

VERTICAL DATUM  
NAVD88  
HORIZONTAL DATUM  
NAD83 WASHINGTON STATE  
PLANES, SOUTH ZONE, US FOOT

**GRADING NOTES:**

- ① GRADE AND CONSTRUCT NEW 30' WIDE INVERTED CROWN ROAD SECTION PER DETAIL A-A ON SHEET P2.1
- ② GRADE NEW PAD WITH TRUCK LANE AND 30' WIDE INVERTED CROWN DRIVE LANE PER SECTION B-B ON SHEET P2.1.
- ③ GRADE AND PAVE NEW TRUCK TURN AROUND PAVED AREA SHALL BE SLOPED TO CATCH BASIN
- ④ NEW PARKING PAD SLOPED TO DRAIN TO CATCH BASIN PER PLAN.
- ⑤ GRADE AND CONSTRUCT NEW COMBINATION WETPOND/ DETENTION POND PER PLAN AND SECTION DETAIL D-D ON SHEET C2.2.
- ⑥ STORM DRAIN CONTROL STRUCTURE TO BE INSTALLED PER FINAL DESIGN.
- ⑦ TYPE 1 CATCH BASINS TO BE INSTALLED PER FINAL DESIGN.
- ⑧ STORMWATER PVC PIPE TO BE INSTALLED PER FINAL DESIGN.

**PAVING NOTE:**

ALL PAVING SHALL BE DONE PRIOR TO OCTOBER 1ST. PAVING AFTER OCTOBER 1ST WILL REQUIRE APPROVAL FROM THE OWNER AND PROJECT ENGINEER. SUB-GRADE THAT DOES NOT MEET COMPACTION OR IS SATURATED WILL REQUIRE THE CONTRACTOR TO PROVIDE A WRITTEN 2 YEAR WARRANTY FOR THE PAVING.

**ADA NOTE:**

ALL NEW SIDEWALKS SHALL NOT EXCEED 2% SIDE SLOPE AND ADA PARKING STALLS AND RAMP LANDINGS SHALL NOT EXCEED 2 PERCENT SLOPE IN ALL DIRECTIONS. ALL ADA ACCESSIBLE ROUTES IDENTIFIED ON THE PLANS SHALL NOT EXCEED 5% LONGITUDINAL GRADE. ALL ADA RAMPS SHALL NOT EXCEED 8% GRADE AND 2% CROSS SLOPE. CONTRACTOR IS RESPONSIBLE TO CHECK GRADES PRIOR TO CONCRETE AND PAVING WORK. ANY GRADES EXCEEDING THE ABOVE LIMITS WILL BE REQUIRED TO BE CORRECTED AT THE SOLE EXPENSE OF THE CONTRACTOR.

REVISION					
NO.	DATE	BY	CHECKED BY	DATE	SCALE
1		CA	CLA/ALE	6.6.23	1" = 30'
2		RWB	RWB		

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DRAWN BY: CLA/ALE  
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**SOUTHWEST WASHINGTON  
GRAIN PROJECT**

**PRELIMINARY GRADING AND  
DRAINAGE PLAN**

WA.  
CITY OF CHEHALIS.

**RB Engineering**  
DESIGN → PERMIT → MANAGE  
P.O. Box 923  
CHEHALIS, WA 98532  
OFF: (360) 746-8919  
EMAIL: [info@rbengineering.com](mailto:info@rbengineering.com)

