGER THAN THE PIPE.



R-TANK TYPICAL EXCAVATION INLET/OUTLET W/ LINER PIPE BOOT DETAIL

NOTE: TREATMENT ROW DETAILS ARE PROVIDED FOR ILLUSTATION PURPOSES ONLY. EXACT SIZE, SECTION, AND LOCATION SHALL BE DETERMINED BY THE LAYOUT PLANS AND DETAIL SHEETS.



R-TANK TREATMENT ROW PLAN VIEW

R-TANK TREATMENT ROW SECTION A-A

R-TANK TREATMENT ROW SECTION B-B

DATE	INITIALS	DESCRIPTIONS
1/16/2026	BTF	REVISED BYPASS PIPE SIZES

DISTRIBUTED BY: FERGUSON WATERWORKS

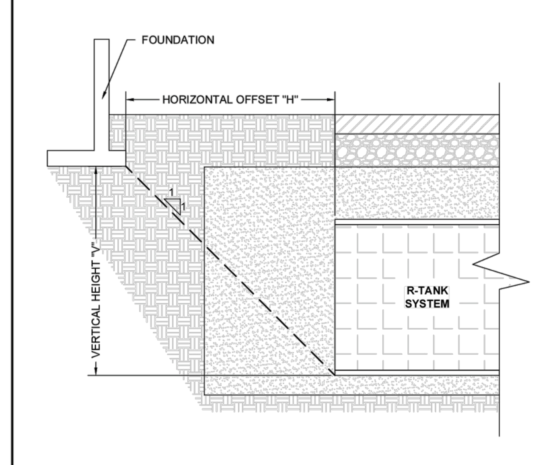
R-Tank
MODULAR STORMWATER STORAGE SYSTEM

SYSTEM DETAILS
OPSTAD ELEMENTARY SCHOOL PARKING LOT
NORTH BEND, WA

DRAWN BY BTF | DATE 01/09/2026 | SHEET NO. 5 of 8

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO FERGUSON WATERWORKS BY THE DESIGN ENGINEER, CONTRACTOR, OR OTHER PROJECT REPRESENTATIVE. THE ENGINEER OF RECORD SHALL REVIEW AND APPROVED THAT THE DEPICTED LAYOUT AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE REGULATIONS AND PROJECT SPECIFIC REQUIREMENTS.

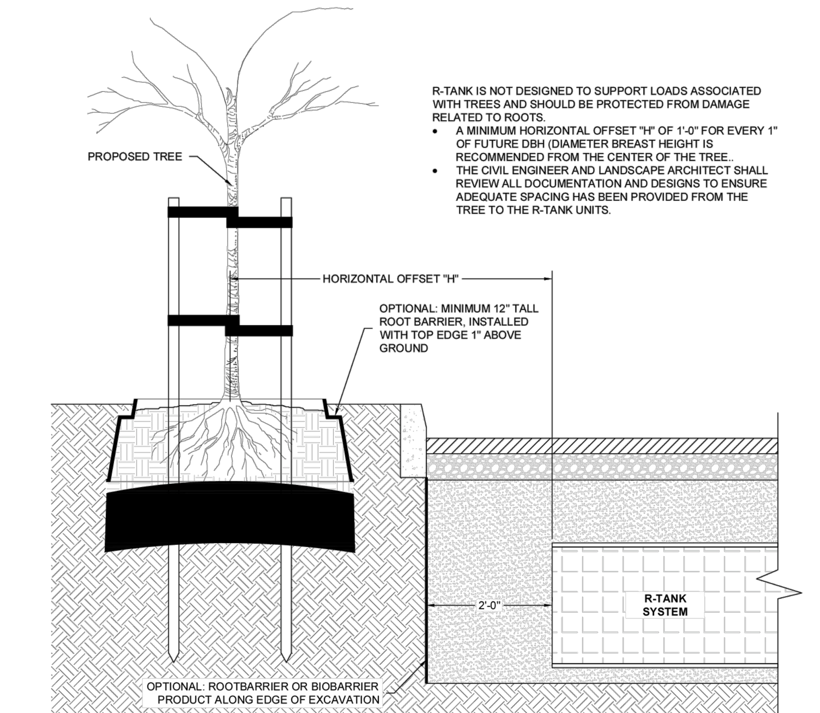
NTS
R-Tank Treatment Row 1



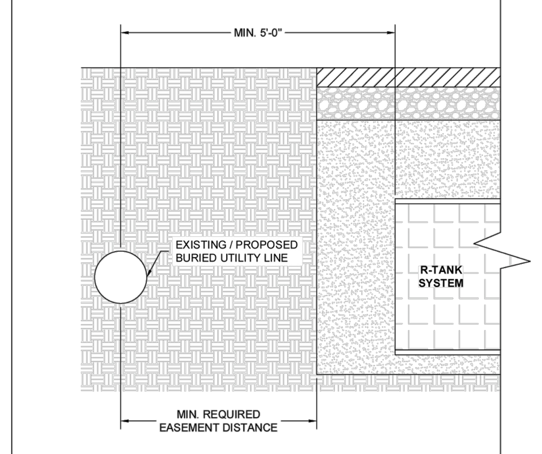
R-TANK IS NOT DESIGNED TO SUPPORT STRUCTURAL LOADS ASSOCIATED WITH BUILDINGS, RETAINING WALLS OR OTHER STRUCTURES.
- THE CIVIL ENGINEER AND STRUCTURAL ENGINEER SHALL REVIEW ALL DOCUMENTATION AND DESIGNS TO ENSURE NO STRUCTURAL LOADS ARE APPLIED BY THE STRUCTURE ON THE R-TANK UNITS. IT IS RECOMMENDED THAT ALL R-TANK UNITS BE INSTALLED ABOVE THE ELEVATION OF ANY SUBSURFACE STRUCTURAL ELEMENTS SUCH AS FOOTERS. IF THIS CANNOT BE ACHIEVED, IT RECOMMENDED THAT A MINIMUM 1:1 ZONE OF INFLUENCE, SITE SPECIFIC SOILS MAY REQUIRE GREATER SEPARATION DISTANCE, BE MAINTAINED BETWEEN THE STRUCTURAL ELEMENT AND THE UNITS.
- THE STRUCTURAL ENGINEER AND GEOTECHNICAL ENGINEER SHALL REVIEW ALL DOCUMENTATION AND DESIGNS TO ENSURE PROPER STABILITY OF STRUCTURAL ELEMENTS DURING SATURATED SOIL CONDITIONS POTENTIALLY CAUSED BY THE PROXIMITY OF INFILTRATION FACILITIES TO THE STRUCTURAL ELEMENTS.

R-TANK - MINIMUM OFFSET DETAIL

R-TANK IS NOT DESIGNED TO SUPPORT LOADS ASSOCIATED WITH TREES AND SHOULD BE PROTECTED FROM DAMAGE RELATED TO ROOTS.
- A MINIMUM HORIZONTAL OFFSET "H" OF 1'-0" FOR EVERY 1" OF FUTURE DBH (DIAMETER BREAST HEIGHT IS RECOMMENDED FROM THE CENTER OF THE TREE..
- THE CIVIL ENGINEER AND LANDSCAPE ARCHITECT SHALL REVIEW ALL DOCUMENTATION AND DESIGNS TO ENSURE ADEQUATE SPACING HAS BEEN PROVIDED FROM THE TREE TO THE R-TANK UNITS.



R-TANK - TREE OFFSET DETAIL



THE EXCAVATION FOR THE PERIMETER OF THE R-TANK SYSTEM SHALL NOT ENCROACH ON ANY EXISTING OR PROPOSED EASEMENTS, UNLESS EXPRESSLY GRANTED. IN CASES WHERE NO EASEMENT EXISTS, THE R-TANK UNITS SHALL BE A MINIMUM 5' FROM THE CENTERLINE OF THE UTILITY LINE, UNLESS EXPRESSLY GRANTED BY THE UTILITY OWNER.

R-TANK - UTILITY OFFSET DETAIL

DATE	INITIALS	DESCRIPTIONS
1/16/2026	BTF	REVISED BYPASS PIPE SIZES

DISTRIBUTED BY: FERGUSON WATERWORKS

R-Tank
MODULAR STORMWATER STORAGE SYSTEM

SYSTEM DETAILS
OPSTAD ELEMENTARY SCHOOL PARKING LOT
NORTH BEND, WA

DRAWN BY BTF | DATE 01/09/2026 | SHEET NO. 6 of 8

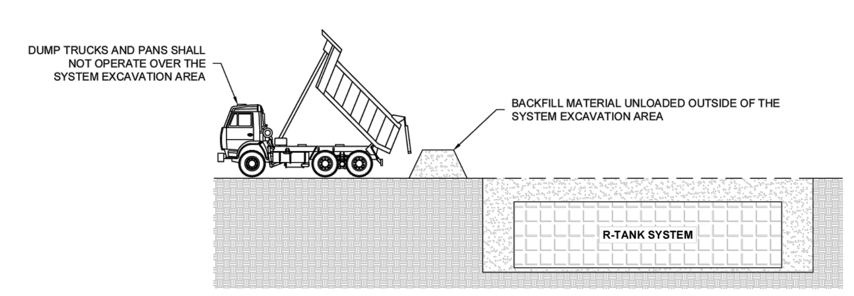
THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO FERGUSON WATERWORKS BY THE DESIGN ENGINEER, CONTRACTOR, OR OTHER PROJECT REPRESENTATIVE. THE ENGINEER OF RECORD SHALL REVIEW AND APPROVED THAT THE DEPICTED LAYOUT AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE REGULATIONS AND PROJECT SPECIFIC REQUIREMENTS.

NTS
R-Tank Offset and Excavation Details 2

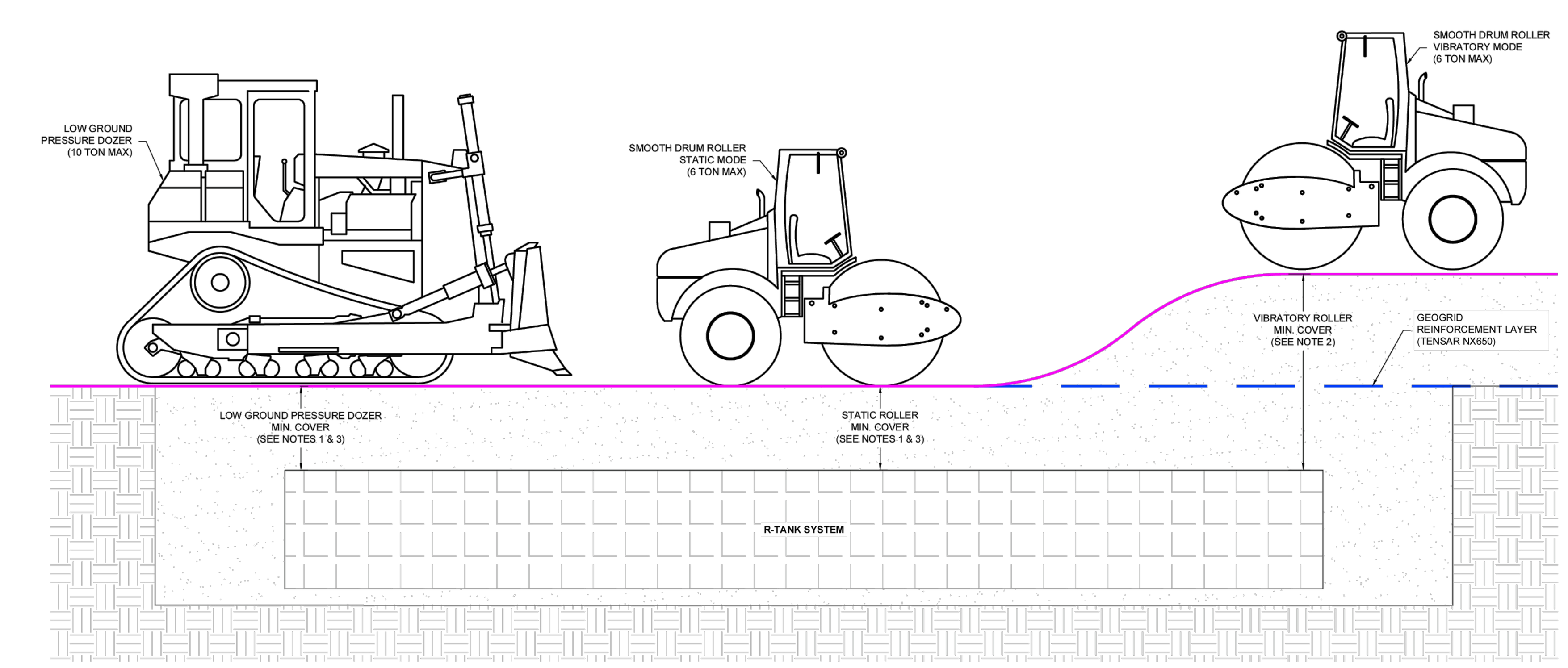
R-TANK CONSTRUCTION EQUIPMENT RECOMMENDATIONS

UNIT TYPE	COMPRESSION STRENGTH	10 TON LOW GROUND PRESSURE DOZER MIN. COVER	6 TON SMOOTH DRUM STATIC ROLLER MIN. COVER	6 TON SMOOTH DRUM VIBRATORY ROLLER MIN. COVER
HD	33.0 PSI	12" (SEE NOTE 1, 2 & 3)	12" (SEE NOTE 1, 2 & 3)	24" (SEE NOTE 2)
SD	42.0 PSI	12" (SEE NOTE 1, 2 & 3)	12" (SEE NOTE 1, 2 & 3)	24" (SEE NOTE 2)
MD	64.0 PSI	12" (SEE NOTE 1, 2 & 3)	12" (SEE NOTE 1, 2 & 3)	24" (SEE NOTE 2)

NOTES:
1. FOLLOWING PLACEMENT OF SIDE BACKFILL, A UNIFORM 12" LIFT OF THE FREELY DRAINING MATERIAL (SPEC SECTION 2.03 B1) SHALL BE PLACED OVER THE R-TANK AND LIGHTLY COMPACTED USING A WALK-BEHIND TRENCH ROLLER. ALTERNATELY, A ROLLER (MAXIMUM GROSS VEHICLE WEIGHT OF 6 TONS) MAY BE USED. ROLLER MUST REMAIN IN STATIC MODE UNTIL A MINIMUM OF 24" OF COVER HAS BEEN PLACED OVER THE MODULES. SHEEP FOOT ROLLERS SHOULD NOT BE USED. **SPEC SECTION 3.05 A5**
2. AFTER THE GEOGRID IS INSTALLED OVER THE INITIAL LAYER, THE GRADED AGGREGATE BASE MATERIALS CAN BE PUSHED OUT (MAX MACHINE SIZE IS 10 TON LGP DOZER OR SMALLER) IN A SINGLE LIFT AND STATIC ROLLED BY A MACHINE WITH A MAX GROSS VEHICLE WEIGHT OF 6 TONS. ROLLER MUST REMAIN IN STATIC MODE UNTIL A MINIMUM OF 24" OF COVER HAS BEEN PLACED OVER THE MODULES. SHEEP FOOT ROLLERS SHOULD NOT BE USED. SPEC SECTION 3.05 A5
2. ONLY LOW PRESSURE TIRE OR TRACK VEHICLES (LESS THAN 7 PSI AND OPERATING WEIGHT OF LESS THAN 20,000 LBS) SHALL BE OPERATED OVER THE R-TANK SYSTEM DURING CONSTRUCTION. **SPEC SECTION 3.05 A5**
3. DUMP TRUCKS AND PANS SHALL NOT BE OPERATED WITHIN THE R-TANK SYSTEM AT ANY TIME. WHERE NECESSARY, THE HEAVY EQUIPMENT SHOULD UNLOAD IN AN AREA ADJACENT TO THE R-TANK SYSTEM AND THE MATERIAL SHOULD BE MOVED OVER THE SYSTEM WITH TRACKED EQUIPMENT. **SPEC SECTION 3.05 A5**
4. ENSURE THAT ALL UNRELATED CONSTRUCTION TRAFFIC IS KEPT AWAY FROM THE LIMITS OF EXCAVATION UNTIL THE PROJECT IS COMPLETE AND FINAL SURFACE MATERIALS ARE IN PLACE. NO NON-INSTALLATION RELATED LOADING SHOULD BE ALLOWED OVER THE R-TANK SYSTEM UNTIL THE FINAL DESIGN SECTION HAS BEEN CONSTRUCTED (INCLUDING PAVEMENT). **SPEC SECTION 3.05 B**
5. SEE R-TANK INSTALLATION GUIDE OR CONTACT YOUR LOCAL FERGUSON REPRESENTATIVE FOR ADDITIONAL INFORMATION.



DUMP TRUCK DETAIL



R-TANK HD, SD OR MD CONSTRUCTION EQUIPMENT COVER DETAIL - VEHICULAR TRAFFIC

DATE	INITIALS	DESCRIPTIONS
1/16/2026	BTF	REVISED BYPASS PIPE SIZES

DISTRIBUTED BY: FERGUSON WATERWORKS

R-Tank
MODULAR STORMWATER STORAGE SYSTEM

CONSTRUCTION EQUIPMENT COVER DETAIL
OPSTAD ELEMENTARY SCHOOL PARKING LOT
NORTH BEND, WA

DRAWN BY BTF | DATE 01/09/2026 | SHEET NO. 7 of 8

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO FERGUSON WATERWORKS BY THE DESIGN ENGINEER, CONTRACTOR, OR OTHER PROJECT REPRESENTATIVE. THE ENGINEER OF RECORD SHALL REVIEW AND APPROVED THAT THE DEPICTED LAYOUT AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE REGULATIONS AND PROJECT SPECIFIC REQUIREMENTS.

NTS
R-Tank Equipment Cover Details 3

R-TANK SPECIFICATION

PART 1 GENERAL

1.01 SUMMARY
A. THIS SECTION INCLUDES SPECIFICATIONS OR THE SUPPLY AND INSTALLATION OF MODULAR STORMWATER STORAGE UNITS, SPECIFICALLY THE FAMILY OF R-TANK STORMWATER STORAGE SYSTEM (HEREAFTER CALLED R-TANK).

1.02 QUALITY CONTROL
A. **MANUFACTURER QUALIFICATIONS:** THE R-TANK MODULAR STORMWATER STORAGE UNITS SHALL BE SUPPLIED BY FERGUSON WATERWORKS AND MANUFACTURED IN ISO CERTIFIED FACILITIES.
a. MANUFACTURER SAMPLES SHALL BE PROVIDED TO THE CLIENT & CONTRACTOR FOR REVIEW UPON REQUEST.
b. A MANUFACTURER'S REPRESENTATIVE IS AVAILABLE FOR PRE-INSTALLATION CONFERENCE, PER SECTION 1.05 & SITE REVIEW, UPON REQUEST.

1.03 SUBMITTALS
A. SUBMIT PRODUCT DATA, INSTALLATION GUIDELINES, AND PRODUCT CERTIFICATIONS FOR THE R-TANK MODULAR STORMWATER STORAGE UNITS.
a. R-TANK LAYOUT DRAWINGS, INCLUDING TYPICAL SECTIONS, DETAILS AS WELL AS THE REQUIRED BASE ELEVATION OF STONE AND TANKS, MINIMUM COVER REQUIREMENTS AND TANK CONFIGURATION.
b. R-TANK PRODUCT DATA, INCLUDING COMPRESSIVE STRENGTH, AND INSTALLATION GUIDELINES.
c. ACCESSORY MATERIAL DOCUMENTATION / CERTIFICATES FOR GEOTEXTILE, GEOGRID, BASE COURSE AND BACKFILL MATERIALS.
B. ANY PROPOSED EQUAL ALTERNATIVE PRODUCT SUBSTITUTION TO THIS SPECIFICATION MUST BE SUBMITTED FOR REVIEW AND APPROVED PRIOR TO BID OPENING. REVIEW PACKAGE SHOULD INCLUDE THIRD PARTY REVIEWED PERFORMANCE DATA THAT MEETS OR EXCEEDS CRITERIA IN TABLE 2.01 B.

1.04 DELIVERY, STORAGE, AND HANDLING
A. PROTECT R-TANK AND OTHER MATERIALS FROM DAMAGE DURING DELIVERY AND OFFLOADING. HANDLING IS TO BE PERFORMED WITH EQUIPMENT APPROPRIATE TO THE MATERIALS AND SITE CONDITIONS.
B. STORAGE OF MATERIALS SHOULD BE ON SMOOTH SURFACES, FREE FROM DIRT, MUD AND DEBRIS, AND AWAY FROM ANY OPEN FLAME, WELDING OPERATIONS, OR OTHER POTENTIAL HEAT SOURCES. UV SENSITIVE MATERIALS AND R-TANK UNITS SHOULD BE STORED UNDER A TARP TO PROTECT FROM SUNLIGHT WHEN TIME FROM DELIVERY TO INSTALLATION EXCEEDS TWO WEEKS.
C. WHEN HANDLING AND INSTALLING PRODUCT IN COLD WEATHER:
a. WHEN THE AIR TEMPERATURE IS 40° F OR BELOW, CARE MUST BE TAKEN WHEN HANDLING PLASTICS TO ENSURE NO CRACKING. DO NOT USE FROZEN MATERIALS, OR MATERIALS COATED WITH ICE OR FROST.
b. DO NOT BUILD ON FROZEN GROUND OR WET, SATURATED OR MUDDY SUBGRADE.

1.05 PREINSTALLATION CONFERENCE.
A. PRIOR TO THE START OF THE INSTALLATION, A PRE-INSTALLATION CONFERENCE SHALL OCCUR WITH THE REPRESENTATIVES FROM THE DESIGN TEAM, THE GENERAL CONTRACTOR, THE EXCAVATION CONTRACTOR, THE R-TANK INSTALLATION CONTRACTOR, AND THE MANUFACTURER'S REPRESENTATIVE.
B. THE PRE-INSTALLATION CONFERENCE SHALL REVIEW THE LAYOUT DRAWINGS, PRE-CONSTRUCTION CHECKLIST, AND DISCUSS KEY STEPS OF THE PROCESS. THE PRE-CONSTRUCTION CHECKLIST SHALL BE SIGNED AND DATED BY ALL PARTICIPANTS.

1.06 PROJECT CONDITIONS
A. COORDINATE INSTALLATION FOR THE R-TANK SYSTEM WITH OTHER ON-SITE ACTIVITIES TO ELIMINATE ALL NON-INSTALLATION RELATED CONSTRUCTION TRAFFIC OVER THE COMPLETED R-TANK SYSTEM.
B. PROTECT ADJACENT WORK FROM DAMAGE DURING R-TANK SYSTEM INSTALLATION.
C. PROVIDE PROPER SEDIMENT CONTROLS TO PREVENT SEDIMENT INTRUSION, IF THE SYSTEM IS OPERATIONAL DURING CONSTRUCTION.
D. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO THE SYSTEM DURING CONSTRUCTION.
E. ALL PRE-TREATMENT SYSTEMS MUST BE IN PLACE AND FUNCTIONAL PRIOR TO OPERATION OF THE R-TANK SYSTEM.

PART 2 PRODUCTS

2.01 R-TANK UNITS
A. INJECTION MOLDED PLASTIC TANK COMPONENTS ASSEMBLED TO FORM A MODULAR STRUCTURE OF PREDESIGNED HEIGHT.
B. R-TANK UNITS SHALL MEET THE FOLLOWING PHYSICAL & CHEMICAL CHARACTERISTICS:

PROPERTY	DESCRIPTION	$R\text{-}Tank^{HD}$	$R\text{-}Tank^{SD}$	$R\text{-}Tank^{MD}$	$R\text{-}Tank^{UD}$	$R\text{-}Tank^{XD}$
Void Area	Volume available for water storage	95%	95%	95%	95%	90%
Surface Void Area	Percentage of exterior available for infiltration	90%	90%	90%	90%	90%
Vertical Compressive Strength	ASTM D 2412 / ASTM F 2418	33.0 psi	42.0 psi	64.0 psi	134.0 psi	240.0 psi
Lateral Compressive Strength	ASTM D 2412 / ASTM F 2418	20.0 psi	22.0 psi	35.0 psi	19.0 psi	N/A
HS-20 Minimum Cover	Cover required to support HS-20 loads	20"	18"	15"	12"	6"
HS-25 Minimum Cover	Cover required to support HS-25 loads	24"	21"	18"	15"	6"
Maximum Cover	Maximum allowable cover depth	< 7 feet	< 10 feet	< 10 feet	< 7 feet	< 10 feet
Unit Weight	Weight of plastic per cubic foot of tank	3.62 lbs/cf	3.96 lbs / cf	3.53 lbs / cf	4.33 lbs / cf	7.55 lbs / cf
Service Temperature	Safe temperature range for use	-14 – 167° F	-14 – 167° F	-14 – 167° F	-14 – 167° F	-14 to 185° F

2.02 GEOSYNTHETICS
A. GEOTEXTILE
a. STANDARD APPLICATION: THE STANDARD GEOTEXTILE SHALL BE AN 8 OZ PER SQUARE YARD NONWOVEN GEOTEXTILE.
b. INFILTRATION APPLICATIONS: WHEN WATER MUST INFILTRATE/EXFILTRATE THROUGH THE GEOTEXTILE AS A FUNCTION OF THE SYSTEM DESIGN, A WOVEN MONOFILAMENT SHALL BE USED. IN SPECIALTY APPLICATIONS, A MICROGRID/MESH MAY BE APPROVED AS AN ALTERNATIVE SEPARATION FABRIC, IN CONSULTATION WITH THE MANUFACTURER'S REPRESENTATIVE.
c. LINED APPLICATIONS: WHEN WATER MUST BE RETAINED WITHIN THE TANKS TO PREVENT INFILTRATION/EXFILTRATION, AN IMPERMEABLE LINER SHALL BE USED. THE LINER MATERIAL AND THICKNESS SHALL BE SPECIFIED BY THE PROJECT DESIGN ENGINEER. THIS LINER SHOULD BE INSTALLED PER LINER MANUFACTURER SPECIFICATIONS AND INDUSTRY ACCEPTED TECHNIQUES.
B. GEOGRID
a. FOR INSTALLATIONS SUBJECT TO TRAFFIC LOADS, INSTALL GEOGRID TO REINFORCE BACKFILL ABOVE THE R-TANK SYSTEM.
b. GEOGRID IS NOT REQUIRED FOR $R\text{-}TANK^{XD}$ AND IS OFTEN NOT REQUIRED FOR NON-TRAFFIC LOAD APPLICATIONS.