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JOB NUMBER  
22130

DRAWING NAME  
22130\_P2.0\_PGDP

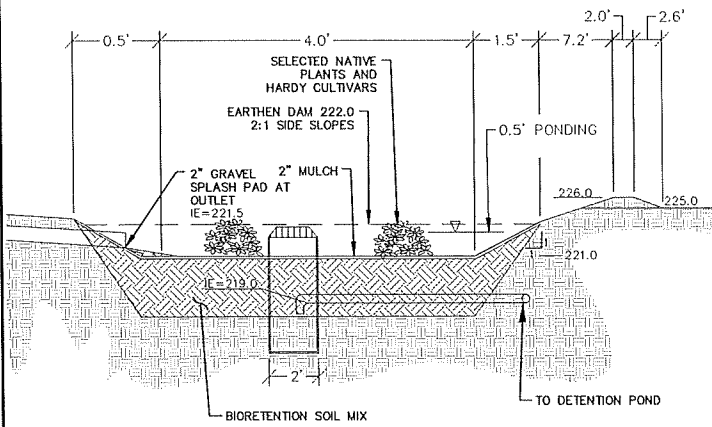
**P2.0**  
2 OF 5

**BIORETENTION SOIL MIX:**

CONTRACTOR TO PROVIDE SUBMITTAL OF BIO-RETENTION GRADATION SOIL MIX TO CITY AND ENGINEER PRIOR TO CONSTRUCTION.

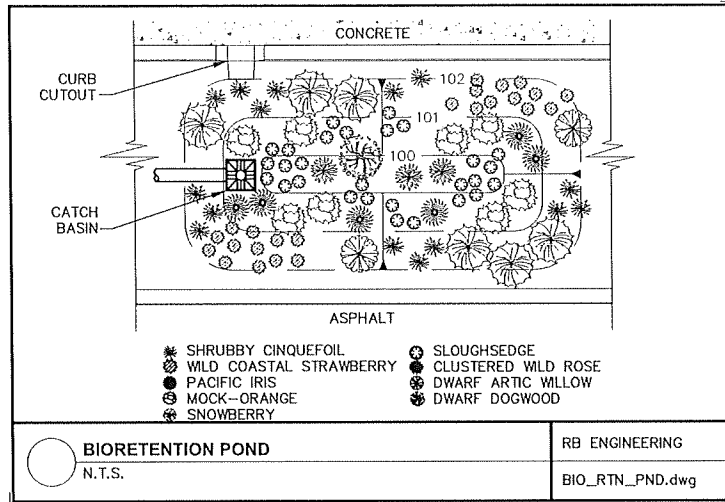
- SOIL MIX:**
- 60% TO 65% GRAVELLY SAND AND 35% TO 40% COMPOST (SEE SPECIFICATION BELOW).
  - GRAVELLY SAND GRADATION PER ASTM D 422 LESS THAN 5%
 

SIEVE SIZE	PERCENT PASSING
US NO. 0.375	100
US NO. 4	100
US NO. 10	75-90
US NO. 40	24-40
US NO. 100	4-10
US NO. 200	2-5
  - MAXIMUM CLAY CONTENT SHOULD BE LESS THAN 5%
  - SOIL MIXTURE SHOULD BE UNIFORM, FREE OF STONES, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN 2 INCHES
  - ON-SITE SOIL MIXING OR PLACEMENT NOT ALLOWED IF SOIL IS SATURATED OR SUBJECTED TO WATER WITHIN 48 HOURS
  - COVER AND STORE SOIL ACCORDINGLY TO PREVENT WETTING OR SATURATION
  - TEST SOIL FOR FERTILITY AND MICRONUTRIENTS AND, IF NECESSARY, AMEN MIXTURE TO CREATE OPTIMUM CONDITIONS FOR PLANT ESTABLISHMENT AND EARLY GROWTH AT RATES RECOMMENDED BY AN INDEPENDENT LABORATORY SOIL TEST.
  - ORGANIC CONTENT OF THE SOIL MIXTURE SHOULD BE 5% TO 8%
  - CATION EXCHANGE CAPACITY (C.E.C) MUST BE LESS THAN 5 MILLIEQUIVALENTS PER 100 GRAMS OF DRY SOIL.



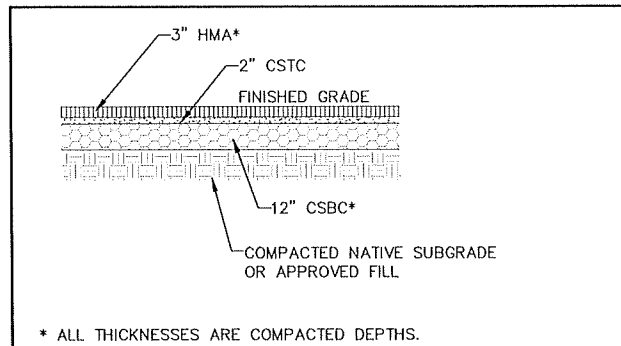
**1 BIORETENTION CELL**  
P2.0 N.T.S.

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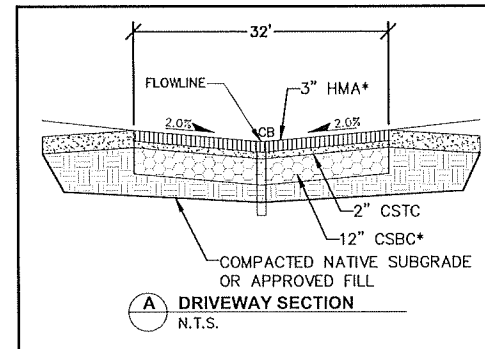
**BIORETENTION POND**  
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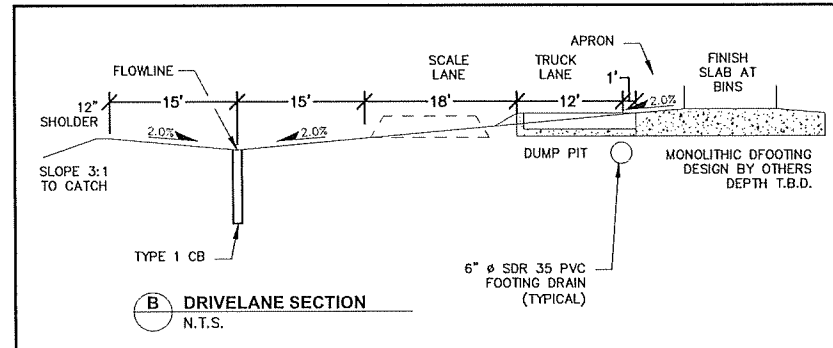


**TYPICAL STRUCTURAL PAVING SECTION**  
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**A DRIVEWAY SECTION**  
N.T.S.



**B DRIVELANE SECTION**  
N.T.S.

**STANDARD STORM DRAINAGE NOTES**

ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH CITY/COUNTY STANDARDS AND THE MOST CURRENT COPY OF THE STATE OF WASHINGTON STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION (WSDOT/APWA).

TEMPORARY EROSION/WATER POLLUTION MEASURES SHALL BE REQUIRED IN ACCORDANCE WITH SECTION 1-07.15 OF THE STANDARD SPECIFICATIONS AND THE DRAINAGE DESIGN AND EROSION CONTROL MANUAL ("DRAINAGE MANUAL").

PROPOSER SHALL COMPLY WITH ALL OTHER PERMITS AND OTHER REQUIREMENTS OF THE GOVERNING AUTHORITY OR AGENCY.

A PRECONSTRUCTION MEETING SHALL BE HELD PRIOR TO THE START OF CONSTRUCTION OR STAKING OF THE SITE.

HYDROSEED FILTER STRIP, INFILTRATION SWALE, AND ANY EXPOSED DISTURBED AREAS. HYDROSEED TO BE APPLIED IMMEDIATELY UPON COMPLETION OF GRADING.

STORM DRAIN PIPE SHALL MEET THE FOLLOWING REQUIREMENTS:

- PLAIN CONCRETE PIPE CONFORMING TO THE REQUIREMENTS OF AASHTO M86, CLASS 2.
- REINFORCED CONCRETE PIPE CONFORMING TO THE REQUIREMENTS OF AASHTO M 170.
- PVC PIPE CONFORMING TO ASTM D3034 SDR OR ASTM F 789 WITH JOINTS AND GASKETS CONFORMING TO ASTM D3212 AND ASTM F 477.
- DUCTILE IRON PIPE CONFORMING TO THE REQUIREMENTS OF AWWA C 151, THICKNESS CLASS AS SHOWN ON THE PLANS.
- POLYETHYLENE SMOOTH WALL PIPE PER ADVANCED DRAINAGE SYSTEMS (ADS) N-12 OR HANCOR HI-O CONSTRUCTED PER WSDOT/APWA STANDARD SPECIFICATIONS 7-04. (FOR PIPE SIZED UP THROUGH 24" DIA.)

SPECIAL STRUCTURES, OIL/WATER SEPARATORS, AND OUTLET CONTROLS SHALL BE INSTALLED PER PLANS AND MANUFACTURERS RECOMMENDATIONS.