2.03 BEDDING, BACKFILL & COVER MATERIALS
A. ALL MATERIALS SHALL BE FREE FROM LUMPS, DEBRIS, AND ANY SHARP OBJECTS THAT COULD CUT THE GEOTEXTILE.
B. **BEDDING MATERIALS:** STONE (ANGULAR AND SMALLER THAN 1.5" IN DIAMETER) OR SOIL (GW, GP, SW, OR SP AS CLASSIFIED BY THE UNIFIED SOIL CLASSIFICATION SYSTEM) SHALL BE USED BELOW THE R-TANK SYSTEM (3" MINIMUM AND 12" MAXIMUM). FOR INFILTRATION APPLICATIONS BEDDING MATERIAL SHALL BE FREE DRAINING.
C. **SIDE AND TOP BACKFILL:** RECOMMENDED BACKFILL MATERIAL SHOULD BE CLEAN AND FREE OF DEBRIS, WITH A PARTICLE SIZE DISTRIBUTION THAT IS APPROPRIATE FOR THE SPECIFIC APPLICATION. IDENTICAL BACKFILL MATERIAL SHALL BE USED ON THE SIDE AND TOP OF THE UNITS.
a. TRAFFIC APPLICATIONS: BACKFILL MATERIALS SHALL BE FREE DRAINING STONE (ANGULAR AND SMALLER THAN 1.5" IN DIAMETER) OR SOIL (GW, GP, SW, OR SP AS CLASSIFIED BY THE UNIFIED SOIL CLASSIFICATION SYSTEM).
b. NON-TRAFFIC APPLICATIONS - FOR ALL R-TANK MODULES INSTALLED IN GREEN SPACES AND NOT SUBJECTED TO VEHICULAR LOADS, BACKFILL MATERIALS MAY EITHER FOLLOW THE GUIDELINES FOR TRAFFIC APPLICATIONS ABOVE, OR THE TOP BACKFILL LAYER MAY CONSIST OF AASHTO #57 STONE BLENDED WITH 30-40% (BY VOLUME) TOPSOIL TO AID IN ESTABLISHING VEGETATION.
c. BIOFILTRATION / BIORETENTION APPLICATIONS - BACKFILL MATERIALS SHALL BE IN ACCORDANCE WITH THE CROSS-SECTION FOR THE SPECIFIC BIOFILTRATION/BIORETENTION APPLICATION AND MEDIA. A LAYER OF BRIDGING STONE SHALL SEPARATE THE SOIL MEDIA FROM THE R-TANK UNITS.
D. **ADDITIONAL COVER MATERIALS:** ADDITIONAL COVER MATERIAL SHALL BE STRUCTURAL FILL MEETING THE GRADATIONAL REQUIREMENTS OF SM, SP, SW, GM, GP, OR GW AS CLASSIFIED BY THE UNIFIED SOIL CLASSIFICATION SYSTEM. STRUCTURAL FILL SHALL BE SPECIFIED BY THE ENGINEER OF RECORD.

2.04 OTHER MATERIALS
A. **UTILITY MARKER:** INSTALL METALLIC TAPE AT CORNERS OF R-TANK SYSTEM TO MARK THE AREA FOR FUTURE UTILITY DETECTION.

PART 3 EXECUTION

3.01 EXCAVATION PREPARATION
A. VERIFY THE SITE CONDITIONS ARE SUITABLE FOR PRODUCT STORAGE AND INSTALLATION PER GUIDELINES.
B. ALL EXCAVATIONS MUST MEET OSHA SAFETY STANDARDS FOR SLOPES OR SHORING.
C. STAKE OUT, EXCAVATE, AND PREPARE THE SUBGRADE AREA PER GEOTECHNICAL ENGINEER'S RECOMMENDATIONS AND/OR AS SHOWN ON THE DESIGN DRAWINGS, TO PROVIDE ADEQUATE SUPPORT FOR PROJECT DESIGN LOADS.
a. ENSURE THAT THE EXCAVATION IS AT LEAST 2 FEET GREATER THAN R-TANK DIMENSIONS IN EACH DIRECTION ALLOWING FOR INSTALLATION OF GEOTEXTILE FILTER FABRIC, R-TANK MODULES, AND FREE DRAINING BACKFILL MATERIALS.
b. BASE OF THE EXCAVATION SHALL BE UNIFORM, LEVEL, AND FREE OF LUMPS OR DEBRIS AND SOFT OR YIELDING SUBGRADE AREAS.
D. **UNSUITABLE SOILS OR CONDITIONS:** ALL QUESTIONS ABOUT THE BASE OF THE EXCAVATION SHALL BE DIRECTED TO THE OWNER'S ENGINEER. THE OWNER'S ENGINEER SHALL DETERMINE THE REQUIRED BEARING CAPACITY OF THE R-TANK SUBGRADE; HOWEVER, IN NO CASE SHALL A BEARING CAPACITY OF LESS THAN 2,000 POUNDS PER SQUARE FOOT BE PROVIDED.

3.02 BEDDING PREPARATION
A. WHERE A GEOTEXTILE WRAP IS SPECIFIED BETWEEN THE NATIVE SOIL AND STONE BASE, CUT STRIPS TO LENGTH, AND INSTALL IN EXCAVATION, REMOVING WRINKLES SO MATERIAL LAYS FLAT.
a. OVERLAP GEOTEXTILE A MINIMUM 12" OR AS RECOMMENDED BY MANUFACTURER. USE TAPE, SPECIAL ADHESIVES, SANDBAGS, OR OTHER BALLAST TO SECURE OVERLAPS.
b. WHERE AN IMPERVIOUS LINER IS SPECIFIED, INSTALL THE LINER PER MANUFACTURER'S RECOMMENDATIONS AND THE CONTRACT DOCUMENTS. THE LINER SHOULD BE SANDWICHED BETWEEN LAYERS OF NON-WOVEN GEOTEXTILE AT A MINIMUM.
c. AS GEOTEXTILES CAN BE DAMAGED BY EXTREME HEAT, SMOKING IS NOT PERMISSIBLE ON/NEAR THE GEOTEXTILE, AND TOOLS USING A FLAME TO TACK THE OVERLAPS, SUCH AS PROPANE TORCHES, ARE PROHIBITED.
B. PLACE A THIN LAYER (3" UNLESS OTHERWISE SPECIFIED) OF BEDDING MATERIAL (SECTION 2.03B), WITHIN ½" (+/- ¼") OF LEVEL OR AS SHOWN ON THE PLANS. VIBRATORY TAMP OR STATIC ROLL TO PREPARE BEDDING MATERIALS UNTIL THEY ARE FIRM AND UNYIELDING.
C. OUTLINE THE FOOTPRINT OF THE R-TANK SYSTEM ON THE EXCAVATION FLOOR USING SPRAY PAINT OR CHALK LINE TO ENSURE A 2' PERIMETER IS AVAILABLE AROUND THE R-TANK SYSTEM FOR PROPER INSTALLATION AND COMPACTION OF BACKFILL.

3.03 LAYOUT AND INSTALLATION OF R-TANK UNITS
A. INSTALL A GEOTEXTILE WRAP BY CUTTING STRIPS TO LENGTH AND REMOVING WRINKLES SO MATERIAL LAYS FLAT.
a. OVERLAP GEOTEXTILE A MINIMUM 12" OR AS RECOMMENDED BY MANUFACTURER. USE TAPE, SPECIAL ADHESIVES, SANDBAGS, OR OTHER BALLAST TO SECURE OVERLAPS.
b. WHERE AN IMPERVIOUS LINER IS SPECIFIED, INSTALL THE LINER PER MANUFACTURER'S RECOMMENDATIONS AND THE CONTRACT DOCUMENTS. THE LINER SHOULD BE SANDWICHED BETWEEN LAYERS OF NON-WOVEN GEOTEXTILE AT A MINIMUM.
c. AS GEOTEXTILES CAN BE DAMAGED BY EXTREME HEAT, SMOKING IS NOT PERMISSIBLE ON/NEAR THE GEOTEXTILE, AND TOOLS USING A FLAME TO TACK THE OVERLAPS, SUCH AS PROPANE TORCHES, ARE PROHIBITED.
B. MARK OR OUTLINE THE UNIT AREA TO ENSURE A SQUARE AND STRAIGHT INSTALLATION.
C. ASSEMBLE R-TANK UNITS IN ACCORDANCE WITH THE R-TANK DRAWINGS AND INSTALLATION GUIDELINES.
D. INSTALL R-TANK MODULES BY PLACING SIDE BY SIDE, IN ACCORDANCE WITH THE DESIGN DRAWINGS. THE MODULES ARE TO BE ORIENTED AS PER THE DESIGN DRAWING WITH REQUIRED DEPTH AS SHOWN ON PLANS.
a. FOR HD AND SD INSTALLATIONS, THE LARGE SIDE PLATE OF THE TANK SHOULD BE PLACED ON THE PERIMETER OF THE SYSTEM. THIS WILL TYPICALLY REQUIRE THAT THE ENDS OF THE TANK AREA WILL HAVE A ROW OF TANKS PLACED PERPENDICULAR TO ALL OTHER TANKS. REFER TO R-TANK DRAWINGS AND INSTALLATION GUIDE FOR MORE DETAILS.
b. FOR MD, UD, AND XD INSTALLATIONS, THERE IS NO PERPENDICULAR END ROW REQUIRED.
c. FOR MD INSTALLATION, EXTERNAL SIDE PANELS SHALL BE INSTALLED AROUND THE PERIMETER OF THE SYSTEM. STACKING CLIPS SHALL BE INSTALLED IN EACH TIER AND EACH DIRECTION, AS SHOWN ON DESIGN DRAWING DETAILS.
d. FOR XD INSTALLATIONS, INSTALL STACKING CLIPS AS SPECIFIED IN DESIGN DRAWINGS.
E. COMPLETELY ENCAPSULATE THE R-TANK UNITS IN THE SPECIFIED GEOTEXTILE TO PREVENT BACKFILL ENTRY INTO THE SYSTEM. OVERLAP GEOTEXTILE 12" OR AS RECOMMENDED BY MANUFACTURER. TAKE GREAT CARE TO AVOID DAMAGE TO GEOTEXTILE (AND, IF SPECIFIED, IMPERVIOUS LINER) DURING PLACEMENT.
F. IDENTIFY ANY INLET(S) OR OUTLET(S) LOCATIONS. THE GEOTEXTILE FABRIC SHALL BE CUT TO ENABLE HYDRAULIC CONTINUITY BETWEEN THE CONNECTIONS AND THE R-TANK UNITS. THESE CONNECTIONS SHALL BE SECURED USING PIPE BOOTS WITH STAINLESS STEEL PIPE CLAMPS. SUPPORT PIPE IN TRENCHES DURING BACKFILL OPERATIONS TO PREVENT PIPE FROM SETTLING AND DAMAGING THE GEOTEXTILE WRAP OR PIPE. ENSURE END OF PIPE IS INSTALLED SNUG AGAINST R-TANK SYSTEM.
G. INSTALL INSPECTION AND VENTILATION PORTS IN LOCATIONS NOTED ON PLANS. AT A MINIMUM ONE MAINTENANCE PORT SHALL BE INSTALLED WITHIN 10' OF EACH INLET & OUTLET CONNECTION, AND WITH A MAXIMUM SPACING OF APPROXIMATELY 50' ON CENTER. INSTALL ALL PORTS AS NOTED IN THE R-TANK INSTALLATION GUIDE.

3.04 BACKFILLING OF THE R-TANK UNITS
A. BACKFILL WITH MATERIALS IN ACCORDANCE WITH SECTION 2.03C AND PROJECT SPECIFICATIONS
a. PLACE MATERIAL AROUND THE PERIMETER OF THE UNITS IN LIFTS WITH A MAXIMUM THICKNESS OF 12" AND COMPACTED WITH WALK BEHIND COMPACTION EQUIPMENT.
1. EACH LIFT SHALL BE PLACED AROUND THE ENTIRE PERIMETER SUCH THAT EACH LIFT IS NO MORE THAN 24" HIGHER THAN THE SIDE BACKFILL ALONG ANY OTHER LOCATION ON THE PERIMETER OF THE R-TANK SYSTEM.
2. NO FILL SHALL BE PLACED OVER TOP OF TANKS UNTIL THE SIDE BACKFILL HAS BEEN COMPLETED.
3. EACH LIFT SHALL BE COMPACTED PROJECT SPECIFICATIONS OR UNTIL NO FURTHER DENSIFICATION IS OBSERVED (FOR SELF-COMPACTING STONE MATERIALS). EVEN WHEN "SELF-COMPACTING" BACKFILL MATERIALS ARE SELECTED, A WALK BEHIND VIBRATORY COMPACTOR MUST BE USED.
4. TAKE CARE TO ENSURE THAT THE COMPACTION PROCESS DOES NOT ALLOW THE MACHINERY TO CONTACT THE MODULES DUE TO THE POTENTIAL FOR DAMAGE TO THE GEOTEXTILE AND R-TANK UNITS.
5. NO COMPACTION EQUIPMENT IS PERMISSIBLE TO OPERATE DIRECTLY ON THE R-TANK MODULES.
b. PLACE A TOP BACKFILL LAYER ON THE UNITS TO THE THICKNESS SPECIFIED IN THE R-TANK DRAWINGS AND IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
1. ONLY LOW-PRESSURE TRACK VEHICLES SHALL BE OPERATED OVER THE R-TANK SYSTEM DURING CONSTRUCTION. DUMP TRUCKS AND PANS SHALL NOT BE OPERATED WITHIN THE R-TANK SYSTEM FOOTPRINT AT ANY TIME. HEAVY EQUIPMENT SHOULD UNLOAD IN AN AREA ADJACENT TO THE R-TANK SYSTEM AND THE MATERIAL SHOULD BE MOVED OVER THE SYSTEM USING LOW GROUND PRESSURE TRACKED EQUIPMENT.
2. LIGHTLY COMPACTED USING A WALK-BEHIND TRENCH ROLLER. ALTERNATELY, A ROLLER (MAXIMUM GROSS VEHICLE WEIGHT OF 6 TONS) MAY BE USED. ROLLER MUST REMAIN IN STATIC MODE UNTIL A MINIMUM OF 24" OF COVER HAS BEEN PLACED OVER THE MODULES. SHEEP FOOT ROLLERS SHOULD NOT BE USED.
B. IF SPECIFIED, COMPLETELY ENCAPSULATE THE BACKFILL IN THE SPECIFIED GEOTEXTILE. OVERLAP GEOTEXTILE 12" OR AS RECOMMENDED BY MANUFACTURER. TAKE GREAT CARE TO AVOID DAMAGE TO GEOTEXTILE (AND, IF SPECIFIED, IMPERVIOUS LINER) DURING PLACEMENT.
C. IF REQUIRED, INSTALL A GEOGRID AS SHOWN ON PLANS. GEOGRID SHALL EXTEND A MINIMUM OF 3 FEET BEYOND THE LIMITS OF THE EXCAVATION WALL. IN CASES OF LIMITATIONS SUCH AS CURB, PROPERTY LINE, ETC. CONSULT A MANUFACTURER'S REPRESENTATIVE ABOUT REDUCING THE MINIMUM EXTENSION LENGTH.
D. FOLLOWING PLACEMENT AND COMPACTION OF THE INITIAL COVER, SUBSEQUENT LIFTS OF STRUCTURAL FILL (SECTION 2.03D) SHALL BE PLACED AND COMPACTED PER ENGINEER OF RECORD SPECIFICATIONS. DO NOT EXCEED MAXIMUM COVER DEPTHS LISTED IN TABLE 2.01B.
E. ENSURE THAT ALL UNRELATED CONSTRUCTION TRAFFIC IS KEPT AWAY FROM THE LIMITS OF EXCAVATION UNTIL THE PROJECT IS COMPLETE AND FINAL SURFACE MATERIALS ARE IN PLACE. IT IS RECOMMENDED THAT HIGH VISIBILITY TAPE OR OTHER DEVICES BE PLACED AROUND THE SYSTEM TO PREVENT TRAFFIC ACCESS.
F. PLACE SURFACING MATERIALS, SUCH AS GROUNDCOVERS (NO LARGE TREES), OR PAVING MATERIALS OVER THE STRUCTURE WITH CARE TO AVOID DISPLACEMENT OF COVER FILL AND DAMAGE TO SURROUNDING AREAS.

3.05 MAINTENANCE REQUIREMENTS
A. ROUTINE MAINTENANCE EFFORT IS REQUIRED TO ENSURE PROPER PERFORMANCE OF THE R-TANK SYSTEM. THE MAINTENANCE PROGRAM SHOULD BE FOCUSED ON PRETREATMENT SYSTEMS. ENSURING THESE STRUCTURES ARE CLEAN AND FUNCTIONING PROPERLY WILL REDUCE THE RISK OF CONTAMINATION OF THE R-TANK SYSTEM AND STORMWATER RELEASED FROM THE SITE. MAINTAIN AS NEEDED USING ACCEPTABLE PRACTICES OR FOLLOWING MANUFACTURER'S GUIDELINES (FOR PROPRIETARY SYSTEMS).
B. ALL INLET PIPES AND INSPECTION AND/OR MAINTENANCE PORTS IN THE R-TANK SYSTEM WILL NEED TO BE INSPECTED FOR ACCUMULATION OF SEDIMENTS AT LEAST QUARTERLY THROUGH THE FIRST YEAR OF OPERATION AND AT LEAST YEARLY THEREAFTER.
C. IF SEDIMENT HAS ACCUMULATED TO THE LEVEL NOTED IN THE R-TANK OPERATION AND MAINTENANCE GUIDE OR BEYOND A LEVEL ACCEPTABLE TO THE OWNER'S ENGINEER, THE R-TANK SYSTEM SHOULD BE FLUSHED.

DATE	INITIALS	DESCRIPTIONS
1/16/2026	BTF	REVISED BYPASS PIPE SIZES

DISTRIBUTED BY: FERGUSON WATERWORKS

R-Tank
MODULAR STORMWATER STORAGE SYSTEM

R-TANK SPECIFICATION
OPSTAD ELEMENTARY SCHOOL PARKING LOT
NORTH BEND, WA

DRAWN BY BTF | DATE 01/09/2026 | SHEET NO. 8 of 8

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO FERGUSON WATERWORKS BY THE DESIGN ENGINEER, CONTRACTOR, OR OTHER PROJECT REPRESENTATIVE. THE ENGINEER OF RECORD SHALL REVIEW AND APPROVED THAT THE DEPICTED LAYOUT AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE REGULATIONS AND PROJECT SPECIFIC REQUIREMENTS.

NTS
R-Tank Specifications 4

NOTE:
FOR R-TANK SPECIFICATION SECTION 3.01.D ABOVE, THE CONTRACTOR SHALL COORDINATE WITH OWNER'S GEOTECHNICAL ENGINEER TO CONFIRM A MINIMUM BEARING CAPACITY OF 2,000 PSF CAN BE ACHIEVED PRIOR TO INSTALLATION OF THE DETENTION SYSTEM.

CITY OF NORTH BEND PERMIT#________________

THESE PLANS ARE APPROVED FOR CONFORMANCE WITH THE CITY OF NORTH BEND PUBLIC WORKS DEPARTMENT REQUIREMENTS TO THE BEST OF MY KNOWLEDGE.

CITY ENGINEER OR PUBLIC WORKS DIRECTOR DATE

JACOBSON CONSULTING ENGINEERS

JERALD A. JACOBSON, STATE OF WASHINGTON, 43667, REGISTERED PROFESSIONAL ENGINEER 04/14/2026

JACOBSONENGINEERS.COM

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE,
NORTH BEND, WA 98045

BID SET

04/16/2026

Revisions

Mark	Date	Description

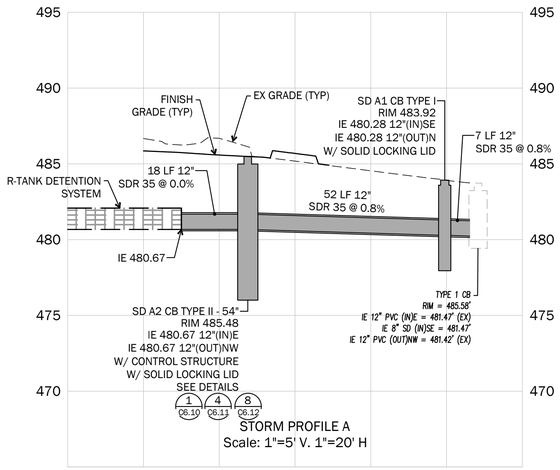
Checked By: JAJ

Drawn By: AJJ

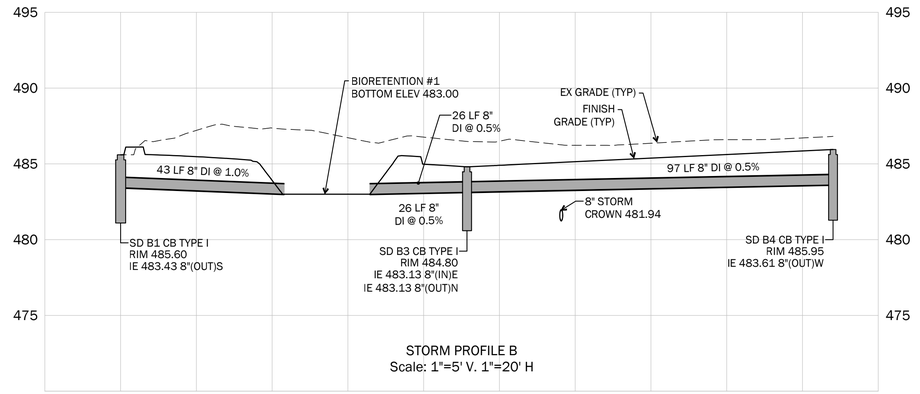
Dwg File: STRM-DETL-OES.DWG

Sheet Title
DRAINAGE DETAILS

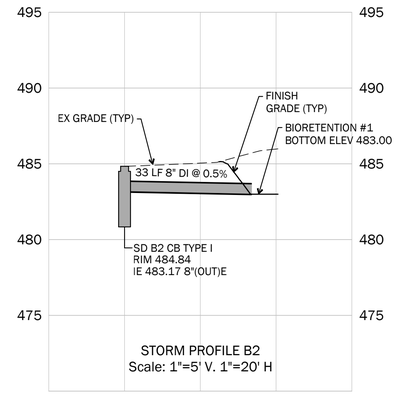
Sheet
C6.14



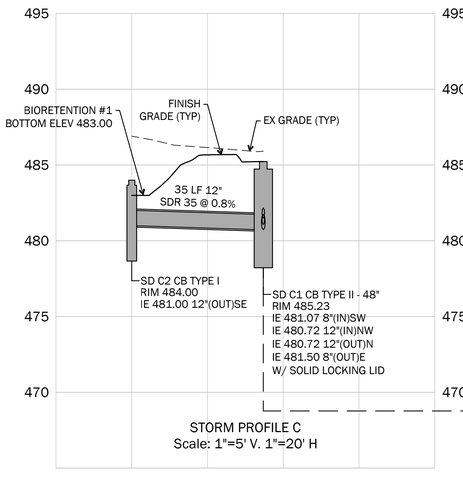
STORM PROFILE A
Scale: 1"=5' V. 1"=20' H



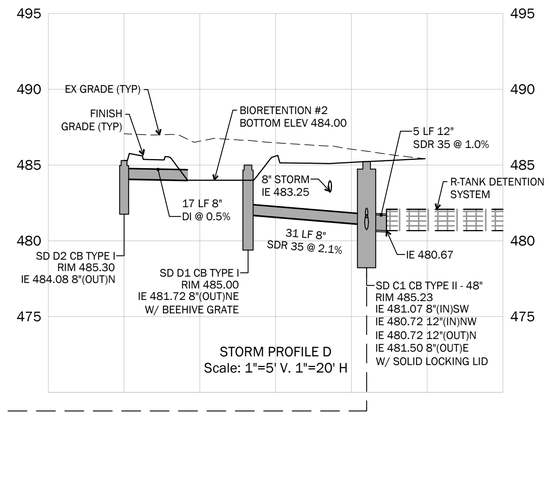
STORM PROFILE B
Scale: 1"=5' V. 1"=20' H



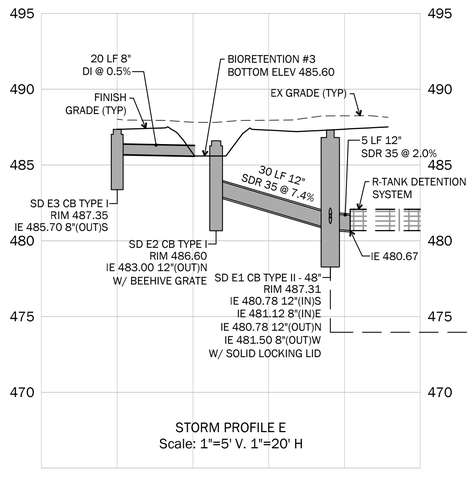
STORM PROFILE B2
Scale: 1"=5' V. 1"=20' H



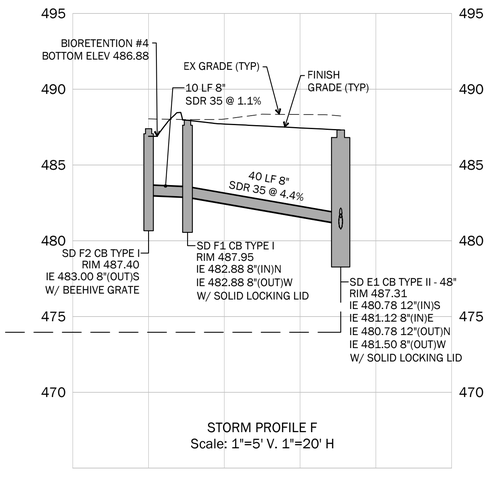
STORM PROFILE C
Scale: 1"=5' V. 1"=20' H



STORM PROFILE D
Scale: 1"=5' V. 1"=20' H



STORM PROFILE E
Scale: 1"=5' V. 1"=20' H



STORM PROFILE F
Scale: 1"=5' V. 1"=20' H

CITY OF NORTH BEND PERMIT#_____

THESE PLANS ARE APPROVED FOR CONFORMANCE WITH THE CITY OF NORTH BEND PUBLIC WORKS DEPARTMENT REQUIREMENTS TO THE BEST OF MY KNOWLEDGE.