PROVIDE TRAFFIC CONTROL PLAN(S) AS REQUIRED IN ACCORDANCE WITH MUTCD. CALL UNDERGROUND LOCATE LINE 1-800-424-5555 MINIMUM 48 HOURS PRIOR TO ANY EXCAVATION.

ALL SURVEYING AND STAKING SHALL BE PERFORMED BY AN ENGINEERING OR SURVEYING FIRM CAPABLE OF PERFORMING SUCH WORK. THE ENGINEER OR SURVEYOR DIRECTING SUCH WORK SHALL BE LICENSED BY THE STATE OF WASHINGTON.

THE MINIMUM STAKING OF STORM SEWER SYSTEMS SHALL BE AS FOLLOWS:

- STAKE LOCATION OF ALL CATCH BASIN/MANHOLES AND OTHER FIXTURES FOR GRADE AND ALIGNMENT.
- STAKE LOCATION, SIZE, AND DEPTH OF RETENTION/DETECTION FACILITY.
- STAKE FINISHED GRADE OF ALL STORMWATER FEATURES, INCLUDING BUT NOT LIMITED TO CATCH BASIN/MANHOLE RIM ELEVATIONS, OVERFLOW STRUCTURES, WEIRS, AND INVERT ELEVATIONS OF ALL PIPES IN CATCH BASINS, MANHOLES, AND THOSE PIPES THAT DAYLIGHT.

ALL DRIVEWAY CULVERTS SHALL BE OF SUFFICIENT LENGTH TO PROVIDE A MINIMUM 3:1 SLOPE FOR THE EDGE OF THE DRIVEWAY TO THE BOTTOM OF THE DITCH. CULVERTS SHALL HAVE BEVELED SECTIONS TO MATCH THE SIDE SLOPE. THE STORM DRAINAGE SYSTEM SHALL BE CONSTRUCTED ACCORDING TO APPROVED PLANS ON FILE WITH THE JURISDICTION. ANY MATERIAL DEVIATION FROM THE APPROVED PLANS WILL REQUIRE WRITTEN APPROVAL FROM THE JURISDICTION.

A COPY OF THE APPROVED STORMWATER PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.

ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED OR SIMILARLY STABILIZED TO THE SATISFACTION OF THE JURISDICTION. FOR SITES WHERE GRASS HAS BEEN PLANTED THROUGH HYDROSEEDING, THE PERFORMANCE BOND WILL NOT BE RELEASED UNTIL THE GRASS HAS BEEN THOROUGHLY ESTABLISHED, UNLESS OTHERWISE APPROVED BY THE JURISDICTION.

ALL EROSION CONTROL AND STORMWATER FACILITIES SHALL BE REGULARLY INSPECTED AND MAINTAINED BY THE CONTRACTOR DURING THE CONSTRUCTION PHASE OF THE DEVELOPMENT PROJECT.

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 CONTRACT.

ANY WORK WITHIN THE TRAVELED RIGHT-OF-WAY THAT MAY INTERRUPT NORMAL TRAFFIC FLOW SHALL REQUIRE AT LEAST ONE FLAGGER FOR EACH LANE OF TRAFFIC AFFECTED. ALL SECTIONS OF THE CURRENT W.S.D.O.T. STANDARD SPECIFICATIONS FOR TRAFFIC CONTROL SHALL APPLY.

IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN STREET USE AND OTHER RELATED OR REQUIRED PERMITS PRIOR TO ANY CONSTRUCTION ACTIVITY IN THE JURISDICTIONS RIGHT-OF-WAY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ALL REQUIRED PERMITS PRIOR TO ANY CONSTRUCTION.

NO FINAL CUT OR FILL SLOPE SHALL EXCEED TWO (2) HORIZONTAL AND ONE (1) VERTICAL WITHOUT STABILIZATION BY ROCKERY OR BY A STRUCTURAL RETAINING WALL.

THE CONTRACTOR SHALL VERIFY THE LOCATIONS, WIDTHS, THICKNESSES, AND ELEVATIONS OF ALL EXISTING PAVEMENTS AND STRUCTURES, INCLUDING UTILITIES AND OTHER FRONTAGE IMPROVEMENTS, THAT ARE TO INTERFACE WITH WORK, PROVIDE ALL TRIMMING, CUTTING, SAW CUTTING, GRADING, LEVELING, SLOPING, COATING, AND OTHER WORK, INCLUDING MATERIALS AS NECESSARY TO CAUSE THE INTERFACE WITH EXISTING WORKS TO BE PROPER, WITHOUT CONFLICT, ACCEPTABLE TO THE ENGINEER AND THE JURISDICTION, COMPLETE IN PLACE, AND READY TO USE.

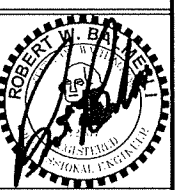
COMPACTION OF ALL FILL AREAS SHALL BE PER CURRENT APWA SPECIFICATIONS. FILL SHALL BE PROVIDED IN 6" MAXIMUM LIFTS AND SHALL BE COMPACTED TO 95 PERCENT OF ITS MAXIMUM RELATIVE DENSITY.

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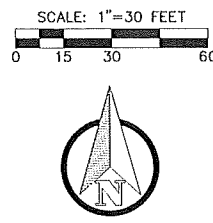
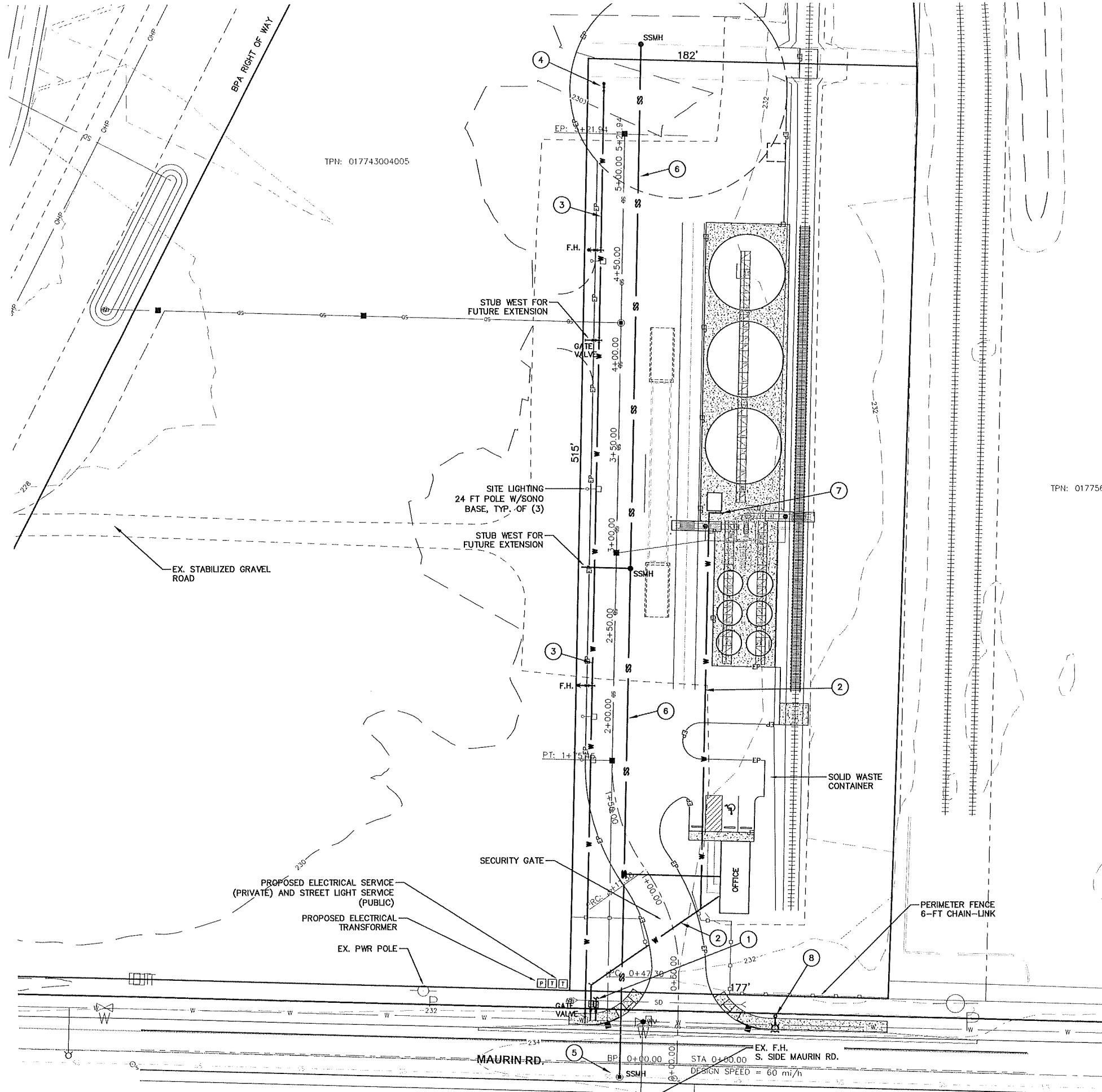
SOUTHWEST WASHINGTON  
GRAIN PROJECT  
CITY OF CHEHALIS, WA.