CITY ENGINEER OR PUBLIC WORKS DIRECTOR DATE

JACOBSON
CONSULTING ENGINEERS

GERALD A. JACOBSON
STATE OF WASHINGTON
43667
REGISTERED PROFESSIONAL ENGINEER
04/14/2026

JACOBSONENGINEERS.COM

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE,
NORTH BEND, WA 98045

BID SET

04/16/2026

Revisions

Mark	Date	Description

Checked By:
JAJ

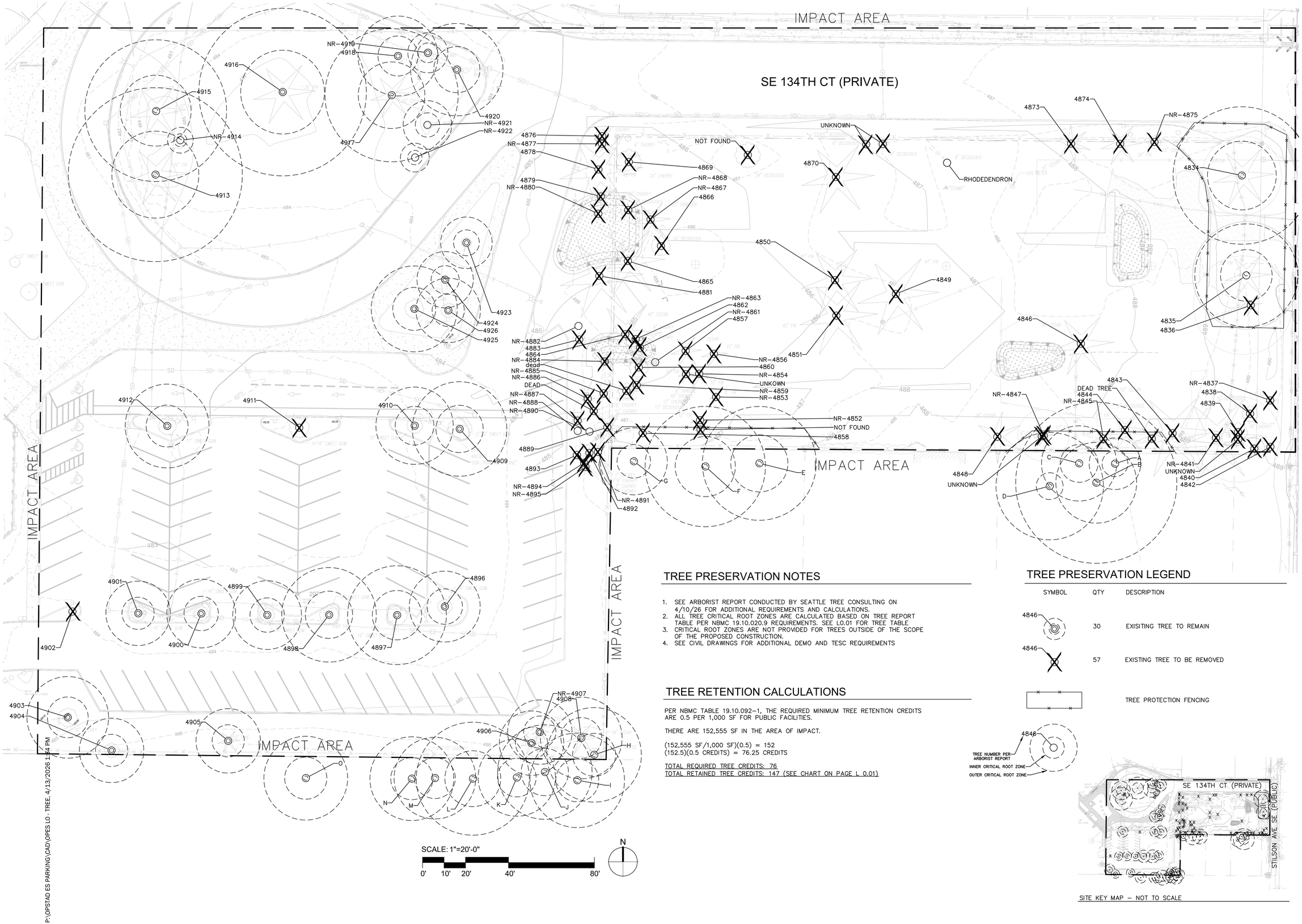
Drawn By:
AJJ

Dwg File:
STRM-PROF-OES.DWG

Sheet Title
DRAINAGE PROFILES

Sheet
C6.20

P:_2023\OPSTAD ES PARKING LOT C230073-01&1\CAD\03-SHEETS\STRM-PROF-OES, 4/14/2026 11:46 AM



TREE PRESERVATION NOTES

1. SEE ARBORIST REPORT CONDUCTED BY SEATTLE TREE CONSULTING ON 4/10/26 FOR ADDITIONAL REQUIREMENTS AND CALCULATIONS.
2. ALL TREE CRITICAL ROOT ZONES ARE CALCULATED BASED ON TREE REPORT TABLE PER NBMC 19.10.020.9 REQUIREMENTS. SEE L0.01 FOR TREE TABLE
3. CRITICAL ROOT ZONES ARE NOT PROVIDED FOR TREES OUTSIDE OF THE SCOPE OF THE PROPOSED CONSTRUCTION.
4. SEE CIVIL DRAWINGS FOR ADDITIONAL DEMO AND TESC REQUIREMENTS

TREE RETENTION CALCULATIONS

PER NBMC TABLE 19.10.092–1, THE REQUIRED MINIMUM TREE RETENTION CREDITS ARE 0.5 PER 1,000 SF FOR PUBLIC FACILITIES.

THERE ARE 152,555 SF IN THE AREA OF IMPACT.

(152,555 SF/1,000 SF)(0.5) = 152
(152.5)(0.5 CREDITS) = 76.25 CREDITS

TOTAL REQUIRED TREE CREDITS: 76
TOTAL RETAINED TREE CREDITS: 147 (SEE CHART ON PAGE L 0.01)

TREE PRESERVATION LEGEND

SYMBOL	QTY	DESCRIPTION
4846	30	EXISITING TREE TO REMAIN
4846	57	EXISTING TREE TO BE REMOVED
		TREE PROTECTION FENCING

4846
TREE NUMBER PER ARBORIST REPORT
INNER CRITICAL ROOT ZONE
OUTER CRITICAL ROOT ZONE

SITE KEY MAP – NOT TO SCALE

P:\OPSTAD ES PARKING\CAD\OPES L0 - TREE, 4/13/2026 1:54 PM

JACOBSON CONSULTING ENGINEERS
JACOBSONENGINEERS.COM
fora
1430 NE 65th Street
Seattle, WA 98115
t: 206-322-1732
fora.land
Fora Landscape Architects

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE,
NORTH BEND, WA 98045

STATE OF WASHINGTON
ANDREW J. RASMUSSEN
No. 219 EXP. 6/26/2026
LANDSCAPE ARCHITECT

BID SET

04/16/2026

Revisions

Mark	Date	Description

Checked By:
TY

Drawn By:
IL

Dwg File:

Sheet Title
TREE PRESERVATION PLAN

Sheet
L0.00

TREE TABLE

(SEE TREE INVENTORY TABLE FROM ARBORIST REPORT BY SEATTLE TREE CONSULTING DATED 04/10/26)

V6.2 Tree Inventory Table for Opstad Elementary School, 1345 Stilson Ave SE, North Bend, WA 3/24/2025

Tree #	Common name	Species	Multistem DSH	DSH	DLR	CRZ	ICRZ	Viability	Cond	Retain	TPZ	ITPZ	Credits	NOTES
Lot 9110														
4834	Douglas fir	Pseudotsuga menziesii		32	26	32	16	Viable	4	Yes	29.0	14.5	9.0	Exceptional, Clearance pruned
4835	Scots pine	Pinus sylvestris		24	25	24	12	Viable	4	Yes	24.5	12.3	9.0	One sided
4836	Leyland cypress	X Hesperotropsis leylandii		36	23	36	18	Viable	4	No	29.5	14.8		
4838	Purple leaf plum	Prunus cerasifera		14	7	14	7	Viable	4	No	10.5	5.3		
4839	Bitter cherry	Prunus emarginata		15	11	15	7.5	Marginal	3	No	13.0	6.5		
4840	Bitter cherry	Prunus emarginata	8.5,11	13.9	12	13.9	6.95	Marginal	3	No	13.0	6.5		
4842	Douglas fir	Pseudotsuga menziesii		29	20	29	14.5	Viable	4	No	24.5	12.3		Exceptional. Included bark 5'
4843	Western red cedar	Thuja plicata		35.5	23	35.5	17.75	Viable	4	No	29.3	14.6		Exceptional
4844	Douglas fir	Pseudotsuga menziesii		18.5	18	18.5	9.25	Viable	4	No	18.3	9.1		
4846	Hinoki	Chamaecyparis obtusa		22	16	22	11	Viable	5	No	19.0	9.5		
4848	Western red cedar	Thuja plicata		48	22	48	24	Viable	4	No	35.0	17.5		Exceptional, Diameter taken at the narrowest point below junction
4849	Douglas fir	Pseudotsuga menziesii		34	26	34	17	Viable	4	No	30.0	15.0		Exceptional
4850	Douglas fir	Pseudotsuga menziesii		35	24	35	17.5	Viable	4	No	29.5	14.8		Exceptional
4851	Douglas fir	Pseudotsuga menziesii		34	28	34	17	Viable	4	No	31.0	15.5		Exceptional
4857	Douglas fir	Pseudotsuga menziesii		15.5	20	15.5	7.75	Viable	4	No	17.8	8.9		
4858	Douglas fir	Pseudotsuga menziesii	15,37	39.9	25	39.9	19.95	Viable	5	No	32.5	16.2		Exceptional
4860	Bitter cherry	Prunus emarginata		15	20	15	7.5	Viable	4	No	17.5	8.8		
4862	Bitter cherry	Prunus emarginata	10.5,13	16.7	12	16.7	8.35	Viable	4	No	14.4	7.2		
4864	Douglas fir	Pseudotsuga menziesii		36	20	36	18	Viable	5	No	28.0	14.0		Exceptional
4865	Douglas fir	Pseudotsuga menziesii		37	18	37	18.5	Viable	4	No	27.5	13.8		Ivy, Exceptional
4866	Maple	Acer sp.		15	23	15	7.5	Viable	4	No	19.0	9.5		
4869	Bitter cherry	Prunus emarginata		13	13	13	6.5	Viable	4	No	13.0	6.5		
4870	Douglas fir	Pseudotsuga menziesii		37	22	37	18.5	Marginal	3	No	29.5	14.8		
4873	Western red cedar	Thuja plicata	29,32,18	46.8	19	46.8	23.4	Viable	4	No	32.9	16.5		Exceptional
4874	Douglas fir	Pseudotsuga menziesii		24	20	24	12	Viable	5	No	22.0	11.0		
Lot 9156						0	0							
4876	Bitter cherry	Prunus emarginata		13	14	13	6.5	Viable	4	No	13.5	6.8		
4878	Douglas fir	Pseudotsuga menziesii		52.5	30	52.5	26.25	Viable	5	No	41.3	20.6		Exceptional
4879	Bitter cherry	Prunus emarginata	22,13	25.6	29	25.6	12.8	Viable	5	No	27.3	13.7		
4881	Douglas fir	Pseudotsuga menziesii		43	26	43	21.5	Viable	5	No	34.5	17.3		Ivy, Exceptional
4883	Bitter cherry	Prunus emarginata		13	16	13	6.5	Viable	4	No	14.5	7.3		Ivy
4889	Douglas fir	Pseudotsuga menziesii		22	16	22	11	Viable	4	No	19.0	9.5		
4892	Bitter cherry	Prunus emarginata	9,9.5	13.1	14	13.1	6.55	Viable	4	No	13.6	6.8		
4893	Bitter cherry	Prunus emarginata	10.5,7	12.6	16	12.6	6.3	Viable	4	No	14.3	7.2		
4896	Sweet gum	Liquidambar styraciflua		16.5	9	16.5	8.25	Viable	4	Yes	12.8	6.4	4.0	
4897	Sweet gum	Liquidambar styraciflua		23	20	23	11.5	Viable	4	Yes	21.5	10.8	4.0	
4898	Sweet gum	Liquidambar styraciflua		22	15	22	11	Viable	4	Yes	18.5	9.3	4.0	
4899	Sweet gum	Liquidambar styraciflua		16	15	16	8	Viable	4	Yes	15.5	7.8	4.0	
4900	Sweet gum	Liquidambar styraciflua		16	12	16	8	Viable	4	Yes	14.0	7.0	4.0	
4901	Sweet gum	Liquidambar styraciflua		15	13	15	7.5	Viable	4	Yes	14.0	7.0	4.0	
4902	Sweet gum	Liquidambar styraciflua		18	12	18	9	Viable	4	No	15.0	7.5		
4903	Cherry	Prunus sp		19	15	19	9.5	Viable	4	Yes	17.0	8.5	4.0	
4904	Big leaf maple	Acer macrophyllum		15	16	15	7.5	Viable	4	Yes	15.5	7.8	4.0	
4905	Pine	Pinus sp		15	10	15	7.5	Viable	4	Yes	12.5	6.3	4.0	
4906	Western red cedar	Thuja plicata		15	15	15	7.5	Viable	4	Yes	15.0	7.5	6.0	
4908	Western red cedar	Thuja plicata		19	14	19	9.5	Viable	4	Yes	16.5	8.3	6.0	
4909	Sweet gum	Liquidambar styraciflua		22	15	22	11	Viable	4	Yes	18.5	9.3	4.0	
4910	Sweet gum	Liquidambar styraciflua		18	13	18	9	Viable	4	Yes	15.5	7.8	4.0	
4911	Sweet gum	Liquidambar styraciflua		23.5	16	23.5	11.75	Viable	4	No	19.8	9.9		
4912	Sweet gum	Liquidambar styraciflua		19.5	15	19.5	9.75	Viable	4	Yes	17.3	8.6	4.0	
4913	Douglas fir	Pseudotsuga menziesii		40.5	24	40.5	20.25	Viable	5	Yes	32.3	16.1	9.0	Exceptional
4915	Douglas fir	Pseudotsuga menziesii		33	20	33	16.5	Viable	4	Yes	26.5	13.3	9.0	Exceptional
4916	Douglas fir	Pseudotsuga menziesii		39	25	39	19.5	Viable	4	Yes	32.0	16.0	9.0	Exceptional. Likely has some internal decay, however it has good response wood at root flare
4917	Western red cedar	Thuja plicata		31	15	31	15.5	Viable	4	Yes	23.0	11.5	9.0	Exceptional
4918	Big leaf maple	Acer macrophyllum	9.5,7,8,8.5,8.5	18.6	19	18.6	9.3	Viable	4	Yes	18.8	9.4	4.0	
4920	Bitter cherry	Prunus emarginata	10,12,12	21.5	12	21.5	10.75	Viable	4	Yes	16.8	8.4	4.0	
4923	Sweet gum	Liquidambar styraciflua		12	11	12	6	Viable	4	Yes	11.5	5.8	4.0	
4924	Sweet gum	Liquidambar styraciflua	10,8.5	13.1	13	13.1	6.55	Viable	4	Yes	13.1	6.5	4.0	
4925	Sweet gum	Liquidambar styraciflua		20	25	20	10	Viable	5	Yes	22.5	11.3	4.0	
4926	Sweet gum	Liquidambar styraciflua		15	14	15	7.5	Viable	4	Yes	14.5	7.3	4.0	

Offsite trees						0	0							
A	Douglas fir	Pseudotsuga menziesii		12	12	12	6	Viable	4		12.0	6.0		
B	Douglas fir	Pseudotsuga menziesii		45	30	45	22.5	Viable	4		37.5	18.8		Exceptional
C	Bitter cherry	Prunus emarginata		13	22	13	6.5	Viable	4		17.5	8.8		
D	Douglas fir	Pseudotsuga menziesii		28	22	28	14	Viable	4		25.0	12.5		
E	Douglas fir	Pseudotsuga menziesii		30	23	30	15	Viable	5		26.5	13.3		Exceptional, 7' to fence line from center
F	Douglas fir	Pseudotsuga menziesii		30	26	30	15	Viable	5		28.0	14.0		Exceptional, 4' to fence line from center
G	Big leaf maple	Acer macrophyllum	14,10	17.2	14	17.2	8.6	Viable	4		15.6	7.8		
H	Deciduous	Deciduous		25	19	25	12.5	Viable	4		22.0	11.0		
I	Deciduous	Deciduous		35	25	35	17.5	Viable	4		30.0	15.0		Exceptional
J	Deciduous	Deciduous		26	18	26	13	Viable	4		22.0	11.0		
K	Deciduous	Deciduous		20	16	20	10	Viable	4		18.0	9.0		
L	Deciduous	Deciduous	19,16,14	28.5	24	28.5	14.25	Viable	4		26.3	13.1		
M	Deciduous	Deciduous		22	16	22	11	Viable	4		19.0	9.5		
N	Douglas fir	Pseudotsuga menziesii		24	15	24	12	Viable	4		19.5	9.8		
Onsite NR trees						0	0							
NR-4837	Douglas fir	Pseudotsuga menziesii		8	10	8	4	Viable	4	No	9.0	4.5		
NR-4841	Big leaf maple	Acer macrophyllum		8.8	8	8.8	4.4	Marginal	3	No	8.4	4.2		
NR-4845	Douglas fir	Pseudotsuga menziesii		11.5	10	11.5	5.75	Viable	4	No	10.8	5.4		
NR-4847	Norway spruce	Picea abies		11	12	11	5.5	Viable	5	No	11.5	5.8		
NR-4852	Douglas fir	Pseudotsuga menziesii		11	11	11	5.5	Viable	4	No	11.0	5.5		
NR-4853	Silver fir	Abies amabilis		7.5	8	7.5	3.75	Viable	5	No	7.8	3.9		
NR-4854	Douglas fir	Pseudotsuga menziesii		12.5	15	12.5	6.25	Viable	4	No	13.8	6.9		
NR-4856	Silver fir	Abies amabilis		11.5	13	11.5	5.75	Viable	5	No	12.3	6.1		
NR-4859	Bitter cherry	Prunus emarginata		11	17	11	5.5	Viable	4	No	14.0	7.0		
NR-4861	Western hemlock	Tsuga heterophylla		8	9	8	4	Viable	4	No	8.5	4.3		
NR-4863	Bitter cherry	Prunus emarginata		9	18	9	4.5	Viable	4	No	13.5	6.8		
NR-4867	Western hemlock	Tsuga heterophylla		14.5	15	14.5	7.25	Viable	4	No	14.8	7.4		
NR-4868	Small deciduous		8.5,8	11.7	14	11.7	5.85	Viable	4	No	12.9	6.4		
NR-4877	Bitter cherry	Prunus emarginata		11	10	11	5.5	Marginal	3	No	10.5	5.3		
NR-4880	Black hawthorn	Crataegous		6.5	12	6.5	3.25	Viable	5	No	9.3	4.6		
NR-4882	Big leaf maple	Acer macrophyllum		6.5	11	6.5	3.25	Viable	4	No	8.8	4.4		
NR-4884	Bitter cherry	Prunus emarginata	8.5,6	10.4	12	10.4	5.2	Viable	4	No	11.2	5.6		
NR-4885	Bitter cherry	Prunus emarginata		8	9	8	4	Viable	4	No	8.5	4.3		
NR-4886	Bitter cherry	Prunus emarginata		10.5	14	10.5	5.25	Viable	4	No	12.3	6.1		
NR-4887	Bitter cherry	Prunus emarginata		10.5	15	10.5	5.25	Viable	4	No	12.8	6.4		
NR-4888	Black hawthorn	Crataegous		7	8	7	3.5	Viable	4	No	7.5	3.8		
NR-4890	Bitter cherry	Prunus emarginata		7	12	7	3.5	Viable	4	No	9.5	4.8		
NR-4891	Bitter cherry	Prunus emarginata		11	11	11	5.5	Marginal	3	No	11.0	5.5		
NR-4894	Bitter cherry	Prunus emarginata		8	15	8	4	Viable	4	No	11.5	5.8		
NR-4895	Bitter cherry	Prunus emarginata		10	20	10	5	Viable	4	No	15.0	7.5		Ivy
NR-4907	Western red cedar	Thuja plicata		10	14	10	5	Viable	4	Yes	12.0	6.0	3.0	
NR-4914	Bitter cherry	Prunus emarginata		6	9	6	3	Viable	5	Yes	7.5	3.8	1.0	
NR-4919	Bitter cherry	Prunus emarginata		11.5	7	11.5	5.75	Viable	4	Yes	9.3	4.6	2.0	
NR-4921	Japanese maple	Acer palmatum	4.5,5.5,4.5,6	11.3	9	11.3	5.65	Viable	5	Yes	10.2	5.1	2.0	
NR-4922	Japanese maple	Acer palmatum	5@3	6.7	9	6.7	3.35	Viable	5	Yes	7.9	3.9	1.0	
NR-4975	Bitter cherry	Prunus emarginata		10	12	10	5	Viable	4	No	11.0	5.5		
													147.0	Retained tree credits

JACOBSON CONSULTING ENGINEERS

JACOBSONENGINEERS.COM

fora

1430 NE 65th Street
Seattle, WA 98115
t: 206-322-1732
fora.land

Fora Landscape Architects

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE,
NORTH BEND, WA 98045

STATE OF WASHINGTON
ANDREW J RASMUSSEN
Andy Rasmussen
No. 219 EXP. 6/26/2026
LANDSCAPE ARCHITECT

BID SET

04/16/2026

Revisions

Mark	Date	Description

Checked By:
TY

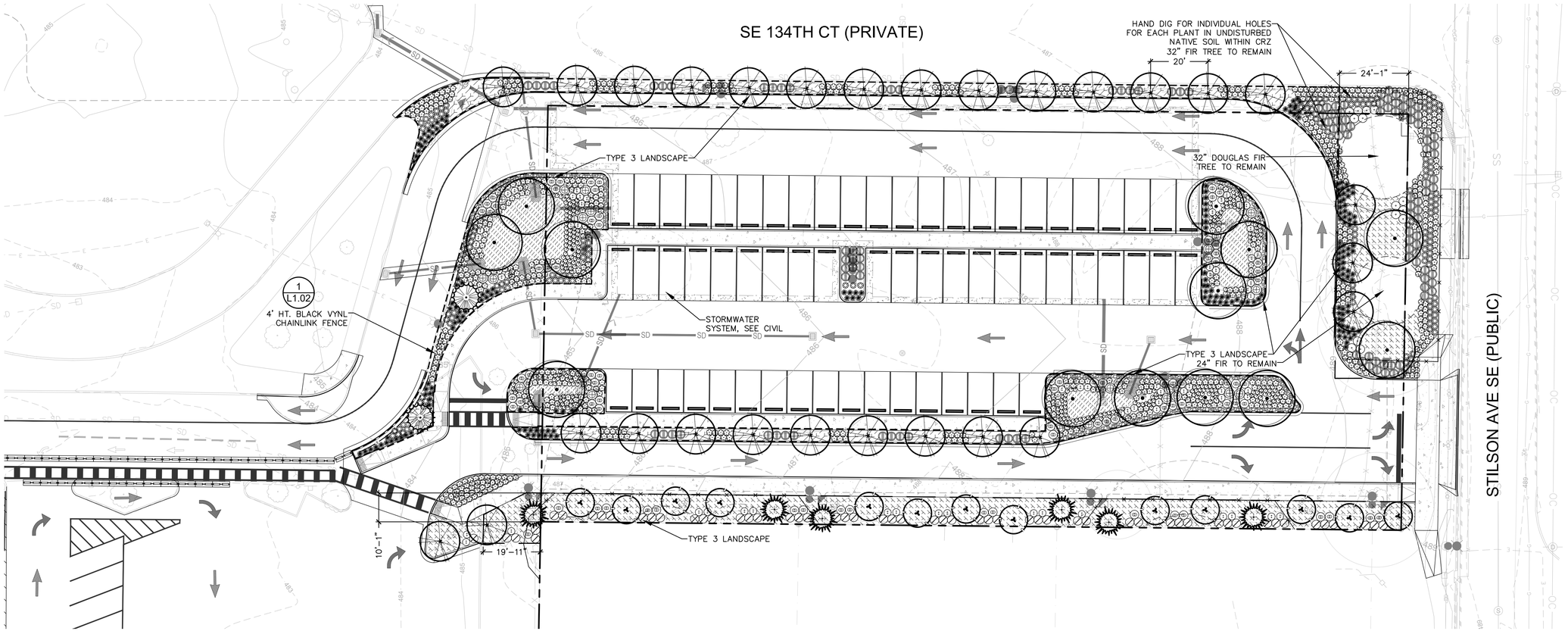
Drawn By:
IL

Dwg File:

Sheet Title
TREE TABLE

Sheet
L0.01

P:\OPSTAD ES PARKING\CAD\OPES L0 - TREE, 4/14/2026 12:54 PM



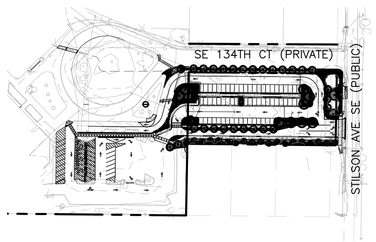
PLANTING NOTES

1. NEW LANDSCAPE AREAS SHALL BE WATERED WITH AN AUTOMATIC BELOW GRADE WATER CONSERVING IRRIGATION SYSTEM.
2. INVASIVE VEGETATION SHALL BE GRUBBED AND REMOVED PRIOR TO PLANTING IN ALL NEW LANDSCAPE AREAS.
3. SUBMIT COLOR PHOTOS REPRESENTATIVE OF PROPOSED NURSERY STOCK FOR EACH PLANT SPECIES AND VARIETY LISTED IN LANDSCAPE SCHEDULE. FINAL APPROVAL OF PLANT MATERIAL WILL NOT BE PROVIDED UNTIL DELIVERY AND REVIEW ON SITE.
4. ALL LANDSCAPE SUBGRADES SHALL BE MECHANICALLY DECOMPACTED PRIOR TO PLACEMENT OF TOPSOIL TO ENSURE ADAQUAT DRIANAGE.
5. 3" DEPTH OF SPECIFIED MULCH SHALL BE INTSALLED AT ALL NEW LANDSCAPE BEDS.
6. CONTAINERIZED TREES ARE STRONGLY DISCOURAGED. TREES WITH LARGE CIRCLING ROOTS OR TOO DEEP ROOT SYSTEMS WILL BE REJECTED.
7. ALL ROOT PACKAGES MUST BE FREE OF ANY WEEDS.
8. TREE STAKING REQUIREMENTS WILL BE DETERMINED BY LANDSCAPE ARCHITECT AT THE TIME OF PLANTING. PROPERLY PROPORTIONED AND PLANTED TREES WITH HEALTHY ROOT PACKAGES MAY NOT REQUIRE STAKING.
9. ALL TREE STAKES MUST BE REMOVED BY THE CONTRACTOR BY THE END OF THE FIRST FULL GROWING SEASON.
10. AT THE DIRECTION OF THE LANDSCAPE ARCHITECT, PRUNING MAY BE REQUIRED TO REMOVE DAMAGED, CROSSING, MISSHAPEN OR LOW BRANCHING LIMBS. TREES SHOULD NOT REQUIRE SIGNIFICANT PRUNING TO CORRECT HEALTH OR AESTHETIC DEFICIENCIES.
11. REFER TO CIVIL DEMOLITION DRAWINGS AND SPECIFICATIONS FOR REMOVAL REQUIREMENTS AND PROTECTION FENCING AROUND EXISTING VEGETATION.
12. REFER TO TREE PRESERVATION PLANS FOR SCHEDULE OF EXISTING TREES TO BE SAVED OR REMOVED.
13. REFER TO CIVIL PLANS FOR NEW UTILITY WORK. CONTRACTOR RESPONSIBLE FOR PATCH AND REPAIR OF ALL EXISTING LANDSCAPE AREAS DISTURBED BY CONSTRUCTION WORK UNDER THIS CONTRACT.
14. CONTRACTOR MUST CONTACT ARBORIST PRIOR TO PERFORMING WORK WITHIN THE TREE PROTECTION FENCE (CRZ).