PRELIMINARY GRADING AND DRAINAGE DETAILS



**RB Engineering**  
DESIGN → PERMIT → MANAGE  
P.O. Box 923  
CHEHALIS, WA 98522  
OFF: (360) 740-8919  
FAX: (360) 740-8919  
EMAIL: info@rbengineering.com

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JOB NUMBER: 22130  
DRAWING NAME: 22130\_P2.0\_PGDT  
**P2.1**  
3 OF 5



**UTILITY NOTES:**

- ① PROPOSED DOMESTIC WATER & IRRIGATION SERVICE CONNECTIONS TO EXISTING WATER MAIN IN MAURIN RD.
- ② PROPOSED 1 1/2" PVC DOMESTIC WATER SERVICE LINE TO OFFICE & TERMINAL FAUCETS
- ③ PROPOSED 8" FIRE LINE AND HYDRANTS PER PLAN.
- ④ PROPOSED WATER BLOW OFF
- ⑤ PROPOSED CONNECTION TO EXISTING SANITARY SEWER FORCEMAIN. CUT AND RESTORE STREET SECTION.
- ⑥ PROPOSED 8" SDR35 SANITARY SEWER GRAVITY MAIN PER PLAN.
- ⑦ PROPOSED FROST-FREE HYDRANT FOR FACILITY CLEANUP
- ⑧ PROPOSED STREET LIGHT PER CITY OF CHEHALIS STANDARDS FOR MAURIN ROAD SECTION.