SCALE: 1"=20'-0"

0' 10' 20' 40' 80'

N



SITE KEY MAP – NOT TO SCALE

P:\OPSTAD ES PARKING\CAD\OPES L1 - LANDSCAPE, 4/13/2026 1:55 PM

JACOBSON CONSULTING ENGINEERS
JACOBSONENGINEERS.COM

fora
1430 NE 65th Street
Seattle, WA 98115
t: 206-322-1732
fora.land
Fora Landscape Architects

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE,
NORTH BEND, WA 98045

STATE OF WASHINGTON · ANDREW J RASMUSSEN · No. 219 EXP. 6/26/2026 · LANDSCAPE ARCHITECT

BID SET

04/16/2026

Revisions

Mark	Date	Description

Checked By:
TY
Drawn By:
IL
Dwg File:

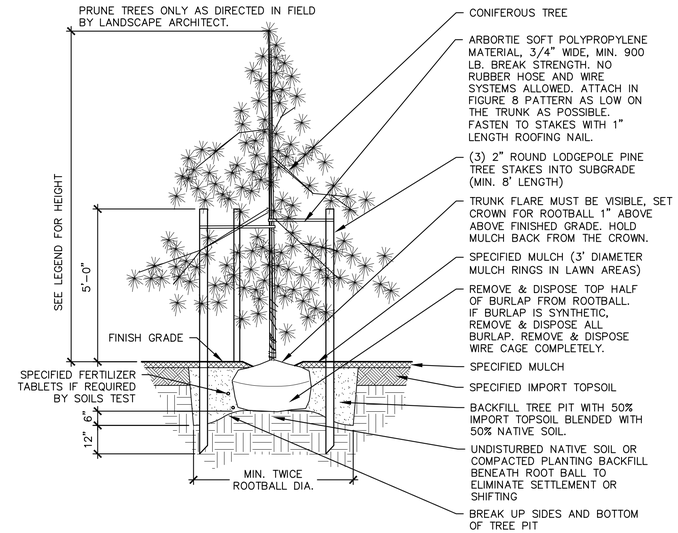
Sheet Title
LANDSCAPE PLAN

Sheet
L1.00

PLANT SCHEDULE

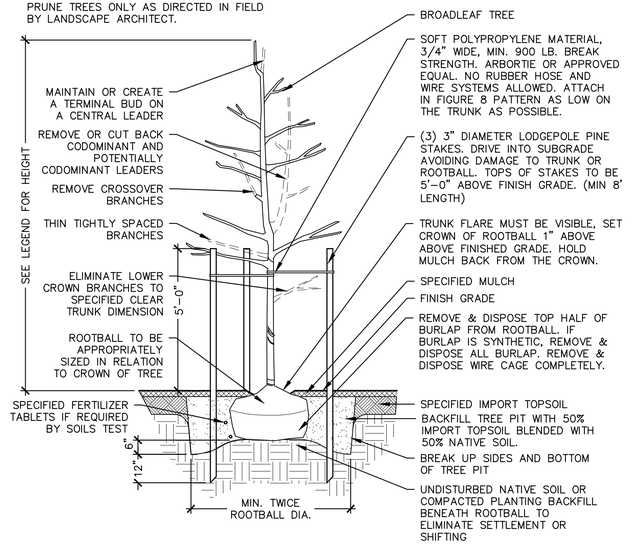
SYMBOL	QTY	BOTANICAL / COMMON NAME	SIZE	CONDITION / REMARKS
DECIDUOUS TREES				
	13	ACER CIRCINATUM (MULTI-STEM)* VINE MAPLE	(3) 1" CAL. TRUNKS, MIN. 8`-10` HT	MATCHED, B&B., WELL BRANCHED
	28	PARROTIA PERSICA 'RUBY VASE'** RUBY VASE PERSIAN PARROTIA	MIN. 2" CAL., 8`-10` HT.	MATCHED, B&B., WELL BRANCHED
	13	QUERCUS PHELLOS WILLOW OAK	MIN. 2" CAL., 10`-12` MIN. HT.	MATCHED, B&B., WELL BRANCHED ABOVE 6`HT.
EVERGREEN TREES				
	6	PINUS CONTORTA*** SHORE PINE	MIN. 8`-10` HT.	FULL AND BUSHY TO BASE, B&B OR CONT.
	2	THUJA PLICATA `HOGAN` HOGAN CEDAR	MIN. 8`-10` HT.	FULL AND BUSHY TO BASE, B&B OR CONT.
SYMBOL	**QTY**	**BOTANICAL / COMMON NAME**	**SIZE**	**CONDITION/REMARKS**
SHRUBS				
	686	CORNUS STOLONIFERA `KELSEYI`** KELSEY DOGWOOD	MIN. 5 GAL. CONT., MIN. 24" HT./SPD.	FULL & BUSHY, SPACING AS SHOWN ON PLAN
	194	HELICTOTRICHON SEMPERVIRENS** BLUE OAT GRASS	MIN. 5 GAL. CONT., MIN. 24" HT./SPD.	FULL & BUSHY, SPACING AS SHOWN ON PLAN
	20	HOLODISCUS DISCOLOR OCEAN-SPRAY	MIN. 7 GAL. CONT., 30"-36" HT. & SPREAD	FULL & BUSHY, SPACING AS SHOWN ON PLAN
	56	MAHONIA AQUIFOLIUM `COMPACTA` COMPACT OREGON GRAPE	MIN. 5 GAL. CONT., MIN. 24" HT./SPD.	FULL & BUSHY, SPACING AS SHOWN ON PLAN
	262	MAHONIA REPENS CREEPING MAHONIA	MIN. 5 GAL. CONT., MIN. 24" HT./SPD.	FULL & BUSHY, SPACING AS SHOWN ON PLAN
	162	NANDINA DOMESTICA `GULF STREAM`** GULF STREAM HEAVENLY BAMBOO	MIN. 5 GAL. CONT., 18"-24" HT. & SPREAD	FULL & BUSHY, SPACING AS SHOWN ON PLAN
	14	PINUS MUGO `ALLEN`** ALLEN DWARF MOUNTAIN PINE	MIN. 7 GAL. CONT., 30"-36" HT. & SPREAD	FULL & BUSHY, SPACING AS SHOWN ON PLAN
	83	ROSA GYMNOCARPA* WOOD ROSE	MIN. 7 GAL. CONT., 30"-36" HT. & SPREAD	FULL & BUSHY, SPACING AS SHOWN ON PLAN
	70	SYMPHORICARPOS ALBUS COMMON WHITE SNOWBERRY	MIN. 5 GAL. CONT., MIN. 24" HT./SPD.	FULL & BUSHY, SPACING AS SHOWN ON PLAN
	128	VIBURNUM DAVIDII** DAVID VIBURNUM	MIN. 5 GAL. CONT., MIN. 24" HT./SPD.	FULL & BUSHY, SPACING AS SHOWN ON PLAN
GROUND COVERS				
	115 SF	ZONE 1A BIORETENTION MIX		
	17	CAREX OBNUPTA*** SLOUGH SEDGE	MIN. 2 GAL. CONT., 12"-18" HT. AND SPREAD	18" O.C. TRIANG. SPAC., START FIRST ROW 12" FROM EDGE, FULL & BUSHY
	17	CAREX PANSA** MEADOW SEDGE	MIN. 2 GAL. CONT., 12"-18" HT. AND SPREAD	18" O.C. TRIANG. SPAC., START FIRST ROW 12" FROM EDGE, FULL & BUSHY
	17	SYMPHYOTRICHUM SUBSPICATUM*** DOUGLAS ASTER	MIN. 2 GAL. CONT., 12"-18" HT. AND SPREAD	18" O.C. TRIANG. SPAC., START FIRST ROW 10" FROM EDGE
	1,002 SF	ZONE 1B BIORETENTION MIX		
	154	CAREX PACHYSTACHYA*** CHAMISSO SEDGE	MIN. 2 GAL. CONT., 12"-18" HT. AND SPREAD	18" O.C. TRIANG. SPAC., START FIRST ROW 10" FROM EDGE
	154	FESTUCA RUBRA*** RED FESCUE	MIN. 2 GAL. CONT., 12"-18" HT. AND SPREAD	18" O.C. TRIANG. SPAC., START FIRST ROW 10" FROM EDGE
	154	SYMPHYOTRICHUM SUBSPICATUM*** DOUGLAS ASTER	MIN. 2 GAL. CONT., 12"-18" HT. AND SPREAD	18" O.C. TRIANG. SPAC., START FIRST ROW 10" FROM EDGE
	3,349 SF	GROUNDCOVER MIX		
	435	ARCTOSTAPHYLOS UVA-URSI*** KINNIKINNICK	MIN. 2 GAL. CONT., 12"-18" HT. AND SPREAD	24" O.C. TRIANG. SPAC., START FIRST ROW 16" FROM EDGE
	435	MAHONIA REPENS*** CREEPING MAHONIA	MIN. 2 GAL. CONT., 12"-18" HT. AND SPREAD	24" O.C. TRIANG. SPAC., START FIRST ROW 16" FROM EDGE
GROUND COVER AREAS				
	326	ARCTOSTAPHYLOS UVA-URSI*** KINNIKINNICK	MIN. 2 GAL. CONT., 12"-18" HT. AND SPREAD	24" O.C. TRIANG. SPAC., START FIRST ROW 16" FROM EDGE

*NATIVE PLANTS
**DROUGHT TOLERANT PLANTS
***DROUGHT TOLERANT & NATIVE PLANTS



1 CONIFEROUS TREE PLANTING

3/8" = 1'-0" P-OP-01



2 DECIDUOUS TREE PLANTING

3/8" = 1'-0" P-OP-03

JACOBSON CONSULTING ENGINEERS
JACOBSONENGINEERS.COM

fora
1430 NE 65th Street
Seattle, WA 98115
t: 206-322-1732
fora.land
Fora Landscape Architects

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE,
NORTH BEND, WA 98045

STATE OF WASHINGTON · ANDREW J RASMUSSEN · No. 22918 EXP. 6/19/2026 · LANDSCAPE ARCHITECT

BID SET

04/16/2026

Revisions

Mark	Date	Description

Checked By:
TY

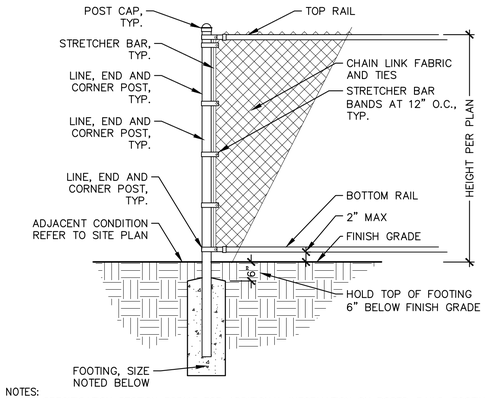
Drawn By:
IL

Dwg File:

Sheet Title
LANDSCAPE SCHEDULE & DETAILS

Sheet
L1.01

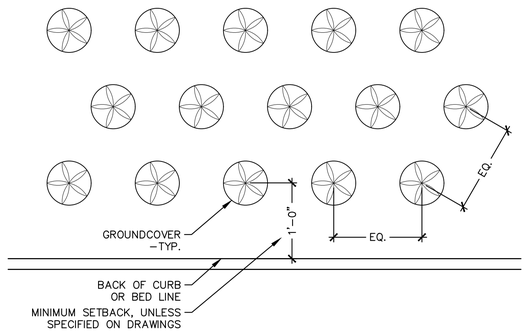
P:\OPSTAD ES PARKING\CAD\OPES L1 - LANDSCAPE, 4/13/2026 1:56 PM



NOTES:
1. SEE SPECIFICATION SECTION 323113 FOR ADDITIONAL INFORMATION ON POSTS, RAILS, FOOTING AND OTHER COMPONENTS.
2. PROVIDE CONCRETE MOW STRIPS WHERE SHOWN ON DRAWINGS.
3. ALL MESH OPENING TO BE 2" OR OTHERWISE NOTED ON PLAN.
4. PROVIDE CONTROL OR EXPANSION JOINT AT EACH POST LOCATED IN CONCRETE.
5. POST SPACING 10'–0" O.C. MAX.

1 4 TO 6 CHAIN LINK FENCE

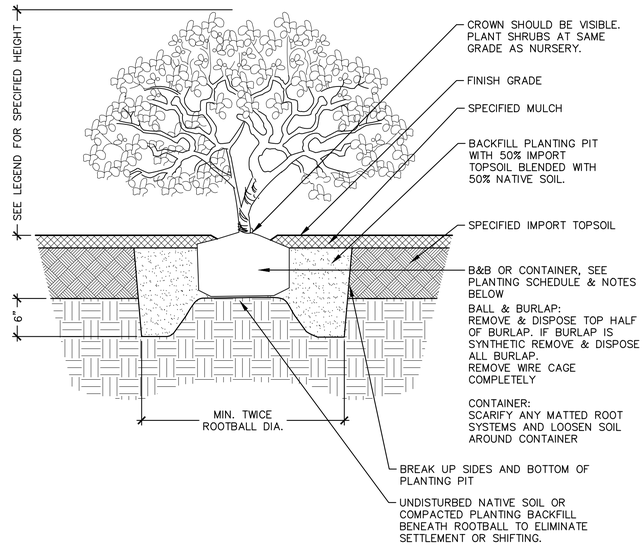
1/2" = 1'–0" P–OP–06



NOTES:
1. ALL GROUNDCOVER TO PLANTED AT = SPACING (TRIANGULAR) PER O.C. SPACING ON PLANS

2 GROUNDCOVER SPACING DIAGRAM

1" = 1'–0" P–OP–05



3 SHRUB PLANTING

1" = 1'–0" P–OP–07

JACOBSON CONSULTING ENGINEERS
JACOBSONENGINEERS.COM

fora
1430 NE 65th Street
Seattle, WA 98115
t: 206-322-1732
fora.land
Fora Landscape Architects

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE,
NORTH BEND, WA 98045

STATE OF WASHINGTON · ANDREW J RASMUSSEN · No. 219 EXP. 6/16/2026 · LANDSCAPE ARCHITECT

BID SET

04/16/2026

Revisions

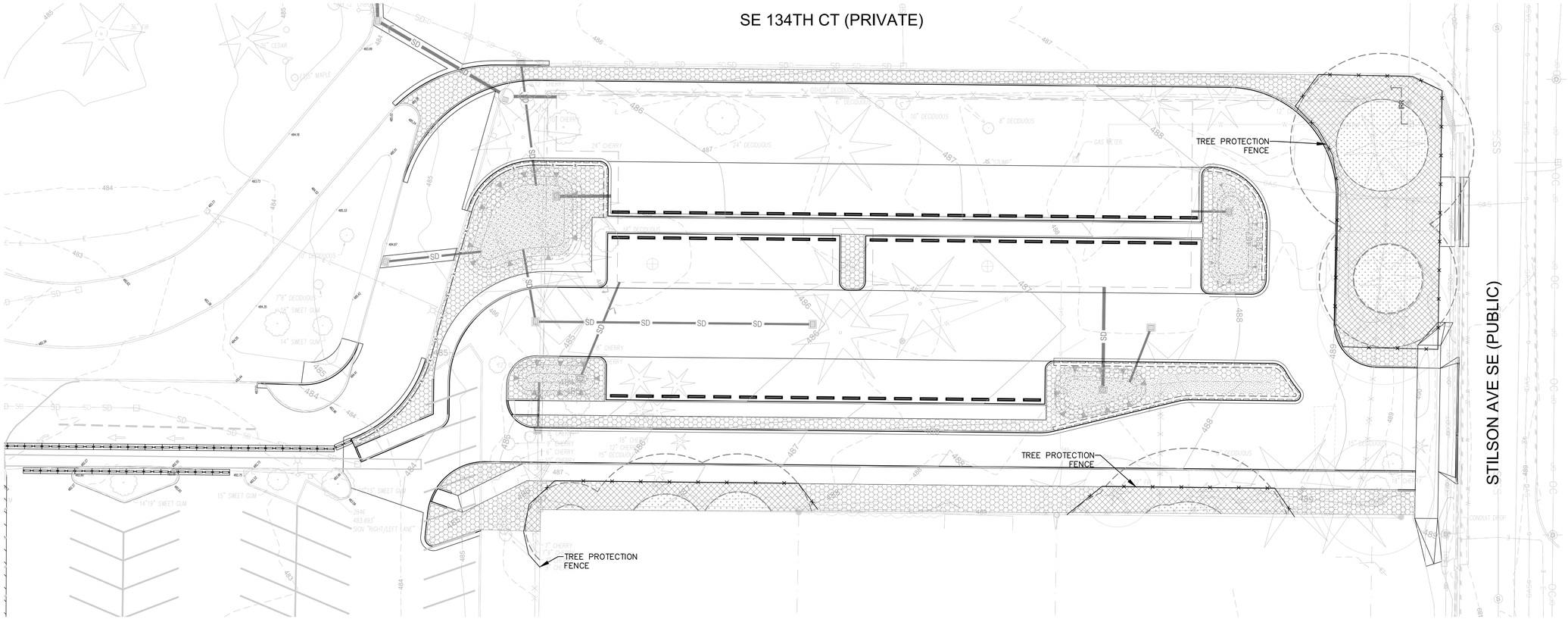
Mark	Date	Description

Checked By:
TY
Drawn By:
IL
Dwg File:

Sheet Title
LANDSCAPE DETAILS

Sheet
L1.02

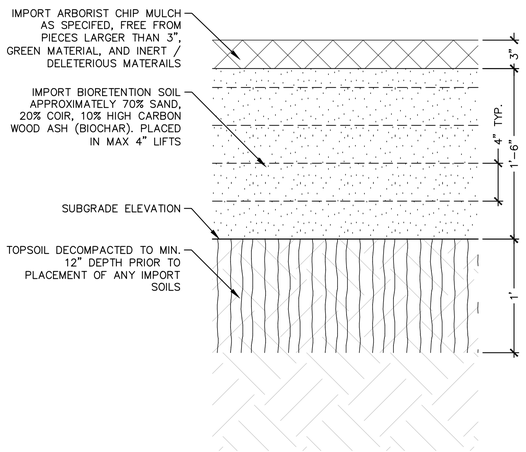
P:\OPSTAD ES PARKING \CAD\OPES L1 - LANDSCAPE, 4/13/2026 1:55 PM



SCALE: 1"=20'-0"

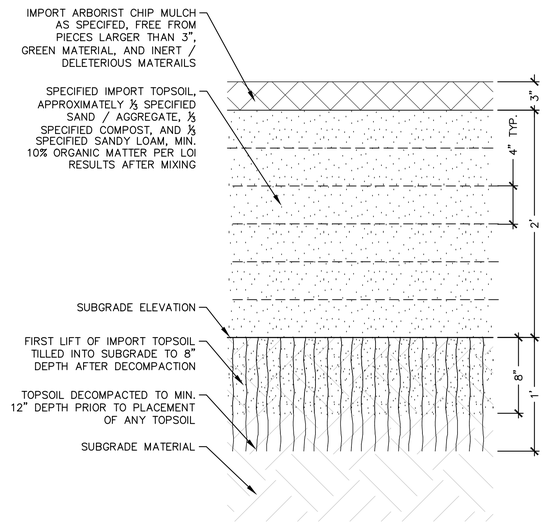
0' 10' 20' 40' 80'

N



1 18" DEPTH BIORETENTION SOIL

1 1/2" = 1'-0" P-OP-43



2 24" DEPTH IMPORT TOPSOIL AT SHRUB BEDS WITH TREES

1 1/2" = 1'-0" P-OP-48

SOIL NOTES

1. NEW LANDSCAPE AREAS SHALL REQUIRE SOIL PREPARATION IN ACCORDANCE WITH NBMC 18.18.075. SUITABLE IMPORT TOPSOIL FOR SHRUB AND GROUNDCOVER BEDS SHALL BE PREPARED TO 18" DEPTH. AT NEW TREE PLANTER STRIPS AND WITHIN 10' OF NEW TREES SUITABLE IMPORT TOPSOIL SHALL BE PREPARED TO 24" DEPTH.
2. 3" DEPTH OF SPECIFIED MULCH SHALL BE INTSALLED AT ALL NEW LANDSCAPE BEDS.
3. REFER TO CIVIL DEMOLITION DRAWINGS AND SPECIFICATIONS FOR REMOVAL REQUIREMENTS AND PROTECTION FENCING AROUND EXISTING VEGETATION.
4. HAND DIGGING WITHIN CRITICAL ROOT ZONES (CRZ) AND NO DIGGING WITHIN INNER CRITICAL ROOT ZONES (ICRZ). PRESERVE NATIVE TOPSOIL WITHIN CRZ. HEAVY EQUIPMENT WORK WITHIN CRZ ONLY ALLOWED UNDER ARBORIST SUPERVISION.
5. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

TREE PRESERVATION LEGEND

SYMBOL	QTY	DESCRIPTION
		24" DEPTH IMPORT TOPSOIL WITH 3" DEPTH MULCH. SEE SPECIFICATIONS AND DETAILS.
		24" DEPTH IMPORT BIORETENTION SOIL. SEE SPECIFICATIONS.
		3" DEPTH ARBORIST CHIPS. SEE SPECIFICATIONS.
		HAND DIG INDIVIDUAL HOLES FOR EACH PLANT IN UNDISTURBED NATIVE SOIL WITHIN CRZ

P:\OPSTAD ES PARKING\CAD\OPES L1 - SOIL 4/13/2026 1:54 PM

JACOBSON CONSULTING ENGINEERS
JACOBSONENGINEERS.COM

fora
1430 NE 65th Street
Seattle, WA 98115
t: 206-322-1732
fora.land
Fora Landscape Architects

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE, NORTH BEND, WA 98045

STATE OF WASHINGTON · ANDREW J RASMUSSEN · No. 219 EXP. 6/16/2026 · LANDSCAPE ARCHITECT

BID SET

04/16/2026

Revisions

Mark	Date	Description

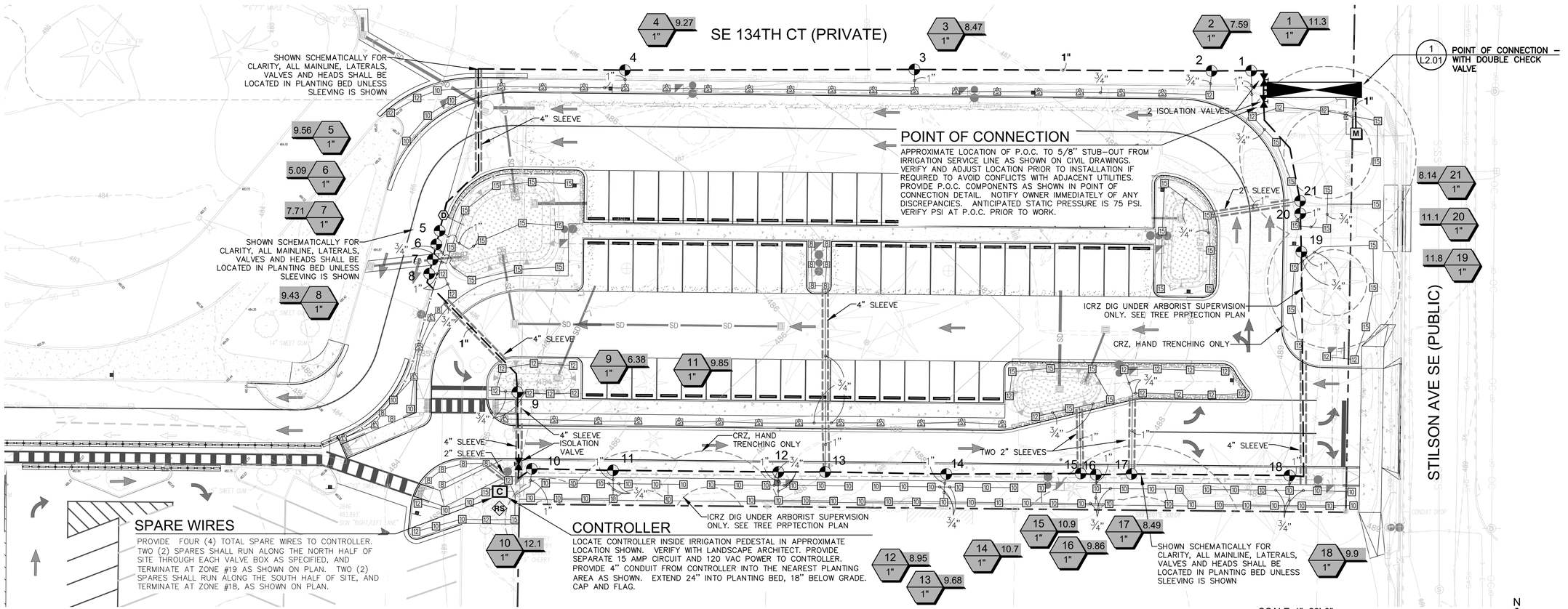
Checked By:
TY

Drawn By:
IL

Dwg File:

Sheet Title
SOIL PLAN

Sheet
L1.03



IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY	PSI	DETAIL
EST LCS RCS CST SST	RAIN BIRD 1806-SAM-PRS-U 15 STRIP SERIES SHRUB SPRAY, 6" POP-UP SPRINKLER WITH CO-MOLDED WIPER SEAL. 1/2" NPT FEMALE THREADED INLET. WITH SEAL-A-MATIC CHECK VALVE, AND PRESSURE REGULATING DEVICE.	32	30	2/L202
08 HE-VAN 12 HE-VAN 10 HE-VAN 15 HE-VAN	RAIN BIRD 1806-SAM-PRS-U HE-VAN SERIES SHRUB SPRAY, 6" POP-UP SPRINKLER WITH CO-MOLDED WIPER SEAL. 1/2" NPT FEMALE THREADED INLET. WITH SEAL-A-MATIC CHECK VALVE, AND PRESSURE REGULATING DEVICE.	148	30	2/L202

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY	DETAIL
	RAIN BIRD PEB-PRS-D 1", 1-1/2", 2" PLASTIC INDUSTRIAL VALVES. LOW FLOW OPERATING CAPABILITY, GLOBE CONFIGURATION. WITH PRESSURE REGULATOR MODULE.	21	5/L202
	RAIN BIRD 5-RC 1" BRASS QUICK-COUPLING VALVE. WITH CORROSION-RESISTANT STAINLESS STEEL SPRING, THERMOPLASTIC RUBBER COVER, AND 1-PIECE BODY.	1	4/L201
	NIBCO T-113-K CLASS 125 BRONZE GATE SHUT OFF VALVE WITH CROSS HANDLE, SAME SIZE AS MAINLINE PIPE DIAMETER AT VALVE LOCATION. SIZE RANGE - 1/4" - 3"	1	1/L201
	NIBCO T-580-A BRASSL BALL VALVE SHUT OFF VALVE. SAME SIZE AS PIPE.	3	5/L201
M	RAIN BIRD EFB-CP 1" 1", 1-1/4", 1-1/2", 2" BRASS MASTER VALVE, THAT IS CONTAMINATION PROOF W/SELF-FLUSHING FILTER SCREEN. GLOBE CONFIGURATION, RECLAIMED WATER COMPATIBLE, AND PURPLE HANDLE COVER DESIGNATES NON-POTABLE WATER USE.	1	1/L201
D	MANUAL DRAIN VALVE 3/4" BRASS STOP WASTE VALVE. INSTALL ONE AT THE POC AND ANOTHER AT THE LOW POINT IN THE MAIN LINE	2	4/L202
BF	FEBCO 850U 3/4" DOUBLE CHECK BACKFLOW PREVENTION WITH UNION END BALL VALVE, 1/2IN. TO 2IN..	1	1/L201

IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY	PSI	DETAIL
C	RAIN BIRD ESPLXME2P-LXMM-LXMMPED W/ (1) ESPLXMSM12 24 STATION, TRADITIONALLY-WIRED, PRO SMART (MODULE INCLUDED), COMMERCIAL CONTROLLER. (1) ESPLXME2P 12-STATION, INDOOR/OUTDOOR, PLASTIC WALL-MOUNT ENCLOSURE W/ (1) ESPLXMSM12 - 12-STATION EXPANSION MODULE. INSTALL IN LXMM-LXMMPED POWDER COATED, METAL WALL-MOUNTED CABINET W/PEDESTAL.	1		2/L201
RS	RAIN BIRD WR2-RFC WIRELESS RAIN AND FREEZE SENSOR COMBO, INCLUDES 1 RECEIVER AND 1 RAIN/FREEZE SENSOR TRANSMITTER.	1		6/L202
FS	RAIN BIRD FG100 1IN. FG100 FLOW SENSORS W/ NPT UNION FITTINGS. OPERATING RANGE 3 GPM- 25 GPM. SIZE FOR FLOW NOT ACCORDING TO PIPE SIZE. NO STRAIGHT PIPE REQUIREMENTS.	1		3/L201
	POINT OF CONNECTION SEE ENLARGEMENT ON DETAIL SHEET.	1		1/L202
Y	STRAINER WILKINS SXL CAST BRONZE WYE STRAINER WITH 20-MESH STAINLESS STEEL SCREEN. SIZE TO MATCH BACKFLOW DEVICE. INSTALL AT POC AND ELSEWHERE AS SHOWN ON PLAN.	1		1/L201
M	WATER METER 5/8" EXISTING METER, SEE CIVIL DRAWINGS	1		
	IRRIGATION LATERAL LINE: PVC SCHEDULE 40 SEE PLAN FOR SIZE. UNLABELED SECTIONS SHALL MATCH THE SIZE NOTED OF THE ADJACENT UPSTREAM PIPE. MINIMUM PIPE SIZE AT END OF LATERAL RUNS SHALL BE 3/4".	2,284 LF		3/L202
	IRRIGATION MAINLINE: PVC SCHEDULE 40 SEE PLAN FOR SIZE. MINIMUM 1" UNLESS NOTED OTHERWISE. SEE SPECIFICATIONS FOR MINIMUM BURIAL DEPTH.	937.1 LF		3/L202
	PIPE SLEEVE: PVC SCHEDULE 40 SEE PLAN FOR SIZE. 4" DIAMETER UNLESS OTHERWISE INDICATED ON PLAN. TO BE INSTALLED BY LANDSCAPE CONTRACTOR AT DEPTHS SPECIFIED.	285.5 LF		3/L202

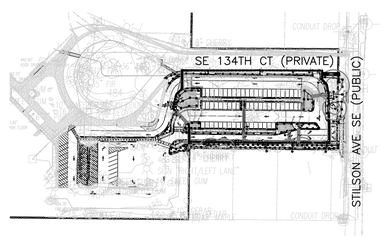
Valve Callout
Valve Number
Valve Flow
Valve Size

IRRIGATION NOTES:

1. ADJUST ALL IRRIGATION HEADS TO PROVIDE MAXIMUM COVERAGE, MINIMUM OVERSPRAY, AND NO FOGGING. SET ALL HEADS BACK FROM CURBS, PAVING, AND WALLS. SPRINKLER HEADS SHALL BE INSTALLED WITH 6" OFFSET FROM BACK OF PAVING OR CURB EDGES, AND 12" OFFSET WHERE CAR BUMPERS WILL OVERHANG.
2. LOCATION OF IRRIGATION MAINLINE, LATERALS, AND SLEEVING ARE SCHEMATIC ONLY, AND SHALL OCCUR IN PLANTING AREAS UNLESS SLEEVING IS SHOWN. IF SLEEVES ARE SHOWN THEY ARE TO BE STRAIGHT RUNS, TYP. MAKE MINOR CHANGES TO COORDINATE WITH ACTUAL AS-BUILT DIMENSIONS AND CONDITIONS.
3. VALVE BOXES SHALL BE LOCATED IN SHRUB PLANTING AREAS ONLY. LOCATE IN APPROXIMATE LOCATIONS AS SHOWN ON PLAN.
4. SEE CIVIL PLANS FOR LOCATION OF IRRIGATION STUB-OUT FROM EXISTING 5/8" METER.
5. ANTICIPATED AVAILABLE STATIC WATER PRESSURE IS +/- 75 PSI, AS PROVIDED BY WATER DISTRICT. VERIFY EXACT PRESSURE AT POINT OF CONNECTION PRIOR TO START OF WORK.
6. THE IRRIGATION SYSTEM HAS BEEN DESIGNED WITH SEPARATE HYDROZONES ACCORDING TO THE NEEDS OF THE PLANT MATERIAL. THE IRRIGATION SYSTEM HAS BEEN DESIGNED TO PROVIDE A MINIMUM AVERAGE DISTRIBUTION UNIFORMITY OF 0.625. THE IRRIGATION SYSTEM HAS BEEN DESIGNED TO AVOID RUNOFF, LOW HEAD DRAINAGE, AND OVERSPRAY. AVOID IRRIGATION DURING TIMES OF HIGH WINDS, WHEN RAINING, OR DURING THE MIDDLE OF THE DAY.
7. LATERAL PIPE SIZE SHALL BE AS NOTED ON PLAN. UNLABELED SECTIONS SHALL MATCH THE SIZE NOTED OF THE ADJACENT UPSTREAM PIPE. MINIMUM PIPE SIZE AT END OF LATERAL RUNS SHALL BE 3/4".
8. QUANTITIES AND PIPE LENGTHS INDICATED ON THE IRRIGATION SCHEDULE ARE FOR REFERENCE ONLY AND SHALL BE VERIFIED BY THE CONTRACTOR. IF THERE IS A DISCREPANCY BETWEEN PLAN AND SCHEDULE, THE PLAN SHALL TAKE PRECEDENT.
9. WHERE IRRIGATION PIPING IS SHOWN ADJACENT OR UNDER EXISTING TREES, MAKE MINOR ROUTE ADJUSTMENTS TO AVOID TRENCHING THROUGH LARGE TREE ROOTS. REFER TO SPECIFICATION SECTION 328000 FOR FURTHER INSTRUCTIONS.
10. REFER TO IRRIGATION SPECIFICATION FOR ADDITIONAL REQUIREMENTS.

VALVE SCHEDULE

NUMBER	MODEL	SIZE	TYPE	GPM	PRECIP
1	RAIN BIRD PEB-PRS-D	1"	SHRUB SPRAY	11.3	0.76 in/h
2	RAIN BIRD PEB-PRS-D	1"	SHRUB SPRAY	7.59	1.49 in/h
3	RAIN BIRD PEB-PRS-D	1"	SHRUB SPRAY	8.47	1.66 in/h
4	RAIN BIRD PEB-PRS-D	1"	SHRUB SPRAY	9.27	1.42 in/h
5	RAIN BIRD PEB-PRS-D	1"	SHRUB SPRAY	9.56	0.71 in/h
6	RAIN BIRD PEB-PRS-D	1"	SHRUB SPRAY	5.09	0.67 in/h
7	RAIN BIRD PEB-PRS-D	1"	SHRUB SPRAY	7.71	0.82 in/h
8	RAIN BIRD PEB-PRS-D	1"	SHRUB SPRAY	9.43	1.33 in/h
9	RAIN BIRD PEB-PRS-D	1"	SHRUB SPRAY	6.38	1.3 in/h
10	RAIN BIRD PEB-PRS-D	1"	SHRUB SPRAY	12.05	1.59 in/h
11	RAIN BIRD PEB-PRS-D	1"	SHRUB SPRAY	9.85	1.27 in/h
12	RAIN BIRD PEB-PRS-D	1"	SHRUB SPRAY	8.95	1.25 in/h
13	RAIN BIRD PEB-PRS-D	1"	SHRUB SPRAY	9.68	1.46 in/h
14	RAIN BIRD PEB-PRS-D	1"	SHRUB SPRAY	10.74	1.36 in/h
15	RAIN BIRD PEB-PRS-D	1"	SHRUB SPRAY	10.89	1.17 in/h
16	RAIN BIRD PEB-PRS-D	1"	SHRUB SPRAY	9.86	1.21 in/h
17	RAIN BIRD PEB-PRS-D	1"	SHRUB SPRAY	8.49	1.3 in/h
18	RAIN BIRD PEB-PRS-D	1"	SHRUB SPRAY	9.9	1.42 in/h
19	RAIN BIRD PEB-PRS-D	1"	SHRUB SPRAY	11.82	0.8 in/h
20	RAIN BIRD PEB-PRS-D	1"	SHRUB SPRAY	11.1	0.88 in/h
21	RAIN BIRD PEB-PRS-D	1"	SHRUB SPRAY	8.14	0.97 in/h



SITE KEY MAP – NOT TO SCALE

P:\OPSTAD ES PARKING\CAD\OPES L2 - IRRG, 4/13/2026 1:57 PM

JACOBSON CONSULTING ENGINEERS
JACOBSONENGINEERS.COM
fora
1430 NE 65th Street
Seattle, WA 98115
t: 206-322-1732
fora.land
Fora Landscape Architects

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE, NORTH BEND, WA 98045

STATE OF WASHINGTON · ANDREW J. RASMUSSEN · No. 219 EXP. 6/12/2026 · LANDSCAPE ARCHITECT

BID SET

04/16/2026

Revisions

Mark	Date	Description

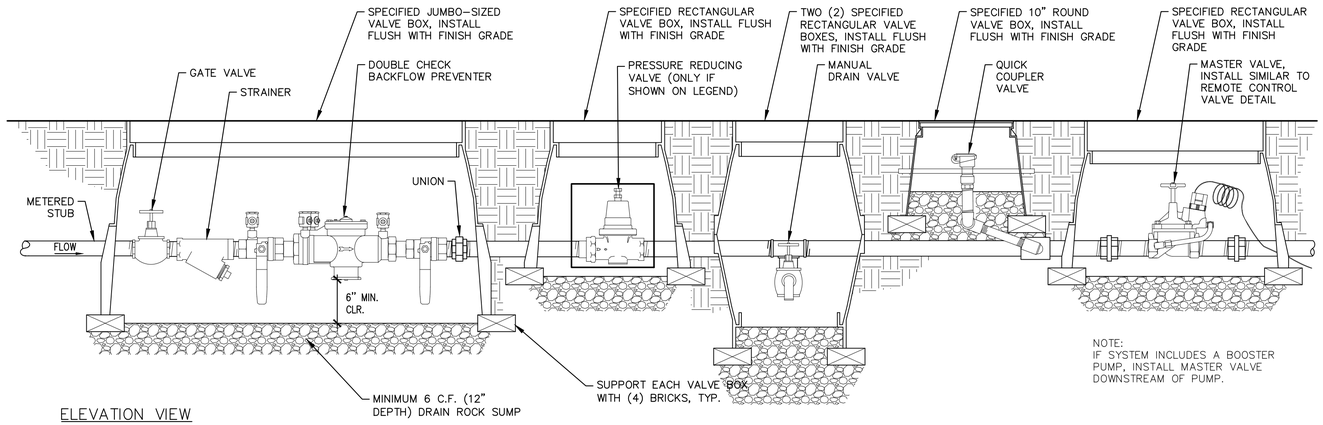
Checked By:
TY

Drawn By:
IL

Dwg File:

Sheet Title
IRRIGATION PLAN & SCHEDULE

Sheet
L2.00

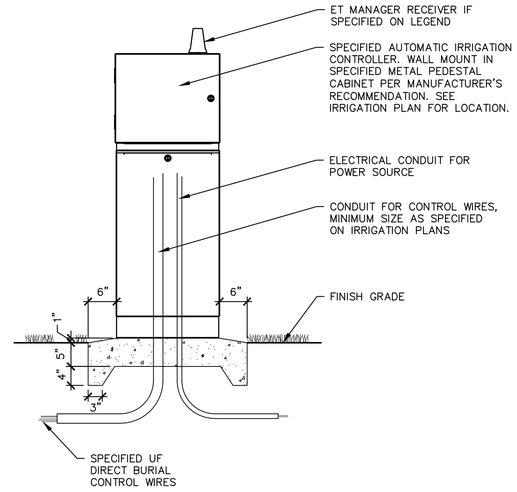


ELEVATION VIEW

NOTES:
1. PROVIDE ONE QUICK COUPLER AT P.O.C. AND ELSEWHERE AS SHOWN ON PLAN.
2. INSURE POSITIVE DRAINAGE FROM P.O.C. COMPONENTS. PROVIDE DAYLIGHT DRAIN AS NECESSARY.
3. PROVIDE SIZE & QUANTITY OF VALVE BOXES AS NECESSARY TO ACCOMMODATE ALL COMPONENTS.

1 POINT OF CONNECTION - WITH DOUBLE CHECK VALVE

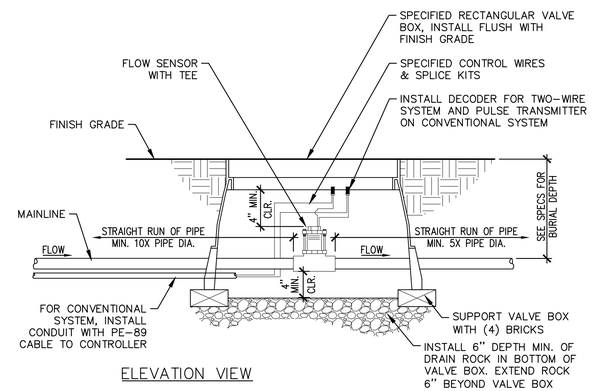
1 1/2" = 1'-0" P-OP-24



NOTE:
1. INSTALL GROUNDING ROD AND WIRING PER LEGEND AND PER MANUFACTURER'S RECOMMENDATION.

2 IRRIGATION CONTROLLER (EXTERIOR PEDESTAL)

3/4" = 1'-0" P-OP-12

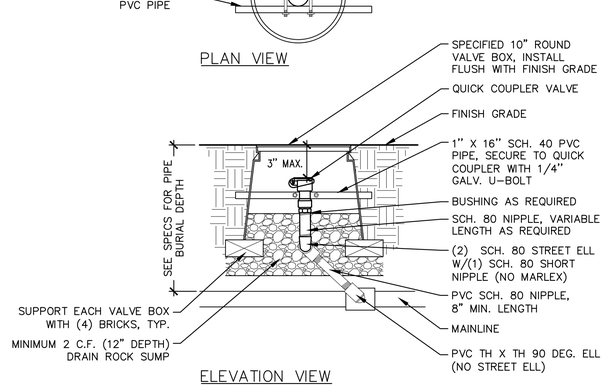


ELEVATION VIEW

NOTES:
1. INSTALL FLOW SENSOR AS PER THE MANUFACTURER'S RECOMMENDATIONS.
2. PROVIDE VALVE BOX EXTENSION AS REQUIRED.
3. INSTALL FLOW SENSOR PERFECTLY PLUMB.

3 FLOW SENSOR

1 1/2" = 1'-0" P-OP-11



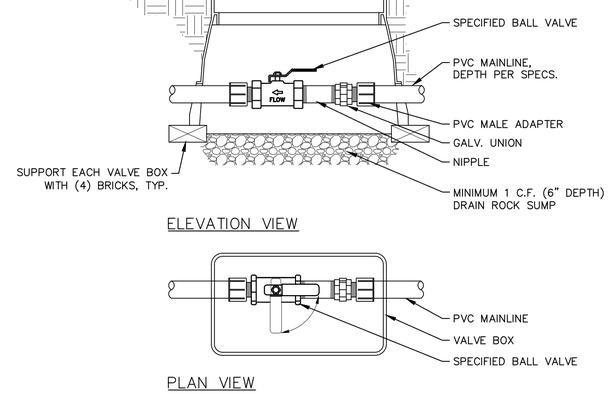
PLAN VIEW

ELEVATION VIEW

NOTES:
1. ALL THE FITTINGS AND PIPE TO BE SAME DIA. AS IPS FEMALE CONNECTION OF QUICK COUPLER.
2. QUICK COUPLER KEY MUST CLEAR VALVE BOX.

4 QUICK COUPLER VALVE

1 1/2" = 1'-0" P-OP-26



ELEVATION VIEW

PLAN VIEW

NOTES:
1. BOX TO BE INSTALLED AS TO ALLOW FOR PROPER OPERATION OF BALL VALVE. INSTALL AT RIGHT ANGLE TO HARDSCAPE EDGE, INSTALL VALVE OFF-CENTER IN BOX.
2. INSTALL VALVE BOX EXTENSIONS AS REQUIRED FOR PROPER VALVE INSTALLATION AT MAINLINE DEPTH.

5 ISOLATION / SHUT-OFF VALVE

1 1/2" = 1'-0" P-OP-15

P:\OPSTAD ES PARKING\CAD\OPES L2 - IRRG, 4/13/2026 1:55 PM

JACOBSON CONSULTING ENGINEERS
JACOBSONENGINEERS.COM
fora
1430 NE 65th Street
Seattle, WA 98115
t: 206-322-1732
fora.land
Fora Landscape Architects

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE, NORTH BEND, WA 98045

STATE OF WASHINGTON · ANDREW J RASMUSSEN · No. 219 EXP. 6/16/2026 · LANDSCAPE ARCHITECT

BID SET

04/16/2026

Revisions

Mark	Date	Description

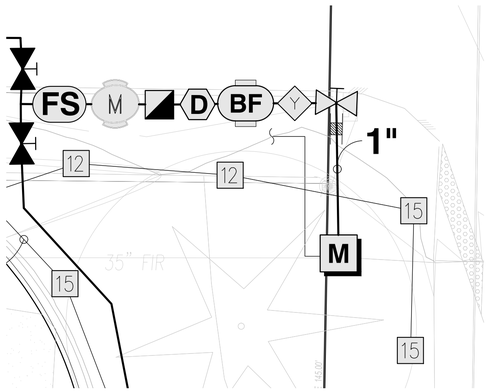
Checked By:
TY

Drawn By:
IL

Dwg File:

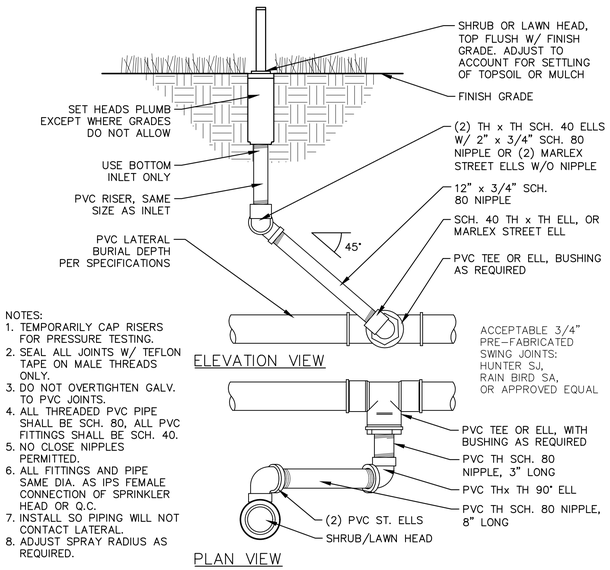
Sheet Title
IRRIGATION DETAILS

Sheet
L2.01



1 POC PLAN ENLARGEMENT

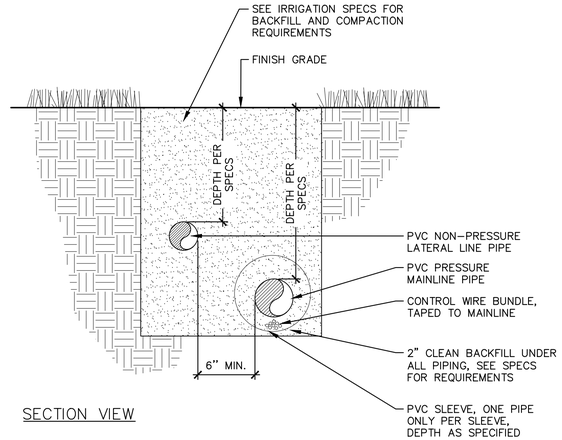
1/8" = 1'-0" P-OP-36



NOTES:
1. TEMPORARILY CAP RISERS FOR PRESSURE TESTING.
2. SEAL ALL JOINTS W/ TEFLON TAPE ON MALE THREADS ONLY.
3. DO NOT OVERTIGHTEN GALV. TO PVC JOINTS.
4. ALL THREADED PVC PIPE SHALL BE SCH. 80, ALL PVC FITTINGS SHALL BE SCH. 40.
5. NO CLOSE NIPPLES PERMITTED.
6. ALL FITTINGS AND PIPE SAME DIA. AS IPS FEMALE CONNECTION OF SPRINKLER HEAD OR Q.C.
7. INSTALL SO PIPING WILL NOT CONTACT LATERAL.
8. ADJUST SPRAY RADIUS AS REQUIRED.

2 IRRIGATION HEAD

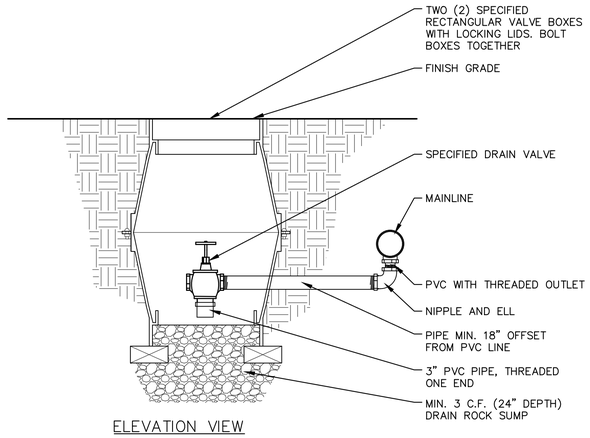
3" = 1'-0" P-OP-14



NOTES:
1. NO OTHER TRADES (ELECT. LIGHTING) ALLOWED TO USE SAME TRENCH AS IRRIGATION PIPE.
2. PROVIDE 24" COVER FOR DIRECT BURIAL CABLE.
3. PROVIDE PVC SCH. 40 SLEEVES FOR ALL WIRING AND PIPING UNDER PAVING.
4. NO STACKING (VERTICALLY) OF PIPES IN SAME TRENCH.

3 PIPE TRENCHING AND BACKFILL

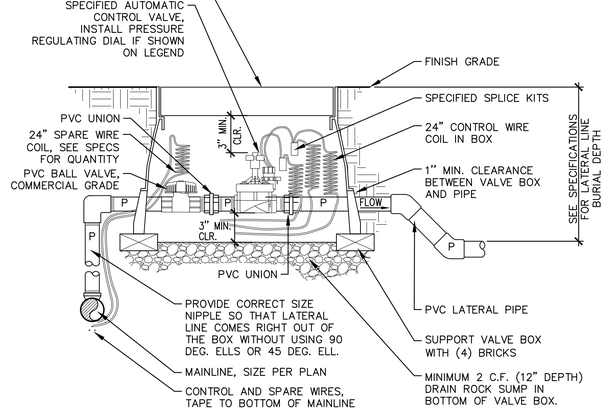
1 1/2" = 1'-0" P-OP-20



NOTES:
1. ALL PIPE AND FITTINGS TO BE SAME DIA. AS I.P.S. FEMALE CONNECTION TO DRAIN VALVE.
2. INSTALL ONE MANUAL DRAIN VALVE AT LOWEST POINT OF MAINLINE ON SITE, SUBJECT TO REVIEW AND APPROVAL BY LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.

4 MANUAL DRAIN VALVE

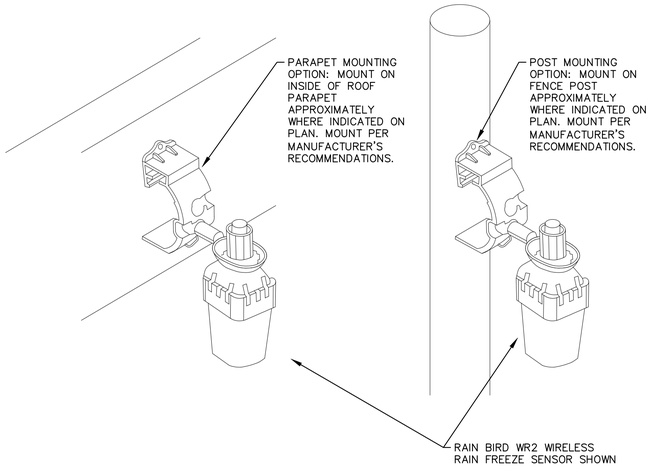
1 1/2" = 1'-0" P-OP-17



NOTE:
PROVIDE VALVE BOX EXTENSIONS AS REQUIRED.

5 REMOTE CONTROL VALVE - WITH SHUT-OFF

1 1/2" = 1'-0" P-OP-29



NOTES:
1. CONFIRM LOCATION WITH LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
2. DO NOT LOCATE UNDER COVER OF TREE CANOPY OR ROOF OVERHANG, ON SIDE OF BUILDING WALL, OR ANY OTHER LOCATION NOT FULLY EXPOSED TO RAINFALL.

6 RAIN SENSOR

3" = 1'-0" P-OP-37

P:\OPSTAD ES PARKING\CAD\OPES L2 - IRRG. 4/13/2026 1:56 PM

JACOBSON CONSULTING ENGINEERS
JACOBSONENGINEERS.COM
fora
1430 NE 65th Street
Seattle, WA 98115
t: 206-322-1732
fora.land
Fora Landscape Architects

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE, NORTH BEND, WA 98045

STATE OF WASHINGTON · ANDREW J RASMUSSEN · No. 219 EXP. 6/26/2026 · LANDSCAPE ARCHITECT

BID SET

04/16/2026

Revisions

Mark	Date	Description

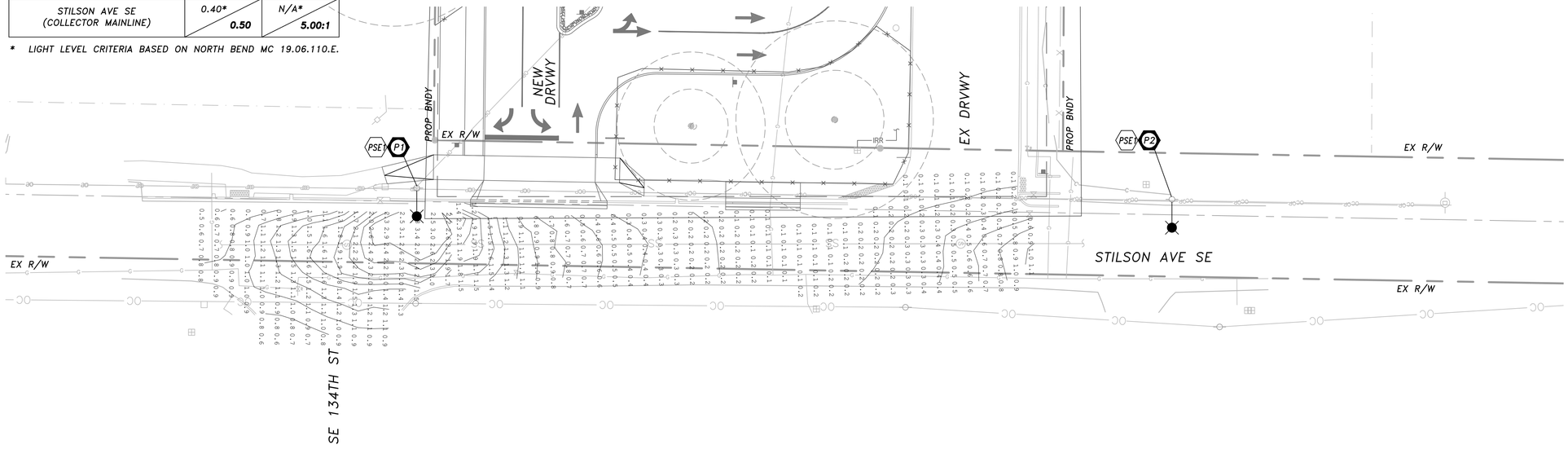
Checked By:
TY
Drawn By:
IL
Dwg File:

Sheet Title
IRRIGATION DETAILS

Sheet
L2.02

CALCULATION SUMMARY	TARGET / ACTUAL	
CALCULATION AREA	DESIGN CRITERIA: MIN. AVG. MAINTAINED (FC)	DESIGN CRITERIA: MAX. UNIFORMITY RATIO (AVG./MIN.)
STILSON AVE SE & SE 134TH ST (COLLECTOR INTERSECTION)	0.40* / **1.43**	N/A* / **2.86:1**
STILSON AVE SE (COLLECTOR MAINLINE)	0.40* / **0.50**	N/A* / **5.00:1**

* LIGHT LEVEL CRITERIA BASED ON NORTH BEND MC 19.06.110.E.



PSE STREET LIGHTING SCOPE OF WORK

ILLUMINATION POLE SCHEDULE (INSTALLED BY PSE STREET LIGHTING)

LUM. POLE NO.	GRID #	STREET	STATION	OFFSET	MOUNT. HEIGHT	ARM LENGTH	POLE	LUMINAIRE TYPE – DISTRIBUTION	WATTAGE /TYPE	COLOR. TEMP.	INITIAL LUMENS	COMMENT
P1	157610	STILSON AVE SE	EX	EX	NEW 30'	NEW 8'	EX TIMBER POLE	GE EVOLVE TYPE 3 GE–ERL1–0–16–C5–30–A–GRAY–X–106	129W LED	3,000K	15,000	LUMINAIRE INSTALLED BY PSE STREET LIGHTING ONTO EXISTING TIMBER POLE.
P2	217682–177003	STILSON AVE SE	EX	EX	NEW 30'	NEW 8'	EX TIMBER POLE	GE EVOLVE TYPE 3 GE–ERL1–0–16–C5–30–A–GRAY–X–106	129W LED	3,000K	15,000	LUMINAIRE INSTALLED BY PSE STREET LIGHTING ONTO EXISTING TIMBER POLE.

PSE STREET LIGHTING CONSTRUCTION NOTE

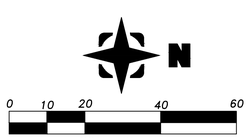
PSE EXISTING PSE OWNED TIMBER POLE TO REMAIN. PSE LIGHTING SHALL INSTALL NEW LUMINAIRE & ARM PER POLE SCHEDULE, THIS SHEET.

PSE STREET LIGHTING GENERAL NOTE

1. PROJECT CONTRACTOR SHALL COORDINATE WITH DEVELOPER AND PSE STREET LIGHTING TO SCHEDULE INSTALLATION, INCLUDING COMPLETING ALL FORMS, PAYMENT OF ALL FEES, ETC. ASSOCIATED WITH THE INSTALLATION. PSE STREET LIGHTING SHALL FURNISH AND INSTALL ALL MATERIALS BY CONTRACT WITH THE DEVELOPER.

GENERAL NOTES

1. THE LOCATIONS OF FEATURES SHOWN ARE APPROXIMATE AND SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR AS NECESSARY.
2. THE CONTRACTOR SHALL SUBMIT A REQUEST FOR MATERIALS APPROVAL TO THE PROJECT ENGINEER PRIOR TO ORDERING MATERIALS, AS OUTLINED IN THE PROJECT SPECIAL PROVISIONS.
3. ALL WORK SHALL BE CONSISTENT WITH UTILITY AGENCY REQUIREMENTS. THE CONTRACTOR SHALL CONTACT ALL PERTINENT UTILITY AGENCIES 48 HOURS BEFORE COMMENCING WORK, AND SHALL COORDINATE WITH AFFECTED UTILITY AGENCIES THROUGHOUT THE PROJECT.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES. THE CONTRACTOR SHALL NOTIFY THE AFFECTED UTILITY COMPANY IMMEDIATELY UPON DAMAGE.
5. STREET LIGHTS TO BE ON SEPARATE METER FROM THE ON–SITE LIGHTING. STREET LIGHTS ALONG STILSON AVE SE (PUBLIC RIGHT–OF–WAY) SHALL BE OWNED BY THE CITY AFTER INSTALLATION OR AS OTHERWISE DETERMINED BY THE FRANCHISE AGREEMENT.



ILLUMINATION LEGEND

EXISTING	NEW	DESCRIPTION
		UTILITY POLE MOUNTED LUMINAIRE
		UTILITY POLE
		CONSTRUCTION NOTE
		POLE NUMBER

CITY OF NORTH BEND PERMIT#_____

THESE PLANS ARE APPROVED FOR CONFORMANCE WITH THE CITY OF NORTH BEND PUBLIC WORKS DEPARTMENT REQUIREMENTS TO THE BEST OF MY KNOWLEDGE.

CITY ENGINEER OR PUBLIC WORKS DIRECTOR DATE

TenW
520 KIRKLAND WAY, SUITE 100, KIRKLAND, WA, 98033

ELYCE M. STEMMLER STATE OF WASHINGTON 52125 REGISTERED PROFESSIONAL ENGINEER

04-16-2026

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE,
NORTH BEND, WA 98045

BID SET

04/16/2026

Revisions

Mark	Date	Description

Checked By:
EMS

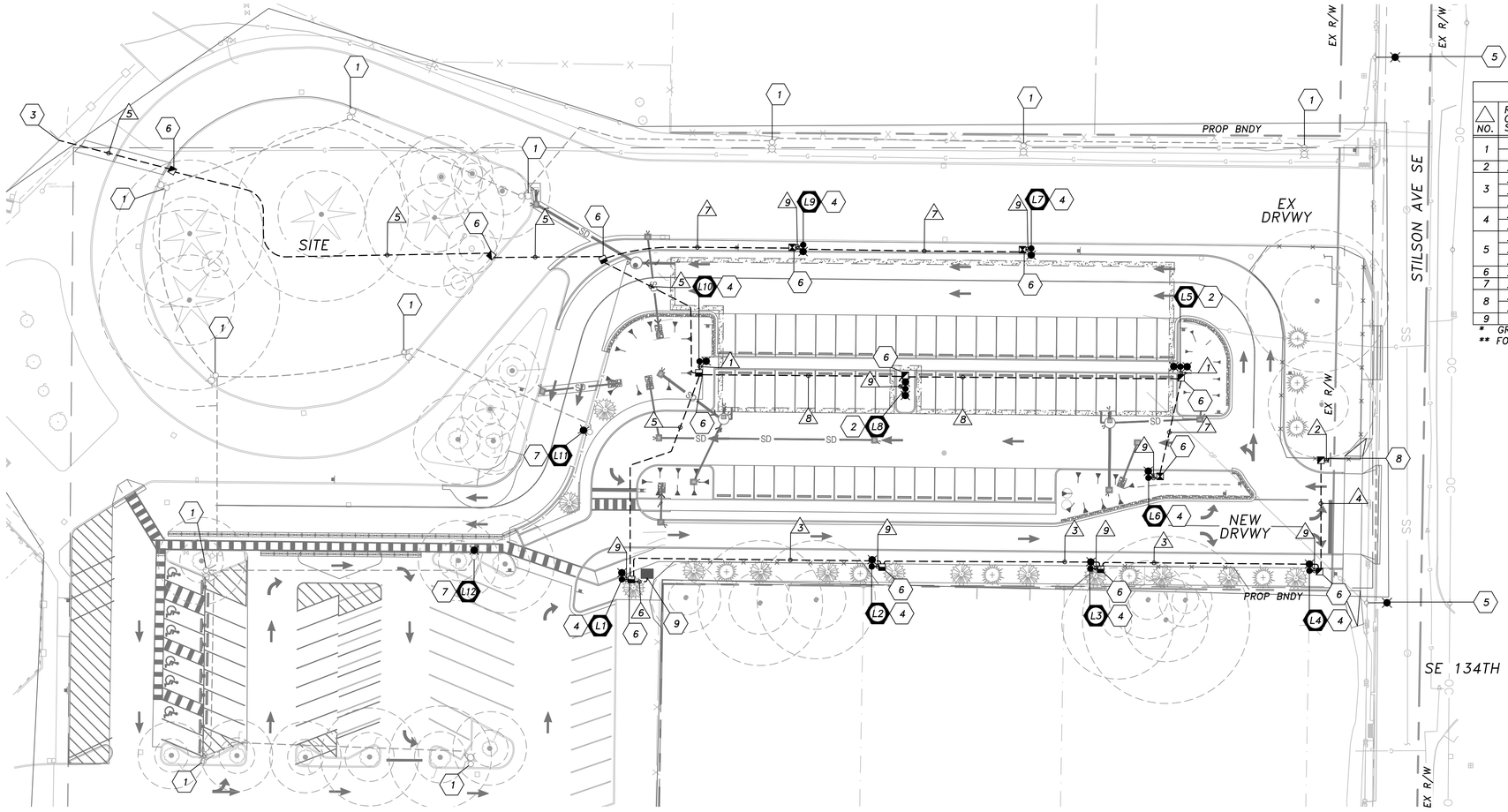
Drawn By:
GRL/SSO

Dwg File:

Sheet Title
ILLUMINATION PLAN

Sheet
IL-01

T:\ACTIVE PROJECTS\OPSTAD ELEMENTARY SCHOOL - 2023-168\DESIGN\DELIVERABLES\2026-04-16 BID SET SUBMITTAL - WORKING\CAD\OPSTAD ES MASTER ILLUM, 4/9/2026 8:45 PM



ILLUMINATION WIRING SCHEDULE

NO.	RACEWAY CONDUIT SIZE	ILLUM #8	PWR. #6	PULL WIRE	CONDUIT FILL	ALLOW. FILL (26%)
1	1" SCH40 PVC	3*		---	0.17	0.22
	1" SCH40 PVC(SPARE)**			1	---	0.22
2	2" SCH40 PVC(SPARE)**			1	---	0.86
3	2" SCH40 PVC	3*		---	0.17	0.86
	2" SCH40 PVC(SPARE)**			1	---	0.86
4	2" SCH40 PVC(SPARE)**			1	---	0.86
	2" SCH40 PVC(SPARE)**			1	---	0.86
5	2" SCH40 PVC	2	3*		0.33	0.86
	2" SCH40 PVC(SPARE)**			1	---	0.86
	2" SCH40 PVC(SPARE)**			1	---	0.86
6	2" SCH40 PVC		3*		0.22	0.86
7	2" SCH40 PVC	3*		---	0.17	0.86
8	2" SCH40 PVC	3*			0.17	0.86
	2" SCH40 PVC(SPARE)**			1	---	0.86
9	1" SCH40 PVC	3*		---	0.17	0.22

* GROUNDING WIRE INCLUDED.
** FOR FUTURE USE.

ILLUMINATION GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THESE PLANS AND THE CURRENT EDITION OF THE CITY OF NORTH BEND STANDARD SPECIFICATIONS AND DETAILS.
2. THE LOCATIONS OF FEATURES SHOWN ARE APPROXIMATE AND SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR AS NECESSARY.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES. THE CONTRACTOR SHALL NOTIFY THE AFFECTED UTILITY COMPANY AND THE CITY OF NORTH BEND IMMEDIATELY UPON DAMAGE.
4. EXISTING FEATURES TO REMAIN UNLESS OTHERWISE NOTED.

ON-SITE ILLUMINATION LEGEND

EXISTING	NEW	DESCRIPTION
		LIGHT POLE
		UTILITY POLE MOUNT. LUMINAIRE
		UTILITY POLE
		JUNCTION BOX
		CONDUIT
		CONSTRUCTION NOTE
		POLE NUMBER
		WIRE NOTE

ON-SITE LIGHTING CONSTRUCTION NOTES

1. EXISTING ON-SITE LIGHT POLE & FIXTURE TO REMAIN. PROTECT DURING CONSTRUCTION.
2. INSTALL 7-FT PRE-CAST FOUNDATION, SHEET OS-03. INSTALL NEW LIGHT POLE & DUAL FIXTURES TO NEW FOUNDATION PER POLE SCHEDULE, THIS SHEET, AND MATERIAL DRAWINGS, SHEET OS-02. FOUNDATION SHALL EXTEND 2-FT ABOVE FINISHED GRADE.
3. CONTRACTOR SHALL ROUTE PROPOSED CONDUIT TO EXISTING ELECTRICAL ROOM. COORDINATE WITH THE SCHOOL DISTRICT FOR CONNECTION TO EXISTING BREAKERS FOR ILLUMINATION AND IRRIGATION CONTROLLER POWER.
4. INSTALL 7-FT PRE-CAST FOUNDATION, SHEET OS-03. INSTALL NEW LIGHT POLE & FIXTURE TO NEW FOUNDATION PER POLE SCHEDULE, THIS SHEET, AND MATERIAL DRAWINGS, SHEET OS-02. FOUNDATION SHALL EXTEND 2-FT ABOVE FINISHED GRADE.
5. SEE FRONTAGE ILLUMINATION PLAN, SHEET IL-01, FOR MORE DETAILS.
6. FURNISH AND INSTALL NEW JUNCTION BOX PER WSDOT STANDARD PLAN J-40.10 AND J-40.30, SHEET OS-03.
7. EXISTING ON-SITE LIGHT POLE TO REMAIN. REPLACE EXISTING HPS FIXTURE WITH NEW LED PER POLE SCHEDULE, THIS SHEET.
8. STUB-OUT NEW CONDUIT FOR FUTURE USE FOR MONUMENT LIGHTING.
9. APPROXIMATE LOCATION OF PROPOSED IRRIGATION CONTROLLER. PROPOSED POWER SOURCE FOR THE IRRIGATION CONTROLLER IS ASSUMED TO BE A 120V 15 AMP BREAKER AT AN EXISTING BUILDING PANEL.

ILLUMINATION POLE SCHEDULE

LUM. POLE NO.	STREET	COORDINATE	POLE HEIGHT	MOUNT. HEIGHT	ARM LENGTH	POLE	LUMINAIRE TYPE - DISTRIBUTION	WATTAGE /TYPE	COLOR. TEMP.	INITIAL LUMENS	HOUSE SHIELD	COMMENT
L1	ON-SITE	47.4799,-121.7651	15'	17'	N/A	SQ. STRAIGHT STEEL	CREE GUIDEWAY GWYS-A-6L-30K7-3M-UL-GY-BLSS	39W LED	3,000K	5,737	YES	INSTALL NEW LUMINAIRE & POLE ON PRECAST FOUNDATION.
L2	ON-SITE	47.4799,-121.7646	15'	17'	N/A	SQ. STRAIGHT STEEL	CREE GUIDEWAY GWYS-A-6L-30K7-3M-UL-GY-BLSS	39W LED	3,000K	5,737	YES	INSTALL NEW LUMINAIRE & POLE ON PRECAST FOUNDATION.
L3	ON-SITE	47.4799,-121.7642	15'	17'	N/A	SQ. STRAIGHT STEEL	CREE GUIDEWAY GWYS-A-6L-30K7-3M-UL-GY-BLSS	39W LED	3,000K	5,737	YES	INSTALL NEW LUMINAIRE & POLE ON PRECAST FOUNDATION.
L4	ON-SITE	47.4799,-121.7638	15'	17'	N/A	SQ. STRAIGHT STEEL	CREE GUIDEWAY GWYS-A-6L-30K7-3M-UL-GY-BLSS	39W LED	3,000K	5,737	YES	INSTALL NEW LUMINAIRE & POLE ON PRECAST FOUNDATION.
L5	ON-SITE	47.4801,-121.7641	15'	17'	N/A	SQ. STRAIGHT STEEL	CREE GUIDEWAY (DUAL FIXTURES) GWYS-A-6L-30K7-3M-UL-GY	39W LED X2	3,000K	5,737	NO	INSTALL NEW LUMINAIRE & POLE ON PRECAST FOUNDATION.
L6	ON-SITE	47.48,-121.7641	15'	17'	N/A	SQ. STRAIGHT STEEL	CREE GUIDEWAY GWYS-A-6L-30K7-3M-UL-GY	39W LED	3,000K	5,737	NO	INSTALL NEW LUMINAIRE & POLE ON PRECAST FOUNDATION.
L7	ON-SITE	47.4803,-121.7644	15'	17'	N/A	SQ. STRAIGHT STEEL	CREE GUIDEWAY GWYS-A-6L-30K7-3M-UL-GY	39W LED	3,000K	5,737	NO	INSTALL NEW LUMINAIRE & POLE ON PRECAST FOUNDATION.
L8	ON-SITE	47.4801,-121.7646	15'	17'	N/A	SQ. STRAIGHT STEEL	CREE GUIDEWAY (DUAL FIXTURES) GWYS-A-6L-30K7-3M-UL-GY	39W LED X2	3,000K	5,737	NO	INSTALL NEW LUMINAIRE & POLE ON PRECAST FOUNDATION.
L9	ON-SITE	47.4803,-121.7648	15'	17'	N/A	SQ. STRAIGHT STEEL	CREE GUIDEWAY GWYS-A-6L-30K7-3M-UL-GY	39W LED	3,000K	5,737	NO	INSTALL NEW LUMINAIRE & POLE ON PRECAST FOUNDATION.
L10	ON-SITE	47.4801,-121.765	15'	17'	N/A	SQ. STRAIGHT STEEL	CREE GUIDEWAY GWYS-A-6L-30K7-3M-UL-GY	39W LED	3,000K	5,737	NO	INSTALL NEW LUMINAIRE & POLE ON PRECAST FOUNDATION.
L11	ON-SITE	EX	EX	EX 27'	EX	EX	CREE GUIDEWAY GWYS-A-6L-30K7-3M-UL-GY	39W LED	3,000K	5,737	NO	INSTALL NEW LUMINAIRE ON EXISTING ARM & POLE.
L12	ON-SITE	EX	EX	EX 27'	EX	EX	CREE GUIDEWAY GWYS-A-6L-30K7-3M-UL-GY	49W LED	3,000K	6,947	NO	INSTALL NEW LUMINAIRE ON EXISTING ARM & POLE.

N

0 15 30 60 90

SCALE IN FEET

CITY OF NORTH BEND PERMIT#_____

THESE PLANS ARE APPROVED FOR CONFORMANCE WITH THE CITY OF NORTH BEND PUBLIC WORKS DEPARTMENT REQUIREMENTS TO THE BEST OF MY KNOWLEDGE.

CITY ENGINEER OR PUBLIC WORKS DIRECTOR DATE

TenW
520 KIRKLAND WAY, SUITE 100, KIRKLAND, WA, 98033

ELYCE M. STEMMLER STATE OF WASHINGTON 52125 REGISTERED PROFESSIONAL ENGINEER

04-16-2026

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE,
NORTH BEND, WA 98045

BID SET

04/16/2026

Revisions

Mark	Date	Description

Checked By:
EMS

Drawn By:
GRL/SSO

Dwg File:

Sheet Title
ON-SITE ILLUMINATION PLAN

Sheet
OS-01

T:\ACTIVE PROJECTS\OPSTAD ELEMENTARY SCHOOL - 2023-168\DESIGN\DELIVERABLES\2026-04-16 BID SET SUBMITTAL - WORKING\CAD\OPSTAD ES MASTER ILLUM, 4/9/2026 9:00 PM

Guideway® Series

Guideway® LED Street Luminaire featuring Patented NanoComfort® Technology – Small, Medium & Large

Rev. Date: VI 03/26/2025

Product Description

The new Guideway® family of roadway lighting is a game-changing solution designed from the ground up, offering a fresh start that brings levels of performance and visual comfort previously out of reach. The Guideway® Series fundamentally shifts expectations of the standard streetlight – how it performs, its standard features, and most significantly, the degree of visual comfort it provides. With Cree Lighting's new NanoComfort® Technology, the Guideway Series hits the comfort sweet spot without the prohibitive price tag, providing demonstrably better comfort and performance for the money.
Applications: Residential roads, collector roads, multi-lane freeways, express ways, major roads, parking lots, and general area spaces

Performance Summary

Utilizes Patented NanoComfort® Technology

Assembled in the USA by Cree Lighting from US and imported parts

Initial Delivered Lumens: 2,980 – 31,900

Efficacy: Up to 168 LPW

CRI: Minimum 70 CRI (2700K, 3000K, 4000K, 5700K), 80 CRI (2200K), 50 CRI (1900K)

CCT: 1900K, 2200K, 2700K, 3000K, 4000K, 5700K

Limited Warranty*: 5 years standard for luminaire and finish; optional 10 years for luminaire and finish; 1 year for luminaire accessories

* See https://www.creelighting.com/resources/warranties/ for warranty terms.