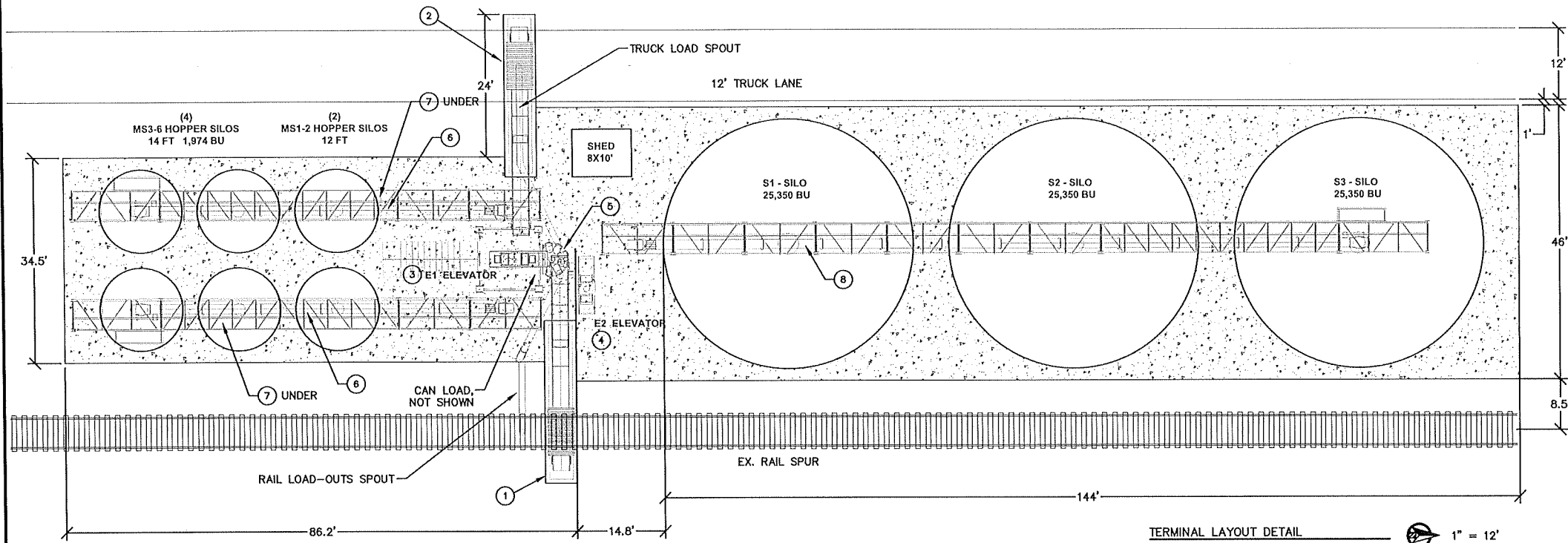
**UTILITY SEPARATION NOTE:**

MAINTAIN 18" MINIMUM VERTICAL SEPARATION BETWEEN WATER LINES AND SANITARY SEWER LINES.

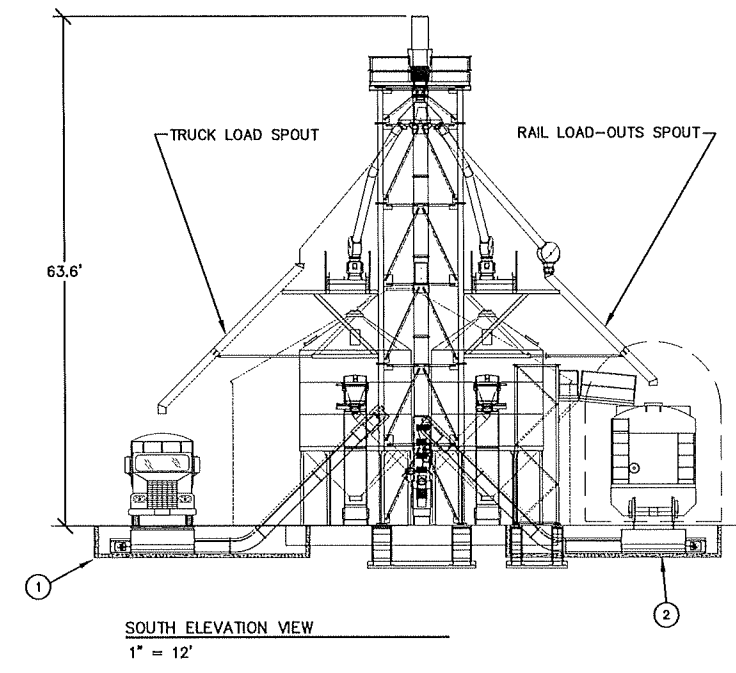
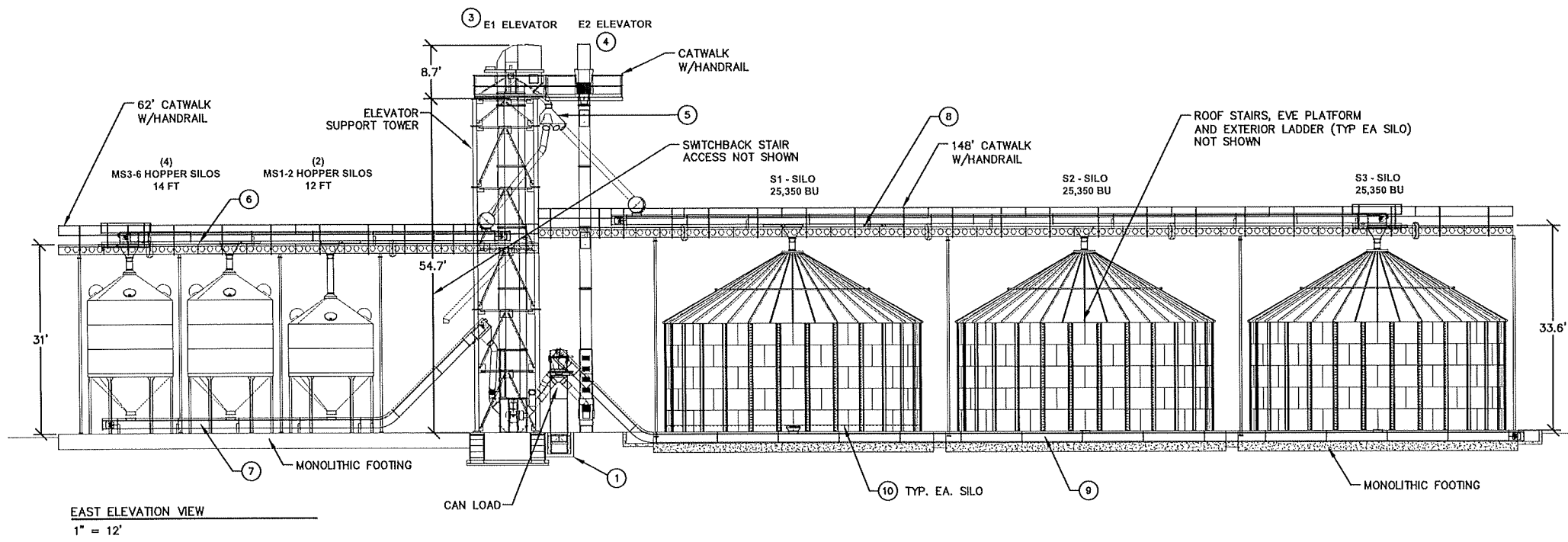
WHERE VERTICAL SEPARATION IS LESS THAN 18" BETWEEN WATER LINES AND SEWER LINES, SLEEVE WATER LINES WITH A 20' LENGTH OF DUCTILE IRON PIPE WITH ENDS EQUAL DISTANCE FROM CROSSING.