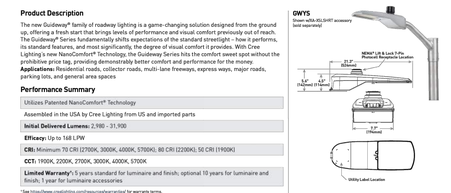
Ordering Information

Example: GWYS-A-4L-30K7-2M-UL-GY

Luminaire										
GWY		A								
Family	Size	Series	Lumen Package*	CCT/CRI	Optic	Voltage	Finish	Controls	Options
GWY	S Small M Medium L Large	A	Small 4L 4,000 Lumens 6L 6,000 Lumens 8L 8,000 Lumens 10L 10,000 Lumens 13L 13,000 Lumens 17L 17,000 Lumens 20L 20,000 Lumens 25L 25,000 Lumens 33L 33,000 Lumens	19K3 1900K, 70 CRI - Available with all Lumen packages 22K8 2200K, 80 CRI 27K7 2700K, 70 CRI 30K7 3000K, 70 CRI 40K7 4000K, 70 CRI 57K7 5700K, 70 CRI	2M** Type II Medium 3M** Type III Medium 4M** Type IV Medium 5M Type V Wide Solex Compatible - Available only with 4L-13L lumen packages - Does not include NEMA 7-Pin receptacle or utility wattage label - Not available with U option	UL Universal 120-277V UH Universal 347-480V - Available only with 4L-33L lumen packages 120 Solex Compatible - Available only with 4L-13L lumen packages - Does not include NEMA 7-Pin receptacle or utility wattage label - Not available with U option	BK Black BZ Bronze GY Grey WH White	DJ DALI Compatible - Available with all Lumen packages except 4L & 17L - Available only with UL voltage - Not available with Q controls - Not available with U or X options DN/DB/DT/DA/DS/DJ/QS/QD/QT Field Adjustable Output - Must select DP, DR, DT, DA, QS, QD, QT, DJ, DS, or DN - 4L lumen package is available only with DP-QD settings - Offers full range adjustability - Refer to pages 9-17 for power and lumen values - Available only with UL or UH voltages - Not available with DJ controls - Not available with X options	20KV 20kV/10kA Surge Suppression - Replaces standard 10kV/5kA surge protector 4B 4-Bolt Mounting - Available only with medium and large luminaires U No NEMA Receptacle - Replaces standard ANSI C136.41 receptacle 7-pin receptacle - Standard external wattage label per ANSI C136.15-2020 remains - Not available with SL option XR/XT/YA/YB/YC/YD/YE/YF/YG Warranty/Finish Warranty - Replaces standard 5-year limited warranty for luminaire and finish XR/XT/YA/YB/YC/YD/YE/YF/YG/XY1 Locked Lumen Output - Must select XR, XT, XL, XS, XJ, XC, or XY - 4L lumen package is available only with XR-XS settings - Refer to pages 9-17 for power and lumen values - Not available with DJ or QJ controls - Lumen output is permanently locked to the setting selected - Refer to pages 9-17 for power and lumen values

* Lumen Package codes identify approximate light output only. Actual lumen output levels vary depending on CCT and optic selection. Refer to Initial Delivered Lumen tables for specific lumen values.
** Available with Backlight Shield when ordered with field installed accessory (see table on page 2).

Website: creelighting.com
US: (800) 236-6800 Canada: (800) 473-1234



Luminaire	Weight
GWYS	8.2 lbs. (3.7kg)

GWYS/GWYL Luminaire – See page 18 for photos & dimensions.
Note: For SL voltage, deduct 1.0 lb. (0.5kg).

CREE LIGHTING

Guideway® LED Street Luminaire featuring Patented NanoComfort® Technology – Small, Medium & Large

Product Specifications

CREE LIGHTING NANOCOMFORT® TECHNOLOGY
Cree Lighting's NanoComfort® Technology ends the trade-offs in outdoor lighting by providing superior glare reduction and visual comfort in high-efficiency illuminaires specifically designed for roadway and area lighting. The secret behind NanoComfort® Technology is a compact 4x4 array of LEDs. Each of the 16 LEDs in a module is in contact with its own acrylic polymer lens to capture and precisely direct light. With NanoComfort® Technology, the acrylic optics are cut and sculpted into facets that relieve the glare and harshness while improving visual comfort – all while retaining superb efficacy and control.

CONSTRUCTION & MATERIALS
- Die cast aluminum (A13) housing w/7.8 gw. steel door
- Acrylic optic w/clear tempered glass lens
- Some versions are provided with full circuit board, but not fully populated with LEDs or optics to scale back lumen package
- Tool-less entry
- Mounts on 1.25" (32mm) IP, 1.66" (42mm) O.D. or 2" (51mm) IP, 2.375" (60mm) O.D. horizontal tenon (minimum 8" (203mm) in length) and is adjustable +/- 5° to allow for leveling. Tenon must be supplied by others. See page 19.
- Luminaire secures with two 410 stainless steel mounting bolts; optional four bolt mounting available for medium and large luminaires
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- Exclusive ColorSeal DuraSurface® finish features an E-Coat epoxy primer with an ultra-durable black, bronze or grey powder topcoat, providing excellent resistance to corrosion, abrasion and UV degradation
- Comes standard with 7-pin NEMA® (ANSI) & Lock Photocell Receptacle per ANSI C136.41, and Utility Label per ANSI C136.15-2020. 5-/10V dim leads factory connected to driver. Photocell ordered separately. Luminaire can be ordered for nighttime ambient without 7-Pin NEMA® (ANSI) & Lock Photocell Receptacle when ordered with U option. **Note:** Luminaires with SL voltage do not include a NEMA® Photocell Receptacle or utility label.

Luminaire	Weight
GWYS	8.2 lbs. (3.7kg)
GWYM	12.2 lbs. (5.5kg)
GWYL	18.2 lbs. (8.3kg)

Note: For tilt spikes, add 0.4 lbs. (0.2kg).

- Includes QR code on the interior sidewall of the housing next to the UL label which provides access to Online installation instructions, Luminaire Information Sheet (includes serial number, Build date, and Warranty end date), and Warranty claim submission form
- Duplicate '1' and '2' QR code labels are included. '1' labels can be affixed inside pole bases, within fixtures, or anywhere else for maintenance records. '2' labels can be scanned in the ground when placed at an appropriate height

ELECTRICAL SYSTEM
- **Input Voltage:** 120-277V or 347-480V 50/60Hz
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Integral 10kV/5kA surge suppression protection standard, 20kV/10kA surge suppression protection optional.
- When code dictates fusing, a slow blow fuse or type C/D breaker should be used to address inrush current
- Designed with 0-10V dimming capabilities. Dims to 10% through the NEMA receptacle. Controls by others
- 0-10V dimming per ANSI C137.1-2019 (8-Volt per power level/options selected)
- Refer to Dimming spec sheet for details
- **Maximum 120 Source Current:** 1mA
- Luminaires with DJ option are DALI-2 compatible per IEC 62386
- **Operating Temperature Range:** -40° C / -40° F – +72° C / +72° F

REGULATORY & VOLUNTARY QUALIFICATIONS
- cULus Listed (UL1598)
- Suitable for wet locations
- Meets ANSI C62.77-10-2020 standards
- Drivers and LEDs are UL certified in accordance with UL8750
- Requires minimum 90°C supply conductors
- Optics meet the requirements of IP66 per IEC 60529
- Lens meets IK08 requirements per IEC 60068-2
- Certified to ANSI C136.31-2018, 3G bridge and overpass vibration standards
- Meets CALTrans 611 Vibration testing
- ANSI C136.2 10kV/5kA (standard) and 20kV/10kA (optional) surge suppression protection tested in accordance with IEEE/ANSI C62.41.2
- Meets FCC Part 15, Subpart B, Class A limits for conducted and radiated emissions
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- Assembled in the USA by Cree Lighting from US and imported parts
- Optional Buy American Act compliance, check with factory and/or BABA. Consult factory when needed for a project: www.creelighting.com/BAA-BABA
- RoHS compliant. Consult factory for additional details
- DarkSky Approved when ordered with 19K3, 22K8, 27K7 or 30K7 CCTs. Please refer to https://darksky.org/what-we-do/darksky-approved/products-companies/#!/-/search/keyword/cree
- DLC Premium qualified except when ordered with 19K3. Please refer to https://qpl.designlights.org/?search=cree-lighting for most current information.
- DLC Certified when ordered with 4L-8L lumen packages with 22K8, 27K7 and 30K7 CCTs. Please refer to https://qpl.designlights.org/?search=cree-lighting for most current information

⚠ **CA RESIDENTS WARNING:** Cancer and Reproductive Harm – www.p65warnings.ca.gov

Electrical Data*

Lumen Package	System Watts	Utility Wattage Label	Total Current (A) 120V	208V	240V	277V	347V	480V
4L, 2A	26	30	0.22	0.13	0.11	0.09	N/A	N/A
4L, 3M	38	40	0.32	0.18	0.16	0.14	0.11	0.08
8L, 5L	50	50	0.42	0.24	0.21	0.18	0.14	0.10
10L, 6J	63	65	0.53	0.30	0.26	0.23	0.18	0.13
13L, 8I	81	80	0.68	0.39	0.34	0.29	0.23	0.17
17L, 10K	106	100	0.87	0.50	0.43	0.38	0.30	0.22
20L, 11P	119	120	0.99	0.57	0.50	0.43	0.34	0.25
25L, 14R	148	150	1.23	0.71	0.62	0.53	0.43	0.31
33L, 19Q	190	190	1.58	0.91	0.79	0.67	0.55	0.40

* Electrical data at 25°C (77°F). Actual wattage may differ by +/- 10% when operating between 120-277V or 347-480V +/- 10%. ▲ SL is available with 120-277V only.

Electrical Data (SOLAR)

Lumen Package	Max. Voltage (VDC)	Max. Amperage (A)
4L	48	0.500
8L	72	0.513
13L	72	0.642
10L	84	0.472
13L	108	0.700

Guideway® Series Ambient Adjusted Lumen Maintenance*

Ambient	Lumen Package	CCT/CRI	Initial LMF	36K hr Reported*	50K hr Reported*	100K hr Reported*
5°C (41°F)	4L-33L, 4L-4L, 8L-33L,	19K3	1.02	0.96	0.91	0.86
		All Except 19K3	1.02	0.98	0.97	0.94
10°C (50°F)	4L-33L, 4L-4L, 8L-33L,	19K3	1.01	0.94	0.91	0.86
		All Except 19K3	1.01	0.96	0.95	0.92
15°C (59°F)	4L-33L, 4L-4L, 8L-33L,	19K3	1.01	0.92	0.87	0.82
		All Except 19K3	1.01	0.94	0.93	0.89
20°C (68°F)	4L-33L, 4L-4L, 8L-33L,	19K3	1.00	0.90	0.85	0.80
		All Except 19K3	1.00	0.92	0.91	0.87
25°C (77°F)	4L-33L, 4L-4L, 8L-33L,	19K3	1.00	0.88	0.83	0.78
		All Except 19K3	1.00	0.90	0.89	0.85

* Lumen maintenance values at 25°C (77°F) are calculated per IES TM-21 based on IES LM-84 report data for the LED package and in-situ luminaire testing. Luminaire ambient temperature factors (LAFT) have been applied to all lumen maintenance values. Please refer to the Temperature Zone Reference Document for outdoor average nighttime ambient temperatures.
† In accordance with IES TM-21, Reported values represent interpolated values based on time durations that are up to 6x the tested duration in the IES LM-80 report for the LED.

Accessories

Field-Installed

Backlight Control Shields
GWY-BLSS
(for use with small lumen package only)
GWY-BLSM
(for use with medium lumen packages only)
GWY-BLSL
(for use with large lumen packages only)
- Reduces backlight from luminaire
- 18 ga. steel construction w/black finish
- Lumen multiplier from standard optic: 0.42 (4L, 2A), 0.43 (4L, 3M), 0.62 (8L, 5L), 0.63 (8L, 6J), 0.72 (13L, 8I), 0.73 (17L, 10K), 0.82 (20L, 11P), 0.83 (25L, 14R), 0.92 (33L, 19Q)

Cut-Off-Sac Shields
GWY-CLSS
(for use with small lumen packages only)
GWY-CLSM
(for use with medium lumen packages only)
GWY-CLSL
(for use with large lumen packages only)
- Reduces uplight from luminaire
- 18 ga. steel construction w/black finish
- Lumen multiplier from standard optic: 0.42 (4L, 2A), 0.43 (4L, 3M), 0.62 (8L, 5L), 0.63 (8L, 6J), 0.72 (13L, 8I), 0.73 (17L, 10K), 0.82 (20L, 11P), 0.83 (25L, 14R), 0.92 (33L, 19Q)

Front Light Hoods
GWY-FLSS
(for use with small lumen packages only)
GWY-FLSM
(for use with medium lumen packages only)
GWY-FLSL
(for use with large lumen packages only)
- Reduces frontlight from luminaire
- 18 ga. steel construction w/black finish
- Lumen multiplier from standard optic: 0.42 (2M, 3M, 4M)

Bird Spikes
GWY-BIRDSPK
- For use with all luminaire configurations
- Includes (2) brackets, (2) 2' sections of bird spike and mounting hardware for a single luminaire

Sharing Cap
SA-ESLSHR-F

Guideway® LED Street Luminaire featuring Patented NanoComfort® Technology – Small, Medium & Large

Photometry

All published luminaire photometric testing performed to IES LM-79 standards. To obtain an IES file specific to your project consult: https://www.creelighting.com/products/outdoor/street-and-roadway/guideway-series/

3M

RES7L TEST REPORT #LTR20-001A
GWYS-A-4L-30K7-3M-UL-xx-xx-xx
Initial Delivered Lumens: 6,767

GWYS-A-8L-30K7-3M-UL
Mounting Height: 20' (7.6m) A.F.G.
Initial FC at grade

Type III Mid Distribution										
	1900K (50 CRI)		2200K (80 CRI)		2700K/3000K (70 CRI)		4000K/5700K (70 CRI)			
Lumen Package	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20		
4L	N/A	N/A	2,980	B1 U0 G1	3,410	B1 U0 G1	3,750	B1 U0 G1		
6L	5,250	B1 U0 G1	4,470	B1 U0 G1	5,400	B1 U0 G1	5,625	B1 U0 G1		
8L	6,150	B1 U0 G1	5,950	B1 U0 G1	7,225	B2 U0 G2	7,500	B2 U0 G2		
10L	7,750	B2 U0 G2	7,700	B2 U0 G2	9,325	B2 U0 G2	9,700	B2 U0 G2		
13L	10,025	B2 U0 G2	10,025	B2 U0 G2	12,125	B2 U0 G2	12,600	B2 U0 G2		
17L	12,850	B2 U0 G2	13,100	B2 U0 G2	15,900	B3 U0 G3	16,500	B3 U0 G3		
20L	15,600	B3 U0 G3	15,600	B3 U0 G3	18,600	B3 U0 G3	19,300	B3 U0 G3		
25L	19,300	B3 U0 G3	19,200	B3 U0 G3	22,250	B3 U0 G3	24,200	B3 U0 G3		
33L	24,200	B3 U0 G3	24,000	B3 U0 G4	29,800	B3 U0 G4	30,900	B3 U0 G4		

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens.
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingAddendum.pdf. Valid with no tilt.

4M

RES7L TEST REPORT #LTR19-001A
GWYS-A-8L-30K7-3M-UL-xx-xx-xx w/ **4M** optic
Initial Delivered Lumens: 7,764

GWYS-A-8L-30K7-3M-UL w/**4M**=BLSS
Mounting Height: 20' (7.6m) A.F.G.
Initial Delivered Lumens: 7,840
Initial FC at grade

Type III Mid Distribution w/BLS										
	1900K (50 CRI)		2200K (80 CRI)		2700K/3000K (70 CRI)		4000K/5700K (70 CRI)			
Lumen Package	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20	Initial Delivered Lumens*	BUG Ratings** Per TM-15-20		
4L	N/A	N/A	1,600	B0 U0 G1	1,930	B0 U0 G1	2,010	B0 U0 G1		
6L	2,810	B1 U0 G1	2,390	B1 U0 G1	2,900	B1 U0 G1	3,010	B1 U0 G1		
8L	3,290	B1 U0 G1	3,190	B1 U0 G1	3,865	B1 U0 G1	4,020	B1 U0 G1		
10L	4,150	B1 U0 G1	4,130	B1 U0 G1	5,000	B1 U0 G1	5,200	B1 U0 G1		
13L	5,375	B1 U0 G2	5,375	B1 U0 G2	6,500	B1 U0 G2	6,750	B1 U0 G2		
17L	6,875	B1 U0 G2	7,025	B1 U0 G2	8,500	B1 U0 G2	8,825	B1 U0 G2		
20L	8,325	B1 U0 G2	8,325	B1 U0 G2	9,950	B2 U0 G2	10,350	B1 U0 G2		
25L	10,350	B2 U0 G2	10,275	B2 U0 G2	12,450	B2 U0 G2	12,950	B2 U0 G2		
33L	12,975	B2 U0 G2	13,175	B2 U0 G2	15,900	B2 U0 G2	16,400	B2 U0 G3		

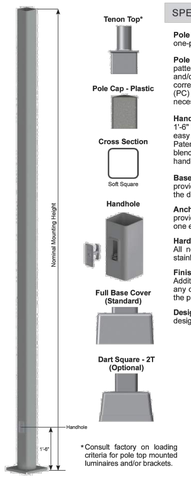
* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens.
** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingAddendum.pdf. Valid with no tilt.

CREE LIGHTING

DS330 Fatigue Resistant Soft Square Steel Post

valmont STRUCTURES

Job Name: _____ Client Name: _____
Job Location - City: _____ State: _____ Created By: _____ Date: _____
Product: DS330 Quote: _____ Customer Approval: _____ Date: _____



* Consult factory on loading criteria for pole top mounted luminaires and/or brackets.

SPECIFICATIONS

Pole Shaft - The pole shaft is fabricated from hot rolled welded steel tubing of one-piece construction with a minimum yield strength of 55 KSI.

Pole Top – A removable pole cap is provided for poles receiving drilling patterns for side-mount luminaire arm assemblies. For top mount luminaire and/or bracket consult the factory. Consult the luminaire manufacturer for correct tenon size or drill pattern. Other pole top options include pole cap only (PC) or plain top (PL) which is typical when the pole top diameter matches the necessary slip fit dimensions.

Handhole – A reinforced handhole with grounding provision is provided at 1'-6" from the base end of the pole assembly. Each handhole includes an easy to install, self-contained Swing Latch handhole cover assembly. U.S. Patent Swing Latch cover is fabricated from durable polycarbonate/ABS blend plastic. All pole assemblies are provided with a 2.50" x 5.00" rectangular handhole. Handhole dimensions are nominal.

Base Cover – A two-piece full base cover fabricated from ABS plastic is provided with each pole assembly. Additional base cover options, including the dart square (2T) cast aluminum cover, are available upon request.

Anchor Bolts - Anchor bolts conform to ASTM F1554 Grade 55 and are provided with two hex nuts and two flat washers. Bolts have an "L" bend on one end and are galvanized a minimum of 12" on the threaded end.

Hardware - All structural fasteners are galvanized high strength carbon steel. All non-structural fasteners are galvanized or zinc-plated carbon steel or stainless steel.

Finish - Standard finishes are either Galvanized (GV) or Finish Painted (FP). Additional finish options including Finish Paint over Galvanizing (FPGV) or any of the V-PRO™ Finish Coating Systems are available upon request. See the product ordering code for color options.

Design Criteria - Please reference Design Criteria Specification for appropriate design conditions.

DS330 Fatigue Resistant Soft Square Steel Post

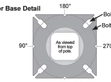
valmont STRUCTURES

Job Name: _____ Client Name: _____
Job Location - City: _____ State: _____ Created By: _____ Date: _____
Product: DS330 Quote: _____ Customer Approval: _____ Date: _____

ANCHORAGE DATA

POLE		BASE PLATE				ANCHOR BOLTS			
POLE BASE SQUARE (IN)	WALL THK (GA)	BOLT CIRCLE DIA (IN)	#	SQUARE (IN)	THK	DIA x LENGTH x HOOK	PROJECTION (IN)	#	O.
4.00	11	8.50	0.50	8.25	0.750	0.75 x 17.00 x 3.00	3.50	0.25	
4.00	7	8.50	0.50	8.25	0.875	0.75 x 17.00 x 3.00	3.63	0.25	
5.00	11	11.00	1.00	11.00	1.000	0.75 x 17.00 x 3.00	3.75	0.25	
5.00	7	11.00	1.00	11.00	1.000	0.75 x 17.00 x 3.00	3.75	0.25	
6.00	7	12.00	1.00	12.50	1.000	1.00 x 36.00 x 4.00	4.25	0.25	

Anchor Base Detail



DESIGNATION,LOAD AND DIMENSIONAL DATA

DESIGN INFORMATION							POLE DIMENSIONS[2]			DESIGNATION
	80 MPH - w/1.3 GUST		90 MPH - w/1.3 GUST		100 MPH - w/1.3 GUST					
NOMINAL MOUNTING HEIGHT	MAX WEIGHT (KIPS)	MAX WEIGHT (LBS)	MAX WEIGHT (KIPS)	MAX WEIGHT (LBS)	MAX WEIGHT (KIPS)	MAX WEIGHT (LBS)	SHAFT BASE SQUARE (IN)	SHAFT TOP SQUARE (IN)	WALL THK	STRUCTURE WEIGHT (LBS)	
10'-0"	30.6	765	23.8	595	18.9	473	4.00	4.00	11	75	400Q100
12'-0"	24.4	610	18.8	470	14.8	370	4.00	4.00	11	90	400Q120
14'-0"	19.9	498	15.1	378	11.7	293	4.00	4.00	11	100	400Q140
16'-0"	15.9	398	11.8	295	8.9	223	4.00	4.00	11	115	400Q160
18'-0"	12.6	315	9.2	230	6.7	168	4.00	4.00	11	125	400Q180
20'-0"	9.6	240	6.7	167	4.5	150	4.00	4.00	11	140	400Q200
	17.7	443	12.7	343	9.4	235	5.00	5.00	11	185	500Q200
	28.1	703	21.4	535	16.2	405	5.00	5.00	7	265	500W200
25'-0"	4.8	150	2.6	100	1.0	50	4.00	4.00	11	170	400Q250
	10.8	270	7.7	188	5.4	135	4.00	4.00	7	245	400W250
	9.8	245	6.3	157	3.7	150	5.00	5.00	11	225	500Q250
	18.5	463	13.3	333	9.5	238	5.00	5.00	7	360	500W250
30'-0"	6.7	168	4.4	110	2.6	65	4.00	4.00	7	291	400W300
	4.7	150	2.0	50	N/A	N/A	5.00	5.00	11	265	500Q300
	10.7	267	6.7	167	3.9	100	5.00	5.00	7	380	500W300
	19.0	475	13.2	330	9.0	225	6.00	6.00	7	520	600W300
35'-0"	5.9	150	2.5	100	N/A	N/A	5.00	5.00	7	440	500W350
	12.4	310	7.6	190	4.2	105	6.00	6.00	7	540	600W350
40'-0"	7.2	180	3.0	75	N/A	N/A	6.00	6.00	7	605	600W400

1. Maximum EPA (Effective Projected Area) and weight values are based on pole mounted fixture only. Consult factory on loading criteria for pole top mounted luminaires and/or brackets. Variations from sizes above are available upon inquiry at the factory. Satisfactory performance of poles is dependent upon proper installation. Consult factory for recommendations for alternate design.
2. Structure weight is a nominal value which includes the pole shaft and base plate only.
3. Belled-bottom will have reduced thickness due to the cold-working process. However, the belled-bottom meets or exceeds the structural capacity of the original square section. In addition, the rounded section provides better fatigue resistance.

PRODUCT ORDERING CODES

MODEL	DESIGNATION	FIXTURE MOUNTING	FINISH SYSTEM	STANDARD CC'S OF OPTIONS	BASE COVER	ANCHOR BOLTS	SUPPLEMENTAL INFO
DS330				--	--	--	

Select Correct Designation from Pole Selection or Dimensional Data Chart.