PROVIDE SAND CUSHION BETWEEN PIPES THAT HAVE LESS THAN 8" OF SEPARATION.

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<b>SOUTHWEST WASHINGTON GRAIN PROJECT</b>					
<b>PRELIMINARY UTILITIES PLAN</b>					
<b>RB Engineering</b> DESIGN → PERMIT → MANAGE P.O. Box 923 CHEHALIS, WA 98522 OFF: (360) 740-8919 EMAIL: info@rbengineering.com					
JOB NUMBER: 22130 DRAWING NAME: 22130_P3_0_PUTP <b>P3.0</b> 4 OF 5					



- TERMINAL COMPONENTS**
- 1 RAIL RECEIVING PIT WITH AUGER AND INCLINED RAIL PIT CONVEYER
  - 2 TRUCK RECEIVING PIT AND INCLINED TRUCK PIT CONVEYOR
  - 3 E1- BUCKET ELEVATOR 1 WITH SUPPORT TOWER HT = 54'6"
  - 4 E2- BUCKET ELEVATOR 2 BRACED TO SUPPORT TOWER
  - 5 6 POSITION FLAT BACK DISTRIBUTOR
  - 6 TOP LOAD DRAG CONVEYORS (2) 7,500 BPH W/ELECTRIC RACK & PINION GATES
  - 7 DISCHARGE DRAG CONVEYORS (2) 7,500 BPH W/ELECTRIC ROLLER GATES
  - 8 TOP LOAD DRAG CONVEYOR 7,500 BPH W/ELECTRIC RACK & PINION GATES
  - 9 DISCHARGE DRAG CONVEYOR INSTALLED IN 9" DEEP FOUNDATION TRENCH
  - 10 FULL FLOOR DRYING SYSTEM WITH 24" TALL LEGS AND SILO SWEEP AUGERS TO MANUAL GATES



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SOUTHWEST WASHINGTON GRAIN PROJECT

PRELIMINARY TERMINAL FACILITY ELEVATIONS

CITY OF CHEHALIS, WA.

ROBERT W. BAKER ENGINEERS

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CHEHALIS, WA 98522

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EMAIL: info@robbae.com

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5 OF 5