Drill Mounting (See Orientation)
D1 = (1) Drillings @ 270°
D2 = (2) Drillings @ 90° & 270°
D4 = (4) Drillings @ 0°, 90°, 180°, & 270°
D5 = (2) Drillings @ 180° & 270°
D6 = (3) Drillings @ 90°, 180°, & 270°
Tenon Mounting
P2 = 2.38" OD x 4" tenon
P4 = 4.00" OD x 8" tenon
P6 = 2.88" OD x 4" tenon
P7 = 2.88" OD x 8" tenon
P7 = 2.38" OD x 5" tenon
P9 = Special Size (Specify)
Other Options
PC = Pole Cap
PL = Plain Top (No Cap)

GV = Galvanized
FP = Finish Painted
—OPTIONAL—
FPGV = Finish Paint over Galvanizing
VP30 = V-PRO™ 30 System
VP32 = V-PRO™ 32 System
VP53 = V-PRO™ 53 System
VP54 = V-PRO™ 54 System
VP57 = V-PRO™ 57 System
VP120 = V-PRO™ 120 System
VP105 = V-PRO™ 105 System

GV = Galvanized
BK = Black
DB = Dark Bronze
MB = Medium Bronze
WH = White
LG = Light Gray
MG = Med. Gray
DG = Dark Green
ST = Sandstone
HTG= Hunter Green
SG = Slate Gray
BG = Beige
SC = Special Color (Specify)

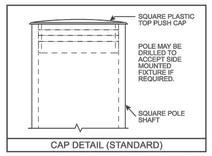
-- = Blank
FBC= Full Base Cover
—OPTIONAL—
2T = Square Dart Cover

AB = With Anchor Bolts
LAB = Without Anchor Bolts

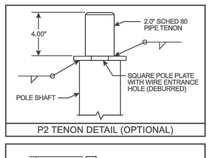
BPCT207 12/17 valmontstructures.com reserves this most current spec information and responsibility to our customers.

valmont STRUCTURES

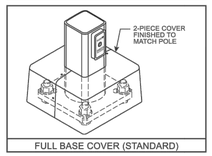
DS330 - Fatigue Resistant Square Non-Tapered Steel Pole



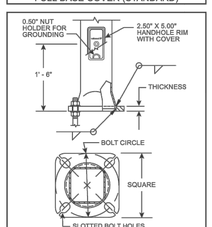
CAP DETAIL (STANDARD)



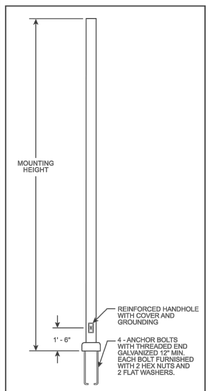
P2 TENON DETAIL (OPTIONAL)



FULL BASE COVER (STANDARD)



POLE BASE AND HANDHOLE DETAIL



DS330 POLE DETAIL

BPCT207 12/17 valmontstructures.com reserves this most current spec information and responsibility to our customers.

TenW
520 KIRKLAND WAY, SUITE 100, KIRKLAND, WA, 98033

ELYCE M. STEMMLER STATE OF WASHINGTON 52125 REGISTERED PROFESSIONAL ENGINEER
04-16-2026

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE,
NORTH BEND, WA 98045

BID SET

04/16/2026

Revisions

Mark	Date	Description

Checked By:
EMS

Drawn By:
GRL/SSO

Dwg File:

Sheet Title
ON-SITE ILLUMINATION DETAILS

Sheet
OS-02

CITY OF NORTH BEND PERMIT#_____

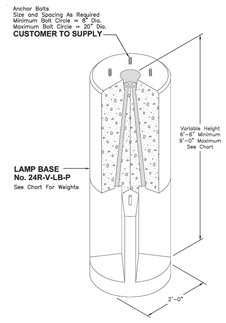
THESE PLANS ARE APPROVED FOR CONFORMANCE WITH THE CITY OF NORTH BEND PUBLIC WORKS DEPARTMENT REQUIREMENTS TO THE BEST OF MY KNOWLEDGE.

CITY ENGINEER OR PUBLIC WORKS DIRECTOR DATE

T:\ACTIVE PROJECTS\OPSTAD ELEMENTARY SCHOOL - 2023-168\DESIGN\DELIVERABLES\2026-04-16 BID SET SUBMITTAL - WORKING\CAD\OPSTAD ES MASTER ILLUM, 4/9/2026 8:46 PM

Oldcastle Precast® AUBURN — *Delivering Reliability*

24R-V-LB-P
Precast Lamp Base Footings



24R-V-LB-P CHART		
Model No.	Height	Weight
24R–66–LB–P	6'–6"	2,360 lbs.
24R–7–LB–P	7'–0"	2,610 lbs.
24R–8–LB–P	8'–0"	3,080 lbs.
24R–9–LB–P	9'–0"	3,550 lbs.

FOR DETAILS, SEE REVERSE>>

Items Shown Are Subject To Change Without Notice
Issue Date: April 2016

129

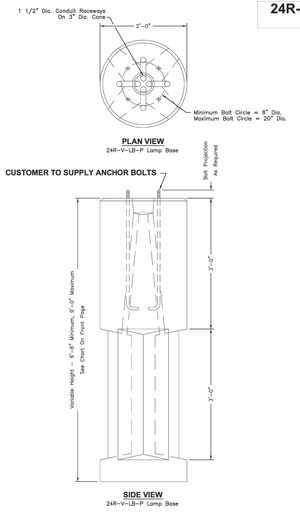
© 1995-2016 Oldcastle Precast, Inc.

Mailing Address: PO Box 568, Auburn, WA 98071
Phone: 800-892-1538
Fax: 253-735-4201
Email: opauburn@oldcastle.com

opauburn.com

Oldcastle Precast® — *Delivering Reliability*

24R-V-LB-P

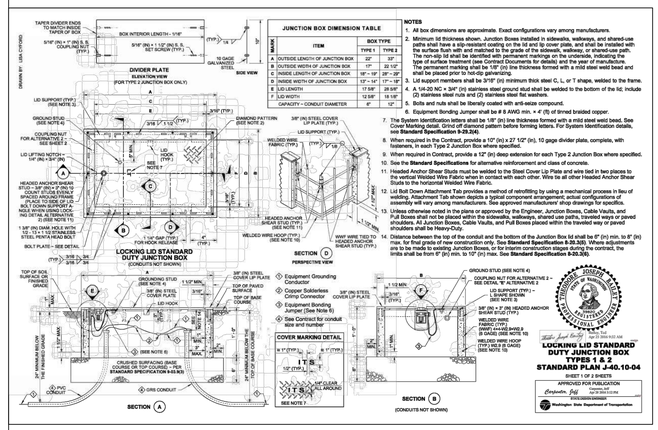


SCALE: 3/4" = 1'-0"

129.1

© 1995-2016 Oldcastle Precast, Inc.

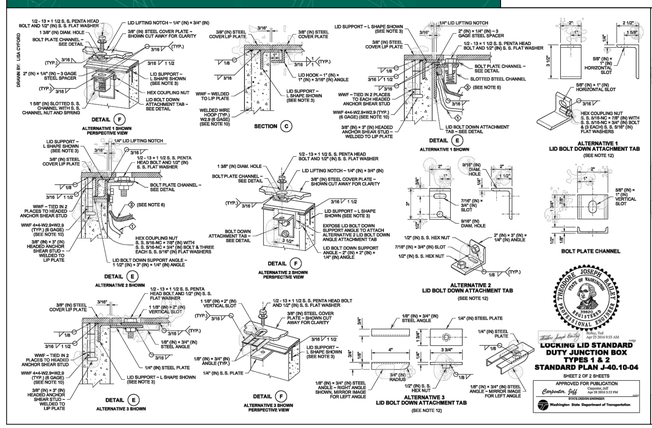
opauburn.com

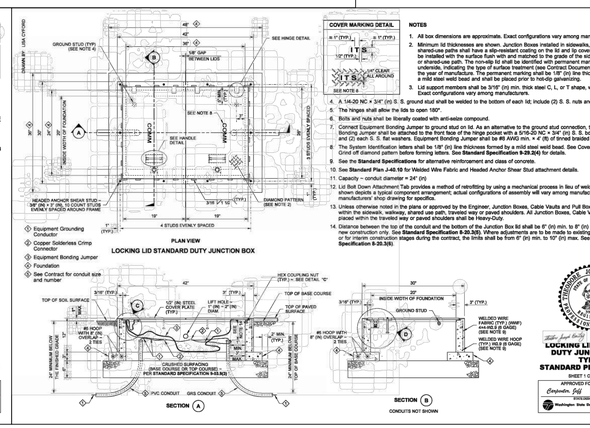


JUNCTION BOX DIMENSION TABLE		
ITEM	BOX TYPE	
	TYPE 1	TYPE 2
A OUTSIDE LENGTH OF JUNCTION BOX	22"	33"
B OUTSIDE WIDTH OF JUNCTION BOX	17"	22 1/2"
C INSIDE LENGTH OF JUNCTION BOX	16" – 1/2"	26" – 26"
D INSIDE WIDTH OF JUNCTION BOX	12" – 1/4"	17" – 17"
E LID LENGTH	17 5/8"	28 5/8"
F LID WIDTH	12 5/8"	18 1/8"
CAPACITY – CONDUIT DIAMETER	6"	12"

NOTES

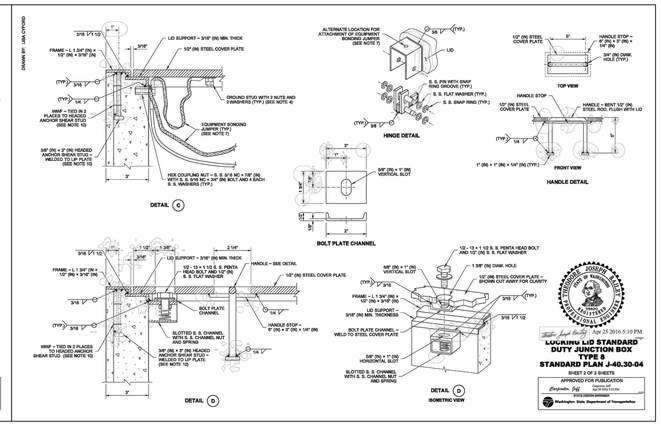
1. All box dimensions are approximate. Exact configurations vary among manufacturers.
2. Minimum lid thickness shown. Junction Boxes installed in sidewalks, walkways, and shared-use paths shall have a slip-resistant coating on the lid and lip cover plate, and shall be installed with the surface flush with and matched to the grade of the sidewalk, walkway, or shared-use path. The non-slip lid shall be identified with permanent markings on the underside, indicating the type of surface treatment (see Contract Documents for details) and the year of manufacture. The permanent marking shall be 1/8" (in) line thickness formed with a mild steel weld bead and shall be placed prior to hot-dip galvanizing.
3. Lid support members shall be 3/16" (in) minimum thick steel C, L, or T shape, welded to the frame.
4. A 1/4-20 NC × 3/4" (in) stainless steel ground stud shall be welded to the bottom of the lid; include (2) stainless steel nuts and (2) stainless steel flat washers.
5. Bolts and nuts shall be liberally coated with anti-seize compound.
6. Equipment Bonding Jumper shall be # 6 AWG min. × 4" (ft) of tinned braided copper.
7. The System Identification letters shall be 1/8" (in) line thickness formed with a mild steel weld bead. See Cover Marking detail. Grind off diamond pattern before forming letters. See **Standard Specification 9-29.2(4)** for details.
8. When required in the Contract, provide a 10" (in) x 27 1/2" (in), 10 gage divider plate, complete, with fasteners, in each Type 2 Junction Box where specified.
9. When required in Contract, provide a 12" (in) deep extension for each Type 2 Junction Box where specified.
10. See the **Standard Specifications** for alternative reinforcement and class of concrete.
11. Headed Anchor Shear Studs must be welded to the Steel Cover Lip Plate and wire tied in two places to the vertical Welded Wire Fabric when in contact with each other. Wire tie all other Headed Anchor Shear Studs to the horizontal Welded Wire Fabric.
12. Lid Bolt Down Attachment Tab provides a method of retrofitting by using a mechanical process in lieu of welding. Attachment Tab shown depicts a typical component arrangement; actual configurations of assembly will vary among manufacturers. See approved manufacturers' shop drawings for specifics.
13. Unless otherwise noted in the plans or approved by the Engineer, Junction Boxes, Cable Vaults and Pull Boxes shall not be placed in the sidewalk, walkways, shared use paths, traveled ways or paved shoulders. All Junction Boxes, Cable Vaults, and Pull Boxes placed within the traveled way or paved shoulders shall be H-20-loaded.
14. Distance between the top of the conduit and the bottom of the Junction Box lid shall be 6" (in) min. to 8" (in) max. for final grade of new construction only. See **Standard Specification 8-20.3(6)**. Where adjustments are to be made to existing Junction Boxes, or for interim construction stages during the contract, the limits shall be from 6" (in) min. to 10" (in) max. See **Standard Specification 8-20.3(6)**.





NOTES

1. All box dimensions are approximate. Exact configurations vary among manufacturers.
2. Minimum lid thickness shown. Junction Boxes installed in sidewalks, walkways, and shared-use paths shall have a slip-resistant coating on the lid and lip cover plate and shall be installed with the surface flush with and matched to the grade of the sidewalk, walkway, or shared-use path. The non-slip lid shall be identified with permanent markings on the underside, indicating the type of surface treatment (see Contract Documents for details) and the year of manufacture. The permanent marking shall be 1/8" (in) line thickness formed with a mild steel weld bead and shall be placed prior to hot-dip galvanizing.
3. Lid support members shall be 3/16" (in) min. thick steel C, L, or T shape, welded to the frame. Exact configurations vary among manufacturers.
4. A 1/4-20 NC × 3/4" (in) S. S. ground stud shall be welded to the bottom of each lid; include (2) S. S. nuts and (2) S. S. flat washers.
5. The hinges shall allow the lids to open 180°.
6. Bolts and nuts shall be liberally coated with anti-seize compound.
7. Connect Equipment Bonding Jumper to ground stud on lid. As an alternative to the ground stud connection, the Equipment Bonding Jumper shall be attached to the front face of the hinge pocket with a 5/16-20 NC × 3/4" (in) S. S. bolt, (2) each S. S. nuts, and (2) each S. S. flat washers. Equipment Bonding Jumper shall be #6 AWG min. × 4" (ft) of tinned braided copper.
8. The System Identification letters shall be 1/8" (in) line thickness formed by a mild steel weld bead. See Cover Marking detail. Grind off diamond pattern before forming letters. See **Standard Specification 9-29.2(4)** for details.
9. See the **Standard Specifications** for alternative reinforcement and class of concrete.
10. See **Standard Plan J-40.10** for Welded Wire Fabric and Headed Anchor Shear Stud attachment details.
11. Capacity – conduit diameter = 24" (in)
12. Lid Bolt Down Attachment Tab provides a method of retrofitting by using a mechanical process in lieu of welding. Attachment Tab shown depicts a typical component arrangement; actual configurations of assembly will vary among manufacturers. See approved manufacturers' shop drawing for specifics.
13. Unless otherwise noted in the plans or approved by the Engineer, Junction Boxes, Cable Vaults and Pull Boxes shall not be placed in the sidewalk, walkways, shared use paths, traveled ways or paved shoulders. All Junction Boxes, Cable Vaults, and Pull Boxes placed within the traveled way or paved shoulders shall be H-20-loaded.
14. Distance between the top of the conduit and the bottom of the Junction Box lid shall be 6" (in) min. to 8" (in) max. for final grade of new construction only. See **Standard Specification 8-20.3(6)**. Where adjustments are to be made to existing Junction Boxes, or for interim construction stages during the contract, the limits shall be from 6" (in) min. to 10" (in) max. See **Standard Specification 8-20.3(6)**.



TenW
520 KIRKLAND WAY, SUITE 100, KIRKLAND, WA, 98033

ELYCE M. STEMMLER — STATE OF WASHINGTON — 52125 — REGISTERED PROFESSIONAL ENGINEER

04-16-2026

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE,
NORTH BEND, WA 98045

BID SET

04/16/2026

Revisions

Mark	Date	Description

Checked By:
EMS

Drawn By:
GRL/SSO

Dwg File:

Sheet Title
ON-SITE ILLUMINATION DETAILS

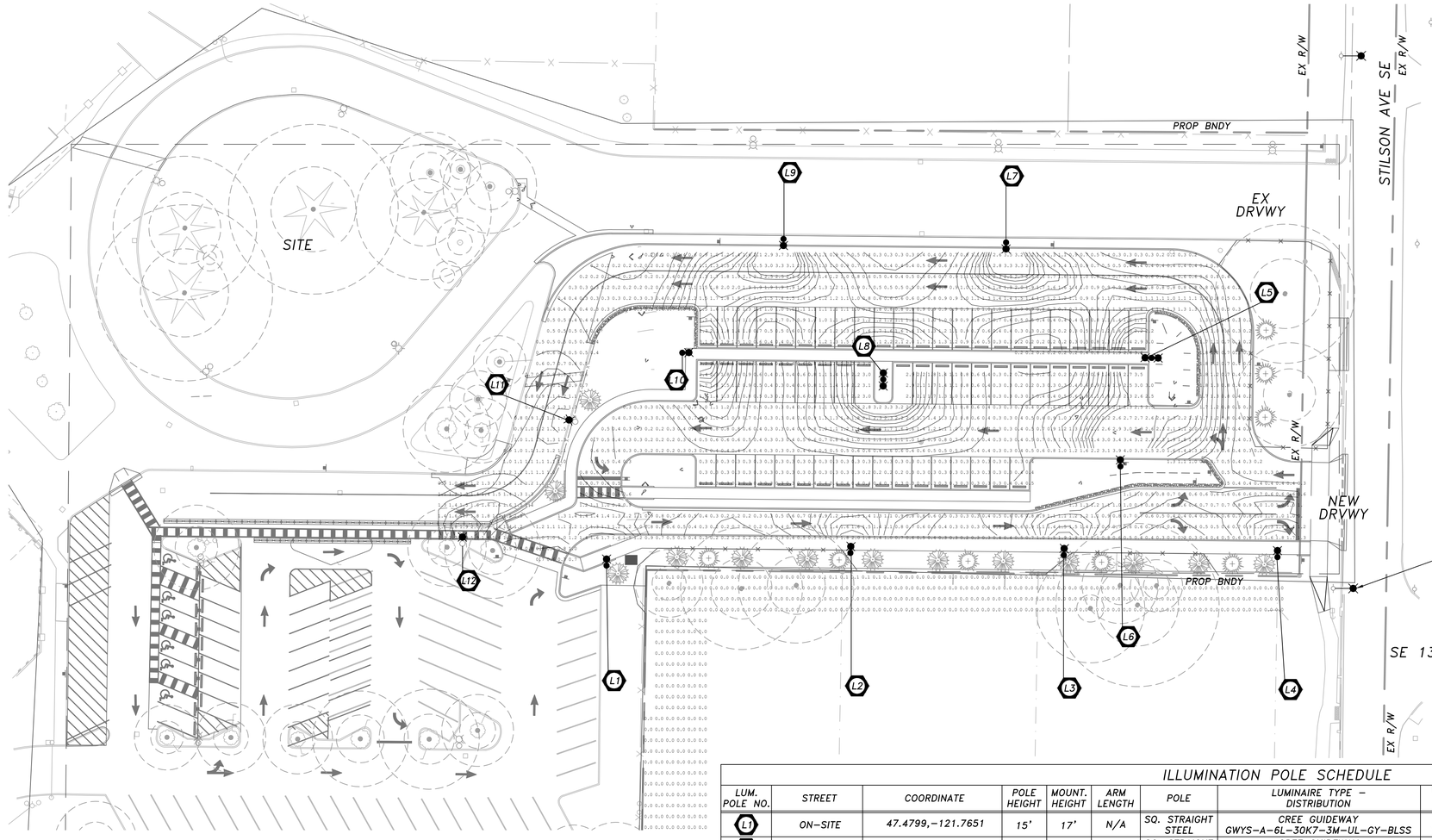
Sheet
OS-03

CITY OF NORTH BEND PERMIT#_____

THESE PLANS ARE APPROVED FOR CONFORMANCE WITH THE CITY OF NORTH BEND PUBLIC WORKS DEPARTMENT REQUIREMENTS TO THE BEST OF MY KNOWLEDGE.

CITY ENGINEER OR PUBLIC WORKS DIRECTOR — DATE

T:\ACTIVE PROJECTS\OPSTAD ELEMENTARY SCHOOL - 2023-166\DESIGN\DELIVERABLES\2026-04-16 BID SET SUBMITTAL - WORKING\CAD\OPSTAD ES MASTER ILLUM, 4/9/2026 8:47 PM



CALCULATION SUMMARY	TARGET / ACTUAL	
CALCULATION AREA	DESIGN CRITERIA	
	MIN. ILLUMINANCE (FC)	MAX. ILLUMINANCE (FC)
PARKING LOT	0.20*** / **0.20**	4.0* / **4.0**
SPILLAGE PAST PROPERTY LINE	N/A / **N/A**	0.20** / **0.10**

* LIGHT LEVEL CRITERIA BASED ON NORTH BEND MC 18.40.060 OPEN-AIR PARKING LOT.
** LIGHT LEVEL CRITERIA BASED ON NORTH BEND MC 18.40.030.D.
*** LIGHT LEVEL CRITERIA BASED ON ANSI IES RP-8-22 TABLE 17-2.

FRONTAGE LIGHTING NOT INCLUDED FOR ON-SITE CALCULATIONS.

ON-SITE ILLUMINATION LEGEND

EXISTING	NEW	DESCRIPTION
		LIGHT POLE
		UTILITY POLE MOUNT. LUMINAIRE
		UTILITY POLE
		POLE NUMBER

N

0 15 30 60 90

SCALE IN FEET

ILLUMINATION POLE SCHEDULE

LUM. POLE NO.	STREET	COORDINATE	POLE HEIGHT	MOUNT. HEIGHT	ARM LENGTH	POLE	LUMINAIRE TYPE - DISTRIBUTION	WATTAGE /TYPE	COLOR. TEMP.	INITIAL LUMENS	HOUSE SHIELD	COMMENT
L1	ON-SITE	47.4799,-121.7651	15'	17'	N/A	SQ. STRAIGHT STEEL	CREE GUIDEWAY GWYS-A-6L-30K7-3M-UL-GY-BLSS	39W LED	3,000K	5,737	YES	INSTALL NEW LUMINAIRE & POLE ON PRECAST FOUNDATION.
L2	ON-SITE	47.4799,-121.7646	15'	17'	N/A	SQ. STRAIGHT STEEL	CREE GUIDEWAY GWYS-A-6L-30K7-3M-UL-GY-BLSS	39W LED	3,000K	5,737	YES	INSTALL NEW LUMINAIRE & POLE ON PRECAST FOUNDATION.
L3	ON-SITE	47.4799,-121.7642	15'	17'	N/A	SQ. STRAIGHT STEEL	CREE GUIDEWAY GWYS-A-6L-30K7-3M-UL-GY-BLSS	39W LED	3,000K	5,737	YES	INSTALL NEW LUMINAIRE & POLE ON PRECAST FOUNDATION.
L4	ON-SITE	47.4799,-121.7638	15'	17'	N/A	SQ. STRAIGHT STEEL	CREE GUIDEWAY GWYS-A-6L-30K7-3M-UL-GY-BLSS	39W LED	3,000K	5,737	YES	INSTALL NEW LUMINAIRE & POLE ON PRECAST FOUNDATION.
L5	ON-SITE	47.4801,-121.7641	15'	17'	N/A	SQ. STRAIGHT STEEL	CREE GUIDEWAY (DUAL FIXTURES) GWYS-A-6L-30K7-3M-UL-GY	39W LED X2	3,000K	5,737	NO	INSTALL NEW LUMINAIRE & POLE ON PRECAST FOUNDATION.
L6	ON-SITE	47.48,-121.7641	15'	17'	N/A	SQ. STRAIGHT STEEL	CREE GUIDEWAY GWYS-A-6L-30K7-3M-UL-GY	39W LED	3,000K	5,737	NO	INSTALL NEW LUMINAIRE & POLE ON PRECAST FOUNDATION.
L7	ON-SITE	47.4803,-121.7644	15'	17'	N/A	SQ. STRAIGHT STEEL	CREE GUIDEWAY GWYS-A-6L-30K7-3M-UL-GY	39W LED	3,000K	5,737	NO	INSTALL NEW LUMINAIRE & POLE ON PRECAST FOUNDATION.
L8	ON-SITE	47.4801,-121.7646	15'	17'	N/A	SQ. STRAIGHT STEEL	CREE GUIDEWAY (DUAL FIXTURES) GWYS-A-6L-30K7-3M-UL-GY	39W LED X2	3,000K	5,737	NO	INSTALL NEW LUMINAIRE & POLE ON PRECAST FOUNDATION.
L9	ON-SITE	47.4803,-121.7648	15'	17'	N/A	SQ. STRAIGHT STEEL	CREE GUIDEWAY GWYS-A-6L-30K7-3M-UL-GY	39W LED	3,000K	5,737	NO	INSTALL NEW LUMINAIRE & POLE ON PRECAST FOUNDATION.
L10	ON-SITE	47.4801,-121.765	15'	17'	N/A	SQ. STRAIGHT STEEL	CREE GUIDEWAY GWYS-A-6L-30K7-3M-UL-GY	39W LED	3,000K	5,737	NO	INSTALL NEW LUMINAIRE & POLE ON PRECAST FOUNDATION.
L11	ON-SITE	EX	EX	EX 27'	EX	EX	CREE GUIDEWAY GWYS-A-6L-30K7-3M-UL-GY	39W LED	3,000K	5,737	NO	INSTALL NEW LUMINAIRE ON EXISTING ARM & POLE.
L12	ON-SITE	EX	EX	EX 27'	EX	EX	CREE GUIDEWAY GWYS-A-6L-30K7-3M-UL-GY	49W LED	3,000K	6,947	NO	INSTALL NEW LUMINAIRE ON EXISTING ARM & POLE.

CITY OF NORTH BEND PERMIT#_____

THESE PLANS ARE APPROVED FOR CONFORMANCE WITH THE CITY OF NORTH BEND PUBLIC WORKS DEPARTMENT REQUIREMENTS TO THE BEST OF MY KNOWLEDGE.

CITY ENGINEER OR PUBLIC WORKS DIRECTOR DATE

TenW
520 KIRKLAND WAY, SUITE 100, KIRKLAND, WA, 98033

ELYCE M. STEMMLER STATE OF WASHINGTON 52125 REGISTERED PROFESSIONAL ENGINEER

04-16-2026

Project:
OPSTAD ELEMENTARY SCHOOL PARKING LOT

Address:
1345 STILSON AVE SE,
NORTH BEND, WA 98045

BID SET

04/16/2026

Revisions

Mark	Date	Description

Checked By:
EMS

Drawn By:
GRL/SSO

Dwg File:

Sheet Title
ON-SITE PHOTOMETRIC CALCULATIONS

Sheet
OS-04

T:\ACTIVE PROJECTS\OPSTAD ELEMENTARY SCHOOL - 2023-168\DESIGN\DELIVERABLES\2026-04-16 BID SET SUBMITTAL - WORKING\CAD\OPSTAD ES MASTER ILLUM. 4/9/2026 8:58 PM